NorthMet Mining Project and Land Exchange

Final
Environmental Impact Statement

November 2015

Prepared by

Minnesota Department of Natural Resources
United States Army Corps of Engineers
United States Forest Service

US Army Corps of Engineers
St. Paul District

COVER SHEET

Final Environmental Impact Statement
Polymet Mining, Inc. – NorthMet Mining Project and Land Exchange

The Minnesota Department of Natural Resources, the U.S. Army Corps of Engineers and the U.S. Forest Service have jointly prepared the Final Environmental Impact Statement (FEIS) to evaluate the proposed project in accordance with the National Environmental Policy Act 42 USC 4321-4347, and the Minnesota Environmental Policy Act, *Minnesota Statutes*, section 116D.

Abstract:

This FEIS documents the review and analysis of potential impacts associated with the proposed NorthMet Mining Project and Land Exchange located in northeastern Minnesota. PolyMet Mining, Inc. (PolyMet) is proposing to develop the NorthMet copper-nickel-platinum group elements (PGE) mine and associated processing facilities. Mining would involve open-pit surface mining methods for approximately 20 years, resulting in both ore and waste rock. Waste rock with a low potential for chemical reaction would be placed in a permanent stockpile (capped at closure), while waste rock with a higher potential to react would be stored temporarily in lined stockpiles and ultimately disposed subaqueously in the mined pits. Ore would be transported by an upgraded existing railway to a refurbished and modified former taconite facility for processing. Processing (tailings) waste would be placed in an upgraded existing Tailings Basin, and hydrometallurgical residue waste would be placed in a new, double-lined Hydrometallurgical Residue Facility, located on the southern edge of the Tailings Basin. Water that has contacted surfaces disturbed by mining operations (including the stockpiles), as well as seepage from the Tailings Basin, would be captured in containment systems and treated at wastewater treatment facilities located at the Mine and Plant sites. At closure, unnecessary infrastructure would be removed and the sites reclaimed. Monitoring and water treatment would continue until it is no longer required in order to meet environmental standards and permit conditions. The NorthMet Deposit containing copper-nickel-PGE minerals is located on National Forest System (NFS) lands within the Superior National Forest (SNF). The mineral rights associated with these lands were reserved by the original private owner when the United States purchased the land for National Forest purposes under the authority of the Weeks Act. Those mineral interests remain privately owned and are now controlled by PolyMet. The USFS has taken the position that the mineral rights that were reserved do not include the right to surface mine as proposed by PolyMet. Consequently, PolyMet proposed a land exchange that would involve the Forest Service conveying the land at the NorthMet Mine Site to PolyMet in exchange for land of equal value that would become a part of the SNF. Such an exchange would give PolyMet the property rights it needs to pursue its surface mining proposal, while at the same time allowing the Forest Service to be compensated by acquiring other land, of equal value, that could be managed as a part of the SNF. Without this exchange, under the described conditions, the surface mining operation desired by PolyMet would not take place. For this reason, the Land Exchange is a connected action to the NorthMet Mining Project.

Public comment submittal:
Public comments submitted on the FEIS will become part of the official record and as such, may be made available for public examination. Comments and submittals will not be edited to remove any identifying or contact information; therefore, the Co-lead Agencies caution against using any information that should not be publicly disclosed. Both mailed and emailed submittals will be accepted.

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LIST OF ACRONYMS/ABBREVIATIONS

(%EPT) Percent ephemeroptera, plecoptera, or tricoptera
(°F) degrees Fahrenheit
(µg/L) microgram(s) per liter
(µg/m^3) microgram(s) per cubic meter
(µm) micrometer(s)
(AADT) annual average daily traffic
(ACHP) Advisory Council on Historic Preservation
(ACI) Aquatic Connectivity Index
(ACM) Asbestos-Containing Material
(AERA) Air Emissions Risk Analysis
(AERMOD) American Meteorological Society/USEPA Regulatory Model
(amsl) above mean sea level
(ANFO) Ammonium Nitrate Fuel Oil Mixture
(AO) administrative order
(AOC) Area of Concern
(APE) Area of Potential Effect
(AQRV) Air Quality Related Value
(AST) Aboveground Storage Tank
(ASTM) American Society for Testing and Materials
(Au/PGE) gold and platinum group elements
(AWMP) Adaptive Water Management Plan
(BA) Biological Assessment
(BACT) Best Available Control Technology
(BART) Best Available Retrofit Technology
(Barr) Barr Engineering
(BBER) Bureau of Business and Economic Research
(BBLV) Beaver Bay to Lake Vermilion
(BE) Biological Evaluation
(BO) Biological Opinion
(bgs) below ground surface
(Bois Forte) Bois Forte Band of Chippewa
(BP) before present
(BWCAW) Boundary Waters Canoe Area Wilderness
(CAA) Clean Air Act
(CAIR) Clean Air Interstate Rule
(CALPUFF) California Puff Model
(CCP) Coordination and Communication Plan
(CDSM) cement deep soil mixing
(CEAA) Cumulative Effects Assessment Area
(CEC) Continuation of Existing Conditions
(CEQ) United States Council on Environmental Quality
(CERCLA) Comprehensive Environmental Response, Compensation, and Liability Act
(CFE) chemical for evaluation
(CFR) Code of Federal Regulations
(cfs) cubic feet per second
(CH_4) methane
(cm/sec) centimeter(s) per second
(CO) carbon monoxide
(CO_2) carbon dioxide
(CO_{2e}) carbon dioxide equivalents
(CPS) Central Pumping Station
(CPT) Cone Penetrometer Testing
(CR) County Road
(cRNA) candidate Research Natural Area
(CSAPR) Cross State Air Pollution Rule
(CWA) Clean Water Act
(DA) Department of the Army
(DAT) Deposition Analysis Threshold
(dB) decibel(s)
(dBA) A-weighted decibel(s)
(dbh) diameter at breast height
(dBL) linear-weighted decibel(s)
(DDT) dichlorodiphenyltrichloroethane
(DEIS) Draft Environmental Impact Statement - October 2009
(DM&IR) Duluth, Missabe, and Iron Range
(DOT) Department of Transportation
(DRI) direct reduced iron
(dv) deciview
(e.g.) for example
(EAW) Environmental Assessment Worksheet
(ECS) Ecological Classification System
(EDR) Environmental Data Resources, Inc.
(EIS) Environmental Impact Statement
(EJ) Environmental Justice
(ELT) Ecological Land Type
(EO) Executive Order

(EPCRA) Emergency Planning and Community Right-to-Know Act

(EQB) Environmental Quality Board

(ERC) Emergency Response Commission

(ERM) Environmental Resources Management

(ESA) Endangered Species Act

(ESSA) Effective Stress Stability Analysis

(ETSC) Endangered, Threatened, and Special Concern

(FEIS) Final Environmental Impact Statement

(FEMA) Federal Emergency Management Agency

(FIP) Federal Implementation Plan

(FIRM) Flood Insurance Rate Map

(FLAG) Federal Land Managers' Air Quality Related Values Work Group

(FLM) Federal Land Manager

(FLPMA) Federal Land Policy and Management Act

(Fond du Lac) Fond du Lac Band of Lake Superior Chippewa

(Forest Plan) 2004 Superior National Forest Land and Resource Management Plan

(FR) Federal Register

(FSH) Forest Service Handbook

(ft) foot or feet

(ft/day) feet per day

(ft/ft) feet per foot

(ft/sec) feet per second

(ft^2) square feet

(FTE) Full-time Equivalent

(GAP) Gap Analysis Program

(GHG) greenhouse gas

(GIS) Geographic Information System

(GLI) Great Lakes Initiative

(GLIFWC) Great Lakes Indian Fish & Wildlife Commission

(GLO) General Land Office

($g/m^2/yr$) grams per square meter per year

(gpm) gallon(s) per minute

(GPS) Global Positioning System

(gpy) gallon(s) per year

(gr/dscf) grains per dry standard cubic foot

(Grand Portage) Grand Portage Band of Lake Superior Chippewa

(H_2S) hydrogen sulfide

(HAP) Hazardous Air Pollutant

(HBI) Hilsenhoff Biotic Index

(HEPA) High-efficiency Particulate Air

(HGB) high groundwater baseflow

(Hg(p)) particle-bound mercury

(Hg) mercury

(Hg^{+2}) oxidized mercury

(HI) Hazard Index

(hp) horsepower

(HRL) Health Risk Limit

(HUC) Hydrologic Unit Code

(Hz) Hertz

(i.e.) that is

(IBI) Index of Biological Integrity

(IMPROVE) Interagency Monitoring of Protected Visual Environments

(in/s) inch(es) per second

(IPCC) Intergovernmental Panel on Climate Change

(ISO) International Standards Organization

(kg) kilogram(s)

(kg/ha/yr) kilogram(s) per hectare per year

(kg/m^2) kilogram(s) per square meter

(km) kilometer

(ksf) kip(s) per square foot

(L10) noise level exceeding standard for 10% of the monitored time

(L50) noise level exceeding standard for 50% of the monitored time

(LAU) Lynx Analysis Unit

(lb/MMBTU) pound(s) per million British thermal units

(lbs/yr) pounds per year

(LDPE) low-density polyethylene

(LEDPA) least environmentally damaging practicable alternative

(Leq) equivalent noise levels

(LLDPE) linear low-density polyethylene

(LQ) location quotient

(LTA) Land Type Association

(LTVSMC) LTV Steel Mining Company

(MAAQS) Minnesota Ambient Air Quality Standards

(MACT) Maximum Achievable Control Technology

(MBS) Minnesota Biological Survey

(MCL) Maximum Contaminant Level

(MCWCS) Minnesota Comprehensive Wildlife Conservation Strategy
(MDH) Minnesota Department of Health
(MDNR) Minnesota Department of Natural Resources
(MDO) major difference of opinion
(MeHg) methylmercury
(MEPA) Minnesota Environmental Policy Act
(MEQB) Minnesota Environmental Quality Board
(mg/kg) milligram(s) per kilogram
(mg/L) milligram(s) per liter
(MGD) million gallons per day
(MIBC/DF250) methyl isobutyl carbinol and polyglycol ether
(MIH) Management Indicator Habitat
(mm) millimeter(s)
(mm/s) millimeter(s) per second
(MMBTU) 1 million British thermal units
(MMREM) MPCA Mercury Risk Estimation Method
(MDOT) Minnesota Department of Transportation
(MN-fiber) Minnesota regulated fiber
(MnRAM) Minnesota Routine Assessment Method
(MOA) Memorandum of Agreement
(MODFLOW) groundwater model
(MOU) Memorandum of Understanding
(MPCA) Minnesota Pollution Control Agency
(m/s) meter(s) per second
(MSDS) Material Safety Data Sheet
(MSHA) Mine Safety and Health Act
(mtpy) metric ton(s) per year
(NA) not applicable
(NAAQS) National Ambient Air Quality Standards
(NAC) Noise Area Classification
(NAICS) North American Industrial Classification System
(NEPA) National Environmental Policy Act
(NESHAP) National Emission Standards for Hazardous Air Pollutants
(NFS) National Forest System
(ng/L) nanogram(s) per liter
(NHFEU) National Hierarchy Framework of Ecological Units
(NHIS) Natural Heritage Information System
(NHPA) National Historic Preservation Act
(NIOSH) National Institute for Occupational Safety and Health
(NO_2) nitrogen dioxide
(NOI) Notice of Intent
(NO_x) nitrogen oxides
(NPDES) National Pollutant Discharge Elimination System
(NRCS) Natural Resources Conservation Service
(NRHP) National Register of Historic Places
(NSPS) New Source Performance Standards
(NTS) Northeast Technical Services, Inc.
(NWI) National Wetlands Inventory
(O_3) ozone
(OSHA) Occupational Safety and Health Administration
(PAX) potassium amyl xanthate
(Pb) lead
(PCB) polychlorinated biphenyl
(PGE) platinum group element
(Phase I ESA) Phase I Environmental Site Assessment
(PM) particulate matter
(PM_{10}) particulate matter up to 10 micrometers in diameter
($PM_{2.5}$) particulate matter up to 2.5 micrometers in diameter
(PMC) coarse particulate matter
(pMCL) Primary Maximum Contaminant Level
(PMF) fine particulate matter
(PMP) probable maximum precipitation
(PolyMet) PolyMet Mining Corporation
(POTW) Publically Owned Treatment Works
(ppm) part(s) per million
(PPV) peak particle velocity
(PRB) permeable reactive barrier
(PSB) permeable sorptive barrier
(PSD) Prevention of Significant Deterioration
(PSDEIS) Preliminary Supplemental Draft Environmental Impact Statement
(psig) pounds per square inch gauge
(PUC) Public Utilities Commission
(QHEI) Qualitative Habitat Evaluation Index
(RCI) Riparian Connectivity Index
(REL) reference exposure level
(RFSS) Regional Forester Sensitive Species

(RGU) Responsible Governmental Unit

(RME-OSW) reasonable maximum exposed off-site worker

(RNA) Research Natural Area

(RO) reverse osmosis

(ROD) Record of Decision

(ROS) Recreation Opportunity Spectrum

(ROW) right-of-way

(RQD) rock quality designation

(SAG) semi-autogenous grinding

(SAM) sulfuric acid mist

(SAP) Sampling and Analysis Plan

(SDD) Scoping Decision Document

(SDEIS) Supplemental Draft Environmental Impact Statement

(SDS) State Disposal System

(SER) Significant Emission Rate

(SGCN) Species of Greatest Conservation Need

(SHPO) State Historic Preservation Office

(SIC) Standard Industrial Classification

(SIL) Significant Impact Limit

(SIO) Scenic Integrity Objective

(SIP) State Implementation Plan

(sMCL) Secondary Maximum Contaminant Level

(SNA) Scientific and Natural Area

(SO_2) sulfur dioxide

(SO_4) sulfate

(SPCC) Spill Prevention, Control, and Countermeasure

(stpd) standard ton(s) per day

(stpy) standard ton(s) per year

(S) sulfur

(s.u.) Standard Unit

(SVOC) Semi-volatile Organic Compound

(SWPPP) Storm Water Pollution Prevention Plan

(TBD) to be determined

(TCP) Traditional Cultural Property

(TDS) Total Dissolved Solids

(106 Group) The 106 Group Ltd.

(the Bands) Bois Forte Band of Chippewa, Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa

(THPO) Tribal Historic Preservation Office

(TMDL) Total Maximum Daily Load

(tpd) ton(s) per day

(TPPP) Toxic Pollution Prevention Plan

(tpy) ton(s) per year

(Tract 1) Hay Lake Lands

(Tract 2) Lake County Lands

(Tract 3) Wolf Lands

(Tract 4) Hunting Club Lands

(Tract 5) McFarland Lake Lands

(TRI) Toxics Release Inventory

(TSI) Trophic Status Index

(TSP) total suspended particulates

(TWP) Treated Water Pipeline

(U.S. Steel) United States Steel Corporation

(UBA) Unique Biological Area

(UMD) University of Minnesota Duluth

(USACE) United States Army Corps of Engineers

(USC) United States Code

(USDA) United States Department of Agriculture

(USEPA) United States Environmental Protection Agency

(USFS) United States Forest Service

(USFWS) United States Fish and Wildlife Service

(USGS) United States Geological Survey

(USSA) Undrained Strength Stability Analysis

(USSR) Undrained Shear Strength Ratio

(UST) Underground Storage Tank

(VIC) Voluntary Investigation and Cleanup

(VOC) Volatile Organic Compound

(VSEP) Vibratory Shear Enhanced Process

(WCA) Wetland Conservation Act

(WWTF) Wastewater Treatment Facility

(WWTP) Wastewater Treatment Plant

(WQBEL) water quality based effluent limit

(WY) water year

(XP-SWMM) surface water model

(ZDDP) Zero Discharge Demonstration Program

GLOSSARY

1854 Treaty Authority: An inter-tribal natural resource management agency that manages the off-reservation hunting, fishing, and gathering rights of the Grand Portage and Bois Forte Bands of the Lake Superior Chippewa in the territory ceded under the Treaty of 1854.

1854 Treaty of La Pointe: In 1854, the Chippewa of Lake Superior entered into a treaty with the United States whereby the Chippewa ceded to the United States ownership of their lands in northeastern Minnesota. These lands are generally known as the "1854 ceded territory." Article 11 of the 1854 Treaty provides, *"...And such of them as reside in the territory hereby ceded, shall have the right to hunt and fish therein, until otherwise ordered by the President."* The Chippewa of Lake Superior who reside in the ceded territory are the Fond du Lac, Grand Portage, and Bois Forte Bands.

1854 Treaty Resources: Culturally important natural resources within the 1854 Ceded Territory that the Bands retain the usufructuary right to hunt, fish, or gather.

Acid rock drainage: Produced by the oxidation of sulfide minerals, chiefly iron pyrite disulfide (FeS_2). This is a natural chemical reaction which can proceed when minerals are exposed to air and water. Acidic drainage is found around the world, as a result of both naturally occurring processes and activities associated with land disturbances, such as highway construction and mining where acid-forming minerals are exposed to air. These acidic conditions can cause metals in geologic materials to dissolve, which can lead to impairment of water quality when acidic and metal-laden discharges enter waters used by terrestrial and aquatic organisms.

Ad valorem tax: A tax based on the value to real estate or personal property. Municipal ad valorem taxes are also known as "property taxes."

Adverse effect (for cultural resources): A significant alteration to the qualifying characteristics of a historic property included in or eligible for inclusion in the National Register.

Adverse effect: A harmful or undesired effect from the proposed project on the environment.

AERMOD air dispersion model: The United States Environmental Protection Agency (USEPA)-approved model designed to predict short-range (up to 50 kilometers) dispersion of air pollutant emissions from stationary industrial sources.

Air dispersion model: A computer program that incorporates a series of mathematical equations used to predict downwind concentrations in the ambient air resulting from emissions of a pollutant. Inputs to a dispersion model include the emission rate; characteristics of the emission release such as stack height, exhaust temperature, and flow rate; and atmospheric dispersion parameters such as wind speed and direction, air temperature, atmospheric stability, and height of the mixed layer.

Airblast overpressure: A transient air pressure, such as the shock wave from an explosion, that is greater than the surrounding atmospheric pressure.

Ambient air quality: The quality of the portion of the atmosphere, external to buildings, to which the public has general access.

Ammonium nitrate fuel oil (ANFO): Primary blasting agent used in open-pit mining; a mixture of solid ammonium nitrate and liquid fuel oil.

Amphibole: A class of silicate minerals containing iron and magnesium.

Anthropogenic: Relating to or resulting from the influence of human beings on nature.

Aquatic biota: Collective term describing the organisms living in or depending on the aquatic environment.

Aquifer: A subsurface saturated rock unit or formation of sufficient permeability to transmit groundwater and yield usable quantities of water to wells and springs.

Aquifer recharge: Meteoric precipitation (rainfall and snowmelt) that reaches groundwater in surficial deposits or bedrock (if surficial deposits are not present). Aquifer recharge is expected to be less than the amount of meteoric water that infiltrates to the root zone or enters wetland systems.

Archaeological site: The physical remains of any area of human activity, generally greater than 50 years of age, for which a boundary can be established. Examples of such resources could include domestic/habitation sites, industrial sites, earthworks, mounds, quarries, canals, roads, etc. Under the general definition, a broad range of site types would qualify as archaeological sites without the identification of any artifacts.

Archaic period: A cultural period circa 9,000 to 3,000 years ago, or 7,000 to 1,000 B.C.; its characteristic features included semi-permanent seasonal camps, atlatls and bannerstones, deer hunting, some copper tools, and the first long-distance trade.

Area of Potential Effect (APE): The geographic region in which a historic or cultural property may be impacted as a result of the construction and operation of the NorthMet Project Proposed Action or alternatives.

Attainment: Air quality in the locality that meets the established standards.

Augmentation: The act of adding treated water to replace affected surface water flows.

Autoclave: A mineral processing pressure vessel for conducting chemical reactions such as sulfide mineral oxidation and leaching of metals.

Batholith: A large emplacement of igneous intrusive rock that forms from cooled magma deep in the earth's crust.

Bedrock isopach map: A map of the bedrock thickness within a tabular unit or stratum, usually illustrated with contour lines.

Bedrock outcrop: A visible exposure of bedrock on the surface of the earth.

Beneficiation: Crushing and separating ore into valuable substances or waste.

Bentonite: An absorptive and colloidal clay used especially as a sealing agent or suspending agent.

Best Available Control Technology (BACT): An emission limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under the Clean Air Act that would be emitted from any proposed major stationary source or major modification, taking into account energy, environmental, and economic impacts and other costs.

Best Management Practice (BMP): The schedule of activities, prohibition of practices, maintenance procedures, and other management practices to avoid or minimize pollution or habitat destruction to the environment. BMPs can also include treatment requirements, operating procedures and practices to control runoff, spillage, or leaks; sludge or waste disposal; or drainage from raw material storage.

Bioaccumulation: The accumulations of chemicals in the tissue of organisms through any route, including respiration, ingestion, or direct contact with contaminated water or sediments.

Bioassay: A type of scientific experiment that is typically conducted to measure the effects of a substance on a living organism and is essential in monitoring environmental pollutants.

Biodiversity: The degree of variation in lifeforms within a given species, ecosystem, or biome. It is a measure of the health of ecosystems.

Biotic community: A group of interdependent organisms inhabiting the same region and interacting with each other.

Biwabik Iron Formation: An approximately 1.9-billion-year-old sequence of iron-rich sedimentary rocks that was metamorphosed at its easternmost extent by approximately 1.1-billion-year-old intrusions of the Duluth Complex.

Brownfield site: Abandoned or underutilized industrial or commercial property available for reuse which may be contaminated by the presence or potential presence of a hazardous substance or pollutant.

Buffer zone: An area or region distinguished from adjacent parts by a distinctive feature or characteristic.

Calcareous fen: Rare and distinctive wetlands characterized by a substrate of non-acidic peat and dependent on a constant supply of cold, oxygen-poor groundwater rich in calcium and magnesium bicarbonates.

CALPUFF model: The USEPA-approved non steady-state puff dispersion model that simulates the effects of time- and space-varying meteorological conditions on pollution long-range transport, transformation, and removal. CALPUFF can be applied in complex terrain conditions.

Class I area: Under the Clean Air Act, a Class I area is one in which some criteria pollutants, visibility, and other air quality related values (AQRVs) are protected more stringently than under the national ambient air quality standards. Class I areas include national parks, wilderness areas, monuments, and other areas of special national and cultural significance.

Class II area: Under the Clean Air Act, Class II areas are all areas that have been demonstrated to be in attainment with the federal National Ambient Air Quality Standards that are not designated as Class I areas; modest increments of new pollution would be allowed.

Clean Air Act (CAA): The Clean Air Act of 1970 is a United States federal law intended to control air pollution and protect air quality. The act—which underwent major revisions in 1990 and 2003—deals with ambient air pollution (that which is present in the ambient air) as well as source-specific air pollution. The Clean Air Act sets standards for air quality that limit the amount of various pollutants to specified levels. The Clean Air Act also sets deadlines for governments and industries to meet the standards. The federal USEPA is ultimately responsible for establishing national standards and enforcing the Clean Air Act. State and local authorities that have approved plans to control air pollution are given local authority by the USEPA to administer these regulations.

Clean Air Interstate Rule (CAIR): The USEPA issued the CAIR in March 2005. This rule provides states with a solution to the problem of power plant pollution that drifts from one state to another. The rule uses a cap and trade system to reduce target pollutants—sulfur dioxide (SO_2) and nitrogen oxides (NOx)—by 70 percent.

Clean Water Act (CWA): A federal act that establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the Act was enacted in 1948 and was called the federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. "Clean Water Act" became the Act's common name with amendments in 1972. Under the Clean Water Act, the United States has implemented pollution control programs including industrial wastewater standards and water quality standards for all contaminants in surface waters. The Act has made it unlawful to discharge any pollutant from a point source into navigable waters, unless a permit is obtained.

CWA Section 404 Permit: Permit that authorizes the discharge of dredged or fill material into waters of the United States, including many wetlands. Responsibility for implementing Section 404 is shared by the United States Army Corps of Engineers (USACE) and USEPA.

Closure: The process of terminating and completing final steps in reclaiming any specific portion of a mining operation. Closure begins when, as prescribed in the Permit to Mine, there will be no renewed use or activity by the permittee.

Coarse tailings: 50% or more of waste byproducts of mineral beneficiating processes other than heap and dump leaching, is retained on a No. 200 sieve and consists of rock particles, which have usually undergone crushing and grinding, from which the profitable mineralization has been separated.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): Commonly known as Superfund, legislation enacted in 1980 which created a tax on the chemical and petroleum industries and provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.

Comprehensive Land Use Plan: A document adopted by local elected officials that establishes policies and guidance for land use, municipal growth, public services, and infrastructure. Comprehensive plans can provide the rationale and legislative basis for local zoning and subdivision ordinances.

Coniferous bog recharge: The amount of precipitation that maintains and refills coniferous bogs, which are perched wetlands with generally no groundwater connection.

Connected action: According to Council on Environmental Quality (CEQ) regulations (40 CFR Part 1508.25), actions are connected if they automatically trigger other actions which may require environmental impact statements, cannot or will not proceed unless other actions are taken previously or simultaneously, and/or are interdependent parts of a larger action and depend on the larger action for their justification.

Consent decree: Also referred to as a consent order, this is a final, binding judicial decree or judgment memorializing a voluntary agreement between parties to a suit or dispute in return for withdrawal of a criminal charge or an end to a civil litigation. In a typical consent decree, the defendant has already ceased or agrees to cease the conduct alleged by the plaintiff to be illegal and consents to a court injunction barring the conduct in the future.

Consultation (for cultural resources): The process of seeking, discussing, and considering the views of other participants, and, where feasible, seeking agreement with them regarding matters arising in the Section 106 process. The Secretary's "Standards and Guidelines for federal Agency Preservation Programs pursuant to the National Historic Preservation Act" provide further guidance on consultation.

Contact period: Relating to the period of initial interaction between an indigenous people with an outside culture. In the United States, the term refers to an era of initial interaction between Native Americans and Europeans.

Cooperating Agency: According to CEQ regulations (40 CFR Part 1508.5), "Cooperating Agency" means any federal agency other than a lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major federal action significantly affecting the quality of the human environment.

Council on Environmental Quality (CEQ): An agency within the Executive Office of the President that established the procedures to implement the National Environmental Policy Act of 1970. Regulations are found in 40 CFR 1500, et seq.

Criteria air pollutant: Seven common air pollutants for which the USEPA has set primary (may harm human health) or secondary (may affect the environment and/or cause property damage) national air quality standards. These pollutants are: particulate matter less than or equal to 10 microns in size, particulate matter less than or equal to 2.5 microns in size, sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, and lead.

Cubic feet per second: The rate of flow representing a volume of 1 cubic foot passing a given point in 1 second.

Culpability Analysis: The relative contribution of various contaminant sources to the overall contaminant load at a specific evaluation location.

Cultural resources: Archaeological, traditional, and built environment resources, including but not necessarily limited to buildings, structures, objects, districts, and sites.

Cumulative effect: The effects on the environment that would result from the incremental effect of the NorthMet Project Proposed Action when added to other past, present, and reasonably foreseeable future actions, regardless of who undertakes such actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

Cutoff trench: A trench which is below the foundation base line of a dam or other structure and is filled with an impervious material, such as clay or concrete.

Cuyuna Range: An iron range to the southwest of the Mesabi Range, largely between Brainerd and Aitkin within Crow Wing County, Minnesota.

Density factor: A pre-determined qualitative value which is then assigned to wild rice stands based on the density of wild rice present.

Detection limit: The lowest quantity of a material that can be detected from the absence of that material within a stated confidence.

Direct effect (for cultural resources): A physical alteration to the qualifying characteristics of a historic property included in or eligible for inclusion in the National Register.

Disseminated sulfide: Deposits of sulfide minerals which are distributed more or less uniformly within the surrounding waste rock.

Dissolved oxygen: The amount of gaseous oxygen dissolved into an aqueous solution, whether through diffusion from the air, aeration by agitation, or as a waste product of photosynthesis.

Drawdown: The lowering of the water level relative to a background condition.

Drift: Material such as sand, clay, gravel, and rocks transported and deposited by a glacier or glacial process.

Drilling log: A record of events or features of the formations penetrated or encountered during boring. Also known as a boring log.

Duluth Complex: A mafic intrusive igneous geological formation with quantities of copper, nickel, cobalt, platinum, palladium, and gold. The Duluth Complex lies at the eastern end of the Mesabi Iron Range in northeastern Minnesota.

Ecological land type: A hierarchical level of the National Hierarchical Framework of Ecological Units and Ecological Classification System that is determined based on differences in vegetation, soils, climate, geology, and/or hydrology.

Effect (for cultural resources): Alteration to the qualifying characteristics of a historic property included in or eligible for inclusion in the National Register.

Effluent: An outflow or discharge of a liquid.

Eligible (for cultural resources): Cultural properties formally determined as such in accordance with the regulations of the Secretary of the Interior and all other properties that meet the National Register criteria.

Emergency Planning and Community Right-to-Know Act (EPCRA): A federal act enacted in 1986 to help communities plan for emergencies involving hazardous substances. It establishes requirements for federal, state, and local governments; Indian tribes; and industry regarding emergency planning and "Community Right-to-Know" reporting on hazardous and toxic chemicals.

Endangered Species: The classification provided to an animal or plant in danger of extinction within the foreseeable future throughout all or a significant portion of its range as defined in the Endangered Species Act (ESA).

Endangered Species Act: A federal act enacted in 1973 to provide for the conservation of ecosystems upon which threatened and endangered species of fish, wildlife, and plants depend. The ESA authorizes the determination and listing of species as endangered and threatened, and prohibits unauthorized taking, possession, sale, and transport of endangered species. Section 7 of the ESA requires federal agencies to ensure that any action authorized, funded, or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitats.

Environmental Justice: The fair treatment and meaningful involvement of all people regardless of race, color, national origin, age, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people—including racial, ethnic, age or socioeconomic groups—should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. Executive Order 12898 directs federal agencies to make achieving environmental justice part of their missions by identifying and addressing disproportionately high and adverse effects of agency programs, policies, and activities on minority and low-income populations.

Ephemeral: Lasting for a short time or a short-lived organism. An ephemeral water body is a wetland, stream, or pond that exists briefly during and following a period of rainfall or snow melt.

Evapotranspiration: The amount of water removed from a land area by the combination of direct evaporation from the soil and plant transpiration.

Factor of Safety: Used to describe the ratio of resisting forces to driving forces along a potential failure surface, whereby a Factor of Safety of 1.0 represents equilibrium between the estimated resisting shear strength to the applied shearing load. Systems are often designed to a Factor of Safety above 1.0 to allow for unexpected loads, unexpected operating conditions, and variations in estimated material properties.

Fen: Peat-forming wetlands that receive nutrients from sources other than precipitation—usually from upslope sources through drainage from surrounding mineral soils and from groundwater movement. These systems are often covered by grasses, sedges, rushes, and wildflowers. Over time, peat may build up and separate the fen from its groundwater supply. When this happens, the fen receives fewer nutrients and may become a bog.

Final closure: The period of time when ore-extracting activities of a mine or ore-production activities of a processing facility cease to continue, and decommissioning and reclamation activities are being completed.

Fine tailings: More than 50% of waste byproducts of mineral beneficiating processes, other than heap and dump leaching, passes the No. 200 sieve and consists of rock particles, which have usually undergone crushing and grinding, from which the profitable mineralization has been separated.

Fish assemblage: The list of fish species that occupy a given area, which is used as a sensitive indicator of overall ecosystem health, habitat degradation, or environmental contamination.

Fish consumption advisory: Federal, state, or local government guideline restricting the amount of fish consumption when certain species of fish are unsafe to eat due to the presence of harmful chemicals in their tissues.

Floodplain: The lowland areas adjacent to lakes, wetlands, streams, and rivers that are prone to being inundated by water during flood conditions.

Flotation tailings: Materials left over after valuable minerals have been separated during a flotation process.

Footwall: The mass of rock underlying a mineral deposit or the bedrock located beneath a fault plane.

Forb: A flowering, herbaceous (non-woody) plant other than a grass species.

Fragmentation: A decrease in the area of contiguous habitat available to wildlife.

Fugitive dust: Particulate matter composed of soil that is not emitted from a stack, vent, or hood; can include emissions from haul roads, wind erosion or exposed surfaces, and other activities in which soil is removed and redistributed.

GAP land cover: A hierarchically organized vegetation cover map developed as part of the U.S. Geological Survey's Gap Analysis Program (GAP). Units of analysis are Minnesota Ecological Classification System subsections.

General Land Office (GLO): The GLO records managed by U.S. Bureau of Land Management are the repository for all Federal land title records issued between 1820 and the present.

Geographic Information System (GIS): A system designed to store, modify, analyze, or present various types of geographical spatial data.

Geosynthetic membrane cover system: A process designed to exclude certain waste rock materials from oxidation, and which would include the installation of limestone, overburden, a geomembrane material, cover soil, and a vegetative soil layer.

Geotechnical assessment: An assessment of the stability of a slope or ground surface under load; used to identify risks or potential hazards of structural failure.

Giants Range: The Giants Range batholith is a body of granite in northeastern Minnesota that lies between the Mesabi and Vermilion iron-mining ranges. It outcrops as a narrow belt that strikes east-northeast and occupies an area of about 1,000 square miles. The Giants Range goes from just north of Hibbing (the "Hill of Three Waters" is in the Hull-Rust Mine) to Babbitt and rises from 200 to 400 feet above the surrounding area.

Glacial deposit: A collection of various-sized rocks and debris that is deposited by a glacier as it advances or recedes across a landscape. There are many types of deposits, including till, drift, erratics, and moraines.

Glacial till: Direct glacial deposits of rocks, gravel, or boulders that are unsorted and unstratified.

GoldSim: A probabilistic simulation platform for visualizing and simulating many types of physical, financial, or organizational systems. Most GoldSim applications fall into one of three categories: environmental systems modeling, business and economic modeling, or engineered systems modeling.

Greenhouse gas: Gases that trap heat in the atmosphere. Some greenhouse gases, such as carbon dioxide, occur naturally and are emitted to the atmosphere through natural processes and human activities. The principal greenhouse gases that enter the atmosphere because of human activities are carbon dioxide, methane, nitrous oxide, and fluorinated gases.

Groundwater baseflow: Groundwater discharge from the surficial aquifer and bedrock unit into a perennial stream.

Groundwater Containment System: An active or passive measure (typically, either is engineered) put into place to prevent or significantly reduce the migration of contaminants or groundwater flow, in groundwater or in the groundwater aquifer.

Groundwater divide: The boundary between two adjacent groundwater basins represented by a high point in the water table.

Groundwater drawdown: The lowering of the groundwater level (water table) relative to a background condition in a specific aquifer.

Groundwater mound: The increase or rise in height of a water table due to concentrated recharge in a given area.

Groundwater plume: The downgradient extension or spread of contaminated groundwater within the pore spaces or fractures of soil or rock.

Groundwater: The water located beneath the ground surface in soil or rock pore spaces or fractures.

Hardness: A measure of the amount of minerals that are dissolved in a water source; a higher mineral content indicates harder water, while lower mineral content indicates softer water. See Total dissolved solids (TDS).

Hazardous air pollutant: Air pollutants that are not covered by ambient air quality standards, but may present a threat of adverse human health effects or adverse environmental effects, and are specifically listed on the federal list of 189 hazardous air pollutants in 40 CFR 61.01 or in section 112(b) of the CAA.

Hazardous material: Any item or agent (biological, chemical, physical) that has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors. The term includes hazardous substances, hazardous waste, marine pollutants, and elevated-temperature materials—materials designated as hazardous under the provisions of 49 CFR 172.101. Hazardous material categories include: explosives, gases, flammable liquids, flammable solids, spontaneous combustibles/dangerous when wet, oxidizers and organic peroxides, poisons and infectious substances, and corrosives.

Hazardous waste: Defined in the *Minnesota Statutes* as any refuse, sludge, or other waste material (or combinations of materials) in solid, semi-solid, liquid, or contained gaseous form which, because of its quantity, concentration, or chemical, physical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Hazardous Materials Response Team: Personnel specially trained to handle dangerous goods, which include materials that are radioactive, flammable, explosive, corrosive, oxidizing, asphyxiating, biohazardous, toxic, pathogenic, or allergenic.

Health Risk Limit (HRL): A concentration of a substance or chemical adopted by rule of the Commissioner of Health that is a potential drinking water contaminant because of a systemic or carcinogenic toxicological result from consumption (*Minnesota Statute* 103H.005).

Herbaceous: Plants with leaves and stems that die down at the end of each growing season, and have no woody or persistent stems above ground.

Herbivore: An organism that is anatomically and physiologically adapted to survive by consuming only plant-based foods.

Hilsenhoff Biotic Index: An index of organic pollution that utilizes macroinvertebrate tolerances of pollution to assess water quality in streams and rivers.

Historic property: Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

Humidity cell: Geochemical kinetic tests designed to mimic weathering at the laboratory or at bench scale (controlled setting) to obtain bulk reaction rates. The test determines the rate of acid generation and the variation over time in leachate water quality.

Hydraulic conductivity: A measure of the ease with which a medium transmits water, such as water moving through pore spaces or fractures in soil or rock.

Hydrograph: A graph showing the variation of discharge with respect to time, with discharge meaning the volume of water flowing past a specific point versus the time it takes for it to do so, generally cubic feet per second (cfs).

Hydrology: The science dealing with the origin, distribution, and circulation of waters of the earth such as rainfall, streamflow, infiltration, evaporation, and groundwater storage.

Hydrometallurgical residue: Waste residues in the form of sludges that contain concentrations of metals as well as sulfur-bearing minerals in crystalline form.

Hydrometallurgical: Pertaining to hydrometallurgy; involving the use of liquid reagents in obtaining metals from their ores.

Igneous rock: Rock formed from cooling and solidification of magma (molten rock).

Impaired water: As defined under Section 303(d) of the Clean Water Act, waters that are too polluted or degraded to meet the water quality standards set by states, territories, or authorized tribes.

IMPLAN: Economic modeling software that analyzes how local economies function and the economic consequences for a particular project in a geographic region.

In-advance mitigation: A form of mitigation that is designed, permitted, and constructed in advance of a permitted impact.

Indirect effect (for cultural resources): An alteration to the qualifying characteristics of a historic property included in or eligible for inclusion in the National Register that would not be considered a direct effect, which could include effects to a property's use, setting, or feeling, or introduction of incompatible visual, atmospheric, or audible elements.

Infiltration: The process of water entering the soil at the ground surface and the ensuing movement downward. Infiltration becomes percolation when water has moved below the depth at which it can return to the atmosphere by evaporation or evapotranspiration.

In-kind mitigation: The replacement of the impacted aquatic site with one of the same hydrologic regime and plant community types (same species composition).

In-place mitigation: The replacement of the impacted aquatic site would take place in the same 8-digit Hydrologic Unit Code (HUC) watershed as the proposed impacted resource. The USACE St. Paul District Policy uses the term "in-place" to include on site, which is defined as an area located on the same parcel of land as the impact site, or on a parcel of land contiguous to the impact site.

In situ: This refers to actions happening "in place" or "in position" where they would naturally occur.

Integrity (for cultural resources): The ability of a property to convey its significance based on its location, design, setting, materials, workmanship, feeling, and association.

Invasive species: Organisms that cause, or are likely to cause, harm to the economy, environment, or human health due to their tendency to out-compete other species.

Laurentian Divide: A geological formation that runs along the crest of low, rocky hills and divides the Red River and Rainy River basins from the Minnesota River and Lake Superior basins. The Laurentian Divide is part of the Northern Divide, a continental divide that separates drainages to the Hudson Bay and Arctic Ocean from all other drainages in North America. Streams on the north slope of the divide flow through Canada to Hudson Bay. On the south side of the divide, streams flow south to either Lake Superior and the Atlantic Ocean, or the Mississippi River and the Gulf of Mexico.

Laydown area: Material and equipment storage area during the construction phase of a project.

L_{dn}: The day-night average sound level.

Leachate: Solution of product obtained by leaching, in which a substance is dissolved by the action of a percolating liquid.

Legacy contamination: Historic or existing pollution.

Location quotient: The ratio between the local economy and the economy of a reference unit.

Logging slash: The residue (e.g., treetops and branches) left on the ground after logging.

Long-term closure: An assessment of the sustainability of the site "post-closure" and defining the need for long-term monitoring and maintenance required by the site (i.e., the "burden" placed on succeeding generations).

Low solubility: Not easily dissolved in water.

Lynx analysis unit: Landscape-scale analysis areas used for lynx management.

Macroinvertebrate: An invertebrate (i.e., animal without vertebrae or backbone) that is large enough to be seen without the use of a microscope. Freshwater benthic macroinvertebrates comprise the following three animal phyla: Athropoda (crustaceans, insects, spiders), Annelida (segmented worms), and Mollusca (mollusks).

Management Area: The framework that defines intended land and resource uses on national forest lands, including timber harvesting regimes, Recreational Opportunity Spectrum designations, and other similar characteristics.

Management Indicator Habitat (MIH): Categories of forest types, including dominant species, stand age class, and stand condition.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water under the Safe Drinking Water Act. MCLs are enforceable standards.

Maximum Contaminant Level Goals (MCLGs): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.

Mercury: A highly toxic element that is found both naturally and as an introduced contaminant in the environment. Although concentrations in water are very low, mercury accumulates through the aquatic food chain, resulting in high concentrations in fish that can threaten the health of people and wildlife.

Mesabi Iron Range: A vast deposit of iron ore and the largest of four major iron ranges in the region collectively known as the Iron Range of Minnesota, Discovered in 1866, it is the chief deposit of iron ore in the United States. The Mesabi Iron Range is a belt of iron ore 110 miles long, averaging 1 to 3 miles wide, and reaching a thickness as great as 500 feet. It is located between Grand Rapids and Babbitt, Minnesota. The Mesabi Range was known to the local Ojibwe as *Mesabe Widjiu* which means "Giant's Mountain" or "Big-Man's Mountain."

Mesic prairie: A plant community dominated by native grasses, with soil moisture content that is between wet and dry.

Mesotrophic: Refers to a body of water having a moderate amount of dissolved nutrients.

Metamorphic rock: Rock that has been changed from an original form to a new form due to heat and pressure.

Meteoric water: The water derived from precipitation (snow and rain). This includes water from lakes, rivers, and icemelts, which all originate from precipitation indirectly.

Methylmercury (MeHg): A form of organic mercury which can accumulate up the food chain in aquatic systems and lead to high concentrations in predatory fish, which, when consumed by humans, can result in an increased risk of adverse effects in highly exposed or sensitive populations.

Mine pit dewatering: Removal of water from the mine pit(s).

Mineland reclamation: To reclaim, restore, enhance, or develop areas that have been affected by mining.

Mineral interest: The ownership rights to exploit, mine, and/or produce any or all of the minerals lying below the surface of a property.

Minerotrophic: Soils and vegetation whose water supply comes mainly from streams or springs, resulting in high nutrient levels and reduced acidity.

Minnesota Ambient Air Quality Standards (MAAQS): Air quality standards established under authority of *Minnesota Rules*, Part 7009 that apply for outdoor air to protect human health and public welfare.

Mitigation measure: Actions to reduce, avoid, or offset the potential adverse environmental consequences of development activities.

Modeling: Predicting the probability of an outcome given a set amount of input data.

Monte Carlo simulation: A computerized mathematical technique that allows people to account for risk in quantitative analysis and decision-making. The simulation furnishes the decision-maker with a range of possible outcomes and the probabilities they will occur for any choice of action.

MODFLOW: A computer model used to simulate the flow of groundwater through an aquifer.

National Ambient Air Quality Standards (NAAQS): Air quality standards established under authority of the Clean Air Act that apply for outdoor air to protect human health and public welfare.

National Environmental Policy Act (NEPA) of 1970: Under NEPA, projects and activities that require federal agency approvals or funding must undergo an evaluation of their impacts. The CEQ regulations (40 CFR 1500 et seq.) contain the procedures for implementing NEPA.

National Historic Preservation Act (NHPA): Legislation enacted in 1966 intended to preserve historical and archaeological sites in the United States. Among other things, the Act requires federal agencies to evaluate the impact of all federally funded or permitted projects on historic properties (buildings, archaeological sites, etc.) through a process known as Section 106 Review. The main purpose for the establishment of the Section 106 Review process is to minimize potential harm and damage to historic properties. It allows interested parties an opportunity to comment on the potential impact projects may have on significant archaeological or historic sites. Additionally, the Act established the Advisory Council on Historic Preservation, State Historic Preservation Offices, National Register of Historic Places, and the list of National Historic Landmarks.

National Pollutant Discharge Elimination System (NPDES) Permits: Permits issued to regulate wastewater discharges to lakes, streams, wetlands, and other surface waters. In Minnesota, these permits establish specific limits and requirements to protect surface and groundwater quality for a variety of uses, including drinking water, fishing, and recreation. An individual NPDES permit for an industrial facility may cover a number of different waste types and activities, including industrial process wastewater, contact and non-contact cooling water, stormwater, contaminated groundwater pumpouts, water supply treatment backwash, and wastewater treatment sludges.

National Register criteria: The criteria established by the Secretary of the Interior for use in evaluating the eligibility of properties for inclusion on the National Register (36 CFR part 60).

National Register of Historic Places: The official list of the Nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources.

New Source Performance Standards: Pollution control standards issued by the USEPA and under Section 111 of the Clean Air Act which dictate the level of pollution that a new stationary source (constructed on or after January 30, 2004) may emit.

Noise-sensitive receptors: Locations or areas where dwelling units or other fixed, developed sites of frequent human use occur.

Non-contact Stormwater: Stormwater that has not been affected by sulfides and metal leachates from oxidized rock exposed through mining.

Non-degradation: As applied under the Clean Water Act and federal regulations, the term refers to both a policy and a regulatory process for the preservation of existing uses, preventing unnecessary degradation of high water quality, and protecting and maintaining specific waterbodies with outstanding characteristics.

North American Industrial Classification System (NAICS): The standard used by federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the United States business economy.

Oligotrophic: Lacking in plant nutrients such as phosphates, nitrates, and organic matter, and consequently having few plants and a large amount of dissolved oxygen throughout.

One Hundred Mile Swamp: A large wetland located between Babbitt and Hoyt Lakes, Minnesota that has been rated high quality due to high watershed integrity, large amount of interior forest, and high-quality lowland coniferous forests.

Open bog: A carpet of living sphagnum moss growing over a layer of acid peat.

Ore stripping ratio: Ratio of waste rock to ore.

Ore Surge Pile: A temporary ore storage pile located near the Rail Transfer Hopper, which would help maintain a steady delivery of ore to the Processing Plant.

Ore: A type of rock that contains minerals with important elements including metals that are economically extracted through mining processes.

Outcrop area: A visible exposure of bedrock or ancient superficial deposits on the surface of the Earth.

Outfall: The discharge point of a waste stream into a body of water; alternatively, it may be the outlet of a river, drain, or a sewer where it discharges into a lake or other body of water.

Out-of-kind mitigation: The replacement of an impacted aquatic site with one of a different hydrologic regime and plant community type (different species composition).

Out-of-place mitigation: The replacement of the impacted aquatic site would take place in a different 8-digit HUC watershed as the proposed impacted resource.

Outlier: An observation that is numerically distant from the rest of the data.

Overburden: Material of any nature, consolidated or unconsolidated, that overlies a deposit of useful materials, ores, or coal, especially those deposits that are mined from the surface by open cuts.

Overstory: The larger, taller trees which occupy a forest area and shade young trees, hardwoods, brush, and other deciduous varieties that are growing beneath the larger trees (i.e., understory).

Oxidation: A common chemical reaction involving the combination of a substance such as sulfide minerals with oxygen.

P90: 90th percentile probability, which means that there is at least a 90 percent probability that a constituent would not exceed the evaluation criteria.

Paleoindian period: A cultural period circa 12,000 to 9,000 years ago, or 10,000 to 7,000 B.C.; the earliest North American archaeological epoch, characterized by retreating glaciers, mastodons and other large mammals, and small mobile groups of hunters.

Particulate matter: Fine liquid or solid particles such as dust, smoke, mist, fumes, or smog, found in ambient air or emissions.

Paste or thickened tailings: Tailings that have been significantly dewatered to a point where they will form a homogeneous nonsegregated mass when deposited from the end of a pipe.

Peat deposit: Deposits of partially decayed organic material (vegetation) that typically forms in wetland bog areas.

Perched: Contained by an underlying impervious layer, often used in reference to wetlands.

Perennial: Occurring or persisting for more than 2 years, often in reference to plant species.

Perimeter dam: Outer constructed embankments of a tailings basin.

Permeability: A measure of the ability of a material (such as soil or rock) to transmit fluids.

Permeable reactive barrier: On-site method for remediating contaminated water that combines a passive chemical or biological treatment zone with subsurface fluid flow management.

Permit to Mine: Pursuant to *Minnesota Rules*, Part 6132, a Permit to Mine means a legal approval issued by the commissioner of the Minnesota Department of Natural Resources to conduct a mining operation. Under Wetlands Conservation Act provisions, wetlands must not be impacted as part of a project for which a permit to mine is required, except as approved by the commissioner (*Minnesota Rules*, Part 8420.0930).

pH: A measure of relative acidity or alkalinity of a solution, expressed on a scale from 0 to 14, with the neutral point at 7. Acid solutions have pH values lower than 7, and basic (alkaline) solutions have pH values higher than 7.

Phase I Environmental Site Assessment (ESA): An environmental site assessment and report that identify potential or existing environmental contamination liabilities associated with a specific property.

Phreatic: Term used to refer to groundwater (e.g., "The phreatic surface coincides with the water table.").

Piezometer: A device that measures the pressure or level of groundwater at a specific point.

Point source discharge: Discharge of wastewater or other materials at a single location.

Porosity: A measure of the void (i.e., "empty") spaces in a material.

Post-closure: Phase of activities (inspection, maintenance, and reporting) that occur after the closure activities are complete.

Post-contact period: Relating to the period of time subsequent to the initial interaction of an indigenous people with an outside culture. In the United States, the term refers to an era of significant European influence for which a written record exists.

Precipitation: Any product of the condensation of atmospheric water vapor that falls under gravity. The main forms of precipitation include drizzle, rain, sleet, snow, and hail.

Pre-contact period: Relating to the period of time before contact of an indigenous people with an outside culture. In the United States, the term refers to an era before significant European influence for which a written record does not exist.

Prevention of Significant Deterioration: A federal preconstruction permitting program that applies to areas that are not violating National Ambient Air Quality Standards.

Private mineral estate: The ownership of mineral rights on land, which allows the owner to mine or produce any minerals lying below the surface of the property.

Process water: Any water that, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Progressive reclamation: Reclamation activities that could occur while the mining project is still in operation, allowing for a portion of the disturbed areas to be reclaimed prior to closure.

Proposed Connected Actions: The Proposed Connected Actions would involve both the NorthMet Project Proposed Action and the Land Exchange Proposed Action.

Proposed Connected Actions Alternative B: Proposed Connected Actions Alternative B would involve the NorthMet Project Proposed Action and the Land Exchange Alternative B.

Pumping test: Conducted to evaluate an aquifer by "stimulating" the aquifer through constant pumping, and observing the aquifer's drawdown in observation wells. It is a tool that hydrogeologists use to characterize a system of aquifers, aquitards, and flow system boundaries.

Rail Transfer Hopper: A unit located at the Mine Site and would consist of a raised platform from which haul trucks would dump ore into a hopper over a pan feeder, which would discharge into a rail car below it.

Reclamation: Activities that successfully accomplish the requirements of *Minnesota Rules*, Parts 6132.2000 to 6132.3200. Actions intended to return the land surface to an equivalent undisturbed condition. Restoration of mined land to original contour, use, or condition. Steps or operations integral to mining that prepare the land for post-mining use are called reclamation. When the objective of reclamation is to return the land to pre-mining conditions and uses, it is sometimes called restoration.

Recreation Opportunity Spectrum (ROS): The framework expressing the desired range of recreational activities that will be encouraged and permitted on national forest lands.

Reject concentrate: Process water or brine that would result from the reverse osmosis process.

Remediation: Actions taken to respond to a hazardous material release or threat of a release that could affect human health and/or the environment.

Riparian: Relating to or located on the bank of a natural watercourse (or a river or stream).

Rock buttress: A rock aggregate structure built against a slope for reinforcement and support.

Rosgen geomorphic survey: A four-level hierarchy survey designed to classify streams based on quantifiable field measurements to produce consistent and reproducible descriptions of stream types and conditions.

Saturated overburden: That material unable to contain or hold more moisture of any nature, consolidated or unconsolidated, that overlies a deposit of useful materials, ores, or coal, especially those deposits that are mined from the surface by open cuts.

Scenic Integrity Objective (SIO): A statement of the intended visual conditions of national forest lands. Scenic Integrity Objectives are part of the United States Forest Service Scenery Management System.

Section 303(d) of the Clean Water Act: A portion of the federal act that requires states, territories, and authorized tribes to develop lists of impaired waters. These impaired waters do not meet water quality standards that the regulatory authorities have set for them, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish priority rankings for waters on the lists and develop total maximum daily loads for these waters.

Section 404 of the Clean Water Act: see CWA Section 404 Permit.

Section 401 water quality certification: According to the Clean Water Act, anyone who wishes to obtain a federal permit for any activity that may result in a discharge to navigable waters of the United States must first obtain a state Section 401 water quality certification to ensure that the project will comply with the state water quality standards. For example, if someone proposes to discharge dredged or fill material into waters of the United States, including many wetlands, they generally must obtain a Section 404 permit from the USACE and, in Minnesota, a Section 401 water quality certification from the Minnesota Pollution Control Agency.

Sedge meadow: An open, groundwater-influenced, sedge- and grass-dominated wetland that typically borders streams but is also found on pond and lake margins and above beaver dams. Soils are nearly always sapric peat and range from strongly acid to neutral in pH.

Sedimentary rock: Rock formed from consolidation of loose sediment that has accumulated in layers.

Severed mineral interest: Any whole or partial interest in any or all minerals underlying land that has been separated from surface land ownership.

Significance (for cultural resources): The importance of a cultural property for its historical, architectural, archeological, engineering, or cultural values based upon the National Register criteria.

Significant effect: An effect that is predicted to be above an identified threshold and/or an effect that was determined by the lead agencies to have a magnitude that is large based on the context and intensity of that effect.

Slimes: The mixture of fine particles derived from ore, tailings, rock, or clay generally held in suspension in water as generated during ore processing.

Sludge: A semi-solid residue containing a mixture of solid waste material and water from air or water treatment processes.

Slug test: A type of aquifer test where water is quickly added or removed from a groundwater well to monitor and determine the hydraulic conductivity of the material in which the well is located.

Slurry wall: An underground reinforced wall in areas of soft earth or with a high water table typically made of concrete or bentonite; often used to restrict flow of groundwater from one area to another.

Spigots: Devices used to discharge tailings for conventional storage. They are typically located along the embankment(s) of a facility.

Spill Prevention Control and Countermeasure (SPCC) Plan: A written plan that includes requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines.

Standard: A level of quality or attainment set by Minnesota water use classifications (*Minnesota Rules*, Part 7060, 7050, and 7052), USEPA primary MCLs (pMCL), USEPA secondary MCLs (sMCL), and MDH HRLs.

Standard Industrial Classification (SIC) codes: A system for categorizing businesses in the United States, used by the United States government from 1937 to 1996. The Standard Industrial Classification system was replaced by the North American Industry Classification System in 1997.

State Disposal System (SDS) permit: In Minnesota, this is a permit that establishes the terms and conditions that must be met when a facility discharges wastewater to the ground surface or subsurface.

State Historic Preservation Office (SHPO): The office and official appointed or designated pursuant to section 101(b)(1) of the National Historic Preservation Act to administer the State Historic Preservation Program or a representative designated to act for the State Historic Preservation Officer.

Stormwater: According to *Minnesota Rules*, Part 7090, stormwater is defined as storm water runoff, snow melt runoff, and surface runoff and drainage.

Strahler Order: A stream order system used to classify stream segments based on the number of tributaries upstream, with headwater streams being first-order streams.

Stream geomorphic monitoring: The monitoring of changes in stream geology or features over time.

Streamflow: The flow of water in streams, rivers, and other channels. A major element of the water cycle, it is one component of the runoff of water from the land to waterbodies, with the other component being surface runoff.

Structure (for cultural resources): Any human-built, aboveground object, which may include, but is not limited to, a building, bridge, road, railroad, etc. Although not exclusive, structures are generally considered to be from contact and post-contact periods, as opposed to archaeological sites, which are generally considered to be associated with the pre-contact period.

Subaqueous: Existing or situated under water.

Subsistence: The source from which food and other items necessary to exist are obtained.

Substrate: The type of material that rests at the bottom of a stream, river, lake, etc., which could include sand, gravel, mud, or boulders.

Sulfate: A negatively charged ion that can be produced when metal sulfides are oxidized, consisting of one atom of sulfur and four atoms of oxygen, SO_4.

Sulfide mineral: A class of minerals containing sulfides, many of which contain metals.

Sulfide: A form of sulfur that often is found in the environment bound to metals.

Surface right: The landowner's rights to the upper boundary (surface) of the land only, which does not include subsurface rights.

Surface water divide: The boundary between two adjacent surface water basins, often dictated by land topography.

Surficial aquifer: Shallow aquifers typically less than 50 feet.

Surficial glacial deposit: A collection of various sized rocks and debris deposited by glacial activity that is left on the earth's surface after the glacier recedes.

Surficial groundwater: Groundwater in surficial aquifers, which continuously is unconfined and moves along the hydraulic gradient from areas of recharge to streams and other places of discharge.

Surrogate: A method to statistically analyze using modified data.

Taconite: A low-grade iron ore, containing about 27 percent iron and 51 percent silica found as a hard rock formation in the Lake Superior region.

Tailings: Waste byproducts of mineral beneficiating processes other than heap and dump leaching, consisting of rock particles, which have usually undergone crushing and grinding, from which the profitable mineralization has been separated.

Tailings basin: Land on which is deposited, by hydraulic or other means, the material that is separated from the mineral product in the beneficiation or treatment of ferrous minerals including any surrounding dikes constructed to contain the material.

Take: To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct, a threatened or endangered wildlife species. To pick, dig, collect, or destroy, or to attempt to engage in any such conduct, a threatened or endangered plant species.

Threatened Species: Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range as defined in the Endangered Species Act.

Till: See Glacial Till.

Total dissolved solids (TDS): A measure of the total amount of ions (minerals, salts, or metals) that are dissolved in a given volume of water. See Hardness.

Total maximum daily load (TMDL): A calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards.

Toxics Release Inventory (TRI): A USEPA maintained database containing data on disposal or other releases of over 650 toxic chemicals from thousands of United States facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment.

Traditional Cultural Property (TCP): A property that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that are rooted in that community's history, and are important in maintaining the continuing cultural identity of the community.

Tribal Historic Preservation Officer (THPO): The tribal office or official appointed by the tribe's chief governing authority or designated by a tribal ordinance or preservation program who has assumed the responsibilities of the State Historic Preservation Officer for purposes of Section 106 compliance on tribal lands in accordance with section 101(d)(2) of the Act.

Trygg: John William Trygg was a land use consultant, appraiser of natural resources, and early surveyor of Minnesota in the 1950s. He developed a system used to make historical appraisals on behalf of various Indian tribes in the Midwest. The Trygg Composite Maps, like the General Land Office (GLO) maps, depict both Native American and Euro-American features.

Unconsolidated deposit: Sediment not cemented together; may consist of sand, silt, clay, and organic material.

Underdrain: A drain, installed in porous fill, for drawing off surface water or water from the soil, as under the slab of a structure.

Unique Biological Areas: This management area designation by the United States Forest Service is allocated to areas to preserve features with unique biological value within the Superior National Forest.

United States Forest Service Regional Foresters Sensitive Species (RFSS): A list developed by the Regional Forester that identifies sensitive species. Sensitive species are defined as "*plant and animal species identified by the Regional Forester for which population viability is a concern as evidenced by: (a) significant current or predicted downward trends in population numbers or density, and/or (b) significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.*" Sensitive species are usually designated for an entire region, but independent "Forest Sensitive" lists are maintained by some individual National Forests.

United States Geological Survey (USGS) gaging station: Facilities used by hydrologists to automatically monitor streams, wells, lakes, canals, reservoirs, and or other water bodies. Instruments at these stations collect information such as water height, discharge, water chemistry, and water temperature.

Unsaturated overburden: All mineral overburden, including zones of soil formation, located above the water table.

Usufructuary: Pertains to a person or group who has the legal right to use resources within a property that is not owned by them. Specific to the NorthMet Project Proposed Action, this pertains to the rights—derived from treaties, statutes, agreements, executive orders, and the like—of the Bands to hunt, fish, and gather 1854 Treaty resources on lands within the 1854 Ceded Territory.

Virginia Formation: Geological sedimentary rock formation located above the Biwabik Iron Formation.

Volatile organic compound: Organic chemicals that have a high vapor pressure at ordinary, room-temperature conditions.

Voluntary Investigation and Cleanup (VIC) program: The Minnesota Pollution Control Agency's program to allow property transactions to move forward while promoting redevelopment of contaminated property and mitigating health or environmental risks. Program benefits to communities include new development, jobs, and an increased tax base in old industrial zones.

Waste rock: Rock without economic value that surrounds ore.

Wastewater treatment facility (WWTF): A facility at which chemical, biological, or mechanical procedures are applied to an industrial or municipal discharge to remove, reduce, or neutralize contaminants.

Wastewater treatment plant (WWTP): An industrial structure designed to remove biological or chemical waste products from water, thereby permitting the treated water to be used for other purposes.

Water appropriation permit: A permit from the Minnesota Department of Natural Resources required for all users withdrawing more than 10,000 gallons of water per day or 1 million gallons per year.

Water clarity: A measure of how far light penetrates through water. The deeper light penetrates, the clearer the water. How far down light penetrates through water depends on how many particles are suspended in the water. Suspended particles reduce water clarity by absorbing and scattering light.

Water quality standard: The foundation of the water quality-based pollution control program mandated by the Clean Water Act. Water quality standards define the goals for a water body by designating its uses, setting criteria to protect those uses, and establishing provisions such as antidegradation policies to protect waterbodies from pollutants.

Watershed: A geographic area from which water is drained by a river and its tributaries to a common outlet. A ridge or drainage divide separates a watershed from adjacent watersheds.

Wetland Conservation Act (WCA): Minnesota legislation, codified in *Minnesota Rules*, Part 8420, designed to achieve no net loss in the quantity, quality, and biological diversity of existing Minnesota wetlands, by avoiding impacts to them or restoring and enhancing diminished wetlands. This program is administered by local governments with oversight by the Board of Water and Soil Resources.

Wetland delineation: The act of establishing the boundary between wetlands and uplands (or non-wetlands) using soils, hydrology, and vegetation as indicators.

Wetland: Those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that, under normal circumstances, do support a prevalence or vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Wild rice: A tall aquatic annual grass (*Zizania palustris*) of North America, bearing edible grain that typically grows in shallow lakes or slow-moving rivers and streams.

Woodland period: A cultural period circa 2,500 to 850 years ago, or 500 B.C. to 1250 A.D.; characterized by the beginnings of modern tribes, clay pottery, agriculture, and ceremonial burial mounds.

XP-SWMM: Comprehensive modeling software for surface water systems.

Zoning ordinance: Locally adopted regulations that divide a town, city, village, or county into separate districts (e.g., residential, commercial, or industrial), define the permitted and prohibited land uses in those districts, and set forth specific development requirements (such as minimum lot size, height restrictions, etc.

NorthMet Mining Project and Land Exchange

Final
Environmental Impact Statement

November 2015

Executive Summary

Prepared by

Minnesota Department of Natural Resources
United States Army Corps of Engineers
United States Forest Service

MNDNR

US Army Corps of Engineers
St. Paul District

FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE

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INTRODUCTION

PolyMet Mining, Inc. (PolyMet) is proposing to develop the NorthMet copper-nickel-platinum group elements (PGE) mine and associated processing facilities in northeastern Minnesota. A land exchange is also proposed with the United States Forest Service (USFS).

- The mining proposal is known as the *NorthMet Project Proposed Action* consisting of the Mine Site, Transportation and Utility Corridor, and Plant Site. The NorthMet Project Proposed Action would represent the first copper-nickel-PGE mine in Minnesota. Figure 1 shows the general location of the NorthMet Project area and its geographic relationship within the northeast Minnesota region.
- The land exchange proposal is known as the *Land Exchange Proposed Action* consisting of USFS conveyance of Superior National Forest lands encompassing the Mine Site and surrounding lands to PolyMet, and USFS acquisition from PolyMet of up to five tracts of private land within the Superior National Forest proclamation boundary. Figure 1 shows the general location of the Land Exchange area and its geographic relationship within the northeast Minnesota region.

This Executive Summary provides an overview of the Final Environmental Impact Statement (FEIS). The purpose of the FEIS is to describe the process undertaken to evaluate the issues related to and predicted effects of the NorthMet Project Proposed Action and Land Exchange Proposed Action and alternatives.

As Co-lead Agencies, the Minnesota Department of Natural Resources (MDNR), United States Army Corps of Engineers (USACE), and USFS have jointly prepared this FEIS under the National Environmental Policy Act (NEPA) for the two federal agencies and under the Minnesota Environmental Policy Act (MEPA) for the MDNR. The FEIS describes the process the Co-lead Agencies undertook to evaluate the effects of the NorthMet Project Proposed Action, the Land Exchange Proposed Action, and alternatives developed during the process.

The NorthMet Project Proposed Action would require a number of federal, state, and local permits, including a Department of the Army (DA) permit pursuant to Section 404 of the Clean Water Act (CWA) for the discharge of dredged or fill materials into waters of the United States, including wetlands. The USACE has determined that issuance of a DA permit for this project would be a major federal action that has the potential to significantly affect the quality of the human environment and, therefore, pursuant to NEPA, requires preparation of an EIS.

In addition, the NorthMet Project Proposed Action would require a Permit to Mine from the MDNR, which requires the preparation of a state EIS, with the MDNR as the Responsible Governmental Unit pursuant to MEPA. The State of Minnesota's environmental review process and ultimately the EIS are intended to inform the subsequent permitting and approval processes and describe mitigation measures that may be available.

National Forest System (NFS) lands are owned by the United States of America and administered by the U.S. Department of Agriculture, Forest Service. The NorthMet Deposit containing copper-nickel-PGE minerals is located on NFS lands within the

Superior National Forest. These mineral rights were reserved by the original private owner when the United States purchased the land for National Forest purposes under the authority of the Weeks Act. Those mineral interests remain privately owned and are now controlled by PolyMet. The USFS does not believe that the mineral reservation gives PolyMet a right to surface mine NFS land to access the minerals.

The USFS is willing to consider conveying the land to PolyMet in exchange for land of equal value, which would become a part of the Superior National Forest. Such an exchange would give PolyMet the property rights it needs to pursue its surface mining proposal, while at the same time allowing the USFS to be compensated by acquiring other land of equal value that can be managed as a part of the Superior National Forest.

Without this exchange, under the described conditions, the surface mining operation desired by PolyMet would not take place. For this reason, the Land Exchange Proposed Action is a connected action to the NorthMet Project Proposed Action and has been analyzed in this FEIS.

PolyMet's proposed mining project and associated land exchange is controversial. As the first proposed copper-nickel-PGE mine in Minnesota, it has garnered significant public interest regarding ground and surface waters, waste management, wetlands, cultural resources, cumulative effects, and financial assurance. The FEIS describes the Tribal Cooperating Agencies' major differences of opinion with aspects of the Supplemental Draft Environmental Impact Statement (SDEIS). The FEIS also responds to public comments received on the Draft Environmental Impact Statement (DEIS) and SDEIS.

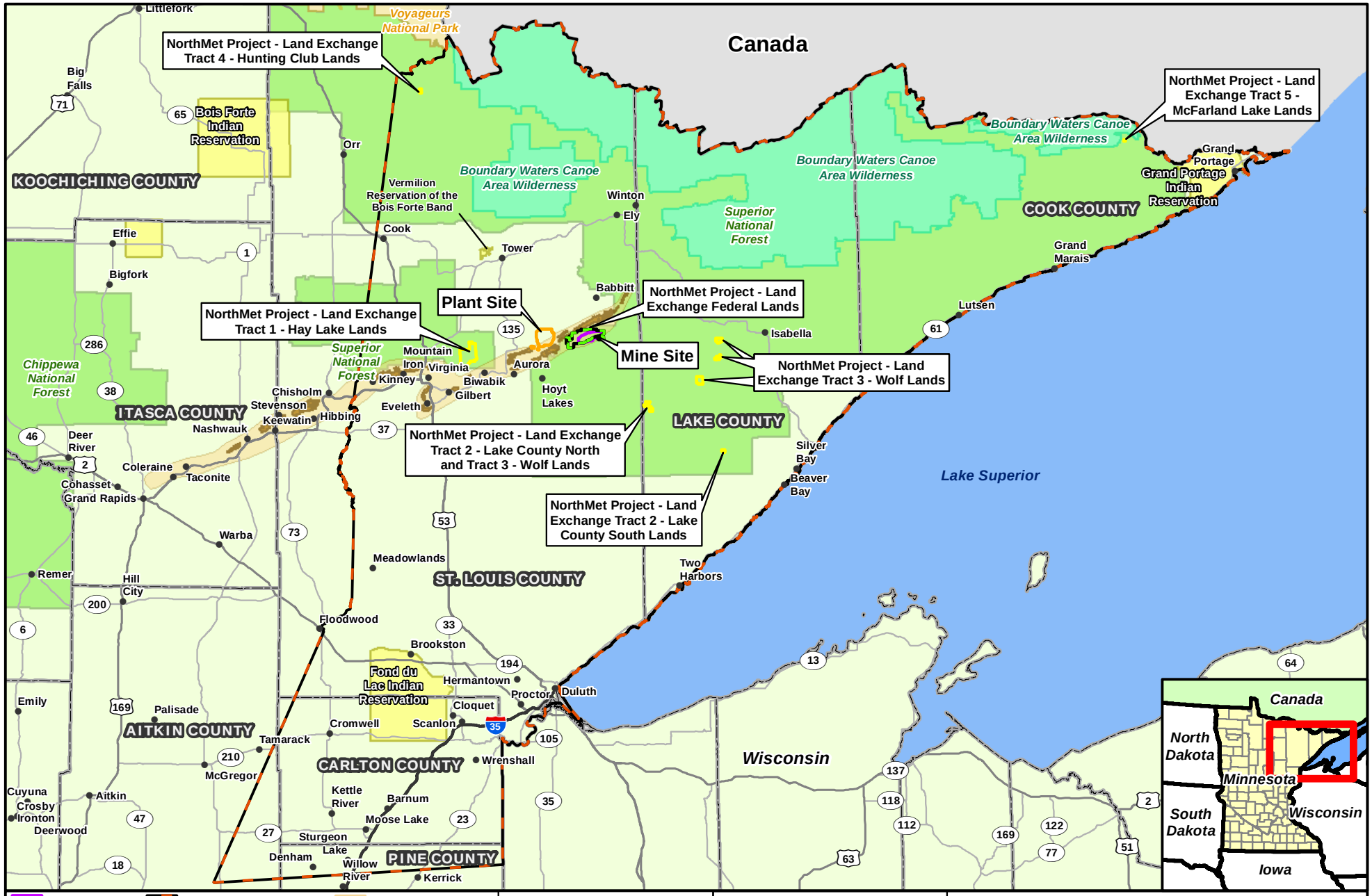

Figure 1
NorthMet Project and Land Exchange Area
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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NEPA AND MEPA PROCESS

Development of the FEIS

As a major federal action and a project that meets or exceeds a state mandatory EIS threshold, the NorthMet Project Proposed Action and Land Exchange Proposed Action trigger the need for an EIS under NEPA and MEPA. The purpose of the EIS is to inform the public and decision-makers of the proposed actions, assess potential environmental consequences, identify potential mitigation measures and reasonable and feasible alternatives, and to address the no-action alternative. The NEPA/MEPA process provides for consultation and/or solicitation of comments from federal and state agencies, Native American Tribes, and the general public.

The Co-lead Agencies (the MDNR, USACE, and, as of 2010, USFS) have engaged in a joint federal-state process to consider PolyMet's project proposals as they have evolved over time based on external input and agency reviews of draft designs (see Figure 2).

Between 2005 and 2009, the USACE and MDNR evaluated PolyMet's original mining proposal. This process culminated in October 2009 with the publication of the NorthMet Project DEIS that analyzed the project as it was then proposed by PolyMet. After issuing the DEIS, the Co-lead Agencies—responding to public, other state and federal agencies' (including the United States Environmental Protection Agency [USEPA]), and tribal comments and concerns—developed an alternative in consultation with PolyMet that sought to resolve several major environmental concerns and permitting barriers raised during the DEIS process. This alternative was subsequently adopted by PolyMet and became the current NorthMet Project Proposed Action.

In 2010, the USFS joined as a third Co-lead Agency for the purpose of analyzing the Land Exchange Proposed Action as a connected action. Under state and federal regulations, multiple actions or projects that are connected actions must be considered in total in preparing an EIS. Coincident review of these connected actions prompted the Co-lead Agencies' decision to prepare an SDEIS. The SDEIS included updated analysis of environmental impacts based on the revised NorthMet Project Proposed Action and added the Land Exchange. It was published in December 2013 and public comments were solicited during a 90-day comment period ending in March 2014.

This FEIS is being published to address public comments received on the SDEIS and to inform the completion of the Co-lead Agencies' EIS process under NEPA and MEPA.

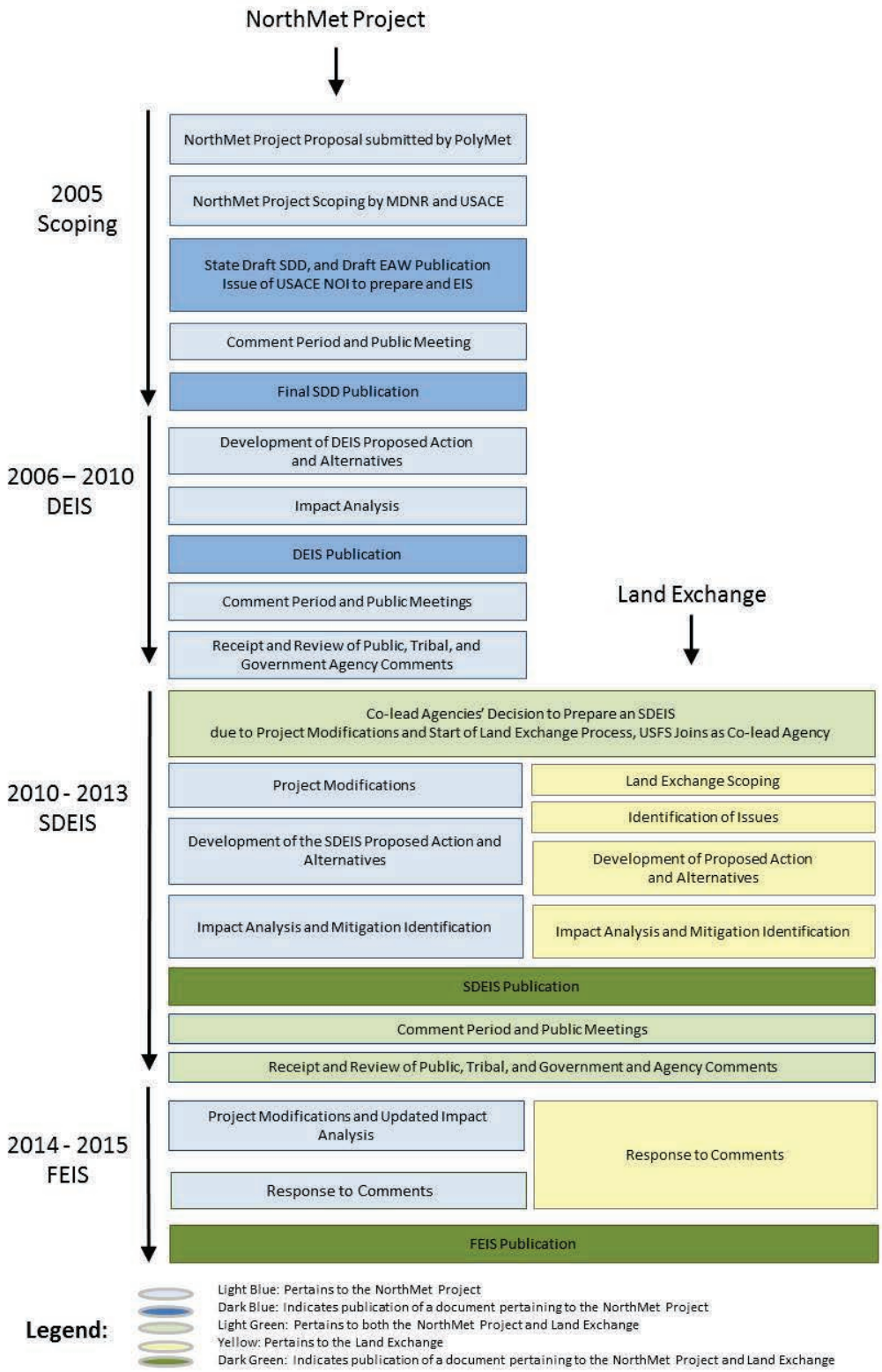

Figure 2 NEPA/MEPA Process, 2005 to Present

Structure of the FEIS

This Executive Summary provides an overview of the FEIS, which includes a full description and analysis of the proposed NorthMet Mining Project and Land Exchange and alternatives, as outlined below:

- Chapter 1.0 (Introduction) provides an overview and descriptions of the purpose of and need for the NorthMet Project Proposed Action and the Land Exchange Proposed Action, the regulatory framework, agency roles and responsibilities, and the organization of the FEIS.
- Chapter 2.0 (EIS Development) describes the process undertaken by the Co-lead Agencies for the NorthMet Project Proposed Action and Land Exchange Proposed Action. It includes discussion on the scoping process; identification of issues; development of the NorthMet Project Proposed Action and Land Exchange Proposed Action and alternatives; public and agency participation; consultation and coordination undertaken to prepare the DEIS, SDEIS, and this FEIS; incorporation of the Land Exchange Proposed Action; reevaluation of DEIS alternatives; and impact analysis approach.
- Chapter 3.0 (Proposed Action and Alternatives) describes the NorthMet Project Proposed Action and Land Exchange Proposed Action and alternatives including the No Action Alternative, Land Exchange Alternative B, as well as alternatives considered but eliminated from detailed consideration in the EIS.
- Chapter 4.0 (Affected Environment) summarizes the existing conditions of the NorthMet Project area and the surrounding environment, as well as the proposed Land Exchange parcels, including the land and its physical, biological, cultural, socioeconomic, and recreational resources.
- Chapter 5.0 (Environmental Consequences) presents the direct and indirect environmental effects of the NorthMet Project Proposed Action and alternatives and the direct and indirect environmental effects of the Land Exchange Proposed Action and associated alternatives.
- Chapter 6.0 (Cumulative Effects) describes the cumulative effects of the NorthMet Project Proposed Action and Land Exchange Proposed Action when considered along with other past, present, and reasonably foreseeable future actions in the region.
- Chapter 7.0 (Comparison of Alternatives and Other Considerations) contains a comparison of the Proposed Connected Actions and alternatives, conclusions of the impacts (including human health), and Land Exchange Proposed Action public interest considerations, and also addresses other NEPA considerations including a discussion of agency-preferred alternatives.
- Chapter 8.0 (Major Differences of Opinion) describes the Tribal Cooperating Agencies' major differences of opinion with aspects of the SDEIS. Cooperating Agency comments on the SDEIS are addressed in Appendix A.
- Appendix A (Response to Comments on the DEIS for the NorthMet Mining Project and SDEIS for the NorthMet Mining Project and Land Exchange) identifies the process for public engagement throughout the EIS and

provides responses to comments received on the DEIS and SDEIS.

- Appendix B (Underground Mining Alternative Assessment for the NorthMet Mining Project and Land Exchange Environmental Impact Statement) describes the analysis that the Co-lead Agencies undertook in consideration of a potential Underground Mining Alternative.
- Appendix C (Tribal Agency Position Supporting Materials) includes verbatim comments and supporting documentation provided by the Tribal Cooperating Agencies for the SDEIS.
- Appendix D (Biological Assessment and Biological Evaluation) identifies whether activities related to the NorthMet Proposed Action and Land Exchange Proposed Action may affect listed or proposed species and critical habitat as required under the Endangered Species Act.

Agency Roles in the FEIS

Co-lead Agencies

The MDNR, USACE, and USFS are Co-lead Agencies for the joint state-federal EIS and, therefore, are responsible for the content of the FEIS and have final authority over the language used in the document.

Cooperating Agencies

The USEPA, under Section 309 of the Clean Air Act, is required to review and publicly comment on all federal EIS documents and publish its review in the public record.

Along with the USEPA, the Bois Forte Band of Chippewa, Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa (the Bands) have been invited by the Co-lead Agencies to participate in the EIS process and agreed to participate as formal Cooperating Agencies under NEPA. The NorthMet Project area and Land Exchange parcels are located within the 1854 Ceded Territory, within which the Bands reserve hunting, fishing, and gathering (usufructuary) rights. The Great Lakes Indian Fish and Wildlife Commission and the 1854 Treaty Authority have assisted the Bands in assessing issues with the NorthMet Mining Project and Land Exchange.

Other Agencies

Other federal and state agencies participating in development of the FEIS include, but are not limited to, the Minnesota Pollution Control Agency (MPCA) and the Minnesota Department of Health.

PURPOSE OF THE NORTHMET MINING PROJECT AND LAND EXCHANGE

The purpose of the NorthMet Mining Project and Land Exchange is multifaceted:

- PolyMet: The NorthMet Mining Project and Land Exchange would allow the company to exercise its mineral lease rights to mine the NorthMet Deposit.
- USACE and MDNR: The NorthMet Project Proposed Action would produce base and precious metal precipitates and flotation concentrates from ore mined at the NorthMet Deposit by uninterrupted operation of the former LTV Steel Mining Company (LTVSMC) processing plant. The processed resources would help meet domestic and global demand by sale of these products to domestic and world markets.
- USFS: The Land Exchange Proposed Action is intended to resolve the conflict between the surface estate owned by the United States and the private mineral estate.

PROPOSED CONNECTED ACTIONS

The Proposed Connected Actions include the NorthMet Project Proposed Action and the Land Exchange Proposed Action as described below.

NorthMet Project Proposed Action

Located on the eastern flank of the Mesabi Iron Range, the proposed NorthMet Mine would be located 6 miles south of the City of Babbitt and the processing plant would be 6 miles north of the City of Hoyt Lakes in St. Louis County, Minnesota. The Mesabi Iron Range region has been mined for iron ore and lower-grade iron ore called taconite for over 100 years (see Figure 3). The entire mine is within the municipal boundaries of the City of Babbitt and the processing plant is mostly located within the municipal boundaries of the City of Hoyt Lakes (see Figure 4). Several other communities, including Aurora, Virginia, Ely, Hibbing, Eveleth, and Biwabik that are located within St. Louis and Lake counties, are within 50 miles of the NorthMet Project area. In addition, the project is about 50 miles southeast of Voyageurs National Park and 20 miles south of the Boundary Waters Canoe Area Wilderness (BWCAW).

A substantial portion of the land required by the NorthMet Project Proposed Action would reuse a former mining plant site (LTVSMC processing plant) for mineral processing, and use the existing Tailings Basin for tailings disposal.

Mining would occur on what is referred to as the Mine Site, which is relatively undisturbed land; however, there is previously logged land nearby. The Mine Site would be connected to the processing facilities and tailings basin (Plant Site) by an existing (upgraded) rail line, the Dunka Road, and a water line, collectively referred to as the Transportation and Utility Corridor. The active Northshore Mine (taconite iron ore mine) is located about a mile north of the Mine Site.

There would be three distinct phases to the NorthMet Project Proposed Action:

- Construction would last for approximately 18 months and would include land clearing, building renovation and construction, stockpile preparation, and utility upgrades.
- Operations would last approximately 20 years, and would include ore mining and processing, waste rock stockpiling, continued construction, progressive reclamation, and water treatment.
- Final land reclamation, closure, and post-closure maintenance would occur after mining and would include infrastructure removal, long term water treatment, maintenance, and monitoring.

The NorthMet Project Proposed Action does not include actions to address existing environmental conditions for lands associated with previous LTVSMC operations outside the NorthMet Project area footprint.

An overview of the NorthMet Project Proposed Action construction, operations, closure, and post-closure maintenance is provided below.

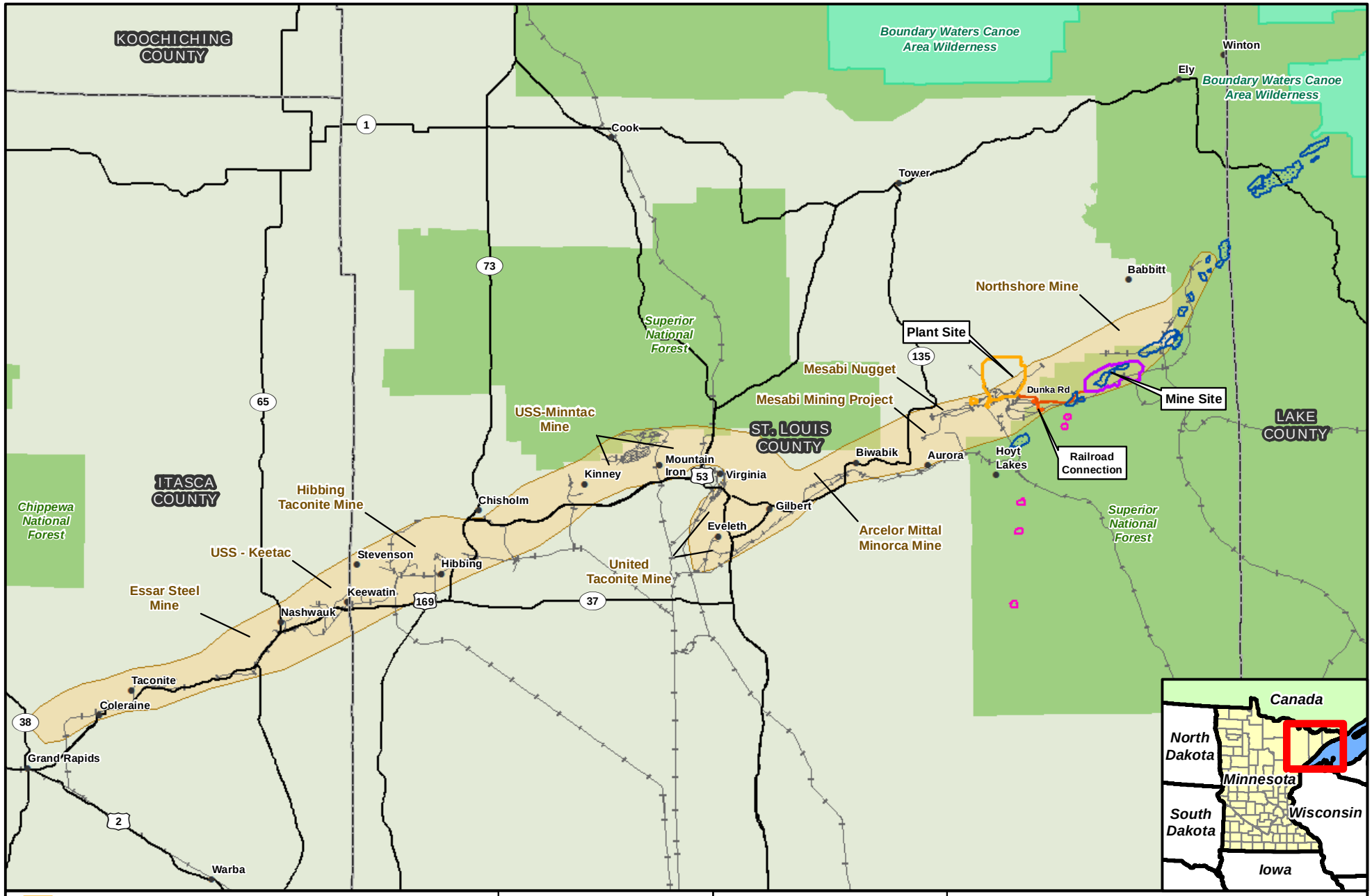

Figure 3
Mesabi Iron Range Region
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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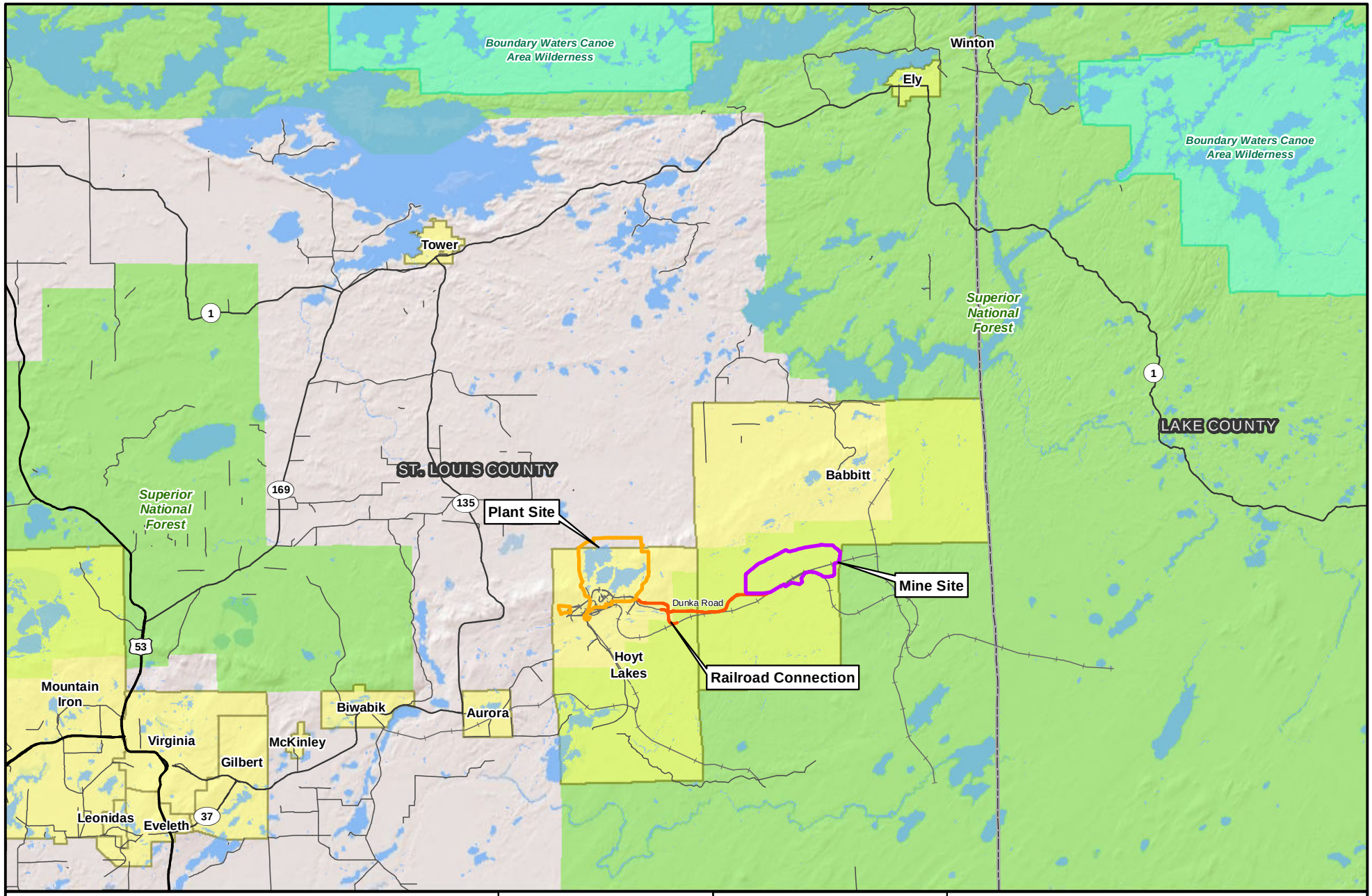

Plant Site
Mine Site
Transportation and Utility Corridor
Municipal Boundary
Boundary Waters Canoe Area Wilderness
National Forest
Existing Road
Existing Railroad

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1.5 3 6 Miles

Figure 4
Area Municipalities
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Construction

Construction would begin after permitting and about 18 months before mining and processing. Geochemical characterization has identified four types of waste rock that would be managed based on their potential to oxidize and release various solutes (Category 1 being the lowest potential and Category 4 being the highest). In preparation for mining at the Mine Site, existing vegetation would be cleared and overburden (i.e., soils and rock) would be removed. Additionally, a Mine Site Wastewater Treatment Facility (WWTF), Category 1 Stockpile groundwater containment system, and liner systems for the Category 2/3 Stockpile and Category 4 Stockpile would be constructed. At the Transportation and Utility Corridor, an existing road, railroad, and utilities would receive minor upgrades. These transportation routes and utilities would connect the Mine Site to the Plant Site, which are about 8 miles apart.

At the Plant Site, existing buildings would be refurbished and new buildings would be constructed. A portion of the existing LTVSMC Tailings Basin would be used as the base for a new NorthMet Project Tailings Basin. A surface and groundwater containment system would be installed around the northern, western, and eastern sides of the Tailings Basin to collect surface and groundwater coming from the Tailings Basin. The existing containment system along the southern side of Tailings Basin would be improved as necessary to meet performance requirements. The stability of the Tailings Basin would be enhanced by the addition of rock buttressing, and weaker LTVSMC tailings near the dam edge would be strengthened using cement deep soil mixing. A separate double-lined facility would be constructed to contain residue from the hydrometallurgical process. A mechanical Wastewater Treatment Plant (WWTP) (using reverse osmosis [RO]) or equivalently performing technology would be constructed.

Mining Operations

The mining operations would involve the use of conventional open-pit surface mining methods such as blasting and the excavation of rock from the NorthMet Deposit. The NorthMet Deposit is a low- to medium-quality copper-nickel-PGE deposit with low sulfide content. The Life of Mine (i.e., the duration of mining operations) would be 20 years, over which time approximately 533 million tons of waste rock and ore would be removed from the NorthMet Deposit. This includes a total of 225 million tons of ore and 308 million tons of waste rock. The average ore processing rate would be up to 32,000 tons per day.

Mining would be conducted in three open pits. The East Pit and West Pit would be mined simultaneously through the first 11 years of the mine life (see Figure 5). Mining would cease at the East Pit at approximately year 11 and continue at the West Pit until year 20 (see Figure 6). The Central Pit would be mined between years 11 and 16 and would ultimately be combined with the East Pit. The maximum depths of the pits below the original surface level would be 696 feet (ft) for the East Pit (at year 11), 356 ft for the Central Pit (at year 16), and 630 ft for the West Pit (at year 20).

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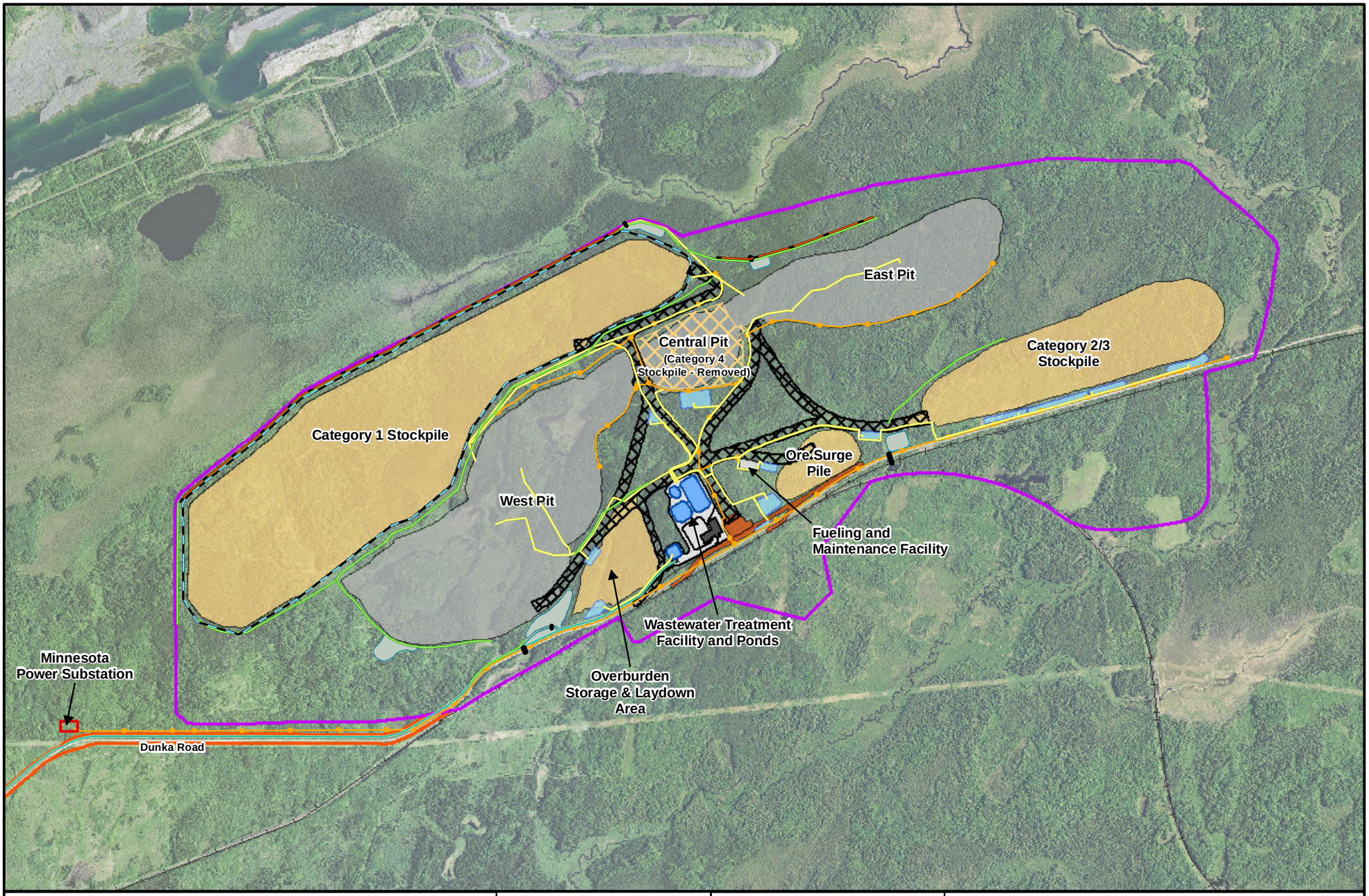

Mine Site
Active Stockpile
Category 4 Stockpile Removed
Mine Pit
Haul Road
Transportation and Utility Corridor
Rail Transfer Hopper and New Railroad Spur
Groundwater Containment System
Perimeter Dike
Transmission Line
Culvert
Stormwater Collection Ditch
Process Water Pipes
Treated Water Pipeline
Ponds and Sumps
Stormwater Pond

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 500 1,000 2,000 3,000
Feet

Figure 5
Mine Site Plan - Year 11
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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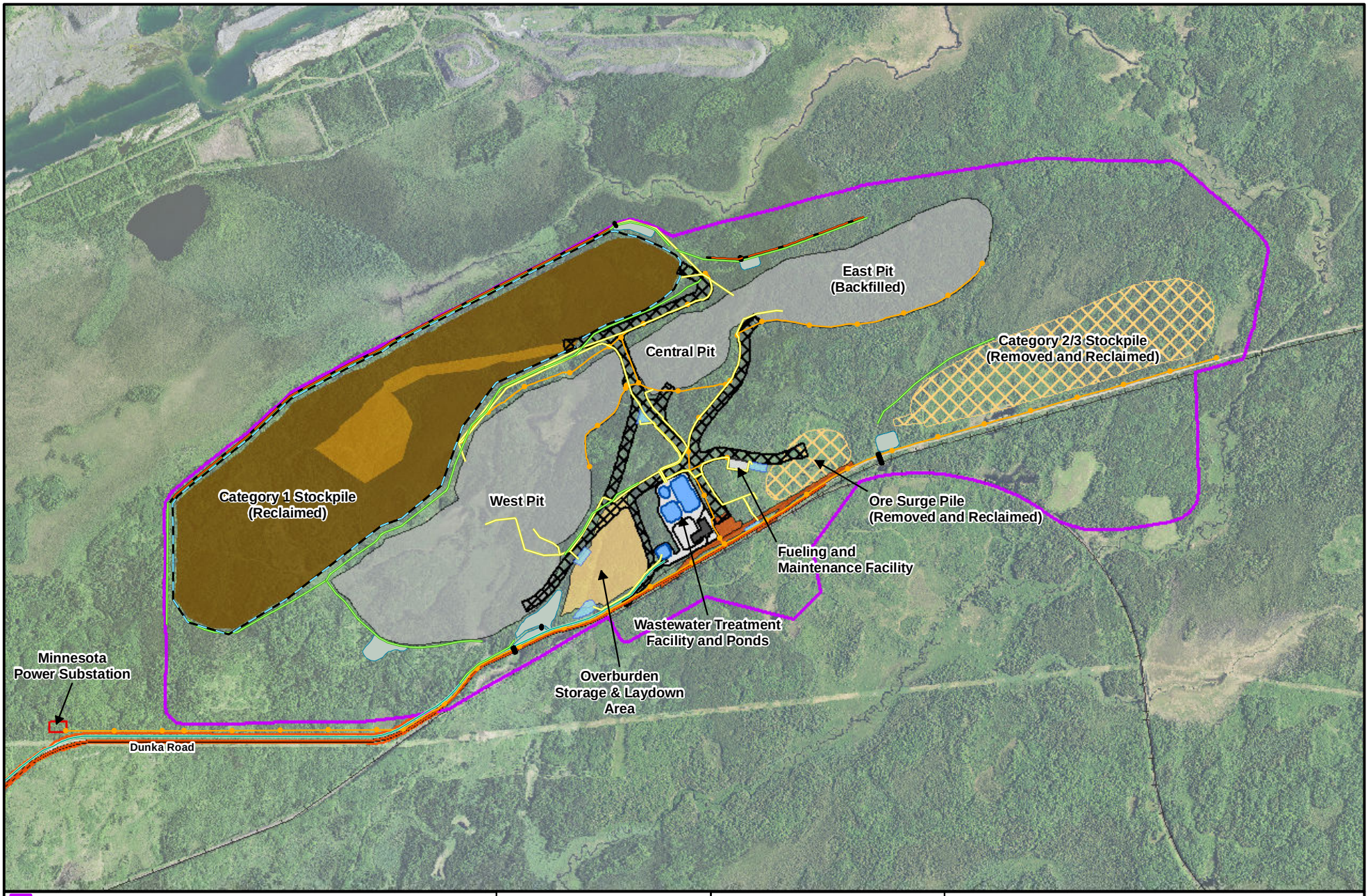

Mine Site
Mine Pit
Covered in Previous Years
Covered Upon Mine Closure
Active Stockpile
Removed and Reclaimed Stockpile
Haul Road
Transportation and Utility Corridor
Rail Transfer Hopper and New Railroad Spur
Groundwater Containment System
Perimeter Dike
Transmission Line
Culvert
Stormwater Collection Ditch
Process Water Pipes
Treated Water Pipeline
Ponds and Sumps
Stormwater Pond

MNDNR
US Army Corps of Engineers
St. Paul District

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Feet

Figure 6
Mine Site Plan - Year 20
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Until the completion of mining in the East Pit (approximately year 11), waste rock would be hauled to one of the following stockpiles at the Mine Site:

- Permanent Category 1 Stockpile (surrounded by a water containment system and covered at closure);
- Temporary Category 2/3 Stockpile (lined); or
- Temporary Category 4 Stockpile (lined).

After mining planned at the East Pit ends by year 11, the waste rock in the temporary Category 2/3 and 4 stockpiles would be moved into the East Pit for subaqueous disposal. This option is the preferred method of disposal for the more reactive waste rock. Waste rock generated from ongoing mining in the West Pit and Central Pit after year 11 would be directly disposed of in the East Pit. Some Category 1 waste rock would continue to be placed on the Category 1 Stockpile until year 13. Mining operations would continue in the West Pit until year 20, while backfilling the combined East Central Pit with waste rock.

Water control systems would be constructed to capture water that has contacted surfaces disturbed by mining operations, water collected on stockpile liners, and water collected by the Category 1 Stockpile containment system (i.e., collectively referred to as process water). Process water would be treated at a mechanical WWTF located at the Mine Site and either pumped to the Plant Site Tailings Basin for use as process make-up water or to supplement flooding of the East Pit after backfilling with waste rock. No process water would be discharged off site.

Processing Operations

Ore would be transported to the Plant Site (see Figure 7) by rail, for crushing and processing. Processing would involve concentration using a flotation method to separate metallic sulfide minerals (ore concentrate) from feldspar and other non-ore minerals (tailings).

Ore concentrate would be dewatered and shipped off site as copper concentrate and nickel concentrate final products, or the nickel concentrate would be processed in an autoclave (oxidation and leaching method) at the Hydrometallurgical Plant and base/precious metal precipitates would be produced. These precipitates would be shipped off site and sold as final products. Based on the anticipated rate of mining, mineral processing of up to 32,000 tons per day of ore would yield annual production of about 113,000 tons of copper concentrate, 18,000 tons of mixed (nickel/copper) hydroxide, and 500 tons of PGE precipitate.

After passing through a secondary flotation cycle to remove as many sulfide minerals as possible, the tailings would be transferred as slurry to the Tailings Basin. Bentonite clay would be incorporated into the exposed outer side-slopes of the Tailings Basin as it is built up to create a barrier that would limit oxidation of sulfide minerals. This limiting of oxygen transfer would reduce pollutants generated from the Tailings Basin.

Water seepage from the Tailings Basin would be collected by the containment system and sent to either the Tailings Basin pond or the Plant Site WWTP for treatment. Treated water would be used to maintain flows (augmentation) in the streams that would otherwise receive reduced flows because of the Tailings Basin containment system.

Closure and Post-closure Maintenance

In general, the Mine Site area has been designed and would be operated to allow for progressive reclamation. After mining is completed, the West Pit would be filled with groundwater and surface water to become a

pit lake (see Figure 8). The Mine Site mechanical WWTF would be upgraded to include RO or equivalently performing technology and would be maintained to treat pit lake water quality for as long as necessary. Other unnecessary buildings and infrastructure would be removed and reclaimed. The Plant Site would be closed by removing unnecessary buildings and infrastructure, capping the Hydrometallurgical Residue Facility (double-lined), and adding bentonite amendment and vegetation to the beaches and pond at the Tailings Basin. The Tailings Basin collection system and Plant Site WWTP (RO or equivalently performing technology) would be maintained to treat Tailings Basin seepage for as long as necessary.

The water objective of closure is to provide water treatment for as long as necessary to meet regulatory standards at applicable groundwater and surface water compliance points. The NorthMet Project Proposed Action includes long-term mechanical treatment (RO or equivalently performing technology) at both the Mine Site and Plant Site with a goal of transitioning to a non-mechanical water treatment technology requiring less maintenance over the long term. Pilot studies for non-mechanical treatment would be conducted during operations (and post-closure as necessary) to demonstrate the ability to transition to non-mechanical water treatment. Both mechanical and non-mechanical treatment would require periodic maintenance and monitoring activities for as long as treatment is required.

The water models constructed to assess the potential effects from the NorthMet Project Proposed Action were not designed to predict the duration of treatment nor do they capture all the factors that influence the duration of treatment. Therefore, the water modeling cannot be used to predict when treatment would end and thus indicates that water treatment systems would be needed at the Mine Site and Plant Site indefinitely. Actual treatment requirements would be assessed on a recurring basis throughout operations and closure based on results of ongoing discharges, performance, and water resource monitoring, ensuring continuous protection of groundwater and surface water quality and compliance with applicable water quality standards. This reassessment process would rely on measured monitoring results (evaluated through modeling) rather than the results of the predictive modeling included in the FEIS. Regardless of the precise duration of effects or water treatment at either the Mine Site or Plant Site, there are measures available to address impacts to natural resources.

Monitoring, Adaptive Management, and Mitigation

The monitoring and maintenance of geotechnical stability, water, wetland, vegetation, and other resources would continue for as long as necessary.

One of the key elements of the NorthMet Project Proposed Action is the inclusion of several management plans that detail how PolyMet would monitor environmental conditions and perform predictive modeling to ensure that they would meet all permit requirements. Key among these plans is the Adaptive Water Management Plan, which describes how Mine Site and Plant Site water management would be managed and under what circumstances design changes to the following NorthMet Project Proposed Action facilities would be triggered:

- Category 1 Stockpile Cover System – PolyMet proposes to install a geomembrane cover system to reduce the load of constituents that reach the West Pit via drainage from the Category 1 Stockpile. It is considered an adaptive engineering control as the cover system could be enhanced if monitoring identified the cover system was underperforming.
- Mine Site WWTF – the WWTF is considered adaptive engineering control as it would be upgraded to a RO or equivalently performing technology during closure and adjusted as needed to manage sulfate concentrations in the effluent.
- Plant Site WWTP – the WWTP would treat Plant Site process water. It is considered an adaptive engineering control because the operating configuration and requirements of the process units within the WWTP or the capacity of the WWTP could be modified to accommodate varying influent streams and discharge requirements.
- Tailings Basin Pond Bottom Cover System – PolyMet proposes to install a Tailings Basin pond bottom cover system during reclamation in order to reduce the diffusion of oxygen into the tailings. It is considered adaptive engineering control as additional bentonite could be added if the pond bottom cover system were under-performing.

Other proposed mitigation measures are also included in the FEIS and would be a part of the NorthMet Project Proposed Action. These may include measures to ensure geotechnical dam stability, reduce fugitive dust and noise, and effects on water quality, wetlands, cultural resources or historic properties, and other resources.

The FEIS describes these proposed measures and when they would be employed during construction, operations, and closure of the NorthMet Project Proposed Action. Monitoring and modeling would be used to determine the performance of the proposed measures and identify any needed revisions.

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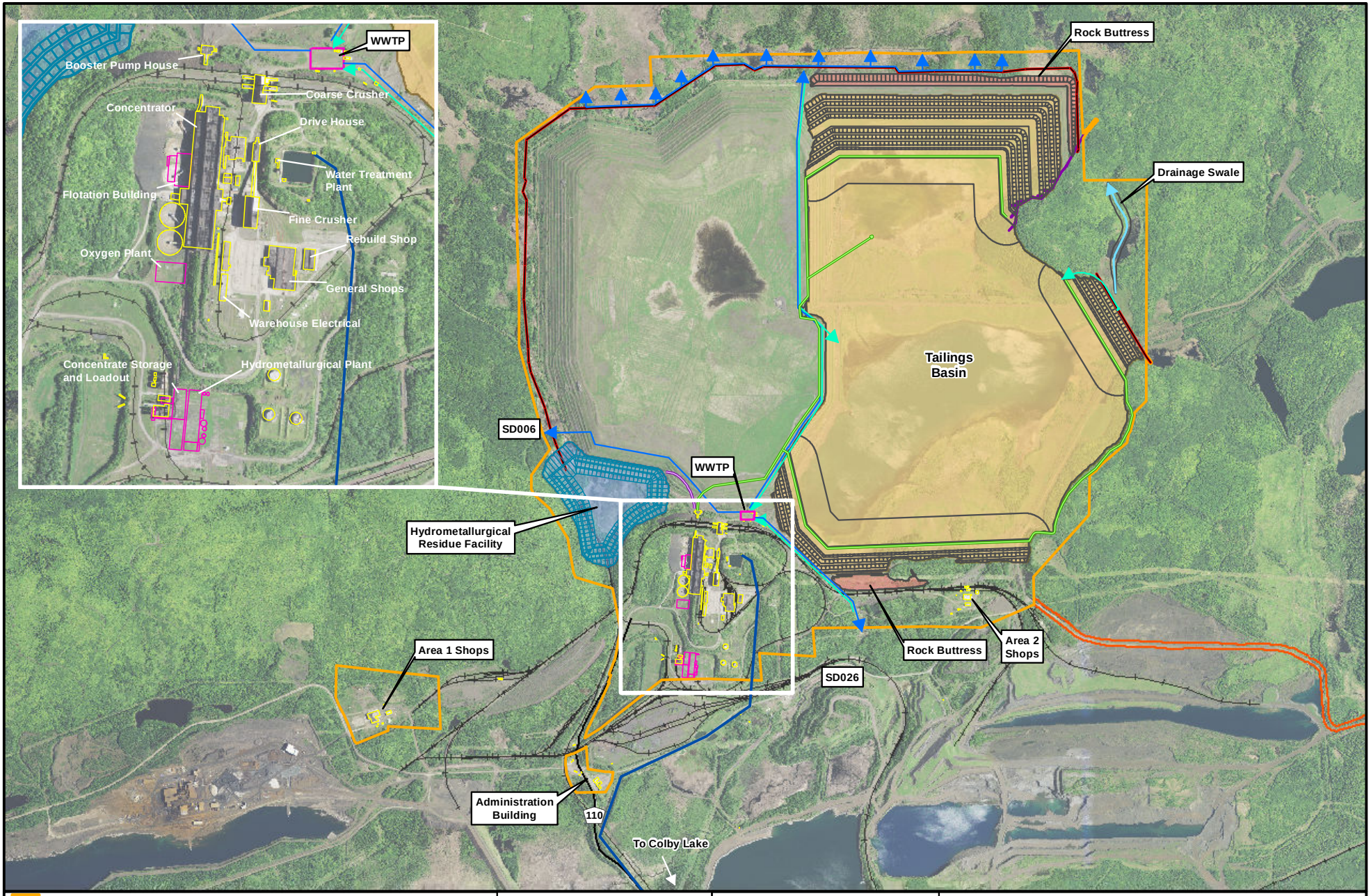

Plant Site
Tailings Basin
Proposed Building
Existing Building
Hydrometallurgical Residue Facility
Transportation and Utility Corridor
Rock Buttress
Containment System
Treated Water Discharge
Seepage Water Pipe
Colby Lake Water Pipeline Corridor
Drainage Flow Direction
Hydrometallurgical Residue Pipeline
Flotation Tailings Pipeline
Tailings Basin Emergency Overflow
Existing Railroad

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1,000 2,000 4,000 Feet

Figure 7
Plant Site Layout
NorthMet Mining Project and Land Exchange FEIS
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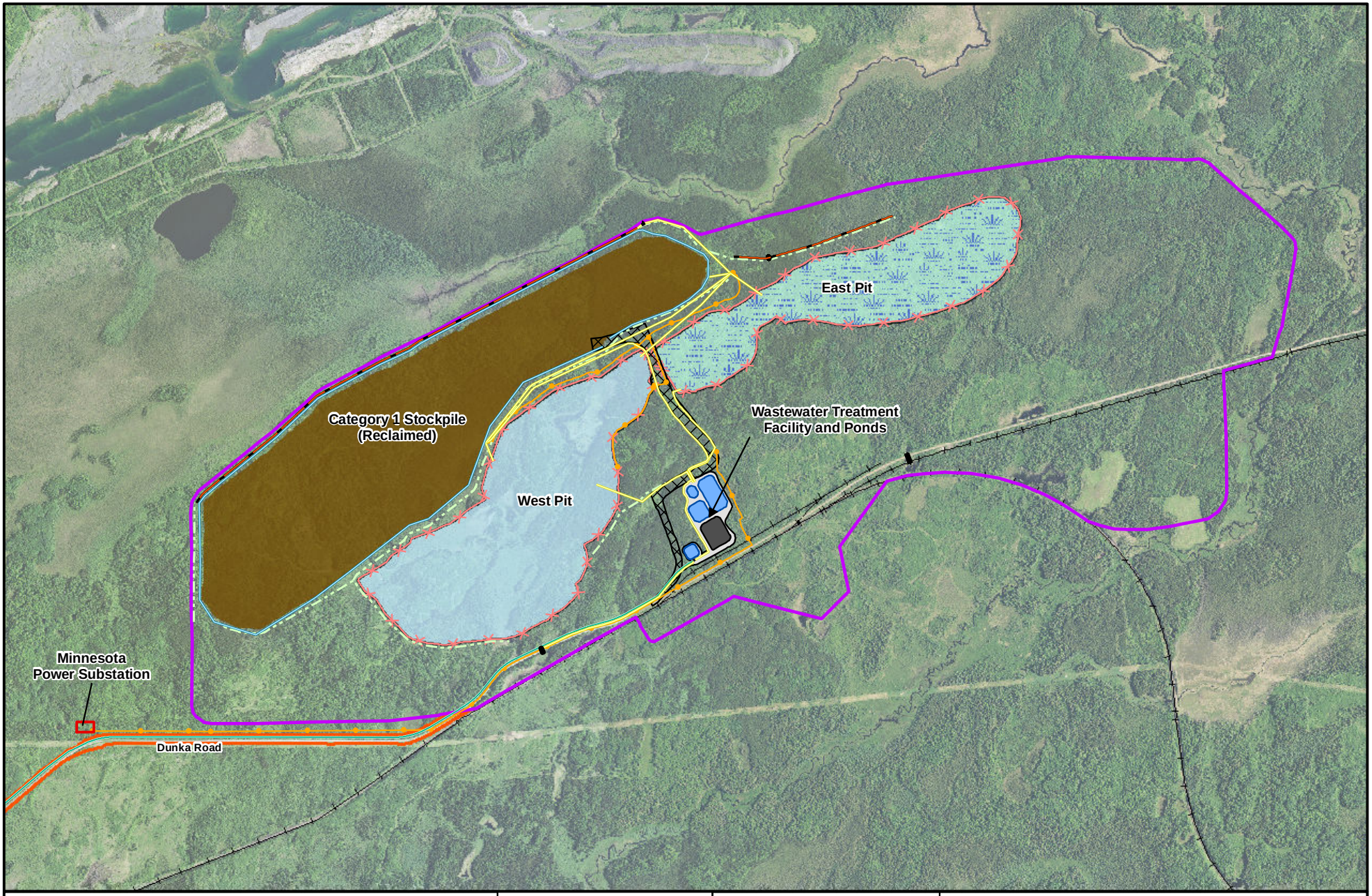

Mine Site
Pit with Backfill and Surface Wetland
Pit Lake
Covered in Previous Years
Haul Road
Transportation and Utility Corridor
Groundwater Containment System
Transmission Line
Stormwater Collection Ditch
Perimeter Dike
Process Water Pipes
Treated Water Pipeline
Fence
Culvert

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 500 1,000 2,000 3,000
Feet

Figure 8
Mine Site Plan - Long Term Closure
NorthMet Mining Project and Land Exchange FEIS
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Land Exchange Proposed Action

Disclosure of appraisal information in the EIS is not required. Any decision documented in the Record of Decision (ROD) to move forward with a land exchange will be supported by a current appraisal, approved by the USFS, which verifies that the exchange meets the equal value requirements of applicable federal law and regulation. Requests for appraisal reports and appraisal review reports are processed under Freedom of Information Act procedures.

Federal Lands

The federal lands proposed to transfer to PolyMet include a large black spruce, tamarack, and cedar wetland, and also contain Mud Lake. Yelp Creek and the Partridge River also flow through the property. These federal lands lie immediately south of the Superior National Forest proclamation boundary and are bounded on the south by the former LTVSMC railroad and Dunka Road, which are features of the NorthMet Project Proposed Action. Legal access to the federal lands is primarily via Dunka Road, which is privately owned and would require an approval for ingress and egress, and the former LTVSMC railroad.

The area includes other privately owned properties to the north and west of the federal lands, which have been surface mined over the years. There are mine pits, waste rock stockpiles, tailings basins, processing facilities, railroad grades, and other general mining facilities throughout the area. A 115-acre, privately owned in-holding within the exterior boundaries of the northwestern portion of the federal lands is not included in the Land Exchange Proposed Action.

Non-federal Lands

The Land Exchange Proposed Action would include up to five tracts (Tract 1 – Hay Lake lands, Tract 2 – Lake County lands, Tract 3 – Wolf lands, Tract 4 – Hunting Club lands, Tract 5 – McFarland Lake lands) of non-federal lands in St. Louis, Lake, and Cook counties that would comprise up to 6,722.5 acres (General Land Office [GLO]); however, the final exchange, if approved, could include fewer than 6,722.5 acres (GLO) of non-federal land, depending on the results of the environmental analysis and real estate appraisals. All of the lands proposed for exchange are located within the 1854 Ceded Territory of northeastern Minnesota (see Figure 1). For more information regarding the 1854 Ceded Territory, please refer to the Predicted Environmental Consequences section below.

PolyMet currently owns a portion of the non-federal lands proposed for exchange; however, all rights, titles, and interests of the remaining non-federal lands proposed for exchange have been assigned to PolyMet. All of the non-federal lands except Tract 4 have severed mineral and surface ownership, which means that the mineral resources would not be acquired with the surface. There are no mining activities proposed on the non-federal lands as part of the Land Exchange Proposed Action. The lands acquired would become part of the Superior National Forest and would be managed under the 2004 Superior National Forest Land and Resource Management Plan (Forest Plan).

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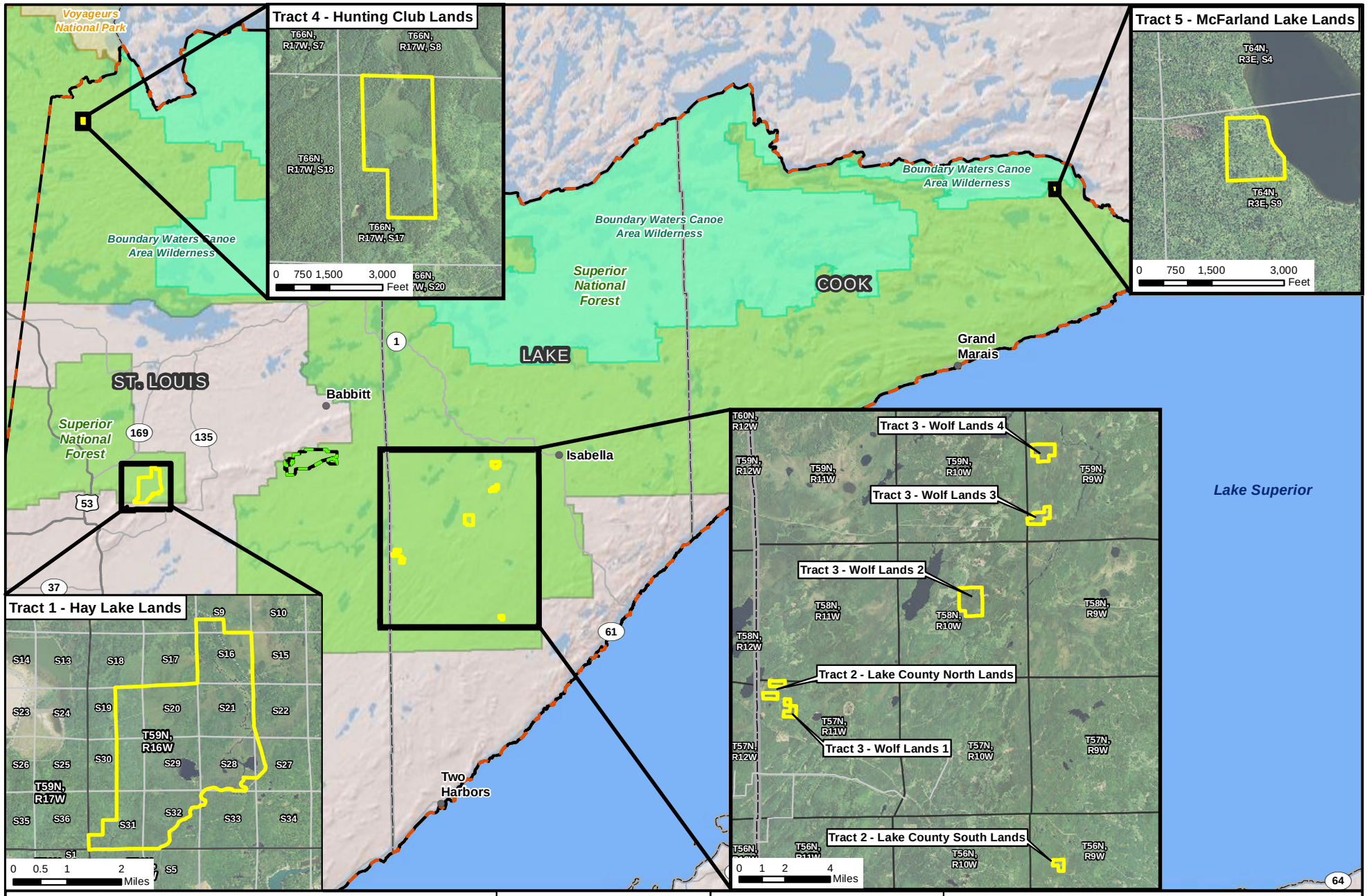

Figure 9
Land Exchange Proposed Action Parcels
NorthMet Mining Project and Land Exchange FEIS
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PREDICTED ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED CONNECTED ACTIONS

Although the NorthMet Project Proposed Action would take place in a region that has been used for mining and timber production for over 100 years, it also contains many important recreational, cultural, and natural resources. The FEIS describes in detail those elements of the natural and human environment that would be affected by the NorthMet Project Proposed Action and Land Exchange Proposed Action. The following section briefly describes some of the critical environmental effects predicted as a result of the NorthMet Project Proposed Action and Land Exchange Proposed Action.

NorthMet Project Effects on Water Resources

Surface water and surficial groundwater from the NorthMet Project Mine Site flow to the Partridge River and the Plant Site mostly drains to the Embarrass River with the exception of Second Creek (Partridge River Watershed). Both rivers are tributaries to the St. Louis River, which flows to Lake Superior.

Engineering controls at the Mine Site and Plant Site would capture the majority affected water for treatment. Water leaving the NorthMet Project area would include non-contact stormwater, clean water from the WWTP and WWTF, and a small volume of groundwater escaping the liners and containment systems.

Several groundwater, surface water, and water quality models (MODFLOW, XP-SWMM, and GoldSim, respectively) were used to predict the hydrologic and water quality effects of the NorthMet Project Proposed Action, as well for a Continuation of Existing Conditions scenario for comparison. The water quality model, which was run at monthly time steps for 200 years for the Mine Site and 500 years for the Plant Site, performs probabilistic simulations, taking into account the uncertainty around many of the model input assumptions. The Co-lead Agencies have selected the 90th percentile probability (P90) as its evaluation threshold in determining whether the model results meet established evaluation criteria. This means that there is at least a 90 percent probability that a constituent would not exceed the evaluation criteria.

With the proposed engineering controls, the water quality model predicts that the NorthMet Project Proposed Action would not cause any significant water quality impacts because: 1) exceedances of the P90 threshold did not occur, 2) the NorthMet Project Proposed Action concentrations were no higher than concentrations predicted for the Continuation of Existing Conditions scenario, 3) the frequency or magnitude of exceedances for NorthMet Project Proposed Action conditions was within an acceptable range, or 4) the effects were not attributable to NorthMet Project Proposed Action discharges.

The water quality model predicts that the NorthMet Project Proposed Action would not result in significant changes to sulfate concentrations in the Partridge River, but would significantly decrease sulfate concentrations in the Embarrass River. Furthermore, the engineering controls would provide a high degree of reliability and flexibility to ensure that the NorthMet

Project Proposed Action would not cause or contribute to an exceedance of evaluation criteria for sulfate in the future.

Nearly all contact or process water at the NorthMet Project area would be treated at the Mine Site WWTF or Plant Site WWTP before release to the environment. At the Mine Site, about 10 gallons per minute of untreated water would be released during closure (all related to groundwater seepage), which represents less than 5 percent of total Mine Site water releases (including treated and untreated water). At the Tailings Basin, about 20 gallons per minute of untreated water would be released during closure (all related to Tailings Basin seepage that bypasses the groundwater containment system), which represents less than 1 percent of total Tailings Basin water releases (including treated and untreated water). The NorthMet Project Proposed Action is also not predicted to result in any significant changes to groundwater and surface water flows when compared to existing conditions.

Mercury is another constituent of concern, primarily because many of the lakes and rivers in the area are currently classified as "impaired waters" by the MPCA due to elevated mercury content in fish tissue. The NorthMet Project Proposed Action is located within the Lake Superior Basin and would be subject to the Great Lakes Initiative (GLI) mercury water quality standard of 1.3 nanograms per liter (ng/L). The NorthMet ore and waste rock contain trace amounts of mercury; however, the modeling and data suggest that the mercury concentration in the West Pit Lake, the only surface water discharge at the Mine Site, would stabilize below the GLI standard at approximately 0.9 ng/L. There would also be mercury in the tailings, where about 95 percent of the mercury in the ore is predicted to be permanently retained in the solids disposed of in the Tailings Basin and Hydrometallurgical Residue Facility. The mercury concentration in seepage from the Tailings Basin is anticipated to be below the GLI standard. Water from the NorthMet Project Proposed Action is predicted to increase mercury loadings in the Embarrass River Watershed (from 22.3 to 22.5 grams per year) but decrease mercury loadings in the Partridge River (24.2 to 23.0 grams per year). The net effect of these changes would be an overall reduction in mercury loadings to the downstream St. Louis River.

The BWCAW and Voyageurs National Park are located in different watersheds than the NorthMet Project area. Surface water flow and surficial groundwater flow from the NorthMet Project Proposed Action would not directly, indirectly, or cumulatively affect the water in these areas. Potential bedrock groundwater flow from the Mine Site north to the Northshore Mine, if determined possible through monitoring, would be prevented.

NorthMet Project Effects on Biological Resources

Direct and indirect effects to wetlands would result from mining operations. The NorthMet Project Proposed Action would directly affect 913.8 acres of wetlands located within the NorthMet Project area, mostly within the Mine Site, as a result of activities such as filling, excavation, and installation of a containment system within the wetland boundary, and, therefore, these wetlands would be permanently lost. Direct effects would occur on the following wetland types: coniferous bog, shrub swamp, coniferous swamp, shallow marsh, deep marsh, sedge/wet meadow, hardwood swamp, and open bog.

A wetland may be fragmented as the result of direct impacts that split a wetland resource area into multiple parts. These fragmented parts could potentially be isolated from other wetlands and would no

longer have any adjacent upland watershed area, which could result in the loss of functions in the wetland fragments. The fragmented wetlands that were determined to lose their functions (26.9 acres) would be mitigated up front and included in the compensatory mitigation.

The overall wetland mitigation strategy for the NorthMet Project Proposed Action would be to compensate for unavoidable wetland impacts in-place (within the same 8-digit Hydrologic Unit Code), in-kind where possible, and in advance of impacts when feasible in order to replace lost wetland functions. The USACE St. Paul District has not made a final determination of the compensation ratios that would be required for the NorthMet Project Proposed Action. The final decision on compensatory mitigation ratios will be determined at the time of the decision on the DA permit and would be based on current District guidance. PolyMet would ultimately need to satisfy both the federal and state mitigation requirements. The number of mitigation credits to be earned by replacement wetlands will be determined during permitting by the appropriate agencies reviewing the wetland mitigation plan. This will be based on the extent to which the sites meet the target goals established during permitting. These include, among other things, restoration of wetland-appropriate hydrology and the establishment of a target plant community or type.

Compensatory mitigation would be required for the 913.8 acres of wetlands that would be directly affected. Depending on the location, type, and timing of compensatory mitigation, the minimum required amount of replacement wetlands for direct effects could potentially range from 913.8 acres up to 1,827.6 acres (i.e., compensation ratios of 1:1 up to 2:1). In addition, compensatory mitigation for the 26.9 acres of wetland fragmentation would be provided up front. Due to both on- and off-site limitations and technical feasibility, it is not practicable to replace all affected wetland types with an equivalent area of in-kind wetlands.

Proposed off-site wetland compensation of 1,602.7 acres could provide 1,513.3 wetland mitigation credits. In addition, a total of 197.1 acres of upland buffer areas are proposed to be established with native vegetation around the wetland restoration areas. In accordance with USACE guidelines, credit for the upland buffer areas would be at a 4:1 ratio, resulting in an additional 49.3 credits. The total off-site mitigation could provide 1,562.5 wetland mitigation credits. Actual compensatory ratios determined during permitting may vary from these assumptions. The determination of final mitigation credits required to offset the effects of the NorthMet Project Proposed Action would be determined by the agencies during wetland permitting.

Financial assurances for the direct wetland impact mitigation would be required until success of the mitigation sites is assured. While this wetland mitigation would be expected to be approved and constructed in advance of any authorized wetland impacts, it is unclear whether these sites would be well-established enough for financial assurances to be waived. The USACE would also consider the application of financial assurances for potential indirect wetland effects and monitoring. Both the USACE and MDNR would require consideration of financial assurances during the permitting process.

Wetlands that were not filled or excavated (permanently lost), but having a reduced function, would be considered indirectly affected. Indirect effects on wetlands from the NorthMet Project Proposed Action would result from one or more of the following six factors: 1) wetland

fragmentation; 2) changes in wetland hydrology resulting from changes in watershed area; 3) changes in wetland hydrology due to groundwater drawdown resulting from open pit mine dewatering; 4) changes in wetland hydrology from groundwater drawdown resulting from operation of the Plant Site, including groundwater seepage containment; 5) changes in stream flow near the Mine Site and Plant Site and associated effects on wetlands abutting the streams; and 6) change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations.

Wetland mitigation for potential indirect wetland effects would be determined by the agencies during permitting. If the NorthMet Project Proposed Action were to be permitted, mitigation for indirectly affected wetlands would be determined through monitoring. Additional compensation may be required if determined necessary based on monitoring results.

Wetland hydrology and vegetation monitoring would be conducted during the operations phase of the NorthMet Project Proposed Action to document indirect effects on wetlands. Prior to the start of the NorthMet Project Proposed Action, monitoring would be established based on permit conditions. The monitoring would describe the purpose, methods, and criteria to be implemented to document indirect effects on wetlands. A component of the monitoring plan would be based on those wetlands that would have a high likelihood of indirect effects as a result of groundwater drawdown. In the event that the required wetland monitoring identifies additional indirect effects, permit conditions would likely include a plan for adaptive management practices to be implemented, such as expanded monitoring and hydrologic controls. Additionally, compensatory mitigation would be required if indirect impacts were identified during annual reporting. Permit conditions would likely include an adaptive management plan to account for any additional impacts that may be identified in the annual monitoring and reporting.

For vegetation, the NorthMet Project Proposed Action would directly affect approximately 1,719 acres that are mapped by the MDNR as MBS Sites of High Biodiversity Significance. Within these Sites of High Biodiversity Significance, several native plant communities are mapped that would be affected by the NorthMet Project Proposed Action, including 698.2 acres with a conservation status rank of “imperiled-vulnerable” (conservation status rank S2 or S3) or “vulnerable” (conservation status rank S3), 92.6 acres with a conservation status rank of “apparently secure” (conservation status rank S4), and 178.9 acres with a conservation status rank of “widespread and secure” (conservation status rank S5). Disturbed areas would be reclaimed during operations and at closure. Reclamation objectives would include rapidly establishing a self-sustaining plant community, controlling air emissions, controlling soil erosion, providing wildlife habitat, and minimizing the need for maintenance. Seed mixes and methodologies would be designed to minimize the introduction of invasive species. Reclamation seed mixes would be approved during permitting.

There are no federally listed plant species in the NorthMet Project area. There are 10 state-listed plant species, all at the Mine Site; eight species would be directly affected and two would be indirectly affected by the NorthMet Project Proposed Action.

There are no federally or state-listed threatened or endangered fish or macroinvertebrate species known to occur in

the NorthMet Project area. The NorthMet Project Proposed Action could potentially affect aquatic physical habitat via changes in streamflow, affect riparian and aquatic connectivity via construction activities within the riparian zone, and affect water quality by increasing solute concentrations. As a result of these changes, the NorthMet Project Proposed Action could potentially affect special status species (i.e., federally or state-listed threatened and endangered species, Regional Forester Sensitive Species [RFSS], and MDNR Species of Greatest Conservation Need [SGCN]).

The NorthMet Project Proposed Action would reduce water flows in several tributary streams to the Partridge and Embarrass rivers, but the flows would remain within the range of annual natural variability. Therefore, changes in flow are not anticipated to result in any measurable effects on existing aquatic habitat in any streams downstream of the NorthMet Project area.

Water quality modeling predicts that the NorthMet Project Proposed Action would not cause an exceedance of the Class 2B (aquatic life) water quality standards, with the exception of aluminum and lead not attributable to process water from the NorthMet Project Proposed Action (i.e., attributable to non-contact stormwater runoff). In a few cases where solute concentrations naturally exceed the Class 2B standards in NorthMet Project area waters (i.e., aluminum, iron, and manganese), the NorthMet Project Proposed Action would either reduce or not measurably increase concentrations of these solutes.

Three federally listed wildlife species—the Canada lynx, gray wolf, and northern long-eared bat—may be affected by localized direct decrease and fragmentation of habitat and designated critical habitat. The Canada lynx and gray wolf may also be affected by the increased, but low, potential for incidental take resulting from vehicular collisions due to increased project-related traffic. The northern long-eared bat would likely be affected through loss of potential summer roost habitat and foraging areas. Restoration of disturbed areas as part of mine closure would potentially create lynx and wolf habitat, although this successional process could take decades. Thirteen additional state-listed species—including the moose, little brown bat, eastern brown bat, northern goshawk, boreal owl, eastern heather vole, wood turtle, yellow rail, Laurentian tiger beetle, taiga alpine butterfly, Freija's grizzled skipper butterfly, Nabokov's blue butterfly, and Quebec emerald dragonfly—may be affected by the NorthMet Project Proposed Action. RFSS, MDNR SGCN, and other wildlife species, including those considered culturally important, may be affected by increased human activity, noise and vibration, rail and vehicle traffic, or decrease of habitat.

While there would be some direct loss of habitat and wildlife corridors, and some increased risk to individual Endangered, Threatened, or Special Concern plant or animal species, the cumulative projects are unlikely to jeopardize their presence in the state. Rulemaking was conducted with the intent to update the list of Endangered, Threatened, and Special Concern species (*Minnesota Rules*, parts 6134.0100–6134.0400), with new listings becoming effective on August 19, 2013. The FEIS considers any new listings, or changes in the previous listings, associated with the updated list.

NorthMet Project Effects on Cultural and Socioeconomic Resources

The NorthMet Project area is located within the territory ceded by the Chippewa of Lake Superior to the United States in 1854. The Chippewa reserve rights to hunt, fish, and gather on lands in the 1854 Ceded Territory. Harvest levels and other activities are governed by either individual tribal entities (in the case of the Fond du Lac Band) or the 1854 General Codes and subsequent Amendments under the 1854 Treaty Authority (in the case of the Grand Portage and Bois Forte bands).

Pursuant to Section 106 of the National Historic Preservation Act, the federal Co-lead Agencies identified several historic properties in consultation with the State Historic Preservation Office (SHPO), Bands, and PolyMet. The entities consulted regarding the eligibility of the Spring Mine Lake Sugarbush (maple sugar camp site); a segment of the *Mesabe Widjiu* (or Laurentian Divide, which is regarded as culturally significant to many Ojibwe Bands); a segment of the Beaver Bay to Lake Vermilion Trail; the Erie Mining Company Concentrator Building; the Erie Mining Company Administration Building; Erie Mining Company Railroad Mine and Plant Track, Main Line Segment, and Dunka Railroad Segment; Erie Mining Company Railroad Corridor Historic District; Duluth, Missabe, and Iron Range Segment; and the Erie Mining Company Landscape Historic District.

Effect determinations have been drafted by the federal Co-lead Agencies for review and comment by the Bands, SHPO, and PolyMet. The federal Co-lead Agencies believe that there would be no adverse effect on the Erie Mining Company Railroad Mine and Plant Track, Main Line Segment, and Dunka Railroad Segment; Erie Mining Company Railroad Corridor Historic District; Duluth, Missabe, and Iron Range Segment; or Erie Mining Company Administration Building. However, a segment of the *Mesabe Widjiu*, Spring Mine Lake Sugarbush, a segment of the Beaver Bay to Lake Vermilion Trail, the Erie Mining Company Concentrator Building, and the Erie Mining Company Landscape Historic District would be adversely affected by the NorthMet Project Proposed Action. These determinations will be used to facilitate ongoing consultation with the Bands, SHPO, and PolyMet pertaining to the application of adverse effect criteria to these properties. Mitigation measures to resolve adverse effects would be identified after consultation on the final effects determinations and consideration of any measures to avoid or minimize adverse effects.

Natural resources and the lands on which they are gathered are important to the Bands for a number of reasons, including their cultural, spiritual, and/or historic meanings, and will be considered under federal agency tribal trust responsibilities as outlined above and also as cultural resources under NEPA.

The Arrowhead region of northeastern Minnesota is home to communities that are economically dependent on the natural environment for their existence. Given the region's location in an historic mining district, many towns and cities have provided and continue to provide workers and services to the local mines. Other communities closer to the BWCAW and Voyageurs National Park primarily serve the needs of recreational users (see Figure 1).

According to PolyMet, the NorthMet Project Proposed Action would create up to 500 direct jobs during peak construction and 360 direct jobs during operations. These direct jobs would generate additional indirect and

induced employment, estimated to be 332 additional construction-phase jobs and 631 additional operations-phase jobs. Indirect and induced effect employment numbers are calculated by IMPLAN and may include temporary, part-time, full-time, long-term, or short-term jobs. While some skilled workers would be involved only temporarily and would possibly relocate from outside the region, the majority of the NorthMet Project Proposed Action-related jobs are expected to be filled by those currently residing in the Arrowhead region.

Federal, state, and local taxes would total an estimated $80 million annually. During operations, there would be approximately $231 million per year in direct value added through wages and rents and $332 million per year in direct output related to the value of the extracted minerals. As with employment, these direct economic contributions would create indirect and induced contributions, estimated at $99 million in value added and $182 million in output.

Other Environmental Consequences of the NorthMet Project

In addition to the effects discussed above, the NorthMet Project Proposed Action would also affect other resources. The NorthMet Project Proposed Action would also contribute air pollutants with risk guideline values for assessing potential human health effects (air toxic pollutants) during construction, mining, and processing activities. These pollutants were all found to be below state and federal risk guidelines. Additionally, the NorthMet Project Proposed Action would not adversely affect visibility in nearby Class I areas, such as the BWCAW and Voyageurs National Park. The NorthMet Project Proposed Action would cause noise, affecting some sensitive receptors. Nearby residences or other permanent sensitive receptors would not be affected, and some wildlife may avoid the area at times.

Environmental Consequences of the Land Exchange

The non-federal parcels that would be part of the Land Exchange Proposed Action are largely undisturbed tracts that would be managed under the Forest Plan, which would allow for some timber harvesting under varying rotation periods. For the most part, however, the acquired lands would be left undeveloped and would be open for public use and enjoyment.

The federal lands acquired by PolyMet would largely be used for mining, and would eventually be restored in accordance with the NorthMet Project Reclamation Plan. There is no legal public access to the federal lands via land, so any current public use or exercise of usufructuary rights requires the permission of adjacent private landowners.

Cumulative Effects

In accordance with NEPA and MEPA, this FEIS contains an analysis of the cumulative effects of the NorthMet Project Proposed Action and Land Exchange Proposed Action. Cumulative effects are defined by the Council on Environmental Quality (CEQ) NEPA regulations as:

> the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other action. Cumulative impacts can result from individually minor but collectively significant actions taking place over a

period of time. (40 Code of Federal Regulations [CFR] § 1508.7)

The Minnesota Environmental Quality Board's rules at *Minnesota Rules*, part 4410.0200, subparts 11 and 11a, mirror the CEQ's definition of cumulative effects.

To assess cumulative effects, the Co-lead Agencies identified other past, present, and reasonably foreseeable future projects and activities in the region that, when combined with the NorthMet Project Proposed Action and Land Exchange Proposed Action, could incrementally cause cumulative effects. Given the geographic and temporal scale of effects, each component of the NorthMet Project Proposed Action was analyzed.

For example, construction and mining operations would require stripping and excavation of the surface. These activities require heavy equipment and explosives, which would emit air pollutants and noise. The cumulative effects assessment focused on how air emissions travel and may interact with other sources. Air emissions can travel many miles before they are no longer detectable. Hence, the analysis includes the emissions from other projects and activities well beyond the boundaries of the NorthMet Project area. Noise effects from NorthMet Project Proposed Action activities, on the other hand, would dissipate much closer to their source and would not interact with other activities elsewhere in the area.

In summary:

- The Proposed Connected Actions would cause some additive effects on certain resources, such as loss of vegetation and wetlands in the NorthMet Project area, as well as changes in water quality and use, air quality, and increased economic activity for the life of the mine.
- There would be few cumulative effects from the NorthMet Project Proposed Action after proposed mitigation and adaptive management measures are applied. The affected resources included water quantity and quality, air quality, wetlands, and vegetation.
- No Endangered, Threatened, or Special Concern plant or animal species would be cumulatively affected.

ALTERNATIVES

Consistent with federal and state law, the EIS process identified and analyzed alternatives that could have resulted in improved environmental and socioeconomic benefits and still achieve the NorthMet Project's Purpose and Need. Alternatives offer decision-makers and the public options to the proposal and include a No Action Alternative that considers the effects that would occur if the proposed project was not implemented.

Alternatives were identified and screened in accordance with the requirements of NEPA (40 CFR 1505.1(e)) and/or Minnesota Environmental Quality Board Rules for MEPA (*Minnesota Statutes*, §§116D.04 and 116D.045, and *Minnesota Rules*, parts 4410.0200–4410.7500) to determine whether they met prescribed criteria to warrant further consideration in the FEIS. Screening criteria were developed to account for technical and economic feasibility and consistency with the NorthMet Project's Purpose and Need. The alternatives that met the screening criteria were evaluated in detail as part of the FEIS. A number of other potential alternatives were screened throughout the NEPA/MEPA process and were either incorporated into the NorthMet Project Proposed Action by PolyMet or were eliminated from detailed analysis because they did not meet the screening criteria. Early alternatives incorporated into the NorthMet Proposed Action included enhanced waste management at the Mine Site, where the most reactive waste would now be ultimately backfilled and covered with water in the East Central Pit, and enhanced engineering design to capture and treat affected water from the Mine Site and Tailings Basin.

Alternatives considered but eliminated from further consideration included alternative wet and dry closure options for the Tailings Basin, backfilling the West Pit with Category 1 waste rock, and underground mining.

Two alternatives to the Proposed Connected Actions are analyzed in detail in the FEIS:

- Proposed Connected Actions Alternative B, which would involve the NorthMet Project Proposed Action, but a smaller-scale land exchange component; and
- No Action Alternative, under which neither the NorthMet Project Proposed Action, nor the Land Exchange Proposed Action would occur.

Proposed Connected Actions Alternative B

Proposed Connected Actions Alternative B would involve the NorthMet Project Proposed Action as previously described and a land exchange involving a smaller federal parcel (see Figure 10). Compared to the Land Exchange Proposed Action, Land Exchange Alternative B would convey fewer acres of federal land (4,833.7 [GLO] acres) for fewer acres of non-federal land (4,651.5 [GLO] acres contained within a single tract).

No Action Alternative

Under the No Action Alternative, the NorthMet Project Proposed Action would not be implemented and no land exchange would take place. The NorthMet Project No Action Alternative would not result in 913.8 acres of direct wetland impacts. The federal government would not exchange lands with PolyMet, and the USFS would continue to manage the lands in accordance with the

Forest Plan. Private lands would not be acquired in exchange for the USFS lands at the Mine Site. At the Mine Site, PolyMet would be required under existing exploration approvals to reclaim surface disturbance associated with exploratory and development drilling activities. No further upgrades or new segments would be constructed along the existing power transmission line, railroad, or Dunka Road, which would continue to be used by their private owners. At the former LTVSMC processing plant and Tailings Basin, the land owner, Cliffs Erie, would continue to complete closure and reclamation activities as specified under state permits and plans, and the Cliffs Erie Consent Decree.

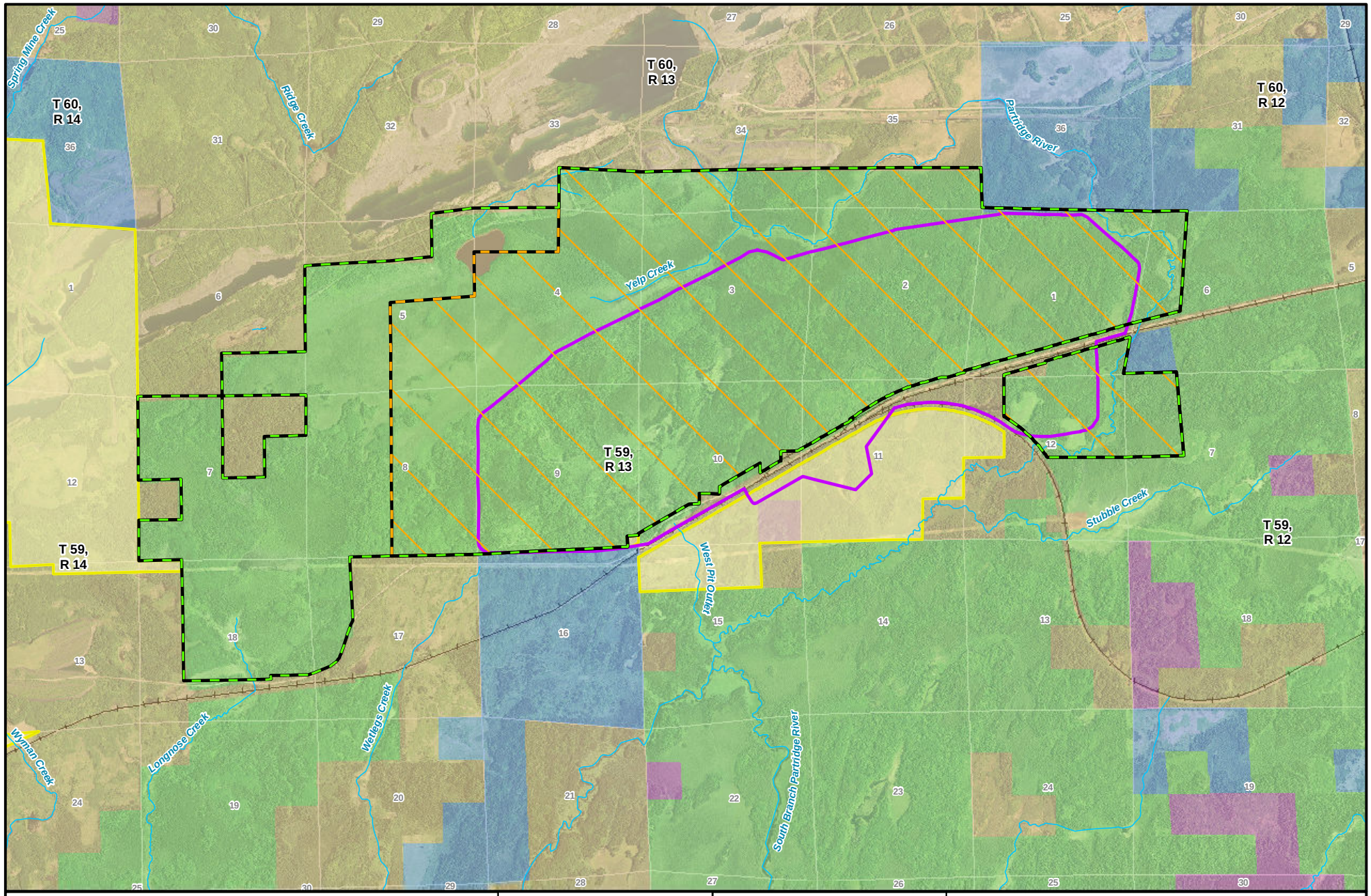

Federal Lands
Alternative B
Mine Site
Stream/River
Section Label
National Forest Land
County Land
State of Minnesota Land
Other Land
PolyMet Owned/Leased Area

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 10
Land Exchange Alternative B
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Comparison of Effects by Alternative

Table 1 provides a comparison of the effects on resources from the Proposed Connected Actions (NorthMet Project Proposed Action and Land Exchange Proposed Action), Proposed Connected Actions Alternative B, and the No Action Alternative. It is intended to be a brief description of the major effects under the alternatives and not an exhaustive list or in-depth analysis. Chapters 5 and 6 of the FEIS provide detailed explanations of the predicted direct, indirect, and cumulative effects under these alternatives.

In comparison to the Proposed Connected Actions, the Proposed Connected Actions Alternative B (NorthMet Project Proposed Action and Land Exchange Alternative B) would have the same effects as the NorthMet Project Proposed Action, but fewer lands would be conveyed through the land exchange. The No Action Alternative would not directly affect the existing environment and management of these lands would continue in accordance with their current permits. Compared to the Proposed Connected Actions and Proposed Connected Actions Alternative B, the No Action Alternative would result in active but different comprehensive management of water from the existing LTVSMC Tailings Basin. There would be no other measurable effects on other resources compared to their existing conditions.

Agency-Preferred Alternative

Consistent with the CEQ regulations, the federal Co-lead Agencies are required to identify an agency-preferred alternative in the FEIS, unless another law prohibits the expression of such a preference. For the USFS, the agency-preferred alternative is the Land Exchange Proposed Action. For the USACE, Appendix B of 33 CFR 325 supersedes the CEQ requirement to identify an agency-preferred alternative. These procedures state that, "*the Corps is neither an opponent nor a proponent of the applicant's proposal; therefore the applicant's final proposal will be identified as the 'applicant's preferred alternative' in the Final EIS.*" No similar requirement to identify a preferred alternative exists for the MDNR under state law.

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Table 1 Comparison of Effects by Alternative

Resource	Proposed Connected Actions	Proposed Connected Actions Alternative B	No Action Alternative
Land Use	• No effects on land use that would require changes in ordinances or comprehensive forest plans • Federal lands within the NorthMet Project area would be replaced with acreage of equal value through a land exchange	• Mostly similar effects as Proposed Connected Actions, with fewer federal acres exchanged	• Existing LTVSMC site would be reclaimed in accordance with the Cliffs Erie reclamation/closure plan
Water Resources	• Greater than 90 percent of groundwater and 100 percent of surface water at the Tailings Basin would be captured and treated to a concentration at or below applicable water quality evaluation criteria • The NorthMet Project Proposed Action would not cause any significant water quality impacts because: 1) exceedances of the P90 threshold did not occur, 2) the NorthMet Project Proposed Action concentrations were no higher than concentrations predicted for the Continuation of Existing Conditions scenario, 3) the frequency or magnitude of exceedances for NorthMet Project Proposed Action conditions was within an acceptable range, or 4) the effects were not attributable to NorthMet Project Proposed Action discharges • Mercury loadings to the Embarrass River would increase slightly, decrease slightly to the Partridge River, with an overall net decrease in NorthMet Project Proposed Action loadings to the downstream St. Louis River. Estimated	• Same as under Proposed Connected Actions	• Seepage water quality from the existing LTVSMC Tailings Basin would be expected to improve over time as a result of the Cliffs Erie Consent Decree, other permit requirements (e.g., Permit to Mine), and natural attenuation of contaminants

Resource	Proposed Connected Actions	Proposed Connected Actions Alternative B	No Action Alternative
	potential increases and decreases are beyond the measurement precision of analytical testing methods. Discharges from the Plant Site WWTP and Mine Site WWTF would be at or below the GLI water quality standard of 1.3 ng/L • Sulfate concentrations would remain unchanged in the Partridge River and would be significantly reduced in the Embarrass River • Plant Site WWTP effluent would be used to augment flows to tributary streams and wetlands downgradient from the Tailings Basin to offset groundwater seepage captured in the containment system and the south surface seepage management system		
Wetlands and Floodplains	• 913.8 acres of wetlands in NorthMet Project area would be directly affected • 6,568.8 to 7,694.2 acres of wetlands in NorthMet Project area could be indirectly affected • 940.7 acres of directly affected and fragmented wetlands to be mitigated up front • 1,602.7 acres of compensatory off-site wetlands • 505.5-acre net increase of wetlands to the federal estate (through Land Exchange Proposed Action); therefore, Land Exchange Proposed Action conforms to EO 11990 • 376.2-acre net increase of mapped floodplain but would result in a 1,226.0-acre net decrease of floodplain area to the federal estate (through Land Exchange Proposed Action); however,	• Same direct and indirect effects and compensatory mitigation at NorthMet Project area as under Proposed Connected Actions • 69.9-acre net increase of wetlands to the federal estate (through Land Exchange Alternative B); therefore, Land Exchange Alternative B conforms to EO 11990 • 376.2-acre net increase of mapped floodplain but would result in a 861.7-acre net decrease of floodplains to the federal estate (through Land Exchange Alternative B); however, no decrease in regulatory floodplains, no increase in flood damage potential, and no change in ecological function of floodplain; therefore, Land Exchange Alternative B conforms to EO 11988	• No change in wetland or floodplain acreage

Resource	Proposed Connected Actions	Proposed Connected Actions Alternative B	No Action Alternative
	no decrease in mapped floodplains, no increase in flood damage potential, and no change in ecological function of floodplain. Therefore, Land Exchange Proposed Action conforms to EO 11988		
Vegetation (includes habitat and Special Status Species)	• 4,028.5-acre decrease in vegetation in the NorthMet Project area • Special concern plant species: eight directly affected, two indirectly affected in the NorthMet Project area • 579.6-acre net increase of vegetation land cover types to federal estate (through Land Exchange Proposed Action) • Decrease of 10 plant species, increase of three different plant species to the federal estate (through Land Exchange Proposed Action)	• Same decrease of vegetation in NorthMet Project area as under Proposed Connected Actions • Same effects on plant species in the NorthMet Project area as under Proposed Connected Actions • 173.6-acre net increase of vegetation land cover types to the federal estate (through Land Exchange Alternative B)	• No effects on vegetation
Wildlife (includes Special Status Species)	• 4,028.5-acre decrease of wildlife habitat in the NorthMet Project area • Localized population decrease and fragmentation of critical habitat of the gray wolf and Canada lynx • Localized population decrease and loss of habitat for northern long-eared bat • Low potential for incidental take resulting from vehicular collisions due to increased NorthMet Project Proposed Action-related traffic • Special status species, including SGCN, RFSS, and other wildlife species (such as those considered tribally or culturally significant) may be affected by human activity, noise and vibration, rail and vehicle traffic,	• Same as under Proposed Connected Actions at the NorthMet Project area • 173.6-acre net increase of vegetation land cover types for wildlife habitat to the federal estate (through Land Exchange Alternative B)	• No effects on wildlife

Resource	Proposed Connected Actions	Proposed Connected Actions Alternative B	No Action Alternative
	and decrease of habitat • Wildlife corridors at and adjacent to the NorthMet Project area would be affected through the reduction of access to these corridors • 579.6-acre net increase of vegetation land cover types for wildlife habitat to the federal estate (through Land Exchange Proposed Action)		
Aquatic Species	• No effects from changes in stream flow, which would remain within natural variability • No decrease in the Riparian Connectivity Index • Would not directly exceed or increase existing exceedances of Class 2B water quality standards, with the exception of aluminum that is not attributable to process water from the NorthMet Project Proposed Action (i.e., is attributable to non-contact stormwater runoff • No effect on federally or state-listed aquatic species	• Same as under Proposed Connected Actions	• Seepage water quality from the existing LTVSMC Tailings Basin would be expected to improve over time as a result of the Cliffs Erie Consent Decree, other permit requirements (e.g., Permit to Mine), and natural attenuation of contaminants
Air Quality (includes Greenhouse Gases and Global Climate Change)	• Increased emissions of criteria air pollutants, but below Prevention of Significant Deterioration major source thresholds • Amphibole mineral fiber emissions minimized by installing best available particulate emission control equipment and preventing fugitive dust generation • The air quality of the BWCAW would not be adversely affected by the NorthMet Project Proposed Action	• Same as under Proposed Connected Actions	• Continued air (fugitive dust) effects at LTVSMC site until remediation occurs under closure/reclamation plan

Resource	Proposed Connected Actions	Proposed Connected Actions Alternative B	No Action Alternative
Noise and Vibration	• Added noise emissions and vibration. However, in all cases, the NorthMet Project Proposed Action, during the operations phase, would comply with the applicable state standards • Noise, ground vibration, and air blast impact area/zone would be limited to 11,456, 11,334, and 11,469 acres, respectively. The BWCAW, which is 20 miles away, is outside the maximum area of audibility (247,612 acres)	• Same as under Proposed Connected Actions	• No effects
Cultural Resources and Historic Properties	• Adverse direct and indirect effects on the *Mesabe Widjiu* (Laurentian Divide), Spring Mine Lake Sugarbush, Beaver Bay to Lake Vermilion Trail Segment, Erie Mining Company Concentrator Building, and Erie Mining Company Landscape Historic District due to loss of sites and proximity to proposed activities • Direct effects, but no adverse effects, on the Erie Mining Company Railroad Mine and Plant Track, Main Line Segment, and Dunka Railroad Segment; Erie Mining Company Railroad Corridor Historic District; DM&IR Segment; and Erie Mining Company Administration Building due to refurbishment and new construction • Potential to affect 1854 Treaty resources by potential limitation or elimination of access to public lands within the 1854 Ceded Territory and potential loss of 1854 Treaty resources	• Same as under Proposed Connected Actions	• No effects
Socioeconomics (includes Environmental	• Up to 500 new direct jobs (maximum during construction), plus additional indirect and induced jobs	• Same as under Proposed Connected Actions	• No effects

Resource	Proposed Connected Actions	Proposed Connected Actions Alternative B	No Action Alternative
Justice)	• Millions of dollars revenue for State of Minnesota and federal taxes • Environmental Justice (Native American) populations affected by changes in subsistence uses and potential increased living costs		
Recreation and Visual Resources	• Net increase to the federal estate of recreational land on acquired tracts through Land Exchange Proposed Action • Visual effects would occur, but would not exceed USFS standards	• Fewer federal lands conveyed at NorthMet Project Mine Site under Land Exchange Alternative B • Remaining federal lands at Mine Site would not have public access • Fewer acres acquired through Land Exchange Alternative B • Same visual resources effects as under Proposed Connected Actions	• No effects
Wilderness and Special Designation Areas	• No effects on Wilderness or Special Designation Areas • The air quality of the BWCAW would not be adversely affected by the NorthMet Project Proposed Action	• Same as under Proposed Connected Actions	• No effects
Hazardous Materials	• Potential effects from spills and use of explosives during operations	• Same as under Proposed Connected Actions	• No effects
Geotechnical Stability	• Waste rock stockpiles, Tailings Basin, and Hydrometallurgical Residue Facility would be constructed in accordance with applicable State of Minnesota standards • Monitoring and adaptive management would maintain geotechnical stability	• Same as under Proposed Connected Actions	• Tailings Basin would be subject to closure and reclamation activities in accordance with MDNR requirements

NEXT STEPS

Agency Use of the FEIS in Decision-making

The USACE will use the FEIS as the basis for its ROD whether to issue a DA permit for impacts to waters of the United States, including wetlands, associated with the NorthMet Project Proposed Action. Similarly, the USFS will use the FEIS as the basis for its ROD for the Land Exchange Proposed Action. The MDNR will determine if the FEIS is adequate according to the criteria provided in Minnesota Rules.

The Land Exchange is subject to the pre-decisional objection regulations at 36 CFR 218 effective March 27, 2013. Individuals and entities who provide specific written comment, as defined in § 218.2, during scoping or the comment period will be eligible to participate in the objection process.

Financial Assurance

State law requires that PolyMet provide financial assurance before a Permit to Mine can be granted. Financial assurance instruments covering the estimated cost of reclamation, should the mine be required to close for any reason at any time, must be submitted and approved by the MDNR. There are no applicable federal financial assurance requirements that would be incorporated into the Permit to Mine, but the USACE would consider the application of financial assurances for direct impacts and potential indirect wetland effects and monitoring.

Financial assurance could be required indefinitely and could include self-sustaining instruments. The level of engineering design and planning required to calculate detailed financial assurance amounts is not currently available, but would be evaluated in detail during the permitting process.

Both the USACE and MDNR would require consideration of financial assurances during the permitting process. The MDNR requires financial assurances be reviewed and updated on an annual basis. The USACE requires updates to financial assurances as needed.

Permits and Approvals

PolyMet would be required to obtain the required federal, state, and local permits and approvals summarized in Table 2 below.

Table 2 Key Government Permits or Actions

Agency	Permit/Action	Reason Permit or Action is (or may be) Needed
Federal		
USACE	Department of the Army Permit	For affected waters within the jurisdiction of the USACE under the CWA, 33 CFR 320-332 including Appendix B
	Section 106 NHPA Compliance (Minnesota Historic Preservation Office)	Necessary due to USACE evaluating issuance of a permit to discharge fill material into waters of the United States under the provisions of Section 404 of the Clean Water Act (33 USC 1344), 36 CFR Part 800
U.S. Fish and Wildlife Service	Section 7 Endangered Species Act (ESA) Compliance	Necessary due to the NorthMet Mining Project and Land Exchange being a federal undertaking, 50 CFR 402
USFS	Land Exchange	To resolve the conflict between surface and mineral estates
	Section 106 NHPA Compliance (Minnesota Historic Preservation Office)	Necessary due to the NorthMet Mining Project and Land Exchange being a federal undertaking, 36 CFR Part 800
State		
MDNR	Permit to Mine	Required for all nonferrous metallic mining operations, *Minnesota Rules*, chapter 6132
	Endangered Species Taking Permit (if required)	If there are state-listed species that may be taken by the NorthMet Project Proposed Action, *Minnesota Rules*, parts 6212.1800-6212.2300 and 6134
	Water Appropriations Permit for plant make-up water	For withdrawal of water from Colby Lake for plant make-up water; for mine dewatering; for stream augmentation; *Minnesota Rule*s , part 6115
	Dam Safety Permit	For the Tailings Basin, Hydrometallurgical Residue Facility, and potentially the water retention dikes at the Mine Site (e.g., water treatment plant pond dikes), *Minnesota Rules*, parts 6115.0300-6115.0520
	Permit for Work in Public Waters	For possible modifications and diversions of local streams in constructing the West Pit outfall; *Minnesota Rules*, part *6115*
	Wetland Replacement Plan approval under WCA	For affected wetlands within the scope of the WCA or that constitute "public wetlands"

Agency	Permit/Action	Reason Permit or Action is (or may be) Needed
	Burning Permit (if required)	If vegetative material would need to be burned on site during times with no snow cover
MPCA	Section 401 Water Quality Certification/Waiver	Required in conjunction with the DA Permit (Section 404 Permit)
	National Pollutant Discharge Elimination System and State Disposal System (NPDES/SDS) Permits	For construction and industrial activity that would disturb 1 acre or more of land, and the management, treatment and/or discharge of process wastewater to surface water or groundwater
	Solid Waste Permit	For construction debris
	Air Emissions Permit (Part 70 Permit)	For emissions of regulated air pollutants
	Waste Tire Storage Permit	For storage of waste tires generated from NorthMet Project Proposed Action-related vehicles (if required)
	General Storage Tank Permit	For multiple NorthMet Project Proposed Action aboveground storage tanks
MDH	Radioactive Material Registration	For measuring instruments
	Permit for Non-Community Public Water Supply System and a Wellhead Protection Plan (if proposed)	Existing Plant Site potable water treatment plant to be refurbished
	Permit for Public On-site Sewage Disposal System	For sewage waste generated during construction and operation that would be disposed of on site
Local		
City of Hoyt Lakes	Zoning Permit	To acknowledge NorthMet Project Proposed Action is an allowable use within the zoned district
City of Babbitt	Building Permit	New construction would occur on portions of the NorthMet Project area within the incorporated limits of the City of Babbitt
St. Louis County	Zoning Permit	To acknowledge NorthMet Project Proposed Action is an allowable use within the zoned district

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1.0 INTRODUCTION

1.1 OVERVIEW

The Minnesota Department of Natural Resources (MDNR), U.S. Army Corps of Engineers (USACE), and U.S. Forest Service (USFS) have prepared a joint state-federal Final Environmental Impact Statement (FEIS) for the proposed NorthMet Mining Project and Land Exchange (see Figure 1.1-1). This FEIS follows the DEIS (2009) and SDEIS (2013). For more information on development of the FEIS, see Chapter 2.

PolyMet Mining, Inc. (PolyMet) is proposing to develop the NorthMet copper-nickel-platinum group elements (PGE) mine and associated processing facilities in northeastern Minnesota. A land exchange is also proposed with the United States Forest Service (USFS) to eliminate a conflict between PolyMet's desire to surface mine and the United States' surface rights, including USFS administration of National Forest System (NFS) land. Because the Land Exchange is closely related to the NorthMet Project, it is considered a connected action, and, as such, is included in the analysis of environmental effects.

Under state and federal regulations, multiple actions or projects that are connected actions must be considered in total in preparing an EIS. For the FEIS, the NorthMet Project Proposed Action and the Land Exchange Proposed Action constitute the Proposed Connected Actions, which comprise two major components (see Figure 1.1-1):

- The NorthMet Project Proposed Action consisting of:
  - Mine Site: A new surface mine, which would include development of mine pits, permanent and temporary waste rock stockpiles, an overburden storage and laydown area, a Wastewater Treatment Facility (WWTF), water collection and conveyance pipelines, a Central Pumping Station (CPS), and a Rail Transfer Hopper.
  - Transportation and Utility Corridor: Expansion of existing and construction of new infrastructure to connect the Mine Site and the Plant Site including upgrades to Dunka Road, water pipelines, transmission lines, and new railroad connections.
  - Plant Site: Existing facilities remaining from the former LTV Steel Mining Company (LTVSMC), which closed in 2001, would be refurbished and reused. Two new facilities would be constructed, one for beneficiation and one for hydrometallurgical processing. Associated with these would be the expansion of the existing LTVSMC Tailings Basin to accommodate NorthMet Project tailings, construction of a Hydrometallurgical Residue Facility, water collection and conveyance pipelines, and construction of a new Wastewater Treatment Plant (WWTP) and pond.
- The Land Exchange Proposed Action consisting of:
  - USFS conveyance of 6,650.2 acres (General Land Office [GLO]) of Superior National Forest lands encompassing the proposed NorthMet Mine Site and the lands surrounding the Mine Site to PolyMet.

- USFS acquisition of up to 6,722.5 acres (GLO) on five tracts of private land that lie within the Superior National Forest proclamation boundary that are currently owned or would be acquired by PolyMet. The final proposed configuration of land would be determined after the market value of the parcels is determined by appraisals and would be presented in the Record of Decision (ROD).

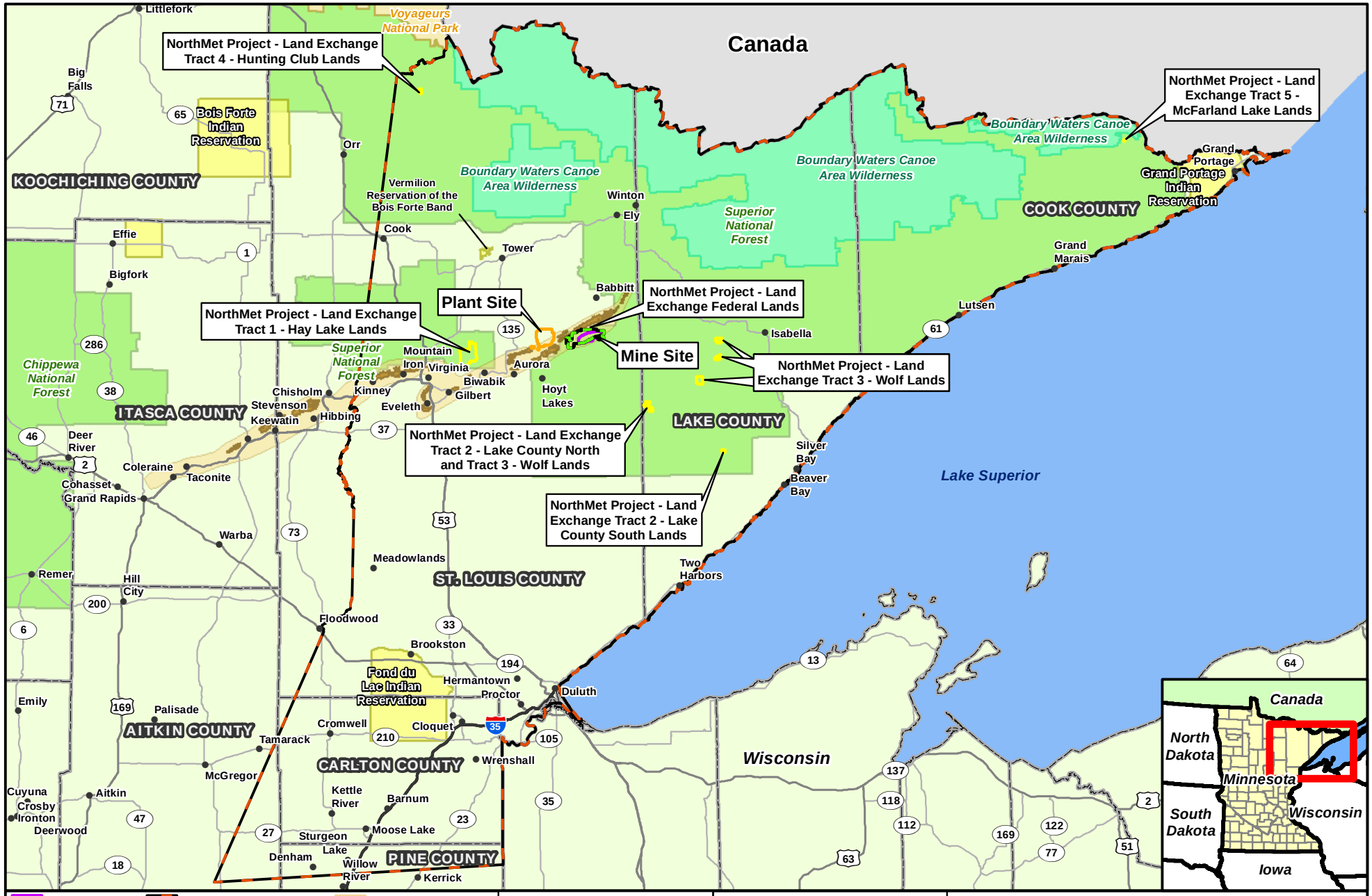

Figure 1.1-1
NorthMet Project and Land Exchange Area
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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1.1.1 NorthMet Project

The NorthMet Project area, including the Mine Site, Plant Site, and connecting infrastructure, would be located in St. Louis County, Minnesota, and situated at the eastern end of the Mesabi Iron Range (see Figure 1.1-2). The NorthMet Project area is located within the St. Louis River Watershed and would not be hydrologically connected to the Boundary Waters Canoe Area Wilderness (BWCAW). The Mine Site is an area of the Superior National Forest that has not previously been mined. It is located approximately 6 miles south of the City of Babbitt and directly south of the Northshore Mining Company's Northshore Mine, which is an active taconite/iron mine.

The Plant Site would be approximately 6 miles north of the City of Hoyt Lakes at the former LTVSMC processing plant. This facility would be refurbished and would include a new Beneficiation Plant and Hydrometallurgical Plant.

When operational, surface mining and processing of copper-nickel-PGE ore would take place over an approximately 20-year mine life and have the following outputs:

- Approximately 73,068 tons per day (tpd) of rock, including up to 32,000 tpd of ore from a surface mine with three pits (i.e., East Pit, Central Pit, and West Pit);
- Approximately 15 million tons of waste rock annually;
- Approximately 11.3 million tons of tailings from the Beneficiation Plant annually;
- Residues from the Hydrometallurgical Plant, up to 313,000 tons annually (dependent upon factors such as feedstock, markets, etc.); and
- 113,000 tons of copper concentrate, 18,000 tons of mixed nickel/cobalt hydroxide, and 500 tons of PGE precipitate annually (based on an average mining rate).

Generally, facilities in the NorthMet Project area would be concurrently reclaimed, leaving a smaller portion of the NorthMet Project area to be reclaimed at closure. At the end of mining, PolyMet would first remove all infrastructure and facilities not approved for potential future use, followed by reclamation of disturbed lands. Post-reclamation activities would include monitoring and maintenance of reclamation and water quality until the various facility features were deemed environmentally acceptable, in a self-sustaining and stable condition. See Section 3.2 for a detailed description of the NorthMet Project Proposed Action.

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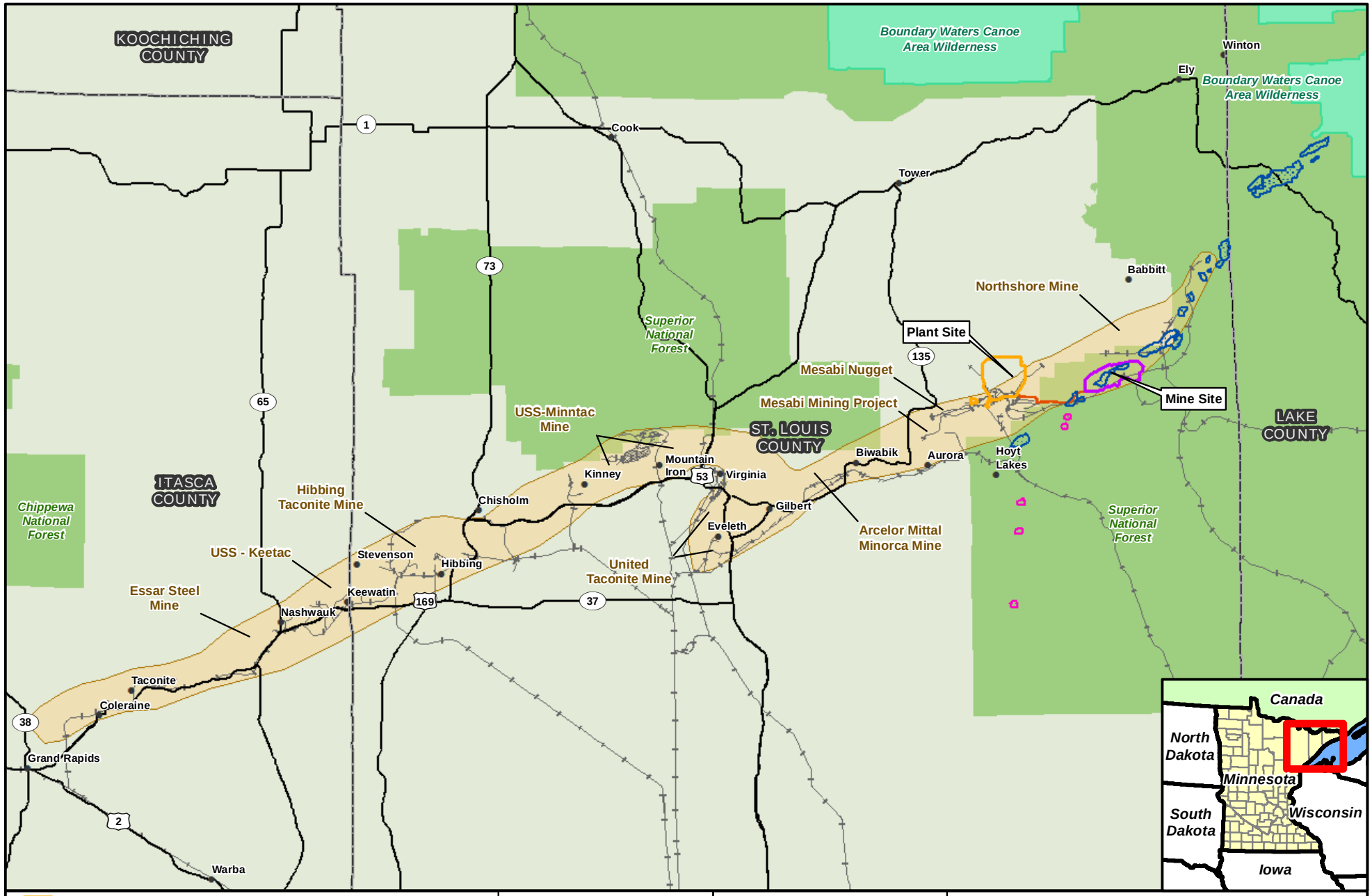

Figure 1.1-2
Mesabi Iron Range Region
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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1.1.2 Land Exchange

The Land Exchange Proposed Action is considered a "connected action" to the NorthMet Project Proposed Action (40 Code of Federal Regulations [CFR] part 1508.25). It is included in the analysis of environmental effects as part of the Proposed Connected Actions. The proposed NorthMet Mine Site would affect federal lands for which PolyMet leases the private subsurface mineral rights. The area affected by the Mine Site was acquired by the United States, for National Forest purposes, under the authority of the Weeks Act of 1911 (16 United States Code [USC] § 515) and is managed by the USFS.

The Land Exchange Proposed Action would involve the transfer of 6,650.2 acres (GLO) of federal lands from public to private ownership, and up to 6,722.5 acres (GLO) of land from private to public ownership, depending on the results of the environmental analysis and real estate appraisals. See Section 3.3.2 for a detailed description of the Land Exchange Proposed Action.

GLO acres represent the acreages associated with the legal descriptions of the parcels based on original surveys performed by the GLO surveyors between 1858 and 1907. As such, GLO acreages are being used as part of the project description and would also be used to define the real estate transaction if the Land Exchange Proposed Action were approved. The analyses of effects presented in Chapters 5 and 6 are based upon Geographic Information System (GIS) data. GIS values indicate the size of the Land Exchange Proposed Action parcels as computed geometrically using mapping software, which may be different than the GLO legal acreage. Unless noted as GLO acres, all values shown in the document are GIS values.

The Land Exchange Proposed Action would allow use of parts of the federal lands for the NorthMet Project Proposed Action mining activities. PolyMet has indicated that management of the exchanged federal lands outside of the proposed mining development could include some upland timber management to enhance wildlife habitat; however, there are no current proposed disturbances to this area. There are no activities proposed on the non-federal lands as part of the Land Exchange Proposed Action.

1.2 EIS ROLES AND RESPONSIBILITIES

1.2.1 Co-lead Agencies

Since both USACE and USFS have federal actions pertaining to the NorthMet Project and Land Exchange, these agencies have elected to become federal Co-lead Agencies for the implementation of the National Environmental Policy Act (NEPA) and the preparation of the FEIS. The USACE is responsible for determining if a project is in the public's interest and complies with the Section 404 (33 USC § 1344) guidelines before issuing a Department of the Army permit pursuant to the Clean Water Act (CWA). The NorthMet Project Proposed Action also requires preparation of a mandatory State Environmental Impact Statement (EIS) under the Minnesota Environmental Policy Act (MEPA) and *Minnesota Rules*, part 4410.4400, subpart (8)(C), which designate the MDNR as the Responsible Governmental Unit (RGU) or lead state agency.

MDNR, USACE, and USFS are Co-lead Agencies for the joint state-federal EIS and, therefore, are responsible for the content of the FEIS and have final authority over the language used.

1.2.2 Cooperating Agencies

Under Section 309 of the Clean Air Act (CAA) (42 USC § 7609), the Administrator of the United States Environmental Protection Agency (USEPA) is directed to review and comment publicly on the environmental impacts of federal activities, including actions for which EISs are prepared. In addition to the USEPA's responsibilities under the CAA, the USEPA also participated in the NorthMet Mining Project and Land Exchange EIS as a Cooperating Agency.

The USEPA submitted comments on the DEIS on February 18, 2010, and assigned the DEIS a rating of EU-3 (Environmentally Unsatisfactory – Inadequate Information). Following the DEIS, USEPA agreed to become a Cooperating Agency pursuant to NEPA for development of the SDEIS in order to participate in resolving issues identified in USEPA's comment letter on the NorthMet Project's initial DEIS. The USEPA was engaged on specific issues and was provided the opportunity to review a preliminary version of the SDEIS. The USEPA submitted comments on the SDEIS on March 12, 2014, and noted that the Co-lead Agencies had adequately addressed the USEPA's comments on the preliminary SDEIS (committing to work further with USACE and MPCA on permit-related issues) and assigned the SDEIS an improved rating of EC-2 (Environmental Concerns – Insufficient Information).

Along with the USEPA, the Bois Forte Band of Chippewa (Bois Forte), Grand Portage Band of Lake Superior Chippewa (Grand Portage), and Fond du Lac Band of Lake Superior Chippewa (Fond du Lac) (collectively, "the Bands") have been invited by the Co-lead Agencies to participate as Cooperating Agencies. The Mine Site, Plant Site, federal lands, and non-federal lands as part of the Land Exchange Proposed Action are all located within the 1854 Ceded Territory where the Bands reserve usufructuary rights (i.e., for hunting, fishing, and gathering). A Memorandum of Understanding (MOU) was signed on February 23, 2005 (with a revision on March 15, 2005) between the USACE, MDNR, Bois Forte, Fond du Lac, and PolyMet. The MOU discussed the roles and procedures in which the signatories would interact as Co-lead and Cooperating agencies. The MOU was again revised on May 19, 2008, to include Grand Portage. Following the addition of the USFS as a Co-lead Agency and the decision to prepare an SDEIS, this MOU was terminated and a Coordination and Communication Plan (CCP) was developed. The CCP was produced jointly by the MDNR, USACE, and USFS, with input from the Bands, to guide interactions during the preparation of the SDEIS. The Great Lakes Indian Fish & Wildlife Commission (GLIFWC) and the 1854 Treaty Authority have assisted the Bands in their roles as Cooperating Agencies. The federal Co-lead Agencies are conducting a parallel process with Section 106 of the National Historic Preservation Act (NHPA) of 1966 (16 USC § 470 et seq.), along with NEPA.

The USEPA and the Bands participated as Cooperating Agencies based on regulatory authority and/or subject matter expertise. All Cooperating Agencies were provided the opportunity to review preliminary versions of the SDEIS and FEIS prior to publication. While the Cooperating Agencies provided input on specific issues during the development of the FEIS, the Co-lead Agencies are solely responsible for the final content of the FEIS.

1.2.3 Other Agencies

While not Co-lead or Cooperating Agencies, other federal and state agencies have important roles on the project. The Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Health (MDH) are assisting the MDNR pursuant to *Minnesota Rules*, part

4410.2200. The United States Fish and Wildlife Service (USFWS) reviewed the Biological Assessment (BA), which is included as Appendix D to the FEIS, and will provide a Biological Opinion (BO).

1.3 PURPOSE AND NEED

1.3.1 Applicant's Purpose and Need Statement

The applicant's stated purpose of the NorthMet Project is to exercise PolyMet's mineral lease to continuously mine, via open pit methods, the known ore deposits (NorthMet Deposit) containing copper, nickel, cobalt, and PGEs to produce base and precious metal precipitates and flotation concentrates by uninterrupted utilization of the former LTVSMC processing plant.

The purpose of the proposed Land Exchange is to consolidate the surface and mineral ownership of the lands involved at the Mine Site. PolyMet has a lease to mine the minerals on its NorthMet Deposit, which is surrounded by active and abandoned taconite mines near Hoyt Lakes. The surface of these lands is owned by the United States.

The need for the NorthMet Project is driven by domestic and global demand of these products. Demand continues to rise for these metals due to the expansion of the green economy and rising demand from developing countries like India, China, and Brazil. Based on the closure of LTVSMC and other job losses in northeastern Minnesota, there is also a need for jobs and economic development in the area.

1.3.2 Co-lead Agencies' Purpose and Need Statements

1.3.2.1 NorthMet Project and Land Exchange Purpose and Need Statement

The Purpose and Need for the Proposed Actions is:

- For PolyMet to utilize its leased mineral rights and recover commercial quantities and quality of semi-refined metal concentrates, hydroxides, and precipitates from the NorthMet ore body in northern Minnesota, and to process the recovered ore by reutilizing the former LTVSMC processing plant.
- To extract metals in a safe, environmentally responsible, energy-efficient, and economically feasible manner subject to mitigation measures designed to avoid or minimize environmental effects to the extent practicable.
- To extract and process metals in a technically and economically feasible manner, such that there would be sufficient income to cover: operating cost (which includes but is not limited to the cost of mining, processing, transportation, and waste management), capital cost (needed to build and sustain facilities), an adequate return to investors, reclamation, and closure costs and taxes.
- To eliminate the conflict between PolyMet's desire to surface mine and the USFS ownership and management of NFS lands, by exchanging federal lands for non-federal lands that have equal or greater value.

1.3.2.2 United States Forest Service

The purpose for the USFS is to meet desired conditions in the Superior National Forest Land and Resource Management Plan (Forest Plan) (USFS 2004b), including ensuring the proposed land exchange Proposed Action eliminates existing conflict and ensuring mineral resources are produced in an environmentally sound manner contributing to economic growth.

In regards to desired conditions for land exchange and mineral development, the Superior National Forest's Forest Plan includes the following direction:

> "D-LA-1 – The amount and spatial arrangement of National Forest System land within the proclamation boundary of the Forest are sufficient to protect resource values and interests, improve management effectiveness, eliminate conflicts, and reduce the costs of administering landlines and managing resources." (Forest Plan, Land Adjustment, pg. 2-51)
>
> "D-MN-2 – Ensure that exploring, developing, and producing mineral resources are conducted in an environmentally sound manner so that they may contribute to economic growth and national defense." (Forest Plan, Minerals, pg. 2-9)

PolyMet intends to exercise private mineral rights that were reserved when lands were conveyed to the United States and has proposed the development of a surface mine. This land was purchased by the USFS, for National Forest purposes, under the authority of the Weeks Act. The USFS has taken the position that the mineral rights that were reserved do not include the right to surface mine as proposed by PolyMet. PolyMet disagrees with the USFS position and argues that the mineral rights it seeks to utilize provide for access to the minerals by any mining method, including open pit or surface mining. This conflict raises the possibility of litigation that has no certain outcome and could impact tens of thousands of acres of other National Forest System lands conveyed under the same deeds. A land exchange would resolve this fundamental conflict.

In the absence of such an exchange, the Forest Service is not willing or able to authorize such private, surface mining operations on lands of the Superior National Forest, due to the inconsistency between National Forest management objectives and PolyMet's intended mining operations.

The Forest Service is willing to consider conveying the land to PolyMet in exchange for land of equal value that would become a part of the Superior National Forest. Such an exchange would give PolyMet the property rights it needs to pursue its surface mining proposal, while at the same time allowing the Forest Service to be compensated by acquiring other land, of equal value, that could be managed as a part of the Superior National Forest. See Section 2.3.3 for more information.

1.3.2.3 United States Army Corps of Engineers

The Purpose and Need of the Proposed Action is to produce base and precious metals precipitates and flotation concentrates from ore mined at the NorthMet Deposit by uninterrupted operation of the former LTVSMC processing plant. The processed resources would help meet domestic and global demand by sale of these products to domestic and world markets.

1.3.2.4 Minnesota Department of Natural Resources

The Purpose and Need of the Proposed Action is to produce base and precious metals precipitates and flotation concentrates from ore mined at the NorthMet Deposit by uninterrupted operation of the former LTVSMC processing plant. The processed resources would help meet domestic and global demand by sale of these products to domestic and world markets.

1.4 REGULATORY FRAMEWORK

1.4.1 National Environmental Policy Act

1.4.1.1 Overview

NEPA requires that federal agencies consider the potential environmental consequences of proposed actions in their decision-making process. The law's intent is to protect, restore, or enhance the environment through well-informed federal decisions. The CEQ was established under NEPA for the purpose of implementing and overseeing federal policies as they relate to this process.

In 1978, the CEQ issued regulations for implementing NEPA (40 CFR parts 1500-1508). Section 102(2)(c) of NEPA, 42 USC § 4332(2)(C), mandates that federal agencies shall include a "detailed statement" in "proposals for legislation and other major Federal actions significantly affecting the quality of the human environment" that addresses, among other things, the environmental effects of the proposed action. Such projects include: any actions under the jurisdiction of the federal government or subject to federal permits; actions requiring partial or complete federal funding; actions on federal lands or affecting federal facilities; continuing federal actions with effects on land or facilities; and new or revised federal rules, regulations, plans, or procedures.

Any major federal action significantly affecting the human environment requires the preparation of an EIS and a ROD. The USACE permit decision, including its evaluation under the 404(b)(1) guidelines and the Public Interest Review, will be documented in the USACE ROD, which will be issued following issuance of the FEIS. The USACE will use the FEIS to support the ROD documenting its decision on the CWA Section 404 Permit application. The USFS will implement NEPA per 36 CFR part 220, and would use the FEIS to support the ROD documenting its decision on the Land Exchange Proposed Action.

The USACE, during its review of PolyMet's permit application, determined that the NorthMet Project Proposed Action would require the preparation of an EIS in accordance with the requirements of NEPA and the CEQ regulations. To comply with other relevant environmental statutes described below, in addition to NEPA, the decision-making process for the Proposed Connected Actions involves a thorough examination of all pertinent environmental issues per 40 CFR 1505.

1.4.1.2 Alternatives

NEPA requires that a "range of alternatives" must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502.14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated, as well as those other alternatives, which are eliminated from detailed study with a brief discussion of the reasons for eliminating

them. The emphasis is on what is "practicable" rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative. NEPA also requires consideration of the No Action Alternative, in which the proposed project would not proceed.

1.4.2 Minnesota Environmental Policy Act

1.4.2.1 Overview

In addition to the federal NEPA process, *Minnesota Statutes*, Chapter 116D requires environmental review. The MEPA environmental review process is an information collection and disclosure tool for state agencies. It informs the subsequent permitting and approval processes and describes mitigation measures that may be available. The MEPA process operates according to rules adopted by the Minnesota Environmental Quality Board (MEQB). However, the actual reviews are usually conducted by a local governmental unit or a state agency. The organization responsible for conducting the review is referred to as the RGU. The MEQB staff advises the RGU and state agencies on the proper procedures for environmental review and monitors the effectiveness of the process in general. By rule, the MDNR is the designated RGU for the NorthMet Project. Pursuant to MEPA, the RGU will determine the adequacy of the FEIS. If the FEIS is determined to be adequate, then final decisions can be made by the appropriate governmental units on state permits.

Minnesota Rules, part 4410.4400, subpart 8 dictates that an EIS shall be prepared because the NorthMet Project exceeds the threshold listed for construction of a new metallic mineral mining and processing facility. Under MEPA, the FEIS must be consistent with *Minnesota Rules*, part 4410.0200 to part 4410.7800 and the scoping determination. The adequacy of the FEIS is governed by *Minnesota Rules*, part 4410.2800.

1.4.2.2 Alternatives

MEQB statutes and rules (*Minnesota Statutes*, chapter 116D, sections 04 and 045; and *Minnesota Rules*, part 4410, subpart 0200 through 7500) require that an EIS include at least one alternative in each of the following categories (in addition to the No Action Alternative):

- Alternative sites,
- Alternative technologies,
- Modified designs or layouts,
- Modified scale or magnitude, and
- Alternatives incorporating reasonable mitigation measures identified through comments received during the comment periods for EIS scoping or for the DEIS.

If no alternative is included for any given category, an explanation must be provided in the EIS. An alternative may be excluded if it fails to meet the underlying need for or purpose of the project, is unlikely to have any significant environmental benefit compared to the project as proposed, or another alternative would likely have similar environmental benefits but substantially less adverse economic, employment, or sociological effects.

1.4.3 Land Exchange Requirements

Most of the public lands involved in the NorthMet Project Proposed Action were acquired by the United States under the authority of the Weeks Act of 1911. Other authorities that would govern the Land Exchange Proposed Action between PolyMet and the United States include the Federal Land Policy and Management Act of 1976 (43 USC §§ 1716-1717) (FLPMA) and the Federal Land Exchange Facilitation Act of 1988. Regulations promulgated to implement FLPMA are found in 36 CFR 254, Subpart A (36 CFR 254).

Land exchanges are discretionary, voluntary real estate transactions between federal and non-federal parties. Regulations provide that the Forest Supervisor "may complete an exchange only after a determination is made that the public interest will be well served" (36 CFR 254.3(b)). Factors that must be considered include: the opportunity to achieve better management of federal lands and resources, to meet the needs of state and local residents and their economies, and to secure important objectives, including but not limited to: protection of fish and wildlife habitats, cultural resources, watersheds, and wilderness and aesthetic values; enhancement of recreation opportunities and public access; consolidation of lands and/or interests in lands, such as mineral and timber interests, for more logical and efficient management and development; consolidation of split estates; expansion of communities; accommodation of existing or planned land use authorizations; promotion of multiple-use values; implementations of applicable Forest Land and Resource Management Plans; and fulfillment of public needs. See 36 CFR 254.3(b) and 254.4(c)(4). Table 7.3.5-1 in Chapter 7 of the FEIS presents a comparison of how the alternatives address these factors.

Under the FLPMA, a land exchange involves the transfer of equal valued land. If land values are not equal, every effort is made to equalize values by adding or deleting land. Cash equalization may then be paid by either party up to 25 percent of the value of the federal land. See 36 CFR 254.12.

The Land Exchange Proposed Action must comply with two Executive Orders (EOs) that are related to wetlands and floodplains. EO 11990 was signed by President Jimmy Carter on May 24, 1977, "*in order to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modifications of wetlands*…." This order applies to land exchanges such that, as much as practicable, the exchange does not result in the loss of wetland resources. EO 11988 was also signed by President Jimmy Carter on May 24, 1977 "*in order to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative*…." This order applies to land exchanges such that, as much as practicable, the exchange does not result in an increase in the flood damage potential.

USFS policy (Forest Service Handbook 5409.13 § 33.43c) provides that the following list of three conditions satisfy the requirements of EOs 11990 and 11988:

- The value of the wetlands or floodplains for properties received and conveyed is equal (balancing test) and the land exchange is in the public interest.
- Reservations or restrictions are retained on the unbalanced portion of the wetlands and floodplains on the federal lands when the land exchange is in the public interest but does not meet the balancing test.

- The federal property is removed from the exchange proposal when the conditions described in the preceding paragraphs 1 or 2 cannot be met.

The USFS is also required, by EOs 11988 and 11990, to reference in a conveyance those uses that are restricted under identified federal, state, or local wetland and floodplain regulations. In Minnesota, the CWA (USACE/USEPA/MPCA), Protected Waters Permit Program (MDNR), and the Wetland Conservation Act (WCA), Board of Water and Soil Resources regulate certain activities in wetlands. Under WCA provisions, wetlands must not be impacted as part of a project for which a Permit to Mine is required, except as approved by the commissioner (*Minnesota Rules*, part 8420.0930). Floodplain management ordinances are administered at the local (county) level.

The Land Exchange Proposed Action would be designed to be consistent with the goals and objectives of the Forest Plan (USFS 2007c) including G-LA-2 and G-LA-3 (Forest Plan, pages 2-51 and 2-52, see FEIS Section 3.3.1.1). The non-federal lands for Land Exchange Proposed Action would need to be incorporated within the adjacent federal ownership and managed in accordance with the Forest Plan direction for the particular management area.

As part of the USFS decision to be made, the Responsible Official has the responsibility to determine if the proposed exchange serves the public interest and supports the direction and guidance in the forest land management plan. The public interest determination must show that the resource values and the public objectives of the non-federal lands equal or exceed the resource values and the public objectives of the federal lands and that the intended use of the conveyed federal land would not substantially conflict with established management objectives on adjacent federal lands, including Indian trust lands. The findings and supporting rationale shall be made part of the decision (Forest Service Handbook 5409.13, section 34.1; 36 CFR 254.3(b)). The ROD will contain the findings and supporting rationale for the selected alternative and how the public interest is served under 36 CFR 254.3(b), as well as provide information for compliance with USFS requirements and the Forest Plan.

1.4.4 Other Permits and Requirements

In accordance with *Minnesota Rules*, part 4410.3900, which seeks to reduce duplication to the fullest extent between the Minnesota Statutes and NEPA, a joint state-federal EIS has been prepared to comply with both NEPA and MEPA regulations. In addition, PolyMet must obtain the required federal, state, and local permits and approvals summarized in Table 1.4-1 below.

Table 1.4-1 Government Permits and Approvals for the Proposed Connected Actions

Agency	Permit/Action	Reason Permit or Action is (or may be) Needed
Federal		
USACE	Department of the Army Permit	For affected waters within the jurisdiction of the USACE under the CWA, 33 CFR 320-332 including Appendix B
	Section 106 NHPA Compliance (Minnesota Historic Preservation Office)	Necessary due to USACE evaluating issuance of a permit to discharge fill material into waters of the United States under the provisions of Section 404 of the Clean Water Act (33 USC 1344), 36 CFR Part 800
USFWS	Section 7 Endangered Species Act (ESA) Compliance	Necessary due to the NorthMet Mining Project and Land Exchange being a federal undertaking, 50 CFR 402
USFS	Land Exchange	To resolve the conflict between surface and mineral estates
	Section 106 NHPA Compliance (Minnesota Historic Preservation Office)	Necessary due to the NorthMet Mining Project and Land Exchange being a federal undertaking, 36 CFR Part 800
State		
MDNR	Permit to Mine	Required for all nonferrous metallic mining operations, *Minnesota Rule*s, chapter 6132
	Endangered Species Taking Permit (if required)	If there are state-listed species that may be taken by the NorthMet Project Proposed Action, *Minnesota Rules*, parts 6212.1800-6212.2300 and 6134
	Water Appropriations Permit for plant make-up water	For withdrawal of water from Colby Lake for plant make-up water; for mine dewatering; for stream augmentation; *Minnesota Rule*s, chapter 6115
	Dam Safety Permit	For the Tailings Basin, Hydrometallurgical Residue Facility, and potentially the water retention dikes at the Mine Site (e.g., water treatment plant pond dikes), *Minnesota Rules*, parts 6115.0300-6115.0520
	Permit for Work in Public Waters	For possible modifications and diversions of local streams in constructing the West Pit outfall; *Minnesota Rules*, chapter 6115
	Wetland Replacement Plan approval under WCA	For affected wetlands within the scope of the WCA or that constitute “public wetlands”

Agency	Permit/Action	Reason Permit or Action is (or may be) Needed
	Burning Permit (if required)	If vegetative material would need to be burned on site during times with no snow cover
MPCA	Section 401 Water Quality Certification/Waiver	Required in conjunction with the DA Permit (Section 404 Permit)
	National Pollutant Discharge Elimination System and State Disposal System (NPDES/SDS) Permits	For construction and industrial activity that would disturb 1 acre or more of land, and the management, treatment and/or discharge of process wastewater to surface water or groundwater
	Solid Waste Permit	For construction debris
	Air Emissions Permit (Part 70 Permit)	For emissions of regulated air pollutants
	Waste Tire Storage Permit	For storage of waste tires generated from NorthMet Project Proposed Action-related vehicles (if required)
	General Storage Tank Permit	For multiple NorthMet Project Proposed Action aboveground storage tanks
MDH	Radioactive Material Registration	For measuring instruments
	Permit for Non-Community Public Water Supply System and a Wellhead Protection Plan (if proposed)	Existing Plant Site potable water treatment plant to be refurbished
	Permit for Public On-site Sewage Disposal System	For sewage waste generated during construction and operation that would be disposed of on site
Local		
City of Hoyt Lakes	Zoning Permit	To acknowledge NorthMet Project Proposed Action is an allowable use within the zoned district
City of Babbitt	Building Permit	New construction would occur on portions of the NorthMet Project area within the incorporated limits of the City of Babbitt
St. Louis County	Zoning Permit	To acknowledge NorthMet Project Proposed Action is an allowable use within the zoned district

1.4.5 Financial Assurance

Financial assurance is required by state law. *Minnesota Rules*, part 6132.1200 requires that before a Permit to Mine can be granted, financial assurance instruments covering the estimated cost of reclamation should the mine be required to close for any reason at any time must be submitted and approved by the MDNR. The financial assurance requirements would be reviewed and updated on an annual basis. Financial assurance is discussed in further detail in Sections 2.5 and 3.2.2.4.

1.5 PURPOSE OF THE FEIS

The purpose of this FEIS is to provide an analysis of effects that would result from the NorthMet Project and Land Exchange, consider USEPA and Tribal Cooperating Agency concerns and public comments, describe alternatives considered, and disclose PolyMet's project refinements identified through the EIS process. The FEIS discusses key themes, which include air, wetlands, geotechnical stability, socioeconomics, water resources, cultural resources, and alternatives.

1.6 ORGANIZATION OF THE FEIS

This FEIS follows the CEQ's recommended organization (40 CFR 1502.10) and MEPA content requirements (*Minnesota Rules*, part 4410.2300).

Chapter 1.0 (Introduction) provides an overview and descriptions of the purpose of and need for the NorthMet Project Proposed Action and the Land Exchange Proposed Action, regulatory framework, agency roles and responsibilities, and the organization of the FEIS.

Chapter 2.0 (EIS Development) describes the EIS development process for the NorthMet Project Proposed Action and Land Exchange Proposed Action. Discussion includes scoping, identification of issues, development of the NorthMet Project Proposed Action and Land Exchange Proposed Action and alternatives, public and agency participation, consultation and coordination undertaken to prepare the DEIS, SDEIS, and FEIS, incorporation of the Land Exchange, reevaluation of DEIS alternatives, and impact analysis process.

Chapter 3.0 (Proposed Action and Project Alternatives) describes the NorthMet Project Proposed Action and Land Exchange Proposed Action and alternatives including the No Action Alternative, Land Exchange Alternative B, and Alternatives Considered but Eliminated from detailed consideration.

Chapter 4.0 (Affected Environment) summarizes the existing conditions of the NorthMet Project Proposed Action and the surrounding environment and the Land Exchange parcels including the land and its physical, biological, cultural, socioeconomic, and recreational resources.

Chapter 5.0 (Environmental Consequences) presents the direct and indirect environmental consequences of the NorthMet Project Proposed Action and associated alternatives and the direct and indirect environmental consequences of the Land Exchange Proposed Action and associated alternatives.

Chapter 6.0 (Cumulative Effects) describes the cumulative effects on the surrounding environment and uniquely affected communities with regard to the NorthMet Project Proposed Action and the alternatives for the Land Exchange.

Chapter 7.0 (Comparison of Alternatives and Other Considerations) contains a comparison of the Proposed Connected Actions and alternatives, conclusions of the impacts (including human health), Land Exchange public interest considerations, and also addresses other NEPA considerations.

Chapter 8.0 (Major Differences of Opinion) describes the Tribal Cooperating Agencies' major differences of opinion with aspects of the SDEIS. Cooperating Agency comments on the SDEIS are addressed in Appendix A.

Appendix A (Response to Comments on the NorthMet Mining Project and Land Exchange Draft and Supplemental Draft EIS) identifies the process for public engagement throughout the EIS and provides responses to comments received on the DEIS and SDEIS.

Appendix B (Underground Mining Alternative Assessment for the NorthMet Mining Project and Land Exchange Environmental Impact Statement) describes the analysis that the Co-lead Agencies undertook in consideration of a potential Underground Mining Alternative.

Appendix C (Tribal Agency Position Supporting Materials) includes verbatim comments and supporting documentation provided by the Tribal Cooperating Agencies for the SDEIS.

Appendix D (Biological Assessment and Biological Evaluation) identifies whether NorthMet Mining Project and Land Exchange-related actions may affect listed or proposed species and critical habitat as required under the ESA.

1.7 CONSTITUENTS OF INTEREST

Key constituents of interest are discussed in various chapters of the FEIS. Below is a list of the major constituents referenced within this FEIS. A number of additional constituents were also analyzed; however, this list represents those that are of most significance to the FEIS.

- Carbon monoxide (CO): May cause fatigue, chest pain, headaches, confusion, nausea, and dizziness.
- Greenhouse gases (GHGs): Increased GHGs in the atmosphere can change climate conditions.
- Hazardous Air Pollutants (HAPs): Group of toxic constituents known or suspected to cause significant health effects, such as cancer.
- Mercury, mercury compounds (Hg): Elemental metal, high-level exposure may harm the brain, gastrointestinal tract, nervous system, and kidneys.
- Metals/Metalloids (arsenic, cobalt, copper, nickel, antimony): Depending on constituent and exposure, can affect the skin, heart, kidneys, liver, and/or gastrointestinal tract.
- Methylmercury: Organic mercury, bioaccumulates in fish and animals, can be transmitted to humans that consume contaminated fish and game, may harm the fetal nervous system and brain.
- Nitrogen dioxide (NO_2): May cause respiratory effects.
- Nitrogen oxides (NOx): May form nitric acid and create acid rain, which can alter water and soil pH. May also affect regional visibility conditions (haze).
- Particulate matter (PM): Particles smaller than 10 micrometers (PM_{10}) may enter the lungs or bloodstream, particles smaller than 2.5 micrometers ($PM_{2.5}$) affect regional visibility conditions (haze).
- Sulfate (SO_4): Can contribute to methylation of mercury, may affect wild rice.
- Sulfur dioxide (SO_2): Acute exposure may cause respiratory effects such as bronchoconstriction or increased asthma symptoms. May also affect regional visibility conditions (haze).

Table 1.7-1 below describes the FEIS chapters in which the above constituents and related topics are discussed. Potential impacts on human health are addressed in Section 7.3.4.

Table 1.7-1 Constituents of Interest Discussed in the FEIS

Constituent	Topic	FEIS Section
Carbon monoxide (CO)	Air emissions effects	5.2.7.1.3
Greenhouse gases (GHGs)	Air emissions effects	5.2.7.2.4, 5.2.7.4.1
	Climate change – cumulative effects	6.2.7.10
Hazardous Air Pollutants (HAPs)	Air emissions effects	5.2.7.1.3
Mercury, mercury compounds (Hg)	Air emissions effects	5.2.7.2.5
	Mercury balance, TMDL	5.2.7.2.5
	Aquatic species/bioaccumulation effects	5.2.2.3.4
	Wild rice/water effects	5.2.2.1.2, 5.2.2.3.4
Metals/Metalloids (arsenic, cobalt, copper, nickel, antimony)	Air emissions effects	5.2.7.2.3
	Surface water and groundwater effects	5.2.2.3.2, 5.2.2.3.3
Methylmercury	Aquatic species/bioaccumulation effects	5.2.2.3.4
Nitrogen dioxide (NO_2)	Air emissions effects	5.2.7.2.3, 6.2.7.4.1
Nitrogen oxides (NOx)	Air emissions effects	5.2.7.1.3, 5.2.7.2.3, 6.2.7.4.2
Particulate matter (PM)	Air emissions effects	5.2.7.1.3, 5.2.7.2.1, 6.2.7.4.2
	Class I and Class II areas – regional haze effects	5.2.7.1.4, 5.2.7.2.1, 5.2.7.2.2, 6.2.7.8
Sulfate (SO_4)	Air emissions/deposition effects	6.2.7.5
	Surface and ground water effects	5.2.2.1.1, 5.2.2.3.1, 5.2.2.3.2, 5.2.2.3.3
	Effects to wild rice	5.2.2.1.2, 5.2.2.3.2, 5.2.2.3.3, 5.2.2.3.4
	Aquatic species effects	5.2.6.2.1, 6.2.7.5
	Mercury methylation effects	5.2.2.3.4
Sulfur dioxide (SO_2)	Air emissions effects	5.2.7.2.1

TMDL = Total Maximum Daily Load

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2.0 EIS DEVELOPMENT

2.1 INTRODUCTION

This section describes the development of the EIS for the NorthMet Project from when it was first proposed in 2005, through development of this FEIS. It includes a discussion of the EIS development from scoping to publishing; public, tribal, and government agency comments; the Co-lead Agencies' deliberations and decisions; incorporation of the Land Exchange Proposed Action as a connected action, and subsequent development of the SDEIS and FEIS. An overview of this process is shown in Figure 2.1-1.

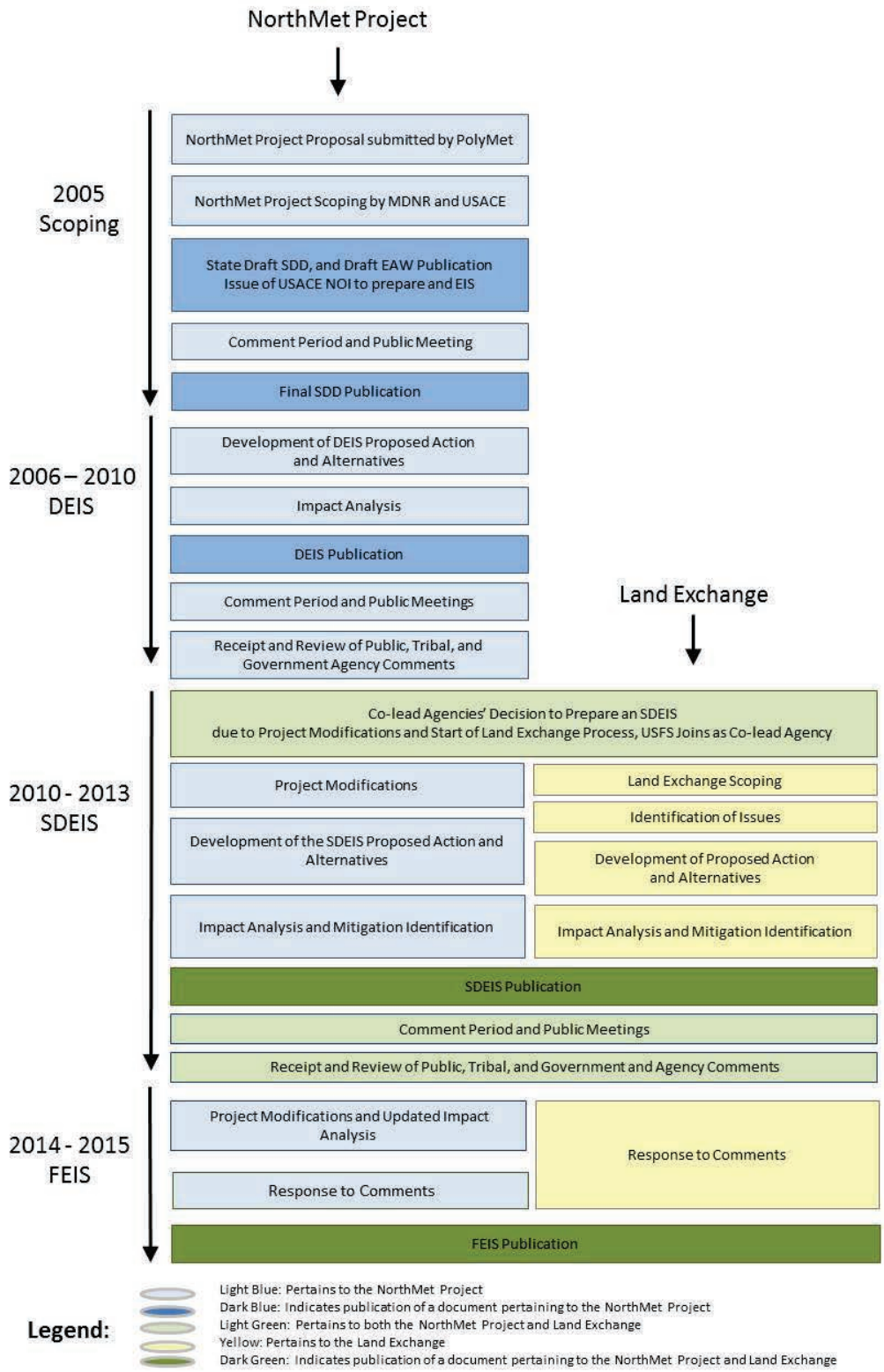

Figure 2.1-1 NorthMet Mining Project and Land Exchange EIS Development Process

2.2 DEIS DEVELOPMENT

2.2.1 NorthMet Project Scoping

In early 2005, the USACE received a permit application from PolyMet to discharge fill material to waters of the United States, including wetlands, in order to develop the NorthMet Project, requiring the preparation of an EIS pursuant to NEPA. The preparation of a state-level MEPA EIS would also be mandatory for the NorthMet Project.

Scoping is required by both NEPA and MEPA. The scoping process in Minnesota includes all procedural and substantive requirements to satisfy scoping for preparation of a federal EIS under NEPA. As the RGU for this EIS, the MDNR was responsible for administering the state's scoping process.

The DEIS scoping for the NorthMet Project, as originally proposed, involved the preparation of the following three documents:

- the state Scoping Environmental Assessment Worksheet (EAW);
- the state Draft Scoping Decision Document (SDD); and
- the state Final SDD.

After the Draft SDD and Scoping EAW were issued via the Environmental Quality Board (EQB) Monitor on June 6, 2005, comments were collected during a 30-day comment period that concluded on July 6, 2005. A public scoping meeting was held in Hoyt Lakes, Minnesota, on June 29, 2005. This meeting was hosted by the MDNR and USACE. Comments were addressed in the Response to Public Scoping Comments issued with the Final SDD on October 25, 2005. The USACE issued a Notice of Intent (NOI) to prepare an EIS in the Federal Register (FR) on July 1, 2005 (Volume 70, Number 126).

2.2.2 Identification of Issues

The scoping process was used to identify potentially significant issues that would trigger detailed analysis of effects and the development of potential alternatives and mitigation measures.

As discussed in the Final SDD, potentially significant effects included those on fish and wildlife resources, threatened and endangered species, water resources, water appropriations, surface water runoff and erosion/sedimentation, wastewater, and solid waste, as well as cumulative impacts. These impacts required a more detailed discussion than had been provided in the Scoping EAW; as a result, they were discussed in detail in the DEIS.

Other issues identified during scoping that were discussed in detail in the DEIS included vegetation cover types, point and non-point source air emissions, noise, cultural resources, visibility, compatibility with land use plans and regulations, infrastructure, amphibole mineral fibers, and tribal concerns regarding access to lands within the 1854 Ceded Territory.

Additional issues were also considered but eliminated from detailed analysis in the DEIS because they were determined to have no significant predictable effect or had been adequately discussed in the Scoping EAW. These issues included land use conflicts, water-related land use management, surface water use, geologic hazards and soil conditions, traffic, and odors.

2.2.3 DEIS Proposed Action and Alternatives

The proposed action analyzed in the DEIS called for surface mining and mineral processing of approximately 228 million (short) tons of copper-nickel-PGE ore over an approximate 20-year mine life. Proposed mining would occur at the NorthMet Deposit, which is located on undeveloped federal land. Existing infrastructure would be utilized to transport the ore approximately 8 miles to the west for processing at the former LTVSMC processing plant, which would be refurbished if necessary.

In accordance with NEPA and MEPA, a number of project alternatives were identified through scoping. After consideration, the following were evaluated in the DEIS (refer to Section 3.2.3):

- Proposed Action,
- No Action Alternative,
- Mine Site Alternative, and
- Tailings Basin Alternative.

The DEIS included provisions for a surface use permit from the USFS to use its lands for the mine. PolyMet and the USFS had been exploring options to avoid a conflict between the use of the surface (federal) and subsurface (private) estates. One option was to exchange the federally owned surface land necessary for the proposed mine with other private lands in the area. However, no agreement was reached and the DEIS did not include a land exchange.

2.2.4 Impact Analysis

Potential effects of the NorthMet Project Proposed Action and alternatives were determined using baseline data, predictive modeling programs, GIS and spatial data analysis, and other impact assessment methods both qualitative and quantitative. The predicted effects and potential mitigation measures were discussed in Chapter 4 of the DEIS.

2.2.5 DEIS Publication

The DEIS was made available to the public through notification in the November 2, 2009 EQB Monitor (Volume 33, Number 22) and November 6, 2009 FR (Volume 74, Number 214). The notification informed the public that paper copies of the DEIS were available for review at MDNR offices and public libraries in Grand Rapids, Hibbing, Hoyt Lakes, Duluth, Minneapolis, and St. Paul. Summary versions of the document and compact disks containing the full version of the DEIS were provided upon request, and the entire document was also made available via the MDNR's website. Summary versions or full copies on paper or disk were distributed to parties on the MEQB distribution list as well as additional interested parties.

2.2.6 Comment Period and Public Meetings

The MEQB and FR notification also identified that the 90-day comment period would end on February 3, 2010. Instructions and contact information were provided for submittal of public comments.

Following the release of the DEIS, public meetings were held in Aurora, Minnesota, on December 9, 2009 and Blaine, Minnesota, on December 10, 2009, to gather public comments on the DEIS.

2.2.7 Receipt and Review of Public and Agency Comments

Public and agency comments on the DEIS were collected during the 90-day comment period. Submissions came from government agencies (federal, state, and local), tribal entities, local businesses, non-governmental organizations, private individuals, and PolyMet. Approximately 3,800 comment submissions were received.

The comments were analyzed, and the key issues identified included effects on cultural resources, air quality, wetlands, geotechnical stability, socioeconomics, and water resources. Topic-focused workgroups were assembled from members of the Co-lead and Cooperating Agencies to further consider these issues.

2.3 SDEIS DEVELOPMENT

2.3.1 Co-lead Agencies' Decision to Prepare an SDEIS

In mid-2010, the Co-lead Agencies decided to prepare an SDEIS that would incorporate a Land Exchange (see Section 2.3.1.1), Cooperating Agency and public comments, evolving MPCA guidance, and project refinements made by PolyMet (see Section 2.3.2.1). The USACE and USFS published a NOI on October 13, 2010 in the FR (Volume 75, Number 197) indicating the intent to prepare the SDEIS. The NOI identified that scoping would be conducted only for the Land Exchange, with no additional scoping for the proposed NorthMet Project because the issues regarding the mine had not changed. The MDNR published a Notice of Amendment to the Scoping Decision in the EQB Monitor on November 1, 2010.

The SDEIS included analyses of both the NorthMet Project Proposed Action and the Land Exchange Proposed Action as a connected action.

2.3.1.1 Addition of the Land Exchange

The USFS determined that an EIS would be required to analyze the Land Exchange Proposed Action. Since the Land Exchange constitutes a connected action to the NorthMet Project Proposed Action, it has been incorporated into the NorthMet Mining Project EIS. The USFS subsequently joined the USACE and MDNR as a Co-lead Agency.

2.3.2 NorthMet Project

2.3.2.1 Project Modifications

Several key decisions made by the Co-lead Agencies following the DEIS prompted PolyMet to make project modifications, which further supported the need for an SDEIS to assess effects resulting from the proposed NorthMet Project.

Starting in January 2010, PolyMet made a number of modifications to the original mine plan. These modifications addressed issues identified in DEIS comments and during agency deliberations. The changes were detailed in a series of documents prepared by PolyMet for the

Co-lead Agencies' consideration and were incorporated to the Project Description through the Draft Alternative discussed below.

In June 2010, the MPCA issued draft staff recommendations on the site-specific application of the wild rice standard, which states that 10 milligrams per liter (mg/L) of sulfate be applied to waters used for production of wild rice; this standard applies from April 1 to August 31 each year for the Partridge and Embarrass river systems. The recommendations were updated in March and June 2011. The MPCA guidance also included Tailings Basin performance requirements regarding seepage discharges, limitations to sulfate contributions in surface waters, and monitoring requirements. In August 2012, the recommendations were updated to apply the seasonal application to just the Partridge River. The recommendations also suggest continuation of monitoring of wild rice. PolyMet is not intending to seek a water quality permit with a seasonal discharge sulfate component.

Topic-focused workgroups were established to discuss key issues that needed to be closely examined in the SDEIS. Workgroup participation was varied and included representatives from the Co-lead Agencies, other regulating agencies, and/or the Cooperating Agencies and PolyMet. These groups participated in the impact assessment planning (IAP) process, which led to the development of work plans for data packages and management plans (MDNR et al. 2011). The workgroups discussed evaluation criteria, methodologies for analysis, potential effects, and possible mitigation measures. Topics addressed by the workgroups included geotechnical stability, wetlands, air resources, and water resources. The water resources group was further divided into four subgroups to address evaluation criteria, groundwater issues, surface water issues, and geochemistry. A socioeconomics workgroup was also established to address tribal concerns regarding potential socioeconomic effects on the Bands from the NorthMet Project Proposed Action.

A Co-lead Agencies workgroup was also established to discuss issues related to the project modifications, alternatives (predominantly the Mine Site and Tailings Basin Alternatives addressed in the DEIS), the wild rice standard, and various mitigation measures identified by the topic-focused workgroups. The discussions, in consultation with PolyMet, resulted in development of the Draft Alternative. In January 2011, the Co-lead Agencies briefed the Cooperating Agencies and other involved agencies on the Draft Alternative. Due to changes in the project, the Draft Alternative was updated, recirculated, and released again in March 2011 and October 2011.

In October 2011, PolyMet incorporated the Draft Alternative into its Proposed Action for the NorthMet Project. As discussed in Section 3.2.3, a full range of reasonable alternatives was evaluated in developing the Draft Alternative.

2.3.2.2 Revised Proposed Action and Alternatives

As described in Section 2.3.2.1 above, the NorthMet Project Proposed Action was modified following the DEIS as a result of input from the public, Cooperating Agencies, and the Co-lead Agencies via the workgroups, and additional modeling and impact analyses. Project modifications incorporated additional mitigation measures designed to meet applicable regulatory standards over the life of the mine.

Given the changes to the NorthMet Project Proposed Action, some previously considered alternatives were deemed no longer valid because:

- they have been incorporated into the current NorthMet Project Proposed Action;
- they do not correspond to the current design of the NorthMet Project Proposed Action; or
- they do not correspond to effects under the current NorthMet Project Proposed Action.

Thus, only those previously considered alternatives that were still relevant were rescreened in the SDEIS. The Underground Mining Alternative and backfilling the West Pit with Category 1 waste rock were deemed necessary for reconsideration and are discussed in Section 3.2.3. Other previously considered alternatives screened throughout the EIS process, including during scoping and development of the DEIS and SDEIS, are also discussed in Section 3.2.3.

2.3.2.3 Impact Analysis

Similar to the analysis in the DEIS, potential effects of the revised NorthMet Project were determined using probabilistic and/or deterministic modeling programs, GIS and spatial data analysis, and other impact assessment calculations. These predicted effects are described in Chapter 5.

2.3.3 Land Exchange

The USFS and PolyMet developed a Land Exchange proposal by which the federal surface lands at the proposed Mine Site would be transferred to PolyMet ownership in exchange for non-federal lands (to be owned by PolyMet) that would meet the USFS criteria identified in the Forest Plan. Alternatives to the Land Exchange proposal, including the No Action Alternative, were developed and analyzed in the SDEIS.

A feasibility analysis, completed by the USFS in November 2009, assessed the potential for a land exchange between the USFS and PolyMet that would involve the federally owned parcel on which the NorthMet Project Mine Site is proposed. The feasibility analysis evaluated one federal tract (encompassing much of the proposed Mine Site) and two non-federal tracts for conformance with the Forest Plan, which included current and future uses of the land tracts. A preliminary monetary valuation indicated that additional parcels would be needed to bring the market value of federal and non-federal lands within the limits required for an exchange. The analysis also determined that additional parcels would be needed to supplement the amount of wetland acres being exchanged in order to meet the requirements of EO 11990. Three non-federal tracts were subsequently added for consideration in the Land Exchange Proposed Action. These tracts were evaluated for conformance by the same criteria used in the feasibility analysis.

2.3.3.1 Land Exchange Scoping

As discussed in Section 2.3.1, the USACE and USFS published an NOI to prepare an SDEIS; this NOI discussed both the intent to prepare an SDEIS, which would supplement the DEIS, and the inclusion of the Land Exchange Proposed Action as a connected action. The NOI identified that the comment period would be held for 45 days and provided notification that scoping comments were limited to the Land Exchange Proposed Action.

Open house scoping sessions were held in Aurora, Minnesota on October 26, 2010 and in New Brighton, Minnesota, on October 27, 2010. At each open house, representatives from the USFS, USACE, MDNR, PolyMet, and the Co-lead Agencies' third-party consultant provided information on the NEPA process, the NorthMet Project Proposed Action and Land Exchange Proposed Action, and how to provide scoping comments.

2.3.3.2 Identification of Issues

Similar to the scoping for the DEIS, the Land Exchange scoping process was used to identify potentially significant issues, less significant issues, and issues considered but eliminated from further consideration as discussed in Appendix G of the May 2011 Detailed Scoping Report for the PolyMet Land Exchange (USFS 2011n).

Potentially significant issues identified included the development of exchange alternatives, tribal access rights, and federal trust obligations. These issues are discussed in detail in Chapter 5 of the FEIS.

Other issues identified in scoping for the Land Exchange included air quality, climate change, cultural/tribal concerns, cumulative effects, ecological functions and values, forest resources, hazardous materials, market value and legal implications, conformance with the Forest Plan, socioeconomics, threatened and endangered species, vegetation and wildlife habitat, water resources, and wetland effects.

Issues considered but eliminated from further consideration included mining-related effects, as these would be discussed as part of the mining action; corporate profits resulting from the Land Exchange; land value disclosures; and adequacy of scoping materials.

2.3.3.3 Proposed Action and Alternatives

A Proposed Action for the Land Exchange was developed that identified potential lands for exchange (see Section 3.3.2 for a description of the federal and non-federal parcels).

Several alternatives to the Land Exchange Proposed Action were identified, including the No Action Alternative required by NEPA and MEPA. The USFS evaluated these alternatives for detailed analysis in the SDEIS based on criteria including conformance with the Purpose and Need statements from the project proponent and Co-lead Agencies, technical and economic feasibility, land availability, and potential environmental benefits. Further detail on the screening process is available in Section 3.3.3.

Along with the No Action Alternative, only the Land Exchange Alternative B met these criteria and is fully analyzed in the FEIS. The remaining alternatives—exchange of a single contiguous non-federal parcel, underground mining and other alternative methods of mineral extraction, exchange of other non-federal parcels, and full land exchange with deed restrictions—did not meet these criteria and were eliminated from detailed analysis in the EIS.

2.3.3.4 Impact Assessment

The USFS identified resource topic-specific issues, effects, area(s) of analysis, impact indicators, data needs, and analysis methods for assessment of the Land Exchange. These topics, along with assessment results, are discussed in Chapter 5.3 of the FEIS.

2.3.4 SDEIS Publication

The SDEIS was made available to the public through notification in the December 9, 2013 EQB Monitor (Volume 37, Number 25) and December 13, 2013 FR (Volume 78, Number 240). The notification informed the public that paper copies of the SDEIS were available for review at MDNR offices and public libraries in Grand Rapids, Hibbing, Hoyt Lakes, Babbitt, Duluth, Minneapolis, and St. Paul. Executive Summaries of the document and compact disks containing the full version of the SDEIS were provided upon request, and the entire document was also made available via the MDNR's website. Executive Summaries or full copies on paper or disk were distributed to parties on the MEQB distribution list as well as additional interested parties.

2.3.5 Comment Period and Public Meetings

The MEQB and FR notification also identified that the 90-day comment period would end on March 13, 2014. Instructions and contact information were provided for submittal of public comments.

Following the release of the SDEIS, public meetings were held in Duluth, Minnesota, on January 16, 2014, Aurora, Minnesota, on January 22, 2014, and St. Paul, Minnesota, on January 28, 2014, to gather public comments on the SDEIS.

2.3.6 Receipt and Review of Public and Agency Comments

Public and agency comments on the SDEIS were collected during the 90-day comment period. Submissions came from federal, state, and local government agencies, tribal entities, local businesses, non-governmental organizations, private individuals, and PolyMet. Approximately 58,000 comment submissions were received by the Co-lead Agencies during the 90-day comment period.

Each submission was reviewed and individual unique comments were identified. The comments were then grouped into relevant topic areas and further categorized into comment themes. This process is described in more detail in Appendix A.

2.4 FEIS DEVELOPMENT

2.4.1 Consideration of Public Comments Received on the SDEIS

The SDEIS comments were considered and addressed through FEIS text edits and clarifications, project design modifications, and updated analysis where deemed appropriate. The comment themes and each individual Cooperating Agency comment received were also responded to. A description of the process taken to consider, manage, and respond to the submissions, comments, and themes, as well as copies of the comments, themes, and responses are provided in Appendix A.

2.4.2 NorthMet Project Modifications

Comments received on the SDEIS highlighted some areas where project modifications could be made to enhance the environmental performance of the NorthMet Project Proposed Action. Under advisement from the Co-lead Agencies, PolyMet made several engineering design

modifications to the NorthMet Project Proposed Action based on updated business needs, and to address comments received on the SDEIS. The project modifications were:

- adding a water containment system on the east side of the Tailings Basin to capture potential future seepage in that area;
- adding in semi-autonomous grinding (SAG) mill to the plant site for more energy efficient ore grinding process;
- adding cement deep soil mixing component to strengthen the existing LTVSMC Tailings Basin prior to using that facility for the NorthMet tailings;
- removing the coal ash landfill located within the proposed Tailings Basin footprint;
- treating water from Colby Lake prior to its use as stream augmentation; and
- adding bedrock groundwater monitoring wells north of the Mine Site to understand bedrock groundwater flow direction.

These project modifications were considered by the Co-lead Agencies as being generally beneficial to the environmental performance of the NorthMet Project Proposed Action and did not represent a significant change in the project design.

2.4.3 Changes to the SDEIS and Preparation of the FEIS

Consistent with NEPA and MEPA, the Co-lead Agencies revised the SDEIS to address substantive comments received on the draft statement and minor project modifications made by the proposer, described in Section 2.4.2, which resulted in updated data and analyses for the FEIS. These changes, however, are not considered to be substantial and have not resulted in new conclusions or resulted in any new significant impacts. The methodology used for the analysis was consistent with that in the SDEIS. These predicted effects are described in Chapter 5 for direct and indirect impacts of the NorthMet Project Proposed Action and Land Exchange Proposed Action and in Chapter 6 for cumulative impacts. Appendix A of the FEIS contains the SDEIS public comments, comment themes, and theme responses, as well as the responses to the DEIS comment themes.

2.5 ADEQUACY DETERMINATION/RECORDS OF DECISION

Following release of the FEIS:

- The MDNR will make a determination on the adequacy of the FEIS, per *Minnesota Rules*, Part 4410.2800. This determination will be included in the MDNR's Adequacy Decision.
- The USACE will issue a ROD on the applicant's Section 404 Department of the Army (DA) permit application in accordance with their regulation found at 33 CFR Part 320-332. Comments on the FEIS will be addressed in the USACE ROD only if substantive issues are raised that have not been addressed in the FEIS.

- The USFS will issue a ROD on the Land Exchange once any objections filed per 36 CFR 218 (updated from the previous appeals process per 36 CFR 215) are resolved. Individuals and entities who provide specific written comment as defined in § 218.2 during scoping or the comment period will be eligible to participate in the objection process. For more information on the objection process, see www.fs.usda.gov/goto/superior/projects.

2.6 PROJECT PERMITTING AND APPROVALS

Information (data, analyses, and assessments) being generated during the EIS process is an integral part of the permitting process. There are multiple permit applications for the NorthMet Project and they would be processed in various timeframes and under various procedures, often including detailed information beyond that required in an EIS. Deeming an EIS adequate does not guarantee issuance of the permits. In general, once the permitting authority receives its complete permit application, proposed projects are described in a public notice for review and comment. Following public comment periods, meetings and/or hearings, permit determinations could be made by the permitting authorities.

Permits and approvals for the NorthMet Project would involve detailed review of regulatory compliance with local, state, and federal rules, statutes, and guidance. Below are some of the major permitting efforts and coordination and consultation processes required for the NorthMet Project:

- MDNR:
  - Permit to Mine
  - Water Appropriations
  - Dam Safety
  - Wetland Replacement Plan
  - An evaluation of state rules related to the transfer or other administration of portions of existing Cliffs Erie (former LTVSMC) permits.
- MPCA:
  - NPDES/SDS Permit covering the Mine Site and Plant Site that addresses state and federal permitting rules, that at a minimum includes the following components:
    - “reasonable potential” analyses for applicable discharges;
    - development of effluent limits for applicable discharges taking into account applicable water quality standards for immediate receiving waters and downstream waters;
    - a non-degradation analysis, where applicable;
    - monitoring requirements for wastewater discharges, groundwater, surface water, and internal wastewater streams, as appropriate;
    - Industrial stormwater requirements; and

    - an evaluation of state and federal rules related to the transfer or other administration of portions of existing Cliffs Erie (former LTVSMC) permits.
  - Air Emission Permit
  - NPDES Construction Storm Water Permit
  - Storage Tank Permit
  - Solid Waste Permit
  - Section 401 Certification (water quality)
- USACE:
  - Section 404 CWA Permit (wetlands)
  - Section 106 Consultation
  - Section 7 Endangered Species Act
- USFS:
  - Land Exchange
  - Section 106 NHPA Consultation
  - Section 7 Endangered Species Act
- USFWS:
  - Section 7 Endangered Species Act

2.7 FINANCIAL ASSURANCE

Per the State Permit to Mine, financial assurance would be required to ensure a source of funds that could be used by the MDNR in the event that PolyMet fails to complete closure and reclamation activities. Reclamation and post-reclamation cost estimates must be updated on an annual basis to account for the activities completed during the previous year. Estimates must be made for the contingency funds required in the event of unplanned closure during the course of the year.

Per *Minnesota Rules*, part 6132.1200, subparts 4 and 5, the financial assurance instruments for the NorthMet Project Proposed Action must be approved by the MDNR and be available to the MDNR when needed. The level of engineering design and planning required to calculate detailed financial assurance amounts is typically made available during the permitting process. Section 3.2.2.4.2 provides further discussion on the applicable financial assurance for the NorthMet Project.

Additionally, financial assurance for wetland mitigation may be required. Section 5.2.3 presents additional information relative to such mitigation measures.

3.0 PROPOSED ACTION AND ALTERNATIVES

3.1 INTRODUCTION

The NorthMet Project and Land Exchange areas are located in northeastern Minnesota (see Figure 1.1-1). The NorthMet Project area is located on the Mesabi Iron Range in St. Louis County. The Boundary Waters Canoe Area Wilderness (BWCAW) and Voyageurs National Park are approximately 20 miles north and 50 miles northwest, respectively, of the NorthMet Project area. The NorthMet Project area is within the St. Louis River (Lake Superior) Watershed, which ultimately drains to Lake Superior. This area is located on lands acquired by the United States on September 30, 1854, when the Chippewa of Lake Superior ceded ownership of the land to the United States. These lands are often referred to today as the 1854 Ceded Territory.

Current land use in the region includes mining, forestry, urban development, and recreation on a mixture of private and public land. The NorthMet Project Proposed Action would be the first copper-nickel-PGE mine in Minnesota, though feasibility studies are underway for other potential copper-nickel-PGE mines. However, as shown in Figure 1.1-2, commercial mining has been undertaken in northeastern Minnesota since the late of the 19th century when iron ore (hematite and later taconite) was discovered on the Vermilion, Mesabi, and Cuyuna ranges. The development of open pit mines and processing facilities, supported by the development of many small towns, has facilitated continued iron ore/taconite mining over the last century. Today, only the Mesabi Range is actively mined for iron ore/taconite, though several copper/nickel mines are undergoing feasibility studies in this area.

Section 3.1 summarizes the NorthMet Project Proposed Action and alternatives as well as the Land Exchange Proposed Action and alternatives. The NorthMet Project Proposed Action is described in detail in Section 3.2.2, and the alternatives, including reconsideration of alternatives from the DEIS, are described in Section 3.2.3. The Land Exchange Proposed Action is described in Section 3.3.2, and the alternatives are described in Section 3.3.3. The affected environment and the potential environmental consequences are addressed in subsequent chapters in this FEIS.

3.1.1 *NorthMet Project Overview*

The NorthMet Project Proposed Action has three major components: a Mine Site, a Transportation and Utility Corridor, and a Plant Site comprising the following three phases:

- Construction, which would last for approximately 18 months and would include land clearing, building renovation and construction, stockpile construction, and utility upgrades.
- Operations, which would last approximately 20 years and would include ore mining and processing, continued construction, and progressive reclamation (at the same time as mining).
- Reclamation, closure, and post-closure maintenance, which would last for an unknown duration and would occur after mining, and would include infrastructure removal and final land reclamation, maintenance, monitoring, and transitioning from mechanical to non-mechanical water treatment if or when proven effective.

The NorthMet Project Proposed Action does not include actions to address existing environmental conditions for lands associated with previous LTVSMC operations outside the NorthMet Project area.

An overview of the NorthMet Project Proposed Action layout, operations, closure, and alternatives is provided below.

3.1.1.1 *Site Preparation and Construction Overview*

In preparation, existing vegetation would be cleared from sites where mining would take place and where infrastructure would be built. Overburden (i.e., the soils and rocks overlying bedrock or ore) would be removed from the mine pits and as required from foundations of stockpiles, infrastructure, and haul roads. Buildings and infrastructure would be constructed on site.

Existing facilities at the former LTVSMC processing plant would be refurbished to working order. New processing buildings would be constructed to further refine the copper-nickel-PGE ores—a process different from that utilized for taconite previously processed at the facility. Construction would occur for approximately 18 months prior to the start of mining.

3.1.1.2 *Mine Site Layout Overview*

The NorthMet Project Proposed Action includes several new facilities necessary to manage the material removed from three mine pits: the East Pit, Central Pit, and West Pit. Infrastructure at the Mine Site would include haul roads, a temporary ore storage pile, a rail-loading facility, water-containment systems, a Waste Water Treatment Facility (WWTF), temporary and permanent waste rock stockpiles, and an overburden stockpile. Waste rock that has a low potential to contaminate water would be stored mostly in a permanent stockpile, with some being backfilled into the empty mine pits when they become available. Waste rock with a high potential to contaminate water would be temporarily stored in lined stockpiles, then moved permanently into the empty East and Central pits.

3.1.1.3 *Mine Operations Overview*

The mining operations would involve the use of conventional surface mining methods, such as blasting and excavating rock from the NorthMet Deposit, a low to medium quality copper-nickel-PGE deposit with a low sulfide content. The East Pit and West Pit would be mined simultaneously through the first 11 years of the mine life. Mining would cease at the East Pit at approximately year 11 and continue at the West Pit until year 20. The Central Pit would be mined between years 11 and 16 and would ultimately combine with the East Pit. The maximum depths of the pits below the original surface level would be 696 ft for the East Pit (at year 11), 356 ft for the Central Pit (at year 16), and 630 ft for the West Pit (at year 20).

The ore, waste rock, and overburden would be transported by truck within the Mine Site via a series of haul roads. Ore would be hauled to a rail-loading facility for transport to the Plant Site. The waste rock would be sorted into four categories based on its potential to contaminate water—Category 1 waste rock would have a low potential and Category 4 waste rock would have a high potential.

Until the completion of mining in the East Pit (approximately year 11), waste rock would be hauled to the following stockpiles at the Mine Site:

- Permanent Category 1 Stockpile;
- Temporary Category 2/3 Stockpile; or
- Temporary Category 4 Stockpile.

After year 11 (that is, at the completion of mining at the East Pit), the waste rock in the temporary stockpiles would be moved into the East Pit. Waste rock generated from ongoing mining in the West Pit and Central Pit after year 11 would be directly disposed of in the East Pit. Some Category 1 waste rock would continue to be placed on the Category 1 Stockpile until year 13.

Water control systems would be constructed to capture water that has contacted surfaces disturbed by mining operations, as well as water collected on stockpile liners (i.e., process water). Process water would be treated at a treatment facility located at the Mine Site and either pumped via a Central Pumping Station to the Plant Site for discharge to the Tailings Basin, or used to supplement flooding of the East Pit after year 11.

3.1.1.4 *Transportation and Utility Corridor Overview*

The Mine Site would be connected to the Plant Site, located approximately 7 to 8 miles to the west, by an approximately 7- to 8-mile-long Transportation and Utility Corridor that would contain the following:

- A private railroad consisting of new spurs that would connect the Mine Site and Plant Site to the existing Cliffs Erie, LLC (Cliffs Erie) private railroad and would be used to transport ore from the Mine Site to the Plant Site;
- An existing segment of the private Dunka Road that would provide vehicle access between the Mine Site and the Plant Site (separate from the railroad);
- New water pipeline that would be constructed along Dunka Road to transport water between the Mine Site and the Plant Site; and
- New transmission lines that would be constructed along a portion of Dunka Road near the Mine Site.

3.1.1.5 *Plant Site Layout Overview*

Some facilities at the former LTVSMC processing plant would be refurbished and new facilities would be added for the Plant Site. The existing infrastructure at the Plant Site includes roads, railroads, maintenance facilities (shops), electrical transmission lines, sanitary and potable water treatment facilities, coarse- and fine-crusher buildings, and a concentrator building. New construction would include the Hydrometallurgical Plant, oxygen plant, flotation buildings, pipelines, concentrate dewatering, storage and load out buildings, and a Waste Water Treatment Plant (WWTP).

The existing LTVSMC Tailings Basin would be used as the base for NorthMet Project Proposed Action tailings disposal. The existing LTVSMC Tailings Basin consists of three areas: Cell 1E, Cell 2E, and Cell 2W. Cell 2W, the most built-up cell, is located on the western half of the

existing LTVSMC Tailings Basin and is not proposed for use as part of the NorthMet Project Proposed Action. A containment system would be installed around the northern, western, and portions of the eastern sides of the Tailings Basin. Improvements would be made to the existing seepage management system to the south if necessary. To enhance stability of the existing tailings prior to the placement of NorthMet tailings, cement pillars would be installed (i.e., CDSM) in the existing tailings and peat layers in the northern dams of the LTVSMC Tailings Basin. Additionally, the northern embankment of Cell 2E and southern embankments of Cell 1E of the existing LTVSMC Tailings Basin would be reinforced with a rock buttress.

A Hydrometallurgical Residue Facility would be constructed to contain residue from hydrometallurgical processing. This facility would be built at the existing LTVSMC Emergency Basin, immediately southwest of Cell 2W at the Tailings Basin. The Hydrometallurgical Residue Facility would have a double geomembrane liner, with a leachate collection system between the liners. A geosynthetic clay liner would be installed below the geomembrane liner.

3.1.1.6 *Plant Operations Overview*

Once mined, the ore would be shipped to the Plant Site by rail, to be crushed and processed. Processing would involve concentration in a new flotation building to separate metallic sulfide minerals (ore concentrate) from feldspar and other non-ore minerals (tailings).

Then, the ore concentrate either would be dewatered and shipped off-site as copper and nickel concentrate final products, or the nickel concentrate would be processed in an autoclave at the Hydrometallurgical Plant and base/precious metal precipitates would be produced; these precipitates would be shipped off-site as final products. Based on the anticipated rate of mining, annual production post-processing would total about 113,000 short tons of copper concentrate, 18,000 short tons of mixed (nickel/cobalt) hydroxide, and 500 short tons of gold and PGE precipitate.

After passing through a scavenger flotation cycle to remove as many sulfide minerals as possible, the tailings would be transferred as slurry to the Tailings Basin. The tailings would be deposited on top of Cell 1E and Cell 2E at the existing LTVSMC Tailings Basin and, at completion, would be approximately the same height as the existing Cell 2W. Bentonite would be incorporated into the exposed outer side-slopes of the Tailings Basin as it would be built up to create a barrier that would limit oxidation. This limiting of oxygen transfer would reduce pollutants generated from the Tailings Basin.

Water seepage from the Tailings Basin would be collected by the containment system and sent to either the Tailings Basin pond or the Plant Site WWTP. Treated water from the WWTP would be discharged to maintain flows in the streams that would be affected by the Tailings Basin containment system. The waste (residue) from the Hydrometallurgical Plant would be transferred to the lined Hydrometallurgical Residue Facility. Water captured by the liner system during operations would be returned to the Hydrometallurgical Residue Facility pond.

3.1.1.7 *Project Closure Overview*

In general, proposed facilities have been designed and would be operated to allow for concurrent reclamation, which would include backfilling the East Pit once it was exhausted (after year 11 of mining) by relocating waste rock from the temporary waste rock stockpiles. Undertaking reclamation concurrently with mining would reduce the effort and cost of final closure and is

required by rule. The Category 1 Stockpile would also be progressively reclaimed starting in year 14, after it is completed in year 13.

Mining is expected to be completed approximately 20 years after operations begin. PolyMet has prepared a mining and reclamation plan and will further develop the plan as part of the Permit to Mine application. The mining and reclamation plan includes planned scheduling and costing for closure and post-closure activities. At closure, PolyMet would first remove all unnecessary infrastructure and facilities, then reclaim disturbed lands. Reclamation objectives would include rapidly establishing a self-sustaining plant community, controlling dust, controlling soil erosion, providing wildlife habitat, and minimizing the need for maintenance. Post-closure activities would include monitoring and maintenance of reclamation and operation of mechanical or non-mechanical water-treatment infrastructure until facility features were deemed environmentally acceptable in a self-sustaining and stable condition (refer to Sections 3.2.2.1.10, 3.2.2.3.12, and 3.2.2.4).

The water quality objective of closure is to provide mechanical or non-mechanical treatment for as long as necessary to protect regulatory standards at applicable groundwater and surface water compliance points. Water quality modeling performed in support of this FEIS indicates that water treatment systems would be needed indefinitely at the Mine Site and Plant Site. The water models constructed to assess the potential effects from the NorthMet Project Proposed Action were not designed to predict the duration of treatment nor do they capture all the factors that influence the duration of treatment (e.g., potential future regulatory and technological changes). Therefore, the models cannot be used to predict when treatment would end. Actual treatment requirements would be assessed on a recurring basis throughout operations, reclamation, and closure considering influent and effluent water quality and monitoring results. Those periodic assessments would be carried out to ensure continuous protection of groundwater and surface water quality and compliance with water quality-based effluent limits. The periodic assessment process would rely on monitoring results coupled with predictive modeling rather than the results of the predictive modeling alone. Regardless of the precise duration of effects or water treatment at either the Mine Site or Plant Site, there are measures available to address impacts to natural resources, such as those identified in the Adaptive Water Management Plan (PolyMet 2015d) and those developed permit conditions. PolyMet would be held accountable for maintenance and monitoring required under the permit and would not be released from financial assurance until all permit conditions have been met. PolyMet would be required to provide financial assurance to MDNR (managed independently) for closure and maintenance costs as a contingency if PolyMet or the operating company at that time were unable to fulfill the obligations under the Permit to Mine.

3.1.1.8 *NorthMet Project Proposed Action Alternatives Overview*

The NorthMet Project Proposed Action incorporates activities and environmental impact mitigation measures that have been evaluated through the EIS process. In addition, a number of alternatives and mitigation measures were identified and considered through the EIS process and were either:

- Incorporated into the NorthMet Project Proposed Action as they offered benefits to the outcomes of the NorthMet Project Proposed Action; or

- Eliminated from detailed evaluation because they did not offer measurable or substantial environmental benefits over other alternatives (including the NorthMet Project Proposed Action), they were not reasonable (i.e., they were not economically or technically feasible in accordance with CEQ guidelines), or would not meet the Purpose and Need.

As a result of screening and analysis, the NorthMet Project No Action Alternative (i.e., the NorthMet Project Proposed Action would not occur) is the only alternative evaluated in detail in this FEIS.

3.1.2 *Land Exchange Overview*

The Land Exchange Proposed Action includes undertaking a land exchange of 6,650.2 (GLO) acres of federal land with up to 6,722.5 (GLO) acres of privately owned land of a combined equal value, located within the 1854 Ceded Territory in Minnesota.

The federal land for the Land Exchange Proposed Action consists of a single contiguous area of land located within the Laurentian Ranger District approximately 6 miles south of the City of Babbitt in St. Louis County in northeastern Minnesota. It was acquired by the United States under the authority of the Weeks Act of 1911 and is managed by the USFS.

The federal lands are located adjacent to historic mining projects on the Mesabi Iron Range and are mostly surrounded by privately held land used for mining and other industrial purposes; portions of the east and southwest areas of the federal lands are bordered by other National Forest System lands of the Superior National Forest. The National Forest System lands are located above the NorthMet Deposit. PolyMet leases the NorthMet Deposit's private subsurface mineral rights. PolyMet intends to access these private minerals that were reserved in a conveyance of land to the United States. That land was purchased by the USFS, for National Forest purposes, under the authority of the Act of March 1, 1911, also known as the Weeks Act (16 USC 515). However, the USFS has taken the position that the mineral rights which were reserved in the deed to the United States do not include the right to surface mine as proposed by PolyMet. The Land Exchange Proposed Action would unite surface and mineral rights on the former federal lands and is therefore considered to be a connected action to the NorthMet Project Proposed Action. Please refer to Section 1.3.2.2 for more information on the USFS Purpose and Need for the Land Exchange Proposed Action.

The Land Exchange Proposed Action would include up to five tracts of non-federal lands in St. Louis, Lake, and Cook counties that would comprise up to 6,722.5 acres (GLO); however, the final exchange, if approved, could include fewer than 6,722.5 acres (GLO) of non-federal land depending on the results of the environmental analysis and real estate appraisals. All of the lands proposed for exchange are located throughout the 1854 Ceded Territory of northeastern Minnesota. Disclosure of appraisal information in the EIS is not required. Any decision, documented in the ROD, to move forward with a land exchange will be supported by a current appraisal, approved by the USFS, which verifies that the exchange meets the equal value requirements of applicable federal law and regulation. Requests for appraisal reports and appraisal review reports are processed under Freedom of Information Act procedures. Appraisals must conform to Uniform Appraisal Standards for Federal Land Acquisitions and the Uniform Standards of Professional Appraisal Practice of the Appraisal Foundation. The final proposed configuration of land would be determined after the market value of the parcels is determined by

appraisals and the environmental analysis has been completed. This information would be presented in the ROD.

3.1.2.1 *Land Exchange Proposed Action Alternatives Overview*

Two alternatives to the Land Exchange Proposed Action, the Land Exchange Alternative B and Land Exchange No Action Alternative, are evaluated in detail in this FEIS. Land Exchange Alternative B would convey fewer acres of federal lands for fewer acres of non-federal land. Other alternatives were considered but eliminated from further analysis because they did not meet the screening criteria. These included a direct purchase alternative, exchange of a single contiguous federal parcel, exchange of other non-federal lands, exchange of only the federal lands needed for the NorthMet Project Proposed Action, exchange of lands with use restrictions, and underground mining for the NorthMet Project Proposed Action, which would eliminate the need for a land exchange.

3.2 NORTHMET PROJECT DETAILED DESCRIPTION

3.2.1 *Overview*

The NorthMet Project Proposed Action includes three major components: a Mine Site, Transportation and Utility Corridor, and a Plant Site. These areas are shown in Figure 3.2-1. Figure 3.2-2 shows a schematic diagram of the main activities and flow of material. The NorthMet Project Proposed Action would incorporate activities and environmental impact mitigation measures that have been evaluated through the EIS process with the benefit of public review and comment. The NorthMet Project Proposed Action would involve the following:

- Development of a 20-year open pit mine at the NorthMet Deposit (Mine Site).
- Copper-nickel-PGE ore processing at an upgraded former LTVSMC processing plant (Plant Site).
- Transportation of ore and other materials using existing road, existing and new rail infrastructure, and a new water pipeline between the Mine Site and Plant Site (Transportation and Utility Corridor).
- Construction of permanent features, including the following, described in post-reclamation state:
  - One backfilled and flooded mine pit (filled with the most reactive rock for underwater storage and development of wetlands);
  - One flooded mine pit;
  - One capped waste rock stockpile;
  - A reclaimed Hydrometallurgical Residue Facility (over an existing brownfield site); and
  - A bentonite-covered Tailings Basin with pond (over an existing geotechnically enhanced Tailings Basin).
- Construction of temporary features that would be removed and/or reclaimed before or at closure, including:

  - Two lined temporary waste rock stockpiles (removed and reclaimed);
  - An Overburden Storage and Laydown Area (reclaimed); and
  - Roads and other ancillary infrastructure (removed and/or reclaimed).
- Engineered water management controls including:
  - liners on temporary stockpiles;
  - Fixed containment systems and surface seepage management systems encompassing a permanent Category 1 Stockpile and Tailings Basin to capture groundwater and surface seepage from those facilities;
  - Leachate collection system under the Hydrometallurgical Residue Facility;
  - Mine Site WWTF and Plant Site WWTP to treat contaminated waters;
  - An updated sewage treatment system; and
  - Covers on the permanent Category 1 Stockpile and Tailings Basin applied at closure that could be adapted to alter water infiltration as needed.
- Long-term, post-closure monitoring and adaptive management involving mechanical treatment for as long as required until if and when non-mechanical treatment is proven at the site, for affected water from the pits, permanent stockpile, Hydrometallurgical Residue Facility, and Tailings Basin.

A number of alternatives have been evaluated and either incorporated into the NorthMet Project Proposed Action by the applicant, or eliminated in accordance with NEPA and MEPA on the basis of not being reasonable or not having the potential to offer substantial environmental benefit. These alternatives are discussed in Section 3.2.3.

Ultimately, the NorthMet Project No Action Alternative was the only alternative evaluated in detail in this FEIS for reasons detailed in Section 3.2.3. Under the NorthMet Project No Action Alternative:

- NorthMet Project Proposed Action activities would not occur;
- Public land would continue to be managed by the USFS, and private land would continue to be managed under private ownership; and
- The former LTVSMC processing plant and the existing LTVSMC Tailings Basin would be managed and closed as required under the state permits and plans, and Consent Decree (State of Minnesota v. Cliffs Erie, LLC 2010).

A summary of the NorthMet Project Proposed Action and the NorthMet Project No Action Alternative is provided in Table 3.2-1. See Section 3.2.3 for a discussion of alternatives development and alternatives considered for the NorthMet Project but eliminated from detailed analysis. Alternatives for the Land Exchange are discussed in Section 3.3.3.

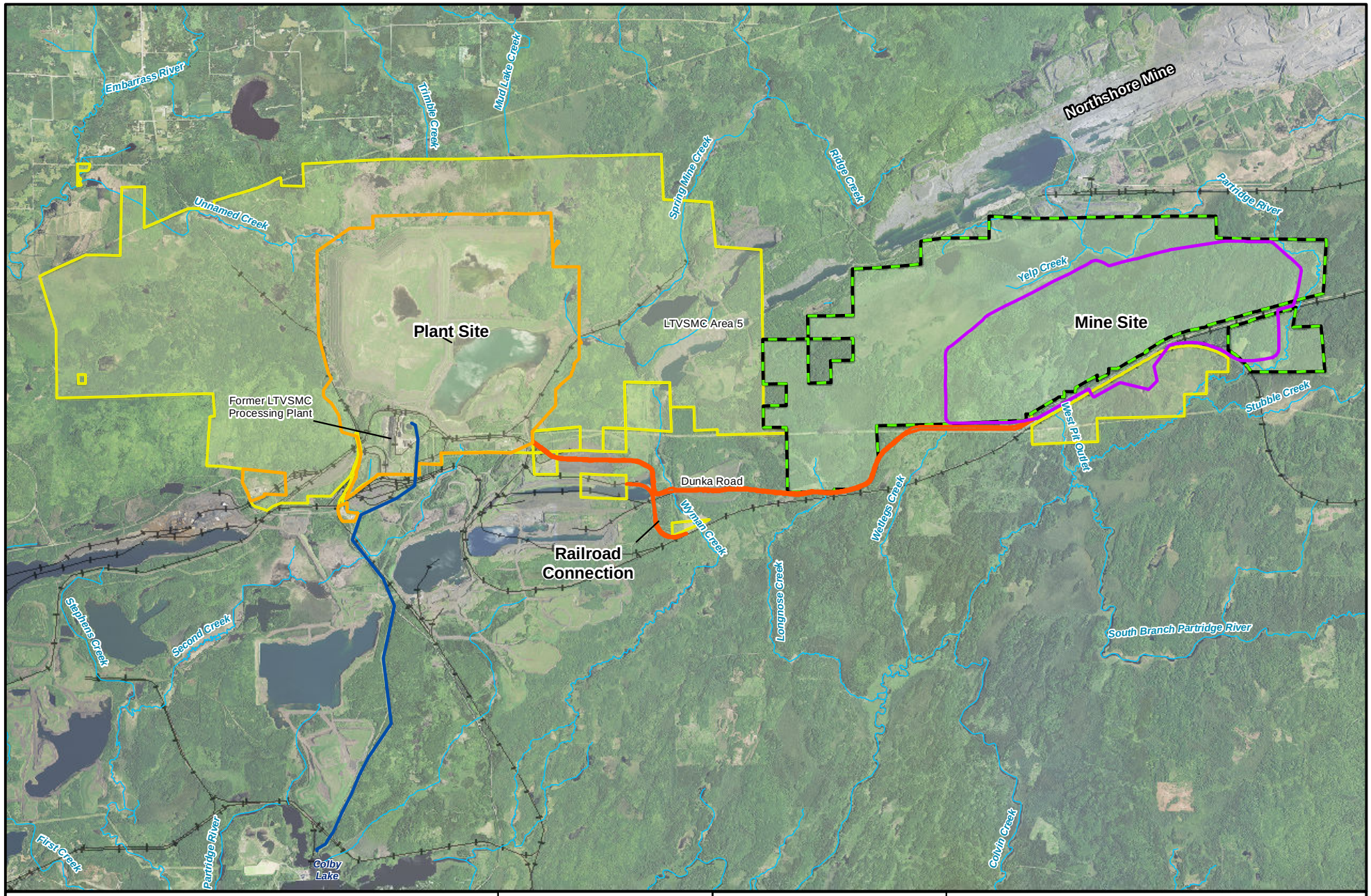

Federal Lands
PolyMet Owned/Leased Area
Mine Site
Plant Site
Colby Lake Water Pipeline Corridor
Transportation and Utility Corridor
Stream/River

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.5 1 2 Miles

Figure 3.2-1
NorthMet Project Area Surface Rights
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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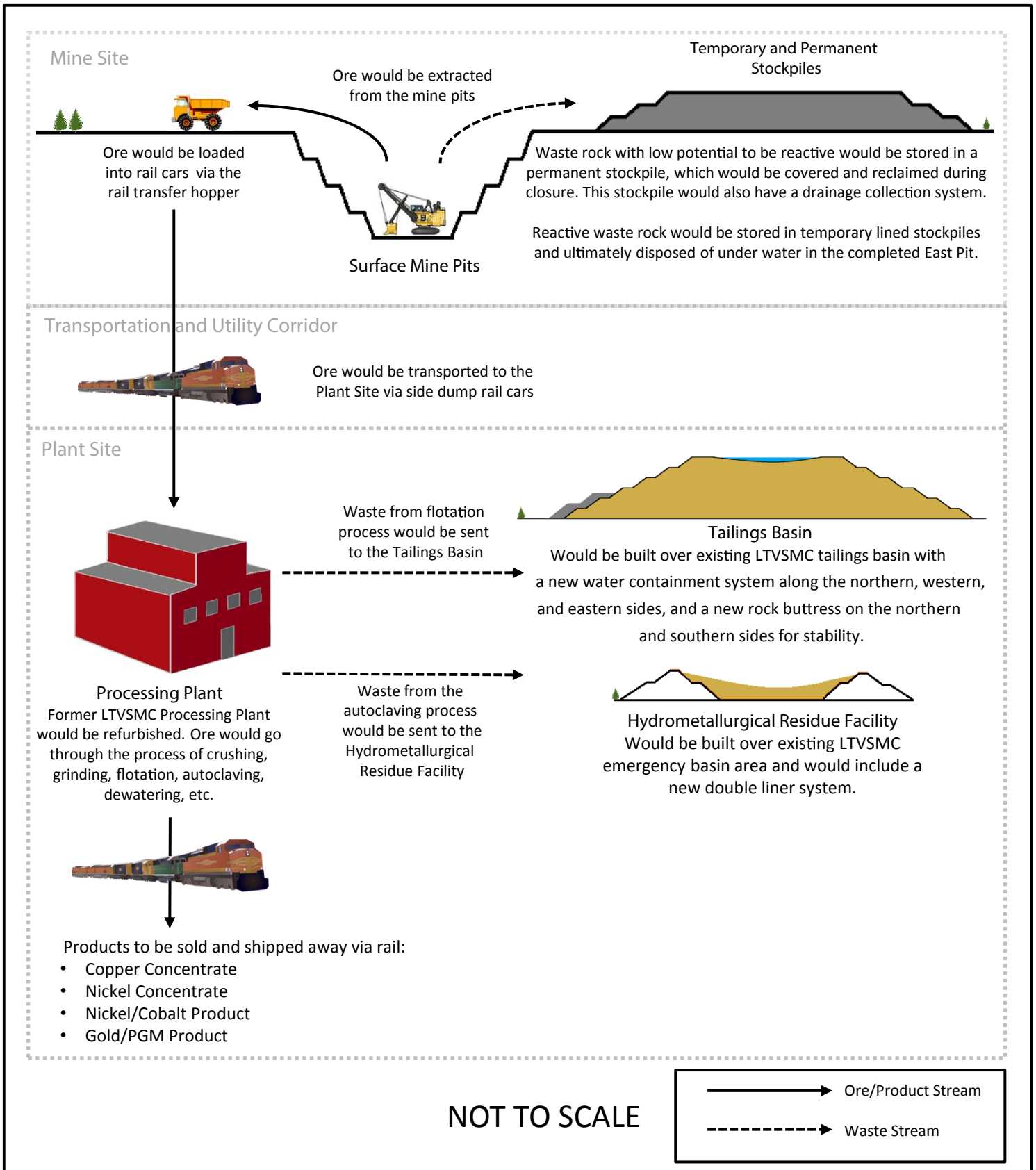

Figure 3.2-2
NorthMet Project Material Flow
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Table 3.2-1 Summary of the NorthMet Project Proposed Action and the NorthMet Project No Action Alternative

Project Component	Location and Existing Land Use	NorthMet Project Proposed Action	NorthMet Project No Action Alternative
Mine Site	• Undeveloped federal land located 0.5 mile south of the Northshore Mine and 7 miles east of the former LTVSMC processing plant • Surface lands are publicly owned by the USFS • Mineral rights are privately held	• Development of three open pits that, upon closure, would include one backfilled pit wetland and one flooded pit void • Construction of one permanent and two temporary waste rock stockpiles, overburden stockpile, and a temporary Ore Surge Pile • Construction and operation of a WWTF, a Rail Transfer Hopper, and other Mine Site support infrastructure • Treatment of water prior to discharge for as long as required in accordance with permit conditions (mechanical treatment until if and when non-mechanical treatment is proven)	• No mining • Continued management of public land by USFS or private ownership (see Table 3.3-1)
Transportation and Utility Corridor	• Privately owned rail and road (Dunka Road) infrastructure • Generally runs east-west from the southern edge of the Mine Site to Plant Site	• Refurbishment and additions to an existing Transportation and Utility Corridor including: – refurbished railway, – refurbished Dunka Road, – new rail spur, – new rail connection track, and – new water pipeline • To be used to transport materials and ore between the Mine Site and the Plant Site	• Continued private ownership and use
Plant Site	• Privately owned, inactive plant infrastructure (formerly the LTVSMC processing plant site) and Tailings Basin	• Refurbishment and additions to existing mineral processing facilities at the former LTVSMC processing plant • Tailings disposal on existing Tailings Basin Cells 1E and 2E • Construction of additional dams with LTVSMC tailings on top of the existing Tailings Basin Cells 1E and 2E with bentonite on the outer slopes and CDSM and Rock Buttress for added stability • Construction of Tailings Basin containment system around the base of the Tailings Basin • During closure, addition of a bentonite layer on top of the Tailings Basin to restrict oxygen and water infiltration from the pond • Hydrometallurgical residue disposed of at a new Hydrometallurgical Residue Facility constructed over the existing LTVSMC Emergency Basin • During closure, Hydrometallurgical Residue Facility to be drained, covered, and reclaimed/revegetated • Construction of a WWTP that would discharge water to Plant Site	• Brownfield site managed and closed as required under state permits and plans and Cliffs Erie Consent Decree

Project Component	Location and Existing Land Use	NorthMet Project Proposed Action	NorthMet Project No Action Alternative
		tributaries. • Treatment of water captured from the Tailings Basin and the Hydrometallurgical Residue Facility to continue as long as required in accordance with permit conditions (mechanical treatment until if, and when non-mechanical, passive treatment is proven)	

3.2.2 *NorthMet Project Proposed Action*

The description of the NorthMet Project Proposed Action in the following sections is broken down into the main project components: the Mine Site (see Section 3.2.2.1), Transportation and Utility Corridor (see Section 3.2.2.2), and Plant Site (see Section 3.2.2.3). Financial assurance also forms part of the NorthMet Project Proposed Action and is discussed in Section 3.2.2.4.

The NorthMet Project Proposed Action has been defined by PolyMet Project Description Version 9 (PolyMet 2015a) and includes design elements and mitigation measures identified in the management plans described below. These management plans contain mitigation measures that are part of the NorthMet Project Proposed Action and would be adjusted as appropriate during final design and permitting.

- Mine Plan (PolyMet 2014q): Describes the site development (infrastructure and facilities), pit development, and mine operations including mining rates and locations to supply ore from the Mine Site to the Plant Site, as well as overburden and waste rock management plans.
- Wetland Management Plan (PolyMet 2015c): Describes the on- and off-site wetland mitigation design, wetland mitigation outcomes, and monitoring and reporting procedures.
- Air Quality Management Plan – Mine (PolyMet 2014m): Describes the emission control systems for point and fugitive sources, air quality modeling outcomes, operating plans for emission controls and fugitive dust control, and air quality monitoring/reporting and adaptive management plans at the Mine Site.
- Air Quality Management Plan – Plant (PolyMet 2014n): Describes the emission control systems for point and fugitive sources, air quality modeling outcomes, operating plans for emission controls and fugitive dust control, and air quality monitoring/reporting and adaptive management plans at the Plant Site.
- Rock and Overburden Management Plan (PolyMet 2015h): Describes baseline data, the design of systems to manage overburden and waste rock (waste characterization, waste classification, and construction uses), outcomes of the design, rock and overburden management operational plans, Category 1 Stockpile groundwater containment system extension design and circumstances that would trigger a design change, water quantity and quality monitoring systems, amount of material in the stockpiles, footprint of the stockpiles, annual reporting requirements, and reclamation plans for next-year closure and forecast of annual estimates for years remaining to end of mining.
- Water Management Plan – Mine (PolyMet 2015r): Describes process water management systems (such as the Mine Site WWTF and stormwater management infrastructure), key water quality outcomes, operational water management plans, monitoring and reporting requirements (including comparison to modeled outcomes and compliance), and adaptive management action plans.
- Water Management Plan – Plant (PolyMet 2015i): Describes, process water management systems (such as the Plant Site WWTP and stormwater management infrastructure), key water quality outcomes, operational water management plans, monitoring and reporting requirements (including comparison to modeled outcomes and compliance), adaptive management action plans, Tailings Basin containment system design and surface seepage management system design, and Plant Site reclamation plans.

- Adaptive Water Management Plan (AWMP) (PolyMet 2015d): Describes Mine Site and Plant Site water management, Category 1 Stockpile geomembrane cover system design and circumstances that would trigger a design change, Category 1 Stockpile water containment conceptual non-mechanical treatment system design, West Pit overflow conceptual non-mechanical treatment system design, Tailings Basin pond cover system design and circumstances that would trigger a design change, WWTF and WWTP mechanical treatment system design, and Tailings Basin conceptual non-mechanical treatment system design.
- Flotation Tailings Management Plan (PolyMet 2015n): Describes existing conditions at the existing LTVSMC Tailings Basin, NorthMet Project Tailings Basin design (including tailings geochemical characterization; engineering design of the dams including cement deep soil mixing (CDSM) and rock buttressing, flotation tailings transport system, and return water system; and seepage and stormwater management), outcomes of modeling, operational plans, monitoring and reporting requirements, and the reclamation plan for the Tailings Basin for next-year closure and forecast of annual estimates for years remaining to end of mining.
- Residue Management Plan (PolyMet 2014r): Describes Hydrometallurgical Residue Facility design, summary of Hydrometallurgical Residue Facility geotechnical analysis outcomes, operational plans (including residue transport and deposition system, return water system, leachate collection system, and general maintenance), monitoring and reporting requirements, and the reclamation plan for the Hydrometallurgical Residue Facility for next-year closure and forecast of annual estimates for years remaining to end of operations.
- Reclamation Plan (PolyMet 2015g): Describes activities associated with demolition of structures and waste disposal, reclamation of the Mine Site (mine pit; stockpile; water management systems, building areas, roads, and parking lots; and removal of railroad tracks and culverts), reclamation of the Plant Site (Tailings Basin; Hydrometallurgical Residue Facility; water management systems, building areas, roads, and parking lots; and removal of railroad tracks and culverts), remediation of legacy Areas of Concern (AOCs) and ongoing mitigation of water quality at the Mining Area 5N and the Tailings Basin, ongoing monitoring and maintenance for the existing solid waste disposal facilities, the methodology for making reclamation estimates and the contingency reclamation estimate, and potential mechanisms for financial assurance.

3.2.2.1 *Mine Site*

This section describes the proposed Mine Site with specific reference to key phases as summarized in Table 3.2-2.

Table 3.2-2 Key Phases and Activities (Mine Site)

Mine Year/Phase	Figure	Key Activities at the Mine Site
Construction		
Prior to mining	Figure 3.2-4 (existing conditions)	• Constructing Mine Site infrastructure • Preparing ground for mine pits and stockpiles
Operations		
Years 1-11	Figure 3.2-5 (year 1) Figure 3.2-6 (year 2)	• Removal and stockpiling of overburden • Mining in East Pit and West Pit • Stockpiling non-acid-generating waste rock (Category 1) into a permanent stockpile (Category 1 Stockpile) • Stockpiling rock with the potential to generate acid (Category 2, 3, and 4) into temporary stockpiles (Category 2/3 Stockpile, Category 4 Stockpile)
Years 11-16	Figure 3.2-7 (year 11)	• Mining in the West Pit and Central Pit (the Central Pit would eventually expand to the completed East Pit) • Backfilling the East pit with all of the Category 4 Stockpile • Backfilling the East Pit with rock from the temporary Category 2/3 Stockpile, and waste rock from ongoing mining in the West Pit and Central Pit • Progressively reclaiming the Category 1 Stockpile (starting in year 14)
Years 16-20	Figure 3.2-8 (year 20)	• Mining in the West Pit only • Backfilling the combined East Central Pit with waste rock from the temporary Category 2/3 Stockpile, and all waste rock from ongoing mining in the West Pit • Continue reclaiming the Category 1 Stockpile
Reclamation, Closure, and Post-closure Maintenance		
Reclamation (after year 20)	Figure 3.2-8 (year 20)	• Flooding of the West Pit • Reclaiming remaining disturbed areas • Complete reclamation of Category 1 Stockpile
Long-term management	Figure 3.2-9 (long-term closure management)	• Monitoring and maintenance • Water treatment using reverse osmosis as long as required in accordance with permits until if, and when non-mechanical treatment is proven effective for meeting water quality requirements

3.2.2.1.1 Location and Ownership

As shown in Figure 1.1-1, the NorthMet Deposit is located approximately 6 miles south of the City of Babbitt in St. Louis County, Minnesota. The Mine Site, shown on Figure 3.2-4, comprises 3,014.5 acres. This area represents the boundary within which the proposed mining activity and infrastructure (i.e., surface disturbance) would occur. The Mine Site would include:

- mine pits;
- overburden and waste rock stockpiles; and
- mining infrastructure, haul roads, a rail-loading facility, and a WWTF.

Layout maps of the Mine Site—which include outlines of the mine pit(s) and waste rock stockpile(s), and mining infrastructure for years 1 (the first year that ore would be delivered to

the processing plant), 2, 11, and 20—are shown on Figure 3.2-5 through Figure 3.2-8. Mine Site layout for long-term closure management is shown on Figure 3.2-9.

PolyMet leases the mineral rights required for proposed mining at the NorthMet Deposit from mineral rights holders RGGS Inc. (RGGS) and Longyear Mesaba Company (see Figure 3.2-3).

The majority of the surface land at the proposed Mine Site is part of a single contiguous area of publicly owned land managed by the USFS. Smaller portions of the Mine Site are owned by PolyMet or leased by PolyMet from Cliffs Erie. Lands owned or leased by PolyMet are shown on Figure 3.2-1. Ownership of federal land at the proposed Mine Site is subject to the Land Exchange Proposed Action (see Section 3.3).

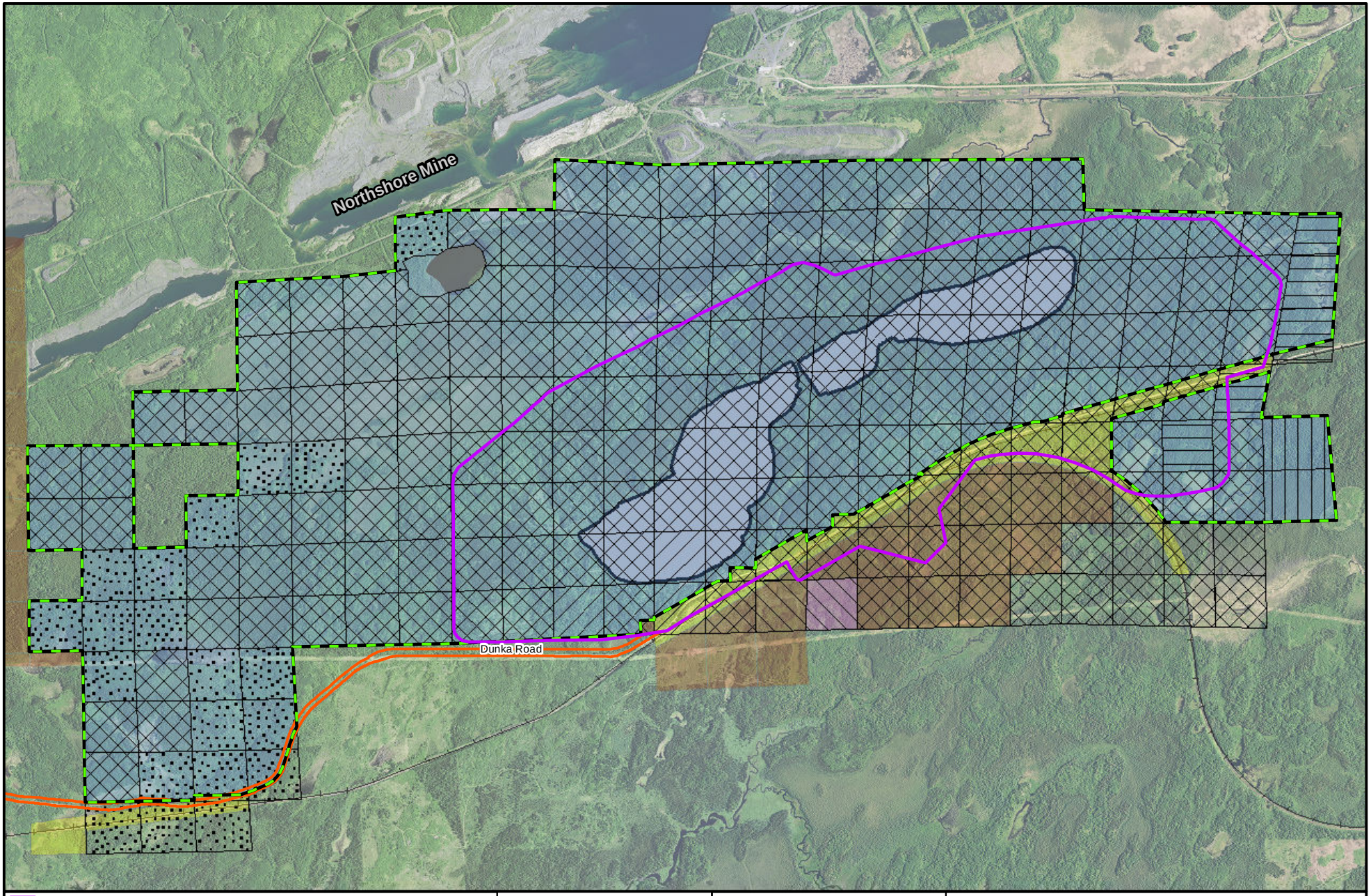

Mine Site
Transportation and Utility Corridor
Federal Lands
Mine Pit
Existing Railroad

Mineral Ownership
Longyear
Multiple
RGGS
Longyear Mesaba
State of Minnesota
USA

Surface Ownership
Cliffs Erie
PolyMet
PolyMet Pursuing Ownership
USA

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1,000 2,000 4,000 Feet

Figure 3.2-3
Mine Site Surface and Subsurface Rights
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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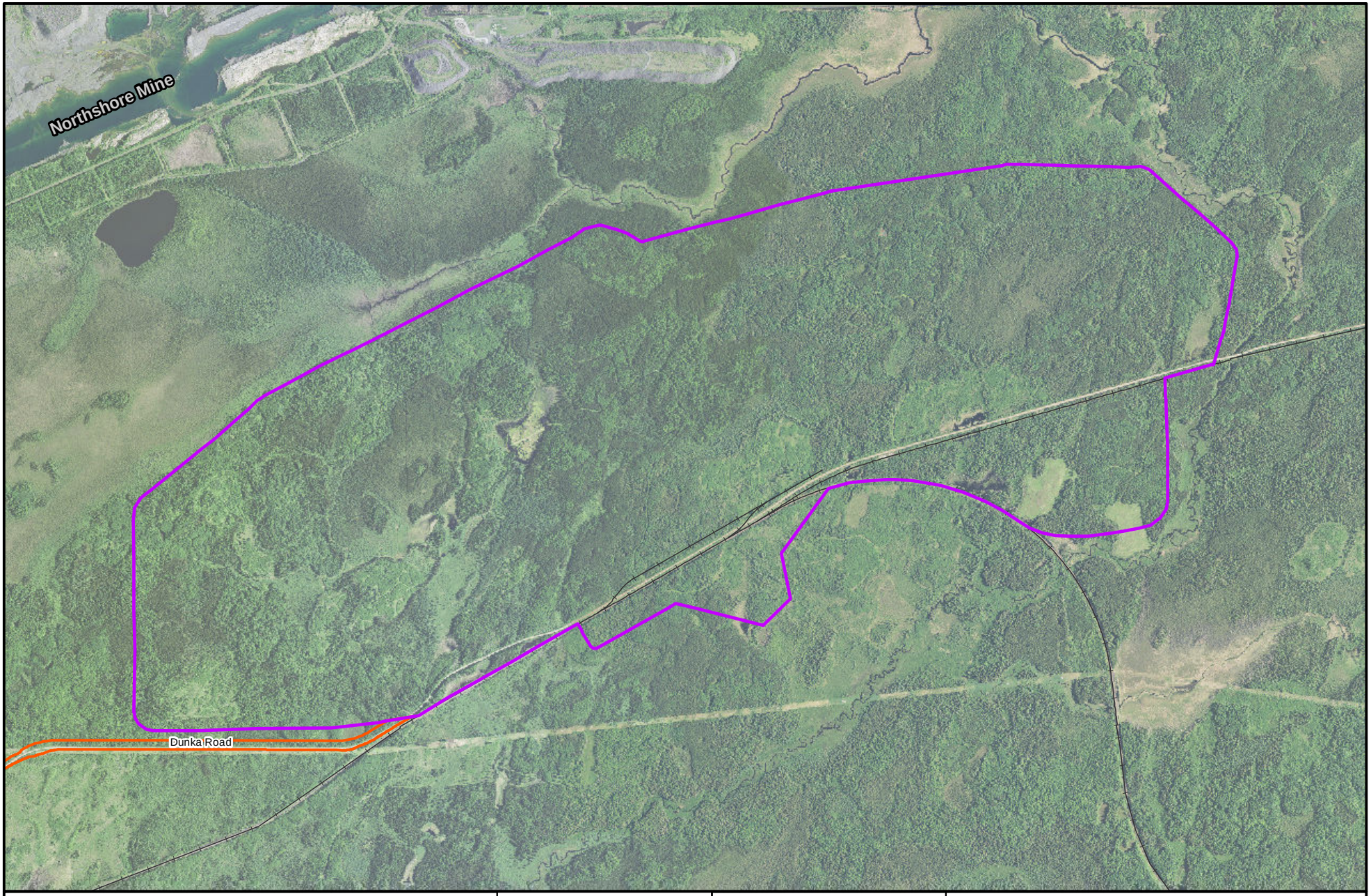

Mine Site

Transportation and Utility Corridor

Existing Railroad

MNDNR

US Army Corps of Engineers
St. Paul District

N
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Feet

Figure 3.2-4
Existing Conditions at the Mine Site
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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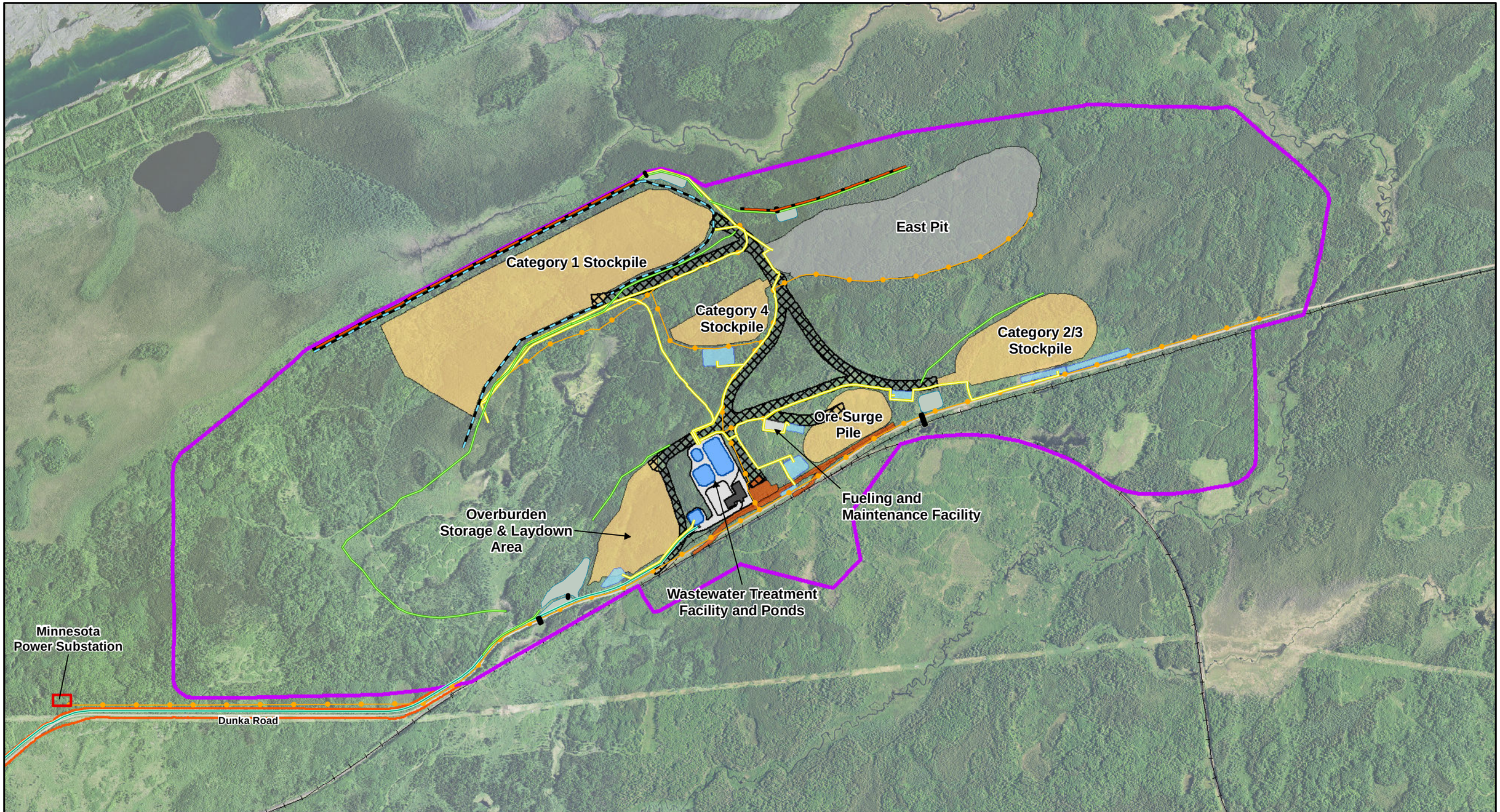

Mine Site
Mine Pit
Active Stockpile
Rail Transfer Hopper and New Railroad Spur
Transportation and Utility Corridor
Groundwater Containment System
Perimeter Dike
Treated Water Pipeline
Stormwater Collection Ditch
Transmission Line
Process Water Pipes
Culvert
Ponds and Sumps
Stormwater Pond
Haul Road

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 750 1,500 3,000 Feet

Figure 3.2-5
Mine Site Plan - Year 1
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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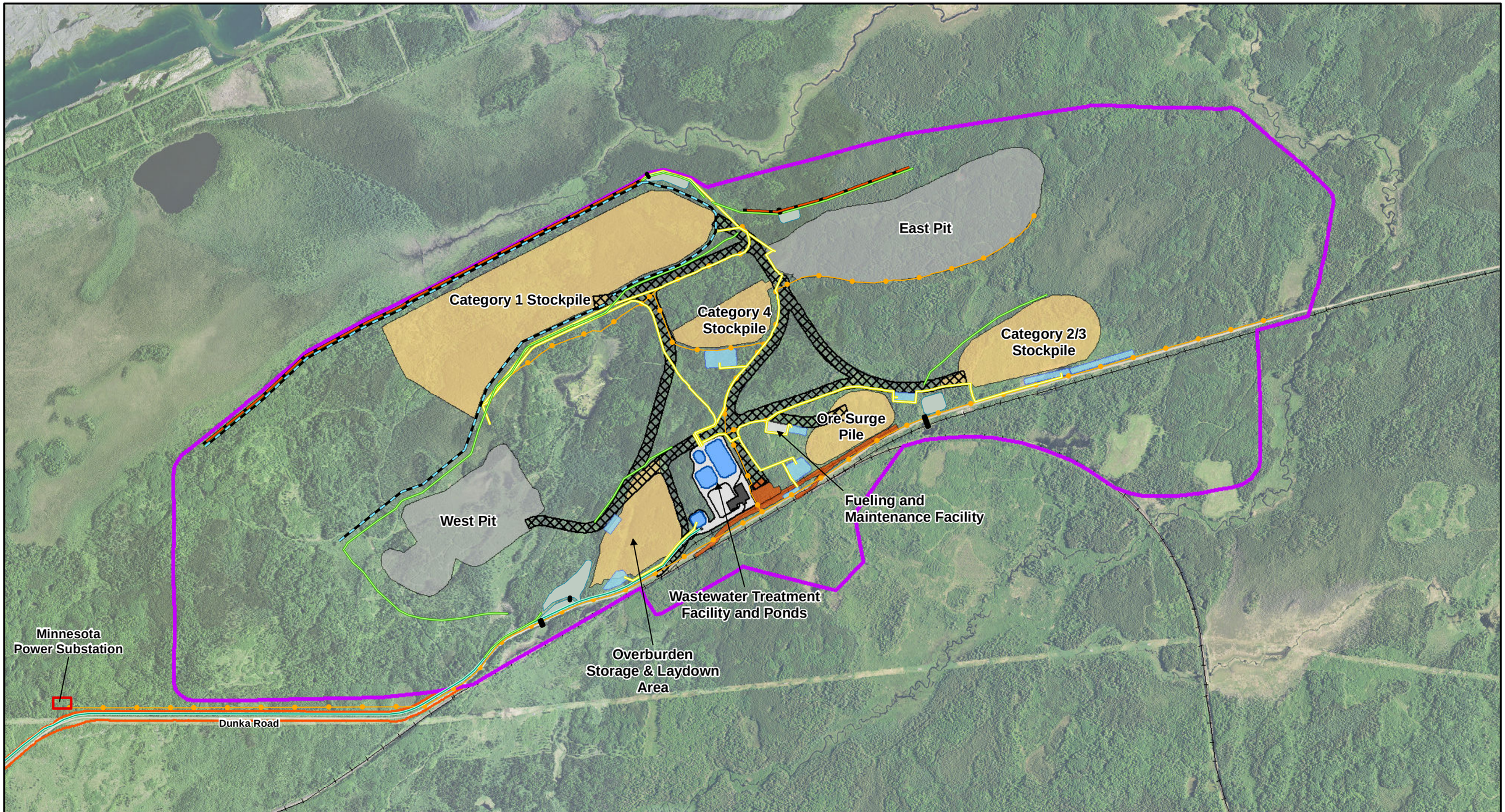

Mine Site
Mine Pit
Active Stockpile
Rail Transfer Hopper and New Railroad Spur
Transportation and Utility Corridor
Groundwater Containment System
Perimeter Dike
Treated Water Pipeline
Stormwater Collection Ditch
Transmission Line
Process Water Pipes
Culvert
Ponds and Sumps
Stormwater Pond
Haul Road

MNDNR
US Army Corps of Engineers
St. Paul District

N
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Feet

Figure 3.2-6
Mine Site Plan - Year 2
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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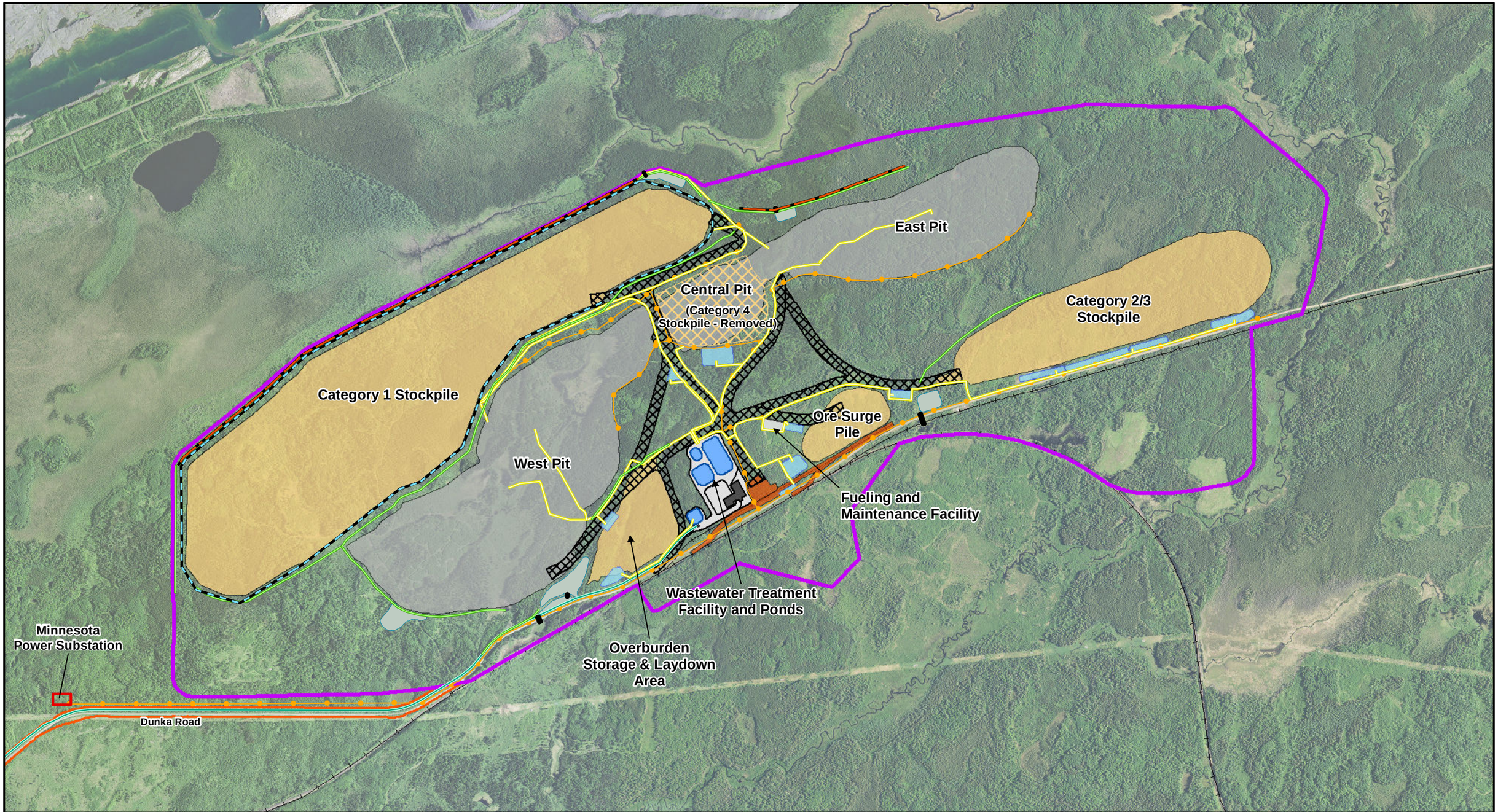

Mine Site
Active Stockpile
Category 4 Stockpile Removed
Mine Pit
Haul Road
Transportation and Utility Corridor
Rail Transfer Hopper and New Railroad Spur
Groundwater Containment System
Perimeter Dike
Transmission Line
Culvert
Stormwater Collection Ditch
Process Water Pipes
Treated Water Pipeline
Ponds and Sumps
Stormwater Pond

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
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Feet

Figure 3.2-7
Mine Site Plan - Year 11
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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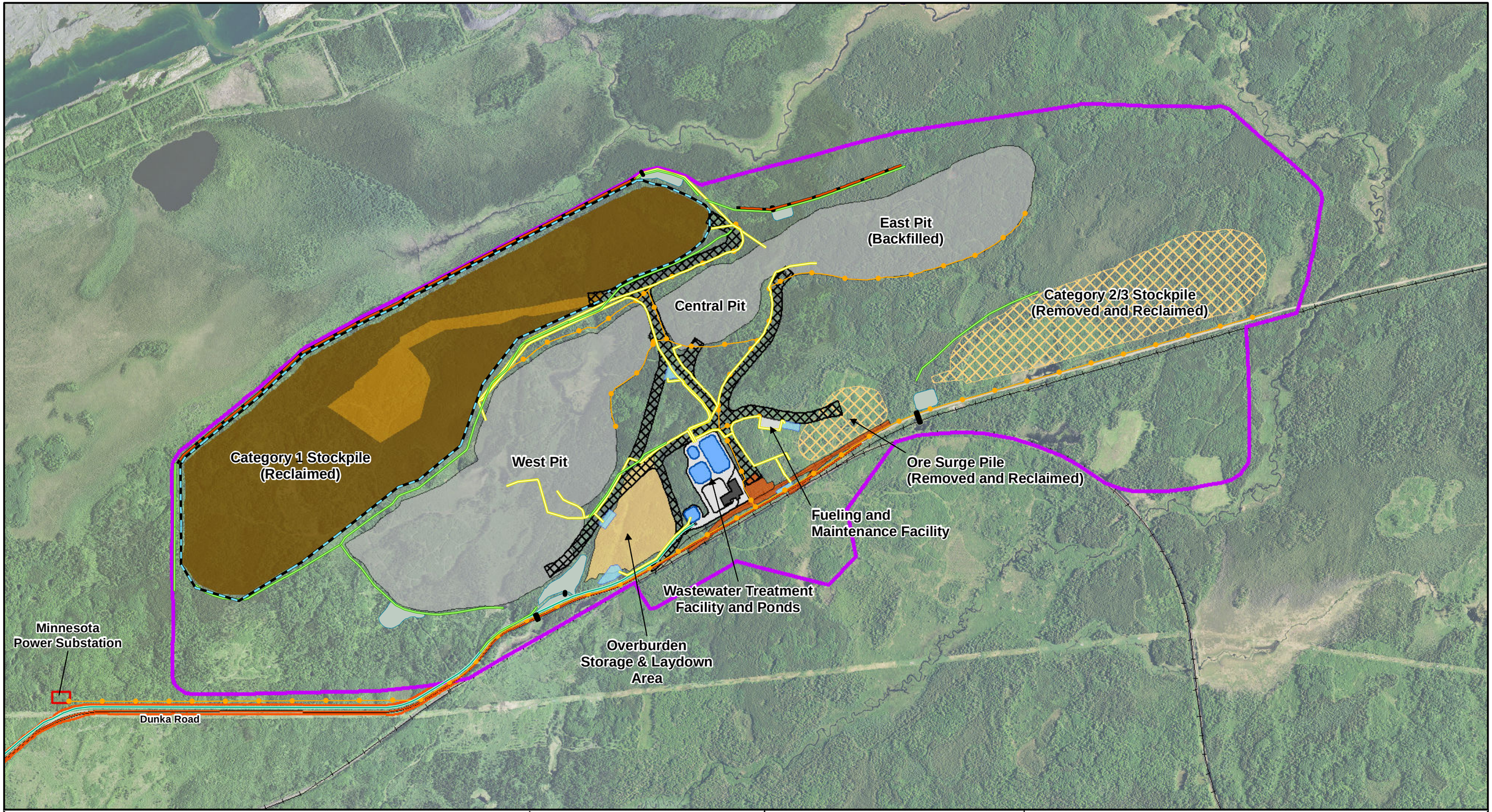

Mine Site
Mine Pit
Covered in Previous Years
Covered Upon Mine Closure
Active Stockpile
Removed and Reclaimed Stockpile
Haul Road
Transportation and Utility Corridor
Rail Transfer Hopper and New Railroad Spur
Groundwater Containment System
Perimeter Dike
Transmission Line
Culvert
Stormwater Collection Ditch
Process Water Pipes
Treated Water Pipeline
Ponds and Sumps
Stormwater Pond

MNDNR
US Army Corps of Engineers
St. Paul District
FOREST SERVICE
DEPARTMENT OF AGRICULTURE

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Feet

Figure 3.2-8
Mine Site Plan - Year 20
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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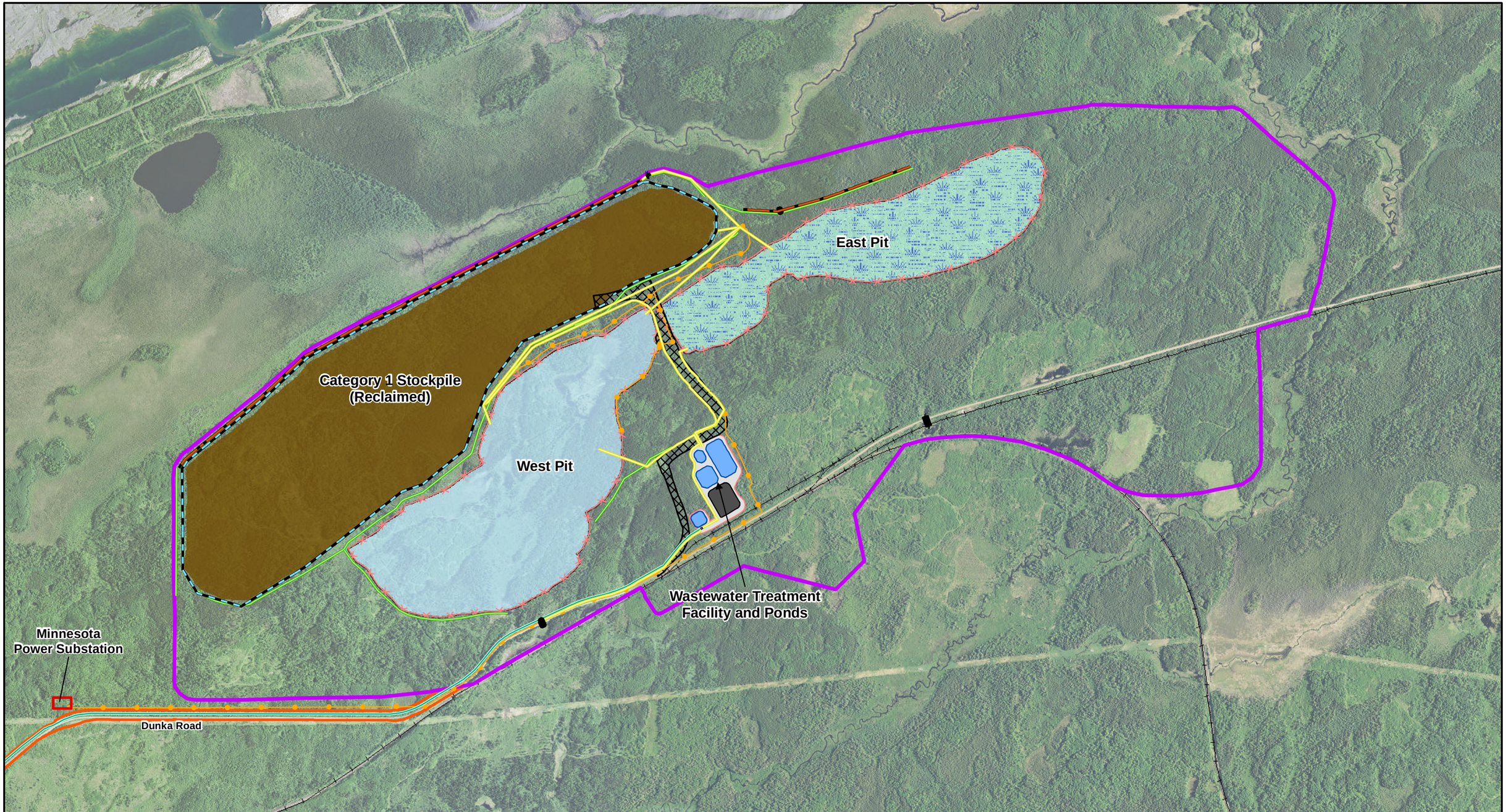

Mine Site
Pit with Backfill and Surface Wetland
Pit Lake
Covered in Previous Years
Haul Road
Transportation and Utility Corridor
Groundwater Containment System
Transmission Line
Stormwater Collection Ditch
Perimeter Dike
Process Water Pipes
Treated Water Pipeline
Fence
Culvert

MNDNR
US Army Corps of Engineers
St. Paul District

N
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Feet

Figure 3.2-9
Mine Site Plan - Long-term Closure
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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3.2.2.1.2 Existing Conditions

The Mine Site is mostly located on undeveloped federal land within the western/central part of the Superior National Forest (see Figure 1.1-1). The area is composed of primarily small-diameter trees, with the most recent harvest having occurred in 2008. As shown on Figure 3.2-4, existing disturbance includes some minor access tracks used for mineral exploration, as well as the existing railway line and Dunka Road that run east-west in the southern part of the Mine Site. Both the rail line and road would be refurbished as part of the NorthMet Project Proposed Action and would be used to transport ore and other material, as required, between the Mine Site and the Plant Site (see Section 3.2.2.2).

Section 4.2 provides additional information on the affected environment at the Mine Site.

NorthMet Deposit Geology

The NorthMet Deposit is one of 10 known significant mineral deposits that have been identified within the 30-mile length of the Duluth Complex and just south of the eastern end of the Mesabi Iron Range. The Duluth Complex is a well-known geological formation containing large quantities of copper, nickel, cobalt, platinum, palladium, and gold. The MDNR has estimated that the entire Duluth Complex contains as many as 4.4 billion tons of mineral resources grading at 0.66 percent copper and 0.20 percent nickel. The NorthMet Deposit is believed to be the second largest deposit within the Duluth Complex and represents nearly 25 percent of the known mineral resources in the area.

All of the mineral deposits share a broadly similar geologic setting to the NorthMet Deposit. They are disseminated sulfides with minor, local, massive sulfides hosted in grossly layered heterogeneous troctolitic rocks forming the basal unit of the Duluth Complex. The majority of the metals are concentrated in, or associated with, four sulfide minerals: chalcopyrite, cubanite, pentlandite, and pyrrhotite, with platinum, palladium, and gold also found as elements and in bismuthides, tellurides, and alloys.

There have been many major drilling programs at the NorthMet Deposit since its discovery in 1969, and numerous bulk metallurgical samples have been collected. The general structure of the NorthMet Deposit, as well as individual beds within the Biwabik Iron Formation and Virginia Formation, is dominated by an overall dip ranging from 15 to 25 degrees to the southeast, and striking about N56 degrees east. The mineralized zone dips to a maximum of 60 degrees in the area of the proposed East Pit, where the Duluth Complex steeply cross cuts the Virginia Formation footwall rocks. There is a smaller zone of economic mineralization at the western end of the property in the upper units, known as the “Magenta Zone.” The NorthMet Deposit is a low- to medium-quality copper-nickel-PGE deposit with a low sulfide content.

The lithology of the NorthMet Deposit consists of seven units, as shown on Figure 3.2-10. Further information on the geology and hydrogeology of the Mine Site and Plant Site is provided in Section 4.2.3.

Regionally, the bedrock is variably fractured in the upper sections due to glacial compression. Structural faults may exist in the area; however, because the landscape is covered with surficial deposits and there are few bedrock outcrops, the existence of faults can only be inferred. Additional geological information is provided in PolyMet 2015a.

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NORTHMET GENERALIZED STRATIGRAPHIC COLUMN

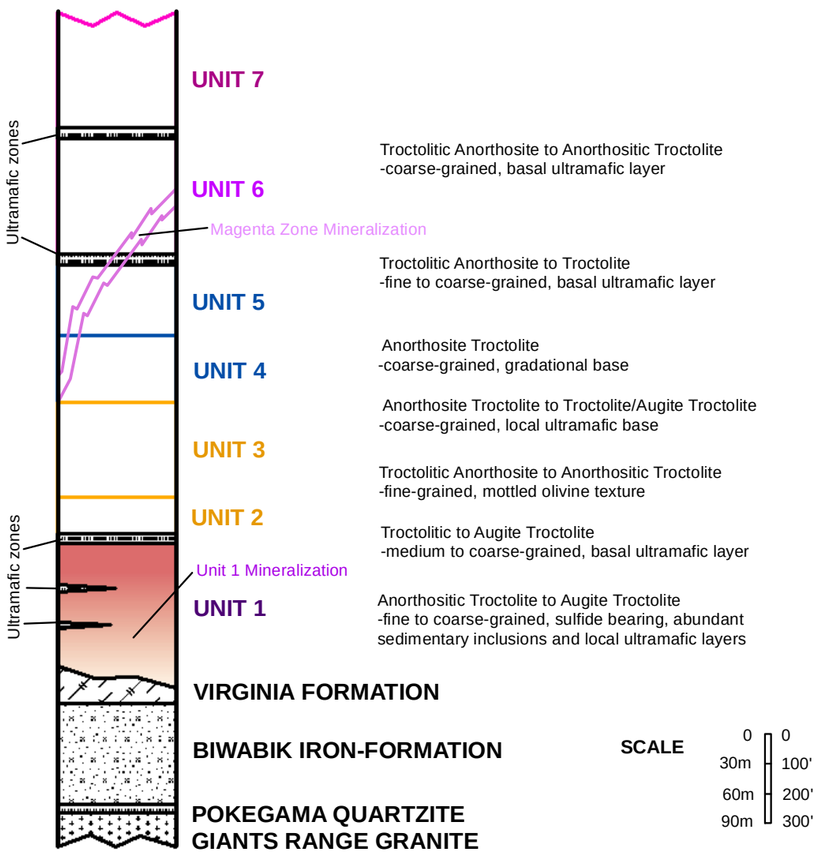

NORTHMET TYPICAL CROSS SECTION FACING EAST

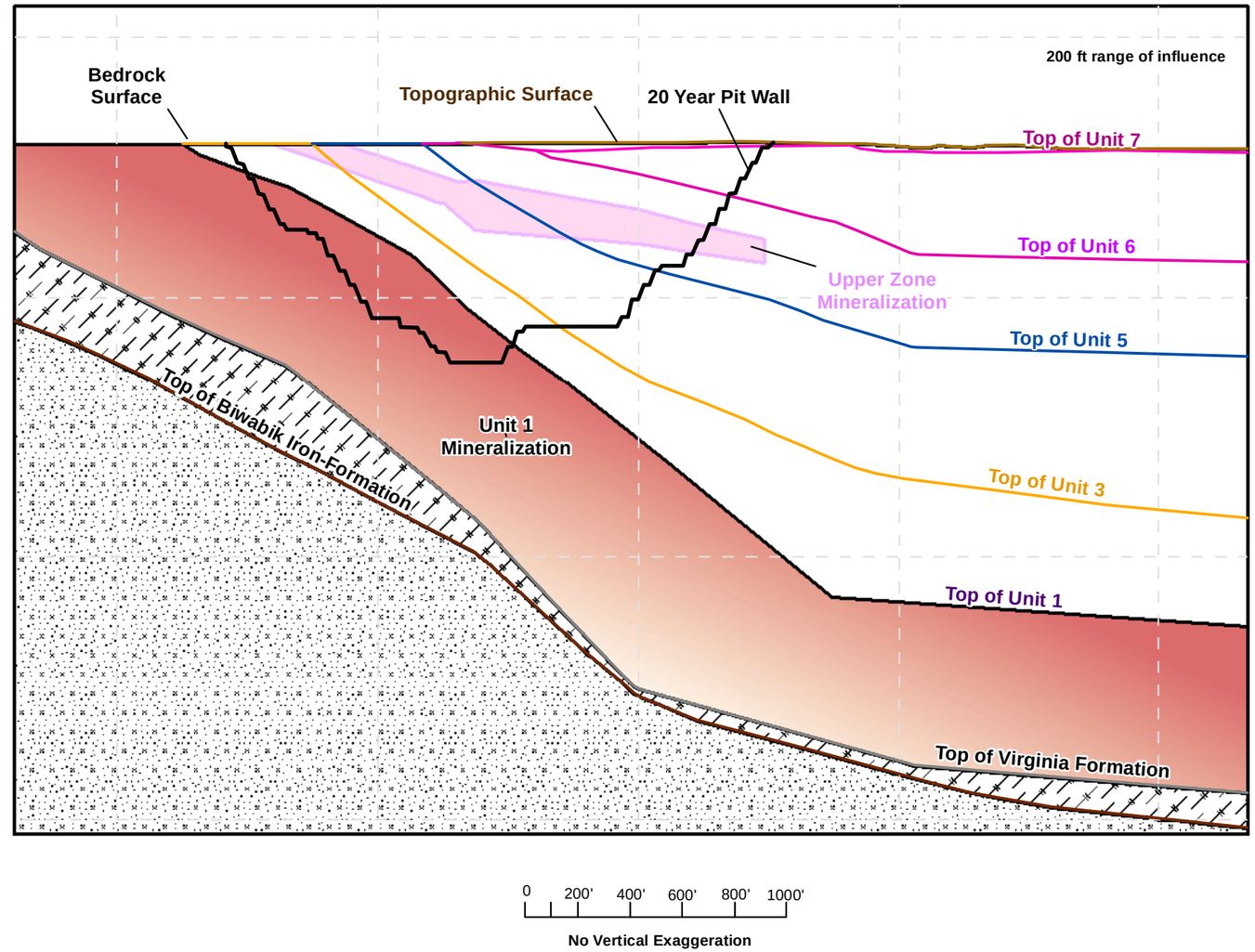

Figure 3.2-10
Schematic Geologic Cross Section and Stratigraphic Column at Mine Site
NorthMet Mining Project and Land Exchange FEIS
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3.2.2.1.3 New Construction and Pre-production Development

Several construction activities would be completed during the estimated 12 to 18 months of pre-production mine development. These activities would include the following:

- Clearing timber and biomass from surface footprint areas by contracted logging and biomass services, which would remove forest products from the NorthMet Project area;
- Constructing site access and haul roads, upgrading the existing Dunka Road, installing rail connections and spur, and constructing the Mine Site Fueling and Maintenance Facility from existing facilities using standard industrial construction practices and off-site materials;
- Removing overburden from the pit areas and other areas on site, as necessary, using excavation equipment such as backhoes, bulldozers, and standard (non-mining) dump trucks (see Section 3.2.2.1.7);
- Constructing the Overburden Storage and Laydown Area by compaction to provide space to sort and temporarily store overburden;
- Constructing the Rail Transfer Hopper;
- Constructing the liners and containment systems for the Ore Surge Pile and waste rock stockpiles (see Section 3.2.2.1.8);
- Constructing water management features—including dikes, ditches, and ponds—to manage surface water, the Mine Site WWTF, the Central Pumping Station, and the Treated Water Pipeline (see Section 3.2.2.1.8); and
- Constructing a substation drop from the 138 kilovolt (kV) transmission line (by Minnesota Power, which would retain ownership of the line) and installation of power poles and lines that would be owned by PolyMet and would serve as a 13.8 kV Mine Site power distribution system.

The MDNR would need to approve the use of waste rock, overburden, and peat during construction. This material would be supplemented with rock from a state-owned taconite stockpile located approximately 5 miles west of the Mine Site, adjacent to Dunka Road (refer to Section 3.2.2.1.7 for more information on waste rock management).

3.2.2.1.4 Equipment and Services

Equipment

A variety of equipment, mostly diesel-powered unless otherwise noted, would be used at the Mine Site. The anticipated fleet of Mine Site equipment is shown in Table 3.2-3.

Table 3.2-3 Mine Site Equipment Fleet

Typical Machine Type	Power	Number	Duties
Tracked dozer (Cat D10R or equivalent)	582 hp[1]	2	Stockpile maintenance, construction, stockpile reclamation
Wheel dozer (Cat 834G or equivalent)	450 hp	1	Clean-up at the pit loading faces and the Rail Transfer Hopper
Grader (Cat 16H or equivalent)	275 hp	2	Haul road maintenance
Water truck (Cat 777D or equivalent)	937 hp	2	Haul road maintenance, dust suppression, auxiliary firefighting duties
Wheel loader (Cat 992G or equivalent)	800 hp	1	Construction, general purpose loading, reclamation
Backhoe with hammer (Cat 446D or equivalent)	110 hp	1	Secondary breakage
Integrated tool carrier (Cat IT62H or equivalent)	230 hp	1	Miscellaneous tasks (i.e., snow plowing, fork lift, sweeper, etc.)
Field service trucks	114 hp	6	Field maintenance flatbed trucks fitted with hydraulic arm lift
Fuel truck	150 hp	2	Field fueling of mobile equipment and drills
Line truck	100 hp	1	Power line maintenance, excavator, and Rail Transfer Hopper service
Off-road lowboy trailer and tractor	200 hp	1	Transporting tracked equipment around mine and to service areas and workshops
Drills	Electric and/or 1,600 hp	2	Blast hole drilling for waste rock and ore
Excavators	Electric	2	Excavation of ore and waste materials (waste rock and overburden)
Haul trucks	2,500 hp	Up to 9	Haulage of ore and waste materials (waste rock and overburden)
Haul truck retriever	1,120 hp	1	Retrieving and transporting haul trucks unable to move under their own power
Light vehicles (pickups and SUVs)	150-250 hp	Up to 20	Supervisor transport, general duties

Note:
[1] hp = horsepower

Fuel and Maintenance Facilities

Equipment fueling and minor service and repair work would be conducted at the Mine Site Fueling and Maintenance Facility located near the Rail Transfer Hopper. This facility would consist of two buildings, one for fueling mobile equipment (fueling station) and the second for mobile equipment maintenance (maintenance building). The fueling station and the maintenance building would be roofed structures with enclosed sides, but open at each end to allow equipment to drive through. The structures would have reinforced concrete floors sloped to drain to a sump to collect any fuel, hydraulic oil, engine oil, and coolant/antifreeze spillage. A licensed disposal contractor would periodically pump out the sumps.

The fueling station would house a fuel-dispensing system, as well as dispensing equipment for lubricating and hydraulic oils, antifreeze/coolant, windshield washer fluid, and compressed air for tires. The building would house storage tanks containing lubricating and hydraulic oils and antifreeze. Two to three 12,000-gallon bulk diesel storage tanks, enclosed within a spill

containment system, would be provided. Interior and area lighting would be available to enable safe operation at night. A metering system would record the amount of fuel dispensed to each vehicle. There would be emergency shut-off valves at all necessary locations.

Stationary or slow-moving equipment such as excavators, dozers, drill rigs, and portable light generators would be fueled in the field from mobile fuel tankers specially equipped with pumping and metering devices. The fueling tankers would arrive at the Mine Site with fuel or be replenished at the fueling station.

Minor mobile equipment maintenance and other short-duration maintenance would be done at the maintenance building. Activities include oil, filter, tire, and lamp changes; maintenance of fluid levels; and haul truck box welding.

Major scheduled maintenance and repair work on mobile equipment—such as haul trucks, front-end loaders, dozers, and graders—that would last several days would be done in the refurbished and reactivated former LTVSMC Area 1 Shop located about 1 mile west of the former LTVSMC processing plant (see Section 3.2.2.3.8). Examples of these types of repairs include engine changes and final drive repairs. Because of the size and weight of the primary excavators and blast hole drill rigs, as well as the distance to the Area 1 Shop, most of their maintenance and repair work would be done at the Mine Site.

3.2.2.1.5 Mining

The key characteristics of proposed mining are summarized in Table 3.2-4 and are discussed further below.

Table 3.2-4 Key Characteristics of Proposed Mining

Aspect/ Feature	Characteristic	Proposed Description
Mining	Life of Mine (duration of metal extraction)	20 years
	Method	Surface blast (Ammonium Nitrate Fuel Oil [ANFO]) and haul from three open pits (West Pit, East Pit, and Central Pit)
	Total material removed	533 million tons of waste rock and ore
	Average ore rate	Up to 32,000 tpd
	Total ore (Life of Mine)	225 million tons
	Total waste rock (Life of Mine)	308 million tons
West Pit	Phases of development	Years 2-20: Mining Year 20+ : Flooding (pit full, and overflow)
	Waste rock management	Years 2-11: Stockpiled in respective stockpiles Years 11-13: Some stockpiled, some disposed of in the East Pit Years 14-16: Disposed of in the East Pit Years 16-20: Disposed of in the combined East Central Pit
	Maximum depth	630 ft below original surface (year 20)
	Maximum surface footprint	321 acres
East Pit	Phases of development	Years 1-11: Mining Years 11-16: Backfilled with waste rock and saturated overburden Years 16+: Refer to combined East Central Pit below
	Waste rock management	Years 1-11: Stockpiled in respective stockpiles
	Maximum depth	696 ft below original surface (year 11)
	Maximum surface footprint	155 acres
Central Pit	Phases of development	Years 11-16: Mining Years 16+: Refer to combined East Central Pit below
	Waste rock management	Years 11-16: Disposed of in the East Pit and Category 1 Stockpile
	Maximum depth	356 ft below original surface (year 16)
	Maximum surface footprint	52 acres (year 16)
Combined East Central Pit	Phases of development	Year 16 (end of mining at the Central Pit): The Central Pit would have been expanded into the East Pit, forming a combined pit Years 16-20: Backfilled with waste rock and saturated overburden, flooded Years 20+: Reclamation (constructed wetlands) and maintenance

The pre-production mine development would be followed by a gradual ramp-up of mining and ore output over 6 to 12 months to reach the planned rate of mining, which would be an annual average of 32,000 standard tpd. Because the processing plant feed rate would progressively increase as plant operations ramped up, mining would be scheduled so that the excavated area in the mine pits would also increase to provide an adequate supply of ore and ensure continuity of plant feed.

The NorthMet Project Proposed Action has been designed based on a 20-year mine plan. While mineralization is known to extend beyond the proposed pit outline, the economic feasibility for mining this material has not been assessed. There is no mine plan for any material that lies outside of the proposed open pit; as such, mining this material is not part of the NorthMet Project Proposed Action. Mining of material located beyond the proposed pit outline would be evaluated as appropriate if proposed in the future.

The NorthMet Project Proposed Action would use open pit mining methods, similar to those currently in use at nearby ferrous metallic (iron) mining operations on the Mesabi Iron Range. The mine would consist of three open pits (East Pit, Central Pit, and West Pit). The development and configuration of these pits are summarized and shown in Tables 3.2-2 and 3.2-4 and on Figures 3.2-5 through 3.2-6. Ore would be hauled to a Rail Transfer Hopper for transportation to the Plant Site (see Sections 3.2.2.1.6 and 3.2.2.2, respectively) and waste rock and overburden would be categorized and disposed of as discussed in Section 3.2.2.1.7.

The northwest edge of the mine pits would be constrained by the northward extent of the Duluth Complex, which hosts the mineral deposit. The pits follow the mineralization, which dips southeast at about 25 percent and roughly parallels the top of the Virginia Formation (see Figure 3.2-10). The mine pits would be developed in a series of benches that would be approximately 40 ft high. These benches would be accessed by ramps with a driving surface approximately 85 ft wide to accommodate mine traffic, with additional width for safety berms and ditches, power lines and cables, and pipes on an as-required basis. The pit slope design has an overall pit slope angle of approximately 51 degrees. This would be continuously monitored and refined throughout the life of the mine.

It would be necessary to dewater the pits during mining to remove groundwater and precipitation runoff. These waters would be directed to low areas in the pits, collected in sumps, and pumped to the WWTF. The mine pit sump areas and pump capacities would be designed to minimize delay to mining operations during the typical spring snowmelt or major precipitation events. Water management at the Mine Site is addressed in Sections 3.2.2.1.8 and 3.2.2.1.9.

Drilling and Blasting

The drilling and blasting plan has been prepared based on standard design, with consideration of specific aspects of the NorthMet Deposit. The general parameters are presented in Table 3.2-5. PolyMet would conduct blasting in accordance with *Minnesota Rules*, part 6132.2900, Air Overpressure and Ground Vibrations from Blasting. PolyMet has committed to developing an ore and rock blasting program with industry standard methods and experiences from other area mines, including blast vibration damage prevention and monitoring.

Table 3.2-5 Blasting Parameters

Blasting Parameter	Specifications
Blast hole diameter (range)	10-16 inches
Explosive type/blasting agent	ANFO, emulsion and emulsion blends (ANFO and emulsions)
Burden (distance from free face) and spacing (distance between holes)	Approximately 25 ft x 28 ft with 5 ft of subdrilling for ore and 29 ft x 33 ft with 6 ft of subdrilling for waste rock, based on a 12¼-inch diameter blasthole.
Powder factor	Approximately 0.69 pound per ton for ore and 0.45 pound per ton for waste rock, based on a 12¼-inch diameter blasthole.
Drilling rate – approximate (Assumed drilling time/rig 24 hours/day)	50 to 70 ft per hour based on a 12¼-inch diameter drill bit.
Average ft drilled per month	34,425

Drilling and blasting would share a common drilling fleet and have similar blast design specifications for the ore and waste rock. Based on a planned annual rock movement rate of 26.7 million tons and a blast design as shown in Table 3.2-5, it is estimated that the total annual amount of blasting agent used for breaking ore would be 15.3 million pounds, not including initiators and blasting accessories. Secondary breaking of oversize pieces would be done using a wheel loader or excavator-mounted, drop-weight hammer. Blasting of ore and waste rock is anticipated to take place approximately every 2 to 3 days. This would typically include separate blasts of ore and waste rock benches totaling about 200,000 to 300,000 tons of broken rock per blast.

Excavation

After being drilled and blasted, the ore would be loaded by excavators into haul trucks that would transport the rock to the Rail Transfer Hopper or Ore Surge Pile. Electric-hydraulic excavators with an approximate capacity of 31 cubic yards would be the primary rock-loading tools in the mining fleet, with a large, diesel front-end loader (approximately 21.5-cubic-yard capacity) available to provide operational flexibility and additional loading capacity.

3.2.2.1.6 Haulage, Storage, and Transport of Ore

Haulage

Haul trucks would transport the ore to the Rail Transfer Hopper for transportation to the processing plant (see Section 3.2.2.2). Should a delay or shutdown of any part of the rail haulage system occur, the ore would be temporarily stored on the lined Ore Surge Pile. A list of the equipment, including trucks, to be used at the Mine Site is provided in Table 3.2-3.

The haul truck fleet would initially consist of five conventional 240-ton diesel-powered rear dump trucks and increase to a maximum of nine trucks as hauls became longer and temporary stockpiles are relocated to the East Pit and, ultimately, the combined East Central Pit. Haul trucks could be reassigned between excavators loading ore, waste rock, and overburden. PolyMet intends to use only private roads that they manage and would not use or intersect any public roads.

Ore Surge Pile

An Ore Surge Pile would be constructed near the Rail Transfer Hopper to allow for temporary storage of ore until it could be processed, or as required by rail haulage delays. Use of the Ore Surge Pile would allow for a steady annual flow of rock and would assist in providing a uniform grade of ore to the processing plant. Ore would flow into and out of this pile as needed to meet mine and plant operating conditions. The footprint would have a capacity of 2.5 million tons in one 40-ft lift, with side slopes at the angle of repose; additional lifts could be added to increase storage capacity. A summary of the key characteristics of the Ore Surge Pile is provided in Table 3.2-6.

A lined foundation would be constructed (see Section 3.2.2.1.8) and drainage from the Ore Surge Pile would be collected on the liner and routed to a sump for pumping to the Mine Site WWTF (see Section 3.2.2.1.8.). The Ore Surge Pile would be removed at the completion of mining activities.

Table 3.2-6 Key Characteristics of the Ore Surge Pile

Characteristic	Proposed Description
Purpose	To temporarily store and mix ore to allow for a steady annual flow of uniform grade ore to the processing plant
Phases of Development	Pre-mining: Ground preparation (including lining) Years 1-20: Temporary storage of ore until it could fit into the rail haul and/or plant processing schedule Year 20+: Reclaimed
Capacity	2.5 million tons in one 40-ft lift. Additional lifts could be added to increase storage capacity.
Maximum surface footprint	31 acres
Maximum height	120 ft

Rail Transfer Hopper

The Rail Transfer Hopper would consist of a raised platform from which haul trucks would dump into a hopper over a pan feeder. The pan feeder would pass through an opening in a retaining wall and discharge into a rail car positioned under the feeder outlet. The pan feeder and the control gate would be hydraulically powered and could be controlled by the locomotive operator using controls in the operator's cab of the Rail Transfer Hopper. Loading time would be approximately 1 minute per 100-ton rail car, or about 20 to 30 minutes to load a 16-car train, allowing for car-spotting and the operator to move between the locomotive and the Rail Transfer Hopper operator's cab.

The Rail Transfer Hopper would be located to the south of the mine pits and would be connected to the existing Cliffs Erie main line track by a new spur line. The rail track in the area of the Rail Transfer Hopper would be designed to allow rail cars to be loaded directly by front-end loader at the Ore Surge Pile should the Rail Transfer Hopper break down or be unavailable due to maintenance.

3.2.2.1.7 Overburden and Waste Rock Management

Overburden, the surficial material that lies on top of the mineral resource and infrastructure footprints, would be stripped prior to mining and as required prior to construction of facilities and infrastructure at the Mine Site. All overburden would be removed from footprints and for stockpile construction by the end of year 11. Waste rock would be generated throughout mining. A summary of the key waste rock management features is provided in Table 3.2-7 and discussed further below.

Table 3.2-7 Key Characteristics of Waste Rock Management

Aspect/ Feature	Characteristic	Proposed Description[1]
Category 1 Stockpile	Phases of development	Pre-mining: Ground preparation and construction of water engineering controls and collection system Years 1-13: Stockpiling Years 14-21: Capping and reclamation Years 21+: Maintenance
	Maximum surface footprint	526 acres (reached at year 21; maximum footprint during operations is 508 acres, reached in year 6)
	Waste rock volume	167,922,000 tons (reached at year 13) Maximum capacity based on current design: 177,988,000 tons waste rock
	Waste rock height	240 ft above ground level; 1,840 ft above sea level Maximum height based on current design: 280 ft above ground level
Category 2/3 Stockpile	Phases of development	Pre-mining: Ground preparation (including lining) and construction of collection system Years 1-11: Stockpiling Years 11-20: Transferring waste from stockpile to the East Pit Years 20+: Reclamation
	Maximum surface footprint	180 acres (reached at year 6)
	Waste rock volume	44,021,200 tons waste rock (reached at year 11 and subsequently removed) Maximum capacity based on current design: 60,602,000 tons waste rock
	Waste rock height	Maximum height based on current design: 200 ft above ground level; 1,770 ft above sea level Planned height based on current design: 160 ft above ground level
Category 4 Stockpile	Phases of development	Pre-mining: Ground preparation (including lining) and construction of collection system Years 1-11: Stockpiling Year 11: Transferring waste from stockpile to the East Pit (to allow mining in the Central Pit) Years 20+: Reclamation outside Central Pit footprint
	Maximum surface footprint	57 acres (reached at year 3)
	Waste rock volume	6,206,700 tons waste rock (reached at year 11 and subsequently removed) Maximum capacity based on current design: 14,975,100 tons waste rock
	Waste rock height	Maximum height based on current design: 180 ft above ground level; 1,790 ft above sea level Planned height based on current design: 80 ft above ground level

Note:
[1] Stockpile volumes and heights provided are based on the current design within the proposed footprints. Maximum capacities of the temporary stockpiles and planned capacity of the permanent stockpile were used for impact evaluations.

Overburden

Three types of overburden are present at the site: unsaturated overburden, saturated overburden, and peat. Each type of overburden would be managed according to its potential to be reactive (i.e., acid-producing through oxidization of iron sulfides contained therein).

Unsaturated overburden is the material that has been above the natural water table and exposed to air long enough for chemical reactions to have taken place. This material would be used for on-site construction purposes. Peat (organic soils) and unsaturated overburden that exceed immediate construction and reclamation needs would be stored in unlined overburden stockpiles at the Overburden Storage and Laydown Area.

Saturated overburden is material that has been below the natural water table. Because it has not been exposed to air, this material has the potential to be reactive. Saturated overburden would be used only for specific on-site construction applications, as approved by the MDNR. Applications for saturated overburden would include those where water contacting the construction material would be collected or drained to the mine pits, where it would be placed back below the water table or above a membrane liner system. Other applications where site-specific modeling has demonstrated that applicable surface and groundwater standards would be met would also be options. Saturated overburden not used for construction would be commingled in the temporary Category 2/3 Stockpile or Category 4 Stockpile, which have membrane liners, until final backfilling into the East Pit.

Waste Rock Categorization and Management

Geochemical characterization has identified four types of waste rock that would be managed, based on their potential to oxidize and their geochemistry and metal leaching potential. PolyMet has developed a Rock and Overburden Management Plan for monitoring and testing of waste rock during mine operations. Classification of the waste rock during operations would be based on blast hole sampling and frequent updates to a mine block model. The four categories of waste rock and the proposed management of each are summarized in Table 3.2-8. The geochemistry of the material is discussed further in Section 5.2.2.

Waste rock would be disposed of in a combination of permanent and temporary stockpiles, with material in the temporary stockpiles ultimately moved into the East Pit and Central Pit after completion of mining in those areas. Before construction of the stockpiles, overburden would be removed, if necessary, and foundations would be built with suitable overburden material or waste rock from the state taconite mining waste rock stockpile located approximately 5 miles west of the Mine Site, or with Category 1 waste rock, upon approval by MDNR. Proposed engineered water management controls such as liners, covers, and containment systems are described in Section 3.2.2.1.8.

Table 3.2-8 Waste Rock Categorization Properties

Categorization	Sulfur Content (%S)[1]	% of Total Waste Rock Mass	Management
Category 1	%S ≤ 0.12 Low potential to generate acid, but may leach heavy metals	70%	Used for construction material at the Mine Site (subject to approval by MDNR during permitting). The Category 1 waste rock not used as construction material would be placed on the permanent Category 1 Stockpile during years 1-13 and in the East Pit following year 13.
Category 2	0.12 < %S ≤ 0.31 Low to medium potential to generate acid and would leach heavy metals	24%	Temporarily stored in the lined Category 2/3 Stockpile (years 1-11). New and stockpiled material would be moved to the East Pit (years 11-16) and the combined East Central Pit (years 16-20).
Category 3	0.31 < %S ≤ 0.6 Medium potential to generate acid and would leach heavy metals	3%	Temporarily stored in the lined Category 2/3 Stockpile (years 1-11). New and stockpiled material would be moved to the East Pit (years 11-16) and the combined East Central Pit (years 16-20).
Category 4[(2)]	> 0.6 %S Duluth Complex 0.4 ≤ %S ≤ 5.0 Virginia Formation High potential to generate acid and would leach heavy metals	3%	Temporarily stored in the lined Category 4 Stockpile (years 1-11). Stockpiled material would be moved to the East Pit (year 11). New material would be disposed of in the East Pit (years 11-16) and the combined East Central Pit (years 16-20).

Notes:
[1] In general, the higher the rock's sulfur content, the higher its potential for generating acid rock drainage or leaching heavy metals.
[2] Includes all Virginia Formation rock.

During years 1 through 11, all waste rock would be placed in stockpiles segregated by categorized sulfur content (see Table 3.2-8). Category 1 waste rock would be placed on the permanent Category 1 Stockpile located north of the West Pit. Category 2 and 3 waste rock would be placed on the lined, temporary Category 2/3 Stockpile located to the southeast of the mine pits. Category 4 waste rock would be placed on the lined, temporary Category 4 Stockpile located over the top of the future Central Pit, which is proposed to be mined starting in year 11 (see Figures 3.2-5 through 3.2-9). Separation of the waste rock would be based on the material characteristics identified in the Mine Plan and during operations by blast hole sampling and frequent updates to a mine block model. Each stockpile would have engineering controls to capture and treat contact water from stockpiles (containment system around Category 1 Stockpile and liners for Category 2/3 and 4 Stockpiles).

The East Pit is anticipated to be exhausted in year 11 of mining. During this year, all of the Category 4 waste rock, stored in a lined stockpile over the future Central Pit until this time, would be backfilled into the East Pit. All new Category 2, 3, and 4 waste rock would be disposed of in the East Pit between years 11 and 16, and the Category 2/3 Stockpile would begin to be moved into the East Pit. New Category 1 waste rock would continue to be placed on the Category 1 Stockpile until year 13, when it would be placed in the East Pit until year 16.

It is anticipated that mining in the Central Pit would cease at year 16. At this time, the Central Pit would have been excavated into the East Pit, forming a combined pit. From year 16 to 20, all waste rock generated from ongoing mining at the West Pit, as well as the remaining material in the Category 2/3 Stockpile, would be placed into the combined East Central Pit. The combined East Central Pit would be flooded (using groundwater, in-pit runoff, direct precipitation, and treated process water from the WWTF) at approximately the same rate of backfilling to ensure that backfilled material would remain saturated (see Section 3.2.2.1.10).

The Category 1 Stockpile that was created in years 1 to 13 would be covered and would remain in perpetuity. Reclamation of the Category 1 Stockpile would start in year 14 and would continue until year 21, one year after the completion of mining (see Section 3.2.2.1.10).

The geotechnical stability section in Chapter 5 presents more detail on the proposed construction of the stockpiles.

3.2.2.1.8 Engineered Water Controls

The Mine Site would include water management features designed to control water potentially affected by sulfides and metal leachates from oxidized rock exposed through mining. This process water would be directed to the Mine Site WWTF. Non-contact stormwater that hadn't been affected by sulfides and metal leachates from oxidized rock exposed through mining would be directed off-site.

The following section describes the engineered controls that would be used for water management. The flow and management of water is discussed in Section 3.2.2.1.9. Figures 3.2-5 through 3.2-8 show the water management features and infrastructure.

Category 1 Stockpile Water Containment System and Cover

The permanent Category 1 Stockpile, which has a low reactivity potential, would be constructed with a water containment system to collect drainage from the stockpile.

Figure 3.2-11 shows the containment system that would consist of a cutoff wall (a low-permeability hydraulic barrier extending down to bedrock) combined with a drainage collection system surrounding the perimeter of the stockpile near its toe.

The cutoff wall would have a hydraulic conductivity specification of no more than $1x10^{-5}$ centimeters per second (cm/sec). The drainage collection system would collect stockpile drainage and draw down the water table on the stockpile side of the cutoff wall, thereby maintaining an inward gradient along the cutoff wall and minimizing the potential for drainage passing through the cutoff wall. The geologic conditions are favorable for a cutoff wall due to the presence of low permeability bedrock. Performance modeling of the containment systems performed by PolyMet and reviewed by the Co-lead Agencies provides strong evidence that the capture efficiency would be greater than 90 percent.

The drainage collection component of the containment system would consist of a slotted or perforated horizontal drain pipe surrounded by aggregate (coarse rock) within the trench, excavated to bedrock and backfilled with granular, free-draining material. The horizontal pipe would have vertical risers extending upward into a process water ditch to collect surficial seeps and surface runoff. The trench would intercept stockpile drainage, collect it in the drain pipe, and convey it by gravity flow to two sumps that have emergency gravity overflows to the East Pit or West Pit. From the sumps, it would be pumped to the WWTF described in Section 3.2.2.1.10.

Reclamation of the Category 1 Stockpile would begin in mine year 14, with progressive installation of an engineered geomembrane cover system to limit water percolation into the stockpile. The cover would be completed by year 21. The design of this cover system is discussed in Section 3.2.2.1.10.

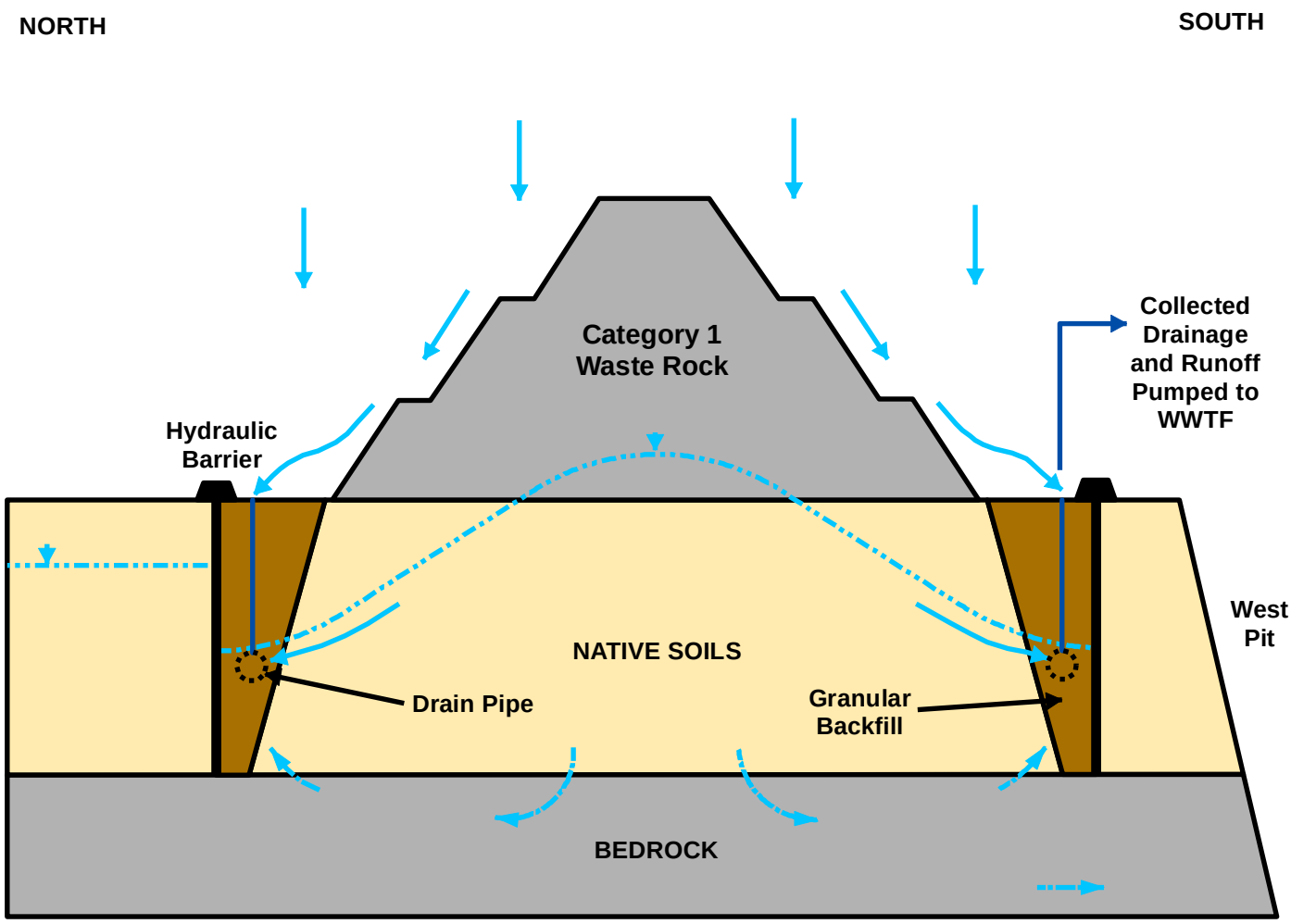

Water Flow

Not To Scale

Figure 3.2-11
Conceptual Representation of the Category 1 Stockpile Containment System - Years 1-13
NorthMet Mining Project and Land Exchange FEIS
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Category 2/3 and 4 Stockpiles and Ore Surge Pile Liners

The temporary Category 2/3 Stockpile and Category 4 Stockpile, which have the potential to generate acid and metal leachate, would have liner systems to capture water penetrating through the stockpiles (see Table 3.2-9).

The liner systems would consist of an impermeable barrier layer (to limit the downward infiltration of water through the liner system) and an overlying drainage layer (to promote the conveyance, via gravity, of water that may reach the barrier layer to a collection removal point along the barrier layer). Foundation underdrains would be used, if necessary, to provide gravity drainage should elevated groundwater be encountered, to prevent or minimize the potential for excess pore pressures as the stockpile is loaded. These three design details (impermeable barrier, overliner drainage layer, and underdrains) would enhance liner effectiveness and integrity. Additional detail on the foundation materials and design would be required for permitting. The proposed Category 4 Stockpile liner has a lower permeability design criteria than the Category 2/3 Stockpile liner because the Category 4 waste rock would be more reactive. These stockpiles would be removed and reclaimed prior to the end of mining (i.e., prior to year 20). The liners for these stockpiles would be expected to perform to specification.

Table 3.2-9 Summary of the Stockpile Liners and Covers

Stockpiles	Stockpile Duration	Liner and Cover System	Long-term Management
Category 1	Permanent (constructed in years 1-13)	No liner system; a containment system would collect seeped groundwater for pumping to the WWTF; 3-ft engineered cover with a 40-mil geomembrane barrier (applied progressively during years 14-21)	Containment system and cover maintained and replaced as necessary
Category 2/3	Temporary (constructed in years 1-11 and removed in years 11-20)	12-inch compacted ($1x10^{-5}$ cm/s) subgrade overlaid by 80-mil LLDPE[1] geomembrane, covered by a 24-inch overliner drainage layer	Stockpile and liner to be completely removed and reclaimed (years 11-20)
Category 4	Temporary (constructed in years 1-11 and removed in year 11)	12-inch compacted ($1x10^{-6}$ cm/s) subgrade overlaid by 80-mil LLDPE geomembrane, covered by a 24-inch overliner drainage layer	Stockpile and liner to be completely removed (year 11) to allow mining in the Central Pit
Ore Surge Pile	Temporary (used as required in years 1-20)	12-inch compacted ($1x10^{-6}$ cm/s) subgrade overlaid by 80-mil LLDPE geomembrane, covered by a 24-inch overliner drainage layer	Stockpile and liner to be completely removed and reclaimed (closure)

Note:
[1] LLDPE = Linear low-density polyethylene

Mine Site Perimeter and Pit Rim Dike and Ditch Systems

Stormwater would be managed with a system of dikes and ditches constructed at the Mine Site perimeter. The layout of drainage ditches is illustrated on Figures 3.2-5, 3.2-7, and 3.2-8 for mine years 1, 11, and 20, respectively. The dikes and ditches would minimize the amount of surface water flowing onto the site, minimize the amount of surface runoff flowing into the mine pits, manage the amount of process water collected, and control stormwater flowing off the site.

Dikes would be constructed of silty sands or glacial till material that would be excavated during construction of ditches and removal of overburden. Side slopes would be vegetated to control erosion. Small dikes would be constructed at the rims of the mine pits in all areas where the existing ground surface does not naturally drain surface runoff away from the pit, and would be rebuilt as the pit perimeter expands. Small dikes would also be constructed, as needed, along interior stormwater ditches and around stockpile construction areas to separate stormwater and process water. In some areas along the site perimeter, the existing ground is already relatively high so that a ditch would be able to capture the site surface runoff without a dike.

Ditches would be constructed along the interior of most of the perimeter dike system and throughout the interior of the Mine Site in order to:

- Convey stormwater adjacent to the dikes,
- Prevent surface runoff from entering the mine pits,
- Intercept stormwater prior to reaching process water areas, and
- Prevent water from pooling in areas where the dikes cut across low areas.

Dike design could be modified for shallow groundwater control if needed, such as along the perimeter dike north of the Central Pit and East Pit. Where peat or high-permeability glacial till is present in the dike foundation zone below the water table, seepage control measures would be installed to restrict groundwater movement. Seepage control measure design would depend on soil type and depth to bedrock. In areas where peat is present, seepage would be prevented by compressing the peat with earthen dike materials to create a low-permeability layer. If a sand seam or other high-permeability material were found in the dike foundation zone below the peat deposit, a soil cutoff trench, slurry wall, or sheetpile wall would be installed (depending on depth to bedrock) to cut off seepage. In areas where glacial till is present, seepage control measures would include soil cut-off trenches constructed of compacted silty sand or compacted glacial till or would include slurry trenches. Seepage cut-offs are generally not planned to be used in areas of silty sand soils, as geotechnical testing of these soils at the Mine Site indicates these are materials with relatively low permeability in their natural state.

Wastewater Treatment Facility

A WWTF would be constructed to treat affected water at the Mine Site and also treat the reject concentrate from the Plant Site WWTP (see Section 3.2.2.3.10). The WWTF would be constructed on approximately 40 acres and would include equalization and treatment basins and a building that would house the treatment equipment. Water treatment would include chemical precipitation and membrane filtration treatment methodologies. The design of the WWTF is based on the predicted water loads and constituents modeling (see Section 5.2.2). However, should water monitoring undertaken during or following operations indicate a need to do so, the WWTF could be expanded or treatment capabilities modified to meet water quality standards. A reverse osmosis (RO) unit or equivalently performing technology would be added to the WWTF at closure (see Section 3.2.2.1.10).

A Central Pumping Station would be constructed to pump water to the respective management areas as needed.

3.2.2.1.9 Water Management

During mining operations, stormwater captured by the ditches would be directed to sedimentation ponds and then routed into a natural drainage system off-site. Process water collected from the Overburden Storage and Laydown Area would be treated for sedimentation and would be routed to the East Pit or directly to the Tailings Basin for use at the Plant Site or, if monitoring indicates a need, to the Mine Site WWTF.

The water from Mine Site project features (waste rock stockpiles, Ore Surge Pile, ancillary mine features, and mine pits) would be collected and treated at the WWTF. Treated water would be pumped to the Tailings Basin at the Plant Site. The sludge waste would be disposed of off-site in a solid waste landfill until the Hydrometallurgical Plant became operational (see Section 3.2.2.3). When available, sludge waste would be filtered and moved by truck along the Transportation and Utility Corridor and introduced to the autoclave in the Hydrometallurgical Plant to recover metals or placed directly into the Hydrometallurgical Residue Facility (see Section 3.2.2.3.7).

Starting in year 11, some water from the WWTF would be sent to the East Pit to help manage the water level in the pit as it is being backfilled. Covering of the Category 1 Stockpile would begin in year 14 and would be completed in year 21. Once covered, stormwater from the Category 1 Stockpile would be considered non-contact water and would not require treatment. A flow diagram of the proposed water management at the Mine Site for the initial and later years of mining is shown on Figures 3.2-12 and 3.2-13, respectively.

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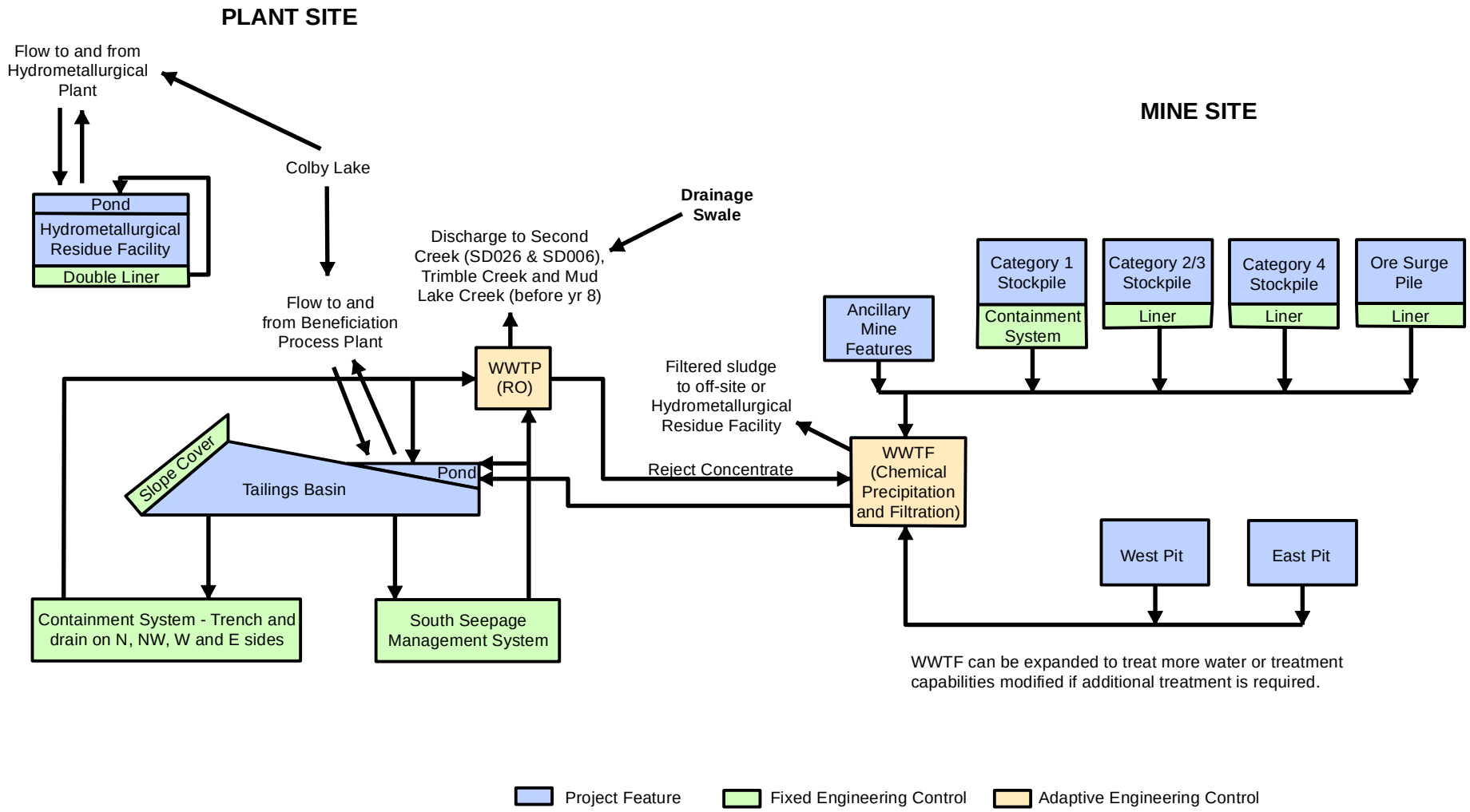

Figure 3.2-12
Water Management Schematic - Initial Years of Operations - Approximately Years 1-11
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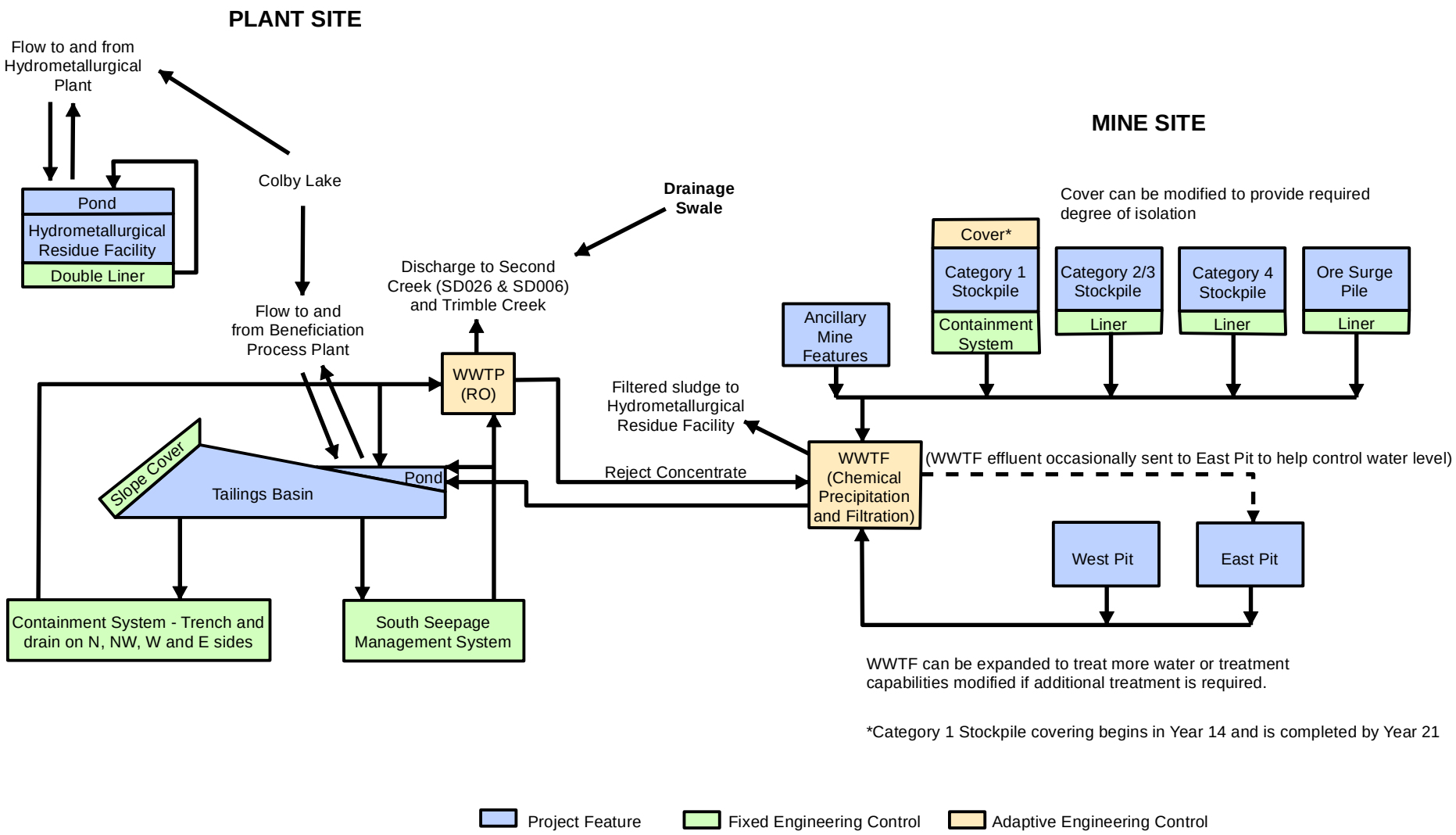

Figure 3.2-13
Water Management Schematic - Later Years of Operations - Approximately Years 11-20
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3.2.2.1.10 Reclamation and Long-term Closure Management

In general, NorthMet Project area facilities have been designed and would be operated to allow for progressive reclamation, or "mining in a manner that creates areas that can be reclaimed as soon after initiation of the operation as practical and as continuously as practical throughout the life of operation" (*Minnesota Rules*, part 6132.0100). This would leave a smaller portion of the NorthMet Project area needing to be reclaimed at the end of mining. Under the NorthMet Project Proposed Action, progressive reclamation at the Mine Site would include backfilling the East Pit once its ore was exhausted (from year 11 of mining) using waste rock generated through mining following this time and relocating waste rock from the temporary Category 2/3 Stockpile and Category 4 Stockpile. Therefore, at the end of mining, all of the temporary Category 2/3 Stockpile and Category 4 Stockpile would have been removed, and the combined East Central Pit would be mostly backfilled.

At the end of mining, PolyMet would remove all infrastructure and facilities not approved for potential future use, and continue reclamation of disturbed lands. Reclamation objectives would include rapidly establishing a self-sustaining plant community, controlling dust, controlling soil erosion, providing wildlife habitat, and minimizing the need for maintenance. Post-reclamation activities would include monitoring and maintenance of reclamation and water quality until the various facility features were deemed environmentally acceptable, in a self-sustaining and stable condition.

The water quality objective of closure would be to provide mechanical or non-mechanical treatment for as long as necessary to meet regulatory standards at applicable groundwater and surface water compliance points. Water quality modeling performed in support of this FEIS indicates that water treatment systems would be needed indefinitely at the Mine Site and Plant Site. The water models constructed to assess the potential effects from the NorthMet Project Proposed Action were not designed to predict the duration of treatment nor do they capture all the factors that influence the duration of treatment (e.g., potential future regulatory and technological changes). Therefore, the models cannot be used to predict when treatment would end. Actual treatment requirements would be assessed on a recurring basis throughout operations, reclamation, and closure considering influent and effluent water quality and monitoring results. Those periodic assessments would be carried out to ensure continuous protection of groundwater and surface water quality and compliance with water quality-based effluent limits. The periodic assessment process would rely on monitoring results coupled with predictive modeling rather than the results of the predictive modeling alone. Regardless of the precise duration of effects or water treatment at either the Mine Site or Plant Site, there are measures available to address impacts to natural resources, such as those identified in the Adaptive Water Management Plan (PolyMet 2015d) and permit conditions. PolyMet would be held accountable for maintenance and monitoring required under the permit and would not be released from financial assurance until all permit conditions have been met.

The reclamation and long-term closure activities are discussed below, along with the transition to non-mechanical treatment.

A schematic cross section showing the evolution of the pit and stockpile features at the Mine Site from year 11 to post-closure is provided on Figure 3.2-14.

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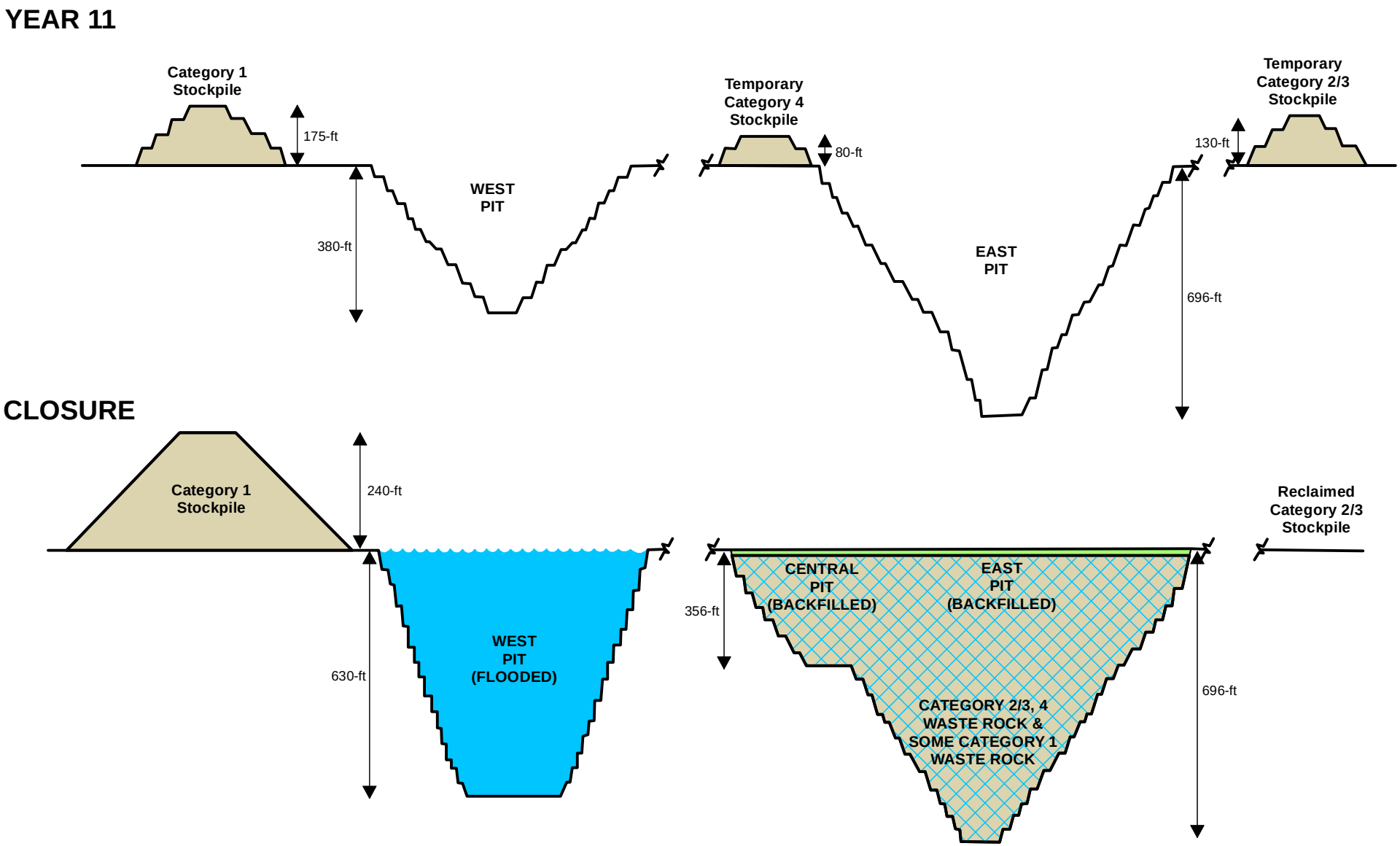

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Figure 3.2-14
Schematic Cross Sections of the Geotechnical Features at the Mine Site (Year 11 and Closure)
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Reclamation Planning

Mining is expected to be completed approximately 20 years after operations begin. PolyMet has prepared a Reclamation Plan (PolyMet 2015g) and will further develop the plan as part of its application for the Permit to Mine. The Reclamation Plan would be finalized to provide details and schedule for the final reclamation of the actual as-built facilities. In addition, PolyMet would submit an annual Contingency Reclamation Plan, per *Minnesota Rules*, part 6132.1300, subpart 4, to identify activities that would be implemented if operations were to cease in that upcoming year and the financial assurance necessary to implement that plan.

Building and Structure Demolition and Equipment Removal

All buildings and structures would be removed and foundations razed and covered with a minimum of 2 ft of soil and vegetated according to *Minnesota Rules*, parts 6132.2700 and 6132.3200. Demolition waste from structure removal would be disposed in the existing on-site demolition landfill (SW-619) located northwest of the Area 1 Shops at the Plant Site. Concrete from demolition would be placed in the basements of the coarse-crusher, fine-crusher and concentrator, and the plant reservoir, or placed in landfills as required.

Most roads, parking areas, or storage pads built to access these facilities would be demolished according to the planned schedule or as approved by the MDNR. Utility tunnels would be sealed and closed in place. Asphalt from paved surfaces would be removed and recycled and the disturbed areas reclaimed and vegetated according to *Minnesota Rules*, part 6132.2700. Railroad track and ties that were not used by common carriers would be removed and recycled. Any roads, including mine pit access roads (*Minnesota Rules*, part 6132.3200), that may develop into unofficial off-road vehicle trails would require a variance from MDNR reclamation rules to allow a 15-ft-wide unpaved, unvegetated track down the centerline of the road. Such approvals would also be coordinated with the St. Louis County Mine Inspector's Office.

All mine, railroad, service, and electrical equipment would be moved from the pit to ensure it would be above pit water elevations until it could be scrapped, decommissioned, or sold. Debris and equipment would be removed from the Mine Site.

Any special materials would be disposed of as discussed in Section 3.2.2.3.12.

Rail Transfer Hopper Demolition and Reclamation

During reclamation, aboveground concrete and steel structures would be razed and the area covered with at least 2 ft of soil and vegetated according to *Minnesota Rules*, parts 6132.2700 and 6132.3200. If constructed with Category 1 waste rock, the rock platform from which trucks dump into the hopper would be sloped and covered in the same manner as the Category 1 Stockpile. If constructed of inert material, the platform would be sloped and vegetated according to *Minnesota Rules*, parts 6132.2700 and 6132.3200.

It is possible that the Rail Transfer Hopper could contain ore residuals, which would have the potential to generate acid and metal leachates. Any ore remaining in the Rail Transfer Hopper, Ore Surge Pile, or anywhere else in the vicinity of the Rail Transfer Hopper, as well as sediment removed from ditches and process water ponds, would be placed in the East Pit. Any remaining material located at the top of the rail-loading platform would be tested and placed in an appropriate waste disposal location (i.e., the East Pit or covered with at least 2 ft of soil and vegetated according to *Minnesota Rules*, parts 6132.2700 and 6132.3200).

Mine Pit Reclamation

Mining is anticipated to be completed in the East Pit, Central Pit, and West Pit in mine years 11, 16, and 20, respectively. Ultimately, the combined East Central Pit (after year 16 of mining) would be backfilled with waste rock and flooded to form wetlands. The West Pit would be flooded to form a pit lake.

At the end of mining in each respective pit, the walls would be sloped and graded in accordance with *Minnesota Rules*, part 6132.2300. The toe of the overburden portion of all pit walls would be set back at least 20 ft from the crest of the rock portion of the pit wall. Lift heights would be no higher than 60 ft and would be selected based on the need to protect public safety, the location of the pit wall in relation to the surrounding land uses, the soil types and their erosion characteristics, the variability of overburden thickness, and the potential uses of the pit following mining. The overburden portions of the pit walls would be sloped and graded at no steeper than a horizontal-to-vertical ratio of 2.5:1 and would be vegetated to conform to *Minnesota Rules*, part 6132.2700. Safe access would be provided to the bottom of each mine pit (*Minnesota Rules*, part 6132.3200) via selected original haul roads built during pit development. The access road would be selected such that, as the pits flood, there would always be a clear path to the water surface.

The dewatering systems would be removed, including power lines, substations, pumps, hoses, pipes, and appurtenances. All areas disturbed during pipe removal would be graded and revegetated. Some piping and temporary pumps may remain in the pits for selected dewatering that would be performed during reclamation.

Pit perimeter fencing systems would be installed and consist of fences, rock barricades, ditches, stockpiles, and berms. A gated entrance would be placed at each pit access location. The fencing system plan would be submitted to the St. Louis County mine inspector for review and approval before installation. As required by the St. Louis County mine inspector and in accordance with *Minnesota Statutes*, chapter 180.03, fencing would consist of five strands of barbed wire in most locations and 5-ft, non-climbable mesh fencing with two strands of barbed wire at the top in areas where roads would remain adjacent to the fences unless other means were agreed to with the mine inspector.

East Pit and Central Pit

Waste rock would be placed into the East Pit at the completion of mining at year 11 and then in the combined East Central Pit beginning in year 16. It is anticipated that the combined East Central Pit would be completely backfilled with waste rock shortly after year 20.

While being backfilled with waste rock, the pits would be flooded with water to minimize the amount of pit wall and backfilled waste rock exposed to the atmosphere, thus limiting the oxidation of the sulfide minerals and reducing the amount of metals leaching to the pit water. Water used to flood the pits would come from groundwater, in-pit runoff, direct precipitation, and treated process water from the WWTF. During backfilling, the water elevation would be maintained below the surface of the waste rock to safely avoid equipment working in the water and to maximize the amount of material used to fill the pit. During periods of high precipitation or during spring snowmelt, dewatering (to the WWTF and ultimately to the Tailings Basin) may be required to allow placement of the waste rock. Lime could be added to the East Pit during East Pit backfilling, as needed, in order to maintain circumneutral pH in the pit pore water. The

volume of lime required would be determined through monitoring (see section 5.2.2 for more information).

Once backfilling of the East Pit is complete, a wetland would be constructed over the backfilled material (see Figures 3.2-9 and 3.2-14). The water depth in the backfilled, combined East Central Pit would be maintained within the wetland by a gravity overflow structure to the West Pit. The East Pit overflow structure would be formed out of bedrock or a cast-in-place, reinforced concrete weir.

West Pit

West Pit reclamation would commence when mining activity ceases, expected in year 20. Primary dewatering systems would no longer be operated, and the West Pit would begin to flood naturally with groundwater, precipitation, and surface runoff from the tributary watershed. Flooding would also be accelerated with water from the Plant Site. With the addition of water pumped from the Plant Site to the West Pit, flooding of the West Pit is projected to be completed by the end of year 52. When the West Pit is full, the discharge would be controlled via a lift station and pumped to the WWTF for treatment. The WWTF would be upgraded to include RO or equivalently performing technology; this effluent would be discharged into an existing wetland then into the West Pit Overflow creek, which flows toward Dunka Road south of the West Pit and eventually into the Partridge River. The reject concentrate from the WWTF RO or equivalent technology that would meet water quality targets would be evaporated and the residual solids disposed of off-site (see Section 3.2.2.1.8).

Stockpile Reclamation

As described above, material in the temporary Category 2/3 Stockpile and Category 4 Stockpile would be moved to the East Pit from year 11, and the combined East Central Pit from year 16. The Category 4 Stockpile would be completely removed in year 11 to allow mining to begin in the Central Pit.

Category 2/3 and 4 Stockpiles and the Ore Surge Pile

At year 20, any material remaining in the Category 2/3 Stockpile would be moved to the combined East Central Pit. The disturbed areas would be reclaimed.

The ore in the Ore Surge Pile would be processed as operations wind down, and any remaining material would be sent to the processing plant for processing or relocated to the East Pit after operations cease. Material may still remain in the Overburden Storage and Laydown Area, but the area would be graded to stable conditions and reclaimed.

Infrastructure (pipes, pumps, liners, etc.) associated with the temporary Category 2/3 Stockpile and Category 4 Stockpile and the Ore Surge Pile would be removed and the footprint of each area would be reclaimed to wetlands where practical.

Category 1 Stockpile

Following completion of its construction in year 13, a cover would be installed incrementally over the permanent Category 1 Stockpile. This cover would include an engineered geomembrane system that would be vegetated to meet the requirements of *Minnesota Rules*, part 6132.2200, subpart 2, item B. A subgrade layer would be placed over the Category 1 Stockpile to provide a

uniform layer to construct the cover system. As shown in Figure 3.2-15, this cover system would consist of, from top to bottom: 18 inches of rooting zone soil consisting of on-site unsaturated overburden mixed with peat as needed to provide organic matter, 12 inches of granular drainage material with drain pipes to facilitate lateral drainage of infiltrating precipitation and snowmelt off the stockpile cover, the 40-mil geomembrane barrier layer, and a 6-inch soil bedding layer below the geomembrane. The design of the Category 1 Stockpile cover system was derived from landfill requirements, *Minnesota Rules*, part 7035.2815, subpart 6, item D.

The soils at the Mine Site are anticipated to be used for cover material. The cover would be designed to promote runoff with minimal erosion. To provide an adequate base for sloping of cover materials, Category 1 Stockpile side slopes would be re-shaped to no steeper than a horizontal-to-vertical ratio of 3.75H:1V, with the cover system placed on top of the re-shaped waste rock. The outermost layer would consist of local till soils (also known as "overburden" per *Minnesota Rules*, part 6132.0100, subpart 32) adequate for vegetation growth. To provide further erosion control, catch benches at least 30 ft in width would remain on the stockpile.

Stockpile tops and benches would be seeded with a certain selection of grasses/forbs and a potentially different group of species for the slopes. The three groups of species designated for the top and benches would include a native, slow growth mix; a non-native, rapid growth mix; and a mix of both native and non-native species. Non-native species would be used to ensure dust control on areas that have a higher potential to erode. The species mix for the stockpile slopes would contain the same native species as the stockpile bench and flats as well as a slightly modified group of non-native species. Preference would be given to the establishment of native plant communities. The final seed mix would be determined in permitting.

Upon reclamation of a portion of the Category 1 Stockpile, runoff from the top and sides of that portion of the stockpile would be classified as non-contact stormwater and would be routed through a system of ditches prior to being discharged into the natural drainage system. Ditches on the reclaimed stockpile surface would direct stormwater flows into channels that would route flows down the sides of the stockpile. The Category 1 Stockpile water containment system would continue to collect drainage from the stockpile during reclamation, with drainage treated at the WWTF. The general flow of water on the reclaimed stockpile is shown in Figure 3.2-16.

Long-term maintenance of the Category 1 Stockpile would include repairing erosion and removal of woody species and trees from the stockpile cover system.

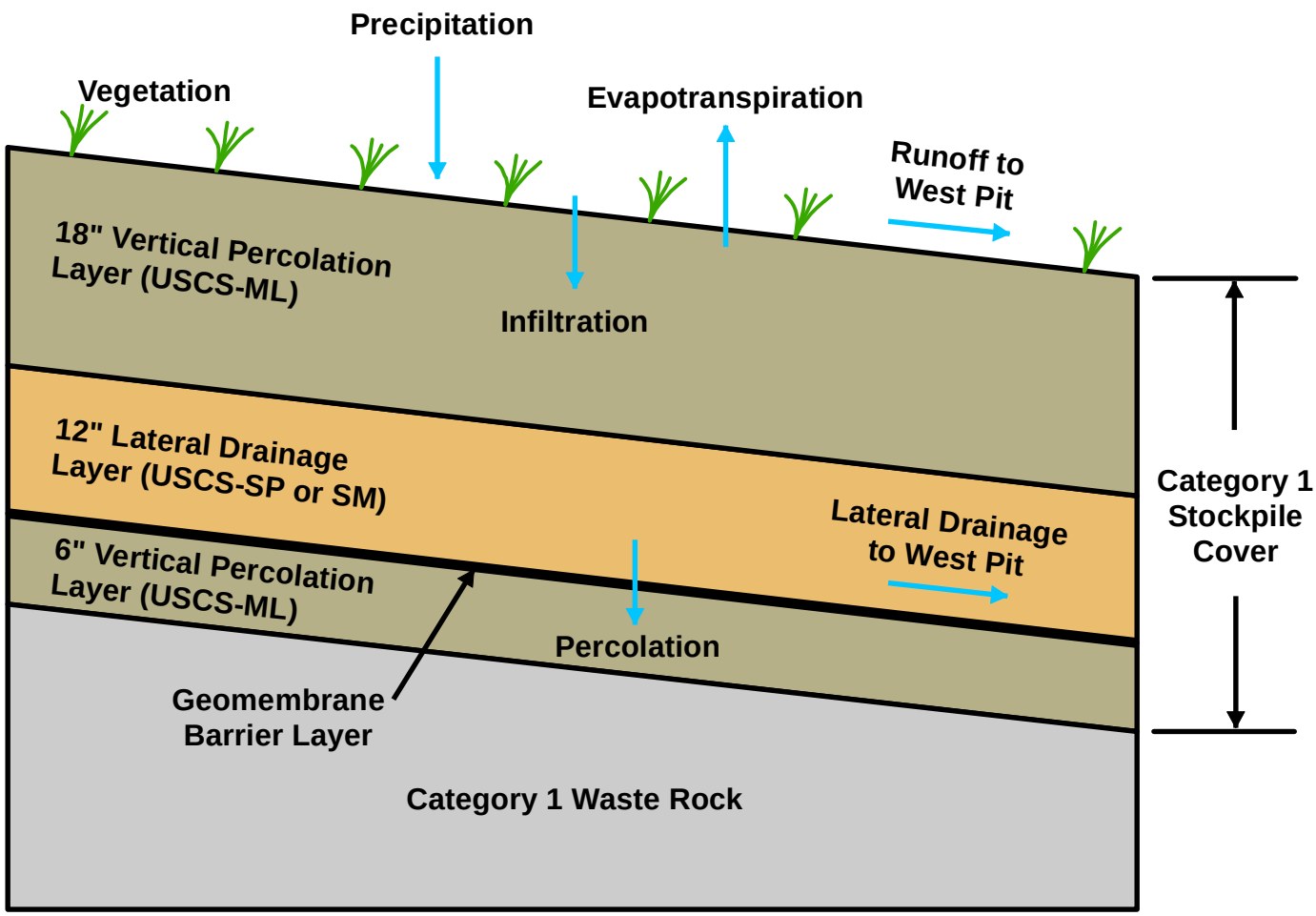

Figure 3.2-15
Conceptual Cross Section - Category 1 Stockpile Cover System
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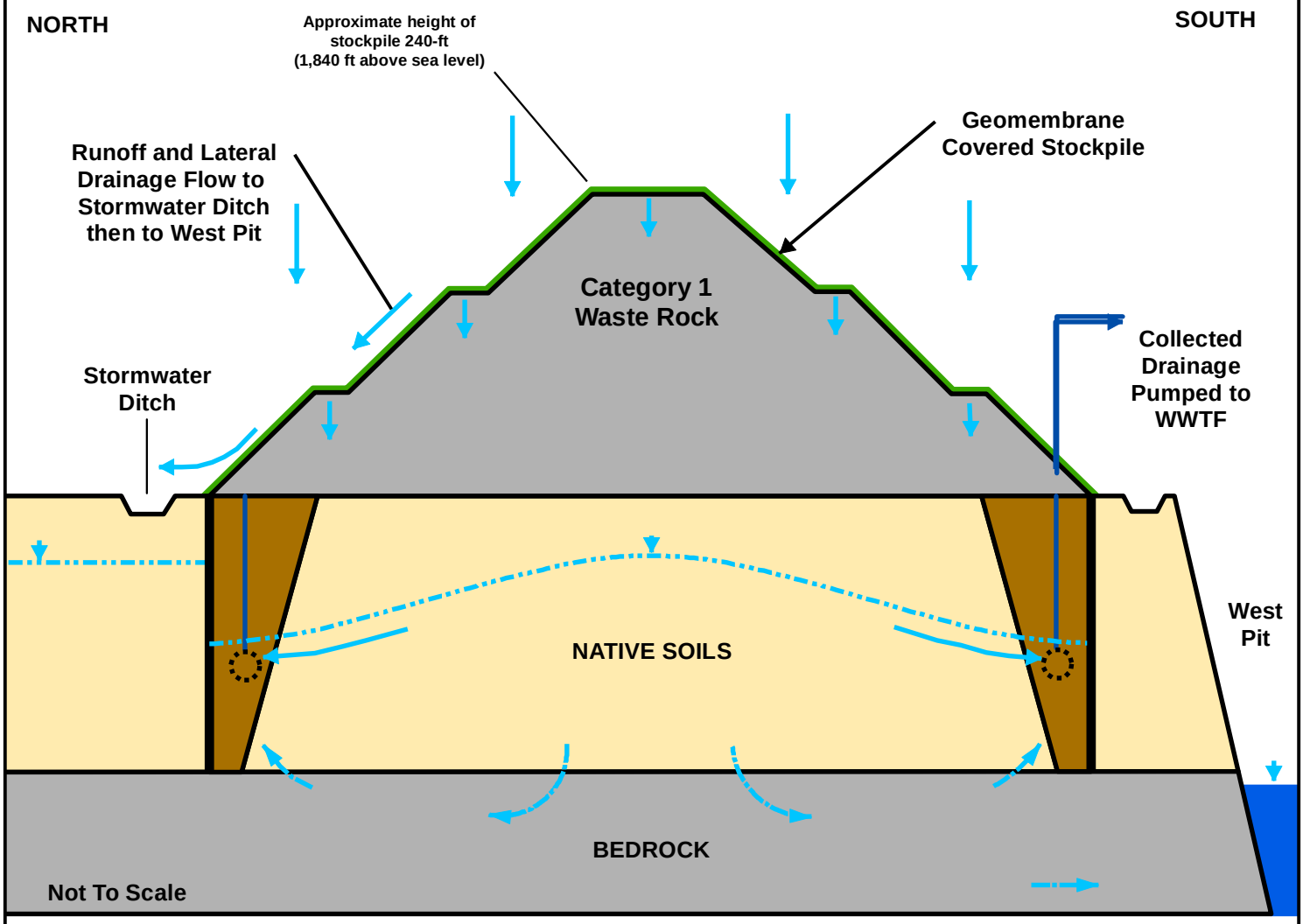

Water Flow

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Figure 3.2-16
Conceptual Cross Section - Category 1 Stockpile Containment System - Long Term Closure Conditions
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Watershed Restoration

During mining operations, stormwater runoff from reclaimed stockpile areas and natural (undisturbed) areas would be routed via dikes and ditches to stormwater sedimentation ponds. Upon completion of stockpile reclamation, these water management systems would be modified. Perimeter dikes that would no longer be needed to provide access or separation from the areas outside the Mine Site would be removed. The dike located north of the East Pit would remain in place to minimize mixing of the Partridge River flows with the East Pit water and prevent gully development on the northern side of the pit in the segments not protected by ditches. In addition, the dike located north of the Category 1 Stockpile would remain in place to allow access to groundwater monitoring locations.

Surface runoff would be routed to the mine pits using a combination of existing and new ditches. Some portions of the pit rim dikes may be left in place, if needed, to prevent an uncontrolled flow to or from the pits and potential erosion (head cutting) of the pit walls.

In all cases of dike removal, material from the main body of the dikes would be removed and used at the site for restoration of disturbed surfaces. To minimize disturbance of subsurface soils, any subsurface seepage control components of the dikes would remain in place. As part of the dike removal work, typical construction erosion-control measures would be used. These could include installing silt fencing on the down-slope side of disturbed areas and controlling surface water runoff. The reclaimed surface would then be scarified, topsoil would be placed, and the area would be revegetated with native species.

Ditches would be filled or rerouted during reclamation to direct stormwater into the West Pit for flooding. Use of existing ditches would be maximized, but some new ditches may need to be constructed to direct stormwater runoff from the Mine Site into the East Pit or West Pit.

All ponds would either be filled or converted into wetlands, including the stormwater ponds, the Overburden Storage and Laydown Area process water pond, the Rail Transfer Hopper process water pond, the haul road process water ponds, and all stockpile sumps and overflow ponds. Once filled, the ponds would be covered with topsoil and revegetated to restore these areas. If the process water ponds were converted into wetlands, any sedimentation that occurred within the pond would be evaluated to determine if removal or covering would be necessary to prevent adverse effects to wetlands during restoration.

Stormwater pond outlet control structures would remain in place as necessary to manage water resource effects. The outlet control structure on the stormwater pond located immediately north of the East Pit and the Category 1 Stockpile (and associated dike) would remain in place to minimize the mixing of the Partridge River flows with the East Pit water and prevent gully development on the northern side of the pit. The outlet control structures on the two stormwater ponds next to Dunka Road would remain in place to direct water under the road and the railroad to a tributary to the Partridge River along natural drainage paths. As a requirement of the NPDES stormwater permit and/or reclamation plan for the facility, discharges from these outlet control structures would be monitored as necessary to ensure that runoff to the Partridge River meets water quality discharge limits.

Water Management

During the reclamation phase (while the West Pit is flooding), the water from the Category 1 Stockpile groundwater containment system would be pumped to the WWTF and treated. Water from the combined East Central Pit would also be pumped to the WWTF and treated. The effluent from the WWTF would be sent to the combined East Central Pit and West Pit. Treatment of the combined East Central Pit water would include removing the flushing load of constituents added as waste rock is backfilled to the combined East Central Pit, and the pit walls would be inundated. In addition, water from the Plant Site would be pumped to the West Pit to flood the pit faster. In the final years of the reclamation phase, water from the West Pit would be pumped to the WWTF, treated, and returned to the West Pit. The objective of treating the West Pit water would be to manage water quality within the pit prior to groundwater outflow from the pit lake via the surficial aquifer. The WWTF could be expanded or treatment capabilities modified if required to meet water resource objectives during this time.

Once the West Pit is full (by the end of year 52), discharge of treated water from the WWTF to the West Pit would be terminated. The WWTF would be upgraded to RO or equivalent technology that would meet water quality targets and include evaporator/crystalizers to convert the RO reject concentrate to residual solids, which would be disposed of at appropriate off-site facilities. The WWTF would continue to treat water collected by the Category 1 Stockpile groundwater containment system, as well as water from the West Pit, to ensure that the discharge met applicable water quality based effluent limits. Treated water would be discharged into an existing wetland on the other side of Dunka Road then into the West Pit Overflow Creek and eventually into the Partridge Inspection, maintenance, and reporting activities would continue while the mechanical treatment systems operate during long-term closure. Surface water and groundwater would be monitored as required by relevant permits.

These long-term closure activities would be ongoing until the various facility features were deemed environmentally acceptable, in a self-sustaining and stable condition, and until it were shown that water quality standards were being met. The objective of closure would be to provide mechanical or non-mechanical treatment for as long as necessary to meet regulatory standards at applicable groundwater and surface water compliance points. Water quality modeling performed in support of this FEIS indicates that water treatment systems would be needed indefinitely at the Mine Site and Plant Site. The water models constructed to assess the potential effects from the NorthMet Project Proposed Action were not designed to predict the duration of treatment nor do they capture all the factors that influence the duration of treatment (e.g., potential future regulatory and technological changes). Therefore, the models cannot be used to predict when treatment would end. Actual treatment requirements would be assessed on a recurring basis throughout operations, reclamation, and closure considering influent and effluent water quality and monitoring results. Those periodic assessments would be carried out to ensure continuous protection of groundwater and surface water quality and compliance with water quality-based effluent limits. The periodic assessment process would rely on monitoring results coupled with predictive modeling rather than the results of the predictive modeling alone. Regardless of the precise duration of effects or water treatment at either the Mine Site or Plant Site, there are measures available to address impacts to natural resources. PolyMet would be held accountable for maintenance and monitoring required under the permit and would not be released from financial assurance until all permit conditions have been met.

When all reclamation activities required by the Permit to Mine are completed, a Request for Release per *Minnesota Rules*, part 6132.1400, would be submitted. This request would provide the Commissioner of the MDNR with detailed information on the final reclamation status of the NorthMet Project area.

A summary of the water management during reclamation and long-term management is provided on Figures 3.2-17, 3.2-18, and 3.2-19.

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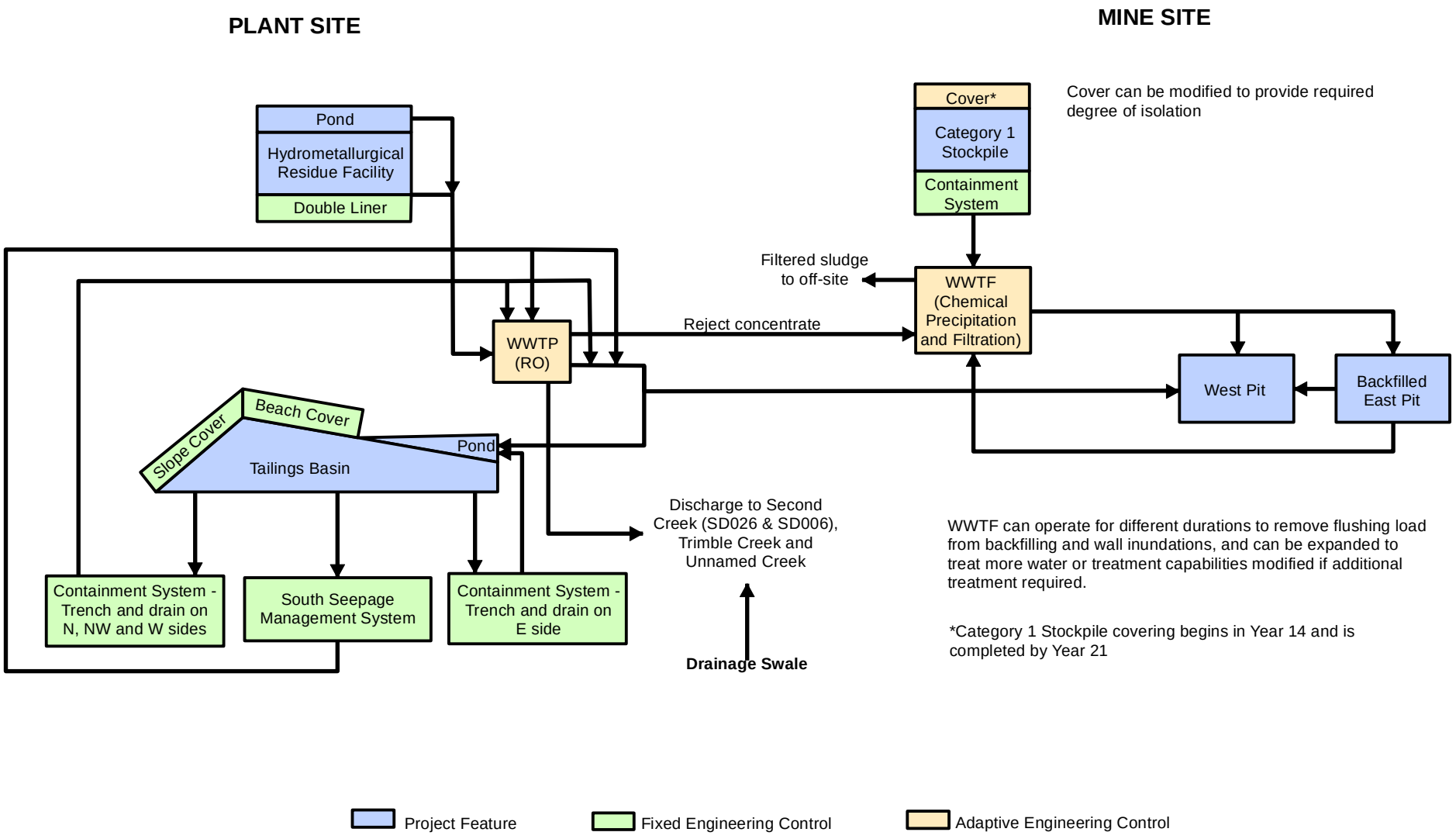

Figure 3.2-17
Water Management Schematic - Reclamation - Approximate Years 21-30
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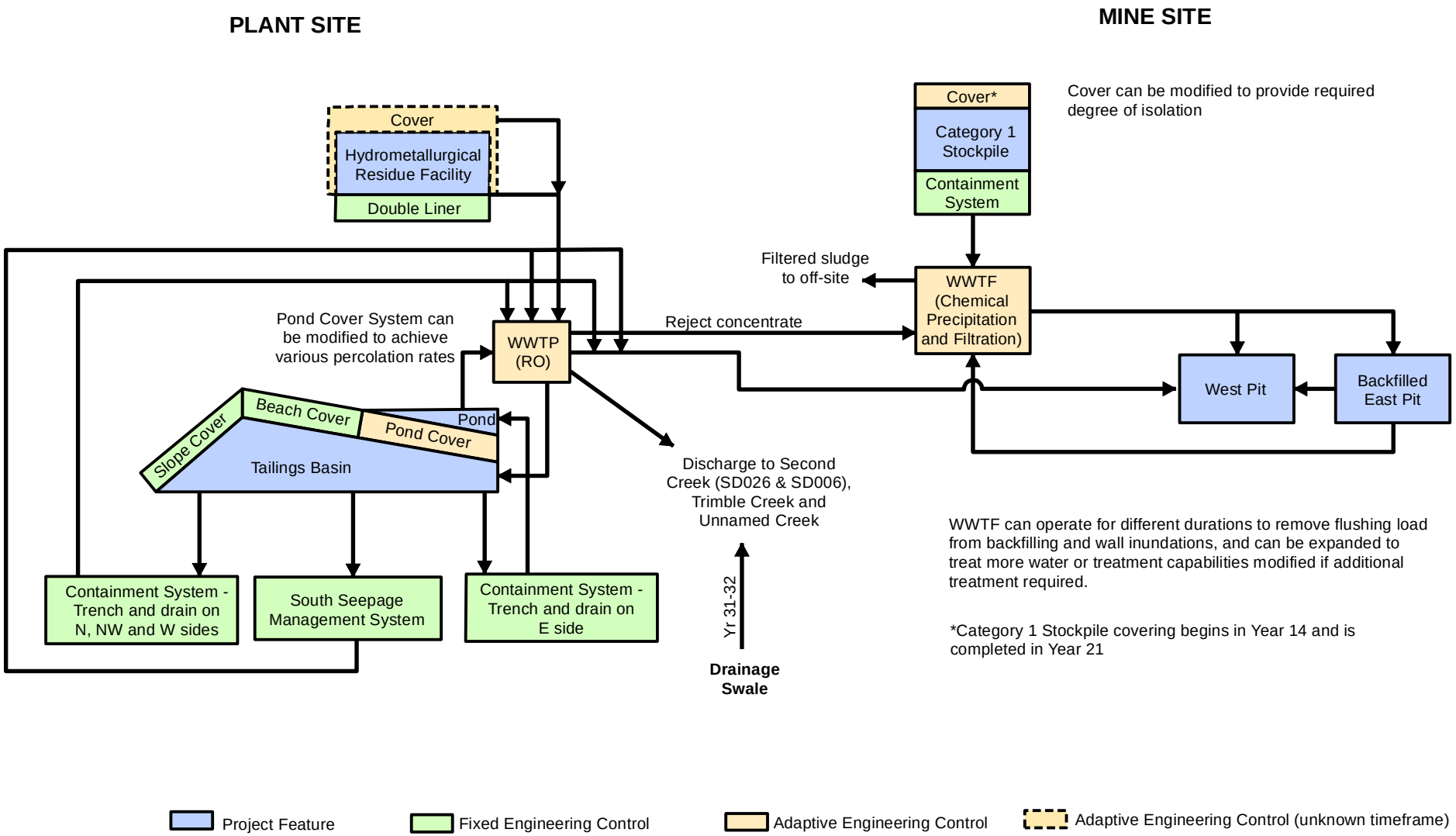

Figure 3.2-18
Water Management Schematic - Reclamation - Approximate Years 31-52
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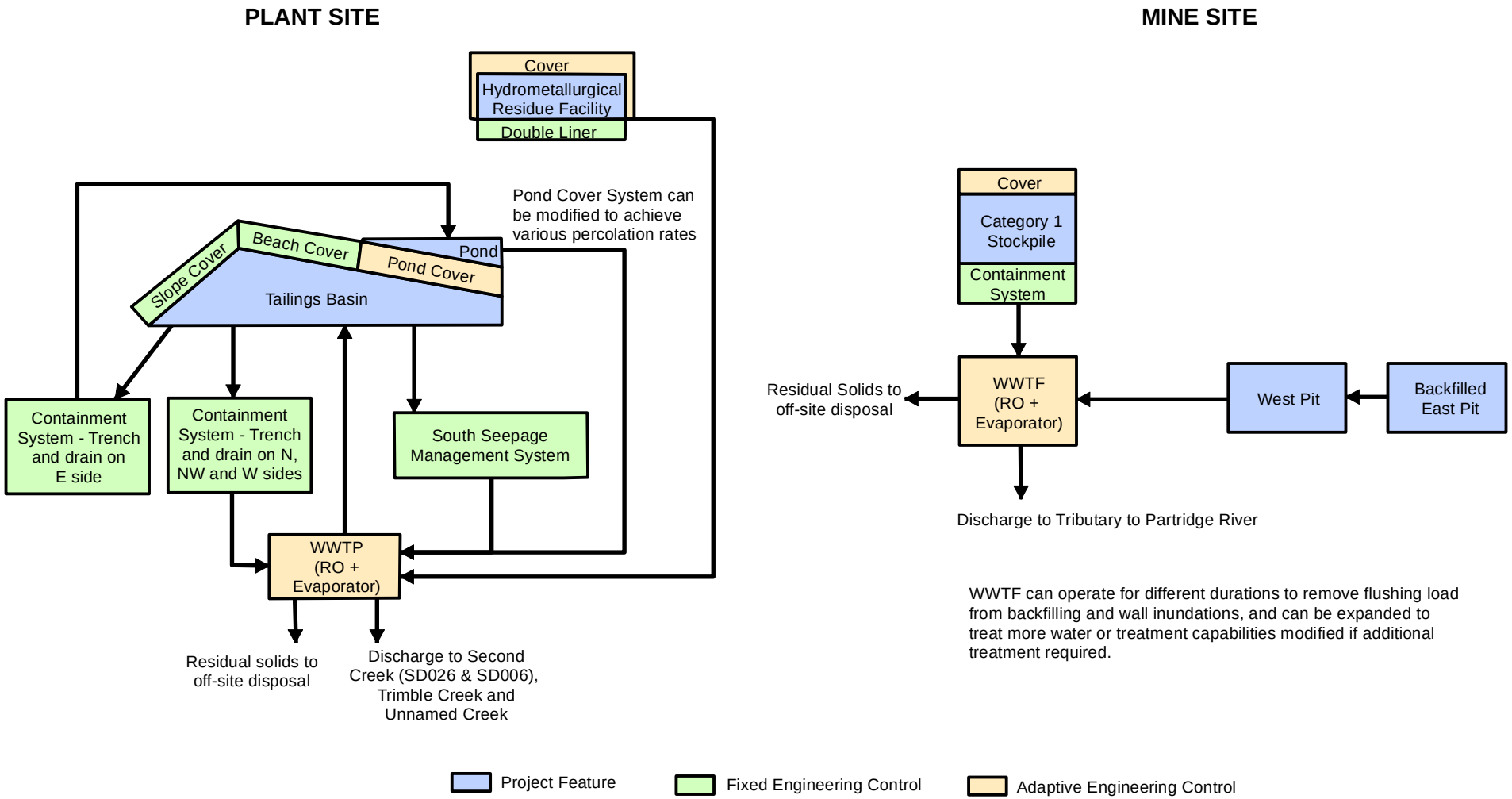

Figure 3.2-19
Water Management Schematic - Long-term Mechanical Treatment
NorthMet Mining Project and Land Exchange FEIS
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Transition from Mechanical to Non-Mechanical Treatment

As described in the Water Management section above, water modeling for the NorthMet Project Proposed Action and the environmental analysis in Chapter 5 assumes that mechanical water treatment would continue indefinitely. PolyMet would include funds in its contingency reclamation estimate and financial assurance package to operate mechanical water treatment for as long as necessary as a part of its Permit to Mine. However, the Permit to Mine would also require PolyMet to present a plan for eventual transition from mechanical water treatment to non-mechanical water treatment, and to adjust its financial assurance on an annual basis in accordance with *Minnesota Rules*, part 6132.1200 to conform to the transition. This section provides an overview of the transitional approach from mechanical water treatment to the use of non-mechanical treatment technologies.

PolyMet would transition from mechanical to non-mechanical water treatment as soon as the company demonstrates that non-mechanical water treatment technologies would effectively treat water to meet water quality based effluent limits and as soon as formal approval is received from the agencies.

Non-mechanical water treatment technologies need to be designed for site-specific conditions and actual site water quality. PolyMet accordingly would test non-mechanical water treatment technologies for several years during mine operations and reclamation, until an acceptable treatment performance could be achieved.

Non-mechanical water treatment technologies can be evaluated in the following steps: 1) collection of additional local site information (i.e., hydrology and influent water quality), 2) laboratory testing, 3) pilot-scale testing, 4) design of a system for full-scale implementation, and 5) continued evaluation of effectiveness over time.

The conceptual design for a non-mechanical treatment system is to treat each flow expected in the long term. The Adaptive Water Management Plan (PolyMet 2015d) outlines preliminary/conceptual information on non-mechanical treatment systems.

PolyMet has initiated testing of non-mechanical water treatment technologies on site (in collaboration with Cliffs Erie) and will continue testing these systems and evaluating other non-mechanical water treatment technologies until they could be demonstrated to the satisfaction of the MDNR and MPCA to provide the required water treatment. Provisions would be included in the NorthMet Project financial assurance package to ensure this test work and implementation of the non-mechanical water treatment technologies could be completed.

Post-Closure Activities

Maintenance activities that would continue throughout reclamation and post-reclamation include erosion repair, woody species and tree removal on the Category 1 Stockpile cover system, and ongoing operation and maintenance of the Category 1 Stockpile groundwater containment system and WWTF. PolyMet has committed to conduct demonstration projects during the Life of Mine and reclamation phases to establish non-mechanical water treatment systems to be used at the Mine Site. The WWTF would remain operational until water quality monitoring results demonstrate that a non-mechanical system could produce an effluent water quality, which is shown by pilot-testing and modeling, to satisfy water quality-based effluent limits at compliance points without the need for mechanical treatment.

PolyMet would be held accountable to maintenance and monitoring required under permits and would not be released until all conditions have been met.

3.2.2.2 *Transportation and Utility Corridor*

The Mine Site and Plant Site would be connected by a Transportation and Utility Corridor that would contain refurbished and new infrastructure proposed to transport personnel and goods, including process consumables and ore, between the Mine Site and Plant Site.

3.2.2.2.1 Location and Ownership

The Transportation and Utility Corridor would be approximately 7 to 8 miles in length, generally consisting of two alignments (railroad and Dunka Road) that deviate from one another at various points along the corridor (see Figure 3.2-20).

PolyMet has acquired ownership of, or the rights to use, the land and existing infrastructure required within the Transportation and Utility Corridor. Surface owners of land intersected by the existing Dunka Road and existing and new sections of railway are listed in Table 3.2-10.

Table 3.2-10 Surface Owners along the Transportation and Utility Corridor

Alignments	Land Surface Owner	Township and Section
Dunka Road and/or Treated Water Pipeline	State of Minnesota	Township 59 N, Range 13 W, Section 16
		Township 59N, Range 14W, Sections 13, 14, 15
	Cliffs Mining Services	Township 59N, Range 13W, Sections 1, 10, 11, 15, 18
		Township 59N, Range 14W, Section 13
	United States of America	Township 59N, Range 13W, Sections 12, 17, 18
	Allete, Inc.	Township 59N, Range 13W, Section 17
Railroad	State of Minnesota	Township 59N, Range 13W, Section 16
		Township 59N, Range 14W, Sections 14, 23
	Cliffs Mining Services	Township 59N, Range 13W, Sections 1, 10, 11, 12, 15, 17, 18
		Township 59N, Range 14W, Sections 13, 24

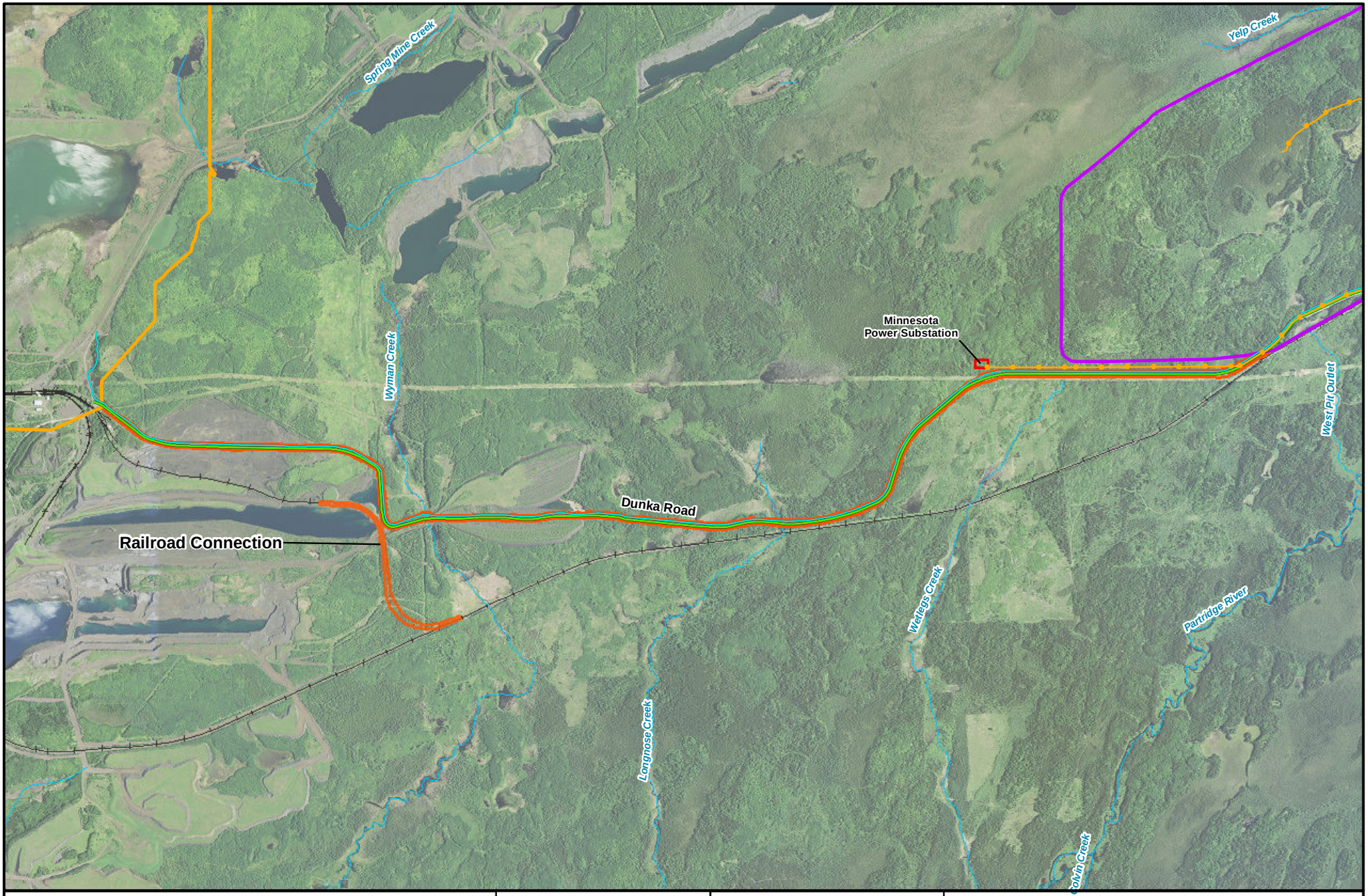

Transmission Line
Treated Water Pipeline
Dunka Road
Minnesota Power Substation
Transportation and Utility Corridor
Plant Site
Mine Site
Stream/River
Existing Railroad

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1,000 2,000 4,000
Feet

Figure 3.2-20
Transportation and Utility Corridor
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3.2.2.2.2 Existing Conditions

The existing Cliffs Erie private railroad and Dunka Road are located within the Transportation and Utility Corridor (see Figure 3.2-20), and both would be refurbished for use as part of the NorthMet Project Proposed Action.

3.2.2.2.3 New Construction and Pre-production Development

Pre-production development along the Transportation and Utility Corridor would include the following:

- Refurbishing the existing 8-mile portion of the Cliffs Erie private railroad located between the Mine Site and Plant Site;
- Constructing a new rail spur (less than 1 mile in length) to connect the existing Cliffs Erie private railroad to the Rail Transfer Hopper at the Mine Site;
- Constructing a new rail connection track (just over 1 mile in length) connecting the existing Cliffs Erie private railroad to existing railroad infrastructure at the Plant Site;
- Upgrading an existing 7-mile segment of the private Dunka Road located between the Mine Site and Plant Site;
- Constructing a new water pipeline approximately 7.5 miles in length along Dunka Road, to connect the Mine Site with the Plant Site; and
- Constructing a new 2.5-mile 13.8 kV transmission line along a portion of Dunka Road to connect the Mine Site to a new Minnesota Power electrical substation.

3.2.2.2.4 Use During Operations

The primary portion of the Transportation and Utility Corridor consists of Dunka Road and the Treated Water Pipeline. Dunka Road would be used to transport various materials and personnel between the Mine Site and Plant Site. The Treated Water Pipeline would be used to transport treated water from the Mine Site to the Tailings Basin at the Plant Site.

The secondary portion of the Transportation and Utility Corridor is the railroad, which would generally be used to transport ore from the Mine Site to the Plant Site using three to four trains, each consisting of sixteen to twenty 100-ton, side-dumping ore cars and one 2,100-hp (approximate), six-axle diesel-electric “Gen-Set” or “Multi-Engine” locomotive.

The side-dump cars have two hinged doors that act as the sides of the car and drop down when the cars are tipped at the coarse-crusher for unloading. PolyMet plans to use an existing but currently decommissioned fleet of LTVSMC side-dump ore cars. This ore car fleet currently shows wear at the hinges and joint areas, which have resulted in gaps in these areas where couplings and linkages have loosened over time. Prior to the start of operations, PolyMet would refurbish these ore cars, which would include tightening or replacement of the couplings and linkages to minimize gaps along the hinges and joint areas. Figure 3.2-21 shows the configuration of the ore cars. These side-dump ore cars are different from the bottom-dump pellet rail cars that LTVSMC used to haul taconite pellets, which were spilled along the railroad. Since these side-dump cars proposed to be used for the NorthMet Project Proposed Action would be refurbished and only used to haul ore, they would result in less spillage than from the bottom-dump cars that were used for the LTVSMC operations (PolyMet 2014a).

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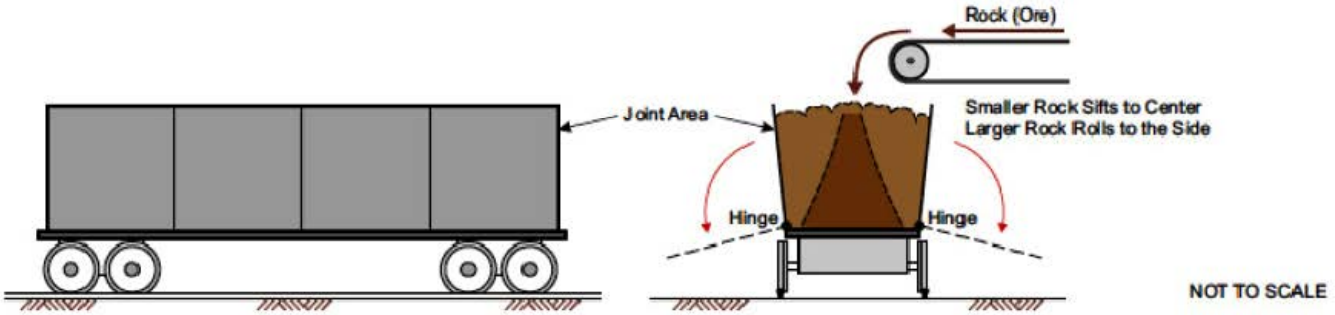

Figure 3.2-21
Side Dump Railroad Cars
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Minnesota

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3.2.2.2.5 Reclamation and Long-term Closure

During reclamation, water from the Tailings Basin seepage containment systems and WWTP would be pumped through the Treated Water Pipeline to the Mine Site for use in flooding the West Pit (PolyMet 2015i). At closure, infrastructure along the Transportation and Utility Corridor would be managed in accordance with the respective usage agreements and reclamation plan requirements.

3.2.2.3 *Plant Site*

The NorthMet Project Proposed Action would include the development and operation of a Plant Site, an area located at the former LTVSMC processing plant. The Plant Site would include infrastructure required to process ore received from the Mine Site in order to recover base metals and Au/PGE, and to manage associated wastes.

Operating at the average mining rate (see Section 3.2.2.1), annual production would yield about 113,000 short tons of copper concentrate, 18,000 short tons of mixed nickel/cobalt hydroxide, and 500 short tons of gold and PGE precipitate. Tailings and hydrometallurgical residue would be stored in expanded existing facilities that would be progressively constructed throughout operations.

The required infrastructure and the steps undertaken during processing, including the inputs and outputs, are discussed below.

3.2.2.3.1 Location and Ownership

The Plant Site is located at the site of the former LTVSMC processing plant, approximately 6 miles north of the City of Hoyt Lakes (see Figure 1.1-1).

PolyMet has surface ownership of the lands encompassing the Plant Site, including the existing infrastructure and tailings facilities (see Figure 3.2-1).

3.2.2.3.2 Existing Facilities

The Plant Site was previously used for the former LTVSMC taconite processing operations that ended in 2001. As shown in Figure 3.2-22, existing infrastructure at the site includes a Beneficiation Plant, access roads, railway infrastructure, maintenance facilities (shops), and a process waste facility (Tailings Basin), as well as ancillary and support infrastructure and buildings such as administration, warehouse, and storage facilities. A pump station and pipeline also connect the Plant Site to Colby Lake, located to the south.

The existing LTVSMC Tailings Basin is unlined and was constructed in stages beginning in the 1950s. It was configured as a combination of three adjacent cells, identified as Cell 1E, Cell 2E, and Cell 2W, and was developed by first constructing perimeter starter dams and placing tailings from the iron-ore process directly on native material. Perimeter dams were initially constructed from rock and subsequent perimeter dams were constructed of coarse tailings using upstream construction methods. The Tailings Basin operations were shut down in January 2001 and have been inactive since then except for reclamation activities consistent with an MDNR-approved closure plan and Cliffs Erie Consent Decree.

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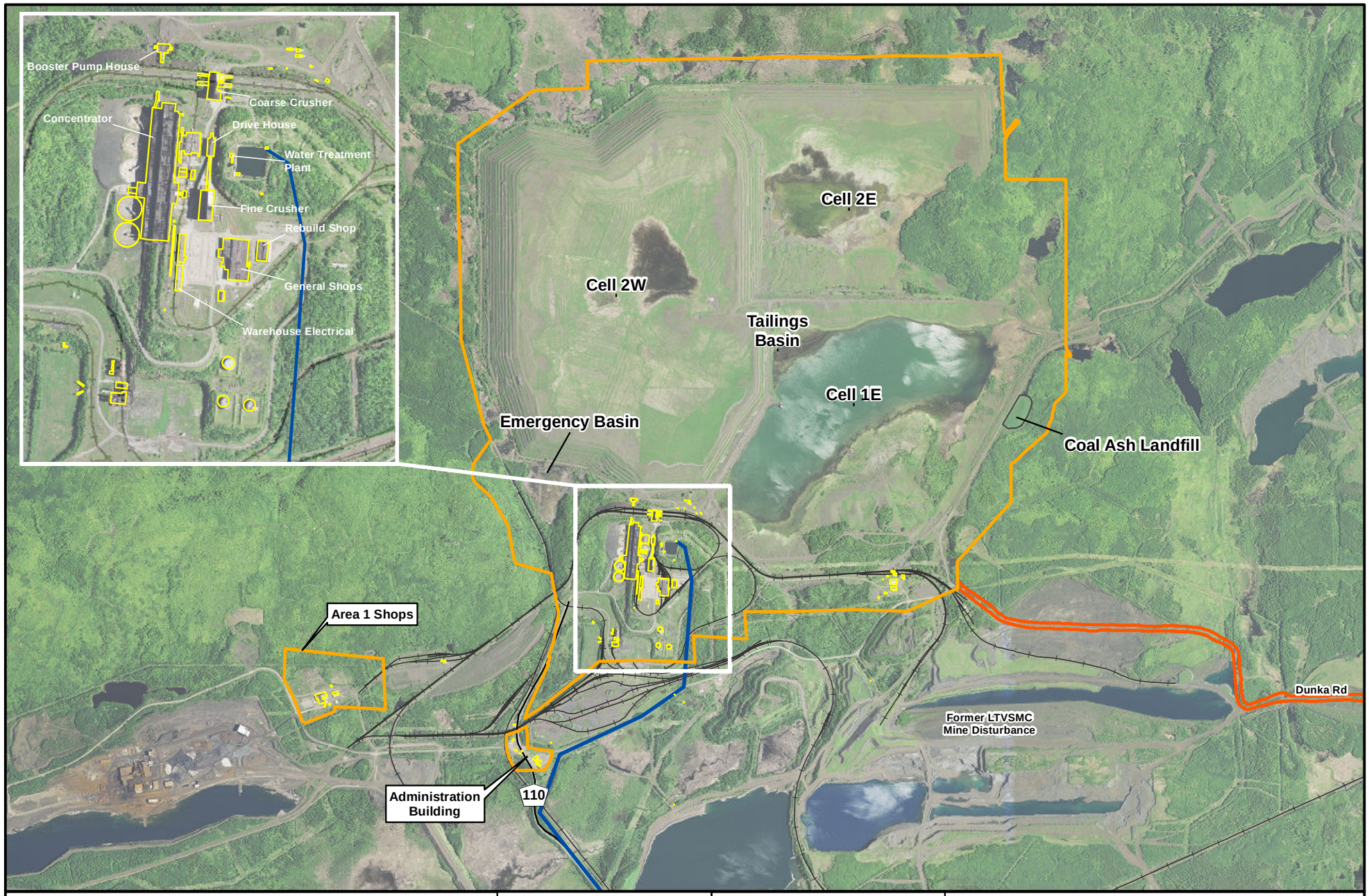

Plant Site
Existing Building
Colby Lake Water Pipeline Corridor
Transportation and Utility Corridor
Existing Railroad

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1,000 2,000 4,000 Feet

Figure 3.2-22
Existing Conditions at the Plant Site
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3.2.2.3.3 New Construction and Pre-production Development

PolyMet proposes to use some of the existing infrastructure at the Plant Site. The existing infrastructure would be refurbished and supplemented with new facilities that would be constructed and operated as part of the NorthMet Project Proposed Action.

Key infrastructure at the Plant Site that would be refurbished and used includes:

- Beneficiation Plant facilities such as:
  - Coarse-crusher building,
  - Fine-crusher building, and
  - Concentrator building, which would be refurbished to include construction of the new semi-autogenous grinding (SAG) mill inside;
- Area 1 Shops;
- Area 2 Shops;
- Ancillary buildings (warehouses, general shops, rebuilt shop, booster pump house, potable water plant, administration building, etc.);
- Ancillary infrastructure (roads, railroad tracks, plant reservoir, loadout facilities, storage yards, stormwater infrastructure, sewage treatment collection system, septic systems, etc.); and
- A pump station and pipeline connecting the Plant Site to Colby Lake, located approximately 4 miles to the south of the Plant Site.

Flotation in the beneficiation process would occur in a new flotation building located on disturbed ground immediately to the west of the concentrator building. Dewatering, storage, and shipping would occur in new concentrate dewatering, storage, and loadout buildings located on disturbed ground near an existing heating and additive plant, which would be demolished.

All equipment used in the hydrometallurgical process would be located in a new Hydrometallurgical Plant building.

New tailings would be placed within new dams on top of the existing LTVSMC Tailings Basin. Hydrometallurgical residue would be placed within new dams built on top of the existing LTVSMC Emergency Basin adjacent to the existing tailings facility. Refer to the geotechnical stability section in Chapter 4.0 for more information on the existing geotechnical conditions at the Tailings Basin and Hydrometallurgical Residue Facility.

CDSM is an engineering measure that would be used to stabilize the existing tailings and peat layers in the northern dams of the LTVSMC Tailings Basin prior to the use of that facility for the NorthMet tailings. It would involve mixing cement into multiple three-foot diameter columns by auguring the Tailings Basin to improve the strength of the Tailings Basin, without substantially affecting water flow or quality. Adding cement to the fine tailings, slimes, and peat layers would reduce the hydraulic conductivity of those areas by about 30 percent, which is within the range of natural variability. Similarly, the addition of cement would not contribute to constituent loads because the mass added would be approximately 0.1 percent by volume (PolyMet 2015k).

A new WWTP would be built at the Plant Site to treat intercepted seepage from the Tailings Basin and treat water from the Hydrometallurgical Residue Facility, as needed.

The existing LTVSMC sewage treatment system would be upgraded to include a new stabilization pond facility, which would replace the existing LTVSMC mechanical sewage treatment plant. The sewage treatment system pond facility would be designed to meet MPCA secondary treatment requirements and would include a lift station, which would pump the treated effluent to the Tailings Basin.

The layout of existing and proposed buildings and infrastructure at the Plant Site is shown on Figure 3.2-23.

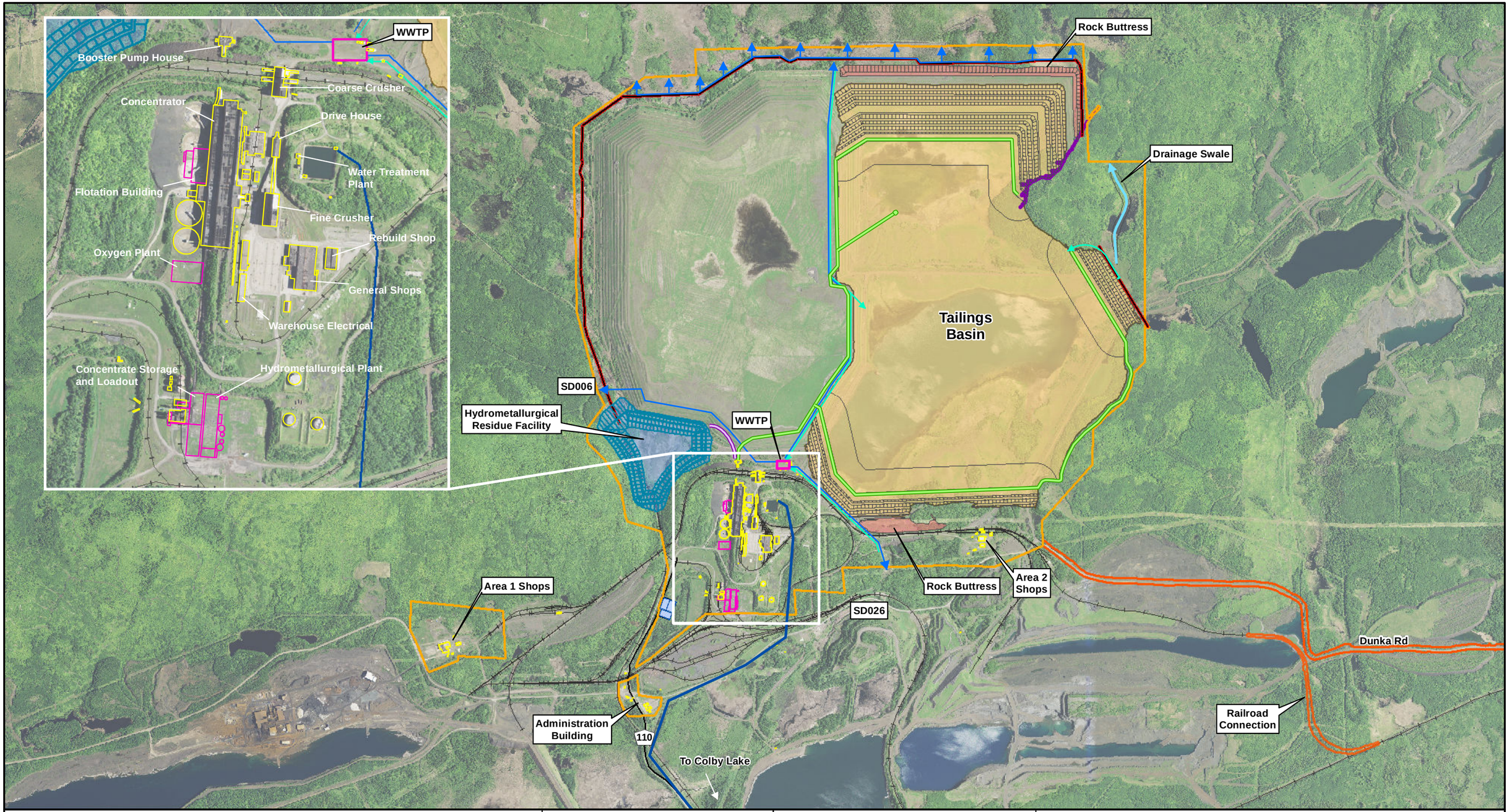

Plant Site
Tailings Basin
Proposed Building
Existing Building
Hydrometallurgical Residue Facility
Rock Buttress
Transportation and Utility Corridor
Containment System
Colby Lake Water Pipeline Corridor
Treated Water Discharge
Seepage Water Pipe
Drainage Flow Direction
Hydrometallurgical Residue Pipeline
Flotation Tailings Pipeline
Tailings Basin Emergency Overflow
Sewage Treatment System Ponds
Existing Railroad

MNDNR
US Army Corps of Engineers
St. Paul District
US Forest Service

N W E S

0 1,000 2,000 4,000 Feet

Figure 3.2-23
Plant Site Layout
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3.2.2.3.4 Beneficiation Process

Mined ore would be processed using beneficiation and hydrometallurgical technologies. The purpose of the beneficiation process would be to produce final separate concentrates of copper and differing grades of nickel. Nickel concentrates may be used as a feedstock to the Hydrometallurgical Plant that would then extract and isolate platinum-group elements, precious metals, and base metals. PolyMet expects that the Beneficiation Plant would be operational 2 to 4 years before the Hydrometallurgical Plant. The decision to ship nickel concentrate produced from the beneficiation process or nickel concentrate that is further processed through the Hydrometallurgical Plant would be based on equipment maintenance schedules, customer requirements, and overall project economics.

Processes at the Beneficiation Plant would include ore crushing, grinding, flotation, dewatering, storage, and shipping. Crushing and grinding would occur at the existing coarse-crusher building and concentrator building, both of which remain from operations of the former LTVSMC processing plant. Ore would be fed from the secondary crusher in the coarse-crusher building, into a SAG mill and ball mill in the concentrator building. Flotation would occur at a new flotation building located on disturbed ground immediately to the west of the concentrator building. Dewatering, storage, and shipping would occur at a new concentrate dewatering and storage building located on disturbed ground near the Heating and Additive Plant, which would be demolished. A simplified process flow diagram for the beneficiation process is shown on Figure 3.2-24.

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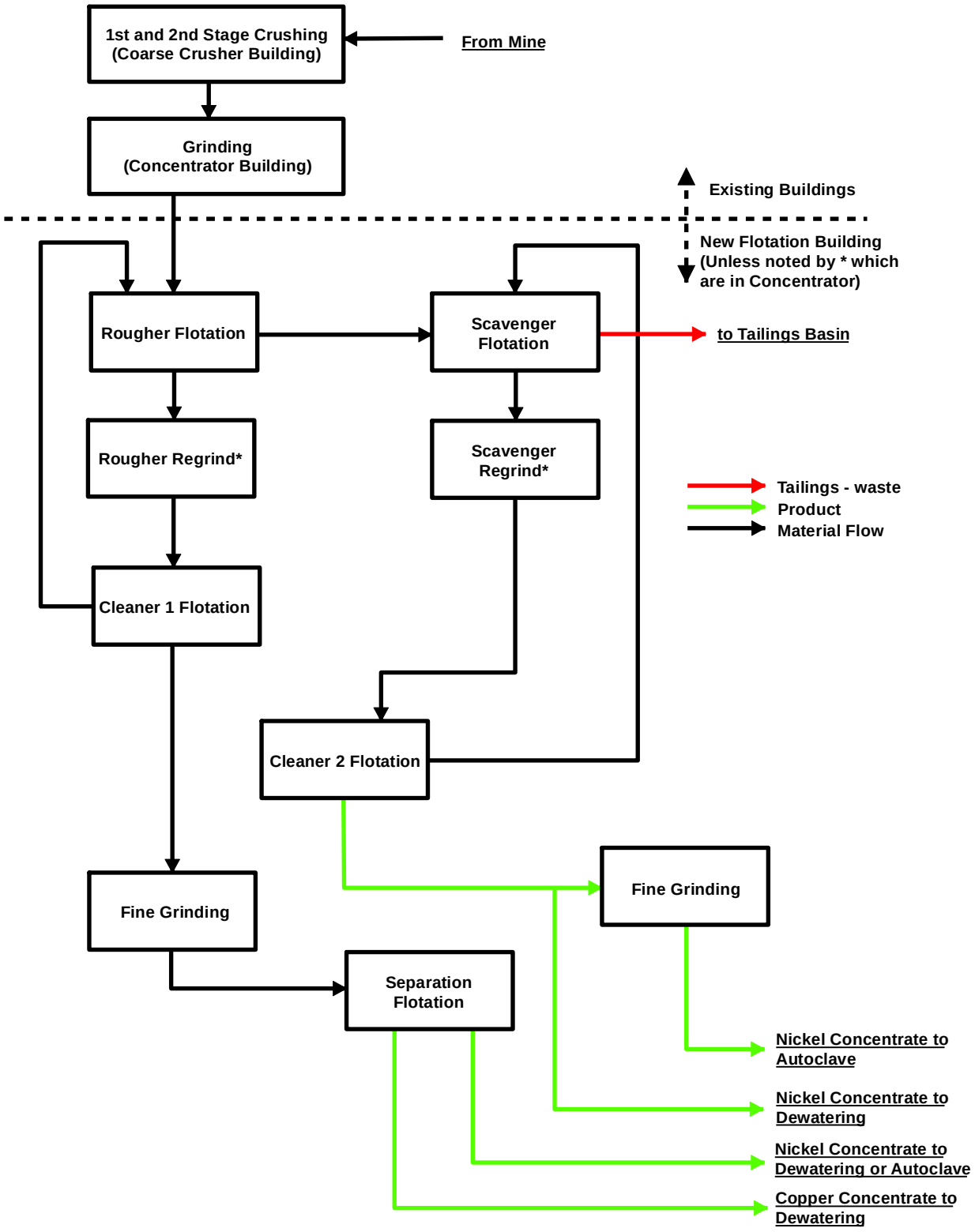

Figure 3.2-24
Beneficiation Plant Process Flow Diagram
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Ore Crushing

In ore crushing, ore as large as 48 inches in diameter would be delivered by rail from the mine to the existing coarse-crusher building, where each car would be emptied into a primary crusher at an average (calculated using the hours the primary crusher would be actually running, as it would not run continuously) feed rate of about 1,667 tons per hour. From the primary crusher, ore would move by gravity to four parallel secondary crushers. A conveyor system would move the ore, 80 percent of which would now be smaller than 4.25 inches, to the ore storage bins located in the concentrator building.

The existing coarse-crusher building emission control system would be replaced with components that meet or exceed the particulate emission standard required of new sources at taconite plants. To reduce space-heating requirements, emission control system exhaust would be recycled to the buildings. The material collected would be mixed with water and added to the milling circuit. This means that the solids removed from the air stream would be recycled to the process and no solid waste management would be required and no water would be lost.

Ore Grinding

The coarse, crushed ore would be fed into a SAG mill and ball mill in the existing concentrator building. The SAG mill output would feed ball mills via cyclone feed pumps, also located in the concentrator building. The ground ore would re-circulate through the milling circuit until the particle size is small enough for flotation (80 percent would be less than 120 microns [4.7×10^{-3} inches]).

The existing emission control systems in the concentrator building would be replaced with components that meet or exceeded the particulate emission standard required of new sources at taconite plants. To reduce space-heating requirements, emission control system exhaust would be recycled to the buildings. The material collected would be mixed with water and added to the milling circuit. Solids removed from the air stream would therefore be recycled to the process and no solid waste management would be required and no water would be lost. Because water would be added to the mill lines and the beneficiation process would be wet from that point on, there would be no need for particulate emission control systems downstream of the feed to the SAG mill.

In the event of a power failure, all process fluids would be contained within the concentrator building and recycled to the process when power is restored. This same containment and recycle system would contain and control any minor spills.

Flotation

Once at a size of 120 microns, the ore would be processed in flotation to recover the base and precious metal sulfide minerals. Flotation would consist of rougher and scavenger flotation lines followed by cleaner stages in a new flotation building and would produce separate nickel and copper concentrates.

In flotation, separation of the sulfide minerals would be achieved using a collector and frother combination. Air would be injected into each flotation cell and the cell would be mechanically agitated to create air bubbles that would pass upward through the slurry in the cell. The frother (methyl isobutyl carbinol and polyglycol ether, or MIBC/DF250), would provide strength to the bubbles, and the collector (potassium amyl xanthate [PAX]) would cause the sulfide minerals to

attach to the air bubbles. The material attached to the bubbles would be concentrated and the material remaining in the slurry would be tailings.

The rougher tailings would go to scavenger flotation, where collector and frother would be added, along with copper sulfate as a flotation activator. The activator would ensure that the particles that would be difficult to float (i.e., contain minor amounts of sulfide) would be recovered in the concentrate, which would reduce the total sulfur content of the tailings. The concentrate from scavenger flotation would go through scavenger regrind to cleaner 2 flotation. Cleaner 2 tailings would go back to the scavenger flotation feed, while the nickel-rich cleaner 2 flotation concentrate would be sent through fine grinding 2 to the Hydrometallurgical Plant or directly to concentrate dewatering. The tailings from scavenger flotation would be sent to the Tailings Basin. Rougher flotation concentrate would be fed through rougher regrind to cleaner 1 flotation. Cleaner 1 flotation tailings would go back to the rougher flotation feed, while the concentrate would be sent through fine grinding 1 to separation flotation. Separation flotation would produce a copper concentrate and two nickel concentrates. The copper concentrate would go to concentrate dewatering. The nickel concentrates would go to concentrate dewatering or to the Hydrometallurgical Plant.

Lime would be added in separation flotation, which would result in a highly basic process water stream. Because this stream would be combined with other process water streams and makeup water, buildup of basicity is not expected. If there were a buildup of basicity, the basicity could be neutralized before it was combined with other process water streams.

The scavenger tailings would be pumped to the Tailings Basin, where the solids would settle and be stored permanently (refer to the tailings section below). The clear water would be re-circulated to the mill process water system.

In the event of a power failure, all process fluids would be contained within the flotation building and recycled to the process when power is restored. This same containment and recycle system would contain and control any minor spills.

Concentrate Dewatering and Storage – Concentrate Mode

Concentrate dewatering and storage would be used to dewater and store copper and nickel concentrates and to load those concentrates into covered rail cars. Concentrate dewatering and storage would be within the new concentrate dewatering and storage building.

The copper and nickel concentrates would be delivered to separate dewatering lines, each with a filter that would reduce concentrate moisture content to approximately 8 to 10 percent. The water removed by the filter would be returned to the Beneficiation Plant.

Each filtered concentrate would be conveyed to separate stockpiles within an enclosed 10,000-ton storage facility for loading into covered rail cars. The storage facility would contain about 15 days of production capacity. The storage facility would have a concrete floor and provisions to wash wheeled equipment leaving the facility to prevent concentrates from being tracked out of the facility.

In the event of a power failure, all process fluids would be contained within the concentrate dewatering and storage building and recycled to the process when power is restored. This same containment and recycle system would contain and control any minor spills.

Processing Parameters

Table 3.2-11 shows PolyMet's estimates for daily production rates and size reduction through the processing steps in the beneficiation process. The rates and sizes provided are the values PolyMet intends to use to design plant piping and equipment.

Table 3.2-11 Design Processing Parameters

	Input			**Output**		
Process	**Material**	**Rate (stpd[1])**	**Size (inches)**	**Material**	**Rate (stpd)**	**Size (inches)**
Ore crushing	Ore	32,000	48	Ore	32,000	4
Ore grinding	Ore	32,000	4	Ore	32,000	4.7×10^{-3}
Flotation	Ore	32,000	4.7×10^{-3}	Concentrate	374 to Hydrometallurgical Plant and 286 to concentrate dewatering or 660 to concentrate dewatering	Varies depending on concentrate stream and next process step
				Tailings	31,340	4.7×10^{-3}
Concentrate dewatering	Concentrate	660	Varies depending on concentrate stream	Dried nickel and copper concentrates	286 copper and 374 nickel	Same as input[2]

Notes:
[1] stpd = short ton(s) per day
[2] Flotation step has two fine grinding stages that produce a defined size. One nickel concentrate stream to concentrate dewatering does not pass through a fine grinding stage, but all concentrates to the Hydrometallurgical Plant pass through a fine grinding stage. Therefore, the average output for flotation does not coincide with the average input for concentrate dewatering.

Process Consumables

PolyMet anticipates the raw materials shown in Table 3.2-12 would be consumed by the Beneficiation Plant processes.

Table 3.2-12 Materials Consumed by the Beneficiation Plant Process

Consumable	Quantity	Mode of Delivery	Delivery Condition	Storage Location	Containment
Grinding Media (metal alloy balls)	10,000 tpy	Rail (9 rail cars/ mo[1])	Bulk	Concentrator Building	None required
Flotation Collector (PAX)	1,171 tpy	Truck (2-3 trucks/mo)	Bulk bags	Reagents Building	None required
Flotation Frother (MIBC and DF250)	1,007 tpy	Tank truck (2-3 trucks/mo)	Bulk	Reagents Building	Separate 13,200-gallon storage tanks
Flotation Activators (copper sulfate)	592 tpy	Truck (1-2 trucks/mo)	Bulk bags	Reagents Building	9,200-gallon activator storage tank
Flocculant (MagnaFlox 10)	16.5 tpy	Truck (1 truck/2 mo)	1,875-lb[2] bulk bags	Reagents Building	None required
Gangue Depressant (CMC)	1,073 tpy	Truck (2-3 trucks/mo)	Bulk bags	Reagents Building	None required
pH Modifier (hydrated lime)	10,279 tpy	Tank Truck (1-2 trucks/day)	Bulk	Reagents Building	Storage silo

Notes:
[1] mo = month
[2] lb = pound

Plant Process Water

Water needed for the milling and flotation circuits would primarily be return water from the Tailings Basin, which would include treated Mine Site process water. As a contingency measure, any shortfall in water requirements would be made up by raw water from Colby Lake as necessary using an existing pump station and pipeline. Throughout operations, the average annual makeup water drawn from Colby Lake would vary between 260 and 1,760 gallons per minute (gpm), with an average annual demand of 760 gpm. This would be the total potential raw water demand from both the Beneficiation Plant and the Hydrometallurgical Plant.

Water collection at the Tailings Basin and Plant Site water management are discussed further in Sections 3.2.2.3.10 and 3.2.2.3.11 below.

3.2.2.3.5 Tailings Management

The NorthMet Project Proposed Action would generate approximately 11.27 million short tons of flotation tailings annually (approximately 10,000,000 in-place cubic yards annually). Tailings would be placed on top of part of the unlined existing LTVSMC Tailings Basin. For the first 7 years of operation, tailings would be placed on top of Cell 2E (currently approximately 1,595 ft above mean sea level [amsl]) or until it reached the same height as the existing Cell 1E (approximately 1,660 ft amsl). After that, tailings would go on top of both Cells 1E and 2E (forming a single cell) up to the same height of Cell 2W (approximately 1,735 ft amsl). A schematic cross section of the Tailings Basin at its maximum height is provided on Figure 3.2-25.

The future perimeter dams of the Tailings Basin would be raised in an upstream construction method using compacted LTVSMC bulk tailings that consist primarily of coarse tailings with limited amounts of LTVSMC fines and slimes mixed in. This material would be sourced from the existing LTVSMC Tailings Basin dams to the north and east of Cell 2W, from the southeast dam of Cell 1E, and from the south dam of Cell 2E. Upon exhaustion of LTVSMC tailings available for dam construction, off-site borrow from MDNR-approved sources would be utilized.

To increase geotechnical stability, a rock buttress would be constructed around the northern dam of Cell 2E and southern dam of Cell 1E of the existing LTVSMC Tailings Basin. Rock buttress material would be from MDNR-approved sources. Material from former LTVSMC Area 5 would be a likely source for the rock buttress and fill material, but other sources could also be considered. CDSM would also be used to stabilize the existing tailings and peat layers in the northern dams of the LTVSMC Tailings Basin prior to the use of that facility for the NorthMet tailings. It would involve mixing cement into multiple three-foot diameter columns by auguring the Tailings Basin to improve the strength of the Tailings Basin, without substantially affecting water flow or quality. Adding cement to the fine tailings, slimes, and peat layers would reduce the hydraulic conductivity of those areas by about 30 percent, which is within the range of natural variability. Similarly, the addition of cement would not contribute to constituent loads because the mass added would be approximately 0.1 percent by volume (PolyMet 2015k).

During LTVSMC operations, fly ash, dredging spoil, and coal pile cleanup material were placed in a solid waste storage site (Coal Ash Landfill) upgradient and to the east of Cell 1E (see Figure 3.2-22). The location of this landfill would be inundated by tailings in approximately year 7 of Tailings Basin operation. Therefore, the contents would be analyzed and relocated to the Hydrometallurgical Residue Facility, or other approved facility, prior to that time.

A bentonite-amended oxygen barrier layer (at a depth of 30 inches from the surface of the dams) on exterior sides of dams would be added as part of construction. The design also includes a mid-slope setback and construction of buttresses along the northern foot of existing LTVSMC Tailings Basin Cell 2E and southern foot of Cell 1E, using material from former LTVSMC Area 5. Refer to Section 5.2.14 for more information on the proposed construction of the Tailings Basin.

The NorthMet tailings would be deposited in slurry form through a system of pumps and moveable pipelines. Tailings would be deposited over discharge beaches or underwater in the Tailings Basin pond using movable diffusers. The small and fairly uniform grind size of the tailings would allow for a fairly consistent particle-size distribution, minimizing segregation of coarse and fine portions.

Tailings beaches would exist along the northern and northeastern dams of Cell 2E and the southern and eastern dams of Cell 1E, where the natural landscape is higher, thus bounding the material.

The tailings would settle out of the slurry and the decanted water would be allowed to pond and would be collected using a barge pump-back system that would pump the water back for use at the Beneficiation Plant. The barge system would consist of a primary pump barge in Cell 1E, an auxiliary pump barge in Cell 2E, piping from the primary pump barge to the Beneficiation Plant, and piping from the auxiliary pump barge to Cell 1E. The auxiliary pump barge would not be needed once the cells combine to form one cell. The return water pipelines would be moved as dams are raised (up to the maximum of 1,732 ft amsl), to keep the pipeline at or near the top of

the dam. The return water pipes would be fitted with a relief drain valve to allow for water to be drained back to ponds in case of shutdown during winter operations to avoid damage to the pipes from freezing or suction. Pumps would also be fitted with deicing mechanisms to avoid freezing.

Plant Site water management, including management at the Tailings Basin, is discussed further in Sections 3.2.2.3.10 and 3.2.2.3.11 below.

Stability modeling and the rationale for the design are discussed in Section 5.2.14. Final design is subject to permitting under the requirements of the MDNR Dam Safety Permit and Permit to Mine.

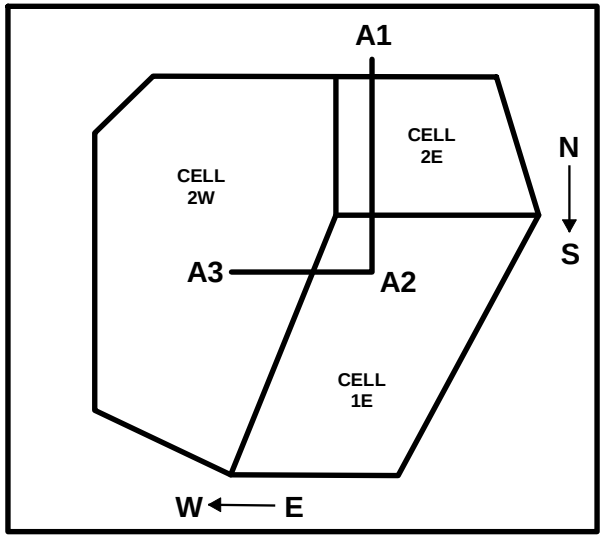

TRACE MAP

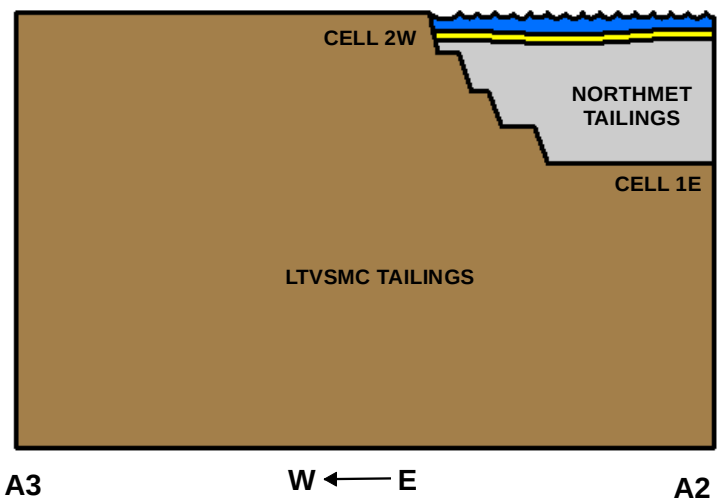

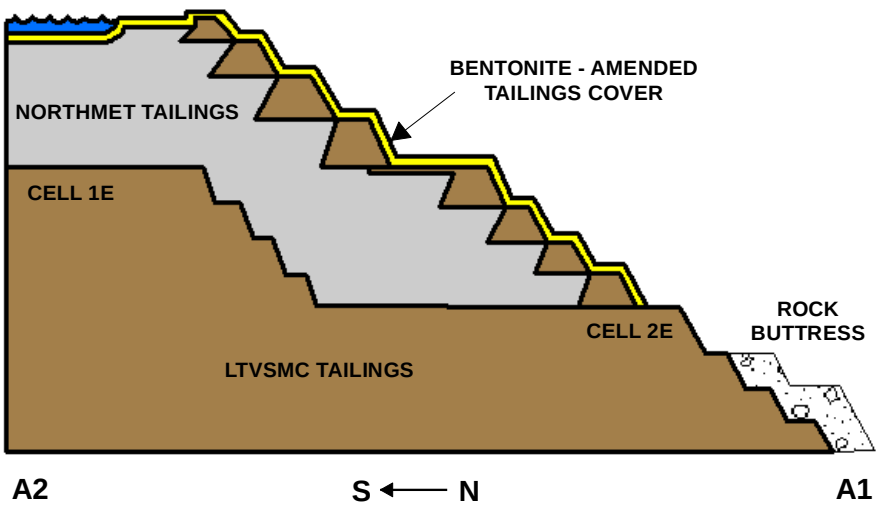

LTVSMC Tailings
NorthMet Tailings
Bentonite
Rock Buttress

NOT TO SCALE

Figure 3.2-25
Schematic Cross Section of the Tailings Basin - Post Closure
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3.2.2.3.6 Hydrometallurgical Process

Hydrometallurgical processing technology would process nickel concentrates. This process would involve high-pressure and high-temperature autoclave leaching followed by solution purification steps to extract and isolate PGEs, precious metals, and base metals. All equipment used in the hydrometallurgical process would be located in a new Hydrometallurgical Plant. Should spillage of process fluids occur, it would remain within the Hydrometallurgical Plant buildings and be returned to the appropriate process streams.

Once the Hydrometallurgical Plant becomes operational, some of the concentrates produced in the Beneficiation Plant would be feedstock to the hydrometallurgical process. The feedstock would be a combination of the separate nickel concentrates produced by the Beneficiation Plant. The decision to ship nickel concentrations directly from the beneficiation process or further process the concentrates through the autoclave would be based on equipment maintenance schedules, customer requirements, and overall project economics.

PolyMet expects that the autoclave would be operational 2 to 4 years after the Beneficiation Plant becomes operational. A simplified process-flow diagram for the hydrometallurgical process is shown on Figure 3.2-26.

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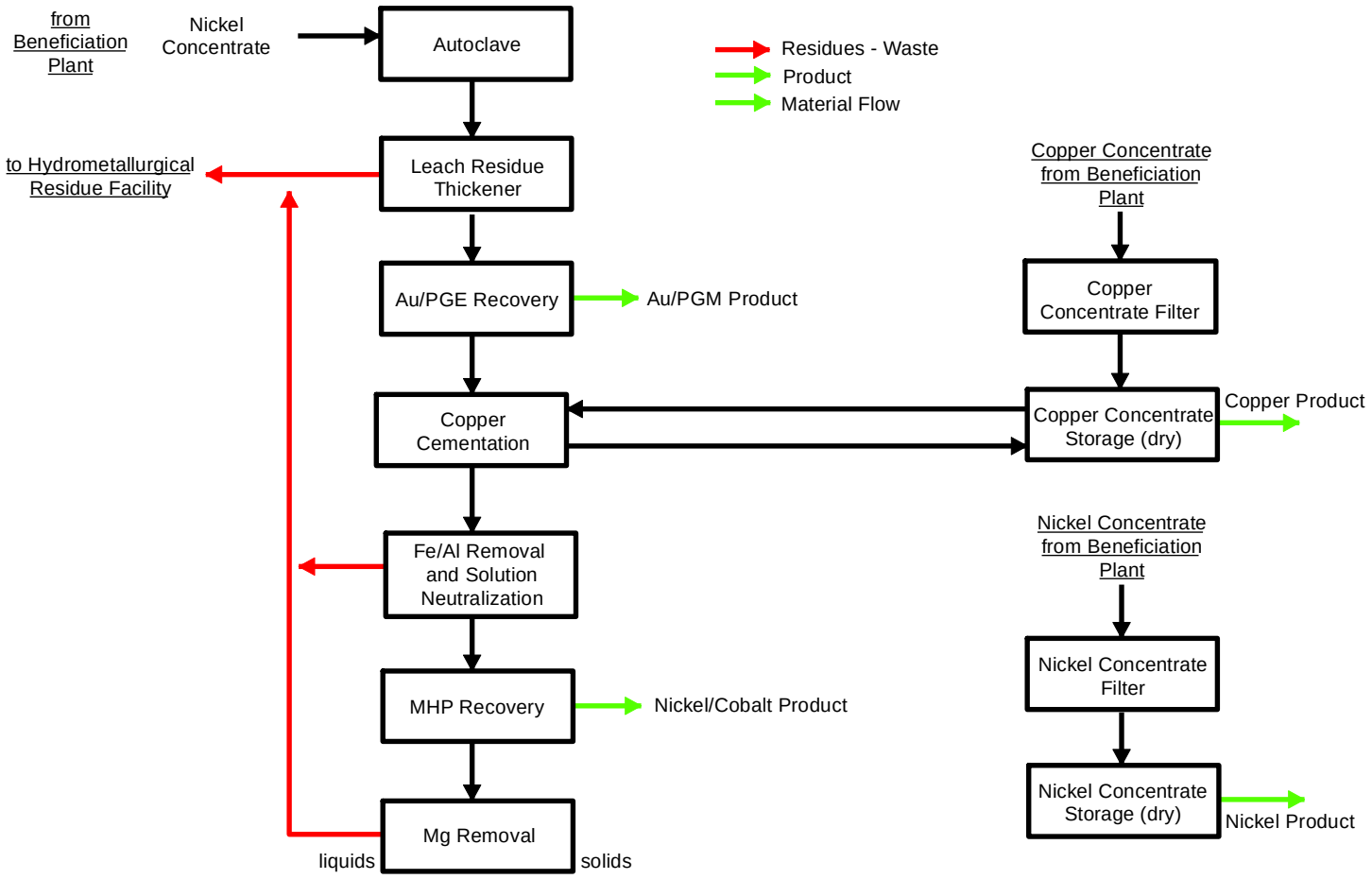

Figure 3.2-26
Hydrometallurgical Plant Process Flow Diagram
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Autoclave

In the autoclave, the sulfide minerals in the concentrate would be oxidized and dissolved in a solution. Au/PGE would dissolve as soluble chloride salts. The solid residue produced would contain iron oxide, jarosite (potassium-iron sulfate), and any insoluble gangue (non-ore silicate and oxide minerals) from the concentrate. Generation of acid from the oxidation of major sulfide minerals would result in leaching of the silicate, hydroxide, and carbonate minerals present in the concentrate.

Mine Site WWTF sludge (to recover metals and provide disposal of remaining solids) and hydrochloric acid (to maintain the proper chloride concentration in the solution to enable leaching of the Au/PGE) would be added to the concentrate before the autoclave. The autoclave would be injected with oxygen gas supplied by a cryogenic oxygen plant at a rate that would be controlled to ensure complete oxidation of all sulfide sulfur in the concentrate.

Slurry discharging from the autoclave would be sent to the leach residue thickener where solids would be settled with the aid of a flocculant. The leach residue thickener underflow would be filtered to produce a filter cake, which would be washed, re-pulped, combined with other hydrometallurgical residues, and pumped to the Hydrometallurgical Residue Facility. The leach residue thickener overflow would go to the Au/PGE recovery.

Gold and Platinum Group Element Recovery

The product produced by Au/PGE recovery would be a filter cake made up of a mixed Au/PGE sulfide precipitate. The filter cake would be put into either bulk bags or drums for sale to a third-party refinery. The remaining solution would go to copper cementation.

Copper Cementation

Copper concentrate from dry concentrate storage would be re-pulped, and the solution from Au/PGE recovery would be combined with the re-pulped copper concentrate. Copper would precipitate mostly in the form of copper sulfide. The enriched copper concentrate would be filtered and placed back into dry concentrate storage. The remaining solution would then go to solution neutralization.

Solution Neutralization

Solution neutralization would be used to neutralize acids formed as a result of the upstream process. Solution from copper cementation would go to solution neutralization. Calcium, in the form of either limestone or lime, would be added. The result of the calcium addition would be the formation of gypsum that would be filtered to produce a gypsum filter cake. This filter cake would be washed, re-pulped, combined with other hydrometallurgical residues, and pumped to the Hydrometallurgical Residue Facility. The solution remaining after neutralization would go to iron and aluminum removal.

Iron and Aluminum Removal

Solution neutralization would feed iron and aluminum removal. Limestone, steam, and air would be added to cause the aluminum and iron to precipitate. The precipitated metals would be filtered to produce a filter cake, which would be washed, re-pulped, combined with other

hydrometallurgical residues, and pumped to the Hydrometallurgical Residue Facility. The remaining solution would be sent to mixed hydroxide product recovery.

Nickel-Cobalt Recovery (Mixed Hydroxide Product)

Copper-free solution from iron and aluminum removal would be reacted with magnesium hydroxide to produce nickel and cobalt precipitate. The precipitated metals would be filtered to produce a filter cake that would have an approximate composition of 97 percent nickel and cobalt hydroxides, with the remainder as magnesium hydroxide. The high-quality mixed hydroxide filter cake would be packaged for shipment to a third-party refiner. The remaining solution would go to magnesium removal.

Magnesium Removal

Lime slurry would be added to the solution from the mixed hydroxide product recovery (above) to facilitate magnesium precipitation. The resulting slurry would be pumped to the Hydrometallurgical Residue Facility along with other residues. The solids would settle in the Hydrometallurgical Residue Facility, to be stored permanently, while the clear water would be reclaimed continuously to the Hydrometallurgical Plant process water system.

Process Consumables

The raw materials described below, and those summarized in Table 3.2-13, would be consumed by the Hydrometallurgical Plant processes.

Table 3.2-13 Materials Consumed by the Hydrometallurgical Plant Process

Consumable	Quantity	Mode of Delivery	Delivery Condition	Storage Location	Containment
Sulfuric acid	1,500 tpy	Tanker truck (2 tank cars/ mo)	Bulk	Adjacent to General Shop Building	31,965-gallon storage tank with secondary containment
Hydrochloric acid	3,590 tpy	Tanker truck (3 tank cars/mo)	Bulk	Adjacent to General Shop Building	36,120-gallon storage tank with secondary containment
Liquid sulfur dioxide	1,433 tpy	Tanker truck (2 tank cars/mo)	Bulk	Adjacent to General Shop Building	30,000-gallon pressurized storage tank with secondary containment
Sodium hydrosulfide	513 tpy	Tanker truck (2-3 tankers/mo)	Bulk as a 45% solution with water	Adjacent to General Shop Building	25,750-gallon storage tank
Limestone	125,000 tpy	Rail (one 100-car train/week from April to October)	Bulk	Stockpiled on site	Berms/ditches around outdoor stockpile with water that has contacted limestone collected and added to the plant process water
Lime	4,344 tpy	Freight truck (75 loads/mo)	Bulk	Adjacent to General Shop Building	Lime silo and 21,000-gallon storage tank
Magnesium hydroxide	4,866 tpy	Tanker truck (7 tank cars/mo[2])	60% w/w[4] magnesium hydroxide slurry	Adjacent to General Shop Building	Magnesium hydroxide 270,000-gallon storage tank
Caustic (NaOH)	33 tpy	Tanker truck (1 load/mo)	50% w/w solution	General Shop Building	1,300-gallon storage tank
Flocculant (MagnaFloc 342)	14 tpy	Freight truck	1,543 lb bulk bags of powder	Main Warehouse	In bags and batch mixed regularly as 0.3% w/w solution
Flocculant (MagnaFloc 351)	90 tpy	Freight truck	1,543 lb bulk bags of powder	Main Warehouse	In bags and batch mixed regularly as 0.3% w/w solution
Nitrogen (used in Hydrometallurgical Plant)[1]	19,113 tpy	NA[3]	NA	NA	NA

Notes:
[1] Nitrogen used in the Hydrometallurgical Plant would be produced as a byproduct in the Oxygen Plant and no shipping or storage would be required.
[2] mo = month
[3] NA = not applicable
[4] w/w = weight for weight

Hydrometallurgical Process Water

The Hydrometallurgical Plant would require separate water than the Beneficiation Plant due to the different nature of the solutions involved in the two processes. Hydrometallurgical process water would contain substantial levels of chloride relative to the water in the milling and flotation circuits.

The hydrometallurgical system would receive recycled water collected at the Hydrometallurgical Residue Facility (discharged water used to transport hydrometallurgical residue to the facility) and would distribute it to various water addition points throughout the Hydrometallurgical Plant. Makeup water would come from flotation concentrate water and raw water. Raw water demand for ore processing is described in Table 3.2.14.

Water collection at the Hydrometallurgical Residue Facility and Plant Site water management are discussed further in Sections 3.2.2.3.10 and 3.2.2.3.11 below.

Table 3.2-14 Plant Site Services

Service	Source	Source Location	Needed for
Compressed air	Duty and standby arrangement of rotary screw-type compressors	General Shop Building	Provide air at a pressure of 100 psig[1] for plant services
Instrument air	Air withdrawn from the plant air receiver to an instrument air accumulator and dried in a duty and standby arrangement of driers and air filters	General Shop Building	Provide air for instruments
Steam	Natural gas-fired boiler	Hydrometallurgical Plant	Generates heat needed for startup of the autoclaves
Diesel fuel storage	Existing Locomotive Fuel Oil facility	Area 2 Shop	Diesel for locomotives
Gasoline storage	Existing storage facility – two 6,000-gallon tanks	Adjacent to the Main Gate	Gasoline for vehicles
Raw water	Water from Colby Lake via an existing pumping station and pipeline	Stored in the existing water reservoir at the Plant Site (Plant Reservoir)	Plant fire protections systems, plant potable water systems, make-up water for grinding and flotation process water and Hydrometallurgical Plant process water
Potable water	Existing processing plant potable water treatment plant would be refurbished and reactivated	Near the Plant Reservoir	Potable water distribution system includes the Area 1 and Area 2 shops
Fire protection	Existing fire protection system would be refurbished, reactivated, and extended to new buildings	Plant Reservoir	Area 1 and Area 2 shops have independent fire protection systems
Oxygen	770 tpd[2] Oxygen Plant. Plant process takes in ambient air, compresses it and separates the oxygen from nitrogen and other trace atmospheric gases. Oxygen would be transported via pipeline to plant processes and nitrogen and trace gases would be returned to the atmosphere.	Adjacent to Concentrator	Plant processes

Notes:
[1] psig = pounds per square inch gauge
[2] tpd = tons per day

3.2.2.3.7 Hydrometallurgical Residue Management

The hydrometallurgical process would generate residues from five sources:

- autoclave residue from the leach residue filter;
- high-purity gypsum from the solution-neutralizing filter (depending on the market, this could become a saleable product, but is currently planned to be managed as a waste);
- gypsum, iron, and aluminum hydroxide from the iron and aluminum filter;
- magnesium hydroxide precipitate from the magnesium removal tank; and
- other minor plant spillage sources.

In addition to the above-listed sources, solid wastes from the Mine Site WWTF would be recycled directly into the Hydrometallurgical Plant to recover metals, creating additional waste. The Mine Site WWTF solids would be similar to the hydrometallurgical residue, consisting primarily of gypsum, metal hydroxides, and calcite.

If all nickel flotation concentrate were used as feedstock, the projected hydrometallurgical residue generation rate would be 313,000 tons annually and up to total of 6,170,000 tons. The gypsum included with residue from solution neutralization may become a saleable product; however, it is currently proposed to be managed as part of the residue waste.

These wastes would be combined and disposed of in the Hydrometallurgical Residue Facility that would be located at the existing LTVSMC Emergency Basin, adjacent to the southern edge of the existing tailings Cell 2W. The Hydrometallurgical Residue Facility would consist of a double lined cell, developed incrementally as needed, expanding vertically and horizontally from the initial construction.

The first increment would be constructed over two to three construction seasons. Most of the site-preparation activities and major earthwork would occur in the first two construction seasons. Placing the geosynthetic clay liner would occur in the third year of construction. The remaining earthwork and completion of the geomembrane liner installation for the upper elevations of the facility would occur as needed to maintain adequate capacity.

The Hydrometallurgical Residue Facility would be filled by pumping the combined hydrometallurgical residue as slurry from the Hydrometallurgical Plant. A pond would be maintained within the Hydrometallurgical Residue Facility so that the solids in the slurry would settle out, while the majority of the liquid would be recovered by a pump system and returned to the plant for reuse. The residue discharge point would be relocated as needed to distribute the residue evenly throughout the Hydrometallurgical Residue Facility.

During LTVSMC operations, fly ash, dredging spoil, and coal pile cleanup material were placed in a solid waste storage site (Coal Ash Landfill) upgradient and to the east of Cell 1E (see Figure 3.2-22). The location of this landfill would be inundated by tailings in approximately year 7 of Tailings Basin operation. Therefore, the contents would be analyzed and relocated to the Hydrometallurgical Residue Facility, or other approved facility, prior to that time.

Plant Site water management, including management at the Hydrometallurgical Residue Facility, is discussed further in Sections 3.2.2.3.10 and 3.2.2.3.11 below.

Stability modeling and rationale for the design are discussed in Section 5.2.14. Final design is subject to permitting under the requirements of the MDNR Dam Safety Permit and Permit to Mine.

3.2.2.3.8 Required Process Services

The NorthMet Project Proposed Action would utilize two existing service facilities: the Area 1 Shop and the Area 2 Shop.

The former LTVSMC Area 1 Shop is an existing fully enclosed maintenance facility built specifically to handle maintenance and repair work on large mining equipment. A heavy-duty, low-bed transporter and tractor would be used to transport some equipment (e.g., dozers and front-end loaders) to the Area 1 Shop from the Mine Site. A haul truck retriever (large-scale tow-truck) would tow haul trucks that would be unable to move on their own; otherwise, haul trucks would be driven to the Area 1 Shop. It is estimated that each haul truck would be moved to the Area 1 Shop two times per year for major repairs. To access the Area 1 Shop, mine vehicles would follow an established route utilizing existing gravel and blacktopped roads through parts of the former LTVSMC taconite mine area.

Used oils and antifreeze/coolant, as well as residue from steam-cleaning equipment, would be collected and stored at the Area 1 Shop. Used oils, antifreeze/coolant, and solvents would be collected by a specialist contractor for recycling, while used filters, oily rags, and other oil-contaminated waste would be collected for proper off-site disposal in suitably licensed disposal facilities.

The former LTVSMC Area 2 Shop, located about 7 miles west of the Mine Site, would be reactivated to provide office space for mining and railroad operations supervision and management, as well as change house facilities, toilets, lunch rooms, first aid facility, emergency response center and training, and meeting rooms for mining and railroad crews. The Area 2 Shop facilities would include the Locomotive Fueling Station, Locomotive Service Building, and Mine Reporting Building. The Locomotive Fueling Station, where locomotives would be fueled and lubricated, would have a roof and sides, but would be open at the ends to allow access. The concrete floor, equipped with drip trays, would collect any spilled fuel and route it to a collection sump for proper disposal in the Plant Site area. It also has a 15,000-gallon bulk fuel storage tank with containment systems.

Other process inputs and services required for the Plant Site operations are summarized in Table 3.2-14.

3.2.2.3.9 Transport of Consumables and Products

A 1,500- to 2,000-hp GenSet locomotive, similar to the locomotives that would be hauling ore from the Mine Site to the Plant Site, would transfer loaded and empty cars carrying process consumables and concentrates to and from the interchange location with the Canadian National Railroad and the Plant Site. Cars carrying process consumables and concentrate would meet rail common carrier requirements.

Nickel and cobalt hydroxide and precious metal precipitate products would be shipped in sealed bulk bags or sealed containers. Copper and nickel concentrates would be shipped in solid-bottom rail cars with weather-tight covers. Cars would be checked before loading and any debris would be removed and holes plugged. Loading operations would be conducted in a building via a

conveyor system. Car exteriors would be inspected before leaving the buildings and any concentrate on the car exterior would be recovered and returned to storage. The concentrate is expected to be 8 percent to 10 percent moisture, which is not expected to generate dust during loading.

The NorthMet Project Proposed Action would utilize the existing general shop facility previously used by LTVSMC for re-fueling, routine inspection, and maintenance of locomotives and ore cars. Locomotives needing major repair would either be sent off site or repaired by a contractor in the general shop facility.

3.2.2.3.10 Engineered Water Controls

The Plant Site would include water management features designed to control water potentially affected by sulfides and metal leachates from tailings and hydrometallurgical residue. Water contaminated with these materials would be sent to the Plant Site WWTP. Stormwater would be directed off site.

The following section describes the engineered controls. The flow and management of water is discussed in Section 3.2.2.3.11. Figure 3.2-5 through Figure 3.2-8 show the water management features and infrastructure.

Tailings Basin

The Beneficiation Plant would deposit tailings into the Tailings Basin. The tailings would contain water. Water would also be discharged to the Tailings Basin pond from the Mine Site. Direct precipitation, stormwater run-off, and water collected by the Tailings Basin seepage containment systems would also be directed to the Tailings Basin. Tailings Basin water is expected to seep downward and either emerge as surface seepage near the toe of the Tailings Basin or remain in the groundwater. A portion of groundwater seepage is modeled to bypass the containment system and eventually emerge in surface waters As shown in Figure 3.2-27, a water containment system would be installed around the western, northern, and portions of the eastern sides of the Tailings Basin dams to intercept the seepage that emerges as surface water near the toe (within several hundred ft) and greater than 90 percent of all of the seepage that remains in the ground as groundwater. The Tailings Basin containment system would consist of a cutoff wall placed through existing surficial deposits into bedrock, with a collection trench and drain pipe installed on the upgradient side on the cutoff wall. Figure 3.2-28 shows a schematic cross section of the containment system. At the Plant Site, the geologic conditions are favorable for such a containment system due to the presence of low permeability bedrock. Cross-section modeling of the containment systems performed by PolyMet and reviewed by the Co-lead Agencies provides strong evidence that the groundwater capture efficiency would be greater than 90 percent.

Along the eastern side of the Tailing Basin, high bedrock is predicted to eliminate most of the groundwater seepage. A containment system would be installed along the toe of slope of the Cell 1E northeast dam, where seepage to groundwater may occur.

Along the southern side, bedrock and surface topography create a narrow valley at the headwaters of Second Creek. Due to this topography and experience on the site, it is expected that all existing seepage from the Tailings Basin to the south emerges as surface seepage within a short distance of the embankment toe. An existing seepage management system currently

captures some of the seepage leaving the Tailings Basin to the south. This system consists of a cutoff berm and trench placed approximately 200 to 250 ft downstream of the seepage face to collect this seepage. A seep collection sump, pump, and pipe system is being used to route this south seepage back into the Tailings Basin pond. During operations, PolyMet would pump this water to the Tailings Basin pond or to the WWTP. PolyMet and Cliffs Erie are currently working together to assess the efficiency of this seepage capture system. PolyMet has committed to collecting all of the seepage from the Tailings Basin in this area and would implement additional improvements if necessary. Improvements may include lining the existing upstream dam face with bentonite and injecting grout into the dam. A second dam could be constructed approximately 500 ft downstream of the existing dam where the geography is more constricted. This potential second dam may be earthen with a clay or concrete cutoff wall extending to bedrock.

The containment system around the western, northern, and portions of the eastern sides of the Tailings Basin and the southern seepage management system are collectively referred to as the Tailings Basin seepage containment systems. Pond elevation would be controlled by pumping any excess Tailings Basin pond water to the WWTP. An emergency overflow channel would be constructed as a backup means of controlling pond elevation, but discharge from the emergency overflow to the environment is not expected. The emergency overflow would be provided for protection of the dams in the rare event that freeboard within the Tailings Basin is not sufficient to contain all stormwater. Such instances have the potential to occur in the event of a probable maximum precipitation (PMP) rainfall event or some fraction thereof. The PMP rainfall events are rare and such an event has a low likelihood of being experienced during the life of the basin. The PMP does not have an assigned return period, but it is usually assumed by hydrologists to be on the order of 1,000s of years.

All groundwater and surface water seepage collected in the containment system around the Tailings Basin would be pumped back into the Tailings Basin pond or to the WWTP.

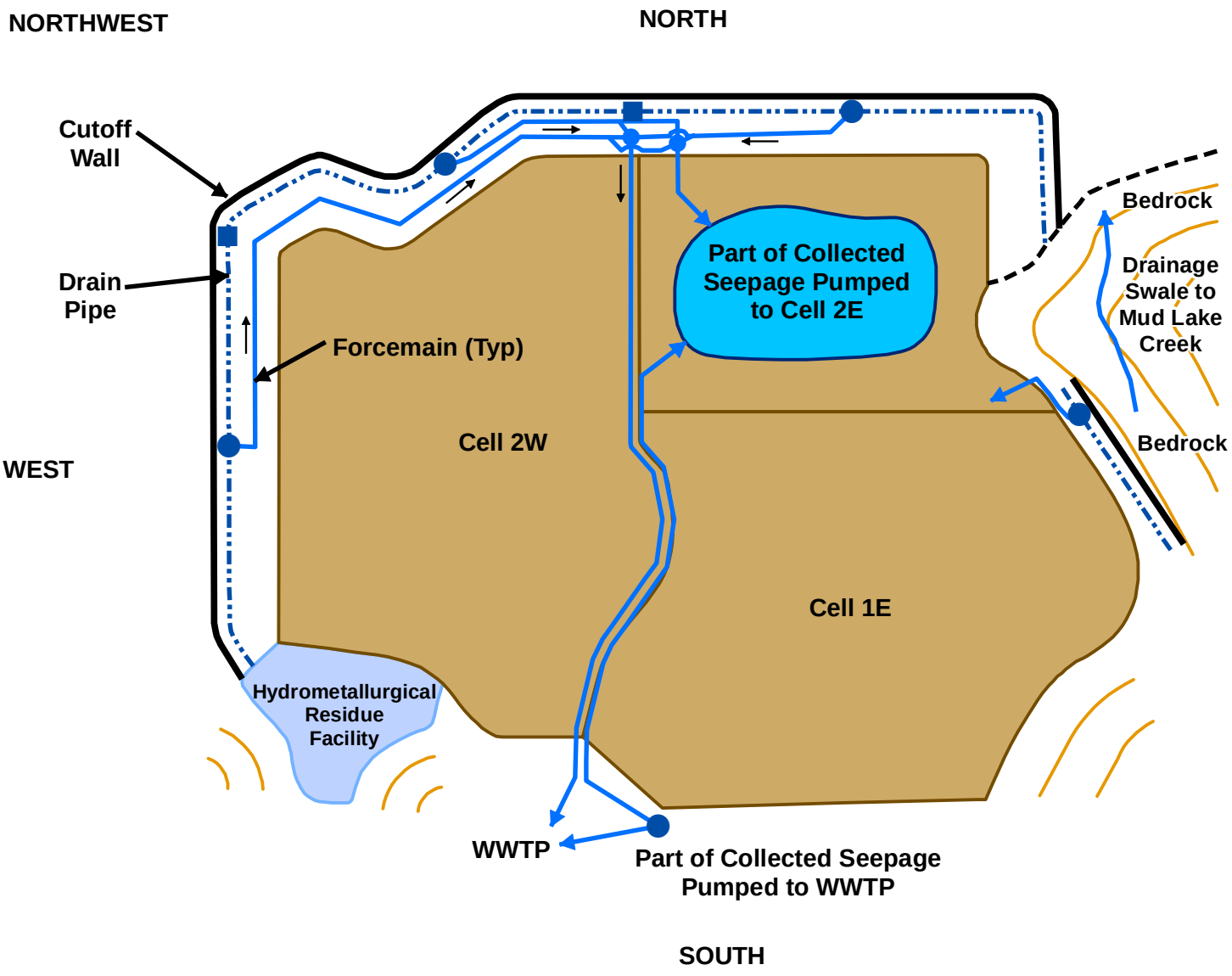

Figure 3.2-27
Conceptual Plan View - Tailings Basin Groundwater Containment System
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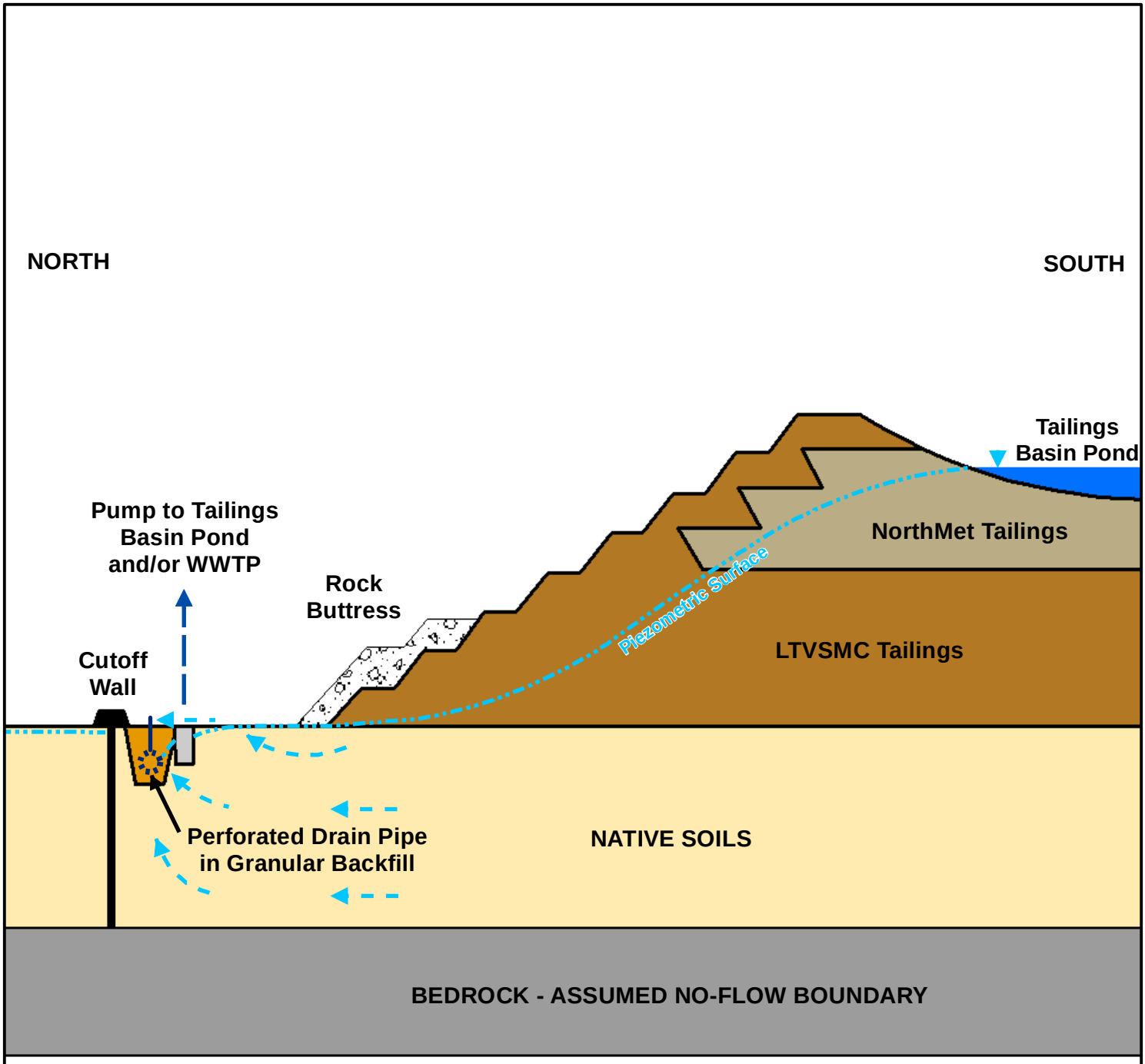

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Figure 3.2-28
Conceptual Cross Section - Tailings Basin Groundwater Containment System
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Hydrometallurgical Residue Facility

The Hydrometallurgical Residue Facility would be double-lined to eliminate the release of residue leachate. The double liner would consist of a composite liner system utilizing a geomembrane liner above a geosynthetic clay liner, with a second liner placed above the first, separated by a leakage collection system (see Figure 3.2-30). This would substantially remove hydraulic head from the lower liner and thereby virtually eliminate leakage to groundwater from the Hydrometallurgical Residue Facility. Leakage that is collected would be pumped back to the Hydrometallurgical Residue Facility pond, which is collected and pumped back for use at the Hydrometallurgical Plant.

PolyMet initiated laboratory testing to consider the chemical compatibility of the potential geosynthetic liner to be used with leakage from residue (PolyMet 2014r). Results indicated the use of a polymer-treated geosynthetic liner that is manufactured specifically in anticipation of the chemical characteristics of the pore water that would be contained within the residue. The hydraulic conductivity of the leakage collection system is not expected to degrade over time. Typical liner performance assumes a 500-year service life of the geomembrane; therefore, hydraulic conductivity of the liner is not expected to degrade over that time. Specific attributes would be determined during the geosynthetic clay layer development to achieve the desired performance before final installation.

Wastewater Treatment Plant

A WWTP would treat runoff, captured Tailings Basin seepage, and process water that could not be stored in the Tailings Basin. The WWTP would be constructed south of the Tailings Basin near the coarse-crusher and would include a RO unit or equivalently performing technology designed to meet water quality standards. The design of the WWTP could be adjusted to accommodate varying influent streams and discharge requirements.

The reject concentrate stream from the WWTP would be transported to the WWTF at the Mine Site via rail tank cars, which is described in more detail below.

3.2.2.3.11 Water Management

During operations, the Tailings Basin would be the primary source for water used in the beneficiation process. The primary sources of water to the Tailings Basin would include direct precipitation, stormwater, snowmelt, flotation process water used to transport flotation tailings to the Tailings Basin, treated process water from the Mine Site, and water collected by the Tailings Basin seepage containment systems.

The seepage containment systems that would be built around the Tailings Basin would result in a significant reduction in flow to four tributaries around the Tailings Basin that would require augmentation, including Unnamed Creek, Second Creek, Trimble Creek, and Mud Lake Creek. Flow to Unnamed Creek, Second Creek, and Trimble Creek would be augmented by WWTP effluent. Flow to Mud Lake Creek would be augmented by the construction of a drainage swale east of the Tailings Basin. Currently, an area east of Cell 1E drains into that cell. A drainage swale would be constructed near the east dam to reroute this watershed north to Mud Lake Creek. The primary purpose of this drainage swale would be to prevent water from pooling at the toe of the east dam; however, the swale would be constructed at the start of the NorthMet Project Proposed Action to augment flow to Mud Lake Creek.

To the extent possible, water ponded at the Hydrometallurgical Residue Facility would be returned to the Hydrometallurgical Plant; however, some losses would occur through evaporation or storage within the pores of the deposited residue. The double-liner system described above would virtually eliminate liner leakage to groundwater. Leakage collected by the double-liner system would be recycled to the hydrometallurgical process.

For the most part, water management within the Hydrometallurgical Plant would operate independently of water management within the Beneficiation Plant. The only exceptions would be the transfer of flotation concentrate from the Beneficiation Plant to the Hydrometallurgical Plant and the combining of filtered copper concentrate and solution from Au/PGE recovery in the copper cementation process step.

The flow and management of water at the Plant Site during operation is summarized on Figure 3.2-12 and Figure 3.2-13 in Section 3.2.2.1.

3.2.2.3.12 Reclamation and Long-term Closure Management

PolyMet has developed a Reclamation Plan (PolyMet 2015g), which would be further detailed and submitted to the MDNR as part of its Permit to Mine process. The Reclamation Plan addresses the Tailings Basin and the Hydrometallurgical Residue Facility. The Reclamation Plans would be finalized to provide details and a schedule for the final closure of the as-built facilities. In addition, PolyMet would also submit an annual contingency reclamation plan per *Minnesota Rules*, part 6132.1300, subpart 4, to identify activities that would be implemented if operations were to cease in that upcoming year.

Similar to the Mine Site (see Section 3.2.2.1.10), where possible, the Plant Site facilities have been designed and would be operated to allow for progressive reclamation. This would leave a smaller portion of the disturbed area requiring reclamation at closure. Under the NorthMet Project Proposed Action, progressive reclamation at the Plant Site would include designing and constructing the dams for the Tailings Basin and Hydrometallurgical Residue Facility for long-term management of those wastes and covering the dams of the Tailings Basin with bentonite as they are constructed.

At closure, PolyMet would first remove all infrastructure and facilities not approved for potential future use, followed by reclamation of disturbed lands. Reclamation objectives, which would be achieved during the closure process, would include rapidly establishing a self-sustaining plant community, controlling dust, controlling soil erosion, providing wildlife habitat, and minimizing the need for maintenance. Post-closure activities would include monitoring and maintenance of reclamation and water quality until the various facility features were deemed environmentally acceptable, in a self-sustaining and stable condition.

The water quality objective of closure is to provide mechanical or non-mechanical treatment for as long as necessary to meet regulatory standards at applicable groundwater and surface water compliance points. Water quality modeling performed in support of this FEIS indicates that water treatment systems would be needed indefinitely at the Mine Site and Plant Site. The water models constructed to assess the potential effects from the NorthMet Project Proposed Action were not designed to predict the duration of treatment nor do they capture all the factors that influence the duration of treatment (e.g., potential future regulatory and technological changes). Therefore, the models cannot be used to predict when treatment would end. Actual treatment requirements would be assessed on a recurring basis throughout operations, reclamation, and

closure considering influent and effluent water quality and monitoring results. Those periodic assessments would be carried out to ensure continuous protection of groundwater and surface water quality and compliance with water quality-based effluent limits. The periodic assessment process would rely on monitoring results coupled with predictive modeling rather than the results of the predictive modeling alone. Regardless of the precise duration of effects or water treatment at either the Mine Site or Plant Site, there are measures available to address impacts to natural resources. PolyMet would be held accountable for maintenance and monitoring required under the permit and would not be released from financial assurance until all permit conditions have been met.

The reclamation and closure activities are discussed below.

Features that would remain at the Plant Site during the post-reclamation period are shown on Figure 3.2-29.

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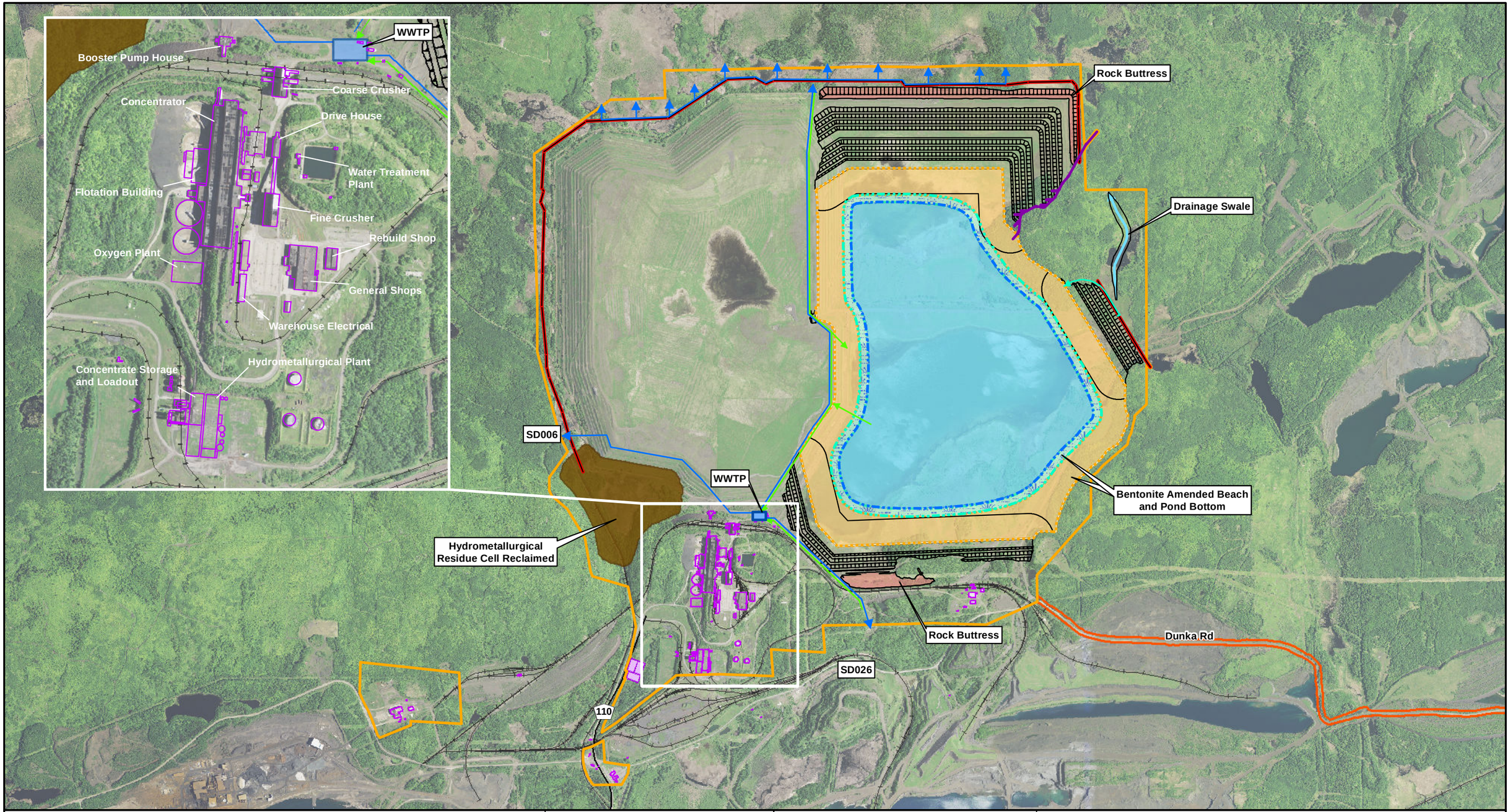

Plant Site
Wastewater Treatment Plant and Pump Station
Building
Transportation and Utility Corridor
Hydrometallurgical Residue Cell Reclaimed
Rock Buttress
Approximate Pond Area
Approximate Wetland Area
Approximate Upland Area
Containment System
Drainage Flow Direction
Tailings Basin Emergency Overflow
Treated Water Discharge
Seepage Water Pipe
Pipe to Treatment Plant
Existing Railroad

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 1,000 2,000 4,000 Feet

Figure 3.2-29
Plant Site Layout - Long Term Closure
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Building and Structure Demolition and Equipment Removal

All buildings and structures not approved for potential future use would be removed and foundations would be razed and covered with a minimum of 2 ft of soil and vegetated according to *Minnesota Rules*, parts 6132.2700 and 6132.3200. Demolition waste from structure removal would be disposed of in the existing on-site demolition landfill (SW-619) located northwest of the Area 1 Shop at the Plant Site. Concrete from demolition, with the exception of oil-stained concrete, would be crushed and used for structural fill, placed in the basements of the coarse-crusher, concentrator, and the plant reservoir, or placed in landfills as required. Oil-stained concrete requires different handling and is addressed in the Special Material Disposal section below.

Most roads, parking areas, or storage pads built to access these facilities would be demolished according to the planned schedule or as approved by the MDNR Commissioner. Utility tunnels would be sealed and closed in place. Asphalt from paved surfaces would be removed and recycled and the disturbed areas would be reclaimed and vegetated according to *Minnesota Rules*, part 6132.2700. Railroad track and ties that were not used by common carriers would be removed and recycled. Any roads that may develop into unofficial off-road vehicle trails would require a variance from MDNR reclamation rules to allow a 15-ft-wide unpaved, unvegetated track down the centerline of the road. Such approvals would also be coordinated with the St. Louis County Mine Inspector's Office.

All plant, railroad, service, and electrical equipment would be scrapped, decommissioned, or sold. PolyMet would also close on-site sewer and water systems, power lines, pipelines (including hydrometallurgical residue pipelines), and culverts according to proper regulatory requirements.

Special Material Disposal

Special materials on-site at the time of reclamation would be disposed of as follows:

- Asbestos-containing materials (ACMs) – a detailed survey of ACMs (i.e., pipe and electrical insulation in former LTVSMC utility tunnels, siding, water-heating system insulation, lube system insulation, floor tile) has been completed of the existing LTVSMC facilities. New facilities would not have ACMs. A detailed inventory of ACM locations would be maintained as part of the NorthMet Project Proposed Action documentation. Appropriate controls would be put in place or ACMs would be removed intact, properly packaged, and disposed of in the on-site demolition landfill. ACM locations in the landfill would be noted on the property deed. Any ACMs found in utility tunnels would be sealed before the utility tunnel is closed.
- Nuclear sources (i.e., nuclear-density gauges used to measure slurry density during processing) – these sources would be removed and properly disposed.
- Partially used paint, chemical, and petroleum products – these materials would be collected and properly recycled or disposed.
- Fluorescent and sodium halide bulbs – these would be removed from fixtures, collected, and properly disposed.

- Oil-stained concrete – this material would be tested to characterize the material for beneficial reuse such as structural fill. If the material does not meet the solid waste criteria for beneficial reuse, the oil-stained concrete would be removed and properly disposed.

All special materials would be properly managed and/or disposed of in accordance with local, state, and federal regulations and requirements during reclamation activities.

Product and Product Tank Disposal

The reagent suppliers, which would be under contract to PolyMet, would remove any reagents remaining during reclamation. In many cases, the suppliers of chemicals and equipment would be responsible for furnishing tanks and would therefore be required to remove and dispose of those tanks during reclamation. Those tanks for which PolyMet would be responsible would be processed for demolition as follows:

- The tanks would be cleaned to remove remaining materials and sludge.
- The remaining materials, sludges, and wash materials would be sent to an appropriate recycling or waste-disposal facility.
- Large ASTs would be tested for lead paint prior to demolition and, where found, disposal and recycling would be modified to accommodate the lead content.
- All tanks would be disassembled for disposal or recycling, as appropriate.
- Below-grade foundations would be left in place and buried.
- Smaller ASTs would be cleaned and removed without disassembly.

Other Reclamation Details

There would be several places where concentrate having up to 20 percent sulfur could accumulate (i.e., dry-concentrate storage bins, froth launders and sumps, concentrate thickeners, concentrate filters). Because this would be a high-value material, there would be an effort to ship as much as could be recovered. However, material remaining in the equipment and process piping would be properly disposed of in the Hydrometallurgical Residue Facility or other MPCA-approved locations.

Cover and Revegetation of the Building Area

After demolition of Plant Site buildings, these areas would be reclaimed and vegetated according to *Minnesota Rules*, part 6132.2700. All areas would be stabilized as required for stormwater management. Roads and parking lots would be reclaimed and vegetated according to *Minnesota Rules*, part 6132.2700. Asphalt pavement would be recycled or properly disposed.

Disturbed areas on the Plant Site would be seeded with a certain selection of grasses/forbs and a potentially different group of species for the slopes. The three groups of species would include a native, slow growth mix; a non-native, rapid growth mix; and a mix of both native and non-native species. Non-native species would be used to ensure dust control on areas that have a higher potential to erode.

Tailings Basin Reclamation

During reclamation of the Tailings Basin, fugitive dust would be controlled on the upland areas by mulching and permanent vegetation.

Inactive interior beach areas would be temporarily vegetated as necessary for fugitive dust control, using oats, winter wheat, annual ryegrass, white clover, redtop, and alsike clover, or some combination of these species for various times of the year. The exterior dam faces would be permanently vegetated by a qualified reclamation contractor according to requirements of the Reclamation Seeding Plan. Upland areas would be planted with permanent vegetation and mulched to control potential fugitive dust in accordance with requirements in the Fugitive Emissions Control Plan. Upland beach areas would be planted with the same potential three mixes as that mentioned for disturbed areas on the Plant Site (native, non-native, or mixed), while the dam slopes and benches would be planted with the same mix as that mentioned for the slopes of the Category 1 Stockpile.

Infiltration would be reduced through the dam faces, beaches, and pond bottom of the Tailings Basin by bentonite amendment as follows:

- The exterior face of the dams would be reclaimed progressively, with a bentonite layer added as they are constructed, to limit oxygen diffusion;
- Exposed beaches and dam tops would be amended with a bentonite layer to limit oxygen diffusion; and
- The pond bottom would be covered with a bentonite layer to maintain a permanent pond that would limit oxygen diffusion. Water management would include maintenance of a pond and wetland within the reclaimed Tailings Basin, stormwater management, and continued operation of the WWTP and the groundwater containment system.

The pond would remain in the reclaimed Tailings Basin with a wetland around its perimeter. In general, the pond's maximum lateral extent would be maintained to be no closer than 625 ft from the interior edge of the Cell 1E/2E dams. The pond and wetland would receive surface water runoff from the crest and beaches of the basin and natural terrain adjacent to the Tailings Basin. The pond and wetland would continue to lose water via seepage, but at a reduced rate compared to operations, as a result of the bentonite amendment of the tailings surface. Water would be pumped from the Tailings Basin pond to the WWTP prior to discharge.

Stormwater management would include grading to provide a gently sloping surface that would route surface water runoff to the interior of the basin, accommodate future differential settlement of the underlying tailings, and maintaining ponding of water in the reclaimed Tailings Basin pond for the development of constructed wetlands.

An emergency overflow channel would be constructed to carry stormwater from the pond to the adjacent wetland in case of an extreme storm or snowmelt event after reclamation. The channel would be sized and designed to safely discharge at a flow sufficient to protect the Tailings Basin dams and would be constructed into bedrock to protect the channel from erosion and minimize maintenance requirements. A riprap delta would be installed where the channel ends to distribute the stormwater. Additional sediment control and energy dissipation structures would be incorporated at the channel discharge point if needed based on final design determinations. The

conceptual location of the spillway from the combined Cell 1E and Cell 2E to the adjoining land is shown on Figure 3.2-29.

The WWTP and the seepage containment systems would continue to operate during reclamation, although seepage rates would be progressively reduced. Seepage would be pumped back into the Tailings Basin pond, treated at the WWTP with discharge used for stream augmentation, as described in Sections 3.2.2.3.10 and 3.2.2.3.11), or sent to the Mine Site to aid in West Pit flooding (along with excess water from the WWTP not needed for stream augmentation). The WWTP and the seepage capture systems would be periodically inspected to ensure continuing integrity.

Hydrometallurgical Residue Facility Reclamation

Reclamation of the Hydrometallurgical Residue Facility would include removal of ponded water, removal of pore water from the residue, construction of the cover system, and establishment of vegetation and surface water runoff controls.

Once the Hydrometallurgical Residue Facility becomes full, it would be dewatered by an initial decanting of ponded water and then drainage from the residue would be collected using a geocomposite drainage net and system of sidewall riser and pump systems. Ponded water remaining in the Hydrometallurgical Residue Facility would be removed and treated at the WWTP. Some water in the residue void spaces would be retained in the residue (stored water) while the other portion would drain from the residue (drainage). Drainage would be collected from the base of the cells at the geocomposite drainage system and managed as described previously for ponded water.

Early in the residue dewatering process, access to the residue surface may be somewhat difficult due to its fine-grained characteristics. A temporary cover would be placed to limit infiltration of precipitation while dewatering progresses and the residue consolidates and settles. The barrier layer of the temporary cover, in addition to covering the deposited residue, would be extended over the dams to exclude rainwater infiltration back into the residue while also accommodating settlement of the temporary cover system. The settlement of the temporary cover would be monitored, and when the rate and magnitude of settlement has diminished, the final cover would be placed.

The rate of drainage would decrease over time as the pore water within the hydrometallurgical residue is collected and removed. Once the entire facility is closed, the volume of water from the drainage collection systems would decline. In the long term, the volume of water requiring treatment would decline to the point that the remaining reclamation activity may consist of periodic pumping of remaining drainage into tank trucks for transportation, treatment, and disposal, as appropriate, and of inspection of the closed cells to verify integrity of the reclamation systems.

The Hydrometallurgical Residue Facility area would be graded to a gently sloping surface. The cover would consist of a layer of NorthMet tailings and/or local till soil layer above the drained hydrometallurgical residue, placed to provide a suitable foundation layer for subsequent reclamation construction activity. This would be topped, if necessary, with a non-woven needle-punched geotextile fabric. Next, a geosynthetic clay barrier layer and 40-mil low-density polyethylene (LDPE) or similar agency-approved barrier layer system would be placed. Finally, additional LTVSMC tailings and/or local till soils would be placed to create a surface capable of

sustaining a vegetated cover. The reclaimed Hydrometallurgical Residue Facility would be seeded with a certain selection of grasses/forbs and a potentially different group of species for the slopes. The three groups of species would include a native, slow growth mix; a non-native, rapid growth mix; and a mix of both native and non-native species. Non-native species would be used to ensure dust control on areas that have a higher potential to erode.

Turf and final cover would be inspected and maintained by mowing once per year or as needed, fertilizing when visual inspection indicates poor vegetation growth, and implementing repairs. A schematic cross section of the Hydrometallurgical Residue Facility post-closure is provided on Figure 3.2-30.

The cover would slope gently toward the site perimeter to accommodate natural drainage of the runoff. Final cover slopes on the Hydrometallurgical Residue Facility interior would be relatively shallow to minimize the velocity of surface water runoff flow and the associated erosion. Runoff channeled along the Hydrometallurgical Residue Facility perimeter would be routed down-slope via rip-rapped drainage swales or plug-resistant inlet structures and piping systems. Runoff from the Hydrometallurgical Residue Facility exterior dam slope (constructed of MDNR-approved material LTVSMC tailings or local till soils) would be routed to the surrounding natural drainage system.

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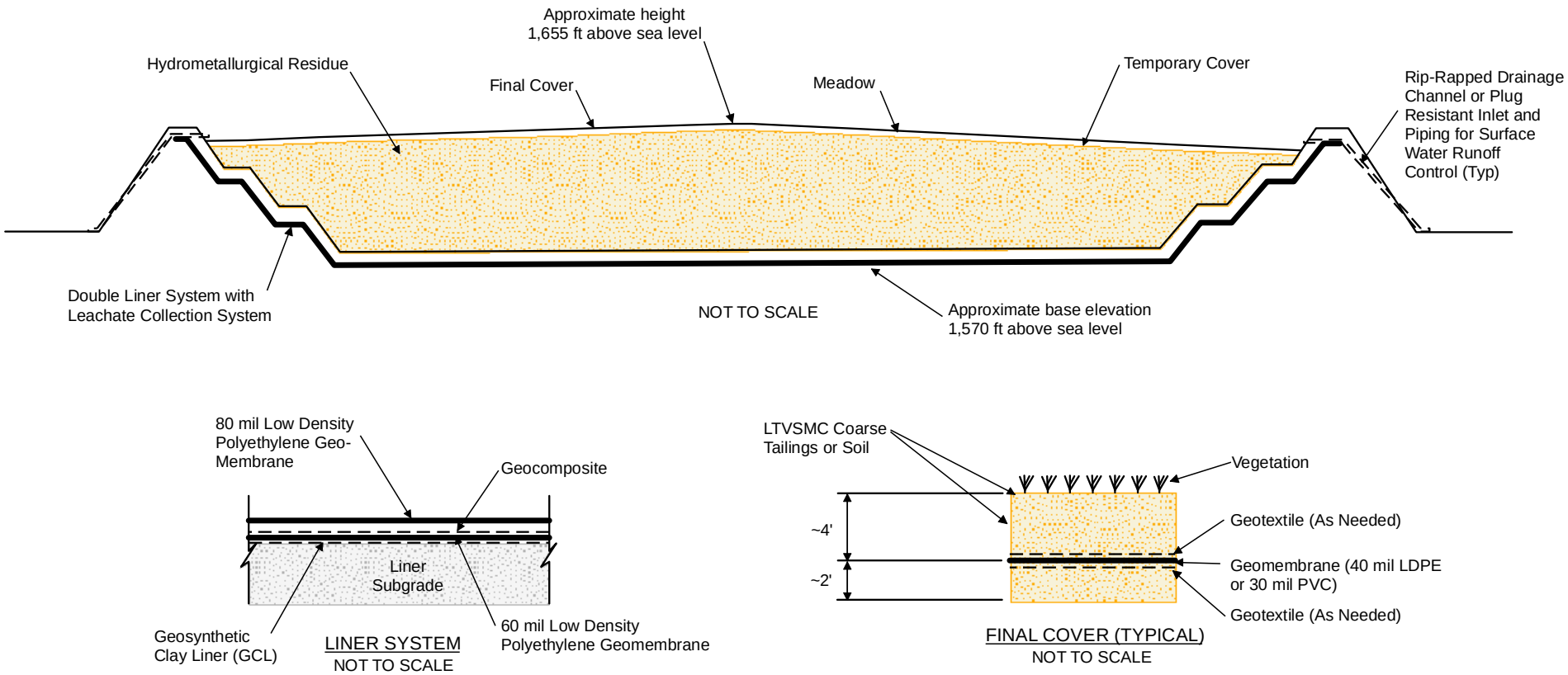

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Figure 3.2-30
Schematic Cross Section - Hydrometallurgical Residue Facility - Post Closure
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Water Management

During the reclamation phase, while the Tailings Basin is being reclaimed and the West Pit is being flooded (approximately years 21-52), the seepage from the Tailings Basin would continue to be collected. A portion of this water would be sent to the WWTP and treated, and a portion of the water would bypass the WWTP, where it would be blended back with the treated portion and pumped both to the West Pit and the Tailings Basin pond. Several years after the start of reclamation, the bottom of the Tailings Basin pond bottom would be lined with bentonite (see Section 3.2.2.3.12) and the pond water would be pumped to the WWTP, treated, and returned to the pond to the extent possible. The proposed water management for approximate years 31-52 is shown in Figure 3.2-18 in Section 3.2.2.1. Water in the Tailings Basin would be withdrawn, treated, and discharged as required to maintain pond levels.

At the Hydrometallurgical Residue Facility, a temporary cover would be placed to limit infiltration of precipitation while dewatering progresses and the residue consolidates and settles before the final cover is put in place. Drainage from the Hydrometallurgical Residue Facility would be pumped to the WWTP for treatment along with the Tailings Basin water. The rate of drainage would decrease over time as the pore water within the residue is collected and removed.

During the long-term maintenance phase, after the Tailings Basin has been reclaimed and hydrology has stabilized, the WWTP would be upgraded to include an evaporator, and Tailings Basin seepage would be collected and discharged via the WWTP until non-mechanical treatment has been demonstrated to provide appropriate treatment. Refer to the Transition from Mechanical to Non-Mechanical Treatment section under section 3.2.2.1.10 for more information on non-mechanical treatment. The proposed long-term water management (year 52 and beyond) is shown in Figure 3.2-19 in Section 3.2.2.1. The objective of the Tailings Basin cover would be to manage the constituent load from the tailings. The objective of the WWTP would be to treat Tailings Basin seepage that is captured by the seepage capture systems to meet effluent limits. Water from the drainage collection systems of the Hydrometallurgical Residue Facility is also directed to the WWTP for treatment to meet effluent limits. In the long term, reject concentrate from the WWTP RO unit or equivalently performing technology would be evaporated and the residual solids would be disposed of off-site.

The objective of closure is to provide mechanical or non-mechanical treatment for as long as necessary to meet regulatory standards at applicable groundwater and surface water compliance points. Water quality modeling performed in support of this FEIS indicates that water treatment systems would be needed indefinitely at the Mine Site and Plant Site. The water models constructed to assess the potential effects from the NorthMet Project Proposed Action were not designed to predict the duration of treatment nor do they capture all the factors that influence the duration of treatment (e.g., potential future regulatory and technological changes). Therefore, the models cannot be used to predict when treatment would end. Actual treatment requirements would be assessed on a recurring basis throughout operations, reclamation, and closure considering influent and effluent water quality and monitoring results. Those periodic assessments would be carried out to ensure continuous protection of groundwater and surface water quality and compliance with water quality-based effluent limits. The periodic assessment process would rely on monitoring results coupled with predictive modeling rather than the results of the predictive modeling alone. Regardless of the precise duration of effects or water treatment at either the Mine Site or Plant Site, there are measures available to address impacts to natural

resources. PolyMet would be held accountable for maintenance and monitoring required under the permit and would not be released from financial assurance until all permit conditions have been met.

Post-reclamation Activities

Monitoring and maintenance activities that would continue throughout reclamation and post-reclamation include dam slope erosion repair, woody species and tree removal on the Hydrometallurgical Residue Facility cover system, and Tailings Basin seepage capture systems operation and maintenance. PolyMet has committed to conduct demonstration projects during the Life of Mine and reclamation to establish non-mechanical water treatment systems to be used at the Plant Site. However, the WWTP would remain operational until water quality monitoring results meet permit requirements without the need for mechanical treatment.

PolyMet would be held accountable to maintenance and monitoring required under permits and would not be released until all conditions have been met.

3.2.2.4 *Financial Assurance*

Minnesota Rules, part 6132.1200, require that before a Permit to Mine can be issued, financial assurance instruments covering the estimated cost of reclamation, should the mine be required to close for any reason at any time, must be submitted and approved by the MDNR. Financial assurance for the NorthMet Project Proposed Action could be required indefinitely and could include self-sustaining instruments as discussed in the following sections.

Financial assurances for the direct wetland impact mitigation would be required until success of the mitigation sites can be assured. While this wetland mitigation would be expected to be approved and constructed in advance of any authorized wetland impacts, it is unclear whether these sites would be well enough established for financial assurances to be waived. The USACE would also consider the application of financial assurances for potential indirect wetland effects and monitoring. Both the USACE and MDNR would require consideration of financial assurances during the permitting process.

The level of engineering design and planning required to calculate detailed financial assurance amounts is not currently available, but would be evaluated in detail during the permitting process. The following sections have been prepared to outline the purpose and requirement of financial assurance, including the rules and criteria that would be used in determining financial assurance and the risk analysis involved, as well as how PolyMet would calculate financial assurance during the permitting process.

3.2.2.4.1 Cost Coverage and Estimation

Financial assurance must cover the reclamation and post-reclamation activities that would incur costs to execute required funding. These activities include (but are not limited to):

- Implementation of corrective actions that may become necessary to address any permit non-compliance;
- Demolition of all structures;
- Remediation of any sites where petroleum products, reagents, additives, or other potential pollutants may have been released;

- Implementation of reclamation such as:
  - Fencing the perimeters;
  - Sloping and seeding the overburden portion of the pit walls;
  - Constructing the East Pit outlet structure;
  - Shaping and covering the Category 1 Stockpile;
  - Removing culverts, dikes, ditches, and ponds, followed by grading and seeding;
  - Backfilling temporary stockpiles into the combined East Central Pit;
  - Constructing wetlands over backfilled combined East Central Pit;
  - Constructing mitigation wetlands on the vacated stockpile locations;
  - Closing and covering the Hydrometallurgical Residue Facility;
  - Reseeding all areas; and
  - Reclaiming the Tailings Basin.
- Long-term post-closure monitoring and maintenance including:
  - Monitoring and maintenance of the covers, slopes and containment systems of the Category 1 Stockpile, Hydrometallurgical Residue Facility, and Tailings Basin;
  - Treatment of East Pit water and West Pit water in the WWTF;
  - Monitoring and maintenance of wetland over combined East Central Pit;
  - Collecting and pumping water from the Tailings Basin to the WWTP for discharge or transfer to the Mine Site for pit flooding;
  - Off-site disposal of pore water from Hydrometallurgical Residue Facility;
  - Monitoring and reporting groundwater and surface water quality;
  - Developing and implementing non-mechanical water treatment systems; and
  - Adaptive management and mitigation components of the NorthMet Project Proposed Action.
- Project management and site security for the above.

Reclamation and post-reclamation costs are required, under the Permit to Mine, to be updated on an annual basis to account for the proceeding year's activities, which in turn may require adjustments to the financial assurance for the NorthMet Project Proposed Action consistent with *Minnesota Rules*, part 6132.1200. This requires estimating the contingency funds required for closure and post-closure activities in the event of unplanned closure during the course of the year. Revisions would capture annual changes in contingency reclamation activities and costs such as:

- An annual increase in Mine Site provisions as mining proceeds and the amount of disturbance, size of permanent stockpile, and volume of temporary stockpiles to be backfilled increase.

- An increase in Tailings Basin provisions as the beach and pond areas increase.
- A potential decrease in Mine Site provisions as ongoing reclamation (e.g., backfilling of temporary stockpiles) is completed as discussed in the Mining and Reclamation Plan. This is expected to occur beginning in year 11.

The Reclamation Plan and the Contingency Reclamation Cost Estimate (contingency for mine closure prior to the planned 20-year Life of Mine) would be developed by PolyMet and its consultants based on detailed engineering studies that would be finalized through the permitting process. As required, PolyMet would ensure that the financial assurance amount is established as a function of (but not limited to) the following three main variables:

- Extent of surface disturbance and potential releases from waste storage facilities;
- Reclamation and long-term care standards (including mechanical water treatment); and
- Reasonable assessment of the costs to execute the Contingency Reclamation Plan.

PolyMet has developed preliminary cost estimate ranges that address the above items for hypothetical closure at years 1, 11, and 20. These estimates are provided in Table 3.2-15 below. In addition to the cost of physical closure and reclamation activities as shown in Table 3.2-15, annual post-closure monitoring and maintenance is estimated to be in the range of $3.5m - $6m per year.

The cost estimates would be finalized by the MDNR during the permitting processes. The MDNR requires financial assurances be reviewed and updated on an annual basis. The USACE requires updates to financial assurances as needed.

Table 3.2-15 Preliminary Cost Estimate for Closure

	Year of Closure (end of year)			**Annual Post-closure Monitoring and Maintenance**
	Year 1	**Year 11**	**Year 20**	
Estimated Range	$50m - $90m	$160m - $200m	$120m - $170m	$3.5m - $6m (per year)

Source: Foth 2013.

3.2.2.4.2 Financial Assurance Instruments

The financial instruments must be robust enough to address a wide variety of contingencies such as (but not limited to):

- Physical difficulties in implementing reclamation plans;
- Escalating standards of closure, reclamation, and long-term monitoring;
- Unanticipated liabilities;
- Unplanned cessation of mining;
- Failure of the mining company; and
- Failure or limitations on the ability of third parties to pay reclamation costs.

The financial assurance instruments for the NorthMet Project Proposed Action must:

- Be available and made payable to the MDNR when needed;
- Be sufficient to cover the costs estimated;
- Be fully valid, binding, and enforceable under state and federal law;
- Not be dischargeable through bankruptcy; and
- Be approved by the MDNR.

PolyMet intends to propose financial instruments based on appropriateness and compatibility with the specific activities for which assurance is being provided. It is likely that different instruments would be proposed to assure different components of the reclamation cost estimate and so would likely use more than one instrument at any point in time. For example, while insurance policies may not be appropriate for primary assurance, they could provide meaningful additional support over and above the expected costs or activities. Commonly accepted financial assurance instruments, such as the following, would be proposed:

- Surety bonds;
- Irrevocable letters of credit;
- Cash and cash equivalents;
- Trust funds;
- Insurance policies; or
- A combination thereof.

3.2.2.4.3 Cessation of Financial Assurance

PolyMet may cancel financial assurance only upon approval by the MDNR after it is replaced by an alternative mechanism or after being released (in whole or in part) from financial assurance.

MDNR would release PolyMet from the responsibility to maintain financial assurance when the MDNR determines, through inspection of the mining area, that:

- All reclamation activities have been completed in accordance with the Permit to Mine;
- Conditions necessitating post-reclamation monitoring and maintenance no longer exist and are not likely to recur; and
- Corrective actions have been successfully completed and monitoring of those corrective actions are no longer needed.

3.2.3 *NorthMet Project Alternatives*

Both federal and state law require agencies to consider reasonable alternatives as part of their respective responsibilities. The purpose of the alternatives process is to allow for the identification and consideration of other reasonable alternative means to achieve the project Purpose and Need and that could also improve environmental and/or socioeconomic benefits. Alternatives offer decision makers and the public options to the proposal and include a no action alternative that considers the effects that would occur if the project is not approved.

This section describes the process by which the Co-lead Agencies identified, screened, and determined alternatives to the NorthMet Project Proposed Action that would be carried forward for analysis in this FEIS.

3.2.3.1 *Process Overview*

NEPA and the CEQ regulations (40 CFR 1500-1508) require that a "range of alternatives" must be considered in the EIS. NEPA does not prescribe any minimum number of alternatives, other than that the no action alternative must be included (40 CFR 1502.14) (CEQ 1981).

Under MEPA, the MEQB statutes and rules (*Minnesota Statutes*, chapter 116D, sections 04 and 045; and Minnesota Rules, part 4410, subparts 0200 through 7500) require that an EIS consider at least one alternative from each of the following categories (State of Minnesota 2009):

- Alternative sites;
- Alternative technologies;
- Modified designs or layouts;
- Modified scale or magnitude; and
- Alternatives incorporating reasonable mitigation measures.

Under both NEPA and the CEQ regulations, and MEQB Rules for MEPA, alternatives may include a number of individual mitigation measures that collectively constitute a major change to the proposed action and would provide decision makers a meaningful choice. Single resource-specific mitigation measures do not normally require a separate alternative to be considered and evaluated in an EIS.

3.2.3.1.1 Identification

Alternatives may be identified at any time throughout the EIS process, including during the scoping process, which is used to identify issues that trigger the analysis of effects and the development of potential alternatives. Alternatives may also be identified by either the proponent or the Co-lead Agencies at any other time during the process as a result of gaining new information regarding the project's effects or for other reasons.

Alternatives to the NorthMet Project Proposed Action were identified in accordance with the requirements of NEPA and the CEQ regulations, Forest Service NEPA regulations at 36 CFR 220.5e(1), USACE NEPA regulations at 33 CFR 325, Appendix B, and MEQB Rules for MEPA. Alternatives identified and considered for the NorthMet Project Proposed Action are described in Section 3.2.3.2 through Section 3.2.3.5 below.

3.2.3.1.2 Screening

Once identified, alternatives for the NorthMet Project Proposed Action were screened against the following criteria to determine if they warranted further evaluation:

- Purpose and Need – Each alternative was assessed as to whether it would meet the Purpose and Need for the project.
- Technical feasibility – Each alternative was assessed as to whether it could be implemented using currently available technology based on the current level of knowledge.

- Economic feasibility – Each alternative was assessed as to whether it could meet economic and financial requirements to construct and operate the proposed project, including whether the cost of implementing the alternative would be economically feasible to meet the Purpose and Need.
- Availability – Each alternative was assessed as to whether surface rights, mineral rights, technologies, and other resources required are currently available.
- Environmental or socioeconomic benefits – Each alternative was assessed to determine if it offered substantial environmental or socioeconomic benefits over other alternatives, including the NorthMet Project Proposed Action.

Some alternatives needed to be screened more than others to inform a conclusive decision on whether or not to analyze them in detail in this FEIS. This process was iterative in that alternatives continued to be screened as they passed through initial filters and as the project evolved.

Alternatives that did not meet the screening criteria were not considered reasonable and were eliminated from detailed analysis in this FEIS. Alternatives that met the screening criteria were fully analyzed and compared equally in the EIS. The general screening and assessment process applied to alternatives identified for the NorthMet Project Proposed Action is shown in Figure 3.2-31. The process ultimately informs decision-makers during the identification of an agency-preferred alternative in a DEIS (or SDEIS), if one exists, and in this FEIS unless another law prohibits the expression of such a preference (40 CFR 1502.14(e)). MEPA does not require identification of a preferred alternative.

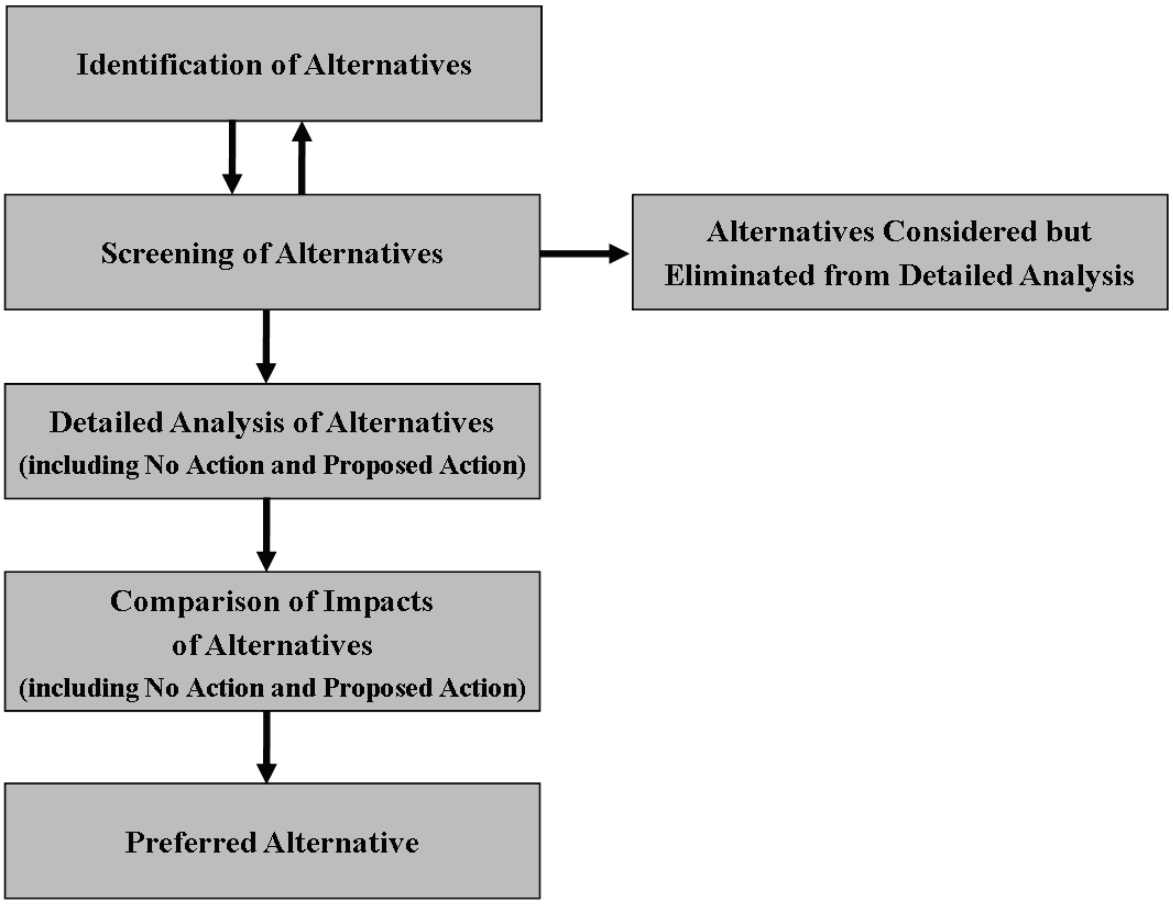

Figure 3.2-31 Alternative Assessment Process

3.2.3.1.3 NorthMet Project Alternatives Analyzed in this FEIS

As discussed in the following sections (after the No Action Alternative section below), the NorthMet Project Proposed Action incorporates activities and environmental impact mitigation measures that have been evaluated and developed through the EIS process.

The alternatives and mitigation measures identified and considered were either incorporated into the NorthMet Project Proposed Action as they offered benefits to the outcomes of the project, or they were eliminated from detailed evaluation because they did not offer measurable or substantial environmental benefits over other alternatives (including the NorthMet Project Proposed Action), they were not reasonable (i.e., weren't economically or technically feasible in accordance with CEQ guidelines), or would not meet the Purpose and Need.

As a result of screening and analysis, the NorthMet Project No Action Alternative (i.e., the NorthMet Project Proposed Action would not occur) is the only alternative to the NorthMet Project Proposed Action evaluated in detail in this FEIS. Tailings Basin closure cap alternatives were reconsidered, and underground mining and backfilling the West Pit with Category 1 waste rock were considered in more detail, but remained eliminated.

3.2.3.2 *NorthMet Project No Action Alternative*

Under the NorthMet Project No Action Alternative, the NorthMet Project Proposed Action would not occur. The consideration of a No Action Alternative is required to be evaluated in this FEIS in accordance with NEPA and MEPA.

If the NorthMet Project Proposed Action is not approved, the Mine Site would be returned to pre-exploration conditions under the requirements of exploration approvals to reclaim surface disturbance associated with exploratory and development drilling activities. Other existing surface uses would be allowed to continue consistent with the Forest Plan.

No further upgrades or new segments would be constructed along the existing power transmission line, railroad, or Dunka Road, which would continue to be used by their private owners.

At the brownfield Plant Site, Cliffs Erie would continue to complete closure and reclamation activities as specified under state permits and plans and the Cliffs Erie Consent Decree. This would include completing activities for the localized affected areas under the Minnesota Voluntary Investigation and Cleanup (VIC) Program, removal of the former Plant Site building, and management of seepage at the Tailings Basin embankment.

3.2.3.3 *Development of the NorthMet Project Proposed Action and Alternatives*

The NorthMet Project Proposed Action and alternatives were developed during project scoping in 2005. Potential effects were analyzed and discussed in the 2009 DEIS (MDNR and USACE 2009). Following public and agency comment on the DEIS, evolving MPCA water quality guidance, project refinements made by PolyMet, and the addition of the Land Exchange Proposed Action, the Co-lead Agencies decided to prepare an SDEIS before this FEIS.

3.2.3.3.1 Summary of Alternatives Analysis from the FSDD

The MEPA scoping process for the NorthMet Project Proposed Action began with the June 2005 publication of a Scoping Environmental Assessment Worksheet (EAW) and a Draft Scoping Decision Document. The NEPA scoping process began in July 2005 with the publication by the U.S. Army Corps of Engineers (USACE) of a Notice of Intent to prepare an EIS for the NorthMet Project Proposed Action. The agencies engaged in public review and comment of these documents, including identification of potential project alternatives.

On October 25, 2005, after consideration of potential project alternatives and environmental effects, the agencies published a Final Scoping Decision Document (FSDD) that describes various alternatives in each of the categories required by Minnesota law – alternative sites, alternative technologies, modified designs or layouts, modified scale or magnitude, and alternatives incorporating mitigation measures (see Section 3.2.3.1). As discussed below, the scoping document explains why some of these alternatives were eliminated from further consideration, while others were carried forward for more detailed study in the 2009 DEIS.

Site Alternatives – The FSDD explains that, because the mineralization dictates the location of the Mine Site, an alternative site would not meet the NorthMet Project Proposed Action's Purpose and Need and should be eliminated from further consideration. An alternative Plant Site was likewise eliminated from further consideration because the re-use of an existing facility would have fewer environmental effects than other greenfield sites. Two alternative waste rock

disposal sites and one alternative Tailings Basin site were carried forward for further consideration in the DEIS.

Technology Alternatives – It was decided that alternative hydrometallurgical technologies would not be evaluated, concluding that there were no known alternatives that would have significant environmental benefits over the NorthMet Project Proposed Action.

An underground mining alternative was also evaluated, noting that "If the cost of developing an underground mining alternative were so high that [PolyMet] could not develop the project, this alternative would not meet the Purpose and Need of the project." (MDNR 2005)

Modified Designs or Layouts – The Co-lead Agencies eliminated alternative designs for the Transportation and Utility Corridor and the Plant Site, neither of which offered environmental benefits greater than those offered by the NorthMet Project Proposed Action (see Table 3.2-17). With respect to the Mine Site, the agencies considered a number of different design and layout modifications, including using two mine pits instead of three, chemical modification of reactive waste rock piles and co-disposal of reactive waste rock on a lined Tailings Basin, pre-treatment of certain types of wastewater, and use of reactive wastewater as make-up water for the Plant Site. Each of these alternatives, along with several technical design reports, was slated for further consideration as possible alternatives in the DEIS.

Scale or Magnitude Alternatives – The FSDD evaluated the possibility of changing the scope (size) of the NorthMet Project Proposed Action, but concluded that the return on investment for a smaller scale project was infeasible. Accordingly, the FSDD concluded that a reduced scale would not meet the Purpose and Need for the project.

Alternatives Incorporating Mitigation Measures – In addition to alternatives to the NorthMet Project Proposed Action, the FSDD also included alternatives that incorporated reasonable mitigation measures. The first of these is proposed monitoring programs for waste rock stockpiles and the Tailings Basin. The second mitigation measure included a lined tailings storage facility within the Tailings Basin and continued testing to determine tailings reactivity. Both of these mitigation measures were carried forward for additional consideration in the DEIS. Because these measures amounted to only minor changes to the NorthMet Project Proposed Action, they were not carried forward as full alternatives. Instead, they were included as part of the NorthMet Project Proposed Action.

3.2.3.3.2 Summary of Alternatives Analysis from the 2009 DEIS

Following the publication of the FSDD in 2005, PolyMet provided a project description to the Co-lead Agencies. Over the next three years, PolyMet continued to gather data and consult with the Co-lead Agencies, which led to several modifications to the NorthMet Project Proposed Action. Among these modifications was the incorporation of certain mitigation measures, as well as the two mine pit alternatives, into the NorthMet Project Proposed Action. In addition to the NorthMet Project No Action Alternative, the DEIS analyzed the following alternatives to the NorthMet Project Proposed Action:

Mine Site Alternative – The Mine Site Alternative consisted of modifications to the Mine Site design or layout intended to reduce potential effects on surface water and groundwater. The Mine Site Alterative proposed, among other things, sub-aqueous disposal of the most reactive waste rock and lined, temporary stockpiles for this waste rock. It also included a WWTF for treatment of Mine Site waste water.

Tailings Basin Alternative – The Tailings Basin Alternative included various modifications to the Tailings Basin intended to increase geotechnical stability and capture seepage from the Tailings Basin. The Tailings Basin Alternative resulted from the comprehensive mitigation planning effort by the Co-lead Agencies, and included input from all Cooperating Agencies. The DEIS evaluated 27 individual mitigation measures (DEIS Table 3.2-2) developed from this effort and 11 combinations of individual mitigation measures that were considered (MDNR and USACE 2009, Table 3.2-3) before selecting the Tailings Basin Alternative.

Alternatives Considered but Eliminated from Detailed Analysis in the EIS – On the basis of analysis performed in connection with the 2009 DEIS, several of the alternatives identified in the FSDD were eliminated from further consideration. These included: 1) alternative waste rock disposal sites; 2) the underground mining alternative, which was found to have costs so high that it failed to meet the Purpose and Need of the project; and 3) pretreatment of runoff and use as make-up water at the Mine Site.

3.2.3.3.3 Refinement of the Proposed Action after the 2009 DEIS

The main refinements to the NorthMet Project Proposed Action from the DEIS and the SDEIS involve improved waste and water management at both the Mine Site and Plant Site. These measures were identified in part in the Mine Site Alternative and Tailings Basin Alternative, as described in the DEIS, and later combined to form a Co-lead Draft Alternative which PolyMet subsequently incorporated into the NorthMet Project Proposed Action (refer to Section 2.3.2 for more information). Concurrent impact assessment and modeling identified additional project refinements and mitigation measures. PolyMet also incorporated these changes into the NorthMet Project Proposed Action analyzed in the SDEIS.

The development of the NorthMet Project Proposed Action, including consideration and incorporation of alternatives, is shown on Figure 3.2-32. The evolution of the NorthMet Project Proposed Action from the DEIS to the FEIS is summarized in Table 3.2-16. The general method, rate, volume, and duration of mining, transportation, and processing of ore did not change substantially from that proposed in the DEIS. It should be noted that Table 3.2-16 is only for comparison purposes and shows only features that changed from the NorthMet Project Proposed Action as found in the DEIS to the FEIS NorthMet Project Proposed Action and does not represent a complete summary of the current NorthMet Project Proposed Action.

A number of other alternatives were eliminated from further consideration because they did not meet the screening criteria as discussed above. These alternatives are detailed below in Table 3.2-17.

3.2.3.3.4 Refinement of the Proposed Action after the 2013 SDEIS

The NorthMet Project Proposed Action has been modified since the SDEIS has been published (PolyMet 2015a). These modifications include:

- Modifying the ore grinding circuit to include a SAG mill, which would replace an existing rod mill and ball mill circuit at the Plant Site;
- Relocating the Coal Ash Landfill from its current location on the east side of Tailings Basin Cell 1E to the Hydrometallurgical Residue Facility, or other approved facility;

- Extending the Tailings Basin containment system to a portion of the east side of Tailings Basin Cell 1E to collect potential seepage in this area;
- Modifying the stream augmentation plan such that only treated water would be discharged to the two Embarrass River tributaries (Trimble Creek and Unnamed Creek) and Second Creek;
- Refurbishment of existing rail cars to reduce potential for ore spillage;
- Clarifying that the design of the sewage treatment system would include refurbishing the existing collection system and replacing the existing LTVSMC mechanical sewage treatment plant with a stabilization pond facility, which would discharge to the Tailings Basin;
- Incorporating CDSM as an engineering measure to stabilize the existing tailings and peat layers in the northern dams of the LTVSMC Tailings Basin prior to the use of that facility for the NorthMet tailings; and
- Increasing the number of bedrock monitoring wells north of the Mine Site to monitor bedrock groundwater elevations and understand bedrock groundwater flow direction.

These measures have been identified as potential improvements or mitigation measures to be incorporated into the NorthMet Project Proposed Action.

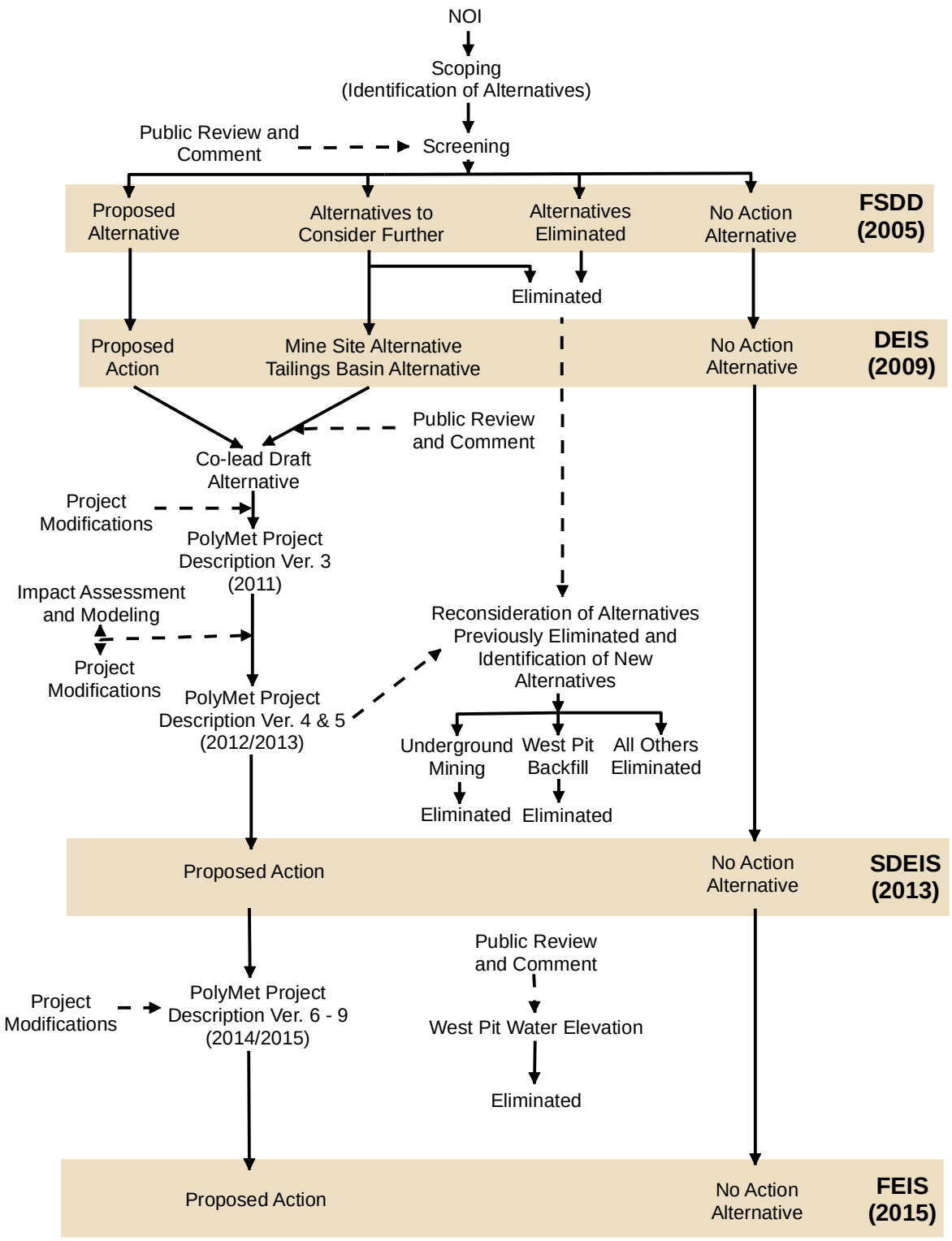

Figure 3.2-32
Development of Proposed Action and Alternatives for the NorthMet Mining Project (not including Land Exchange)
NorthMet Mining Project and Land Exchange FEIS
Minnesota
November 2015

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Table 3.2-16 Comparison of DEIS, SDEIS, and FEIS for the NorthMet Project Proposed Action

DEIS Proposed Action	NorthMet Project Proposed Action as Presented in SDEIS Only	NorthMet Project Proposed Action as Presented in FEIS Only	DEIS to FEIS Comparison of Environmental Consequences
Mine Site			
• Category 1 and 2 waste rock would be stored in a permanent soil-lined/soil-covered stockpile (Category 1/2 Stockpile) north of the west pit (years 1-11). • Category 1 and 2 waste rock generated after year 11 would be backfilled to the East Pit. • Category 3 waste rock would be placed on a permanent lined/covered stockpile (east of the East Pit) or Category 3 Lean Ore Stockpile (southeast of the East Pit). • Category 4 waste rock would be stored on a permanent, lined and covered waste rock stockpile (south of the East Pit). • Category 4 lean ore would be hauled to the Rail Transfer Hopper or stored on the Lean Ore Surge Pile. • Saturated overburden would be placed in the Category 1/2 Stockpile. • A WWTF used to treat process water collected from lined stockpiles would be located on the south side	• Category 1 waste rock mined from years 1-13 would be stored in an unlined, permanent stockpile north of the West Pit. The stockpile would have a geomembrane cover system at completion and surface water and groundwater collection system would encompass the entire stockpile and direct water to the Mine Site WWTF. • Category 2/3 waste rock mined from years 1-11 stored in a temporary stockpile (with a geomembrane liner system) southeast of the mine pits. • Category 4 waste rock mined from years 1-11 stored in a temporary stockpile (with a geomembrane liner system) on the top of the un-mined Central Pit. • The temporary Category 2/3 Stockpile and Category 4 Stockpile and all new waste rock mined in years 11-20 would be backfilled into the East Pit and Central Pit and stored subaqueously. • Saturated overburden would be used as approved by the MDNR or placed in stockpiles with geomembrane liners (Category 2/3 Stockpile or Category 4 Stockpile). • WWTF located south of the West Pit and Central Pit, east of the Overburden Storage and Laydown Area, and immediately adjacent to the Rail Transfer Hopper. It would be	• As per the SDEIS.	• Elimination of three permanent stockpiles and highest sulfur rock backfilled to East and Central pits, which would be flooded for subaqueous disposal. • Enhanced geomembrane-covered permanent Category 1 Stockpile. • Reduction in wetland effects. • Capture and treatment of most (estimated to be above 90 percent capture) of groundwater and surface seepage from stockpiles. • Minimization of the long-term water flow through the permanent stockpile, resulting in substantial reduction of stockpile seepage volumes to be treated and improvement in West Pit water quality post closure.

DEIS Proposed Action	NorthMet Project Proposed Action as Presented in SDEIS Only	NorthMet Project Proposed Action as Presented in FEIS Only	DEIS to FEIS Comparison of Environmental Consequences
of the West Pit, west of the Overburden Storage and Laydown Area.	upgraded to include RO that would meet water quality targets after closure.		
Plant Site			
• Upgrading existing and constructing new processing facilities located at the former LTVSMC processing plant. • Seepage from the toe of the Tailings Basin collected through a series of header pipes, recovery trenches, and vertical extraction wells returning seepage to the tailings basin. • No Tailings Basin cover proposed. • Hydrometallurgical Residue Facility located on top of the existing LTVSMC Tailings Basin Cell 2W.	• As per the DEIS, with some minor changes to the layout of processing facilities, the addition of a new WWTP (RO that would meet water quality targets) and only one autoclave -- Copper concentrate would not be further processed. • Added rock buttressing at the Tailings Basin to increase geotechnical stability. • Surface seep system at the southern Tailings Basin dam, and surface water and groundwater containment system constructed around the north and west Tailings Basin dams capturing all surface and greater than 90 percent of all groundwater seepage, which would be directed to a new Plant Site WWTP. Treated water returned to the Tailings Basin or discharged to wetlands north of the Tailings Basin groundwater containment system to supplement a reduction in flow in that area. • During the construction of the Tailings Basin embankments, a bentonite amended oxygen barrier layer (at a depth of 30 inches from the surface of the dams) would be installed on exterior sides of dams. • During closure, bentonite would be incorporated into beach and pond areas of the Tailings Basin to reduce	• As per the SDEIS, with some minor changes to processing facilities and the Plant Site layout, including the addition of a new SAG mill and updating the sanitary sewage treatment system. • Relocation of the contents of the Coal Ash Landfill to the Hydrometallurgical Residue Facility (or other approved facility) prior to its current site being covered with NorthMet Project Proposed Actin tailings. • Incorporation of CDSM at the Tailings Basin to increase geotechnical stability. • Added surface seepage management system along the east Tailings Basin dams capturing all surface and greater than 90 percent of all groundwater seepage, which would be directed to the WWTP. • Using only treated water from the WWTP to augment flows affected by the containment system.	• New building layout better utilizing disturbed ground meaning reduced wetland effects. • Elimination of major air emission sources and electrical users. • Capture and treatment of greater than 90 percent of groundwater, and all surface seepage from Tailings Basin. • Improvement in the foundation stability of the Tailings Basin. • Augmentation of flow effects to wetlands adjacent to the Tailings Basin using treated water. • Improvement in the foundation stability of the Hydrometallurgical Residue Facility, which eliminates concerns about liner failure and provides a virtually zero leakage liner system.

DEIS Proposed Action	NorthMet Project Proposed Action as Presented in SDEIS Only	NorthMet Project Proposed Action as Presented in FEIS Only	DEIS to FEIS Comparison of Environmental Consequences
	the influx of oxygen and water. • Hydrometallurgical processing would only include one autoclave instead of two, reducing residue in half. • Hydrometallurgical Residue Facility would be located in the footprint of the existing LTVSMC Emergency Basin immediately southwest of the existing LTVSMC Cell 2W of the Tailings Basin.		

3.2.3.4 *Post-DEIS Reconsideration of Previously Eliminated Alternatives*

In response to Cooperating Agency comments and the evolution of the NorthMet Project Proposed Action since the DEIS, the Co-lead Agencies reviewed previously identified alternatives against the current NorthMet Project Proposed Action to determine whether any of them should be reconsidered.

Some alternatives considered include various wet and dry cover options for the Tailings Basin at closure. Many specific mitigation measures were identified and considered individually and in combination. One particular combination of mitigation measures was identified and carried forward in the DEIS as the Tailings Basin Alternative. In preparing the SDEIS, a multidisciplinary Co-lead Agencies workgroup evaluated and compared three wet and three dry cover options to address several modified water management and geotechnical stability requirements. Of these, the recommended option involved a wet cover with bentonite amended beach, side slopes, and pond. PolyMet adopted this recommended wet cap option as part of the NorthMet Project Proposed Action.

In response to a change in applicability of water quality impact criteria, PolyMet further revised the NorthMet Project Proposed Action to include collection of substantially all Tailings Basin surface and groundwater seepage from the existing LTVSMC Tailings Basin and the proposed NorthMet Tailings Basin by a vertical hydraulic barrier constructed from the ground surface down to the top of bedrock. PolyMet also proposed enhanced mechanical water treatment using RO or equivalent technology that would meet water quality targets, which would remove substantially all of the constituents in the captured seepage. This combination of the wet cap option along with collection and treatment engineering controls were shown in modeling to meet water quality evaluation criteria with a few exceptions (see Section 5.2.2). Additionally, PolyMet enhanced the design of the proposed Tailings Basin rock buttress, and it was shown in modeling to provide adequate geotechnical stability (see Section 5.2.14). The other wet and dry cap options did not offer meaningful environmental benefits, and, in fact, seepage from the dry caps was predicted under the current model design to result in substantially higher concentrations which would make the future transition from mechanical (RO or equivalent technology that would meet water quality targets) to non-mechanical water treatment more difficult during post-closure (ERM 2010).

As addressed below, the Underground Mining Alternative and backfilling the West Pit with Category 1 waste rock were considered further, again in response to Cooperating Agencies and stakeholder comments received on the DEIS. However, following further analysis (see Sections 3.2.3.4.1 and 3.2.3.4.2), these remain eliminated from full analysis in this FEIS.

Other alternatives were either incorporated (at least in part) to the NorthMet Project Proposed Action and are therefore no longer relevant, or remain eliminated as the changes to the NorthMet Project Proposed Action would not affect the rationale previously used to eliminate them.

The outcomes of reconsideration of previously eliminated alternatives are shown in Table 3.2-17. The types of alternatives considered against the MEPA-required alternative types are shown in Table 3.2-18.

In response to comments received on the SDEIS, the NorthMet Project Proposed Action was refined to include some additional engineering design or mitigation measures (Section 3.2.3.3.4). The Co-lead Agencies' analysis of these refinements indicated that they would further improve

the environmental performance of the NorthMet Project Proposed Action and therefore did not trigger reconsideration of alternatives previously eliminated.

Table 3.2-17 Previous NorthMet Project Alternatives Screened for this FEIS

Reference[1]	Alternative	Previous Screening Outcome	SDEIS Screening Outcome (remains applicable for this FEIS)
	DEIS Proposed Action	Analyzed in the DEIS	Partially incorporated into the SDEIS NorthMet Project Proposed Action, with improved waste rock and water management and further refined through identification of improved mitigation measures such as the full bentonite amendment cover for the Tailings Basin.
	DEIS Mine Site Alternative		
	DEIS Tailings Basin Alternative		
TB1	Wet Tailings Basin cover at closure using a bentonite beach, side slope and pond amendment	Analyzed since the DEIS	
E18	Use of low sulfur waste rock as construction material	Eliminated in the DEIS	Partially incorporated into the SDEIS NorthMet Project Proposed Action. Category 1 Waste Rock may be used if approved by the MDNR in circumstances where contact water is controlled and treated.
E7	Underground mining the NorthMet Deposit (Underground Mining Alternative)	Eliminated in the DEIS	Continues to be eliminated. Reconsidered but not economically feasible. Refer to Underground Mining Alternative in Section 3.2.3.4.1 and Appendix B for more information.
E20	Disposal of waste rock and/or tailings in the West Pit (West Pit Backfill)	Eliminated in the DEIS	Continues to be eliminated. Reconsidered but would not offer substantial environmental benefit. Refer to West Pit Backfill Alternative in Section 3.2.3.4.2.
E3	Alternative mine pit location	Eliminated in FSDD	Continues to be eliminated. No changes to the NorthMet Project Proposed Action design affect these alternatives.
E12, E13	Alternative ore transport (conveyors vs. trucks)		
E21	Smaller mine and ore processing facility		
E4	Alternative Processing Plant site location		
E8	Other hydrometallurgical technologies		
E10	Process the Category 3 and 4 lean ore and waste rock through the Processing Plant		
E9	Concentrate-only operations mode		

Reference[1]	Alternative	Previous Screening Outcome	SDEIS Screening Outcome (remains applicable for this FEIS)
E11	Alternative designs and layouts for the ore processing plant		
E1	Off-site, non-reactive waste rock disposal	Eliminated in the DEIS	
E2	Off-site, subaqueous in-pit disposal of reactive waste rock		
E6	Off-site, subaqueous in-pit co-disposal of reactive waste rock/tailings/ overburden		
E5	Off-site, subaqueous in-pit tailings disposal		
E14	Co-disposal of reactive waste rock and tailings on a lined Tailing Basin		
E17	Use of Mine Site reactive runoff as make-up water for the Processing Plant with a single wastewater treatment at the Processing Plant		
E15	Pretreatment of Mine Site reactive runoff and discharge to Babbitt or Hoyt Lakes POTW		
E16	Pretreatment of Tailings Basin process water and discharge to the City of Hoyt Lakes POTW		
E19	Use non-contact stormwater from detention pond at Mine Site as process water		
TB2	Wet Tailings Basin cover at closure using a bentonite side slope and pond amendment	Analyzed since the DEIS	These alternatives were reconsidered and continue to be eliminated since they do not afford meaningful environmental benefits compared to the enhanced engineering controls (seepage collection and RO mechanical water treatment) built into the NorthMet Project Proposed Action. Further, dry cap seepage is predicted to result in small seepage rates, but substantially higher concentrations of seepage potentially under current model design, which could make the future transition from mechanical (RO) to non-mechanical water treatment more difficult during post-closure.
TB3	Wet Tailings Basin cover at closure using a bentonite beach and pond amendment		
TB4	Dry Tailings Basin cover at closure using a surface bentonite amendment		
TB5	Dry Tailings Basin cover at closure using a geomembrane		
TB6	Dry Tailings Basin cover at closure using a geosynthetic clay liner		

Note:
[1] "E" alternatives are from Table 3.2-4 in the DEIS; "TB" options are from ERM 2010.

Per MEPA rules, projects must consider five types of alternatives and determine which activities would address those alternatives. Table 3.2-18 below identifies which alternatives considered addressed the five MEPA alternative types.

Table 3.2-18 MEPA Alternatives Types Considered for the NorthMet Project Proposed Action

Project Activity[1]	Alternative Sites	Alternative Technology	Modified Designs or Layouts	Modified Scale or Magnitude	Alternatives Incorporating Mitigation Measures
Mining	E3	E7, E13		E21	
Waste Rock Management	E1,E2, E6		E10, E14, E18, E20		DEIS Mine Site Alternative
Mine Site Processing Plant Water Management			E15, E17, E19		
Transportation and Utility Corridor		E12			
Processing and Plant Site Water Management	E4	E8, E9	E11, E16		
Tailings Management	E15, E5		TB1,TB2, TB3, TB4, TB5, TB6		DEIS Tailings Basin Alternative

Note:
[1] For further information see Table 3.2-17.

3.2.3.4.1 Underground Mining Alternative

The Underground Mining Alternative was considered but eliminated as alternative E7 in Table 3.2-4 of the DEIS (MDNR and USACE 2009). It was eliminated from further consideration in the DEIS as it was determined that it would not offer substantial environmental or socioeconomic benefits compared to the NorthMet Project Proposed Action. The DEIS stated that the shallow nature of the deposit would result in a sizeable amount of ore to remain in place, if implementing an underground mine. The DEIS further concluded that the significantly lower rate of ore production required for an underground mining alternative would not meet the Purpose and Need of the project.

The Underground Mining Alternative was reconsidered for the SDEIS due to a high level of interest from Cooperating Agencies and stakeholders and because it was identified in the Land Exchange Scoping Report (USFS 2011n) as requiring further assessment. This alternative would involve mining the NorthMet Deposit as defined by the proposed open pit boundary. While the mineralized zone extends beyond the proposed open pit boundary, the geology outside of the open pit has not been characterized enough to support a mine plan and is beyond the boundaries of the NorthMet Project area, so it is not reasonable to include for consideration for the Underground Mining Alternative.

An underground mine, within the proposed open pit boundary (shell), would result in a smaller surface footprint, thus offering environmental benefits over the NorthMet Project Proposed Action through reduced effects on wetlands, vegetation, and wildlife habitat. An underground mine would also have lower production rates compared to the proposed open pit, resulting in less fugitive air emissions, and less waste rock and processing waste (tailings and hydrometallurgical residue), thus reducing the scale and duration of potential water quality effects. A smaller mining operation would also reduce the scale and duration of mining and the associated socioeconomic benefits.

PolyMet conducted an Economic Assessment of Conceptual Underground Mining Option for the NorthMet Project Proposed Action that concluded underground mining would not be economically feasible given the specific characteristics of the NorthMet Deposit (Foth 2012). That is, the tonnage/volume and grade (amount of metals) of rock would not generate enough revenue to pay for all costs associated with underground mining. The assessment used metal prices calculated in June 2012 that are consistent with the National Instrument 43-101 reporting standard used for public disclosure of information relating to mineral properties on stock exchanges supervised by the Canadian Securities Administrators. Certified mining engineers with the MDNR reviewed PolyMet's Economic Assessment of Conceptual Underground Mining Option and agreed with the statements made, as well as agreed that the outcome is consistent with early studies of the NorthMet Deposit, general rules for assessment of economic viability, and similar mining operations elsewhere.

The Co-lead Agencies prepared a position paper that concludes that the Underground Mining Alternative is not considered to be a reasonable alternative because it would not be economically viable and therefore it would also not meet the Purpose and Need (MDNR et al. 2013a). For these reasons, and for the reasons stated in the DEIS and SDEIS, the Underground Mining Alternative remains eliminated from further evaluation in this FEIS.

The PolyMet Economic Assessment of Conceptual Underground Mining Option is attached to the Co-lead position paper: Underground Mining Alternative Assessment for the NorthMet Mining Project and Land Exchange Environmental Impact Statement (MDNR et al. 2013a) provided in Appendix B.

3.2.3.4.2 West Pit Backfill

The option to utilize the West Pit for mining and processing waste disposal was considered but eliminated as alternative E20 in Table 3.2-4 of the DEIS (MDNR and USACE 2009). It was eliminated from further consideration in the DEIS as it was determined that it would not offer substantial environmental or socioeconomic benefits as compared to the NorthMet Project Proposed Action (MDNR et al. 2013b). Furthermore, the DEIS noted that there are additional mineral resources in the West Pit that would effectively be lost if the pit was used for waste rock and/or tailings disposal. The option to backfill the West Pit with Category 1 waste rock that would otherwise be permanently stored in the Category 1 Stockpile under the SDEIS NorthMet Project Proposed Action was raised by the Bands as a potential mitigation option to minimize surface footprint effects including wetlands, improve surface water and groundwater quality outcomes, potentially eliminate a managed West Pit overflow, and reduce project costs.

In response to the Bands' request, the Co-lead Agencies reconsidered the option to backfill the West Pit against the same screening criteria used for all potential alternatives

(see Section 3.2.3.1). Further consideration concluded that the West Pit would have sufficient capacity to accept all of the Category 1 Stockpile material, but for safety and operational reasons under the proposed mine plan, the West Pit would not be available for backfilling until the end of mining, still including a pit lake approximately 105 ft deep. Therefore, the full Category 1 Stockpile would still be required for the 20 year Life of Mine. As such, throughout operations of the mine, compared to the NorthMet Project Proposed Action, there would be no change to:

- The temporal surface footprint effects of the Category 1 Stockpile,
- Off-site mitigation requirements for affected wetlands, and
- Water management requirements associated with the Category 1 Stockpile until it is removed and backfilled into the West Pit.

After mining is completed:

- Removal of the Category 1 Stockpile would allow for reclamation of the affected surface footprint, including potential to recreate wetland areas and restore function, and, as noted above, the prior effect would have been offset through mitigation required for the initial effect. The generation of wetland credits in this area has the potential to be used on a contingency basis, but compensatory credit would not be considered up front.
- The volume of material in the Category 1 Stockpile would not be enough to fill the West Pit so there would still be some pit lake.
- Backfilling would affect the water quality in the West Pit by increasing constituent loads, so additional mechanical treatment of water in the West Pit may be required for a certain timeframe following backfilling. However, there would be no effect on surface water quality discharged to the environment because mechanical treatment of water from the West Pit would still be required in the long term.
- Moving the waste rock from the stockpile into the West Pit would result in prolonged dust, air, and noise emissions, but these would be unlikely to exceed the respective maximum years modeled during operations.
- While there may be potential for additional jobs required for backfilling, they would be unlikely to offer substantial socioeconomic benefits.
- Removal of the Category 1 Stockpile would improve visual aesthetics.
- Backfilling the West Pit would encumber private mineral resources that are deeper than the proposed West Pit. Such an encumbrance is in conflict with the terms of PolyMet's current private mineral leases. The PolyMet lease agreements could be renegotiated, which might involve monetary compensation for the mineral owners if minerals are encumbered.
- The cost of physically backfilling the West Pit and other associated costs, including those for additional mechanical water treatment (required to treat increased constituent loads) and financial assurance requirements, could affect the ability of PolyMet to secure financing.

Based on the above, the opportunity to reclaim wetlands and vegetation at the Category 1 Stockpile footprint area and not having to treat seepage from the Category 1 Stockpile would be the only measurable environmental benefits offered by backfilling the Category 1 Stockpile into the West Pit. However, because of the temporal effect that the stockpile would have, those

effects would be required to be mitigated regardless of future backfilling or not. Furthermore, the potential environmental benefit is moot or outweighed because encumbrance is not allowed in PolyMet's private mineral leases and because the costs associated with backfilling, additional water treatment (rates), and encumbrance compensation determined in revised lease agreements may affect the ability of PolyMet to secure financing (MDNR et al. 2013b). As such, the option to backfill the West Pit was eliminated from further consideration in the SDEIS and remains so in this FEIS.

3.2.3.5 *Identification of New Alternatives*

Since receiving PolyMet's NorthMet Project Proposed Action analyzed in the SDEIS, the Co-lead Agencies considered whether any other alternatives beyond those previously proposed should be carried forward for detailed analysis. No reasonable alternatives were identified that would potentially offer substantial environmental benefits compared to the NorthMet Project Proposed Action.

3.2.3.6 *Post Closure Pumping of the West Pit*

One additional potential alternative (or mitigation measure) was considered in response to public comments received on the SDEIS (MDNR et al. 2014). Perpetual pumping of the West Pit post closure to eliminate potential seepage of West Pit water into surficial and bedrock groundwater flowpaths to the Partridge River was screened in the manner outlined in Section 3.2.3.1.2. The screening assessment indicated that perpetual pumping would meet the Purpose and Need, would be technically and economically feasible, and would meet the availability criteria; however, it would not offer a significant environmental benefit compared to the NorthMet Project Proposed Action.

Under the perpetual pumping alternative, the water quality of the West Pit lake would likely be worse, resulting in additional treatment needs compared to the NorthMet Project Proposed Action. With the proposed engineering controls, the water quality model predicts the NorthMet Project Proposed Action would not exceed evaluation criteria. The NorthMet Project Proposed Action would allow for pilot testing of non-mechanical treatment of West Pit lake overflow as a long-term water quality treatment option. Additional loading to the West Pit lake would impede transition to non-mechanical treatment. Finally, under the perpetual pumping approach some wetland effects would become permanent, as wetlands near the West Pit would only be temporarily affected under the NorthMet Project Proposed Action. For these reasons, the Post Closure Pumping of the West Pit Alternative remains eliminated from further evaluation in this FEIS. This action may be reconsidered in the event that monitoring or analysis indicates that implementing this action is better able to meet future environmental objectives compared to the NorthMet Project Proposed Action.

3.3 LAND EXCHANGE DETAILED DESCRIPTION

3.3.1 *Overview*

The Land Exchange Proposed Action would involve exchange of a single 6,650.2-acre (GLO) tract of federal land (encompassing most of the NorthMet Project Mine Site) for up to approximately 6,722.5 acres (GLO) of privately owned, non-federal lands located within five different tracts throughout the proclamation boundary of the Superior National Forest within St. Louis, Lake, and Cook counties of northeastern Minnesota. Disclosure of appraisal information in the EIS is not required. Any decision, documented in the ROD, to move forward with a land exchange will be supported by a current appraisal, approved by the USFS, which verifies that the exchange meets the equal value requirements of applicable federal law and regulation. Requests for appraisal reports and appraisal review reports are processed under Freedom of Information Act procedures. Appraisals must conform to Uniform Appraisal Standards for Federal Land Acquisitions and the Uniform Standards of Professional Appraisal Practice of the Appraisal Foundation. The final proposed configuration of land would be determined after the market value of the parcels is determined by appraisals and the environmental analysis has been completed. This information would be presented in the ROD.

Several alternatives to the Land Exchange Proposed Action were identified and screened through scoping in 2010. The following alternatives are evaluated in detail in this FEIS:

- Land Exchange No Action Alternative, under which no land exchange would occur; and
- Land Exchange Alternative B, under which a smaller amount of federal lands would be exchanged for the NorthMet mine activities instead of the 6,650.2 acres (GLO) of federal lands proposed.

A summary of the Land Exchange Proposed Action, Land Exchange Alternative B, and the No Action Alternative is provided in Table 3.3-1.

The Land Exchange Proposed Action is a connected action to the NorthMet Project Proposed Action.

Table 3.3-1 Summary of the Land Exchange Proposed Action Alternatives

Project Component	Location and Existing Land Use	Land Exchange Proposed Action	Land Exchange Alternative B	No Action Alternative
Federal land	Undeveloped federal land located between the Northshore Mine and the LTVSMC railroad Land is allocated under General Forest –Longer Rotation and General Forest Management Area in the Forest Plan	Exchange 6,650.2 acres (GLO) of federal lands to private ownership (PolyMet)	Exchange a smaller amount of federal lands (4,887.3 acres (GLO)) to private ownership (PolyMet)	No Land Exchange Current public land would remain under USFS management
Non-federal land	Predominantly forest and wetland habitat Interspersed with federal land within the proclamation boundary of the Superior National Forest St. Louis, Lake, and Cook counties	Exchange consists of up to 6,722.5 acres (GLO) from private to federal ownership Consists of up to five non-federal land tracts of land	Exchange consists of 4,651.5 acres (GLO) of non-federal lands in one tract (Tract 1) from non-federal to federal ownership	No Land Exchange Current non-federal lands would remain under non-federal ownership

3.3.1.1 *Development of Land Exchange Proposal*

The boundaries of the federal tract were proposed by the USFS so that any federal lands that PolyMet proposed to surface mine at the NorthMet Project Mine Site would be conveyed to PolyMet. In addition, all federal lands within the same Township to the west of the NorthMet Project Mine Site and north of the LTVSMC Railroad Grade were proposed for exchange. The additional lands were included to avoid intermingled and inefficient ownership patterns that would result by retaining isolated federal lands without legal access immediately south of the Superior National Forest Proclamation Boundary. The additional proposed lands are also impacted by past and ongoing mining activities including being subject to special use permits. The recommendation for the boundaries of the federal lands was based on the following standards and guidelines in the Forest Plan.

As stated in G-LA-3 (Forest Plan, page 2-52), the following National Forest System land is generally not needed for other resource management objectives and is potentially available for conveyance through exchange or other means (not listed in order of importance).

(a) Land inside or adjacent to communities or intensively developed private land, and chiefly valuable for non-National Forest System purposes.

(b) Parcels that would serve a greater public need in state, county, city, or other federal agency ownership.

(c) Inaccessible parcels isolated from other National Forest System land and intermingled with private land.

(d) Parcels that would reduce the need for landline maintenance and corner monumentation result in more logical and efficient management, and improve land ownership pattern.

(e) Tracts that would be difficult or expensive to manage due to ROW problems, complex special use permits, or tracts with significant property boundary issues.

(f) On a case-by-case basis, land beneath or adjacent to resorts and summer home groups, currently under special use permits, may be considered for conveyance.

Specifically, the federal lands proposed for exchange appear to meet criteria a, c, d, and e.

PolyMet initially proposed two non-federal tracts for exchange: Hay Lake (Tract 1) and McFarland Lake (Tract 5). Both parcels were intended to meet land adjustment standards and guidelines for acquisition in the Forest Plan (D-LA-1, Forest Plan, page 2-51). That guidance is intended to achieve the following Desired Condition:

> The amount and spatial arrangement of National Forest System land within the proclamation boundary of the Forest are sufficient to protect resource values and interests, improve management effectiveness, eliminate conflicts, and reduce the costs of administering landline and managing resources.

Standards and Guidelines to achieve this Desired Condition provide that land acquisitions would generally be guided by the following criteria (G-LA-2, Forest Plan, pages 51-52):

- Priority 1 (a, b, and c are not listed in order of importance)

  1(a) Land needed for habitat for federally listed endangered, threatened, proposed, or candidate species or for RFSS.

  1(b) Land needed to protect significant historical and cultural resources, when these resources are threatened or when management may be enhanced by public ownership.

  1(c) Land needed to protect and manage administratively or Congressionally designated, unique, proposed, or recommended areas.

- Priority 2 (a thru f are not listed in order of importance)

  – Key tracts that would promote more effective management and would meet specific needs for management, such as:

  2(a) Land that enhances recreation opportunities, public access, and aesthetic values.

  2(b) Land needed to enhance or promote watershed restoration or watershed improvements that affect the management of National Forest System land riparian areas.

  2(c) Environmentally sensitive and/or ecologically rare lands and habitats.

  2(d) Wetlands.

  2(e) Land and associated riparian ecosystems on water frontage such as lakes and major streams.

  2(f) Land needed to achieve ownership patterns that would lower resource management costs.

- Priority 3

  3(a) All other land desirable for inclusion in the National Forest System.

A feasibility analysis, completed by the USFS in November 2009, assessed the potential for a land exchange between the USFS and PolyMet. The feasibility analysis evaluated the federal tract that was proposed by the USFS and the two non-federal tracts that were proposed by PolyMet for conformance with the Forest Plan, which included current and future uses of the properties. A preliminary monetary valuation indicated that additional parcels might be needed to bring the market value of the non-federal land to within 25 percent of the market value of the federal land as required by 36 CFR 254.12. The analysis also recommended supplementing the exchange with additional non-federal parcels that would increase the amount of wetlands coming into federal ownership to achieve a quantitative balance (no net loss) of wetland acres as a means of complying with EO 11990.

PolyMet sought additional lands that could be offered to the USFS that met the standards and guidelines for land adjustment in the Forest Plan. In particular, for non-federal parcels to be offered by PolyMet, the following goals were emphasized: adding wetlands, increasing connectivity between existing USFS ownership, and increasing boundary management efficiencies. Tracts 2, 3, and 4 were added subsequent to the feasibility analysis and prior to public scoping. Initial screening of the non-federal lands suggested the following relationship of the lands to standards and guidelines in the Forest Plan.

- Hay Lake (Tract 1) is a large, contiguous parcel with public access that offers a large percentage of highly functioning wetland habitat and wild rice resources. This parcel meets criteria 1(b), 2(a), (b), (c), (d), (e), and (f) for land acquisition in G-LA-2.
- McFarland Lake (Tract 5) meets criteria 1(c), 2(a), (e), and (f) for land acquisition in G-LA-2 because it protects a lake that includes a popular entry point to the BWCAW.
- Lake County Lands (Tract 2), Wolf Lands (Tract 3), and Hunting Club (Tract 4) meet criteria 2(a), (d), and (f) for land acquisition in G-LA-2.

All of the non-federal lands adjoin current USFS ownership and simplify management by consolidating land ownership patterns.

3.3.2 *Land Exchange Proposed Action*

The Land Exchange Proposed Action would occur between the United States, through the USFS as the manager of the federal lands, and PolyMet, as the owner of the non-federal lands. The key characteristics of the Land Exchange Proposed Action are highlighted in Table 3.3-2, shown on Figure 3.3-1, and discussed in the following sections.

As previously indicated, GLO acres represent the acreages associated with the legal descriptions of the parcels based on original surveys performed by GLO surveyors between 1858 and 1907. As such, GLO acreages are being used as part of the project description and would also be used to define the real estate transaction if the Land Exchange Proposed Action was approved. The analysis of effects presented in the subsequent Chapters is based upon GIS data. GIS values indicate the size of the Land Exchange Proposed Action parcels as computed geometrically using mapping software, which may be different than the GLO legal acreage. Unless noted as GLO acres, all values shown in the document are derived from GIS data.

Table 3.3-2 Legal Description and Acreage of Parcels Included in the Land Exchange Proposed Action

Tract	Parcel Name	Legal Description (4th P.M.)	Total Acres[1] (GLO)	Total Acres[1] (GIS, for Analysis Purposes)
Federal lands		T 60N, R 13W (Secs. 33-35) T 59N, R 13W (Secs. 1-6) T 59N, R 12W (Sec. 6) T 59N, R 13W (Secs. 7-12) T 59N, R 12W (Sec. 7) T 59N, R 13W (Secs. 17, 18)	6,650.2	6,495.4
Non-federal lands			6,722.5	7,075.0
Tract 1	Hay Lake Lands	T 59N, R 16W (Secs. 9, 16, 19, 20-22, 27-33)	4,651.5	4,926.3
Tract 2	Lake County North	T 57N, R 12W (Secs. 5, 6)	199.5	265.0
	Lake County South	T 56N, R 9W (Sec. 17)	120.0	116.9
Tract 3	Wolf Lands 1	T.57N, R.11W (Sec. 8)	120.0	125.8
	Wolf Lands 2	T 58N, R 10W (Secs. 10, 14, 15, 22, 23)	760.0	767.9
	Wolf Lands 3	T 59N, R 9W (Secs. 30, 31)	279.4	277.4
	Wolf Lands 4	T 59N, R 9W (Secs. 7, 8, 17, 18)	400.0	404.7
Tract 4	Hunting Club Lands	T 66N, R 17W (Sec. 7)	160.0	160.2
Tract 5	McFarland Lake Lands	T 64N, R 3W (Sec. 9)	32.1	30.8

Note:
[1] GLO acreages are being used as part of the project description and would also be used to define the real estate transaction if the Land Exchange Proposed Action is approved. The analysis of effects presented in the subsequent Chapters is based upon GIS data.

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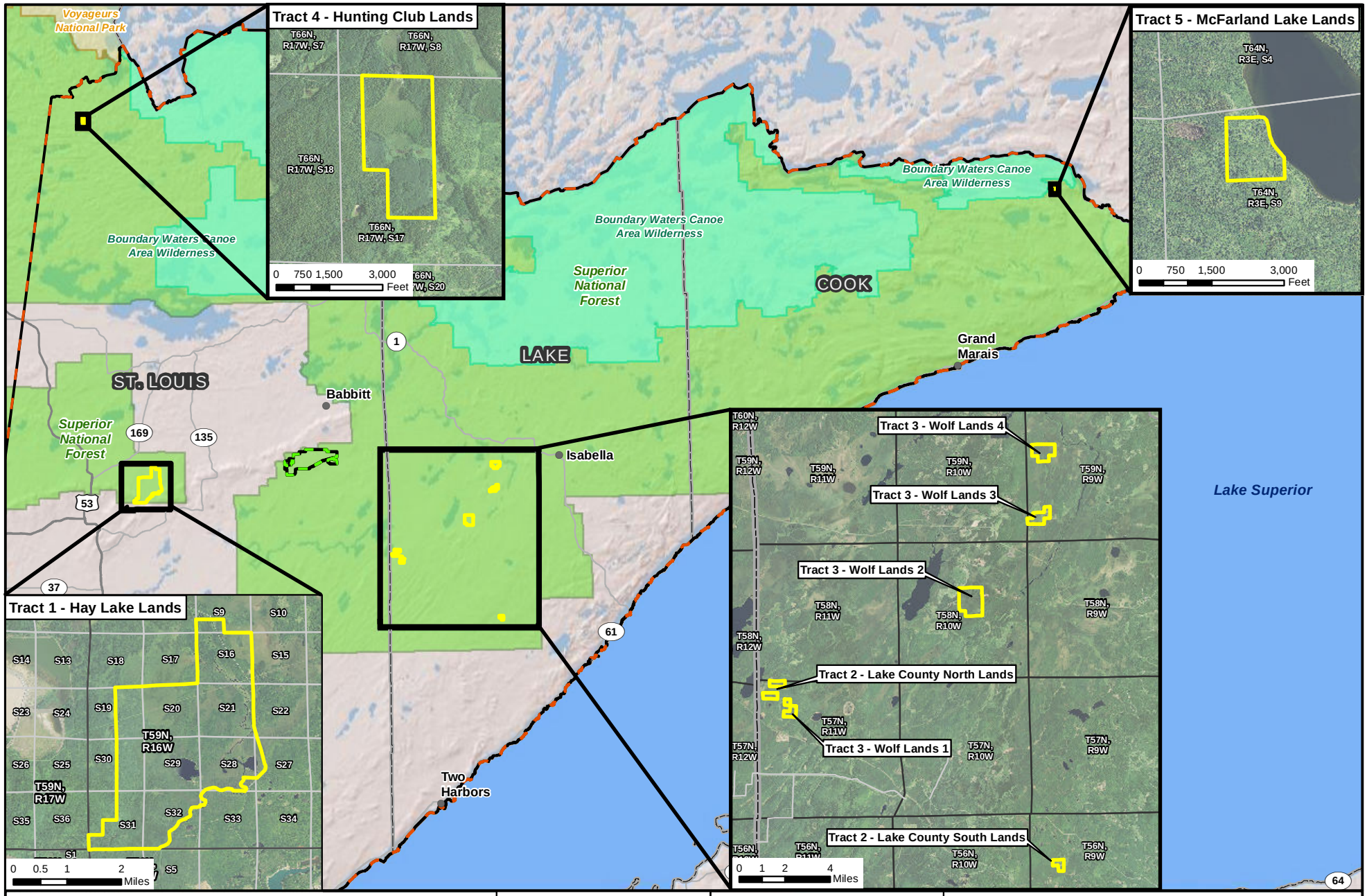

Figure 3.3-1
Land Exchange Proposed Action Parcels
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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3.3.2.1 *Federal Lands Proposed for Exchange*

The federal lands proposed for the Land Exchange Proposed Action are a single contiguous area of 6,650.2 acres (GLO) of land located within the western/central part of the Superior National Forest, approximately 6 miles south of Babbitt in St. Louis County, Minnesota. The federal lands are located in Township 59 North, Range 12 West, Sections 6 and 7; Township 59 North, Range 13 West, Sections 1-12, 17, and 18; and Township 60 North, Range 13 West, Sections 33, 34, and 35 (see Table 3.3-2 and Figures 3.3-1 and 3.3-2).

The federal lands encompass much of the One Hundred Mile Swamp (see Section 4.3.3 and Figure 4.3.3-1), a large black spruce, tamarack, and cedar wetland, and also contain Mud Lake. Yelp Creek and the Partridge River flow through the property.

The federal lands are located adjacent to historic mining projects on the Mesabi Iron Range and are mostly surrounded by privately held land used for mining and other industrial purposes; portions of the east and southwest areas of the federal lands are bordered by Superior National Forest lands. The federal lands lie immediately south of the Superior National Forest proclamation boundary and are bounded on the south by the former LTVSMC railroad and Dunka Road, which are NorthMet Project area features. Access to the federal lands is primarily via Dunka Road, which is privately owned, and the former LTVSMC railroad by permission of private landowners. Privately owned properties to the north and west of the federal lands have been extensively affected over the years by surface mining, including mine pits, waste rock stockpiles, Tailings Basins, processing facilities, railroad grades, and other general mining activities. There is a 115-acre block of privately owned land located within the northwestern portion of the federal lands that is not part of the Land Exchange Proposed Action.

A land exchange is a change of ownership of land; once an exchange occurs, the federal land then becomes private land, allowing the private landowner to use the land in accordance with necessary local, state, and federal permits and approvals. Any future work on the exchanged lands, which could include mining on these lands, would require the necessary permits and/or approvals from state and federal agencies. Most mineral rights within the federal lands are privately held. The United States owns 181 acres of mineral rights on lands that are not part of the NorthMet Project Proposed Action mine pits. The USFS would reserve ownership of these 181 acres of mineral rights. These mineral rights are located near the eastern boundary of the federal lands north of Dunka Road and near the southeast corner of the federal lands south of Dunka Road (see Figure 3.2-3).

Lands conveyed from federal ownership would no longer be under federal control and therefore would not be managed under the Forest Plan and/or be influenced by the authority (the Weeks Act) under which the United States acquired them. While the federal lands, if transferred to PolyMet, would still be located within the proclamation boundary of the Superior National Forest, they would be private lands and no longer managed by the USFS.

3.3.2.2 *Non-federal Lands Proposed for Exchange*

The Land Exchange Proposed Action includes up to five tracts of non-federal lands in St. Louis, Lake, and Cook counties that contain 6,722.5 acres (GLO) (see Table 3.3-2); however, the final exchange, if approved, could include fewer than 6,722.5 acres (GLO) of non-federal land depending on the results of the environmental analysis and real estate appraisals. Disclosure of appraisal information in the EIS is not required. Any decision, documented in the ROD, to move

forward with a land exchange will be supported by a current appraisal, approved by the USFS, which verifies that the exchange meets the equal value requirements of applicable federal law and regulation. Requests for appraisal reports and appraisal review reports are processed under Freedom of Information Act procedures. Appraisals must conform to Uniform Appraisal Standards for Federal Land Acquisitions and the Uniform Standards of Professional Appraisal Practice of the Appraisal Foundation. The final proposed configuration of land would be determined after the market value of the parcels is determined by appraisals and would be presented in the final ROD. As shown in Figure 3.3-1, all of the lands proposed for exchange are located within the 1854 Ceded Territory of northeastern Minnesota.

PolyMet currently owns a portion of the non-federal lands proposed for exchange; however, all rights, titles, and interests of the remaining non-federal lands proposed for exchange have been assigned to PolyMet. All of the non-federal lands except Tract 4 have severed mineral and surface ownership.

There are no activities proposed on the non-federal lands as part of the Land Exchange Proposed Action. The non-federal lands would be incorporated with adjacent federal ownership and managed in accordance with the Forest Plan for that particular management area. Management areas provide context within which the USFS makes implementation decisions (described through desired conditions, objectives, standards, and guidelines) for an area of common direction. Management Areas on the Superior National Forest are mapped and described in Chapter 3 of the Forest Plan. The majority (86 percent) of the non-federal lands would be allocated to the General Forest Management Area, with the balance of the lands allocated to General Forest – Longer Rotation (7 percent), candidate Research Natural Areas (cRNAs) (4 percent), and Riparian Emphasis Areas (3 percent). More information on Management Areas is presented in Chapters 4 and 5. Details of the tracts are summarized below.

3.3.2.2.1 Tract 1 – Hay Lake Lands

Tract 1 – Hay Lake Lands (Tract 1) is the largest tract of non-federal lands consisting of 4,651.5 acres (GLO) within St. Louis County. Tract 1 consists of a single area of land located within the southeastern portion of the Superior National Forest (Laurentian Ranger District) proclamation boundary west of and adjoining County Road (CR) 715 and north of the town of Biwabik (see Figures 3.3-1 and 3.3-3). Access to the tract is available along its eastern edge via CR 715, although access to the interior is generally limited by vegetation.

PolyMet is the owner of Tract 1, with the tract subject to a mortgage in favor of Iron Range Resources and Rehabilitation Board (IRRRB), which would have to be satisfied at closing of the Land Exchange Proposed Action.

3.3.2.2.2 Tract 2 – Lake County Lands

Tract 2 – Lake County Lands (Tract 2) consists of 319.5 acres (GLO) of land made up of four distinct parcels of lands within Lake County, Minnesota, formerly owned by Lake County (see Figures 3.3-1 and 3.3-3). The three northern parcels are referred to as Lake County North and the southern parcel is referred to as Lake County South. Tract 2 includes various 40-acre parcels within the Superior National Forest (Laurentian and Tofte Ranger Districts) proclamation boundary southeast of Seven Beaver Lake that are mostly surrounded by lands managed by the Superior National Forest and other wetland habitats.

The Tract 2 parcels are tax forfeit lands being purchased in the name of Lake-Forest Enterprise, Inc. on a land contract from Lake County. There is an assignment on file with Andresen and Butterworth, PA which assigns all rights, title, and interest in these lands to PolyMet.

3.3.2.2.3 Tract 3 – Wolf Lands

Tract 3 – Wolf Lands (Tract 3) consists of 1,559.4 acres (GLO) of land made up of four distinct parcels of land within Lake County, Minnesota (see Figures 3.3-1, 3.3-3, and 3.3-4). Tract 3 lands are located within the Laurentian and Tofte Ranger Districts, west and southwest of Isabella and are referred to as Wolf Lands 1, Wolf Lands 2, Wolf Lands 3, and Wolf Lands 4.

The Tract 3 parcels are being purchased in the name of Lake-Forest Enterprise, Inc., through options from Wolf Lands, Inc. There is an assignment on file with Andresen and Butterworth, PA which assigns all right, title, and interest in these lands to PolyMet.

3.3.2.2.4 Tract 4 – Hunting Club Lands

Tract 4 – Hunting Club Lands (Tract 4) is a single parcel of 160.0 acres (GLO) of land within St. Louis County, surrounded by Superior National Forest-managed lands and is within the LaCroix Ranger District, approximately 5 miles southwest of Crane Lake (see Figures 3.3-1 and 3.3-4). Two small, unnamed lakes are partially included in the tract, as well as a high percentage of wetland habitat.

PolyMet is the owner of Tract 4 and the parcel is not subject to any financing.

3.3.2.2.5 Tract 5 – McFarland Lake Lands

Tract 5 – McFarland Lake Lands (Tract 5) is a single parcel of land, 32.1 acres (GLO) in size within the Gunflint Ranger District in northeastern Cook County (see Figures 3.3-1 and 3.3-4).

The tract is adjacent to Superior National Forest ownership and includes lakefront property on McFarland Lake, an entry point to the BWCAW. Access to the property is available by water from a landing off CR 16 (Arrowhead Trail), approximately 10 miles north of Hovland. The tract is not developed apart from a 20- by 40-ft wood-frame bunkhouse and outhouse that would be removed prior to finalizing the real estate transaction of the Land Exchange Proposed Action.

PolyMet is the owner of Tract 5, with the tract subject to a mortgage in favor of the IRRRB, which would have to be satisfied at closing of the Land Exchange Proposed Action.

3.3.3 *Land Exchange Proposed Action Alternatives*

The Land Exchange Proposed Action and alternatives were developed initially through scoping (refer to Chapter 2 for more information). Public comments received in response to the scoping of the Land Exchange Proposed Action provided suggestions for alternative methods for achieving the Purpose and Need for the Land Exchange. Some of these alternatives were determined to be outside the scope of the Purpose and Need (see Section 1.3.2.2). In addition, the alternatives were determined to have been duplicative of the alternatives considered in detail or determined to be components that would cause unnecessary environmental harm.

Two alternatives to the Land Exchange Proposed Action: the Land Exchange No Action Alternative and Land Exchange Alternative B are evaluated in detail in the FEIS. The ROD from the USFS will contain the rationale for the selected alternative and how the public interest is

served under 36 CFR 254.3(b). As stated in Section 1.4.3, factors that must be considered include: the opportunity to achieve better management of federal lands and resources, to meet the needs of state and local residents and their economies, and to secure important objectives, including but not limited to: protection of fish and wildlife habitats, cultural resources, watersheds, and wilderness and aesthetic values; enhancement of recreation opportunities and public access; consolidation of lands and/or interests in lands, such as mineral and timber interests, for more logical and efficient management and development; consolidation of split estates; expansion of communities; accommodation of existing or planned land use authorizations; promotion of multiple-use values; implementations of applicable Forest Land and Resource Management Plans; and fulfillment of public needs. See 36 CFR 254.3(b) and 254.4(c)(4). Table 7.3.5-1 of this FEIS presents a comparison of how the alternatives address these factors.

Other alternatives considered were eliminated from further analysis for one or more of the following reasons:

- Did not meet Land Exchange Purpose and Need;
- Did not comply with laws relating to federal land exchanges; or
- In the case of one suggested alternative to limit the federal land exchanged, the suggestion was modified to form Land Exchange Alternative B.

The alternatives that are evaluated in the FEIS are both discussed below.

3.3.3.1 *Land Exchange No Action Alternative*

As stated previously, NEPA requires that the No Action Alternative be evaluated; in this case, this alternative means that the Land Exchange Proposed Action would not take place. For the purposes of analysis, the environmental effects resulting from taking no action are compared to the effects of permitting the Land Exchange Proposed Action and alternatives to the Land Exchange Proposed Action. Under the Land Exchange No Action Alternative, no lands would be exchanged and the NorthMet Project Proposed Action would not proceed.

The federal government would not convey federal lands to PolyMet and the USFS would continue managing these lands in accordance with the Forest Plan. The level of development and acceptable activities would be regulated by USFS and Superior National Forest policies. Management would include vegetation management, mineral exploration, recreation, wildlife, watershed, and other uses identified in the Forest Plan. These lands are in General Forest – Longer Rotation and the General Forest Management Areas. Furthermore, the federal government would not acquire the five tracts of non-federal lands and the lands would remain as private lands under the Land Exchange No Action Alternative. This alternative perpetuates the conflict between PolyMet's interest in open pit mining and the USFS's view that PolyMet's mineral interests do not include a right to open pit mine on National Forest System land. In turn, that increases the likelihood that PolyMet will initiate litigation against the United States, asserting that the private mineral rights that PolyMet seeks to exercise include the right to open pit mine on National Forest System land. As previously indicated, such litigation that has no certain outcome. For example, a judicial decision adverse to the United States (e.g., finding an open pit mining right included within the mineral rights reserved in the deeds to the United

States) could negatively impact the surface integrity of tens of thousands of acres of other National Forest System lands conveyed under the same deeds.

3.3.3.2 *Land Exchange Alternative B*

Land Exchange Alternative B was derived from the Mine Site Exchange Only Alternative (refer to Section 3.3.3.3) that was developed to address concerns raised during scoping. This alternative would convey fewer acres of federal lands for fewer acres of non-federal land.

An issue that was raised through scoping for the proposed land exchange was that the USFS did not need to exchange the entire tract of federal lands included in the Land Exchange Proposed Action to accommodate the proposed Mine Site and development. Commenters noted that not all of the acres proposed for exchange would be needed for developing the NorthMet Project Mine Site. Commenters stated that if there would be a land exchange, the USFS should exchange only the minimum amount of National Forest System lands needed for the Mine Site. The Land Exchange Alternative B addresses this issue by only including lands necessary for the Mine Site with less emphasis on minimizing the amount of USFS landlines and consolidating National Forest System lands ownership patterns. Compared to the Land Exchange Proposed Action, approximately 1,835.2 fewer acres (GLO) of National Forest System lands would be exchanged as part of Land Exchange Alternative B.

Land exchanges are based on equal value; consequently, because there would be fewer federal acres available to be conveyed, there would be fewer acres of private land that would be acquired. The federal government would convey 4,833.7 acres (GLO) of federal lands to PolyMet, and the USFS would no longer manage these lands. The federal government would acquire 4,651.5 acres (GLO) of non-federal lands in one parcel, Tract 1. Tract 1 was selected for this alternative for the following reasons:

- It would be almost equal in size to the smaller federal parcel;
- It would provide wetlands; and
- It is likely that Tract 1 would have a higher per-acre value than the smaller federal parcel because of its access to a county road and its potential for waterfront properties.

The configuration of the smaller federal parcel is considered the smallest the boundary can be while still meeting the underlying Purpose and Need for the Land Exchange (see Figure 3.3-2). Under this alternative, approximately 1,750 acres to the west of the Mine Site would remain under federal ownership. This remaining federal tract would become an isolated piece of federal land with limited or difficult access through private property (see Figure 3.3-2). As with the Land Exchange Proposed Action, the USFS would reserve ownership of 181 acres of mineral rights on scattered parcels in the federal lands. These minerals are located outside of the NorthMet Project Proposed Action mine pits.

Disclosure of appraisal information in the EIS is not required. Any decision, documented in the ROD, to move forward with a land exchange will be supported by a current appraisal, approved by the USFS, which verifies that the exchange meets the equal value requirements of applicable federal law and regulation. Requests for appraisal reports and appraisal review reports are processed under Freedom of Information Act procedures. Appraisals must conform to Uniform Appraisal Standards for Federal Land Acquisitions and the Uniform Standards of Professional Appraisal Practice of the Appraisal Foundation.

The environmental consequences of Land Exchange Alternative B are evaluated in Chapters 5 and 6 of this FEIS.

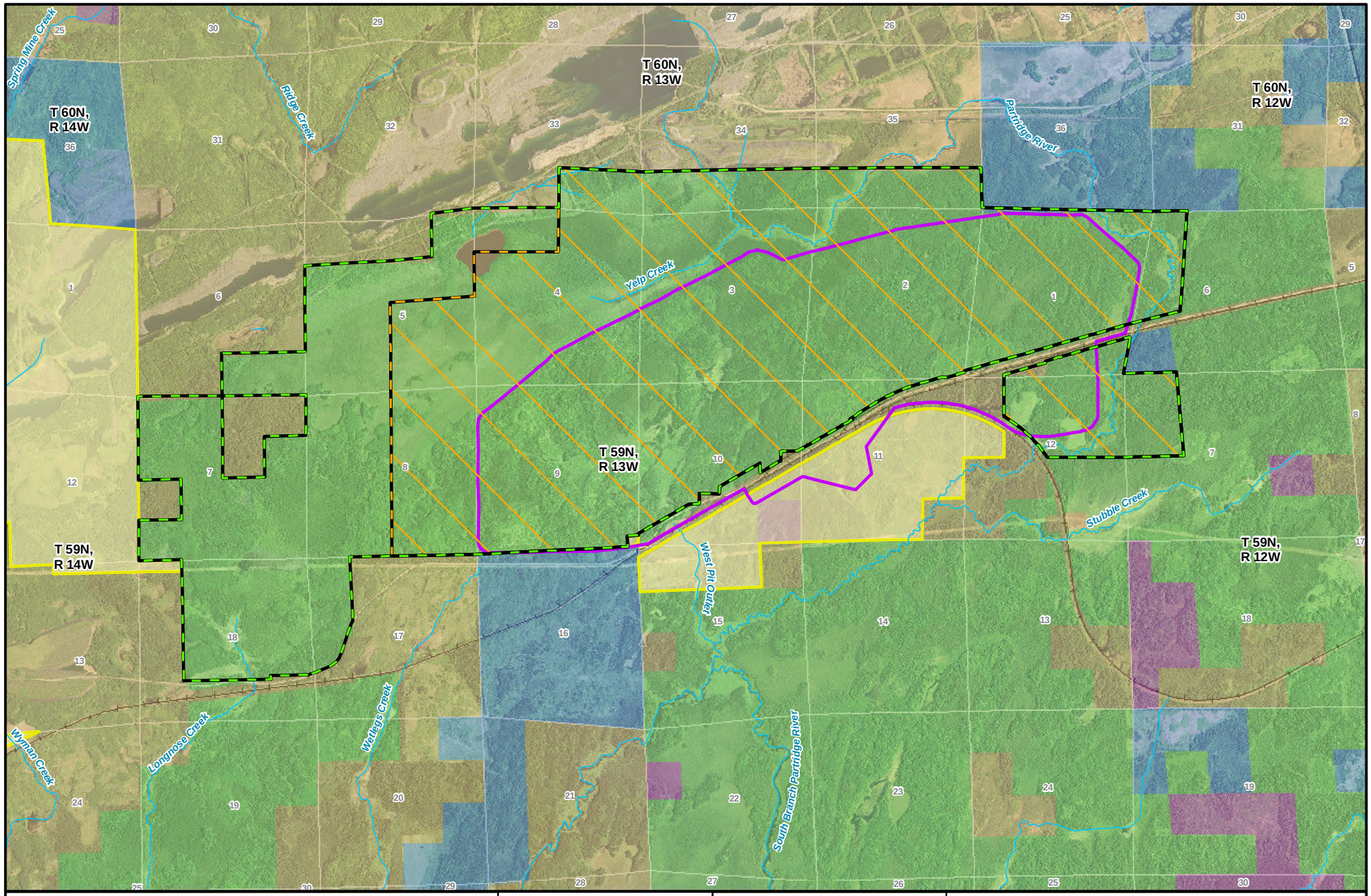

Federal Lands
Alternative B: Smaller Federal Parcel
Mine Site
Stream/River
Section Label
National Forest Ownership
County Ownership
State of Minnesota Ownership
Other Ownership
PolyMet Owned/Leased Area

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 3.3-2
Land Exchange Proposed Action and Alternative B Parcels
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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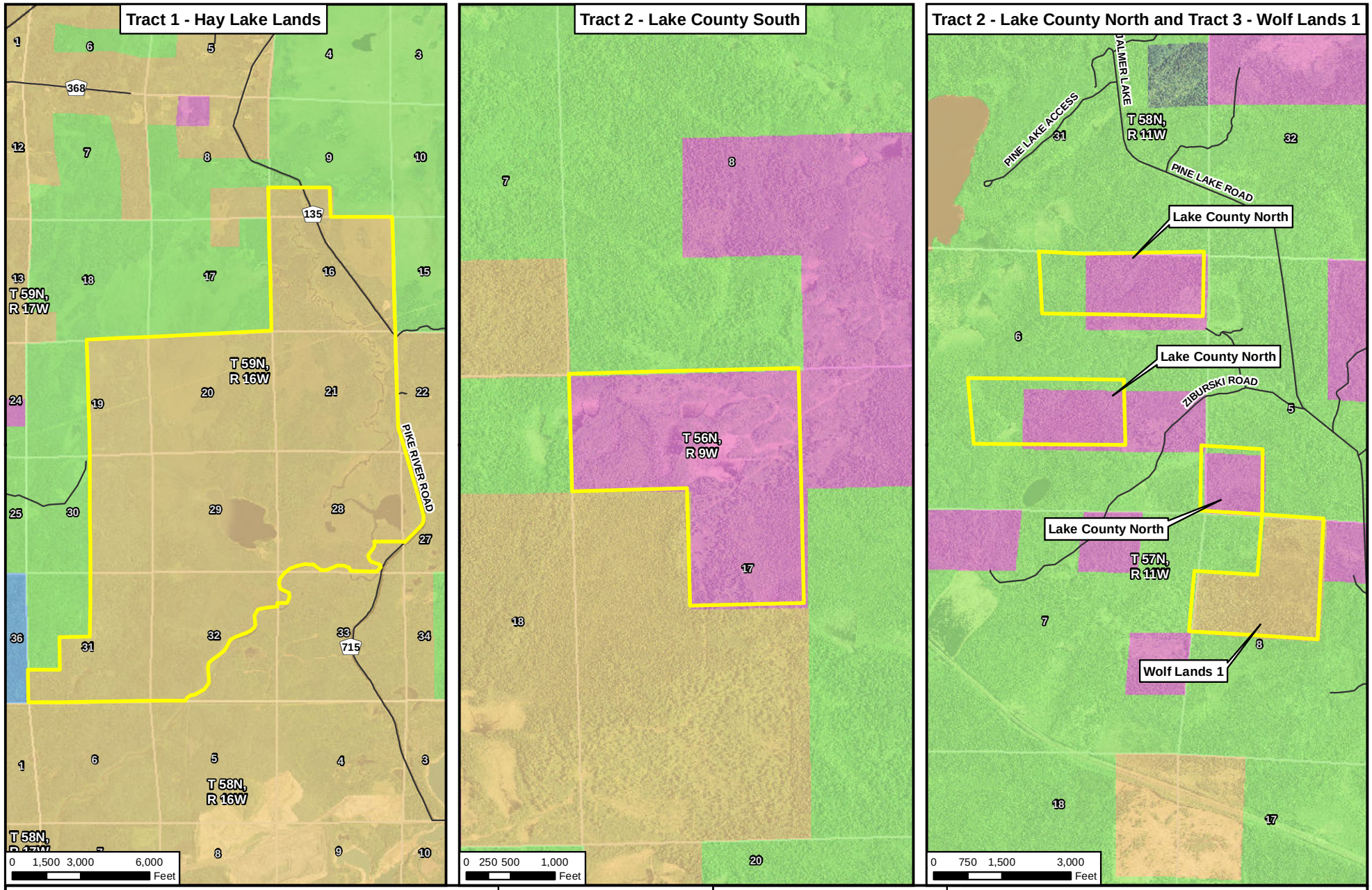

Non-federal Lands
Section Boundary
Section Label
National Forest Ownership
County Ownership
State of Minnesota Ownership
Other Ownership

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

Figure 3.3-3
Ownership of Tracts 1, 2 and 3
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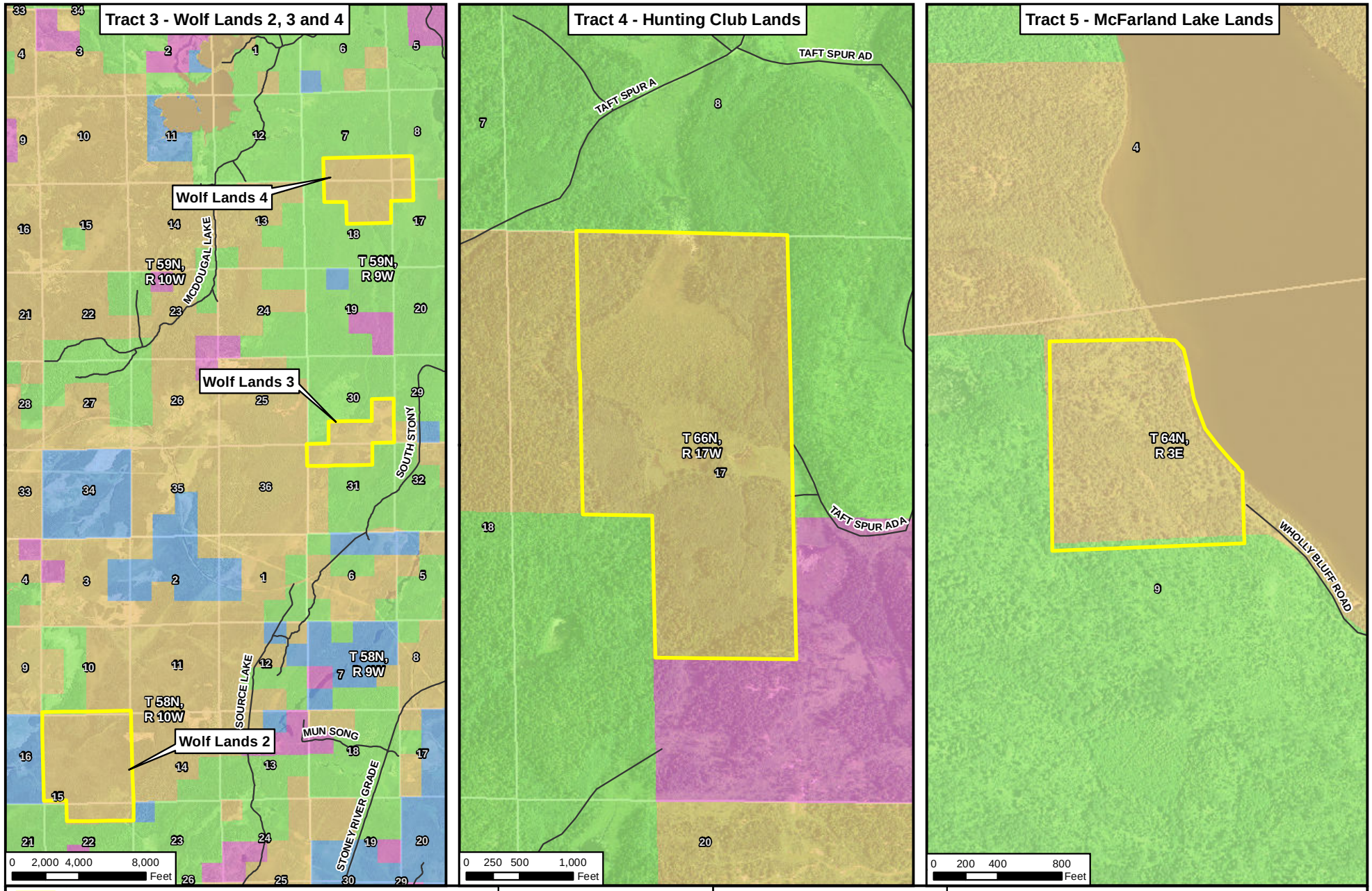

Figure 3.3-4
Ownership of Tracts 3, 4 and 5
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3.3.3.3 *Alternatives Considered but Eliminated from Detailed Analysis*

The following alternatives were considered by the interdisciplinary team, but have been eliminated from further consideration because the proposals could not be acted upon at this time, were represented in the alternatives analyzed in detail, or did not meet the Purpose and Need.

3.3.3.3.1 Direct Purchase Alternative

This alternative, as called for in USFS guidance (FSH 5409.13, Section 33.41a), would involve the USFS directly purchasing the non-federal parcels—i.e., the privately owned parcels identified for exchange to help meet USFS management objectives. The direct purchase alternative would not resolve the conflict between the United States and the proposed development of the private mineral estate at the federal parcel. For this reason, this alternative would not meet the Purpose and Need of the proposed Land Exchange, and thus it was eliminated from further consideration.

3.3.3.3.2 Single Contiguous Non-federal Parcel

PolyMet's proposed assemblage of land for the exchange was based on the standards and guidelines for land adjustment in the Forest Plan. The acquisition of a single contiguous non-federal parcel was not one of the priority criteria. Instead, the Forest Plan defines the desired condition for land adjustment in terms of the overall amount and spatial arrangement of National Forest System lands within the proclamation boundary. Moreover, PolyMet was not able to identify any single large tracts of land for sale. Therefore, this alternative was eliminated from further consideration.

3.3.3.3.3 Other Non-federal Lands

The exchange of the federal lands for multiple non-federal parcels that have wetlands and habitat more similar to the federal lands than the proposed non-federal lands was eliminated from detailed consideration for several reasons. The Land Exchange Proposed Action was developed to match "like acres" with "like acres" (i.e., those with similar wetland and habitat types) to the extent possible with lands that were available for acquisition and that met Forest Plan standards and guidelines for land adjustment. Without identifying specific lands, this alternative is theoretical only and would not meaningfully add to the range of alternatives considered. Therefore, this alternative was eliminated from detailed analysis.

3.3.3.3.4 Mine Site Exchange-Only

The Mine Site exchange-only alternative would have conveyed fewer acres of federal lands to address comments raised during the scoping period. Under this alternative, the federal government would have conveyed only the federal land (that is, 2,719 of the 3,015 acres) that would actually be used for the NorthMet Project Proposed Action.

The Mine Site proposal identifies the minimum area physically needed for mine features. However, environmental assessment of the NorthMet Project Proposed Action identified the potential for air quality effects at the Mine Site boundary. A larger land exchange area would mitigate potential air quality issues; consequently, this alternative was eliminated from further consideration because it would not provide an adequate buffer. It was modified to Land Exchange Alternative B described in Section 3.3.3.2 and further evaluated in the SDEIS.

3.3.3.3.5 Full Exchange with Restrictions

Consistent with the Land Exchange Proposed Action, under this alternative, the federal government would have conveyed the entire federal tract (6,650 acres (GLO)), but would have placed use restrictions on a portion of the conveyed lands. This alternative was initially developed by the USFS during the 2009 Feasibility Analysis for the Land Exchange to compensate for a wetland imbalance when only the non-federal Tract 1 and Tract 5 were being proposed by the applicant as part of the Land Exchange Proposed Action. This imbalance has since been resolved through the addition of Tracts 2, 3, and 4 to the Land Exchange Proposed Action. Furthermore, this alternative is not substantially different from Alternative B, where the smaller federal parcel exchange would be protective of the One Hundred Mile Swamp. Therefore, this alternative was eliminated from detailed analysis as it would have had substantially similar effects to alternatives already analyzed.

3.3.3.3.6 Underground Mining Alternative

The potential for an underground mine to be developed on federal lands (through permitting) instead of the proposed surface mining was raised by public comment through both the Land Exchange scoping process and the comment periods for both the DEIS and SDEIS. Commenters suggested that a land exchange would not be needed if underground mining was proposed for the NorthMet Deposit.

Underground mining was eliminated as an alternative to the NorthMet Project Proposed Action because it was found to be economically infeasible (refer to Section 3.2.3.4 and Appendix B). Consequently, it is not a reasonable alternative to the Land Exchange Proposed Action.

3.3.3.3.7 Forest Service Authorization of Private Open Pit Mining on National Forest System Land

Hypothetically, an owner of the land could authorize the surface mining by a mineral rights holder, even when that mineral rights holder has no property right to such mining methods due limitations of the severance deed. However, with respect to the United States' ownership interest in National Forest System lands, any such action taken by the USFS would have to be authorized by federal law. Stated more specifically, any USFS authorization of private open pit mining on the Superior National Forest would have to be made pursuant to and in accordance with federal statutory authority. Additionally, any such action would need to be consistent with the management objectives of the Superior National Forest. The USFS does not believe that such authority or consistency exists with respect to the open pit mining proposal of PolyMet.

4.0 AFFECTED ENVIRONMENT

4.1 INTRODUCTION

Pursuant to the requirements of NEPA regulations at 40 CFR 1502.15 and *Minnesota Rules*, part 4410.2300, Chapter 4 describes the affected environment of the NorthMet Project Proposed Action and Land Exchange Proposed Action. The information within this chapter provides context to the analyses of the environmental consequences addressed in Chapter 5. Resource topics were identified through scoping for both the NorthMet Project Proposed Action and Land Exchange Proposed Action, development of the DEIS and SDEIS, and public comments. Refer to Chapter 2 for more information on the EIS development process. The discussion of the affected environment is limited to those resources that may be subject to potential environmental effects from either the NorthMet Project Proposed Action or Land Exchange Proposed Action.

Table 4.1-1 lists the structure of Chapter 4 with respect to the NorthMet Project Proposed Action and Land Exchange Proposed Action. Section 4.2 describes the existing conditions for the natural and human environment that may be affected, directly or indirectly, by the NorthMet Project Proposed Action. Section 4.3 describes the existing conditions of the same natural and human environment resources as in Section 4.2, but specific to the areas that may be affected, directly or indirectly, by the Land Exchange Proposed Action or Land Exchange Alternative B.

As previously indicated, the land exchange acreages used in the Project Description section are described in GLO acreages, while the acreages used in the Affected Environment and Environmental Consequences sections are described in GIS acreages. GLO acres represent the acreages associated with the legal descriptions of the parcels based on original surveys performed by GLO surveyors between 1858 and 1907. As such, GLO acreages are being used as part of the project description and would also be used to define the real estate transaction if the Land Exchange Proposed Action were approved. The affected environment presented in Section 4.3 is based upon GIS data. GIS values indicate the size of the federal and non-federal parcels as computed geometrically using mapping software, which may be different than the GLO legal acreage. Unless noted as GLO acres, all values shown are derived from GIS data.

The proposed lands to be exchanged are described below in Section 4.3; however, the final proposed configuration of land would be determined after the market value of the parcels is determined by appraisals and the environmental analysis has been completed. This information will be presented in the USFS ROD.

Table 4.1-1 Resource Topic Areas Discussed in Chapter 4

Resource Topic	NorthMet Project Proposed Action	Land Exchange Proposed Action
Land Use	4.2.1	4.3.1
Water Resources	4.2.2	4.3.2
Wetlands	4.2.3	4.3.3
Vegetation	4.2.4	4.3.4
Wildlife	4.2.5	4.3.5
Aquatic Species	4.2.6	4.3.6
Air Quality	4.2.7	4.3.7
Noise and Vibration	4.2.8	4.3.8
Cultural Resources	4.2.9	4.3.9
Socioeconomics	4.2.10	4.3.10
Recreation and Visual Resources	4.2.11	4.3.11
Wilderness and Special Designation Areas	4.2.12	4.3.12
Hazardous Materials	4.2.13	4.3.13
Geotechnical Stability	4.2.14	4.3.14

4.2 NORTHMET PROJECT

4.2.1 Land Use

This section describes the lands that may be affected by the NorthMet Project Proposed Action. Local, federal, and tribal management frameworks regulate the use of the lands. The Mine Site, Transportation and Utility Corridor, Plant Site, and non-federal lands fall within the 1854 Ceded Territory. The Mine Site and a portion of the Transportation and Utility Corridor fall within the Superior National Forest and are managed by the Forest Plan.

The Plant Site and existing LTVSMC Tailings Basin are located in a brownfield area dominated by the existing facilities and infrastructure of the former LTVSMC processing plant. In 2002, Cliffs Erie conducted a Phase I Environmental Site Assessment (Phase I ESA) of the former LTVSMC processing plant and identified 62 potential AOCs. The Legacy Contamination discussion in Section 4.2.1.4.2 elaborates on the status of AOCs.

4.2.1.1 Regulatory Considerations

The lands that may experience direct or indirect effects from the NorthMet Project Proposed Action (as well as the non-federal lands evaluated in Section 4.3.1) are located within the following jurisdictions:

- The cities of Babbitt and Hoyt Lakes;
- The 1854 Treaty Authority (including the 1854 Ceded Territories Conservation Code);
- Fond du Lac Tribal Conservation Codes for 1854 Ceded Territories;
- St. Louis, Lake, and Cook counties; and
- Superior National Forest.

County and municipal land use controls are described in Section 4.2.1.1.1; federal and tribal management frameworks are described in Section 4.2.1.1.2. Table 4.2.1-1 summarizes the relationship between these land use controls and project components.

Table 4.2.1-1 Land Use Controls Affecting the NorthMet Project Proposed Action

	Mine Site	Plant Site	Transportation and Utility Corridor
City of Hoyt Lakes Zoning Ordinance		X	X
City of Babbitt Zoning Ordinance	X		X
City of Babbitt Comprehensive Land Use Plan	X		X
St. Louis County Comprehensive Land Use Plan	X	X	X
Land and Resource Management Plan for Superior National Forest	X		X
1854 Treaty Authority	X	X	X

4.2.1.1.1 Local Land Use Management

Land use is regulated by municipal or county zoning ordinance, while comprehensive land use plans provide additional guidance for future development (League of Minnesota Cities 2011). A zoning designation identifies a list of allowed uses. If a proposed activity is one of these allowed uses, then it can be developed "as of right." If a potential use is not specifically allowed, the zoning ordinance will indicate that a variance or some similar action is required. The lands potentially directly affected by the NorthMet Project Proposed Action are in areas currently zoned for mining and/or industrial use. Some of these areas have already been affected by historic mining activity.

The federal lands are within the Partridge River Watershed, which is a tributary of the Upper St. Louis River. While St. Louis County Comprehensive Land Use Plan does not apply to federal lands, it would if the lands were acquired by PolyMet through the Land Exchange Proposed Action or Land Exchange Alternative B. In addition, other non-federal lands within the watershed are covered by the Comprehensive Land Use Plan's guidance. The Plan emphasizes active management of development in the watershed to promote preservation and improvement of water quality, recreational opportunities, ecological health, and archaeological resources (St. Louis County 2013).

4.2.1.1.2 Federal and Tribal Land Use Management

The Mine Site, Transportation and Utility Corridor, Plant Site, and non-federal lands are within the territory ceded by the 1854 Treaty between the U.S. Government and the Chippewa of Lake Superior. Hunting, fishing, gathering, and other traditional uses under the 1854 Treaty are exercised on public lands within this territory, and on private lands with the permission of the land owner.

In addition, a portion of the Mine Site and Transportation and Utility Corridor are within the Superior National Forest. As such, they are governed by the Forest Plan. The Forest Plan uses the management area framework to define the management approach for the Superior National Forest. The Forest Plan provides direction on desired conditions for forestry resources, mineral resources and extractive activity, vegetative communities, wildlife management, public recreation opportunities, and visual character, among other characteristics (USFS 2004b).

4.2.1.2 Mine Site

The federal lands, comprising 6,495.4 acres, are located in St. Louis County, approximately 70 miles north of the City of Duluth, 20 miles south of the BWCAW, 6 miles south of the City of Babbitt, and approximately a mile south of the Northshore Mine. The federal lands are bounded on the south by the Transportation and Utility Corridor.

Except for an area south of the Transportation and Utility Corridor (see Section 4.2.1.3 below), the Mine Site is contained within the federal lands on part of the Superior National Forest and within the municipal limits of the City of Babbitt (see Figure 4.2.1-1). Most of the Mine Site and adjoining federal lands are part of the General Forest – Longer Rotation Management Area, while the remainder is within the General Forest Management Area (see Figure 4.3.1-1).

The General Forest – Longer Rotation Management Area is characterized by a diverse array of land and resource management uses, goods and services (including commercial goods), scenic

quality, developed and dispersed recreation opportunities, and habitat for wildlife and fish. Roads open to public travel in this management area provide access to resources and road recreation opportunities. Non-motorized recreation opportunities also exist. The USFS allows exploration, development, and production of mineral resources on National Forest lands used for timber production under conditions where the activities "are conducted in an environmentally sound manner so that they may contribute to economic growth and national defense" (USFS 2004b).

The characteristics and use of the General Forest Management Area are similar to the General Forest – Longer Rotation Management Area, except that timber harvests are more frequent, more uniform in age, and more extensive. The General Forest Management Area has the highest amount of young forest and the largest sized timber harvest units.

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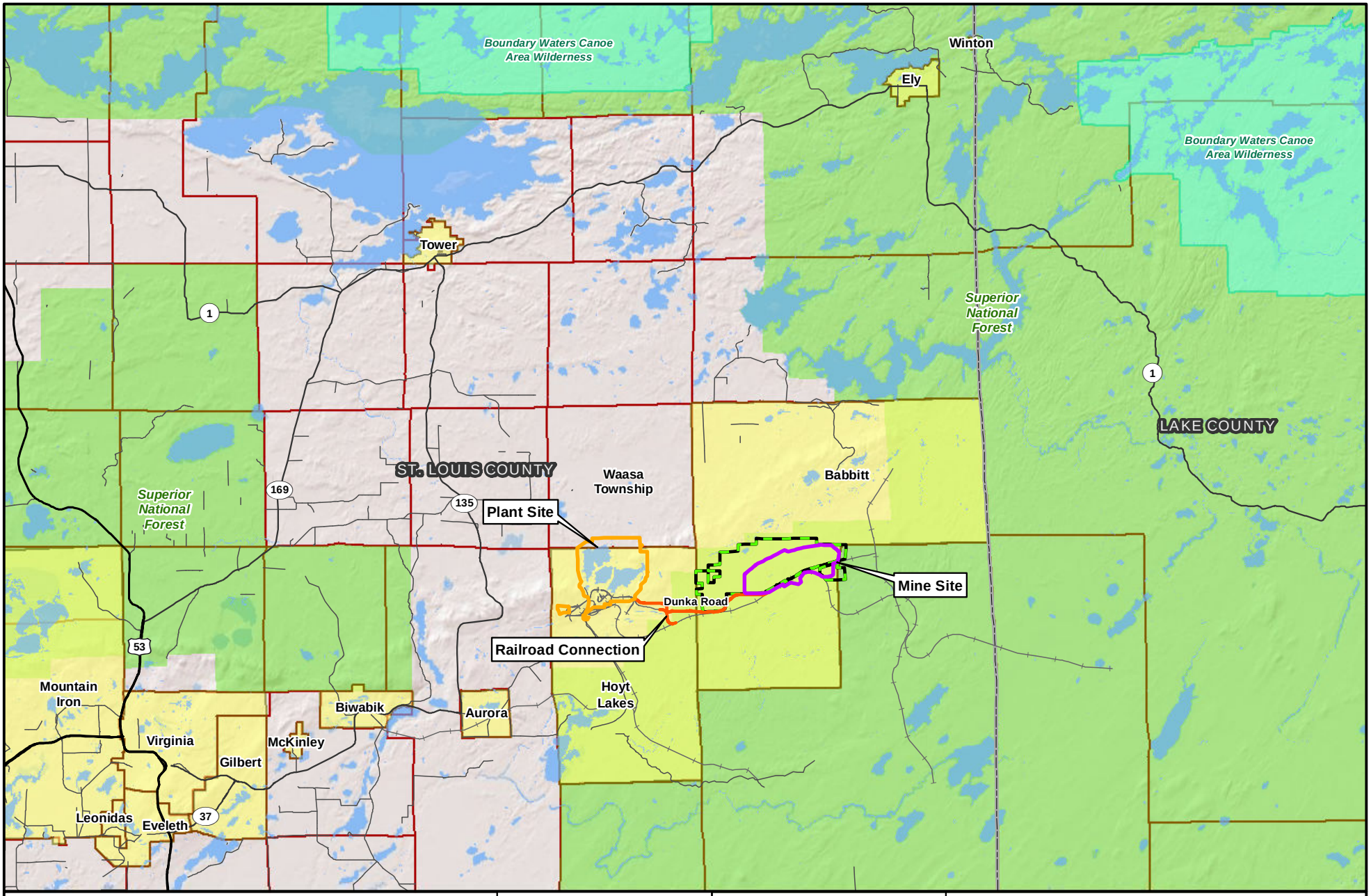

Plant Site
Mine Site
Transportation and Utility Corridor
Federal Lands
Municipal Boundary
Township Boundary
Boundary Waters Canoe Area Wilderness
National Forest
Existing Road
Existing Railroad

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

0 1.5 3 6 Miles

Figure 4.2.1-1
Area Municipalities
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Federal lands designated for the Mine Site have been subject to mineral exploration since 1969. As of 2011 (the most recent year for which data were available), this exploration included 123 exploration drill sites, soil borings, and the construction of approximately 0.5 mile of temporary road access. Final reclamation of the closed portions of the temporary access roads has been completed (USFS 2011a). There is no known existing contamination by hazardous materials at the Mine Site.

The federal lands are a part of the territory ceded by the Chippewa of Lake Superior to the United States in 1854 (1854 Treaty Authority 2006). The Chippewa reserve rights to hunt, fish, and gather on public lands (and on private land with permission) in the 1854 Ceded Territory. Tribal harvest levels and other activities are governed by either individual tribal entities (in the case of the Fond du Lac Band) or the 1854 General Codes and subsequent Amendments under the 1854 Treaty Authority (in the case of the Grand Portage and Bois Forte Bands [MDNR 2011o]).

The City of Babbitt's zoning ordinance classifies the Mine Site area as a Mineral Mining district. This allows for existing and potential mineral mining, processing, and tailings and waste disposal, as well as accessory and support activities needed for the proper operation of mining activities outside the limits of open pit and ore formations. The zoning ordinance falls within the city's broader Comprehensive Land Use Plan, which was revised in 2014 (Arrowhead 2014). The draft plan includes goals and objectives in support of mining-related economic development opportunities.

Use of the area surrounding the Mine Site is varied. The area to the north/northwest of the Mine Site is within the City of Babbitt Mineral Mining district. The district includes part of the Plant Site and the Transportation and Utility Corridor, and the Northshore Mine (City of Babbitt 1996). The area to the east of the Mine Site is Superior National Forest land that is within the General Forest – Longer Rotation Management Area. The area to the south of the federal lands is within the City of Babbitt's Mineral Mining district and is a mix of private use (railroad and buffer area), Superior National Forest land within the General Forest Management Area, and state-owned lands.

4.2.1.3 Transportation and Utility Corridor

The Transportation and Utility Corridor connects the Plant Site and Mine Site, and includes Dunka Road, and a railroad connection. The corridor traverses an area that straddles the boundary between the City of Babbitt and City of Hoyt Lakes (see Figure 4.2.1-1). The corridor passes through private, state, and Superior National Forest lands, some of which were previously mined. The private lands are within the City of Babbitt Mineral Mining zoning district and the City of Hoyt Lakes Mineral Mining district. The Superior National Forest areas are within the General Forest – Longer Rotation Management Area.

Dunka Road is a private road, with segments owned and leased by Cliffs Erie, PolyMet, and Minnesota Power. It serves as the access point for USFS Roads 125, 108, and 109, which are used for forest maintenance in the area of the Mine Site. Dunka Road also provides access to an existing electrical transmission line that runs parallel to and south of the road. The railroad is privately owned and in operating condition, but has not been extensively used since operations at LTVSMC ceased in 2001.

The Transportation and Utility Corridor crosses over Wyman, Longnose, and Wetlegs Creeks, which drain to the Partridge River, a tributary of the Upper St. Louis River (see Figure 3.2-1). This feature of the NorthMet Project Proposed Action therefore also falls within the jurisdiction of the St. Louis County Comprehensive Land Use Plan in the management of the St. Louis River Watershed (see Section 4.2.1.1 above).

4.2.1.4 Plant Site

4.2.1.4.1 Summary of Land Use Conditions

The Plant Site is west of the Mine Site, in an area dominated by the existing facilities and infrastructure of the former LTVSMC processing plant and Tailings Basin, along with additional acreage purchased for the purpose of plant upgrade and buffer zones. The site is characterized by historical heavy industrial use, with extensive mechanical facilities, rail lines, mine workings, tailings storage, and closed pits. The majority of the Plant Site is located within the incorporated limits of the City of Hoyt Lakes and governed by the City of Hoyt Lakes Zoning Ordinance, last updated in 2010 (Hoyt Lakes Planning Commission 2010). The City does not have a comprehensive land use plan. The Hoyt Lakes portion of the Plant Site is in the City's Mineral Mining district, which identifies areas of existing and potential mineral mining, processing, tailings and waste disposal, and related activities, outside of the boundaries of the open mine pit and ore formations themselves.

The northern section of the Tailings Basin within the Plant Site is located within unincorporated Waasa Township (see Figure 4.2.1-1) and governed by the St. Louis County Comprehensive Land Use Plan. This area of the county is zoned for industrial use (the IND-4 zoning district; St. Louis County 2011). This district designates land for mining and quarrying, manufacturing, mineral exploration and evaluation, and a number of other related activities.

The Plant Site is accessible by Dunka Road from the east and from County Road 666 from the south. The Plant Site drains to the Partridge and Embarrass rivers, tributaries of the Upper St. Louis River. It therefore is within the jurisdiction of the St. Louis County Comprehensive Land Use Plan in the management of the St. Louis River Watershed (see Section 4.2.1.1 above).

The NorthMet Project Proposed Action includes the use of an existing water pipeline that runs from the northernmost section of Colby Lake northward to the Plant Site. The pipeline corridor is within the City of Hoyt Lakes Mineral Mining district. Colby Lake is an in-stream lake within the Partridge River. The corridor therefore is within the jurisdiction of the St. Louis County Comprehensive Land Use Plan in the management of the St. Louis River Watershed.

4.2.1.4.2 Legacy Contamination

In 2002, Cliffs Erie commissioned a Phase I ESA of the former LTVSMC processing plant and improvements (NTS 2002), which identified 62 potential AOCs. Designation as an AOC means that these areas require further investigation, but does not necessarily mean that contamination occurred in the past or is currently present.

As shown in Table 4.2.1-2, PolyMet would assume responsibility for 29 of the 62 AOCs upon acquiring the property from Cliffs Erie (Barr 2007e). Of the 29 AOCs to be acquired, four have been closed or received a no further action letter from the MPCA; one is a permitted former landfill under post-closure monitoring pursuant to the Minnesota solid waste landfill

requirements; and 14 require further investigation, including AOC #8, another closed permitted landfill, which requires further investigation to assess a groundwater plume. Table 4.2.1-2 summarizes the potential issues and status of these AOCs. PolyMet intends to continue the VIC program initiated by LTVSMC and continued by Cliffs Erie, and would investigate and remediate as necessary these AOCs on a schedule approved by the MPCA.

All historic and any potentially operational AOCs not already addressed by the start of mine closure would be investigated and remediated as necessary. The MDNR has indicated that any associated cleanup costs for the legacy AOCs would be included in the financial assurance requirements for any Permit to Mine issued to PolyMet for the NorthMet Project Proposed Action (Boreal, Pers. Comm., April 13, 2009).

The status of the remaining 33 AOCs for which PolyMet does not have any responsibility are as follows:

- Eleven sites have been closed through the VIC program;
- Five sites have been closed through the Petroleum Remediation Program;
- Four sites have completed initial investigations, sampling plans in place, and are awaiting MPCA review;
- Nine sites have not yet been investigated;
- One site has a status that is unknown or not readily available;
- One site has a limited no action determination;
- One site is being managed through the NPDES program; and
- One site would likely require additional remediation (i.e., Pellet Plant).

Table 4.2.1-3 summarizes the potential issues and status of these AOCs.

Additionally, the LTVSMC Tailings Basin seeps are being managed under the Cliffs Erie Consent Order using short-term measures until long-term mitigation measures are determined.

Table 4.2.1-2 NorthMet Project Proposed Action Area of Concern Summary List for Voluntary Investigation and Cleanup Program

AOC	Location	Site Description	Identified Potential Issues	Status
1	Area 1	Area 1 Shops and Reporting	Domestic septic systems and drain field.	*No actions have been taken with regard to this site.*
6	Area 1	Oily Waste Disposal Area	Waste from general shop area floor drains.	No actions have been taken with regard to this site.
7	Area 1	Bull Gear Disposal Area	One time 1970s disposal of heavy lubricant.	No actions have been taken with regard to this site.
8	Area 1	Private Landfill	Permitted industrial waste landfill that operated until 1993. Identified presence of groundwater plume.	The closed LTVSMC Private Landfill exists within the site of active permitted Industrial Waste Landfill (SW-619). Monitoring activities for the closed LTVSMC Private Landfill are incorporated into the active SW-619 permit (held by Cliffs Erie). Work plan submitted to MPCA to define the extent of the facility's groundwater plume, assess the stability of the groundwater, and assess the ability of the gas vents to aid in the remediation of the groundwater plume.
9	Area 1	Area 1 RR Panel Yard	Railroad tie disposal area co-mingled with scrap metal, wood, and demolition debris.	Scrap and trash were disposed. Some items remain to be removed. A SAP was submitted to the MPCA and was implemented. A historic release was identified. Further recommendations for cleanup are ongoing to the MPCA.
10	Area 1	Area 1 Airport	Some areas of soil staining.	No actions have been taken with regard to this site.
11	Area 1	Stoker Coal Ash Disposal	Disposal area until 1980s with marginal cover.	No actions have been taken with regard to this site.
12	Area 1	Mill Rejects Area	Solid waste from concentrator building.	Site closed: No Further Action required.
13	Area 2/2E/3	2001 Storage Area	Some areas of soil staining.	No actions have been taken with regard to this site.
14	Area 2/2E/3	Large Equipment Paint Area	Buildup of blasting sand.	No actions have been taken with regard to this site.
24	Area 5	Area 5 Reporting	Scrap and salvage area with some stained soils.	Site closed through the VIC program in letter dated 7/30/08.
25	Area 5	Area 5 Loading Pocket & Storage	Some areas of stained soils along rail siding.	Site closed through the VIC program in letter dated 7/30/08.
35	Plant Site	Dunka WWTP Sludge Staging Area	Little evidence of any residue remaining.	Water treatment plant sludge residue removed.

AOC	Location	Site Description	Identified Potential Issues	Status
36	Plant Site	Coal Ash Landfill	Cover appears to be in good condition.	Permitted Landfill. Closed and subject to post-closure monitoring.
37	Plant Site	Line 9 Area 5 Petroleum Contaminated Soil	Permitted petroleum land application site with 25,000 cubic yards of soils.	The MPCA sent a closure letter for this site on February 24, 2006.
38	Plant Site	Area 2 Shops	Contains a locomotive fueling station and a septic system.	*Petroleum impacted soil excavation has been completed. Additional evaluation of non-petroleum contamination needed.*
40	Plant Site	Heavy Duty Garage	Formerly used for equipment maintenance.	Building and one UST removed. Site reuse planned. Further investigation at PolyMet closure. *No actions have been taken with regard to this site.*
42	Plant Site	Bunker C Tank Farm	Large ASTs which previously contained #4 and #6 fuel oil.	*Petroleum Remediation closed the site January 2012. Contamination remains at the site.*
43	Plant Site	Administration Building	One heating oil UST was abandoned in place.	Facility still in use. Further investigation at PolyMet closure. *No additional actions have been taken with regard to this site.*
44	Plant Site	Main Gate Vehicle Fueling Area	Contains several AST used for fueling trucks.	Facility still in use. Further investigation at PolyMet closure. *No additional actions have been taken with regard to this site.*
46	Plant Site	Plant Site Proper/General Shops	Former taconite processing area – no specific issues identified.	Reuse planned. Further investigation at PolyMet closure. *No additional actions have been taken with regard to this site.*
47	Tailings Basin	Tailings Basin Reporting	Septic system remains.	Two USTs removed. *No additional actions have been taken with regard to this site.*
48	Tailings Basin	Transformers	Several transformers present, but records indicate that they do not contain PCBs.	No actions have been taken with regard to this site.
49	Tailings Basin	Coarse Crusher Petroleum Contaminated Soil Stockpile	Contained floor sweepings (containing oil).	All contaminated soil was removed in 1990s.
50	Tailings Basin	Emergency Basin	Received water from process sumps in the Concentrator during power outages and emergency conditions, and storm water outfall.	A SAP was submitted to the MPCA and was implemented. *MPCA VIC program is waiting for an investigation report summarizing the work.*
51	Tailings Basin	Salvage and Scrap Areas	Some areas of soil staining.	No actions have been taken with regard to this site.
52	Tailings Basin	Cell 2W Salvage Area	Several small stained soil areas as well as the remnants of a mobile AST.	No actions have been taken with regard to this site.
53	Tailings Basin	Cell 2W Horrnfels waste rock	Sulfide waste rock disposed under a MPCA/MDNR approved plan.	NPDES monitoring ongoing.

AOC	Location	Site Description	Identified Potential Issues	Status
59	Colby Lake	Colby Lake Pumping Station	One transformer remaining.	One heating oil AST removed in 1970. Reuse planned, further investigation at PolyMet closure. *No additional actions have been taken with regard to this site.*

Sources: NTS 2002; PolyMet., Pers. Comm., August 8, 2012; ERM, Pers. Comm., October 21, 2014.

Notes:
Italic text in Table 4.2.1-2 indicates that the "Identified Potential Issues" and "Status" have been updated since the SDEIS.
PCB = Polychlorinated biphenyl
PRP = Potentially Responsible Party
SAP = Sampling and Analysis Plan
UST = Underground storage tank

Table 4.2.1-3 Non-NorthMet Project Areas of Concern Status

AOC	Responsible Party	Site Description	Issues	Status
2	Mesabi Nugget	Area 1 petroleum contaminated soil	Petroleum contaminated soil.	*SAP submitted and approved. MPCA waiting for results report.*
3	Mesabi Nugget	Sludge site	Sludge contaminated soil.	*No actions have been taken with regard to this site.*
4	Mesabi Nugget	1004 storage area	Soil staining and debris.	*Workplan submitted November 2013. MPCA waiting for results report.*
5	Mesabi Nugget	Roofing disposal site	Roofing debris.	*Workplan submitted November 2013. MPCA waiting for results report.*
15	Cliffs Erie	Railroad storage area	Debris.	No action to date.
16	Cliffs Erie	Area 2 vibratory loading pocket		*Limited No Action Determination for Soil sent May 20, 2008.*
17	Cliffs Erie	Area 2 truck fueling		*Petroleum release L#16490 closed.*
18	Cliffs Erie	Area 2 superpocket		*Petroleum release evaluated and L#16490 closed.*
19	Mesabi Nugget	Area 2WX reporting		Site closed through the VIC program in letter dated 7/31/08.
20	Mesabi Nugget	Area 2WX shovel salvage		Site closed through the VIC program in letter dated 7/31/08.
21	Mesabi Nugget	Area 2WX truck fueling		Site closed through the VIC program.
22	Mesabi Nugget	Area 2WX vibratory loading pocket		Site closed through the VIC program in letter dated 7/31/08.
23	Mesabi Nugget	Area 2WX superpocket		Site closed through the VIC program.
26	Mesabi Nugget	Area 6 truck fueling		Site closed through the VIC program.
27	Mesabi Nugget	Area 6 misfired blast		Site closed through the VIC program.
28	Mesabi Nugget	Area 9S former Aurora dump site	Debris.	*No actions to date.*
29	Mesabi Nugget	Stockpile #9021	Debris related to Aurora dump site.	*Workplan has been approved. MPCA is waiting for investigation report.*
30	Mesabi Nugget	Pre-taconite plant	Debris.	*Closed in VIC and Petroleum Remediation programs.*
31	Mesabi Nugget	Area 9N vibratory loading pocket	Septic tank and drain field.	Unknown.
32	Duluth Metals	Dunka shops and reporting	Demolition debris, closed leak site.	*No actions have been taken with regard to this site.*
33	Duluth Metals	North loading pocket – Dunka	Abandoned wells and septic	*No actions have been taken with regard to this site.*

AOC	Responsible Party	Site Description	Issues	Status
			system.	
34	Duluth Metals	South loading pocket – Dunka	Abandoned wells and septic system.	*No actions have been taken with regard to this site.*
39	Cliffs Erie	Knox Railroad fueling station		*Petroleum contaminated soil excavated and soil to land treatment area. Site is closed.*
41	Cliffs Erie	Oxygen plant		*Closed in VIC and Petroleum Remediation programs.*
45	Cliffs Erie	Pellet storage area and load-out	Soil staining and petroleum residue.	No action to date.
54	Cliffs Erie	Taconite Harbor marine fueling ASTs		*Approximately 2500 cubic yards of petroleum contaminated soil excavated and disposed. L#12252 closed.*
55	Cliffs Erie	Taconite Harbor oil track		*Petroleum contaminated soil removed from tracks. L#12252 closed.*
56	Cliffs Erie	Coal ash landfill - Taconite Harbor		Managed through *Solid Waste and/or* NPDES permit, no VIC action.
57	Cliffs Erie	Murphy City	Soil staining, well and septic system.	*Closed petroleum L#6423. No VIC action to date.*
58	Cliffs Erie	Rail lubricators	Stained soil.	No action to date.
60	Cliffs Erie	Brick recycling area		Site closed through the VIC program.
61	Cliffs Erie	PCB ditch investigation (pellet plant)		Site closed through the VIC program.
62	Cliffs Erie	Pellet plant	Soil staining and debris.	*No actions have been taken with regard to this site.*

Sources: NTS 2002; PolyMet, Pers. Comm., August 8, 2012; ERM, Pers. Comm., October 21, 2014.

Notes:
Italic text in Table 4.2.1-2 indicates that the “Identified Potential Issues” and “Status” have been updated since the SDEIS.
PCB = Polychlorinated biphenyl
PRP = Potentially Responsible Party
SAP = Sampling and Analysis Plan
UST = Underground storage tank

Cliffs Erie received a permit (SW-625) in 2006 from the MPCA to locate two individual land treatment sites within Cell 2W of the existing LTVSMC Tailings Basin. This facility is being used to land farm petroleum-contaminated (i.e., diesel fuel) soils excavated from AOCs #38 (Area 2 Shops) and #39 (Knox Railroad fueling station).

In May 2009, Cliffs Erie conducted a detailed assessment of both surface and groundwater quality at the existing LTVSMC Tailings Basin, including testing for volatile organic compounds (VOCs), SVOCs, PCBs, and other parameters to determine if there was any organic contamination that could be transported off site via stormwater runoff or groundwater seepage. The laboratory analyses showed no evidence of organic contamination leaving the site (Cliffs Erie 2009). Based on the investigations and laboratory analyses to date, which include sampling at seven monitoring wells, 14 surface discharges, 12 internal waste streams, and six downstream surface water monitoring stations, and visual observation and limited field analyses at 33 seeps at or near the existing LTVSMC Tailings Basin, no off-site contamination has been documented. The extent of on-site contamination from the legacy sites appears to be limited to localized soils and groundwater.

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4.2.2 Water Resources

This section describes the existing groundwater and surface water hydrology and water quality within the Partridge River and Embarrass River watersheds because these watersheds are expected to be affected by the NorthMet Project Proposed Action. The Partridge River and Embarrass River are headwaters to the St. Louis River. The Mine Site, Transportation and Utility Corridor, the former LTVSMC processing plant, and a small portion of the existing LTVSMC Tailings Basin drain to the Partridge River Watershed (see Section 4.2.2.2), while most of the Tailings Basin and the Emergency Basin drain to the Embarrass River Watershed (see Section 4.2.2.3).

4.2.2.1 Regional Setting

4.2.2.1.1 Meteorological Conditions

The NorthMet Project area is located near the headwaters of the Partridge River and Embarrass River watersheds at an approximate elevation of 1,600 ft amsl. Meteorological data are available for the NorthMet Project area from two weather stations operated by the National Weather Service. The Babbitt 2SE weather station is located approximately 5 miles from the Mine Site and has 39 years of records. The Hoyt Lakes 5N weather station is located approximately 1 mile from the Plant Site and has 27 years of records (see Figure 4.2.2-1).

Table 4.2.2-1 shows the monthly and annual average air temperature and precipitation for the two National Weather Service stations. Precipitation averages approximately 28 inches annually. Snowfall in the NorthMet Project area typically occurs between October and April. Estimates of annual average evaporation for northern Minnesota range from 18 inches (Siegel and Ericson 1980) to 22 inches (SCS 1975).

Table 4.2.2-1 Normal Monthly and Annual Average Air Temperature and Precipitation Near the NorthMet Project

Station Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Air Temperature (°F)													
Babbitt 2 SE	5.5	12.3	23.8	39.2	52.8	61.5	66.5	64.4	54.5	44.4	27.1	11.8	38.7
Hoyt Lakes 5N	1.5	9.0	22.4	37.5	50.6	59.0	64.6	61.9	52.3	41.8	25.3	9.5	36.3
Precipitation (inches)													
Babbitt 2 SE	0.91	0.74	1.07	1.99	3.17	4.17	3.67	3.98	3.40	2.60	1.73	1.04	28.47
Hoyt Lakes 5N	0.95	0.66	1.23	2.08	3.23	3.96	3.86	3.86	3.36	2.75	1.25	0.97	28.16

Source: WRCC 2012.

Notes:
°F = Degrees Fahrenheit
Period of Record: Babbitt = 1948 to 1986; Hoyt Lakes = 1958 to 1984.

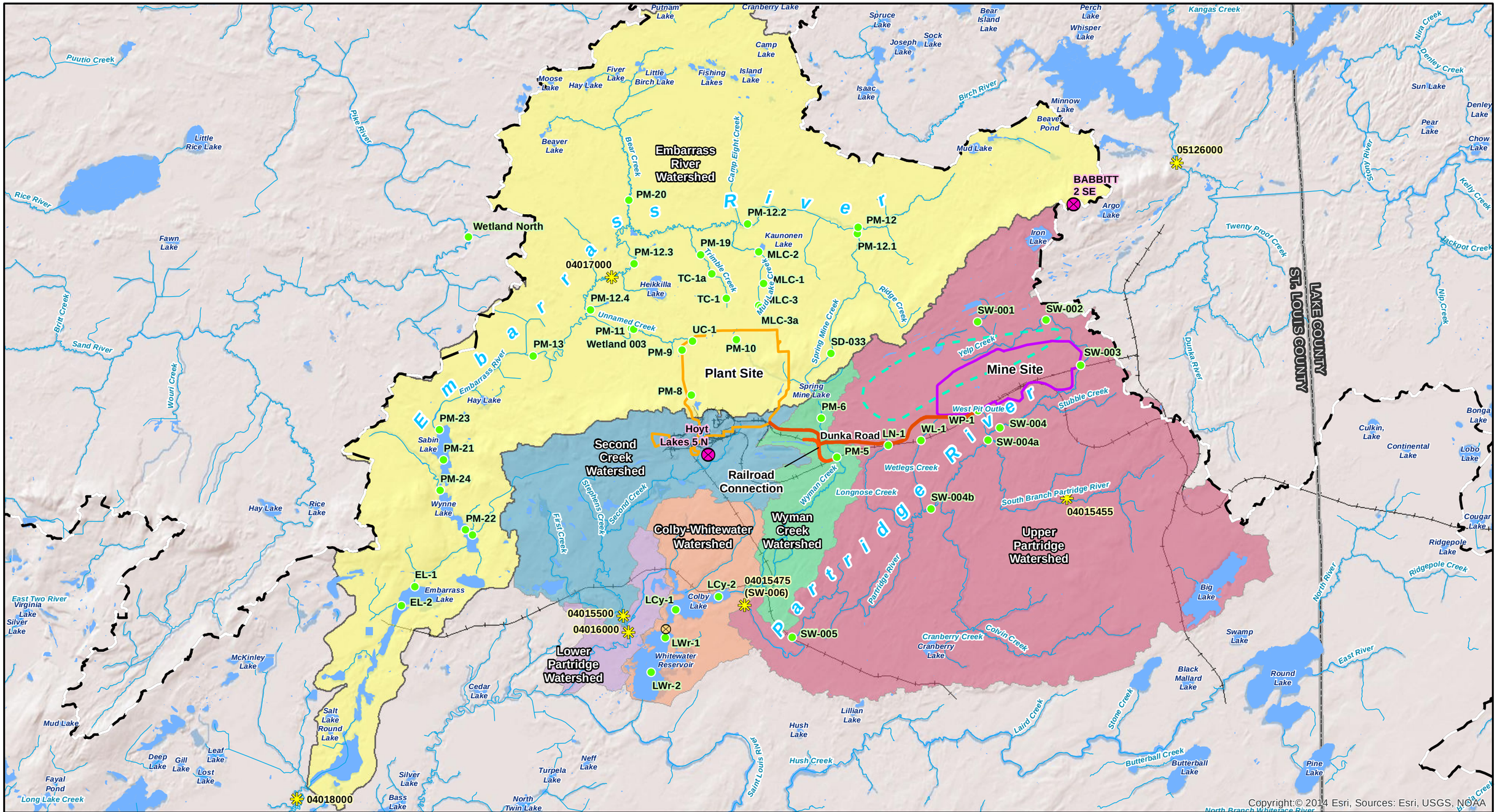

Surface Water Quality Data Location
USGS Gaging Station (not active)
Weather Station
Diversion Works
Mine Site
Plant Site
Transportation and Utility Corridor
One Hundred Mile Swamp
Laurentian Divide
Stream/River
Existing Railroad

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

0 1 2 4 6 Miles

Figure 4.2.2-1
Watersheds, Streams and Data Collection Sites
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Minnesota

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4.2.2.1.2 Water Resource Use Classifications

A key element of water quality management is "use classification," which identifies beneficial uses for which a waterbody must be protected. The State of Minnesota has adopted a framework that identifies a broad range of potential uses, including:

- Domestic consumption – Class 1;
- Aquatic life and recreation – Class 2;
- Industrial consumption – Class 3;
- Agriculture and wildlife – Class 4;
- Aesthetics and navigation – Class 5;
- Other uses – Class 6; and
- Limited resource value – Class 7.

These classes can be further divided into subclasses with letter designations. The use classifications are not intended to imply a priority rank to the uses.

Groundwater

Following *Minnesota Rules*, part 7060.0200, it is the policy of the State of Minnesota to consider the actual or potential use of groundwater for potable water supply as constituting the highest priority use and, as such, to provide maximum protection to all underground waters. Therefore, all groundwater is considered to have one beneficial use, domestic consumption (Class 1).

The MDNR has water allocation priorities defined under statute 103G.261 as follows:

(a) The commissioner shall adopt rules for allocation of waters based on the following priorities for the consumptive appropriation and use of water:

> (1) first priority, domestic water supply, excluding industrial and commercial uses of municipal water supply, and use for power production that meets the contingency planning provisions of section 103G.285, subdivision 6;
>
> (2) second priority, a use of water that involves consumption of less than 10,000 gallons of water per day;
>
> (3) third priority, agricultural irrigation, and processing of agricultural products involving consumption in excess of 10,000 gallons per day;
>
> (4) fourth priority, power production in excess of the use provided for in the contingency plan developed under section 103G.285, subdivision 6;
>
> (5) fifth priority, uses other than agricultural irrigation, processing of agricultural products, and power production, involving consumption in excess of 10,000 gallons per day; and
>
> (6) sixth priority, nonessential uses.

(b) For the purposes of this section, "consumption" means water withdrawn from a supply that is lost for immediate further use in the area.

(c) Appropriation and use of surface water from streams during periods of flood flows and high water levels must be encouraged subject to consideration of the purposes for use, quantities to be used, and the number of persons appropriating water.

(d) Appropriation and use of surface water from lakes of less than 500 acres in surface area must be discouraged.

(e) The treatment and reuse of water for non-consumptive uses shall be encouraged.

Principal groundwater resources in the NorthMet Project area are contained in bedrock geologic units and overlying surficial glacial deposits; the latter are also referred to as unconsolidated deposits. The water table is located primarily within the unconsolidated deposits; however, it is also likely located within the bedrock in areas of local bedrock highs. This means that saturated conditions exist within the unconsolidated deposits and in the underlying bedrock. Aquifer recharge to the bedrock is by infiltration of precipitation in outcrop areas and leakage from the overlying surficial aquifer (Siegel and Ericson 1980).

Surface Water

All surface waters in Minnesota are classified and protected for multiple beneficial uses. *Minnesota Rules*, part 7050.0470 lists individual waters and their associated use classifications. However, only a limited subset of all waters are actually listed, which include trout waters, surface waters protected for drinking water use, outstanding resource value waters, and Class 7 limited-resource-value waters. All of the remaining surface waters of the State, which include most of the waters of the State, are considered "unlisted waters." These unlisted surface waters are uniformly classified as Class 2B (cold or warm water sport or commercial fishing), 3C (industrial cooling and materials transport), 4A (irrigation use), 4B (livestock and wildlife use), 5 (aesthetics and navigation), and 6 (other uses) waters.

Most of the rivers and streams are unlisted in the NorthMet Project area with the exceptions of Colby Lake and Wyman Creek, both of which are listed. Colby Lake, which is used for domestic consumption by the City of Hoyt Lakes, is designated as Classes 1B (treated with simple chlorination for domestic consumption) and 2Bd (cool or warm water sportfish and drinking water) waters as well as the other default Classes 3C, 4A, 4B, 5, and 6. Wyman Creek, which is a designated trout stream, is designated as Classes 1B as well as 2A (aquatic life and recreation), 3B (industrial consumption-moderate treatment), as well as the other default classes 3C, 4A, 4B, 5, and 6 (*Minnesota Rules*, part 7050.0470).

All NorthMet Project area waters are also designated Outstanding International Resource Waters (*Minnesota Rules*, parts 7050.0460 and 7052.0300), which prohibits any new or expanded point source discharges of bioaccumulative substances of immediate concern (i.e., mercury) unless a nondegradation demonstration is completed and approved by the MPCA.

In addition to the above water use classifications for establishment of state water quality standards (*Minnesota Rules*, parts 7050 and 7052), certain waters of the state are also classified by the MDNR as Public Waters. Public Waters are all water basins, wetlands, and watercourses that meet the criteria set forth in Minnesota Statutes, section 103G.005, subdivision 15, and that are identified on Public Water Inventory maps authorized by Minnesota Statutes, section 103G.201 (see Figure 4.2.2-2). Any proposed activity that alters the course, current, or cross section of a mapped Public Water is subject to a variety of state regulations (*Minnesota Rules*,

Chapter 6115), depending on the proposed activity. The Public Waters program does not regulate water quality.

Impaired Waters

The federal CWA requires states to adopt water quality standards to protect waters from pollution. These standards, which are typically based on the beneficial use classifications described above, define how much of a pollutant can be in the water and still meet beneficial uses, such as drinking water, fishing, and swimming. Water quality standards are the fundamental tools used to assess the quality of all surface waters. States must monitor and assess the water quality of their waters to identify those that are "impaired" (i.e., not fully supporting their beneficial uses).

Section 303(d) of the CWA requires states to publish and update a list of impaired waters for which a Total Maximum Daily Load (TMDL) Study is needed. This list, known as the "303(d) List" or "TMDL List" is updated every two years via assessment of water quality data and an extensive public participation process. The final 2012 TMDL List (MPCA 2012n) was developed by the MPCA and approved by the USEPA in July 2013. If the extent of the violations of standards for any water exceeds the guidelines described in the Guidance Manual (MPCA 2014g), those surface waters are considered to be "impaired." The goal of the MPCA is to protect high-quality waters and improve the quality of impaired waters so water quality standards are met and beneficial uses are maintained and restored, where these uses are attainable. A current map of Minnesota's impaired waters can be found on the Minnesota Pollution Control Agency's website.

Table 4.2.2-2 shows the waters within the Embarrass River and Partridge River watersheds that are on the final 2012 TMDL List (see Figure 4.2.2-1).

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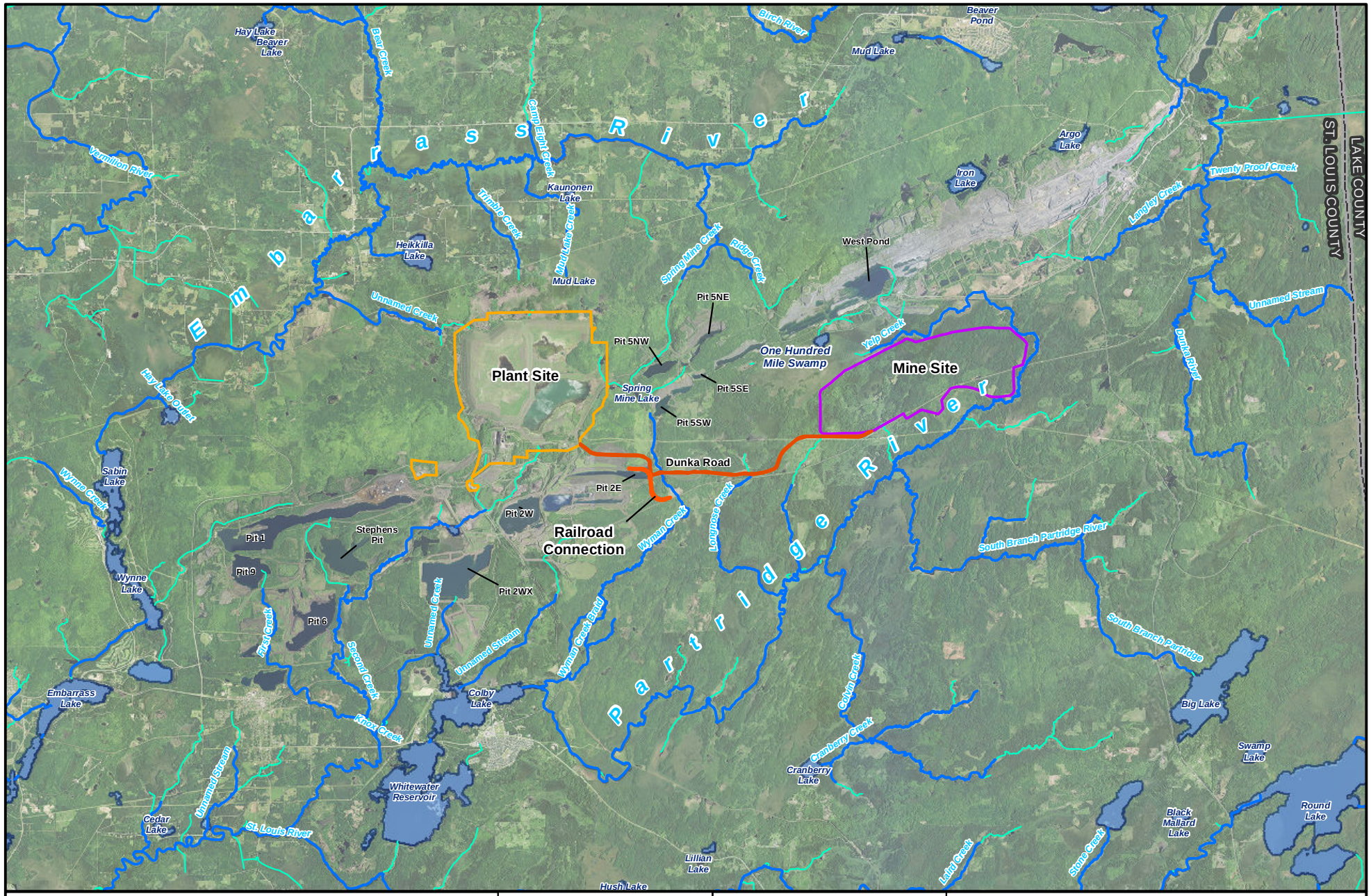

MDNR Designated Public Waters Inventory (PWI) Stream/River

Non MDNR Designated Public Waters Inventory (PWI) Stream/River

MDNR Designated Public Waters Inventory (PWI) Lake/Wetland

Mine Site

Plant Site

Transportation and Utility Corridor

MNDNR

US Army Corps of Engineers St. Paul District

N W E S

0 0.5 1 2 3 Miles

Figure 4.2.2-2

MDNR-Designated Public Waters

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Table 4.2.2-2 Impaired Waters within the Embarrass River and Partridge River Watersheds

Water Name	Affected Designated Use	Pollutant/Stressor	TMDL Target Date
Embarrass River: headwaters to Embarrass Lake	Aquatic Life	Fishes Bioassessments	2015
Sabin/Wynne Lake (MDNR designated as one Lake)	Aquatic Consumption	Mercury in fish tissue	2025
Embarrass Lake	Aquatic Consumption	Mercury in fish tissue	2015
Esquagama Lake	Aquatic Consumption	Mercury in fish tissue	2025
Wyman Creek: headwaters to Colby Lake	Aquatic Life	Fishes Bioassessments	2015
Colby Lake or Whitewater Reservoir[1]	Aquatic Consumption	Mercury in fish tissue	2025
St. Louis River: Partridge River To Embarrass River	Aquatic Consumption	Mercury in fish tissue	2025
Spring Mine Creek: from Ridge Creek to Embarrass River	Aquatic Life	Fishes Bioassessments; Aquatic Macroinvertebrates Bioassessments	2015

Note:
[1] Both Colby Lake and Whitewater Reservoir are included on the 2012 Inventory of All Impaired Waters List; however, only Colby Lake is on the final 2012 TMDL List. Whitewater Reservoir has a USEPA Category of 4A, meaning fish tissue levels are low enough that it is included under the Statewide Mercury TMDL and no further TMDL is needed.

The "mercury in fish tissue" pollutant listed in Table 4.2.2-2 indicates that the mercury content in sampled fish tissue from these waters was found to be above the state's human health chronic standard. See Section 4.2.6.4 for additional information about mercury in water and fish. The pollutants listed in the table as "Fishes Bioassessments" or "Aquatic Macroinvertebrates Bioassessments" reflect an impaired fish and/or benthic macroinvertebrate population, based on Index of Biological Integrity (IBI) monitoring and assessment, without a specific cause, or stressor, yet being identified. The MPCA has developed fish and invertebrate IBI scores to assess the aquatic life use of rivers and streams in Minnesota. Monitoring the aquatic community, via biological and chemical monitoring, is a direct way to assess aquatic life use support. The aquatic community integrates the cumulative effect of pollutants, habitat alteration, and hydrological modification of a waterbody over time. The IBI incorporates multiple attributes of the aquatic community, called metrics, which are used to create a cumulative IBI score for each sample location. The MPCA has developed assessment thresholds or biocriteria for aquatic use. In general, an IBI score above the assessment threshold indicates aquatic life use support, while a score below indicates non-support (MPCA 2014g). When stressors become known through further investigations and studies, the TMDL can be completed and consideration can be given to permit conditions for individual projects, as warranted.

4.2.2.1.3 Wild Rice

Wild rice is an important resource in terms of its economic and environmental values, as well as having significant cultural value to the native Ojibwe people, which includes the Bands. This section provides baseline information on the importance of wild rice, its habitat requirements, and presence within the NorthMet Project area. Section 4.2.9 discusses the cultural importance of wild rice to the tribes in further detail.

Importance of Wild Rice

The Ojibwe people have a special cultural and spiritual tie to natural wild rice. Their migration story describes how they undertook a westward migration from eastern North America, which tribal prophets had foretold would continue until the Ojibwe people found "the food that grows on water" (Benton-Banai 1988). That food was wild rice, known as manoomin, and it is revered to this day by the Ojibwe as a special gift from the Creator. Natural wild rice remains a mainstay of traditional foods for the Ojibwe community and offers significant nutritional value. The tradition of hand harvesting natural wild rice continues to this day among both tribal and non-tribal cultures. It is estimated that more than 3,000 tribal members participate in wild rice harvesting statewide along with about 1,500 non-tribal individuals (MDNR 2008c).

Wild rice also represents an important food source for both migrating and resident wildlife. Wild rice has been listed as one of the 10 most important sources of food for ducks throughout the United States and Canada. In Minnesota, research conducted at Chippewa National Forest found that natural wild rice was the most important food for mallards during the fall, although many other species of duck also use beds of wild rice. The stems of wild rice provide nesting material for several species and critical brood cover for waterfowl. The entire wild rice plant provides food during the summer for herbivores. In addition, rice worms and other insect larvae feed heavily on natural wild rice. These insects provide a rich source of food for various birds. In the spring, decaying rice straw supports a diverse community of invertebrates and thus provides an important source of food for a variety of wetland wildlife. As a result, many species of wildlife use wild rice lakes and streams for reproduction and foraging areas, including 17 species listed in the MDNR Comprehensive Wildlife Conservation Strategy (MDNR 2006d) as Species of Greatest Conservation Need (SGCN).

In addition to its importance for wildlife, natural wild rice has other ecological values. Emergent aquatic plants like wild rice protect shorelines from erosion, provide habitat for fish, and temporarily sequester nutrients during the growing season, thereby reducing the potential for stream and lake eutrophication and turbidity.

Natural wild rice is an important component of tribal and local economies in Minnesota. In 2007, nearly 0.3 million pounds of unprocessed natural wild rice were purchased from the Leech Lake Band of Ojibwe-licensed harvesters generating more than $400,000 of income for tribal members (MDNR 2008c).

Minnesota was the world's first producer of cultivated wild rice in the 1950s and remains one of the world's leading producers of cultivated wild rice, producing 4 to 6 million pounds annually (MCWRC 2012). Cultivated wild rice, which depends on natural wild rice to an important degree in maintaining genetic diversity, plays an important role in Minnesota's economy (MDNR 2015e).

Preferred Habitat and Life Cycle

The historic range of natural wild rice is believed to have encompassed all of Minnesota (Moyle 1945), although it was most common in areas of glacial moraines in central and northern Minnesota. Based on a recent inventory, natural wild rice is still found in 55 counties in Minnesota (MDNR 2008c).

The distribution and abundance of natural wild rice is dependent on its habitat requirements, which include the following (MDNR 2008c):

- Surface water hydrology – some moving water, with rivers, flowages, and lakes with inlets and outlets being optimal areas for growth;
- Seasonal water depths – water levels that are relatively stable or decline gradually during the growing season are preferred, with optimal depths of 0.5 to 3.0 ft of water;
- Substrate – although wild rice may occur in a variety of lake bottoms, the most consistently productive stands are those with soft, organic sediments;
- Water clarity – clear to moderately colored (stained) water is preferred as darkly stained water can limit sunlight penetration and hinder early plant development; and
- Water chemistry – wild rice grows within a wide range of chemical parameters; however, productivity is highest in water with a pH of 6.0 to 8.0 and alkalinity greater than 40 mg/L.

Wild rice stands require nitrogen and phosphorus, although excess levels of some nutrients, especially phosphorus, can adversely affect productivity.

Wild rice is an annual plant that develops in the spring from a seed that drops off the plant to bottom sediments during the previous fall. The seed requires a dormancy period of 3 to 4 months in 35°F or colder water before germinating in the spring when water temperatures reach 40°F. The plant goes through several distinct growth phases during its lifecycle. During the submerged leaf stage in late May to early June, a cluster of underwater leaves forms. The floating leaf stage typically begins in mid-June as floating leaves develop and lay flat on the water surface. This stage is when wild rice is most susceptible to being uprooted by rapidly rising water levels or waves generated by high winds.

Aerial shoots typically begin to develop by the end of June and grow to a height of 2 to 8 ft above the water surface by August. Wild rice begins to flower in late July and the seeds develop in August and September. The wild rice seeds on the same plant mature across a staggered time period, ensuring that some seeds survive environmental conditions to perpetuate the stand. Some seeds may remain dormant in the bottom sediment for many years to several decades if conditions are not suitable for germination, allowing wild rice populations to survive through time periods with less than optimal conditions and reduced productivity. The time period from germination to dropping of mature seeds typically requires about 110 to 130 days, depending upon environmental conditions. Even under ideal growing conditions, wild rice stands undergo approximately 3- to 5-year cycles in which productivity varies. A typical cycle includes a highly productive year followed by a low productive year, which is followed by a gradual recovery.

Two primary factors that can impact wild rice productivity are changes in hydrology and water quality. Wild rice typically occurs in shallow water and is sensitive to varying water levels, especially during the floating leaf stage in early summer when abruptly rising water levels can uproot the plant. Wild rice will stop growing or become less productive if water becomes too deep (Dore 1969). A recent survey of wild rice harvesters (Norrgard et al. 2007) identified water level as the highest management priority. MDNR wildlife managers have hired trappers to remove beavers from some wild rice lakes to protect wild rice from rising water levels resulting from beaver dam activity.

Regulations Applying to Waters that Contain Wild Rice

Minnesota Rules part 7050.0224 identifies a Class 4A water quality standard of 10 mg/L for sulfate concentrations "…applicable to water used for the production of wild rice during periods when the rice may be susceptible to damage by high sulfate levels." The MPCA has developed a draft staff recommendation that the 10 mg/L sulfate standard is applicable to portions of the Partridge River and Embarrass River used for the production of wild rice (MPCA 2012a). The MPCA is overseeing a variety of studies relating to sulfate and wild rice, with the goal of informing decisions about state water quality standards. All information provided was considered when the MPCA made their recommendation. Should the application of the standard change, it would be addressed at that time.

Presence of Wild Rice within the NorthMet Project Area

Prior to the NorthMet Project Proposed Action, the existing number, location, extent, and health of wild rice stands within the Partridge River and Embarrass River were unknown. As part of development of the EIS, PolyMet conducted a review of available historic and cultural information, including the report *Natural Wild Rice in Minnesota* (MDNR 2008c), United States Geological Survey (USGS) topographic maps, and a wild rice list provided by the 1854 Treaty Authority. PolyMet also analyzed historic (2004 to 2008) infrared aerial photographs and consulted with persons and groups knowledgeable about wild rice to identify potential wild rice locations along the Partridge River and Embarrass River, including: Wyman Creek, a tributary of the Partridge River; Spring Mine Creek, a tributary of the Embarrass River; and downstream on the St. Louis River. They also surveyed Hay Lake and Little Rice Lake, which are not in the Embarrass River or Partridge River watersheds, but were included as potential control sites for future monitoring of wild rice presence and health. Based on this analysis, field surveys were conducted in potential wild rice areas during August and September 2009 using a protocol adapted from the 1854 Treaty Authority. The location and both qualitative and quantitative estimates of density and crop acreage were recorded. Qualitative estimates recorded approximate stand density using a density factor with a scale of 1 (low density) to 5 (high density), similar to a method used by the 1854 Treaty Authority. Quantitative estimates of wild rice density and coverage were determined by sampling representative grids. Sulfate monitoring was also conducted during the wild rice survey (Barr 2011a; Barr 2012a; Barr 2013l). The 2009 survey was followed by surveys in 2010, 2011, 2012, 2013, and 2014.

Results of the 2009, 2010, and 2011 sulfate monitoring are shown in Figure 4.2.2-3. Wild rice survey and water quality monitoring results for each waterbody are provided in Table 4.2.2-3 for survey years 2009 to 2012 (Barr 2010a; Barr 2011a; Barr 2012a; Barr 2013l; Barr 2013p).

Waterbodies at least partially surveyed during these surveys include the upper Embarrass River and its tributaries (Spring Mine, Trimble, and Unnamed creeks), the Embarrass River chain of lakes (including Sabin, Wynne, Embarrass, Lower Embarrass, Unnamed, Cedar Island, Fourth and Esquagama lakes), the lower Embarrass River, the upper Partridge River, Colby Lake, the lower Partridge River and tributaries to the Partridge River (including Wyman and Second Creeks). The results over the years of the surveys indicate some variability in the location and density of observed wild rice and in associated water column sulfate concentrations between survey years. The 2012 survey showed generally fewer and less dense stands of wild rice than were observed in the 2009 to 2011 surveys.

To identify which of these waters within the NorthMet Project area were to be considered as water used for production of wild rice to which the current 10 mg/L wild rice sulfate water quality standard applies, MPCA had previously developed a draft staff recommendation (MPCA 2012b) that specified the following waters:

- Embarrass Lake;
- The northernmost tip of Wynne Lake (Embarrass River inlet);
- The segment of the Embarrass River from MN Highway 135 bridge to the inlet of Sabin Lake;
- The portion of Upper Partridge River from river mile approximately 22 just upstream of the railroad bridge near Allen Junction to the inlet to Colby Lake;
- The portion of Lower Partridge River from the outlet of Colby Lake to its confluence with the St. Louis River; and
- The portion of Second Creek from First Creek to the confluence with Partridge River.

This draft MPCA staff recommendation was developed in anticipation of eventual NPDES/SDS permitting. Since the development of the draft staff recommendations, the MPCA has conducted preliminary evaluations of data collected as part of its legislatively mandated wild rice study and has identified conceptual approaches to revising both the numeric sulfate water quality standard of 10 mg/L and the identification of what waters would be subject to any revised standard (for wild rice waters). These conceptual approaches will continue to evolve, eventually resulting in a proposed rule. The proposed rule will also likely evolve during the rulemaking process. Because the final outcome of the evaluations and rulemaking is uncertain, this FEIS relies on the current sulfate water quality standard of 10 mg/L that is being applied to the waters specifically identified in the previously developed draft MPCA staff recommendations for its analysis of potential impacts in this FEIS.

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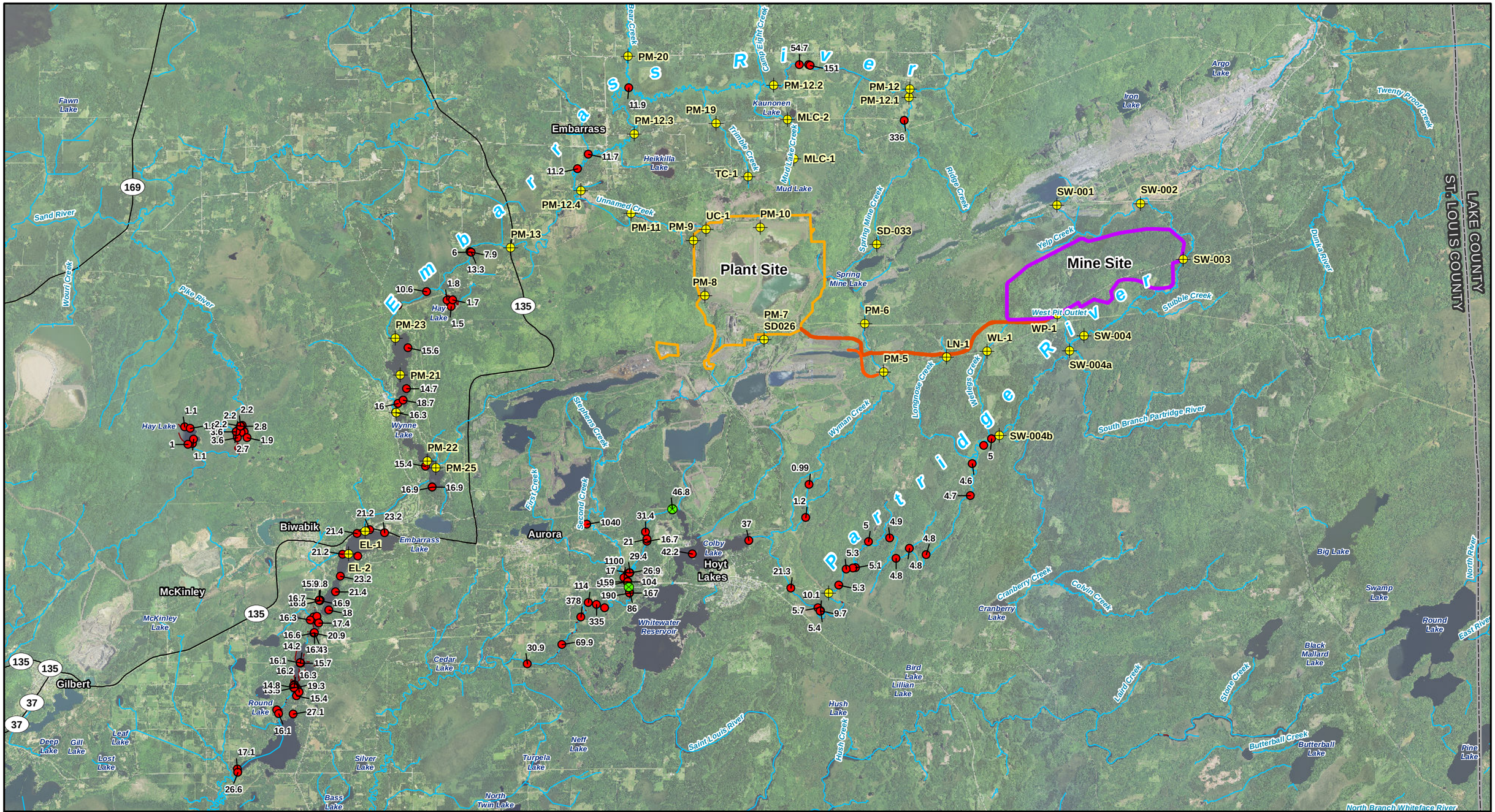

Mine Site
Plant Site
Transportation and Utility Corridor
Stream/River

Surface Water Monitoring Station
Mesabi Nugget Surface Water Monitoring Data - Aug. 19, 2009 (values are for sulfate concentration in mg/L)
2009-2013 Wild Rice Surveys Sulfate Sampling Locations with Sulfate Listed in mg/L

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.5 1 2 3 4 Miles

Figure 4.2.2-3
Sulfate Sampling Locations
NorthMet Mining Project and Land Exchange FEIS
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Table 4.2.2-3 Wild Rice Survey and Water Quality Monitoring Results

Locations Surveyed	Survey Year	Wild Rice Found?[1]	Density Factor[2] (Scale 1-5)	Sulfate Range[3] (mg/L)
Partridge River Watershed				
Upper Partridge River (above Colby Lake, portions)	09, 10, 11, 12	Yes (isolated)	1–3	5–21
Colby Lake	09, 10	No	---	37–42
Lower Partridge River (below Colby Lake)	09, 10, 11, 12	Yes	1–5	17–411
Wyman Creek	11, 12	No	---	---
Second Creek (portions)	09, 10, 11, 12	Yes (near mouth)	1–4	1,100
Embarrass River Watershed				
Upper Embarrass River (Spring Mine Creek to Sabin Lake)	09, 10, 11, 12	Yes (isolated)	1	6–151
Sabin - Wynne Lakes	09, 10, 11, 12	Yes (isolated)	1	15–16
Chain of Lakes (including Embarrass, Lower Embarrass, Cedar Island, Esquagama, Unnamed, and Fourth)	09, 10, 11, 12	Yes	1–5	14–27
Lower Embarrass River (Esquagama Lake to CR 95)	09, 10	No	---	---
Spring Mine Creek (portions)	09, 10, 11, 12	No	---	---
Trimble and Unnamed Creeks (portions)	10, 11, 12	No	---	---

Sources: Barr 2010c; Barr 2011a; 2012a; Barr 2013l; Barr 2013p.

Notes:
[1] "Yes" indicates that wild rice was observed in at least one of the survey years. Simply finding wild rice in a survey is not the same as being designated a water used for the production of wild rice.
[2] Informal observational scale of relative wild rice density (1 – low density to 5 – high density)
[3] Range of water column sulfate concentration taken at time of wild rice survey. Samples were only taken when and where wild rice was observed. Values rounded to nearest 1 mg/L. Sample sizes were low resulting in relatively large variability within some individual waterbodies.

Surveys of the St. Louis River from Brookston to Lake Superior were conducted in 2009 and from the NorthMet Project area to the St. Louis Estuary in 2010. Wild rice was identified on the St. Louis River for a short distance downstream from its confluence with the Partridge River. The most dense stand (density factor of 2) was located just upstream of Highway 100, and a few sparse stands were also located approximately 500 and 1,000 ft further downstream (see Figure 4.2.2-3). Sulfate concentrations in 2010 in the St. Louis River near Highway 100 averaged 17.7 mg/L.

4.2.2.1.4 Mercury

Based on sampling done for the NorthMet Project Proposed Action from 2004 to 2013, total mercury concentrations in the Upper Partridge River average about 3.3 ng/L (Barr 2014m). At monitoring station SW-005, total mercury concentrations range from below the analytical detection limit to a maximum of 18.4 ng/L, with an average concentration of 4.3 ng/L. In Colby

Lake, total mercury concentrations are between 4.6 and 8.7 ng/L, averaging 6.0 ng/L. Total mercury concentrations are similar in the Embarrass River, averaging 5.1 ng/L at monitoring station PM-12 and 4.3 ng/L at monitoring station PM-13 from 2004 to 2013 (see Table 4.2.2-4). Methylmercury concentrations in the Partridge River at SW-005 average 0.41 ng/L (see Table 4.2.2-14) and in the Embarrass River average 0.53 ng/L at PM-12 and 0.38 ng/L at PM-13 over the same period (see Table 4.2.2-30). In addition, mercury monitoring has occurred at other locations in and near the existing LTVSMC Tailings Basin (see Table 4.2.2-4 and Figure 4.2.2-4). Generally, total mercury concentrations are consistent with baseline levels, averaging less than 2.0 ng/L. Sample locations in and near the existing LTVSMC Tailings Basin were well below average concentrations in precipitation (approximately 13 ng/L; PolyMet 2015m).

A QA/QC review was conducted to assess the monitoring performance which includes monitoring for mercury. This review was performed in accordance with Barr Engineering Standard Operating Procedure for data validation, which is based on *The National Functional Guidelines for Inorganic and Organic Data Review* (USEPA 2004b and 2005b). Both laboratory and field sampling procedures were examined in the review of the data for the respective sampling events. Field sampling procedures were examined utilizing field blank and equipment blank analysis and blind field duplicate data. Laboratory procedures were evaluated by examining recommended holding times and preservation, laboratory blank analyses, laboratory control samples and laboratory control sample duplicates, duplicate analysis, matrix spikes and matrix spike duplicates, and laboratory duplicate data (PolyMet 2015m; PolyMet 2015j).

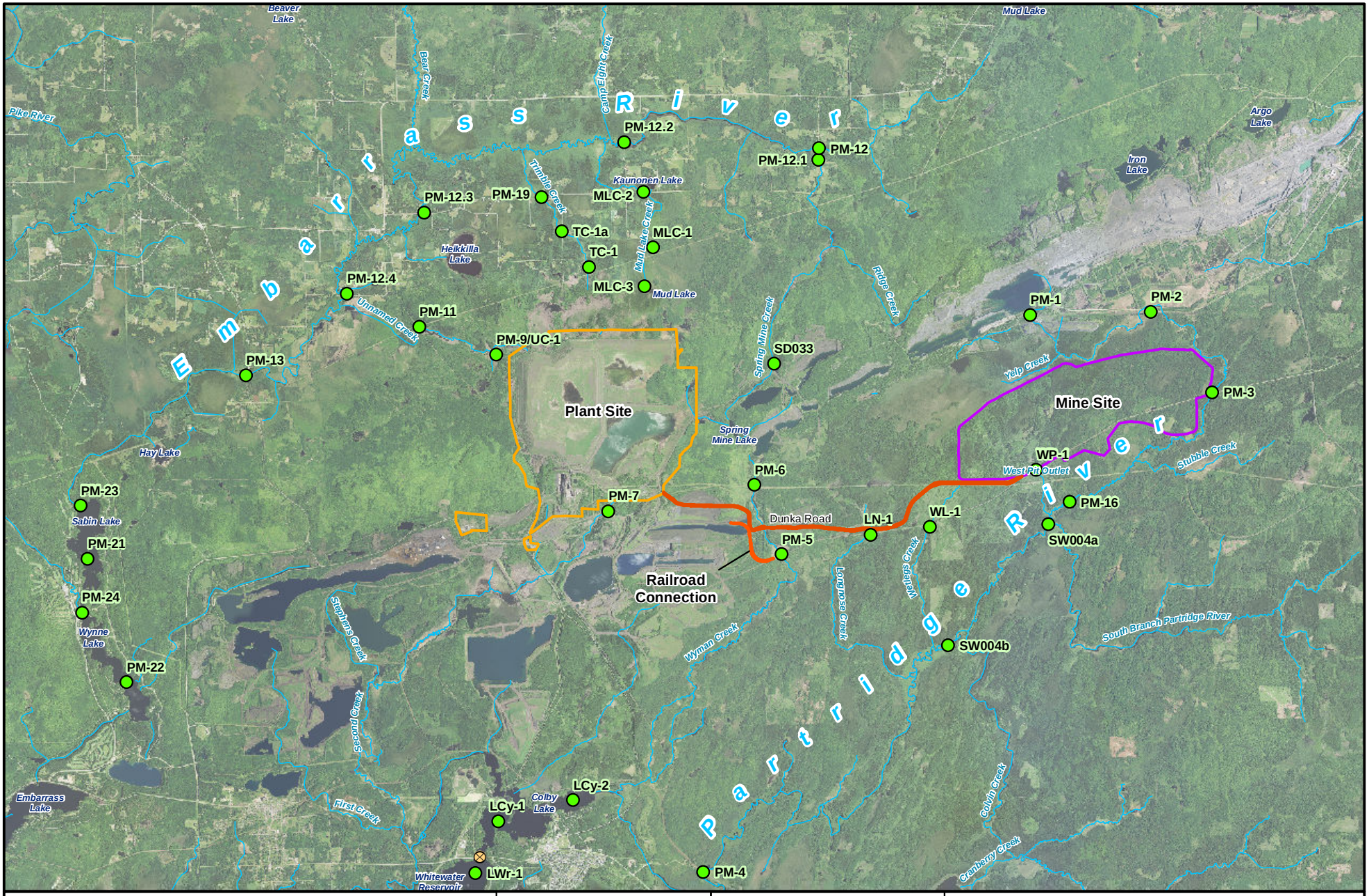

Surface Water Monitoring Location
Diversion Works
Stream/River
Mine Site
Plant Site
Transportation and Utility Corridor

MNDNR
US Army Corps of Engineers St. Paul District
USFS

N W E S

0 0.5 1 2 3 Miles

Figure 4.2.2-4
Additional 2009 Baseline Monitoring Stations for Sulfate and Mercury
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Table 4.2.2-4 Summary of Total Mercury Concentrations in the Partridge River and Embarrass River Watersheds near the Mine Site and Plant Site

			Mercury Concentrations		
Location[1]	**Dates**	**# of Detections**	**Mean[2] (ng/L)**	**Range (ng/L)**	**# Exceeding 1.3 ng/L[3]**
Partridge River					
SW-001	2004, 2006, 2008	5 of 10	2.3	<1–<5	5
SW-002	2004, 2006, 2012, 2013	10 of 15	2.7	<2–<5	12
SW-003	2004, 2006–2008, 2012, 2013	19 of 31	2.8	<1–7.8	24
SW-004	2004, 2006–2008, 2010, 2012, 2013	23 of 33	3.3	<0.25–8.7	27
SW-004a	2010, 2012, 2013	11 of 11	4.1	0.79–12.5	8
SW-004b	2010, 2012, 2013	11 of 11	5.4	0.82–18.5	10
SW-005	2004, 2006– 2008, 2010, 2012, 2013	22 of 33	4.3	<0.25–18.4	28
Creeks, Partridge River Watershed					
LN-1	2011–2013	13 of 13	3.5	1.2–9.2	12
WP-1	2011–2013	6 of 6	13.9	5.1–28.1	6
WL-1	2011–2013	12 of 12	5.0	2.1–9.8	12
PM-5	2004, 2011–2013	22 of 27	1.2	<0.25–3.4	9
PM-6	2004, 2013	4 of 5	3.5	<0.25–7.9	3
Lakes (Surface), Partridge River Watershed					
Colby Lake	2008, 2013	9 of 9	6.0	4.6–8.7	9
LTVSMC Tailings Basin Surface Water Seepage					
PM-9	2001–2006	12 of 65	1.8	0.7–4.1	6
PM-10	2001–2007	14 of 66	1.4	0.6–2.3	7
SD-004	2002–2009	23 of 23	1.4	<0.25–4.5	6
SD-005	2001–2004	2 of 18	1.6	1.2–2	1
PM-8	2001–2006	13 of 17	1.7	0.5–4.6	7
WS013	2001–2005	7 of 29	2.1	0.9–6.3	2
Cell 1E	2002–2003	3 of 25	0.2	<0.1–1	0
Cell 2E	2001–2003	3 of 20	0.35	<0.1–3.6	1
Cell 2W	2001	0 of 8	<0.1	NA	0
Emergency Basin	2001–2005	12 of 41	0.7	<0.1–4.2	10
West Seep	2001–2003	1 of 17	0.23	<0.1–<1.25	0
Embarrass River					
PM-13	2004, 2006–2008, 2012, 2013	23 of 35	4.3	<1–12.4	29
PM-12	2004, 2006–2008, 2012, 2013	28 of 34	5.1	<1–<10	33
Creeks, Embarrass River Watershed					
PM-11	2004, 2006, 2008, 2011–2013	24 of 30	2.5	<0.25–<10	19
PM-19	2011–2013	26 of 26	1.5	0.5–5.1	7
PM-20[(4)]	2009	8 of 8	2.5	1.3–4	7
TC-1	2012	1 of 1	1.1	1.1–1.1	0
TC-1A	2012, 2013	4 of 4	2.5	0.9–5.1	2
MLC-1	2011–2013	7 of 7	2.2	1.1–4	6
MLC-2	2011–2013	14 of 14	3.1	0.9–6.5	12
MLC-2/MLC-3A	2012	1 of 1	0.99	0.99–0.99	0

		Mercury Concentrations			
Location[1]	**Dates**	**# of Detections**	**Mean[2] (ng/L)**	**Range (ng/L)**	**# Exceeding 1.3 ng/L[3]**
Lakes (surface), Embarrass River Watershed					
PM-23/Sabin Lake	2009	5 of 5	3.19	1.9–4.8	5
PM-21/Sabin Lake	2009	5 of 5	3.26	2.1–5.5	5
PM-22/Wynne Lake	2009	5 of 5	3.12	2–5	5
PM-24/Wynne Lake	2009	5 of 5	3.56	3.2–4.3	5
PM-25	2009	3 of 3	6.47	4.9–8.1	3
Wetlands					
Wetland 003	2002–2005	7 of 12	2.2	<1 to 4.4	7
Wetland North	2002–2005	8 of 11	3.6	<1 to 6.7	8

Sources: Barr 2007h; Barr 2006f; Barr 2009c; Barr 2010c; Barr 2014d.

Notes:
1 See Figures 4.2.2-1, 4.2.2-4, 4.2.2-11, 4.2.2-13, and 4.2.2-15.
2 Where non-detects occur, the mean was calculated using half the detection limit.
3 Minnesota Class 2B Lake Superior standard for mercury.
4 Dissolved mercury concentrations are presented in the table for PM-20, as only dissolved samples were collected and analyzed for this sample location.

The MDNR has additionally conducted numerous research studies regionally and in the St. Louis River watershed specifically. The river and its tributaries frequently have mercury concentrations that exceed the 1.3 ng/L standard, especially in the weeks following major storm events. The vast majority of the mercury carried in the river is bound to dissolved organic carbon that is derived from wetland areas and riparian soils (summarized in Berndt et al. 2014).

4.2.2.2 Partridge River Watershed

This section describes the baseline hydrology and water quality for the groundwater and surface water within the Partridge River Watershed portion of the NorthMet Project area. This includes all of the Mine Site and the Transportation and Utility Corridor, as well as the former LTVSMC processing plant and a small portion of the Tailings Basin.

4.2.2.2.1 Groundwater Resources

This section describes the geology and hydrogeology of the NorthMet Project area and the groundwater resources at the Mine Site that could be affected by the NorthMet Project Proposed Action. Since the publication of the DEIS, additional groundwater monitoring wells were installed and data collected to better describe the groundwater resources at the Mine Site.

In total, 24 monitoring wells were installed in the surficial aquifer and 9 in bedrock (see Figure 4.2.2-8). Six or more groundwater samples have been collected for chemical analysis from each of those wells, except one surficial aquifer well that was dry after the first sampling (so it only provided a single sample) and three bedrock wells that were also sampled once only. A statistical analysis indicated that the total number of groundwater quality samples was sufficient to satisfy the USEPA's request that an uncertainty range around the estimate of average concentration for each solute could be identified such that there was a less than 5 percent probability that the actual average would be outside of this range (Barr 2012p).

This section describes available baseline data on the hydraulic properties of the rocks and sediments at the Mine Site, the rationale for assessing its adequacy, and a summary of specific values for Mine Site baseline aquifer characteristics.

Geology of the Mine Site

The surficial materials overlying the bedrock at the Mine Site are 0 to 60 ft thick and include glacial deposits. The glacial deposits consist of two layers of glacial till, outwash, and reworked glacial sediments (collectively referred to as "drift"). There are also extensive wetlands and the potential for limited alluvium. The upper till (the Rainy Lobe till) has been described at a regional scale as an unsorted sandy loam mixture with pebbles, cobbles, and boulders (Jennings and Reynolds 2005). Soil borings collected from within the Mine Site are generally consistent with this description, indicating that the upper till has a composition ranging from very dense clay to well-sorted sand. In some of the borings, a second till was encountered at depth, and is sometimes separated from the upper till by outwash sand. Neither the outwash nor the lower till are laterally continuous (PolyMet 2015m). For additional details on the tills encountered at the Mine Site, see PolyMet 2015m. Figure 4.2.2-5 shows the Mine Site's surficial geology.

The NorthMet Deposit is below the till in the layered mafic intrusive rocks of the Partridge River Intrusion, which are part of the Duluth Complex. The north edge of the Duluth Complex within the Mine Site contacts the Virginia Formation, (see Figure 3.2-10). The Virginia Formation lies above the Biwabik Iron Formation, which hosts several large taconite iron ore mines.

More than 10 copper-nickel-PGE zones of mineralization have been identified along the northern margin of the Duluth Complex. Those deposits consist of disseminated copper-nickel-iron sulfides, with minor local massive sulfides, hosted in layered troctolitic (plagioclase and olivine with minor pyroxene) rocks that are located at the base of the Duluth Complex. Drilling within the Partridge River Intrusion (over 1,100 drill holes) has identified seven igneous stratigraphic rock units dipping southeast within the Partridge River Intrusion (see Figure 3.2-10). Unit 1, which hosts much of the NorthMet economic sulfide mineralization, is the oldest and lower-most layer.

The footwall rocks below the NorthMet Deposit consist of metamorphosed Paleoproterozoic sedimentary rocks. The youngest of these metasedimentary rocks is the Virginia Formation, which directly underlies the intrusive Unit 1 across all of the NorthMet Project area (i.e., the Duluth Complex contacts only the Virginia Formation – it does not contact the older sedimentary formations). The Virginia Formation consists of a thinly bedded sequence of metamorphosed argillite and greywacke. During mining operations, the Virginia Formation would be exposed along the northern wall of the East Pit.

Underlying the Virginia Formation is the Biwabik Iron Formation, which is the source of taconite iron ore. That formation also hosts an important water resource tapped by residential and community wells in the region. Current drilling and interpolation of geology between drill holes in the NorthMet deposit indicates that the mine pits at their final phase of development would retain an approximate 130 to 150 ft separation from the Biwabik Iron Formation (PolyMet 2014q). The oldest of the sedimentary rocks present in the proposed mining area is the Pokegama Quartzite. These sedimentary rocks are underlain by Archean granite of the Giants Range batholith and associated metamorphic rocks.

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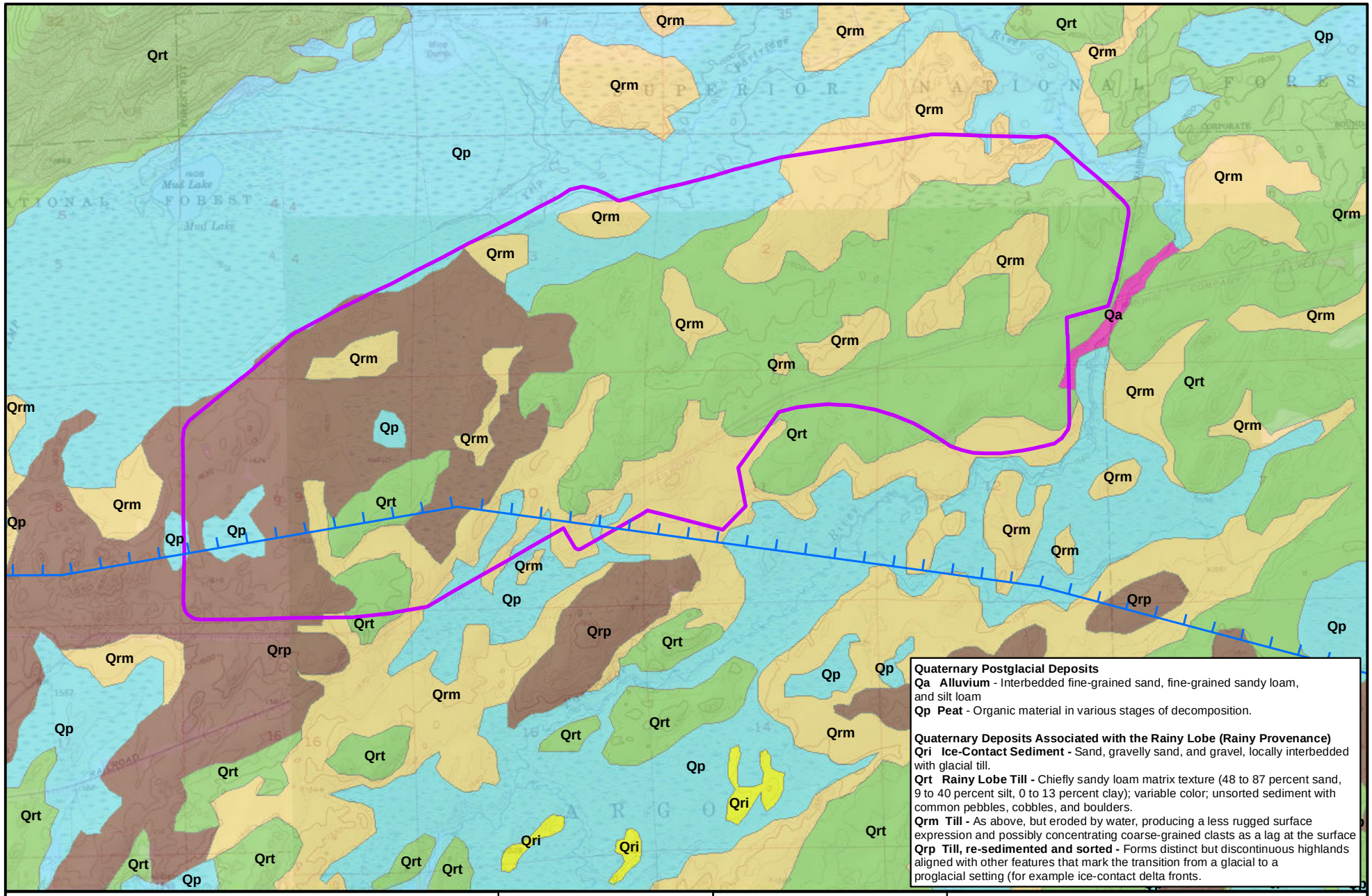

Mine Site

Ice Margins

MNDNR

US Army Corps of Engineers
St. Paul District

N W E S

0 1,000 2,000 4,000 Feet

Figure 4.2.2-5

Surficial Geology at the Mine Site

NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Hydrogeology of the Mine Site Surficial Deposits and Bedrock Units

The bouldery till of the Rainy Lobe that covers the majority of the Mine Site has an estimated hydraulic conductivity range of 0.1 to 30 ft/day (Siegel and Ericson 1980). Lab permeameter tests on the silty sand from drill core and test trenches at the Mine Site found the hydraulic conductivity values to be 0.00043 to 0.0081 ft/day; however, these tests were conducted on reconstituted and compacted material, and are not considered representative of the in situ condition of the Mine Site surficial deposits. Field testing of the various unconsolidated deposits found a range of hydraulic conductivity values from 0.012 to 31 ft/day (Barr 2006b).

The Biwabik Iron Formation has a relatively high permeability, whereas the Virginia Formation and Duluth Complex are less permeable (Siegel and Ericson 1980). PolyMet conducted several aquifer tests to characterize the hydraulic conductivity and specific storage values for the bedrock units underlying the Mine Site (see Table 4.2.2-5). No hydraulic testing of the Biwabik Iron Formation was done within the NorthMet Project area. However, the tests conducted outside the NorthMet Project area (see Table 4.2.2-5) and the ongoing use of the Biwabik Iron Formation as a source of water in the region document that it is characterized by the highest bedrock hydraulic conductivity, followed by the Virginia Formation, with the Duluth Complex having conductivity at least one order of magnitude lower.

Hydraulic characteristics of these various geologic units in the Mine Site were determined from the following series of aquifer pumping tests (PolyMet 2015m):

- Ten aquifer tests conducted using borings in the surficial aquifer (including three borings that were turned into permanent monitoring wells; see PolyMet 2015m);
- Ten aquifer performance tests conducted using boreholes completed in the Duluth Complex bedrock (PolyMet 2015m);
- Four aquifer tests conducted on the Virginia Formation bedrock (conducted using wells P1 through P4, with monitoring in six observation wells, Ob-1, Ob-2, Ob-3, Ob-3a, Ob-4, and Ob-5, plus a water supply well; see PolyMet 2015m);
- One long-term (30-day) aquifer test conducted using bedrock well P-2, with water levels monitored in wetland piezometers located north of the pumping well (PolyMet 2015m); and
- Specific capacity tests conducted using P-3 and P-4, which are open exclusively in the Virginia Formation (PolyMet 2015m).

A range of specific storage values for the bedrock (i.e., 2.3×10^{-5} to 5.5×10^{-7} ft^{-1}) was determined using the aquifer tests' time-drawdown data collected from the observation wells. The specific capacity tests conducted using two wells indicated that the upper portion of the Virginia Formation is more permeable than its lower portion (Barr 2007a). This is interpreted to indicate higher density of fractures and joints in the bedrock closer to the surface.

In Northeastern Minnesota, groundwater flow within the bedrock is primarily through fractures and other secondary porosity features as the rocks have low matrix hydraulic conductivity. Typically, groundwater in the shallow bedrock is hydraulically connected with the overlying surficial deposits, resulting in similar flow directions, both in bedrock and surficial deposits (Barr 2007c). For the NorthMet Project site, this connection is in many instances weak or non-existent (PolyMet 2015m). Figure 4.2.2-6 shows the depth to bedrock at the Mine Site. Because of the shallow water table and the generally thin layer of surficial deposits, flowpaths within the surficial deposits are generally thought to be short, with groundwater recharge areas located not far from the discharge areas.

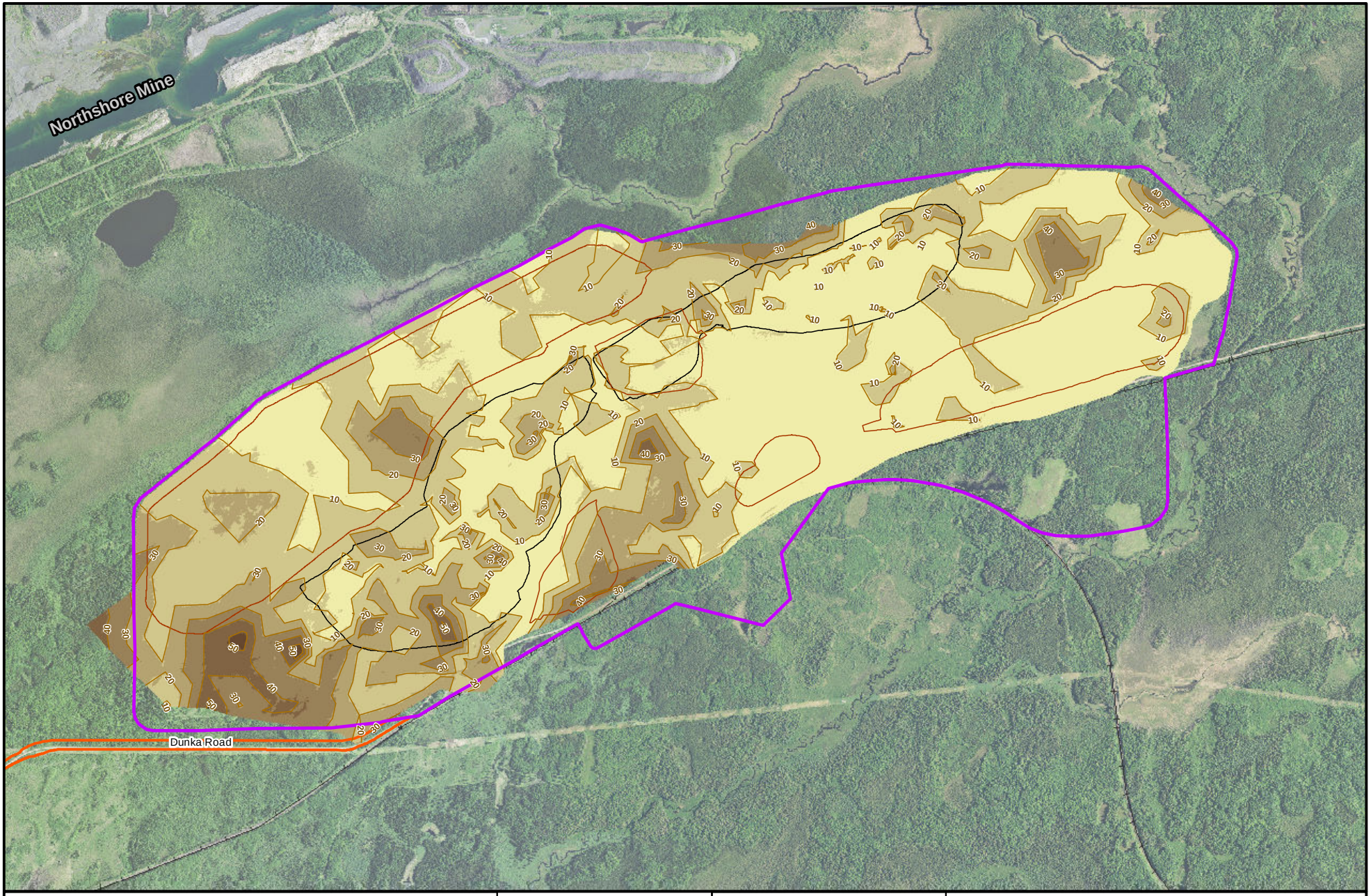

Mine Site
Transportation and Utility Corridor
Proposed Stockpile
Proposed Mine Pit
10-ft Contour
Depth to Bedrock (ft)
0 - 10
10 - 20
20 - 30
30 - 40
40 - 50
50 - 58
Existing Railroad

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 750 1,500 3,000
Feet

Figure 4.2.2-6
Mine Site Depth to Bedrock
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Table 4.2.2-5 Bedrock and Surficial Aquifer Hydraulic Conductivity Estimates at the Mine Site

		Hydraulic Conductivity (ft/day)	
Aquifer	**Test Methods**	**Range**	**Geometric Mean**
Surficial	Lab permeability tests on silty sand samples	$4.3x10^{-4}$ to $8.1x10^{-3}$(1)	NA
	Single-well tests	$1.2x10^{-2}$ to $3.1x10^{1}$	NA
Duluth Complex	Single-well tests on exploratory borings (5 tests in southern portion of West Pit; 5 tests close to contact with Virginia Formation)	$2.6x10^{-4}$ – $4.1x10^{-2}$(2)	$2.3x10^{-3}$
Virginia Formation - Upper Portion	4 pumping wells with observation wells	$2.4x10^{-3}$ - 1.0(3)	0.17
Virginia Formation - Lower Portion	Single well aquifer tests on 2 wells	NA(4)	0.047
Biwabik Formation	Region-specific capacity pumping tests (not at Mine Site)	0.9(5)	

Sources: [1] Appendix B in RS22, Draft 03, Barr 2008d; [2] RS02, Barr 2006b; [3] RS10, Barr 2006c; [4] RS10A, Barr 2007a; [5] Siegel and Ericson 1980; PolyMet 2015m.

Note:
ft/day = feet per day

Concerns have been raised that fractures, including faults and fracture zones, may exist that could permit transmission of groundwater through the bedrock over considerable distances. Such fractures have been identified elsewhere on the Canadian Shield. Foose and Cooper (1978; 1981) investigated fracturing and faulting in the Duluth Complex. They inferred numerous faults and fractures in their surface mapping of the Harris Lake area (which is about 36 miles from the NorthMet Project area). They used truncations in igneous stratigraphy to infer faults (i.e., lateral offset of anorthosite layers). Truncations such as these have more recently been interpreted to be the edges of irregularly oriented and erratic blocks of anorthosite that were entrained into the magma body (Miller and Weiblen 1990; Namur et al. 2011; and Ripley 2014). This current explanation for Foose and Cooper's (1981) field relationships does not support a theory that widespread faulting and fracturing is prevalent in the Duluth Complex.

The Duluth Complex at NorthMet consists of geotechnically good to excellent quality rock with very few fractures (Barr 2014b). Despite the general competency of Duluth Complex rock, brecciated intervals (up to several feet thick) and fault gouge mineralization was noted in the exploration cores from the NorthMet Project area. Specific correlations between boreholes could not be delineated, but the locations of these zones may correlate with several high-angle normal faults identified by geologic offsets in the footwall (PolyMet 2007b). The footwall faults generally trend to the northeast across the site and have downward offset to the southeast, which is consistent with the Mid-Continent Rift. One exploration borehole at the Minnamax prospect encountered groundwater at a depth of 1,390 ft in the Duluth Complex that had artesian flow for a period of 6 days (Barr 1976). However, none of the other 12 exploration borings completed on the prospect encountered similar conditions, indicating that the artesian conditions were localized, and that there is not extensive hydrogeological interconnection of bedrock fracture or fault zones across the area of that prospect. No artesian flows were encountered in any of the boreholes completed within the NorthMet Project area. Repeated glaciation over the past two million years eroded and removed the highly weathered upper zone of bedrock (the "regolith")

(Farvolden et al. 1988). However, increased groundwater flow likely occurs through shallow bedrock that is more fractured than deeper bedrock

Over 14,000 rock quality designation (RQD) measurements for the Duluth Complex were taken using rock cores obtained from hundreds of Mine Site boreholes. RQD is a measure of fracture density in a segment of rock drill core, where 100 percent indicates no breaks and 0 percent indicates that all pieces of core within a core run are less than 10 centimeters long. The collected RQD data indicate that the upper 5 to 15 meters of bedrock tend to be more fractured and have higher hydraulic conductivity than deeper bedrock (Barr 2014b).

The overlying surficial deposits at the Mine Site are poorly sorted and range from very dense clay to well-sorted sand with boulders and cobbles (Barr 2006b; Golder 2007). Hydraulic testing indicates that these deposits may contain layers of relatively low hydraulic conductivity. Shallow well testing, however, documented a much higher average hydraulic conductivity than underlying bedrock (see Table 4.2.2-5). Shallow borings and test trenches at the Mine Site encountered bedrock at depths ranging from 3.5 to 17 ft below ground surface.

The site exploration drilling database, drilling logs, and electrical resistivity data were used to develop an estimated depth-to-bedrock isopach map (Golder 2007). The picture presented on that map is consistent with the more limited boring and trenching data. These data indicate that surficial deposits at the Mine Site are less than 20 ft thick over more than 75 percent of the area, and less than 30 ft in thick over 92 percent of the area. The isopach contouring indicates the presence of local depressions in the bedrock surface where surficial deposits may be up to 60 ft thick. However, no laterally continuous bodies of highly permeable outwash sands and gravel were identified that might serve as preferential groundwater conduits through the surficial deposits.

The Mine Site is covered by extensive wetlands. In some areas, many wetlands have only minimal hydraulic connection to the underlying groundwater. This interpretation is based on well logs, soil borings, available soil mapping, and the results of wetland characterization field investigations. In particular, a 2010 field survey focused on identifying the fraction of wetlands in the NorthMet Project area that were “ombrotrophic bogs.” These bogs form when sphagnum peat accumulation rises above the groundwater table, which reduces inputs of minerals and nutrients from groundwater. Thus, ombrotrophic bogs are wetlands almost entirely fed (with water and minerals) from direct precipitation; they have little hydraulic connection to underlying groundwater (Eggers 2011a).

This reclassification was carried out consistent with guidelines provided by the USACE (Eggers 2011a; PolyMet 2015b). The field survey (that was conducted along a representative cross section through the NorthMet Project area) recorded those parameters that distinguish the ombrotrophic bogs from the more hydraulically connected wetlands. The survey recorded vegetation species, percent areal cover of Sphagnum mosses (high sphagnum cover is associated with bogs), pH, and specific conductivity (ombrotrophic bogs tend to have lower pH and conductivity than hydraulically connected wetlands). The survey results indicated that wetlands within the Mine Site are ombrotrophic (Eggers 2011a). The other wetland communities at the Mine Site include shrub swamps, coniferous swamps, shallow marsh, wet/sedge meadows, open bogs, and hardwood swamps, which may receive some portion of their water from groundwater.

Water table elevations document that surficial and bedrock groundwater south of the Mine Site generally flows south to southeast, toward the Partridge River, which is the major discharge

point for the area (see Figure 4.2.2-7). MDNR well records within the NorthMet Project area indicate that water table levels vary seasonally between 3 and 10 ft bgs. At the Mine Site, depth to groundwater is generally less than 5 ft bgs (Barr 2006a). Three nested well pairs at the Mine Site (MW-6S/MW-6D, MW-08S/MW-08D, and MW-10S/MW-10D) allow for evaluation of vertical hydraulic gradients in the surficial deposits. For the nested pairs at MW-6 and MW-8, the vertical hydraulic gradients are small (approximately 0.02 ft/ft) and indicate either upward or downward groundwater flow. At MW-10, the vertical gradient is larger (approximately 0.1 ft/ft) (PolyMet 2015m). This higher vertical gradient is likely indicative of low vertical K between the measurement points rather than higher vertical flow.

Groundwater elevations measured by PolyMet in Mine Site bedrock boreholes show the hydraulic gradients within bedrock are similar to that of the overlying surficial deposits, which supports the concept of some hydraulic connection between the surficial deposits and bedrock units (PolyMet 2015m). The Regional Copper-Nickel Study (Siegel and Ericson 1980) concluded that recharge to the bedrock is from direct precipitation where bedrock outcrops at the surface, and from seepage through surficial deposits where the top of bedrock is buried (Siegel and Ericson 1980). This study also reported that the upper 200 to 300 ft of the Duluth Complex formation appeared to be fractured and jointed more extensively than at greater depths, so that the upper portion of the bedrock should have greater hydraulic conductivity. More detailed analyses indicate that the hydraulic connection between surficial deposits and the underlying bedrock, although present, is weak or non-existent. Water-table monitoring during a 30-day pumping test at bedrock well P-2 showed only a small amount of drawdown in the nearest deep wetland piezometer, and no detectable drawdown at other water table or deep wetland piezometers (PolyMet 2015m; Barr 2007a).

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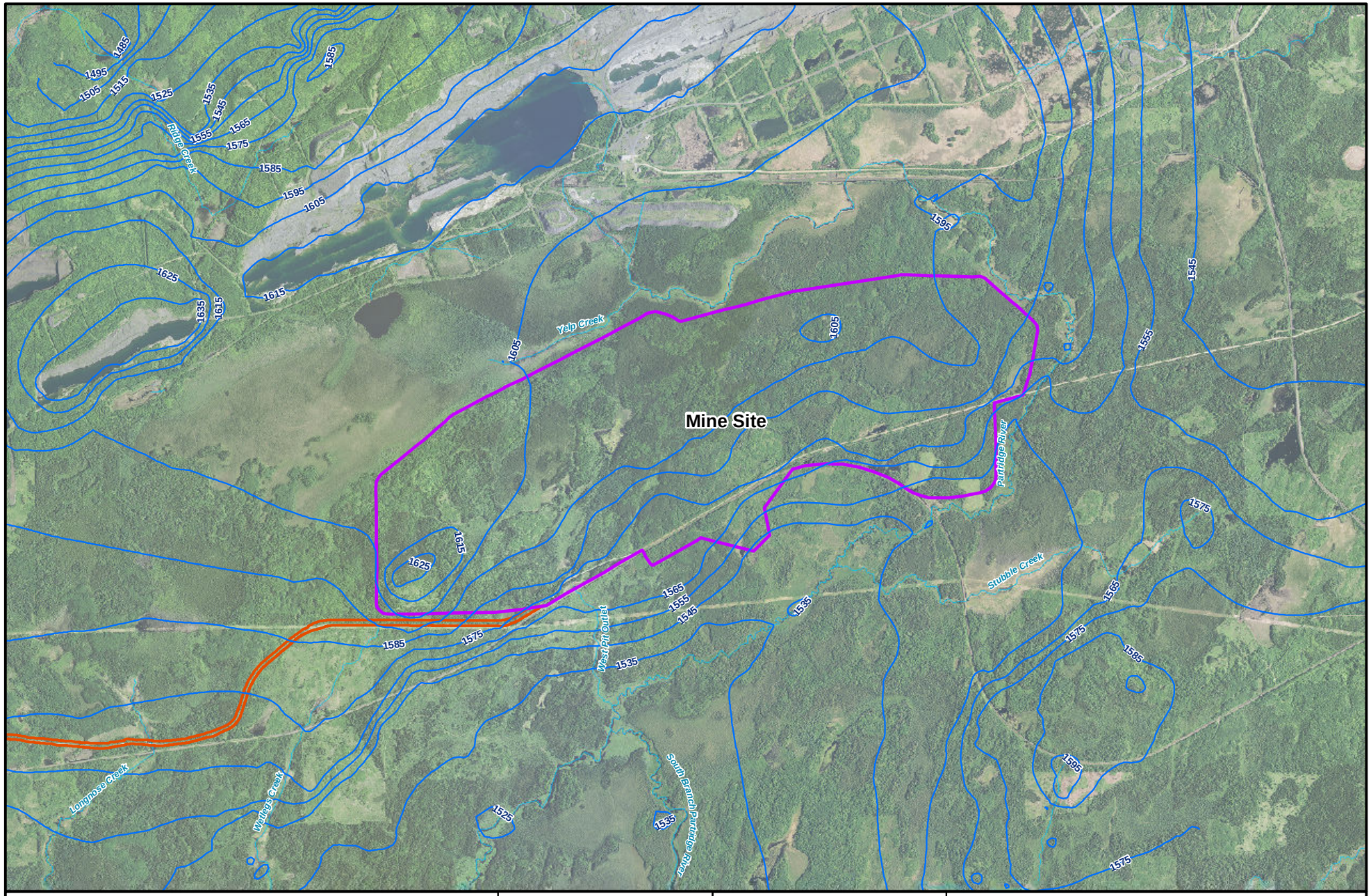

Mine Site

Transportation and Utility Corridor

* Water Table Elevation in Surficial Aquifer (Ft AMSL)

Stream/River

* Source: PolyMet 2015j

MNDNR

US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 4.2.2-7

Estimated Existing Groundwater Contours - Mine Site

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Because of the shallow water table and the generally thin layer of surficial deposits, flowpaths within the surficial deposits south of the Mine Site are generally thought to be short, with groundwater recharge areas located not far from the discharge areas. The water table is generally a "subdued replica" of the topographic surface, and as a result, surficial groundwater divides generally coincide with surface water drainage divides (PolyMet 2015m, Section 4.3.3.1). Groundwater flow in the surficial aquifer is affected by bedrock outcrops, which cause deviations in the local groundwater flow directions (Siegel and Ericson 1980).

The hydraulic connection between surficial deposits and bedrock is controlled by the vertical hydraulic conductivity of surficial deposits, which is not zero. At the regional scale, the vertical hydraulic conductivity is large enough to create similar hydraulic heads in surficial deposits and upper bedrock. As a consequence, bedrock groundwater flows have similar directions as groundwater in the overlying surficial deposits (PolyMet 2014m; Section 4.3.3.2). Topographic divides are expected to approximate the locations of groundwater flow divides in bedrock.

As recognized in other studies (MDNR 2004; Siegel and Ericson 1980), aquifer testing showed that the ability of the surficial deposits to transmit water was highly variable and depended upon location and thickness of those deposits (see Table 4.2.2-5). No data were available regarding the storage parameters for the surficial deposits.

Baseline Groundwater Quality

Baseline groundwater quality at the Mine Site is characterized using the data collected by PolyMet (PolyMet 2015m) at the following locations (see Figure 4.2.2-8):

- Three older monitoring wells in the surficial aquifer (MW-05-02, MW-05-08, and MW-05-09), sampled from 2005 through 2013;
- Twenty-one newer wells installed in the surficial aquifer in 2011 and 2012 (MW-1, MW-2, MW-3, MW-4, MW-5, MW-6S, MW6D, MW7, MW-8S, MW-8D, MW-9, MW-10S, MW-10D, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, and MW-18), sampled from 2011 through 2013;
- Five observation wells in the upper 100 ft of the bedrock (ob-1 through ob-5), sampled from 2006 through 2013 (two of those wells are completed in the Duluth Complex and three in the Virginia Formation); and
- Four bedrock wells (P-1, P-2, P-3, and P-4) completed to depths ranging from 485 to 610 ft below grade, which were sampled during aquifer testing in 2005 and 2006.

These samples were subject to standard quality controls (e.g., trip blanks, field blanks, laboratory control and laboratory control duplicates, matrix spike, and matrix spike duplicates, and assessment of holding times) and were acceptable for use in the SDEIS and this FEIS (PolyMet 2015m; Section 4.5.2.1.3). A statistical analysis of the samples from these wells through the end of 2013 was used to estimate baseline groundwater quality in the bedrock unit and surficial deposits, which subsequently was used as input into the Mine Site water quality model. Baseline groundwater quality results are summarized in Table 4.2.2-6.

Surficial Deposits

Water samples collected from the 24 wells completed in surficial deposits at the Mine Site indicate that shallow groundwater generally meets evaluation criteria for all solutes except for aluminum (total and dissolved), beryllium (total), iron (total and dissolved), and manganese (total and dissolved) (see Table 4.2.2-6). Overall pH levels tended toward a circumneutral range (mean of 7.0). The metals exceeding groundwater evaluation criteria (see Section 5.2.2.1) probably reflect natural conditions; there is no record of any historic activities at the Mine Site that could have caused elevated concentrations of these constituents.

These results are generally consistent with the findings presented in the Regional Copper-Nickel Study, which identified concentrations of total cadmium, iron, manganese, and nickel at concentrations above the FEIS groundwater evaluation criteria (see Table 4.2.2-6, with data from Siegel and Ericson 1980). Results from the analysis of water samples collected from the existing USGS and USFS wells completed in the surficial deposits indicate that dissolved concentrations in some locations were at or higher than the groundwater evaluation criteria for aluminum, cadmium, cobalt, iron, manganese, and nickel (see Table 4.2.2-6). Siegel and Ericson (1980) noted that higher concentrations of copper, cobalt, nickel, and sulfate are potentially correlated with proximity to the mineralized contact zone between the Duluth Complex and older rocks, as is the case with the NorthMet Project area, and is probably related to the oxidation of sulfide minerals.

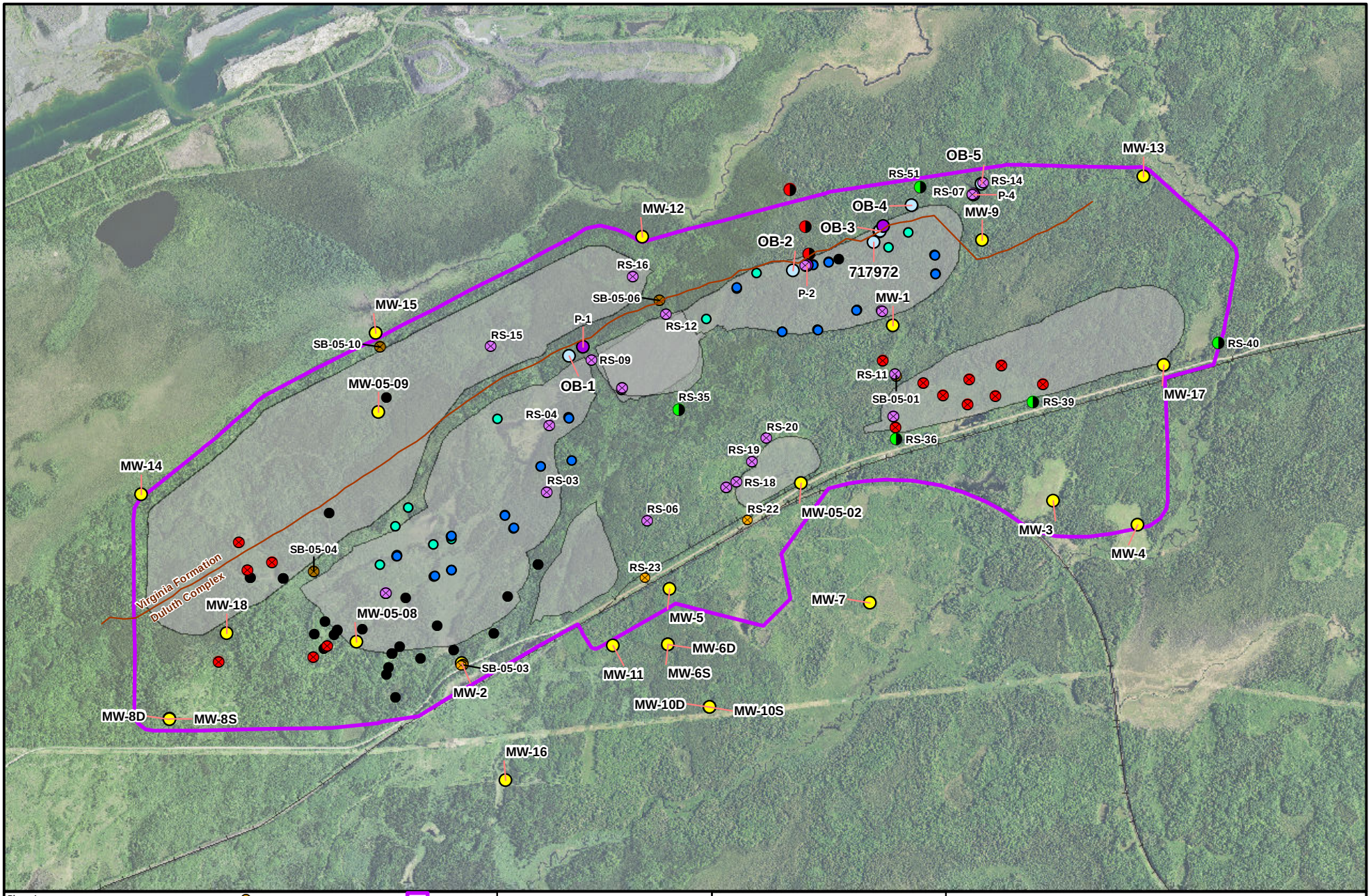

Figure 4.2.2-8
Groundwater Sampling at the Mine Site
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Table 4.2.2-6 Summary of Existing Groundwater Quality Monitoring Data for the NorthMet Mine Site

Parameters	Units	Groundwater Evaluation Criteria	Surficial Aquifer				Surficial Aquifer: Northeast MN Baseline[5]	Surficial Aquifer: Cu-Ni Study Baseline	Bedrock			
			Detection	Mean[1]	Range	# Exceed	Range	Range	Detection	Mean[1]	Range	# Exceed
General												
Alkalinity	mg/L	--	318 of 320	63.1	<5–263	NA	30–427	--	45 of 48	65.8	<5–115	NA
Ammonia as Nitrogen	mg/L	--	97 of 320	0.25	<0.025–3.5	NA	--	--	9 of 48	0.25	<0.025–0.27	NA
Calcium	mg/L	--	320 of 320	15.3	2.4–38.8	NA	0.2–115	6.0–150	49 of 49	15.9	4.2–32.5	NA
Chloride	mg/L	250	173 of 320	0.71	<0.25–13.2	0	0.3–89	0.1–35	39 of 48	1.1	<0.25–93.1	0
Fluoride	mg/L	2	82 of 320	0.07	<0.05–0.52	0	0.20–1.1	--	27 of 48	0.09	<0.05–1.1	0
Hardness	mg/L	--	320 of 320	66.2	10.3–164	NA	--	--	48 of 48	70.2	15.0–151	NA
Magnesium	mg/L	--	320 of 320	6.8	0.89–18.9	NA	0.1–64.5	1.1–64	48 of 49	7.5	<1–21.6	NA
pH	s.u.	6.5–8.5	318 of 318	7.0	5.0–10.4	**115**	6.0–8.5	5.7–8.0	48 of 48	7.1	6.0–10.4	**15**
Potassium	mg/L	--	320 of 320	1.7	0.27–8.6	NA	<0.12–7.5	--	49 of 49	1.7	0.73–3.44	NA
Sodium	mg/L	--	318 of 320	5.4	<1–29.8	NA	1.7–188	--	39 of 49	5.8	<1–43.9	NA
Sulfate	mg/L	250	310 of 320	9.0	<0.5–104	0	<0.3–377	0.7–450	47 of 48	14.1	<0.5–1,200	**1**
TDS	mg/L	500	310 of 311	144	<5–6,080	**1**	28–1,010	--	30 of 30	126	51.0–214	0
Metals - Total												
Aluminum	µg/L	200	27 of 27	**5,751**	31.6–32,300	**22**	<0.061–870	--	38 of 49	989	<10–6,950	**20**
Antimony	µg/L	6	1 of 27	0.54	<0.25–<1.5	0	<0.01–0.09	--	4 of 49	0.63	<0.25–<1.5	0
Arsenic	µg/L	10	14 of 27	1.8	<0.25–5.8	0	<0.01–42	--	22 of 49	2.3	<0.25–24.1	**3**
Barium	µg/L	2,000	318 of 320	33.5	<5–615	0	1.6–191	--	35 of 49	6.7	<5–32.4	0

Parameters	Units	Groundwater Evaluation Criteria	Surficial Aquifer				Surficial Aquifer: Northeast MN Baseline[5]	Surficial Aquifer: Cu-Ni Study Baseline	Bedrock			
			Detection	Mean[1]	Range	# Exceed	Range	Range	Detection	Mean[1]	Range	# Exceed
Beryllium	µg/L	0.08	25 of 320	**0.13**	<0.1–1.6	BDL[2]	<0.01–0.41	--	3 of 49	**0.11**	<0.1–0.36	**49**
Boron	µg/L	1,000	17 of 320	27.2	<17.5–99.4	0	<13–709	--	10 of 49	53.2	<25–518	0
Cadmium	µg/L	4	6 of 27	0.15	<0.1–0.56	0	<0.02–0.24	--	4 of 49	1.1	<0.1–48.0	**1**
Cobalt	µg/L	--	22 of 27	3.5	<0.1–23.0	NA	0.02–2.6	--	31 of 49	2.5	<0.1–23.3	NA
Copper	µg/L	1,000	27 of 27	21.7	0.80–99.6	0	<5.5–530	--	36 of 49	7.4	<0.25–46.3	0
Iron	µg/L	300	27 of 27	**6,980**	54.3–44,400	**22**	<3.2–20,207	--	47 of 49	**7,161**	<25–44,300	**36**
Lead	µg/L	--	77 of 320	0.80	<0.25–16.7	NA	<0.03–25	--	10 of 49	0.55	<0.25–2.9	NA
Manganese	µg/L	50	26 of 27	**267**	<15–1,770	**22**	0.9–1,462	--	46 of 49	**112**	<5–383	**26**
Mercury	ng/L	2,000	181 of 320	2.7	<0.25–87.6	0	--	--	25 of 51	0.82	<0.25–4.9	0
Methylmercury	ng/L	--	6 of 26	0.091	<0.0125–0.52	NA	--	--	5 of 51	0.040	<0.0125–0.11	NA
Nickel	µg/L	100	25 of 27	10.6	<1–47.0	0	<6.0–20	--	38 of 49	43.5	<0.25–445	**9**
Selenium	µg/L	30	2 of 27	0.61	<0.5–<1	0	<1.0–11	--	1 of 49	1.0	<0.5–<5	0
Silver	µg/L	30	0 of 27	0.23	<0.1–<1	0	<0.01–0.11	--	0 of 49	0.21	<0.1–<0.5	0
Thallium	µg/L	0.6	16 of 320	0.12	<0.0085–<1	**6**	<0.005–0.032	--	0 of 49	0.37	<0.1–<1	**14**
Zinc	µg/L	2,000	13 of 27	15.5	<3–64.5	0	<2.7–1102	--	21 of 49	17.0	<3–125	0
Metals-Dissolved/Filtered												
Aluminum	µg/L	200	134 of 319	63.9	<10–910	**31**	--	0–280	6 of 49	20.2	<10–127	0
Antimony	µg/L	6	0 of 292	0.26	<0.25–<2.5	0	--	--	--	--	--	--
Arsenic	µg/L	10	140 of 307	0.79	<0.25–6.7	0	--	--	7 of 25	0.57	<0.25–2.5	0
Barium	µg/L	2,000	3 of 4	7.3	<5–11.1	0	--	--	11 of 11	1.4	0.58–3.7	0
Boron	µg/L	1,000	0 of 8	25.0	<25–<25	0	--	--	2 of 15	29.8	<25–65.9	0
Cadmium	µg/L	4	4 of 319	0.10	<0.015–<1	0	--	0–8.4	3 of 48	0.12	<0.1–0.92	0
Cobalt	µg/L	--	165 of 293	0.90	<0.1–8.6	NA	--	--	4 of 11	1.0	<0.1–5.0	NA
Copper	µg/L	1,000	252 of 319	2.6	<0.25–49.0	0	--	0.2 to 190[(4)]	29 of 49	1.4	<0.25–3.5	0
Iron	µg/L	300	157 of 307	**1,910**	<25–25,600	**92**	--	--	11 of 25	**633**	<25–3,240	**8**

Parameters	Units	Groundwater Evaluation Criteria	Surficial Aquifer				Surficial Aquifer		Bedrock			
							Northeast MN Baseline[5]	Cu-Ni Study Baseline				
			Detection	Mean[1]	Range	# Exceed	Range	Range	Detection	Mean[1]	Range	# Exceed
Lead	µg/L	--	0 of 1	0.25	<0.25–<0.25	NA	--	--	0 of 11	0.25	<0.25–<0.25	NA
Manganese	µg/L	50	304 of 310	**288**	<0.25–3,280	**200**	--	--	28 of 30	**81.3**	<5–218	**12**
Nickel	µg/L	100	229 of 319	2.1	<0.25–20.5	0	--	0.7–120	37 of 49	24.1	<0.25–158	**8**
Selenium	µg/L	30	2 of 319	0.54	<0.1–<5	0	--	--	0 of 48	0.64	<0.5–<1	0
Silver	µg/L	30	0 of 319	0.11	<0.1–<1	0	--	--	0 of 48	0.21	<0.1–<0.5	0
Vanadium	µg/L	50	34 of 292	3.8	<2.5–<25	0	--	--	--	--	--	--
Zinc	µg/L	2,000	60 of 319	4.6	<3–44.4	0	--	0.7–620	19 of 48	14.9	<3–134	0

Sources: Barr 2006b; Barr 2006c; Barr 2007b; MPCA 1999a; Siegel and Ericson 1980; Barr 2014d.

Notes:
s.u. = Standard Unit
< less than indicated reporting limit.
Values in bold exceeds evaluation criteria.
[1] Where non-detects occur, the mean was calculated using half the detection limit. Results of field duplicates were averaged.
[2] Below detection limit.
[3] Barr 2014d data (2005-2013) is from the following wells: MW-05-02, MW-05-08, MW-05-09, MW-1, MW-2, MW-3, MW-4, MW-5, MW-6S, MW-6D, MW-7, MW-8S, MW-8D, MW-9, MW-10S, MW-10D, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, and MW-18.
[4] May reflect contamination (as cited in Siegel and Ericson 1980).
[5] Data include all quaternary aquifers in MPCA 1999a.

Bedrock

Groundwater samples have been collected from nine bedrock (i.e., Duluth Complex and Virginia Formation) monitoring wells (i.e., pumping wells P1 through P4 and observation wells Ob1 through Ob5), one water supply well, and two exploratory boreholes at the Mine Site. The average water quality in the bedrock at the Mine Site was generally found to meet groundwater evaluation criteria except for aluminum, beryllium, iron, manganese, and thallium (see Table 4.2.2-6). The pH of the bedrock water samples from the Duluth Complex tended toward basic (i.e., greater than 7.0 to 9.0), while samples from the Virginia Formation were, with one exception, more acidic (i.e., less than 7.0). Sample pHs were near or slightly above 10 in a few wells; but pHs tended to be lower in later samples, suggesting that cement or other reagents used for well installation and completion may have increased pH in the vicinity of these wells.

Occasional exceedances of groundwater quality standards were detected for arsenic and nickel. Ammonia was detected in nine samples, which is unusual because ammonia is not typically found in bedrock. The presence of ammonia in at least two of these samples is attributed to either collection or laboratory error (Barr 2006a). Nitrite or nitrate (both are the forms of nitrogen to which ammonia converts) was found in four samples. This result is not unprecedented as the MPCA study in northeastern Minnesota reported that nitrate was detected in two of the 20 collected samples (MPCA 1999a).

Groundwater Use

No domestic wells exist between the Mine Site and the Partridge River. However, there are several MDNR water appropriation permits in effect for mine pit dewatering that affect the Mine Site, including the Northshore Mine permit (Permit 1982-2097). The permit authorizes Northshore Mining Company to withdraw up to 36,000 gpm (80 cubic ft per second [cfs]), of which a maximum of 13,000 gpm (29 cfs) can be discharged to the Partridge River, a maximum of 12,000 gpm (27 cfs) can be discharged to Langley Creek, and a maximum of 11,000 gpm (25 cfs) can be discharged to Unnamed Creek.

4.2.2.2.2 Surface Water

This section describes the existing surface water resources for the Mine Site that could be affected by the NorthMet Project Proposed Action. These resources include the Upper Partridge River, the Upper Partridge River tributary streams, Colby Lake, Second Creek, Whitewater Reservoir, and the Lower Partridge River below Colby Lake downstream to its confluence with the St. Louis River. For purposes of this FEIS, the Partridge River upstream of Colby Lake is referred to as the Upper Partridge River, while the segment downstream of Colby Lake is referred to as the Lower Partridge River (see Figure 4.2.2-1). For this FEIS, new XP-SWMM model predictions were made to estimate Partridge River flow parameters without effects of discharge from the Northshore Mine, and additional surface water quality data has been collected at many locations. These new data are summarized to better describe existing conditions as inputs for modeling potential surface water impacts.

Upper Partridge River

This section describes the baseline surface water hydrology and water quality of the mainstem of the Partridge River upstream of Colby Lake.

Upper Partridge River Hydrology

Partridge River headwaters originate just south of the Northshore Mine, although historically its source was further upstream. It flows approximately 32 river miles to its confluence with the St. Louis River, draining a total of approximately 161 square miles, as measured at Aurora, Minnesota, approximately 3 miles from the St. Louis River confluence (see Figure 4.2.2-1). The Upper Partridge River refers to the segment of the Partridge River upstream of Colby Lake. The Upper Partridge River Watershed is primarily a mix of upland forest (39 percent), lowlands and aquatic environments (27 percent), shrubland (22 percent), and cropland/grassland (2 percent), with some development (10 percent). There are several active and inactive mines within the watershed including the active Northshore Mine in the headwaters area, as well as the inactive and former LTVSMC mine. About 5 miles of the Partridge River run around the northern and eastern perimeter of the proposed NorthMet Mine Site. Seeps from the southern portion of the existing LTVSMC Tailings Basin (south side of Cell 1E) naturally flow to Second Creek, a tributary of the Partridge River in the Lower Partridge Watershed (see Figure 4.2.2-1); however, a portion of the seeps is presently being captured and pumped back to the Tailings Basin under the Consent Decree between the MPCA and Cliffs Erie. The Partridge River varies from sluggish marshy reaches, to large open ponds, to boulder rapids.

Flow data are most valuable when there is an extended term of record because the data are less likely to be skewed by dry or wet climate in an atypical year or two (Robson 2000). Data from four USGS gaging stations within the Partridge River Watershed (see Figure 4.2.2-1) are available, but the three that reflect flow from the NorthMet Project area have all been impacted by mining operations (see Table 4.2.2-7). The Partridge River above Colby Lake (USGS Station #04015475) is the gaging station that best represents flows from the NorthMet Project area because it is the most upstream station that captures all flow from the proposed Mine Site, with data available for the period from October 1978 through September 1988. The use of these flow data, although about 25 years old, is reasonable as there has not been any substantial land cover or other changes in the watershed over the intervening years that would raise into question the applicability of these data. PolyMet also assessed a similar watershed in the region, the Kawishiwi River, using a flow record from October 1971 to September 2010 to determine if there were long-term trends in flow in this geographic area. No discernable trend in flow was detected, reinforcing that the use of the existing data for Partridge River above Colby Lake is reasonable (PolyMet 2015m). A recently installed flow gage at the Dunka Road is closer to the Mine Site, crossing near its southeast corner (monitoring location SW-003); however, these data may be influenced by Northshore discharges and are therefore unreliable for purposes of estimating groundwater baseflow for impact assessment modeling (MDNR et al. 2015b).

The available flow records indicate that streamflow is generally very low from late fall through the winter, rising sharply during spring snowmelt, and receding during the summer, except for occasional heavy storms. This pattern of receding summer streamflow is characteristic of streams draining extensive bogs (Brooks 1992). Natural flow is very low during the winter because of the relatively thin surficial deposit over the bedrock, and because little groundwater recharge occurs since most precipitation falls as snow and is not available for infiltration or runoff until it melts (Siegel and Ericson 1980). The discharge statistics for the USGS Station above Colby Lake (USGS Station #04015475) are presented in Table 4.2.2-7. The modeled XP-SWMM flows at seven locations (SW-002, SW-003, SW-004, SW-004a, SW-004b, SW-005, and SW-006) on the Partridge River (see Figure 4.2.2-9) are presented in Table 4.2.2-8.

The Northshore Mine is located at the headwaters of the Partridge River (see Figure 4.2.2-9). Discharges from Northshore to the headwaters of the Partridge River have occurred sporadically since 1956, with limited pumping records available prior to 1988, when record keeping became required by the State. These discharges from the Peter Mitchell Pit can have an impact on the flow regime of the Upper Partridge River, particularly in the winter during low-flow conditions (see Figure 4.2.2-10 and Section 6.2.2).

Following closure of the Northshore Mine, discharge to the Partridge River Watershed would cease as the Northshore pit is allowed to flood with water. After the Northshore pit lake is flooded, it would discharge towards the Dunka River, effectively removing the Northshore pit watershed from the Partridge River Watershed. Discharge from the Northshore Mine is planned to end in approximately 2070 (PolyMet 2015m).

For the DEIS, an XP-SWMM hydrologic/hydraulic model of the Partridge River was developed to estimate flows upstream of the USGS Station #04015475. The model was calibrated to gage data from 1984 and 1985 and validated against the 1978-1988 observed flow record. No correction was made in the DEIS model calibration for Northshore Mine discharge, as dewatering data were not available at the time (PolyMet 2015m).

In an effort to account for the Northshore Mine discharge in this FEIS, different methods were evaluated. The method chosen was to recalculate the scale factors used to calibrate the XP-SWMM model to data from the USGS gage data, using data collected when the Northshore Mine was not discharging water into the Partridge River (October 1986 to September 1988). A more detailed description of the XP-SWMM model calibration can be found in the Mine Site Water Modeling Data Package (PolyMet 2015m).

Table 4.2.2-7 Monthly Statistical Flow Data (cfs) for USGS Gaging Stations in the Partridge River Watershed

Station:	04015475 Partridge River Above Colby Lake[1]			04015500 Second Creek Near Aurora			04016000 Partridge River Near Aurora		
Period of Record:	1978-1988			1955-1980			1942 – 1982		
Drainage Area:	106.0 mi^2			29.0 mi^2			161.0 mi^2		
Contributing Drainage Area:	100.0 mi^2			22.4 mi^2			147.7 mi^2		
Month	**Monthly Average**	**Daily Minimum**	**Daily Maximum**	**Monthly Average**	**Daily Minimum**	**Daily Maximum**	**Monthly Average**	**Daily Minimum**	**Daily Maximum**
October	116[1]	14	775	24	1.2	134	97	3.3	1,140
November	63	13	468	20	4.0	103	71	4.0	308
December	20	4.1	95	12	2.2	35	34	5.7	116
January	7.5	1.4	23	9.2	1.5	30	21	2.3	61
February	6.4	1.0	26	8.9	1.5	28	17	2.3	41
March	16	0.6	209	16	2.0	84	41	3.0	1,560
April	242	4.0	1,960	47	5.0	233	271	6.5	2,580
May	220	11	874	34	1.7	126	333	37	3,190
June	105	5.9	568	29	1.4	95	210	17	2,920
July	104	0.5	866	23	3.1	90	101	11	950
August	55	0.7	480	20	2.6	130	64	5.2	459
September	87	2.0	383	24	1.9	100	81	3.2	438

Source: Statistical data from USGS 2015.

Notes:
All values in cfs unless otherwise noted.
[1] Station data may be influenced by Northshore Mine pit dewatering up to October 1986.

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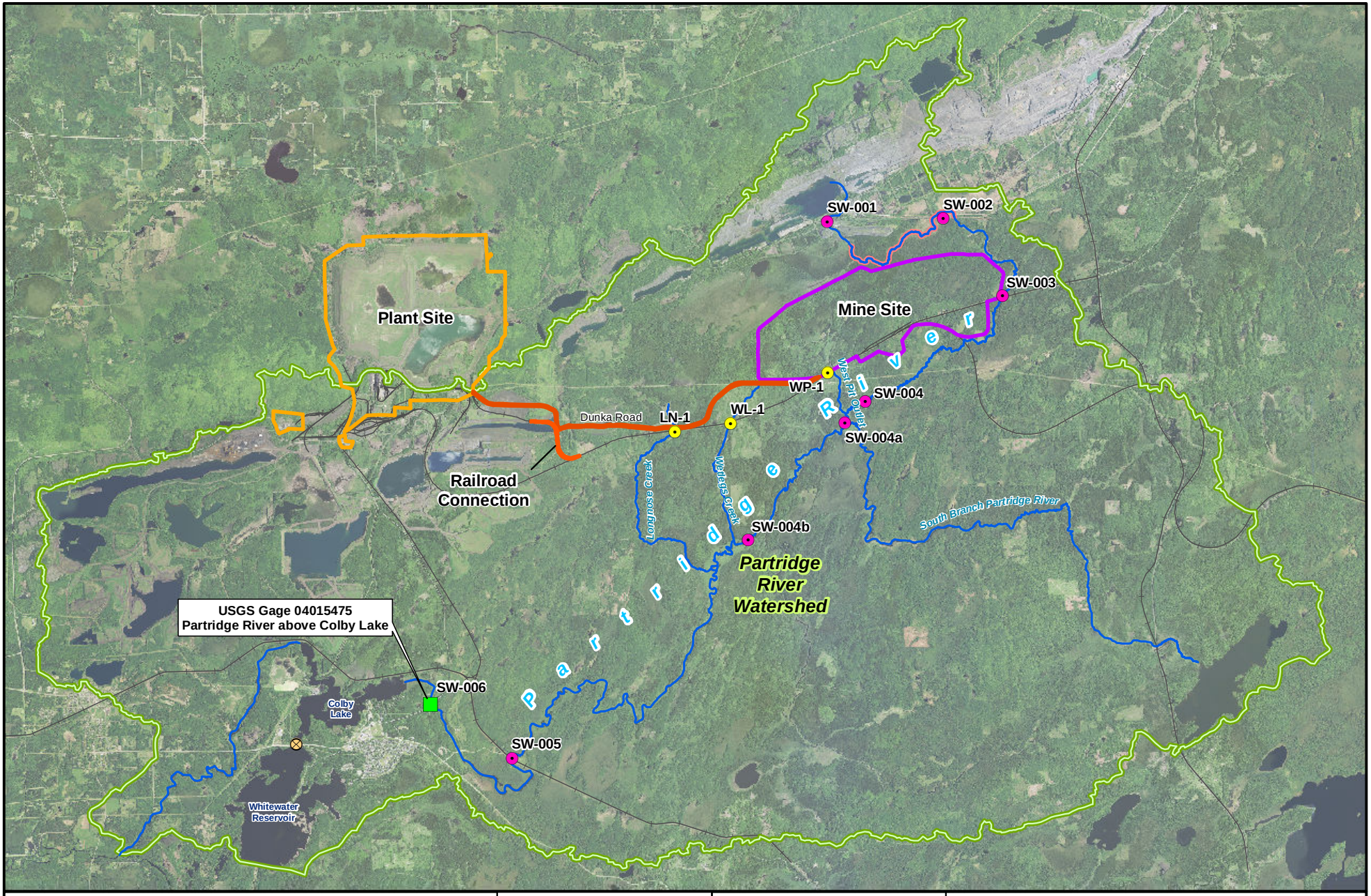

Surface Water Modeling/ Monitoring Location
Surface Water Monitoring Location
Area of Streambank Erosion/Channel Widening
Partridge River Watershed
USGS Gage Station
Diversion Works
Stream/River
Existing Railroad
Mine Site
Plant Site
Transportation and Utility Corridor

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 0.5 1 2 3 Miles

Figure 4.2.2-9
Surface Water Monitoring and Modeling Locations within the Partridge River Watershed
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Proposed Mine Site Boundary
Monitoring Location
Stream/River

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 250 500 1,000 1,500 2,000
Feet

Figure 4.2.2-10
Northshore Hydrology
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Table 4.2.2-8 Modeled Flow Statistics for Various Locations along the Upper Partridge River under Natural Conditions

	Station						
Statistic (Unit)	**SW-002[1]**	**SW-003[1]**	**SW-004[1]**	**SW-004a[1]**	**SW-004b[1]**	**SW-005[1]**	**SW-006[1]**
Drainage Area (acres)[2]	3,838	4,880	9,896	29,887	44,995	58,395	61,386
Annual Daily Mean (cfs)	6.09	7.35	13.97	38.33	57.61	74.77	78.87
October Mean (cfs)	22.76	27.58	52.43	144.03	216.09	278.61	294.02
November Mean (cfs)	4.59	5.80	11.68	31.61	49.19	66.08	68.93
December Mean (cfs)	1.70	2.29	4.43	12.85	19.71	26.61	27.72
January Mean (cfs)	0.57	0.73	1.37	3.95	5.97	7.73	8.11
February Mean (cfs)	1.06	1.27	2.40	6.59	9.88	12.73	13.42
March Mean (cfs)	1.44	1.70	3.10	8.50	12.50	15.16	16.12
April Mean (cfs)	30.58	36.89	71.41	200.60	300.54	390.47	410.56
May Mean (cfs)	7.36	9.05	17.52	49.01	75.47	102.88	108.04
June Mean (cfs)	11.55	13.54	25.56	67.75	101.13	127.93	135.19
July Mean (cfs)	5.97	7.09	13.54	35.56	54.55	75.93	80.42
August Mean (cfs)	3.00	3.57	6.40	16.71	24.79	31.89	33.98
September Mean (cfs)	8.93	10.84	20.14	52.93	79.31	103.64	110.01
10-year[3] High Flow (cfs)	117.79	132.12	214.83	678.28	895.16	1,080.60	1,126.55
Average Annual 1-day Max (cfs)	82.15	93.30	156.05	467.64	630.96	737.26	761.75
Average Annual 3-day Max (cfs)	71.62	82.84	149.39	423.15	593.08	722.50	748.85
Average Annual 7-day Max (cfs)	54.13	63.57	120.31	337.99	490.93	623.57	651.79
Average Annual 30-day Max (cfs)	23.59	28.25	54.01	150.46	223.95	288.80	303.66
Average Annual 90-day Max (cfs)	13.71	16.52	31.66	87.78	131.81	170.99	180.10
10-year[3] Low Flow (cfs)	0.35	0.45	0.72	1.72	2.84	3.58	3.90
Average Annual 1-day Min (cfs)	0.40	0.52	0.85	2.08	3.36	4.32	4.69
Average Annual 3-day Min (cfs)	0.39	0.51	0.84	2.05	3.30	4.28	4.65
Average Annual 7-day Min (cfs)	0.40	0.51	0.86	2.11	3.38	4.32	4.68
Average Annual 30-day Min (cfs)	0.41	0.51	0.92	2.44	3.81	4.91	5.28
Average Annual 90-day Min (cfs)	0.63	0.80	1.46	3.87	5.87	7.61	8.10
Date of Max 1-day Mean[4] (cfs)	168.85	168.85	169.26	168.95	169.16	169.77	169.77
Date of Min 1-day Mean[4] (cfs)	211.94	211.94	195.10	201.64	208.29	203.28	200.39
Number of Zero Flow Days/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7-day Minimum/Annual Mean[5]	0.06	0.06	0.05	0.05	0.05	0.05	0.05
No of High Pulses[6]/yr	15.17	13.80	10.54	9.00	8.23	6.51	6.34
Mean Duration of High Pulses (days)	4.97	5.46	7.15	8.42	9.19	11.61	11.93
Total High Pulse Duration/yr (days)	69.23	69.31	69.23	69.61	69.53	69.53	69.53
No of Low Pulses7/yr	3.63	3.57	2.72	2.61	2.72	1.97	1.97
Mean Duration of Low Pulses (days)	19.04	19.15	26.30	27.34	26.37	37.26	37.31
Total Low Pulse Duration/yr (days)	70.89	70.27	73.46	73.38	73.64	75.50	75.59

Statistic (Unit)	Station						
	SW-002[(1)]	SW-003[(1)]	SW-004[(1)]	SW-004a[(1)]	SW-004b[(1)]	SW-005[(1)]	SW-006[(1)]
Avg. Hydrograph Increase (cfs/day)	3.94	4.69	6.93	20.61	28.11	24.65	26.33
Avg. Hydrograph Decrease (cfs/day)	1.49	1.63	2.46	7.06	9.38	10.19	10.23
No of Flow Reversals/yr	54.84	49.75	38.43	38.49	38.80	34.02	38.86

Source: PolyMet 2015m, Appendix J

Notes:
1 Based on existing-conditions XP-SWMM model results adjusted using scale factors listed in Table 4-7 of the Mine Site Water Modeling Data Package (PolyMet 2015m).
2 Based on existing conditions Partridge River Tributary Areas listed in Table 1-18 of the Mine Site Water Modeling Data Package (PolyMet 2015m).
3 Annual instantaneous peak with a 10-year recurrence interval.
4 Mean Julian date of each annual 1-day maximum or minimum flow.
5 Mean value of the 7-day minimum flow divided by the mean annual flow of that year.
6 The number of times per year the mean daily flow increases above the 75th-percentile of all recorded/simulated mean daily flows.
7 The number of times per year the mean daily flow falls below the 25th-percentile of all recorded/simulated mean daily flows.

Upper Partridge River Groundwater Baseflow

Estimating the groundwater contribution to flow in the Upper Partridge River is necessary for modeling future impacts because: 1) groundwater is an important component of the river water balance (particularly during winter low-flow conditions), and 2) groundwater reaching the river could be chemically affected by mining operations. The flow contribution to the Partridge River from groundwater is referred to as groundwater baseflow and represents a somewhat uniform source of water to the river although the actual amount may vary from year to year. Groundwater baseflow is also important information used to develop the MODFLOW groundwater flow model. Estimated baseflow is used as an observation during calibration of the MODFLOW model and directly affects model inputs such as surficial deposit horizontal hydraulic conductivity and the conductance of the river cells simulating the Partridge River. Recharge was not adjusted during calibration of the MODLOW model, but the recharge values used in the model were based directly on the baseflow estimates. MODFLOW recharge values were set such that the total recharge applied to the SW-004 surface watershed area was equal to the estimate of baseflow at SW-004.

To evaluate Partridge River groundwater baseflows, which are specific to river location, PolyMet used all available data from USGS gaging station #04015475, located at Partridge River station SW-006, for the period of record lasting from October 1, 1978 to September 30, 1988. In terms of water years (WYs), the period of record covered WY1979 through WY1988. It was recognized that low (winter) flows in the river could be affected by both groundwater baseflows and pumped/seepage discharges from the Northshore Mine, and this added complexity to the interpretation of groundwater baseflow. To estimate groundwater baseflow at each Partridge River evaluation location, the following procedure was used by PolyMet:

- Average annual 30-day low flow at the USGS gage, with minimal Northshore pumping, was assumed to be a reasonable approximation of groundwater baseflow at SW-006.

- The lowest 30-day average flow for each of the 10 water years between WY1979 through WY1988 was averaged from the USGS gage record, unadjusted. The result was 5.12 cfs at the USGS gage (SW006).
- The XP-SWMM surface water model was calibrated to gage data from WY1985, which had periods when Northshore was not discharging, and validated against the remaining period of record (WY1979 through WY1988).
- A scale factor for 30-day low flow parameter was calculated by comparing the observed 30-day low flows at the USGS gage in WY1987 and WY1988 (2 years when Northshore was not discharging) to the XP-SWMM-modeled 30-day low flows for those same water years.
  - The average observed 30-day low at SW-006 was 4.98 cfs in WY1987 and WY1988.
  - The average XP-SWMM estimated 30-day low flow at SW-006 was 5.15 cfs in WY1987 and WY1988.
  - A scale factor (observed over modeled) was computed to be 0.97.
- The lowest 30-day average flow at SW-006 from each of the 10 water years between WY1979 through WY1988, as estimated by XP-SWMM, was averaged, resulting in an average modeled 30-day low flow of 5.45 cfs.
- The average modeled 30-day low flow estimated by XP-SWMM (5.45 cfs) was multiplied by the scale factor (0.97) to arrive at the gage-adjusted estimated average 30-day low flow at SW-006, 5.27 cfs, which was taken to represent groundwater baseflow at SW-006.
- The estimated average 30-day low flows (groundwater baseflows) at all Partridge River stations upstream of SW-006 were computed in a similar manner; first calculating the average modeled 30-day low flow estimated by XP-SWMM over the entire 10 WY period, and multiplying that value by the 0.97 scale factor.
- At SW-003 for example, the XP-SWMM-modeled average 30-day low flow was 0.53 cfs. Multiplied by the scale factor of 0.97, the gage-adjusted estimated average 30-day low flow at SW-003 was 0.51 cfs, and this was taken to represent groundwater baseflow at SW-003.

The PolyMet-estimated groundwater baseflows for the Upper Partridge River are listed in Table 4.2.2-9.

The MDNR directly measured low flows at several locations along the Partridge River during the winters of 2008, 2010, and 2011; however, these flow measurements were likely affected by discharges from the Northshore Mine and were not indicative of groundwater baseflows only.

The only other available gaging data that could be used for estimation of baseflow are from a station installed in 2011 at SW-003 on the Partridge River. However, interpretation of groundwater baseflow at SW-003 is not reliable for use in the GoldSim modeling of groundwater baseflow (discussion of modeling is provided in Section 5.2.2) due to the complicating effects of Peter Mitchell Pit (Northshore) pumped discharges, seepage from the Northshore West Pond, and complex storage and release mechanisms in the wetlands that receive these flows.

Table 4.2.2-9 Estimated Partridge River Groundwater Baseflows

Station	Estimated Groundwater Baseflow (cfs)
SW-002	0.4
SW-003	0.5
SW-004	0.9
SW-004a	2.4
SW-004b	3.8
SW-005	4.9
SW-006	5.3

Source: XP-SWMM Data: PolyMet 2015m.

Upper Partridge River Stream Geomorphology

A Level I Rosgen Geomorphic Survey (Rosgen 1996) was conducted for the Partridge River from its headwaters to Colby Lake, a distance of about 28 miles (Barr 2005). A Level I Survey is a physical classification of a stream channel to determine its geomorphic characteristics based on the relationship of its physical geometry and hydraulic characteristics. The purpose of a geomorphic survey is to evaluate the stability of a stream under existing conditions, to determine its sensitivity to hydrologic change, and to indicate how restoration may be approached if a portion of the stream becomes unstable. This survey is included in this FEIS because it assesses erosion and/or channel widening caused by changes in flow that may occur from current or future mine water discharge, and is thus helpful in assessing project-specific or cumulative effects. This broad level characterization was performed using 2003 aerial photography, USGS 7.5 minute quadrangles with a 10-ft contour interval, available ground photographs, and two site visits.

The survey results indicated that approximately 54 percent of the Partridge River is a Type C channel, 31 percent is a Type E channel, and 13 percent is a Type B channel. Type C channels are characterized as moderately sinuous (meandering), having a mild slope and a well-developed floodplain, and being fairly shallow relative to their width. Type E channels are similar to Type C, except that they tend to be more sinuous and deeper relative to their width. Type B channels are steeper, straighter, and have less floodplain available than Type C or E channels. Type B channels tend to be less sensitive to impact than Type C or E channels and are dominated by boulder material on the Partridge River.

The Rosgen field survey found the Partridge River to be stable, with no evidence of erosion except in its headwaters (see Figure 4.2.2-9). In general, the Partridge River has well vegetated stream banks for nearly its entire length, and a very well-developed floodplain for all but the Type B reaches. There are many beaver dams along the entire length of the Partridge River, particularly at the head of rapids sections, which create wide pools. Because its steep reaches are well-armored and the flatter reaches tend to have well vegetated shorelines, the Partridge River is considered to be a robust stream. The limited erosion and/or channel widening found in the headwaters may be attributable to pit dewatering discharges from the Northshore Mine, which has a maximum permitted discharge rate of 29 cfs, and the historic straightening of the river channel for construction of a railroad (Barr 2005).

Two additional Rosgen surveys were conducted on Unnamed Creek and two stream reaches in the upper Partridge River. A Level I Rosgen Geomorphic Survey (Rosgen 1996) was conducted on Unnamed Creek in November 2011 using survey-grade GPS and ground photographs. The

survey results indicated that Unnamed Creek is consistent with Type C and E channels with no evidence of erosion, downcutting, or channel widening at any of the surveyed locations and well-developed floodplains, substantial bank vegetation, and cobbles in the steeper riffle sections. Water levels in Unnamed Creek are likely controlled by beaver dams in the surrounding wetlands as the baseflow to the creek from groundwater is low. Unnamed Creek is likely to withstand moderate changes in hydrology with no degradation as it has well-developed floodplains and substantial bank vegetation (Barr 2013o).

A level II Rosgen Classification was conducted for two stream reaches on the upper Partridge River in July (East Reach) and August 2009 (West Reach). A Level II classification (Rosgen 1996) consists of a survey of the channel profile and cross-sections of the channel and floodplain as well as sampling of the stream bed material. The survey results indicated that both reaches are consistent with Type E channels with no evidence of erosion, downcutting, or channel widening at either of the surveyed reaches; both reaches have well-developed floodplains and vigorous bank vegetation. As with Unnamed Creek, the water levels in both reaches are likely controlled by beaver dams in the surrounding wetlands as the baseflow to the reaches from groundwater is low. These reaches are likely to withstand moderate changes in hydrology with no degradation as they have well-developed floodplains and substantial bank vegetation (Barr 2013q).

Partridge River Surface Water Withdrawals and Discharges

There are several mines, the City of Hoyt Lakes WWTP, and Minnesota Power's Laskin Energy Center (a power plant) that have withdrawn or discharged water in the past, and/or are currently withdrawing or discharging water that affects flows in the Partridge River (see Figure 4.2.2-11). Table 4.2.2-10 summarizes the NPDES/SDS discharges to and surface water withdrawals from the Partridge River and its tributaries. Most of these outfalls do not discharge continuously, and many, although still "active" in terms of permit status, have not discharged for many years (i.e., various mine pit dewatering discharges).

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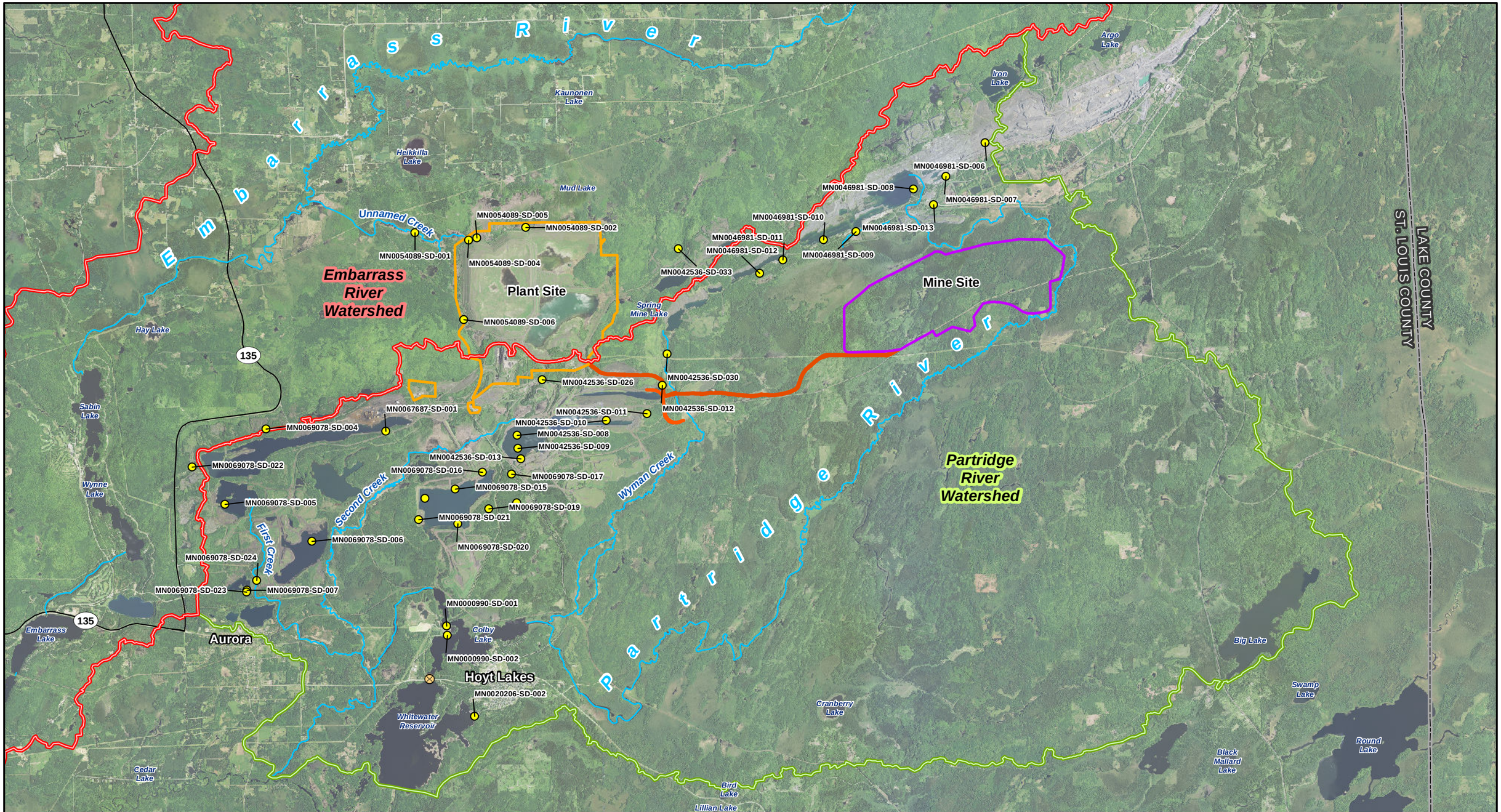

MPCA Water Quality Stations or NPDES Discharge Points
Diversion Works
Embarrass River Watershed
Partridge River Watershed
Stream/River
Mine Site
Plant Site
Transportation and Utility Corridor
Existing Road

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.5 1 2 3
Miles

Figure 4.2.2-11
Past and Current NPDES Discharges into the Partridge and Embarrass Rivers
NorthMet Mining Project and Land Exchange FEIS
Minnesota
November 2015

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Table 4.2.2-10 Discharges to and Surface Water Withdrawals from the Partridge River Watershed

NPDES Permit Number	Discharge ID	Outfall Description	Receiving Waters	Authorized Flow (cfs) Avg.	Authorized Flow (cfs) Max.
MN0069078 Mesabi Mining LLC[1]	MN0069078-SD-001	Pit 2WX, Composite SD-018 to SD-021	Colby Lake	NA	NA
	MN0069078-SD-004	Pit 1 dewatering pipe	Unnamed creek tributary to Wynne Lake	8.4	18.3
	MN0069078-SD-005	Pit 9 dewatering pipe	First Creek	7.8	11.1
	MN0069078-SD-006	Pit 6 dewatering pipe	Second Creek	15.5	22.3
	MN0069078-SD-007	Pit 9S dewatering pipe	First Creek	16.7	22.3
	MN0069078-SD-014	Pit 2WX dewatering pipe	Second Creek (via wetlands)	7.8	11.2
	MN0069078-SD-015	Pit 2WX dewatering pipe	Second Creek (via wetlands)	7.8	11.2
	MN0069078-SD-016	Pit 2WX dewatering pipe	Second Creek (via wetlands)	7.8	11.2
	MN0069078-SD-017	Pit 2WX dewatering pipe	Second Creek (via wetlands)	7.8	11.2
	MN0069078-SD-018	Pit 2WX dewatering pipe	Tributary to Colby Lake	7.8	11.2
	MN0069078-SD-019	Pit 2WX dewatering pipe	Tributary to Colby Lake	7.8	11.2
	MN0069078-SD-020	Pit 2WX dewatering pipe	Tributary to Colby Lake	7.8	11.2
	MN0069078-SD-021	Pit 2WX dewatering pipe	Tributary to Colby Lake	7.8	11.2
	MN0069078-SD-022	Pit 9 dewatering pipe	Unnamed creek tributary to Wynne Lake	7.8	11.2
	MN0069078-SD-023	Pit 9S dewatering pipe	First Creek	16.7	22.3
	MN0069078-SD-024	Pit 6 dewatering pipe	First Creek	--	11.2
MN0042536 Cliffs Erie LLC[2]	MN0042536-SD-008	Pit 2W dewatering pipe	Second Creek	7.8	11.2
	MN0042536-SD-009	Pit 2W dewatering pipe	Second Creek	7.8	22.3
	MN0042536-SD-010	Pits 2/2E/3 dewatering pipe	Wetland to Wyman Creek	7.8	11.2
	MN0042536-SD-011	Pits 2/2E/3 dewatering pipe	Wetland to Wyman Creek	7.8	11.2
	MN0042536-SD-012	Pit 3 overflow channel	Wyman Creek	7.8	11.2
	MN0042536-SD-013	Pit 2W dewatering pipe	Tributary to Colby Lake	11.1	22.3
	MN0042536-SD-026	Cell 1E seepage/stormwater	Second Creek	0.6	1.4
	MN0042536-SD-030	Pit 5S overflow	Wyman Creek	--	--
		Stormwater from Area/Shops	Second Creek	--	--
		Stormwater from Plant Area	Second Creek	--	--

NPDES Permit Number	Discharge ID	Outfall Description	Receiving Waters	Authorized Flow (cfs) Avg.	Authorized Flow (cfs) Max.
MN0067687 Mesabi Nugget Delaware	MN0067687-SD-001	Pit 1 overflow	Second Creek	2.3	9.0
MN0046981 Northshore Mining Co. Northshore Mine	MN0046981-SD-006	185S pit dewatering	Partridge River headwaters	Inactive	50.8
	MN0046981-SD-007	223S pit dewatering	Partridge River headwaters	Inactive	50.8
	MN0046981-SD-008	258S pit dewatering	Partridge River headwaters	Inactive	50.8
	MN0046981-SD-009	280/292S pit dewatering	Partridge River headwaters	11.5	50.8
	MN0046981-SD-010	360S pit dewatering	Partridge River headwaters	0.3	50.8
	MN0046981-SD-011	380S pit dewatering	Partridge River headwaters	Inactive	50.8
	MN0046981-SD-012	430S pit dewatering	Partridge River headwaters	Inactive	50.8
	MN0046981-SD-013	Crusher 2 sanitary outfall	Partridge River headwaters	Inactive	0.07
	MN0046981-SD-016	Crusher 2 area discharge	Partridge River headwaters	0.01	0.14
MN0020206 Hoyt Lakes WWTP	MN0020206-SD-002	Main Facility Discharge	Whitewater Reservoir	0.39	1.1
MN0000990 MN Power Laskin Energy Center	MN0020206-SD-001	Main Discharge	Colby Lake	194	212
	MN0020206-SD-002	Ash Pond Discharge	Colby Lake	0.6	2.2
Water Appropriation Permittee	**Permit Number**	**Intake Description**	**Water Source**	**Flow (cfs) Avg.**	**Flow (cfs) Max.**
MN Power/Cliffs Erie LLC	1949-0135	Mining process water	Colby Lake	--	26.7[(3)]
MN Power (Laskin)	1950-0172	Cooling Water	Colby Lake	--	224[(4)]
Hoyt Lakes	1954-0036	Municipal Water Supply	Colby Lake	0.5	2.3[(5)]

Sources: MPCA 2014g; MDNR 2013e.

Notes:
Most of these outfalls do not discharge continuously, and many, although still "active" in terms of permit status, have not discharged for many years (i.e., various mine pit dewatering discharges). The actual total discharge to the river is far less than the sum of the average flows.

[1] Permit remains active for closure purposes only; no active dewatering occurring. Pit 6 (SD-006) filled with water and has groundwater outflow to Second Creek.
[2] Permit remains active for closure purposes only; no active dewatering occurring. Pit 3 (SD-012) filled with water and has passive outflow to Wyman Creek averaging 1.1 cfs. Pit 5S (SD-030) filled with water and has unmeasured passive outflow to Wyman Creek. Pit 2W filled with water and has outflow to Second Creek averaging approximately 8 cfs.
[3] Historically used for pellet plant makeup water; no present active pumping. Represents instantaneous peak withdrawal; permit also includes a maximum average withdrawal rate of 26.7 cfs for any continuous 60-day period or up to 33.4 cfs with prior written commissioner's approval.
[4] Includes a maximum 4.2 cfs consumptive use for evaporative losses.
[5] Represents instantaneous peak withdrawal, permit also includes an annual maximum withdrawal rate of 2.3 cfs.

Although mine discharges have occurred at least periodically in the NorthMet Project area since 1956 when the Northshore Mine began operations, there are few readily available mine pumping records prior to 1988 when the state began requiring water appropriation permit holders to report this information. Pumping records for the Northshore Mine from 1976 to approximately 1986 are available and show an annual average discharge of between 6.8 and 15.1 cfs. Since 1988, the highest reported average monthly discharge from the Northshore Mine to the Partridge River was 34 cfs (Barr 2008f). However, monthly averages obscure the nature of the Northshore Mine discharges to the Partridge River, which are sporadic. They can have a considerable impact on the flow regime of the Upper Partridge River, particularly in the winter during low-flow conditions.

In addition, former LTVSMC Pits 3 and 5S are currently overflowing into Wyman Creek (MPCA 2014d), which flows south into the Partridge River (RS74A, Barr 2008a). Average monthly outflow from Pit 3 (SD-012), as reported to the MPCA for permit compliance during 2009 through 2011, was about 0.7 cfs. Average winter outflow was 0.1 cfs. There are no discharge records for outflow from Pit 5S (SD-030) because the outflow is dispersed through a wide area of broken rock. The number and volume of these combined discharges, when compared to average and especially low flow in the Partridge River, indicate that the Northshore Mine and former LTVSMC pit discharges have the potential to significantly affect flows. Lack of historical information regarding actual dates of discharge complicates interpreting the flow record.

Upper Partridge River Water Quality

Recent water quality data (collected by PolyMet in 2004, 2006, 2007, 2008, 2010, 2011, 2012, and 2013) and historic water quality data (back to 1956) are available for various constituents in various locations along the Partridge River, which are summarized in Table 4.2.2-11. Most of these water quality data represent grab samples and the frequency of sampling does not allow a detailed assessment of water quality trends, seasonal effects, or relationship to flow. Nevertheless, collectively, the data can be used to generally characterize water quality in the watershed and draw some comparisons with surface water quality standards.

Table 4.2.2-11 Surface Water Quality Data in the Partridge River Watershed (see Figure 4.2.2-1)

Sample Location	Sampling Period
SW-001	2004, 2006, 2008
SW-002	1974–1976, 1978, 2001-2002, 2004, 2006, 2012–2013
SW-003	1974-1978, 2001-2004, 2006–2008, 2010, 2012–2013
SW-004	2004, 2006–2008, 2010–2013
SW-004a	2010, 2012–2013
SW-004b	2010, 2012–2013
SW-005	1976–1977, 2004, 2006–2008, 2010–2013
Colby Lake	1976–1977, 1988, 2001–2003, 2008, 2010
Whitewater Reservoir	1972, 1985, 2001, 2010
USGS gage #04016000/CN122	1956–1966, 1976–1977, 1979
USGS gage #04015475	1979
Tributaries	
West Pit Outlet Creek, WP-1	2011–2013
S. Branch, USGS gage #04015455	1973–1976
Colvin Creek, CN124	1973–1976
Wetlegs Creek, WL-1	2011–2013
Longnose Creek, LN-1	2011–2013
Wyman Creek, PM-5 / PM-6	2004 (PM-5, PM-6), 2011–2013 (PM-5), 2013 (PM-6)
Second Creek, PM-7, PM-17, PM-18	2004, 2006–2007

Sources: Barr 2007h; Barr 2008f; Barr 2007i; Siegel and Ericson 1980; Barr 2009c; Barr 2014d.

In general, ambient water quality is similar across the watershed, although a few parameters (e.g., aluminum and copper) appear to reflect a slightly increasing trend downstream (see Table 4.2.2-12). Comparing 1970s data from the Regional Copper-Nickel Study with recent (post-2000) PolyMet data collected at three monitoring stations common to both data sets (SW-002, SW-003, and SW-005) shows that some parameters appear to have decreased in concentration (e.g., sulfate at SW-003 and SW-005), but the water sampled at these stations in the 2000s is generally similar to the quality measured in the 1970s. Although a few individual samples exceeded surface water quality standards, overall instream water quality meets state water quality standards. The only consistent exceedance of water quality standards was dissolved oxygen near the headwaters of the Partridge River (SW-002, Figure 4.2.2-3). Sufficient information is not available to interpret this exceedance, but the dissolved oxygen exceedances are localized and are not found at other upstream or downstream locations. The Upper Partridge River is not listed as an impaired waterbody on the 303(d) list. At SW-005, mean sulfate concentrations exceed the 10 mg/L wild rice standard that is applicable in this location.

There are limited water quality data available from the mainstem of the Partridge River that predate the operation of the Northshore Mine beginning in 1956 that can be used to characterize relatively “undisturbed” conditions. There are six samples that were collected during the Regional Copper-Nickel Study in 1976 and 1979 along the South Branch of the Partridge River at USGS Gaging Station #04015455 (see Figure 4.2.2-1). These samples were unaffected by mining and most potential significant sources of contamination, thus they can provide some

insights on "undisturbed condition" water quality in the Partridge River for several key parameters (see Table 4.2.2-13). As these few samples indicate, water quality generally met water quality standards for the parameters monitored, except aluminum. In addition, mercury cannot be assessed due to the high detection limit (500 ng/L) used in the 1970s samples.

Table 4.2.2-12 Comparison of Historic and Recent Mean Water Quality Data for Selected Parameters at Common Monitoring Stations along the Partridge River

							SW-002		SW-003		SW-005	
			Detection		Range		Mean					
General Parameters	**Units**	**Evaluation Criteria[10]**	**1970s**	**2000s[9]**	**1970s**	**2000s[9]**	**1970s**	**2000s[9]**	**1970s**	**2000s[9]**	**1970s**	**2000s[9]**
Dissolved Oxygen	mg/L	>5.0	41 of 41	97 of 98	3.3–11.6	<0.05–13.9	6.7	7.6	9.1	9.4	8.0	7.9
Hardness	mg/L	500	94 of 94	122 of 122	16–204	16.9–228	115	141	117	98.5	85	71.2
pH	s.u.	6.5-8.5	186 of 186	119 of 119	6.2–8.7	6.0–8.5	7.0	7.1	7.3	7.4	7.2	7.4
Sulfate	mg/L	--[7]	93 of 93	117 of 122	3.0–76	<0.5–83.1	20.1	30.8	18.9	15.1	**18.9**	**10.1**
Metals – Total												
Aluminum	µg/L	125	27 of 30	86 of 101	0.50–205	<10–1,550	43.6	31.3	76	51.8	123	**129[5]**
Arsenic	µg/L	53	15 of 30	39 of 74	0.50–5.0	<0.25–3.0	3.8	0.48	3.2	0.90	0.8	1.0
Cobalt	µg/L	5	3 of 55	40 of 112	0.50–2.0	<0.1–<12.5	0.6	0.30	0.5	0.33	0.6[1]	1.2
Copper	µg/L	9.3[2]	67 of 68	94 of 118	0.25–8.0	<0.25–3.0	1.3	0.76	1.3	1.0	2.4	1.6
Iron	µg/L	--	78 of 78	80 of 80	400–7,200	1.3–30,700	1,085	3,125[3]	1,365	1,570[4]	1,528	2,264[6]
Lead	µg/L	3.2[2]	44 of 68	21 of 92	0.10–10.0	<0.15–12.3	0.6	0.29	0.8	0.27	0.7	0.41[8]
Manganese	µg/L	--	69 of 70	86 of 86	0.03–1,400	15.5–1,100	112	254	153	135	160	138
Nickel	µg/L	52[2]	19 of 64	73 of 118	0.50–9.0	<0.25–4.9	1.4	0.71	1.5	1.1	1.0[1]	1.7
Zinc	µg/L	120[2]	34 of 66	26 of 118	0.50–18.0	<0–82.9	5.6	5.5	4.4	8.7	2.0	10.5

Sources: Barr 2007h for 1970s data; Barr 2014d for 2000s data.

Notes:
1 Based on fewer than five samples.
2 Water quality standard for this metal is hardness-dependent. Listed value assumes a hardness concentration of 100 mg/L.
3 Excludes single outlier value of 1.27 µg/L from values included in Barr 2014d.
4 Excludes single outlier value of 1.45 µg/L from values included in Barr 2014d.
5 Excludes single outlier value of 1,550 µg/L from values included in Barr 2014d.
6 Excludes single outlier value of 2.03 µg/L from values included in Barr 2014d.
7 Sulfate standard of 10 mg/L applies to designated waters supporting the production of wild rice (SW-005).
8 Excludes single outlier value of 12.3 µg/L from values included in Barr 2014d.
9 For non-detects, means were calculated at half the detection limit.
10 Section 5.2.2 includes a detailed discussion of evaluation criteria.

Table 4.2.2-13 Baseline Water Quality from the South Branch of the Partridge River[1]

Constituent	Units	Surface Water Standard	# of Samples	S. Branch Partridge R. Mean Concentration	S. Branch Partridge R. Range of Concentrations
General Parameters					
Chloride	mg/L	--	5	1.4	<0.1–3.2
Fluoride	mg/L	--	5	0.2	0.1–0.3
Hardness	mg/L	500	1	37	37
pH	s.u.	6.5–9.0	5	7.0	6.8–7.3
Sulfate	mg/L	--	5	5.2	1.4–8.9
Metals					
Aluminum	µg/L	125	2	150	100–200
Arsenic	µg/L	53	2	<1.0	<1.0
Iron	µg/L	--	5	856	320–1,400
Manganese	µg/L	--	2	40	30–50
Mercury	ng/L	1.3	2	<500	<500

Source: MPCA 2013a.

Note:
[1] Based on water quality monitoring data from 1976 and 1979.

PolyMet averaged available ambient water quality data from 2004 to 2013 to document existing conditions against which to evaluate impacts from the NorthMet Project Proposed Action at several locations, as shown in Figure 4.2.2-8, along the Partridge River (see Table 4.2.2-14). Average existing water quality concentrations were below standards for most parameters listed in Table 4.2.2-14. At SW-005, where the standard applies, the wild rice sulfate standard is exceeded. The aluminum evaluation criterion is exceeded at SW-004, SW-004b, and SW-005; the thallium evaluation criterion is exceeded at SW-001; and the mercury evaluation criterion is exceeded at all sites.

Table 4.2.2-14 Average Existing Water Quality Concentrations in the Partridge River

Parameter	Units	Evaluation Criteria[6]	Detection	Range	SW-001	SW-002	SW-003	SW-004	SW-004a	SW-004b	SW-005
								Mean			
General											
Alkalinity	mg/L		143 of 144	<0–853	94.6	101	83.2	97.3	76.6	59.8	56.5
Calcium	mg/L	--	230 of 230	3.9–45.9	24.6	29.8	22.9	21.1	21.8	16.9	15.3
Chloride	mg/L	230	224 of 224	0.7–55.2	1.6	25.7	10.3	9.2	9.3	5.7	5.7
Fluoride	mg/L	--	59 of 97	<0.05–<2.5	0.14	0.11	0.09	0.10	0.11	0.10	0.30
Hardness	mg/L	500	230 of 230	16.9–228	97.0	141	98.5	92.1	97.8	78.9	71.2
Magnesium	mg/L	--	230 of 230	2.7–29.1	10.4	16.7	10.3	9.7	10.6	8.9	8.1
pH	s.u.	6.5–8.5	218 of 218	5.6–8.73	8.3	7.1	7.4	7.4	7.2	7.2	7.4
Potassium	mg/L	--	84 of 85	<1.25–5.2	2.7	3.0	2.4	2.2	2.5	1.7	1.4
Sodium	mg/L	--	95 of 95	1.2–40.4	4.8	14.5	6.5	6.7	10.2	6.7	4.4
Sulfate	mg/L	10[1]	223 of 230	<0.5–83.1	21.8	30.8	15.1	13.9	15.9	11.3	**10.1**
TDS	mg/L	700	222 of 222	56–395	119	235	161	155	171	153	143
Metals											
Aluminum	µg/L	125	170 of 196	<5–4600	18.0	31.3	51.8	**193**	119	**127**	**129[4]**
Antimony	µg/L	31	0 of 104	<0.25–<1.5	1.5	0.53	0.53	0.53	0.25	0.25	0.53
Arsenic	µg/L	53	96 of 154	<0.25–11.7	6.5	0.48	0.90	1.1	0.95	0.96	1.0
Barium	µg/L	--	44 of 70	<5–36	5.0	17.3	11.3	9.6	12.0	8.9	8.7
Beryllium	µg/L	--	0 of 70	<0.1–<0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Boron	µg/L	500	79 of 95	<17.5–435	96.0	148	94.8	93.0	116	75.9	51.4
Cadmium	µg/L	2.5[2]	6 of 80	<0.01–<0.1	0.10	0.10	0.10	0.09	0.08	0.07	0.09
Cobalt	µg/L	5.0	94 of 212	<0.1–<12.5	0.45	0.30	0.33	0.57	0.42	0.43	1.16
Copper	µg/L	9.3[2]	186 of 222	<0.25–9.1	1.6	0.8	1.0	1.5	1.5	1.5	1.6
Iron	µg/L	--	161 of 163	<15–30700	30.0[5]	3,125[7]	1,570[8]	2,653[9]	2,031	2,402	2,264[10]
Lead	µg/L	3.2[2]	38 of 183	<0.015–12.3	0.30	0.29	0.27	0.32	0.22	0.26	0.41[11]
Manganese	µg/L	--	171 of 173	<5–6480	7.9	254	135	339	170	148	138

Parameter	Units	Evaluation Criteria[6]	Detection	Range	SW-001	SW-002	SW-003	SW-004	SW-004a	SW-004b	SW-005
								Mean			
Mercury	ng/L	1.3	101 of 144	<0.25–18.5	**2.3**	**2.7**	**2.8**	**3.3**	**4.1**	**5.4**	**4.3**
Methylmercury	ng/L	--	39 of 42	<0.028–560	0.05	--	0.27	0.39	0.6[3]	0.51	0.41
Nickel	µg/L	52[2]	152 of 42	<0.000028–0.56	1.4	0.71	1.1	1.5	1.2	1.6	1.7
Selenium	µg/L	5.0	13 of 173	<0.1–<5	1.7	0.90	0.90	0.73	0.44	0.64	0.77
Silver	µg/L	1.0[2]	0 of 95	<0.1–<0.5	0.29	0.21	0.21	0.20	0.10	0.10	0.20
Thallium	µg/L	0.56	75 of 179	<0.0002–<1	**0.60**	0.19	0.19	0.16	0.01	0.01	0.15
Vanadium	µg/L	--	0 of 36	<1.5–<1.5	--	1.5	1.5	1.5	1.5	1.5	1.5
Zinc	µg/L	120[2]	48 of 222	<0–82.9	8.9	5.5	8.7	10.3	4.6	4.2	10.5

Source: Barr 2014d.

Notes:
Values in bold indicates an exceedance of surface water quality standard, based on the average value of all samples. Means calculated using non-detects at half the detection limit.

1 MPCA has listed the Partridge River downstream from river mile approximately 22 just upstream of the railroad bridge near Allen Junction as wild rice water, so the 10 mg/L sulfate standard is only applicable to that portion of the Upper Partridge River (SW-005 and SW-006).
2 Water quality standard for this metal is hardness-dependent. Listed value assumes a hardness concentration of 100 mg/L.
3 Excludes single outlier value of 0.56 µg/L from values included in Barr 2014d.
4 Excludes single outlier value of 1,550 µg/L from values included in Barr 2014d.
5 Excludes single outlier value of 0.06 µg/L from values included in Barr 2014d.
6 Section 5.2.2 includes a detailed discussion of evaluation criteria.
7 Excludes single outlier value of 1.27 µg/L from values included in Barr 2014d.
8 Excludes single outlier value of 1.45 µg/L from values included in Barr 2014d.
9 Excludes single outlier value of 1.41 µg/L from values included in Barr 2014d.
10 Excludes single outlier value of 2.03 µg/L from values included in Barr 2014d.
11 Excludes single outlier value of 12.3 µg/L from values included in Barr 2014d.

Upper Partridge River Tributary Streams

The NorthMet Project Proposed Action could affect four small streams that are tributaries to the Partridge River, including the following (see Figure 4.2.2-1):

- Wetlegs Creek – which would be crossed by the Transportation and Utility Corridor that links the Mine Site with the Plant Site.
- Longnose Creek – which would also be crossed by the Transportation and Utility Corridor that links the Mine Site with the Plant Site.
- Wyman Creek – which would also be crossed by the Transportation and Utility Corridor that links the Mine Site with the Plant Site.
- West Pit Outlet Creek – which would receive discharge from the WWTF after closure.

No baseline flow data collection or hydrologic modeling was conducted for Wetlegs, Longnose, and Wyman creeks as the NorthMet Project Proposed Action is not expected to affect the hydrology of these streams. PolyMet used the calibrated XP-SWMM model to estimate selected flow volumes for West Pit Outlet Creek. The XP-SWMM model estimates an average annual flow of 1.2 cfs at the approximate location of the WWTF discharge under existing conditions.

In terms of surface water quality, Wetlegs Creek, Longnose Creek, and the West Pit Outlet Creek drain relatively undisturbed watersheds; whereas Wyman Creek drains an area previously mined by LTVSMC, including Area 3 and Area 5S Pits. Water quality data for various constituents from the two locations on Wyman Creek was collected in 2004, 2011, and 2012 at PM-5, and again in 2013 at both locations. Data collection from Wetlegs Creek, Longnose Creek, and the West Pit Outlet Creek was initiated in spring 2011, with monthly sampling through the end of 2013 (PolyMet 2015m). Water quality data for the four streams are summarized in Table 4.2.2-15. These constituents are generally within the range documented for the main branch of the Partridge River. Parameters with mean concentrations higher than recorded for the Partridge River include iron for Longnose Creek, Wetlegs Creek, and the West Pit Outlet Creek; copper and nickel for Wetlegs Creek and the West Pit Outlet Creek; and manganese and vanadium for all four streams. As with the Partridge River, background concentrations of mercury exceed the 1.3 ng/L standard. Collectively, these data can be used to characterize existing background water quality for these streams.

Table 4.2.2-15 Mean Water Quality Data for Longnose Creek, Wetlegs Creek, Wyman Creek, and West Pit Outlet Creek

Parameter	Units	Detection	Range	Evaluation Criteria[6] (Longnose, West Pit Outlet and Wetlegs)	Longnose Creek[1] LN-1	West Pit Outlet Creek[7] WP-1	Wetlegs Creek[2] WL-1	Evaluation Criteria[5, 6] (Wyman)	Wyman Creek[3] PM-5	Wyman Creek[3] PM-6
					Mean				Mean	
General										
Alkalinity	mg/L	61 of 64	<5–200	--	44.3	21.3	39.8	--	157	100
Calcium	mg/L	101 of 101	2.2–51.1	--	11.1	5.7	10.4	--	35.1	23.2
Chloride	mg/L	66 of 101	<0.25–9.9	230	0.63	0.56	1.0	100	1.7	1.0
Fluoride	mg/L	8 of 23	<0.05–0.19	--	0.050	0.050	0.050	(2.0)	0.091	0.13
Hardness	mg/L	98 of 98	11.8–258	500	48.7	28.8	49.5	250	199	107
Magnesium	mg/L	101 of 101	1.5–36.1	--	4.8	3.3	5.5	--	27.7	14.6
pH	s.u.	99 of 99	5.0–8.3	6.5-8.5	6.8	**5.7**	6.7	6.5–8.5	7.3	7.6
Potassium	mg/L	65 of 67	<0.125–7.0	--	0.63	0.50	0.78	--	5.1	2.1
Sodium	mg/L	52 of 67	<1–17.5	--	1.6	1.3	1.3	--	13.6	6.2
Sulfate	mg/L	74 of 101	<0.5–96.2	--	0.91	2.6	3.9	(250)	67.1	28.1
TDS	mg/L	101 of 101	60.0–352	700	119	152	127	500	270	199
Metals - Total										
Aluminum	µg/L	77 of 95	<10–1,310	125	64.6	**421**	**170**	87	51.8	**102**
Antimony	µg/L	2 of 75	<0.25–<1.5	31	0.25	0.25	0.24	6	0.43	1.5
Arsenic	µg/L	84 of 101	<0.25–6.0	53	1.2	1.9	1.2	2	1.4	0.94
Barium	µg/L	26 of 43	<5–30.6	--	10.4	10.3	10.5	2,000	10.9	10.6
Beryllium	µg/L	0 of 43	<0.1–<0.1	--	0.10	0.10	0.10	4.0	0.10	0.10
Boron	µg/L	12 of 43	<17.5–72.8	500	25.0	25.0	25.0	500	49.5	23.3
Cadmium	µg/L	3 of 43	<0.015–<0.1	2.5[4]	0.070	0.083	0.072	2.5	0.079	0.10
Cobalt	µg/L	60 of 95	<0.1–8.3	5	0.61	1.7	3.7	2.8	0.48	0.50
Copper	µg/L	67 of 95	<0.075–50.9	9.3[4]	0.45	3.6	5.5	9.3[4]	0.68	2.0
Iron	µg/L	101 of 101	237–35,000	--	4,019	7,050	6,372	(300)	1,437	1,872

Parameter	Units	Detection	Range	Evaluation Criteria[6] (Longnose, West Pit Outlet and Wetlegs)	Longnose Creek[1] LN-1	West Pit Outlet Creek[7] WP-1	Wetlegs Creek[2] WL-1	Evaluation Criteria[5, 6] (Wyman)	Wyman Creek[3] PM-5	Wyman Creek[3] PM-6
					Mean				Mean	
Lead	µg/L	21 of 81	<0.01–3.1	3.2[4]	0.24	1.0	0.37	3.2[4]	0.26	0.50
Manganese	µg/L	98 of 98	15.2–4,920	--	708	358	678	(50)	1058	428
Mercury	ng/L	58 of 64	<0.25–28.1	1.3	**3.5**	**13.9**	**5.0**	1.3	1.2	**3.5**
Nickel	µg/L	50 of 95	<0.25–22.4	52[4]	0.62	6.9	5.3	52[4]	0.57	2.5
Selenium	µg/L	2 of 81	<0.1–<1	5.0	0.43	0.48	0.44	5.0	0.52	1.0
Silver	µg/L	0 of 43	<0.1–<0.5	1.0[4]	0.10	0.10	0.10	0.12	**0.20**	**0.50**
Thallium	µg/L	29 of 90	<0.0002–<1	0.56	0.0079	0.013	0.010	0.28	0.15	**1.0**
Vanadium	µg/L	1 of 33	<1.5–9.3	--	3.1	4.3	2.8	--	3.0	--
Zinc	µg/L	15 of 92	<3–134	120[4]	3.0	6.9	10.5	120[4]	3.6	5.0

Source: Barr 2014d.

Notes:
Values in bold indicate an exceedance of surface water quality standard.
1 Based on nine samples collected in 2011, seven samples collected in 2012, and eight samples collected in 2013; Source: Large Table 10, Barr 2014d.
2 Based on eight samples collected in 2011, seven samples collected in 2012, and eight samples collected in 2013; Source: Large Table 10, Barr 2014d.
3 Wyman Creek PM-5 based on four samples collected in 2004, eight samples collected in 2011, nine samples collected in 2012, and 12 samples collected in 2013; PM-6 based on four samples collected in 2004 and one sample collected in 2013.
4 Water quality standard for this metal is hardness-dependent. Listed value assumes a hardness concentration of 100 mg/L.
5 Values in parentheses indicate Secondary Maximum Contaminant Levels (sMCLs).
6 See Section 5.2.2 for a detailed discussion of the evaluation criteria.
7 West Pit Outlet Creek averages based on four samples collected in 2011, four samples collected in 2012, and seven samples collected in 2013.

Colby Lake and Whitewater Reservoir

This section describes the baseline surface water hydrology and water quality of Colby Lake and Whitewater Reservoir.

Colby Lake and Whitewater Reservoir Hydrology

Colby Lake is located approximately 8 miles southwest from the Mine Site and about 4 miles south of the Plant Site on the Partridge River. It is located approximately 17 river miles downstream from SW-004a (PolyMet 2015m, Appendix C). It is mesotrophic and has a surface area of approximately 539 acres and a maximum depth of approximately 30 ft (see Figure 4.2.2-1). The outlet control of Colby Lake is at an elevation of approximately 1,439 ft amsl. The outflow from the lake stops when water levels drop below this level.

Around 1955, in order to ensure a reliable source of water, Erie Mining Company (precursor to LTVSMC) constructed Whitewater Reservoir and the Diversion Works, which connects Colby Lake and Whitewater Reservoir. This diversion works separates the two waterbodies and allows water to be exchanged between the two. Formerly known as Partridge Lake, this impoundment increased the surface area and depth of the original lake and subjected it to greater annual water level fluctuations. Whitewater Reservoir has a surface area of approximately 1,210 acres and a maximum depth of approximately 73 ft. Water losses due to seepage through the northwest and south dikes can be 15 cfs or more and drain to the Partridge River downstream of Colby Lake (MDNR 2004). The City of Hoyt Lakes WWTP discharges an annual average of 0.39 cfs of treated wastewater effluent into Whitewater Reservoir (see Table 4.2.2-10 and Figure 4.2.2-12).

The Diversion Works contains three 8-ft gates that can be opened to allow the release of water from Colby Lake to Whitewater Reservoir during high flows in the Partridge River. The Diversion Works also contain three high-volume pumps to move water from Whitewater Reservoir back to Colby Lake during low water levels. During operation of the former LTVSMC processing plant, water would typically flow through the Diversion Works gates from Colby Lake to Whitewater Reservoir during the spring runoff and then be pumped back into Colby Lake when needed. Historically, this system was not used as much as expected. When water levels in Colby Lake fall below 1,439.0 ft amsl due to low inflows, the MDNR water appropriation permit (1949-0135) limits withdrawals of water from Colby Lake to the rate that water can be pumped from Whitewater Reservoir to replace the water withdrawn.

After closure of the LTVSMC mine and processing plant in 2001, Minnesota Power purchased the Diversion Works and most of LTVSMC's riparian land around Whitewater Reservoir. This land currently is leased as lake-front property. The water appropriation permit is currently jointly held by Minnesota Power and Cliffs Erie. An agreement has been reached whereby PolyMet would replace Cliffs Erie as the co-permittee. This would enable PolyMet to withdraw water from Colby Lake for use as process makeup water, subject to MDNR approval at the time of permitting. In the 5-year period after LTVSMC stopped its water withdrawals (January 2001 to December 2006) under relatively natural flows (i.e., discharges from the Northshore Mine were only occurring sporadically; see Table 4-5 in Section 4.4.1.2.1 of the Mine Site Water Modeling Data Package [PolyMet 2015m]), water levels in Colby Lake were higher with less fluctuation than when LTVSMC was withdrawing water for its mining operations (see Table 4.2.2-16). Over the same period, Whitewater Reservoir also experienced smaller fluctuations and higher average water levels (see Table 4.2.2-17).

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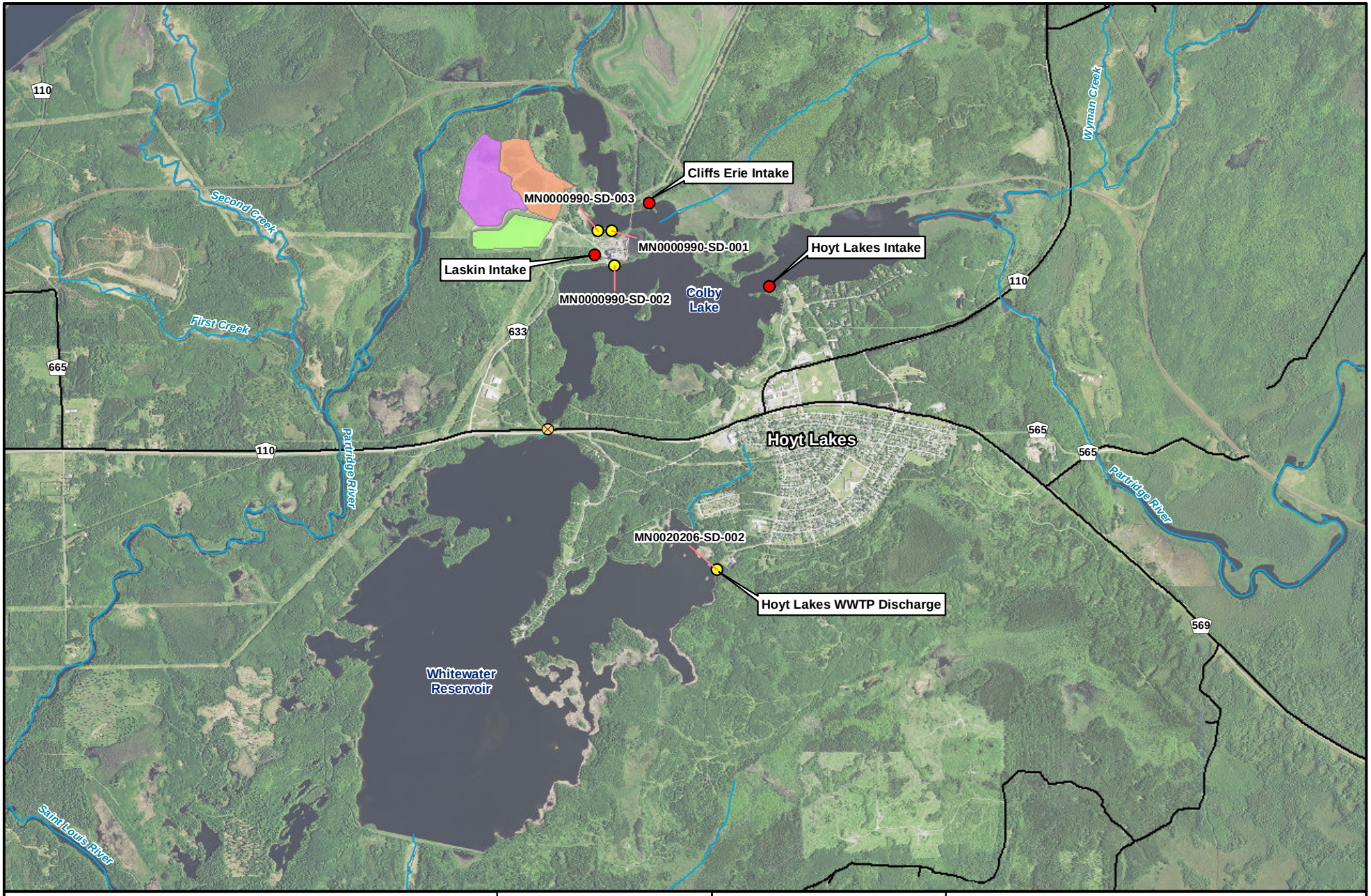

Water Withdrawals from Colby Lake
MPCA Water Quality Station 2006/Discharges to Surface Waters NPDES Discharges
Stream/River
Existing Road
Diversion Works
Ash Pond Cell E
Ash Pond Cells A and B
Ash Pond Cells C and D

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 1,000 2,000 4,000 Feet

Figure 4.2.2-12
NPDES Discharges - Colby Lake and Whitewater Reservoir Area
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Table 4.2.2-16 Comparison of Colby Lake Elevations over Time

Time Period	Represent	Source	Max Annual Fluctuation[1]	% Time below elevation 1,439.0
1937–1954	Pre-mining	Actual measurements	4.6 ft	5.0
1955–1992	During mining[2] (with LTVSMC withdrawals)	Actual measurements	4.1 ft	24.1
1978–1988	During mining[2] (with LTVSMC withdrawals)	Actual predictions	2.7 ft	17
2001–2006	During mining[2] (without LTVSMC withdrawals)	Actual measurements	3.7 ft	7.5
2007–2013	During mining[2] (without LTVSMC withdrawals)	Actual measurements	3.6 ft	0

Source: MDNR 2015c.

Notes:
[1] Maximum annual fluctuation is the maximum difference between annual maximum and minimum water elevations for any single year during the indicated time period.
[2] Includes effects of Northshore Mining operations from 1955 to present.
[3] Data for 2013 are incomplete.

Table 4.2.2-17 Comparison of Whitewater Reservoir Elevations over Time

Time Period	Represent	Source	Max Annual Fluctuation[1]	Average Water Elevation
1937–1954[(3)]	Pre-mining	Actual measurements	2.0 ft	Not Applicable
1955–1980	During mining[2] (with LTVSMC withdrawals)	Actual measurements	14.3 ft	1,437.7 ft
2002–2008	During mining (without LTVSMC withdrawals)	Actual measurements	4.5 ft	1,438.0 ft
2009–2013[4]	During mining (without LTVSMC withdrawals)	Actual measurements	4.2 ft	1,438.1 ft

Source: Actual measurements taken from MDNR 2015d. No data was available between 1980 and 2001.

Notes:
[1] Maximum annual fluctuation is the maximum difference between annual maximum and minimum water elevations for any single year during the indicated time period.
[2] Includes effects of Northshore Mining operations from 1955 to present.
[3] Pre-1955 data is for Partridge Lake. Construction of Whitewater Reservoir, which raised the elevation of Partridge Lake, was not completed until 1955.
[4] Data for 2013 are incomplete.

Colby Lake is currently used as a potable water source for the City of Hoyt Lakes, which is permitted to withdraw a maximum annual average of 0.5 cfs with an instantaneous peak rate of 2.3 cfs. Colby Lake is also used as a cooling water source for Minnesota Power's Laskin Energy Center natural gas power plant. The power plant discharges the once-through, non-contact cooling water (MN0000990 SD-001) to the downstream portion of the lake, but there is up to a 4.2 cfs evaporative loss of water from the cooling tower (see Table 4.2.2-10).

Colby Lake Water Quality

Water quality in Colby Lake is affected by:

- Flow from the Upper Partridge River Watershed (including Northshore Mine discharges);
- Flow from other tributaries to the Upper Partridge River, such as Wyman Creek (including Pits 3 and 5S overflow via Wyman Creek);
- Two permitted discharges from Minnesota Power's Laskin Energy Center (i.e., cooling water discharge and a clarified ash pond discharge);
- Pumping from Whitewater Reservoir during low flows; and
- Stormwater runoff from the City of Hoyt Lakes.

Water quality data are available for Colby Lake from various sources from 1976 to 2013 (PolyMet 2015m). The most recent monitoring data (November 2008, April through September 2010, and June through December 2013) showed elevated concentrations of aluminum, iron, mercury, and manganese (see Table 4.2.2-18). Two exceedances of arsenic and a single exceedance of thallium were observed, although average concentrations of both parameters met surface water quality standards. Colby Lake is on the Minnesota 303(d) TMDL List because of mercury concentrations in fish tissue, but is not included in Minnesota's regional mercury TMDL because the mercury concentrations in the fish are considered too high to be returned to Minnesota's mercury water quality standard using solely the state-wide TMDL approach. Similar to other lakes in Minnesota, the main source of mercury is atmospheric deposition. A TMDL study of Colby Lake is needed to determine what additional actions are required to reduce the mercury concentration in fish, but has not yet been performed.

Sulfate concentrations in Colby Lake from the most recent monitoring data (from 2008, 2010, and 2013) range from 6.6 to 60.7 mg/L with a mean of 27.2 mg/L. This is higher than the concentrations in the Partridge River at SW-005 (mean sulfate concentration of 10.1 mg/L for data from the early-2000s, see Table 4.2.2-12). In addition to what is provided by inflow from the Partridge River, it is interpreted that there are significant other sources of sulfate loading to Colby Lake.

Table 4.2.2-18 Summary of Colby Lake Water Quality Data

			C-N Study (1976–1977)		MPCA Data (1976–2007)			Minnesota Power Data (2002–2003)			Barr Data (2008, 2010, 2013)			
Parameter	**Units**	**Surface Water Evaluation Criteria[2]**	**# Samples**	**Range**	**# Samples**	**Mean**	**Range**	**Detection**	**Mean**	**Range**	**Detection**	**Mean**	**Range**	**# Exceed**
General														
Calcium	mg/L	--	4	11 to 21	14	57.1	21–104	--	--	--	31 of 31	18.4	9.0–29.1	NA
Chloride	mg/L	230	5	6.3–9.4	17	6.1	1.8–9.3	--	--	--	19 of 19	3.6	2.0–5.3	0
Fluoride	mg/L	(2.0)	5	0.1–0.7	10	0.3	0.1–0.4	--	--	--	3 of 5	0.09	<0.05–0.14	0
Hardness	mg/L	500	5	41–83	14	91.2	40–150	--	--	--	31 of 31	81.4	44.4–119	0
Magnesium	mg/L	--	5	3.2–7.3	14	34.1	19–51	12 of 12	11.0	4.4–17.5	31 of 31	8.6	5.3–11.4	NA
pH	s.u.	6.5-8.5	17	6.5–7.8	109	7.1	6.3–8.8	--	--	--	26 of 26	7.6	7.0–8.2	0
Potassium	mg/L	--	4	1.3–1.5	10	1.7	1.4–2.2	--	--	--	9 of 9	1.1	0.84–1.5	NA
Sodium	mg/L	--	4	3.6–4.3	10	6.3	4.7–8.0	--	--	--	9 of 9	4.2	2.9–6.7	NA
Sulfate	mg/L	(250)	15	8.7–140	14	52.9	8.7–140	--	--	--	31 of 31	27.2	6.6–60.7	0
Metals														
Aluminum	µg/L	125	5	180–470	10	307	180–610	12 of 12	171	61–264	31 of 31	113	42.8–243	**9**
Antimony	µg/L	5.5	--	--	--	--	--	0 of 3	3	<3	0 of 9	0.25	<0.25	0
Arsenic	µg/L	2.0	3	0.4–2.1	4	1.4	<0.5–2.1	1 of 3	1.4	<2.0–2.3	26 of 31	0.99	<0.25–2.1	**2**
Barium	µg/L	2,000	--	--	--	--	--	2 of 3	15.7	<10.0–29.1	7 of 9	7.5	<5–11.3	0
Beryllium	µg/L	4	--	--	--	--	--	0 of 3	0.2	<0.2	0 of 9	0.10	<0.1	0
Boron	µg/L	500	--	--	--	--	--	3 of 3	79	54–100	6 of 9	52.1	<25–96.3	0
Cadmium[1]	µg/L	2.5	10	0.02–0.2	15	0.05	0.02–0.20	0 of 3	0.2	<0.2	0 of 9	0.10	<0.1	0
Cobalt	µg/L	2.8	9	<0.3–0.5	6	0.4	<0.3–1.4	2 of 12	0.7	<1.0–1.9	14 of 19	0.31	<0.1–0.67	0
Copper[1]	µg/L	8.0	12	1.6–7.3	15	4.9	1.6–8.0	8 of 12	8.3	<5.0–14.5	19 of 19	3.7	1.6–6	0
Iron	µg/L	(300)	15	190–2,300	15	836	190–2,500	3 of 3	2,103	650–3,030	31 of 31	1,596	451–4,900	**31**
Lead[1]	µg/L	3.2	12	0.2–1.7	14	0.5	0.2–0.9	0 of 3	1.0	<1.0	7 of 19	0.51	<0.25–<1	0

			C-N Study (1976–1977)		MPCA Data (1976–2007)			Minnesota Power Data (2002–2003)			Barr Data (2008, 2010, 2013)			
Parameter	**Units**	**Surface Water Evaluation Criteria[2]**	**# Samples**	**Range**	**# Samples**	**Mean**	**Range**	**Detection**	**Mean**	**Range**	**Detection**	**Mean**	**Range**	**# Exceed**
Manganese	µg/L	(50)	5	50–90	14	282	63–2,100	3 of 3	123	30–280	31 of 31	106	25.2–390	**23**
Mercury	ng/L	1.3	10	80–400	9	190	<1000–360	--	--	--	9 of 9	6.0	4.6–8.7	**9**
Nickel[1]	µg/L	52	10	0.1–6.0	13	2.7	<1–9.0	1 of 3	3.4	<5.0–5.3	18 of 19	2.2	<1–3.1	0
Selenium	µg/L	5.0	--	--	2	<0.8	<0.8	0 of 12	2.0	<2.0	0 of 19	0.66	<0.5–<2	0
Silver[1]	µg/L	1.0	--	--	--	--	--	0 of 2	1.0	<1.0	0 of 9	0.10	<0.1	0
Thallium	µg/L	0.28	--	--	--	--	--	0 of 3	2.0	<2.0	24 of 31	0.06	<0.0025–0.46	**1**
Vanadium	µg/L	--	--	--	--	--	--	--	--	--	0 of 9	0.94	<0.5–<1.5	NA
Zinc[1]	µg/L	120	12	1–35.3	15	6.9	1.0–50	2 of 3	17.5	<10.0–36.1	2 of 19	4.8	<3–15.8	0

Sources: Barr 2009c; Barr 2014d; Siegel and Ericson 1980.

Notes:
[1] Water quality standard for this metal is hardness-dependent. Listed value assumes a hardness concentration of 100 mg/L, which approximates the hardness concentration in Colby Lake.
[2] Values in parentheses indicate sMCLs.

Whitewater Reservoir Water Quality

As a result of the Minnesota Statewide Mercury TMDL study, which was approved by the USEPA on April 3, 2008, Whitewater Reservoir was placed on the 2012 inventory of all impaired waters because of mercury concentrations in fish tissue. However, the mercury fish tissue levels are low enough that compliance with applicable standards would be achieved under the statewide TMDL. Therefore, it is not included on the final 2012 TMDL List, and does not need its own TMDL.

The City of Hoyt Lakes WWTP discharges an annual average of 0.39 cfs of treated effluent into Whitewater Reservoir (Barr 2008f; Figure 4.2.2-12). The WWTP discharge most likely affects the water quality of Whitewater Reservoir by the addition of nutrients such as phosphorus and nitrogen.

Limited water quality data are available for Whitewater Reservoir (see Table 4.2.2-19). Based on the most recent data collected by PolyMet in 2010, Whitewater Reservoir has significantly lower concentrations of aluminum, iron, and manganese than Colby Lake. It appears that all constituents meet applicable water quality standards, but sampling for a full suite of metals has not been done.

Table 4.2.2-19 Summary of Whitewater Reservoir 2010 Water Quality Data

Parameter	Units	Surface Water Evaluation Criteria[1]	Detection	Mean	Range	# Exceed
General						
Calcium	mg/L	--	12 of 12	20.8	20.1–21.2	--
Hardness	mg/L	500	12 of 12	90.2	85.7–92.8	0
Magnesium	mg/L	--	12 of 12	9.3	8.6–9.7	--
pH	s.u.	6.5-8.5	12 of 12	7.74	7.29–7.81	0
Sulfate	mg/L	(250)	12 of 12	34.3	32.9–35.3	0
Metals						
Aluminum	µg/L	50–200	2 of 12	<25	<25–25.4	0
Arsenic	µg/L	2.0	7 of 12	<0.5	<0.5–0.62	0
Iron	µg/L	(300)	5 of 12	<60	<50–76.5	0
Manganese	µg/L	(50)	12 of 12	10.8	6.9–14.6	0
Thallium	µg/L	0.28	5 of 12	<0.02	<0.002–0.049	0

Source: PolyMet 2015m.

Note:
[1] Values in parentheses indicate sMCLs.

Lower Partridge River

This section describes the baseline surface water hydrology and water quality of the Lower Partridge River downstream of Colby Lake.

Lower Partridge River Hydrology

Downstream of Colby Lake, the Partridge River flows approximately four more miles before reaching its confluence with the St. Louis River. Second Creek (also known as Knox Creek) is a tributary of the Partridge River in this segment and until recently was receiving an annual average of 1.2 cfs of surface seepage from the existing LTVSMC Tailings Basin (see Figure 4.2.2-13 for locations of Seeps 32 and 33) (Barr 2008a). A portion of this seepage is now being pumped back into the Tailings Basin, as required by the May 2010 Consent Decree between Cliffs Erie and MPCA. Second Creek is currently receiving seepage from Pit 6. Dewatering flows from Pit 1, as part of the Mesabi Nugget Project (see Table 4.2.2-10, Mesabi Nugget, SD-001) are discharged to Second Creek at a rate up to 9 cfs seasonally (September 1 to March 30) as per their reissued permit. Cliffs Erie is discharging Pit 2/2W water to Second Creek at a rate up to 9.4 cfs.

Lower Partridge River Water Quality

Water quality conditions in the Lower Partridge River, from the outlet of Colby Lake to its confluence with the St. Louis River, result from a mix of Colby Lake outflow, Second Creek inflow, and local runoff. Colby Lake and Second Creek (First Creek is a tributary to Second Creek) water quality is affected by local runoff from the former LTVSMC operations.

Periodic dewatering discharges from Pit 9 (see Figure 4.2.2-2) previously drained to First Creek, but this pit has been abandoned long enough for static water levels to develop. Seepage from Pit 6 currently flows to Second Creek. This seepage has very high sulfate concentrations (greater than 1,000 mg/L). This input of sulfate raises the sulfate concentration in the mainstem of the Partridge River from an average of about 27.2 mg/L as it flows from Colby Lake (see Table 4.2.2-18) to over 160 mg/L downstream of the confluence of Second Creek (Barr 2011a). A summary of existing water quality at several locations follows.

Water quality monitoring as part of the MPCA-issued NPDES Permit MN0042536 (SD-026), as shown in Figure 4.2.2-13, shows that Seeps 32 and 33 were generally consistent with surface water standards (Barr 2011h). Table 4.2.2-20 summarizes the surface water quality monitoring data for Station SD-026 from 2011 to 2013. Surface water quality data from 2011 onwards are representative of existing conditions at the site, as they post-date the installation of the containment system in 2010 that limits flow to Second Creek on the southern side of the Tailings Basin (PolyMet 2015m).

Historical Seeps

- Seeps
- Weirs
- Culvert
- Emergency Basin Outflow

- Plant Site
- Transportation and Utility Corridor
- Stream/River

- Seep — Active Seep
- Seep — Flow Not Measurable or No Flow
- Seep — Surface Discharge

MNDNR

US Army Corps of Engineers
St. Paul District

N W E S

0 1,000 2,000 4,000 Feet

Figure 4.2.2-13
Seeps and Associated Flow Structures at Existing LTVSMC Tailings Basin
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Table 4.2.2-20 Summary of Surface Water Quality Monitoring Data for Station SD-026 (2011–2013)

Constituent	Units	Surface Water Evaluation Criteria	SD-026 Surface Discharge (Seeps 32 and 33)		
General Parameters			**Detection**	**Mean**	**Range**
Calcium	mg/L	--	46 of 46	71.1	58.8–88.3
Chloride	mg/L	230	44 of 44	11.3	6–21.5
Fluoride	mg/L	--	12 of 12	1.1	0.58–1.8
Hardness	mg/L	500	46 of 46	407	210–631
pH	s.u.	6.5–8.5	46 of 46	7.6	7.1–8.3
Sulfate	mg/L	--	44 of 44	178	114–251
TDS	mg/L		44 of 44	637	395–790
Metals – Total					
Aluminum	µg/L	125	42 of 46	14.3	<4–28.9
Antimony	µg/L	5.5	43 of 46	0.10	<0.1–0.1
Arsenic	µg/L	2.0	43 of 46	0.46	<0.1–1
Barium	µg/L	2,000	46 of 46	31.2	16.4–43.3
Beryllium	µg/L	4.0	43 of 46	0.04	<0.04–0.04
Boron	µg/L	500	46 of 46	163	117–236
Cadmium	µg/L	2.5	43 of 46	0.04	<0.04–0.04
Cobalt	µg/L	2.8	42 of 46	0.37	<0.04–0.93
Copper[1]	µg/L	9.3	45 of 46	1.05	<0.14–1.7
Iron	µg/L	--	46 of 46	1,294	325–1,810
Lead[1]	µg/L	3.2	38 of 46	0.10	<0.1–0.10
Manganese	µg/L	--	46 of 46	919	172–2,190
Mercury	ng/L	1.3	39 of 46	0.35	<0.036–0.8
Molybdenum	µg/L		45 of 46	13.4	<2–25
Nickel[1]	µg/L	52	39 of 46	0.31	<0.1–1.58
Selenium	µg/L	5.0	39 of 46	0.20	<0.2–0.2
Thallium	µg/L	0.28	40 of 46	0.01	<0.0004–0.04
Zinc[1]	µg/L	120	43 of 46	6.45	<1.2–13.8

Source: NTS 2009; PolyMet 2015m.

Notes:
< less than indicated reporting limit.
Water quality data for SD-026 collected for PolyMet were supplemented by data from the MPCA website collected as part of the NPDES reporting requirements. Where samples were duplicated due to the inclusion of PolyMet data in the MPCA database, the duplicates were removed and the PolyMet data were used in the event of any inconsistencies.
[1] Water quality standard for this metal is hardness-dependent. Listed value assumes a hardness concentration of 100 mg/L, which approximates the hardness concentration in Colby Lake.

Limited Lower Partridge River water quality data have also been collected at CR110 (see Figure 4.2.2-1, location 4016000). Table 4.2.2-21 summarizes water quality data from 2008 and 2009 for this location. In general, the concentration of hardness and associated solutes such as calcium, magnesium, and potassium, average two to four times higher in the Lower Partridge River than in the Upper Partridge River at location SW-005. A similar relationship also exists for selected metals such as boron, copper, and nickel, where average concentrations for Lower Partridge River are at least two times those at SW-005. Zinc appears to be an exception, where Lower Partridge River values appear to average about a third of those at SW-005.

Concentrations of sulfate are of special concern because the MPCA staff has provided a draft recommendation that this entire reach of the river from the outlet of Colby Lake to its confluence with the St. Louis River be considered as water used for the production of wild rice (MPCA 2012b). Based on the 2008-2009 data, sulfate concentration in the Lower Partridge River averages about 164 mg/L.

Table 4.2.2-21 Summary of Surface Water Quality Monitoring Data for Station CR110, 2008-2009

Constituent	Units	Surface Water Evaluation Criteria	CR110[(2)]		
General Parameters			**Detection**	**Mean**	**Range**
Calcium	mg/L	--	10 of 10	28.6	13.6–43.7
Chloride	mg/L	230	10 of 10	5.0	2.7–7.7
Fluoride	mg/L	--	10 of 10	0.20	0.11–0.59
Hardness	mg/L	500	10 of 10	291	82.5–546
pH	s.u.	6.5–8.5	12 of 12	7.6	7.3–7.9
Sulfate	mg/L	--	10 of 10	164	43.0–302
TDS	mg/L	500	10 of 10	375	137–650
Metals – Total					
Aluminum	µg/L	125	10 of 10	105	29.3–171
Antimony	µg/L	5.5	7 of 8	0.14	<0.5–0.50
Arsenic	µg/L	2.0	7 of 10	1.3	<2.0
Barium	µg/L	2,000	10 of 10	15.7	8.1–33.0
Beryllium	µg/L	4.0	1 of 8	0.18	<0.20
Boron	µg/L	500	8 of 8	101	59.4–150
Cadmium[1]	µg/L	2.5	1 of 8	0.18	<0.20
Cobalt	µg/L	2.8	8 of 8	0.46	0.28–0.73
Copper[1]	µg/L	9.3	8 of 8	3.4	1.9–4.8
Iron	µg/L	--	10 of 10	942	529–1,640
Lead[1]	µg/L	3.2	6 of 8	0.34	<0.05–0.60
Manganese	µg/L	--	10 of 10	53.4	11.8–106
Mercury	ng/L	1.3	10 of 10	4.4	0.5–7.6
Molybdenum	µg/L	--	10 of 10	1.6	0.73–2.8
Nickel[1]	µg/L	52	8 of 8	3.6	2.7–4.6
Selenium	µg/L	5.0	7 of 8	0.63	0.33–1.0
Thallium	µg/L	0.28	0 of 8	0.40	<0.4
Zinc[1]	µg/L	120	8 of 8	3.5	1.0–6.5

Source: Barr and HC Itasca 2009.

Notes:
< less than indicated reporting limit.
[1] Water quality standard for this metal is hardness-dependent. Listed value assumes a hardness concentration of 100 mg/L, which approximates the hardness concentration in Colby Lake.
[2] Station CR110 is noted as location MNSW12 in the source file.

4.2.2.4 Embarrass River Watershed

This section describes the baseline hydrology and water quality for the groundwater and surface water within the Embarrass River Watershed portion of the NorthMet Project area. Most of the Tailings Basin and the Emergency Basin are located within the Embarrass River Watershed.

4.2.2.4.1 Groundwater Resources

Geology and Hydrogeology

Bedrock at the Plant Site and Tailings Basin is Precambrian crystalline and metamorphic rock. The uppermost bedrock unit that encompasses most of the area represents Giants Range batholith. However, there are two elevated exposures of bedrock (abutting the southeastern corner of Cell 1E at the Tailings Basin) that consist of sedimentary and volcanic schist. Considering the results of hydraulic testing of bedrock boreholes along the perimeter of the Tailings Basin, bedrock is interpreted to have a significantly lower hydraulic conductivity than the overlying surficial deposits (Barr 2014b). This interpretation is supported by analogy to the bedrock of the Mine Site (Duluth Complex), where hydraulic testing has shown bedrock to have a significantly lower hydraulic conductivity than the surficial deposits. The Giants Range granite is mechanically similar to the Duluth Complex, which is documented to have decreasing hydraulic conductivity with depth. Assuming relatively similar stress, weathering, and erosional histories, it is likely that the Giants Range granite also exhibits decreasing hydraulic conductivity with depth.

Jennings and Reynolds (2005) mapped the surficial deposits around and beneath the Tailings Basin as Rainy Lobe Till, which serves as a shallow, unconfined aquifer. This is generally a sandy loam till with low clay content. However, data from 12 monitoring wells installed north and west of the Tailings Basin indicate the dominating presence in this area of sands with varying amounts of silt and gravel. In a separate geotechnical study of the LTVSMC tailings, several soil borings into the surficial deposits identified the presence of layers of clay and sand, plus cobbles and boulders that prevented recovery of an intact sample (Pint and Dehler 2008). Figure 4.2.2-14 shows the geographic extent of surface geologic features.

The thickness of surficial deposits (depth to bedrock) along the western, northwestern, and northern sides of the Tailings Basin toe ranges from 3.5 to 42.5 ft as reported in site boring logs (Barr 2014b). The average thickness of surficial deposits along these toes is 19.5 ft. No substantial surficial deposits are present along the southern and much of the eastern sides of the Tailings Basin where the basin abuts against bedrock outcrops. However, an accumulation of surficial deposits is adjacent to the East Embankment on the eastern side of the Tailings Basin. The area farther northwest of the Tailings Basin is believed to be one of the few areas in the region with significant quantities of outwash (sand and gravel) ranging in thickness from 0 ft to greater than 150 ft (Olcott and Siegel 1979) (see Figure 4.2.2-15).

The surficial till is often overlain by wetland/peat deposits. Peat deposits were encountered in some borings, ranging in thickness from less than a foot to several feet, but they are relatively few and discontinuous. Most of the area between the Tailings Basin and the Embarrass River is covered by extensive wetlands and minor surface water features. Unlike the ombrotrophic bogs at the Mine Site, where sphagnum peat has elevated the bog and reduced connection between the surface water and water table (Eggers 2011a), these wetlands between the Tailings Basin and

Embarrass River are likely to represent surficial expressions of the water table (Barr 2012a) and reflect, at least in part, the increase in groundwater and surface water level and flow from LTVSMC tailings seepage.

Regionally, groundwater flows primarily northward toward the Embarrass River, although groundwater in some portions of the Tailings Basin flows to the south to form the headwaters of Second Creek, a tributary of the Partridge River (see Figure 4.2.2-7). Water level data collected from monitoring wells north of the Tailings Basin show an average hydraulic gradient of 0.0039 ft/ft. Recent hydrologic investigations indicate that the total groundwater flow through the aquifer downgradient of the Tailings Basin and toward the west, northwest, and north, is approximately 194 gpm (see Table 5.2.2-39). For groundwater in surficial deposits, aquifer recharge in the areas west, northwest, and north of the Tailings Basin is estimated to be about 0.75 in/yr (PolyMet 2015j). In the area around the Tailings Basin, groundwater flows radially away from it to the west, northwest, and north. There is currently east-to-west groundwater flow towards and under the Tailings Basin from surficial deposits along the embankment on the eastern side of the Tailings Basin.

The existing LTVSMC Tailings Basin consists of three cells. Cell 2W is the largest (1,450 acres) and highest (average fill height of 200 ft) and has been closed and re-vegetated. Cell 1E is located east of Cell 2W and covers approximately 980 acres with an average fill height of 60 ft. Cell 2E, which is located east of Cell 2W and north of Cell 1E, covers approximately 620 acres, and has an average fill height of 60 ft, although it is at a lower elevation than Cell 1E.

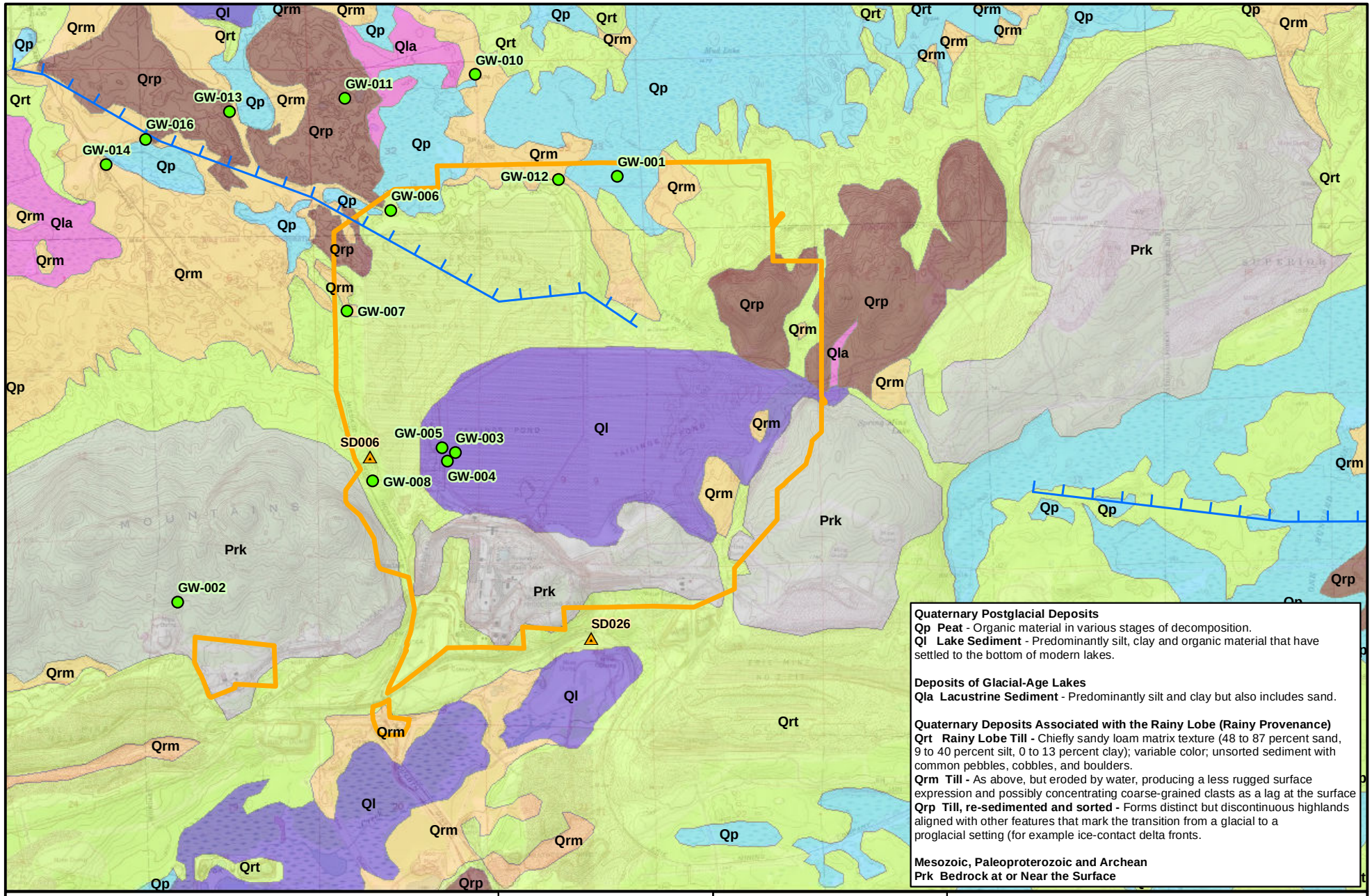

Figure 4.2.2-14
Surficial Geology at the Plant Site
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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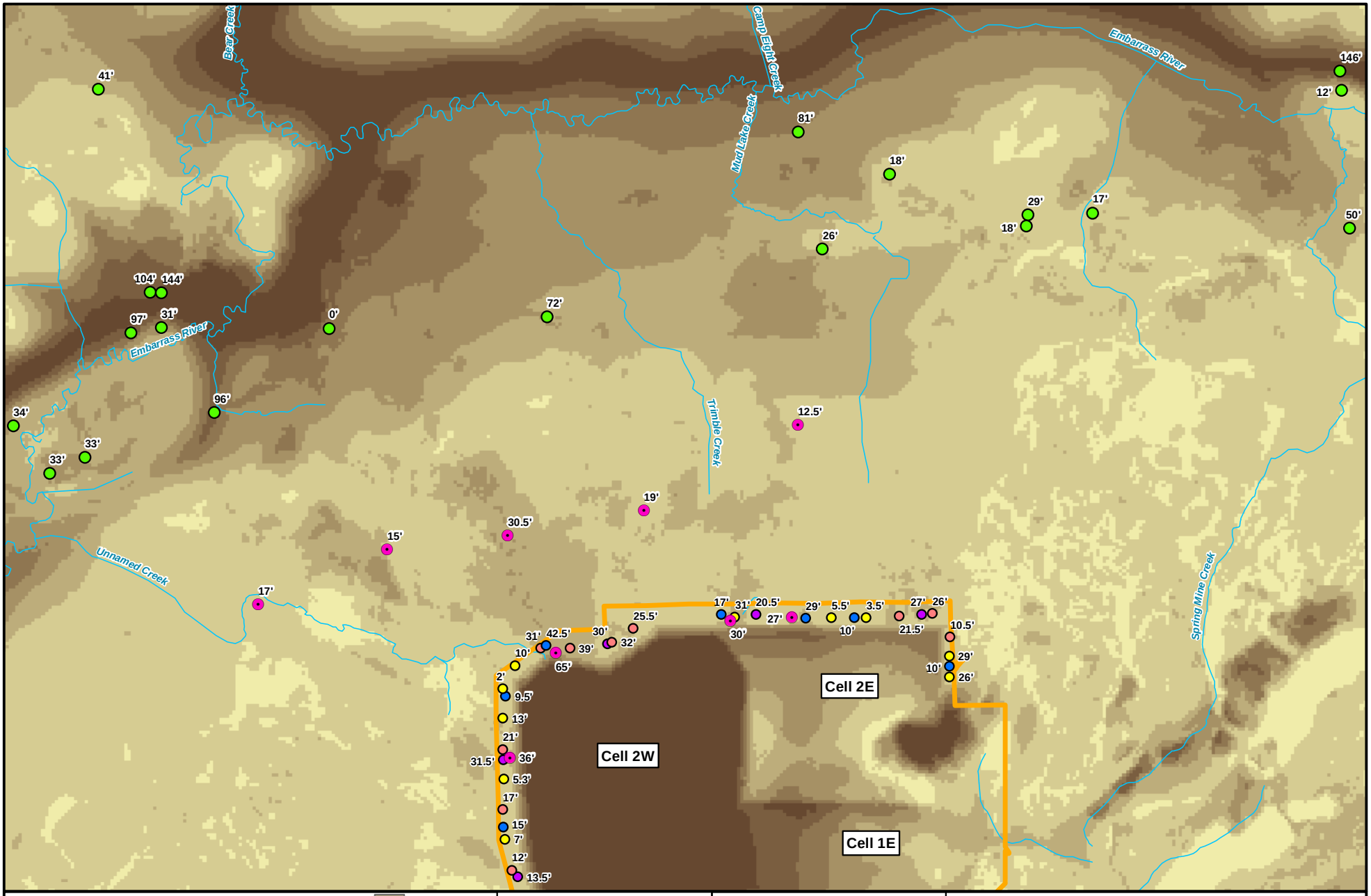

Residential Well from County Well Index (with depth to bedrock)
Groundwater Well - Existing
Rotasonic Location
Rotasonic Location with a Piezometer
Boring Location with Packer
Boring Location
Plant Site
Stream/River
Depth to Bedrock
0' -25'
25' - 50'
50' -75'
75' -100'
100' -125'
> 125'

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1,000 2,000 4,000
Feet

Figure 4.2.2-15
Depth to Bedrock at Tailings Basin Area
NorthMet Mining Project and Land Exchange FEIS
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During the LTVSMC operations, the LTVSMC Tailings Basin was built up over time and a groundwater mound formed beneath the basin due to seepage from tailings ponds located within the various cells. Surface seeps initially occurred on the southern, western, and northern sides of the Tailings Basin; however, most surface seeps have dried out since January 2001, when LTVSMC terminated depositing tailings in the basin. Only a few surface seeps remain active, specifically seeps 32 and 33 that drain to the south of the existing LTVSMC Tailings Basin and toward Second Creek (see Figure 4.2.2-13).

The eastern side of the Tailings Basin is bounded by low-permeability bedrock uplands, except for surficial deposits adjacent to the East Embankment. Groundwater flow to the east and south of the Tailings Basin is minimal. Most groundwater flows from beneath the Tailings Basin into the surrounding surficial deposits to the west, northwest, and north towards the Embarrass River. Recent seepage from the existing LTVSMC Tailings Basin towards the Embarrass River was estimated to be approximately 2,590 gpm (PolyMet 2015j; see Table 5.2.2-38). This seepage rate exceeds the capacity of the surficial aquifer to transmit groundwater, resulting in upwelling to the surface of an estimated 2,381 gpm of tailing water (see Table 5.2.2-39). This upwelling and historic surface seepage from the LTVSMC tailings created or expanded wetlands immediately downgradient of the existing LTVSMC Tailings Basin, and inundated these same wetlands (see Section 4.2.3). These hydrologic effects on wetlands diminish to the north.

Groundwater elevations within the surficial aquifer north of the existing LTVSMC Tailings Basin were determined from several years of water-level measurements in 15 wells (see Figure 4.2.2-16). These include eight wells that are adjacent to (or within) the existing LTVSMC Tailings Basin (GW-001 through GW-008), which were installed as part of the NPDES permit and monitored as far back as 2001. Seven other wells located farther from the existing LTVSMC Tailings Basin (GW-009 through GW-015) were installed in 2009 and 2010 by PolyMet to support hydraulic characterization of the NorthMet Project Proposed Action (PolyMet 2015j). The water table within the Tailings Basin showed a systematic decrease in elevation following cessation of the LTVSMC operations in 2001 as the tailings drained, with water levels stabilizing since 2007. Following the cessation of the LTVSMC mine operations, the remaining surface water within Cell 2W was either drained into Cell 1E or infiltrated into the underlying tailings, such that no pond remains. Cells 1E and 2E still impound water, but at lower levels than during the active LTVSMC operations. Water levels measured in the Pond and the piezometer located within the cells indicate that these cells may have been approaching steady-state conditions prior to the seep pump-backs that are part of the Cliffs Erie Consent Decree.

Although water levels were monitored starting in 2001, assessment of the existing conditions and the project effects for this FEIS primarily rely on water-level data collected for 2007 through July 2013 (PolyMet 2015j). Monitoring data shows that the water table slopes to the west, northwest, and north, producing flow from the LTVSMC tailings toward the Embarrass River (see Figure 4.2.2-11 and Figure 4.2.2-17). The fluctuations at individual wells since 2007 have been small. The maximum range in the wells adjacent to the tailings has been 3.8 ft (both GW-005 and GW-008 had this range), and in the farther downgradient wells, the range in water levels at individual wells ranged from 0.33 to 4.67 ft (well GW-011; Figure 4.2.2-8).

Baseline groundwater elevations, depths to bedrock, and surface water drainage locations have been used to identify three flowpaths (West, Northwest, and North) that represent the most direct paths between Tailings Basin facilities and evaluation locations (i.e., property boundaries and surface waters of the state) (PolyMet 2015j). Groundwater flow at the East Embankment is

toward the west (under the Tailing Basin), while flow to the east is negligible because of the presence of bedrock outcrops. Groundwater flow toward the south is also negligible because surficial deposits are present there only as thin and laterally discontinuous bodies; tailings water at the South Toe seeps out to ground surface and a portion of that is pumped back to the Tailings Basin.

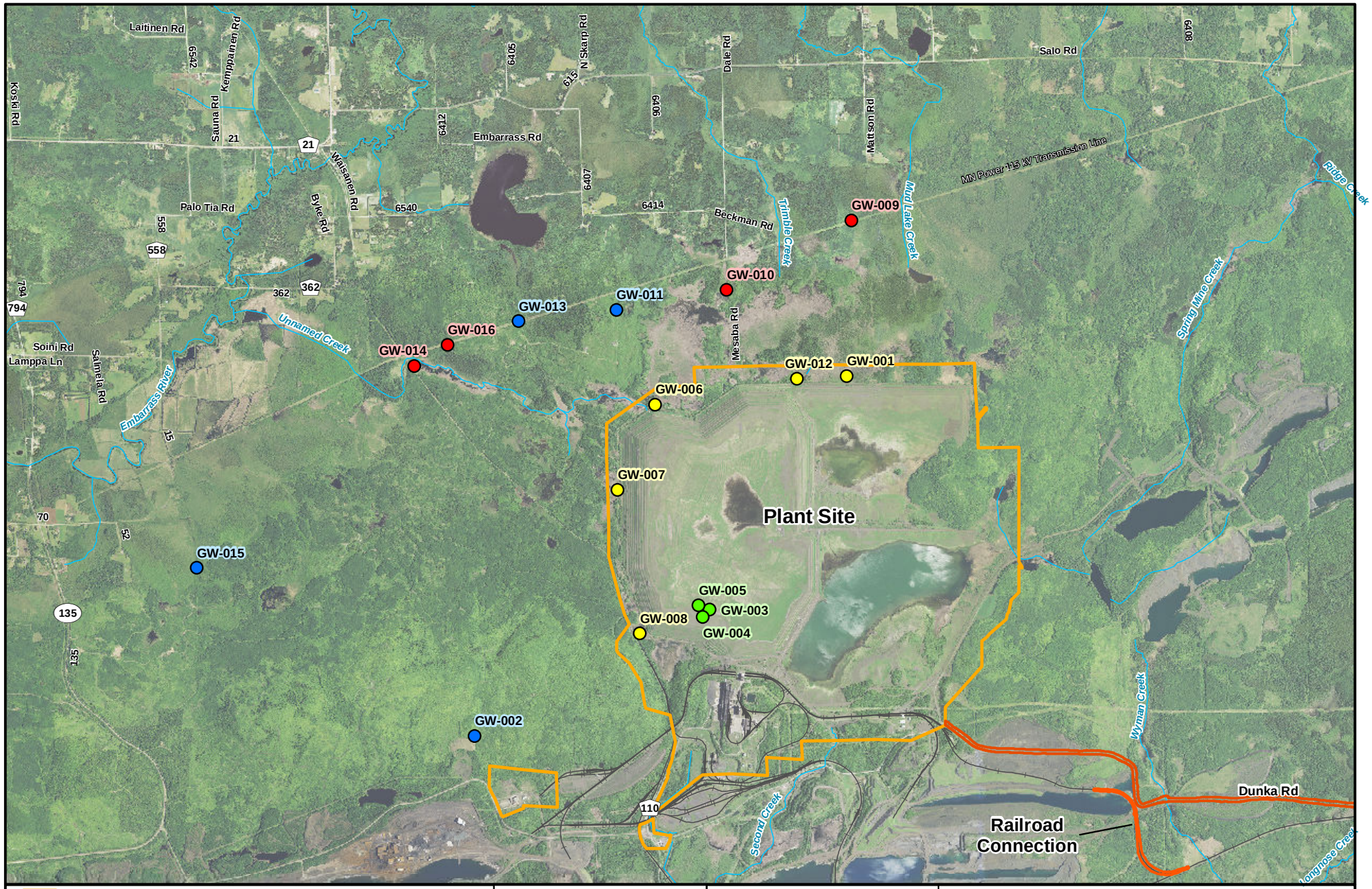

Plant Site
Transportation and Utility Corridor
Stream/River
Existing Railroad
Tailings Basin Toe Well
Natural Background Well
Groundwater Monitoring Well
Tailings Basin Downgradient Well

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 0.25 0.5 1 Miles

Figure 4.2.2-16
Monitoring Locations Near Existing Tailings Basin
NorthMet Mining Project and Land Exchange FEIS
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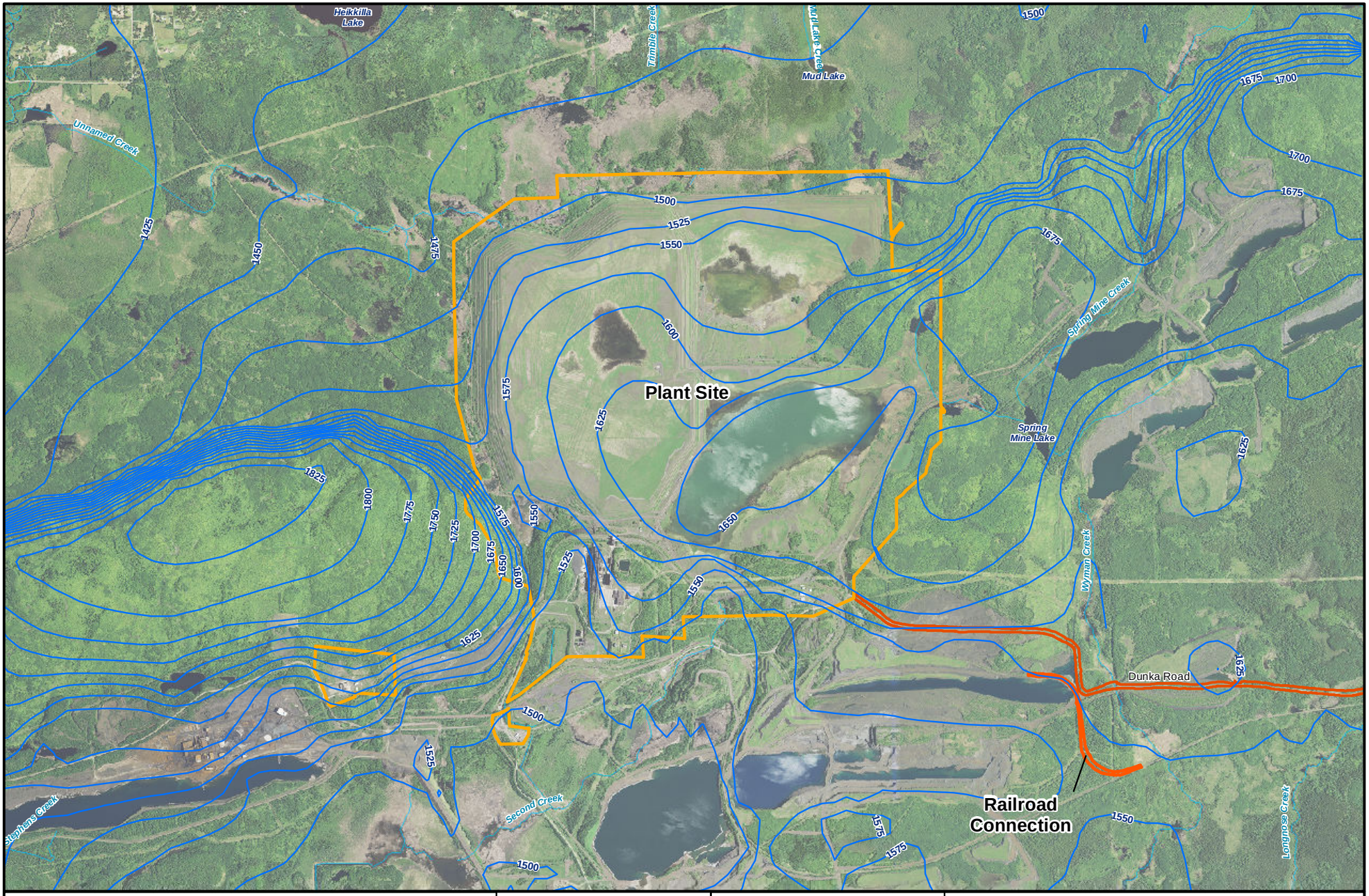

Plant Site

Transportation and Utility Corridor

* Water Table Elevation in Surficial Aquifer (Ft AMSL)

Stream/River

* Source: PolyMet 2015j

MNDNR

US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 4.2.2-17

Estimated Existing Groundwater Contours in Surficial Deposits and Bedrock Outcrops - Plant Site

NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Hydraulic characteristics of the surficial deposits and shallow bedrock in the Tailings Basin area are derived from the following sources:

- Eight single-well pumping tests conducted in monitoring wells in the surficial deposits (Barr 2009e).
- Multiple slug tests performed in standpipe piezometers located in the surficial deposits of Cell 2W (Pint and Dehler 2008).
- Slug tests performed in 10 standpipe piezometers installed in surficial deposits, typically right above bedrock, around the perimeter of Tailings Basin, as well as in four accessible wells that were installed in 2008 (PolyMet 2015l, Attachment F).
- Packer tests performed in five of the 12 bedrock borings completed along the northern, northwestern, and western perimeters of the Tailings Basin. In total, 10 tests were performed at one to three depth intervals of each tested boring. Drilling of those bedrock borings produced rock cores and RQD data (PolyMet 2015l, Attachment F).

Estimated hydraulic properties of the native units found near the Tailings Basin vary by several orders of magnitude (Barr 2008c). Estimated hydraulic conductivities range from approximately 0.0002 ft/day for the Giants Range bedrock to approximately 70 ft/day for the glacial till (Barr 2009f). Single well pumping tests conducted in eight of the monitoring wells located within the glacial till found an average permeability of 14 ft/day within a range of 0.4 to 65 ft/day (Barr 2009e), while slug tests performed in standpipe piezometers located in the glacial till downgradient of Cell 2W found an average permeability of only 1.5 ft/day within a range of 0.25 to 2.1 ft/day (Pint and Dehler 2008). The hydraulic conductivity of the LTVSMC tailings ranges from approximately 0.003 ft/day for the slimes to approximately 7 ft/day for the coarse tailings.

Slug tests performed in standpipe piezometers completed in glacial till in different parts of the Plant Site showed hydraulic conductivity ranging from 0.15 to 130 ft/day, with geometric mean of 4.41 ft/day. Those values for glacial till are considered to be the best representation of in situ conditions in glacial till (PolyMet 2015l, Attachment F).

Geometric mean of hydraulic conductivity values obtained from the packer tests performed in the bedrock borings is 0.14 ft/day. This value is judged to be the best estimate characterizing the top 20 ft of bedrock around the Plant Site; it is similar to a geometric mean of hydraulic conductivity values quoted in literature for the Giants Range Granite (Barr 2014b).

It was observed that a density of fractures often decreases with an increasing core depth, indicating hydraulic conductivity decreasing with depth.

Groundwater Quality

Characterization of groundwater quality at the Plant Site is based on the analyses of water collected from the following wells installed in surficial deposits:

- Eight groundwater monitoring wells (i.e., wells GW-001 through GW-008) monitored since at least 1999 (see Figure 4.2.2-16). GW-002 is considered a baseline well for the Tailings Basin, as it is located distant from the Tailings Basin groundwater flowpaths. Wells GW-003, GW-004, and GW-005 located within Cell 2W were intended to monitor the high sulfide Virginia Formation hornfels waste rock that was placed in this cell in 1993. The remaining

wells—GW-001, GW-006, GW-007, and GW-008—are located at or very near the toe of the Tailings Basin embankment.

- Seven additional wells installed and monitored since 2009:
  - One at the toe of the Tailings Basin (GW-012);
  - Three downgradient of the Tailings Basin (GW-009, GW-010, and GW-011);
  - Three new wells installed in July 2010, after issuance of the 2009 DEIS (GW-013, GW-014, and GW-015) (PolyMet 2015j); and
- Fifteen residential wells near the Tailings Basin were sampled. Twenty-three non-sampled residential wells were identified between the Tailings Basin and Embarrass River (see Table 4.2.2-26). The 38 wells in total were completed in surficial deposits and in bedrock. The wells are located between 1 and 3.8 miles north of the Tailings Basin (see Figure 4.2.2-18).

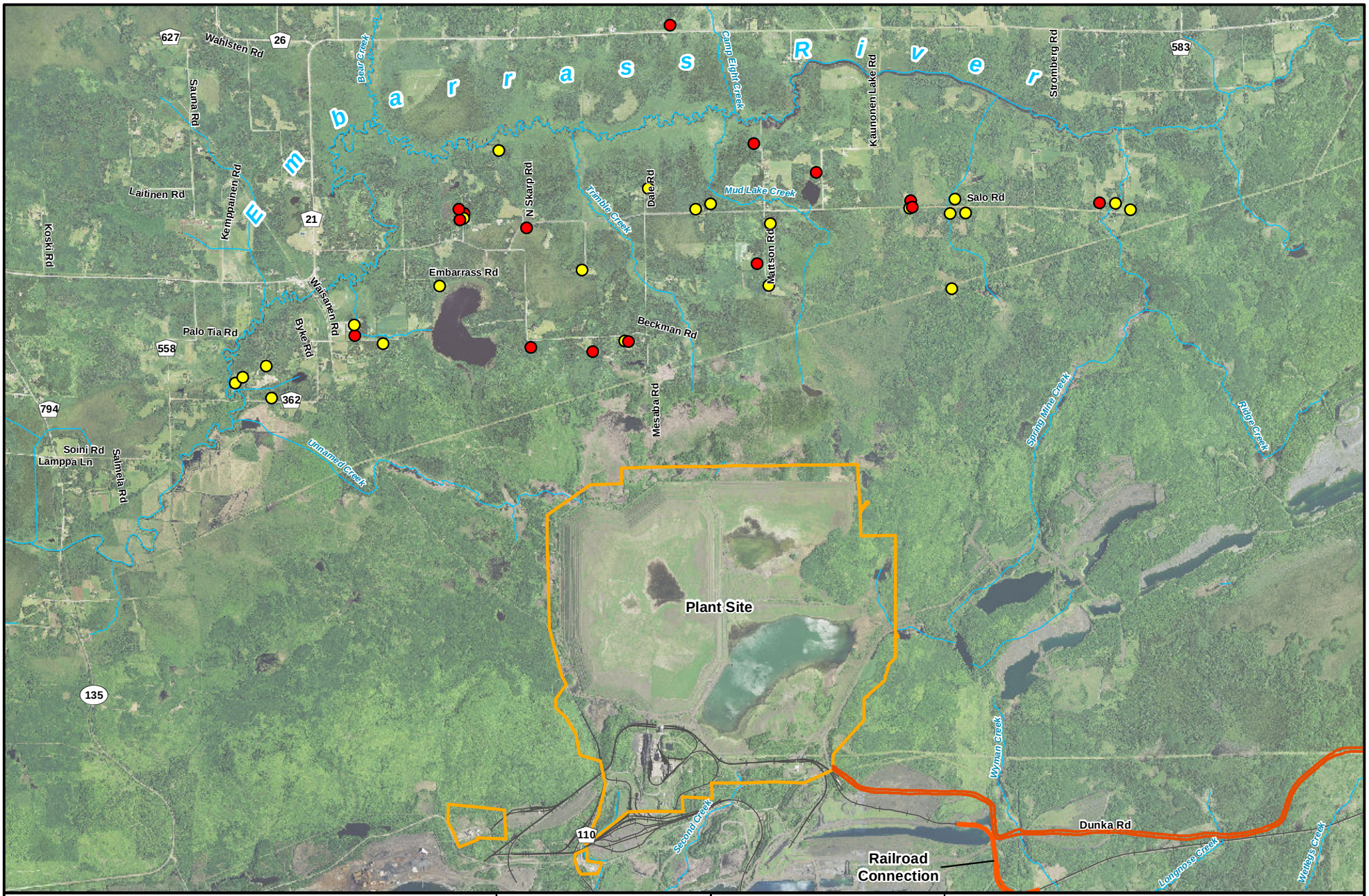

Plant Site
Transportation and Utility Corridor
Stream/River
Residential Wells - Sampled
Residential Wells - Not Sampled
Existing Railroad

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 4.2.2-18
Residential Well Locations Between the Tailings Basin and the Embarrass River
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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The discussion of groundwater quality in the Plant Site area groups the available wells into three categories:

- Natural background wells (GW-002, GW-011, GW-013, and GW-015). These best approximate groundwater quality unaffected by the LTVSMC tailings. Low chloride concentrations measured in those wells indicate that groundwater around those wells have not been affected appreciably by Tailings Basin seepage. Table 4.2.2-22 presents solute concentrations measured in the background wells. It also shows the concentrations reported in the studies of regional background water quality conducted by the MPCA and the USGS (MPCA 1999a; Siegel and Ericson 1980).
- Tailings Basin toe wells (GW-001, GW-006, GW-007, GW-008, and GW-012). These wells are located at the toe of the Tailings Basin. Analytical results from some of these wells have been used (in conjunction with a few surface seeps) to estimate the composition of LTVSMC Tailings Basin seepage. Table 4.2.2-23 presents the range for solute concentrations measured in these wells and the remaining Cell 2E Pond.
- Downgradient wells. This group consists of two types of wells:
  - Tailings Basin downgradient wells (GW-009, GW-010, GW-014, and GW-016). These wells are located downgradient of and to the north and northwest of the Tailings Basin, beyond its toe. Table 4.2.2-24 presents ranges for solute concentrations in these wells.
  - Residential wells. Figure 4.2.2-18 shows the location of: 1) 23 non-sampled residential wells identified between the Tailings Basin and the Embarrass River and 2) 15 sampled wells.

Natural Background Wells

In the period since release of the 2009 DEIS, an updated review of available groundwater quality data allowed a conclusion that natural water quality in the Tailings Basin area was reflected by wells GW-002, GW-011, GW-013, and GW-015. These four wells were selected as unaffected natural background baseline wells primarily because of their low chloride concentrations (ranging from below detection up to 4.8 mg/L), which are consistent with regional values for background chloride concentrations, and clearly distinct from chloride concentrations in discharge from the existing LTVSMC tailings (approximately 30 mg/L; PolyMet 2015j). Also, concentrations of ammonia (as nitrogen), calcium, fluoride, magnesium, sodium, potassium, sulfate, as well as TDS (total dissolved solids) and hardness are lower in these wells than in the Tailings Basin toe wells and downgradient wells discussed below.

Baseline concentrations of some constituents in groundwater of the Tailings Basin area exceed the groundwater evaluation criteria (see Table 4.2.2-22). For example, at well GW-002, groundwater within the surficial aquifer has elevated concentrations (i.e., at or higher than the groundwater evaluation criteria) of aluminum, iron, and manganese. The manganese levels were within the range of baseline concentrations found by MPCA in northeastern Minnesota (MPCA 1999a) and in the Regional Copper-Nickel Study (Siegel and Ericson 1980), but the aluminum and iron values were above the range of concentrations found in these two studies. In addition, beryllium did not meet the groundwater evaluation criteria. However, interpretation of the beryllium concentrations is complicated because the detection limits exceeded the evaluation

criteria. Beryllium was detected in some groundwater samples at concentrations above the evaluation criteria.

Aluminum, iron, and manganese concentrations are heavily influenced by natural processes, particularly chemically reducing conditions and the presence of dissolved organic acids, both of which can arise in aquifer zones enriched in natural organic matter. Further, the analyses of "total" groundwater concentrations included an unknown amount of fine particulates that were then digested in sample preparation and contributed to the reported concentrations. Reported total concentrations could thus be influenced by the high values for elements common in clays and other fine particulates, including aluminum, iron, and manganese. Consequently, the dissolved concentrations are generally considered more representative of groundwater quality than total concentrations. Very few dissolved concentrations measured in the collected samples are exceeding the evaluation criteria. All other parameters met the groundwater evaluation criteria.

Table 4.2.2-22 Summary of Natural Background Groundwater Quality Monitoring Data for the Tailings Basin Area and Two Larger Regional Areas

Parameters	Units	Groundwater Evaluation Criteria	Baseline Quality in Surficial Aquifer (GW-002, GW-011, GW-013, and GW-015)				Northeast MN Baseline	Copper-Nickel Study Baseline
General			**Detection**	**Mean[1]**	**Range**	**# Exceed**	**Range**	**Range**
Alkalinity	mg/L	--	49 of 50	51.2	<10–133	NA	--	--
Ammonia as Nitrogen	mg/L	--	10 of 50	0.07	<0.025–0.49	NA	--	--
Calcium	mg/L	--	50 of 50	14.8	3.1–41.4	NA	--	--
Carbon, total organic	mg/L	--	48 of 50	2.8	<0.5–7.4	NA	--	--
Chloride	mg/L	250	30 of 50	0.80	<0.25–4.8	0	--	0.4–35
Fluoride	mg/L	2	14 of 50	0.10	<0.05–0.56	0	0.2–0.57	--
Hardness	mg/L	--	50 of 50	64.6	13.3–236	NA	--	--
Magnesium	mg/L	--	50 of 50	6.7	1.3–32.2	NA	--	--
pH	s.u.[3]	6.5–8.5	50 of 50	7.0	5.5–8.3	**13**	6.0–8.4	5.7–8.0
Potassium	mg/L	--	50 of 50	1.4	0.25–6.1	NA	--	--
Sodium	mg/L	--	44 of 50	3.4	<1–9.8	NA	--	--
Sulfate	mg/L	250	50 of 50	7.5	2.6–38.6	0	<0.3–14.2	1.8–450
TDS	mg/L	--	49 of 50	51.2	<10–133	NA	--	--
Metals – Total								
Aluminum	µg/L	200	49 of 50	4,772	<10–63,500	34	<0.1–30	0–200
Antimony	µg/L	6	0 of 50	0.25	<0.25	0	<0.01–0.04	--
Arsenic	µg/L	10	24 of 50	1.3	<0.25–18.0	1	<0.1–9.1	--
Barium	µg/L	2,000	50 of 50	102	10.9–703	0	1.6–191	--
Beryllium	µg/L	0.08	6 of 50	**0.20**	<0.1–2.7	BDL[2]	<0.01–0.41	--
Boron	µg/L	1,000	0 of 50	29.0	<25–<100	0	<13–41	--
Cadmium	µg/L	4	9 of 50	0.18	<0.1–1.7	0	<0.02–0.2	0–8.4
Chromium	µg/L	100	36 of 50	14.4	<0.5–258	**1**	0.09–4.7	0–5.5
Cobalt	µg/L	--	40 of 50	4.2	<0.1–87.1	NA	0.05–0.63	0.3–28.0
Copper	µg/L	1,000	49 of 50	15.8	<0.25–300	0	<5.5–22	0.6–190
Iron	µg/L	300	50 of 50	**5,862**	53.4–82,600	**34**	7–7,816	0–3,100
Lead	µg/L	--	29 of 50	2.6	<0.25–56.2	NA	<0.03–2.0	0.1–6.4

Parameters	Units	Groundwater Evaluation Criteria	Baseline Quality in Surficial Aquifer (GW-002, GW-011, GW-013, and GW-015)				Northeast MN Baseline	Copper-Nickel Study Baseline
General			**Detection**	**Mean[1]**	**Range**	**# Exceed**	**Range**	**Range**
Manganese	µg/L	50	50 of 50	**271**	1.0–2,140	**30**	0.9–1,248	10–7,190
Mercury	ng/L	2,000	44 of 48	4.1	<0.25–43.1	0	--	--
Methylmercury	ng/L	--	5 of 45	0.041	<0.015–0.10	NA	--	--
Molybdenum	µg/L	--	34 of 50	1.7	<0.1–17.1	NA	<4.2–12	--
Nickel	µg/L	100	46 of 50	15.7	<0.25–316	**1**	<6.0–16	--
Selenium	µg/L	30	1 of 50	0.55	<0.1–1.6	0	<1.0–4.7	--
Silver	µg/L	30	1 of 50	0.11	<0.1–0.46	0	<0.01–0.05	--
Thallium	µg/L	0.6	4 of 50	0.14	<0.0085–0.81	**1**	<0.005–0.01	--
Zinc	µg/L	2,000	25 of 50	19.9	<3–366	0	<2.7–138	3.9–170
Dissolved/Filtered Metals								
Aluminum	µg/L	200	29 of 50	48.5	<10–352	**1**	--	--
Antimony		6	0 of 1	0.25	<0.25	0	--	--
Arsenic	µg/L	10	9 of 44	0.46	<0.25–1.1	0	--	--
Barium		2,000	30 of 31	60.3	<5–236	0	--	--
Beryllium		0.08	0 of 1	1.0	<1–<1	BDL[2]		
Boron	µg/L	1,000	0 of 31	27.4	<25–<100	0	--	--
Cadmium	µg/L	4	4 of 50	0.13	<0.015–1.3	0	--	--
Chromium	µg/L	100	22 of 50	0.90	<0.5–2.4	0	--	--
Cobalt		--	1 of 31	0.14	<0.1–1.3	NA	--	--
Copper	µg/L	1,000	41 of 50	2.0	<0.25–6.5	0	--	--
Iron		300	19 of 43	60.3	<25–288	0	--	--
Lead		--	0 of 31	0.25	<0.25–<0.3	NA	--	--
Manganese	µg/L	50	43 of 45	**152**	<5–744	**12**	--	--
Molybdenum		--	28 of 50	1.4	<0.1–16.6	NA		
Nickel	µg/L	100	43 of 50	1.5	<0.25–5.6	0	--	--
Selenium	µg/L	30	0 of 50	0.49	<0.1–<0.5	0	--	--
Silver	µg/L	30	0 of 50	0.10	<0.1	0	--	--
Thallium		0.6	0 of 1	0.20	<0.2	0	--	--
Zinc	µg/L	2,000	16 of 50	5.4	<3–17.8	0	--	--

Sources: Barr 2014d; NTS 2009; MPCA 1999a; Siegel and Ericson 1980.

Notes:
Groundwater evaluation criteria: The maximum allowed concentrations (or for some less toxic substances, the maximum recommended concentrations) of various constituents in groundwater. The specific thresholds are either the USEPA primary Maximum Contaminant Levels (MCLs), the MDH Health Risk Limits (HRLs), or the USEPA sMCLs (sMCLs are used to set thresholds for aluminum, iron, and manganese). These thresholds are considered when determining whether alternatives considered in this FEIS are expected to have a significant environmental effect.
Bold (e.g., **0.014**) indicates exceeds evaluation criteria.
< less than indicated reporting limit.

[1] Where non-detects occur, the mean was calculated using half the detection limit.
[2] Below detection limit. Detection limit is greater than water quality standard.

Tailings Basin Toe Wells

Ponds remain atop the existing LTVSMC Tailings Basin within Cells 1E and 2E. No pond is present in Cell 2W. Table 4.2.2-23 summarizes the results of surface water quality monitoring of the Cell 2E pond (mean values for data collected from 2001 to 2004) and groundwater quality monitoring at monitoring wells located along the northern, northwestern, and western toes of the Tailings Basin (GW-001, GW-006, GW-007, GW-008, and GW-012). The existing LTVSMC Tailings Basin is a disposal facility and is not a natural surface waterbody or a point of compliance pursuant to Cliffs Erie's NPDES/SDS permit. Therefore, comparison of these data with surface or groundwater evaluation criteria is not appropriate; however, these criteria are listed for informational purposes.

Table 4.2.2-23 Existing Pond Water and Groundwater Quality at the Toe of the Tailings Basin

Parameters	Units	Pond Water Quality (Cell 2E)	Groundwater Evaluation Criteria	Toe of Tailings Basin (GW-001, GW-006, GW-007, GW-008, GW-012, Surficial Aquifer)		
General		**Mean**		**Detection**	**Mean[1]**	**Range**
Alkalinity	mg/L	--	--	83 of 83	421	17.6–852
Calcium	mg/L	30	--	83 of 83	84.0	4.3–211
Chloride	mg/L	23	250	82 of 82	18.2	0.56–30.4
Fluoride	mg/L	5.2	2	64 of 82	0.90	<0.05–2.6
Hardness	mg/L	--	--	80 of 80	591	19.0–1,360
Magnesium	mg/L	--	--	83 of 83	95.0	2.0–262
pH	s.u.	8.4	6.5–8.5	91 of 91	7.3	4.1–8.7
Potassium	mg/L	--	--	83 of 83	5.9	0.58–16.0
Sodium	mg/L	--	--	82 of 83	55.5	<1–131
Sulfate	mg/L	109	250	82 of 82	234	4.1–659
TDS	mg/L	381	500	63 of 63	**799**	85–1,610
Metals – Total						
Aluminum	µg/L	--	200	57 of 83	**1,522**	<10–29,000
Antimony	µg/L	--	6	0 of 80	0.25	<0.25
Arsenic	µg/L	5	10	38 of 80	1.8	<0.25–7.1
Barium	µg/L	--	2,000	82 of 83	133	<5–452
Beryllium	µg/L	--	0.08	4 of 80	**0.19**	<0.1–1.0
Boron	µg/L	278	1,000	66 of 83	319	<25–554
Cadmium	µg/L	--	4	10 of 80	0.17	<0.1–2.0
Chromium	µg/L	--	100	33 of 80	4.3	<0.5–68.2
Cobalt	µg/L	1	--	72 of 80	1.9	<0.1–17.9
Copper	µg/L	2	1,000	79 of 80	7.8	<0.35–205
Iron	µg/L	--	300	69 of 83	**4,709**	<25–31,000
Lead	µg/L	--	--	18 of 80	0.87	<0.25–8.5
Manganese	µg/L	100	50	83 of 83	**1,299**	10.0–4,130
Mercury	ng/L	1.4	2,000	55 of 72	4.9	<0.25–153
Methylmercury	ng/L	--	--	9 of 71	0.048	<0.015–0.28
Molybdenum	µg/L	113	--	74 of 80	20.1	<0.1–47.0
Nickel	µg/L	2.1	100	70 of 80	7.3	<0.25–90.6
Selenium	µg/L	--	30	3 of 80	0.58	<0.5–<5
Silver	µg/L	--	30	2 of 80	0.10	<0.1–0.23
Thallium	µg/L	--	0.6	5 of 80	0.14	<0.0085–0.53

Parameters	Units	Pond Water Quality (Cell 2E)	Groundwater Evaluation Criteria	Toe of Tailings Basin (GW-001, GW-006, GW-007, GW-008, GW-012, Surficial Aquifer)		
General		**Mean**		**Detection**	**Mean[1]**	**Range**
Zinc	µg/L	--	2,000	17 of 80	9.3	<3–94.9
Metals – Dissolved/Filtered						
Aluminum	µg/L	--	200	15 of 80	14.2	<5–93.2
Antimony	µg/L	--	6	0 of 4	0.25	<0.25
Arsenic	µg/L	--	10	26 of 63	1.0	<0.25–6.5
Barium	µg/L	--	2,000	42 of 42	115	1.2–277
Beryllium	µg/L		0.08	0 of 4	1.0	<1
Boron	µg/L	--	1,000	37 of 47	308	<25–531
Cadmium	µg/L	--	4	4 of 80	0.12	<0.1–1.1
Chromium	µg/L	--	100	15 of 80	0.72	<0.5–2.9
Cobalt	µg/L	--	--	32 of 42	0.89	<0.1–3.5
Copper	µg/L	--	1,000	74 of 80	2.0	<0.25–11.0
Iron	µg/L	--	300	34 of 62	**2,265**	<25–11,000
Lead	µg/L	--	--	0 of 42	0.25	<0.25–<0.3
Manganese	µg/L	--	50	64 of 64	**1,158**	5.4–3,710
Molybdenum	µg/L		--	76 of 80	20.0	<0.1–45.0
Nickel	µg/L	--	100	63 of 80	3.3	<0.25–12.2
Selenium	µg/L	--	30	0 of 80	0.50	<0.5
Silver	µg/L	--	30	0 of 80	0.10	<0.1
Thallium	µg/L	--	0.6	0 of 4	0.20	<0.2
Zinc	µg/L	--	2,000	27 of 80	6.9	<3–50.8

Sources: Barr 2014d; Barr 2006f.

Notes:
< less than indicated reporting limit.
Bold (e.g., **0.014**) indicates exceeds evaluation criteria.
[1] Where non-detects occur, the mean was calculated using half the detection limit.

Comparing the existing Cell 2E pond water quality with water quality at the toe of the Tailings Basin can define the effect that passage through the existing LTVSMC tailings has on seepage water quality. Such comparison shows that passage through the LTVSMC tailings apparently reduces the average concentrations of arsenic, fluoride, and molybdenum, although it is difficult to determine to what extent these reductions are simply attributable to the effects of dilution. The concentrations of several other parameters, such as calcium, manganese, nickel, and TDS, increase as they seep from the tailings pond to the toe of the Tailings Basin.

The limited amount of pond water quality data generally show fluoride concentrations that are elevated relative to the groundwater evaluation criteria. This could be attributable to the historic use of wet scrubbers for emission control at the former LTVSMC furnaces. These scrubbers removed highly soluble hydrogen fluoride gas (Jiang et al. n.d.) resulting in elevated fluoride concentrations in the scrubber water, which was disposed of in the Tailings Basin.

Groundwater quality monitoring at several wells completed in the surficial aquifer at or near the toe of the Tailings Basin found the pH tending neutral or toward slightly basic (mean of 7.3), and elevated concentrations of several parameters (see Table 4.2.2-23). As with the baseline wells, these wells exhibited elevated aluminum, iron, and manganese concentrations, but also exhibited elevated sulfate, fluoride, molybdenum, and TDS concentrations that are higher than in the baseline wells (see Table 4.2.2-22). Considering these results, NTS (2009) concluded that

groundwater has been impacted by the Tailings Basin. NTS noted, however, that there does not appear to be an overall trend, either increasing or decreasing, in the concentration of the monitored constituents.

Tailings Basin Downgradient Wells and Residential Wells

PolyMet conducted between 2 and 15 rounds of groundwater sampling during the 2009 through 2013 period at three monitoring wells (GW-009, GW-010, and GW-014) located approximately 1 mile north of the Tailings Basin (see Figure 4.2.2-16), and a single round of sampling at 15 residential wells located between 1.6 miles and 3.8 miles north of the Tailings Basin (see Figure 4.2.2-18). Water quality in the three affected downgradient monitoring wells and the 15 residential wells is summarized in Tables 4.2.2-24 and 4.2.2-25, respectively (Barr 2014d). As with the baseline wells, the three downgradient monitoring wells also exhibited elevated aluminum and iron concentrations that are higher than those found at the toe of the Tailings Basin.

Samples collected from the residential wells (located farther from the Tailings Basin) showed manganese concentrations that exceeded the groundwater evaluation criteria (i.e., sMCL). High manganese concentrations can naturally occur at some locations under a range of conditions. The measured concentrations are within the range found in the Regional Copper-Nickel Study. One well had aluminum concentrations slightly above the evaluation criterion and four wells had pH concentrations below the minimum of the criterion's range (pH below 6.5), but again, these values are within the neutral range found in the Regional Copper-Nickel Study.

The samples from the residential wells (Barr 2009d) and the downgradient wells sampled for the NorthMet Project Proposed Action (compared in Table 4.2.2-24) include analyses for total (unfiltered) and dissolved (filtered) concentrations for manganese and aluminum, so the maximum reported concentrations of these constituents probably includes the effect of sediment included in the samples. Residential wells have had more time and pumping to flush out sediment and, therefore, samples from them would be expected to have little if any sediment and lower unfiltered analytical results than samples from a monitoring well at the same location.

Comparisons of the groundwater quality data between different groups of wells indicate a general pattern of decreasing concentrations of ammonia, calcium, chloride, fluoride, magnesium, sodium, potassium, sulfate, hardness, pH, and TDS from the Tailings Basin wells (the highest), to downgradient wells, to residential and natural background wells (the lowest). Concentrations of those general parameters are similar between the residential and background wells.

Concentrations of metals (both total and dissolved) do not show any clear pattern of increasing or decreasing concentrations between the well groups. Two exceptions are boron and molybdenum showing, again, a trend of decreasing concentrations from the Tailings Basin wells to downgradient wells, to residential and background wells.

The MPCA conducted a review of the residential well and monitoring well results (which, in part, included the consideration of chemical tracers) (Barr 2009d). This review concluded that it is not clear whether elevated concentrations in some of the residential wells were caused by the Tailings Basin or reflect natural or localized background concentrations. However, the results for residential wells are similar to the results for natural background wells. That similarity suggests that the residential wells may not be impacted by the Tailings Basin.

Table 4.2.2-24 Summary of Existing Groundwater Quality Monitoring Data Downgradient from the Existing LTVSMC Tailings Basin

Parameters	Units	Groundwater Evaluation Criteria	Downgradient Wells (GW-009, GW-010, GW-014, GW-016) Surficial Aquifer			
General			**Detection**	**Mean[1]**	**Range**	**# Exceed**
Alkalinity	mg/L	--	42 of 42	286	32.9–507	NA
Ammonia as Nitrogen	mg/L	--	24 of 42	0.12	<0.025–0.36	NA
Calcium	mg/L	--	42 of 42	65.8	6.9–252	NA
Carbon, total organic	mg/L	--	42 of 42	13.5	5.4–25.5	NA
Chloride	mg/L	250	42 of 42	12.2	1.4–20.4	0
Fluoride	mg/L	2	35 of 42	0.22	<0.05–0.86	0
Hardness	mg/L	--	42 of 42	326	32.3–1,220	NA
Magnesium	mg/L	--	42 of 42	39.3	3.7–144	NA
pH	s.u.	6.5–8.5	43 of 43	7.1	6.6–7.8	**0**
Potassium	mg/L	--	42 of 42	3.9	0.99–17.2	NA
Sodium	mg/L	--	42 of 42	47.7	3.7–79.4	NA
Sulfate	mg/L	250	42 of 42	62.7	1.6–235	0
TDS	mg/L	500	38 of 38	422	97–653	**11**
Metals – Total						
Aluminum	µg/L	200	37 of 42	**11,356**	<10–134,000	**28**
Antimony	µg/L	6	3 of 42	0.37	<0.25–<2.5	0
Arsenic	µg/L	10	34 of 42	3.0	<0.25–26.6	**1**
Barium	µg/L	2,000	42 of 42	621	15.1–1930	0
Beryllium	µg/L	0.08	10 of 42	**0.45**	<0.1–5.43	BDL[2]
Boron	µg/L	1,000	36 of 42	139	<25–278	0
Cadmium	µg/L	4	10 of 42	0.35	<0.1–4.57	**1**
Chromium	µg/L	100	34 of 42	54.8	<0.5–1,000	**5**
Cobalt	µg/L	--	42 of 42	13.7	1.1–215	NA
Copper	µg/L	1,000	42 of 42	37.0	1.2–545	0
Iron	µg/L	300	42 of 42	**24,834**	729–228,000	**42**
Lead	µg/L	--	22 of 42	5.5	<0.25–78.4	NA
Manganese	µg/L	50	42 of 42	**2,044**	217–6,720	**42**
Mercury	ng/L	2,000	41 of 41	12.7	0.81–102	0
Methylmercury	ng/L	--	16 of 39	0.09	<0.015–0.51	NA
Molybdenum	µg/L	--	42 of 42	12.5	0.22–130	NA
Nickel	µg/L	100	39 of 42	39.1	<0.25–620	**3**
Selenium	µg/L	30	4 of 42	0.8	<0.5–6.49	0
Silver	µg/L	30	4 of 42	0.16	<0.1–1.05	0
Thallium	µg/L	0.6	7 of 42	0.19	<0.0085–1.15	**3**
Zinc	µg/L	2,000	19 of 42	42.8	<3–610	0
Metals – Dissolved/Filtered						
Aluminum	µg/L	200	16 of 42	29.1	<10–232	**1**
Antimony	µg/L	6	0 of 0	--	--	NA
Arsenic	µg/L	10	25 of 38	1.6	<0.25–6.2	0
Barium	µg/L	2,000	22 of 22	515	9.1–1,920	0
Beryllium	µg/L	0.08	0 of 0	--	--	NA
Boron	µg/L	1,000	23 of 26	143	<25–267	0
Cadmium	µg/L	4	3 of 42	0.12	<0.1–1.1	0
Chromium	µg/L	100	16 of 42	1.0	<0.5–2.86	0
Cobalt	µg/L	--	22 of 22	2.4	0.58–5.4	NA

Parameters	Units	Groundwater Evaluation Criteria	Downgradient Wells (GW-009, GW-010, GW-014, GW-016) Surficial Aquifer			
Copper	µg/L	1,000	42 of 42	2.9	0.52–20.7	0
Iron	µg/L	300	35 of 36	**7,132**	<25–14,800	**33**
Lead	µg/L	--	0 of 22	0.25	<0.25–<0.25	NA
Manganese	µg/L	50	38 of 38	1,624	17.3–3,910	37
Molybdenum	µg/L	--	42 of 42	9.2	0.24–59	NA
Nickel	µg/L	100	40 of 42	3.3	<0.25–11.2	0
Selenium	µg/L	30	1 of 42	0.5	<0.5–<0.5	0
Silver	µg/L	30	0 of 42	0.1	<0.1–<0.1	0
Thallium	µg/L	0.6	0 of 0	--	--	NA
Zinc	µg/L	2,000	15 of 42	6.3	<3–37.2	0

Source: Barr 2014d; Barr 2009d.

Notes:
< less than indicated reporting limit.
Bold (e.g., **0.014**) indicates exceeds evaluation criteria.
[1] Where non-detects occur, the mean was calculated using half the detection limit.
[2] Below detection limit. Detection limit is greater than water quality standard.

Table 4.2.2-25 Summary of Groundwater Quality of Residential Wells Downgradient from the Existing LTVSMC Tailings Basin

Parameters	Units	Groundwater Evaluation Criteria	Downgradient Residential Wells Bedrock and Surficial Aquifers			
General			**Detection**	**Mean[1]**	**Range**	**# Exceed**
Alkalinity	mg/L	--	--	--	--	NA
Ammonia as Nitrogen	mg/L	--	--	--	--	NA
Calcium	mg/L	--	15 of 15	25	11.7–51.4	NA
Carbon, total organic	mg/L	--	--	--	--	NA
Chloride	mg/L	250	14 of 15	4.2	<0.5–12.5	0
Fluoride	mg/L	2	11 of 15	0.2	<0.1–0.6	0
Hardness	mg/L	--	--	--	--	NA
Magnesium	mg/L	--	--	--	--	NA
pH	s.u.	6.5–8.5	15 of 15	6.9	5.7–7.9	**4**
Potassium	mg/L	--	--	--	--	NA
Sodium	mg/L	--	--	--	--	NA
Sulfate	mg/L	250	11 of 15	6.1	<1–20.9	0
TDS	mg/L	500	15 of 15	125	83–243	0
Metals – Total						
Aluminum	µg/L	200	2 of 15	30.2	<25–83	**1**
Antimony	µg/L	6	0 of 15	<0.5	<0.5	0
Arsenic	µg/L	10	3 of 15	2.8	<2–7.5	0
Barium	µg/L	2,000	--	--	--	--
Beryllium	µg/L	0.08	--	--	--	--
Boron	µg/L	1,000	3 of 15	79	<50–459	0
Cadmium	µg/L	4	--	--	--	--
Chromium	µg/L	100	--	--	--	--
Cobalt	µg/L	--	--	--	--	--
Copper	µg/L	1,000	13 of 14	38	<0.7–155	0
Iron	µg/L	300	--	--	--	--

Parameters	Units	Groundwater Evaluation Criteria	Downgradient Residential Wells Bedrock and Surficial Aquifers			
Lead	µg/L	--	--	--	--	--
Manganese	µg/L	50	15 of 15	**579**	0.66–4,710	**7**
Mercury	ng/L	2,000	--	--	--	--
Methylmercury	ng/L	--	--	--	--	--
Molybdenum	µg/L	--	12 of 15	0.6	0.2–2.8	--
Nickel	µg/L	100	14 of 15	1.9	<0.6–5.5	0
Selenium	µg/L	30	--	--	--	--
Silver	µg/L	30	--	--	--	--
Thallium	µg/L	0.6	--	--	--	--
Zinc	µg/L	2,000	--	--	--	--
Metals – Dissolved/Filtered						
Aluminum	µg/L	200	2 of 15	28	<25–71	1
Arsenic	µg/L	10	3 of 15	2.7	<2–7.5	0
Barium	µg/L	2,000	--	--	--	--
Boron	µg/L	1,000	3 of 15	80	<50–461	0
Cadmium	µg/L	4	--	--	--	--
Chromium	µg/L	100	--	--	--	--
Cobalt	µg/L	--	--	--	--	--
Copper	µg/L	1,000	14 of 15	19.3	<0.7–64.5	0
Iron	µg/L	300	--	--	--	--
Lead	µg/L	--	--	--	--	--
Manganese	µg/L	50	15 of 15	579	0.63–4,850	7
Molybdenum	µg/L	--	--	--	--	--
Nickel	µg/L	100	12 of 15	1.6	<0.6–5	0
Selenium	µg/L	30	--	--	--	--
Silver	µg/L	30	--	--	--	--
Zinc	µg/L	2,000	--	--	--	--

Source: Barr 2009d.

Notes:
< less than indicated reporting limit.
Bold (e.g., **0.014**) indicates exceeds evaluation criteria.
[1] Where non-detects occur, the mean was calculated using half the detection limit.

Legacy Groundwater Quality Issues

In 2002, Cliffs Erie commissioned a Phase I ESA of the former LTVSMC property and improvements (NTS 2002). This study identified 62 potential AOCs. Designation as an AOC does not necessarily mean that contamination occurred in the past or is currently present, but simply that these are areas requiring further investigation. The AOCs are discussed further in Section 4.2.1.

In May 2009, Cliffs Erie conducted a detailed assessment of both surface and groundwater quality at the existing LTVSMC Tailings Basin that included testing for VOCs, SVOCs, PCBs, and other parameters to determine if there was any organic contamination that could be transported off-site via stormwater runoff or groundwater seepage. The laboratory analyses showed no evidence of organic contamination leaving the site (Cliffs Erie 2009). The investigations conducted to date and the results of laboratory analyses (which include sampling at seven monitoring wells, 14 surface discharges, 12 internal waste streams, and six downstream surface water monitoring stations, and visual observation and limited field analyses at 33 seeps at

or near the existing LTVSMC Tailings Basin) indicate that these pollutants, if present on site, have not migrated off site.

As noted above, groundwater quality monitoring at several wells completed in the surficial deposits at or near the toe of the Tailings Basin found elevated aluminum, iron, and manganese concentrations, similar to the baseline wells (see Table 4.2.2-23), but also exhibited elevated sulfate, fluoride, molybdenum, and TDS concentrations relative to the baseline wells (see Table 4.2.2-22). Considering these results, NTS (2009) concluded that groundwater had been impacted by the Tailings Basin. NTS noted, however, that there did not appear to be an overall trend, either increasing or decreasing, in the concentration of the monitored constituents.

Baseline Groundwater Quality in the Bedrock

No bedrock groundwater samples have been collected from the Plant Site/Tailings Basin area. Although some of the residential wells are drilled into bedrock, the well completion records indicate that these wells were not constructed as monitoring wells to separate the bedrock groundwater from the surficial aquifer. Siegel and Ericson (1980) report that iron and manganese concentrations of up to 500 µg/L are common in the Giants Range batholith.

Groundwater Use

There are 38 known residential wells between the Tailings Basin and the Embarrass River (see Table 4.2.2-26), with the closest located approximately 1 miles from the toe of Cell 2E (see Figure 4.2.2-18). Characteristics of the wells are presented in Table 4.2.2-25. Table 4.2.2-26 and Figure 4.2.2-18 shows the locations of all the identified wells and which of those wells were sampled. Analytical results for groundwater samples collected from these 15 residential wells are summarized in Table 4.2.2-25.

Table 4.2.2-26 Existing Residential Wells Located Between the NorthMet Project Proposed Action Tailings Area and the Embarrass River

Unique Well No.	Direction From Site	Surface Elev. (ft)	Depth (ft)	Depth Cased (ft)	GWL (ft bgs)	Casing Diameter (in)	Aquifer
174550	NE	1,445	60	50	8	7	Bedrock
683838	NE	1,440	202	202	--	6	Bedrock
771087	NE	1,487	45	22	10	6	Bedrock
555048(1)	NNE	1,459	45	29	--	6	Bedrock
555023	NNE	1,459	100	19	--	6	Bedrock
620123	NNE	1,458	65	18	8.2	6	Bedrock
779752	NE	1,473	203	28	--	6	Bedrock
716183	NNE	1,473	325	29	20.5	6	Bedrock
563293(1)	N	1,459	325	18	--	6	Bedrock
658445(2)	N	1,432	83	81	2	6	Bedrock
144818	N	1,467	45	28	--	6	Bedrock
735554(1)	N	1,476	205	31	14	6	Bedrock
584595	N	1,468	30	30	8.3	6	Alluvium
701452	N	1,447	125	40	8	6	Bedrock

Unique Well No.	Direction From Site	Surface Elev. (ft)	Depth (ft)	Depth Cased (ft)	GWL (ft bgs)	Casing Diameter (in)	Aquifer
668955	N	1,460	50	50	15.3	6	Alluvium
447031	N	1,451	86	86	15	6	Alluvium
773694	N	1,462	43	22	9	6	Bedrock
762811	NW	1,451	85	72	19	6	Bedrock
576439[(1)]	NNW	1,447	80	80	7.7	6	Alluvium
718806	NW	1,456	44	44	--	6	Alluvium
529149	NNW	1,463	42	42	22	6	Alluvium
620143[(1)]	NNW	1,465	61	61	34.4	6	Alluvium
187853[(1)]	NNW	1,465	90	90	--	6	Alluvium
477836	NNW	1,450	81	80.5	17	6	Alluvium
189325	NW	1,427	97	97	7	6	Alluvium
151880[(1)]	NW	1,433	103	96	--	6	Bedrock
476480	NW	1,441	63	63	8	6	Alluvium
169958	NW	1,446	223	33	23	6	Bedrock
519773	NW	1,417	42	42	5	6	Alluvium
411142	NW	1,445	229	34	35	6	Bedrock
409338	NW	1,429	43	43	25	6	Alluvium
572971[(1,2)]	N	1,450	325	20	9	6	Bedrock
--[1,3]	--	--	--	--	--	--	Alluvium
--[1,3]	--	--	28	--	--	--	Alluvium
--[1,3]	--	--	16	--	--	--	Alluvium
--[1,3]	--	--	93	--	--	--	Alluvium
--[1,3]	--	--	200	--	--	--	Bedrock
--[1,3]	--	--	--	--	--	--	Alluvium

Sources: MDH 2015; Barr 2009d; Barr 2015a.

Note:
GWL = groundwater level

[1] Sampled by PolyMet in Barr 2009d, Table 2.
[3] Residential well north of Embarrass River
[3] There is no existing unique well number for this sampled well.

4.2.2.4.2 Surface Water Resources

This section describes the existing surface water resources in the Embarrass River Watershed that could be affected by the NorthMet Project Proposed Action. These resources include the Embarrass River, several small streams draining the Tailings Basin that are tributaries of the Embarrass River (i.e., Mud Lake Creek, Trimble Creek, and Unnamed Creek—see Figure 4.2.2-4), and the Embarrass River chain of lakes. Note that Mud Lake Creek is an unofficial name given the Unnamed Creek that flows north from the northeast corner of the Tailings Basin. It was given this name for the EIS because of Mud Lake near the headwaters of the stream, and to distinguish it from the other Unnamed Creek that flows northwest from the northwest corner of the Tailing Basin. It is referred to as Mud Lake Creek throughout the FEIS.

Since publication of the DEIS, additional surface water quality data has been collected at many locations within the Embarrass River Watershed. These new data have been summarized below to better describe existing conditions. The surface water hydrology of the Embarrass River and its tributaries was not evaluated using the XP-SWMM model. Rather, it was estimated using a spreadsheet model that extrapolates flows from a USGS gaging station on a catchment area basis.

Embarrass River

This section describes the baseline surface water hydrology and water quality of the mainstem of the Upper Embarrass River, several streams that receive drainage from the Tailings Basin and are tributaries of the Embarrass River, and the Lower Embarrass River as it flows through an area referred to as the chain of lakes.

Embarrass River Hydrology

The Embarrass River originates just south of the City of Babbitt and flows southwest approximately 23 miles to its confluence with the St. Louis River, draining 171 square miles as measured at McKinley, near the confluence with the St. Louis River. The Embarrass River Watershed is dominated by upland forests (44 percent), lowland forest and aquatic environments (23 percent), crop/grassland (8 percent), and scrub/shrub (21 percent), with little development (4 percent). Most of the Tailings Basin seepage drains to the Embarrass River via three tributary streams.

There were two USGS gaging stations located within the Embarrass River Watershed (#04017000 located about three miles northwest of the Tailings Basin and #04018000 located about 7 miles southwest of the Tailings Basin). Table 4.2.2-27 provides flow data for the nearest gaging station at the Embarrass River Watershed (Station #04017000; see Figure 4.2.2-19 for location).

Table 4.2.2-27 Monthly Statistical Flow Data for USGS Embarrass Gaging Stations

Station:	04017000 Embarrass River at Embarrass		
Period of Record:	1942–1964		
Drainage Area:	88.3 mi^2		
Month	**Monthly Average (cfs)**	**Daily Minimum (cfs)**	**Daily Maximum (cfs)**
October	46	2.6	453
November	33	4.9	166
December	14	3.4	50
January	6.7	0.90	22
February	5.0	0.90	14
March	22	1.4	774
April	190	2.6	1,490
May	194	21	1,720
June	114	5.2	1,090
July	63	3.6	790
August	31	1.8	284
September	50	2.2	789

Source: Siegel and Ericson 2008.

Flow characteristics for different reaches of the Embarrass River and selected tributaries were estimated by extrapolating flows from USGS gaging station 04017000 (located just downstream of PM-12.3) on a catchment area basis. A summary of the flow results for different stations on Embarrass River, Mud Lake Creek, Trimble Creek, and Unnamed Creek is provided in Table 4.2.2-28. Flow contributed by the Tailings Basin seepage is separated from the flows derived using the unit-area basis in the table to provide greater clarity of water origins. Tailings Basin flows presented in the last column of Table 4.2.2-28 can be added to the annual flow characteristics presented in the table to determine the appropriate flow volume.

Table 4.2.2-28 Plant Site Surface Water Flows for Existing Conditions Based on Embarrass River Stream Gaging Results Applied to Contributing Watersheds and Additional Flow Tailings Basin Seepage and Flowpath Discharge

Stream	Embarrass River or Tributary Surface Water Station	Existing Watershed Area Excluding Tailings Basin Footprint (mi^2)	Estimated Groundwater Baseflow (cfs)	Annual 7-Day Minimum Flow with 10-year Return Period[1] (cfs)	Annual 1-Day Minimum Flow[1,2] (cfs)	Annual Daily Mean Flow[1,2] (cfs)	Annual 1-day Maximum Flow[1,2] (cfs)	Annual 1-day Maximum Flow with 10-year Return Period[1] (cfs)	Additional Flow to Station from Tailings Basin Seepage (cfs)
Embarrass River	PM-12	19.0	0.86	0.4	0.74	13.8	145	259	0.00
	PM-12.2	34.2	1.55	0.7	1.34	24.9	261	467	0.00
	PM-12.3	83.0	3.76	1.79	3.24	60.5	633	1,135	4.41
	PM-12.4	94.4	4.27	2.07	3.69	68.8	720	1,290	4.43
	PM-13[(3)]	107	4.83	2.33	4.17	77.8	814	1,457	5.77[4]
Mud Lake Creek	MLC-3	1.40	0.06	0.07	0.05	1.02	10.7	19.2	0.83
	MLC-2	3.57	0.16	0.07	0.14	2.60	27.2	49.1	0.93
Trimble Creek	TC-1	2.18	0.10	0.04	0.09	1.59	16.6	29.6	3.36
	PM-19	3.94	0.18	0.12	0.15	2.87	30.1	53.5	3.48
Unnamed Creek	UC-1a	2.29	0.10	0.09	0.09	1.67	17.5	30.9	1.11
	PM-11	3.37	0.15	0.09	0.13	2.46	25.7	45.9	1.11

Source: Barr 2015i.

Notes:
1 Based on USGS record applied to watershed area, flow from the tailings basin (last column) is in addition to the flow values presented.
2 Long-term average.
3 Values differ from those in Table 4-5 of the Plant Site Water Modeling Data Package (PolyMet 2015j), which were based on the historical drainage area of 88.3 mi^2.
4 5.77 cfs (2,590 gpm) is the estimated total seepage from the Tailings Basin.

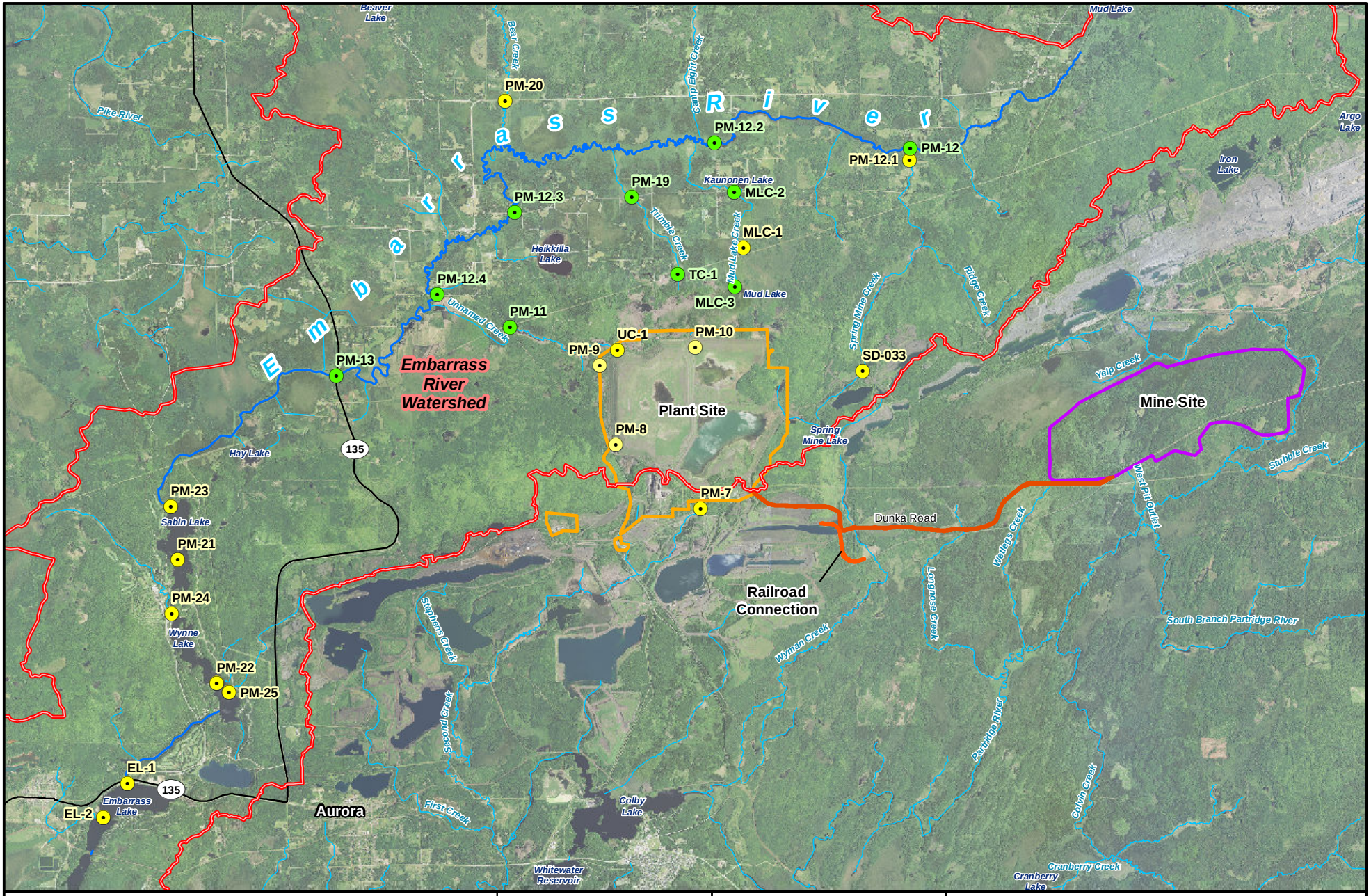

Figure 4.2.2-19
Surface Water Monitoring and Modeling Locations within the Embarrass River Watershed
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Overflow and seepage from several former mining facilities, including the Area 5 NW Pit upstream of the Tailings Basin, contribute to the flow farther downstream in the Embarrass River, as shown in Table 4.2.2-29 and Figure 4.2.2-11. Based on measurements between 2012 and 2014, an average of approximately 1.2 cfs overflows from Pit 5NW to Spring Mine Creek where it flows north about 5 miles before joining the Embarrass River just downstream of monitoring station PM-12 (see Figure 4.2.2-1).

Table 4.2.2-29 NPDES/SDS Discharges to the Embarrass River Watershed

NPDES/SDS Permit Number	Permit Number	Outfalls ID	Outfall Description	Receiving Waters	Flow (cfs) Avg.[1]	Flow (cfs) Max.
Mesabi Mining LLC	MN0069078	SD-022	Pit 9 Dewatering Pipe	Wynne Lake	0 0	0.0
Cliffs Erie LLC	MN0042536	SD-033	Pit 5NW overflow	Spring Mine Creek	1.2	--
Mesabi Mining LLC	MN0069078	SD-004	Pit 1 dewatering discharge	Wynne Lake	0.0	0.0
Cliffs Erie LLC	MN0054089	SD-001	NW seepage collection ditch	Unnamed creek	--	--
		SD-002	NE seepage collection ditch	Trimble Creek	--	--
		SD-004	Tailings Basin Cell 2W Seep A	Unnamed creek	0.28	3.00
		SD-005	Tailings Basin Cell 2W Seep B	Kaunonen Creek	--	0.46
		SD-006	Power line access road culvert	Unnamed creek	5.0	6.2

Sources: MPCA 2012a; 2012j; 2012l; 2013a; 2013h; 2013j; 2013k; 2014d; 2014e; 2014f.

Note:
[1] Average flow when discharging. Many of these discharges only occur intermittently and may be currently inactive.

There are no large surface water withdrawals or water appropriation permits issued for the Embarrass River in the NorthMet Project area. The headwaters of the Embarrass River Watershed include a portion of the City of Babbitt, but are otherwise relatively undeveloped and unaffected by any mining. The City of Babbitt WWTP has an annual average discharge of approximately 0.33 cfs to the headwaters (PolyMet 2015j).

Embarrass River Water Quality

As indicated in Table 4.2.2-30, PolyMet collected water quality data from five locations that can be used to establish baseline water quality along the Embarrass River. Samples from two primary locations, PM-12 and PM-13, were subject to evaluation for all water quality parameters, while samples from locations PM-12.2, PM-12.3, and PM-12.4 were analyzed for a more limited set of parameters. The locations of the monitoring stations are shown in Figure 4.2.2-19. Table 4.2.2-32 summarizes the water quality data for the five Embarrass River sites sampled by PolyMet between 2004 and 2013. Average parameter concentrations above evaluation criteria were observed for aluminum at PM-12.3 and PM-13, for sulfate at PM-13 (where the 10 mg/L wild rice sulfate standard is applicable), and for mercury at PM-12 and PM-13.

Table 4.2.2-30 Available Surface Water Quality Monitoring Data in the Embarrass River Main Branch (see Figure 4.2.2-1)

Sample Location	Source	Sampling Period
Mainstem Embarrass River		
PM-12[1]	PolyMet / C-N Study / Cliffs Erie	1976, 2001–2013
CN120	USGS/C-N Study	1955–1963, 1976–1977
PM-12.2	PolyMet	2010–2013
PM-12.3	PolyMet	2010–2013
PM-12.4	PolyMet	2010–2013
PM-13	PolyMet / Cliffs Erie	2001–2013

Sources: Barr 2007h; Barr 2014d.

Notes:
C-N Study – Regional Copper-Nickel Study (Siegel and Ericson 1980)
[1] Monitoring station formally designated as CN121.

The Regional Copper-Nickel Study (Siegel and Ericson 1980) considered monitoring station PM-12 (formally designated as CN121) as representative of "undisturbed" conditions. Under current assumed conditions, this monitoring station receives stormwater runoff and WWTP discharges (0.33 cfs of predominantly domestic wastewater) from the City of Babbitt, but is otherwise unaffected by mining or other significant development (PolyMet 2015j). Table 4.2.2-31 compares 1976 data from the Regional Copper-Nickel Study with recent data from PolyMet for monitoring station PM-12. These data show that mean water quality at this monitoring station currently meets surface water quality standards for the parameters monitored. Most of the measured parameters exhibit relatively little changes over the 30-year period, although concentrations of several constituents (notably iron, manganese, and zinc) have increased, while concentrations of aluminum and cobalt appear to be decreasing slightly.

Table 4.2.2-31 Comparison of Historic and Recent Mean Water Quality Data for Selected Parameters at PM-12 on the Embarrass River

General Parameter	Units	Evaluation Criteria	1976	2004–2013[1]
Hardness	mg/L	500	50[4]	60.4
pH	s.u.	6.5–8.5	6.9	6.9
Sulfate	mg/L	--[2]	6.1	7.2
Metals – Total				
Aluminum	µg/L	125	**127**	99.8
Arsenic	µg/L	53	0.9	1.6
Cobalt	µg/L	5	2.3[4]	1.0
Copper	µg/L	5.2[3]	0.9[4]	1.1
Iron	µg/L	--	1,121	4,151
Lead	µg/L	1.3[3]	0.2	0.26
Manganese	µg/L	--	234	429
Nickel	µg/L	29[3]	1.0[4]	1.4
Zinc	µg/L	67[3]	1.1[4]	9.5

Sources: Siegel and Ericson 1980; Barr 2007i for 1976 data; Barr 2014d for 2004–2013 data.

Notes:
1 Includes non-detects at half the detection limit.
2 Sulfate standard of 10 mg/L applies to designated waters supporting the production of wild rice.
3 Water quality standard for this metal is hardness-dependent. Listed value assumes a hardness concentration of 50 mg/L.
4 Based on fewer than five samples.

Samples of limited water quality data collected at PM-12.2, PM-12.3, and PM-12.4 between 2010 and 2013 allow the identification of progressive trends for major anions and some metals between PM-12 and PM-13 along the mainstem of the Embarrass River. Chloride appeared relatively constant with location, varying from an average of 4.7 mg/L at PM-12 to 5.0 mg/L at PM-12.4 and 5.8 mg/L at PM-13. pH also appeared relatively constant, from an average of 6.9 at PM-12 to 7.3 at PM-12.4 and 7.4 at PM-13. Sulfate, however, varied substantially, increasing from an average of 7.2 mg/L at PM-12 to 131 mg/L at PM-12.2, and then decreasing to an average of 39.4 mg/L at PM-13, indicating introduction of a significant source of sulfate followed by either dilution or a process that sequesters sulfate in the Embarrass River and the surrounding wetlands.

The increase in sulfate concentrations between PM-12 and PM-12.2 can be attributed to sulfate loading from Spring Mine Creek, which flows into the Embarrass River immediately downstream from PM-12. Limited water quality data were collected at PM-12.1 on Spring Mine Creek, which receives drainage from former LTVSMC Pit 5NW (see Figure 4.2.2-1). These data are summarized in Table 4.2.2-32 alongside the Embarrass River mainstem sites. Pit 5NW is completely flooded and has been overflowing since before 2001, with an annual average flow of about 1.5 cfs to Spring Mine Creek, which discharges into the Embarrass River. This discharge has sulfate concentrations that average 1,060 mg/L (PolyMet 2015j), as measured at the Pit 5NW outflow. Sulfate concentrations at PM-12.1 averaged 388 mg/L and ranged as high as 944 mg/L, indicating that the Pit 5NW outflow via Spring Mine Creek provides a significant source of sulfate loading to Embarrass River, which accounts for the increase in sulfate concentrations between PM-12 and PM-12.2. As noted in Table 4.2.2-2, Spring Mine Creek from Ridge Creek to Embarrass River was listed by the MPCA as impaired for aquatic macroinvertebrates and fish

while the Embarrass River Watershed from the headwaters to Embarrass Lake was listed as impaired for fish.

Sulfate and chloride loading data were collected concurrently with water quality data in Spring Mine Creek and the Embarrass River in 2010 and 2011, and were consistent with the observations discussed above (see Figures 4.2.2-20 and 4.2.2-21). Sulfate loading increased from an average of 10.2 kg/day at PM-12 to an average of 932 kg/day at PM-12.2, due to sulfate loading contributed from Pit 5NW via Spring Mine Creek (average sulfate load of 1142 kg/day measured at PM-12.1). Between PM-12.2 and PM-13, the average sulfate load decreased by approximately 70 kg/day, even though there is approximately 3,120 kg/day currently leaving the Tailings Basin towards the Embarrass River (the sum of loads leaving the northern, northwestern, and western toes of the Tailings Basin; PolyMet 2015j). Meanwhile, the calculated load of chloride (Figure 4.2.2-21), a parameter which serves as a tracer for Tailings Basin seepage, increased in the downstream direction along the Embarrass River, indicating that the Tailings Basin seepage is reaching the Embarrass River. Consequently, the decrease in sulfate loading between PM-12 and PM-12.2, and between the Tailings Basin and the Embarrass River, is attributable to some natural process such as biological sulfate reduction that can be sequestering sulfate in the wetlands and tributaries between the Tailings Basin and the Embarrass River.

Flows from groundwater and surface seepage from the existing LTVSMC Tailings Basin reach the Embarrass River via several small tributaries including Mud Lake Creek and Trimble Creek, which enter upstream of station PM-12.3, and Unnamed Creek, which enters upstream of station PM-13 (see Figure 4.2.2-1). These tributaries are described in more detail below. There are also extensive wetlands on the northern, northwestern, and western sides of the LTVSMC Tailings Basin. While much of the wetlands water likely flows into the tributaries, other flows may diffusely reach the Embarrass River by means of the system of wetlands.

The effects of Pit 5NW, the existing LTVSMC Tailings Basin, and groundwater seepage and surface runoff from elsewhere within the watershed are reflected in the water quality at station PM-13, which is located downstream of these and all NorthMet Project area sources of pollution within the Embarrass River Watershed (see Table 4.2.2-29). Since PM-13 is downstream of all Tailings Basin seepage, it was used to evaluate NorthMet Project Proposed Action effects on flow and water quality in the Embarrass River in Section 5.2.2.

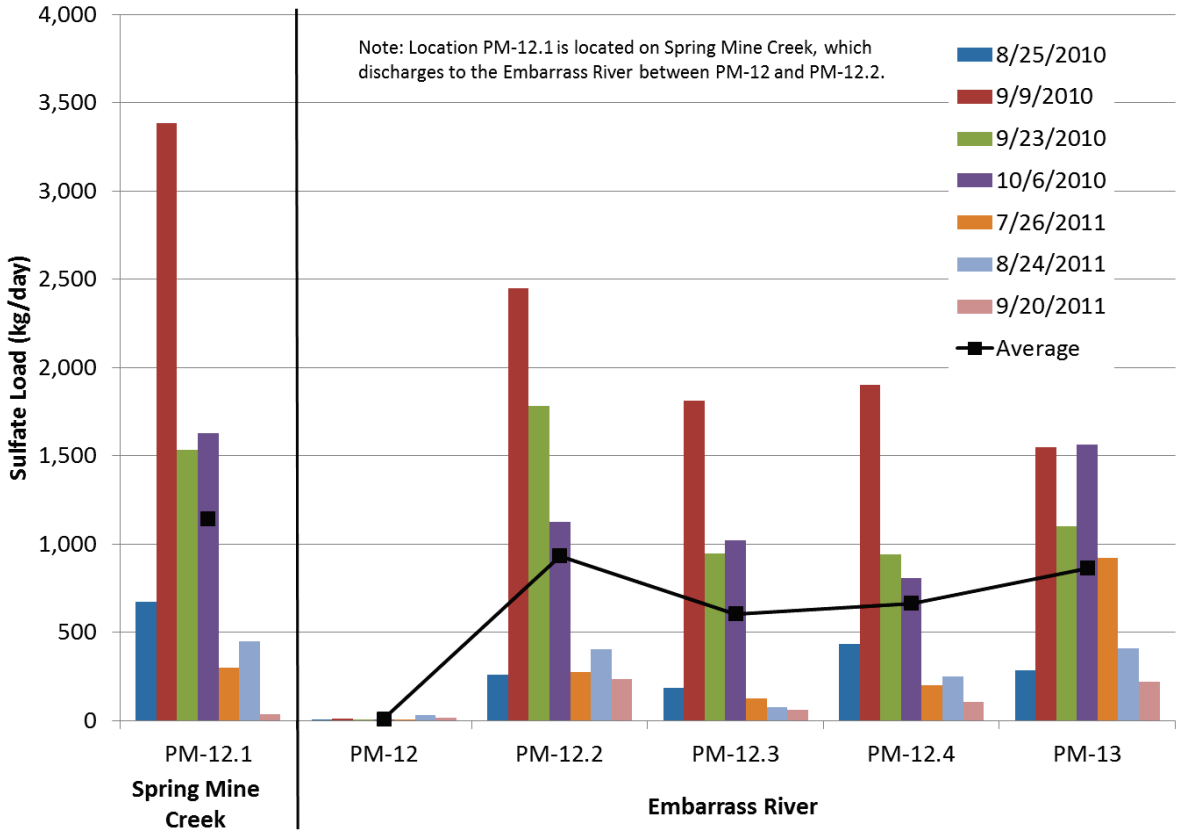

Source: Adapted from PolyMet 2015j.

Figure 4.2.2-20 Sulfate Load Calculated in Spring Mine Creek and the Embarrass River (2010-2011)

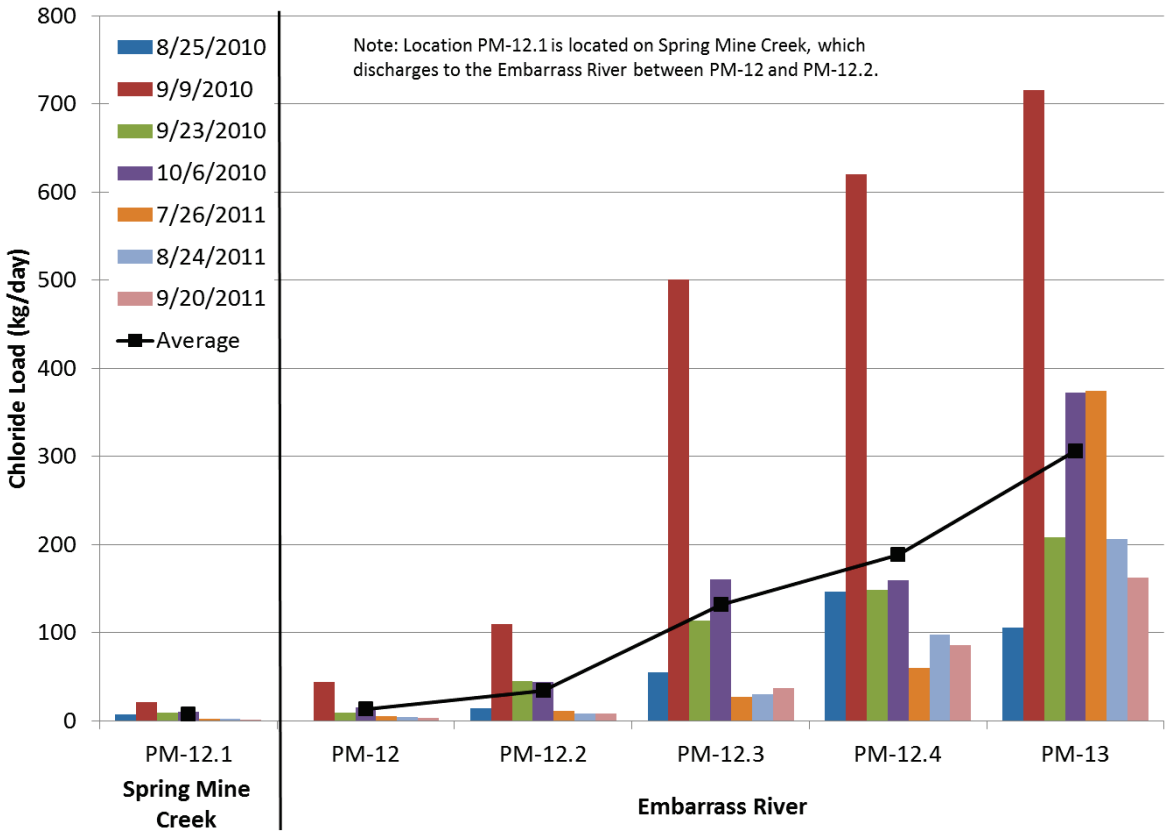

Source: Adapted from PolyMet 2015j.

Figure 4.2.2-21 Chloride Load Calculated in Spring Mine Creek and the Embarrass River (2010-2011)

Table 4.2.2-32 Average Existing Water Quality in the Embarrass River, 2004-2013[1]

Parameter	Units	Evaluation Criteria	Spring Mine Creek			Embarrass River														
			PM-12.1			PM-12			PM-12.2			PM-12.3			PM-12.4			PM-13		
			Detection	Mean	Range	Detection	Mean	Range	Detection	Mean	Range	Detection	Mean	Range	Detection	Mean	Range	Detection	Mean	Range
General																				
Alkalinity	mg/L	--	2 of 2	140	120–159	33 of 33	50.2	15.2–152	--	--	--	--	--	--	--	--	--	31 of 31	90.5	26.0–197
Calcium	mg/L	--	2 of 2	36.3	33.0–39.6	46 of 46	13.8	4.1–29.3	--	--	--	--	--	--	--	--	--	44 of 44	21.7	7.0–44.7
Chloride	mg/L	230	29 of 29	2.5	0.62–4.9	61 of 61	4.7	1.3–22.3	27 of 27	3.4	1.3–10.3	27 of 27	4.7	1.5–11.2	27 of 27	5.0	1.6–13.0	59 of 59	5.8[2]	2.0–94.8
Fluoride	mg/L	--	0 of 0	--	--	11 of 21	0.10	<0.05–0.20	--	--	--	--	--	--	--	--	--	18 of 21	0.37	<0.05–2.3
Hardness	mg/L	500	2 of 2	380	330–429	46 of 46	60.4	17.8–171	--	--	--	--	--	--	--	--	--	44 of 44	129	35.6–337
Magnesium	mg/L	--	2 of 2	70.2	60.2–80.1	46 of 46	6.4	1.9–27.3	--	--	--	--	--	--	--	--	--	44 of 44	18.3	6.1–54.7
pH	s.u.	6.5-8.5	28 of 28	7.5	6.7–**8.6**	61 of 61	6.9	**5.8**–7.9	25 of 25	7.0	**6.1**–8.1	26 of 26	7.2	**6.3**–7.9	26 of 26	7.3	**6.4**–8.2	59 of 59	7.4	**6.3–8.6**
Potassium	mg/L	--	2 of 2	15.3	12.7–17.8	13 of 15	1.1	<0.25–4.0	1 of 1	7.4	7.4–7.4	--	--	--	--	--	--	13 of 13	2.8	1.5–7.4
Sodium	mg/L	--	2 of 2	27.7	23.0–32.4	17 of 17	3.6	2.2–9.0	--	--	--	--	--	--	--	--	--	15 of 15	13.0	5.2–29.8
Sulfate	mg/L	10[4]	29 of 29	388	81.6–944	48 of 65	7.2	<0.5–116	27 of 27	131	30.4–490	27 of 27	50.2	5.6–221	27 of 27	42.8	5.7–181	64 of 64	**39.4**[3]	7.6–**688**[6]
TDS	mg/L	700	2 of 2	521	490–551	46 of 46	130	46.0–258	--	--	--	--	--	--	--	--	--	44 of 44	210	48.0–494
Metals																				
Aluminum	µg/L	125	20 of 23	57.4	<10–**210**	40 of 40	99.8	44.3–**210**	22 of 23	80.2	<10–**174**	23 of 23	**130**	26.8–**433**	22 of 23	122	<12.5–**349**	40 of 40	**188**	43.9–**505**
Antimony	µg/L	31	0 of 1	0.25	<0.25–<0.25	0 of 19	0.51	<0.25–<1.5	--	--	--	--	--	--	--	--	--	0 of 18	0.53	<0.25–<1.5
Arsenic	µg/L	53	0 of 2	0.38	<0.25–<0.5	19 of 25	1.6	<0.25–<5	--	--	--	--	--	--	--	--	--	17 of 23	1.2	<0.25–2.5
Barium	µg/L	--	2 of 2	19.5	18.5–20.4	11 of 15	19.0	<5–55.9	--	--	--	--	--	--	--	--	--	13 of 13	34.7	14.3–57.5
Beryllium	µg/L	--	0 of 2	0.10	<0.1–<0.1	0 of 12	0.10	<0.1–<0.1	--	--	--	--	--	--	--	--	--	0 of 10	0.10	<0.1–<0.1
Boron	µg/L	500	1 of 2	37.7	<25–50.4	0 of 13	24.0	<17.5–<50	--	--	--	--	--	--	--	--	--	3 of 10	32.7	<17.5–68.9
Cadmium	µg/L	2.5[5]	0 of 2	0.055	<0.01–<0.1	1 of 15	0.094	<0.01–<0.1	--	--	--	--	--	--	--	--	--	1 of 13	0.10	<0.1–<0.1
Cobalt	µg/L	5	0 of 2	0.10	<0.1–<0.1	23 of 44	1.0	<0.1–4.1	--	--	--	--	--	--	--	--	--	21 of 42	0.46	<0.1–0.89
Copper	µg/L	9.3[5]	1 of 2	0.61	<0.35–0.86	39 of 46	1.1	<0.25–2.8	--	--	--	--	--	--	--	--	--	40 of 44	1.4	<0.35–<2.5
Iron	µg/L	--	21 of 21	308	172–749	28 of 28	4,151	1.7–11,200	19 of 19	2,183	642–4,450	19 of 19	2,522	999–6,620	19 of 19	2,253	1,020–5,790	26 of 26	2,109	2.1–5,610
Lead	µg/L	3.2[5]	1 of 2	0.15	<0.25–<0.25	4 of 33	0.26	<0.15–<0.5	--	--	--	--	--	--	--	--	--	3 of 31	0.28	<0.15–0.63
Manganese	µg/L	--	21 of 21	225	76.9–669	31 of 31	429	15.0–1,490	19 of 19	627	78.9–1,440	19 of 19	569	43.3–1,660	19 of 19	406	53.7–1,050	28 of 29	279	<0.25–757
Mercury	ng/L	1.3	24 of 30	--**4.8**	--<1.0 to 9.	28 of 34	**5.1**	<1 to <10										23 of 35	**4.3**	**<1 to 12.4**
Methylmercury	ng/L	--	0 of 0	--	--	13 of 13	0.53	0.12–1.3	--	--	--	--	--	--	--	--	--	13 of 13	0.38	0.074–1.1
Nickel	µg/L	52[5]	2 of 2	1.2	0.88–1.4	41 of 46	1.4	<0.25–2.8	--	--	--	--	--	--	--	--	--	37 of 44	1.5	<0.25–2.7
Selenium	µg/L	5	1 of 1	0.10	0.096–0.096	1 of 29	0.87	<0.5–<5	--	--	--	--	--	--	--	--	--	0 of 28	0.76	<0.5–<1.8
Silver	µg/L	1.0[5]	0 of 2	0.10	<0.1–<0.1	0 of 17	0.20	<0.1–<0.5	--	--	--	--	--	--	--	--	--	0 of 15	0.21	<0.1–<0.5
Thallium	µg/L	0.56	0 of 2	0.10	<0.1–<0.1	7 of 28	0.19	<0.0002–<1	--	--	--	--	--	--	--	--	--	6 of 26	0.20	<0.0002–<1
Vanadium	µg/L	--	0 of 0	--	--	0 of 6	1.5	<1.5–<1.5	--	--	--	--	--	--	--	--	--	0 of 6	1.5	<1.5–<1.5
Zinc	µg/L	120[5]	0 of 2	3.0	<3–<3	11 of 46	9.5	<3–104	--	--	--	--	--	--	--	--	--	7 of 44	7.9	<3–51.2

Source: Barr 2014d.

Notes:
Values in bold indicates an exceedance of surface water quality standards.
1 2010 data not collected for all parameters. Includes non-detects at half the detection limit.
2 Excludes 94.8 mg/L value from November 8, 2006.
3 Excludes 688 mg/L value from November 8, 2006.
4 The MPCA staff have previously recommended the waters within and downstream from Embarrass Lake, the northernmost tip of Wynne Lake, and the segment of the Embarrass River from Sabin Lake to the Highway 135 bridge as waters used for the production of wild rice, so the 10 mg/L sulfate standard is only applicable to that portion of the Embarrass River (PM-13).
5 Water quality standard for this metal is hardness-dependent. Listed value assumes a concentration of 100 mg/L.
6 Omitting one anomalously high (688 mg/L) value, the concentration range is 7.6 to 173 mg/L.

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Embarrass River Tributary Streams

There are several tributaries to the Embarrass River that also serve as receiving waters for seepage from the existing LTVSMC Tailings Basin, including Mud Lake Creek, Trimble Creek, and Unnamed Creek. This Tailing Basin seepage occurs from both observable surface water seeps and diffuse surface water and groundwater seepage.

The existing LTVSMC Tailings Basin, proposed for tailings deposition by PolyMet, was operated from 1953 until it was shut down in January 2001. The Tailings Basin is unlined and the perimeter embankments do not have a clay core or cutoff, which allows for both surface seepage through the embankment and groundwater seepage under the embankment.

Most of the uncontrolled groundwater and surface water seepage from the existing LTVSMC Tailings Basin ultimately reaches the Embarrass River between monitoring stations PM-12 and PM-13. Table 4.2.2-33 identifies the observable Tailings Basin seeps and the flow range for the period from 2005 to 2014 for the 33 LTVSMC seeps shown in Figure 4.2.2-13 (Barr 2007f), but most of the existing Tailings Basin seepage is diffuse and not associated with these observed seeps.

As the flow monitoring shows, flow at most of these identified surface seeps has declined or stopped since tailings disposal was discontinued in 2001. Only Seep 30, which drains to wetlands north of the Tailings Basin in the Embarrass River Watershed, and Seeps 32/33, which drain to Second Creek in the Partridge River Watershed, still have flow greater than 10 gpm (Table 4.2.2-33). A portion of seeps 32/33 (outfall SD-026) and all seepage from the vicinity of outfalls SD-006 and SD-004 are presently being pumped back into the Tailings Basin under the Consent Decree agreement between the MPCA and Cliffs Erie. In addition to surface Seep 32/33, seepage bypasses the collection system at outfall SD-026 and discharges to Second Creek.

PolyMet estimates that the current combined groundwater seepage from the Tailings Basin to the Embarrass River is 2,590 gpm (PolyMet 2015j). PolyMet has collected water quality data at four locations along the toe of the tailings embankment (PM-8, PM-9, PM-10, and UC-1) and along the three receiving streams, including three locations along Trimble Creek (PM-19, TC-1, and TC-1A), one location along Unnamed Creek (PM-11), and three locations along Mud Lake Creek (MLC-1, MLC-2, and MLC-3A). Table 4.2.2-34 lists the sampling periods for each location and Figure 4.2.2-19 shows the monitoring locations. Tables 4.2.2-35 through 4.2.2-38 contain summaries of the data from these locations.

Table 4.2.2-33 Summary of Existing LTVSMC Tailings Basin Surface Seeps (see Figure 4.2.2-13)

Seep ID	Average Seepage Flow (gpm) 2005-2014	Notes
Seep 1	0	
Seep 2	0	
Seep 3	0	
Seep 4	0	
Culvert (WS-011)	1	Includes combined flow of Seeps 1–4; may include both Tailings Basin seepage and watershed runoff
Seep 5	0	
Seep 6	0	
Seep 7	0	
Seep 8	0	
Seep 9	0	
Weir (WS-012)	2	Includes combined flow of Seeps 4–9; may include both Tailings Basin seepage and watershed runoff
Emergency Basin Outflow	681	Includes watershed runoff
Seeps 10–17	0	
Weir (West Side Seep)	0	Includes combined flow of area including Seeps 11–17
Culvert/Pipe	1	Culvert beneath road; may include both Tailings Basin seepage and watershed runoff
SD-006	515	No discharge since 2011; Tailings Basin pump-back system installed and operating; may include both Tailings Basin seepage and watershed runoff
Seep 18	6	
Seep 19	0	
Seep 20	2	Flow from pipe
Seep 21	0	
Seep 22 (SD-004)	3	No discharge since 2011; Tailings Basin pump-back system installed and operating
Seep 23	0	
Seep 24 (North Side Seep)	10	Flow from pipe
Seep 25	7	Flow from pipe
Seep 26	0	Flow from pipe
Seep 27	0	Flow from pipe
Seep 28	0	Flow from pipe
Seep 29	0	Flow from pipe
Seep 30	134	Flow dispersed over length of Cell 2E north dam
Seep 31	0	
Seeps 32–33	579	Tailings Basin pump-back system installed and operating

Sources: Barr 2014e; PolyMet 2015i.

Table 4.2.2-34 Water Quality Monitoring Locations for Embarrass River Tributary Streams and Tailings Basin Receiving Streams (see Figure 4.2.2-19)

Sample Location	Source	Sampling Period
Tailings Basin		
PM-8	PolyMet	2001–2006
PM-9	PolyMet	2001–2006
PM-10	PolyMet	2001–2007
UC-1	PolyMet	2012-2013
PM-11	PolyMet	2004, 2006, 2008–2013
PM-19	PolyMet	2009–2013
MLC-1	PolyMet	2011–2013
MLC-2	PolyMet	2011–2013
MLC-3/MLC-3A[1]	PolyMet	2012
TC-1	PolyMet	2012
TC-1A	PolyMet	2012–2013

Sources: Barr 2007h; Barr 2014d.

Note:
[1] The sample location was originally identified as MLC-3, but was inaccessible. The actual sample location, which was approximately 50 yards from the intended sample location, was identified as MLC-3A at the time. However, because of the close proximity of the intended and actual sample locations, and the fact that samples have only been taken at one location at the headwaters of Mud Lake Creek, these samples have been re-labelled as MLC-3.

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Table 4.2.2-35 Summary of Surface Water Quality Monitoring Data for the Tailings Basin Surface Seeps (see Figure 4.2.2-13)

Parameter	Units	Surface Water Evaluation Criteria	PM-8[6]				PM-9[6]				PM-10[6]				UC-1			
General			**Detection**	**Mean[5]**	**Range**	**# Exceed**	**Detection**	**Mean[5]**	**Range**	**# Exceed**	**Detection**	**Mean[5]**	**Range**	**# Exceed**	**Detection**	**Mean[5]**	**Range**	**# Exceed**
Alkalinity	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	3 of 3	437	399–471	NA
Ammonia as Nitrogen	mg/L	--	0 of 4	0.1	<0.1	NA	0 of 4	0.1	<0.1	NA	0 of 4	0.1	<0.1	NA	2 of 3	0.13	<0.05–0.24	NA
Calcium	mg/L	--	47 of 47	42.4	9.2–73.9	NA	124 of 124	53.9	33.0–98.9	NA	132 of 132	66.4	17.5–92.4	NA	11 of 11	61.8	35.9–91.7	NA
Carbon, total organic	mg/L	--	8 of 8	5.4	2.6–6.9	NA	8 of 8	8.4	1.7–18.5	NA	15 of 15	7.5	5.2–9.4	NA	11 of 11	11.4	7.1–18.0	NA
Chloride	mg/L	230	19 of 19	20.3	3.1–30	0	122 of 122	28.1	12.6–66.5	0	130 of 130	27.7	7.2–33.6	0	11 of 11	26.0	11.0–43.9	0
Fluoride	mg/L	--	42 of 42	2.9	1.0–5.8	NA	128 of 128	2.4	0.6–5.8	NA	136 of 136	2.3	0.5–4.8	NA	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	11 of 11	94.2	54.2–149	NA
Hardness	mg/L	500	36 of 36	431	230–721	**9**	41 of 41	452	268–818	**11**	48 of 48	438	327–649	**7**	11 of 11	**542**	313–844	**6**
Nitrate + Nitrite as Nitrogen	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	0 of 3	0.050	<0.05–<0.05	NA
pH	s.u.	6.5–8.5	81 of 81	7.9	6.8–8.7	**1**	130 of 130	7.8	6.4–8.8	**7**	136–136	6.7	6.4–8.9	**5**	11 of 11	7.4	7.0–7.8	0
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	3 of 3	5.0	4.1–6.3	NA
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	3 of 3	47.6	44.7–52.3	NA
Sulfate	mg/L	--[2]	61 of 61	161	27.1–312	NA	125 of 125	159	56.8–344	NA	133 of 133	182	8.1–473	NA	11 of 11	185	67.5–380	NA
TDS	mg/L	700	--	--	--	--	--	--	--	--	--	--	--	--	11 of 11	666	410–1,030	**3**
Metals – Total																		
Aluminum	µg/L	125	3 of 5	25.7	<10–40.7	0	4 of 5	29.9	<25–48.4	0	4 of 12	39.6	<10–230	**1[4]**	7 of 11	26.9	<10–47.3	0
Antimony	µg/L	31	0 of 5	3	<3	0	0 of 5	3	<3	0	0 of 5	3	<3	0	0 of 11	0.25	<0.25–<0.25	0
Arsenic	µg/L	53	5 of 12	3	<2–7.2	0	1 of 12	2.1	<2–2.7	0	2 of 12	2.1	<2–2.7	0	6 of 11	0.78	<0.25–1.6	0
Barium	µg/L	--	15 of 15	25.6	11–76.4	NA	15 of 15	41.6	18.3–140	NA	22 of 22	86.7	39.5–148	NA	3 of 3	53.0	45.3–59.5	NA
Beryllium	µg/L	--	0 of 5	1.64	<0.2–<2	NA	0 of 5	1.64	<0.2–<2	NA	0 of 5	1.64	<0.2–<2	NA	0 of 3	0.10	<0.1–<0.1	NA
Boron	µg/L	500	37 of 37	351	164–483	0	127 of 127	337	115–452	0	135 of 135	379	85–517	**3**	3 of 3	277	228–333	0
Cadmium	µg/L	2.5[3]	0 of 5	1.6	<0.2–<2	0	0 of 5	1.6	<0.2–<2	0	0 of 5	1.6	<0.2–<2	0	0 of 3	0.10	<0.1–<0.1	0
Cobalt	µg/L	5	4 of 43	1.2	<1–<2.5	0	3 of 81	1.1	<1–4.9	0	7 of 82	1.3	<1–16.8	**1**	6 of 11	0.20	<0.1–0.34	0
Copper	µg/L	9.3[3]	5 of 32	2.1	<0.7–5.4	0	19 of 84	2.5	<0.7–12	**1**	16 of 92	2.3	<1–24.2	**1**	9 of 11	1.4	<0.25–3.8	0
Iron	µg/L	--	23 of 23	410	<30–4,500	NA	18 of 19	673	<30–5,100	NA	23 of 25	501	<30–4,020	NA	11 of 11	496	188–1,590	NA
Lead	µg/L	3.2[3]	9 of 10	0.7	<0.3–<1	0	9 of 10	0.7	<0.3–<1	0	10 of 10	1.3	<0.3–7.1	**1**	0 of 11	0.25	<0.25–<0.25	0
Manganese	µg/L	--	40 of 40	3,039	70–110,000	NA	95 of 98	631	<10–50,000	NA	93 of 93	100,192	20–2,950,000	NA	11 of 11	369	78.2–1,520	NA
Mercury	ng/L	1.3	13 of 17	1.7	0.5–4.6	**7[1]**	12 of 65	1.8	0.7–4.1	**6[1]**	14 of 66	1.4	0.6–2.3	**7[1]**	3 of 3	1.1	1.0–1.4	**1**
Methylmercury	ng/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	µg/L	--	12 of 12	50.5	13.9–81.6	NA	110 of 112	43.2	<5–96.8	NA	119 of 121	21.5	<5–47.6	NA	3 of 3	5.7	4.4–7.6	NA
Nickel	µg/L	52[3]	3 of 27	2.5	<2–<5	0	3 of 64	2.3	<2–<5	0	11 of 72	2.3	<2–5.9	0	4 of 11	0.51	<0.25–1.4	0
Selenium	µg/L	5	0 of 10	2.5	<1.0–<3.6	0	0 of 10	2.5	<1.0–<3.6	0	0 of 10	2.5	<1.0–<3.6	0	0 of 11	0.50	<0.5–<0.5	0
Silver	µg/L	1.0[3]	0 of 10	0.6	<0.2–<1	0	0 of 10	0.6	<0.2–<1	0	0 of 10	0.6	<0.2–<1	0	0 of 3	0.10	<0.1–<0.1	0
Thallium	µg/L	0.56	0 of 10	1.2	<0.4–<2	0[1]	0 of 10	1.2	<0.4–<2	0[1]	0 of 10	2.7	<0.4–<2	**1**	2 of 10	0.0013	<0.0002–0.0060	0
Vanadium	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	0 of 3	1.5	<1.5–<1.5	NA
Zinc	µg/L	120[3]	2 of 27	13.6	<10–<25	0	2 of 12	10.3	<10–12.7	0	3 of 19	16.2	<10–32.5	0	3 of 11	7.8	<3–30.3	0

Sources: Barr 2007h; Barr 2006f; Barr 2014d.

Notes:
Values in bold indicates an exceedance of surface water quality standards.
1 Some detection limits exceed evaluation criteria; Barr 2006f. Data reported as less than such a detection limit is not included in the number of exceedances.
2 Sulfate standard of 10 mg/L applies to waters used for production of wild rice.
3 Water Quality standard for this metal is hardness-dependent. Listed value assumes a hardness concentration of 100 mg/L.
4 Predicted values represent total aluminum concentrations, while the water quality standard is for dissolved aluminum. Since aluminum has a very low solubility in water under relatively neutral pH conditions, it is expected that the predicted aluminum concentration would meet the surface water standard (see discussion in Section 4.1.2.2).
5 Includes non-detects at half the detection limit.
6 Seepage at PM-8 is presently being pumped back into the Tailings Basin in accordance with the Consent Decree between the MPCA and Cliffs Erie. Seepage at PM-9 and PM-10 are discharging to tributaries of the Embarrass River.

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Table 4.2.2-36 Summary of Surface Water Quality Monitoring Data for Unnamed Creek

Parameter	Units	Surface Water Evaluation Criteria	PM-11 Unnamed Creek			
General Parameters			**Detection**	**Mean[3]**	**Range**	**# Exceed**
Alkalinity	mg/L	--	29 of 29	295	108–492	NA
Ammonia as Nitrogen	mg/L	--	4 of 18	11.2	<0.05–<50	NA
Calcium	mg/L	--	42 of 42	44.6	18.2–78.0	NA
Carbon, total organic	mg/L	--	44 of 44	12.2	6.5–23.3	NA
Chloride	mg/L	230	55 of 55	17.5	3.1–34.1	0
Fluoride	mg/L	--	11 of 11	1.5	0.84–2.2	NA
Hardness	mg/L	500	42 of 42	371	109–660	**9**
Magnesium	mg/L	--	42 of 42	63.4	19.8–113	NA
Nitrate + Nitrite as Nitrogen	mg/L	--	1 of 24	17.1	<0.05–110	NA
pH	s.u.	6.5–8.5	51 of 51	7.5	6.6–8.3	0
Potassium	mg/L	--	24 of 24	5.3	1.6–8.4	NA
Sodium	mg/L	--	26 of 26	43.5	13.4–59.4	NA
Sulfate	mg/L	--[(1)]	59 of 59	122	13.5–233	NA
TDS	mg/L	700	42 of 42	491	186–831	**7**
Metals – Total						
Aluminum	µg/L	125	25 of 40	28.6	<10–92.1	0
Antimony	µg/L	31	0 of 27	0.44	<0.25–<1.5	0
Arsenic	µg/L	53	21 of 34	0.87	<0.25–2.3	0
Barium	µg/L	--	18 of 18	32.3	13.4–67.9	NA
Beryllium	µg/L	--	0 of 15	0.1	<0.1–<0.1	NA
Boron	µg/L	500	15 of 15	225	129–307	0
Cadmium	µg/L	2.5[(2)]	4 of 18	0.077	<0.015–<0.1	0
Cobalt	µg/L	5	13 of 40	0.22	<0.1–<0.5	0
Copper	µg/L	9.3[(2)]	36 of 42	0.99	<0.33–<2.5	0
Iron	µg/L	--	37 of 37	527	0.21–1,270	NA
Lead	µg/L	3.2[(2)]	6 of 36	0.24	<0.15–<0.5	0
Manganese	µg/L	--	40 of 40	260	19.3–1,270	NA
Mercury	ng/L	1.3	24 of 30	**2.5**	<0.25–<10	**19[(4)]**
Methylmercury	ng/L	--	9 of 9	0.26	0.15–0.46	NA
Molybdenum	µg/L	--	27 of 27	12.1	3.7–29.3	NA
Nickel	µg/L	52[(2)]	17 of 42	0.77	<0.25–<2.5	0
Selenium	µg/L	5	3 of 32	0.72	<0.5–<1.8	0
Silver	µg/L	1.0[(2)]	0 of 20	0.18	<0.1–<0.5	0
Thallium	µg/L	0.56	5 of 36	0.15	<0.0002–<1	**4**
Vanadium	µg/L	--	0 of 8	2.4	<1.5–<5	NA
Zinc	µg/L	120[(2)]	5 of 42	4.5	<3–41.2	0

Source: Barr 2014d.

Notes:
Values in bold indicates an exceedance of surface water quality standards.
1 Sulfate standard of 10 mg/L applies to waters used for production of wild rice.
2 Water quality standard for this metal is hardness-dependent. Listed value assumes a hardness concentration of 100 mg/L.
3 Mean includes non-detects at half the detection limit.
4 Minimum detection limit exceeds evaluation criteria; Barr 2006f. Data reported as less than such a detection limit is not included in the number of exceedances.

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Table 4.2.2-37 Summary of Surface Water Quality Monitoring Data for Trimble Creek

Parameter	Units	Surface Water Evaluation Criteria	PM-19 Trimble Creek				TC-1 Trimble Creek				TC-1A Trimble Creek			
General Parameters			**Detection**	**Mean[3]**	**Range**	**# Exceed**	**Detection**	**Mean[3]**	**Range**	**# Exceed**	**Detection**	**Mean[3]**	**Range**	**# Exceed**
Alkalinity	mg/L	--	37 of 37	351	190–514	NA	1 of 1	335	335–335	NA	4 of 4	305	243–355	NA
Ammonia as Nitrogen	mg/L	--	10 of 25	0.11	<0.05–5,830	NA	0 of 1	0.05	<0.05–<0.05	NA	2 of 4	0.14	<0.05–0.31	NA
Calcium	mg/L	--	68 of 68	48.1	18.5–99.3	NA	4 of 4	43.6	38.2–49.8	NA	14 of 14	49.5	22.1–77.6	NA
Carbon, total organic	mg/L	--	63 of 63	17.8	10.9–33.7	NA	4 of 4	23	14.8–31.8	NA	14 of 14	13.8	10.6–23.2	NA
Chloride	mg/L	230	89 of 89	16.5	6.8–55.1	0	4 of 4	11.7	7.5–17.2	0	14 of 14	19.7	7.4–33.5	0
Fluoride	mg/L	--	2 of 2	0.91	0.87–0.95	NA	--	--	--	--	--	--	--	--
Hardness	mg/L	500	68 of 68	311	123–1,350	**2**	4 of 4	273	231–299	0	14 of 14	332	147–532	**2**
Magnesium	mg/L	--	68 of 68	46.3	18.6–270	NA	4 of 4	39.9	33.0–42.3	NA	14 of 14	50.5	22.3–82.1	NA
Nitrate + Nitrite as Nitrogen	mg/L	--	8 of 32	0.050	<0.05–0.41	NA	0 of 1	0.05	<0.05–<0.05	NA	0 of 4	0.050	<0.05–<0.05	NA
pH	s.u.	6.5–8.5	79 of 79	7.2	6.1–8.2	**2**	4 of 4	7.5	7.4–7.7	0	14 of 14	7.3	6.9–7.8	0
Potassium	mg/L	--	32 of 32	3.0	1.4–58.2	NA	1 of 1	2.3	2.3–2.3	NA	4 of 4	3.3	2.4–4.7	NA
Sodium	mg/L	--	32 of 32	51.7	26.9–100	NA	1 of 1	47.0	47–47	NA	4 of 4	55.6	36.3–70.0	NA
Sulfate	mg/L	--[(1)]	86 of 89	32.7	<0.5–1,170	NA	4 of 4	12.4	1.3–36.6	NA	14 of 14	56.4	1.0–119	NA
TDS	mg/L	700	68 of 68	453	195–1,920	**2**	4 of 4	400	366–416	0	14 of 14	481	231–722	**2**
Metals – Total														
Aluminum	µg/L	125	32 of 57	33.7	<10–184	**1**	3 of 4	44.9	<20.0–82.5	0	9 of 14	23.7	<10–37.4	0
Antimony	µg/L	31	0 of 44	0.25	<0.25–<0.25	0	0 of 4	0.25	<0.25–<0.25	0	0 of 9	0.25	<0.25–<0.25	0
Arsenic	µg/L	53	37 of 59	1.1	<0.25–3.9	0	4 of 4	2.6	0.98–5.2	0	7 of 14	0.78	<0.25–2.7	0
Barium	µg/L	--	22 of 22	80.9	52.0–137	NA	1 of 1	95.2	95.2–95.2	NA	4 of 4	107	83.2–137	NA
Beryllium	µg/L	--	0 of 22	0.10	<0.1–<0.1	NA	0 of 1	0.1	<0.10–<0.10	NA	0 of 4	0.10	<0.1–<0.1	NA
Boron	µg/L	500	22 of 22	136	111–333	0	1 of 1	137	137–137	0	4 of 4	155	142–173	0
Cadmium	µg/L	2.5[(2)]	0 of 22	0.076	<0.01–<0.1	0	0 of 1	0.1	<0.10–<0.10	0	0 of 4	0.10	<0.1–<0.1	0
Cobalt	µg/L	5	37 of 59	0.29	<0.1–0.98	0	4 of 4	0.62	0.25–1.4	0	7 of 14	0.26	<0.1–0.66	0
Copper	µg/L	9.3[(2)]	47 of 59	0.65	<0.25–3.8	0	1 of 4	0.32	<0.25–<0.25	0	9 of 14	0.50	<0.25–0.85	0
Iron	µg/L	--	61 of 63	1,284	226–5,830	NA	4 of 4	3,233	941–8,330	NA	14 of 14	871	232–4,040	NA
Lead	µg/L	3.2[(2)]	2 of 53	0.22	<0.01–<0.25	0	0 of 4	0.25	<0.25–<0.25	0	0 of 14	0.25	<0.25–<0.25	0
Manganese	µg/L	--	59 of 59	830	24.2–3,990	NA	4 of 4	1,305	202–3,670	NA	14 of 14	640	43.9–1,660	NA
Mercury	ng/L	1.3	26 of 26	**1.5**	0.50–5.1	**7**	1 of 1	1.1	1.1–1.1	0	4 of 4	**2.5**	0.90–5.1	**2**
Methylmercury	ng/L	--	1 of 2	0.11	<0.05–0.16	NA	--	--	--	--	--	--	--	--
Molybdenum	µg/L	--	28 of 28	1.3	0.39–7.6	NA	1 of 1	0.89	0.89–0.89	NA	4 of 4	1.1	0.63–1.5	NA
Nickel	µg/L	52[(2)]	21 of 59	0.50	<0.25–5.1	0	2 of 4	0.52	<0.25–<0.25	0	3 of 14	0.36	<0.25–1.2	0
Selenium	µg/L	5	5 of 51	0.50	<0.5–1.1	0	0 of 4	0.5	<0.50–<0.50	0	0 of 14	0.50	<0.5–<0.5	0
Silver	µg/L	1.0[(2)]	0 of 24	0.10	<0.1–<0.1	0	0 of 1	0.1	<0.10–<0.10	0	0 of 4	0.10	<0.1–<0.1	0
Thallium	µg/L	0.56	5 of 54	0.017	<0.0002–<0.1	0	0 of 4	0.001	<0.0002–0.003	0	0 of 13	0.0013	<0.0002–<0.0025	0
Vanadium	µg/L	--	0 of 15	2.4	<1.5–<5	NA	0 of 1	1.5	<1.5–<1.5	NA	0 of 4	1.5	<1.5–<1.5	NA
Zinc	µg/L	120[(2)]	6 of 59	3.9	<3–31.2	0	1 of 4	4.5	<3.0–8.9	0	2 of 14	3.9	<3–11.5	0

Source: Barr 2014d.

Notes:
Values in bold indicates an exceedance of surface water quality standards.
[1] Sulfate standard of 10 mg/L applies to waters used for production of wild rice.
[2] Water quality standard for this metal is hardness-dependent. Listed value assumes a hardness concentration of 100 mg/L.
[3] Mean includes non-detects at half the detection limit.

Table 4.2.2-38 Summary of Surface Water Quality Monitoring Data for Mud Lake Creek

Parameter	Units	Surface Water Evaluation Criteria	MLC-1 Mud Lake Creek				MLC-2 Mud Lake Creek				MLC-3/MLC-3A[4] Mud Lake Creek			
General Parameters			**Detection**	**Mean[3]**	**Range**	**# Exceed**	**Detection**	**Mean[3]**	**Range**	**# Exceed**	**Detection**	**Mean[3]**	**Range**	**# Exceed**
Alkalinity	mg/L	--	7 of 7	218	97.7–394	NA	14 of 14	122	76.5–201	NA	1 of 1	448	448–448	NA
Ammonia as Nitrogen	mg/L	--	3 of 7	0.31	<0.05–1.7	NA	4 of 14	0.35	<0.05–2.1	NA	0 of 1	0.05	<0.05–<0.05	NA
Calcium	mg/L	--	18 of 18	31.1	14.5–58.6	NA	27 of 27	19.5	9.1–32.7	NA	2 of 2	47.2	34.5–59.8	NA
Carbon, total organic	mg/L	--	18 of 18	21.9	10.7–43.8	NA	27 of 27	24.7	12.9–48.0	NA	2 of 2	14.7	14.3–15	NA
Chloride	mg/L	230	18 of 18	8.4	2.5–21.6	0	28 of 28	6.0	1.7–12.7	0	2 of 2	18.0	13.2–22.8	0
Fluoride	mg/L	--	2 of 2	0.23	0.15–0.31	NA	4 of 4	0.25	0.20–0.33	NA	--	--	--	--
Hardness	mg/L	500	18 of 18	196	92.6–383	0	27 of 27	113	59.9–194	0	2 of 2	315	236–394	0
Magnesium	mg/L	--	18 of 18	28.6	13.7–60.2	NA	27 of 27	15.7	9.0–27.2	NA	2 of 2	47.9	36.4–59.4	NA
Nitrate + Nitrite as Nitrogen	mg/L	--	0 of 7	0.050	<0.05–<0.05	NA	2 of 14	0.059	<0.05–0.12	NA	0 of 1	0.05	<0.05–<0.05	NA
pH	s.u.	6.5–8.5	16 of 16	7.1	6.7–7.6	0	29 of 29	7.0	6.4–7.7	**2**	2 of 2	7.3	7.1–7.6	0
Potassium	mg/L	--	7 of 7	2.0	1.3–3.2	NA	14 of 14	1.1	0.33–1.9	NA	1 of 1	3	3–3	NA
Sodium	mg/L	--	7 of 7	28.9	15.4–57.5	NA	14 of 14	14.9	9.5–20.7	NA	1 of 1	63.9	63.9–63.9	NA
Sulfate	mg/L	--[(1)]	14 of 18	11.5	<0.5–82.3	NA	21 of 28	3.1	<0.5–12.3	NA	2 of 2	35.3	17.3–53.2	NA
TDS	mg/L	700	18 of 18	302	141–553	0	27 of 27	200	117–292	0	2 of 2	491	369–613	0
Metals – Total														
Aluminum	µg/L	125	14 of 18	31.8	<10–58.3	0	24 of 28	48.7	<10–149	**1**	0 of 2	10	<10–<10	0
Antimony	µg/L	31	0 of 12	0.25	<0.25–<0.25	0	0 of 22	0.25	<0.25–<0.25	0	0 of 2	0.25	<0.25–<0.25	0
Arsenic	µg/L	53	16 of 17	2.6	<0.25–7.0	0	23 of 27	1.3	<0.25–3.1	0	1 of 2	0.42	<0.25–0.59	0
Barium	µg/L	--	7 of 7	36.1	11.0–93.8	NA	10 of 10	28.2	10.5–61.6	NA	1 of 1	37.3	37.3–37.3	NA
Beryllium	µg/L	--	0 of 7	0.10	<0.1–<0.1	NA	0 of 10	0.10	<0.1–<0.1	NA	0 of 1	0.1	<0.1–<0.1	NA
Boron	µg/L	500	5 of 7	57.2	<25–85.3	0	0 of 10	25.0	<25–<25	0	1 of 1	160	160–160	0
Cadmium	µg/L	2.5[(2)]	0 of 7	0.076	<0.015–<0.1	0	1 of 10	0.069	<0.015–<0.1	0	0 of 1	0.1	<0.1–<0.1	0
Cobalt	µg/L	5	11 of 18	0.41	<0.1–1.1	0	17 of 27	0.43	<0.1–1.2	0	1 of 2	0.15	<0.1–0.2	0
Copper	µg/L	9.3[(2)]	5 of 18	0.38	<0.25–1.1	0	15 of 27	0.48	<0.25–1.3	0	2 of 2	0.56	0.53–0.59	0
Iron	µg/L	--	18 of 18	9,098	373–37,600	NA	27 of 27	5,322	266–27,100	NA	2 of 2	280	275–284	NA
Lead	µg/L	3.2[(2)]	1 of 18	0.23	<0.01–<0.25	0	4 of 23	0.23	<0.25–<0.25	0	0 of 2	0.25	<0.25–<0.25	0
Manganese	µg/L	--	18 of 18	413	14.8–1,040	NA	27 of 27	353	8.4–1,310	NA	2 of 2	211	19.1–402	NA
Mercury	ng/L	1.3	7 of 7	**2.2**	1.1–4.0	**6**	14 of 14	**3.1**	0.90–6.5	**12**	1 of 1	0.99	0.99–0.99	0
Methylmercury	ng/L	--	--	--	--	--	3 of 4	1.3	<0.05–3.7	NA	--	--	--	--
Molybdenum	µg/L	--	6 of 7	0.63	<0.15–1.1	NA	13 of 14	0.48	<0.15–0.92	NA	1 of 1	1.7	1.7–1.7	NA
Nickel	µg/L	52[(2)]	4 of 18	0.36	<0.25–0.92	0	9 of 27	0.46	<0.25–1.7	0	1 of 2	0.42	<0.25–0.59	0
Selenium	µg/L	5	1 of 18	0.48	<0.1–0.53	0	3 of 23	0.45	<0.1–<0.5	0	0 of 2	0.5	<0.5–<0.5	0
Silver	µg/L	1.0[(2)]	0 of 7	0.10	<0.1–<0.1	0	0 of 10	0.10	<0.1–<0.1	0	0 of 1	0.1	<0.1–<0.1	0
Thallium	µg/L	0.56	3 of 16	0.0027	<0.0002–0.014	0	7 of 24	0.0059	<0.0002–0.030	0	0 of 2	0.00135	<0.0002–<0.0025	0
Vanadium	µg/L	--	1 of 5	1.9	<1.5–3.7	NA	0 of 10	2.9	<1.5–<5	NA	0 of 1	1.5	<1.5–<1.5	NA
Zinc	µg/L	120[(2)]	4 of 18	4.0	<3–9.0	0	4 of 27	5.4	<3–42.4	0	0 of 2	3	<3–<3	0

Source: Barr 2014d.

Notes:
Values in bold indicates an exceedance of surface water quality standards.
1 Sulfate standard of 10 mg/L applies to waters used for production of wild rice.
2 Water quality standard for this metal is hardness-dependent. Listed value assumes a hardness concentration of 100 mg/L.
3 Mean includes non-detects at half the detection limit.
4 The sample location was originally identified as MLC-3, but was inaccessible. The actual sample location, which was approximately 50 yards from the intended sample location, was identified as MLC-3A at the time. However, because of the close proximity of the intended and actual sample locations, and the fact samples have only been taken at one location at the headwaters of Mud Lake Creek, these samples have been re-labelled as MLC-3.

Lower Embarrass River

Approximately 4 miles downstream from monitoring station PM-13, the Embarrass River flows through a chain of lakes: Sabin, Wynne, Embarrass, and Esquagama lakes. In addition to the previously discussed Embarrass River monitoring, PolyMet also conducted limited water quality monitoring for sulfate and chloride in Sabin Lake (PM-21 and PM-23), Wynne Lake (PM-22 and PM-24), and Embarrass Lake (EL-1 and EL-2) in 2010 and 2011 (see Figure 4.2.2-1). Samples were taken at the inlet to each lake and near the center of each lake at multiple depths: surface, middle, and near-bottom. Additional monitoring was performed at PM-21 for total and dissolved aluminum (PolyMet 2015j).

The average surface sulfate concentration in Sabin Lake was 11.7 mg/L (average surface concentration at PM-21 and PM-23 for 2010 to 2011) with concentrations increasing with depth. The northernmost tip of Wynne Lake is subject to the 10 mg/L sulfate standard for waters used for production of wild rice. The monitoring shows that the lake exceeds this standard (average surface concentration 16.0 mg/L at PM-22 and PM-24) and that concentrations increase with depth. Embarrass Lake is also subject to the 10 mg/L sulfate standard for waters used for production of wild rice. The monitoring shows that the lake exceeds this standard (average surface concentration 19.3 mg/L at EL-1 and EL-2). The data generally shows little fluctuation through the sampling period for all three lakes, although surface sulfate concentrations were typically higher in all three lakes in 2010 than in 2011. The increasing sulfate concentrations through the chain of lakes suggest that there is additional sulfate coming from other sources; however, monitoring did not identify specific sources (PolyMet 2015j). Section 4.2.2.1.3 discusses additional sulfate monitoring conducted as part of wild rice and water quality monitoring surveys.

Several lakes downstream of the NorthMet Project area within the chain of lakes are on the 303(d) list for “mercury in fish tissue” impairment, including Sabin, Wynne, Embarrass, and Esquagama lakes (see Figure 4.2.2-1). Further downstream, most of the St. Louis River is also listed for “mercury in fish tissue” impairment. These lakes and the St. Louis River are not covered by the Statewide Mercury TMDL, but are impaired waters that are still in need of a TMDL pollution reduction study. These waters are not included in Minnesota’s regional mercury TMDL because the mercury concentrations in the fish are considered too high to be returned to Minnesota’s mercury water quality standard using solely the state-wide TMDL approach. Similar to other lakes in Minnesota, the main source of the mercury is atmospheric mercury deposition.

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4.2.3 Wetlands

Wetlands in Minnesota are protected under federal and state laws, including Section 404 of the federal Clean Water Act (CWA), the State of Minnesota's Wetland Conservation Act (WCA), the MDNR's Public Waters Work Permit Program, and the MPCA's Wetland Standards and Mitigation Rules (*Minnesota Rules*, part 7050.0186). In addition, a DA permit pursuant to Section 404 of the CWA is not valid until the state has either certified under Section 401 of the CWA that the discharges comply with state water quality standards or waived the 401 certification requirements. For metallic mineral mining, WCA requirements are addressed under the MDNR Permit to Mine. WCA rules (including those parts applicable to mining projects under *Minnesota Rules*, part 8420.0930) include a special consideration for wetlands that are rare natural communities (*Minnesota Rules*, part 8420.0515, subpart 3). See FEIS Section 4.2.4.2.1 for additional information about these communities. The Permit to Mine would address special consideration of wetlands that include rare natural communities. Additional information on rare natural communities would be included in the wetland permit application as part of the Permit to Mine process for further refinement of site-specific conditions.

The majority of wetlands in Minnesota are subject to regulation under both state and federal programs that regulate activities in wetlands. However, there are some differences with respect to the types of wetland resources and activities subject to regulation under these state and federal programs. For example, under the state WCA, "incidental" wetlands are not jurisdictional, but those wetlands may be subject to the permitting requirements of Section 404 of the CWA at the federal level. Although there are wetlands within the NorthMet Project area that may be regulated exclusively under state law, or conversely, exclusively under federal law, all of the wetlands in the NorthMet Project area would be regulated under either the CWA or the WCA, with the proposed exception of two wetland areas that would not be regulated by either program as a result of being located within an actively permitted waste storage facility. These two wetland areas are discussed under Section 4.2.3.2 below.

The required public notice to fulfill requirements for Section 404 permitting and Section 401 certification was originally issued by the USACE in May of 2005. The MPCA did not exercise its right to review the NorthMet Project Proposed Action under Section 401 of the CWA at that time; therefore, certification of the original NorthMet Project Proposed Action was waived by default. However, due to the revised NorthMet Project Proposed Action, PolyMet submitted a revised permit application in August 2013, and the public notice for the Section 404 application was reissued on December 13, 2013. The MPCA will need to re-issue the Section 401 public notice for the NorthMet Project Proposed Action. Under the provisions of the CWA, the MPCA has one year from the public notice (December 3, 2014) to act upon an application for Section 401 Certification. However, the MEPA (*Minnesota Statutes*, chapter 116.04, subdivision 2b) and rules regarding environmental review (*Minnesota Rules*, part 4410.3100) prohibit final agency decisions, such as the Section 401 Certification, until all environmental review steps are complete. The environmental review process being undertaken by the Co-lead Agencies would not be completed within the 1-year timeframe for issuance of the Section 401 Certification. Therefore, PolyMet has made a procedural decision to withdraw the Section 401 application before the MPCA and resubmit it in the near future to allow for processing of the application.

The wetland section for the NorthMet Project Proposed Action includes a discussion of the Mine Site and Plant Site, as well as Area 1 and Area 2. Area 1 and Area 2 represent the wetland

boundaries that were developed and evaluated in 2010 and 2011 for the potential indirect effects on wetlands and are exclusive to this environmental resource section. The USACE determined that there was a need to evaluate wetland types in the areas surrounding the Mine Site (Area 1) and the Plant Site (Area 2) for their potential to experience indirect hydrologic wetland effects, and then to classify the wetland types by the likelihood of experiencing these effects (Barr 2011d). The Area 1 boundary extends beyond the Mine Site boundary and includes 23,927.4 acres. Area 1 encompasses the Mine Site, the federal lands, and the majority of the Transportation and Utility Corridor, as well as adjacent lands. Area 2 encompasses a 19,396.7-acre area just north and northwest of the Plant Site.

Detailed wetland field delineation/mapping was performed in 2004, and supplemented in 2005, 2006, 2007, 2008, and 2010 (Barr 2006d; Barr 2007b; Barr 2008k; Barr 2011d; PolyMet 2015b). These investigations delineated and mapped the portion of each wetland located within the Mine Site, Area 1, Area 2, Plant Site, and the adjoining federal lands (see Section 4.3.3.1.1 for the federal lands discussion).

The NorthMet Project area includes 166 wetlands covering 1,579.6 acres (see Figure 4.2.3-1). The percentage of wetland types identified in the NorthMet Project area include: coniferous bog (55 percent); shrub swamp (12 percent), which includes alder thicket and shrub-carr; shallow marsh (11 percent); coniferous swamp (9 percent); deep marsh (7 percent); sedge/wet meadow (3 percent); open bog (1 percent); hardwood swamp (1 percent); and open water (less than 1 percent) (PolyMet 2015b). Within the NorthMet Project area, 105 of the 166 wetlands (63 percent) are rated as high-quality, 11 wetlands (7 percent) are rated as moderate-quality, and 50 wetlands (30 percent) are rated as low-quality. The low-quality wetlands are located at the Hydrometallurgical Residue Facility and the existing LTVSMC Tailings Basin. The moderate-quality wetlands are located at the Mine Site and the existing LTVSMC Tailings Basin. Wetlands at the Mine Site and Transportation and Utility Corridor are ranked as high-quality.

In addition to the NorthMet Project area, the Colby Lake Water Pipeline Corridor and Second Creek areas were evaluated. The area of analysis for Second Creek includes the origin of the creek at the south end of Tailings Basin and ends at the east edge of the Colby Lake Water Pipeline Corridor (see Figure 4.2.3-1). These two areas include 44 wetlands covering 305.9 acres (see Figure 4.2.3-1). The percentage of wetland types identified in the two areas include: shrub swamp (44 percent), which includes alder thicket and shrub-carr; shallow marsh (36 percent); deep marsh (7 percent); hardwood swamp (7 percent); coniferous swamp (5 percent); and sedge/wet meadow (1 percent) (PolyMet 2015b). The majority of the wetlands within the Colby Lake Water Pipeline Corridor have been rated low quality (93 percent), with the remaining wetlands related as moderate quality (7 percent).

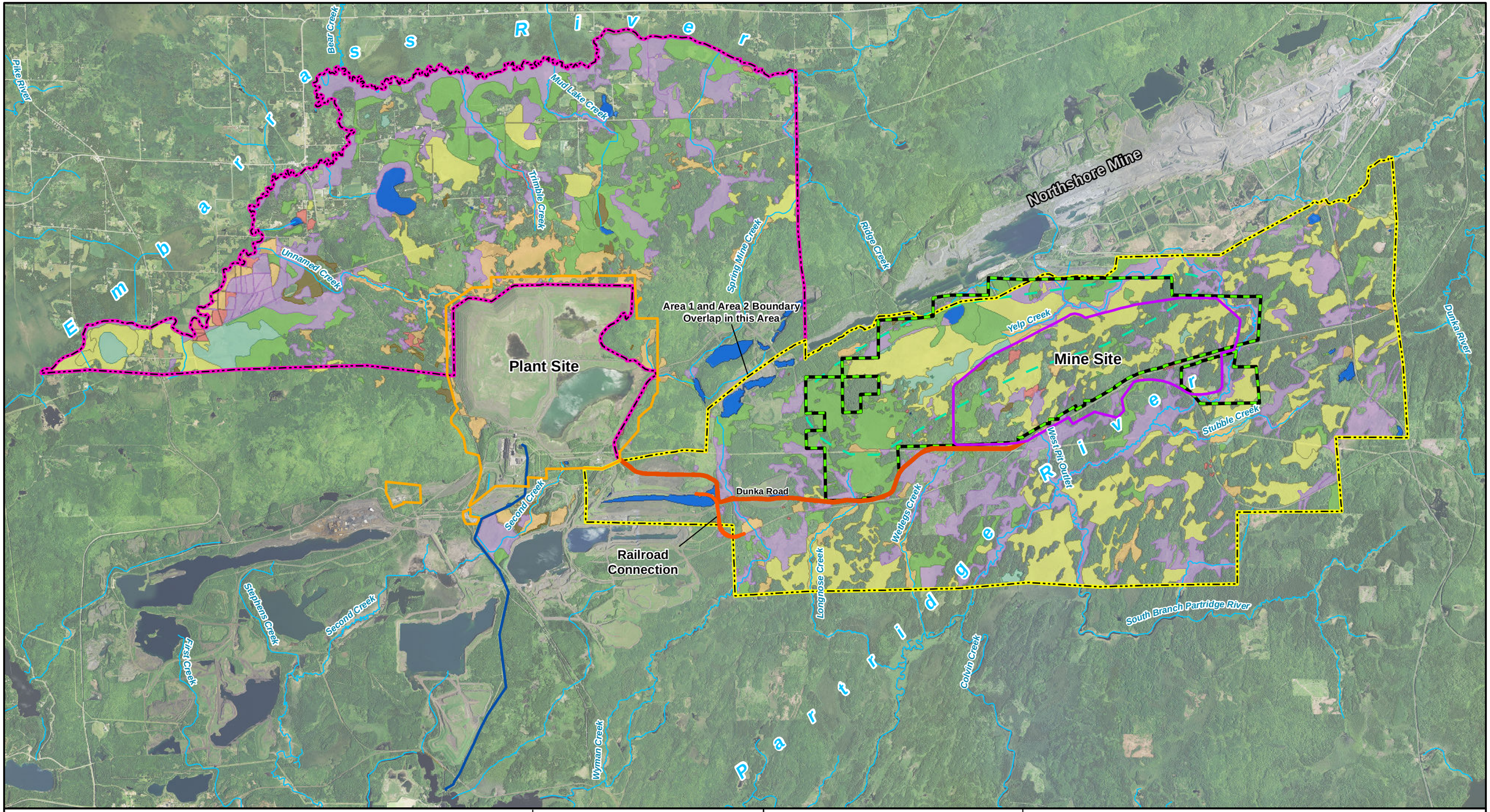

Mine Site
Plant Site
Transportation and Utility Corridor
Colby Lake Water Pipeline Corridor
Federal Lands
Area 1
Area 2
Stream/River
One Hundred Mile Swamp (Approximate Boundary)

Eggers & Reed Wetland Types

Coniferous Bog
Coniferous Swamp
Deep Marsh & Shallow Marsh
Hardwood Swamp
Open Bog
Sedge Meadow & Wet Meadow
Shrub Swamps (Alder Thicket & Shrub-Carr)
Shallow, Open Water & Lake

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.5 1 2 Miles

Figure 4.2.3-1
Wetland Community Types
Overview
NorthMet Mining Project and Land Exchange FEIS
Minnesota
November 2015

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4.2.3.1 Mine Site and Transportation and Utility Corridor

The Mine Site is 3,014.5 acres (see Figures 4.2.3-1, 4.2.3-2, and 4.2.3-3) and is located in the Partridge River Watershed, about 3 miles south of the Laurentian Divide. The Partridge River is located in the East St. Louis River Watershed, which discharges into Lake Superior. The Transportation and Utility Corridor (120.1 acres), which includes the Railroad Connection Corridor, is discussed below (see Figures 4.2.3-1 and 4.2.3-4). The following sections provide baseline information on the Mine Site, Transportation and Utility Corridor, and Area 1.

4.2.3.1.1 Wetland Delineation and Classification

Wetland characterization, mapping, and surveys for the Mine Site, Transportation and Utility Corridor, and Area 1 were conducted between 2004 and 2010 (Barr 2006d; Barr 2007b; Barr 2008k; Barr 2011d; PolyMet 2015b). Wetland acreages were determined using USGS topographic and USFWS National Wetlands Inventory (NWI) maps, aerial photographs, soil survey data, and field investigations.

Wetlands on the Mine Site were initially mapped in June 2004 based on a general survey of the area for wetland and upland habitats potentially used by various species of fish and wildlife. Wetland and upland plant communities were mapped on 1997 infrared aerial photographs of the site. Wetland delineations of the Mine Site and lands surrounding the Mine Site were subsequently conducted in August 2004, June 2005, and July 2006. This wetland delineation consisted of applying a combination of on-site and off-site procedures in accordance with the 1987 USACE Wetland Delineation Manual (Manual; USACE 1987). Wetland boundaries were field-mapped using Global Positioning System (GPS), aerial photographic interpretation, topography, and soils information.

Along Dunka Road and other possible transportation routes, field studies were conducted to determine wetland boundaries, vegetation cover types, and plant species composition of identified wetlands. For areas outside of Dunka Road and possible transportation routes, wetlands were mapped primarily based on the presence of photographic signatures with limited field-truthing and GPS locating.

Subsequent to publication of the SDEIS, baseline wetland types were re-evaluated. Additional field visits were conducted from April to October 2010, in addition to further mapping efforts. A Wetland Impact Assessment Planning (IAP) Workgroup was formed and facilitated the refinement of the wetland resource mapping efforts. In addition to the ground surveys, wetlands were evaluated during a helicopter reconnaissance in October 2010. Photographs were taken during the aerial reconnaissance using a GPS-equipped digital camera from a distance of 20 to 100 ft above the ground.

In 2010 and 2011, a baseline wetland evaluation was conducted using information from studies and surveys undertaken between 2004 and 2010. Wetlands were evaluated and classified in the areas around the Mine Site and the existing LTVSMC Tailings Basin to determine the potential for indirect hydrologic wetland effects using the Eggers and Reed (1997) community classification system, as determined by the Wetlands IAP Workgroup (MDNR et al. 2011). This system classifies the wetlands into 15 unique plant communities (see Table 4.2.3-1).

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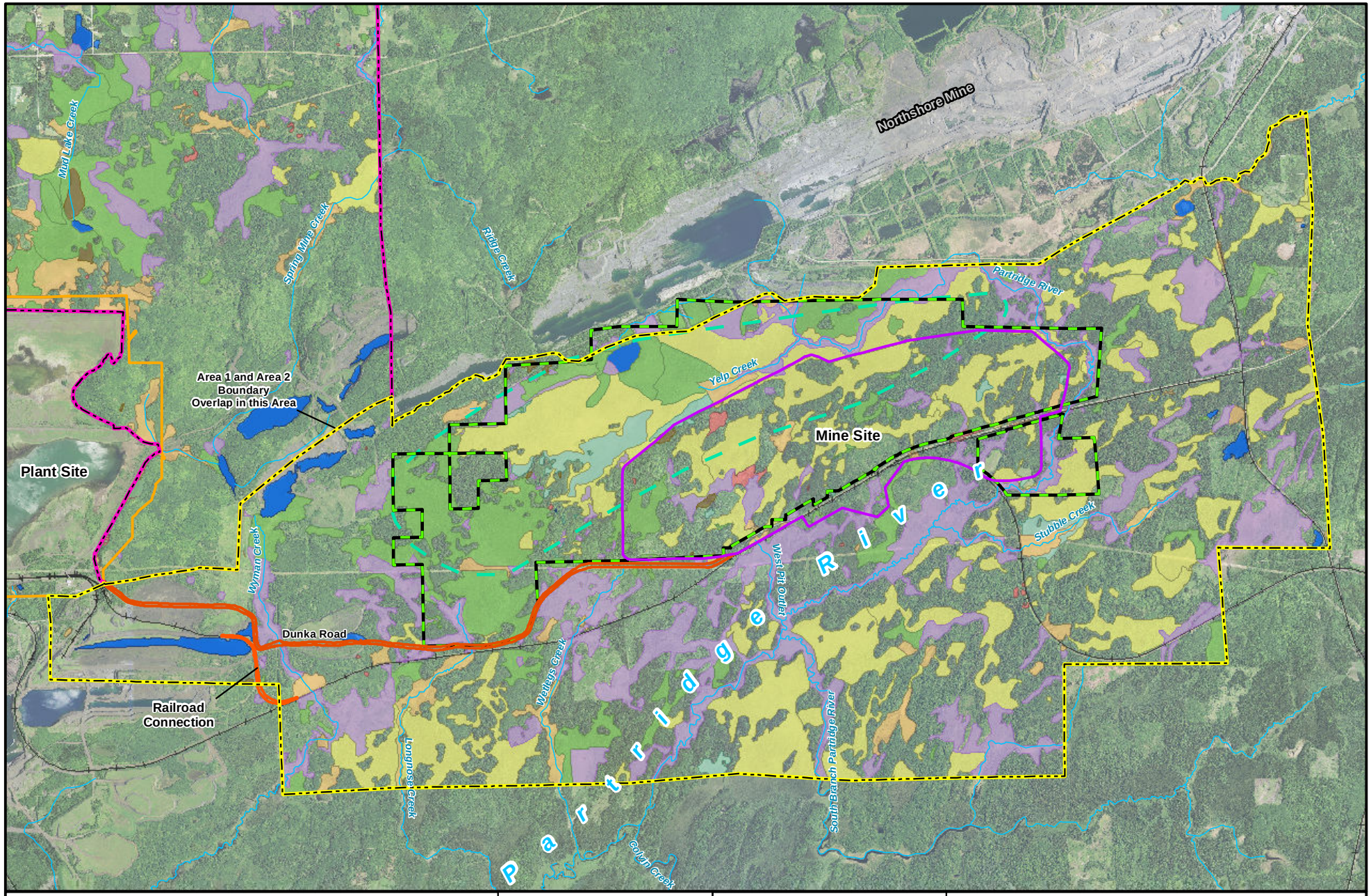

Area 1
Area 2
Mine Site
Plant Site
Transportation and Utility Corridor
Federal Lands
Stream/River
One Hundred Mile Swamp (Approximate Boundary)

Eggers & Reed Wetland Types

Coniferous Bog
Coniferous Swamp
Deep Marsh & Shallow Marsh
Hardwood Swamp
Open Bog
Sedge Meadow & Wet Meadow
Shrub Swamps (Alder Thicket & Shrub-Carr)
Shallow, Open Water & Lake

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 0.25 0.5 1 1.5 Miles

Figure 4.2.3-2
Wetland Community Types
Mine Site, Federal Lands, and Area 1
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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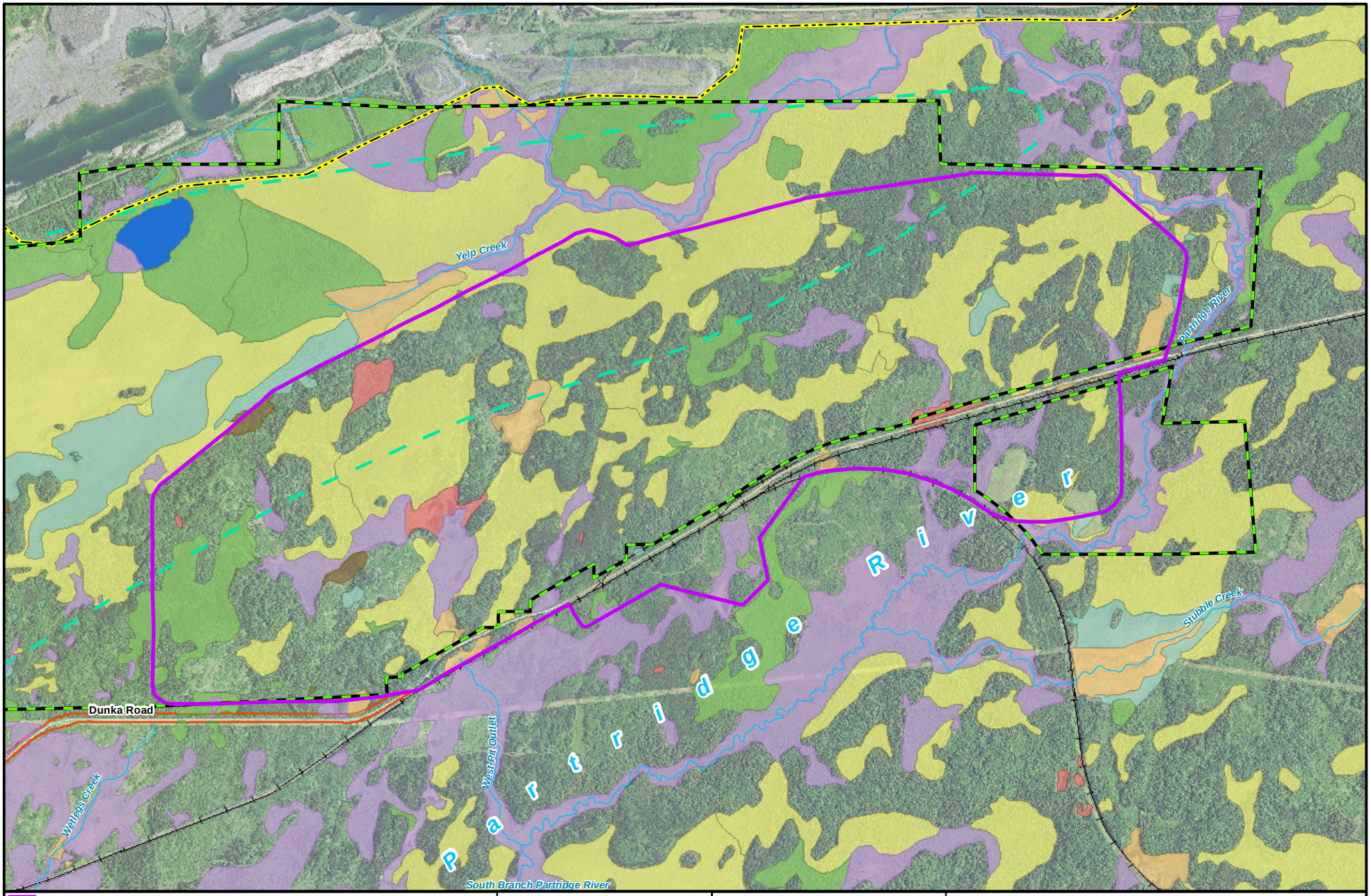

Mine Site
Area 1
Federal Lands
Transportation and Utility Corridor
One Hundred Mile Swamp (Approximate Boundary)
Stream/River

Eggers & Reed Wetland Types

Coniferous Bog
Coniferous Swamp
Hardwood Swamp
Deep Marsh & Shallow Marsh
Open Bog
Shrub Swamps (Alder Thicket & Shrub-Carr)
Sedge Meadow & Wet Meadow
Shallow, Open Water & Lake

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 500 1,000 2,000 3,000 Feet

Figure 4.2.3-3
Wetland Community Types - Mine Site
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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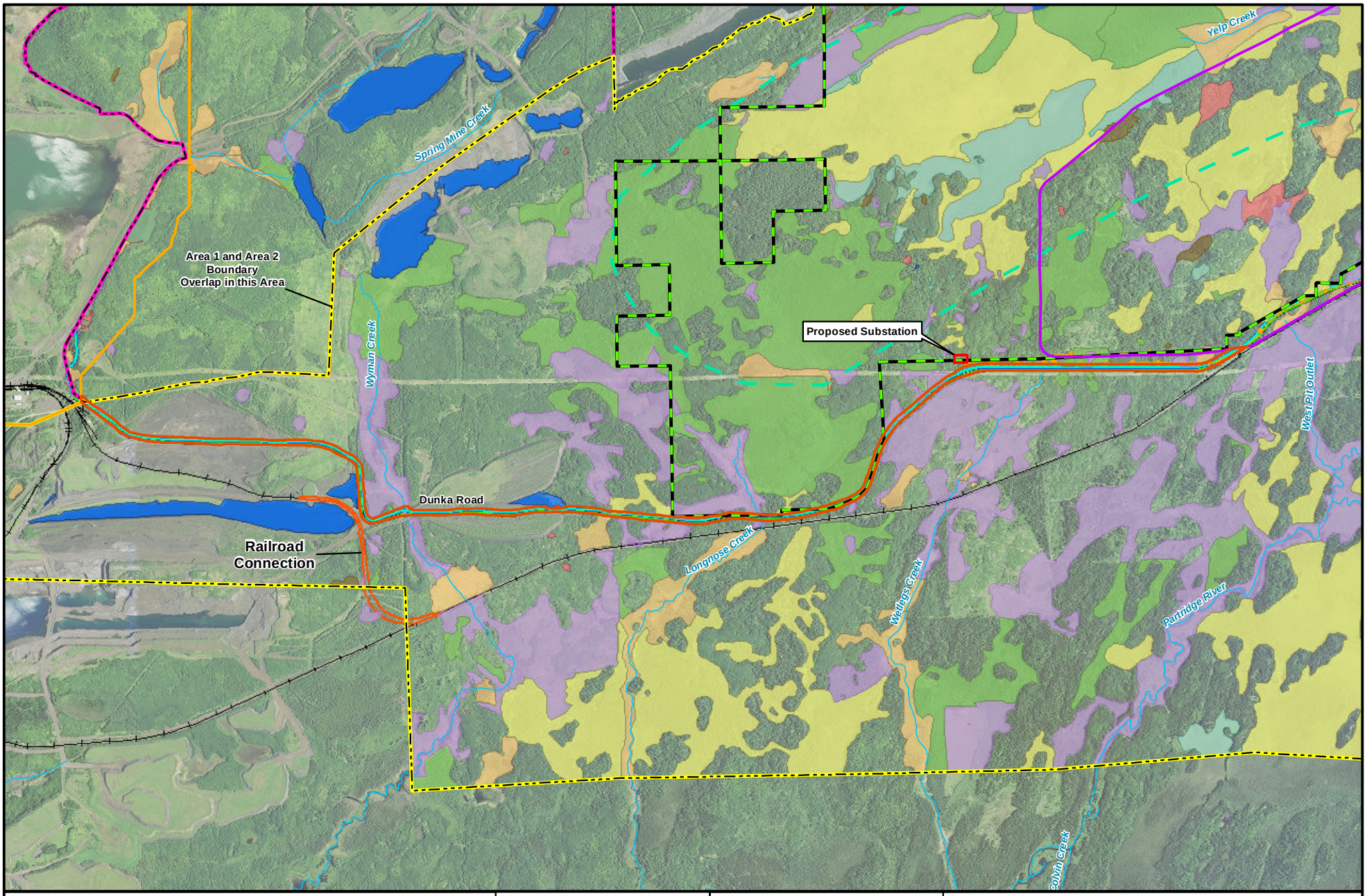

Transportation and Utility Corridor
Mine Site
Plant Site
Federal Lands
Area 1
Area 2
One Hundred Mile Swamp (Approximate Boundary)

Eggers & Reed Wetland Types

Coniferous Bog
Coniferous Swamp
Hardwood Swamp
Deep Marsh & Shallow Marsh
Open Bog
Sedge Meadow & Wet Meadow
Shrub Swamps (Alder Thicket & Shrub-Carr)
Shallow, Open Water & Lake
Transmission Line
Treated Water Pipeline
Dunka Road
Stream/River
Existing Railroad

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 1,000 2,000 4,000 Feet

Figure 4.2.3-4
Wetland Community Types - Transportation and Utility Corridor
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Table 4.2.3-1 Wetland Classification System Descriptors

Wetland Plant Community Types[1]	Water Depth	Soils	Common Vegetation
Shallow, open water	6.6' deep; permanently inundated	Lacustrine deposits and sediments	Pondweed, duckweed, coontail, water milfoil, water lily
Deep marsh	6" to > 3' deep; permanently to semi-permanently inundated	Lacustrine deposits	Cattail, reed, bulrush, pickerelweed, giant bur-reed, Phragmites, spikerush, wild rice, pondweed, naiad, coontail, water milfoil, waterweed, duckweed, water lily, spatterdock
Shallow marsh	Saturated soils to < 6" deep	Organic or mineral	Manna grass, spikerush, cattail, arrowhead, lake sedge, pickerelweed, smartweed
Sedge meadow	Saturated soils	Organic	Sedges-dominant; spike rush, bulrush, nut grass, Canada blue-joint grass, true rush, forbs
Fresh (wet) meadow	Saturated soils	Mineral or organic	Grass and forbs-dominant; redtop, reed canary grass, manna grass, prairie cordgrass, mint
Wet to wet-mesic prairie	High groundwater table < 12" during portion of growing season	Mineral	Native grasses and forbs-dominant; prairie cordgrass, big bluestem, aster, culver's root, sunflower
Calcareous fen	Upwelling, calcareous, groundwater discharge	Organic alkaline	Calciphiles-dominant; shrubby cinquefoil, sterile sedge, wild timothy, beaked spike rush, Riddell's goldenrod, common valerian, lesser fringed gentian
Open bog	Saturated	Organic acid	Continuous sphagnum moss mat present; scattered immature (dbh < 6 in) black spruce or tamarack, ericaceous shrubs, sedges and forbs, such as pitcher plants
Coniferous bog	Saturated	Organic acid	Continuous sphagnum moss mat present; mature (dbh > 6 in) black spruce or tamarack, ericaceous shrubs, sedges and forbs such as pitcher plants
Shrub-carr	Saturated to seasonally flooded	Organic or mineral	Woody vegetation < 20 ft high and dbh < 6 in dominated by willows and/or dogwoods with various sedges, grasses and forbs
Alder thicket	Saturated to seasonally flooded	Organic or alluvial	Woody vegetation < 20 ft high and dbh < 6 in dominated by speckled alder with various sedges, grasses and forbs
Hardwood swamp	Saturated to < 12" deep during most of growing season	Organic alkaline	Continuous sphagnum moss mat absent; black ash, red maple, yellow birch, silver maple, aspen, American elm, dogwood, alder and various sedges, grasses and forbs
Coniferous swamp	Saturated to < 12" deep during most of growing season	Organic ranging from acid to alkaline	Continuous sphagnum moss mat absent; northern white cedar, tamarack, balsam fir, birch, black ash, alder and various sedges, grasses and forbs

Wetland Plant Community Types[1]	Water Depth	Soils	Common Vegetation
Floodplain forest	Inundated during flood events; somewhat well-drained during growing season	Alluvial	Silver maple, green ash, river birch, plains cottonwood, American elm, black willow, jewelweed, nettle
Seasonally flooded basin	Poorly drained; inundated for a few weeks during the growing season	Mineral	Smartweed, beggartick, nut-grass, wild millet and other annual species

Source: Eggers and Reed 1997, 2014; Barr 2011d.

dbh = Diameter at breast height

[1] All wetland classification systems have some limitations; however, wetlands identified as open bogs or coniferous bogs under the Eggers and Reed (1997, 2014) classification system were further subcategorized as either ombrotrophic (hydrology and mineral inputs entirely from direct precipitation) or somewhat minerotrophic (some degree of mineral inputs from groundwater and/or surface water runoff) (Eggers 2011a, 2015; PolyMet 2015b). See Section 4.2.3.1.2 and Section 5.2.3 for more information.

Wetlands were evaluated within Area 1 and Area 2 (see Figures 4.2.3-1). The boundaries for each evaluation area generally follow the St. Louis County section lines and large streams, including portions of the Partridge and Embarrass rivers. The baseline wetland type evaluation was deemed final by the USACE at the wetland workgroup meeting on March 30, 2011 (Barr 2011d). Updates to previous wetland delineations were made between April 2011 and the fall of 2012 as a result of additional site visits and aerial photograph review. Wetland boundaries and types were further refined (PolyMet 2015b).

Prior to conducting the various field delineations, numerous sources of existing information were gathered and reviewed to assist in developing a strategy for evaluating wetlands within the NorthMet Project area. Wetlands within Area 1 and Area 2 that were not delineated between 2004 and 2010 were also identified and classified using the following sources:

- Farm Service Administration true color aerial photographs between 2003 and 2010;
- Farm Service Administration color infrared aerial photographs (2003 and 2008);
- USFWS NWI maps;
- Superior National Forest USFS stand data GIS shapefile (Area 1 only);
- USFS Ecological Land Type (ELT) soils data (where available);
- Natural Resources Conservation Service (NRCS) soils data for St. Louis County (where available);
- USGS topographic maps and digital elevation models; and
- MDNR 2005 color infrared photography stereo pairs with 60 percent overlap (Barr 2011d).

During the field surveys, data were collected for the functions and values of the wetlands within the Mine Site. Wetland functions and values were rated using the guidelines in the Minnesota Routine Assessment Method (MnRAM) for Evaluating Wetland Functions, Versions 3.0 to 3.2. Final wetland locations and wetland functional assessment areas are shown on Figure 4.2.3-2.

4.2.3.1.2 Hydrology, Wetland Vegetation, and Community Types

The NorthMet Project area is located near the headwaters of the Partridge River and Embarrass River watersheds. The Partridge River is a tributary to the St. Louis River, which is located within the Lake Superior Basin. The Mine Site and Transportation and Utility Corridor are located within the Upper Partridge River Watershed. See Section 4.2.2 for more information on water resources.

Currently, runoff from the northernmost area of the Mine Site generally drains north into the One Hundred Mile Swamp and associated wetlands along the Partridge River. These wetlands form the headwaters of the Partridge River, which meanders around the east end of the Mine Site before turning southwest. Runoff from the majority of the Mine Site naturally drains to the south through culverts under Dunka Road and the adjacent rail line, into the Partridge River downstream of the Dunka Road crossing. The Partridge River hydrology is affected by the periodic and variable dewatering of the Northshore Mine pits near the headwaters of the Partridge River, upstream of the proposed Mine Site.

The hydrology of the wetlands at the Mine Site has been stable over time (Barr 2008h). Factors contributing to this stability include: 1) the general lack of continuity between the bedrock and surficial aquifers within the perched wetlands, 2) slow water movement through heterogeneous soils, 3) a slow lateral groundwater flow component that helps sustain downgradient wetlands with a continual supply of groundwater over time, 4) recharge from surrounding uplands slowly providing local groundwater discharge to wetlands over time, 5) relatively flat topography across most of the site, and 6) the high water-holding capacity of the soils (Barr 2008h). However, monitoring would detect connectivity trends and reveal potential drawdown issues. Refer to Section 5.2.3 for more details on monitoring.

The hydrogeologic setting of the Partridge River watershed consists of a thin veneer of heterogeneous unconsolidated deposits (glacial till) underlain by fractured bedrock (Duluth Complex in most of the Mine Site and Virginia Formation in the northern portion of the Mine Site). In the Mine Site, saturated conditions exist within the unconsolidated deposits and bedrock and the depth to groundwater is typically less than 10 ft. The water table is generally a subdued replica of the land surface, with groundwater divides in the Mine Site expected to roughly coincide with surface water divides. Wetlands cover approximately 43 percent of the Mine Site.

Because of the general lack of interaction between the surficial and bedrock aquifers, the hydrology of many wetlands at the Mine Site is primarily supported by direct precipitation with some variable surficial groundwater components from the uplands. Organic and mineral soils at the Mine Site are typically perched over the dense till or a local sandy textured surficial aquifer, resulting in perched wetlands. The primary method for water to move across the landscape towards the Partridge River is by lateral flow that is either on the surface or within the subsurface soil. Surface flow laterally across the wetland complexes is negligible because of the flat slopes and surface roughness. The wetlands on the site receive minimal surficial runoff from the upland areas because the soil texture allows rapid infiltration (Barr 2008h). The bedrock has low primary permeability, so groundwater flow within the bedrock is through fractures or other secondary porosity features. Because of the low permeability of the bedrock, the interaction between the surficial deposits and the bedrock aquifers is assumed to be insignificant.

Lateral flow within the soils is typically very slow. Fibric peat at the surface allows infiltration of surficial water; however, the more highly decomposed sapric peat has greatly reduced lateral and

vertical hydraulic conductivity compared to the fibric peat. Therefore, water tends to stay perched and stored within the large peat complexes, which typically exhibit only subtle variations in the water tables over time. The silty sand or clay that typically underlies the organic soil has low hydraulic conductivity and, therefore, is a contributing factor that helps maintain the hydrology of the wetlands. The silty sands are sands mixed with clay and silt that are not permeable enough to be used as drainage sands (Barr 2008h).

The soils and hydrology at the Mine Site support stable wetland systems comprised in large part by open and coniferous bogs, as well as shrub carr/alder thickets dominated by alder and willow species, and forested wetland communities comprised of hardwood swamps and coniferous swamps. Most of the wetland vegetation present at the Mine Site (69 percent) is indicative of acid peatland systems (i.e., open and coniferous bogs) that are dependent on precipitation rather than groundwater for hydrologic inputs (i.e., ombrotrophic) and reflect a perched water table. However, it should be noted that although the hydrology of ombrotrophic bogs is solely precipitation-driven, these wetlands can have flowpath connections to groundwater (Eggers 2015). Potential effects are discussed in Section 5.2.3.

The soils at the Mine Site have been mapped by the USFS using the Superior National Forest Ecological Classification System (ECS). This system utilizes Ecological Land Types (ELTs). ELTs present at the Mine Site include Lowland Loamy Moist (ELT 1), Lowland Loamy Wet (ELT 2), Lowland Organic Acid to Neutral (ELT 6), and Upland Shallow Loamy Dry (ELT 16). With the exception of the Wahlsten-Eaglenest-Rock outcrop complex (ELT 16), all the soils associated with these ELTs are listed as hydric soils (USDA 2012). These ELTs have been cross-correlated by the University of Minnesota with the NRCS classification as follows:

- ELT 1 – Babbitt-Bugcreek complex 0 to 2 percent slope;
- ELT 2 – Bugcreek stony loam;
- ELT 6 – Rifle-Greenwood; and
- ELT 16 – Wahlsten-Eaglesnest-Rock outcrop complex, 2 to 8 percent slopes and Eveleth-Conic Rock complex.

Pre-NorthMet Project Proposed Action wetland hydrology monitoring reports, to meet reporting requirements, have been compiled and document 5 years of pre-project planning and monitoring at the Mine Site (2005 to 2009). PolyMet has continued to conduct wetland hydrology monitoring at the Mine Site since 2009. Future wetland hydrology monitoring reports would be submitted in accordance with any permit issued. The degree of hydraulic connection between the wetland areas and adjacent unconsolidated deposits and bedrock at the Mine Site is expected to be variable, depending on the characteristics of the wetlands and the localized hydraulic conductivity and degree of bedrock fracturing. The hydraulic conductivity of the bedrock and surficial deposits have been estimated at the Mine Site by a variety of methods, including conducting aquifer tests and using grain-size distribution data from soil borings and ranges over several orders of magnitude. Data collected during a 30-day pumping test at the Mine Site showed a small amount of drawdown in the deep wetland piezometer nearest to the pumping well, but there was no detectable drawdown at other water table or deep wetland piezometers, indicating that the connection between the bedrock, unconsolidated deposits, and wetlands may be relatively weak. Virtually all water movement in peat wetlands occurs horizontally in the upper layers of peat. The deeper, more decomposed peat soils limit vertical seepage because of

the low hydraulic conductivities (approximately 0.0028 ft/day) and the wetland hydrology is generally perched on the relatively impermeable peat layer; however, groundwater flowpaths may still occur. Vertical seepage losses from wetlands without peat soils would only have the potential to occur in isolated areas of contiguous, high hydraulic conductivity bedrock faults and fracture zones located under isolated areas of high hydraulic conductivity glacial till and aligned with wetlands containing high hydraulic conductivity soils (Barr 2010d; Barr 2011j). There is a surface drainage divide oriented generally from southwest to northeast near the northern border of the Mine Site. The majority of the Mine Site, approximately 80 percent, drains south to the Partridge River through extensive wetland complexes. The remaining 20 percent of the Mine Site drains north to the One Hundred Mile Swamp and the Partridge River or northeast to the Partridge River. The 2005 to 2009 wetland hydrology monitoring has determined the following (Barr 2010d):

- The four full years of wetland monitoring well data indicated that the large fluctuations in water levels exhibited within the majority of the wetlands are indicative of wetlands supported primarily by precipitation and local surface runoff. The hydrology of these wetlands tends to fluctuate in a pattern that closely mirrors weather patterns. The shrub swamp wetlands located near the downstream portion of the project generally show more stable water levels due to larger watershed areas and some apparent groundwater inflow. The groundwater flowpaths are generally short with recharge areas (uplands) located close to the discharge areas (wetlands). Surface water runoff and local groundwater contributions from uplands can cause increased mineral content within the water in adjacent wetlands. Wetlands that are solely dependent on precipitation for their hydrology are classified as ombrotrophic. Although the hydrology of ombrotrophic wetlands is solely driven by precipitation, they can have flowpath connections with groundwater. As such, they may be susceptible to effects from groundwater drawdown associated with mining operations; however, that susceptibility is estimated to be low (Eggers 2011a, 2015). Potential effects are discussed in Section 5.2.3.
- There is a general lack of connectivity between the shallow water table in the wetlands and the deeper bedrock aquifer. The depth of soil and till overlying the bedrock ranges up to 33 ft, with bedrock outcrops present that alter local groundwater flowpaths. A pumping and isotope test conducted in 2006 indicated that the groundwater pumped during a 30-day pump test was derived from aquifer recharge rather than seepage from surface water features such as the Northshore Mine Pit or wetlands. The variability of the bedrock and soil surface, along with the location of the surface water divide, creates localized, short, surficial groundwater flowpaths within the watersheds on the Mine Site.
- From 2005 to 2009, the maximum water level fluctuation was less than 12 inches in two wetlands (58 and 114) and between 12 and 18 inches in all other wetlands. Wells located in the southwest and south-central areas of the Mine Site show the greatest range of water table fluctuations, while wells in the northwest area of the Mine Site show the least fluctuation. The wetlands on the Mine Site exhibit stable year-to-year water levels and elevations. Water levels in all wells fluctuated in direct response to precipitation events, with the exception of one well in 2008 and 2009 and one well in 2009. These two wells showed stability indicative of contributing discharge from the larger upstream watersheds.
- The hydrographs in the monitored black spruce and tamarack dominated wetlands (i.e., coniferous bogs) exhibited a stable water table with some fluctuations indicative of

saturated, precipitation-driven hydrology (i.e., rapid response to precipitation with mid-summer drawdown). However, Eggers (2015) noted that these coniferous bogs could have flowpath connections to groundwater, albeit limited.

Wetlands were found to consist predominantly of coniferous bog, shrub swamp, and coniferous swamp. Other wetlands include shallow marsh, sedge/wet meadow, open bog, and hardwood swamps. The largest wetland complex near the Mine Site is the One Hundred Mile Swamp (see Figure 4.2.3-2). The swamp is drained by Yelp Creek, which flows east into the Partridge River. The Partridge River flows to the north of the Mine Site and then through the eastern and southeastern portions of the adjoining federal lands. In addition, several impounded wetlands associated with past mine workings and detention ponds were found during the field work along the northern boundary of the adjoining federal lands. These wetlands are best classified as precipitation-driven wetlands on low-permeability soils. Several wetlands have been enlarged due to damming of streams by beaver dams, and other obstructions along the Partridge River have helped to raise water levels that resulted in stands of dead and dying spruce along portions of the river (AECOM 2011a).

The coniferous bog communities have a tree canopy of black spruce and tamarack with occasional balsam fir, while stunted forms of these species may exist in open bog communities. White cedar and deciduous swamp birch are also occasionally found in this community. Shrubs are usually ericaceous (belonging to the heath family) species such as leatherleaf, bog-Labrador tea, and cranberry. Sphagnum moss comprises an almost continuous mat with interspersed, non-dominant forbs such as bunchberry and blue bead lily along with sedges and grasses. Hydrologically, this complex is characterized by a relatively stable year-to-year water table (Barr 2006e; Barr 2010d). All but one of the coniferous bogs identified at the Mine Site are rated as high-quality in accordance with the MnRAM for Evaluating Wetland Functions. This wetland has some fill and therefore was rated as moderate quality.

Wetland hydrology can be driven by precipitation, or by groundwater, or a combination or both. Wetlands identified as open bogs or coniferous bogs under the Eggers and Reed (1997, 2014) classification system can be further subcategorized as either ombrotrophic (i.e., hydrology and mineral inputs entirely from direct precipitation) or somewhat minerotrophic (i.e., some degree of mineral inputs from groundwater and/or surface water runoff). This is important because ombrotrophic bogs would likely not be affected by groundwater drawdowns associated with proposed mining operations, whereas more minerotrophic bogs would have a higher likelihood of being affected (Eggers 2011a). Eggers (2015) noted that although the hydrology of ombrotrophic bogs is solely precipitation-driven, they can have flowpath connections to groundwater. As such, these wetlands types could be affected by groundwater drawdowns, although the degree of that effect is estimated to be low (Eggers 2015). Please refer to Section 5.2.3 for detailed discussion on effects to these wetland types from drawdown.

An assessment of wetland types within the NorthMet Project area was conducted to distinguish between open and coniferous bogs that are principally precipitation driven (i.e., ombrotrophic peatlands) versus those with some degree of mineral inputs from groundwater and/or surface water runoff (i.e., minerotrophic peatlands). In order to help differentiate ombrotrophic bog communities from bog communities that are somewhat minerotrophic, the *Field Guide to the Native Plant Communities of Minnesota – The Laurentian Mixed Forest Province* (MDNR 2003b) was used, which characterizes plant communities to a finer level of detail than Eggers and Reed (1997, 2014). Ombrotrophic peatlands develop from minerotrophic peatlands

when conditions allow *Sphagnum* peat to accumulate to levels above the groundwater table. Once the peat is above the water table, surface water flows away from or around the elevated peat surface, which reduces inputs of minerals and nutrients (Eggers 2011a; MDNR 2003b). Of the 149 coniferous and open bogs within the Mine Site/Area 1 boundaries, 144 are ombrotrophic and five are minerotrophic (PolyMet 2015b).

The shrub communities generally have a sparse tree canopy and are mostly alder thickets, with some willow and raspberry. Occasionally, balsam fir and paper birch were observed along the perimeter of the wetlands. Grasses, sedges, rushes, and some ferns comprise most of the herb stratum with some areas of sphagnum moss. Hydrologically, this community can be characterized by prolonged periods of shallow inundation with the water table dropping 6 to 12 inches below the ground surface during dry periods (Barr 2006e). Soils are typically fibric (i.e., the least decomposed of the peats and containing un-decomposed fibers) and hemic peat (i.e., peat that is somewhat decomposed) at the surface underlain by bedrock or mineral soils. All of these wetlands are rated as high-quality.

The forested swamp communities (coniferous swamps and hardwood swamps) are dominated by a mix of coniferous (conifers) and deciduous (hardwood) forest complexes. Common trees include black spruce, tamarack, and balsam fir, with some white cedar, black ash, paper birch, and aspen present. The shrub canopy is comprised of speckled alder, willows, and raspberry. Grasses and sedges comprise a majority of the ground story stratum with occasional sphagnum moss. Soils include organic and mineral soils. Some hydrologic observations indicate a greater level of hydrologic fluctuation in the forested swamp community than in the larger bog wetlands, with saturation near the surface early in the growing season and a lower water table in late summer (Barr 2006e). All of these wetlands are rated as high-quality.

Sedges, grasses, and bulrushes dominate wet meadow and sedge meadow communities. Soils are organic at the surface and underlain with mineral soils. These plant communities typically have saturated or inundated water levels for prolonged periods during the growing season (Barr 2006e). Two of these communities, situated between Dunka Road and the railroad, are rated moderate-quality, while the others are rated as high-quality.

Approximately one-half of the shallow marsh communities at the Mine Site have resulted from artificial impoundments by roads, railroads, and beavers. These wetlands are dominated by cattails, bulrushes, sedges, and grasses. Soils are usually organic at the surface underlain by mineral soils. Inundation with 1 to 4 inches of water is common throughout most of the growing season except during dry periods. Eight of these shallow marshes are rated as high-quality and four as moderate-quality. Hydrologic disturbance in these four wetlands is primarily responsible for the moderate-quality rating.

The wetland delineation identified 87 wetlands covering 1,297.8 acres (43 percent) within the 3,014.5-acre Mine Site (see Figure 4.2.3-3) (PolyMet 2015b). Table 4.2.3-2, below, summarizes the wetland areas within the Mine Site represented by each Eggers and Reed (1997, 2014) wetland community type. A large portion of the wetlands to the west of the Mine Site on the federal lands are located in the floodplains of Yelp Creek and the Partridge River or one of their associated tributaries. The most common wetland types within the Mine Site are coniferous bogs (approximately 67 percent); shrub swamps (approximately 14 percent), which includes alder thicket and shrub-carr; and coniferous swamps (10 percent). A total of seven wetlands, each over 50 acres in size within the Mine Site, comprise 773.7 acres of wetlands within the Mine Site.

There are an additional five wetlands, each over 20 acres in size within the Mine Site that comprise 164.5 acres of wetlands. Together, these 12 wetlands make up 72 percent of the wetland areas within the Mine Site (PolyMet 2015b). A total of 79 percent of the wetlands in the Mine Site are coniferous swamp, coniferous bog, and open bog communities.

Other wetland community types present at the Mine Site include shallow marshes, sedge/wet meadows, open bogs, hardwood swamps, and deep marshes. The sedge/wet meadows may receive some portion of their hydrology from groundwater while the shallow marsh community generally results from artificial impoundment by beaver dams, roads, and railroads and is primarily dependent on surface waters for hydrology.

Table 4.2.3-2 Wetland Acreage by Wetland Community Type for Mine Site, Transportation and Utility Corridor, and Area 1

Eggers and Reed Class[1]	Mine Site						Transportation and Utility Corridor		Area 1[2]	
	Mine Site Federally Managed		Mine Site Private Lands		Mine Site Total					
	acres	%	acres	%	acres	%	acres	%	acres	%
Coniferous bog	869.2	71	4.2	6	873.4	67	0.9	12	4,581.2	41
Coniferous swamp	122.0	10	6.6	10	128.6	10	1.6	22	2,071.9	18
Deep marsh	0.0	0	5.0	7	5.0	<1	0.0	0	220.5	2
Hardwood swamp	12.8	1	0.0	0	12.8	1	0.0	0	26.8	<1
Open bog	17.8	1	0.5	<1	18.3	1	0.0	0	283.1	3
Open Water (includes shallow, open water, and lakes)	0.0	0	0.0	0	0.0	0	0.0	0	245.0	2
Sedge/wet meadow	34.9	3	4.6	7	39.5	3	0.0	0	46.0	<1
Shallow marsh	36.5	3	7.5	11	44.0	3	0.6	8	358.7	3
Shrub swamp (includes alder thicket and shrub-carr)	136.0	11	40.0	58	176.0	14	4.1	57	3,368.0	30
Total	1,229.2	100	68.4	100	1,297.8	100	7.2	100	11,201.2	100

Source: PolyMet 2015b.

[1] Eggers and Reed 1997, 2014.
[2] Area 1 acreage is inclusive of the other project area components (e.g., Mine Site, federal lands).

A total of 25 wetlands, encompassing 7.2 acres, have been identified within the Transportation and Utility Corridor (see Figure 4.2.3-4 and Table 4.2.3-2). The wetlands in the corridor include shrub swamps (57 percent), coniferous swamps (22 percent), coniferous bogs (12 percent), and shallow marshes (8 percent). Some of the wetlands adjacent to Dunka Road have been previously logged. Wetlands in the western half of the Dunka Road and Transportation and Utility Corridor are located within areas previously disturbed by mining activities of the former LTVSMC operations (PolyMet 2015b).

Overall, Area 1 encompasses 465 wetlands covering 11,201.2 acres (see Figure 4.2.3-2), and these 465 wetlands represent approximately 47 percent of the overall area. The total number of wetlands and the amount of wetlands within Area 1 is inclusive of the other project area

components (e.g., Mine Site, federal lands wetlands). Table 4.2.3-2, above, summarizes the wetland areas represented by each Eggers and Reed (1997, 2014) wetland community type for Area 1 (PolyMet 2015b).

Coniferous bogs are the dominant wetland type present within Area 1, comprising approximately 41 percent of the overall wetland area, while open bogs represent only a small component (approximately 3 percent). Coniferous bogs generally have a tree cover greater than 50 percent, which is typically made up of black spruce and/or tamarack. Forested wetlands that are acid peatlands dominated by dense cover of black spruce and/or tamarack with a more or less continuous carpet of Sphagnum mosses have been classified as coniferous bogs in the Eggers and Reed (1997, 2014) classification system. Occasionally, there are areas with balsam fir, jack pine, and northern white cedar present within the large coniferous bog complexes. The open bogs do not support a dense tree cover and it was observed that typically only a scattering of immature black spruce and/or tamarack are present (Barr 2011d). Additionally, Eggers (2015) and MDNR (2003b) state that ombrotrophic bogs exhibit four specific characteristics: 1) the landform type is a raised bog that is always higher than the peatland margin; 2) there is an absence of minerotrophic (i.e., fen) indicator species; 3) the surface water chemistry has a pH of less than 4.2 and calcium concentrations of less than 2 mg/L; and 4) the hydrology and source of minerals is entirely sourced from precipitation.

The shrub layer and ground layer of coniferous bogs and open bogs have similar composition. The shrub layer is typically dominated by ericaceous shrubs such as leatherleaf, bog-Labrador tea, and cranberry. The ground layer herb stratum commonly includes a continuous sphagnum moss mat with various sedges and other herbaceous vegetation also observed. Northern pitcher plants are abundant in the large bog areas that surrounded Mud Lake. Soils in the coniferous bogs and open bogs generally consist of fibric peat that is usually saturated to the surface throughout much of the growing season (Barr 2011d).

Shrub swamps, which include both alder thicket and shrub-carr community types, represent the second most dominant wetland type within Area 1, comprising approximately 30 percent of the overall wetland area. These shrub swamps are dominated by either alder or willow species, with some dogwoods also present. The ground layer was made up of Canada bluejoint grass and various sedge species, with woolgrass, rushes, and ferns also present. Sphagnum mosses may be present but do not typically form a continuous mat within these shrub swamps. Soils in the shrub swamps are usually fibric and hemic peat at the surface underlain by bedrock or mineral soil (Barr 2011d).

Coniferous swamps represent the third-most dominant wetland type within Area 1, comprising approximately 18 percent of the overall wetland area. These swamps are dominated by black spruce and/or tamarack, with balsam fir and northern white cedar. Deciduous tree species, such as aspen, birch and, on a few occasions, black ash, are also observed in some areas. The shrub layer is observed to be typically dominated by alder and willows. The ground layer commonly includes Canada bluejoint grass, sedges, bunchberry, wild sarsaparilla, and starflower. Sphagnum mosses are also present in the ground layer; however, a continuous sphagnum mat is usually absent. Soils in the coniferous swamps are generally organic and are usually saturated to the surface throughout much of the growing season (Barr 2011d).

Although shallow and deep marshes are present within Area 1, they represent a relatively small percentage of the overall wetland area. These wetlands are dominated by cattails, with sedges

and Canada bluejoint grass also present. Soils in the shallow and deep marshes are typically organic at the surface and underlain by mineral soils. The shallow marshes are typically inundated with up to 6 inches of water throughout the entire growing season, while the deep marshes are inundated with over 6 inches of water throughout the entire growing season. These wetlands are often associated with disturbances, such as beaver activity (Barr 2011d).

Hardwood swamps are present but not abundant in Area 1. The hardwood swamps that are present are dominated by black ash, aspen, and birch. Coniferous trees, such as balsam fir, black spruce, and northern white cedar are occasionally present in these hardwood swamps. The shrub layer is generally dominated by alder and young trees while the ground layer species present includes Canada bluejoint grass, sedges, and ferns. Sphagnum mosses were also observed; however, they typically did not form a continuous mat. Soils in the hardwood swamps vary between organic or mineral and are usually saturated throughout much of the growing season (Barr 2011d).

Sedge meadow and wet meadow communities are present within Area 1 but represent a very small portion of the total wetland area. These wetlands are dominated by sedges, Canada bluejoint grass, woolgrass, manna grass, and bulrushes. Soils in the sedge meadow and wet meadow communities are typically organic at the surface underlain by mineral soils. These wetlands are generally saturated close to the ground surface or have shallow inundation for prolonged periods during the growing season (Barr 2011d).

4.2.3.1.3 Wetlands Functional Assessment

Wetlands can serve many functions, including groundwater recharge/discharge, flood storage and alteration/attenuation, nutrient and sediment removal/transformation, toxicant retention, fish and wildlife habitat, wildlife diversity/abundance for breeding migration and wintering, shoreline stabilization, production export, aquatic diversity/abundance, vegetative diversity/integrity, and support of recreational activities. Both the USACE and MDNR use MnRAM for rating wetland functions in Minnesota.

MnRAM is an assessment tool designed to assess functions and values of Minnesota wetlands. MnRAM versions 3.0, 3.1, and 3.2 were used to assess wetland functions and values on the Mine Site (Barr 2006d) and the federal lands (AECOM 2011d; AECOM 2011a). Information on the overall functions and values of the wetland and vegetative quality of each wetland community at the Mine Site was obtained during wetland surveys in 2005 and 2006 and included: 1) plant cover and types, 2) plant community diversity and interspersion, 3) outlet characteristics, 4) watershed and adjacent upland land uses and condition, 5) soil condition, 6) erosion and sedimentation, and 7) past and present human disturbance (Barr 2006d).

Landscape characteristics are also important for evaluating wetland functions within the NorthMet Project area. Key landscape wetland characteristics considered in rating functional quality in the MnRAM assessment are provided in Table 4.2.3-3.

Table 4.2.3-3 Key Landscape Factors Influencing Wetland Functional Scores in MnRAM 3.0

MnRAM 3.0 Factor	Role in Wetland Function and Quality
Wetland or Lake Outlet Characteristics	Outlets influence flood attenuation, downstream water quality, and other hydrologic processes
Watershed and Adjacent Land Uses and Condition	Adjacent land uses influence wetland hydrology, sediment and nutrient loading to wetlands, connectivity for wildlife habitat, and other factors
Soil Condition	Soil condition influences plant community type, vegetative diversity, overall wetland quality and productivity (trophic state)
Erosion and Sedimentation	Influences downstream water quality, trophic state of wetlands, vegetative diversity, and overall wetland quality
Wetland Vegetative Cover and Vegetation Types	Influences vegetative diversity and wildlife habitat as well as hydrologic characteristics (e.g., evapotranspiration or resistance to flow in floodplain wetlands)
Wetland Community Diversity and Interspersion	Influences the vegetative diversity and overall wetland quality as well as value for wildlife habitat
Human Disturbance (both past and present)	Mining, logging, road-building, stream channelization, and other alterations to the landscape

Source: MnRAM 3.0.

These broader landscape factors were applied and evaluated on a larger scale than a single wetland because there are soil and vegetation similarities within the sub-watersheds that are characteristic of large groups of similar wetland types. Human disturbance factors were also similar across broad areas, notably that the majority of the Mine Site is relatively undisturbed by humans and the limited disturbance that does exist is due to logging. Other local factors were considered for each wetland or small groups of wetlands.

Approximately 92 percent of the wetlands in the Mine Site are of high overall wetland quality, and 8 percent of wetlands are of moderate overall wetland quality. High-quality wetlands have low disturbance levels and high vegetative diversity and integrity. Moderate-quality wetlands have impounded open water because of beaver dams and downstream culverts under Dunka Road or the railroad, are adjacent to USFS roads, the Dunka Road corridor, or the railroad corridor (PolyMet 2015b). Summaries of the 87 wetlands evaluated for vegetative diversity/integrity and overall functional quality rating (low, moderate, or high) for wetlands at the Mine Site are presented in Table 4.2.3-4. The overall wetland quality rating was based on professional judgment and considered several wetland functions and the overall degree of human disturbance (Barr 2006d). The plant community diversity/integrity ratings incorporate two principal components, integrity and diversity (MnRAM). Diversity refers to species richness (i.e., number of plant species). The more floristically diverse a community is, the higher the rating. Integrity refers to the condition of the plant community in comparison to the reference standard for that community. The degree and type of disturbance typically play an important role in the diversity/integrity rating.

Table 4.2.3-4 Wetland Functions and Value Assessment for the Mine Site from 2004 and 2006

Wetland Functions and Values Rating	Vegetative Diversity/Integrity (%)	Overall Wetland Quality (%)	Existing Disturbance Level (%)
High	75	92	8
Moderate	8	8	5
Low	0	0	70
Not Available	17	0	17
Total	100	100	100

Source: Barr 2006d.

The wetlands along the Transportation and Utility Corridor have all been rated as high-quality. While the wetlands along the Railroad Connection Corridor are moderately affected by either a haul road or an existing railroad, they have a high vegetative diversity/integrity (PolyMet 2015b).

4.2.3.2 Plant Site

4.2.3.2.1 Wetland Delineation and Classification

The Plant Site and Area 2 were delineated and classified using the same methodology as discussed in Section 4.2.3.1.1 above. The Plant Site encompasses 4,515.4 acres, which includes the former LTVSMC processing plant, the existing LTVSMC Tailings Basin, Area 1 Shops, the Hydrometallurgical Residue Facility, and the administration buildings. Area 2 encompasses about a 19,396.7-acre area just north and northwest of the existing LTVSMC Tailings Basin (see Figures 4.2.3-1, 4.2.3-5, and 4.2.3-6).

In addition to the NorthMet Project area, two non-project areas (i.e., the Colby Lake Water Pipeline Corridor (50.6 acres) and Second Creek) are included within this discussion (see Figures 4.2.3-6 and 4.2.3-7). These two non-project areas are included to assess if direct or potential indirect wetland effects could occur as a result of the NorthMet Project Proposed Action.

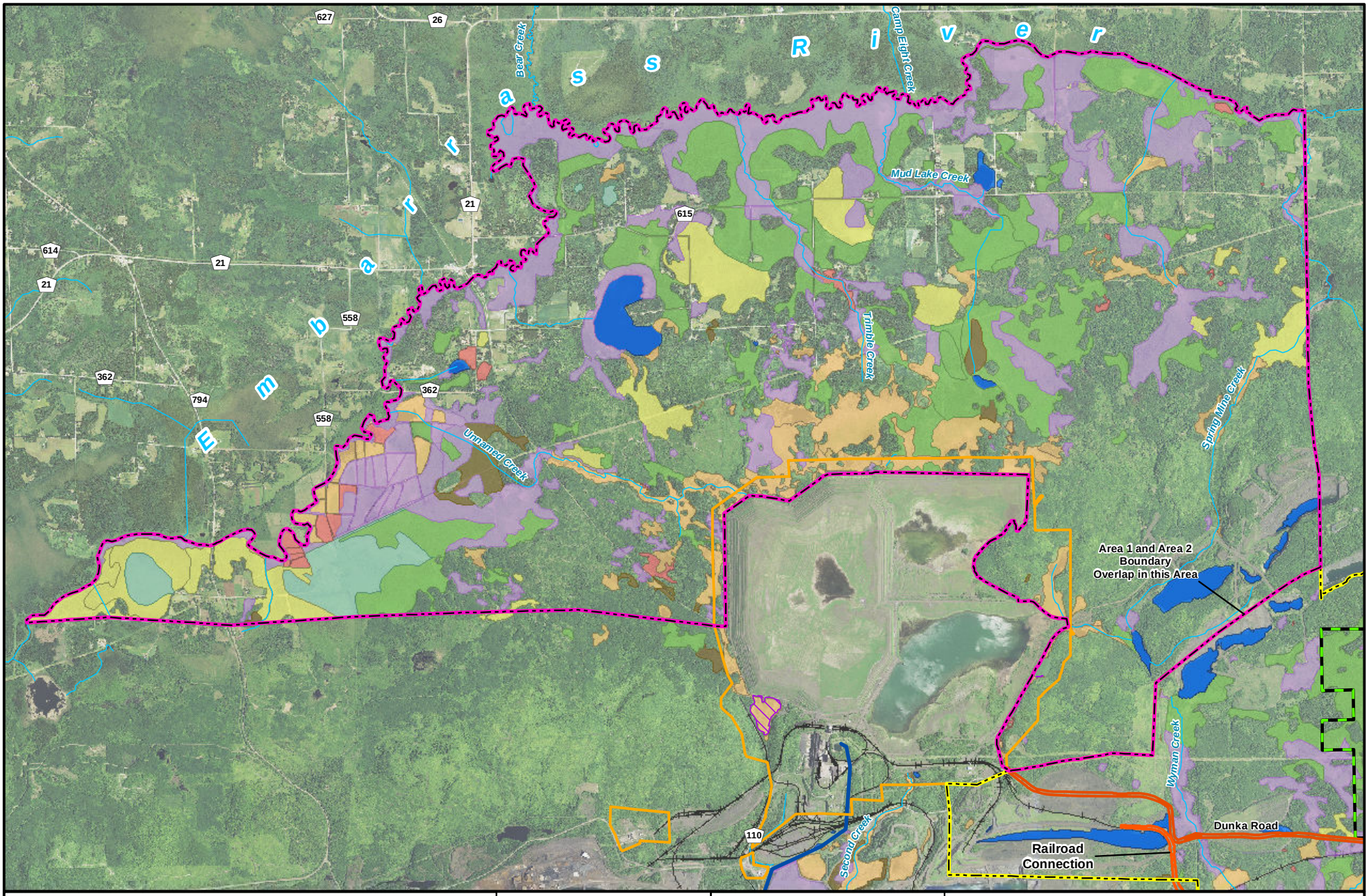

Area 1
Area 2
Plant Site
Transportation and Utility Corridor
Colby Lake Water Pipeline Corridor
Federal Lands
Stream/River
Exempt Wetland

Eggers & Reed Wetland Types

Coniferous Bog
Coniferous Swamp
Deep Marsh & Shallow Marsh
Hardwood Swamp
Open Bog
Sedge Meadow & Wet Meadow
Shrub Swamps (Alder Thicket & Shrub-Carr)
Shallow, Open Water & Lake

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 1.5 Miles

Figure 4.2.3-5
Wetland Community Types - Area 2 and Plant Site
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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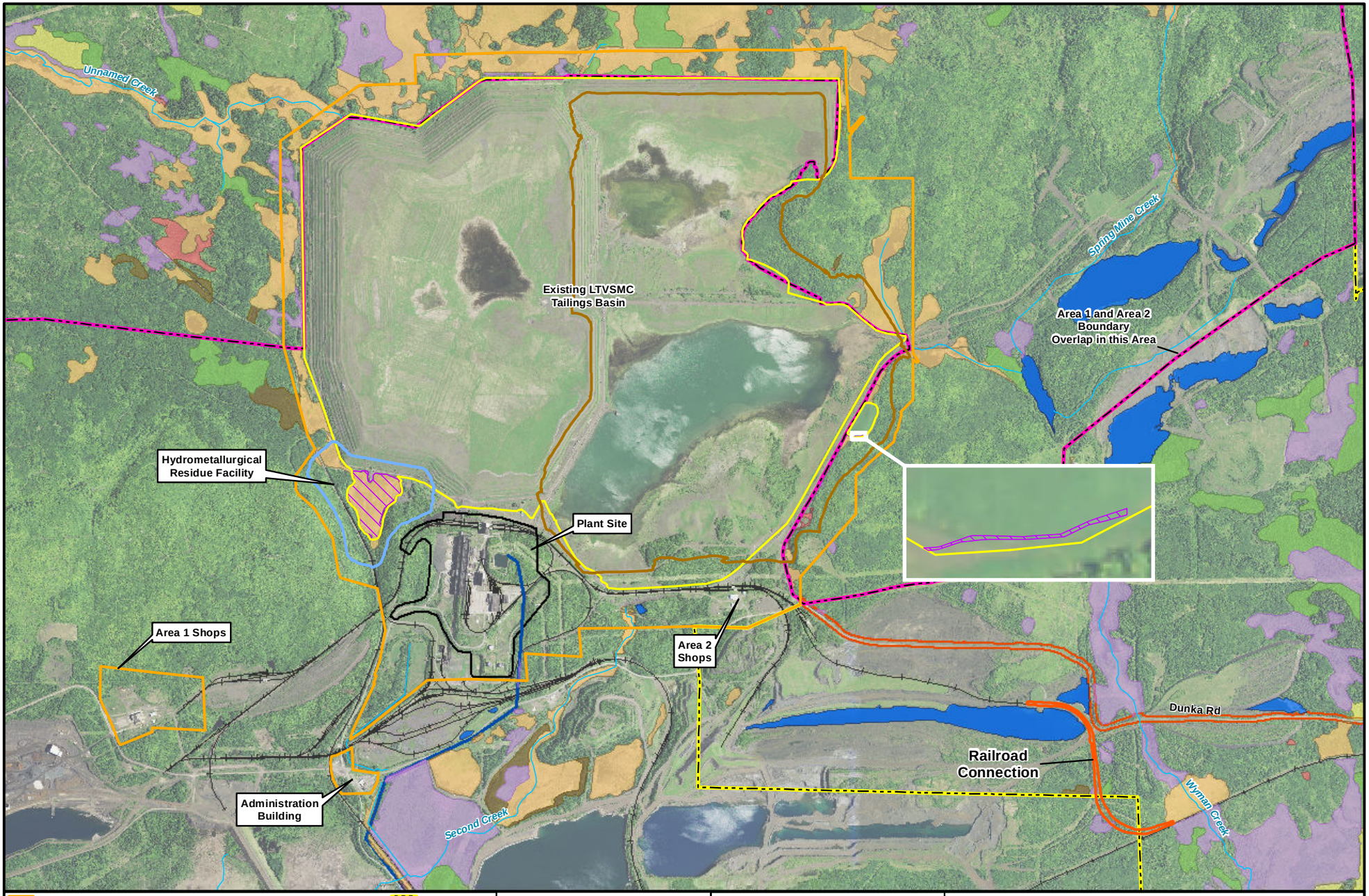

Plant Site
Tailings Basin
Hydrometallurgical Residue Facility
Colby Lake Water Pipeline Corridor
Transportation and Utility Corridor
Cliffs Erie, LLC Permit to Mine Ultimate Tailings Basin Limit
Exempt Wetland

Eggers & Reed Wetland Types

Coniferous Bog
Coniferous Swamp
Hardwood Swamp
Deep Marsh & Shallow Marsh
Open Bog
Sedge Meadow & Wet Meadow
Shrub Swamps (Alder Thicket & Shrub-Carr)
Shallow, Open Water & Lake
Area 1
Area 2
Existing Railroad
Stream/River

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 1,000 2,000 4,000 Feet

Figure 4.2.3-6
Wetland Community Types - Plant Site
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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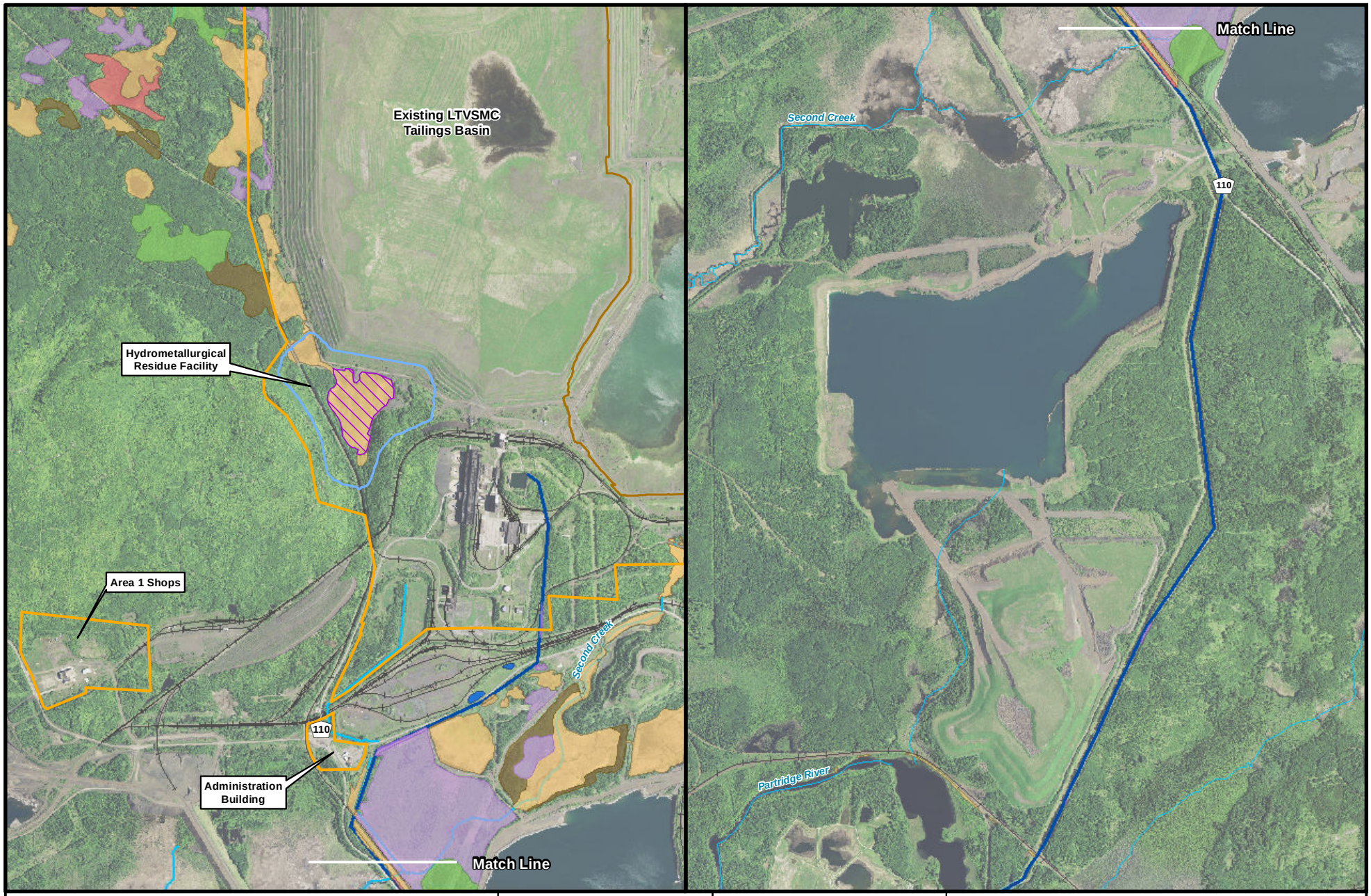

Colby Lake Water Pipeline Corridor
Plant Site
Hydrometallurgical Residue Facility
Stream/River
Exempt Wetland

Eggers & Reed Wetland Types
Deep Marsh & Shallow Marsh
Shrub Swamps (Alder Thicket & Shrub-carr)
Sedge Meadow & Wet Meadow
Shallow, Open Water & Lake
Coniferous Bog
Coniferous swamp
Hardwood swamp
Open bog

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 500 1,000 2,000 3,000 Feet

Figure 4.2.3-7
Wetland Community Types -
Colby Lake Water Pipeline Corridor
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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4.2.3.2.2 Hydrology, Wetland Vegetation, and Community Types

The NorthMet Project area is located near the headwaters of the Partridge River and Embarrass River watersheds. The Partridge River and the Embarrass Rivers are both tributary to the St. Louis River, which is located within the Lake Superior Basin. A portion of the Plant Site and the Colby Lake Water Pipeline Corridor are located within the Upper Partridge River Watershed, while the majority of the Plant Site and the remaining portion of the Colby Lake Water Pipeline Corridor are located in the Embarrass River watershed. See Section 4.2.2 for more information on water resources.

Currently, groundwater and surface water seepage from the Tailings Basin drain towards Mud Lake Creek to the north, Trimble Creek to the northwest, and Unnamed Creek to the west. Runoff from the outer slopes of the Tailings Basin is tributary to the surrounding creeks and precipitation falling within the Tailings Basin is contained in the basin.

The hydrogeologic setting of the Embarrass River watershed is generally similar to the Partridge River watershed, although the unconsolidated deposits are generally thicker and more continuous north of the Plant Site area along the Embarrass River valley. The Plant Site is located south of the Laurentian Divide and the area is underlain by granitic rocks of the Giants Range batholith. Although these rocks may be fractured to some extent, they are expected to have significantly lower hydraulic conductivity than the bedrock units at the Mine Site. There are some wetlands located within the Plant Site and saturated conditions generally exist less than 10 ft below the ground surface, like the Mine Site. Similar to the Mine Site, the degree of hydraulic connection between the wetland areas and adjacent unconsolidated deposits and bedrock at the Plant Site is expected to be variable, depending on the characteristics of the wetlands and the localized hydraulic conductivity and degree of bedrock fracturing. Given the very low hydraulic conductivity of the underlying bedrock, there is minimal potential for hydraulic connection between bedrock and wetlands.

The southwest corner of the Plant Site, the former LTVSMC processing plant, has almost entirely been disturbed by past mining activities. Although there is a plant reservoir located east of the concentrator, the plant reservoir is not anticipated to be regulated as a wetland during permitting as it was created during past mining activities (see Figure 4.2.3-6) (PolyMet 2015b) The incidental status will be determined during wetland permitting. Wetland hydrology at the Plant Site has been affected by the operation of the existing LTVSMC Tailings Basin. Evidence suggests that hydrologic changes from seepage originating from the Tailings Basin, along with beaver dams, have resulted in inundation of wetland areas immediately north of the Tailings Basin (Barr 2008b). Wetlands within the Plant Site are presented in Table 4.2.3-5 and Figure 4.2.3-6.

The existing wetlands differ from the wetlands that occupied the area prior to the construction of the existing LTVSMC Tailings Basin. Historical aerial photographs (1940 and 1948) indicate the presence of large wetland complexes that were a mixture of forested and shrub swamp wetlands, which were primarily saturated to the surface with relatively few open water areas. Past disturbances that have affected the hydrology and vegetative characteristics of the wetlands in the vicinity of the existing LTVSMC Tailings Basin include seepage from the basin along with beaver dams, culverts, road construction, parking areas, railroad embankments, and diversion of flowages (Barr 2008k).

The Plant Site, the Colby Lake Water Pipeline Corridor, and the Second Creek area contain wetland resources (see Table 4.2.3-5). Portions of the existing LTVSMC Tailings Basin and the Hydrometallurgical Residue Facility are located within the LTVSMC Permit to Mine Ultimate Tailings Basin Limit Boundary. When LTVSMC ceased production in January 2001, the mining-related assets were transferred to Cleveland Cliffs, Inc., which formed Cliffs Erie LLC. Wetlands (28.6 acres) located within the Cliffs Erie (formerly LTVSMC) Permit to Mine Ultimate Tailings Basin Limit Boundary are not anticipated to be regulated during permitting as they are an actively permitted waste storage facility (see Figure 4.2.3-6) (PolyMet 2015b). The incidental status will be determined during wetland permitting.

The regulated wetlands within the Plant Site include a total of 52 wetlands covering 246.1 acres. Wetlands located within the Plant Site are presented in Table 4.2.3-5 and Figure 4.2.3-6. A 0.03-acre area of sedge/wet meadow within the Tailings Basin and a 28.6 acre area of shallow marsh within the Hydrometallurgical Residue Facility are anticipated to be regulated during permitting as they are both located within the Cliffs Erie Permit to Mine Ultimate Tailings Basin Limit Boundary. The incidental status will be determined during wetland permitting. Existing wetland resources within the Plant Site consist largely of deep marshes and shallow marshes with dead black spruce trees scattered throughout (Barr 2008l; PolyMet 2015b). Other smaller wetland areas are coniferous swamps, hardwood swamps, sedge/wet meadows, and shrub swamps.

There would be no construction within the Colby Lake Water Pipeline Corridor as the existing pipeline would be used to provide water for the NorthMet Project Proposed Action. A total of 14 wetlands covering 7.0 acres were identified within the Colby Lake Water Pipeline Corridor (see Figure 4.2.3-7 and Table 4.2.3-5). The wetlands in the corridor include shallow marshes (37 percent), shrub swamps (29 percent), sedge/wet meadows (19 percent), and deep marshes (14 percent). The wetlands are adjacent to an unpaved, gravel road and within a previously disturbed corridor (PolyMet 2015b).

There would be no construction within the Second Creek area, which is located south of the Plant Site. A total of 30 wetlands covering 298.9 acres were identified within the Second Creek area of analysis (see Figure 4.2.3-6 and Table 4.2.3-5). The wetlands in the Second Creek area of analysis included shrub swamps (44 percent), shallow marshes (35 percent), deep marshes (7 percent), hardwood swamps (7 percent), coniferous swamp (6 percent), sedge/wet meadows (less than 1 percent), and open water (less than 1 percent) (PolyMet 2015b).

Overall, Area 2 contains 373 wetlands covering 8,621.9 acres of the 19,396.7-acre area, or approximately 44 percent of Area 2. The wetlands are shown on Figure 4.2.3-5. Table 4.2.3-5, below, summarizes the wetland areas represented by each Eggers and Reed (1997, 2014) wetland community type classification system (Barr 2011d; PolyMet 2015b).

Shrub swamps, which include both alder thicket and shrub-carr wetland types, represent the most abundant wetland type within Area 2 comprising approximately 34 percent of the overall wetland area. These shrub swamps are dominated by either alder or willow species, with some dogwoods also present. The ground layer is dominated by Canada bluejoint grass and sedges, woolgrass, rushes, and ferns are also present. Sphagnum mosses may also be present but do not typically form a continuous mat within these shrub swamps. Soils in shrub swamps are usually fibric and hemic peat at the surface underlain by bedrock or mineral soil (Barr 2011d; PolyMet 2015b).

Coniferous swamps within Area 2 are the second most abundant wetland type, comprising approximately 29 percent of the overall wetland area. These swamps are made up of black spruce and/or tamarack, with balsam fir and northern white cedar present in some areas. Deciduous tree species, such as aspen, birch and, to a minor extent, black ash, are also present in some locations. The shrub layer is observed to be typically dominated by alder and willow species. The ground layer commonly includes Canada bluejoint grass, sedges, bunchberry, wild sarsaparilla, and starflower. Sphagnum mosses are also present in the ground layer; however, a continuous sphagnum mat is usually absent. Soils in the coniferous swamps are generally organic and are usually saturated to the surface throughout much of the growing season (Barr 2011d; PolyMet 2015b).

Coniferous bogs are the third-most abundant wetland type within Area 2, representing approximately 12 percent of the overall wetland area, while open bogs represent only a small component of wetlands in Area 2 (approximately 4 percent). Coniferous bogs generally have a tree cover greater than 50 percent, which is typically dominated by black spruce and/or tamarack. Forested wetlands that are acid peatlands dominated by dense cover of black spruce and/or tamarack with a more or less continuous carpet of Sphagnum mosses have been classified as coniferous bogs in the Eggers and Reed (1997, 2014) classification system. Occasionally, there are areas with balsam fir, jack pine, and northern white cedar present within the large coniferous bog wetland complexes. The open bogs do not support a dense tree cover and it was observed that typically only a scattering of immature black spruce and/or tamarack are present (Barr 2011d; PolyMet 2015b).

The shrub layer and ground layer of coniferous bogs and open bogs have similar composition. The shrub layer is typically dominated by ericaceous shrubs such as leatherleaf, bog Labrador-tea, and cranberry. The ground layer commonly includes a continuous sphagnum moss mat with various sedges and herbaceous vegetation also observed. Northern pitcher plants are abundant in the large bog areas that surround Mud Lake. Soils in the coniferous bogs and open bogs generally consist of fibric peat that is usually saturated to the surface throughout much of the growing season (Barr 2011d; PolyMet 2015b).

Shallow and deep marshes are present within Area 2, and together represent about 14 percent of the wetland area. These wetlands are dominated by cattails, with sedges and Canada bluejoint grass also present. Soils in the shallow and deep marshes are typically organic at the surface and underlain by mineral soils. The shallow marshes present are typically inundated with up to 6 inches of water throughout the entire growing season, while the deep marshes are inundated with over 6 inches of water throughout the entire growing season. These wetlands are often associated with disturbances, such as beaver activity (Barr 2011d; PolyMet 2015b).

Hardwood swamps are present but not abundant in Area 2. The hardwood swamps that are present are dominated by black ash, aspen, and birch. Coniferous trees, such as balsam fir, black spruce, and northern white cedar are occasionally present in these hardwood swamps. The shrub layer is generally dominated by alder and young saplings while the ground layer species present include Canada bluejoint grass, sedges, and ferns. Sphagnum mosses are also observed; however, they do not typically form a continuous mat. Soils in the hardwood swamps are either organic or mineral and are usually saturated throughout much of the growing season (Barr 2011d; PolyMet 2015b).

Sedge meadow and wet meadow communities are present within Area 2 but represent only a small proportion of the total wetland area. These wetlands are populated by sedges, Canada bluejoint grass, woolgrass, manna grass, and bulrushes. Soils in the sedge meadows and wet meadow communities are typically organic at the surface and underlain by mineral soils. These wetlands are generally saturated close to the ground surface or have shallow inundation for prolonged periods during the growing season (Barr 2011d; PolyMet 2015b).

Table 4.2.3-5 Total Wetland Acreage by Wetland Type for Plant Site, Colby Lake Water Pipeline Corridor, Second Creek Area, and Area 2

	Plant Site[2]		Colby Lake Water Pipeline Corridor		Second Creek Area[5]		Area 2	
Eggers and Reed Class[1]	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**
Coniferous bog	0.0	0	0.0	0	0.0	0	1017.9	12
Coniferous swamp	14.4	5	0.0	0	16.8	6	2,536.9	29
Deep marsh	106.6	39	1.0	14	19.6	7	513.0	6
Hardwood swamp	1.0	<1	0.0	0	21.1	7	161.2	2
Open bog	0.0	0	0.0	0	0.0	0	353.6	4
Open water (includes shallow, open water, and lakes)	0.9	<1	0.0	0	1.3	<1	285.4	3
Sedge/wet meadow	1.5[(3)]	<1	1.4	19	1.3	<1	137.52	2
Shallow marsh	135.9[(4)]	50	2.6	37	106.0	35	654.0	8
Shrub swamp (includes alder thicket and shrub-carr)	14.4	5	2.1	29	132.9	44	2,961.6	34
Total[6]	274.7	100	7.0	99	298.9	100	8,621.9	100

Source: PolyMet 2015b.

1 Eggers and Reed 1997, 2014.
2 There are 52 unique wetland areas at the Plant Site, which includes the Tailings Basin and Hydrometallurgical Residue Facility footprint. Two wetlands (ID 1155 and 1159) have been split between the Tailings Basin and Hydrometallurgical Residue Facility footprint in the Wetland Data Package for a total of 54 wetlands resource areas in Wetland Data Package report.
3 A 0.03-acre area of this wetland type is classified as exempt and is not anticipated to be regulated during permitting. The incidental status will be determined during wetland permitting.
4 A 28.56-acre area of this wetland type is classified as exempt and is not anticipated to be regulated during permitting. The incidental status will be determined during wetland permitting.
5 A total of 30 wetlands are associated with the Second Creek area of analysis; however, only 22 are unique to the Second Creek area of analysis as one wetland is associated with the Plant Site and 7 wetlands are located within the Colby Lake Water Pipeline Corridor. To avoid double counting during the analysis of impacts, these 8 wetlands (6.2 acres) would be excluded from the Second Creek area of analysis.
6 Percent totals are greater than 100 percent due to rounding.

4.2.3.2.3 Wetlands Functional Assessment

Wetlands within the Tailings Basin have been previously affected by the LTVSMC tailings deposition, roads, and impoundment. The majority (92 percent) of the wetlands within this area are currently rated as low-quality with low vegetative diversity/integrity. Eight percent of the wetlands within the Tailings Basin are rated as moderate quality. The wetlands within the Hydrometallurgical Residue Facility are located on the south side of an unpaved, gravel road with small buildings and associated facilities used in the former LTVSMC operations. These wetlands are currently rated as low-quality (PolyMet 2015b).

The majority of wetlands within the Colby Lake Water Pipeline Corridor, which are located adjacent to an unpaved, gravel road and within a previously disturbed corridor, are rated as low-quality (93 percent), with the remaining wetlands rated as moderate-quality (7 percent) (PolyMet 2015b).

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4.2.4 Vegetation

This section describes the existing cover type categories, plant communities, and individual plant species in the NorthMet Project area. Cover type categories and plant communities are defined for each parcel, and their geographic locations are presented on the corresponding figures. Minnesota Biological Survey (MBS) Sites of Biodiversity Significance, Scientific and Natural Areas (SNAs), and culturally important plant species are also discussed for each parcel. Species are grouped into two partially overlapping categories: state-listed Endangered, Threatened, or Special Concern (ETSC) species; and the USFS's Regional Foresters Sensitive Species (RFSS). There are no federally listed plant species within the NorthMet Project area.

Additional information beyond what the MDNR Natural Heritage Information System (NHIS) contained, such as species conservation ranking, distribution, and habitat, were obtained from NatureServe, an online public database that utilizes sources such as scientific literature, web sites, expert knowledge, and information from local data centers. The Bell Museum of Natural History, which maintains an herbarium vascular plant collection database, was also consulted.

Several vegetation surveys have been conducted on the federal lands (including part of the Mine Site) and the non-federal lands. These studies gathered information on dominant plant species within various habitats, as well as the presence or absence of ETSC species.

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list. A Biological Evaluation (BE) has been prepared that contains further information about RFSS. The BE is included in Appendix D.

4.2.4.1 Regional Setting

The Mine Site, Transportation and Utility Corridor, and Plant Site are located in the MDNR-designated Nashwauk Uplands and Laurentian Uplands subsections of the Northern Superior Uplands section of the Laurentian Mixed Forest Province ecoregion, corresponding roughly to the Arrowhead region of northeastern Minnesota (MDNR 2006a; MDNR 2011e). Most of the vegetative cover types in these subsections grow in acidic to neutral glacial materials over Precambrian bedrock (MDNR 2011f; MDNR 2011i). Soils vary from medium to coarse texture, and they support forest communities of aspen-birch, jack pine (*Pinus banksiana*), balsam fir (*Abies balsamea*), white spruce (*Picea glauca*), red pine (*Pinus resinosa*), and white pine (*Pinus strobus*) on the uplands and conifer bogs and swamps on the lowlands.

4.2.4.2 Mine Site

The Mine Site includes a single contiguous 3,014.5-acre tract of land. It is located on both private lands (295.2 acres) and federal lands (2,719.3 acres) within the Superior National Forest.

4.2.4.2.1 Cover Types

Cover types are of several classifications, including MDNR Gap Analysis Program (GAP) land cover types, specific plant communities identified through surveys, MBS Sites of Biodiversity Significance, native plant communities, and SNAs.

Habitat Types

The MDNR uses a hierarchical land classification system called the GAP land cover system, which organizes vegetation communities into 1-acre blocks. The primary GAP land cover types at the Mine Site are upland conifer forest (40 percent) and lowland conifer forest (26 percent), in addition to upland deciduous forest (see Table 4.2.4-1 and Figure 4.2.4-1). Some of the least represented cover types on the Mine Site include cropland/grassland or upland conifer-deciduous mixed forest types. The MDNR GAP land cover types below do not fully represent the extent of mixed forest types, since the cover type level below is fairly specific. As detailed below in ENSR (2005) surveys, there is much more mixed forest types than indicated.

Table 4.2.4-1 NorthMet Mine Site Cover Types

Cover Types	Total Acres	Percent of Area
Upland coniferous forest[1]	1,195.5	40
Lowland coniferous forest[2]	781.2	26
Upland deciduous forest[3]	648.0	21
Shrubland	241.7	8
Disturbed	128.0	4
Aquatic environments	12.7	<1
Cropland/Grassland	4.9	<1
Upland conifer-deciduous mixed forest[4]	2.4	<1
Lowland deciduous forest[5]	0.1	<1
Total	**3,014.5**	**100**

Source: MDNR 2006b.

Notes:
[1] Includes pine and spruce/fir forest cover types.
[2] Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
[3] Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
[4] Includes all mixed coniferous-deciduous forest cover types.
[5] Includes black ash forest cover types.

Plant Community Surveys

The primary cover types at the Mine Site are mixed pine-hardwood forests on the uplands and black spruce (*Picea mariana*) swamp/bog in the wetlands (ENSR 2005). USFS stand data and field verification indicate that northern white cedar also occurs at the Mine Site in lowland conifer forests (Barr 2011d). The remaining forest on the Mine Site is made up of aspen (*Populus* spp.), aspen-birch, jack pine, and mixed hardwood swamp. The relatively small amount of grass/brushland habitat that is present is land recovering from past logging through natural succession. There are also small areas of open water and disturbed ground that were previously cleared for logging roads and log landings. Of the wetlands that are located on the Mine Site, the majority (92 percent) is rated as having a high overall wetland quality and 8 percent are of moderate overall wetland quality. Vegetation diversity and integrity are rated moderate to high for all wetlands because recent human contact and alteration are minimal and the wetlands have a relatively constant supply of water. Section 4.2.3 provides a more detailed discussion on wetlands.

Many of the upland forest areas on the Mine Site have been harvested in the last 20 to 60 years. The oldest forest at the Mine Site includes approximately 297 acres of 40- to 80-year-old trees within the mixed pine-hardwood forest in the southwest portion of the Mine Site (ENSR 2005).

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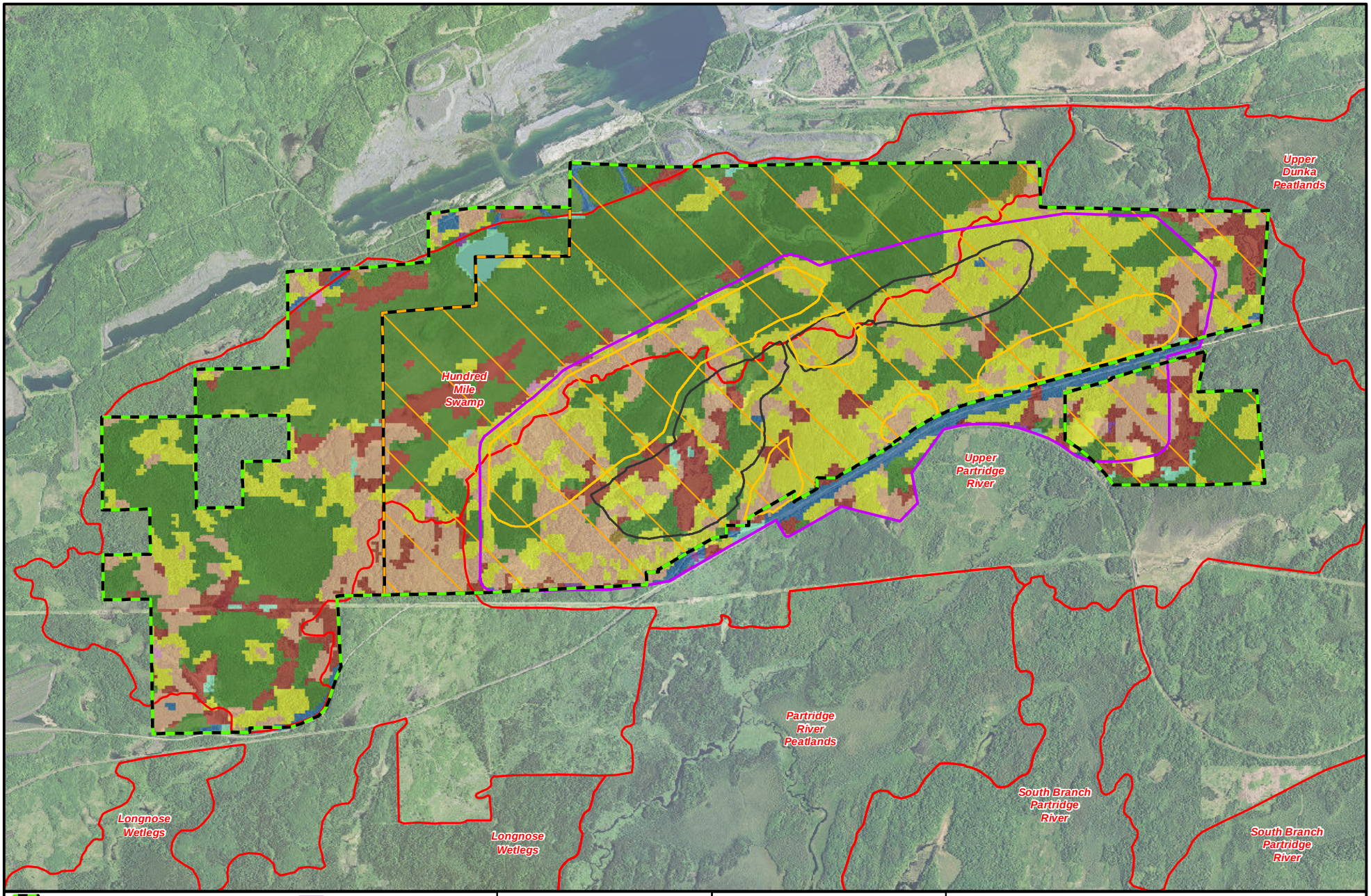

Federal Lands
Alternative B: Smaller Federal Parcel
Mine Site
Stockpile
Mine Pit
MBS Site of Biodiversity Significance

Land Cover Classes

Aquatic Environments
Cropland/Grassland
Lowland Conifer Forest
Lowland Deciduous Forest
Disturbed
Shrubland
Upland Conifer Forest
Upland Conifer-Deciduous mix
Upland Deciduous Forest

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 0.25 0.5 1 Miles

Figure 4.2.4-1
Land Cover/Habitat Types - Federal Lands and Mine Site
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Minnesota

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Minnesota Biological Survey

The MDNR operates the MBS program, which includes spatial information from survey reports on native plant communities and rare species. Sites of Biodiversity Significance are designated and ranked by the MDNR based on the environmental conditions present, including native plant communities, rare species, and unique habitat. The MBS utilizes a four-tiered ranking system: Outstanding, High, Moderate, and Below (from highest to lowest). Sites of High Biodiversity Significance contain very good-quality occurrences of the rarest species, high-quality examples of rare native plant communities, and/or important functional landscapes (MDNR 2008a). The entire 3,014.5-acre Mine Site has been characterized by the MBS as various Sites of High Biodiversity Significance due to the presence of the One Hundred Mile Swamp site, which covers 15 percent of the Mine Site, and the Upper Partridge River site, which is 85 percent of the Mine Site (see Figure 4.2.4-2) (MDNR 2008a).

Native plant communities are also ranked by the MDNR by their quality and abundance in a given area. “Imperiled” or “vulnerable” designations indicate that the communities have high ecological value, are rare in a given area, and/or could face danger of extirpation. Those with “apparently secure” designations are uncommon in a given area, but are not rare. Those with “widespread and secure” designations are fairly common and in no immediate risk of extirpation. Native plant communities are identified by their name and a unique code assigned to them by the MDNR (e.g., FDn32c). Two native plant communities, black spruce-jack pine woodlands (FDn32c; 34 percent of Mine Site) and rich black spruce swamp (FPn62a; 7 percent of Mine Site), have been characterized by the MBS as “imperiled/vulnerable” and “vulnerable,” respectively (MDNR 2008b). Poor tamarack-black spruce swamps (APn81b) and black spruce bogs (APn80a1) are ranked as “apparently secure” based on abundance, distribution, trends, and threats (MDNR 2008b). Aspen-birch forests: balsam fir subtype (FDn43b1), alder (*Alnus* spp.) swamps (FPn73a), poor black spruce swamps (APn81a), and low shrub poor fens (APn91a) are all considered “widespread and secure.”

Scientific and Natural Areas

The MDNR SNA program designates and preserves areas that have outstanding rare resources or features. There are no lands designated or nominated for designation as SNAs on the Mine Site (MDNR 2006c; MDNR, Pers. Comm., February 14, 2012).

Culturally Important Plants

Wild rice is an important plant species to the Bands, as well as an important wildlife food source. The MPCA staff have provided draft recommendations regarding three segments within the Partridge River watershed as waters used for the production of wild rice; the closest segment is about 2 miles from the Mine Site and includes the lower portion of the Upper Partridge River just upstream of the railroad bridge near Allen Junction to where it enters Colby Lake (see Figure 5.2.2-1) (MPCA 2012b). There were no observations of wild rice in Colby Lake itself or the tributary stream Wyman Creek (Barr 2011a; Barr 2012a; MPCA 2012b). The MPCA’s draft staff recommendation identifies the portion of the Partridge River from Colby Lake to its confluence with the St. Louis River as a water source used for production of wild rice. Small populations of wild rice have been observed in Second Creek from First Creek to its confluence with the Partridge River (Barr 2011a). Natural resources culturally important to the Bands are discussed in Section 4.2.9.3.3.

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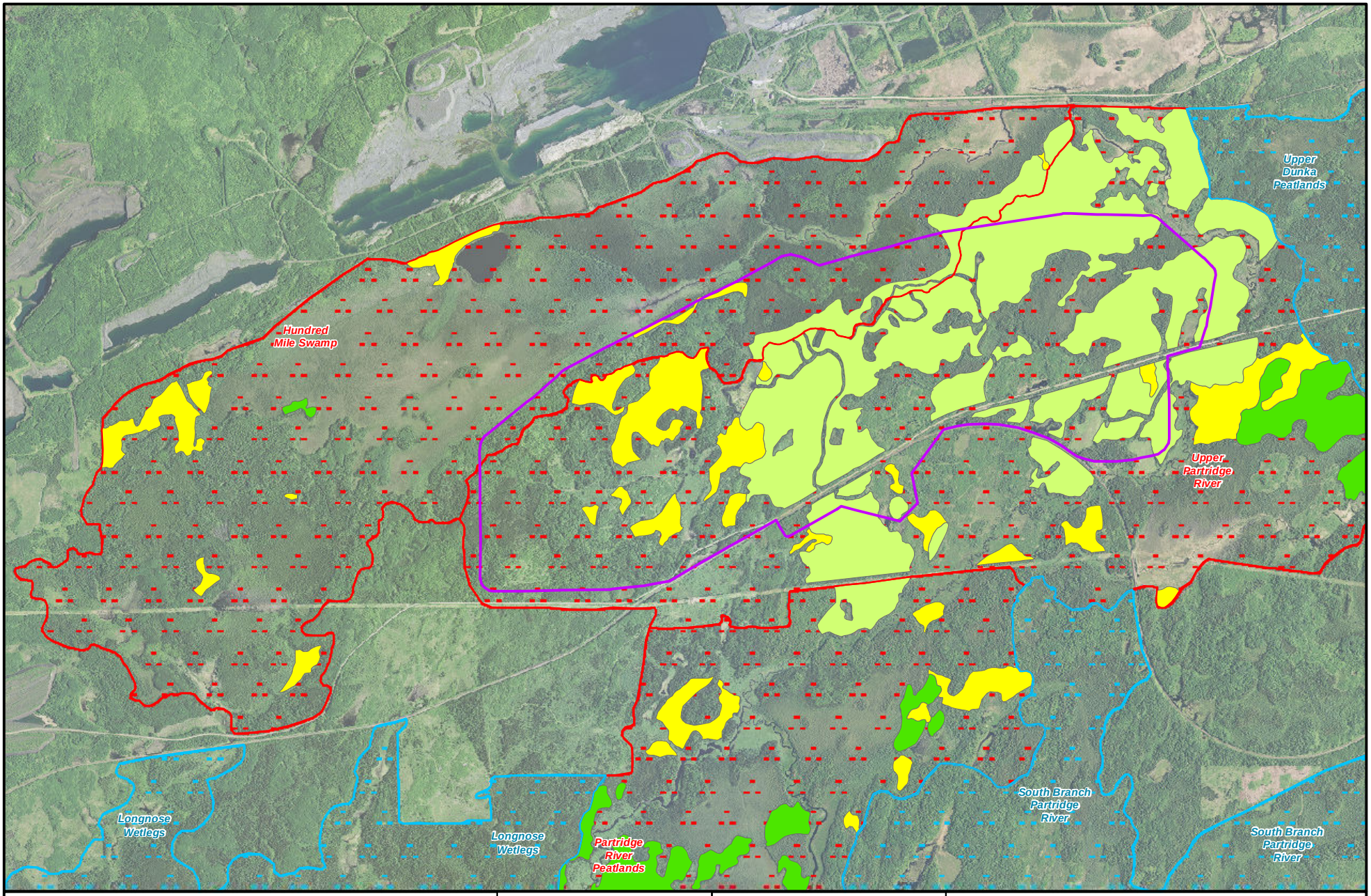

Mine Site

MBS Site of Biodiversity Significance - High

MBS Site of Biodiversity Significance - Moderate

Native Plant Community (S-Rank)

S2 - imperiled

S2-S3 - imperiled/vulnerable

S3 - vulnerable

MNDNR

US Army Corps of Engineers
St. Paul District

N W E S

0 0.25 0.5 1 Miles

Figure 4.2.4-2

Minnesota Biological Survey - Federal Lands and Mine Site

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National Hierarchical Framework of Ecological Units

The National Hierarchical Framework of Ecological Units (NHFEU) is a land classification system that uses a nested hierarchy of eight levels of ecological units (Cleland et al. 1997). Units are differentiated using a combination of physical and biological factors, such as geology, topography, soils, and vegetation. The Landscape scale contains the Land Type Association (LTA) level, which is defined using several factors, including bedrock types, lake and stream distributions, wetland patterns, and pre-European settlement vegetation (MDNR 2011g). The Land Unit scale contains the ELT level, which is a subtype of the LTA level. The MDNR and USFS also have an ECS that identifies and classifies lands in a similar fashion according to provinces, sections, subsections, and LTAs (MDNR 2011g).

The portion of the One Hundred Mile Swamp that is on the federal lands, including part of the Mine Site, has been identified as a Site of High Biodiversity Significance and was aerially surveyed by Chel Anderson in 1997 (MDNR 1997). The One Hundred Mile Swamp comprises approximately 3,028 acres located within LTA 8A – Big Rice Outwash (MDNR 1997), which has since been reclassified as LTA 212Le11 – Big Lake-Bird Lake End Moraines. Two other sites besides the One Hundred Mile Swamp site were surveyed on the ground and by air in LTA 212Le11. These sites provide a good representation of most of the LTA's biological and physical attributes at the ELT level, as mentioned above. The One Hundred Mile Swamp and the two other sites surveyed provide a complete representation of the prominent ELTs present within LTA 212Le11.

4.2.4.2.2 Invasive Non-native Plants

Invasive non-native plants are a concern because they can quickly form self-sustaining monocultures that out-compete native plants or reduce the quality of wildlife habitat, particularly in disturbed areas. "Non-native" species are those that have been introduced, or moved, by human activities to a location where they do not naturally occur (MDNR 2011b). "Invasive" species are non-native species that cause ecological or economic problems (e.g., out-competing indigenous species or altering the existing ecological community through rapid development of monocultures). In general, few invasive non-native plants have been observed on the federal lands because wetland disturbance has been minimal, upland disturbance has been restricted to timber harvests, and human access has been limited, thereby reducing the spread of these plants (AECOM 2011a; ENSR 2005). No known occurrences of invasive species on the federal lands are listed in the Superior National Forest invasive plant geodatabase, but no inventories have been performed in the NorthMet Project area (USFS 2010a). The majority of representative wetland locations surveyed on the federal lands yielded 100 percent native plants with no occurrences of non-native species at those sites according to MnRAM 3.2 worksheets (AECOM 2011d). Field surveys indicate that disturbed upland areas on the federal lands contain occurrences of yellow sweetclover and bladder campion, both of which are invasive non-native species. Yellow sweetclover invades grasslands and early successional habitats by overtopping and shading out native species (MDNR 2011b). Bladder campion is a prolific seed-producer and can spread vegetatively, as well.

A vegetation survey of mines on the Mesabi Iron Range (Apfelbaum et al. 1995) identified a large number of invasive non-native plant species that could invade the Mine Site, and some species are estimated to be currently present on the Mine Site (see Table 4.2.4-2). Some of these

species are grasses and legumes that were planted on mines and other sites to reduce erosion and to fix nitrogen into the soil as part of a reclamation effort (e.g., redtop, smooth brome, birdsfoot trefoil, yellow sweetclover, white sweetclover, alfalfa, timothy, Kentucky bluegrass, Canada bluegrass, and white clover). In addition, a road weed survey by the Superior National Forest (USFS 2011k) documented several invasive species (species tracked by the USFS and Minnesota Class 2 invasive species) within 3 miles of the Mine Site, primarily along roadways (see Table 4.2.4-3). Species with a high percentage of occurrences in the surveys (e.g., common tansy) are more likely to occur on the Mine Site.

Table 4.2.4-2 Invasive Non-native Plant Species Found on Mine Sites in the Mesabi Iron Range

Scientific Name	Common Name	Percent Occurrence[1]	Wetland/ Upland	Estimated Abundance at NorthMet Mine Site
Bromus inermis	Smooth brome	60	U	Uncommon
Tanacetum vulgare	Common tansy	60	U	Uncommon
Taraxacum officinale	Dandelion	60	U	Common
Cirsium arvense	Canada thistle	40	U	Uncommon
Phleum pratense	Timothy	40	U	Common
Poa pratensis	Kentucky bluegrass	40	U	Common
Leucanthemum vulgare	Oxeye daisy	30	U	Common
Lotus corniculatus	Birdsfoot trefoil	30	U	Common
Hieracium pratense	Yellow hawkweed	20	U	Uncommon
Lychnis alba	Bladder campion	20	U	Uncommon
Melilotus officinalis	Yellow sweetclover	20	U	Uncommon
Agrostis alba	Redtop	10	W/U	Uncommon
Cirsium vulgare	Bull thistle	10	U	Uncommon
Hieracium aurantiacum	Devil's hawkweed	10	U	Common
Medicago lupulina	Black medic	10	U	Common
Trifolium repens	White clover	10	U	Common

Source: Apfelbaum et al. 1995.

Note:
[1] Percent occurrence is the percentage of mine areas in the Mesabi Iron Range with reported observations based on 3-minute surveys at 10 mine areas. Three-minute surveys report the most abundant plant species observed during a 3-minute time period and provide a rough estimate of species abundance.

Table 4.2.4-3 Invasive Non-native Plant Species Found Within 3 Miles of the Mine Site and Plant Site by the USFS Road Weed Survey

Scientific Name	Common Name	Percent Occurrence Near Plant and Mine Sites[1]	Wetland/ Upland
Tanacetum vulgare[3]	Common tansy	35	U
Hypericum perforatum[2]	St. John's wort	29	U
Cirsium arvense[3]	Canada thistle	24	U
Cirsium vulgare	Bull thistle	6	U
Centaurea stoebe (*C. maculosa*)[3]	Spotted knapweed	5	U

Source: USFS 2011k.

Notes:
[1] Percent occurrence is the observed number of populations of the species divided by the 96 total plant populations identified within 3 miles of the Mine and Plant Sites.
[2] Tracked by USFS.
[3] Minnesota Class 2 - Controlled noxious weed as identified by the 2012 Minnesota Noxious Weed Law.

4.2.4.2.3 Threatened and Endangered Plant Species

Endangered, Threatened, and Special Concern Plant Species

No federally listed threatened and endangered plant species are known to occur on the federal lands, including the Mine Site. However, ten state-listed ETSC plant species are known to occur in the vicinity of the Mine Site. Based on a review of the MDNR NHIS and field investigations (AECOM 2009b; Barr 2007i; Johnson-Groh 2004; Pomroy and Barnes 2004; Walton 2004), one state endangered species, and nine state species of special concern have been identified on the Mine Site (see Table 4.2.4-4 and Figure 4.2.4-3). No other state-listed species are known to occur and no appropriate habitat for other species occurs on the Mine Site. Minnesota's endangered species law (*Minnesota Statute*, § 84.0895) and associated rules (*Minnesota Rules*, part 6212.1800 to 6212.2300 and 6212.6134) impose a variety of restrictions, permits, and exemptions pertaining to ETSC species. Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list.

Population numbers correspond to the MDNR Element Occurrence within the NHIS database (MDNR, Pers. Comm., February 13, 2012). According to the 2011 MDNR NHIS training notes, Element Occurrences may have multiple observations in a given area, but are considered one population if they are "within close enough proximity to one another to allow for gene flow and there are no known barriers to movement." These clusters of observations are described here as colonies for given populations. An individual is defined as a single plant of a species. A colony is a group of individual plants of one species in a distinct geographic location. A population is a group of individuals or colonies of one species that may be separated geographically, but are close enough to interbreed and persist over time.

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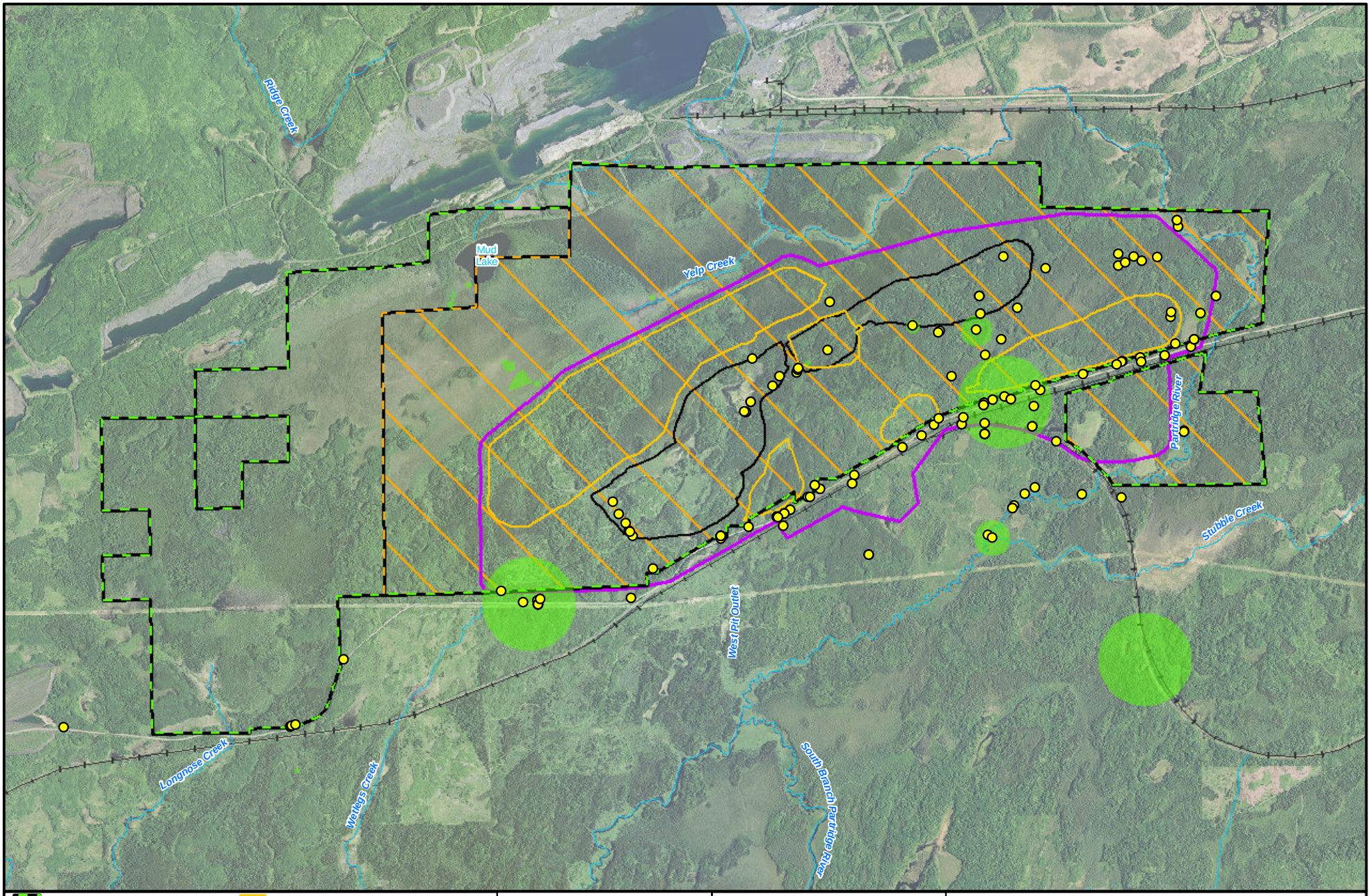

Federal Lands
Alternative B: Smaller Federal Parcel
Mine Site
Rare Species - Pomroy, Johnson - Groh, Barr Reports
Vicinity of Endangered, Threatened, and Special Concern Vegetation Species
Stockpile
Mine Pit
Stream / River
Existing Railroad

Copyright 2014 MDNR. Rare features data included here were provided by the Natural Heritage and Nongame Research Program of the Division of Ecological Resources, MDNR, and were current as of 8/5/2014.

MNDNR
US Army Corps of Engineers
St. Paul District

N
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Figure 4.2.4-3
ETSC Vegetation - NorthMet Project Area
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Table 4.2.4-4 Endangered, Threatened, and Special Concern Plant Species Identified on the Mine Site [5]

Scientific Name	Common Name	State Status[1]	No. of Populations[2]	No. of Individuals[2,3]	Habitat and Location
Botrychium campestre	Prairie moonwort	SC	1	Unknown	Dry soils along the Dunka Road.
Botrychium pallidum	Pale moonwort[4]	SC	1	21	Full to shady exposure, edge of alder thicket, along Dunka Road.
Botrychium rugulosum (*ternatum*)	Ternate or St. Lawrence grapefern[4]	SC	1	4	Early successional habitats, fields, open woods, forests, and along Dunka Road.
Botrychium simplex	Least grapefern[4]	SC	3	~1,580	Full to shady exposure, edge of alder thicket, forest roads, along Dunka Road.
Caltha natans	Floating marsh marigold[4]	E	1	56	Shallow water in ditches and streams, alder swamps, shallow marshes, beaver ponds, and Partridge River mudflat.
Eleocharis nitida	Neat spikerush[4]	SC	1	~1,562 ft^2	Full exposure, moist ditches along Dunka Road, wet area between railroad grades, and railroad ditch.
Juncus stygius var. *americanus*	Bog rush[4]	SC	1	Unknown	Open-patterned peatlands, rich and poor fens, northern spruce bog within the One Hundred Mile swamp.
Platanthera clavellata	Club-spur orchid	SC	1	Unknown	Black spruce and/or tamarack swamps, northern spruce bog within the One Hundred Mile swamp.
Ranunculus lapponicus	Lapland buttercup	SC	1	~919 ft^2	On and adjacent to Sphagnum hummocks in black spruce stands, up to 60 percent shaded with alder also dominant.
Torreyochloa pallida	Torrey's manna-grass	SC	1	~25 ft^2	In muddy soil along shore and in water within shallow channels, beaver ponds, shallow marshes, along Partridge River.

Sources: AECOM 2009b; Barr 2007i; Johnson-Groh 2004; MDNR 2005; MDNR 2011k; MDNR 2014d; Pomroy and Barnes 2004; Walton 2004.

Notes:
1 E = Endangered, T = Threatened, SC = Species of Special Concern.
2 Note that the number of populations may differ from those given in the NHIS data because of populations found during other surveys.
3 Where the number of individuals could not be determined without damaging the population, patch size (square feet) was used as a representative abundance measure.
4 These species are also RFSS as tracked by the USFS.
5 Data included here were provided by the Division of Ecological Resources, MDNR, and were current as of August 5, 2014. These data are not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that no significant features are present.

Species Life Histories

The following summary provides descriptions of the life histories, statewide distributions, and sensitivity to disturbance for each of the 10 ETSC species found on the Mine Site.

Prairie moonwort (*Botrychium campestre*) is listed as a species of special concern in Minnesota; it is not listed as an RFSS in the Superior National Forest. It occurs primarily in prairies, dunes, grassy railroad sidings, and fields over limestone bedrock. *B. campestre* is a perennial fern that emerges in early spring and matures in late spring to early summer (eFlora 2011). This species is among the smallest moonworts and is difficult to observe when occurring among prairie vegetation; therefore, it is likely more widespread and abundant within its range than is typically apparent. It is now known to occur in several counties throughout Minnesota and even across the continent (MDNR 2011k). *B. campestre* is less frequently associated with disturbance than many moonwort species. On the Mesabi Iron Range of Minnesota, however, *B. campestre* has been found growing abundantly on sparsely vegetated mineral soil developed from sediments of iron mine tailings ponds.

Pale moonwort (*Botrychium pallidum*) is listed as a species of special concern in Minnesota and as an RFSS in the Superior National Forest. *B. pallidum* was only first identified in Minnesota in 1992 and new populations are documented each year in a variety of habitats across northern Minnesota (MDNR 2011k). It occurs in open early successional habitats, log landings, roadsides, sandy gravel pits, and mine tailings within the Mesabi Iron Range of northeastern Minnesota. This diminutive perennial fern emerges in the late spring, produces spores, and matures within 3 to 4 weeks. Like many of the moonworts, *B. pallidum* may be sensitive to changes in soil mycorrhizae, herbivory from introduced earthworms, vegetative cover (i.e., increased vegetative competition and shading), soil moisture, or other environmental factors affecting suitable microhabitats. Disturbances such as vegetation clearing, mining, soil scarification, reduction of vegetative competition, decreased canopy cover, or fire likely play an important role in the preservation and proliferation of this species.

St. Lawrence grapefern (*Botrychium rugulosum*) (Synonym: *B. ternatum*, ternate grapefern) is listed as a species of special concern in Minnesota and as an RFSS in the Superior National Forest. The name "rugulosum" refers to the tendency of the segments to become wrinkled and convex. Relatively little is known about the overall distribution, genetics, and life history requirements of *B. rugulosum*, and some taxonomists question whether *B. rugulosum* is a distinct species. It is a perennial semi-evergreen fern that occurs in the northern and south-central portions of Minnesota (MDNR 2011k). In northern Minnesota, *B. rugulosum* prefers partially shaded mine tailings, sandy conifer forests and plantations, and shaded vernal pool margins in rich deciduous hardwood forests. It also occurs in wetland areas within habitats subject to past clearing or cultivation (NatureServe 2014b). *B. rugulosum* is similar morphologically and in its life history requirements to *B. multifidum* (leathery grapefern), and these two species are often confused in the field. *B. rugulosum* is most easily distinguished from similar species in the late summer and early autumn when the trophophore (i.e., photosynthetic branch) has matured. Like *B. pallidum*, *B. rugulosum* may be associated with soil mycorrhizae and may be sensitive to increased competition, earthworms, changes in soil moisture, and other environmental factors affecting microhabitats. *B. rugulosum* is often found in small stands of 5 to 10 individuals, though larger populations can also occur (eFlora 2011). Disturbance also likely plays an important long-term role in the proliferation of this species.

Least grapefern (*Botrychium simplex*) is listed as a species of special concern in Minnesota and as an RFSS in the Superior National Forest. Least grapefern occurs throughout northern and central Minnesota, with no occurrences documented in southern Minnesota (Bell Museum of Natural History 2011). Least grapefern was first described as a species in 1823 (eFlora 2011) and

has been extensively surveyed and studied for over a century. *B. simplex* is a perennial fern that produces a single leaf each year and occurs in a variety of natural and disturbed habitats, including brushy fields (often with other species of *Botrychium*), moist or dry woods, edges of forested vernal pools and swamps, mine tailings, and edges of sand/gravel/exposed forest roads. The morphology of the species is quite variable, and the many environmental forms and juvenile stages of *B. simplex* have resulted in the naming of numerous intraspecific taxa (eFlora 2011). Like the other *Botrychium* species, disturbance likely plays an important role in the proliferation of this species.

Floating marsh marigold (*Caltha natans*) is listed as an endangered species in Minnesota and as an RFSS in the Superior National Forest. *C. natans* was first collected in Minnesota in 1889 from Vermilion Lake in St. Louis County (Coffin and Pfannmuller 1988). All subsequent collections have been from St. Louis County (Bell Museum of Natural History 2011) and all known occurrences in the NHIS database occur in St. Louis County. Very few populations are known in Minnesota. Habitat loss is largely the reason behind recent local extirpations of this species in Minnesota (MDNR 2011k). Floating marsh marigold is a perennial aquatic forb and occurs within shallow open water or on moist mud within northern ponds, lakes, slow-moving rivers, streams, ditches, and wet meadows. The species flowers in late spring-summer (i.e., June to August). *C. natans* is found in relatively stable aquatic systems and may be sensitive to disturbances, including alteration of hydrology or hydro-period, water quality, water chemistry, and non-native species invasion, although a few populations are found in disturbed habitats.

Neat spike-rush (*Eleocharis nitida*) is listed as a species of special concern in Minnesota and as an RFSS in the Superior National Forest. Neat spike-rush's distribution in Minnesota is limited to the northeastern counties of the Arrowhead region and west to Itasca County. *E. nitida* was first collected in Minnesota in 1946 from various wetland habitats in Cook and St. Louis counties. Despite the long collection record for this species in Minnesota, relatively few populations have been documented and little is known about the overall distribution of the species throughout the state. *E. nitida* occurs within various wetland habitats of northern Minnesota, including acid bog pools, small streams, areas of seasonal water drawdown (mucky/peaty flats), disturbed wetland edges, and along roads and trails (MDNR 2011k). *E. nitida* is a perennial plant that flowers in late spring and develops fruit in early to mid-summer. Mature achenes (i.e., seed-containing fruit) are often necessary to positively identify *E. nitida* to species (both in the field and herbarium). This rooted perennial species may be intolerant of hydrologic fluctuations and alterations to water quality and chemistry associated with landscape and wetland alteration and development. However, roadside distributions suggest the species may be semi-tolerant to disturbance and at least mild alterations in water quality in the short term.

Bog rush (*Juncus stygius* var. *americanus*) is listed as a species of special concern in Minnesota and as an RFSS in the Superior National Forest. Within Minnesota, bog rush is distributed across the northern and northeastern Arrowhead counties in large patterned peatlands and calcareous fens. It was first documented in St. Louis County in 1886 (Bell Museum of Natural History 2011). It is generally not a dominant species; even in ideal, large-patterned peatland settings, it occurs in isolated colonies with scattered individuals (MDNR 2011k). Bog rush is a perennial graminoid species that occurs in full sun, and, generally, it is restricted to narrow wet zones of bogs and fens where it can exploit small gaps in surrounding vegetation. Since it often grows in calcareous fens, it is influenced in some way by mineralized groundwater. It flowers and bears

fruit in mid to late summer (eFlora 2011). Threats to *J. stygius* var. *americanus* include climate warming, water diversion (since it cannot compete well without vegetation gaps caused by inundation), and invasion of non-native species.

Club-spur orchid (*Platanthera clavellata*) (synonyms: *Habenaria clavellata*, *Gymnadeniopsis clavellata*) is listed as a species of special concern in Minnesota; it is not listed as an RFSS in the Superior National Forest. Club-spur orchid was first recorded in Ramsey County in 1886 and has since been documented in several counties across the northeast Arrowhead region and south to Ramsey and Hennepin counties (Bell Museum of Natural History 2011). It generally occurs in swamp forests with a canopy of black spruce and tamarack, and in non-forested fens with hummocks of *Sphagnum* moss species (MDNR 2011k). *P. clavellata* is a perennial orchid with a root/tuber system that is usually confined to growing within the living moss layer rather than the peat below it. The species flowers in mid-summer (from early to late July), and is insect-pollinated. Germination of the wind-borne seeds requires the presence of certain habitat-specific mycorrhizal fungi. Club-spur orchid may be sensitive to habitat alterations and changes in hydrology. It is suggested that activities several miles from a site could disrupt the hydrological processes (through groundwater and surface water) that are needed to sustain habitat for *P. clavellata* (MDNR 2011k).

Lapland buttercup (*Ranunculus lapponicus*) is listed as a species of special concern in Minnesota; it is not listed as an RFSS in the Superior National Forest. Lapland buttercup occurs throughout much of northern Minnesota, with the exception of extreme northwestern Minnesota. This species was first documented in 1928 in Minnesota from a *Sphagnum* bog in Aitkin County (Bell Museum of Natural History 2011). *R. lapponicus* is a perennial forb species that occurs amongst *Sphagnum* moss hummocks and pools in rich forested swamps in Minnesota, usually under a canopy of northern white cedar (MDNR 2011k). No populations have been found on disturbed sites. Lapland buttercup is sensitive to changes in conifer forest canopy, wetland hydrology/hydro-period, water chemistry, and other environmental factors affecting optimal conifer forest pools and hummock micro-sites.

Torrey's manna grass (*Torreyochloa pallida*) (synonym: *Puccinellia pallida*) is listed as a species of special concern in Minnesota; it is not listed as an RFSS in the Superior National Forest. Torrey's manna grass was first collected in 1886 from Vermilion Lake in St. Louis County (Bell Museum of Natural History 2011). Within Minnesota, *T. pallida* occurs throughout the Arrowhead Region south to Chisago County (along the St. Croix River drainage). Torrey's manna grass is a perennial graminoid species that occurs in various wetland habitats in northern Minnesota. Habitats include shallow muck-bottomed pond and stream shores, bogs, and beaver meadows. Some populations occur within roadside ditches, suggesting the species may be somewhat tolerant of disturbance; however, this rooted perennial wetland species is sensitive to alterations in wetland hydro-period, water level fluctuations, sedimentation, changes in water chemistry associated with landscape alteration, and development and competition from introduced invasive wetland species (e.g., *Typha angustifolia*, *Typha* x *glauca*, *Lythrum salicaria*, *Phragmites australis*, *Phalaris arundinacea*).

Regional Foresters Sensitive Species

The Mine Site is located within the current boundaries of the Superior National Forest; however, following the Land Exchange Proposed Action, the federal lands including a portion of the Mine Site would no longer be National Forest System land. The USFS currently manages 58 vascular

and non-vascular plant species that are listed as RFSS in the Superior National Forest (see Table 4.2.4-5). The list of these species was updated in early 2012 (USFS 2012f). The assessment of effects to RFSS would be detailed in the Biological Evaluation; this section provides a summary based on RFSS plants that could exist on the NorthMet Project area lands. The Biological Evaluation is an assessment of the likely effects on species with viability concerns and their suitable habitat as a result of the NorthMet Project Proposed Action.

Eight of the RFSS are state-listed ETSC species relevant to the NorthMet Project Proposed Action (*Botrychium pallidum*, *Botrychium rugulosum*, *Botrychium simplex*, *Caltha natans*, *Eleocharis nitida*, *Juncus stygius*, *Pyrola minor*, and *Saxifraga paniculata*) and are discussed above or in Section 4.3.4. All of these species, except *Pyrola minor* and *Saxifraga paniculata*, occur at the Mine Site. The RFSS plant species in Table 4.2.4-5 are grouped according to predominant habitat types/natural communities in which they occur, specifically Management Indicator Habitat (MIH) types if available. Additionally, more specific suitable habitat descriptions within each MIH type are provided for each species, and whether that habitat is potentially present on or near the federal lands, including portions of the Mine Site.

Table 4.2.4-5 USFS RFSS Plant Species within Superior National Forest

Species Name	Common Name	Habitat Description	Potential Habitat on/near Federal Lands
Upland Forest - MIH 1			
Adoxa moschatellina	Muskroot	Shaded damp cliffs and slopes in upland mature northern hardwood forest on North Shore	No
Botrychium lanceolatum	Triangle grapefern	Mature northern hardwood forests	Yes
Botrychium lanceolatum var. *angustisegmentum*	Lanceleaf grapefern	Northern hardwood forest, old fields, old logging roads, trails	Yes
Botrychium lunaria	Common moonwort	Open habitats such as old log landings, sawmill sites, old building sites	Yes
Botrychium michiganense (hesperium) [3]	Michigan moonwort	Open habitats such as old log landings, old dirt roads, gravel pits, power line corridors, borrow pits, old fields, trails, and dredge spoil dumps	Yes
Botrychium mormo	Little goblin moonwort	Mesic northern hardwood forest with thick leaf litter layer	No
Botrychium pallidum [1,2]	Pale moonwort	Open disturbed habitats, log landings, roadsides, dunes, sandy gravel pits	Yes
Botrychium rugulosum [1,2]	Ternate or St. Lawrence grapefern	Generally open habitats, such as old log landings and edges of trails	Yes
Botrychium simplex [1,2]	Least grapefern	Generally open habitats, such as old log landings, roadside ditch, trails, open fields, base of cliff, railroad rights-of-way	Yes

Species Name	Common Name	Habitat Description	Potential Habitat on/near Federal Lands
Carex novae-angliae	New England sedge	Moist woods with sugar maple, also with birch, aspen, tall shrubs; yellow birch and white spruce-dominated forest	Yes
Crataegus douglasii	Douglas' hawthorn	North Shore rocky, gravelly streambeds/ banks and open areas, rocky borders of woods	No
Osmorhiza berteroi	Chilean sweet-cicely	Northern hardwood forest dominated by sugar maple on North Shore	No
Piptatherum (=Oryzopsis) canadense	Canada mountain ricegrass	Sandy/gravelly soil, red pine/jack pine plantations, borders/edges, trail sides, openings	Yes
Polystichum braunii	Braun's holly fern	Cool, shady cliffs and slopes in northern hardwoods in North Shore Highlands subsection	No
*Prosartes trachycarpa (*syn=*Disporum trachycarpum)*	Roughfruit fairybells	Semi-open jack pine forest with aspen, birch, shallow rocky soils, in east Border Lakes subsection	No
Taxus canadensis	Canada yew	Wide variety of uplands and lowlands, including cedar/ash swamps, talus and cliffs, northern hardwoods, aspen/birch forest	Yes
Waldsteinia fragarioides	Barren strawberry	Upland coniferous and deciduous forests, in recently harvested areas, established plantations	Yes
Lowland Black Spruce-tamarack Forest - MIH 9			
Caloplaca parvula	Lichen spp.	Smooth bark of young black ash in moist, humid old-growth black ash stand	No
Calypso bulbosa	Fairy slipper	Hummocks in northern white cedar swamps, moist to wet lowland conifer swamps, and to lesser extent in upland coniferous forests	Yes
Cetraria (=Ahtiana) aurescens	Lichen spp.	Conifer bark in lowland conifer swamps (old cedar/black spruce)	Yes
Cypripedium arietinum	Ram's-head lady's-slipper	White cedar swamps, forests dominated by jack pine, red pine, or white pine	Yes
Drosera linearis	Slenderleaf sundew	Minerotrophic water tracks in patterned peatlands	Yes
Frullania selwyniana	Selwyn's scalewort	Lowland cedar swamps on bark of white cedar	Yes
Menegazzia terebrata	Honey-combed lichen	Cedar swamps, especially old growth, base of cedar trees	Yes
Polemonium occidentale ssp. *lacustre*	Western Jacob's-ladder	White cedar swamps, also mixed conifer swamps, thrives in openings	Yes

Species Name	Common Name	Habitat Description	Potential Habitat on/near Federal Lands
Pyrola minor [2]	Snowline wintergreen/small shinleaf	Black spruce swamps, and ecotone between uplands and lowland alder/conifer swamp, prefers closed canopy	Yes
Ramalina thrausta	Cartilage lichen	Cedar swamps, especially old growth	Yes
Rubus chamaemorus	Cloudberry	Black spruce/sphagnum forest, acidic; Superior National Forest at southern edge of species range	Yes
Sticta fuliginosa	Spotted felt lichen	On hardwood trees in humid, old growth cedar or ash bogs	Yes
Usnea longissima	Beard lichen	On old conifer trees in moist situations, often in or near a conifer or hardwood swamp	Yes
Aquatic Habitats – MIH 14			
Astragalus alpinus	Alpine milkvetch	Sandy, gravelly fluctuating shorelines with sparse vegetation	No
Caltha natans [1,2]	Floating marsh marigold	Shallow water of pools, ditches, sheltered lake margins, slow-moving creeks, sloughs/oxbows, pools in shrub swamps	Yes
Juncus subtilis	Creeping rush	Sandy lakeshore – only known occurrence in BWCAW	No
Listera auriculata	Auricled twayblade	On alluvial- or lake-deposited sands or gravels, with occasional seasonal flooding, associated with riparian alder or spruce/fir forest	Yes
Littorella uniflora (=L. americana)	American shoregrass	Shallow margins of nutrient-poor lakes, seepage lakes, sandy substrate, may have fine gravel/organic soil	Yes
Nymphaea leibergii	Dwarf water-lily	Slow-moving streams, rivers, beaver impoundments 1 to 2 meters deep	Yes
Potamogeton oakesianus	Oakes' pondweed	Quiet, acidic waters of bogs, ponds, and lakes	No
Subularia aquatica	Awlwort	Beach zone of sandy nutrient-poor lakes, shallow lake margins, 15- to 45-centimeter-deep water	Yes
Other - Emergent wetland habitats			
Bidens discoidea	Swamp beggarticks	Silty shores, hummocks in floating mats and swamps, partly submerged logs	Yes
Eleocharis nitida [1,2]	Neat spikerush	Mineral soil of wetlands, often with open canopy and disturbance, such as logging roads/ditches through wetlands	Yes
Juncus stygius [1,2]	Moor rush/bog rush	Shallow pools in non-forested peatlands, often in a sedge-dominated community	Yes
Muhlenbergia uniflora	Bog muhly	Wet sandy beaches, floating peat mats	Yes
Viola lanceolata	Bog white violet	Sandy to peaty lakeshores, borders of marshes and bogs, damp sand ditches	Yes
Other - Cliff, Talus Slopes, and Exposed Rock Habitat			
Arctoparmelia centrifuga	*Arctoparmelia* lichen	Sunny rocks and open talus slopes	No

Species Name	Common Name	Habitat Description	Potential Habitat on/near Federal Lands
Arctoparmelia subcentrifuga	*Arctoparmelia* lichen	Sunny rocks and open talus slopes	No
Arnica lonchophylla	Northern arnica	Cool and moist cliffs and ledges on North Shore	No
Asplenium trichomanes	Maidenhair spleenwort	In crevices of moist, mostly east-facing cliffs, ledges, and talus, Rove formation	No
Carex rossii	Short sedge	Rocky summits, dry exposed cliff faces, rocky slopes, in east Border Lakes subsection	No
Cladonia wainioi	Wain's cup lichen	On rock outcrops and thin soil, exposed sites with lots of light	No
Huperzia appalachiana	Appalachian clubmoss	Shelves and crevices on cliff/talus/rock outcrops, and shrub dominated talus piles	No
Moehringia macrophylla	Largeleaf sandwort	Cliffs/rock outcrops, talus, conifer sites on shallow soils, pine plantation with rocky outcrops, usually semi-open shrub or tree canopy	No
Oxytropis borealis var. *viscida*	Viscid locoweed	Slate cliffs and talus slopes in east Border Lakes subsection	No
Saxifraga cernua	Nodding saxifrage	Cliffs, ledges, diabase cliff (calcium-based feldspars)	No
Saxifraga paniculata [2]	White mountain saxifrage/encrusted saxifrage	Cliffs, sheltered crevices, and ledges of north-facing cliffs	No
Tofieldia pusilla	Scotch false asphodel	Sedge mats at edges of shoreline rock pools along Lake Superior	No
Woodsia glabella	Smooth woodsia	Moist, north-facing cliffs along Lake Superior	No
None Specified			
Pseudocyphellaria crocata	*Pseudocyphellaria* moss	Mossy rocks, trees in partially shaded, moist, frequently foggy habitats	Yes
Peltigera venosa	Felt lichen	Soil and moist cliffs, exposed root wads	Yes

Sources: NatureServe 2011; NatureServe 2014b; USFS 2004a; USFS 2010d; USFS 2012f.

Notes:
[1] Listed as a state ETSC species and located at the Mine Site.
[2] Listed as a state ETSC species and located on the federal or non-federal lands.
[3] Known to occur on the federal lands.

Six state-listed ETSC plant species (*Botrychium pallidum*, *Botrychium rugulosum*, *Botrychium simplex*, *Caltha natans*, *Eleocharis nitida*, and *Juncus stygius*) are also RFSS plants and are located on the Mine Site, as discussed in Section 4.2.4.2.3. *Botrychium michiganense* is also located on the Mine Site, according to MDNR NHIS data, and is an RFSS plant (see Table 4.2.4-5). The USFS designates and maintains data about MIH types on federal lands; MIH types are categories of forest types, including dominant species, stand age class, and stand condition. A smaller subset of all MIH types was used for this RFSS discussion, including upland forest (MIH 1), upland conifer forest (MIH 5), lowland black spruce-tamarack forest (MIH 9), and aquatic habitats (MIH 14). Upland forest (MIH 1) and lowland black spruce-tamarack forest (MIH 9) are most prevalent in the federal lands portion of the Mine Site (see Table 4.3.4-3 and Figure 4.2.4-

4), indicating that the 17 RFSS associated with MIH 1 and the 13 RFSS associated with MIH 9 have the highest probability of occurring on the federal lands, including the Mine Site. Upland conifer forest (MIH 5) occurs in smaller acreage; however, there are no RFSS associated with MIH 5. Since this category overlaps MIH 1, the 17 RFSS associated with MIH 1 may also occur within this category. The lowland emergent habitat type occurs on the federal lands portion of the Mine Site, as well, and the five associated RFSS may be present.

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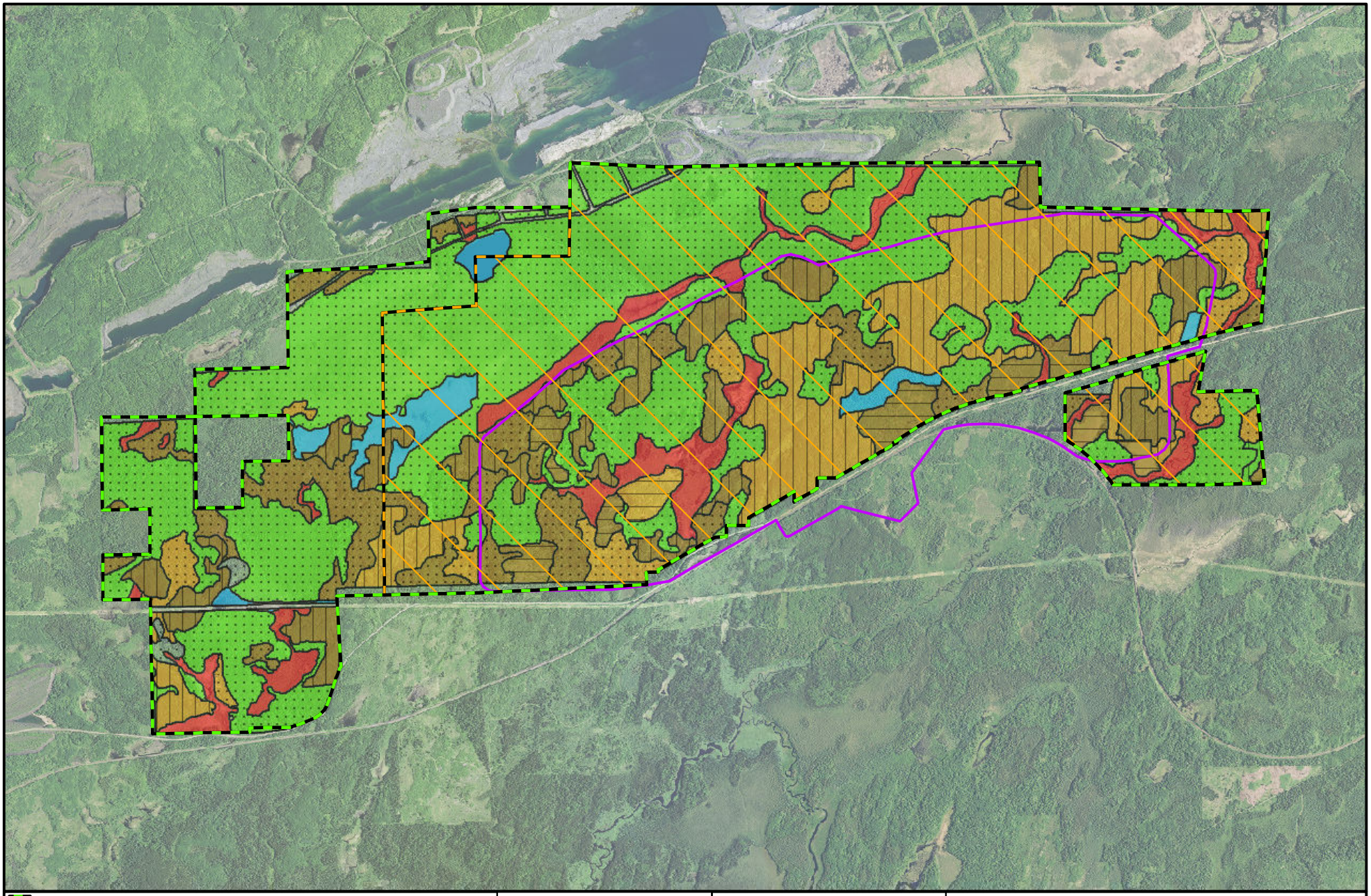

Federal Lands
Alternative B: Smaller Federal Parcel
Mine Site

Management Indicator Habitat

1 - Upland forest
5 - Upland conifer forest
9 - Lowland black spruce-tamarack forest
14 - Aquatic habitats
Other Lowland Emergent
Other Lowland Shrub
Other Upland Grass

Age Classes

N/A
Young
Immature
Mature

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 4.2.4-4
Management Indicator Habitat Types and Age Classes - Federal Lands and Mine Site
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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4.2.4.3 Transportation and Utility Corridor

The Transportation and Utility Corridor includes the existing private Dunka Road, an existing private PolyMet railroad grade, a Minnesota Power Company 138-kV electric transmission line, a proposed Treated Water Pipeline, a proposed 13.8-kV electric distribution line, and a proposed railroad connection between the Cliffs Erie railroad track and existing PolyMet track.

4.2.4.3.1 Cover Types

Habitat Types

Because of prior use during the former LTVSMC taconite mining operation, the Transportation and Utility Corridor is now defined as having a "disturbed" cover type (see Table 4.2.4-6). The remaining MDNR GAP land cover types that are not disturbed include cropland/grassland (8 percent of the Corridor), shrubland (6 percent of the Corridor), and smaller acreages of the remaining types. The MDNR GAP land cover types below may not fully represent the extent of mixed forest types, since the cover type level below is fairly specific, so there may be more mixed forest types than indicated.

Table 4.2.4-6 NorthMet Transportation and Utility Corridor Cover Types

Cover Types	Total Acres	Percent of Area
Disturbed	94.4	79
Cropland/Grassland	9.8	8
Shrubland	7.7	6
Aquatic environments	2.7	2
Upland deciduous forest[4]	2.7	2
Upland coniferous forest[3]	2.6	2
Lowland coniferous forest[1]	0.2	<1
Lowland deciduous forest[2]	0.0	0
Upland conifer-deciduous mixed forest[5]	0.0	0
Total	**120.2[(6)]**	**100**

Source: MDNR 2006b.

Notes:
1 Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
2 Includes black ash forest cover types.
3 Includes pine and spruce/fir forest cover types.
4 Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
5 Includes all mixed coniferous-deciduous forest cover types.
6 Total acres may be more or less than presented due to rounding.

Minnesota Biological Survey

There are two MBS Sites of High Biodiversity Significance (18.8 acres) located within the Transportation and Utility Corridor, including the One Hundred Mile Swamp (2 percent of the Corridor) and the Upper Partridge River (13 percent of the Corridor) (MDNR 2008a).

There are several native plant communities occupying the Transportation and Utility Corridor, most of which have no assigned conservation status rank. The aspen-birch forest: balsam fir subtype (FDn43b1) native plant community (1 percent of the Corridor) is ranked as "widespread and secure" (MDNR 2008b).

Scientific and Natural Areas

There are no SNAs located within the Transportation and Utility Corridor.

Culturally Important Plants

As with the Mine Site discussion, Section 4.2.9.3.3 provides a discussion of natural resources culturally important to the Bands.

4.2.4.3.2 Invasive Non-native Plants

According to the Superior National Forest invasive plant geodatabase, there are no known occurrences of invasive species within the Transportation and Utility Corridor, but no invasive species inventories have been performed in the NorthMet Project area (USFS 2010a). USFS roadside surveys indicate that several invasive non-native species (e.g., common tansy, spotted knapweed, etc.) could be located within the Corridor (see Table 4.2.4-3). A qualitative vegetation field survey conducted by Barr (2012n) indicated that hawkweeds, red and white clover, oxeye daisy, smooth brome, bluegrass, and timothy were observed along the Transportation and Utility Corridor.

4.2.4.3.3 Threatened and Endangered Plant Species

Endangered, Threatened, and Special Concern Plant Species

Based on a review of the MDNR NHIS and field investigations, no federally listed plant species occur on the Transportation and Utility Corridor. However, two state-listed ETSC plant species (*Botrychium pallidum*, *B. simplex*) have been identified within the Transportation and Utility Corridor area (see Figure 4.2.4-3). These two species' populations that occur along Dunka Road immediately adjacent to or overlapping the Mine Site were discussed previously in the review of the Mine Site to avoid repetition. The species (*B. pallidum*) populations that occur along Dunka Road, farther away from and not overlapping the Mine Site are discussed separately below (see Table 4.2.4-7).

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list.

Table 4.2.4-7 Endangered, Threatened, and Special Concern Plant Species Identified within the Transportation and Utility Corridor

Scientific Name	Common Name	State Status[1]	No. of Populations	No. of Individuals	Habitat and Location
Botrychium pallidum	Pale moonwort[2]	SC	3	16	Full to shady exposure, edge of forests along Dunka Road

Source: Barr 2012n.

Notes:
[1] SC = Species of Special Concern
[2] These species are also RFSS as tracked by the USFS.

Species Life History

Section 4.2.4.2.3 discusses the life history of *Botrychium pallidum*.

4.2.4.4 Plant Site

The Plant Site includes the Beneficiation Plant, Area 1 Shops, Area 2 Shops, Hydrometallurgical Residue Facility and Plant, and the Tailings Basin (PolyMet 2015a). The Plant Site itself comprises 4,515.4 acres, but including the surrounding buffer lands that PolyMet owns or has leased surface rights to, the Plant Site consists of approximately 15,000 acres, one-third of which is estimated to have been disturbed by previous LTVSMC operations. The Colby Lake Water Pipeline Corridor is also included in this section. The pipeline connects the Plant Site to Colby Lake, which is south of the Plant Site.

4.2.4.4.1 Cover Types

Plant Site

Habitat Types

Because of use during the former LTVSMC taconite mining operation, the majority of the Plant Site is now defined as having a "disturbed" cover type (see Table 4.2.4-8 and Figure 4.2.4-5). The remaining MDNR GAP land cover types include approximately equal areas of aquatic environments (14 percent of the Plant Site) and upland deciduous forests (14 percent of the Plant Site), and smaller areas of shrubland, upland conifer forest, and lowland conifer forest. The MDNR GAP land cover types below may not fully represent the extent of mixed forest types, since the cover type level below is fairly specific, so there may be more mixed forest types than indicated.

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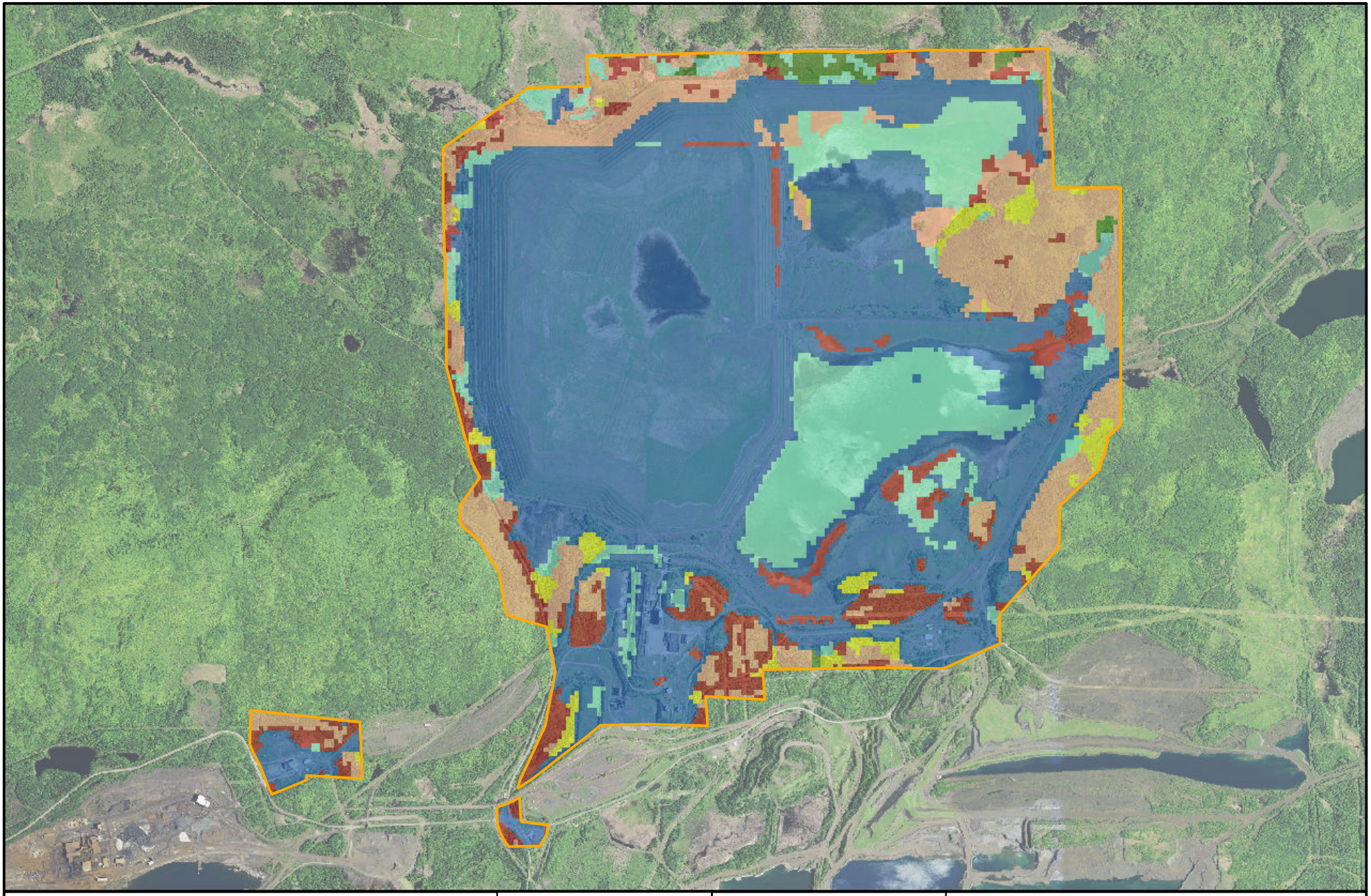

Plant Site
MBS Site of Biodiversity Significance

Land Cover Classes

Aquatic Environments
Lowland Conifer Forest
Disturbed
Shrubland
Upland Conifer Forest
Upland Deciduous Forest

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1,000 2,000 4,000 Feet

Figure 4.2.4-5
Land Cover/Habitat Types - Plant Site
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Table 4.2.4-8 NorthMet Plant Site Cover Types

Cover Types	Total Acres	Percent of Area
Disturbed	2,755.5	61
Upland deciduous forest[4]	647.6	14
Aquatic environments	636.8	14
Shrubland	333.8	7
Upland coniferous forest[3]	99.8	2
Lowland coniferous forest[1]	41.9	1
Cropland/Grassland	0.0	0
Lowland deciduous forest[2]	0.0	0
Upland conifer-deciduous mixed forest[5]	0.0	0
Total	**4,515.4**	**99[(6)]**

Source: MDNR 2006b.

Notes:
1 Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
2 Includes black ash forest cover types.
3 Includes pine and spruce/fir forest cover types.
4 Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
5 Includes all mixed coniferous-deciduous forest cover types.
6 Percent totals are less than 100 percent due to rounding.

Minnesota Biological Survey

There are no MBS Sites of Biodiversity Significance located on the Plant Site (see Figure 4.2.4-5) (MDNR 2008a). Native plant community rankings are not available for the Plant Site.

Scientific and Natural Areas

There are no SNAs located on or near the Plant Site.

Culturally Important Plants

The most upstream portion of the Embarrass River Watershed, subject to a draft MPCA staff recommendation as a water source used for production of wild rice, is from the MN-135 highway bridge to the inlet of Sabin Lake (MPCA 2012b). The former Wild Rice Valley Farms is located adjacent to the Embarrass River, but no wild rice was observed within this area or the adjacent portion of the Embarrass River during field surveys, and it is not recommended as a water source used for production of wild rice (MPCA 2012b). Hay Lake, located along the upper stretch of the Embarrass River, is subject to a draft MPCA staff recommendation as a water source used for production of wild rice, but Sabin and Wynne lakes are not draft recommended as waters used for production of wild rice except for the northern-most tip of Wynne Lake (MPCA 2012b). Embarrass Lake is subject to a draft MPCA staff recommendation as a water used for production of wild rice (MPCA 2012b). Though low-density beds of wild rice were observed on Embarrass Lake in 2009 and 2010, no rice was observed in 2011 (Barr 2012a). No wild rice was observed in Spring Mine Creek, Trimble Creek, or Unnamed Creek near the Plant Site and they are not recommended as waters used for production of wild rice (Barr 2011a; Barr 2012a; MPCA 2012b). Section 4.2.2 provides a discussion on wild rice survey results and water quality standards (see Figure 4.2.2-3).

A discussion of natural resources culturally important to the Bands is presented in Section 4.2.9.3.3.

Colby Lake Water Pipeline Corridor

Habitat Types

Extending south from the Plant Site is the Colby Lake Water Pipeline Corridor. There would be no construction within this pipeline corridor, as an existing pipeline would be used for the NorthMet Project Proposed Action. The corridor consists of 50.6 acres (see Table 4.2.4-9), and the MDNR GAP land cover types are dominated by disturbed areas (42 percent) and cropland/grassland (23 percent).

Table 4.2.4-9 NorthMet Colby Lake Water Pipeline Corridor Cover Types

Cover Types	Total Acres	Percent of Area
Disturbed	21.4	42
Cropland/Grassland	11.5	23
Shrubland	8.4	17
Upland deciduous forest[4]	6.5	13
Aquatic environments	1.4	3
Lowland deciduous forest[2]	0.6	1
Upland coniferous forest[3]	0.5	1
Lowland coniferous forest[1]	0.2	<1
Upland conifer-deciduous mixed forest[5]	0	0
Total	**50.5[(6)]**	**100**

Source: MDNR 2006b.

Notes:
[1] Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
[2] Includes black ash forest cover types.
[3] Includes pine and spruce/fir forest cover types.
[4] Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
[5] Includes all mixed coniferous-deciduous forest cover types.
[6] Total acres may be more or less than presented due to rounding.

4.2.4.4.2 Invasive Non-native Plants

The Tailings Basin at the Plant Site is severely disturbed and already contains invasive non-native plants such as smooth brome grass, reed canary-grass, and yellow sweet clover. These species are tolerant of a wide variety of conditions, and can spread vegetatively or reproductively (MDNR 2011b). They often grow on disturbed lands, roadsides, and ditches. According to the Superior National Forest invasive plant geodatabase, there are no known occurrences of invasive species on the Plant Site, but no inventories have been performed in the NorthMet Project area (USFS 2010a). Similar to the Mine Site, the Plant Site could also have the species listed in Table 4.2.4-3, including common tansy, spotted knapweed, or thistle species.

4.2.4.4.3 Threatened and Endangered Plant Species

Endangered, Threatened, and Special Concern Plant Species

Based on a review of the MDNR NHIS, no federally listed or state-listed ETSC plant species are known to occur on the Plant Site or within Colby Lake Water Pipeline Corridor. A detailed ETSC plant species survey was not conducted at the Plant Site because suitable habitat for these species is not present at this predominantly disturbed and developed site. ETSC species that are disturbance-adapted may exist along the rail line or roads. Consequently, the federal lands (including the Mine Site), Transportation and Utility Corridor, and non-federal lands are the focus of this FEIS vegetation analysis.

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4.2.5 Wildlife

This section describes the existing wildlife species and habitat which are or may be present in the NorthMet Project area. These species or their sign, such as tracks or droppings, have been observed during surveys, were identified as historically present, and/or typically use habitat present in the NorthMet Project area. Species are grouped in four partially overlapping categories: federally and state-listed ETSC (16 species); SGCN (95 species); the USFS's RFSS (18 species, excluding aquatic species); and other wildlife species, including wildlife species important to the Bands.

Several federally and state-listed ETSC wildlife species that were identified in scoping as potentially present in the NorthMet Project area are described in Section 4.2.5.1.1. Others were added to this section upon updating of the NHIS records and new state ETSC list. Federally listed species records are maintained by the USFWS and the state-listed species records are maintained in the Minnesota NHIS. The NHIS is the most complete source of data on Minnesota's rare or otherwise significant wildlife species, but it is not a comprehensive statewide inventory. It is based on historical museum records, published information, and field work, and is continually updated as new information becomes available. Therefore, the lack of a species occurrence in the NHIS database does not necessarily confirm the absence of a particular species in that area (MDNR 2014d). A county-by-county survey of rare natural features is being conducted by the MDNR as part of the Minnesota Biological Survey.

Additional information—such as species conservation ranking, distribution, and habitat—was obtained from NatureServe, an online public database that utilizes sources such as scientific literature, web sites, experts, and information from local data centers.

Several wildlife surveys have been conducted on the federal lands (including the Mine Site), Plant Site, Transportation and Utility Corridor, and non-federal lands. These studies gathered information on general wildlife utilization of the area, presence or absence of species of concern, and identification of habitat used by wildlife.

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list. A Biological Assessment (BA) that provides further information on federally listed species, and a BE that contains further information about RFSS have been prepared. The BA and BE are included in Appendix D. The Co-lead Agencies met with the USFWS several times during informal consultation. The USACE, USFS, and USFWS initiated informal consultation on February 26, 2010, when the agencies met to discuss the NorthMet Project. The USACE subsequently met with the USFWS on May 3, 2011, September 1, 2011, and February 28, 2013 to discuss it further. The USACE, USFS, and USFWS met on July 9, 2014 to identify tasks to be accomplished in the development of the BA. Specifically, the northern long-eared bat and habitat were discussed, which led to further USFS bat survey work being proposed. The USACE, USFS, and USFWS met on October 29, 2014, February 5, 2015, and March 23, 2015, to discuss comments received on the draft BA and potential mitigation measures. The Co-lead Agencies signed the cover letter to the BA to initiate formal consultation with USFWS on August 21, 2015.

4.2.5.1 Mine Site

4.2.5.1.1 Federally and State-listed Species and Species of Special Concern

Canada Lynx

Canada lynx (*Lynx canadensis)* populations in the continental United States are protected under the ESA as a federally listed threatened species. The species is also listed as a species of special concern in Minnesota, but is considered globally secure by NatureServe (NatureServe 2014a). Lynx population cycles are related to snowshoe hare populations, and therefore, lynx are predominantly found in boreal forests, specifically spruce and fir. This habitat type corresponds to USFS MIH types 5, 6, and/or 9. Lynx mortality due to starvation and declining reproduction rates have been documented during periods of hare scarcity (Poole 1994; Slough and Mowat 1996). Hunger-related stress, which induces dispersal, may increase exposure of lynx to other forms of mortality such as trapping and vehicle collisions (Brand and Keith 1979; Ward and Krebs 1985; Bailey et al. 1986). Between 2001 and 2013, the USFWS has documented two lynx killed by trains and seven lynx killed by road traffic in Minnesota (USFWS 2013). Lynx may also be subject to competition and predation from species such as bobcat and cougar (Buskirk et al. 2000).

Lynx have been described as generally tolerant of humans (Sunde et al. 1998). Reports suggest that lynx are not displaced by human activity, including moderate levels of snowmobile traffic (Mowat et al. 2000) and ski resort activities (ENSR 2006). In an area with sparse roads in north-central Washington State, logging roads did not appear to affect habitat use by lynx (McKelvey et al. 2000). By contrast, lynx in the southern Canadian Rocky Mountains, where road density is higher, crossed highways within their home ranges less than would be expected (Apps 2000).

Over three-quarters of lynx records in Minnesota are from the northeastern portion of the state (McKelvey et al. 2000). Research in Minnesota confirmed a resident breeding population of lynx. Of the 426 sightings reported to the MDNR Division of Ecological Resources between 2000 and 2006, 76 percent were in St. Louis, Lake, and Cook counties. Approximately 113 lynx were sighted in St. Louis County between 2000 and 2006 and 8 percent of these lynx showed evidence of reproductive activity (MDNR 2012d).

Current conditions for this species in the NorthMet Project area were determined through review of existing data sources, including various lynx sighting databases (Moen et al. 2006; MDNR 2012d; USFS 2013), project-specific studies during the summer season (ENSR 2005), and a winter tracking survey (ENSR 2006). The winter tracking survey also included interviews with experts, private conservation groups, and the public, who are familiar with lynx use of the survey area.

On February 25, 2009, the USFWS published the *Final Rule for Revised Designation of Critical Habitat for the Contiguous United States Distinct Population Segment of the Canada Lynx* (50 CFR 17). Portions of the Mine Site lie within the revised boundaries of federally designated lynx critical habitat, which includes most of northeastern Minnesota. A recovery plan has not yet been issued for the Canada lynx.

The USFS designates Lynx Analysis Units (LAUs) within the Superior National Forest that include landscape-scale analysis areas for lynx management. These LAUs were developed in consultation with the USFWS. The federal lands, including the Mine Site, are located within

LAU 12, a 70,980-acre area in the southwest portion of the Superior National Forest. According to the USFS (USFS 2013), approximately 69,131 acres, or 96 percent, of LAU 12 currently provide suitable lynx habitat.

Lynx sign has been observed at the Mine Site. Moen et al. (2006) found that at least 20 different individual lynx sightings have occurred within 18 miles of the NorthMet Project area, including several radio-collared and reproductive individuals. During this study, the nearest reported sighting was approximately 6 miles from the Mine Site (Moen et al. 2006). The majority of sightings are clustered along roads and other places frequented by people.

An ENSR 2006 lynx winter tracking survey covered a 250-square-mile area centered on the NorthMet Project area. The survey did not find any sign of lynx within the Mine Site or federal land boundaries, but tracks and DNA analysis of scat indicated four unrelated female lynx had been present at some time within the 250-square-mile survey area approximately five miles south and east of the Mine Site (ENSR 2006). Track surveys suggest that two individuals made most of the trails found. Although preferred cover types for the snowshoe hare exist on the Mine Site (i.e., jack pine, fir-aspen-birch, aspen-birch), the forest may be too old for there to be appreciable hare densities, as snowshoe hare generally favor sapling or young pole stands (ENSR 2006). The USFS observed lynx tracks at the Mine Site in 2010, and multiple observations of lynx sign within 5 miles of the federal lands are noted in the USFS lynx tracking database (USFS 2013). Lynx density may increase as the snowshoe hare population cycles from a low point. Areas of blow down or logging slash where there is both vertical and horizontal cover may be used by lynx for denning sites (Moen 2009). Some logging slash is located on the west end of the Mine Site.

Northern Long-Eared Bat

The northern long-eared bat (*Myotis septentrionalis*), also known as the northern myotis, is federally listed as threatened, state-listed as a species of special concern in Minnesota, and is also a Superior National Forest RFSS. It is considered imperiled globally or vulnerable in Minnesota by NatureServe (NatureServe 2014a). Several bat species were added to the Minnesota ETSC list due to the emergence of white-nose syndrome, a fungal disease that could threaten Minnesota bat populations as it has in eastern bat populations. On October 2, 2013, the USFWS published a proposal to federally list the northern long-eared bat throughout its range. There was a 6-month extension and re-opening of the public comment period on the proposed rule listing on June 30, 2014. The final listing and interim 4(d) rule were published on April 2, 2015, and went into effect on May 4, 2015 (50 CFR Part 17, April 2, 2015).

The northern long-eared bat occurs throughout Canada and in much of the eastern United States, west to North and South Dakota. Its preferred summer habitat includes upland forests and riparian areas where they forage for insects in forest clearings, under tree canopies, and over water (MDNR 2014b; NatureServe 2014a). Generally, summer day roost sites include those under loose tree bark or within buildings, while night roosts include areas in caves, mines, and tunnels. It seems to be opportunistic in the selection of roost sites (USFWS 2013b). The northern long-eared bat enters its winter hibernacula (which may include caves, mines, overhangs, crevices, drill holes, and similar sites) in late August to September. Typically, winter hibernacula require constant temperatures, high humidity, and no air currents (USFWS 2013b). It generally hibernates in small colonies (fewer than 100 individuals) (MDNR 2014b; NatureServe 2014a), but the Soudan Underground Mine in northern Minnesota has supported a winter hibernating

colony of up to 2,000 individuals. However, there is uncertainty in the high end of this estimate, as much of the mine may not be available for surveys (MDNR 2006e). Both summer and winter habitat types may be found on or near the Mine Site.

Baseline acoustic surveys for bats, which include the northern long-eared bat, the eastern pipistrelle, and the little brown bat, have been completed in the Superior National Forest east of the NorthMet Project area (Abel 2011). Bats were observed at the Mine Site and surrounding federal lands during echolocation surveys, but they were not identified to species (AECOM 2011a). The USFS conducted various bat surveys at the NorthMet Project area during summer of 2014 (USFS 2014b). Passive bat detectors were deployed on exploration trails within the Mine Site to detect bat calls. The northern long-eared bat was responsible for 13.6 percent of all calls detected at the Mine Site during this survey. The USFS also conducted additional bat surveys at sites in Lake and St. Louis counties in spring 2014 (USFS 2014c). Of the 130 bats captured during mist-netting surveys, 28 were northern long-eared bats. A USFS survey in the Kawishiwi District in the summer of 2013 found that of 34 bats captured by mist-netting efforts, 13 were northern long-eared bat (Grandmaison et al. 2013).

Gray Wolf

On July 1, 2009, the U.S. District Court issued a settlement agreement to remand an April 2009 USFWS decision to delist the western Great Lakes population of gray wolves. As a result, the gray wolf (*Canis lupus*) was again a federally listed threatened species. On May 4, 2011, the USFWS once again proposed to reinstate the 2009 decision to delist the gray wolf population in the western Great Lakes. This decision was finalized on December 26, 2011 and was made effective on January 27, 2012. Effective on December 19, 2014, however, the U.S. District Court again reinstated federal protection of the gray wolf, classifying it as a threatened species. The gray wolf was removed from the Minnesota ETSC species list in 2013, but it is still listed as a Superior National Forest RFSS. With the 2014 federal re-listing of the wolf, Minnesota is again divided into the five federal wolf management zones and critical habitat has been reinstated. According to NatureServe, it is globally ranked as apparently secure, but vulnerable in Minnesota (NatureServe 2014a).

Populations of gray wolves have been re-established in several western states from their low point in the mid-1970s when only northeast Minnesota, among the lower 48 states, had a reproducing population. Gray wolf populations in the western Great Lakes Region (i.e., Minnesota, Wisconsin, and Michigan) are expanding and have exceeded recovery goals for several years (Erb and Benson 2004). A 2007 to 2008 winter survey by the MDNR (Erb 2008) estimated that 2,921 gray wolves lived in Minnesota, which is second only to Alaska in wolf populations across the United States. The MDNR considers the gray wolf population fully recovered, as it has surpassed the federal delisting goal of 1,251 to 1,400 wolves (MDNR 2012e). Surveys conducted in the winter of 2013 to 2014 estimate the Minnesota wolf population to be approximately 2,423 animals, 212 more than estimated in 2013 (Erb et al. 2014). In the fall of 2013, the MDNR established a designated wolf hunt with an overall quota of 220 wolves. A total of 238 wolves were harvested during the hunt. The MDNR set a 2014 statewide target harvest of 250 wolves.

In northern Minnesota, the principal prey of the gray wolf includes white-tailed deer, moose, beaver, snowshoe hare, and muskrat, with occasional other small mammals, birds, and large invertebrates. Most wolves live in 2- to 11-member family packs and defend territories of 8 to

184 square miles. In Minnesota, the average pack size during winter 2013-2014 was estimated to be 4.4 individuals (Erb et al. 2014). The forest and brush habitats at the federal lands and Mine Site are typical wolf habitat (MIHs 1 to 14).

Radio-collared wolves have been observed in the vicinity of the federal lands and the Mine Site. Additionally, tracks and scat have been observed along Dunka Road and the roads within the Mine Site. The surrounding area is likely to support a pack of at least three individuals (ENSR 2005).

Moose

The moose (*Alces americanus*) is not federally listed, but was added to the Minnesota ETSC species list as a species of special concern in 2013. It is considered globally secure by NatureServe (NatureServe 2014a). Moose, which have been observed in the NorthMet Project area (ENSR 2005), are a species of importance to the Bands. Moose typically utilize a mosaic of habitat types, including early successional (young) forests, mixed conifer-hardwood forests, wetlands, and lakes (NatureServe 2014a). Waterbodies are often used in summer for foraging aquatic plants, cooling down, or escaping insects, while early successional forests (created by logging, forest fires, or windstorms) are browsed year-round. Dense conifer stands are used for thermal cover in the heat of summer, or used in winter to avoid deep snow. Moose are adapted very well for cold conditions, but are fairly intolerant of heat, making thermal cover or access to water important to reduce heat stress. However, Lenarz et al. (2011) suggest that moose in northeastern Minnesota may display higher preferences for early successional habitat in summer and winter than either aquatic environments or conifer forests. Some research suggests that climate change and warming temperatures may be related to mortality along the southern edge of the moose range (Lenarz et al. 2011). Higher mortality rates could be due to several causes, including heat stress or increased parasites. Several parasites and diseases can negatively affect moose mortality rates; these include winter ticks, brainworm, and liver flukes, among several others (NRRI 2014).

The overall moose population in Minnesota declined approximately 35 percent from 2012 to 2013 (MDNR 2013d). The 2014 winter aerial moose survey estimated the population at 4,350 animals, up from the 2013 estimate of 2,760 (DelGiudice 2014). However, this is likely due to variability in the survey conditions from year to year and uncertainty inherent in the survey itself. The MDNR is currently partnering with several other agencies, including the Bands, to conduct multiple research projects to identify the causes of the increase in moose mortalities.

Due to decreased population levels in the state of Minnesota and its new state listing as a species of special concern, the moose hunting season was closed in 2013 and not reopened. In previous years, when moose hunting was open, the NorthMet Project area would have been outside of the hunting zone, though moose zone 30 has been located to the south of the Transportation and Utility Corridor in previous hunting seasons. In 2012, two bull moose were harvested in zone 30 (DelGiudice 2012).

Little Brown Bat

The little brown bat (*Myotis lucifugus*), also known as the little brown myotis, is not federally listed, but is state-listed as a species of special concern in Minnesota. It is listed as a Superior National Forest RFSS. It is considered globally vulnerable by NatureServe, but ranges across North America (NatureServe 2014a). Several bat species were added to the Minnesota ETSC list

due to the emergence of white-nose syndrome, a fungal disease that could threaten Minnesota populations as it has in eastern populations. A habitat generalist, its preferred habitat includes boreal forests, bogs and fens, open fields, shrublands, and urban areas. It forages primarily in woodlands near water sources. The little brown bat generally enters its hibernacula in September to October, and utilizes caves, tunnels, and abandoned mines with a relatively stable temperature (NatureServe 2014a). The Soudan Underground Mine in northern Minnesota has served as a hibernaculum for an estimated 10,000 bats, the majority of which are little brown bat (MDNR 2006e). Its summer day roost and maternity sites include hollow trees, caves, and human-made structures. This tree roost habitat may potentially be found at the Mine Site. Bats were observed at the Mine Site and surrounding federal lands during echolocation surveys, but they were not identified to species (AECOM 2011a).

The USFS conducted various bat surveys at the NorthMet Project area during the summer of 2014 (USFS 2014b). Passive bat detectors were deployed on exploration trails within the Mine Site to detect bat calls. The little brown bat was responsible for 77.8 percent of all calls detected at the Mine Site during this survey. The USFS also conducted additional bat surveys at sites in Lake and St. Louis counties in spring 2014 (USFS 2014c). Of the 130 bats captured during mist-netting surveys, 59 were little brown bats. A USFS survey in the Kawishiwi District in the summer of 2013 found that of 34 bats captured by mist-netting efforts, 21 were little brown bat (Grandmaison et al. 2013).

Eastern Pipistrelle

The eastern pipistrelle (*Perimyotis subflavus*), also known as the tri-colored bat, is not federally listed, but is state-listed as a species of special concern in Minnesota. It is also listed as a Superior National Forest RFSS. It is considered vulnerable globally and in Minnesota by NatureServe (NatureServe 2014a). Several bat species were added to the Minnesota ETSC list due to the emergence of white-nose syndrome, a fungal disease that could threaten Minnesota populations as it has in eastern populations. Minnesota is located at the western edge of the species' range. Its preferred habitat includes partially open areas with large trees and woodland edges, but it avoids open fields and deep woods (MDNR 2014b; NatureServe 2014a). It primarily forages over open water areas. It generally enters its hibernacula beginning in October, and occupies the deeper portions of caves and mines where temperatures and humidity levels are higher. Typically, they are semi-solitary hibernators, hanging singly and separated from other bats (Nordquist and Birney 1985). The eastern pipistrelle has occasionally been observed hibernating in the Soudan Underground Mine in northern Minnesota (MDNR 2006e). During summer, its day roost sites include trees and human-made structures, while night roosts may include caves. Tree roost habitat can potentially be found at the Mine Site, though the species is more common in the southern half of Minnesota. Bats were observed at the Mine Site and surrounding federal lands during echolocation surveys, but they were not identified to species (AECOM 2011a). The USFS conducted various bat surveys at the NorthMet Project area during summer of 2014 (USFS 2014b). The USFS also conducted additional bat surveys at sites in Lake and St. Louis counties in spring 2014 (USFS 2014c) and on the Kawishiwi District in summer 2013 (Grandmaison et al. 2013). The eastern pipistrelle was not detected during any of the USFS surveys.

Northern Goshawk

The northern goshawk (*Accipiter gentilis*) is not federally listed and is considered globally secure by NatureServe (NatureServe 2014a). It is state-listed as a species of special concern in the state of Minnesota, and the Minnesota NHIS records indicate it does occur on the Mine Site. It is also listed as a Superior National Forest RFSS. Its preferred habitat includes older forests, particularly aspen. This habitat is found in the NorthMet Project area. Calling surveys did not identify northern goshawk at the Mine Site (ENSR 2005; AECOM 2009a); however, a northern goshawk nest was identified at the Mine Site. Two northern goshawk territories have been identified at or near the Mine Site, as northern goshawk have nested on the Mine Site and adjacent federal lands in 2000, 2009, 2011, and 2013 (USFS 2013). The One Hundred Mile Swamp northern goshawk territory, which is within the Mine Site, is no longer considered active. The Wetlegs Creek northern goshawk territory, located on the federal lands adjacent to the Mine Site, is still considered active and is currently being monitored. In addition, the northern goshawk is federally protected by the Migratory Bird Treaty Act (MBTA) of 1918.

Boreal Owl

The boreal owl (*Aegolius funereus*) is not federally listed and is considered globally secure by NatureServe (NatureServe 2014a). It is state-listed in Minnesota as a species of special concern, and is also listed as a Superior National Forest RFSS. Its preferred habitat includes dense coniferous and mixed forests containing spruce, pine, aspen, and alder trees. This habitat is found on and near the NorthMet Project area. A boreal owl was heard on Dunka Road during surveys in 1988 to 1989 near the Mine Site and federal lands (ENSR 2005); however, Minnesota is at the southern edge of its range in North America. The Minnesota NHIS does not contain any boreal owl records within 10 miles of the NorthMet Project area, and it was not observed during subsequent surveys (ENSR 2000; ENSR 2005; AECOM 2009; AECOM 2011a). The boreal owl nests in tree holes and natural cavities in far northeastern Minnesota, but is rarely seen due to its nocturnal hunting habit (MDNR 2014e). In addition, the boreal owl is federally protected by the MBTA.

Wood Turtle

The wood turtle (*Glyptemys insculpta*) is listed as a threatened animal species by the state of Minnesota and as an RFSS by the USFS. The wood turtle is not federally listed, but is considered globally vulnerable (imperiled in Minnesota) by NatureServe (NatureServe 2014a). The species' range extends from Virginia to Nova Scotia and westward to Minnesota and northeast Iowa. The NorthMet Project area is located at the western edge of its range in Minnesota. Significant wood turtle populations, however, are unlikely to be found at the Mine Site because it prefers a habitat of sandy-gravelly streams and bars, used for hibernating, mating, and nesting (Compton et al. 2002), which are not present at the Mine Site.

The Minnesota NHIS records indicate the northernmost population in the state was observed immediately south of the Mine Site. Given this proximity, it is possible that wood turtles may potentially occur along the southern fringes of the Mine Site.

Eastern Heather Vole

The eastern heather vole (*Phenacomys ungava*) is listed as a species of special concern by the state of Minnesota and as an RFSS by the USFS. It is not federally listed, and is globally secure but vulnerable in Minnesota according to NatureServe (NatureServe 2014a). The eastern heather vole is a habitat generalist, but typically inhabits the coniferous zones in upland forests and brushlands and meadows with low shrub species, usually near water. Habitats of this type may occur on the federal lands or at the Mine Site; however, the Minnesota NHIS does not contain any eastern heather vole records within 10 miles of the NorthMet Project area. It was also not found in nearby surveys of small mammals on the Chippewa National Forest (Christian 1993) and in Cook County (Jannett 1998). The NorthMet Project area is at the southern edge of the eastern heather vole's home range in far northern Minnesota and only a few collections of the species occur within Minnesota. The USFS MIH 8, which is primarily jack pine forest, is considered indicative of eastern heather vole habitat. No significant stands of MIH 8 were observed on the federal lands or the proposed Mine Site.

Yellow Rail

The yellow rail (*Coturnicops noveboracensis*) is a state-listed species of special concern. It is not federally listed, and its global rank is considered apparently secure, although vulnerable in Minnesota (NatureServe 2014a). Habitat for yellow rail includes lowland sedge meadows. Several small patches (totaling 39.5 acres) of wet meadow/sedge meadow occur at the Mine Site. The Minnesota NHIS has no records of the yellow rail occurring within 10 miles of the NorthMet Project area and field surveys did not identify any yellow rail (ENSR 2005). In addition, the yellow rail is federally protected by the MBTA.

Laurentian Tiger Beetle

The Laurentian tiger beetle (*Cicindela denikei*) is listed as a species of special concern by the state of Minnesota. It is not federally listed, and its global rank is considered vulnerable (imperiled in Minnesota) (NatureServe 2014a). Although it was not searched for during field surveys, the NHIS has no records of Laurentian tiger beetle occurring within 10 miles of the NorthMet Project area. This species inhabits openings in northern coniferous forests, specifically abandoned gravel and sand pits, undisturbed corners of active gravel and sand pits, sand and gravel roads, and sparsely vegetated rock outcrops (MDNR 2012g). Conifer forests occur on the Mine Site, but field surveys did not detect sandy or rocky openings in the forest (ENSR 2005). Rock exposures are evident in areas disturbed by past mining, but conifer forests do not surround these areas.

Taiga Alpine

The taiga alpine (*Erebia mancinus*) butterfly is listed as a species of special concern by the State of Minnesota. It is not federally listed, and it is considered globally secure by NatureServe (NatureServe 2014a). It is listed as a Superior National Forest RFSS. Minnesota is at the southern limit of the species' range. Although it was not searched for during field surveys, the NHIS has no records of taiga alpine occurring within 10 miles of the NorthMet Project area. This species inhabits black spruce bogs and swamps that include Labrador tea shrub layers, and sphagnum moss carpets (MDNR 2014b). These habitat types occur on the Mine Site and federal lands.

Freija's Grizzled Skipper

The Freija's grizzled skipper (*Pyrgus centaureae freija*) butterfly is listed as a species of special concern by the State of Minnesota. It is not federally listed, and it is considered globally apparently secure by NatureServe (NatureServe 2014a). It is listed as a Superior National Forest RFSS. Minnesota is at the southern limit of the species' range, and it is known to occur in Minnesota from only a single locality in Lake County (MDNR 2014b). Although it was not searched for during field surveys, the NHIS has no records of Freija's grizzled skipper occurring within 10 miles of the NorthMet Project area. This species inhabits primarily forest edges and openings; the Lake County location included grassy and sandy openings with willow, alder, and blueberries, bordered by black spruce and tamarack swamps (MDNR 2014b). These habitat types occur on the Mine Site and federal lands.

Nabokov's Blue

The Nabokov's blue (*Lycaeides idas nabokovi*) butterfly is listed as a species of special concern by the State of Minnesota. It is not federally listed, and it is globally unrankable by NatureServe (NatureServe 2014a). It is listed as a Superior National Forest RFSS. This subspecies ranges from the Great Lakes states up into Ontario and southeastern Manitoba (MDNR 2014b). Although it was not searched for during field surveys, the NHIS has no records of Nabokov's blue occurring within 10 miles of the NorthMet Project area. This species' preferred habitat includes open woodlands and upland openings where the larval host plant, dwarf bilberry (*Vaccinium cespitosum*), is abundant (MDNR 2014b). In Minnesota, all known colonies of this butterfly subspecies occur at sandy sites. These habitat types may occur on the Mine Site and federal lands, but the larval host plant was not observed.

Quebec Emerald

The Quebec emerald dragonfly (*Somatochlora brevicincta*) is listed as a species of special concern in the state of Minnesota. It is not federally listed, and is considered globally apparently secure by NatureServe (NatureServe 2015). It is listed as a Superior National Forest RFSS. Field surveys for this species were not completed, but the NHIS has no records of Nabokov's blue occurring within 10 miles of the NorthMet Project area. The Minnesota Odonata Survey Project, however, found an individual in northern Lake County approximately 30 miles north of the NorthMet Project area in 2006. This species' habitat requirements are not well-understood in Minnesota. Reports suggest that it inhabits poor fens found in the NorthMet Project area and wet meadow/sedge meadow habitat such as at the Mine Site. The likelihood of observing Quebec emerald individuals or populations in the vicinity of the federal lands and Mine Site is low.

4.2.5.1.2 Species of Greatest Conservation Need

The Minnesota Comprehensive Wildlife Conservation Strategy (MCWCS), an ecoregion-based wildlife management strategy (MDNR 2006d) identifies SGCN by ecoregion subsections based on a statewide approach. The MCWCS was created with input from multiple stakeholders and expert panels to cover issues of regional, as well as statewide, concern. The Mine Site and Plant Site are located within the Nashwauk and Laurentian Uplands subsections and include five key habitat types. The SGCN species associated with these habitat types at the Mine Site are identified below in Table 4.2.5-1.

Mature upland and lowland forest is the most common habitat type at the NorthMet Project area (primarily at the Mine Site). Section 4.2.4 provides a more detailed discussion of vegetation cover and habitat types (see Figure 4.2.4-1). Northern goshawk, spruce grouse, black-backed woodpecker, and boreal owl were observed in these forests (ENSR 2005). These species represent a group that generally requires large forested blocks and/or minimal human intrusion.

Brush/grassland and very early successional forest are uncommon at the Mine Site (ENSR 2005) and, where present, are typically small patches resulting from recent logging. The USFS has indicated that American woodcock has been observed at the Mine Site and the least weasel may occur as well. Most of the other SGCN species in Table 4.2.5-1 are generally associated with large patches of grassland and savanna habitats that are not present at the Mine Site.

Table 4.2.5-1 Key Habitat, Cover Types, and Associated Species in the Nashwauk and Laurentian Uplands Subsections at the NorthMet Project Area

Key Habitat Type, Cover Types, and Management Indicator Habitats	**Associated Wildlife Species[1]**	**Mine Site (Acres)**	**Transportation and Utility Corridor (Acres)**	**Plant Site (Acres)**
1. Mature Upland Forest, Continuous Upland/Lowland Forest: aspen forest/aspen-birch forest, jack pine forest, mixed pine-hardwood forest (MIH 1-13)	Veery, whip-poor-will, eastern wood-pewee, yellow-bellied sapsucker, ovenbird, Canada warbler, Cape May warbler, **spruce grouse**, winter wren, boreal chickadee, wood thrush, **black-backed woodpecker**, *bald eagle*[2], **boreal owl (MIH 4, 5, and 9)**, *bay-breasted warbler, black-throated blue warbler*	2,627.2	5.5	789.3
2.Open Ground, Bare Soils: disturbed/ developed (no MIH)	None	128.0	94.4	2,755.5
3.Grassland and Brushland, Early Successional Forest (no MIH)	Eastern meadowlark, Franklin's ground squirrel, brown thrasher, white-throated sparrow, sharp-tailed grouse, golden-winged warbler, *American woodcock*, northern harrier, sedge wren, common nighthawk, black-billed cuckoo, red-headed woodpecker, tawny crescent, *least weasel*	246.6	17.5	333.8
4. Aquatic Environments: Tailings Basin, Partridge River, Embarrass River, former LTVSMC mine pits, wetlands (MIH 14)	Common loon, red-necked grebe, common snapping turtle, northern rough-winged swallow, American white pelican, common tern, Wilson's phalarope, black tern, trumpeter swan, black duck, American bittern, swamp sparrow, eastern red-backed salamander, bog copper, taiga alpine, *marbled godwit*	12.7	2.7	636.8

Key Habitat Type, Cover Types, and Management Indicator Habitats	Associated Wildlife Species[1]	Mine Site (Acres)	Transportation and Utility Corridor (Acres)	Plant Site (Acres)
5. Multiple Habitats (MIH 1-14)	**Gray wolf**[2] (1-4[(3)]), ***Canada lynx***[2] (1-4), rose-breasted grosbeak (1, 3), Macoun's arctic (1, 3), **least flycatcher** (1, 3), *Connecticut warbler* (1, 3), *olive-sided flycatcher (1, 4)*, grizzled skipper (2, 3), Nabokov's blue (2, 4), wood turtle[2] (1, 3, 4)			
Total		3,014.5	120.1	4,515.4

Source: MDNR 2006d.

Notes:

[1] Bold text indicates SGCN species observed at Mine Site and/or Plant Site (ENSR 2005); italicized text indicates SGCN species targeted by ENSR (2005) that were not found; plain text indicates SGCN species identified as likely to be present at the Mine Site or Plant Site but not targeted in surveys.

[2] Canada lynx, gray wolf, bald eagle, and wood turtle are or have recently been listed as ETSC species, as discussed in detail in the ETSC species section.

[3] Numbers refer to the Key Habitat Types (1-5) where those species may occur or are known to occur.

The Mine Site and adjacent federal lands contain a large expanse of wetland habitat consisting primarily of coniferous bogs and coniferous swamps. No wetland SGCN species have been observed in this area. Marbled godwit was not found likely because its preferred habitat of graminoid wetlands and shallow marshes near extensive upland grassland are not present at the Mine Site. Currently, there are no bodies of open water at the Mine Site.

Multiple habitats are not mapped as such, but are made up of combinations of other key habitat types. This category is used for SGCN species that are known to use multiple habitats during a season. The gray wolf, Canada lynx, least flycatcher, and wood turtle were observed in the general vicinity of the Mine Site and are known to utilize multiple key habitat types, including mature and early-successional upland forest and wetlands. The Connecticut warbler, which also uses mature and early-successional upland forest and wetlands, was searched for, but not found. Similarly, the olive-sided flycatcher was surveyed for in both lowland forest and wetlands, but was not found, most likely because it prefers more open and mature conifer and mixed conifer-deciduous stands. The butterfly species grizzled skipper and Nabokov's blue are not found within 12 miles of the Mine Site or Plant Site.

4.2.5.1.3 Regional Forester Sensitive Species

RFSS are not protected but their needs are taken into consideration by the USFS when planning natural resource management on USFS lands. The majority of the Mine Site (and adjacent federal lands) is located in the Superior National Forest. Currently, 18 terrestrial wildlife RFSS are included on the Superior National Forest RFSS list, which was updated on February 20, 2012 (USFS 2012f).

Twelve of the RFSS are federally or state-listed ETSC species (i.e., gray wolf, northern long-eared bat, little brown bat, eastern pipistrelle, eastern heather vole, northern goshawk, boreal owl, wood turtle, taiga alpine, Freija's grizzled skipper, Nabokov's blue, and Quebec emerald) and are discussed above in Section 4.2.5.1.1. Three other RFSS (the olive-sided flycatcher, bay-breasted warbler, Connecticut warbler) are on the SGCN list and are discussed by habitat type in Table 4.2.5-1 above. Three other RFSS species are discussed briefly below.

Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) was removed from the federal threatened species list on June 28, 2007. After a period of decline due to hunting and widespread use of dichlorodiphenyltrichloroethane (DDT), bald eagle populations in the lower 48 states rose dramatically beginning in 1972. The bald eagle was removed from the Minnesota ETSC species list in 2013, but continues to be listed as an RFSS by the USFS. According to NatureServe, it is globally secure, but vulnerable in Minnesota (NatureServe 2014a). In addition, the bald eagle is federally protected by the Bald and Golden Eagle Protection Act and the MBTA.

The Minnesota NHIS (MDNR 2014d) contains records of 18 nesting areas, some with multiple nests, within 12 miles of the federal lands and Plant Site. Some of these areas contained nests in close proximity to each other and were assumed to be used by a single pair of bald eagles (Guinn 2004). No nests were recorded at the Mine Site and field surveys found no evidence of any nests (ENSR 2005). The five closest bald eagle nesting territories were 2.4 to 7.3 miles from the Mine Site or Plant Site (averaging 5.7 miles apart). Bald eagles are typically associated with large lakes surrounded by mature forest where large trees provide suitable nest sites and a perch while searching for fish and other prey. No large lakes are located at the Mine Site and it is unlikely that bald eagles would heavily use these areas.

The NorthMet Project area was also reviewed to evaluate whether it may provide wintering habitat for bald eagles. Eagles generally winter where there is available food at or near open water, and where carrion is available. Animal-vehicle collisions on Dunka Road and/or natural deer mortality are not likely to produce sufficient carrion to sustain bald eagles at the Mine Site (ENSR 2005). While bald eagles have been observed utilizing dead trees on other tailings basins in the Mesabi Iron Range for nesting and perching, no nests have been observed in the NorthMet Project area. Bald eagles may use standing dead trees near the existing LTVSMC Tailings Basin for perching.

MIH 7, which is primarily red and white pine forest, is considered indicative of bald eagle habitat by the USFS. No stands of MIH 7 were specifically observed on the federal lands or proposed Mine Site; however, MIH 7 is a subset of the broader MIH 5, which was observed at the Mine Site (see Figure 4.2.4-4).

Great Gray Owl

The great gray owl (*Strix nebulosa*) is not listed federally or in Minnesota, nor is it tracked in the Minnesota NHIS. It is considered globally secure by NatureServe (NatureServe 2014). Its preferred habitat includes coniferous and mixed forests and boreal bogs, which include MIHs 4, 5, and 9. These habitats are found in the NorthMet Project area. Calling surveys did not identify great gray owls at the Mine Site (ENSR 2000 and 2005); however, 2009 surveys identified a great gray owl hunting along Dunka Road south of the Mine Site, and the USFS has records of a great gray owl nesting in the NorthMet Project area in 2006 (AECOM 2009a), 2010, and 2011 (USFS 2013). In addition, the great gray owl is federally protected by the MBTA.

Three-Toed Woodpecker

The three-toed woodpecker (*Picoides tridactylus*) is not listed federally or in Minnesota and is globally secure according to NatureServe (NatureServe 2014a). It is not tracked in the Minnesota NHIS. This species was identified during winter field surveys (ENSR 2000); however, it was not

identified during summer field surveys (ENSR 2005). A limiting factor for this species is foraging habitat where sufficient insects can be found to feed its young during the breeding season. Three-toed woodpeckers prefer and are most abundant in large tracts of old growth coniferous forest near recent burns where they forage on dead and dying trees for bark beetles (Burdett and Niemi 2002). MIH 9 and MIH 12 are considered habitat for the three-toed woodpecker. No old growth coniferous habitat or recent burns are present at the Mine Site or adjacent federal lands. A three-toed woodpecker was observed at the Mine Site by USFS personnel in 2007; however, the birds are unlikely to be common due to a lack of suitable habitat. In addition, the three-toed woodpecker is federally protected by the MBTA.

Bat Species

The northern long-eared bat, eastern pipistrelle, and little brown bat species were added to the 2011 RFSS list due to the spread of white-nose syndrome, which is a fungal disease impacting bats. The disease carries a high mortality rate for all bat species; the Superior National Forest is closely watching the RFSS bat species to identify signs of white-nose syndrome, as discussed above in Section 4.2.5.1.1.

4.2.5.1.4 Other Wildlife Species

Other wildlife species common to the area may be present at the Mine Site and surrounding NorthMet Project area. Species of interest include the monarch butterfly, northern leopard frog, common loon, hooded merganser, osprey, red-tailed hawk, ruffed grouse, spruce grouse, American woodcock, killdeer, common tern, belted kingfisher, pileated woodpecker, black-backed woodpecker, brown creeper, golden-crowned kinglet, Swainson's thrush, magnolia warbler, pine warbler, savannah sparrow, beaver, porcupine, black bear, and white-tailed deer.

Species observed, or their sign, on the Mine Site and surrounding federal lands include black bear, white-tailed deer, coyote, red fox, beaver, marten, snowshoe hare, red squirrel, ruffed grouse, spruce grouse, American woodcock, common snipe, mallard, lesser scaup, hooded merganser, red-tailed hawk, broad-winged hawk, barred owl, saw-whet owl, great-horned owl, great blue heron, pileated woodpecker, and several passerine bird species (ENSR 2005; AECOM 2009a; AECOM 2009b).

Game species such as white-tailed deer and black bear are found in and near the NorthMet Project area, and are of importance to the Bands. The NorthMet Project area is located within bear management unit 31. The 6-year harvest average is 319 animals within unit 31 (MDNR 2013b; MDNR 2014c). Similarly, the NorthMet Project area is within the hunting zone for deer area 176. The 5-year average is 2.3 deer harvested per square mile in this deer area (MDNR 2013c). Sections 4.2.9 and 5.2.9 discuss species of importance to the Bands.

4.2.5.2 Plant Site and Transportation and Utility Corridor

4.2.5.2.1 Federally and State-listed Species and Species of Special Concern

Canada Lynx

The Plant Site is not on USFS land, and therefore is not located within an LAU. The western edge of the Plant Site borders a critical lynx habitat zone but not an LAU. The lynx winter tracking survey (ENSR 2006) did not identify any sign of lynx at the Plant Site.

The eastern portion of the Transportation and Utility Corridor, located directly south of the federal lands, is included in LAU 12 and in a lynx critical habitat zone. The western portion of the Transportation and Utility Corridor is not located in an LAU or critical habitat zone. The Transportation and Utility Corridor is located along areas of potential for moderate and high quality wildlife travel corridors, including surveyed wildlife corridors (Emmons and Olivier 2006; Barr 2009a). Section 6.2.5.4.2 includes further discussion of wildlife travel corridors.

Northern Long-Eared Bat

The USFS conducted various bat surveys at the NorthMet Project area during summer of 2014 (USFS 2014b). Driving surveys were conducted along Dunka Road, the Tailings Basin, and the Plant Site, and the northern long-eared bat was responsible for 4.6 percent of all calls detected. Emergence surveys were also conducted around Plant Site buildings to identify potential roost sites. The largest number of emerging bats was observed at the coarse crusher building. Of the bats observed within and emerging from the buildings, the northern long-eared bat comprised 6.9 percent at the coarse crusher building, and 27.8 percent at the concentrator building.

Gray Wolf

As previously mentioned, collared gray wolves and gray wolf signs have been observed in the vicinity of the NorthMet Project area, including the Plant Site. Gray wolf tracks and scat have been observed along Dunka Road, and radio-collared individuals and call survey responses indicate that gray wolves may be present along the Transportation and Utility Corridor. As noted previously, the area near the federal lands and Mine Site, including the eastern end of the Transportation and Utility Corridor, may support a pack of three or more individual gray wolves.

Moose

The Minnesota NHIS does not contain any records of moose occurring within the Transportation and Utility Corridor or Plant Site, and no wildlife surveys specifically for moose were conducted in these areas. Moose have been observed at the Mine Site and federal lands (ENSR 2005; AECOM 2011a), which are both located in close proximity to the Transportation and Utility Corridor and Plant Site. Due to the area's primarily disturbed nature, it is possible that moose occur in these areas, but it is unlikely that they utilize them often.

Little Brown Bat

The USFS conducted various bat surveys at the NorthMet Project area during summer of 2014 (USFS 2014b). Driving surveys were conducted along Dunka Road, the Tailings Basin, and the Plant Site, and the little brown bat was responsible for 31.3 percent of all calls detected. Emergence surveys were also conducted around Plant Site buildings to identify potential roost sites. The largest number of emerging bats was observed at the coarse crusher building. Of the bats observed within and emerging from the buildings, the little brown bat comprised 93.1 percent at the coarse crusher building, 72.2 percent at the concentrator building, and 100 percent (8 to 10 bats) at the drive house.

Eastern Pipistrelle

The USFS conducted various bat surveys at the NorthMet Project area during summer of 2014 (USFS 2014b). The eastern pipistrelle was not detected during any of the USFS surveys along Dunka Road, the Tailings Basin, or the Plant Site buildings.

Northern Goshawk

The northern goshawk's preferred habitat includes older forests, particularly aspen. This habitat is found on and near the Plant Site and Transportation and Utility Corridor. The Minnesota NHIS does not contain any northern goshawk records within the Transportation and Utility Corridor or Plant Site. However, since a northern goshawk nest was identified at the Mine Site, and two northern goshawk territories have been identified at or near the Mine Site, it is possible that northern goshawks utilize the Plant Site and Transportation and Utility Corridor.

Boreal Owl

Given the lack of dense coniferous and mixed forests, which is the boreal owl's preferred habitat, it is unlikely that it would occur at the Plant Site. However, this habitat is found in proximity to the Plant Site and Transportation and Utility Corridor. A boreal owl was heard along Dunka Road during surveys in 1988 to 1989 near the Mine Site and federal lands (ENSR 2005); however, the Minnesota NHIS does not contain any boreal owl records within 10 miles of the NorthMet Project area, and it was not observed during subsequent surveys (ENSR 2000; ENSR 2005; AECOM 2009; AECOM 2011a).

Wood Turtle

No wood turtles were observed during wildlife surveys of the NorthMet Project area. Given the lack of sandy-gravelly streams and bars, which is the preferred habitat for the wood turtle, it is unlikely that the wood turtle would be found at the Plant Site. There are no NHIS records of wood turtles at the Plant Site (MDNR 2014d). The NHIS records indicate that the northernmost population of wood turtle in the state was observed immediately south of the Mine Site. Given the proximity of the Transportation and Utility Corridor, it is possible that wood turtles could be present along the eastern portion of the corridor and southern fringes of the Mine Site.

Eastern Heather Vole

The eastern heather vole is a habitat generalist, but typically inhabits the coniferous zones in upland forests and brushlands and meadows with low shrub species, usually near water. Habitats of this type occur at the Plant Site or along the Transportation and Utility Corridor; however, the Minnesota NHIS does not contain any eastern heather vole records within 10 miles of the NorthMet Project area. The NorthMet Project area is at the southern edge of the eastern heather vole's home range in far northern Minnesota and only a few collections of the species occur within Minnesota.

Yellow Rail

Yellow rail prefer sedge meadow, which is present in a very small amount (1.5 acres) at the Plant Site and in small patches adjacent to the Transportation and Utility Corridor. The Minnesota NHIS has no records of the yellow rail occurring within 10 miles of the NorthMet Project area and field surveys did not identify any yellow rail (ENSR 2005).

Laurentian Tiger Beetle

The Laurentian tiger beetle prefers rocky or sandy areas adjacent to conifer forests. This habitat is found at the Plant Site and along the Transportation and Utility Corridor, though there were no Minnesota NHIS records of occurrences of the species near the Plant Site or Transportation and Utility Corridor.

Taiga Alpine

The taiga alpine butterfly prefers black spruce bogs and swamps. This habitat is found at the Plant Site and along the Transportation and Utility Corridor in limited areas, though there are no Minnesota NHIS records of occurrences of the species near the Plant Site or Transportation and Utility Corridor.

Freija's Grizzled Skipper

The grizzled skipper butterfly prefers forest edges and openings. This habitat is found at the Plant Site and along the Transportation and Utility Corridor, though there are no Minnesota NHIS records of occurrences of the species near the Plant Site or Transportation and Utility Corridor.

Nabokov's Blue

The Nabokov's blue butterfly prefers open woodlands and upland openings where the larval host plant, dwarf bilberry, is abundant. This habitat is found at the Plant Site and along the Transportation and Utility Corridor in limited areas, though there are no Minnesota NHIS records of occurrences of the species near the Plant Site or Transportation and Utility Corridor.

Quebec Emerald

The Quebec emerald dragonfly prefers poor fens and wet meadow/sedge meadow habitat. This habitat is found at and near the Plant Site and along the Transportation and Utility Corridor in limited areas, though there are no Minnesota NHIS records of occurrences of the species near the Plant Site or Transportation and Utility Corridor.

4.2.5.2.2 Species of Greatest Conservation Need

As with the federal lands and Mine Site, the Plant Site is located along the border of the Nashwauk Uplands and Laurentian Uplands subsections. The habitat types and associated species are summarized in Table 4.2.5-1.

Areas of open ground and bare soils are rare at the Mine Site but are abundant at the Plant Site due to LTVSMC operations or deposition in the existing Tailings Basin. Both open ground and bare soils are considered non-natural habitats. No SGCN are associated with this habitat type.

Natural brush/grassland and very early successional forest are uncommon at the Plant Site (ENSR 2005). The existing Tailings Basin re-vegetation is counted as grassland, though it is disturbed habitat and is unlikely to be heavily used by wildlife species. Most of the SGCN species in Table 4.2.5-1 are generally associated with large patches of grassland and savanna habitats that are not present at the Plant Site.

Open water and aquatic communities are confined to the existing LTVSMC Tailings Basin at the Plant Site. The Tailings Basin attracts Canada geese, ducks, common loons, and other waterfowl, though the NorthMet Project area does not otherwise appear to provide good habitat for waterfowl or waterbirds. American white pelican, common tern, Wilson's phalarope, black tern, and trumpeter swan were surveyed for, but not found (ENSR 2000 and 2005).

As previously discussed, multiple habitats are made up of combinations of other key habitat types. Section 4.2.5.1 and Table 4.2.5-1 provide more discussion on species commonly found in multiple habitat types.

As with the federal lands (including the Mine Site) and the Plant Site, the Transportation and Utility Corridor is in the Laurentian Uplands and Nashwauk Uplands subsections. Section 4.2.5.1.2 and Table 4.2.5-1 provide more discussion of the habitat and species which may be present.

4.2.5.2.3 Regional Forester Sensitive Species

Section 4.2.5.1.3 provides additional discussion of the RFSS associated with the NorthMet Project area.

Bald Eagle

Typical bald eagle habitat is not present at the Plant Site, as there are no large nesting trees or waterbodies that are open year-round near the NorthMet Project area. Similarly, there is no bald eagle habitat located along the Transportation and Utility Corridor. As previously mentioned, animal-vehicle collisions on Dunka Road and/ or natural deer mortality are not likely to produce sufficient carrion to sustain bald eagles (ENSR 2005).

Great Gray Owl

The great gray owl preferred habitat includes coniferous and mixed forests and boreal bogs. These habitats are found in proximity to the Plant Site and Transportation and Utility Corridor. Calling surveys did not identify great gray owls at the Plant Site (ENSR 2000 and 2005); however, 2009 surveys identified a great gray owl hunting along Dunka Road south of the Mine Site, and the USFS has records of a great gray owl nesting in the NorthMet Project area in 2006 (AECOM 2009a), 2010, and 2011 (USFS 2013).

Three-Toed Woodpecker

The three-toed woodpecker prefers large tracts of old growth coniferous forest near recent burns where they forage on dead and dying trees for bark beetles (Burdett and Niemi 2002). No old growth coniferous habitat or recent burns are present at the Plant Site or Transportation and Utility Corridor. Though a three-toed woodpecker was observed at the Mine Site by USFS personnel in 2007, the birds are unlikely to be common at the Plant Site or Transportation and Utility Corridor due to a lack of suitable habitat.

4.2.5.2.4 Other Wildlife Species

Other wildlife species common to the region may be present on and around the Plant Site. Section 4.2.5.1.4 provides more discussion on these species.

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4.2.6 Aquatic Species

The NorthMet Project area encompasses several waterbodies that provide a variety of habitats for fish and aquatic macroinvertebrates. This section describes the known existing conditions of the fish and aquatic macroinvertebrate communities associated with waterbodies found in the Partridge River and Embarrass River watersheds and potentially affected by the NorthMet Project Proposed Action. For purposes of this FEIS, the Strahler Order (USEPA 2011a) is used to describe the hierarchical ordering of streams, where a first-order stream describes a headwater type stream with no branching. Where two first-order streams meet, they become larger, second-order streams, and where two second-order streams meet, they become third-order streams, etc.

The majority of the streams are low velocity; exhibit glide pool characteristics; meander through emergent, scrub-shrub, and forested wetlands; and have silty to boulder substrates.

The riparian edge along these streams is predominantly vegetated, which supports quality habitat for aquatic biota with little evidence of human disturbance. Baseline surveys are indicative of habitat supporting fish communities that are comparable to communities in similar waterbodies in the region. Macroinvertebrate habitat degradation from biological stressors is minimal and fair macroinvertebrate habitat exists. Habitat for several freshwater mussel species likely exists in the vicinity of the NorthMet Project area; however, only two species of mussels were observed in two years of baseline freshwater mussel surveys.

No federally or state-listed threatened or endangered, SGCN, or RFSS aquatic special status species or invasive species were found in the NorthMet Project area during surveys. According to available data, however, there are nine RFSS species, three SGCN species, and three state-listed special concern species known to occur in the general vicinity of the NorthMet Project site. Of these, suitable habitat likely exists for five special status species: headwaters chilostigman caddisfly, Quebec emerald, ebony boghaunter, creek heelsplitter, and northern brook lamprey. However, no occurrences of these species have been documented in baseline surveys in the NorthMet Project area.

Based on Minnesota's fish tissue mercury standard, the MDH has issued fish consumption advisories for the state. Waterbodies within the vicinity of the NorthMet Project area with fish consumption advisories include Colby Lake, Whitewater Reservoir, and the St. Louis River. No advisories have been issued for stream features within the NorthMet Project area. Fish sampling results from the Partridge River in 2014 indicated some species within the watershed exhibited elevated baseline levels of mercury found in the fish tissue. The streams located within the Partridge River Watershed are also tributaries of the St. Louis River, which does have fish consumption advisories.

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). The FEIS considers any new listings, or changes in the previous listings, associated with the updated list. The FEIS also considers any federal listing changes. A Biological Evaluation has been prepared that contains further information about RFSS species. The BE is included in Appendix D.

4.2.6.1 Upper Partridge River Watershed

This section describes the aquatic resources found primarily within the Upper Partridge River Watershed portion of the NorthMet Project area generally described as the Partridge River headwaters, downstream to Colby Lake, as well as Second Creek, a tributary of the Lower Partridge River downstream of Colby Lake.

4.2.6.1.1 Surface Water Features and Habitat

The surface water features within the Upper Partridge River include Mud Lake, Partridge River, and several tributaries of the Partridge River (e.g., Yelp Creek, Longnose Creek, Wetlegs Creek, Wyman Creek). The limnological features include a range of aquatic biota habitats consisting of an undeveloped freshwater lake to a river system with several headwater tributaries each combining to form a fourth-order river.

The 30.5-acre Mud Lake is located in the One Hundred Mile Swamp northwest of the Mine Site but within the federal parcel (see Figure 4.2.6-1). It has a shoreline of 4,550.0 ft and a lake frontage index of 0.7 ft per acre (see Table 4.2.6-1). Review of aerial photography indicates the lake is entirely surrounded by a vegetated wetland riparian area with no apparent development, which should provide adequate undeveloped shoreline for quality fish and macroinvertebrate habitat. The lake also has extensive shallow, emergent vegetated areas throughout, which would also provide quality habitat. Mud Lake may be susceptible to winterkill, which would minimize fish habitat.

Yelp Creek is a first order, headwater stream that flows through the One Hundred Mile Swamp where it connects with the Partridge River, forming a second-order stream at the confluence of Yelp Creek and Partridge River (see Figure 4.2.6-1). Both streams combine to encompass 5.3 miles of river through the federal parcel with a frontage index of 8.6 ft per acre. No apparent development and a wide vegetated wetland riparian buffer are exhibited from aerial photograph review, which indicates that quality fish and macroinvertebrate habitat is likely present throughout the entire Yelp Creek and Partridge River wetted water course.

Wetlegs, Longnose, and Wyman creeks are each first-order, headwater streams that flow north to south with origins between the federal parcel and Plant Site and each form confluences with the Partridge River (see Figure 4.2.6-1). These streams exhibit approximately 13.8 miles of river, collectively, prior to their confluence with the fourth-order segments of the Partridge River.

Second Creek is a headwater stream located south of the Plant Site and is joined by several unnamed tributaries as it flows southwest, forming a second-order tributary prior to connecting with the Partridge River (see Figure 4.2.6-1). The riparian zone of Second Creek is characterized by reed canarygrass, grasses, willows and alder shrubs, birch, and other larger trees. Second Creek, upstream of CR 666, is characterized by open-water wetland and numerous beaver ponds, while the lower portion is characterized by riparian woods. Portions of Second Creek are channelized or otherwise altered due to mining activity, particularly between CR 666 and CR 110.

A total of seven habitat assessment surveys were conducted at six locations within the Partridge River Watershed in the vicinity of the NorthMet Project area that describe in-stream channel characteristics and habitat within select study reaches (see Figure 4.2.6-1; Table 4.2.6-2). Five locations (four sites on the Upper Partridge River and one site on Second Creek) were in the

direct vicinity of the NorthMet Project area. The site located on the South Branch of the Partridge River is considered a reference site. These survey sites were established as baseline sampling sites for the DEIS in order to analyze habitat and aquatic biota within select study reaches. Data from these and other sampling sites from various MPCA programs are summarized below. Sites PR-B1 and PR-B2 scored near the upper range of the Qualitative Habitat Evaluation Index (QHEI) (Rankin 1989) scale, which indicates good fish habitat was present. The scores for PR-B3, PR-west, and PR-east sites scored lower in the QHEI range, which is likely a function of the dominant silt substrate found at these sites.

Tables 4.2.6-1 and 4.2.6-2 provide information regarding those waterbodies located within the federal parcel and those within the larger Partridge River Watershed, respectively. The USFS tracks MIHs, which are categories of habitat types. One of the MIH categories used by USFS includes MIH 14, which is defined as the wide variety of lakes, rivers, streams, ponds, marshes, or pools (permanent, intermittent, or seasonal) that provide habitat to wildlife (USFS 2004b). The MIH represented within the boundaries of the federal parcel includes 30.5 acres for Mud Lake and 55,968.0 linear ft for Partridge River and Yelp Creek (see Table 4.2.6-1). Based on the in-stream channel characteristics and habitat, these streams and headwater tributaries should support warm water game fish species such as northern pike, yellow perch, and bass, as they function as important spawning and rearing areas. Maintaining the seasonal variation in hydrological regime is important, especially during the spring when high flows cue spawning activity and provide access to traditional fish spawning and rearing habitat. The wetlands adjacent to all surface water features on the federal lands were not scored for fish habitat during the wetland functions and values assessment, since water levels were inadequate for most of the year to support fish habitat (AECOM 2011d).

Table 4.2.6-1 Federal Land Parcel Surface Water Characteristics

Surface Water	Size on Parcel	Approximate Shoreline Frontage (ft)	MIH Size	Frontage Index (ft/acre)
Mud Lake	30.5 acres	4,555.0	30.5 acres	0.7
Partridge River and Yelp Creek	5.3 miles	55,968.0	55,968.0 linear ft	8.6

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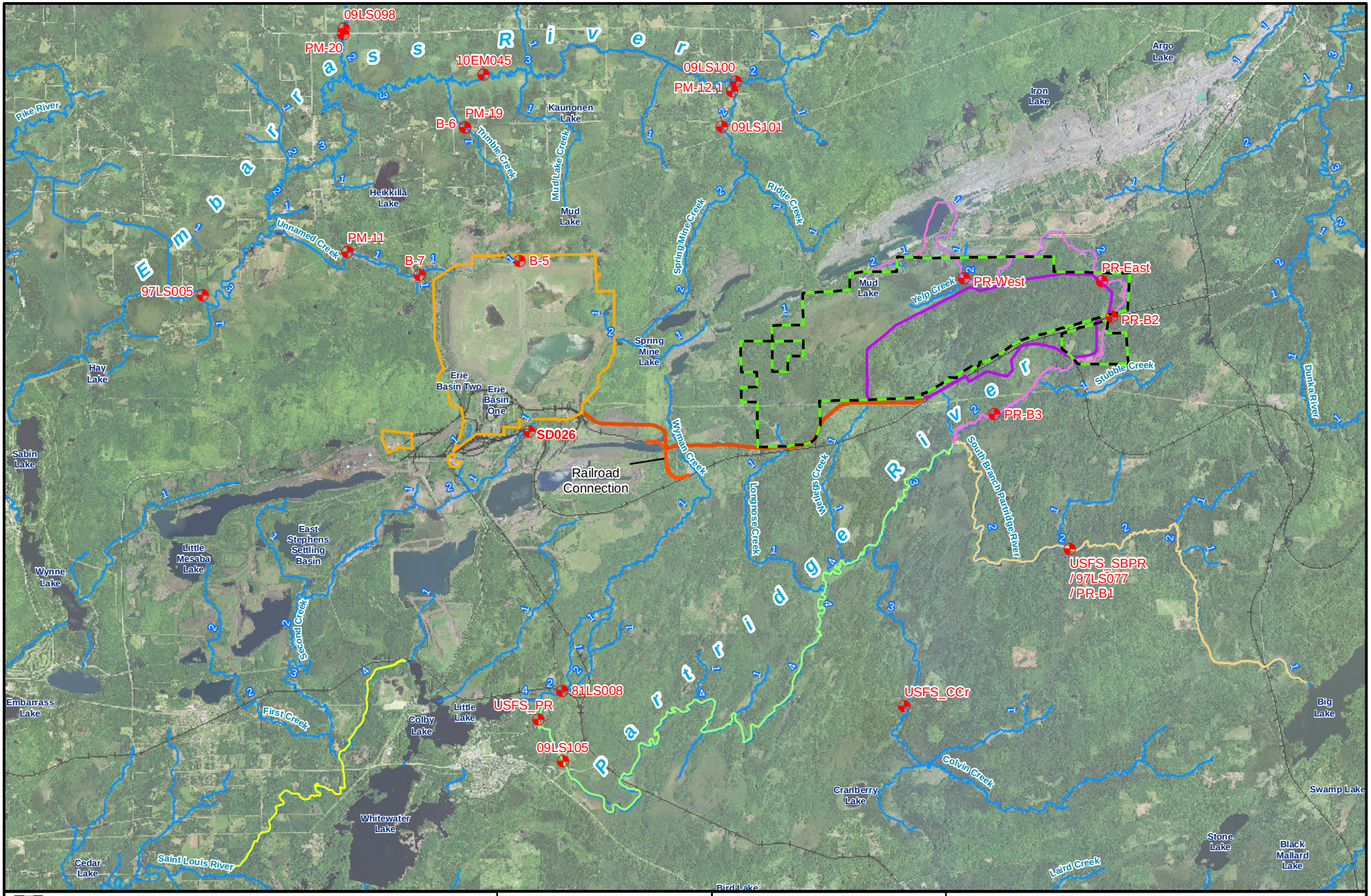

Figure 4.2.6-1

Fish and Macroinvertebrate Sample Site Locations

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Table 4.2.6-2 Major Channel Characteristics at Biological Survey Stream Sites in the Partridge River Watershed

	Channel Characteristics								
Water Body/ Reference	**Study Year**	**Site Location**	**Stream Order[2]**	**Catchment (mi[1])**	**Dominant Substrate**	**Width (m)**	**Depth (cm)**	**Velocity (cm/s)**	**QHEI[2]**
Partridge River (Barr 2011b)	2009	PR-west site	2	na	Silt	4.9	79.25	na	40
Partridge River (Barr 2011b)	2009	PR-east site	2	na	Silt	4.0	88.39	na	41
South Branch Partridge River[3] (Breneman 2005)	2004	PR-B1	2	14.0	Boulder	7.5	26.74	6.90	70
South Branch Partridge River[3] (MPCA 2011c)	2009	MPCAB_ 97LS077	2	14.0	Boulder	7.0	21.1	na	na
Partridge River (Breneman 2005)	2004	PR-B2	2	15.2	Boulder	9.5	20.67	15.13	79
Partridge River (Breneman 2005)	2004	PR-B3	2	23.0	Silt	7.2	72.23	7.03	65
Second Creek (Barr 2011i)	2011	SD026	1	--	Boulder, gravel, silt, detritus	5.0	37	0.03	69

Source: Adapted from Breneman 2005, Barr 2011b, and MPCA 2011c.

Notes:
na = Not available
[1] Referenced from Figure 4.2.6-1.
[2] QHEI is designed to provide an integrated evaluation of physical habitat characteristics important to fish communities and ranges from 0 (low) to 100 (high).
[3] South Branch Partridge River reference sites PR-B1 and 7LS077 are the same location.

Watershed Level Riparian Connectivity

Intact riparian areas are an important factor contributing to diverse and productive aquatic ecosystems. The streams present in any watershed are each part of an intricate web of perennial, defined as waterbodies with water present year-round, and non-perennial streams, lakes, and rivers. They are part of a larger watershed where the connections between these surface water features are affected by the vegetated, undisturbed riparian edges bordering these waterbodies. A Riparian Connectivity Index (RCI), developed by the MDNR, measures the percentage of undeveloped, vegetated land within the riparian zone and is typically derived using a GIS analysis of vegetative cover along riparian areas and takes into consideration agriculture and land development affected natural riparian vegetative cover (MDNR 2015a). The Partridge River is a tributary to the larger St. Louis Watershed where the score for the St. Louis Watershed was rated at 0 percent agriculture in the riparian zone, 5 percent development in the riparian zone, and a total RCI of 95. Localized GIS analysis of the Partridge River within the boundary of the federal lands indicates the score is also representative of this area.

Aquatic Connectivity

Dams, bridges, and culverts in streams, creeks, and rivers may reduce the hydrologic connectivity of watersheds if they become fish barriers and may affect the habitat available for

aquatic organisms by influencing stream velocities, sediment deposition, substrate composition, erosion potential, and water quality.

The MDNR has developed an Aquatic Connectivity Index (ACI), which reflects the extent of dams, bridges, and culverts along stream segments. The number of structures that modify aquatic connectivity in Minnesota streams is very high. The vast majority of watersheds score 20 or below on a scale of 0 to 100, where 100 represented the fewest amount of structures per river mile, indicating a high density of bridges, culverts, and dams (MDNR 2015b).

The index exhibited for the St. Louis River Watershed indicated a score of 15 for bridges and culverts and 6 for dams. The overall ACI score for the St. Louis Watershed was 11, which indicates that dams, bridges, and culverts impair the aquatic connectivity of the watershed and limit the available physical habitat for aquatic organisms.

Localized analysis of dams, bridges, and culverts along the Partridge River are limited to one Dunka Road crossing within the vicinity of the Mine Site.

4.2.6.1.2 Existing Water Quality within the Vicinity of the Mine Site

Water quality can have significant effects on aquatic species. The existing water quality data collected within the Partridge River sampling locations provided the basis for the NorthMet Project Proposed Action and Continuation of Existing Conditions (CEC) Scenario models (Section 5.2.2.2.3). Existing condition mercury values were consistently in exceedance of Class 2B water quality standards while aluminum and thallium values were in exceedance of water quality standards at one or more sampling locations (see Figure 4.2.6-2; Table 4.2.6-3). No data were available to evaluate the Mud Lake and Yelp Creek water quality. Wyman Creek is included on the 2012 TMDL list for aquatic life based on Fishes Bioassessment. Additional existing water quality information is contained in Section 4.2.2.

Table 4.2.6-3 Average Existing Water Quality Concentrations in the Partridge River

Parameter	Units	Evaluation Criteria[1]	SW-001	SW-002	SW-003	SW-004	SW-004a	SW-004b	SW-005
General									
Chloride	µg/L	230	1.6	25.7	10.3	9.2	9.3	5.7	5.7
Specific Conductivity	umhos/cm	NA	230	363	217	208	209	148	142
TDS	mg/L	700	119	235	161	155	171	153	143
Temperature	ºC	-	13.7	10.7	10.8	11.2	12.5	11.7	11.8
Metals									
Aluminum	µg/L	125	18.0	31.3	51.8	**193**	119	**127**	**129[(3)]**
Antimony	µg/L	31	1.5	0.53	0.53	0.53	0.25	0.25	0.53
Arsenic	µg/L	53	6.5	0.48	0.90	1.1	0.95	0.96	1.0
Boron	µg/L	500	96.0	148	94.8	93.0	116	75.9	51.4
Cadmium	µg/L	2.5[(2)]	0.10	0.10	0.10	0.09	0.08	0.07	0.09
Cobalt	µg/L	5	0.45	0.30	0.33	0.57	0.42	0.43	1.16
Copper	µg/L	9.3[(2)]	1.6	0.8	1.0	1.5	1.5	1.5	1.6
Lead	µg/L	3.2[(2)]	0.30	0.29	0.27	0.32	0.22	0.26	0.41[(4)]
Mercury	ng/L	1.3	**2.3**	**2.7**	**2.8**	**3.3**	**4.1**	**5.4**	**4.3**
Nickel	µg/L	52[(2)]	1.4	0.71	1.1	1.5	1.2	1.6	1.7
Selenium	µg/L	5	1.7	0.90	0.90	0.73	0.44	0.64	0.77
Silver	µg/L	1	0.29	0.21	0.21	0.20	0.10	0.10	0.20

Parameter	Units	Evaluation Criteria[1]	SW-001	SW-002	SW-003	SW-004	SW-004a	SW-004b	SW-005
General									
Thallium	µg/L	0.56	**0.60**	0.19	0.19	0.16	0.01	0.01	0.15
Vanadium	µg/L	NA	--	1.5	1.5	1.5	1.5	1.5	1.5
Zinc	µg/L	120[(2)]	8.9	5.5	8.7	10.3	4.6	4.2	10.5

Source: Barr 2014d.

Notes:
Bold font indicates exceedance of the Class 2B water quality standards evaluation criteria.
[1] Section 5.2.2 includes a detailed discussion of evaluation criteria.
[2] Water quality standard for this metal is hardness-dependent. Listed value assumes a hardness concentration of 100 mg/L.
[3] Excludes single outlier value of 1,550 µg/L from values included in Barr 2014d.
[4] Excludes single outlier value of 12.3 µg/L from values included in Barr 2014d.

4.2.6.1.3 Aquatic Biota Studies

Several aquatic biota surveys are summarized below as referenced from Breneman (2005), Barr (2011b), MPCA (2011c), and USFS (2014). Breneman conducted biological surveys at two sites in the Upper Partridge River near the Mine Site (PR-B2 and PR-B3) and at a third site on the South Branch Partridge River (PR-B1) during August and September 2004, while Barr conducted surveys at two other sites in the upper Partridge River near the Mine Site (PR-east and PR-west) during September 2009 (see Figure 4.2.6-1). Two additional July 2009 surveys were reported by the MPCA (MPCA 2011c and MPCA 2013c) and were located at the South Branch Partridge River (same site as PR-B1) and at a site upstream of the Wyman Creek and Partridge River confluence (MPCA_09LS105). The main stem Partridge River sites have been previously affected by discharges from the Northshore Mine (Breneman 2005). The site on the South Branch Partridge River (PR-B1/MPCAB_97LS077), identified by Breneman (2005) to be a suitable reference site for the Partridge River, is approximately 4.3 river miles upstream of the South Branch Partridge River confluence with the Partridge River and is unaffected by any mining discharge (Breneman 2005).

The results of the fish and macroinvertebrate surveys are summarized in Table 4.2.6-4 and 4.2.6-5. The assemblages observed in the survey are typical of those sampled elsewhere in the northeast region of Minnesota (Barr 2011b). No listed SGCN, RFSS, state, federal, or invasive species were observed during these surveys.

Fish Communities

Abundance and diversity of taxa among the Upper Partridge River sampling sites were indicative of a warm water stream populated by typical warm water species, including gamefish such as northern pike, bluegill, northern rock bass, and yellow perch (see Table 4.2.6-4). The presence of one or more intolerant or intermediate species in each of these monitoring locations is, however, one indication that quality habitat is present at these sites and chemical and physical stream deterioration is likely negligible. A review of aerial photography reveals similar riparian vegetation cover for all Upper Partridge River sites.

Results of an extensive fish population assessment by MDNR conducted in 2014 indicated a healthy warm water fish population including walleye, largemouth bass, black crappie, and channel catfish in addition to other gamefish species (see Table 4.2.6-5). Reach 2, above Colby Lake had the highest diversity of fish species sampled and was the most popular stretch of the

river used by anglers. Juvenile gamefish were found in all reaches, indicating good habitat for natural reproduction (MDNR 2015f).

The MPCA collected fish community data during a 2009 sampling event for Wyman Creek, a State of Minnesota-listed trout stream (see Figure 4.2.6-1). MDNR surveys were conducted on Wyman Creek in 1968, 1981, and 2003 (MDNR 1981; MDNR 2003). Based on the latest 2009 survey, a variety of taxa were collected; however, no trout species were collected, which likely contributed to an IBI score of only 33, four points below the minimum threshold for this stream classification (see Table 4.2.6-4). MDNR survey results reference elevated stream temperatures due to warm water surface runoff from Mine Pit lakes to the east and west of the headwaters, extensive logging in the watershed, and beaver dam and impoundments occurring along the entire length of Wyman Creek. It should be noted that Wyman Creek is not a comparable stream to others in the Upper Partridge River watershed for several reasons. Most notable, Wyman Creek is a designated cold water trout stream, it is affected by mining activity, and would not be in the direct drainage of the NorthMet Project Proposed Action. It is included in this FEIS because it contributes to watershed water quality.

No aquatic biota studies have been conducted in Longnose Creek, Wetlegs Creek, or Second Creek, and no fish or macroinvertebrate community or habitat characteristics could be documented, although, like Yelp Creek, all are first-order streams within the vicinity of the NorthMet Project area.

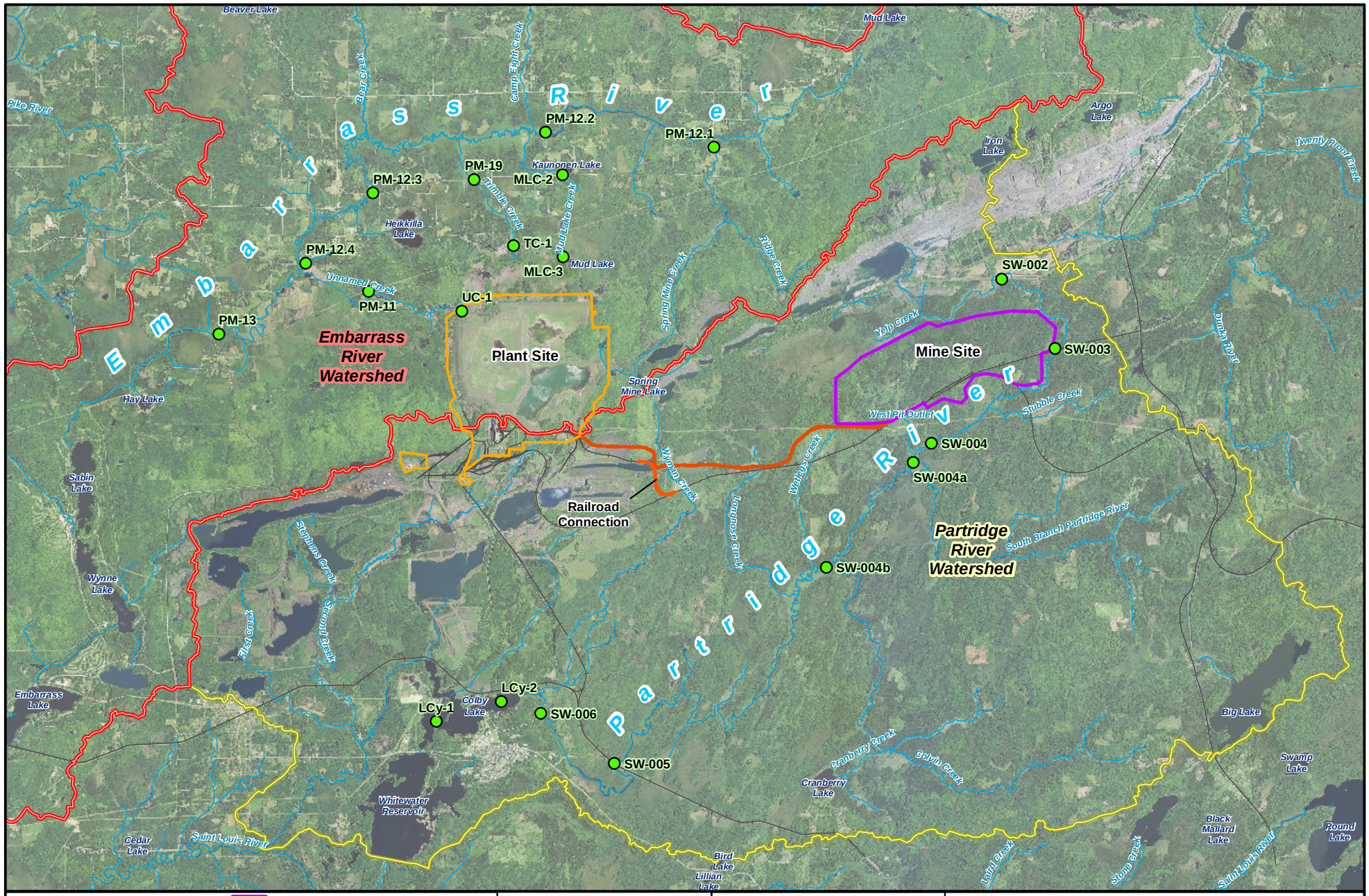

Water Sampling Location
Embarrass River Watershed
Partridge River Watershed
Stream/River
Existing Railroad
Mine Site
Plant Site
Transportation and Utility Corridor

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 0.5 1 2 3 Miles

Figure 4.2.6-2
Water Quality Sampling Locations within the Partridge River and Embarrass River Watersheds
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Table 4.2.6-4 Fish Species Collected at Nine Sites in the NorthMet Project Area

			Site								
			Upper Partridge River Watershed								Wyman Creek Watershed
Scientific Name	**Common Name**	**Tolerance Designation[1]**	**PR-B2[2]**	**PR-B3**	**PR-east[2]**	**PR-west[2]**	**PR-B1[3]**	**97LS077[3]**	**09LS105**	**USFS_SBPR[5]**	**81LS008**
Ameiurus melas	Black bullhead	Intermediate							X		X
Catostomus commersonii	White sucker	Tolerant	X	X	X	X	X	X	X	X	X
Moxostoma macrolepidotum	Northern shorthead redhorse	Intermediate							X		
Rhinichthys cataractae	Longnose dace	Intolerant	X	X			X	X	X		X
Luxilus cornutus	Common shiner	Intermediate	X		X		X				X
Etheostoma nigrum	Johnny darter	Intermediate	X		X		X	X		X	X
Hybognathus hankinsoni	Brassy minnow	Intermediate	X		X		X				
Lota lota	Burbot	Intermediate					X	X	X	X	X
Percina caprodes	Northern logperch	Intermediate							X		
Percopsis omiscomaycus	Troutperch	Intermediate							X		
Ambloplites rupestris	Northern rock bass	Intermediate							X		
Esox lucius	Northern pike	Intermediate					X	X	X	X	
Lepomis macrochirus	Bluegill	Intermediate							X		
Perca flavens	Yellow perch	Intermediate							X		X
Pomoxis nigromaculatus	Black crappie	Intermediate							X		
Sander vitreus	Walleye	Intermediate							X		
Phoxinus eos	Northern redbelly dace	Tolerant	X		X	X					X
Culaea inconstans	Brook stickleback	Intermediate	X		X	X					
Rhinichthys atratulus	Blacknose dace	Intolerant	X		X						
Semotilus atromaculatus	Creek chub	Tolerant									X
Margariscus margarita	Pearl dace	Intermediate	X		X						X
Noturus gyrinus	Tadpole madtom	Intermediate		X							
Umbra limi	Central mudminnow	Tolerant		X						X	
Pimephales promelas	Fathead minnow	Tolerant			X						
Cottus bairdii	Mottled sculpin	Intolerant						X		X	X
Study Year			2004	2004	2009	2009	2004	2009	2009	2011/2012/2014	2009
Species Observed			9	4	9	3	7	6	13	6	11

			Site								
			Upper Partridge River Watershed								Wyman Creek Watershed
Scientific Name	**Common Name**	**Tolerance Designation[1]**	**PR-B2[2]**	**PR-B3**	**PR-east[2]**	**PR-west[2]**	**PR-B1[3]**	**97LS077[3]**	**09LS105**	**USFS_SBPR[5]**	**81LS008**
# intolerant species			2	1	1	0	1	2	1	1	1
Total Abundance			267	11	1,847	19	36	68	155	12	64
IBI[4]			na	na	na	na	na	61	87	na	33
Predominant Substrate			boulder	silt	silt	silt	boulder	boulder	na	na	na

Sources: Breneman 2005; Barr 2011b; MPCA 2011c; MPCA 2013c; MDNR 1981; MDNR 2003, and USFS 2014.

Notes:
[1] Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish - Second Edition EPA 841-B-99-002 (USEPA 2012b). Tolerance values indicate qualitative tolerances of physical and chemical disturbances.
[2] Federal parcel sites.
[3] South Branch Partridge River reference sites PR-B1 and 7LS077 are the same location.
[4] IBI is the sum of study specific metrics, where 0 represents the worst fish assemblage conditions and 100 represents the best fish assemblage conditions (USEPA 2011b).
[5] Results of one-pass electroshocking sampling in years 2011, 2012, and 2014. Summarized data is an average of three surveys combined.
-- = no designation assigned
na = Not available

Table 4.2.6-5 Fish Species Collected at Four Reaches within the Partridge River Watershed

Scientific Name	Common Name	Tolerance Designation[1]	Study Reach Fall 2014 MDNR Partridge River Watershed Fish Sampling			
			Reach 1	Reach 2	Reach 3	Reach 4
Ameiurus melas	Black bullhead	Intermediate	X	X	X	
Ameiurus natalis	Yellow bullhead	Intermediate	X	X		
Ictalurus punctatus	Channel catfish	Tolerant		X		
Catostomus commersonii	White sucker	Tolerant	X	X	X	X
Rhinichthys atratulus	Blacknose dace	Intolerant				X
Rhinichthys cataractae	Longnose dace	Intolerant	X	X	X	
Moxostoma macrolepidotum	Northern shorthead redhorse	Intermediate		X		
Luxilus cornutus	Common shiner	Intermediate		X		
Etheostoma nigrum	Johnny darter	Intermediate			X	X
Hybognathus hankinsoni	Brassy minnow	Intermediate				
Lota lota	Burbot	Intermediate	X	X	X	
Percina caprodes	Northern logperch	Intermediate	X	X		
Ambloplites rupestris	Northern rock bass	Intermediate	X	X		
Esox Lucius	Northern pike	Intermediate	X	X	X	
Lepomis macrochirus	Bluegill	Intermediate	X	X		
Micropterus salmoides	Largemouth bass	Intermediate		X		
Perca flavens	Yellow perch	Intermediate		X		
Pomoxis nigromaculatus	Black crappie	Intermediate	X	X		
Sander vitreus	Walleye	Intermediate	X	X	X	
Phoxinus eos	Northern redbelly dace	Tolerant				
Culaea inconstans	Brook stickleback	Intermediate				X
Rhinichthys atratulus	Blacknose dace	Intolerant				
Semotilus atromaculatus	Creek chub	Tolerant				X
Margariscus margarita	Pearl dace	Intermediate				X
Noturus gyrinus	Tadpole madtom	Intermediate		X		
Umbra limi	Central	Tolerant				

Scientific Name	Common Name	Tolerance Designation[1]	Study Reach Fall 2014 MDNR Partridge River Watershed Fish Sampling			
			Reach 1	Reach 2	Reach 3	Reach 4
	mudminnow					
Pimephales promelas	Fathead minnow	Tolerant				
Cottus bairdii	Mottled sculpin	Intolerant				
Cottus spp.	Sculpin species	Unknown	X	X	X	
Study Year			2014	2014	2014	2014
Species Observed			12	18	8	6
# intolerant species			1	1	1	1

Source: MDNR 2015f.

Note:
[1] Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish - Second Edition EPA 841-B-99-002 (USEPA 2012b). Tolerance values indicate qualitative tolerances of physical and chemical disturbances.

Macroinvertebrate Communities

Aerial photography review and habitat descriptions found in the various studies indicate the reference site (PR-B1) and the USFS Colvin Creek and South Branch Partridge River sites should have no effects from previous mining and quality habitat should exist for macroinvertebrate assemblages. The results of the 2011 macroinvertebrate studies indicate habitats for macroinvertebrate assemblages are just as good or better at the PR-B2 and PR-B3 Partridge River study sites as the percent Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies) (%EPT) exhibited better results at the Partridge River sites and similar %Diptera results. The Hilsenhoff Biotic Index (HBI), which measures the pollution tolerance for various benthic macroinvertebrate families, exhibited a fair ranking for both sites, which indicates habitat degradations from biotic stressors are minimal and fair macroinvertebrate habitat exists. %EPT and %Diptera results are also similar to the 2004 results for sites PR-B2 and B3.

The results of the USFS studies indicate variable %EPT and %Diptera between three study years, but, in general, the results indicate %EPT scores on the high end. This indicates quality macroinvertebrate habitat likely exists at these sites. Comparing the generally high %EPT and low %Diptera results at the USFS sites with the 2011 studies indicates better habitat may be present at the USFS sites; however, the results may be indicative of differing sampling protocols or that the variability in sampling was absent for the one year effort in the 2011 studies.

Table 4.2.6-6 Composition of Macroinvertebrate Assemblages at Nine Sites in the Federal Parcel

Name	Study Year	Site	No. of Samples	Total Taxa	Mean Abundance	%EPT[1]	%Diptera[2]	HBI Scale of 0 - 10 [3]	HBI Ranking [3]
South Branch Partridge River (Breneman 2005)	2004	PR-B1	7	90	627	6	58	na	na
South Branch Partridge River (USFS 2014)	2011/ 2012/ 2013	USFS-SBPR	1/ 1/ 1	43/ 55/ 62	300/ 300/ 319	11/ 34/ 54	75/ 32/ 33	na	na
Partridge River (Breneman 2005)	2004	PR-B2	6	89	1,261	15	65	na	na
Partridge River (Breneman 2005)	2004	PR-B3	4	82	1,278	16	52	na	na
Partridge River (Barr 2011b)	2009	PR-west	5	27	710	19	66	6.4	Fair
Partridge River (Barr 2011b)	2009	PR-east	5	26	912	22	50.2	6.0	Fair
Partridge River (USFS 2014)	2011/2012/ 2013	USFS-PR	1/ 1/ 1	52/ 61/ 44	329/ 301/ 308	67/ 44/ 58	16/ 17/ 32	na	na
Second Creek	2011	SD026	na	36	2,534	72	47	na	na
Colvin Creek (USFS 2014)	2011/2012/ 2013	USFS-CCk	1/ 1/ 1	50/ 51/ 28	330/ 325/ 134	60/ 31/ 10	28/ 34/ 27	na	na

Sources: Data and functional group assignments from Breneman 2005, Barr 2011b, Barr 2011i, and USFS 2014.

Notes:
[1] %EPT indicates the percent of mayflies, stoneflies, and caddisflies within the macroinvertebrate sample. High EPT percentages of the population typically indicates degraded habitat conditions are not present.
[2] %Diptera indicates the percent of true flies and bloodworms present within the macroinvertebrate sample. High percentages of the population typically indicates low habitat diversity and predominant silty habitats often present within slow-moving, headwater streams.
[3] HBI is the measure of macroinvertebrate assemblages tolerance toward organic (nutrient) enrichment. Not calculated in Breneman 2005.
na = Not available

Freshwater Mussel Communities and Habitats at Survey Sites

Unionid mussels (*Unionidae*) constitute one of the most imperiled major taxa in the United States (Master et al. 2000), and the MCWCS identifies 26 unionid species within Minnesota as species of special concern. Two of these species, creek heelsplitter (*Lasmigona compressa*) and black sandshell (*Ligumia recta*), are known to exist in the St. Louis River Watershed (see Table 4.2.6-6), but were not identified in areas near the Mine Site. Heath (2011) sampled mussels at M1 and M2 in 2004 and at PR-upstream and PR-downstream in 2009 (see Figure 4.2.6-3). Only one mussel species was collected in the Partridge River Watershed, the giant floater (*Pyganodon grandis*) (see Table 4.2.6-7), which is a widely distributed feeding generalist, tolerant of silt-dominated substrate, and often found in lakes, ponds, or slow-moving water pools of small to medium-sized creeks and rivers (Cummings and Mayer 1992; Heath 2011).

Some of the unionid species known to exist in the St. Louis River Watershed were not collected by Heath (2011), including the creeper (*Strophitus undulatus*), plain pocketbook (*Lampsilis cardium*), white heelsplitter (*Lasmigona complanata*), and the black sandshell (see Table 4.2.6-7). The creeper, plain pocketbook, and white heelsplitter are typically found in larger streams (Cummings and Mayer 1992) and may only exist farther downstream in the drainage system. It is unlikely that the SGCN-designated black sandshell occurs in the NorthMet Project area given its absence from the sample sites. Habitat for this species (riffles or raceways in gravel or firm sand; Cummings and Mayer 1992) likely only exists in small reaches within the NorthMet Project area.

Other species known to exist in the St. Louis River Watershed, but also not collected by Heath (2011) at all stations included cylindrical papershell (*Anodontoides ferussacianus*) and creek heelsplitter. The SGCN-designated creek heelsplitter is found in sand and fine gravel substrates (Cummings and Mayer 1992). Sand and gravel were minor substrate type at the sites sampled and is therefore unlikely to exist in the Partridge River Watershed (see Table 4.2.6-8).

Table 4.2.6-7 Mussel Species Identified in the Lake Superior Basin, St. Louis River Watershed, Partridge River, and Embarrass River

		Location			
		Sietman (2003)		Heath (2004 and 2009)	
Scientific Name	**Common Name**	**Lake Superior Basin**	**St. Louis River Watershed**	**Partridge River[2]**	**Embarrass River[3]**
Elliptio complanata	Eastern elliptio	X	X		
Anodontoides ferussacianus	Cylindrical papershell	X	X		
Lasmigona complanata	White heelsplitter	X	X		
L. compressa[1]	Creek heelsplitter	X	X		
Pyganodon grandis	Giant floater	X	X	X	X
Strophitus undulatus	Creeper	X	X		
Utterbackia imbecillis	Paper pondshell	X			
Lampsilis cardium	Plain pocketbook	X	X		
L. siliquoidea	Fat mucket	X	X		X
Ligumia recta[1]	Black sandshell	X	X		

Source: Adapted from Heath 2011.

Notes:
1 Minnesota Species of Special Concern.
2 Partridge River sampling sites include M-1, M-2, PR-upstream, and PR-downstream; only one species was found between four sites.
3 Embarrass River only sampled by Heath as summarized in the Heath 2011 report.

Table 4.2.6-8 Location and Physical Characteristics of Mussel Sample Sites

Name	**Site**	**River Mile[1]**	**Mean Depth (cm)**	**Substrate Composition**
Partridge River	PR-upstream	25.0	250	100% detritus (peat)
Partridge River	PR-downstream	21.6	150	20% clay 80% detritus (peat)
Partridge River	M1	20.5	80	95% silt 5% boulder
Partridge River	M2	16.7	60	40% silt 30% boulder 15% coarse sand 15% fine sand
Trimble Creek	M3	na	20	50% gravel 50% coarse sand
Embarrass River	M4	na	60	20% boulder 20% rubble 20% coarse sand 20% fine sand 20% clay

Source: Modified from Heath 2011.

Notes:
1 River mile indicated is measured from the sample site to the Colby Lake inlet.
na = Not available

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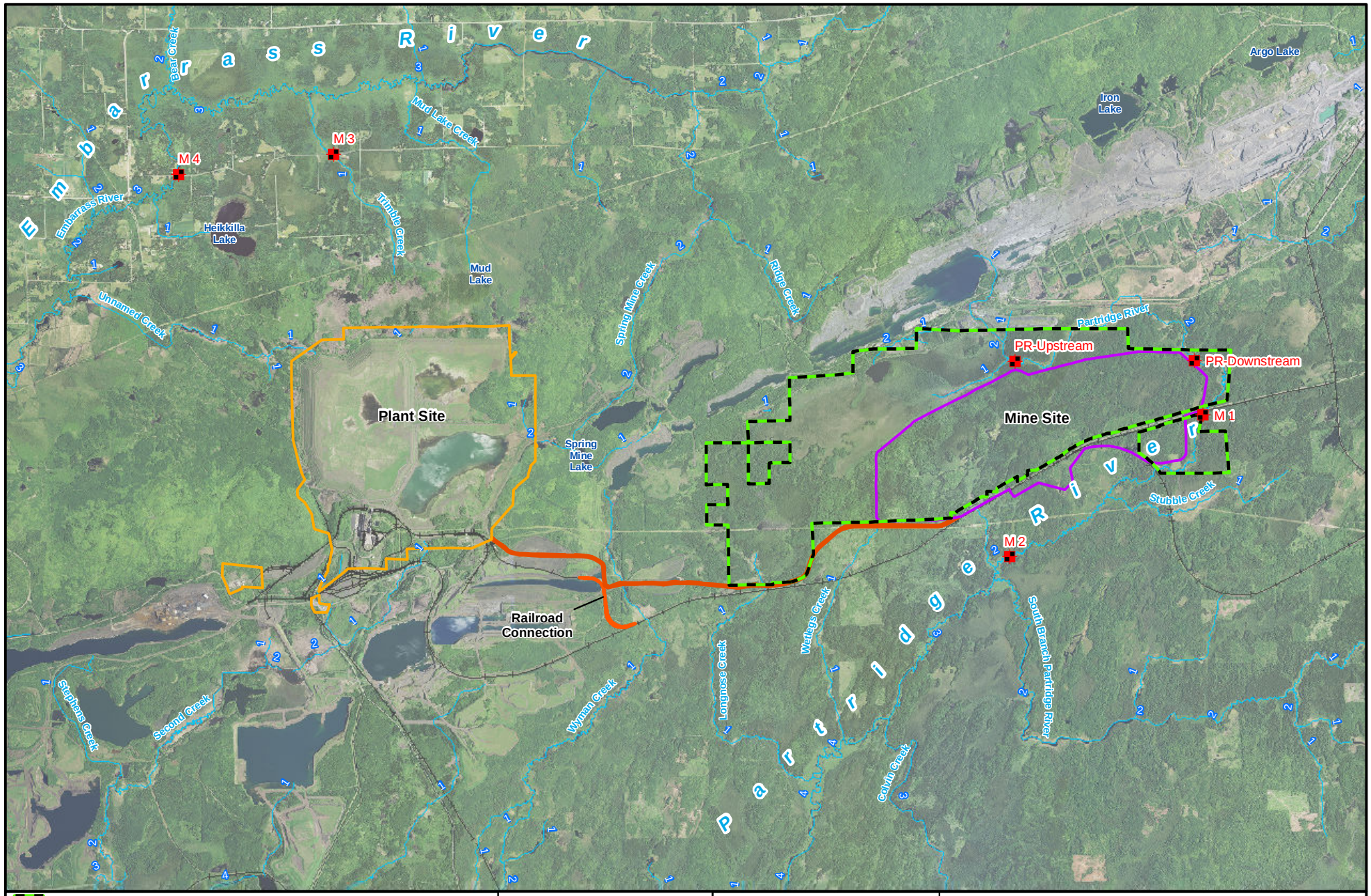

Federal Lands
Mine Site
Plant Site
Trasportation and Utility Corridor
Freshwater Mussel Sampling Site
Existing Railroad
Streams and Rivers
Stream Order Number

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.5 1 2 Miles

Figure 4.2.6-3
Freshwater Mussel Sampling Site Locations
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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4.2.6.1.4 Special Status Fish and Macroinvertebrates

There are no federally listed or state-listed threatened or endangered fish or macroinvertebrate species known to occur in the Partridge River (USFWS 2011).

As with wildlife resources, assessment of fish and macroinvertebrates included consideration of the MCWCS (MDNR 2006d) and RFSS species. The MCWCS identifies SGCN by ecoregion subsections based on a statewide approach, and the RFSS species are identified for the potential to be found within the Superior National Forest. SGCN species identified in the Laurentian Uplands and Nashwauk Uplands, include two unionid mussel species (i.e., creek heelsplitter and black sandshell) and one species of fish (northern brook lamprey, *Ichthyomyzon fossor*), but these species were not found in the NorthMet Project area, though there is potential habitat for these species. These species also are listed by the state as species of special concern and the USFS as RFSS. In addition to the creek heelsplitter and the black sandshell, USFS also lists seven other species as RFSS for Superior National Forest, including three insects and four fish (see Table 4.2.6-9). Each of these RFSS species are briefly described below. No invasive fish or macroinvertebrate species are known to exist within the federal parcel.

Table 4.2.6-9 SGCN and RFSS Species Identified within Portions of the Laurentian Uplands – Nashwauk Uplands Ecoregion or Superior National Forest

Scientific Name	Common Name	Laurentian and Nashwauk Uplands Ecoregion SGCN	RFSS
Insects			
Chilostigma itascae	Headwaters chilostigman caddisfly		X
Somatochlora brevicincta	Quebec Emerald		X
Williamsonia flechen	Ebony boghaunter		X
Fish			
Acipenser fulvescens	Lake sturgeon		X
Coregonus nipigon	Nipigon cisco		X
Coregonus zenithicus	Shortjaw cisco		X
Ichthyomyzon fossor	Brook lamprey	X	X
Mussels			
Lasmigona compressa	Creek heelsplitter	X	X
Ligumia recta	Black sandshell	X	X

Sources: MDNR 2006d and USFS 2012f.

Headwaters Chilostigman Caddisfly

This species of caddisfly has only been discovered in two locations within Minnesota where it is also listed as a state endangered species. In 1994, it was documented in a slow-moving, silt-dominated headwater stream in Itasca State Park and in 2005 in rich swamp to poor fen habitats within a large, acid to minerotrophic peatland complex in Finland State Forest (MDNR 2011L). Little is known about the headwaters chilostigman caddisfly. Headwater habitats are present at the Mine Site; however, since the distribution of this caddisfly appears to be very limited, it is unlikely to occur in the NorthMet Project area.

Quebec Emerald

The Quebec emerald dragon fly occurs in lentic habitats typically associated with bogs, fens, and heaths near water-saturated or water-suspended sphagnum (USFS 2007a). This species has been found within the Superior National Forest. Little distribution information is known regarding this species due to lack of completed surveys. The known required habitat is likely present within the federal parcel near the bogs associated with the headwater stream, Yelp Creek; however, this species was not found in the benthic macroinvertebrate surveys. The likelihood of observing Quebec emerald individuals or populations in the vicinity of the federal parcel and Mine Site is low.

Ebony Boghaunter

The ebony boghaunter shares a similar habitat description with the headwaters chilostigman caddisfly described above; however, the distribution is likely more widespread than the caddisfly (MDNR 2011L). Habitat likely exists for this species in the NorthMet Project area in sphagnum dominated bogs; however, this species has not been identified in the benthic macroinvertebrate surveys conducted to date.

Lake Sturgeon

The lake sturgeon is a large fish that is broadly distributed throughout the Mississippi River, Great Lakes, and Hudson Bay drainages (Scott and Crossman 1973a; Wilson and McKinley 2005). Lake sturgeon typically inhabit large lakes and rivers and are usually found in waters that are 15 to 30 ft deep (Wilson and McKinley 2005). Spawning takes place in swift-flowing water 2 to 15 ft in depth, often at the base of a low waterfall that blocks further migration upstream (Scott and Crossman 1973a). The species has been classified as threatened in both Canada and the United States by a special committee of the American Fisheries Society (Williams et al. 1989) and is a species of special concern in Minnesota.

Historically, lake sturgeon migrated approximately 14 miles upriver from Lake Superior in the St. Louis River (Auer 1996). Spawning occurred between the falls near Fond du Lac, which formed a natural barrier to upstream migration, and Bear Island located a few miles downstream (Goodyear et al. 1982; Kaups 1984; Schram et al. 1999). The lake sturgeon was extirpated from the St. Louis River during the early 1900s (Schram et al. 1999).

The St. Louis River currently is one of 17 tributaries to Lake Superior identified by the Great Lakes Fishery Commission as a priority stream where lake sturgeon rehabilitation should be focused, and the St. Louis is one of only six rivers identified by the Great Lakes Fisheries Commission as a priority for lake sturgeon stocking (Auer 2003). A stocking program was initiated in 1983 to reintroduce lake sturgeon to the St. Louis River; however, stocking was reduced in 1995 and discontinued in 2000 (MDNR 1995). The stocking has resulted in an increase in lake sturgeon abundance in the St. Louis River estuary near Duluth (Schram et al. 1999). Two separate observations of juvenile lake sturgeon were observed by Fond du Lac and MDNR biologists near the Fond du Lac dam in 2011 and 2014, respectively, which indicates recruitment from naturally reproducing adult lake sturgeon, since no stocking has occurred below the dam since 2000 (MDNR, Pers. Comm., November 7, 2014). Fond du Lac has stocked lake sturgeon into the St. Louis River above the Fond du Lac dam near the confluence with the Cloquet River and within the Cloquet River near Independence, Minnesota. Fond du Lac has 2012 through 2014 lake sturgeon telemetry data, which indicates juvenile and adult sturgeon

have been located near Floodwood, Minnesota, downstream from the confluence of the Whiteface River and St. Louis River (MDNR, Pers. Comm., January 12, 2015). No fish have been observed upstream of this location and migration of lake sturgeon from this location would be blocked by the dam at Forbes, Minnesota, approximately 14 miles downstream of the Embarrass River confluence with the St. Louis River.

There are no known occurrences of lake sturgeon and no likely habitat for lake sturgeon within the NorthMet Project area (see Appendix D).

Nipigon Cisco

The nipigon cisco is found in waters of Lake Nipigon, Black Sturgeon Lake, Saganaga Lake, and other lakes of northwest Ontario and Quebec (Hubbs and Lagler 2007). Saganaga Lake is the only lake in this list shared with Minnesota and Ontario and is a deep, oligotrophic lake covering approximately 13,800 acres (MDNR 2011d). There are no known occurrences or likely habitat for nipigon cisco within the NorthMet Project area.

Shortjaw Cisco

Formerly found in deep waters of several of the Great Lakes (Scott and Crossman 1973c), the shortjaw cisco has been eliminated from Lakes Erie, Huron, and Michigan and is in decline in Lake Superior (COSEWIC 2003). The species is also found in Gunflint and Saganaga lakes (MDNR 2006d), which are two of the deepest natural lakes in Minnesota. Invasive species, habitat degradation, and competition or predation may be factors that are limiting recovery (Pratt and Mandrak 2007). There are no known occurrences or likely habitat for shortjaw cisco within the NorthMet Project area.

Northern Brook Lamprey

The northern brook lamprey is a small, nonparasitic, jawless fish. This species' typical habitat is creeks and small rivers, apparently avoiding small brooks and large rivers (Scott and Crossman 1973b). There are no known occurrences of this species in or near the NorthMet Project area. Cochran and Pettinelli (1987) identified northern brook lamprey at a site south of Cloquet, Minnesota, approximately 75 miles south of the NorthMet Project area. Since 1986, it has been collected from six other sites in the Lake Superior drainage (Hatch et al. 2003). Suitable habitat for northern brook lamprey is likely to exist in the NorthMet Project area; however, the nearest known occurrence of this species is far removed from the NorthMet Project area.

Freshwater Mussels

No special freshwater mussel species were observed during the mussel surveys described in Heath (2011). As discussed above, it is unlikely the habitats required for the black sandshell exist in the vicinity of the NorthMet Project area. The habitat for the creek heelsplitter likely exists in portions of the NorthMet Project area, but no creek heelsplitter mussels have been identified in 2 years of baseline survey efforts.

4.2.6.2 Whitewater Reservoir and Colby Lake

This section describes the aquatic resources found in Colby Lake and Whitewater Reservoir. Colby Lake and Whitewater Reservoir are the two lentic (standing) waterbodies potentially

affected by water discharges and withdrawals associated with the NorthMet Project Proposed Action. The Partridge River flows through Colby Lake. Whitewater Reservoir is hydraulically connected to Colby Lake by a diversion works, and water moves between the two waterbodies either by controlled gravity-fed flow or by pumps, depending on the relative water levels in the two lakes (see Section 4.2.2 for more details).

Colby Lake is a Class 11 lake with a surface area of 539 acres and a littoral (water depth up to 15 ft) area of 377 acres. Maximum depth is 30 ft. In the most recent habitat characterization, the dominant littoral substrates were boulders (diameter greater than 10 inches), rubble (diameter 3 to 10 inches), and gravel (size unspecified) (MDNR 2010c). Aquatic plants were moderately abundant, dominated by water lilies (*Nympheadeae*), pondweed (*Potamogeton* sp.), and water shield (*Brasenia schreberi*). Average Secchi depth was 2 ft, and submersed plants grew to a maximum depth of 6 ft. The non-native curly-leaf pondweed (*Potamogeton crispus*) was found in the west end of the lake. During the most recent fisheries survey conducted in July 2010 (MDNR 2010c), surface water temperature was 76°F, and the bottom temperature was 53°F. Oxic water (dissolved oxygen concentration greater than 2 parts per million [ppm]) supporting fish extended to a depth of 15 ft where the temperature was 62°F. A heated water plume (greater than or equal to 100°F at the surface) extended from the Laskin Energy Center power plant discharge.

Fish species collected in Colby Lake through the latest July 2010 survey are listed in Table 4.2.6-10. The latest survey found species typically found in a lake Class 11 fish community assemblage, with one exception. Channel catfish were abundant in Colby Lake, which is unique for Class 11 lakes. Channel catfish, by weight, were the most abundant fish sampled in 2010. There was a low-density, quality-sized population of northern pike and a representative array of panfish species including bluegill, black crappie, and yellow perch. Historically, the walleye population has been highly variable. The 2010 catch was the lowest on record and below the 25th percentile value for lake Class 11. There is an MDH consumption advisory for fish in Colby Lake due to high levels of mercury.

Whitewater Reservoir is a Class 7 lake that encompasses a total surface area of 1,210 acres and a littoral area of 564 acres with a maximum depth of 73 ft. The dominant littoral substrate was gravel, rubble, and sand during the most recent habitat characterization (MDNR 2007c). Aquatic plants were moderately abundant along the shore and in shallow bays. The dominate taxa were cattails (*Typha* sp.), sedges (*Cyperaceae*), northern milfoil (*Myriophyllum sibericum*), and pondweed. Average Secchi depth was 12 ft, and submersed plants grow to a maximum water depth of 8 ft. During the more recent MDNR fisheries survey in mid-August 2012, the surface water temperature was 73°F, and the bottom water temperature was 47°F. Oxic water extended to a depth of 23 ft where the water temperature was 69°F.

Walleye were introduced to the reservoir following impoundment in 1955, and stocking continued through 1984. Fish species collected in the Whitewater Reservoir by the MDNR surveys are listed in Table 4.2.6-10. The fish population in 2012 was dominated by walleye, northern pike, and bluegill and the total gillnet catch for each was above average among similar lake classes in northeast Minnesota that share similar ecological characteristics (MDNR 2012m). As is the case for Colby Lake, Whitewater Reservoir contains a similar MDH consumption advisory for fish due to high levels of mercury. Colby Lake water quality is summarized in Section 4.2.2, which identifies water quality exceedances for aluminum, iron, and manganese,

which is believed to be naturally occurring. Both Colby Lake and Whitewater Reservoir are listed on the Minnesota 303(d) TMDL list because of high mercury concentrations in fish tissue.

Table 4.2.6-10 Fish Species Collected in Colby Lake and Whitewater Reservoir by MDNR Fisheries Surveys[1]

Scientific Name	Common Name	Colby Lake[2]	Whitewater Reservoir[3]
Ameiurus melas	Black bullhead		X
Pomoxis nigromaculatus	Black crappie	X	X
Lepomis macrochirus	Bluegill	X	X
Ameiurus nebulosus	Brown bullhead		X
Lota lota	Burbot		X
Ictalurus punctatus	Channel catfish	X	
Luxilus cornutus	Common shiner	X	
Lepomis hybrids	Hybrid sunfish		X
Micropterus salmoides	Largemouth bass	X	X
Esox lucius	Northern pike	X	X
Lepomis gibbosus	Pumpkinseed	X	X
Ambloplites rupestris	Rock bass	X	X
Moxostoma macrolepidotum	Shorthead redhorse	X	X
Notropis hudsonius	Spottail shiner	X	
Sander vitreus	Walleye	X	X
Catostomus commersonii	White sucker	X	X
Ameiurus natalis	Yellow bullhead	X	
Perca flavescens	Yellow perch	X	X

Notes:
1 Collection methods included gillnets, trapnets, and shoreline seining.
2 Surveys conducted in 1968, 1985, 2005, 2010, and 2012.
3 Ten surveys conducted post-impoundment, 1967-2002.

Little information exists on the macroinvertebrate assemblages of Colby Lake and Whitewater Reservoir. Sampling conducted in many lakes in the region (including Colby and Whitewater) as part of the MEQB Regional Copper-Nickel Study (MEQB 1979) found that nearly all of the taxa collected in the littoral zone of lakes were also collected in the streams of the region. The littoral zone of the lakes had a more diverse macroinvertebrate fauna than did the profundal (deep water) zone. Gastropods (snails) were collected from the littoral zone of Colby Lake and pelecypods (clams) were collected from the profundal zone (Johnson and Lieberman 1981). The most frequently collected and most abundant taxa collected from the profundal zone of Colby Lake were the phantom midge (*Chaoborus* sp.), a mayfly species (*Hexagenia limbata*), and two midge taxa (*Procladius* sp. and *Chironomus* sp.), similar to other lakes of the region and are characteristic of good water quality (Johnson and Lieberman 1981).

4.2.6.3 Embarrass River Watershed

This section describes the aquatic resources found within the Embarrass River Watershed portion of the NorthMet Project area.

4.2.6.3.1 Surface Water Features

Surface water features within the Embarrass River Watershed and within the NorthMet Project area include the Embarrass River and several of its tributaries draining the existing LTVSMC

Tailings Basin including the first-order streams Mud Lake Creek, Trimble Creek, and Unnamed Creek. Mud Lake Creek and Trimble Creek originate from the wetlands and bogs to the north and northwest of the existing LTVSMC Tailings Basin, respectively. Unnamed Creek originates from the northwest corner of the existing LTVSMC Tailings Basin.

Aerial photograph review of these streams indicates a mix of disturbed and vegetated riparian buffers with human impact effects on the landscape and stream courses apparent. Major channel habitat and substrate characteristics for these streams are summarized in Table 4.2.6–11. Study locations are included in Figure 4.2.6-1.

Table 4.2.6-11 Major Channel Characteristics at Biological and Habitat Survey Stations for Streams within the Vicinity of the Plant Site

	Location	Channel Characteristics						
Water Body/ Reference	**Site**	**Stream Order**	**Catchment (mi^2)**	**Dominant Substrate**	**Width (cm)**	**Depth (cm)**	**Velocity (m^3/s)**	**QHEI[1]**
Trimble Creek (Breneman 2005)	B6[2]	1	7.4	Sand and Silt	190	58.70	0.10	65
Trimble Creek (Barr 2011b)	PM-19[2]	1	--	Sand and Silt	250(3)	53.3(3)	0.09	46
Unnamed Creek (Barr 2011b)	PM-11	1	--	Muck and detritus	183	58	0.08	59
Spring Mine Creek	PM-12.1	1	--	Sand and detritus	213(3)	29(3)	0.01(3)	--

Sources: Adapted from Breneman 2005, Barr 2011b, Barr 2011i, Barr 2011m. Referenced from Figure 4.2.6-1.

Notes:
1 QHEI (Rankin 1989) is designed to provide an integrated evaluation of physical habitat characteristics important to fish communities and ranges from 0 (low) to 100 (high).
2 Sample sites B-6 and PM-19 are the same sampling location; however, data was collected in separate years during different studies.
3 Averaged between two study dates (September 2010 and June 2011).

4.2.6.3.2 Existing Water Quality

Water quality sampling has occurred at PM-12 (upstream of all mining influences); PM-12.1 (on Spring Mine Creek); PM-12.2, PM-12.3, and PM-12.4 (between PM-12 and PM-13), and PM-13 (downstream of all NorthMet Project Proposed Action influences), as well as three tributary streams that drain the existing LTVSMC Tailings Basin (Mud Lake Creek, Trimble Creek, and Unnamed Creek) (see Figure 4.2.6-2 and Section 4.2.2.3.2 for additional sample information). As summarized in Table 4.2.6-12, water quality evaluation criteria exceedances were found for aluminum and mercury at most locations, as well as elevated concentrations for sulfate, especially at Spring Mine Creek. The Embarrass River, from its headwaters to Embarrass Lake, and Spring Mine Creek, from Ridge Creek to the Embarrass River, are both included on the 2012 TMDL list for aquatic life based on Fishes Bioassessment and, in the case of Spring Mine Creek, also aquatic macroinvertebrate bioassessment. Section 4.2.2 describes the water quality of the Embarrass River in more detail.

Table 4.2.6-12 Average Existing Water Quality Concentrations in the Embarrass River

Parameter	Units	Evaluation Criteria[1]	PM-12	PM-12.1	PM 12.2	PM-12.3	PM-12.4	PM-13
General								
Chloride	µg/L	230	4.7	2.5	3.4	4.7	5.0	5.8[(3)]
Specific Conductivity	umhos/cm	NA	138	980	490	263	264	258
TDS	mg/L	700	130	521	-	-	-	210
Temperature	ºC	-	10.6	9.1	10.7	10.7	10.6	11.3
Metals								
Aluminum	µg/L	125	99.8	57.4	80.2	**130**	122	**188**
Antimony	µg/L	31	0.51	0.25	-	-	-	0.53
Arsenic	µg/L	53	1.6	0.38	-	-	-	1.2
Boron	µg/L	500	24.0	37.7	-	-	-	32.7
Cadmium	µg/L	2.5[(2)]	0.094	0.055	-	-	-	0.10
Cobalt	µg/L	5	1.0	0.10	-	-	-	0.46
Copper	µg/L	9.3[(2)]	1.1	0.61	-	-	-	1.4
Lead	µg/L	3.2[(2)]	0.26	0.15	-	-	-	0.28
Mercury	ng/L	1.3	**5.1**	**4.8**	-	-	-	**4.3**
Nickel	µg/L	52[(2)]	1.4	1.2	-	-	-	1.5
Selenium	µg/L	5	0.87	0.10	-	-	-	0.76
Silver	µg/L	1	0.20	0.10	-	-	-	0.21
Sulfate	mg/L	10[(4)]	7.2	**388**	**131**	**50.2**	**42.8**	**39.4[(5)]**
Thallium	µg/L	0.56	0.19	0.10	-	-	-	0.20
Vanadium	µg/L	NA	1.5	-	-	-	-	1.5
Zinc	µg/L	120[(2)]	9.5	3.0	-	-	-	7.9

Source: Barr 2014d.

Notes:
Bold font indicates exceedance of the Class 2B water quality standards evaluation criteria.
2010 data not collected for all parameters. Includes non-detects at half the detection limit.
1 Section 5.2.2 includes a detailed discussion of evaluation criteria.
2 Water quality standard for this metal is hardness-dependent. Listed value assumes a concentration of 100 mg/L.
3 Excludes single outlier value of 94.8 mg/L from November 8, 2006.
4 In a draft MPCA staff recommendation, the MPCA identified the waters within and downstream from Embarrass Lake, the northernmost tip of Wynne Lake, and the segment of the Embarrass River from Sabin Lake to the Highway 135 bridge as waters used for production of wild rice, so the 10 mg/L sulfate evaluation criterion is only applicable to that portion of the Embarrass River (PM-13).
5 Excludes 688 mg/L value from November 8, 2006.

4.2.6.3.3 Aquatic Biota Studies

Breneman (2005) collected fish and macroinvertebrate community information at three sites in the Embarrass River Watershed. Fish and macroinvertebrate data were also collected by Barr at Spring Mine Creek, Trimble Creek, and Unnamed Creek. The results of these sampling events are summarized in Tables 4.2.6-13 and 4.2.6-14.

Fish Communities

Sampling location PM-20 (Bear Creek) was used for a reference or control study site to compare results for aquatic biota sampling locations PM-12.1 (Spring Mine Creek), PM-19 (Trimble Creek), and PM-11 (Unnamed Creek). As part of an additional study, aquatic biota data was collected from two additional sites on Unnamed Creek (B-5 and B-7) and a resampling of the Trimble Creek site (B-6). The MPCA also conducted aquatic biota studies for five locations, one

of which was also conducted on Bear Creek near PM-20. A limited number of pollution-intolerant fish were identified among the various sample locations, including the Bear Creek control site. One pollution-intolerant species was found at Spring Mine Creek and one was identified at an Embarrass River sampling location. IBI scores ranged from moderate to poor for the various sampling locations, indicating impairment for aquatic life within these study reaches. Aerial photograph review of the B-5, B-6, and B-7 sampling sites exhibits a mix of disturbed and vegetated riparian buffers with human impact effects in the wetland landscape and stream courses, which likely limits the quality and diversity of the fish habitat present at these locations. Muck and silt were listed as dominant substrates within most of sample locations, which is consistent with headwater stream characteristics in the region. Sampling location PM-12.1 was located within a second-order section of Spring Mine Creek where sand and detritus were the dominant substrate.

Table 4.2.6-13 Fish Species Collected at Sampling Sites within the Vicinity of the Plant Site and Transportation and Utility Corridor

Scientific Name	Common Name	Tolerance Designation[1]	Bear Creek		Unnamed Creek			Trimble Creek		Spring Mine Creek			Embarrass River				
			PM-20	09LS098	PM-11	B-7	B-5	PM-19[2]	B-6[2]	09LS101	09LS101	PM-12.1	10EM045	10EM045	97LS005	97LS005	09LS100
Catostomus commersonii	White sucker	Tolerant	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Luxilus cornutus	Common shiner	Intermediate				X				X		X			X	X	
Notemigonus crysoleucas	Golden shiner	Tolerant	X	X											X	X	
Lota lota	Burbot	Intermediate		X				X	X	X	X	X			X	X	X
Margariscus margarita	Pearl dace	Intermediate									X	X					
Phoxinus eos	Northern redbelly dace	Intermediate			X	X	X		X							X	
Phoxinus neogaeus	Finescale dace	Intermediate				X	X										
Pimephales promelas	Fathead minnow	Tolerant				X	X										
Etheostoma nigrum	Johnny darter	Intermediate	X	X				X				X			X	X	
Perca flavens	Yellow perch	Intermediate										X	X		X	X	
Esox lucius	Northern pike	Intermediate	X	X										X	X		X
Culaea inconstans	Brook stickleback	Intermediate			X	X	X		X	X	X					X	
Umbra limi	Central mudminnow	Tolerant	X	X	X	X	X	X	X	X	X	X				X	X
Semotilus atromaculatus	Creek chub	Tolerant			X	X		X	X	X	X	X					
Ambloplites rupestris	Rock Bass	Intermediate		X									X		X	X	
Notropis heterolepis	Blacknose Shiner	Intolerant								X	X				X		
Ameiurus melas	Black Bullhead	Intermediate		X													X
Study year			2010	2009	2010	2004	2004	2010	2004	2009	2009	2010	2009	2010	1997	1997	2009
Species observed			5	8	5	8	5	5	6	7	7	8	3	2	9	10	5
# intolerant species[3]			0	0(1)	0	0	0	0	0	1(2)	1(2)	0	0	0	1(2)	0(1)	0(1)
Total Abundance			20	38	121	441	222	13	67	88	22	21	6	8	35	97	31
IBI[4]			--	43	--	--	--	--	--	37	37	--	0	0	50	54	31
Substrate			Muck and detritus	--	Muck and detritus	--	--	Sand and silt	Silt	--	--	Sand and detritus	--	--	--	--	--

Sources: Breneman 2005, Barr 2011b, and MPCA 2011c.

Notes:
1 Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish - Second Edition EPA 841-B-99-002 (USEPA 2012b). Tolerance values indicate qualitative tolerances of physical and chemical disturbances.
2 Sample sites PM-19 and B-6 are the same sampling location; however, data was collected in separate years during different studies.
3 Number in parentheses represents MPCA classification (MPCA 2011c).
4 IBI is the sum of study specific metrics where 0 represents the worst fish assemblage conditions and 100 represents the best fish assemblage conditions (USEPA 2011b).

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Macroinvertebrate Communities

The assemblages observed in the survey are typical of those sampled elsewhere in the northeast region of Minnesota (Breneman 2005). Total taxa, abundance, %EPT, and %Diptera totals are quite variable among the sites. Most sampling locations exhibited significant percentages of stonefly, mayfly, and caddisfly populations, which, unlike the fish community data, indicate desirable, non-degraded stream characteristics are likely present. Study sites PM-12.1 and PM-19 exhibited 44 and 41 percent EPT, respectively, which indicated some riffle/run habitat was likely present, although this was not reflected from the substrate data provided in Table 4.2.6-13 or at least was not a dominant habitat within the study stretch. The HBI scores exhibited variable results, indicating fair to good macroinvertebrate habitat was present within these study stretches. The exception to these results was the impairment for invertebrate life in Spring Mine Creek, which resulted in the MPCA listing of “Impaired” in 2012.

Table 4.2.6-14 Composition of Macroinvertebrate Assemblages for Sites in the Embarrass River Watershed

Name	Year	Site	Total Taxa	Abundance	%EPT[1]	%Diptera[2]	HBI[3]	IBI[4]
Embarrass River wetland (upstream)	2004	B-5	54	2,529	17	47	--	--
Embarrass River	1997	97LS005	21	--	--	8	2.7	55
Embarrass River	2009	97LS005	31	--	--	25	5.7	69
Embarrass River	2009	10EM045	21	--	--	8	2	39
Embarrass River	2010	10EM045	16	--	--	9	1.3	41
Embarrass River	2009	09LS100	24	--	--	29	3.7	61
Spring Mine Creek	2009	09LS101	20	--	--	23	5.7	46
Spring Mine Creek	2010	PM-12.1	33	2,494	44	20	5.3	--
Trimble Creek	2004	B-6[5]	64	654	0.5	27	--	--
Trimble Creek	2010	PM-19[5]	36	6,998	42	49	5.5	--
Unnamed Creek	2004	B-7	37	1,549	2	65	--	--
Unnamed Creek	2010	PM-11	22	2,484	31	25	6.5	--
Bear Creek	2009	09LS098	25	--	--	21	4.3	67
Bear Creek	2010	PM-20	32	2,787	24	30	6.4	--

Sources: Data and functional group assignments from Breneman 2005, Barr 2011b, Barr 2011i, Barr 2011m, Barr 2011n, and MPCA 2011c.

Notes:

[1] %EPT indicates the percent of mayflies, stoneflies, and caddisflies within the macroinvertebrate sample. High EPT percentages of the population typically indicates degraded habitat conditions are not present.

[2] %Diptera indicates the percent of true flies and bloodworms present within the macroinvertebrate sample. High percentages of the population typically indicates low habitat diversity and predominant silty habitats often present within slow-moving, headwater streams.

[3] HBI is the measure of macroinvertebrate assemblages tolerance toward organic (nutrient) enrichment. Decreasing values indicate improving biotic condition. Higher values indicate fewer biological stressors (scale of 100).

[4] IBI derived by the MPCA (MPCA 2011c).

[5] Sample sites B-6 and PM-19 are the same sampling location; however, data was collected in separate years during different studies.

4.2.6.3.4 Special Status Fish and Macroinvertebrates

No special status fish or macroinvertebrates are known to occur within the Embarrass River Watershed, although the same potential SGCN, federal, and RFSS special status species described for the Partridge River Watershed would also apply to these areas. Suitable habitat is likely present for the same species discussed in Section 4.2.6.1.4.

No invasive fish or macroinvertebrate species are known to occur within the Embarrass River or its tributaries near the Plant Site.

4.2.6.4 Mercury Concentrations in Fish

As discussed in Section 4.2.2, Section 303(d) of the CWA requires states to publish a list of waters that are not meeting one or more water quality standards. The Partridge River is not listed as an impaired water body for mercury on the 303(d) list; however, fish tissue mercury concentrations in the Partridge River were indicative of an impaired waterbody (See Table 4.2.6-15). Standard sampling practices for mercury advisories in the State of Minnesota are performed in accordance with standard protocols to perform a single sampling event that will generally characterize the overall fish mercury concentrations within a river. Therefore, it should be noted that these data only represent one sampling event and may not be representative of the overall fish tissue mercury concentrations within the Partridge River Watershed.

Most of the St. Louis River is listed for “mercury in fish tissue” impairment. Similarly, the Embarrass River is not on the 303(d) list for mercury; however, several lakes downstream of the NorthMet Project area (within the Chain of Lakes), through which the Embarrass River flows, are listed for “mercury in fish tissue” impairment. It should be noted that portions of the Embarrass River, from the headwaters to Embarrass Lake, are listed on the 303(d) list as impaired for “Fishes Bioassessment,” a category not related to mercury. Fish consumption advisories have been issued for “mercury in fish tissue” impaired waters by the MDH to provide site-specific consumption guidance on the quantity and frequency of fish species consumed. For waters not listed on the 303(d) list for “mercury in fish tissue,” statewide consumption advisories still apply because these waters have not been tested and it is assumed that fish within these waters could potentially contain mercury in sufficient quantities to warrant a consumption advisory. Table 4.2.2-2 provides a summary of impaired waters within the Embarrass River and Partridge River watersheds.

Table 4.2.6-15 Mercury Concentrations in Fish Species Collected During 2014 MDNR Partridge River Fish Surveys

Sample Size	Scientific Name	Common Name	Mercury (ppm)
6	*Perca flavescens*	Yellow Perch	**0.25**[(1)]
4	*Catostomus commersonii*	White Sucker	0.16
6	*Sander vitreus*	Walleye	**0.63**[(1)]
8	*Esox lucius*	Northern Pike	**0.62**[(1)]

Source: MDNR 2015f.

Note:
Bold values indicate mercury concentrations in fish that are indicative of impaired waters (MPCA 2014).
[1] Mercury concentrations above 0.2 ppm indicate an impaired water (MPCA 2014).

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4.2.7 Air Quality

The NorthMet Project Proposed Action is subject to various federal and State of Minnesota air quality regulations. These regulations are designed to protect the general climate and air quality within the affected region of the NorthMet Project area. The USEPA has promulgated National Ambient Air Quality Standards (NAAQS) for seven common pollutants found in the ambient air, known as "criteria" pollutants. These standards are designed to ensure human and environmental health criteria are met for the ambient air quality. Minnesota has also promulgated Minnesota Ambient Air Quality Standards (MAAQS) to further protect human health. Minnesota has been granted air permitting authority by the USEPA, so the NorthMet Project Proposed Action would be issued a single permit by the MPCA.

The affected region can vary depending upon the specific regulations and the federal and state jurisdictions. For the purpose of this section, the extent of the affected region would be bounded by the Federal Land Managers' (FLMs') request to assess effects for all USEPA-defined Class I areas within a 300-kilometer (km) radius of the NorthMet Project area. The remainder of this section summarizes the regional climate, local meteorology, and the existing ambient air quality for the affected region.

4.2.7.1 Regional Climate and Meteorology

The climate for the NorthMet Project area and Minnesota, in general, is defined as continental. The region is subject to continental polar air masses throughout most of the year and, during the cold season, is subject to more frequent Arctic air masses. During the summer months, the southern portion of the state gives way to warm air entering northward from the Gulf of Mexico. As Pacific Ocean air masses move across the western United States, relatively mild and dry weather can be observed throughout the year, depending upon the strength of the air mass.

Based upon surface data taken at the Hibbing Monitoring Station (see Figure 4.2.7-1), predominant winds are from the north-northwest through west-northwest, occurring approximately 25 percent of the time. Winds from the south-southeast through southeast show a secondary predominance, occurring approximately 15 percent of the time. Average monthly temperatures range from 4°F in the coldest month (January in northwest Minnesota) to 85°F in the hottest month (July in southwest Minnesota). Mean annual temperatures range from 36°F in the extreme north to 49°F in the southeast along the Mississippi River. Extreme temperatures throughout the state can vary from 114°F in the summer to -60°F in the winter (NCDC 2010). During the three coldest months (December through February), maximum daily temperatures are below 32°F for 24 days per month. Temperatures in the summer months rarely reach maximum temperatures above 90°F (only 5 to 6 days per year).

Approximately two-thirds of the precipitation occurs between May and September, with annual precipitation ranging from 35 inches in the southeast and gradually decreasing to 19 inches in the extreme northwest. Northeastern Minnesota generally receives approximately 70 inches of snow per year, decreasing to 40 inches per year near the south and eastern border states. Snow cover occurs in Minnesota an average of 110 days per year with 1 inch or more on the ground, although there is a marked difference between the northern (where the NorthMet Project area is located) and southern portions of the state, ranging from 140 days per year to 85 days per year of snow cover, respectively.

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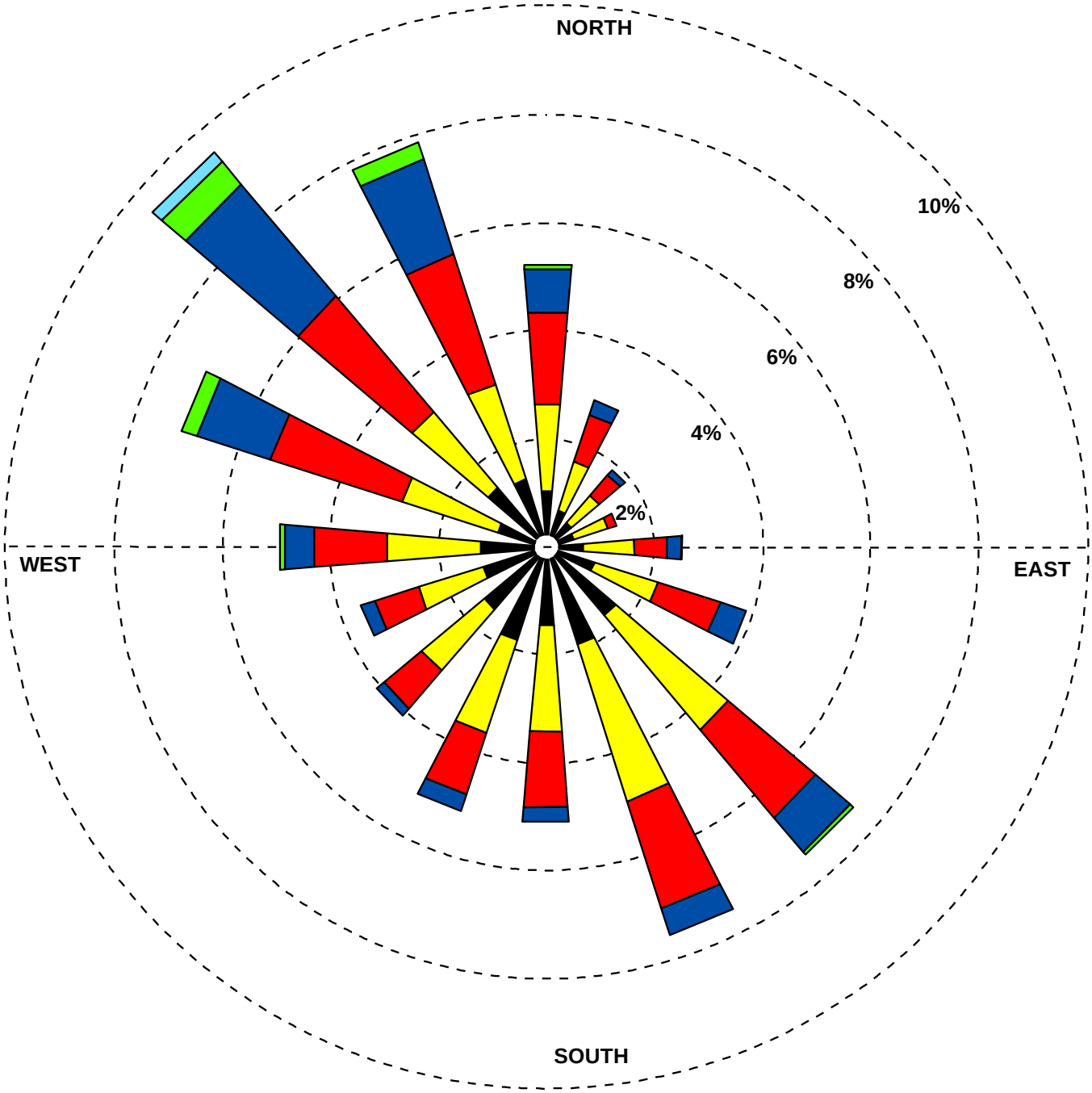

Wind Speed (m/s)

- > 11.1
- 8.8 - 11.1
- 5.7 - 8.8
- 3.6 - 5.7
- 2.1 - 3.6
- 0.5 - 2.1

MNDNR

US Army Corps of Engineers
St. Paul District

Figure 4.2.7-1
Wind Frequency Distribution Plot for Hibbing, Minnesota (2001-2005)
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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4.2.7.2 Local and Regional Air Quality

The MPCA monitors air quality at a number of stations throughout the state. The data collected helps the state determine major sources of air pollution as well as assess compliance with NAAQS and MAAQS. Per requirements of the federal CAA, monitoring is done for the criteria pollutants. The MPCA also monitors for a range of chemicals, referred to as air toxics, which, like the criteria pollutants, potentially affect human health.

As of 2012, air quality was monitored at 52 locations throughout Minnesota. Not all locations monitor all pollutants; rather, the selection of monitoring locations and parameters reflects consideration of a number of factors including population, pollutants of concern in the area, and wind direction. Table 4.2.7-1 provides the monitored background concentrations for the period 2008 to 2010 at monitoring stations within or close to the 300-km area of the NorthMet Project Proposed Action. Both the Duluth and Virginia locations are considered urban; the Cloquet site is rural, while the Voyageurs site is within Voyageurs National Park. The Virginia monitoring location has been in operation since 1968. In addition to demonstrating compliance with NAAQS and MAAQS, the monitoring site was also established to characterize metals concentrations and identify emissions sources from mining activities. The Cloquet site is three miles west of the city near several large forest products industries. Land use near the Voyageurs site is managed for recreation, timber, and wilderness. Pulp and paper mills in International Falls and Fort Frances, Ontario are approximately 95 miles northwest of the NorthMet Project area.

As seen from the table, all reported air quality data meet the NAAQS and the MAAQS, indicating that existing ambient air quality concentrations are below levels that are known to cause health-based impacts for these pollutants. These levels demonstrate that the general air quality area is considered in attainment under federal regulations.

Table 4.2.7-1 Monitored Background Concentrations (2008–2010)

Pollutant	Averaging Period	Monitored Background Concentration	Standard Value	Standard Type	Monitoring Station
Carbon Monoxide	8-Hour	1.9 ppm	9 ppm	Primary	Duluth – Torrey Building
	1-Hour	4.1 ppm	35 ppm 30 ppm[1]	Primary Primary and Secondary	Duluth – Torrey Building
Nitrogen Dioxide	Annual	0.002 ppm	0.05 ppm[2]	Primary and Secondary	Cloquet
	1-Hour	0.014	0.10 ppm[2]	Primary	Cloquet
Ozone (O_3)	8-Hour	0.072 ppm	0.08 ppm	Primary and Secondary	Voyageurs National Park
Lead	Quarterly	0.005 μg/m^3	1.5 μg/m^3	Primary and Secondary	Virginia
Total Suspended Particulate (TSP)[1]	Annual	30 μg/m^3	75 μg/m^3 60 μg/m^3	Primary Secondary	Virginia
	24-Hour	83 μg/m^3	260 μg/m^3 150 μg/m^3	Primary Secondary	Virginia

Pollutant	Averaging Period	Monitored Background Concentration	Standard Value	Standard Type	Monitoring Station
PM_{10}[3]	Annual	14 μg/m^3	50 μg/m^3	Primary and Secondary	Virginia
	24-Hour	36 μg/m^3	150 μg/m^3	Primary and Secondary	Virginia
$PM_{2.5}$	Annual	5.8 μg/m^3	12 μg/m^3	Primary and Secondary[6]	Virginia
	24-Hour	16.5 μg/m^3	35 μg/m^3	Primary and Secondary	Virginia
Sulfur Dioxide	Annual	0.001 ppm	0.03 ppm 0.02 ppm[1]	Primary Secondary	Rosemount
	24-Hour	0.007 ppm	0.14 ppm	Primary and Secondary	Rosemount
	3-Hour	0.021 ppm	0.5 ppm 0.35 ppm	Primary and Secondary[4] Secondary[5]	Rosemount
	1-Hour	0.024 ppm	0.075 ppm	Primary	Rosemount

Source: MPCA, Pers. Comm., October 28, 2011.

Notes:
[1] Minnesota State Ambient Air Quality Standard only.
[2] Data available for only year 2010.
[3] The USEPA revoked the annual PM_{10} standard (effective December 17, 2006). However, it is still reflected in the State of Minnesota's regulations.
[4] Secondary standard for Air Quality Control Regions 128, 131, and 133.
[5] For Air Quality Control Regions 127, 129, 130, and 132.
[6] Updated to the December 2012 standard.
μg/m^3 = Micrograms per cubic meter

4.2.8 Noise and Vibration

This section addresses baseline noise and vibration conditions at the Mine Site and Plant Site, including a brief introduction to noise concepts and terms.

Noise is generally defined as unwanted sound. Sound travels in a mechanical wave motion and produces a sound pressure level. This sound pressure level, also referred to as loudness or intensity, is measured in decibels (dB). The dB scale is logarithmic such that each 10 dB increase represents a tenfold increase in noise intensity. For example, if sound energy is doubled, there is a 3 dB increase in noise because the two sound levels are added logarithmically, not linearly or arithmetically (e.g., 70 dB plus 70 dB equals 73 dB, not 140 dB). Sound measurement is further refined by using an A-weighted scale that emphasizes the range between 1,000 and 8,000 cycles per second, which is the range of sound frequencies most audible to the human ear. Unless otherwise noted, all dB measurements presented in this FEIS are A-weighted (dBA) on a logarithmic scale. This measurement is an expression of the relative loudness of sounds in air as perceived by the human ear. In the A-weighted scale, the dB values of sounds at low frequencies are reduced compared with unweighted dB, in which no correction is made for audio frequency. This correction is made because the human ear is less sensitive at low audio frequencies, especially below 1,000 hertz (Hz), than at high audio frequencies. A sound increase of 3 dBA is barely perceptible to the human ear, while a 5 dBA increase is clearly noticeable and a 10 dBA increase is heard as twice as loud (MPCA 2008a; Bies and Hansen 2009; IDOT 2011). Noise emissions diminish or attenuate with distance from the source depending on the nature of the source. When distance from a point source, such as a building, is doubled, the sound level decreases by 6 dB. However, when distance from a line source, such as a busy roadway, is doubled, the sound level decreases by 3 dB (MPCA 2008a).

The dB levels of common noise sources are shown in Table 4.2.8-1.

Table 4.2.8-1 Decibel Levels of Common Noise Sources

Common Noise Source	dB Levels
Jet Engine (at 25 meters)	140
Jet Aircraft (at 100 meters)	130
Rock Concert	120
Pneumatic Chipper	110
Jackhammer (at 1 meter)	100
Chainsaw, Lawn Mower (at 1 meter)	90
Heavy Truck Traffic	80
Business Office, Vacuum Cleaner	70
Conversational Speech, typical TV Volume	60
Library	50
Bedroom	40
Secluded Woods	30
Whisper	20

Source: MPCA 2008a.

A comparison of typical outdoor noise levels by land use category for daytime and nighttime is shown in Table 4.2.8-2.

Table 4.2.8-2 Typical Outdoor Sound Levels by Land Use Category

Land Use Category	L_{dn} (dBA)	L_d (dBA)	L_n (dBA)
Rural and sparsely populated areas	35 - 50	35 - 50	25 - 40
Quiet suburban (630 people/mi^2, remote from large cities and from industrial activity and trucking)	50	50	40
Normal suburban community (2,000 people/mi^2 not located near industrial activity)	55	55	45
Urban residential community (6,300 people/mi^2 not immediately adjacent to heavily traveled roads and industrial areas	60	59	52
Noisy urban residential community (near relatively busy road or industry or 20,000 people/mi^2)	65	62	58
Very noisy urban residential community (63,000 people/mi^2)	70	67	63

Source: USEPA 1974.

Notes:
L_{dn}, or day-night sound level, is the average equivalent A-weighted sound level during a 24-hour time period with a 10-dB weighting applied to equivalent sound level during the nighttime hours of 10 p.m. to 7 a.m.
L_d, or daytime L_{eq}, is the average equivalent sound level for daytime (7 a.m. to 10 p.m.).
L_n, or nighttime L_{eq}, is the average equivalent sound level for nighttime (10 p.m. to 7 a.m.).
L_d and L_n values were determined from the L_{dn} values using methods described in the 1974 USEPA document referenced above (based on data from 63 sets of background measurements conducted at various land-use areas across the United States).

Vibration is defined as regularly repeated movement of a physical object about a fixed point. Blasting is an activity associated with mining that could result in vibration. There are two types of vibration associated with mine blasting: ground vibration and air vibration or airblast overpressure. The magnitude of ground vibration is expressed in terms of peak particle velocity (PPV) and is measured in inches per second (in/s) or millimeters per second (mm/s). Airblast overpressure is measured in linear-weighted decibels (dBL).

4.2.8.1 Types of Noise

Noise may be classified as steady, non-steady, impulsive, or low-frequency depending on the temporal variations in sound pressure level. The various types of noise are described below.

- **Steady noise** is a noise with negligibly small fluctuations of sound pressure level within the period of observation. Steady noise with audible discrete tones is called discrete frequency noise or tonal noise. **Tonal noise** is characterized by one or two single frequencies and is much more annoying than broadband noise, which is characterized by energy at many different frequencies and of the same sound pressure level as the tonal noise. Tonal noise is caused by rotating parts of machines such as fans, internal combustion engines, transformers, and pumps. **Broadband noise** is steady noise without discrete frequency tones. Sounds are of longer duration and vary little over time (e.g., large gas turbines and road traffic).
- **Non-steady noise** is a noise that occurs when its sound pressure levels shift significantly during the period of observation. This type of noise can be divided into **fluctuating noise** (i.e., noise for which the level changes continuously and to a great extent during the period of observation such as surface grinding, welding, and component assembly) and **intermittent**

noise (i.e., noise that returns to the ambient or background level several times during the period of observation such as air compressors and automatic machinery during a work cycle).

- **Impulsive noise** consists of one or more bursts of sound energy, each of a duration less than approximately 1 second (i.e., sounds of short duration with high peak pressures). This type of noise can be divided into **highly impulsive sounds** (i.e., sound from one of the following enumerated categories of sound sources: small-arms gunfire, metal hammering, wood hammering, drop hammering, pile driving, drop forging, pneumatic hammering, pavement breaking, metal impacts during rail-yard shunting operation, and riveting); **high-energy impulsive sound** (i.e., sound from one of the following enumerated categories of sound sources: quarry and mining explosions, sonic booms, demolition and industrial processes that use high explosives, military ordinance, explosive ignition of rockets and missiles, explosive industrial circuit breakers, and any other explosive source where the equivalent mass of dynamite exceeds 25 grams); and **regular impulsive sound** (i.e., impulsive sound that is not highly impulsive sound or high-energy impulsive sound) (ANSI 2005).
- **Low-frequency noise** or sounds with strong low-frequency content produce greater annoyance than is predicted from A-weighted sound levels. Generally, annoyance is minimal when octave-band sound pressure levels are less than 65 dB at 16, 31.5, and 63 Hz midband frequencies. Annoyance to sounds with strong low-frequency content is virtually only an indoor problem (ANSI 2005).

4.2.8.2 Regional Setting

Noise exposure goals for various types of land use reflect the varying noise sensitivities associated with each of these uses. Residences, hospitals, and guest lodging are most sensitive to noise intrusion and therefore have more stringent noise exposure targets than industrial or commercial uses that are not subject to effects such as sleep disturbance. The land use in the Superior National Forest is mostly for forest. The region surrounding the Mine Site has traditionally supported various mining activities, as well as logging, on federal, state, county, and private forest lands. Noise sources associated with logging activities include skidders, feller bunchers, and log loaders. Noise sources associated with mining activities include drills, explosives, dump trucks, excavators, crushers, and power generators. Considering the attenuation effect of the surrounding forest and the fact that most of the mining and logging activities typically occur several thousand feet away from each other, the noise levels are localized (rather than regional) and diminish very quickly with distance due to geometric divergence or spreading losses. In addition to the spreading losses, dense vegetation (foliage) in the Superior National Forest also helps to attenuate noise from the mining and logging activities.

4.2.8.3 Mine Site

The Mine Site is situated mostly on federal land in the Superior National Forest, except for the privately owned land bordering Dunka Road to the south of the Mine Site. As indicated above, the region surrounding the Mine Site has traditionally supported various mining activities, as well as logging, on federal, state, county, and private forest lands. The Northshore Mine and Mesabi Nugget Phase I Plant are located approximately 1 mile north and 8 miles west of the Mine Site, respectively. Dunka Road, which provides access to the Mine Site, is an existing private road located south of the Mine Site, with no public access and little usage. The existing LTVSMC railroad grade is also located south of the Mine Site.

Review of the most up-to-date aerial maps indicates that there are no noise-sensitive areas or receptors (e.g., residences, campgrounds, schools, churches, or wilderness areas) within the Mine Site and surrounding federal lands. However, there are a few receptors outside the Mine Site. The closest noise-sensitive receptor to the Mine Site is the City of Babbitt, located approximately 6 miles to the north. A Boy Scout camp is located near the Mine Site on Colby Lake, approximately 10 miles southwest of the Mine Site. Other noise-sensitive receptors in the general area of the Mine Site include: Skibo (a small residential area), approximately 8 miles to the south; the City of Hoyt Lakes, approximately 9 miles to the southwest; and the City of Aurora, approximately 13 miles to the south. The BWCAW is part of the national wilderness preservation system where sensitivity to human-caused sound and noise effects are important considerations. It is approximately 20 miles (in a northeasterly direction) from the Mine Site to the closest portion of the BWCAW. The cities of Ely and Tower are also located close to the BWCAW and are approximately 21 miles north-northeast and 19 miles northwest of the Mine Site, respectively. The Bois Forte Reservation is located near Tower. In addition to the receptors identified above, other receptors such as recreational sites (family campgrounds, campsites, boating, fishing, swimming, and family picnic areas), wildlife corridors, trails, and MPCA staff-recommended wild rice waters/beds (used by tribal members for harvesting) are also within the Mine Site vicinity. The closest recreational site is a family picnic area located approximately 9 miles south of the Mine Site (near Skibo). The closest wildlife corridor and trail (Stony Spur Snowmobile Trail) are located approximately 1 mile northwest and 6 miles northeast of the Mine Site, respectively. The closest MPCA staff-recommended wild rice waters/beds are located approximately 5.5 miles north (Mud Lake) and 7 miles northeast (Birch Lake) of the Mine Site. Figure 4.2.8-1 shows the locations of the closest receptors to the Mine Site. Though not depicted on Figure 4.2.8-1 due to sensitivity regarding cultural resources and locations, the federal Co-lead Agencies have identified a few archaeological sites in consultation with the SHPO and the Bands. Although barely discernible in some cases, a few well-defined trail segments of the BBLV Trail and two other unnamed trail segments (BBLV Trail Segment #1) represent the trail corridors that cross the Mine Site and Plant Site, as well as the NorthMet Project area (see Section 4.2.9, Cultural Resources).

Since the Mine Site is located in a rural and sparsely populated environment, the existing ambient steady L_{eq} for all nearby sensitive receptors (except the BWCAW), are expected to range from 35 to 50 dBA or approximately 45 dBA (daytime) and 25 to 40 dBA or approximately 35 dBA (nighttime) (see Tables 4.2.8-2 and 4.2.8-3). The ambient L_{eq} assumed for receptors outside the Mine Site area account for existing noise from the Northshore Mine located approximately 1 mile north of the Mine Site. Since the BWCAW is located in a natural environment that is generally quieter than areas outside the wilderness, the existing ambient L_{eq} at the BWCAW area is expected to be lower than the levels for other receptors surrounding the Mine Site area. In February 2011, the USFS Superior National Forest unit conducted an ambient sound level survey at Little Gabbro Lake in the western part of the BWCAW (ambient data provided by USFS staff via email in June 2013). In March 2011, the Superior National Forest unit also conducted an ambient sound level survey at Royal Lake in the eastern part of the BWCAW (USFS 2012e). The ambient data at both sites are comparable, but the data at Royal Lake is slightly lower. For the purpose of the NorthMet Project Proposed Action, the Royal Lake ambient data has been used to provide a conservative natural ambient level at BWCAW (see Table 4.2.8-3). In addition to the fact that the Royal Lake ambient data are more conservative (i.e., lower than Gabbro Lake data), the USFS staff indicated that the measured ambient data at

Gabbro Lake has not been reviewed by the National Park Service, but the measured data at Royal Lake has been reviewed and used by the National Park Service soundscape program for some recent work they did to model noise effects on the BWCAW.

Minnesota's noise standards are based on statistical calculations that quantify noise levels according to duration over a 1-hour monitoring period. The L_{10} is the noise level that is exceeded for 10 percent, or 6 minutes, of the hour, and the L_{50} is the noise level exceeded for 50 percent, or 30 minutes, of the hour. There is not a limit on maximum noise (MPCA 2008a). For the purposes of this assessment, the estimated baseline L_{eq} levels for the nearest receptors (except for the BWCAW, where measured percentile data were available) were converted to other noise percentile metrics, such as L_{50} and L_{10} using a USEPA calculation methodology (USEPA 1974). The calculation was based on an assumed standard deviation of 3 dB for the sound level statistical distribution. A summary of the estimated existing daytime and nighttime ambient levels (i.e., L_{eq}, L_{50}, and L_{10}) expected at receptors closest to the NorthMet Project area is presented in Table 4.2.8-3. As indicated above, natural ambient levels for the BWCAW were based on measured L_{50} and L_{10} data taken from Royal Lake in the eastern part of the BWCAW (USFS 2012e).

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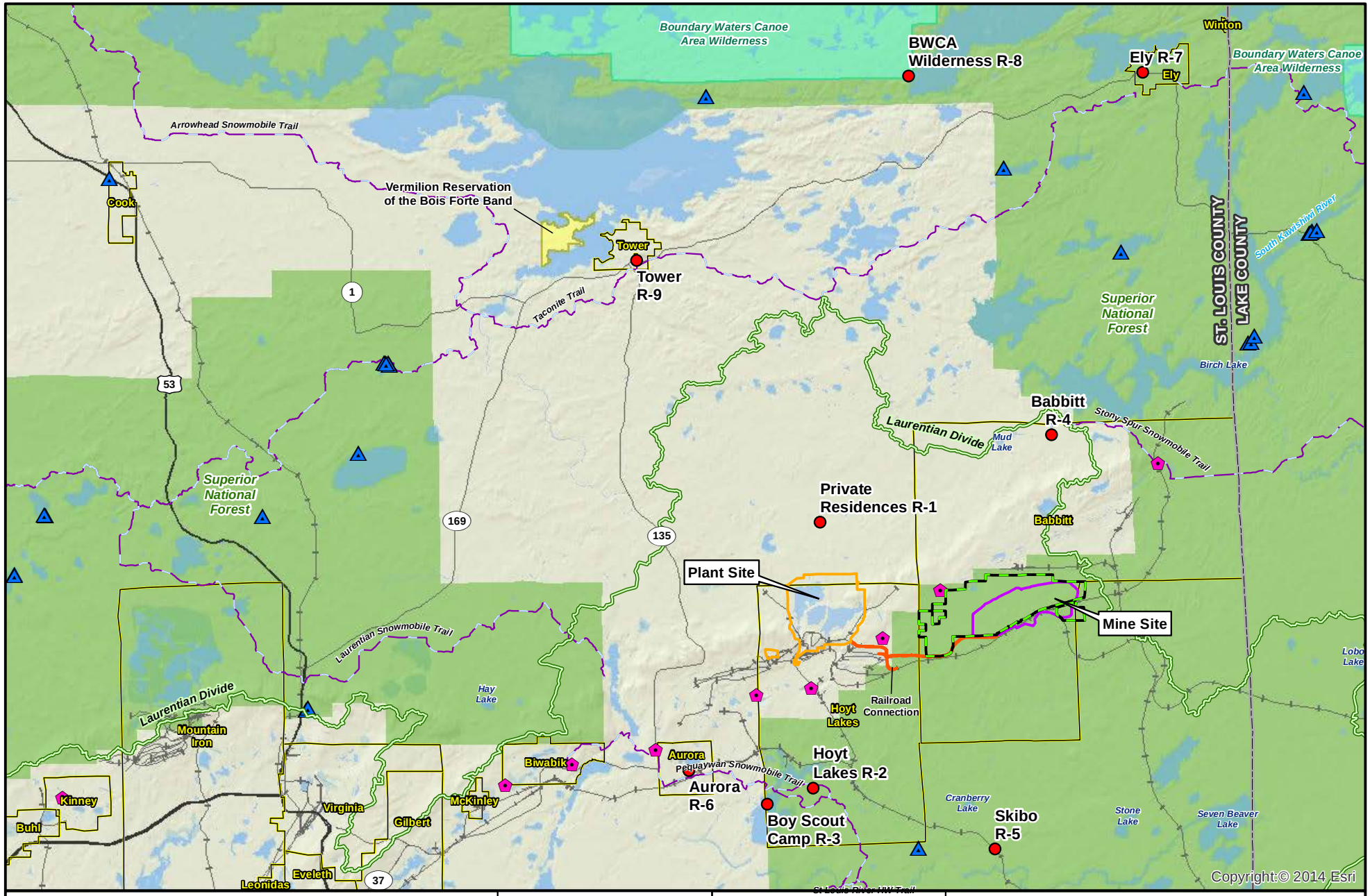

Noise Sensitive Receptor
Plant Site
Mine Site
Transportation and Utility Corridor
Recreational Site
Federal Lands
Native American Reservation
Municipality
Boundary Waters Canoe Area Wilderness
National Forest
Wildlife Travel Corridor
Existing Railroad

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

0 1.5 3 6 Miles

Figure 4.2.8-1
Nearest Noise Sensitive Receptors to the NorthMet Project Area
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Table 4.2.8-3 Summary of Estimated Existing Ambient Noise Levels at the Closest Receptors to the NorthMet Project Area, including the BWCAW

Ambient Noise Levels	Daytime (dBA)	Nighttime (dBA)
All Receptors except the BWCAW[1]:		
L_{eq}	45.0	35.0
L_{50}	44.0	34.0
L_{10}	48.8	37.8
BWCAW[2]:		
L_{eq}	34.0	34.0
L_{50}	23.4	23.4
L_{10}	33.2	33.2

Notes:
[1] Source: USEPA 1974.
[2] Source: USFS 2012e.

Currently, no ground- or air-vibrating sources or activities (e.g., mine blasting, piling, etc.) occur at the Mine Site. The closest vibration-generating activity is blasting at the Northshore Mine. Like noise emissions, ground and air vibration effects diminish with distance from the source. Because of the distance from the operating mine, existing baseline levels of vibration at the Mine Site and nearby receptors are expected to be negligible.

4.2.8.4 Plant Site

The Plant Site is situated on private land located 8 miles west of the Mine Site. The closest noise-sensitive receptors to the Plant Site include a few private residences located approximately 3.5 miles north; the City of Hoyt Lakes, located approximately 5 miles south; and the City of Aurora, located approximately 8 miles southwest. A Boy Scout camp, which is only used occasionally, is located approximately 10 miles south-southwest. In addition to the receptors identified above, other receptors such as recreational sites, wildlife corridors, trails, archaeological sites (used by tribal members for cultural and spiritual purposes), and sites used by tribal members for harvesting of wild rice are also within the Plant Site vicinity. The closest recreational site is a family picnic area located approximately 9 miles south of the Plant Site (near Skibo). The closest wildlife corridor and trail (Pequaywan Snowmobile Trail) are located approximately 2 miles south and 6 miles southeast of the Plant Site, respectively. The closest draft MPCA staff-recommended wild rice waters/beds are located approximately 6 miles west (Hay Lake) of the Plant Site. Figure 4.2.8-1 shows the locations of the closest receptors to the Plant Site. Though not depicted on Figure 4.2.8-1 due to sensitivity regarding cultural resources and locations, the federal Co-lead Agencies have identified a few archaeological sites in consultation with the SHPO and the Bands. These archaeological sites include the Spring Mine Lake Sugarbush (a natural maple-basswood stand of cultural significance, less than 1 mile east of the Plant Site) and the *Mesabe Widjiu* (a long, linear landform running the length of the Mesabi Iron Range, and intersecting portions of the Laurentian Divide and northeast of the Plant Site near the Tailings Basin), and possess important spiritual and cultural significance to the Ojibwe people. Although barely discernible in some cases, a few well-defined trail segments of the BBLV Trail and two other unnamed trail segments (BBLV Trail Segment #1) represent the trail corridors that cross the Mine Site and Plant Site, as well as the NorthMet Project area (See Section 4.2.9, Cultural Resources).

Like the Mine Site, the Plant Site is also located in a rural and sparsely populated environment; therefore, the daytime and nighttime ambient levels (i.e., $L_{eq,}$ $L_{50,}$ and $L_{10)}$ for all nearby sensitive receptors, such as residential houses, are expected to be similar to the levels shown in Table 4.2.8-3. The closest noise-generating sources are the coal and flux pulverizer, rotary hearth furnace, and cooling towers at Mesabi Phase I Plant in Hoyt Lakes, which is approximately 1 mile west-southwest of the Plant Site. The baseline noise levels of the identified receptors near the Plant Site (see Table 4.2.8-3) already capture or account for noise from the Mesabi Phase I Plant.

Currently, no ground- or air-vibrating sources or activities (e.g., mine blasting or pile driving) occur at the Plant Site. The closest vibration-generating sources are the coal and flux pulverizer and rotary hearth furnace at the Mesabi Phase I Plant in Hoyt Lakes, which is approximately 1 mile west-southwest of the Plant Site. Since ground and air vibration effects diminish with distance from the source, existing baseline levels of vibration at the Plant Site and the nearest sensitive receptors are expected to be negligible.

4.2.9 Cultural Resources

4.2.9.1 Introduction

The MDNR, USACE, and USFS have prepared this joint state-federal FEIS for the proposed NorthMet Project Proposed Action and Land Exchange Proposed Action. USEPA, the Fond du Lac Band of Lake Superior Chippewa, the Bois Forte Band of Chippewa, and the Grand Portage Band of Lake Superior Chippewa (herein referred to as the Bands) participated as cooperating agencies based on regulatory authority and/or subject matter expertise. Cooperating agencies have not participated in endorsement of any components of the EIS or the NorthMet Project.

The Co-lead Agencies committed to providing an appendix in this FEIS that contains the Tribal Cooperating Agencies' comments and supporting documentation representing major differences of opinion (MDOs) for the SDEIS. See Appendix C for comments and supporting documentation from the Bois Forte, Grand Portage, Fond du Lac, GLIFWC, and the 1854 Treaty Authority. These take the form of eight position papers and a Co-lead Agencies Preliminary SDEIS comment disposition spreadsheet for the Tribal Cooperating Agencies.

The Tribal Cooperating Agency submittals in Appendix C are provided verbatim and in identical form as they were for the SDEIS. They were considered in the development of this FEIS. Refer to Chapter 8 for more information.

4.2.9.2 Cultural Resources

"Cultural resources" is a very general term that can include a wide range of resources. There is no legal or generally accepted definition of "cultural resources" under NEPA or any other federal law, but it is commonly used in connection with the identification of historic properties in compliance with Section 106 of the National Historic Preservation Act (NHPA). However, historic properties are only a subset of cultural resources, and are but one aspect of the "human environment" defined by the NEPA regulations.

Under NEPA, the human environment includes the natural and the physical (e.g., structures) environment, and the relationships of people to that environment. A NEPA review must address the cultural context in which the project effects would occur. Management policies, and guidance within federal and state agencies, seek to identify and consider all types of cultural resources and balance the need for development with the need to protect cultural resources.

The intent of this section is to describe the affected environment within this cultural context. Cultural resources within this context include historic properties (including those of potential religious and cultural significance to the Bands), which are considered under the NHPA, and natural resources of cultural significance to the Bands that may not otherwise be governed by the NHPA. A discussion of treaty rights under the 1854 Treaty is also provided as part of this cultural context to understand the significance of the Ceded Territory to the Bands.

In accordance with the CEQ's guidance, *NEPA and NHPA: A Handbook for Integrating NEPA and Section 106* (March 2013), the NHPA Section 106 process has proceeded on a parallel path to the NEPA process. The federal Co-lead Agencies have consulted with the Bands as part of the NHPA process, and this consultation has informed the development of the cultural resources sections of the EIS.

4.2.9.2.1 National Historic Preservation Act Overview

The NorthMet Project Proposed Action is considered an undertaking as defined in 36 CFR 800, the regulation implementing Section 106 of the NHPA. A more narrow view of cultural resources is necessary for these regulatory requirements. The intent of Section 106, as set forth in the impending regulations, is for federal agencies to take into account the effects of a proposed undertaking on historic properties and to consult with the Advisory Council on Historic Preservation (ACHP), State Historic Preservation Offices (SHPOs), federally recognized tribes, other federal agencies with concurrent undertakings in connection with the project, applicants for federal assistance, local governments, and any other parties with a demonstrated interest in the proposed undertaking and its potential effects on historic properties.

Section 106 establishes a process for identifying historic properties that may be affected by the proposed undertaking; assessing the undertaking's effects on those resources; and engaging in consultation that seeks ways to avoid, minimize, or mitigate adverse effects on properties that are either listed on, or considered eligible for listing on, the National Register of Historic Places (NRHP). The area in which effects on resources are evaluated is the Area of Potential Effect (APE). The APE is defined as, "… the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking" (36 CFR § 800.16(d)).

A historic property is defined as any district, site, building, structure, or object that is either listed, or eligible for listing, in the NRHP.

To be eligible for listing in the NRHP, a cultural resource must meet at least one of the four criteria for eligibility. The criteria (36 CFR 60.4(a–d)) used to evaluate the significance of a cultural resource are as follows:

a) It is associated with events that have made a significant contribution to the broad patterns of history;

b) It is associated with the lives of past significant persons;

c) It embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d) It has yielded or may be likely to yield, information important in history or prehistory.

Properties also need to exhibit integrity of location, materials, setting, design, association, workmanship, and feeling and commonly be at least 50 years old. However, under Criteria Consideration G, a property achieving significance within the past 50 years is eligible if it is of exceptional importance.

Historic properties can include properties of traditional religious and cultural significance to Indian tribes; these properties are commonly referred to as Traditional Cultural Properties (TCPs). Because the cultural practices or beliefs that give a TCP its significance are typically still observed in some form at the time the property is evaluated, it is sometimes perceived that the intangible practices or beliefs themselves, not the tangible property, constitute the subject of evaluation. There is naturally a dynamic relationship between tangible and intangible. The

beliefs or practices associated with a TCP are of central importance in defining its significance. However, it should be clearly recognized at the outset that the NRHP does not include intangible resources themselves. The entity evaluated must be a tangible property—i.e., a district, site, building, structure, or object. A property must meet several preconditions in order to meet the federal definition of TCP as articulated in National Register Bulletin 38. These conditions include the ongoing use of a property in spiritual practice or other traditional activities. TCPs are defined in National Register Bulletin 38 as a place "eligible for inclusion in the NRHP because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (National Register Bulletin 38:1). It is difficult to identify properties of traditional cultural significance, since they are often kept secret. It is through consultation with Native American tribes themselves that historic properties of religious and cultural significance can be properly identified and evaluated (ACHP 2008).

Local, state, tribal, and federal agencies shall be consulted as appropriate in findings and determinations made during the Section 106 process, as specified in 36 CFR 800. This includes any SHPO whose state would physically include any portion of the APE. The SHPO is appointed by each state to protect the interests of its citizens with respect to issues of cultural heritage. In addition to the SHPO, the lead federal agencies have an obligation, as appropriate, to work with state and local governments, and private organizations, applicants, or individuals with a demonstrated interest from initiation to completion of the review under Section 106 of the NHPA.

Once the lead federal agencies have identified the appropriate SHPO, 36 CFR 800.3(f)(2) requires the federal agencies to identify Native American tribes that may attach religious and cultural significance to historic properties within the APE and invite them to be consulting parties.

If a historic property were affected, the federal Co-lead Agencies would follow the provisions of 36 CFR 800.5 to determine whether the effect were adverse. If an effect were adverse, the USACE and the USFS would consult with the parties identified above to resolve the adverse effect either through avoidance of the effect or mitigation of the effect pursuant to 36 CFR 800.6. Prior to the federal agencies taking an action, whether it is the issuance of a USACE CWA permit or a USFS land exchange in connection with the NorthMet Project Proposed Action, the federal agencies must comply with Section 106 of the NHPA. Such compliance can be achieved by, among other things, avoiding an adverse effect on historic properties or developing appropriate mitigation measures and executing a Memorandum of Agreement (MOA) requiring such mitigation.

4.2.9.2.2 Identification of Consulting Parties

The USACE invited 15 federally recognized tribes, as listed in the Native American Consultation Database (maintained by the Department of the Interior, National Park Service) for St. Louis County, Minnesota, and select state and federal agencies by letter to consult on the NorthMet Project Proposed Action and notified the consulting parties that the USACE would be the lead federal agency. Another letter from the USACE sent May 2006 invited Native American tribes that had not responded to the initial invitations. Those federally recognized tribes that did not respond to the first or second written invitations were contacted via phone.

As a result of this initial round of consultation, the Bois Forte Band of Chippewa Indians and Fond du Lac Band of Lake Superior Chippewa had requested to be included as cooperating agencies for the NorthMet Project Proposed Action under NEPA. Following this initial round of consultation, the Grand Portage Band of Chippewa requested to be included as a cooperating agency. The federal Co-lead Agencies have consulted with the Bands, Minnesota SHPO, and PolyMet as determinations were made concerning NRHP eligibility of identified cultural resources, effects of the NorthMet Project Proposed Action on historic properties, and resolution of any adverse effects, as required under 36 CFR 800. The federal Co-lead Agencies are currently consulting with these parties on development of an MOA to resolve adverse effects. The federal Co-lead Agencies also continue to consult on cultural resource issues outside of the NHPA, including other issues pertinent to this FEIS.

4.2.9.2.3 Methods for Identifying Historic Properties

The NorthMet Project Proposed Action is considered an *undertaking* as defined in 36 CFR 800.16. The Co-lead Agencies must consider effects on historic properties before an undertaking were to occur. The intent of Section 106 is for federal agencies to take into account the effects of a proposed undertaking on any historic properties situated within the APE and to consult with the ACHP, SHPOs, federally recognized Native American tribes and their Tribal Historic Preservation Officers, local governments, applicants, and any other interested parties regarding the proposed undertaking and its potential effects on historic properties.

Area of Potential Effect

The APE is the area in which a federal agency has identified historic properties that may be affected by the undertaking. For the purpose of any discussion pertaining to historic properties, direct effects physically alter the historic property in some way and indirect effects are further removed in time or space and diminish some aspect of the historic property, but do not physically alter it. Direct effects on archaeological sites and historic structures would occur in a fairly circumscribed area. Indirect effects could occur within a more geographically expansive area that typically reflects potential effects resulting from visual, audible, or atmospheric changes.

Typically, cultural resource surveys are only done within the area where direct effects would occur. However, for the NorthMet Project Proposed Action, the Co-lead Agencies conducted cultural resource surveys in some areas within the APE where both direct and/or indirect effects could occur.

The APE for the NorthMet Project Proposed Action was developed using the analysis discussed below and in other resource-specific sections of this FEIS. The APE includes potential effects areas for both direct and indirect effects (see Figure 4.2.9-1). The purpose of this summary is to address the APE for the NorthMet Project Proposed Action and discuss the rationale behind the areas that were included in the APE. As discussed in this section, cultural resources may include components that are, in part or entirely, natural resources. Therefore, to address indirect visual, audible, or atmospheric effects on all types of cultural resources, the APE includes aspects related to aesthetics, water, air, and noise. The Co-lead Agencies have consulted with the SHPO, Bands, and PolyMet on the APE utilized in the FEIS.

The DEIS was issued in October 2009. From 2007 to 2009, archaeological and architectural surveys were conducted for the NorthMet Project Proposed Action, as discussed below. Those

surveys focused on the existing Plant Site area and the proposed Mine Site area (see Figure 4.2.9-2). As discussed further, several cultural resources studies were completed within or adjacent to the NorthMet Project and Land Exchange areas before 2007. Some of the studies were conducted prior to the development of the NorthMet Project Proposed Action, and some were conducted specifically for the NorthMet Project Proposed Action.

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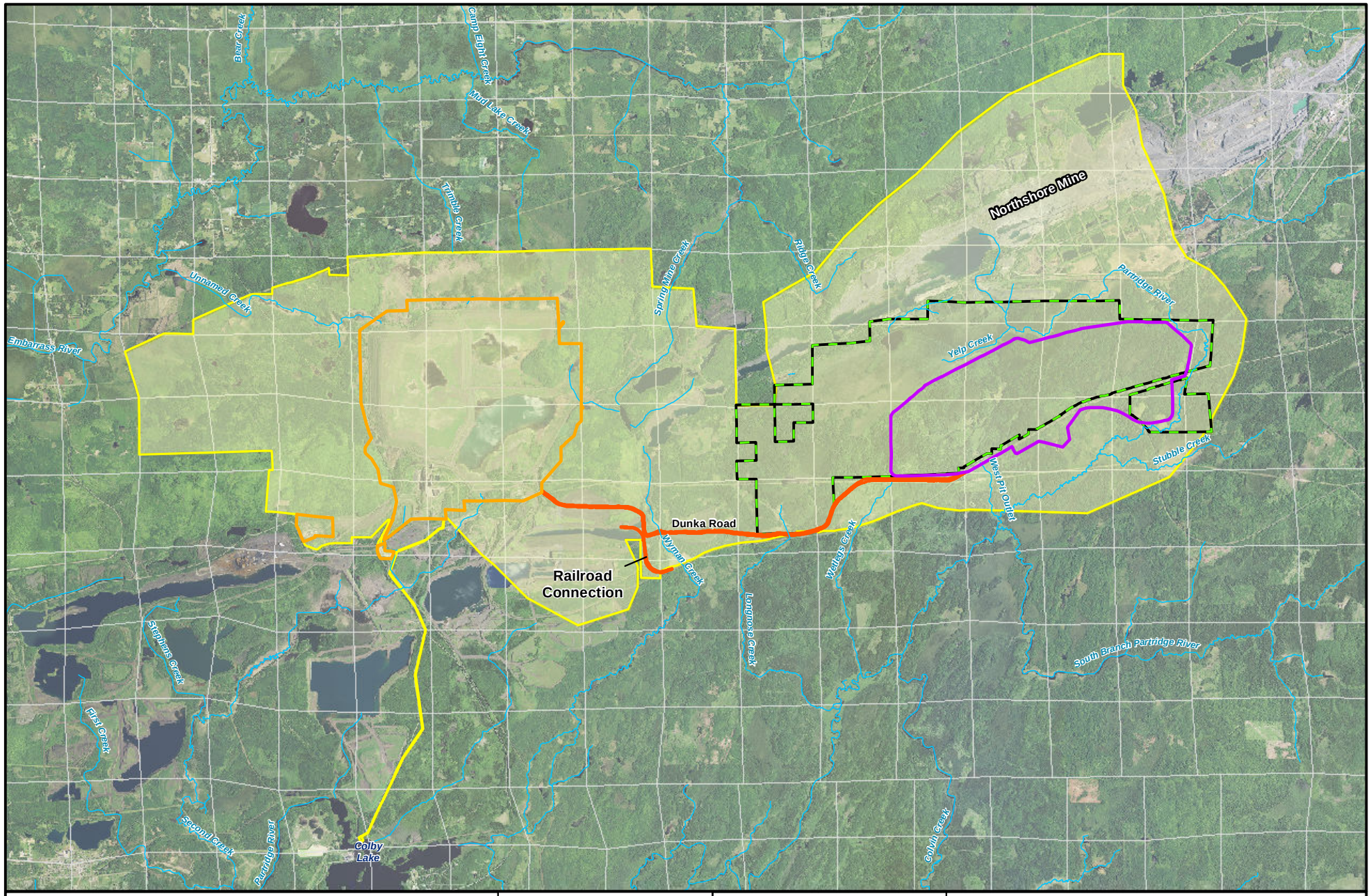

Federal Lands
Mine Site
Plant Site
Transportation and Utility Corridor
Stream/River
Section Boundary
Cultural Resources Area of Potential Effect

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.5 1 2 Miles

Figure 4.2.9-1
Cultural Resources Analysis - Area of Potential Effect
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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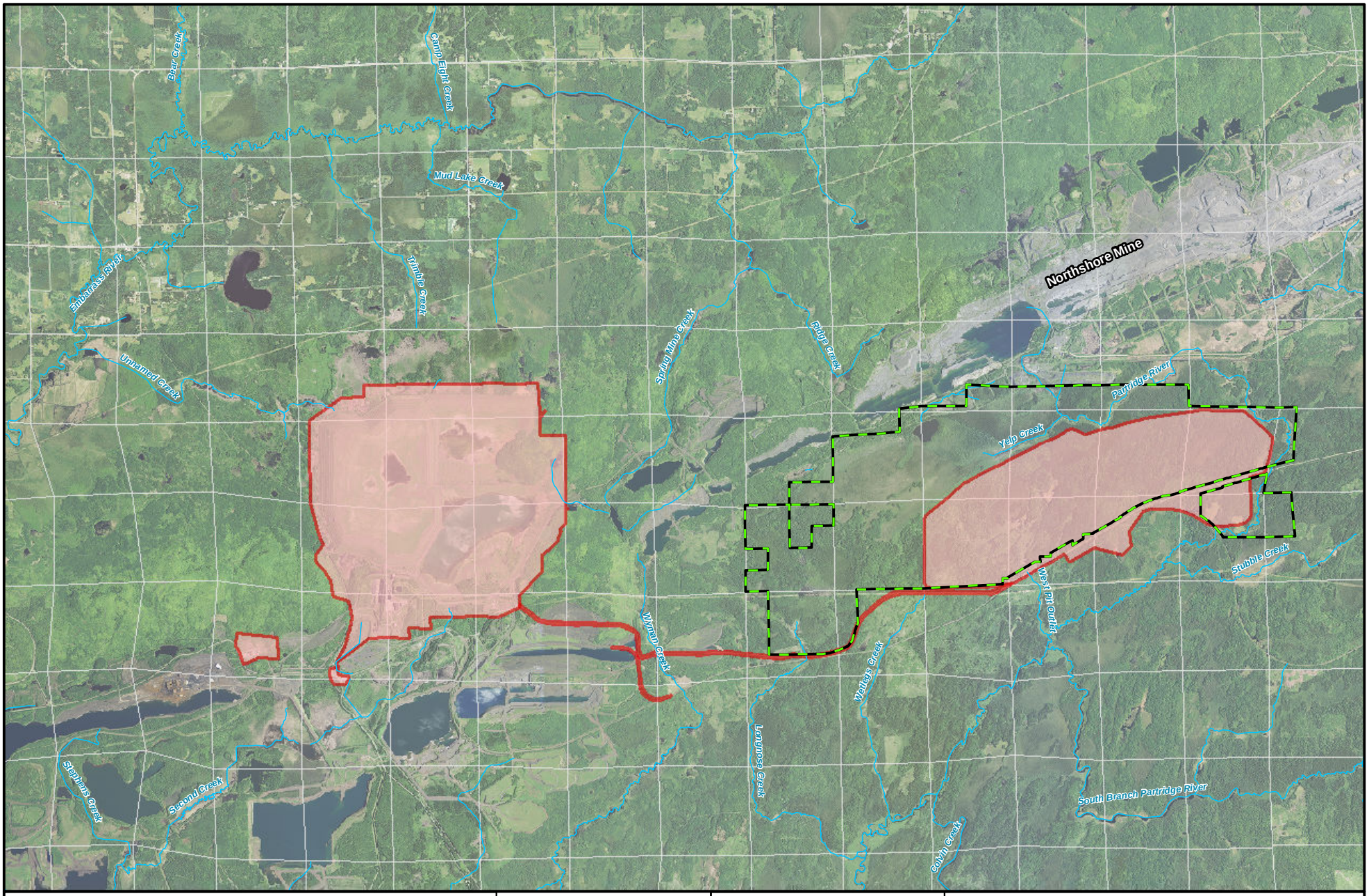

Federal Lands
Area of Direct Effect
Stream/River
Section Boundary

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.5 1 2 Miles

Figure 4.2.9-2
Cultural Resources Analysis - Area of Direct Effect
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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In early 2009, the consulting Bands proposed the 1854 Ceded Territory as a historic property. Prior to that, the Bands reiterated their concerns about effects on water quality and quantity, for both surface water and groundwater. At that point in the NorthMet Project Proposed Action review, data were not available on which to reasonably extrapolate the APE. The result was an APE that included a large area inclusive of portions of the Partridge River and Embarrass River watersheds, extending down the St. Louis River to Lake Superior.

As consultation progressed with the Bands, it became apparent that further identification efforts were warranted. Supplemental field investigations focused on the areas around the proposed Plant Site and Mine Site. Since this initial effort, the Co-lead Agencies have received the results of water quality and quantity modeling. The APE has been revised based on these results.

The NorthMet Project Proposed Action would meet ambient air quality standards at the property boundary. Compliance with ambient air quality standards suggests that there would be no significant effects on vegetation or soils. Therefore, it was suggested that the property boundaries at both the Plant Site and the Mine Site be used to define the maximum extent of NorthMet Project Proposed Action air impacts that would have the potential to affect historic properties (see Section 5.2.7.2.3; Figure 4.2.9-3). In 2013, during analysis for the SDEIS, the Co-lead Agencies refined the NorthMet Project Proposed Action APE to include this larger ambient air boundary. Within the redefined APE, modeling shows where fugitive dust from the Plant Site, Tailings Basin, and Mine Site stockpiles is predicted to settle. Areas of fugitive dust deposition that extend beyond the APE would not exceed the ambient air quality standard (see Section 5.2.7.1.3). The intra-property APE for air is defined by these fugitive dust deposition areas (see Figure 4.2.9-4). Therefore, in 2015, at the request of the consulting Bands and SHPO, the federal Co-lead Agencies conducted additional Phase IA (historic aerial photography) desktop survey for portions of the APE adjacent to the proposed Plant Site. This survey coverage focused on areas outside of the previously disturbed mining district that are within the NorthMet Project Proposed Action's ambient air boundary.

With the proposed engineering controls, the water quality model predicts that the NorthMet Project Proposed Action would not cause any significant water quality impacts because: 1) exceedances of the P90 threshold did not occur, 2) the NorthMet Project Proposed Action concentrations were no higher than concentrations predicted for the Continuation of Existing Conditions scenario, 3) the frequency or magnitude of exceedances for NorthMet Project Proposed Action conditions was within an acceptable range, or 4) the effects were not attributable to NorthMet Project Proposed Action discharges. Figure 4.2.9-5 shows surficial groundwater flowpaths with the potential to transport mine- and Tailings Basin-affected groundwater from source areas to surface waters. Therefore, these distances around the mine pit and Tailings Basin define the APE for potential changes to groundwater and surface water quality (see Figure 4.2.9-5).

Changes to groundwater quantity due to groundwater drawdown resulting from mine pit dewatering are not predicted to occur beyond 3,200 ft from the mine pit (see Section 5.2.2.3.2). Therefore, this distance around the mine pit defines the APE for changes to groundwater quantity (see Figure 4.2.9-6).

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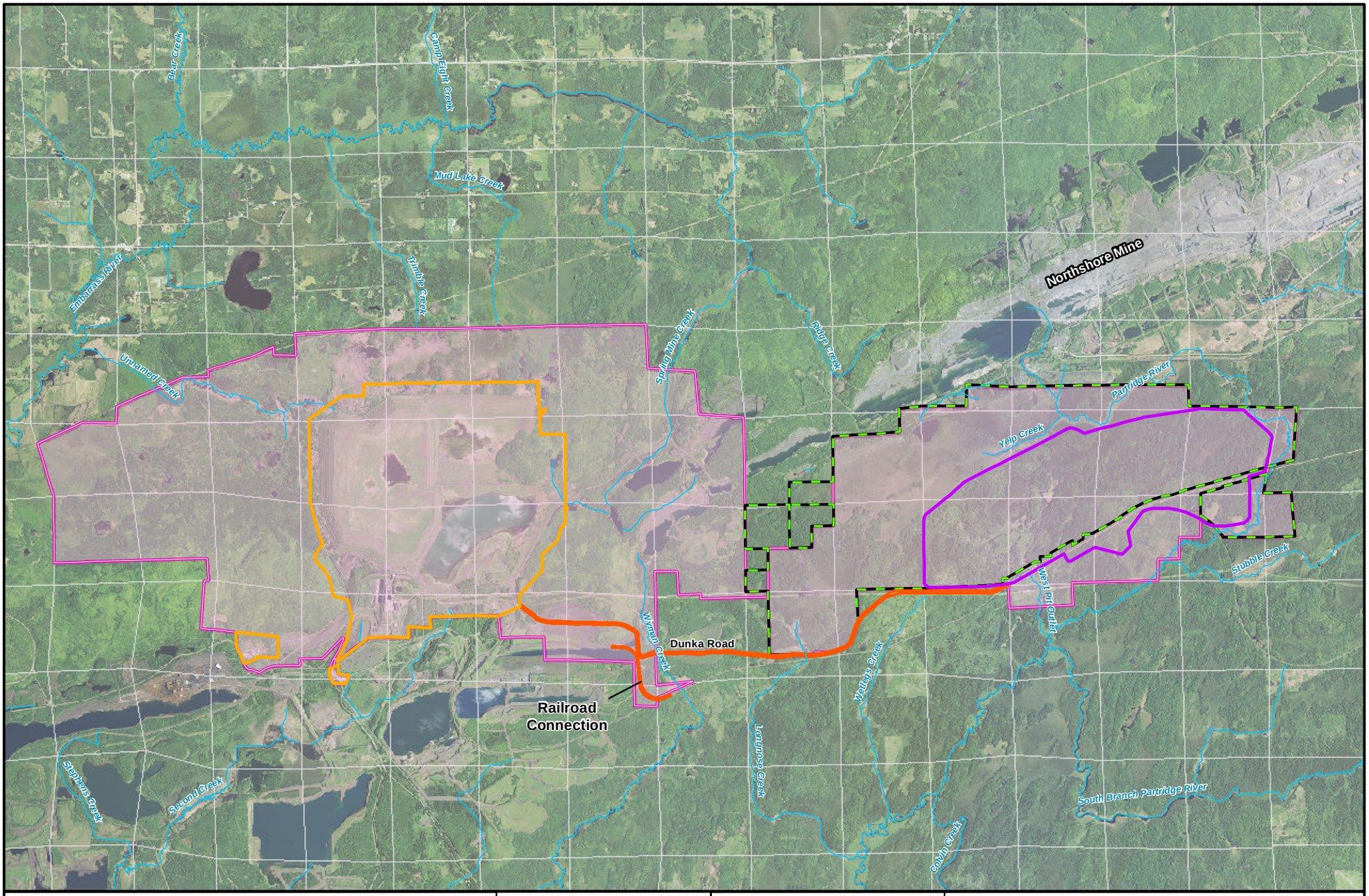

Federal Lands
Mine Site
Plant Site
Transportation and Utility Corridor
Stream/River
Section Boundary
Air Quality Area of Potential Effect

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

0 0.5 1 2 Miles

Figure 4.2.9-3
Cultural Resources Analysis - Air Quality
Area of Potential Effect
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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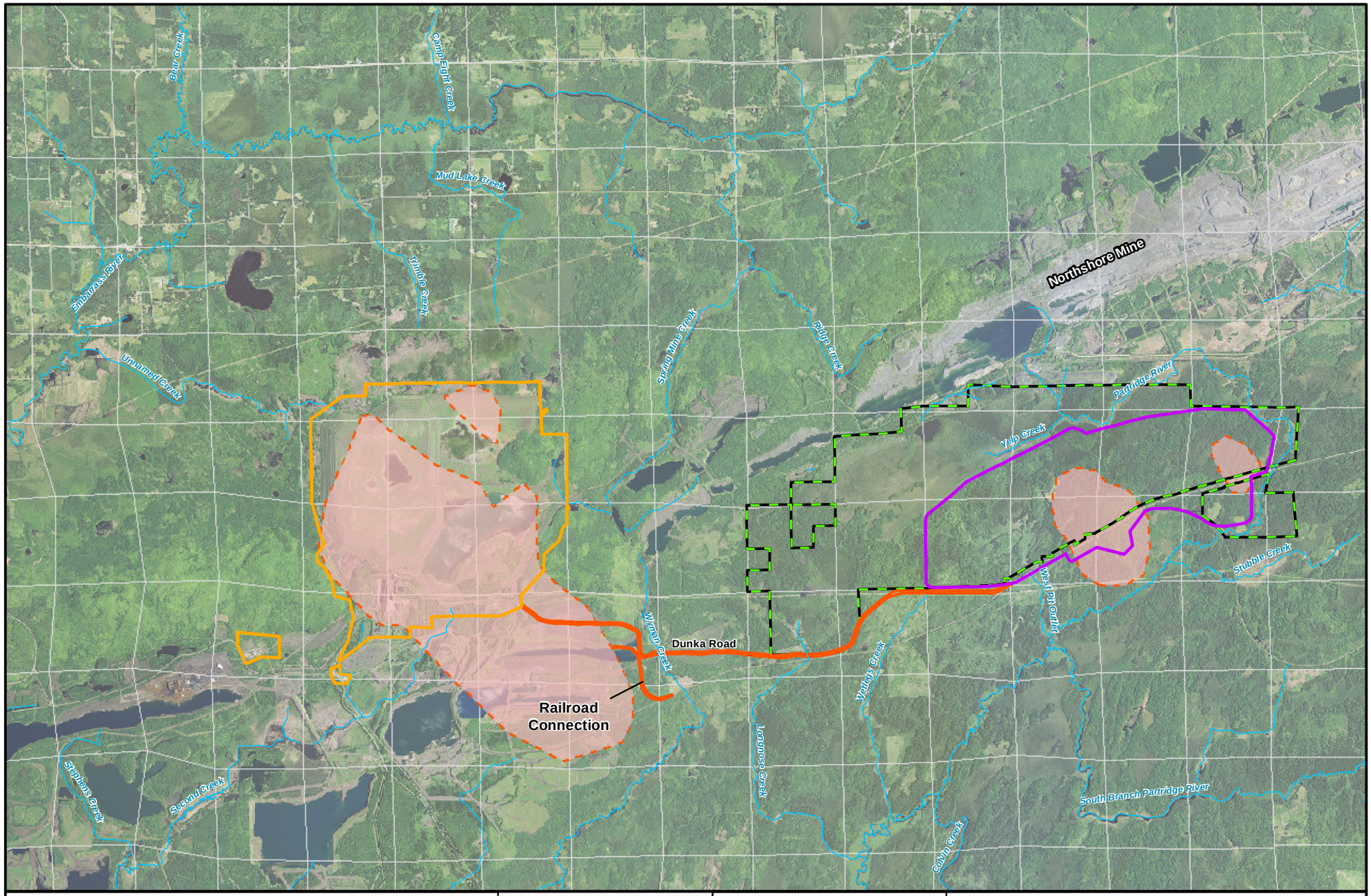

Federal Lands
Mine Site
Plant Site
Transportation and Utility Corridor
Stream/River
Section Boundary
Fugitive Dust Area of Potential Effect

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.5 1 2
Miles

Figure 4.2.9-4
Cultural Resources Analysis - Fugitive Dust Area of Potential Effect
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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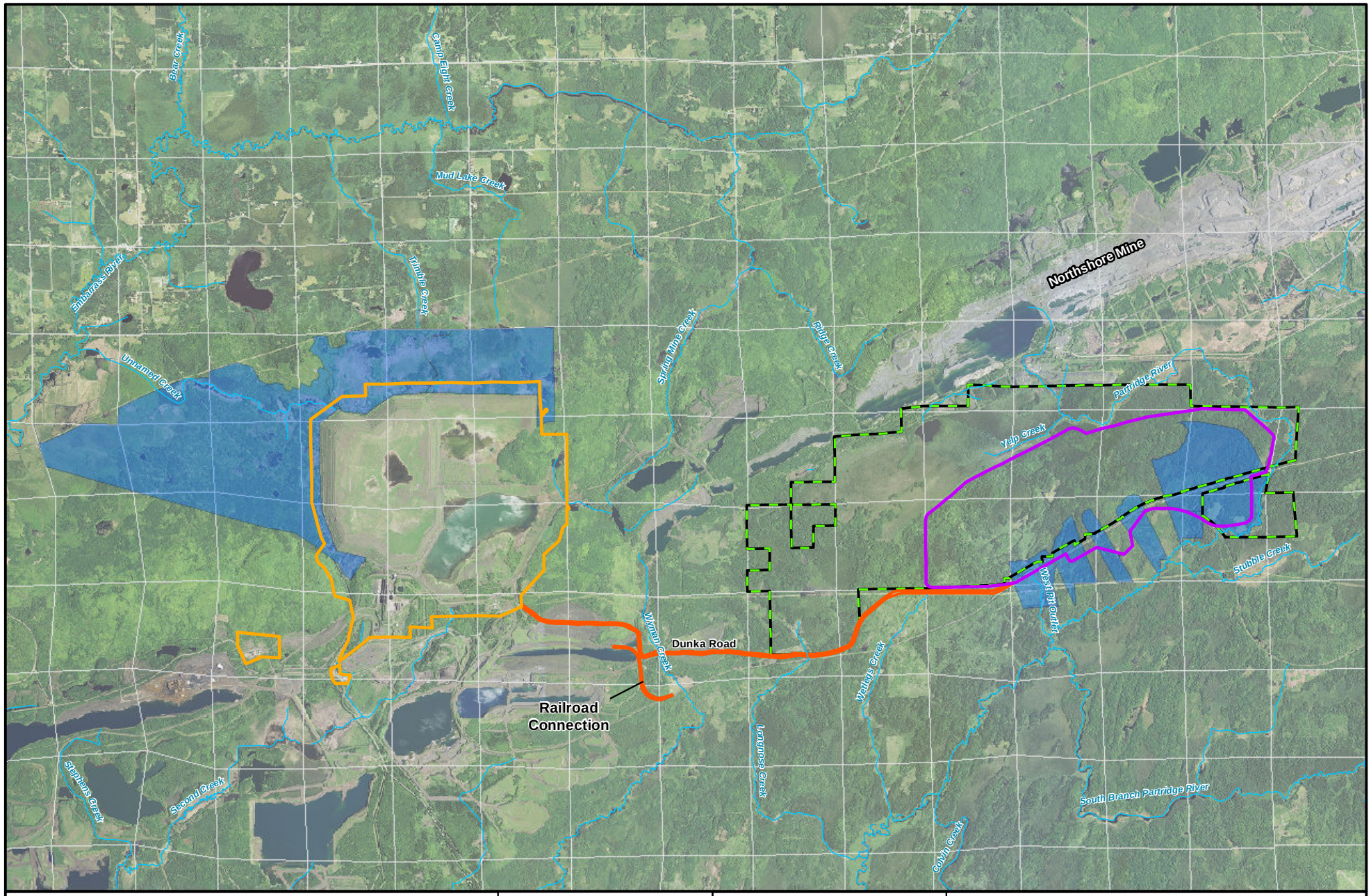

Federal Lands
Mine Site
Plant Site
Transportation and Utility Corridor
Stream/River
Section Boundary
Groundwater Quality Area of Potential Effect

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.5 1 2 Miles

Figure 4.2.9-5
Cultural Resources Analysis - Surficial Groundwater Quality Area of Potential Effect
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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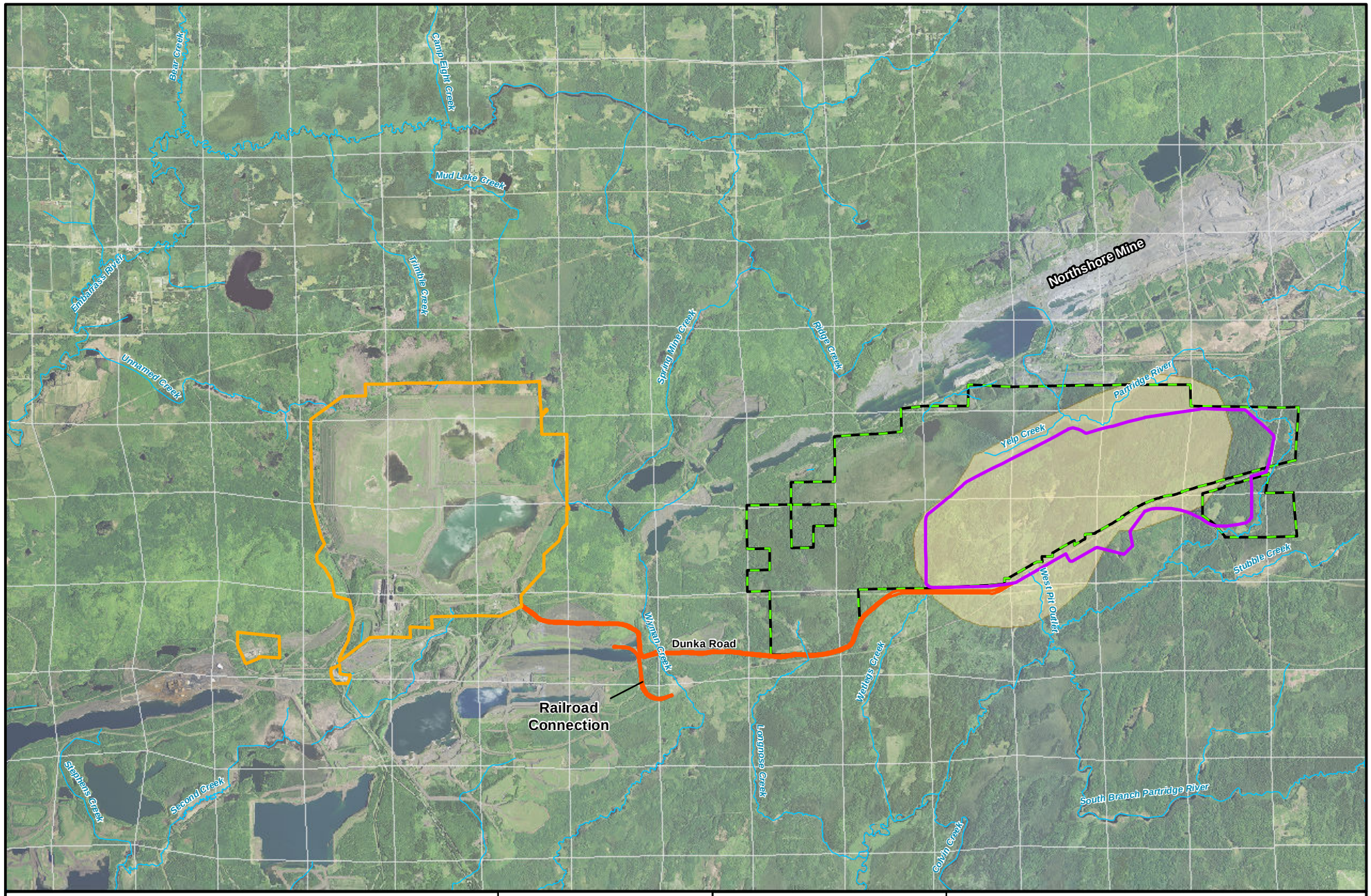

Federal Lands
Mine Site
Plant Site
Transportation and Utility Corridor
Stream/River
Section Boundary
Groundwater Drawdown Area of Potential Effect

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.5 1 2 Miles

Figure 4.2.9-6
Cultural Resources Analysis - Groundwater Drawdown Area of Potential Effect
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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The APE for visual effects was based on a cultural resource-specific analysis completed for the NorthMet Project Proposed Action by the federal Co-lead Agencies. At a distance of approximately 12 miles on a prominent landform (Skibo Scenic Overlook), the NorthMet Project Proposed Action stockpiles would be visible as a thin line on the horizon. The existing Plant Site buildings are visible from the same location. However, proposed construction at the Plant Site would not result in changes to the existing Plant Site profile visible in the distance. At intermediate distances between Skibo and the Mine Site, the elevations are lower and the Mine Site would not be visible. Therefore, the visual APE for the Mine Site is bounded by the crest of the Laurentian Divide (*Mesabe Widjiu*) and an area about 1 mile from the Mine Site on the eastern, western, and southern sides (see Section 5.2.11.2.2). The visual APE for the existing LTVSMC Tailings Basin at the Plant Site is not considered to be expansive, because the proposed Tailings Basin would be, for the most part, coincident with the existing basin and would not extend to an elevation higher than the existing LTVSMC Tailings Basin (see Figure 4.2.9-7).

To determine the combined noise effect of the NorthMet Project Proposed Action, the total noise generated from operations at both the Mine Site and Plant Site was added to the existing ambient daytime and nighttime baseline levels. Noise effects from rail transport were also assessed, but qualitatively. Blasting at the Mine Site would be a source of intermittent or non-continuous noise and vibration. Blasting noise is not included in the noise level estimates shown in the noise analysis because mine-blasting is typically an instantaneous event (not continuous or steady), and would occur only during daytime periods.

Operations at the Mine Site and Plant Site would occur 24 hours per day. The analysis showed total noise that would be experienced at any receptor location during the daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.) would be well below the Minnesota daytime and nighttime noise standards. In all cases, the NorthMet Project Proposed Action, when mining, hauling, and ore-crushing operations occur, would comply with the applicable Minnesota noise standards.

More specific information on noise-related effects is included in Section 5.2.8, for effects on humans, and Section 5.2.5, for effects on wildlife.

The Co-lead Agencies recognized that several refinements were needed in order to finalize the APE. These refinements included the addition of the Dunka Road corridor, inclusion of 206.96 acres of federal parcels included in the Land Exchange Proposed Action, and inclusion of the Colby Lake Pumphouse and pipeline refurbishment.

Identification of Historic Properties

The SHPO maintains the official inventory of historic properties in Minnesota, as specified in the NHPA and *Minnesota Statutes* 138.081. This inventory is physically housed in two separate sets of files: the History/Architecture files contain records of buildings, structures, and landscapes, and the Archaeological Site files contain records of archaeological sites. A review of SHPO and USFS files and all previous cultural resources studies was conducted for the area covered by the APEs.

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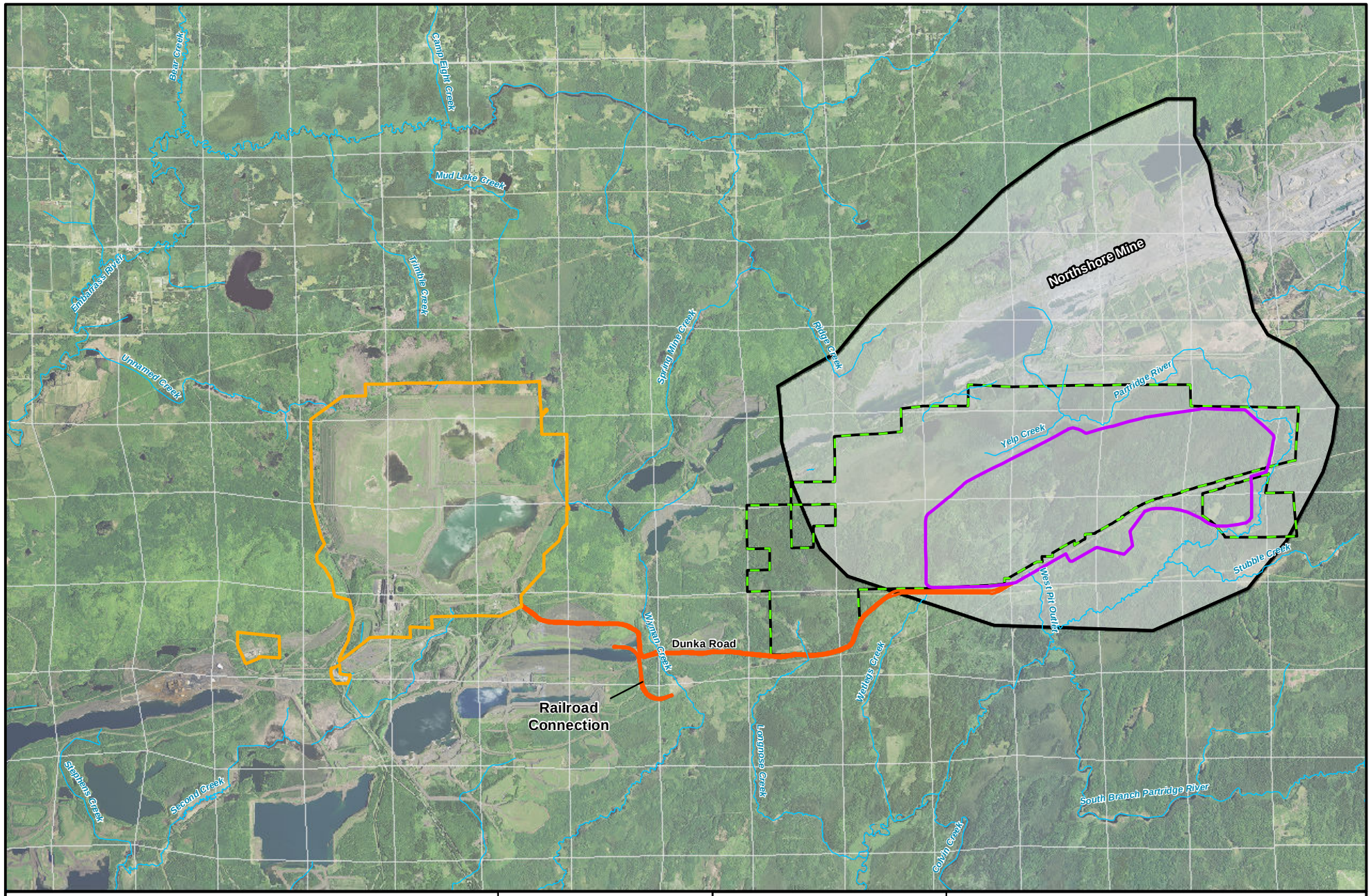

Federal Lands
Mine Site
Plant Site
Transportation and Utility Corridor
Stream/River
Section Boundary
Visual Area of Potential Effect

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

0 0.5 1 2 Miles

Figure 4.2.9-7
Cultural Resources Analysis - Visual Area of Potential Effect
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Cultural Context

This section provides a basis for understanding the identification and evaluation of historic properties as it relates to existing conditions. An emphasis is also placed on understanding Ojibwe history and traditions because of a greater emphasis on environmental effects and their potential to affect resources of importance to the Bands. This section provides context to understand the process of identification and evaluation of historic properties of religious and cultural significance to the Bands.

Paleoindian (Circa 13,300 to 9,000 Before Present)

The earliest evidence for human occupation in North America is referred to as the Paleoindian Period. The beginning of this period largely coincides with the transition from the Pleistocene to the Holocene about 11,700 years before present (BP), which marks the transition out of the last glaciation. The Paleoindian Period spans from about 13,300 to 9,500 BP and is generally associated with finely made fluted, lanceolate-shaped projectile points.

This was a period of rapid environmental change as the climate was warming. The ice probably began to retreat about 17,000 BP and, by 9,000 BP, had largely retreated to the Hudson Bay Lowland. Thinning of the ice allowed changes in atmospheric circulation patterns, further affecting climate change (Teller 1987).

Proglacial lakes formed from the meltwater of the ice sheets as its flow was blocked by vast amounts of glacially deposited sediment at the terminal positions of the ice. As the ice continued its retreat, the outlets to the glacial lakes down-cut, lowering lake levels and developing well-defined drainage ways, leading to rapid hydrologic change. Areas where stagnant blocks of ice were buried in glacial sediment developed spruce forests on them and persisted for thousands of years.

The people during this time lived in a subarctic environment that has no direct analogue in the world today. The animals of this environment included mammoths, giant bison, and other now-extinct species. In ice-free areas during this early period, there were variations of fluted, lanceolate-shaped projectile points, as found on archaeological sites. The first published discovery of these projectiles in association with mammoth and an extinct form of bison occurred at archaeological sites in New Mexico.

These early people are thought of as highly mobile big-game hunters who traveled in small bands. Tools were light, efficient, and remarkably similar across great distances (Mason 1981), which suggests that there was a rapid spread of people across the continent at that time.

Radiocarbon dates on mammoth bone collagen and wood associated with stone tools place people in the southeast Lake Michigan Basin by at least 12,500 BP. In Minnesota, the lack of excavated or recorded early Paleoindian sites makes it difficult to identify site types or assess their distribution across the landscape. The known sites appear to be oriented toward the current waterbodies, but that may reflect survey coverage as opposed to actual site distribution. The small number of sites suggests there was a small population in Minnesota or that a large number of sites were destroyed or were deeply buried as the landscape evolved (Mather and Lindbeck 2011).

The late Paleoindian Period is better represented in Minnesota and adjacent parts of Canada. Sites on paleo-shoreline features of proglacial lakes in the Great Lakes region are a well-

documented aspect of early settlement patterns such as at the Lakehead Complex sites at Thunder Bay, Ontario dating to roughly 9,500 BP; sites on the Campbell beaches of Lake Agassiz in the Quetico Provincial Park and Boundary Waters Canoe Area Wilderness (Julig et al. 1990); and on a beach ridge of Glacial Lake Aitkin in Aitkin County (Allan 1993). Julig suggests that the beach ridges may have been used for travel routes around the large glacial lake basins (Julig 1988; Julig et al. 1990).

The Reservoir Lakes northwest of Duluth are well-known for extensive surface collections that include Late Paleoindian and Archaic Points (Harrison et al. 1995). Dates from the Bradbury Brook site in Mille Lacs County place the site occupation at about 10,000 to 9,000 BP (Malik and Bakken 1993).

The Bradbury Brook investigation and analysis of other late Paleoindian assemblages suggest a preference for the use of Knife Lake Siltstone, which is a preference that may extend to much of northeast Minnesota and is reflected in the collections from the Reservoir Lakes.

Archaic (Circa 9,000 to 2,500 Before Present)

By 9,000 BP, climatic conditions were probably similar to that of present day, as inferred from the pollen record (Wright 1974). Around 9,400 BP, Lake Superior was dropping rapidly from its Minong levels (Julig et al. 1990) and by 9,000 BP, Lake Agassiz was retreating northward.

At the beginning of this period, lakes covered substantially larger areas and open water would have occupied areas of present day peatland (Hohman-Caine and Goltz 1995). Water levels in the larger pro-glacial lakes receded as streams developed and down cut their outlets. As post-glacial warming continued, hydrology and vegetation changed. About 7,000 years ago, much of Minnesota was dominated by prairie and lakes may have periodically dried up during summer droughts (Wright 1974; Watts and Winter 1966; Webb et al. 1983). With changes to the composition of plant communities and shifts in the ranges and varieties of animal species, human adaptations to the environment changed, as well. Moose and caribou were probably replaced by bison in many locations.

Less predictable resources during the mid-Holocene may have resulted in populations concentrating in areas around the largest lakes and streams (Mason 1981) and a shift from a foraging to a collector strategy, with greater use of local environments as task groups ranged from camps located near predictable resources (Hohman-Caine and Goltz 1995; Dobbs 1989).

The Itasca Bison Kill Site is an Early Archaic site located at the headwaters of the Mississippi River. It is the only archaeological site in Minnesota where the remains of extinct bison (*Bison occidentalis)* were found in association with cultural material. The bison were killed on the shore of a now-extinct lake. Radiocarbon dates suggest the site dates to about 8,000 years ago. Pollen and macrofossils preserved at the site indicate that the surrounding countryside was an open, pine-dominated woodland giving way to expanding prairie (Shay 1971).

Early Archaic sites in the Canadian-Shield/boreal forest areas are somewhat rare when compared to areas south of the Great Lakes (Mason 1981). The lack of Archaic sites was striking in the results of an archaeological survey on Rainy Lake (Gibbon and Woolworth 1977). In general, the Shield Archaic assemblages lack the complexity found in other regions. Assemblages do include some woodworking tools such as trihedral adzes.

The Shield Archaic is a cultural tradition showing in place continuity over thousands of years with late Paleoindian antecedents as opposed to an intrusion of new people. It appears to be a gradual succession of individual small-scale adaptations to new conditions (Mason 1981; Dobbs 1989).

Population levels during the mid-Holocene may have been lower than those during the late Paleoindian period, because the closed, coniferous forests would have been relatively resource poor (Mason 1981). The lack of recorded sites may be the result of large portions of the archaeological record for this period being submerged as lake levels rose to modern levels, being deeply buried under alluvial sediment, or eroded as stream flows changed (Michlovic 1982; Bettis and Thompson 1981; Overstreet and Kolb 2003).

Woodland Tradition (Circa 2,500 Before Present to European Contact)

This stage in prehistory is characterized by the initial appearance of earthen mounds and ceramics, although it is not certain if mound-building and the adoption of ceramics are related and occur at the same time. The most important cultural trends during this time are increasing population growth, intensification of regional identity, increasingly efficient use of local raw materials and food resources, and the intrusion of ideas and technologies. Dobbs (1989) suggested that, in northern Minnesota, ceramic use seems like more of a “veneer” that overlays a basic Archaic hunting and gathering lifestyle.

Initial Woodland populations in northern Minnesota are represented by a net-impressed ceramic type known as Brainerd Ware, which spans a period of from about 3,000 BP to 1,600 BP. The distribution of Brainerd Ware is well-known in the Mississippi River headwaters, extending west onto the plains. Brainerd Ware is also represented on some sites in St. Louis County (Hamilton 2009; Hohman-Caine and Goltz 1995). Mather and Lindbeck (2011) suggest that this development occurred roughly at the same time wild rice was migrating from the lakes of southern and central Minnesota into the lakes of northern Minnesota. Residue from Brainerd vessels has produced rice phytoliths and radiocarbon dates of 2,000 years ago (Justin and Thompson 1995) and 2,700 BP to 2,800 years ago.

Many of the Brainerd sites are found on beach ridges associated with higher lake levels of this period. The remains of elk, bison, deer, and possibly caribou from a site near Leech Lake suggest the people who made Brainerd Ware were highly adapted to the prairie-forest ecotone (Hohman-Caine and Goltz 1995).

The first burial mounds in northern Minnesota are associated with the Laurel Culture (Arzigian 2008). While the cultural relationship between Brainerd and Laurel is poorly understood, radiocarbon dates suggest that Brainerd precedes Laurel. Laurel dates range from 2,000 to 1,000 years ago. At the Big Rice site north of Virginia, Minnesota, wild rice grains were recovered from three pit features containing only Laurel ceramics and produced radiocarbon dates of about 2,035 to 1,700 years ago (Valppu and Rapp 2000).

In stylistic terms, Laurel is comparable to other woodland manifestations to the south and east. Laurel distribution is extremely broad, extending from west-central Quebec to east-central Saskatchewan, including northern Minnesota, where it is common in the Superior National Forest (Hamilton 2009). The best-known concentrations of Laurel occur in the Rainy River, Rainy Lake, and Vermillion River drainages and the Mississippi headwaters (Arzigian 2008).

Extensive surveys in Voyageurs National Park and the Superior National Forest have identified numerous Laurel sites, with 94 percent of those sites in the MDNR Laurentian Mixed Forest province and concentrated in the Border Lakes subsection of the Northern Superior Uplands. Most sites are in lacustrine settings (lakeshore, islands, and peninsulas), less than 20 percent are in riverine settings, and only 3 percent are in uplands.

During the Terminal Woodland, there are increases in site size and density, suggesting a population increase. The period begins in northern Minnesota, with the Blackduck-Kathio-Clam River cultures comprising stylistically similar ceramics. Kathio ceramics are primarily from the central lakes area of Minnesota, and Clam River ceramics are found mostly on tributaries to the St. Croix River in western Wisconsin. Early Blackduck begins about 1,400 years ago in the Mississippi headwaters and on the Rainy River, ending about 900 to 1,000 years ago.

The stratigraphic relationship of Blackduck ceramics to Laurel and the later Sandy Lake Ware is fairly well-known. Laurel and Blackduck may have coexisted for several hundred years. There have been no well-stratified sites excavated with components transitional between Laurel and Blackduck (Johnson and Schaaf 1978) and it is unclear whether Blackduck represents in situ evolution of Laurel (Thomas and Mather 1996) or the replacement of Laurel by a separate group of people (Stoltman 1973).

The most recent pre-contact archaeological culture in northern and central Minnesota is the Psinomani, dating from 900 to 360 years ago. It is associated with Sandy Lake and Ogechie ceramics. Sandy Lake ceramics are similar to other woodland ceramic types throughout North America, but Ogechie ceramics are most similar to Oneota ceramic types produced by the agricultural communities to the south. These groups were north of areas where corn agriculture was practiced successfully, particularly on major lakes and waterways of the Mississippi River headwaters: the Rainy River – Rainy Lake, and Boundary Waters systems and eastward to Lake Superior, with some sites in the prairie region to the west. The larger site size and greater population density is often attributed to the use of wild rice, but evidence also suggests use of the prairie forest ecotone and prairie, which includes seasonal bison hunts. The differences in the archaeological assemblages in the prairie region versus the central lakes area may represent the seasonal round, as opposed to different subsistence strategies.

Psinomani archaeological sites in the Mille Lacs area have been linked to the historic Mdewakanton Dakota through early historic records and artifact assemblages that include French trade goods.

In the Mille Lacs area, the end date for the Psinomani is based on the historic record for the displacement of Dakota people by the Ojibwe in 1750 AD. In the Rainy River area at the Long Sault Site, Sandy Lake pottery was found in association with historic trade goods, overlying a Blackduck component that dated to 1750 AD. At the Creech site on Leech Lake, there were levels with both Sandy Lake and Blackduck stratigraphically above levels containing only Blackduck ceramics (Johnson 1991) and at Mitchell Dam, Sandy Lake was described as associated with Blackduck (Cooper and Johnson 1964).

The practice of these Eastern Woodland lifeways was disrupted during the mid-17th century as European explorers and trade goods began to enter the region.

Ojibwe Context

The Ojibwe people were living in the upper Great Lakes region when European explorers first entered the area. Some archaeologists associate Blackduck ceramics with the Algonkian-speaking groups, including the Cree and Ojibwe (Johnson 1969; Steinbring 1980), while others have suggested association with Siouan-speaking Assiniboine. More recently, archaeologists believe that the makers of Blackduck ceramics were most likely Algonkian speakers, but the ethnic divisions of Cree and Ojibwe are historical constructions with little validity in prehistory (Greenberg and Morrison 1982).

The ancestral Ojibwe were part of a large clan-based group of people that referred to themselves as Anishinabe (original people). This Algonquian-speaking group was spread over a vast area of the subarctic region of southern Canada and the northern United States, a territory much larger than that of any other Native American tribe in North America (Tanner 1986).

Subsistence patterns depended, to some extent, on the location any one particular group inhabited and varied greatly across the territory occupied. The groups were not connected by a uniform subsistence base, but by a clan network. These clan groups were seasonally mobile, autonomous groups for centuries prior to the arrival of Europeans in North America. The earliest accounts talk of a number of distinct, but related groups, such as the Saulteur, the Outchibou, or Marameg (Tanner 1994). These people became known as "Ojibway" after the publication in 1885 of William Warren's *History of the Ojibway People* (Warren 1984).

Their story starts prior to arrival of Europeans in North American, when the Anishinabe were living along the eastern seaboard. It was during that time, according to the Anishinabe sacred migration story, that a man beheld a vision from the Creator that foretold of the destruction of the Anishinabe and called on them to move west until they found the place "where food grows on the water:"

> While we were on the east coast, a man had a dream or a vision if you will. In this dream, he was told a number of things. The first was, he was to leave the area and take as many people as would go with him. The second was, if people did not leave many would perish. The third was, to travel towards the west and to follow the great megis shell when it rose out of the water, or sand, and to stop when it lowered back into the water, or sand, or if something reminded them of a turtle. The fourth was that their journey would end when they found the food that grows on water.
>
> He left with many following him, and went down the St. Lawrence River and waterways that led to the Great Lakes area. While in the central part of the Great Lakes area, two peoples split off from us. They are the Potawatomi and the Ottawa, who went into Canada, Michigan, and Wisconsin. The Anishinabe continued on to the edge of Lake Superior. Once we came inland, we never saw the megis shell again. This journey took over five hundred years and the prophecy that was told while we were on the east coast was kept alive orally from generation to generation by traditional storytelling. On our journey, we stopped seven times, sometimes for five days, sometimes for five years, it all depended on the megis shell. (Tribal Historic Preservation Office [THPO], Pers. Comm., August 14, 2012)

Pressures from European trade and from their Iroquois neighbors are often cited as motivation for this move (Risjord 2005). However, this explanation for westward migration is a Euro-American perspective and contrary to oral history (THPO, Pers. Comm., August 14, 2012).

Anishinabe oral tradition relates a 500-year journey, beginning in about 900 AD on the east coast. Near the end of this journey, the fifth of the seven stopping places was in the area that is now the location of Sault Ste. Marie, Michigan, where a group stayed because of the rich fisheries. From Sault Ste. Marie, the Ojibwe split into two groups. One traveled north around Lake Superior and the other south around the lake. They met at Spirit Island in the St. Louis River Estuary, the sixth stopping place, where they found wild rice.

From Spirit Island, some moved east along the southern shore of Lake Superior to find the seventh stopping place, which was at Madeline Island—the last point on the migration.

Perhaps because the last part of the migration occurred during the time of European explorations, early accounts of settlement locations and how they relate to the migration and first arrival in the western Great Lakes are difficult to interpret. Oral tradition places the Ojibwe in the Lake Superior region as early as 1400 AD (Benton-Banai 1988:102). Other sources place the Ojibwe on the north shores of Lake Superior and the Upper Peninsula of Michigan by 1500 AD (Clifton et al. 1986).

The first known encounter with Europeans was at Sault Ste. Marie in 1609, when Samuel Champlain, founder of New France, established relations, intending to set up trading partnerships. As the Ojibwe began to focus on trapping for furs to trade, the once-autonomous bands reorganized into village-centered sociopolitical entities. This was an important demographic consequence of French influence and endemic native wars. Villages were established along the southern shore of Lake Superior in Keweenaw Bay, La Point, and Sault Ste. Marie, and probably represented only a fraction of the population dispersed across the Western Great Lakes and interior waters (Zedeño et al. 2001).

As the fur trade gained momentum in the east, increased conflict resulted as the beaver supply was being exhausted. In the mid-1600s, the British-allied Iroquois pushed the Huron out of their land and into the Tionontati, Erie, and Ottawa regions, which also affected the Ojibwe presence at Sault Ste. Marie. Subsequently, throughout the early 1700s, many groups moved into areas previously vacated because of the Iroquois threat. The Fox began an aggressive campaign against the French in the Detroit area, who were thought to prevent the Fox from carrying on trade with the Dakota. The Fox and the Dakota were allied in their interests in Plains resources. The Ojibwe went to the aid of the French as a sign of their loyalty. The final battle between the Fox and the Ojibwe was fought at St. Croix Falls in 1755. The Ojibwe conflict with the Fox had affected Dakota-Ojibwe relations.

After the second Treaty of Paris in 1783 sealed the victory of the American Revolution, the new Americans felt that the land ceded to them in the treaty included the land where the Ojibwe and other Great Lakes tribes lived (Tanner 1986). Warfare between the Ojibwe and the Dakota made merchants extremely cautious of moving to land west of Michigan (Hickerson 1970). In order to end continuing land disputes between the Ojibwe and the Dakota, and secure a peaceful frontier for settlers, the United States encouraged the signing of the 1825 Prairie du Chien Treaty. The treaty defined boundaries of land owned by the Ojibwe, and set the stage for the United States to obtain mineral rights to the Ojibwe territory defined under the 1825 Prairie du Chien Treaty (Kappler 1904).

As more settlers pushed into the Lake Superior region in search of timber and minerals, the United States government bought land from the Ojibwe through cession treaties. The Treaty of 1836 ceded land in Michigan's Upper and Lower Peninsulas and parts of the Great Lakes, and the Treaty of 1837 ceded land in north-central Wisconsin and east-central Minnesota. The Treaty of 1842 ceded land in northern Michigan and Wisconsin and the western part of Lake Superior; and the 1854 Treaty ceded land in northeastern Minnesota, and created reservations for many Ojibwe bands. These treaties reserved the rights of the Ojibwe to hunt, fish, and gather on lands they sold to the United States (Kappler 1904).

History of the Iron Range

Minnesota became the thirty-second state in 1858, which spurred an ever-increasing flow of European-American settlement and the establishment of towns, cities, and enterprises other than fur trade (Mason 1981). Wheat surpassed corn as the principal crop in 1860, with much of it being exported out of state. White pine and red pine were sought after by loggers, and were harvested in the Fort Snelling area as early as 1820. By 1870, there were 207 saw mills in Minnesota. In 1877, a law allowing sale of timber off state lands further opened the state for logging. The logging boom had tapered off by the early 1900s (Risjord 2005).

In 1865, the newly appointed Minnesota state geologist, Augustus Hanchett, with the help of his assistant, Thomas Clark, issued a report generally describing copper ore deposits in the Lake Superior area and iron ore deposits at Lake Vermilion (Hanchett and Clark 1865). The following year, Henry H. Eames replaced Hanchett as state geologist and issued a report confirming the presence of gold ore around Lake Vermilion, creating a short-lived Minnesota gold rush during which other Minnesota ores were ignored (Lamppa 2004). Discovery of iron ore in the Vermilion Range led the Pennsylvania industrialist Charlemagne Tower to buy large tracts of land on the Vermilion Range. In 1882, Tower organized the Minnesota Iron Company and, by 1884, shipped the first ore from the Soudan Mine by rail on the company's Duluth and Iron Range Railroad to Lake Superior (Risjord 2005).

The Merritt Brothers of Duluth laid groundwork for their Mountain Iron Mine through their explorations during the 1890s (Minnesota Historical Society 2008). Up to that point, only the far-eastern portion of the Mesabi Range had been mined for iron, and not on a large commercial scale, with mostly hand tools being employed (Walker 1979; Atkins 2007). They opened their second mine in 1891 near Biwabik. By 1892, they shipped their first carload of ore on their Duluth, Missabe, and North Railroad to dock in Superior, Wisconsin (Minnesota Historical Society 2008). A loan from John D. Rockefeller to the Merritts to expand the railroad ultimately led to the transfer of all of their mining and rail properties to Rockefeller. Shortly thereafter, all of the mining interests in Minnesota were owned by eastern interests, with J.P. Morgan consolidating the Rockefeller and Carnegie holdings in 1901 under U.S. Steel (Risjord 2005).

By 1890, when the Mesabi Iron Range deposits were discovered, nearly 300 iron mining companies had been incorporated in Minnesota. By 1900, the Mesabi Range was the most extensive iron ore mining area in the world, supplying increasing demand by steel mills throughout the Great Lakes states (Hall 1987). Early mining ventures in the Mesabi Iron Range focused on hematite, a soft granular rock rich in iron that could be mined with steam shovels and required limited processing. More than 95 percent of the iron deposits in the Mesabi Range consist of taconite, a hard iron-bearing rock that must be pulverized and processed for mineral extraction (Risjord 2005).

In the late 1920s, increased mechanization reduced the number of workers needed and increased productivity. However, due to the Great Depression, iron ore production in the Iron Ranges dropped dramatically by the early 1930s (Lamppa 2004). A cost-effective technology for taconite processing was developed by the late 1930s. Taconite mining was made even more economically feasible by two factors: 1) legislation passed in 1941, replacing property taxes within the Iron Range with taxes on actual ore mined, and 2) increased demand due to World War II. The Reserve Mining Company was formed in 1942 (Risjord 2005). In 1964, when interest in taconite pellet use in steel manufacture prompted interest in increasing taconite pellet production, an amendment was passed that guaranteed that the tax advantages of the 1941 taconite legislation would be maintained (Lamppa 2004).

In 1957, the Erie Mining Company opened its concentration plant at Hoyt Lakes. This plant was Minnesota's second large-scale taconite plant, and it remained in operation through 2001, with a change in ownership to LTVSMC in the 1980s, and then to Cleveland Cliffs in 2001 (Zellie 2007). While six new taconite plants were built on the Iron Range in the 1960s and '70s, inexpensive imports changed the industry and decreased demand by two-thirds (Risjord 2005).

Cultural Resources Investigations

Several cultural resources studies have been completed within or adjacent to the NorthMet Project and Land Exchange areas (see Figure 4.2.9-8). This section presents previous investigations that have been conducted prior to the development of the NorthMet Project Proposed Action, as well as investigations conducted specifically for the NorthMet Project Proposed Action.

Previous Investigations

In 1985, the USFS conducted a Phase I cultural resources survey as part of the Yelp Lake Timber Sale (USFS 1985). The survey consisted of a desktop review of historical aerial photographs and pedestrian reconnaissance survey of manmade features such as clearings, roadways, and trails, as well as landforms exhibiting the potential for containing archaeological sites. Overall, the area was considered to have low potential for containing prehistoric and historic archaeological sites, as well as architectural structures. During the Phase I cultural resources survey, one historic period resource (SHPO ID 09-09-01-115) was identified. The resource was only described as being related to the historical railroad and logging context and does not fall within the current NorthMet Project or Land Exchange areas.

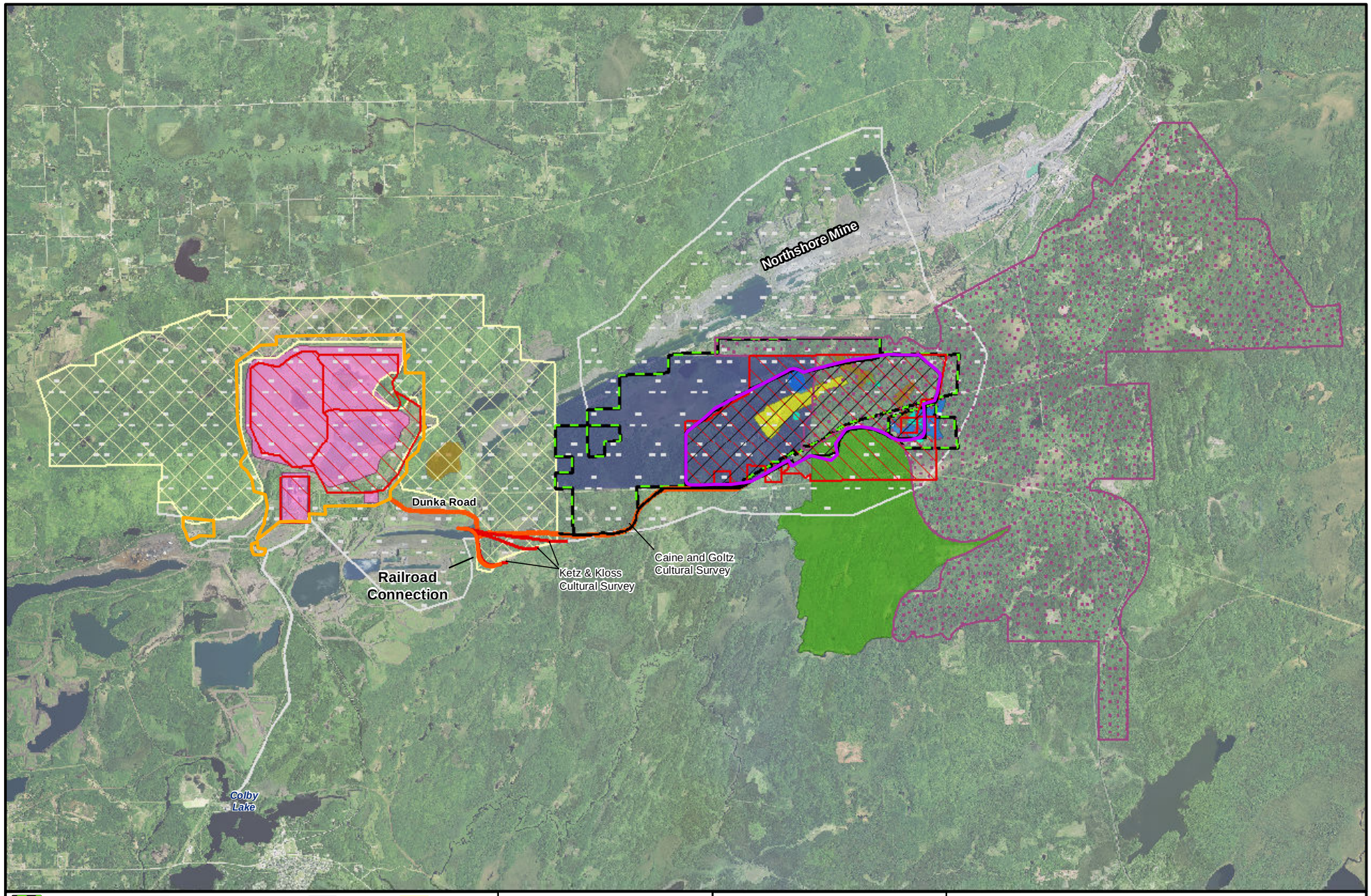

Federal Lands
Mine Site
Plant Site
Transportation and Utility Corridor
Stream/River
Section Boundary

Previous Cultural Survey

Caine and Goltz 2006; 2008
Foth and Van Dyke 1999
Ketz & Kloss 2004
USACE 2010
USFS 1985
USFS 1990
USFS 1997
USFS 2011
USFS 2012
USFS 2015
Zellie 2007
Zellie 2014

MNDNR
US Army Corps of Engineers
St. Paul District

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Figure 4.2.9-8
Cultural Resources Analysis - Previous Investigations
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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In 1990, the USFS conducted a Phase I cultural resources survey as part of the Stubble Creek Timber Sale (USFS 1990). The survey consisted of a desktop review of historical aerial photographs, helicopter flyover, and pedestrian reconnaissance survey of manmade features such as clearings, roadways, trails, and structures, as well as landforms exhibiting the potential for containing archaeological sites. Overall, the area was considered to have moderate potential for containing historic archaeological sites and architectural structures and a low potential for containing pre-contact archaeological sites, with the exception of areas adjacent to the Partridge River. During the Phase I cultural resources survey, no previously recorded cultural resources were noted within the NorthMet Project area; however, three new cultural resources were identified (SHPO IDs 09-09-01-362, 09-09-01-363, and 09-09-01-364). All three resources are associated with the historic period, though the report is unclear as to whether these resources are archaeological sites, standing architectural structures, or both. The North Partridge Camp (SHPO ID 09-09-01-362) and the Stubble Creek Mill (SHPO ID 09-09-01-364) were not evaluated and the South Branch Bridge (SHPO ID 09-09-01-363) was recommended not eligible. None of these resources fall within the current NorthMet Project or Land Exchange areas.

In 1997, the USFS conducted a Phase I cultural resources survey as part of the Laird/LTV II Project (USFS 1997). The survey consisted of a desktop review of historical aerial photographs, helicopter flyover, and pedestrian reconnaissance survey of manmade features such as clearings, roadways, and trails, as well as landforms exhibiting the potential for containing archaeological sites. During the Phase I cultural resources survey, no new cultural resources were identified; however, five previously identified cultural resources were noted. None of these five previously identified resources fall within the current NorthMet Project or Land Exchange areas.

Investigations Conducted for the NorthMet Project Proposed Action

In 1999, Foth and Van Dyke completed a Phase I archaeological survey within the proposed Mine Site where exploratory drilling was to take place (Foth and Van Dyke 1999). The survey area covered approximately 20 acres. The Phase I archaeological survey involved the excavation of 166 shovel tests placed at 15-meter intervals along the proposed drilling transects with exception to areas exhibiting standing water or exposed bedrock. No new or previously identified archaeological resources were identified within the survey area; however, the literature review portion of the investigation indicated that three historic logging camps (including the Knot Camp Site) and a mill were located to the south and east of the proposed Mine Site.

In 2004, The 106 Group Ltd (106 Group) conducted a cultural resources assessment for the NorthMet Project Proposed Action (Ketz and Kloss 2004). The assessment included the lease area (an area approximating the Mine Site), the former LTVSMC processing plant, the Tailings Basin, and three proposed railroad interconnection alternatives. The 106 Group found that no pre-contact archaeological sites had been previously identified within the 2004 study area. It was also concluded that the pre-contact archaeological potential for most of the study area is poorly understood, but likely of low potential. However, several upland areas located adjacent to the Partridge River and large wetland complexes were considered to have high potential for pre-contact archaeological resources. The 106 Group noted the presence of one previously reported (not field-verified) historic archeological site, the Knot Logging Camp (21SLmn), as well as the potential for two early historic Native American trails as noted on historical maps (Ketz and Kloss 2004; Trygg 1966). The 2004 study also identified several architectural history resources associated with the former LTVSMC processing plant. These resources include the former Erie

Mining Company Taconite facility and associated mining features including an associated rail line. The 106 Group recommended that a Phase II architectural history evaluation be completed for the LTVSMC site (Ketz and Kloss 2004).

In 2005, Soils Consulting conducted a Phase I archaeological survey for the NorthMet Project Proposed Action (Hohman-Caine and Goltz 2006). The investigation entailed the archaeological survey of select landscape features determined by Hohman-Caine and Goltz to have the highest potential for pre-contact archaeological sites. Additionally, a survey was also carried out in areas noted on historical maps and/or in previously identified archaeological site files as containing historical features, such as Native American trails or logging camps. During the investigation, one new archaeological site (NorthMet Archaeological Site) was identified and one previously identified archaeological site (Knot Logging Camp [21SLmn]) was revisited. The NorthMet Archaeological Site was found to contain four lithic artifacts. This newly identified site was recommended as potentially eligible for listing on the NRHP under Criterion D for its potential to yield important information regarding the pre-contact use of the region's landscape (Hohman-Caine and Goltz 2006). The Knot Logging Camp was reported to have been affected by recent logging activities and was recommended as not eligible for listing on the NRHP due to its lack of integrity.

Additionally, a deeply worn trail was identified during the 2005 investigation (Hohman-Caine and Goltz 2006). Soils Consulting suggested that the worn trail may represent a section of a historical Native American trail as noted on a map compiled by John W. Trygg from the original GLO surveys (Trygg 1966). There is the potential that this trail could represent a historical Native American trail connecting Lake Vermilion to Beaver Bay. Shovel testing was completed along the potential historical trail; however, no archaeological resources were identified (Hohman-Caine and Goltz 2006).

In 2007, Soils Consulting conducted a Phase I archaeological survey for the NorthMet Project Proposed Action focusing on the Dunka Road Expansion and Substation areas, as well as a Phase II archaeological evaluation of the previously identified NorthMet Archaeological Site (Hohman-Caine and Goltz 2008). The Phase I archaeological survey consisted of a pedestrian reconnaissance survey of areas considered to have potential for containing archaeological sites. No areas were designated as requiring subsurface testing. No archaeological resources were identified during the Phase I archaeological survey of the Dunka Road Expansion and Substation areas (Hohman-Caine and Goltz 2008). The Phase II archaeological evaluation of the NorthMet Archaeological Site consisted of the placement of three shovel tests and four 1-meter by 1-meter excavation units and one ¼-meter by ¼-meter excavation unit. The Phase II investigation rendered three potential lithic artifacts consisting of one possible basalt core, one possible siltstone flake, and one fragment of quartz. No features or concentrations, such as fire-cracked rock or discolored soils, were noted and the site area was documented as having been previously disturbed by a 10-meter-wide road cut. Upon completion of the Phase II archaeological evaluation of the NorthMet Archaeological Site, Soils Consulting found that the site was unlikely to yield additional information important to the understanding of the past. Therefore, Soils Consulting recommended that the NorthMet Archaeological Site be considered not eligible for listing in the NRHP (Hohman-Caine and Goltz 2008). The USACE and SHPO subsequently concurred with this recommendation.

In 2007, Landscape Research LLC (Landscape Research) conducted a Phase I architectural history survey and developed a historic context to evaluate the architectural resources at the

former LTVSMC processing plant that could be affected by the NorthMet Project Proposed Action (Zellie 2007). Through consultation with the USACE and SHPO, it was determined that these were the appropriate steps for evaluating the architectural resources that could be affected. The Phase I architectural history survey identified 17 properties, two of which (the Erie Mining Company Concentrator Building [SL-HLC-008/046] and segments of the Erie Mining Company Railroad mine and track [SL-HLC-015/053]) were recommended eligible for listing in the NRHP. The former LTVSMC processing plant as a whole, however, was not recommended as eligible for listing as an NRHP historic district due to the previous demolition of the pelletizing building. The pelletizing building was a critical component of taconite production and its demolition significantly altered the historic integrity of the plant complex. Landscape Research also recommended that the Erie Mining Company Concentrator Building (SL-HLC-008/046), as well as other key plant buildings and structures, be appropriately recorded prior to their mandated (Rule 6132-1300 E 4 c) post-mining demolition. The SHPO concurred with these recommendations in 2009, but an MOA that includes these properties has yet to be finalized.

In 2014, Landscape Research on behalf of PolyMet examined areas that had been added to the APE based on further air and water quality studies presented in the SDEIS (PolyMet 2014b). The supplemental Phase I architectural survey work was conducted to ensure there were no survey gaps as a result of the change from the original APE to the refined APE published in the SDEIS. The supplemental Phase I architectural survey analyzed 12 properties, three of which (Duluth, Missabe, and Iron Range [DM&IR] Segment [SL-HLC-pending], three segments of the Erie Mining Company Railroad [SL-HLC-015/053], and the Erie Mining Company Administration Building [SL-HLC-pending]) were recommended eligible for listing in the NRHP. The findings of the investigation indicated that potential effects from the NorthMet Project Proposed Action on the three additional segments of the Erie Mining Company Railroad (SL-HLC-015/053) would consist of refurbishment for reuse during operations. At the time of the investigation, the potential effects on the DM&IR Segment (SL-HLC-pending) were not known; however, the reuse of segment portions was thought likely. No potential effects were identified for the Erie Mining Company Administration Building (SL-HLC-pending) as a result of the NorthMet Project Proposed Action.

In 2015, the Co-lead Agencies carried out historical document research and Phase IA desktop survey to further assess a location identified as an “Indian Encampment” on the Trygg Maps (Trygg Land Office-GLO composites Map, Sheet 17, 1966). The Bands expressed concern that the location, which they often referred to as a “rice camp,” might be impacted by the NorthMet Project Proposed Action. The Co-lead Agencies plotted the precise location of the reported site by using the running notes from the 1873 survey of Township 60 North, Range 14 West (USFS, Pers. Comm., January 26, 2015). Based on this analysis, the Co-lead Agencies confirmed that the site was buried during the construction of Erie’s tailings basin. The Phase IA desktop survey, which utilized the 1937 (partial coverage), 1948, and 1961 aerial images, did not identify any standing structures or historic features in the analysis area.

Efforts to Identify Properties of Religious and Cultural Significance

At a consultation meeting in July 2008 to discuss the results of the surveys conducted by Soils Consulting as referenced above, the Bands voiced general concerns about archaeological survey coverage and specific concerns with the Indian trails shown on the Trygg Maps.

The Bands and USACE worked together to develop a plan for the identification of properties of religious and cultural significance (Plan). In April 2010, the USACE consulted with the Bands and PolyMet concerning the implementation of the Plan. The Plan consisted of four components:

1. Interviews to be conducted by the Bands with Band elders to gather information concerning past use of the NorthMet Project area.
2. Baseline ethno-historical research pertaining to Ojibwe use of the APEs would be used in a cultural landscape assessment of the NorthMet Project area and surrounding vicinity. Background research to identify cultural and natural landscape features would include, at a minimum, the original GLO survey notes and maps developed by Trygg, along with other historic maps of the NorthMet Project area and surrounding vicinity, relevant historic documents and literature.
3. Classification of plant communities by the identification of canopy species using aerial infrared photography and the identification of understory, shrub, and herbaceous layers using existing plant lists of specific community types, based on the MDNR's ECS. This also included ground-truthing to determine accuracy for classification and gathering of additional information on AOCs to the Bands.
4. A field survey to locate and assess the cultural and natural features identified as a result of the background research, elder interviews, and plant classification.

The intent of the Plan was to use plant community classification to identify plant resource areas of interest to the Bands and facilitate identification of historic properties. The archival research was to provide historic documentation and context for the historic Native American trail system and possibly identify other places important to the Bands. The elder interviews then would be used to further identify and understand tribal use areas and places of importance. The field investigation component was to be informed by the results of those efforts.

The field review primarily focused on a reconnaissance-level investigation of the trail corridors as mapped by Trygg (1966) and specific trail locations recorded during the Land Office surveys. Reconnaissance of the trail corridors was conducted by the federal Co-lead Agencies with participation from the Bands. Barr participated in a portion of this fieldwork to gather information for completing the classification of plant communities. Barr also continued their effort to gather plant data aside from the trail reconnaissance.

During 2010 and 2011, PolyMet contracted the Bois Forte, Fond du Lac, and Grand Portage to conduct interviews with Band elders. The Fond du Lac and Grand Portage bands have not made the results of the interviews available for use, though the Bois Forte interviews have been considered during this identification process. The Bois Forte interviews did not provide any specific locations, but some general information was provided. Elders recalled that some Band members had utilized the general NorthMet Project area for hunting, fishing, and plant gathering of wild rice, maple-sugar, berries, and birch bark; however, they could not provide specific locations or uses within the NorthMet Project area.

The federal Co-lead Agencies recognize the importance of natural resources such as wild rice beds as both ecological communities and as important traditional cultural resources for the Ojibwe people. However, those resources must meet NRHP criteria to be considered historic properties and receive further consideration under Section 106. The federal Co-lead Agencies

have considered effects on wild rice and other natural resources, as discussed in other resource-specific sections of this FEIS and below in Sections 4.2.9.2.4 and 5.2.9.

The results of the elder interviews, archival research, and plant surveys are discussed in a report titled *NorthMet Project Cultural Landscape Study for PolyMet* (Zellie 2012). The report has been reviewed and coordinated with the USACE, USFS, and Bands. The USFS conducted a historic context study of the Beaver Bay to Lake Vermilion (BBLV) overland trail, which was provided as an appendix to the final report. As a result of the field reconnaissance, archival research, and elder interviews, a number of properties of religious and cultural significance have been identified within the APE. These properties include the Spring Mine Lake Sugarbush, the *Mesabe Widjiu* (Laurentian Divide), the Overlook location, and the BBLV Trail Segment.

4.2.9.2.4 Identified Cultural Resources

Cultural resources investigated within the NorthMet Project area—such as architectural history properties, archaeological sites, and properties of religious and cultural significance to the Bands—are discussed in this subsection. The investigations completed to date in the NorthMet Project area have identified cultural resources as summarized in Table 4.2.9-1.

Table 4.2.9-1 Cultural Resources Identified in the NorthMet Project Area

Resource ID	Resource Name	Resource Type	NRHP Determination by Co-lead Agencies	SHPO Concurrence with Co-lead Agencies' Findings
SL-HLC-002/040	Erie Mining Company Coarse Crusher	Architectural Property	Not Eligible	Concur
SL-HLC-003/041	Erie Mining Company Fine Crusher	Architectural Property	Not Eligible	Concur
SL-HLC-004/042	Erie Mining Company Conveyor and Drive House	Architectural Property	Not Eligible	Concur
SL-HLC-005/043	Erie Mining Company General Shops	Architectural Property	Not Eligible	Concur
SL-HLC-006/044	Erie Mining Company Reservoir	Architectural Property	Not Eligible	Concur
SL-HLC-007/045	Erie Mining Company Water Tower	Architectural Property	Not Eligible	Concur
SL-HLC-008/046	Erie Mining Company Concentrator Building	Architectural Property	Eligible	Concur
SL-HLC-009/047	Erie Mining Company Tailings Thickener Tank	Architectural Property	Not Eligible	Concur
SL-HLC-010/048	Erie Mining Company Pelletizing Building (razed)	Architectural Property	Not Eligible	Concur

Resource ID	Resource Name	Resource Type	NRHP Determination by Co-lead Agencies	SHPO Concurrence with Co-lead Agencies' Findings
SL-HLC-011/049	Erie Mining Company Central Heating Plant	Architectural Property	Not Eligible	Concur
SL-HLC-012/050	Erie Mining Company Fuel Oil Tanks	Architectural Property	Not Eligible	Concur
SL-HLC-013/051	Erie Mining Company Pellet Stockpile and Stacker	Architectural Property	Not Eligible	Concur
SL-HLC-014/052	Erie Mining Company Mine Area No. 2 Shops	Architectural Property	Not Eligible	Concur
SL-HLC-015/053	Erie Mining Company Railroad Mine and Plant Track, Main Line Segment, and Dunka Railroad Segment	Architectural Property	Eligible	Concur
SL-HLC-016/054	Erie Mining Company Tailings Basin	Architectural Property	Not Eligible	Concur
SL-HLC-017/055	Erie Mining Company Mine Area No. 1 Shops	Architectural Property	Not Eligible	Concur
SL-HLC-018/056	Erie Mining Company Concentration Plant Complex	Historic District	Not Eligible	Concur
SL-HLC-pending	DM&IR Segment	Architectural Property	Eligible	Concur
SL-HLC-pending	Erie Mining Company Colby Lake Pumping Station and Pipeline	Architectural Property	Not Eligible	Concur
SL-HLC-pending	Erie Mining Company Administration Building	Architectural Property	Eligible	Concur
SL-HLC-pending	Spring Mine and Stockpiles	Architectural Property	Not Eligible	Concur
SL-HLC-pending	Erie Mining Company Mine Area No. 2	Architectural Property	Not Eligible	Concur
SL-HLC-pending	Erie Mining Company Mine Area No. 3	Architectural Property	Not Eligible	Concur
SL-HLC-pending	Erie Mining Company Mine Area No. 5	Architectural Property	Not Eligible	Concur
SL-HLC-pending	Erie Mining Company Dunka	Architectural Property	Not Eligible	Concur

Resource ID	Resource Name	Resource Type	NRHP Determination by Co-lead Agencies	SHPO Concurrence with Co-lead Agencies' Findings
	Road Segment			
SL-HLC-pending	Erie Mining Company High Voltage Transmission Line Segment	Architectural Property	Not Eligible	Concur
SL-HLC-pending	Reserve Crusher No. 2 (Northshore Mining)	Architectural Property	Not Eligible	Concur
SL-HLC-pending	Erie Mining Company Hoyt Lakes Operation Mining Landscape Historic District	Historic District	Eligible	Concur
21SLpending	Spring Mine Lake Sugarbush	Archaeological Site	Eligible	Concur
SL-HLC-065	*Mesabe Widjiu* (Laurentian Divide)	Cultural Landscape	Eligible	Concur
SL-HLC-pending	Overlook	Natural Feature	Not Eligible	Concur
SL-HLC-069	BBLV Trail Segment[1]	Archaeological Site	Eligible	Concur
21SLpending	NorthMet Archaeological Site	Archaeological Site	Not Eligible	Concur
21SLmn	Knot Logging Camp	Archaeological Site	Not Eligible	Concur

Note:
[1] USFS designation BBLV Trail Segment #1 (USFS #01-569).

Erie Mining Company Concentration Plant Complex

SL-HLC-018/056 consists of the primary Erie Mining Company Concentration Plant buildings, such as the coarse and fine crushers and the concentrator; mine and plant track segments of the Erie Mining Company railroad; a Tailings Basin; pellet stockpile area; and mine areas. Treated as a mining complex or district, the property's integrity is diminished by the loss of the pelletizing plant (SL-HLC-010/048), a central component. Its qualities of association, design, and related aspects of feeling and setting are lost without this key component (Zellie 2007). Although some components of the property may be determined eligible individually, the Erie Mining Company Concentration Plant Complex (SL-HLC-018/056), as a complex/district, was determined not eligible for inclusion in the NRHP.

The Concentrator Building (SL-HLC-008/046) is a key property within the complex and reflects Erie Mining Company's decades of experimentation in production and engineering design (Zellie 2007). The Concentrator Building is recommended as being individually eligible for inclusion in the NRHP under Criterion A in the areas of Industry and Engineering, and also under Criterion C in the area of Engineering. The building retains a good level of historic integrity, including qualities of location, design, setting, materials, workmanship, and feeling.

The quality of association is fair due to the removal of the pelletizer. At the interior, much of the layout and equipment dates to original construction (Zellie 2007).

The Administration Building (SL-HLC-pending) remains a well-preserved component of the original taconite plant design. It is significant under NRHP Criterion A in the areas of Industry and Engineering and is associated with the statewide historic context: *Minnesota's Iron Ore Industry, 1880s-1945*, and also under Criterion C. The period of significance is 1954 to 1969.

The Erie Mining Company railroad (SL-HLC-015/053) is a 74-mile railroad system created solely for the transportation of ore for shipment to Taconite Harbor. The railroad was in operation during the plant's period of significance (1954 to 1969) and directly linked pellet production with shipping facilities. The period of significance spans from the start of railroad construction, circa 1954 to 1957, through 1964, the date of Dunka Railroad construction. Identified segments of the Erie Main Line Railroad and Mine and Plant Track, as well as Dunka Railroad within the APE, are recommended as eligible for inclusion in the NRHP under Criterion A in the areas of Commerce, Industry, and Transportation, and also under Criterion C.

The following structures, all of which are associated with the plant complex, have been determined individually not eligible for inclusion in the NRHP:

- Coarse Crusher (SL-HLC-002/040);
- Fine Crusher (SL-HLC-003/041);
- Conveyor and Drive House (SL-HLC-004/042);
- General Shops (SL-HLC-005/043);
- Reservoir (SL-HLC-006/044);
- Water Tower (SL-HLC-007/045);
- Tailings Thickener Tanks (SL-HLC-009/047);
- Pelletizing Building (SL-HLC-010/048);
- Central Heating Plant (SL-HLC-011/049);
- Fuel Oil Tanks (SL-HLC-012/050);
- Pellet Stockpile and Stacker (SL-HLC-013/051);
- Mine Area No. 2 Shops (SL-HLC-014/052);
- Tailings Basin (SL-HLC-016/054);
- Mine Area No. 1 Shops (SL-HLC-017/055);
- Colby Lake Pumping Station and Pipeline (SL-HLC-pending);
- Mine Area Nos. 2, 3, and 5 (SL-HLC-pending);
- Dunka Road Segment (SL-HLC-pending); and
- High Voltage Transmission Line Segment (SL-HLC-pending).

Erie Mining Company Hoyt Lakes Operation Mining Landscape Historic District

The portion of the Erie Hoyt Lakes operation located within the APE, including the Erie Concentration Plant Complex, retains the necessary elements to contribute to a larger NRHP-eligible Erie Mining Company Hoyt Lakes Operation Mining Landscape Historic District. The APE for the NorthMet Project Proposed Action includes structures, topographic features, small-scale features, vegetation patterns, and patterns of circulation that are associated with incipient taconite production and shipment on Minnesota's Mesabi Range, circa 1954 to 1969. The features within the APE associated with Erie taconite operations are also emblematic of a purposefully modified and developed landscape that retains integrity and is associated with a significant historic event. In addition, these features retain the ability to inform about the post-World War II industrial process of low-grade iron ore extraction and refinement, and the ultimate shipment of finished taconite pellets to Great Lakes steel mills.

Given the dynamic nature of markets and evolving technologies, mining landscapes often contain complex arrangements of features that may date to several distinct mining periods. The scope of this evaluation is the portion of the Erie Hoyt Lakes taconite operations located within the APE for the NorthMet Project Proposed Action that are associated with the period of significance from 1954 to 1969. This includes a subsidiary rail system serving the Mine Site and Plant Site, as well as a segment of the Erie main line (Dunka segment), the Concentration Plant Complex, expansive mine pits and stock piles representative of large-scale taconite extraction, and many other still extant buildings, structures, and objects associated with power generation, water supply, maintenance, administration, traffic control for both rail and vehicle, and security, all of which are associated with the industrial process of taconite production on the Mesaba Range from the period of 1954 to 1969.

The overall Erie Hoyt Lakes taconite operation conveys significance through the components (Hoyt Lakes, concentration Plant Site/Mine Site, railroad system, and Taconite Harbor shipping facility) that represent implementation of the comprehensive planning effort for one of the largest mining operations of its time. The loss of the pelletizer does not compromise the overall integrity of the larger property. The portion of the Erie Mining Company within the APE retains a high degree of integrity and an ability to convey significance through the composite effects of location, design, setting, materials, workmanship, feeling, and association and contributes to a potentially larger Erie Mining Company Mining Landscape Historic District. The identified landscape components, transportation features, and structures associated with the 1954 to 1969 period of significance contribute to the Erie Mining Company Landscape Historic District and are eligible to the NRHP under Criterion A at a state level for their association with Mining Development on the Mesaba Iron Range, as well as under Criterion C.

With respect to the integrity of the contributing historic properties identified in Erie Mining Company Landscape Historic District, the structures and features associated with Erie operations during the period of significance retain integrity of location, association, setting, workmanship, feeling, and materials and individually contribute to an historic mining landscape. Several structures, features, and transportation corridors associated with post-1969 taconite development that have been identified within the NorthMet APE do not, however, contribute to this historic landscape and are not considered as contributing elements for the purposes of this review. The monumental scale of the concentrator building, the considerable number of buildings remaining at the concentration Plant Site, and the mine pits, transportation infrastructure, stockpiles, and Tailings Basin that define the landscape convey the significance of the Erie Mining Company

taconite operation from the 1954 to 1969 period of significance. The numerous other buildings and objects associated with the Erie Mining Company within the APE, including the railroad system that defines circulation patterns and provides a linkage between many of these resources, also contribute.

Table 4.2.9-2 provides a list of historic resources from the investigations completed to date that are contributing/non-contributing components of the larger Erie Mining Company Landscape Historic District.

Table 4.2.9-2 Historic Resources Associated with the Erie Mining Company Historic District

Resource ID	Resource Name	Individual Eligibility	Landscape District
SL-HLC-002/040	Erie Mining Company Coarse Crusher	Not Eligible	Contributing
SL-HLC-003/041	Erie Mining Company Fine Crusher	Not Eligible	Contributing
SL-HLC-004/042	Erie Mining Company Conveyor and Drive House	Not Eligible	Contributing
SL-HLC-005/043	Erie Mining Company General Shops	Not Eligible	Contributing
SL-HLC-006/044	Erie Mining Company Reservoir	Not Eligible	Contributing
SL-HLC-007/045	Erie Mining Company Water Tower	Not Eligible	Contributing
SL-HLC-008/046	Erie Mining Company Concentrator Building	Eligible	Contributing
SL-HLC-009/047	Erie Mining Company Tailings Thickener Tanks	Not Eligible	Contributing
SL-HLC-010/048	Erie Mining Company Pelletizing Building (razed)	Demolished	N/A
SL-HLC-011/049	Erie Mining Company Central Heating Plant	Not Eligible	Contributing
SL-HLC-012/050	Erie Mining Company Fuel Oil Tanks	Not Eligible	Contributing
SL-HLC-013/051	Erie Mining Company Pellet Stockpile and Stacker	Not Eligible	Contributing
SL-HLC-014/052	Erie Mining Company Mine Area No. 2 Shops	Not Eligible	Contributing
SL-HLC-015/053	Erie Mining Company Railroad Mine and Plant Track, Main Line Segment, and Dunka Railroad Segment	Eligible	Contributing
SL-HLC-016/054	Erie Mining Company Tailings Basin	Not Eligible	Contributing
SL-HLC-017/055	Erie Mining Company Mine Area No. 1 Shops	Not Eligible	Contributing
SL-HLC-018/056	Erie Mining Company Concentration Plant Complex	Not Eligible	Contributing

Resource ID	Resource Name	Individual Eligibility	Landscape District
SL-HLC-pending	Erie Mining Company Colby Lake Pumping Station and Pipeline	Not Eligible	Contributing
SL-HLC-pending	Erie Mining Company Administration Building	Eligible	Contributing
SL-HLC-pending	Spring Mine and Stockpiles	Not Eligible	Non-Contributing
SL-HLC-pending	Erie Mining Company Mine Area No. 2	Not Eligible	Contributing
SL-HLC-pending	Erie Mining Company Mine Area No. 3	Not Eligible	Non-Contributing
SL-HLC-pending	Erie Mining Company Mine Area No. 5	Not Eligible	Non-Contributing
SL-HLC-pending	Erie Mining Company Dunka Road Segment	Not Eligible	Non-Contributing
SL-HLC-pending	Erie Mining Company High Voltage Transmission Line Segment	Not Eligible	Contributing

Duluth, Missabe, and Iron Range Segment

This approximately 3.5-mile-long DM&IR (previously D&IR and now CN) segment within the NorthMet Project Proposed Action APE is a portion of the former 97-mile-long**,** primarily single-track roadbed constructed in 1884 between Two Harbors and the Soudan Mine east of Tower, Minnesota. The evaluated DM&IR segment predates the Erie Mining Company Plant at Hoyt Lakes (1957) by more than 80 years. The D&IR (and its successor line, the DM&IR) was built as a shipping line for the Vermilion iron range to the northeast. Beginning in the early 1950s, it also provided Erie and its successor, LTVSMC, with construction and mining supplies and raw materials used in the Erie plant. The approximately 3.5-mile-long DM&IR segment is significant under NRHP Criterion A for its association with the development of Vermilion iron range mining and lumber industries and the development of Tower, Soudan, and Ely from 1884 to 1964. The segment retains integrity of location, design, and, in some places, integrity of materials.

Spring Mine and Stockpiles

The Spring Mine is located northeast of the Erie Mining Company Plant Site. The Spring Mine is a natural ore mine. It was opened as an underground mine in 1906, possibly by the Kingston Mining Company, and it produced a soft, gray Bessemer hematite. This small, open pit natural ore mine and its stockpiles appear to be typical of those on the Mesabi Iron Range and do not represent advancements in mining technology. This mine does not appear to possess significance as an important example of an early 20th-century natural ore mine under Criterion A in the area of Industry and Engineering. The mine is not known to be associated with persons significant in local, state, or national history and is not significant under Criterion B. It is not significant under Criterion C in the area of Engineering. It has not yielded, nor is it likely to yield, information important in prehistory or history and is significant under Criterion D. Therefore, the Co-lead Agencies have determined that the Spring Mine and stockpiles are ineligible for the NRHP.

Reserve Mining Company's Crusher #2

Reserve Mine, originally known as Peter Mitchell Mine, is currently operated by the Northshore Mining Company, which actively mines taconite adjacent to the proposed NorthMet Mine Site. In relation to the APE, a waste rock stockpile from the Mine Site is within the viewshed of the adjacent Northshore Mine associated with Reserve Mining Company activities circa 1956 to 1965. Crusher #2, built by Reserve Mining Company in 1963, appears to have served in a supplemental role to Reserve Mining Company's primary crusher (Crusher #1) constructed in 1956. The structure is not significant under Criterion A in the areas of Industry and Engineering. The federal Co-lead Agencies have determined that the structure does not possess significance under Criterion B, C, or D. Therefore, the agencies have determined that Crusher #2 is ineligible for the NRHP. The Co-lead Agencies have determined that the inventory conducted in the visual effects APE is adequate and commensurate with the anticipated effects.

Spring Mine Lake Sugarbush Site

Although not located within the Plant Site, the Spring Mine Lake Sugarbush Site (SL-HLC-pending) is located within the APE to the west of the Mine Site. Field investigations as early as 1969 (Loftus 1977) had identified a "Late Historic Period Chippewa Sugar Maple Camp," south of the intersection of the BBLV Trail Segment and east of the New Indian Trail (Trygg 1966). This sloping, approximately 80-acre site appears to be a natural maple-basswood stand of cultural use and significance. The site was reported to have a structure in the interior of a maple grove that was constructed of pine logs secured with round iron nails. Stockpiled birchbark baskets and basswood wedges[sic] or paddles and "various other containers" were interspersed with metal pots and pans within the structure, (Loftus 1977:73). The report concluded that the site was culturally significant because it allowed "for a comparison of Late Historic Chippewa sugaring practices with those of the Early Historic Period." Recent visits to the site by USACE staff and Band members identified it as a large multi-component site with evidence of maple sugaring activity from a range of time periods. Various types of historic artifacts and features demonstrated the continued use of the site into the middle part of the 20th century. The stand itself contains trees that may be up to 200 years old, according to the Erie Mining Company forester (Loftus 1977). During the 2010 survey, many large maple trees were observed that exhibited scaring from repeated tapping. The trunks on these trees were flattened at about 4 to 8 ft above the ground, with visible interior decay on many trees that was most likely the result of the long-term effect of repeated tapping for sap collection. Also, the site has more than 75 percent sugar maple, less than 5 percent basswood, and less than 1 percent yellow birch. This community type in its natural state would have about 35 percent sugar maple, 10 to 25 percent basswood, and some yellow birch (Zellie 2012). The traditional practice of sugaring includes an emphasis on the use of basswood for paddles and troughs.

The Spring Mine Lake Sugarbush Site possesses good historic integrity, notably an integral relationship to traditional cultural practices or beliefs, and retains artifactual evidence of prior use as a sugarbush. Based on the site's tie to recent oral histories by Ojibwe elders, its location near the BBLV and New Indian trails mapped by Trygg (1966), photographic evidence of use by Ojibwe families as early as 1941 (Latady and Isham 2011), and its potential role as part of a once-extensive system of sugarbush locations in St. Louis County, the Spring Mine Lake Sugarbush is determined eligible for inclusion in the NRHP under Criterion A. It functioned as a place for sharing and maintaining traditional Ojibwe knowledge of and spiritual connections to

the world, which were fundamental to the cultural identity of the Bois Forte Band. Under Criterion D, the site is significant for its potential to answer important questions about possible 19th and 20th century Ojibwe maple sugaring practices.

The Partridge River Section of Mesabe Widjiu

Mesabe Widjiu, or the Laurentian Divide (SL-HLC-pending), is regarded as a sacred place to the Bands, possessing cultural significance for the Ojibwe. Often referred to by various names, such as the Giant's Range or Mesabi Heights, the *Mesabe Widjiu* is a long linear landform running the length of the Mesabi Iron Range and into the area of Thunder Bay, Ontario. Figure 4.2.9-9 depicts the location of the *Mesabe Widjiu*. It should be noted that the depiction of the culturally significant landform from the eastern end of the Iron Range to Thunder Bay is only a representation based on topographic features and was not informed by historical and/or ethnographic information. This portion of the Mesabi Range and Laurentian Divide, parts of which intersect the Plant Site, occupies the crest of a line of low, rugged, Precambrian rock hills where the divide separates the watershed of streams that flow north to the Arctic Ocean from the watershed of streams that flow south through the Great Lakes to the Atlantic Ocean (Ojakangas and Matsch 1982). Based on the elder interviews, the *Mesabe Widjiu* is part of the Band's oral history and cosmology explaining the origin of the hills and the separation of waters along the divide. The *Mesabe Widjiu* is also the path that the Thunderbirds follow. The various granite-capped outcrops and ledges are used for traditional practices because of the *Widjiu*'s spiritual significance. Despite distant views of mining features to the east that include the skyline of the Erie Mining Company plant, the *Mesabe Widjiu* viewshed possesses good historic integrity, notably an integral relationship to traditional cultural practices or beliefs. *Mesabe Widjiu* is determined eligible for inclusion in the NRHP under Criterion A for its association with important Ojibwe spiritual and cultural practices.

In connection with *Mesabe Widjiu*, a granite bedrock outcrop (SL-HLC-pending) providing an east-facing Overlook is located at the site of the proposed Tailings Basin within the Plant Site. Recent visits to the Overlook by USACE staff and Band members identified the presence of oak trees and a number of potentially important natural features, including a spring. In addition, the Overlook is situated at the junction of two trails identified on Trygg maps. However, the location of the trails is not corroborated by the GLO land survey notebooks from that township.

Band elders have noted the cultural significance of both oak trees and east-facing overlooks in the Ojibwe tradition. An outcrop such as this might have been used by Ojibwe for spiritual reasons. Because there is no confirmed use of this location, the Overlook is determined not individually eligible for inclusion in the NRHP, but included as part of the *Mesabe Widjiu*.

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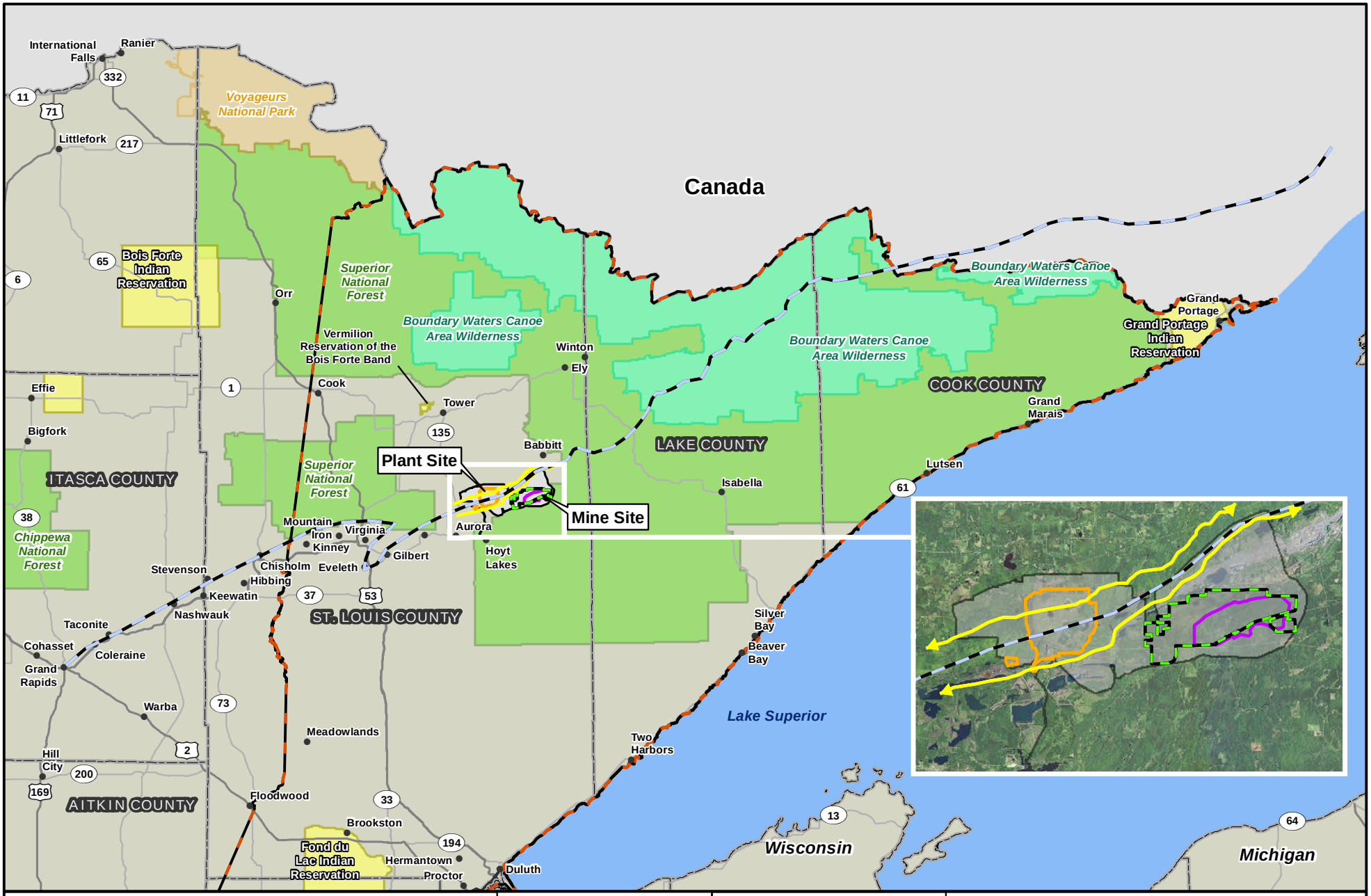

Mine Site
Plant Site
Federal Lands
Approximate Site Boundary of Mesabe Widjiu, Partridge River Section
Mesabe Widjiu, Preliminary Full Extent *
Cultural Resources Area of Potential Effect
1854 Ceded Territory
Native American Reservation
National Park
Boundary Waters Canoe Area Wilderness
National Forest
City/Town

* Preliminary depiction of full extent based on topographic analysis and not cultural/historical information.

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

0 5 10 20 30 Miles

Figure 4.2.9-9
Cultural Resources Analysis - Mesabe Widjiu
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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The Partridge River Segment of the Beaver Bay to Lake Vermilion Trail

Overland trail systems, such as the 75-mile-long BBLV Trail Segment, were frequently referenced during late 19th century GLO surveys in the western Superior Basin (Trygg 1966). Despite mention in the historic record, the trails themselves, and the role they played as transportation systems prior to development of railroad transportation in the region, are underrepresented in the literature. The available literature would suggest, however, that overland trails played a prominent role within a regional transportation system that included interior waterways, short-haul portages, and overland portages leading from Lake Superior to points inland. While the vast majority of the transportation networks in the Western Superior Basin are recognized as routes that maximized waterborne transportation, the BBLV Trail Segment represents one of the few overland trail corridors where lakes and rivers appear to have been minimally utilized. Within this context, it would appear that the route functioned as a winter transportation corridor, or perhaps an expedient summer route from the Lake Superior Watershed into Lake Vermilion. Support for the BBLV Trail Segment's function as a winter route comes from several sources, both primary and anecdotal in nature. Christian Wieland, who conducted the GLO survey of T59N, R13W in the winter of 1872 noted crossing the "Trail from Beaver Bay to Lake Vermilion" at three locations while conducting the survey (GLO 1873).

Historic records also suggest that overland trails were utilized by both local Ojibwe and mineral prospectors from at least the mid-19th century through the early 20th century (Skillings 1972; Lancaster 2009). Historic overland trails are best viewed as a component of an interrelated transportation system where trails and water routes interconnect to form a large and intricate system of communication and transportation (Burns 1985). The southeastern head of the overland trail is situated at Beaver Bay, which had a significant Ojibwe population from at least 1854 to 1930 (Davis 1968; Skillings 1972; Lancaster 2009). Beaver Bay provided access from a mid-point on Lake Superior, located about halfway between Grand Portage and Fond du Lac, the two primary, historic ingress points to the interior portions of Northeastern Minnesota.

The significance of the BBLV Trail Segment to the Ojibwe of Northeastern Minnesota is perhaps more nuanced than the significance ascribed by archaeologists, whose focus remains on attaching significance to physical manifestations of historic events. Consultation with the Bands elicited the importance of both how the trails connected past Ojibwe community in a physical sense and the ability for trails to also connect communities in a contemporary sense. Statements of significance were predicated on the fact that in the 19th century, Ojibwe residence in the newly ceded territory was highly mobile, and families enrolled at locations at which they happened to be when the rolls were being populated. "In a sense, Ojibwe from scattered locations throughout the ceded territory may have enrolled at a location that was far away from their place of primary residence … at the time, social organization was very fluid, and marriages, disagreements, and the opportunities for wage labor caused folks to move around a lot." There is a general agreement among tribal consultation partners that the trails, or in the case of some, the trail corridors themselves, function as "physical manifestations of the social fluidity that existed among northeastern Minnesota's Ojibwe communities at that time." Consulting partners stated that the trails are "like a lifeline that permeates all aspects of history. That the overland trails are something entirely different than functional trails that are present today, trails that some would refer to as coming and going trails, in that you use them for a purpose and then you return home. The Beaver Bay to Lake Vermilion Trail is viewed as something different … it is viewed as a

trail that connects you to who you are, in that they are important signature of cultural identity and reconnection to past ways" (THPO, Pers. Comm., August 14, 2012).

A trail remnant, approximately 75 meters long and 10 to 14 inches wide, was identified in the Mine Site area, and a boulder-sized glacial erratic topped by a smaller rock was identified by the Bands as a potential trail marker. Based on the Trygg map, the 1873 GLO survey notes, and the results of the archaeological surveys described above, these two features have been identified as defining a segment of the BBLV Trail. Although interrupted by Euro-American agriculture, logging, and mining, as well as road and townsite development, the trails remain an important cultural and spiritual connection for the Bands. Recent oral histories by Band elders substantiate this significance. This segment is potentially part of a once-extensive system of overland trails that were in use during hundreds of years of Ojibwe occupation. Therefore, the BBLV Trail Segment is significant for the role it played in the broad patterns of Ojibwe land use and early mineral exploration. It is eligible for inclusion in the NRHP under Criterion A.

NorthMet Archaeological Site

The NorthMet Archaeological Site (21SL pending) is located at the Mine Site. The site was identified through subsurface testing and consisted of pre-contact lithic artifacts. Due to the sparse nature of the artifacts and lack of features, it was determined that the site was unlikely to yield any further information significant to the understanding of past cultural history, and therefore was determined to be not eligible under Criterion D. As a result, the site was determined to be not eligible for inclusion in the NRHP.

Knot Logging Camp

The Knot Logging Camp (21SLmn) is located outside the NorthMet Project area, although within the APE of the NorthMet Project Proposed Action. The historic site was originally identified by USFS staff through historic aerial photography analysis. Field investigations at the site identified pit features and historic debris typical of a logging camp, including stove parts, cans, and other metal materials. The site had been reported to be severely affected by recent and historic logging activities. No obvious remnants of previously identified berms were evident. Historic research failed to uncover anything regarding the individual camp itself other than its affiliation with a brief period in the logging industry in northeastern Minnesota. Thus, the site was determined to be not eligible under Criterion A. Due to the sparse nature of the artifacts and lack of significant features, it was determined that the site was unlikely to yield any further information significant to the understanding of past cultural history, and therefore was determined to be not eligible under Criterion D.

Summary of Results Coordination

The USACE has coordinated the results of the archaeological surveys discussed above with the SHPO (USACE 2007; USACE 2009; SHPO 2007; USFS and USACE 2014a, 2014b, 2015) and, based on strategic sampling of the NorthMet Project area, the SHPO and USACE concurred that no further efforts were required to identify archaeological resources within the APE. However, the Bands had concerns about the survey coverage (see section above for additional detail).

Through consultation with the USACE and SHPO, it was determined that Phase I architectural history surveys, coupled with the development of a historic context, were appropriate steps for evaluating the architectural resources that may be affected by the NorthMet Project Proposed

Action. The initial Phase I architectural history survey identified two properties that were recommended eligible for listing in the NRHP: the Erie Mining Company Concentrator Building (SL-HLC-008/046) and segments of the Erie Mining Company Railroad mine and track (SL-HLC-015/053). Within the refined APE, additional sections of the Erie Mining Company Railroad Mine and Plant Track, Main Line Segment, and Dunka Railroad Segment were identified. The federal Co-lead Agencies consulted with SHPO concerning properties identified as part of additional Phase I architectural history survey. The federal Co-lead Agencies have determined four properties eligible for listing in the NRHP: the Erie Mining Company Administration Building (SL-HLC-pending), Erie Mining Company Landscape Historic District (SL-HLC-pending), Erie Mining Company Railroad Corridor Historic District (SL-HLC-pending), and DM&IR Segment (SL-HLC-pending).

The federal Co-lead Agencies have consulted with the Bands and the SHPO concerning the results of identification efforts for properties of religious and cultural significance to the Bands. Consultation focused on applying NRHP criteria to the properties identified, discussion of property boundaries for those meeting the criteria, as well as discussions to further understand the traditional religious and cultural significance of those properties. As a result, the Spring Mine Lake Sugarbush, the BBLV Trail Segment, and *Mesabe Widjiu* were determined eligible. The Overlook location was not considered by the Co-lead Agencies to be eligible in itself, but eligible as part of the *Mesabe Widjiu*.

At various times during consultation for the NorthMet Project Proposed Action, the Bands have proposed a historic district that includes the above properties as well as others that have been reported outside of the APEs. The historic district, proposed by the Grand Portage Band in a June 27, 2013 letter, and supported by consulting parties representing Bois Forte and Fond du Lac Bands, consists of an approximately 216,000-acre area, which extends from Lake Vermilion south to Duluth by way of the St. Louis River. The Co-lead Agencies, at this time, have determined that additional identification and evaluation efforts within this area would be outside of the scope of the NorthMet Project Proposed Action.

To summarize, the federal Co-lead Agencies have followed the initiation and identification processes outlined in 36 CFR 800.3 and 36 CFR 800.4, respectively, and have included consulting parties in the finding and determination process completed to date. Multiple historic property identification efforts have occurred over a 15-year period within the proposed NorthMet Project area. These identification efforts have included both standard field inventory and assessment and identification of properties of cultural and religious significance to consulting Bands.

4.2.9.3 Cultural Identity: Natural Resources as Cultural Resources

For most Native American tribes, subsistence is synonymous with culture and identity. Subsistence activities generally constitute a way of being and relating to the world, and thus comprise an essential component of Native American identity and culture. Because Native Americans consider subsistence activities such as obtaining, processing, and distributing natural resources as essential components of maintaining their cultural customs and traditions, one cannot be distinguished from the other. Therefore, Native Americans generally consider an effect on subsistence resources and/or the ability to hunt, fish, or gather these resources as an effect on associated and perhaps fundamental aspects of cultures and traditions.

The spiritual connection to natural resources, and the manner in which these resources are harvested, is an essential part of Ojibwe culture. Potential effects on subsistence resources or resources harvested for traditional purposes could therefore impact the culture and tradition of the Ojibwe. For instance, subsistence practices in a particular area could be affected by a loss of hunting, fishing, or gathering opportunities, thereby affecting the traditional or cultural practice that takes place in that area. Effects on natural resources in areas where traditions are practiced may have an effect on the ability of individuals or families to pass those traditional practices, knowledge, and beliefs to future generations. The identity of Ojibwe as a people is dependent on the transmission of that knowledge and belief system to the next generation.

4.2.9.3.1 Federal Tribal Trust Responsibility

The federal government has a unique legal relationship with the federally recognized Native American tribes, which has been set forth in the U.S. Constitution, treaties, statutes, court decisions, and EOs. This legal relationship is often referred to as the "Federal Trust Doctrine" or "Federal Tribal Trust Responsibility," which is a body of law defining the relationship of federal government with federally recognized Native American tribes.

Beginning in the mid-19th century, the government of the United States made treaties with the Ojibwe that ceded areas of land in northern Minnesota to the federal government. In return, specific reservations were created for the tribes' use and other considerations specified. The treaties also preserved the right of the Ojibwe bands to hunt, fish, and gather off the reservations within these ceded territories. The federal trust responsibility requires that federal agencies consider their actions with respect to tribal rights, particularly reserve rights, where they exist.

In 1854, the Chippewa of Lake Superior entered into a treaty (1854 Treaty of La Pointe or 1854 Treaty; Kappler 1904) with the United States whereby the Chippewa ceded to the United States ownership of their lands in northeastern Minnesota. These lands are generally known as the 1854 Ceded Territory. Article 11 of the 1854 Treaty provides, *"...and such of them as reside in the territory hereby ceded, shall have the right to hunt and fish therein, until otherwise ordered by the President."* The Chippewa of Lake Superior who reside in the 1854 Ceded Territory are the Fond du Lac, Grand Portage, and Bois Forte Bands. The NorthMet Project area is within the 1854 Ceded Territory, and thus federal agencies must consult on a government-to-government basis with interested signatories to the 1854 Treaty to understand how the proposed federal actions may impinge on or abrogate treaty rights.

Natural resources and the lands on which they are gathered are important to the Bands for a number of reasons, including cultural, spiritual, and/or historical meanings, and will be considered under federal agency tribal trust responsibilities as outlined above and also as cultural resources under NEPA.

4.2.9.3.2 Perspectives on the Environment

This FEIS uses different criteria and methods to describe how the NorthMet Project Proposed Action would affect the environment. These systems are used to identify, describe, and map progressively smaller areas of land with increasingly uniform ecological features. The systems primarily use associations of biotic and environmental factors, including climate, geology, topography, soils, hydrology, and vegetation.

The integration of ecosystems models with greater emphasis on the relationship of people to the land has become popular with Tribal natural resource and landscape planning. The integration of Native American traditional values regarding the natural world as a whole landscape system encompasses physical aspects of the land along with values such as cultural relationships and spirituality.

The wildlife and vegetation sections describe the natural environment by using the MDNR's ECS, which follows the NHFEU. The NorthMet Project area is within the Laurentian Mixed Forest province, covering northern Minnesota, Wisconsin, and Michigan, as well as southern Ontario and portions of New England. More specifically, the NorthMet Project area is located along the border of the Laurentian Uplands and Nashwauk Uplands subsections.

The Laurentian Uplands and Nashwauk Uplands subsections are characterized by till plains, moraines, peatlands, and flat outwash plains (MDNR 2011g; MDNR 2011i). The Continental Divide separates the Nashwauk Uplands subsection, with waters flowing north to Hudson Bay, west to the Mississippi River, or south to Lake Superior. Land cover within these subsections is described in Table 4.2.9-3 below.

Table 4.2.9-3 Laurentian Uplands and Nashwauk Uplands Subsections

Subsection/Land Cover	Total Acres	Percent of Total Area in Subsection
Nashwauk Uplands	810,028	
Aquatic Environments	283,510	35
Disturbed	40,501	5
Forest	437,415	54
Cropland/Grassland	48,602	6
Laurentian Uplands	567,280	
Aquatic Environments	113,456	20
Disturbed	5,673	1
Forest	448,151	79
Cropland/Grassland	0	0

Sources: MDNR 2011g; MDNR 2011i.

Both subsections are dominated by forest habitat (e.g., upland and lowland deciduous and coniferous forests) and aquatic environments (e.g., open water, wetlands), with a smaller amount of disturbed and cropland/grassland. 1854 Treaty resources—including vegetation, wildlife, and fish— are discussed below within the context of these land cover types.

4.2.9.3.3 1854 Treaty Resources

Another perspective on natural resources of cultural importance can be viewed through the relationship of the federal government with the Bands. The Land Exchange Proposed Action represents an exchange of private and federal land, but it is also represents an exchange of access to natural resources expressed in treaties made between the United States and Bands of Ojibwe Indians in the 19th century. The 1854 Treaty was signed by Henry C. Gilbert and David B. Herriman for the United States and representatives of the Lake Superior Chippewa on September 30, 1854, and proclaimed on January 29, 1855. The 1854 Treaty ceded all of the Lake Superior Chippewa lands in the Arrowhead Region of Northeastern Minnesota to the United States, in exchange for reservations for the Lake Superior Chippewa in Wisconsin, Michigan, and Minnesota. The signatory tribes retain hunting, fishing, and gathering rights within this region.

The rights to capture or gather (or take) subsistence resources within the 1854 Ceded Territory are provided to the Bands on a usufruct basis. The concept of individuals not owning specific land, but using the resources on land controlled by larger cultural groups, represented this usufruct basis that was implicit to the survival of the Ojibwe everywhere in Minnesota prior to arrival of Europeans. As a usufructuary created by the 1854 Treaty, the Bands are allowed to use resources from land owned by others. The NorthMet Project area and Land Exchange area fall within the territory ceded as part of the 1854 Treaty between the U.S. government and the Chippewa of Lake Superior. Rights for hunting and fishing under the 1854 Treaty are exercised on lands within this territory. It is therefore important to address what these resources are and what cultural importance they have to the Bands.

Interpretations of the 1854 Treaty resources range from an emphasis on hunting and fishing to efforts by the courts to determine Ojibwe land use prior to the treaties that lists virtually every resource in the 1854 Ceded Territory that was utilized by the Ojibwe (Lac Courte Oreilles III, 653 F. Supp. 1420, 1424). While this provided an extensive list of possible resources, the emphasis on certain natural resources such as wild rice, moose, white-tailed deer, rabbit, maple sugar, certain fish and aquatic species, and certain well-known medicinal plants heightens their level of cultural importance. Table 4.2.9-4 shows other animal and plant species that have historically been, and/or could potentially be, harvested in the 1854 Ceded Territory.

Table 4.2.9-4 Species Potentially Harvested in 1854 Ceded Territory

Mammal/Reptile					
white-tailed deer	beaver	snowshoe hare	moose	otter	elk
black bear	marten	cottontail rabbit	woodchuck	lynx	bison
muskrat	mink	badger	squirrel	fox	turtles
	fisher	porcupine	raccoon	wolf	turtle eggs
Bird					
ducks	songbirds	turkeys	eagles	owls	partridges
geese	grouse (various)	hawks			
Fish					
whitefish	chubs	turbot	walleye	sturgeon	perch
herring	lake trout	in-shore suckers	pike	muskie	
Plant/Plant Materials					
adder's mouth	choke cherry	ground pine	mountain holly	shield fern	Virginia
agrimony	climbing bitter-	harebell	mountain maple	shin leaf	waterleaf
alternate-leaved	sweet	hare's tail	mullein	shining willow	white campion
dogwood	cocklebur	hawthorn	musquash root	slender ladies’	white lettuce
American dog	common	hazelnut	nannyberry	tresses	white oak
violet	burdock	heal-all	navy bean	slippery elm	white pine
arbor vitae	common	heart-leaved	northern	small bedstraw	white sage
(white cedar)	milkweed	umbrella-wort	clintonia	small cleaver	white spruce
arum-leaved	common	hemlock	Norway pine	small Solomon's	white sweet
arrow-head	plantain	highbush	Ojibwe potato	seal	clover
balsam fir	common thistle	blackberry	Ojibwe squash	smooth	wild balsam-
balsam poplar	corn	highbush	ox-eye daisy	gooseberry	apple
basswood	cow parsnip	cranberry	panicled	smooth	wild bergamot
beaked hazelnut	cow wheat	hog peanut	dogwood	juneberry	wild black
beech	crack willow	hop	paper birch	smooth rose	currant
black ash	cranberry	horseweed	pearly	smooth sumac	wild cherry
black oak	cranberry pole	hound's tongue	everlasting	snowberry	wild columbine
black snakeroot	bean	Indian cup plant	Philadelphia	speckled alder	wild geranium

black spruce	creamy vetchling	Indian turnip	fleabane	speckled elder	wild ginger
black-eyed Susan	cucumber	jack pine	pin cherry	sphagnum moss	wild leek
bloodroot	curled dock	Joe-Pye weed	pitcher-plant	spotted touch-me-not	wild mint
blue cohosh	cursed crowfoot	Labrador tea	poison ivy	spreading dog-bane	wild onion
blue flag	daisy fleabane	large-flowered bellwort	prickly ash	squash	wild parsnip
blueberry	dandelion	large pie pumpkin	prickly gooseberry	stag-horn sumac	wild plum
bluewood aster	downy arrowwood	large-toothed aspen	prince's pine	starflower	wild red currant
bog rosemary	Dudley’s rush	large toothwort	purple meadow rue	star-flowered Solomon’s seal	wild rice
bog willow	entire-leaved groundsel	large-leaved aster	quaking aspen	steeple bush	wild sarsaparilla
box elder	esser cat's foot	large-leaved aven	rattlesnake grass	sugar maple	wild strawberry
brake	evening primrose	leather leaf	red ash	swamp persicaria	winterberry
bristly crowfoot	false spikenard	lichens	red baneberry	sweet cicely	wintergreen
bunch berry	female fern	lima bean	red elderberry	sweet fern	wood betony
bur oak	field horsetail	low birch	red haw apple	sweet flag	wood horsetail
bush honeysuckle	flowering spurge	Lyall’s nettle	red maple	sweet gale	wood nettle
butternut	fragrant goldenrod	marsh bellflower	red oak	sweet grass	wool grass
Canada anemone	fragrant golden-rod	marsh cress	red raspberry	sweet white water lily	woolly yarrow
Canada hawkweed	giant puffball	marsh five-finger	rein orchis	tall blue lettuce	yarrow
Canada mayflower	ginseng	marsh marigold	reindeer moss	tamarack	yellow birch
Canada moonseed	golden corydalis	marsh skullcap	river-bank grape	tansy	yellow ladies’ slipper
Canada thistle	golden ragwort	marsh vetchling	rough cinquefoil	tansy-mustard	yellow lotus
Canada violet	goldthread	meadow-sweet	sand cherry	thimble-weed	yellow water lily
Carey’s persicaria	goose grass	moosewood	scouring rush	tower mustard	
carrion flower	gourds		sensitive fern	twisted stalk	
catnip	great bulrush		sessile-leaved bellwort	Virginia creeper	
cat-tail	great willow-herb		shell bark hickory	Virginia grape fern	

Source: FEIS Appendix C.

The 1854 Treaty resources can be more accurately characterized by examining how they are being currently regulated by the Bands. Governance of hunting, fishing, trapping, management, and gathering of natural resources by the Fond du Lac Band of Lake Superior Chippewa within the 1854 Ceded Territory is demonstrated in the Fond du Lac Ceded Territory Conservation Code (Fond du Lac 1992). The purpose of the Code is to provide a system for tribal control and regulation of hunting, fishing, and gathering within the Ceded Territory, provide a means to promote public health and safety through the conservation and management of natural resources within the Ceded Territory, and to promote and protect the rights of the Fond du Lac retained under the 1854 Treaty.

The 1854 Treaty Authority is an Inter-tribal Natural Resources Management Organization that manages the off-reservation hunting, fishing, and gathering rights of the Grand Portage and Bois Forte Bands of Lake Superior Chippewa in the territory under legal agreement with the State of Minnesota. The 1854 Treaty Authority’s mission statement is to “provide an Inter-Tribal natural resource program to ensure that the rights secured to member Native American tribes by treaties of the United States to hunt, fish, and gather within the 1854 Ceded Territory shall be protected, preserved and enhanced for the benefit of present and future member Native American tribes in a

manner consistent with the character of such rights, through provisions of services." The 1854 Treaty Authority's management of natural resources generally focuses on some of the most commonly hunted, fished, or gathered natural resources; therefore, an analysis of subsistence use by the Bands cannot be all-encompassing. The 1854 Treaty Authority and the natural resources which they manage and regularly report on are being used merely as a way to better quantify an analysis of potential natural resource use by the Bands within the NorthMet Project area.

As discussed above, Fond du Lac has its own regulations applicable to the 1854 Ceded Territory. The discussion of 1854 Treaty Authority-regulated species or resources presented in the sections below is not inclusive of all species important to the Bands. Instead, the lists serve as the most updated and best available data for the most common game species or tribally harvested resources within the 1854 Ceded Territory.

Vegetation

The 1854 Treaty Authority developed a Code for Treaty Gathering (2007) to facilitate Treaty-related gathering of wild plants or forest products on lands and waters open to the public within the 1854 Ceded Territory (see Table 4.2.9-5). The gathering activities conducted under this code are for subsistence use only. Subsistence levels are identified for each resource, and any gathering beyond those levels is considered commercial harvesting. Band members may gather other plant species not listed in the table below, but may not gather threatened or endangered species. If the state, county, or federal government prohibits gathering in a forest campground, wildlife management area, SNA, State of Minnesota-designated old growth stand, state park, wayside, beach, water access, plantation, or other specially designated area such as the BWCAW, then gathering by Band members is also prohibited (1854 Treaty Authority 2007).

Plant species or resources discussed in this code were grouped according to their habitat or cover types, and presented along with the area (in acres) of each habitat type located in the NorthMet Project area (see Table 4.2.9-5 and Section 4.2.4). This provides an estimate of how much of each 1854 Treaty Authority-regulated resource or species could be present in the NorthMet Project area based on predominant cover types.

Table 4.2.9-5 Cover Types of Associated Species and Resources Regulated by the 1854 Treaty Authority in the NorthMet Project Area

Cover Types	Associated Plant Species or Resource	Mine Site (Acres)[1]	Transportation and Utility Corridor (Acres)[1]	Plant Site (Acres)[1]
Upland coniferous forest	Conifer boughs, princess pine, birch bark, firewood, other plants or forest products	1,195.5	2.6	99.8
Lowland coniferous forest	Conifer boughs, princess pine, firewood, other plants or forest products	781.2	0.2	41.9
Upland deciduous forest	Princess pine, ginseng, birch bark, firewood, other plants or forest products	648.0	2.7	647
Shrubland	Firewood, other plants or forest products	241.7	7.7	333.8
Disturbed	NA	128.0	94.4	2,755.5
Aquatic environments	Wild rice, other plants or forest products	12.7	2.7	636.8
Cropland/Grassland	NA	4.9	9.8	0.0
Upland conifer-deciduous mixed forest	Conifer boughs, princess pine, ginseng, birch bark, firewood, other plants or forest products	2.4	0.0	0.0
Lowland deciduous forest	Princess pine, birch bark, firewood, other plants or forest products	0.1	0.0	0.0
Total	**NA**	**3,014.5**	**120.2**	**4,514.4**

Source: 1854 Treaty Authority 2007.

Note:
[1] Acres from Section 4.2.4.

Specific plant surveys were also completed to assess "the degree to which the [NorthMet Project area] provides opportunities to gather a variety of plant species for use in traditional Ojibwe cultural practices" (Zellie 2012). More than 152 plant species were identified during these surveys; the five most common plant species were identified in at least half of the 43 sample plots, while another 21 plant species were identified in at least one-quarter of the plots. Balsam fir (*Abies balsamea*) was the most frequently encountered species within the sample plots, followed by black spruce (*Picea mariana*), bigleaf aster (*Eurybia macrophyllus*), bunchberry dogwood (*Cornus canadensis*), and Canada mayflower (*Maianthemum canadense*).

The 152 species identified were also grouped into seven distinct ECS community types (Zellie 2012). Three plant species were found in five of the seven ECS community types, including balsam fir, speckled alder (*Alnus incana*), and low-bush blueberry (*Vaccinium angustifolium*). Eleven species were found in four of the seven ECS community types, and 12 species were found in three of the seven ECS community types (see Table 4.2.9-6). These 26 species occur in a larger range of habitat types and are thus more likely to occur in the NorthMet Project area. Plant species found in multiple community types would generally be more broadly available to gatherers of plants, whereas plant species found in only one community type would require a trip to that specific community to gather it (Zellie 2012). Of the 26 species listed in Table 4.2.9-6, only one (blue-joint grass) does not have a traditional Ojibwe use according to *Plants Used by the Great Lakes Ojibwa* (Meeker et al. 1993).

Table 4.2.9-6 Plant Species Found in At Least Three ECS Vegetation Community Types

Number of ECS Community Types Found In	Common Name (Scientific Name)
Five	Balsam fir, speckled alder, low-bush blueberry
Four	Lady fern (*Athyrium filix-femina*), paper birch (*Betula papyrifera*), creeping snowberry (*Gaultheria hispidula*), tamarack (*Larix laricina*), Labrador tea (*Ledum groenlandicum*), black spruce, blue-joint grass (*Calamagrostis canadensis*), goldthread (*Coptis trifolia*), bunchberry dogwood, beaked hazelnut (*Corylus cornuta*), wild red raspberry (*Rubus idaeus*)
Three	Northern white cedar (*Thuja occidentalis*), twinflower (*Linnea borealis*), red maple (*Acer rubrum*), mountain maple (*Acer spicatum*), serviceberry (*Amelanchier sanguinea*), wild sarsaparilla (*Aralia nudicaulis*), blue-bead lily (*Clintonia borealis*), bigleaf aster, three-lobed bedstraw (*Galium trifidum*), Canada mayflower, quaking aspen (*Populus tremuloides*), rosy twisted-stalk (*Streptopus roseus*)

Source: Zellie 2012.

According to the *NorthMet Project Cultural Landscape Study* (Zellie 2012), the "Ojibwe organized their economy around wild rice and the seasonal cycle of fishing, sugaring, trapping, and hunting." Reliance on wild rice varied with the availability and cycle of abundance, but because of its shelf life of up to 10 years, it was a staple food for native peoples and early explorers and fur traders. Wild rice is included in Table 4.2.9-5 as an 1854 Treaty Authority-regulated resource, as it is a culturally important plant species. The annual harvest of wild rice totals more than 2 million pounds, and involves thousands of tribal members, demonstrating its continuing role in Ojibwe spiritual practices, culture, livelihood, and identity (Zellie 2012). Wild rice is not known to occur within the Plant Site, Transportation and Utility Corridor, or the Mine Site. However, it was identified through surveys in isolated patches in the Upper Partridge River upstream of Colby Lake, in the Partridge River downstream of Colby Lake, in isolated patches on the Embarrass River above Embarrass Lake, and downstream of Embarrass Lake. See Sections 4.2.2 and 4.2.4 for further discussions of wild rice near the NorthMet Project area.

Similarly, the sugar maple (*Acer saccharum*) is a culturally important plant species, as it has traditionally been and is still tapped to make maple syrup and sugar. "The sugar, in granular form or syrup, provided seasoning for grains and breads, stews, teas, berries, and vegetables" (Zellie 2012). A stand of sugar maple was located southwest of Spring Mine Lake between the Mine Site and Plant Site. This site, called the Spring Mine Lake Sugarbush, appears to be a natural maple-basswood stand that has been utilized during the past two centuries. Many of the sugar maple trees at this site display evidence that they have been tapped for maple syrup in the past, including misshapen boles from 4 to 8 ft off the ground. Small groups of sugar maple were also identified near the overlook area northeast of the Plant Site, but nowhere else, including the Mine Site.

In addition to sugar maple and wild rice, the Ojibwe also relied on spruce root, birch and cedar bark, sage, hazelnuts, and blueberries and other berries (Zellie 2012). Many of these species also had medicinal uses besides being used as food sources. This is consistent with the 1854 Treaty Authority-regulated resources listed in Table 4.2.9-5, and many of these species were identified in multiple ECS community types during surveys (see Table 4.2.9-6).

Wildlife

The 1854 Treaty Authority developed a Ceded Territory Conservation Code (2012) to regulate hunting, fishing, trapping, and gathering of resources for subsistence use in the 1854 Ceded Territory. The wildlife species regulated by the 1854 Treaty Authority are listed in Table 4.2.9-6, and are categorized by the habitat type they typically utilize. Table 4.2.9-7 also lists the acreage of these habitats present at the Mine Site, Transportation and Utility Corridor, and Plant Site.

Table 4.2.9-7 Key Habitat, Cover Types, and Associated Species Regulated by the 1854 Treaty Authority in the NorthMet Project Area

Key Habitat Type, Cover Types, and Management Indicator Habitats	Associated Wildlife Species Regulated by the 1854 Treaty Authority	Mine Site (Acres)	Transportation and Utility Corridor (Acres)	Plant Site (Acres)
1. Mature Upland Forest, Continuous Upland/Lowland Forest: aspen forest/aspen-birch forest, jack pine forest, mixed pine-hardwood forest (MIHs 1-13)	Snowshoe hare, bobcat, fisher, pine marten, ruffed grouse, spruce grouse	2,627.2	5.5	789.3
2. Open Ground, Bare Soils: disturbed/developed (no MIH)		128.0	94.4	2,755.5
3. Grassland and Brushland, Early Successional Forest (no MIH)	American badger, sharp-tailed grouse	246.6	17.5	333.8
4. Aquatic Environments: Tailings Basin, Partridge River, Embarrass River, former LTVSMC mine pits, wetlands (MIH 14)	American mink, muskrat, beaver, river otter, sora, Virginia rail, Wilson's snipe, Canada goose, snow goose, redhead, northern pintail, canvasback, mallard, American black duck, red-breasted merganser, American coot, common gallinule	12.7	2.7	636.8

Key Habitat Type, Cover Types, and Management Indicator Habitats	Associated Wildlife Species Regulated by the 1854 Treaty Authority	Plant Site (Acres)	Mine Site (Acres)	Transportation and Utility Corridor (Acres)
5. Multiple Habitats (MIHs 1-14)	White-tailed deer[1] (1, 3), moose (1, 3, 4), black bear (1, 3), coyote (1, 3), red fox (1, 3), raccoon (1, 3, 4), gray fox (1, 3), eastern cottontail rabbit (1, 3), eastern fox squirrel (1, 3), eastern gray squirrel (1, 3), Virginia opossum (1, 3), Canada lynx (1-4), wild turkey (1, 3, 4), American crow (1-4), mourning dove (1, 3), American woodcock (1, 3), ring-necked pheasant (3, 4), Canada goose (3, 4), snow goose (3, 4), greater white-fronted goose (3, 4), brant (3, 4), wood duck (1, 4), greater scaup (3, 4), lesser scaup (1, 3, 4), hooded merganser (1, 4), common merganser (1, 4)			
Total[2]		3,014.5	120.1	4,515.4

Sources: 1854 Treaty Authority 2013; 1854 Treaty Authority 2012.

Notes:
[1] Numbers refer to the Key Habitat Types (1-5) where those species may occur or are known to occur.
[2] Total acres may be more or less than presented due to rounding.

Mature upland and lowland forest is the most common habitat type at the NorthMet Project area (primarily at the Mine Site). Section 4.2.4 provides a more detailed discussion of vegetation cover and habitat types. Species that may be present include snowshoe hare, bobcat, fisher, pine marten, ruffed grouse, and spruce grouse. These species represent a group that generally requires large forested blocks and/or minimal human intrusion.

Areas of open ground and bare soils are rare at the Mine Site but are abundant at the Plant Site due to former LTVSMC operations or deposition in the existing LTVSMC Tailings Basin. Both open ground and bare soils are considered non-natural habitats. No 1854 Treaty Authority-regulated species are specifically associated with this habitat type.

Brush/grassland and very early successional forest are uncommon at the Mine Site and Plant Site (ENSR 2005) and, where present, are typically small patches resulting from recent logging. The revegetation of the existing LTVSMC Tailings Basin is counted as grassland, though it is disturbed habitat and is unlikely to be heavily used by wildlife species. The species listed in Table 4.2.9-7 include the American badger and sharp-tailed grouse, which are generally associated with large patches of grassland and savanna habitats that are not present in the NorthMet Project area. The USFS has indicated that American woodcock has been observed at the Mine Site.

The Mine Site and adjacent federal lands contain a large expanse of wetland habitat consisting primarily of coniferous and open bogs. Species that utilize this habitat include semi-aquatic mammals, shorebirds, and waterfowl. Currently, there are no bodies of open water at the Mine Site. At the Plant Site, open water and aquatic communities are confined to the existing LTVSMC Tailings Basin. The Tailings Basin attracts Canada geese and other waterfowl, though

the NorthMet Project area does not otherwise appear to provide good habitat for waterfowl or shorebirds.

Multiple habitats are not mapped as such, but are made up of combinations of other key habitat types. This category is used for 1854 Treaty Authority-regulated species that are known to use multiple habitats during a season, such as white-tailed deer, bear, moose, and multiple other species listed in Table 4.2.9-7.

Other wildlife species may be considered culturally important, including but not limited to the gray wolf and bald eagle, and are discussed in Section 4.2.5.

Aquatic Species

As mentioned above, the 1854 Treaty Authority manages the off-reservation fishing rights of the Grand Portage and Bois Forte Bands of Lake Superior Chippewa in the 1854 Ceded Territory. They have developed the *1854 Treaty Authority Fishing Seasons, 2013-2014* (2013) document to address fishing seasons and limits on waters open to the public within the 1854 Ceded Territory. Fish species with a season and limit are presented in Table 4.2.9-8 below, along with fish species that have been collected at sites in the vicinity of the NorthMet Project area. Five fish species that are regulated by the 1854 Treaty Authority (i.e., northern pike, white sucker, burbot, black bullhead, and yellow perch) occur near or on the NorthMet Project areas; the remaining species collected near the Mine Site, Transportation and Utility Corridor, or Plant Site include species more typical for first- and second-order streams (e.g., minnows, darters, etc.). Section 4.2.6 describes in more detail the species collected and the stream and shoreline habitat available.

Table 4.2.9-8 Fish Species Regulated by the 1854 Treaty Authority and Collected in the NorthMet Project Area

1854 Treaty Authority-Regulated Fish Species[1]
Northern pike, *white sucker*, *burbot*, *black bullhead*, *yellow perch*, walleye, sauger, muskellunge, largemouth/smallmouth bass, rock bass, black/white crappie, sunfish/bluegill, white/yellow bass, flathead/channel catfish, yellow/brown bullhead, lake whitefish, rainbow smelt, lake sturgeon, ruffe, white perch, round goby, lake trout, chinook/pink/coho salmon, brook/brown/rainbow trout, splake, carp, bigmouth buffalo, sheepshead/freshwater drum, bowfin, cisco, gar, goldeye
Species Collected in the Vicinity of the NorthMet Project Area[1, 2]
Northern pike, *white sucker*, *burbot*, *black bullhead*, *yellow perch*, longnose dace, common shiner, Johnny darter, brassy minnow, northern redbelly dace, brook stickleback, blacknose dace, pearl dace, tadpole madtom, central mudminnow, fathead minnow, mottled sculpin, golden shiner, finescale dace, creek chub

Sources: 1854 Treaty Authority 2013; 1854 Treaty Authority 2012.

Notes:
[1] Species in common between the 1854 Treaty Authority fishing season list and those collected in the NorthMet Project area are listed in italics.
[2] Species list from tables in Section 4.2.6.

The lake sturgeon is a culturally important fish species that has a season and limits enforced (1854 Treaty Authority 2013), and it is also listed as a USFS RFSS. However, lake sturgeon are not known to occur near the NorthMet Project area, and there is no likely habitat for them on the federal lands. Though lake sturgeon have been stocked into the St. Louis River above the Fond du Lac dam, upstream migration would be blocked by a dam downstream of the Embarrass River confluence with the St. Louis River. See Section 4.2.6 for a more thorough discussion of lake sturgeon and their management.

Access to the NorthMet Project Area for Subsistence Use

The Mine Site is entirely surrounded by private restricted property, roads, and railroads. There are access points to the NorthMet Project area, however, via a Forest Service road, the Partridge River, and various trails segments. The Plant Site and the Transportation and Utility Corridor are owned by either Cliffs Erie LLC or PolyMet, and are not open to the public. Entry points are gated and/or guarded, and crossing the corridor is prohibited. As such, current subsistence use in the NorthMet Project area is limited, but not restricted.

4.2.10 Socioeconomics

The Arrowhead region of northeastern Minnesota, which includes Cook, Lake, and St. Louis counties, contains the well-known Mesabi Iron Range. Precious metal mining in this region can be dated to the late 1800s, with St. Louis County in particular having a long mining heritage. Many local communities were established to support these iron mining operations. While mining is still a major component of the area's economy and culture, the same can also be said for the region's other natural resources. As with much of Minnesota, timber production has a long history in this area. Tourism, much of it centered on the BWCAW and the region's other outstanding public lands, is an important and growing economic sector and is deeply ingrained in the region's culture.

The study area for socioeconomics extends beyond the area of direct potential project effects to include all of Cook, Lake, and St. Louis counties (see Figure 4.2.10-1). This geography includes the proposed Mine Site, Transportation and Utility Corridor, and Plant Site as well as the non-federal tracts included in the Land Exchange Proposed Action.

Socioeconomic data are not available, and thus are not reported for the Mine Site, Transportation and Utility Corridor, and Plant Site on an individual basis. Socioeconomic data in this section are instead collected and analyzed at the county level and, where appropriate, for cities (Aurora, Babbitt, Biwabik, Duluth, Ely, Hibbing, Hoyt Lakes, Tower, and Virginia), as well as the unincorporated area known as Soudan (all of which are located in St. Louis County, and which are collectively referred to hereafter as "study area communities"). While other portions of northeastern Minnesota could experience some socioeconomic effects from the NorthMet Project Proposed Action, these cities were chosen for several reasons. Duluth, which is approximately 2 hours driving distance from the NorthMet Project area, is included because its population is a large share of St. Louis County's overall population. Other larger cities are those within approximately a 1 hour driving distance. These are the population centers most likely to provide labor and housing (temporary and permanent) and thus are the most likely to be impacted by the NorthMet Project Proposed Action.

Data and observations for the Fond du Lac (St. Louis and Carlton counties), Grand Portage (Cook County), and Bois Forte (St. Louis and Koochiching counties) reservations and off-reservation areas are also included where information was available. While portions of these reservations are outside of the study area, tribal members nonetheless exercise usufructuary rights to hunt, fish, and gather plants within the 1854 Ceded Territory.

4.2.10.1 Mine Site, Transportation and Utility Corridor, Plant Site

4.2.10.1.1 Demographics

This section describes the demographics of the three-county study area in terms of population, age, race, income, poverty, and educational statistics.

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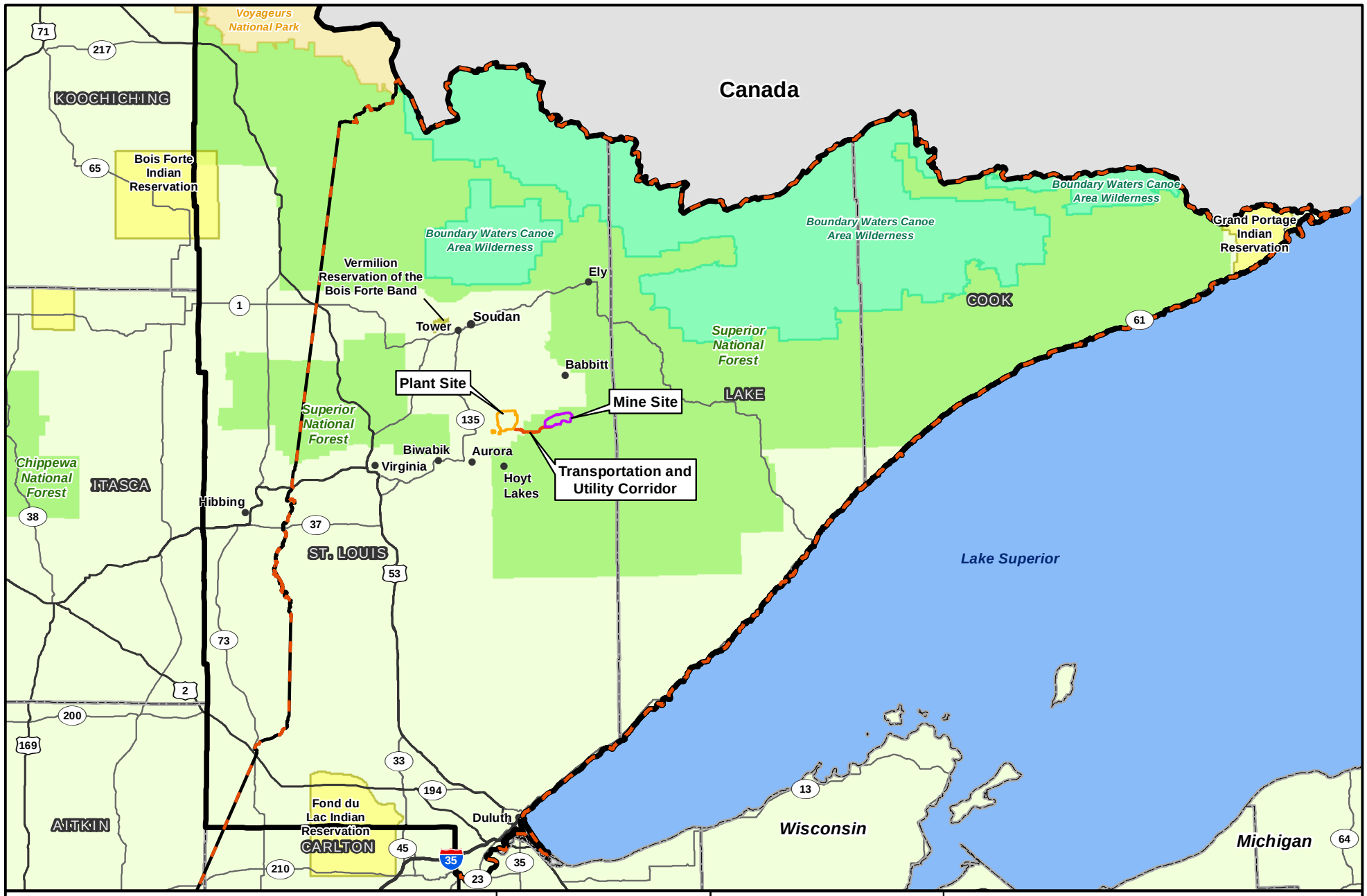

Figure 4.2.10-1
Socioeconomic Study Area
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Population, Age, and Race

Population and population trends for the study area from 1980 through 2010 are shown in Table 4.2.10-1. The population of St. Louis County is concentrated in and around the City of Duluth, approximately 65 miles south of the NorthMet Project area, with smaller, secondary centers in the Iron Range communities of Ely, Hibbing, and Virginia. Lake and Cook counties have few large population centers near the NorthMet Project area. The population of the study area and its individual communities has declined by nearly 10 percent since 1980 (from more than 239,000 in 1980 to 216,000 in 2010), while the population of the state as a whole has increased by more than 30 percent. In individual communities listed in Table 4.2.10-1, population has declined substantially compared to the study area as a whole. At least some of this population decline may be attributable to "the out-migration of previous residents after the decline in economic opportunity represented by the loss of so many iron industry jobs" (Power 2007). The exceptions are the Fond du Lac, Grand Portage, and Bois Forte reservations, where populations have increased since 1990.

Table 4.2.10-1 Population of Study Area Communities 1980 to 2010

	Year				Change (1980–2010)[1]	
Geography	**1980**	**1990**	**2000**	**2010**	**Number**	**%**
Minnesota	4,075,970	4,375,099	4,919,479	5,303,925	1,227,955	30.10
Cook County	4,092	3,868	5,168	5,176	1,084	26.50
Lake County	13,043	10,415	11,058	10,866	-2,177	-16.70
St. Louis County	222,229	193,433	200,528	200,226	-22,003	-9.90
Study Area	**239,364**	**207,716**	**216,754**	**216,268**	**-23,096**	**-9.60**
Aurora	2,670	1,965	1,850	1,682	-988	-37.00
Babbitt	2,435	1,562	1,670	1,475	-960	-39.40
Biwabik	1,428	1,097	954	969	-459	-32.10
Bois Forte Reservation	na	358	657	874	516	144.10
Duluth	92,811	85,493	86,918	86,265	-6,546	-7.10
Ely	4820	3,968	3,724	3,460	-1,360	-28.20
Fond du Lac Reservation	na	3,229	3,728	4,240	1,011	31.30
Grand Portage Reservation	na	306	557	565	259	84.60
Hibbing	21193	18,046	17,071	16,361	-4,832	-22.80
Hoyt Lakes	3,186	2,348	2,082	2,017	-1,169	-36.70
Soudan	na	502	372	446	-56	-11.20
Tower	640	502	469	500	-140	-21.90
Virginia	11056	9,410	9,157	8,712	-2,344	-21.20

Sources: U.S. Census Bureau 1980, 1990, 2000, and 2010b.

Notes:
[1] Population data for 1980 were not available for Soudan, Minnesota and the three Native American reservations. In these cases, the population change reflects the 1990–2010 time period.
na = Not available

As shown in Table 4.2.10-2, the median age of the population in study area counties and cities (typically age 40 to 45) is substantially higher than that of the state (age 35). Moreover, the median age of study area communities has grown at a more rapid pace than the state as a whole. Minnesota's median age grew by two full years between 2000 and 2010, while the median age of most study area communities—with the exception of Duluth, Hibbing, and Virginia—grew by 3 to 5 years. Again, with the exception of Duluth, study area communities tend to have (as a

percentage of the total population) fewer children under 18, fewer adults (18 to 64), and more senior citizens (age 65 or older) than the state as a whole.

The study area is more than 93 percent Caucasian (see Table 4.2.10-3), compared to 85 percent for the state as a whole. However, Native Americans comprise 2 percent of the study area's population compared to 1 percent of the state's overall population.

Table 4.2.10-2 Age Characteristics of Study Area Residents, 2010

Geography	Median Age, 2000	Median Age, 2010	Population Segments (% of total) 0-17 yrs.	18-64 yrs.	65+ yrs.
State of Minnesota	35.4	37.4	24	63	13
Cook County	44.0	49.8	17	63	20
Lake County	42.9	48.3	19	59	22
St. Louis County	39.0	40.8	30	64	16
Study Area	**na**	**na**	**29**	**64**	**16**
Aurora	45.2	48.4	19	56	24
Babbitt	46.8	51.1	17	52	31
Biwabik	41.5	46.8	20	58	22
Bois Forte Reservation	31.6	34.1	33	55	13
Duluth	35.4	33.6	19	68	14
Ely	40.8	45.3	16	61	23
Fond du Lac Reservation	33.5	36.5	28	60	12
Grand Portage Reservation	36.5	39.2	23	67	10
Hibbing	41.0	42.5	22	61	18
Hoyt Lakes	45.6	49.3	20	55	25
Soudan	na	46.7	18	62	20
Tower	45.3	48.4	19	57	24
Virginia	43.2	44.9	19	59	22

Sources: U.S. Census Bureau 2000 and 2010b.

Notes:
Percent totals may be greater or less than 100% due to rounding.
na = Not available

Table 4.2.10-3 Racial Characteristics of Study Area Residents, 2010

Geography	Total Population	White (%)	African American (%)	Native American (%)	Asian (%)	Hawaiian/ Pac. Islander (%)	Other (%)	Multiple Races (%)	Hispanic[1] (%)
State of Minnesota	5,303,925	85	5	1	4	<1	2	2	5
Cook County	5,176	88	<1	8	<1	<1	<1	2	1
Lake County	10,866	98	<1	<1	<1	<1	<1	1	<1
St. Louis County	200,226	93	1	2	<1	<1	<1	2	1
Study Area	**216,268**	**93**	**1**	**2**	**<1**	**<1**	**<1**	**2**	**1**
Aurora	1,682	98	<1	<1	<1	0	0	1	<1
Babbitt	1,475	98	<1	<1	<1	0	<1	1	<1
Biwabik	969	98	<1	<1	<1	0	<1	<1	<1
Bois Forte Reservation	874	26	<1	70	<1	0	<1	3	3
Duluth	86,265	90	2	3	2	0	<1	3	2
Ely	3,460	96	1	<1	<1	0	<1	2	1
Fond du Lac Reservation	4,240	55	<1	39	<1	0	<1	6	2
Grand Portage Reservation	565	27	1.1	68	2	0	<1	2	<1
Hibbing	16,361	96	<1	<1	<1	0	<1	2	1
Hoyt Lakes	2,017	98	<1	<1	<1	0	0	1	<1
Soudan	446	96	1	<1	<1	0	0	<1	<1
Tower	500	95	<1	2	<1	0	<1	2	1
Virginia	8,712	92	2	3	<1	0	<1	3	2

Source: U.S. Census Bureau 2010b.

Notes:
[1] Hispanic status is considered separately from racial identification.
Percent totals may be greater or less than 100% due to rounding.

Educational Attainment

Table 4.2.10-4 shows the educational attainment of residents in the study area. Educational attainment in the study area as a whole and in most study area communities (as measured by the percentage of residents age 25 and over who achieved degrees beyond a high school diploma) was lower in these communities than in St. Louis County as a whole and the state in 2010. Whereas 41 percent of state residents (age 25 and older) and 37 percent of St. Louis County residents had achieved Associate's degrees or higher in 2010, approximately 15 to 30 percent of residents of study area communities (except for Duluth, Ely, and Soudan) had achieved similar degrees.

Table 4.2.10-4 Educational Characteristics of Study Area Residents, 2010

Geography	Total[1]	No High School Diploma (%)	High School Diploma and/or Some College (%)	Associate's Degree (%)	Bachelor's Degree (%)	Advanced Degree (%)
State of Minnesota	3,450,999	9	50	10	21	10
Cook County	4,091	7	52	8	20	13
Lake County	8,167	7	63	10	14	6
St. Louis County	133,796	8	56	11	18	8
Study Area	**146,054**	**8**	**56**	**11**	**17**	**8**
Aurora	1,146	11	64	13	9	3
Babbitt	1,047	14	68	12	5	2
Bois Forte Reservation	759	10	63	14	10	3
Biwabik	425	22	61	5	9	4
Duluth	51,753	8	51	9	21	11
Ely	2,333	8	53	14	20	6
Fond du Lac Reservation	2,472	14	61	13	10	3
Grand Portage Reservation	314	26	57	9	5	4
Hibbing	11,454	12	62	10	11	5
Hoyt Lakes	1,612	7	66	14	12	2
Soudan	348	6	49	28	12	4
Tower	315	5	67	13	9	5
Virginia	6,347	11	56	15	13	5

Source: U.S. Census Bureau 2010a.

Notes:
[1] Data are for residents age 25 or older.
Percent totals may be greater or less than 100% due to rounding.

Income and Poverty

Table 4.2.10-5 shows income and poverty characteristics for the study area communities. The median income of individual study area communities is significantly lower than that of the state as a whole, with the exception of Soudan. It is also the case that the median income of individual communities is generally lower than that of St. Louis County. The median income in Babbitt and Hoyt Lakes—the communities closest to the NorthMet Project area—are two-thirds and four-fifths, respectively, of the state median income. In some study area communities, such as Ely and Tower, the median household income is slightly more than half of the state total. Poverty rates are also higher in the study area as a whole than in the state. In many individual communities, poverty rates are as high or higher than the state (with the exceptions of Hoyt Lakes, Soudan, and Tower).

Table 4.2.10-5 Income and Poverty Characteristics of Study Area Communities in 2010

Geography	Median Household Income ($)	Percentage of State Median Household Income	Population with Income Below Poverty Level[1, 2]	Percentage of Population Below Poverty Level[1,2]
State of Minnesota	57,243	na	542,133	11
Cook County	49,162	86	463	9
Lake County	46,765	82	1,252	12
St. Louis County	44,941	79	28,931	15
Study Area	**na**	**na**	**30,646**	**15**
Aurora	45,285	79	182	12
Babbitt	37,500	66	133	10
Biwabik	40,417	57	197	19
Bois Forte Reservation	32,656	71	100	15
Duluth	41,092	72	16,339	20
Ely	31,905	56	561	18
Fond du Lac Reservation	41,300	72	893	22
Grand Portage Reservation	33,056	58	82	17
Hibbing	36,585	64	2,737	17
Hoyt Lakes	45,338	79	89	5
Soudan	65,000	114	27	7
Tower	31,607	55	21	5
Virginia	32,664	57	1,759	21

Source: U.S. Census Bureau 2010a.

Notes:
[1] Percentage based on the "Population for whom poverty status is determined" which is less than the total population.
[2] The United States Census Bureau defines poverty status using a set of monetary standards (consistent with *Office of Management and Budget Statistical Policy Directive 14*) that vary by family size and composition (e.g., marital status and number of children). Poverty thresholds are updated annually to reflect economic conditions. Poverty thresholds in 2009 (the year for which the data in this table are presented) can be found at:
http://www.census.gov/hhes/www/poverty/data/threshld/thresh09.html
Percent totals may be greater or less than 100% due to rounding.
na = Not available

4.2.10.1.2 Employment

This section evaluates two different measures of employment. At-place employment describes jobs that exist in a given location, regardless of where job-holders live. It is a measure of the economic activity in a community. However, workers in northeastern Minnesota are often accustomed to driving long distances to jobs, particularly in the mining industry (Power 2007). Thus, information about at-place employment is supplemented with information about jobs held by residents. This second measure describes the extent to which a community's residents are employed.

At-place Employment

Tables 4.2.10-6 and 4.2.10-7 show at-place employment trends for the study area by major industry classification. Data from 1980 and 1990 are reported by SIC (see Table 4.2.10-6), while 2009 data reflect industries as defined by the North American Industrial Classification System

(NAICS) (see Table 4.2.10-7), which replaced the Standard Industrial Classification (SIC) system in 1997.

Table 4.2.10-6 At-place Historical Employment by Major SIC Industry in 1980 and 1990

Major Industry	Minnesota		Cook County		Lake County		St. Louis County	
Year	1980	1990	1980	1990	1980	1990	1980	1990
Agricultural services	3,950	6,812	na	na	A[1]	B	93	152
Metal mining	16,182	7,437	0	A	F	E	12,208	5,317
Construction	82,673	76,200	75	101	E	B	4,305	2,577
Manufacturing	392,742	394,202	122	C	366	621	8,595	6,162
Transportation, communications, utilities	84,967	106,166	22	A	113	122	3,360	3,713
Wholesale trade	114,717	133,464	A	A	74	B	4,247	2,907
Retail trade	322,153	395,801	265	459	590	633	16,457	16,602
Finance, insurance, real estate	101,314	133,678	34	82	102	C	3,211	2,805
Services	367,202	573,009	358	F	455	595	16,716	22,598
Public administration	8,780	5,387	A	A	18	A	366	184
Total	1,494,680	1832,156	895	1,401	2,985	2,555	69,558	63,017

Source: UVGSDC 2008.

Notes:
[1] Letter codes indicate suppression flags in the original data set—cases where exact data were withheld by the United States Census Bureau in order to protect company-confidential data. As a result, study area data cannot be calculated. Flags indicate approximate employment, as follows: A: 0-19 employees; B: 20-99 employees; C: 100-249 employees; E: 250-499 employees; F: 500-999 employees.
na = Not available

Table 4.2.10-7 At-place Employment by Major NAICS Industry in 2009

	Minnesota		Cook County		Lake County		St. Louis County	
Major NAICS Industry	**Number**	**% of Total**	**Number**	**% of Total**	**Number**	**% of Total**	**Number**	**% of Total**
Forestry, fishing, hunting	2,462	<1	A[1]	na	A	na	172	<1
Mining, quarrying, oil/gas	4,703	<1	B	na	C	na	3,151	4
Utilities	13,711	<1	120	6	B	na	921	1
Construction	99,101	4	B	na	96	3	3,261	4
Manufacturing	307,822	13	9	<1	F	na	4,378	5
Wholesale trade	131,638	5	283	14	B	na	2,279	3
Retail trade	291,328	12	A	na	332	11	12,583	15
Transportation, warehousing	75,384	3	59	3	A	na	1,934	2
Information	64,096	3	36	2	C	na	2,187	3
Finance and insurance	148,621	6	B	na	179	6	3,655	5
Real estate	36,296	2	B	na	84	3	1,017	1
Professional, sci., tech. svcs.	139,270	6	26	1	B	na	3,269	4
Management	118,124	5	42	2	41	1	937	1
Admin., support, waste mgt.	123,915	5	C	na	B	na	3,212	4
Educational services	66,458	3	304	15	E	na	2,360	3
Health care, social assistance	421,935	18	641	33	54	2	21,789	27
Arts, entertainment, recreation	39,550	2	46	2	607	21	1,221	2
Accommodation, food svcs.	213,136	9	A	na	174	6	9,308	11
Other svcs.	119,334	5	-	0	-	0	3,995	5
Industries not classified	290	<1	-	0	-	0	5	<1
Total	2,417,174	100.0	1,975	100.0	2,955	100.0	81,634	100.0

Source: U.S. Census Bureau 2009.

Notes:
[1] Letter codes indicate suppression flags in the original data set—cases where exact data were withheld by the United States Census Bureau in order to protect company-confidential data. As a result, study area data cannot be calculated. Flags indicate approximate employment, as follows: A: 0-19 employees; B: 20-99 employees; C: 100-249 employees; E: 250-499 employees; F: 500-999 employees.
Percent totals may be greater or less than 100% due to rounding.
na = Not available

In 2009, the top employment sectors in the study area were health care and social assistance, retail trade, manufacturing, educational services (which does not include public schools or other public education functions), and accommodation and food services. SIC and NAICS data are available for counties, whole zip codes, and Metropolitan Statistical Areas, but not for the specific geographic areas considered in this chapter (i.e., most of the study area communities occupy only a portion of a zip code; thus, the data for the whole zip code are not appropriate). Therefore, only county-level data are used. The U.S. Census Bureau withholds some data for smaller geographies (such as cities); therefore, study area totals cannot be calculated.

Mining employment has declined consistently in all three study area counties, from more than 12,000 in 1980 to approximately 3,000 in 2009 in St. Louis County. Mining-related employment is volatile and fluctuates from year to year due to the market price of commodities being

extracted. Since mining employment can vary greatly from one year to the next, the decline observed from 1980 and 2009 does not represent a steady reduction in mining-related employment. At the same time, service-related employment in the study area (which includes the NAICS categories for professional services, management, health care, education, arts/entertainment, and accommodation/food) has increased substantially since 1980, mirroring broader state and national trends.

Industry Concentrations

Certain industries, particularly mining and utilities, are more concentrated in the study area, particularly St. Louis County, than in the state as a whole. Sector concentration can be measured by the location quotient (LQ), which is the ratio between the local economy and the economy of a reference unit, such as the state. For this analysis, the LQ was calculated using each study area county as a local economy and the state as the reference unit. Given the number of industry totals that were suppressed by the U.S. Census Bureau in Tables 4.2.10-6 and 4.2.10-7, a combined study area LQ could not be calculated. A LQ of 1.00 indicates that a given industry is exactly as strong, in terms of employment, in the local economy as it is in the reference economy. A LQ below 1.00 indicates a relatively weak local industry, while a LQ above 1.00 indicates a relatively strong local industry.

As illustrated by Table 4.2.10-8, the LQ for the mining industry in St. Louis County is nearly 20, meaning that mining employment in the county is approximately 20 times as concentrated as in the state as a whole. As noted above, LQs for the study area as a whole could not be calculated because of data confidentiality. However, this concentration has been declining in recent years. In 1980 (see Table 4.2.10-6), St. Louis County accounted for approximately 75 percent of the state's mining employment. In 2009 (see Table 4.2.10-7), that share had fallen to approximately 66 percent of state mining employment. Mining employment in other study area counties was minimal.

The high LQ for the utilities industry is likely tied to power plants and utility infrastructure that support the region's mining activity. Other relatively high LQ values vary by county, but generally include educational services, health care and social assistance, and arts/entertainment. Forestry, fishing, and hunting have high LQ values in St. Louis County, while Real Estate has a high LQ value in Lake County. Industries with particularly low LQ values include manufacturing and management. These findings support stakeholder observations about the strength of the region's tourism economy (real estate in Lake County, arts, entertainment, accommodation, and food).

Regional Tourism

Tourism is rooted in the Arrowhead region's unique recreation opportunities such as the BWCAW, and is more broadly dependent on recreational opportunities such as hunting, fishing, boating, sightseeing, and wilderness experiences provided by the region's high-quality natural environment.

Mining and tourism have coexisted in the study area for decades. As shown in Table 4.2.10-7, industries associated with tourism (arts, entertainment, recreation, accommodation, and food) account for nearly 13 percent of all employment in St. Louis County (data could not be summed for the entire study area). The "attractive landscape and climatic features [of the region have] attracted recreationists, retirees, and other new residents" (Power 2007). In particular, retirement

income (from individuals who move to the Arrowhead region for its recreational and scenic resources) has been an important source of economic vitality for the region's communities (Power 2007). These non-mining economic gains have occurred in the presence of active mining activity (including the Northshore Mine adjacent to the NorthMet Project area) and the remnant landscape of past mining activity.

Retirees

The demographic data in Section 4.2.10.1.1, as well as some of the industry clusters identified above, support the views, expressed by some stakeholders, that the study area is an increasingly attractive location for retirees. The median ages in nearly all study area communities increased between 2000 and 2010, and are, in most cases, higher than the state median (see Table 4.2.10-2). The relative strength of the Health Care and Social Assistance industry category is also consistent with an older population in need of such services.

The employment status data in Table 4.2.10-9 may also support this conclusion about retirees: statewide, 71 percent of residents over the age of 16 participate in the workforce (i.e., they hold or are actively looking for a job). By comparison, only 62 percent of the over-16 population in the study area is in the workforce. While some of this difference is likely attributable to long-term unemployment (which often leads workers to drop out of the workforce entirely), this gap may also suggest the presence of retired individuals, who are, by definition, no longer in the workforce.

Research also shows links between the presence of recreation and natural amenities and increased retirement throughout the United States (see McGranahan 1999). The economic data cited above, combined with the amenities present in and near the study area—such as BWCAW, Superior National Forest, and the other resources described throughout this FEIS—are consistent with the findings of this type of research.

Table 4.2.10-8 Location Quotients for Major NAICS Industries in the Study Area, 2009

Industry	Cook County	Lake County	St. Louis County
Forestry, fishing, hunting	na	na	2.07
Mining, quarrying, oil/gas	na	na	19.84
Utilities	10.71	na	1.99
Construction	na	0.79	0.97
Manufacturing	0.04	na	0.42
Wholesale trade	2.63	na	0.51
Retail trade	na	0.93	1.28
Transportation, warehousing	0.96	na	0.76
Information	0.69	na	1.01
Finance and insurance	na	0.99	0.73
Real estate	na	1.89	0.83
Professional, scientific, technical services	0.23	na	0.70
Management	0.44	0.28	0.23
Admin., support, waste mgt.	na	na	0.77
Educational services	5.60	na	1.05
Health care, social assistance	1.86	0.10	1.53
Arts, entertainment., rec.	1.42	12.55	0.91
Accommodation, food services	na	0.67	1.29
Other services	NA	NA	0.99
Industries not classified	NA	NA	0.51

Source: U.S. Census Bureau 2009.

Notes:
LQs compare county employment to statewide employment. LQs for the entire study area cannot be calculated.
na = Not available

Jobs Held by Residents

Employment data for residents of study area communities is shown in Table 4.2.10-9. Unemployment rates in Lake and Cook counties were generally consistent with or lower than statewide unemployment. However, unemployment in St. Louis County and particularly in individual St. Louis County communities was generally much higher than in the state as a whole. These data are estimates based on information collected by the U.S. Census Bureau from 2005 to 2009, and thus may not fully capture the depth of the unemployment effects that the study area has experienced as a result of the national recession during and following that time period.

Occupation (e.g., general type of work) and industry classifications of jobs held by study area residents are shown in Tables 4.2.10-10 and 4.2.10-11. These data show that management, science, business, arts, sales, education, health, manufacturing, and retail make up a large percentage of the jobs held by study area residents. The sectors of agriculture, forestry, fishing and hunting, and mining (including metal mining such as the NorthMet Project Proposed Action) account for a higher share of locally held jobs than the statewide average. This is especially true for communities closer to the mine (e.g., Aurora, Babbitt, Biwabik, and Hoyt Lakes).

Occupational categories are provided for each community per the U.S. Census Bureau's SIC definitions. The occupation categories also show the prevalence of management and service job functions as opposed to more traditional production and manufacturing activities typically associated within mining.

Table 4.2.10-9 Employment Status of Study Area Communities, 2009

Geography	Total Population ≥16 Years	In Civilian Labor Force[1]	Employed	Unemployed	Unemployment Rate (%)
State of Minnesota	4,111,966	2,916,931	2,730,721	186,210	6
Cook County	4,455	2,875	2,741	134	5
Lake County	9,143	5,596	5,395	201	4
St. Louis County	164,849	102,619	94,402	8,217	8
Study Area	**178,447**	**111,090**	**102,538**	**8,552**	**7.7**
Aurora	1,264	681	641	40	6
Babbitt	1,167	579	544	35	6
Biwabik	508	318	240	78	25
Bois Forte Reservation	850	481	445	36	8
Duluth	71,606	46,415	42,629	3,786	8
Ely	3,064	1,751	1,617	134	8
Fond du Lac Reservation	3,089	1,935	1,662	273	14
Grand Portage Reservation	331	227	218	9	4
Hibbing	13,222	7,166	6,531	635	9
Hoyt Lakes	1,740	996	834	162	16
Soudan	397	273	256	17	6
Tower	353	201	178	23	11
Virginia	7,157	3,814	3,413	401	11

Source: U.S. Census Bureau 2010a.

Notes:
[1] Excludes armed forces personnel, and individuals who reported that they were not seeking employment.
Percent totals may be greater or less than 100% due to rounding.

Table 4.2.10-10 Employment in Study Area Communities by Occupation

Geography	Civilian Employed Pop. ≥16 Years	Occupation (% of total employed population)				
		Management, Science, Business, Arts	Services	Sales/ Office	Natural Resources	Production/ Transportation
State of Minnesota	2,730,721	38	16	25	9	13
Cook County	2,741	33	18	27	13	9
Lake County	5,395	27	22	22	14	15
St. Louis County	94,402	34	21	24	11	10
Study Area	**102,538**	**34**	**21**	**24**	**11**	**10**
Aurora	641	25	21	17	21	16
Babbitt	544	21	19	27	14	18
Biwabik	445	22	30	17	16	15
Bois Forte Reservation	240	22	26	29	14	10
Duluth	42,629	37	23	24	7	9
Ely	1,617	25	31	29	10	5
Fond du Lac Reservation	1,662	24	25	23	11	17
Grand Portage Reservation	218	21	38	24	15	2
Hibbing	6,531	27	23	28	13	10
Hoyt Lakes	834	20	21	20	18	21
Soudan	256	22	28	20	14	17
Tower	178	26	29	17	19	8
Virginia	3,413	31	22	25	16	6

Source: U.S. Census Bureau 2010a.

Note:
Percent totals may be greater or less than 100% due to rounding.

Table 4.2.10-11 Employment in Study Area Communities by Industry

		Industry (% of total employed population)												
Geography	**Civilian Employed Population ≥16 Years**	Forestry, Fishing, Hunting, and Mining	Construction	Manufacturing	Wholesale	Retail	Transportation and Utilities	Information	Finance, Insurance, Real Estate	Professional, Scientific, Management, Administration	Education, Health	Arts, Entertainment, Recreation, Accommodation, Food	Other Services, except Public Administration	Public Administration
Minnesota	2,730,721	2	6	14	3	12	5	2	7	9	24	8	4	3
Cook County	2,741	2	10	7	1	14	2	1	9	10	13	20	4	9
Lake County	5,395	8	7	9	1	10	5	2	6	6	27	13	4	3
St. Louis County	94,402	4	7	7	2	12	6	2	5	6	31	11	4	5
Study Area	**102,538**	**4**	**7**	**7**	**2**	**12**	**5**	**2**	**5**	**6**	**30**	**11**	**4**	**5**
Aurora	641	15	14	8	2	8	9	1	5	4	25	8	0	1
Babbitt	544	17	5	7	2	11	4	1	6	6	19	12	6	5
Biwabik	445	15	5	4	2	16	4	1	3	3	35	10	2	1
Bois Forte Reservation	240	5	8	5	1	4	6	0	1	3	16	35	2	14
Duluth	42,629	1	5	6	2	12	5	2	5	7	35	12	4	4
Ely	1,617	6	5	3	1	12	1	1	5	13	20	19	8	6
Fond du Lac Reservation	1,662	1	7	12	4	11	3	1	4	4	21	16	3	12
Grand Portage Reservation	218	0	5	2	1	19	2	0	14	6	15	25	2	9
Hibbing	6,531	7	6	9	2	13	7	1	4	6	27	9	6	4
Hoyt Lakes	834	13	8	12	0	14	9	0	6	8	21	5	3	3
Soudan	256	7	8	12	2	4	5	0	8	1	23	26	0	5
Tower	178	1	2	8	2	8	0	0	7	1	19	33	12	7
Virginia	3,413	6	8	7	1	12	5	2	7	7	28	8	4	5

Source: U.S. Census Bureau 2010a.

Note:
Percent totals may be greater or less than 100% due to rounding.

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Income

Table 4.2.10-12 shows the average income earned by employees in each major NAICS industry. Mining and utilities pay very high average wages statewide and in St. Louis County. However, wages paid to health care and social services workers account for more than one-quarter of the total wages paid by private companies in St. Louis County and for more than 16 percent of statewide wages.

4.2.10.1.3 Public Finance

Sales and use tax revenues from study area counties by all industries and the mining industry are summarized in Table 4.2.10-13. This table illustrates the relative sales and use tax contribution from the mining industry in the state.

The mining and processing of base and precious metals in the state are not currently subject to production tax. However, mining is subject to the following taxes (MDR 2011):

- Net proceeds tax: tax proceeds are distributed to the state general fund if mined resources do not fall within the taconite assistance area. Taxes paid on mined resources within the taconite assistance area (which includes the NorthMet Project area) are distributed as follows: 5 percent to the city or town where mined, 10 percent to the Municipal Aid Account, 10 percent to the school district, 20 percent to the Regular School Fund, 20 percent to Taconite Property Tax Relief, 5 percent to IRRRB, 5 percent to the Douglas J. Johnson Economic Protection Trust Fund, and 5 percent to the Taconite Environmental Protection Fund.
- Occupation tax: 2.45 percent of the taxable amount (typically the mine value), as determined by the Minnesota Department of Revenue. Revenue generated through the occupation tax is credited to the general fund, with 10 percent designated for the University of Minnesota, 40 percent designated for public elementary and secondary schools, and 50 percent remaining in the state's general fund.
- Sales and use tax: 6.875 percent of all purchases that do not qualify for an exemption.
- Withholding tax on royalty payments: 6.25 percent of royalty payment.

Ad valorem tax is established and collected by the counties, local communities, and school districts according to Minnesota state law.

4.2.10.1.4 Housing

Table 4.2.10-14 illustrates the housing characteristics of the study area. Much of the overall vacancy rate reflects the large number of seasonal (vacation) homes in the region, particularly in Cook and Lake counties where nearly two-thirds of vacant housing units are for seasonal use. Excluding seasonal units, vacancy rates in the study area are somewhat higher than in the state as a whole, although vacancy rates in individual communities vary significantly. There are approximately 5,400 hotel rooms and 1,175 occupied berths and 225 vacant berths in mobile home parks in the study area (Northland Connection 2012). Hotels and mobile homes are often used by mine construction employees, especially those with short-term assignments. The study area has a slightly lower share of owner-occupied housing units than in the state. Household sizes are smaller in the study area than in the state as a whole. These data are consistent with trends (see Section 4.2.10.1.2) suggesting that the study area is becoming increasingly attractive to retirees, who tend to have higher home ownership rates and smaller household sizes than other segments of the population.

Table 4.2.10-12 Payroll ($1,000s) by Major NAICS Industry, 2009

	Minnesota		Cook County		Lake County		St. Louis County	
Industry	**Payroll**	**Avg. per Employee**	**Payroll**	**Avg. per Employee**	**Payroll**	**Avg. per Employee**	**Payroll**	**Avg. per Employee**
Forestry, fishing, hunting	$79,116	$32,135	D	na	$172	na	$4,723	$27,459
Mining, quarrying, oil/gas	$322,301	$68,531	D	na	D	na	$196,993	$62,518
Utilities	$1,085,613	$79,178	$5,043	$42,025	D	na	$73,916	$80,256
Construction	$5,558,534	$56,090	D	na	$2,959	$30,823	$179,640	$55,087
Manufacturing	$14,782,085	$48,022	$483	$53,667	$23,083	na	$187,373	$42,799
Wholesale trade	$8,320,168	$63,205	$6,647	$23,488	D	na	$96,299	$42,255
Retail trade	$6,773,100	$23,249	D	na	$7,672	$23,108	$265,991	$21,139
Transportation, warehousing	$2,938,953	$38,986	$2,589	$43,881	D	na	$73,216	$37,857
Information	$3,920,852	$61,172	$1,518	$42,167	$2,540	na	$82,475	$37,711
Finance and insurance	$10,454,638	$70,344	$804	na	$5,819	$32,508	$146,947	$40,204
Real estate	$1,335,591	$36,797	$796	na	$1,339	$15,940	$25,263	$24,841
Professional, sci., tech. svcs.	$8,121,631	$58,316	$611	$23,500	$1,172	na	$148,666	$45,478
Management	$9,246,827	$78,281	$989	$23,548	$972	$23,707	$59,195	$63,175
Admin., support, waste mgt.	$4,215,273	$34,017	D	na	D	na	$65,069	$20,258
Educational services	$1,661,448	$25,000	$6,027	$19,826	$11,497	na	$50,130	$21,242
Health care, social assistance	$16,303,572	$38,640	$11,675	$18,214	$1,447	$26,796	$822,689	$37,757
Arts, entertainment, rec.	$1,087,163	$27,488	$655	$14,239	$9,972	$16,428	$18,759	$15,364
Accommodation, food svcs.	$3,068,339	$14,396	D	na	$2,722	$15,644	$125,175	$13,448
Other svcs.	$2,898,411	$24,288	$-	na	$-	na	$79,563	$19,916
Industries not classified	$5,619	$19,376	$-	na	$-	na	$169	$33,800
Total	$102,179,234	$42,272	$52,668	$26,667	$86,786	$29,369	$2,702,251	$33,102

Source: U.S. Census Bureau 2009.

Notes:
Letter codes indicate suppression flags in the original data set—cases where exact data were withheld by the United States Census Bureau in order to protect company-confidential data. Flags indicate approximate employment, as follows:
A: 0-19 employees; B: 20-99 employees; C: 100-249 employees; E: 250-499 employees; F: 500-999 employees.
na = Not available

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Table 4.2.10-13 Select Sales and Use Tax Statistics ($1,000s)

	Total Tax (Sales and Use)					
	Cook County		Lake County		St. Louis County	
Year	All Industries	Metal Mining	All Industries	Metal Mining	All Industries	Metal Mining[2]
1995	$3,345	NR[1]	$4,318	NR	$91,008	NR
2000	$4,192	0	$5,390	0	$114,011	$4,150
2009	$5,897	0	$8,515	0	$158,227	$7,210

Source: MDR 2010.

Notes:
[1] NR: Not reported
[2] 2009 data reported as "Mining – All Other".

Table 4.2.10-14 Study Area Housing Unit Characteristics, 2010

Geography	Total HU	Occupied HU (%)	Owner-Occupied HU (%)	Renter-Occupied HU (%)	Vacancy Rate (%)	Vacancy Rate, Non-seasonal (%)	Average Household Size (persons)
Minnesota	2,347,201	89	65	24	11	6	2.48
Cook	5,839	43	32	11	57	5	2.05
Lake	7,681	63	51	12	37	6	2.21
St. Louis	103,058	82	59	24	18	6	2.25
Study Area	**116,578**	**79**	**57**	**22**	**21**	**6**	**2.24**
Aurora	887	88	68	20	12	9	2.09
Babbitt	818	86	74	13	14	9	2.07
Biwabik	543	86	63	24	14	10	2.03
Duluth	38,208	93	57	37	7	6	2.23
Ely	2,022	83	54	29	17	13	1.93
Hibbing	8,200	90	64	26	10	8	2.17
Hoyt Lakes	1,016	87	77	10	13	9	2.27
Soudan	244	84	75	9	16	8	2.18
Tower	331	80	54	26	20	10	1.89
Virginia	4,738	90	51	38	11	10	1.95
Bois Forte Reservation	451	65	46	20	35	5	2.97
Fond du Lac Reservation	1,729	89	66	23	11	3	2.72
Grand Portage Reservation	313	82	41	41	18	4	2.20

Source: U.S. Census Bureau 2010a.

Notes:
Percent totals may be greater or less than 100% due to rounding.
HU = Housing unit(s).

4.2.10.1.5 Public Services and Facilities

Water and Sewer

Table 4.2.10-15 summarizes the condition of public water and sewer facilities throughout the study area. All of the cities evaluated have public water and wastewater systems, with varying degrees of available capacity. Residents and businesses in unincorporated areas typically rely on individual wells and septic systems. Potable water for municipal systems comes from either groundwater or surface water (notably, Duluth obtains its drinking water from Lake Superior). Most of the public water and sewer infrastructure supporting the study area communities was constructed to accommodate larger populations than currently reside in the area (e.g., the 1980 and 1990 populations listed in Table 4.2.10-1).

Table 4.2.10-15 Water and Wastewater Capacity

	Water			Wastewater		
Geography	**Capacity (MGD)[1]**	**Average Demand (MGD)**	**System Issues/Upgrades**	**Capacity (MGD)**	**Average Demand (MGD)**	**System Issues/Upgrades**
Aurora	0.864	0.222	Study underway with Biwabik to identify new water source. Considering building a new facility for both.	0.900	0.200	$7 million upgrade in the last four years.
Babbitt	0.600	0.200	None	0.500	0.200	Consulting firm hired to look into upgrading or rebuilding a new wastewater plant.
Biwabik	0.430	0.128	Study underway with Aurora to identify new water source. Considering building a new facility for both.	0.220	0.160	None
Duluth	40	19	Water tower to go online mid-May 2012 adding 900,000 gallons to the 68 million storage capacity.	100	16	The city is upgrading or replacing two wastewater lift stations each year at an annual cost of $600,000 per year.
Ely	1	0.350	$350,000 rehab work every year.	1.5	0.400	$350,000 rehab work every year.
Hibbing	3.2	2.3	None	4.5	2	Wastewater inflow & infiltration concerns throughout the city; certain neighborhoods have wastewater backups during large rain events.
Hoyt Lakes	1.5	0.307	Minor upgrades to the water plant.	0.650	0.270	Began preliminary engineering for rebuilding wastewater facility.
Soudan/ Tower[2]	0.300	0.0900	Needs new water tower.	0.176	0.13	None
Virginia[3]	5	1.7	None	4.3	2	Starting project to expand wastewater plant and reduce mercury; projected completion 1st quarter 2013.

Source: Northland Connection 2012.

Notes:
[1] MGD = million gallons per day.
[2] Soudan and Tower share resources
[3] Data reflect current wastewater system. Once wastewater upgrade is complete, capacity will increase to 9.9 mg/d and average demand will go up to 3.1 mg/d.

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Emergency Services

Table 4.2.10-16 illustrates the available public safety resources. Each county in the study area has its own sheriff's department, which provides law enforcement and other services for unincorporated areas. Municipalities provide their own police protection, except for Aurora, which contracts with the St. Louis County Sherriff's Office (SLCPD 2012) and Biwabik, which receives law enforcement from Gilbert (Northland Connection 2012). The St. Louis County Sheriff's Office also maintains countywide 911 service, coordinating police, fire, and emergency medical response. Similarly, each community maintains its own fire department, typically a volunteer department. The City of Babbitt fire department provides emergency response to the Northshore Mine, and has up-to-date equipment.

A variety of public and private ambulances provide emergency medical service for the study area. Ambulance service is integrated into some municipal fire departments (such as Babbitt, Duluth, Hibbing, and Virginia). Other municipalities either contract with nearby cities or with private ambulance services.

Table 4.2.10-16 Public Safety

Geography	Police Officers	Firefighters	EMS Ambulance Personnel
Aurora	5	22	7
Babbitt	4	35	25
Biwabik	7[(2)]	21	21
Duluth	152	125	48
Ely	8	32	27
Hibbing	30	23	19
Hoyt Lakes	6	21	23
Soudan/Tower[1]	1	15	19
Virginia	18	21[3]	21[3]

Source: Northland Connection 2012.

Notes:
[1] Soudan and Tower share resources.
[2] Biwabik receives law enforcement from Gilbert.
[3] Firefighters are full-trained EMS and operate ambulance services from fire hall.

Medical Services

The study area communities are served by both medical clinics and hospital facilities. The closest medical facility to the NorthMet Project area is Essentia Health Northern Pines in Aurora. This 16-bed facility has Level IV trauma status, indicating that staff are able to stabilize patients for transport to more advanced trauma centers (Essentia 2012). Other nearby Level IV trauma centers are in Ely and Virginia, while the nearest advanced care (Level II) hospitals are Essentia Health St. Mary's Medical Center and St. Luke's Hospital, both in Duluth (MDH 2011).

Education

Table 4.2.10-17 shows the capacity and enrollment of public schools. As with other public services and facilities, each municipality maintains its own public school system, supplemented with county-run independent school systems. Most public schools in the region are designed to

accommodate larger populations. Some jurisdictions, such as the Duluth school district, are choosing to close or repurpose school buildings.

Table 4.2.10-17 Capacity and Enrollment of Public Schools

Geography	Capacity	Enrollment	Facilities to be Upgraded, Replaced, Combined, or Closed
Aurora[1]	1,500	886	The district plans to replace boilers and resurface parking lots at their facilities.
Babbitt	1,200	348	None
Biwabik[1]	1,500	886	The district plans to replace boilers and resurface parking lots at their facilities.
Duluth	9,800	8,308	School district is downsizing and modernizing its facilities, resulting in one less high school, one less middle school, two less elementary schools, and one less K-8 facility.
Ely	1,775	542	None
Hibbing	2,680	2,319	None
Hoyt Lakes[1]	1500	886	The district plans to replace boilers and resurface parking lots at their facilities.
Tower/Soudan[2]	175	94	None
Virginia	1,623	1,623	Considering setting up portable classrooms for fall 2012; community is in the process of securing funding and support to either add or build new facilities.

Source: Northland Connection 2012.

Notes:
[1] These communities are part of the Mesabi School district.
[2] Soudan and Tower share resources.

The region is also served by a number of community and technical colleges (MNSCU 2012):

- **Mesabi Range Community and Technical College (Virginia and Eveleth)**: Offers 50 diploma, certification, or degree (A.A.) programs, with notable specialties in wind energy technology, and human services.
- **Vermilion Community College (Ely):** Offers 30 programs, many focused on environmental programs and outdoor careers, such as water quality science, outdoor therapeutic recreation, sports management, park ranger training.
- **Hibbing Community College:** Offers a mix of more than 40 programs ranging from traditional liberal arts to career-oriented programs.
- **Fond du Lac Tribal and Community College (Cloquet):** Offers nearly 40 programs, ranging from liberal arts and nursing to specialty programs in American Indian studies, geospatial technologies, environmental science, and clean energy technology.
- **Lake Superior College (Duluth):** Offers nearly 100 programs, with heavy emphasis on nursing and other medical specialties, along with a full range of liberal arts and professional training.

The study area is also home to two 4-year institutes of higher learning. These include the University of Minnesota Duluth, with nearly 12,000 enrolled undergraduate, graduate, and other

students (University of Minnesota Duluth 2011); and the College of St. Scholastica in Duluth, with more than 4,000 enrolled students (CSS 2012).

4.2.10.1.6 Subsistence

There is no nationwide federal definition of subsistence, nor has the State of Minnesota developed a formal definition. Title VIII of the Alaska National Interest Lands Conservation Act (P.L. 96-487) defines subsistence for rural Alaska residents (regardless of whether they are Native American) as:

> the customary and traditional uses…of wild renewable resources for direct, personal, or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of non-edible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade.

This Alaskan definition is consistent with subsistence activities within the study area as well. For many study area residents, particularly members of Bois Forte, Fond du Lac, and Grand Portage, as well as other Native American bands, subsistence hunting, fishing, trapping, and gathering activities are a significant activity. Individuals participate in subsistence activities for numerous reasons, including food supply, personal income, and the continuance of cultural customs and traditions.

As part of the 1854 Treaty, the Lake Superior Chippewa retain the right to hunt, fish, and gather in the 1854 Ceded Territory, which can be viewed as a continuation of their traditional, subsistence-based economy.

A 2002 study of subsistence activities amongst the Bois Forte and Grand Portage Bands (Vogt 2004) demonstrates the wide variety of species and items collected as part of subsistence activities in the study area, including the following:

- fish: more than 25 species, with the most commonly harvested being walleye, northern pike, lake trout, and crappie;
- birds and mammals: more than 10 species, with the most commonly harvested being deer, grouse, moose, and duck; and
- plants: more than 12 species/items, with the most commonly harvested being wild rice, various berries, and maple sap/syrup.

Among the survey respondents, subsistence activity (including hunting, fishing, and plant gathering) accounted for approximately one meal per week. Subsistence activity typically occurs either on Native American reservations or within other parts of the 1854 Ceded Territory. Fishing and hunting occur throughout the year, although harvesting fish for consumption is more prevalent during warmer months, while harvesting land animals is more prevalent during colder months (Vogt 2004). Grand Portage's subsistence fish consumption averages 144 grams/day, five times higher than the MPCA assumed fish consumption rate of 30 grams/day. Fond du Lac's subsistence fish consumption is on average 60 grams/day, two times higher than the MPCA assumed fish consumption rate (MPCA 2012d). The effects of mercury bioaccumulation on subsistence activity are discussed in Section 5.2.10.2.6.

In addition to the survey results described above, Table 4.2.9-4 in Section 4.2.9 shows other animal and plant species that have historically been and/or could potentially be harvested in the 1854 Ceded Territory.

The 1854 Treaty Authority manages big game (moose, deer, and bear) hunting, as well as furbearer trapping (pine marten, fisher, otter, and bobcat) on behalf of the Bois Forte and Grand Portage bands, in accordance with a 1988 negotiated agreement with Minnesota. Under this agreement, big game harvests are limited. Harvests for all species (including big game and trapping) have generally declined since 1994 (Edwards 2012).

The Mine Site and Transportation and Utility Corridor fall partially within the state-defined moose harvest area, although no moose were harvested by the bands within approximately 20 miles of this location from 1994-2011. The majority of deer hunting and a portion of furbearer trapping occurred in St. Louis County during this time period (Edwards 2012).

4.2.11 Recreation and Visual Resources

This section describes the recreational facilities and activities that typically take place in the NorthMet Project area, as well as the surrounding Arrowhead region. Because recreation in this region is strongly tied to the aesthetic condition of the landscape, this section also describes the visual setting of the NorthMet Project area and surrounding land.

4.2.11.1 Mine Site

4.2.11.1.1 Recreational Facilities and Activities

Surface rights to the Mine Site and adjoining federal lands are held by the USFS, and the Mine Site is part of the Superior National Forest. Management of the physical, biological, and social resources of the Superior National Forest is set forth in the Forest Plan. Intended to ensure that ecosystems are capable of a sustainable flow of beneficial goods and services, the Forest Plan includes guidelines and standards for almost 20 activities and categories of resources within the Superior National Forest including recreation and scenic, or visual, resources.

Recreation opportunities in the Superior National Forest are managed within the framework of the Recreation Opportunity Spectrum (ROS). Using criteria that consider distance to roads, motorized lakes, and trails (i.e., lakes and trails where motorized transportation is permitted), this system includes five ROS classes, each of which prescribes a set of recreational settings, opportunities, and experiences. At one end of the ROS, areas designated “primitive” have little evidence of people and are difficult to access. At the other end of the ROS, “rural” areas are more accessible and provide developed facilities as well as opportunities to interact with other recreationists.

Most of the Mine Site is within the Semi-Primitive Motorized ROS, with a small portion falling within the Roaded Natural ROS. Both ROS designations indicate areas where motor vehicles may be permitted, where interactions between visitors are intended to be infrequent, but where human activity such as timber harvesting may be visible.

While this designation permits recreational activity, the Mine Site is entirely surrounded by private, restricted property, roads, and railroads. In particular, the Northshore Mine borders the Mine Site to the north, the restricted-access Plant Site borders the Mine Site to the west, and the Transportation and Utility Corridor isolates the Mine Site from adjacent portions of the Superior National Forest to the south. Some portions of the Mine Site are contiguous with Superior National Forest and state-owned public land, notably the eastern boundary of the Mine Site. However, these public lands are also encircled by restricted property, roads, and railroads. The Mine Site is accessible by water via the Partridge River, but there is no public land access to, and no practical opportunity to engage in recreational activity at, the Mine Site.

The region surrounding the Mine Site and adjoining federal lands is a popular and highly valued destination for recreation. Recreational activities that typically occur within 25 miles of the federal lands include (but are not limited to):

- Boating and camping in the BWCAW (approximately 20 miles north of the federal lands) and other local, state, and federal lands.
- Hunting, fishing (particularly in the Embarrass and Partridge Rivers), and hiking.

- Year-round recreation, including downhill skiing at the Giants Ridge Golf & Ski Resort (approximately 13 miles east of the Mine Site and eight miles from the Plant Site), cross-country skiing, snowmobiling, mountain biking, hiking, and golf.
- Biking, hiking, and roller-blading on the Mesabi Trail, which spans 70 miles across the Iron Range.

These activities typically do not occur in the immediate vicinity of the Mine Site, Plant Site, and Transportation and Utility Corridor. For example, the nearest designated USFS campgrounds are Cadotte Lake, 16 miles southeast, and Birch Lake, 12 miles north. There are two back-country camping facilities on Stone Lake and Big Lake, approximately 8 miles southeast of the Mine Site. Additionally, there are six backcountry camping facilities on Birch Lake approximately 8 mile north of the mine site. The nearest designated boat launch (Colby Lake) is 5 miles away, and there are also two boat access points on Birch lake approximately 7 miles north of the mine site. The nearest designated USFS trail (including the St. Louis River and Bird Lake Trails) is the Stony Spur ATV/snowmobile trail which is 5 miles from the mine site. The USFS Birch Plantation ski trails are approximately 6 miles from the mine site. The USDA Visitor Use report for the Superior National Forest indicates that the forest received 1.1 million national visits in 2011, with roughly 76 percent of those visits being for recreational purposes. The Visitor Use report defines a visit as “the entry of one person upon a national forest to participate in recreation activities for an unspecified period of time” (USFS 2012). It is important to note that the Visitor Use Report does not contain information about specific types of visitation to specific parts of the Superior National Forest.

4.2.11.1.2 Visual Resources

The NorthMet Project area lies within and adjacent to Superior National Forest, which provides over 3 million acres of rich and varied visual resources (USFS 2007c). The visual character of the NorthMet Project area varies from upland forests and wetlands to developed industrial areas. There are several active, closed, and reclaimed mines near the NorthMet Project area, and evidence of past and ongoing mining (such as reclaimed or abandoned waste rock piles) is present in many parts of the area surrounding the Mine Site.

The Mine Site and the adjoining federal lands are located along the south flank of the Mesabi Iron Range, immediately south of the Giants Range formation (see Figure 1.1-1). The Iron Range supports numerous active mining operations, including the Northshore taconite mine located north of the Mine Site. The Mine Site is relatively flat, with elevations between 1,570 ft and 1,600 ft amsl. The Giants Range formation is the dominant landscape feature in the area. It rises steeply to an average elevation of approximately 1,700 ft amsl (with some elevations above 1,800 ft amsl) along the ridgeline (approximately 1 to 2 miles from the Mine Site), and declines approximately 150 to 200 ft on its northern flank. The One Hundred Mile Swamp, Partridge River, and the Northshore Mine are to the north between the Mine Site and the Giants Range.

The Mine Site is surrounded by wetlands (including the One Hundred Mile Swamp) and mixed deciduous and coniferous upland forests to the east, south, and west. The average canopy height in the upland forest is 30 to 60 ft with occasional white pine and white spruce in excess of 70 ft. In the wetland areas, the coniferous canopy is approximately 30 to 40 ft while the deciduous growth is less than 20 ft tall. The Partridge River makes a horseshoe bend around the north, east, and south sides of the Mine Site.

The nearest potential visual receptors to the Mine Site—places where the public may be able to see the Mine Site on a regular basis, such as homes or public roads with open views—are illustrated on Figure 4.2.11-1. The ability to view the Mine Site is highly dependent on the topography and foliage present at a viewer's specific location, but views of the Mine Site may be present at:

- clusters of rural homes, approximately 7 miles to the south near the unincorporated village of Skibo;
- the City of Hoyt Lakes, approximately 9 miles to the southwest;
- along Lake County Road 2 within the incorporated limits of the City of Babbitt, approximately 12 miles to the east; and
- the Skibo Vista Scenic Overlook, along Lake County Highway 15, approximately 12 miles south (see Figure 4.2.11-2).

The Mine Site may also be visible from Forest Road 112, which passes less than 2 miles from the Mine Site; however, traffic on this road is likely to be low, given the absence of population centers or significant recreational sites along the road.

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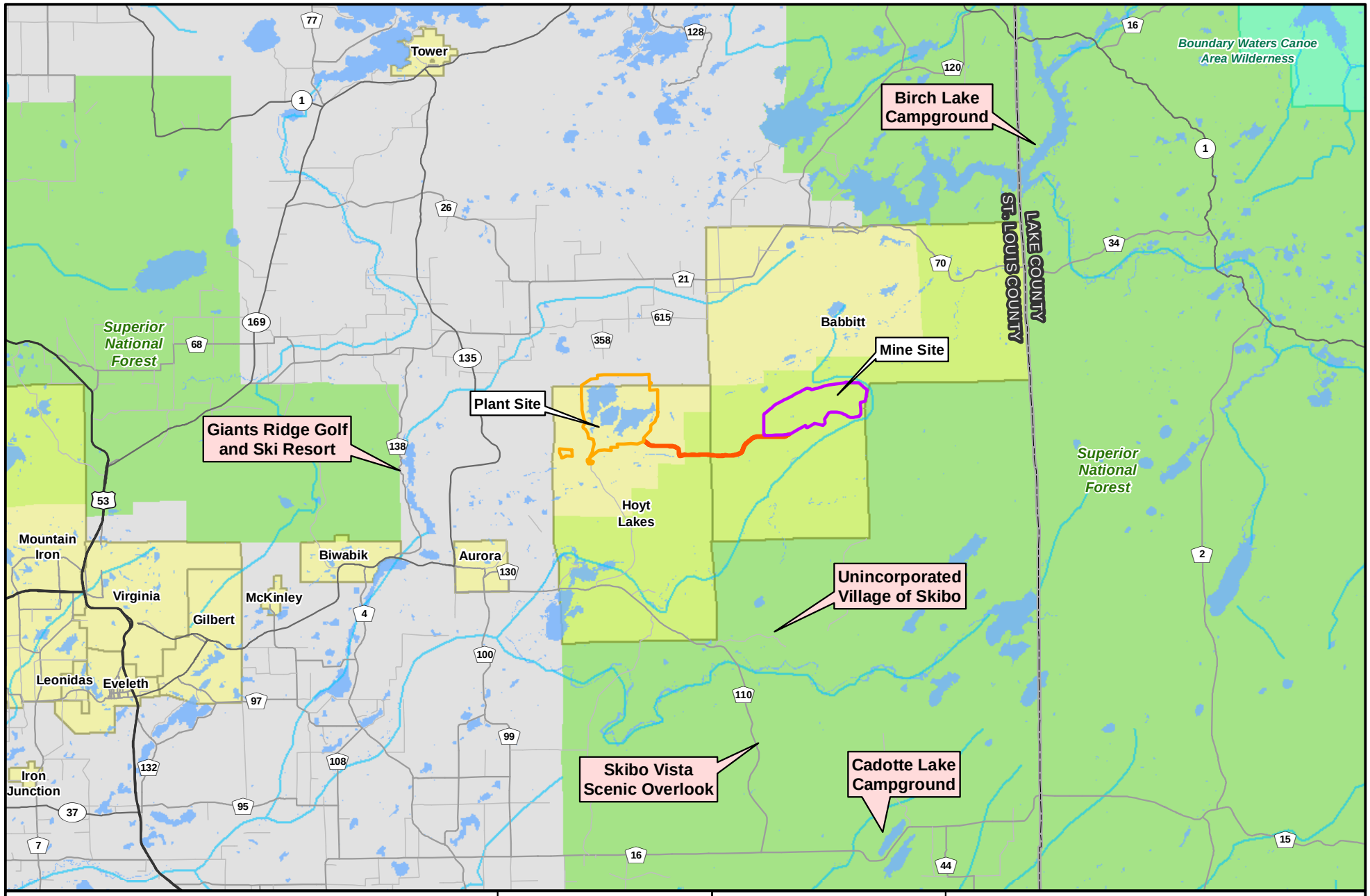

Mine Site
Plant Site
Transportation and Utility Corridor
Municipal Boundary
Boundary Waters Canoe Area Wilderness
National Forest
City/Town
Streams/Rivers
Lakes

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

0 1 2 4 6 Miles

Figure 4.2.11-1
Representative Visual Receptors
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Figure 4.2.11-2
Mine Site and Plant Site, as Viewed from Skibo Vista Scenic Overlook
NorthMet Mining Project and Land Exchange FEIS
Minnesota
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The USFS uses the Scenery Management System to identify desired visual conditions within National Forests. The Scenery Management System uses Scenic Integrity Objectives (SIOs) to express these desired conditions. The SIO designations for Superior National Forest are defined in the Forest Plan. SIO definitions are as follows (based on USFS 1995):

- Low SIO: The landscape appears moderately altered, and non-natural landscape features may begin to dominate.
- Moderate SIO: The landscape appears slightly altered. Non-natural features or activities may be apparent, but do not dominate.
- High SIO: The landscape appears unaltered, essentially in a "natural" state, with minimal evidence of non-natural features or activities.

The Mine Site and adjoining federal lands are designated by the USFS as areas of Low SIO. Within this designation, the landscape appears altered, and non-natural landscape features may begin to dominate. There are no major recreational trails within the portion of Superior National Forest adjacent to the Mine Site that would expose recreational users to views of the mine on a regular basis.

Native American tribal members exercise rights to hunt, fish, and gather on Superior National Forest lands, including lands near the Mine Site. The frequency with which tribal members exercise these rights in portions of Superior National Forest with views of the Mine Site is not known; however, as described in Sections 4.2.9 and 5.2.9, there are several cultural resources and locations adjacent to or potentially within sight of the Mine Site (as well as the Plant Site and Transportation and Utility Corridor), such as the Spring Lake Mine, Sugarbush, Partridge River Segment of the BBLV Trail, and *Mesabe Widjiu*. Note that these sites are not depicted in the figures in this section due to sensitivity regarding cultural resources and locations.

4.2.11.2 Transportation and Utility Corridor

4.2.11.2.1 Recreational Facilities and Activities

The Transportation and Utility Corridor is within an area with a Roaded Natural ROS designation. This designation indicates areas that are mostly natural in appearance (with some modification), and where evidence of other users and interactions between users are somewhat frequent. The Transportation and Utility Corridor is owned or leased by PolyMet, and is not open to the public. Entry points are gated and/or guarded, and crossing the corridor is prohibited. No recreational activity is permitted along the corridor.

4.2.11.2.2 Visual Resources

The Transportation and Utility Corridor follows Dunka Road between the Mine Site and the Plant Site and includes existing road and rail lines. Viewpoints for the corridor are the same as those for the Mine Site and Plant Site. The portions of Superior National Forest near the Transportation and Utility Corridor are within the Low SIO designation. As described in Section 4.2.11.1, users of culturally important locations may have views of the Transportation and Utility Corridor.

4.2.11.3 Plant Site

4.2.11.3.1 Recreational Facilities and Activities

The Plant Site is located at the former LTVSMC processing plant. It is owned by PolyMet, and it is not open to the public. Entry roads are gated and/or guarded. No recreational activity is permitted at this site. Because the Plant Site is not in Superior National Forest, it does not have an ROS designation.

4.2.11.3.2 Visual Resources

Topography at the Plant Site rises from approximately 1,550 ft amsl near the railroad at the south end of the plant to approximately 1,780 ft amsl at the north end adjacent to the Tailings Basin (on the northern flank of the Giants Range). The inactive LTVSMC industrial processing buildings—including crushing, grinding, concentrating, and maintenance and pellet storage/rail loading facilities—were constructed in the 1950s, and dominate the visual landscape at the Plant Site. The nearest potential visual receptors are residences approximately 3.5 miles north of the Plant Site on County Road 358 and County Road 615. These rural residences are outside the incorporated limits of the cities of Babbitt and Hoyt Lakes. The City of Hoyt Lakes is the next closest visual receptor and is approximately 5 miles south of the Plant Site. The Tailings Basin and some buildings at the Plant Site would likely be visible from the ski slopes at the Giants Ridge Golf and Ski Resort, approximately 8 miles west-southwest of the Plant Site.

The existing LTVSMC Tailings Basin is located to the north of the buildings, with legacy mine pits and waste rock stockpile sites to the south and east and a railroad to the west. Second Creek and its headwater wetlands also border the site immediately to the south. The Tailings Basin is surrounded by wetlands and low, forested (mixed coniferous and deciduous) uplands to the north, east, and west. The closest residences to the Tailings Basin are along Beckman Road and Salo Road, approximately 1.5 and 2.5 miles north of the Tailings Basin, respectively. Some of the culturally important locations described above and in Section 4.2.9 are closer: the Sugarbush is approximately 0.5 mile from the Plant Site, the *Mesabe Widjiu* intersects the Plant Site and is less than 2 miles from the Mine Site, and portions of the Partridge River Segment of the BBLV Trail cross both the Mine Site and Plant Site. As described above for the Mine Site, users of these culturally important locations may have views of the Plant Site.

Because the Plant Site is not in Superior National Forest, it does not have an SIO designation.

Figure 4.2.11-1 shows the Plant Site in relation to the Mine Site, from the Skibo Vista Scenic Overlook, approximately 13 miles south of the Plant Site.

4.2.12 Wilderness and Other Special Designation Areas

For this analysis, the term "wilderness" is defined by the Wilderness Act of 1964 (Public Law 88-577) (16 USC §§ 1131-1136). In its planning, management, and monitoring, the USFS identifies four characteristics of wilderness, as defined in the Wilderness Act:

- Untrammeled: The Wilderness Act states that wilderness "[is] an area where the earth and its community of life are untrammeled by man," and "generally appears to have been affected primarily by the forces of nature." This quality monitors human activities that directly control or manipulate the components or processes of ecological systems inside wilderness.
- Undeveloped: The Wilderness Act states that wilderness is "an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation," "where man himself is a visitor who does not remain" and "with the imprint of man's work substantially unnoticeable." This quality monitors the presence of structures, construction, habitations, and other evidence of modern human presence or occupation.
- Natural: The Wilderness Act states that wilderness is "protected and managed so as to preserve its natural conditions." This quality monitors both intended and unintended effects on ecological systems inside a wilderness. The natural quality of wilderness character may potentially be affected by actions located outside the wilderness through effects on water quality and air quality.
- Solitude or a Primitive and Unconfined Type of Recreation: The Wilderness Act states that wilderness has "outstanding opportunities for solitude or a primitive and unconfined type of recreation." This quality monitors conditions that affect the opportunity for people to experience solitude or primitive, unconfined recreation in a wilderness setting. An indicator of this quality is remoteness from occupied and modified areas outside the wilderness, such as noise or visual effects.

Other federal special designation areas are identified by Presidential Designation, Congressional Designation, or Administrative Designation, and define lands that are considered to have remarkable ecological, paleontological, historic, scenic, recreational, geologic, or fish and wildlife value. They include wilderness areas, wilderness study areas, RNAs and cRNAs, national scenic or historic trails, wild or scenic rivers, UBAs, national natural landmarks, national historic landmarks, and national monuments, among others. These special designation areas are managed by federal land management agencies such as the BLM, USFS, National Park Service, and USFWS. The state similarly designates areas for special management due to their wilderness value.

None of the elements of the NorthMet Project Proposed Action are located within or adjacent to any wilderness areas. Similarly there are no special designation areas within or adjacent to the Mine Site, Plant Site, or Transportation and Utility Corridor. While recreation facilities such as parks are listed in this section, recreational use of those facilities is described in Section 4.2.11.

4.2.12.1 Federally Managed Areas

This section discusses federally managed wilderness and special designation areas that are close enough to the NorthMet Project area that they may be affected by activities related to the

NorthMet Project Proposed Action. Isle Royale National Park is outside of the study area for evaluation of Wilderness and Other Special Designation Areas; however, the visibility analyses in Section 5.2.7.2.2 do include Isle Royale National Park.

4.2.12.1.1 Wilderness Areas

The NorthMet Project area is approximately 20 miles south of the BWCAW (see Figure 4.2.12-1). Portions of the BWCAW were formally designated as a wilderness area in 1964 under the Wilderness Act. This wilderness area was further expanded and given its current name in 1978 under Public Law 95-495, and now encompasses more than 1 million acres along the United States' international boundary with Canada. The BWCAW is managed by the USFS as part of the larger Superior National Forest. It attracts more than 250,000 visitors annually and is used year-round for camping, hiking, fishing, canoeing, and hunting. Motorized vehicle use is limited. Activity and access are controlled by use permits managed by the USFS (USFS 2004c).

The BWCAW contains several hundred miles of streams and approximately 1,175 lakes that vary in size from 10 to 10,000 acres. Together, there are about 190,000 acres of open water or 20 percent of the surface area of the BWCAW that provides opportunities for long-distance travel by watercraft. The BWCAW is the only large lakeland wilderness in the National Wilderness Preservation System (USHR 1978).

The wilderness has approximately 80 entry points that provide access to 1,200 miles of designated canoe routes, 18 hiking trails, and nearly 2,200 campsites. There are numerous cultural resources in the BWCAW including camp sites, villages, wild ricing sites, cemetery areas, pictographs, and sites of spiritual and traditional importance. The wilderness also contains evidence of a number of historic European and early Native American activities.

The same 1978 law that created the BWCAW also designated the BWCAW as a Mining Protection Area. This designation prohibits exploration, lease, and exploitation of minerals in the wilderness, and the prohibition of mineral exploration or exploitation on property owned by the United States if that activity could materially change the wilderness characteristics of the BWCAW (USHR 1978).

Voyageurs National Park is adjacent to the BWCAW and is located approximately 50 miles northwest of the NorthMet Project area (see Figure 4.2.12-1). The National Park Service manages nearly 127,500 acres of park lands designated for wilderness study. The BWCAW and Canada's Quetico Provincial Park, which is managed as a wilderness park, are contiguous along the international boundary. Together, these three areas represent 2.39 million acres of managed wilderness area.

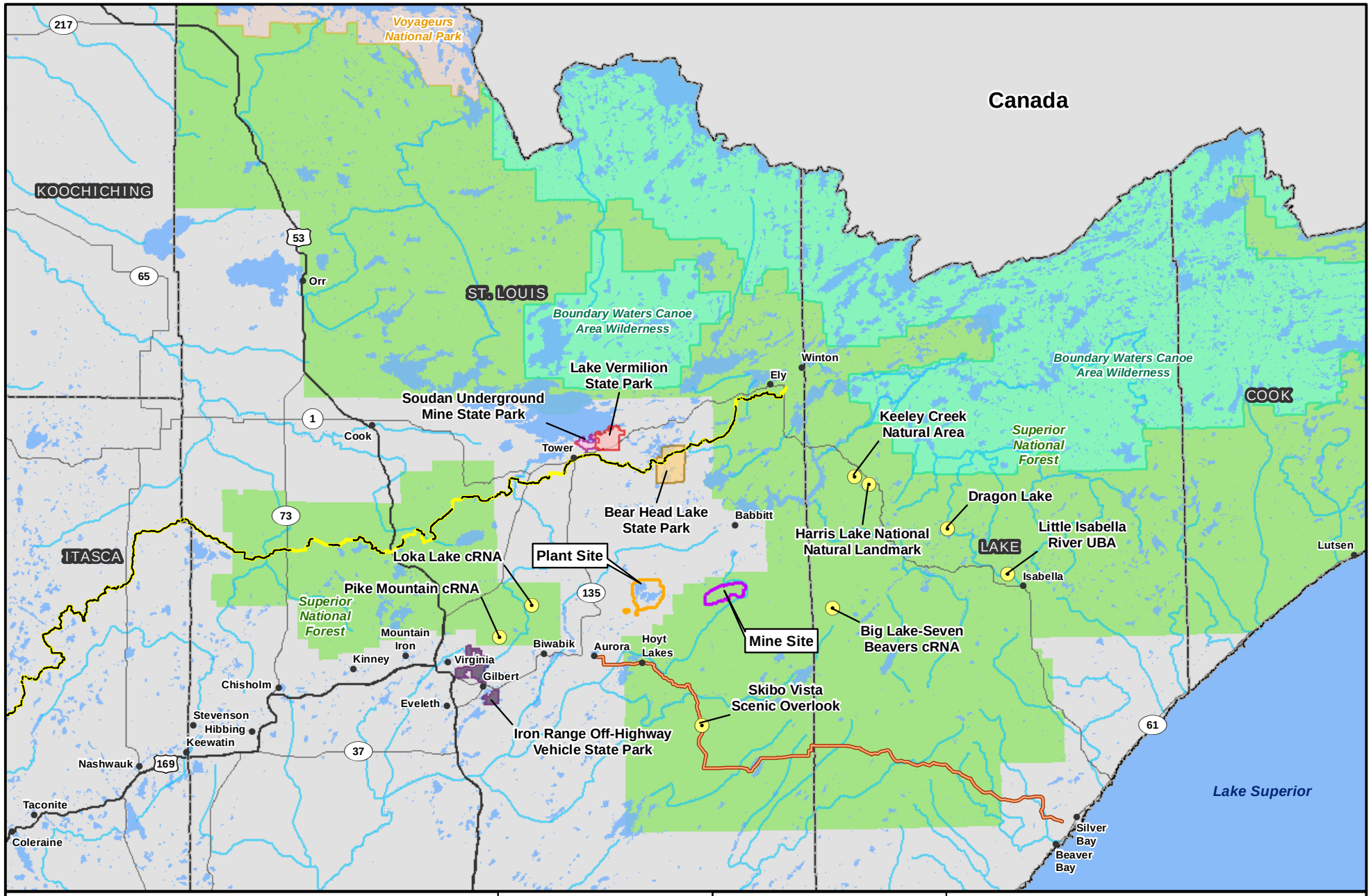

Figure 4.2.12-1
Wilderness and Special Designation Areas
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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4.2.12.1.2 Established and Candidate Research Natural Areas

The Forest Service designates and manages RNAs and cRNAs for the purpose of preserving and maintaining areas for ecological research, observation, genetic conservation, monitoring, and educational activities (USFS 2004b). The RNAs may serve as baseline or reference areas for comparison to other similar ecosystems that are subject to a wider range of management activities. They also provide opportunities for low-impact activities designed to educate people about ecological processes. No recreation facilities are provided. Dispersed recreation use occurs but is generally not encouraged. The cRNAs are managed in similar fashion to the RNAs, with the exception that semi-primitive, non-motorized recreation is permitted.

Three RNAs are within 25 miles of the NorthMet Project area: the Big Lake – Seven Beavers cRNA, the Keeley Creek RNA, and the Dragon Lake cRNA.

The Big Lake – Seven Beavers Area includes an excellent representation of a variety of characteristic upland and lowland plant communities, dominated by wetland communities including lowland black spruce, lowland cedar, shrub swamp, and bog, connected to Sand Lake Peatland SNA (managed by the MDNR). The 5,599 acres of the cRNA are located approximately 12 miles east of the NorthMet Project area (USFS 2011h) (see Figure 4.2.12-1). This cRNA (and adjacent Sand Lake Peatland SNA) is located within the St Louis River Watershed headwaters, an area of ecological significance. Due to high biodiversity, low disturbance, and the size and complexity of the peatlands present on the site, it is considered a blueprint for natural resource management in the Laurentian Uplands subsection.

Keeley Creek Natural Area, located within the Superior National Forest in Stony River Township, approximately 25 miles northeast of the NorthMet Project area (see Figure 4.2.12-1), comprises 640 acres designated as an RNA within a larger 1,180-acre area designated as a national natural landmark. The Keeley Creek area contains a large tract of undisturbed mixed pine and black spruce forest with rare mature jack pine stands and significant upland bogs (USFS 2011h).

Dragon Lake is located approximately 25 miles northeast of the NorthMet Project area (see Figure 4.2.12-1). The cRNA comprises 2,075 acres of old growth red pine, upland and lowland black spruce, wetland bog, and wetland shrub swamp communities, as well as former Isabella pinery (USFS 2011h).

4.2.12.1.3 Unique Biological Areas

UBAs are designated by the USFS for their outstanding biological and other special values and managed within the USFS land and natural resource management plans. The common thread to these areas is that they exhibit plant communities, associations, and/or individual species of particular interest. UBAs are primarily managed for interpretive purposes. None are suitable for timber management. The Dry Mesic Jack Pine/Black Spruce and Lowland Conifer Landscape Ecosystems dominate this area in the Superior National Forest. UBAs are protected from actual or potential damage due to public use. Dispersed recreation use may occur, but is generally discouraged, and may be limited to bird watching, orienteering, fishing, hunting, berry picking, plant identification, and wildlife viewing (USFS 2004b).

UBAs within the 25-mile vicinity of the NorthMet Project area include the Little Isabella River UBA (approximately 25 miles east of the NorthMet Project area) and the Harris Lake National Natural Landmark (approximately 20 miles northeast of the NorthMet Project area) (USFS

2004b) (see Figure 4.2.12-1). National Natural Landmark sites are designated by the Secretary of the Interior as sites that contain outstanding biological and geological resources, based on their outstanding condition, illustrative value, rarity, diversity, and value to science and education.

4.2.12.1.4 National Historic Landmark

National Historic Landmarks are nationally significant places designated by the Secretary of the Interior as possessing exceptional value or quality in illustrating or interpreting US heritage. The Soudan Iron Mine has been designated as a National Historic Landmark. It is known as the state's oldest and deepest iron mine and now hosts the Soudan Underground Laboratory. It resides within the Soudan Underground Mine State Park, located approximately 18 miles northwest of the NorthMet Project area, near Tower, on the southern shore of Lake Vermilion (see Figure 4.2.12-1). The park comprises approximately 1,300 acres and receives more than 33,000 visitors annually (MDNR 2011m).

4.2.12.1.5 National Recreation Trail

National Recreation Trails are designated by the Secretary of Interior or the Secretary of Agriculture to recognize exemplary trails of local and regional significance. The Taconite State Trail is designated as a National Recreation Trail and managed by the MDNR. Running from Grand Rapids to the Arrowhead State Trail, the Taconite State Trail is 165 miles long. A segment of the trail is 15 to 17 miles north of the NorthMet Project area, running from the City of Ely westward to Tower (see Figure 4.2.12-1). Spur trails run south from this segment into the City of Babbitt, and then east and west. The trail provides year-round opportunities for hiking, biking, snowmobiling, in-line skating, and other recreational uses (MDNR 2011n).

4.2.12.2 State-Managed Areas

Like the federal government, the State of Minnesota also designates and/or manages for wilderness values a number of areas.

4.2.12.2.1 Boundary Waters Canoe Area Wilderness

In 2003, Minnesota designated 18,000 acres of state-owned lands within the BWCAW as state wilderness. These are state forest lands that are described as an inholding within the federally designated wilderness. The definition of wilderness used by the state is similar to that set forth in the federal Wilderness Act. Legislation passed in 1975 established the state's wilderness program. *Minnesota Statues* 2006, Chapter 86A.05, subdivision 6 contains management guidelines for wilderness areas. However, the state lands now designated as state wilderness are using the management directions of the larger BWCAW and there is no state wilderness management plan for the area (Propst and Dawson 2008).

4.2.12.2.2 Scenic Byway

Minnesota Scenic Byways are roads that feature many of Minnesota's finest cultural, historic, natural, recreational, archaeological, and cultural locations and landscapes. The Superior National Forest Scenic Byway (Forest Highway 11) is a 54-mile long scenic roadway that runs from Aurora to Silver Bay, with the closest segment approximately 9 miles southeast of the NorthMet Project area along County Route 110 (see Figure 4.2.12-1). It is designated as a scenic byway by the State of Minnesota, but is not specifically managed for wilderness values. The

majority of the Byway runs through the Superior National Forest, offering access to hiking trails, historic sites, and the Superior National Forest itself. A key feature of the Byway is the opportunity it provides travelers to views of 250-year-old stands of white pine (US DOT 2011). Skibo Vista Scenic Overlook is one of the other key features along the Superior National Forest Scenic Byway. See Section 4.2.11 for further information about visual resources at the Skibo Vista Scenic Overlook.

4.2.12.2.3 State Parks

Soudan Underground Mine State Park is located 18 miles northwest (see Figure 4.2.12-1) of the NorthMet Project area and is home to Minnesota's oldest iron ore mine. The park covers 1,322 acres and has 5 miles of hiking trails. The park is located on a ridge on the south shore of Lake Vermilion and offers a combination of recreational opportunities, including picnicking, hiking, snowmobiling, and tours of a former iron ore mine. There are stands of white and Norway pine—mixed with some balsam, aspen, and birch—that cover the upland areas. The lowlands are dominated by white cedar interspersed with balsam, tamarack, black spruce, ash, and muskeg (MDNR 2011m).

Lake Vermilion State Park is 16 miles northwest of the NorthMet Project area (see Figure 4.2.12-1), on the eastern shores of Lake Vermilion, adjacent to Soudan Underground Mine State Park. Lake Vermilion is just south of the Superior National Forest and BWCAW. The park is Minnesota's newest state park, open since 2010 for recreation opportunities such as hiking, snowshoeing, snowmobiling, and geocaching. It is the first major state park built in Minnesota in more than 30 years. Construction is underway for boat docks, fishing platforms, picnic shelters, roads, parking areas, and a paved bike route that will connect to the Mesabi Trail (MDNR 2012f).

Bear Head Lake State Park, which covers 5,685 acres, is located 11 miles north of the NorthMet Project area, just south of the BWCAW (see Figure 4.2.12-1). The woods are made up of red and white pine, spruce, paper birch, and fir on the highlands and tamarack, black spruce, and white cedar on the lowlands. Small, clear trout lakes similar to those found in the BWCAW provide recreational opportunities such as fishing, swimming, and boating. The park also offers 17 miles of hiking trails, campgrounds, cross-country skiing, snowmobiling, and snowshoeing (MDNR 2012a).

Iron Range Off-Highway Vehicle State Park is located 17 miles southwest of the NorthMet Project area in Gilbert, Minnesota (see Figure 4.2.12-1). The park offers 36 miles of off-highway vehicle trails over 4,064 acres (MDNR 2012b).

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4.2.13 Hazardous Materials

A hazardous material, as defined by the Institute of Hazardous Materials Management (IHMM 2012), is any biological, chemical, or physical item or agent which has the potential to cause harm to humans, animals, or the environment. Categories of hazardous materials include, but are not limited to, explosives, flammables, oxidizers, poisons, irritants, and corrosives. At the federal level, management, handling, and transportation of these materials are regulated by laws and regulations administered by the USEPA, Occupational Safety and Health Administration (OSHA), and DOT, each with its own specific definition of hazardous material. The State of Minnesota also has regulations related to hazardous materials.

In addition, wastes generated from process operations can be classified as hazardous. Minnesota Statutes define a hazardous waste as any refuse, sludge, or other waste material or combinations of refuse, sludge, or other waste materials in solid, semi-solid, liquid, or contained gaseous form, which, because of quantity, concentration, or chemical, physical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness. A waste can also be determined to be hazardous if it poses a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed, or otherwise managed. Hazardous waste does not include source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended (*Minnesota Statute* 116.06 Subdivision 11). As with hazardous materials, hazardous wastes are subject to state and federal management, transportation, and disposal regulations. Issues relating to the presence of hazardous materials or waste may include the accidental release of these materials during transportation, storage, handling, and/or use and any resulting potential effects on the environment.

There are no current mining or other operations or activities at either the Mine Site or Plant Site that involve the use of hazardous materials. As discussed in Section 4.2.1, there are AOCs associated with contamination by hazardous materials from the former LTVSMC mining operations.

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4.2.14 Geotechnical Stability

This section describes the existing geotechnical conditions for the proposed sites for the material storage facilities proposed as part of the NorthMet Project Proposed Action: the waste rock stockpiles, the Tailings Basin, and the Hydrometallurgical Residue Facility.

The waste rock stockpiles would be constructed on undisturbed highland and lowland areas at the Mine Site that consist of varying layers (thicknesses and material types) of glacial till and surficial peat. The Tailings Basin constructed as part of the NorthMet Project Proposed Action would be located on top of a portion of the existing LTVSMC Tailings Basin and would extend onto the adjacent undisturbed ground. Geotechnical conditions are generally similar along the length of the LTVSMC Tailings Basin dams, with varying layers of coarse tailings, fine tailings, and slimes. The Hydrometallurgical Residue Facility would be constructed partially on top of the existing LTVSMC Emergency Basin and would extend onto the adjacent undisturbed ground. The characteristics and design of the proposed material storage facilities are discussed in Chapter 3.0, while the rationale of the design—including consideration for design criteria, factors of safety, and modeling of geotechnical stability of the existing and proposed features—is discussed in Chapter 5.0. Further information on the geology and hydrogeology associated with the structures is provided in Section 4.2.2.

4.2.14.1 Waste Rock Stockpiles

4.2.14.1.1 Location and Descriptive Overview

The waste rock stockpiles would be located at the Mine Site, an undeveloped site currently affected only by logging and exploration drilling activities.

The locations of the proposed stockpiles are shown in Figure 4.2.14-1. The acreages for the stockpiles would be as follows:

- The permanent Category 1 Stockpile would occupy 526 acres to the north of the West Pit;
- The temporary Category 2/3 Stockpile would occupy 180 acres to the south east of the East Pit;
- The temporary Category 4 Stockpile would occupy 57 acres above the Central Pit (it would be removed and placed into the East Pit prior to mining at the Central Pit); and
- The temporary Ore Surge Pile would occupy 32 acres to the south of the East Pit and west of the Category 2/3 Stockpile.

In addition to the stockpiles listed above, the temporary Overburden Storage and Laydown Area would occupy 31 acres to the southeast of the West Pit.

There are no existing mining facilities or constructed geotechnical features that are at risk of geotechnical instability at the proposed stockpile locations.

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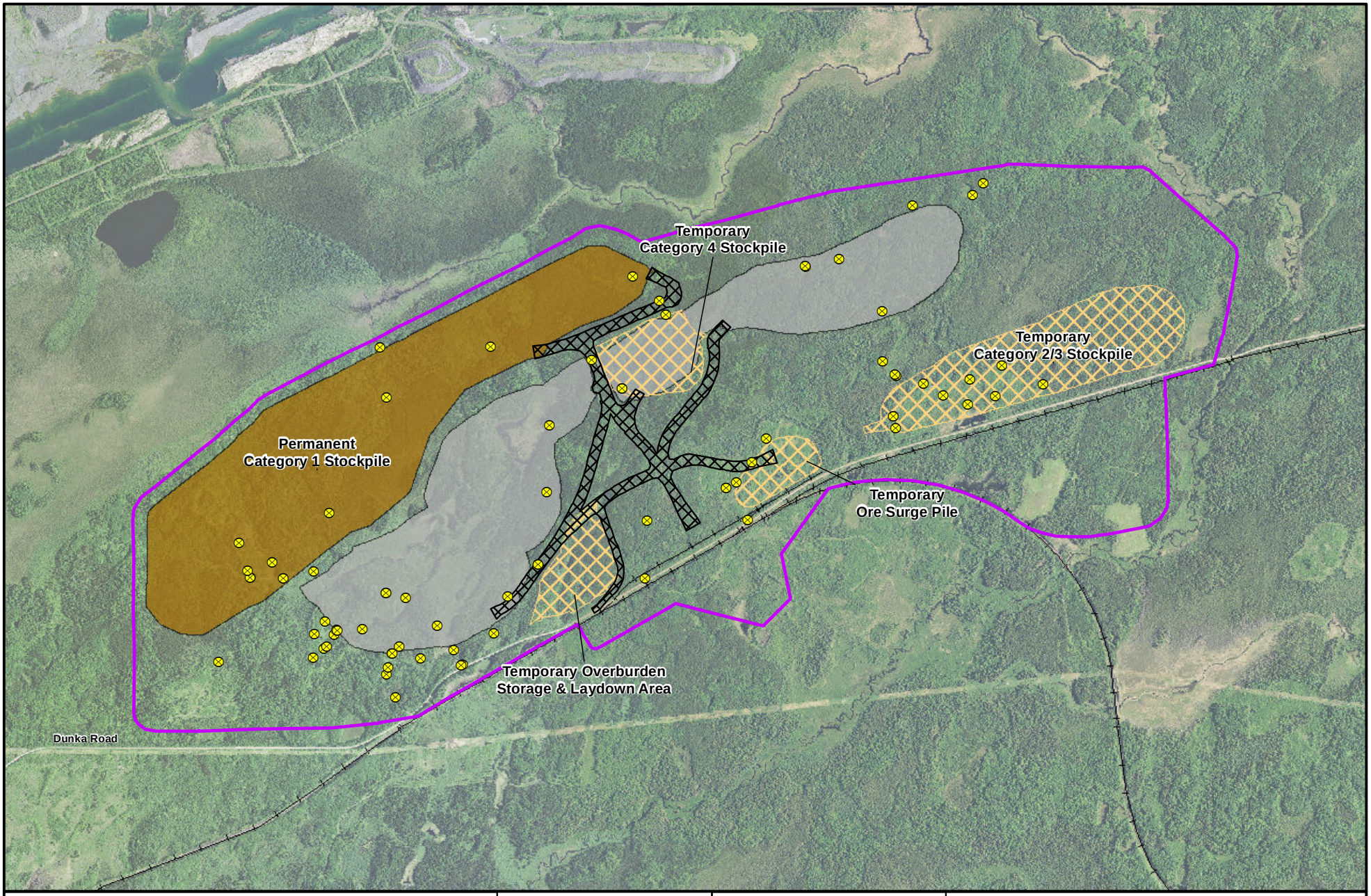

Geotechnical Investigation Location
Mine Site
Permanent Stockpile (Year 20)
Mine Pit (Year 20)
Reclaimed Stockpile (Year 20)
Haul Road (Year 20)

MNDNR
US Army Corps of Engineers
St. Paul District

0 500 1,000 2,000 3,000 Feet

Figure 4.2.14-1
Mine Site Geotechnical Investigation Locations
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4.2.14.1.2 Investigations

The site conditions at the proposed stockpile location have been evaluated and reported by Golder Associates, Inc. for PolyMet (PolyMet 2014p). As shown in Figure 4.2.14-1, geotechnical information for the Mine Site was gathered from a number of borings and test trenches. The site exploration drilling database, drilling logs, and geophysics (electrical resistivity) data were used to develop an estimated depth to bedrock isopach map. Laboratory tests were also conducted to obtain index properties (American Society for Testing and Materials [ASTM] C-117, C-136, D2216) of the samples recovered from the test trenches and boreholes, to confirm field classifications, and for use in developing correlations with engineering properties of the soils encountered.

4.2.14.1.3 Surficial Soils and Geology

Site Conditions for Category 1 Stockpile

Borings and mapping indicate that bedrock depths at the proposed Category 1 Stockpile range from 4 ft in the central part of the northern extent up to 40 ft at the southwestern edge. Soils in the highland areas are glacial tills in origin and the consistency typically varies from coarser material to clays. Geotechnical testing indicates that lowland areas contain horizons of glacial, alluvial, and lacustrine deposits overlain by peat and relatively finer-grained soils.

Site Conditions for Category 2/3 Stockpile

Borings and mapping indicate that bedrock depths at the proposed Category 2/3 Stockpile range from 3.5 to 33 ft below the surface. Soils in the highland areas typically consist of sands and gravel with varying amount of silt. Lowland areas typically contain surficial peat and fine grained soils, underlain by glacial and alluvial deposits.

Site Conditions for Category 4 Stockpile

Borings and mapping indicate that bedrock depths at the proposed Category 4 Stockpile range from 8.0 to 26 ft. The Category 4 Stockpile would be located on highland soils, which typically consist of sands and gravels. Because the soil samples were collected only in the highland areas at the northeastern and the southwestern end of the stockpile, they may differ from foundation soils at other locations within the Category 4 Stockpile footprint, especially in wetland areas.

Site Conditions for Ore Surge Pile

Borings and mapping indicate that bedrock depths at the proposed Ore Surge Pile range from 6.5 to 12 ft. Soil samples were collected only from the highland areas of the stockpile, which may differ from foundation soils at other locations within the Ore Surge Pile stockpile footprint, especially from soils within the lowland areas located on the eastern side of the stockpile.

Site Conditions for Overburden Storage and Laydown Area

The conditions for the Overburden Storage and Laydown Area include wetland areas interspersed with areas of glacial till (typically silty sand) overlying bedrock of varying depth.

NorthMet Waste Rock and Ore Characterization

Analysis of the NorthMet Deposit indicates the average dry density of the waste rock is 1.90 tons per cubic yard with an assumed average of 23 percent porosity (30 percent swell).

Local granular material or crushed rock could be used to provide drainage layers for the stockpiles. Native till could be compacted and supplemented with bentonite to achieve an acceptable permeability relative to *Minnesota Rules*, part 6132.2400, subpart 2A(1) needed for the subgrade and liner layers (along with a geomembrane layer for the Category 2/3 and 4 stockpiles).

4.2.14.1.4 Geotechnical Summary

The majority of the soils collected were non-plastic. Measured in situ moisture contents for non-peat material ranged from 1.0 to 26.9 percent. The permeability of the tested (ASTM D5084, D698) undisturbed native soils ranged from 3.1×10^{-7} to 9.4×10^{-7} cm/sec. The permeability of the tested compacted native soils ranged from 1.1×10^{-7} to 2.0×10^{-7} cm/sec, indicating that the native soils are favorable for use as a compacted soil liner. Typically, the native glacial tills have sufficiently high fines content, and are considered good candidates for materials to be used with the geomembrane cover construction as proposed for the reclamation of the Category 1 Stockpile.

One-dimensional consolidation test (ASTM D2435) and a consolidated-undrained (CU) triaxial shear test (ASTM D4767) were undertaken for one sample taken from the Category 1 Stockpile footprint area. The in situ effective stress strength parameters yielded an effective cohesion of zero with an effective friction angle of 34.6 degrees. The consolidation testing indicated a coefficient of consolidation of 5.3×10^{-1} to 9.6×10^{-1} ft^2/day and a coefficient of compression of 0.05 to 0.13 under the loading range of 1 to 16 kips per square foot (ksf).

Additional geotechnical investigations such as soil borings, test trenches, and geotechnical laboratory tests of on-site materials are required at the locations of the proposed stockpiles to verify the geotechnical information currently available. Examples of information that the additional investigations would yield include: confirmation of the classification of native soils; identification of depths to bedrock and groundwater; identification and delineation of on-site borrow sources; and procurement of additional material samples of waste rock and overburden soils for laboratory testing. This information would be used to modify stockpile and foundation design and confirm the design assumptions and earthwork balance computations. The additional investigations would take place before stockpile construction but cannot be undertaken until the land exchange has been completed, appropriate permitting has been received, and dewatering of the wetland areas has been performed. PolyMet has committed to undertake further investigations as necessary.

4.2.14.2 Tailings Basin

4.2.14.2.1 Location and Descriptive Overview

The Tailings Basin constructed as part of the NorthMet Project Proposed Action would be located on top of the existing LTVSMC Tailings Basin and adjacent undisturbed ground. The LTVSMC Tailings Basin is contained by constructed dams with a small portion on the east and south side of the basin abutting natural higher ground and, as shown in Figure 4.2.14-2, is configured as a combination of three adjacent cells identified as Cell 1E, Cell 2E, and Cell 2W. With an average dam height of 95 ft, Cell 2E is the lowest of the three cells and covers approximately 620 acres in surface area. Cell 1E covers approximately 980 acres and has an average height of 125 ft. Cell 2W is the largest and highest of the three cells, covering approximately 1,450 acres in surface area, with an average dam height of 200 ft.

Additional perimeter dams would be constructed and flotation tailings would be deposited on top of the LTVSMC Tailings Basin, beginning in Cell 2E and then progressing into the combined Cell 2E and 1E when they achieve equal elevation, to a proposed final height of 200 ft. Cell 2W is not proposed for use for tailings deposition. Refer to Chapter 3.0 and Section 5.2.14 for more information on the proposed design of the Tailings Basin.

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Geotechnical Investigation Locations
Cross Section
Contour - 50 Ft
Contour - 5 Ft

MNDNR
US Army Corps of Engineers
St. Paul District

0 1,000 2,000 4,000 Feet

Figure 4.2.14-2
Existing LTVSMC Tailings Basin Layout
NorthMet Mining Project and Land Exchange FEIS
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4.2.14.2.2 Development of the Existing LTVSMC Tailings Basin

The existing LTVSMC Tailings Basin was constructed in stages beginning in the 1950s. Constructed perimeter dams were established using a rock, sand, and gravel starter dam over natural surface material (glacial till and fibrous peat in areas). The facility was unlined such that tailings from taconite processing were discharged directly on native material. The basin was filled to near the crest of the original starter dam and then berms were progressively developed on top of the starter dams and deposited tailings using the discharged coarse tailings (upstream construction method).

Upstream tailings basin construction methods generally involve spigotting of tailings in a slurry from the cell perimeter (or dam) into the interior of the cell using a portable spigotting system. Coarse tailings tend to settle out of the slurry near the spigot point near the perimeter of the dam, while the fine tailings and slimes tend to flow further into the basin. Very fine materials such as slimes tend to settle in the interior pond. The base of new lifts were developed inward in the upstream direction, hence the term upstream construction method.

During the spigotting process, some fine tailings and slimes are normally trapped within the coarse tailings near the spigot point. In periods of very high water levels in the tailings pond or during periods of operational difficulties or operator error, additional fines and slimes may be deposited close to the perimeter dams. Typically, the material near the spigot points forms the foundation of future lifts of the shell, and is preferably a well-drained, coarse material that would provide a stronger base while reducing the height of the phreatic head within the shell. The inclusion of relatively large zones of finer-grained tailings within this outer shell reduces the drainage ability of the shell, increasing the phreatic surface, and reduces the localized shear strength due to the generally weaker behavior of the finer-grained tailings. There were instances during the operation of the LTVSMC Tailings Basin where significant amounts of fine tailings and slimes settled near the perimeter dams. These fine tailings and slimes were then covered with coarse tailings as the basin continued to be developed. Figure 4.2.14-3, Figure 4.2.14-4, and Figure 4.2.14-5 show complex and varying layers of materials identified in drilling along Cross Section F, G, and N. It should be noted that these figures provide idealized cross section information that may not be located exactly along the section lines. As such, some information was translated horizontally to provide a more detailed description of the material variability, and some materials may appear out of context (e.g., for Cross Section F, the left-most boreholes show layers of till found within the tailings; however, these layers of till are projected from boreholes that have a native ground surface at a relatively higher elevation than is shown in this figure). Additional investigation and modeling show similar inclusions throughout the basin. This is discussed further in the Surficial Geology section below.

In 1993, approximately 260,000 long tons of higher-sulfur waste rock from the Dunka Mine was mixed with approximately 29,000 tons of limestone and buried under spigotted LTVSMC tailings in the southern part of Cell 2W. Additionally, in Cell 2W, rapid construction in later years of development resulted in oversteepened dams on all sides of Cell 2W. Some seepage has occurred from the dam in this and other areas. Other points along the dams have been subject to erosion due to the leakage from and failure of LTVSMC discharge pipes, and from the natural geomorphological processes such as melting snow, precipitation runoff, soil creep, wind erosion and others. No large-scale failures were reported due to these events and eroded surfaces were filled with available material as needed.

In 1995 and 1996, approximately 1,500 cubic yards of spoil material dredged from Taconite Harbor in Lake Superior was placed in the south-eastern portion of Cell 1E.

Fly ash, dredging spoil, and coal pile cleanup material have also previously been disposed of in a solid waste storage site upgradient to the east of Cell 1E. PolyMet has committed to remove this material prior to inundation of that area by NorthMet tailings.

The LTVSMC Tailings Basin operations were shut down in January 2001 and have been inactive since then except for closure and reclamation activities consistent with an MDNR-approved Closure Plan. Reclamation also includes the use of some parts of Cell 2W as a land farm where contaminated soil is mixed with organics for remediation. These activities are expected to be completed by 2016.

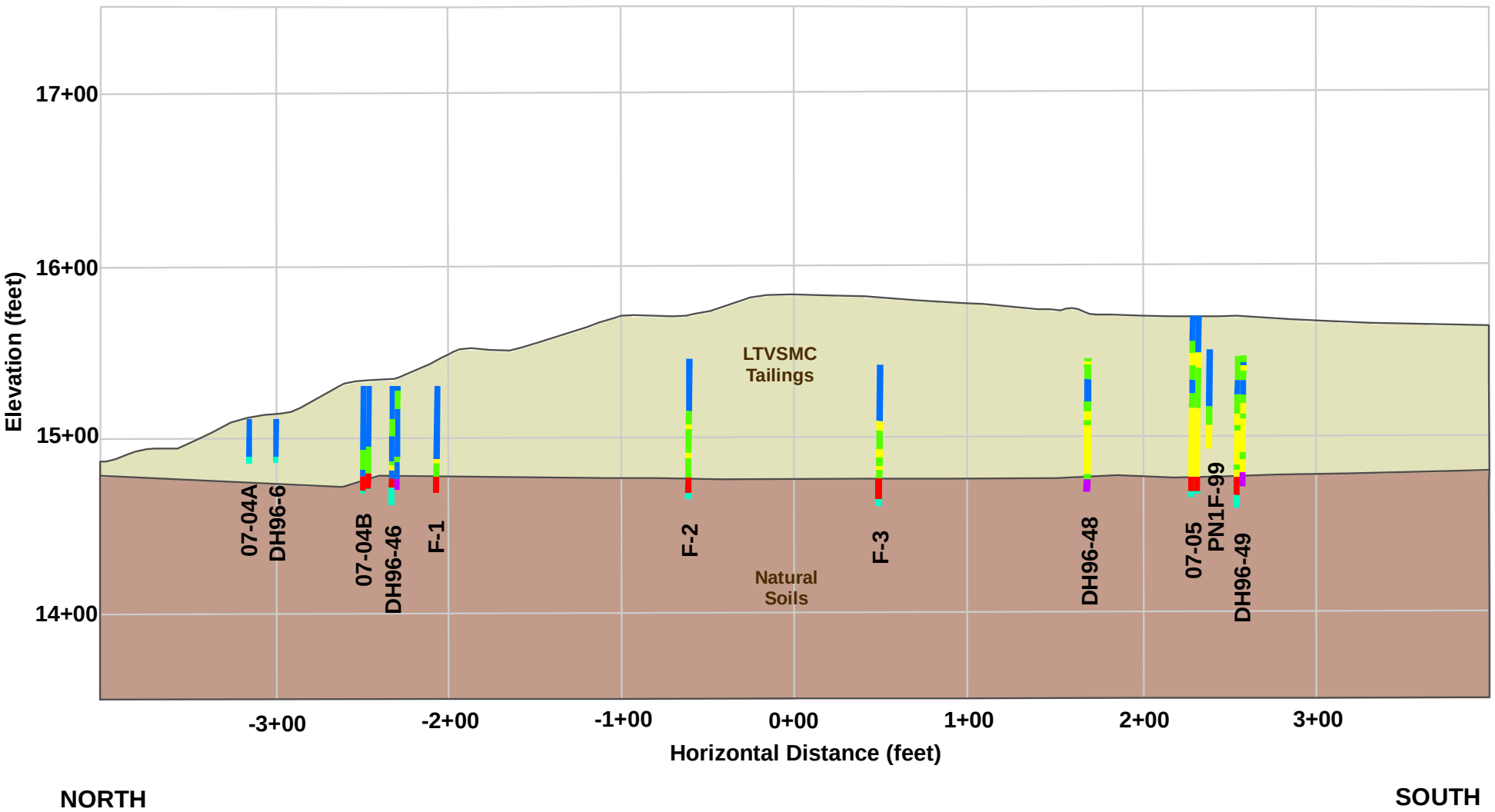

Coarse Tailings
Fine Tailings
Slimes
Clay
Peat
Till

*Colors represent results of boring samples

Figure 4.2.14-3
Tailings Basin - Cross Section F (Existing Conditions)
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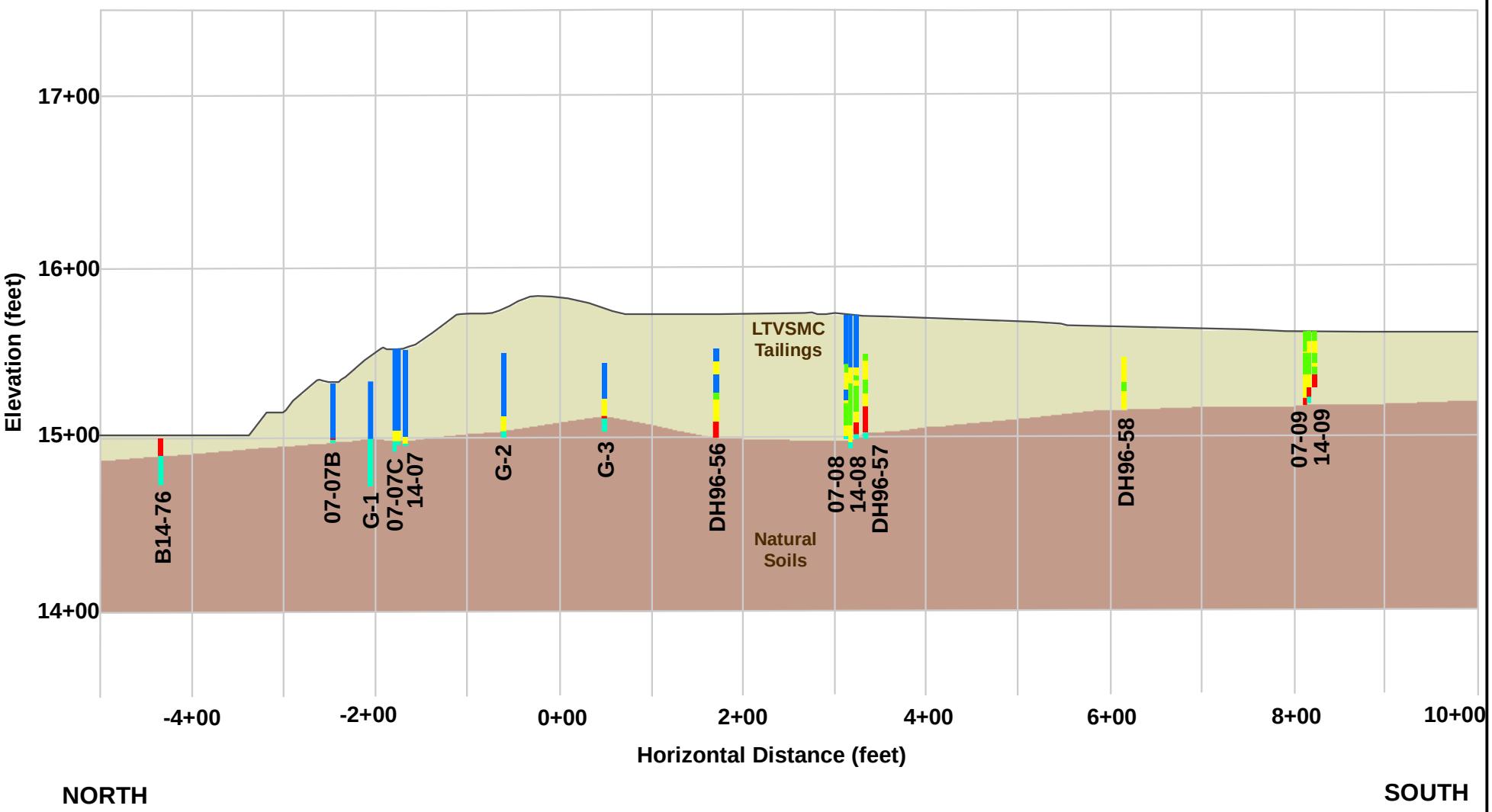

Coarse Tailings
Peat
Fine Tailings
Till
Slimes

*Colors represent results of boring samples

Figure 4.2.14-4
Tailings Basin - Cross Section G (Existing Conditions)
NorthMet Mining Project and Land Exchange FEIS
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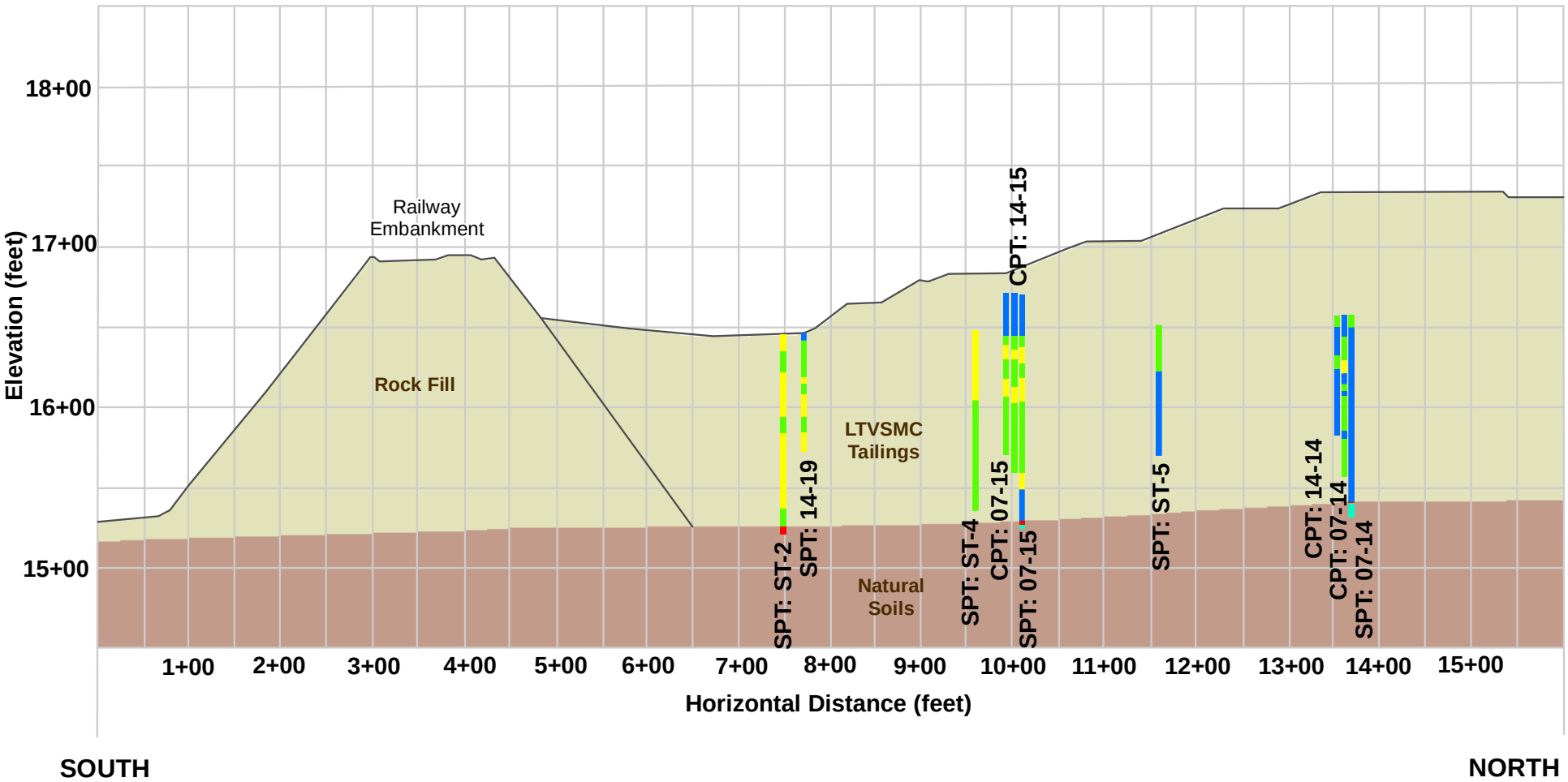

Coarse Tailings
Fine Tailings
Slimes
Peat
Till

*Colors represent results of boring samples

Figure 4.2.14-5
Tailings Basin - Cross Section N (Existing Conditions)
NorthMet Mining Project and Land Exchange FEIS
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4.2.14.2.3 Investigations

The site conditions at the LTVSMC Tailings Basin have been evaluated throughout its existence and most recently reported by PolyMet in 2007 and 2014 (PolyMet 2015l). As shown in Figure 4.2.14-2, information has been gathered over several geotechnical investigation efforts at various locations around the basin since its development. Collected site data include:

- cone penetrometer testing (CPT and CPTu) involving probing at 9 points in Cell 1E, 30 points in Cell 2E, and 12 points in Cell 2W; dissipation testing at nearly all CPT locations during the probing in 2007 and 2014;
- seismic shear wave velocity testing conducted at each of the CPT locations during the probing in 2007;
- dilatometer testing in borings approximately 10 ft adjacent to each CPT location in 2007;
- standard penetration test borings at a total of 27 locations near the CPT locations in 2007 and 12 locations along the western and northern sides of Cell 2W and Cell 2E in 2014;
- vane shear testing at various depths performed at nine locations in Cells 1E and 2E in 2007; and
- solid flight auger borings near the western, northern, and eastern crests of the dams around Cell 2W.

Laboratory testing of bulk and undisturbed materials was also undertaken to verify the data collected during in situ testing, as well as to further assess the characteristics of the material for its hydraulic and strength parameters.

Field and laboratory tests have been completed to describe the general geotechnical properties, permeability, and shear strength of the NorthMet tailings. These tests include:

- Atterberg Limits tests (ASTM D4318);
- Physical model studies;
- Falling-head, flexible-wall laboratory permeability testing (ASTM D5084); and
- Triaxial tests (ASTM D2850).

Geotechnical modeling of future conditions of the Tailings Basin (including the seepage and stability analysis) uses material properties obtained from testing. Filter criteria for the tailings were also evaluated to determine the effectiveness of LTVSMC bulk tailings to control water levels within the perimeter dam and to prevent piping.

Other studies performed to investigate the hydrogeology of the site are discussed in Section 4.2.2.

4.2.14.2.4 Surficial Materials, Geology, and Other Existing Structures

LTVSMC Tailings

The existing LTVSMC Tailings Dam generally consists of a shell of LTVSMC coarse tailings, with interbedded fingers of LTVSMC fine tailings and slimes. The interior of the cells consists primarily of layers of LTVSMC fine tailings and slimes, while coarse tailings are generally

found near the perimeter of the basin. These interbedded layers vary in thicknesses and extent throughout the basin due to changing of tailings deposition points and durations. The depth of the tailings to the underlying native material varies between each of the cells.

Sampling to date has identified that the stratigraphy is very complex. Figures 4.2.14-3, 4.2.14-4, and 4.2.14-5 show cross sections F, G, and N, respectively. These cross sections illustrate the complexity and variability of the tailings layers within each borehole, and between boreholes. This variability between boreholes also contributes to the uncertainty in determining the depth and continuity of the layers, and therefore, the extent of fine tailings and slimes at various depths near the cell perimeter dams.

The LTVSMC coarse tailings are generally classified as poorly graded fine- to medium-grained sand. The LTVSMC slimes particle sizes have been classified to range from silty sand to lean clay.

The LTVSMC Tailings Basin is abutted in the location of Cross Section N by an existing railway.

Natural Soils and Geology

Native, surficial deposits in the area of the LTVSMC Tailings Basin generally consist of native glacial till material that ranges from clay to gravel. In places, the till is overlain by up to 20 ft of organic peat.

The depth to bedrock (Giant's Range granite) varies throughout the Tailings Basin. The bedrock at the toe of Cross Section F starts at an average of 30 ft below the top of the till. Bedrock along Cross-Section G was modeled as 25 ft below the top of the till at the toe and increases in elevation towards the center of the basin. No borings have been extended to bedrock along Cross-Section N; however, depth to bedrock was assumed as 20 ft below the top of the till and to increase in elevation towards the center of the basin.

NorthMet Tailings Characterization

The tailings from the NorthMet floatation process would be hydraulically deposited and are expected to undergo less hydraulic segregation than the LTVSMC tailings. While some segregation would occur, significant amounts of fines would be captured within the tailings matrix. Therefore, for geotechnical stability modeling (Section 5.2.14), the NorthMet tailings were treated as a single material, rather than defining parameters for coarser and finer portions of the tailings. Based on laboratory testing, a decrease in saturated permeability of the flotation tailings is anticipated with increase in overburden depth. As such, three saturated permeabilities have been used in geotechnical modeling with respect to depth.

4.2.14.2.5 Geotechnical Summary

The selected drained and undrained strength and saturated permeability inputs for the various materials used in modeling (Section 5.2.14.2.2) are summarized in Table 4.2.14-1.

Analyses determined that the LTVSMC coarse tailings are anticipated to behave in a dilative manner (i.e., expand in volume) as they are sheared, and are therefore less conducive to pore water pressure generation during shearing. The fine tailings and slimes are anticipated to behave in a contractive manner (i.e., reduce in volume) as they are sheared and are therefore prone to

pore water pressure generation during shearing, resulting in a loss of effective strength. Organic peat has also been characterized as being prone to strength loss during shearing.

The northern dam in Cell 2E has been identified as a potential area of weakness as it is underlain by a layer of fibrous peat up to approximately 20 ft thick that extends north beyond the toe of the dam into a nearby wetland and due to the presence of interbedded layers of contractive fine tailings and slimes. A deposit of glacial till lies beneath the peat. The crest of the dam in this area is approximately 90 ft above the surrounding ground surface and consists mostly of coarse tailings with some weaker layers of interbedded fine tailings and slimes close to the base of the dam.

As part of the NorthMet Project Proposed Action, PolyMet would apply CDSM to increase the shear strength of select zones of the existing LTVSMC fine tailings, slimes, and peat layers. More information regarding the CDSM feature is provided in Sections 3.2.2.3.3 and 5.2.14.2.2. Hydrogeology suggests that the upper portion of bedrock is variably fractured and therefore has a higher saturated permeability compared to bedrock deeper in the formation.

Table 4.2.14-1 Summary of Seepage and Stability Modeling Parameters for the Material at the Existing LTVSMC Tailings Basin and Proposed NorthMet Tailings

Material	Saturated Permeability		Saturated Unit Weight	ESSA		USSA			
				Cohesion, c'	Friction, ϕ	Cohesion, Su	Friction, ϕ_{cu}	$USSR_{yield}$, $Su(yield)/\sigma'_v$	$USSR_{liq}$, $Su(liq)/\sigma'_v$
	cm/sec	ft/sec	pcf	psf	deg	psf	degree		
LTVSMC Coarse Tailings	2.44E-03	8.00E-05	135	0	38.5	0	38.5	-	-
LTVSMC Fine Tailings	2.00E-05	6.56E-07	130	0	33.0	-	-	0.25	0.1
LTVSMC Slimes	9.60E-07	3.15E-08	120	0	33.0	-	-	0.22	0.1
LTVSMC Bulk Tailings	8.02E-05	2.63E-06	130	0	38.5	0	38.5	-	0.1
LTVSMC FT/slimes	3.05E-06	1.00E-07	125	0	33.0	-	-	0.24	-
Glacial Till	5.03E-03	1.65E-04	135	0	36.5	0	36.5	-	-
Compressed Peat(1)	3.60E-06	1.18E-07	85	Shear/normal function(2)		-	-	0.23	-
Virgin Peat	1.00E-03	3.30E-05	70						-
Rock Starter Dam	1.52	5.00E-02	140	0	40.0	0	40.0	-	-
Flotation Tailings(3) – 0.45 tsf	1.90E-04	6.23E-06	125	0	33.0	-	-	0.26	0.12
Flotation Tailings(3) – 1.35 tsf	5.61E-05	1.84E-06							
Flotation Tailings(3) – 2.29 tsf	2.00E-05	6.56E-07							
Cement Deep Soil Mix (CDSM)	7.04E-07	2.31E-08	125	9600	0	-	-	-	-

Material	Saturated Permeability		Saturated Unit Weight	ESSA		USSA			
				Cohesion, c'	Friction, ϕ	Cohesion, Su	Friction, ϕ_{cu}	$USSR_{yield}$, $Su(yield)/\sigma'_v$	$USSR_{liq}$, $Su(liq)/\sigma'_v$
	cm/sec	ft/sec	pcf	psf	deg	psf	degree		
Slimes									
Cement Deep Soil Mix (CDSM) Peat	2.55E-06	8.36E-08	125	-	-	-	-	-	-
Fractured Bedrock	7.19E-04	2.36E-05	140	0	45.0	-	-	-	-
Bedrock	1.92E-05	6.30E-07	Impenetrable						
Rail Grade	1.52	5.00E-02	140	0	45.0	-	-	-	-

Notes:
[1] Permeability of the compressed peat (below the dam) was altered for anisotropy, applying a ratio of ky/kx = 0.067.
[2] Drained strength of the peat was included as a shear/normal function with $\phi \approx 27$ degrees.
[3] Permeability of the tailings was varied based on effective overburden pressure.
ESSA = Effective Stress Stability Analysis
ft/sec = Feet per second
pcf = Pound(s) per cubic foot
psf = Pound(s) per square foot
USSA = Undrained Strength Stability Analysis
USSR = Undrained Sheer Strength Ratio

Further information on the parameters used for the design and modeling of the existing LTVSMC and proposed Tailings Basins is provided in Chapter 5.0 and in the Geotechnical Data Package Volume 1 (PolyMet 2015l).

4.2.14.3 Hydrometallurgical Residue Facility

4.2.14.3.1 Location and Descriptive Overview

As shown in Figure 4.2.14-2, the Hydrometallurgical Residue Facility would be located in a natural low point in the topography adjacent to Cell 2W of the existing LTVSMC Tailings Basin and over the LTVSMC Emergency Basin and the adjacent undisturbed ground. The southern tip of the LTVSMC Emergency Basin begins near the central portion of the Hydrometallurgical Residue Facility, widening and deepening into a former ravine that trends to the north. Seepage from the LTVSMC Emergency Basin occurs to the northwest between Cell 2W and a railroad grade located along the western perimeter of the area. This and additional seepage would be collected in a constructed drainage blanket between the LTVSMC embankment and the Hydrometallurgical Residue Facility embankment, and collected water would be conveyed away from the coincident area.

The southern dam of Cell 2W is approximately 160 ft in height from the surface of the LTVSMC Emergency Basin. It has an overall slope angle of 4 horizontal to 1 vertical (4:1) including mid-slope benches.

4.2.14.3.2 Development of the Existing LTVSMC Emergency Basin

The original purpose of the LTVSMC Emergency Basin was to contain taconite tailings (slimes, and fine and coarse tailings) from the main tailings thickeners in the event of a power failure or plant upset conditions which necessitated draining the tailings delivery system. Accidental overflows, spillage, and floor drainage from the former LTVSMC Concentrator Building was

also placed in the LTVSMC Emergency Basin. These materials were deposited by gravity through an underground emergency tunnel terminating at the southeast side of the LTVSMC Emergency Basin. Overflow from sumps in the former LTVSMC booster pump house number 1 was also directed into the LTVSMC Emergency Basin.

Prior to the construction of the LTVSMC Tailings Basin Cell 2W, the LTVSMC Emergency Basin extended roughly 3,000 ft north from its current confinement. The southern starter dam for the LTVSMC Tailings Basin Cell 2W (the same dam as the proposed Hydrometallurgical Residue Facility north dam) was constructed over the unconsolidated emergency tailings in 1970 and 1971. An upstream construction method was used to construct the dam whereby the height of the dam was advanced incrementally by constructing a new lift upstream (into the basin) and above the crest of the dam. The north dam consists predominantly of LTVSMC coarse tailings with occasional inclusions of fine tailings and slimes. LTVSMC tailings were deposited over the emergency tailings in Cell 2W following this time.

4.2.14.3.3 Investigations

The site conditions at the Hydrometallurgical Residue Facility have been evaluated throughout its existence and most recently reported on by PolyMet (PolyMet 2014c).

The geotechnical assessment of the proposed site for the Hydrometallurgical Residue Facility utilized regional geological surveys and maps as well as historical and recent site surveys undertaken at the LTVSMC Tailings Basin as shown in Figure 4.2.14-6.

Residue from the hydrometallurgical process pilot-plant testing was collected to determine the geochemical and geotechnical material properties. The makeup of hydrometallurgical residue and other material proposed for disposal in the Hydrometallurgical Residue Facility process is described in Section 3.2.2.3.7.

4.2.14.3.4 Surficial Materials, Geology, and Other Existing Structures

LTVSMC Emergency Tailings

Existing materials in the LTVSMC Emergency Basin consist of a mixture of coarse tailings, fine tailings, and slimes. This layering is shown in Cross Section A in Figure 4.2.14-7. Deposited materials have experienced relatively minor amounts of self-weight consolidation since cessation of LTVSMC operations in early 2001 as no additional loading has occurred on these materials. There are approximately 50 ft of tailings in the thickest part of the Emergency Basin. A railroad track is also located along the western perimeter of the area.

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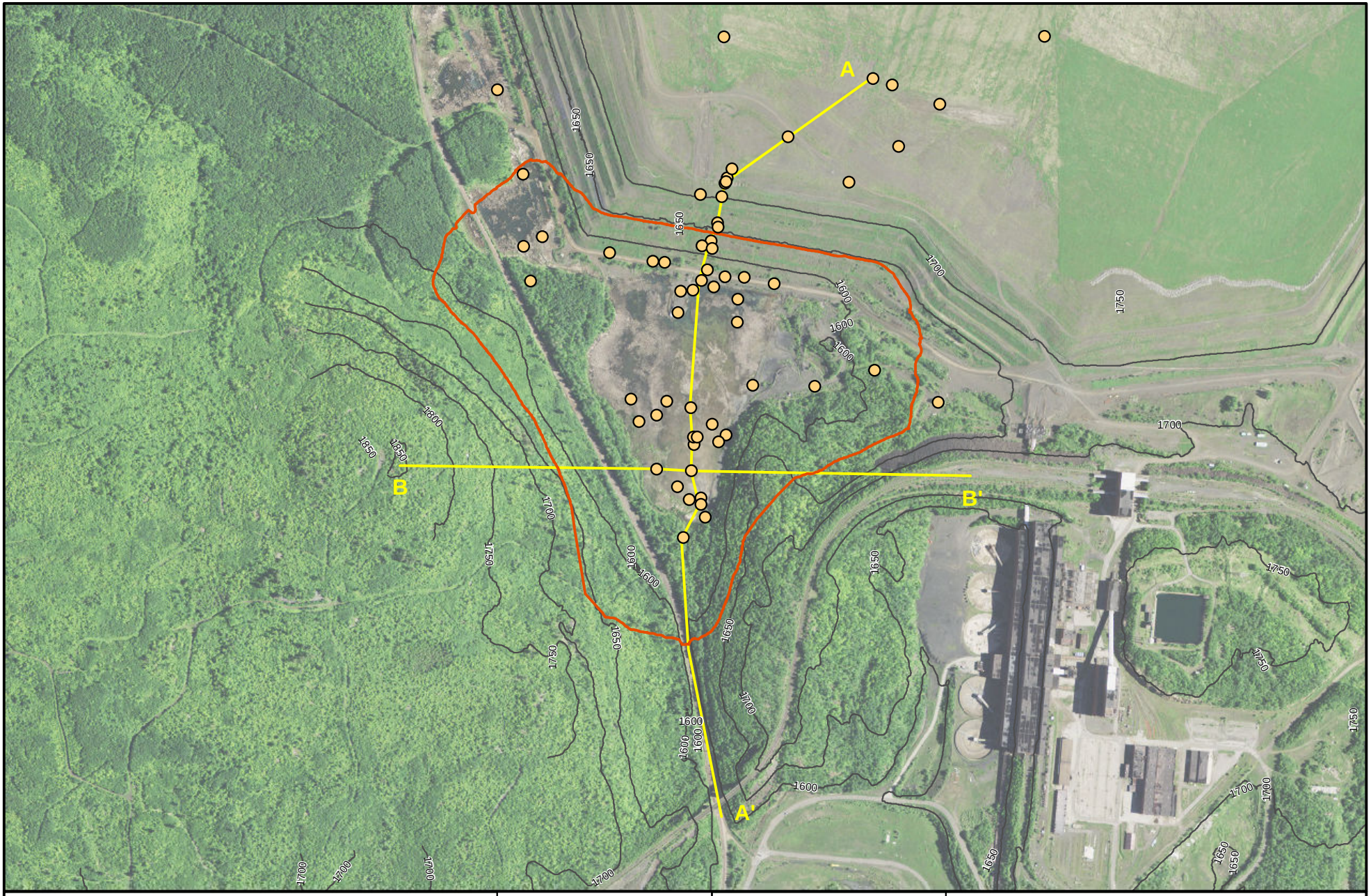

Hydrometallurgical Residue Facility

Geotechnical Investigation Locations

Cross Section

MNDNR

US Army Corps of Engineers
St. Paul District

0 250 500 1,000 Feet

Figure 4.2.14-6

Hydrometallurgical Residue Facility - Geotechnical Investigation Locations

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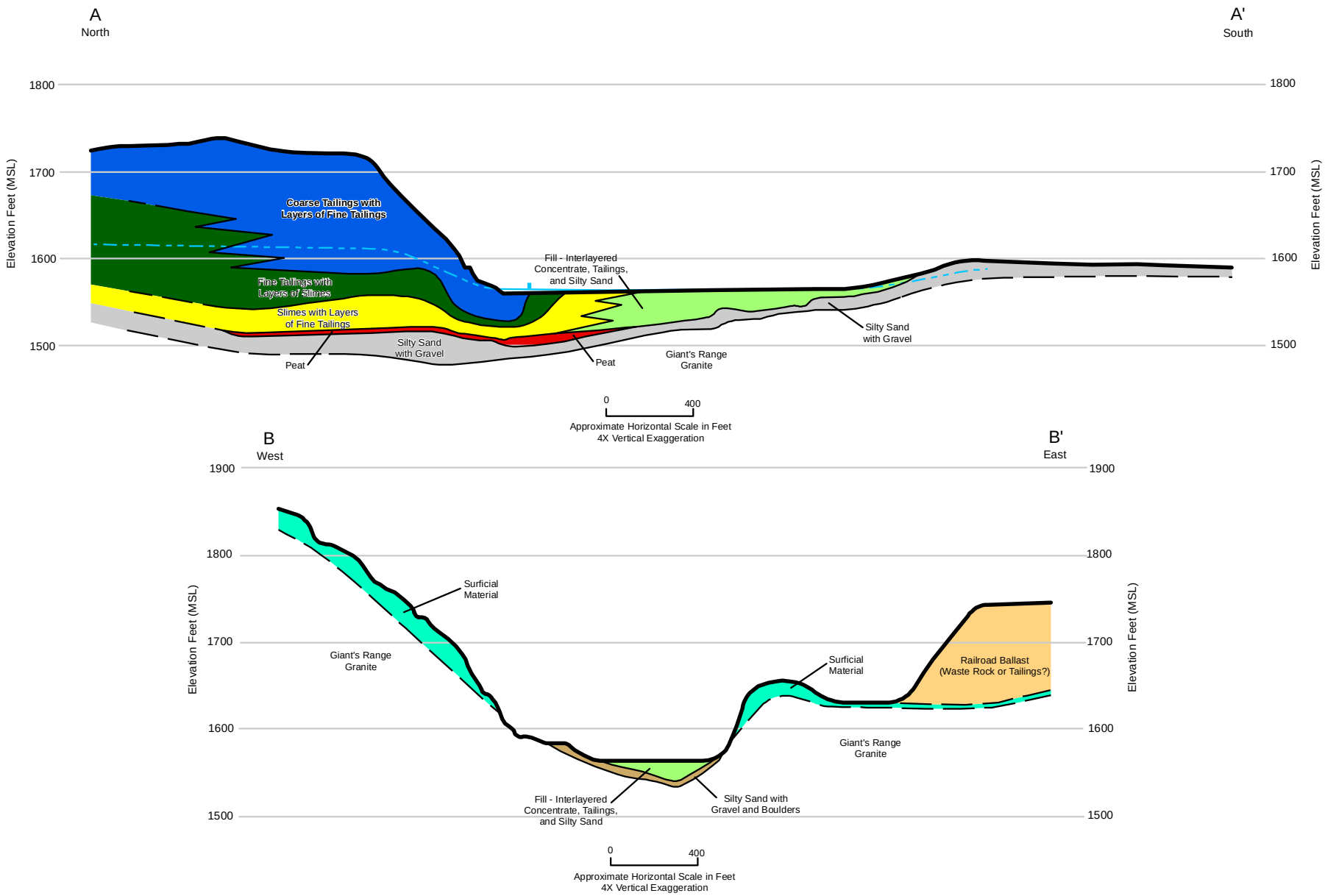

Coarse Tailings with Layers of Fine Tailings
Fill - Interlayered Concentrate, Tailings, and Silty Sand
Slimes with Layers of Fine Tailings
Fine Tailings with Layers of Slimes
Railroad Ballast
Peat
Silty Sand with Gravel
Silty Sand with Gravel and Boulders
Surficial Material

MNDNR
US Army Corps of Engineers
St. Paul District

Figure 4.2.14-7
Hydrometallurgical Residue Facility - Cross Sections A and B (Existing Conditions)
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Natural Soils and Geology

In the area of the Hydrometallurgical Residue Facility, bedrock is generally within 25 ft of the existing ground surface, except where surface materials have been built up either to support the former LTVSMC facilities or where emergency tailings have been deposited in the LTVSMC Emergency Basin (see Figure 4.2.14-7). To expedite the consolidation of the in-place LTVSMC tailings so as to provide a more stable base for the Hydrometallurgical Residue Facility, wick drains may be installed within the Emergency Basin. This would reduce drainage path lengths, increase the drainage ability in the LTVSMC tailings and underlying compressed peat, and result in a stronger foundation for the Hydrometallurgical Residue Facility.

Native surficial deposits, which have been sampled and logged at boring locations in and around the LTVSMC Emergency Basin, include silty sands with interbedded coarser grained alluvial deposits and peat. A thin layer of peat below the tailings in the LTVSMC Emergency Basin thickens beneath the toe of the LTVSMC Tailings Basin.

The LTVSMC Emergency Basin is entirely underlain by Giant's Range granite. Bedrock granite has been historically scoured by glaciers creating features such as linear valleys. The location of linear valleys is sometimes interpreted to correspond with the location of potential faults in the bedrock. However, on published geologic maps, the faults in these areas are dashed and identified as conjectural with inferred (not exact) locations. Regional geologic maps of the Iron Range do show the existence of fault lines, but hydrogeologic studies have not provided evidence that any faults that may be present are active, nor do they behave as conduits for groundwater flow.

NorthMet Hydrometallurgical Residue Characterization

The Hydrometallurgical Residue Facility is designed for the storage of residue produced during mill operations. The grain size of the residue would primarily consist of material which would be classified as silt and sand with a small amount of clay. Structural fill used to construct the Hydrometallurgical Residue Facility dams would consist of blasted rock, sand, glacial till, or LTVSMC coarse tailings. Additional materials such as gypsum from the WWTP, lime for residue pH neutralization (if necessary), and coal ash would also be disposed of within the Hydrometallurgical Residue Facility. These additional materials may represent approximately 5 to 10 percent of the facility solids volume. The chemical and physical properties of any non-residue materials proposed to be stored in the Hydrometallurgical Residue Facility would be tested prior to placement to ensure proper containment.

4.2.14.3.5 Geotechnical Summary

The values for the material properties used in geotechnical modeling are discussed in Section 5.2.14 and summarized in Table 4.2.14-2 and Table 4.2.14-3.

There are no structures at the proposed Hydrometallurgical Residue Facility site that appear to be at risk of geotechnical instability.

Further information on the parameters used for the design and modeling of the Hydrometallurgical Residue Facility is provided in Section 5.2.14.

Table 4.2.14-2 Summary of Modeling Permeabilities for the Material Relevant to the Hydrometallurgical Residue Facility Material

	Modeling Permeability	
	cm/sec	**ft/sec**
LTVSMC Coarse Tailings	2.44E-03	8.00E-05
LTVSMC Fine Tailings	2.00E-05	6.56E-07
LTVSMC Slimes	9.60E-07	3.15E-08
LTVSMC Bulk Tailings	8.02E-05	2.63E-06
Glacial Till	5.03E-03	1.65E-04
Sand	1.00E-02	3.28E-04
Residue (used for rate of drainage computation – quantity vs. time)	3.40E-05	1.12E-06
Residue (used for computation of time for drainage to occur)	5.50E-06[(1)]	1.80E-07[(1)]
Compressed Peat	3.60E-06	1.18E-07
Bedrock	8.56E-08	2.81E-09
LTVSMC Slimes – with wick drains	2.34E-06	7.69E-08
Compressed Peat – with wick drains	8.75E-07	2.87E-08

Note:
[1] To account for anticipated consolidation (densification) of the residue within the cell and corresponding reduction in residue permeability, average permeability used to estimate time for drainage to occur is assumed.

Table 4.2.14-3 Summary of Shear Strength Parameters for the Material Relevant to the Hydrometallurgical Residue Facility

Material	Model	Unit Weight (pcf)	Elasticity modulus, (psf)	ϕ (deg)[1]	Poisson's ratio, μ	Normal Consol. line slope, λ	Consol. Line slope, Swelling line slope, κ	Initial Void Ratio, e_o
Glacial Till	Linear Elastic	135	5.00E+05	-	0.30	-	-	-
LTVSMC Coarse Tailings	Linear Elastic	135	8.40+05	-	0.30	-	-	-
LTVSMC Fine Tailings	Soft Clay (Modified Cam Clay)	130	-	33	0.30	0.05	0.01	1.07
LTVSMC Slimes	Soft Clay (Modified Cam Clay)	120	-	34	0.30	0.07	0.01	1.14
LTVSMC Slimes – with wick drains	Soft Clay (Modified Cam Clay)	120	-	34	0.30	0.07	0.01	1.14
Residue[2]	Linear Elastic	115	-	30	0.30	0.18	0.03	1.92
Giant's Range Granite	Linear Elastic	165	1.69E+09	-	0.18	-	-	-
Sand	Linear Elastic	120	6.00E+05	-	0.30	-	-	-
LTVSMC Bulk Tailings	Linear Elastic	130	1.00E+06	-	0.30	-	-	-
Bedrock – blasted	Linear Elastic	135	1.00E+06	-	0.30	-	-	-
Compressed Peat	Soft Clay (Modified Cam Clay)	85	-	30	0.30	0.70	0.09	3.84
Compressed Peat – with wick drains	Soft Clay (Modified Cam Clay)	85	-	30	0.30	0.70	0.09	3.84

Note:

[1] The term M (the slope of the critical state line) can be defined by the equation: $M = \frac{6sin\phi'}{3-sin\phi'}$ [2] Other than the Residue Settlement Column, stress-deformation models modeled residue using placeholder linear elastic parameters. These models only require the thickness and unit weight of the residue to be valid. Residue consolidation is considered in the Residue Settlement Column analysis (PolyMet 2014c)

pcf = Pound(s) per cubic foot

psf = Pound(s) per square foot

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4.3 LAND EXCHANGE

4.3.1 Land Use

The federal and non-federal lands were reviewed against parameters similar to the Mine Site and Plant Site, including existing land use plans, zoning designations, public access routes, mineral ownership and economic potential, and title.

Additionally, each tract of the Land Exchange Proposed Action was evaluated for the presence of known existing hazardous material effects and contaminated sites and for the potential for hazardous materials to currently affect the lands. Research to evaluate potential hazardous materials or hazardous material sites on these land areas consisted of review of three types of data sources, depending on the size and geographic spread of the land area. The data sources used include:

- An ASTM/AAI Phase I ESA;
- An Environmental Regulatory Database search, which was conducted by Environmental Data Resources, Inc. (EDR), and consists of a report of federal, state, local, or tribal agency databases; and
- The MPCA website database titled, "What's In My Neighborhood?"

A Phase I ESA provides a comprehensive review of environmental regulatory databases and includes a physical site visit, interviews with property or adjacent property owners and local officials, and review of historical data such as aerial photographs, topographic maps, fire insurance maps, land title records, or property tax files. Conclusions are drawn based upon the findings to identify recognized environmental conditions based on the comprehensive review and the opinion of the environmental professional.

The Environmental Regulatory Database search defines and summarizes the ASTM databases reviewed in the EDR report and notes whether any sites (including the target property) were identified within a specified search radius. The database sites identified in the EDR report were evaluated with respect to the target land area to determine which sites indicate hazardous material effects.

The MPCA website database identifies potentially contaminated sites through a searchable inventory of properties, as well as sites that have already been cleaned up and those currently being investigated or cleaned up. The website also contains a searchable inventory of businesses that have applied for and received different types of environmental permits and registrations from the MPCA.

4.3.1.1 Federal Lands

4.3.1.1.1 Land Exchange Proposed Action

The boundaries of the federal lands include the Mine Site, as well as land to the north and west, but exclude the privately owned land bordering Dunka Road to the south of the Mine Site. Section 4.2.1.2 provides a discussion of the existing land use on the federal lands.

The Land Exchange Proposed Action includes 6,495.4 acres of federal lands with a perimeter of approximately 23 linear miles. By comparison, Superior National Forest comprises 4,600,831.8 acres, of which 2,171,603.9 acres, with a perimeter of 10,054.8 linear miles (including the federal lands), are managed by the USFS (there are lands within the Superior National Forest boundaries owned by the State, counties, and private owners). The majority of the federal lands are within the General Forest – Longer Rotation Management Area, while the remainder is within the General Forest Management Area (see Figure 4.3.1-1). These management areas are defined in Section 4.2.1.2. Table 4.3.1-1 summarizes the acreage of the federal lands, by management area, for the Land Exchange Proposed Action.

There is no known existing contamination by hazardous materials in the federal lands.

Table 4.3.1-1 Management Area Designations for the Federal Lands under the Land Exchange Proposed Action

Management Area Designation	Total Acreage
General Forest – Longer Rotation	6,140.1
General Forest	355.3

4.3.1.1.2 Land Exchange Alternative B

Under the Land Exchange Alternative B, 4,752.6 acres of federal lands would be exchanged for the 4,926.3-acre Tract 1. Table 4.3.1-2 summarizes the acreage of the federal lands, by management area, for the Land Exchange Alternative B. Section 4.3.1.2.1 describes Tract 1.

Table 4.3.1-2 Management Area Designations for the Federal Lands under Land Exchange Alternative B

Management Area Designation	Total Acreage
General Forest – Longer Rotation	4,397.3
General Forest	355.3

4.3.1.2 Non-federal Lands

The non-federal lands comprise five tracts—each consisting of one or more individual parcels—totaling 7,075.0 acres. The land use conditions of each tract are described below. Tracts 1 and 2 of the Land Exchange Proposed Action include areas with potential conservation value (i.e., cRNA Management Area and Riparian Emphasis Management Area). Some of the parcels within Tract 2, Tract 3, and Tract 4 have limited accessibility by either road or foot trail, although there are segments that show evidence of timber harvesting (see Figures 5.3.1-1 and 5.3.1-2).

4.3.1.2.1 Tract 1 – Hay Lake Lands

Tract 1 is located in central St. Louis County, approximately 3 miles north-northwest of the City of Biwabik. The tract consists of one parcel covering approximately 4,926.3 acres, with a perimeter of approximately 15 linear miles.

Land Use Regulation

Land use in Tract 1 is governed by the St. Louis County zoning ordinance. It is divided among the following zoning districts (St. Louis County 2011):

- **Forest Agricultural Management (FAM-1)**: This district recognizes and promotes the development of forestry and agricultural industry and encourages recreational activity. It is typically applied to areas with very low density land development. This district is located in the northeast corner and occupies approximately 5 percent of the Tract 1 lands.
- **Forest Agricultural Management (FAM-2)**: This district recognizes and promotes the development of forestry and agricultural industry and encourages recreational activity. It is typically applied to areas with very low density land development. Whereas FAM-1 has a minimum parcel size of at least 35 acres, FAM-2 has a minimum parcel size of 17 acres. This district is located throughout the parcel and occupies approximately 57 percent of the Tract 1 lands.
- **Sensitive Areas (SENS-3)**: In addition to the forestry/agriculture focus embodied in the FAM-2 district, the SENS-3 district also recognizes significant areas that are unsuitable for intensive development due to the potential for environmental hazards or other features to negatively affect environmental conditions. This classification surrounds most of Hay Lake and Little Rice Lake, as well as a large portion of the river and riparian areas. This district is located throughout the parcel and occupies approximately 33 percent of the Tract 1 lands.
- **Residential (RES-3)**: This district recognizes and promotes residential development with limited non-residential uses. This district is located northeast and southwest of Hay Lake and occupies approximately 5 percent of the Tract 1 lands.

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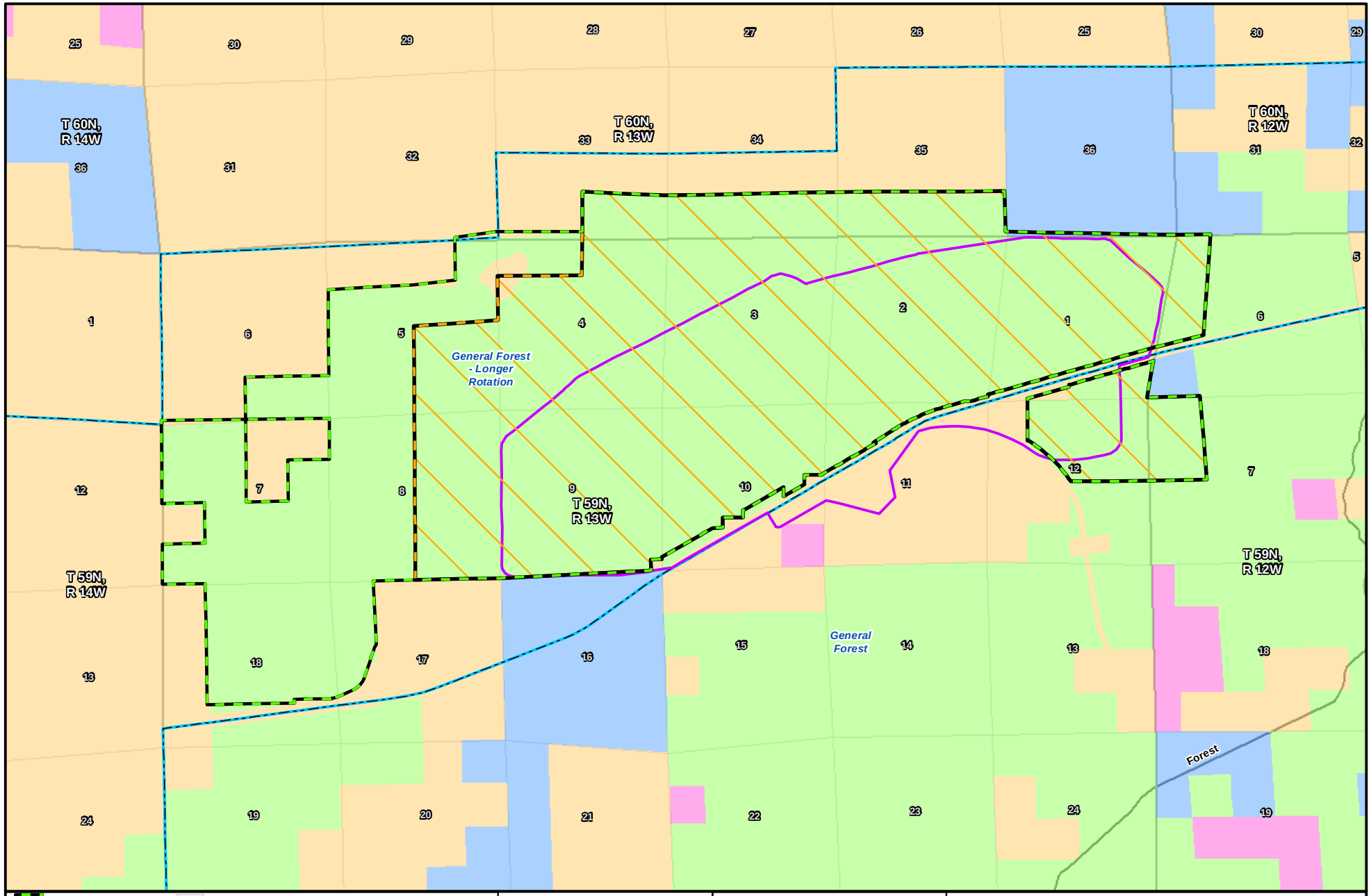

Federal Lands
Alternative B: Smaller Federal Parcel
Mine Site
Management Area
Section Label
Section Boundary
National Forest Ownership
County Ownership
State of Minnesota Ownership
Other Ownership
Road

MNDNR
US Army Corps of Engineers
St. Paul District

N
W
E
S

0 0.25 0.5 1 Miles

Figure 4.3.1-1
Ownership of Federal Lands
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Adjacent to Tract 1 on the west and north are Superior National Forest lands that fall within the General Forest Management Area. Two cRNA management areas adjoin the tract: Pike Mountain on the southwest corner and Loka Lake on the northeast corner (USFS 2011b). The cRNAs are designated by the USFS for the purpose of preserving and maintaining areas for ecological research, observation, genetic conservation, monitoring, and educational activities. No recreation facilities are provided in these management areas; while dispersed recreation occurs (see Section 4.3.11.2.4), it is generally discouraged. The Pike Mountain cRNA is characterized by a hardwoods forest plant community. The Loka Lake cRNA is characterized by high-quality lowland black spruce and tamarack swamp (USFS 2011h).

Adjacent to Tract 1 to the south and east are privately owned lands within St. Louis County's Multiple Use Non-Shoreland 4 (MUNS-4) zoning district. This designation allows for a diverse array of development, such as residential, light industry, commercial, livestock, sanitary landfill, airport, and utility facilities, among others (St. Louis County 2011).

As part of the Land Exchange Proposed Action, the non-federal lands were the subject of Phase I ESAs. Potential areas of legacy contamination were discovered on Tract 1. These areas were investigated and remediated through removal and disposal of potentially contaminated soil and materials. Any remnant contamination (limited to two instances where less than 5 gallons of used oil were spilled) is expected to degrade in situ (NTS 2011).

Existing Land Use

Tract 1 includes Hay Lake, identified as a wild rice water by the MDNR, Little Rice Lake, and an unnamed lake (see Figure 4.3.1-2). Approximately eight miles of the upper Pike River flow through Tract 1. An electrical transmission line crosses Sections 19, 20, 21, and a portion of Section 16 (USFS 2011b). CR 715 forms part of the eastern boundary of the tract.

A small boat landing and primitive parking area provide access to the Pike River adjacent to CR 715. Several trails also emanate from CR 715, some with bridges crossing the upper Pike River; all of these trails are gated or bermed. There is evidence that a sand/gravel pit near CR 715 has been used as a dumping site in the recent past, but has been fully remediated and cleared of trash and debris (NTS 2011). The gravel pit area is gated, but there is evidence that it has been used as a shooting range. There are also numerous deer stands on the parcel (Lisson and Gawtry 2011).

Property Rights, Title, and Mineral Resources

PolyMet currently owns surface rights to Tract 1. The tract is subject to a mortgage in favor of Iron Range Resources, which would be satisfied at closing of the Land Exchange Proposed Action (USFS 2011c). Title to this parcel has been reviewed and approved by the USDA Office of General Counsel so long as certain recommended affirmative title insurance is provided (USFS 2011c).

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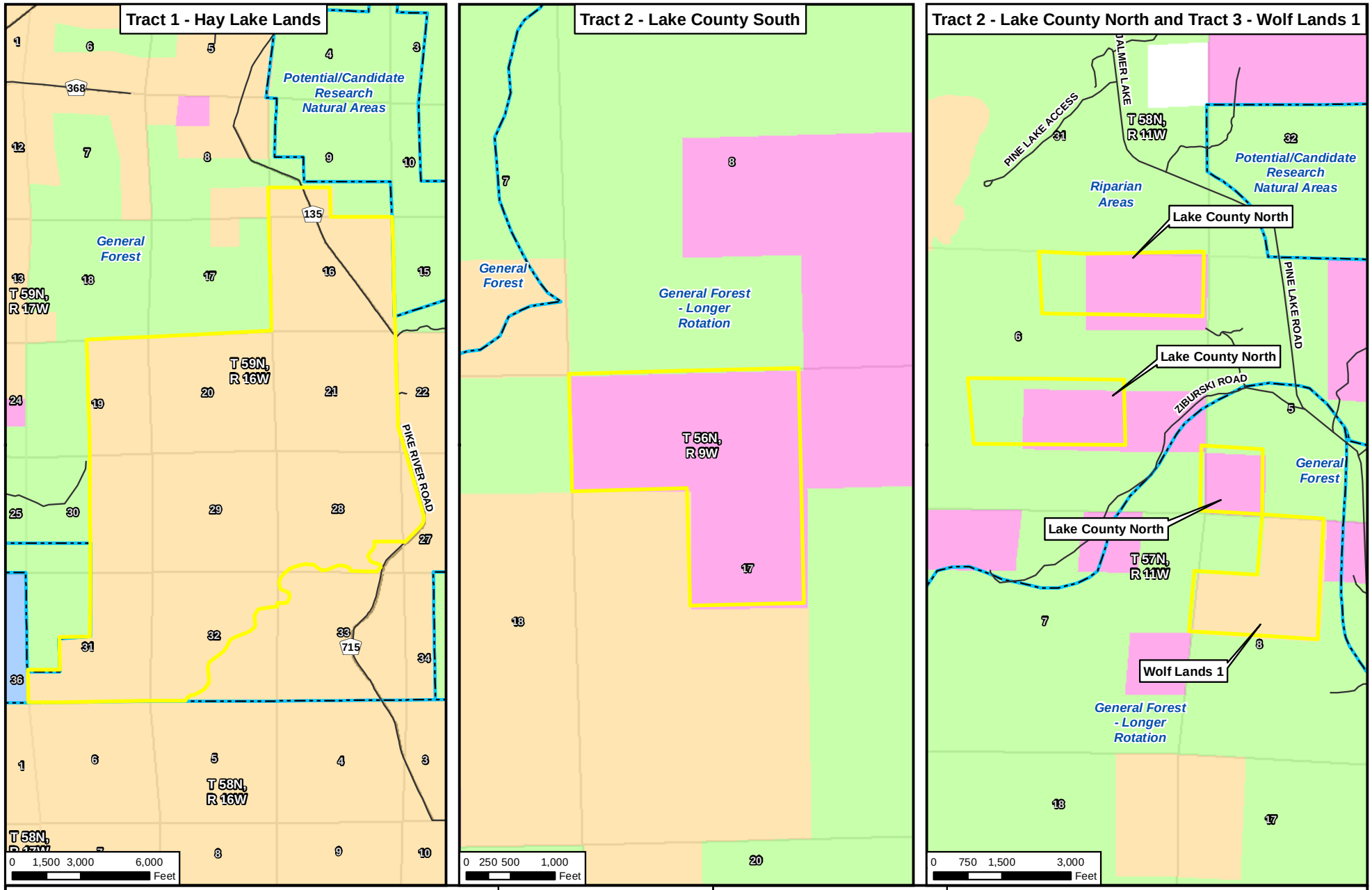

Figure 4.3.1-2
Ownership of Tracts 1, 2, and 3
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Tract 1 was assessed for mineral resource potential as part of the Feasibility Analysis completed in 2009 (USFS 2009c). The geology of the area is mostly granitic rocks with the southwestern-most part underlain by metamorphosed basalts, gabbros, and sedimentary rocks. The mineral potential for the tract was determined to be limited, as granitic rocks are not known to host mineral deposits. The MDNR core library index showed no drilling on or near Tract 1. Additional investigation in 2011 indicates potential for aggregate production from the northeastern corner of the tract along the Pike River. Tract 1 appears to have a low potential for exploration or development of bedrock or surficial deposits (Barr 2011c).

Legacy Pollution

The legacy pollution data review described in Section 4.3.1 found that hazardous materials may be present on Tract 1, specifically along Pike River Drive in the northeastern portion of the tract, and between Hay Lake and CR 715, west of the Pike River. The Phase I ESA for Tract 1 described several areas where releases of hazardous materials may exist due to unauthorized dumping. The EDR report and MPCA database also identified three unauthorized or unpermitted dump sites on Tract 1. The southernmost dump, west of the Pike River, is named Unauthorized Dump-Biwabik. The two remaining dump sites, Unauthorized Dump-2 and Unnamed Dump-Biwabik/2, are north of the first dump site and adjacent to CR 715. These types of dumps are typically old farm, homestead, or municipal disposal sites that accepted household waste. There are no records of inspection or enforcement actions at these sites in the MPCA database (NTS 2010a; EDR 2009a; MPCA 2012d); however, a subsequent Phase II investigation found no evidence of spills or contamination, and found that legacy pollution had been resolved at the site (NTS 2011).

4.3.1.2.2 Tract 2 – Lake County Lands

Tract 2 comprises four parcels in Lake County, southeast of Seven Beaver Lake, totaling 381.9 acres with a perimeter of approximately 7 linear miles. No hazardous material issues were identified at Tract 2 (EDR 2011a; EDR 2011b; MPCA 2012d).

Land Use Regulation

All Lake County parcels fall within Lake County's Forest-Recreation zoning district (ERM, Pers. Comm., October 10, 2011). The Forest-Recreation district provides for remote residential development distant from public services. It is intended to prevent the destruction of natural or man-made resources, maintain large tracts for forest recreation purposes, provide for the continuation of forest management and production programs, and foster recreational uses and other compatible activities.

The Lake County North parcels are surrounded by land within two Superior National Forest Management Areas (see Figure 4.3.1-2): the General Forest – Longer Rotation Management Area (see Section 4.2.1.2) and the Riparian Emphasis Area Management Area. Lands in the Riparian Emphasis Area are located along rivers and lakes that receive moderate to low levels of recreation use. This designation promotes the restoration, protection, and enhancement of areas sensitive to degradation. Lands surrounding Seven Beaver Lake and adjacent to Tract 2 are the headwaters area of the St. Louis River, and are designated as a Riparian Emphasis Area Management Area.

The Lake County South parcel is largely bordered by lands in the General Forest – Longer Rotation Management Area. Adjacent parcels to the southwest are privately owned land; parcels to the northeast are county land in the Forest-Recreation zoning district.

Existing Land Use

A trail provides access to the Lake County North parcels, but access to the trail is relatively difficult (Lisson and Gawtry 2011). There is evidence of clearcut timber activity on the Lake County North parcels.

There is limited access to the Lake County South parcel due to wetlands and private land restrictions, and little evidence of active use (Lisson and Gawtry 2011).

Property Rights, Title, and Mineral Resources

Tract 2 parcels are tax forfeit lands that are being purchased in the name of Lake-Forest Enterprise, Inc. on a land contract from Lake County. An assignment on file with Andresen and Butterworth, PA assigns all right, title, and interest in these lands to PolyMet (USFS 2011c).

A review of mineral resources on Tract 2 indicates a low potential for exploration or development of bedrock or surficial deposits (Barr 2011c). A title commitment review found that one 40-acre parcel has one-half mineral interest outstanding and that all other minerals will be reserved by the State of Minnesota and subject to the Secretary's Rules and Regulations. Within the Lake County South parcel, one 40-acre parcel is subject to mineral reservation that includes the right to sink, cave, disturb, or remove surface material. Another parcel has one-half outstanding mineral interest with the right to remove but "doing no injury to the surface or else paying for damages." The third and final 40-acre parcel and the remaining one-half mineral interest would be reserved by the State of Minnesota and would be subject to the Secretary's Rules and Regulations (USFS 2011c).

4.3.1.2.3 Tract 3 – Wolf Lands

The Wolf Lands consist of four separate parcels in Lake County totaling 1,575.8 acres with a perimeter of approximately 14 linear miles. No hazardous material issues were identified at Tract 3 (EDR 2011b; EDR 2011c; EDR 2011d; EDR 2011e; MPCA 2012d).

Land Use Regulation

All Tract 3 parcels are within Lake County's Forest-Recreation zoning district, defined in Section 4.3.1.2.3 (ERM, Pers. Comm., October 10, 2011).

Wolf Lands 1, the southernmost parcel, is largely bordered by Superior National Forest land in the General Forest-Longer Rotation Management Area. Adjacent parcels to the southwestern and northeastern corners owned by Lake County are also within the Forest-Recreation district (see Figure 4.3.1-2).

Wolf Lands 2 is bordered to the north and south by Superior National Forest land in the General Forest Management Area. Adjacent parcels to the east are privately owned, in Lake County's Forest-Recreation district. Adjacent parcels to the west and southeast are state-owned land (see Figure 4.3.1-3).

Wolf Lands 3 is adjacent to Superior National Forest land in the General Forest Management Area. Small privately owned parcels to the east and west are within Lake County's Forest-Recreation district (see Figure 4.3.1-3). A timber harvest agreement currently encumbers parts of this parcel (USFS 2011c).

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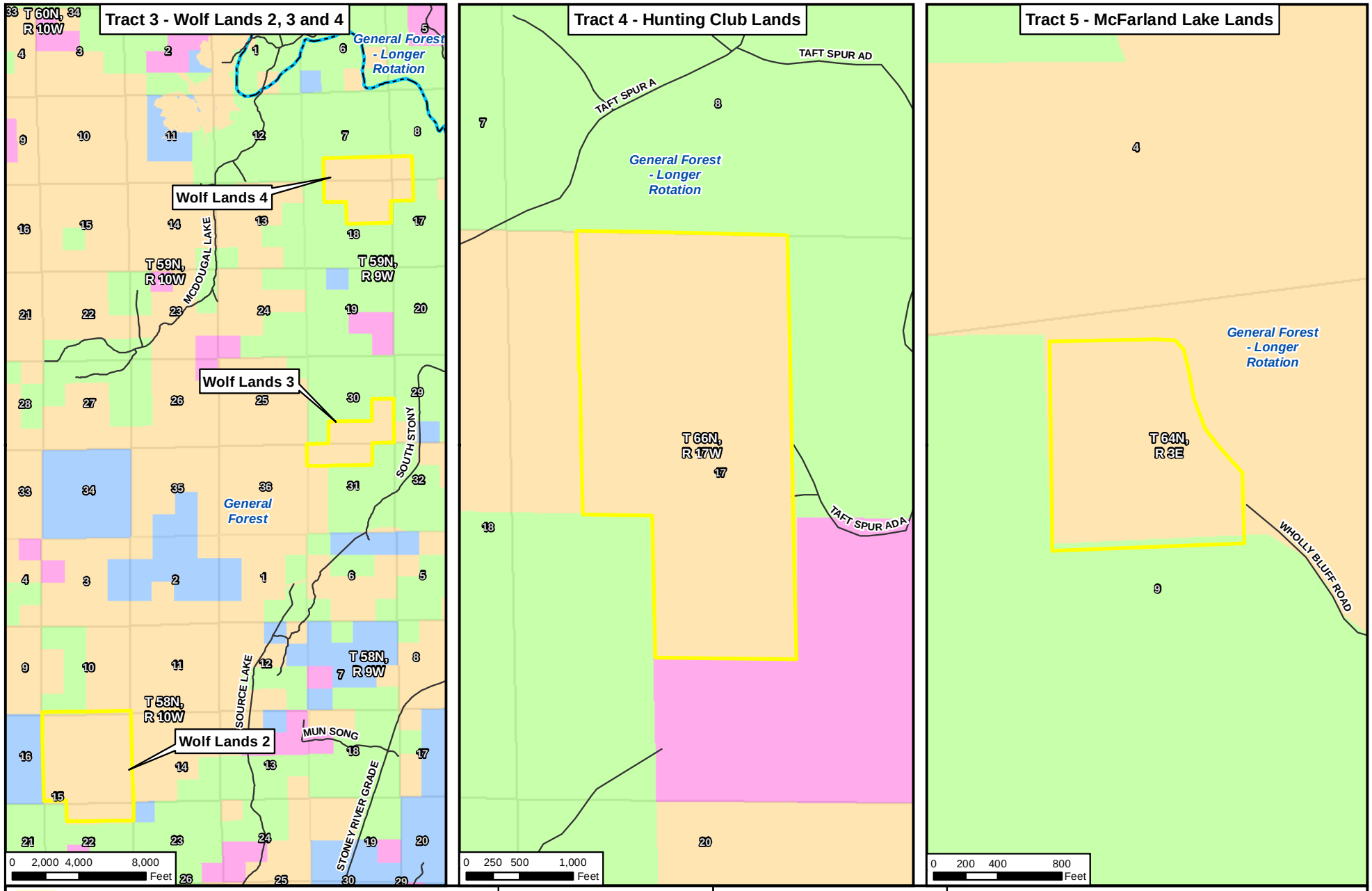

Figure 4.3.1-3
Ownership of Tracts 3, 4, and 5
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Wolf Lands 4 is surrounded by Superior National Forest land in the General Forest Management Area (see Figure 4.3.1-3).

Existing Land Use

Access to Wolf Lands 1 and 2 is limited by the distance from roads and the presence of wetlands surrounding Wolf Lands 2. There is no evidence of any active land use on either of these parcels (Lisson and Gawtry 2011).

Wolf Lands 3 is accessible from a trail off of Forest Road 393. There is evidence of ongoing timber harvesting on this parcel (Lisson and Gawtry 2011).

Wolf Lands 4 is accessible via overland hiking from Forest Road 106, but there is no evidence of active land use (Lisson and Gawtry 2011).

Property Rights, Title, and Mineral Resources

Tract 3 is being purchased in the name of Lake-Forest Enterprise, Inc., through options from Wolf Lands, Inc. An assignment on file with Andersen and Butterworth, PA assigns all right, title, and interest in these lands to PolyMet (USFS 2011c).

There appears to be low potential for exploration or development of bedrock or surficial deposits on the Wolf Lands parcels. There is a moderate potential for aggregate development within Wolf Lands 2, but the parcel's wetland areas and limited access may restrict this opportunity (Barr 2011c).

Within Wolf Lands 1, there is an undivided three-quarter mineral interest reserved by Anton T. Anderson; all remaining mineral interests are held by Kimberly Clark with the right to cave, disturb, damage, or remove the surface while accepting liability for surface damage. The title commitment review indicated that this represents a poor condition of title but may be immaterial because the mineral development potential is low. In addition, there is no timber reservation or agreement in place (USFS 2011c).

Within Wolf Lands 2, 3, and 4, mineral interests are reserved by Duluth & Iron Range Railroad Co. along with the right to sink, cave, disturb, and remove the surface. The title commitment review indicated that this represents a poor condition of title that may be immaterial because the mineral development potential is low.

There are no active timber reservations or agreements in place for the Wolf Lands parcels.

4.3.1.2.4 Tract 4 – Hunting Club Lands

Tract 4 is a single parcel southwest of Crane Lake in St. Louis County. It is composed of 160.0 acres, with a perimeter of approximately 2 linear miles. No hazardous material issues were identified at Tract 4 (EDR 2011f; MPCA 2012d).

Land Use Regulation

Tract 4 is within St. Louis County's Forest Agricultural Management (FAM-1) zoning district. This district is intended to promote the forestry and agricultural industries, as well as recreational uses (St. Louis County 2011). Adjacent parcels on the west and southeast are also in this county zoning district. Adjacent parcels to the southwest, north, and east are Superior National Forest lands in the General Forest– Longer Rotation Management Area (see Figure 4.3.1-3).

Existing Land Use

Tract 4 is accessible by trail from a gravel road northwest of the property. The tract includes portions of two small unnamed lakes. There is no evidence of active land use.

Property Rights, Title, and Mineral Resources

There is low potential for exploration or development of bedrock or surficial deposits within Tract 4 (Barr 2011c). The only title exception is the property's enrollment in the Sustainable Forest Incentive Act Covenant dated September 3, 2002. This status normally includes an 8-year commitment for enrollment (USFS 2011c). The Sustainable Forest Incentive Act Covenant still applies to Tract 4 according to the updated Commitment for Title Insurance for this parcel. The covenant means the property is not and will not be:

- Used for residential purposes;
- Used for agricultural purposes;
- Enrolled in the Reinvest in Minnesota program or in a state or federal conservation reserve or easement reserve program;
- Enrolled in the Minnesota Agricultural Property Tax Law;
- Subject to agricultural land preservation controls or restrictions or the Metropolitan Agricultural Preserves Act; or
- Improved with a structure, pavement, sewer, permanent campsite, or any road (other than a township road), that are used for purposes not prescribed in the forest management plan for the property.

This covenant may need to be extinguished in order for the United States to accept title. The acceptability of the covenant will be determined by the USDA, Office of General Counsel, if a decision is made to proceed with the Land Exchange Proposed Action.

4.3.1.2.5 Tract 5 – McFarland Lake Lands

Tract 5 is a single parcel approximately 3 miles from the US-Canada border in Cook County. It covers approximately 30.8 acres, with a perimeter of approximately one linear mile. No hazardous material issues were identified on Tract 5 (NTS 2010b; EDR 2009b; MPCA 2012d).

Land Use Regulation

Tract 5 is in an unincorporated area in Cook County's Forest/Agriculture Residential (FAR 2) zoning district. This designation is characterized by a mix of forestry, agriculture, residential, and recreational uses (Cook County 2011). Adjacent privately owned parcels to the north and

southeast are also within this county zoning designation. The tract is bordered on the west and south by Superior National Forest lands within the General Forest – Longer Rotation Management Area (see Figure 4.3.1-3).

Existing Land Use

Tract 5 was formerly owned and used by Wheaton College. A bunkhouse, fire ring, outhouse, and cistern are present, although these structures are not in active use and would be removed prior to the completion of the Land Exchange Proposed Action. The tract's eastern boundary is formed by McFarland Lake, an entry point to the BWCAW. Access to the property is by water from a landing off CR 16, or by a walking trail from the end of CR 16 (Lisson and Gawtry 2011).

Property Rights, Title, and Mineral Resources

PolyMet owns the surface rights for this tract. The tract is subject to a mortgage in favor of Iron Range Resources, which would be satisfied at closing of the Land Exchange Proposed Action (USFS 2011c).

The tract was assessed for mineral potential and encumbrances as part of the Feasibility Analysis completed in 2009. The geology underlying the tract is composed of gabbro and sedimentary rocks. Studies of the mineral potential in this area are rare because of the proximity to the BWCAW, but this type of formation has not shown mineral potential elsewhere in the county. The MDNR core library index shows no drilling in or near the area. There are no nearby gravel operations that would indicate any potential for surficial materials (USFS 2009c).

There appears to be low potential for exploration or development of bedrock or surficial deposits within Tract 5 (Barr 2011c). Mineral rights to Tract 5 are outstanding, but deeds do not appear to waive the right to subjacent support (USFS 2011c) (i.e., mineral exploration and extraction may not compromise the "lay of the land" by weakening underground support of the surface).

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4.3.2 Water Resources

The federal lands are similar to the Mine Site area previously discussed, but excludes the privately-owned land bordering Dunka Road to the south of the Mine Site. Section 4.2.2 presents a discussion of the existing conditions on the federal lands. The water resources of the federal lands are briefly described in Section 4.3.2.1. Water resources of the non-federal lands are described in Section 4.3.2.2.

4.3.2.1 Federal Lands

4.3.2.1.1 Land Exchange Proposed Action

The Land Exchange Proposed Action consists of exchanging 6,495.4 acres of federal lands (see Figure 3.3-1) for 7,075.0 acres of non-federal lands. Most of the Mine Site is composed of federal lands, with a small portion located south of Dunka Road being non-federal lands. The Land Exchange Proposed Action also includes federal lands located north and west of the Mine Site.

Groundwater

Groundwater resources in and near the Mine Site are discussed in detail in Section 4.2.2.2.1. In general, the glacial aquifer within the Land Exchange Proposed Action federal lands is typically very thin (less than 30 ft) with limited yield; there are no large-scale regional aquifers (MPCA 1995). The Duluth Complex, which immediately underlies the glacial material, is the least fractured of the bedrock units in the area, and therefore has the poorest aquifer characteristics.

Surface Water

Surface water resources in and near the Mine Site are discussed in detail in Section 4.2.2.2.2. Surface water resources within the Land Exchange Proposed Action federal lands include Mud Lake (PW-148P), and 3.8 miles of the Partridge River and 0.7 miles of Yelp Creek (see Table 4.3.2-1), also a MDNR-designated public water resource. There are no known wild rice beds within these public waters.

Table 4.3.2-1 Summary of Surface Water and Wild Rice Beds for Federal Lands

	Federal Lands	
	Land Exchange Proposed Action	**Land Exchange Alternative B**
Public Water Lakes, ac. (mi. shore)	30.5 (0.9)	Approximately 8.9 (0.2)
Public Water Streams, mi. stream	4.5	4.5
Wild Rice Beds, ac.	--	--

Sources: PW data from MDNR 2012j; Wild Rice data from MDNR 2008c.

4.3.2.1.2 Land Exchange Alternative B

Land Exchange Alternative B: Smaller Federal Parcel lands are somewhat smaller than the Land Exchange Proposed Action, totaling 4,752.6 acres, which excludes the far western portion of the Land Exchange Proposed Action federal land area (see Figure 3.3-1). The Land Exchange Alternative B consists of exchanging 4,752.6 acres of federal lands for 4,926.3 acres of non-federal lands.

Groundwater

Groundwater resources of the Land Exchange Alternative B: Smaller Federal Parcel lands are essentially the same as those of the Land Exchange Proposed Action.

Surface Water

Surface water resources of the Land Exchange Alternative B: Smaller Federal Parcel lands are essentially the same as those of the Land Exchange Proposed Action, with the exception that the northwest boundary of the Land Exchange Alternative B bisects Mud Lake, including only about 30 percent of its shoreline.

4.3.2.2 Non-federal Lands

Water resources considered in this evaluation of the five non-federal land tracts proposed for exchange include the following:

- Quality and flow of groundwater;
- Quality and flow of surface water; and
- Quantity of wild rice beds.

4.3.2.2.1 Regional Groundwater Resources

Regional Groundwater Water Quality

There are no known, site-specific groundwater quality data for any of the non-federal Land Exchange Proposed Action lands. However, there were two studies that collected surficial groundwater quality data throughout the region that may be used to generally characterize potential groundwater quality at the exchange sites. The MPCA studied groundwater quality throughout the state, and published several documents that describe the general condition of the groundwater resource in northeast Minnesota. They note that glacial aquifers in this part of the state are commonly thin and limited in their extent and yield; there are no large-scale regional aquifers (MPCA 1995). The Regional Copper-Nickel Study (Siegel and Ericson 1980) generally focused on the area around the Duluth Complex, so data from that study may not be as broadly applicable.

In addition, between 1992 and 1996, the MPCA's Ground Water Monitoring and Assessment Program sampled 21 wells completed in surficial sand and gravel aquifers and 64 completed in buried, confined sand and gravel aquifers within MPCA Region 1, which encompasses seven counties in northeastern Minnesota including St. Louis County (MPCA 1999a). The MPCA study concluded that groundwater quality across the region is generally good. Concentrations of major cations and anions were lower in surficial and buried drift aquifers compared to similar

aquifers statewide, while concentrations of trace metals were higher. They noted that since geology controls groundwater quality in the region, trace inorganic constituents commonly found in the bedrock, such as beryllium, manganese, boron, arsenic, and selenium may have naturally elevated concentrations locally. Of the 85 surficial and buried aquifer samples that were collected, MPCA recorded five exceedances of the state drinking water criteria for beryllium, four for manganese, and one for boron. There were no exceedances noted for arsenic or selenium.

Although these data may not be directly applicable to any one of the Land Exchange Proposed Action lands, they can be used to draw general conclusions about the probable range of water quality. Table 4.2.2-6 summarizes Mine Site groundwater quality data and compares it with the MPCA (i.e., Northeast MN Baseline) and copper-nickel (i.e., Cu-Ni Baseline) study data for surficial aquifers. The range of values across the region for the five constituents of concern noted by the MPCA was generally comparable to the ranges monitored at the Mine Site, with the exception of manganese, which was higher for some of the regional samples.

Probable Groundwater Source Areas for the Exchange Lands

As suggested by the MPCA study for the northeast region, all of the exchange tracts, with the possible exception of the Tract 1, appear to be characterized by thin glacial aquifers with limited yield. Source areas of surficial groundwater also appear to be limited, usually within a mile or two of each tract.

The general applicability of the regional, surficial data to the exchange lands is somewhat dependent on the potential for local anthropogenic (man-made) contamination of groundwater. A cursory evaluation of the surficial groundwater source area for each parcel is made in the groundwater discussion for each of the tracts below.

4.3.2.2.2 Surface Water Resources

The five tracts drain either south to the Lake Superior Watershed or north to the Hudson Bay Watershed. Except for timber harvest, they are all generally undisturbed with native forest cover. Little, if any, hydrologic or water quality data has been collected for any of the tracts. The surface water resources of each tract are described below. Table 4.3.2-2 summarizes the surface water and wild rice beds of each tract.

Table 4.3.2-2 Summary of Surface Water and Wild Rice Beds for all Land Exchange Proposed Action Tracts

	Non-federal Lands					Non-federal Totals
	Tract 1 – Hay Lake Lands	**Tract 2 – Lake County Lands**	**Tract 3- Wolf Lands**	**Tract 4 – Hunting Club Lands**	**Tract 5 – McFarland Lake Lands**	
Public Water Lakes, ac. (mi. shore)	125.7 (2.8)	--	--	--	0 (0.2)	**125.7 (3.0)**
Public Water Streams, mi. stream	8.1	--	1.0	--	--	**9.1**
Wild Rice Beds, acres.	125.7	--	--	--	--	**125.7**

Sources: PW data from MDNR 2012j; Wild Rice data from MDNR 2008c.

4.3.2.2.3 Tract 1 – Hay Lake Lands

Groundwater

This tract would appear to be the most susceptible of all the tracts to anthropogenic influences since it is located only a few miles away from the Mesabi Iron Range and several local communities. However, a natural topographic and bedrock divide separates most of the Mesabi Iron Range mining activities from the tract, meaning that surficial groundwater flow to the tract is isolated from most mining and community influences. One mining feature within the same watershed (Pike River) is ArcelorMittal Steel's Tailings Basin, located about 0.5 miles to the west. The general topography of the area suggests that groundwater flow from the Tailings Basin is to the northeast, away from the Hay Lake lands. Limited surface water quality data from Hay Lake and Rice Lake indicate that sulfate concentrations vary between less than 1.0 and 3.6 mg/L (Barr 2012a), indicating no influence from the Tailings Basin.

Three piles of household waste and soil with minor oil impacts were removed from the Hay Lake tract by PolyMet. Confirmation soil sampling and analyses indicated all impacted soils were removed, and found no evidence that contamination had migrated to groundwater (NTS 2011).

Surface Water

Hay Lake lands drain to the Pike River, which flows into Lake Vermilion near Tower, Minnesota (see Figure 4.3.2-1). The lands contain two MDNR-designated public water lakes—Hay Lake (PW 69-579P) and Rice Lake (PW 69-578W). Hay Lake is 96.2 acres with 1.9 miles of shoreline; Rice Lake is 29.5 acres with about 1 mile of shoreline. This tract also contains about 8 miles of the Pike River, an MDNR-designated public water stream. Hay Lake, Rice Lake, and the Pike River, all of which contain wild rice beds, lie within the Hay Lake lands. These are the only waterbodies within the proposed non-federal land exchange tracts known to contain wild rice beds. These waterbodies were included in four annual wild rice surveys performed from 2009 to 2012 (Barr 2009b; 2011a; 2012a; 2013m); survey results were similar for 2009-2011 with no apparent trends in density or distribution. Hay Lake was found to have small, low density wild rice beds (density factor 1 of 5) across the entire lake. Rice Lake was found to have many beds across the entire lake with density factor ratings of 3 to 5. Pike River was also found to have beds with density factor ratings of 3 to 5 across the entire river near Rice Lake, with near-bank beds further upstream. The survey performed in 2012 found lower densities of wild rice beds. Hay Lake, Rice Lake, and the Pike River all had density factor ratings of 1. The decreases in density in Rice Lake and the Pike River were consistent with a decrease in wild rice bed density across all areas surveyed in 2012.

ArcelorMittal Steel's Tailings Basin is located about 2 miles northwest of Hay Lake (see Figure 4.3.2-1). Seepage from the basin flows north into Wouri Creek, which is also a tributary to the Sandy River. Three water quality samples taken from Hay Lake during the summer of 2009 all had a sulfate concentration of 1.1 mg/L, and one sample taken in 2010 had a sulfate concentration less than 1 mg/L (Barr 2011a), suggesting that seepage from the ArcelorMittal Steel's Tailings Basin is not reaching the lake. Water clarity was estimated at 6 to 12 ft based on 1999-2001 satellite imagery. Sulfate concentrations in Rice Lake and in the Pike River just downstream of Rice Lake were measured annually from 2009 to 2012 during the wild rice surveys. Sulfate concentrations in Rice Lake ranged from 2.1 to 2.4 mg/L. Sulfate concentrations

in the Pike River just downstream of Rice Lake ranged from 2.1 to 3.6 mg/L (Barr 2013l). There are no other known water quality data for this tract.

4.3.2.2.4 Tract 2 – Lake County Lands

Groundwater

The Lake County lands are located near the headwaters of small, tributary streams with local source areas for groundwater. There are no known land-use activities within the source areas that suggest the potential for detrimental effects to groundwater quality.

Surface Water

This tract contains four parcels; three are located in close proximity to each other with a fourth parcel located about 14 miles to the southeast (see Figure 4.3.2-2 and Figure 4.3.2-3). There are no DNR-designated public waters within Tract 2. The three clustered parcels flow to the southwest through a series of small streams that are tributaries to the Cloquet River. The Cloquet River drains into the St. Louis River, which ultimately drains into Lake Superior. The Lake County South parcel flows to a tributary of the Beaver River (MDNR-designated public water stream), which ultimately drains into Lake Superior. There are no known water quality data for this tract.

4.3.2.2.5 Tract 3 – Wolf Lands

Groundwater

The Wolf Lands are located near the headwaters of small, tributary streams with local source areas for groundwater. There are no known land-use activities within the source areas that suggest the potential for detrimental effects to groundwater quality.

Surface Water

This tract consists of four parcels (see Figure 4.3.2-3, Figure 4.3.2-4, Figure 4.3.2-5, and Figure 4.3.2-6). Wolf Lands 1 is located immediately adjacent to the Lake County lands, contains no protected waters, and discharges to the same Cloquet River tributary as the Lake County lands.

Wolf Lands 2 is located adjacent to two creeks that are tributaries to Greenwood Lake; Mary Ann Creek is located to the west and an unnamed creek is located to the southeast. Greenwood Lake flows northerly to the Stony River. There are no public waters within this parcel.

Coyote Creek flows within the northern portion of Wolf Lands 3 and bifurcates Wolf Lands 4. Coyote Creek is a tributary and a MDNR-designated public water stream to McDougal Lake, which eventually flows into Stony River. Wolf Lands 3 contains 0.1 mile and Wolf Lands 4 contains 0.9 mile of Coyote Creek. There are no known water quality data for this tract.

4.3.2.2.6 Tract 4 – Hunting Club Lands

Groundwater

The Hunting Club lands are located near the headwaters of small, tributary streams with local source areas for groundwater. There are no known land-use activities within the source areas that suggest the potential for detrimental effects to groundwater quality.

Surface Water

This entire tract drains into an unnamed tributary of the Vermilion River, which flows north to Crane Lake (see Figure 4.3.2-7). There are no DNR-designated public waters within this land. There are no known water quality data for this tract.

4.3.2.2.7 Tract 5 – McFarland Lake Lands

Groundwater

The McFarland Lake lands may have the most limited groundwater resource of all the tracts due to very shallow glacial material over bedrock. Source areas for groundwater flow to the tract appear to be limited to the tract itself and a small, undeveloped drainage 0.5 mile northwest of the tract. There are no known land-use activities within the source area that could potentially affect groundwater quality.

Surface Water

This tract is tributary to McFarland Lake (MDNR PW 027P), which drains into the border lakes of the BWCAW (see Figure 4.3.2-8). It contains about 0.2 mile of McFarland Lake shoreline. There is no known water quality data for this tract or for McFarland Lake, other than 13 secchi disk (water clarity) readings taken from 1989 through 2008. The average secchi disk reading was 16.1 ft, which is near the high end of the typical range for water clarity in this region of Minnesota. This secchi disk reading indicates that McFarland Lake is about mid-way between oligotrophic and mesotrophic, which suggests that the lake has relatively low nutrient enrichment.

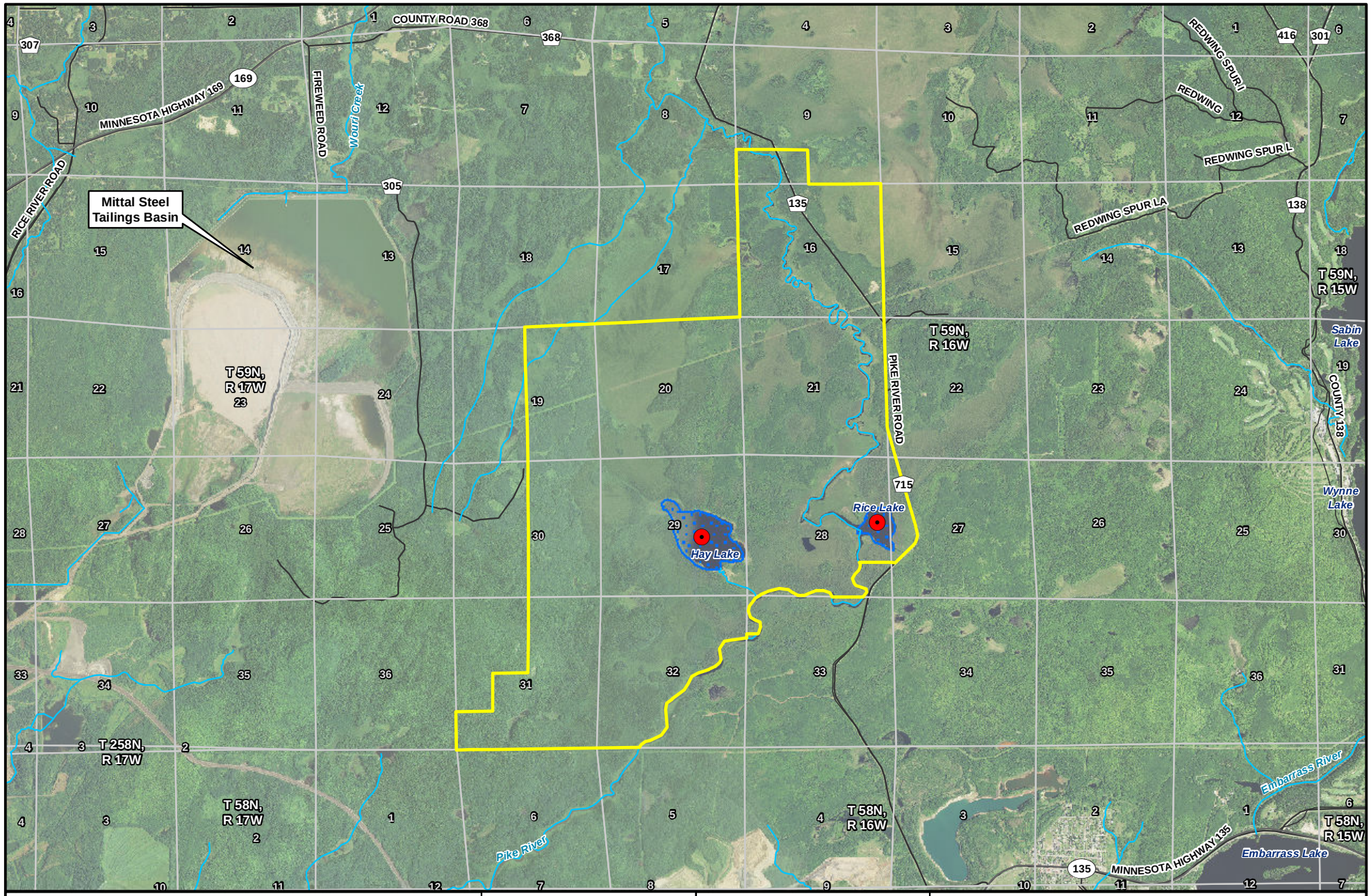

Non-federal Lands
Wild Rice Location
Wild Rice Lake
Stream/River
Section Boundary
Section Label
Road

0 0.325 0.65 1.3 Miles

Figure 4.3.2-1
Surface Water
Tract 1 - Hay Lake Lands
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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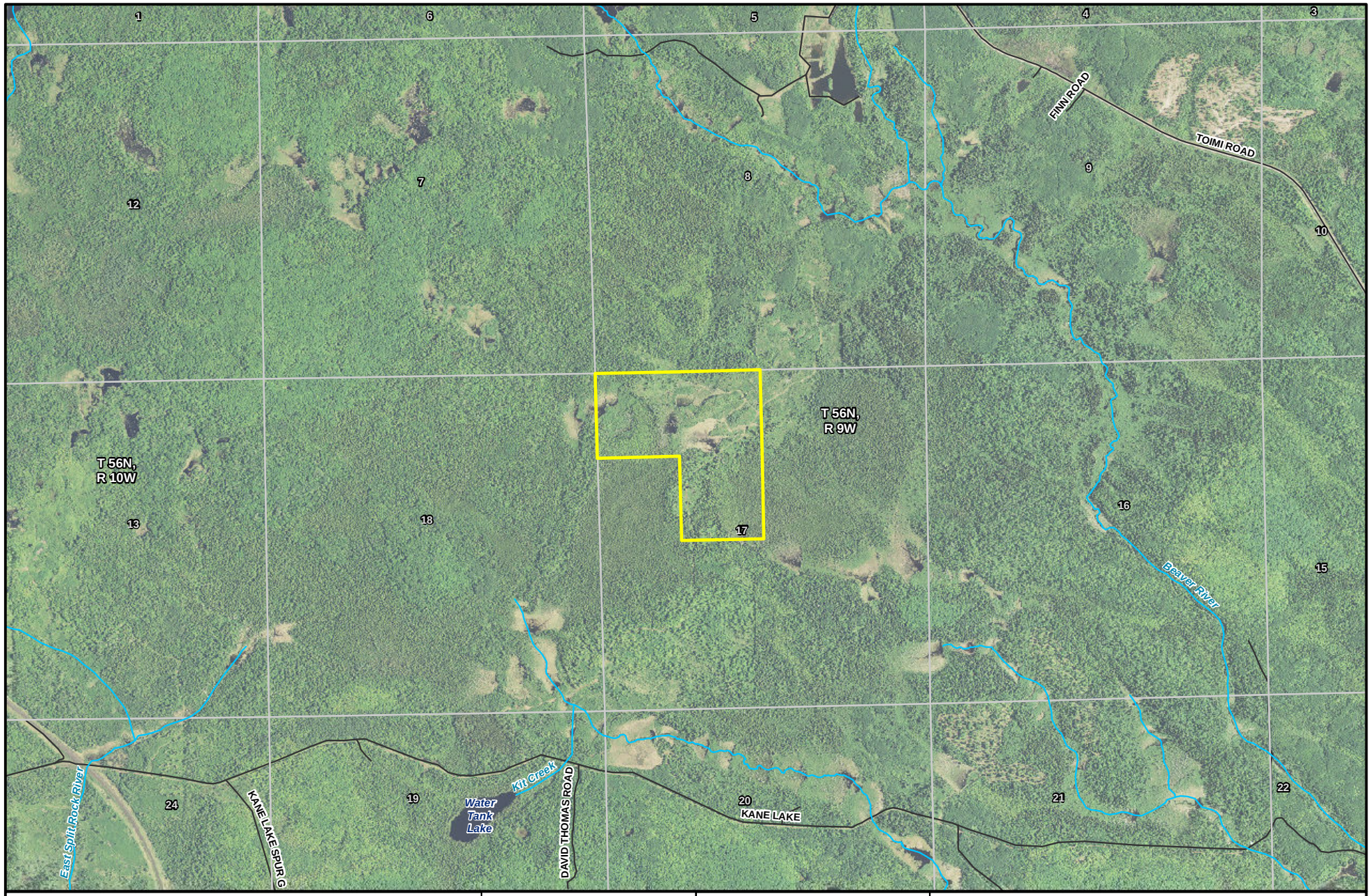

Non-federal Lands
Wild Rice Location
Wild Rice Lake
Stream/River
Section Boundary
Section Label
Road

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.125 0.25 0.5 Miles

Figure 4.3.2-2
Surface Water
Tract 2 - Lake County South Lands
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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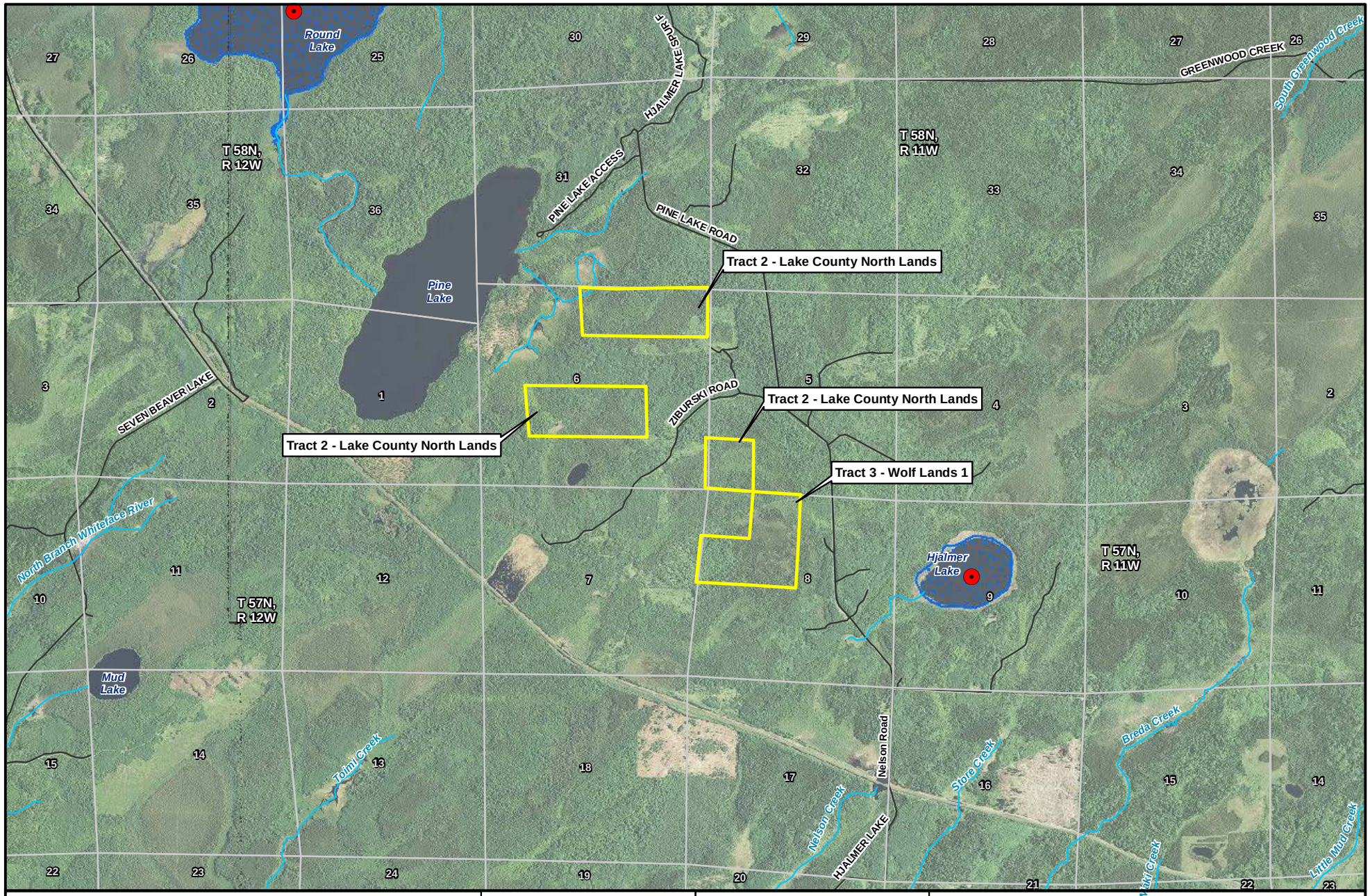

Non-federal Lands
Wild Rice Location
Wild Rice Lake
Stream/River
Section Boundary
Section Label
Road

MNDNR
US Army Corps of Engineers St. Paul District
U.S. Forest Service

N W E S

0 0.25 0.5 1 Miles

Figure 4.3.2-3
Surface Water
Tract 2 - Lake County North Lands and Tract 3 - Wolf Lands 1
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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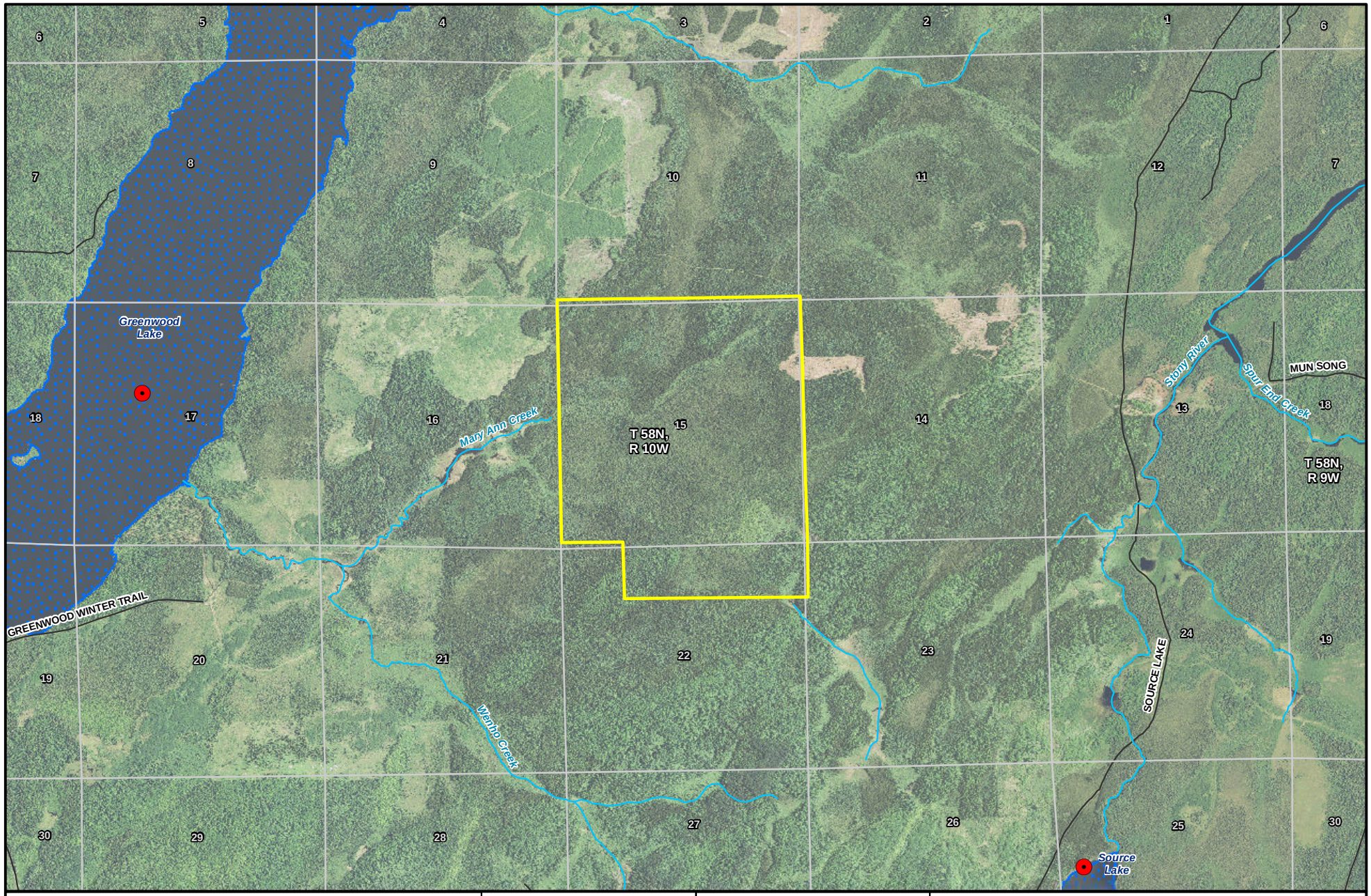

Non-federal Lands
Wild Rice Location
Wild Rice Lake
Stream/River
Section Boundary
Section Label
Road

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

0 0.175 0.35 0.7 Miles

Figure 4.3.2-4
Surface Water
Tract 3 - Wolf Lands 2
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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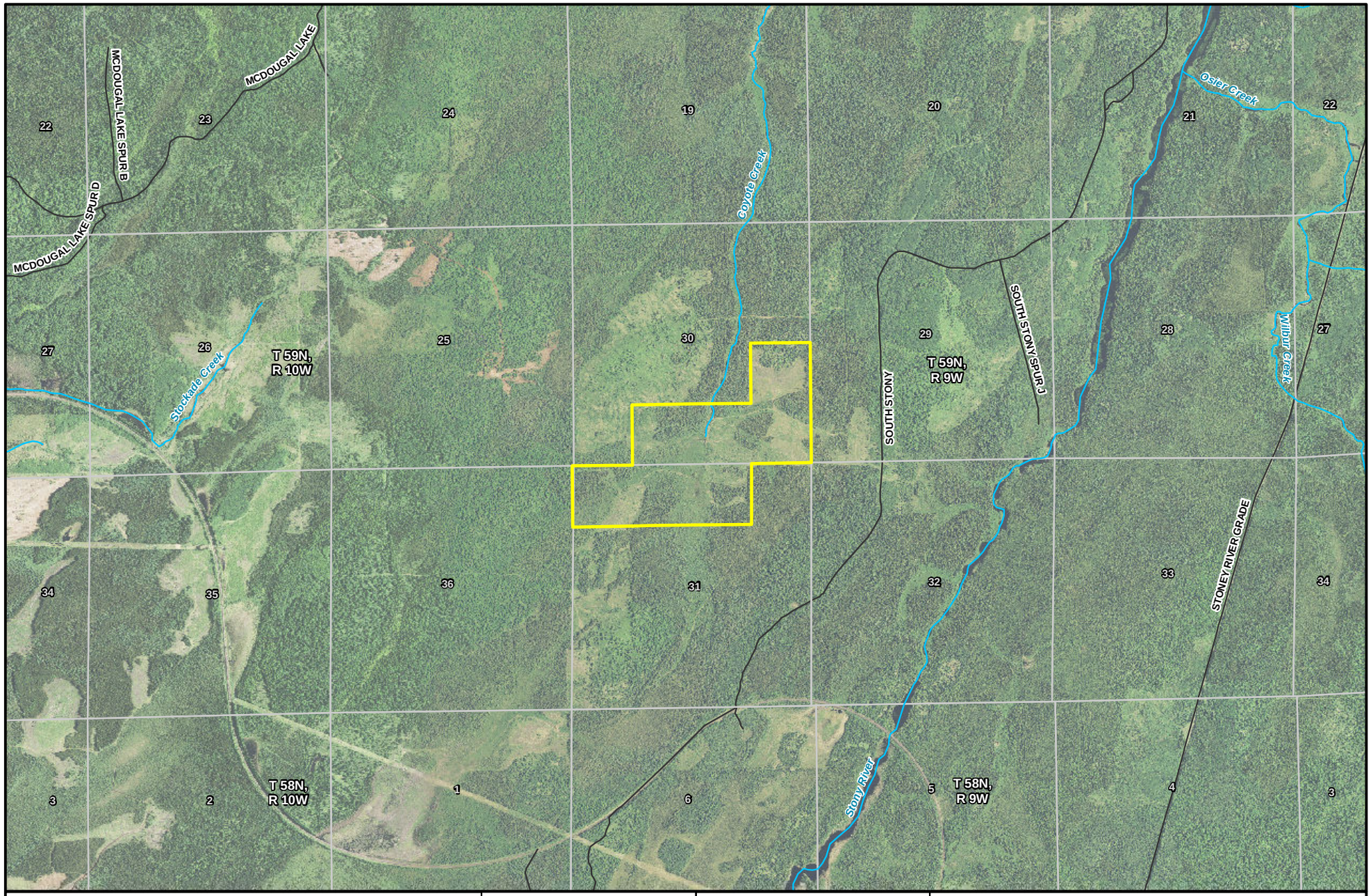

Non-federal Lands
Wild Rice Location
Wild Rice Lake
Stream/River
Section Boundary
Section Label
Road

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

0 0.175 0.35 0.7 Miles

Figure 4.3.2-5
Surface Water
Tract 3 - Wolf Lands 3
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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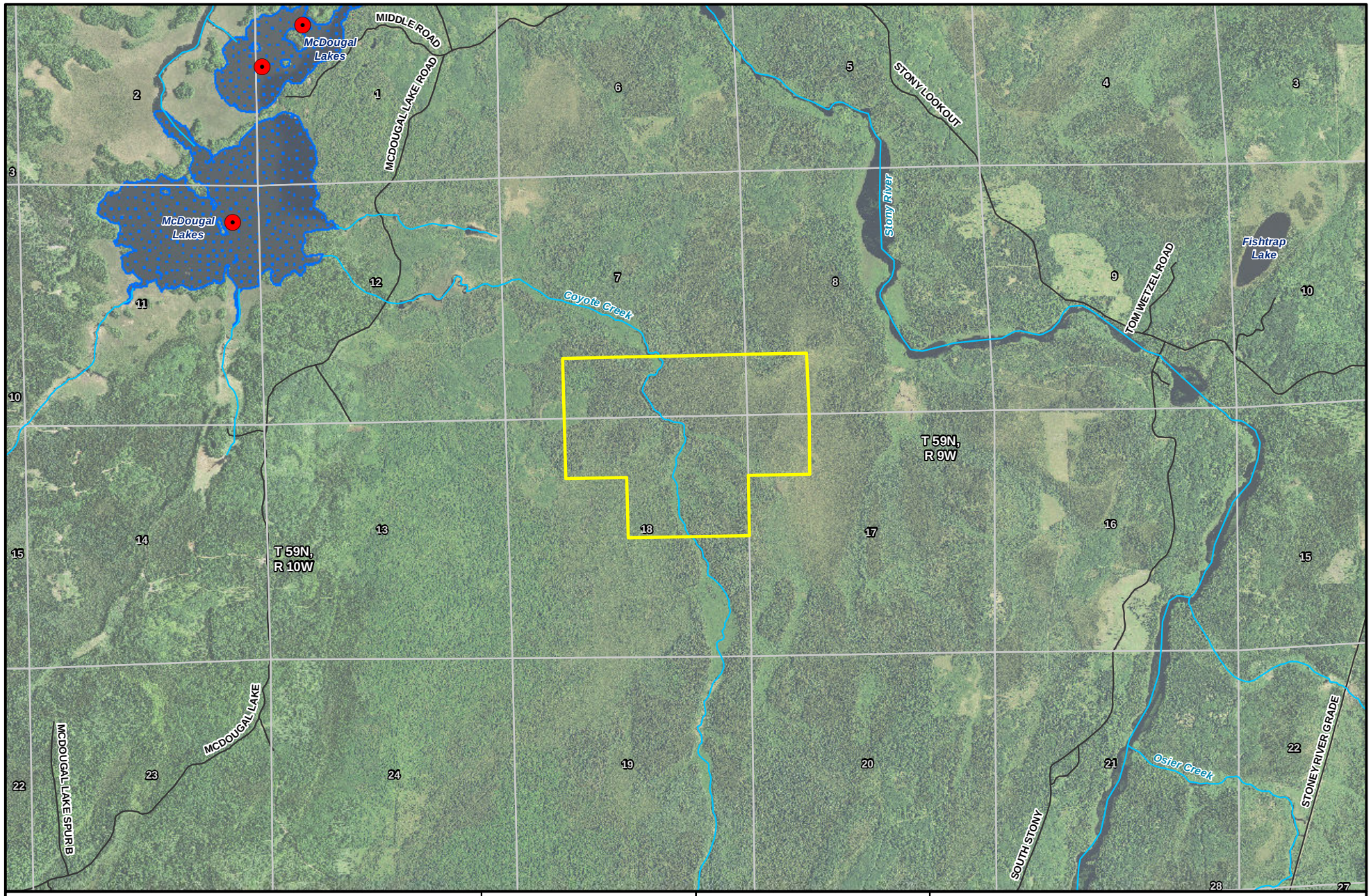

Non-federal Lands
Wild Rice Location
Wild Rice Lake
Stream/River
Section Boundary
Section Label
Road

MNDNR
US Army Corps of Engineers St. Paul District
U.S. Forest Service

N W E S

0 0.175 0.35 0.7 Miles

Figure 4.3.2-6
Surface Water
Tract 3 - Wolf Lands 4
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Non-federal Lands
Wild Rice Location
Wild Rice Lake
Stream/River
Section Boundary
Section Label
Road

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

0 0.25 0.5 1 Miles

Figure 4.3.2-7
Surface Water
Tract 4 - Hunting Club Lands
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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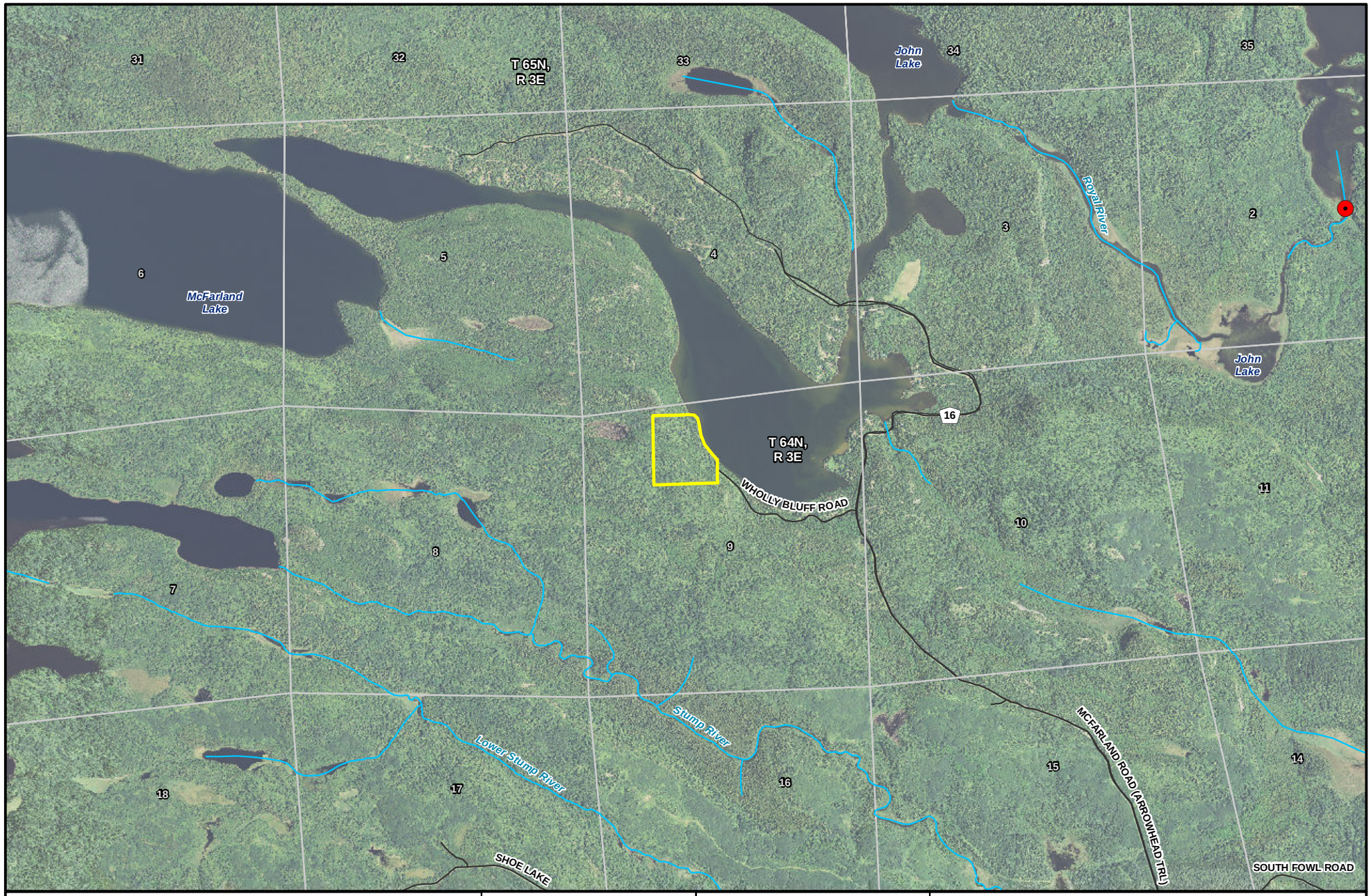

Non-federal Lands
Wild Rice Location
Wild Rice Lake
Stream/River
Section Boundary
Section Label
Road

MNDNR
US Army Corps of Engineers St. Paul District
U.S. Forest Service

N W E S

0 0.15 0.3 0.6 Miles

Figure 4.3.2-8
Surface Water
Tract 5 - McFarland Lake Lands
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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4.3.3 Wetlands

4.3.3.1 Federal Lands

The federal lands, both the Land Exchange Proposed Action and Land Exchange Alternative B boundaries, are located in the Partridge River Watershed, about 3 miles south of the Laurentian Divide (see Figures 4.3.3-1 and 4.2.2-1). As previously stated, the Partridge River is located in the East St. Louis River Watershed, which discharges into Lake Superior. Much of the federal lands consist of wetlands and the Land Exchange Proposed Action boundary includes a portion of the One Hundred Mile Swamp. The One Hundred Mile Swamp (see Figure 4.3.3-1) is a large wetland of approximately 3,028 acres that was aerially surveyed by the MDNR as part of a larger study (MDNR 1997); however, no delineated boundary exists for the One Hundred Mile Swamp. The following sections provide baseline information on the Land Exchange Proposed Action and Land Exchange Alternative B boundaries.

4.3.3.1.1 Land Exchange Proposed Action

Wetland Delineation and Classification

Wetland characterization, mapping, and surveys for the federal lands were conducted between 2004 and 2010. The wetland delineation and classification is the same as described in Section 4.2.3.1.1. The federal lands within the Land Exchange Proposed Action encompass 6,495.4 acres (see Figure 4.3.3-1).

Wetland delineations of the federal lands surrounding the Mine Site were subsequently conducted in August 2004, June 2005, and July 2006. Between 2007 and 2010, additional wetlands within the federal lands adjacent to the Mine Site were identified from aerial photographic interpretation and field studies. In August 2008, additional upland and wetland habitat surveys were conducted on the areas outside the Mine Site on the adjoining federal lands. Initially, potential wetland locations were determined by reviewing CIR aerial photographs, USGS topographic maps, and wetland maps previously prepared. Aerial photographs and field maps were then used in the field to verify cover types. Upon completion of field studies, cover types were mapped as habitat polygons. Polygons were digitized using GIS and overlaid onto habitat maps created from aerial photographs. These maps and the associated GIS database were used to determine the approximate acreage of each wetland type.

During the field surveys, data was collected related to the overall functions and values of the wetlands within the federal lands associated with the Mine Site (see Section 4.2.3.1.3) and of representative wetlands within the federal lands adjacent to the Mine Site. Wetland functions and values were rated using the guidelines in the MnRAM, Versions 3.0-3.2.

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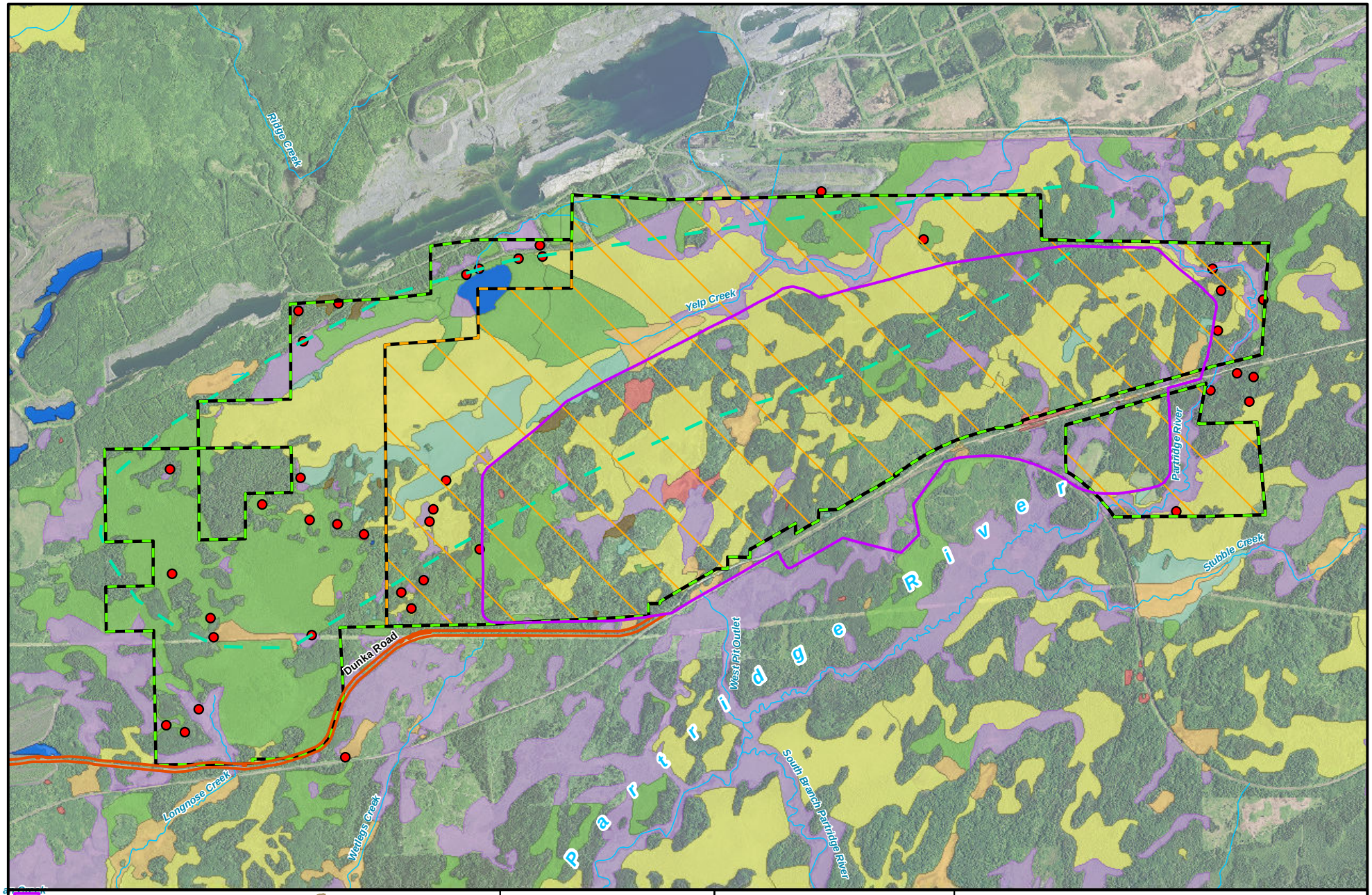

Mine Site
Federal Lands
Alternative B: Smaller Federal Parcel
Transportation and Utility Corridor
Stream/River
One Hundred Mile Swamp (Approximate Boundary)
Wetland Assessment Site

Eggers & Reed Wetland Types

Coniferous Bog
Coniferous Swamp
Deep Marsh & Shallow Marsh
Hardwood Swamp
Open Bog
Sedge Meadow & Wet Meadow
Shrub Swamps (Alder Thicket & Shrub-Carr)
Shallow, Open Water & Lake

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 0.25 0.5 1 Miles

Figure 4.3.3-1
Wetland Community Types Federal Lands and Alternative B: Smaller Federal Parcel
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Hydrology, Wetland Vegetation, and Community Types

The hydrology, wetland vegetation, and community types of the federal lands within the Land Exchange Proposed Action include those elements within the Mine Site boundary (see Section 4.2.3.1.2), as well as the adjoining federal lands to the northwest. The hydrology, wetland vegetation, and community types are discussed below.

Bogs in the federal lands consist of leatherleaf and bog Labrador-tea, with scattered speckled alder, swamp birch, tamarack, and, in some areas, cattail and sedges. Sphagnum moss was observed to cover 80 to 90 percent of the bogs. Other species encountered during the field work include: black spruce, tamarack, blueberry, small fruited bog cranberry, willows, purple pitcher plant, marsh cinquefoil, cottongrass, round sundew, starflower, bunchberry, and Solomon's seal (AECOM 2011a).

Shrub swamp communities on the adjoining federal lands surrounding the Mine Site were observed to consist of a dense cover of speckled alder. These wetlands typically include sapling balsam fir, jack pine, black spruce, willow, and the occasional American mountain-ash. Dominant low shrubs include bog Labrador-tea, leatherleaf, lowbush blueberry, prickly rose, raspberry, and red-osier dogwood. Mountain maple saplings were also present during the field work in a few wetlands. Herbaceous layer species include club and sphagnum mosses, woolly sedge, bluejoint, horsetail, wood fern, bunchberry, bluebead lily, starflower, and creeping snowberry (AECOM 2011a).

The forested swamp communities (coniferous swamps and hardwood swamps) for the federal lands surrounding the Mine Site are also dominated by black spruce and northern white cedar, with scattered tamarack. Deciduous and mixed forest wetlands are uncommon; aspen is the dominant deciduous species found in these forests. Much of One Hundred Mile Swamp consists of mature (80-plus years) black spruce and northern white cedar. Bog Labrador-tea, leatherleaf, and blueberry are prevalent, as is spruce regeneration. In some areas with dense stands of spruce, few shrubs were seen during field surveys, but sphagnum and club mosses often covered nearly 100 percent of the ground. More open stands may have an understory comprised of shrubs and scattered sapling white cedar, tamarack, and black spruce, along with speckled alder and willow. Common species include bluebead lily, Solomon's seal, horsetail, starflower, and creeping snowberry. Some areas also have cottongrass and bog laurel. An area in the southern portion of One Hundred Mile Swamp has a large number of purple pitcher plants. Forest and shrub cover typically range from 40 to 70 percent, while moss and other understory vegetation cover from 60 to 90 percent of the ground (AECOM 2011a).

There were several ponds/inland fresh meadow (emergent) wetlands identified on the federal lands surrounding the Mine Site that were created by logging activities, road construction, or beaver dams, or were natural depressions or associated with the Partridge River. These wetlands were often dominated by bluejoint, sedges, and cattails. Water depths were several feet in deeper areas. Spruce and other trees associated with the wetland were often killed when flooded as a result of the rising water level. Willows, tamarack, and speckled alder were often found along the border of these wetlands, but comprised less than 20 percent of the cover. Wild iris is common in some inland fresh meadow wetlands, as was horsetail, burreed, spikerush, and woolly sedge (AECOM 2011a).

The wetland assessment identified 200 wetlands covering 4,164.4 acres (64 percent) within the 6,495.4 acre federal lands boundary (see Figure 4.3.3-1). Table 4.3.3-1 below summarizes the wetland areas within the federal lands represented by each Eggers and Reed (1997; 2014) wetland community type. A large portion of the wetlands within the federal lands are located in the floodplains of Yelp Creek and the Partridge River or one of their associated tributaries. The most common wetland types within the federal lands are coniferous bogs (approximately 47 percent), coniferous swamps (31 percent), and shrub swamps (approximately 13 percent), which includes alder thickets and shrub-carrs.

Other wetland community types present within the federal lands include open bog, shallow marsh, hardwood swamp, open water, and sedge/wet meadows. Section 4.2.3.1.2 provides a discussion on the hydrology, wetland vegetation, and community types of the federal lands.

Table 4.3.3-1 Wetland Acreage by Wetland Community Type for the Federal Lands within the Land Exchange Proposed Action and within the Land Exchange Alternative B

	Land Exchange Proposed Action		**Land Exchange Alternative B**	
Eggers and Reed Class[1]	**Acres**	**%**	**Acres**	**%**
Coniferous bog	1,961.4	47	1,677.0	59
Coniferous swamp	1,287.8	31	476.1	17
Deep marsh	0.0	0	0.0	0
Hardwood swamp	21.1	<1	13.7	<1
Open bog	209.5	5	175.0	6
Open water (includes shallow, open water, and lakes)	30.8	1	8.6	<1
Sedge/wet meadow	35.7	1	34.9	1
Shallow marsh	97.0	2	80.9	3
Shrub swamp (includes alder thicket and shrub-carr)	521.1	13	394.7	14
Total	4,164.4	100	2,860.9	100

Note:
[1] Eggers and Reed 1997; 2014.

Wetland Functional Assessment

The Land Exchange Proposed Action federal lands include the Mine Site area as well as the adjoining federal lands to the northwest. The wetland function and values assessment for the Mine Site is described in 4.2.3.1.3 and wetlands function and values for the federal lands surrounding the Mine Site are provided below.

During the surveys conducted for the federal lands surrounding the Mine Site, the primary wetland functions rated by MnRAM 3.2 were evaluated based on a review of the following: 1) wetland soil, hydrology, and vegetation; 2) outlet characteristics; 3) watershed and adjacent upland land uses and conditions; 4) erosion and sedimentation; and 5) human disturbances (AECOM 2011a). The Eggers and Reed (1997; 2014) classification system was used to classify wetland communities for the wetland function and value evaluation. Landscape factors were typically evaluated on a larger scale. Sixty-three questions given in MnRAM 3.2 were addressed for the August 2008 field surveys, and all factors were evaluated for each wetland surveyed. Based on this assessment methodology, wetlands were rated high, medium, or low.

The wetland functions that were typically most applicable to the federal lands include the following:

- Maintenance of characteristic hydrologic regime;
- Maintenance of wetland water quality;
- Vegetative diversity/integrity;
- Maintenance of characteristic wildlife habitat structure;
- Downstream water quality;
- Groundwater interaction; and
- Aesthetics/recreation/education/cultural.

During 2008, 40 wetlands, or portions of wetlands, were evaluated for their functions and values at representative wetland locations within the federal lands outside the Mine Site boundary (see Figure 4.2.3-2 and Table 4.3.3-2); nearly all wetlands were rated with a high value (approximately 93 percent) for wetland functions based on minimal or no current disturbance. Only a small subset (approximately 7 percent) of the wetlands was disturbed wetlands (AECOM 2011d). Vegetation diversity/integrity was high for 93 percent of the wetlands because they have been minimally altered by recent anthropogenic factors and had a relatively constant supply of water. Wetland vegetation around the Mine Site needed no active management and provided quality habitat for fish and wildlife. The overall rating was based on the highest rated community for vegetation diversity and integrity, rather than the average or weighted value for community vegetation diversity and integrity. MnRAM 3.2 guidance states that this is the appropriate measure for assessing wetland quality for regulatory purposes (AECOM 2011a).

Wildlife habitat was rated high for most wetlands on the basis of natural wildlife corridors and upland communities relatively untouched by recent human disturbances or effects. Wildlife habitat was rated lower in areas where there were few plant communities (AECOM 2011d).

Fish habitat was rated as not applicable for most wetlands, primarily because they did not have enough standing water throughout the year to support fish. Other characteristics associated with the rating include isolated wetlands that are not permanently flooded, or forested wetlands where the water table was below the surface for all or part of the year (AECOM 2011d).

Amphibian habitat was rated high for most wetlands, primarily because they stayed inundated long enough in most years to allow amphibians to successfully reproduce. Amphibian habitat was rated not applicable for some wetlands if conditions needed to support amphibian reproduction did not occur at the site. Forested wetlands with little or no standing water during the mating season would likely not support amphibians (AECOM 2011d).

Aesthetic, recreational, educational, and cultural values were rated medium. All wetlands were aesthetically pleasing and could be used for recreation, education, and cultural purposes. However, road access to the federal lands surrounding the Mine Site is only available via a private mining road and is not easily accessible to the general public (AECOM 2011d). Access to the federal lands is discussed in Section 4.3.1.

Table 4.3.3-2 Wetland Functions and Values Assessment for the Federal Lands Surrounding the Mine Site, 2008

	Functional Value Ratings (%)								
Wetland Functions and Value Rating	**Vegetation Diversity/ Integrity**	**Hydrology**	**Flood Attenuation**	**Downstream Water Quality**	**Wetland Water Quality**	**Wildlife Habitat**	**Fish Habitat**	**Amphibian Habitat**	**Aesthetics/ Education/ Cultural**
High	93	98	2	95	93	93	38	55	0
Moderate	7	2	98	5	7	7	2	7	100
Low	0	0	0	0	0	0	0	5	0
Not Available or Applicable	0	0	0	0	0	60	60	33	0
Total	100	100	100	100	100	160	100	100	100

Source: AECOM 2011a.

Floodplains

Floodplains are lowland areas adjacent to lakes, wetlands, and rivers that are prone to being inundated by water during a flood. Floodplains carry and store water and help to attenuate water flows. Floodplains also provide important habitat for fish and wildlife; filter sediments, nutrients, and pollutants from the water; and are important for public uses, such as fishing and hunting.

There are several definitions people use to estimate the limits of a floodplain. These include an ecological definition, a zoning or regulatory definition, and a hydrologic definition based upon the frequency of flood inundation. Ecologically defined floodplains are considered and described as wetlands for the effects analysis. Federal EO 11988, Section 2(a)(1), states that the "[d]etermination [of a floodplain] shall be made according to a Department of Housing and Urban Development (HUD) floodplain map or a more detailed map of an area, if available. If such maps are not available, the agency shall make a determination of the location of the floodplain based on the best available information."

A Flood Insurance Rate Map (FIRM) developed by the Federal Emergency Management Agency (FEMA) for most of St. Louis County estimates the floodplain areas of inundation. The areas identified on the FIRM are considered "mapped floodplains." The mapped floodplains can be the result of a detailed hydrologic investigation associated with a 100-year (1 percent chance) return frequency flood elevation or an approximation based upon topography of floodplains. Wetlands were not generally mapped as floodplains by FEMA because they had relatively less development pressure with less need for regulation and establishment of insurance rates. Smaller streams with a contributing drainage area of less than 1 square mile were not prioritized by FEMA for mapping. In addition, some areas adjacent to lakes were not mapped because the land use was managed by shoreland ordinances.

The Land Exchange Proposed Action federal lands are within a portion of St. Louis County that is unmapped by FEMA. Therefore, there is no FEMA estimate of the areas of inundation and there are no FEMA-mapped floodplains on the federal lands. However, a hydrologic model (XP-SWMM) was developed as part of the hydrologic analysis needed for the design of the NorthMet Project Proposed Action. The area of inundation associated with the 500-year

(or 0.2 percent chance) floodplain of the Partridge River was estimated as part of this analysis. This estimate of the floodplain area in the federal lands was used for the effects analysis.

Floodplain importance was determined by measuring the number of acres of floodplain per acre of parcel as an index to the relative importance of floodplains on the parcels. The unmapped floodplain area on the federal lands associated with the Partridge River and Yelp Creek, estimated using the XP-SWMM, was estimated to total 1,889.4 acres of floodplain (500-year floodplain) (see Figure 4.3.3-2). The ratio of the number of acres of floodplain per acre of parcel for the federal lands is 0.3. The proposed mining activity associated with the NorthMet Project Proposed Action would be managed by the MDNR Permit to Mine to manage the flood damage potential for upstream and downstream property owners.

Frontage of Waterways

Lakes, streams, and rivers/creeks and their associated riparian habitat provide important habitat for fish and wildlife and provide for additional recreational and social functions and values for humans. Lake, stream, and river/creek frontage and associated habitat are not typically evaluated during a wetland assessment, and were not considered during the wetland assessment field studies conducted for the NorthMet Project Proposed Action. However, the linear distance of lake and river/stream frontage for the federal lands was determined using GIS, and the length of frontage per acre of parcel was calculated as an index of the relative importance of frontage on the parcels.

Mud Lake, the dominant lake feature on the federal lands, is located within the One Hundred Mile Swamp and is 30.5 acres in size. Mud Lake was determined to have a frontage of approximately 4,550 ft. The length of lake frontage per acre of federal lands is 0.7 ft.

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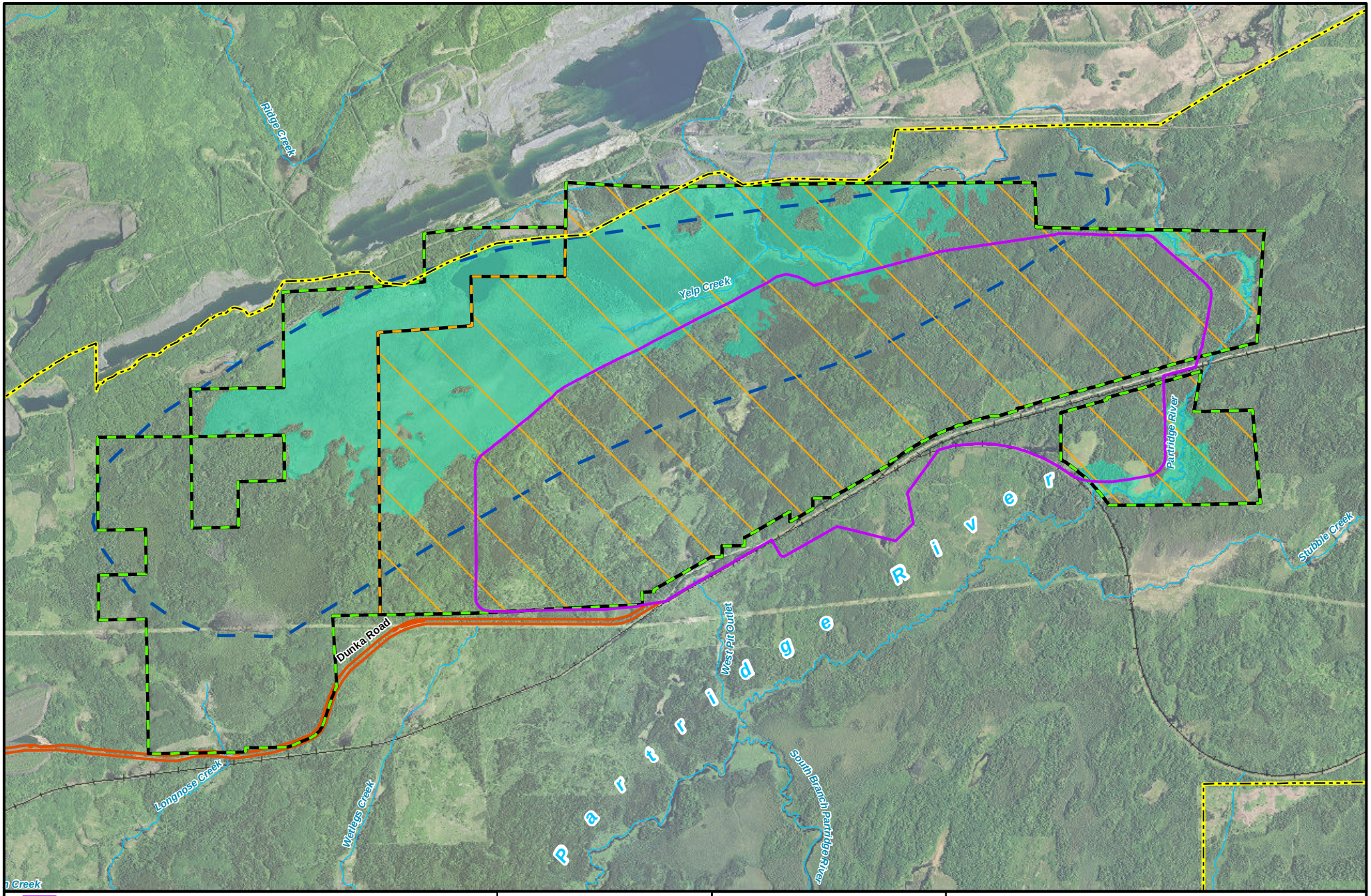

Mine Site
Federal Lands
Alternative B: Smaller Federal Parcel
Area 1
Unmapped Floodplain
Stream/River
Transportation and Utility Corridor
One Hundred Mile Swamp (Approximate Boundary)

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 4.3.3-2
Floodplain Boundaries Federal Lands and Alternative B: Smaller Federal Parcel
NorthMet Mining Project and Land Exchange FEIS
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Yelp Creek flows out of the One Hundred Mile Swamp, while Yelp Creek and the Partridge River flow through portions of the federal lands. Collectively, the creek and river are 5.3 miles in length. Since both sides of the river provide riparian habitat, the length of the river on the federal lands was doubled to determine the importance of river frontage. It was determined that there were 55,968.0 linear ft of creek/river frontage on the federal lands. The length of creek/river frontage per acre of federal lands is 8.6 ft.

4.3.3.1.2 Land Exchange Alternative B

Wetland Delineation and Classification

Land Exchange Alternative B is a reduced area of the Land Exchange Proposed Action federal lands boundary, and the wetland delineation and classification is the same as described in Section 4.3.3.1.1. The Land Exchange Alternative B is 4,752.6 acres (see Figure 4.3.3-1).

Hydrology, Wetland Vegetation, and Community Types

The hydrology, wetland vegetation, and community types of the smaller federal parcel are a subset of the Land Exchange Proposed Action federal lands, and the hydrology, wetland vegetation, and community types are the same as described above in Section 4.3.3.1.1. The wetland assessment identified 143 wetlands covering 2,860.9 acres (60 percent) within the 4,752.6 acre smaller federal parcel boundary (see Figure 4.3.3-1). Table 4.3.3-1, above, summarizes the wetland areas within the Land Exchange Alternative B parcel represented by each Eggers and Reed (1997; 2014) wetland community type. A large portion of the wetlands within the Alternative B: Smaller Federal Parcel is located in the floodplains of Yelp Creek and the Partridge River or one of their associated tributaries. The most common wetland types within the Land Exchange Alternative B include coniferous bogs (approximately 59 percent), coniferous swamps (17 percent), and shrub swamps (approximately 14 percent), which includes alder thickets and shrub-carrs.

Other wetland community types present within the Land Exchange Alternative B include open bog, hardwood swamps, shallow marsh, and sedge/wet meadows. The sedge/wet meadows may receive some portion of its hydrology from groundwater. The shallow marsh community generally results from artificial impoundment by beaver dams, roads, and railroads and is primarily dependent on surface waters for hydrology.

Wetland Functional Assessment

Land Exchange Alternative B is a subset of the Land Exchange Proposed Action federal lands, and the wetland function and values assessment is the same as described in Section 4.3.3.1.1.

Floodplains

The Land Exchange Alternative B federal lands are within a portion of St. Louis County that is unmapped by FEMA. Therefore, there is no FEMA estimate of the areas of inundation and there are no FEMA-mapped floodplains on the federal lands. However, a hydrologic model (XP-SWMM) was developed as part of the hydrologic analysis needed for the design of the NorthMet Project Proposed Action. The area of inundation associated with the 500-year (or 0.2 percent chance) floodplain of the Partridge River was estimated as part of this analysis. This estimate of the floodplain area in the federal lands was used for the effects analysis. The

unmapped floodplain area on the federal lands associated with the Partridge River and Yelp Creek, estimated using the XP-SWMM, was estimated to total 1,412.9 acres of floodplain (500-year floodplain) (see Figure 4.3.3-2). The ratio of the number of acres of floodplain per acre of parcel for the Land Exchange Alternative B is 0.3.

Frontage of Waterways

A portion of Mud Lake, 8.9 acres, is located within the Land Exchange Alternative B. The portion of Mud Lake was determined to have a frontage of approximately 1,200 ft. The length of lake frontage per acre of the Land Exchange Alternative B is 0.3 ft.

As with the Land Exchange Proposed Action, Yelp Creek flows out of the One Hundred Mile Swamp, while Yelp Creek and the Partridge River flow through portions of the Land Exchange Alternative B. Collectively, the creek and river are 5.3 miles in length in the Land Exchange Alternative B, corresponding to 55,968.0 linear ft of creek/river frontage (counting both sides of the water feature). The length of creek/river frontage per acre of the Land Exchange Alternative B is 11.8 ft.

4.3.3.2 Non-federal Lands

4.3.3.2.1 Non-federal Lands

The Land Exchange Proposed Action must comply with two EOs that are related to wetlands and floodplains. EO 11990 was signed by President Jimmy Carter on May 24, 1977 “in order to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modifications of wetlands….” This order applies to land exchanges such that, as much as practicable, the exchange does not result in the loss of wetland resources. EO 11988 was signed by President Jimmy Carter on May 24, 1977 “in order to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative…” This order applies to land exchanges such that, as much as practicable, the exchange does not result in an increase in the flood damage potential.

The USFS policy is that the following three conditions satisfy the requirements of EOs 11990 and 11988 (FSH 5409.13 § 33.43c):

1. The value of the wetlands or floodplains for properties received and conveyed is equal (balancing test) and the land exchange is in the public interest.
2. Reservations or restrictions are retained on the unbalanced portion of the wetlands and floodplains on the federal lands when the land exchange is in the public interest but does not meet the balancing test.
3. The federal property is removed from the exchange proposal when the conditions described in the preceding paragraphs 1 or 2 cannot be met.

The USFS is also required, by both EOs 11990 and 11988, to reference in a conveyance those uses that are restricted under identified federal, state, or local wetland and floodplain regulations. In Minnesota, the CWA (USACE/EPA/MPCA), Protected Waters Permit Program (MDNR), and the WCA regulate certain activities in wetlands. Floodplain management ordinances are administered at the local (county) level.

In addition to the evaluating wetlands in accordance with these EOs (acres for acres of wetland and no increase in flood hazards), analysis for the Land Exchange Proposed Action includes information on wetland community types as well as the ecological floodplain. Furthermore, the analysis evaluates the net change of shoreline frontage along rivers, streams, and lakes. Although such analysis is not required by EO 11990, it is consistent with the USFS's strategic goal to sustain and enhance outdoor recreation opportunities and with the management direction to protect water resources.

Wetland Delineation and Classification

Wetland boundaries and community types for the non-federal lands were identified from aerial photographic interpretation and field studies; no federal or state delineation protocols were used, as it was primarily a habitat assessment (AECOM 2011b; AECOM 2011c). Infrared and true color aerial photographs and topographic maps of the parcels were reviewed to identify areas that could have wetlands based on vegetative characteristics and topography. In addition, wetlands identified by the NWI were overlaid onto aerial photographs to assist in wetland identification. Field studies were conducted subsequent to the initial desktop study in June 2009 for the Hay Lake Lands and McFarland Lands (AECOM 2011b) and in November 2010 for the Hunting Club Lands, Lake County Lands, and Wolf Lands (AECOM 2011c); this was done to better delineate wetland boundaries on the parcels using the same methods as used for the federal lands surrounding the Mine Site. Mapping information from the field work was then used to modify the NWI wetland types and boundaries.

Wetland surveys were conducted along transects located on primary roads (parcel access and logging) and secondary access routes (skid trails, stream corridors, wetlands, other natural corridors) in order to maximize the amount of area covered during the survey period. Additional surveys were conducted off of the primary and secondary access routes in an effort to better determine wetland boundaries and types (AECOM 2011b; 2011c).

The boundaries of wetlands were determined based on aerial photograph interpretation and NWI mapping, with some refining of wetland boundaries during field studies. Wetland boundaries were determined in the field based on hydrologic and vegetative characteristics and were more accurate where survey routes crossed or were near wetland boundaries. Approximate wetland boundaries and wetland types based on habitat mapping are shown on Figures 4.3.3-3 and 4.3.3-4. Surveys covered nearly all portions of the parcels, although not all wetlands were field surveyed (AECOM 2011b; AECOM 2011c).

During the field surveys in June 2009 and November 2010, data were collected using the guidelines in MnRAM 3.2 (BWSR 2009) related to the functions and values of representative wetlands within the tracts (AECOM 2011b; AECOM 2011c). The primary wetland functions were evaluated based on a review of the: 1) wetland soil, hydrology, and vegetation; 2) outlet characteristics; 3) watershed and adjacent upland land uses and conditions; 4) erosion and sedimentation; and 5) human disturbances. The Eggers and Reed (1997; 2014) classification system was used to classify wetland communities for the wetland function and value evaluation. Landscape factors were typically evaluated on a larger scale. For instance, soil and vegetation conditions within the watershed were usually similar for large groups of wetlands. The anthropogenic factors were also typically similar across broad areas. Based on the responses to questions addressed by MnRAM 3.2 and the assessment of special features, a function value of

high, medium, or low was given for each primary function (AECOM 2011b; AECOM 2011c). See below for more information on MnRAM scoring for the non-federal lands.

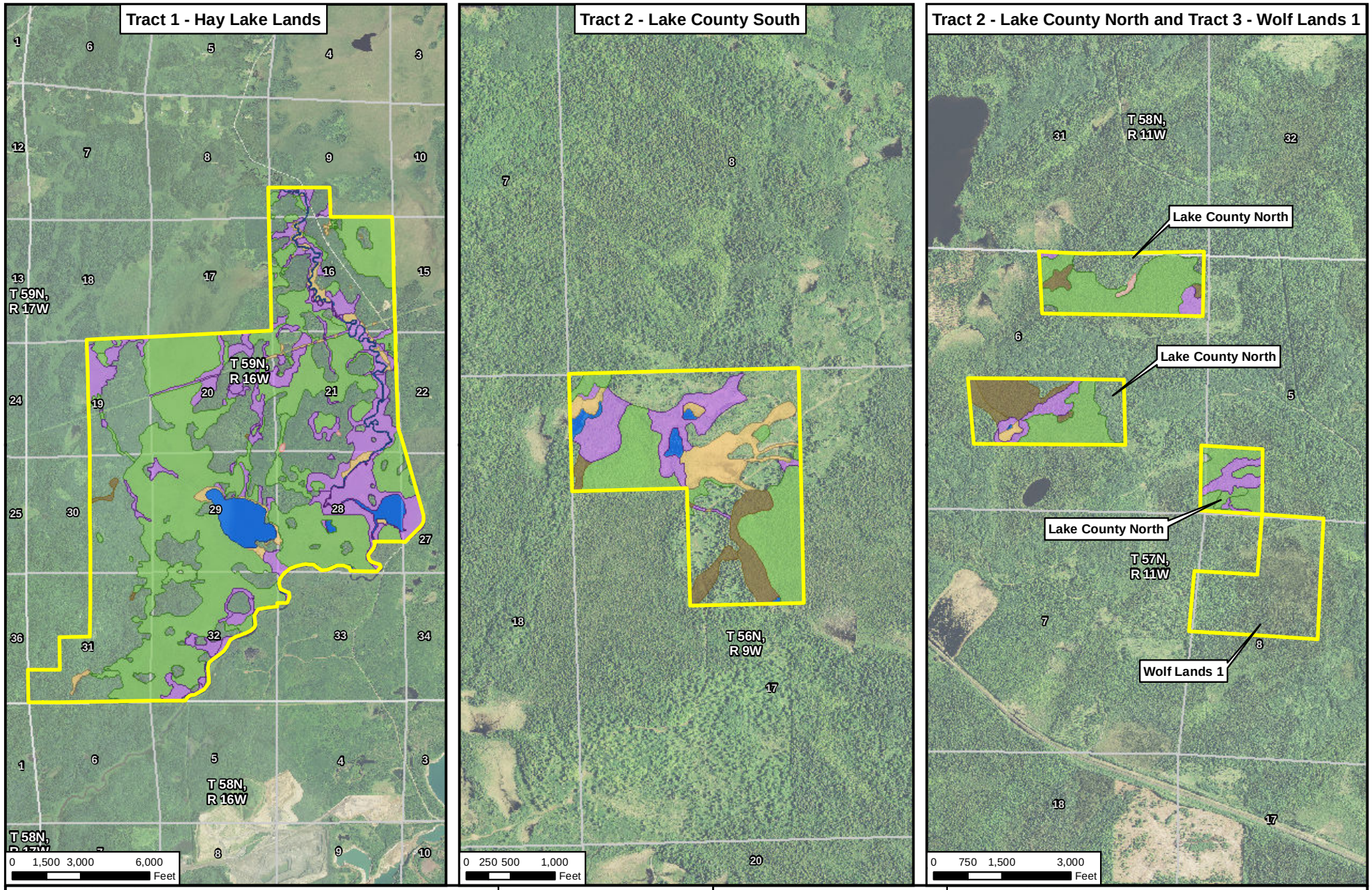

Non-federal Lands
Section Boundary
Section Label

Eggers & Reed Wetland Types
Shrub Swamps (Alder Thicket & Shrub-Carr)
Coniferous Swamp
Hardwood Swamp
Open Bog
Shallow, Open Water & Lake
Shallow Marsh & Deep Marsh

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

Figure 4.3.3-3
Wetland Community Types
Tract 1, Tract 2, and Tract 3
NorthMet Mining Project and Land Exchange FEIS
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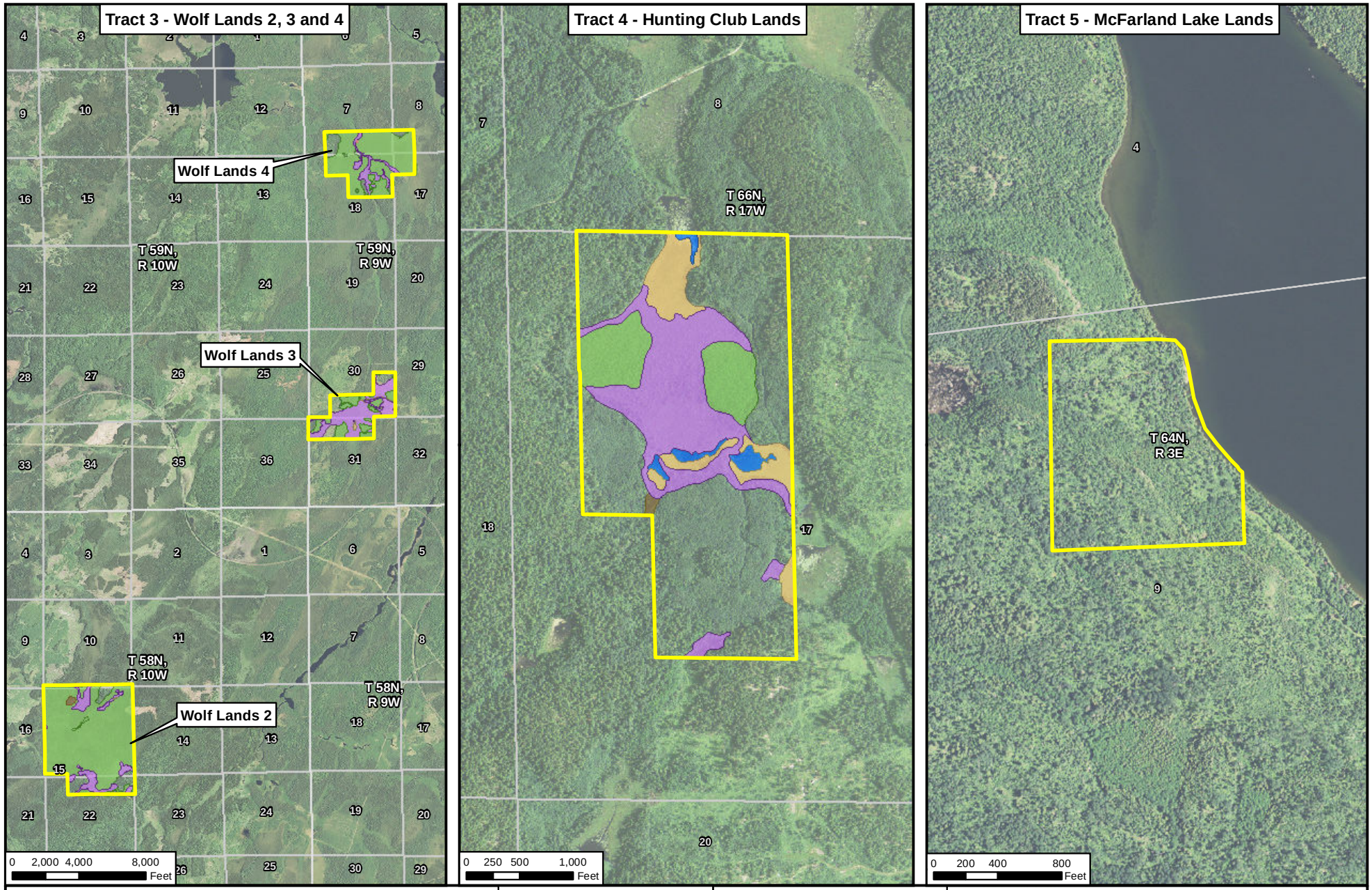

Figure 4.3.3-4
Wetland Community Types
Tract 3, Tract 4, and Tract 5
NorthMet Mining Project and Land Exchange FEIS
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Hydrology, Wetland Vegetation, and Community Types

Habitat and wetland community types within the five tracts were found to be consistent with habitats in much of the Mesabi Iron Range and northeastern Minnesota, including coniferous, deciduous, and mixed coniferous and deciduous forests, and a variety of wetland habitats. Generally, the parcels consisted of a mosaic of slightly elevated upland areas surrounded by wetland areas.

The surveys identified that the majority of the tracts' total area consists of wetlands (66 percent; 4,669.9 acres). Individual tracts with a higher percentage of upland areas include the Hunting Club parcel (60 percent upland), Hay Lake (41 percent upland), and McFarland Lake (100 percent upland) (see Table 4.3.3-3). The most common wetland types within the five non-federal tracts are coniferous swamps (approximately 69 percent) and shrub swamps (approximately 23 percent), which includes both alder thickets and shrub-carr wetlands. Wetland types based on Eggers and Reed (1997; 2014) classification system for the non-federal lands are presented in Table 4.3.3-4 below (AECOM 2011b; AECOM 2011c).

Table 4.3.3-3 Total Wetland and Upland Acreage for the Non-federal Lands

Tract	Wetland Acres [1]	Upland Acres [1]	Total Acres [1]	% of Wetlands	% of Upland
Tract 1 – Hay Lake	2,930.8	1,995.6	4,926.4	59	41
Tract 2 – Lake County					
Lake County North	209.3	55.9	265.2	79	21
Lake County South	73.6	43.4	117.0	63	37
Tract 3 – Wolf Lands					
Wolf Lands 1	90.4	35.4	125.8	72	28
Wolf Lands 2	706.2	61.5	767.7	92	8
Wolf Lands 3	233.2	44.3	277.5	84	16
Wolf Lands 4	362.8	41.9	404.7	90	10
Tract 4 - Hunting Club	63.6	96.5	160.1	40	60
Tract 5 – McFarland Lake	0.0	30.8	30.8	0	100
Total	4,669.9	2,405.3	7,075.2	66	34

Note:
[1] Total acres may be more or less than presented due to rounding.

Table 4.3.3-4 Total Wetland Acreage by Wetland Type for the Non-federal Lands

Eggers and Reed Class[1]	Total Non-federal Lands Acres	%
Coniferous swamp[2]	3,242.4	69
Hardwood swamp[3]	58.0	1
Open bog	7.1	<1
Open water (includes shallow, open water, and lakes)	182.5	4
Shallow marsh[4]	117.5	3
Shrub swamp (includes alder thicket and shrub-carr)	1,062.4	23
Total	4,669.9	100

Notes:
[1] Eggers and Reed 1997; 2014.
[2] Field data for coniferous bogs and coniferous swamps was combined.
[3] Coniferous tree species may be present within some hardwood swamps.
[4] Shallow marsh areas may contain deep marshes.

Wetlands Functional Assessment

Wetland functions and values for the non-federal lands were determined during the June 2009 and November 2010 field surveys. Wetland functions and values were evaluated at 64 sites within the five non-federal tracts (AECOM 2011b; AECOM 2011c; AECOM 2011d). The wetlands on the five non-federal lands share characteristics similar to those found on the federal lands. All wetlands on the non-federal lands were rated high for most wetland functions and values.

During the field surveys, data were collected related to the functions and values of representative wetland locations. A few survey locations were for individual wetlands, while for larger wetland complexes several locations were surveyed. An attempt was made to survey a variety of wetland types across the entire parcel (AECOM 2011b; AECOM 2011c). Survey locations for the wetland functions and values assessment are shown on Figures 4.3.3-3 through 4.3.3-4.

Table 4.3.3-5 summarizes the functional value ratings for the 64 wetlands that were evaluated for primary wetland functions rated by MnRAM 3.2. Wetlands were rated high for nearly all wetland functional values. Vegetation diversity/integrity was rated high for all wetlands. The overall rating for vegetation diversity/integrity was based on the highest rated community for vegetation diversity and integrity, rather than the average or weighted value for community vegetation diversity and integrity. MnRAM 3.2 guidance states that this is the appropriate measure for assessing wetland quality for regulatory purposes.

According to MnRAM scores (AECOM 2011b; AECOM 2011c), the following ratings were determined:

- Wetland hydrology and water quality were rated high for all wetlands, and high for all wetlands except three for downstream water quality. Most wetlands on Tracts 1 and 5 provide moderate to high flood attenuation value and most wetlands on Tracts 2, 3, and 4 provide moderate flood attenuation value, with two wetlands rated high for this function.
- Wildlife habitat was rated high for all but one wetland, as natural wildlife corridors and upland communities are relatively untouched by recent human disturbances or effects. There are no barriers to wildlife movement. Wildlife habitat was rated moderate in an area where there are few plant communities and large amounts of water.
- Fish habitat was rated high for wetlands that provide fish habitat. Fish habitat was rated as not applicable for some wetlands where the wetland does not have enough standing water throughout the year to support fish. Some other characteristics that might limit wetland value for fish would include isolated wetlands that are not permanently flooded, or forested wetlands where the water table is below the surface for all or part of the year.
- Amphibian habitat was rated high for most wetlands. This indicated that the wetland stays inundated long enough in most years to allow amphibians to successfully reproduce. Amphibian habitat was rated medium for some wetlands if ideal conditions needed to support amphibian reproduction do not occur at the parcels. Forested wetlands with little or no standing water or not enough woody vegetation during the mating season would likely not support amphibians. Wetlands with predatory fish may also not support amphibians. Other wetlands were rated not applicable for amphibian habitat, indicating that the parcel is not inundated long enough in most years to support successful breeding.

- Aesthetic, recreational, educational, and cultural values were rated medium for all but one wetland. All wetlands are aesthetically pleasing, and could be used for recreation, education, and cultural purposes. However, access by the general public access is limited to overland by foot or on snowmobile/all-terrain vehicle from Pike River Road or from USFS roads. A few wetlands have human influences on the viewshed due to close proximity to Pike River Road; however, due to their remote locations, most of the wetlands have little human influence on the viewshed.

Table 4.3.3-5 Wetland Functional Value Assessment for the Non-federal Lands

	Functional Value Ratings (%)								
Wetland Functions and Value Rating	**Vegetation Diversity/ Integrity**	**Hydrology**	**Flood Attenuation**	**Downstream Water Quality**	**Wetland Water Quality**	**Wildlife Habitat**	**Fish Habitat**	**Amphibian Habitat**	**Aesthetics/ Education/ Cultural**
High	100	100	8	97	100	98	55	69	2
Moderate	0	0	92	3	0	2	0	9	98
Low	0	0	0	0	0	0	0	6	0
Not Available or Applicable	0	0	0	0	0	0	45	16	0
Total	100	100	100	100	100	100	100	100	100

Sources: AECOM 2011b; AECOM 2011c.

4.3.3.2.2 Tract 1 – Hay Lake Lands

Hydrology, Wetland Vegetation, and Community Types

Tract 1 is moderately hilly and consists primarily of second- or third-growth deciduous and coniferous forest uplands and emergent, shrub swamp, and forested wetlands. This parcel is adjacent to the Superior National Forest (AECOM 2011b). The wetland assessment identified 2,930.8 acres of wetlands within Tract 1 (approximately 59 percent of the land area) (see Figure 4.3.3-3 and Table 4.3.3-6). The most common wetland types within Tract 1 are coniferous swamps (approximately 67 percent) and shrub swamps (approximately 24 percent), which includes both alder thickets and shrub-carr wetlands.

Table 4.3.3-6 Total Wetland Acreage by Wetland Type for Tract 1

	Total Hay Lake	
Eggers and Reed Class[1]	**Acres**	**%**
Coniferous swamp[2]	1,953.9	67
Hardwood swamp[3]	8.0	<1
Open bog	2.1	<1
Open water (includes shallow, open water, and lakes)	176.6	6
Shallow marsh[4]	84.1	3
Shrub swamp (includes alder thicket and shrub-carr)	706.1	24
Total	2,930.8	100

Notes:
[1] Eggers and Reed 1997; 2014.
[2] Field data for coniferous bogs and coniferous swamps was combined.
[3] Coniferous tree species may be present within some hardwood swamps.
[4] Shallow marsh areas may contain deep marshes.

Wetlands on Tract 1 consist primarily of early successional coniferous swamps, shrub wetlands, and open water wetlands. Hay Lake, Rice Lake, an unnamed lake, and the Pike River are the dominant water features. Large bogs dominate much of the east-central portion of Tract 1. Several wetlands were created or enlarged due to impoundment of streams by beaver dams. Raised water levels resulted in stands of dead and dying spruce along portions of the Pike River (AECOM 2011b).

Bogs within Tract 1 are dominated by leatherleaf and bog Labrador-tea, with scattered young speckled alder, bog birch, tamarack, and in some areas, narrow-leaved cattail and sedges. Sphagnum and club moss often cover 80 to 90 percent of the bog. Scattered (less than 5 percent) black spruce (some dead) and immature tamarack are found in the tree layer. Lowbush blueberry, small-fruited bog cranberry, bog rosemary, and small willows are also common. Other species encountered include cottongrass, wild iris, wild raspberry, bunchberry, and northern bog orchid (AECOM 2011b).

Emergent wetlands are primarily limited to disturbed areas on Tract 1, floodplains associated with the Pike River, wetlands associated with abandoned logging roads, transmission line ROWs, and beaver ponds. These emergent wetlands are often dominated by Canada bluejoint grass, various sedge species, and narrow-leaved cattail (70 to 80 percent cover) and generally are characterized by water depths of 1 ft or greater. Spruce, tamarack, and northern white cedar associated with these wetlands are often killed when flooded due to the rising water level behind beaver dams. Willows, tamarack, red-osier dogwood, and speckled alder are often found along the border of these wetlands, but comprised less than 30 percent of the total cover. Wild iris is encountered in some wetlands, as is horsetail, bur reed, spikerush, water arum, broad-leaved arrowhead, and woolly sedge (AECOM 2011b).

Shrub swamp wetlands usually consist of a dense (60 to 90 percent) cover of speckled alder, meadowsweet, and bog birch, with alder often 6 ft or taller in height. Some of the wetlands have scattered black spruce, tamarack, and willow saplings, but tree cover does not exceed 25 percent. Dominant low shrubs are bog Labrador-tea, leatherleaf, lowbush blueberry, prickly rose, wild raspberry, and red-osier dogwood. Mountain maple saplings are also present in a few wetlands. Herbaceous layer species include club and sphagnum mosses, woolly sedge, Canada bluejoint grass, horsetail, bunchberry, and clintonia (AECOM 2011b).

Forested wetlands (coniferous and hardwood swamps) are dominated by black spruce and tamarack, with some scattered northern white cedar, red pine, and black ash also present. Coniferous wetland forests are the most common habitat type on the parcel; deciduous and mixed forest wetlands are uncommon. In some areas with dense stands of spruce, few shrubs are seen, but sphagnum and club mosses often cover nearly 100 percent of the ground. Some open stands have an understory comprised of shrubs and scattered sapling northern white cedar, tamarack, and black spruce, along with speckled alder and willow. Mountain maple is also encountered among tree species on Tract 1, primarily in deciduous and mixed forests. Common species encountered in the shrub layer include specked alder, leatherleaf, bog Labrador-tea, lowbush blueberry, and bog birch. Species found near the ground include clintonia, bracken fern, horsetail, bunchberry, wild raspberry, cottongrass, wild sarsaparilla, wild strawberry, and false lily-of-the-valley. Forest and shrub cover typically range from 30 to 60 percent, while moss and other understory vegetation cover ranges from 50 to 90 percent (AECOM 2011b).

Wetland Functional Assessment

Table 4.3.3-7 summarizes the 30 wetland functional value ratings that were obtained for Tract 1 for the primary wetland functions rated by MnRAM 3.2. Tract 1 wetlands were rated high for nearly all wetland functional values with the exception of flood attenuation and aesthetic, recreational, educational, and cultural values.

Table 4.3.3-7 Wetland Functional Value Assessment for Tract 1

	Functional Value Ratings (%)								
Wetland Functions and Value Rating	**Vegetation Diversity/ Integrity**	**Hydrology**	**Flood Attenuation**	**Downstream Water Quality**	**Wetland Water Quality**	**Wildlife Habitat**	**Fish Habitat**	**Amphibian Habitat**	**Aesthetics/ Education/ Cultural**
High	100	100	13	93	100	97	53	87	0
Moderate	0	0	87	7	0	3	0	3	100
Low	0	0	0	0	0	0	0	10	0
Not Available or Applicable	0	0	0	0	0	0	47	0	0
Total	100	100	100	100	100	100	100	100	100

Source: AECOM 2011b.

Floodplains

Non-federal and non-state-owned lands mapped as floodplains are regulated by a county floodplain overlay zoning district. In St. Louis County, the mapped floodplains are regulated by the County Floodplain Ordinance. The only non-federal parcel with a mapped floodplain identified in the existing effective FEMA FIRM is located in St. Louis County for Tract 1 along the Pike River. The mapped floodplain was not part of a detailed study area along the Pike River and the area of floodplain has been estimated on the FIRM. Tract 1 also has unmapped floodplains associated with Hay Lake itself (Figure 4.3.3-5) (AECOM 2011d). The mapped floodplain has been estimated to be approximately 376.2 acres, while the unmapped area including and near Hay Lake has been estimated to be approximately 175.0 acres. The total

floodplain associated with Tract 1 is approximately 551.2 acres. The ratio of the number of acres of floodplain per acre of parcel for Tract 1 is 0.11.

Frontage of Waterways

Within Tract 1, Hay Lake, 96.2 acres, has a frontage of 9,894.4 ft. Rice Lake, 29.5 acres, has a frontage of 4,829.6 ft. An unnamed lake between Hay Lake and Rice Lake is 3.9 acres in area and has a frontage of approximately 1,700 ft.

The Pike River flows from the southern boundary to the northern boundary of Tract 1 and is 8.1 miles in length. Riparian habitat is found on both sides of the river for 5.7 miles, and on only one side for 2.4 miles where the river formed the boundary of the parcel. The linear distance of river frontage for Tract 1 is approximately 72,864 linear ft (AECOM 2011d).

The length of lake and river frontage per acre on Tract 1 was calculated to be 3.5 ft per acre and 15.3 ft per acre, respectively.

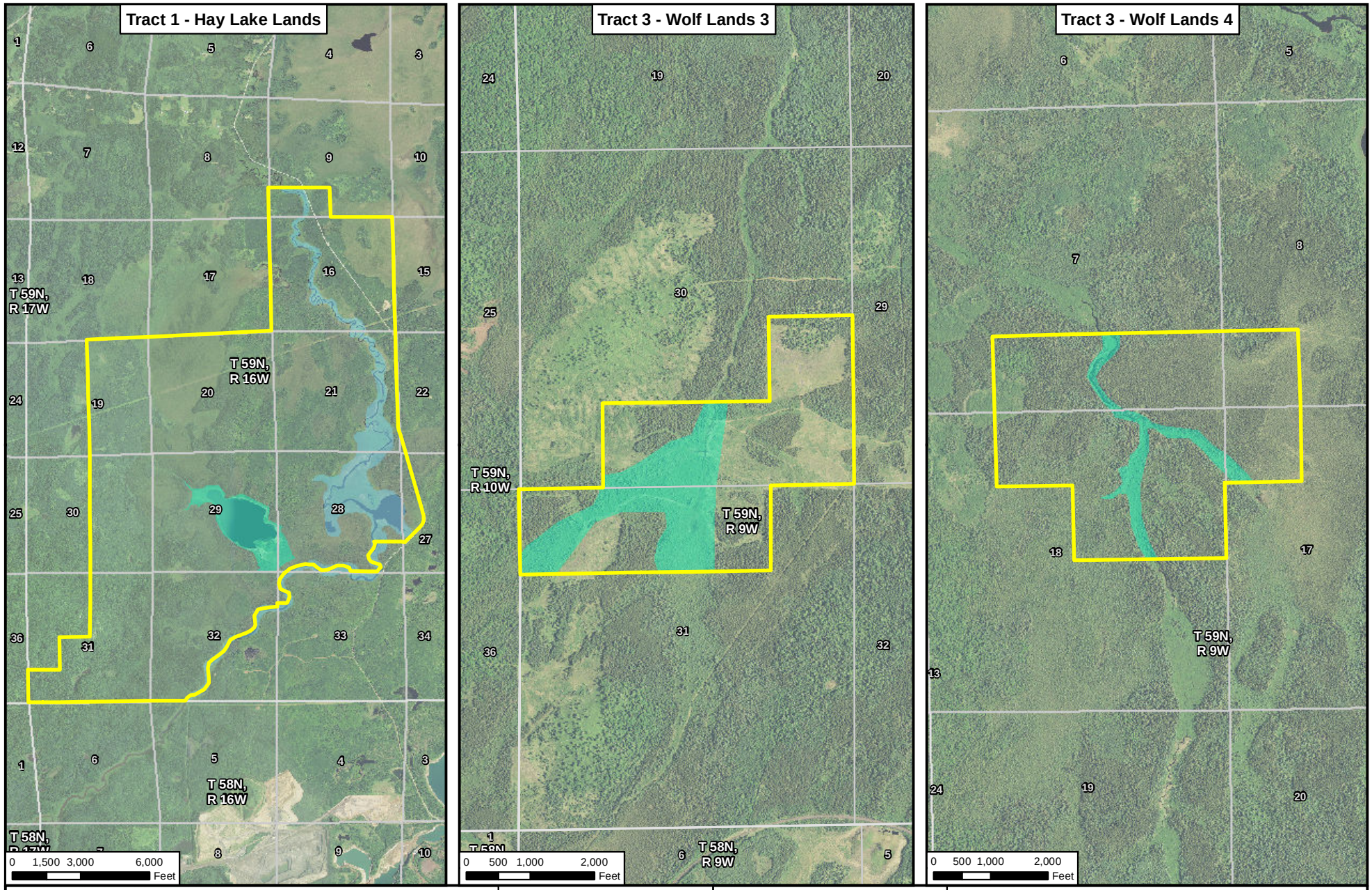

Non-federal Lands
Section Boundary
Section Label
Mapped Floodplain
Unmapped Floodplain

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

Figure 4.3.3-5
Floodplain Boundaries
Tract 1 and Tract 3
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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4.3.3.2.3 Tract 2 – Lake County Lands

Hydrology, Wetland Vegetation, and Community Types

Tract 2 consists of 381.9 acres located in Lake County and is comprised of two parcels. Tract 2 identified 282.9 acres of wetlands (74 percent of Tract 2) (see Figure 4.3.3-3 and Table 4.3.3-8). The most common wetland types within Tract 2 are coniferous swamps (approximately 59 percent); shrub swamps (approximately 18 percent), which includes both alder thickets and shrub-carr wetlands; and hardwood swamps, which includes some coniferous swamps (approximately 16 percent). The two parcels (Lake County North and Lake County South) are nearly level and consist predominantly of second- and third-growth mixed deciduous and coniferous forest uplands and bog, emergent, shrub, and forested wetlands. Much of the Lake County South parcel has been recently logged (AECOM 2011c; AECOM 2011d).

Lake County North

The Lake County North parcel consists of 265.0 acres, of which 209.3 acres are identified as wetlands (approximately 79 percent) (see Figure 4.3.3-3 and Table 4.3.3-8). The most common wetland types within the Lake County North parcel are coniferous swamps (approximately 65 percent); shrub swamps (approximately 17 percent), which includes alder thickets and shrub-carr wetlands; and hardwood swamps, which includes some coniferous swamps (approximately 17 percent).

Table 4.3.3-8 Total Wetland Acreage by Wetland Type for Tract 2

	Lake County North		Lake County South		Total Lake County	
Eggers and Reed Class[1]	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**
Coniferous swamp[2]	135.0	65	32.4	44	167.4	59
Hardwood swamp[3]	34.7	17	9.9	13	44.6	16
Open bog	1.8	1	0.0	0	1.8	1
Open water (includes shallow, open water, and lakes)	0.2	<1	2.5	3	2.7	1
Shallow marsh[4]	2.5	1	12.3	17	14.8	5
Shrub swamp (includes alder thicket and shrub-carr)	35.1	17	16.5	22	51.6	18
Total	209.3	100	73.6	100	282.9	100

Notes:
1 Eggers and Reed 1997; 2014.
2 Field data for coniferous bogs and coniferous swamps was combined.
3 Coniferous tree species may be present within some hardwood swamps.
4 Shallow marsh areas may contain deep marshes.

The Lake County North parcel has moderate topography, with the terrain generally sloping toward the southwest toward Pine Lake. This parcel consists of two smaller subparcels to the north and a single, small subparcel to the south that is adjacent to the Wolf Lands 1 parcel (see Figure 4.3.3-3). The subparcels are comprised of mostly wetland habitat, except for an area of upland habitat in the northern portion of the northern subparcel and in portions of the southern subparcel. Portions of the subparcels have recently been logged. Wetland habitat consists mostly of immature coniferous forest, with lesser amounts of mature mixed forest and shrubland (AECOM 2011c).

The Lake County North parcel encompasses several wetland types, including forested wetlands comprised of coniferous swamps and hardwood swamps, shrub swamps, and open bog/palustrine emergent wetlands, open water, and shallow marshes (collectively, emergent wetlands). Forested wetlands are comprised primarily of sapling northern white cedar and black spruce with lesser amounts of tamarack, although several drainages also contain black ash. Northern white cedar is predominant in the more southerly portions of the northern two subparcels, while black spruce is more common in the northern and northwestern portion of these two subparcels. Shrub wetland habitat is associated with several drainages, a beaver pond, a bog area, and recently logged areas, while emergent wetland habitat is found near the beaver pond and in recently logged areas. Shrub wetlands within the Lake County North parcel are dominated by speckled alder. Vegetation in the emergent wetlands consists of various sedge species and Canada bluejoint grass, with scattered black spruce, northern white cedar, tamarack, and speckled alder (AECOM 2011c).

Canopy cover in forested wetlands ranges from 50 to 80 percent and most canopy trees are 6 to 10 inches dbh. The midstory consists of balsam fir and black spruce (approximately 40 percent cover), while speckled alder, leatherleaf, and bog Labrador-tea are found in the shrub layer (40 percent cover) and club moss and sphagnum moss cover most of the ground (AECOM 2011c).

In general, the southern subparcel consists of forested wetland stands of immature black spruce and northern white cedar with northern white cedar to 20 inches dbh and black spruce to 14 inches dbh. Canopy cover is 50 percent, while the midstory cover is 60 percent and comprised of sapling balsam fir. The nearly continuous ground cover is dominated by sphagnum moss and club moss. Another immature forested wetland in the northern subparcel includes black ash trees to 16 inches dbh (AECOM 2011c).

Shrub and emergent wetland habitats are also found on the subparcels. Shrub wetland habitat is associated with several drainages, a beaver pond, a bog area, and recently logged areas, while emergent wetland habitat is found near the beaver pond and in recently logged areas. Shrub wetlands are dominated by speckled alder (to 80 percent cover). Two wetlands are classified as shrub wetlands because speckled alder covered 70 percent of the area, but the wetlands also have open bog characteristics since bog Labrador-tea also covers 70 to 80 percent of the wetlands, and sphagnum moss covers most of the ground. Scattered sapling black spruce, northern white cedar, and red-osier dogwood are also found in these wetlands. Vegetation in the emergent wetlands consists of various sedge species and Canada bluejoint (40 percent cover), with scattered black spruce, northern white cedar, tamarack, and speckled alder (AECOM 2011c).

Lake County South

The Lake County South parcel consists of 116.9 acres, of which 73.6 acres are identified as wetlands (approximately 63 percent) (see Figure 4.3.3-3 and Table 4.3.3-8). The most common wetland types within the Lake County South parcel are coniferous swamps (approximately 44 percent); shrub swamps (approximately 22 percent), which includes both alder thickets and shrub-carr wetlands; shallow marshes (approximately 17 percent); and hardwood swamps (approximately 13 percent).

Lake County South is relatively flat in the northwestern section, rises in elevation to the northeast, and then falls in elevation to the southeast. Water flows from west to east. At the time

of the survey, a series of beaver dams and ponds dominated the landscape, as did areas that had been recently logged. Although shrubland dominates upland habitats, several habitat types comprise wetland habitats within this parcel (AECOM 2011c).

Forested wetlands dominate the western and southeastern portions of the parcel and are comprised of black spruce and northern white cedar. However, tamarack is found in some forest stands and black ash is an important component of several drainages. The overstory cover is about 50 to 70 percent, while the midstory coverage of balsam fir and black spruce is about 20 percent. Speckled alder, leatherleaf, bog Labrador-tea, and red-osier dogwood are common shrubs (to 80 percent cover), while sphagnum moss covers most of the ground. Forests in the northwestern section contain a dense mix of northern white cedar and black spruce with scattered black ash in the canopy (50 percent cover), and black spruce, northern white cedar, balsam fir, and speckled alder in the midstory and shrub layer (80 percent cover). Five beaver ponds were found on the parcel creating wetlands, which are comprised of open water with scattered dead spruce. These open-water wetlands are surrounded by emergent wetlands dominated by various sedge species, narrow-leaved cattail, woolgrass, and Canada bluejoint grass, or by dense stands of speckled alder in more shallow areas (AECOM 2011c).

Wetland Functional Assessment

Table 4.3.3-9 summarizes the 13 wetland functional value ratings (8 Lake County North and 5 Lake County South) that were obtained for Tract 2 for the primary wetland functions rated by MnRAM 3.2. Tract 2 wetlands were rated high for nearly all wetland functional values with the exception of flood attenuation and aesthetic, recreational, educational, and cultural values.

Table 4.3.3-9 Wetland Functional Value Assessment for Tract 2

Wetland Functions and Value Rating	Functional Value Ratings (%)								
	Vegetation Diversity/ Integrity	Hydrology	Flood Attenuation	Downstream Water Quality	Wetland Water Quality	Wildlife Habitat	Fish Habitat	Amphibian Habitat	Aesthetics/ Education/ Cultural
Lake County North									
High	100	100	0	100	100	100	63	63	0
Moderate	0	0	100	0	0	0	0	0	100
Low	0	0	0	0	0	0	0	0	0
Not Available or Applicable	0	0	0	0	0	0	37	37	0
Total	100	100	100	100	100	100	100	100	100
Lake County South									
High	100	100	0	100	100	100	60	60	20
Moderate	0	0	100	0	0	0	0	0	80
Low	0	0	0	0	0	0	0	0	0
Not Available or Applicable	0	0	0	0	0	0	40	40	0
Total	100	100	100	100	100	100	100	100	100

Source: AECOM 2011c.

Floodplains

Lake County has an older Flood Hazard Boundary Map developed by the HUD to estimate the areas of frequent inundation. FEMA rescinded the map in 1985 and it is not considered to be an effective FEMA FIRM map; therefore, it is not used as part of the management of flood-prone areas. Lake County does not have a floodplain overlay ordinance; therefore, there are no "regulatory floodplains" within Lake County. While the floodplains identified using the older map are not considered to be the effective FEMA FIRM maps of flood-prone areas, they can offer an approximation of floodplains within the county for the effects analysis.

Mapped floodplain identification for the effects analysis of non-federal lands in Lake County was done using this older, rescinded map and it was determined that Tract 2 has no mapped or unmapped floodplains.

Frontage of Waterways

Tract 2 does not include any streams, rivers, creeks, or lakes.

4.3.3.2.4 Tract 3 – Wolf Lands

Hydrology, Wetland Vegetation, and Community Types

Tract 3 consists of a total of 1,575.8 acres located in Lake County and is comprised of four individual parcels. A total of 1,392.6 acres (88 percent) of wetlands were identified within Tract 3 (see Figures 4.3.3-3 and 4.3.3-4, and Table 4.3.3-10). The most common wetland types within the Wolf Lands are coniferous swamps (approximately 79 percent) and shrub swamps (approximately 20 percent), which includes alder thickets and shrub-carr wetlands. The four parcels are nearly level and consist predominantly of second- and third-growth mixed deciduous and coniferous forested uplands and bog, emergent, shrub, and forested wetlands. Much of the area of the parcels comprising the Wolf Lands has been recently logged (AECOM 2011c; AECOM 2011d).

Table 4.3.3-10 Total Wetland Acreage by Wetland Type for Tract 3

Eggers and Reed Class[1]	Wolf Lands 1		Wolf Lands 2		Wolf Lands 3		Wolf Lands 4		Total Wolf Lands	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Coniferous swamp[2]	75.4	84	627.4	89	82.6	35	320.3	88	1,105.7	79
Hardwood swamp[3]	0.0	0	5.0	1	0.0	0	0.0	0	5.0	<1
Open bog	3.0	3	0.0	0	0.0	0	0.2	<1	3.2	<1
Open water (includes shallow, open water, and lakes)	0.0	0	0.4	<1	0.0	0	0.0	0	0.4	<1
Shallow marsh[4]	0.0	0	0.4	<1	5.2	2	0.0	0	5.6	<1
Shrub swamp (includes alder thicket and shrub-carr)	12.0	13	73.0	10	145.4	63	42.3	12	272.7	20
Total	90.4	100	706.2	100	233.2	100	362.8	100	1,392.6	100

Notes:
1 Eggers and Reed 1997; 2014.
2 Field data for coniferous bogs and coniferous swamps was combined.
3 Coniferous tree species may be present within some hardwood swamps.
4 Shallow marsh areas may contain deep marshes.

Wolf Lands 1

The Wolf Lands 1 parcel consists of 122.8 acres, of which 90.4 acres are mapped as wetlands (approximately 72 percent) (see Figure 4.3.3-3 and Table 4.3.3-10). The most common wetland types within this parcel are coniferous swamps (approximately 84 percent) and shrub swamps (approximately 13 percent), which includes alder thickets and shrub-carr wetlands.

Most of the upland habitat consists of mature mixed forest, while most wetland habitats consist of coniferous forest. The parcel is relatively flat but slopes gently downward toward the southwest. The Wolf Lands 1 parcel is adjacent to Lake County North (AECOM 2011c). The eastern half of the parcel is wetland, while upland comprises most of the western portion of the parcel. Pine Lake is about 0.5 mile northwest of the parcel (AECOM 2011c).

Immature forested wetland communities on the parcel are comprised primarily of black spruce, with scattered northern white cedar and tamarack. More mature forested wetlands have characteristics of more open bogs, as tree cover is sparse at about 30 percent, while 80 percent of the area is covered by bog Labrador-tea and leatherleaf, and sphagnum moss covers most of the ground. In more immature forests, tree cover ranges from 60 to 80 percent, with a canopy dominated by 6 to 10 inches dbh black spruce, with tamarack and northern white cedar also present. The midstory consists of balsam fir and black spruce (about 40 percent cover), while speckled alder, leatherleaf, bog Labrador-tea, and red-osier dogwood dominate the shrub layer (40 percent cover) and club moss and sphagnum moss cover most of the ground (AECOM 2011c).

Wolf Lands 2

The Wolf Lands 2 parcel consists of 767.9 acres, of which 706.2 acres are mapped as wetlands (approximately 92 percent) (see Figure 4.3.3-4 and Table 4.3.3-10). The most common wetland

types within Wolf Lands 2 are coniferous swamps (approximately 89 percent) and shrub swamps (approximately 10 percent), which includes both alder thickets and shrub-carr wetlands.

The Wolf Lands 2 parcel, which slopes toward the southwest, can generally be characterized by gently undulating terrain. Overland water flows to the southwest and to Mary Ann Creek, Wenho Creek, and Greenwood Lake. The Wolf Lands 2 parcel consists primarily of forested wetlands comprised of black spruce and northern white cedar, with a black ash component in a few drainages; shrubland comprised of speckled alder is also common on the parcel. Most upland habitat consists of mixed forest. Several drainages are dominated by speckled alder, while emergent wetland habitat is associated with beaver ponds. Black spruce is the dominant tree in wetlands in the northern and eastern portions of the parcel, while northern white cedar is more prevalent in other portions of the parcel (AECOM 2011c).

Forested wetlands are of three types: black spruce dominant, a mix of black spruce and northern white cedar, or northern white cedar dominant. Canopy trees range from four to eight inches dbh, with total canopy cover from 70 to 80 percent. The midstory consists of sapling black spruce, northern white cedar, and balsam fir. Midstory cover is patchy, ranging from 10 to 40 percent. Bog Labrador-tea comprises 10 to 30 percent of the low shrub cover, while sphagnum moss often covers more than 80 percent of the ground. In areas with a dense canopy, the midstory and ground cover are poorly developed (AECOM 2011c).

Several drainages are dominated by shrub swamp vegetation. These parcels generally have a sparse overstory, with approximately 20 percent aerial cover of black spruce, northern white cedar, and tamarack. Speckled alder and sapling trees usually cover 60 percent or more of the midstory, while low shrub cover consists of bog Labrador-tea (40 to 60 percent cover) (AECOM 2011c).

Beaver dams and ponds were found in the southeastern portion of the parcel during the field survey. Typically, open water is adjacent to the dams, with emergent wetland surrounding the open water and shrub wetlands upstream of the dams (AECOM 2011c).

Wolf Lands 3

The Wolf Lands 3 parcel consists of 277.4 acres, of which about 233.2 acres are mapped as wetlands (approximately 84 percent) (see Figure 4.3.3-4 and Table 4.3.3-10). The most common wetland types within the Wolf Lands 3 parcel are shrub swamps (approximately 63 percent), which includes alder thickets and shrub-carr wetlands, and second most common are coniferous swamps (approximately 35 percent).

The Wolf Lands 3 parcel is relatively flat. Coyote Creek begins its flow north within the parcel. Uplands consist of mostly shrubland and deciduous forest, while wetlands are dominated by shrub wetland and coniferous forested wetland habitats (AECOM 2011c). About half of the parcel had been recently logged. Logged wetlands are dominated by grasses, forbs, and low-growing shrubs, including red-osier dogwood and speckled alder. In the unlogged areas, forested wetlands are comprised primarily of black spruce. In the northern portion of the parcel, black spruce is co-dominant with tamarack; in the rest of the parcel, tamarack is present in the canopy but in much lower quantity (AECOM 2011c).

In shrub swamp wetlands, speckled alder covers from 20 to 80 percent of the area. In some areas, bog Labrador-tea covers 80 to 90 percent of the ground, especially in areas with a dense cover of speckled alder. In areas with a lower density of speckled alder, grasses, forbs, and ferns are the

dominant vegetation, but due to snow cover at the time of survey, it was not possible to determine percent ground cover or species composition. Scattered sapling black spruce and paper birch are also seen on logged wetlands. Woody debris from the recent logging operations is abundant in logged areas (AECOM 2011c).

In the unlogged areas, wetland forests are comprised of black spruce. In the northern part of the parcel, the black spruce is co-dominant with tamarack; in the rest of the parcel, tamarack is present in the canopy but in much lower amounts. Total canopy cover ranges from 60 to 80 percent, with canopy trees ranging from 4 to 10 inches dbh. The midstory consists of balsam fir and black spruce (20 to 30 percent cover), while the shrub layer is dominated by bog Labrador-tea (80 percent), over a ground layer of nearly continuous (80 percent cover or more) sphagnum moss with scattered grasses and forbs (AECOM 2011c).

Coyote Creek is bordered by an emergent sedge meadow wetland complex comprised of sedges, narrow-leaved cattail, and Canada bluejoint (collectively about 90 percent cover). There is also scattered sapling tamarack and northern white cedar, as well as scattered patches of speckled alder and bog Labrador-tea. The emergent wetland is bordered by dense (80 percent cover) speckled alder. Water depth in the emergent and shrub wetlands is approximately 18 to 24 inches (AECOM 2011c).

Logging roads on the parcel have become emergent wetland habitat dominated by narrow-leaved cattail, woolgrass, Canada bluejoint, scattered sedges, and speckled alder. Herbaceous vegetation covers about 70 to 80 percent of the wetland area, while alder shrubs cover approximately 10 percent of the wetlands (AECOM 2011c).

Wolf Lands 4

The Wolf Lands 4 parcel consists of 404.7 acres of which 362.8 acres are mapped as wetlands (approximately 90 percent) (see Figure 4.3.3-4 and Table 4.3.3-10). The most common wetland types within the Wolf Lands 4 parcel are coniferous swamps (approximately 88 percent) and shrub swamps (approximately 12 percent).

Coyote Creek bisects the parcel, while the Stony River is about 2,000 ft northwest of the parcel. Timber harvests recently occurred along the western border of the parcel. Upland habitats consist primarily of mature deciduous forest, while forested and shrub wetland community types dominate wetland habitats (AECOM 2011c).

Wetland types include coniferous forest, shrub wetlands, and emergent. Black spruce forests are the most prevalent community type in the northern half of the parcel, while northern white cedar is more prevalent in the southern half of the parcel. Emergent wetland communities that include various species of sedge, Canada bluejoint grass, and shrub wetlands comprised primarily of speckled alder are found in floodplains that border Coyote Creek. Shrub wetlands also occur in two drainages to Coyote Creek in the southeastern portion of the parcel and in a drainage to the Stony River in the northeastern portion of the parcel (AECOM 2011c).

Coniferous wetlands composed of black spruce and black spruce/northern white cedar are dominated by trees ranging from four to eight inches dbh, with a patchy canopy cover of about 50 percent. Scattered tamaracks are also found in these wetlands. The low shrub layer is nearly continuous (80 to 90 percent cover), and is comprised of leatherleaf, bog Labrador-tea, and other vegetation. Sphagnum and club mosses cover most of the ground. Other forests have a more developed midstory, with 60 percent cover by black spruce, northern white cedar, tamarack, and

speckled alder, and a similarly dense shrub layer, with 60 to 70 percent cover by leatherleaf and bog Labrador-tea (AECOM 2011c).

Shrub wetlands are dominated by speckled alder (60 to 80 percent cover), with scattered black spruce, tamarack, and northern white cedar in the overstory. Leatherleaf and bog Labrador-tea cover about 40 to 50 percent of the shrub layer (AECOM 2011c).

Wetland Functional Assessment

Table 4.3.3-11 summarizes the 18 wetland functional value ratings (three for Wolf Lands 1, six for Wolf Lands 2, six for Wolf Lands 3, and three for Wolf Lands 4) that were obtained for Tract 3 for the primary wetland functions rated by MnRAM 3.2. Tract 3 wetlands were rated high for nearly all wetland functional values with the exception of flood attenuation on Wolf Lands 2, 3, and 4; amphibian habitat on Wolf Lands 3; and aesthetic, recreational, educational, and cultural values for all four sub-parcels.

Table 4.3.3-11 Wetland Functional Value Assessment for Tract 3

	Functional Value Ratings (%)								
Wetland Functions and Value Rating	**Vegetation Diversity/ Integrity**	**Hydrology**	**Flood Attenuation**	**Downstream Water Quality**	**Wetland Water Quality**	**Wildlife Habitat**	**Fish Habitat**	**Amphibian Habitat**	**Aesthetics/ Education/ Cultural**
Wolf Lands 1									
High	100	100	100	100	100	100	67	67	0
Moderate	0	0	0	0	0	0	0	0	100
Low	0	0	0	0	0	0	0	0	0
Not Available or Applicable	0	0	0	0	0	0	33	33	0
Total	100	100	100	100	100	100	100	100	100
Wolf Lands 2									
High	100	100	20	100	100	100	33	33	0
Moderate	0	0	80	0	0	0	0	0	100
Low	0	0	0	0	0	0	0	0	0
Not Available or Applicable	0	0	0	0	0	0	67	67	0
Total	100	100	100	100	100	100	100	100	100
Wolf Lands 3									
High	100	100	0	100	100	100	50	33	0
Moderate	0	0	100	0	0	0	0	33	100
Low	0	0	0	0	0	0	0	17	0
Not Available or Applicable	0	0	0	0	0	0	50	17	0
Total	100	100	100	100	100	100	100	100	100
Wolf Lands 4									
High	100	100	0	100	100	100	33	100	0
Moderate	0	0	100	0	0	0	0	0	100
Low	0	0	0	0	0	0	0	0	0
Not Available or Applicable	0	0	0	0	0	0	67	0	0
Total	100	100	100	100	100	100	100	100	100

Source: AECOM 2011c.

Floodplains

As previously indicated, there are no mapped floodplains in Lake County; therefore, there are no mapped floodplains on the Wolf Lands tracts. However, the extent of unmapped floodplains along Coyote Creek for Tract 3 was estimated to be 112.2 acres, based upon topography (see Figure 4.3.3-5). Wolf Lands 3 was estimated to have 32.8 acres of floodplains and Wolf Lands 4 was estimated to have 79.4 acres. The ratio of the number of acres of floodplain per acre of parcel is 0.1 and 0.2, respectively (AECOM 2011d).

Frontage of Waterways

Coyote Creek begins in Wolf Lands 3, flows north into Wolf Lands 4, and continues north of Wolf Lands 4. The creek is 0.1 mile in length in Wolf Lands 3, and 0.9 miles in length in Wolf Lands 4. Riparian habitat is found on both sides of the river. The linear distance of river frontage for Wolf Lands 3 and Wolf Lands 4 is 1,056.0 and 9,504 linear ft, respectively. The length of river frontage per acre on Wolf Lands 3 and Wolf Lands 4 was calculated to be 3.8 and 23.5 ft, respectively.

4.3.3.2.5 Tract 4 – Hunting Club Lands

Hydrology, Wetland Vegetation, and Community Types

Tract 4 consists of 160.2 acres, of which 63.6 acres are mapped as wetland (approximately 40 percent) (see Figure 4.3.3-4 and Table 4.3.3-12). The most common wetland types within Tract 4 are shrub swamps (approximately 50 percent), which includes alder thickets and shrub-carr wetlands; coniferous swamps (approximately 24 percent); and shallow marshes (approximately 20 percent). The parcel is nearly level and consists predominantly of second- and third-growth deciduous and mixed deciduous and coniferous forested uplands and emergent, shrub, and forested wetlands (AECOM 2011c).

Table 4.3.3-12 Total Wetland Acreage by Wetland Type for Tract 4

	Total Hunting Club	
Eggers and Reed Class[1]	**Acres**	**%**
Coniferous swamp[2]	15.4	24
Hardwood swamp[3]	0.4	1
Open bog	0.0	0
Open water (includes shallow, open water, and lakes)	2.8	5
Shallow marsh[4]	13.0	20
Shrub swamp (includes alder thicket and shrub-carr)	32.0	50
Total	63.6	100

Notes:
1 Eggers and Reed 1997; 2014.
2 Field data for coniferous bogs and coniferous swamps was combined.
3 Coniferous tree species may be present within some hardwood swamps.
4 Shallow marsh areas may contain deep marshes.

A wetland complex bisects the parcel and drains to the north and then northeast. From this low area, the land slopes upward to the east and west. Several beaver dams were found during field surveys along the creek on or near the parcel. The parcel consists primarily of wetland

shrublands, with lesser amounts of emergent and shrub wetlands and upland deciduous forests (AECOM 2011c).

Beaver ponds and dams are the dominant wetland features on the parcel. Open water habitat is typical near the dams. Emergent vegetation, consisting of Canada bluejoint grass, narrow-leaved cattail, and various sedge species, are found in water from 12 to 24 inches deep, while speckled alder shrub wetlands are located near ponds at water depths from 6 to 18 inches. A large black spruce forest is located in the middle of the parcel. Overstory cover is about 60 percent, with most of the cover resulting from black spruce, with scattered tamarack occasionally present. The midstory consists of speckled alder (50 percent cover), while leatherleaf and bog Labrador-tea (80 percent cover) and sphagnum moss (about 80 percent cover) are found below the speckled alder (AECOM 2011c).

Wetland Functional Assessment

Table 4.3.3-13 summarizes the three wetland functional value ratings that were obtained for Tract 4 for the primary wetland functions rated by MnRAM 3.2. Tract 4 wetlands were rated high for nearly all wetland functional values with the exception of flood attenuation, amphibian habitat, and aesthetic, recreational, educational, and cultural values.

Table 4.3.3-13 Wetland Functional Value Assessment for Tract 4

	Functional Value Ratings (%)								
Wetland Functions and Value Rating	**Vegetation Diversity/ Integrity**	**Hydrology**	**Flood Attenuation**	**Downstream Water Quality**	**Wetland Water Quality**	**Wildlife Habitat**	**Fish Habitat**	**Amphibian Habitat**	**Aesthetics/ Education/ Cultural**
High	100	100	0	100	100	100	100	33	0
Moderate	0	0	100	0	0	0	0	33	100
Low	0	0	0	0	0	0	0	0	0
Not Available or Applicable	0	0	0	0	0	0	0	33	0
Total	100	100	100	100	100	100	100	99	100

Source: AECOM 2011c.

Floodplains

Tract 4 is located within St. Louis County, where there are no mapped floodplains identified on the county's FIRM. There were no unmapped floodplains associated with Tract 4.

Frontage of Waterways

Tract 4 does not include any streams, rivers, creeks, or lakes.

4.3.3.2.6 Tract 5 – McFarland Lake Lands

Hydrology, Wetland Vegetation, and Community Types

Tract 5 is a single parcel of 30.8 acres. The entire parcel is mapped as upland. The parcel is approximately 3 miles west of the U.S.-Canada border. This parcel is mostly on a hill slope and

consists of second- and third-growth deciduous and coniferous forested uplands. There are no wetlands located on Tract 5. This parcel is surrounded by the Superior National Forest. McFarland Lake borders Tract 5 and provides lake habitat (AECOM 2011b).

Wetland Functional Assessment

No wetlands are associated with Tract 5; therefore, there are no functional assessment values.

Floodplains

Cook County has an older Flood Hazard Boundary Map developed by the HUD to estimate the areas of frequent inundation. FEMA rescinded the map in 1985 and it is not considered to be an effective FEMA FIRM map; therefore, it is not used as part of the management of flood-prone areas. Cook County does not have a floodplain overlay ordinance; therefore, there are no "regulatory floodplains" within Cook County. While the floodplains identified using the older map are not considered to be the effective FEMA FIRM maps of flood-prone areas, they can offer an approximation of floodplains within the county for the effects analysis.

Mapped floodplain identification for the effects analysis of non-federal lands in Cook County was done using this older, rescinded map and it was determined that Tract 5 has no mapped or unmapped floodplains.

Frontage of Waterways

Tract 5 borders McFarland Lake. The parcel has a lake frontage of approximately 990 ft along McFarland Lake. The length of lake frontage per acre on Tract 5 was calculated to be 32.1 ft.

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4.3.4 Vegetation

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list. A BE has been prepared that contains further information about RFSS. The BE is included in Appendix D.

4.3.4.1 Federal Lands

The federal lands include a large tract of mostly forested land, up to 6,495.4 acres in size. The tract is located in the west-central part of the Superior National Forest (PolyMet 2015a).

4.3.4.1.1 Land Exchange Proposed Action

Cover Types

Cover types consist of several categories of classification, including MDNR GAP land cover types, specific plant community survey results, MBS Sites of Biodiversity Significance, SNAs, USFS Management Areas, USFS ELTs, USFS MIH types, and USFS landscape ecosystems.

Habitat Types

The federal land cover types are similar to the Mine Site described in Section 4.2.4.2.1 (see Figure 4.2.4-1). Specific acreages for MDNR GAP land cover types on the federal lands are presented in Table 4.3.4-1 below. In the past, portions of the federal lands have been logged to varying degrees, depending on the management area allocation. The MDNR GAP land cover types below may not fully represent the extent of mixed forest types, since the cover type level below is fairly specific, so there may be more mixed forest types than indicated.

Table 4.3.4-1 Federal Lands Cover Types

Cover Types	Total Acres	Percent of Area
Lowland coniferous forest[1]	2,978.6	46
Upland coniferous forest[2]	1,618.9	25
Upland deciduous forest[3]	1,091.8	17
Shrubland	645.6	10
Disturbed	63.8	1
Aquatic environments	60.1	1
Upland conifer-deciduous mixed forest[4]	20.9	<1
Lowland deciduous forest[5]	9.5	<1
Cropland/grassland	6.2	<1
Total	**6,495.4**	**100**

Source: MDNR 2006b.

Notes:
[1] Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
[2] Includes pine and spruce/fir forest cover types.
[3] Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
[4] Includes all mixed coniferous-deciduous forest cover types.
[5] Includes black ash forest cover types.

Plant Community Surveys

Wetlands are dominated by immature black spruce and northern white cedar, with scattered tamarack (*Larix laricina*) and aspen (AECOM 2011d). There are several areas of open water, including Mud Lake, the Partridge River, Yelp Creek, and scattered small ponds. Bogs are dominated by leatherleaf (*Chamaedaphne calyculata*) and bog-Labrador tea (*Ledum groenlandicum*). Uplands are dominated by immature mixed pine-hardwood forests, including jack pine, black spruce, trembling aspen (*Populus tremuloides*), paper/white birch (*Betula papyrifera*), and balsam fir. Grassland/shrubland habitat is uncommon and is primarily associated with the transmission line ROW in the western portion and recent logging in the southeastern portion of the federal lands. Disturbed areas are associated with roads and landings, waste rock storage areas immediately north of the federal lands, and a rail route along the southern portion of the federal lands.

The majority of forest stand trees on the federal lands are characterized as immature, or 12 inches dbh or less, which corresponds to trees from 10 to 60 years in age (AECOM 2011d). For both coniferous and deciduous trees, the largest ones are approximately 18 to 20 inches dbh, but a 24-inch dbh red pine was found on the federal lands. Much of the One Hundred Mile Swamp north and west of the Mine Site consists of mature (80-plus years in age) black spruce and northern white cedar.

Of the wetlands that are located on the federal lands, the majority are determined to have high overall quality due to minimal or no current disturbance (AECOM 2011a). Of the wetlands that are located on the Mine Site, the majority (92 percent) is rated as having a high overall wetland quality and 8 percent are of moderate overall wetland quality. Wetlands on the federal lands are rated high for nearly all wetland functions, based on the MnRAM 3.2 criteria (AECOM 2011d). Vegetation diversity and integrity are rated moderate to high for all wetlands because recent human contact and alteration are minimal and the wetlands have a relatively constant supply of water. See Section 4.3.3 for a more detailed discussion on wetlands.

Minnesota Biological Survey

The majority (6,142.7 acres) of the federal lands consist of MBS Sites of High Biodiversity Significance, including the One Hundred Mile Swamp site (53 percent of federal lands) and the Upper Partridge River site (41 percent of federal lands). The Upper Dunka Peatlands site (less than 1 percent of federal lands) is a Site of Moderate Biodiversity Significance and is also located on the federal lands (see Figure 4.2.4-1) (MDNR 2008a). These sites are located in the Laurentian Uplands subsection.

Three vegetation communities, white pine-red pine forest (FDn43a; less than 1 percent of federal lands), black spruce-Jack pine woodlands (FDn32c; 17 percent of federal lands), and rich black spruce swamps (FPn62a; 5 percent of federal lands) have been characterized by the MBS as "imperiled," "imperiled/vulnerable," and "vulnerable" native plant communities, respectively (MDNR 2008b). Black ash-conifer swamps (WFn64a), black spruce bogs (APn80a), graminoid bogs (APn90b1), poor tamarack-black spruce swamps (APn81b), and white cedar swamps (FPn63a) are ranked as "apparently secure" in Minnesota based on abundance, distribution, trends, and threats. Aspen-birch forests: balsam fir subtype (FDn43b1), alder swamps (FPn73a), poor black spruce swamps (APn81a), rich tamarack-alder swamps (FPn82a), willow-dogwood shrub swamps (WMn82a), and low shrub poor fens (APn91a) are all considered "widespread and secure."

Scientific and Natural Areas

Similar to the Mine Site, there are no lands designated or nominated for designation as SNAs on the federal lands (MDNR 2006c; MDNR, Pers. Comm., February 14, 2012).

Culturally Important Plants

Natural resources culturally important to the Bands are discussed in Section 4.2.9.3.3.

Management Areas

The USFS manages its forests by assigning various management area allocations. The federal lands are currently managed under the General Forest – Longer Rotation Management Area (95 percent) and the General Forest Management Area (5 percent) (see Table 4.3.4-2) (USFS 2011j). Section 4.3.1 describes the management areas in detail.

Table 4.3.4-2 Management Areas for the Federal Lands

	Federal Lands	
Category	**Acres**	**Percent**
General Forest	355.3	5
General Forest – Longer Rotation	6,140.1	95
Potential/Candidate Research Natural Areas	0.0	0
Riparian Areas	0.0	0

Source: USFS 2011j.

Ecological Land Types

USFS ELT data for the federal lands are not fully developed, but provide data for over half of the parcel. The federal lands contain five different categories of ELTs, including Lowland Loamy

Moist (ELT 1), Lowland Loamy Wet (ELT 2), Lowland Organic Acid to Neutral (ELT 6), Upland Deep Loamy Dry Coarse (ELT 13), and Upland Shallow Loamy Dry (ELT 16). Almost all of the federal lands are included within the Big-Bird Lake Moraine LTA, with the small remaining portion included in the Mesabi Range LTA.

Management Indicator Habitats

As mentioned previously, the USFS also tracks MIH types. The most abundant MIH type on the federal lands is lowland black spruce-tamarack forest (MIH 9; 3,060.2 acres), but upland forest (MIH 1; 1,330.0 acres) and upland conifer forest (MIH 5; 1,252.4 acres) is also present (see Table 4.3.4-3) (USFS 2010b). Aquatic habitats (MIH 14) are not tracked on the federal lands, though several open water features occur on the federal lands (see Figure 4.2.4-4). Though not considered MIH types, the federal lands contain 492.3 acres of lowland shrub habitat and 185.5 acres of lowland emergent wetlands, as well. The remaining acres present on the federal lands have no corresponding MIH classification.

The USFS Forest Stand data also contain information about forest stand ages. The majority of the federal lands consist of mature (3,854.2 acres) forest stands, with smaller amounts of immature (1,539.2 acres) stands and young (271.1 acres) stands (USFS 2011i). Additionally, the USFS tracks large (greater than 300 acres) contiguous patches of mature upland forest (MIH 13) on the Superior National Forest. There are currently no patches of mature upland forest over 300 acres on the federal lands (USFS 2012c). However, since smaller patches will grow over time into larger contiguous patches, the USFS predicts that in 2020, there would be two patches (707.8 acres and 322.1 acres) over 300 acres on the federal lands (USFS 2012d).

Table 4.3.4-3 MIH Types and Age Classes (Acres) for the Federal and Non-federal Lands

MIH Type	Total of Federal Lands[1]	Total of Non-federal Lands[2]	Tract 1 – Hay Lake	Tract 2 – Lake County North	Tract 2 – Lake County South	Tract 3 – Wolf 1	Tract 3 – Wolf 2	Tract 3 – Wolf 3	Tract 3 – Wolf 4	Tract 4 - Hunting Club	Tract 5 - McFarland Lake
MIH 1	1,330.0	2,694.5	2,366.0	49.1	2.1	43.8	56.8	40.9	20.4	89.3	26.1
MIH 5	1,252.4	79.9	54.2	1.1	0.0	0.0	7.9	0.0	0.0	12.7	4.0
MIH 9	3,060.2	3,308.5	1,817.6	193.7	46.2	72.2	626.6	186.2	348.9	17.1	0.0
MIH 14	0.0	226.7	206.2	0.5	3.3	0.0	0.5	0.9	4.3	10.3	0.7
Lowland Shrub	492.3	332.2	113.3	20.6	6.4	9.7	76.0	48.6	31.0	26.6	0.0
Lowland Emergent	185.5	385.7	365.0	0.0	15.6	0.0	0.0	0.9	0.0	4.2	0.0
Upland Grass	0.0	43.3	0.0	0.0	43.3	0.0	0.0	0.0	0.0	0.0	0.0
Age Class											
Young	271.1	778.2	533.8	24.4	43.3	2.2	7.6	130.4	9.5	27.0	0.0
Immature	1,539.2	3,539.7	3,259.8	74.6	0.8	76.1	68.7	21.8	5.4	32.5	0.0
Mature	3,854.2	1,824.6	460.2	144.9	47.6	37.8	615.1	74.9	354.3	59.7	30.1

Sources: USFS 2010b; USFS 2011i.

Note:
[1] Determined based on: AECOM 2011c; AECOM 2011b; USFS 2010b; USFS 2011i.

Landscape Ecosystems

In order for the USFS to sustainably and ecologically manage National Forest System lands, it must consider areas based on historical and current ecosystem functions. The USFS tracks and manages the Superior National Forest and other National Forest System lands on several levels, but to maintain a broader ecosystem view it uses a landscape ecosystem basis. A landscape ecosystem is an area that shares similar habitat composition, structure, and functions and occurs naturally on the landscape (USFS 2004a). The federal lands are located within three landscape ecosystem types, including Jack Pine-Black Spruce, Lowland Conifer, and Mesic Red and White Pine (see Table 4.3.4-4).

The Jack Pine-Black Spruce landscape ecosystem occupies 3,000.1 acres of the federal lands (represents less than 0.01 percent of Jack Pine-Black Spruce landscape ecosystem). It is dominated by both jack pine and black spruce, but aspen and paper birch are also occasionally present (USFS 2004a). Typically, jack pine dominates areas after fire disturbances and black spruce dominates areas after wind disturbances.

The Lowland Conifer landscape ecosystem occupies 3,460.3 acres of the federal lands (represents 0.01 percent of Lowland Conifer landscape ecosystem). It is dominated by one or all three species of black spruce, tamarack, and northern white cedar (USFS 2004a). Typically, black spruce occupies acidic organic soils, northern white cedar occupies neutral sites, and tamarack occupies areas between both types. Fire disturbances are more frequent than wind disturbances.

The Mesic Red and White Pine landscape ecosystem occupies less than one acre of the federal lands (represents less than 0.01 percent of Mesic Red and White Pine landscape ecosystem). It is dominated by mixed stands of red pine, white pine, aspen, paper birch, northern white cedar, white spruce, and balsam fir (USFS 2004a). Severe fire disturbances typically result in aspen/birch stands with red and white pine also present. Succession generally reduces the aspen/birch component, which leaves pines as the dominant species. White spruce and balsam fir typically regenerate in the understory.

Table 4.3.4-4 Landscape Ecosystem Types (Acres) on Federal and Non-federal Lands[1, 2]

Landscape Ecosystem Type	Total of Federal Lands	Total of Non-Federal Lands	Tract 1 – Hay Lake	Tract 2 – Lake County North	Tract 2 – Lake County South	Tract 3 - Wolf 1	Tract 3 – Wolf 2	Tract 3 – Wolf 3	Tract 3 - Wolf 4	Tract 4 - Hunting Club	Tract 5 - McFarland Lake
Dry-Mesic Red and White Pine	0.0	682.9	589.2	0.0	0.0	0.0	0.0	0.0	0.0	93.7	0.0
Mesic Red and White Pine	0.1	558.8	528.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.8
Jack Pine-Black Spruce	3,000.1	983.5	983.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowland Conifer	3,460.3	4,455.0	2,835.3	227.6	80.2	84.3	653.2	217.7	356.7	0.0	0.0
Mesic Birch-Aspen-Spruce-Fir	0.0	302.1	0.9	37.4	0.0	41.5	114.7	59.7	47.9	0.0	0.0
Lowland Hardwood	0.0	66.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.5	0.0
Sugar Maple	0.0	36.7	0.0	0.0	36.7	0.0	0.0	0.0	0.0	0.0	0.0

Source: USFS 2011g.

Notes:
[1] Total acres may be more or less than presented elsewhere due to rounding or GIS layers used.
[2] Data may not have complete coverage of parcels.

Invasive Non-native Plants

The federal lands have the same invasive non-native species as the Mine Site since they occupy the same area. Section 4.2.4.2.2 provides a list of invasive non-native species likely located on the federal lands.

Threatened and Endangered Plant Species

Endangered, Threatened, and Special Concern Plant Species

No federally listed threatened and endangered plant species are known to occur on the federal lands. The federal lands contain the same state-listed ETSC plant species as the Mine Site, with the exception of *Botrychium campestre*, which is located south of the federal lands on the Mine Site; an additional species, *Pyrola minor*, is found north of the Mine Site on the federal lands. Section 4.2.4.2.3 provides a list and discussion of the ETSC species on the federal lands.

Ten state-listed ETSC plant species are known to occur on the federal lands. Based on a review of the MDNR NHIS and field investigations (AECOM 2009b; Barr 2007i; Johnson-Groh 2004; Pomroy and Barnes 2004; Walton 2004), one state endangered species, and nine state species of special concern have been identified on the federal lands (see Table 4.3.4-5 and Figure 4.2.4-3). Some colonies of species listed for the Mine Site may be located outside of the federal lands but within the Mine Site. As a result, numbers of individuals may be smaller than the Mine Site.

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list.

Table 4.3.4-5 Endangered, Threatened, and Special Concern Plant Species Identified on the Federal Lands [5]

Common Name	Scientific Name	State Status[1]	No. of Populations[2]	No. of Individuals[2,3]	Habitat and Location
Pale moonwort[4]	*Botrychium pallidum*	SC	1	2	Full to shady exposure, edge of alder thicket, along Dunka Road.
Ternate, or St. Lawrence, grapefern[4]	*Botrychium rugulosum* (*ternatum*)	SC	1	4	Early successional habitats, fields, open woods, forests, and along Dunka Road.
Least grapefern[4]	*Botrychium simplex*	SC	3	905	Full to shady exposure, edge of alder thicket, forest roads, along Dunka Road.
Floating marsh marigold[4]	*Caltha natans*	E	1	29	Shallow water in ditches and streams, alder swamps, shallow marshes, beaver ponds, and Partridge River mudflat.
Neat spikerush[4]	*Eleocharis nitida*	SC	1	~486 ft^2	Full exposure, moist ditches along Dunka Road, wet area between railroad grades, and railroad ditch.
Bog rush[4]	*Juncus stygius* var. *americanus*	SC	1	Unknown	Open-patterned peatlands, rich and poor fens, northern spruce bog within the One Hundred Mile swamp.
Club-spur orchid	*Platanthera clavellata*	SC	1	Unknown	Black spruce and/or tamarack swamps, northern spruce bog within the One Hundred Mile swamp.
Small shinleaf[4]	*Pyrola minor*	SC	1	10	Rich black spruce swamps, cedar swamps, on Sphagnum hummocks in forested peatlands within the One Hundred Mile swamp.
Lapland buttercup	*Ranunculus lapponicus*	SC	1	~919 ft^2	On and adjacent to Sphagnum hummocks in black spruce stands, up to 60 percent shaded with alder also dominant.
Torrey's manna-grass	*Torreyochloa pallida*	SC	1	~25 ft^2	In muddy soil along shore and in water within shallow channels, beaver ponds, shallow marshes, along Partridge River.

Sources: AECOM 2009b; Barr 2007i; Johnson-Groh 2004; MDNR 2005; MDNR 2011k; MDNR 2014d; Pomroy and Barnes 2004; Walton 2004.

Notes:
[1] E - Endangered, T - Threatened, SC - Species of Special Concern.
[2] Note that the number of populations may differ from those given in the NHIS data because of populations found during other surveys.
[3] Where the number of individuals could not be determined without damaging the population, then patch size was used as a representative abundance measure.
[4] These species are also RFSS as tracked by the USFS.
[5] Data included here were provided by the Division of Ecological Resources, MDNR, and were current as of August 5, 2014. These data are not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that no significant features are present.

Species Life Histories

The species life histories are provided in Section 4.2.4.2.3 for all species except the additional one listed below.

Small shinleaf (*Pyrola minor*) is listed as a species of special concern in Minnesota and as an RFSS in the Superior National Forest. The species was first reported in Lake County in 1914 near the North Kawishiwi River. It has since only been documented in Cook, St. Louis, Lake (Bell Museum of Natural History 2011), and Carlton counties (NatureServe 2014b). *P. minor* is a circumpolar species occurring across Canada and the western United States in boreal and alpine habitats (MDNR 2011k). It usually occurs in conifer swamps, including black spruce and northern white cedar swamps, and black spruce-balsam fir woodlands. Small shinleaf can also be found along moist ecotones between wetlands and uplands or between streams and slopes. It is a perennial evergreen forb species that is rhizomatous and flowers in mid-July. It may be semi-tolerant to disturbance, since healthy populations exist along well-traveled portage routes and at sites that have experienced timber harvesting around 20 years prior (MDNR 2011k). Threats to *P. minor* include climate change, since it is a circumpolar species, and competition from non-native species.

Regional Foresters Sensitive Species

Seven state-listed ETSC plant species that occur on the federal lands (*Botrychium pallidum*, *Botrychium rugulosum*, *Botrychium simplex*, *Caltha natans*, *Eleocharis nitida*, *Juncus stygius*, and *Pyrola minor*) are also RFSS plants. A species description for *Pyrola minor* is provided above, and for the other six ETSC species in Section 4.2.4.2.3. The other RFSS plants that are likely located on the federal lands using MIH types and suitable habitat as indicators are discussed in Section 4.2.4.2.3.

4.3.4.1.2 Land Exchange Alternative B

Cover Types

A smaller portion of the federal lands (up to 4,752.6 acres) would be exchanged into private ownership under this alternative.

Habitat Types

The Alternative B: Smaller Federal Parcel contains similar MDNR GAP land cover types as the federal lands, but smaller acreages of them, with lowland coniferous forest making up the majority of the parcel and cropland/grassland occupying the least amount (see Table 4.3.4-6). The MDNR GAP land cover types below may not fully represent the extent of mixed forest

types, since the cover type level below is fairly specific, so there may be more mixed forest types than indicated.

Table 4.3.4-6 Alternative B: Smaller Federal Parcel Cover Types

Cover Types	Total Acres	Percent of Area
Lowland coniferous forest[1]	2,064.8	43
Upland coniferous forest[3]	1,366.1	29
Upland deciduous forest[4]	804.7	17
Shrubland	436.9	9
Disturbed	29.1	1
Aquatic environments	26.3	1
Upland conifer-deciduous mixed forest[5]	17.8	<1
Lowland deciduous forest[2]	4.7	<1
Cropland/grassland	2.2	<1
Total	**4,752.6**	**100**

Source: MDNR 2006b.

Notes:
[1] Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
[2] Includes black ash forest cover types.
[3] Includes pine and spruce/fir forest cover types.
[4] Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
[5] Includes all mixed coniferous-deciduous forest cover types.

Minnesota Biological Survey

Lands as part of the Alternative B: Smaller Federal Parcel would be mostly classified as MBS Sites of High Biodiversity Significance, including the Upper Partridge River (56 percent of Alternative B: Smaller Federal Parcel lands) and the One Hundred Mile Swamp (40 percent of Alternative B: Smaller Federal Parcel lands) (see Figure 4.2.4-1) (MDNR 2008a). Less than 1 percent of Alternative B: Smaller Federal Parcel would contain the Upper Dunka Peatlands MBS Site of Moderate Biodiversity Significance. These sites are located in the Laurentian Uplands subsection.

The Alternative B: Smaller Federal Parcel would also contain “imperiled,” “imperiled/vulnerable,” and “vulnerable” native plant communities, including white pine-red pine forests (FDn43a; less than 1 percent), rich black spruce swamp (FPn62a; 6 percent), and black spruce-Jack pine woodlands (FDn32c; 23 percent), respectively (MDNR 2008b). Black ash-conifer swamps (WFn64a), black spruce bogs (APn80a), graminoid bogs (APn90b1), poor tamarack-black spruce swamps (APn81b), and white cedar swamps (FPn63a) are ranked as “apparently secure” and are located in the Alternative B: Smaller Federal Parcel lands. Aspen-birch forests: balsam fir subtype (FDn43b1), alder swamps (FPn73a), poor black spruce swamps (APn81a), rich tamarack-alder swamps (FPn82a), willow-dogwood shrub swamps (WMn82a), and low shrub poor fens (APn91a) are all considered “widespread and secure” and are also on the Alternative B: Smaller Federal Parcel.

Scientific and Natural Areas

There are no SNAs located on or near the Alternative B: Smaller Federal Parcel lands.

Culturally Important Plants

Similar to the federal lands, natural resources culturally important to the Bands are discussed in Section 4.2.9.3.3.

Management Areas

The Alternative B: Smaller Federal Parcel lands are currently managed under the General Forest – Longer Rotation Management Area (93 percent) and the General Forest Management Area (7 percent; see Table 4.3.4-7) (USFS 2011j). Section 4.3.1 describes the management areas in detail.

Table 4.3.4-7 Management Areas for the Land Exchange Alternative B Lands

	Land Exchange Alternative B Lands	
Category	**Acres**	**Percent**
General Forest	355.3	7
General Forest – Longer Rotation	4,397.3	93
Potential/Candidate Research Natural Areas	0.0	0
Riparian Areas	0.0	0

Source: USFS 2011j.

Ecological Land Types

The Alternative B: Smaller Federal Parcel lands contain the same five categories of ELTs as the federal lands. Section 4.3.4.1.1 provides a discussion of these ELT types.

Management Indicator Habitats

The Alternative B: Smaller Federal Parcel consists mostly of lowland black spruce-tamarack forest (MIH 9; 2,078.7 acres), with lesser amounts of upland conifer forest (MIH 5; 1,138.8 acres) and upland forest (MIH 1; 954.2 acres) (see Table 4.3.4-8 and Figure 4.2.4-4) (USFS 2010b). Aquatic habitats (MIH 14) are not tracked on the Alternative B: Smaller Federal Parcel lands, though several open water features are present. Though not considered an MIH type, the smaller federal parcel contains 385.4 acres of lowland shrub habitat and 115.4 acres of lowland emergent habitat, as well. The remaining acres present on the federal lands have no corresponding MIH classification.

The Alternative B: Smaller Federal Parcel consists of mostly mature (2,574.7 acres) forest stands, with smaller amounts of immature (1,325.9 acres) stands and young (271.1 acres) stands (see Table 4.3.4-8). There are currently no patches of mature upland forest over 300 acres on the Alternative B: Smaller Federal lands (USFS 2012c). However, since smaller patches will grow over time into larger contiguous patches, the USFS predicts that in 2020, there would be one patch (707.8 acres) over 300 acres on the Alternative B: Smaller Federal lands (USFS 2012d).

Table 4.3.4-8 MIH Types and Age Classes (Acres) for the Land Exchange Alternative B Lands

MIH Type	Total of Land Exchange Alternative B Parcel Lands
MIH 1	954.2
MIH 5	1,138.8
MIH 9	2,078.7
MIH 14	0.0
Lowland Shrub	385.4
Lowland Emergent	115.4
Upland Grass	0.0
Age Class	
Young	271.1
Immature	1,325.9
Mature	2,574.7

Sources: USFS 2010b; USFS 2011i.

Landscape Ecosystems

The Alternative B: Smaller Federal Parcel lands are located within two landscape ecosystem types. The Jack Pine-Black Spruce landscape ecosystem occupies 2,395.1 acres of the smaller federal parcel lands (represents less than 0.01 percent of Jack Pine-Black Spruce landscape ecosystem), while the Lowland Conifer landscape ecosystem occupies 2,349.1 acres (represents less than 0.01 percent of Lowland Conifer landscape ecosystem) (see Table 4.3.4-9).

Table 4.3.4-9 Landscape Ecosystem Types (Acres) on the Land Exchange Alternative B Lands and Tract 1 Lands[1]

Landscape Ecosystem Type	Alternative B: Smaller Federal Parcel Lands[2]	Tract 1 – Hay Lake
Dry-Mesic Red and White Pine	0.0	589.2
Mesic Red and White Pine	0.0	528.0
Jack Pine-Black Spruce	2,395.1	983.5
Lowland Conifer	2,349.1	2,835.3
Mesic Birch-Aspen-Spruce-Fir	0.0	0.9
Lowland Hardwood	0.0	0.0
Sugar Maple	0.0	0.0

Source: USFS 2011g.

Notes:
[1] Total acres may be more or less than presented elsewhere due to rounding or GIS layers used.
[2] Data may not have complete coverage of parcel.

Invasive Non-native Plants

The Alternative B: Smaller Federal Parcel lands contain similar invasive non-native species as those that are part of the Land Exchange Proposed Action, since they occupy a smaller portion of the federal lands.

Threatened and Endangered Plant Species

Endangered, Threatened, and Special Concern Plant Species

The Alternative B: Smaller Federal Parcel contains the same threatened and endangered species as the federal lands since it occupies the same general area, and the ETSC species located on the federal lands are also located within the boundary of the smaller federal parcel. Section 4.3.4.1.1 provides the list of species that occur on the Alternative B: Smaller Federal Parcel lands.

Regional Foresters Sensitive Species

The RFSS plants located on the smaller federal parcel are the same as those located on the federal lands and Mine Site. Sections 4.2.4.2.3 and 4.3.4.1.1 provide a list and discussion of these species.

4.3.4.2 Non-federal Lands

4.3.4.2.1 Cover Types

The non-federal lands portion of the Land Exchange Proposed Action includes five different private tracts of land that total up to 7,075.0 acres. These lands, which include forest and wetland habitat, are located throughout the Superior National Forest in St. Louis, Lake, and Cook counties.

4.3.4.2.2 Habitat Types

The MDNR GAP land cover types of the combined non-federal lands consist of mostly lowland coniferous forests, shrublands, and upland deciduous forests (see Table 4.3.4-10).

Table 4.3.4-10 Non-federal Lands Cover Types

Cover Types	Total Acres	Percent of Area
Lowland coniferous forest[1]	2,920.5	41
Shrubland	1,845.0	26
Upland deciduous forest[4]	1,232.9	17
Upland coniferous forest[3]	699.4	10
Aquatic environments	266.6	4
Upland conifer-deciduous mixed forest[5]	50.4	1
Cropland/grassland	31.7	<1
Lowland deciduous forest[2]	28.6	<1
Disturbed	0.0	0
Total	**7,075.0[(6)]**	**99[(7)]**

Source: MDNR 2006b.

Notes:
1 Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
2 Includes black ash forest cover types.
3 Includes pine and spruce/fir forest cover types.
4 Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
5 Includes all mixed coniferous-deciduous forest cover types.
6 Total acres may be more or less than presented due to rounding.
7 Percent totals less than 100 percent due to rounding.

Management Areas

The non-federal lands currently do not have any management area designations, as they are not managed by the federal government. Section 4.3.1 describes the management areas in detail.

Management Indicator Habitats

MIH types and age classes were determined and mapped for the non-federal lands using several data sources, including field survey maps, aerial maps, surrounding federal MIH data, topographic maps, and USFS review. This analysis limited the MIH types to those mentioned above in Section 4.2.4.2.3, due to risk of misidentification of further subcategories of forests. Lowland shrub habitat, while not an MIH type, was also considered due to its importance to several wildlife species such as moose (USFS, Pers. Comm., October 26, 2011). Additionally, lowland emergent wetlands and upland grass types were included. The non-federal lands are dominated by lowland black spruce-tamarack forest (MIH 9; 3,308.5 acres) and upland forest (MIH 1; 2,694.5 acres), with lesser amounts of aquatic habitats (MIH 14; 226.7 acres) and upland conifer forest (MIH 5; 79.9 acres) (see Table 4.3.4-3). Though not considered MIH types, the non-federal lands also contain 385.7 acres of lowland emergent wetlands, 332.2 acres of lowland shrub habitat, and 43.3 acres of upland grassland.

Of forested plant communities on the non-federal lands, immature forest stands (3,539.7 acres) are most abundant, with lesser amounts of mature (1,824.6 acres) and young (778.2 acres) forest types.

Landscape Ecosystems

The non-federal lands are located within seven landscape ecosystem types, including Jack Pine-Black Spruce, Lowland Conifer, Mesic Red and White Pine, Dry-Mesic Red and White Pine, Lowland Hardwood, Mesic Birch-Aspen-Spruce-Fir, and Sugar Maple (see Table 4.3.4-4). All landscape ecosystem types on each tract represent less than 0.01 percent of that landscape ecosystem type within the Northern Superior Uplands Section.

4.3.4.2.3 Invasive Non-native Plants

The non-federal lands contain similar invasive non-native species as the federal lands, although there are also different species. The subsections on each tract below provide more detailed discussions of these species.

4.3.4.2.4 Threatened and Endangered Plant Species

Endangered, Threatened, and Special Concern Plant Species

The non-federal lands contain three state-listed ETSC plant species according to the MDNR NHIS, including *Woodsia scopulina*, *Saxifraga paniculata*, and *Carex ormostachya*. The former two of these species are located on Tract 5, and the latter species is located on Tract 1. Additional information about these three species is presented in the discussion of Tracts 1 and 5 below. Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list.

Regional Foresters Sensitive Species

The non-federal lands are located outside the current boundaries of the Superior National Forest; however, following the Land Exchange Proposed Action, some or all of the non-federal lands could become National Forest System lands. The USFS currently manages 58 vascular and non-vascular plant species that are listed as RFSSs in the Superior National Forest (see Table 4.2.4-5). Detailed RFSS plant surveys have not been conducted on the private non-federal lands, but information from other field surveys and habitat preferences (MIH types) for each species is used to determine potential habitat or occurrences of RFSS plant species on the non-federal lands.

Saxifraga paniculata is located on the non-federal lands and it is also an RFSS plant. The non-federal lands consist of mostly lowland black spruce-tamarack forests (MIH 9), which means there is generally more habitat available for the 13 RFSS species listed under that category to occur on the non-federal lands, if suitable habitat exists for them (see Table 4.2.4-5). One of these species is *Pyrola minor*, which is a state-listed ETSC plant species that occurs on the federal lands. The non-federal lands also contain a large portion of upland forest (MIH 1), which means there are many acres for the 17 RFSS species listed under that category to occur on the non-federal lands as well. Three of these species are state-listed ETSC species on the federal lands and include *Botrychium pallidum*, *Botrychium rugulosum*, and *Botrychium simplex*. *Botrychium lanceolatum* is also known to occur near the southwest corner of the Tract 1 lands, and is associated with MIH 1. There is a smaller amount of aquatic habitat (MIH 14) available on the non-federal lands, so there is less available habitat for the eight RFSS species listed under that category. One of these species is *Caltha natans*, which is a state-listed ETSC plant species and occurs on the federal lands. There is very little upland conifer forest habitat (MIH 5) available, meaning there are likely fewer occurrences of some species in the MIH 5 category. There are also 385.7 acres of lowland emergent wetland habitat on the non-federal lands, so the five RFSS plant species listed under this category may occur on the non-federal lands as well. This includes *Eleocharis nitida* and *Juncus stygius*, which are both state-listed ETSC plant species that occur on the federal lands.

4.3.4.2.5 Tract 1 – Hay Lake Lands

The largest non-federal tract is Tract 1, which is 4,926.3 acres in size. It is located in the Laurentian Ranger District (USFS 2011n). The parcel has moderate topographic relief and slopes toward the east-northeast, in the direction of the Pike River (AECOM 2011b).

Cover Types

Tract 1 is located in the Nashwauk Uplands subsection of the Laurentian Mixed Forest Province ecoregion (MDNR 2006a). See Section 4.2.4.1 for a description of the Nashwauk Uplands subsection.

Habitat Types

The primary MDNR GAP land cover types for Tract 1 include shrublands and lowland conifer forests (see Table 4.3.4-11). There are fewer acres of cropland/grassland and lowland deciduous forests. The MDNR GAP land cover types below may not fully represent the extent of mixed forest types, since the cover type level below is fairly specific, so there may be more mixed forest types than indicated.

Table 4.3.4-11 Tract 1 – Hay Lake Lands Cover Types

Cover Types	Total Acres	Percent of Area
Shrubland	1,664.6	34
Lowland coniferous forest[1]	1,524.2	31
Upland deciduous forest[4]	999.9	20
Upland coniferous forest[3]	437.3	9
Aquatic environments	251.1	5
Cropland/grassland	31.7	1
Lowland deciduous forest[2]	17.4	<1
Disturbed	0.0	0
Upland conifer-deciduous mixed forest[5]	0.0	0
Total	**4,926.3[(6)]**	**100**

Source: MDNR 2006b.

Notes:
[1] Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
[2] Includes black ash forest cover types.
[3] Includes pine and spruce/fir forest cover types.
[4] Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
[5] Includes all mixed coniferous-deciduous forest cover types.
[6] Total acres may be more or less than presented due to rounding.

Plant Community Surveys

Much of Tract 1 (59 percent) is wetlands (AECOM 2011b). All of the 33 wetlands evaluated are rated high for wetland functions and values, according to MnRAM 3.2 (AECOM 2009b; AECOM 2011b). Most of the wetland habitats consist of scrub-shrub habitat dominated by speckled alder (*Alnus incana* ssp. *rugosa*), beaked hazel (*Corylus cornuta*), willows (*Salix* spp.), and bog birch (*Betula pumila*); pole and immature size coniferous forests dominated by black spruce, northern white cedar, and tamarack; and emergent/bog wetlands dominated by sedges (*Carex* spp.), cattail (*Typha* spp.), bog-Labrador tea, and leatherleaf (AECOM 2011b). There are several open water features on the parcel as well, including Hay Lake, Little Rice Lake, and the Pike River. See Section 4.3.3 for a more detailed description of wetland habitat types present.

Uplands consist of pole and immature deciduous forests, dominated by trembling aspen and paper birch, with midstories of sapling mountain maple (*Acer spicatum*), trembling aspen, paper birch, balsam fir, and black spruce. Shrub species include beaked hazel, with scattered speckled alder, twining honeysuckle (*Lonicera dioica*), and prickly rose (*Rosa acicularis*) (AECOM 2011b). The ground cover includes sedges, wild strawberry (*Fragaria virginiana*), bunchberry (*Cornus canadensis*), wild raspberry (*Rubus* spp.), horsetail (*Equisetum* spp.), clintonia (*Clintonia borealis*), twinflower (*Linnaea borealis*), large-leaved aster (*Aster macrophyllus*), rose twisted stalk (*Streptopus roseus*), skunk currant (*Ribes glandulosum*), spotted coralroot (*Corallorhiza maculata*), wood anemone (*Anemone quinquefolia*), tall buttercup (*Ranunculus acris*), bracken fern (*Pteridium aquilinum*), and interrupted fern (*Osmunda claytoniana*) (AECOM 2011b).

Disturbed areas and grasslands are primarily associated with abandoned logging roads, landings, and powerline ROWs and are dominated by forbs and grasses, including cow parsnip (*Heracleum lanatum*), white clover (*Trifolium repens*), ox-eye daisy (*Leucanthemum vulgare*), tall buttercup, common sow thistle (*Sonchus arvensis* ssp. *uliginosus*), orange hawkweed

(*Hieracium aurantiacum*), American vetch (*Vicia americana*), wild strawberry, wild raspberry, and common tansy (AECOM 2011b).

Almost all forest stands on Tract 1 consist of trees that are 8 to 11 inches dbh, having been harvested in relatively recent years (AECOM 2011b). Upland deciduous trees range up to 16 inches dbh, while upland coniferous trees range up to 10 inches dbh. Upland forest stands in the northern, central, and southwestern portions of the parcel are pole to immature, while upland stands in the western portion of the parcel are sapling to young pole. The majority of the trees on the parcel are estimated to be 60 years or younger (AECOM 2011b).

Minnesota Biological Survey

There are no lands designated as MBS Sites of Biodiversity Significance on Tract 1 (see Figure 4.3.4-1); however, the entire parcel is located within the preliminary Pike Range and Peatlands MBS Site of Outstanding Biodiversity Significance and could potentially be the only site ranked as Outstanding in the Nashwauk Uplands subsection upon final designation by the MDNR (MDNR, Pers. Comm., February 14, 2012; MDNR *In progress*). The preliminary site is approximately 26,000 acres in size, approximately half of which is owned or managed by the Superior National Forest. On a larger landscape level, this site is one of the largest and most contiguous high-quality areas within the subsection or LTA scale. The Pike Mountain cRNA and Loka Lake cRNA abut Tract 1 and are included within this preliminary MBS site.

Native plant community designations are not available for Tract 1. However, native plant communities of the preliminary Pike Range and Peatlands MBS site are generally of high quality and include representative examples of almost all communities known to exist in the subsection (MDNR, Pers. Comm., April 9, 2012; MDNR n.d.).

Scientific and Natural Areas

There are no lands designated as SNAs on Tract 1; however, state, federal, and private land near the southwest corner of the parcel has been identified as a “potential” SNA site (MDNR, Pers. Comm., February 14, 2012). The federal lands bordering the southwest corner of the parcel are designated as the Pike Mountain cRNA, and this designation could be extended onto Tract 1 due to high-quality mature hardwood forest stands, rare cliff and rock outcrop features, and low human disturbance.

Culturally Important Plants

Wild rice has been observed on Tract 1, including on Hay Lake, Little Rice Lake, and the Pike River (Barr 2011a; 2012a; 2013l). Small populations of wild rice have been found on Hay Lake with less than 10 percent coverage, while Little Rice Lake has several locations with greater than 75 percent coverage of wild rice and continuous growth throughout the lake. Wild rice was also found along the Pike River flowing north into Little Rice Lake. The survey performed in 2012 found lower densities of wild rice beds. Hay Lake, Rice Lake, and the Pike River all had density factor ratings of 1. The decreases in density in Rice Lake and the Pike River were consistent with a decrease in wild rice bed density across all areas surveyed in 2012. Section 4.2.2 provides further discussion of wild rice on the Tract 1 lands.

As with the federal lands, natural resources culturally important to the Bands are discussed in Section 4.2.9.3.3.

Management Areas

The non-federal lands currently do not have any management area designations, as they are not managed by the federal government. Section 4.3.1 describes the management areas in detail.

Ecological Land Types

Tract 1 contains six categories of ELTs, including Lowland Loamy Moist (ELT 1), Lowland Loamy Wet (ELT 2), Lowland Organic Acid to Neutral (ELT 6), Upland Deep Loamy Over Sandy Dry (ELT 11), Upland Shallow Loamy Dry (ELT 16), and Upland Extremely Shallow Loamy Droughty (ELT 18). The majority of Tract 1 is included within the Pike-Sandy River Sand Plain LTA and the remainder is within the Mesabi Range LTA.

Management Indicator Habitats

Table 4.3.4-3 provides a summary of the MIH types and age classes present on the Tract 1 lands (see Figure 4.3.4-1) (USFS 2010b). Though not considered MIHs, Tract 1 also contains 365.0 acres of lowland emergent wetlands and 113.3 acres of lowland shrub habitat.

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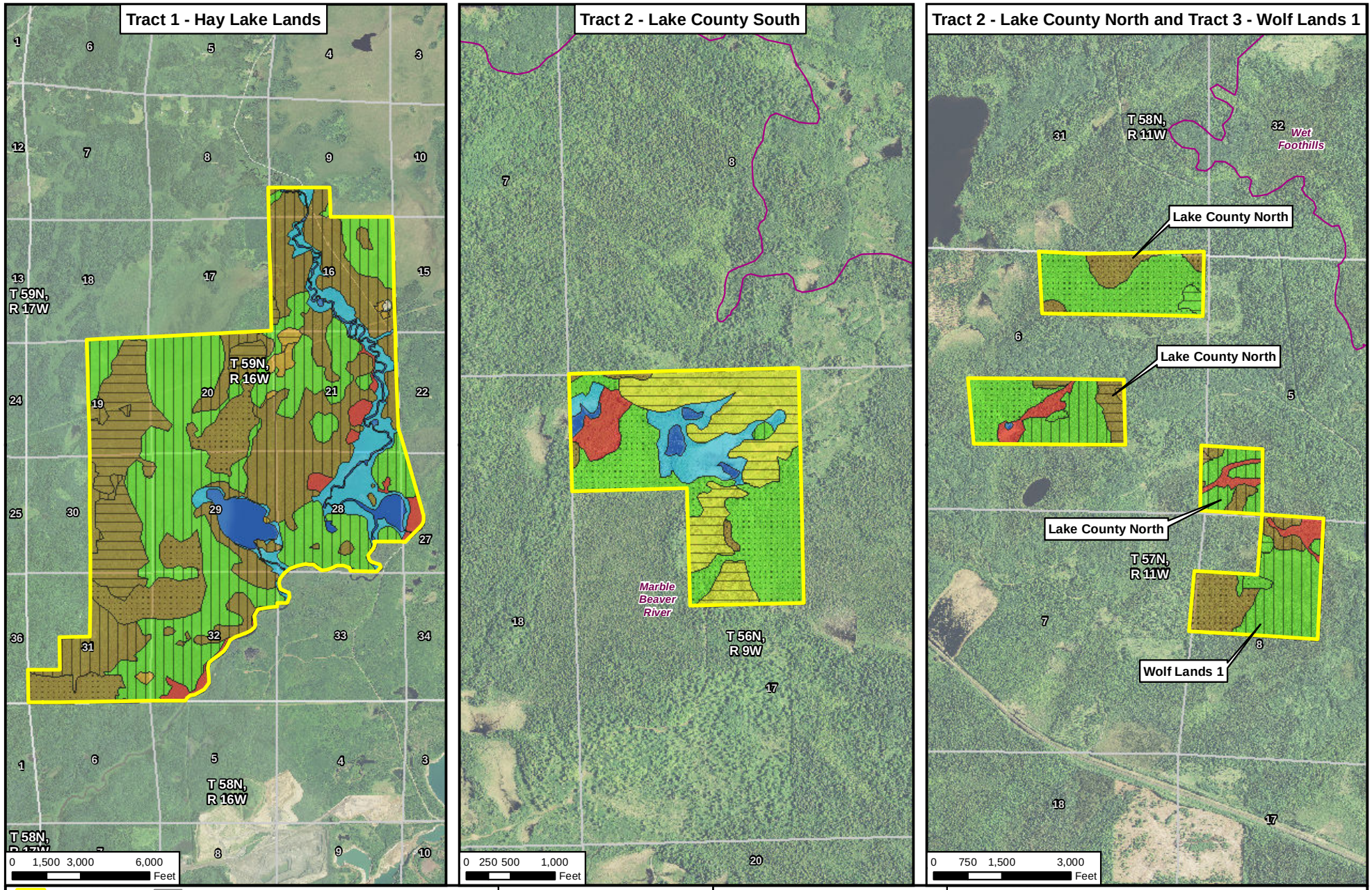

Figure 4.3.4-1
Management Indicator Habitat Types and Age Classes - Tracts 1, 2 and 3
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Landscape Ecosystems

Table 4.3.4-4 provides a summary of the landscape ecosystem types present on Tract 1.

The Lowland Conifer landscape ecosystem occupies 2,835.3 acres of Tract 1. The Jack Pine-Black Spruce landscape ecosystem occupies 983.5 acres of Tract 1. The Mesic Red and White Pine landscape ecosystem occupies 528.0 acres of Tract 1. See the previous federal lands section above (see Section 4.3.4.1.1) for a description of these landscape ecosystem types.

The Dry-Mesic Red and White Pine landscape ecosystem occupies 589.2 acres of Tract 1. It comprises the following species: aspen, paper birch, red pine, white pine, jack pine, balsam fir, black spruce, white spruce, bigtooth aspen, and red maple (USFS 2004a). On drier sites, jack pine, red pine, and black spruce dominate, while the other species dominate on mesic sites. Succession after fire disturbances is similar to the Mesic Red and White Pine landscape ecosystem described above.

The Mesic Birch-Aspen-Spruce-Fir landscape ecosystem occupies less than 1 acre of Tract 1. It is dominated by mixed stands of aspen, paper birch, balsam fir, and white spruce, though northern white cedar, bigtooth aspen, and red maple are sometimes also present (USFS 2004a). Fire disturbances usually result in aspen/birch-dominated stand regeneration, while wind disturbances usually result in balsam fir and white spruce forests. The climax tree stage consists of a multi-aged white spruce and balsam fir forest with components of paper birch and northern white cedar.

Invasive Non-native Plants

According to the Superior National Forest invasive plant geodatabase, Tract 1 contains two known occurrences of common tansy (USFS 2010a). Common tansy can spread vegetatively or reproductively via tufted seeds that are dispersed by wind or water (MDNR 2011b). It is widespread and common along roadsides or abandoned farmyards in northern Minnesota. Common tansy was observed during field investigations along trails near recently installed gates and disturbed earthen berms. Additionally, AECOM (2011b) identified common tansy, orange hawkweed, common sow thistle, and ox-eye daisy within disturbed logging roads, landings, and power line rights-of-way. Orange hawkweed primarily spreads vegetatively through runners, rhizomes, and root buds, but can also spread reproductively (MDNR 2011b). It colonizes newly disturbed sites and early successional habitats quickly. Ox-eye daisy spreads vegetatively and reproductively, but often cannot invade intact grasslands (MDNR 2011b). It can, however, invade newly disturbed areas quickly. Common sow thistle spreads vegetatively and through wind-borne seeds or root cuttings. It colonizes fields, woodlands, and roadsides, but generally is not a threat to intact native plant communities (MDNR 2011b).

Threatened and Endangered Plant Species

Endangered, Threatened, and Special Concern Plant Species

No federally listed ETSC plant species are known to occur on the Tract 1 lands according to field investigations (AECOM 2011b). Based on a review of the MDNR NHIS (MDNR 2014d), one state-listed species of special concern has been identified on Tract 1 (see Table 4.3.4-12 and Figure 4.3.4-3). Necklace sedge (*Carex ormostachya*) is not tracked by the USFS as an RFSS. No other state-listed species are known to occur on Tract 1.

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list.

Table 4.3.4-12 Endangered, Threatened, and Special Concern Plant Species Identified on the Tract 1 Lands [3]

Common Name	Scientific Name	State Status[1]	No. of Populations	No. of Individuals[2]	Habitat and Location
Necklace sedge	*Carex ormostachya*	SC	1	>20	Dry/mesic shallow soils on rock outcrop in red oak-dominated forest

Sources: MDNR 2014d.

Notes:
[1] E - Endangered, T - Threatened, SC - Species of Special Concern.
[2] Where the number of individuals cannot be determined without damaging the population, then patch size is used as a representative abundance measure.
[3] Data included here were provided by the Division of Ecological Resources, MDNR, and were current as of August 5, 2014. These data are not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that no significant features are present.

Species Life Histories

The following summary provides a description of the life history, state-wide distribution, and sensitivity to disturbance for the species of special concern found on Tract 1.

Necklace sedge (*Carex ormostachya*) is listed as a species of special concern in Minnesota and is globally ranked as apparently secure; it is not listed as an RFSS in the Superior National Forest. The species was first documented in Cook County, Minnesota in 1938, and has since been reported across northern Minnesota (Bell Museum of Natural History 2014). *C. ormostachya* reaches the southwest corner of its range in Minnesota (NatureServe 2014b). It typically occurs in moist to dry deciduous, evergreen, or mixed forests, often in sandy gravel or disturbed soils (eFlora 2014). *C. ormostachya* is a perennial herbaceous species that flowers and fruits in spring to summer.

Regional Foresters Sensitive Species

There is more upland forest (MIH 1) and lowland black spruce-tamarack forest (MIH 9) habitat available than any other type, so the RFSS plants associated with these types would be most likely to occur on Tract 1. *Botrychium lanceolatum* is known to occur near the southwest corner of the Tract 1 lands, and is associated with MIH 1. There is a moderate amount of aquatic habitat (MIH 14) and a smaller amount of upland conifer forest (MIH 5), so RFSS plants associated with these would be less likely to occur.

4.3.4.2.6 Tract 2 – Lake County Lands

Tract 2 is 381.9 acres in size and includes several subparcels ranging in size from 44 to 117 acres on the Laurentian Ranger District southeast of Seven Beaver Lake that are mostly surrounded by the Superior National Forest (USFS 2011n). Tract 2 is divided into north (Lake County North) and south (Lake County South) parcels, with the north parcel being the larger of the two. Lake

County North consists of three subparcels, which are made up of mostly wetland habitats; the majority of Lake County South lands consists of wetland habitats as well (AECOM 2011c).

Lake County North

Cover Types

The Tract 2 is located in the Laurentian Mixed Forest Province ecoregion. Lake County North is located in the Laurentian Uplands subsection of the Laurentian Mixed Forest Province ecoregion (MDNR 2006a). Section 4.2.4.1 provides a description of the Laurentian Uplands subsection.

Habitat Types

The primary MDNR GAP land cover type on the Tract 2 – Lake County North lands is lowland coniferous forest (see Table 4.3.4-13). It contains very few acres of aquatic environments or lowland deciduous forests. The MDNR GAP land cover types below may not fully represent the extent of mixed forest types, since the cover type level below is fairly specific, so there may be more mixed forest types than indicated.

Table 4.3.4-13 Tract 2 – Lake County North Cover Types

Cover Types	Total Acres	Percent of Area
Lowland coniferous forest[1]	133.0	50
Upland conifer-deciduous mixed forest[5]	34.0	13
Upland deciduous forest[4]	34.0	13
Upland coniferous forest[3]	32.8	12
Shrubland	28.1	11
Aquatic environments	1.8	1
Lowland deciduous forest[2]	1.4	1
Cropland/grassland	0.0	0
Disturbed	0.0	0
Total	**265.1[(6)]**	**101[(7)]**

Source: MDNR 2006b.

Notes:
1 Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
2 Includes black ash forest cover types.
3 Includes pine and spruce/fir forest cover types.
4 Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
5 Includes all mixed coniferous-deciduous forest cover types.
6 Total acres may be more or less than presented due to rounding.
7 Percent totals are greater than 100 percent due to rounding.

Plant Community Surveys

The primary cover types are pole coniferous forest on the wetlands and mature and pole deciduous forests on the uplands (AECOM 2011c). Wetlands are dominated by northern white cedar, black spruce, and tamarack; balsam fir is a common understory species. Lake County North also contains scrub-shrub habitats that are dominated by speckled alder and contain emergent wetlands that consist of sedges and Canada bluejoint (*Calamagrostis canadensis*). Lake County North has several open bog areas, a beaver pond, and drainages as well. See Section 4.3.3 for a more detailed description of wetland habitat types present.

Upland habitats are dominated by immature paper birch and black spruce, but recently logged areas support sapling paper birch stands or shrub habitats. The midstory is comprised of balsam fir, black spruce, and beaked hazel. Areas that have been recently logged are dominated by sapling paper birch with scattered sapling trembling aspen and pole paper birch. Beaked hazel forms a patchy shrub layer, with several grasses and forbs in the ground layer (AECOM 2011c). Older forests near logged areas contain large amounts of downed woody debris, and have a midstory dominated by dense stands of balsam fir, black spruce, and northern white cedar.

Lake County North wetland canopy trees range from 6 to 10 inches dbh, but northern white cedar up to 20 inches dbh and black spruce up to 14 inches dbh are found on the subparcels (AECOM 2011c). The north parcel also contains an immature forested wetland containing black ash (*Fraxinus nigra*) trees up to 16 inches dbh.

Minnesota Biological Survey

There are no MBS Sites of Biodiversity Significance located on the Lake County North subparcels (see Figure 4.3.4-1) (MDNR 2008a). However, Lake County North is located on the potential Seven Beavers MBS Site, which has not yet been finalized by the MDNR but is ranked as having Moderate to High Biodiversity Significance (MDNR 2007a).

Native plant community rankings for Lake County North are not available.

Scientific and Natural Areas

There are no lands designated as SNAs on Tract 2 – Lake County North.

Culturally Important Plants

A discussion of natural resources culturally important to the Bands is presented in Section 4.2.9.3.3.

Management Areas

The non-federal lands currently do not have any management area designations, as they are not managed by the federal government. Section 4.3.1 describes the management areas in detail.

Ecological Land Types

The Lake County North parcel contains five categories of ELTs, including Lowland Loamy Moist (ELT 1), Lowland Loamy Wet (ELT 2), Lowland Organic Acid to Neutral (ELT 6), Upland Deep Loamy Dry Course (ELT 13), and Upland Deep Medium Loamy Dry (ELT 14). All three subparcels of the Lake County North parcel are included in the Greenwood Lake Till Plain LTA.

Management Indicator Habitats

Table 4.3.4-3 provides a summary of the MIH types and age classes present on Tract 2 (see Figure 4.3.4-1) (USFS 2010b). Though not considered an MIH, the Lake County North parcel also contains 20.6 acres of lowland shrub habitat.

Landscape Ecosystems

Table 4.3.4-4 provides a summary of the landscape ecosystem types present on Tract 2.

The Lowland Conifer landscape ecosystem occupies 227.6 acres of Lake County North. The Mesic Birch-Aspen-Spruce-Fir landscape ecosystem occupies 37.4 acres of the Lake County North lands. See the federal or non-federal lands sections above for a description of these landscape ecosystem types.

Lake County South

Cover Types

The Lake County South parcel is located in the North Shore Highlands subsection of the Laurentian Mixed Forest Province ecoregion (MDNR 2006a). Most of the vegetative cover types in the North Shore Highlands subsection grow in thin, rocky red and brown glacial till (MDNR 2011g). Upper Precambrian bedrock is often exposed at the surface. The most common soils are loams and sandy loams, which support forest communities of white pine, red pine, jack pine, balsam fir, white spruce, and aspen-birch.

Habitat Types

The primary MDNR GAP land cover types on Tract 2 – Lake County South are lowland coniferous forest and upland coniferous forest (see Table 4.3.4-14). There are fewer acres of aquatic environments. The MDNR GAP land cover types below may not fully represent the extent of mixed forest types, since the cover type level below is fairly specific, so there may be more mixed forest types than indicated.

Table 4.3.4-14 Tract 2 – Lake County South Cover Types

Cover Types	Total Acres	Percent of Area
Lowland coniferous forest[1]	53.1	45
Upland coniferous forest[3]	38.8	33
Shrubland	10.8	9
Upland deciduous forest[4]	10.1	9
Aquatic environments	4.0	3
Cropland/grassland	0.0	0
Disturbed	0.0	0
Lowland deciduous forest[2]	0.0	0
Upland conifer-deciduous mixed forest[5]	0.0	0
Total	**116.8[(6)]**	**99[(7)]**

Source: MDNR 2006b.

Notes:
1 Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
2 Includes black ash forest cover types.
3 Includes pine and spruce/fir forest cover types.
4 Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
5 Includes all mixed coniferous-deciduous forest cover types.
6 Total acres may be more or less than presented due to rounding.
7 Percent totals are less than 100 percent due to rounding.

Plant Community Surveys

The primary cover types on Tract 2 – Lake County South are similar to Tract 2 – Lake County North, with wetlands dominated by pole coniferous forest and upland areas dominated by immature paper birch, black spruce, jack pine, eastern white pine, and northern white cedar. There are five beaver ponds, surrounded by emergent wetland species, including sedges, narrow-leaved cattail (*Typha angustifolia*), woolgrass (*Scirpus cyperinus*), and Canada bluejoint (AECOM 2011c). Please see Section 4.3.3 for a more detailed description of wetland habitat types present.

Most upland areas on Tract 2 – Lake County South have been recently clear-cut, except the southwest portion of the parcel. This area has been partially thinned, leaving areas where immature paper birch, black spruce, jack pine, eastern white pine, and northern white cedar trees remain ranging from 12 to 24 inches dbh (AECOM 2011c). The midstory includes balsam fir and beaked hazel. Grasses and forbs dominate the ground layer.

Minnesota Biological Survey

The entire 116.9 acres of the Tract 2 – Lake County South parcel are located within the Marble Beaver River MBS Site of High Biodiversity Significance (see Figure 4.3.4-1) (MDNR 2008a). This site is located within the North Shore Highlands subsection.

Native plant communities have been identified for the Lake County South parcel. It contains one vegetation community, sugar maple (*Acer saccharum*) forest (MHn45c; 8 percent of parcel), which has been characterized as "vulnerable" in the state (MDNR 2008b). Black ash-conifer swamps (WFn64a; less than 1 percent of parcel) and lowland white cedar forests (WFn53a; 29 percent of parcel) are also present on the parcel and are ranked as "apparently secure" in Minnesota based on abundance, distribution, trends, and threats (MDNR 2008b).

Scientific and Natural Areas

There are no lands designated as SNAs on Tract 2 – Lake County South.

Culturally Important Plants

A discussion of natural resources culturally important to the Bands is presented in Section 4.2.9.3.3.

Management Areas

The non-federal lands currently do not have any management area designations, as they are not managed by the federal government. Section 4.3.1 describes the management areas in detail.

Ecological Land Types

Tract 2 – Lake County South contains two categories of ELTs, including Lowland Loamy Wet (ELT 2), and Upland Deep Medium Loamy Dry (ELT 14). The entire Lake County South parcel is included in the Tettegouche Till Plain LTA.

Management Indicator Habitats

Table 4.3.4-3 provides a summary of the MIH types and age classes present on Tract 2 lands (see Figure 4.3.4-1) (USFS 2010b). Though not considered MIHs, the Tract 2 – Lake County South parcel also contains 43.3 acres of upland grassland, 15.6 acres of lowland emergent wetland, and 6.4 acres of lowland shrub habitat.

Landscape Ecosystems

Table 4.3.4-4 provides a summary of the landscape ecosystem types present on Tract 2 lands.

The Lowland Conifer landscape ecosystem occupies 80.2 acres of Tract 2 – Lake County South. See the federal or non-federal lands sections above for a description of this landscape ecosystem type.

The Sugar Maple landscape ecosystem occupies 36.7 acres of Tract 2 – Lake County South. It generally is located in a band within 15 miles of Lake Superior and is dominated by sugar maple with yellow birch, although northern white cedar, basswood, red maple, and northern red oak may also be present (USFS 2004a). Fire and wind disturbances are very infrequent, leaving individual tree mortality as the principal disturbance.

Invasive Non-native Plants

According to the Superior National Forest invasive plant geodatabase, there are no known occurrences of invasive species on the Tract 2 lands (USFS 2010a). Field studies indicate that one area of Tract 2 – Lake County North and several areas in the Tract 2 – Lake County South parcel contain occurrences of thistles and ox-eye daisy in a recently clear-cut habitat (AECOM 2011c).

Threatened and Endangered Plant Species

Endangered, Threatened, and Special Concern Plant Species

Based on a review of the MDNR NHIS and field investigations, no federally or state-listed ETSC plant species are known to occur on the Tract 2 lands.

Regional Foresters Sensitive Species

There is more lowland black spruce-tamarack forest (MIH 9) and upland forest (MIH 1) habitat available than any other type, so the RFSS plants associated with these types would be most likely to occur on the Tract 2 lands. There is a very small amount of upland conifer forest (MIH 5) or aquatic habitat (MIH 14) so RFSS plants associated with these would be less likely to occur.

4.3.4.2.7 Tract 3 – Wolf Lands

Tract 3 is 1,575.8 acres in size and is located on the Laurentian and Tofte Ranger Districts. Tract 3 includes four separate parcels ranging in size from 126 to 768 acres, referred to here as Tract 3 – Wolf Lands 1 through 4, which would complement Superior National Forest ownership by reducing federal exterior boundaries and eliminating several private ownership patterns (USFS 2011n). Tract 3 lands are located east to southeast of the federal lands and Tract 3 – Wolf Lands 1 is adjacent to Tract 2 – Lake County North.

Cover Types

Tract 3 lands are located in the Laurentian Uplands subsection of the Laurentian Mixed Forest Province ecoregion (MDNR 2006a). Section 4.2.4.1 provides a description of the Laurentian Uplands subsection.

Tract 3 – Wolf Lands 1

Habitat Types

The primary MDNR GAP land cover type on the Tract 3 – Wolf Lands 1 parcel is lowland coniferous forest (see Table 4.3.4-15). It has fewer acres of shrubland and mixed upland forests. The MDNR GAP land cover types below may not fully represent the extent of mixed forest types, since the cover type level below is fairly specific, so there may be more mixed forest types than indicated.

Table 4.3.4-15 Tract 3 – Wolf Lands 1 Cover Types

Cover Types	Total Acres	Percent of Area
Lowland coniferous forest[1]	74.8	59
Upland deciduous forest[4]	27.2	22
Upland coniferous forest[3]	13.3	11
Shrubland	6.9	5
Upland conifer-deciduous mixed forest[5]	3.7	3
Aquatic environments	0.0	0
Cropland/grassland	0.0	0
Disturbed	0.0	0
Lowland deciduous forest[2]	0.0	0
Total	**125.9[(6)]**	**100**

Source: MDNR 2006b.

Notes:
1 Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
2 Includes black ash forest cover types.
3 Includes pine and spruce/fir forest cover types.
4 Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
5 Includes all mixed coniferous-deciduous forest cover types.
6 Total acres may be more or less than presented due to rounding.

Plant Community Surveys

The primary cover types on Tract 3 – Wolf Lands 1 are pole coniferous forest on the wetlands, and immature mixed forest on the uplands (AECOM 2011c). The wetlands contain equal amounts of open, bog-like communities of sapling black spruce, northern white cedar, and tamarack, and denser pole forests of these same species, in addition to balsam fir. Please see Section 4.3.3 for a more detailed description of wetland habitat types present. Uplands are dominated by deciduous and coniferous immature forest with paper birch, trembling aspen, and balsam fir. Shrub species include beaked hazel and red-osier dogwood (*Cornus stolonifera*) (AECOM 2011c).

The majority of the Tract 3 – Wolf Lands 1 consists of wetland pole coniferous trees from 6 to 10 inches dbh, while the mature mixed forest trees on uplands are 12 inches dbh or greater (AECOM 2011c).

Minnesota Biological Survey

There are no designated MBS Sites of Biodiversity Significance located on the Tract 3 –Wolf Lands 1 parcel (see Figure 4.3.4-1) (MDNR 2008a). However, Tract 3 – Wolf Lands 1 is located on a potential MBS Site of Moderate to High Biodiversity Significance that has not yet been finalized by the MDNR (MDNR 2007a).

Native plant community rankings for Tract 3 are not available.

Scientific and Natural Areas

There are no SNAs located on the Tract 3 parcels.

Culturally Important Plants

A discussion of natural resources culturally important to the Bands is presented in Section 4.2.9.3.3.

Management Areas

The non-federal lands currently do not have any management area designations, as they are not managed by the federal government. Section 4.3.1 describes the management areas in detail.

Ecological Land Types

Tract 3 – Wolf Lands 1 contains three categories of ELTs, including Lowland Loamy Wet (ELT 2), Lowland Organic Acid to Neutral (ELT 6), and Upland Deep Medium Loamy Dry (ELT 14). The entire Tract 3 – Wolf Lands 1 parcel is included in the Greenwood Lake Till Plain LTA.

Management Indicator Habitats

Table 4.3.4-3 provides a summary of the MIH types and age classes present on Tract 3 lands (see Figure 4.3.4-1) (USFS 2010b). Though not considered an MIH, the Tract 3 – Wolf Lands 1 parcel also contains 9.7 acres of lowland shrub habitat.

Landscape Ecosystems

Table 4.3.4-4 provides a summary of the landscape ecosystem types present on Tract 3 lands.

The Lowland Conifer landscape ecosystem occupies 84.3 acres of the Tract 3 – Wolf Lands 1 parcel. The Mesic Birch-Aspen-Spruce-Fir landscape ecosystem occupies 41.5 acres of the Tract 3 – Wolf Lands 1 parcel. See the federal or non-federal lands sections above for a description of these landscape ecosystem types.

Tract 3 – Wolf Lands 2

Habitat Types

The primary MDNR GAP land cover type on the Tract 3 – Wolf Lands 2 parcel is lowland coniferous forest (see Table 4.3.4-16). The least abundant cover types include lowland deciduous forest and mixed upland forests. The MDNR GAP land cover types below may not fully represent the extent of mixed forest types, since the cover type level below is fairly specific, so there may be more mixed forest types than indicated.

Table 4.3.4-16 Tract 3 – Wolf Lands 2 Cover Types

Cover Types	Total Acres	Percent of Area
Lowland coniferous forest[1]	586.2	76
Upland coniferous forest[3]	86.5	11
Shrubland	54.0	7
Upland deciduous forest[4]	29.9	4
Lowland deciduous forest[2]	5.8	1
Upland conifer-deciduous mixed forest[5]	5.5	1
Aquatic environments	0.0	0
Cropland/grassland	0.0	0
Disturbed	0.0	0
Total	**767.9**	**100**

Source: MDNR 2006b.

Notes:
1 Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
2 Includes black ash forest cover types.
3 Includes pine and spruce/fir forest cover types.
4 Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
5 Includes all mixed coniferous-deciduous forest cover types.

Plant Community Surveys

Tract 3 – Wolf Lands 2 consists of mostly wetland habitats dominated by either pole black spruce, northern white cedar, or a mix of the two (AECOM 2011c). Midstory cover types in these forests consist of sapling black spruce, northern white cedar, or balsam fir. Scrub-shrub habitats of speckled alder dominate drainage areas. Some bogs, emergent wetlands, and beaver ponds exist on the parcel. Section 4.3.3 presents a more detailed description of wetland habitat types present.

Upland habitats consist of pole or immature mixed coniferous-deciduous forest types, including paper birch, trembling aspen, and black spruce, with a midstory of balsam fir and shrub layer of beaked hazel (AECOM 2011c).

The majority of Tract 3 – Wolf Lands 2 consists of wetland coniferous forests with canopy trees ranging from 4 to 8 inches dbh. An upland area in the northern portion of the parcel was logged in the past, and so the canopy cover in this area consists of immature coniferous and deciduous trees ranging from 5 to 12 inches dbh (AECOM 2011c).

Minnesota Biological Survey

The entire 767.9 acres of the Tract 3 – Wolf Lands 2 parcel is located within the East Greenwood MBS Site of Moderate Biodiversity Significance (see Figure 4.3.4-2) (MDNR 2007a; MDNR 2008a). This site is located in the Laurentian Uplands subsection. Sites of Moderate Biodiversity Significance are sites that contain occurrences of rare species and/or moderately disturbed native plant communities or landscapes that have a strong potential for recovery.

Native plant community rankings for Tract 3 are not available.

Scientific and Natural Areas

There are no SNAs located on the Tract 3 parcels.

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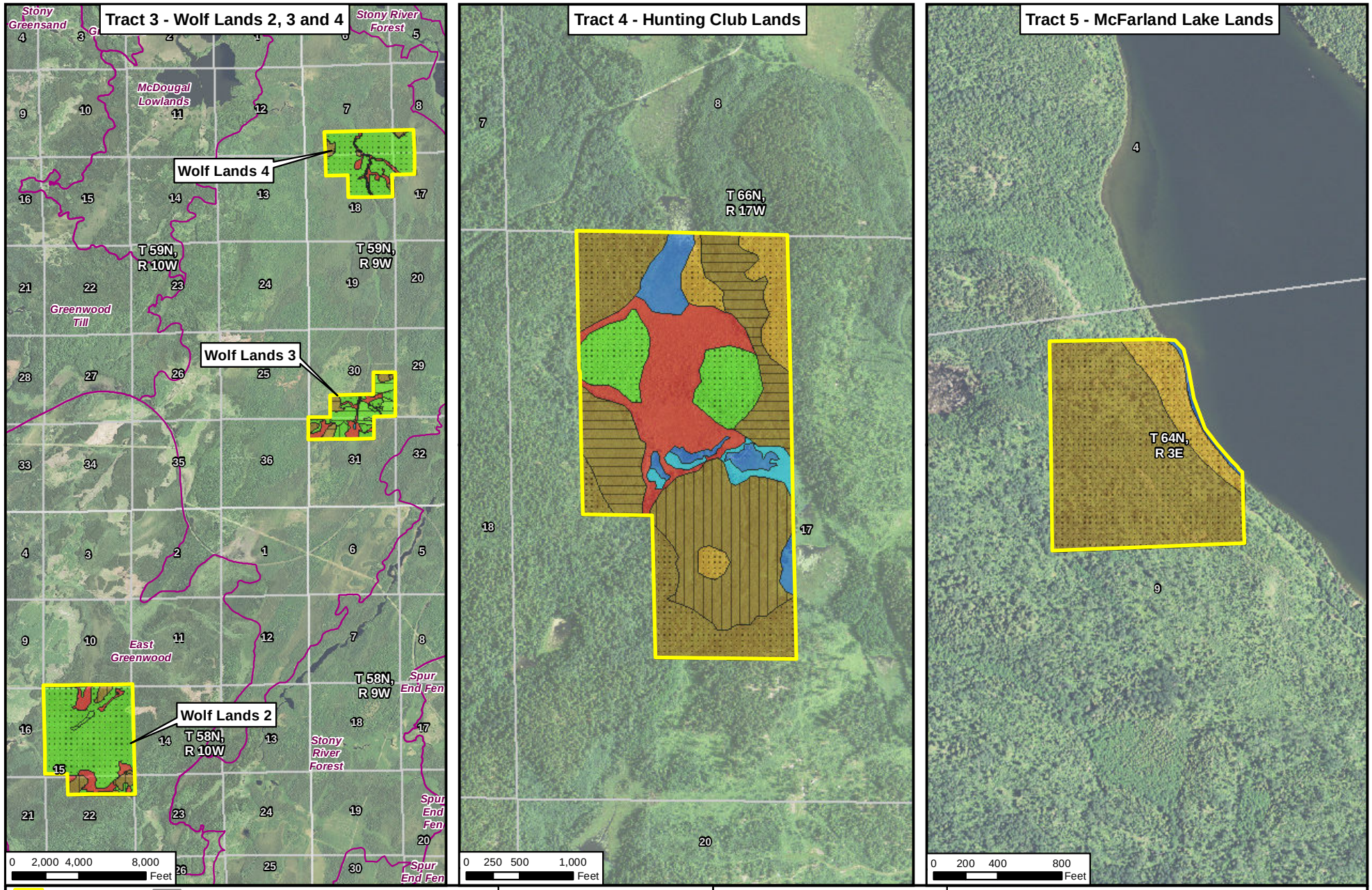

Non-federal Lands
Section Boundary
Section Label
Management Indicator Habitat
1 - Upland forest
5 - Upland conifer forest
9 - Lowland black spruce-tamarack forest
14 - Aquatic habitats
Other - Lowland Emergent
Other - Lowland Shrub
Other - Upland Grass
MBS Site of Biodiversity Significance
Age Classes
N/A
Young
Immature
Mature

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

Figure 4.3.4-2
Management Indicator Habitat Types and Age Classes - Tracts 3, 4 and 5
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Culturally Important Plants

A discussion of natural resources culturally important to the Bands is presented in Section 4.2.9.3.3.

Management Areas

The non-federal lands currently do not have any management area designations, as they are not managed by the federal government. Section 4.3.1 describes the management areas in detail.

Ecological Land Types

Tract 3 – Wolf Lands 2 contains four categories of ELTs, including Lowland Loamy Moist (ELT 1), Lowland Loamy Wet (ELT 2), Upland Deep Loamy Dry Course (ELT 13), and Upland Deep Medium Loamy Dry (ELT 14). The entire Wolf Lands 2 parcel is included in the Greenwood Lake Till Plain LTA.

Management Indicator Habitats

Table 4.3.4-3 provides a summary of the MIH types and age classes present on Tract 3 lands (see Figure 4.3.4-2) (USFS 2010b). Though not considered an MIH, the Tract 3 – Wolf Lands 2 parcel also contains 76 acres of lowland shrub habitat. The Tract 3 – Wolf Lands 2 parcel contains one patch of mature forest over 300 acres (598.2 acres), which is an important habitat type. However, this is different from the USFS Patch layer discussed in Section 4.3.4.1.1.

Landscape Ecosystems

Table 4.3.4-4 provides a summary of the landscape ecosystem types present on Tract 3 lands.

The Lowland Conifer landscape ecosystem occupies 653.2 acres of the Tract 3 – Wolf Lands 2 parcel. The Mesic Birch-Aspen-Spruce-Fir landscape ecosystem occupies 114.7 acres of the Tract 3 – Wolf Lands 2 parcel. Previous federal or non-federal land sections present descriptions of these landscape ecosystem types.

Tract 3 – Wolf Lands 3

Habitat Types

The primary MDNR GAP land cover type on the Tract 3 – Wolf Lands 3 parcel is lowland coniferous forest (see Table 4.3.4-17). The upland deciduous forest and mixed upland forest types are least represented. The MDNR GAP land cover types below may not fully represent the extent of mixed forest types, since the cover type level below is fairly specific, so there may be more mixed forest types than indicated.

Table 4.3.4-17 Tract 3 – Wolf Lands 3 Cover Types

Cover Types	Total Acres	Percent of Area
Lowland coniferous forest[1]	183.8	66
Upland coniferous forest[3]	46.4	17
Shrubland	31.7	11
Upland deciduous forest[4]	12.4	4
Upland conifer-deciduous mixed forest[5]	3.1	1
Aquatic environments	0.0	0
Cropland/grassland	0.0	0
Disturbed	0.0	0
Lowland deciduous forest[2]	0.0	0
Total	**277.4**	**99[(6)]**

Source: MDNR 2006b.

Notes:
[1] Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
[2] Includes black ash forest cover types.
[3] Includes pine and spruce/fir forest cover types.
[4] Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
[5] Includes all mixed coniferous-deciduous forest cover types.
[6] Percent totals less than 100 percent due to rounding.

Plant Community Surveys

The Tract 3 – Wolf Lands 3 parcel also consists of mostly wetland habitats (AECOM 2011c). Coyote Creek runs through the parcel and is bordered by sedge meadow wetlands, consisting of sedges, narrow-leaved cattail, and Canada bluejoint. Roughly half of the parcel has been recently logged. Logged wetlands are dominated by grasses, forbs, and shrubs, including red-osier dogwood and speckled alder. Unlogged wetlands consist of pole black spruce, with tamarack and balsam fir also present. Please see Section 4.3.3 for a more detailed description of wetland habitat types.

Upland areas within the parcel have been recently logged and most of these areas have few remaining trees. Logged uplands are dominated by grasses, forbs, and beaked hazel, but some areas still support paper birch and scattered balsam fir. The upland habitat bordering the parcel consists of young and mature paper birch with scattered black spruce and northern white cedar over an understory of balsam fir (AECOM 2011c).

Tract 3 – Wolf Lands 3 consists of pole coniferous trees in wetlands and sapling or mature mixed forest trees on uplands, which range from 0 to 4 inches dbh or 12 inches dbh or greater, respectively (AECOM 2011c). Unlogged wetland forests on the Tract 3 – Wolf Lands 3 parcel range from 4 to 10 inches dbh. Logged upland areas still support paper birches that are up to 16 inches dbh.

Minnesota Biological Survey

There are no designated MBS Sites of Biodiversity Significance located on the Tract 3 – Wolf Lands 3 parcel (see Figure 4.3.4-2) (MDNR 2008a). However, Tract 3 – Wolf Lands 3 is located on a potential MBS Site of Moderate to High Biodiversity Significance that has not yet been finalized by the MDNR (MDNR 2007a).

Native plant community rankings for Tract 3 are not available.

Scientific and Natural Areas

There are no SNAs located on the Tract 3 parcels.

Culturally Important Plants

A discussion of natural resources culturally important to the Bands is presented in Section 4.2.9.3.3.

Management Areas

The non-federal lands currently do not have any management area designations, as they are not managed by the federal government. Section 4.3.1 describes the management areas in detail.

Ecological Land Types

Tract 3 – Wolf Lands 3 contains three categories of ELTs, including Lowland Loamy Moist (ELT 1), Lowland Loamy Wet (ELT 2), and Lowland Organic Acid to Neutral (ELT 6). The entire Tract 3 – Wolf Lands 3 parcel is included in the Greenwood Lake Till Plain LTA.

Management Indicator Habitats

Table 4.3.4-3 provides a summary of the MIH types and age classes present on Tract 3 lands (see Figure 4.3.4-2) (USFS 2010b). Though not considered MIHs, the Tract 3 – Wolf Lands 3 parcel also contains 48.6 acres of lowland shrub habitat and less than an acre of lowland emergent habitat.

Landscape Ecosystems

Table 4.3.4-4 provides a summary of the landscape ecosystem types present on Tract 3 lands.

The Lowland Conifer landscape ecosystem occupies 217.7 acres of the Tract 3 – Wolf Lands 3 parcel. The Mesic Birch-Aspen-Spruce-Fir landscape ecosystem occupies 59.7 acres of the Tract 3 – Wolf Lands 3 parcel. Please see previous federal or non-federal lands sections above for a description of these landscape ecosystem types.

Tract 3 – Wolf Lands 4

Habitat Types

The primary MDNR GAP land cover type on the Tract 3 – Wolf Lands 4 parcel is lowland coniferous forest (see Table 4.3.4-18). The shrubland and mixed upland forest cover types are least represented. The MDNR GAP land cover types below may not fully represent the extent of mixed forest types, since the cover type level below is fairly specific, so there may be more mixed forest types than indicated.

Table 4.3.4-18 Tract 3 – Wolf Lands 4 Cover Types

Cover Types	Total Acres	Percent of Area
Lowland coniferous forest[1]	356.5	88
Upland coniferous forest[3]	32.0	8
Upland deciduous forest[4]	8.2	2
Upland conifer-deciduous mixed forest[5]	4.1	1
Shrubland	3.9	1
Aquatic environments	0.0	0
Cropland/grassland	0.0	0
Disturbed	0.0	0
Lowland deciduous forest[2]	0.0	0
Total	**404.7**	**100**

Source: MDNR 2006b.

Notes:
[1] Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
[2] Includes black ash forest cover types.
[3] Includes pine and spruce/fir forest cover types.
[4] Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
[5] Includes all mixed coniferous-deciduous forest cover types.

Plant Community Surveys

The Tract 3 – Wolf Lands 4 parcel consists of approximately 90 percent wetland habitats (AECOM 2011c). Coyote Creek bisects the parcel and is bordered on either side by emergent wetland habitats similar to Tract 3 – Wolf Lands 3. Wetlands are dominated by pole black spruce in the northern half of the parcel and pole northern white cedar in the southern half. Scrub-shrub wetlands consist of speckled alder, leatherleaf, and bog-Labrador tea. See Section 4.3.3 for a more detailed description of wetland habitat types present.

Upland habitats consist of immature paper birch and black spruce, with balsam fir, beaked hazel, and raspberry also present. In areas that have been logged recently, sapling trembling aspen and paper birch are common over a shrub layer of beaked hazel, raspberry, and bog Labrador-tea (AECOM 2011c).

The majority of the black spruce/northern white cedar wetlands are dominated by trees ranging from 4 to 8 inches dbh (AECOM 2011c). Upland mature coniferous and deciduous trees range up to 18 inches dbh, although a 30-inch-dbh jack pine and several red pines up to 24 inches dbh have been found.

Minnesota Biological Survey

There are no designated MBS Sites of Biodiversity Significance located on the Tract 3 – Wolf Lands 4 parcel (see Figure 4.3.4-2) (MDNR 2008a). However, Tract 3 – Wolf Lands 4 is located on a potential MBS Site of Moderate to High Biodiversity Significance that has not yet been finalized by the MDNR (MDNR 2007a).

Native plant community rankings for Tract 3 are not available.

Scientific and Natural Areas

There are no SNAs located on the Tract 3 parcels.

Culturally Important Plants

A discussion of natural resources culturally important to the Bands is presented in Section 4.2.9.3.3.

Management Areas

The non-federal lands currently do not have any management area designations, as they are not managed by the federal government. Section 4.3.1 describes the management areas in detail.

Ecological Land Types

Tract 3 – Wolf Lands 4 contains four categories of ELTs, including Lowland Loamy Moist (ELT 1), Lowland Loamy Wet (ELT 2), Lowland Organic Acid to Neutral (ELT 6), and Upland Deep Medium Loamy Dry (ELT 14). The entire Tract 3 – Wolf Lands 4 parcel is included in the Greenwood Lake Till Plain LTA.

Management Indicator Habitats

Table 4.3.4-3 provides a summary of the MIH types and age classes present on Tract 3 lands (see Figure 4.3.4-2) (USFS 2010b). Though not considered an MIH, the Tract 3 – Wolf Lands 4 parcel also contains 31.0 acres of lowland shrub habitat.

Landscape Ecosystems

Table 4.3.4-4 provides a summary of the landscape ecosystem types present on Tract 3 lands.

The Lowland Conifer landscape ecosystem occupies 356.7 acres of the Tract 3 – Wolf Lands 4 parcel. The Mesic Birch-Aspen-Spruce-Fir landscape ecosystem occupies 47.9 acres of the Tract 3 – Wolf Lands 4 parcel. Please see previous federal or non-federal lands sections above for a description of these landscape ecosystem types.

Invasive Non-native Plants

According to the Superior National Forest invasive plant geodatabase, there are no known occurrences of invasive species on any of the Tract 3 parcels (USFS 2010a). Field studies indicate that one area of Tract 3 – Wolf Lands 3 contains an occurrence of thistles and ox-eye daisy in a recently clear-cut habitat (AECOM 2011c).

Threatened and Endangered Plant Species

Endangered, Threatened, and Special Concern Plant Species

Based on a review of the MDNR NHIS and field investigations, no federally or state-listed ETSC plant species are known to occur on the Tract 3 – Wolf Lands.

Regional Foresters Sensitive Species

There is more lowland black spruce-tamarack forest (MIH 9) and upland forest (MIH 1) habitat available than any other type, so the RFSS plants associated with these types would be most likely to occur on the Tract 3 lands. There is a very small amount of upland conifer forest (MIH 5) or aquatic habitats (MIH 14) so RFSS plants associated with these would be less likely to occur.

4.3.4.2.8 Tract 4 – Hunting Club Lands

Tract 4 is 160.2 acres in size, located on the LaCroix Ranger District, 5 miles southwest of Crane Lake. Tract 4 is surrounded by the Superior National Forest, St. Louis County lands, and privately owned lands (USFS 2011n).

Cover Types

Tract 4 is located in the Laurentian Mixed Forest Province Ecoregion and in the Border Lakes subsection of the Laurentian Mixed Forest Province ecoregion (MDNR 2006a). Most of the vegetative cover types in this subsection grow in thin, acid, cobbly to gravelly glacial materials over Precambrian bedrock (MDNR 2011g). Lakes and rocky ridges dominate this type of landscape. Soils vary from coarse-loamy to coarse texture, and support forest communities of aspen-birch, aspen-birch-conifer, and, on dry sites, jack pine barrens. Many such communities within this subsection are fire-dependent.

Habitat Types

The primary MDNR GAP land cover type on Tract 4 is upland deciduous forest (see Table 4.3.4-19). The upland conifer forest and lowland deciduous forest types are least represented. The MDNR GAP land cover types below may not fully represent the extent of mixed forest types, since the cover type level below is fairly specific, so there may be more mixed forest types than indicated.

Table 4.3.4-19 Tract 4 – Hunting Club Lands Cover Types

Cover Types	Total Acres	Percent of Area
Upland deciduous forest[4]	84.6	53
Shrubland	45.0	28
Aquatic environments	9.6	6
Lowland coniferous forest[1]	8.9	6
Upland coniferous forest[3]	8.2	5
Lowland deciduous forest[2]	4.0	2
Cropland/grassland	0.0	0
Disturbed	0.0	0
Upland conifer-deciduous mixed forest[5]	0.0	0
Total	**160.3[(6)]**	**100**

Source: MDNR 2006b.

Notes:
1 Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
2 Includes black ash forest cover types.
3 Includes pine and spruce/fir forest cover types.
4 Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
5 Includes all mixed coniferous-deciduous forest cover types.
6 Total acres may be more or less than presented due to rounding.

Plant Community Surveys

The primary cover types on Tract 4 are pole and mature deciduous forests on the uplands and scrub-shrub and emergent wetlands (AECOM 2011c). An unnamed creek bisects the parcel, and beaver ponds and dams are common wetland features. Emergent vegetation surrounding open

water consists of Canada bluejoint, narrow-leaved cattail, and sedges, while speckled alder dominates scrub-shrub wetlands. Pole black spruce and scattered tamarack dominate the wetlands on the interior of the parcel. Please see Section 4.3.3 for a more detailed description of wetland habitat types present.

Upland habitats in the northwestern, northeastern, and southern portions of the parcel are dominated by mature white pine, red pine, paper birch, and trembling aspen, with balsam fir and beaked hazel also present, though some areas consist of sapling and immature trees. The upland habitats in the eastern and southern portions of the parcel consist of patches of sapling and pole trembling aspen, with beaked hazel, black spruce, and balsam fir. An "island" of immature white pine, trembling aspen, and black spruce exists within this patch of sapling trembling aspen (AECOM 2011c).

The Tract 4 uplands are dominated by mostly deciduous sapling trees from 0 to 4 inches dbh, but mature white pines up to 24 inches dbh, and paper birch and trembling aspen up to 12 inches dbh occupy a large area as well (AECOM 2011c). Other upland areas on the parcel contain trembling aspen and white pine up to 16 inches dbh, and black spruce up to 12 inches dbh. Wetlands are dominated by immature coniferous forest trees ranging from 5 to 12 inches dbh.

Minnesota Biological Survey

There are no lands designated as MBS Sites of Biodiversity Significance on Tract 4 (see Figure 4.3.4-2) (MDNR 2008a).

Native plant community rankings are not available for Tract 4.

Scientific and Natural Areas

There are no lands designated as SNAs on Tract 4.

Culturally Important Plants

A discussion of natural resources culturally important to the Bands is presented in Section 4.2.9.3.3.

Management Areas

The non-federal lands currently do not have any management area designations, as they are not managed by the federal government. Section 4.3.1 describes the management areas in detail.

Ecological Land Types

Tract 4 contains seven different categories of ELTs, including Lowland Clayey Moist (ELT 3), Lowland Clayey Wet (ELT 4), Lowland Organic Acid to Neutral (ELT 6), Upland Deep Clayey Dry (ELT 10), Upland Shallow Loamy Dry (ELT 16), Upland Very Shallow Loamy Droughty (ELT 17), and Upland Extremely Shallow Loamy Droughty (ELT 18). The entire Tract 4 is included in the Johnson Lake Bedrock Complex LTA.

Management Indicator Habitats

Table 4.3.4-3 provides a summary of the MIH types and age classes present on Tract 4 (see Figure 4.3.4-2) (USFS 2010b). Though not considered MIHs, Tract 4 also contains 26.6 acres of lowland shrub habitat and 4.2 acres of lowland emergent habitat.

Landscape Ecosystems

Table 4.3.4-4 provides a summary of the landscape ecosystem types present on Tract 4.

The Dry-Mesic Red and White Pine landscape ecosystem occupies 93.7 acres of Tract 4. Please see previous federal or non-federal lands sections above for a description of this landscape ecosystem type.

The Lowland Hardwood landscape ecosystem occupies 66.5 acres of Tract 4. It is dominated by black ash and/or balsam poplar, although elm, green ash, paper birch, aspen, yellow birch, balsam fir, northern white cedar, and white spruce may also be present (USFS 2004a). This landscape ecosystem typically occurs on sites that are seasonally wet or wet year-round. Stand replacement disturbances are infrequent, resulting in a multi-aged stand of black ash and balsam poplar.

Invasive Non-native Plants

According to the Superior National Forest invasive plant geodatabase, there are no known occurrences of invasive species on Tract 4 (USFS 2010a).

Threatened and Endangered Plant Species

Endangered, Threatened, and Special Concern Plant Species

Based on a review of the MDNR NHIS and field investigations, no federally or state-listed ETSC plant species are known to occur on Tract 4.

Regional Foresters Sensitive Species

There is more upland forest (MIH 1) habitat available than any other type, so the RFSS plants associated with this type would be most likely to occur on Tract 4. There is a similar smaller amount of upland conifer forest (MIH 5), lowland black spruce-tamarack forest (MIH 9), and aquatic habitats (MIH 14), so RFSS plants associated with these would be less likely to occur.

4.3.4.2.9 Tract 5 – McFarland Lake Lands

Tract 5 is 30.8 acres in size on the Gunflint Ranger District in northeastern Cook County. The tract adds to Superior National Forest ownership and includes lakefront property on McFarland Lake, which is an entry point to the BWCAW. The parcel reaches an approximate maximum elevation of 1,762 ft amsl and the topography slopes steeply to the east toward its eastern border of McFarland Lake (NTS 2010b).

Cover Types

Tract 5 is located in the Border Lakes subsection of the Laurentian Mixed Forest Province ecoregion (MDNR 2006a). See Tract 4 above for a description of the Border Lakes subsection.

Habitat Types

The primary MDNR GAP land cover type on Tract 5 is upland deciduous forest (see Table 4.3.4-20). The remaining cover types on the parcel are upland conifer forest and aquatic environments. The MDNR GAP land cover types below may not fully represent the extent of mixed forest types, since the cover type level below is fairly specific, so there may be more mixed forest types than indicated.

Table 4.3.4-20 Tract 5 – McFarland Lake Lands Cover Types

Cover Types	Total Acres	Percent of Area
Upland deciduous forest[4]	26.6	86
Upland coniferous forest[3]	4.0	13
Aquatic environments	0.2	1
Cropland/grassland	0.0	0
Disturbed	0.0	0
Lowland coniferous forest[1]	0.0	0
Lowland deciduous forest[2]	0.0	0
Shrubland	0.0	0
Upland conifer-deciduous mixed forest[5]	0.0	0
Total	**30.8**	**100**

Source: MDNR 2006b.

Notes:
[1] Includes lowland black spruce, lowland northern white cedar, and tamarack forest cover types.
[2] Includes black ash forest cover types.
[3] Includes pine and spruce/fir forest cover types.
[4] Includes aspen/aspen-white birch, maple/basswood, and oak forest cover types.
[5] Includes all mixed coniferous-deciduous forest cover types.

Plant Community Surveys

Tract 5 consists of upland habitats, dominated by pole and mature deciduous and coniferous forests (AECOM 2009b; AECOM 2011b). The parcel is located on McFarland Lake, and a narrow band of horsetail and white cedar was observed along the shoreline (AECOM 2011b). Section 4.3.3 presents a more detailed description of wetland habitat types present.

Upland forest types on the hill slope of the parcel consist of trembling aspen, paper birch, mountain maple, northern white cedar, black spruce, and balsam fir. Mountain maple and northern white cedar are common on the lower hill slopes, while red pine and trembling aspen are more prevalent at the top of the hill slope. The shrub layer includes smooth sumac (*Rhus glabra*) and beaked hazel, while the ground layer includes forbs such as bunchberry, twining honeysuckle, clintonia, large-leaved aster, twinflower, false lily-of-the-valley (*Maianthemum canadense*), ox-eye daisy, thimbleberry (*Rubus parviflorus*), wild raspberry, wild strawberry, bog rosemary (*Andromeda glaucophylla*), bog cranberry (*Vaccinium oxycoccus*), wild sarsaparilla (*Aralia nudicaulis*), bracken fern and other ferns, and club moss (*Lycopodium* spp.) (AECOM 2011b). Some recent logging has occurred along the hill slope of the western boundary of the parcel. Steep rocky cliffs about 150 ft in height exist toward this western boundary (AECOM 2011b). Enchanter's nightshade (*Circaea quadrisulcata*) and wild columbine (*Aquilegia canadensis*) have been observed on the rocky cliffs.

Upland forests on the parcel contain trembling aspen, red pine, and eastern white pine up to 18 inches dbh, balsam fir up to 16 inches dbh, and paper birch up to 12 inches dbh (AECOM 2011b). Wetland forests along McFarland Lake contain northern white cedar up to 24 inches dbh.

Minnesota Biological Survey

There are no lands designated as MBS Sites of Biodiversity Significance on the Tract 5 lands (see Figure 4.3.4-2) (MDNR 2008a).

Native plant community rankings are not available for the Tract 5 lands.

Scientific and Natural Areas

There are no lands designated as SNAs on the Tract 5 lands.

Culturally Important Plants

A discussion of natural resources culturally important to the Bands is presented in Section 4.2.9.3.3.

Management Areas

The non-federal lands currently do not have any management area designations, as they are not managed by the federal government. Section 4.3.1 describes the management areas in detail.

Ecological Land Types

Tract 5 contains four different categories of ELTs, including Lowland Loamy Wet (ELT 2), Upland Deep Medium Loamy Dry (ELT 14), Upland Shallow Loamy Dry (ELT 16), and Upland Extremely Shallow Loamy Droughty (ELT 18), though categories are not available for the entire parcel. All of Tract 5 is included in the Rove Slate Bedrock Complex LTA.

Management Indicator Habitats

Table 4.3.4-3 provides a summary of the MIH types and age classes present on Tract 5 (see Figure 4.3.4-2) (USFS 2010b).

Landscape Ecosystems

Table 4.3.4-4 provides a summary of the landscape ecosystem types present on Tract 5.

The Mesic Red and White Pine landscape ecosystem occupies 30.8 acres of the Tract 5. See the federal or non-federal lands sections above for a description of these landscape ecosystem types.

Invasive Non-native Plants

According to the Superior National Forest invasive plant geodatabase, there are no known occurrences of invasive species on the Tract 5 lands (USFS 2010a).

Threatened and Endangered Plant Species

Endangered, Threatened, and Special Concern Plant Species

No federally listed ETSC plant species are known to occur on Tract 5. Based on a review of the MDNR NHIS, one state-listed threatened species and one species of special concern have been identified on Tract 5 (see Table 4.3.4-21 and Figure 4.3.4-3). Encrusted saxifrage is also tracked by the USFS as an RFSS. No other state-listed species are known to occur on Tract 5.

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list.

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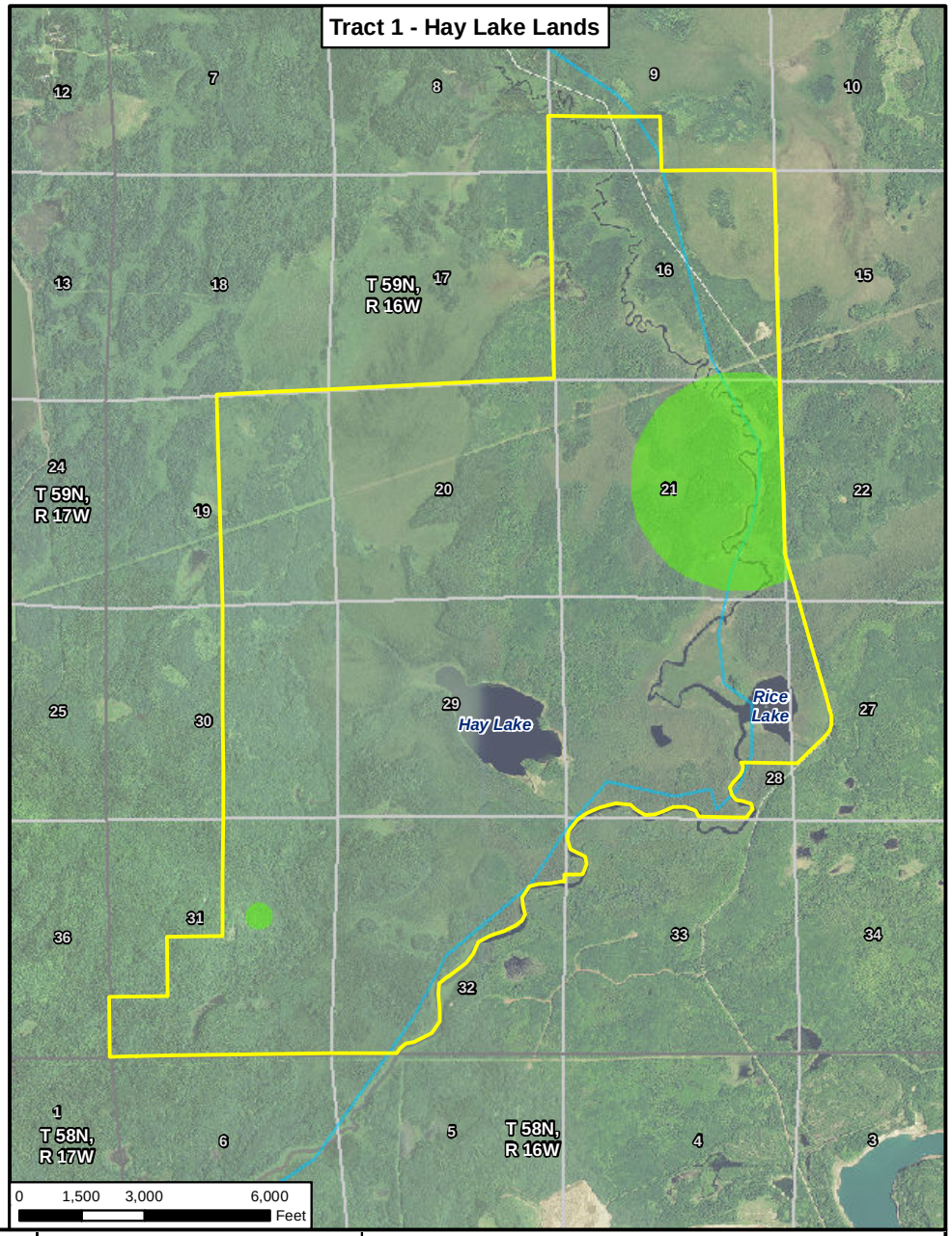

Non-federal Lands

Endangered, Threatened and Special Concern Vegetation Species

1 - Section Number

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MNDNR

US Army Corps of Engineers St. Paul District

N W E S

Figure 4.3.4-3

ETSC Vegetation - Tracts 1 and 5

NorthMet Mining Project and Land Exchange FEIS

Minnesota

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Table 4.3.4-21 Endangered, Threatened, and Special Concern Plant Species Identified on the Tract 5 Lands [4]

Common Name	Scientific Name	State Status[1]	No. of Populations	No. of Individuals[2]	Habitat and Location
Encrusted saxifrage[3]	*Saxifraga paniculata* (=*aizoon*)	SC	1	1000+	Shaded rock crevices and mossy ledges of north-facing sedimentary rock cliffs.
Rocky Mountain woodsia	*Woodsia scopulina*	T	1	2+	Cool, moist moss-covered chutes of north-facing sedimentary rock cliffs.

Sources: MDNR 2014d; MDNR 2011k.

Notes:
1 E - Endangered, T - Threatened, SC - Species of Special Concern.
2 Where the number of individuals cannot be determined without damaging the population, then patch size is used as a representative abundance measure.
3 These species are also RFSS as tracked by the USFS.
4 Data included here were provided by the Division of Ecological Resources, MDNR, and were current as of August 5, 2014. These data are not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that no significant features are present.

Species Life Histories

The following summary provides descriptions of the life histories, state-wide distributions, and sensitivity to disturbance for each of the two threatened species found on Tract 5.

Encrusted saxifrage (*Saxifraga paniculata*) (synonyms: *Saxifraga aizoon* var. *neogaea*, white mountain saxifrage) is listed as a species of special concern in Minnesota and as an RFSS in the Superior National Forest. The species was first documented in Cook County, Minnesota in 1932, and has since only been reported in Cook and Lake counties (Bell Museum of Natural History 2011).

S. paniculata is an arctic-alpine species that reaches the southern end of its range in Minnesota (MDNR 2011k). It typically occurs in rock crevices and on ledges of shaded north-facing cliffs with bedrock of diabase, gabbro/diorite, basalt, or Rove Formation rocks. *S. paniculata* is a perennial herb species that flowers from early June to July and bears fruit from late July through August, though it can also spread vegetatively via stolons. There is very little suitable cliff habitat for *S. paniculata* in Minnesota, and threats to the species could include climate change, changes in the biotic community, and recreational exploration of vulnerable cliff faces.

Rocky Mountain woodsia (*Woodsia scopulina*) (Synonyms: *Woodsia scopulina* ssp. *laurentiana*) is listed as a threatened species in Minnesota; it is not listed as an RFSS in the Superior National Forest. The species was first documented in Cook County, Minnesota in 1929 amidst slate rocks, and has since only been reported in Cook County (Bell Museum of Natural History 2011). Though it is common in the Rocky Mountains, it is limited primarily to cool, moist north-facing cliffs of the Rove Slate Formation in northeast Minnesota (MDNR 2011k). *W. scopulina* is a perennial fern that grows in small clumps, and produces spores from summer to fall (eFlora 2011). There is very little suitable cliff habitat for *W. scopulina* in Minnesota, as it requires diabase and slate bedrock and east-west oriented valleys. Threats to the species could include climate change, introduction of non-native species, erosion events, forest management activities that alter the biotic community, or recreational exploration of vulnerable cliff faces.

Regional Foresters Sensitive Species

Based on a review of the MDNR NHIS, *Saxifraga paniculata* is located on Tract 5, and it is also an RFSS plant. There is more upland forest (MIH 1) habitat available than any other type, so the RFSS plants associated with this type would be most likely to occur on the Tract 5 lands. There is a smaller amount of upland conifer forest (MIH 5) and aquatic habitats (MIH 14) so RFSS plants associated with these would be less likely to occur. There is no lowland black spruce-tamarack forest (MIH 9) available, and so RFSS plants associated with this habitat would likely not exist. The cliff habitat present on Tract 5 is important to the 12 RFSS plants that utilize exposed rock habitats in the Superior National Forest (see Table 4.2.4-5), including *Saxifraga paniculata*, as there is very little suitable cliff microhabitat for these species in Minnesota. *Woodsia scopulina* also utilizes this habitat type.

4.3.5 Wildlife

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list. A BA that provides further information on federally listed species, and a BE that contains further information about RFSS have been prepared. The BA and BE are included in Appendix D.

4.3.5.1 Federal Lands

4.3.5.1.1 Land Exchange Proposed Action

The federal land portion of the Land Exchange Proposed Action is similar to the Mine Site previously discussed, but extends further north and west and excludes the privately owned land bordering Dunka Road to the south of the Mine Site. Section 4.2.5.1 provides further discussion of the existing conditions on the Mine Site and associated federal lands.

The acres of key habitat present on the federal lands, along with the associated SGCN (and RFSS), are included in Table 4.3.5-1 below (see Figure 4.2.4-4).

Table 4.3.5-1 Key Habitat, Cover Types, and Associated Species for the Federal Lands under the Land Exchange Proposed Action and Land Exchange Alternative B

Key Habitat Type, Cover Types, and Management Indicator Habitats	Associated Wildlife Species[1]	Land Exchange Proposed Action (Acres)	Land Exchange Alternative B (Acres)
1. Mature Upland Forest, Continuous Upland/Lowland Forest: aspen forest/aspen-birch forest, jack pine forest, mixed pine-hardwood forest (MIHs 1-13)	Rock vole, *northern goshawk*, veery, whip-poor-will, eastern wood-pewee, yellow-bellied sapsucker, ovenbird, Canada warbler, spruce grouse, Cape May warbler, winter wren, boreal chickadee, *boreal owl*, wood thrush, black-backed woodpecker, *bald eagle*, black-throated blue warbler, *bay-breasted warbler*, *great gray owl*, *three-toed woodpecker*	5,719.7	4,258.1
2. Open Ground, Bare Soils: disturbed/ developed (no MIH)	Laurentian tiger beetle	63.8	29.1
3. Grassland and Brushland, Early Successional Forest (no MIH)	Franklin's ground squirrel, American badger, Le Conte's sparrow, eastern meadowlark, brown thrasher, white-throated sparrow, sharp-tailed grouse, golden-winged warbler, American woodcock, northern harrier, sedge wren, common nighthawk, black-billed cuckoo, bobolink, tawny crescent	651.8	439.1
4. Aquatic Environments: rivers, lakes, ponds, wetlands, etc. (MIH 14)	American black duck, American bittern, swamp sparrow, common loon, northern rough-winged swallow, semipalmated sandpiper, American golden-plover, greater yellowlegs, buff-breasted sandpiper, eastern red-backed salamander, common snapping turtle, bog copper, *taiga alpine*	60.1	26.3

Key Habitat Type, Cover Types, and Management Indicator Habitats	Associated Wildlife Species[1]	Land Exchange Proposed Action (Acres)	Land Exchange Alternative B (Acres)
5. Multiple Habitats (MIHs 1-14)	Gray wolf[2] (1-4[(3)]), *Canada lynx*[2] (1-4), rose-breasted grosbeak (1, 3), Macoun's arctic (1, 3), least flycatcher (1, 3), *Connecticut warbler* (1, 3), *olive-sided flycatcher (1, 4)*, *grizzled skipper* (2, 3), *Nabokov's blue* (2, 4), wood turtle[2] (1, 3, 4)	NA	NA
Total		6,495.4	4,752.6

Source: MDNR 2006b.

Notes:
1 Plain text indicates SGCN species; italicized text indicates RFSS; plain text indicates SGCN species identified as likely to be present at the Mine Site or Plant Site but not targeted in surveys.
2 Canada lynx, gray wolf, bald eagle, and wood turtle are or have recently been listed as ETSC species as discussed in detail in the ETSC species section.
3 Numbers refer to the Key Habitat Types (1-4) where those species may occur or are known to occur.

4.3.5.1.2 Land Exchange Alternative B

As shown on Table 4.3.5-1, each of the key habitat types and MIH categories that are found on the federal lands of the Land Exchange Proposed Action are also found on the smaller federal parcel of the Land Exchange Alternative B. Acreages of each habitat category are correspondingly reduced for the Land Exchange Alternative B.

4.3.5.2 Non-federal Lands

4.3.5.2.1 Tract 1 – Hay Lake Lands

Federally and State-listed Species and Species of Special Concern

Tract 1 is not located in an LAU but is located in designated lynx critical habitat. No Canada lynx or their sign have been observed on the non-federal lands during surveys (AECOM 2011b; AECOM 2011c). The Tract 1 parcel is located in Wolf Zone 2 and the Minnesota Northeast Wolf Zone. Radio-collared wolves have been recorded in the vicinity and evidence of wolves was observed during 2009 wildlife surveys (AECOM 2009b). Moose sign, including droppings, tracks, and browsing evidence, were observed on the Tract 1 lands in speckled alder and shrub wetlands (AECOM 2011b). Trumpeter swans, state-listed as species of special concern, were identified on the Tract 1 lands during wildlife surveys (AECOM 2011b) and habitat for the Laurentian tiger beetle, state-listed as a species of special concern, is present at the former sand and gravel pit on the parcel. An active northern goshawk territory is present on Tract 1, and is currently being monitored by the MDNR. Though northern goshawks were not seen or heard during 2011 field surveys (AECOM 2011b), NHIS records indicate one chick was observed on a new nest in 2013. There was a probable nesting attempt in 2014, as a nest was being incubated at one time but failed to produce chicks (USFS, Pers. Comm., August 21, 2015). Bats were recorded at several echolocation survey sites on or near the Tract 1 lands, but the species of the bats recorded was not determined (AECOM 2011b). Both NHIS records and surveys of the parcel failed to identify individuals or signs of the remaining federally and state-listed species and species of special concern, including wood turtle, horned grebe, Wilson's phalarope,

common tern, boreal owl, American white pelican, marbled godwit, yellow rail, smoky shrew, eastern heather vole, least weasel, and mountain lion (AECOM 2011b).

Species of Greatest Conservation Need

As discussed in Section 4.2.5.1.2, the potential presence of SGCN can be correlated to the presence of their corresponding habitat. Table 4.3.5-2 below lists the SGCN (and RFSS) by the key habitat types and cover types present in the Nashwauk Uplands ecological subsection.

Tract 1 is located in the Nashwauk Uplands ecological subsection. The species found in this subsection are listed in Table 4.3.5-2 below.

Table 4.3.5-2 Key Habitat and Cover Types of Species of Greatest Conservation Need and Regional Forester Sensitive Species for Tract 1 in the Nashwauk Ecological Subsection

Key Habitat Type, Cover Types, and Management Indicator Habitats	Associated Wildlife Species[1]	Tract 1 (Acres)
1. Mature Upland Forest, Continuous Upland/Lowland Forest: aspen forest/aspen-birch forest, jack pine forest, mixed pine-hardwood forest (MIHs 1-13)	*Northern goshawk*, veery, whip-poor-will, eastern wood-pewee, yellow-bellied sapsucker, ovenbird, Canada warbler, spruce grouse, Cape May warbler, winter wren, boreal chickadee, wood thrush, black-backed woodpecker, *bald eagle, great gray owl, three-toed woodpecker*	2,978.8
2. Open Ground, Bare Soils: disturbed/developed (no MIH)		0.0
3. Grassland and Brushland, Early Successional Forest (no MIH)	Franklin's ground squirrel, American badger, Le Conte's sparrow, eastern meadowlark, brown thrasher, white-throated sparrow, sharp-tailed grouse, golden-winged warbler, American woodcock, northern harrier, sedge wren, common nighthawk, black-billed cuckoo, red-headed woodpecker, bobolink, tawny crescent	1,696.3
4. Aquatic Environments: rivers, lakes, ponds, wetlands, etc. (MIH 14)	American black duck, American bittern, swamp sparrow, common loon, red-necked grebe, northern rough-winged swallow, dunlin, semipalmated sandpiper, short-billed dowitcher, American golden-plover, Virginia rail, greater yellowlegs, buff-breasted sandpiper, eastern red-backed salamander, common snapping turtle, bog copper, *taiga alpine, ebony boghaunter*	251.1
5. Multiple Habitats (MIHs 1-14)	Gray wolf[2] (1-4[(3)]), Canada lynx[2] (1-4), *eastern pipistrelle* (1,3), rose-breasted grosbeak(1,3), least flycatcher (1,3), *olive-sided flycatcher* (1,4), *Connecticut warbler* (1,3), peregrine falcon(1-3), Macoun's arctic (1,3), *Nabokov's blue* (2,4), *grizzled skipper* (2,3), *Quebec emerald* (3,4)	NA
Total[4]		4,926.2

Source: MDNR 2006b.

Notes:
1 Plain text indicates SGCN species, italicized text indicates RFSS.
2 Canada lynx, gray wolf, bald eagle, and wood turtle are or have recently been listed as ETSC species as discussed in detail in the ETSC species section.
3 Numbers refer to the Key Habitat Types (1-4) where those species may occur or are known to occur.
4 Total acres may be more or less than presented due to rounding.

Regional Forester Sensitive Species

RFSS that are also state-listed or species of special concern are discussed above. With the possible exception of RFSS bat species, no other RFSS were observed during surveys of Tract 1 (AECOM 2011b). Potential Superior National Forest RFSS and their habitat on Tract 1 are listed on Table 4.3.5-2.

Other Wildlife Species

Other wildlife species, including species of concern to the Bands, were observed during surveys of Tract 1. Species observed, or their sign, include black bear, white-tailed deer, red fox, river otter, beaver, marten, red squirrel, snowshoe hare, ruffed grouse, American woodcock, common loon, hooded merganser, ring-necked duck, red-tailed hawk, broad-winged hawk, barred owl, great horned owl, pileated woodpecker, several passerine bird species, snapping turtle, and painted turtle (AECOM 2011b).

Sections 4.2.5, 4.2.9, 5.2.5, and 5.2.9 discuss species of importance to the Bands.

4.3.5.2.2 Tract 2 – Lake County Lands

Federally and State-listed Species and Species of Special Concern

Tract 2 is split into two parcels, Lake County Lands North and Lake County Lands South. Lake County North is located in LAU 16 and Lake County South is located in LAU 22. Both are in designated lynx critical habitat. No Canada lynx or their sign have been observed on the non-federal lands during surveys (AECOM 2011b; AECOM 2011c). While no lynx or their sign have been observed on the Tract 2 parcels, denning habitat may be present. Areas of blowdown or logging slash where there is both vertical and horizontal cover may be used by lynx for denning sites (Moen 2009). Moose sign, including droppings, tracks, and browsing evidence, were observed on the Lake County South parcel in speckled alder and shrub wetlands (AECOM 2011c).

Both Tract 2 parcels are located in federal Wolf Zone 2 and the Minnesota Northeast Wolf Zone. Wolf sign was observed on Lake County North during 2010 wildlife surveys (AECOM 2011c). Both NHIS records and surveys of the parcel failed to identify individuals or signs of the remaining federally and state-listed species or species of special concern (MDNR 2014d; AECOM 2011c).

Species of Greatest Conservation Need

The Lake County North parcel is located in the Laurentian Uplands ecological subsection and the Lake County South parcel is located in the North Shore Highlands ecological subsection. Table 4.3.5-3 below lists the SGCN (and RFSS) by the key habitat types and cover types present at Tract 2.

Table 4.3.5-3 Key Habitat and Cover Types of Species of Greatest Conservation Need and Regional Forester Sensitive Species for Tract 2 in the Laurentian Uplands and North Shore Highlands Ecological Subsections

Key Habitat Type, Cover Types, and Management Indicator Habitats	Associated Wildlife Species[1]	Tract 2 (Acres)
1. Mature Upland Forest, Continuous Upland/Lowland Forest: aspen forest/aspen-birch forest, jack pine forest, mixed pine-hardwood forest (MIHs 1-13)	Rock vole, *northern goshawk*, veery, whip-poor-will, eastern wood-pewee, yellow-bellied sapsucker, ovenbird, Canada warbler, spruce grouse, Cape May warbler, winter wren, boreal chickadee, *boreal owl*, wood thrush, black-backed woodpecker, *bald eagle*, black-throated blue warbler, *bay-breasted warbler*, *great gray owl*, *three-toed woodpecker*	337.2
2. Open Ground, Bare Soils: disturbed/ developed (no MIH)	Laurentian tiger beetle	0.0
3. Grassland and Brushland, Early Successional Forest (no MIH)	Franklin's ground squirrel, American badger, Le Conte's sparrow, eastern meadowlark, brown thrasher, white-throated sparrow, sharp-tailed grouse, golden-winged warbler, American woodcock, northern harrier, sedge wren, common nighthawk, black-billed cuckoo, bobolink, red-headed woodpecker, tawny crescent	38.9
4. Aquatic Environments: rivers, lakes, ponds, wetlands, etc. (MIH 14)	American black duck, American bittern, swamp sparrow, common loon, northern rough-winged swallow, dunlin, semipalmated sandpiper, short-billed dowitcher, American golden-plover, Virginia rail, greater yellowlegs, buff-breasted sandpiper, ruddy turnstone, white-rumped sandpiper, marsh wren, Hudsonian godwit, whimbrel, common tern, eastern red-backed salamander, common snapping turtle, Blanding's turtle, bog copper, *taiga alpine*, extra-striped snaketail, *ebony boghaunter*	5.8
5. Multiple Habitats (MIHs 1-14)	Gray wolf[2] (1-4[(3)]), Canada lynx[2] (1-4), *eastern heather vole* (1,3), smoky shrew (1,3), *northern long-eared bat* (1,4), *eastern pipistrelle* (1,3,4), eastern spotted skunk (1,3), rose-breasted grosbeak (1,3), least flycatcher (1,3), *olive-sided flycatcher* (1,4), *Connecticut warbler* (1,3), peregrine falcon(1-3), *wood turtle*[2] (1,3,4), four-toed salamander (1,4), Macoun's arctic (1,3), *Nabokov's blue* (2,4), *grizzled skipper* (2,3), *Quebec emerald* (3,4)	NA
Total		381.9

Source: MDNR 2006b.

Notes:
1 Plain text indicates SGCN species, italicized text indicates RFSS.
2 Canada lynx, gray wolf, bald eagle, and wood turtle are or have recently been listed as ETSC species as discussed in detail in the ETSC species section.
3 Numbers refer to the Key Habitat Types (1-4) where those species may occur or are known to occur.

Regional Forester Sensitive Species

RFSS that are also state-listed or species of special concern are discussed above. No other RFSS were observed during surveys of Tract 2. Potential Superior National Forest RFSS and their habitat on Tract 2 are listed on Table 4.3.5-3.

Other Wildlife Species

Other wildlife species, including species of concern to the Bands, were observed during surveys of Tract 2. Species observed, or their sign, include white-tailed deer, beaver, snowshoe hare, marten, mink, red squirrel, raven, ruffed grouse, pileated woodpecker, and several passerine bird species (AECOM 2011c).

Sections 4.2.5, 4.2.9, 5.2.5, and 5.2.9 discuss species of importance to the Bands.

4.3.5.2.3 Tract 3 – Wolf Lands

Federally and State-listed Species and Species of Special Concern

Tract 3 is split into four parcels, Wolf Lands 1, 2, 3, and 4. Wolf Lands 1 is located in LAU 16 and Wolf Lands 2 through 4 are located in LAU 22. All are within designated lynx critical habitat. No Canada lynx or their sign have been observed on the non-federal lands during surveys (AECOM 2011b; AECOM 2011c). While no lynx or their sign have been observed on the Tract 3 parcels, denning habitat may be present. Areas of blowdown or logging slash where there is both vertical and horizontal cover may be used by lynx for denning sites (Moen 2009). Moose sign, including droppings, tracks, and browsing evidence, were observed on the Wolf Lands 3 and 4 parcels in speckled alder and shrub wetlands (AECOM 2011c).

All Tract 3 parcels are located in federal Wolf Zone 2 and the Minnesota Northeast Wolf Zone. Wolf sign was observed on Wolf Lands 3 and 4 during 2010 wildlife surveys (AECOM 2011c). Both NHIS records and surveys of the parcel failed to identify individuals or signs of the remaining federally and state-listed species or species of special concern (MDNR 2014d; AECOM 2011c).

Species of Greatest Conservation Need

The Wolf Lands parcels are located in the Laurentian Uplands ecological subsection. The species of greatest conservation need and habitat that may be found in this subsection are listed on Table 4.3.5-4.

Table 4.3.5-4 Key Habitat and Cover Types of Species of Greatest Conservation Need and Regional Forester Sensitive Species for Tract 3 in the Laurentian Uplands Ecological Subsection

Key Habitat Type, Cover Types, and Management Indicator Habitats	Associated Wildlife Species[1]	Tract 3 (Acres)
1. Mature Upland Forest, Continuous Upland/Lowland Forest: aspen forest/aspen-birch forest, jack pine forest, mixed pine-hardwood forest (MIHs 1-13)	Rock vole, *northern goshawk*, veery, whip-poor-will, eastern wood-pewee, yellow-bellied sapsucker, ovenbird, Canada warbler, spruce grouse, Cape May warbler, winter wren, boreal chickadee, *boreal owl*, wood thrush, black-backed woodpecker, *bald eagle*, black-throated blue warbler, *bay-breasted warbler, great gray owl, three-toed woodpecker*	1,479.4
2. Open Ground, Bare Soils: disturbed/ developed (no MIH)	Laurentian tiger beetle	0.0
3. Grassland and Brushland, Early Successional Forest (no MIH)	Franklin's ground squirrel, American badger, Le Conte's sparrow, eastern meadowlark, brown thrasher, white-throated sparrow, sharp-tailed grouse, golden-winged warbler, American woodcock, northern harrier, sedge wren, common nighthawk, black-billed cuckoo, bobolink, tawny crescent	96.5
4. Aquatic Environments: rivers, lakes, ponds, wetlands, etc. (MIH 14)	American black duck, American bittern, swamp sparrow, common loon, northern rough-winged swallow, semipalmated sandpiper, American golden-plover, greater yellowlegs, buff-breasted sandpiper, eastern red-backed salamander, common snapping turtle, bog copper, *taiga alpine, ebony boghaunter*	0.0
5. Multiple Habitats (MIHs 1-14)	Gray wolf[2] (1-4[(3)]), Canada lynx[2] (1-4), *eastern heather vole* (1,3), smoky shrew (1,3), *eastern pipistrelle* (1,3,4), rose-breasted grosbeak (1,3), least flycatcher (1,3), *olive-sided flycatcher* (1,4), *Connecticut warbler* (1,3), Macoun's arctic (1,3), *Nabokov's blue* (2,4), *grizzled skipper* (2,3), *Quebec emerald* (3,4)	NA
Total[4]		1,575.9

Source: MDNR 2006b.

Notes:
1 Plain text indicates SGCN species, italicized text indicates RFSS.
2 Canada lynx, gray wolf, and bald eagle are or have recently been listed as ETSC species as discussed in detail in the ETSC species section.
3 Numbers refer to the Key Habitat Types (1-4) where those species may occur or are known to occur.
4 Total acres may be more or less than presented due to rounding.

Regional Forester Sensitive Species

RFSS that are also state-listed or species of special concern are discussed above. No other RFSS were observed during surveys of Tract 3. Potential Superior National Forest RFSS and their habitat on Tract 3 are listed on Table 4.3.5-4.

Other Wildlife Species

Other wildlife species, including species of concern to the Bands, were observed during surveys of Tract 3. Species observed, or their sign, include white-tailed deer, red fox, marten, snowshoe hare, beaver, red squirrel, ruffed grouse, pileated woodpecker, and several passerine bird species (AECOM 2011c).

Sections 4.2.5, 4.2.9, 5.2.5, and 5.2.9 discuss species of importance to the Bands.

4.3.5.2.4 Tract 4 – Hunting Club Lands

Federally and State-listed Species and Species of Special Concern

Tract 4 is located in LAU 4 and is located in designated lynx critical habitat. No Canada lynx or their sign have been observed on the non-federal lands during surveys (AECOM 2011b; AECOM 2011c). The Tract 4 parcel is located in federal Wolf Zone 2 and the Minnesota Northeast Wolf Zone. Both NHIS records and surveys of the parcel failed to identify individuals or signs of federally and state-listed species or species of special concern (MDNR 2014d; AECOM 2011c).

Species of Greatest Conservation Need

Tract 4 is located in the Border Lakes ecological subsection. Table 4.3.5-5 lists the species of greatest conservation need and habitat that may be found in this subsection.

Table 4.3.5-5 Key Habitat and Cover Types of Species of Greatest Conservation Need and Regional Forester Sensitive Species for Tracts 4 and 5 in the Border Lakes Ecological Subsection

Key Habitat Type, Cover Types, and Management Indicator Habitats	Associated Wildlife Species[1]	Tract 4 (Acres)	Tract 5 (Acres)
1. Mature Upland Forest, Continuous Upland/Lowland Forest: aspen forest/aspen-birch forest, jack pine forest, mixed pine-hardwood forest (MIHs 1-13)	Rock vole, *northern goshawk*, veery, whip-poor-will, eastern wood-pewee, yellow-bellied sapsucker, ovenbird, Canada warbler, spruce grouse, Cape May warbler, winter wren, boreal chickadee, *boreal owl*, wood thrush, black-backed woodpecker, *bald eagle*, black-throated blue warbler, *bay-breasted warbler, great gray owl, three-toed woodpecker*	105.7	30.6
2. Open Ground, Bare Soils: disturbed/ developed (no MIH)	Laurentian tiger beetle	0.0	0.0
3. Grassland and Brushland, Early Successional Forest (no MIH)	Le Conte's sparrow, eastern meadowlark, brown thrasher, white-throated sparrow, golden-winged warbler, American woodcock, northern harrier, sedge wren, common nighthawk, black-billed cuckoo, bobolink, tawny crescent	45.0	0.0
4. Aquatic Environments: rivers, lakes, ponds, wetlands, etc. (MIH 14)	American black duck, American bittern, swamp sparrow, common loon, northern rough-winged swallow, semipalmated sandpiper, American golden-plover, greater yellowlegs, buff-breasted sandpiper, ruddy turnstone, white-rumped sandpiper, black tern, red-necked grebe, eastern red-backed salamander, common snapping turtle, *taiga alpine, ebony boghaunter*	9.6	0.2
5. Multiple Habitats (MIHs 1-14)	Gray wolf[2] (1-4[(3)]), Canada lynx[2] (1-4), *eastern heather vole* (1,3), smoky shrew (1,3), *eastern pipistrelle* (1,3), rose-breasted grosbeak (1,3), least flycatcher (1,3), *olive-sided flycatcher* (1,4), *Connecticut warbler* (1,3), rusty blackbird (1,4), Macoun's arctic (1,3), *Nabokov's blue* (2,4), *grizzled skipper* (2,3), *Quebec emerald* (3,4)	NA	NA
Total[4]		160.3	30.8

Source: MDNR 2006b.

Notes:
1 Plain text indicates SGCN species, italicized text indicates RFSS.
2 Canada lynx, gray wolf, and bald eagle are or have recently been listed as ETSC species as discussed in detail in the ETSC species section.
3 Numbers refer to the Key Habitat Types (1-4) where those species may occur or are known to occur.
4 Total acres may be more or less than presented due to rounding.

Regional Forester Sensitive Species

RFSS that are also state-listed or species of special concern are discussed above. No other RFSS were observed during surveys of Tract 4 (AECOM 2011c). Potential Superior National Forest RFSS and their habitat on Tract 4 are listed on Tables 4.3.5-5.

Other Wildlife Species

Other wildlife species, including species of concern to the Bands, were observed during surveys of Tract 4. Species observed, or their sign, include white-tailed deer, red fox, marten, snowshoe hare, beaver, red squirrel, pileated woodpecker, and several passerine bird species (AECOM 2011c).

Sections 4.2.5, 4.2.9, 5.2.5, and 5.2.9 discuss species of importance to the Bands.

4.3.5.2.5 Tract 5 – McFarland Lake Lands

Federally and State-listed Species and Species of Special Concern

Tract 5 is located in LAU 42 and is located in designated lynx critical habitat. No Canada lynx or their sign have been observed on the non-federal lands during surveys (AECOM 2011b; AECOM 2011c). Though bats were observed on the parcel, the species of bats were not determined and may potentially include eastern pipistrelle and/or northern long-eared bat (AECOM 2011b). The Tract 5 parcel is located in federal Wolf Zone 2 and the Minnesota Northeast Wolf Zone. Wolf sign was observed on the parcel in October 2011. Both NHIS records and surveys of the parcel failed to identify individuals or signs of the remaining federally and state-listed species or species of special concern (MDNR 2014d; AECOM 2011c).

Species of Greatest Conservation Need

Like Tract 4, Tract 5 is located in the Border Lakes ecological subsection. Table 4.3.5-5 provides a list of species of greatest conservation need and habitat that may be found in this subsection.

Regional Forester Sensitive Species

RFSS that are also state-listed or species of special concern are discussed above. With the possible exception of RFSS bat species, no other RFSS were observed during surveys of Tract 5 (AECOM 2011b). Potential Superior National Forest RFSS and their habitat on Tract 5 are listed on Table 4.3.5-5.

Other Wildlife Species

Other wildlife species, including species of concern to the Bands, were observed during surveys of Tract 5. Species observed, or their sign, include black bear, white-tailed deer, red fox, beaver, red squirrel, raven, ruffed grouse, common loon, hooded merganser, broad-winged hawk, barred owl, pileated woodpecker, and several passerine bird species (AECOM 2011b).

Sections 4.2.5, 4.2.9, 5.2.5, and 5.2.9 discuss species of importance to the Bands.

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4.3.6 Aquatic Species

This section discusses aquatic resources located on the non-federal parcels considered for acquisition by the USFS through the Land Exchange Proposed Action. The federal lands are discussed in Section 4.2.6.1 along with the Mine Site. The Alternative B: Smaller Federal Parcel contains similar surface waters, but smaller acreages or linear distances than the federal lands.

Some of the non-federal lands contain streams, creeks, rivers, and lakes. Tract 1 contains three lakes and one river, comprising approximately 90,000 linear ft of shoreline and approximately 129 acres of surface area. Tract 3 – Wolf Lands 3 and Wolf Lands 4 contain Coyote Creek, with approximately 12 linear ft of river frontage per acre. Tract 5 includes 506 ft of McFarland Lake frontage. Tract 2 and Tract 4 do not contain surface water features.

There are no SGCN, state, federal, or RFSS species known to occur at or in the immediate vicinity of the non-federal lands. According to available data, however, there are several SGCN or RFSS that are associated with the Superior National Forest or various ecoregions on which the non-federal lands are located.

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). The FEIS considers any new listings, or changes in the previous listings, associated with the updated list. The FEIS also considers any federal listing changes. A BE has been prepared that contains further information about RFSS species. The BE is included in Appendix D.

4.3.6.1 Federal Lands

4.3.6.1.1 Land Exchange Proposed Action

The existing conditions found within the federal lands area are discussed in Section 4.2.6.1.

4.3.6.1.2 Land Exchange Alternative B

The existing conditions found within the Alternative B area are discussed in Section 4.2.6.1. However, site-specific information is presented below.

Surface Water Features

A portion of Mud Lake, covering 8.9 acres with approximately 1,200 ft of lake frontage, is located within the Alternative B lands. The length of lake frontage per acre of this alternative boundary is 0.3 ft.

As with the federal lands within the Land Exchange Proposed Action, Yelp Creek and the Partridge River, which originates at the Northshore Mine, flow out of the One Hundred Mile Swamp and through portions of the smaller federal parcel within the Land Exchange Alternative B. Collectively, the creek and river are 5.3 miles in length in the Alternative B, corresponding to 55,968 linear ft of creek/river frontage (counting both shores). The combined Yelp Creek and Partridge River frontage per acre of the smaller federal parcel within the Land Exchange Alternative B is 11.8 ft (see Table 4.3.6-1).

The MIH represented within the boundaries of the Alternative B: Smaller Federal Parcel includes 8.9 acres for Mud Lake and 55,968 linear ft for the combined Yelp Creek and Partridge River.

Table 4.3.6-1 Alternative B Surface Water Characteristics

Surface Water	Size on Parcel	Approximate Shoreline Frontage (ft)	MIH	Frontage Index (ft/acre)
Mud Lake	8.9 acres	1,200.0	8.9 acres	0.3
Yelp Creek	1.1 miles	*	*	*
Partridge River	4.2 miles	55,968.0	55,968.0 linear ft	11.8

Source: Adapted from AECOM 2011d.

* Combined with Partridge River.

4.3.6.2 Non-federal Lands

4.3.6.2.1 Tract 1 – Hay Lake Lands

Surface Water Features

Surface water features on Tract 1 include three lakes and one river. Aerial photograph review of the three lakes associated with the parcel indicates a mix of deep water and shallow, submergent/emergent vegetation habitats in the open water portions of the lakes, which provide fish and macroinvertebrate habitats.

The Pike River, which flows north through the tract, is classified as a third-order stream (see Figure 4.3.6-1) within Tract 1 and includes approximately 376.2 acres of mapped floodplain. The heavily vegetated riparian habitats and associated floodplains adjacent to the river's edge likely provide important fish and macroinvertebrate habitats. Tract 1 also has unmapped floodplains associated with Hay Lake itself, which has been estimated to be approximately 175.0 acres.

The USFS MIH categories within Tract 1 include 129.6 acres of lakes, 16,424 linear ft of lake shoreline, and 72,864 linear ft of river shoreline (see Table 4.3.6-2).

Riparian habitats, which surround all surface water features on the parcel, include shrub-carr, coniferous swamp, sedge meadow, alder thicket, shallow open water, and deep marsh wetlands (AECOM 2011d). Aerial photograph review indicates a wide riparian buffer and minimal disturbance along each surface water feature. All wetlands adjacent to the surface water features scored high for fish habitat according to the MnRAM 3.2 rating (AECOM 2011d).

Non-federal Lands
Monitoring Station
Stream / River
Section Boundary
Section Label
Stream Order Number

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.5 1 2 Miles

Figure 4.3.6-1
Monitoring Sample Site Locations
Tract 1 - Hay Lake Lands
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Table 4.3.6-2 Tract 1 Surface Water Characteristics

Surface Water	Surface Area (acres)	Approximate Shoreline Frontage (linear ft)	MIH
Hay Lake	96.2	9,894.4	96.2 acres
Rice Lake	29.5	4,829.6	29.5 acres
Unnamed lake	3.9	1,700	3.9 acres
Pike River	na	72,864[1]	72,864 linear ft
Total	129.6	89,288	

Source: Adapted from AECOM 2011d.

Notes:
na = Not available
[1] Includes riparian distance on both sides of river except along property boundary to the southeast where only the west side of the river is included.

Aquatic Biota Studies

No aquatic biota studies were performed within the surface water features associated with Tract 1; however, studies were completed by the MPCA (MPCA 2011c) for two locations downstream from the parcel's northern boundary (see Figure 4.3.6-1). Aquatic biota sampling station MPCAB_05RN029 is located in a first-order section of an unnamed tributary to the Pike River approximately 1 river mile downstream from Tract 1's northern boundary. The sampling station MPCAB_05RN077 is located approximately 12 river miles downstream of the parcel's northern boundary in a fourth-order section of the Pike River. These aquatic biota sampling stations recorded predominant stream substrate and fish assemblages at both locations and benthic macroinvertebrate assemblages at station MPCAB_05RN029, as summarized in Table 4.3.6-3 and 4.3.6-4.

Table 4.3.6-3 Fish Species Collected at the MPCA Sampling Sites in the Vicinity of the Tract 1 Parcel

			Site	
Scientific Name	Common Name	Tolerance Designation[1]	MPCAB_ 05RN029 (individuals recorded)	MPCAB_ 05RN077 (individuals recorded)
Catostomus commersonii	White sucker	Tolerant	9	1
Notemigonus crysoleucas	Golden shiner	Tolerant		3
Notropis hudsonius	Spottail shiner	Intermediate		6
Etheostoma nigrum	Johnny darter	Intermediate		19
Lota lota	Burbot	Intermediate		12
Ambloplites rupestris	Rock bass	Intermediate		1
Esox lucius	Northern pike	Intermediate		2
Culaea inconstans	Brook stickleback	Intermediate	8	
Umbra limi	Central mudminnow	Tolerant	7	43
Phoxinus neogaeus	Finescale dace	Intermediate	1	
Semotilus atromaculatus	Creek chub	Tolerant	3	2
Study year			2005	2009
Species observed			5	9
# intolerant species			0	0

Scientific Name	Common Name	Tolerance Designation[1]	Site	
			MPCAB_ 05RN029 (individuals recorded)	MPCAB_ 05RN077 (individuals recorded)
Total abundance			28	89
Index of Biological Integrity (IBI)[2]			25	60
Predominant Substrate			sand	sand

Source: MPCA 2011c.

Notes:
[1] Adapted from NCDENR 2006, Ohio EPA 1989, and Hubbs and Lagler 2007. Tolerance values indicate qualitative tolerances of physical and chemical disturbances.
[2] IBI is the sum of study specific metrics where 0 represents the worst fish assemblage conditions and 100 represents the best fish assemblage conditions (USEPA 2011a).
-- = no designation assigned.

Table 4.3.6-4 Benthic Macroinvertebrate Attributes for Aquatic Biota Sampling Site MPCAB_05RN029

Benthic Macroinvertebrate Attributes[1]	MPCAB_ 05RN029
EPT (mayfly, stonefly, caddisfly) Taxa	1
Ephemeroptera (mayfly) Taxa	1
Hilsenhoff's Biotic Index (HBI)	5.7
Intolerant Families	2
Percent Pollution Tolerant	3
Percent Chironomidae (midges)	69.5
Percent Diptera (true flies)	71.3
Percent Dominant Taxa	69.5
Percent Dominant Two Taxa	91.1
Percent Filterers	0.9
Percent Gatherers	92.3
Percent Hydropsychidae (net- spinning caddisflies)	0
Percent Scraper	0
Plecoptera (stonefly) Families	0
Total Families	11
Trichoptera (caddisfly) Families	0

Source: MPCA 2011c.

The majority of fish species found at the two sample sites were designated pollution-tolerant and intermediate species (Table 4.2.6-3). The IBI score of 25 at sample location MPCAB_05RN029 was at the low end of the scale, indicating below-average fish communities existed. This is likely a function of the sampling location, as less diverse fish habitat may exist at headwater stream locations (Barbour et al. 1999).

The MPCAB_05RN077 fourth-order stream sampling site results did not identify any intolerant fish species; however, with increasing stream order, fish diversity increases (Barbour et al. 1999) but is variable, as exhibited by the abundance values of 28 and 89 fish, respectively, in the first- and fourth-order study site locations. The IBI score of 60 at this fourth-order sampling location indicates above-average fish communities and habitat exist. The dominant sand substrates, as opposed to silt substrate, and apparent wide riparian shoreline characteristics at these two sampling sites would also indicate quality fish habitat exists at the sampling sites.

The third-order sections of the Pike River within Tract 1 likely display some similar fish habitats and communities compared to the two study locations.

Macroinvertebrate assemblages exhibited low Ephemeroptera, Plecoptera, and Trichoptera (EPT) taxa and were dominated by midges and true flies at the headwater sampling location referenced above for fish assemblages. The attributes collected for macroinvertebrates at this sampling site suggest diverse macroinvertebrate habitats were not present, which may be attributed to the headwater characteristics and substrate of the sampling site. The macroinvertebrate habitat available for the third-order segments of the Pike River within the Tract 1 parcel likely exhibit more diverse and high-quality habitats than the headwater macroinvertebrate sampling location.

Special Status Fish and Macroinvertebrates

No SGCN, state, federal, or RFSS species are known to occur within or in the immediate vicinity of Tract 1. Of the species listed as potentially occurring in the Nashwauk Uplands ecoregion or Superior National Forest (see Table 4.3.6-5), the northern brook lamprey and creek heelsplitter are the most likely species to occur at this parcel.

Suitable habitat for northern brook lamprey is likely to exist within Tract 1; however, the nearest known occurrence of this species is more than 19 miles from Tract 1.

Suitable habitat likely exists for the creek heelsplitter in the third-order segments of the Pike River within Tract 1, as the substrate likely contains adequate sand substrate and flow to provide habitat for this freshwater mussel species. Additionally, this species has been documented 0.5 mile upstream of the Sand and Pike rivers confluence, where the Pike River becomes a fourth-order stream (see Figure 4.3.6-2).

Table 4.3.6-5 SGCN and RFSS Species Identified within Portions of the Nashwauk Uplands Ecoregion or Superior National Forest

Scientific Name	Common Name	Nashwauk Uplands Ecoregion SGCN	RFSS
Insects			
Chilostigma itascae	Headwaters chilostigman caddisfly		X
Somatochlora brevicincta	Quebec emerald		X
Williamsonia flechen	Ebony boghaunter		X
Fish			
Acipenser fulvescens	Lake sturgeon		X
Coregonus nipigon	Nipigon cisco		X
Coregonus zenithicus	Shortjaw cisco		X
Ichthyomyzon fossor	Brook lamprey	X	X
Mussels			
Lasmigona compressa	Creek heelsplitter	X	X
Ligumia recta	Black sandshell	X	X

Sources: MDNR 2006d; FEIS Appendix D.

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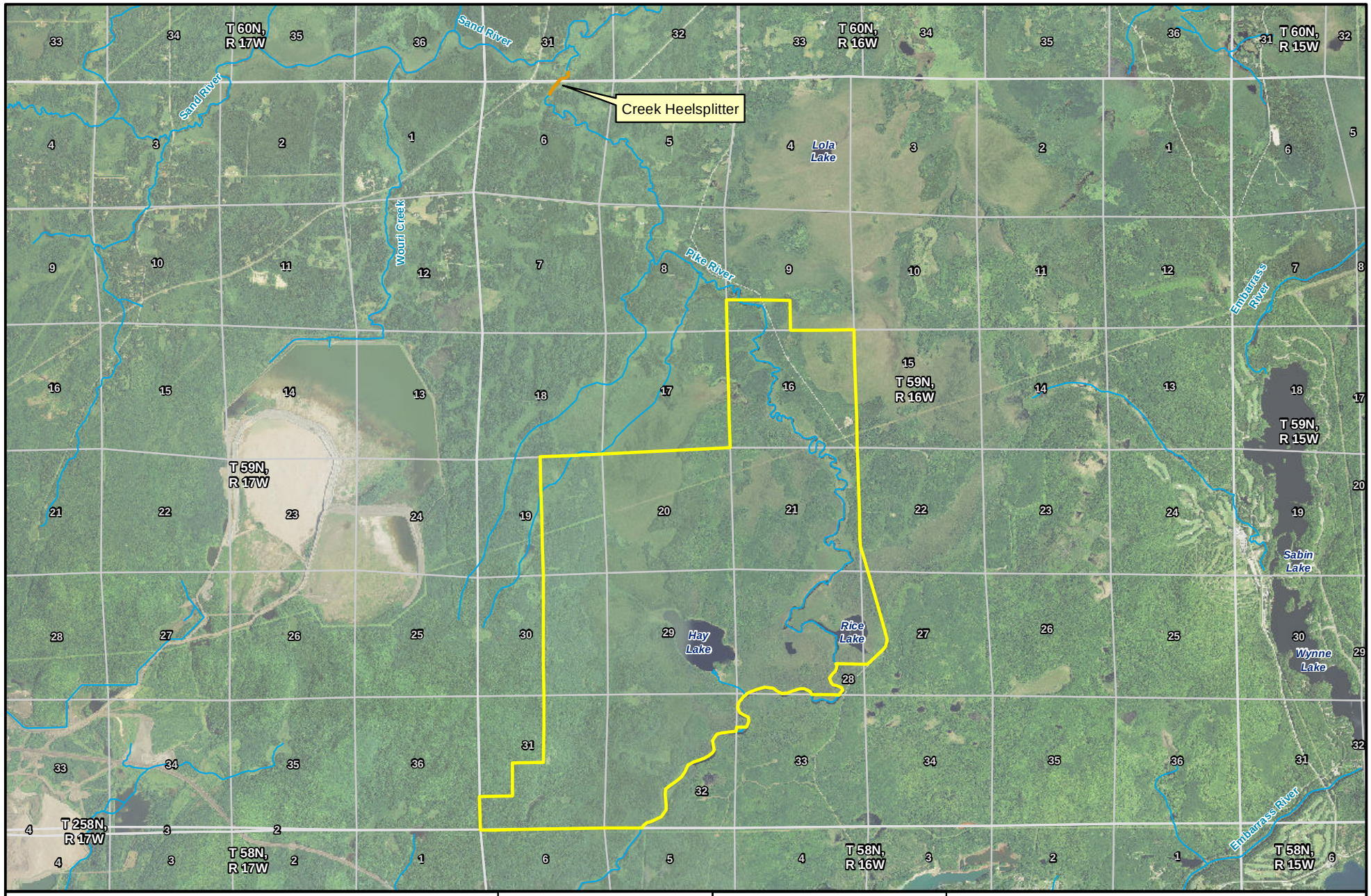

Non-federal Lands
Creek Heelsplitter
Stream / River
Section Boundary
Section Label

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 1.5 Miles

Figure 4.3.6-2
Creek Heelsplitter Locations Near Tract 1 - Hay Lake Lands
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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4.3.6.2.2 Tract 2 - Lake County Lands

No lakes or waterbodies are known to exist within Tract 2 (AECOM 2011d); therefore, no fish or macroinvertebrate habitats are present.

4.3.6.2.3 Tract 3 - Wolf Lands

Surface Water Features

Coyote Creek is the only surface water feature within the Wolf Lands 3 and 4. Wolf Lands 1 and 2 do not have surface water features. Coyote Creek is a headwater stream that begins in Wolf Lands 3 where it flows north for 0.1 mile within the parcel boundary and includes approximately 32.8 acres of unmapped floodplain. Coyote Creek continues north and flows for 0.9 mile within Wolf Lands 4 before continuing further north, and includes approximately 79.4 acres of unmapped floodplain. The heavily vegetated riparian habitats and associated floodplains adjacent to the river's edge likely provide important fish and macroinvertebrate habitats. Coyote Creek flows through two of the three lakes in the McDougal Lakes chain and becomes a third-order stream (see Figure 4.3.6-3) at its confluence with the Stony River approximately 4 river miles downstream from the northern boundary of Wolf Lands 4. Wolf Lands 3 and 4 contain a combined 16.1 ft of river frontage per acre. Aerial photograph review indicates a wide riparian vegetative buffer with minimal human disturbance where emergent sedge-meadow wetlands are adjacent to the creek within the Wolf Lands 3 parcel, and both emergent and scrub-shrub wetlands are adjacent to the creek within the Wolf Lands 4 parcel (AECOM 2011c). The riparian vegetative buffer adjacent to the creek segments offers shade, structure, and erosion control.

Much of the emergent wetlands adjacent to Coyote Creek within the Wolf Lands 3 parcel exhibited 18 to 24 inches of standing water (AECOM 2011c), which could provide high-quality headwater stream fish and macroinvertebrate habitats because wetlands provide nutrient-rich environments that would be accessible to fish and macroinvertebrates at the documented water depth. Additionally, these wetlands likely provide potential spawning habitat for some warmwater fish species that require headwater wetland habitats for spawning.

The USFS MIH categories within the combined Wolf Lands parcels 3 and 4 boundaries include approximately 10,560 linear ft of creek shoreline.

Aquatic Biota Studies

No fish or macroinvertebrate studies have been completed along Coyote Creek within the two parcels; however, two MPCA aquatic biota studies (MPCAB_05RN024 and MPCAB_05RN074) were completed within the third- and fourth-order stretches of the Stony River, approximately 2 river miles and 4 river miles, respectively, downstream of the Coyote Creek and Stony River confluence, as indicated in Figure 4.3.6-3 (6 and 8 miles downstream of northern boundary of parcel Wolf Lands 4) (MPCA 2011c). Results from the two sampling events are summarized below in Table 4.3.6–6 and Table 4.3.6-7. The fish communities for both sampling sites appeared diverse and abundance was high. IBI scores for each site were high, indicating good to excellent fish habitat was likely present. Although high-quality fish habitat likely exists at the Coyote Creek stream locations within Wolf Lands 3 and 4, some, but not all, of the fish species observed at the Stony River sampling locations are likely present, as fish community diversity is likely less in headwater stream habitats.

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Non-federal Lands
Monitoring Station
Stream / River
Section Boundary
Section Label
Stream Order Number

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 1.5
Miles

Figure 4.3.6-3
Monitoring Sample Site Locations
Tract 3 - Wolf Lands
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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A qualitative assessment of the benthic macroinvertebrate data presented in Table 4.3.6-7 indicates a diverse community with attributes indicating little human disturbance or sedimentation at the Stony Creek sampling sites. The Coyote Creek headwater stretches of stream likely exhibit more siltation due to slower moving water typically observed in headwater streams in the region and, therefore, likely offer less diverse habitats for benthic macroinvertebrates compared to the two sampling sites summarized below.

Table 4.3.6-6 Fish Species Collected at Two Sites in the Vicinity of the Wolf Lands Parcels within the Stony River

			Site	
Scientific Name	**Common Name**	**Tolerance Designation[1]**	**MPCAB_ 05RN024 (number recorded)**	**MPCAB_ 05RN074 (number recorded)**
Catostomus commersonii	White sucker	Tolerant	21	4
Luxilus cornutus	Common shiner	Intermediate		23
Notemigonus crysoleucas	Golden shiner	Tolerant	2	84
Notropis hudsonius	Spottail shiner	Intermediate	19	11
Notropis heterolepis	Blacknose shiner	Intolerant	1	123
Notropis volucellus	Mimic shiner	Intolerant	6	29
Etheostoma nigrum	Johnny darter	Intermediate	8	2
Perca flavescens	Yellow perch	Intermediate	31	93
Sander vitreus	Walleye	Intermediate		2
Percina caprodes	Logperch	Intermediate	4	3
Lota lota	Burbot	Intermediate	85	3
Ambloplites rupestris	Rock bass	Intermediate		2
Esox lucius	Northern pike	Intermediate		12
Umbra limi	Central mudminnow	Tolerant	1	
Pimephales promales	Fathead minnow	Tolerant	6	
Rhinichthys cataractae	Longnose dace	Intolerant	177	
Noturus gyrinus	Tadpole madtom	Intermediate	7	7
Cottus bairdii	Mottled sculpin	Intolerant	19	
Study year			2005	2005
Species observed			14	14
# intolerant species			4	2
Total Abundance			387	398
Index of Biological Integrity (IBI)[2]			86	77
Predominant Substrate			rubble/cobble	na

Source: MPCA 2011c.

Notes:
[1] Adapted from NCDENR 2006, Ohio EPA 1989, and Hubbs and Lagler 2007. Tolerance values indicate qualitative tolerances of physical and chemical disturbances.
[2] IBI is the sum of study specific metrics where 0 represents the worst fish assemblage conditions and 100 represents the best fish assemblage conditions (USEPA 2011b).
na = Not available
-- = no designation assigned.

Table 4.3.6-7 Benthic Macroinvertebrate Attributes for Aquatic Biota Sampling Sites within the Stony River

Benthic Macroinvertebrate Attributes[1]	MPCAB_ 05RN024	MPCAB_ 05RN074
EPT (mayfly, stonefly, caddisfly) Taxa	11	11
Ephemeroptera (mayfly) Taxa	5	5
Hilsenhoff's Biotic Index (HBI)	5.9	5.2
Intolerant Families	4	1
% Pollution Tolerant	10.3	26.1
% Chironomidae (midges)	55.5	17.2
% Diptera (true flies)	58.7	17.5
% Dominant Taxa	55.5	18.8
% Dominant Two Taxa	63.7	36
% Filterers	11.7	17.8
% Gatherers	75.4	50.2
% Hydropsychidae (net- spinning caddisflies)	1.4	11.9
% Scraper	5	25.4
Plecoptera (stonefly) Families	0	0
Total Families	23	27
Trichoptera (caddisfly) Families	6	6

Source: MPCA 2011c.

Special Status Fish and Macroinvertebrates

No SGCN, state, federal, or RFSS species are known to occur at or in the immediate vicinity of Tract 3. Of the species listed to potentially occur in the Laurentian Uplands ecoregion (see Figure 4.3.6-4) or Superior National Forest (see Table 4.3.6-8), the northern brook lamprey and creek heelsplitter are the most likely species to occur within Tract 3.

Suitable habitat for northern brook lamprey is likely to exist in Tract 3, although the nearest known occurrence of this species is more than 52 miles from the Wolf Lands parcels.

The creek heelsplitter has historically been found near the east and west confluence of the northernmost lake in the chain of McDougal Lakes and the Stony River in the third-order stretch of the Stony River (see Figure 4.3.6-5). The aquatic species habitat in the stretches of Coyote Creek within Wolf Lands 3 and 4 is unknown, but likely would display first-order headwater stream characteristics; it is unknown if the necessary aquatic species habitat for the creek heelsplitter is present on the parcels. However, the presence of the creek heelsplitter within the parcel boundary is possible but not likely, since Coyote Creek is a first-order stream.

Habitats for the other special status species described in Table 4.3.6-8 likely do not exist within the parcel boundary.

No invasive fish or macroinvertebrate species are known to exist on Tract 3.

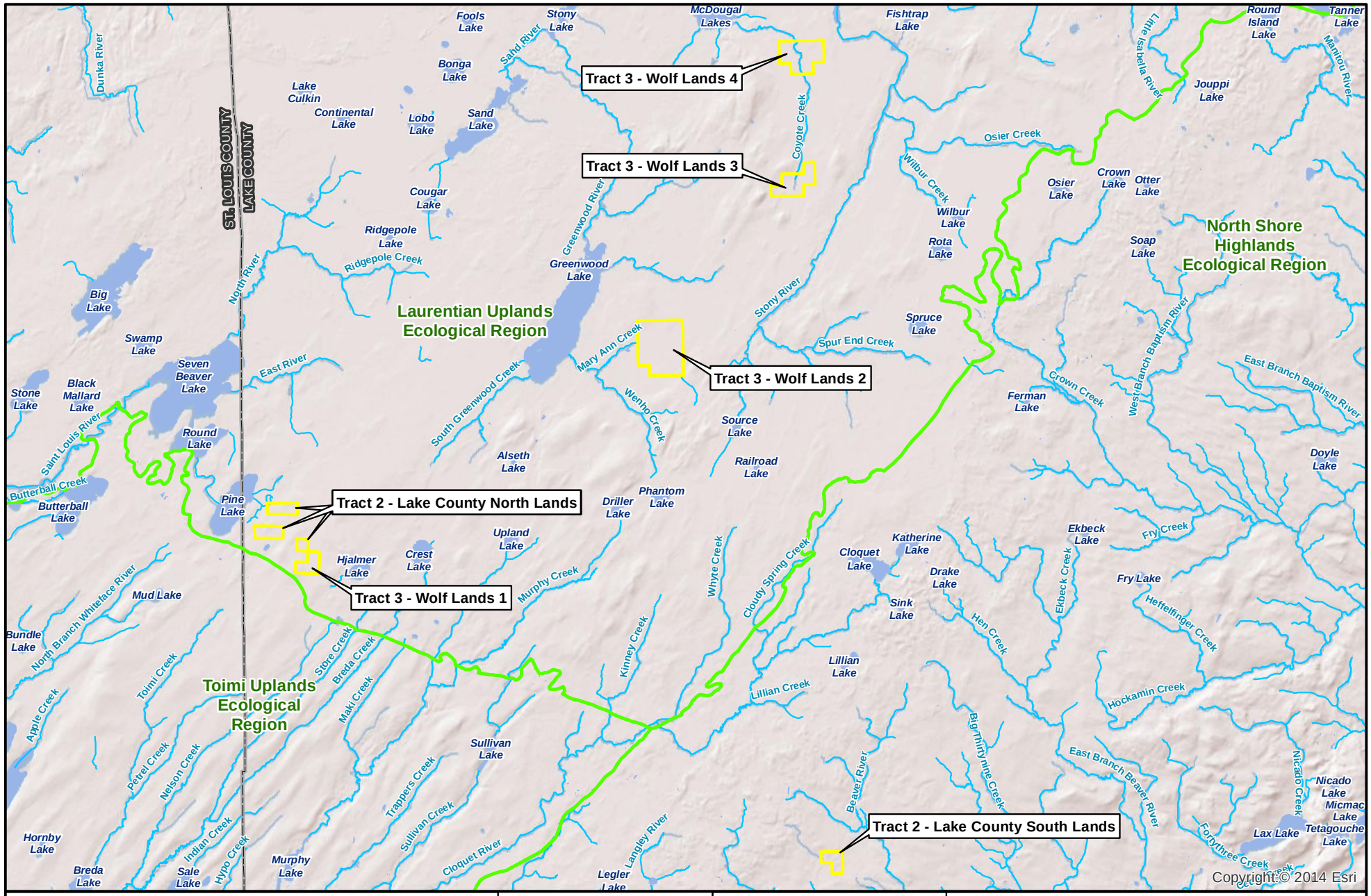

Non-federal Lands
Ecological Regions
Stream / River
Lake / Pond

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1 2 4 Miles

Figure 4.3.6-4
Ecological Regions
Tract 2 - Lake County and Tract 3 - Wolf Lands
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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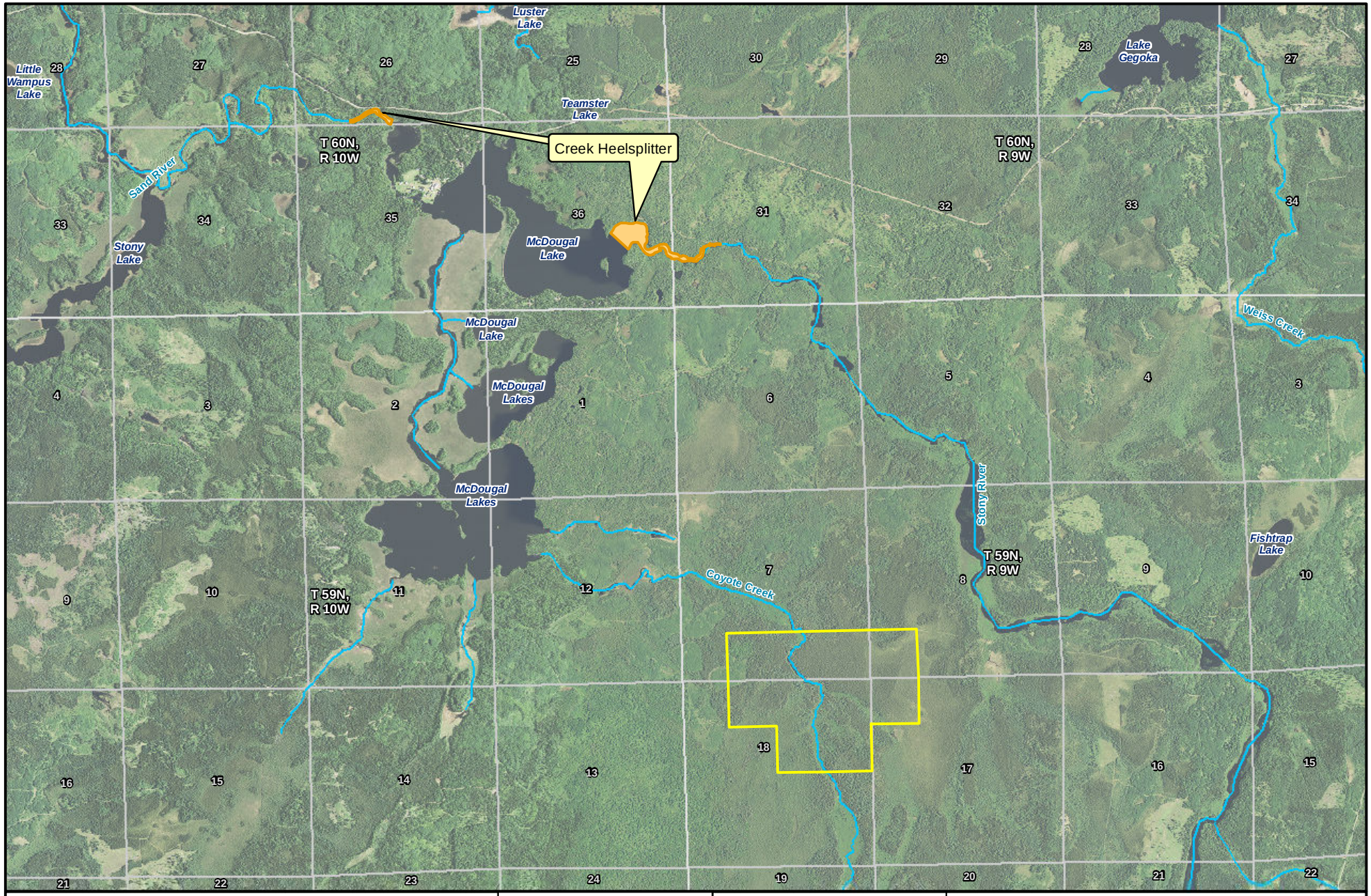

Non-federal Lands
Creek Heelsplitter
Stream / River
Section Boundary
Section Label

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 0.25 0.5 1 Miles

Figure 4.3.6-5
Creek Heelsplitter Locations Near
Tract 3 - Wolf Lands 4
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Table 4.3.6-8 SGCN and RFSS Species Identified within Portions of the Laurentian Uplands Ecoregion or Superior National Forest

Scientific Name	Common Name	Laurentian Uplands Ecoregion SGCN	RFSS
Insects			
Chilostigma itascae	Headwaters chilostigman caddisfly		X
Somatochlora brevicincta	Quebec emerald		X
Williamsonia flechen	Ebony boghaunter		X
Fish			
Acipenser fulvescens	Lake sturgeon		X
Coregonus nipigon	Nipigon cisco		X
Coregonus zenithicus	Shortjaw cisco		X
Ichthyomyzon fossor	Brook lamprey		X
Mussels			
Lasmigona compressa	Creek heelsplitter	X	X
Ligumia recta	Black sandshell	X	X

Source: MDNR 2006d; FEIS Appendix D.

4.3.6.2.4 Tract 4 - Hunting Club Lands

Surface Water Features

No lakes or waterbodies are known to exist within Tract 4 (AECOM 2011d); therefore, no fish or macroinvertebrate habitats exist.

4.3.6.2.5 Tract 5 - McFarland Lake Lands

Surface Water Features

The only surface water feature within Tract 5 is the 990 ft of shoreline associated with McFarland Lake along the eastern parcel boundary. McFarland Lake is classified as an oligotrophic lake (MPCA 2011c) with a surface area of 384 acres and a maximum depth of 49 ft (MDNR 2011c). Aerial photograph review indicates minimal shoreline disturbance and a wide riparian vegetative buffer along the entire parcel boundary with McFarland Lake.

The USFS MIH represented in Tract 5 (MIH 14, Aquatic Habitats) would include 990 linear ft of lake shoreline.

Aquatic Biota Studies

MDNR conducted a fishery assessment within McFarland Lake in 2003 and reported several game fish species including lake whitefish, northern pike, smallmouth bass, walleye, and yellow perch (MDNR 2011c). Tulibee and white sucker were also recorded. These species are typical for large and deep lakes within the region.

Special Status Fish and Macroinvertebrates

No special status fish or macroinvertebrates are known to exist within Tract 5. A summary of the SGCN and RFSS species is provided in Table 4.3.6-9. The spoonhead sculpin, lake chub, and longear sunfish are known to occur within the Border Lakes ecoregion and could occur at Tract 5 (see Figure 4.3.6-6). These species are described below. Due to limiting habitat requirements and

limited distribution, the remaining species listed in Table 4.6.3-9 likely are not present in McFarland Lake.

The invasive species, spiny water flea (*Bythotrephes longimanus*), has been documented in McFarland Lake. The spiny water flea is a species of zooplankton native to Europe and Asia that competes for food sources with other zooplankton species and fish.

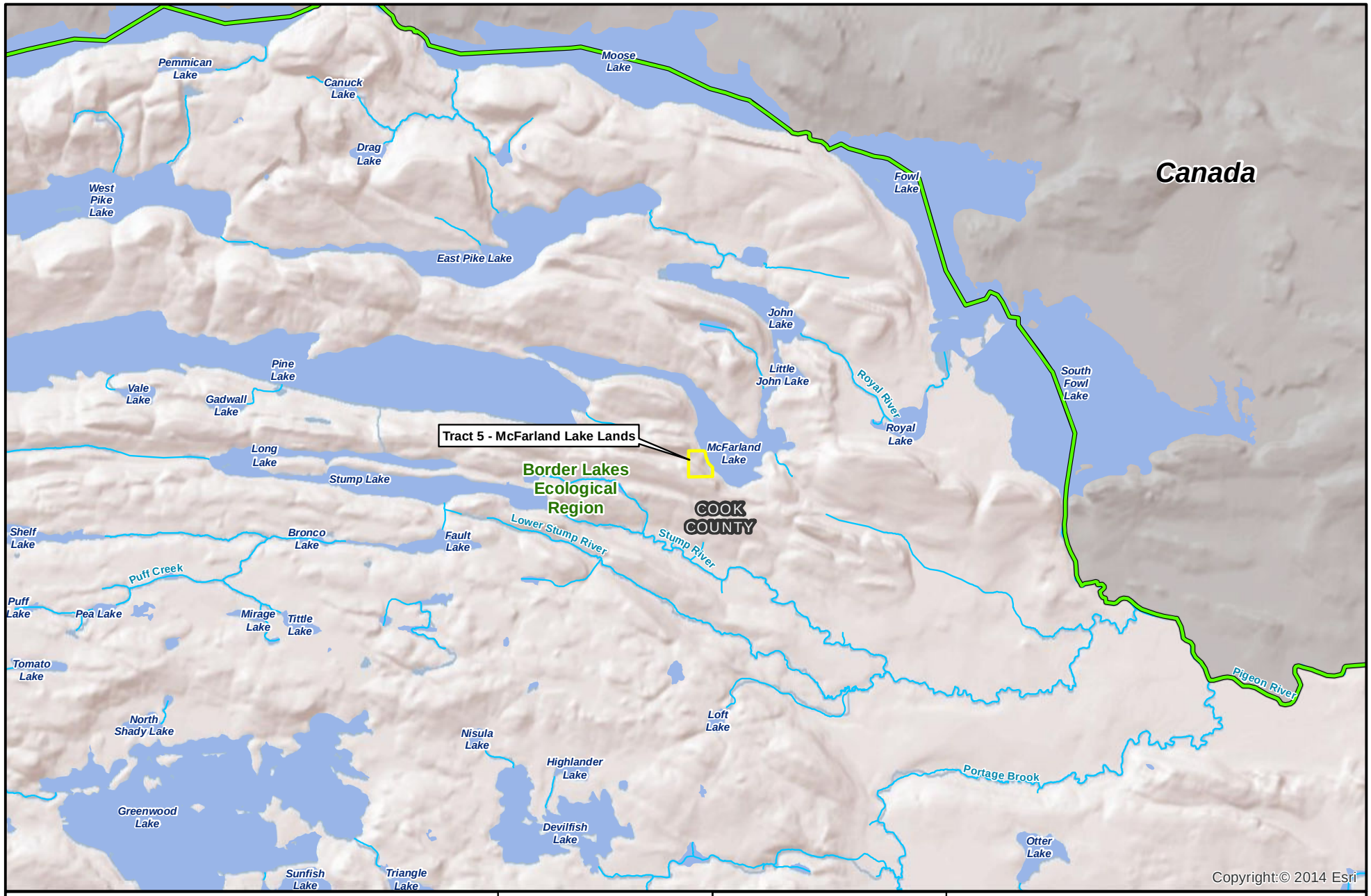

Non-federal Lands
Ecological Regions
Stream / River
Lake / Pond

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 0.25 0.5 1 1.5 Miles

Figure 4.3.6-6
Ecological Regions
Tract 5 - McFarland Lake Lands
NorthMet Mining Project and Land Exchange FEIS
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Table 4.3.6-9 SGCN Species for the Border Lakes Ecoregion and the USFS RFSS Species List

Scientific Name	Common Name	Border Lakes Ecoregion SGCN	RFSS
Insects			
Chilostigma itascae	Headwaters chilostigman caddisfly		X
Somatochlora brevicincta	Quebec emerald		X
Williamsonia flechen	Ebony boghaunter		X
Fish			
Acipenser fulvescens	Lake sturgeon	X	X
Coregonus nipigon	Nipigon cisco	X	X
Coregonus zenithicus	Shortjaw cisco	X	X
Cottus ricei	Spoonhead sculpin	X	
Couesius plumbeus	Lake chub	X	
Ichthyomyzon fossor	Brook lamprey	X	X
Lepomis megalotis	Longear sunfish	X	
Mussels			
Lasmigona compressa	Creek heelsplitter	X	X
Ligumia recta	Black sandshell	X	X

Sources: MDNR 2006d; FEIS Appendix D.

Spoonhead Sculpin

The spoonhead sculpin is a bottom dwelling fish that inhabits rocky areas of swift creeks and rivers; however, this species can also be found in lakes. They primarily feed on planktonic crustaceans and aquatic insect larvae and are native to Minnesota (Froese and Pauly 2011). Little is known about the habitat and macroinvertebrates in McFarland Lake. Although the habitat characteristics for McFarland Lake are not completely known, it is possible the spoonhead sculpin species exists in McFarland Lake.

Lake Chub

Lake chubs have a secure distribution in Lake Superior, but have shown declining distribution in Minnesota inland lakes. Their preferred habitat includes shallow areas of deep lakes, especially near river mouths (Stasiak 2006). Habitat for lake chub may exist in McFarland Lake.

Longear Sunfish

The longear sunfish is found in lake and stream habitats, which include high-quality waters with shallow (less than 3 ft) shorelines exhibiting firm, detritus rich substrates and extensive submerged vegetation. Only 37 Minnesota lakes and streams have confirmed populations of this fish species (Porterfield and Ceas 2008). Habitat for longear sunfish may exist in portions of McFarland Lake.

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4.3.7 Air Quality

Regional air quality, including for the federal and non-federal lands, is discussed in Section 4.2.7. The federal lands of the Land Exchange Proposed Action are similar to the Mine Site previously discussed, but exclude the privately owned land bordering Dunka Road to the south of the Mine Site. The non-federal parcels are all privately owned and there are currently no activities on these parcels that affect ambient air quality.

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4.3.8 Noise and Vibration

4.3.8.1 Federal Lands

The topography and land cover of the federal lands in the Land Exchange Proposed Action and the Land Exchange Alternative B are similar to that of the Mine Site, as previously discussed, but extend further north and west (mostly wetlands) and exclude the privately owned land bordering Dunka Road to the south of the Mine Site. Section 4.2.8.2 provides a discussion of the existing noise and vibration conditions on the federal lands.

4.3.8.2 Non-federal Lands

The non-federal lands in the Land Exchange Proposed Action consist of up to five tracts totaling 7,075.0 acres that are located within the Superior National Forest proclamation boundary, a sparsely populated rural region in northeast Minnesota. The tracts are predominantly forest and wetland habitat. Tracts 1, 2, and 3 are 13 to 27 miles from the federal lands, while Tracts 4 and 5 are 46 and 91 miles from the federal lands, respectively (see Table 4.3.8-1 and Figure 4.3.8-1).

Table 4.3.8-1 Approximate Distances and Direction of Non-federal Lands to Federal Lands and the Plant Site

Tract	Approximate Distance to Federal Lands (miles)	Approximate Distance to Plant Site (miles)	Direction from Federal Lands and Plant Site
Tract 1 – Hay Lake	15	10	West
Tract 2 – Lake County			
Lake County North	13	20	Southeast
Lake County South	27	34	Southeast
Tract 3 – Wolf Lands			
Wolf Lands 1	14	20	Southeast
Wolf Lands 2	18	26	Southeast
Wolf Lands 3	18	26	Southeast
Wolf Lands 4	18	26	East
Tract 4 – Hunting Club	46	43	Northwest
Tract 5 – McFarland Lake	91	100	Northeast

Review of the most-up-to-date aerial maps indicates that there are no noise-sensitive areas or receptors (e.g., residences, schools, campgrounds, or national wilderness areas) within the non-federal lands. However, people currently hunt within Tract 1 and Tract 4 due to the presence of wildlife. Wildlife species within each tract are described in Section 4.3.5. There are a few residential receptors outside the non-federal lands. Figure 4.3.8-1 shows the locations of the closest receptors to the non-federal lands.

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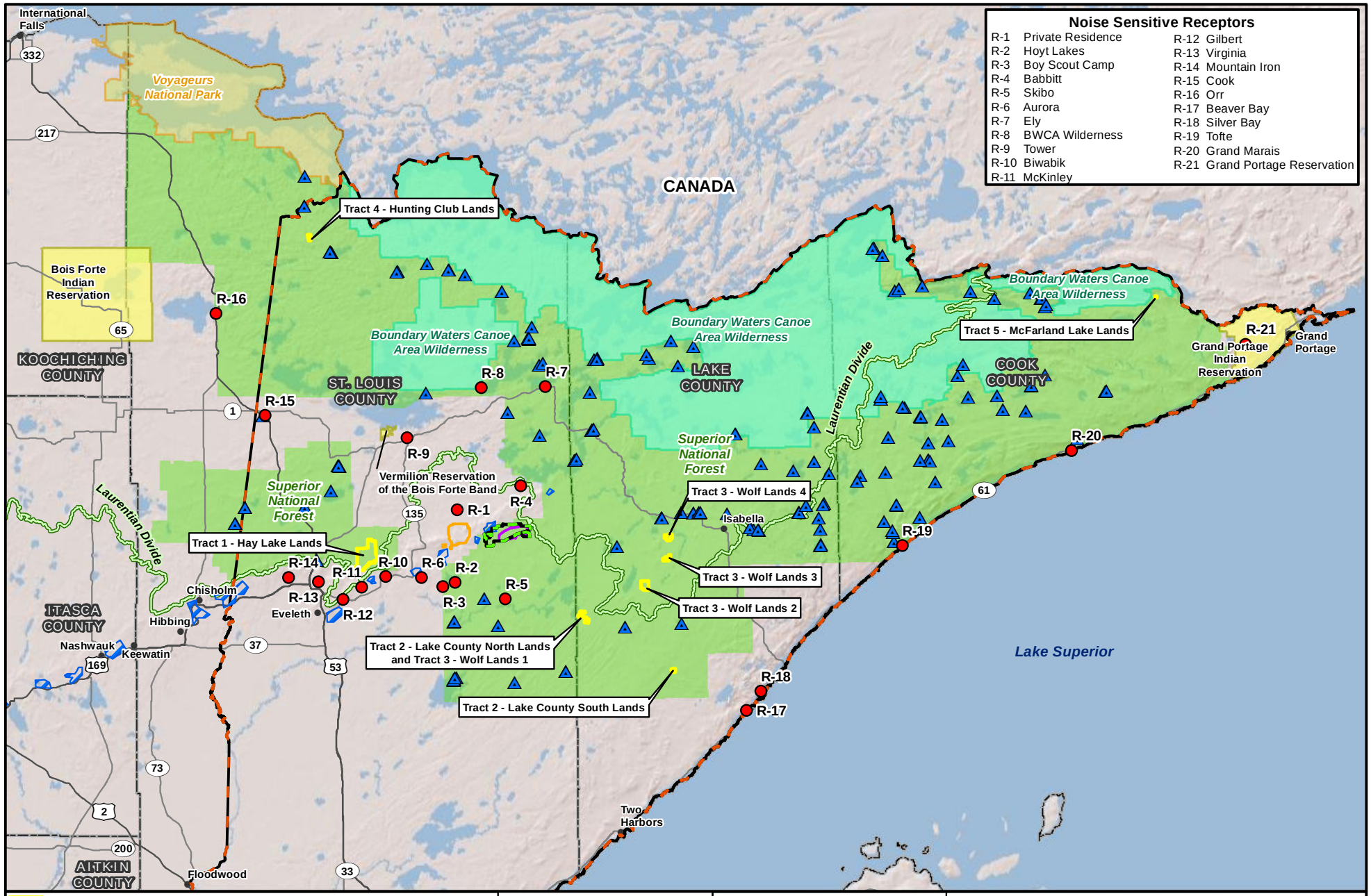

Figure 4.3.8-1
Nearest Noise Sensitive Receptors to the Non-federal Lands
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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The non-federal lands would be managed consistent with the adjacent forest lands (see Section 4.3.1), and the USFS currently has no plans for operations on the non-federal lands. Since the non-federal lands are located in a forested and rural environment, the existing ambient L_{eq} at the five tracts has been assumed to be 5 dB lower than the levels shown in Table 4.2.8-2 for the Mine Site and Plant Site. This means that existing daytime and nighttime ambient L_{eq} for all non-federal lands are not expected to exceed 40 and 30 dB, respectively. The estimated L_{eq} for the statistical distribution was converted to other noise percentile metrics, such as L_{50} and L_{10}, using a USEPA calculation methodology (USEPA 1974). The calculation was based on an assumed standard deviation of 3 dB for the sound level statistical distribution. A summary of the estimated daytime and nighttime ambient L_{eq}, L_{50}, and L_{10} levels expected at the tracts is presented in Table 4.3.8-2.

Table 4.3.8-2 Summary of Estimated Existing Ambient Noise Levels at the Non-federal Lands

Ambient Noise Level Metric	Daytime (dBA)	Nighttime (dBA)
L_{eq}	40	30
L_{50}	39	29
L_{10}	42.8	32.8

Currently, no ground- or air-vibrating sources or activities (e.g., mine blasting or pile driving) exist within a 15-mile radius of the non-federal lands. The closest vibration-generating activities include operation of the coal and flux pulverizer and rotary hearth furnace at the Mesabi Phase I Plant in Hoyt Lakes (approximately 9 miles west of Tract 1, which is the closest non-federal tract) and blasting at the Northshore Mine (approximately 16 miles northwest of the closest tract [Tract 2]). Since ground and air vibration effects diminish with distance from the source, existing levels of vibration at the sensitive receptors are expected to be negligible.

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4.3.9 Cultural Resources

4.3.9.1 Federal Lands

4.3.9.1.1 Land Exchange Proposed Action

The federal lands within the Land Exchange Proposed Action area is similar to the Mine Site portion of the NorthMet Project area previously discussed, but extends further north and west and excludes the privately owned land bordering Dunka Road to the south of the Mine Site. The Land Exchange Proposed Action APE for both direct and indirect effects consists of the entire land exchange boundary (Figure 4.2.9-1). Section 4.2.9 provides further discussion of the existing conditions on the Mine Site and associated federal lands. Cultural resources identified within the Land Exchange Proposed Action area consisted of archaeological sites and properties and natural resources of religious and cultural significance to the Bands.

As a result of Phase I cultural resources surveys and consultation with the Bands and the SHPO concerning the results of identification efforts for properties of religious and cultural significance to the Bands, three cultural resources have been identified within the Land Exchange area: the BBLV Trail Segment, NorthMet Archaeological Site, and Knot Logging Camp. For detailed property descriptions and discussions of eligibilities, please see Section 4.2.9.

The investigations completed in the Land Exchange Proposed Action area have identified cultural resources as summarized in Table 4.3.9-1 below.

Table 4.3.9-1 Cultural Resources Identified in the Land Exchange Area

Resource ID	Resource Name	Resource Type	NRHP Determination by Co-lead Agencies	SHPO Concurrence with Co-lead Agencies' Findings
SL-HLC-069	BBLV Trail Segment[1]	Archaeological Site	Eligible	Concur
21SLpending	NorthMet Archaeological Site	Archaeological Site	Not Eligible	Concur
21SLmn	Knot Logging Camp	Archaeological Site	Not Eligible	Concur

Note:
[1] USFS designation BBLV Trail Segment #1 (USFS #01-569).

The 1854 Treaty resources located within the Land Exchange Proposed Action would be similar to the Mine Site portion of the NorthMet Project area previously discussed in Section 4.2.9. Section 4.2.9 provides further discussion of the existing conditions on the Mine Site and associated federal lands.

An analysis of whether any particular property associated with the Bands' exercise of their usufructuary rights may be considered a TCP is limited by lack of available information regarding Band members' traditional exercise of those rights. Determining how the Bands have traditionally conducted their usufructuary rights on or near the Land Exchange Proposed Action area would only be available through a detailed ethnographic study of individual Band members and their families. The cultural resources investigations included Band member interviews with

Bois Forte, Fond du Lac, and Grand Portage, although only Bois Forte's results were made available. The results of the interviews and the cultural resources investigation did not find any natural resources that would be considered a TCP or other traditional cultural place.

4.3.9.1.2 Land Exchange Alternative B

All of the cultural resources and 1854 Treaty resources identified and discussed in Section 4.3.9.1.1 are located within the Land Exchange Alternative B.

4.3.9.2 Non-federal Lands

There are no known cultural resources on the non-federal lands, except known 1854 Treaty resources consisting of wild rice beds within the Hay Lake lands. As discussed in Section 4.3.2, Hay Lake, Rice Lake, and the Pike River are the only waterbodies within the proposed non-federal land exchange tracts known to contain wild rice beds.

4.3.10 Socioeconomics

The Land Exchange Proposed Action study area for socioeconomics is the same as for the NorthMet Project Proposed Action: all of Cook, Lake, and St. Louis counties, as well as individual cities in St. Louis County (see Figure 4.2.10-1). This geography includes the federal and non-federal tracts. Socioeconomic data are not available, and thus are not reported, for the individual non-federal tracts and their parcels.

The federal lands are similar to that of the Mine Site previously discussed, but exclude the privately owned land bordering Dunka Road to the south of the Mine Site. Section 4.2.10.1 provides additional discussion of the existing conditions on the federal lands. The socioeconomic information in Section 4.2.10.1 broadly applies to the study area, which encompasses all of the non-federal parcels involved in the Land Exchange Proposed Action. The following provides additional information as it relates to the federal and non-federal parcels.

4.3.10.1 Economic Activity

There is no ongoing forestry activity on the federal lands and no evidence of recent past forestry activity. The non-federal parcels are all privately owned or otherwise have no official public access. There is some evidence of timber harvesting on Tracts 2, 3, and 4; this activity could generate income, employment, or revenue.

4.3.10.2 Recreation

Recreation in national forests can generate direct revenue to the USFS and the state in the form of entry fees and hunting and fishing license fees, as well as via indirect economic activity related to the multiplier effect of such activity (e.g., purchase of fishing tackle and bait).

In 2006 (the most recent year for which data are available), there were approximately 1,376,000 recreational visits to Superior National Forest (USFS 2012a). “Recreational,” as used in USFS 2010, is very broadly defined, and primarily distinguishes (and excludes) transient visitors such as commuters or for restroom visits. On average, visitors to the forest spent $643 per visiting party per day (i.e., the group participating in the visit, such as a family).

Currently, the federal lands are not easily accessible. The non-federal parcels are all privately owned or otherwise have no official public access, although evidence of recreational activity has been observed on some of these parcels. Such activity is discussed in Section 4.2.11.

4.3.10.3 Other Socioeconomic Characteristics

Currently, there is no demand for public safety services on the inaccessible federal lands and only limited demand on the non-federal lands. As described in Section 4.2.11, the non-federal parcels generally consist of undeveloped woodlands, wetlands, and other natural features. There is evidence of past extractive activity (quarrying and/or borrowing of sand and gravel) and ongoing private recreational hunting and fishing on Tract 1. Tract 5 was previously used by Wheaton College. In their current state, the non-federal parcels have minimal, if any, effect on public services and facilities.

Subsistence activity, as it relates to the federal lands, is described in Section 4.2.10.1.6. There is no available information that any of the non-federal tracts are being used for this purpose.

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4.3.11 Recreation and Visual Resources

4.3.11.1 Federal Lands

4.3.11.1.1 Land Exchange Proposed Action

Recreational Resources

The federal lands fall within the Semi-Primitive Motorized and Roaded Natural ROS designations, as shown in Table 4.3.11-1. These designations are defined in Section 4.2.11.1.1.

Table 4.3.11-1 Recreational Opportunity Spectrum Designations within the Land Exchange Proposed Action and Land Exchange Alternative B

Recreational Opportunity Spectrum Designation	Total Acreage
Land Exchange Proposed Action Federal Lands	
Semi-Primitive Motorized	5,528.4
Roaded Natural	967.0
Land Exchange Alternative B Federal Lands	
Semi-Primitive Motorized	4,276.5
Roaded Natural	476.1

Visual Resources

The visual resources surrounding the federal lands, visual receptors near the federal lands, and SIO designation of the federal lands are discussed in Section 4.2.11.1.2. SIO designations are also summarized in Table 4.3.11-2.

Table 4.3.11-2 Scenic Integrity Objective Designations for Lands under the Land Exchange Proposed Action and Land Exchange Alternative B

Scenic Integrity Objective Designation	Total Acreage
Land Exchange Proposed Action Federal Lands	
Low Scenic Integrity Objective	6,495.6
No Designation[1]	30.5
Land Exchange Alternative B Federal Lands	
Low Scenic Integrity Objective	4,743.7
No Designation[1]	8.9

Note:
[1] USFS does not designate SIO for bodies of water, such as Mud Lake, which is part of the federal lands. Only a portion of Mud Lake falls within the footprint of the Land Exchange Alternative B.

4.3.11.1.2 Land Exchange Alternative B

The recreational and visual conditions for the federal lands in Land Exchange Alternative B are similar to the federal lands in the Land Exchange Proposed Action. Acreage of ROS and SIO designations for the Land Exchange Alternative B are summarized in Tables 4.3.11-1 and 4.3.11-2.

4.3.11.2 Non-federal Lands

All of the non-federal lands are privately owned; those not already owned by PolyMet are under options to purchase by PolyMet. Thus, there are no current public recreation opportunities on any of the tracts. Observed and likely private recreational activity on the non-federal lands is described below, based on aerial photography, research, and field visits conducted in October 2011. For reference, ownership surrounding the non-federal lands is shown in Figures 4.3.1-2, 4.3.1-3, and 4.3.1-4.

4.3.11.2.1 Forest Service Recreation Designations

The ROS designations for areas surrounding the non-federal lands are summarized in Table 4.3.11-3. The Semi-Primitive Motorized and Roaded Natural ROS designations are defined in Section 4.2.11.1.1. The Semi-Primitive Non-Motorized designation is similar to the Semi-Primitive Motorized, except that motor vehicles are not permitted.

Table 4.3.11-3 Recreational Opportunity Spectrum Designations in the Vicinity of Non-federal Lands

Tract	Adjacent/Nearby ROS Designations
1 – Hay Lake Lands	Semi-Primitive Motorized, Semi-Primitive Non-Motorized, and Roaded Natural
2 – Lake County Lands	Semi-Primitive Non-Motorized (Lake County South); Semi-Primitive Motorized, and Semi-Primitive Non-Motorized (Lake County North)
3 – Wolf Lands	Semi-Primitive Motorized and Roaded Natural
4 – Hunting Club Lands	Semi-Primitive Motorized
5 – McFarland Lake Lands	Semi-Primitive Non-Motorized and Semi-Primitive Motorized

4.3.11.2.2 Regional Recreational Resources

The Superior National Forest, including the BWCAW, and Voyageurs National Park are important recreation areas in northeastern Minnesota. The Superior National Forest includes approximately 3 million acres and provides recreation opportunities for camping, boating, fishing, hiking, viewing scenery, off-highway vehicle riding, wilderness related recreation, snowmobiling, and cross country skiing. Located 20 miles to the north of the NorthMet Project area, the million-plus-acre BWCAW is protected as part of the National Wilderness Preservation System. Voyageurs National Park is located approximately 50 miles north of the NorthMet Project area (see Figure 1.1-1). In addition, there are year-round recreation opportunities at Giants Ridge (approximately 15 miles east of the Mine Site) that include downhill skiing, snowboarding, cross-country skiing, snowmobiling, mountain biking, hiking, and golf. There are also opportunities for biking, hiking, roller-blading on the Mesabi Trail which spans 70 miles across the Iron Range.

4.3.11.2.3 Forest Service Scenic Integrity Designations

The non-federal lands are all within the Superior National Forest proclamation boundary, and are surrounded by relatively flat terrain covered in forests and wetlands. Some of the tracts are located within a few miles of towns, mines, and active forestry activity. The Mine Site would not be visible from any of the non-federal tracts. SIO designations for portions of Superior National Forest surrounding the five tracts are summarized in Table 4.3.11-4. Definitions of the SIO designations are provided in Section 4.2.11.1.2.

Table 4.3.11-4 Scenic Integrity Objective Designations in the Vicinity of Non-federal Lands

Tract	Adjacent/Nearby SIO Designations
1 – Hay Lake Lands	High, Moderate, Low
2 – Lake County Lands	Moderate (Lake County South); Low, Moderate (Lake County North)
3 – Wolf Lands	Low (Wolf Lands 2, 4); Low, Moderate (Wolf Lands 1); Low, High (Wolf Lands 3)
4 – Hunting Club Lands	Moderate
5 – McFarland Lake Lands	High

4.3.11.2.4 Tract 1 – Hay Lake Lands

Recreation

Tract 1 exhibits evidence of recreational activity. Several trails cross the parcel, including trails that intersect with County Road 715; most of these trails are either bermed or gated and some have posted No Trespassing signs. Hay Lake and Rice Lake are accessible by canoe on the Pike River. Deer and evidence of bear were observed, as were two deer stands (others are believed to exist) (Lisson and Gawtry 2011). A sand and gravel pit in the northeastern portion of the parcel show evidence of use as a shooting range and/or hunting site. A boat landing and small parking area (not listed or mapped as a MDNR access point) are present near the southeastern corner of the parcel on Rice Lake.

Visual Resources

Tract 1 covers 4,926.3 acres that contain three lakes (see Figure 4.3.11-1). This tract is crossed by County Road (CR) 175 and CR 135 (both of which are known as Pike River Road) and the Pike River. Tract 1 can be viewed from Pike River Road and nearby Pike Mountain, as well as the waterways within the tract. Tract 1 is roughly 3 miles north-northwest of Biwabik; however, the flat terrain prevents the tract from being viewed from the town. The portions of Superior National Forest surrounding this parcel generally have Low SIO designations, with some Moderate designations near the northeastern and southwestern corners, and High designations to the north.

Figure 4.3.11-1 The Hay Lake Tract: Looking North along the Pike River

4.3.11.2.5 Tract 2 – Lake County Lands

Recreation

The Tract 2 parcels all have very limited access. There is no evidence of recreational activity or hunting on any of these parcels.

Visual Resources

Tract 2 consists of four individual parcels, referred to as Lake County North and Lake County South, totaling 381.9 acres. The three Lake County North parcels are located southeast of Pine Lake and approximately 13 miles southeast of the federal lands, and are not visible from Pine Lake Road, the nearest public road. The portions of Superior National Forest surrounding these parcels have Low and Moderate SIO designations (see Figure 4.3.11-2). The Lake County South parcel is approximately 27 miles southeast of the federal lands. Due to flat terrain and the remote nature of the southern site, it is not visible from public roads or other public areas. The portions of Superior National Forest surrounding this parcel have Moderate SIO designations.

Figure 4.3.11-2 Looking East from the Northwest Corner of Lake County North, Southern Sub-Parcel

4.3.11.2.6 Tract 3 – Wolf Lands

Recreation

The Tract 3 parcels all have very limited access. A rough forest road provides access to Wolf Lands 3, and a trail accesses Coyote Creek. No trails were observed on any of the other parcels during site visits, and there is no evidence of recreational activity or hunting on any of the Tract 3 lands.

Visual Resources

Tract 3 consists of four separate parcels totaling 1,575.8 acres, and consists of level land containing wetlands, bogs, and forests. Wolf Lands 1 is located southeast of Pine Lake and may be visible from Nelson Road. The portions of Superior National Forest surrounding this parcel have Low and Moderate SIO designations. Wolf Lands 2 is due east of Greenwood Lake and may be visible from a private road to the east of the property. The portions of Superior National Forest surrounding this parcel have Low SIO designations. Wolf Lands 3 has recently been logged and may be visible from Forest Route 393 (see Figure 4.3.11-3). The portions of Superior National Forest surrounding this parcel have Low SIO designations, with a corridor of High SIO

land along the southeastern boundary. Wolf Lands 4 is visible from Forest Routes 103 and 393. The portions of Superior National Forest surrounding this parcel have Low SIO designations.

Figure 4.3.11-3 The Wolf Lands, Looking Northwest along Coyote Creek

4.3.11.2.7 Tract 4 – Hunting Club Lands

Recreation

Tract 4 is currently accessible via a private road. One trail passes close to the southern boundary of the site. There is no evidence of recreational activity or hunting on this parcel.

Visual Resources

Tract 4 is comprised of 160.2 acres and is approximately 50 miles northwest of the federal lands. It is level, remote, and surrounded by other forested lands (see Figure 4.3.11-4). There are no public roads leading into or directly around the parcel. Two small public roads are within 2 miles of the parcel but are screened from view by vegetation and terrain. The portions of Superior National Forest surrounding this parcel have Moderate SIO designations.

Figure 4.3.11-4 Wetland on the Hunting Club Lands Parcel

4.3.11.2.8 Tract 5 – McFarland Lake Lands

Recreation

Legal access to Tract 5 is limited to water access, although a private cart road exists at the edge of the property, as does a trail along the lake shore. There is no evidence of current recreational activity or hunting on this parcel; however, Tract 5 was previously owned by Wheaton College. A bunk house, fire pit, outhouse, and cistern (all unused and in disrepair) remain on site, indicating past use for recreational activities. All structures would be removed upon completion of the Land Exchange Proposed Action.

Visual Resources

Tract 5 encompasses 30.8 acres situated on the western shore of McFarland Lake (see Figure 4.3.11-5). The parcel is visible from the northern, eastern, southern, and portions of the western shore of McFarland Lake. County Road 74 and Woolys Bluff run along the southern and southeastern perimeter of McFarland Lake, but are substantially screened from viewing the parcel due to vegetation and flat terrain. A limited number of lakefront homes, private piers, and a public access point on the eastern shore of the lake have views of the McFarland Lake property. The portions of Superior National Forest surrounding this parcel have High SIO designations.

Figure 4.3.11-5 McFarland Lake from the McFarland Lake Tract

4.3.12 Wilderness and Other Special Designation Areas

4.3.12.1 Federal Lands

4.3.12.1.1 Land Exchange Proposed Action

The federal lands of the Land Exchange Proposed Action are similar to the Mine Site previously discussed, but exclude the privately owned land bordering Dunka Road to the south of the Mine Site. Section 4.2.12.1 provides a discussion of the existing conditions on the federal lands.

4.3.12.1.2 Land Exchange Alternative B

The federal lands included in the Land Exchange Alternative B are similar to the federal lands in the Land Exchange Proposed Action. Section 4.2.12.1 discusses the existing conditions on the federal lands.

4.3.12.2 Non-federal Lands

The non-federal lands comprise five tracts (groups of parcels) assembled by PolyMet for the purpose of the Land Exchange Proposed Action.

4.3.12.2.1 Tract 1 – Hay Lake Lands

Adjacent cRNAs include the Pike Mountain and Loka Lake cRNAs (southwest corner and northeast corner of the tract, respectively). Pike Mountain is a 709-acre research area located on top of the Mesabi Range, characterized by old growth northern hardwood communities (sugar maple and red oak), paper birch forest, and rock/talus communities. The Loka Lake cRNA is part of an extensive peatland dominated by stunted black spruce and tamarack with interspersed upland islands (USFS 2011h).

4.3.12.2.2 Tract 2 – Lake County Lands

There are no wilderness or other special designation areas in or adjacent to Tract 2.

4.3.12.2.3 Tract 3 – Wolf Lands

There are no wilderness or other special designation areas in or adjacent to Tract 3.

4.3.12.2.4 Tract 4 – Hunting Club Lands

There are no wilderness or other special designation areas in or adjacent to Tract 4.

4.3.12.2.5 Tract 5 – McFarland Lake Lands

This tract includes lakefront property on McFarland Lake, an entry point to the BWCAW. Access to the property is available by water from a landing off County Road 16 (Arrowhead Trail) approximately 10 miles north of Hovland, Minnesota. While near the BWCAW, this tract is located outside the BWCAW boundary. There are no other wilderness or other special-designation areas in or adjacent to Tract 5.

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4.3.13 Hazardous Materials

AOCs associated with contamination by hazardous materials from former activities and operations on the federal and non-federal lands are discussed in Section 4.3.1.

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4.3.14 Geotechnical Stability

The Land Exchange Proposed Action does not include the creation or modification of geotechnical features. As such, the current geotechnical conditions at lands proposed for exchange are not considered relevant to the EIS. The existing geotechnical conditions underlying the NorthMet Project Proposed Action stockpiles that would be located on federal lands proposed for exchange are discussed in Section 4.2.14.

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5.0 ENVIRONMENTAL CONSEQUENCES

5.1 INTRODUCTION

Pursuant to the requirements of NEPA regulations at 40 CFR 1502.16 and *Minnesota Rules*, part 4410.2300, Chapter 5 describes the potential environmental consequences of the NorthMet Project Proposed Action and Land Exchange Proposed Action on the affected environment as described in Chapter 4.

As defined in 40 CFR 1508.8, this chapter addresses the following types of effects:

- Direct effects, which are caused by the action and occur at the same time and place; and
- Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Evaluation criteria and analysis methodology are identified where applicable for each resource topic. Environmental effects were determined based on qualitative and/or quantitative assessment.

As listed in Table 5.1-1, this chapter follows the same structure and order of resource topics as Chapter 4. Section 5.2 describes the environmental consequences of the NorthMet Project Proposed Action and the NorthMet Project No Action Alternative. Section 5.3 describes the environmental consequences of the Land Exchange Proposed Action, Land Exchange Alternative B, and Land Exchange No Action Alternative.

The proposed lands to be exchanged are described in Section 5.3. Disclosure of appraisal information in the EIS is not required. Any decision, documented in the ROD, to move forward with a land exchange will be supported by a current appraisal, approved by the USFS, which verifies that the exchange meets the equal value requirements of applicable federal law and regulation. Requests for appraisal reports and appraisal review reports are processed under Freedom of Information Act procedures. Appraisals must conform to Uniform Appraisal Standards for Federal Land Acquisitions and the Uniform Standards of Professional Appraisal Practice of the Appraisal Foundation. The final proposed configuration of land would be determined after the market value of the parcels is determined by appraisals and the environmental analysis has been completed. This information will be presented in the ROD.

As previously indicated, the land exchange acreages used in the Project Description section are described in GLO acreages, while the acreages used in the Affected Environment and Environmental Consequences sections are described in GIS acreages. The environment consequences presented in Section 5.3 are based upon GIS data. GIS values indicate the size of the federal and non-federal parcels as computed geometrically using mapping software, which may be different than the GLO legal acreage. Unless noted as GLO acres, all values shown are derived from GIS data.

Table 5.1-1 Resource Topic Areas Discussed in Chapter 5

Resource Topic	NorthMet Project Proposed Action	Land Exchange Proposed Action
Land Use	5.2.1	5.3.1
Water Resources	5.2.2	5.3.2
Wetlands	5.2.3	5.3.3
Vegetation	5.2.4	5.3.4
Wildlife	5.2.5	5.3.5
Aquatic Species	5.2.6	5.3.6
Air Quality	5.2.7	5.3.7
Noise and Vibration	5.2.8	5.3.8
Cultural Resources	5.2.9	5.3.9
Socioeconomics	5.2.10	5.3.10
Recreation and Visual Resources	5.2.11	5.3.11
Wilderness and Special Designation Areas	5.2.12	5.3.12
Hazardous Materials	5.2.13	5.3.13
Geotechnical Stability	5.2.14	5.3.14

5.2 NORTHMET PROJECT

5.2.1 Land Use

This section evaluates the NorthMet Project Proposed Action against existing and applicable land use plans. The specific focus is on the consistency of the NorthMet Project Proposed Action with accepted plans, zoning ordinances, or land use agency management plans. It also addresses the legacy contamination and how it would be affected by proposed activities.

Summary

Components of the NorthMet Project Proposed Action are subject to the requirements of local comprehensive land use plans or the Superior National Forest Plan. In all cases, the NorthMet Project Proposed Action activities are consistent with the formally adopted plans. The NorthMet Project Proposed Action would decrease the amount of land available for public access and use, and would decrease portions of the 1854 Ceded Territory available for use by the Bands. Given the historic use of the federal lands within the Mine Site for mineral exploration and ongoing restrictions on public access (see Section 4.2.11), the NorthMet Project Proposed Action would result in little or no change in actual public use of these lands.

5.2.1.1 Methodology and Evaluation Criteria

The USFS uses the management area framework to broadly define the desired conditions and activities on lands within national forests. Land use outside the Superior National Forest is governed by local zoning and comprehensive plans. The management area designations applicable to the Mine Site and portions of the Transportation and Utility Corridor, as defined in the Forest Plan, are described in Section 4.2.1, as are zoning designations for land outside of the Superior National Forest.

The NorthMet Project Proposed Action is evaluated against the following evaluation criteria:

- Compatibility of proposed land use with existing land use, land use plans, zoning ordinances, 1854 Treaty obligations, and adjacent USFS management areas;
- Anticipated outcomes related to identified contaminated lands; and
- The degree to which past, ongoing, or planned investigation and remediation actions at legacy contamination sites would be affected by disturbance associated with the NorthMet Project Proposed Action.

5.2.1.2 NorthMet Project Proposed Action

5.2.1.2.1 Consistency with Zoning and Comprehensive Plans

The NorthMet Project area lies within the Mineral Mining zoning districts of the cities of Babbitt and Hoyt Lakes (Arrowhead 2014; Hoyt Lakes Planning Commission 2010), and an industrial use district of St. Louis County (St. Louis County 2011). Therefore, the NorthMet Project area is compatible with the zoning ordinance and draft revised Comprehensive Land Use Plan, and would not require an amendment of the respective zoning ordinances or Comprehensive Land Use Plans (Arrowhead 2014; City of Babbitt 1996). Both the county and municipal zoning districts surrounding the Plant Site are designated for industrial or mining use; the NorthMet

Project area is compatible with these designations and would not require amendments to current land uses. Privately owned parcels adjacent to the Mine Site fall under the same or similar zoning and land use designations; therefore, the NorthMet Project Proposed Action would not have the potential to conflict with surrounding land uses.

5.2.1.2.2 Consistency with Superior National Forest Plan

The Mine Site is located within the Superior National Forest and on lands designated as a General Forest-Longer Rotation Management Area (USFS 2011a). In such areas, the USFS allows exploration, development, and processing of mineral resources under conditions where activities are consistent with sound environmental management so as to contribute to economic growth. In addition to managing project development, the USFS also requires preparation of associated reclamation plans to ensure the long term protection and restoration of the natural resources (USFS 2004b). The NorthMet Project Proposed Action would be consistent with these policies.

The NorthMet Project Proposed Action would represent a reactivation of the Transportation and Utility Corridor (including the Dunka Road and the associated rail line) for mining, which would be compatible with existing corridor land uses. Under the NorthMet Project Proposed Action, Dunka Road would remain private for mine operation use. Superior National Forest lands to the east, south, and southwest of the Transportation and Utility Corridor are accessible by forest roads and are not dependent on Dunka Road for access (see Figure 4.3.1-1), although Forest Road 113 connects Dunka Road to CR 110 near Skibo, Minnesota. The NorthMet Project Proposed Action represents no anticipated change in the level of public access to either of these adjacent Superior National Forest parcels.

5.2.1.2.3 Areas of Concern

The land within the NorthMet Project area contains 59 AOCs listed under the VIC program of the MPCA. PolyMet became responsible for 29 of these AOCs (see legacy contamination discussion in Section 4.2.1.4.2). Of these, six have already been closed or have received a No Further Action letter from the MPCA (see Table 4.2.1-2). Additional investigation would be required to determine whether the remaining AOCs require further action. The NorthMet Project Proposed Action offers no direct resolution for the 33 AOCs that are designated as the responsibility of parties other than PolyMet (see Table 4.2.1-2). The MPCA VIC program would be utilized to facilitate and oversee remediation activity for any remaining potential historical releases on the 29 AOCs under the NorthMet Project Proposed Action.

5.2.1.3 NorthMet Project No Action Alternative

The NorthMet Project No Action Alternative would not result in any change in land management at the Mine Site or Transportation and Utility Corridor. Land at the Plant Site would continue to be managed in accordance with the existing closure plan and Consent Decree. The existing 1854 Treaty obligations for the Mine Site and Plant Site would remain unchanged.

5.2.2 Water Resources

This section is organized into a description of the criteria used for evaluating NorthMet Project Proposed Action-related effects, the methodologies used to predict these effects, and a discussion of the effects resulting from the NorthMet Project Proposed Action. A summary of the primary effects of the NorthMet Project Proposed Action on water resources is provided below.

Summary

The NorthMet Project Proposed Action would be located in an historic mining area, known as the Mesabi Iron Range, and in the vicinity of other past, present, and potential future mining projects. Although the Mine Site would be on undeveloped land, PolyMet proposes to re-use many of the former LTVSMC facilities at the brownfield Plant Site, which is located about 8 miles west of the Mine Site. While reusing the existing LTVSMC Tailings Basin for tailings disposal offers environmental benefits (e.g., reducing wetland effects and addressing legacy water quality issues), it does create challenges because the existing LTVSMC Tailings Basin is not lined and currently releases seepage with elevated concentrations of sulfate, TDS, and hardness, among other constituents. Many of the engineering controls proposed by PolyMet at the Plant Site are related to managing seepage from the combined existing LTVSMC tailings and the future NorthMet tailings.

The NorthMet Project Proposed Action would have the potential to affect groundwater and surface water hydrology and quality in both the Partridge River and Embarrass River watersheds. These two rivers are both tributaries to the St. Louis River and within the Lake Superior Basin. The rivers are not located within Rainy River Watershed (which is in the Hudson Bay Basin) and do not flow to or affect the water quality of the BWCAW.

The presence of perennial streams and watershed divides at both the Mine Site and Plant Site constrain the hydrologic effects of the NorthMet Project Proposed Action to the Partridge River and Embarrass River watersheds. There are two surficial groundwater and surface water hydrologic barriers between the Mine Site and the Rainy River Watershed (which is hydrologically connected to the BWCAW), including:

- High ground north of the Partridge River that creates a watershed divide separating the Superior Basin and Rainy River Watershed, which prevents surface water from passing between the two. This major watershed divide is included in the National Atlas, as well as in USGS and MDNR data.
- Yelp Creek and the Partridge River encircle the northern, eastern, and southern sides of the Mine Site. These streams act as hydrologic sinks for surficial groundwater and surface water originating at the Mine Site. Surface runoff or surficial groundwater seepage leaving the Mine Site would flow into Yelp Creek or the Partridge River, and eventually into the St. Louis River.

Potential cumulative effects on bedrock flow direction north of the Mine Site and are discussed in Section 6.2.2.3.1.

The NorthMet Project Proposed Action would represent the first copper-nickel-PGE mine in Minnesota, with the ore and waste rock containing various amounts of sulfide minerals. Sulfide minerals, when exposed to oxygen and water, have the potential to release soluble metals and

sulfate and produce acid mine drainage. The sulfide sulfur (S) concentrations of the NorthMet waste rock would be relatively low compared to many other mines with sulfide-bearing rock around the world. The NorthMet waste rock is predicted to average 0.15 percent sulfide S, while concentrations in other mines with sulfide-bearing rock can be as high as 40 percent (Minesite Drainage Assessment Group 2013).

Most of the bedrock in and around the NorthMet Deposit contains silicate minerals that have a small but measurable potential to neutralize acidity. Multi-year weathering tests demonstrate that the acid-generating potential of the Category 1 waste rock stockpile and the tailings (i.e., material containing less than or equal to 0.12 percent sulfide S) would be low enough that these facilities would not produce acidic leachate (PolyMet 2015q).

Where the pore water pH remains near-neutral, metal mobility tends to be limited as some metals released by oxidation are removed from solution by adsorption or co-precipitation. The Category 2/3 and Category 4 waste rock would have sulfide S concentrations that could produce acid drainage if exposed to oxygen and water; however, the mine plan calls for temporary storage (less than 20 years) of this waste rock on geomembrane lined stockpiles with a seepage collection system, and then subaqueous disposal in the East Pit where oxidation would be very limited and acid drainage would not occur.

The sulfate released from the NorthMet waste rock and tailings is especially important because there are waters supporting the production of wild rice downstream from both the Mine Site and Tailings Basin. Research indicates that elevated sulfate concentrations can affect the growth and viability of wild rice. The MPCA has established a 10 mg/L sulfate water quality standard for waterbodies designated as waters used for production of wild rice.

In anticipation of eventual NPDES/SDS permitting, the MPCA had previously developed draft staff recommendations as to what specific waters in the Project area were to be considered as waters used for production of wild rice. These included the waters described in Section 4.2.2.1.3 of this FEIS, the nearest being portions of the Partridge River downstream of the Mine Site near Colby Lake and portions of the Embarrass River downstream of the Plant Site above Sabin Lake.

Since the development of the draft MPCA staff recommendations, the MPCA has conducted preliminary evaluations of data collected as part of its legislatively mandated wild rice study and has identified conceptual approaches to revising both the numeric sulfate water quality standard of 10 mg/L and the identification of what waters would be subject to any revised standard (for wild rice waters). These conceptual approaches will continue to evolve, eventually resulting in a proposed rule. The proposed rule will likely evolve during the rulemaking process as well.

The final outcome of the evaluations and rulemaking is uncertain. The rulemaking could result in changes in the numeric standard and to what water it would apply. Therefore, this FEIS relies upon the current sulfate water quality standard of 10 mg/L that is being applied to the waters specifically identified in the previously developed draft MPCA staff recommendations for its analysis of potential NorthMet Project Proposed Action impacts.

In previously identified draft MPCA staff-recommended wild rice waters along the Partridge River, the sulfate concentration currently exceeds the 10 mg/L standard about half of the time, largely due to sulfate loading associated with water discharges from the Northshore Mine operation located upstream of the proposed NorthMet Mine Site.

In previously identified draft MPCA staff-recommended wild rice waters along the Embarrass River, the sulfate concentration exceeds the 10 mg/L standard nearly all the time due to discharges from Cliffs Erie Area 5 NW mine pit and the existing tailings basin to upstream tributaries of the Embarrass River. Given the 10 mg/L sulfate exceedances that occur on both the Partridge River and Embarrass River, it must be demonstrated that the NorthMet Project Proposed Action would not cause or add to exceedances of an effluent limit based on the 10 mg/L standard for permitting. In addition, for the Embarrass River and several of its tributaries at the Plant Site, the MPCA has developed supplemental requirements for acceptable sulfate concentrations and mass loadings.

As described in Section 2.3.2.1, the Co-lead Agencies prompted PolyMet to substantially modify the NorthMet Project Proposed Action between the DEIS and SDEIS. Additional modifications were made between the SDEIS and this FEIS to further protect water resources. The proposed engineering controls would provide a higher degree of reliability and flexibility to ensure that the evaluation criteria would continue to be met in the future, when nearly all contact/process water at the NorthMet Project Proposed Action area would be treated at the WWTF or the WWTP before being released to the environment.

At the Mine Site, the more reactive types of waste rock types (Category 2/3 and 4) and some of the less reactive Category 1 waste rock is now proposed for subaqueous disposal in the East Pit to limit oxidation of sulfide minerals and associated release of soluble metals. The majority of the less-reactive Category 1 waste rock would be permanently stored in a surface stockpile covered by a geomembrane with a vegetated soil cover (to reduce infiltration), and surrounded by a groundwater containment (capture) system.

The Category 1 containment system would consist of a barrier wall keyed into bedrock and an interior collection trench backfilled with permeable material containing necessary pipes and pumps to remove the collected water. It is estimated that more than 98 percent of affected groundwater seepage from the Category 1 stockpile would be captured by the containment system or would migrate as groundwater into the West Pit and East Pit (PolyMet 2015h). The affected water collected by the containment system and mine pits would be pumped to a WWTF, treated to acceptable chemical concentrations, and sent to the Plant Site. Following closure, once the West Pit is fully flooded, the treated water would be discharged, as necessary, to the West Pit Outlet Creek that flows into the Partridge River. The WWTF would use chemical precipitation and filtration up to the end of reclamation (approximately mine year 52) and then be converted to RO (or an equivalent treatment technology) to provide water treatment during post-closure maintenance. For RO operation, a distillation process would reduce the concentrate to a moist solid that would be disposed of offsite. After project operations, the only appreciable non-treated mine water leaving the Mine Site would be about 10 gpm of groundwater seepage in the surficial aquifer that would migrate south and eventually be released to the Partridge River.

At the Plant Site, it is estimated that the existing LTVSMC Tailings Basin produces about 200 gpm of surficial groundwater seepage, most of which emerges within adjacent surface waters, and about 2,400 gpm of surface water seepage, most of which reaches the Embarrass River. While this seepage has a high sulfate load, it appears that much of the sulfate is sequestered by natural processes in wetlands between the Tailings Basin and the Embarrass River.

The surface water and groundwater seepage containment systems along the northern, northwestern, and western portions of the proposed NorthMet Tailings Basin would capture

about 99 percent of the seepage from the Tailings Basin (i.e., 100 percent of shallow surface seepage and greater than 90 percent of groundwater seepage). As a consequence, the flow of tailings water towards the Embarrass River would be reduced to zero surface seepage and about 20 gpm of affected groundwater. The water collected by the seepage containment system would be sent to a WWTP operating with an RO or equivalently performing system, and the treated effluent would be sent either to the Mine Site to accelerate flooding of the West Pit or to tributaries of the Embarrass River to replace the flow captured by the containment system, or both. On the eastern side of the Tailings Basin, a seepage containment system would be installed, that due to the hydrogeologic conditions, would be expected to capture 100 percent of tailings surface seepage and groundwater seepage.

On the Tailings Basin itself, PolyMet proposes bentonite amendments on the side slopes (installed as they are constructed during operations) and on the beaches after the end of operations to reduce infiltration and oxygen diffusion into the tailings. A layer of bentonite would also be placed at the bottom of the Tailings Basin pond to reduce leakage. The objective of the bentonite amendments is to reduce tailings seepage and its chemical load during reclamation and post-closure. This would have the long-term effect of reducing influent flow rates and chemical loads to the WWTP.

During post-closure, the WWTF and the WWTP (both mechanical treatment facilities) would continue operating until monitoring and pilot-testing demonstrated that a transition could be made to non-mechanical treatment systems, which may consist of constructed wetlands, permeable reactive barriers (PRBs), permeable sorptive barriers (PSBs), and/or other technologies to be identified. Based on the results of field demonstrations, non-mechanical treatment systems would be implemented only when monitoring at mine facilities indicated that the water quality requirements could be met and flow rates are amenable to these measures. In this FEIS, non-mechanical treatment systems are not described in detail because the potential effects of the NorthMet Project Proposed Action are based on mechanical treatment that would operate indefinitely. However, implementation of non-mechanical systems is considered a long-term goal for closure.

The objective of closure is to provide mechanical or non-mechanical treatment for as long as necessary to protect water quality at applicable groundwater and surface water compliance points. Both mechanical and non-mechanical treatments would require periodic maintenance and monitoring activities. Mechanical water treatment is part of the modeled NorthMet Project Proposed Action for the duration of the simulations—these are 200 years at the Mine Site and 500 years at the Plant Site. The duration of the simulations ensured that peak groundwater concentrations at the locations of release to surface water would occur during the model simulations.

Water quality modeling performed in support of this FEIS indicates that water treatment systems would be needed indefinitely at the Mine Site and Plant Site. The water models constructed to assess the potential effects from the NorthMet Project Proposed Action were not designed to predict the duration of treatment nor do they capture all the factors that influence the duration of treatment (e.g., potential future regulatory and technological changes). Therefore, the models cannot be used to predict when treatment would end. Actual treatment requirements would be assessed on a recurring basis throughout operations, reclamation, and closure considering influent and effluent water quality and monitoring results. Those periodic assessments would be carried out to ensure continuous protection of groundwater and surface water quality and

compliance with water quality-based effluent limits. The periodic assessment process would rely on monitoring results coupled with predictive modeling rather than the results of the predictive modeling alone. Regardless of the precise duration of effects or water treatment at either the Mine Site or Plant Site, there are measures available to address impacts to natural resources, such as those identified in this FEIS. PolyMet would be responsible for maintenance and monitoring required under any permit and would not be released from financial assurance until all permit conditions have been met.

Several groundwater, surface water, and water quality models (MODFLOW, XP-SWMM, and GoldSim, respectively) were used to predict the potential hydrologic and water quality effects of the NorthMet Project Proposed Action. GoldSim independently modeled 27 chemical parameters and provided values to further calculate two more chemical parameters, TDS and hardness. GoldSim uses probabilistic (Monte Carlo) simulations that take into account the uncertainty of the model inputs and generated outputs taking the form of cumulative probability distributions. The Co-lead Agencies have selected the 90th percentile probability (P90) as their evaluation threshold in determining whether the model results meet established evaluation criteria (i.e., there is at least a 90 percent probability that a constituent would not exceed the water quality evaluation criteria) when the waterbody does not currently exceed the evaluation criteria.

This FEIS also assesses whether the NorthMet Project Proposed Action discharges would cause or add to an exceedance. This was done by evaluating the two modeling events. The first event (Event A) evaluated: 1) how often the NorthMet Project Proposed Action exceeded an evaluation criterion when the Continuation of Exiting Conditions (CEC) modeling scenario did not, and 2) the magnitude of the exceedance. The second event (Event B) evaluated: 1) how often the NorthMet Project Proposed Action concentrations exceeded CEC concentrations when both concentrations were above the evaluation criterion, and 2) the magnitude of the exceedance.

Probabilistic chemical concentrations predicted by GoldSim were compared against water quality evaluation criteria and CEC model results at eight groundwater and eight surface water evaluation locations at the Mine Site, and three groundwater and ten surface water evaluation locations at the Plant Site.

All of the 29 water quality parameters were screened against evaluation criteria to determine which ones require further analysis. Through initial and secondary screening evaluations in the Partridge River Watershed, Colby Lake, and the Embarrass River Watershed, only aluminum in the Embarrass River required further assessment to determine its potential project-related impacts. However, additional discussion is offered on other constituents of interest.

With the proposed engineering controls, the water quality model predicts that the NorthMet Project Proposed Action would not cause any significant water quality impacts because: 1) exceedances of the P90 threshold did not occur, 2) the NorthMet Project Proposed Action concentrations were no higher than concentrations predicted for the Continuation of Existing Conditions scenario, 3) the frequency or magnitude of exceedances for NorthMet Project Proposed Action conditions was within an acceptable range, or 4) the effects were not attributable to NorthMet Project Proposed Action discharges.

Flow modeling indicated that the NorthMet Project Proposed Action would not result in any substantial changes at the Mine Site nor at the Plant Site to surface water flows based upon established evaluation criteria when compared to the continuation of existing conditions.

Many of the lakes and rivers in the NorthMet Project Proposed Action area are classified as "impaired waters" by the MPCA because of elevated mercury in fish. There are several factors that cause elevated mercury in fish, including the increased availability of methylmercury. The production of methylmercury is dependent on sulfate concentrations and environmental conditions required for sulfate-reducing bacteria to live (e.g., sufficient organic carbon and lack of oxygen).

The NorthMet Project Proposed Action area is located within the Lake Superior Basin, so it is subject to the Great Lakes Initiative (GLI) mercury water quality standard of 1.3 ng/L. The NorthMet ore and waste rock contain trace amounts of mercury, but mass balance modeling and analog data from other natural lakes and mine pit lakes in northeastern Minnesota suggest that the mercury concentration in the West Pit Lake would stabilize at approximately 0.9 ng/L.

There would also be mercury in the tailings, although about 92 percent of the mercury in the ore is predicted to remain in the ore concentrate and the mercury concentration in seepage from the Tailings Basin is expected to be less than the standard. The WWTF and the WWTP would be designed to meet water quality based effluent limits that are protective of the GLI 1.3 ng/L mercury standard. Overall, the NorthMet Project Proposed Action is predicted to increase mercury loadings in the Embarrass River. Mercury loadings in the Partridge River would decrease. The net effect of these changes would be an overall reduction in mercury loadings to the downstream St. Louis River upstream of the Fond du Lac Reservation boundary. Therefore, the NorthMet Project Proposed Action would not add to any potential exceedance of the Fond du Lac mercury water quality standard of 0.77 ng/L within the Reservation.

PolyMet would be required by its permits to monitor the NorthMet Project Proposed Action's effects on surface water and groundwater hydrology and water quality in order to refine modeling to help predict future conditions. In the event that the monitoring coupled with modeling identifies the potential for any water quality exceedances, PolyMet has proposed an Adaptive Water Management Plan (AWMP) that identifies additional mitigation measures that could be taken, if necessary**,** to further protect water quality (see Section 5.2.2.3.5).

5.2.2.1 Evaluation Criteria

In general, water resource evaluation criteria focus on groundwater and surface water hydrology and water quality and are defined as thresholds or changes in the existing physical, chemical, and biological environment with the goal of protecting overall waterbody health.

5.2.2.1.1 Groundwater

This section discusses evaluation criteria for the effects of the NorthMet Project Proposed Action on groundwater hydrology (primarily groundwater levels) and water quality.

Hydrogeologic Evaluation Criteria

There are no state or federal regulatory standards for the maximum allowable change in groundwater levels. It is recognized that groundwater elevations would decrease within a small area around the mine pits. Groundwater elevations may also decrease near the Tailings Basin's containment system as a result of pumping on the Tailings Basin side of the cutoff wall. The significance of any changes in groundwater levels is evaluated in terms of its effects on other

resources (e.g., wetlands) and these potential effects are discussed in the appropriate resource sections. The magnitude of any changes in groundwater levels are quantified in this section.

Water Quality Evaluation Criteria

A total of 27 analytes were selected to be directly modeled because concentrations of those analytes could be altered by the NorthMet Project Proposed Action. The list of analytes was constructed considering host rock mineralogy and the results of geochemistry analyses. It includes the following analytes:

- Alkalinity
- Calcium
- Chloride
- Fluoride
- Sulfate
- Magnesium
- Potassium
- Sodium
- Aluminum
- Antimony
- Arsenic
- Barium
- Beryllium
- Boron
- Cadmium
- Chromium III
- Cobalt
- Copper
- Iron
- Lead
- Manganese
- Nickel
- Selenium
- Silver
- Thallium
- Vanadium
- Zinc

This suite of directly modeled solutes does not include hardness and TDS. Hardness was calculated from modeled calcium and magnesium concentrations. TDS was estimated by summing its constituent concentrations that were directly modeled, including calcium, chloride, fluoride, magnesium, potassium, sulfate, and a portion of alkalinity.

This FEIS assesses effects by comparing the predicted NorthMet Project Proposed Action-related water quality with a modeled existing water quality (as characterized by groundwater quality monitoring) and applicable Minnesota groundwater quality standards, which are based on Minnesota water use classifications (*Minnesota Rules*, chapters 7060, 7050, and 7052). Groundwater quality standards are USEPA primary MCLs (pMCL), USEPA sMCL, and MDH HRLs. The groundwater quality evaluation criteria, for the purposes of this FEIS, are defined as the strictest (i.e., lowest) concentration among the USEPA pMCLs, USEPA sMCLs, and the MDH HRLs, with the following exceptions:

- Human health-based primary drinking water standards for copper and lead are “at the tap” values applicable to treated water systems and not to “in situ” groundwater values (see Note 3 to Table 5.2.2-2). *Minnesota Rules* addressing the water quality standards applicable to Class 1 waters used for domestic consumption specifically state that the primary drinking water standards for copper and lead do not apply to Class 1 surface waters or groundwater. This FEIS uses the USEPA sMCL of 1,000 µg/L as the groundwater evaluation criteria for copper. Modeling predictions for lead are presented but without a groundwater evaluation criterion because no sMCL or an HRL is available for this analyte.
- Natural (unaffected) groundwater concentrations for aluminum and iron at the Mine Site and Plant Site are greater than secondary drinking water standards. The concentrations for these two solutes in groundwater are heavily influenced by processes not readily captured in water quality models (e.g., site-specific redox reactions). Furthermore, these sMCLs were established by the USEPA as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, and can be removed from groundwater with

simple readily available treatment technologies, and are not enforced by the USEPA. For example, concentrations above the aluminum sMCL (200 µg/L) may result in colored water and concentrations above the iron sMCL (300 µg/L) may result in rusty color, metallic taste, and reddish or orange staining.

- Natural (unaffected) groundwater concentrations for beryllium, manganese, and thallium (bedrock unit only) at the Mine Site and beryllium and manganese at the Plant Site are greater than secondary drinking water standards and/or the HRL (see Table 5.2.2-1). These elevated concentrations are consistent with concentrations seen elsewhere in the Iron Range and northeast Minnesota. *Minnesota Rules*, part 7060.0600, subpart 8, states that "where the background level of natural origin is reasonably definable and is higher than the accepted standard for potable water and the hydrology and extent of the aquifer are known, the natural level may be used as the standard."

The evaluation criteria for these solutes were set at either: 1) the 95 percent Upper Prediction Limit, 2) the second-highest value when there was a limited number of measured concentrations above the detection limit, or 3) half the detection limit when there were no detected concentrations pursuant to USEPA guidance (USEPA 2009b) (see Table 5.2.2-1).

Table 5.2.2-1 Beryllium, Manganese, and Thallium Evaluation Criteria

	Units	USEPA pMCL	USEPA sMCL	HRL	# samples	Range	Mean[5]	Recommended Evaluation Criteria
Mine Site		**Surficial**						
Beryllium	µg/L	4	--	0.08	320	ND–1.6	0.13	0.39[(1)]
Manganese	µg/L	--	50	100	311	ND–1,900	288	1,002[(1)(2)(6)]
Mine Site		**Bedrock**						
Beryllium	µg/L	4	--	0.08	49	ND–0.2	0.11	0.2[(3)]
Manganese	µg/L	--	50	100	49	ND–383	112	307[(1)(2)]
Thallium	µg/L	2	--	0.6	49	ND (0.2–2.0)	0.37	1.0[(4)]
Plant Site		**Surficial**						
Beryllium	µg/L	4	--	0.08	50	ND–2.72	0.20	0.54[(3)]
Manganese	µg/L	--	50	100	50	4.3–2,140	271	704[(1)]

Source: PolyMet 2015m and PolyMet 2015j.

Notes:
ND = Non-detect
1 95 percent Upper Prediction Limit (UPL) used as evaluation criteria.
2 Kaplan-Meier Method used to determine UPL.
3 Second-highest detected concentration used as evaluation criteria.
4 One half of the highest detection limit used as evaluation criteria.
5 Where non-detects occur, the mean was calculated using half the detection limit.
6 Risk Assessment Advice (RAA) levels of 100 µg/L for infants and 300 µg/L for children and adults.

Table 5.2.2-2 presents the pMCL, sMCL, HRL, and the evaluation criteria used in this FEIS.

Table 5.2.2-2 Groundwater Evaluation Criteria Applicable to the NorthMet Project Proposed Action

Solute	Units	USEPA pMCL	MDH HRL	USEPA sMCL	FEIS Evaluation Criteria
General Parameters					
Alkalinity	mg/L	--	--	--	--
Calcium	mg/L	--	--		
Chloride	mg/L	--	--	250	250
Fluoride	mg/L	4	--	2	2
Hardness	mg/L	--	--	--	--
Magnesium	mg/L	--	--	--	--
Potassium	mg/L	--	--	--	--
Sodium	mg/L	--	--	--	--
Sulfate	mg/L	--	--	250	250
Total Dissolved Solids	mg/L	--	--	500	500
Metals					
Aluminum	µg/L	--	--	50-200(4)	--[4]
Antimony	µg/L	6	6	--	6
Arsenic	µg/L	10	--	--	10
Barium	µg/L	2,000	2,000	--	2,000
Beryllium	µg/L	4	0.08	--	0.39/0.2/0.54(1)
Boron	µg/L	--	1,000(2)	--	1,000
Cadmium	µg/L	5	4	--	4
Chromium[6] III	µg/L	100	--	--	100
Cobalt	µg/L	--	--	--	--
Copper	µg/L	--[3]	--	1,000	1,000
Iron	µg/L	--	--	300(4)	--[4]
Lead	µg/L	--[3]	--	--	--
Manganese	µg/L	--	100	50	1,002/307/704(1)
Nickel (soluble salts)[5]	µg/L	--	100	--	100
Selenium	µg/L	50	30	--	30
Silver	µg/L	--	30	100	30
Thallium (salts)[5]	µg/L	2	0.6	--	0.6/1.0(1)
Vanadium	µg/L	--	50	--	50
Zinc	µg/L	--	2,000	5,000	2,000

Source: pMCLs (40 CFR 141), sMCLs (40 CFR 143), and HRLs (*Minnesota Rules*, part 4717.7500).

Notes:

1 Beryllium, manganese, and thallium (Mine Site bedrock unit only). Evaluation criteria differ by location (Mine Site Surficial Aquifer/Bedrock Aquifer/Plant Site Surficial Aquifer) based on background water quality (see Table 5.2.2-1). Criteria are based on dissolved concentrations unless otherwise noted (MPCA 2014g).

2 See MDH guidance: www.health.state.mn.us/divs/eh/risk/guidance/gw/boron.html.

3 Lead and copper enter drinking water primarily through plumbing materials. In 1991, the USEPA published the Lead and Copper Rule (USEPA 1991). This rule requires water systems to monitor drinking water at customer taps. The 1,300µg/L copper concentration and 15µg/L lead concentration represent action levels that, when exceeded at 10 percent of customer taps, require the water system to take additional actions to control corrosion. Therefore, these values reflect concentrations at the customer tap. Additionally, *Minnesota Rules*, part 7050.0221, subpart 1B, states that the primary drinking water standards for copper and lead are not applicable to Class 1 groundwater.

4 Aluminum and iron were excluded from groundwater evaluation criteria due to baseline USEPA sMCL standard exceedances in the Iron Range and Northeast Minnesota and because these concentrations are heavily influenced by processes not captured in the proposed models (e.g., site-specific redox reactions). Further, standards for these parameters were established for management of aesthetic conditions in treated drinking water and are readily removed from groundwater with simple readily

available treatment technologies. This policy was adopted by the Co-lead Agencies in the NorthMet EIS Groundwater Impact Assessment Planning Final Summary Memo (June 27, 2011) (MDNR et al. 2011).

[5] Nickel and thallium. The MDH HRL is based on the salt form of this parameter. It is conservatively assumed, for purposes of this FEIS, that the salt form is equivalent to the total concentrations of this parameter.

[6] Chromium III is used in this FEIS because it is the most likely form of chromium to be present at NorthMet Project Proposed Action project site.

These groundwater quality evaluation criteria are assessed at the following evaluation locations (see Figures 5.2.2-7 and 5.2.2-9):

- Partridge River Watershed:
  - Surficial Aquifer
    - East Pit and Category 2/3 Flowpath – at the Partridge River (coinciding with property boundary)
    - Ore Surge Pile Flowpath – at the Partridge River
    - WWTF Flowpath – at the property boundary
    - Overburden Storage and Laydown Area Flowpath – at the old property boundary (a short distance south of Dunka Road) which is this FEIS Mine Site boundary
    - West Pit Flowpath – at the property boundary
  - Bedrock
    - East Pit Bedrock Flowpath – at the property boundary
    - West Pit Bedrock Flowpath toward SW-004 – at the property boundary
    - West Pit Bedrock Flowpath toward SW-004a – at the property boundary
- Embarrass River Watershed (all surficial aquifer, see Section 5.2.2.2.3):
  - North Flowpath – at the north property boundary
  - Northwest Flowpath – at the northwest property boundary
  - West Flowpath – at the west property boundary

5.2.2.1.2 Surface Waters

This section discusses evaluation criteria for the effects of the NorthMet Project Proposed Action on surface water hydrology and quality.

Hydrologic Alteration of Streams and Lakes Evaluation Criteria

Hydrologic evaluation criteria include a comparison of proposed hydrologic changes with both existing natural conditions and historic hydrologic alterations from permitted mining practices, an assessment of present and predicted channel stability, and review of any appropriate physical or biological stream data. Evaluation criteria for streamflows in the Partridge River Watershed and changes in lake or reservoir levels in the NorthMet Project Proposed Action area are those developed by (Richter et al.1996; 1998) related to alteration of hydrology and were adopted by the Co-lead Agencies during the IAP process (MDNR et al. 2011b).

The main parameters recommended for this "range of variability" approach include:

- Annual mean daily flow by month;
- Annual maximum 1-day, 3-day, 7-day, 30-day, and 90-day flows;
- Annual minimum 1-day, 3-day, 7-day, 30-day, and 90-day flows;
- Number of high pulses (i.e., the number of times per year the mean daily flow increases above the 75th percentile of all simulated mean daily flows);
- Number of low pulses (i.e., the number of times per year the mean daily flow falls below the 25th percentile of all simulated mean daily flows);
- Duration of high pulses (i.e., the number of days per year with mean flows above the 75th percentile of all simulated daily mean flows);
- Duration of low pulses (i.e., the number of days per year with mean flows below the 25th percentile of all simulated daily mean flows);
- Mean duration of high pulses (i.e., the ratio of duration of high pulses to number of high pulses);
- Mean duration of low pulses (i.e., the ratio of duration of low pulses to number of low pulses); and
- Annual mean, annual maximum, and annual minimum lake levels in Colby Lake and Whitewater Reservoir.

The magnitude of deviation from existing conditions in the hydrologic parameters, based on XP-SWMM modeling prepared for the Partridge River Watershed, helps determine the degree of potential effect on stream ecology. These values are not expressed as compliance standards, but would assist in monitoring effects and recommending potential mitigation measures as appropriate.

Flow characteristics for different reaches of the Embarrass River and selected tributaries were estimated by extrapolating flows from USGS gaging station 04017000 (located just downstream of PM-12.3) on a catchment area basis. Flow parameters estimated in the Embarrass River Watershed include groundwater baseflow, annual 1-day minimum flow, annual 1-day maximum flow, and annual daily mean flow.

The MDNR also has recommended maintaining surface flows within plus or minus 20 percent of existing conditions in NorthMet Project Proposed Action-affected streams to maintain existing aquatic ecology (Chisholm 2006). See section 5.2.6 for more details.

Water Quality Evaluation Criteria

This FEIS assesses effects on water by comparing the predicted water quality under the NorthMet Project Proposed Action against evaluation criteria based on the State of Minnesota water quality standards and use classifications (*Minnesota Rules*, chapters 7050 and 7052). Applicable use classifications of the primary surface waters potentially affected by the NorthMet Project Proposed Action are described in Section 4.2.2 and are summarized in Table 5.2.2-3.

Table 5.2.2-3 Applicable Use Classifications of the Primary Surface Waters in the NorthMet Project Proposed Action Area

		Domestic Consumption	Aquatic Life and Recreation			Industrial Consumption		Agriculture and Wildlife		Aesthetic Enjoyment	Other uses
Watershed	**Stream Name**	**1B**	**2A**	**2B**	**2Bd**	**3B**	**3C**	**4A**	**4B**	**5**	**6**
Partridge	Partridge River			X			X	X	X	X	X
Partridge	West Pit Outlet Creek			X			X	X	X	X	X[1]
Partridge	Wetlegs Creek			X			X	X	X	X	X
Partridge	Longnose Creek			X			X	X	X	X	X
Partridge	Wyman Creek	X	X			X	X	X	X	X	X
Partridge	Colby Lake	X			X		X	X	X	X	X
Embarrass	Embarrass River			X			X	X	X	X	X
Embarrass	Trimble Creek			X			X	X	X	X	X
Embarrass	Mud Lake Creek			X			X	X	X	X	X
Embarrass	Second Creek			X			X	X	X	X	X
Embarrass	Unnamed Creek			X			X	X	X	X	X

Note:
[1] The WWTF would discharge to the West Pit Outlet Creek.

In *Minnesota Rules*, part 7050.0221, the USEPA primary and secondary drinking water standards are adopted for Class 1B waters (i.e., those treated with simple chlorination for domestic consumption). The USEPA primary drinking water standards (40 CFR 141) set mandatory MCLs for drinking water contaminants to protect the public from consuming water that presents a risk to human health. The USEPA has also established secondary drinking water standards (40 CFR 143) for 15 contaminants that are intended to assist public water systems in managing their drinking water for aesthetic considerations such as taste, color, and odor. These contaminants are not considered a risk to human health.

The same suite of solutes was modeled for surface waters as described above for groundwater. As mentioned above, hardness and TDS concentrations were not directly modeled.

Because the NorthMet Project Proposed Action area is located in the Lake Superior Basin, the GLI (Lake Superior) water quality standards also apply (*Minnesota Rules*, chapter 7052). These Lake Superior standards can differ from the water quality standards for the same parameters in *Minnesota Rules*, chapter 7050. Where different, the 7052 standards supersede the 7050 standards, even if the 7052 rules are less stringent. For parameters not listed in chapter 7052, the standards from chapter 7050 apply.

Surface water standards are “in-stream” standards applicable at the surface water in question, which include the Partridge River and its tributaries for the Mine Site, Transportation and Utility Corridor, and the Plant Site, and the Embarrass River and its tributaries for the majority of the Tailings Basin.

Applicable surface water quality evaluation criteria, for the purposes of this FEIS, are listed by use classification in Table 5.2.2-4, with the strictest (i.e., lowest) concentration from the applicable water use classifications applying.

It should be noted that the water quality standards for metals are expressed for total metals in the table, but are applied as dissolved metal criteria for application to surface waters (*Minnesota Rules*, part 7050.0220). For the majority of metals, the ratio of the total metal criteria to the dissolved metal criteria is sufficiently close to one such that the total standard is adequately representative of the applicable criteria.

Table 5.2.2-4 Surface Water Quality Evaluation Criteria Applicable to Different Classes of Surface Water

Parameter	Units	Class 1B pMCL	Class 1B sMCL	Class 2A	Class 2Bd[3]	Class 2B[3]	Class 3B[4]	Class 3C[4]	Class 4A[5]	Class 4B[5]	Class 5	Class 6
General												
Alkalinity	mg/L	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/L	--	250	230	230	230	100	250	--	--	--	--
Fluoride	mg/L	4	2	--	--	--	--	--	--	--	--	--
Hardness	mg/L	--	--	--	--	--	250	500	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--
pH	s.u.	--	6.5–8.5	6.5–8.5	6.5–9.0	6.5–9.0	6.0–9.0	6.0–9.0	6.0–8.5	6.0–9.0	6.0–9.0	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--
Sulfate	mg/L	--	250	--	--	--	--	--	10[(2)]	--	--	--
TDS	mg/L	--	500	--	--	--	--	--	700	--	--	--
Metals Total[7]							--	--	--	--	--	--
Aluminum	µg/L	--	50–200	87	125	125	--	--	--	--	--	--
Antimony	µg/L	6	--	5.5	5.5	31	--	--	--	--	--	--
Arsenic	µg/L	10	--	2.0[(1)]	2.0[(1)]	53[(1)]	--	--	--	--	--	--
Barium	µg/L	2,000	--	--	--	--	--	--	--	--	--	--
Beryllium	µg/L	4.0	--	--	--	--	--	--	--	--	--	--
Boron	µg/L	--	--	--	--	--	--	--	500	--	--	--
Cadmium[6]	µg/L	5	--	2.5[(1)]	2.5[(1)]	2.5[(1)]	--	--	--	--	--	--
Chromium (III)[6]	µg/L	100	--	86[(1)]	86[(1)]	86[(1)]	--	--	--	--	--	--
Cobalt	µg/L	--	--	2.8	2.8	5.0	--	--	--	--	--	--
Copper[6]	µg/L	--[8]	1,000	9.3[(1)]	9.3[(1)]	9.3[(1)]	--	--	--	--	--	--
Iron	µg/L	--	300	--	--	--	--	--	--	--	--	--
Lead[6]	µg/L	--[8]	--	3.2	3.2	3.2	--	--	--	--	--	--
Manganese	µg/L	--	50	--	--	--	--	--	--	--	--	--
Mercury	ng/L	2,000	--	1.3[(1)]	1.3[(1)]	1.3[(1)]	--	--	--	--	--	--
Nickel[6]	µg/L	--	--	52[(1)]	52[(1)]	52[(1)]	--	--	--	--	--	--
Selenium	µg/L	50	--	5.0[(1)]	5.0[(1)]	5.0[(1)]	--	--	--	--	--	--
Silver	µg/L	--	100	0.12	1.0	1.0	--	--	--	--	--	--
Thallium	µg/L	2	--	0.28	0.28	0.56	--	--	--	--	--	--
Vanadium	µg/L	--	--	--	--	--	--	--	--	--	--	--
Zinc[6]	µg/L	--	5,000	120[(1)]	120[(1)]	120[(1)]	--	--	--	--	--	--

Source: *Minnesota Rules*, chapters 7050 and 7052; USEPA pMCL (40 CFR 141); sMCL (40 CFR 143).

Notes:
All values represent total concentration unless otherwise noted.

[1] Based on *Minnesota Rules*, part 7052.0100, *Water Quality Standards Applicable to Lake Superior Basin*, which supersedes standards listed in *Minnesota Rules*, part 7050.0140.

[2] The quality of Class 4A waters of the state shall be such as to permit their use for irrigation without significant damage or adverse effects upon any crops or vegetation usually grown in the waters or area… The following standards shall be used as a guide in determining the suitability of the waters for such uses… Sulfates (SO_4) - 10 mg/L, applicable to water used for production of wild rice during periods when the rice may be susceptible to damage by high sulfate levels.

[3] *Minnesota Rules*, parts 7050.0222 and 7052.0100.

[4] *Minnesota Rules*, part 7050.0223.

[5] *Minnesota Rules*, part 7050.0224.

[6] Water quality standard for this metal is hardness dependent. The listed value assumes a hardness of 100 mg/L.

[7] Standards for metals are expressed as total metals, but must be implemented as dissolved metal standards. Factors for converting total to dissolved metals are listed in *Minnesota Rules*, parts 7050.0222 and 7052.0360.

[8] Lead and copper enter drinking water primarily through plumbing materials. In 1991, USEPA published the Lead and Copper Rule (http://www.epa.gov/safewater/lcrmr/index.html). This rule requires water systems to monitor drinking water at customer taps. The 1,300-µg/L copper concentration and 15-µg/L lead concentration represent action levels that, when exceeded at 10 percent of customer taps, require the water system to take additional actions to control corrosion. Therefore, these values reflect concentrations at the customer tap. Additionally, *Minnesota Rules*, part 7050.0221, subpart 1B, states that the primary drinking water standards for copper and lead are not applicable to Class 1 surface waters.

Surface Water Quality Evaluation Locations

These surface water evaluation criteria are assessed at the following surface water evaluation locations (see Figures 5.2.2-28 and 5.2.2-13):

- Partridge River Watershed
  - Partridge River – at SW-002, SW-003, SW-004, SW-004a, SW-004b, SW-005, and SW-006; and
  - Colby Lake.
- Embarrass River Watershed
  - Embarrass River – at PM-12, PM-12.2, PM-12.3, PM-12.4, and PM-13 (note that model results for evaluation locations PM-12.3 and PM-12.4 did not show anything different so are not discussed further in this FEIS);
  - Mud Lake Creek – at MLC-2 and MLC-3;
  - Trimble Creek – at TC-1 and PM-19; and
  - Unnamed Creek – at PM-11.

Relationship of Hardness to Evaluation Locations

There are six metals evaluated whose surface water quality standards vary with hardness concentrations: cadmium, chromium III, copper, lead, nickel, and zinc. Calcium and magnesium ions that contribute to water hardness generally lower metals toxicity (i.e., as hardness concentration increases, the water quality standard for these metals also increases). In the case of this FEIS, as hardness increases, evaluation criteria increase simultaneously. Within the water quality modeling, estimated concentrations for these six metals are compared to NorthMet Project Proposed Action hardness-based evaluation criteria at each model evaluation location and each model time step to determine the frequency and magnitude of evaluation criteria exceedances. See Section 5.2.2.2.3 for more information.

Downstream Water Quality Standards

The Fond du Lac Band has promulgated water quality standards that are protective of specific, designated, or beneficial uses for waterbodies on the Fond du Lac Reservation. This Reservation is located approximately 70 miles downstream of the NorthMet Project Proposed Action area on the St. Louis River. These standards were approved by the USEPA in December 2001. They apply to all waters, including wetlands, within the Reservation. The Fond du Lac water quality standards include determination of designated or beneficial uses, narrative and numeric criteria to support or sustain those uses, and anti-degradation provisions. This FEIS analyzes compliance with their mercury standard.

Based upon results of Fond du Lac Band water quality monitoring, as well as additional resource investigations, the Reservation's reach of the St. Louis River is attaining all of its beneficial uses and meeting all applicable water quality standards with the exception of mercury. In-stream mercury concentrations in the St. Louis River, measured by the Fond du Lac Band, have been below the GLI Chronic Wildlife Standard of 1.3 ng/L, but exceed the Fond du Lac Band's human health chronic standard of 0.77 ng/L. For this reason, the Fond du Lac Band is especially

concerned about any new or expanded discharges to the St. Louis River upstream of the Reservation that may adversely affect mercury bioaccumulation in fish in the St. Louis River (Fond du Lac, Pers. Comm., March 6, 2012).

The MDNR conducted studies in the St. Louis River in 2012, which included an unusually wet spring and early summer followed by a long dry period (Berndt et al. 2014). The studies found that mercury concentrations in filtered samples collected in Cloquet were 3.5 ng/L in May, increased to 7 ng/L in July, and then fell gradually through the rest of the summer to 1.4 ng/L by late October. Upstream from the Partridge River, mercury concentrations over the same period ranged from 5.2 ng/L up to a peak of 11.8 ng/L in late June, eventually decreasing only to 2.3 ng/L by late October when the study ended. Thus, mercury was never below the 1.3 ng/L standard during these study periods. These results indicate the importance of considering seasonal variability when evaluating mercury concentrations in rivers.

Mercury Evaluation Criteria

Mercury numeric standards are based on total (particulate plus dissolved) concentrations. For the Lake Superior Basin, which is where the NorthMet Project Proposed Action is located, the Class 2B (aquatic life and recreation) numeric chronic standard for mercury in the water column protective of wildlife is 1.3 ng/L. This is the evaluation criteria used and is consistent with the GLI standard. The criterion is applied at in-stream surface water evaluation locations and to modeled WWTF and WWTP effluent. This FEIS also considers the 0.77 ng/L standard at the Fond du Lac Reservation. Mercury was not included in GoldSim modeling and was evaluated separately. There is a relationship, only partially understood, between sulfate concentration and the conversion of inorganic mercury by sulfate-reducing bacteria into methylmercury. The MDNR has been conducting numerous studies in the region that indicate a strong contextual component is needed when considering impacts of sulfate on methylmercury production and transport (Berndt et al. 2014). When, how, and where the sulfate is added to a stream or watershed must be considered to evaluate impacts to the mercury cycle.

Methylmercury is more bioavailable than inorganic mercury, and it can bioaccumulate in the aquatic food chain (e.g., fish, wildlife, and humans) to concentrations of concern. Currently, there is no State of Minnesota surface water quality standard for methylmercury, or for sulfate in the context of its potential for effect on methylmercury concentrations, as the production of methylmercury is not only dependent on sulfate concentrations, but also on environmental conditions required for sulfate-reducing bacteria to live (e.g., sufficient organic carbon and lack of oxygen). However, the State of Minnesota has a fish tissue water quality standard for mercury of 0.2 milligram per kilogram (mg/kg), which was amended in *Minnesota Rules*, chapter 7050, in 2008. In 2006, the MPCA also developed a *Strategy to Address Indirect Effects of Elevated Sulfate on Methylmercury Production and Phosphorus Availability*, which identifies policies and review procedures for evaluating the potential of proposed projects to produce methylmercury. This strategy includes recommendations to avoid or minimize the discharge of water with elevated sulfate concentrations to methylmercury “high-risk” situations (MPCA 2006a).

The *Minnesota Rules* fish tissue standard for mercury of 0.2 mg/kg is lower than the USEPA criterion of 0.3 mg/kg (wet weight, per USEPA criteria) to adjust for the higher per capita consumption of wild-caught fish in Minnesota. Methylmercury is the only form of mercury that accumulates appreciably in fish. This criterion reflects this fact by assuming that all fish tissue mercury is in the methylmercury form.

Research suggests that total mercury concentrations in streams and methylmercury content in fish are roughly proportional within individual watersheds (USGS 2010), such that an increase in total mercury in water would be expected to result in an increase in mercury content in fish within that watershed. MPCA's Mercury Risk Estimation Method (MMREM) was used to assess the potential changes in fish mercury concentrations in nearby lakes (Barr 2015f). The MMREM relies on empirical fish contamination data combined with the principle of proportionality between mercury in fish and atmospheric deposition (MPCA 2006c). The potential incremental change in fish mercury concentration is discussed further in Section 6.2.6.3.3.

Waters Used for Production of Wild Rice Evaluation Criteria

Minnesota Rules, part 7050.0224, defines the Class 4A water quality standards for the Agriculture and Wildlife Use Classification, which includes a 10 mg/L sulfate standard "applicable to water used for production of wild rice during periods when the rice may be susceptible to damage by high sulfate levels." Application of this standard is therefore dependent on the identification of specific waters used for production of wild rice. When evaluating any facility or project with potential effects on wild rice production, the MPCA considers all available information to determine on a case-by-case basis which surface waters are used for production of wild rice (MPCA 2012b). For the NorthMet Project Proposed Action, the MPCA considered available lists of wild rice beds not promulgated by rule assembled by the MDNR, the 1854 Treaty Authority and the Wild Rice Management Workgroup (a coalition of federal, state, and tribal resource managers and other wild rice stakeholders), and the results off site-specific wild rice field surveys conducted in 2009, 2010, and 2011 in the Partridge and Embarrass rivers. To date within the NorthMet Project Proposed Action area, MPCA (2012b) has reached a draft staff recommendation that the following are waters used for production of wild rice (see Figure 5.2.2-1):

- Within the Embarrass River Watershed:
  - That segment of the Embarrass River from MN Highway 135 bridge to the inlet to Sabin Lake;
  - The northernmost tip of Wynne Lake (Embarrass River inlet); and
  - Embarrass Lake north of the railroad crossing.
- Within the Partridge River Watershed:
  - That portion of Upper Partridge River from river mile approximately 22, just upstream of the railroad bridge near Allen Junction, to the inlet to Colby Lake;
  - That portion of Lower Partridge River from the outlet of Colby Lake to its confluence with the St. Louis River; and
  - That portion of Second Creek from First Creek to the confluence with Partridge River.

Since the development of the draft MPCA staff recommendations, the MPCA has conducted preliminary evaluations of data collected as part of its legislatively mandated wild rice study and has identified conceptual approaches to revising both the numeric sulfate water quality standard of 10 mg/L and the identification of what waters would be subject to any revised standard (wild rice waters). These conceptual approaches will continue to evolve, eventually resulting in a proposed rule. The proposed rule will likely evolve during the rulemaking process as well.

The final outcome of the evaluations and rulemaking is uncertain. The rulemaking could result in changes in the numeric standard and to what waters it would apply. Therefore, this FEIS relies on the current sulfate water quality standard of 10 mg/L that is being applied to the waters specifically identified in the previously developed draft MPCA staff recommendations for its analysis of potential NorthMet Project Proposed Action impacts.

Therefore, of the surface water quality evaluation locations identified in Figure 5.2.2-1, the wild rice evaluation criterion is applied at PM-13 on the Embarrass River, and at SW-005 and SW-006 on the Partridge River. The MPCA may, in the near future and as part of its ongoing rule revision process, propose additional or alternate waters to be protected for wild rice; however, this process is not yet complete. Therefore, the above-described waters used for production of wild rice evaluation criteria is used for the analyses presented in this FEIS.

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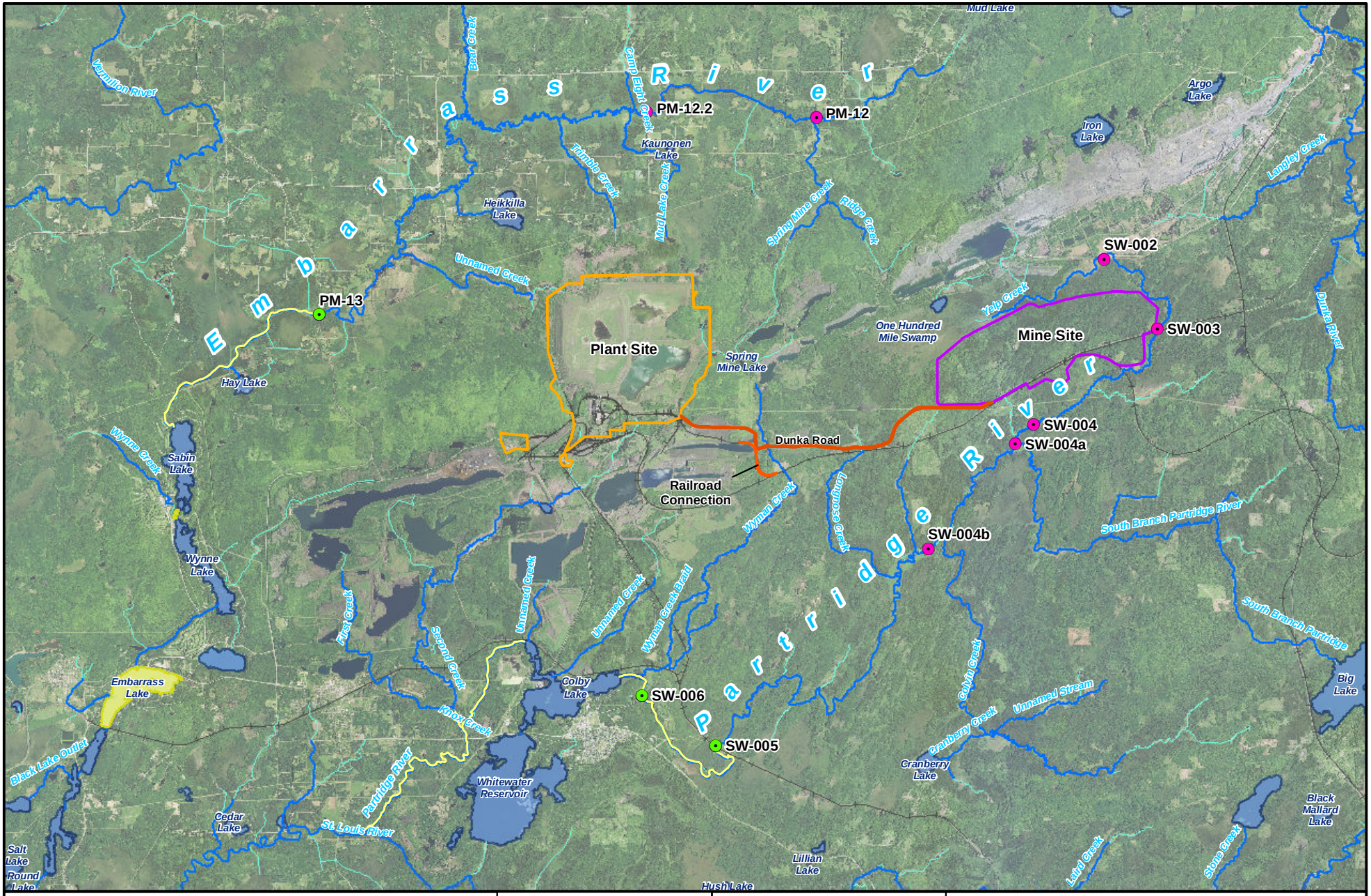

Figure 5.2.2-1
Draft MPCA Staff-Recommended Wild Rice Waters
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5.2.2.2 Methodology

There have been substantial changes to the methodology used for predicting NorthMet Project Proposed Action effects on groundwater and surface flow and quality since the DEIS. Terminology necessary to understand the differences between the DEIS and FEIS impact assessment methodologies is provided in Table 5.2.2-5. For example, the DEIS evaluated water quality at the Mine Site using three deterministic cases (i.e., low-, medium-, and high-flow conditions), in an attempt to capture uncertainty associated with some of the input values. This was supplemented by limited uncertainty analysis to help assess whether the deterministic modeling produced conservative values. The uncertainty analysis in the DEIS indicated mixed results regarding the conservatism of the deterministic modeling.

Table 5.2.2-5 Definition of Terminology used in this FEIS

Term	Definition
Uncertainty	Incomplete knowledge of a process, quantity, value, or outcome, which can be quantified as a cumulative probability distribution.
Variability	There is no single correct absolute value; values vary in time and/or space.
Deterministic Simulation	Prediction is made based on a model for which all input parameters are represented as single values; i.e., no uncertainty is applied to the inputs. The model results are expressed as a set of fixed outcomes.
Probabilistic Simulation	Prediction is made based on a model that incorporates the uncertainty of model inputs; i.e., the cumulative probability distributions of input parameters are incorporated into the calculations. The model results are expressed as a set of cumulative probability distributions.

For this FEIS, a probabilistic modeling approach was used for predicting NorthMet Project Proposed Action effects on water resources. Probabilistic modeling is a statistical method that estimates the probability of a given outcome using inputs in a form of probabilistic distributions. It is different than deterministic modeling, where all inputs have single (deterministic) values and the model always produces a single result without explicitly accounting for uncertainty. The probabilistic approach not only enables prediction of effects on groundwater and surface water from the NorthMet Project Proposed Action, but it also helps quantify the probability of the effects occurring. Table 5.2.2-6 compares the modeling approach used in the DEIS with the approach used in this FEIS.

Table 5.2.2-6 Comparison of EIS Modeling Approaches

Previous DEIS	Current FEIS
Stand-alone model components	Linked source-to-evaluation location
Discrete points in time with interpolation	Continuous through time until or near when steady-state conditions reached
Deterministic with three cases	Probabilistic, including uncertainty and variability
Separate uncertainty analysis of select components	Fully integrated uncertainty analysis of entire model

The effects of the NorthMet Project Proposed Action on groundwater and surface water quality within the Partridge River Watershed were evaluated using MODFLOW for groundwater hydrologic modeling, XP-SWMM for surface water hydrologic modeling and GoldSim for water quality modeling. MODFLOW and XP-SWMM were used as deterministic models, while GoldSim was run in a probability mode. Detailed descriptions of how these models were applied

to the Mine Site are provided in the Mine Site Water Modeling Data Package (PolyMet 2015m) and Mine Site Water Modeling Work Plan (Barr 2012c). At the Plant Site, the modeling consisted of MODFLOW, GoldSim, and a spreadsheet compilation of streamflows for different watersheds based on Embarrass River stream gauging data. Detailed descriptions of how these models were applied to the Plant Site are provided in the Plant Site Water Modeling Data Package (PolyMet 2013j) and Plant Site Water Modeling Work Plan (Barr 2012d). Each of the three model types is summarized below.

5.2.2.2.1 Groundwater Hydrologic Modeling

Regional (large-scale) and site-scale (local-scale) modeling of groundwater flow systems was performed using MODFLOW, a public-domain, numerical, finite-difference groundwater flow model that can simulate three-dimensional saturated flow in heterogeneous media (McDonald and Harbaugh 1988). Input to the model included delineation of the areal and vertical extent of geologic materials, hydrologic characteristics of those materials (e.g., hydraulic conductivity), meteoric aquifer recharge, and alignment of hydrologic boundaries (e.g., perennial stream channels). MODFLOW provided estimates of hydraulic head distributions, groundwater flows/directions in the surficial aquifer and bedrock units, and groundwater releases to perennial streams (groundwater baseflow). By adjusting hydraulic conductivity and recharge inputs, the MODFLOW models were calibrated to measured hydraulic heads in monitoring wells and estimated groundwater baseflows in the Partridge River.

MODFLOW modeling results and site characterization data were used to delineate groundwater flowpaths at the Mine Site and Plant Site. The flowpaths were used to model groundwater flow and solute transport from mine facilities to groundwater evaluation locations and to locations where groundwater releases to surface water. Those flowpaths were programmed into the Mine Site and Plant Site water quality models.

Mine Site

For the DEIS, a regional MODFLOW model was developed to evaluate areally distributed aquifer recharge, hydraulic head distributions, and groundwater flow directions (Barr 2007c). The regional model contained two layers—one for the surficial deposits and one for bedrock. The model boundary conditions were mostly regional drainage divides (treated as no-flow boundaries) and perennial streams (treated as prescribed head boundaries). Revisions to the XP-SWMM model since the DEIS provided groundwater baseflow estimates at different locations along the Partridge River. By varying areal recharge and material hydraulic conductivities, the regional model was roughly calibrated to hydraulic heads measured in monitoring wells. As such, the model provides a simplified representation of the hydraulic conductivity of the shallow bedrock-surficial deposits system.

To evaluate the Mine Site hydrogeology in more detail, a second site-scale MODFLOW model of the Mine Site and adjacent area was developed that was a “window” within the regional model. The site-scale MODFLOW model contained eight layers—one for the surficial aquifer and seven for bedrock. Where not coincident with perennial streams or drainage divides, the prescribed head conditions along the external boundaries of the site-scale model were taken from the head distributions predicted by the regional model. The footprints and vertical extent of the mine features were modified from the DEIS model to reflect the current Mine Plan. The areal

extent of the site-scale MODFLOW model and simulated hydrologic features are shown on Figure 5.2.2-2 and Figure 5.2.2-3.

The automated-inverse modeling code PEST (Watermark 2005) was used to perform the site-scale MODFLOW calibration. The model was calibrated by adjusting the distribution of hydraulic conductivities and river conductances to provide a reasonable match between: 1) modeled hydraulic heads and measured water levels at site monitoring wells, and 2) between model-estimated groundwater baseflows along the Partridge River and interpreted groundwater baseflows based on stream gaging data and XP-SMMM results.

Using the revised groundwater baseflow estimates, the site-scale MODFLOW model was calibrated using target groundwater baseflow values of 0.41, 0.51, and 0.92 cfs at SW-002, SW-003, and SW-004, respectively. During calibration, the ratio of horizontal/vertical hydraulic conductivity of all bedrock units was fixed at 10 and the vertical hydraulic conductivity of surficial deposits was not modified from the pre-calibration value of 0.0028 ft/day. The automated PEST calibration used field-measured hydraulic conductivities to help constrain the range of allowed hydraulic conductivities in the model. Information on calibration of the site-scale MODFLOW model is provided in PolyMet (2015m).

The calibrated site MODFLOW model provided optimized hydraulic conductivities of different subunits of the surficial aquifer and bedrock, which are summarized in Table 5.2.2-7. Specific storage and specific yield were set at $3x10^{-6}$ ft^{-1} and 0.25, respectively, for both surficial deposits and bedrock. For the surficial aquifer in the Site MODFLOW model, the meteoric recharge flux was 1.8 inches per year (in/yr) for glacial drift and 0.36 in/yr for wetland deposits. The areally-averaged meteoric recharge flux was about 0.75 in/yr, which equates to a groundwater baseflow yield of 0.055 cubic feet per second per square mile (cfs/mi^2).

Table 5.2.2-7 Mine Site Hydraulic Conductivities Based on Calibration of the MODFLOW Model and Field Testing

Major Unit	Subunit	Horizontal Hydraulic Conductivity Minimum ft/day	Horizontal Hydraulic Conductivity Mean ft/day	Horizontal Hydraulic Conductivity Maximum ft/day	Vertical Hydraulic Conductivity ft/day
Surficial Materials	Glacial drift	0.056	19.2	167	0.0028
	Wetland deposits	0.003	23.7	224	0.0028
Bedrock[1]	Giants Range Batholith	---	0.029	---	0.0029
	Biwabik Iron Fm.	---	0.87	---	0.087
	Upper Virginia Fm.	---	0.31	---	0.031
	Duluth Complex	---	0.00044	---	0.000044
	Lower Virginia Fm.	---	0.079	---	0.0079

Note:
[1] Single-value calibration values were developed for bedrock units; min/max values were not evaluated.

The primary purpose of the Mine Site MODFLOW model was to estimate transient groundwater inflows to the mine pits during operations and subsequent closure. These flow rates were directly transferred from the calibrated MODFLOW model to the Mine Site GoldSim model. No other MODFLOW results were directly transferred to GoldSim. A secondary purpose of the MODFLOW model was to confirm inputs in the GoldSim model that were determined from site characterization data, including hydraulic conductivities, aquifer recharge, groundwater flow directions, hydraulic gradients, and the distribution of groundwater baseflows along the Partridge River. An evaluation of these parameters showed that the GoldSim setup/inputs were generally consistent with the MODFLOW results.

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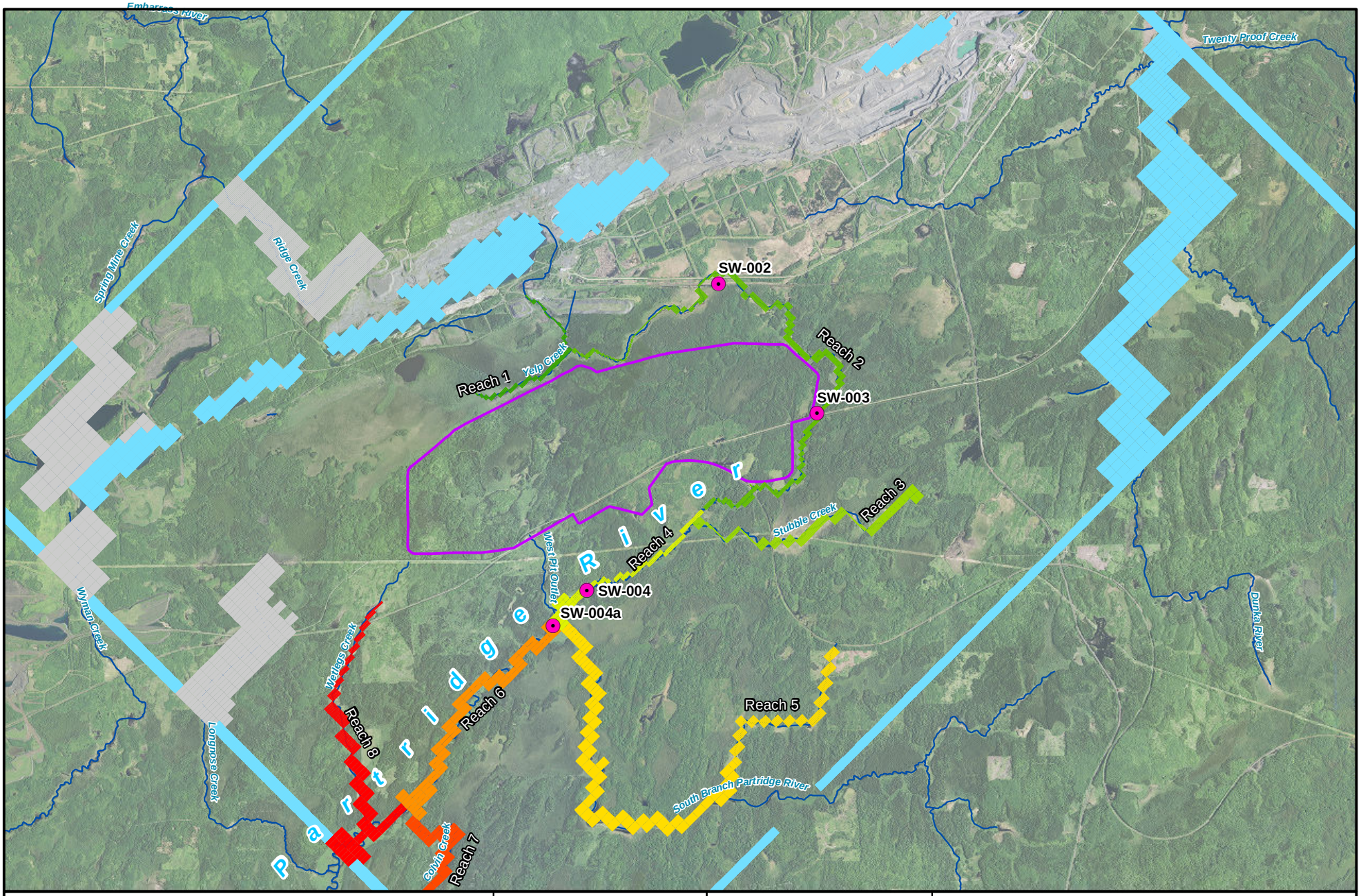

Figure 5.2.2-2

Mine Site Local MODFLOW Model - River Reaches

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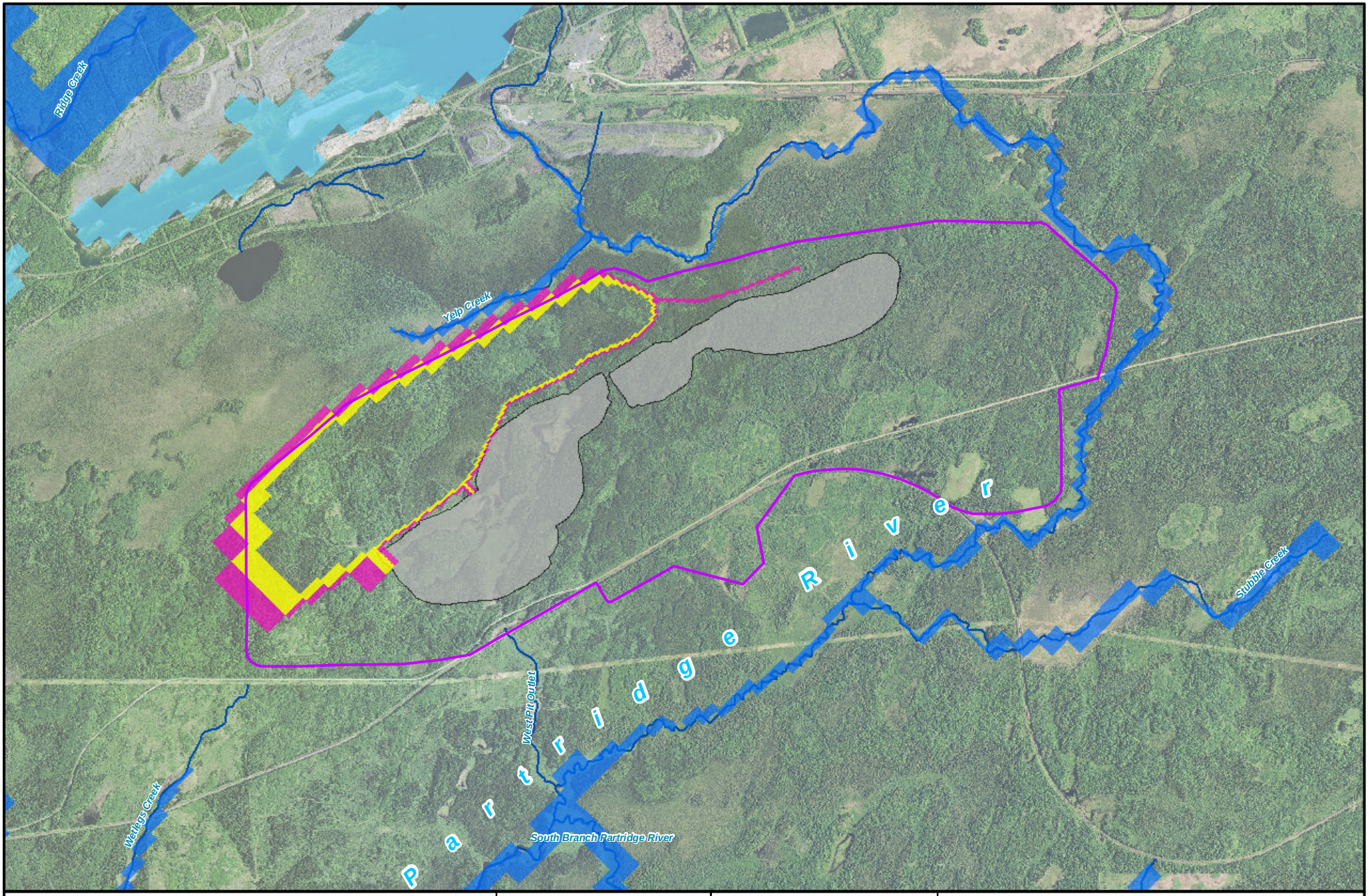

Specified Head Cell
River Cell
Low-K Cell Representing Soil Barrier or Cutoff Wall
Drain Cell Representing Category 1 Drainage Collection System
Mine Site
Mine Pit
Stream/River

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1,000 2,000 4,000 Feet

Figure 5.2.2-3
Mine Site Local MODFLOW Model - Surface and Groundwater Containment System Features
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Figure 5.2.2-7 shows surficial groundwater flowpaths with the potential to transport mine-affected groundwater from identified source areas to designated evaluation locations. These surficial groundwater flowpaths were evaluated from site characterization information. MODFLOW confirmed that the flowpaths were reasonable. The hydrologic characteristics of each surficial flowpath are summarized in Table 5.2.2-8. Three bedrock flowpaths to the Partridge River were also delineated in the model: West Pit to SW-004, West Pit to SW-004a, and East Pit to SW-004. Due to the low bulk hydraulic conductivity of Duluth Complex rocks that comprise these bedrock flowpaths, the groundwater flow rates to the Partridge River are very low and travel times are very long. The three bedrock flowpaths are included in the GoldSim water quality model, but results show that these flowpaths do not provide a mine-related chemical load to the Partridge River over the 200 year simulation.

A sequence of steady-state MODFLOW model simulations, or sensitivity runs, was used to evaluate groundwater inflows into the West Pit that would occur during its flooding. Figure 5.2.2-4 and Figure 5.2.2-5 shows groundwater inflow rates into the West Pit and East Pit estimated by transient MODFLOW model simulations of the mine operations. Figure 5.2.2-6 shows a plot of inflows versus water surface elevation in the West Pit, Central Pit, and East Pit.

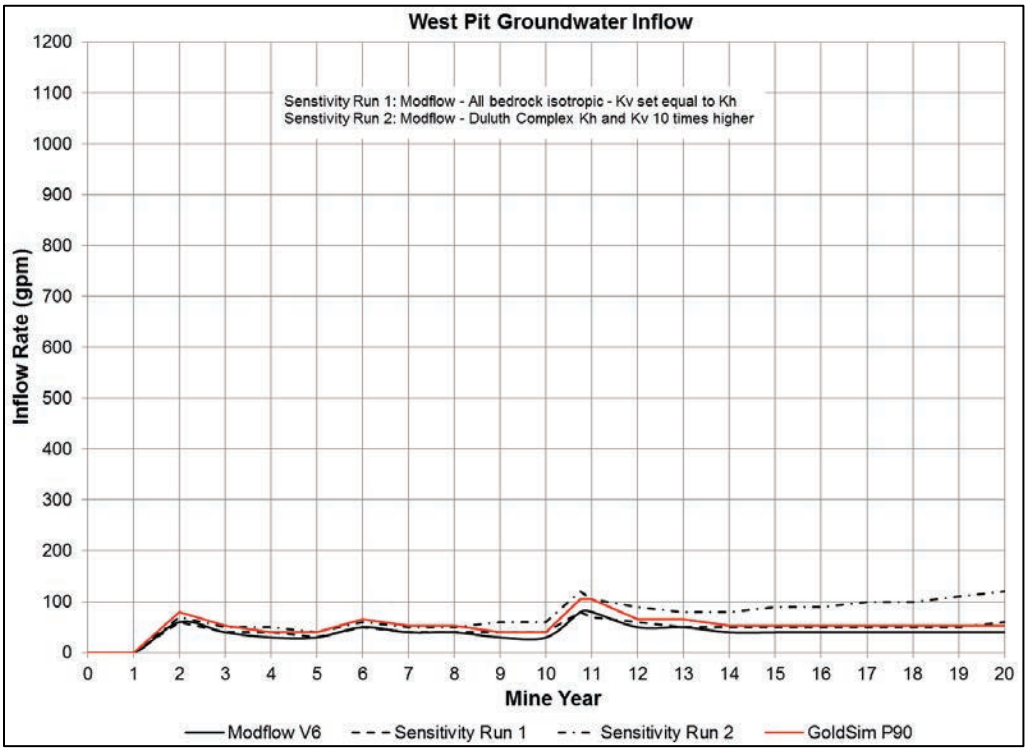

Figure 5.2.2-4 West Pit Groundwater Inflow

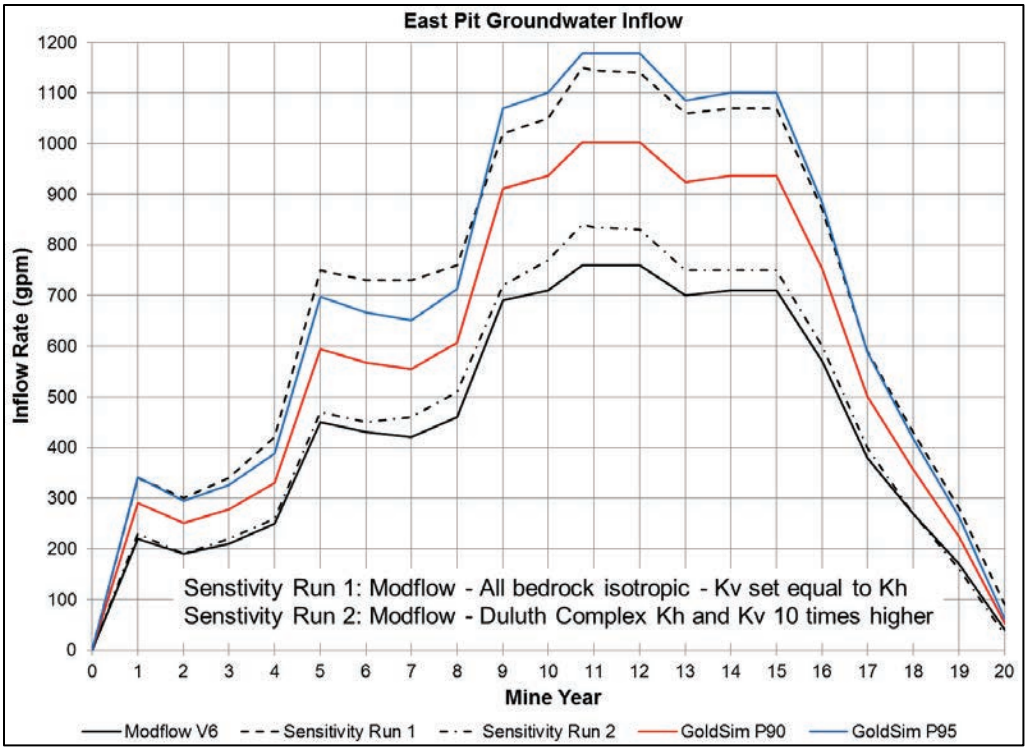

Figure 5.2.2-5 East Pit Groundwater Inflow

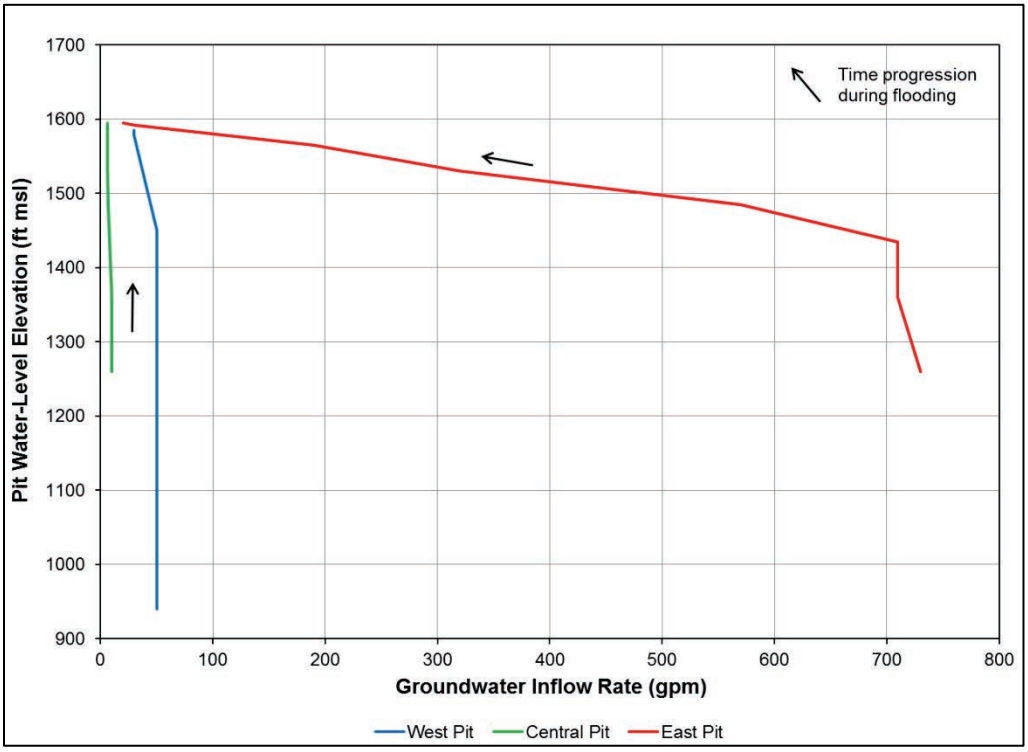

Figure 5.2.2-6 Groundwater Inflow Rate vs Pit Water-Level Elevation for the West Pit, Central Pit, and East Pit

The West Pit and Central Pit are surrounded by a low permeability Duluth Complex rock. As a consequence, the model simulated groundwater inflow rates are relatively low. The north wall of the East Pit is excavated into the higher permeability Virginia Formation, and this caused higher estimated inflow rates into the East Pit.

The following key time events during mine operations were represented in transient model simulations and analysis:

Mine Year	**Key Event**
1 – 10	East Pit and West Pit mined and dewatered
11	East Pit reaches a maximum depth and East Pit mining ceases
11 – 16	Central Pit Mining and East Pit and Central Pit converge
12	Start of backfill placement in East Pit
10 – 20	Continuation of West Pit mining and dewatering
20	East Pit and Central Pit backfilled and re-saturated
20	Start of West Pit flooding

Bedrock flowpaths and evaluation locations were assessed, but because the bedrock (primarily the Duluth Complex) is highly competent with very low bulk hydraulic conductivities (see Table 5.2.2-7), very little groundwater transport occurs within the bedrock flowpaths and travel times to evaluation locations are predicted to be in the thousands of years. Attachment B of the Mine Site Water Modeling Data package (PolyMet 2015m) provides a complete description of the Mine Site MODFLOW model.

Concerns have been raised that fractures or faults may exist at the Mine Site that could function as high-permeability conduits for groundwater over long distances through the bedrock. Such features have been identified elsewhere on the Canadian Shield. A few studies have identified the presence of fracturing and faults in the Duluth Complex, but these structures are believed to have formed during emplacement of the Duluth Complex and are unlikely to transmit water. Where fractures were found, some were largely filled with gouge (Foose and Cooper 1979; 1981), which is granular or clayey material of small grain size, or related to an unusual cleavage pattern known to occur in one location west of Duluth, about 70 miles from the Mine Site (Foster and Huddelston 1986).

At the Mine Site and Plant Site, there is no field evidence to suggest that bedrock faults or fracture zones provide enhanced groundwater flow to the Partridge and Embarrass Rivers. It is possible that structural features with enhanced groundwater flow exist, but they are improbable given the body of evidence for the Project Site and other mines sites in the Iron Range. Further, if such features do exist, it is highly unlikely that they could be intercepted and characterized by any reasonable field program of exploratory boreholes. This FEIS documents the need for a robust monitoring program during operations and closure to provide direct or indirect evidence on the existence of, or lack of, hydrologically significant faults. If significant fractures are identified (that is, fractures which could lead to violation of water quality standards or dewatered wetlands), then contingency mitigation measures would be employed to mitigate the fracture-related effects.

Boring log data indicates that the bedrock appears competent, with a relatively low fracture frequency. Hydrogeologic investigations have indicated that the bulk hydraulic conductivity of Duluth Complex bedrock at the Mine Site is very low. See Section 4.2.2.2.1 for additional information.

The effects of this limited fracturing are incorporated into the bulk hydraulic conductivity values used to characterize bedrock for the water quality impact assessment modeling (discussed in Section 5.2.2.2.3). This is common practice in large-scale evaluations of bedrock hydraulics. The Mine Site GoldSim model was updated for this FEIS to better represent the likelihood of the presence of an upper bedrock zone that is more fractured than deeper bedrock.

Site characterization data (see Section 4.2.2.2.1 and 4.2.2.3.1) indicate that the bulk hydraulic conductivity of upper bedrock is two to three orders-of-magnitude lower than the hydraulic conductivity of the surficial aquifer. Thus, groundwater flow and transport at both the Mine Site and Plant Site are dominated by the hydraulics of the surficial aquifer, and bedrock plays a negligible role in transporting site-derived contaminants to the Partridge and Embarrass Rivers.

The Mine Site model and the Plant Site model explicitly consider buried stream channels by including a rendering of bedrock topography based on a compilation of bedrock topographic data. Channel deposits that formed in the periglacial environment (e.g., eskers or outwash) also occur embedded within the surficial deposits, and can contain materials higher in permeability than adjacent materials. However, drill hole data do not indicate that these features are laterally continuous, which limits their influence on the bulk hydraulic conductivity of the surficial deposit. Variation in the hydraulic conductivity of surficial deposits (like that caused by buried channel deposits) is represented in the probabilistic approach used in the GoldSim model, where hydraulic conductivity is defined by a probability distribution, rather than assigned a fixed, deterministic value.

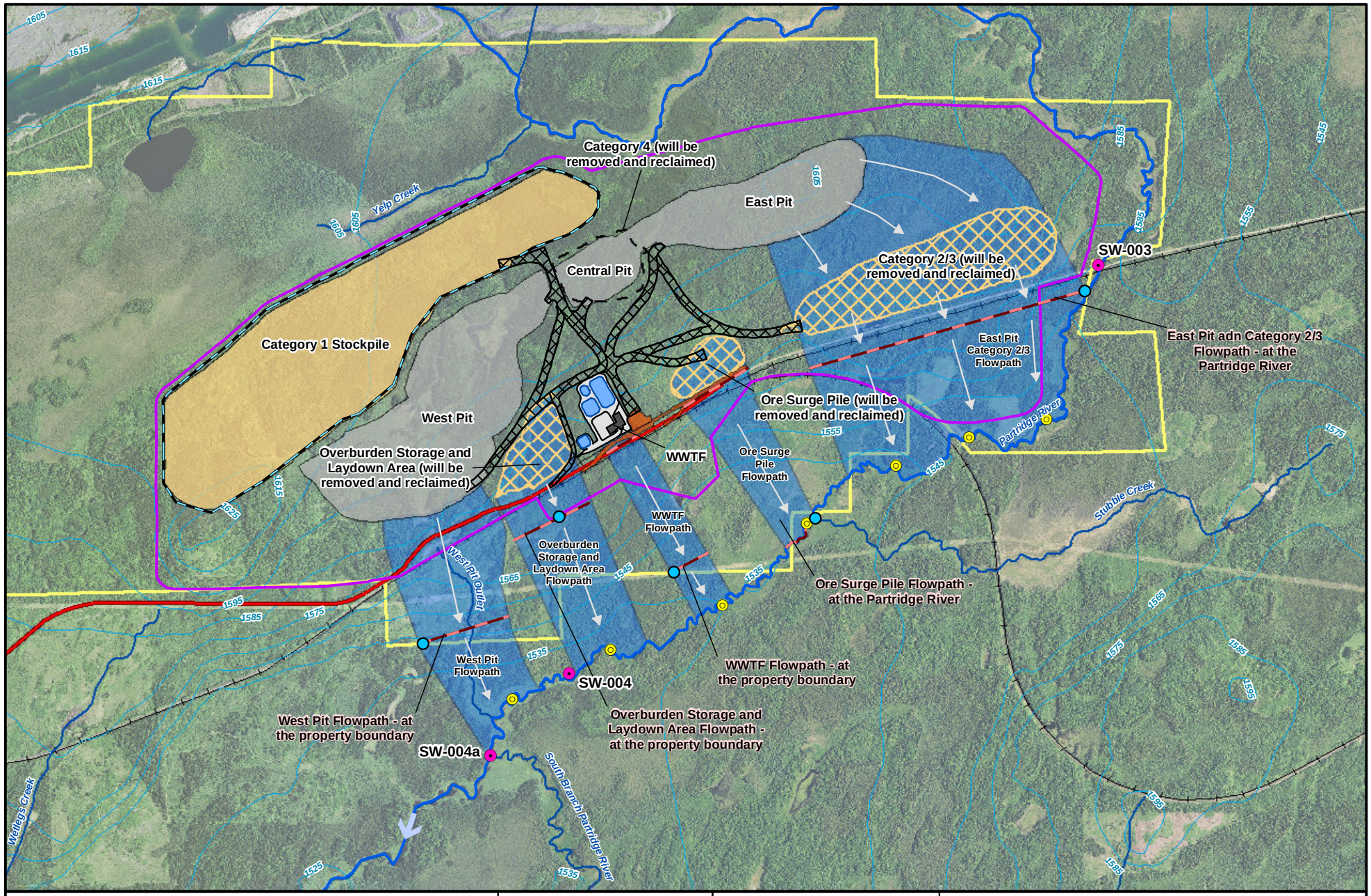

Figure 5.2.2-7
Mine Site Surficial Groundwater Flowpaths
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Table 5.2.2-8 Mine Site Surficial Groundwater Flowpaths used in GoldSim Based on Best-Estimate (P50) Values

Description	Units	West Pit	Overburden Storage Laydown Area	Wastewater Treatment Facility	Ore Surge Pile	Cat 2/3[4]	East Pit[4]
Flowpath total length	meter	1,505	1,600	1,730	1,415	2,120	2,120
Flowpath width	meter	665	550	240	430	1,440	1,440
Flowpath thickness	meter	5	5	5	5	5	5
Aquifer porosity	---	0.3	0.3	0.3	0.3	0.3	0.3
Aquifer recharge flux	in/yr	0.82	1.15	0.70	0.95	0.91	0.91
Contaminant source begin time	mine yr	48[(1)]	0	0	0	0	20[(1)]
Contaminant source end time	mine yr	Continuous	20	33	21	20	Continuous
Flow rate of affected water from contaminant source into upgradient portion of flowpath	gpm	6.1[(1)]	14.0[(2)] [0]	0.014[(3)] [0]	0.0012[(3)] [0]	0.019[(3)] [0]	3.8[(1)]
Aquifer recharge flow rate into flowpath	gpm	10.6	9.9 [12.8]	3.9 [3.7]	6.1 [7.3]	28.8 [39.2][(5)]	35.4
Groundwater discharge rate to Partridge River	gpm	16.7	23.9 [12.8]	3.9 [3.7]	6.1 [7.3]	28.8 [39.2]	39.2
Distance from contaminant source to groundwater evaluation location	meter	860	260	970	1,070	180	910
Distance from contaminant source to surface water discharge (Partridge River)	meter	1,360	1,230	1,310	1,070	910	1,610

Notes:
Brackets indicate closure value (after facility is decommissioned).
1 Pit water level rises above base of surficial aquifer.
2 Infiltration of meteoric water at top of facility.
3 Liner leakage at bottom of facility.
4 Category 2/3 stockpile and East Pit release affected water into the same flowpath at different times.
5 Includes East Pit discharge into flowpath.

Plant Site

A series of numerical groundwater models were developed for the Tailings Basin's area. All those model versions are collectively referred to as the Plant Site MODFLOW model. The primary objectives for that modeling were to estimate:

- Seepage loss from the LTVSMC Tailings Basin ponds under various conditions;
- Average annual infiltration rate;
- Seepage rates for each of the groundwater flowpaths represented in the GoldSim model;
- Hydraulic conductivities of natural surficial materials, tailings, and bedrock;
- Areal aquifer recharge;
- Specific yield;
- Distribution of tailings seepage to different segments of the Tailings Basin perimeter;
- Depth of the phreatic surface; and
- The rate of contaminated groundwater flow that would bypass the Tailings Basin seepage containment system.

The initial Plant Site MODFLOW model was constructed with two layers. The upper layer represented the current LTVSMC tailing, while the lower layer represented surficial deposits and bedrock outcrops. The model simulated groundwater flow in tailings materials and in the underlying shallow groundwater system. It did not have layers to represent bedrock below surficial deposits. Thus, the base of surficial deposits was treated as a no-flow boundary. This was justified because bulk hydraulic conductivity of the upper bedrock is estimated to be about two orders-of-magnitude lower than the hydraulic conductivity of the surficial aquifer. Further, interpretation of available data indicates that deeper bedrock has substantially lower hydraulic conductivity than shallow bedrock. The upper model layer, layer 1, was set to be inactive outside of the Tailings Basin's footprint.

The areal extent of the Plant Site MODFLOW model and model-simulated hydrologic features are shown on Figure 5.2.2-8.

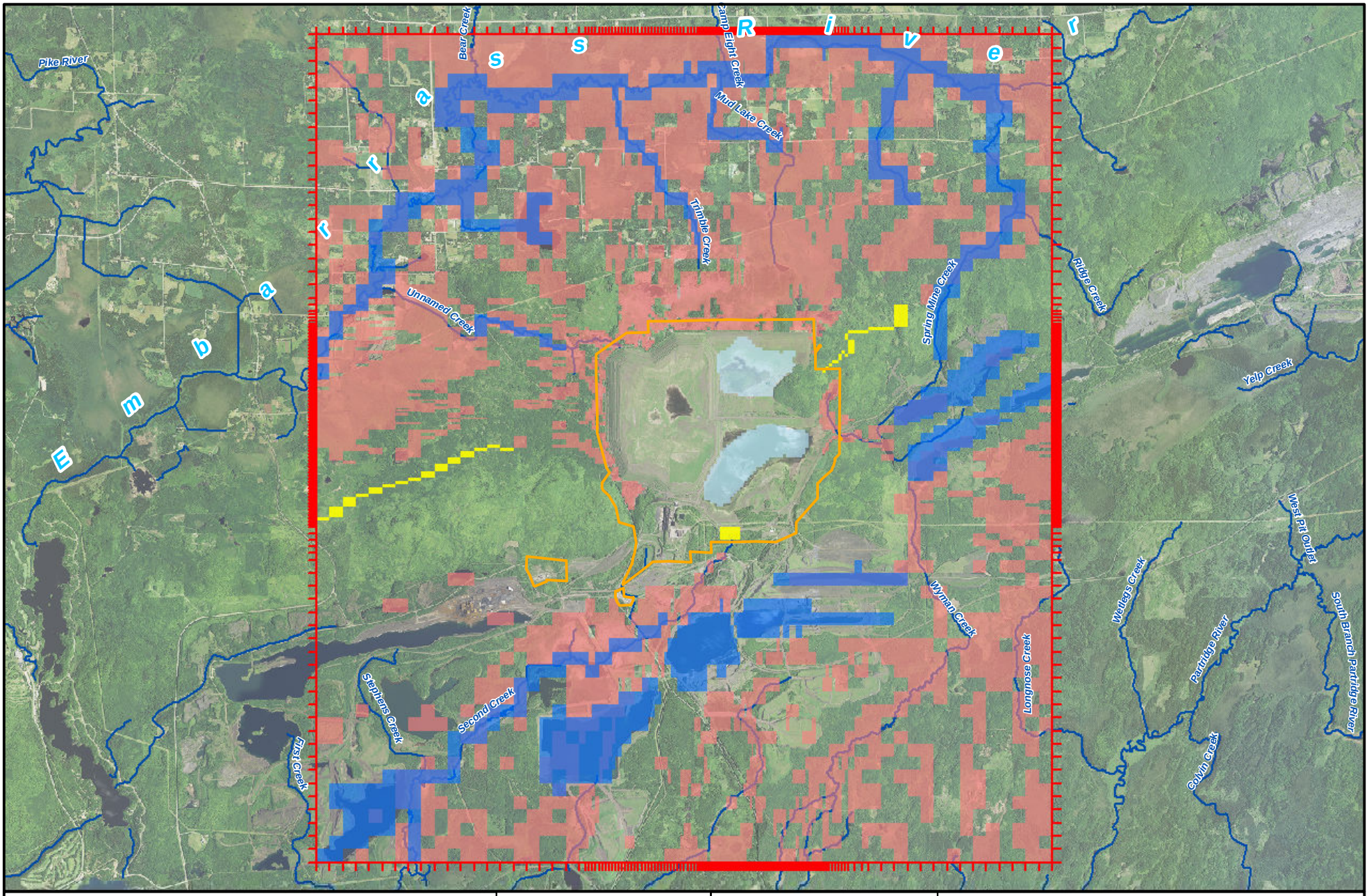

Plant Site
Constant Head Cell Layer 1
Constant Head Cell Layer 2
River Cells (Wetlands) - Layer 2
Drain Cell - Layer 2
Model Grid

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.5 1 2 Miles

Figure 5.2.2-8
Plant Site MODFLOW Model - Extent and Boundary Conditions
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The original versions of the model were calibrated to simulate steady-state conditions. They did not simulate changes in water levels within the Tailings Basin. An initial steady-state model calibration was conducted using water level data collected through 2002, measured seepage rates, and leakage from ponds within cells 1E and 2E estimated using a water balance analysis. The re-calibrations were performed by varying input hydraulic conductivities, specific yields, and aquifer recharge, such that the model-predicted hydraulic heads reasonably match water levels measured in monitoring wells. An emphasis during re-calibration was to prevent the model from computing water levels that were significantly above the ground surface.

After LTVSMC operations and deposition of tailings ceased in 2001, the groundwater mound beneath the Tailings Basin began to dissipate, and the quantity of seepage leaving the Tailings Basin area decreased. The original model was calibrated to represent the changing (transient) conditions from the time of LTVSMC closure until present and to simulate the observed dissipation of the groundwater mound beneath the basin. Transient model calibration was accomplished using water levels measured in years 2002 – 2013 and the observed seepage flow rates. The results of that calibration included refined horizontal and vertical hydraulic conductivities of various materials present within the Tailings Basin pond area, their specific yield, and refined recharge rates.

The thickness of surficial deposits at the Plant Site is interpreted to vary below and adjacent to the Tailings Basin. The interpretation relies upon: 1) a preconstruction topographic map of the area, 2) a 2014 geotechnical investigation conducted along the Tailings Basin perimeter (PolyMet 2015l), and 3) an interpreted map for the top of the underlying bedrock (PolyMet 2015j). This information allowed the model to partially represent the presence of buried stream channels. The variable thickness of surficial deposits interpreted from this data was incorporated into the Plant Site MODFLOW model.

A description of the MODFLOW model and calibration process is provided in the Water Modeling Data Package, Volume 2 – Plant Site (PolyMet 2015j, Attachment A). The MODFLOW-calibrated hydraulic parameters for different geologic units and tailings types are summarized in Table 5.2.2-9 and Table 5.2.2-10.

Table 5.2.2-9 Plant Site Hydraulic Conductivity and Specific Yield Based on MODFLOW Calibration

Model Zone	Hydraulic conductivity		Specific yield (---)
	Horizontal (ft/day)	Vertical (ft/day)	
Cell 2W fine tailings	0.2	0.05	0.033
Cell 2W coarse tailings	4.02	0.07	0.07
Cell 1E fine tailings	0.06	0.0135	0.01
Cell 1E embankments [2]	0.23	0.077	0.01–0.3
Cell 1E coarse tailings	12.55	8.98	0.3
Cell 2E fine tailings	1.07	0.77	0.015
Cell 2E coarse tailings	4.98	3.56	0.024
Cell 2E embankments	0.23	0.77	0.015–0.024
Surficial deposits	68.4	32.53	0.00018(1)
Bedrock outcrops	0.0217	0.000602	0.000210

Sources: PolyMet 2015m; Barr 2013i.

[1] Value represents storage coefficient. Specific yield not estimated by MODFLOW model for this material type.
[2] Model zone used in predictive model simulations only.

Table 5.2.2-10 Plant Site Aquifer Recharge Based on MODFLOW Calibration

Model Zone	Aquifer Recharge	
	Steady-State Calibration (in/yr)	Transient Calibration (in/yr)
Exterior dams[1]	0.2–6.0	0.2–6.0
Cell 2W coarse tailings[2]	28.4(2)	18
Cell 2W fine tailings[2]	19.7(2)	17.5
1E and 2E fine tailings[1]	0.2–6.0	0.2–6.0
1E and 2E coarse tailings[1]	0.2–6.0	0.2–6.0
Surficial deposits	6.0	6.0
Bedrock outcrops	0.2	0.2

Source: PolyMet 2015j.

Notes:
[1] Ponds within cells 1E and 2E receive 0 in/yr of aquifer recharge. Outside the ponds, aquifer recharge zones are based on the underlying materials, whether surficial deposits or bedrock outcrops.
[2] In the steady-state portion of the CEC model, the two zones used to represent Cell 2W (coarse and fine tailings) were assigned higher aquifer recharge rates than during the transient portion of the simulation to reproduce the groundwater mound beneath the Tailings Basin that formed during LTVSMC operations as new tailings were deposited. The aquifer recharge rates applied to Cell 2W during the steady-state portion of the simulation may not represent actual aquifer recharge rates during that time period; rather, they were calibrated to obtain the initial conditions for the transient portion of the simulation. The aquifer recharge applied to Cell 2W during the transient portion of the CEC simulation was representative of conditions in Cell 2W following the end of LTVSMC operations.

The calibrated Plant Site MODFLOW model was used in a predictive mode to evaluate groundwater conditions associated with the NorthMet Project Proposed Action. These predictive simulations evaluated the growth and dissipation of the groundwater mound below the Tailings Basin, pond leakage changing over time, the distribution of groundwater flows, and flow changes over time from sub-areas of the Tailings Basin to the northern, northwestern, western, southern, and eastern toes of the Tailings Basin. The Plant Site MODFLOW model was not calibrated to

groundwater baseflow in the Embarrass River, nor was the model used to estimate groundwater baseflow. See Table 5.2.2-11 for the results of the simulations.

All the model calibrations and predictive simulations were carried out considering the following time benchmarks:

- 2002 – Shortly after the LTVSMC operations ended, the groundwater mound beneath the Tailings Basin ponds, pond leakages and seep flows are at their maximum.
- 2002 – 2013 – The groundwater mound beneath the LTVSMC Tailings Basin ponds is dissipating, pond leakages and seep flows are decreasing.
- Mine year 1 – The start of NorthMet Tailings Basin tailings disposal.
- Mine years 1 to 20 – Slurried NorthMet tailings are deposited in Cells 1E and 2E, ponds increase in size, elevation of the surface of tailings and ponds systematically increase. As new tailings are added to Cells 1E and 2E, the groundwater mound beneath the Tailings Basin develops causing an increase of seepage at and outside of the Tailings Basin's toes.
- Mine year 20 – Disposal of NorthMet tailings stops. Cells 1E and 2E reach their maximum height, and the groundwater mound begins to dissipate.
- Mine year 55 – NorthMetWest Pit is flooded.

Table 5.2.2-11 Results of Steady-State Model Predictive Simulations

Time (Mine Year)	Number of FTB Tailings Model Layers	Elevation of Pond 1E (amsl)	Elevation of Pond 2E (amsl)	Total Model Layers[2]	Pond(s) Boundary Condition
1	2	1,657.8	1,578.75	4	Head
7	5	1,657.8	1,651.75	7	Head
8	5	1,660.25	1,660.25	7	Head
18	6	1,710.25[(1)]	1,710.25[(1)]	8	Head
20	6	1,717.25[(1)]	1,717.25[(1)]	8	Head
55+ (Closure)	6	1,717.25[(1)]	1,717.25[(1)]	8	River Cell[3]

Notes:
[1] Ponds 1E and 2E combine.
[2] Includes one layer for LTVSMC tailings and one layer for surficial deposits and bedrock outcrops' bottom.
[3] Conductance term in the model's river cells simulate a low hydraulic conductivity (bentonite) layer placed at the bottom of pond during reclamation to achieve a leakage rate of about 6.5 in/year.

Figure 5.2.2-9 was constructed using the results of MODFLOW model simulations. It shows surficial groundwater flowpaths that have the potential to transport Tailings Basin-affected groundwater from contaminant source areas to the Embarrass River or its tributaries. It should be noted that all seepage would be captured from the east and south sides if the Tailings Basin and pumped back to the Tailings Basin pond. This figure also shows the groundwater evaluation locations (property boundary) used to assess compliance with evaluation criteria. The hydrologic characteristics of each surficial flowpath were estimated based on a combination of MODFLOW results and site characterization information. Deterministic model inputs include length, average width, saturated thickness, hydraulic gradient (essentially ground slope), and effective porosity. Uncertain inputs are hydraulic conductivity and aquifer recharge.

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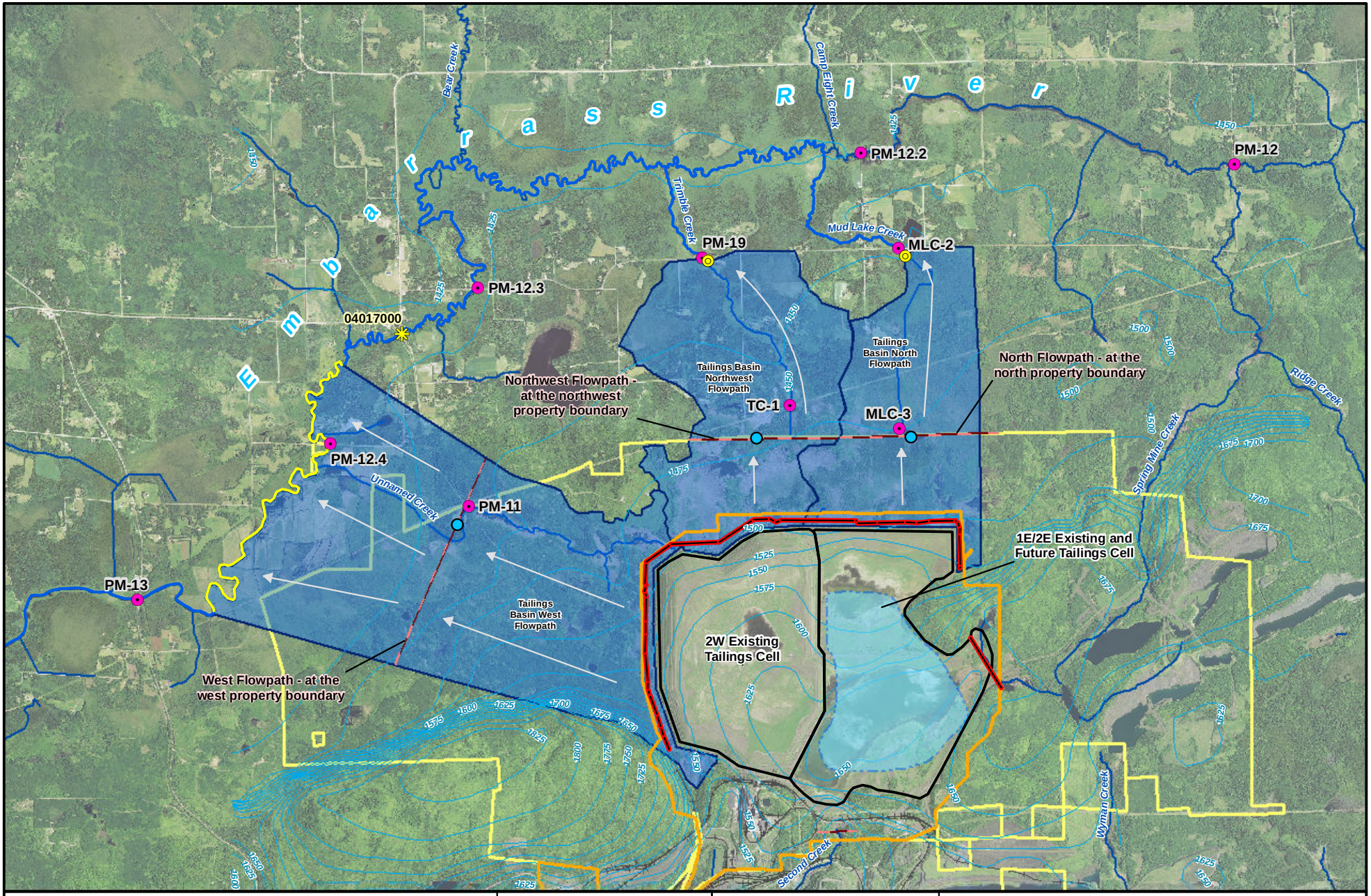

Groundwater Elevation Contours (feet)
Surface Water Evaluation Locations
Groundwater Contacts Surface Water
Groundwater Contacts Surface Water
Groundwater Evaluation Locations
Groundwater Flowpath
Plant Site
Existing Tailings Basin
Approximate Pond Area
Containment System
USGS Gaging Station (not active)
Groundwater Flow
Stream/River
Extent of Future PolyMet Lands

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

0 0.25 0.5 1 1.5 Miles

Figure 5.2.2-9
Plant Site Surface and Groundwater Flowpaths and Final Tailings Design
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Summary information for the groundwater flowpaths is provided in Table 5.2.2-12. Using deterministic inputs and 50th percentile probability (P50) values for uncertain inputs (including hydraulic conductivity and aquifer recharge) produces the model-estimated total release rate of flowpath groundwater into the Embarrass River or its tributaries of approximately 306 gpm for all project phases (operation, reclamation, and closure).

Another set of groundwater models were developed to help estimate the rate of seepage from the Tailings Basin that may bypass its containment system and that system's capture effectiveness (see discussion in Section 5.2.2.2.3). Three cross-sectional MODFLOW models simulated groundwater flow along the three Tailings Basin flowpaths: north, northwest and west. These flowpaths originate at the Tailings Basin dams and terminate at or near the Embarrass River. Seepage from the Tailings Basin to each flowpath was set using results of the Plant Site MODFLOW model simulations. Each of the three models was developed in three versions, assuming different thickness of the fractured bedrock: 25, 50 and 100 ft. The fractured bedrock medium is represented in the model as an "equivalent porous medium." Its hydraulic conductivity was set equal to 0.14 ft/day, which is a geometric mean derived from packer tests conducted in borings near the Tailings Basin (see discussion in Section 4.2.2.3.1).

Steady-state model simulations were completed for each flowpath under both operations and closure conditions. In total, 18 model simulations were completed. Model results indicate that all seepage from the Tailings Basin would be captured along the north and northwest flowpaths under all assumptions of the bedrock fractured zone thickness. All the seepage would be captured also along the west flowpath, except when the thickness of fractured zone is assumed to be 100 ft. Under this one scenario, the model-computed rate of seepage bypassing the Tailings Basin containment system is 8 gpm during operations, and 7 gpm during closure and long-term maintenance. These results indicate that the Plant Site GoldSim model assumption (that groundwater seepage equal to 10 percent of the aquifer's transmissive capacity bypasses the Tailings Basin containment system) is conservative. The modeling shows that the seepage bypassing the containment system represents no more than 7 percent of the aquifer's transmissive capacity (see discussion in Section 5.2.2.2.3) (Barr 2015b).

Table 5.2.2-12 Plant Site Surficial Groundwater Flowpaths used in GoldSim Based on Best-Estimate (P50) Values

Description	Units	North	Northwest	West	Total
Flowpath total length (Tailings Basin toe to Embarrass River or surface water discharge location)	Meter	3,260	3,715	5,410	
Flowpath width	Meter	1,920	2,090	2,920	
Flowpath thickness	Meter	7	7	7	
Aquifer porosity	---	0.3	0.3	0.3	
Aquifer recharge flux	in/yr	0.76	0.76	0.76	
Contaminant source begin time	mine year	0	0	0	
Contaminant source end time	mine year	Continuous	Continuous	Continuous	
Flow rate of groundwater approaching containment system	gpm	42.1	52.9	105.0	200.0
Flow rate of groundwater captured by containment system (90% capture efficiency)	gpm	37.9	47.6	94.5	180.0
Flow rate of groundwater by-passing the containment system (10%)	gpm	4.21	5.3	10.5	20.0
Aquifer recharge flow rate downgradient of containment system	gpm	59.7	74.2	151.7	285.6
Groundwater contribution rate to Embarrass River or tributary to the River	gpm	63.9	79.5	162.2	305.6
Tailings surface seepage flow rate captured by containment system (100% capture efficiency) - End of operations	gpm	1,375.5	385.9	755.6	2,517.0
Tailings Basin surface seepage flow rate captured by containment system (100% capture efficiency) – Closure	gpm	430.7	354.8	550.8	1,336.3
Distance from containment system to groundwater evaluation location[1]	Meter	1,135	1,255	3,040	
Distance from containment system to surface water discharge (Embarrass River or tributary) [1]	Meter	3,190	3,645	5,340	

Note:
[1] Assume containment system located 70 meters from Tailings Basin toe.

5.2.2.2.2 Surface Water Hydrologic Modeling

This section describes the methods used to model surface water hydrology in the Partridge River and Embarrass River watersheds. The Plant Site represents a very small portion of the natural (pre-LTVSMC Tailings Basin) Second Creek Watershed and, as a consequence, Second Creek was not included in the surface water hydrologic modeling. However, the loss of natural watershed flow to the headwaters of Second Creek is addressed.

Partridge River Watershed

Surface water flow within the Partridge River Watershed was modeled using XP-SWMM, a model that estimates stormwater runoff, streamflow, and groundwater-controlled baseflow for a network of streams. Input to the model includes sub-drainage delineation, ground conditions, stream channel alignments, and a rainfall database. XP-SWMM estimates monthly average streamflow rates at different locations along the Partridge River and its important tributaries. To

improve the results, the model inputs were adjusted so that flow estimates were calibrated to available measured flow rates in the Partridge River at USGS hydrometric station 04015475 in the Partridge River above Colby Lake (Table 5.2.2-13). A description of the XP-SWMM model for the Mine Site is provided in the Mine Site Water Modeling Data Package (PolyMet 2015j). A summary of the model results for seven Partridge River monitoring stations (see Figure 5.2.2-28) is provided in Table 5.2.2-13.

Table 5.2.2-13 Mine Site Surface Water Flows for Existing Conditions Based on XP-SWMM Model Results Adjusted to Match USGS Stream Gaging Data

Stream	Station	Groundwater Baseflow[1]	Annual 7-Day Minimum Flow with 10-year Return Period[2]	Annual 1-Day Minimum Flow[3]	Annual Daily Mean Flow[3]	Annual 1-day Maximum Flow[3]	Annual 1-Day Minimum Flow with 10-year Return Period[2]
		cfs	cfs	cfs	cfs	cfs	cfs
Partridge River	SW-002	0.4	0.4	0.4	6.1	82	118
	SW-003	0.5	0.5	0.5	7.4	93	132
	SW-004	0.9	0.7	0.9	14	156	215
	SW-004a	2.4	1.7	2.1	38	468	678
	SW-004b	3.8	2.8	3.4	58	631	895
	SW-005	4.9	3.6	4.3	75	737	1,081
	SW-006	5.3	3.9	4.7	79	761	1,127

Source: PolyMet 2015m, Appendix J; Barr 2015i.

Notes:
1 Average annual 30-day minimum.
2 10-year values are based on individual model year flow statistics not published in Attachment J of PolyMet 2015m. Values in Attachment J represent averages of the 10-year model period.
3 Long-term average.

Embarrass River Watershed

Flow characteristics for different reaches of the Embarrass River and selected tributaries were estimated by extrapolating flows from USGS gaging station 04017000 (located just downstream of PM-12.3) on a catchment area basis. A summary of the flow results for different stations on Embarrass River, Mud Lake Creek, Trimble Creek, and Unnamed Creek is provided in Table 5.2.2-14. Flow contributed by the Tailings Basin seepage is separated from the flows derived using the catchment area basis in the table to provide greater clarity of water origins. Tailings Basin flows presented in the last column of Table 5.2.2-14 can be added to the annual flow characteristics presented in the table to determine the appropriate flow volume.

Table 5.2.2-14 Plant Site Surface Water Flows for Natural Conditions Based on Embarrass River Stream Gaging Results Applied to Contributing Watersheds and Additional from Tailings Basin Seepage and Flowpath Discharge

Stream	Embarrass River or Tributary Surface Water Station	Existing Watershed Area Excluding TB Footprint (mi^2)	Estimated Groundwater Baseflow (cfs)	Annual 7-Day Minimum Flow with 10-year Return Period[1] (cfs)	Annual 1-Day Minimum Flow[1,2] (cfs)	Annual Daily Mean Flow[1,2] (cfs)	Annual 1-day Maximum Flow[1,2] (cfs)	Annual 1-day Maximum Flow with 10-year Return Period[1] (cfs)	Additional Flow to Station from Tailings Basin Seepage (cfs)
Embarrass River	PM-12	19.0	0.86	0.4	0.74	13.8	145	259	0.00
	PM-12.2	34.2	1.55	0.7	1.34	24.9	261	467	0.00
	PM-12.3	83.0	3.76	1.79	3.24	60.5	633	1,135	4.41
	PM-12.4	94.4	4.27	2.07	3.69	68.8	720	1,290	4.43
	PM-13[(3)]	107	4.83	2.33	4.17	77.8	814	1,457	5.77[(4)]
Mud Lake Creek	MLC-3	1.40	0.06	0.07	0.05	1.02	10.7	19.2	0.83
	MLC-2	3.57	0.16	0.07	0.14	2.60	27.2	49.1	0.93
Trimble Creek	TC-1	2.18	0.10	0.04	0.09	1.59	16.6	29.6	3.36
	PM-19	3.94	0.18	0.12	0.15	2.87	30.1	53.5	3.48
Unnamed Creek	UC-1a	2.29	0.10	0.09	0.09	1.67	17.5	30.9	1.11
	PM-11	3.37	0.15	0.09	0.13	2.46	25.7	45.9	1.11

Source: Barr 2015i.

Notes:
1 Based on USGS record applied to watershed area, flow from the Tailings Basin (last column) is in addition to the flow values presented.
2 Long-term average.
3 Values differ from those in Table 4-5 of the Plant Site Water Modeling Data Package (Barr 2015j), which were based on the historical drainage area of 88.3 mi^2.
4 5.77 cfs (2,590 gpm) is the estimated total seepage from the Tailings Basin.

5.2.2.2.3 Water Quality Modeling (GoldSim)

GoldSim is a commercially available "systems" model that allows for probabilistic simulations and was used by PolyMet to simulate time-varying surface water and groundwater quality. GoldSim was programmed with a suite of algorithms to estimate the release of contaminants from mine facilities (i.e., "sources") and their transport to groundwater and surface water evaluation locations. An overview of the modeling of contaminant release and transport in GoldSim is provided below. The sections below also provide a geochemistry overview of the waste rock and tailings, and describe the methodology used to estimate contaminant release and transport at the Mine Site (Partridge River Watershed) and Tailings Basin (Embarrass River Watershed).

A characteristic of the GoldSim models (Plant Site and Mine Site) was to not explicitly simulate flow/transport between wetlands and groundwater in the underlying surficial deposits. However, the flow interaction between wetlands and surficial deposits is approximated by the assumed aquifer recharge rate reaching surficial deposits groundwater. This approximation was considered reasonable because field observations in the Iron Range suggest that downward leakage from wetlands to the underlying groundwater system is variable and can be limited. To address potential impacts to wetlands, this FEIS proposes extensive monitoring during mine operations and closure to assess if changes in wetlands flow/chemistry would raise concerns for permitting agencies. If monitoring data indicate trends toward permit non-compliance, then adaptive mitigation measures would be implemented. See Section 5.2.2.3.5 for more information on adaptive mitigation measures and Section 5.2.2.3.6 for more information on monitoring.

The GoldSim models did not explicitly simulate flow/transport between surficial deposits and groundwater in the underlying Duluth Complex bedrock. Scoping calculations and the Mine Site MODFLOW results indicated that flow between these geologic units would be minimal. At the Mine Site, bedrock flowpaths were included in the GoldSim model because mine pits with chemically affected water would extend downward into bedrock. However, the bedrock flowpaths were mathematically treated as independent of the surficial deposits flowpaths because of the minimal flow between the two. Scoping calculations and GoldSim results indicated that groundwater flow/transport within the Mine Site bedrock flowpaths would not be sufficient to affect water chemistry at the groundwater evaluation locations or in the Partridge River. Given the Mine Site results, a decision was made to not incorporate bedrock flowpaths in the Plant Site GoldSim model as such flowpaths would not come in direct contact with chemical sources (such as mine pits).

The pH in leachate from the various mining features was not predicted by the GoldSim model. The permanent storage facilities (such as the Category 1 stockpile and Tailings Basin) would contain material that is not expected to produce acidic leachate. The non-acid generating waste was identified using multi-year kinetic tests (humidity cells) on NorthMet rock samples and tailings. Waste rock with 0.12 percent sulfide S or less is the threshold for selecting non-acid generating mine waste and is supported by long-term humidity cell tests on NorthMet waste (i.e., 38 samples of Category 1 waste rock, with tests now run between 187 and 337 weeks; and 33 humidity cell tests on NorthMet tailings run between 84 and 304 weeks (PolyMet 2015q Attachments C and F).

These tests demonstrate that tailings and Category 1 waste rock materials would not generate acidic leachate. All Category 2/3 and 4 waste rock, which would have the potential to generate

acid leachate, would be permanently subaqueously disposed of in the East Pit, effectively eliminating access to oxygen, which is required to create acidic leachate. The NorthMet Project Proposed Action design thus prevents the introduction of acidic leachate to surface water that could affect water and aquatic resources.

Regarding the tailings in particular, the pH values in the tailings humidity cells have been observed to be stable or increasing (becoming less acidic) between 100 and 300 weeks of humidity cell testing. However, pH of the tailings in the GoldSim model is not directly based on, or extrapolated from, the observed pH in the humidity cells. As noted above, the humidity cells provide information on rates of acid producing and acid neutralizing reactions, which are similar for tailings and Category 1 waste rock due to the similar sulfur content of these materials. A separate geochemical model was used to estimate long-term pH resulting from these reactions. This geochemical model used a CO_2 partial pressure greater than natural atmospheric conditions to account for bacterial respiration and other CO_2 generating chemical reactions. Increasing the CO_2 partial pressure resulted in decreasing the pH of the system.

Partridge River Watershed

This section describes the geochemistry of the NorthMet Deposit waste rock and the factors affecting contaminant release and transport from the various contaminant sources at the Mine Site. An overall flowchart of the Mine Site GoldSim model is provided as Figure 5.2.2-10.

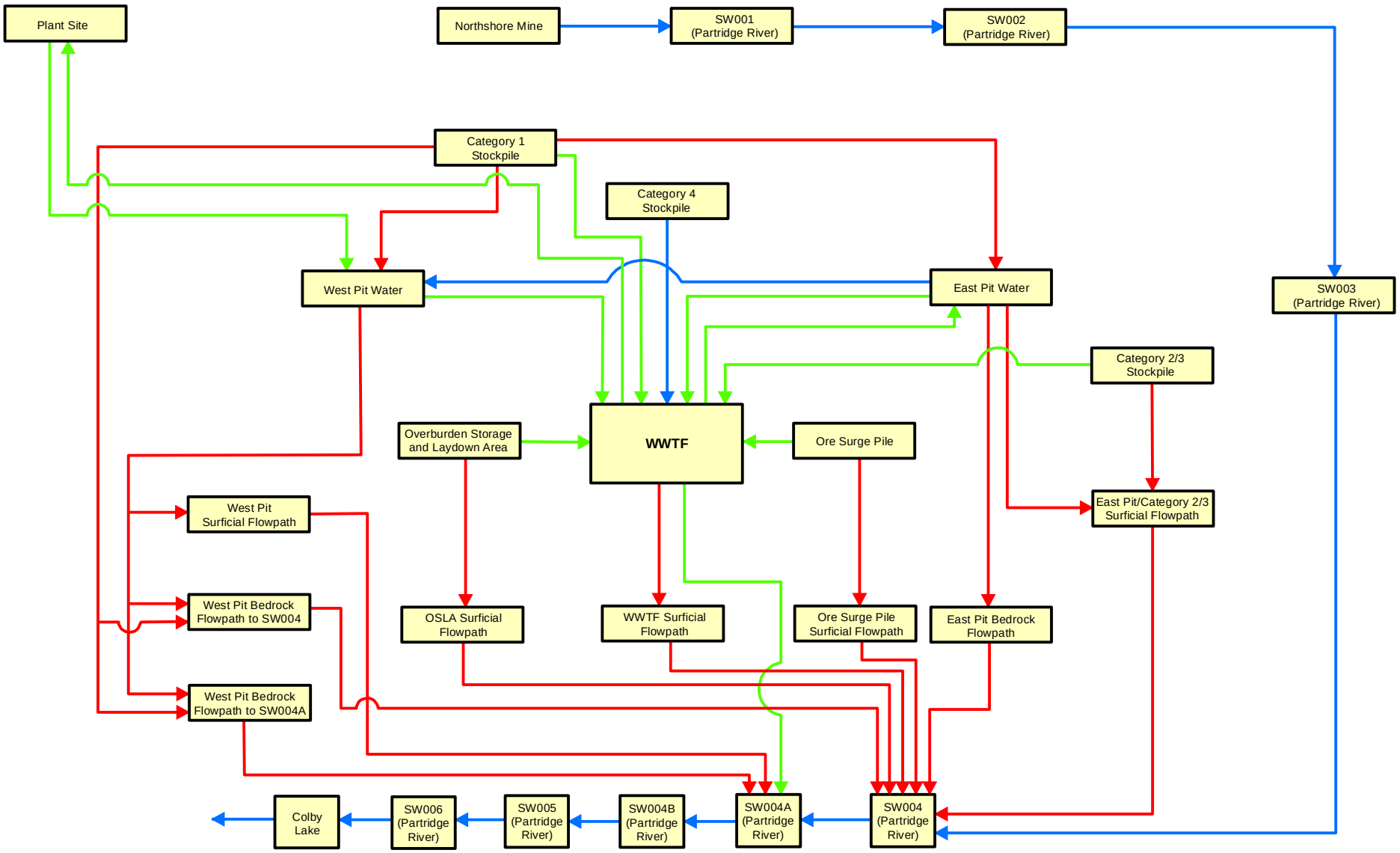

Surface Water Flow
Seepage or Groundwater Flow
Piped Flow

Figure 5.2.2-10
Mine Site GoldSim Overview Flow Chart
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NorthMet Waste Rock Geochemistry

The mechanism most responsible for the release of solutes from waste rock is oxidation of sulfide minerals, primarily pyrrhotite (Fe_{1-xS}) in NorthMet Deposit rock. The sulfide-oxidation reaction produces sulfuric acid, and releases soluble metals (e.g., cobalt, copper, iron, and nickel) that were bound in sulfide minerals. Secondary effects include leaching of some metals (primarily nickel and chromium) from silicate minerals, particularly where acidic pore waters increase silicate solubility. Mine-related blasting and excavation dramatically increases the surface area and porosity of the rock, which allows rapid introduction of atmospheric oxygen and flushing of solutes by water. Within the pit walls, the blasting effects are limited in terms of lateral penetration and do not have much effect on solute transport in bedrock. Where the pore water pH remains near-neutral, metal mobility can be limited as some constituents released by oxidation are removed from solution by adsorption, co-precipitation, or solubility-controlled precipitation of secondary minerals. The onset of acidic pore water is also of concern, as these conditions can cause the rate of sulfide oxidation to increase, pH to increase, and the concentration of metals to increase as precipitates dissolve that were previously stored in the rock under neutral or basic conditions.

Key environmental characteristics of the NorthMet waste rock include the following:

- Most of the waste rock and pit wall rock would contain some sulfide S, mainly as mineral pyrrhotite, which can produce acid leachate and soluble metals when it oxidizes;
- There are essentially no acid-neutralizing carbonate minerals in NorthMet waste rock, but silicate minerals—including plagioclase feldspar ($[Na,Ca][Si,Al]_4O_8$), olivine ($[Mg,Fe]_2SiO_4$), and pyroxenes (e.g., diopside, $MgCaSi_2O_6$)—neutralize some acid, which would delay acid onset in some rock and prevent entirely the onset of acidic conditions in rock with less than 0.12 percent sulfur;
- In rock with less than 0.12 percent sulfur (S), the oxidation rate is slow enough that all acid produced during weathering would be completely neutralized by reaction with silicate minerals, so this low-sulfur rock (classified at Category 1 waste rock in the NorthMet Project Proposed Action) is predicted to never generate acidic leachate;
- Sulfide-bearing rock from the NorthMet Project Proposed Action may oxidize for several years before producing acidic leachate;
- The rate of sulfide mineral oxidation in excavated NorthMet waste rock would be approximately proportional to the total sulfur content of the material, and the rate could increase several fold if the pore water were to become acidic;
- Chemical reactions, including mineral precipitation and surface adsorption, would limit the concentration of many contaminants in non-acidic waste rock effluent and thus would reduce the rate at which contaminants were released; and
- If the pore water pH were to shift from neutral to acidic, then the rate of sulfide mineral oxidation and associated release of some metal cations (e.g., nickel and copper) would increase dramatically (e.g., average increase in oxidation upon onset of acidic conditions is a factor of 8.2 relative to non-acidic conditions [Table 8-4 in PolyMet 2015q]).

The environmental classification of NorthMet waste rock is based primarily on the sulfur concentration, and the distribution of sulfur through the deposit is based on spatial interpolation between 24,861 analyses of rock samples collected as part of the exploration drilling (PolyMet 2007c). Rates of oxidation and contaminant release are based on 78 "humidity cell" tests (in addition to 7 duplicate samples), which measured solute concentrations in leachate as rocks were subjected to over 3 years of simulated weathering cycles. These include tests on 82 samples of Category 1 through Category 4 waste rock, and 3 samples of ore from the NorthMet Deposit (PolyMet 2015q, Attachment C, Table 2). In addition, splits of 7 waste rock samples were subjected to duplicate humidity cell tests, but these were stopped in 2009 when results indicated good reproducibility in trends of reaction rates and solute release. Estimates for changes in oxidation rates and solute release during long-term weathering were supplemented with 17 independent tests conducted by the MDNR on rock from a similar proximal deposit (the Dunka Blast Hole). These tests on Dunka rock used smaller fragment size rock (termed "MDNR Reactors"), and results were used to refine estimates of oxidation-rate changes during weathering (PolyMet 2015q, Attachment A, Table 3). Total leachable metal concentrations are based on 61 analyses of metals extracted from waste rock by acidic digestions (SRK 2007b). For constituents that are assumed to be released in proportion to dissolution of another constituent (e.g., copper and zinc were always modeled as being released in proportion to sulfide sulfur oxidation), the concentration ratios were estimated using the average total constituent concentrations measured in all available assayed samples of either Category 1, Category 2/3, or Category 4 waste rock; ore, or Category 4 Virginia Formation (i.e., approximately 18,800 total whole-rock analyses, see Large Table 2 and Section 8.1.2.3 in PolyMet 2015q). Finally, the concentration of metals in mineral phases was based on electron microprobe analysis, which measured the concentration of metals in 630 individual mineral grains (74 oxides, 268 sulfides, and 288 silicates [SRK 2007b; SRK 2007c]).

These environmental characteristics have been used to classify NorthMet waste rock into the following four environmental categories (PolyMet 2015q, Figure 4-8 to 4-10):

- Category 1: Sulfide S range is less than or equal to 0.12 percent, and would not produce acidic leachate.
- Category 2: Sulfide S range is greater than 0.12 percent and less than or equal to 0.31 percent, and could produce acidic leachate if allowed to weather for several years.
- Category 3: Sulfide S range is greater than 0.31 percent and less than or equal to 0.60 percent, and could produce acidic leachate if allowed to weather for several years.
  - Categories 2 and 3 are combined to produce the Category 2/3 stockpile with sulfur content greater than 0.12 percent and less than or equal to 0.60 percent, could produce acidic leachate if allowed to weather for several years.
- Category 4 (Duluth Complex): Sulfide S range is greater than 0.60 percent, and would produce acidic leachate if allowed to weather for several years.
- Category 4 (Virginia formation): Sulfide S range is from 0.4 to 5.0 percent, and would produce acidic leachate immediately upon weathering.
- Ore would behave similarly to Category 4 Duluth complex waste rock, but other than residual ore in pit wall rock, would not remain on the surface for any extended periods. Ore would move in and out of the Ore Surge Pile (a lined facility) throughout operations.

The sulfide S concentration of the NorthMet waste rock is relatively low compared to many other mines with sulfide-bearing rock around the world. Data from the International Kinetic Database, which includes humidity cell test results from 71 mines, shows sulfide S concentrations ranging as high as 40 percent, with an average of 3.6 percent (see Figure 5.2.2-11) (Mine Site Drainage Assessment Group 2013). In comparison, most (70 percent) of the NorthMet waste rock would be the low-sulfur, non-acid-generating Category 1 material (i.e., average sulfur would equal 0.06 percent, and range from 0.01 to 0.12 percent). The only NorthMet waste rock that would contain greater on average than 1 percent sulfide is the Virginia Formation waste rock, which has an average sulfide S concentration of 2.43 percent, but it would only comprise about 1.8 percent of the total NorthMet Deposit waste rock. It should be noted, however, that not all sulfide S has the same potential for release.

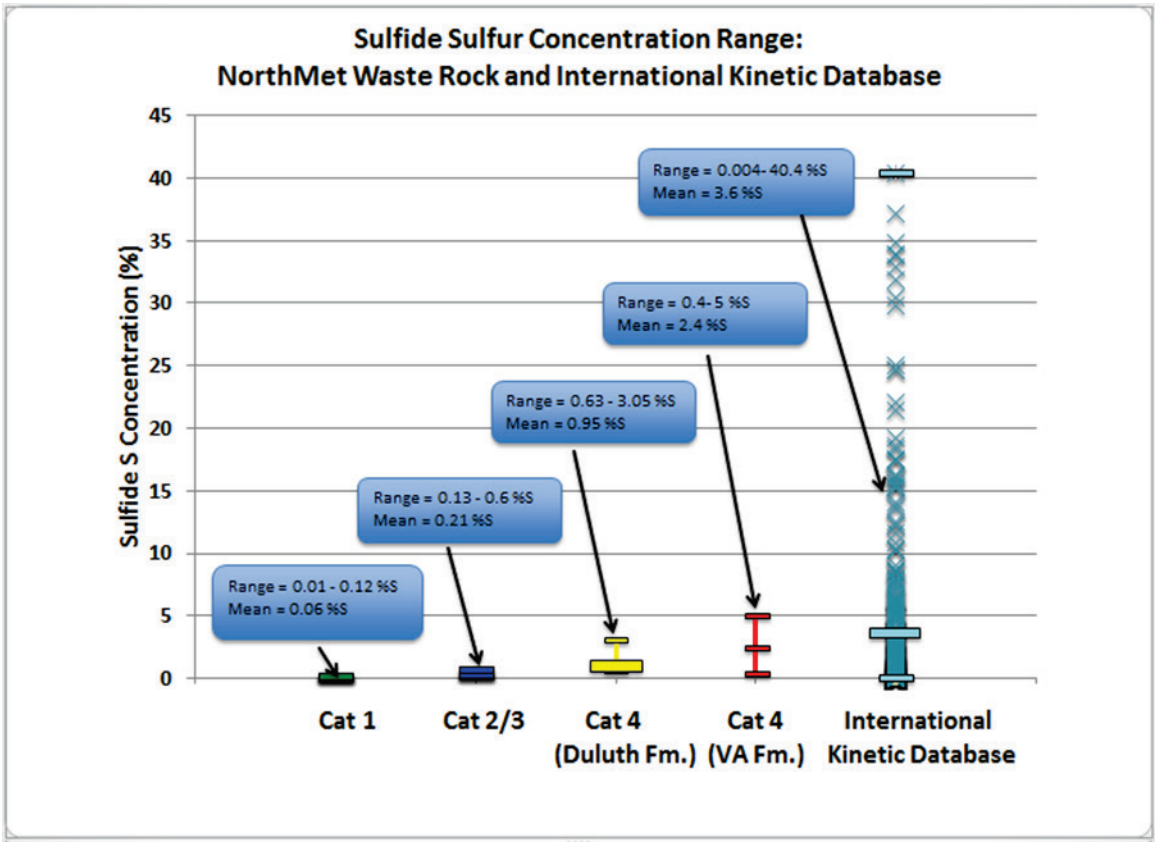

Figure 5.2.2-11 Comparison of NorthMet Project Waste Rock Sulfide Sulfur Concentrations with Other Mines

Constituent Release from Waste Rock

The GoldSim model simulates constituent release from waste rock by applying scaling factors to laboratory tests to provide quantitative estimates of loading that are then combined with hydrologic estimates to predict solute concentrations. The predictive models assume that the entire mass of waste rock in each of the stockpiles is oxygenated and is thus capable of reacting with air (some waste rock stockpiles can have zones with lower than atmospheric oxygen concentrations, so this assumption tends toward producing higher rates of pollutant release than may exist). Field oxidation rates are then estimated by scaling from lab rates to account for

effects of temperature (oxidation is slower at the lower temperatures), differences in pH (potential acidification), fragment size (waste rock fragments would be larger than rock tested in the lab, and would thus react more slowly), pore-water pH (oxidation rates in NorthMet rock are assumed to increase when pore water becomes acidic), and the fraction of rock flushed by percolating water (some fraction of waste rock under field conditions is hydraulically isolated).

For the Category 1 waste rock (i.e., the waste rock with the lowest sulfide sulfur content, but which would remain stored permanently on the surface after closure), instead of using lab tests on rock from the NorthMet Deposit, the rate of oxidation and constituent release in the field was estimated from lab release rates that were scaled using the results of studies of seepage release measured in Dunka Mine rock, which is a nearby source of waste rock with similar chemical composition that has been monitored under field conditions. The rate of contaminant release is modeled as a load rate (e.g., mg contaminant per month), estimated as the product of the mass of the waste (kg waste) and the rate of contaminants are released (mg contaminant per kg waste per month).

This transport simulation assumes that solutes released by oxidation can dissolve when contacted by rain and snowmelt percolating through the waste rock, and dissolved constituents are flushed immediately through the rock. Where the concentration of contaminants in percolating water is not limited, the entire load released over a time step can dissolve in any available water. In this case, decreasing the water flow would still collect the entire contaminant load, producing a more concentrated leachate, but the same solute load rate. In most NorthMet waste rock, however, modeled contaminant concentrations are limited by "concentration caps"—empirical upper-concentration values. Concentration caps are estimated in part using measured behavior of laboratory tests on waste rock from the NorthMet Deposit, but rely heavily on concentrations of dissolved constituents measured in effluent from field-scale facilities of similar waste rock (including rock from the Amax and Dunka mine deposits in Minnesota, and the Whistle and Vangorda mines in Canada (PolyMet 2015q). When solute concentrations are capped in modeling, solute loads are proportional to flow rate, so that reduced flow rates would result in a proportional reduction in solute load to the environment. The Category 1 Stockpile is the clearest example of this effect, because solutes would be released over time by oxidation, but the pore water would maintain a near-neutral pH, where many solutes have limited solubility. The effect of concentration caps in the Category 1 Stockpile would be further enhanced in closure and long-term maintenance, when a proposed geomembrane cover would reduce infiltration, producing a proportional reduction in the load rate of those solutes at their pore-water concentration caps. The GoldSim model tracks the total mass of these capped solutes, so that constituents removed from solution to meet concentration caps are retained in the model for later release when solute concentrations would otherwise decrease below the concentration caps. In contrast, for the more acid-generating materials, including the ore and Category 4 waste rock, concentration caps are much higher or may not attain the cap value, and load to the environment is more closely related to the rate of solute release regardless of water flow rate through the waste.

Detailed descriptions of the assumptions and algorithms used to estimate solute release from mine-related facilities is provided in the Waste Characterization Data Package (PolyMet 2015q).

Contaminant Transport in Groundwater from Waste Rock

At the Mine Site contaminated groundwater would seep from the East and West Pits along the surficial aquifer and bedrock groundwater flowpaths. Such seepage would become environmentally important when water levels in the pits would rise above the base of the surficial aquifer. In addition, leakage from the Category 2/3 Stockpile, Category 4 Stockpile, Ore Surge Pile, Overburden Storage and Laydown Area, and WWTF ponds would also enter groundwater flowpaths within the surficial aquifer. Finally, water by-passing the Category 1 Stockpile's containment system at a low rate would enter the bedrock groundwater flowpath too. Contaminated water would migrate along the groundwater flowpaths to the property boundary and, ultimately, to the Partridge River.

At the Mine Site, five surficial groundwater flowpaths were identified, as described previously. Groundwater flow rates and flow directions in the GoldSim model were estimated from site characterization information and were verified by the MODFLOW results. Time-varying surface water flow rates were taken either from the XP-SWMM results or were estimated from stream gaging data.

Site characterization data indicate that the bulk hydraulic conductivity of upper bedrock is two to three orders-of-magnitude lower than the hydraulic conductivity of the surficial aquifer. Thus, groundwater flow and transport at the Mine Site are dominated by the hydraulics of the surficial aquifer. Bedrock plays a negligible role in transporting site-derived contaminants to the Partridge River.

Still, contaminated waters entering the groundwater bedrock flowpaths were also programmed into GoldSim. However, due to the very low bulk hydraulic conductivity of bedrock, groundwater flow rates in these flowpaths were not large enough to affect water quality at the groundwater and surface water evaluation locations. The GoldSim model does not consider a northward flowpath north of the Mine Site facilities as there in uncertainty that such a flowpath would ever exist. However, if monitoring indicated a potential northern flowpath, mitigation measure(s) would be employed to prevent impacted bedrock groundwater flow to the north (MDNR et al. 2015c).

Solutes, while migrating along the groundwater flowpaths (either at the Mine Site or Plant Site), would be subject to attenuating processes reducing their concentrations. Attenuating processes slow solute transport by adsorption or sorption onto mineral surfaces in the aquifer. Table 5.2.2-15 defines fate and transport mechanism terminology in this FEIS.

Among those attenuating processes would be:

- Mechanical dispersion, which would spread out the leading front of the contaminant plume; and
- Mixing with meteoric water recharging the aquifer.

In addition, over time the concentration of contaminants leaking from the sources would decrease, as the sources would gradually degrade, diminishing in strength. Those, and other processes would result in contaminant concentrations decreasing with time and distance from the source.

Given these attenuating processes, contaminant transport to evaluation locations can be described by noting the time the contaminant arrives at that point and the time when the contaminant concentration reaches its peak.

Table 5.2.2-15 Definition of Fate and Transport Mechanism Terminology used in this FEIS

Term	Definition
Adsorption (Sorption)	The process by which ions of a solute are attracted to and accumulate at the interface between a solid phase and an aqueous phase.
Attenuation	In groundwater transport this refers to mechanisms that reduce a solute's concentration or rate of migration in groundwater, such as adsorption, degradation, dispersion or dilution.
Constituent-loading	The rate at which a constituent is added or released (mass per unit time).
Groundwater Plume	The spread of contaminated groundwater downgradient of the source.
Mechanical Dispersion	The process whereby solutes spread out because of differences in the groundwater movement's velocity at the pore level and within different sediment/rock strata.
Partition Coefficient (Kd)	The ratio of the sorbed metal concentration (expressed in milligrams of chemical per kilograms of sorbing material) to the dissolved chemical concentration (expressed in milligrams of chemical per liter of solution) at equilibrium.

Some of the constituents modeled as un-attenuated in the GoldSim model may in fact be subject to some attenuation due to adsorption onto surfaces in the surficial and bedrock aquifer. The peak concentrations of these solutes would arrive at the evaluation locations later than estimated in the GoldSim model, and the peak concentrations of such late-arriving solutes would be lower than the concentrations estimated under the assumption in this FEIS of un-attenuated transport.

In the NorthMet Project Proposed Action GoldSim water quality model, four solutes are assumed to be attenuated by adsorption in the aquifer: arsenic, antimony, copper, and nickel. Definition of the metal partition coefficient (K_d) controlling this process is provided in Table 5.2.2-15. Higher K_d values represent higher sorption capacity of the aquifer, and thus slower apparent migration of a solute in groundwater.

Literature values are available for estimating metal partition coefficients (USEPA 1996; 2005). These values have been adopted by MPCA as part of its risk-based guidance for State Superfund and VIC program sites (MPCA 1998). In addition, PolyMet conducted site-specific sorption testing on soil samples collected from the most permeable zone of two borings at the Mine Site. Batch sorption tests were conducted in the laboratory generally using standard ASTM procedures (Barr 2009h). Table 5.2.2-16 presents the USEPA literature values, the results of the site-specific sorption testing, and the K_d values accepted for use in groundwater modeling. The lower K_d values for antimony reflect greater uncertainty regarding antimony sorption in the scientific literature and site-specific testing.

Table 5.2.2-16 Comparison of Site-specific and Literature Sorption Values at the Mine Site

Parameter	USEPA K_d Screening Value Used in DEIS (L/kg)	Site-specific Sorption (K_d) Values[1] Boring RS-22 (L/kg)	Boring RS- 24 (L/kg)	Average (L/kg)	K_d used in GoldSim Model (L/kg)	Associated Retardation Factor used in GoldSim Model[2] (---)
Antimony	45	1.6	22	12	1.3, 1.6, 6.1(3)	7.5, 9.0, 31(3)
Arsenic	25	>52	590	~320	25(4)	126(4)
Copper	22	1,047	463	755	22(4)	111(4)
Nickel	16	73	40	56	16(4)	81(4)

Notes:
1 Modified from: Barr 2009h.
2 Assuming porosity of 0.3 and dry bulk density of 1,500 kg/m^3.
3 Uncertain input with triangular distribution. Minimum, mode, and maximum values, respectively.
4 Deterministic value.

The attenuation effect resulting from sorption is significant enough that arsenic, copper, and nickel are not predicted to travel from source areas to any groundwater evaluation locations or the Partridge River within the 200-year model simulation period (PolyMet 2014v). Analytical calculations suggest that the travel times for these solutes would be on the order of thousands of years.

Antimony, which is modeled with lower K_d values, reaches the groundwater evaluation location in the East Pit Category 2/3 surficial flowpath at about 23 years, but the predicted concentration increase is very small. Model results indicate that the 90th percentile concentration of antimony for the West Pit surficial flowpath at Dunka Road peaks at the 164th year of model simulation and is below the evaluation criterion of 6.0 µg/L. That concentration would be reduced when the peak arrives at the property boundary due to attenuation processes.

The seepage capture efficiency at the Category 1 Stockpile of the surrounding containment system, West Pit, and East Pit was assessed using a separate three-dimensional MODFLOW model (PolyMet 2015h). The model predicted that during mine operations, when portions of the stockpile would be uncovered, some uncollected affected seepage could migrate north of the Category 1 Stockpile at a flow rate of less than or equal to 0.2 gpm, and this groundwater could be released to bedrock and/or surficial deposits adjacent to the stockpile. Given that this small flow would be distributed over the 2 mile length of the stockpile, it would be unlikely to cause any measureable impact to groundwater or surface water. After operations, when the stockpile is fully covered, the uncollected north seepage from the stockpile is predicted to be less than equal to 0.01 gpm. As such, a north surficial groundwater flowpath was not included in the GoldSim model. During operations and closure, surficial groundwater monitoring would be conducted at a minimum of three locations adjacent to the north side of the Category 1 Stockpile, and if NorthMet Project Proposed Action effects on surficial groundwater were greater than predicted, mitigation measures would be implemented.

Embarrass River Watershed

GoldSim has been programmed to incorporate surface water flow, contaminant release from tailings, groundwater transport of bypass from the containment system to the Embarrass River system, water transfers between mine facilities, and discharge of WWTP-treated effluent to the Embarrass River tributaries for flow augmentation. An overview flowchart of the GoldSim model is provided as Figure 5.2.2-12. The sources identified above are the only NorthMet Project Proposed Action containment sources considered. The Hydrometallurgical Residue Facility, due to its engineering, is not expected to be a contaminant source. This section describes the geochemistry of the NorthMet Project Proposed Action tailings and the factors affecting contaminant release and transport from the Tailings Basin.

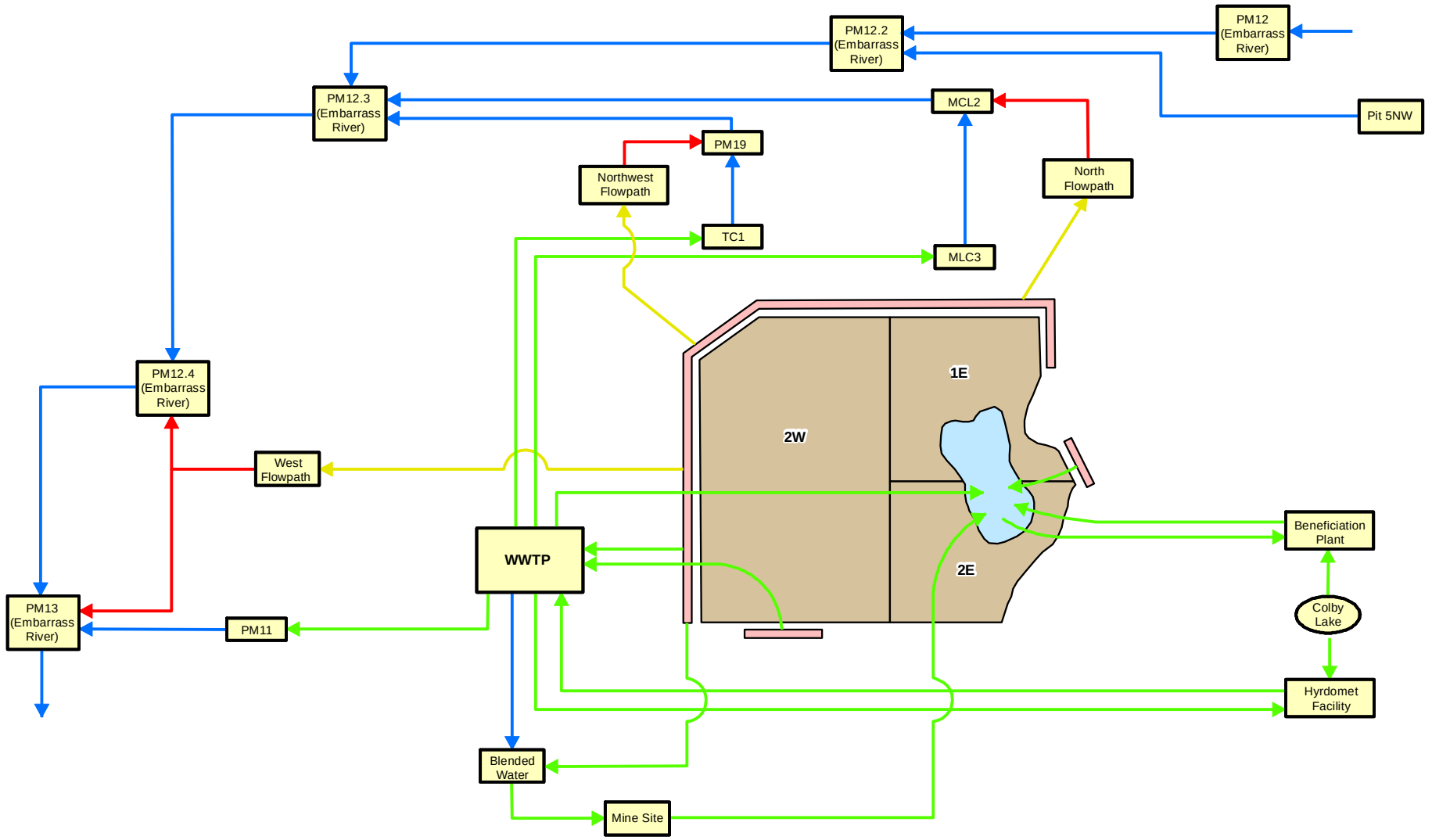

Containment System
Pond
Tailings Basin
Surface Water Flow
Seepage or Groundwater Flow
Piped Flow
Groundwater Flow

Figure 5.2.2-12
Plant Site GoldSim Overview Flow Chart
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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NorthMet Tailings Geochemistry

Figure 5.2.2-13 is a base map of the Plant Site showing the tailings facilities that have the potential to be contaminant sources to groundwater and surface water, including Cell 2W, Cell 1E/2E, and a Tailings Basin pond of varying surface area that would continue to exist on top of Cell 1E/2E. The current tailings in Cell 2W and Cell 1E/2E are referred to as LTVSMC tailings and new tailings that would be generated by the NorthMet Project Proposed Action are referred to as NorthMet tailings.

The NorthMet Project Proposed Action tailings are predicted to have less than 0.12 percent sulfur, which kinetic tests demonstrate is low enough that it would not produce acidic leachate (PolyMet 2015q). The bulk sulfide flotation process used in handling the ore would maintain the sulfide S below 0.12 percent in the tailings discharged to the Tailings Basin.

The assumptions regarding the environmental behavior of the tailings are based on 33 humidity cells (coarse tailings and fine tailings) generated in the pilot-plant processing tests conducted to refine the metal recovery process. The tailings samples were analyzed to determine concentrations of total metals, acid-generating sulfur, and acid-neutralizing carbonate carbon, and were then subjected to humidity cell testing (PolyMet 2015q Attachment F, Table 1). The oxidation rates in tailings are based on multi-year humidity cell tests where solute release rates were used to extrapolate back to estimate the initial oxidation rate in the sample before any of the sulfide sulfur was depleted. In the final waste characterization report used to support this FEIS, the total duration of the humidity cell tests ranged from 84 to 304 weeks (PolyMet 2015q).

Tailings samples subjected to humidity cell tests included a range of sulfide S concentrations (0.06 to 0.24 percent S) and size fractions selected to represent the ranges expected under various depositional environments in the Tailings Basin (PolyMet 2015q, Attachment C, Table 4):

- Coarse (greater than 0.150 mm [“+100 mesh”]);
- Median (less than 0.150 mm and greater than 0.076 mm [“-100+200 mesh”]); and
- Fine (less than 0.076 mm [“-200 mesh”]).

The NorthMet Tailings Basin dam would be constructed with coarse tailings from the LTVSMC facility, which has a size distribution that is approximately 87 percent greater than 0.076 mm (PolyMet 2014x, Table 5-1 Summary of Index Properties of LTVSMC coarse tailings).

Results of the humidity cell tests on pilot-plant tailings had similar results to Category 1 waste rock, with sulfate release rates increasing roughly in proportion to total sulfur, and declining sulfate production over time as the sulfide minerals are consumed (PolyMet 2015q Attachment F, Figure 5). The GoldSim model estimates the moisture content in the tailings and dams materials through time, and uses this to estimate the quantity of tailings oxidizing, the oxidation rate of sulfide minerals, and the associated release of solutes.

The predicted concentration of contaminants in tailings seepage is limited by “concentration caps.” Concentration caps are empirical upper-concentration values based primarily on measured effluent from field-scale waste rock facilities that are chemically similar to the NorthMet Deposit. For solutes modeled at their concentration caps, the load leaving the tailings would be proportional to water flow; but the GoldSim model tracks the mass of contaminants stored in the tailings, so reductions in predicted seepage loading due to concentration cap limits are balanced by a longer total duration of contaminant release.

The pH of effluent from oxidizing tailings ranges between 6 and approximately 8.3, though the pH in effluent from tailings with sulfur similar to that of the Tailings Basin (sulfur approximately 0.12 percent) is generally above 7 (PolyMet 2015q). Humidity cell test results indicate that under oxygenated conditions at room temperature, tailings material oxidation releases about 5 mg SO_4 per kg tailings per week (see Tables 1-13 and 1-14 in PolyMet 2015j), and the range in most tests is between approximately 2 and 8 mg SO_4 per kg tailings per week (PolyMet 2015q, Attachment F). In those samples where the oxidation rate was high enough to reduce pH, most showed an associated increase in the concentrations of some metal cations, such as nickel. By the end of the longest humidity cell tests (304 weeks), approximately 20 to 40 percent of the original sulfide S in the tailings had been oxidized, and the reacted sulfur leached out as soluble sulfate.

These multi-year humidity cell tests on NorthMet tailings yield two important results. First, the rate at which sulfide minerals oxidize is approximately proportional to the concentration of sulfide remaining in the sample, so that the oxidation rate (and thus the acid-production rate) decreases over time as the sulfide S is consumed (PolyMet 2015q, Attachment C [2015 Update on Kinetic Test Data], Attachment A [Graphs]). Second, at some time between approximately 100 and 200 weeks after starting the kinetic tests, the pH of the effluents reaches a minimum, and thereafter the pH becomes steady or increases slightly (becomes less acidic) (PolyMet 2015q, Attachment F Update on Tailings Humidity Cell Test Data). These long-term weathering tests demonstrate empirically that the NorthMet tailings would oxidize without ever producing acidic leachate. The GoldSim model used to estimate solute release from tailings does not include a prediction of specific pH over time in the tailings effluent. However, the concentration caps of some metals were simulated as being dependent on pH. Thus, the GoldSim model for the tailings incorporates an estimated range for pH, but not a temporal trend. Based on the measured pH in multi-year weathering tests on tailings (and also results from tests on Category 1 waste rock, which also contains less than or equal to 0.12 percent sulfide S), and incorporating a small correction for the possibility that CO_2 pressure may be higher in the tailings than in the atmosphere, the PolyMet tailings effluent over the long-term (i.e., 50 to 100 years, and beyond) should range between pH values of approximately 7.1 and 7.7, and the general trend should be for pH values to increase from the low end to the high end of this pH range with increasing time (PolyMet 2015q, Figure 8-18 Modeled Category 1 Waste Rock pH).

Finally, acid base accounting and humidity cell tests were also conducted on the existing LTVSMC tailings, which would underlie the NorthMet Project Proposed Action tailings. These were produced from a separate deposit and contain enough carbonate minerals to be net-neutralizing, so they have a low risk of producing acidic leachate. Concentrations of specific carbonate minerals in the LTVSMC tailings, based on X-ray diffraction analyses on 16 samples, included from 0.1 to 1 percent calcite ($CaCO_3$), from 2 to 7 percent ankerite ($Ca(Fe^{2+},Mg,Mn)(CO_3)_2$), between 2 and 8 percent siderite ($FeCO_3$; Table 5-1 in SRK 2007c).

Leachate from humidity cell tests produced stable pH (between 7.3 and 8.1) and stable release rates for the primary constituents of concern, which were used as the basis of predicting solute release under field conditions (PolyMet 2015q, Attachment F). The LTVSMC tailings have been in place for years, so the model estimates for effluent release from the LTVSMC tailings are constrained by measured solute concentrations in the receiving waters (e.g., wells GW-001 and GW-012 for release to the north, GW-006 for release to the northwest, and GW-007 for release to the west; Figure 4.2.2-16). The initial model extrapolation of laboratory constituent-release rates measured on LTVSMC tailings under oxidizing conditions overestimated the

concentrations of sulfate and several other constituents relative to field measurements, even when the release rates were adjusted for scale factors (primarily oxygen concentration in pore gas, and temperature; PolyMet 2015q). This discrepancy was rectified in part by applying an empirical "correction factor," which reduced the modeled sulfate release from the LTVSMC tailings by factors of approximately 2 to 3 (see Figures 10-4 and 10-5 in PolyMet 2015q). Even after reducing sulfate release rates to match observed concentrations downgradient of the Tailings Basin, the water quality model overestimated the concentrations of several solutes, including many metals. In response, the LTVSMC tailings model was further adjusted by applying empirical "calibration factors" to all remaining constituents that were also overestimated relative to observed concentrations. These calibration factors (listed in PolyMet 2015j, Attachment B, Table 1-21) reduced the concentration of 11 constituents by greater than 90 percent relative to the uncorrected model estimates, including reduction by greater than 99 percent the predicted concentration of seven constituents. The fact that measured solute release rates need to be corrected down an order of magnitude for the model to match observed constituent concentrations in down-gradient waters suggests that: 1) laboratory-based sulfate and metal release rates that are performed exclusively under oxidizing conditions and cannot take into account reactions that might occur at greater depths within the tailings column or in the sediments beneath; and/or 2) there are additional chemical processes (e.g., chemical reduction and adsorption) that occurred prior to water reaching the sampling point.

Pathways within the tailings, from the surface and through the unsaturated and saturated tailings areas, were estimated using groundwater flow models, and these pathways were used to route the solutes released by oxidation in the tailings.

Contaminant Release from the Tailings Basin

GoldSim is programmed with algorithms for estimating the release of solutes from tailings. For the NorthMet Project Proposed Action, a groundwater and surface water containment system would be constructed at the beginning of operations along the northern, northwestern, western, and portions of the eastern perimeters of the Tailings Basin to intercept affected water seeping from the facility. The physical and material characteristics of each source area are summarized in Table 5.2.2-17. In GoldSim, the overall Tailings Basin is divided into sub-areas that are described in Table 5.2.2-18. For each sub-area, the contaminant release is associated with a particular material including different types of LTVSMC tailings and NorthMet tailings. The release rate in each sub-area is based on characteristics of the underlying material and the rate of atmospheric oxygen diffusion into the tailings. The proposed bentonite amendments to surface material during operations and closure are intended to reduce oxygen diffusion into the sub-surface and thereby decrease contaminant release rates from the underlying materials. Using the GoldSim model for existing conditions, the contaminant release parameters for LTVSMC tailings were calibrated to measured water quality in current tailings seepage and groundwater. For the future NorthMet tailings, contaminant release parameters are based on a combination of laboratory tests and water quality observations at similar tailings facilities in northern Minnesota. The time-varying chemistry of the tailings pond water is computed during the GoldSim simulation based on evaporation and mixing of rainwater, stormwater runoff, and NorthMet Project Proposed Action-related water transfers to and from the other mining facilities.

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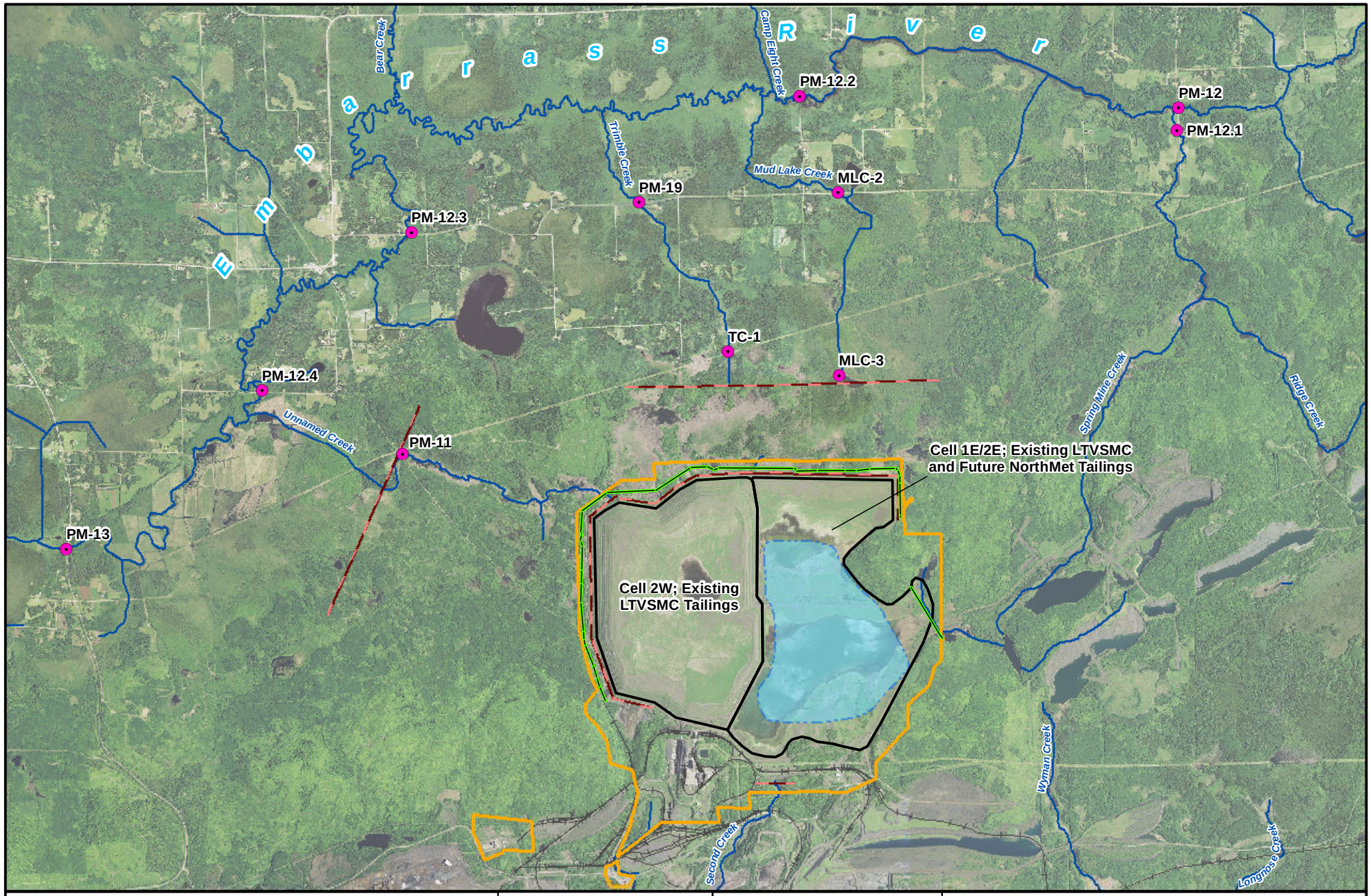

Groundwater Evaluation Locations
Groundwater Elevation Contours (feet)
Surface Water Evaluation Locations
Containment System
Stream/River
Plant Site
Existing Tailings Basin
Approximate Pond Area

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 1.5 Miles

Figure 5.2.2-13
Plant Site Contaminant Source Areas and Evaluation Locations
NorthMet Mining Project and Land Exchange FEIS
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Table 5.2.2-17 General Description and Solute-Release Mechanisms of the Existing LTVSMC Tailings Facilities

Facility	Engineered Features	Chemical Mechanisms
2W	It is part of the existing LTVSMC Tailings Basinand would not be used for the NorthMet Project Proposed Action. The soil surface has natural vegetation to reduce infiltration. The containment system would collect groundwater and surface seepage.	Sulfide oxidation and associated release of sulfate and metals.
1E/2E	It is part of the existing LTVSMC Tailings Basin and would receive new NorthMet tailings generated by NorthMet Project Proposed Action. The containment system would collect groundwater and surface seepage. During operations, new dams built on top of cells 1E/2E would be amended with bentonite. During closure, surface soils would be amended with bentonite and vegetated to reduce infiltration and oxygen entry.	Sulfide oxidation and associated release of sulfate and metals.
Pond	During closure, the cell 1E/2E pond bottom would be amended with bentonite to reduce seepage.	Seepage of pond water and its associated water quality and dissolved oxygen.

Source: PolyMet 2015i.

Table 5.2.2-18 Tailings Basin Solute Source Sub-areas used in GoldSim for Closure

Source Area	Tailings Basin Sub-area	Tailings Material Assumed to Control Solute Release	Bentonite-Amended	Area (acre)	Aquifer recharge[1] (in/yr)	Bottom Seepage[6] (gpm)	Basis for Solute Release Calculations
1E/2E	North Dam banks (outer slopes)	LTVSMC bulk (other)	Operations and closure	249.0	6.07	78.1	Calibration[2]
	East Dam banks (outer slopes)	LTVSMC bulk (other)	Operations and closure	40.0	6.07	12.5	Calibration[2]
	South Dam banks (outer slopes)	LTVSMC bulk (other)	Operations and closure	91.0	6.07	28.5	Calibration[2]
	North Beach	35% NorthMet fine, 65% NorthMet coarse	Closure Only	90.2	6.07	28.3	Lab/other sites[3]
	East Beach	35% NorthMet fine, 65% NorthMet coarse	Closure Only	45.6	6.07	14.3	Lab/other sites[3]
	South Beach	35% NorthMet fine, 65% NorthMet coarse	Closure Only	103.1	6.07	32.3	Lab/other sites[3]
	Closure Beach	35% NorthMet fine, 65% NorthMet coarse	Closure Only	188.6	6.07	59.2	Lab/other sites[3]
	1E coarse	LTVSMC coarse	None	3.4	4.32	0.8	Calibration[2]
	1E fine[5]	LTVSMC fine	NA	NA	NA	NA	NA
	2E coarse[5]	LTVSMC coarse	NA	NA	NA	NA	NA

Source Area	Tailings Basin Sub-area	Tailings Material Assumed to Control Solute Release	Bentonite-Amended	Area (acre)	Aquifer recharge[1] (in/yr)	Bottom Seepage[6] (gpm)	Basis for Solute Release Calculations
	2E fine[5]	LTVSMC fine	NA	NA	NA	NA	NA
	2E banks	LTVSMC coarse	None	75.3	6.06	23.5	Calibration[2]
	North Buttress banks	Category 1 waste rock	None	115.0	13.24	78.7	Lab/other sites[3]
Pond	Pond	NA	Closure (after 30 years)	905.3	6.50[7]	304.0	Computed[4]
2W	2W coarse	LTVSMC coarse	None	220.1	17.53	199.1	Calibration[2]
	2W fine	LTVSMC fine	None	748.1	17.63	681.0	Calibration[2]
	2W banks	LTVSMC coarse	None	339.2	9.10	159.3	Calibration[2]
	South Buttress banks	Category 1 waste rock	None	15.0	13.27	10.3	Lab/other sites[3]
Total				**3,229**		**1,710**	

Source: PolyMet 2015i; PolyMet 2015q.

Notes:
1 Net infiltration of meteoric water. Based on a percentage of P50 annual rainfall (27.82 in/yr).
2 Calibrated to water quality of existing affected seepage and groundwater.
3 Laboratory humidity cell tests and water quality at similar mine sites.
4 Pond contaminant concentrations computed during GoldSim simulation.
5 Does not exist in closure.
6 Bottom seepage assumed equal to aquifer recharge multiplied by associated area.
7 Design specification.

Contaminant Transport from the Tailings Basin

At the Plant Site, most groundwater flow occurs in surficial deposits that constitute a surficial aquifer of about 7 meter saturated thickness. Below the surficial deposits is a low-permeability fractured bedrock, mainly the Giants Range batholith. Groundwater flow rates in the bedrock are much lower than in the overlying surficial deposits. As at the Mine Site, it is assumed that most of the contaminants released travel in the same direction and at the same flow rate as surficial groundwater flow (accounting for some dispersion) and ultimately emerging in downgradient surface water. Groundwater flow rates and flow directions in the model were taken directly from the MODFLOW results, or were programmed to be consistent with the MODFLOW results. Unlike the Mine Site, however, PolyMet proposes to install a containment system along the northern, northwestern, and western perimeters of the Tailings Basin, and at the proposed dam along a portion of the eastern side of the Tailings Basin. This containment system would intercept seepage migrating away from the Tailings Basin toe via ground surface, surficial deposits and shallow bedrock. See Figure 5.2.2-14 and Figure 5.2.2-15. The south-side containment system capture efficiency would also be improved as necessary.

Design and performance modeling of the containment system predict that it would achieve complete capture of groundwater moving via the surficial aquifer and upper bedrock (PolyMet 2015i). In the GoldSim model, the containment system is conservatively assumed to be 90 percent efficient in capturing surficial groundwater, which means that 10 percent of the surficial groundwater bypasses the system and continues to migrate toward the Embarrass River. This

affected groundwater migrates in the flowpaths to the north, northwest, and west (groundwater migration is not expected to the east or south), and concentrations change progressively as the groundwater approaches downgradient evaluation locations. The affected groundwater ultimately reaches and emerges directly into the Embarrass River (west flowpath) or into its tributaries (northwest and north flowpaths). Performance modeling of the north and northwest flowpaths has indicated that the proposed systems would provide greater than 90 percent capture of surficial aquifier and bedrock groundwater to 100 ft below the top of bedrock. Containment systems are assumed to capture 100 percent of tailings surface seepage, which consists of toe seepage and groundwater that upwells to ground surface between the Tailings Basin and the containment system.

Detailed descriptions of the assumptions and algorithms used to estimate solute release from the Tailings Basin are provided in the Waste Characterization Data Package (PolyMet 2015q).

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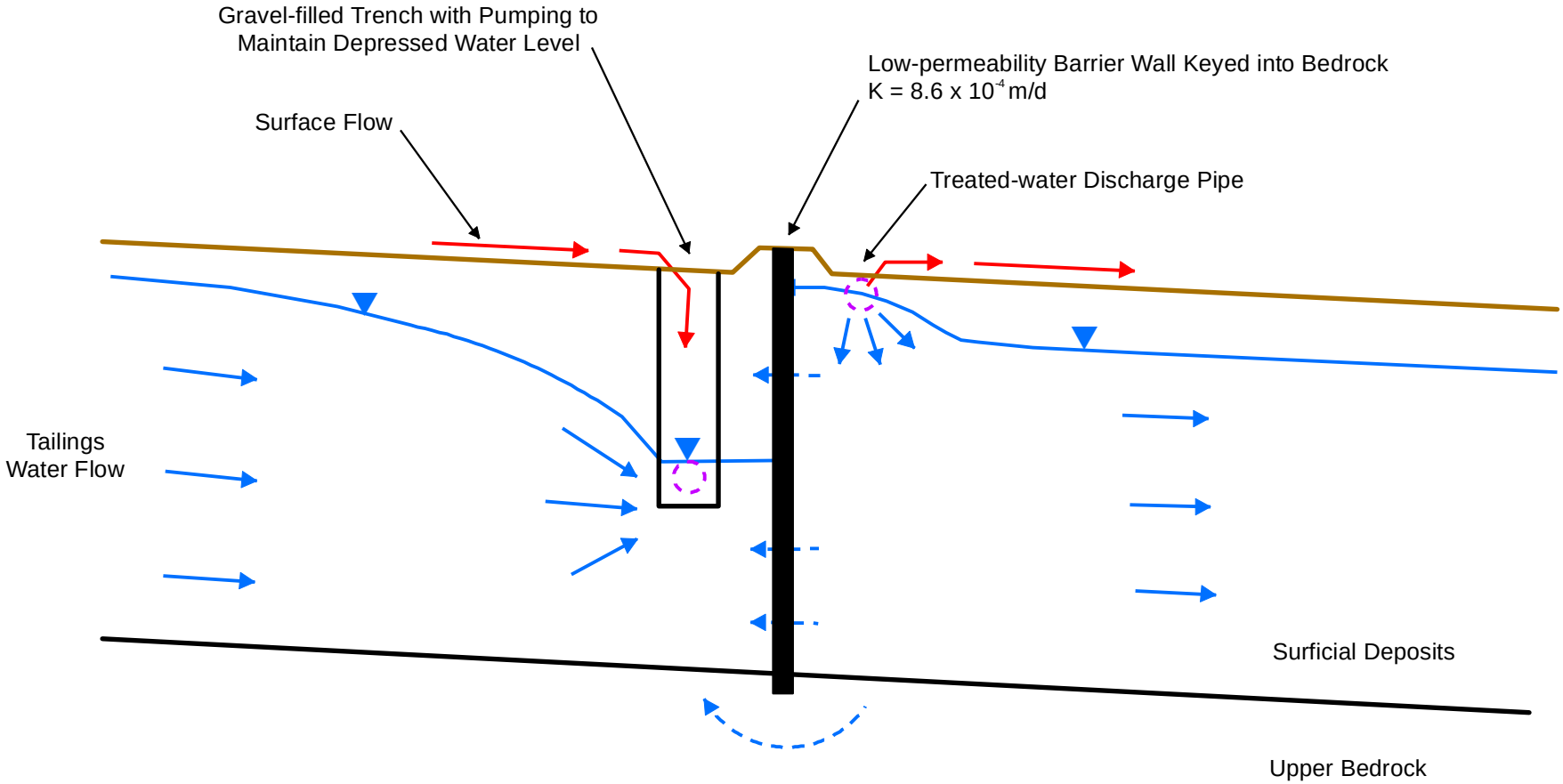

Not to Scale

- Groundwater Flow
- Very low Groundwater Flow
- Surface Water Flow
- Water Return Pipe

Figure 5.2.2-14
North/Northwest and West Tailings Basin
Containment System Diagram
NorthMet Mining Project and Land Exchange FEIS
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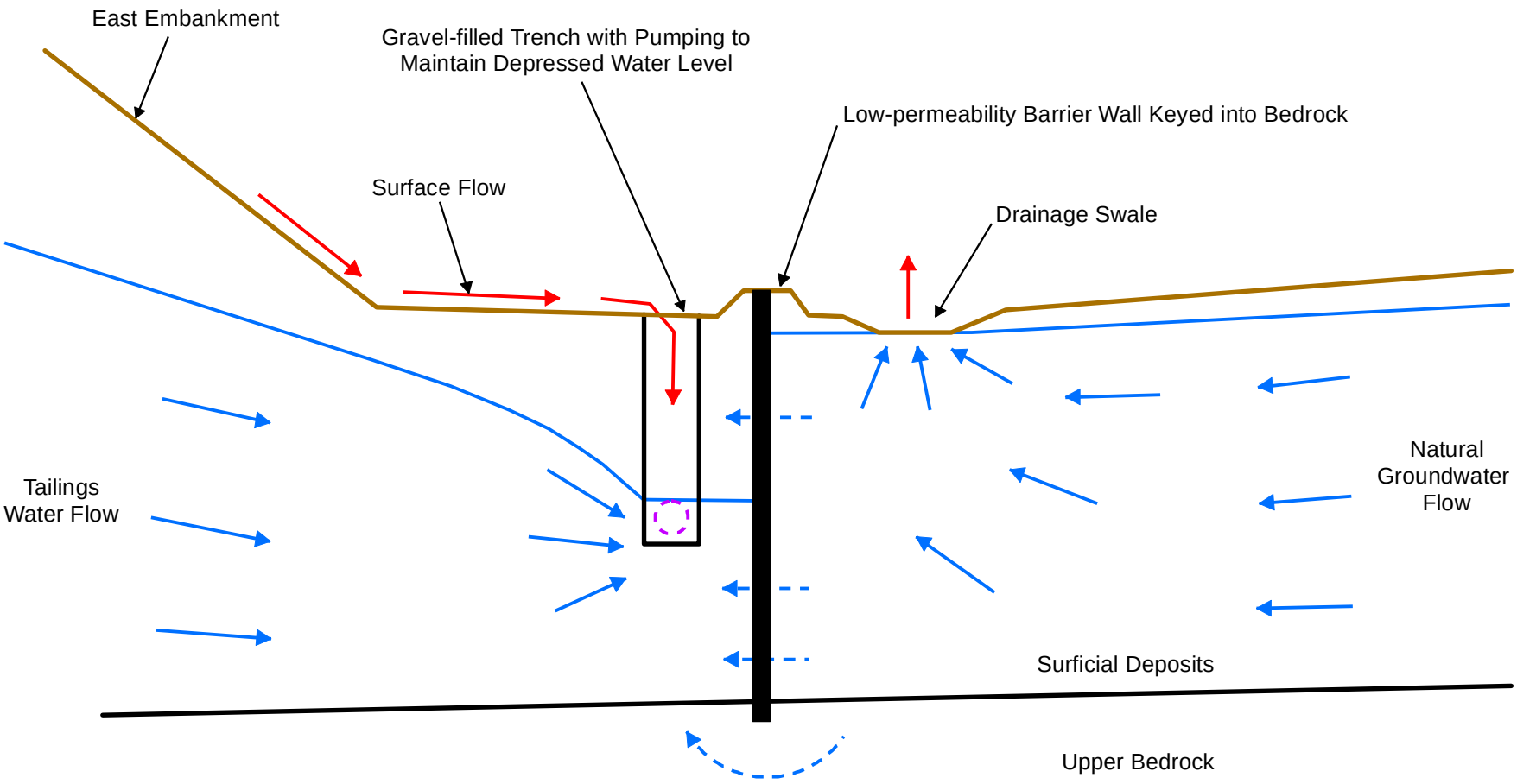

Not to Scale

- Groundwater Flow
- Very low Groundwater Flow
- Surface Water Flow
- Water Return Pipe

Figure 5.2.2-15
East Side Tailings Basin Containment System Diagram
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GoldSim Model Operations and Output

The GoldSim program has utilities for performing probabilistic simulations addressing the uncertainty of inputs. For this method, selected "uncertain" inputs are entered into the program as cumulative probability functions rather than single fixed values. The probability functions are selected considering the variability of measured data, professional judgment, or both. Figure 5.2.2-16 is an example of the cumulative probability function of a hypothetical input. Point A on the figure indicates that there is a 10 percent probability that the true input value is less than or equal to 14. Point B (median) indicates a 50 percent probability that the true input is less than or equal to 22, and Point C indicates a 90 percent probability that the true input is less than or equal to 30.3. At the beginning of a model run, GoldSim selects a random probability number between zero and 100 percent for each uncertain input and uses the associated cumulative probability distribution to determine the numerical input value. If for example, the program-selected random probability is 38.1 percent, the input value for the hypothetical input on Figure 5.2.2-16 would be 20.3 (Point D). For some inputs, such as annual rainfall, the random sampling is performed at the beginning of each simulation year as the program progresses through time. With the resulting suite of inputs, a single transient model run is performed (referred to as a "realization") and the results are saved. The process of statistical sampling is then repeated using new, randomly selected input values and the next realization is run.

The GoldSim model uses a Monte Carlo simulation approach, where the model is run 500 times, with each of the 500 realizations based on a unique suite of statistically sampled inputs. At the end of the Monte Carlo simulation, the multiple model run results are compiled for each monthly timestep. Consider, for example, a model estimate of contaminant concentration at a particular evaluation location at month 1,200 (year 100). The GoldSim model will provide 500 numerical values for this result, one for each realization. This suite of resulting values is ordered and used to construct a cumulative frequency plot (see Figure 5.2.2-17), which is interpreted in a manner similar to the input plots. The contents of Figure 5.2.2-17, for example, show that there is a 90 percent probability that the concentration at year 100 would be less than or equal to 120.8 (Point C). For results that change over time, a convenient way to present the probabilistic results is to prepare a time-series plot showing the 10, 50, and 90 percent probability results, as shown on Figure 5.2.2-18. Consider point C on the 90 percent probability line on this plot. At a simulation time of 100 years, the value on the curve is 120.8, indicating a 90 percent probability that the true result would be less than or equal to 120.8, which is consistent with Point C on the 100-year frequency plot shown on Figure 5.2.2-17.

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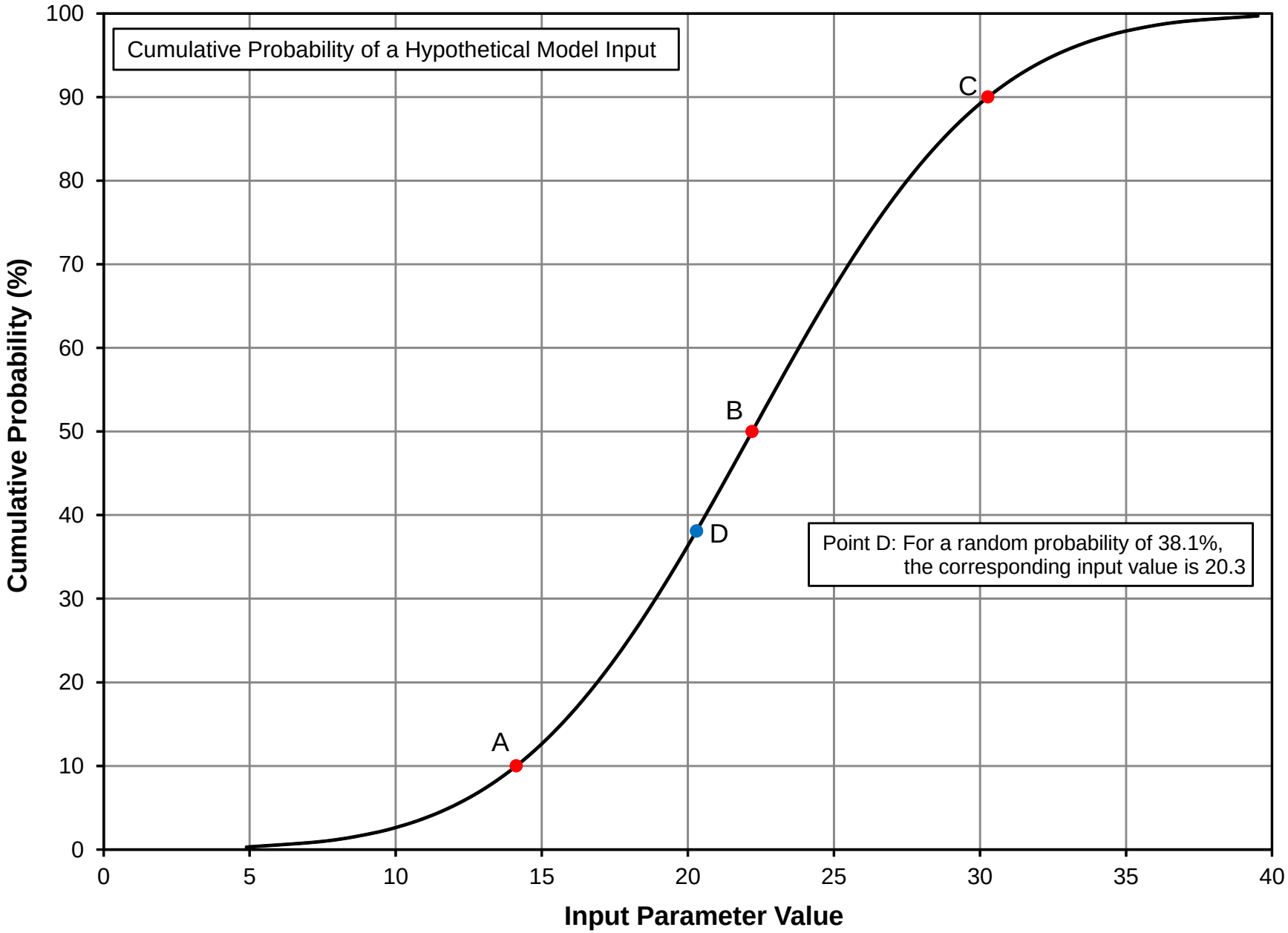

Figure 5.2.2-16
Cumulative Probability of a Hypothetical Model Input
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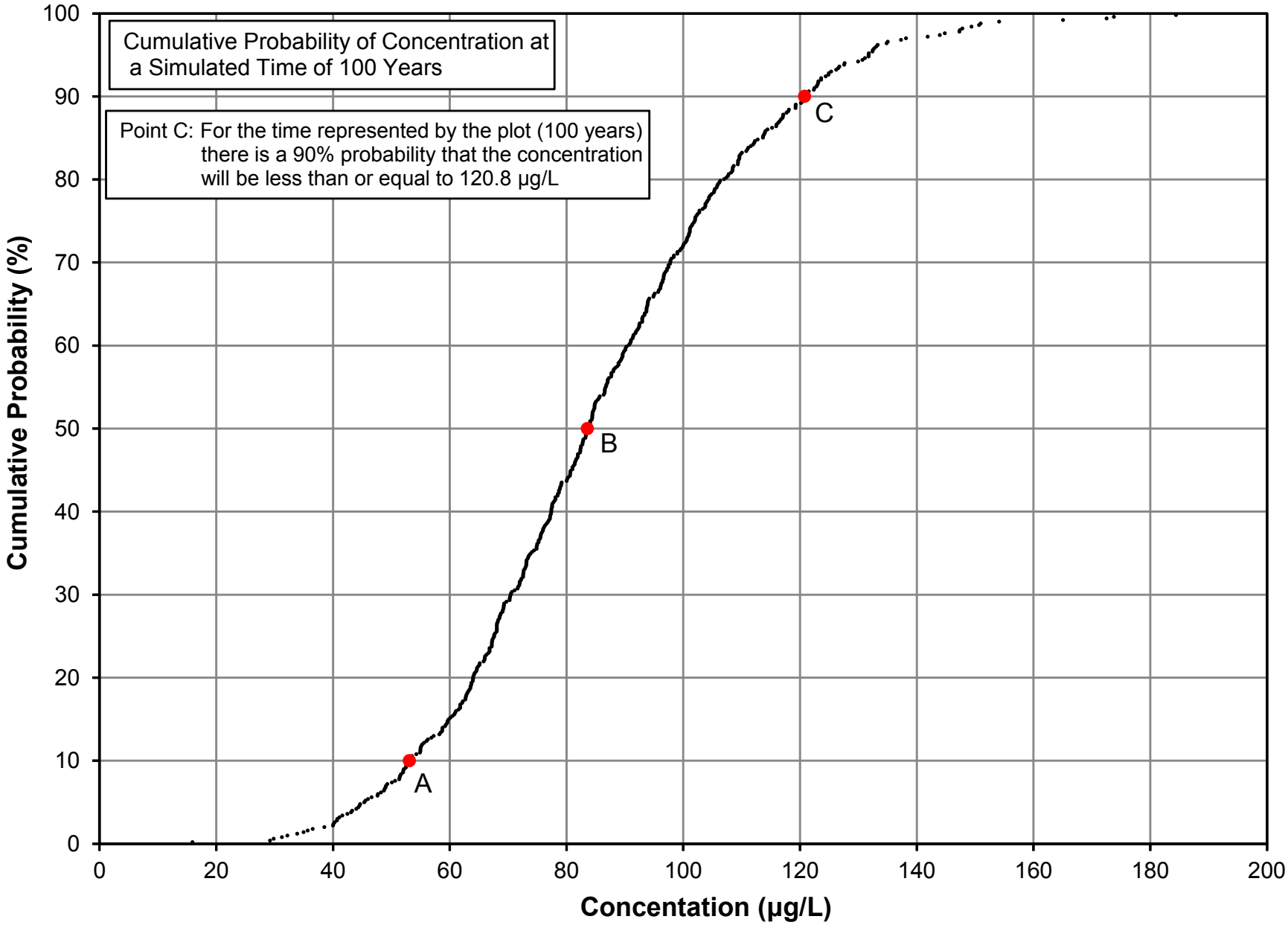

Figure 5.2.2-17
Cumulative Probability of Concentration at a Simulated Time
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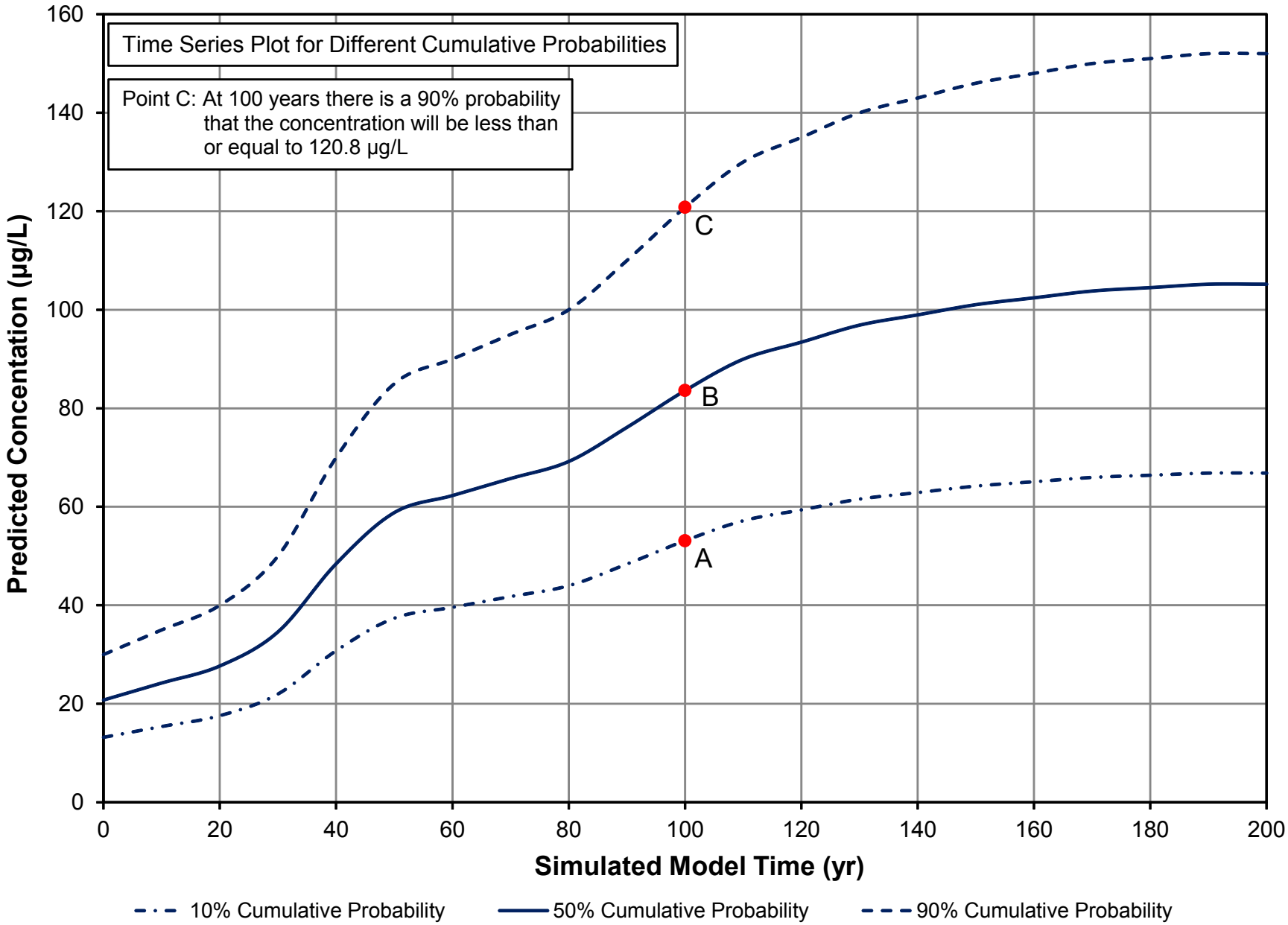

Figure 5.2.2-18
Time Series Plot for Different Cumulative Probabilities
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Application of Evaluation Criteria to Probabilistic Modeling Results

PolyMet used the GoldSim probabilistic model to estimate potential effects from the NorthMet Project Proposed Action on groundwater and surface water quality including whether a water quality evaluation criterion is likely to be exceeded. Surface water and groundwater evaluation locations are points or lines on the landscape where GoldSim generates model results that are compared to applicable water quality evaluation criteria for each constituent. Evaluation locations were identified during the preparation of this FEIS to provide decisions-makers and the public with a discrete point from which impacts can be understood and evaluated. Evaluation criteria are a basic and essential component of this water resources impact assessment and were geographically located for the purpose of environmental review.

Initial Screening

For each constituent at each evaluation location, GoldSim produces 500 predictions (or realizations) of concentrations each month and orders them to generate a cumulative frequency distribution. The 90th percentile value of the distribution is referred to as the P90 concentration. The 50th percentile is the P50 concentration and the 10th percentile is the P10 concentration. The P90 annual maximum for a mine year is the highest P90 value over the 12 monthly timesteps that comprise that year. The maximum P90 concentration for the simulation is the highest P90 value for all of the mine years (200 years at the Mine Site and 500 years at the Plant Site). For non-hardness based evaluation criteria, the modeling results are initially screened for further analysis by comparing the maximum P90 concentration against the criterion value. If the maximum P90 concentration is less than the evaluation criterion, it is concluded that the constituent would not cause an impact of concern at the evaluation location over the entire simulated time period. If the maximum P90 concentration exceeded the evaluation criteria and the NorthMet Project Proposed Action P90 concentration was greater than the CEC scenario concentration, the initial screening process identified it for secondary screening and further analysis. While the P50 concentration is considered the best-estimate, the maximum P90 concentrations provide assurance that this FEIS is not underestimating potential water quality impacts from the NorthMet Project Proposed Action.

To further illustrate how the probabilistic modeling results are used in this FEIS, consider the example of where the predicted maximum P90 concentration of a solute is exactly equal to the evaluation criterion. In this case there is a minimum 90 percent probability that the actual concentration would be below the criterion over the entire model simulation. This threshold, however, does not imply and is not equivalent to saying that water quality evaluation criteria would be exceeded 10 percent of the time. Rather, there is a 10 percent probability that the actual concentration would be above the criterion over the entire model simulation.

As an example of the initial screening process, consider cobalt at Partridge River station SW-004a. Cobalt is a useful screening example because it is expected to be released from Mine Site contaminant sources at predicted concentrations significantly higher than background concentrations already occurring in groundwater and surface water. Figure 5.2.2-19 is a plot of predicted P10, P50, and P90 annual maximum cobalt concentrations at SW-004a. In this FEIS, a constituent is concluded to not warrant additional assessment if its P90 concentrations are less than its associated water quality evaluation criterion. As shown on Figure 5.2.2-19, the P90 plot of annual maximum cobalt concentrations for all years is about 3 µg/L, which is lower than the water quality evaluation criterion of 5 µg/L, so cobalt would be predicted to not have a

significant impact at this evaluation location. A closer inspection of the GoldSim output indicates that the maximum P90 cobalt concentration of all mine years (2,400 timesteps) is 3.11 µg/L as shown on the plot. The screening process would conclude that cobalt at SW-004a would not be retained for further evaluation.

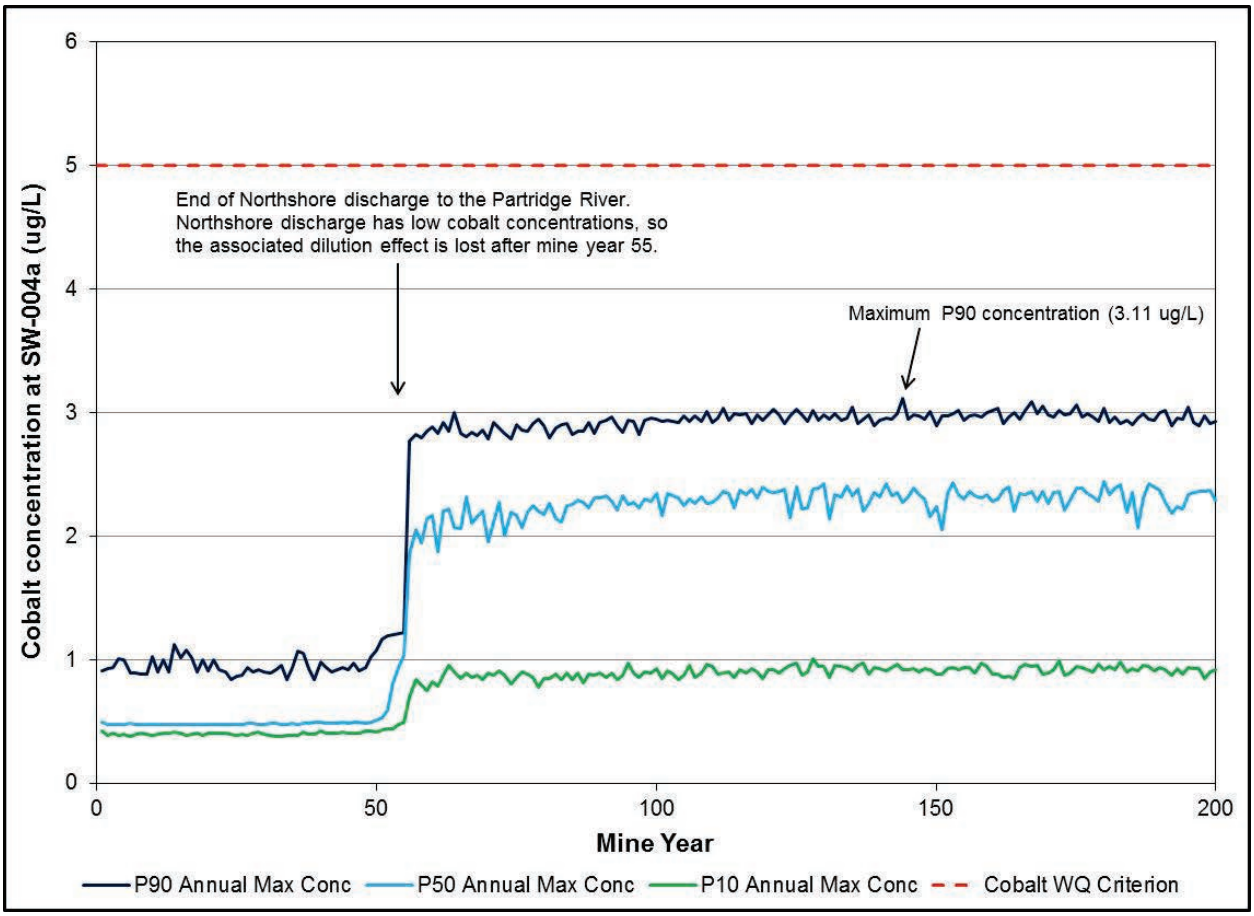

Figure 5.2.2-19 GoldSim-predicted Annual Maximum Cobalt Concentrations at SW-004a

The P90 threshold was adopted in another mining NEPA document where probabilistic modeling was used (Idaho Cobalt Project [USFS 2009b]). Regarding the selection of the maximum P90 threshold for initial screening, the Co-lead Agencies also considered other modeling analyses and screening approaches for evaluating the significance of particular constituents.

For the purposes of screening review, the first year of model data were excluded when calculating maximum P10, P50, and P90 values. Solute concentrations between model cells can take several timesteps to stabilize from the input initial conditions, and the predicted concentrations for these initial timesteps may be unreliable and not representative of the expected conditions. To avoid including these numerical artifacts in the screening analysis, the first twelve timesteps of the model data (mine year 1) were not used to generate the maximum P90 concentrations used for screening.

The use of the P90 criterion for determining whether or not evaluation criteria are being met is not equivalent to how water quality-based effluent limits (WQBELs) would be developed for

NPDES permitting. Appropriate WQBELs would be derived based on water quality standards and implemented in the permit. Discharges would be evaluated during the NPDES permitting stage and WQBELs applied according to 40 CFR 122.44(d).

Secondary Screening

A secondary screening method was developed to evaluate constituents and evaluation locations that were identified for further assessment during the initial screening process described above. It was also used for constituents with hardness-based water quality evaluation criteria that could not be evaluated by the initial screening method because of their variable evaluation criteria. This FEIS defines the following events to indicate a potential NorthMet Project Proposed Action impact:

- Event A: Proposed Action concentration exceeds the Proposed Action evaluation criteria and CEC concentration is below the CEC evaluation criteria. The magnitude of the event is defined as Proposed Action concentration minus the Proposed Action evaluation criteria.
- Event B: Both Proposed Action and CEC concentrations exceed their respective evaluation criteria, and the Proposed Action concentration is greater than CEC concentration. The magnitude of the event is defined as the Proposed Action concentration minus the CEC concentration.

For the secondary screening method, a constituent/evaluation location is retained for further assessment if for either time period (mine years 1 to 55 or 56 to 200/500): 1) there is a 10 percent probability that either event would occur more than 10 percent of the time, ***and*** 2) there is a 10 percent probability that the event magnitude is more than 5 percent of the applicable Proposed Action evaluation criteria. This test was applied to the Mine Site and Plant Site constituents in sections 5.2.2.3.2 and 5.2.2.3.3, respectively.

Continuation of Existing Conditions Scenario

The overall analysis of NorthMet Project Proposed Action effects on water quality takes into consideration the extent to which predicted water quality for the NorthMet Project Proposed Action compares with modeled existing conditions. There are some processes, however, that most water quality models, including the one used for this FEIS, do not fully capture, which limits the ability to simply compare the predicted effects of the NorthMet Project Proposed Action from water quality models with existing water quality for some constituents. These include sulfate reduction between the LTVSMC Tailings Basin and the Embarrass River and site-specific redox reactions (see Section 4.2.2.3.2 for more discussion of sulfate reduction in the Embarrass River Watershed). For this reason, a CEC scenario was modeled within GoldSim.

The CEC scenario model represents conditions in the absence of the NorthMet Project Proposed Action and also in the absence of future activities that may improve water quality under the Consent Decree between the MCPA and Cliffs Erie. The one exception is ending Northshore discharge to the Partridge River in mine year 55, which is included in both the NorthMet Project Proposed Action and CEC scenarios for the assessment of cumulative effects. Modeling both scenarios in the same way allows for a direct comparison of predicted water quality model results and facilitates an assessment of the extent to which implementation of the NorthMet Project Proposed Action would result in changes in existing water quality.

The CEC scenario draws from the same existing condition hydrologic and water quality dataset in GoldSim that was used for modeling the NorthMet Project Proposed Action, but does not introduce any NorthMet mine features or activities. Otherwise, both scenarios were modeled the same way, using 500 Monte Carlo simulations for the same model durations and the results were displayed in the same probabilistic manner. Note, however, that this modeled CEC scenario is not the same as the No Action Alternative, the impacts of which are described in Section 5.2.2.4. The CEC scenario assumes one change in baseline conditions. The only modeled source of constituent loading to the groundwater or surface water that does not represent background sources is the Peter Mitchell Pit discharge to the Partridge River, which is assumed to stop in approximately 2070 because it is expected to occur. Other than this change the CEC scenario model does not include future expected additional mitigation such as water quality mitigation at the existing LTVSMC Tailings Basin, because these measures have not yet been determined Nor does it try to account for climate change. The No Action Alternative, on the other hand, is not static and anticipates for other predictable changes in the NorthMet Project Proposed Action area, such as other planned projects, required mitigation, and climate change.

Comparison of NorthMet Project Proposed Action with the CEC Scenario

The analysis of the model results that follows (see Section 5.2.2.3) compares predicted solute concentrations for both the NorthMet Project Proposed Action and CEC scenario to applicable groundwater and surface water evaluation criteria. These comparisons are made at each of the Mine Site and Plant Site groundwater and surface water evaluation locations (a combined total of eight groundwater and 18 surface water evaluation locations) using the GoldSim P90 probabilistic results.

5.2.2.3 NorthMet Project Proposed Action

This section discusses the potential environmental consequences of the NorthMet Project Proposed Action on groundwater and surface water levels and quality at both the Mine Site and Plant Site (Tailings Basin) and the Transportation and Utility Corridor. Figure 5.2.2-20 and 5.2.2-21 illustrate Mine Site and Plant Site water management timelines.

5.2.2.3.1 NorthMet Project Proposed Action Water Budget Overview

This section briefly describes the water budget under the NorthMet Project Proposed Action at the Mine Site and Plant Site. Under the NorthMet Project Proposed Action, the following water sources would have to be managed:

- Stormwater runoff on mine facilities (e.g., waste rock stockpiles, mine pits, Tailings Basin);
- Seepage from mine facilities into groundwater and surface water;
- Pit lakes and saturated pit backfill, which include groundwater entering the mine pits;
- Process plant makeup water withdrawn from Colby Lake;
- Discharge of excess water from the WWTF and WWTP, including that used for stream augmentation;
- Transport and use of excess Mine Site water for process makeup at the Plant Site; and

- Transport and use of excess Plant Site Water to accelerate re-flooding of the West Pit at the Mine Site.

An overall water process flow diagram, shown on Figures 5.2.2-10 and 5.2.2.12, illustrates the principle NorthMet Project Proposed Action components and their relationship to surface water and groundwater resources.

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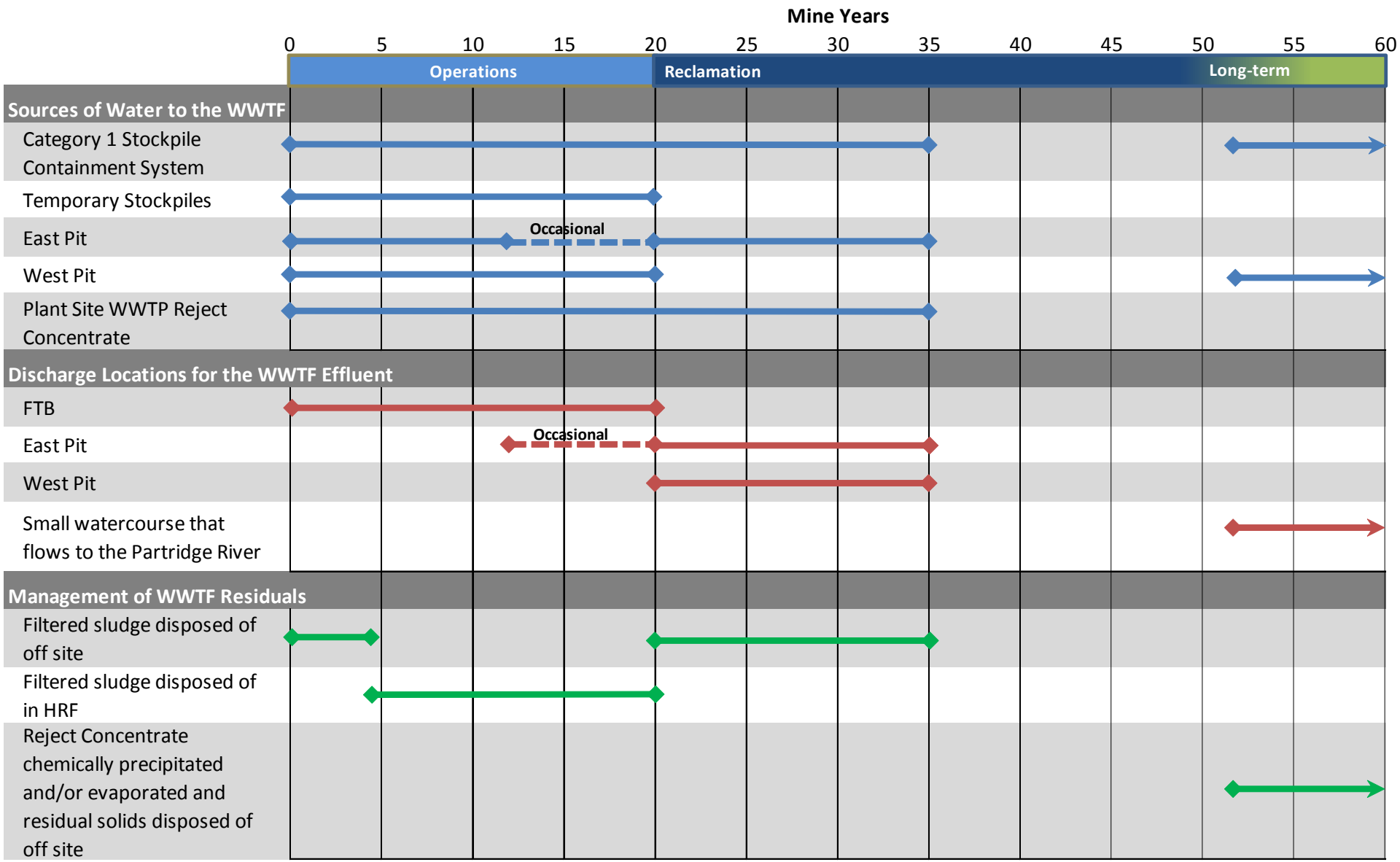

Note: Actual start and end years are variable due to uncertainties and variability in the water and chemical balances. Dates shown are approximate and represent average estimates.

Figure 5.2.2-20
Mine Site Water Management Timeline
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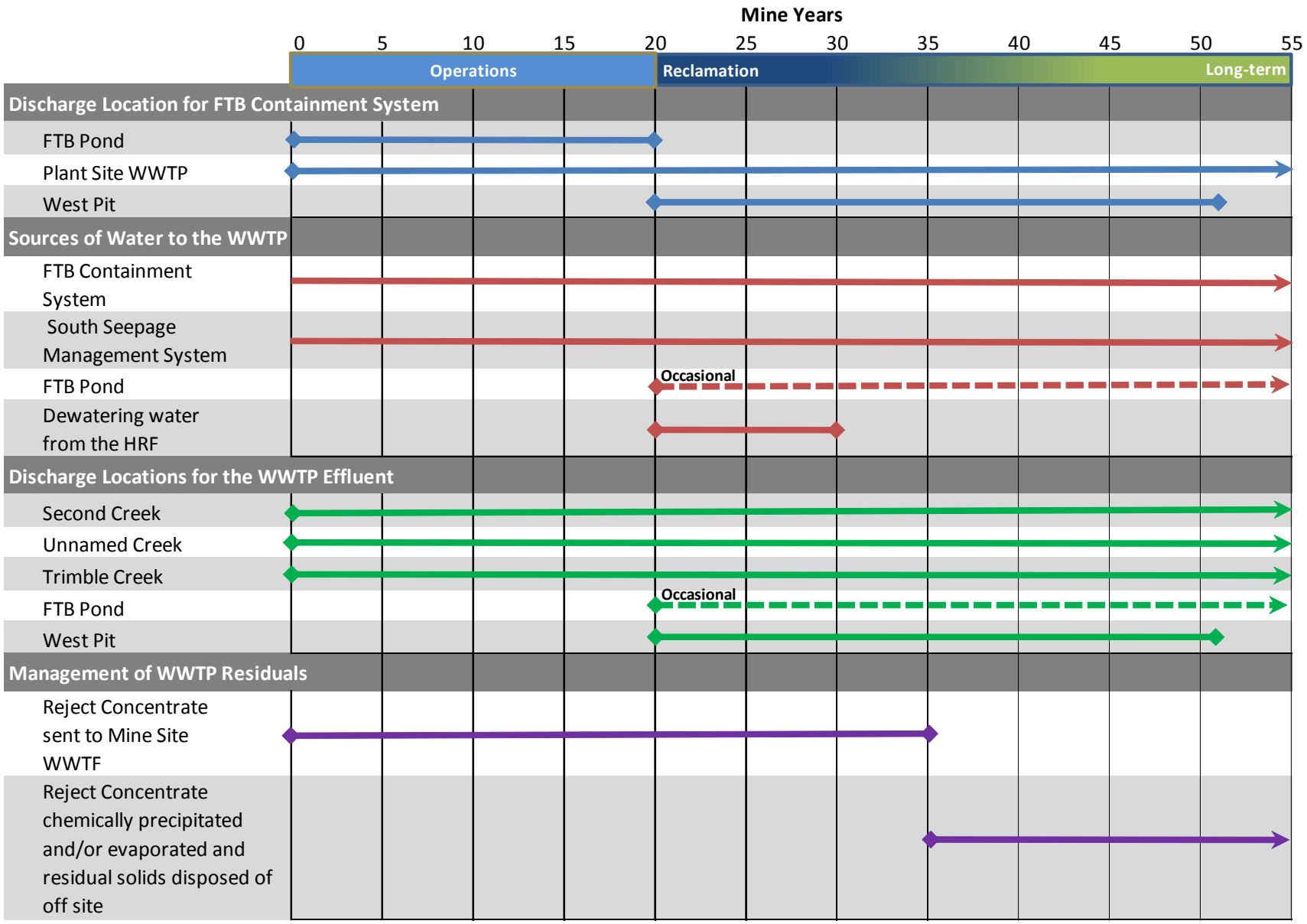

Note: Actual start and end years are variable due to uncertainties and variability in the water and chemical balances. Dates shown are approximate.

Figure 5.2.2-21
Plant Site Water Management Timeline with Mechanical Treatment
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Operations (Year 0 to 20)

Mine Site

During operations, the West Pit (years 0-20), Central Pit (years 12-16) and East Pit (years 0-11) would be dewatered due to pit inflows from groundwater. A process water pipeline would carry this water to the WWTF West Equalization Basin. Temporary liners, underdrains and ditches associated with the Category 2/3 Stockpile, Category 4 Stockpile, Ore Surge Pile, would capture surface runoff and groundwater seepage and convey this contact water to lined ponds. Process water pipelines would carry this water to the WWTF West Equalization Basin. The Category 1 Stockpile containment system, Rail Transfer Hopper pond liners and Haul Road pond liner would capture contact water which would be directed to the WWTF East Equalization Basin. Groundwater seepage through lined and unlined mine features would begin migrating in the surficial aquifer and bedrock toward the Partridge River during operations.

Initial construction activity involving wetland dewatering (effluent management) would be addressed by construction stormwater management during permitting. Surface runoff from the Overburden Storage and Laydown Area would drain to a process water pond. Pond water quality and operational demands would determine if it is piped to the Central Pumping Station, to the Tailings Basin or to the East Pit during filling.

Interior ditches, exclusion dikes (including perimeter and rim pit dikes) would be used to manage non-contact stormwater and prevent contact with mine wastes. Five sedimentation ponds would be used to reduce total suspended solids and allow for controlled discharge off site. Runoff from the covered Category 1 Stockpile would be managed as stormwater and discharged off site via a sedimentation pond. The geomembrane cover construction would begin at mine year 14 and be complete by mine year 21.

The WWTF would include chemical precipitation which would treat process water from the West and East equalization ponds. Effluent would flow to the clay-lined Central Pumping Station Pond where it would be blended with Overburden Storage and Laydown Area runoff. The Central Pumping Station would then pump the treated water to the Tailings Basin or to the East Pit during filling (after mine year 11). No water would be discharged off site.

Filtered sludge from the chemical precipitation process would be sent off site for disposal or stored at the Hydrometallurgical Residue Facility. The reject concentrate stream from the Plant Site WWTP would be transported to the WWTF via rail tank cars where it would be added to the West Equalization Basin.

Beginning in year 11, after East Pit mining would be completed, the pit would be backfilled with Category 2/3 and 4 waste rock from the temporary waste rock stockpiles and from ongoing operations. The East Pit backfill would re-saturate with groundwater, in-pit runoff, direct precipitation, and treated process water from the WWTF, to limit the oxidation of the sulfide minerals in the pit walls and backfilled waste rock, and reduce the amount of metals leaching to the pit water. Water would be maintained within 5 ft of the backfill surface (PolyMet 2015d). During periods of high precipitation or during spring snowmelt, partial dewatering of the East Pit (to the WWTF and ultimately to the Tailings Basin) may be required to allow placement of the waste rock.

Once backfilling of the East Pit is complete, the backfill would continue to saturate and the pore water would be sent to the WWTF for treatment and returned to the pit to improve the pore water quality. When the backfill water level rises above the top of bedrock (approximately mine year 20), it would release into the East Pit – Category 2/3 Surficial Flowpath. The affected groundwater in this flowpath would migrate slowly towards the Partridge River.

The pipeline between the WWTF and the East Pit would be left in place during and after backfill re-saturation to manage the water elevation in the East Pit.

Plant Site

During operations, the primary source of process water at the Plant Site would be the Tailings Basin ponds, which would contain return water from the beneficiation plant, treated water from the Mine Site WWTF and Plant Site WWTP, and water collected from the Tailings Basin containment system. Colby Lake water would also be withdrawn. Direct precipitation and stormwater runoff from the process areas at the Plant Site would also be directed to the Tailings Basin pond.

Tailings Basin pond water would be sent to the WWTP for treatment and discharged to surface water as necessary. The purpose of the WWTP would be to treat water for discharge to the environment when the NorthMet Project Proposed Action has excess water that could not be stored in the Tailings Basin pond. The WWTP would include an RO unit or equivalent technology that would meet water quality targets.

Containment systems would be installed across the western, northwestern, northern, and eastern sides of the Tailings Basin to collect water leaving the Tailings Basin as surface and surficial groundwater flow. During operations, this water would be returned to the Tailings Basin pond for re-use. A small portion of groundwater would bypass the containment system and enter into groundwater flowpath. Groundwater would then emerge in surface waters north, northwest and west of the Tailings Basin.

On the southern side of the Tailings Basin, an existing seepage containment system would be upgraded by PolyMet to achieve 100 percent capture of tailings surface and groundwater seepage that otherwise would flow into Second Creek, a tributary of the Partridge River. Improvements to capture efficiency of the existing dam may include lining the upstream dam face with bentonite and injecting grout into the dam. A second dam could be constructed approximately 500 ft downstream of the existing dam where the geography is more constricted. This potential second dam may be earthen with a clay or concrete cutoff wall extending to bedrock (Barr 2015e).

The Tailings Basin containment systems would reduce flows to tributaries that extend from the Tailings Basin. Flow would be increased through augmentation. A portion of the water collected by the containment system and water from the Tailings Basin pond would be sent to the WWTP, treated, and discharged to Unnamed Creek, Trimble Creek, and Second Creek in order to maintain downstream hydrology and wetland function. Mud Lake Creek would be augmented via a drainage swale on the eastern side of the Tailings Basin. Augmentation would restore flow to ± 20 percent of existing or uncaptured flows to maintain existing hydrology, geomorphology, aquatic communities, connectivity, water quality, and biology (Chisholm 2006).

Tailings Basin pond elevation would be controlled by pumping any excess pond water to the WWTP. An emergency overflow channel would be constructed as a backup means of controlling pond elevation, but discharge from the emergency overflow would not be expected. The

emergency overflow is provided for protection of the dams in the rare event that freeboard within the Tailings Basin is not sufficient to contain all stormwater. Such instances have the potential to occur in the event of a probable maximum precipitation rainfall event. Probable maximum precipitation rainfall events are rare.

Colby Lake water would be pumped to the Hydrometallurgical Plant. Wet hydrometallurgical residue would be pumped to the Hydrometallurgical Reside Facility. Leakage from the Hydrometallurgical Residue Facility would be collected by the leakage collection component of the double-liner system and returned to the Hydrometallurgical Residue Facility flotation pond and from there it would be returned to the Hydrometallurgical Plant.

Reject concentrate from the WWTP RO or equivalently performing system would be sent to the Mine Site WWTF for treatment by chemical precipitation.

Reclamation (Starting Year 21)

Mine Site

The backfilled East Pit would continue to saturate and excess pore water would be sent to the WWTF for treatment and returned to the pit to improve the pore water quality. A wetland would be established at the surface of the pit and water levels would be maintained by a gravity overflow structure to the West Pit.

West Pit reclamation would commence when mining activity ceases. Primary dewatering systems would no longer be operated, and the West Pit would begin to flood naturally with groundwater, precipitation, and surface runoff from the tributary watershed. Flooding would be accelerated by delivery of treated water from both the Mine Site WWTF and the Plant Site WWTP. Seepage through the Category 1 Stockpile containment system would also contribute water to the West Pit via groundwater pathways. With the addition of water pumped from the Plant Site, West Pit flooding is projected to be completed before the end of mine year 55. When the West Pit water level rises above the top of bedrock, there would be a release of pit lake water into the West Pit Surficial Flowpath. The affected groundwater in this flowpath would migrate slowly south towards the Partridge River.

Temporary stockpiles and unnecessary haul roads would be removed along with their associated process water ponds. The WWTF would also receive low flow rates from the Category 1 Stockpile surface and groundwater seepage containment system.

Reject concentrate from the Plant Site WWTP RO or equivalently performing system would be treated at the Mine Site WWTF and the resulting filtered sludge would be taken off site for disposal.

Plant Site

Plant Site reclamation would include building and structure demolition and equipment removal, Tailings Basin reclamation, and Hydrometallurgical Residue Facility reclamation.

During Tailings Basin reclamation, the pond bottom and beaches would be covered with a bentonite layer to reduce the downward percolation from the pond, which would reduce the amount of water collected by the Tailings Basin containment system. Most of the side slopes and top (non-ponded) surfaces of the Tailings Basin would be amended with bentonite to reduce

meteoric infiltration and oxygen diffusion into the tailings, with the intent of reducing sulfide oxidation and associated release of soluble sulfate and metals. Tailings Basin cell 2W would be re-vegetated to reduce meteoric infiltration (PolyMet 2015d).

Water management would include maintenance of the pond and wetland within the reclaimed Tailings Basin, stormwater management, and continued operation of the WWTP and the containment systems. A wetland would be constructed on the pond perimeter.

After bentonite amendment of tailings surfaces, establishment of the wetland, and continued water treatment, the tailings pond water quality would improve over time. The pond and wetland would continue to lose water via seepage, but at a reduced rate as compared to operations. The reject concentrate stream from the WWTP would be sent to a distillation crystallizer to generate a solid residual that would be transported offsite for disposal.

Containment systems would continue to operate, although seepage rates would be progressively reduced. The collected seepage would be pumped to the WWTP. During this period, the WWTP effluent would be used for both West Pit flooding and stream augmentation (PolyMet 2015a).

The WWTP and the containment system would be periodically inspected to ensure continuing integrity. Monitoring of piezometers or other similar devices would continue for the purpose of assessing the continued effectiveness of the containment system and to inform appropriate mitigation and/or permitting of any potential release of seepage that may bypass the containment system. An NPDES permit would be required for any point source water discharge that adds pollutants to waters of the United States.

Reclamation of the Hydrometallurgical Residue Facility would include removal of ponded water from the cell surface, removal of pore water from the residue, construction of the cell cover system, and establishment of vegetation and stormwater runoff controls. Once the Hydrometallurgical Residue Facility is reclaimed, the volume of water draining from the facility would decline and nearly cease if the cover system were effective. The facility would only require periodic pumping of any remaining drainage to the WWTP and inspection of the reclaimed cell to verify integrity of the reclamation systems.

Closure and Post-Closure Maintenance (after Reclamation is Complete)

Mine Site

During this phase, the WWTF would be converted to an RO system with a distillation crystallizer to eliminate the liquid reject stream, or other membrane treatment technology that meets water quality requirements. The moist waste solids from this system would be disposed of offsite. Pilot-testing has indicated that treated effluent from this system would have sulfate concentrations less than 9 mg/L and meet water quality discharge standards for all other regulated solutes (Barr 2013f). Effluent from the WWTF RO or equivalently performing system would be discharged to the West Pit Overflow Creek shown on Figure 5.2.2-22.

Water levels in the East Pit would generally be controlled by passive wetland overflow to the West Pit. Depending on seasonal weather conditions, there could be occasional pumped flows from the wetland to the WWTF or of treated effluent from the WWTF to the wetland to further control the water levels (PolyMet 2015d). In any event, saturated backfill in the East Pit would continue to release groundwater to the East Pit – Category 2/3 Surficial Flowpath.

After the West Pit is refilled, the water level would be controlled by pumping to the WWTF to prevent surface water overflow from the pit lake. However, release of pit lake water to the West Pit Surficial Flowpath would continue. The WWTF would also receive low flow rates from the Category 1 Stockpile groundwater containment that would then be discharged to the West Pit Overflow Creek shown on Figure 5.2.2-22.

Perimeter dikes that would be no longer needed to provide access or separation from the areas outside the Mine Site would be removed. The dike located north of the East Pit would remain in place to minimize mixing of the Partridge River flows with the East Pit water and prevent gully development on the northern side of the pit in the segments not protected by ditches (see Figure 5.2.2-22). In addition, the dike located north of the Category 1 Stockpile would remain in place to allow access to groundwater monitoring locations. The Category 1 Stockpile would be inspected on a regular basis and portions of the geomembrane liner and soil cover would be replaced if necessary.

Surface runoff would be routed away from the mine pits using a combination of existing and new ditches (see Figure 5.2.2-22). Some portions of the pit rim dikes may be left in place, if needed to prevent an uncontrolled flow to or from the pits and potential erosion of the pits walls. A more detailed evaluation of this requirement would be conducted prior to mine closure.

Stormwater pond outlet control structures would remain in place as necessary to manage water resource effects. The outlet control structure on the stormwater pond located immediately north of the East Pit and the Category 1 Stockpile would remain in place to minimize the mixing of the Partridge River flows with the East Pit water and prevent gully development on the northern side of the pit. The outlet control structures on the two stormwater ponds next to Dunka Road would remain in place to direct water under the road and the railroad to a tributary to the Partridge River along natural drainage paths. As a requirement of the NPDES/SDS stormwater permit and/or Reclamation Plan for the facility, discharges from these outlet control structures would be monitored as necessary to ensure that stormwater runoff to the Partridge River would meet water quality discharge limits. For modeling purposes, it is assumed that the water quality of this stormwater runoff is the same as the non-contact water for other portions of the watershed.

The WWTF would continue to operate during closure and long-term maintenance, treating excess water from the West Pit and discharging the effluent to the West Pit Overflow Creek. The typical discharge rate from the WWTF is predicted to be about 300 gpm. The water balance model predicts periodic temporary higher treatment/discharge rates (up to about 600 gpm) to create additional freeboard prior to spring snowmelt. By pumping pit lake water to the WWTF, the pit water level would be managed to always provide sufficient freeboard to absorb extreme precipitation events without overflowing.

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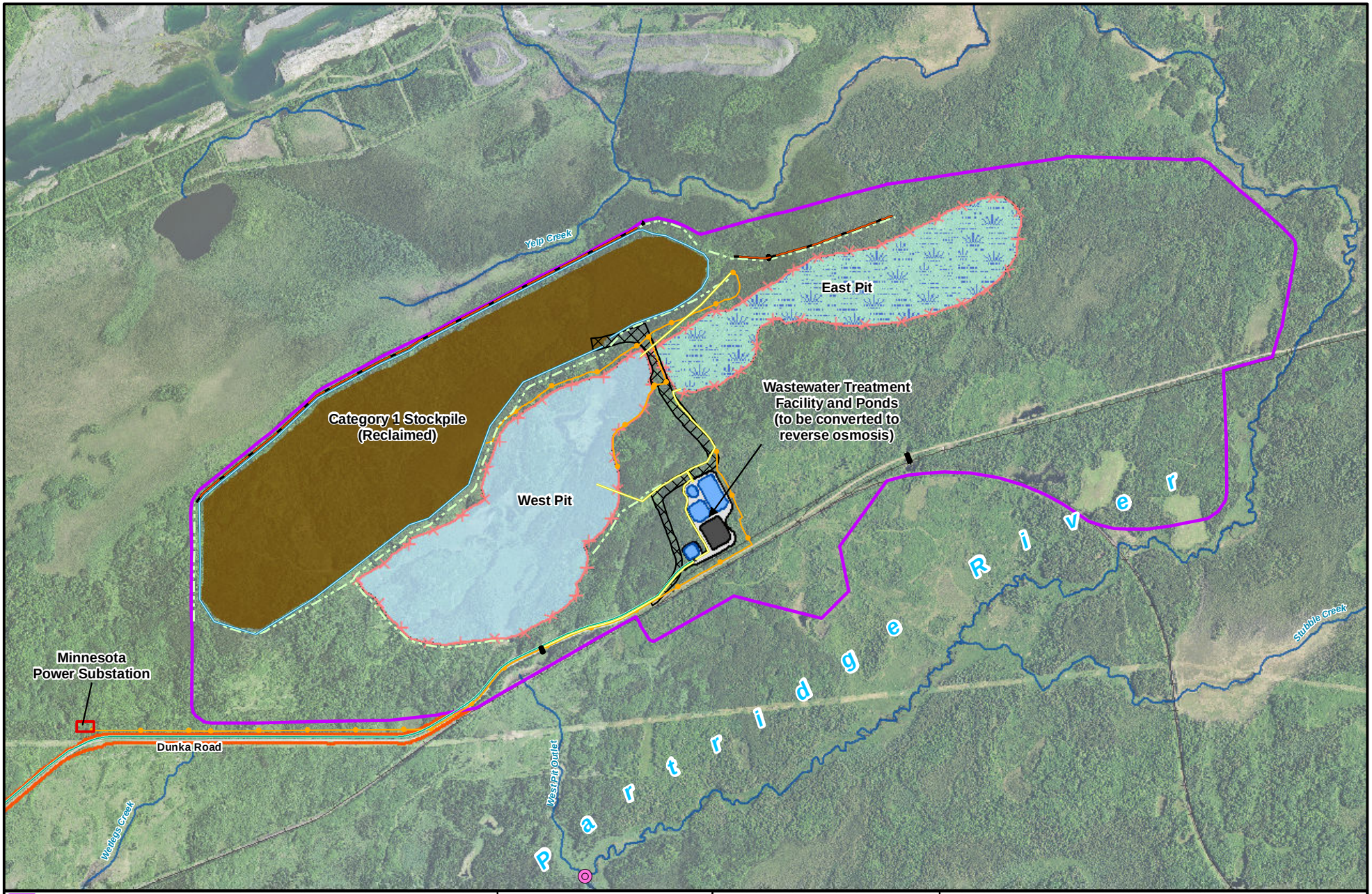

Mine Site
Pit with Backfill and Surface Wetland
Pit Lake
Covered in Previous Years
Haul Road
Transportation and Utility Corridor
Approximate location of WWTF Discharge to Partridge River
Groundwater Containment System
Transmission Line
Stormwater Collection Ditch
Perimeter Dike
Process Water Pipes
Treated Water Pipeline
Fence
Culvert
Stream/River

MNDNR
US Army Corps of Engineers
St. Paul District

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Figure 5.2.2-22
Mine Site Plan - Long-term Closure
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Plant Site

At the beginning of closure, the WWTP RO or equivalently performing system would be modified for multistage operation and use of the distillation crystallization unit to eliminate the liquid reject stream. The moist waste solids from this system would be disposed of off-site. Pilot-testing has indicated that treated effluent from this system would meet water quality discharge standards for all regulated constituents.

During closure and long-term maintenance, the WWTP would continue to treat water collected by the Tailings Basin containment systems. The treated effluent would be used for flow augmentation to Unnamed Creek, Trimble Creek, and Second Creek (PolyMet 2015a). Tailings seepage bypassing the containment system (approximately 20 gpm) would continue to enter the northern, northwestern, and western surficial flowpaths, and migrate slowly toward the Embarrass River.

Closure and Post-Closure Maintenance Objectives

The ultimate water resource closure objective is to transition from the mechanical treatment provided by the WWTF and WWTP to non-mechanical treatment. Transition to the non-mechanical treatment systems would begin after the performance of the non-mechanical treatment methods has been proven. At the Mine Site, non-mechanical treatment systems would be considered for long-term treatment of water from the Category 1 Stockpile surface and groundwater seepage containment system and West Pit overflow. At the Plant Site, non-mechanical treatment would be considered for tailings seepage collected by the Tailings Basin containment systems. Descriptions of possible non-mechanical systems are presented in PolyMet 2015d. See section 5.2.2.3.5 for more information on the transition to non-mechanical systems.

Long-term monitoring of the Hydrometallurgical Residue Facility would continue. Water collected by the leak detection system (if any water) would be sent to the WWTP for treatment. Monitoring would continue and mitigation measures would be undertaken if there was any indication of potential solute releases to groundwater or surface water.

Surface water and groundwater would be monitored as required by relevant permits. The closure and long-term maintenance activities would continue until monitoring indicated that the site water quality had met the stipulated permit conditions for discontinuing these activities.

5.2.2.3.2 Partridge River Watershed

This section discusses the potential environmental consequences of the NorthMet Project Proposed Action on groundwater and surface water hydrology and quality within the Partridge River Watershed, which includes all of the Mine Site, Transportation and Utility Corridor, processing plant and a small portion of the Tailings Basin that contributes flow via a surface seep to the headwaters of Second Creek, which is a tributary to the Partridge River.

Effects on Groundwater Hydrology

This section discusses the effects of the NorthMet Project Proposed Action on groundwater hydrology, specifically groundwater levels at the Mine Site. The NorthMet Project Proposed Action would not result in any measurable effects on groundwater levels along the

Transportation and Utility Corridor (other than as a result of the West Pit dewatering, which is discussed as part of the Mine Site) or at the processing plant.

The NorthMet Project Proposed Action would affect groundwater levels at the Mine Site during operations by dewatering the active mine pits and pumping water to the Plant Site (years 0 to 11) or to the East Pit and Tailings Basin (years 11 to 20). During years 20 to 52, water from the Plant Site would be pumped to the West Pit to accelerate flooding and help return groundwater levels to near pre-mining conditions.

Inflow to Mine Pits

The expected rate of groundwater inflow to the East Pit and West Pit during operations was estimated from MODFLOW modeling, similar to that performed for the DEIS. The model was updated in several ways, including the following:

- MODFLOW model was recalibrated using target groundwater baseflows of 0.41 cfs at SW-002, 0.51 cfs at SW-003, and 0.92 cfs at SW-004 to reflect revisions from the XP-SWMM model;
- Groundwater elevations at monitoring wells MW-1 through MW-18 were included as targets in the updated calibration;
- A new calibration constraint was for surficial aquifer heads not to be significantly higher than ground surface; and
- The model was calibrated using higher values of hydraulic conductivity for Virginia Formation.

These updated estimates of groundwater inflow rates to the pits were used to develop the overall water balance for the probabilistic model. Table 5.2.2-19 shows the MODFLOW-predicted inflows to the pit (years 1 to 20) as well as outflows during closure, once the pits have flooded (PolyMet 2015m).

Table 5.2.2-19 Groundwater Inflows at the Mine Pits Based on MODFLOW Results

	West Pit		Central Pit	East Pit
Year	**Inflow (gpm)**		**Inflow (gpm)**	**Inflow (gpm)**
1	0		0	220
2	60		0	190
3	40		0	210
4	30		0	250
5	30		0	450
6	50		0	430
7	40		0	420
8	40		0	460
9	30		0	690
10	30		0	710
11	80		30	760
12	50		20	760
13	50		10	700
14	40		10	710
15	40		10	710
16	40		10	570
17	40		10	380
18	40		10	270
19	40		10	170
20	40		10	40
Closure and Long-term Maintenance	West Pit[1]		Combined East Central Pit[2]	
	Inflow (gpm)	Outflow (gpm)	Inflow (gpm)	Outflow (gpm)
	30–40	10–20	30–40	20–50

Source: PolyMet 2015m.

Notes:
[1] Open pit lake with water-surface elevation ranging from 1,576 to 1,585 ft amsl.
[2] Combine pits backfilled and re-saturated with water-level elevation ranging from 1,592 to 1,595 ft amsl.

Extent of Groundwater Drawdown

Understanding the extent of groundwater drawdown, especially in the surficial material surrounding the NorthMet Project Proposed Action mine pits, is important in order to assess the potential effects on nearby surface water features such as wetlands. However, the complex geology with the presence of bedrock, surficial deposits, and wetland soils at the Mine Site makes it difficult to accurately quantify drawdown at any specific location. Site characterization data and MODFLOW calibration results indicate that the bulk hydraulic conductivity of bedrock is much lower than the bulk hydraulic conductivity of surficial materials. As a consequence, the bedrock tends to be saturated and overlain by a thin surficial aquifer that controls the local groundwater flow system. In a dewatering situation the lower-permeability bedrock tends to remain saturated because it is subject to downward leakage (though it may be minimal) from the overlying higher-permeability surficial aquifer (as long as the surficial aquifer contains groundwater). Unsaturated conditions in bedrock may occur very close to the pit wall, but not at moderate or large distances from the pit. Blasting during the mining operation is controlled to maintain pit wall integrity for safety considerations. Fractures and impacts to hydraulic conductivity due to blasting would not be expected to extend more than a few tens of feet from

the pit walls. Water table drawdown in the surficial aquifer near the mine pits would be limited because it would be subject to meteoric aquifer recharge and has a saturated thickness on the order of only 14 ft.

Monitoring well response to pit dewatering at the Canisteo Pit, located approximately 65 miles west of the NorthMet Project Proposed Action area north of Bovey, Minnesota in similar surficial geology, indicated significant aquifer heterogeneity. The Canisteo Pit is a large lake formed by 10 inactive iron ore mine pits. Modeling of aquifer response at the Canisteo site using MODFLOW resulted in differences between simulated and measured water levels ranging from +28 ft to -4 ft (Jones 2002). The model clearly could not accurately estimate water level changes of a few feet or less as would be desirable for assessing potential effects on nearby surface water features such as wetlands. Therefore, it was concluded that it was not reasonable to attempt to quantify drawdown at the Mine Site using the MODFLOW model.

In lieu of using MODFLOW to estimate pit drawdown at the Mine Site, an analog approach was developed using available well data from the Canisteo Pit, which is the only mine pit within the Mesabi Iron Range that has an associated water balance study with well data that could be used to assess potential drawdown effects. Sixteen Canisteo wells were used for the analog evaluation. An additional shallow well near Kinney, Minnesota, adjacent to U.S. Steel Minntac's West Pit (an active taconite pit), and one deep bedrock well, also near Kinney, were also used for the evaluation. A comparison of the hydrogeologic conditions at the Canisteo Mine Pit, the Kinney area wells, and the Mine Site concluded that the geologic and hydrogeologic settings of the Mine Site are relatively similar to the Canisteo and Minntac sites (Barr 2011i).

The Canisteo Pit is not as deep as the proposed NorthMet mine pits. However, the surficial deposits at the Canisteo site ranges from 50 to 100 ft thick, while the surficial deposits at the Mine Site average only about 14 ft thick. Also, the underlying bedrock at the Canisteo site is composed exclusively of the Biwabik Iron Formation, which generally has a higher hydraulic conductivity than the Duluth Complex, Virginia Formation, and Giants Range Granite that underlie surficial deposits at the Mine Site. Despite the difference in pit depths, it is interpreted that there is potential for greater drawdown at the Canisteo site compared to the Mine Site. Overall, the Canisteo data are believed to provide a reasonably conservative estimate of the maximum extent of surficial aquifer drawdown that would result from the proposed PolyMet mine pits.

Water level data collected from monitoring wells over several years were used to characterize the aquifer's response to the changing Canisteo Pit water level, and response to the approaching, dewatered Minntac West Pit (ERM and MDNR 2011).

The following were conclusions of the analog study:

- Three wells within 700 ft of the Canisteo Pit showed a strong response to the rising pit water;
- Six wells within 900 to 2,625 ft of the Canisteo Pit showed a measurable, but weak, response to the rising pit water;
- Seven wells within 660 to 3,500 ft of the Canisteo Pit showed no response to the rising water;
- The deep bedrock well near Kinney showed an apparent, progressive water level drop when the dewatered Minntac West Pit approached within about 1,000 ft of the well; and

- The shallow well near Kinney did not show any measurable water level drop from June 2000 through March 2003 (when data collection stopped for safety reasons), during which time the dewatered Minntac West Pit had advanced to within 900 ft of the well.

Considering the analog site evaluation conclusions, the following guidelines for potentially measurable drawdown can be used at the Mine Site:

- 0 to 1,000 ft from the pit rim: groundwater drawdown from pit dewatering may occur and may be measurable;
- 1,000 to 1,700 ft from the pit rim: groundwater drawdown from pit dewatering may occur, but may be difficult to distinguish from natural variations in background water levels;
- 1,700 to 3,200-plus ft from the pit rim: groundwater drawdown from pit dewatering may occur, but would likely only occur under certain hydrogeologic conditions, and may not be discernible from natural variability; and
- Beyond 3,200 ft from the pit: no drawdown effects would be expected.

These guidelines are intended to help define zones of potential groundwater drawdown that could be used to estimate potential indirect effects on nearby surface water features and wetlands (see Section 5.2.3 for further discussion of this analog approach). They could also be used to design a monitoring program to quantify actual effects, which could trigger appropriate mitigation measures if warranted. Contingency mitigation options are discussed in the Water Management Plan for the Mine Site (PolyMet 2015m). These guidelines have been expanded considerably since the original analog study (see Section 5.2.3).

There are few surface waterbodies within the 0 to 1,000 ft or the 1,000 to 1,700 ft zones, where groundwater drawdown may occur and would potentially be distinguishable from natural variations that could be affected by pit drawdown. The West Pit Outlet Creek is located within these zones and would be affected by the WWTF discharge and other NorthMet Project Proposed Action activities, as well. Yelp Creek and the headwaters of the Partridge River are located to the north of the mine pits, but beyond the 0 to 1,000 ft zone. The proposed Category 1 Stockpile surface and groundwater seepage containment system, with its low-permeability cut-off wall keyed into bedrock, would minimize effects of pit drawdown on these waterbodies.

Note that these guidelines would apply during mine operations and reclamation, but groundwater drawdown associated with the mine pits should decline as the pits flood. The actual steady-state water level in the East Pit would be established by an outlet structure (invert at elevation 1,592 ft amsl) that would route surface overflows into the West Pit. The water level in the West Pit would be controlled by operation of the WWTF. Long-term change in on-site surficial aquifer groundwater levels (i.e., permanent drawdown) would be due to the fixing of head boundaries to lower surface water levels controlled by pumped discharge by the WWTF relative to existing conditions. There would be a permanent drawdown of a maximum of about 20 ft immediately surrounding the West Pit lake, resulting from a closure groundwater elevation of 1,579 ft versus existing groundwater elevation of approximately 1,600 ft, and about 10 ft immediately surrounding the East Pit, resulting from a closure groundwater elevation of 1,592 ft versus existing groundwater elevation of approximately 1,600 ft.

Effects on Groundwater Quality in the Surficial Aquifer

The NorthMet Project Proposed Action could affect groundwater quality at the Mine Site by leaching metals, sulfate, and other solutes from exposed waste rock, overburden, ore, WWTF ponds and unsubmerged part of pit walls. Water affected by those contaminants could enter the groundwater system and migrate from mine facilities to the Partridge River.

Potential Sources of Groundwater Impacts and Proposed Engineered Controls

The potential sources of groundwater impacts from the NorthMet Project Proposed Action within the Partridge River Watershed include the waste rock stockpiles, the Overburden Storage and Laydown Area, the Ore Surge Pile, the WWTF, and the mine pits (see Figure 5.2.2-23). Each of these sources is briefly described below and key features are summarized in Table 5.2.2-20. Note that the Category 4, Category 2/3 Stockpile, the Overburden Storage and Laydown Area, and the Ore Surge Pile, which are potential contaminant sources to groundwater, would only exist during mine operations and would cease to exist after approximately mine year 20. Another potential contaminant source, the WWTF equalization basins, would be removed at about mine year 55.

The Category 1 Stockpile would be surrounded by a groundwater containment system. Most of the water infiltrating through the stockpile would be collected by this system and conveyed to the WWTF. A portion of the infiltrating water, estimated to be less than 10 percent, would bypass the groundwater containment system and flow into the West Pit or East Pit. The quantity of water that would bypass the containment system would be largest when the stockpile is bare and the mine pits are completely dewatered. The fraction of the infiltrating water that would bypass the containment system and flow in the aquifer to the East Pit or into deep bedrock peaks at 4 percent. The aquifer and deep bedrock would each carry a peak annual average flow of 6.9 gpm in mine year 10. Flow into the East pit is negligible (modeled as zero) by mine year 20. The fraction of the infiltrating water that bypasses the containment system and flows to the West Pit is conservatively assumed to be constant through time at the maximum fraction (6 percent, representing a peak annual average flow of 22 gpm) (PolyMet 2015m). The mine pits would remain permanently and potentially serve as long-term sources of contamination. The Category 4 Stockpile would exist until about year 11 and any seepage from this stockpile would migrate as surface water or surficial groundwater to the East Pit where it would be collected as part of the pit dewatering system and pumped to the WWTF for treatment. After year 11, material in the Category 4 Stockpile would be backfilled into the combined East Central Pit.

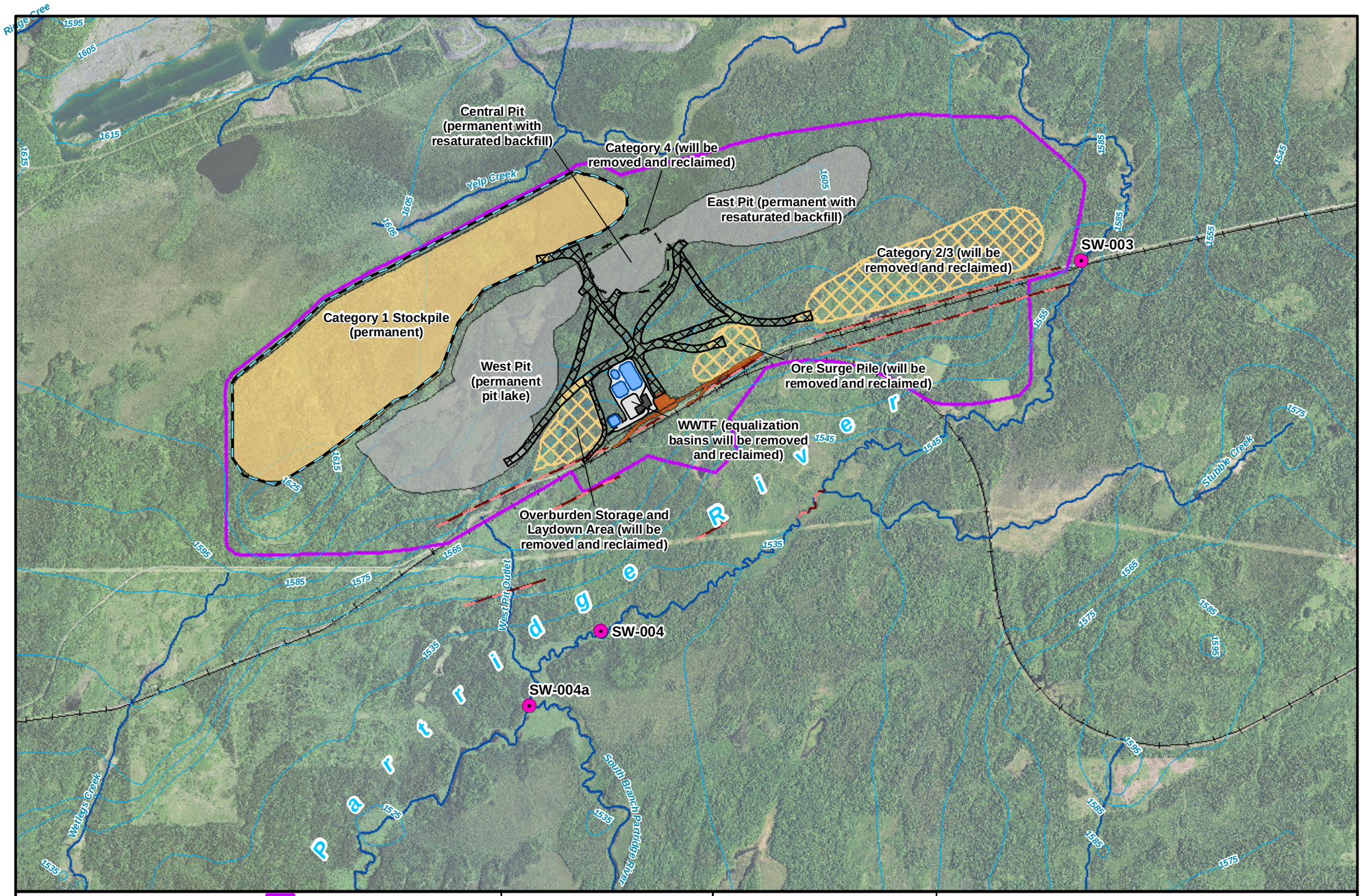

Groundwater Evaluation Locations
Surficial Aquifer Head Contour (m) at Closure
Groundwater Containment System
Surface Water Modeling/Monitoring Location
Stream/River
Mine Site
Haul Road
Mine Pit
Permanent Stockpile
Removed and Reclaimed Stockpile
Removed Stockpile

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

0 1,000 2,000 4,000 Feet

Figure 5.2.2-23
Mine Site Potential Contaminant Source Areas
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Table 5.2.2-20 Mine Site Solute Source Areas used in GoldSim

Source Area	Active Source Period (mine years)	Engineered Features	Chemical Mechanisms
Category 1 Stockpile	0+	Geomembrane cover; perimeter surface and groundwater seepage containment system. Permanent mine feature.	Most solutes released from Category 1 Stockpile material at concentration caps. Seepage collected by containment system would be sent to the WWTF or the West Pit. Seepage not collected by containment system would migrate as groundwater to West and East Pits. A very small part of it would enter bedrock.
Category 2/3 Stockpile	0–20	Geomembrane underliner with seepage collection. Solid material would be sent to East Pit as backfill. Would be removed during reclamation.	Oxidation of Category 2/3 Stockpile material. Seepage collected above liner sent to WWTF. Seepage through liner would enter the underlying groundwater system.
Category 4 Stockpile	0–11	Geomembrane underliner with seepage collection. Solid material sent to East Pit as backfill after year 11 and stockpile site reclaimed.	Oxidation of Category 4 Stockpile material. Seepage would migrate as surficial groundwater to the East Pit.
West Pit	Pit lake: 20+ Flow to groundwater flowpaths: 48+(1)	Dewatered during mining, followed by flooding. Water level would reach top of bedrock at year 48. Maximum flooding would occur at about year 52, after which water level would be controlled by pumping to the WWTF.	Oxidation of wall rock prior to flooding. Would receive affected water from East Pit. Receives treated (or blended) water from Plant Site WWTP during flooding period (20-52 years). Would receive treated water from Mine Site WWTF. Beginning in year 48, the West Pit water level would rise above the top of bedrock and begin to release pit lake water into the West Pit surficial groundwater flowpath.
East Pit	Flow to groundwater flowpath: 20+(1) Flow to West Pit: 21+(1)	Would merge with the Central Pit. Dewatered during mining. All Category 2, 3, and 4 waste rock, and some Category 1 waste rock, would be used as backfill. Water level in saturated backfill would reach top of bedrock at year 20. Maximum refill would occur at year 21, after which water level in saturated backfill would be controlled by overflow through a wetland to the West Pit.	Oxidation of wall rock prior to backfill saturation. Solute release from unsaturated and saturated backfill. Beginning in year 20, the water level in the East Pit saturated backfill would rise above the top of bedrock and begin release of pit water into the East Pit Cat 2/3 Surficial (groundwater) Flowpath. The East Pit would reach maximum refill at about year 21.
Overburden Storage and Laydown Area	0–20	Unlined facility, but with collection system for surface runoff. Would be removed during reclamation.	Leaching of overburden materials. Seepage would enter underlying groundwater system.

Source Area	Active Source Period (mine years)	Engineered Features	Chemical Mechanisms
WWTF Basins	0–55	Precipitation/filtration treatment plant using equalization basins with leak detection system and geomembrane underliners. Would be removed during reclamation when water treatment plant converted to RO at year 33.	Receives water from West Pit (including East Pit overflow), Category 1 Stockpile, Category 2/3 Stockpile, Overburden Storage and Laydown Area, and Ore Surge Pile. Would receive reject concentrate from Plant Site WWTP. Seepage collected from leak detection system (if any) would be sent to WWTF. Seepage through underliner would enter the underlying groundwater system.
Ore Surge Pile	0–21	Geomembrane underliner with seepage detection. Would be removed during reclamation.	Oxidation of ore. Seepage collected from leak detection system (if any) would be sent to WWTF. Seepage through underliner would enter the underlying groundwater system.

Source: PolyMet 2015d.

Note:
[1] Based on deterministic GoldSim run with P50 inputs.

All of these potential contaminant sources would be located at the Mine Site. The only potential contaminant sources along the Transportation and Utility Corridor or at the processing plant (both within the Partridge River Watershed) would be from spills, as there would be no surface stockpiles of waste rock, ore, or other potential solute sources in these areas.

No effects on groundwater quality along the Transportation and Utility Corridor are anticipated during construction, operations, or closure as part of the NorthMet Project Proposed Action.

However, in order to guard against possible adverse effects from spilled ore, monitoring and mitigation activities would be developed in permitting. Water quality monitoring is recommended downgradient from the rail line on the Partridge River tributary streams to check for any deteriorations of water quality over time from ore spillage; if detected, adaptive water management measures would be implemented.

Waste Rock Stockpiles

The NorthMet Project Proposed Action would generate about 308 million tons of waste rock over the 20 years of mine operations. This waste rock would be managed according to its geochemical properties. Four categories of waste rock were defined generally based on its sulfur content as summarized in Table 5.2.2-21.

Table 5.2.2-21 Summary of Waste Rock Stockpile Properties

Waste Rock Categorization	Sulfur Content (%S)[1]	Approximate % of Waste Rock Total Mass[4]	Max Footprint (acres)	Stockpile Duration	Waste Rock Height	Bottom Liner System	Cover System
Category 1	%S ≤ 0.12	70%	508/526[(5)]	Permanent	240 ft above ground level; 1,840 ft above sea level Maximum height based on current design: 280 ft above ground level	No liner system; a surface and groundwater seepage containment system would collect water for pumping to the WWTF.	3-ft engineered cover with a 40-mil geomembrane barrier.
Category 2[(3)]	0.12 < %S ≤ 0.31	24%	180[(3)]	Temporary	Maximum height based on current design: 200 ft above ground level; 1,770 ft above sea level Planned height based on current design: 160 ft above ground level	12-inch compacted (1 x 10^{-5} cm/s) subgrade overlaid by 80-mil LLDPE geomembrane, covered by a 24-inch overliner drainage layer	Stockpile would be completely removed and reclaimed.
Category 3[(3)]	0.31 < %S ≤ 0.6	3%	180[(3)]	Temporary	Maximum height based on current design: 200 ft above ground level; 1,770 ft above sea level Planned height based on current design: 160 ft above ground level	12-inch compacted (1 x 10^{-5} cm/s) subgrade overlaid by 80-mil LLDPE geomembrane, covered by a 24-inch overliner drainage layer	Stockpile would be completely removed and reclaimed.
Category 4[(2)]	> 0.6 %S Duluth Complex 0.4 ≤ %S ≤ 5.0 Virginia Formation	3%	57	Temporary	Maximum height based on current design: 180 ft above ground level; 1,790 ft above sea level Planned height based on current design: 80 ft above ground level	12-inch compacted (1 x 10^{-6} cm/s) subgrade overlaid by 80-mil LLDPE geomembrane, covered by a 24-inch overliner drainage layer	Stockpile would be completely removed and ore from under the stockpile would be mined (central pit).

Source: PolyMet 2015a.

Notes:
1 In general, the higher the rock's sulfur content, the higher its potential for generating acid rock drainage or leaching heavy metals.
2 Includes all Virginia formation rock.
3 Category 2/3 waste rock would be stored in one stockpile. Max footprint is total for Category 2/3 waste rock.
4 Approximately 29% of waste rock that ultimately fills the East Pit (mostly Category 2 and 3) would be sent to the pit without prior stockpiling.
5 The Category 1 waste rock stockpile has a maximum footprint of 508 acres while active. It would reach this size by mine year 6. The stockpile would be re-graded as part of reclamation with a final footprint of 526 acres in mine year 2.

As Table 5.2.2-21 above indicates, the Category 1 Stockpile would be permanent. It would not have a liner, but would be surrounded by a surface and groundwater seepage containment system consisting of a cutoff wall (i.e., low-permeability hydraulic barrier) and a sub-surface drain that would collect 90 to 94 percent of the seepage from the stockpile during mine operations and 94 percent after the mine's closure. This stockpile would be progressively reclaimed with an engineered geomembrane cover system constructed from year 14 through 21. A maximum of 8 percent of seepage is estimated to bypass the containment system, during mine operations. However, most of such uncaptured seepage would migrate with groundwater to the West Pit, where it would be collected and pumped to the WWTF for treatment. Only about 2 percent of the overall seepage during the mine operation period would bypass both the containment system and the West Pit and East Pit.

During reclamation and closure, the estimated bottom seepage from the Category 1 Stockpile would be about 3 gpm. About 94 percent of that seepage would be captured by the containment system and none of the seepage would bypass West Pit and East Pit.

The Category 2/3 and 4 stockpiles would be constructed with an underliner system including a compacted subgrade, an underdrain, an impermeable geomembrane liner, an overliner drainage layer, and a leachate collection system. Drainage from these stockpiles would be collected on the liner and routed to a lined sump for pumping to the WWTF for treatment. The GoldSim modeling assumes, however, that some leachate seeps through tears/flaws in the Category 2/3 Stockpile geomembrane liner, reaches the groundwater table, and follows what is referred to as the Category 2/3 Stockpile and East Pit Flowpath, ultimately discharging to the Partridge River. Some leachate from the Category 4 Stockpile is also assumed to seep through the liner system, but given its location adjacent to the East Pit, it is assumed that any uncollected seepage would follow the hydraulic gradient to the East Pit, where it would be collected as part of the pit dewatering system and pumped to the WWTF for treatment. Once mining of the East Pit is completed (approximately year 11), the Category 2/3 and Category 4 waste rock would be backfilled into the East Pit, the liner system would be removed, and the footprints of these stockpiles revegetated per an approved reclamation plan. Once mining ceases in the East Pit, waste rock would be directly deposited in the East Pit.

Overburden and Overburden Storage and Laydown Area

The NorthMet Project Proposed Action would strip overburden as needed for mine development, thereby minimizing the amount of exposed bedrock at any one time. About 32 percent of the overburden would be stripped in the first 2 years of the mine life, with the balance being removed by the end of year 11. Overburden present at the Mine Site is categorized into three types: unsaturated overburden, saturated overburden, and peat (organic soils). Each type of overburden would be managed in accordance with its characteristics.

Saturated overburden is material that has been below the normal water table and not exposed regularly to oxygen, so it is still potentially reactive if exposed to oxygen. Some of this material would be used for construction purposes, but only for applications where it would be placed below the water table or where any water contacting it would be collected and appropriately treated. Saturated overburden not used for construction purposes would be commingled with waste rock and placed in the temporary Category 2/3 or 4 stockpiles with a geomembrane liner.

Unsaturated overburden is above the normal water table, and waste characterization studies indicate that it has been exposed to oxygen for a sufficiently long period of time that it is now non-reactive. This material would be used for construction purposes. To the extent that unsaturated overburden exceeded immediate construction needs, it would be temporarily stored in the unlined Overburden Storage and Laydown Area. Peat would also be used for reclamation purposes, as appropriate, and any excess would be temporarily stored along with the unsaturated overburden in the unlined Overburden Storage and Laydown Area for future use during reclamation.

Surface runoff from the Overburden Storage and Laydown Area is considered "process water," and would be captured in an unlined pond (Pond PW-OSLA) and monitored for quality. If the Overburden Storage and Laydown Area water were of acceptable quality, it would be pumped to the Central Pumping Station and discharged to the East Pit or the Tailings Basin, where the destination would be based on variable project demand over time. If water in Pond PW-OSLA required treatment, it would be pumped to the WWTF for treatment prior to delivery to the Central Pumping Station.

Since the Overburden Storage and Laydown Area would be unlined, the GoldSim model assumes meteoric water would seep into the groundwater below the Overburden Storage and Laydown Area and follow the Overburden Storage and Laydown Area Flowpath ultimately discharging to the Partridge River. During operations, the estimated bottom seepage from the Overburden Storage and Laydown Area would be about 14 gpm. The water quality of this seepage was estimated based on the results of the Meteoric Water Mobility Procedures test for peat and unsaturated overburden (PolyMet 2015q).

Ore Surge Pile

An Ore Surge Pile would be constructed near the Rail Transfer Hopper to allow for temporary storage of ore and a steady flow and uniform grade of ore to the processing plant. Ore would pass into and out of this pile during operations to meet plant needs for efficient processing. The Ore Surge Pile would have a geosynthetic underliner system identical in design to that for the Category 4 Stockpile. Drainage from the Ore Surge Pile would be collected on the liner and routed to a lined sump for pumping to the WWTF for treatment. The Ore Surge Pile, including the liner system, would be removed at the completion of mining activities (at mine year 20) and reclaimed.

The GoldSim modeling assumes that a small volume of leachate would seep through flaws in the geomembrane liner, reach the groundwater table, and migrate along the Ore Surge Pile Flowpath, ultimately discharging to the Partridge River.

East Pit

During mining, the East Pit would be dewatered. In approximately year 10, mining of the East Pit would be completed and backfilling would begin with stockpiled Category 2/3 and 4 waste rock, and fresh waste rock (all categories) from the West Pit. During backfilling, natural groundwater inflow to the pit would saturate the backfill. The pore water in the initially saturated backfill would have relatively high solute concentrations (see Figure 5.2.2-24 for a representative example based on sulfate), but once submerged, oxygen transport would be limited and there would be a systematic decrease in oxidation and associated dissolution of sulfide minerals.

Additional concentration reduction would be accomplished by pumping the East Pit backfill pore water through the WWTP and re-injecting the treated effluent back into the backfill.

Once the saturated water level in the backfill reaches the top of bedrock along the pit rim (approximate elevation of 1,577 ft at year 20), some backfill pore water would begin to flow from the pit into the surficial aquifer. The quality of the aquifer inflow would reflect the quality of the pit lake water, which would gradually improve over time due to reclamation activities at the Mine Site. This groundwater inflow would migrate south through the East Pit Category 2/3 Surficial Flowpath and ultimately release to the Partridge River. Since both the Category 2/3 Stockpile and the East Pit would share the same flowpath, the flowpath would experience two concentration peaks, the first representing the arrival of solutes from the Category 2/3 Stockpile, which would reach the Partridge River around year 35 and would peak around year 55, and the second from the arrival of aquifer inflow from the East Pit, which would reach the Partridge River around year 100 and peak around year 150. For cobalt, Figure 5.2.2-25 shows the dual peak that would occur in the East Pit Cat 2/3 Surficial Flowpath at the Partridge River and compares this response with peaks that would occur in the other surficial flowpaths.

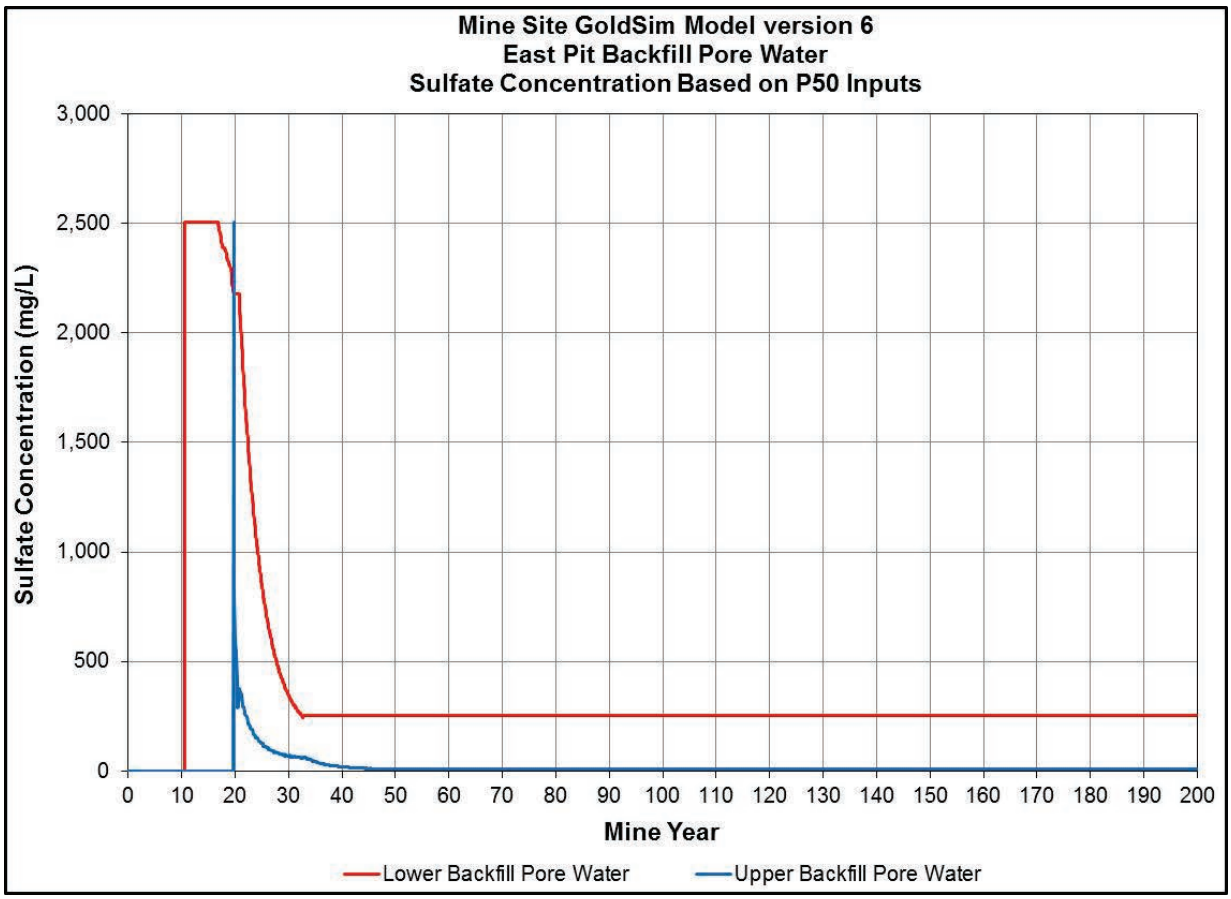

Figure 5.2.2-24 Sulfate Concentrations in East Pit Backfill Based on GoldSim Deterministic Run with P50 Inputs

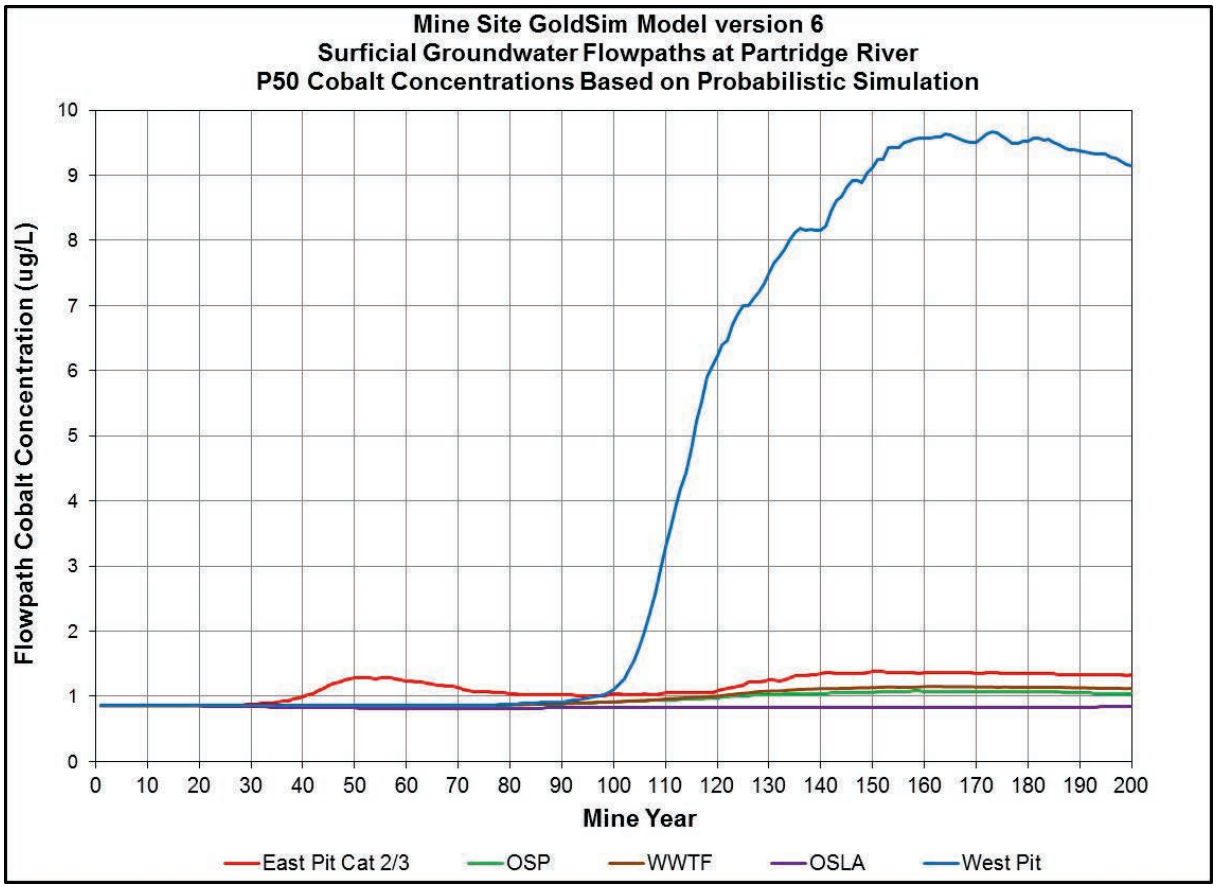

Figure 5.2.2-25 P50 Cobalt Concentrations in Surficial Groundwater Flowpaths at the Partridge River Based on GoldSim Probabilistic Simulation

West Pit

Flooding of the West Pit would begin after the completion of mining in year 21. The water in the West Pit is expected to contain dissolved oxygen with initial concentrations as high as 15 mg/L. This oxygen would be initially reactive with the pit wall rock, but the reactivity would decrease over time as the material exposed to water oxidizes. Groundwater flow in bedrock would be towards the pit, so the only mechanism for oxygen to reach unoxidized rock beyond the pit wall would be diffusion, and this would limit the rate of wall rock chemical reactions.

Once the water in the flooded pit reaches the top of bedrock along the pit rim (at an approximate elevation 1,550 ft at year 48), some of the pit lake water would begin to flow into the surficial aquifer. The quality of this aquifer inflow would reflect the quality of the pit lake water, which is predicted by GoldSim to improve over time due to: 1) dilution from rainfall and surface runoff into the pit, and 2) submergence of pit walls with an associated decrease in the oxidation of sulfide minerals. The groundwater inflow would migrate south along West Pit Surficial Flowpath and ultimately release to the Partridge River. The initial arrival of West Pit solutes at the Partridge River would occur at about year 105, and peak concentrations in groundwater discharging to the river would occur at about year 160.

Wastewater Treatment Facility

The WWTF would treat influent water from a variety of sources (e.g., pit dewatering, stockpile leachate collection, contact surface water, Plant Site RO concentrate). The only potential source of groundwater contamination at the WWTF would be leakage from the two equalization basins and from the Central Pumping Station. The equalization basin would have a geomembrane liner system and would be designed to have a minimum of 3 ft of freeboard, in accordance with the MPCA guidance (Meyer et al. 2009). Leakage from these basins through the liner system is calculated differently than for the waste rock stockpile liner systems because these ponds would have standing water above the underliner. Therefore, the hydraulic pressure on the liners would be greater, and, in turn, more water would be expected to leak on a per-acre basis (i.e., approximately 5 gallons per acre per day) (PolyMet 2015m). The total volume of leakage from the equalization basins, however, would be less than from the stockpiles, as the footprint of the equalization basins would be smaller. This leakage would reach the groundwater table and follow the WWTF Flowpath ultimately to the Partridge River.

Groundwater Transport and Evaluation Locations

Solutes from each source area described above would be transported by groundwater along its associated flowpath (see Figure 5.2.2-7). Each of these flowpaths has a groundwater evaluation location where the GoldSim model predicts groundwater quality (see Figure 5-2.2-7). At each evaluation location, the predicted water quality for the NorthMet Project Proposed Action is compared with both the evaluation criteria and the predicted water quality for the CEC scenario. See Table 5.2.2-22 for a summary of solute fate and transport.

The time at which contaminants leached from the Mine Site would begin to affect water quality at the downgradient evaluation locations depends on the following four variables:

- The time (i.e., year) when the source facility was constructed or began leaching contaminants;
- The rate at which contaminants move in groundwater (assumed to equal the groundwater flow rate for all constituents except the four attenuated contaminants (arsenic, antimony, copper, and nickel), which are assumed to migrate more slowly than the groundwater);
- The distance between the source and the evaluation location; and
- Mechanical dispersion, which tends to spread out the solute plume.

Cobalt was generally used to illustrate groundwater transport at the Mine Site because the model did not account for attenuation and it would enter the surficial flowpaths at concentrations higher than baseline groundwater. As a consequence, the movement of solute fronts associated with this solute is readily discernible on concentration-versus-time and concentration-versus-distance plots for the modeled flowpaths. Transport of other non-attenuated solutes should be similar to cobalt, but the changes in concentrations are not as visually noticeable as it is for cobalt.

The estimated migration times for contaminant plumes to reach the evaluation locations are presented in Table 5.2.2-22.

Table 5.2.2-22 P50 Solute Migration Times for Mine Site Groundwater Flowpaths Based on GoldSim Probabilistic Simulation

	Solute Source Times		Solute Migration Times to Groundwater Evaluation Location[1]		Solute Migration Times to Partridge River[1]	
Surficial Groundwater Flowpath	**Start Mine Year**	**Stop Mine Year**	**Initial Concentration Increase Mine Year**	**Peak Concentration[5] Mine Year**	**Initial Concentration Increase Mine Year**	**Peak Concentration[5] Mine Year**
Category 2/3 Stockpile	0	20	15	30	35	55
East Pit	20(4)	Continuous	95	135	100	150
Ore Surge Pile [6]	0	21	90	155	90	155
WWTF	0	33	80	130	85	160
Overburden Storage and Laydown Area	0	20	8(2)	20(3)	30(2)	60(3)
West Pit	48(4)	Continuous	85	135	105	160

Source: PolyMet 2014v.

Notes:
1 Arsenic, copper, nickel, and antimony, are modeled with adsorption coefficients that greatly increase solute migration times.
2 Concentration decrease for most constituents.
3 Minimum concentration for most constituents.
4 Time when pit water level would rise above the top of bedrock and begin to release pit water into the adjacent surficial (groundwater) flowpath.
5 All modeled peak concentrations are below evaluation criteria.
6 River location used for groundwater evaluation location.

Table 5.2.2-22 indicates that all of the contaminant plumes would reach the Partridge River within the 200-year modeled duration.

Surficial Groundwater Quality at the Evaluation Locations

Model results were reviewed for all 29 solutes at the evaluation location within each of the five surficial flowpaths. A screening process was used to identify any constituents and locations that warranted a more robust examination because some modeled concentrations were above or equal to water quality evaluation criteria. The initial screening process involved comparing the single-highest monthly P90 water quality prediction from among the 2,388 months covered by the simulation (i.e., 12 months times 199 years, with the first year of simulation excluded for screening review due to potential numerical artifacts in the model results) for each constituent at each of the five evaluation locations. These NorthMet Project Proposed Action modeled values were compared with both the CEC scenario modeled values and the evaluation criteria discussed previously.

The screening of maximum P90 groundwater concentrations of all modeled solutes indicated that none of the solutes at any of the five flowpaths were predicted to ever exceed the evaluation criteria. These results are shown in Table 5.2.2-23, which lists the maximum P90 values for each modeled constituent. These results are illustrated, along with the maximum P90 concentrations for the CEC scenario and the range in NorthMet Project Proposed Action model concentrations (lowest P10 to the highest P90 value over 200-year simulation and across all groundwater model-reporting points), in Figure 5.2.2-26. The proportional increase in the concentrations of each

solute (i.e., the ratio of the maximum P90 value under the NorthMet Project Proposed Action scenario to the maximum P90 value under the CEC scenario) are listed in Table 5.2.2-24 and illustrated graphically in Figure 5.2.2-27. Note that if the values are the same, the relative change ratio would be 1; values greater than 1 indicate the ratio at which the NorthMet Project Proposed Action would result in an increase in solute concentrations relative to the CEC scenario model results.

When groundwater affected by mining reaches the Partridge River, the concentration of groundwater that exits from the flowpath into the river would be a mixture of water that entered the upgradient end of the flowpath, meteoric aquifer recharge along the flowpath, and background groundwater into which the contaminant front disperses. For most constituents both the meteoric and background groundwater concentrations are lower than the source concentration. This means there would be a reduction in concentration of these constituents by the time the original source water arrived at the Partridge River (PolyMet 2015m).

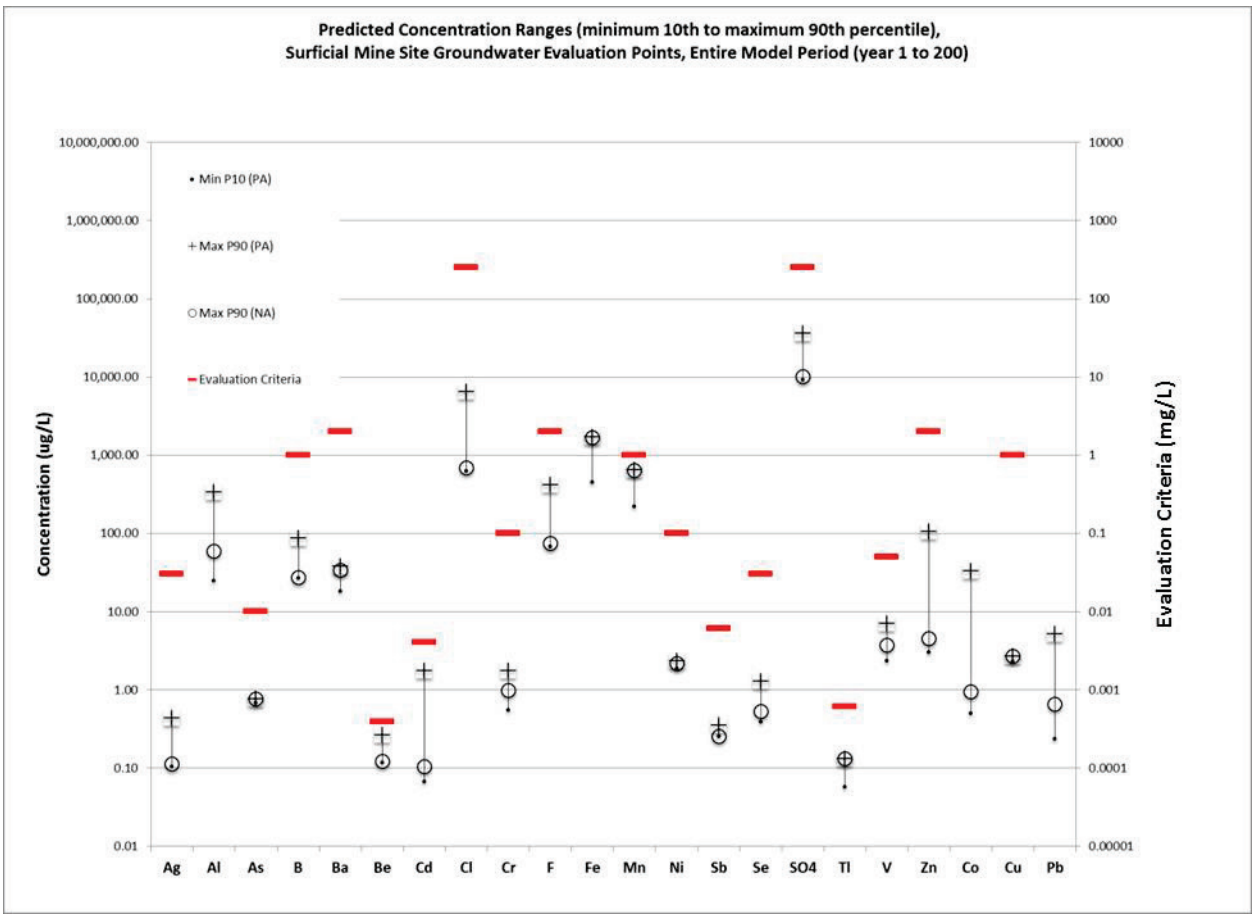

Note: Groundwater evaluation criteria plotted are listed in Table 5.2.2-2.

Figure 5.2.2-26 Predicted Maximum P90 Concentrations of Each Solute versus Evaluation Criteria, Mine Site Surficial Groundwater Evaluation Locations

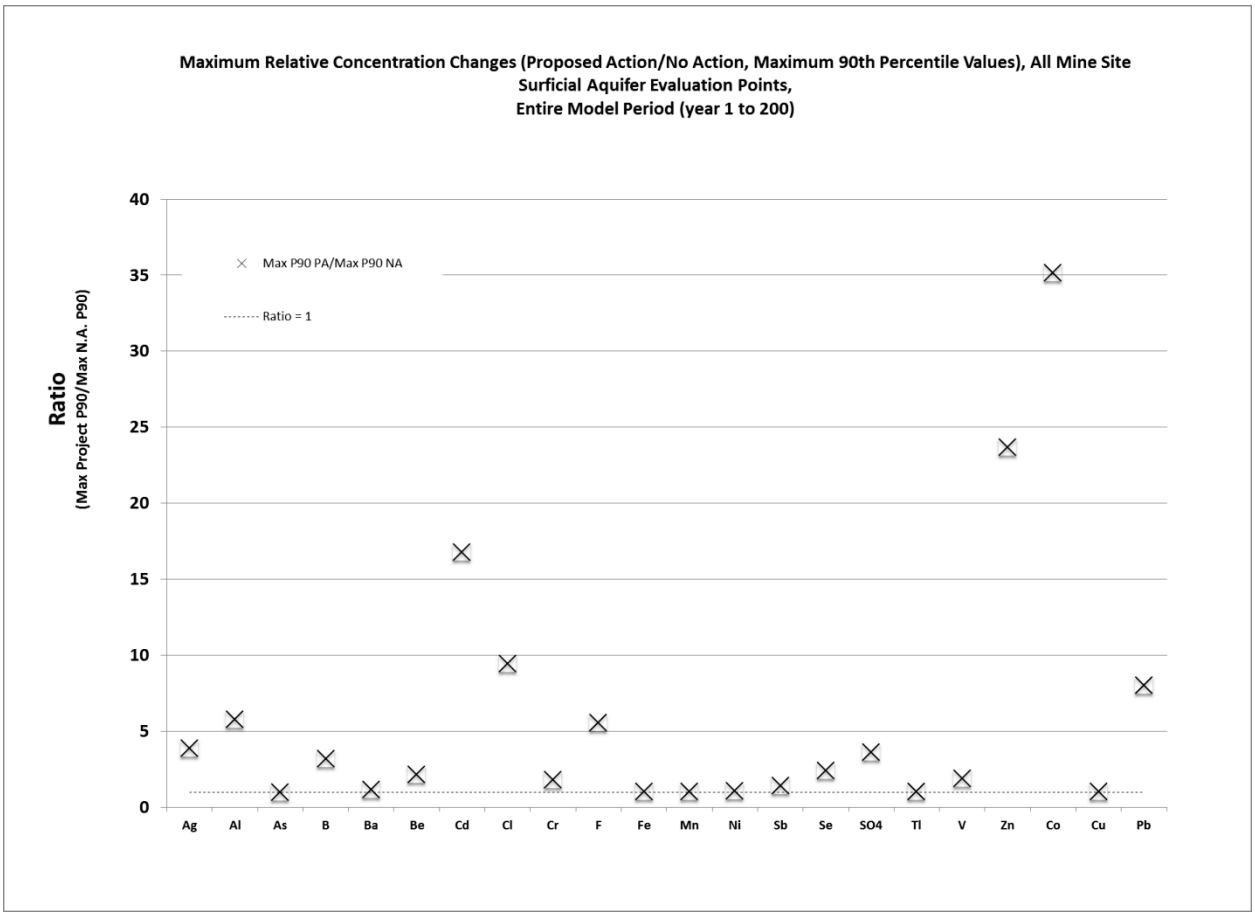

Figure 5.2.2-27 Relative Maximum P90 Concentration Differences (Proposed Action vs CEC), Over the 200-year Simulation Period at a Mine Site All Surficial Aquifer Evaluation Locations

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Table 5.2.2-23 Mine Site Groundwater – Maximum P90 Solute Concentration Over Entire 200-Year Simulation at Each Evaluation Location Based on the GoldSim Probabilistic Model

	FEIS Groundwater Evaluation Criterion			East Pit Category 2/3 Surficial Flowpath at Property Boundary		Overburden Storage and Laydown Area Surficial Flowpath at Old Property Boundary		Ore Surge Pile Surficial Flowpath at Partridge River		WWTF Surficial Flowpath at Property Boundary		West Pit Surficial Flowpath at Property Boundary	
Parameter	**Concentration**	**Units**	**Reference Table**	**PA**	**CEC Scenario**	**PA**	**CEC Scenario**	**PA**	**CEC Scenario**	**PA**	**CEC Scenario**	**PA**	**CEC Scenario**
General													
Alkalinity	--	mg/L	5.2.2-2	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5
Calcium	--	mg/L	5.2.2-2	18.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	29.0	16.1
Chloride	250	mg/L	5.2.2-2	3.5	0.69	3.7	0.69	0.69	0.69	0.69	0.69	6.5	0.69
Fluoride	2	mg/L	5.2.2-2	0.13	0.08	0.42	0.08	0.08	0.08	0.08	0.08	0.17	0.08
Hardness	--	mg/L	5.2.2-2	77.6	69.9	69.9	69.9	70.0	69.9	70.2	69.9	120	69.9
Sulfate	250	mg/L	5.2.2-2	18.6	10.1	36.2	10.1	10.2	10.1	10.5	10.1	34.0	10.1
Magnesium	--	mg/L	5.2.2-2	7.9	7.3	7.3	7.3	7.3	7.3	7.3	7.3	11.7	7.3
Potassium	--	mg/L	5.2.2-2	4.7	1.7	2.6	1.7	1.7	1.7	1.8	1.7	6.4	1.7
Sodium	--	mg/L	5.2.2-2	16.2	5.6	16.1	5.6	5.6	5.6	5.6	5.6	23.9	5.6
TDS[1]	500	mg/L	5.2.2-2	109	82.0	122.8	82.0	82.2	82.0	82.6	82.0	152	82.0
Metals													
Aluminum	--	µg/L	5.2.2-2	339	58.9	139	58.9	70.1	58.9	79.0	58.9	58.9	58.9
Antimony	6	µg/L	5.2.2-2	0.35	0.25	0.29	0.25	0.25	0.25	0.25	0.25	0.27	0.25
Arsenic	10	µg/L	5.2.2-2	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Barium	2,000	µg/L	5.2.2-2	34.8	33.4	33.4	33.4	33.4	33.4	33.4	33.4	38.1	33.4
Beryllium[2]	0.39	µg/L	5.2.2-1[(2)]	0.15	0.12	0.16	0.12	0.12	0.12	0.12	0.12	0.27	0.12
Boron	1,000	µg/L	5.2.2-2	30.6	27.5	87.3	27.5	27.5	27.5	27.5	27.5	65.7	27.5
Cadmium	4	µg/L	5.2.2-2	0.28	0.10	0.10	0.10	0.11	0.10	0.11	0.10	1.7	0.10
Chromium III	100	µg/L	5.2.2-2	1.1	0.98	0.98	0.98	0.98	0.98	0.98	0.98	1.8	0.98
Cobalt	--	µg/L	5.2.2-2	10.5	0.94	0.94	0.94	1.7	0.94	1.8	0.94	33.1	0.94
Copper	1,000	µg/L	5.2.2-2	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Iron	--	µg/L	5.2.2-2	1,721	1,673	1,673	1,673	1,676	1,673	1,681	1,673	1,673	1,673
Lead	--	µg/L	5.2.2-2	0.86	0.65	0.65	0.65	0.65	0.65	0.66	0.65	5.2	0.65
Manganese[2]	1,002	µg/L	5.2.2-1[(2)]	645	635	635	635	636	635	636	635	635	635
Nickel	100	µg/L	5.2.2-2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Selenium	30	µg/L	5.2.2-2	0.72	0.53	0.61	0.53	0.53	0.53	0.54	0.53	1.3	0.53
Silver	30	µg/L	5.2.2-2	0.14	0.11	0.44	0.11	0.11	0.11	0.11	0.11	0.16	0.11
Thallium[2]	0.6	µg/L	5.2.2-2	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Vanadium	50	µg/L	5.2.2-2	4.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	7.0	3.7
Zinc	2,000	µg/L	5.2.2-2	19.2	4.5	4.5	4.5	4.8	4.5	5.2	4.5	106	4.5

Source: PolyMet 2014v.

Notes:
CEC = Continuation of Existing Conditions
PA = NorthMet Project Proposed Action
[1] Groundwater evaluation criteria.
[2] Surficial groundwater.

Table 5.2.2-24 Relative Difference in Maximum P90 Concentrations (NorthMet Project Proposed Action/CEC Scenario) for Mine Site Surficial Flowpath

Parameter	Units	East Pit-Category 2/3 Flowpath at the Property Boundary[1]	East Pit-Category 2/3 Flowpath at the Partridge River	Overburden Storage and Laydown Area Flowpath at the Property Boundary[1]	Overburden Storage and Laydown Area Flowpath at the Partridge River	Ore Surge Pile Flowpath at the Partridge River[1]	WWTF Flowpath at the Property Boundary[1]	WWTF Flowpath at the Partridge River	West Pit (Surficial) Flowpath at the Property Boundary[1]	West Pit (Surficial) Flowpath at the Partridge River
General										
Alkalinity	Unitless	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Calcium	Unitless	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.8	1.5
Chloride	Unitless	5.1	3.6	5.3	2.4	1.0	1.0	1.0	9.4	6.9
Fluoride	Unitless	1.7	1.4	5.6	2.4	1.0	1.0	1.0	2.2	1.9
Hardness	Unitless	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.7	1.5
Sulfate	Unitless	1.8	1.5	3.6	1.8	1.0	1.0	1.0	3.4	2.7
Magnesium	Unitless	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.6	1.4
Potassium	Unitless	2.7	2.0	1.5	1.1	1.0	1.0	1.0	3.7	2.8
Sodium	Unitless	2.9	2.1	2.9	1.6	1.0	1.0	1.0	4.3	3.3
TDS	Unitless	1.3	1.2	1.5	1.1	1.0	1.0	1.0	1.85	1.5
Metals										
Aluminum	Unitless	5.8	2.9	2.4	1.4	1.2	1.3	1.3	1.0	1.0
Antimony	Unitless	1.4	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0
Arsenic	Unitless	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Barium	Unitless	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1
Beryllium	Unitless	1.3	1.2	1.3	1.1	1.0	1.0	1.0	2.2	1.8
Boron	Unitless	1.1	1.1	3.2	1.7	1.0	1.0	1.0	2.4	2.0
Cadmium	Unitless	2.7	2.0	1.0	1.0	1.0	1.1	1.1	16.8	12.2
Chromium III	Unitless	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.8	1.5
Cobalt	Unitless	11.2	4.6	1.0	1.0	1.8	1.9	1.7	35.2	24.3
Copper	Unitless	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Iron	Unitless	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead	Unitless	1.3	1.2	1.0	1.0	1.0	1.0	1.0	8.0	5.8
Manganese	Unitless	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Nickel	Unitless	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Selenium	Unitless	1.3	1.2	1.1	1.0	1.0	1.0	1.0	2.4	2.0
Silver	Unitless	1.2	1.1	3.9	1.9	1.0	1.0	1.0	1.4	1.3
Thallium	Unitless	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Vanadium	Unitless	1.2	1.1	1.0	1.0	1.0	1.0	1.0	1.9	1.6
Zinc	Unitless	4.3	3.0	1.0	1.0	1.1	1.2	1.1	23.7	17.0

Source: PolyMet 2014v.

Note:
[1] Evaluation location

Effects on Bedrock Groundwater Quality

At the Mine Site, the only mine-related solute sources to bedrock groundwater are flooded backfill in the East Pit, ponded water in the West Pit, and seepage from the Category 1 Stockpile. These waters are carried by three flowpaths to the south to the Partridge River. It is uncertain if a north bedrock groundwater flowpath from the Mine Site would develop naturally. If monitoring indicates a potential northern flowpath, mitigation measure(s) would be employed to prevent impacted bedrock groundwater flow to the north (MDNR et al. 2015).

The East Pit bedrock evaluation location is the property boundary, and the West Pit evaluation location is the Mine Site project boundary.

Predicted water quality in the bedrock south of the Mine Site was reviewed, but the solute load from these sources did not reach the evaluation locations at the end of the 200-year model simulation because the estimated travel time for groundwater between the mine pits and the bedrock evaluation locations would be much longer (greater than 1,000 years). The effect of the NorthMet Project Proposed Action on bedrock groundwater is considered negligible at the bedrock evaluation locations.

Saline Groundwater

Saline groundwater is known to occur in bedrock across the Canadian Shield (Fritz and Frape 1987; Morton and Ameel 1985). In general, the potential for encountering saline water increases with depth, such that briny groundwater (defined as TDS greater than 35,000 mg/L) may be nearly ubiquitous in bedrock at depths greater than approximately 3,000 ft throughout the Lake Superior Basin in northeastern Minnesota (Morton and Ameel 1985), including the Duluth Complex (Rouleau et al. 2003; Bottomley 1996). Brackish to saline groundwater is encountered sporadically in deep (greater than 1,000 ft) bedrock wells in northeastern Minnesota and on the Keweenaw Peninsula and in shallow (less than 300 ft) bedrock wells near Lake Superior (Morton and Ameel 1985). Elevated salinity at depth does not appear to be caused by the bedrock itself, as studies have found no particular relationship with rock type (Morton and Ameel 1985). One study concluded that these “brines” were likely formed by the evaporation of seawater during Devonian time about 359 to 419 million years ago (Bottomley 1996).

The concern for water quality is whether excavation of the East Pit and West Pit could penetrate zones of saline or briny groundwater or otherwise draw these waters to the surface, thereby increasing the salinity of the pit water.

The closest wells to the NorthMet Project Proposed Action area that are known to have encountered saline groundwater are located 3.2 miles to the northeast of the East Pit at the former AMAX test shaft at depths of approximately 1,200 to 1,400 ft bgs (elevation 200 to 400 ft amsl) (Barr 2012m). The maximum depths of the East Pit and West Pit, however, are approximately 630 and 700 ft bgs (elevation 800 to 900 ft amsl) or a minimum of 400 ft above the elevation where saline water was observed.

Bedrock groundwater sampling from the Mine Site also suggests that the pit excavations would not encounter saline groundwater. Sampling from two exploratory boreholes, a water supply well, and nine groundwater monitoring wells drilled at the Mine Site found a maximum chloride concentration of 15.7 mg/L (this excludes a value of 93.1 mg/L from the initial sampling of

Observation Well-3, where the maximum value detected in subsequent monitoring was 0.81 mg/L) (Barr 2012m).

Despite the absence of brine in current wells, the excavation and dewatering of the mine pits would likely draw water up from deeper bedrock below the pits, which could contain elevated chloride concentrations. Bedrock conductivity, however, is much lower than the surficial aquifer, and hydraulic analyses indicate that groundwater inflow to the West Pit would be dominated by water from the surficial aquifer, which is predicted to comprise 64 percent of groundwater inflow at end of mining and increase to 98 percent of inflow after the pit is fully flooded (PolyMet 2015m, Table 1-22b).

Regionally, the Federal Hardrock Mineral Prospecting Permits Project ROD recognizes this as a potential risk from exploration drilling (USFS 2012b), noting the possibility that "exploratory drilling could cause pockets of brackish (i.e., salty) groundwater to reach freshwater supplying drinking water wells." This ROD concluded, in consultation with the MDH, that "this scenario is considered unlikely," but "that the risk is not zero" (USFS 2012b).

Given that bedrock groundwater monitoring from 12 wells with depths up to 600 ft bgs at the Mine Site did not reveal any elevated chloride concentrations, that the nearest known occurrence of saline water is 3.2 miles from the Mine Site, and that the proposed pit floors would be at least 400 ft above the elevation where saline water is known to occur, the risk of encountering saline water is considered low. If encountered, saline bedrock groundwater inflow to the pits would be diluted by other water sources (surficial aquifer, and precipitation). In addition, any groundwater inflow to the pit during operations would be collected as part of pit dewatering and pumped to the WWTF for treatment. Finally, the chances of a perpetual elevated saline condition is considered small because the pits would flood in closure, producing hydraulic head that would inhibit groundwater upwelling.

Effects on Surface Water Hydrology in the Partridge River Watershed

This section describes the effects of the NorthMet Project Proposed Action on the surface water hydrology of the Partridge River and its tributaries (see Figure 5.2.2-28). The NorthMet Project Proposed Action could affect flows in the Partridge River and its tributaries by changing drainage areas (e.g., alteration or reduction in watershed area), reducing groundwater baseflow contributions during the dewatering and flooding of the East Pit and West Pit, and withdrawing water from Colby Lake occasionally for use as makeup water at the processing plant during operations.

Changes in Drainage Area

The NorthMet Project Proposed Action would result in changes to drainage areas in some locations that would, in turn, affect streamflows. These changes would primarily include the capture and retention of contact water at the Mine Site and during reclamation the use of this water to flood the West pit. During mine operations and reclamation, surface water runoff from much of the Mine Site would be retained within the site until the West Pit floods. This would reduce the effective drainage area that currently provides surface water runoff to the Partridge River. Table 5.2.2-25 shows the total watershed area and percent watershed area reduction at each surface water evaluation location for selected time periods.

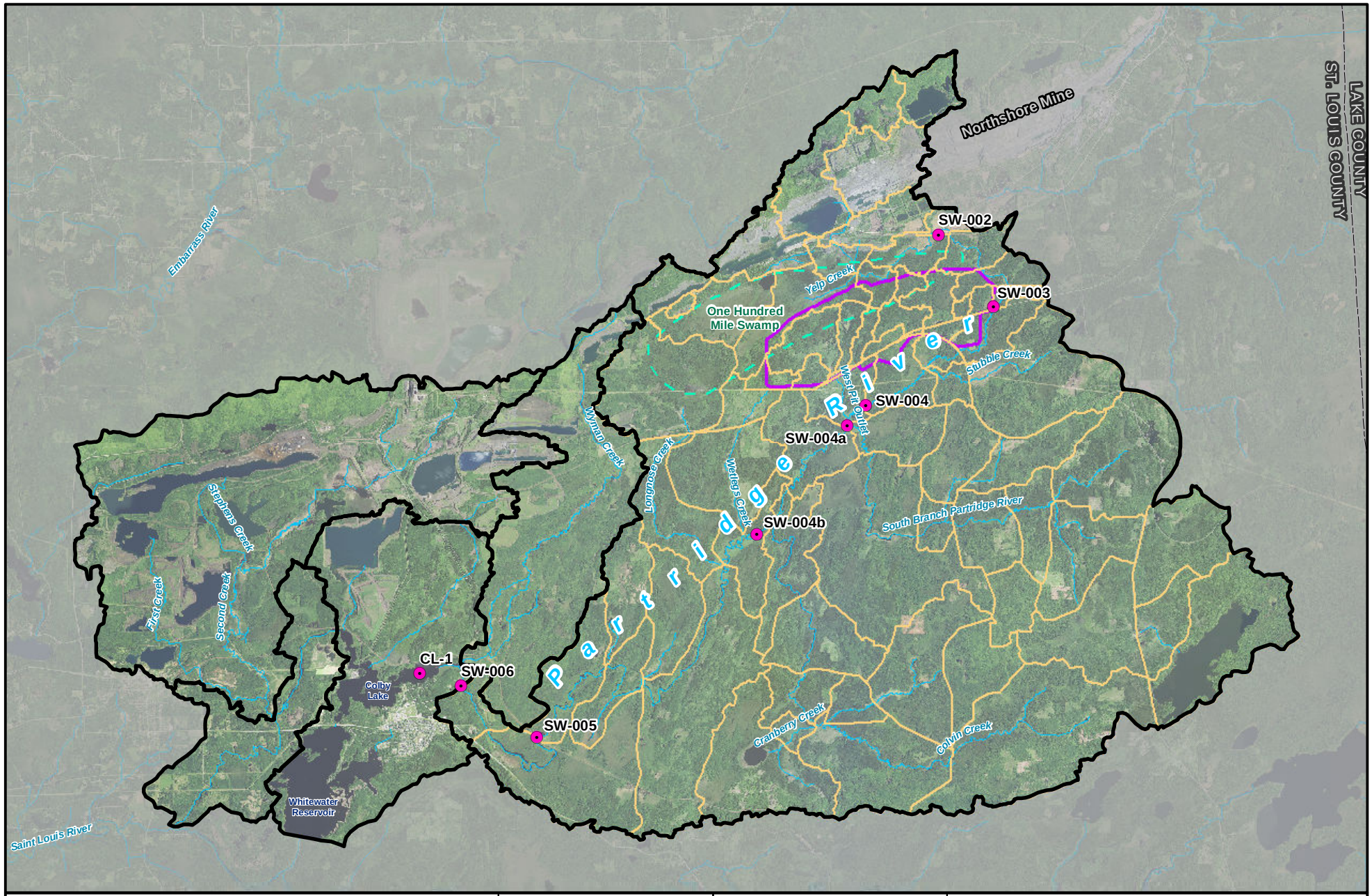

Model Evaluation Locations
Partridge River Watersheds
Upper Partridge River Subwatersheds
One Hundred Mile Swamp
Mine Site
Stream/River

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.5 1 2 3 Miles

Figure 5.2.2-28
Partridge River Subwatersheds and Surface Water Evaluation Locations
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Table 5.2.2-25 Total Watershed Area (acres) and Percent Watershed Area Reduction for the Partridge River Resulting from the NorthMet Project Proposed Action

Location/ Year	SW-001[(1)]	SW-002	SW-003	SW-004	SW-004a	SW-004b	SW-005	SW-006	Colby Lake
Existing Conditions	670	4,508	5,550	10,566	30,557	45,665	59,065	62,056	74,636
Operations Mine Year 11	670 0%	4,264 5.4%	5,301 4.5%	9.907 6.2%	29,041 5.0%	44,149 3.3%	57,549 2.6%	60.540 2.4%	73,120 2.0%
End of Operations Mine Year 20	670 0%	4,484 0.5%	5,521 0.5%	10,126 0.4%	29,504 3.4%	44,612 2.3%	58,012 1.8%	61,003 1.7%	73,583 1.4%
Closure and Post-closure Maintenance	670 0%	4,462 1.0%	5,504 0.8%	10,397 1.6%	29,903 2.1%	45,011 1.4%	58,411 1.1%	61,402 1.1%	73,982 0.9%

Source: PolyMet 2015m, Attachment C.

Note:
[1] Station SW-001 is upstream from the NorthMet Project Proposed Action area, and is thus unaffected by the NorthMet Project Proposed Action. Data from this station are used in the hydrologic modeling, but this FEIS does not estimate water quality at this station.

The maximum watershed area reduction for any modeled location along the Partridge River would be 6.2 percent at SW-004, during year 11 of operations. A maximum long-term watershed area reduction of 2.1 percent would occur at SW-004a. Mine year 11 is presented as it is the predicted time of maximum change in watershed area. It represents the time when the combined East Central Pit has reached maximum areal extent (and has not been backfilled), and when the West Pit is open and approaching maximum areal extent.

The reduced drainage areas were taken into consideration in the XP-SWMM modeling and are presented in the Mine Site Data Package (PolyMet 2015m) with key values presented in Table 5.2.2-26 of this FEIS.

XP-SWMM Modeling Results for the Partridge River

The flow parameters and water resources evaluation criteria, established in Section 5.2.2.1.2, were used to evaluate the effects on surface water hydrology in the Partridge River Watershed. The XP-SWMM model was run for the NorthMet Project Proposed Action and the CEC scenarios for selected years during operations, and reclamation and closure, to determine the changes to each parameter at each stream location. Given the relatively small watershed area changes (watershed area reductions would approximate flow reductions), only selected modeling results are presented here to demonstrate the range of potential hydrologic effects. Effects on Colby Lake were not evaluated with the XP-SWMM model; however, water-level changes to Colby Lake and Whitewater Reservoir are addressed in a subsequent section of this FEIS. Table 5.2.2-26 summarizes the XP-SWMM results for selected flow parameters and stream locations. Modeled annual daily mean flow is also shown as a percentage of existing conditions in Figure 5.2.2-29.

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Table 5.2.2-26 Modeled Percent Change in Selected Streamflow Parameters at Selected Locations in the Partridge River

Location/Flow Parameter	SW-002				SW-004				SW-004a				SW-006			
	Year 11 Change in Flow	Mine Year 11 Percent Change	Long-Term Closure Change in Flow	Long-Term Closure Percent Change	Year 11 Change in Flow	Mine Year 11 Percent Change	Long-Term Closure Change in Flow	Long-Term Closure Percent Change	Year 11 Change in Flow	Mine Year 11 Percent Change	Long-Term Closure Change in Flow	Long-Term Closure Percent Change	Year 11 Change in Flow	Mine Year 11 Percent Change	Long-Term Closure Change in Flow	Long-Term Closure Percent Change
Annual Daily Mean (cfs)	-0.30	-4.9%	0.00	NC	-0.60	-4.3%	0.10	NC	-1.67	-4.4%	0.39	1.0%	-1.33	-1.7%	0.68	NC
February Mean (cfs)	-0.06	-5.7%	-0.01	NC	-0.10	-4.2%	0.02	NC	-0.30	-4.6%	0.43	6.5%	-0.24	-1.8%	0.50	3.7%
Average Annual 3-day Min (cfs)	-0.02	-5.1%	0.00	NC	-0.06	-7.1%	-0.03	-3.6%	-0.16	-7.8%	0.78	38.0%	-0.16	-3.4%	0.71	15.3%
Average Annual 30-day Min (cfs)	-0.03	-7.3%	-0.01	-2.4%	-0.07	-7.6%	-0.03	-3.3%	-0.14	-5.7%	0.54	22.1%	-0.14	-2.7%	0.49	9.3%
Mean Duration of Low Pulses (days)	0.02	NC	0.02	NC	0.83	3.2%	0.00	NC	0.07	NC	-0.24	NC	-2.20	-5.9%	-2.57	-6.9%
April Mean (cfs)	-1.62	-5.3%	-0.16	NC	-3.37	-4.7%	0.17	NC	-9.02	-4.5%	-1.70	NC	-8.25	-2.0%	-0.84	NC
Average Annual 3-day Max (cfs)	-3.33	-4.7%	0.20	NC	-4.21	-2.8%	3.91	2.6%	-14.75	-3.5%	-1.03	NC	-15.99	-2.1%	-1.21	NC
Mean Duration of High Pulses (days)	-0.09	-1.8%	-0.09	-1.8%	-0.07	-2.4%	-0.03	-3.3%	-0.25	-3.0%	-0.17	-2.0%	0.00	NC	-0.16	-1.3%

Source: PolyMet 2015m, Attachment J.

NC: Indicates modeled change less than 1 percent.

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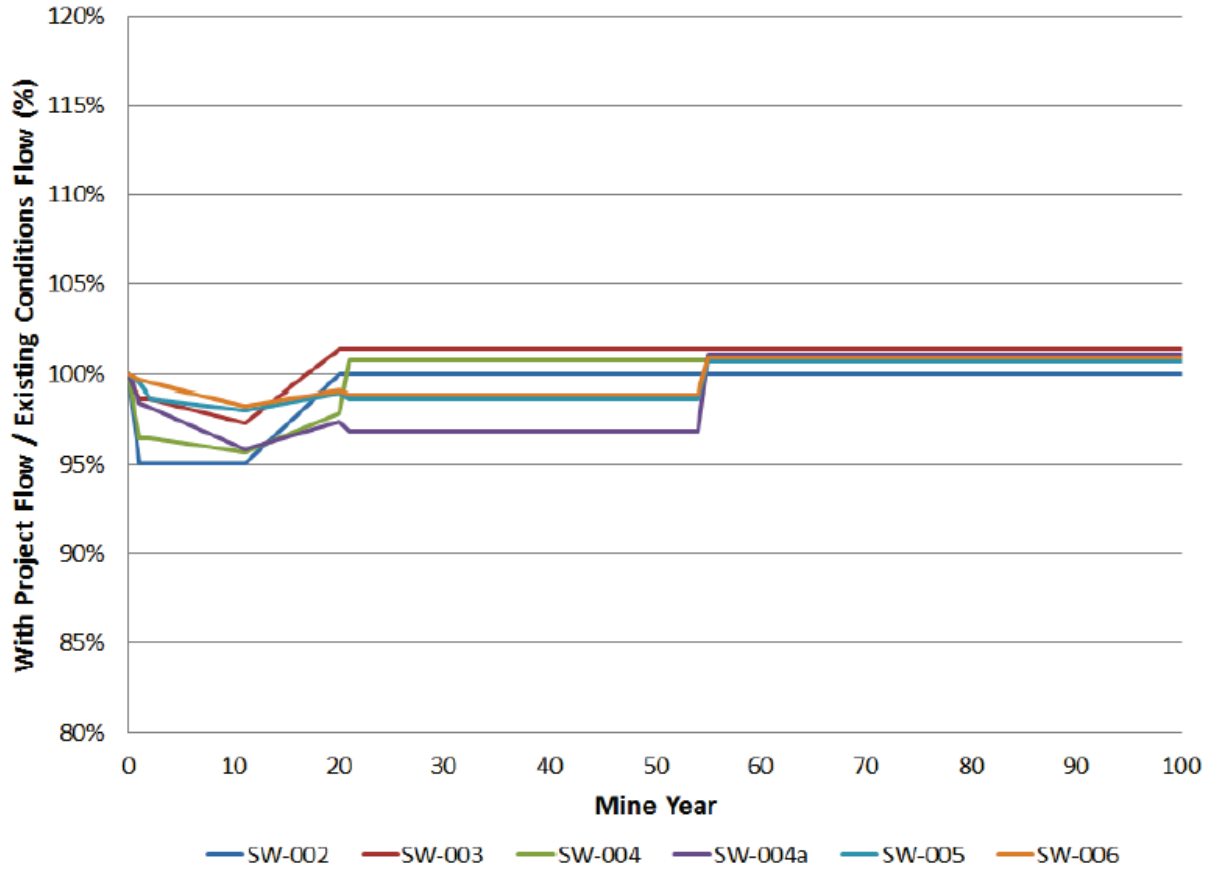

Source: Barr 2015i

Figure 5.2.2-29 Project Impact on Partridge River Annual Daily Mean Flow, shown as Modeled Flows Over Time as a Percent of Existing Conditions

It is apparent from Table 5.2.2-26 that almost all effects on streamflow during the year of maximum watershed reduction (mine year 11) would be in the form of streamflow reductions. The largest modeled effect, about an 8 percent reduction, would occur during low-flow conditions. After the West Pit is filled with water, discharge from the WWTF to the West Pit Outlet Creek would more than compensate for the reduced low flows at some locations. The maximum modeled effect is at location SW-004a, just downstream of where the WWTF discharge would enter the Partridge River. Here, the annual minimum 3-day flow and average annual 30-day low flow would increase by about 38 and 22 percent, respectively. The actual flow increases would be on the order of 0.78 and 0.54 cfs, respectively. The NorthMet Project Proposed Action would have little effect on high flows, as shown for the mean April flows and the annual maximum 3-day flows.

Modeling predicts that annual daily mean flow would change by 5 percent or less during operations and reclamation, and return to within approximately 1 percent of existing flow conditions in closure and long-term maintenance, as shown in Figure 5.2.2-29.

Changes in hydrology can affect stream geomorphology. PolyMet conducted a Level I Geomorphic Survey of the Partridge River from its headwaters to Colby Lake (Barr 2005) to determine the stability of the river under existing conditions, evaluate its sensitivity to hydrologic change, and indicate how restoration may be approached if a portion of the stream becomes unstable. The Geomorphic Survey found the Upper Partridge River to be stable, with no evidence of erosion except in its headwaters (see Figure 4.2.2-9). Its steep reaches are well-armored and the flatter reaches tend to have well-vegetated shorelines. As indicated in Table 5.2.2-26, the NorthMet Project Proposed Action would reduce flow in the Upper Partridge River during mine operations by 1.8 to 7.8 percent depending on evaluation location and flow parameter, with less of an effect (2.0 to 5.3 percent) on higher flows. Flows would return to nearly pre-NorthMet Project Proposed Action conditions during closure, except at surface water stations downstream of WWTF discharge points where river flows would be higher.

No erosion or significant geomorphic changes are expected in the Upper Partridge River due to the NorthMet Proposed Action for the following reasons:

- The Geomorphic Survey of the Upper Partridge River found it to be stable;
- The NorthMet Project Proposed Action would not directly disturb the river banks;
- High flows (e.g., bank-full flows), which are important in shaping geomorphic processes, would only be reduced by a maximum of five percent during operations which is within the range of natural variability; and
- Most streamflows would return to near pre-NorthMet Project Proposed Action conditions after closure.

Effects on the Hydrology of the Partridge River Tributary Streams

The NorthMet Project Proposed Action is not expected to have any measurable effects on surface water hydrology of the tributary streams along the Transportation and Utility Corridor. Flow data collection and monitoring of the Partridge River tributary streams would be conducted for permitting.

Flow in the West Pit Outlet Creek would be modified due to reduction of drainage area, interception of groundwater by the West Pit, and discharge of the WWTF effluent during closure and long-term maintenance. The XP-SWMM model estimates an average annual flow of 1.2 cfs at the approximate location of the future WWTF discharge under existing conditions. The estimated average annual flow at this location in closure and long-term maintenance is increased to 1.4 cfs primarily due to the WWTF discharge (PolyMet 2015m).

A geomorphic survey of the West Pit Outlet Creek between Dunka Road and the Partridge River found no evidence of erosion, downcutting, or channel widening. The survey concluded that because the creek has a well-developed floodplain and substantial and continuous bank vegetation, it would be tolerant to moderate changes in hydrology (Barr 2005).

Effects on Colby Lake and Whitewater Reservoir Water Levels

The effect of the NorthMet Project Proposed Action on water levels in Colby Lake is related to changes in Partridge River inflow and water withdrawals to the Plant Site during operations.

The XP-SWMM modeling for SW-006, just upstream of Colby Lake, shows minor reductions in Partridge River low flows during operations (2.7 percent reduction in the 30-day low flow, which is equivalent to about 0.14 cfs). On an annual average basis, inflow to Colby Lake would be reduced about 1.7 percent during operations (in mine year 11) and have virtually no change during closure (see Table 5.2.2-26 for SW-006) (PolyMet 2015m).

NorthMet Project Proposed Action makeup water demand from Colby Lake during operations would vary between 260 and 1,760 gpm (0.6 and 3.9 cfs) with an average annual demand of 760 gpm (1.7cfs). After operations complete, makeup water from Colby Lake would no longer be withdrawn (PolyMet 2015a).

Combining the flow reduction at SW-006 with the rate of process makeup water removed from Colby Lake provides an estimate of the total reduction in flow to Colby Lake. The maximum predicted reduction to average annual flow due to the NorthMet Project Proposed Action at SW-006 is 1.7 percent, occurring during mine year 11, which corresponds to an average annual flow reduction of 600 gpm (1.3 cfs) (Table 5.2.2-26). The average and maximum Colby Lake annual withdrawal rates during operations are 760 gpm (1.7 cfs) and 1,750gpm (3.9 cfs). Therefore, the estimated annual average reduction in flow to Colby Lake is 1,360 gpm (3.0 cfs) with a maximum withdrawal rate of 2,350 gpm (5.2 cfs). The NorthMet Project Proposed Action DEIS (MDNR and USACE 2009) evaluated two potential Colby Lake withdrawal rates, 3,500 gpm and 5,000 gpm. The model assumed transfer of water from Whitewater Reservoir in order to maintain water levels above the critical outflow elevation of 1,439 ft at all times in Colby Lake, which is required under MDNR Water Appropriation Permit 1949-0135.

The evaluation criterion for Colby Lake and Whitewater Reservoir is an assessment of the annual mean, maximum, and minimum lake level changes from existing conditions. At a 3,500 gpm withdrawal rate and average flow conditions, the average Colby Lake drawdown over the modeled period was 0.01 ft, with an average annual water level fluctuation of about 3.6 ft, compared to 3.9 ft for zero withdrawal. Whitewater Reservoir would also be affected by water withdrawals, as it is used to help maintain water levels in Colby Lake. Under this 3,500 gpm withdrawal and average flow conditions scenario, drawdown on Whitewater Reservoir was predicted to be about 0.4 ft with a maximum annual fluctuation of about 4.2 ft, compared to about 2.9 ft for zero withdrawal (PolyMet 2015m). Environmental consequences of the drawdown on wetlands and aquatic resources are discussed in Sections 5.2.3 and 5.2.6, respectively.

It is reasonable to assume that the effects of PolyMet's proposed withdrawal of less than 3,500 gpm would be no worse on Colby Lake and Whitewater Reservoir water levels than this modeled 3,500 gpm withdrawal. These anticipated effects on water levels are well within the range experienced during the former LTVSMC taconite mining operations.

Effects on the Hydrology of the Lower Partridge River

Existing flow conditions in the Lower Partridge River can be estimated by examining the flow record (i.e., 1942 to 1982) at USGS gaging station 04016000, which was located approximately 1.5 miles downstream of Colby Lake. Historic hydrologic alterations to Partridge River watershed area caused by former LTVSMC operations are likely present in the USGS flow data, while alterations from the present Mesabi Nugget operations are not considered. Notwithstanding

these effects, the historic flow records can be used to provide a reasonable estimate of NorthMet Project Proposed Action effects on the Lower Partridge River.

The record shows average monthly flows varying from about 17 cfs during February to about 333 cfs during May, with an average annual flow of about 112 cfs. As described above, the maximum effect of the NorthMet Project Proposed Action on streamflow into Colby Lake would be a net reduction in flow of about 3.0 to 4.2 cfs during operations, which would represent about a 2.7 to 3.8 percent decrease in the average annual flow at the gage site. This withdrawal cannot simply be subtracted from each month to estimate effects on low or high flows because of required transfer of water from Whitewater Reservoir when Colby Lake drops to elevation 1,439.0. Given this requirement to supplement low flows by transferring water from the reservoir, it is expected that effects on low flows at the gage station would be negligible. Effects on high flows would be less than on average flows, and would proportionately diminish as the flow increases. Note that high flows downstream of Colby Lake would also be substantially reduced because of water transfers to the reservoir during high runoff periods, which reflects existing operating procedures. Therefore, the NorthMet Project Proposed Action is expected to have negligible effects on flow in the Lower Partridge River. Note that during closure, once the West Pit floods, the hydrology of the Partridge River is expected to return to relatively normal conditions with no net change in average annual flow at SW-006 (Table 5.2.2-26).

Effects on the Hydrology of Second Creek

Second Creek is the only Lower Partridge River tributary stream that could be notably affected by the NorthMet Project Proposed Action. The current estimated average seepage rate is about 230 gpm (see Table 5.2.2-37). Historically, seepage from the southern side of the Tailings Basin entered the headwaters of Second Creek. In July 2011, a seepage collection system was installed, which returned most of the south-side seepage to the Tailings Basin pond. Under the NorthMet Project Proposed Action, the seepage collection system would be upgraded to ensure essentially 100 percent capture of the southern side surface seepage. If seepage were observed to bypass the existing dam, a second dam could be constructed approximately 500 ft downstream of the existing system, in an area where the Second Creek headwaters valley is more constricted and any remaining subsurface seepage would have come to the surface. This potential second dam could be constructed as an earthen dam with a clay or concrete cutoff wall (extending to bedrock if necessary) in order to achieve 100 percent capture of the surface seepage (Barr 2015e). As part of its streamflow augmentation plan (PolyMet 2015j), PolyMet would discharge WWTP effluent to the headwaters of Second Creek at a rate equal to a minimum of 80 percent of the uncaptured south-side seepage rate, or at least 184 gpm, to compensate for interception of the south-side seepage. The effects of the NorthMet Project Proposed Action on Second Creek streamflow would be minimal.

Effects on Surface Water Quality

The NorthMet Project Proposed Action would affect the water quality of the Partridge River and its tributaries that drain the Mine Site, Transportation and Utility Corridor, and the processing plant area. PolyMet proposes to treat and re-use water, resulting in no direct surface water discharges to the Partridge River until the West Pit completely refills by approximately year 52. The West Pit would not be allowed to overflow until its water quality meets water quality based effluent limits. During operations, reclamation, and closure and post-closure maintenance there

would be continuous augmentation at the Plant Site to Second Creek, which is a tributary of the Partridge River. Several other potential pathways for surface water quality effects include domestic wastewater, non-contact stormwater runoff, and seepage from waste rock stockpiles.

PolyMet proposes to manage domestic wastewater by providing portable facilities serviced by a supplier at the Mine Site. These portable facilities would be designed to adequately manage the domestic wastewater requirements of the NorthMet Project Proposed Action, so this potential contaminant source is not discussed further.

The other predicted effects of the NorthMet Project Proposed Action on surface water quality in the Upper Partridge River, Colby Lake, and the Lower Partridge River are discussed below.

Effects on the Upper Partridge River

Water quality in the Upper Partridge River (upstream of Colby Lake) is already affected by discharges from the Northshore Mine. For purposes of estimating water quality impacts, a 2.6 cfs constant discharge from Northshore is used in modeling. This is a best estimate flow rate determined through a sensitivity analysis (MDNR et al. 2015a). As mentioned above, PolyMet does not propose any surface water discharges to the Upper Partridge River until the West Pit floods around mine year 52. However, non-contact stormwater runoff, unrecoverable groundwater seepage from the five groundwater flowpaths (i.e., from the waste rock stockpiles, pits, Ore Surge Pile, WWTF, and Overburden Storage and Laydown Area), and the WWTF discharge would all serve as contaminant sources to the Upper Partridge River. Each of these sources is discussed below and then the predicted overall effect of these sources on water quality in the Upper Partridge River is evaluated.

Non-contact Stormwater Runoff

PolyMet proposes to collect non-contact stormwater runoff from undisturbed and reclaimed vegetated areas within the Mine Site and route it to the Partridge River via existing drainage patterns to the extent possible. Stormwater quality is not expected to differ significantly from existing conditions because it would not contact any reactive rock, but there would be the potential for increased suspended solids. PolyMet would provide sedimentation ponds at the outlet locations to manage suspended solids prior to discharge to surface waterbodies (see Figures 3.2-5, 3.2-6, 3.2-7, and 3.2-8). These sedimentation ponds should be adequate to manage suspended solids, but monitoring of the discharge is recommended as part of any NPDES/SDS permit (see Section 4.1.3.5 for a discussion of recommended monitoring measures).

Unrecovered Groundwater Seepage from Liner Leakage and Pit Seepage

The WWTF equalization basins, Ore Surge Pile, Category 2/3 Stockpile, and Category 4 Stockpile would all have compacted soil and geomembrane liners. Percolating water above the liner would be collected and pumped to the WWTF for treatment.

Some water is predicted to leak through the liners as a result of tears or defects in the geomembrane liners and this effect is included in the GoldSim model. The quantity of water leaking through the liners is determined by the liner design and effectiveness. The Hydrologic Evaluation of Landfill Performance model was used to help estimate liner leakage, including the use of uncertainty analysis for three key input variables (i.e., liner slope, subgrade permeability, and frequency of liner defects) (PolyMet 2015m).

The proposed liner systems would be installed in accordance with the proposed design using rigorous quality control measures consistent with industry standards. Current construction practices and improvements in electrical leak detection surveys should be able to achieve the proposed design criteria (i.e., defects/acre, overliner slope, and subgrade permeability). Concerns regarding geomembrane liners primarily relate to the potential for differential settlement to cause tears and for it to degrade over time. These concerns are tempered by the fact that all of the proposed liner systems would be temporary. The Ore Surge Pile and Category 2/3 and 4 stockpiles would be removed, including the liners, by year 21. The WWTF equalization basins would remain in use while the East Pit is being treated in reclamation and closure and post-closure maintenance until approximately year 33.

Because the Category 4 waste rock stockpile would be surrounded by mine pits and its footprint later becomes the Central Pit, any liner leakage from the stockpile would not enter a groundwater flowpath, and would instead be assumed to enter the East Pit and contribute to the flow that must be dewatered from the pit during operations.

During reclamation and closure and post-closure maintenance, small volumes of water are predicted to flow from the pits into the downgradient surficial groundwater. These untreated pit releases would include East Pit backfill pore water into the East Pit Category 2/3 Surficial Flowpath (beginning year 20) and West Pit lake water into the West Pit Surficial Flowpath (beginning year 48). These releases to surficial groundwater would continue in perpetuity. Groundwater in these flowpaths would flow downgradient and eventually reach the Partridge River.

Liner leakage from the Overburden Storage and Laydown Area, WWTF, Ore Surge Pile, and Category 2/3 Stockpile would also follow groundwater flowpaths that eventually reach the Partridge River. These would be temporary sources where solute leakage/seepage flow rates are generally low and are summarized in Table 5.2.2-27. For P50 inputs, depending on the flowpath, the initial concentration change in groundwater as it discharges to the Partridge River would occur at 30 to 105 years after the start of mining, and peak concentrations at the Partridge River would occur in the range of 55 to 160 years after the start of mining (see Table 5.2.2-22). After peak concentrations were achieved, the groundwater concentrations would gradually decrease over many tens to hundreds of years. Note that for the Overburden Storage and Laydown Area flowpath, most solutes would experience a decrease in concentration downgradient of the source.

Table 5.2.2-27 Pit Outflow and Liner/Equalization Basin Leakage into Groundwater Flowpaths (Based on GoldSim Deterministic Run with P50 Inputs)

Contaminant Source	Flow Rate (gpm)	Duration of Source (Mine Years)	Mine Year when Solute Plume First Arrives at Partridge River
East Pit	3.75[(1)]	20+	100
Category 2/3 Stockpile	0.0193	0–20	35
Ore Surge Pile	0.00116	0–21	90
WWTF Equalization Basins	0.0138	0–33	85
Overburden Storage and Laydown Area	14.0	0–20	30[(2)]
West Pit	6.09[(1)]	48+	105

Notes:
1 Pit water into groundwater flowpath.
2 Concentration decrease.

Category 1 Stockpile Seepage

The Category 1 Stockpile would have a permanent cover consisting of a synthetic (geomembrane) overlain by a compacted soil and vegetated growth medium, which would be installed progressively during operations, starting in mine year 13 and completed during mine year 22.

Infiltration passing through covered and uncovered portions of the top surface would percolate to the bottom of the stockpile, and most would be collected by the groundwater seepage containment system. For best estimate parameters, the seepage rate reporting to the bottom of the stockpile depends on the stockpile footprint and the proportion of the stockpile that is reclaimed (covered). From the beginning of operations to mine year 7, the annual average flow rate is predicted to progressively increase from 150 to 360 gpm. From mine year 7 to 12, the annual average flow rate is relatively constant at 360 gpm. From mine year 12 to 22, the annual average flow rate progressively decreases from 360 to 2.8 gpm and then remains constant at 2.8 gpm after mine year 22.

Relatively small amounts of the infiltration seepage would not be collected by the containment system and would migrate via bedrock to the West Pit. From the beginning of operations to mine year 7, this annual average flow rate is predicted to progressively increase from 9 to 22 gpm. From mine year 7 to 12, the annual average flow rate is relatively constant at 22 gpm. From mine year 12 to 22, the annual average flow rate progressively decreases from 22 to 0.16 gpm and then remain at near zero after mine year 22.

A very small amount of the stockpile seepage would by-pass the containment system and slowly migrate to the Partridge River via bedrock flowpaths. For best estimate parameters, this flow rate is estimated to progressively increase from zero to 6.8 gpm from mine year zero to 11 and then progressively decrease to zero at mine year 20.

Note that none of the Category 1 Stockpile seepage is predicted to flow into any of the surficial groundwater flowpaths.

Wastewater Treatment Facility Discharges

PolyMet proposes a WWTF at the Mine Site to treat affected water from the sources summarized in Table 5.2.2-28. This table presents P90 (high-end) estimated average Mine Site process water flow rates by source for the indicated design year (which are years 14, 25, and 75 for operations, reclamation, and closure and post-closure maintenance, respectively). Details regarding some of these WWTF influent sources are discussed below. The process water at the Mine Site would be combined into three waste streams for treatment at the WWTF. Construction water would be treated in a construction water stream and would only be needed through approximately year 11. Process water containing relatively high levels of metals and sulfate (drainage from the temporary Category 2/3 Stockpile and Category 4 Stockpile liners and the temporary Ore Surge Pile liner) would be stored in the West Equalization Basin and routed to the chemical precipitation treatment train. Process water containing relatively low concentrations of metals and sulfate (drainage from haul roads, the Rail Transfer Hopper, pit dewatering, and Category 1 Stockpile drainage) would be stored in the East Equalization Basin and routed to the filtration treatment train. The WWTF effluent would be conveyed to the Central Pumping Station pond to be blended with the Overburden Storage and Laydown Area runoff prior to being pumped

through the Treated Water Pipeline for use at the Tailings Basin or used to supplement flooding of the East Pit after approximately year 11 (PolyMet 2015r).

Table 5.2.2-28 P90 Mine Site Process Water Flows to the Wastewater Treatment Facility

	90th Percentile Estimated Average Annual Flow (gpm)		
Source	**Operations[2]**	**Reclamation[3]**	**Closure and Post-Closure Maintenance[4]**
East Pit	1,035	1,750[(5)]	--
Central Pit	55	--	--
West Pit	365	--	400
Haul Roads and Rail Transfer Hopper	65	--	--
Category 1 Stockpile	375	10	10
Category 2/3 Stockpile	145	--	--
Ore Surge Pile	25	--	--
Category 4 Stockpile	0	--	--
WWTP Reject Concentrate	145	175	--
Total[1]	2,065	1,925	405

Source: PolyMet 2015d, Table 2-1.

Notes:
1 Flows are rounded to the nearest 5 gpm; column values do not sum to 90th percentile total value due to probabilistic modeling (P90 of totals is not equivalent to the total of the P90s).
2 Estimates based on PolyMet 2015m for mine year 14, 90th Percentile.
3 Estimates based on PolyMet 2015m for mine year 25, 90th Percentile.
4 Estimates based on PolyMet 2015m for mine year 75, 90th Percentile.
5 Flow value is total of East Pit and Central Pit.

Actual flow rates would vary both daily and seasonally throughout the 20 years of mine operations. Peak influent flows to the WWTF are anticipated to occur during spring snowmelt. Because influent flow rates to the WWTF would vary significantly over the life of the NorthMet Project Proposed Action and within any given year, the WWTF design includes two equalization basins that would store influent when flows exceed the WWTF's treatment capacity. The WWTF equalization basins are designed for the spring snowmelt, when the Mine Site would be at its maximum area. In the event of an extreme event (e.g., 100-year storm), excess water would remain in the initially dewatered mine pits, which essentially have unlimited storage capacity, with mine operations in the pits temporarily shut down (see PolyMet 2015r). Even during an extreme event, no untreated water would be discharged to a natural water body.

The WWTF process design for operations and reclamation includes chemical precipitation and nano-membrane separation. During mine operations, the treated effluent from the WWTF would be mixed with the runoff collected from the Overburden Storage and Laydown Area in the Central Pumping Station pond, where it would be pumped either to the Tailings Basin pond (for re-use as process water at the Beneficiation Plant) or to help re-saturate the East Pit backfill (after mining would be completed in year 11). During mine reclamation, the WWTF would primarily be used for treating East Pit backfill surface water and to accelerate flooding of the West Pit.

During mine closure and post-closure reclamation, the WWTF would be used to treat water collected from the Category 1 Stockpile containment system and pumped water from the West Pit. Since the West Pit would now be flooded, the WWTF would begin in closure and post-closure maintenance to discharge effluent to the West Pit Outlet Creek, a natural intermittent

stream that flows to the Partridge River just upstream of SW-004a. The treated effluent would need to meet applicable effluent limits. During closure and post-closure maintenance, the existing WWTF nano-membrane system would be converted to an RO system with an evaporator/spray dryer or equivalent unit. Reject concentrate from the primary membrane separation unit would continue to be treated with existing secondary membrane separation and chemical precipitation equipment, or would be evaporated and the residual solids disposed offsite.

Table 5.2.2-29 presents the target WWTF effluent concentrations for the different mine phases. Pilot-testing of a WWTF with RO demonstrated that all of the target closure effluent concentrations could be achieved with the planned WWTF design (Barr 2013f).

Table 5.2.2-29 Wastewater Treatment Facility Preliminary Water Quality Targets

	Targets			
Parameter[1]	**Operations**	**Reclamation**	**Closure and Post-Closure Maintenance**	**Basis**
Metals (µg/L)				
Aluminum	125	125	125	M.R., part 7050.0222 Class 2B (chronic standard)
Antimony	31	31	31	M.R., part 7050.0222 Class 2B (chronic standard)
Arsenic	10	10	4	Federal Standard (pMCLs)
Barium	2,000	2,000	2,000	Minn. Groundwater (HRL, HBV5, or RAA)
Beryllium	4	4	4	Federal Standard (pMCLs)
Boron	500	500	500	M.R., part 7050.0224 Class 4A (chronic standard)
Cadmium[2]	5.1	4.2	2.5	M.R., part 7052.0100 Class 2B (chronic standard)
Chromium III[2]	86	86	86	M.R., part 7052.0100 Class 2B (chronic standard)
Cobalt	5	5	5	M.R., part 7050.0222 Class 2B (chronic standard)
Copper[2]	20	17	9.3	M.R., part 7052.0100 Class 2B (chronic standard)
Iron	300	300	300	Federal Standard (sMCLs)
Lead[2]	10.2	7.7	3.2	M.R., part 7050.0222 Class 2B (chronic standard)
Manganese	50	50	50	Federal Standard (sMCLs)
Nickel[2]	113	94	52	M.R., part 7052.0100 Class 2B (chronic standard)
Selenium	5	5	5	M.R., part 7052.0100 Class 2B (chronic standard)
Silver	1	1	1	M.R., part 7050.0222 Class 2B (chronic standard)
Thallium	0.56	0.56	0.56	M.R., part 7050.0222 Class 2B (chronic standard)
Zinc[2]	260	216	120	M.R., part 7050.0222 Class 2B (chronic standard)
General Parameters (mg/L)				
Chloride	230	230	230	M.R., part 7050.0222 Class 2B (chronic standard)
Fluoride	2	2	2	Federal Standard (sMCLs)
Hardness[3]	250	200	100	Hardness PWQT chosen to establish PWQTs for metals with a hardness based standard
Sodium	60% of cations	60% of cations	60% of cations	M.R., part 7050.0224 Class 4A (chronic standard)
Sulfate	250	150	9	Operations: Federal Standard (sMCLs) Long-term closure: M.R., part 7050.0224 Class 4A

Source: PolyMet 2015d; Barr 2013f, Table 3.

Notes:
M.R. = Minnesota Rules
[1] The Process Water Quality Targets parameter list has been updated from RS29T to include only the parameters modeled in GoldSim.
[2] Standard based on hardness.
[3] *Minnesota Rules*, part 7050.0223 Class 3C standard for hardness is 500 mg/L.

Comparison of Contaminant Sources

The GoldSim model enables the identification of "culpability," or the relative contribution of various contaminant sources to the overall contaminant load at a specific evaluation location. Table 5.2.2-30 presents an illustrative example of the culpability analysis using two representative solutes of interest (copper and sulfate) at evaluation location SW004a during representative years for operations, reclamation, and closure and post-closure maintenance periods. The culpability identifies 11 sources of copper and sulfate at this evaluation location. In addition to the eight NorthMet Project Proposed Action-related sources (i.e., five surficial aquifer flowpaths, two bedrock flowpaths, and the WWTF discharge), three non-NorthMet Project Proposed Action-related sources are identified (i.e., background groundwater, non-contact stormwater runoff, and the Northshore Mine discharge).

Table 5.2.2-30 Culpability Analysis for Copper and Sulfate at SW-004a Based on GoldSim P50 Results

	Copper Load (% of total)			**Sulfate Load (% of total)**		
Contaminant Source	**Operations Year 12**	**Reclamation Year 25**	**Closure and Post-Closure Maintenance Year 200**	**Operations Year 12**	**Reclamation Year 25**	**Closure and Post-Closure Maintenance Year 200**
Background Groundwater	17.9%	19.1%	16.5%	9.1%	9.5%	13.9%
Non-contact Stormwater	72.1%	70.2%	64.0%	56.6%	55.5%	80.6%
Northshore Mine Discharge	8.8%	9.4%	0.0%	33.7%	34.3%	0.0%
East Pit Category 2/3 Surficial GW Flowpath[1]	0.6%	0.8%	0.7%	0.3%	0.4%	0.7%
East Pit Bedrock GW Flowpath	0.0%	0.002%	0.002%	0.0%	0.005%	0.007%
Ore Surge Pile Surficial GW Flowpath[1]	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%
WWTF Surficial GW Flowpath[1]	0.1%	0.1%	0.1%	0.04%	0.04%	0.1%
Overburden Storage and Laydown Area Surficial GW Flowpath[1]	0.5%	0.3%	0.2%	0.2%	0.1%	0.2%
West Pit Surficial GW Flowpath[1]	0.0%	0.0%	0.3%	0.0%	0.0%	0.5%
West Pit Bedrock GW Flowpath	0.0%	0.0%	0.0%	0.0%	0.0%	0.004%
WWTF discharge	0.0%	0.0%	18.1%	0.0%	0.0%	4.0%

Source: PolyMet 2014v

Notes:
GW = Groundwater.
[1] Includes NorthMet Project Proposed Action-related loading and loading associated with meteoric aquifer recharge into the flowpath.

As Table 5.2.2-30 indicates, the primary source of load for both copper and sulfate at SW-004a for operations, reclamation, and closure and post-closure maintenance phases are the non-NorthMet Project Proposed Action-related sources (background groundwater, surface water, and Northshore Mine discharge). In addition, the WWTF discharge represents an important source of copper in closure and post-closure maintenance, and a minor source of sulfate.

Evaluation of Surface Water Quality for the Upper Partridge River

Results of the GoldSim water quality modeling were reviewed for 29 constituents at the seven Partridge River surface water evaluation locations listed in Table 5.2.2-31. Station SW-001, upstream of SW-002, is not an evaluation location because its water chemistry is essentially the same as that of the Northshore Mine discharge. The initial screening process described previously for constituents without hardness-based evaluation criteria (see Section 5.2.2.2.3) was applied to 23 constituents to identify constituents and locations that warranted a more robust examination. The screening process involved comparing the single-highest monthly P90 water quality prediction (maximum P90 concentration) for the NorthMet Project Proposed Action to the associated evaluation criterion, excluding the first year of simulation as discussed previously. The bold entries in Table 5.2.2-31 identify constituents and locations with maximum P90 values that exceed the associated evaluation criterion and where NorthMet Project Proposed Action concentrations are greater than CEC concentrations. This subset is retained for further evaluation and includes sulfate and aluminum.

Table 5.2.2-31 shows that the maximum P90 solute concentrations for the NorthMet Project Proposed Action are similar to the corresponding CEC scenario modeled values for most of the constituents. Some of the NorthMet Project Proposed Action maximum P90 values—such as those for antimony, cadmium, cobalt, copper, nickel, vanadium, and zinc at SW-004a, SW-004b, SW-005, and SW-006, and sulfate and lead at SW-004a and SW-004b—are noticeably higher than the CEC scenario maximum P90 values. If the maximum P90 concentration exceeded the evaluation criteria and the NorthMet Project Proposed Action P90 concentration was greater than the CEC scenario concentration, the screening process identified it for secondary screening and further analysis. Aluminum at SW-002, SW-003, and SW-004 and Sulfate at SW-005 did not pass initial screening and therefore were retained for further evaluation through secondary screening.

While listed in Table 5.2.2-31, six constituents with hardness-based evaluation criteria (cadmium, chromium III, copper, lead, nickel, and zinc) were screened using a different methodology (secondary screening) because the associated evaluation criteria could not be described by single values. This methodology was discussed in Section 5.2.2.2.3. Using this secondary screening methodology, Table 5.2.2-32 summarizes the Mine Site surface water constituents that have hardness-based evaluation criteria as well as those that did not pass initial screening identified above. For the secondary screening method, a constituent was retained for further evaluation if there was a 10 percent probability that either event (A or B described previously) would occur more than 10 percent of the time and there was a 10 percent probability that the event magnitude was more than 5 percent of the applicable NorthMet Project Proposed Action evaluation criteria (see section 5.2.2.2.3 for a more detailed explanation). As shown, for the Partridge River no constituent met both of these conditions. As a consequence, Mine Site water quality impacts from the NorthMet Project Proposed Project are not considered significant. Additional discussion is offered below on selected constituents of interest.

Table 5.2.2-31 Mine Site Surface Water – Maximum P90 Solute Concentration Over Entire 200-Year Simulation with Initial Screening of Constituents without Hardness-Based Evaluation Criteria

			SW-002		SW-003		SW-004		SW-004a		SW-004b		SW-005		SW-006	
Parameter	**Partridge Evaluation Criteria**	**Units**	**NorthMet Project Proposed Action**	**CEC Scenario**	**NorthMet Project Proposed Action**	**CEC Scenario**	**NorthMet Project Proposed Action**	**CEC Scenario**	**NorthMet Project Proposed Action**	**CEC Scenario**	**NorthMet Project Proposed Action**	**CEC Scenario**	**NorthMet Project Proposed Action**	**CEC Scenario**	**NorthMet Project Proposed Action**	**CEC Scenario**
General																
Alkalinity	NA	mg/L	152.7	152.4	150.8	150.7	150.6	150.6	152.4	152.9	150.5	150.8	147.4	147.9	145.8	146.3
Calcium	NA	mg/L	38.0	38.0	37.9	37.8	37.9	37.8	38.0	38.0	37.9	37.9	36.9	36.9	36.7	36.7
Chloride	230	mg/L	16.9	16.9	16.8	16.8	16.8	16.7	16.8	16.9	16.8	16.8	16.4	16.4	16.4	16.4
Fluoride	NA	mg/L	0.21	0.21	0.21	0.20	0.21	0.21	0.21	0.21	0.21	0.21	0.20	0.20	0.20	0.20
Hardness	500	mg/L	135.9	135.8	133.9	132.9	133.3	132.6	134.7	135.2	134.4	134.4	131.7	131.7	131.4	131.4
Magnesium	NA	mg/L	15	15	14.9	14.9	14.6	14.5	14.4	14.5	14.3	14.3	13.9	13.9	13.9	14
Potassium	NA	mg/L	5.01	5.01	4.98	4.97	5.03	4.97	4.98	5.02	4.96	4.98	4.86	4.88	4.83	4.84
Sodium	NA	mg/L	13.2	13.1	13.1	13	13.1	12.9	23.8	13.2	15.9	13.1	13.2	12.8	13.3	13
Sulfate	NA / 10[(1)]	mg/L	27.3	27.3	27.1	27.1	26.4	26.3	24.3	24.2	22.1	22	**18.3**	**18.2**	17.6	17.6
TDS	700	mg/L	207	207	205	205	204	204	214	204	202	200	192	192	190	191
Metals Total																
Aluminum	125	µg/L	**313.3**	**313.1**	**312.1**	**311.6**	**311.8**	**311.5**	310.2	314.9	310.1	312.6	307.5	308.8	305.6	308.0
Antimony	31	µg/L	0.25	0.25	0.25	0.25	0.26	0.25	4.15	0.25	2.59	0.25	1.39	0.25	1.13	0.25
Arsenic	53	µg/L	2.59	2.59	2.58	2.58	2.59	2.59	2.69	2.64	2.62	2.62	2.62	2.61	2.61	2.59
Barium	NA	µg/L	31.1	31.2	29.9	30.0	28.3	28.5	34.8	30.5	31.4	29.0	25.8	23.9	24.7	22.8
Beryllium	NA	µg/L	0.12	0.12	0.12	0.12	0.12	0.12	0.25	0.12	0.20	0.12	0.15	0.11	0.14	0.11
Boron	500	µg/L	199.7	199.4	197.8	196.4	197.5	196.7	199.7	201.7	198.2	199.3	195.3	195.5	192.8	193.1
Cadmium	NA[2]	µg/L	0.17	0.17	0.16	0.16	0.16	0.16	0.93	0.17	0.57	0.16	0.34	0.16	0.28	0.16
Chromium III	NA[2]	µg/L	1.44	1.44	1.44	1.44	1.44	1.44	1.74	1.47	1.48	1.48	1.46	1.46	1.44	1.45
Cobalt	5	µg/L	1.29	1.29	1.29	1.29	1.29	1.28	3.11	1.29	2.21	1.29	1.58	1.25	1.44	1.27
Copper	NA[2]	µg/L	3.48	3.48	3.44	3.44	3.42	3.41	5.79	3.48	4.47	3.44	3.40	3.34	3.36	3.32
Iron	NA	µg/L	5,917	5,913	5,858	5,845	5,850	5,843	5,864	5,933	5,824	5,890	5,746	5,765	5,710	5,728
Lead	NA[2]	µg/L	0.94	0.94	0.92	0.92	0.92	0.92	1.85	0.97	1.37	1.03	1.06	1.05	1.05	1.05
Manganese	NA	µg/L	575.2	575.4	548.2	549.0	523.2	522.9	443.6	568.0	452.1	533.7	403.9	442.4	395.0	419.3
Nickel	NA[2]	µg/L	4.35	4.34	4.31	4.29	4.27	4.26	26.7	4.36	16.9	4.31	9.17	4.15	7.77	4.09
Selenium	5	µg/L	1.53	1.53	1.52	1.52	1.51	1.51	1.54	1.54	1.53	1.52	1.49	1.49	1.50	1.49
Silver	1	µg/L	0.11	0.11	0.11	0.11	0.11	0.11	0.16	0.11	0.14	0.11	0.12	0.11	0.12	0.11
Thallium	0.56	µg/L	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.12	0.11	0.11	0.09	0.09	0.09	0.09
Vanadium	NA	µg/L	3.57	3.57	3.47	3.47	3.38	3.34	6.72	3.51	5.28	3.40	3.87	2.92	3.62	2.82
Zinc	NA[2]	µg/L	25.4	25.4	25.6	25.5	25.5	25.4	48.7	25.4	32.7	25.6	25.9	25.5	27.0	25.9

Source: PolyMet 2015m and PolyMet 2014v

Notes:
CEC = Continuation of Existing Conditions
Bold value indicates non-hardness based constituent was retained for secondary screening.
[1] Sulfate 10 mg/L wild rice evaluation criterion applies at SW-005 and SW-006
[2] Parameter has a hardness-based evaluation criterion and is screened using the secondary screening procedure (see Table 5.2.2-32)

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Table 5.2.2-32 Secondary Screening for Partridge River Watershed

		Events A or B[1,2] - Data Used for Secondary Screening												
Evaluation Location	**Constituent**	**Occurrence (%)[3]**				**Magnitude of Concentration Increase (%)[4]**				**Magnitude of Concentration Increase (µg/L)[5]**				
		1-55		**56-200**		**1-55**		**56-200**		**1-55**		**56-200**		**Mine Years**
		50%	**90%**	**50%**	**90%**	**50%**	**90%**	**50%**	**90%**	**50%**	**90%**	**50%**	**90%**	**Percentile**
SW-002	Cd	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	**Constituents with Hardness-Based Evaluation Criteria**
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0.2	0.5	1.4	1.8	<0.05	0.1	0	0.3	0	0	0	0	
	Ni	0	0.2	0.1	0.2	0	0.1	0.1	0.4	0	0.1	0	0.2	
	Pb	0.8	1.2	2.8	3.4	0.1	0.2	0.1	0.6	<0.05	0	0	0	
	Zn	0.2	0.3	0.7	1	<0.05	0.1	0.1	0.4	0.1	0.2	0.1	0.5	
SW-003	Cd	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0.3	0.6	1.3	1.7	0.3	0.8	0.2	1	<0.05	0.1	0	0.1	
	Ni	0	0.2	0.1	0.2	0.4	0.8	0.3	1.3	0.2	0.5	0.1	0.6	
	Pb	0.9	1.5	2.7	3.2	0.4	1.6	0.3	2.1	0	0.1	0	0.1	
	Zn	0.2	0.5	0.7	1	0.3	1.1	0.3	1.5	0.4	1.7	0.3	1.8	
SW-004	Cd	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0.3	0.6	1.3	1.7	0.1	0.4	0.1	0.6	<0.05	0	0	0.1	
	Ni	0	0.2	0.1	0.2	0.2	0.6	0.2	0.8	0.1	0.3	0.1	0.4	
	Pb	1.1	1.5	2.8	3.5	0.2	1	0.2	1.5	<0.05	0.1	0	0.1	
	Zn	0.2	0.5	0.7	1	0.2	0.6	0.2	1.1	0.2	0.9	0.2	1.3	
SW-004a	Cd	0	0	0	0	0	0	0.5	1.2	0	0	0	0	
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0.2	0.3	1.2	1.5	0.1	0.7	0.8	3.9	<0.05	0	0	0.2	
	Ni	0	0.2	0.1	0.2	0	0.6	0.7	3.6	0	0.2	0.2	1.1	

Evaluation Location	Constituent	Events A or B[1,2] - Data Used for Secondary Screening												
		Occurrence (%)[3]				Magnitude of Concentration Increase (%)[4]				Magnitude of Concentration Increase (µg/L)[5]				
		1-55		56-200		1-55		56-200		1-55		56-200		Mine Years
		50%	90%	50%	90%	50%	90%	50%	90%	50%	90%	50%	90%	Percentile
	Pb	0.5	0.9	1.8	2.2	0.1	1.3	1.4	7.8	<0.05	0.1	0	0.1	
	Zn	0.2	0.3	0.3	0.6	0.1	0.4	0.5	2.3	0.1	0.5	0.3	1.4	
SW-004b	Cd	0	0	0	0	0	0	0.4	0.8	0	0	0	0	
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0.3	0.6	1.2	1.5	0	0.4	0.6	2.7	0	0	0	0.1	
	Ni	0	0.2	0.1	0.2	0	0.3	0.5	2.3	0	0.1	0.2	0.7	
	Pb	1.1	1.7	1.9	2.4	0.1	0.8	1	5.3	<0.05	0	0	0.1	
	Zn	0.3	0.6	0.3	0.6	0	0.3	0.3	1.6	0	0.4	0.2	1.1	
SW-005	Cd	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0.2	0.5	1	1.4	0	0.5	0.5	1.9	0	0	0	0.1	
	Ni	0	0.2	0.1	0.1	0	0.4	0.4	1.9	0	0.2	0.1	0.6	
	Pb	0.9	1.5	1.9	2.4	0.2	0.9	0.8	3.7	<0.05	0	0	0.1	
	Zn	0.2	0.5	0.3	0.6	0	0.4	0.3	1.3	0	0.4	0.2	0.9	
SW-006	Cd	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0.3	0.6	1	1.3	0	0.3	0.5	1.8	0	0	0	0.1	
	Ni	0	0.2	0.1	0.1	0	0.3	0.4	1.9	0	0.1	0.2	0.6	
	Pb	1.2	2	2	2.4	0.1	0.8	0.7	3.5	<0.05	0	0	0.1	
	Zn	0.2	0.5	0.3	0.6	0	0.3	0.3	1.2	0	0.4	0.2	1	
Colby Lake	Cd	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	1.1	2	2.5	3.3	0.1	0.3	0.4	1.2	<0.05	0	0	0.1	
	Ni	0	0	0	0.1	0.1	0.3	0.3	0.8	<0.05	0.1	0.1	0.4	

Evaluation Location	Constituent	Events A or B[1,2] - Data Used for Secondary Screening												
		Occurrence (%)[3]				Magnitude of Concentration Increase (%)[4]				Magnitude of Concentration Increase (µg/L)[5]				
		1-55		56-200		1-55		56-200		1-55		56-200		Mine Years
		50%	90%	50%	90%	50%	90%	50%	90%	50%	90%	50%	90%	Percentile
	Pb	0.8	1.8	1.2	1.7	0.2	0.6	0.3	1.1	<0.05	0	0	0	
	Zn	0	0.2	0.1	0.3	0.1	0.4	0.2	0.6	0.2	0.5	0.2	0.6	
SW-002	Al	9.9	11.2	29	30.5	0.1	0.2	0.1	0.5	0.1	0.4	0.2	1	**Constituents with *Non*-Hardness-Based Evaluation Criteria**
SW-003	Al	12.9	14.6	29	30.4	0.4	1.3	0.3	1.7	0.9	2.7	0.6	3.3	
SW-004	Al	12.7	14.3	31.2	32.9	0.3	1	0.3	1.5	0.5	1.9	0.5	2.9	
SW-005	SO_4 (mg/L)	37.9	42	2.4	4.5	0.2	0.3	0.1	0.8	0.02	0.05	0.02	0.09	
Colby Lake	Fe	61.7	69.2	0.8	1.3	0.1	0.3	0.3	1.1	1.7	6.5	3.7	20.1	
	Al	24.2	29.6	0	0.2	0.1	0.3	0.1	0.6	0.2	0.5	0.2	1.1	
	Mn	2.6	4.4	11.2	12.7	0.2	0.6	0.7	2.4	0.2	1.5	0.6	2.1	
	As	4.4	6.5	7.5	8.9	0.1	0.5	0.5	1.6	<0.05	0	0	0	

Notes:

90th percentile of the percent of time is greater than 10%

90th percentile of the magnitude of events is greater than 5% of NorthMet Project Propoed Action evaluation criterion

Constituent/Evaluation Location is characterized by both of the above for the same time period (none this table)

CEC = Continuation of Existing Conditions
PA = NorthMet Project Proposed Action

1 Event A is when PA>Evaluation Criterion and CEC<Evaluation Criterion; Event B is when PA>CEC and CEC>Evaluation Criterion

2 For Event A, the magnitude of exceedance (in µg/L) equals the PA concentration minus the PA water quality evaluation criterion. For Event B, the magnitude of exceedance (in µg/L) equals the PA concentration minus the CEC concentration.

3 As a percent of time

4 As a percent of PA evaluation criterion

5 Unless otherwise noted

Table 5.2.2-33 below compares the maximum P50 and P90 for NorthMet Project Proposed Action and the CEC scenario modeled concentrations for selected solutes during mine operations, reclamation, and closure and post-closure maintenance at SW-004a, which is the evaluation location where the NorthMet Project Proposed Action would have its greatest effects on water quality for most constituents. As these data show, the water quality is predicted to be essentially the same for the CEC scenario and the NorthMet Project Proposed Action modeled values for operations and reclamation. This result is not unexpected, as most of the groundwater contaminant source loads would not reach the Partridge River at the end of the reclamation period, and WWTF effluent discharge to the Partridge River would not begin until about year 52. By year 2020 in closure and post-closure maintenance, which reflects the time period when effects would have peaked and would be decreasing, the WWTF would be discharging and all groundwater contaminant source loads would have reached the Partridge River (except negligible contributions from the bedrock flowpaths), the predictions for the NorthMet Project Proposed Action for some constituents (e.g., nickel and zinc) are higher than for the CEC scenario, but remain below applicable evaluation criteria.

Table 5.2.2-33 Comparison of the Maximum P50 and P90 Values for NorthMet Project Proposed Action and CEC Scenario Concentrations at SW-004a for Selected Key Constituents, by Phase

Parameter	Units	Maximum P50 Operations (Mine Years 2-20)		Maximum P50 Reclamation (Mine Years 21-55)		Maximum P50 Closure & Post-Closure Maintenance (Mine Years 56-200)		Maximum P90 Operations (Mine Years 2-20)		Maximum P90 Reclamation (Mine Years 21-55)		Maximum P90 Closure & Post-Closure Maintenance (Mine Years 56- 200)	
		PA	**CEC**	**PA**	**CEC**	**PA**	**CEC**	**PA**	**CEC**	**PA**	**CEC**	**PA**	**CEC**
Sulfate	mg/L	21.9	21.7	21.8	21.7	15.8	16.4	24.2	24.1	24.3	24.2	20.1	21.6
Aluminum	µg/L	113.6	113.7	111.1	111.2	115.8	118.3	276.1	276.3	295.6	295.6	310.2	314.9
Arsenic	µg/L	1.1	1.1	1.4	1.1	2.0	1.0	2.6	2.6	2.4	2.4	2.7	2.6
Copper	µg/L	1.5	1.5	2.5	1.5	4.7	2.2	3.0	3.0	3.2	3.2	5.8	3.5
Lead	µg/L	0.4	0.4	0.7	0.4	1.5	0.5	0.9	0.9	1.0	1.0	1.9	0.9
Nickel	µg/L	1.2	1.3	6.4	1.3	19.8	1.8	3.9	3.9	9.0	3.7	26.7	4.4
Zinc	µg/L	5.7	5.7	14.2	5.7	29.8	5.4	22.4	22.4	22.5	21.9	48.7	25.4

Source: PolyMet 2014v.

Notes:
CEC = Continuation of Existing Conditions
PA = NorthMet Project Proposed Action

Aluminum in the Partridge River

Initial screening model results indicate that the maximum P90 concentration of aluminum for the modeled NorthMet Project Proposed Action would exceed the evaluation criterion (125 µg/L) at all seven evaluation locations along the Upper Partridge River. Aluminum maximum P90 concentrations for NorthMet Project Proposed Action conditions range from 305.6 to 313.3 µg/L at the various evaluation locations (see Table 5.2.2-31). Secondary screening identified that it was likely that when Event A or B occured, the magnitude of the events is small (see Table 5.2.2-32).

Potential sources of aluminum from the NorthMet Project Proposed Action include the East Pit – Category 2/3 Stockpile, the Ore Surge Pile, the WWTF Equalization Basins, the Overburden Storage and Laydown Area, and the West Pit. For each Mine Site contaminant source, the primary constituent migration pathway would be transported as groundwater in the surficial aquifer and eventual release of affected groundwater to the Partridge River. The groundwater flowpath that provides groundwater release to the Partridge River with P90 aluminum concentrations above the surface water quality evaluation criterion of 125 µg/L is the East Pit – Category 2/3 Stockpile flowpath, which shows a "pulse" in aluminum concentrations that would peak at about 175 µg/L between years 25 and 125 (see Figure 5.2.2-30). As the 125 µg/L surface water evaluation criterion is not applicable to groundwater, this pulse in aluminum concentrations would only be a concern if it was measurable upon release to the Partridge River. Figure 5.2.2-31 shows the modeled monthly aluminum concentration for years 56 to 62 at SW-004, the first surface water evaluation location downstream of the East Pit – Category 2/3 Stockpile flowpath contribution, and captures the peak of the pulse shown in Figure 5.2.2-30. As evidenced by the CEC scenario and the NorthMet Project Proposed Action modeled concentrations being coincident in Figure 5.2.2-31, groundwater flow from the East Pit – Category 2/3 Stockpile is sufficiently diluted upon reaching the Partridge River and the flow rates small enough (see Table 5.2.2-27) such that effects from the NorthMet Project Proposed Action are not discernible.

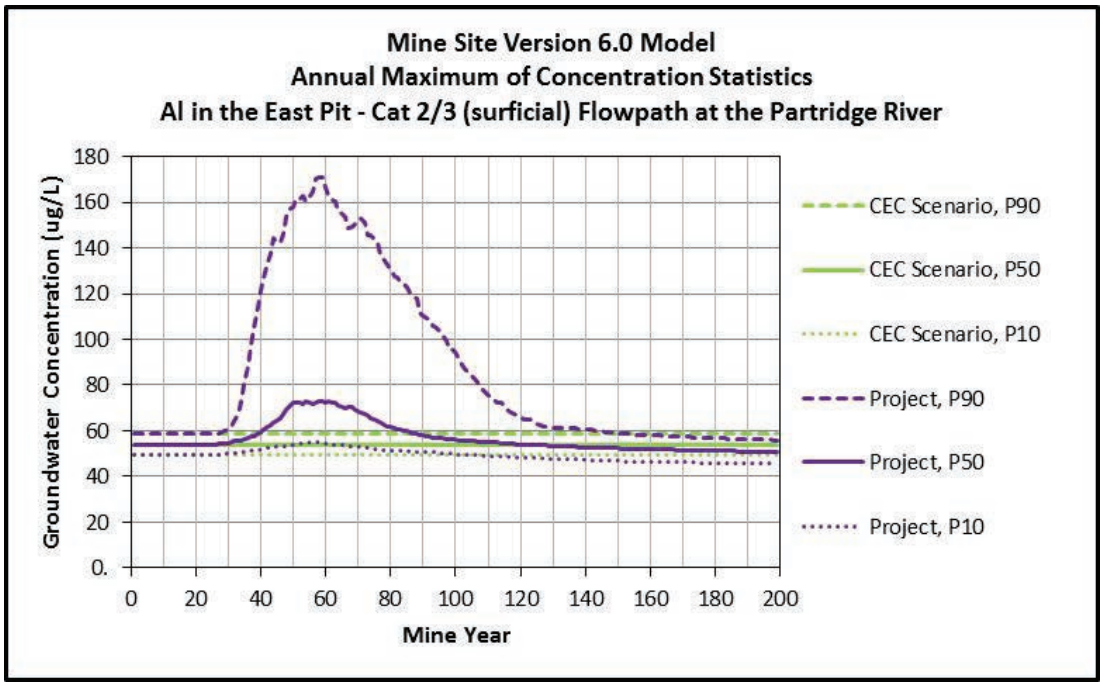

Source: PolyMet 2014v

Figure 5.2.2-30 Annual Maximum Aluminum Concentrations Along the Groundwater Flowpath from the East Pit - Category 2/3 Stockpile

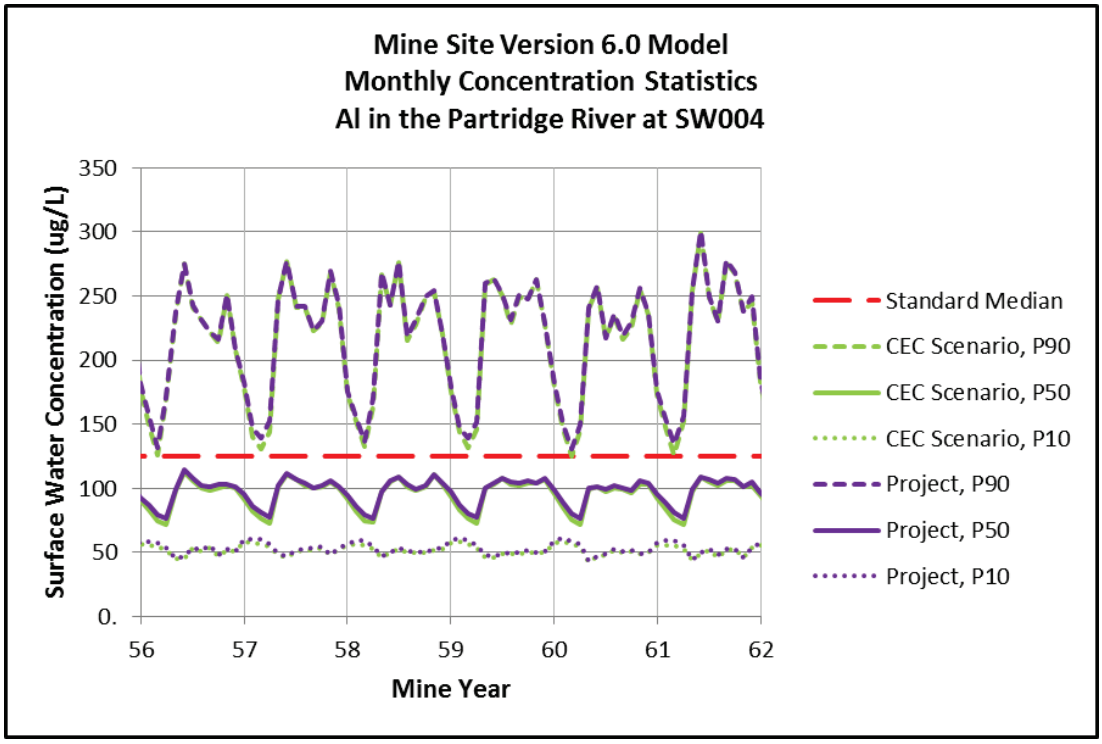

Source: PolyMet 2014v.

Figure 5.2.2-31 Monthly Aluminum Concentrations at SW-004

As shown in Table 5.2.2-31 comparing the modeled CEC scenario concentrations in the Upper Partridge River with the modeled NorthMet Project Proposed Action concentrations indicates that although aluminum concentrations in the Upper Partridge River would exceed the evaluation criterion, the concentrations are predicted to be about the same as they would be under the CEC scenario. Therefore, it is predicted that the NorthMet Project Proposed Action would not have a measurable adverse effect on aluminum concentrations in the Upper Partridge River. In addition, as indicated in Figure 5.2.2-32, the concentrations of aluminum in background surface runoff (i.e., non-contact water) exceed the evaluation criterion of 125 µg/L approximately 20 percent of the time. This suggests that the modeled aluminum exceedances are attributable to background surface runoff, which is naturally high in aluminum, and not to effects related to the NorthMet Project Proposed Action.

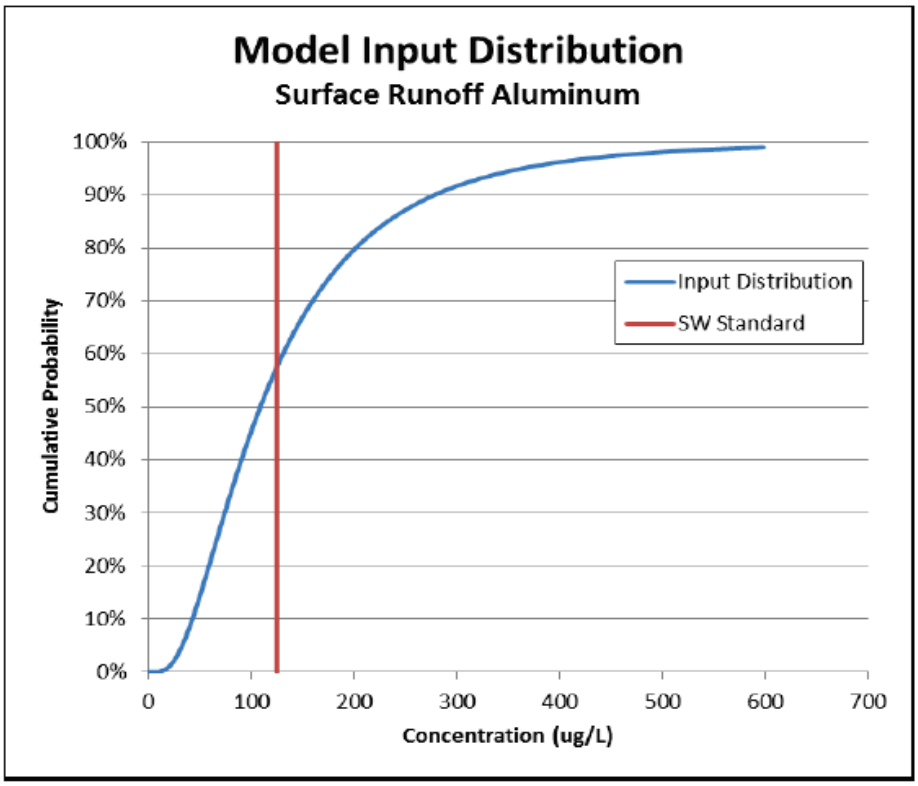

Source: PolyMet 2015m

Figure 5.2.2-32 GoldSim Input – Cumulative Probability Distribution for Aluminum in Surface Runoff

Sulfate in the Partridge River

Evaluation locations SW-005 and SW-006 are located in portions of the Partridge River that the MPCA staff has previously recommended as being waters used for production of wild rice, and therefore subject to the 10 mg/L wild rice sulfate evaluation criterion. As shown in Table 5.2.2-31, the maximum P90 sulfate concentrations at SW-005 and SW-006 for the NorthMet Project Proposed Action are 18.3 and 17.6 mg/L, respectively, which exceed the 10 mg/L criterion. The CEC scenario, however, would also exceed the wild rice evaluation criterion. The analysis below focuses on SW-005 because the NorthMet Project Proposed Action would have greater effects

(higher sulfate concentrations) at this location compared to SW-006. Inspection of the GoldSim outputs verifies that predicted sulfate concentrations at SW-006 are always slightly lower than at SW-005 due to dilution effects.

SW-005 shows a dramatic reduction in sulfate concentration after mine year 55 (see Figure 5.2.2-33). Up to this time, the Northshore Mine is modeled as continuously discharging 2.6 cfs of mine water to the Partridge River with a sulfate concentration of 28 mg/L. After mine year 55, there would no longer be a Northshore Mine discharge, but the WWTF would have begun to discharging approximately 0.67 cfs to the West Pit Overflow Creek with a sulfate concentration of 9 mg/L. As a consequence, the sulfate chemical load from affected water discharged to the river would decrease after mine year 55, but P90 sulfate concentrations would still exceed the evaluation criterion.

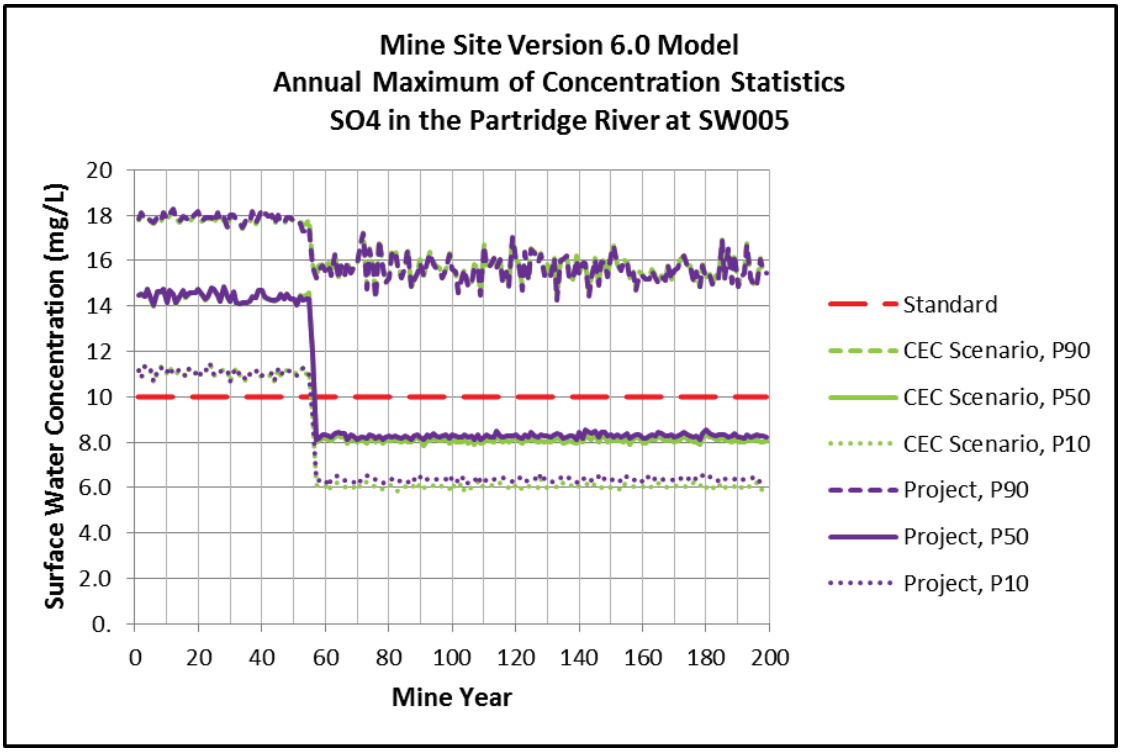

Figure 5.2.2-33 Maximum P90 of Annual Sulfate Concentration at SW-005

Monthly sulfate concentrations in the Partridge River would fluctuate with higher concentrations tending to occur during winter low flows as well as lower concentrations during the spring and summer when increased runoff occurs. For example, Figure 5.2.2-34 shows monthly sulfate concentrations for a representative time period (mine years 30-50) when the Northshore Mine discharges to the Partridge River and the WWTF discharges to the West Pit, but not to the river. Figure 5.2.2-35 is plotted for mine years 140-160 when the WWTF discharges to the Partridge River, all groundwater plumes have reached the river, and the Northshore Mine no longer discharges to the river. As can be seen on both figures, sulfate concentrations fluctuate on an annual basis, with highest concentrations during low-flow conditions (typically January and February) when there is less dilution from surface runoff, which typically has low sulfate concentrations.

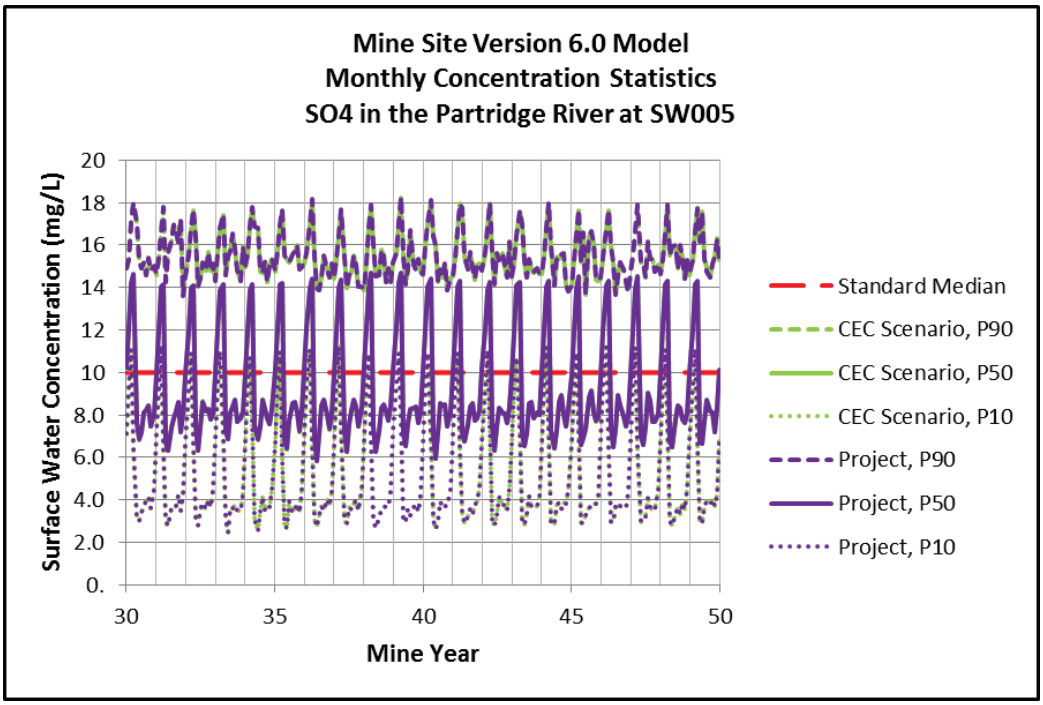

Figure 5.2.2-34 GoldSim-Predicted Sulfate Concentrations at SW-005 for Mine Years 30-50, when Northshore Mine Discharges to the Partridge River and the WWTF Discharges to the West Pit (and not to the River)

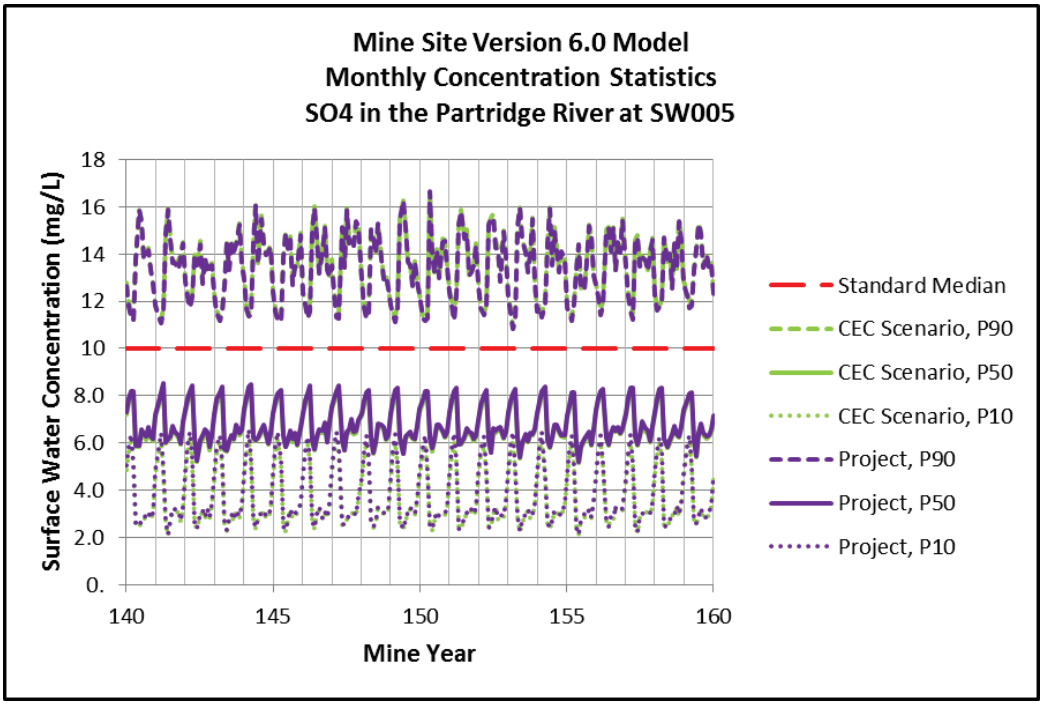

Figure 5.2.2-35 GoldSim-Predicted Sulfate Concentrations at SW-005 for Mine Years 140 -160 when the WWTF Discharges to the Partridge River, Groundwater Plumes have Reached the River, and Northshore No Longer Discharges to the River

To investigate sulfate at SW-005 in more detail, GoldSim results were evaluated on a timestep-by-timestep basis for both P50 concentrations and P90 concentrations.

Time period 0 to 55 years: During this period, sulfate concentrations at SW-005 would always exceed the evaluation criterion at the P90 level for both the CEC and NorthMet Project Proposed Action scenarios, but under both scenarios this is attributable to background runoff, background groundwater, and the Northshore Mine discharge. The NorthMet Project Proposed Action would have negligible effect on sulfate concentrations in the Partridge River during this period because it would not have any surface discharges and only groundwater from the Overburden Storage and Laydown Area and Category 2/3 Stockpile flowpaths would have reached the Partridge River (initially contributing sulfate load to the river in years 30 and 35, respectively). At SW-005, it is likely that the NorthMet Project Proposed Action would not increase the magnitude of events A or B by greater than 0.3 percent in the Partridge River (see Table 5.2.2-32).

Time period 55 to 200 years: During this period, sulfate concentrations at SW-005 would still always exceed the evaluation criterion at the maximum P90 level for both the CEC and NorthMet Project Proposed Action scenarios, but would be at lower concentrations than during the Year 0 to 55 period because Northshore Mine's discharge would cease. The NorthMet Project Proposed Action's contribution to the sulfate loading increases noticeably because the WWTF begins discharging in Year 52 and the NorthMet Project Proposed Action groundwater from other flowpaths (in addition to the OSLA and East Pit-Category 2/3 Stockpile flowpaths) begins to reach the Partridge River. The WWTF would discharge at a sulfate effluent target of 9 mg/L so it would not add to any exceedances of the evaluation criterion, rather it would provide dilution. The groundwater flowpaths would contribute small volumes (see Table 5.2.2-27), but higher sulfate concentrations to the Partridge River.

Overall, the NorthMet Project Proposed Action would account for approximately 3 percent of the sulfate loadings to the Partridge River at SW-005. The primary sources of sulfate loads would continue to be background runoff and background groundwater. At SW-005, it is likely that the NorthMet Project Proposed Action would not increase the magnitude of events A or B by greater than 1.0 percent in the Partridge River (see Table 5.2.2-32). It should be noted that the GoldSim results show that the evaluation criterion would be met essentially all the time under the NorthMet Project Proposed Action Scenario at the P50 level. A practical consequence of this result is that the effects of the NorthMet Project Proposed Action would likely not be identifiable by the proposed post-operations field monitoring program.

The small sulfate increases are explained by the small amounts of impacted and untreated water leaving the Mine Site, which only occur as groundwater. For P50 predictions during all phases of the NorthMet Project Proposed Action, the maximum amount of impacted and untreated groundwater leaving the site is 0.031 cfs (14 gpm). The maximum impact to the Partridge River would occur when this affected groundwater is released to the Partridge River during low-flow conditions. At SW-005, the average annual 1-day low flow is estimated to be 6.9 cfs (3,100 gpm) when Northshore is discharging (up to year 55) and 5.0 cfs (2,240 cfs) when only the WWTF discharges to the Partridge River (after year 52). Given the contrast between groundwater and river flows, it is apparent that the mass loading associated with groundwater flow from the Mine Site is far too small to impart a noticeable impact on sulfate concentrations in the Partridge River.

Nevertheless, a number of contingency measures could be implemented and adapted as necessary to decrease NorthMet Project Proposed Action effects on the Partridge River. As discussed in Section 5.2.2.3.5, these mitigation measures could include: 1) changes in WWTF effluent sulfate concentration and flow rate, 2) installation of surface and groundwater seepage containment systems, and 3) installation of non-mechanical groundwater treatment systems.

Effects on Surface Water Quality in the Upper Partridge River Tributary Streams

This section discusses the effects on surface water quality in the four Upper Partridge River tributary streams: West Pit Outlet Creek, Wetlegs Creek, Longnose Creek, and Wyman Creek. Surface water quality in these creeks would be affected by ore spillage from the rail cars that would transport ore from the Mine Site to the processing plant during operations. Ore would range in size from 48 inches down to small gravel and dust.

Based on observations at other mining operations using similar side-dump rail cars, it is assumed that spillage is most likely to occur along the first 1,000 meters of rail from the Rail Transfer Hopper (PolyMet 2015q). The railway does not cross any streams along this stretch. Rainfall contacting the spilled ore would have the potential to release contaminants, but the relatively small volume of material and dilution from other sources are expected to result in surface water quality meeting the evaluation criteria (PolyMet 2015q). During closure, there may be residual effects on surface water quality from the spilled ore, although the small quantity of expected spilled material would become rapidly depleted of sulfide materials compared to the much larger waste rock stockpiles (PolyMet 2015q).

Three potential ways that ore could be released to the environment during transport via rail car include: 1) ore spillage through the hinge gap, 2) ore spillage through the door gap, and 3) dust from the top of the car. To guard against possible adverse effects from spilled ore, PolyMet plans to refurbish the ore cars, tightening or replacing the couplings and linkages to minimize gaps along the hinges and joint areas where spillage could occur (PolyMet 2014a). The quantity of ore that could potentially spill through the door and hinge gaps of a single refurbished ore car is estimated to be 0.20 tons per year. This is a 97 percent reduction from the originally calculated value of 6.14 tons per year of unrefurbished cars (PolyMet 2015q).

Water quality monitoring is recommended downstream from the rail line on the Partridge River tributary streams to check for any potential deteriorations of water quality over time from ore spillage, and, if detected, adaptive water management measures would be implemented. Dust could be mitigated by spraying water on the loaded ore prior to transport. If significant accumulation of ore spillage occurs, it would be removed.

The West Pit Outlet Creek would also receive effluent from the WWTF during closure, which is estimated at an annual average discharge rate of 0.65 cfs. The WWTF is designed to meet all surface water quality standards with its discharge.

Effects on Surface Water Quality in Colby Lake and Whitewater Reservoir

Secondary screening for Colby Lake constituents with hardness-based evaluation criteria is shown in Table 5.2.2-32. As indicated on the table, there are no hardness-based constituents that exceed screening evaluation thresholds for frequency and magnitude of potential impacts. Table 5.2.2-34 provides maximum P90 concentrations for Colby Lake along with the initial screening results for constituents that do not have hardness-based evaluation criteria. As indicated in Table

5.2.2-34, aluminum, arsenic, iron, and manganese have maximum P90 concentrations that exceed their associated evaluation criteria. However, only arsenic has a maximum P90 NorthMet Project Proposed Action concentration greater than corresponding CEC concentration; therefore, it is retained for further evaluation in secondary screening (Table 5.2.2-32).

Table 5.2.2-34 Colby Lake – Maximum P90 Solute Concentration Over Entire 200-Year Simulation with Initial Screening of Constituents without Hardness-Based Evaluation Criteria

Parameter	Colby Lake Evaluation Criteria	Units	CEC Scenario	PA	% Change from CEC Scenario
General					
Alkalinity	NA	mg/L	130	129	-0.3%
Calcium	NA	mg/L	35.1	35.1	0%
Chloride	230	mg/L	15.3	15.3	-0.2%
Fluoride	4	mg/L	0.19	0.19	0.2%
Hardness	500	mg/L	133	133	-0.3%
Magnesium	NA	mg/L	14.0	14.0	0%
Potassium	NA	mg/L	4.00	3.97	-0.6%
Sodium	NA	mg/L	12.0	12.0	0.1%
Sulfate	250	mg/L	69.8	69.3	-0.9%
TDS	500	mg/L	150	150	-0.1%
Metals Total					
Aluminum[2]	125	µg/L	266	266	-0.3%
Antimony	5.5	µg/L	0.26	0.48	85.9%
Arsenic	2	µg/L	2.44	**2.46**	0.9%
Barium	2,000	µg/L	16.7	16.9	1.1%
Beryllium	4	µg/L	0.11	0.12	6.7%
Boron	500	µg/L	167	167	-0.2%
Cadmium	NA[1]	µg/L	0.17	0.20	18.5%
Chromium III	NA[1]	µg/L	1.28	1.28	-0.1%
Cobalt	2.8	µg/L	1.22	1.26	3.3%
Copper	NA[1]	µg/L	9.83	9.88	0.5%
Iron[2]	300	µg/L	5,043	5,034	-0.2%
Lead	NA[1]	µg/L	1.26	1.31	3.4%
Manganese[2]	50	µg/L	207	202	-2.2%
Nickel	NA[1]	µg/L	4.42	5.43	22.9%
Selenium	5	µg/L	1.29	1.29	0.3%
Silver	1	µg/L	0.11	0.11	0.9%
Thallium	0.28	µg/L	0.07	0.08	0.5%
Vanadium	NA	µg/L	1.83	2.03	11.3%
Zinc	NA[1]	µg/L	26.7	27.6	3.6%

Source: PolyMet 2014v.

Notes:
CEC = Continuation of Existing Conditions
PA = NorthMet Project Proposed Action
Bold value indicates the constituent is retained for secondary screening
[1] Parameter has a hardness-based evaluation criterion and is screened using the secondary screening procedure (see Table 5.2.2-32).
[2] Carried forward to secondary screening because it is a constituent of interest.

Table 5.2.2-34 above also shows the percent change from the CEC scenario model results. The percent change can appear quite large, but the absolute change is quite small, especially when compared with the evaluation criteria. A good example is nickel, which has a maximum P90 value that increases 22.9 percent, but the absolute increase is approximately 1 µg/L, and the NorthMet Project Proposed Action maximum P90 value (5.43 µg/L) is still well below the evaluation criteria (43.3 µg/L). Note that for aluminum, iron, and manganese, the maximum P90 concentration for CEC is lower than the comparable value for the NorthMet Project Proposed Action. For arsenic, the CEC value is lower by 0.9 percent.

All constituents evaluation for Colby Lake passed secondary screening, so no further analysis is required. However, four constituents were evaluated further because they are of interest.

Aluminum

Model results indicate that the maximum P90 concentration of aluminum (266 µg/L) would exceed the evaluation criteria (125 µg/L) in Colby Lake, just as it is predicted to exceed along most of the Partridge River (see Figure 5.2.2-36). Though intial screening shows a slight decrease in concentraions, this constituent was retained for secondary screening (see Table 5.2.2-32) and is discussed further below.

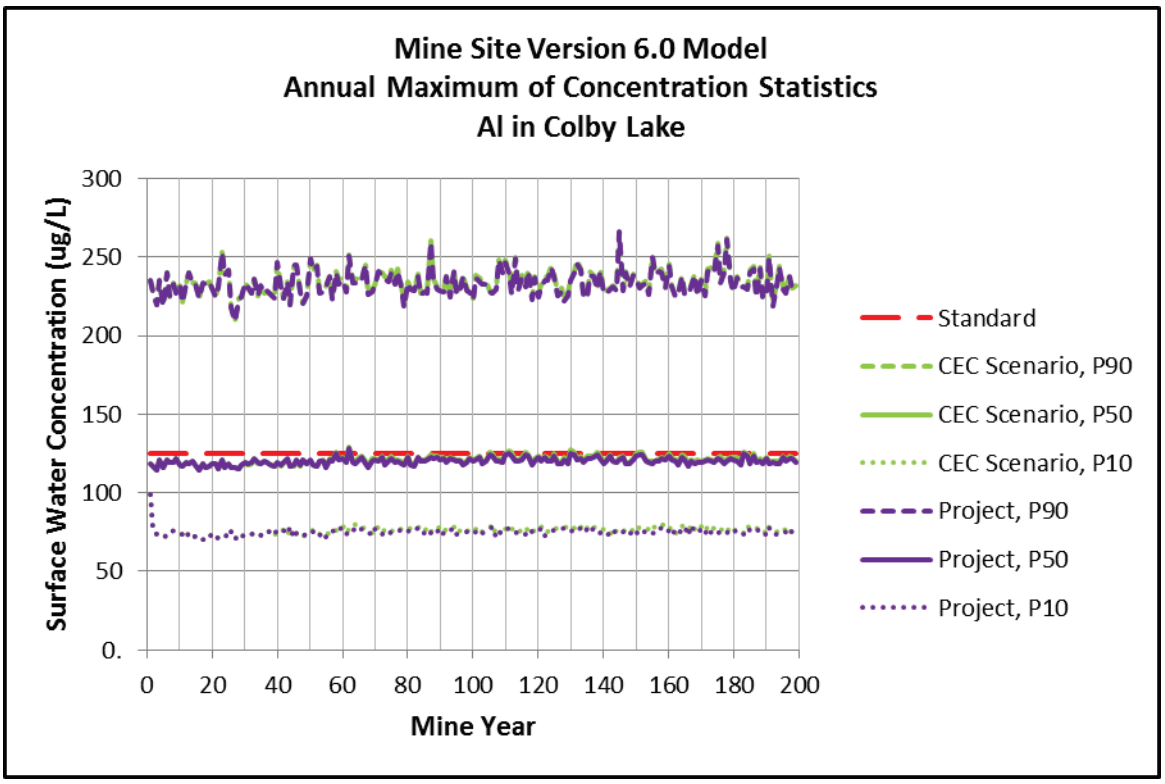

Source: PolyMet 2014v.

Figure 5.2.2-36 Colby Lake Annual Maximum Aluminum Concentrations

Higher aluminum concentrations would typically occur between April and November, when surface runoff would contribute proportionately more to river flow than groundwater baseflow. Concentrations of aluminum in background surface non-contact water would exceed the water quality evaluation criteria approximately 20 percent of the time, whereas aluminum in groundwater would almost never exceed the evaluation criteria.

As indicated in Table 5.2.2-34 and Figure 5.2.2-36, the NorthMet Project Proposed Action would not cause Colby Lake aluminum to increase in comparison to the CEC scenario. For P10, P50, and P90 annual maximum curves on Figure 5.2.2-36, the NorthMet Project Proposed Action curves are nearly identical to the CEC curves. In Table 5.2.2-33, the maximum P90 concentration for the Proposed Action (310.2 µg/L) is slightly less than the comparable P90 for CEC (314.9 µg/L). The conclusion is that aluminum would likely exceed the evaluation criterion in Colby Lake, but the NorthMet Project Proposed Action would not cause concentrations to be noticeably higher than what would occur without the NorthMet Project Proposed Action.

Further, aluminum has not been an issue for the City of Hoyt Lakes. For municipal drinking water, the City currently treats raw water from Colby Lake with alum and produces drinking water that meets applicable regulatory standards. The City is not required to monitor for aluminum, as there is no human health-based drinking water standard for aluminum.

Iron and Manganese

Because Colby Lake is used as a drinking water source by the City of Hoyt Lakes, the USEPA sMCL evaluation criteria apply: 300 µg/L for iron and 50 µg/L for manganese. Measured background iron and manganese concentrations in Colby Lake are high and usually exceed their respective evaluation criteria. Over 90 percent of the background iron samples exceed the iron evaluation criteria and approximately 80 percent of the manganese samples exceed the manganese evaluation criteria.

As shown in the initial screening Table 5.2.2-34 for Colby Lake, the GoldSim-predicted maximum P90 concentrations for iron and manganese exceed the applicable evaluation criterion and therefore require further evaluation. Table 5.2.2-35 shows GoldSim-predicted maximum P50 and maximum P90 concentrations for three NorthMet Project Proposed Action phases; operations, reclamation, as well as closure and long-term maintenance. The following observations are made from this table:

- All maximum P50 and maximum P90 values for iron and manganese exceed the applicable evaluation criterion for both the NorthMet Project Proposed Action and CEC scenarios.
- For manganese, all maximum P50 and maximum P90 values for the NorthMet Project Proposed Action are lower than the comparable CEC scenario (see Figure 5.2.2-38). It is therefore concluded that the NorthMet Project Proposed Action would not cause a manganese impact to Colby Lake above and beyond what would occur without the NorthMet Project Proposed Action.
- For iron, the maximum P50 and maximum P90 values for the NorthMet Project Proposed Action are lower than the comparable CEC scenario for the reclamation phase and the closure and long-term maintenance phase, but not for the operations phase. Iron for the operations phase therefore requires further evaluation.

Figure 5.2.2-37 is a plot of GoldSim-predicted monthly P10, P50, and P90 iron concentrations for iron in Colby Lake during the operations phase (mine years 0 to 20). Inspection of this figure shows that the P10, P50, and P90 lines for the NorthMet Project Proposed Action are either identical or extremely close to the comparable lines for the CEC scenario. Given this result and the observations made in Table 5.2.2-35, it is concluded that the NorthMet Project Proposed Action would not cause an iron impact to Colby Lake above and beyond what would occur without the NorthMet Project Proposed Action.

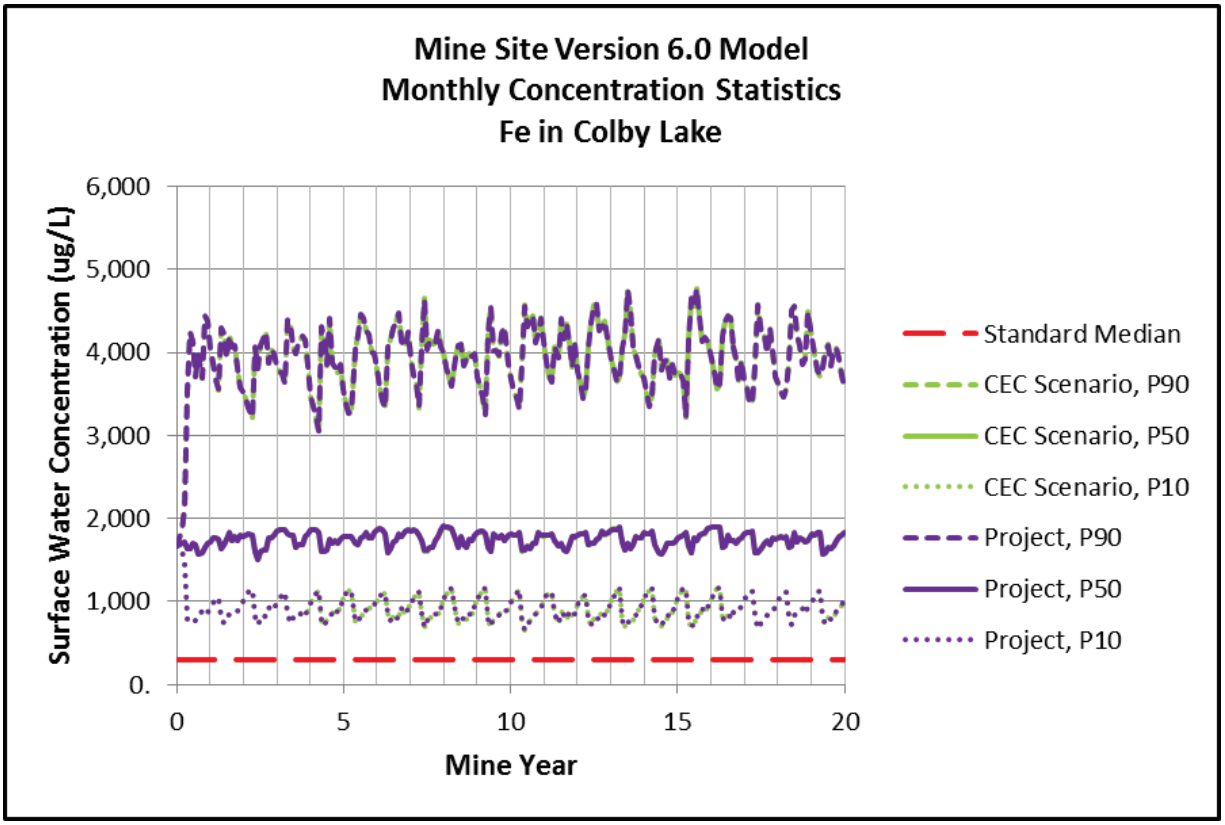

Source: PolyMet 2014v.

Figure 5.2.2-37 Monthly Iron Concentration in Colby Lake for the Operations Phase (Mine Years 0 to 20)

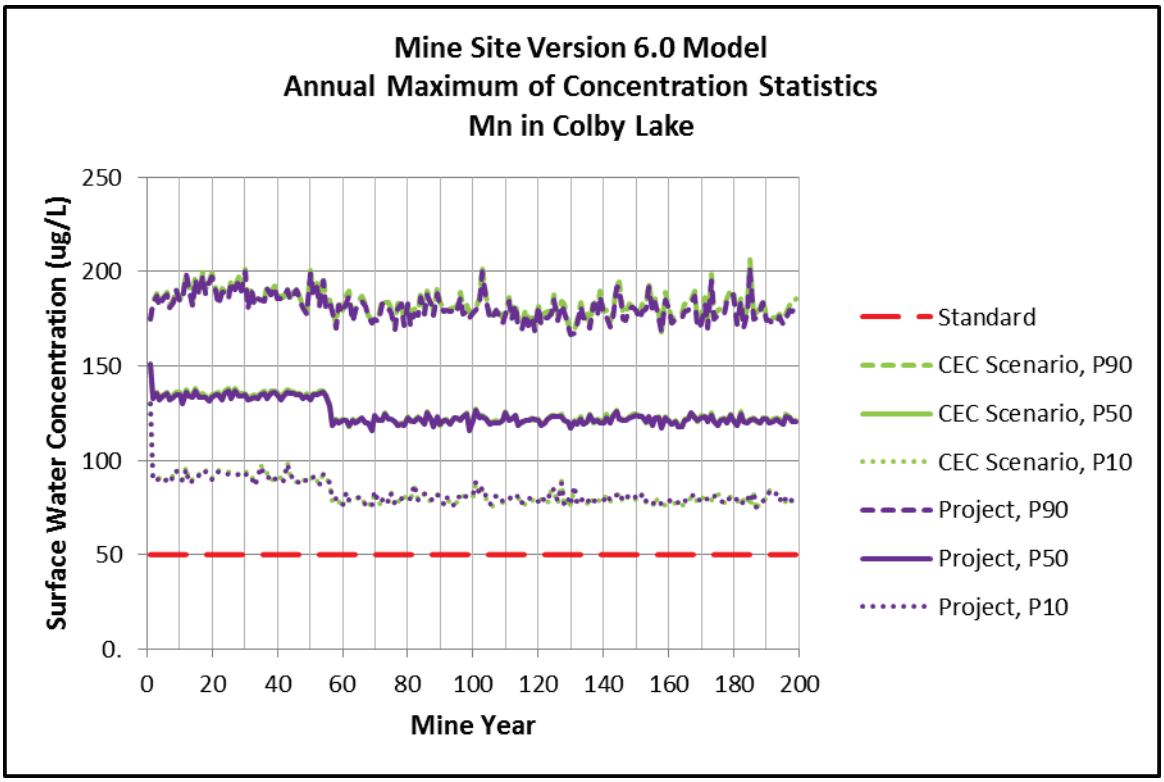

Source: PolyMet 2014v.

Figure 5.2.2-38 Colby Lake Annual Maximum Manganese Concentrations

Table 5.2.2-35 GoldSim-Predicted Maximum P50 and Maximum P90 Concentrations of Iron and Manganese in Colby Lake for Different Project Phases

Parameter	Evaluation Criterion	Operations (years 2-20)		Reclamation (years 21-55)		Post-Closure Maintenance (years 56-200)	
		PA	CEC	PA	CEC	PA	CEC
a. Maximum P50 of Annual Concentrations from GoldSim Output							
Iron	300	1,904	1,898	1,952	1,953	1,903	1,932
Manganese	50	136	138	137	138	129	130
b. Maximum P90 of Annual Concentrations from GoldSim Output							
Iron	300	4,771	4,763	4,931	4,932	5,034	5,043
Manganese	50	198	200	200	202	202	207

Notes:
CEC = Continuation of Existing Conditions
PA = NorthMet Project Proposed Action
Highlighted values indicate that the PA > CEC and both concentrations are above the evaluation criterion.

Arsenic

As shown by bold font in Table 5.2.2-34, the maximum P90 concentration for arsenic in Colby Lake (2.46 µg/L) exceeds the evaluation criterion (2 µg/L). As a consequence, the GoldSim-predicted arsenic in Colby Lake was identified as requiring secondary screening. Though it passed secondary screening, additional details are provided below because it is a constituent of interest.

GoldSim model output indicates that the dominating chemical controls on arsenic concentrations in Colby Lake are natural surface runoff, natural groundwater baseflow, and contaminant sources contributing directly to Colby Lake, all of which are not related to the NorthMet Project Proposed Action. While much less important, other sources include Northshore discharge which operates for mine years 0 to 55 and WWTF discharge to the Partridge River, which begins about mine year 52.

To investigate the source and significance of arsenic in more detail, Figure 5.2.2-39 is a plot of the predicted P10, P50, and P90 of annual maximum arsenic concentrations for years 0 to 200 (purple lines). Also shown (in red) is the Colby Lake arsenic evaluation criterion of 2 µg/L. As observed on the plot, the NorthMet Project Proposed Action concentrations are virtually identical to CEC concentrations up to mine year 52. After that time, the NorthMet Project Proposed Action concentrations are slightly higher than the CEC concentrations; however, the difference is less than about 0.05 µg/L. The slight increase in NorthMet Project Proposed Action concentrations after mine year 52 results from the partially offsetting effects of: 1) ending of low-concentration (1.33 µg/L) Northshore discharge to the Partridge River that provides a dilution effect in the Lake; and 2) the beginning of WWTF discharge to the Partridge River with an arsenic concentration of 4 mg/L, which increases the arsenic concentration in the Lake. This increase in loading from the WWTF is only partially offset by the decrease from the cessation of the Northshore discharge, so the overall result is a slight increase in Colby Lake arsenic concentrations after year 52. Also observed on Figure 5.2.2-39 is that only the annual maximum P90 concentrations exceed the standard.

Figure 5.2.2-40 compares *monthly* P10, P50, and P90 concentrations with the evaluation criteria for a representative time period after the beginning of mine-affected groundwater emerge in the Partridge River. As can be seen on the graph, when the P90 concentrations are predicted to exceed the standard (most notably during mine years 141 and 145), the NorthMet Project Proposed Action concentrations are virtually identical to the CEC scenario concentrations. An analysis of other time periods showed a similar result. This observation indicates that for conditions where the arsenic standard would be exceeded in Colby Lake, the NorthMet Project Proposed Action would not cause higher concentrations compared to what would occur for the CEC scenario. It is therefore concluded that the NorthMet Project Proposed Action would not cause arsenic exceedances in Colby Lake above and beyond what would occur without the NorthMet Project Proposed Action.

Finally, pilot testing of RO treatment concluded that arsenic is effectively removed by the greensand filter which produces filter effluent with arsenic concentrations that were well below the Class 2Bd water quality standard for all three sampling events (Barr 2013f) as well as the drinking water standard for Colby Lake (2 µg/L). Therefore, the assumed modeled effluent concentrations of the WWTF may be higher than what would actually be produced.

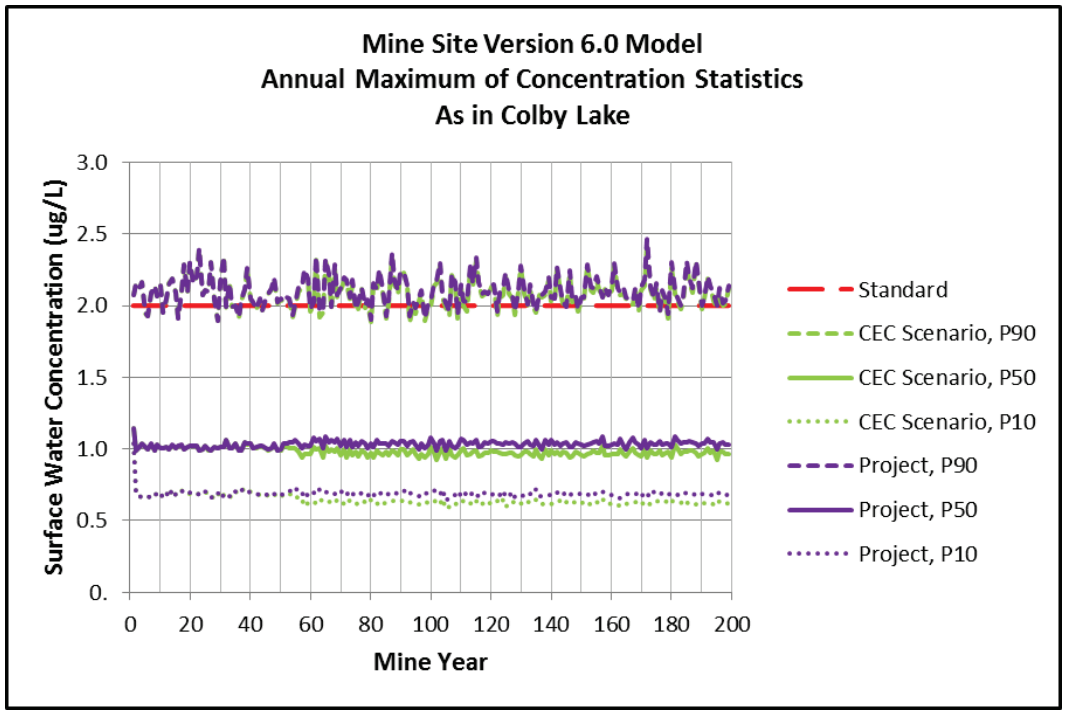

Source: PolyMet 2014v.

Figure 5.2.2-39 Colby Lake Annual Maximum Arsenic Concentrations

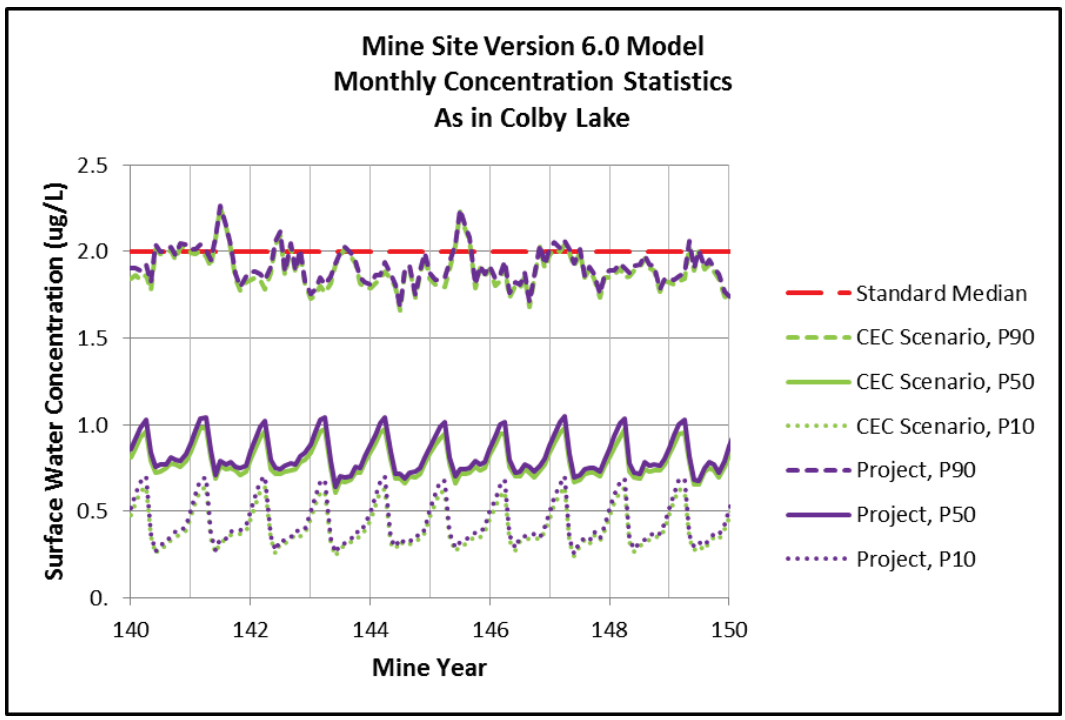

Source: PolyMet 2014v.

Figure 5.2.2-40 Colby Lake Monthly Arsenic Concentration Statistics

Whitewater Reservoir

The NorthMet Project Proposed Action is predicted to have negligible effects on water quality in Whitewater Reservoir because only high Partridge River flows would be diverted into the reservoir from Colby Lake, which would coincide with the periods when any contaminants from the NorthMet Project Proposed Action would be diluted and because the water quality of Colby Lake is predicted to meet evaluation criteria, prior to dilution, except for the four parameters (i.e., aluminum, arsenic, iron, and manganese) that are explained above.

Water Quality Effects in the Lower Partridge River

Although not specifically modeled, water quality in the Lower Partridge River would be expected to reflect the water quality condition of water flowing out of Colby Lake. As discussed above, under the NorthMet Project Proposed Action Colby Lake water is predicted to meet all water quality evaluation criteria other than for aluminum, arsenic, iron, and manganese, which are attributable to natural background conditions. The contaminant load in flow from Colby Lake attributable to the NorthMet Project Proposed Action would be further diluted downstream as the watershed area increases. The NorthMet Project Proposed Action would not result in any new surface water discharges (other than stormwater runoff from the processing plant area and Second Creek flow augmentation) or groundwater seepage that would affect the water quality of the Lower Partridge River that are not already accounted for in predicted upstream water quality.

These contaminant loads from the NorthMet Project Proposed Action, however, could contribute to cumulative effects in combination with contaminant loading from other projects. See Section 6.2.2.

Surface water currently seeps at a rate of approximately 227 gpm from the existing LTVSMC Tailings Basin to the headwaters of Second Creek. This seepage is currently partially blocked by a cutoff berm and trench and collected in a sump and pumped back to the Tailings Basin pond. Under the NorthMet Project Proposed Action, this seepage is predicted to continue during mine operations (550 gpm), reclamation, and closure and long-term maintenance (80 gpm). The NorthMet Project Proposed Action would install an engineered containment system south of the Tailings Basin designed to ensure that 100 percent of the seepage is captured during operations and closure and post-closure maintenance, this seepage would continue to be pumped to either the Tailings Basin pond or the WWTP. To mitigate the reduction of flow to Second Creek, under the NorthMet Project Proposed Action, WWTP effluent would be used to augment flow to Second Creek in closure at a minimum flow rate equal to about 80 percent of the uncaptured flow rate (or about 184 gpm). Since the effluent from the WWTP is designed to meet surface water quality standards, this discharge is not expected to cause any exceedance of water quality evaluation criteria.

NorthMet Project Proposed Action Solute Contribution Over Time

The NorthMet Project Proposed Action is predicted to meet most groundwater and surface water quality evaluation criteria at evaluation locations for all mine phases (operations, reclamation, and closure and post-closure maintenance). There is value, however, in understanding how the NorthMet Project Proposed Action would contribute to the solute load in the Partridge River over time.

The NorthMet Project Proposed Action would contribute contaminant loads to the Partridge River from seven groundwater sources: Overburden Storage and Laydown Area, Ore Surge Pile, Category 2/3 Stockpile, WWTF equalization basins, East Pit, West Pit, and the Category 1 Stockpile (which provides seepage to the West Pit and bedrock flowpaths). As shown in Table 5.2.2-36, four of these sources are temporary and would not be present during closure. The loadings from these features would not occur after the feature is removed and the associated peak concentrations in groundwater reaching the Partridge River would occur before 200 years. The East Pit, West Pit, and Category 1 Stockpile are permanent features that would continue to provide contaminant loading for a minimum of 200 years. Also contributing contaminant loads to the Partridge River would be the WWTF effluent discharge, which would continue to operate during closure and post-closure maintenance.

Table 5.2.2-36 Estimated Times for Affected Water to Reach the Partridge River

Source	Flow Rate from Source into Surficial GW Flowpath[3] (gpm)	Time Period that Source is Active[3] (Mine Year)	Time for Peak Loading at Partridge River[4] (Mine Year)
Overburden Storage and Laydown Area	14.0	0 to 20	60[(1)]
Ore Surge Pile	0.00116	0 to 21	155
Category 2/3 Stockpile	0.0194	0 to 20	55
WWTF Pond leakage	0.0135	0 to 52	160
East Pit	3.75	20 onward	150
West Pit (receives seepage from Category 1 Stockpile)	6.09	48 onward	160
WWTF discharge[2] (receives seepage from Category 1 Stockpile)	290	52 onward	52 onward

Notes:
GW = Groundwater
1 For most constituents, source causes a concentration decrease in the flowpath; reported time is for minimum river loading.
2 Discharge of WWTF effluent directly into the river.
3 Based on GoldSim deterministic run with P50 inputs.
4 Based on P50 results for GoldSim probabilistic run.

The backfilled East Pit, Category 1 Stockpile, and flooded West Pit would be the only permanent mine features and would continue to contribute solute load to the surficial aquifer that eventually releases to the Partridge River. The small volume of seepage from the Category 1 Stockpile that would not be captured by the containment system would contribute solutes to the West Pit. This seepage would be expected to reduce in quantity over time as the Category 1 Stockpile geomembrane and vegetative cover is established, although concentrations are not expected to improve because most solutes are at their concentration caps.

Under the NorthMet Project Proposed Action, the water levels in the West Pit would be controlled by water pumped to the WWTF for treatment. The WWTF is considered a long-term facility that would require ongoing maintenance.

The water quality of both mine pits, however, is predicted to improve over time as the pits become flooded, thereby effectively eliminating oxidation of the pit walls, the primary source of solutes, except for the upper few feet where water levels may fluctuate. Figures 5.2.2-41, 5.2.2-42, and 5.2.2-43 show how the water quality in the West Pit is predicted to improve over

time for three representative solutes: cobalt, nickel, and sulfate. It is expected that eventually the solute concentrations in the pits would stabilize to more or less steady-state values, although the timeframe for this would likely be greater than 200 years as indicated by Figures 5.2.2-41 to 5.2.2-43, which show solute concentrations continuing to decrease at year 200, although still above the evaluation criterion. These predicted improvements in water quality suggest that the WWTF may not need to operate permanently, but that at some point, non-mechanical treatment systems may be sufficient to meet water quality based effluent limits.

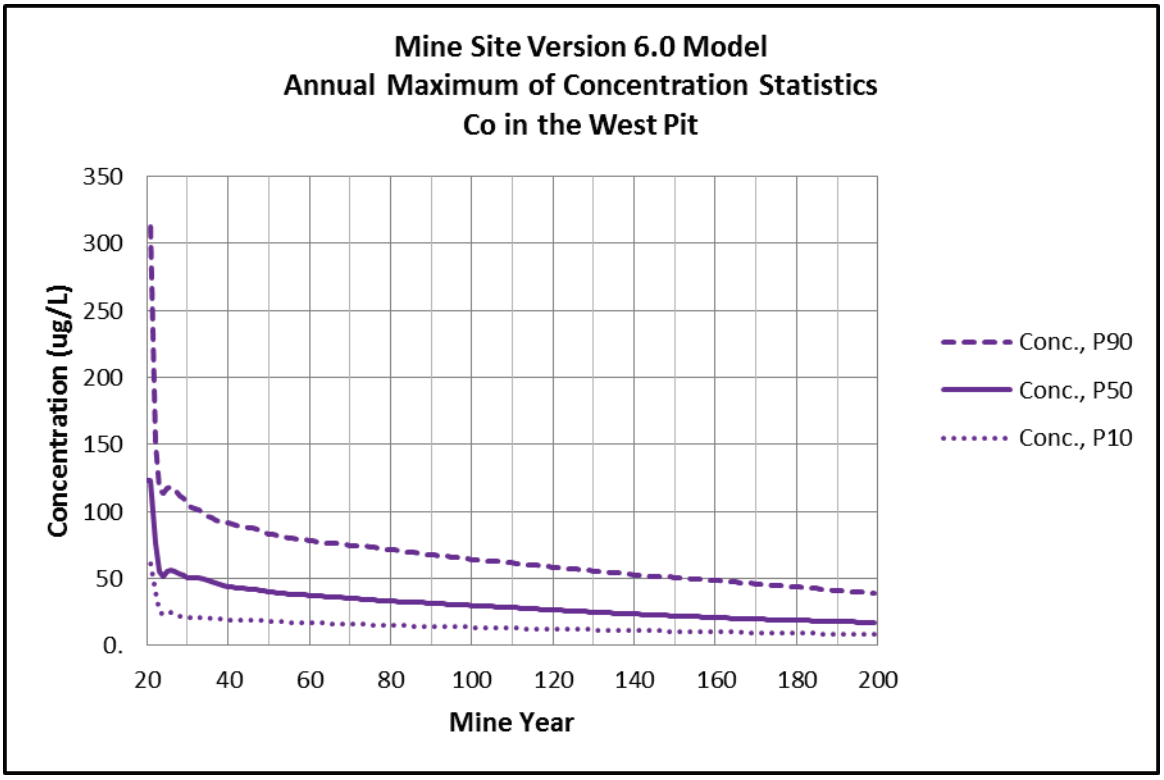

Source: PolyMet 2014v.

Figure 5.2.2-41 Cobalt Concentration in the West Pit during Reclamation, Closure, and Post-Closure Maintenance

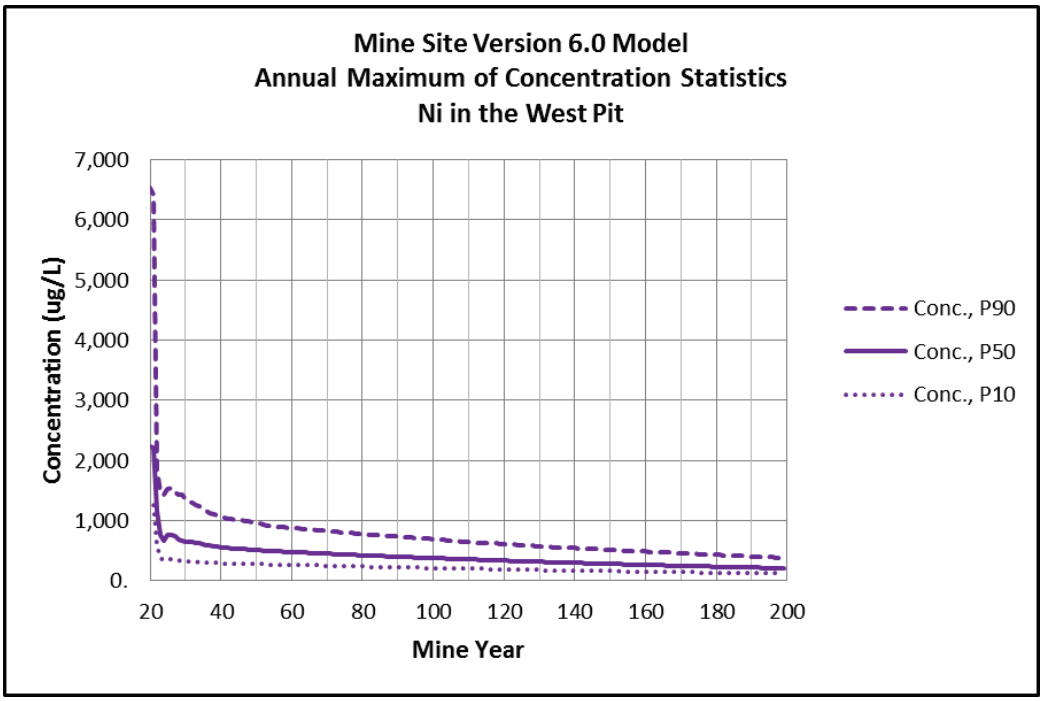

Source: PolyMet 2014v.

Figure 5.2.2-42 Nickel Concentration in the West Pit during Reclamation, Closure, and Post-Closure Maintenance

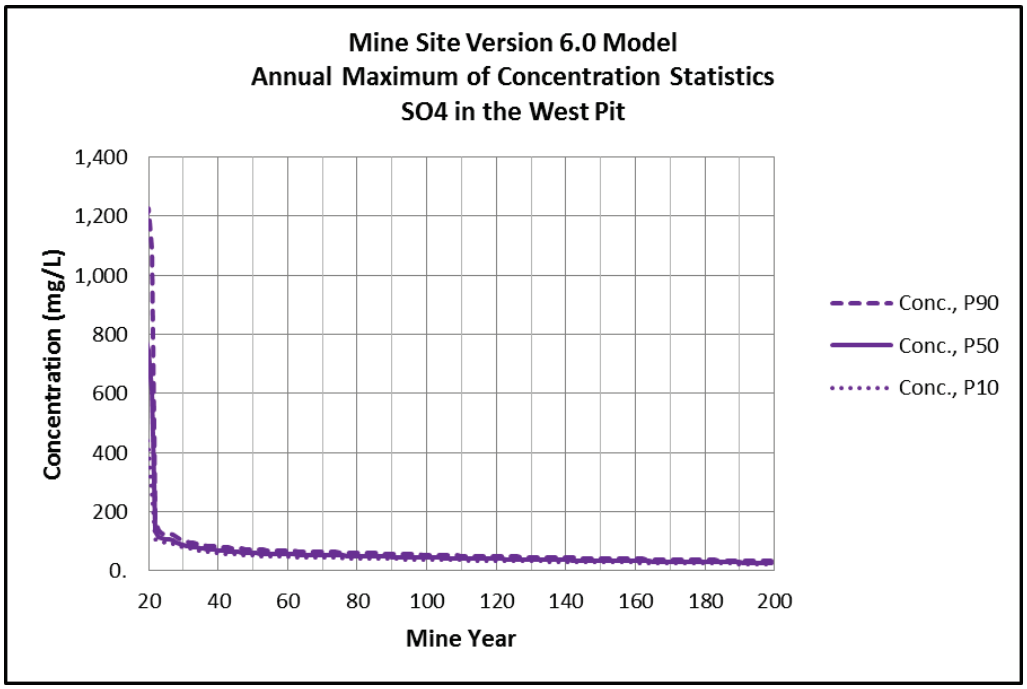

Source: PolyMet 2014v.

Figure 5.2.2-43 Sulfate Concentration in the West Pit during Reclamation, Closure, and Post-Closure Maintenance

The only long-term sources of solutes from the NorthMet Project Proposed Action would be groundwater seepage from the East Pit and West Pit (which includes Category 1 Stockpile seepage), with a combined total flow rate of about 10 gpm and the WWTF effluent discharge of about 290 gpm.

Sensitivity of Model Predictions to Hydrologic Inputs

The sensitivity of the GoldSim model was evaluated for changes to groundwater baseflow rates and climate change to determine what effect they have on model predictions. The following sections summarize the sensitivity analysis findings for the Mine Site.

High Groundwater Baseflow Scenario

An analysis of 2 years of stream flow data collected at SW-003 gave low-flow values of 1.2 to 1.8 cfs (MDNR 2013i), which are higher than the groundwater baseflow used in GoldSim at that location (0.51 cfs). Upon additional evaluation, the Co-lead Agencies concluded that the low-flow values determined from the SW-003 gaging data could not be used to reliably estimate groundwater baseflow due to the complicating effects of Northshore discharges that assuredly affected the SW-003 stream flows (MDNR et al. 2014b).

However, to investigate the theoretical effects of higher groundwater baseflows on model predictions, the Co-lead Agencies directed PolyMet to perform a high groundwater baseflow (HGB) scenario that increased groundwater baseflows at all locations in the Partridge River to 4 times higher than the values used to inform this FEIS. While this increase was not considered physically realistic, it provided an HGB scenario that could be used to assess FEIS model sensitivity to groundwater baseflow. The HGB scenario included a complete recalibration of the Mine Site MODFLOW model and recalibration of surface runoff concentrations using the current-conditions Goldsim model. Compared to the FEIS MODFLOW model, the HGB MODFLOW model (Barr 2015d, Appendix K) generally predicted:

- Faster groundwater migration in the surficial flowpaths and shorter travel times to evaluation locations;
- Slightly higher groundwater inflow rates into the West Pit and associated faster pit flooding; and
- Moderately higher groundwater inflow rates into the East Pit and associated faster backfill saturation.

The recalibrated HGB MODFLOW model did not predict a groundwater flow rate between the Central and West Pit via bedrock that is significantly different from the predictions of the FEIS model.

To evaluate water quality predictions, the results of the recalibrated MODFLOW model simulations were used as inputs to the HGB version of the GoldSim model. Because the adjustment of the estimated groundwater baseflow in the Partridge River changed the ratio of groundwater to surface water runoff in the river, the calibration process for estimating surface runoff chemical concentrations was repeated for HGB analysis as well.

Results of the HGB scenario were compared with the FEIS model results to evaluate the degree to which predicted the NorthMet Project Proposed Action impacts are sensitive to baseflow and related model inputs.

The HGB Goldsim model run predicted generally higher NorthMet Project Proposed Action-related chemical concentrations that would occur sooner than what was predicted in the FEIS model for some constituents. However, peak concentrations remained below evaluation criteria for most parameters. The HGB results showed that, although the estimated concentrations in the groundwater and surface water are moderately sensitive to Partridge River baseflows, the NorthMet Project Proposed Action's ability to comply with the applicable groundwater and surface water evaluation criteria is not a concern.

The comparison of the FEIS and HGB models indicate increased chemical loadings at the upgradient end of the flowpaths (due to higher groundwater flow rates). However, concentration increases due to the increased loading are offset by: 1) increased dilution from aquifer recharge water along the flowpath, and 2) increased dilution in the river from higher baseflows during winter low-flow conditions. In other words, for low (i.e., winter) streamflow conditions, the higher contaminant mass loading into the river was offset by dilution associated with the higher river groundwater baseflows.

Despite the conservative nature of this HGB GoldSim model, its predicted chemical concentrations remained below the applicable groundwater and surface water quality evaluation criteria (Barr 2015d, Appendix K).

Climate Change Sensitivity Analysis

The potential effects of a climate change upon the predictions of a GoldSim probabilistic model (the Project Model) were evaluated by running the "climate change sensitivity analysis." The ranges of precipitation and temperature input parameters were varied following the guidance provided by the Co-lead Agencies (Kellogg 2011). In summary, the Climate Change Sensitivity Analysis Model was set by increasing: 1) the mean annual temperature by 2.0 to 5.2 degrees Celsius, 2) the mean annual precipitation from 28.1 to 29.8 in/yr, and 3) the mean annual open water evaporation by 6.5 percent. The parameter values were linearly increased from mine year 1 to mine year 60 and, then, were kept constant. Such a modified model was used to run 200-year predictive simulations, similar to the Project Model.

The impacts of the modeled changes upon chemical concentrations in the East Pit pore water and West Pit Lake were analyzed for lead, sulfate, copper, and iron. The simulation results showed that the greatest changes would occur during closure and long-term maintenance (approximately mine year 45 and beyond). Lead concentrations in East and West Pits would change very little. The largest increase in sulfate concentration of 10.3 percent would occur in the East Pit wetland, but would change little outside of that wetland. The pattern of simulated changes in concentration for copper is similar to sulfate with the maximum change of 15 percent for the East Pit wetland. No significant changes in iron concentrations were simulated for any part of the modeled domain (Barr 2015d).

Climate change would affect water quality in the stockpile drainage in similar ways to the mine pit water. The largest simulated change in concentration was 5.1 percent for lead, 0.9 percent for sulfate, 0.3 percent for copper, and 0.2 percent for iron.

The changes in dewatering volumes for the Pits were simulated to be very small, the largest for the period of closure and long-term maintenance: 5.2 gpm. This would slightly increase the amount of water that would be treated. Likewise, the simulated changes in leakage flows from

the stockpiles were very small; the largest flow for the period of closure and long-term maintenance is 0.014 gpm for the Category 1 Stockpile (Barr 2015d).

Flow rates from the Pits to bedrock or surficial aquifers were not affected by the climate change simulation as this is controlled by pit water levels. Surface water quality also did not change much because all surface water discharged from the Mine Site would be treated by the WWTF.

5.2.2.3.3 Embarrass River Watershed

This section discusses potential environmental effects of the NorthMet Project Proposed Action on groundwater and surface water hydrology and quality within the Embarrass River watershed. The solute-generating NorthMet Project Proposed Action features in the Embarrass River Watershed are the Tailings Basin, the WWTP discharge, the Hydrometallurgical Residue Facility, and (much less significantly) domestic sewage treatment systems and/or potable water treatment backwash systems. These potential hydrologic and contaminant sources and their predicted effects on groundwater and surface water hydrology and quality are evaluated below.

Hydrometallurgical Residue Facility

PolyMet expects that the Hydrometallurgical Plant would begin operation between mine years 3 to 5. Residue would be transported to the Hydrometallurgical Residue Facility as a mixture of solids and water. The solids would settle out into the Hydrometallurgical Residue Facility, and the water would be returned to the Hydrometallurgical Plant for reuse. However, losses would occur during processing and through evaporation or storage within the pores of the deposited residue. The discharge from the Hydrometallurgical Plant to the pond is expected to be a constant 223 gpm through operations. Average annual flows from the Hydrometallurgical Residue Facility to the Hydrometallurgical Plant during operations range from 182 to 219 gpm (PolyMet 2015i). Precipitation falling within the drainage area of the Hydrometallurgical Residue Facility pond would be managed as process water.

The design of the Hydrometallurgical Residue Facility is based on State of Minnesota Rule requirements, expected residue generation rates, hydrology within the Hydrometallurgical Residue Facility, geotechnical considerations and Hydrometallurgical Residue Facility operating plans. Additional design considerations include the potential for water treatment plant solids (gypsum) to be disposed of within the Hydrometallurgical Residue Facility and the relocation of coal ash from the existing closed Coal Ash Landfill near the Tailings Basin (PolyMet 2014c).

The Hydrometallurgical Residue Facility would have a double geomembrane liner with a leachate collection system between the liners. The upper liner would consist of an 80-mil Linear Low Density Polyethylene geomembrane. This liner would serve as the primary barrier to leakage from the Hydrometallurgical Residue Facility. Its thickness was selected by PolyMet for durability and to resist ice impacts in the event of any temporary shutdowns of the hydrometallurgical process in winter months. The leakage collection layer would consist of a continuous layer of Geocomposite Drainage Net. The leakage collection layer would collect any leakage that passes through defects in the upper liner. The leakage collection layer is included in the liner system because even with application of industry-standard quality control procedures during installation of the upper liner, some installation defects can remain. The leakage collection layer directs leakage to a sump which then pumps it back to the Hydrometallurgical Residue Facility pond. The lower liner would consist of 60-mil Linear Low Density or High Density Polyethylene above a Geosynthetic Clay Liner. The lower composite liner would

provide a virtually leak-free barrier to prevent leakage that may pass through the upper liner from leaving the Hydrometallurgical Residue Facility (PolyMet 2014c).

The amount of water pumped from the leak collection system would be monitored on a long-term basis. For this reason, if the amount of pumping were to increase or if there were any other indications of increased leakage, appropriate repairs and mitigation measures would be undertaken. For these reasons, it is assumed for purposes of this FEIS that the leakage from this facility into underlying groundwater or adjacent surface water would be negligible and therefore is not further evaluated. Details on the design and operation of this facility are in Chapter 3. A detailed Residue Management Plan for this facility would be required during permitting (PolyMet 2014r).

Effects on Groundwater Hydrology

This section discusses the environmental consequences of the NorthMet Project Proposed Action on groundwater hydrology within the Embarrass River Watershed, specifically from the Tailings Basin and associated engineering controls. There are no other NorthMet Project Proposed Action area facilities within the Embarrass River Watershed that would affect groundwater hydrology.

As discussed in Chapter 3, PolyMet proposes to re-use the existing LTVSMC Tailings Basin. Seepage from the existing LTVSMC Tailings Basin has decreased since LTVSMC operations ended in 2001, reaching a current steady state of approximately 2,820 gpm with 2,590 gpm seeping from the Tailings Basin. Once the seepage reaches the toe of the Tailings Basin, it divides between flow that remains as groundwater (referred to as groundwater seepage) and flow that exceeds the hydraulic capacity of the aquifer and upwells to the surface (referred to as surface seepage). Under existing conditions, about 200 gpm of Tailings Basin seepage remains as groundwater and about 2,390 gpm upwells to the surface and ultimately contributes to surface water flow in the Embarrass River. The Tailings Basin seepage reaches the Embarrass River via its tributaries (Mud Lake Creek, Trimble Creek, and Unnamed Creek) and by flow through wetlands. On the southern side of the Tailings Basin, most of the seepage is collected and returned to the Tailings Basin. Some of this seepage is not captured and migrates to the Second Creek, a tributary of the Partridge River (PolyMet 2015j).

Groundwater seepage from the Tailings Basin flows into three flowpaths to the Embarrass River identified as the north, northwest, and west flowpaths (see Figure 5.2.2-9). On the eastern side of the Tailings Basin, because of the presence of bedrock outcrops, natural groundwater flow is toward the Tailing Basin. Essentially all of the groundwater that flows south toward Second Creek in the Partridge River Watershed would be captured and pumped back into the Tailings Basin.

The addition of tailings and changes in water management due to the NorthMet Project Proposed Action would result in increased seepage from the Tailings Basin relative to existing legacy LTVSMC seepage. As Table 5.2.2-37 indicates, seepage is predicted to increase from the current approximately 2,820 gpm to a maximum of 3,880 gpm during operations. Most of this seepage would travel to the north, northwest, and west of the Tailings Basin and could affect groundwater levels in those areas.

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Table 5.2.2-37 Tailings Basin Seepage

TB Toe	Continuation of Existing Conditions				Maximum Rates for Mine Years 0–25[1]					Long-Term Maintenance				
	TB Seepage	Seepage to GW	Surface Seepage	Collected Seepage	TB Seepage	Seepage to GW	Surface Seepage	Bypass to GW Flowpath	Collected Seepage	TB Seepage	Seepage to GW	Surface Seepage	Bypass to GW Flowpath	Collected Seepage
North	1,540	40	1,500	0	2,160	40	2,120	4	2,156	450	40	410	4	446
Northwest	440	50	390	0	680	50	630	5	675	400	50	350	5	395
West	610	110	500	0	880	110	770	11	869	670	110	560	11	659
South	230	0	0	230	550	0	550	0	550	80	0	80	0	80
East	0	0	0	0	310	0	310	0	310	20	0	20	0	20
Total	2,820	200	2,390	230	3,880[4,7]	200	3,680[5,7]	20	3,860[6,7]	1,620	200	1,420	20	1,600
To Embarrass River	2,590[2]				20[3]					20[3]				

Source: PolyMet 2015j.

Notes:
All flows in gpm.
1 Maximum rates occur at different times at different toes.
2 Combination of surface seepage and groundwater.
3 Groundwater only.
4 Maximum total for single month within the time range of 0–25 years.
5 Maximum total minus seepage to groundwater.
6 Maximum total minus bypass to groundwater flowpaths.
7 Not a summation of values above.

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The NorthMet Project Proposed Action would increase Tailings Basin seepage rates by 1,060 gpm from existing conditions. The hydraulic capacity of the surficial aquifer would not change. This increase in upwelling could have a significant effect on downgradient wetlands and waterways. Therefore, PolyMet proposed that the containment system would wrap around the northern, northwestern, and western sides of the Tailings Basin. This system is designed to capture 100 percent of the surface seepage and 100 percent of the groundwater seepage, but is conservatively modeled to collect 100 percent of surface seepage and only 90 percent of the groundwater seepage to account for possible construction flows and by-pass in deeper bedrock. Another containment system, assumed to have 100 percent capture efficiency, would be constructed along a portion of the eastern side of the Tailings Basin. Figure 5.2.2-14 and Figure 5.2.2-15 show the capture system hydraulics. As Table 5.2.2-37 indicates, the net effect of the containment system would be to decrease groundwater seepage from the Tailings Basin downgradient of the containment system from approximately 200 to 20 gpm. This decrease in groundwater seepage would be mitigated by a proposed flow augmentation program, which is described later in this section.

As Table 5.2.2-37 indicates, seepage from the Tailings Basin to the Embarrass River Watershed is predicted to decrease from the estimated current rate of 2,820 gpm to about 1,620 gpm at closure under the NorthMet Project Proposed Action, which is approximately a 42 percent decrease. The surface and groundwater seepage containment system would remain in place, which would capture all but an estimated 20 gpm of Tailings Basin seepage. The decrease in groundwater seepage would not be expected to have a significant effect on wetlands or tributaries downgradient of the surface and groundwater seepage containment system because of proposed flow augmentation, which would maintain surface flows within ± 20 percent of existing conditions. There would be sufficient natural aquifer recharge to maintain saturation in the surficial (unconsolidated) unit. The effects of the containment system on surface water hydrology are discussed later in this section.

Effects on Groundwater Quality

The NorthMet Project Proposed Action could affect surficial groundwater quality within the Embarrass River Watershed by leaching metals, sulfate, and other solutes from the NorthMet Tailings Basin. However, current conditions at the Tailings Basin are already affecting the groundwater. The following two subsections offer a summary comparison between the current conditions and the conditions projected to take effect as a result of the NorthMet Project Proposed Action.

Current Conditions

Under current conditions, the seepage emerging from the LTVSMC Tailings Basin at its northern, northwestern, and western toes feeds groundwater (at a rate of about 200 gpm) and surface waters at a rate of about 2,390 gpm). All the seepage-affected groundwater and surface water migrates to the Embarrass River via its tributaries, through wetlands and via groundwater migration along the northern, northwestern, and western groundwater flowpaths (see Figure 5.2.2-9). Tailings seepage from its southern toe is partially collected and returned to the Tailings Basin. Groundwater flows toward the Tailings Basin at its eastern toe, so the seepage in that part of the toe does not affect the environment either.

Proposed NorthMet Project Proposed Action Conditions

The only untreated Tailing Basin water entering the surrounding environment would be groundwater bypassing the northern, northwestern, and western parts of the containment system at a rate of 20 gpm. This 20 gpm represents a conservative engineering assumption (actual rate may be lower). This signifies a 90 percent reduction of the groundwater flow rates occurring under current conditions (20 gpm vs. 200 gpm). Most of the seepage-affected groundwater bypassing the containment system would flow along the north, northwest, and west flowpaths towards the Embarrass River and would affect downgradient groundwater quality (see Figure 5.2.2-9).

Several sources would contribute solutes to the Tailings Basin, including both the existing LTVSMC tailings and NorthMet Project Proposed Action tailings themselves, Mine Site process water (which could be pumped to the Tailings Basin through year 11, and possibly through year 20 depending on the NorthMet Project Proposed Action water budget), Colby Lake makeup water, and a negligible amount of watershed runoff.

The contribution from the Mine Site (to the Tailings Basin's water quality) would be influenced by the predictions of stockpile leachate and mine pit water quality and the ability of the WWTF to achieve design effluent concentrations prior to pumping to the Tailings Basin.

Some solutes can be released from tailings by direct dissolution of minerals, but solutes of concern are primarily released by oxidation of sulfide minerals in the tailings. The oxidation rate in tailings, and thus the rate of solute release, is typically limited by the rate that atmospheric oxygen can diffuse into the facility. The diffusion of oxygen and the rate of oxidation and associated solute release would depend strongly on the tailing's moisture content, where higher moisture content corresponds to lower rates of oxygen diffusion and associated oxidation and contaminant release. Thus, the unsaturated tailings in the embankment and beach areas are expected to have higher oxidation rates than the saturated tailings below the pond.

Laboratory testing indicated that average sulfur concentration in the NorthMet tailings would be 0.12 percent, which is low enough to ensure that the tailings would not produce acidic leachate. Pore water metal concentrations could increase dramatically if pH were to decrease, especially for nickel and cobalt (SRK 2007c). The oxyanions (arsenic, antimony, and selenium), however, tend to have increasing solubility with higher pHs.

Testing of tailings containing 0.2 percent sulfur by the MDNR from the nearby Babbitt prospect within the Duluth Complex did not result in acidic leachate because silicate weathering was sufficient to neutralize the acid produced. Humidity cell test results for NorthMet Project Proposed Action tailings have tended to support the research by the MDNR and the results from the Babbitt Deposit (Day 2008). Leachate showed an initial decline in pH, but has subsequently remained between 6.0 and 7.8 with no trend toward lower pHs.

Solutes released by oxidation (primarily sulfate and metals) would be mobilized and flushed from the tailings by percolating water. The rate of percolation would depend on the net infiltration of meteoric water at the tailing's surface and the rate of pond leakage. The seepage from the NorthMet Project Proposed Action tailings would pass through the underlying existing LTVSMC tailings (i.e., previous taconite tailings). These underlying tailings may attenuate to some extent the metals leached from the NorthMet Project Proposed Action tailings, or may contribute additional solutes to seepage, or both.

The Tailings Basin pond would receive: 1) treated Mine Site process water (during mine operations); 2) tailings slurry water from Processing Plant (during mine operations); 3) captured untreated seepage from Tailings Basin's toes; 4) rainfall, snowmelt, and local storm runoff; 5) filtered backwash from the WWTP; 6) sewage treatment effluent; and 7) treated water from WWTP.

The Tailings Basin pond, in turn, would become a primary source of contaminants due to the pond's infiltration into the tailings. Therefore, the chemical composition of the Tailings Basin's pond water (becoming a permanent feature of the Tailings Basin) would be an important influence upon the quality of water that would be discharged from the WWTP and seep from the Tailings Basin.

Consequently, PolyMet proposes to use the WWTP to treat the pond water during reclamation, and as necessary during closure, to improve the pond's water quality. The presence of the pond in closure would provide benefits as it would create a saturated layer that would permanently reduce oxygen diffusion and associated solute release in the underlying tailings.

Engineering Controls

The LTVSMC Tailings Basin is not lined. Several tailings and water management options were considered in the development of the NorthMet Project Proposed Action (Chapter 3 alternatives section). The NorthMet Project Proposed Action does not include a liner for the Tailings Basin. In lieu of a liner, PolyMet proposes the following engineering controls to reduce the release and transport of solutes from the Tailings Basin:

- Collection of Tailings Basin's seepage by surface and groundwater seepage containment systems;
- Bentonite amendment of the existing tailings dam to reduce infiltration;
- Installation of bentonite amendment of the Tailings Basin's beaches to reduce infiltration and oxygen diffusion into Tailings;
- Bentonite amendment of pond bottom to reduce leakage into tailings; and
- Mechanical treatment of the collected tailings seepage and pond water by the WWTP.

Tailings Basin Containment System

The containment system would be installed prior to plant operations and would consist of a surface water and groundwater collection system along the outside perimeter of the Tailings Basin where seepage has the potential to enter the surficial aquifer and adjacent surface waters (see Figure 3.2-28). The design includes a hydraulic barrier (cutoff wall) that would be keyed into bedrock, and a collection trench and drain pipe installed on the upgradient side (see Figures 5.2.2-14 and 5.2.2-15). Above the hydraulic barrier would be a berm to stop surface seepage from leaving the site. The trench and piping would convey the collected seepage to several pumping stations, which would pump the seepage to either the Tailings Basin pond for re-use, or to the WWTP for treatment prior to discharge. The containment system would continue to operate during reclamation, and closure and long-term maintenance, although in those phases, the seepage could not be re-used as process water, but would be treated at the WWTP and used to accelerate filling of the West Pit (during reclamation) and for streamflow augmentation

(during reclamation and closure). Figure 5.2.2-14 illustrates the functioning of the proposed containment systems along the north-, northwest-, and west toes, while Figure 5.2.2-15 shows the functioning of the systems at the east toe. Considered together, the containment systems are designed to capture all of the Tailings Basin groundwater and surface water seepage; however, for purposes of impact evaluation they are assumed to capture:

- 100 percent of the Tailings Basin's surface seepage;
- 100 percent of the groundwater approaching the containment system from the Tailings Basin's east and south toes; and
- 90 percent of the groundwater approaching the containment systems from the Tailings Basin's north, northwest and west toes (PolyMet 2015d).

During operations, the maximum flows collected by the containment system would be 3,680 gpm originating as surface seepage and 180 gpm as groundwater seepage. During closure, the collection rates would be 1,420 gpm of surface seepage and 180 gpm of groundwater seepage.

Wastewater Treatment Plant

PolyMet proposes a WWTP to treat the Tailings Basin pond's water and tailings seepage collected by the surface and groundwater seepage containment systems. The WWTP would treat water throughout the entire mine life (operations, reclamation, and closure and long-term maintenance). The WWTP would treat all Tailings Basin seepage except the small quantity (approximately 20 gpm on average) that would bypass the containment systems. The WWTP would discharge treated effluent to augment streamflow during operations. During reclamation, some WWTP effluent would be pumped to the West Pit to accelerate its flooding. The level of water treatment at the WWTP would be sufficient to meet surface water evaluation criteria.

Bentonite-amended Tailings Cover

For the NorthMet Project Proposed Action during operations, PolyMet would cover the tailings dam embankments with a 12-inch-thick bentonite-amended soil layer, as allowed by construction activities. On top of the bentonite-amended layer would be an 18-inch-thick vegetated soil cover. After operations cease in year 20, PolyMet would place a similar two-layer cover on top of the dry tailings beaches. The objective of the cover system would be to: 1) reduce infiltration of meteoric water, and 2) maintain the bentonite layer at a high saturation to limit oxygen diffusion into the tailings.

Bentonite-amended Pond Bottom

PolyMet would also place a bentonite layer at the bottom of the tailings pond to reduce downward leakage of pond water into the tailings. The thickness and effective hydraulic conductivity of the bentonite layer would be designed to achieve a pond seepage flux of 6.5 in/yr or less.

Groundwater Transport and Evaluation Locations

Groundwater flow and solute transport away from the Tailings Basin towards the Embarrass River is tracked in three groundwater surficial flowpaths: north, northwest, and west (see Figure 5.2.2-9). Within each flowpath there is a groundwater evaluation location, coincident with the

property boundary, along which predicted solute concentrations are compared to the groundwater evaluation criteria to assess potential effects. Because solute effects on surface water are of interest, the solute concentrations at locations where groundwater releases to surface water (generally at or close to the Embarrass River) are also tracked in the model because it is required to interpret the surface water chemistry in the Embarrass River and its tributary streams.

For the North, Northwest, and West Surficial flowpaths, the time at which contaminants leached from the Tailings Basin would begin to affect water quality at their respective evaluation locations depends on the following variables:

- The amount of affected water that would seep past the Tailings Basin containment system. GoldSim conservatively assumes that 10 percent of the approaching groundwater would bypass the system and this would begin at time zero. Note that the analysis assumes that all tailings surface seepage is captured. The rate at which contaminants would move in groundwater would be the same as the groundwater seepage velocity downgradient of the containment system for all but four constituents (arsenic, antimony, copper, and nickel). Because no attenuation values are used for the constituents other than arsenic, antimony, copper, and nickel–the modeled rate of groundwater transport would be faster than the actual rate of transport in the ground. Note that this velocity would increase in the downgradient direction due to meteoric aquifer recharge that would add flow to the groundwater system. Transport of the four attenuated constituents would be 10 to 100 times slower than the groundwater flow because of sorption.
- The distance between the location of solute release (Tailings Basin containment system) and the flowpath evaluation location.
- The effects of hydrodynamic dispersion, which tends to spread out the leading edge of the solute plume.

To ensure that the water quality modeling would identify the potential effects on groundwater and surface water, a 500-year GoldSim probabilistic (Monte Carlo) simulation was performed. Lead was used to illustrate groundwater transport at the Plant Site because it is not attenuated and would enter the surficial flowpaths at concentrations higher than baseline groundwater. As a consequence, the movement of solute fronts associated with this constituent is readily discernible on concentration-versus-time and concentration-versus-distance plots for the modeled flowpaths. Transport of other non-attenuated solutes should be similar to lead, but the change in concentrations is not always as visually noticeable as it is for lead. Based on the GoldSim results, P90 lead concentrations at the evaluation locations and at locations where groundwater would release to surface water are shown on Figures 5.2.2-44 and 5.2.2-45, respectively.

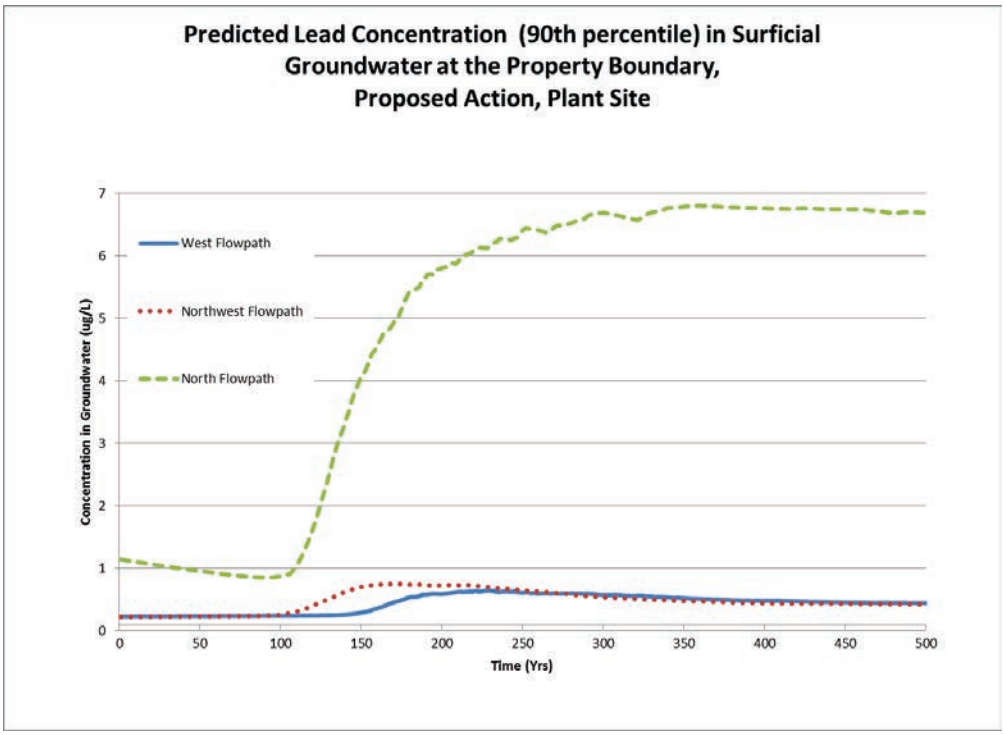

Figure 5.2.2-44 Predicted P90 Lead Concentrations at the Evaluation Locations Based on the GoldSim Probabilistic Simulation for the Plant Site

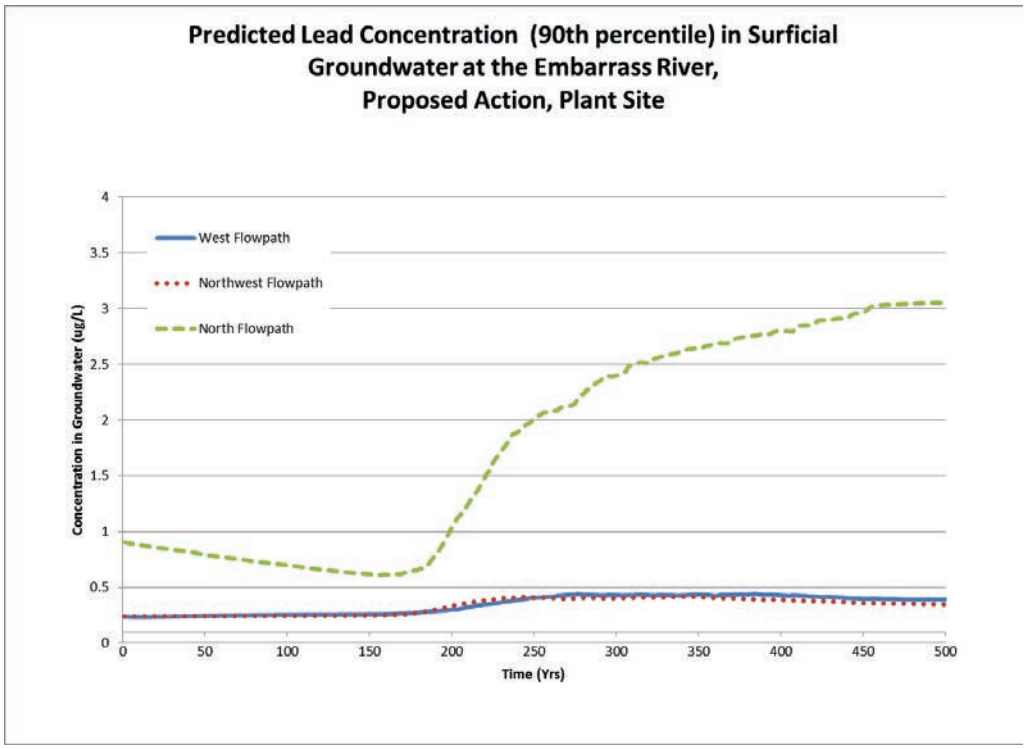

Figure 5.2.2-45 Predicted P90 Lead Concentrations at the Locations of Groundwater Release to Surface Water Based on the GoldSim Probabilistic Simulation for the Plant Site

Surficial Groundwater Quality at the Evaluation Locations

Results of a 500-year GoldSim water quality modeling simulation were reviewed for all 29 solutes at all three surficial flowpath evaluation locations. A screening process was used to identify any constituents and locations that warranted a more robust examination because of potential exceedances of water quality evaluation criteria. That process involved comparing the maximum P90 water quality prediction from among the 5,988 months covered by the simulation (i.e., 12 months times 499 years, with the first year of simulation excluded for screening review due to potential numerical artifacts in the model results) for each constituent at each of the three evaluation locations. These NorthMet Project Proposed Action modeled values were compared with both CEC scenario modeled values and the evaluation criteria (discussed previously). Each contaminant that was identified as exceeding the numerical evaluation criteria was then evaluated in more detail to understand the details and context of the potential exceedance.

Table 5.2.2-38 presents the maximum P90 values for the NorthMet Project Proposed Action Scenario and the CEC scenario in comparison with the groundwater evaluation criteria. Figure 5.2.2-46 illustrates the range of model predictions for each solute (minimum P10 to maximum P90 values) over the 500-year simulation. Figure 5.2.2-47 illustrates the relative difference between the NorthMet Project Proposed Action and CEC scenarios. If the values were the same, the relative change ratio would be 1; values greater than 1 indicate that the NorthMet Project Proposed Action would result in higher solute concentrations compared to the CEC scenario. Conversely, values less than 1 indicate that the NorthMet Project Proposed Action would result in lower solute concentrations than the CEC scenario.

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Table 5.2.2-38 Maximum P90 Groundwater Concentrations over a 500-year Model Simulation Period at All Evaluation Locations along Modeled Flowpaths in the Plant Site Surficial Aquifer

Parameter	Ground-water Evaluation Criteria[1]	Units	North Flowpath at Property Boundary		North Flowpath before MLC-2		Northwest Flowpath at Property Boundary		Northwest Flowpath before PM-19		West Flowpath at Property Boundary		West Flowpath before Embarrass River	
General			**PA**	**CEC Scenario**	**PA**	**CEC Scenario**	**PA**	**CEC Scenario**	**PA**	**CEC Scenario**	**PA**	**CEC Scenario**	**PA**	**CEC Scenario**
Alkalinity	NA	mg/L	241	243	199	200	205	220	172	179	190	201	171	175
Calcium	NA	mg/L	45.3	39.5	35.5	36.3	81.6	87.3	66.6	69.2	73.8	78.3	65.0	67.8
Chloride	250	mg/L	17.9	18.1	13.5	13.6	17.1	17.6	12.9	13.1	15.2	15.3	12.7	12.9
Fluoride	2.0	mg/L	3.4	3.4	2.5	2.5	0.1	0.1	0.16	0.13	0.18	0.18	0.18	0.18
Hardness	NA	mg/L	345	353	282	287	750	813	573	603	658	700	556	583
Magnesium	NA	mg/L	60.5	62.5	47.2	48.5	132.8	147	99.1	104.5	115.4	124.1	95.9	100.4
Potassium	NA	mg/L	8.3	8.4	6.6	6.6	8.3	9.3	6.5	6.8	7.4	8.1	6.4	6.7
Sodium	NA	mg/L	58.1	58.8	43.6	43.8	45.0	50.3	33.8	36.7	40.1	43.5	33.5	35.6
Sulfate[3]	250	mg/L	188	191	139	139	252	286	185	202	243	277	200	219
TDS[3]	500	mg/L	517	520	407	407	659	690	507	517	609	633	515	527
Metals														
Aluminum	NA	µg/L	68.0	41.2	73.6	55.1	69.4	47.9	74.9	58.1	72.7	52.9	69.4	55.9
Antimony	6.0	µg/L	0.41	0.40	0.42	0.41	0.39	0.45	0.41	0.40	0.41	0.43	0.41	0.41
Arsenic	10	µg/L	3.8	3.8	2.9	2.9	1.0	1.0	0.9	0.9	1.1	1.1	.99	.99
Barium	2,000	µg/L	177.7	179.1	148.2	148.8	70.3	46.5	75.7	58.6	73.6	53.7	70.1	59.8
Beryllium[2]	0.54	µg/L	0.26	0.28	0.22	0.25	0.31	0.65	0.24	0.49	0.27	0.59	0.24	0.49
Boron	1,000	µg/L	246.4	250	188	190	381.5	408	284	300	338	345	281	283
Cadmium	4.0	µg/L	0.38	0.16	0.22	0.14	0.15	0.21	0.14	0.18	0.15	0.21	0.14	0.18
Chromium III	100	µg/L	1.53	0.78	1.26	0.91	1.07	0.85	1.11	0.95	1.10	0.90	1.07	0.94
Cobalt	NA	µg/L	4.0	1.6	1.6	1.0	1.8	3.1	1.3	2.0	1.7	2.9	1.4	2.3
Copper	NA	µg/L	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5
Iron	NA	µg/L	1,770	1,907	1,307	1,320	3,884	4,441	2,833	3,119	3,668	4,242	3,003	3,350
Lead	NA	µg/L	6.80	1.15	3.1	0.90	0.75	0.27	0.42	0.26	0.64	0.30	0.44	0.27
Manganese[2, 3]	704	µg/L	434	311	376	319	971	1,110	778	844	865	958	754	808
Nickel	100	µg/L	4.0	3.9	4.4	4.4	5.0	5.0	5.0	5.0	5.2	5.2	5.1	5.1
Selenium	30	µg/L	1.11	0.79	0.95	0.80	0.86	0.86	0.88	0.84	0.87	0.89	0.87	0.83
Silver	30	µg/L	0.14	0.14	0.11	0.12	0.11	0.18	0.10	0.14	0.11	0.18	0.10	0.15
Thallium	0.6	µg/L	0.20	0.19	0.20	0.19	0.19	0.16	0.20	0.17	0.19	0.18	0.18	0.16
Vanadium	50	µg/L	6.2	5.1	5.9	5.3	5.1	3.1	5.5	4.2	5.3	3.7	5.4	4.2
Zinc	2,000	µg/L	32.6	13.7	21.4	14.5	14.8	8.9	15.4	11.6	15.4	10.5	14.7	11.7

Source: PolyMet 2015o.

Notes:
CEC = Continuation of Existing Conditions
PA = NorthMet Project Proposed Action
[1] References for the groundwater evaluation criteria are summarized in Table 5.2.2-2.
[2] The evaluation criterion differs by location based on background water quality (see Table 5.2.2-1).
[3] Not carried forward to secondary screening because NorthMet Project Proposed Action concentrations are below CEC scenario concentrations; however, additional discussion is provided.

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Several constituents in the initial screening table (Table 5.2.2-38) have NorthMet Project Proposed Action maximum P90 concentrations (over 500 years) that exceed evaluation criteria at evaluation locations in the Plant Site surficial groundwater flowpaths:

- Fluoride in North Flowpath at property boundary;
- Sulfate in Northwest Flowpath at property boundary;
- TDS in North Flowpath at property boundary;
- TDS in Northwest Flowpath at property boundary;
- TDS in West Flowpath at property boundary;
- Manganese in Northwest Flowpath at property boundary; and
- Manganese in West Flowpath at property boundary.

However, because the NorthMet Project Proposed Action Concentrations are equal to or lower than the CEC concentrations in all cases, they have not been identified for further evaluation beyond what is offered below.

Four constituents and associated evaluation locations are listed in Table 5.2.2-39. In this table, maximum P50 and P90 concentrations for the NorthMet Project Proposed Action are compared with analogous values associated with the CEC for three phases of the GoldSim 500-year simulation (operations, reclamation, and post-closure maintenance). In all cases the NorthMet Project Proposed Action maximum P90 concentration of a project phase is equal to or lower than the comparable maximum P90 concentration for CEC.

A further evaluation was performed by conducting a timestep-by-timestep analysis of the GoldSim results. The analysis indicated that over the 500-year simulation, there were no (monthly) timesteps for which the NorthMet Project Proposed Action P90 contaminant concentration was higher than the evaluation criterion ***and*** higher than the P90 concentration for CEC. The same result occurred when the comparison was made with P50 concentrations.

This assessment of the GoldSim results provides strong evidence that the NorthMet Project Propose Action would not cause impacts to Plant Site groundwater quality above and beyond what would occur without the NorthMet Project Proposed Action.

Table 5.2.2-39 GoldSim-Predicted Maximum P50 and Maximum P90 of Groundwater Concentrations at the Plant Site for Selected Constituents for Different Project Phases

Constituent	Units	Surficial Groundwater Flowpath	Evaluation Location	Evaluation Criterion	Operations (years 0–20)		Reclamation (years 20–56)		Post-Closure Maintenance (years 56–500)	
					PA	CEC	PA	CEC	PA	CEC
a. Maximum P50 of Annual Concentrations from GoldSim Output[1]										
Fluoride	mg/L	North	Property Boundary	2	2.84	2.84	2.49	2.84	2.03	2.86
Sulfate	mg/L	Northwest	Property Boundary	250	212	212	186	212	150	210
TDS	mg/L	North	Property Boundary	500	451	451	407	451	344	444
TDS	mg/L	Northwest	Property Boundary	500	570	570	510	570	422	567
TDS	mg/L	West	Property Boundary	500	501	501	459	501	391	501
Manganese	µg/L	Northwest	Property Boundary	704	860	860	785	860	681	854
Manganese	µg/L	West	Property Boundary	704	744	744	692	744	616	743
b. Maximum P90 of Annual Concentrations from GoldSim Output[2]										
Fluoride	mg/L	North	Property Boundary	2	3.38	3.38	3.04	3.38	2.62	3.41
Sulfate	mg/L	Northwest	Property Boundary	250	253	253	227	255	192	286
TDS	mg/L	North	Property Boundary	500	520	520	478	519	418	517
TDS	mg/L	Northwest	Property Boundary	500	662	662	601	662	519	690
TDS	mg/L	West	Property Boundary	500	610	610	565	611	497	633
Manganese	µg/L	Northwest	Property Boundary	704	974	974	902	989	803	1,110
Manganese	µg/L	West	Property Boundary	704	866	866	813	869	738	958

Notes:
CEC = Continuation of Existing Conditions
PA = NorthMet Project Proposed Action
[1] No timesteps for which PA > Criteria and PA > CEC for P50 concentrations.
[2] No timesteps for which PA > Criteria and PA > CEC for P90 concentrations.

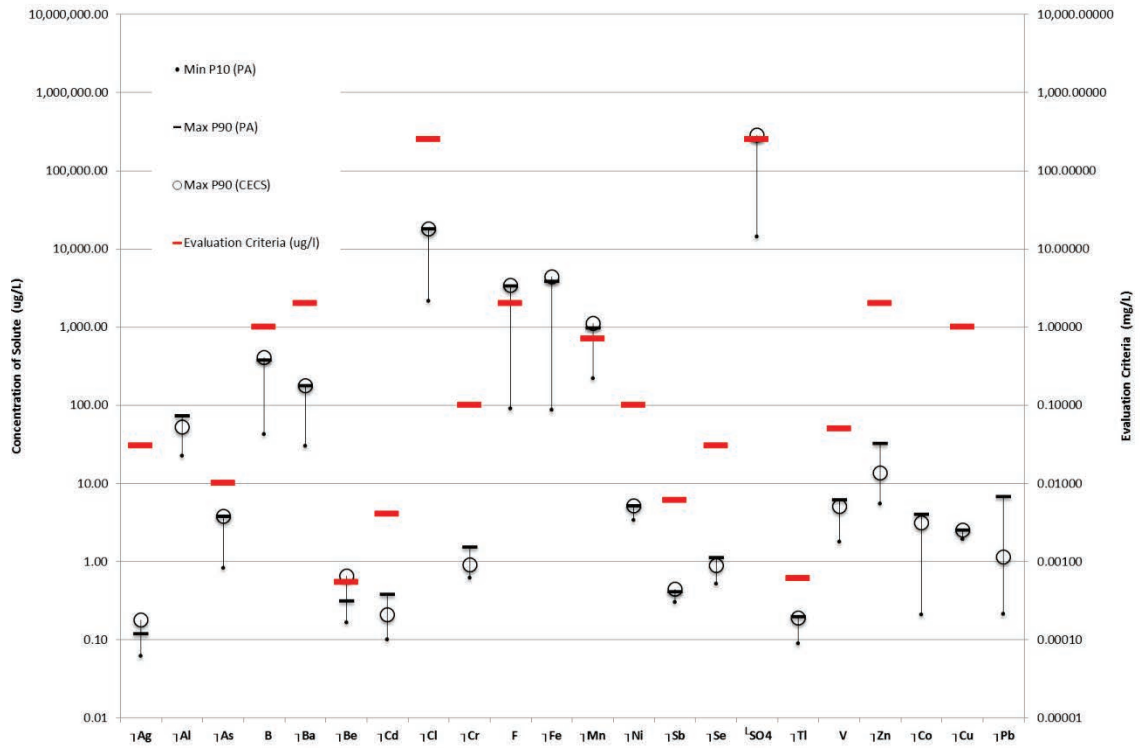

Note:
CECS = Continuation of Existing Conditions Scenario
PA = NorthMet Project Proposed Action
µg/L = microgram(s) per liter

Figure 5.2.2-46 Predicted Groundwater Concentration Ranges (Minimum 10th to Maximum 90th Percentile) at All Plant Site Surficial Groundwater Evaluation Locations Based on the GoldSim Probabilistic Model

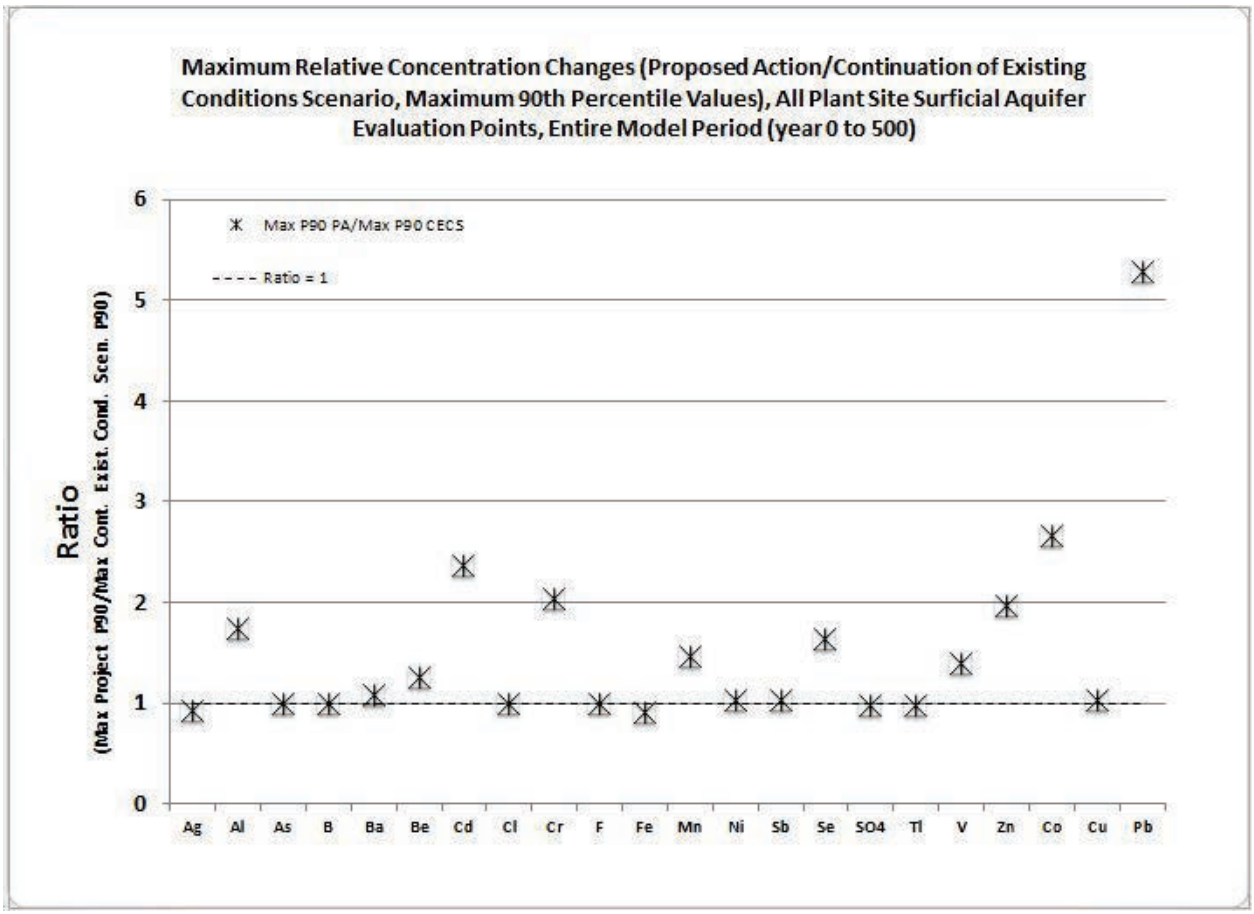

Figure 5.2.2-47 Maximum Relative Concentration Changes (NorthMet Project Proposed Action/CEC Scenario) at Surficial Aquifer Evaluation Locations, Entire Model Period

Effects on Surface Water Hydrology in the Embarrass River Watershed

This section describes the effects of the NorthMet Project Proposed Action on the surface water hydrology of the Embarrass River and its tributaries. The effects of the NorthMet Project Proposed Action on surface water hydrology, especially in the three tributary streams draining the Tailings Basin (i.e., Mud Lake Creek, Trimble Creek, and Unnamed Creek) are complex, as some project features/engineering controls would tend to increase flows while others would decrease flows and change over time. For example, during mine operations, the NorthMet Project Proposed Action would increase seepage from the Tailings Basin toe as a result of tailings deposition, but nearly all of this seepage would be captured by the containment system; this reduction in flow would, in turn, be mitigated by the proposed streamflow augmentation with treated water or the construction of a swale. The NorthMet Project Proposed Action would also slightly modify some watershed areas within the Embarrass River, which would affect streamflows. These NorthMet Project Proposed Action effects on surface water hydrology are described in more detail below.

The State of Minnesota aims to maintain existing flows to which streams and aquatic habitat have adapted. This may or may not be a pre-mining flow regime. In the case of the NorthMet Project Proposed Action where the existing LTVSMC tailings basin seeps water, containing the

seeps creates a need to discharge clean water within a range of existing flows to maintain existing hydrology, geomorphology, aquatic communities, connectivity, water quality, and biology (Chisholm 2006).

Mud Lake Creek Watershed Alteration

The Tailings Basin has a contributing watershed immediately to the east of Cell 1E that provides groundwater and surface water flow into the Tailings Basin. The East Dam would be constructed to enable tailings deposition into Cell 1E. The watershed that currently drains into Cell 1E would be rerouted via a constructed drainage swale to drain to the headwaters of Mud Lake Creek. In addition, a containment facility with a cut-off wall would be constructed adjacent to the east embankment, and this would divert groundwater east of the Tailings Basin into the swale as well (see Figure 5.2.2-48). There would be no need for augmentation to Mud Lake Creek because of the additional runoff water diverted to the stream (PolyMet 2015j). Figure 5.2.2-48 shows the approximate location of the drainage swale. Construction of the swale diversion would increase the Mud Lake Creek Watershed area at MLC-3 from 1.34 mi^2 to 2.24 mi^2 (PolyMet 2015j, Appendix B).

Effects on Embarrass River Tributary Streamflow

The NorthMet Project Proposed Action includes construction of surface water and groundwater seepage containment systems along the sides of the Tailing Basin. The containment system on the north, northwest and west sides would capture all surface seepage and nearly all groundwater Tailings Basin seepage that would flow away from the Tailings Basin. In addition, a containment system would be constructed along the east embankment to prevent westward flowing groundwater and surface water fed by Spring Mine Lake from draining into the Tailings Basin. A containment trench would collect 100 percent of surface and groundwater tailings seepage that would occur at the east embankment as the Tailings Basin is raised. Seepage and local runoff captured by these systems would be pumped back into the Tailings Basin pond or to the WWTP. As indicated in Table 5.2.2-37, the containment systems would capture nearly all seepage entering the tributary streams. WWTP-treated effluent would be used to restore streamflows in the affected tributaries. This is referred to as augmentation.

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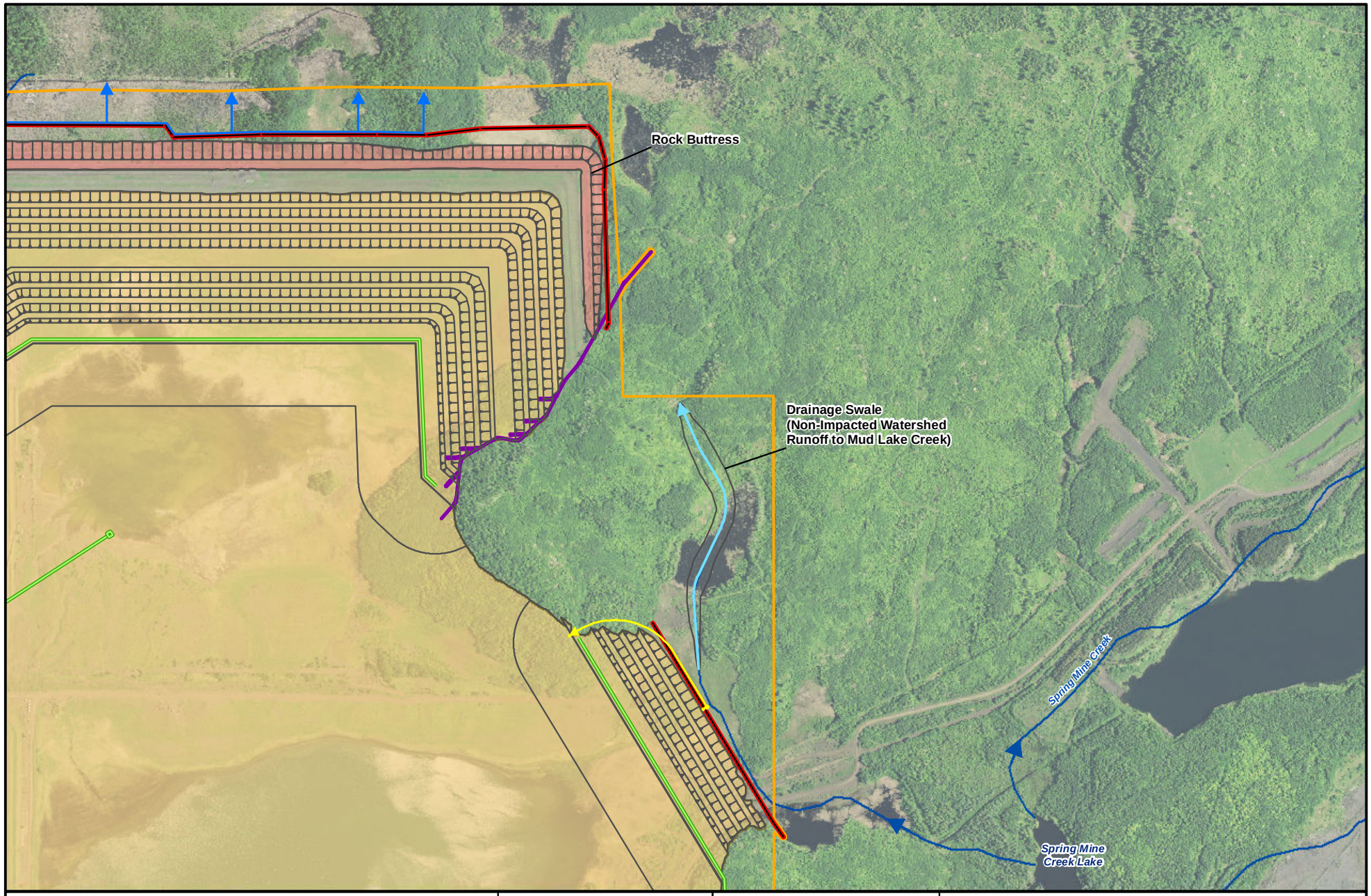

Plant Site
Drainage Flow Direction
Tailings Pipeline
Treated Water Discharge
Seepage Water Pipe
Containment System
Tailings Basin Emergency Overflow
Tailings Basin
Rock Buttress

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 250 500 1,000 1,500
Feet

Figure 5.2.2-48
Mud Lake Creek Headwaters Diversion
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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PolyMet has proposed to augment flow by distributing treated effluent from the WWTP among Unnamed Creek and Trimble Creek to maintain average annual flow to within ±20 percent of existing conditions to maintain hydrology and existing aquatic ecology. To ensure there would be enough treated effluent from the WWTP to augment the tributary streamflow, water from Colby Lake and if required, the optional Hydrometallurgical Residue Facility Wick Drain System (if installed), would be sent to the WWTP to be treated to increase the treated effluent available. Volumes for withdrawal are shown in Table 5.2.2-40.

Table 5.2.2-40 Plant Site Water Appropriation During Operations

Water Source Location	Source Water	90th Percentile Maximum Estimated Daily Volumes (Million Gallons per Day)	90th Percentile Maximum Estimated Annual Volume (Million Gallons per Year)
Colby Lake	Surface Water	15.1 MGD (Mine Year 1)	1,300 MGY (Mine Year 1)
Hydrometallurgical Residue Facility Wick Drain System[1]	Groundwater	TBD in permitting	TBD in permitting

Source: PolyMet 2015i.

Note:
[1] The Hydrometallurgical Residue Facility wick drain system is an optional feature of the Hydrometallurgical Residue Facility and, if required, would tie into the FTB Containment System for collection. Appropriation quantities for the wick drain system would be determined in permitting, if required.

The total flow required from the WWTP effluent to augment Trimble Creek, Unnamed Creek and Second Creek after construction of the Mud Lake Creek drainage swale would range from 1,698 to 3,442 gpm (Table 5.2.2-41) (PolyMet 2015j). Table 5.2.2-41 shows the minimum required and maximum allowable (plus or minus 20 percent of existing average annual tributary streamflow) augmentation that would be discharged on an average annual basis to each of the three tributaries for operations, reclamation and long-term maintenance. The discharge locations would be downstream of the surface and groundwater seepage containment system. Depending on site conditions, the augmentation water would be piped directly to the stream channels or released from a distribution pipe that parallels the North and Northwest containment system, whereas West of the Tailings Basin, augmentation flow to Unnamed Creek would be via a single discharge near the current SD-006 discharge.

Table 5.2.2-41 WWTP Flow Requirements for Stream Augmentation

Description	Trimble Creek (gpm)	Unnamed Creek (gpm)	Second Creek (gpm)
Minimum Requirement from WWTP	1,178	336	184
Maximum Allowable from WWTP	2,066	836	276
Expected Flows from WWTP (Operations)	1,190 – 1,890	340 – 540	185 – 295[1]
Expected Flows from WWTP (Reclamation)	1,180	336	184
Expected Flows from WWTP (Closure and Long-Term Maintenance)	1,485	423	232

Source: PolyMet 2015i, Table 2-3.

Note:
[1] Note the highest modeled flows to Second Creek did exceed the maximum allowable by about 20 gpm due to the simplified distribution of WWTP effluent in the modeling and the tight target flow range at SD-026. However, the high flow rate (295 gpm) is within the observed flows at SD-026 from July 1999 through September 2014 (range is from less than 10 gpm to nearly 2,500 gpm).

Figure 5.2.2-49 shows the predicted effectiveness of the proposed flow augmentation in maintaining annual average Embarrass River tributary streamflow within 20 percent of the CEC scenario. The graph only shows up to year 100 because the results are steady beyond year 70.

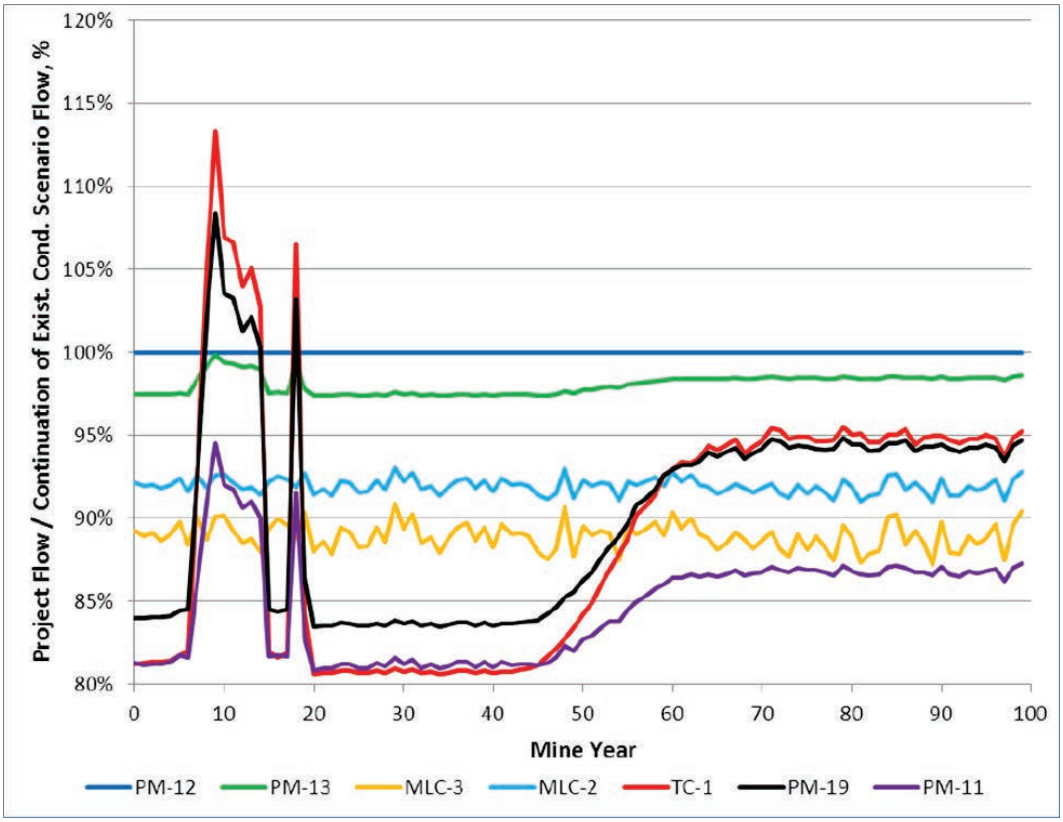

Source: PolyMet 2015j, Figure 6-82.

Figure 5.2.2-49 Average Annual Embarrass River and Tributary Flows in the NorthMet Project Proposed Action Model (Percent of CEC Scenario)

Hydrologic fluctuations throughout operations and reclamation would be due to changes in the available amount of WWTP effluent. At no time, however, would tributary flow change by more than the 20 percent from existing flows. Upstream of the NorthMet Project Proposed Action, at PM-12, the projected flow remains unchanged. Results for Mud Lake Creek show that starting in mine year 0 – upon construction of the drainage swale that would direct additional runoff into Mud Lake Creek the minimum required flow – 80 percent of existing conditions, is met at MLC-3 and MLC-2. Figure 5.2.2-49 shows that flow at MLC-3 and MLC-2 are relatively constant, indicating that the drainage swale is effective in preventing hydrologic impacts to Mud Lake Creek (PolyMet 2015j). Trimble Creek and Unnamed Creek show the effects of varying quantities of WWTP discharge, but at all times the NorthMet Project Proposed Action augmented stream flows are within 20 percent of the annual average CEC scenario. The effect of the NorthMet Project Proposed Action would decrease with distance downstream, as can be seen at PM-13, where the maximum change in flow would be approximately 3 percent in the annual average flow during operations, with a closure and long-term maintenance decrease of less than 2 percent (PolyMet 2015j).

Effects on Surface Water Quality

As shown on Figure 5.2.2-49, Embarrass River tributaries that would be affected by mine facilities include Unnamed Creek, Trimble Creek, and Mud Lake Creek. These tributaries currently receive Tailings Basin seepage with its associated water quality. Because the tributaries discharge into the Embarrass River, their flow rates and water quality affect Embarrass River concentrations.

Results of the GoldSim water quality modeling were reviewed for all 29 solutes at five tributary streams (i.e., MLC-2, MLC-3, TC-1, PM-19, and PM-11) (see Table 5.2.2-42) and three Embarrass River (i.e., PM-12, PM-12.2, and PM-13) evaluation locations (see Table 5.2.2-43). Model results for the NorthMet Project Proposed Action and CEC scenario are essentially identical at stations PM-12 and PM-12.2, the two stations that are upstream of the NorthMet Project area and thus would not be affected by the NorthMet Project Proposed Action. The differences in water quality between these two stations can be attributed to a significant chemical load (notably sulfate) that enters the Embarrass River just upstream of PM-12.2 via a tributary stream originating at the 5NW Pit.

An initial screening process was used to identify any constituents and locations that warranted a more robust examination because of potential exceedances of water quality evaluation criteria (see Table 5.2.2-42 for the Embarrass River tributary streams evaluation locations and Table 5.2.2-43 for the Embarrass River mainstem evaluation locations). The initial screening process compared the single-highest monthly P90 water quality prediction from among the 5,988 months covered by the simulation (i.e., 12 months times 499 years, with the first year of simulation excluded for screening review due to potential numerical artifacts in the model results) for each constituent for each of the eight evaluation locations (see Table 5.2.2-42). If the maximum P90 concentration exceeded the evaluation criteria and the NorthMet Project Proposed Action P90 concentration was greater than the CEC scenario concentration, the screening process identified it for secondary screening and further analysis. The secondary screening shown in Table 5.2.2-44 evaluated not only those constituents that did not pass initial screening, but also metals with hardness-based evaluation criteria. For these metals, it was not possible to develop a single evaluation criterion to which the GoldSim-predicted solute concentrations could be compared. For the secondary screening method, a constituent was retained for further evaluation if there was a 10 percent probability that either event (A or B described previously) would occur more than 10 percent of the time and there was a 10 percent probability that the event magnitude was more than 5 percent of the applicable NorthMet Project Proposed Action evaluation criteria (see section 5.2.2.2.3 for a more detailed explanation).

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Table 5.2.2-42 Plant Site Tributary Surface Water – Maximum P90 Solute Concentration Over Entire 500-Year Simulation Period Based on GoldSim Probabilistic Model

Parameter	**Stream Standard**	**Units**	**MLC-2**		**MLC-3**		**TC-1**		**PM-19**		**PM-11**	
General			**PA**	**CEC Scenario**	**PA**	**CEC Scenario**	**PA**	**CEC Scenario**	**PA**	**CEC Scenario**	**PA**	**CEC Scenario**
Alkalinity	NA	mg/L	132	266	103	284	101	286	104	278	102	260
Calcium	NA	mg/L	29.7	41.4	26.0	43.8	35.1	61.8	36.6	61.6	35.1	105
Chloride	230	mg/L	10.2	20.7	10.2	22.3	6.2	22.9	7.5	22.2	8.8	22.1
Fluoride	NA	mg/L	1.1	3.9	0.22	4.2	0.13	3.3	0.15	3.1	0.18	0.21
Hardness	500	mg/L	176	396	108	439	100	622	128	613	100	1,054
Magnesium	NA	mg/L	25.9	71.7	12.4	80.5	7.75	115	10.0	114	10.3	196
Potassium	NA	mg/L	3.78	9.36	2.45	10.21	1.45	10.96	1.82	10.7	2.08	11.7
Sodium	NA	mg/L	21.0	66.8	5.46	73.3	3.81	73.3	4.67	70.6	4.76	64.5
Sulfate	NA	mg/L	63.0	224	14.6	261	12.2	301	19.5	289	13.5	427
TDS	700	mg/L	234	597	133	666	127	760	143	738	136	983
Metals Total												
Aluminum	125	µg/L	**187**	**158**	**189**	**139**	112	111	**135**	**129**	**159**	**151**
Antimony	31	µg/L	0.40	0.44	0.39	0.46	20.3	0.50	19.0	0.49	19.6	0.68
Arsenic	53	µg/L	4.44	4.41	4.51	4.79	10.0	4.21	9.82	3.97	10.0	3.61
Barium	NA	µg/L	93.9	194	61.9	208	5.00	167	10.7	160	5.00	29.4
Beryllium	NA	µg/L	0.19	0.30	0.17	0.32	0.66	0.47	0.62	0.47	0.64	0.83
Boron	500	µg/L	94.5	282	28.0	311	368	379	349	370	356	517
Cadmium	NA[1]	µg/L	0.16	0.17	0.12	0.18	2.00	0.19	1.95	0.19	2.00	0.26
Chromium III	NA[1]	µg/L	1.78	1.57	1.87	1.43	7.60	1.14	7.39	1.33	7.53	1.49
Cobalt	5	µg/L	2.73	2.48	2.78	2.35	5.00	2.86	4.93	2.74	5.00	4.73
Copper	NA[1]	µg/L	2.23	2.73	2.23	2.94	9.00	3.42	8.87	3.30	9.00	5.25
Iron	NA	µg/L	12,396	10,460	12,587	9,236	6,979	7,426	8,331	8,673	10,490	10,625
Lead	NA[1]	µg/L	1.43	1.26	0.50	1.38	3.00	1.13	2.95	1.07	3.00	0.42
Manganese	NA	µg/L	1,302	1,113	1,353	979	712	867	886	982	1,085	1,379
Nickel	NA[1]	µg/L	4.08	4.55	4.02	4.83	50.0	5.89	49.1	5.77	50.0	9.84
Selenium	5	µg/L	0.87	0.76	0.82	0.76	5.00	0.79	4.87	0.77	4.99	0.93
Silver	1	µg/L	0.13	0.15	0.13	0.17	0.33	0.19	0.32	0.18	0.32	0.25
Thallium	0.56	µg/L	0.17	0.19	0.16	0.20	0.24	0.18	0.23	0.18	0.23	0.16
Vanadium	NA	µg/L	5.16	4.79	4.70	4.66	9.57	3.74	9.34	3.72	9.52	1.00
Zinc	NA[1]	µg/L	19.2	18.1	19.2	16.8	100	13.9	98.2	15.3	99.9	15.8

Source: PolyMet 2014w.

Notes:
For each constituent at each location, the maximum solute concentration over the entire 500-year simulation period is recorded for each of 500 realizations of the Monte Carlo run. At the end of the Monte Carlo run, there is a list of 500 maximum concentration values for each constituent at each location. Each list is converted to a cumulative frequency distribution. Each value in this table is the 90th percentile concentration from the associated distribution.
Bold value indicates the non-hardness based constituent was retained for secondary screening.
CEC = Continuation of Existing Conditions
PA = NorthMet Project Proposed Action
[1] Parameter has a hardness-based evaluation criterion and is screened using the secondary screening procedure (see Table 5.2.2-44)

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Table 5.2.2-43 Plant Site Embarrass River Surface Water – Maximum P90 Solute Concentration

Parameter	Stream Standard	Units	PM-12		PM-12.2		PM-13	
General			**PA**	**CEC Scenario**	**PA**	**CEC Scenario**	**PA**	**CEC Scenario**
Alkalinity	NA	mg/L	100	100	100	100	101	179
Calcium	NA	mg/L	23.4	23.4	41.5	41.5	33.9	49.3
Chloride	230	mg/L	10.1	10.1	9.9	9.9	9.7	13.1
Fluoride	NA	mg/L	0.21	0.21	0.21	0.21	0.21	1.4
Hardness	500	mg/L	96.7	96.7	463	463	208	453
Magnesium	NA	mg/L	12.3	12.3	88.3	88.3	31.6	81.3
Potassium	NA	mg/L	2.44	2.44	18.6	18.6	6.19	9.13
Sodium	NA	mg/L	5.41	5.41	32.9	32.9	12.5	42.1
Sulfate[(2)]	NA	mg/L	14.3	14.3	375	375	114	217
TDS	700	mg/L	128	128	626	626	269	521
Metals Total								
Aluminum	125	µg/L	188	188	180	180	**180**	**179**
Antimony	31	µg/L	0.36	0.36	0.33	0.33	9.17	0.40
Arsenic	53	µg/L	4.36	4.36	4.15	4.15	5.81	4.21
Barium	NA	µg/L	49.8	49.8	39.3	39.3	35.4	93.7
Beryllium	NA	µg/L	0.15	0.15	0.14	0.14	0.31	0.33
Boron	500	µg/L	26.5	26.5	70.1	70.1	151	225
Cadmium	NA[1]	µg/L	0.11	0.11	0.11	0.11	1.01	0.15
Chromium III	NA[1]	µg/L	1.80	1.80	1.71	1.71	4.13	1.70
Cobalt	5	µg/L	2.72	2.72	2.63	2.63	2.96	2.63
Copper	NA[1]	µg/L	2.06	2.06	2.07	2.07	5.67	2.55
Iron	NA	µg/L	12,476	12,476	11,927	11,927	11,808	11,687
Lead	NA[1]	µg/L	0.50	0.50	0.48	0.48	1.73	0.59
Manganese	NA	µg/L	1,305	1,305	1,279	1,279	1,239	1,247
Nickel	NA[1]	µg/L	3.23	3.23	3.39	3.39	28.42	4.54
Selenium	5	µg/L	0.78	0.78	0.78	0.78	2.74	0.76
Silver	1	µg/L	0.13	0.13	0.13	0.13	0.18	0.14
Thallium	0.56	µg/L	0.13	0.13	0.13	0.13	0.17	0.15
Vanadium	NA	µg/L	3.68	3.68	4.23	4.23	6.53	3.73
Zinc	NA[1]	µg/L	19.0	19.0	18.3	18.3	57.0	18.5

Source: PolyMet 2014w.

Notes:
Bold value indicates the non-hardness based constituent was retained for secondary screening.
CEC = Continuation of Existing Conditions
PA = NorthMet Project Proposed Action
[1] Parameter has a hardness-based evaluation criterion and is screened using the secondary screening procedure (see Table 5.2.2-44).
[2] Sulfate 10 mg/L wild rice evaluation criterion applies at PM-13.

Table 5.2.2-44 Secondary Screening for Embarrass River Watershed

Evaluation Location	Constituent	Events A or B[1,2] - Data Used for Secondary Screening												
		Occurrence (%)[3]				Magnitude of Concentration Increase (%)[4]				Magnitude of Concentration Increase (µg/L)[5]				
		1-55		56-200		1-55		56-200		1-55		56-500		Mine Years
		50%	90%	50%	90%	50%	90%	50%	90%	50%	90%	50%	90%	Percentile
MLC-2	Cd	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	Constituents with Hardness-Based Evaluation Criteria
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0.5	0.8	0.5	0.7	19.5	85.6	22.8	92	0.7	2.7	0.7	2.9	
	Ni	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Pb	0.8	1.2	1.1	1.3	23.6	90.6	23.9	91.8	0.1	0.3	0.1	0.3	
	Zn	0.3	0.6	0.4	0.5	22.1	94.7	24.7	105.2	10.8	43.5	11.5	46.7	
MLC-3	Cd	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0.8	1.4	0.8	1	28.2	115.9	28.4	116.1	0.8	3.3	0.8	3.3	
	Ni	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Pb	1.7	2.3	1.6	1.9	27.4	109.5	27.5	109.8	0.1	0.3	0.1	0.3	
	Zn	0.6	0.9	0.5	0.7	31.6	139.1	32.8	138.8	13.3	53.2	13.4	56.5	
PM-11	Cd	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0.9	1.4	0.9	1.1	11.7	59.8	10.2	52.9	0.5	2.3	0.5	2.3	
	Ni	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Pb	5.8	7	6.3	6.7	7.2	34.3	6.5	30.3	0.1	0.2	0.1	0.2	
	Zn	0.2	0.5	0.1	0.2	22.2	91	25.8	98.6	11.9	47.7	13.5	53.4	
PM-12.2	Cd	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Ni	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	

Evaluation Location	Constituent	Events A or B[1,2] - Data Used for Secondary Screening												
		Occurrence (%)[3]				Magnitude of Concentration Increase (%)[4]				Magnitude of Concentration Increase (µg/L)[5]				
		1-55		56-200		1-55		56-200		1-55		56-500		Mine Years
		50%	90%	50%	90%	50%	90%	50%	90%	50%	90%	50%	90%	Percentile
	Pb	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Zn	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
PM-12.3	Cd	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0.2	0.3	0.1	0.2	2.4	15	3.3	19.8	0.2	1	0.3	1.2	
	Ni	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Pb	0	0.2	0	0.1	2.3	11.5	3.2	18.1	<0.05	0.1	0	0.2	
	Zn	0	0.3	0.1	0.1	2	15.6	1.3	17.3	2.1	13.4	1.5	13.4	
PM-12.4	Cd	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0.2	0.3	0.1	0.2	2.3	13.6	3	18	0.2	0.9	0.2	1	
	Ni	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Pb	0	0.2	0	0.1	2.2	13.7	3.5	18.7	<0.05	0.1	0	0.2	
	Zn	0	0.3	0.1	0.2	1.9	16.1	1.2	16.2	2.1	11.7	1.3	12.9	
PM-13	Cd	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0.2	0.3	0.1	0.2	3	20.7	4	24.9	0.2	1.2	0.3	1.4	
	Ni	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Pb	0	0.2	0.1	0.1	3.2	19.9	5.7	25	<0.05	0.1	0	0.2	
	Zn	0.2	0.3	0.1	0.2	2.6	21	1.8	23.1	3	17.7	2	16.8	
PM-19	Cd	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0.2	0.5	0.3	0.4	13.7	62	10.1	44	0.7	3.3	0.6	2.3	
	Ni	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	

Evaluation Location	Constituent	Events A or B[1,2] - Data Used for Secondary Screening												
		Occurrence (%)[3]				Magnitude of Concentration Increase (%)[4]				Magnitude of Concentration Increase (µg/L)[5]				
		1-55		56-200		1-55		56-200		1-55		56-500		Mine Years
		50%	90%	50%	90%	50%	90%	50%	90%	50%	90%	50%	90%	Percentile
	Pb	0.5	0.9	1.3	1.6	9.1	36.8	6.6	26.2	0.1	0.3	0.1	0.2	
	Zn	0	0.2	0	0.1	20.4	81.9	21.9	75.2	12.7	56	14.2	51	
TC-1	Cd	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cr III	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Cu	0.5	0.8	0.4	0.5	6	35.3	5.3	27.3	0.4	2.1	0.4	1.7	
	Ni	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	
	Pb	3	3.9	2.9	3.2	4.2	18.3	3.8	15.1	0.1	0.2	0.1	0.2	
	Zn	0	0.2	0	0	16.5	83.3	22.3	84.9	11.7	54.1	16	64.8	
MLC-2	Al	15.6	17.7	16.2	17.9	12.7	38.6	12.8	38.9	17.5	53.1	17.6	53.2	Constituents with *Non*-Hardness-Based Evaluation Criteria
MLC-3	Al	19.4	21.7	19.4	20.9	17.9	54.4	17.8	54.3	23.3	71.4	23.2	71.2	
PM-11	Al	5.9	7	4.9	5.4	6	15.9	3.5	11.3	8.8	23.4	5.1	16.7	
PM-12.3	Al	11.2	12.9	10.1	10.9	1.8	5.4	1.1	4.2	2.8	8.2	1.7	6.4	
PM-12.4	Al	11.7	13.3	10.6	11.5	1.7	5.1	1	4	2.6	7.7	1.6	6	
PM-13	Al	11.5	13.3	11.1	11.8	1.9	5.9	1.2	4.5	3	8.9	1.8	6.7	
PM-19	Al	2.2	2.9	0.8	1	4.8	9.6	3	10.2	7	14.7	4.2	14.9	

Notes:

- 90th percentile of the percent of time is greater than 10%
- 90th percentile of the magnitude of events is greater than 5% of NorthMet Project Proposed Action evaluation criterion
- Constituent/Evaluation Location characterized by both of the above for the same time period

CEC = Continuation of Existing Conditions
PA = NorthMet Project Proposed Action

1 Event A is when PA>Evaluation Criterion and CEC<Evaluation Criterion; Event B is when PA>CEC and CEC>Evaluation Criterion
2 For Event A, the magnitude of exceedance (in µg/L) equals the PA concentration minus the PA water quality evaluation criterion. For Event B, the magnitude of exceedance (in µg/L) equals the PA concentration minus the CEC concentration.
3 As a percent of time
4 As a percent of PA evaluation criterion
5 Unless otherwise noted

Tables 5.2.2-42 and 5.2.2-43 show that the maximum P90 concentrations for the NorthMet Project Proposed Action would not exceed the applicable evaluation criteria with the following exceptions:

- The aluminum criterion would be exceeded at all locations except TC-1 (on Trimble Creek) for both the CEC scenario and the NorthMet Project Proposed Action;
- The 10 mg/L wild rice sulfate criterion would be exceeded at PM-13 for both the CEC scenario and the NorthMet Project Proposed Action, however sulfate concentrations are far less under the NorthMet Project Proposed Action.

As shown, in Table 5.2.2-44, aluminum did not pass secondary screening. It was retained for further analysis below along with sulfate and lead because they are constituents of interest. Some constituents indicated a relatively high magnitude percent increase in concentration. However, with the exception of aluminum, the percent of time a modeled impact occurred for these constituents was very small. Table 5.2.2-45 below compares the P50 and P90 modeled concentrations for the NorthMet Project Proposed Action and the CEC scenario for selected key constituents during mine operations, reclamation, and closure and post-closure maintenance at PM-13, which is the most downstream evaluation location that would reflect all NorthMet Project Proposed Action-related contaminant loadings. As these data show, the sulfate concentrations would decrease for the NorthMet Project Proposed Action relative to the CEC scenario across all three probability values and all three mine phases.

Current Tailings Basin seepage with high sulfate concentrations reaches the Embarrass River, affecting sulfate concentrations at PM-13. Under the NorthMet Project Proposed Action, nearly all of this seepage would be collected and prevented from reaching the river, and the flow is replaced by treated WWTP effluent with a low sulfate load. As a result, the sulfate load to the Embarrass River is reduced, as reflected by lower sulfate concentrations at PM-13 under the NorthMet Project Proposed Action compared with the CEC scenario. However, this reduction is not sufficient to meet the 10 mg/L wild rice sulfate evaluation criterion that applies at PM-13.

Comparison of GoldSim-predicted CEC scenario and NorthMet Project Proposed Action conditions at PM-13 for arsenic, copper, lead, nickel, and zinc indicates that NorthMet Project Proposed Action concentrations of these metals would all be higher than CEC scenario concentrations during all phases. The reason for increased PM-13 concentrations for these metals is that concentrations of these metals in the WWTP effluent, which is used for stream augmentation, would be higher than the concentrations in the existing LTVSMC Tailings Basin seepage (assumed for CEC scenario). As a consequence, there would be an increase in solute loading to the Embarrass River during operations and closure and post-closure maintenance when compared to the CEC scenario.

Table 5.2.2-45 Comparison of the Maximum P50 and P90 Values for NorthMet Project Proposed Action and CEC Scenario Concentrations at PM-13 for Selected Key Constituents, by Phase

Parameter	Units	Maximum P50 Operations (Years 2-20)		Maximum P50 Reclamation (Years 21-55)		Maximum P50 Closure & Post-Closure Maintenance (Years 56-500)		Maximum P90 Operations (Years 2-20)		Maximum P90 Reclamation (Years 21-55)		Maximum P90 Closure & Long-Closure Maintenance (Years 56-500)	
		PA	**CEC**	**PA**	**CEC**	**PA**	**CEC**	**PA**	**CEC**	**PA**	**CEC**	**PA**	**CEC**
Sulfate	mg/L	88.8	187.2	89.0	185.4	89.0	184.8	111.7	209.1	112.5	217.4	113.6	215.1
Aluminum	µg/L	100.5	100.2	104.5	103.0	102.1	100.9	168.3	165.1	173.3	169.8	179.9	178.7
Arsenic	µg/L	5.0	1.9	3.8	1.9	3.7	1.9	5.8	3.9	4.4	3.9	4.9	4.2
Copper	µg/L	4.9	1.9	3.9	1.8	3.8	1.7	5.7	2.3	4.5	2.6	4.5	2.5
Lead	µg/L	1.5	0.5	1.1	0.5	1.1	0.5	1.7	0.6	1.3	0.6	1.3	0.6
Nickel	µg/L	23.7	3.3	17.2	3.1	16.7	3.1	28.4	4.0	20.8	4.5	20.4	4.5
Zinc	µg/L	48.0	9.4	33.3	9.3	15.0	9.3	57.0	18.0	42.6	18.3	21.3	18.5

Source: PolyMet 2014w.

Notes:
CEC = Continuation of Existing Conditions
PA = NorthMet Project Proposed Action

Aluminum in Surface Waters of the Embarrass River Watershed

As shown in screening Tables 5.2.2-43 and 5.2.2-44, the maximum P90 values for aluminum would exceed the 125 µg/L water quality evaluation criterion at nearly all surface water evaluation locations for both the NorthMet Project Proposed Action and CEC scenarios. The exceedances are shown for Embarrass River stations PM-12, PM12.2, and PM-13, and for tributary stations MLC-2 and MLC-3 on Mud Lake Creek, PM-19 on Trimble Creek, and PM-11 on Unnamed Creek (locations are shown on Figure 5.2.2-9). These initial screening results indicate the need for secondary screening. Secondary screening in Table 5.2.2-44 shows further discussion is required because aluminum did not pass this screening at MLC-2, MLC-3, PM-12.3, PM-12.4, and PM-13.

Based on GoldSim results, Table 5.2.2-46 was developed to provide further analysis of aluminum at surface water evaluation locations. For three different phases of the project, maximum P90 values of annual maximum aluminum concentrations are listed for both the NorthMet Project Proposed Action and CEC scenarios. The three NorthMet Project Proposed Action phases considered are operations (mine years 1 to 20), reclamation (years 21 to 56), and post-closure maintenance (years 56 to 200). Inspection of GoldSim outputs indicated that predicted surface water concentrations were generally stable or decreasing after 200 years due to depletion of the chemical sources at the Tailings Basin, so mine years 201-500 were not included in the evaluation. Highlighted in the table are conditions where: 1) the CEC value is *lower* than the evaluation criterion (yellow), and 2) where the NorthMet Project Proposed Action concentration exceeds the criterion while the comparable CEC concentration does not (blue). Based on Table 5.2.2-46, the following observations are made:

- All maximum P50 values of annual aluminum for the three operating phases are below the 125 µg/L aluminum evaluation criterion. Most maximum P90 values of annual aluminum for the three operating phases are above the aluminum evaluation criterion. The maximum P90 values of annual aluminum are on average 66 µg/L higher than corresponding P50 values.
- For the P90 values, the maximum difference between NorthMet Project Proposed Action concentrations and comparable CEC concentrations is most significant for Mud Lake Creek (46 µg/L), but relatively small for the other tributary streams (5 µg/L for Trimble Creek and 9 µg/L for Unnamed Creek). The difference for the Embarrass River is very small (2 µg/L).
- There is only one case where the NorthMet Project Proposed Action concentration exceeds the evaluation criterion while the analogous CEC concentration is below the criterion. This occurs at PM-19 (Trimble Creek) for the maximum P90 of annual aluminum during the operations phase. However, closer inspection of the table shows that the NorthMet Project Proposed Action concentration of 129 µg/L is just above the criterion (125 µg/L) and is only 5 µg/L higher than the corresponding CEC concentration of 124 µg/L, which is just below the criterion.

Table 5.2.2-46 Maximum P50 and Maximum P90 of Annual Aluminum Concentrations for Different Project Phases

Stream	Evaluation Location	Evaluation Criterion	Operations (years 2-20)		Reclamation (years 21-55)		Post-Closure Maintenance (years 56-200)	
			PA	CEC	PA	CEC	PA	CEC
a. Maximum P50 of Annual Values from GoldSim Output								
Mud Lake Creek	MLC-3	125	105	74	109	77	107	76
	MLC-2	125	104	89	107	90	106	89
Trimble Creek	TC-1	125	57	55	60	56	56	55
	PM-19	125	70	67	74	70	68	69
Unnamed Creek	PM-11	125	89	83	91	84	87	83
Embarrass River	PM-12	125	105	105	109	109	107	107
	PM-12.2	125	101	101	104	104	103	103
	PM-13	125	100	100	105	103	102	101
b. Maximum P90 of Annual Values from GoldSim Output								
Mud Lake Creek	MLC-3	125	180	138	185	136	185	139
	MLC-2	125	178	155	180	155	180	158
Trimble Creek	TC-1	125	110	107	111	104	110	110
	PM-19	125	129	124	130	125	130	126
Unnamed Creek	PM-11	125	156	147	158	148	158	151
Embarrass River	PM-12	125	178	178	181	181	182	182
	PM-12.2	125	171	171	175	175	175	175
	PM-13	125	172	170	174	170	176	174

Notes:
CEC = Continuation of Existing Conditions
PA = NorthMet Project Proposed Action
Highlighted in the table are conditions where: 1) the CEC value is *lower* than the evaluation criterion (yellow), and 2) where the NorthMet Project Proposed Action concentration exceeds the criterion while the comparable CEC concentration does not (blue).
All concentrations are in mg/L.

Based on an evaluations of aluminum, it is generally concluded that the NorthMet Project Proposed Action is not the cause for the exceedances of the aluminum evaluation criterion at the P90 level in surface water at the Plant Site. Evaluation of the GoldSim outputs shows that predicted aluminum concentrations in surface water are dominated by mass loading from surface runoff, and the loading from other sources (including all project-related chemical sources) is minor. As such, there is no real link between the NorthMet Project Proposed Action and predicted P90 aluminum concentrations in surface water, which are commonly above the aluminum evaluation criterion.

Unlike the other Embarrass River tributaries, aluminum concentrations in Mud Lake Creek are predicted to be significantly higher for the NorthMet Project Proposed Action compared to the CEC scenario. What makes Mud Lake Creek different from the other tributaries is that under the NorthMet Project Proposed Action its drainage area above MLC-3 (2.24 mi^2) would be larger than for CEC (1.36 mi^2). This is because for the CEC, surface water and groundwater flowing toward the east toe of the Tailings Basin are assumed to continue to migrate through the Tailings Basin footprint and not provide any surface flow or groundwater to Mud Lake Creek. Under the NorthMet Project Proposed Action, a seepage containment system with barrier wall would be constructed along the East Toe, which would capture 100 percent of Tailings Basin seepage and divert surface flow and upwelling groundwater to the Mud Lake Creek via the constructed swale. Since aluminum in surface water tends to be dominated by surface runoff, there would be a

greater aluminum load to Mud Lake Creek under the NorthMet Project Proposed Action compared to the CEC. The larger Mud Lake Creek watershed area under the NorthMet Project Proposed Action is responsible for the higher associated modeled aluminum concentrations. The higher aluminum concentrations in Mud Lake Creek are related to natural surface runoff and not to chemical sources associated with chemical sources from the NorthMet Project Proposed Action.

Constituents of Interest

Lead in Surface Water at PM-11

Examination of GoldSim outputs show that when lead concentrations at PM-11 are predicted to be elevated, the flow at PM-11 is dominated by WWTP discharges. In GoldSim, the WWTP effluent lead concentration is assumed to be 3 µg/L, which is the water quality standard for lead at the hardness of the discharge. Pilot testing of the proposed WWTP processes (Barr 2013f) has indicated that the WWTP is capable of discharging lead at lower concentrations, so the 3 µg/L concentration used in GoldSim is likely a higher value than what would actually be achieved. In addition, if necessary engineering modifications to the proposed WWTP could be made to ensure that WWTP effluent would have lead concentrations less than or equal to 2 µg/L. See Section 5.2.2.3.5 for a brief description of what adaptive mitigation measures could be made to achieve a lead effluent concentration of 2 µg/L.

To investigate the effect on WWTP effluent lead concentration on surface water concentrations at PM-11, a subsidiary GoldSim simulation (PolyMet 2015s) was performed for which the only change to the inputs was lowering the assumed WWTP effluent lead concentration from 3 to 2 µg/L. In making this change, the predicted frequency of lead exceedance at PM-11 (when the CEC scenario does not exceed) was reduced to 1.3 percent, which is substantially less than the 5 percent screening threshold. Given that pilot testing shows that 2 µg/L lead concentration is achievable in the WWTP effluent, it is likely that actual lead concentrations at PM-11 would have acceptably low frequencies of exceedance. If however, the proposed WWTP generates effluent with higher lead concentrations than expected, adaptive engineering measures could be invoked at the WWTP to lower the frequency of lead exceedances (see Section 5.2.2.3.5).

Sulfate in Surface Water in the Embarrass River

For the Embarrass River, the only surface water evaluation location that has a sulfate evaluation criterion is PM-13, because it has been previously identified as a draft MPCA staff-recommended wild rice production water. Therefore, a sulfate evaluation criterion of 10 mg/L was established for this FEIS. As shown in screening Table 5.2.2-43, the GoldSim maximum P90 concentration at PM-13 for the CEC scenario is 179 µg/L, which is well above 10 mg/L. Given that existing sulfate at PM-13 is above the evaluation criterion, the MPCA developed a set of specific water quality performance criteria for sulfate at the Plant Site. These are each evaluated at the end of this section.

As with the previous sections, Table 5.2.2-47 shows predicted maximum P50 and P90 annual sulfate concentrations at PM-13, and PM-12 and PM-12.2 for comparison. The table provides the following observations:

- At PM-12 and PM-12.2, there is virtually no change in sulfate between CEC scenario and NorthMet Project Proposed Action conditions.
- In progressing downstream from PM-12 to PM-12.2, there is generally a large increase in sulfate concentrations.
- The GoldSim-predicted PM-13 sulfate concentrations for both the NorthMet Project Proposed Action and the CEC scenario are significantly higher than historically measured sulfate at PM-13.
- At PM-13, the concentration for the NorthMet Project Proposed Action is generally about 100 mg/L less than the associated CEC scenario.
- At PM-13, there are no cases (both the NorthMet Project Proposed Action and CEC) where sulfate is below the 10 mg/L wild rice evaluation criterion.

Table 5.2.2-47 Maximum P50 and Maximum P90 of Annual Sulfate Concentrations for Different Project Phases

Evaluation Location	Evaluation Criterion	Operations (years 2-20)		Reclamation (years 21-55)		Post-Closure Maintenance (years 56-200)	
		PA	CEC	PA	CEC	PA	CEC
a. Maximum P50 of Annual Concentrations from GoldSim Output							
PM-12	NA	5.6	5.6	5.7	5.7	5.7	5.7
PM-12.2	NA	294	294	294	294	294	294
PM-13	10	89	188	89	185	90	185
b. Maximum P90 of Annual Concentrations from GoldSim Output							
PM-12	NA	12.6	12.6	14.0	14.0	14.3	14.3
PM-12.2	NA	367	367	368	368	371	371
PM-13	10	113	209	114	217	114	217

Notes:
CEC = Continuation of Existing Conditions
PA = NorthMet Project Proposed Action
Highlighting indicates where PA is above the evaluation criterion; however, in all these cases, PA is less than the corresponding CEC concentration.
All concentrations are in mg/L.

The similarity of CEC scenario and the NorthMet Project Proposed Action is reasonable for PM-12 and PM-12.2 because these evaluation locations are upstream of all mine facilities and would not be expected to exhibit any effects from the NorthMet Project Proposed Action. Also, the increase in sulfate at PM-12.2 is explained by surface discharge from Pit 5NW, which enters the Embarrass River just upstream of PM-12.2 and has sulfate concentrations of about 1,000 mg/L. The chemical sulfate load from Pit 5NW largely controls the magnitude of sulfate in downstream portions of the Embarrass River including PM-13.

As discussed in Section 4.2.2.3.2, the current increase in the Embarrass River chloride load in going from PM-12.2 (upstream of Plant Site) to PM-13 (downstream of Plant Site) provides reasonable evidence that nearly all surface seepage from the northern, northwestern, and western sides of the LTVSMC Tailings Basin is reaching the Embarrass River. It is estimated that this surface seepage is about 2,400 gpm and has an average sulfate concentration of about 230 mg/L, so that the associated sulfate load leaving the Tailings Basin is about 3,000 kg/day. However the plot of sulfate load in the Embarrass River (see Figure 4.2.2-51) indicates that between PM-12.2 and PM-13, the sulfate load increases by only about 200 kg/day. In Section 4.2.2.3.2, it is hypothesized that there is a natural process that sequesters sulfate in wetlands between the Tailings Basin and the Embarrass River and this explains the reduced sulfate load from the Tailings Basin to the Embarrass River. For conservativeness, the GoldSim model was programmed to *not* consider any loss of chemical load in surface flow between the Tailings Basin and the Embarrass River. As consequence, the model would be expected to overestimate sulfate concentrations at PM-13, with the difference being greater for CEC scenario for which there is no capture of the Tailings Basin surface seepage. This effect is illustrated on Figure 5.2.2-50, which uses cumulative probability to compare GoldSim predicted sulfate with measured sulfate at PM-13. The figure shows that GoldSim-predicted sulfate concentrations for both the NorthMet Project Proposed Action and the CEC scenario are greater than measured sulfate at PM-13. In recognition of GoldSim's tendency to overestimate sulfate concentrations at PM-13, evaluation of the NorthMet Project Proposed Action is oriented toward comparing the *difference* between the NorthMet Project Proposed Action and CEC scenario values, rather than focusing on the magnitude of predicted concentrations.

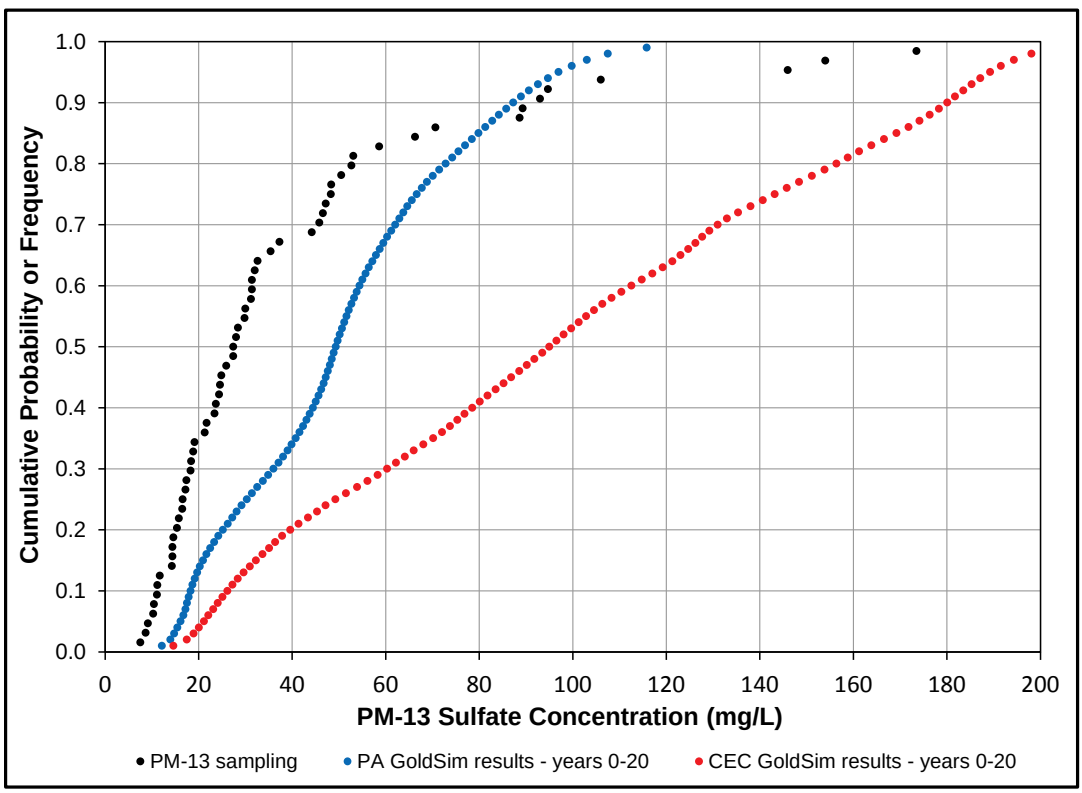

Figure 5.2.2-50 Comparison of Measured and Modeled Sulfate Concentrations at PM-13

Figure 5.2.2-51 shows GoldSim-predicted sulfate concentrations at PM-13. For sampling, NorthMet Project Proposed Action and CEC scenario plots, the model predicts that sulfate at PM-13 would be substantially reduced under the NorthMet Project Proposed Action compared to the CEC scenario. Although the model may overestimate the magnitude of sulfate concentrations, the relative reduction in concentrations at PM-13 is apparent. This result is explained by the engineering controls associated with the NorthMet Project Proposed Action. Currently there is about 2,400 gpm of surface seepage leaving the northern, northwestern, and western sides of the Tailings Basin that contains sulfate concentrations of about 230 mg/L. Under the CEC scenario, all Tailings Basin seepage reaches the Embarrass River and contributing its sulfate load to the Embarrass River. Under the NorthMet Project Proposed Action, nearly all of the surface seepage would be collected by the seepage containment system and sent to the WWTP. To augment the flow loss, at least 80 percent of the captured flow rate would be discharged to the tributaries after treatment has reduced the sulfate concentration to 9 mg/L. The result is that a substantial reduction in sulfate load to the Embarrass River would occur under the NorthMet Project Proposed Action and this explains the lower sulfate concentrations at PM-13 when compared to the CEC scenario.

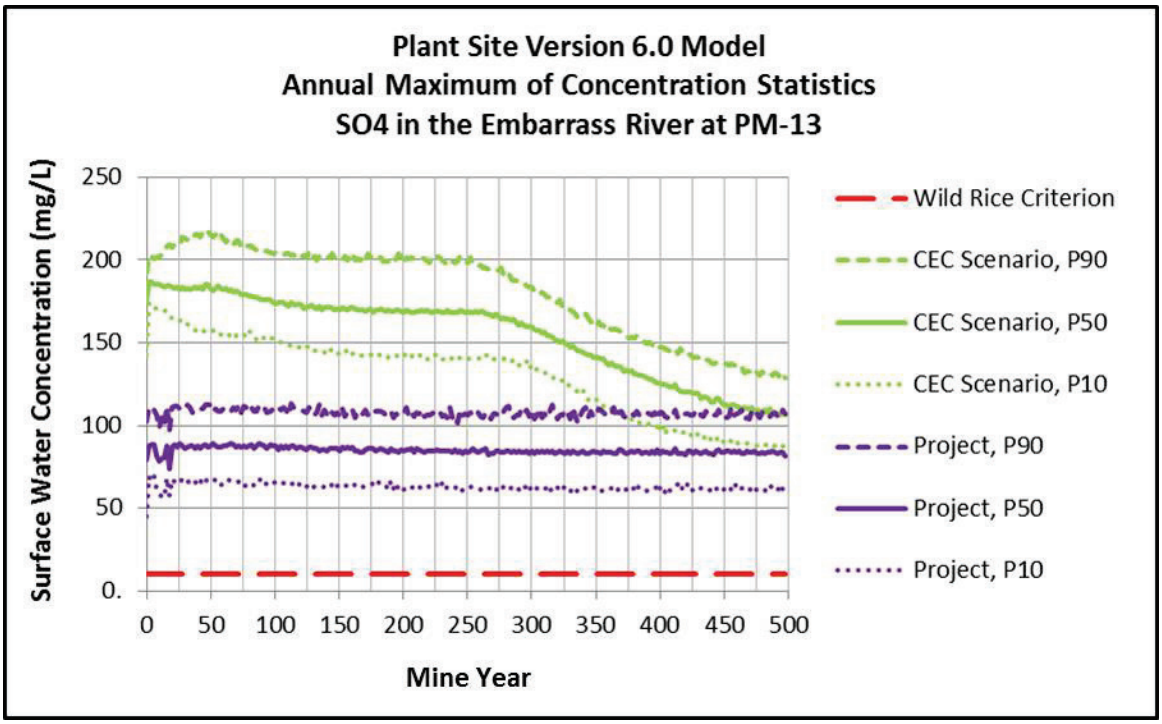

Figure 5.2.2-51 Maximum Annual Sulfate Concentrations at PM-13

The effect of the NorthMet Project Proposed Action on sulfate concentrations in the Embarrass River Watershed is of concern because MPCA has previously recommended waters within and downstream from Embarrass Lake, the northernmost tip of Wynne Lake, and the segment of the Embarrass River from Sabin Lake to the Highway 135 bridge, as waters used for production of wild rice (see Figure 5.2.2-1). Given that current sulfate concentrations at PM-13 are almost always higher than the 10 mg/L wild rice sulfate evaluation criterion, the MPCA has developed three supplemental water quality performance criteria for sulfate at the Plant Site (MPCA 2011d), which are each discussed below.

Performance Criterion 1

No increase in sulfate-loading from existing conditions would occur at PM-11 (Unnamed Creek), PM-19 (Trimble Creek), and MLC-2 (Mud Lake Creek).

Figures 5.2.2-52, 5.2.2-53, and 5.2.2-54 show GoldSim-predicted sulfate loading at PM-11, PM-19, and MLC-2, respectively, based on annual maximum values. As shown, the sulfate-loading at these three locations would be reduced under the NorthMet Project Proposed Action compared to the CEC scenario. The decrease is predicted to occur for P10, P50, and P90 concentrations. The model therefore predicts that this criterion would be met under the NorthMet Project Proposed Action.

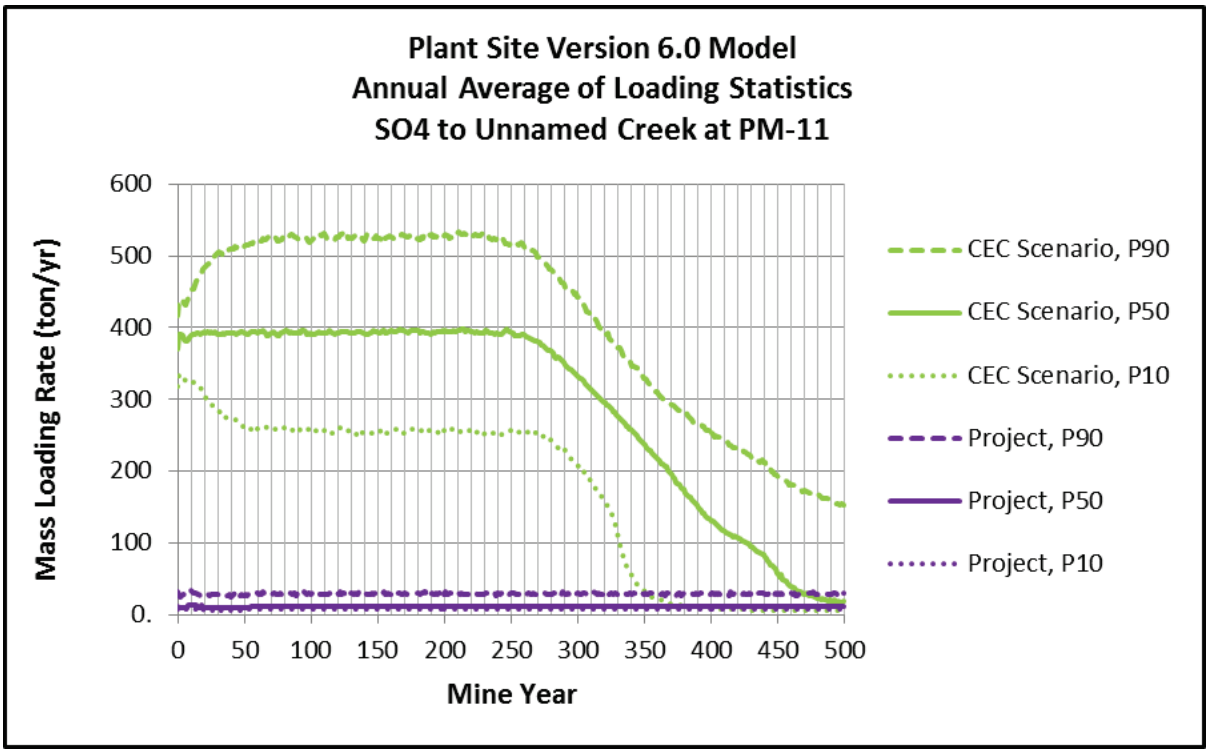

Figure 5.2.2-52 Maximum Annual Sulfate Loading at PM-11

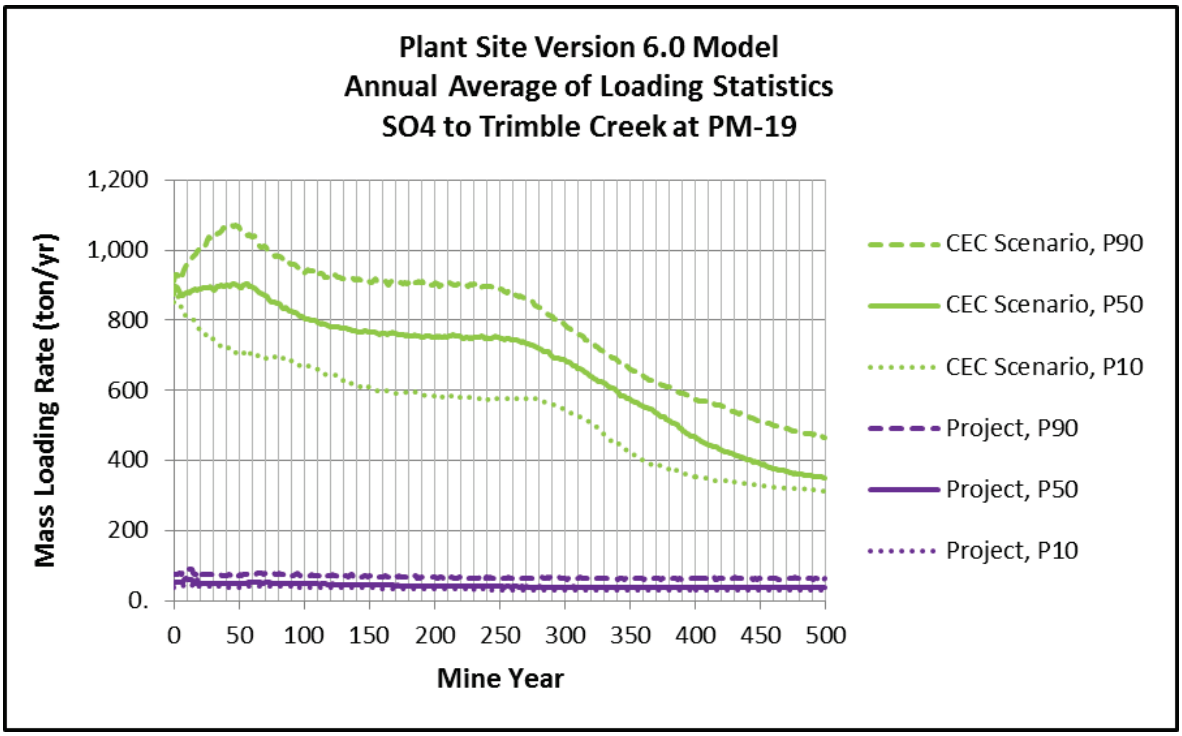

Figure 5.2.2-53 Maximum Annual Sulfate Loading at PM-19

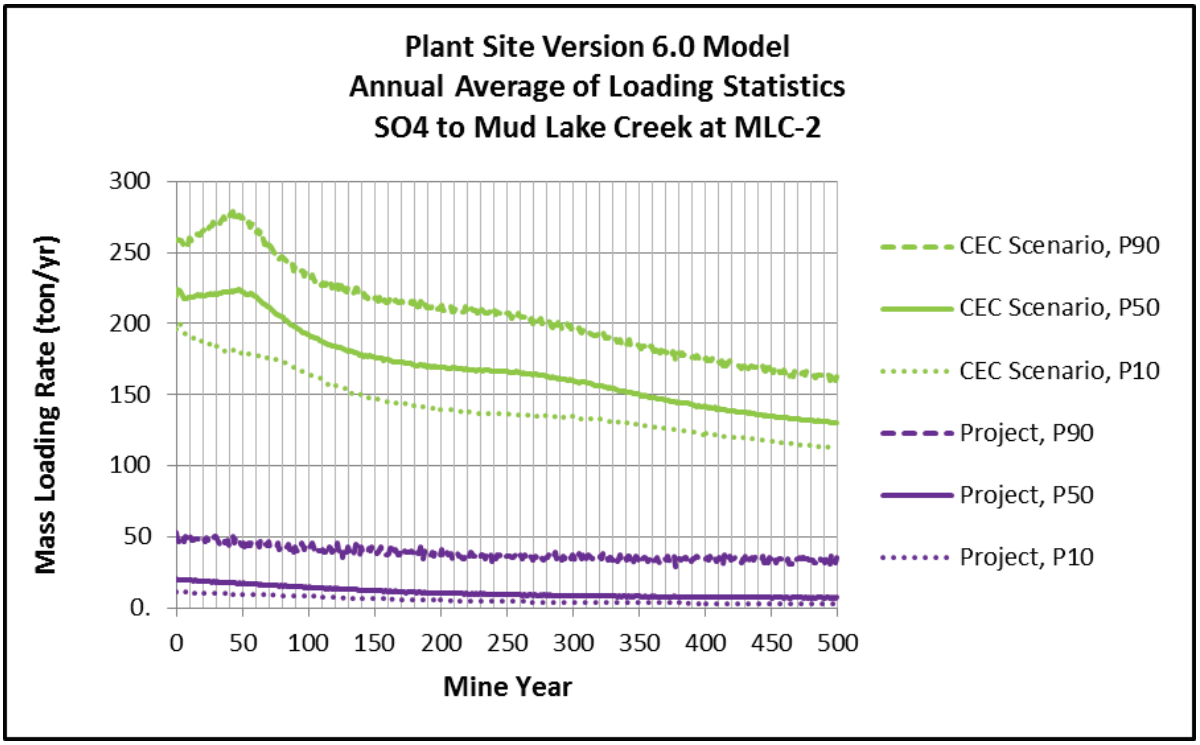

Figure 5.2.2-54 Maximum Annual Sulfate Loading at MLC-2

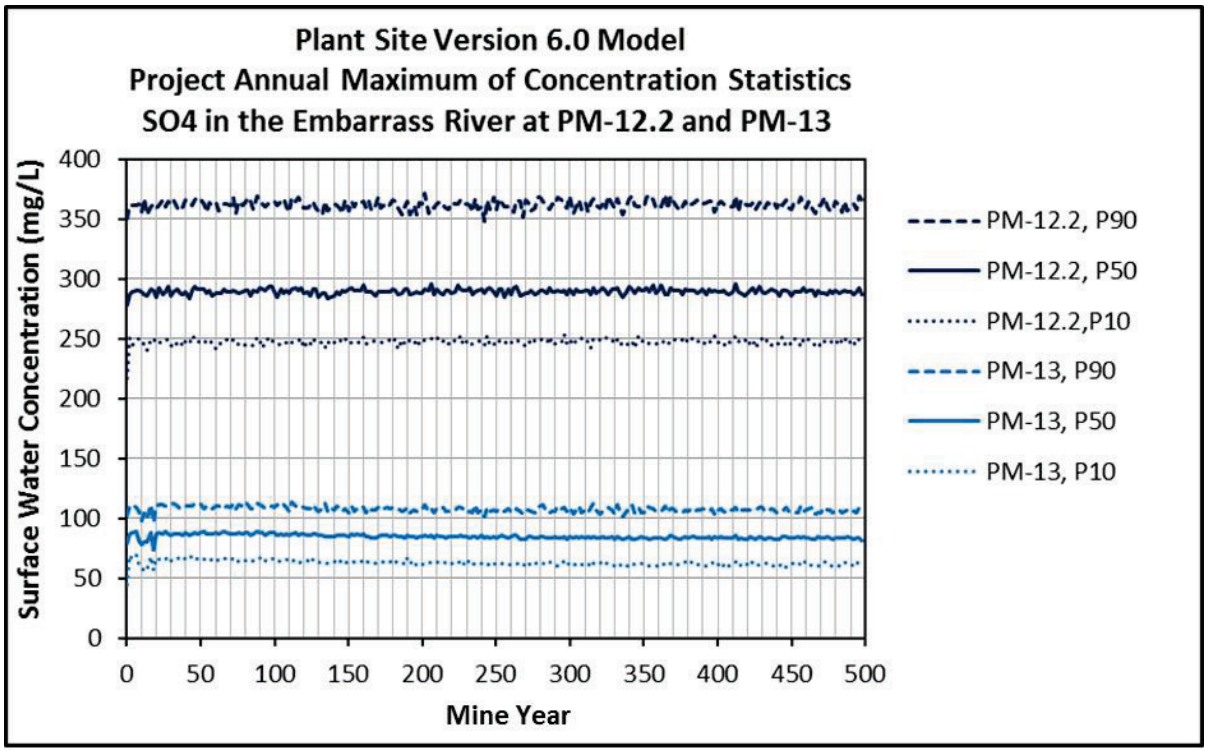

Figure 5.2.2-55 Maximum Annual Sulfate Concentrations at PM-12.2 and PM-13

Performance Criterion 2

The concentration of sulfate in the Embarrass River at PM-13 would decrease from existing condition.

Figure 5.2.2-51 shows GoldSim-predicted sulfate at PM-13 for the NorthMet Project Proposed Action and the CEC scenario. For P90, P50, and P10 values, the sulfate concentrations at PM-13 would be reduced under the NorthMet Project Proposed Action. As discussed previously, this concentration reduction under the NorthMet Project Proposed Action would result from the capture of tailings seepage with high sulfate by the seepage containment system and the discharge of most of this water to the Embarrass River with much lower sulfate due to treatment by the WWTP. The model therefore predicts that this criterion would be met under the NorthMet Project Proposed Action.

Performance Criterion 3

No statistically significant increase in sulfate would occur in the Embarrass River from upstream of the facility (e.g., PM-12.2) to downstream of the facility (e.g., PM-13).

Figure 5.2.2-55 compares GoldSim-predicted annual maximum sulfate concentrations at PM-12.2 with concentrations at PM-13. There are no NorthMet Project Proposed Action activities that would affect concentrations at PM-12.2, so this figure serves as a basis for determining downstream sulfate changes for Proposed Action conditions. Figure 5.2.2-55 shows that under the NorthMet Project Proposed Action, sulfate concentrations would substantially

decrease in progressing downstream from PM-12.2 to PM-13, so this criterion would be met under the NorthMet Project Proposed Action.

Plant Site Model Sensitivity Analyses

The sensitivity of the GoldSim Model was evaluated for changes to groundwater recharge rates and climate change. The following sections summarize the sensitivity analysis findings for the Plant Site.

Recharge to Groundwater Sensitivity Analysis

A sensitivity analysis was performed to assess to what extend the model predictive simulation results depend on the definition of recharge (to groundwater) used to set up the NorthMet Plant Site water quality model. This analysis showed that changing the distribution used for aquifer recharge from triangular to lognormal and correlating recharge to precipitation in GoldSim model simulations does result in minor changes to 10th percentile, 50th percentile, and 90th percentile of the model calculated groundwater and surface water concentrations. However, the changes are minimal. Further, the potential to exceed an applicable groundwater and surface water standards is not sensitive to these model input changes (Barr 2015d).

Climate Change Sensitivity Analysis – Plant Site

The potential effects of a climate change upon the predictions of both the GoldSim probabilistic models developed for the Plant Site, the Plant Site NorthMet Project Proposed Action Model and No Action Plant Site NorthMet Project Proposed Action Model, were evaluated by running the "climate change sensitivity analysis." The ranges of precipitation and temperature input parameters were varied following the guidance provided by the Co-lead Agencies (Kellogg 2011). The sensitivity of the model predictions to changes in values of those parameters was quantitatively assessed at the toes of the Tailings Basin and qualitatively assessed at other locations within the model domain. In summary, the Climate Change Sensitivity Analysis Model was set by increasing: 1) the mean annual temperature by 2.0 to 5.2 degrees Celsius, 2) the mean annual precipitation from 28.1 to 29.8 in/yr, and 3) the mean annual open water evaporation by 6.5 percent. The parameter values were linearly increased from mine year 1 to mine year 60 and, then, were kept constant. Such modified model was used to run 200-year predictive simulations, similar to the NorthMet Project Proposed Action Models.

The impacts of the modeled changes upon contaminant concentrations in seepage water at the toes were analyzed for lead, sulfate, copper, and iron. Lead concentrations would change most at the west and northwest toes, up to 13 percent. Similarly, the largest increase in sulfate concentrations, up to 15 percent, would occur at the west and northwest toes. The largest increase in copper concentrations, up to 12 percent, would occur, again, at the west and northwest toes. Finally, the largest increase in iron concentrations, up to 15 percent, would also occur at the west and northwest toes.

Seepage at the toes is expected to increase slightly due to the increased infiltration through the Tailings Basin. Climate change is not expected to cause significant changes in groundwater quality. Likewise, surface water quality in the Embarrass River and its tributaries is expected to be minimally affected by the NorthMet Project Proposed Action under climate change conditions. All water leaving the Tailings Basin's footprint would be treated by the WWTP,

except for approximately 21 gpm of seepage that is conservatively expected to escape the Containment System. Runoff from the exterior of the East Dam is relatively inert.

It is likely that the amount of water that would need treatment at the WWTP would increase under climate change conditions. This is because the increase in precipitation would be slightly greater than the amount of water lost to increased evaporation (Barr 2015d).

5.2.2.3.4 Mercury

Mercury can be released to surface water or groundwater through mobilization of mercury stored in rock, soil, peat, and vegetation, and can also be deposited to surface water through atmospheric dry deposition and precipitation. Methylmercury, which is an organic form of mercury, accumulates in fish and is toxic to humans and wildlife at concentrations above a toxicity threshold. Current scientific understanding of the factors and mechanisms affecting mercury methylation and bioaccumulation is limited. Mercury concentrations in fish sampled from downstream lakes presently trigger advice to limit fish consumption. An increase in mercury in fish tissue would be counter to statewide efforts to reduce mercury concentrations in fish.

Mercury was not included in the GoldSim model for either the Mine Site or the Plant Site, as insufficient data and unique modeling requirements for mercury dynamics prevented modeling mercury like the other solutes. Regardless, the NorthMet Project Proposed Action would still need to demonstrate that the mercury evaluation criteria would be protected (see Section 5.2.2.1). Details of overburden management, which includes peat, is included in Section 5.2.2.3.2. Adaptive management has also been identified within the FEIS process that could reduce mercury concentrations if necessary (see Section 5.2.2.3.5). Therefore, a simple mass balance model estimation method was used. This simple estimation method was preferred over a detailed mechanistic model because it incorporated the important input and removal processes for mercury, was very transparent with regard to data inputs, and allowed for easy assessment of the effects of changing parameter values on mercury concentrations. For the Mine Site, this method, in combination with analog data from existing natural and mine pit lakes in the region, was used to assess future mercury concentrations in the West Pit lake and in the overflow water (PolyMet 2015m). A similar mass balance approach was used for the Plant Site to estimate future mercury concentrations released from the Tailings Basin.

The NorthMet Project Proposed Action and project area watershed information used to assess the potential effects on average annual mercury loading and concentrations at the Plant Site and Mine Site (Upper Embarrass River and Upper Partridge River, respectively) were also used in assessing the potential effects from the NorthMet Project Proposed Action on mercury loading in the St. Louis River (Barr 2015f).

This section discusses mercury from only a water-concentration perspective; the potential effects of the NorthMet Project Proposed Action on the bioaccumulation of methylmercury in fish are discussed in Section 5.2.6. Cumulative effects are discussed in Section 6.2.3.3.4 and 6.2.3.5.4.

Direct Release of Mercury to the Partridge River Watershed

The NorthMet waste rock and ore contain trace amounts of mercury. Laboratory analysis of humidity cell leachates from waste rock samples found average total mercury concentrations between 5 and 7 ng/L, with concentrations unrelated to rock type or sulfur content (SRK 2007b).

Separate 36-day batch tests using local rainfall (12 ng/L total mercury) found that contact with Duluth Complex rock actually decreased total mercury concentrations to between 1.9 and 3.2 ng/L as a result of adsorption (SRK 2007b). Therefore, the data suggest that most of the mercury present in rainfall or released by sulfide oxidation is typically adsorbed by other minerals present in the mine waste rock. The primary NorthMet Project Proposed Action-related source of mercury to the Partridge River would be the WWTF discharge.

As discussed previously, there would be no surface water discharges to the Partridge River or its tributaries from the Mine Site until approximately year 52, when the West Pit would be flooded and the overflow would be directed to the WWTF for treatment and discharge. The WWTF discharge would be subject to the GLI standard for mercury (1.3 ng/L). Mercury concentrations in the West Pit were estimated two ways: using analog data from other natural lakes and mine pit lakes in northeastern Minnesota, and using a mass balance approach.

The West Pit, like seepage/headwater lakes (e.g., lakes with no significant inflowing streams), would receive most of its water from precipitation and direct runoff from the surrounding watershed. Water balance modeling estimates that 70 percent of the West Pit inflow after reclamation would be from precipitation. Therefore, natural seepage/headwater lakes and existing mine pits in the vicinity of the NorthMet Project Proposed Action area can provide an analog for mercury concentrations that would occur in the West Pit at the time of overflow. Of particular significance are the Dunka Pit Lakes. Because the Dunka Pit intersects the Duluth Complex, the mercury concentration data from the Dunka Pit Lakes are considered an important indicator of potential total mercury concentrations for the West Pit at closure. Data from 16 mine pit lakes and five natural headwater/seepage lakes in northeastern Minnesota were evaluated. As Table 5.2.2-48 shows, despite the fact that the primary source of inflow to these lakes/pits was precipitation, which averages about 13 ng/L based on the annual average mercury concentration from the National Atmospheric Deposition Program for the Fernberg Road Monitoring Site (2010-2011) (PolyMet 2015m), only two of the lakes/pits had average total mercury concentrations above the GLI standard of 1.3 ng/L (Pit 2W at 1.61 ng/L and Pit 9S at 1.87 ng/L).

Table 5.2.2-48 Total Mercury Concentration Data from Natural Lakes and Mine Pits in Northeastern Minnesota

Lake/Pit Type	Number of Lakes/Pits	Minimum Mercury Concentration[1] (ng/L)	Average Mercury Concentration (ng/L)	Maximum Mercury Concentration[1] (ng/L)	Number with Avg Concentration >1.3 ng/L
Natural Lakes	5	0.34	0.66	1.73	0
Pit Lakes	16	0.5	0.97	2.55	2

Source: PolyMet 2015m.

Note:
[1] Data represent lowest and highest individual samples from lakes.

A mass balance approach was also used to evaluate potential mercury concentrations in the West Pit. For this evaluation, unless otherwise specified, ‘mercury’ refers to total mercury. Elemental mercury was not a part of the evaluation process, as no elemental mercury releases are anticipated from mining or processing operations. Mass balance models range from simple spreadsheet-based formats to more complex such as the GoldSim model. An important consideration in the selection of a water quality model is the complexity of the chemical being

assessed and the available data, and the consideration that a complex situation may not require a complex water quality model (Loucks et al. 2005). The MPCA's spreadsheet-based model allows reviewers to focus on key inputs and their impact on model behavior and results. Furthermore, the use of a separate spreadsheet model for mercury enabled the specification of assumptions that were specifically conservative for mercury but that were not necessarily conservative for other contaminants, for example the depth of the mixing zone (Barr 2015f).

The mass balance took into consideration average inflows and estimated potential mercury inputs from precipitation, atmospheric dry deposition, groundwater inflow, Category 1 Stockpile drainage, other stormwater runoff within the Mine Site, supplemental water from the Plant Site WWTP, collected seepage from the Tailings Basin, and inflows from the East Pit (see Table 5.2.2-49). The mass balance also took into consideration the loss of mercury via burial (i.e., loss due to settling), evasion/volatilization, and outflow (i.e., pumping to the WWTF for treatment and discharge). Category 1 Stockpile drainage was assumed to be unaltered by the waste rock in the stockpile (i.e., no adsorption of mercury to the waste rock), which is a conservative assumption as there is evidence that waste rock likely adsorbs mercury from precipitation. The mass balance model conservatively assumed that mixing only occurred in the upper 30 ft of the water column, as this would limit the volume of water available to dilute the mercury-loading.

Table 5.2.2-49 Initial and Final Parameter Values for the Mercury Mass Balance

Parameter	Flow in Mine Year 60	Total Mercury Concentration or Flux
Wet and Dry Deposition Precipitation (based on monitoring data) [1] Atmospheric dry deposition Total wet and dry deposition	697 acre-ft/yr[1] NA NA	13 ng/L; 9,407 ng/m^2/yr[1] 3,093 ng/m^2/yr[1] 12,500 ng/m^2/yr[1]
Contained/Uncontained Category 1 Stockpile drainage	0.3 ac-ft/yr[2]	13 ng/L
Watershed runoff (stormwater runoff from undisturbed or reclaimed/revegetated areas; includes the runoff from the Category 1 Stockpile)	30 ac-ft/yr[2]	4 ng/L[3]
Groundwater Inflow (shallow aquifer)	45 ac-ft/yr[2]	3 ng/L[3]
East Pit flow (from wetland)	248 ac-ft/yr[2]	4 ng/L
Backfilled East Pit flow (groundwater) ("lower pore water seepage")	0 [2] (Intermittent contribution; 0.02 to 0.15 ac-ft/yr during pit flooding)	4 ng/L
Treated Water: Mine Site WWTF	0[2] (Up to 588 acre-ft/yr during pit flooding)	8 ng/L
Plant Site Water: Treated water from the WWTP and collected seepage water (untreated) from the Tailings Basin seepage containment systems (supplemental water for pit flooding)	0[2] (Up to 3,500 acre-ft/yr during pit flooding)	1.3 ng/L
West Pit Mercury Losses		
Burial	NA	92% of total load; 12,700 ng/m^2/yr[4]
Evasion/Volatilization (~5% of atmospheric inputs)	NA	5% of atmospheric inputs[5]
Outflows	490 acre-ft/yr[2]	Varies with concentration of West Pit water column

Source: PolyMet 2015m, Table 6-15.

Notes:

1 Precipitation volume from monitoring stations within 30 miles of the NorthMet Project Proposed Action area based on mean annual precipitation (1981-2010 climate normal); annual average mercury concentration from the National Atmospheric Deposition Program for the Fernberg Road Site (MN18) (2010-2011). Total atmospheric deposition is assumed to equal 12,500 nanograms per square meter per year (ng/m^2/yr) (Swain et al. 1992). Dry deposition is set equal to the difference between total and wet deposition and represents about 25% of total deposition.

2 Flow estimate from GoldSim Modeling results.

3 Estimate of mercury concentration based on NorthMet Project Proposed Action data.

4 Burial rate for mercury is lower (more conservative) than initial estimate according to the burial regression equation discussed in PolyMet 2015m.

5 Volatilization rate is estimated based on the low end of the range of values discussed PolyMet 2015m.

Based on the input values from Table 5.2.2-49 above, the estimated average mercury concentration of the West Pit during flooding (years 20 to 52) would initially be approximately 0.3 ng/L, and after flooding (after year 52) would stabilize at approximately 0.9 ng/L.

It should be noted that the West Pit overflow would be treated by the WWTF using RO or equivalent technology known to remove mercury and would meet water quality targets prior to

discharge. Therefore, the actual mercury concentrations in the WWTF effluent discharge are expected to be less than the concentrations predicted for the West Pit lake (i.e., less than 0.9 ng/L), although an effluent mercury concentration of 1.3 ng/L was assumed for purposes of estimating mercury concentrations in the WWTF discharge. Table 5.2.2-50 provides a summary of the initial mass balance results, with the largest input of mercury to the West Pit coming from atmospheric deposition (about 66 percent of total estimated inputs), and the largest loss of mercury attributed to burial (about 92 percent of total mercury inputs).

The Overburden Storage and Laydown Area would not be lined, but would have a compacted soil bottom. Unsaturated overburden and peat would be temporarily stored at the Overburden Storage and Laydown Area until it is utilized for reclamation purposes. Some of the temporarily stored organic material would decompose on site, which would release mercury into solution. Any dissolved mercury would be transported in solution with precipitation that falls on the Overburden Storage and Laydown Area (PolyMet 2015r). Any mercury released from the peat decomposition process is thought to be transported with precipitation that falls on the Overburden Storage and Laydown Area. Because the Overburden Storage and Laydown Area would be unlined, there would be some potential for seepage to enter the groundwater system from peat that has decomposed and releases as a pulse of mercury. However, construction of the Overburden Storage and Laydown Area would result in a compacted bed that would limit downward seepage and facilitate routing of water to storage ponds.

Stormwater runoff from the Overburden Storage and Laydown Area would be considered process water which would be routed to the process water pond and eventually collected and routed to the Tailings Basin for years 1 to 11, where much of the mercury would be sequestered in the tailings through sorption. In years 12 to 20, the Overburden Storage and Laydown Area stormwater runoff would be collected and routed to help flood the East Pit, where most of the remaining mercury would be sequestered with waste rock at depth (e.g., through settling and other chemical processes within the pit). Because peat removal from the areas to be mined would be completed between years 5 to 11, any potential release of mercury from stored peat materials would have occurred or would be ending by the time water is routed from the Overburden Storage and Laydown Area pond to the East Pit beginning in year 12. After year 20, the Overburden Storage and Laydown Area would be closed, reclaimed, and material removed, and therefore would no longer serve as a potential source of mercury.

The potential for mercury release from peat decomposition in the Overburden Storage and Laydown Area is included in the mass balance as part of the Process Water input. The mercury load from the Mine Site would slightly decrease during closure and long-term maintenance, because a portion of the flow that is currently watershed yield (total mercury concentration of 3.6 ng/L) would be captured in the West Pit lake and discharged via the WWTF at a conservatively assumed total mercury concentration of 1.3 ng/L. Flows from the Mine Site in closure and long-term maintenance are not expected to change from existing conditions; therefore, the change in total mercury concentration from 3.6 ng/L to 1.3 ng/L for a portion of the flow from the Mine Site results in reduced loading to the Partridge River (Barr 2015g). Therefore, the NorthMet Project Proposed Action is predicted to result in a net decrease in mercury-loading to the Partridge River from 24.2 to 23.0 grams per year, primarily due to a decrease in natural runoff and a proportional increase in water discharged from the West Pit via the WWTF (with a total mercury concentration of 1.3 ng/L).

Table 5.2.2-50 Summary of Estimated Mercury-Loading (Inputs)[1] and Losses (Outputs) for the West Pit Lake (Mine Year 20 to about Mine Year 52)

Parameters	Annual Average Load of Mercury (nanograms)	Percent of Summed Inputs	Comments
Inputs			
Atmospheric (wet + dry)	1.26E+10	66%	Dry deposition ~30% wet deposition
East Pit wetland overflow	9.03E+08	5%	Includes runoff from the East Pit and watershed to the East Pit
Process water (other than from the East Pit)	1.65E+09	9%	Includes runoff from the Category 1 Stockpile
Groundwater	2.74E+08	1%	Includes groundwater flow from undisturbed portions of the Mine Site + groundwater inflow from the East Pit + contained/ uncontained Category 1 Stockpile drainage
WWTF	1.61E+09	8%	
Pumping from the Plant Site: WWTP and collected seepage from the Tailings Basin	2.12E+09	11%	
SUM	1.91E+10		
Outputs (Losses)			
Evasion/Volatilization	6.30E+08	3%	Loss from the water column
Burial	1.76E+10	92%	
Groundwater	NE		
Overflow	2.58E+07	0.1%	
Removal by RO WWTF	NE		
SUM	1.82E+10		
NET (retention)			
Inputs – Outputs	8.73E+08		Net retention of mercury

Source: PolyMet 2015m, Table 6-16.

Notes:
NE = Not estimated for this analysis.
[1] Reasonably conservative estimates of mercury concentrations and average annual flow estimates from GoldSim modeling were used to estimate mercury-loading.

Direct Release of Mercury to the Embarrass River Watershed from the Tailings Basin

The Plant Site would receive inputs of mercury from two primary sources: residual trace concentrations in the tailings and process consumables, with some minor contributions from Mine Site process water, which would be pumped to the Tailing Basin pond through year 11 (and possibly through year 20, but is dependent on the NorthMet Project Proposed Action's water balance). As discussed in Section 5.2.2.3.1, all process make up water used for stream augmentation would be treated at the WWTP prior to discharge. Mercury would be released from the Tailings Basin via seepage, discharge from the WWTP, and volatilization from the Tailings Basin pond (this mechanism is discussed in Section 5.2.7, Air Quality). As with the Mine Site, mercury was not included in the GoldSim model, but a mass balance approach was used to estimate future mercury concentrations.

Several studies have been conducted by state agencies regarding the release of mercury from taconite ore processing and tailings facilities. Berndt (2003) concluded that wet and dry deposition of mercury was the major source of dissolved mercury in taconite tailings pond water,

deposition of mercury was the major source of dissolved mercury in taconite tailings pond water, rather than the actual tailings themselves. Further, Berndt found that taconite tailings appear to be a sink for mercury in full-scale actual tailings basins in northern Minnesota, at least similar to other media like soils, as evidenced by lower mercury concentrations in waters seeping from tailings basins (specifically at U.S. Steel's Minntac Mine and Northshore Mining's Northshore Mine) than in either precipitation input or pond water in the tailings basin. The loss of mercury through adsorption to solids in the tailings basin and subsequent burial in the sediments results in an overall permanent retention of mercury within the basin and decreases the mercury load released to receiving waters. Berndt (2003) demonstrates that mercury released to surface waters during taconite processing is insignificant with respect to mercury concentrations found in local precipitation and existing background surface waters. This finding is supported by surface water monitoring around the existing LTVSMC Tailings Basin, which found mercury concentrations in surface water seepage to be consistent with baseline levels (see Table 4.2.2-4), generally averaging less than 2.0 ng/L. The overall average total mercury concentration at two discharge locations at the Tailings Basin (SD-026 and SD-004) over a 9-year period was 1.0 ng/L, indicating relatively low mercury concentrations in the existing LTVSMC Tailings Basin seepage. All monitoring results were well below average concentrations in precipitation, so most mercury appears to be sequestered in the LTVSMC tailings through adsorption (see Table 4.2.2-4).

A mass balance model was developed to aid in estimating potential release of mercury from the Plant Site. All major inputs of mercury were included in the mass balance model. The major outputs of mercury include the hydrometallurgical residue, air emissions from the hydrometallurgical process, the tailings, and the ore concentrate. The vast majority of the mercury is predicted to remain in the concentrate, with only about 8 percent predicted to be sent to the Tailings Basin via the tailings and process water. Process and tailings water samples from a pilot study conducted with NorthMet ore were found to have mercury concentrations of 11.2 and 0.7 ng/L, respectively. Mercury loadings to the Tailings Basin are estimated to be 16.2 pounds per year (lbs/yr), with about 15.8 lbs/yr from solids and about 0.4 lbs/yr from process water. For comparison, this is significantly less than the 610 lbs/yr estimated average mercury-loading to the existing LTVSMC tailings basin during LTVSMC operations.

In 2006, Northeast Technical Services, Inc. (NTS) conducted a bench study using NorthMet tailings to determine the rate of mercury adsorption by the tailings. The study utilized large-volume shake flask tests to evaluate mercury adsorption of tailings over time (PolyMet 2015j). The concentration of dissolved mercury in a treatment flask containing process water and NorthMet tailings decreased from 3.3 ng/L (at time 0) to 0.9 ng/L (at 480 minutes). Although the exact mechanisms behind the adsorption process are not yet clearly understood, the ability of NorthMet tailings to adsorb mercury, in combination with the proven ability of the underlying taconite tailings to adsorb mercury, is expected to result in an overall increase in the adsorption of mercury and subsequent lower concentrations of mercury at the Tailings Basin with the addition of the NorthMet tailings. Although adsorption was not explicitly included in the mass balance model, its effects are observed in the mercury concentrations in runoff from the existing LTVSMC tailings, and are therefore assumed in the modeled future concentrations in Tailings Basin seepage.

In summary, the Tailings Basin is predicted to receive less loading of mercury (about 2 to 3 percent) and less flow than the existing LTVSMC Tailings Basin historically received, while

retaining the adsorption benefits of the LTVSMC tailings, as well as the demonstrated mercury adsorption capability of the NorthMet tailings. For these reasons, it is reasonable to conclude that the seepage from the NorthMet tailings should have similar or lower mercury concentrations as the LTVSMC tailings seepage, which has averaged about 1.0 ng/L. Therefore, the total mercury concentration in seepage from the Tailings Basin is expected to be less than the GLI standard of 1.3 ng/L.

During long-term maintenance, the Tailings Basin seepage would be captured and pumped to the WWTP for treatment. The WWTP would also receive water from the Tailings Basin pond, as well as stormwater runoff from the basin. The discharge from the WWTP, like the discharge from the WWTF, would be subject to the GLI standard of 1.3 ng/L. The estimated mercury concentration and flow rate for each of these influent streams is shown in Table 5.2.2-51. As this table shows, the combined influent streams are estimated to have a mercury concentration of 1.3 ng/L prior to treatment.

Table 5.2.2-51 Estimated Mercury Concentration of the Combined Inflows to the Plant Site WWTP

Stream	Flow Rate (gpm)	Mercury Concentration (ng/L)	Total Mercury Flow (ng/yr)
Seepage water	1,635	1.0	3.3E+09
Runoff (interacting with tailings)	290	1.0	5.8E+08
Runoff (not interacting with tailings)	75	3.5	5.3E+08
Tailings Basin pond dewatering	425	2.0	1.7E+09
Combined stream	**2,425**	**1.3**	**6.0E+09**

Source: Table 6-8, PolyMet 2015j.

The WWTP would use a greensand filtration process followed by RO unit or equivalently performing technology that would meet water quality targets. RO treatment or equivalently performing technology that would meet water quality targets are known to remove mercury, particularly when the influent is pre-treated, and this potential additional removal of mercury is not accounted for in mass balance calculations, which adds a level of overestimation to the mass balance results. Any reduction in mercury by the WWTP would reduce discharge concentration; therefore, the total mercury concentration in the WWTP discharge is expected to meet the evaluation criteria of 1.3 ng/L.

The NorthMet Project Proposed Action is predicted to result in a net increase in mercury loadings to the Embarrass River of up to 0.2 grams per year (from 22.3 to 22.5 grams per year), which is about a 1 percent increase. This increase is primarily attributable to:

- The redirection of surface runoff diverted via the drainage swale constructed east of the Tailings Basin East Dam directly to Mud Lake Creek (at an assumed mercury concentration of 3.5 ng/L, versus a seepage concentration of 1.0 ng/L); and
- The Tailings Basin containment systems, which would collect seepage from the Tailings Basin, with an estimated mercury concentration of 1.0 ng/L, and route it to the WWTP, which would discharge with an assumed mercury concentration of 1.3 ng/L, which is considered conservative in that the WWTP and the greensand filter are expected to remove some mercury from the effluent.

Enhanced Mercury Methylation

Virtually all dispersal of mercury in the environment (especially atmospheric dispersal) occurs in inorganic form (Fitzgerald and Clarkson 1991), but nearly all of the mercury accumulated in fish tissue (more than 95 percent) is organic methylmercury (Bloom 1992). Thus, methylation is a key step in bioaccumulation and the uptake of mercury by aquatic biota. Methylmercury can be a product of the methylation of inorganic mercury by sulfate-reducing bacteria, a process that can be stimulated by increased sulfate concentrations in aquatic systems where sulfate is limiting (Gilmour et al. 1992; Krabbenhoft et al. 1998), although recent research has shown that numerous other types of bacteria can methylate mercury (Gilmour et al. 2013). Although, as described above, the NorthMet Project Proposed Action is expected to result in a negligible release of inorganic mercury to groundwater or surface waters and is predicted to meet the 1.3 ng/L discharge evaluation criteria, the potential effects of the NorthMet Project Proposed Action on mercury methylation must be evaluated. Bacteria that cause mercury methylation require an anoxic environment, and consequently methylation occurs in sediments or in anoxic waters rather than in the turbulent well-oxygenated water of a river. Therefore, methylation is unlikely to occur in the Partridge River or Embarrass River water column; however, it may occur in sediments or possibly in anoxic environments downstream.

There are several factors that influence mercury methylation, including total available mercury, organic carbon, temperature, micronutrients required by sulfate-reducing bacteria, sulfate loadings (over the range for which sulfate may be a limiting factor for sulfate-reducing bacteria), lack of oxygen, and certain hydrologic conditions. The NorthMet Project Proposed Action is expected to have little or no effect on most of these factors, but the effects on sulfate concentrations and hydrologic conditions warrants further discussion and are discussed below.

Sulfate Loadings

Research indicates that sulfate-reducing bacteria are the primary mercury methylators in aquatic systems, especially in wetlands (Compeau and Bartha 1985). Biologically available sulfate is believed to be one of several limiting factors for the methylating bacteria (Jeremiason et al. 2006; Watras et al. 2006). Adding sulfate to aquatic systems where sulfate is limiting can therefore stimulate sulfate-reducing bacteria activity, leading to increased mercury methylation as the sulfate is consumed (Gilmour et al. 1992; Harmon et al. 2004; Branfireun et al. 1999; Branfireun et al. 2001). Recent research in northern Minnesota suggests that increased atmospheric sulfate-loading to a peatland can result in increased mercury methylation and export (Jeremiason et al. 2006), but other research suggests that this effect is not linear and diminishes at higher loads where sulfate may no longer be limiting (Mitchell et al. 2008). Heyes et al. (2000) reported a significant positive correlation between methylmercury and sulfate in a poor fen ($R2 = 0.765$, $p = 0.005$) and in a bog ($R2 = 0.865$, $p = 0.022$).

Many studies have shown that wetlands can be sinks for mercury and sources of methylmercury to surrounding watersheds (St. Louis et al. 1996). Galloway and Branfireun (2004) found that wetlands were an important site of sulfate reduction and methylmercury production. Balogh et al. (2004) and Balogh et al. (2006) concluded that increases in methylmercury in several Minnesota rivers during high-flow events was likely the result of methylmercury transport from surrounding wetlands to the main river channel. A recent study by the MDNR found little, if any, correlation between total mercury or methylmercury and sulfate concentrations in northeastern Minnesota streams (Berndt and Bavin 2012a; Berndt and Bavin 2012b; Berndt et al. 2014). Instead, the

study found strong correlations between mercury and dissolved organic carbon concentrations and total wetland area. Overall, these studies suggest that most mercury methylation, at least in the St. Louis River Basin, primarily occurs within wetlands rather than in stream channels and the methylmercury is flushed to rivers from wetlands during storm events.

The MPCA and MDNR recognize the important role of sulfate in methylmercury production, as well as the uncertainties regarding site-specific relationships between sulfate discharges and water body impairment. The MPCA has set forth a strategy (MPCA 2006a) for addressing the effects of sulfate on methylmercury production that encompasses technical, policy, and permitting issues. The strategy acknowledges that the technical basis does not exist to establish sulfate concentration limits. The strategy, however, sets forth steps the MPCA can take to improve the technical basis for controlling sulfate discharges and establishes guidance for considering potential sulfate effects during environmental review and NPDES permitting. The strategy focuses on avoiding "discharges," which could include groundwater seepage, to "high-risk" situations. These high-risk areas include wetlands, low-sulfate water (less than 40 mg/L) where sulfate may be a limiting factor in the activity of sulfate-reducing bacteria, and waters that flow to a downstream lake that may stratify, all or most of which apply to the area downstream of the WWTP and the WWTF discharges.

In response to this policy, as well as to comply with sulfate standards that apply to waters previously recommended as supporting the production of wild rice, PolyMet has proposed several significant changes to the NorthMet Project Proposed Action design from that proposed in the DEIS. These changes would significantly reduce sulfate loadings, and include a surface and groundwater seepage containment system around the Category 1 Stockpile and a WWTF to treat the West Pit overflow at the Mine Site and a containment system around the Tailings Basin and a WWTP to treat tailings seepage at the Plant Site.

As a result of the design changes at the Mine Site, the NorthMet Project Proposed Action is predicted to increase the sulfate load by less than 2 percent in the Partridge River watershed, but maintain the same maximum P90 concentration (19.4 mg/L) as the CEC scenario. Effluent from the WWTF would be discharged at a water quality based effluent limit concentration that protects the sulfate standard for waters used for production of wild rice (10 mg/L), beginning when the West Pit is predicted to flood around year 55. Sulfate concentrations in this range coupled with the oxygenated hydrologic environment to which the effluent would be discharged would not be expected to promote mercury methylation.

As a result of the design changes at the Plant Site, the NorthMet Project Proposed Action is predicted to significantly decrease sulfate loadings to the wetlands north of the Tailings Basin and to the Embarrass River, primarily because the containment system would capture nearly all Tailings Basin seepage and ultimately route it to the WWTP, which would treat the seepage and discharge the effluent at a target concentration of 10 mg/L as part of the Embarrass River tributary streams flow augmentation. The net effect of these engineering controls would be a reduction in sulfate loadings relative to the CEC scenario model results at PM-13 (see Figure 5.2.2-56).

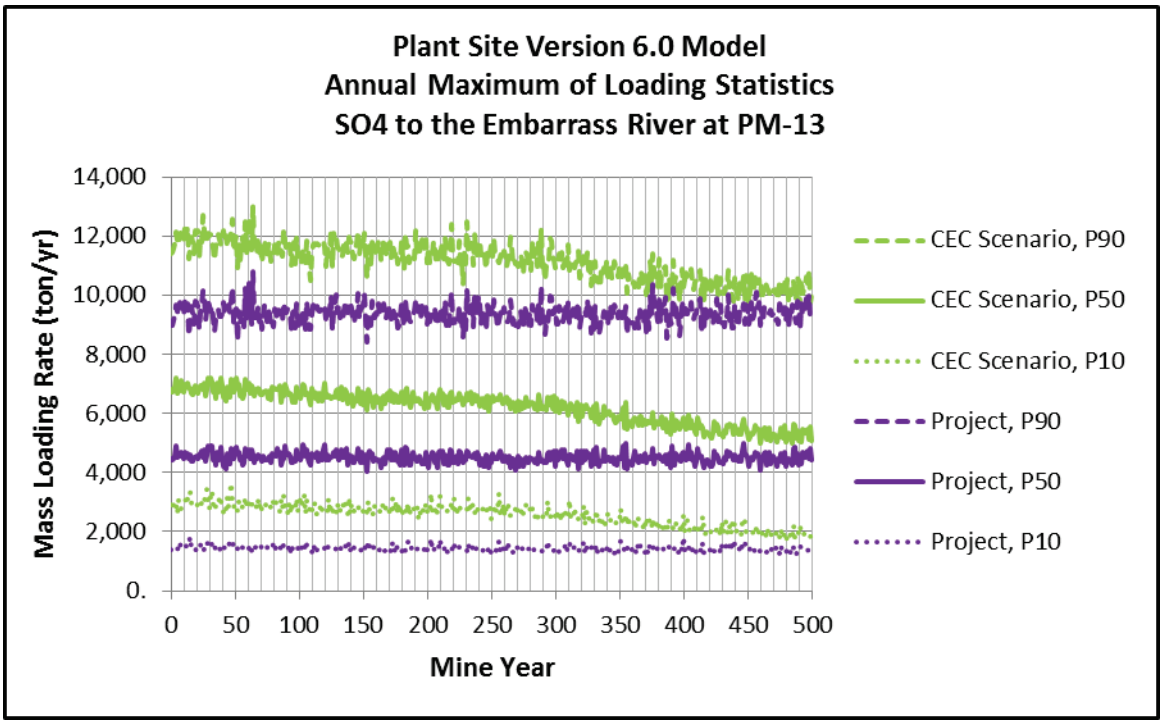

Source: Barr 2015j.

Figure 5.2.2-56 Range of Annual Sulfate Loading Rates to the Embarrass River at PM-13 – CEC Scenario versus NorthMet Project Proposed Action

Hydrologic Changes and Water Level Fluctuations

Methylation of environmental mercury by sulfate-reducing bacteria is also stimulated by drying and rewetting associated with hydrologic changes and water level fluctuations (Gilmour et al. 2004; Selch et al. 2007). Drying (and subsequent increase in exposure to oxygen) of substrate containing reduced sulfur species (sulfides and organic sulfur) oxidizes those species into sulfate, which is remobilized and available to sulfate-reducing bacteria upon rewetting of the substrate. This mechanism stimulates production of methylmercury in sediments exposed to wetting and drying cycles (Gilmour et al. 2004) and probably accounts for some of the elevated methylmercury concentrations observed in releases from wetlands during high-flow events (Balogh et al. 2006). Thus, hydrologic changes and water level fluctuations can potentially stimulate mercury methylation and enhance bioaccumulation. The effect of the NorthMet Project Proposed Action would decrease with distance downstream, as can be seen at PM-13, where the maximum change in flow would be approximately 3 percent in the annual average flow during operations, with a closure and long-term maintenance decrease of less than 2 percent (PolyMet 2015j).

Mercury Summary

Based on the above analysis, the NorthMet Project Proposed Action would have negligible effects on hydrologic changes or water level fluctuations in the Partridge River and Embarrass River, would maintain relatively low sulfate loadings and concentrations to the Partridge River,

would significantly reduce sulfate loadings to the Embarrass River, and would meet the GLI mercury standard for discharges.

The cumulative MMREM analysis for two scenarios showed a 0.5 to1.8 percent and 0.3 to 0.5 percent potential increase in fish mercury concentration above background. This potential change is considered to be small compared to background levels and is not expected to affect fish consumption advisories or effect consumers of locally caught fish. The increase is not expected to have an appreciable effect on the loading estimates from permitted discharges to the Embarrass, Partridge, or lower St. Louis rivers. Discharges are expected to meet the 1.3 ng/L standard for mercury, with an overall net decrease in mercury loading predicted for the NorthMet Project Proposed Action.

Sulfur is inherent to the mineral matrix of the dust particles that would deposit in the Project area; it is therefore likely that less than 100 percent of the sulfur would be weathered from the particles and be available to go into solution if deposited to soils or water. This potential incremental change may warrant future monitoring, as small sulfate increases in sulfate-poor wetlands would be expected to increase the production of methylmercury in wetlands (Jeremiason et al. 2006). However, methylmercury produced in wetlands is not necessarily incorporated into food chains and concentrated to levels of concern.

Overall, mercury loadings are predicted to increase slightly in the Embarrass River (0.1 percent), and decrease in the Partridge River (1.0 percent). Overall, the changes in total mercury concentrations associated with the NorthMet Project Proposed Action in closure and long-term maintenance at the respective Mine Site and Plant Site are estimated to be too small to distinguish from natural background variability in the Partridge River and the Embarrass River using available laboratory methods (Barr 2015g).

The NorthMet Project Proposed Action and project area watershed information used to assess the potential effects on average annual mercury loading and concentrations at the Plant Site and Mine Site (Upper Embarrass River and Upper Partridge River, respectively) were also used in assessing the potential effects from the NorthMet Project Proposed Action on mercury loading in the St. Louis River. The result would be a net decrease in overall mercury loadings (1.0 grams per year) with no detectable change in mercury concentrations to the St. Louis River as a result of the NorthMet Project Proposed Action (Barr 2015g).

5.2.2.3.5 Proposed and Recommended Mitigation Measures

PolyMet has proposed or agreed to measures to avoid, minimize, or mitigate potential environmental effects. These measures are considered part of the NorthMet Project Proposed Action (see Section 3.2) and include design changes since the DEIS, including fixed engineering controls, PolyMet would be required by its permits to monitor water quality and quantity to refine modeling and to predict future conditions for consideration in permit renewals. In the event that monitoring, coupled with modeling, identifies the potential for water quality exceedances, PolyMet has proposed adaptive engineering controls and contingency mitigation that could be implemented to prevent exceedances of water quality standards. An overview of the evolution of the NorthMet Project Proposed Action with respect to alternatives analysis is provided in Section 3.2.3.3. PolyMet commits to monitoring and management through application of facility management plans that form the NorthMet Project Proposed Action; these plans are listed in Section 3.2.2.

NorthMet Project Proposed Action Design Changes

PolyMet has proposed several significant improvements to the design of the NorthMet Project Proposed Action for this FEIS from the NorthMet Project Proposed Action as described in the DEIS (October 2009) and SDEIS (December 2013), which would avoid or minimize effects on water resources. These are described in Table 3.2-16.

Fixed Engineering Controls

PolyMet has proposed several fixed engineering controls that would decrease effects on water resources from the NorthMet Project Proposed Action. These fixed engineering controls are not expected to be modified during the life of the NorthMet Project Proposed Action and would be included as part of the NorthMet Project Proposed Action's financial assurance package. The fixed engineering controls include the following:

- Ditches, perimeter and pit rim, and sedimentation basins to separate and control stormwater and process waters;
- Pipes, pumps, and lined process water ponds to separate and control stormwater and process waters;
- Geomembrane liners, underdrain systems, sumps, and overflow ponds, for temporary storage of Category 2/3 Category 4 and Ore Surge Pile rock;
- Category 1 Stockpile hydraulic barrier and drain pipe which would collect surface and groundwater seepage that would then be pumped to the WWTF, enabling the capture and treatment of nearly all Category 1 Stockpile seepage;
- Treated Water Pipeline and Central Pumping Station to allow the re-use of water at the processing plant and zero liquid discharge during operations at the Mine Site;
- Haul Roads designed for the collection and separation of stormwater from road surfaces;
- Tailings Basin for the collection and control of NorthMet tailings and re-use of process water;
- Bentonite-amended Tailings Basin beaches and bottom (during reclamation) and embankment face (during operations) to reduce both water and oxygen intrusion into the tailings during reclamation;
- Tailings Basin containment system to collect, surface and groundwater seepage on the western, northwestern northern, eastern and southern sides of the Tailings Basin and pump it back to the Tailings Basin pond or to the Plant Site WWTP;
- Hydrometallurgical Residue Facility for collection, control, and storage of hydrometallurgical residue and re-use and recycle of process water. This facility would have a double geomembrane liner with a leakage collection system that would return any leachate to the Hydrometallurgical Residue Facility pond;
- Colby Lake pump house, pipeline from Colby Lake to the Plant Site reservoir; and
- Tailings Basin tributary augmentation system to maintain flows within ± 20 percent of existing flows using WWTP effluent.

Adaptive Water Management Plan

Adaptive management is a system of management practices, based on clearly defined outcomes and monitoring requirements, that assesses whether management actions are meeting the desired outcomes, and, if not, prescribes potential actions that would ensure the defined outcomes are met. In the case of the NorthMet Project Proposed Action, PolyMet has developed an Adaptive Water Management Plan (AWMP), which includes adaptive engineering controls and contingency mitigation measures (PolyMet 2015d). Adaptive engineering controls may have their design, operation, or maintenance modified before or after their installation based on measured and modeled water quality during and after operations. Monitoring data in particular are important because not all questions about water management can be answered by GoldSim (i.e., transport time for constituent load in the Category 1 stockpile). Certain model assumptions may not be applicable to all potential project feature modifications. If water quality were better or worse than predicted, adaptive engineering controls would be adjusted accordingly, or contingency mitigation implemented with the approval of regulatory agencies.

Adaptive Engineering Controls

Adaptive engineering controls would be included as part of the permit to mine financial assurance package and would include the following:

- Mine Site WWTF – The WWTF would be upgraded to a RO process or equivalently performing technology that would meet water quality targets during closure and long-term maintenance to manage influent sulfate concentrations. The WWTF is an adaptive engineering control because its operating configuration, process unit requirements and capacity can be modified to treat varying influent streams and discharge requirements. WWTF construction plans include a phased build-out of the capacity to meet the Mine Site's P90 maximum flow requirements (year 14). Therefore, greater capacity could be achieved sooner if necessary. The WWTF processes could be adapted depending on actual water quality conditions encountered during the NorthMet Project Proposed Action phases and estimated by water quality monitoring and model updating. Treatment performance issues that could occur from changes in influent water quality could be addressed by making adjustments to operating conditions (PolyMet 2015d). Lime could also be added to the East Pit during waste rock backfilling if additional alkalinity were needed (Adaptive Water Management Plant, v7, Feb 2015).
- Adaptive management would be implemented as necessary based on monitoring for total mercury to determine whether the treated water could be discharged to surface waters, or whether some additional treatment is needed. Adaptive management strategies would include pretreatment modifications such as a chemical scavenger addition ahead of the greensand filter units to obtain additional metals, the use of tighter RO membranes for the primary RO system, treatment of some portion of the Vibratory Shear Enhanced Process (VSEP) permeate by the primary RO system to further remove some dissolved constituents, and addition of polishing treatment units for removal of trace metals (e.g., ion exchange).
- If future modeling, informed by the results of the monitoring, predicted that the NorthMet Project Proposed Action would not protect surface waters, then adaptive mitigation measures could be implemented to decrease NorthMet Project Proposed Action effects on the Partridge

River prior to an actual effect occurring (PolyMet 2015d). Possible adaptive measures that could be implemented include the following:

- Modify the WWTF design to generate cleaner effluent. For example, pilot-testing of the proposed RO unit resulted in average sulfate removal rates of 99.8 percent with average and maximum sulfate concentrations observed in the effluent of 3.7 and 6.9 mg/L, respectively, for the blended (RO and vibratory shear enhanced processing) streams, which is below the 9 mg/L value assumed for modeling purposes during closure (Barr 2013f). Given that the WWTF would have an annual average discharge of approximately 300 gpm, as compared to about 78 gpm from the three groundwater sources of sulfate, a small decrease in the actual sulfate concentration in the WWTF effluent could offset the loading from the three groundwater sources.
- Increase the WWTF discharge in closure. PolyMet could temporarily increase the volume of the WWTF (which is operating below its actual capacity) effluent discharge during low-flow conditions, which would help further dilute concentrations in the Partridge River.

- Category 1 Stockpile Cover System – PolyMet proposes to install a geomembrane cover system, in lieu of the originally proposed evapotranspiration cover, to reduce the load of the constituents that would reach the West Pit via drainage from the Category 1 Stockpile. Construction of the Category 1 Stockpile cover system would be progressive, starting in year 14 and being fully constructed by the end of year 21. Under the NorthMet Project Proposed Action, the Category 1 Stockpile would be the only permanent waste rock stockpile. Water quality modeling indicates that for many constituents, this stockpile would be the largest source of constituent load to the West Pit. The Category 1 Stockpile cover system would be the primary engineering control that limits constituent loading from the Category 1 Stockpile to the West Pit.

  The design of the Category 1 Stockpile cover system could be adapted up to the point of construction, depending on the actual water quality conditions encountered during the NorthMet Project Proposed Action phases and estimated by water quality monitoring and model updating. Design options, which would need to be approved by the MPCA and MDNR, include:

  - Increased or decreased thickness of the geomembrane material to modify the potential for defects to be created during installation and to modify the life of the geomembrane;
  - Increased or decreased soil cover thickness above the geomembrane material to modify water storage capacity;
  - Increased or decreased soil hydraulic conductivity of the granular drainage layer above the geomembrane to modify lateral drainage capacity;
  - Increased or decreased uninterrupted slope length to modify lateral drainage capacity;
  - Modified soil type and/or thickness below the geomembrane to modify leakage rate through potential geomembrane defects; and/or
  - Including a geosynthetic clay liner below the geomembrane to modify leakage rate through potential geomembrane defects.

After installation of the cover system, post-installation adjustments, such as modifying vegetation density and erosion of the cover system, could be made if approved by the MPCA and MDNR (PolyMet 2015d).

- Plant Site WWTP – The WWTP would treat process water. A RO treatment plant it proposed or equivalently performing technology that would meet water quality targets. Because the plan for construction of the WWTP envisions a phased build-out of the capacity that would be needed when the maximum flow occurs, variations in quantity can easily be addressed by either accelerating or delaying the installation of the additional equipment that is planned for the expansion of the WWTP.
- Treatment performance issues that could occur from changes in influent water quality can be addressed by making adjustments to operating conditions. At times throughout the year, it is expected that the WWTP would have excess hydraulic capacity, which can be used to improve treatment performance, for example by reducing the recovery rates for the membrane separation processes or increasing the hydraulic retention times in the chemical precipitation processes.
- Other examples of how the WWTP can be adapted during the Project to modify treatment performance include:
  - Selection of alternative membranes for either the RO or the Vibratory;
  - Shear Enhanced Processing (VSEP) process units to modify the removal efficiencies of some parameters across these systems;
  - Chemical addition to increase metals removal by the WWTP; and
  - Softening pretreatment.

  Adaptive management would be implemented as necessary based on monitoring for total mercury to determine whether the treated water could be discharged to surface waters, or whether some additional treatment is needed. Adaptive management strategies would include pretreatment modifications such as chemical scavenger addition to obtain additional metals; the use of tighter RO membranes for the primary RO system; treatment of some portion of the VSEP permeate by the primary RO system to further remove some dissolved constituents; and addition of polishing treatment units for removal of trace metals (e.g., ion exchange).
- Tailings Basin Pond Bottom Cover – During reclamation, PolyMet proposes to deposit granular or pelletized bentonite into the Tailings Basin pond, which would then settle and form a cover. This cover would reduce the diffusion of oxygen and water percolation into the tailings, thereby reducing oxidation and the resultant production of contaminants. In addition, the seepage through the tailings would be reduced, resulting in less flow being collected in the Tailings Basin surface and groundwater seepage containment system, and then treated.

  The Tailings Basin pond bottom cover thickness or the percent of bentonite in the pellets or grains or both can be changed if monitored water quantity or quality suggested that modifications were needed to meet water resource objectives. This modification can occur before or after installation to modify performance.

In addition, the bentonite amended layer could be excavated from portions of the pond bottom to modify performance. Any design modifications would need to be approved by the MPCA and MDNR (PolyMet 2015d).

Contingency Mitigation

Contingency mitigation measures are technically feasible options that could be undertaken should engineering controls (fixed or adaptive) be unable to ensure compliance with applicable water quality standards. These contingency measures were not included in GoldSim modeling, as current model results at the P90 confidence level did not show these measures were needed to meet or not cause or add to an exceedance of the evaluation criteria. If monitoring or refined modeling were to indicate that contingency mitigation would be needed, these measures would be employed as appropriate and approved by the MPCA and MDNR. The contingency mitigation measures would not be initially included in the financial assurance package, but, if required in the future, these measures would be added to the financial assurance package. These contingency mitigation measures would address the following situations (PolyMet 2015r; 2015i):

- A pattern of overflows of the process water sumps or ponds developed – In all the process water sumps and ponds, there would be excess capacity designed as a safety factor ranging from approximately 30 to 270 percent of required capacity. Additional capacity could be developed by expanding the pond areas.
- Streams along the railroad corridor between the Mine Site and Plant Site showed degradation in water quality as a result of material spilled from the rail cars – Catchment areas could be developed adjacent to the tracks at stream crossings to minimize the amount of material that reaches the streams.
- Groundwater downgradient of lined infrastructure had compliance issues – Interception wells could collect groundwater flows affected by a leak from one of the liner systems or by the OSLA. Interception wells would only be needed while groundwater was affected by the temporary mine features.
- West Pit water quality was not as expected – This could be addressed by reducing the contaminant load from the West Pit walls or the East Pit using methods such as low-permeability soil barriers or a PRB to treat discharge, adding water with lower concentrations of contaminates to the West Pit by routing additional stormwater to the West Pit, or treating the West Pit either by pumping West Pit water to the WWTF for treatment or treating the West Pit Lake in situ with iron salts, fertilizer, or other methods tailored to the contaminant.
- If East Pit or West Pit groundwater inflows are greater than expected due to faults, use of a grout curtain to control groundwater flow into pits and eventually out of pits when they are filled with water or water and rock would be evaluated (PolyMet 2014l).
- New surface seepage locations emerged as the Tailings Basin was developed – The surface and groundwater seepage containment system or the Tailings Basin south surface seepage management system could be expanded to collect seepage from any new seepage locations.
- Tailings Basin pond water quality was worse than expected – This could be addressed by several methods, including: reducing solute load delivered to the Tailings Basin pond by incorporating additional treatment at the Mine Site WWTF; sending all or a portion of the water from the surface and groundwater seepage containment system and Tailings Basin

south surface seepage management systems to the WWTP for treatment before being returned to the Tailings Basin pond; sending pond water to the WWTP for treatment before being returned to the Tailings Basin pond; or treating the Tailings Basin pond in situ with iron salts, fertilizer, or other methods tailored to the constituent of concern.

- Groundwater or surface water downgradient of the Tailings Basin has compliance issues – This could be addressed by several methods, including inspecting the containment system around the Tailings Basin for breaches and repaired or using interception wells to collect groundwater flows affected by a breach, or improving Tailings Basin pond water quality (see above).
- Bedrock Northward Flowpath Strategies – The purpose of mitigation in this instance is to prevent a northward flow of pit water from the proposed NorthMet pits to the Northshore pits. By the time mitigation may be needed, much more would be known about the intervening hydrogeology given the data obtained and analysis completed during the early operational period. It is expected that monitoring data would be available continuously from mine year 1 as well as quantitative analysis to inform mitigation options before engineered solutions would be needed and constructed. Options and associated designs would continue to be refined throughout this data collection period so that an effective engineering design is available (if needed) to prevent any adverse impact. (MDNR et al. 2015c). See section 6.2.2.3.1 for the discussion of potential cumulative impacts.

  There are a number of mitigation measures that could be implemented, either individually or in combination with one another, which would prevent any potential cumulative adverse impact. The exact type, location, scale, and timing of mitigation measures are not known at this time. The measures discussed below are considered feasible in this region and have been shown to be effective in mitigating impacts in similar conditions. They are discussed conceptually in this FEIS because more site data would be necessary to complete detailed designs. Other methods to prevent northward bedrock groundwater flow from the proposed NorthMet pits to the Northshore pits may also become feasible as the hydrogeology is better understood during mine operations.

  The description of each measure includes a brief qualitative assessment of potential environmental effects. This is based upon the theoretical application of these mitigation measures and the water management dynamics understood through the evaluation of the NorthMet Project Proposed Action. If mitigation is necessary, the action would need to meet all applicable environmental review and permitting requirements.

  – ***Grouting:*** Industrial mining grout (commonly a mixture of bentonite, cement, and water) injection can be used to reduce the hydraulic conductivity of the fractures/faults network, which then controls bedrock groundwater flow to and from mine pits. Particular grout curtains, which are a series of closely spaced drilled holes from which grout is injected into fractures, can be used for groundwater control in both unconsolidated deposits and fractured rock. At the NorthMet Mine Site, if monitoring and analysis indicate conditions could arise that create a northward flowpath, PolyMet would have the necessary information about site conditions to grout fractures and faults. This method is desirable because of the relative lack of maintenance and lack of effects to water resources. However, its effectiveness at the NorthMet site is uncertain and it may need to be combined with other mitigation options (Barr 2015b).

- ***Pit Lake Depression:*** The water elevation within the NorthMet pits are expected to be higher than those in the Northshore pits after Northshore closes, and may also be higher during the NorthMet and/or Northshore Mine operations. Water levels could be managed in the NorthMet East and/or West pits to be equal to or lower than the Northshore pits. The purpose would be to reduce hydraulic heads between the mines such that potential for northward bedrock flow is avoided entirely, or provides a degree of head reduction in concert with application of other measures to prevent bedrock groundwater flow northward. The exact pit water levels required to maintain a bedrock groundwater mound with south flow to the NorthMet pits would depend on the downward leakage rate and the potential implementation and effectiveness of other complementary mitigation measures.

  The benefit of lowering the West Pit and/or East Pit water elevations would be the elimination of *all* surficial deposit and bedrock flowpaths (north and south) from these sources at the NorthMet Mine Site. This is a highly feasible option from an engineering perspective and can be implemented relatively quickly because the infrastructure to do so already exists, only requiring additional pumping and water treatment capacity. If applied, the mitigation would operate entirely within the area of disturbance described in this FEIS. However, this measure would expose pit walls to additional oxygen, which could increase the chemical loading to the West Pit lake water and East Pit backfill pore water. Reduced pit water quality and increased pit pumping would require a higher capacity water treatment facility and possibly additional treatment processes entailing additional expense. If pit wall grouting were to be done, and if it proved effective, it would reduce the pit inflow and associated wastewater treatment rates.

  If the West Pit and East Pit water levels were kept depressed, additional water would need to be managed at the Mine Site and Plant Site, likely increasing the need to discharge more water at the Plant Site during NorthMet operations. Treated water would likely be discharged to the Partridge River in closure and increase its flows in comparison to the NorthMet Project Proposed Action. In addition, transition to a non-mechanical treatment system would be more difficult. With a depressed water level, construction of a wetland in the East Pit would likely be limited.

  The Co-lead Agencies note that pit lake depression is of particular interest for the NorthMet East Pit because of the presence of higher-permeability Virginia Formation in the north pit highwall. In the simplest sense, maintaining a depressed East Pit water level (relative to Northshore pit lake elevations) would ensure there is no bedrock groundwater flow to the north. Depending on the timing, implementing this mitigative strategy could have implications for mine waste management proposed for the NorthMet East Pit. This is because the proposed inundation of Category 2/3 and Category 4 waste rock is an important water quality control feature and waste rock management strategy. Although pit wall inundation is also planned for the NorthMet West Pit, depressing pit lake elevations there does not have the same bedrock groundwater flow implications as implementing this for the East Pit.

  The water level that would need to be maintained could be evaluated based upon the monitoring information collected and analysis performed during the mining process and initial phases of pit refill. Short-term application of this measure would likely have lesser consequences to pit water quality or operational requirements than long-term.

Additionally, using artificial aquifer recharge in combination with pit lake depression could further reduce effects.

- ***Groundwater Extraction Wells:*** Using extraction wells, PolyMet could pump water from bedrock to create a hydraulic depression in the bedrock groundwater system between the NorthMet and Northshore mines.

  The wells would be located between the NorthMet mine pits and the Partridge River. The number, geographic extent, and configuration of the wells would depend upon the width of the northward bedrock flowpath, the hydrologic properties of bedrock, and the addition or not of other mitigation measures such as a partial pit drawdown, grouting, or artificial aquifer recharge (described below).

  There would be relatively small disturbance (compared to the NorthMet Project Proposed Action) related to laying the water line(s), electrical lines, pads, and access. Wells would need to be drilled, water lines to transport pumped groundwater would need to be laid out, and likely electricity would need to be supplied to the sites. Roads would likely be needed to access the wells for ongoing operations and maintenance. If the condition of a northward flowpath occurs, the number, capacity, and location of wells would be considered based on monitoring information obtained during the mining process and after the contingency is adopted. The wells would be sealed and site(s) restored if and when the wells are no longer needed.

  If implemented in isolation of other mitigation measures, this system would increase flow rates to the WWTF. Potential flow rate increases to the WWTF could be reduced by using some of the extracted water to saturate the East Pit backfill. If pit wall grouting were to be done, and if it proved effective, it would lower extraction well pumping rates. Bedrock extraction wells would induce a north flow from the NorthMet Mine Site to the extraction wells, but no further. After the pits fill, water chemistry would stabilize and gradually improve as predicted under the NorthMet Project Proposed Action. Due to slower refill, the start of bedrock and surficial groundwater flow toward the Partridge River would be delayed when compared to the NorthMet Project Proposed Action.

  Long-term WWTF influent water quality would not likely differ significantly from that modeled for the NorthMet Project Proposed Action. However, WWTF influent flow rates would likely be greater as it would consist of both pit pumping and bedrock well pumping. This would increase the NorthMet Project Proposed Action discharges to the Partridge River.

  Wetlands would be directly impacted from groundwater extraction well installation and access road construction. The number of acres of ground disturbance is unknown as the location and number of wells is unknown. If the number of wells necessary resulted in unacceptable wetland impacts, other mitigation measures used in tandem with extraction wells would lower the number of required extraction wells.

- ***Artificial Recharge***: A bedrock groundwater mound can be artificially created between the NorthMet mine and the Northshore Mine by increasing aquifer recharge into bedrock via wells, an infiltration trench, or a combination of both. The recharge water would need to be free of particulates to minimize clogging. Periodic well or trench redevelopment would be required. This type of system would be located between the NorthMet mine pits

and the Partridge River. The extent, water source, and configuration of the artificial recharge system would depend upon the information obtained during monitoring of conditions during mining operations. The trench may only need to operate in non-frozen conditions to supply sufficient water to create a bedrock groundwater mound (Barr 2015b).

For wells, the geographic extent, number, and configuration of the artificial recharge system would depend upon the width of the northward bedrock flowpath. The wells would need to be drilled, water supply lines from the source water to the wells would need to be laid out, and likely electricity would need to be supplied to the sites. Roads would likely be needed for access to facilitate their operation and maintenance. If the condition of a northward flowpath occurs, the number, capacity, and location of wells would be considered based on monitoring information obtained during the mining process and after the contingency is adopted. The wells would be sealed and site(s) restored after the wells are no longer needed.

For an infiltration trench, road access would be needed for the trench excavation and backfilling. Construction details would depend upon the adopted design, though it is possible a single-pass construction methodology could be employed to minimize disturbance. Water lines would likely need to be laid out for introduction into the trench.

Both treated WWTF effluent or un-impacted (i.e., non-contact) stormwater would be available indefinitely during closure, and could provide water for recharge. Bedrock well field tests would be necessary to further evaluate the design and operation of this mitigation measure. Because this option would introduce recharge water migration northward to the Northshore pits, the possibility of coupling this strategy with extraction wells would be necessary to prevent the recharge water from migrating to the Northshore pits.

Artificial recharge would induce southern bedrock groundwater flow towards the West Pit and/or East Pit. Because the recharge water would have low chemical concentrations, it is unlikely to adversely affect pit water quality. As a result, estimates of bedrock and surficial deposit groundwater water chemistry entering the Partridge River from the Mine Site are unlikely to be significantly different from what is currently modeled in this FEIS. Surficial deposit groundwater flowpaths and flow rates to the Partridge River are unlikely to change significantly from what is currently predicted in this FEIS. Furthermore, the flow rates and effluent quality of the WWTF that would be discharged to a tributary of the Partridge River are unlikely to be significantly different from what is currently modeled in this FEIS. Under the artificial recharge scenario (without the extraction wells), treated or unaffected water would flow north to the Northshore Mine.

Wetlands would be directly affected from recharge wells and/or infiltration trench and access road construction. The number of acres of ground disturbance is unknown as the final location and number of wells and/or trench is unknown. If the design of the artificial recharge system resulted in unacceptable wetland impacts, other mitigation measures used in tandem with artificial recharge would decrease the number of wells or size of the trench.

The mitigation measures discussed above, if needed, would be maintained indefinitely or until acceptable bedrock groundwater flow conditions are obtained without those measures. This may

include maintaining and periodically replacing recharge or extraction wells. The performance of the adaptive mitigation measures would be determined by monitoring the direction of bedrock groundwater flow. If the artificial recharge or pit lake depression option is chosen, a south bedrock flow toward the NorthMet pits would need to be verified. If the groundwater extraction well is chosen, a south flow away from the Northshore pits would need to be verified.

Future Transition from Mechanical to Non-Mechanical Treatment Systems

The NorthMet Project Proposed Action would rely upon mechanical treatment to achieve water resource objectives as long as needed; however, the goal would be to transition to non-mechanical treatment—which would be a low-maintenance, low-energy treatment system—to ensure attainment of water resources objectives, including compliance with applicable groundwater and surface water standards, during the closure phase.

State of Minnesota Non-Ferrous Rules allow for maintenance after closure, known as "post-closure maintenance" (*Minnesota Rules*, part 6132.3200, subpart 2.E.6.). While "closure" is defined in the Rules to mean, "…the process of terminating and completing final steps in reclaiming any specific portion of a mining operation." Post-closure maintenance includes those activities required to "sustain reclamation" after closure (*Minnesota Rules*, part 6132.0100). Both of these maintenance methods can meet the goals of *Minnesota Rules*, part 6132.3200, subpart 1. It is important to recognize that the goals in the Non-Ferrous Rules are not requirements.

When mining activities cease, a permittee is required to initiate "closure" of the mine. As part of the closure process, reclamation of the mining area must be completed. If continued maintenance is needed following closure of the mine to sustain the reclamation, the permittee is responsible for "post-closure maintenance." To ensure that reclamation is completed and sustained, the Non-Ferrous Rules require the permittee to provide financial assurance in amounts sufficient to pay for both closure and post-closure maintenance. A permittee cannot be released from its responsibilities, including financial assurance requirements, until there is no longer a need for post-closure maintenance.

The permit to mine would require PolyMet to present a plan for eventual transition from mechanical water treatment to non-mechanical water treatment. PolyMet plans to test non-mechanical water treatment technologies during mine operations and following closure and then transition from mechanical to non-mechanical water treatment technologies as soon as the company can demonstrate that that these technologies would treat water to the required water quality standards.

Non-mechanical treatment systems, which are described below, would be designed and pilot-tested before being implemented to treat water from the Category 1 Stockpile surface and groundwater seepage containment system, the West Pit Overflow, the Tailings Basin seepage containment system, and the Hydrometallurgical Residue Facility.

Category 1 Stockpile Groundwater Containment Non-mechanical Treatment System

PolyMet proposes to install a Category 1 Stockpile groundwater containment non-mechanical treatment system at the Mine Site to replace the mechanical treatment of the water collected by the containment system during the closure and long-term maintenance phase of the NorthMet Project Proposed Action. The system would likely include two PRBs, which are flow-through treatment systems, for metal precipitation and solids removal. The PRBs would reduce

constituent loading through physical, chemical, and/or biological treatment processes including: biochemical reduction of sulfate to sulfide using sulfate-reducing bacteria, sorption to solid-phase surfaces such as iron oxides or organic matter, chemical precipitation to convert dissolved-phase constituents to solid-phase particles, and physical filtering of solid-phase particles. The PRBs would ideally be located where they could take advantage of gravity flow. The locations would be dependent on the final hydraulic plan for discharge from the Category 1 Stockpile surface and groundwater seepage containment system into the West Pit (PolyMet 2015d).

West Pit Overflow Non-mechanical Treatment System

PolyMet proposes to install a West Pit overflow non-mechanical treatment system at the Mine Site to replace the pumping of West Pit lake water to the WWTF during the closure and long-term maintenance phase of the NorthMet Project Proposed Action. It is expected to be a multi-stage system with a constructed wetland for metal (copper, cobalt, nickel, and lead) precipitation and solids removal, a PSB for metal sorption, and an aeration pond to provide time for water exiting the PSB to re-equilibrate with the atmosphere and to increase the concentration of dissolved oxygen before the water would be discharged. The proposed design and operation of any non-mechanical system at the Mine Site would be adapted as necessary to effectively treat actual flows and to meet all applicable regulatory requirements (PolyMet 2015d).

Tailings Basin Non-mechanical Treatment System

PolyMet proposes to install a Tailings Basin non-mechanical treatment system to replace the mechanical treatment of the water draining through the Tailings Basin and collected in the Tailings Basin seepage containment system and the south seepage management system during the closure and long-term maintenance phase of the NorthMet Project Proposed Action. In closure and long-term maintenance, seepage flow to the east would be less than 1 gpm. Provisions to adaptively manage this low-volume flow from the eastern segment of the containment system would be included in the development of the Non-Mechanical Treatment System. During closure and long-term maintenance, any water collected by the Hydrometallurgical Residue Facility leakage collection system would also be routed to this treatment system. The Tailings Basin non-mechanical treatment system would consist of a constructed wetland for metals precipitation, sulfate load reduction, and solids removal and PSBs for polishing (i.e., additional removal of metals, if needed). It would be constructed by rebuilding the natural wetlands between the Tailings Basin and the containment system as a vertical, upflow constructed wetland system with PSB systems at the outer perimeter within the access road. The total flow for the Tailings Basin non-mechanical treatment system is expected to be 1,200 gpm, which would include flows at the northern, northwestern, western, and southern toes (PolyMet 2015d).

Tailings Basin Pond Overflow Post-mechanical Treatment Options

During the initial portion of the closure and long-term maintenance period, Tailings Basin pond water would be pumped to the WWTP to prevent overflow. A monitoring program would document changes in pond water levels and water quality over time. One goal of the NorthMet Project Proposed Action during closure and long-term maintenance would be to allow overflow of the tailings pond. This could only be done after demonstrating that water in the Tailings pond was stormwater and that it complied with applicable standards. The Tailings Basin closure overflow structure would be embedded into bedrock of the hillside east of Cell 2E during

reclamation. This structure would likely be modified to serve as a stormwater overflow, which would allow water discharged to enter the Mud Lake Creek Watershed (PolyMet 2015d).

5.2.2.3.6 Monitoring

Monitoring would be a critical component of the NorthMet Project Proposed Action to better understand impacts and to inform facility operation and maintenance and the selection and implementation of possible adaptive or contingency mitigation measures. The NorthMet Project Proposed Action includes PolyMet's proposed water quality and quantity monitoring plan. Overviews of the water monitoring plans at the Mine Site and Plant Site, with PolyMet proposed monitoring locations and frequencies, are presented in the sections below. The specifics of monitoring—including specific locations, frequencies, and parameters—would be finalized during the permitting process after a detailed evaluation. An NPDES permit would be required for any point source water discharge that adds pollutants to waters of the United States.

Partridge River Watershed

Overview

Water monitoring within the Partridge River Watershed would be used on a continual basis to document compliance with permit conditions, annually validate and update water models, and provide input to optimize operations including any adaptive engineering controls or contingency mitigation measures. Depending on the component (i.e., water flow, water flow direction, elevation, or quality) monitoring frequency would range from continuously to quarterly (PolyMet 2015r). An overview of PolyMet's proposed water monitoring plan within the Partridge River Watershed is in Table 5.2.2-52.

Table 5.2.2-52 Overview of Monitoring Plans within the Partridge River Watershed

Monitoring Plan Component		Purpose	Summary	General Locations
Internal Streams	Pit water	Compare water balance with expected conditions. Define future pumping requirements and evaluate trends in pit water quantity and quality.	Continuous flow monitoring and monthly water quality sampling at up to four sumps[1] as well as pit water elevation monitoring	Stations installed to monitor flows and water quality from each pit sump
	Stockpile drainage	Compare water balance with expected conditions. Define future pumping requirements, and evaluate trends in stockpile drainage water quality.	Continuous flow monitoring and monthly water quality sampling from up to 12 locations[1]	Stations installed to monitor drainage from each stockpile liner and each stockpile underlain and the two Category 1 Waste Rock Stockpile containment system sumps
	Overburden Storage and Laydown Area runoff	Compare water balance with expected conditions. Define future pumping requirements, and evaluate trends in Overburden Storage and Laydown Area water quality.	Continuous flow monitoring and monthly water quality sampling in the Overburden Storage and Laydown Area pond[1]	Stations installed to monitor flows and water quality from the Overburden Storage and Laydown Area pond
	Haul road runoff	Compare water balance with expected conditions. Define future pumping requirements, and evaluate trends in haul road water quality.	Continuous flow monitoring and monthly water quality sampling of the haul road ponds[1]	Stations installed to monitor flows and water quality from the haul road ponds
	Rail Transfer Hopper runoff	Compare water balance with expected conditions. Define future pumping requirements, and evaluate trends in Rail Transfer Hopper water quality.	Continuous flow monitoring and monthly water quality sampling of the Rail Transfer Hopper pond[1]	Stations installed to monitor flows and water quality from the Rail Transfer Hopper pond
	WWTF influents and effluents	Optimize the treatment operations and demonstrate acceptable effluent characteristics.	Continuous flow monitoring and monthly water quality sampling of the influent and effluent streams	Inlet and outlet of the WWTF
	Treated Water Pipeline flows	Compare water balance with expected conditions	Flow monitoring and water quality sampling at the inlet and outlet	Inlet and outlet of the Treated Water Pipeline
Stormwater	Stormwater	Evaluate trends in stormwater quality.	Flow monitoring and water quality sampling at pond outlets[1]	Stormwater pond outlets

Monitoring Plan Component		Purpose	Summary	General Locations
Groundwater	Surficial aquifer	Evaluate groundwater level and water quality trends in the surficial aquifer.	33 sampling locations sampled approximately April, July, and October	Surficial aquifer monitoring wells installed downgradient of each stockpile and pit
	Bedrock	Evaluate groundwater level, bedrock flow direction north of the Mine Site, and water quality trends in the bedrock.	PolyMet proposes eight bedrock wells north of the Mine Site, and four to the south; in addition to these wells, the Co-lead Agencies recommend an additional well north of the East Pit; Sampling approximately April, July, and October	Approximate bedrock monitoring well locations are shown on Figure 5.2.2-57.
Wetlands	Wetlands	Predict and evaluate potential hydrologic and water quality effects of mining operations on wetlands and determine if potential indirect impacts from the mining operations have occurred or if additional mitigation is needed.	Number of piezometers and sampling frequency to be determined	Continuation of baseline monitoring program
Surface Water	Partridge River and tributaries	Evaluate trends in surface water quality and flow.	Monthly sampling of flow and water quality at nine sampling locations during non-frozen conditions	Partridge River, Longnose Creek, Wetlegs Creek, Wyman Creek, and West Pit Overflow Creek,
	Second Creek	Evaluate trends in surface water quality and flow.	Monthly sampling of flow and water quality	Second Creek downstream of seepage barrier
	Colby Lake and Whitewater Reservoir	Evaluate trends in water quality of Colby Lake and water levels for Colby Lake and Whitewater Reservoir.	Water quality and water level sampling at one location for each water body during non-frozen conditions	Colby Lake and Whitewater Reservoir

Source: PolyMet 2015r; MDNR et al. 2015c.

Note:
[1] Cumulative flow volume would be measured, with values recorded on a monthly basis. Water quality monitoring would occur during non-frozen conditions.

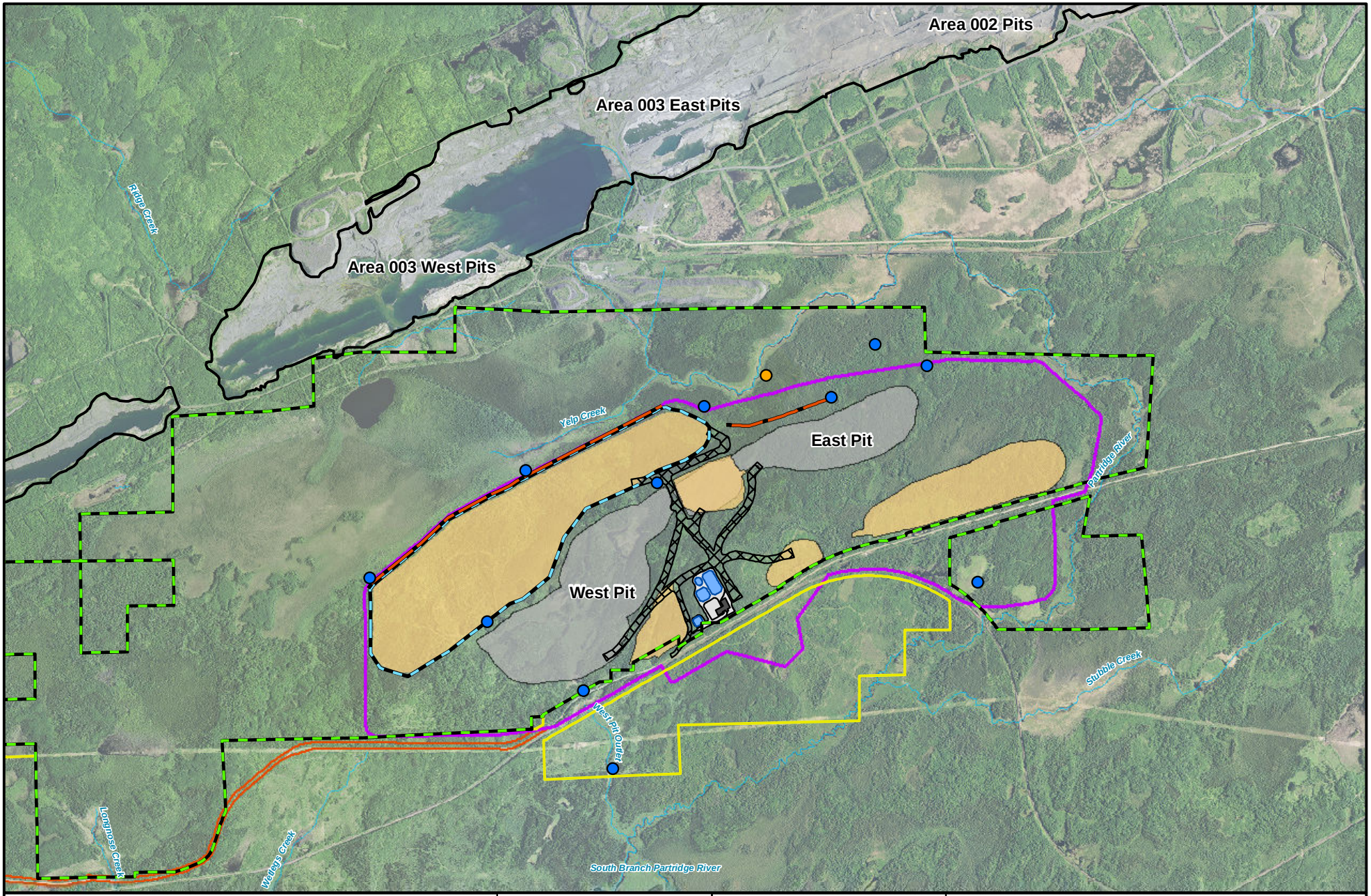

Proposed Bedrock Monitoring Well
Agency Recommended Bedrock Monitoring Well
Groundwater Containment System
Land Exchange Area
PolyMet Owned/Leased Lands
Mine Site
Haul Road
Stockpile
Mine Pit
Perimeter Dike
Peter Mitchell Pit Areas
Transportation and Utility Corridor
Stream/River

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 0.25 0.5 1 Miles

Figure 5.2.2-57
Proposed and Recommended Bedrock Groundwater Monitoring Wells - Mine Site
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Waste Rock and Overburden

Proper placement of waste rock and overburden in the appropriate stockpile and for ultimate disposal would be important to achieve the NorthMet Project Proposed Action's predicted water quality. PolyMet has developed a Rock and Overburden Management Plan for monitoring and testing of waste rock during mine operations. The USEPA, MDNR, and MPCA have agreed that they will review this Plan and include requirements for waste rock testing and monitoring to ensure it is properly categorized and managed during permitting.

Ore Spillage

The MDNR would require a Spilled Ore Plan as part of the Permit to Mine for monitoring the extent of spillage and identifying appropriate mitigation measures.

Faults/Fractures

The Co-lead Agencies recommend a robust monitoring program during all phases of mining to provide evidence of the presence or absence of hydrologically significant faults. If identified, mitigation can be employed to minimize flow through the faults.

Bedrock Groundwater North of the Mine Site

The Co-lead Agencies would require monitoring of bedrock groundwater levels north of the Mine Site to determine the potential for northward flow between the NorthMet and Northshore pits during operations, reclamation, and closure of both facilities. The results of the monitoring would be used to identify the need for installation of engineered mitigation measures to prevent any such northward flow. Monitoring would start in mine year 1 where data evaluation and quantitative analysis would be used to predict the ultimate flow direction before the NorthMet West Pit and East Pit are fully refilled.

The monitoring network would include a Co-lead Agencies' recommended minimum of 13 wells where the number and location of wells is based on a three-point, monitoring network design. The monitoring points in the network are: water level in NorthMet pits; near field water levels; and far field water levels, including Northshore pits. The final design would be defined in permitting, where additional wells could be added to the monitoring network at the direction of regulatory agencies before or during mine operations. See Figure 5.2.2-57.

The monitoring and analysis window that starts at pit development and continues through operations and pit refill would provide ample opportunity to collect necessary data, and complete applicable environmental review and/or permitting, engineering and construction prior to the development of a northward flowpath (if one were to form at all). This is because conditions potentially supporting development of a northward flowpath would not exist until water levels in the NorthMet pits are higher than at the Northshore pits. The exact requirements for the construction and operation of these wells would be determined during permitting. If installation of contingency mitigation(s) proved necessary, the monitoring wells would continue to be used to verify system performance (MDNR et al. 2015c).

Embarrass River Watershed

Overview

Water monitoring within the Embarrass River Watershed would be used on a continual basis to document compliance with permit conditions, annually validate and update water models, and provide input to optimize operations of adaptive engineering controls. Depending on the component (i.e., water flow, elevation, or quality) monitoring is proposed to occur continuously, monthly, or three times a year in the first month of non-freezing quarters (PolyMet 2015i). An overview of PolyMet's proposed water monitoring plan at the Plant Site is in Table 5.2.2-53.

Table 5.2.2-53 Overview of Monitoring Plans for the Embarrass River Watershed

Monitoring Plan Component		Purpose	Summary	General Locations
Internal Process Water Streams	Tailings Basin pond	Monitor pond WLs and trends in Tailings Basin pond water characteristics over time	Daily WL monitoring and WQ monitoring	WL monitoring location TBD; WQ monitoring at pond barge
	Tailings Basin seepage	Evaluate seepage rate and trends in WQ characteristics over time	Continuous flow monitoring and monthly WQ samples from seepage collection systems	Groundwater containment system lift stations and Tailings Basin south surface seepage management system pump station
	Hydrometallurgical Residue Facility pond	Monitor WL to prevent overtopping the Hydrometallurgical Residue Facility dam and monitor WQ trends over time	Daily WL monitoring and monthly WQ monitoring.	WL monitoring location TBD; WQ monitoring at pond barge
	Hydrometallurgical Residue Facility leachate	Evaluate leachate quantity and characteristics over time	Continuous flow monitoring and monthly monitoring of leachate quality	Underdrain
	Continued existing waste streams	Continue existing WQ monitoring requirements as appropriate	Quarterly monitoring of flow and WQ during non-frozen conditions (April, July, and October)	Seep into Cell 1E
Stormwater	Stormwater	Monitor stormwater quality and quantity	Monthly (during non-frozen conditions, April through October) flow rate and WQ monitoring	Stormwater control features

Monitoring Plan Component		Purpose	Summary	General Locations
Surface Discharges	WWTP	Demonstrate acceptable effluent characteristics	Continuous flow monitoring of WWTP effluent, and monthly WQ monitoring and monthly total flow monitoring at discharge locations	WWTP effluent
Surface Water	Embarrass River and tributaries	Evaluate trends in surface WQ and flow	Monthly sampling of flow and WQ	Embarrass River, Mud Lake Creek, Trimble Creek, and Unnamed Creek
	Colby Lake intake	Evaluate water quantity use over time for plant use	Continuous flow monitoring at intake,	Colby Lake intake
Groundwater	General	Evaluate groundwater quality and WL trends over time	Monitoring wells sampled during non-frozen conditions (April, July, and October)	Existing monitoring wells installed around the Tailings Basin
Wetlands	Wetlands	Evaluate potential effects of processing plant operations on wetlands and determine if the potential indirect impacts from these operations have occurred or if additional mitigation is needed	Number of piezometers and sampling frequency yet to be determined	Continuation of the baseline monitoring program

Source: PolyMet 2015i.

Notes:
WL = Water Level
WQ = Water Quality

In addition to the details offered in Table 5.2.2-53, the state further recommends that piezometers or other measurement devices would be installed on opposite sides of the containment system to frequently monitor head differential to verify that hydraulic gradient have been reversed which would show that the containment system is achieving complete capture. Additionally, permit(s) would require a robust monitoring program during all phases of mining to provide evidence of the presence or absence of hydrologically significant faults. If identified, mitigation would be employed to minimize flow through the faults.

5.2.2.4 NorthMet Project No Action Alternative

Under the NorthMet Project No Action Alternative, the NorthMet Project Proposed Action would not occur and, therefore, the environmental effects associated with the NorthMet Project Proposed Action, as described in Section 5.2.2, would not occur. Although under the No Action Alternative, the NorthMet Project Proposed Action, including the proposed Tailings Basin seepage collection and water treatment engineering controls, would not occur, the No Action Alternative would not be static. Under the No Action Alternative, water quality would continue

to be maintained by generally effective existing natural ecosystem functions. Under the NorthMet Project Proposed Action, these functions would be provided by the WWTP or WWTF (or alternative, if developed) and this reflects a substantial shift in how water quality is maintained.

In the Partridge River Watershed, there are actions occurring as part of the Cliffs Erie Consent Decree that would be expected to result in improvements to the water quality of Second Creek and the Lower Partridge River, but there are also other proposals for mining and mineral processing, and mitigative actions under other existing water quality permits, that could also affect the water quality of these waterbodies, but which cannot be predicted at this time.

In the Embarrass River Watershed, it is anticipated that the water quality of the existing LTVSMC Tailings Basin seepage would improve over time as a result of natural attenuation and/or possible additional mitigation measures at some point in the future pursuant to new permit requirements or other state or federal remediation requirements. Other actions are underway to improve the water quality of the Area 5NW Pit overflow, which contributes a high sulfate load to the Embarrass River. At this time, the exact nature, timing, and effectiveness of these measures are unknown and, therefore, not quantifiable in this FEIS, but it is reasonable to expect that water quality within the Embarrass River could improve over time, absent other unforeseen activities that could affect water quality. In addition, climate change would be likely to affect the hydrology and, indirectly, the water quality, of the NorthMet Project Proposed Action area as the result of predicted increases in mean annual temperature and mean annual precipitation.

Therefore, there are several factors that could dynamically affect the hydrology and water quality of the Partridge and Embarrass River watersheds in the future, but in ways that cannot be quantified with any reasonable level of confidence at this time. It should be noted that PolyMet did analyze the effects of climate change on water quality and quantity estimates for the NorthMet Project Proposed Action by conducting a sensitivity analysis. As described in Section 5.2.2.3, the GoldSim model was used to evaluate the CEC scenario for comparison with the NorthMet Project Proposed Action. The CEC scenario represents future conditions without the NorthMet Project Proposed Action, including all proposed facilities, but is not synonymous with the No Action Alternative because it does not account for other foreseeable changes within the NorthMet Project area.

5.2.3 Wetlands

This section describes the potential environmental consequences of the NorthMet Proposed Action to wetland resources, including the potential direct and indirect effects. Discussions are also included on actions taken to avoid or mitigate wetland impacts, proposed wetland mitigation options, and wetland monitoring plans.

Summary

The NorthMet Project Proposed Action would result in direct impacts and indirect effects on wetland resources at the Mine Site, along the Transportation and Utility Corridor, at the Plant Site, and around the Mine Site (Area 1) and north of the Plant Site (Area 2). This section describes these effects within each of these areas and provides a summary of the effects over the operational life of the facility.

Direct wetland impacts would result from mining-related activities involving filling, excavation, a combination of filling and excavation which includes the installation of a containment system within the wetland boundary, and therefore these wetlands would be permanently lost. The NorthMet Project Proposed Action would directly impact 913.8 acres of wetlands located within the NorthMet Project area. The Mine Site would be subject to the majority of the direct wetland impacts. The direct wetland impacts within the entire NorthMet Project area would occur in the following wetland types: coniferous bog (56 percent), shrub swamp (12 percent), coniferous swamp (9 percent), shallow marsh (8 percent), deep marsh (8 percent), sedge/wet meadow (4 percent), hardwood swamp (1 percent), and open bog (1 percent). The majority of the direct impacts would occur as a result of a combination of filling and excavation (65 percent).

Wetlands directly impacted within the Mine Site would result in a combined effect area of 758.2 acres. These direct wetland impacts would be caused by fill (10 percent), excavation (12 percent), or a combination of fill and excavation (78 percent). The Transportation and Utility Corridor would directly impact 7.2 acres of wetlands, all of which would be directly filled. Approximately 148.4 acres of wetlands within the Plant Site would be directly impacted. These wetland impacts would be caused by fill (12 percent), excavation (31 percent), and excavation and fill (58 percent).

The proposed mitigation is expected to compensate for all the direct wetland impacts, as well as the indirect fragmentation impacts—a total of 940.7 acres. Compensatory mitigation is required for the 913.8 acres of wetlands that would be directly impacted. In addition, compensatory mitigation for the 26.9 acres of wetland fragmentation that would be indirectly affected would be provided up front. The overall wetland mitigation strategy for the NorthMet Project Proposed Action is to compensate for unavoidable wetland impacts in-place, in-kind where possible and in-advance of impacts when feasible in order to replace lost wetland functions. Off-site wetland mitigation projects would be implemented to fulfill the requirements for compensatory mitigation. PolyMet's current mitigation proposal, 1799.8 acres of wetland restoration and preservation and upland buffer, includes the following:

- Off-site mitigation including:
  - Aitkin Site – 808.3 acres of wetland restoration and 83.2 acres of upland buffer;

- Hinckley Site – 286.2 acres of wetland restoration and 91.2 acres of upland buffer; and
- Zim Site – 508.2 acres of wetland restoration and preservation and 22.7 acres of upland buffer.

USACE St. Paul wetland compensatory mitigation replacement ratios are based on three factors: in-place versus out-of-place, in-kind versus out-of-kind, and in-advance versus concurrent. The 2009 USACE St. Paul District's policy states a base compensation ratio of 1.5:1, and a minimum of 1:1, with a provision for a case-by-case determination of higher ratios to account for factors including difficult-to-replace, rare and/or exceptional wetlands/aquatic resources. Therefore, per the 2009 policy, the District Engineer may determine that a higher compensation ratio of 2:1 (or higher) would be required to offset losses of wetlands that would be difficult to replace and/or provide an exceptional level of functions. The USACE St. Paul District has not made a final determination of the compensation ratios that would be required for the NorthMet Project Proposed Action. The final decision on compensatory mitigation ratios would be determined at the time of the DA permit decision pursuant to Section 404 of the CWA based on current District guidance. PolyMet would ultimately need to satisfy both the federal and state mitigation requirements. The number of mitigation credits to be earned by replacement wetlands would be determined during permitting by the appropriate agencies reviewing the wetland mitigation plan. This would be based on the extent to which the sites meet the target goals established during permitting. These include, among other things, restoration of wetland appropriate hydrology and the establishment of a target plant community or type. The NorthMet Project Proposed Action is estimated to directly affect 913.8 acres. Depending on the location, type, and timing of compensatory mitigation, the minimum required amount of replacement wetlands for direct impacts could range from 913.8 acres up to 1,827.6 acres (i.e., 1:1 up to 2:1 compensation ratios). In addition, compensatory mitigation for the 26.9 acres of wetland fragmentation would also be provided up front.

The USACE has concluded that the mitigation sites selected and the wetland credits generated at the three mitigation sites would be acceptable for use in compensating for direct wetland losses. The USACE has not made a final decision on the mitigation ratios that would be required to compensate for direct wetland impacts; if fully successful, it is likely these three mitigation sites would generate sufficient credits to compensate for the 940.7 acres of wetlands directly impacted. In the event that not all of the credits generated by these sites are utilized to compensate for direct wetland impacts, any excess credits could be used to compensate for indirect losses (USACE 2015a). The current proposed mitigation presented below shows that PolyMet could have an excess of mitigation credits from the three mitigation sites if the mitigation sites are successful and meet the performance standards. However, it is understood that mitigation sites sometimes are not fully successful; contingency plans (discussed below) would be developed for the NorthMet Project Proposed Action and approved during permitting. In the event that additional wetland mitigation is required for direct impacts, it would be consistent with current USACE guidelines which include a watershed approach. The USACE encourages the development of mitigation for foreseeable indirect effects, and PolyMet is exploring mitigation options for indirect effects.

Financial assurances for the direct wetland impact mitigation would be required until success of the mitigation sites can be assured. While this wetland mitigation would be expected to be approved and constructed in advance of any authorized wetland impacts, it is unclear whether these sites would be well enough established for financial assurances to be waived. The USACE

would also consider the application of financial assurances for potential indirect wetland effects and monitoring. Both the USACE and state would require consideration of financial assurances during the permitting process.

Off-site wetland compensation of 1,602.7 acres could provide 1,513.3 wetland mitigation credits. In addition, a total of 197.1 acres of upland buffer areas are proposed to be established with native vegetation around the wetland restoration areas. In accordance with USACE guidelines, credit for the upland buffer areas would be at a 4:1 ratio, resulting in an additional 49.3 credits. The total off-site mitigation could provide 1,562.5 wetland mitigation credits. Compensatory ratios determined in permitting may vary from these assumptions. The determination of final mitigation credits required to offset the impacts of the proposed NorthMet Project Proposed Action would be determined during permitting.

Finally, post-closure establishment of 101.8 acres of wetland on-site would likely occur during reclamation of the Mine Site; this establishment is not included in the mitigation credits discussed above as credit is not being requested at this time. The generation of wetland credits in these areas has the potential to be used on a contingency basis, but compensatory credit would not be considered at this time for a variety of reasons including the fact that any restoration efforts would not occur for many years.

Potential indirect wetland effects from the NorthMet Project Proposed Action would result from one or more of the following six factors: 1) wetland fragmentation; 2) changes in wetland hydrology resulting from changes in watershed area; 3) changes in wetland hydrology due to groundwater drawdown resulting from open pit mine dewatering; 4) changes in wetland hydrology from groundwater drawdown resulting from operation of the Plant Site, including groundwater seepage containment; 5) changes in stream flow near the Mine Site and Plant Site, as well as associated effects on wetlands abutting the streams; and 6) changes in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations. The change in wetland hydrology from groundwater drawdown at the Mine Site was assessed by two different methodologies; therefore, total potential indirect wetland effects were provided based on both approaches. The NorthMet Project Proposed Action could indirectly affect up to either 7,694.2 acres of wetlands located within and around the NorthMet Project area, based on the method of wetlands crossing analog impact zones, or up to 6,568.8 acres of wetlands located within and around the NorthMet Project area, based on the method of wetlands within analog impact zones (PolyMet 2015b).

Regardless of the method used, wetland mitigation for potential indirect wetland effects would be determined by the agencies during permitting. If the NorthMet Project Proposed Action were to be permitted, wetland monitoring for hydrology and vegetation would be conducted to identify if future indirect effects to wetlands would occur. Wetland hydrology and vegetation would be monitored, and additional monitoring locations may be considered during permitting. A component of the monitoring plan would be based on those wetlands that would have a high likelihood of indirect effects as a result of groundwater drawdown. If the monitoring were to determine that indirect wetland effects had occurred, additional compensation could be required if determined necessary by the permitting agencies. In the event that the required wetland monitoring identified additional indirect effects, permit conditions would likely include a plan for adaptive management practices to be implemented, such as expanded monitoring and hydrologic controls. Additionally, compensatory mitigation may be required if additional impacts are identified during annual reporting. Permit conditions would likely include an

adaptive management plan to account for any additional impacts that may be identified in the annual monitoring and reporting.

5.2.3.1 Methodology and Evaluation Criteria

Wetland effects for the NorthMet Project Proposed Action include direct, indirect, and cumulative effects. As previously mentioned, a Wetland IAP Workgroup was formed, and based on this workgroup, effects were assessed using agency-prescribed methods as presented in the Wetland Analysis Work Plan (PolyMet 2011b) and using the wetland types and acreages identified in the report *NorthMet Project Wetland Data Package* Version 7 (PolyMet 2015b). Methods used to evaluate direct impacts and indirect effects are described below; cumulative effects are described in Chapter 6.

5.2.3.1.1 Direct Wetland Impacts Methodology and Evaluation Criteria

Direct wetland impacts for the NorthMet Project Proposed Action were determined through a GIS analysis of the areas that would be directly disturbed by mining features and operations, such as mine pits, stockpiles, and access roads. The area of analysis for the direct impacts included the Mine Site, Transportation and Utility Corridor, and Plant Site.

Direct impacts would result from mining-related activities such as filling or excavation of wetlands, and therefore, these wetlands would be permanently lost. Wetlands within the NorthMet Project area were identified using the Eggers and Reed (1997, 2014) community classification system, as described in Section 4.2.3. The analysis for the direct wetland impacts included identification of wetland type, total wetland acreage, total acres of direct effect, type of direct effect (i.e., fill, excavation, etc.), and the quality of each wetland to be impacted by the NorthMet Project Proposed Action.

5.2.3.1.2 Potential Indirect Wetland Effects Methodology and Evaluation Criteria

Wetlands that are not filled or excavated, but have a reduced function or value, would be considered indirectly affected. The most likely types of indirect effect on the functions and values of remaining wetlands at the Mine Site include wetland fragmentation from NorthMet Project area elements such as open pits, stockpiles, and haul roads; and indirect hydrological effects that may result in a conversion of one wetland type to another or the conversion of a wetland to an upland. Other indirect effects could result from changes in wetland watershed areas (during operation and post-closure); groundwater drawdown resulting from open pit mine dewatering; groundwater drawdown resulting from operation of the Tailings Basin, including groundwater seepage containment system; changes in streamflow near the Mine Site and Tailings Basin and associated effects on wetlands abutting the streams (during operation and post-closure); and changes in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with the Mine Site and the Tailings Basin operations.

Potential indirect wetland effects from drawdown were estimated using the analog method. Various models, some of which were associated with impact analysis of other environmental resources such as air, groundwater, and surface water that affect wetland resources, were also used to analyze and estimate potential indirect wetland effects. Each analysis was completed using the same set of non-directly impacted wetlands. The analyses were completed separately; therefore, the wetlands have the potential for indirect effects resulting from more than one assessed source. The potential indirect wetland affects for each wetland cannot be summed

across the analysis as this would likely result in double-counting of wetland acres. The results of the analyses and assessments identify areas to be monitored for wetland effects.

Wetland acreage by wetland type was calculated using GIS analysis with 500-ft radius increments beginning at the mine pits and continuing out to a total radius of 10,000 ft (for a total of 20 increments); and 500-ft radius increments beginning at the Plant Site and continuing out to the Embarrass River. The area of analysis for the indirect effects extended beyond the NorthMet Project area component boundaries and included Area 1 and Area 2, as identified in Section 4.2.3. The analysis did not include wetlands identified as directly impacted. Additionally, wetlands in the Northshore Mine and areas directly north of the Northshore Mine have been excluded from the evaluation (PolyMet 2011b).

Noise and dust effects on wildlife that utilize the wetland habitat are discussed in Section 5.2.5 (Wildlife Section).

Additional description of the specific methods used to assess individual indirect effects is provided below.

The indirect effects analyses performed for the EIS were not performed to characterize impacts but were done to inform where monitoring should take place for those areas that were identified as having a potential for indirect wetland effects. The Co-lead Agencies agree that multiple factors can affect whether a wetland would experience indirect effects due to a project. This FEIS quantitatively assessed all potential indirect wetland effects from the NorthMet Project Proposed Action that may result from one of the following six factors: 1) wetland fragmentation; 2) changes in wetland hydrology from changes in watershed area; 3) changes in wetland hydrology from groundwater drawdown resulting from open pit mine dewatering; 4) changes in wetland hydrology from groundwater drawdown resulting from operation of the Plant Site, including groundwater seepage containment; 5) changes in stream flow near the Mine Site and Plant Site, as well as associated effects on wetlands abutting the streams; and 6) change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations. The methodology and evaluation criteria used for assessing potential indirect wetland effects are described in detail below. The monitoring and mitigation for potential indirect effects would be determined during permitting. Section 5.2.3.3 of this FEIS includes a detailed discussion on the monitoring and mitigation plan for the indirect wetland effects. The proposed wetland impact, avoidance, minimization, mitigation and monitoring plan presented in this FEIS would be reviewed, modified as required, and approved during permitting; therefore, this information could change during permitting.

While the Co-lead Agencies believe that the analog method used in the SDEIS to assess potential indirect effects from mine dewatering is adequate, this FEIS has been updated with a more conservative approach to address concerns raised by the Bands. Section 5.2.3.2.2 of this FEIS has been updated to make a more conservative assumption of the potential indirect effects for all bog communities within the zero to 1,000-ft analog zone such that all bogs are reclassified from the “no effect” category to “low likelihood” category of wetland hydrology effects. The complex mixes of bedrock, surficial deposits, and wetland soils at the Mine Site impede the ability to reasonably model and accurately assess the potential effect of pit dewatering on wetlands. In light of this modeling limitation, wetlands were divided into zones based on distance from the open pit. The closer a wetland was to the pit during dewatering, the greater the assumed water table drawdown would be and the greater potential there would be for hydrologic effects on

overlying wetlands. These impact assessment methodologies are presented below and in Section 5.2.2.3.2.

The Co-lead Agencies are not relying solely on the potential impact zones determined in the analog method for this FEIS, but would be monitoring wetlands for potential indirect effects as part of an adaptive management plan. Permit conditions would include a plan for additional compensatory mitigation if indirect wetland impacts were identified, and appropriate changes to the adaptive management plan would be made as required.

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS and there is incomplete or unavailable information because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, NEPA directs the agency to: 1) make it clear that such information is lacking, 2) discuss the relevance of the lacking information, and 3) discuss any information relevant to evaluation the future impacts. In these cases, NEPA also directs the agency to evaluate these impacts based upon theoretical approaches or research methods generally accepted in the scientific community provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.

The Co-lead Agencies believe this is the case for evaluating indirect wetland effects. The Co-lead Agencies have thoroughly considered throughout the development of the EIS and through the Wetland IAP Working Group how to assess potential indirect wetland effects. As a result, strengths and weaknesses of the approach used, as well as other suggested approaches, have been carefully considered. The Co-lead Agencies ultimately decided that the use of the analog method and the 20 percent change in watershed area metric described in this section as factors considered in identifying potential indirect effects to wetlands is a credible and reasonable approach consistent with the requirements of NEPA.

Potential Indirect Wetland Effects Resulting from Wetland Fragmentation

For each wetland that would not be directly impacted at the Mine Site, along the Transportation and Utility Corridor, or at the Plant Site, an estimate of indirect wetland effects (wetland acres by wetland type, and type of effect) from wetland fragmentation by NorthMet Project area features (e.g., open pits, stockpiles, haul roads) was determined based on an analysis of the various factors that may contribute to fragmentation. A wetland may be fragmented as the result of direct impacts that may split a wetland resource area into multiple parts. These fragmented parts could potentially be isolated from other wetlands and would no longer have any adjacent upland watershed area, which could result in the loss of functions in the wetland fragments. While a wetland may be fragmented by direct impacts, this does not necessarily mean the remaining fragmented part of the wetland resource area would be affected. These fragmented parts therefore required further evaluation to determine if these areas would remain viable and/or would retain their functions (PolyMet 2015b; PolyMet 2015j).

The evaluation (PolyMet 2015b; PolyMet 2015j) to determine if a wetland resources area would remain viable included the following criteria: change in the size of remaining wetland, wetland type, source of hydrology, direction of flow in the area, location in the current watershed, location in the future watershed, and connectivity to other wetlands. The evaluation criteria used are described below:

- **Size of Remaining Wetland:** Wetland fragments that were identified using GIS as being less than about 0.5 acre in size were determined to be too small to retain their functions. These wetlands were determined for the analysis to be considered fragmented.
- **Wetland Type:** The wetland types for the wetland fragments that were greater than 0.5 acre in size were reviewed to determine if they were bogs. Ombrotrophic bogs that would become fragmented were not identified as indirectly impacted by fragmentation; they would maintain their functions because their sole source of hydrology is precipitation (see below). Minerotrophic bogs and small non-bog wetlands that were fragmented were further evaluated to determine their hydrologic sustainability.
- **Source of Hydrology:** Wetlands were further subclassified as ombrotrophic (solely precipitation-fed) or somewhat minerotrophic (receives surface and/or groundwater inputs). The hydrology of ombrotrophic bogs is solely supported by precipitation; therefore, these wetlands are not dependent on the watershed size to maintain their functions and were not identified as indirectly impacted by fragmentation. The hydrology of minerotrophic bogs and non-bog wetlands is primarily supported by shallow groundwater systems that are connected within different scales: wetland watershed, local (e.g., Mine Site) watershed, or regional watershed. Therefore, these minerotrophic bogs and non-bog wetlands were further evaluated because they are considered to be dependent on their watershed size to maintain their functions, and their watersheds would be altered due to construction of project infrastructure.
- **Direction of Flow in the Area:** The Mine Site is located in the Upper Partridge River watershed, and water on the Mine Site eventually drains to the Partridge River. PolyMet evaluated the locations of the minerotrophic bogs and non-bog wetlands relative to the sub-watersheds on each side of the Mine Site groundwater divide, which is generally located from southwest to northeast near the northern boundary of the Mine Site. Under existing conditions, surface water and surficial groundwater in the northernmost area of the Mine Site generally drains (flows) north and surface water and surficial groundwater in the southern area of the Mine Site generally drains (flows) south. There are several sub-watersheds on each side of the divide. Based on the location of predicted wetland fragments on the Mine Site, their locations within the sub-watersheds in relation to direct impacts within that same sub-watershed and the direction of flow were noted. A wetland is more likely to retain its function if the fragment that remains is located in the upper portion of its sub-watershed than in the lower portion. Ultimately, if the area of the wetland's watershed is modified, it could result in a change to the equivalent flow (expressed as ac-ft/yr per acre of wetland), a measure of hydrologic support.
- **Determination of the Wetland's Current Watershed:** The current (existing) conditions include the wetlands and watersheds, which represent the existing and relatively undisturbed conditions in the Mine Site area. The current watersheds for ombrotrophic bog wetlands were not analyzed because they are not dependent on watershed area for their hydrology as they are precipitation-fed. The watersheds for the minerotrophic bogs and non-bog wetlands are the land areas that contribute surface water to the wetlands (upland areas and wetland areas). For each minerotrophic bog and non-bog wetland in the analysis, GIS was used to determine the acreage of its watershed area. The location of each minerotrophic bog and non-bog wetland in its current (existing) watershed was compared with its location in the future watershed.

- **Location of the Minerotrophic Bog and Non-bog Wetland Fragment in the Wetland's Future Watershed:** During operations, some watershed areas would be directly impacted by the NorthMet Project Proposed Action and would no longer be considered as tributary areas to the minerotrophic bogs and non-bog wetlands. Using the same methodology as in the previous evaluation criteria, for each minerotrophic bog and non-bog wetland in the analysis, GIS was used to determine the acreage of upland area and wetland area within its watershed area. As a result, the amount of water potentially contributed by the watershed to support the hydrology of the remaining wetland may also change (increase or decrease). If the wetland fragments had a change in equivalent yield of plus or minus 20 percent, the minerotrophic bogs and non-bog wetlands were further determined to have a potential for indirect impacts. Depending on the results of the other evaluation criteria, the minerotrophic bog and non-bog wetland fragments were either considered to be indirectly affected or included as a monitoring location in the wetland hydrology monitoring plan.
- **Connectivity to Other Wetlands:** Each wetland fragment was evaluated based on its location, adjacency to upland, and adjacent infrastructure characteristics to determine if it would be expected to maintain its functions. Some of the wetland fragments being divided by Mine Site infrastructure would become isolated from other wetlands; therefore, no longer located within or adjacent to an intact, relatively undisturbed upland. These wetland fragments were not expected to maintain their functions. However, other wetland fragments would still be hydrologically connected to wetlands and would be located within or adjacent to an intact, relatively undisturbed upland. For example, these fragmented wetlands would be located in the vicinity of the haul roads on the Mine Site. Construction of the haul roads would require excavation and fill with blasted rock that would allow groundwater connectivity for wetlands on either side of the haul road.

Potential Indirect Wetland Effects Resulting from a Change in Watershed Area

For each wetland that would not be directly impacted, but would have NorthMet Project area elements affect its watershed, an estimate of the change in watershed area (acreage and percent gain or loss) was calculated for the following conditions: pre-NorthMet Project Proposed Action, during operation when the maximum amount of watershed has been removed, and at closure and long-term maintenance. For those non-directly affected wetlands that would have changed watershed areas (during operation and post-closure), an estimate of indirect wetland effects (wetland acres by wetland type and type of indirect effect) was calculated.

Potential Indirect Wetland Effects Resulting from Changes in Hydrology Due to Drawdown at the Mine Site

An estimate of indirect wetland effects (wetland acres by wetland type, and type of indirect effect) due to groundwater drawdown from open pit mine dewatering was determined using an analog model in which the degree of effect was correlated to the distance from the open pit mine (PolyMet 2011b). The analog approach was based on mines in similar settings (e.g., within the glacial till in the region). It consisted of well data from the Canisteo Pit, the only mine pit within the Mesabi Iron Range that has well data and an associated water balance study that could be used to assess potential drawdown effects. In addition, two wells near Kinney were also used for the evaluation. Please refer to Section 5.2.2.3.2 for more information on the analog approach. The closer a wetland was to the pit where dewatering would occur, the greater the assumed water

table drawdown would be and the greater the potential for hydrologic effects on overlying wetlands. Wetlands were divided into zones based on distance from the open pit. The use of the impact zones may overestimate indirect effects on wetlands. The analog distances, referenced to the pit edge, were as follows:

1. 0 to 1,000 ft;
2. greater than 1,000 to 2,000 ft;
3. greater than 2,000 to 3,500 ft; and
4. greater than 3,500 to 10,000 ft (within Area 1).

The following is a discussion of the justification for the use of the analog data based upon comparisons of the existing regional and site-specific geologic data (e.g., bedrock faults, bedrock joint systems, bedrock topography, surficial deposits hydraulic conductivities), site-specific engineering controls (e.g., Category 1 Stockpile surface and groundwater seepage containment system), and the geologic settings of the analog information sites and the Mine Site (PolyMet 2011b; PolyMet 2015b). Analog data were used instead of a model such as MODFLOW. MODFLOW could not practicably be used to estimate potential indirect wetland effects of pit dewatering on wetlands due to complex mixes of bedrock, surficial deposits, and wetland soils at the Mine Site; therefore, MODFLOW could not be used to accurately assess the potential effect of pit dewatering on wetlands (PolyMet 2015b).

The Mine Site contains localized heterogeneous vertical and horizontal hydraulic conductivities within each soil unit. It is challenging to accurately represent this complex hydrogeology through modeling. Hydraulic conductivities between the different deposits range from 0.00026 to 31 ft/day (PolyMet 2015b). Because there is such a wide range in hydraulic conductivity within the natural geologic formations at the Mine Site, each model layer would contain widely variable hydraulic conductivities. Thus, it was not feasible to model the expected effects of mine dewatering on wetlands in a meaningful way. Prior to conducting the analysis to identify indirect wetland effects resulting from changes in hydrology, bog wetlands within and surrounding the Mine Site were reclassified as either ombrotrophic or somewhat minerotrophic. This distinction is important because ombrotrophic bogs would be less likely to be affected by groundwater drawdowns associated with proposed mining operations, whereas more minerotrophic bogs would have a higher likelihood of being affected (Eggers 2011a, 2015).

A discussion of potential indirect wetland hydrology drawdown effects at the Mine Site, including conversion to other wetland community types, a change in vegetation without a change in community type, conversion to uplands, or other effects is provided below in Section 5.2.3.2.2. These effects were categorized by applying the Eggers and Reed (1997, 2014) wetland classification system to each wetland type based on wetland sensitivity class tables for falling groundwater tables that were developed for a previously proposed mine project in Wisconsin (PolyMet 2015b).

Potential Indirect Wetland Effects Resulting from Changes in Hydrology at the Plant Site

Potential indirect wetland effects from hydrological changes were evaluated based on estimates of groundwater upwelling and resulting surface water flow in wetlands and/or groundwater drawdown near the water containment system that would surround the Plant Site. An estimate of

potential indirect wetland effects (wetland acres by wetland type, and type of effect) from hydrologic changes resulting from the containment system was determined as follows:

1. The amount of Plant Site groundwater seepage water that would bypass the containment system and emerge in surface water features, including wetlands, downgradient of the Tailings Basin was quantified. The quantity of seepage evading the containment system was confirmed using MODFLOW and incorporated into the GoldSim model as a deterministic value.
2. All wetlands (type, acreage) within the surficial aquifer groundwater flowpaths downgradient of the Plant Site were identified within the boundaries used in the water quality modeling (as shown in the Groundwater IAP Summary document [MDNR et al. 2011]).
3. Using the wetlands identified in step 2, wetlands were categorized into minerotrophic (groundwater-fed) and ombrotrophic (precipitation-fed) wetlands using guidance in the Corps Memorandum (CEMVP-OP-R) *Distinguishing Between Bogs That Are Entirely Precipitation Driven Versus Those with Some Degree of Mineral Inputs from Groundwater and/or Surface Water Runoff* (Eggers 2011b) and evaluating the potential for indirect effects resulting from construction of the water containment system.

A discussion regarding potential indirect wetland hydrology effects at the Plant Site, including conversion to other wetland community types, a change in vegetation without a change in community type, conversion to uplands, or other effects is provided below in Section 5.2.3.2.4. These effects were categorized by applying the Eggers and Reed (1997, 2014) wetland classification system to each wetland type based on the wetland sensitivity class tables for rising groundwater tables that were developed for a previously proposed mine project in Wisconsin (PolyMet 2015b).

Potential Indirect Effects on Wetlands Abutting the Partridge River and Four Creeks

An estimate of potential indirect wetland effects (wetland acres by wetland type and type of effect) was determined for wetlands abutting the following:

- the Partridge River, as a result of changes in river flow resulting from the NorthMet Project Proposed Action (during operation and post-closure); and
- the three creeks north and west of the Plant Site (Trimble Creek, Mud Lake Creek, and Unnamed Creek) and Second Creek south of the Plant Site, as a result of changes in streamflow resulting from operation of the Plant Site and containment system.

Changes in river and creek flow were estimated using mass balance techniques.

Potential Indirect Wetland Effects Resulting from Water Quality Changes

A screening analysis for depositional effects was conducted using air dispersion/ deposition modeling (AERMOD) to estimate the potential annual deposition of dust, metals, and sulfur to wetlands within and adjacent to the Mine Site and Plant Site. Emission rates and particle size distributions were based on total particulate matter. The estimated deposition from fugitive dust emissions was used to identify wetlands that have the potential for water quality changes related to sulfide dust deposition. The estimated deposition from fugitive dust emissions was used to identify a threshold for a negative effect on vegetation. The estimated inputs of the dust, metals,

and sulfur to wetlands were evaluated for significance to potential changes in water quality. The receptors of interest were the wetlands that were not identified as directly impacted.

Leakage from stockpiles at the Mine Site was evaluated to determine if wetlands would be impacted. The amount of stockpile leakage water that would potentially discharge to surface waters and wetlands downgradient of the stockpiles was based on the water quality modeling (see Section 5.2.2). Wetlands within the surficial aquifer groundwater flowpaths from mine features were identified and then further characterized into minerotrophic and ombrotrophic wetlands per Eggers 2011a. Wetlands were then evaluated to determine the potential for indirect effects based on potential water quality changes from the mine features.

Tailings Basin groundwater seepage at the Plant Site was evaluated to determine if wetlands would be impacted. The chemistry from the Tailings Basin groundwater seepage based on the water quality modeling (see Section 5.2.2) was determined. Wetlands within the downgradient zone were identified and then further characterized into minerotrophic and ombrotrophic wetlands (Eggers 2011a). Wetlands were then evaluated to determine the potential for indirect effects based on potential water quality changes from the Tailings Basin.

Wetlands within and adjacent to the Transportation and Utility Corridor were assessed to determine if indirect wetland effects would occur as a result of water quality changes. The assessment evaluated the potential release of dust from: railcars transporting ore from the Mine Site to the Plant Site, use of Dunka Road, and product shipping at the Plant Site.

5.2.3.2 NorthMet Project Proposed Action

The NorthMet Project Proposed Action would result in both direct and indirect effects. This section describes effects within the NorthMet Project area and provides a summary of wetland effects. Estimates of both direct and indirect wetland effects have changed during the EIS process as the result of refined analysis and changes in project design. The effects identified in this FEIS are based on the most current information available and may differ from those identified in prior reports. Avoidance, minimization, mitigation, and monitoring measures for the NorthMet Project Proposed Action are discussed in Section 5.2.3.3.

5.2.3.2.1 Mine Site and Transportation and Utility Corridor Direct Wetland Impacts

Direct wetland impacts would result from the following Mite Site and Transportation and Utility Corridor components: construction and/or installation of the mine pits, Category 1 Stockpile, Category 2/3 Stockpile, Category 4 Stockpile, Overburden Storage and Laydown Area, haul roads, rail transfer loadout, WWTF, perimeter dike, culverts, groundwater discharge pipe, surface and groundwater seepage containment system, stormwater collection ditches and ponds, CPS, process water pipes and ponds, Treated Water Pipeline, transmission lines, and Dunka Road upgrades. The Mine Site features would result in 758.2 acres of directly impacted wetlands (see Figure 5.2.3-1). Table 5.2.3-1 summarizes the directly impacted wetlands within the Mine Site by community type while Table 5.2.3-2 identifies the activity that causes the impacts expected at the Mine Site. Three wetland types comprise 89 percent of the expected wetland impacts in the Mine Site, including 508.3 acres of coniferous bog (67 percent), 97.8 acres of shrub swamp (13 percent), and 70.3 acres of coniferous swamp (9 percent). Direct impacts would be caused by fill (10 percent), excavation (12 percent), or a combination of fill and

excavation (78 percent). The majority of the wetlands (99 percent) that would be directly impacted are rated high quality, while 1 percent are rated as moderate quality (PolyMet 2015b).

Table 5.2.3-1 Total Projected Direct Wetland Impacts at the Mine Site and the Transportation and Utility Corridor

	Directly Impacted Wetlands at Mine Site			Directly Impacted Wetlands at Transportation and Utility Corridor		
Eggers and Reed Class[1]	**Acres**	**%**	**No.**	**Acres**	**%**	**No.**
Coniferous bog	508.3	67	22	0.9	12	2
Coniferous swamp	70.3	9	7	1.6	22	7
Deep marsh	0.1	<1	1	0.0	0	0
Hardwood swamp	12.5	2	2	0.0	0	0
Open bog	7.6	1	4	0.0	0	0
Open Water (includes shallow, open water, and lakes)	0.0	0	0	0.0	0	0
Sedge/wet meadow	38.2	5	5	0.0	0	0
Shallow marsh	23.4	3	6	0.6	8	3
Shrub swamp (includes alder thicket and shrub-carr)	97.8	13	12	4.1	57	13
Total Direct Impacts	758.2	100	59	7.2	100	25

Source: PolyMet 2015b.

Note:
[1] Eggers and Reed 1997, 2014.

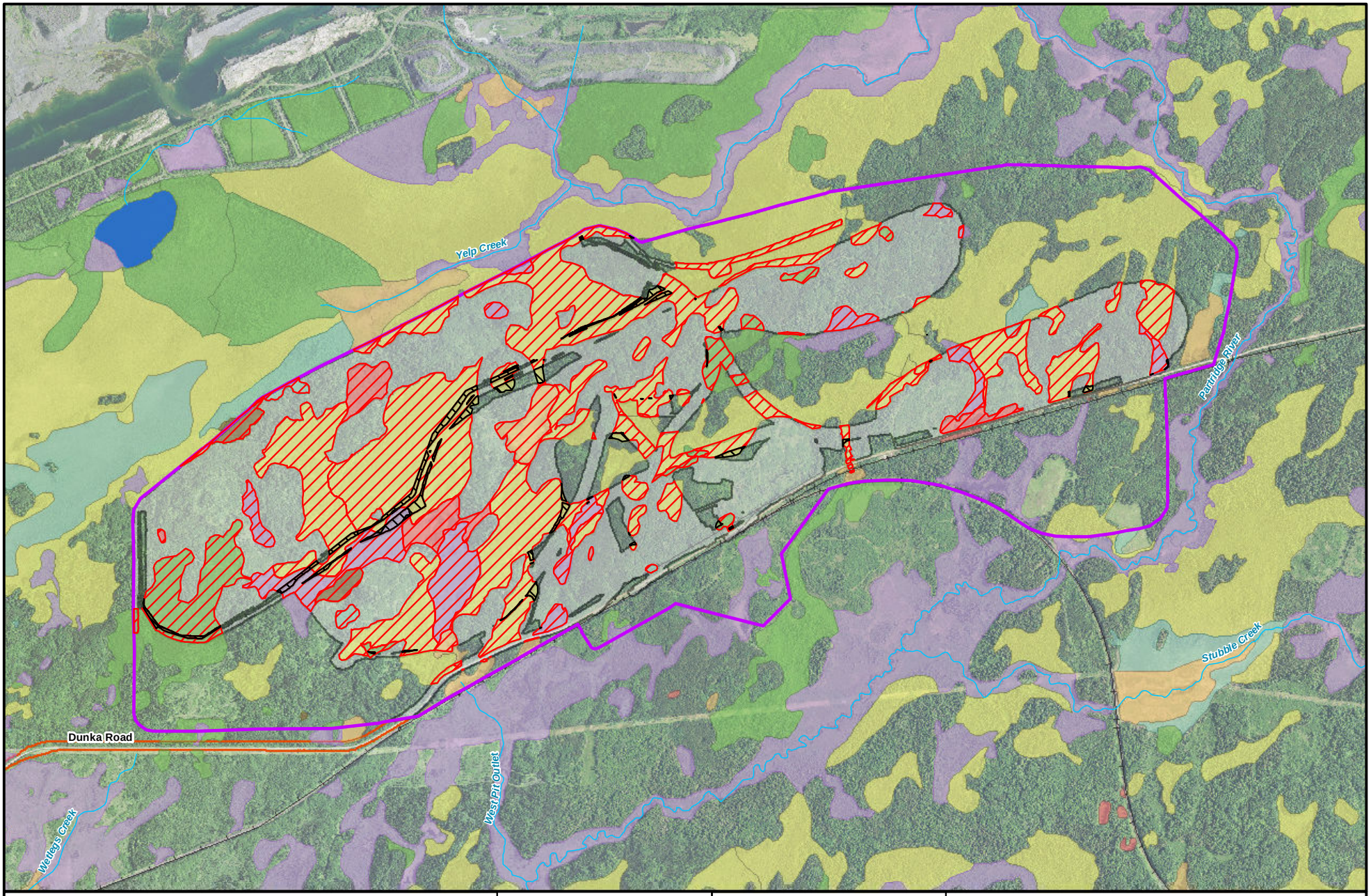

Mine Site
Transportation and Utility Corridor
Directly Impacted Wetland
Proposed Disturbed Area
Stream/River

Fragmented Wetland

Eggers & Reed Wetland Types

Coniferous Bog
Coniferous Swamp
Hardwood Swamp
Deep Marsh & Shallow Marsh
Open Bog
Sedge Meadow & Wet Meadow
Shrub Swamps (Alder Thicket & Shrub-Carr)
Shallow, Open Water & Lake

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 500 1,000 2,000 3,000
Feet

Figure 5.2.3-1
Mine Site Direct Wetland Impacts and Fragmentation
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Table 5.2.3-2 Type of Projected Direct Wetland Impacts at the Mine Site and the Transportation and Utility Corridor

	Directly Impacted Wetlands at Mine Site			Directly Impacted Wetlands at Transportation and Utility Corridor		
Type of Effect	**Acres**	**%**	**No.**	**Acres**	**%**	**No.**
Fill	77.3	10	23	7.2	100	25
Excavation	87.9	12	14	0.0	0	0
Fill and Excavation	593.0	78	22	0.0	0	0
Total Direct Impacts	758.2	100	59	7.2	100	25

Source: PolyMet 2015b.

PolyMet proposes to minimize wetland impacts by placing waste rock back into the East Pit and Central Pit after year 11, thereby reducing the need for additional surface stockpile areas that would otherwise affect wetlands. In addition, PolyMet proposes to combine the saturated overburden and temporary stockpiles, and leave only unsaturated overburden and peat in the Overburden Storage and Laydown Area. By doing so, the footprint of these stockpiles would be reduced, resulting in fewer direct wetland impacts.

In approximately year 52, flooding to the West Pit would be complete. Discharge from the West Pit would be pumped to the WWTF for treatment. The WWTF would then be upgraded to include RO or equivalently performing technologies treatment to achieve a 9 mg/L sulfate effluent, which would then be discharged into a wetland and finally through the West Pit Outlet Creek to the Partridge River. The direct impacts on this wetland have been included within the wetland effect direct totals in Table 5.2.3-1.

Construction activities within the Transportation and Utility Corridor would affect 7.2 acres of wetlands, all of which would be filled. Table 5.2.3-1 summarizes the directly impacted wetlands within the Transportation and Utility Corridor by community type while Table 5.2.3-2 identifies the activity that causes the impacts expected within the Transportation and Utility Corridor. The wetland types that would be directly impacted include shrub swamps (57 percent), coniferous swamps (22 percent), coniferous bogs (12 percent), and shallow marshes (8 percent) (see Figure 5.2.3-2). All of the wetlands to be directly impacted are rated as high quality. The rail spur was designed to use an existing rail alignment in order to avoid wetlands to the extent possible within the requirements for rail construction.

5.2.3.2.2 Mine Site and Transportation and Utility Corridor Indirect Wetland Effects

The potential indirect wetland effects were assessed by identifying wetlands in Area 1 within 500-ft increments beginning at the edge of the mine pits and extending to a maximum distance of 10,000 ft (see Figure 5.2.3-3) (PolyMet 2015b). The area of evaluation for the Mine Site potential indirect wetlands effects included only wetlands within Area 1 where wetland type information had been developed and does not include the directly impacted wetlands.

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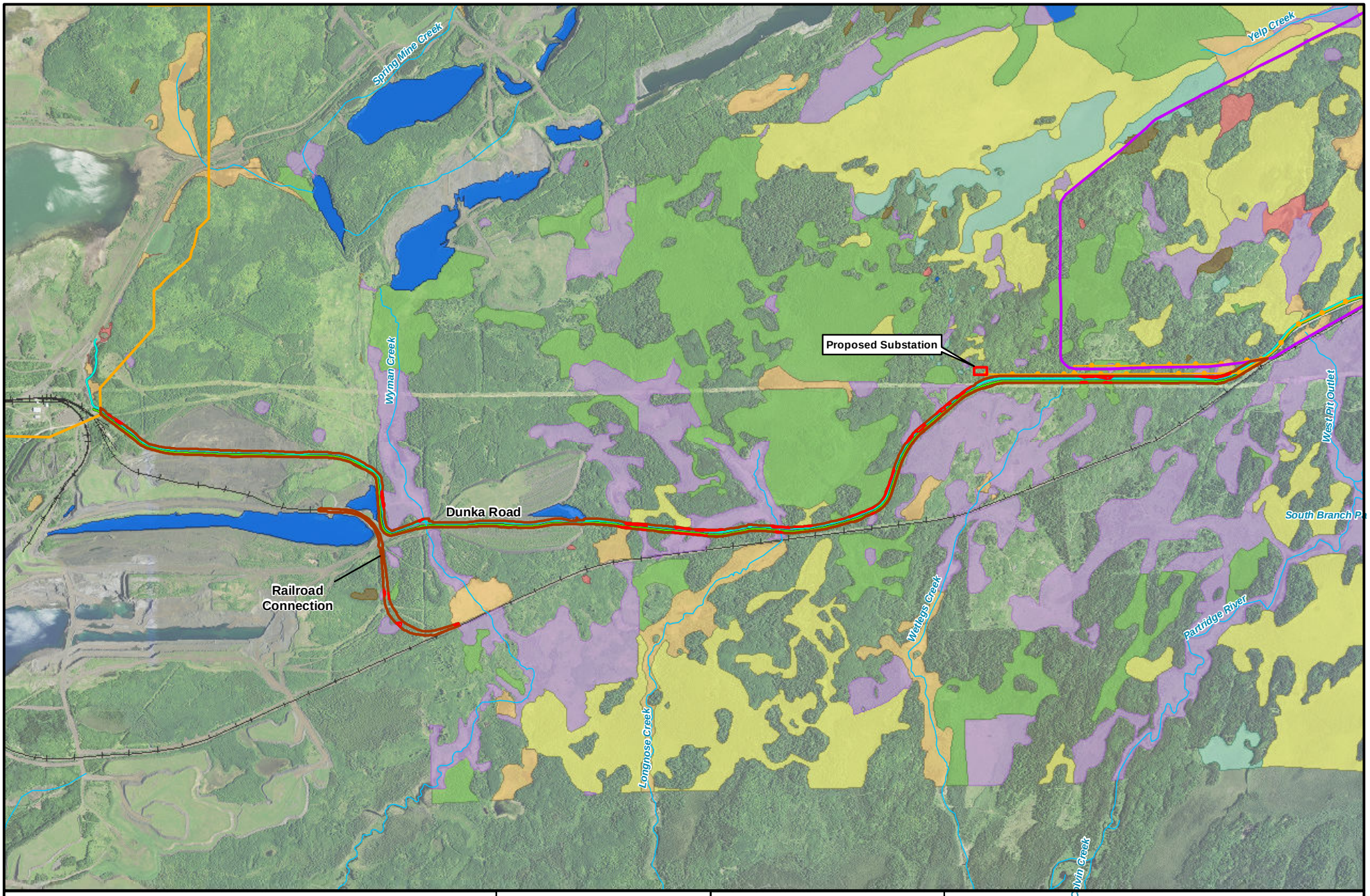

Transportation and Utility Corridor
Directly Affected Wetland
Proposed Transmission Line
Treated Water Pipeline
Dunka Road

Mine Site
Plant Site
Existing Railroad
Stream/River

Eggers & Reed Wetland Types
Coniferous Bog

Coniferous Swamp
Deep Marsh & Shallow Marsh
Hardwood Swamp
Open Bog
Sedge Meadow & Wet Meadow
Shrub Swamps (Alder Thicket & Shrub-Carr)
Shallow, Open Water & Lake

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 1,000 2,000 4,000 Feet

Figure 5.2.3-2
Transportation and Utility Corridor
Wetlands and Direct Wetland Impacts
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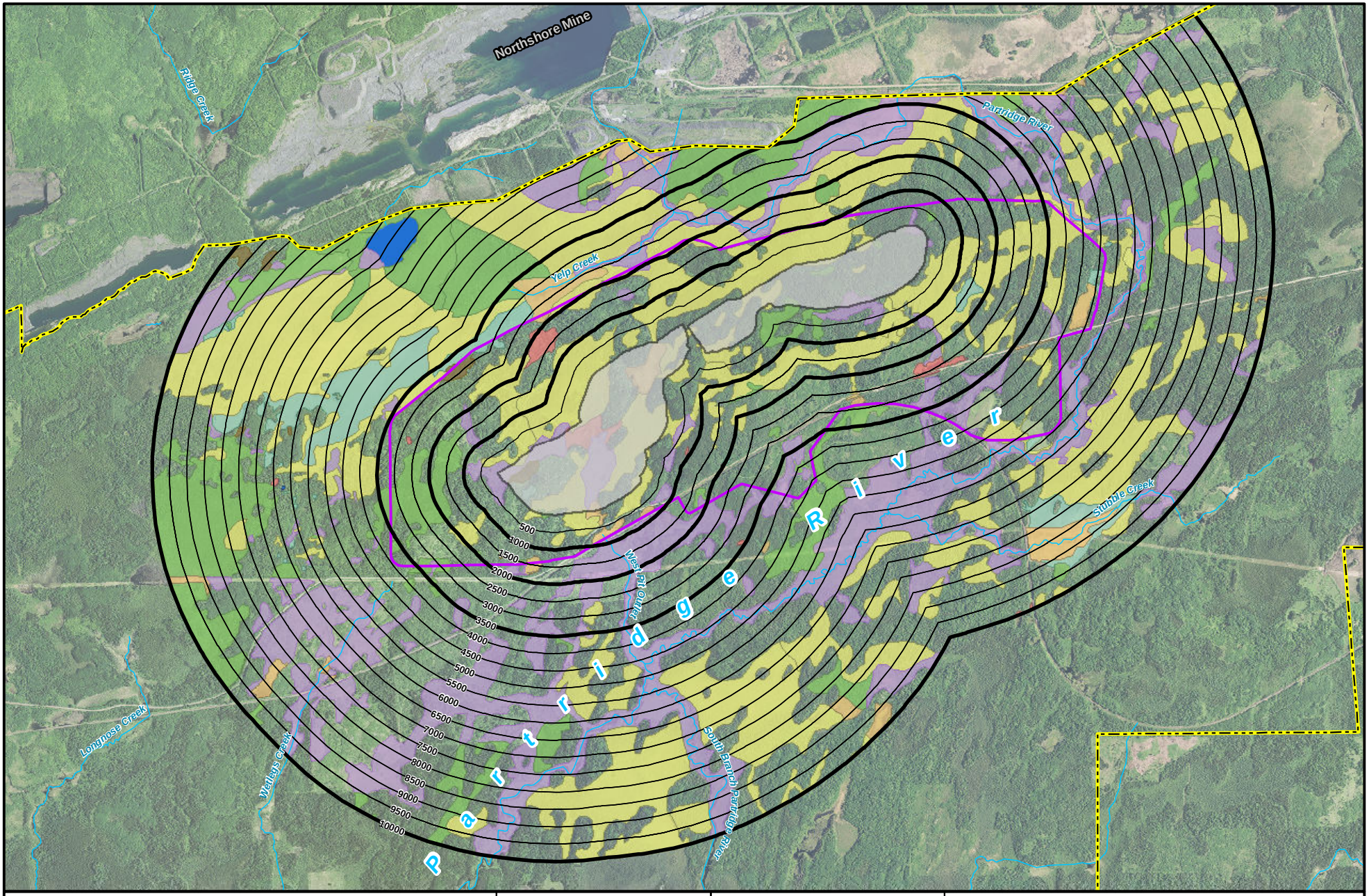

Mine Site
500 ft Increments
Area 1
Mine Pit
Stream/River

Eggers & Reed Wetland Types

Coniferous Bog
Coniferous Swamp
Open bog
Deep Marsh & Shallow Marsh
Hardwood Swamp
Sedge Meadow & Wet Meadow
Shrub Swamps (Alder Thicket & Shrub-Carr)
Shallow, Open Water & Lake

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St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 5.2.3-3
Wetlands within 500 ft Increments at the Mine Site
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Wetland Fragmentation

Construction of the Mine Site features (e.g., open pits, stockpiles, haul roads, etc.) would result in 26.4 acres of wetland fragments (see Figure 5.2.3-1). Wetlands were determined to be fragmented and their associated remaining acreage included as a potential indirect wetland effect if they were small remnants of a directly impacted wetland located between Mine Site features (e.g., in the area between the Category 1 Stockpile and the West Pit or along Dunka Road or the Railroad Connection Corridor) and their functions were lost. The majority of the wetland fragments in the Mine Site would consist of coniferous bog (79 percent), alder thickets (14 percent), coniferous swamp (7 percent), and sedge/wet meadow (less than 1 percent). In addition, a 0.01 acre alder thicket would become fragmented just outside of the Transportation and Utility Corridor near Dunka Road but within Area 1 (PolyMet 2015b). No wetlands would become fragmented along the Railroad Corridor. The wetland fragments that are expected to maintain their functions would be included in the wetland hydrology and vegetation monitoring plan that would be approved during permitting and implemented for the NorthMet Project Proposed Action.

Changes in Hydrology Due to Change in Watershed Area

The potential for indirect effects to wetland acreage due to change in watershed area was assessed by evaluating the change in watershed area per acre of wetland (PolyMet 2015b). Watersheds were defined for each wetland within the Mine Site boundary, as well as wetlands outside the Mine Site with a watershed area that may be affected by NorthMet Project area features. Wetland and watershed areas were determined for the following conditions: existing conditions, during operations when the maximum amount of watershed has been removed (i.e., maximum NorthMet Project Proposed Action extent), and at closure and long-term maintenance.

The analysis was completed by first defining the watershed area (i.e., the sum of upland area and wetland area). For each wetland in the Mine Site, GIS was used to determine the upland area (acres) and wetland area (acres) within each watershed area (acres). Using these acreages, the percentage of a wetland within its watershed was calculated. In addition, the tributary acres per wetland acre were determined as a proportion of the watershed area to wetland area; the equivalent watershed yield (acre-feet per year) was determined for the existing, maximum operational extent, and closure and long-term maintenance conditions (the average net precipitation rate is 11.77 inches per year); and the change in the equivalent yield (inches per year) estimated over the life of the NorthMet Project Proposed Action was evaluated relative to existing conditions equivalent yield to calculate the maximum percent change in yield (PolyMet 2011b; PolyMet 2015b).

The existing conditions include wetlands that represent the existing and relatively undisturbed conditions at the Mine Site. The analysis included wetlands and associated watersheds that are partially or completely within the Mine Site boundary. There are a total of 3,325 acres of wetlands within 6,287 acres of watershed, which results in approximately 53 percent of the analysis area covered by wetlands (PolyMet 2015b).

During operations, some wetlands and watershed areas would be directly impacted by the NorthMet Project Proposed Action and would no longer be considered as a tributary area to the wetland. Consequently, the amount of water potentially contributed by the watershed to support the hydrology of the remaining wetlands would also change.

There would be 20 wetlands, potentially indirectly affected, displaying an increase or decrease of greater than 20 percent equivalent yield. Ombrotrophic coniferous bogs and open bogs were not included in the total wetland acreage because their hydrology is solely supported by precipitation and may contain groundwater flowpaths. The hydrology of the ombrotrophic bogs is not dependent on the size of the watershed. There would be 35 acres (11 wetlands) that would have the potential to experience an increase in yield per wetland acre of greater than 20 percent, and 15 acres (9 wetlands) that would likely experience a decrease in yield per wetland acre in excess of 20 percent (see Figure 5.2.3-4). The 49.4 acres of potentially indirectly affected wetland types include alder thickets (52 percent), coniferous swamp (34 percent), minerotrophic coniferous bog (8 percent), shallow marsh (6 percent), and sedge/wet meadow (less than 1 percent) (PolyMet 2015b).

During reclamation, a portion of the wetlands and wetland watersheds within the Mine Site would be restored to the existing condition.

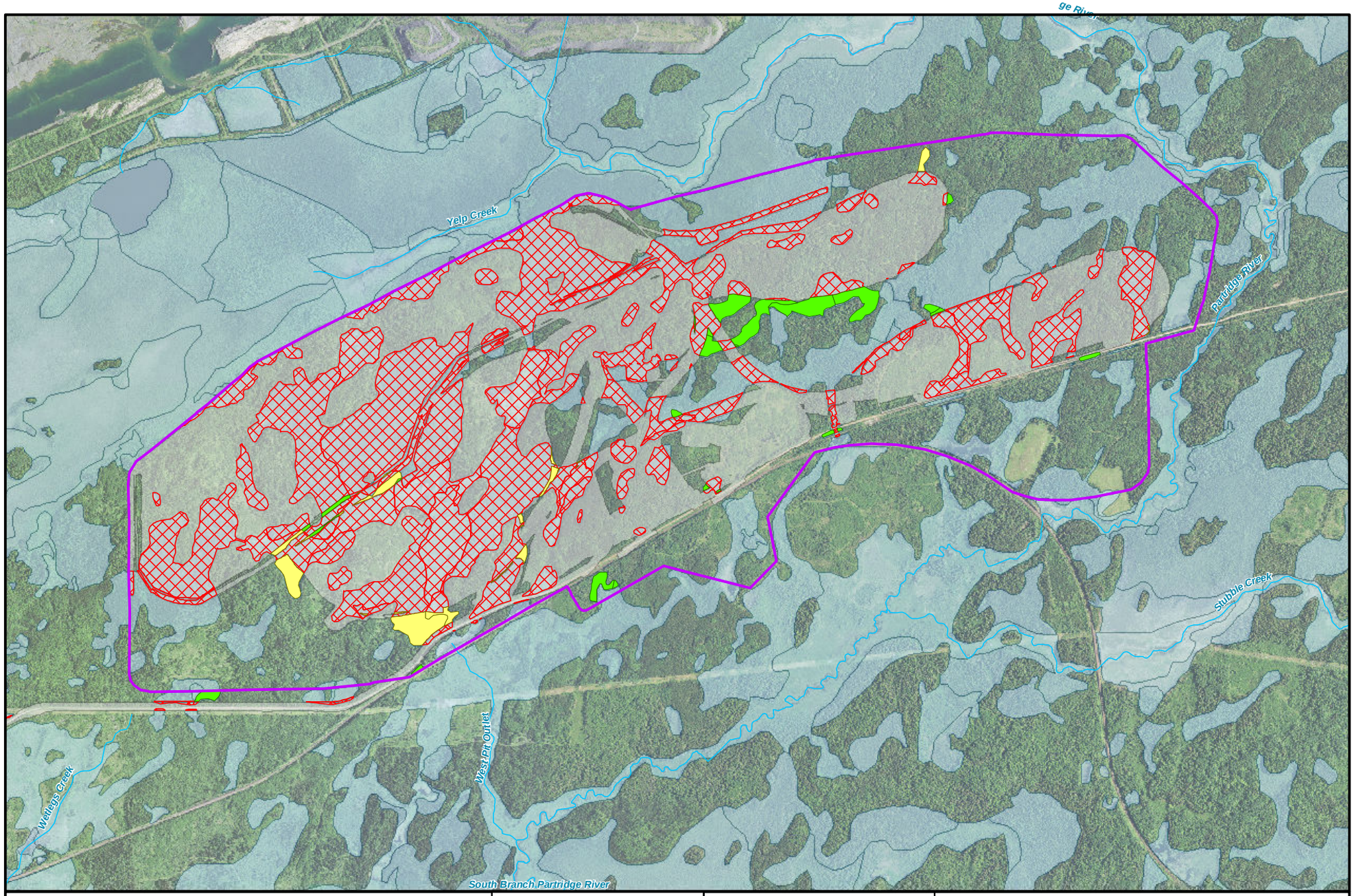

Mine Site
Disturbed Area
Directly Affected Wetland
Stream/River
Wetlands

Potential Indirect Wetland Effects
Decrease in Yield per Wetland Acre of Greater Than 20%
Increase in Yield per Wetland Acre of Greater Than 20%

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US Army Corps of Engineers
St. Paul District

N W E S

0 500 1,000 2,000 3,000 Feet

Figure 5.2.3-4
Wetlands Potentially Indirectly Affected by Change in Watershed Area
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Changes in Wetland Hydrology Due to Surficial Aquifer Drawdown

The geologic and hydrogeologic settings of the Mine Site and the analog sites are fairly similar with a thin veneer of heterogeneous surficial deposits underlain by fractured bedrock. The hydraulic conductivities of the surficial deposits and bedrock are lower at the Mine Site than at the analog sites, and so it is expected that the wetland impact zones would likely overestimate the extent of potential wetland effects. Because of the thin, discontinuous nature of the surficial deposits at the Mine Site, drawdown effects are expected to be more localized at the Mine Site than at the analog sites. Additionally, the numerous bedrock outcrops present at the Mine Site are expected to act as barriers to flow in the unconsolidated aquifer, thereby limiting the area of influence of the mine pits. The analog sites have fewer or no bedrock outcrops compared to the Mine Site. Last, the presence of the Partridge River approximately 4,000 to 6,000 ft south (downstream) of the mine pits is likely to act as a natural barrier to the expansion of the cone of depression within the surficial aquifer from 3,500 to 10,000 ft from the pit (PolyMet 2015b).

Open and coniferous bog wetlands within and surrounding the Mine Site were subcategorized as either ombrotrophic (hydrology and mineral inputs solely from direct precipitation) or minerotrophic (some degree of mineral inputs from groundwater and/or surface water runoff) to determine if the bogs would be affected by groundwater drawdown. Due to the potential connection to groundwater flowpaths, ombrotrophic bogs would have a low likelihood of being affected by groundwater drawdowns associated with proposed mining operations. Similarly, more minerotrophic bogs would have also had a low likelihood of being affected (Eggers 2015a). Using a conservative approach for the analysis (i.e., one that errs on the side of estimating greater wetland impacts), all bog communities within 0-1,000 ft from the edge of the mine pits were categorized as Low Likelihood of wetland hydrology impact (PolyMet 2015b).

The potential indirect wetland effect from surficial aquifer drawdown was based on the analog impact zone with the greater potential drawdown (zone closer to the open pit mine) for wetlands that lie on both sides of the analog distance boundary. Wetlands were identified within four analog impact zones (0-1,000 ft, >1,000-2,000 ft, >2,000-3,500 ft, and >3,500-10,000 ft) from the edge of the mine pits within Area 1 (see Figure 5.2.3-5).

The change in wetland hydrology from groundwater drawdown at the Mine Site was assessed by two different methodologies; therefore, total potential indirect wetland effects were provided based on both approaches. The two approaches are as follows:

- **Wetlands Crossing Analog Zones**: Wetlands that were located within multiple analog impact zones were included in the analog impact zone closest to the edge of the mine pits. The likelihood of wetland hydrology impact was categorized as High, Medium, Low, and No Impact for each analog impact zone.
- **Wetlands within Analog Zones**: Wetlands that were located within multiple analog impact zones were split along zone edges and acreages were calculated by zone. As a result, the acreage for wetlands crossing zone edges was split among multiple zones, rather than included in the analog impact zone that was closest to the edge of the mine pits. The likelihood of wetland hydrology impact was categorized as High, Medium, Low, and No Impact for each analog impact zone.

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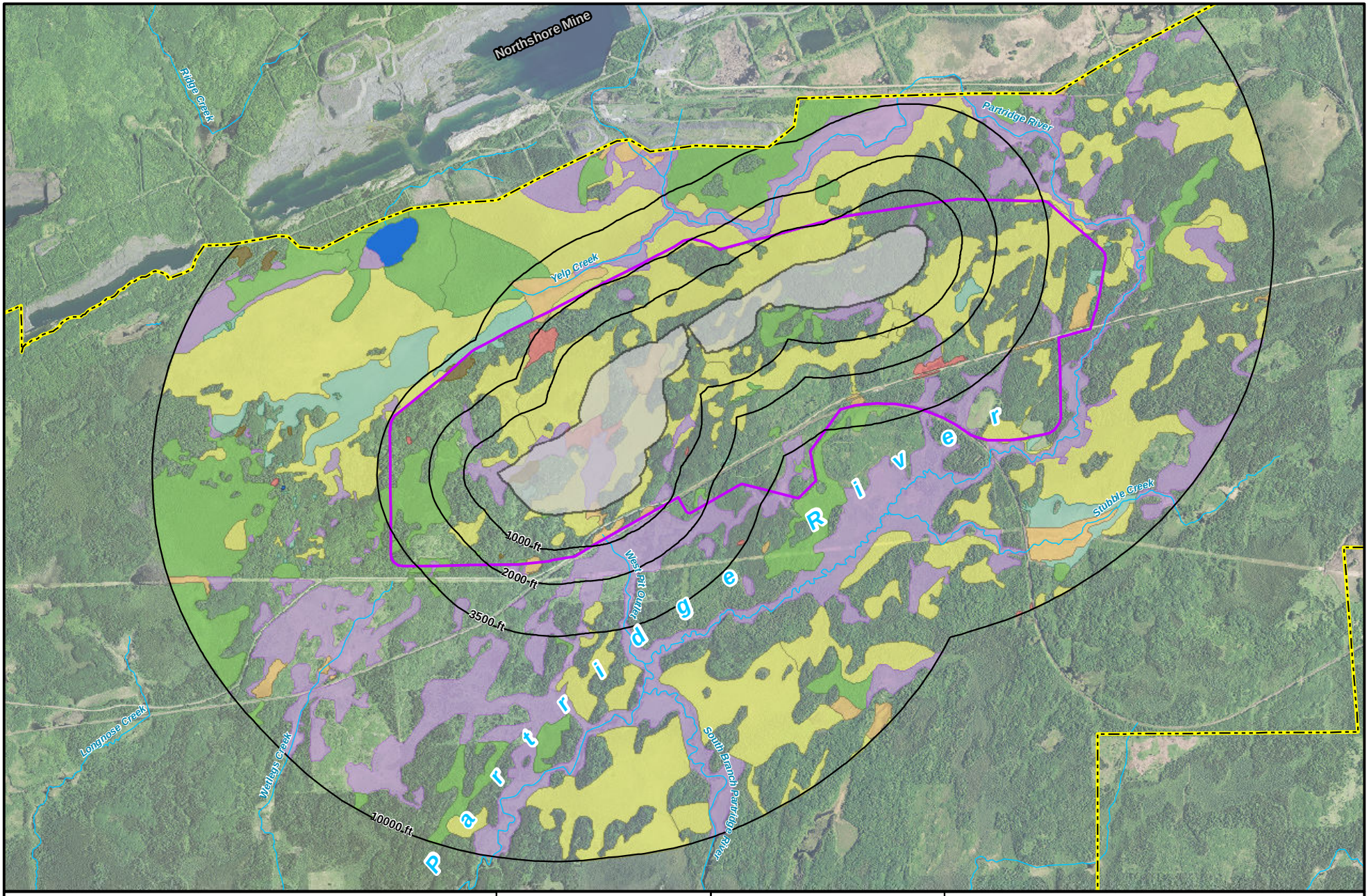

Mine Site
Analog Zones (feet)
Area 1
Mine Pit
Stream/River
Eggers & Reed Wetland Types
Coniferous Bog
Coniferous Swamp
Open bog
Deep Marsh & Shallow Marsh
Hardwood Swamp
Sedge Meadow & Wet Meadow
Shrub Swamps (Alder Thicket & Shrub-Carr)
Shallow, Open Water & Lake

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 5.2.3-5
Wetlands Located within the Four Analog Zones at the Mine Site
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Based on the wetlands crossing analog zones analysis approach, there would be 1,328.0 acres of wetlands in the 0-1,000 ft zone, 618.6 acres in the >1,000-2,000 ft zone, 1,162.0 acres of wetlands in the >2,000-3,500 ft zone, and 2,718.3 acres of wetlands in the >3,500-10,000 ft zone beyond the edge of the pits (see Table 5.2.3-3; Figures 5.2.3-6 through 5.2.3-10) (PolyMet 2015b).

Table 5.2.3-3 Wetlands Crossing Analog Impact Zones Resulting from Potential Changes in Hydrology

Likelihood of Wetland Hydrology Effect Based on Wetland Type for Each Analog Distance	Wetland Area (acres) within each Analog Increment				Eggers and Reed Wetland Community
	0-1,000 ft	1,000-2,000 ft	2,000-3,500 ft	3,500-10,000 ft	
0 – 1,000 ft					
High Likelihood	866.9	-	-	-	Coniferous swamp, sedge meadow, and alder thicket
Moderate Likelihood	8.3	-	-	-	Deep marsh and shallow marsh
Low Likelihood	452.8	-	-	-	Minerotrophic and ombrotrophic coniferous bog
No Effect	-	-	-	-	No wetland types
1,000 – 2,000 ft					
Moderate Likelihood	-	522.4	-	-	Coniferous swamp, hardwood swamp, shrub-carr, and alder thicket
Low Likelihood	-	4.1	-	-	Shallow marsh
No Effect	-	92.1	-	-	Minerotrophic and ombrotrophic coniferous bog and open bog
2,000 – 3,500 ft					
Low Likelihood	-	-	293.1	-	Coniferous swamp, hardwood swamp, sedge/wet meadow, shrub-carr, and alder thicket
No Effect	-	-	868.9	-	Minerotrophic and ombrotrophic coniferous bog and open bog and shallow marsh
3,500 – 10,000 ft					
No Effect	-	-	-	2,718.3	All wetland types
Total Acres of Wetland	**1,328.0**	**618.6**	**1,162.0**	**2,718.3**	

Source: PolyMet 2015b

Under this methodology, the likelihood of wetland hydrology effects would be as follows: no effect on 3,679.3 acres of wetlands (63 percent); low likelihood to 750.0 acres of wetlands (13 percent); moderate likelihood to 530.7 acres of wetlands (9 percent); and high likelihood to 866.9 acres of wetlands (15 percent) (see Table 5.2.3-3). Within 0-10,000 ft from the edge of the mine pits, wetland types with a high likelihood of wetland hydrology effects include shrub swamps (847.8 acres), coniferous swamp (18.9 acres), and sedge/wet meadow (less than 1 acre); with a moderate likelihood include shrub swamp (327.2 acres), coniferous swamp (194.9 acres), deep marsh (4.9 acres), shallow marsh (3.4 acres), and hardwood swamp (less than 1 acre); and with a low likelihood include coniferous bog (452.8 acres) coniferous swamp (222.7 acres), shrub swamps (67.8 acres), shallow marsh (4.1 acres), sedge/wet meadow (1.7 acres), and hardwood swamp (less than 1 acre) (PolyMet 2015b).

The wetlands categorized as high likelihood are dominated by one alder thicket (823.7 acres) that has approximately 4 acres (less than 1 percent) within the 0-1,000 ft analog impact zone. The remainder of this wetland (more than 99 percent) is located more than 1,000 ft away from the edge of the mine pits and extends out to the edge of Area 1 (see Figure 5.2.3-6).

Based on the analog data, hydrologic effects to peat wetlands would only be observed to occur within 1,000 ft from the edge of the mine pits. Therefore, wetlands were categorized within the analog impact zones using an alternate method to determine the likelihood of wetland hydrology effects as described below.

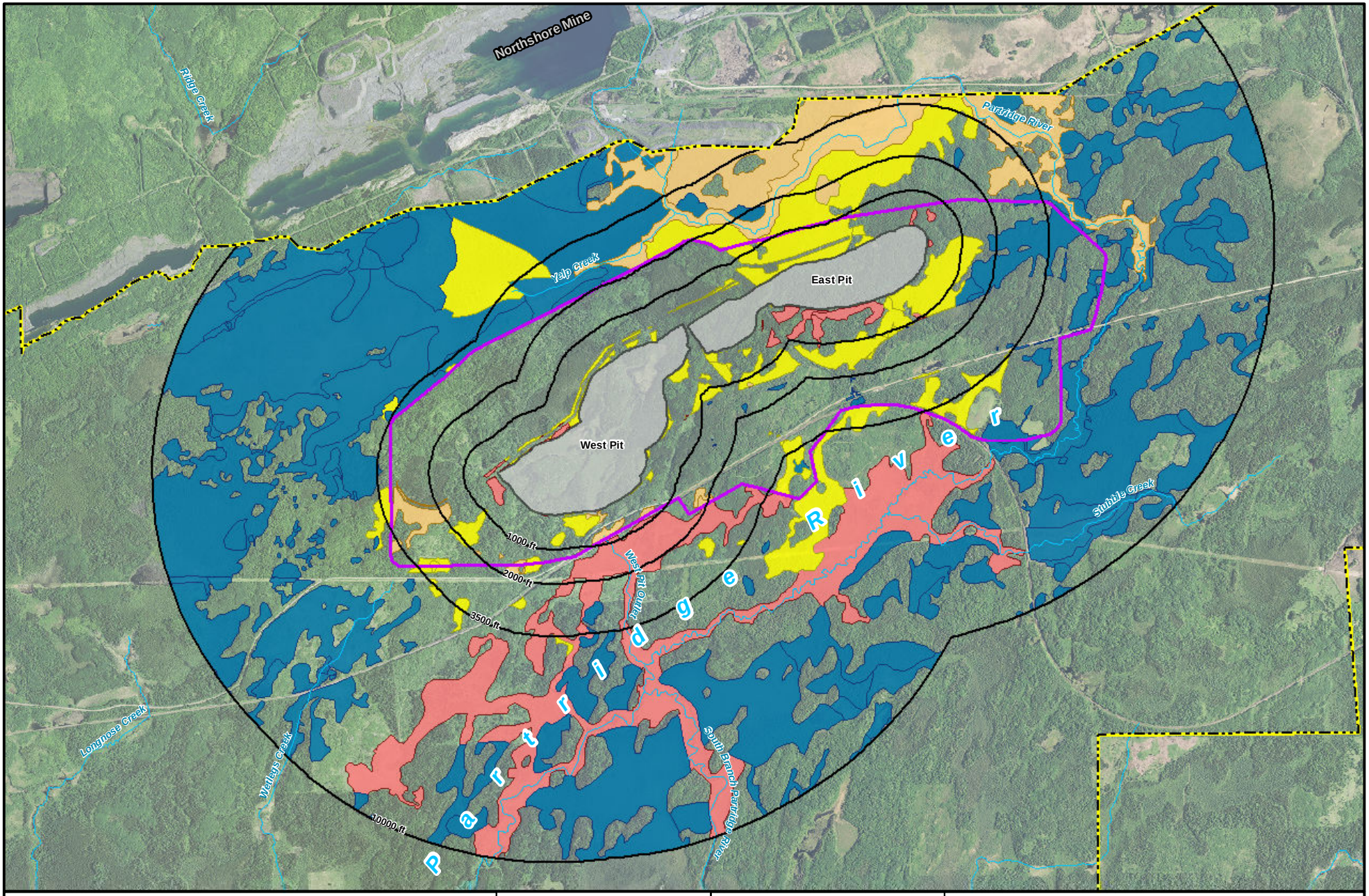

Mine Site
Mine Pit
Analog Zones (feet)
Area 1
Stream/River

Likelihood of Wetland Hydrology Effect

High Likelihood
Moderate Likelihood
Low Likelihood
No Effect

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 5.2.3-6
Wetlands Crossing Analog
Zones - 0-10,000 ft of Edge of Mine Pits
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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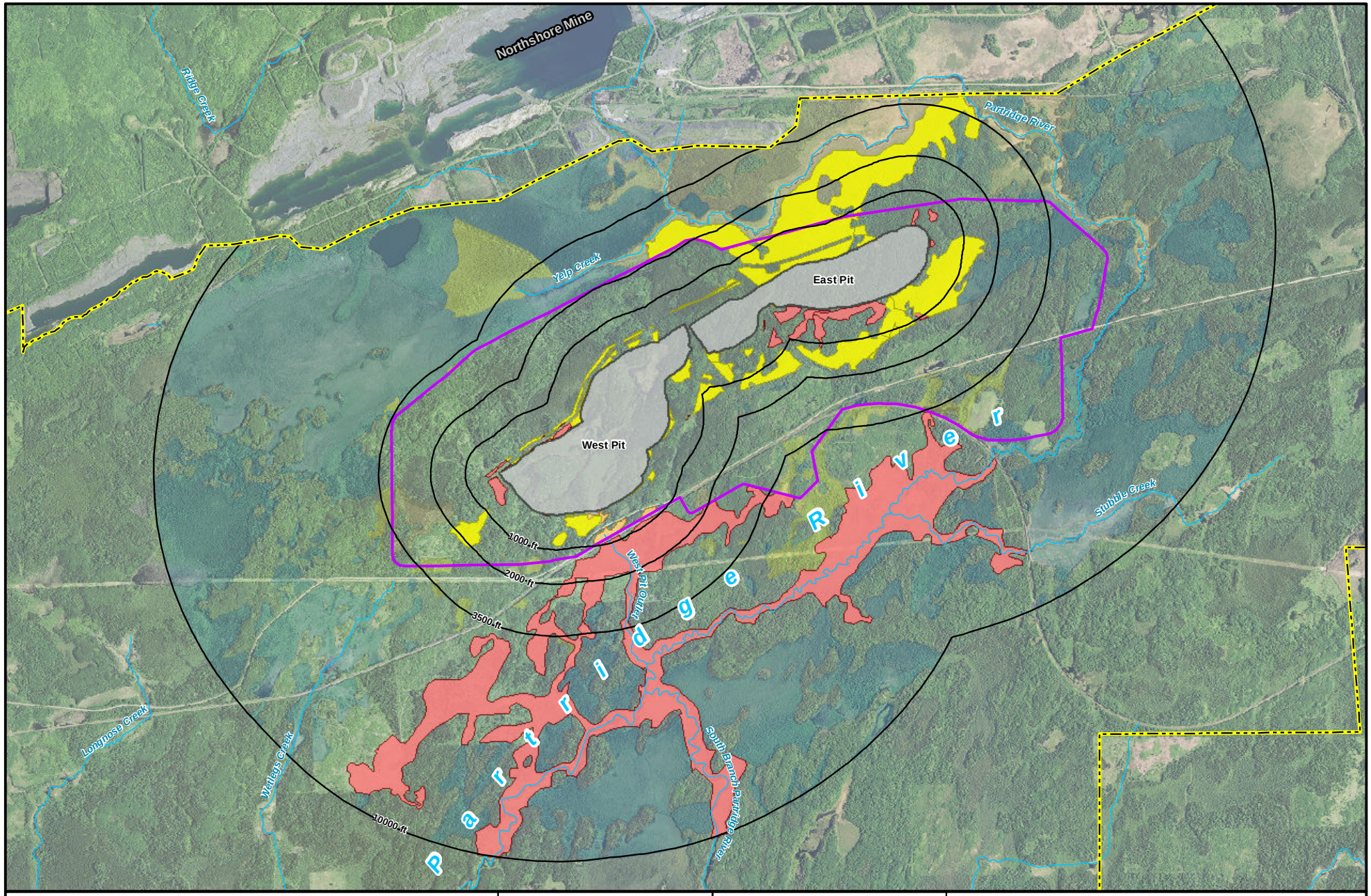

Mine Site
Mine Pit
Analog Zones (feet)
Area 1
Stream/River

Likelihood of Wetland Hydrology Effect

High Likelihood
Moderate Likelihood
Low Likelihood
No Effect

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 5.2.3-7
Wetlands Crossing Analog Zones -
0-1,000 ft of Edge of Mine Pits
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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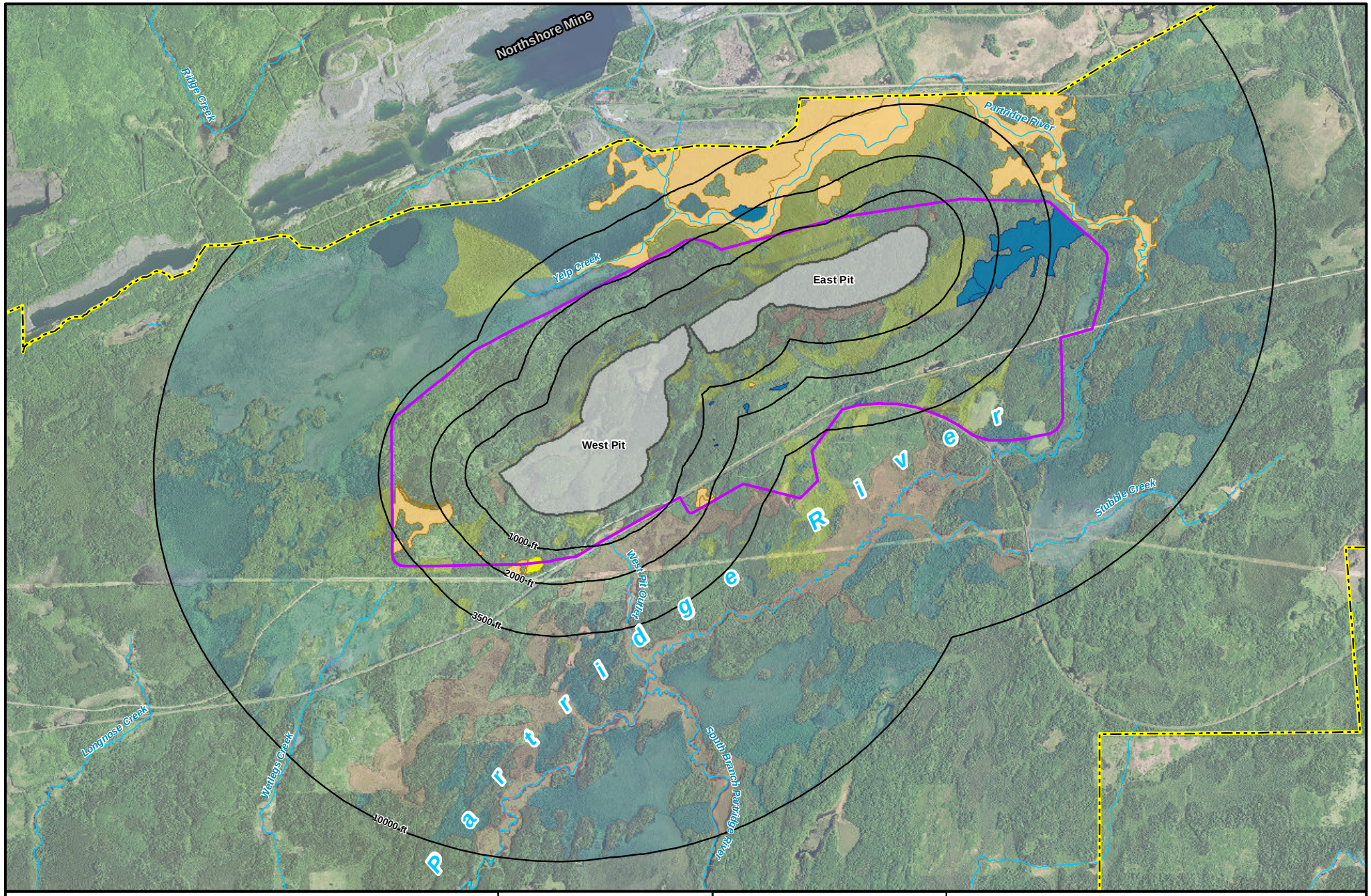

Mine Site
Mine Pit
Analog Zones (feet)
Area 1
Stream/River

Likelihood of Wetland Hydrology Effect

High Likelihood
Moderate Likelihood
Low Likelihood
No Effect

MNDNR
US Army Corps of Engineers St. Paul District
US Forest Service

N W E S

0 0.25 0.5 1 Miles

Figure 5.2.3-8
Wetlands Crossing Analog Zones - >1,000-2,000 ft of Edge of Mine Pits
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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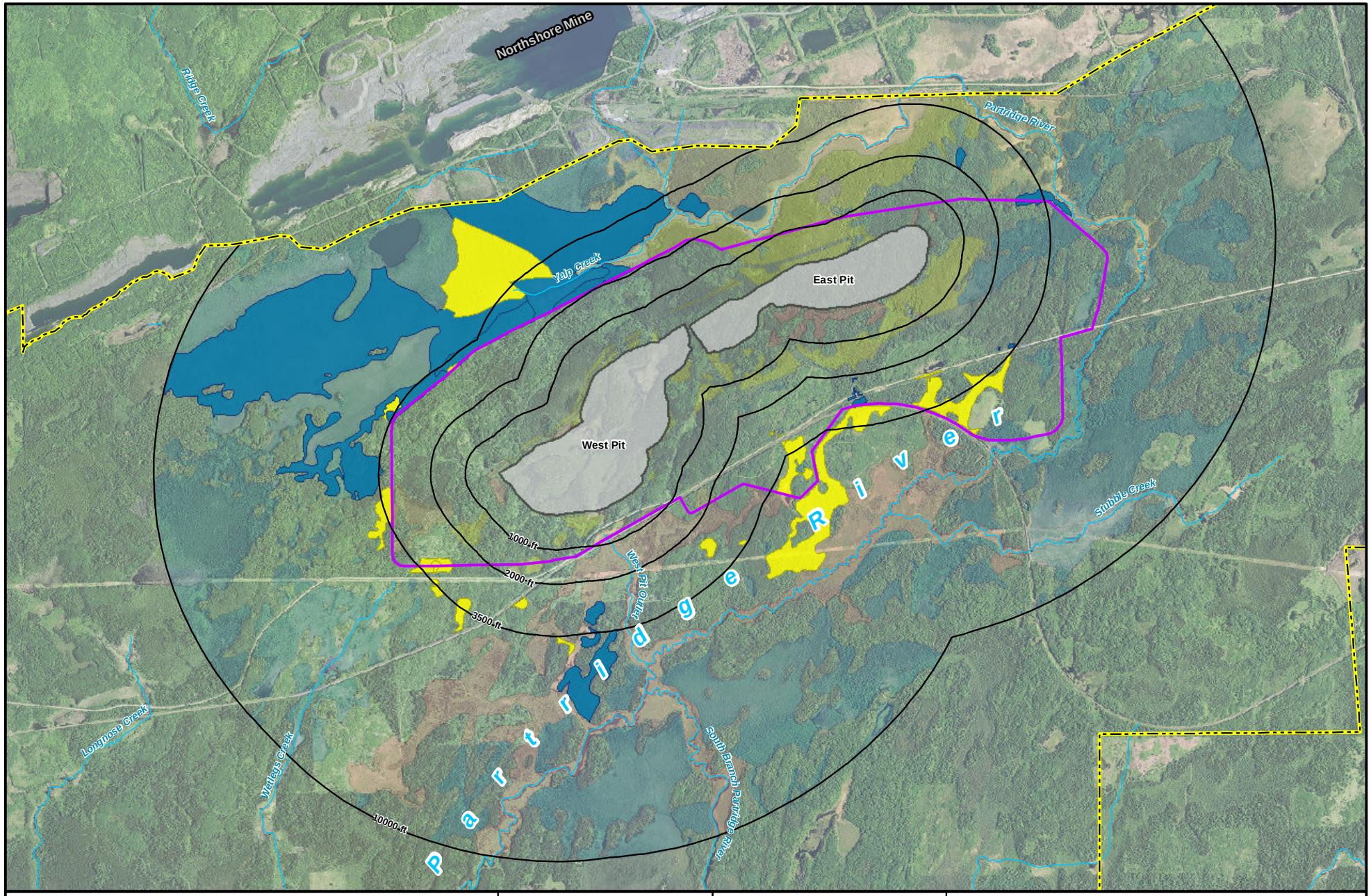

Mine Site
Mine Pit
Analog Zones (feet)
Area 1
Stream/River

Likelihood of Wetland Hydrology Effect

High Likelihood
Moderate Likelihood
Low Likelihood
No Effect

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 5.2.3-9
Wetlands Crossing Analog Zones - >2,000-3,500 ft of Edge of Mine Pits
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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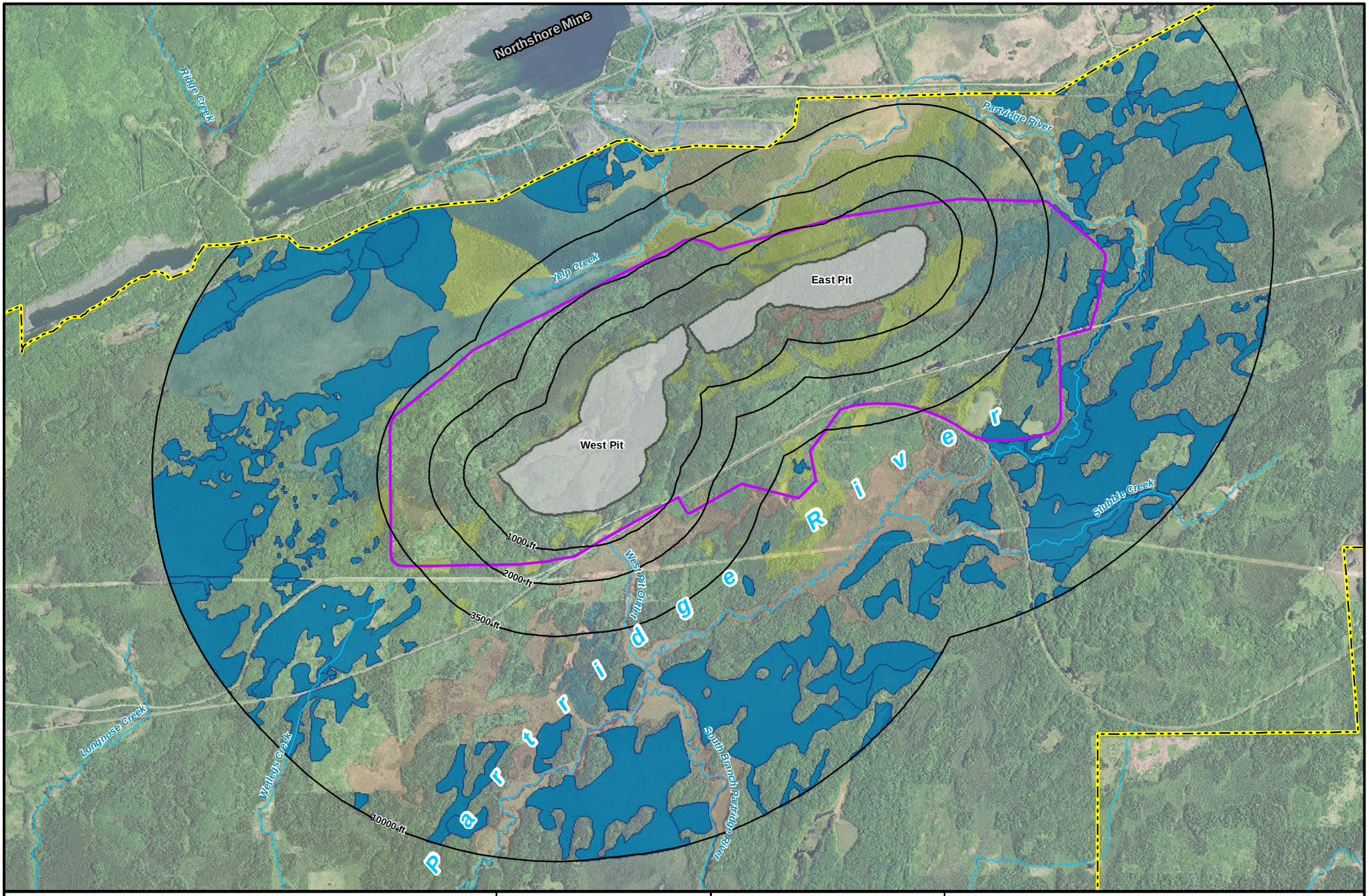

Mine Site
Mine Pit
Analog Zones (feet)
Area 1
Stream/River

Likelihood of Wetland Hydrology Effect
High Likelihood
Moderate Likelihood
Low Likelihood
No Effect

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 0.25 0.5 1 Miles

Figure 5.2.3-10
Wetlands Crossing Analog Zones - >3,500-10,000 ft of Edge of Mine Pits
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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For the wetlands within analog zones, those wetlands that were located within multiple analog impact zones were split along zone edges, and acreages were calculated by zone. The acreage of each wetland type located within these impact zones is summarized in Table 5.2.3-4 and locations are shown in Figures 5.2.3-11 through 5.2.3-15. Using this analysis approach, there would be 233.5 acres of wetlands in the 0-1,000 ft zone, 311.0 acres in the >1,000-2,000 ft zone, 718.0 acres of wetlands in the >2,000-3,500 ft zone, and 4,564.4 acres of wetlands in the >3,500-10,000 ft zone (PolyMet 2015b).

Table 5.2.3-4 Wetlands Within Analog Impact Zones Resulting from Potential Changes in Hydrology

Likelihood of Wetland Hydrology Effect Based on Wetland Type for Each Analog Distance	**Wetland Area (acres) within each Analog Increment**				
	0-1,000 ft	**1,000-2,000 ft**	**2,000-3,500 ft**	**3,500-10,000 ft**	**Eggers and Reed Wetland Community**
0 – 1,000 ft					
High Likelihood	46.4	-	-	-	Coniferous swamp, sedge meadow, and alder thicket
Moderate Likelihood	8.3	-	-	-	Deep marsh and shallow marsh
Low Likelihood	178.8	-	-	-	Minerotrophic and ombrotrophic coniferous bog
No Effect	-	-	-	-	No wetland types
1,000 – 2,000 ft					
Moderate Likelihood	-	110.8	-	-	Coniferous swamp, hardwood swamp, shrub-carr, and alder thicket
Low Likelihood	-	4.1	-	-	Shallow marsh
No Effect	-	196.1	-	-	Minerotrophic and ombrotrophic coniferous bog and open bog
2,000 – 3,500 ft					
Low Likelihood	-	-	385.0	-	Coniferous swamp, hardwood swamp, sedge/wet meadow, shrub-carr, and alder thicket
No Effect	-	-	333.0	-	Shallow marsh and minerotrophic and ombrotrophic coniferous bog and open bog
3,500 – 10,000 ft					
No Effect	-	-	-	4,564.4	All wetland types
Total Acres of Wetland	**233.5**	**311.0**	**718.0**	**4,564.4**	

Source: PolyMet 2015b.

Under this methodology, the likelihood of wetland hydrology effects would be as follows: no effect on 5,093.5 acres of wetlands (87 percent); low likelihood to 567.9 acres of wetlands (10 percent); moderate likelihood to 119.1 acres of wetlands (2 percent); and high likelihood to 46.4 acres of wetlands (less than 1 percent) (see Table 5.2.3-4). Within 0-10,000 ft from the edge of the mine pits, wetland types with a high likelihood of wetland hydrology effects include shrub swamps (27.5 acres), coniferous swamp (18.8 acres), and sedge/wet meadows (less than 1 acre); those with a moderate likelihood include shrub swamp (96.0 acres), coniferous swamp (14.4 acres), deep marsh (4.9 acres), shallow marsh (3.4 acres), and hardwood swamp (less than 1 acre); and those with low likelihood include shrub swamp (247.1 acres), coniferous swamp (135.3 acres), coniferous bog (178.8 acres), shallow marsh (4.1 acres), sedge/wet meadow (1.7 acres), and hardwood swamp (less than 1 acre) (PolyMet 2015b).

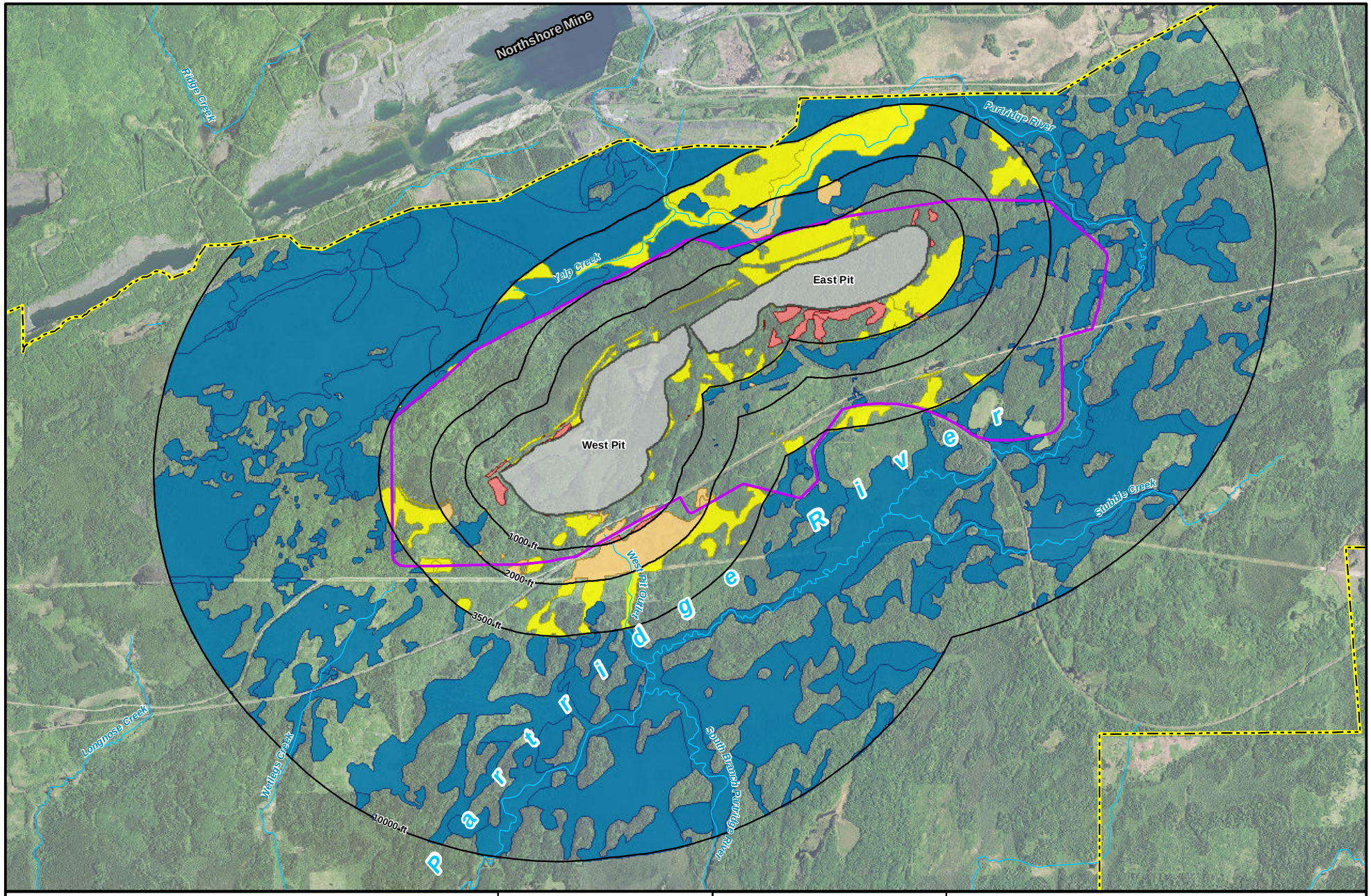

Mine Site
Mine Pit
Analog Zones (feet)
Area 1
Stream/River

Likelihood of Wetland Hydrology Effect

High Likelihood
Moderate Likelihood
Low Likelihood
No Effect

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 5.2.3-11
Wetlands within Analog Zones - 0-10,000 ft of Edge of Mine Pits
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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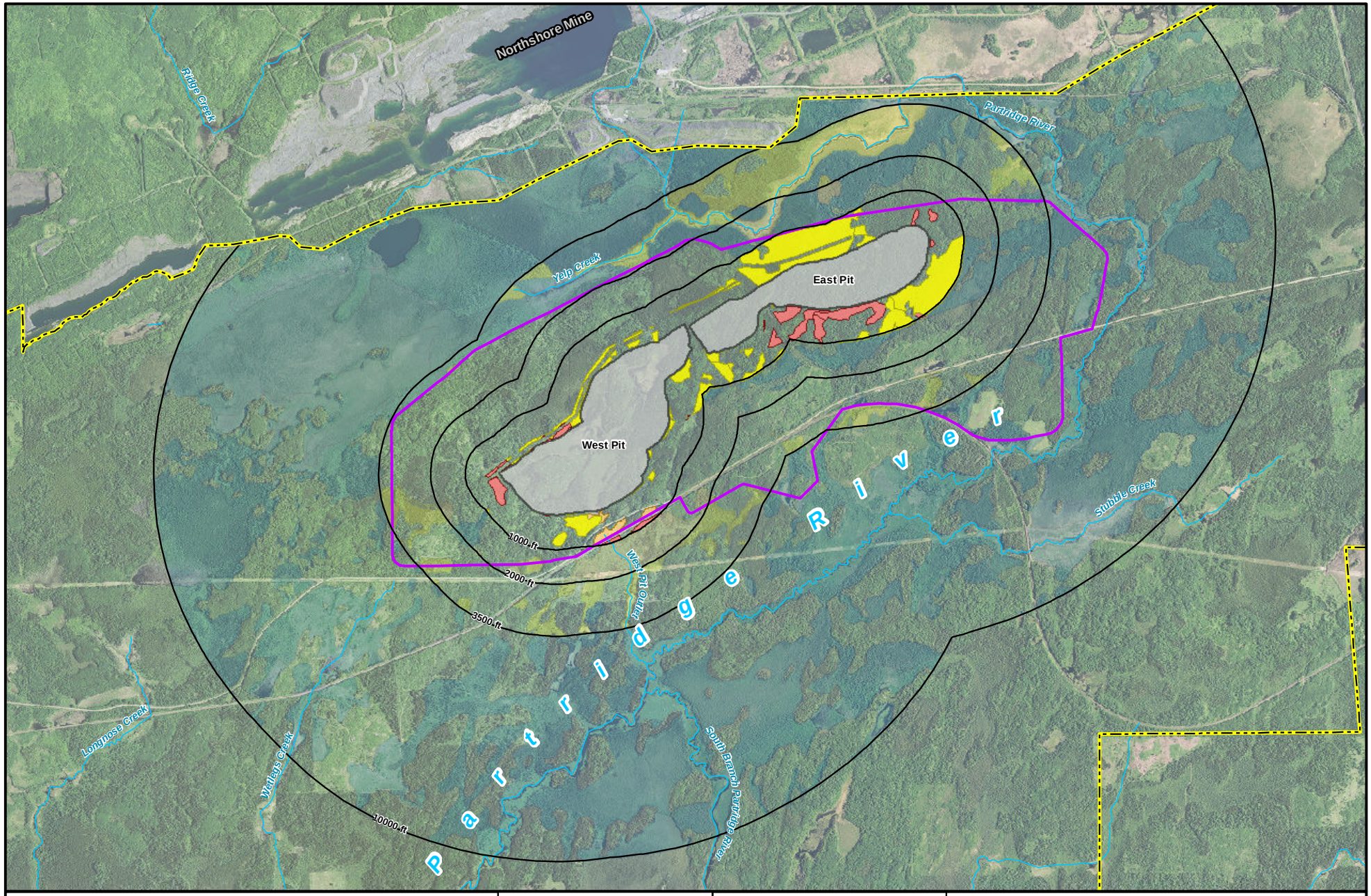

Mine Site
Mine Pit
Analog Zones (feet)
Area 1
Stream/River

Likelihood of Wetland Hydrology Effect
High Likelihood
Moderate Likelihood
Low Likelihood
No Effect

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 0.25 0.5 1 Miles

Figure 5.2.3-12
Wetlands within Analog Zones -
0-1,000 ft of Edge of Mine Pits
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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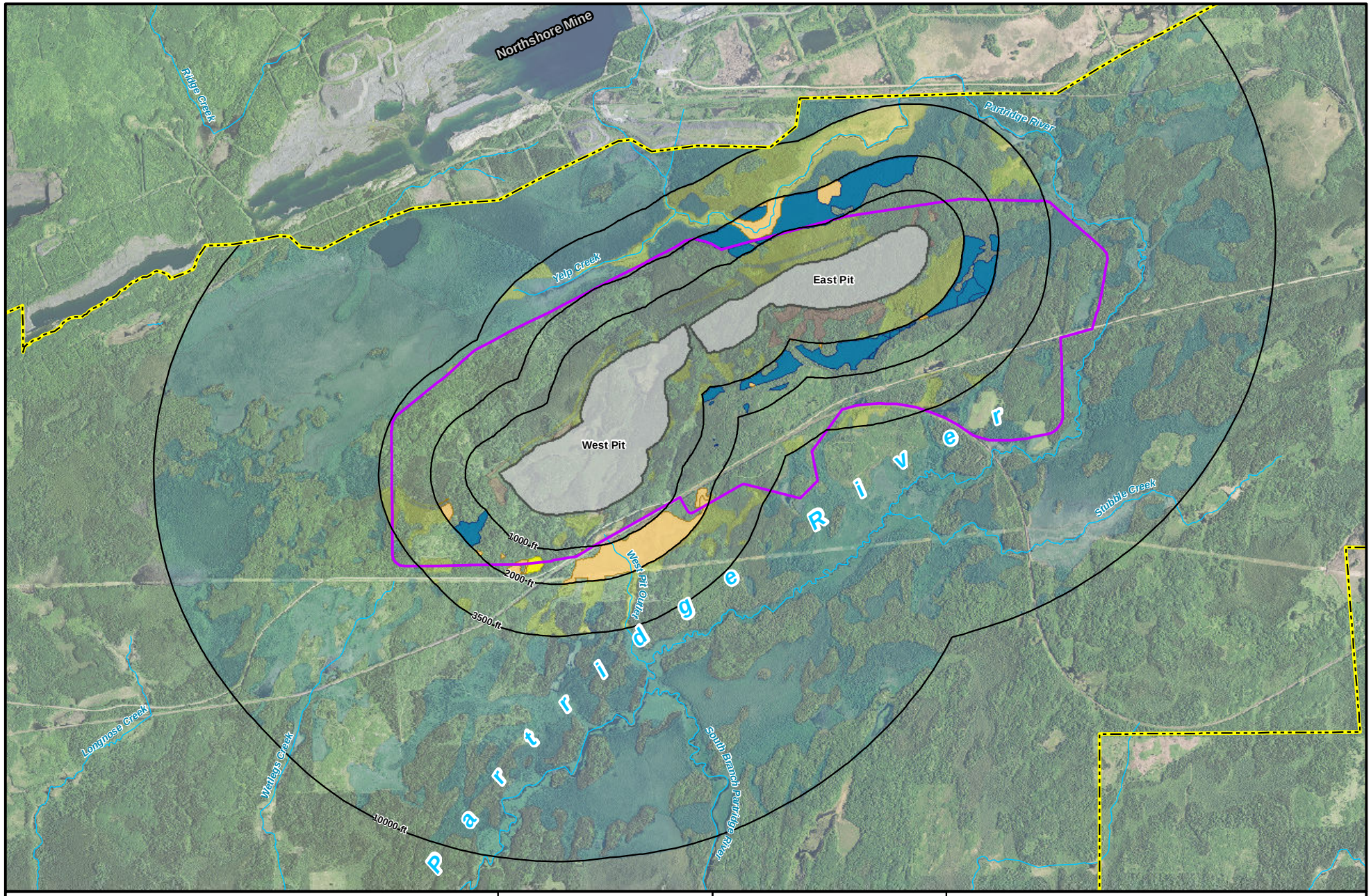

Mine Site
Mine Pit
Analog Zones (feet)
Area 1
Stream/River

Likelihood of Wetland Hydrology Effect
High Likelihood
Moderate Likelihood
Low Likelihood
No Effect

MNDNR
US Army Corps of Engineers St. Paul District
USFS

N W E S

0 0.25 0.5 1 Miles

Figure 5.2.3-13
Wetlands within Analog Zones - >1,000-2,000 ft of Edge of Mine Pits
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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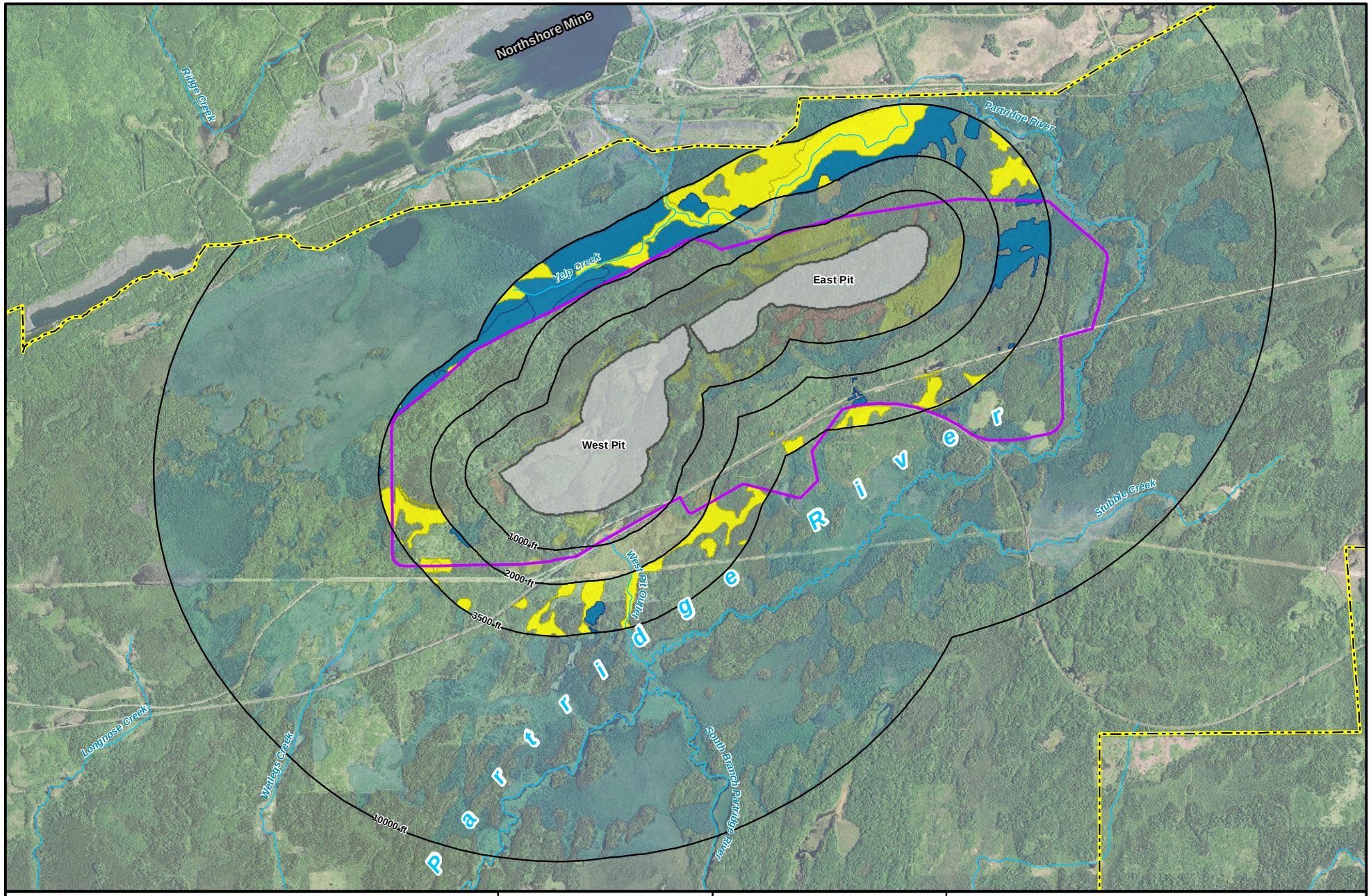

Mine Site
Mine Pit
Analog Zones (feet)
Area 1
Stream/River

Likelihood of Wetland Hydrology Effect

High Likelihood
Moderate Likelihood
Low Likelihood
No Effect

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 5.2.3-14
Wetlands within Analog Zones -
>2,000-3,500 ft of Edge of Mine Pits
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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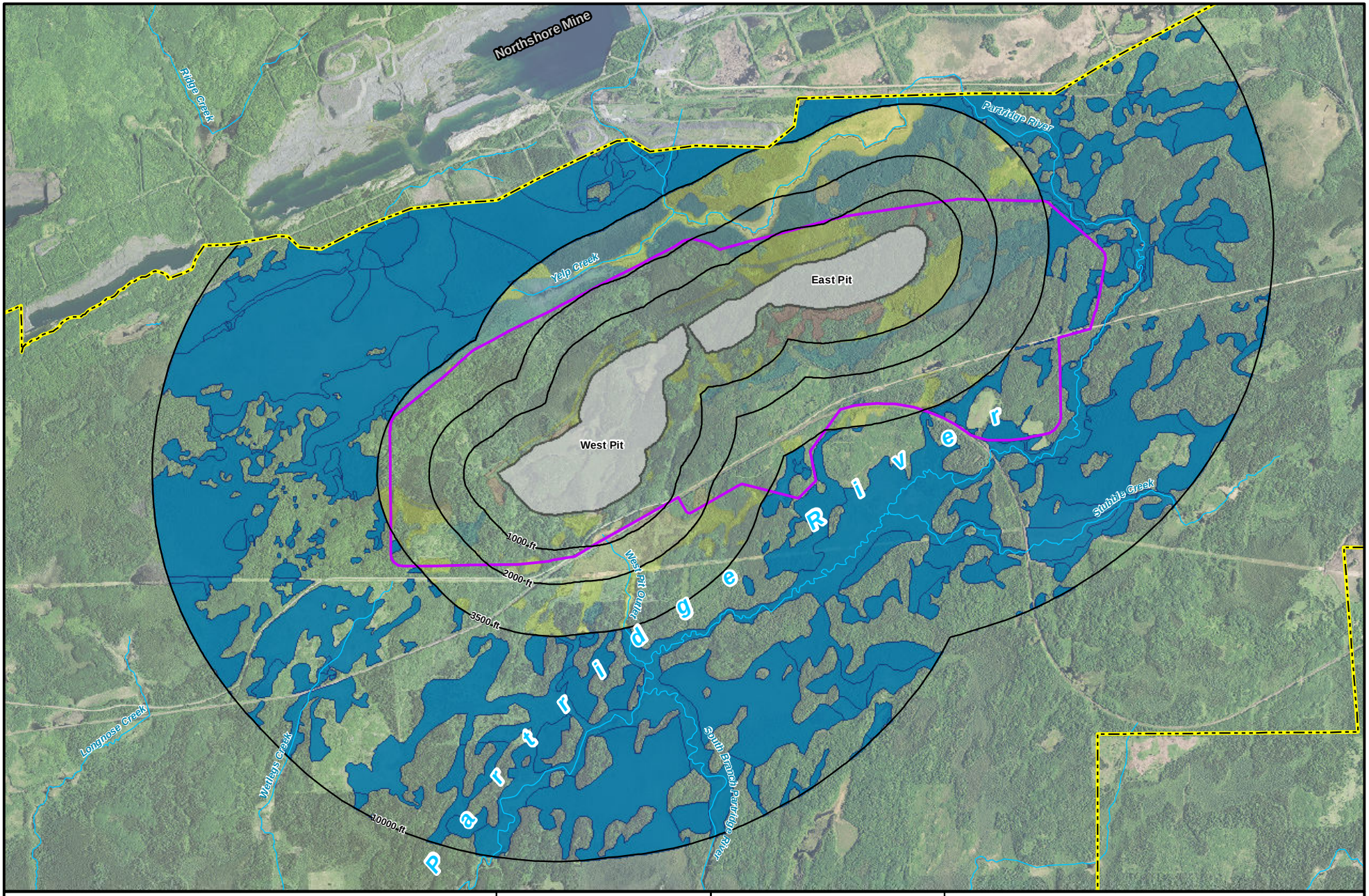

Mine Site
Mine Pit
Analog Zones (feet)
Area 1
Stream/River

Likelihood of Wetland Hydrology Effect

High Likelihood
Moderate Likelihood
Low Likelihood
No Effect

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 5.2.3-15
Wetlands within Analog Zones -
>3,500-10,000 ft of Edge of Mine Pits
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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The potential indirect wetland hydrology drawdown effects on each wetland type were assessed based on the wetland sensitivity class tables for falling groundwater tables found in the Crandon mine project document titled *Wetland Impact Assessment Technical Memorandum – Appendix B*. The following provides a general discussion regarding potential indirect wetland effects that could occur based on hypothetical hydrologic drawdown levels using the hydrologic wetland sensitivity method. The potential indirect wetland effects that could occur include: conversion to other wetland community types, a change in vegetation without a change in community type, conversion to uplands, or other effects.

Three categories of hydrologic wetland sensitivity, each with associated groundwater drawdown levels for each wetland community type, were created for the hypothetical hydrologic drawdown wetland sensitivity assessment (PolyMet 2015b).

- None-to-Slight: Water level changes in which effect on the community would be slight to none with the potential for slight changes in abundance of various species but no change in species present. Monitoring or mitigation not anticipated.
- Moderate: Water level changes that may have a moderate effect on the wetland community with the potential for the loss and addition of some species. Monitoring recommended with mitigation based on monitoring results.
- Severe: Water level changes expected to result in severe effects on the community with the potential for considerable loss of characteristic plant species and invasion by other species, conversion of wetland type or conversion to upland. Monitoring should be conducted and mitigation may be required. According to the hydrologic wetland sensitivity method, wetlands in which groundwater is not the principal source of water and in which mitigation of surface water is planned (e.g., streamflow augmentation) should be excluded from this category.

The hydrologic wetland sensitivity method estimated how wetland communities would respond to groundwater drawdown by assuming that they would change to drier native plant communities or variants of the original community. No data or research was utilized from actual wetlands responding to groundwater drawdown; therefore, this analysis and related data can only be used as an initial estimate of what changes could be expected should groundwater levels actually fall as a result of the NorthMet Project Proposed Action. Monitoring of hydrology and vegetation within potentially affected wetlands represents the best method for documenting actual community changes resulting from hydrology changes, understanding complex hydrologic conditions, and identifying potential future indirect effects related from mine features.

The preliminary information developed for the hydrologic wetland sensitivity method was utilized to estimate what type of wetland effects might occur at the Mine Site assuming various, theoretical groundwater drawdown levels. Table 5.2.3-5 provides a summary of the estimated wetland community changes using the groundwater drawdown thresholds for each wetland type based on the hydrologic wetland sensitivity method.

Table 5.2.3-5 Potential Wetland Community Changes Due to Drawdown

Impact Sensitivity Category	None		Moderate		Severe	
Community Type	**Water Level Drawdown (ft)**	**Potential Effect**	**Water Level Drawdown (ft)**	**Potential Effect**	**Water Level Drawdown (ft)**	**Potential Effect**
Ombrotrophic Coniferous and Open bog	<0.75	None	0.75-2	Minor changes in vegetation; Increased tree growth	>2	Possible conversion of wetland type
Minerotrophic Coniferous and Open bog	<0.5	None	0.5-2	Change in vegetation; Increased tree growth	>2	Possible conversion of wetland type
Shallow marsh[1]	<1	None	1-3	Conversion of type	>3	Conversion of wetland type
Deep marsh[1]	<2	None	2-4	Conversion of type	>4	Conversion of wetland type
Shallow, open water[1]	<2	None	2-4	Conversion of type	>4	Conversion of wetland type
Conifer swamp	<1	None	1-2	Minor changes in vegetation; Increased tree growth	>2	Change in vegetation
Hardwood swamp	<2	None	2-4	Change in vegetation; Increased tree growth	>4	Conversion of wetland type; possible conversion to upland
Alder thicket	<1	None	1-4	Change in vegetation; Increased shrub growth	>4	Conversion of wetland type; increased shrub growth
Shrub-carr	<0.5	None	0.5-3	Change in vegetation; Increased shrub growth	>3	Conversion of wetland type
Sedge/wet meadow	<0.5	None	0.5-3	Change in vegetation; Conversion of type	>3	Conversion to upland

Source: PolyMet 2015b.

Note:
[1] Shallow marsh, deep marsh, and shallow open water communities were not evaluated in the hydrologic wetland sensitivity method as described in the Wetland Work Plan, but were estimated based on best professional judgment (PolyMet 2015b).

For minor groundwater drawdown (ranging from 0.5 to 2 ft), no substantial wetland community changes were identified. For the moderate sensitivity category (water level changes ranging from 0.5 to 4 ft), some changes to vegetation would be possible in all wetland communities with marshes, open water, and meadows, potentially resulting in conversion of wetland type, and there could be increased shrub or tree growth in shrub or forested wetlands. For the severe sensitivity category, nearly all wetland community types would be estimated to convert to other

wetland types with a few wetlands estimated to convert to upland, including sedge/wet meadows and possibly hardwood swamps (PolyMet 2015b). Monitoring to document effects to wetlands would be recommended for all potential effects in the moderate and severe categories.

Groundwater modeling cannot reasonably estimate potential indirect wetland effects; therefore, analog impact zones can provide a reasonable estimate of the extent of potential indirect wetland effects resulting from hydrologic effects. In addition, the evaluation of theoretical groundwater drawdown levels can help estimate what types of potential indirect wetland effects might occur. However, wetland hydrology is a complex mix of precipitation, surface runoff, and in some cases, groundwater. The response of complex natural systems to human disturbances can only be estimated. Therefore, monitoring of wetland hydrology and vegetation communities would occur to document the extent and magnitude of wetland responses (potential indirect effects) to human disturbances. The monitoring plan, developed as part of the federal and state permitting process, would be based on those wetlands that have a high likelihood of indirect effects as a result of groundwater drawdown. The requirements of the monitoring plan would be determined during the permitting process. Permit conditions would likely include an adaptive management plan to account for any additional effects that may be identified in the annual monitoring and reporting.

Wetlands Abutting the Partridge River

There are 1,478.5 acres of wetlands abutting the Partridge River within Area 1 (see Figure 4.2.3-2); they are presented in Table 5.2.3-6.

Table 5.2.3-6 Wetlands Abutting the Partridge River

Eggers and Reed Class[1]	Wetland Size (acres)	Wetland Size (percent)
Coniferous bog	193.0	13
Shallow marsh	12.1	1
Shrub swamp (including alder thicket or shrub-carr)	1,273.5	86
Total Acres of Wetlands	1,478.5	100

Source: PolyMet 2015b.

Note:
[1] Eggers and Reed 1997.

The XP-SWMM model identified that the changes in average annual flow (and therefore stage) of the Partridge River would be within the naturally occurring annual variation for the Partridge River. Thus, no potential indirect wetland effects were identified for the wetlands abutting the Partridge River (PolyMet 2015b).

Water Quality Changes

The screening analysis for depositional effects was conducted using air dispersion/ deposition modeling (AERMOD) to estimate the potential annual deposition of dust, metals, and sulfur to wetlands within and adjacent to the Mine Site. The estimated deposition from fugitive dust emissions was used to identify wetlands that have the potential for water quality changes. The estimated deposition from fugitive dust emissions was used to identify a threshold for a negative effect on vegetation. Below is a summary of the assessment from the *NorthMet Project Wetlands Data Package* (PolyMet 2015b).

Receptors

The receptors of interest for this analysis were the wetlands that were not directly affected. The respective initial receptor grids for the Mine Site were set up with near-field receptor spacing of 250 meters (within the ambient air boundary and out to 1,000 meters beyond the ambient air boundary) and far-field receptor spacing of 1,000 meters (from 1 km out to 5 km from the ambient air boundary).

Dust Deposition and Speciation to Individual Metals and Sulfur

For the dust emission sources identified for assessing potential metals and sulfur deposition at the Mine Site, the highest estimated dust deposition rate for each receptor node was then speciated to the respective metal and sulfur deposition rates based on the contribution of the sources to a receptor node and the metal and sulfur composition identified for each contributing source (e.g., ore and waste rock at the Mine Site). The estimated metal or sulfur deposition for each contributing dust source at a receptor node was then summed to provide a "total" deposition rate for each respective metal and for sulfur at that receptor location. Dust deposition rates were speciated for arsenic, cadmium, chromium, lead, manganese, nickel, and selenium. Copper and vanadium were also included. For each receptor node, the post-processing of the dust deposition rate by source contribution was then summed to provide a "total" metal deposition rate and a "total" sulfur deposition rate.

Sulfur associated with fugitive dust is part of the mineral matrix of the rock particles (sulfide). Therefore, weathering of the particles must occur before any of the sulfur would be released to soil, soil water, or surface water. Mercury was not considered as part of the evaluation of dust deposition at the Mine Site because the concentration of mercury in the rock to be mined is very low and would not be considered environmentally significant in this medium (PolyMet 2015b). Potential mercury air emissions from ore processing (i.e., potential emissions from the autoclave) were evaluated for potential local deposition impacts (see Section 5.2.7).

Estimates of Rural Background Deposition

For dust, an annual effects-level deposition rate of 365 grams per square meter per year ($g/m^2/yr$) was compared to modeled annual dust deposition rates. This deposition rate is a potential effects threshold for photosynthesis (i.e., potential for reduced photosynthesis due to "dusting" of the plant surface). However, for this analysis, the vegetative surface area of the wetlands was not calculated or included in the analysis. The modeled dust deposition rate was assumed to be applied to the land surface area which is a smaller area than the vegetative surface area. Vegetative surface area can be up to 13 times greater than the land surface area. By only assessing dust deposition to the land surface area instead of the vegetative surface area, it is likely the ratio of modeled deposition rate to the effects level was being overestimated. In other words, the modeled deposition rate is not being spread over the larger surface area of the vegetation, which would reduce the effective deposition rate. Because this application did not include the deposition of dust to the vegetative surface area, it is likely that the areas identified to exceed the effects threshold of 365 $g/m^2/yr$ have been overestimated.

For metals, background deposition is based on the data from *Atmospheric Deposition of Trace Metals at Three sites near the Great Lakes* (Sweet et al. 1997), which indicated that precipitation was under-collected by 45 to 70 percent when sample volumes were compared to corresponding

rain gage amounts. Because wet deposition was considered to be underestimated, the wet deposition component was adjusted upward by a factor of 1.6.

Total background sulfur deposition included both wet and dry deposition, which was calculated to be 0.16 $g/m^2/yr$. The estimated background deposition used in the analysis for metals and sulfur was from data collected at sites characterized as open areas in rural settings that were reasonably distant from industrial sources and population centers. For forested areas, dry deposition may be underestimated. Vegetation can effectively scavenge fine particles and aerosols from the atmosphere and this interception can result in dry deposition being 50 percent or more of the total deposition. At a monitoring site in Ely (Fernberg Road), dry deposition was assumed to be 22 percent of total deposition. Therefore, it is likely that the background sulfur deposition estimated for this analysis may be low due to an underestimation of dry deposition; however, no adjustments were made to the background sulfur deposition estimated for this analysis.

Significance Levels for Estimating the Potential Effects for Identifying Future Monitoring

For dust, metals, and sulfur, the following general categories were used for assessing the significance of a modeled deposition rate at a receptor node:

- Less than 100 percent of background: no potential for effects expected.
- Greater than 100 percent of the background value: potential for effects, include in future wetland monitoring.

These are general categories of potential for effects. Since this was a screening analysis to identify wetlands for potential inclusion in the monitoring program, there was some flexibility in identifying a potential level of deposition that suggested a potential for effect and would then trigger a requirement for monitoring. Another consideration for selecting a deposition rate that was a high percent of the background rates was the likely overestimation of modeled deposition and the underestimation of background deposition.

Adding to the conservatism in the modeling of particulate metals, this screening analysis used a maximum dust deposition from a range of possible modeled values and a high-end metal or sulfur concentration for each source contributing to that receptor node to derive a maximum potential metal or sulfur deposition for a receptor node.

Using a maximum concentration for each contributing emission source to speciate a metal or sulfur deposition from a maximum modeled dust deposition rate for each receptor node overestimates individual metal or sulfur deposition. Also adding to the conservatism of this analysis is the underestimation of background deposition because the ratio of the NorthMet Project Proposed Action-related deposition is compared to the background deposition. If background deposition is underestimated, that would indicate that estimated NorthMet Project Proposed Action-related deposition at more receptor nodes would be higher than background and further increase the area for potential future monitoring. The underestimation of background metal deposition (i.e., wet deposition due to under-collection of precipitation) was identified by Sweet et al. (1997). In addition to the underestimation of background metal deposition, background wet sulfate deposition may be underestimated, as well, because the National Atmospheric Deposition Program data for the Fernberg Road monitoring site indicated rainfall in the last 3 years was about 22 percent below the annual average. If sulfate deposition from 2007

and 2008 was used (both years approximately normal for precipitation amount), a background sulfur deposition rate of 0.23 $g/m^2/yr$ was calculated—about 44 percent higher than the background deposition used in the screening analysis. If the higher estimate of background sulfur deposition was used in the screening analysis, a smaller number of receptor nodes would have been identified to have modeled sulfur deposition that was more than 100 percent of background deposition and the area for potential monitoring would be smaller than that identified. Also, it was found that for forested areas, dry deposition may be systematically underestimated due to sample collection and analysis methodology. It is possible that the background sulfur deposition estimated for this analysis may be low due to an underestimate of dry deposition.

Given the potential for overestimation of modeled deposition and underestimation of background deposition, and balancing the conservatism when their respective results are combined in this analysis, it seems reasonable to select the wetlands estimated to receive greater than 100 percent of background deposition (a potential doubling of the background deposition) for consideration in potential future monitoring (PolyMet 2015b).

Fugitive Dust/Metals and Sulfide Dust Emissions

At the Mine Site, dust deposition was concentrated relatively close to the ore loading area near the southern portion of the ambient air boundary. All receptors have model-estimated dust deposition of 25 percent or less of the effects-level background of 365 $g/m^2/yr$) (see Figure 5.2.3-16). The model-estimated dust deposition is largely constrained to within the ambient air boundary at the Mine Site, and the model-estimated dust deposition would be 50 percent or less of the effects-level background dust deposition.

The highest model-estimated metal and sulfur depositions at the Mine Site were in two defined areas, which include the ore loading area and at the east end of the Category 2/3 Stockpile (see Figure 5.2.3-17). All of the receptor nodes with the highest model-estimated deposition rates (deposition rates greater than 100 percent background) were located within the ambient air boundary.

Of the 19,914 acres of wetlands identified within the Mine Site receptor grid, deposition modeling results indicated that 234 acres of wetlands could be potentially indirectly affected (modeled metal deposition rates greater than 100 percent of background). Of the 234 acres of wetlands, 228 acres (97 percent) would be located within the Mine Site ambient air boundary (PolyMet 2015b). The 234 acres of wetlands would be included in any future monitoring to be conducted for the NorthMet Project Proposed Action.

The deposition modeling results for dust, metals, and sulfur indicate there would likely not be an adverse effect on wetlands; however, the modeling only indicated those areas that had deposition rates greater than 100 percent of background deposition. These specific wetlands areas would be identified for consideration in any future monitoring to be conducted for the NorthMet Project Proposed Action.

The initial assessment provided a discussion on conservatism, including a discussion that the estimated sulfur deposition was as particle-bound sulfur, with the sulfur being inherent to the mineral matrix of the dust and not readily available for dissolution in soils or surface waters. A supplemental assessment has been conducted to provide for a worst-case scenario where all of the sulfur in fugitive dust converts to sulfate and would mix with surface water in a wetland

(Barr 2015f). A summary of the supplemental assessment evaluation of sulfur from stack emissions is included in Section 5.2.7.2.6, while the fugitive dust evaluation is presented here.

Based on a conservative, not model-based, assumption that all sulfur in fugitive dust converts to sulfate and mixes with surface water in wetlands, a potential incremental increase in sulfate was calculated as 4.2 mg/L. When the potential incremental sulfate concentration is mixed with annual precipitation, the sulfate value was calculated as 1.7 mg/L.

Because the sulfur is inherent to the mineral matrix of the dust particles, it is likely that less than 100 percent of the sulfur would be weathered from the particles and be available to go into solution if deposited to soils or water. This potential incremental change may warrant future monitoring, as small sulfate increases in sulfate-poor wetlands may increase methylmercury production in wetlands (Jeremiason et al. 2006). However, methylmercury produced in wetlands is not necessarily incorporated into food chains and concentrated to levels of concern.

Although the actual potential for deposition of fugitive dust to wetlands, and the potential release of sulfur in that dust, is uncertain, any adverse effects on wetlands are unlikely. The fugitive dust control plan for both the Mine Site and the Plant Site (including the Tailings Basin) would minimize such deposition, and the sulfur from any rock dust particles that would be deposited may not be released or only released slowly through weathering. Using a conservative assumption that all sulfur in the deposited dust is both released and transformed to sulfate, no significant increase in methylmercury concentrations would be expected (Barr 2015f). Additional information relating to mercury methylation is provided in Section 5.2.2.3.4. A discussion of mercury deposition and bioaccumulation in fish and the assessment of the cumulative effects is provided in Section 6.2.6.3.3.

Mine to Plant Site Railroad Corridor – Ore Spillage

The potential release of dust from railcars transporting ore from the Mine Site to the Plant Site was addressed in the May 6, 2011, Air IAP Summary Memo (MDNR et al. 2011):

> The air IAP group concluded that there would be minimal air impacts from any dust generated from ore hauled in the railcars due to the coarse nature of the ore.

Based on this conclusion, air modeling of potential release of dust from railcars was not performed because the potential wetland effects would not be significant.

The air IAP group concluded that any dust generated from ore hauled in railcars would be coarse in nature (i.e., relatively large particles). These larger particles would tend to deposit near the railcar and not be dispersed to any great extent. An estimate of the spillage of ore fines along the rail corridor is provided in Section 8.4.3 of the Waste Characterization Data Package (PolyMet 2015q). Assuming that all spillage of the coarse material would occur in a 2-meter-wide strip on both sides of the centerline of the railway (total width equals 4 meters) over the entire haul distance after loading (approximately 8 miles or 13,000 meters), results in approximately 0.11 kilograms per square meter (kg/m^2) of ore fines annually or 2.14 kg/m^2 for the 20-year NorthMet Project Proposed Action. This equates to 0.002 inch of depth annually or 0.05 inches for the 20-year NorthMet Project Proposed Action. However, as described in Section 3.2.2.2.4, PolyMet has committed to refurbish the rail cars to minimize the gaps along hinges and joint areas to reduce potential ore spillage. Based upon the rail car modification evaluation performed by

PolyMet (2014a), the ore spillage may be reduced by up to 97 percent which would proportionally reduce the dilution needed to meet surface water standards (PolyMet 2015b).

For most contaminant constituents, the contact water leaving the spillage strip has been estimated to have a greater than 90 percent likelihood of complying with surface water standards at all times. Constituents that have the potential to exceed surface water standards at the edge of the 2-meter spillage strip include aluminum, cobalt, copper, and nickel. Aluminum concentrations are often above the surface water standard in the background runoff, and it is not possible to achieve a less than 10 percent likelihood of exceeding the standard in the mixed water (PolyMet 2015b). For cobalt, copper, and nickel the estimated area (square meters per meter of railroad track on each side) necessary to provide sufficient dilution for 90 percent probability of compliance is 2.5, 675, and 30 square meters per meter of railroad track on each side, respectively. Therefore, the limiting area required to provide sufficient dilution water for all constituents has been estimated at 675 square meters per meter of track (one-sided). Please refer to 5.2.2.3.2 for more information on ore spillage. Approximately 542.7 acres of wetlands along the railroad corridor could be potentially indirectly affected by the NorthMet Project Proposed Action.

Wetlands that have contributing watersheds that include no segments of the railway (e.g., many of the wetlands uphill to the north of the rail corridor) were identified as having no potential indirect effects from rail spillage. Wetlands immediately abutting the railway and whose watersheds included the rail centerline were identified as potentially being affected, although the effects may not extend to the full area of the wetland. Wetlands that have contributing watersheds, which include natural areas that are larger than 675 square meters per meter of track (one-sided) in the contributing watershed, were identified as having no potential indirect effects.

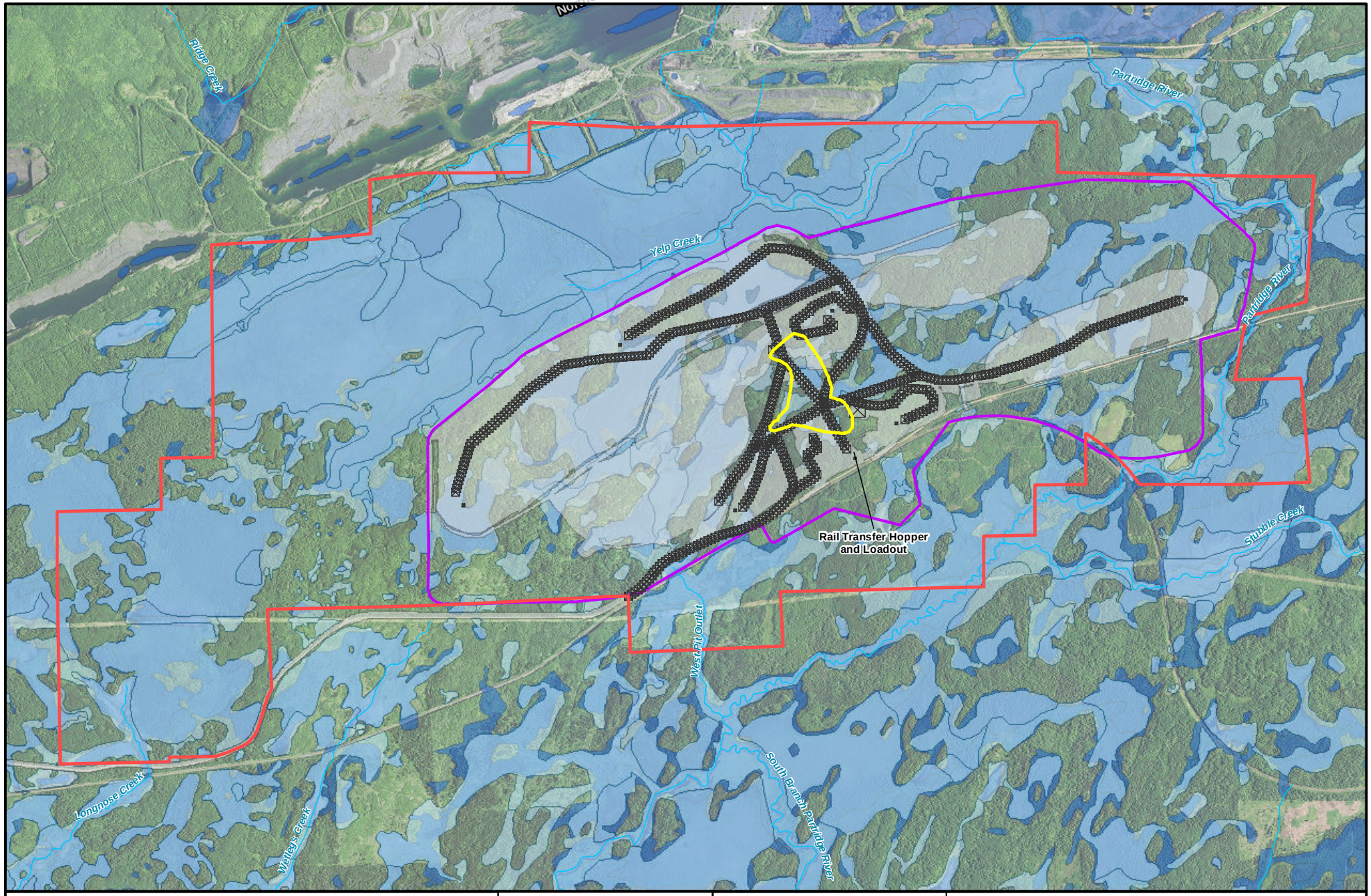

Ambient Air Boundary
Extent of Highest Estimated Deposition Receptors with Deposition of 25% of Background
Mine Site
Disturbed Area
Volume Sources (Roads)
Wetlands
NWI Wetland
Stream/River

MNDNR
US Army Corps of Engineers
St. Paul District

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Figure 5.2.3-16
Model - Estimated Dust Deposition Compared to Background Effects Level - Mine Site
NorthMet Mining Project and Land Exchange FEIS
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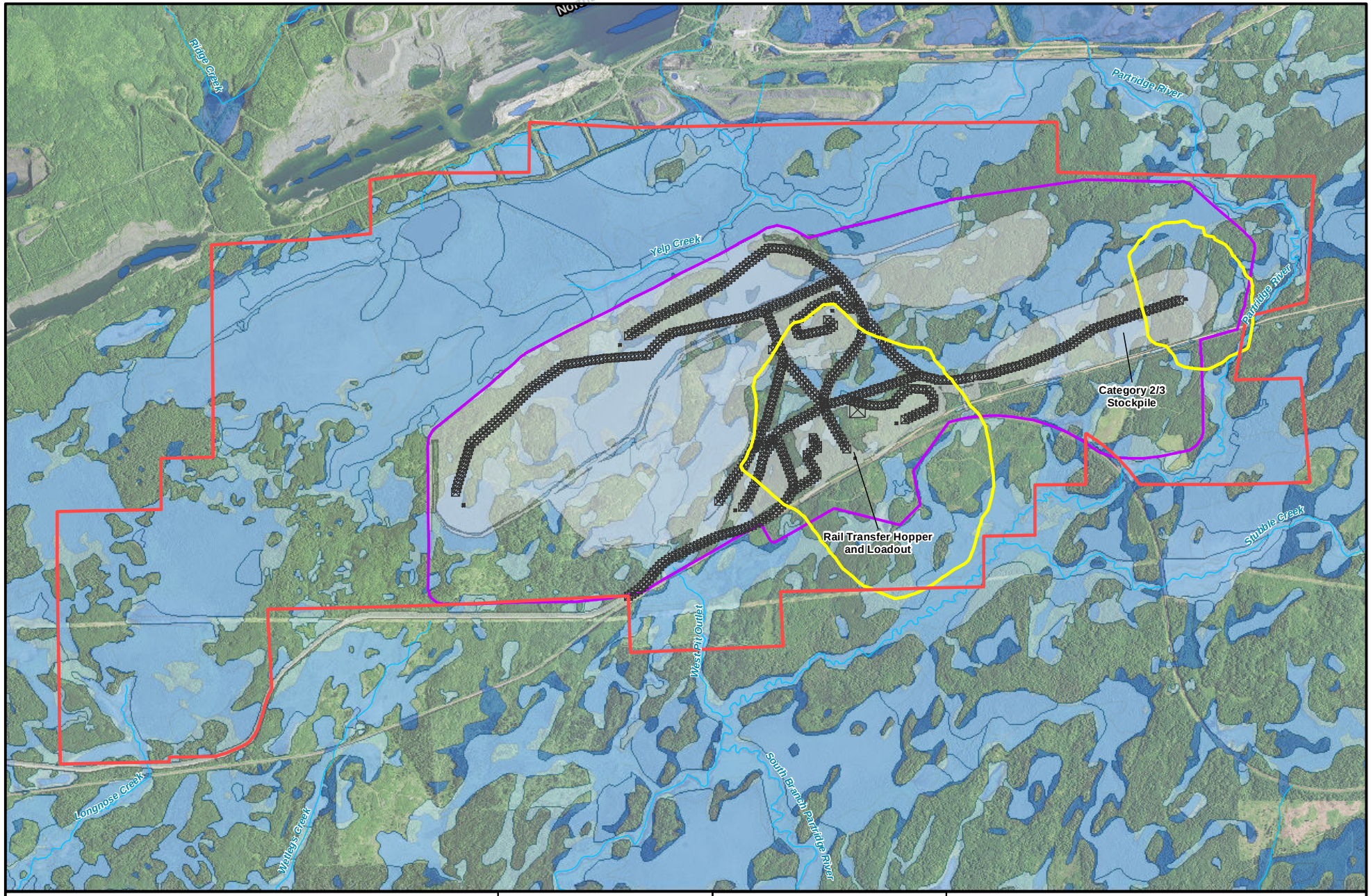

Ambient Air Boundary
Extent of Highest Estimated Deposition Receptors with Deposition of 100% of Background
Mine Site
Disturbed Area
Volume Sources (Roads)
Wetlands
NWI Wetland
Stream/River

MNDNR
US Army Corps of Engineers
St. Paul District

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Figure 5.2.3-17
Model - Estimated Metal Deposition Compared to Background Effects Level - Mine Site
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Leakage from Stockpiles/Mine Features and Seepage from Mine Pits

The stockpiles, mine pits, and other mine features (e.g., WWTF) are located within the Partridge River Watershed. Water containing constituents generated in the waste rock stockpiles and mine pits has the potential to enter the shallow groundwater system via potential leakage through the liners (e.g., stockpiles and WWTF equalization basins) or seepage from the pits. The leakage or seepage that enters groundwater would then be transported toward the Partridge River along groundwater flowpaths. There are five groundwater flowpaths connecting the mine features to the Partridge River, which include: East Pit – Category 2/3 flowpath, Ore Surge Pile flowpath, WWTF flowpath, Overburden Storage and Laydown Area flowpath, and West Pit flowpath. Because the water quality within these flowpaths has the potential to change as a result of the NorthMet Project Proposed Action, these same flowpaths were considered in the assessment of potential indirect wetland effects associated with leakage or seepage from mine features (PolyMet 2015b).

Wetlands were identified within the groundwater flowpaths, and the bog wetlands within and surrounding the Mine Site were subcategorized as either ombrotrophic or minerotrophic consistent with the November 2011, USACE Memorandum (Eggers 2011a). There are 515.8 acres of wetland resources within the groundwater flowpaths. Other wetlands were classified as dominated by groundwater, although all wetlands receive precipitation and virtually all water movement in peat wetlands occurs horizontally in the upper layers of peat. Approximately 66 percent of the wetlands within the flowpaths are classified as dominantly minerotrophic (groundwater-fed) while 34 percent of the wetlands are supported only by precipitation (ombrotrophic) (see Table 5.2.3-7).

Water quality modeling results indicate groundwater quality along each flowpath would likely change from existing conditions. It was conservatively assumed that these changes may cause potential indirect effects to the character, function, and quality of minerotrophic wetlands; therefore, it was also assumed that all downgradient minerotrophic wetlands located within the five Mine Site surficial aquifer flowpaths may have potential indirect wetland effects related to water quality changes as a result off leakage/seepage from mine features (PolyMet 2015b). This analysis indicates areas that can be conservatively assumed to have potential indirect effects due to changes in groundwater quality. These specific wetland areas are identified for consideration in the proposed wetland monitoring plan.

Table 5.2.3-7 Wetlands within the Mine Site Groundwater Flowpaths

Eggers and Reed Class[1]	Hydrology	West Pit Acres	Overburden Storage and Laydown Area Acres	WWTF Acres	Ore Surge Pile Acres	East Pit - Category 2/3 Acres
Coniferous bog (Minerotrophic)	Precipitation/ Groundwater	0.04	0.0	0.0	0.0	6.3
Coniferous bog (Ombrotrophic)	Precipitation	16.5	0.0	0.0	0.0	148.2
Coniferous swamp	Groundwater	0	2.9	20.1	10.2	0.04
Deep marsh	Groundwater	4.9	0.0	0.0	0.0	0.0
Open bog	Precipitation	0.0	0.0	0.0	0.0	8.9
Sedge/wet meadow	Groundwater	0.0	0.0	0.0	0.0	1.2
Shallow marsh	Groundwater	3.4	0.1	0.0	0.0	5.5
Shrub swamps (including alder thicket and shrub-carr)	Groundwater	90.5	47.7	18.8	27.6	103.1
Total Acres of Wetland		115.3	50.7	38.9	37.8	273.2

Source: PolyMet 2015b.

Note:
[1] Eggers and Reed 1997, 2014.

The Partridge River currently represents the primary discharge location for shallow groundwater at the Mine Site. During operations, reclamation, and closure and long-term maintenance, groundwater in areas south of the mine pits would continue to discharge to the Partridge River while groundwater in areas north of the mine pits would discharge to the mine pits. The amount of groundwater emerge in surface water and wetlands between the mine features and the Partridge River would be expected to be minimal relative to the amount of groundwater emerge in the Partridge River itself. Significant quantities of groundwater are not expected to discharge to the wetlands because of the very low hydraulic conductivities of the underlying peat layers (PolyMet 2015b). The water quality model assumed that the leakage/seepage from mine features releases directly to the Partridge River; therefore, it is assumed that groundwater would not emerge in surface water or wetlands along intermediate portions of the flowpaths (PolyMet 2015m). The water quality model cannot be used to quantify the amount of leakage/seepage from mine features that discharge directly to individual wetlands. However, the water quality model was used to provide a conservative estimate of the potential indirect wetlands effects caused by water quality changes due to leakage/seepage from mine features (PolyMet 2015b).

The leakage/seepage analysis could not indicate or suggest that an effect or adverse effect would occur on wetlands; however, the analysis only indicated those areas that could be conservatively assumed to have a potential indirect effect due to changes in groundwater (PolyMet 2015b).

Dunka Road Effects

Loaded mine haul trucks would not travel on the Dunka Road. Empty mine haul trucks would only travel on Dunka Road when they are in need of maintenance at the Area 1 Shop. The total one-way trips per year has been estimated to be 44 trips. Given the low traffic volumes of haul trucks (less than one trip per week) and that the ore trucks would likely be empty, no potential indirect wetland effects were identified for wetlands abutting Dunka Road (PolyMet 2015b). The

additional light vehicles (e.g., pickups and SUVs), field service trucks, and fuel trucks that would travel on Dunka Road more regularly would not contribute to wetland effects.

5.2.3.2.3 Plant Site Direct Wetland Impacts

PolyMet proposes to reuse the former LTVSMC processing plant and Tailings Basin. The processing plant is located on uplands with no wetland resources present. The existing constructed plant reservoir located east of the concentrator is not anticipated to be regulated as a wetland but will be determined during permitting. Therefore, no direct wetland impacts are anticipated in this portion of the Plant Site.

Direct wetland impacts would result from the following Plant Site components: construction of the Tailings Basin, pump station, treated water discharge pipelines, flotation tailings pipeline, Tailings Basin containment system to manage Tailings Basin seepage, rock buttress for stability along the north and east sides of Cell 2E, drainage swale and overflow channel located northeast of Cell 2E, and the Hydrometallurgical Residue Facility.

Direct wetland impacts within the Plant Site would total 148.4 acres. These wetlands impacts would be caused by fill (12 percent), excavation (31 percent), and excavation and fill ((58 percent), and therefore, these wetlands would be permanently lost. Table 5.2.3-8 summarizes the directly impacted wetlands within the Plant Site by community type while Table 5.2.3-9 identifies the activity that causes the impacts expected within the Plant Site. The majority of the wetlands (94 percent) that would be impacted are rated as low quality and 6 percent are rated as moderate quality wetlands.

The rock buttress described in Section 3.2.3 and Section 4.2.13 would abut the existing toe of the Tailings Basin. The water containment system would extend approximately 300 ft around the northern and western sides, and portions of the eastern sides of the Tailings Basin, encapsulating the Tailings Basin, the rock buttresses and wetlands between it and the rock buttresses. Construction of the Tailings Basin for the NorthMet Project Proposed Action would also result in expansion of the existing eastern footprint onto natural highland. The majority of the impacted wetlands are rated as low quality, primarily because the hydrology supporting these wetlands has been modified by seepage from the Tailings Basin and other drainage modifications made in the area (PolyMet 2015b). These hydrologic modifications have resulted in inundation and changes in wetland cover types from forested and scrub shrub wetlands (as evidenced in aerial photographs from the 1940s prior to LTVSMC operations) to deep marsh (Barr 2008b).

Wetlands located outside of the Cliffs Erie Permit to Mine Ultimate Tailings Basin boundary (this boundary is shown on Figure 5.2.3-18 and Figure 5.2.3-19) but within the Hydrometallurgical Residue Facility are included in the direct wetland impact analysis. As previously noted, approximately 28.6 acres of wetlands in the Hydrometallurgical Residue Facility are not anticipated to be subject to state or federal regulations as they are located within an actively permitted waste storage facility. Actual jurisdiction by state and federal agencies will be determined during permitting. Two wetlands located in the Hydrometallurgical Residue Facility are subject to state or federal regulation covering 7.5 acres and would be directly impacted by fill. Both wetlands are shallow marsh wetlands (see Figure 5.2.3-19).

There would be no direct wetland impacts along the Colby Lake Water Pipeline Corridor or in the Second Creek area as there would be no construction within these two areas.

Table 5.2.3-8 Total Projected Direct Wetland Impacts for the Plant Site

	Directly Impacted Wetlands at the Plant Site		
Eggers and Reed Class[1]	**Acres**	**%**	**No.[2]**
Coniferous bog	0.0	0	0
Coniferous swamp	10.7	7	3
Deep marsh	74.0	50	14
Hardwood swamp	0.7	<1	1
Open bog	0.0	0	0
Open water (includes shallow, open water, and lakes)	0.0	0	0
Sedge/wet meadow	1.5	1	6
Shallow marsh	52.7	36	13
Shrub swamp (includes alder thicket and shrub-carr)	8.9	6	6
Total Direct Impacts	148.4	100	44

Source: PolyMet 2015b.

Notes:
[1] Eggers and Reed 1997, 2014.
[2] There are 44 unique wetlands directly impacted at the Plant Site, which includes the Tailings Basin and Hydrometallurgical Residue Facility footprint. One wetland (ID 1155) has been split between the Tailings Basin and Hydrometallurgical Residue Facility footprint in the Wetland Data Package for a total of 45 wetlands directly impacted in Wetland Data Package report.

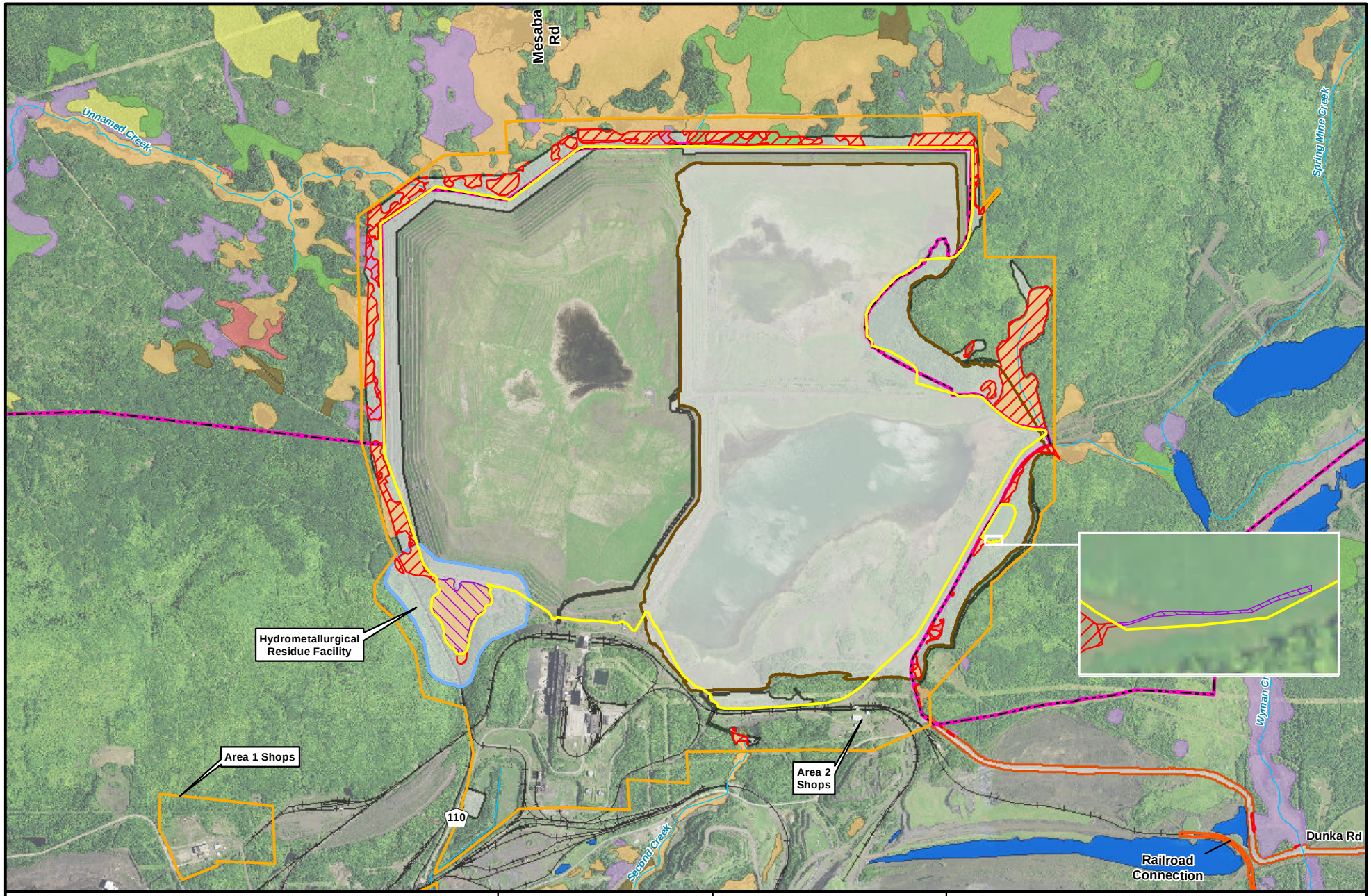

Plant Site
Directly Affected Wetland
Potentially Incidential Wetland
Disturbed Area
Cliffs Erie, LLC Permit to Mine Ultimate Tailings Basin Limit
Area 2
Transportation and Utility Corridor
Hydrometallurgical Residue Facility
Existing Railroad
Stream/River

Eggers & Reed Wetland Types

Coniferous Bog
Coniferous Swamp
Deep Marsh & Shallow Marsh
Hardwood Swamp
Open Bog
Sedge Meadow & Wet Meadow
Shrub Swamps (Alder Thicket & Shrub-Carr)
Shallow, Open Water & Lake

MNDNR
US Army Corps of Engineers
St. Paul District

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Figure 5.2.3-18
Plant Site Wetlands and Direct Wetland Impacts
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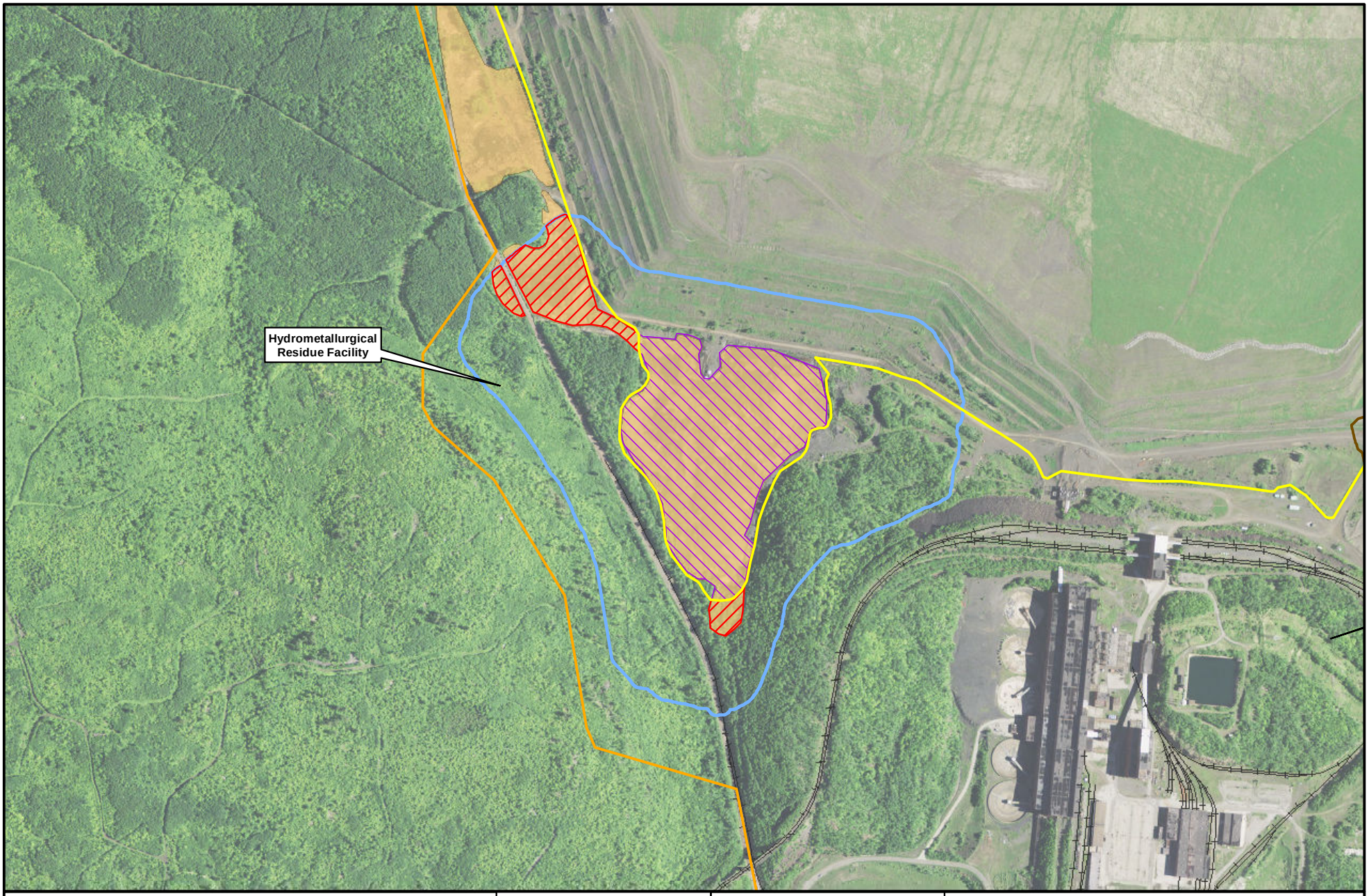

Hydrometallurgical Residue Facility
Cliffs Erie, LLC Permit to Mine Ultimate Tailings Basin Limit
Directly Affected Wetland
Potentially Incidential Wetland
Plant Site
Existing Railroad
Stream/River
Eggers & Reed Wetland Types
Coniferous Bog
Coniferous Swamp
Hardwood Swamp
Deep Marsh & Shallow Marsh
Open Bog
Sedge Meadow & Wet Meadow
Shrub Swamps (Alder Thicket & Shrub-Carr)
Shallow, Open Water & Lake

MNDNR
US Army Corps of Engineers
St. Paul District

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Figure 5.2.3-19
Hydrometallurgical Residue Facility
Wetlands and Direct Wetland Impacts
NorthMet Mining Project and Land Exchange FEIS
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Table 5.2.3-9 Type of Projected Direct Wetland Impacts at the Plant Site

	Directly Impacted Wetlands at the Plant Site		
Type of Impact	**Acres**	**%**	**No.[1]**
Fill	17.6	12	19
Excavation	45.2	31	1
Fill and Excavation	85.6	58	25
Total Direct Impacts	148.4	100	45

Source: PolyMet 2015b.

Note:
[1] There are 44 unique wetlands directly impacted at the Plant Site, which includes the Tailings Basin and Hydrometallurgical Residue Facility footprint. One wetland (ID 1155) has been split between the Tailings Basin and Hydrometallurgical Residue Facility footprint in the Wetland Data Package for a total of 45 wetlands directly impacted in Wetland Data Package report. This would result in impacts on wetlands as a result of filling at the Hydrometallurgical Residue Facility and placement of the containment system at the Tailings Basin.

5.2.3.2.4 Plant Site Indirect Wetland Effects

The indirect wetland effects were assessed by identifying wetlands in Area 2 within 500-ft increments beginning at the Plant Site and continuing out to a total of 30,000 ft (see Figure 5.2.3-20). The area of evaluation for the Plant Site indirect wetlands effects included wetlands within Area 2 where wetland type information had been developed and wetlands within and near Second Creek, and does not include the directly impacted wetlands. No wetlands are located within the former LTVSMC processing plant; therefore, no indirect wetland effects would occur from its reuse. Furthermore, no indirect wetland effects would occur at the Hydrometallurgical Residue Facility as all wetlands would be directly impacted.

The potential indirect wetland effects to the Second Creek area of analysis were assessed based on changes to hydrology due to groundwater flow or seepage, drawdown or surface water quantity, or changes in surface water quality or metals deposition. There are no predicted potential indirect wetland effects due to wetland fragmentation, changes in watershed area, or dust deposition in the Second Creek area of analysis (PolyMet 2015b).

Wetland Fragmentation

Construction of the Plant Site features (e.g., containment system) would result in 0.5 acre of wetland fragments losing their functions. Wetland fragments would consist of the following wetland types: shallow marsh (61 percent), deep marsh (35 percent), coniferous swamp (4 percent), and shrub swamps (less than 1 percent). Furthermore, no wetland fragmentation would result from activities to wetlands in Second Creek area of analysis (PolyMet 2015b). The wetland fragments that are expected to maintain their functions would be included in the wetland hydrology and vegetation monitoring plan that would be approved during permitting and implemented for the NorthMet Project Proposed Action.

Changes in Hydrology due to Surficial Groundwater Flowpaths or Seepage from Plant Site

There are three surficial aquifer groundwater flowpaths from the Plant Site (see Figure 5.2.3-21), which include: Unnamed Creek (west flowpath), Trimble Creek (northwest flowpath), and Mud Lake Creek (north flowpath). Wetland types within the flowpaths that would have potential indirect wetland effects resulting from changes in hydrology are presented in Table 5.2.3-10.

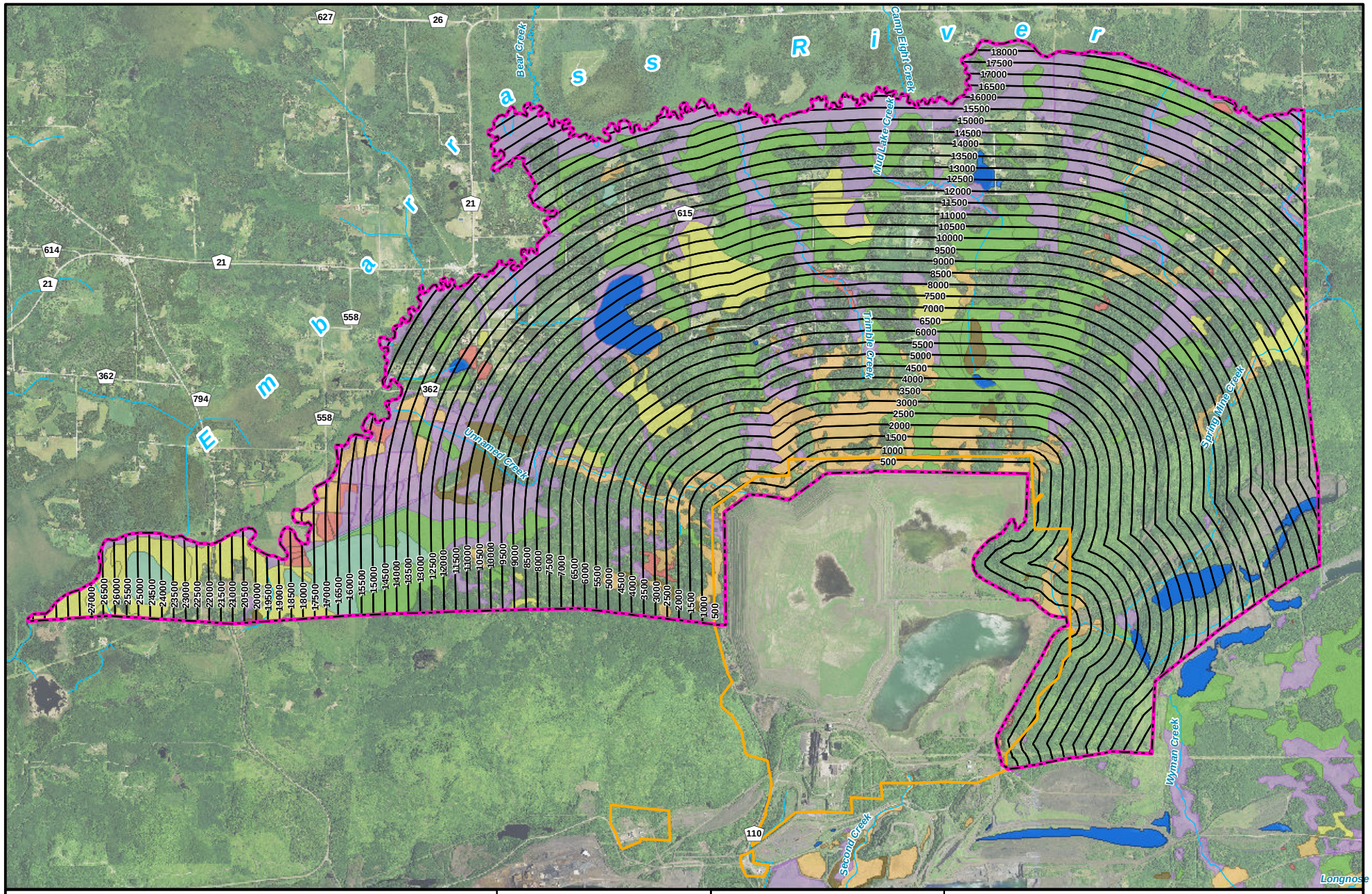

500 ft Increments
Area 2
Plant Site
Stream/River

Eggers & Reed Wetland Types

- Coniferous Bog
- Coniferous Swamp
- Hardwood Swamp
- Open Bog
- Deep Marsh & Shallow Marsh
- Sedge Meadow & Wet Meadow
- Shrub Swamps (Alder Thicket & Shrub-Carr)
- Shallow, Open Water & Lake

MNDNR
US Army Corps of Engineers
St. Paul District

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Figure 5.2.3-20
Wetlands within 500 ft Increments at the Plant Site
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Minnesota

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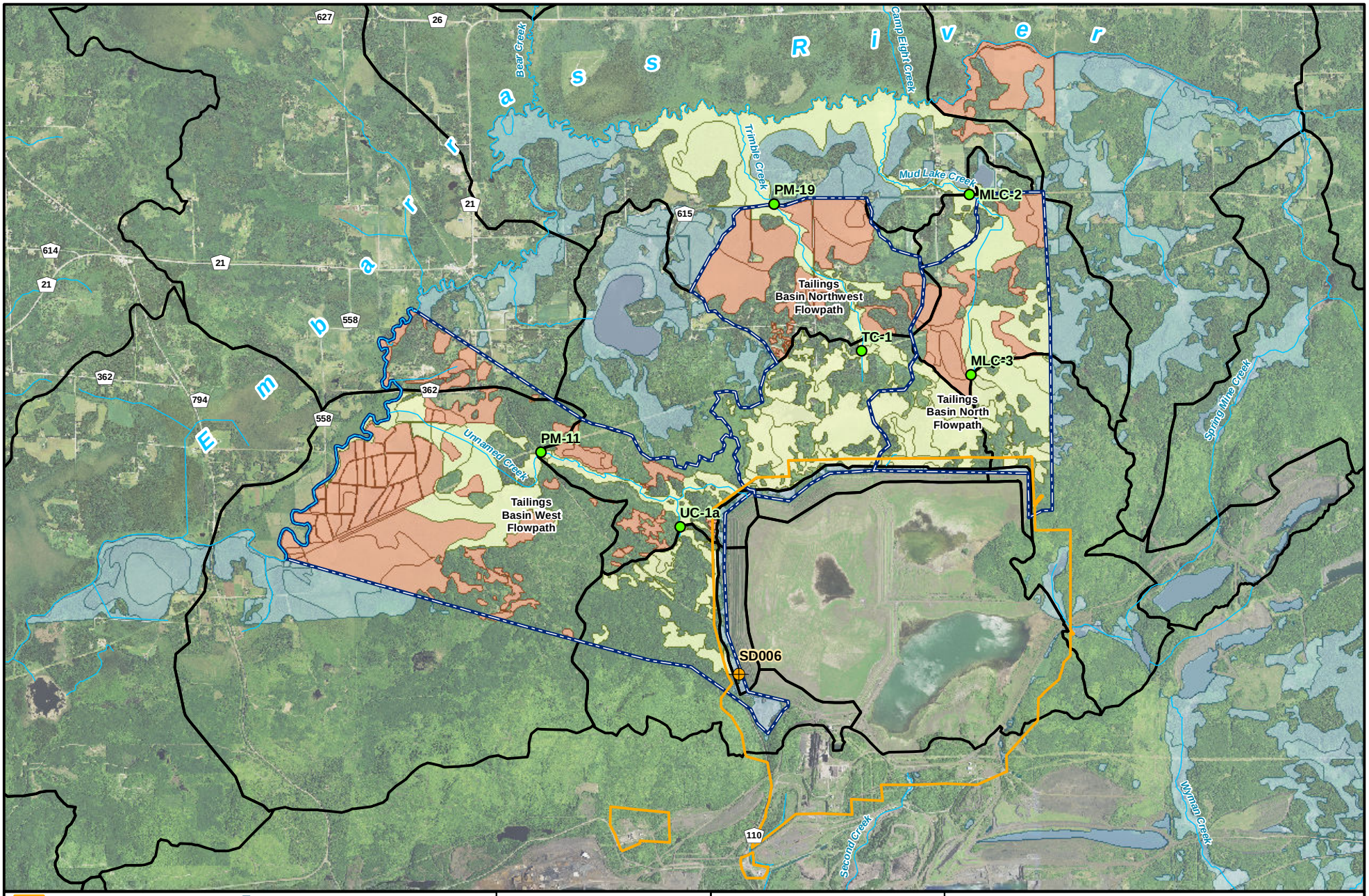

Plant Site
Surface Water Monitoring Location
Approximate Location of NorthMet Project Surface Water Discharge
Groundwater Flowpath
Embarrass River Subwatershed
Wetlands
Wetlands with Potential for Indirect Effects
Surface Water and Groundwater
Groundwater Only
Stream/River

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 0.25 0.5 1 1.5 Miles

Figure 5.2.3-21
Wetlands within Groundwater Flowpaths at the Plant Site
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Table 5.2.3-10 Wetlands within the Plant Site Flowpaths

Eggers and Reed Class[1]	Hydrology	Unnamed Creek (west flowpath) Acres	Trimble Creek (northwest flowpath) Acres	Mud Lake Creek (north flowpath) Acres
Coniferous bog (Ombrotrophic)	Precipitation	37.6	196.6	58.1
Coniferous swamp	Groundwater	375.5	308.4	630.6
Deep marsh	Groundwater	130.9	97.6	125.8
Hardwood swamp	Groundwater	126.1	0.0	40.9
Open bog	Precipitation	157.5	0.0	0.0
Open water	Groundwater	8.3	0.0	7.4
Sedge/wet meadow	Groundwater	99.3	17.7	0.4
Shallow marsh	Groundwater	196.5	225.8	124.1
Shrub swamps (including alder thicket and shrub-carr)	Groundwater	721.5	236.9	144.9
Total acres of wetland		1,853.0	1,083.0	1,132.3

Source: PolyMet 2015b.

Note:
[1] Eggers and Reed 1997, 2014.

The Tailings Basin containment system, located along the northern and western sides, and portions of the eastern side of the Tailings Basin, is modeled to collect at least 90 percent of the Tailings Basin groundwater seepage and 100 percent of the surface water seepage. The uncaptured groundwater seepage would travel within the northern, northwestern, and western groundwater flowpaths (see Section 5.2.2). The Tailings Basin containment system located along a portion of the eastern side of the Tailings Basin would collect 100 percent of groundwater and surface water seepage.

All of the surface flow that currently upwells near the west, northwest, and north toes of the Tailings Basin would be captured and treated by the WWTP and then discharged to the tributaries to prevent significant hydrologic effects due to reduction in flow. To the west, the discharge(s) would be directed to a location near the existing surface discharge SD-006 (see Figure 5.2.3-21). To the northwest and north, the discharge(s) would be spigotted at multiple locations along the downstream side of the Tailings Basin containment system to add flow to the adjacent wetlands (PolyMet 2015b). Flow to Mud Creek would be augmented entirely with off-site runoff diverted toward Mud Lake Creek by a drainage swale constructed northeast of Cell 2E. Augmentation would not be necessary at the eastern segment of the Tailings Basin containment system as this area is currently flowing into the Tailings Basin; therefore, the collection of seepage would not have a hydrologic effect to the watershed (PolyMet 2015b). For a detailed discussion of seepage from the Plant Site, refer to Section 5.2.2.

Seepage from the south side of the Plant Site is generally restricted by bedrock outcrops and does not contribute to the groundwater flow south of the Plant Site. All of the seepage from the south side of the Plant Site is surface water, thereby forming the headwaters of Second Creek. There would be no potential indirect effects on wetlands in or abutting Second Creek as a result of changes in groundwater flow (PolyMet 2015b).

Change in Hydrology due to Drawdown

The augmentation described above has been designed such that the existing flows within the tributaries at the Plant Site are maintained within plus or minus 20 percent, which is within the range of annual variability in precipitation as well as streamflow, within the Embarrass River Watershed. Therefore, changes to downstream hydrology, including adjacent wetlands, would be expected to be within the range of that typically observed due to natural variability (PolyMet 2015b).

Potential indirect effects on Mud Lake Creek, Trimble Creek, and Unnamed Creek due to reduced or increased seepage at the toe of the Tailings Basin are greatest immediately downstream of the toe, where seepage and augmentation account for nearly all the water yield. Downstream of the toe, the indirect effects on these three creeks would be reduced as the watershed area tributary to that location increases, and the portion of total water yield derived from runoff increases. Therefore, hydrologic effects diminish as distance from the Tailings Basin increases. Wetlands further from the Tailings Basin would likely experience less potential for indirect effects due to hydrologic changes (PolyMet 2015b).

Flow augmentation at the southern toe of the Tailings Basin has been designed such that flows to Second Creek would be within ±20 percent of the pre-Consent Decree condition, which is within the range of annual variability in precipitation as well as streamflow, within the Partridge River and Embarrass River watersheds. No potential indirect wetland effects would be anticipated for the wetlands abutting Second Creek (PolyMet 2015b).

Wetland hydrology is a complex mix of precipitation, surface runoff, and, in some cases, groundwater. Despite the use of augmentation to mitigate effects, the response of complex natural systems to human disturbances could only be estimated. Therefore, monitoring of wetland hydrology and vegetation communities would be the most appropriate way to document the extent and magnitude of wetland responses to the NorthMet Project Proposed Action.

Please refer to Section 5.2.3.2.2, Changes in Hydrology Due to Drawdown subsection, for the hydrologic wetland sensitivity assessment that was performed to estimate how wetland communities would respond to groundwater drawdown by assuming that they would change to drier native plant communities or variants of the original community.

Wetlands Abutting Unnamed Creek, Trimble Creek, Mud Lake Creek, and Second Creek

There are 2,754.8 acres of wetlands abutting Unnamed Creek, Trimble Creek, and Mud Lake Creek within Area 2, and Second Creek, which include shrub swamps, coniferous swamp, hardwood swamp, shallow marsh, deep marsh, and sedge/wet meadow (see Figure 4.2.3-5); these are presented in Table 5.2.3-11.

Table 5.2.3-11 Wetlands Abutting Unnamed Creek, Trimble Creek, Mud Lake Creek, and Second Creek

	Unnamed Creek		Trimble Creek		Mud Lake Creek		Second Creek		Total Wetlands Abutting Creeks	
Eggers and Reed Class[1]	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**
Coniferous swamp	16.3	3	130.3	15	474.3	41	0.0	0	620.9	23
Deep marsh	53.8	10	5.9	1	0	0	14.3	8	74.0	3
Hardwood swamp	98.1	19	0	0	31.0	3	0.0	0	129.1	5
Sedge/wet meadow	0	0	17.7	2	0	0	0.0	0	17.7	1
Shallow marsh	85.8	16	36.7	4	0	0	45.8	26	168.3	6
Shrub swamp (including alder thicket or shrub-carr)	273.0	52	695.8	78	657.1	57	118.8	66	1744.7	63
Total Acres of Wetlands	527.1	100	886.4	100	1,162.4	100	178.9	100	2,754.8	100

Sources: PolyMet 2015b

Note:
[1] Eggers and Reed 1997, 2014.

Water management at the Plant Site would consist of flow augmentation immediately downstream of the Tailings Basin containment system to minimize hydrologic effects on downstream watercourses (PolyMet 2015b). The hydrologic analysis (see Section 5.2.2) estimated that the changes in average annual flow of Unnamed Creek, Trimble Creek, Mud Lake Creek, and Second Creek would be within the annual variability that naturally occurs within the Partridge River and Embarrass River watersheds. Therefore, no potential indirect wetland effects were identified for the wetlands abutting Unnamed Creek, Trimble Creek, Mud Lake Creek, and Second Creek (PolyMet 2015b).

Water Quality Changes

The screening analysis for depositional effects was conducted using air dispersion/ deposition modeling (AERMOD) to estimate the potential annual deposition of dust, metals, and sulfur to wetlands within and adjacent to the Plant Site. The estimated deposition from fugitive dust emissions was used to identify wetlands that have the potential for water quality changes. The estimated deposition from fugitive dust emissions was used to identify a threshold for a negative effect on vegetation.

Below is a summary of the assessment from the *NorthMet Project Wetlands Data Package* (PolyMet 2015b).

Receptors

The receptors of interest for this analysis were the wetlands that were not directly impacted. The respective initial receptor grids for the Plant Site were set up with near-field receptor spacing of 250 meters within the ambient air boundary and the far-field receptor spacing was 1,000 meters from the ambient air boundary out to 5 km.

Dust Deposition and Speciation to Individual Metals and Sulfur

For the dust emission sources identified for assessing potential metals and sulfur deposition at the Plant Site, the highest estimated dust deposition rate for each receptor node was then speciated to the respective metal and sulfur deposition rates based on the contribution of the

sources to a receptor node and the metal and sulfur composition identified for each contributing source (e.g., tailings at the Plant Site). The estimated metal or sulfur deposition for each contributing dust source at a receptor node was then summed to provide a "total" deposition rate for each respective metal and for sulfur at that receptor location. Dust deposition rates were speciated for arsenic, cadmium, chromium, lead, manganese, nickel, and selenium. Copper and vanadium were also included. For each receptor node, the post-processing of the dust deposition rate by source contribution was then summed to provide a "total" metal deposition rate and a "total" sulfur deposition rate.

Sulfur associated with fugitive dust is part of the mineral matrix of the rock particles (sulfide). Therefore, weathering of the particle must occur before any of the sulfur would be released to soil, soil water, or surface water. Because the NorthMet ore is low in mercury, the tailings would also be low in mercury, and the pilot study indicated that the mercury preferentially goes to the flotation concentrate. The mercury is also expected to be strongly bound within the mineral matrix. This would also be true for the LTVSMC tailings that would be used to construct the Tailings Basin dams and that may be present on some road surfaces. Therefore, any mercury present in dust from the Tailings Basin would not be biologically available (PolyMet 2015b). Potential mercury air emissions from ore processing (i.e., potential emissions from the autoclave) were evaluated for potential local deposition impacts (see Section 5.2.7).

Estimates of Rural Background Deposition

For dust, an annual effects-level deposition rate of 365 $g/m^2/yr$ was compared to modeled annual dust deposition rates. This deposition rate is a potential effects threshold for photosynthesis (i.e., potential for reduced photosynthesis due to "dusting" of the plant surface). However, for this analysis, the vegetative surface area of the wetlands was not calculated or included in the analysis. The modeled dust deposition rate was assumed to be applied to the land surface area, which is a smaller area than the vegetative surface area. Vegetative surface area can be up to 13 times greater than the land surface area. By only assessing dust deposition to the land surface area instead of the vegetative surface area, it is likely the ratio of modeled deposition rate to the effects level was being overestimated. In other words, the modeled deposition rate is not being spread over the larger surface area of the vegetation which would reduce the effective deposition rate. Because this application did not include the deposition of dust to the vegetative surface area, it is likely that the areas identified to exceed the effects threshold of 365 $g/m^2/yr$ have been overestimated.

For metals, background deposition is based on the data from *Atmospheric Deposition of Trace Metals at Three sites near the Great Lakes* (Sweet et al. 1997), which indicated that precipitation was under-collected by 45 to 70 percent when sample volumes were compared to corresponding rain gage amounts. Because wet deposition was considered to be underestimated, the wet deposition component was adjusted upward by a factor of 1.6.

Total background sulfur deposition included both wet and dry deposition, which was calculated to be 0.16 $g/m^2/yr$. The estimated background deposition used in the analysis for metals and sulfur was from data collected at sites characterized as open areas in rural settings that are reasonably distant from industrial sources and population centers. For forested areas, dry deposition may be underestimated. Vegetation can effectively scavenge fine particles and aerosols from the atmosphere and this interception can result in dry deposition being 50 percent or more of the total deposition. At a monitoring site in Ely (Fernberg Road), dry deposition was

assumed to be 22 percent of total deposition. Therefore, it is likely that the background sulfur deposition estimated for this analysis may be low due to an underestimation of dry deposition; however, no adjustments were made to the background sulfur deposition estimated for this analysis.

Significance Levels for Estimating the Potential Effects for Identifying Future Monitoring

For dust, metals, and sulfur, the following general categories were used for assessing the significance of a modeled deposition rate at a receptor node:

- Less than 100 percent of background: no potential for effects expected.
- Greater than 100 percent of the background value: potential for effects, include in future wetland monitoring.

These are general categories of potential for effects. Since this was a screening analysis to identify wetlands for potential inclusion in the monitoring program, there was some flexibility in identifying a potential level of deposition that suggested a potential for effect and would then trigger a requirement for monitoring. Another consideration for selecting a deposition rate that was a high percent of the background rates was the likely overestimation of modeled deposition and the underestimation of background deposition.

Adding to the conservatism in the modeling of particulate metals, this screening analysis used a maximum dust deposition from a range of possible modeled values and a high-end metal or sulfur concentration for each source contributing to that receptor node to derive a maximum potential metal or sulfur deposition for a receptor node.

Using a maximum concentration for each contributing emission source to speciate a metal or sulfur deposition from a maximum modeled dust deposition rate for each receptor node overestimates individual metal or sulfur deposition. Also adding to the conservatism of this analysis is the underestimation of background deposition because the ratio of the NorthMet Project Proposed Action-related deposition is compared to the background deposition. If background deposition is underestimated, that would indicate that estimated NorthMet Project Proposed Action-related deposition at more receptor nodes are higher than background and further increases the area for potential future monitoring. The underestimation of background metal deposition (i.e., wet deposition due to under-collection of precipitation) was identified by Sweet et al. (1997). In addition to the underestimation of background metal deposition, background wet sulfate deposition may be underestimated, as well, because the National Atmospheric Deposition Program data for the Fernberg Road monitoring site indicated rainfall in the last three years was about 22 percent below the annual average. If sulfate deposition from 2007 and 2008 was used (both years approximately normal for precipitation amount), a background sulfur deposition rate of 0.23 $g/m^2/yr$ was calculated—about 44 percent higher than the background deposition used in the screening analysis. If the higher estimate of background sulfur deposition was used in the screening analysis, a smaller number of receptor nodes would have been identified to have modeled sulfur deposition that was more than 100 percent of background deposition and the area for potential monitoring would be smaller than that identified. Also, it was found that for forested areas, dry deposition may be systematically underestimated due to sample collection and analysis methodology. It is possible that the background sulfur deposition estimated for this analysis may be low due to an underestimate of dry deposition.

Given the potential for overestimation of modeled deposition and underestimation of background deposition, and balancing the conservatism when their respective results are combined in this analysis, it seems reasonable to select the wetlands estimated to receive greater than 100 percent of background deposition (a potential doubling of the background deposition) for consideration in potential future monitoring (PolyMet 2015b).

Fugitive Dust/Metals and Sulfide Dust Emissions

At the Plant Site, dust deposition was highest in three locations: southwest corner, near Area 2; southeast corner; and the northeast corner, towards Area 5. All receptors have model-estimated dust deposition of 50 percent or less of the effects-level background of 365 $g/m^2/yr$ (see Figure 5.2.3-22). The model-estimated dust deposition is largely constrained to within the ambient air boundary at the Plant Site, and the model-estimated dust deposition is 50 percent or less of the effects-level background dust deposition. There would be no potential indirect wetland effects due to dust deposition in the Second Creek area of analysis (PolyMet 2015b).

At the Plant Site, there would be two locations showing model-estimated metal and sulfur deposition rates greater than 100 percent of background deposition: 1) approximately the southern and western two-thirds of the basin, and 2) a small area on the northern and eastern portion of the ambient air boundary (see Figure 5.2.3-23). Approximately 90 percent of the receptor nodes with the highest model-estimated metal and sulfur deposition rates (rates greater than 100 percent of background deposition) were located within the ambient air boundary. The remaining 10 percent of the receptor nodes with the highest modeled-estimated metal and sulfur deposition are located to the south and east of the Plant Site outside of the ambient air boundary (PolyMet 2015b).

Of the 25,846 acres of wetlands identified within the Plant Site receptor grid, deposition modeling results indicate that 193.9 acres of wetland could be potentially indirectly affected (modeled metal deposition rates greater than 100 percent of background). Of the 193.9 acres, 58.8 acres would be located within the Plant Site ambient air boundary (PolyMet 2015b). The 193.9 acres of wetlands should be included in any future monitoring to be conducted for the NorthMet Project Proposed Action.

The deposition modeling results identified approximately 44 acres in the Second Creek area of analysis that could potentially indirectly affected (modeled metal deposition greater than 100 percent background). Of the 44 acres, 1 acre is located within the Plant Site ambient air boundary. These wetlands are accounted for in the 193.9 acres noted above and would already be included in any future monitoring.

The deposition modeling results for dust, metals, and sulfur indicate there would likely not be an adverse effect on wetlands; however, the modeling only indicated those areas that had deposition rates greater than 100 percent of background deposition (PolyMet 2015b). These specific wetlands areas would be identified for consideration in any future monitoring to be conducted for the NorthMet Project Proposed Action.

The initial assessment provided a discussion on conservatism, including a discussion that the estimated sulfur deposition was as particle-bound sulfur, with the sulfur being inherent to the mineral matrix of the dust and not readily available for dissolution in soils or surface waters. A supplemental assessment has been conducted to provide for a worst-case scenario where all of the sulfur in fugitive dust converts to sulfate and would mix with surface water in a wetland

(Barr 2015f). A summary of the supplemental assessment evaluation of sulfur from stack emissions is included in Section 5.2.7.2.6, while the fugitive dust evaluation is presented herein.

Based on a conservative, not model-based, assumption that all sulfur in fugitive dust converts to sulfate and mixes with surface water in wetlands, a potential incremental increase in sulfate was calculated as 4.2 mg/L. When the potential incremental sulfate concentration is mixed with annual precipitation, the sulfate value was calculated as 1.7 mg/L. Because the sulfur is inherent to the mineral matrix of the dust particles, it is likely that less than 100 percent of the sulfur would be weathered from the particles and be available to go into solution if deposited to soils or water. This potential incremental change may warrant future monitoring, as small sulfate increases in sulfate-poor wetlands may increase methylmercury production in wetlands (Jeremiason et al. 2006). However, methylmercury produced in wetlands is not necessarily incorporated into food chains and concentrated to levels of concern.

Although the actual potential for deposition of fugitive dust to wetlands, and the potential release of sulfur in that dust, is uncertain, any adverse effects on wetlands are unlikely. The fugitive dust control plan for both the Mine Site and the Plant Site (including the Tailings Basin) would minimize such deposition, and the sulfur from any rock dust particles that would be deposited may not be released or only released slowly through weathering. Using a conservative assumption that all sulfur in the deposited dust is both released and transformed to sulfate, no significant increase in methylmercury concentrations would be expected (Barr 2015f). Additional information in regards to mercury methylation is provided in Section 5.2.2.3.4. A discussion of mercury deposition and bioaccumulation in fish and the assessment of the cumulative effects is provided in Section 6.2.6.3.3.

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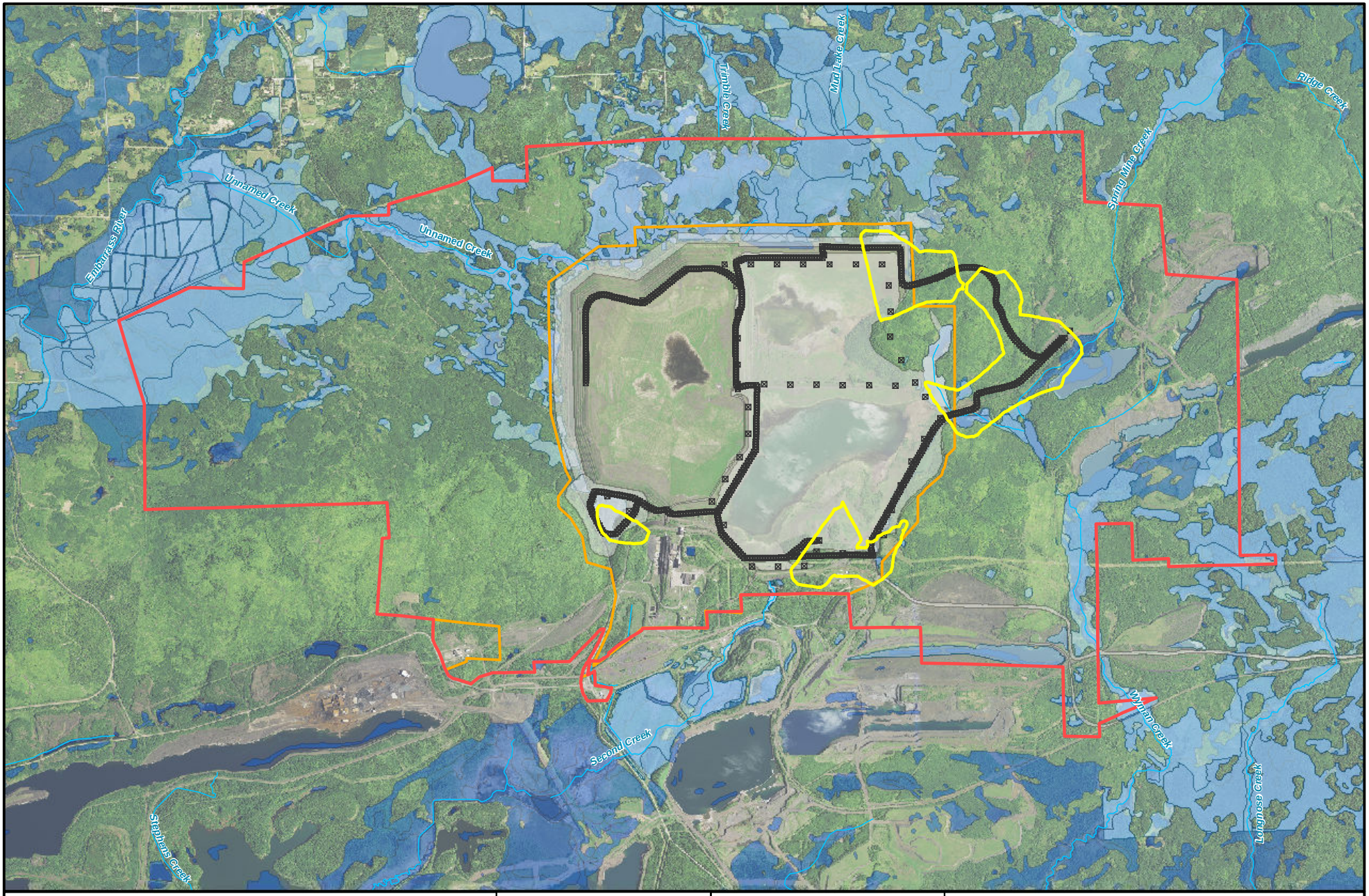

Ambient Air Boundary
Extent of Highest Estimated Deposition Receptors with Deposition of 50% of Background
Plant Site
Disturbed Area
Volume Sources (Roads)
Wetlands
NWI Wetland
Stream/River

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 5.2.3-22
Model - Estimated Dust Deposition Compared to Background Effects Level - Plant Site
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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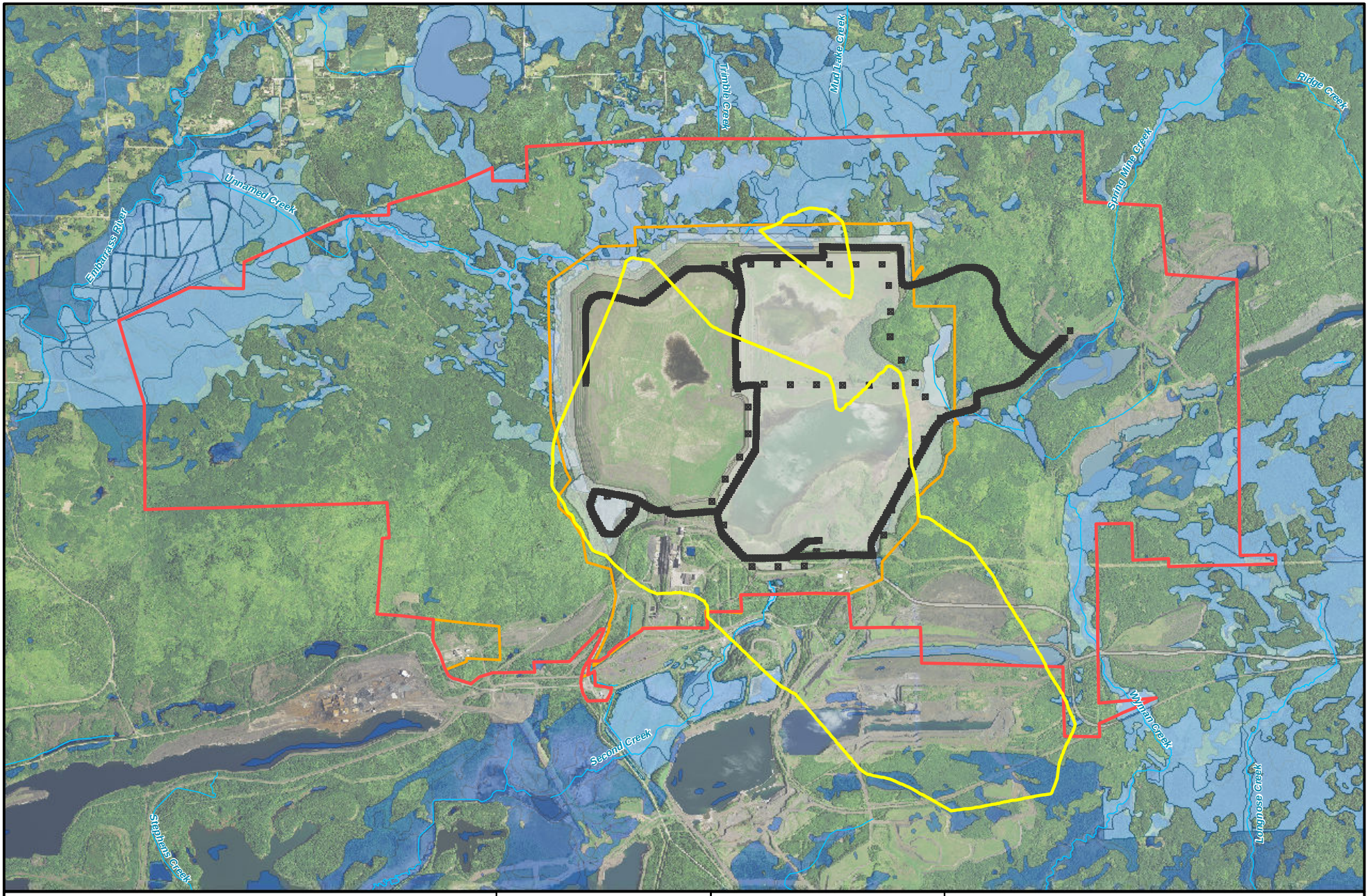

Ambient Air Boundary
Extent of Highest Estimated Deposition Receptors with Deposition of 100% of Background
Plant Site
Disturbed Area
Volume Sources (Roads)
Wetlands
NWI Wetland
Stream/River

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 5.2.3-23
Model - Estimated Metal Deposition Compared to Background Effects Level - Plant Site
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Water Quality Changes

The NorthMet Project Proposed Action could affect wetland water quality downstream of the Tailings Basin and in the Second Creek area by altering the chemistry and volume of seepage and surface water discharges leaving the Tailings Basin and going to the headwaters of Second Creek (PolyMet 2015b; PolyMet 2015j). The NorthMet Project Proposed Action is predicted to meet all water quality evaluation criteria, or not worsen conditions where contamination already exceeds the criteria. The collection of existing seepage by the containment system and augmentation with WWTP effluent water would generally improve downstream water quality relative to current conditions. Effects that would occur on surface water and groundwater quality are discussed in Section 5.2.2. Even if water quality improves, there would be a potential for indirect effects to wetlands due to changes in water quality. Potential indirect wetland effects due to water quality changes that would likely occur at the Plant Site would be a result of changes in groundwater quality, in surface water quality, or in both groundwater and surface water quality and would be limited to the wetlands abutting Second Creek (PolyMet 2015b).

Wetland areas that would be potentially affected by water quality changes are shown in Figure 5.2.3-21 and listed in Table 5.2.3-12. Note that within this section, the term groundwater and surface water refer to the path by which NorthMet Project Proposed Action water leaves the Tailings Basin (e.g., potential effects from Tailings Basin groundwater seepage that discharges to surface water at a downstream location are classified as a potential effect due to changes in groundwater quality). Potential indirect effects due to changes in surface water quality are expected to diminish as the distance from the Tailings Basin increases. Upstream of County Road 666, there are approximately 179 acres of wetlands abutting Second Creek that could be potentially indirectly affected by the change in water quality due to stream flow augmentation of Second Creek.

Table 5.2.3-12 Wetland Areas Potentially Indirectly Affected by Changes in Water Quality

Wetland Area Potentially Affected by Changes in Water Quality	Mud Lake Creek (North) Acres	Trimble Creek (Northwest) Acres	Unnamed Creek (West) Acres	Downstream of Groundwater Flowpaths[3] Acres	Total Acres
Groundwater Quality[1]	296.5	514.0	1,162.1	--	1,972.7
Surface Water and Groundwater Quality[2]	835.8	568.9	690.9	570.2	2,665.7
Total	1,132.3	1,082.9	1,853.0	570.2	4,638.4

Source: PolyMet 2015b.

Notes:
1 Groundwater refers to water leaving the Tailings Basin within the surficial aquifer. Effects resulting from the discharge of that seepage to surface water have been considered an effect due to groundwater in the analysis.
2 All areas potentially affected by changes in surface water quality have also been potentially affected by changes in groundwater quality.
3 Potentially affected wetlands are located along Trimble Creek and Mud Lake Creek, but outside of groundwater flowpaths (see also Note (1)).

Potential for indirect effects from changes in groundwater quality may occur anywhere along the modeled groundwater flowpaths previously mentioned. Wetlands abutting the three creeks that may be indirectly affected (4,068.2 acres) by changes in groundwater quality are shown on Figure 5.2.3-21. The effects on groundwater quality diminish as distance from the Tailings Basin

increases, as the relative portion of total groundwater that originates from the Tailings Basin decreases (see Section 5.2.2). It has been determined that the amount of Tailings Basin seepage remaining in the surficial aquifer would be small; therefore, the potential for indirect effects as a result of changes in groundwater quality are anticipated to be small.

Potential effects from changes in groundwater quality may also occur in wetlands abutting tributary streams (all reaches of Unnamed Creek, Trimble Creek, and Mud Lake Creek) into which affected groundwater would discharge (see Figure 5.2.3-21). Wetlands abutting these streams and outside of the modeled groundwater flowpaths resulted in an additional 570.2 acres of potential indirect effects due to changes in groundwater quality (PolyMet 2015b).

Potential indirect effects from changes in surface water quality would also likely occur in wetlands within the surface watersheds immediately downstream of the Tailings Basin, which includes watersheds upstream of modeling locations UC-1a, TC-1, and MLC-3 (see Figure 5.2.3-21). The potential indirect effects from changes in surface water quality include 1,158 acres of wetlands (all of which would also likely be potentially indirectly affected by changes in groundwater quality). Downstream of these locations, potential indirect effects due to changes in surface water quality are limited to wetlands abutting the tributary streams. These areas include an additional 1,505 acres of wetlands (all of which may also be potentially indirectly affected by changes in groundwater quality) (PolyMet 2015b).

As with effects from changes in groundwater quality, potential effects as a result of changes in surface water quality would be expected to diminish as distance from the Tailings Basin increases and flows originating from the NorthMet Project Proposed Action are diluted by natural runoff.

The wetland hydrology downstream of the Tailings Basin is too complex to be accurately incorporated into the Plant Site probabilistic model detailed in Section 5.2.2. The response of such complex natural systems to water quality changes originating at the Tailings Basin can only be estimated (PolyMet 2015b). Therefore, monitoring of wetland hydrology and vegetation communities would be the best way to document the extent and magnitude of wetland responses (potential indirect wetland effects) to the NorthMet Project Proposed Action.

5.2.3.2.5 Summary of NorthMet Project Proposed Action Direct Impacts and Indirect Wetland Effects

Direct Impacts

Direct wetland impacts for the NorthMet Project Proposed Action are summarized in Table 5.2.3-13. Of the 166 wetlands within the NorthMet Project area, 128 wetlands would be directly impacted, totaling 913.8 acres of direct wetland impact. The Mine Site would contain the majority of the direct wetland impacts. The majority of the direct impacts would occur as a result of a combination of filling and excavation (74 percent) (see Table 5.2.3-14).

Table 5.2.3-13 Total Projected Direct Wetland Impacts for the NorthMet Project Proposed Action

	Directly Impacted Wetlands		
Eggers and Reed Class[1]	**Acres**	**%**	**No.**
Coniferous bog	509.1	56	24
Coniferous swamp	82.6	9	17
Deep marsh	74.1	8	16
Hardwood swamp	13.2	1	3
Open bog	7.6	1	4
Open water (includes shallow, deep, open water, and lakes)	0.0	0	0
Sedge/wet meadow	39.6	4	11
Shallow marsh	76.7	8	23
Shrub swamp (includes alder thicket and shrub-carr)	110.8	12	31
Total Direct Impacts	913.8	100[2]	129

Source: PolyMet 2015b.

Notes:
[1] Eggers and Reed 1997, 2014.
[2] Percent totals are less than 100 percent due to rounding.

Table 5.2.3-14 Type of Projected Direct Wetland Impacts for the NorthMet Project Proposed Action

	Directly Impacted Wetlands		
Type of Effect	**Acres**	**%**	**No.**
Fill	102.8	11	67
Excavation	133.1	15	15
Fill and Excavation	677.9	74	47
Total Direct Impacts	913.8	100	129

Source: PolyMet 2015b.

Potential Indirect Effects

Potential indirect wetland effects from the NorthMet Project Proposed Action would result from one or more of the following six factors: 1) wetland fragmentation; 2) change in wetland hydrology resulting from changes in watershed area; 3) changes in wetland hydrology due to groundwater drawdown resulting from open pit mine dewatering; 4) changes in wetland hydrology from groundwater drawdown resulting from operation of the Plant Site, including groundwater seepage containment; 5) changes in stream flow near the Mine Site and Plant Site, as well as associated effects on wetlands abutting the streams; and 6) changes in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations. A rating system (scaled from 0 to 6) was developed for the wetlands based on the number of factors that may potentially affect it. Wetlands that were not determined to be potentially indirectly affected would be rated as zero and wetlands that were determined to be potentially indirectly affected by all six factors would be rated as a six; however, no wetlands were rated as a six (see Figures 5.2.3-24 and 5.2.3-29) (PolyMet 2015b). The NorthMet Project Proposed Action could indirectly affect up to either 7,694.2 acres of

wetlands located within and around the NorthMet Project area, based on the method of wetlands crossing analog impact zones, or up to 6,568.8 acres of wetlands located within and around the NorthMet Project area, based on the method of wetlands within analog impact zones (PolyMet 2015b). The indirect effects analyses performed for the EIS were not performed to characterize impacts but were done to inform where monitoring should take place for those areas that were identified as having a potential for indirect wetland effects. Potential indirect wetland effects are presented in Table 5.2.3-15.

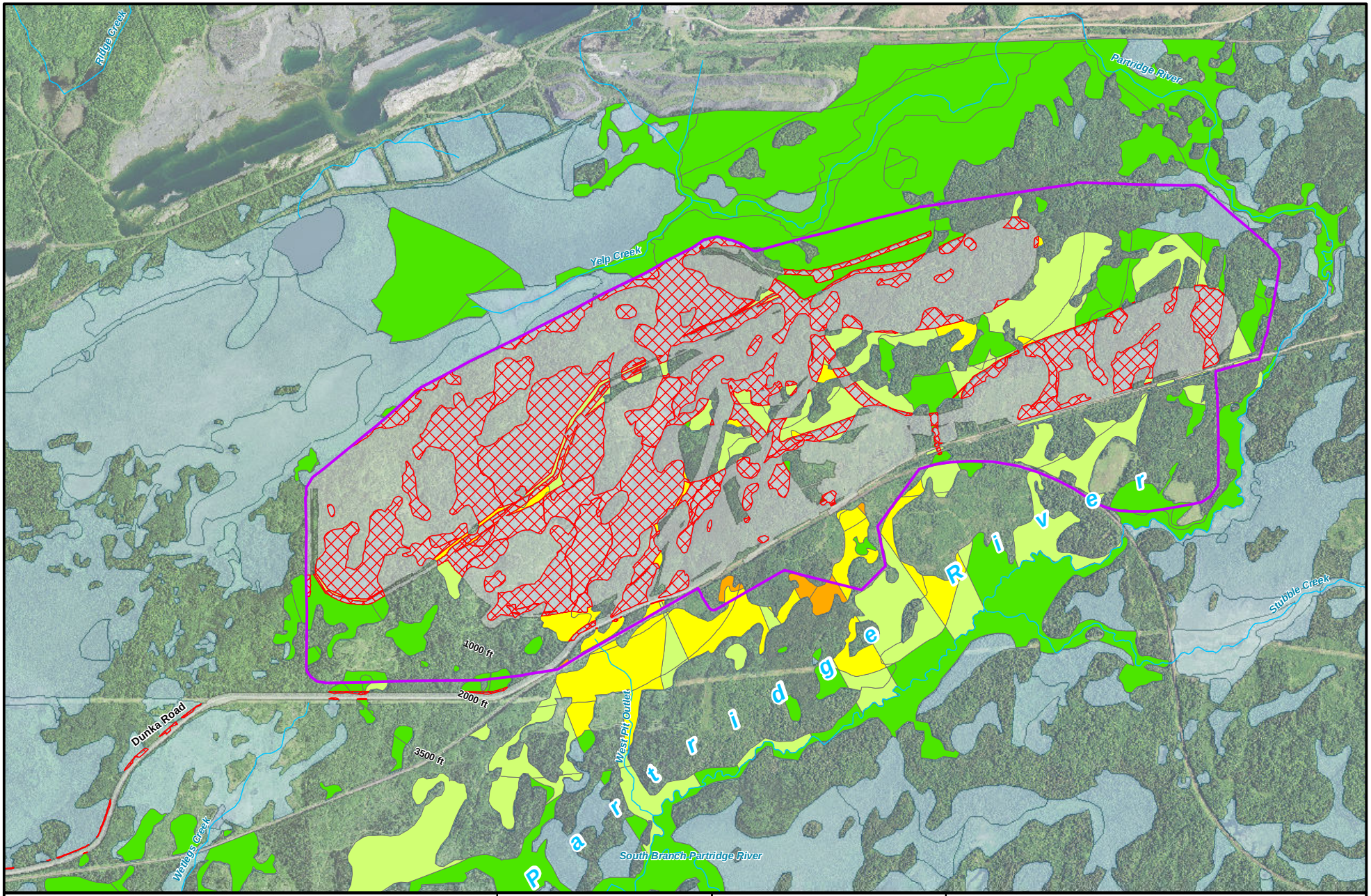

Mine Site
Direct Wetland Impacts
Disturbed Area
Stream/River

Potential Wetland Indirect Impact Factor Rating

5
4
3
2
1
No Impact

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1,000 2,000 4,000 Feet

Figure 5.2.3-24
Mine Site Wetlands and Potential Indirect Wetland Effects
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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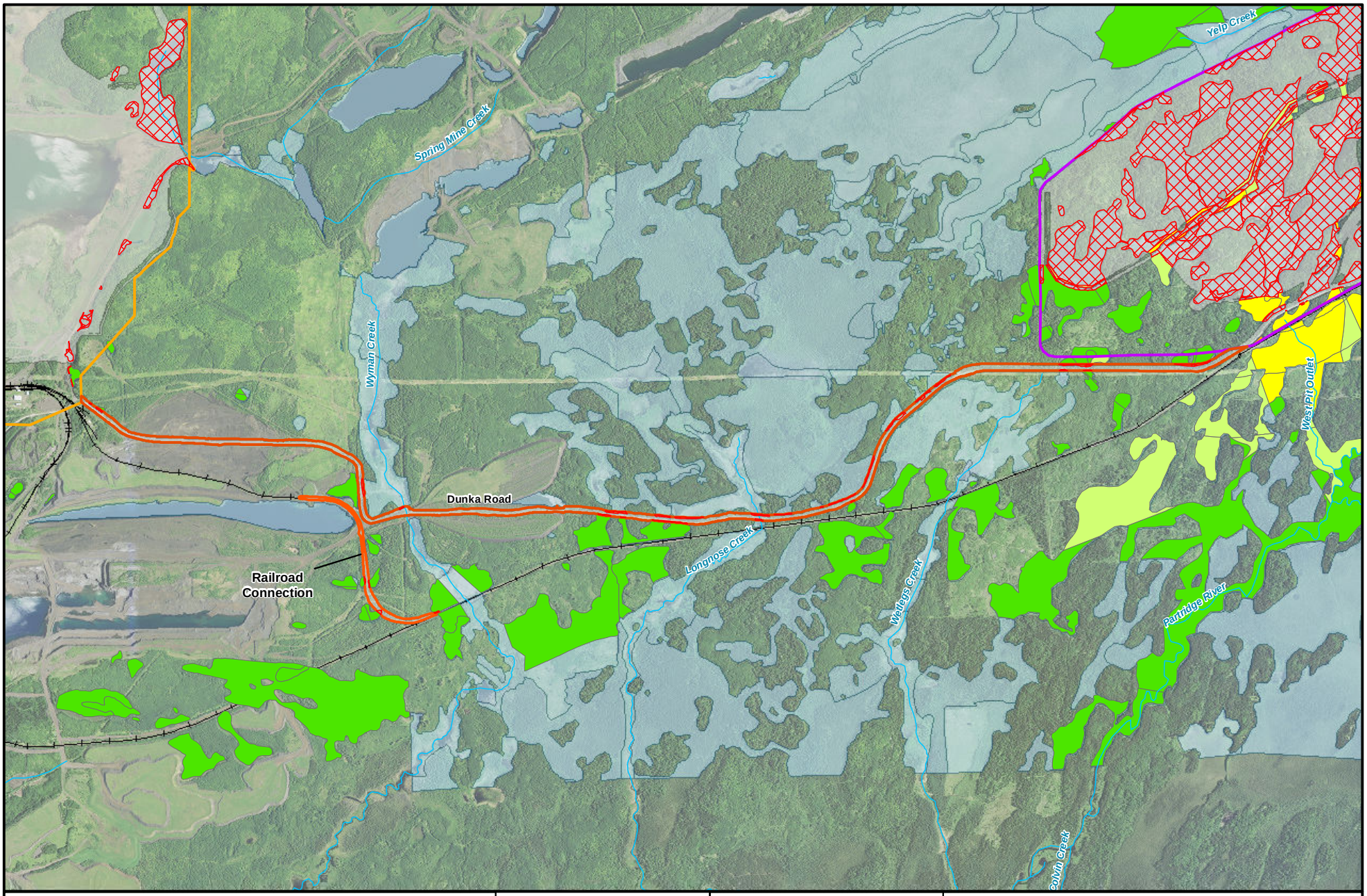

Transportation and Utility Corridor
Mine Site
Plant Site
Direct Wetland Impacts
Disturbed Area
Stream/River
Existing Railroad

Potential Wetland Indirect Impact Factor Rating
4
3
2
1
No Impact

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1,000 2,000 4,000 Feet

Figure 5.2.3-25
Transportation and Utility Corridor Wetlands and Potential Indirect Wetland Effects
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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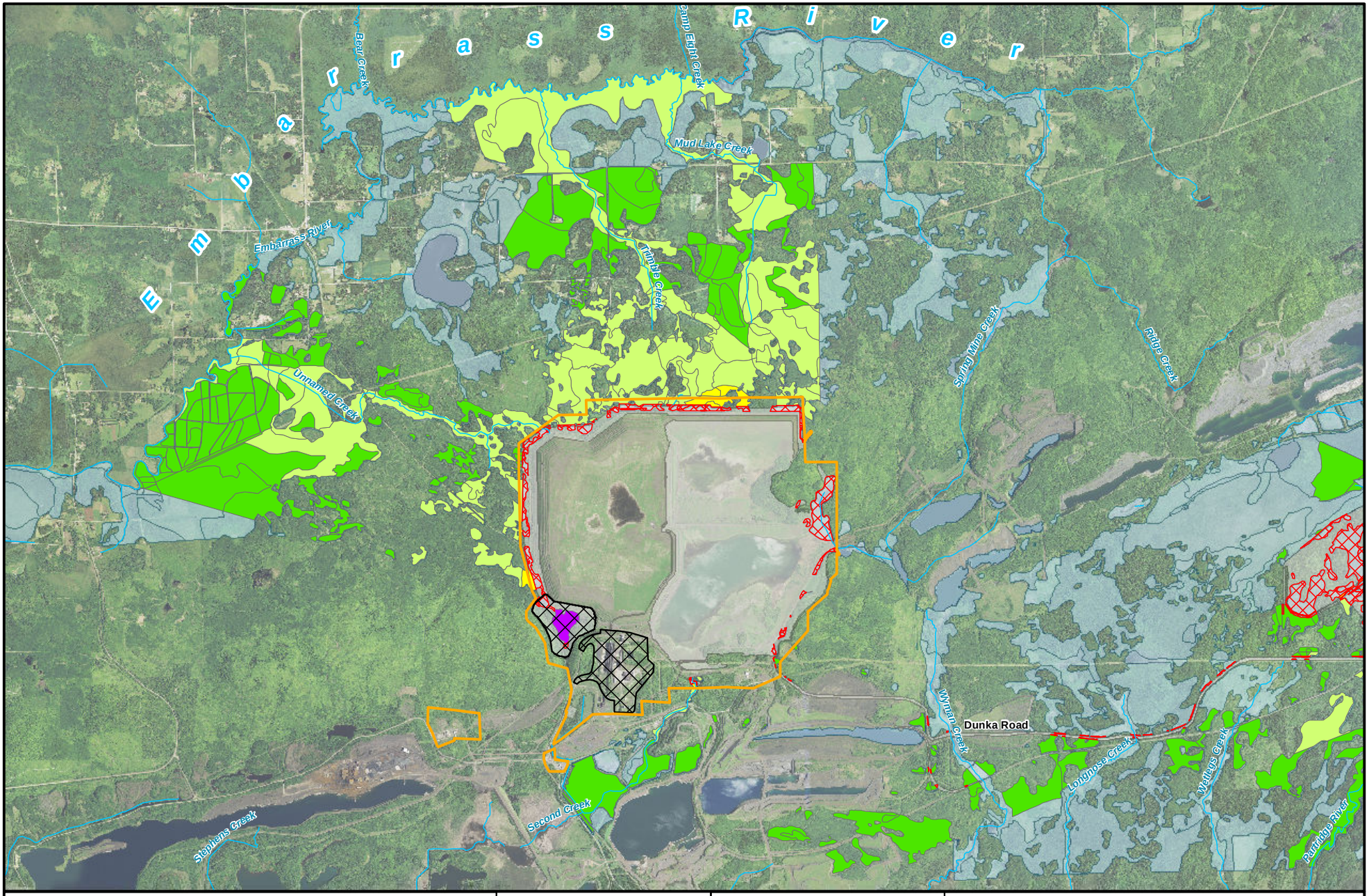

Plant Site
Direct Wetland Impacts
Areas Excluded from Plant Site Boundary
Disturbed Area
Stream/River
No Impact

Potential Wetland Indirect Impact Factor Rating

Potentially Incidental
5
4
3
2
1

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1
Miles

Figure 5.2.3-26
Plant Site Wetlands and Potential Indirect Wetland Effects
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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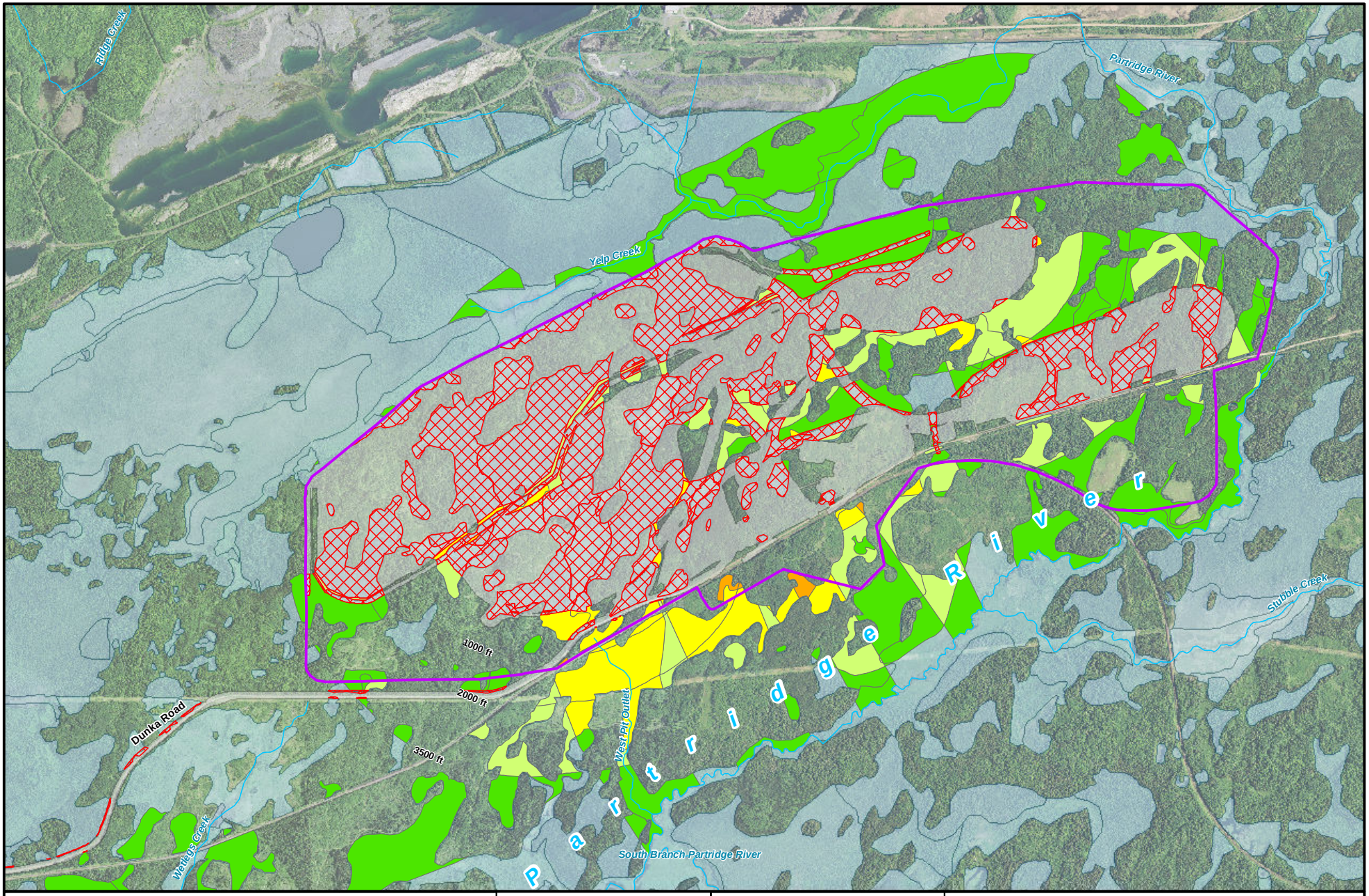

Mine Site
Direct Wetland Impacts
Disturbed Area
Stream/River

Potential Wetland Indirect Impact Factor Rating

5
4
3
2
1
No Impact

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1,000 2,000 4,000 Feet

Figure 5.2.3-27
Mine Site Wetlands and Potential Indirect Wetland Effects - Alternate Method
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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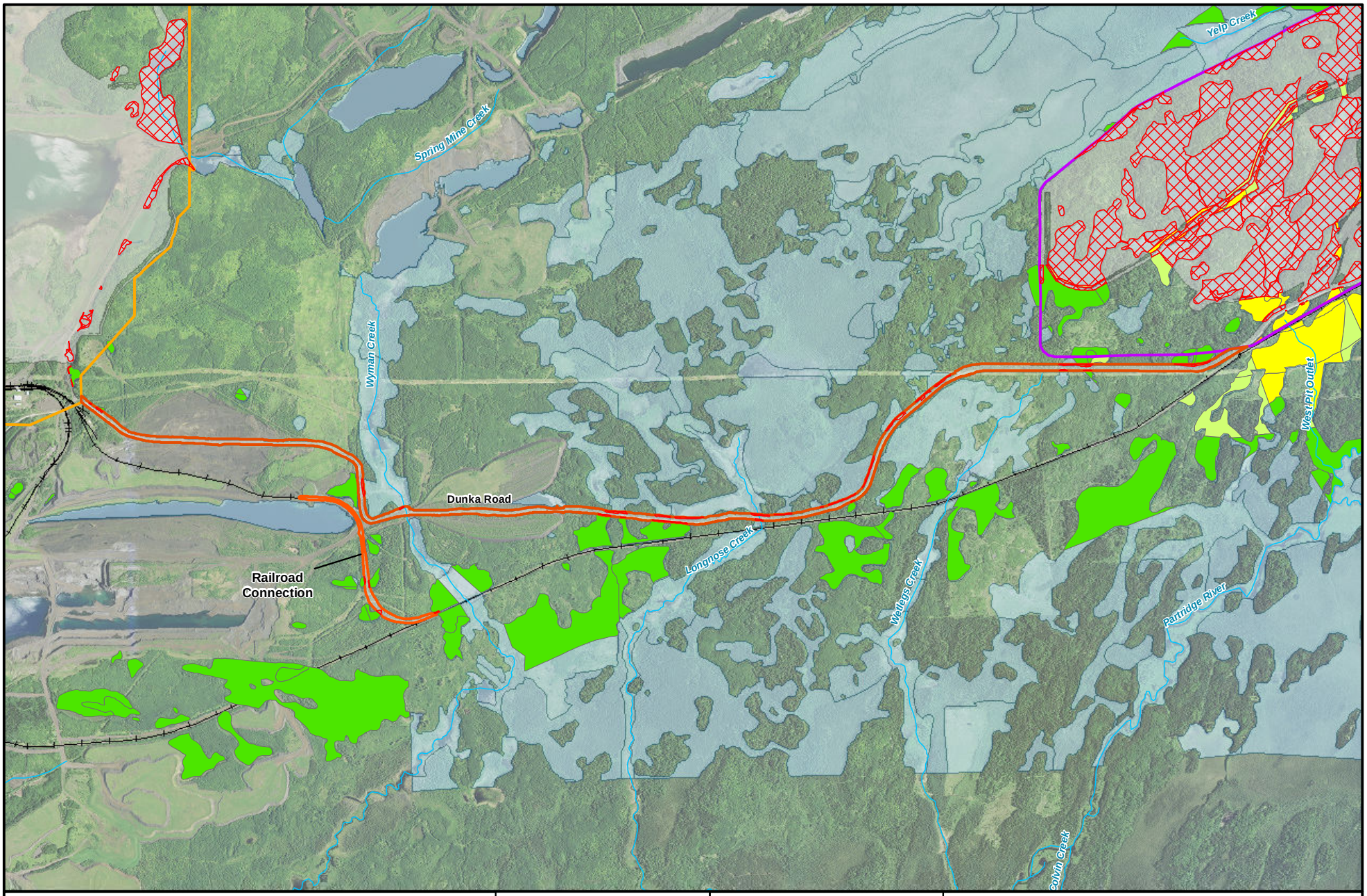

Transportation and Utility Corridor
Mine Site
Plant Site
Direct Wetland Impacts
Disturbed Area
Stream/River
Existing Railroad

Potential Wetland Indirect Impact Factor Rating
4
3
2
1
No Impact

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1,000 2,000 4,000 Feet

Figure 5.2.3-28
Transportation and Utility Corridor Wetlands and Potential Indirect Wetland Effects - Alternate Method
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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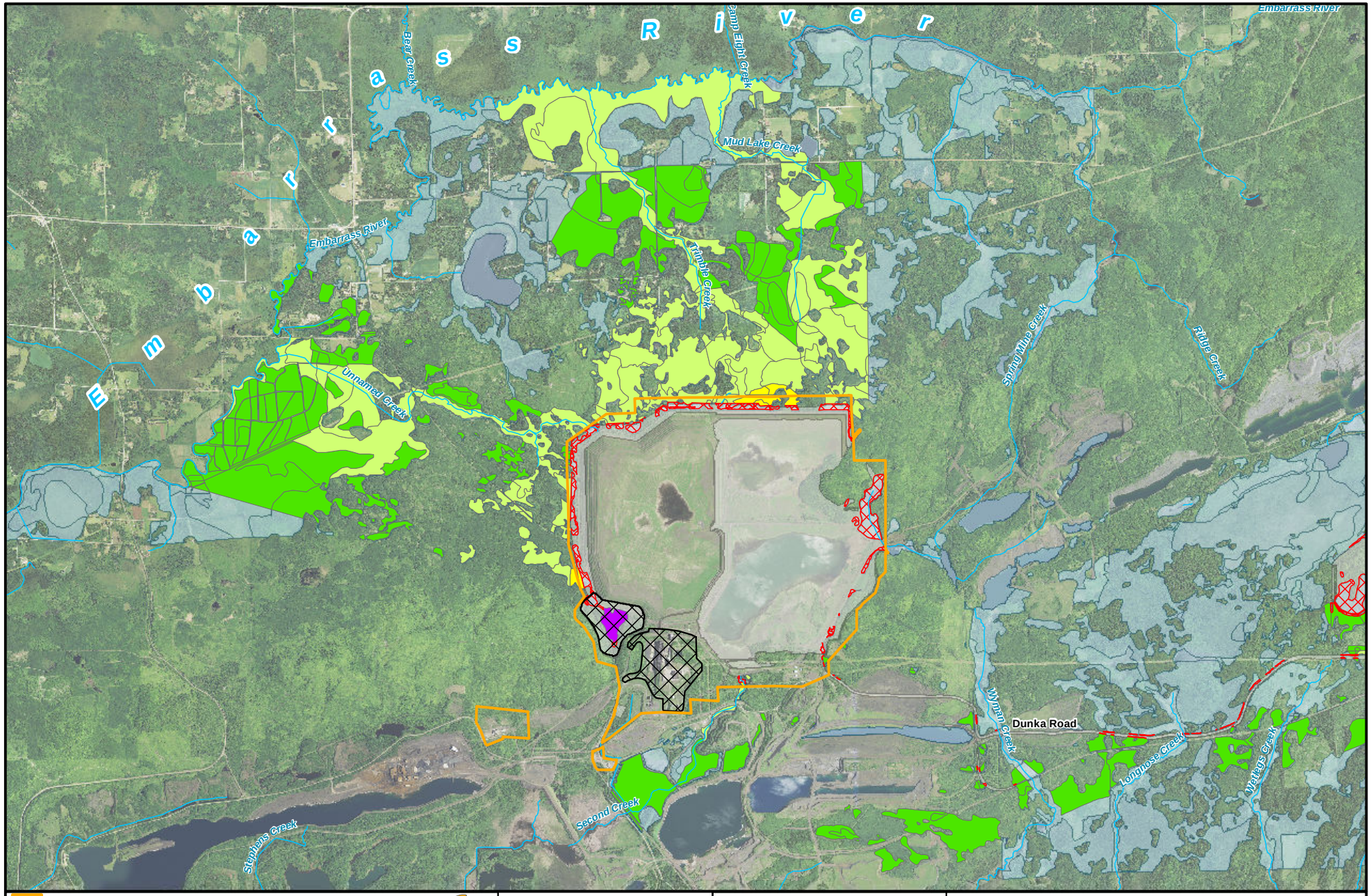

Plant Site
Direct Wetland Impacts
Areas Excluded from Plant Site Boundary
Disturbed Area
Stream/River
No Impact

Potential Wetland Indirect Impact Factor Rating

Potentially Incidental
5
4
3
2
1

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.25 0.5 1 Miles

Figure 5.2.3-29
Plant Site Wetlands and Potential Indirect Wetland Effects - Alternate Method
NorthMet Mining Project and Land Exchange FEIS
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Table 5.2.3-15 Summary of Projected Potential Indirect Wetland Impacts for the NorthMet Project Proposed Action

	Total Potential Indirect Wetlands (based on the method of wetlands *crossing* analog impact zones)		**Total Potential Indirect Wetlands (based on the method of wetlands *within* analog impact zones)**	
Rating[1]	**Acres**	**%**	**Acres**	**%**
1	4,305.9	56	3,466.1	53
2	3126.8	41	2,888.4	44
3	245.3	3	206.0	3
4	15.9	<1	8.1	<1
5	0.3	<1	0.3	<1
Total Acres of Potential Indirect Wetland Effect[2]	7,694.2	100	6,568.8	100

Sources: PolyMet 2015b

Notes:

[1] A wetland may be potentially indirectly affected by none of the six factors or up to a maximum of six, with different combinations of factors possible. A rating was developed for the wetlands based on the number of factors that may potentially affect it – from No Effect (0 factors) to 6 (all six factors potentially indirectly affecting the wetland).

[2] The analyses and assessments were completed using the same set of wetlands that were not directly impacted; therefore, there are wetlands that may be potentially indirectly affected by more than one type of assessed source. The potential indirect wetland affects for each wetland cannot be summed across the analysis as this would likely result in double-counting of wetland acres. The results of the analyses and assessments identify areas to be monitored for potential wetland effects.

As discussed below, wetland mitigation for potential indirect wetland effects would be determined by the agencies during permitting. If the NorthMet Project Proposed Action were to be permitted and it was determined that the NorthMet Project Proposed Action could cause future wetland effects, wetland monitoring would be conducted. Wetland hydrology and vegetation would be monitored, and additional monitoring locations may be considered during permitting. A component of the monitoring plan would be based on those wetlands that would have a high likelihood of indirect effects as a result of groundwater drawdown. The likelihood of potential wetland hydrology effects (low, moderate, and high), based on the method of wetlands crossing analog impact zones, would be 2,147.6 acres, of which 866.9 acres of wetlands (15 percent) would have a high likelihood of wetland hydrology effects. The likelihood of potential wetland hydrology effects (low, moderate, and high), based on the method of wetlands within analog impact zones, would be 733.3 acres, of which 46.4 acres of wetlands (1 percent) would have a high likelihood of wetland hydrology effects. If the monitoring determined that indirect wetland effects had occurred, adaptive management practices to reduce wetland effects would be considered and additional compensation may be required if determined necessary by the permitting agencies.

In the event that the required wetland monitoring identified additional indirect effects, permit conditions would likely include a plan for implementing adaptive management practices such as expanded monitoring and hydrologic controls. Additionally, compensatory mitigation may be required if additional impacts are identified during annual reporting. Permit conditions would likely include an adaptive management plan to account for any additional effects that may be identified in the annual monitoring and reporting.

5.2.3.3 NorthMet Project Proposed Action Wetland Impact Avoidance, Minimization, Mitigation, and Monitoring Measures

This section discusses measures that were taken to avoid and minimize wetland impacts, evaluates PolyMet's proposed wetland mitigation for unavoidable impacts, discusses other potential mitigation measures that may benefit wetlands, and identifies key elements of a wetland monitoring plan. The wetland impact, avoidance, minimization, mitigation and monitoring plan presented in the EIS would be reviewed during permitting; therefore, the mitigation and proposed monitoring could change during permitting.

5.2.3.3.1 Wetland Avoidance and Minimization

Section 404 regulations of the CWA, Minnesota's WCA rules, and Minnesota's water quality standards under *Minnesota Rules*, part 7050.0186 require that impacts to wetlands be avoided and minimized to the extent practicable, and if wetland impacts cannot be avoided and/or minimized, then compensatory mitigation practices would be necessary.

Final regulations and guidelines associated with Section 404 of the CWA require that project proponents eliminate or reduce adverse impacts to waters of the United States by taking certain specific steps during project planning. These include: 1) modify the project to avoid adverse impacts, 2) incorporate measures to minimize adverse impacts, and 3) compensate for unavoidable adverse impacts through restoration, enhancement, creation, or in-lieu fee.

PolyMet proposes to avoid and minimize wetland impacts through a number of measures that are incorporated into the proposed mine plan. Direct wetland impacts at the Mine Site have been reduced during the development of the NorthMet Project Proposed Action. Modifications to the NorthMet Project Proposed Action that have occurred during the development of the EIS have resulted in avoidance and minimization of impacts on wetland resources. To date, these modifications have reduced the acreage of wetlands impacted from 1,257 to 913.8 acres, a 27 percent decrease.

At the Mine Site, waste rock would be placed back into the East Pit and Central Pit after year 11, thereby reducing the need for additional surface stockpile areas that would otherwise affect wetlands. In addition, PolyMet proposes to combine the saturated overburden and temporary stockpiles that contain membrane liners, which were separate in the original NorthMet Project Proposed Action design. The Overburden Storage and Laydown Area would only store peat and unsaturated overburden (PolyMet 2015a). By reducing the footprint of the Overburden Storage and Laydown Area and stockpiles, direct wetland impacts were reduced. Similarly, PolyMet proposes to construct the Category 4 Stockpile in the footprint of the Central Pit, which would be mined later and thus avoid additional direct wetland impacts. Reactive waste rock stockpiles would be lined, and stormwater runoff that contacted reactive rock would be contained to help prevent water quality-related effects on adjacent wetlands. In addition, hydrologic effects would be reduced by the use of seepage control measures, which would be installed at the mine pits to restrict shallow groundwater movement through higher permeability areas and help prevent drawdown of wetland water levels near mine pits. Haul road construction/layout has been re-configured to have fewer haul roads and locations thereby reducing land and wetland disturbance and truck distance to be driven. Haul road construction would include placement of large rocks as a foundation to allow shallow subsurface groundwater flowpaths in the wetlands to be maintained within the active areas of the Mine Site between the pits and stockpiles.

For other elements of the NorthMet Project Proposed Action, utilizing existing Plant Site infrastructure, the existing LTVSMC Tailings Basin, and the Transportation and Utility Corridor all serve as avoidance measures since building these on undeveloped sites could impact at least hundreds of acres of additional wetlands. Reusing existing infrastructure limits wetland impacts from these activities to previously disturbed areas. Additionally, cutoff berms/walls, trenches, and sump and pump systems would be used to collect current and future surface seepage from around the toe of the Tailings Basin (PolyMet 2011b). This surface seepage would ultimately be re-routed to the Tailings Basin, thus avoiding or minimizing discharges to surrounding wetlands. Construction of the containment system, however, would reduce the amount of seepage flowing to four tributaries of the Embarrass River (PolyMet 2015a). Streamflow would be augmented using WWTP effluent so that the target annual average flow that supports existing wetland hydrology would be met.

5.2.3.3.2 Wetland Mitigation

As previously noted, jurisdictional wetlands are regulated under state and federal laws, including the WCA (*Minnesota Rules*, chapter 8420), *Minnesota Rules*, part 7050.0186, and Sections 401 and 404 of the CWA. In addition, some wetlands are also designated as Minnesota Public Waters and subject to the Public Waters Work Permit Rules (*Minnesota Rules*, chapter 6115). However, no public water wetlands would be impacted by the NorthMet Project Proposed Action.

Both the state and federal wetland regulations require that a permit, approval, and/or certification be issued by the regulatory agency for wetland impacts as defined by the respective regulations. The USACE St. Paul District is the permitting authority for the DA permit pursuant to Section 404 of the CWA; the MDNR Division of Lands and Minerals administers the WCA approval process as part of the Permit to Mine (*Minnesota Rules*, part 8420.0200, subpart 1D); and the MPCA has authority under Section 401 of the CWA to certify that discharges authorized under Section 404 comply with water quality standards.

The wetland mitigation planning process relied on the WCA wetland replacement siting rules (*Minnesota Rules*, part 8420.0522), compensatory mitigation requirements under state water quality standards (*Minnesota Rules*, part 7050.0186), and the USACE *St. Paul District Policy for Wetland Compensatory Mitigation in Minnesota* (2009).

Sequencing

The compensatory wetland mitigation site selection for the NorthMet Project Proposed Action began in 2005 and has gone through a rigorous site selection evaluation. Prior to the 2008 Federal Mitigation Rule, the Aitkin and Hinckley sites were selected, initial approval by the federal regulatory agency was received, and substantial investments were made by PolyMet, to develop both sites for compensatory mitigation. The USACE guidance that was utilized prior to the implementation of the 2008 Federal Mitigation Rule was to look for mitigation sites that could provide the following: restoration of historical wetlands, high probability of success, achieves at least partial in-kind mitigation and sites that had ditched and/or tiled peatlands to provide for restoration. When the 2008 Federal Mitigation Rule went into effect, the USACE informed PolyMet of the priority for siting any future compensatory mitigation within the St. Louis River/Great Lakes Basin. The Zim Site was subsequently proposed as a third site. PolyMet, along with, in some cases, state and federal agencies, have conducted and are

continuing to conduct extensive efforts to find additional suitable sites within in the Great Lakes Basin for wetland mitigation.

The 2008 Federal Mitigation Rule and 2009 USACE St. Paul District Policy specifies a preferential sequence for compensatory mitigation (i.e., use of mitigation banking credits, use of project-specific compensation that is based on a watershed approach, use of project-specific compensation that is on-site and in-kind, and use of project-specific compensation that is off-site and/or out-of-kind), and aims to select mitigation sites as close as possible to the watershed of impact; however, sometimes this cannot be accomplished. The 2009 USACE St. Paul District Policy accepts out-of-watershed mitigation; however, the USACE's preference is for the mitigation to be within the same watershed as a proposed project. The term "watershed approach" is defined in 33 USC § 332.2 as "an analytical process for making compensatory mitigation decisions that support the sustainability or improvement of aquatic resources in a waters. It involves consideration of watershed needs, and how locations and types of compensatory mitigation projects address those needs…"

As such, the compensatory mitigation approach by PolyMet followed the 2009 USACE St. Paul District Policy in effect at the time the proposed compensation sites were selected. Further, the Zim Site was developed in accordance with a watershed approach. In combination, the proposed compensatory mitigation is appropriate for the siting and scale of the impacts that would result from the NorthMet Project Proposed Action. As noted above for the project-specific compensation, the following compensatory mitigation siting sequence is required: on-site, in the same 10-digit HUC watershed, in the same 8-digit HUC watershed, in the same modified 6-digit watershed, in the same 4-digit HUC watershed, and then statewide.

While on-site replacement of wetlands is listed first in the sequencing, on-site conditions may not be the most suitable for successful wetland mitigation. In fact, 33 USC § 332.3(b) states that compensatory mitigation should be located where it is most likely to successfully replace lost functions and services within the watershed, not specifically on-site. Moreover, the preferred mitigation methodology stated under the 2008 Federal Mitigation Rule begins with the utilization of mitigation banks and in-lieu fee programs within appropriate service areas prior to permittee-responsible mitigation (33 USC § 332.3(b)(2)-(3)). Following the use of mitigation banks and in-lieu fee programs, the 2008 Federal Mitigation Rule states that permittee-responsible mitigation following a watershed approach (i.e., providing for mitigation in the best suitable location within the proposed impact watershed) should be used (33 USC § 332.3(b)(4)). Only after mitigation banks, in-lieu fee programs (where available), and permittee-responsible mitigation under a watershed approach have been exhausted or are infeasible should permittee-responsible mitigation through on-site and in-kind mitigation be considered (33 USC § 332.3(b)(5).

Compensatory mitigation is defined as restoration (reestablishment or rehabilitation), establishment (creation), enhancement, and/or, in certain circumstances, preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts that remain after all appropriate and practicable avoidance and minimization has been achieved (33 CFR § 332.2). When comparing the alternatives, restoration is the best approach for replacing lost functions; preservation does not replace the lost functions and creation is both slow to replace the functions and has a lower degree of success. Restoration should generally be the first option considered because the likelihood of success is greater and the impacts to potentially ecologically important uplands are reduced compared to establishment. Also, the potential gains in terms of aquatic resource functions are greater, compared to enhancement and preservation (33 CFR § 332.3(a)(2)

and 40 CFR § 230.93(a)(2)). Furthermore, the 2009 USACE St. Paul District Policy guidance states that restoration is the preferred compensatory mitigation technique. Restoration sites historically supported wetlands and frequently retain some wetland components (e.g., hydric soils) even after man-made disturbances such as drainage and cropping. Restoration also applies to increasing the functional level of existing, degraded wetlands. Restoration through re-establishment involves techniques for returning wetland functions to a location where no wetland currently exists. This technique results in a gain in both wetland acres and wetland functions.

The primary goal of wetland mitigation is to restore high-quality wetland communities of the same type, quality, and function as those to be impacted to the extent practicable. To achieve that goal, state and federal guidelines were followed during the wetland mitigation planning process, with a preference placed on restoring drained wetlands over creating wetlands. The five main categories of mitigation methods considered appropriate in northern Minnesota by state and federal agencies were: 1) restoration of former or degraded wetlands, 2) enhancement of existing wetlands, 3) wetland preservation, 4) wetland creation, and 5) upland buffers.

USACE Mitigation Ratios and Financial Assurance

The 2009 USACE St. Paul District Policy applies three factors to determine compensation ratios: in-place versus out-of-place, in-kind versus out-of-kind, and in-advance versus not in-advance. These factors are defined as follows:

- In-place mitigation means the replacement of the impacted aquatic site would take place in the same 8-digit Hydrologic Unit Code (HUC) watershed as the proposed impacted resource. The USACE St. Paul District Policy uses the term “in-place” to include on-site, which is defined as an area located on the same parcel of land as the impact site, or on a parcel of land contiguous to the impact site.
- Out-of-place mitigation means the replacement of the impacted aquatic site would take place in a different 8-digit HUC watershed as the proposed impacted resource.
- In-kind mitigation means the replacement of the impacted aquatic site with a resource of a similar structural and functional type to the impacted resource (same species composition).
- Out-of-kind mitigation means the replacement of an impacted aquatic site with a resource of a different structural and functional type from the impacted resource (different species composition).
- In-advance mitigation is a form of mitigation that is designed, permitted, and constructed in advance of a permitted impact.

The temporal loss issue is addressed by the in-advance versus not-in-advance factor. The 2008 Federal Mitigation Rule states that compensation ratios of greater than 1:1 can be applied to account for factors including temporal loss and the difficulty of restoring or establishing certain wetlands/aquatic resources (33 CFR 332.3 (f)).

The 2008 Federal Mitigation Rule also states that “difficult-to-replace” wetlands/aquatic resources include bogs and forested wetlands (33 CFR 3323.3(e)(3) and Preamble, page 19633). The majority of wetlands that would be impacted by the NorthMet Project Proposed Action would be “difficult-to-replace” (coniferous bog, open bog, coniferous swamp, and hardwood swamp) (USACE 2013). The 2008 Federal Mitigation Rule includes a provision for a case-by-

case determination of mitigation ratios higher than the minimum 1:1 where necessary to account for the difficulty of restoring or establishing the desired aquatic resource type and functions.

USACE St. Paul District Policy (2009) states that compensation ratios can be raised on a case-by-case basis if the impacted wetland/aquatic resource provides rare or exceptional functions, including plant communities that rate "exceptional" using MnRAM, or have a high rating using a Floristic Quality Assessment. Most of the wetlands that would be impacted by the NorthMet Project Proposed Action would generate high Floristic Quality Assessment scores for those plant community types in Minnesota (Milburn et al. 2007). Therefore, per the 2009 USACE St. Paul District Policy, the District Engineer may determine that a higher compensation ratio would be required to offset losses of wetlands that would be difficult to replace and/or provide an exceptional or high functional level/condition.

The 2009 USACE St. Paul District Policy states a base compensation ratio of 1.5:1 (1.5 credits of compensatory mitigation for every 1 acre of wetland loss), and a minimum of 1:1, with a provision for a case-by-case determination of higher ratios to account for factors including difficult-to-replace, rare, and/or exceptional wetlands/aquatic resources. For low- to moderate-quality wetlands, the 1.5:1 base ratio would apply in accordance with District Policy. For impacts to wetlands that have exceptional or high functional levels/conditions, are difficult-to-replace, and/or where there is a considerable temporal loss in replacing functions (e.g., forested wetlands), the USACE may require additional compensation in accordance with District Policy. The 1.5:1 ratio can be reduced by qualifying for the following incentives, but can be no less than a minimum 1:1 ratio:

- In-place incentive: the project-specific mitigation site is located on site or within the same 8-digit HUC watershed as the authorized wetland impacts or bank credits are purchased within the same bank service area—reduce ratio by 0.25.
- In-kind incentive: the mitigation wetlands are of the same type (same wetland plant community) as the wetlands authorized to be impacted—reduce ratio by 0.25.
- In-advance incentive: 1) a project-specific mitigation site must have wetland hydrology and initial hydrophytic vegetation established at least one full growing season in advance of the authorized wetland impacts provided initial performance standards are met, or 2) USACE-approved bank credits are purchased—reduce ratio by 0.25.

If none of these incentives are met, the minimum mitigation ratio required is 1.5:1. If one of the three incentives is met, the minimum required mitigation ratio is 1.25:1; if two or three are met, the ratio is 1:1. According to USACE St. Paul District's compensatory wetland mitigation policy (USACE 2009), requirements for mitigation can exceed the 1.5:1 mitigation ratio if the impacted wetlands provide rare or exceptional functions.

District guidance on compensatory mitigation emphasizes the consideration of a functional approach to offset proposed project impacts. While bogs and forested wetlands are characterized as difficult-to-replace, the proposed compensation sites for the NorthMet Project Proposed Action (discussed below) would be likely to achieve in-kind compensation to offset functional losses. The proposed mitigation sites were selected based on availability and the high likelihood of meeting performance criteria.

The proposed wetland restoration and enhancement performance criteria place a strong emphasis on ensuring that the proposed mitigation strategy provides for the adequate replacement of lost

functions. For purposes of compensatory mitigation, the focus is on functions. The 2008 Federal Mitigation Rule specifically eliminated use of the term "values." An abbreviated MnRAM functional assessment, which was agreed upon by the USACE, was utilized to assess wetland functions for the Mine Site, Transportation and Utility Corridor, and Plant Site. Both the USACE and WCA require functions to be replaced; however, both agencies use a set of defined ratio requirements to determine the number of acres required to replace functions lost as there is currently no suitable quantitative functional assessment method in Minnesota. Based on the findings and where impacts occur (e.g., types of wetlands), the mitigation ratios and credits have been increased to take into account the functions lost due to the NorthMet Project Proposed Action. For example, additional compensatory mitigation (i.e., higher replacement ratios) is proposed to offset loss of bog wetlands, which is a difficult-to-replace wetland type. All of the wetland mitigation proposed would be restoration with a minimal component of wetland preservation; no creation of wetlands would be part of the off-site mitigation.

The USACE St. Paul District has not made a final determination of the compensation ratios that would be required. A decision on whether proposed compensation would qualify for the 0.25 incentive for in-advance requires additional information including: 1) development of performance standards that would specify the hydrology and initial vegetation to be established, and 2) number of growing seasons that wetland compensation sites would be established in advance of authorized impacts. Final determination of compensation ratios and use of incentives would be determined during permitting.

The compensatory mitigation ratios proposed in the FEIS for the NorthMet Project Proposed Action are based on recommended USACE St. Paul District guidance. They assume successful outcomes for the proposed compensatory mitigation sites. Base compensation ratios, as presented in the FEIS, for impacts on high-quality, difficult-to-replace bog and forested wetlands have been increased to 2:1 (USACE 2013). For impacts on low- and moderate-quality wetlands, a base ratio of 1.5:1 would be applied (USACE 2013). In-kind, in-place, and in-advance incentives to reduce the recommended base ratios would be considered at the time of permitting. USACE St. Paul District guidance on recommended compensation ratios takes these incentives into account. The final decision on compensatory mitigation ratios and the use of incentives would be determined at the time of the CWA Section 404 permit decision based on current District guidance.

USACE compensatory wetland mitigation is regulated by 33 CFR 332.3(n), which describes the use of financial assurances. The District Engineer may determine that financial assurances are unnecessary for a compensatory mitigation project if alternate mechanisms are available to ensure a high level of confidence that the mitigation would be provided and maintained.

The CWA Section 404 permit and the Permit to Mine (see below) both have financial assurance mechanisms to ensure successful completion of the: 1) compensatory mitigation (in the case of the CWA Section 404), and 2) NorthMet Project Proposed Action (in the case of the Permit to Mine). Financial assurance can be a condition of a permit under CWA Section 404, and the MDNR has authority to require a performance bond or other instrument that meets criteria in rule for compliance with the conditions of the Permit to Mine. Section 3.2.2.4 provides a discussion of the financial assurance for the NorthMet Project Proposed Action.

The USACE generally requires compensatory mitigation for adverse impacts to aquatic resources under 33 CFR 332.3(n). This regulation establishes standards and criteria for the general compensatory mitigation requirements of the Section 404 permit. Specifically, 33 CFR 332.3(n)(1) addresses financial assurance stating:

> The district engineer shall require sufficient financial assurances to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with applicable performance standards.

Financial assurance for the direct wetland impact mitigation would be required until success of the mitigation sites can be assured. While this wetland mitigation would be expected to be approved and constructed in advance of any authorized wetland impacts, it is unclear whether these sites would be well-enough established for financial assurance to be waived. The USACE would also consider the application of financial assurances for potential indirect wetland effects and monitoring. The USACE would require consideration of financial assurances during the permitting process.

State Mitigation Ratios and Financial Assurance

Minnesota Rules, part 7050.0186, requires compensatory mitigation to be sufficient to ensure replacement of the diminished or lost designated uses of the wetland that was physically altered. To the extent prudent and feasible, the same types of wetlands impacted are to be replaced in the same watershed, before or concurrent with the actual alteration of the wetland. In addition, the WCA states that for wetlands in counties where 80 percent or more of pre-settlement wetlands exist, including St. Louis County, minimum replacement ratio requirements are as determined by mitigation location and type (see Table 5.2.3-16). Based on the WCA wetland replacement standards (*Minnesota Rules*, part 8420.0522, subpart 4), the required replacement ratio would be either 1:1 or 1.5:1. For those wetlands that would be replaced in the watershed with the same wetland type, the base replacement ratio that would likely be required is 1:1, and for those wetlands that would be replaced outside of the watershed, the ratio would be increased to 1.5:1. The actual replacement ratios required in permitting may be more than the minimums shown in Table 5.2.3-16, subject to the evaluation of wetland functions.

Table 5.2.3-16 Summary of Wetland Mitigation Ratios

Regulation	Location of Impacts	Replacement	Minimum Replacement Ratio
Minnesota Administrative Rules			
	Minimum Replacement Ratios: Wetland Banking		
	>80% area or agricultural land	Outside bank service area	1.5:1
		Within bank service area	1:1
	Minimum Replacement Ratios: Project-Specific		
	>80% area or agricultural land	Outside major watershed or out-of-kind	1.5:1
		Within major watershed and in-kind	1:1
USACE			
	>80% area	Not in-place, in-kind nor in-advance	1.5:1
		In-place, in-kind and in-advance	1:1

Sources: Wetland Conservation Act (MDNR 1991); USACE 2009.

Minnesota Rules, part 8420.0522 outlines the replacement standards for wetlands as regulated under WCA. *Minnesota Rules*, part 8420.0522, subparts 9(A) and (B) discuss financial assurance requirements for compensatory wetland mitigation stating:

> (A) For wetland replacement that is not in advance, a financial assurance acceptable to the local government unit must be submitted to, and approved by, the local government unit to ensure successful replacement. The local government unit may waive this requirement if it determines the financial assurance is not necessary to ensure successful replacement. The local government unit may incorporate this requirement into any financial assurance required by the local government unit for other aspects of the project. (B) The financial assurance may be used to cover costs of actions necessary to bring the project into compliance with the approved replacement plan specifications and monitoring requirements.

Financial assurance for wetland replacement could be waived by the MDNR which has the approval authority under WCA (through the Permit to Mine) to determine if financial assurance is required.

Financial assurance for wetland replacement could be waived by the MDNR which has the approval authority under WCA (through the Permit to Mine) to determine if financial assurance is required. Additionally, the MDNR has the authority through the Permit to Mine process to require a performance bond or other instrument that meets criteria in rule as means to ensure compliance with *Minnesota Rules*, chapter 6130, which includes successful completion of reclamation and closure activities. Please refer to Section 3.2.2.4 for more information on financial assurance.

The financial assurance requirements would be part of the WCA permitting process for the NorthMet Project Proposed Action. Wetland replacement for the NorthMet Project Proposed Action is anticipated to be approved and constructed in advance of any authorized wetland

impacts (under WCA approval) and, therefore, may not require financial assurance. Financial assurance requirements for WCA would be determined during permitting.

Section 401 of the CWA requires the MPCA to certify that all projects that receive a federal license or permit are in compliance with state and federal water quality guidelines. Therefore, as part of their review, the MPCA conducts a separate review for compliance with water quality standards and policies and guidelines, which includes mitigation for wetland impacts and approval of the wetland replacement ratios. This review process must be completed before the DA permit pursuant to Section 404 of the CWA can be issued.

Summary of Mitigation Requirements

PolyMet would ultimately need to satisfy both the federal and state mitigation requirements. The number of mitigation credits to be earned by replacement wetlands would be determined during permitting by the appropriate agencies reviewing the wetland mitigation plan. This would be based on the extent to which the sites meet the target goals established during permitting. These include, among other things, restoration of wetland appropriate hydrology and the establishment of a target plant community or type. The NorthMet Project Proposed Action is estimated to directly impact 913.8 acres. Depending on the location, type, and timing of compensatory mitigation, the minimum required amount of replacement wetlands for direct impacts, based upon USEPA recommendations, could potentially range from 913.8 acres up to 1,827.6 acres (i.e., 1:1 up to 2:1 compensation ratios).

The USACE has concluded that the mitigation sites selected and the wetland credits generated at the three mitigation sites would be acceptable for use in compensating for direct wetland losses. The USACE has not made a final decision on the mitigation ratios that would be required to compensate for direct wetland impacts; if fully successful, it is likely these three mitigation sites would generate sufficient credits to compensate for the 940.7 acres of wetlands directly impacted. In the event that not all of the credits generated by these sites are utilized to compensate for direct wetland impacts, any excess credits could be used to compensate for indirect losses (USACE 2015a). The current proposed mitigation presented below shows that PolyMet could have an excess of mitigation credits from the three mitigation sites if the mitigation sites are successful and meet the performance standards. However, it is understood that mitigation sites sometimes are not fully successful; contingency plans (discussed below) would be developed for the NorthMet Project Proposed Action and approved during permitting. In the event that additional wetland mitigation is required for direct impacts, it would be consistent with current USACE guidelines which include a watershed approach. The USACE encourages the development of mitigation for foreseeable indirect effects, and PolyMet is exploring mitigation options for indirect effects.

Financial assurance for the direct wetland impact mitigation would be required until success of the mitigation sites can be assured. While this wetland mitigation is expected to be approved and constructed in advance of any authorized wetland impacts, it is unclear whether these sites would be well enough established for financial assurances to be waived. The USACE would also consider the application of financial assurances for potential indirect wetland effects and monitoring. Both the USACE and state would require consideration of financial assurances during the permitting process.

Wetland mitigation for potential indirect wetland effects would be determined by the agencies during permitting. If the NorthMet Project Proposed Action were to be permitted and constructed, wetland monitoring would be conducted to determine if the NorthMet Project Proposed Action caused future indirect wetland effects. PolyMet is exploring mitigation options for indirect effects. Wetlands hydrology and vegetation would be monitored, and additional monitoring locations may be considered during permitting. A component of the monitoring plan would be based on those wetlands that have a high likelihood of indirect effects as a result of groundwater drawdown. If the monitoring determined that indirect wetland effects had occurred, additional compensation may be required if determined necessary based on the monitoring results. In the event that the required wetland monitoring identified additional indirect effects, permit conditions would likely include a plan for adaptive management practices to be implemented, such as expanded monitoring and hydrologic controls. Additionally, compensatory mitigation may be required if additional impacts are identified during annual reporting.

Wetland Mitigation Study Limits

The NorthMet Project area lies in St. Louis County in the St. Louis River Watershed (#3) within the Lake Superior basin (wetland mitigation Bank Service Area #1). Locations for wetland mitigation projects were evaluated in the following priority order:

- On-site;
- Off-site in the St. Louis River Watershed (same 8-digit HUC);
- Off-site in the Great Lakes Basin (same 4-digit HUC); and
- Off-site in an adjacent 4-digit HUC, selecting an 8-digit HUC as close as possible to the impacted site.

Each of these potential locations areas is described below.

On-site Mitigation

In accordance with the USACE's St. Paul District Compensatory Wetland Mitigation Policy (USACE 2009) and state guidelines, the potential for creating wetlands on-site was considered first. The Wetland Management Plan (PolyMet 2015c) identified the potential for on-site restoration during reclamation. On-site wetland restoration (101.8 acres) is planned in the following areas: temporary Category 2/3 Stockpile, Overburden Storage and Laydown Area, some haul roads and adjacent ditches, and WWTF ponds and process water ponds. Establishment of on-site wetlands is expected to occur during reclamation. Of the 101.8 acres of planned on-site wetland restoration, 72 acres of wetlands may be created at the temporary mine stockpile areas after removal of the Category 2/3 Stockpile and the Overburden Storage and Laydown Area. The remaining acres of wetland restoration would be within the other above mentioned Project areas. Design of wetland restoration areas would be further evaluated in the detailed reclamation design and would include the preservation of upland buffer around the perimeter of the wetland restoration areas. The establishment of the estimated 101.8 acres of on-site wetland restoration is not included in the mitigation credits. The generation of wetland credits in these areas has the potential to be used on a contingency basis, but compensatory credit would not be considered at this time for a variety of reasons, including the fact that any restoration efforts would not occur for many years.

Off-site Mitigation

The initial wetland mitigation study scope focused on the areas containing greater than 80 percent of their historic wetland resources as defined in the WCA. This area was selected as the initial study area to comprehensively cover the priority mitigation areas, with the understanding that suitable opportunities may not be available within each priority area.

Available wetland mitigation banking credits that were available for purchase by PolyMet were evaluated in portions of bank service areas 1 through 6 and found to be insufficient to satisfy the compensatory mitigation requirements for the NorthMet Project Proposed Action. Subsequently, a GIS analysis was performed to identify potential wetland mitigation sites within the defined study area. The primary goal of the analysis was to identify large, potentially drained wetlands located primarily on private or tax-forfeit land within the study area to provide preliminary data for more detailed ground investigations to proceed. To achieve the goal of the mitigation plan, which is to replace lost wetland functions using compensatory wetland types in-kind to the degree practicable, areas where drained wetlands could be restored were preferable over areas where wetlands could be created (Barr 2008m). Other siting criteria used in the GIS analysis included potential wetland enhancement areas, potential wetland preservation areas, and potential wetland creation areas (Barr 2008m). Sites were identified by overlaying and evaluating numerous existing spatial data sources to locate those sites with the greatest mitigation potential. Some of the data sources utilized included the following:

- Geomorphology/soil types (Loesch 1997);
- Land ownership (separated by county/state/federal and private ownership) (MLMIC 1983);
- Land slope/Digital Elevation Model (MLMIC 1999);
- Streams/ditches (MDNR 1980);
- Major watersheds; and
- Land cover (Loesch 1998).

The analysis was conducted by establishing specific filtering criteria to identify potential wetland mitigation sites. The general filtering criteria included the following:

- Land slopes of less than or equal to 1 percent slope;
- Areas mapped as peat or lacustrine geomorphology;
- Private or county tax-forfeit property;
- Areas within 1.1 miles of a ditch; and
- Areas meeting all of the above criteria with at least 100 contiguous acres.

The analysis was limited to sites with more than 100 acres of wetland mitigation potential due to the anticipated difficulties in planning numerous, small wetland mitigation projects, and the desire to identify opportunities that were feasible. In addition, the NorthMet Project Proposed Action represented an opportunity to restore large wetland systems and provide greater public and ecological benefit that are typically not available with smaller projects.

This GIS analysis resulted in the development of a polygon data layer, which contained nearly 900 areas with potential for mitigation in the study area. This analysis resulted in several findings.

First, a large proportion of the study area was in state and federal ownership. Discussions with the various state and federal entities regarding wetland mitigation on their respective properties resulted in the following conclusions:

- The USFS was unable to provide assurances that they would be able to protect restored wetlands on federal lands in perpetuity as required by wetland regulations.
- The State of Minnesota provided general criteria for restoring wetlands on state lands. The criteria required either a justification for how revenue production (i.e., peat mining, forest harvest) would not be affected or provide land in exchange that had a comparable value. PolyMet determined that these were not acceptable criteria and the state provided no certainty that the NorthMet Project Proposed Action would be viable if PolyMet expended 1 to 2 years of effort to meet the imposed criteria. This conclusion was supported in part by an effort to restore wetlands on Site 8362, a partially state-owned site, as discussed below.
- The Board of Water and Soil Resources has oversight regarding the administration of the Minnesota WCA. The Board of Water and Soil Resources provides guidance and interpretation of the WCA rules and has the most extensive experience with application of the rules. The Board of Water and Soil Resources' experience with wetland restoration on tribal lands found that impressing permanent conservation easements granted to the state was not possible to protect the restored wetlands.
- PolyMet had a signed agreement with St. Louis County near Floodwood to restore wetlands as mitigation (see discussion on Site 8362 below) for the NorthMet Project Proposed Action. The agreement was nullified by the state courts. In addition, legal proceedings through the state legislature and state court would have been required for ditch abandonment and for placement of a conservation easement on the land.

Therefore, it was determined that, because of these uncertainties and risks, mitigation on state and federal lands represented a minimal potential for a private enterprise to conduct compensatory wetland mitigation on these lands.

Second, many of the wetland systems within the study area have not been affected by historic drainage or other significant alteration. In areas lacking significant alterations, wetland preservation and establishment of upland buffers constitute the primary methods to generate wetland compensation credits within the study area. Wetlands that meet the criteria for wetland restoration credits include completely drained wetlands, partially drained wetlands, and wetlands with at least a 20-year history of agricultural production (Barr 2008m).

Third, much of the study area was characterized by surface geology that is not indicative of large wetland systems prone to easy drainage. The majority of the Arrowhead region, including Cook, Lake, and much of St. Louis counties, is mapped with surface geology typified by steep, igneous bedrock terrains; rolling surficial deposit plains; and rolling to undulating areas of supraglacial drift (Loesch 1997). These geomorphological associations are also typically associated with steeper land slopes containing few drained or sufficiently altered wetlands.

Opportunities exist for accomplishing the preferred method of wetland compensation—restoration—within the St. Louis River Watershed and northeastern Minnesota in general. Tens of thousands of acres of peatlands are adversely affected by ditch systems. Specific to the St. Louis River Watershed, hundreds of acres of ditched, hydric soils in agricultural use exist in the central portion of the watershed. A determination by the USACE as to the practicality of wetland restoration within one or more of these sites has not been completed. The wetland mitigation opportunities were determined to not be feasible or prudent for one or more of the following different factors: private property, public roads, and active gravel operations that could be hydrologically impacted by wetland restoration; insufficient wetland drainage; insufficient agricultural history; existing public ditches that could not be abandoned; potentially contaminated soils; unwilling landowners; considerable existing upstream drainage through the site; active pursuit of the properties by others; and/or presence of severed mineral rights on many of the lands (Barr 2008m).

St. Louis River Watershed (Same 8-digit HUC)

Approximately 101 potential wetland mitigation areas were identified within the St. Louis River Watershed and other watersheds tributary to Lake Superior. The specific areas identified as having potential for wetland restoration were evaluated in more detail by reviewing NWI maps, plat maps, recent aerial photographs, and USGS topography to find the sites with the highest potential.

The sites with the highest potential were further evaluated by conducting site visits and meetings with various regulatory agencies. The majority of these potential mitigation sites, however, were eliminated from further consideration due to issues that included: lack of wetland drainage or altered land uses that would qualify as wetland restoration or enhancement (e.g., unaltered sites can qualify for regulatory compensation credits such as wetland preservation and upland buffers); infeasibility of planning numerous small projects; potential flooding of private property, roads, or other infrastructure; upstream ditch drainage through the potential wetland restoration areas that would have to be maintained; potential soil contamination; regulatory applicability; complex land ownership; existing peat mining operations; and legal considerations.

For purposes of the CWA regulatory program, the term *highest potential* is not the applicable standard for evaluating compensatory mitigation. Rather, *practicable* is the standard used in conjunction with the fundamental goal of compensatory mitigation: replace lost wetland functions, in-kind and in-place, to the extent practicable. Potential compensation sites are not limited to those that are least difficult and/or least expensive. Sites that have some greater difficulty and/or cost may be practicable, particularly if they are the only sites that would meet the fundamental goal of compensatory mitigation.

The area around Meadowlands and Floodwood appeared to have the most suitable characteristics. Two contiguous areas in this region, covering approximately 270 square miles, were mapped as level peat. The one site found to be initially feasible was designated as Site 8362. Site 8362 was located within the same watershed as the NorthMet Project area, had the greatest potential for wetland restoration with limited peripheral issues, and contained the potential to restore bog wetlands similar to those proposed for effect. Thus, Site 8362 was initially selected for further study and PolyMet signed an agreement with St. Louis County. Approximately 640 acres of the site are owned by the State of Minnesota with the remainder

designated as tax-forfeit land. Further pursuit of wetland restoration activities at Site 8362 was halted for a number of reasons that rendered the site impracticable, including the following:

- The district court nullified PolyMet's agreement with St. Louis County in April 2007, thereby not allowing any further study of the site.
- There was a lack of local support, and there was, in fact, broad opposition from local residents.
- Extensive hydrologic monitoring and evaluation was required to document the degree of drainage at the site to support the proposed mitigation credits. This would have required long-term monitoring to adequately demonstrate the drainage and there was uncertainty regarding the outcome of such monitoring. Such monitoring activities were no longer allowed after April 2007 due to the district court action.
- Preservation credits would only be allowed where there was a demonstrable threat that could be eliminated (i.e., peat mining, tree-topping, or all-terrain vehicle activity). There are only about 400 acres of documented minable peat and the County had indicated they were unlikely to agree to limit tree-topping activities. Therefore, the ability to show a demonstrable threat that would meet regulatory criteria appeared unlikely.
- Even if the agreement with the county was reestablished, that agreement would have required ditch-abandonment proceedings in district court with public hearings that would have likely been opposed by local residents.
- The agreement with the County (if it were to be reinstated) would have also required receiving legislative authorization to place a permanent conservation easement over the restoration area. The likelihood of that was uncertain.

One additional wetland restoration area has been further identified since the DEIS within the NorthMet Project area watershed. The Zim Sod (Zim) wetland mitigation site is located in St. Louis County in the St. Louis River major watershed (#3), within the Lake Superior basin (bank service area #1) (see Figure 5.2.3-30).

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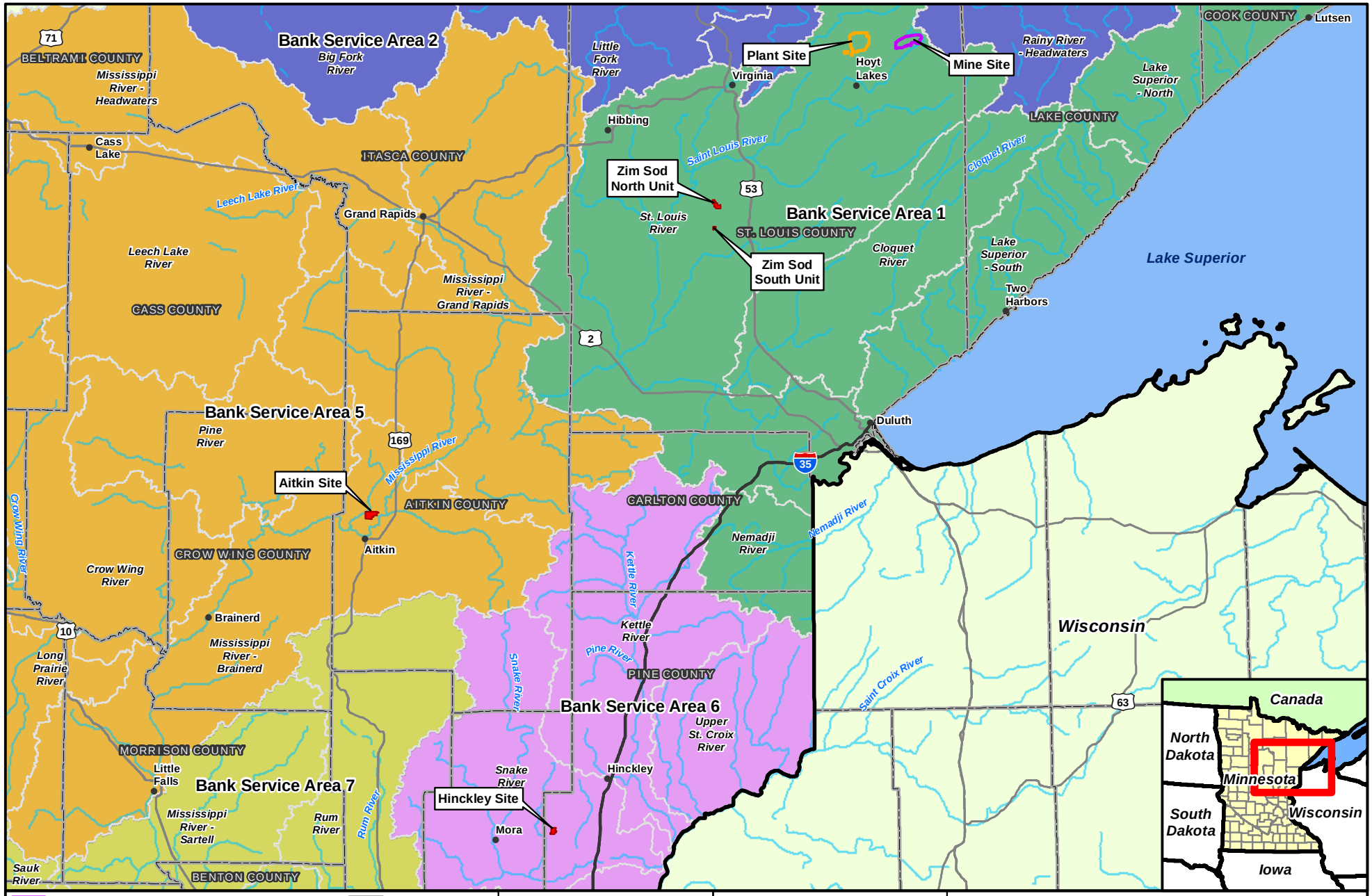

Figure 5.2.3-30
Wetland Mitigation Site Locations
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Great Lakes Basin (Same 4-digit HUC)

With Site 8362 no longer a feasible mitigation option, pursuit of the high-priority sites identified in watersheds adjacent to the St. Louis River Watershed was initiated along with the continued search for existing bank credits, wetland banks in various stages of planning, and various other potential wetland mitigation opportunities located in central and northwestern parts of Minnesota.

Fifteen sites were determined to have high potential for wetland mitigation in watersheds located adjacent to the St. Louis River Watershed. Of these, 10 sites were evaluated in the Mississippi River-Grand Rapids Watershed, three sites were evaluated in the Kettle River Watershed, and two sites were evaluated in the Nemadji River Watershed. After further study, these sites were eliminated from further consideration due to issues that included: lack of wetland drainage or altered land uses that would fit the regulatory requirements for restoration credit; potential flooding of roads or other infrastructure; upstream ditch drainage through the wetland that would have to be maintained; complex land ownership; existing peat mining operations; and legal considerations.

Adjacent 4-digit HUC, Selecting an 8-digit HUC as Close as Possible to the Impacted Site

Ten potential wetland mitigation sites, initially determined to have some potential, were located in watersheds neighboring the watersheds adjacent to the St. Louis River. These sites were evaluated to determine the relative potential for mitigation, the level of risk and uncertainty, and the likely costs. These sites were primarily located in Aitkin County.

Eight of these 10 sites were eliminated from further consideration due to issues that included unwilling landowners, significant private properties that would be hydrologically affected by wetland restoration, insufficient agricultural history, insufficient wetland drainage to qualify for restoration credit, considerable existing upstream drainage through the site, or active pursuit of the properties by others. Two priority properties were identified with willing landowners that had the potential to accomplish compensatory wetland mitigation for nearly the entire NorthMet Project area. These sites are located in watersheds neighboring those adjacent to the St. Louis River and outside the 1854 Ceded Territory. These two sites included the Aitkin mitigation site (Aitkin) and the Hinckley mitigation site (Hinckley). The Aitkin and Hinckley sites are located within the Mississippi River Basin (4-digit HUC) and 8-digit HUC watersheds of Elk-Nokasippi #10 and Snake River #36, respectively (see Figure 5.2.3-30). The Aitkin Site is located in Aitkin County in bank service area #5 and the Hinckley Site is located in Pine County in bank service area #6 (see Figure 5.2.3-30). USACE St. Paul wetland compensatory mitigation replacement ratios are based on three factors: in-place versus out-of-place, in-kind versus out-of-kind, and in-advance versus not in-advance (see Table 5.2.3-16). As previously stated, the USACE St. Paul District and the state have not made a final determination of the compensation ratios that would be required for the NorthMet Project Proposed Action. Base compensation ratios for USACE would be either 2:1 or 1.5:1 and for the state 1.5:1 or 1:1 depending on the location, quality of the wetland, wetland type, and timeframe of the compensation. The final decision on compensatory mitigation ratios would be determined during permitting.

Off-site Wetland Restoration Projects

The off-site wetland restoration projects, as defined in the Wetland Management Plan (PolyMet 2015c), that would provide required mitigation for the NorthMet Project Proposed Action wetland impacts include Hinckley, Aitkin, and the Zim wetland mitigation sites (see Figure 5.2.3-30). As previously noted, the Zim site is located within the NorthMet Project area 8-digit HUC watershed, whereas Aitkin and Hinckley are located outside the 8-digit HUC watershed area. The mitigation would be considered in advance if the initial phases of restoration on all of the proposed off-site wetland mitigation sites would be completed at least one full growing season in advance of the authorized wetland impacts provided initial performance standards are met for which the mitigation would compensate.

The proposed mitigation is expected to compensate for all the direct wetland impacts, as well as the indirect fragmentation impacts—a total of 940.7 acres (see Tables 5.2.3-18 and 5.2.3-19). The majority of the credits would be in-kind mitigation and nearly one-third of the credits would be from within the NorthMet Project area watershed (see Tables 5.23-17, 5.2.3-18, 5.2.3-19). Based on PolyMet's current mitigation proposal and assuming the mitigation efforts are fully successful and target communities are established, 83 percent of the impacts to coniferous bogs would be mitigated by in-kind and in-place credits, or 439.9 coniferous bog credits; the remaining 17 percent would be replaced out-of-kind. Out-of-kind credits would be used to mitigate impacts on wet meadow, shallow marsh, deep marsh, open bog, and coniferous bog communities; these would not be replaced in-kind because of hydrological and ecological constraints at the proposed mitigation sites. Forty-seven percent of the wetland impacts are currently proposed to be replaced in-kind, in-place, and before the impacts occur on site. An additional 29 percent of the proposed impacts are proposed to be replaced in-kind and before the impacts occur on site. Most of the additional mitigation credits that are proposed outside of the watershed would fulfill mitigation requirements above the minimum 1:1 ratio.

Mitigation credits assumed for calculations include 100 percent credit for restoration of drained/farmed wetlands, 75 percent credit for creation of on-site wetlands, 50 percent credit for partially drained wetlands and ditches, 25 percent credit for upland buffer, and 12.5 percent credit for preservation. The final mitigation credits required to offset the impacts of the proposed NorthMet Project Proposed Action would be determined by the agencies during wetland permitting. The amount of credit generated by the mitigation sites would ultimately be determined by the permitting agencies. This would be based on the extent to which the sites meet the target goals established during permitting. These include, among other things, restoration of wetland appropriate hydrology and the establishment of a target plant community or type.

Aitkin Site

The Aitkin Site is currently an active sod farm that has been drained by ditches and subsurface drain tiles. The overall objective of the restoration plan is to restore the hydrology by removal of the internal drainage system and the construction of outlets that regulate the required hydrological conditions (Barr 2008m). The site has also been used for sod, wheat, soybeans, sunflowers, and wild rice production. The 1,070-acre site is located north of the city of Aitkin, Minnesota, in Aitkin County. The site is in the Elk-Nokasippi major watershed within bank service area #5, adjacent to bank service area #1 where the NorthMet Project area would be located.

The site is located outside of the NorthMet Project area watershed. The proposed wetland mitigation area includes 808.3 acres of wetland restoration and 83.2 acres of upland buffer preservation. Restoration methods on the site are designed to restore the following wetland types: Type 3 (shallow marsh), Type 6 (shrub-carr), Type 7 (hardwood swamp), and Type 7 (coniferous swamp).

Hydrology monitoring at the Aitkin Site began in 2012, as well as at a reference wetland site, to characterize the pre-restoration hydrology, and continued in 2013 and 2014 (PolyMet 2015c). Based on the 3 years of monitoring data at the Aitkin Site, monitoring indicates that the majority of the site no longer has wetland hydrology. Results of 2014 monitoring were submitted to the USACE and the MDNR in 2015 (Barr 2015k). Concurrence of the monitoring results will be conducted by permitting agencies during the permitting process (PolyMet 2015c).The state and federal agencies have not yet made a determination on the drainage status of the mitigation site (i.e., drained, partially drained, etc.); this determination will be made during permitting, including credit ratios.

The minimum replacement ratio that would be allowed by the USACE is 1:1 (USACE 2009) for those wetlands that would be replaced with the same wetland type, and at least one full growing season in advance of the authorized wetland impacts provided initial performance standards are met; however, base compensation ratios for impacts on high-quality, difficult-to-replace bog and forested wetlands would be increased to 2:1 (USACE 2013). For impacts on low- and moderate-quality wetlands, a base ratio of 1.5:1 would be applied (USACE 2013). In-kind, in-place, and in-advance incentives to reduce the recommended base ratios would be considered at the time of permitting (see Tables 5.2.3-17 and 5.2.3-18). Compensation proposed at the Aitkin Site would be expected to meet in-kind compensation, resulting in a compensation ratio for high-quality wetland impacts of 1.75:1, and if in advance, the ratio would be reduced to 1.5:1. For low- to moderate-quality wetlands, the recommended base ratio of 1.5:1 would be required and could be reduced to 1.25:1 if in-kind and 1:1 if also in-advance. Under the Minnesota WCA, the replacement ratio that would likely be required is 1.5:1, because the Aitkin Site wetlands are out of the NorthMet Project area watershed (see Tables 5.2.3-17 and 5.2.3-19).

The site-specific mitigation design proposed by PolyMet includes the following methods of restoration to receive wetland mitigation credits, which would be reviewed and approved determined during permitting:

- Restoration of effectively drained wetland (restoration via reestablishment) on 758.3 acres for 100 percent mitigation credit or 758.3 credits;
- Hydrologic restoration of 50.1 acres of partially drained wetland (restoration via rehabilitation) to receive 50 percent credit or 25.0 credits; and
- Restoration of native vegetation on 83.2 acres of uplands and filled ditches, for 20.8 credits based on the 25 percent credit calculation for upland buffer.

The vegetation and hydrology would likely be restored to the site over a 1- to 2-year construction period, followed by up to 20 years of management, or more if warranted. The restoration work is expected to begin on the site after permit approval such that the initial phases of the restoration would be completed more than one full growing season before the impacts from the NorthMet Project Proposed Action would occur (PolyMet 2013o). Performance standards have been developed for the mitigation site to guide the restoration activities and to monitor whether

vegetation and hydrology are meeting the design goals. To protect the site, a permanent conservation easement or deed recording would be prepared and recorded at approval of permit or prior to impact, as required by the permitting agency. The wetland restoration area would be monitored for up to 20 years beginning in the first full growing season after completing hydrologic restoration and ending upon certification by the USACE and MDNR that the wetlands have met performance standards (PolyMet 2013o; PolyMet 2015c).

The objective of the wetland restoration is to restore hydrology within the site by removing the internal drainage system and constructing outlets to establish specific hydrologic conditions that would meet the goals and performance standards established for the site and approved by the appropriate agencies. The hydrology would be restored utilizing broad, rock-lined weirs, and eliminating culverts with the exception of the culverts in a couple of locations. Once hydrology restoration has been achieved, an adaptive management program is proposed to guide development of the restored wetlands to achieve the targeted conditions. The vegetative restoration of the herbaceous layer in each wetland community would be conducted to promote the establishment of characteristic native species that are present in the seed bank or that may be transported to the area from adjacent wetlands. The goal of the restoration is to provide a setting and conditions in which the restoration areas would be restored to naturally self-sustaining and functioning wetlands to the extent feasible. The proposed wetland communities have been planned in areas that appear to match the natural hydrologic characteristics of each community type. However, during the restoration process, it is expected that the defined areas and wetland communities may change to some degree and the plan would allow for adaptation to the conditions. The overall plan for the Aitkin Site includes the following components: general site preparation, natural regeneration in all proposed communities, seeding/planting of shallow marsh and shrub-carr communities, planting hardwood swamp community, seeding/planting of coniferous swamp communities, and upland area establishment. General site preparation would be prior to or concurrent with hydrological restoration activities. Existing, non-native, and invasive vegetation would be removed through mechanical means or herbicide application. Diverse, native wetland vegetation is expected to develop in the restoration wetlands from the existing seed bank and from the wetland vegetation that surrounds the wetland restoration site through vegetative propagation and seed dispersal mechanisms. At the end of the second growing season these areas would be assessed to determine if additional seeding is required. These areas include shallow marsh, emergent fringes, and shrub-carr.

Hardwood swamp communities would require planting of trees in the spring of the second or third year after construction, depending on the success of herbaceous species establishment, the presence of invasive species, and the stability of the hydrology. Coniferous swamp communities would be established initially by direct-seeding tamarack in the spring.

Vegetation in the existing upland areas would be managed to promote natural succession of the existing plant communities. The primary maintenance activity would be control of non-native invasive species and seeding to develop diverse, native communities.

Hinckley Site

The Hinckley Site currently has about 375 acres under agricultural production and has been drained by ditches and sub-surface drain tiles. This 511-acre site is located southwest of the city of Hinckley, Minnesota at the intersection of Sod Road and Highway 107. The mitigation site is located in Pine County in the Snake River major watershed (#36) within bank service area #6,

adjacent to bank service area #1 where the NorthMet Project area is located. The overall objective of the Hinckley restoration plan is to restore the hydrologic connection between upstream watersheds and the restoration site and to disable the internal drainage system on-site. The restoration process would start with activities to restore site hydrology (Barr 2008m).

The site is located outside of the NorthMet Project area watershed. The proposed wetland mitigation area includes 286.2 acres of wetland restoration and 91.2 acres of upland buffer preservation. Restoration methods on the site are designed to restore the following wetland types: Type 2 (fresh wet meadow), Type 2 (sedge meadow), Type 6 (shrub-carr), Type 6 (alder thicket), and Type 7 (hardwood swamp).

Hydrology monitoring at the Hinckley Site began in 2014, as well as at two reference wetland sites, to characterize the pre-restoration hydrology (PolyMet 2015c). The monitoring locations did not meet the minimum criteria for wetland hydrology in 2014. Results of 2014 monitoring were submitted to the USACE and the MDNR in 2015 (Barr 2015l). Concurrence of the monitoring results will be conducted by permitting agencies during the permitting process (PolyMet 2015c). The state and federal agencies have not yet made a determination on the drainage status of the mitigation site (i.e., drained, partially drained, etc.); this determination will be made during permitting, including credit ratios.

The minimum replacement ratio that would be allowed by the USACE is 1:1 (USACE 2009) for those wetlands that are replaced with the same wetland type, and at least one full growing season in advance of the authorized wetland impacts provided initial performance standards are met; however, base compensation ratios for impacts on high-quality, difficult-to-replace bog and forested wetlands would be increased to 2:1 (USACE 2013). For impacts on low- and moderate-quality wetlands, a base ratio of 1.5:1 would be applied (USACE 2013). In-kind, in-place, and in-advance incentives to reduce the recommended base ratios would be considered at the time of permitting (see Table 5.2.3-17 and Table 5.2.3-18). Compensation proposed at the Hinckley Site would be expected to meet the in-kind incentive, resulting in a compensation ratio for high-quality wetland impacts of 1.75:1, and if in-advance, the ratio would be reduced to 1.5:1. For low- to moderate-quality wetlands, the recommended base ratio of 1.5:1 would be required and could be reduced to 1.25:1 if in-kind and 1:1 if also in-advance. Under the Minnesota WCA, the replacement ratio that would likely be required is 1.5:1, because the Hinckley Site wetlands are out of the NorthMet Project area watershed (see Tables 5.2.3-17 and 5.2.3-19).

The site-specific mitigation design proposed by PolyMet includes the following methods of restoration to receive wetland mitigation credits, which would be reviewed and approved determined during permitting:

- Restoration of effectively drained wetlands (restoration via reestablishment) on 277.4 acres for 100 percent mitigation credit or 277.4 credits;
- Hydrologic restoration of 8.7 acres of partially drained wetlands (restoration via rehabilitation) to receive 50 percent credit or 4.4 credits; and
- Restoration of native vegetation on 91.2 acres of uplands and filled ditches, for 22.8 credits based on the 25 percent credit calculation for upland buffer.

The vegetation and hydrology would likely be restored to the site over a 1- to 2-year construction period, followed by up to 20 years of management or more, if warranted. The restoration work is expected to begin on the site after permit approval such that the initial phases of the restoration

would be completed more than one full growing season before the impacts of the NorthMet Project Proposed Action would occur (PolyMet 2013o). Performance standards have been developed for the mitigation site to guide the restoration activities and to monitor whether vegetation and hydrology are meeting the design goals. To protect the site, a permanent conservation easement or deed recording would be prepared and recorded at the time of permit approval or prior to impact, as required by the permitting agency. The wetland restoration area would be monitored for up to 20 years beginning in the first full growing season after completing hydrologic restoration and ending upon certification by the USACE and MDNR that the wetlands have met performance standards (PolyMet 2013o; PolyMet 2015c).

The objective of the wetland restoration is to restore the hydrologic connection between the upstream watersheds and the site and disable the internal drainage system within the site. The hydrology would be restored by filling ditches and utilizing broad, rock-lined overflow weirs, and eliminating culverts where possible to establish specific hydrologic conditions that would meet the goals and performance standards established for the site and approved by the appropriate agencies. Once hydrology restoration has been achieved, an adaptive management program is proposed to guide development of the restored wetlands to achieve the targeted conditions.

The vegetative restoration of the herbaceous layer in each wetland community would be conducted to promote the establishment of characteristic native species that are present in the seed bank or that may be transported to the area from adjacent wetlands. The goal of the restoration is to provide a setting and conditions in which the restoration areas would be restored to naturally self-sustaining and functioning wetlands, to the extent feasible. The proposed wetland communities have been planned in areas that appear to match the natural hydrologic characteristics of each community type. However, during the restoration process, it is expected that the defined areas and wetland communities may change to some degree and the plan would allow for adaptation to the conditions.

The overall plan for the Hinckley Site includes the following components: general site preparation, natural regeneration in all proposed communities, seeding/planting of sedge/wet meadow and shrub-carr/alder-thicket communities, management of the existing hardwood swamp community, and upland area management. General site preparation would be prior to or concurrent with hydrological restoration activities. Existing, non-native, and invasive vegetation would be removed through mechanical means or herbicide application. Diverse, native wetland vegetation is expected to develop in the restoration wetlands from the existing seed bank and from the wetland vegetation that surrounds the wetland restoration site through vegetative propagation and seed dispersal mechanisms. At the end of the second growing season, these areas would be assessed to determine if additional seeding is required. These areas include sedge and wet meadows and shrub-carr/alder thickets.

The existing hardwood swamp would be managed to minimize the prevalence of non-native, invasive species; however, it is not anticipated that active seeding and planting would be required.

Vegetation in the existing upland areas would be managed to promote natural succession of the existing plant communities. The primary maintenance activity would be control of non-native invasive species such as buckthorn, honeysuckle, reed canary grass, and garlic mustard.

Zim Site

The Zim Site is currently an active sod farm that has been drained by ditches and sub-surface drain tiles. This site is located in two separate units (north and south) on approximately 569 acres of land located southwest of the city of Eveleth, Minnesota. The site is located in St. Louis County in the St. Louis River major watershed (#3), within the Lake Superior basin (bank service area #1). The overall objective of the Zim restoration plan is to restore a native wetland plant community.

The site is located within the NorthMet Project area watershed. The proposed wetland mitigation area includes 508.2 acres of wetland restoration and preservation, and 22.7 acres of upland buffer preservation. Restoration methods on the site would be designed to restore a (Type 8) coniferous bog community; however, developing a bog community is highly dependent on soil and groundwater parameters that are difficult to control. Therefore, a coniferous swamp community would be the contingent community if the soil and groundwater conditions are not adequate for bog regeneration. Coniferous bog or swamp is the target for the whole site; however, where trees do not successfully establish, the target community would be a shallow, open water wetland. If the target community changes, the credit ratios would be recalculated and would be determined during the permitting process.

Hydrology monitoring at the Zim Site, as well as at a reference wetland site, began in 2012 to characterize the pre-restoration hydrology, and continued in 2013 and 2014 (PolyMet 2015c). Based on 3 years of monitoring data at the Zim Site, the sod fields on the site no longer have wetland hydrology. Three of the forested locations on the Zim Site exhibit hydrology representative of partially drained wetlands, and one of the forested monitoring locations does not have wetland hydrology. Results of 2014 monitoring were submitted to the USACE and the MDNR in 2015 (Barr 2015m). Concurrence of the monitoring results will be conducted by permitting agencies during the permitting process (PolyMet 2015c). The state and federal agencies have not yet made a determination on the drainage status of the mitigation site (i.e., drained, partially drained, etc.); this determination, including the determination of credit ratios, will be made during permitting.

The minimum replacement ratio that would be allowed by the USACE is 1:1 (USACE 2009) for those wetlands that are replaced with either the same wetland type, or at least one full growing season in advance of the authorized wetland impacts provided initial performance standards are met; however, base compensation ratios for impacts on high-quality, difficult-to-replace bog and forested wetlands would be increased to 2:1 (USACE 2013). For impacts on low- and moderate-quality wetlands, a base ratio of 1.5:1 would be applied (USACE 2013). In-kind, in-place, and in-advance incentives to reduce the recommended base ratios would be considered at the time of permitting (see Tables 5.2.3-17 and 5.2.3-18). Compensation proposed at the Zim Site would be expected to meet both in-kind and in-place incentives, thereby reducing the compensation ratio for high-quality wetland impacts from 2:1 to 1.5:1. If in-advance, the ratio would be further reduced to 1.25:1. For low- to moderate-quality wetlands, the recommended base ratio of 1.5:1 would be required and could be reduced to 1.25:1 if in-place and 1:1 if also in-advance or in-kind. Under the Minnesota WCA, the replacement ratio that would likely be required is 1:1 for those wetlands that are replaced with the same wetland type and in the same watershed (see Tables 5.2.3-17 and 5.2.3-19).

The site-specific mitigation design proposed by PolyMet includes the following methods of restoration to receive wetland mitigation credits, which would be reviewed and approved determined during permitting:

- Restoration of effectively drained wetlands on 401.5 acres for 100 percent mitigation credit or 401.5 credits;
- Restoration of 8.3 acres of excavated ponds for 100 percent mitigation credit or 8.3 credits;
- Hydrologic restoration of 48.1 acres of partially drained wooded wetlands to receive 50 percent credit or 24.1 credits;
- Restoration of natural surface grade and wetland conditions in 21.5 acres of ditches, which would be filled to receive 50 percent credit or 10.7 credits;
- Restoration of native vegetation on 22.7 acres of upland buffers within drained fields and filled ditches, each of which would remain drained due to open ditches that cannot be filled, for 5.7 credits based on the 25 percent credit calculation for upland buffer; and
- Easement protection of 28.8 acres of native coniferous bog communities at 12.5 percent credit for a total of 3.6 credits for preservation.

The vegetation and hydrology would be restored to the site over a 1- to 2-year construction period, followed by up to 20 years of management or more, if warranted. The restoration work is expected to begin on the site after permit approval such that the initial phases of the restoration would be completed more than one full growing season before the impacts of the NorthMet Project Proposed Action would occur (PolyMet 2013o). Performance standards have been developed for the mitigation site to guide the restoration activities and to monitor whether vegetation and hydrology are meeting the design goals (Barr 2011k). To protect the site, a permanent conservation easement or deed recording would be prepared and recorded at approval of permit or prior to impact, as required by the permitting agency. The wetland restoration area would be monitored for up to 20 years beginning in the first full growing season after completing hydrologic restoration and ending upon certification by the USACE and MDNR that the wetlands have met performance standards (PolyMet 2013o; PolyMet 2015c).

The objective of the wetland restoration is to restore hydrology within the site by filling the interior ditches, leveling the raised berms, and disabling drain tiles to establish specific hydrologic conditions that would meet the goals and performance standards established for the site and approved by the appropriate agencies. Once hydrology restoration has been achieved, an adaptive management program is proposed to guide development of the restored wetlands to achieve the targeted conditions. Coniferous bog or swamp communities would be determined using established and approved bog restoration methods. Native, harvested bog material would be spread throughout the site to facilitate the re-introduction of sphagnum mosses and other bog species that cannot be easily re-introduced by seed. Natural regeneration of the herbaceous ground cover, in combination with the addition of bog harvest materials, would be supported by intensive weed management. Tree and shrub seedlings would be installed by hand throughout the site. The site would be carefully monitored and managed, and supplemental plantings and seeding may be used to encourage development until performance standards are met. The overall plan for the Zim Site includes the following components: general site preparation, site grading and hydrology restoration, bog restoration methods, tree and shrub installation, natural regeneration and bog establishment, and supplemental planting and seeding.

Table 5.2.3-17 Summary of Proposed Wetland Mitigation Credits

Community/Credit Type	Wetland Mitigation Within Project Watershed[1]		Wetland Mitigation Outside Project Watershed[1]			Total Wetland Mitigation Acres[1]	Total Wetland Mitigation Credits[1,6]
	Zim Sod (acres)	Total Credits	Aitkin (acres)	Hinckley (acres)	Total Credits		
Off-site Restoration of Effectively Drained Wetlands[2]							
Type 2 Fresh (Wet) Meadow	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Type 2 Sedge Meadow	0.0	0.0	0.0	51.0	51.0	51.0	51.0
Type 3 Shallow Marsh	0.0	0.0	25.7	0.0	25.7	25.7	25.7
Type 4 Deep Marsh	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Type 5 Shallow, Open Water	8.3	8.3	0.0	0.0	0.0	8.3	8.3
Type 6 Shrub-Carr	0.0	0.0	0.0	113.2	113.2	113.2	113.2
Type 6 Alder Thicket	0.0	0.0	0.0	113.2	113.2	113.2	113.2
Type 7 Hardwood Swamp	0.0	0.0	171.0	0.0	171.0	171.0	171.0
Type 7 Coniferous Swamp	0.0	0.0	561.6	0.0	561.6	561.6	561.6
Type 8 Open Bog	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Type 8 Coniferous Bog	401.5	401.5	0.0	0.0	0.0	401.5	401.5
Off-site Restoration of Partially Drained Wetlands and Ditches[3]							
Type 2 Sedge Meadow	0.0	0.0	0.0	0.8	0.4	0.8	0.4
Type 3 Shallow Marsh	0.0	0.0	13.6	0.0	6.8	13.6	6.8
Type 6 Shrub-Carr	0.0	0.0	36.5	0.0	18.2	36.5	18.2
Type 7 Hardwood Swamp	0.0	0.0	0.0	7.9	4.0	7.9	4.0
Type 8 Coniferous Bog	69.6	34.8	0.0	0.0	0.0	69.6	34.8
Off-site Site Preservation[4]							
Type 8 Coniferous Bog	28.8	3.6	0.0	0.0	0.0	28.8	3.6
Off-site Upland Buffer	22.7	5.7	83.2	91.2	43.6	197.0	49.3
On-site Wetland	---	---	---	---	---	---	---
On-site Upland Buffer5	---	---	---	---	---	---	---
Upland Buffer Total[1]	**22.7**	**5.7**	**83.2**	**91.2**	**43.6**	**197.0**	**49.3**
Wetland Total[1]	**508.2**	**448.2**	**808.3**	**286.2**	**1,065.1**	**1,602.7**	**1,513.3**
Total [1]	**530.9**	**453.9**	**891.5**	**377.3**	**1,108.7**	**1,799.7**	**1,562.5**

Source: PolyMet 2015c.

Notes:
[1] Totals may not add exactly due to rounding.
[2] Credits for restoration of completely drained wetlands are worth 100 percent of the acreage restored based on USACE St. Paul District Policy (Restoration via re-establishment) and the Minnesota WCA Chapter 8420.0526, Subpart 3.

[3] Credits for restoration of partially drained wetlands are worth 50 percent of the acreage restored based on USACE St. Paul District Policy (Restoration via rehabilitation) and the Minnesota WCA Chapter 8420.0526, Subpart 4.

[4] Credits for wetland preservation are worth 12.5 percent of the acreage protected under a conservation easement based on USACE St. Paul District Policy (Preservation) and the Minnesota WCA Chapter 8420.0526, Subpart 9 (per *Minnesota Statute* 103G.2251 modified August 1, 2011).

[5] Credits for upland buffers are worth 25 percent of the acreage of native, non-invasive vegetation established or maintained adjacent to the wetland based on USACE St. Paul District Policy (Preservation) and the Minnesota WCA Chapter 8420.0526, Subpart 1.

[6] The determination of final mitigation credits required to offset the impacts of the proposed NorthMet Project Proposed Action would be determined by the agencies during wetland permitting. This would be based on the extent to which the sites meet the target goals established during permitting. These include, among other things, restoration of wetland appropriate hydrology and the establishment of a target plant community or type.

Table 5.2.3-18 Summary of Proposed Wetland Mitigation for Direct Impacts Utilizing USACE Credits

Wetland or Credit Type	Mitigation Credits Available[1]				NorthMet Project Proposed Action Direct Wetland Impacts in Acres[1,2]			Total Credits Required for Mitigation at Base Ratio[1,9]	No More Than 2 Apply[9]			Total Applied Mitigation Credits[1,6,7,9]	Applied Mitigation Ratio[8,9]
	Zim Sod	Aitkin	Hinckley	Total Mitigation Credits Available	Non-Forested, Non-Bog, and Low or Medium Quality Wetland (Base Ratio 1.5:1)[3]	Bogs, Forested, and High Quality Wetland (Base Ratio 2:1)[4]	Total Impact Acres		Incentive for Credits In-Kind -0.25:1	Incentive for Credits In-Place -0.25:1	Incentive for Credits In-Advance[5] -0.25:1		
Type 2 Fresh (Wet) Meadow	0.0	0.0	0.0	**0.0**	1.4	14.4	15.8	30.9	---	---	---	**30.9**	1.69
Type 2 Sedge Meadow	0.0	0.0	51.4	**51.4**	6.9	17.1	23.9	44.4	(6.0)	---	---	**38.4**	1.61
Type 3 Shallow Marsh	0.0	32.5	0.0	**32.5**	53.1	23.9	77.0	127.5	(8.1)	---	(8.1)	**111.3**	1.44
Type 4 Deep Marsh	0.0	0.0	0.0	**0.0**	74.2	0.1	74.3	111.5	---	---	---	**111.5**	1.50
Type 5 Shallow, Open Water	8.3	0.0	0.0	**8.3**	0.0	0.0	0.0	0.0	---	---	---	**0.0**	---
Type 6 Shrub-Carr	0.0	18.2	113.2	**131.5**	1.4	2.5	3.9	7.1	(1.0)	---	---	**6.1**	1.57
Type 6 Alder Thicket	0.0	0.0	113.2	**113.2**	7.5	103.1	110.6	217.4	(27.6)	---	---	**189.8**	1.72
Type 7 Hardwood Swamp	0.0	171.0	4.0	**175.0**	0.7	12.5	13.2	26.0	(3.3)	---	---	**22.7**	1.72
Type 7 Coniferous Swamp	0.0	561.6	0.0	**561.6**	0.0	84.4	84.4	168.9	(21.1)	---	---	**147.8**	1.75
Type 8 Open Bog	0.0	0.0	0.0	**0.0**	0.0	7.6	7.6	15.3	---	---	---	**15.3**	2.00
Type 8 Coniferous Bog	439.9	0.0	0.0	**439.9**	0.0	530.0	530.0	1,060.0	(110.0)	(110.0)	---	**840.0**	1.58
Wetland Total[1]	448.2	783.3	281.8	**1,513.3**	145.2	795.6	940.7	1,808.9	---	---	---	**1,513.7**	1.61
Upland Buffer	5.7	20.8	22.8	**49.3**	---	---	---	---	---	---	---	**---**[10]	---
Total[1]	**453.9**	**804.1**	**304.6**	**1,562.5**	**940.7**			**1,808.9**	**(117.1)**	**(110.0)**	**(8.1)**	**1,513.7**	1.61
									(295.2)				
Total Surplus Wetland Mitigation Credits for NorthMet Project Proposed Action (Total Credit Minus Total Applied Mitigation Credit)[1,9]				**48.8**									

Source: PolyMet 2015c.

Notes:
1 Totals may not add exactly due to rounding.
2 The total includes fragmentation of wetlands that would occur at the Mine Site and Plant Site (26.9 acres).
3 Base ratio 1.5:1 per USACE St. Paul District Policy (USACE 2009) for wetlands that are not considered high-quality or difficult-to-replace, which includes forested wetland and bog communities.
4 Base ratio 2:1 per USACE May 29, 2013 Draft Memorandum (USACE 2013) for wetlands that are high quality or difficult-to-replace, which includes forested wetland and bog communities.
5 Based on USACE May 29, 2013 Draft Memorandum (USACE 2013) for in-advance qualification assuming all mitigation would be constructed one full growing season before wetland impacts were to occur.
6 Total Applied Mitigation Credits = Total Credits Required for Mitigation minus Incentive Credits.
7 Credits applied may include surplus credits from different wetland types.
8 The ratio of credits applied to NorthMet Project Proposed Action impacts (not including the surplus credits).
9 The determination of final mitigation credits required to offset the impacts of the proposed NorthMet Project Proposed Action would be determined by the agencies during wetland permitting. This would be based on the extent to which the sites meet the target goals established during permitting. These include, among other things, restoration of wetland appropriate hydrology and the establishment of a target plant community or type.
10 Includes 0.5 credit of upland buffer, applied from totals listed above.

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Table 5.2.3-19 Summary of Proposed Wetland Mitigation for Direct Impacts Utilizing Minnesota Wetland Conservation Act Credits

Wetland or Credit Type	Mitigation Credits Available[1]				NorthMet Project Proposed Action Direct Wetland Impacts in Acres[1,2]	Credit Applied for 1:1 Replacement[1,6]	Additional Mitigation Required +0.5:1[3,6]	Total Mitigation Credits Applied	Applied Mitigation Ratio[9]
	Zim Sod	Aitkin	Hinckley	Total Mitigation Credits Available					
Type 2 Fresh (Wet) Meadow	0.0	0.0	0.0	**0.0**	15.8	15.8	7.9	23.7	1.5:1
Type 2 Sedge Meadow	0.0	0.0	51.4	**51.4**	23.9	62.7	12.0	35.9	1.5:1
Type 3 Shallow Marsh	0.0	32.5	0.0	**32.5**	77.0	77.0	38.5	115.5	1.5:1
Type 4 Deep Marsh	0.0	0.0	0.0	**0.0**	74.3	74.3	37.1	111.4	1.5:1
Type 5 Shallow, Open Water	8.3	0.0	0.0	**8.3**	0.0	0.0	0.0	0.0	1.5:1
Type 6 Shrub-Carr	0.0	18.2	113.2	**131.5**	3.9	3.9	1.9	5.8	1.5:1
Type 6 Alder Thicket	0.0	0.0	113.2	**113.2**	110.6	110.6	55.3	165.9	1.5:1
Type 7 Hardwood Swamp	0.0	171.0	4.0	**175.0**	13.2	13.2	6.6	19.7	1.5:1
Type 7 Coniferous Swamp	0.0	561.6	0.0	**561.5**	84.4	84.4	42.2	126.6	1.5:1
Type 8 Open Bog	0.0	0.0	0.0	**0.0**	7.6	7.6	3.8	11.5	1.5:1
Type 8 Coniferous Bog	439.9	0.0	0.0	**439.9**	530.0	530.0	45.0	575.0	1:1[4]
Wetland Total[1]	448.2	783.3	281.8	**1,513.3**	940.7	940.7	250.4	1,191.2	---
Upland Buffer	5.7	20.3	22.8	**49.3**	---	---	---	---	---
Total[1]	**453.9**	**804.1**	**304.6**	**1,562.5**	**940.7**	**940.7**	**250.4**	**1,191.2**	1.27:1[5]
Total Surplus Wetland Mitigation Credits for NorthMet Project Proposed Action (Total Credit minus 1:1Credits minus Additional Mitigation Required)[1,6]						**371.4**			
Total Wetland Mitigation Credits Used for NorthMet Project Proposed Action[1,6]						**1,191.2**			

Source: PolyMet 2015c

Notes:
1 Totals may not add exactly due to rounding.
2 The total includes fragmentation of wetlands that would occur at the Mine Site and Plant Site (26.9 acres).
3 Additional mitigation required for mitigation out of the watershed at Aitkin and Hinckley sites. Determined by multiplying 0.5 by Total Impact Area.

[4] Assume 1:1 replacement for 439.9 acres compensated in-kind and in the watershed and 1.5:1 for the remaining 90.1 acres replaced out of the watershed.
[5] The ratio of credits applied to NorthMet Project Proposed Action impacts (not including the surplus credits).
[6] The determination of final mitigation credits required to offset impacts of the proposed NorthMet Project Proposed Action would be determined by the agencies during wetland permitting. This would be based on the extent to which the sites meet the target goals established during permitting. These include, among other things, restoration of wetland appropriate hydrology and the establishment of a target plant community or type.

5.2.3.3.3 Mitigation Summary

Compensatory mitigation is required for the 913.8 acres of wetlands that would be directly impacted. In addition, compensatory mitigation for the 26.9 acres of wetland fragmentation would be provided up front. The overall wetland mitigation strategy for the NorthMet Project Proposed Action is to compensate for unavoidable wetland impacts in-place, in-kind where possible and in-advance of impacts when feasible in order to replace lost wetland functions. Due to both on- and off-site limitations and technical feasibility, it is not practicable to replace all impacted wetland types with an equivalent area of in-kind wetlands. Off-site wetland mitigation projects would be implemented to fulfill the requirements for compensatory mitigation. PolyMet's current off-site mitigation proposal includes the:

- Aitkin Site – 808.3 acres of wetland restoration and 83.2 acres of upland buffer;
- Hinckley Site – 286.2 acres of wetland restoration and 91.2 acres of upland buffer; and
- Zim Site – 508.2 acres of wetland restoration and 22.7 acres of upland buffer.

Off-site wetland compensation of 1,602.7 acres could provide 1,513.3 wetland mitigation credits. In addition, a total of 197.1 acres of upland buffer areas are proposed to be established with native vegetation around the wetland restoration areas. In accordance with USACE guidelines, credit for the upland buffer areas would be at a 4:1 ratio, resulting in an additional 49.3 credits. The total off-site mitigation could provide 1,562.5 wetland mitigation credits. Tables 5.2.3-17, 5.2.3-18, and 5.2.3-19 provide a summary of wetland mitigation. Compensatory mitigation ratios determined in permitting may vary from these assumptions.

Finally, establishment of approximately 101.8 acres of wetland would likely occur during reclamation of the Mine Site; this establishment is not included in the mitigation credits discussed above as credit is not being requested at this time.

In accordance with the 2008 Federal Mitigation Rule, USACE policy, and overall requirements of the CWA, the primary focus of compensatory mitigation is to replace lost wetland functions within the same 8-digit HUC watershed as the impact site—in this case, the St. Louis River Watershed/Great Lakes Basin. Initially, no practicable compensation sites were found in the St. Louis River watershed, but subsequently, the Zim Site was found and incorporated as part of the compensatory mitigation plan. The permanent functional loss of wetlands within the St. Louis River Watershed/Great Lakes Basin would be considered during permitting. This is particularly critical in that 8-digit HUC watersheds adjacent to the Great Lakes—including the St. Louis River Watershed—have been identified as coastal watersheds for purposes of the 2008 Federal Mitigation Rule.

The majority of the credits would be in-kind mitigation, and nearly one-third of the credits would be from within the NorthMet Project area watershed (see Tables 5.2.3-17, 5.2.3-18, 5.2.3-19). Based on PolyMet's current mitigation proposal and assuming the mitigation efforts are fully successful and target communities are established, 83 percent of the impacts to coniferous bogs would be mitigated by in-kind and in-place credits, or 439.9 coniferous bog credits; the remaining 17 percent would be replaced out-of-kind. Out-of-kind credits would be used to mitigate impacts on wet meadow, shallow marsh, deep marsh, open bog, and coniferous bog communities; these would not be replaced in-kind because of hydrological and ecological constraints at the proposed mitigation sites. Forty-seven percent of the wetland impacts are

currently proposed to be replaced in-kind, in-place, and before the impacts occur on site. An additional 29 percent of the proposed impacts are proposed to be replaced in-kind and before the impacts occur on site. Most of the additional mitigation credits that are proposed outside of the watershed would fulfill mitigation requirements above the minimum 1:1 ratio. The preferred location of siting any additional compensatory mitigation that may be required for the NorthMet Project Proposed Action would be within the St. Louis River/Great Lakes Basin.

The USACE requires a detailed compensatory mitigation plan for anticipated wetland impacts that would occur during the first 5 years of the NorthMet Project Proposed Action. A detailed mitigation plan must be submitted for each subsequent 5-year increment of wetland impacts to the USACE for approval. The anticipated wetland types to be restored off-site include a combination of the same and different types as the impacted wetlands. Some off-site wetlands would be restored in advance of impacts, while other wetlands would be restored after the impacts.

The change in wetland hydrology from groundwater drawdown at the Mine Site was assessed by two different methodologies; therefore, total indirect potential wetland effects were provided based on both approaches. The NorthMet Project Proposed Action could potentially indirectly affect up to either 7,694.2 acres of wetlands located within and around the NorthMet Project area, based on the method of wetlands crossing analog impact zones, or up to 6,568.8 acres of wetlands located within and around the NorthMet Project area, based on the method of wetlands within analog impact zones (PolyMet 2015b). Regardless of the method used, wetland mitigation for indirect wetland effects would be determined by the agencies during permitting. If the NorthMet Project Proposed Action were to be permitted and constructed, wetland monitoring would be conducted to determine if the NorthMet Project Proposed Action causes future indirect wetland effects. Wetlands and vegetation would be monitored; additional monitoring locations may be considered during permitting. A component of the monitoring plan would be based on those wetlands that have a high likelihood of potential indirect effects as a result of groundwater drawdown. If the monitoring determined that indirect wetland effects had occurred, additional compensation may be required if determined necessary by the permitting agencies. In the event that the required wetland monitoring identified additional indirect effects, permit conditions would likely include a plan for adaptive management practices to be implemented, such as expanded monitoring and hydrologic controls. Additionally, compensatory mitigation may be required if additional impacts are identified during annual reporting. Permit conditions would likely include a plan for implementing adaptive management practices to account for any additional impacts that may be identified in the annual monitoring and reporting.

5.2.3.3.4 Monitoring Plan for Mitigation Sites

Wetland hydrology monitoring has begun at the mitigation sites to assess hydrological conditions prior to the determination about the NorthMet Project Proposed Action and would continue after hydrology restoration is complete to determine whether or not the restored wetland areas are in conformance with performance standards and would determine whether continued monitoring would be required.

The wetland restoration area monitoring would begin during the first full growing season after completing hydrologic restoration. In addition to monitoring of the restored wetlands, one reference wetland of each restoration community type would be monitored within the general

area of each restoration site in areas with relatively natural hydrologic conditions similar to that of the proposed target communities. A monitoring plan would be submitted to the appropriate state and federal agencies for review and approval that would include proposed locations of reference wetlands prior to implementing the monitoring program (PolyMet 2013o; PolyMet 2015c).

Vegetative monitoring would entail conducting a detailed vegetation survey at least once per year (typically July to August) in each wetland mitigation community, as well as the reference wetland communities, to evaluate the success of the restoration during the appropriate monitoring period for each community type.

Hydrologic monitoring would involve the installation and periodic monitoring of shallow recording wells at multiple locations sufficient to characterize hydrology. Continuous recording wells that record water table elevations multiple times each day would be utilized to the extent feasible and would be placed throughout the sites sufficient to characterize hydrology. Hydrologic monitoring would be used to measure the success of hydrologic restoration relative to the established performance standards for each community type and to assess the extent of wetlands on each site (PolyMet 2015c; PolyMet 2013o). Water elevations would be recorded at least once per week from May through mid-July and monthly thereafter until the end of the growing season (PolyMet 2015c).

The duration of monitoring would depend on the target wetland communities at each site and the success of establishment of those communities. Bogs and forested wetlands would be monitored for up to 20 years, or more if warranted. Monitoring of emergent and shrub-carr wetland communities would continue for up to 10 years, or more if warranted. Certain components of the monitoring may be discontinued sooner if performance standards were met and approval was provided by the USACE and MDNR (PolyMet 2015c; PolyMet 2013o).

After restoration, the monitoring design may be altered to better characterize restored conditions (PolyMet 2013o). Water levels would be recorded several times each day in the stilling wells for the duration of the growing season; staff gauges would be checked weekly for the first 10 weeks of the growing season and twice monthly thereafter. Hydrology monitoring in saturated soil communities would be completed using shallow water table monitoring wells within each community recorded several times each day for the duration of the growing season (PolyMet 2013o). Hydrologic parameters for Hinckley and Aitkin would be evaluated in the mitigation areas more intensively during the first 2 years and then would be performed at a level appropriate to the hydrologic characteristics of each area thereafter (PolyMet 2014h; PolyMet 2014i; PolyMet 2014j). Reference wells would be established for each community type and monitoring with those wells would continue for the duration of site hydrology monitoring (PolyMet 2013o).

Hydrologic monitoring at the three mitigation sites would generally occur for at least 5 years; however, certain wetland types may be monitored longer. In shrub communities, monitoring would generally be for 8 years, and in forested communities, it would generally be 20 years. Monitoring would begin in the first full growing season after beginning hydrologic restoration to document the progress and condition of the wetland communities at the mitigation site. Monitoring reports would be prepared and submitted to the appropriate agencies, and the frequencies of the reports would be based on permit conditions. The monitoring report completed after the final growing season would assess whether or not the restored wetlands are in conformance with performance standards (PolyMet 2014h; PolyMet 2014i; PolyMet 2014j).

Reports would describe the status of the wetland mitigation, summarize the results of the vegetative and hydrologic monitoring, discuss management activities and corrective actions conducted during the previous period, and discuss activities planned for the following period. The reports would be submitted to the USACE and MDNR by December 31 of each year. Monitoring requirements would be determined during the permitting process.

Contingencies for Unsuccessful Mitigation

If the restored wetland communities at any of the mitigation sites did not meet performance standards, remedial or corrective actions and possibly additional mitigation credits may be required and would be determined by the USACE and state during the permitting process. For example, PolyMet could characterize site conditions relative to the performance standards in each monitoring report and, if the standards were not met, remedial actions would be proposed to meet the standard(s). The following contingencies have been proposed by PolyMet (PolyMet 2013o) and would be finalized and approved during permitting:

- If any planned community type does not meet performance standards for three consecutive years, the status of the community would be analyzed to determine the effect on the approved wetland mitigation credits and PolyMet would proposed an alteration to the wetland mitigation plan, which could include a modification of wetland community type, changes to the proposed credit ratios, and additional wetland mitigation.
- If any wetland community has not developed as planned and as defined in the performance standards after the fifth full growing season after restoration, PolyMet would work with the USACE and MDNR on appropriate alternative plans, including alternative mitigation or revisions to the overall mitigation ratio based on changes to wetland community types.
- Any plan revisions would be submitted to the USACE and MDNR for review and approval prior to implementation.

If it is determined that additional wetland mitigation would be required due to unsuccessful mitigation restoration, PolyMet would first utilize the excess credits (see Tables 5.2.3-18 and 5.2.3-19) and then would identify and pursue wetland mitigation opportunities, including wetland preservation options, within the watershed of the NorthMet Project area. PolyMet would use information from BWSR and other relevant entities that are available at the time it is determined additional wetland mitigation is needed. Information on the wetland mitigation opportunities identified and pursued would be coordinated with and submitted to the USACE and state for review and approval prior to making final decisions on additional mitigation (PolyMet 2013o).

5.2.3.3.5 Monitoring Plan for Mine Site and Plant Site Wetland for Potential Indirect Effects

Wetland monitoring would occur in and around the Mine Site and Plant Site prior to and during construction and operation of the NorthMet Project Proposed Action, if permitted, and would be used to assess whether or not potential indirect effects on wetlands were occurring. If monitoring of wetlands for potential indirect effects did determine effects were occurring, additional compensation may be required, if determined necessary, based on monitoring results. Monitoring is proposed within all wetlands containing a potential indirect wetland impact factor rating of 3 to 5 and a sampling of those wetlands with factor ratings of 1 or 2 (see Figures 5.3.2-31 and

5.2.3-32) (PolyMet 2013o). A component of the monitoring plan would be based on those wetlands that would have a high likelihood of indirect effects as a result of groundwater drawdown. If indirect wetland effects were to occur, PolyMet would be required to work with the USACE and state to respond, which may include the option to provide compensatory mitigation for any documented indirect effects. The monitoring plan would be updated annually based on results from the previous year. A total of 56 monitoring wells and four reference wells are proposed to document potential indirect wetland effects.

The criteria for determining if potential indirect wetland effects are occurring is provided below. In addition, permit conditions would include an adaptive management plan, summarized below, to account for any additional effects that may be identified in the annual monitoring and reporting. To determine if indirect effects occur, hydrology, vegetation, and wetland boundaries would be monitored, documented, and compared with baseline monitoring and reference wetlands.

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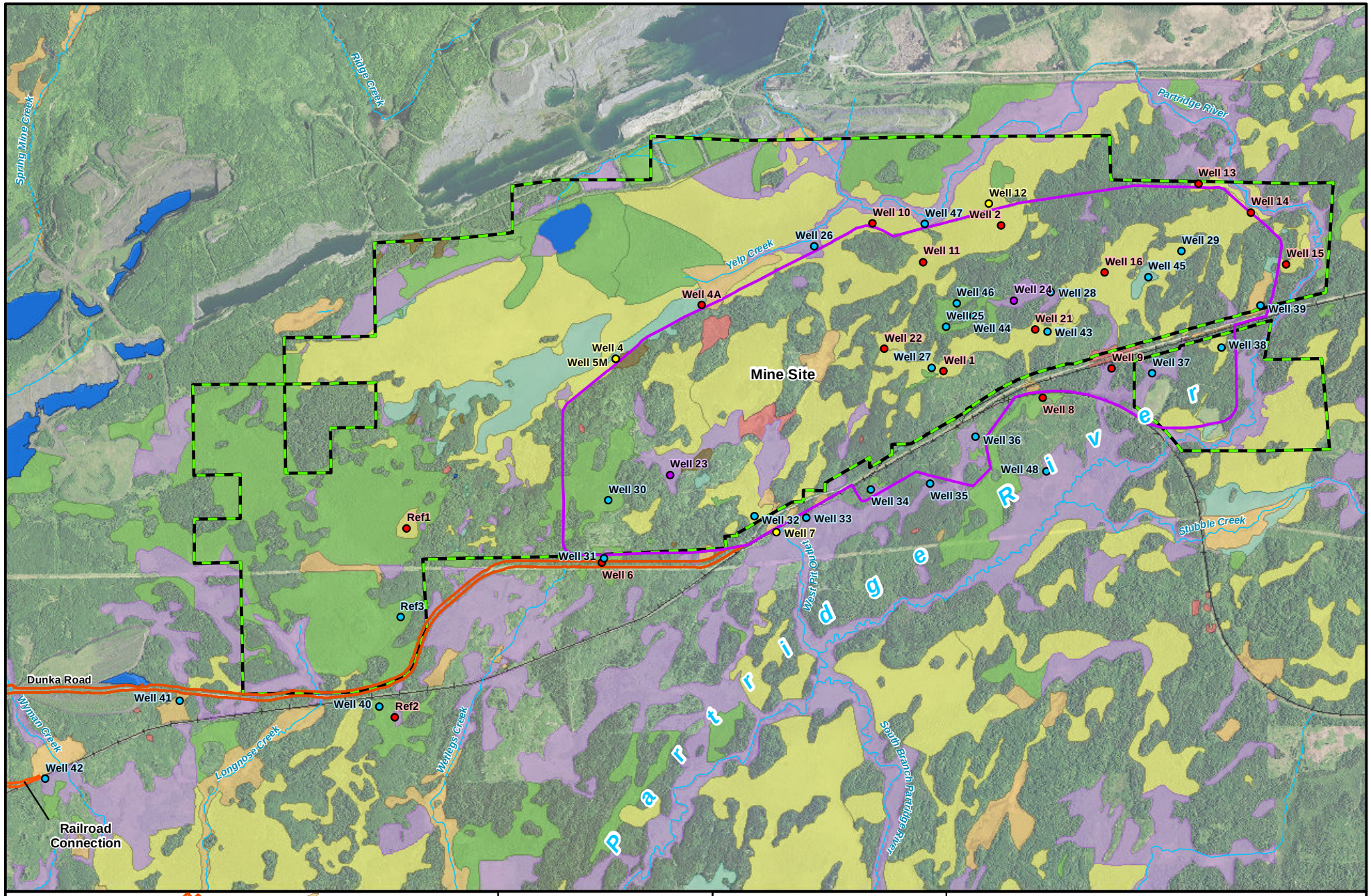

Figure 5.2.3-31
Mine Site Wetland Hydrology Monitoring Well Locations
NorthMet Mining Project and Land Exchange FEIS
Minnesota
November 2015

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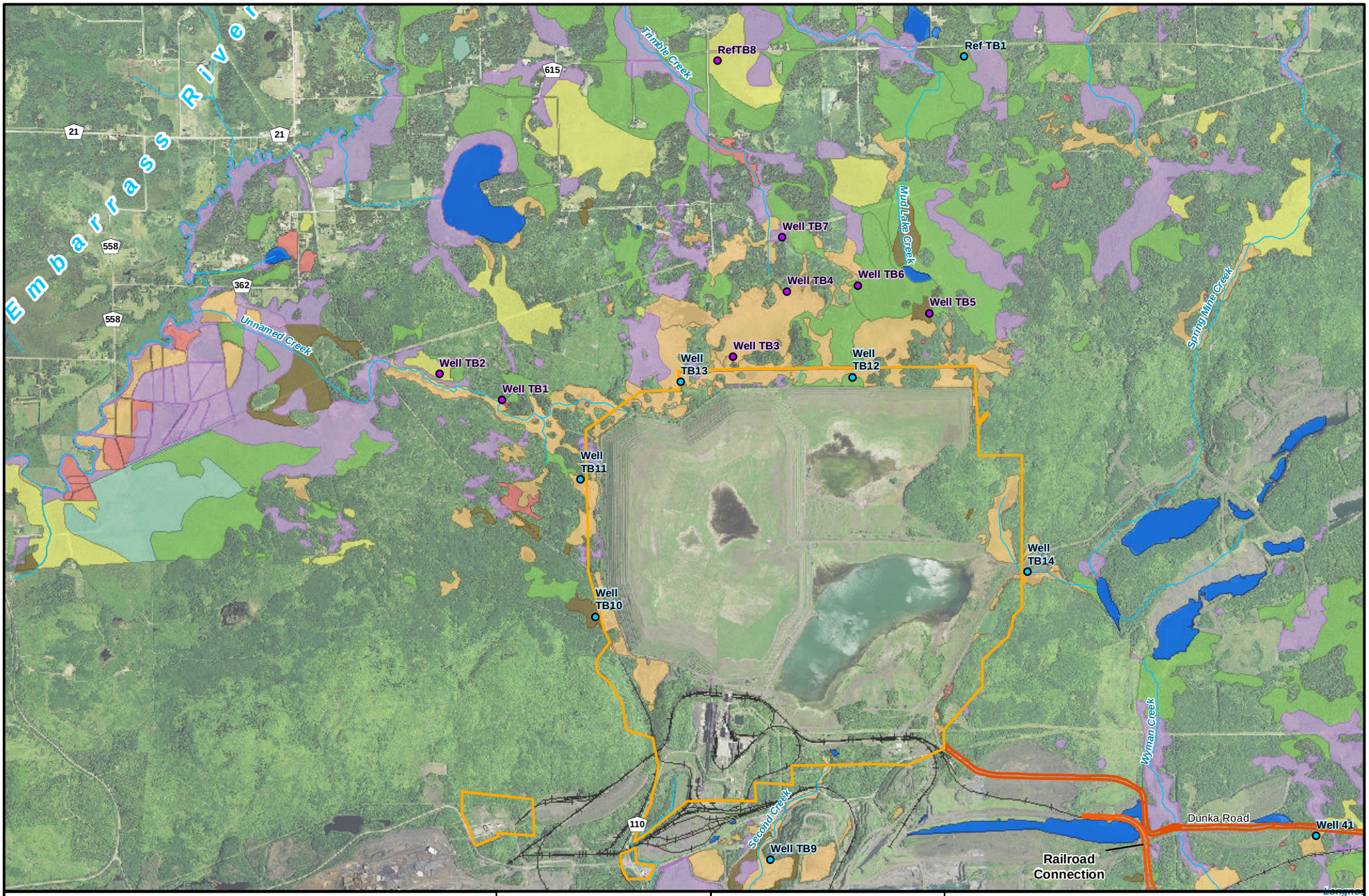

Wetland Hydrology Monitoring Wells
- Installed in 2005
- Installed in 2008
- Installed in 2010
- Installed in 2014
- Plant Site

- Transportation and Utility Corridor
- Stream/River

Eggers & Reed Wetland Types
- Coniferous Bog
- Coniferous Swamp
- Deep Marsh & Shallow Marsh
- Hardwood Swamp
- Open Bog
- Sedge Meadow & Wet Meadow
- Shrub Swamps (Alder Thicket & Shrub-Carr)
- Shallow, Open Water & Lake

MNDNR

US Army Corps of Engineers
St. Paul District

N W E S

0 0.25 0.5 1 Miles

Figure 5.2.3-32
Plant Site Wetland Hydrology Monitoring Well Locations
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Pre-Project Wetland Hydrology Monitoring Sites

In 2005, 20 shallow manual wells and four recording wells were initially installed at 19 locations around the Mine Site. A total of 11 monitoring locations were situated around the perimeter of the Mine Site and are not expected to be affected by the NorthMet Project Proposed Action. The remaining eight monitoring locations are located within the Mine Site and have the potential to be affected by the NorthMet Project Proposed Action. In 2008, two wells were removed because they were within future stockpile locations, two new wells were added at the Mine Site, one well was relocated out of the direct effect area, and two wells were installed in reference wetlands located west of the Mine Site (PolyMet 2015c). Furthermore, in 2008, all monitoring locations were instrumented with recording wells so water levels could be recorded every 2 to 4 hours. In 2010, two wells were relocated because they were determined to be in areas that would be directly impacted by the NorthMet Project Proposed Action. During 2008 through 2010, there were 21 locations monitored at the Mine Site. In 2014, wetland monitoring locations were installed at 25 additional locations at the Mine Site and Transportation and Utility Corridor. In addition, in 2014 another reference wetland was selected, for a total of three reference wetlands to monitor (see Figure 5.2.3-31) (PolyMet 2015c). Pre-project monitoring did not include collection of vegetation or wetland boundaries other than what was completed during the wetland delineation and baseline wetland type evaluation (PolyMet 2015c; PolyMet 2013o).

Shallow monitoring wells were installed at eight locations around the Plant Site in 2010. One of the eight wells was installed in a reference wetland located north of the Plant Site that would not be affected by the NorthMet Project Proposed Action. Two monitoring wells were placed west of the Plant Site along Unnamed Creek; two wells were placed north of the Plant Site, adjacent to a large deep marsh wetland complex; and three wells were placed along the flowpath of Trimble Creek. The monitoring wells were typically placed to a depth of 2 to 5 ft bgs. In 2014, shallow monitoring wells were installed at seven additional locations in the Plant Site area and a second reference wetland was selected (see Figure 5.2.3-32).

The monitoring protocol would continue for the life of the NorthMet Project Proposed Action, if approved, though portions of the monitoring design could be altered to improve the design or to eliminate unnecessary data collection, which would be done in coordination with the appropriate agencies. Pre-project hydrology monitoring of wetlands and groundwater within and surrounding the Mine Site started in 2005 and in 2010 at the Plant Site at well locations approved by the USACE and MDNR, and would continue throughout the NorthMet Project Proposed Action in accordance with the planned study (PolyMet 2015c). The primary objectives of the Mine Site and Plant Site wetland hydrology monitoring studies include the following:

1) Gain a better understanding of the wetland hydrology at the Mine Site and Plant Site (i.e., defining whether specific wetlands are recharging the surficial deposits aquifer or are discharging to surface waters).
2) Collect baseline hydrology data at the Mine Site and Plant Site that could be used to assess the effect of the NorthMet Project Proposed Action on wetland hydrology.
3) Review the data collected at the Mine Site in the hydrogeologic study along with the wetland hydrology data to determine whether specific wetlands within the Mine Site area have perched water tables or are in direct hydrologic connection with the surficial deposits aquifer.

4) Determine the potential for indirect wetland effects at the Mine Site and Plant Site resulting from the NorthMet Project Proposed Action.

The majority of the pre-project monitoring locations would be utilized for future monitoring during mining activities. The monitoring of the well locations would be expanded to include vegetation sampling and wetland boundaries, and additional monitoring locations may be considered during permitting.

Project Wetland Hydrology Monitoring Sites

Wetland hydrology monitoring would be conducted during operation of the NorthMet Project Proposed Action to document indirect wetland effects. Prior to the start of the NorthMet Project Proposed Action, monitoring would be established based on permit conditions, which would describe the purpose, methods, and criteria to be implemented to document indirect wetland effects. As previously stated, the monitoring wells were planned within all wetlands with effect factor ratings of 3 and within a sampling of wetlands with effect factor ratings of 1 and 2 located throughout the areas of potential indirect wetland effects.

As noted in the Section 404 permit application, PolyMet proposes to install shallow water table monitoring wells at each of the proposed wetland monitoring locations shown in Figures 5.2.3-31 and 5.2.3-32. Each monitoring location would have one recording well and one manual well; if any wells were to become damaged, PolyMet would replace the wells as soon as practical to maintain data continuity. Monitoring would continue in all of the existing wells, with the exception of wells #1 and #6. These two wells would be moved outside of areas that would be directly impacted (see Figures 5.2.3-31 and 5.2.3-32). Hydrologic monitoring would continue at the existing and proposed monitoring locations and at reference wetland locations every year throughout the growing season for the life of the mine operation. PolyMet would review the monitoring information and, if it were determined that certain wells were not providing useful information, the monitoring plan could be modified with the concurrence of the USACE and MDNR.

Reference Wetland Hydrology Monitoring Sites

Pre-project monitoring locations would include three reference wetlands, one within each of the three major project areas (see Figures 5.2.3-31 and 5.2.3-32), approved by the USACE and MDNR to document the natural hydrologic fluctuations in wetlands that would not be affected by the NorthMet Project Proposed Action and would facilitate interpretation of the NorthMet Project Proposed Action hydrologic data.

Wetland Vegetation and Boundary Monitoring

In addition to hydrology monitoring, wetland vegetation monitoring would be conducted during the operation of the NorthMet Project Proposed Action. Baseline conditions for wetland vegetation would be established during the first growing season after permit issuance and at 5-year intervals throughout the life of the mine. Data would be used to document potential shifts in vegetation that are inconsistent with changes documented in the reference wetlands. Baseline data already available from existing plots, wetland delineation, monitoring, and other on-site studies may also be used to document baseline conditions if these data may help to determine the cause of changes in vegetation characteristics or to demonstrate natural variability within the wetlands (PolyMet 2013o).

PolyMet has also proposed that portions of the monitored wetlands be reviewed every 5 years, concurrent with the vegetation monitoring, to evaluate wetland boundaries. Wetland boundaries would be field-delineated and located using a GPS with sub-foot horizontal accuracy. The field-based delineation would map at least 25 percent of the wetland boundary at each of the wetlands with monitoring locations. The boundaries would be mapped on a rotating basis to include 25 percent of the wetland boundary every 5 years, including some overlap every 10 years. A transect composed of at least two wetland delineation sample points would be completed along a sections of the boundary reviewed in each of the monitored wetlands (PolyMet 2013o).

The delineation data would be compiled to map the boundary of each of the wetlands with monitoring locations. Based on the portion of the wetland that is delineated, the whole wetland boundary would be mapped using desktop review of current aerial photography, topography (LIDAR or site-specific data), and hydrology monitoring data. The results would be reported to the USACE and MDNR at the end of each year of monitoring (PolyMet 2013o).

Criteria Impacts Threshold Levels

The hydrology, vegetation, and wetland boundary monitoring data collected as part of the proposed monitoring program by PolyMet would be evaluated to determine if adverse, indirect wetland effects occur as a result of the NorthMet Project Proposed Action. PolyMet has proposed the following criteria threshold levels for indicating if an adverse, potential indirect wetland effects are occurring (PolyMet 2013o):

- A 50 percent reduction of the baseline wetland hydrology hydroperiod. Antecedent precipitation and reference wetland hydrology would be considered in the evaluation of wetland hydrology hydroperiod. The hydroperiod of a wetland is equal to the length of time and portion of the year the wetland holds ponded water or saturation within 12 inches of the soil surface. This period of time generally varies from year to year based on climatic conditions. Therefore, the judgment of whether this threshold is surpassed would be made considering the monitoring for each wetland conducted during the pre-project time period and data from reference wetlands of similar community types or hydrologic regime.
- A change in vegetation species composition of 25 percent or greater in one or more strata that is inconsistent with vegetation changes in the reference wetlands. For instance, if stinging nettles (*Urtica dioica*) cover changed from 5 to 30 percent, it may indicate changes in wetland hydrology and would be reviewed carefully relative to the hydrology data. Other factors may contribute to changes in vegetation (disturbances or species introductions) that may be unrelated to changes in wetland hydrology or the nearby NorthMet Project area; such factors would be considered as appropriate.
- Loss of wetland area (as defined by the wetland boundary determination) that is inconsistent with wetland area loss at reference wetlands.

The above criteria have been proposed by PolyMet as part of its Section 404 permit application, and permit conditions would indicate the final criteria thresholds if the NorthMet Project Proposed Action were approved. The criteria would also be considered and need to be approved during the WCA permitting process and Section 401 certification process. These criteria or those that are approved during permitting would be evaluated by PolyMet with consideration of the NorthMet Project Proposed Action activities and likelihood that such activities are responsible for the changes. Should adverse, indirect wetland effects be identified during the monitoring

program, an estimation of such effects would be included in the monitoring report in the year that they are first detected. The data for hydrology, vegetation, and wetland boundary monitoring would be compiled in a report, including methods, results, and evaluation of potential adverse indirect wetland effects; this report would be submitted to the USACE and MDNR by the end of each monitoring year.

Indirect Effects Mitigation

If it is determined that indirect wetland effects occurred based on the criteria effects threshold levels, PolyMet would work with the appropriate agencies to respond, which could require PolyMet to provide compensatory mitigation for any documented indirect effects. If indirectly affected wetlands require compensatory mitigation, the acreage would be calculated by community type and provided in annual monitoring reports to the appropriate agencies. Compensatory mitigation would be based on WCA requirements and the USACE St. Paul District Policy for wetland mitigation, as well as that identified below.

In the event that not all of the credits generated by the mitigation sites are utilized to compensate for direct wetland impacts, and the sites are successful and meet the performance standards any excess credits could be used to compensate for indirect losses (USACE 2015a). The excess wetland mitigation credits could then be expected to be available to compensate for potential indirect wetland effects. PolyMet would follow, if necessary, the general planning approach described above and below for contingencies for unsuccessful mitigation to identify, plan, and receive the USACE and state approval of mitigation plans to develop additional mitigation credits. If additional mitigation credits were needed, site selection would be consistent with USACE and WCA guidance. PolyMet is proposing to mitigate the compensatory loss of wetland areas as a result of potential indirect effects in accordance with the mitigation ratios that were utilized for direct wetland impacts. In addition, PolyMet has proposed in the Section 404 permit application that partial drainage or other changes to the wetlands that do not result in the wetland loss, but exceed the threshold levels identified above, could be mitigated at a lower ratio depending on the extent and degree of the changes to wetland function. The minimum ratio of mitigation credit PolyMet is proposing to use would be 0.25:1.

Wetlands Adaptive Monitoring Plan

PolyMet has, in their Section 404 permit application, proposed utilizing an adaptive monitoring plan approach to evaluate the most effective monitoring strategy for potential indirect effects. Their proposed wetland adaptive monitoring plan outlined below needs to be reviewed and approved prior to permitting. As proposed, it contains the following items:

- The monitoring plan would be updated annually based on results from the previous year.
- Monitoring plan criteria would be included in the Wetland Management Plan, which would contain all criteria and permit conditions.
- If indirect impacts were observed, additional monitoring may be developed to focus in those areas and/or to focus on a specific impact factor.
- Additional monitoring may include new monitoring locations in other wetlands and more detailed delineation and vegetation data collection.

PolyMet's current proposed adaptive monitoring plan includes two phases. Phase I would be broad-based monitoring to identify changes to wetlands or changes that may affect wetlands or surface waters; Phase II monitoring may be implemented to provide a more detailed assessment in a given area to analyze a potential impact factor. If necessary, the Phase II monitoring would be designed and implemented as needed to address the changes identified during Phase I monitoring. Phase II would be used to determine the need for additional mitigation or to develop a plan to control the changes identified during Phase I and minimize future effects on wetlands. The adaptive monitoring plan would be reviewed and approved during permitting.

5.2.3.3.6 Reporting

Reports would be compiled to document pre-project hydrology conditions and restoration outcomes from the three mitigation sites as well as for the hydrology monitoring at the NorthMet Project areas, which would be implemented to fulfill the requirements for compensatory mitigation.

Off-site Monitoring Reports for Wetland Restoration

Reports have been prepared to document the activities that would be conducted at the off-site wetland mitigation sites. These reports include information regarding existing conditions at the site, construction activities, management activities, wetland restoration goals, performance standards, schedules, and monitoring plans (PolyMet 2014h; PolyMet 2014i; PolyMet 2014j). These plans were developed to comply with WCA rules (*Minnesota Rules*, chapter 8420), Section 404 of the CWA as administered by the USACE, and *Minnesota Rules*, part 7050.0186 (wetland mitigation) as administered by the MPCA.

Project-specific wetland mitigation plans for three mitigation sites were prepared that describe the compensatory wetland mitigation that would be used to replace unavoidable wetland impacts associated with the NorthMet Project Proposed Action. The wetland mitigation plans were updated and submitted to the USACE in May 2014 for the three sites.

PolyMet would submit progress monitoring reports for the wetland mitigation sites as determined during permitting to document restoration outcomes. Wetland restoration construction progress would be tracked along with compliance with permit conditions. The reports would describe the status of the wetland mitigation, summarize the results of the vegetation and hydrology monitoring, discuss management activities and corrective actions conducted during the previous year, and discuss activities planned for the following year. The monitoring report completed after the tenth growing season would assess whether or not the restoration were sufficiently complete and if additional monitoring and reporting were warranted (PolyMet 2015c).

Reporting on Mine Site and Plant Site Wetland Hydrology for Potential Indirect Effects

Pre-project wetland hydrology monitoring reports, generated to meet reporting requirements, have been compiled and document 5 years of pre-project planning and monitoring at the Mine Site (2005 to 2009). PolyMet has continued to conduct wetland hydrology monitoring since 2009 at the Mine Site. Pre-project wetland hydrology monitoring at the Plant Site has also been conducted in 2010, 2011, and 2012 at the Plant Site and is ongoing. Future project wetland hydrology monitoring reports would be submitted in accordance with any permit issued.

Monitoring data would be submitted to the USACE and MDNR annually for the life of the mine. Hydrology data would be presented every year to show monitoring locations, hydrographs, and analysis of wetland hydrologic conditions in the context of precipitation conditions. Vegetation and wetland boundary data would be presented every 5 years and would be used to determine the acreage of impacts and potential indirect effects that were not evident based on hydrologic data. Indirect effects would be assessed in the annual reports to the extent possible. Acreage of indirect effects, if any, would be determined and would be used to determine the requirements for wetland mitigation credits, if such credits were needed. If compensatory mitigation were necessary, credits would be proposed in the annual report as described above (PolyMet 2013o).

5.2.4 Vegetation

This section describes the environmental consequences of the NorthMet Project Proposed Action to vegetation, which include direct effects on land cover types, native plant community types, MBS Sites of Biodiversity Significance, and rare or sensitive plant species, as well as effects from existing or introduced invasive non-native species.

Summary

The NorthMet Project Proposed Action would disturb 1,718.6 acres of the Mine Site and have the greatest effect on upland conifer forest land cover types. Approximately 2,189.7 acres of the Plant Site would be disturbed by the NorthMet Project Proposed Action, with most effects occurring in already disturbed areas and tailings ponds. All land within the Transportation and Utility Corridor would be affected (120.2 acres), the majority of which is already disturbed.

The NorthMet Project Proposed Action would affect approximately 1,719 acres that are mapped by the MDNR as MBS Sites of High Biodiversity Significance. Within these Sites of High Biodiversity Significance, several native plant communities are mapped that would be affected by the NorthMet Project Proposed Action, including 698.2 acres with a conservation status rank of “imperiled-vulnerable” (conservation status rank S2 or S3) or “vulnerable” (conservation status rank S3), 92.6 acres with a conservation status rank of “apparently secure” (conservation status rank S4), and 178.9 acres with a conservation status rank of “widespread and secure” (conservation status rank S5).

Disturbed areas would be reclaimed during operations and at closure. Reclamation objectives would include rapidly establishing a self-sustaining plant community, controlling air emissions, controlling soil erosion, providing wildlife habitat, and minimizing the need for maintenance. Seed mixes and methodologies would be designed to minimize the introduction of invasive species. Reclamation seed mixes would be approved during permitting.

There are no federally listed plant species at the NorthMet Project area. There are 10 state-listed plant species, all at the Mine Site; 8 species would be directly affected and two would potentially be indirectly affected by the NorthMet Project Proposed Action.

Indirect effects from the NorthMet Project Proposed Action could include dust deposition on vegetation, hydrology changes, ore spillage along the Transportation and Utility Corridor, and erosion on the Tailings Basin. Mitigation measures would be in place for each of these potential effects.

5.2.4.1 Methodology and Evaluation Criteria

This section compares the types of data presented in Section 4.2.4 for the NorthMet Project area. Specifically, GIS data were obtained from the MDNR regarding GAP land cover types, native plant communities, MBS Sites of Biodiversity Significance, and listed ETSC plant species within the NHIS. Data were obtained from the USFS regarding MIH types, forest stand age classes, RFSS, invasive non-native species, and landscape ecosystems. Separate NorthMet Project area-specific listed species survey reports were also utilized to supplement MDNR NHIS data and estimate effects on populations.

GIS analysis was used to calculate effects on the data layers mentioned above. The effects were calculated for habitat types, classifications, and species where they overlap the NorthMet Project area footprints.

Direct effects on natural features (e.g., vegetative cover types, plant communities, MBS Sites of Biodiversity Significance, and rare species) occur through clearing, filling, and other construction activities. A direct effect on an ETSC plant species occurs when the action results in the removal or loss (i.e., taking) of an individual plant or entire plant population. Direct effects are those that are a result of the NorthMet Project Proposed Action and that are immediate and often last for years.

An indirect effect occurs when a cover type, plant community, Site of Biodiversity Significance, or rare species experiences a change in vegetative composition. Indirect effects can occur over time or after the action is completed and can occur on- or off-site. Indirect effects on vegetation may include changes in hydrology, deposition of particulate matter (dust), changes in successional stage, alteration of microclimate (e.g., tree removal resulting in drier soil conditions), loss of pollinators or loss of fungal associates in the rooting zone, erosion and sedimentation, and invasion of non-native species. Indirect effects were estimated by comparing the proximity of the NorthMet Project area infrastructure footprints to existing natural features (e.g., habitat types, plant species present). Typically, indirect effects are more likely to occur and/or are more likely to be evident in vegetation communities that are closer to NorthMet Project components and other infrastructure (e.g., roads). Indirect effects tend to diminish with increasing distance from NorthMet Project components and other infrastructure.

5.2.4.2 NorthMet Project Proposed Action

This section describes the effects of NorthMet Project Proposed Action construction, operation, and closure on vegetation cover types and plant species. Potential effects from invasive non-native species are discussed separately.

5.2.4.2.1 Mine Site

Effects on Cover Types

Habitat Types

Construction and operation of the NorthMet Project Proposed Action at the Mine Site would directly affect 1,718.6 acres (57 percent of the Mine Site) of land with various MDNR GAP land cover designations as a result of excavating the mine pits and creating overburden and waste rock stockpiles and associated internal haul roads and drainage ditches. As shown in Table 5.2.4-1, these effects would include 62 percent (741.9 acres) of the upland conifer forest at the Mine Site. Other high-acreage directly-affected cover types include lowland coniferous forest (437.2 acres) and upland deciduous forest (354.7 acres). Approximately 1,295.9 acres, or about 43 percent of the Mine Site, would not be disturbed. The wetland field assessment indicated a high level of wetland quality. Section 5.2.3 provides a more detailed discussion of wetland effects.

Table 5.2.4-1 Direct Effects on Cover Types at the Mine Site

Cover Types	Affected Acres	Non-affected Acres[1]	Total Cover Type Acres	Percent of Cover Type Affected
Upland coniferous forest	741.9	453.6	1,195.5	62
Lowland coniferous forest	437.2	344.0	781.2	56
Upland deciduous forest	354.7	293.3	648.0	55
Shrubland	133.0	108.7	241.7	55
Disturbed	44.0	84.0	128.0	34
Aquatic environments	6.0	6.7	12.7	47
Upland conifer-deciduous mixed forest	1.5	0.9	2.4	63
Cropland/grassland	0.2	4.7	4.9	4
Lowland deciduous forest	0.0	0.1	0.1	0
Total [2]	1,718.6	1,295.9	3,014.5	57

Source: MDNR 2006b.

Notes:
[1] Areas of cover types not directly affected by mine pits, stockpiles, roads, or other infrastructure.
[2] Total acres may be more or less than presented due to rounding.

Minnesota Biological Survey

Approximately 353.6 acres of the One Hundred Mile Swamp MBS Site of High Biodiversity Significance and 1,364.9 acres of the Upper Partridge River MBS Site of High Biodiversity Significance would be affected by the NorthMet Project Proposed Action. The portions of these two MBS sites that are within the Mine Site area represent a small portion of the mapped Sites of High Biodiversity Significance in St. Louis County (2 percent) and the State of Minnesota (less than 1 percent). Habitat effects associated with the NorthMet Project Proposed Action would not result in a large percentage decline in statewide areas ranked as high by the MBS (MDNR 2008a).

Approximately 698.2 acres of the “imperiled-vulnerable” or “vulnerable” native plant communities—the black spruce-Jack pine woodlands (FDn32c; 495.5 acres; 20 percent of community within Laurentian Uplands subsection) and rich black spruce swamp (FPn62a; 202.7 acres; 1 percent of community within Laurentian Uplands subsection)—would also be affected. Approximately 92.6 acres of the “apparently secure” native plant communities—i.e., black spruce bog: treed subtype (APn80a1; 77.7 acres; 4 percent of community within Laurentian Uplands subsection) and poor tamarack-black spruce swamp (APn81b; 14.9 acres; less than 1 percent of community within Laurentian Uplands subsection)—would be affected. Approximately 178.9 acres of “widespread and secure” native plant communities would also be affected, including alder (maple-loosestrife) swamp (FPn73a; 42.5 acres; 3 percent of community within Laurentian Uplands subsection), aspen-birch forest: balsam fir subtype (FDn43b1; 101.1 acres; less than 1 percent of community within Laurentian Uplands subsection), and poor black spruce swamp (APn81a; 35.3 acres; less than 1 percent of community within Laurentian Uplands subsection).

Some of the native plant communities identified at the NorthMet Project area are wetlands. WCA rules (including those parts applicable to mining projects under *Minnesota Rules*, part 8420.0930) include a special consideration for wetlands that are rare natural communities (*Minnesota Rules*, part 8420.0515, subpart 3). Guidance developed by MDNR and BWSR on rare natural communities (MDNR and BWSR 2011) identifies that rare natural communities are

native plant communities having a conservation status rank of S1, S2, or S3, or any native plant community that is contained within an area mapped or determined by MBS to be eligible for mapping as an area of outstanding or high biodiversity significance ranking. Figure 4.2.4-2 depicts these Sites of Biodiversity Significance.

The Permit to Mine would address special consideration of wetlands that include rare natural communities. Additional information on rare natural communities would be included in the wetland permit application as part of the Permit to Mine process for further refinement of site-specific conditions.

Culturally Important Plants

Potential effects on wild rice as a result of the NorthMet Project Proposed Action would vary by location. The CEC modeling scenario concentrations exceed the sulfate evaluation criterion at PM-13. However, under project conditions, the project would not cause or add to an exceedance of the 10 mg/L sulfate evaluation criterion for the Embarrass River at PM-13, since the Tailings Basin containment and seepage collection system would capture seepage presently going to the Embarrass River tributaries. Sulfate concentrations currently exceed 10 mg/L in the Partridge River at SW-005. GoldSim results predict that for all situations where a theoretical impact could be attributed to the NorthMet Project Proposed Action, the expected increase in sulfate concentration at SW-005 (and SW-006) would be less than or equal to 0.1 mg/L, and this would be superimposed on typical annual fluctuations of several mg/L. A practical consequence of this result is that the effects of the NorthMet Project Proposed Action would not be identifiable by even the most robust field monitoring program. Effects, as well as water quality standards, are discussed more thoroughly in Section 5.2.2.

While a distinct list of plant species important to the Bands is not available, Sections 4.2.9.3.3 and 5.2.9.2.2 discuss more broadly the effects on the ecological subsections, large landscapes, and connected ecosystems.

Indirect Effects

In addition to the direct effects mentioned above, potential indirect effects on remaining vegetative cover types at the Mine Site could be associated with dust from road traffic and mining operations and with changes in hydrology. Dust on leaves can affect the rates of photosynthesis and respiration, which both influence plant growth. If sulfide-containing dust is deposited on leaves, it could react with oxygen in the air and water from precipitation to create sulfates over a period of weeks to months. This residual build-up in the soil could inhibit growth by slowly acidifying the soil conditions. The distance dust travels depends on wind speed, antecedent weather conditions, dust particle size, and vegetation density near the source. Section 5.2.7.2.6 states that the NorthMet Project Proposed Action is not expected to have a significant effect on sulfate deposition in the state, and so no threat to sensitive vegetation is expected. PolyMet proposes to implement various dust-control measures such as stabilizing disturbed soils by temporarily establishing vegetation and water spraying during dry periods (consistent with *Minnesota Rules*, part 6132.2800). As Section 5.2.7 further describes, fugitive dust control measures would result in 90 percent control at the Mine Site. These measures, which are standard practice for existing taconite mines on the Mesabi Iron Range, have proven to be adequate to minimize potential indirect effects from fugitive dust. The Mine Site AERA did not assess potential local mercury deposition because potential emissions are less than 1.0 lb/yr

(Barr 2011g). However, the mercury deposition on terrestrial environments would be expected to be not significant when compared to variability in background mercury concentrations.

As Section 5.2.3 explains, vegetation located within zones with a high likelihood of hydrology effects would be more likely to have community changes than those with no or low likelihood of effect.

Reclamation

Reclamation activities help to offset a portion of the effects of a project. Reclamation and revegetation at the Mine Site would promote cover development and initiate vegetative succession on stockpiles, the combined East Central Pit, and Mine Site infrastructure footprints. Fertilizer would be applied at rates recommended for each group of species planted, and would be worked into the soil to a depth of 8 inches on the level and 4 inches on all slopes (PolyMet2015g, Attachment A). Soil testing would be completed, as needed, to evaluate fertilizer requirements. On areas to be mulched after seeding, no more seed would be sown than could be mulched the same day. Seed would be sown via mechanical Truax native seed drills or hydrospreading at specified rates of application, unless inaccessible or wet areas dictate the use of hand-operated spreaders. Seedbeds would be firmed using cultipackers, or seeds would be covered before mulching. Six different types of mulch could be applied, depending on the situation. As nutrients and organic matter are returned to the soil, the conditions on the reclaimed areas would become more suitable for migration of nearby native herbaceous and woody species.

The Category 1 Stockpile would be incrementally and progressively reclaimed throughout the life of the mine, starting in year 14, to minimize erosion of the outer slopes, promote post-closure land use, and minimize the need for active site care and maintenance during the post-closure period. Prior to construction of the cover system, the stockpile surfaces would be graded for long-term stability, to promote vegetation growth and erosion control, and to develop a surface drainage network over the stockpile (PolyMet 2015h). After grading, an engineered geomembrane system would be constructed. The geomembrane system would consist of, from top to bottom: 18 inches of rooting zone soil consisting of on-site unsaturated overburden mixed with peat, as needed, to provide organic matter; 12 inches of granular drainage material with drain pipes to facilitate lateral drainage of infiltrating precipitation and snowmelt off the stockpile cover; a 40 mil geomembrane barrier layer; and a 6-inch soil bedding layer below the geomembrane (PolyMet 2015a). The stockpile would then be locally contoured to provide some topographic variety to the surface. Finally, the stockpile would be seeded with a certain selection of grasses/forbs at the top and bench flats and a potentially different group of species for the slopes, depending on the availability and suitability of the species (PolyMet 2015g, Attachment A). The three groups of species designated for the top and benches would include a native, slow-growth mix; a non-native, rapid-growth mix; and a mix of both native and non-native species. The species mix for the stockpile slopes would contain the same native species as the stockpile bench and flats, and a slightly modified group of non-native species. The cover would store precipitation within the loose layer during the period when vegetation is dormant. The trapped water would then be removed from the cover system by transpiration of the plants during the growing season and evaporation. Vegetation would also aid in stabilizing the cover from wind and rain erosion (Polymet 2015h).

Both the Category 2/3 Stockpile and the Category 4 Stockpile would be temporary and would be removed at closure. Temporary stockpile reclamation would begin during operations. The

material in these stockpiles would be relocated to the East Pit starting in year 11 (PolyMet 2015a). After removal of the material, the footprint of the Category 2/3 Stockpile and portions of the Category 4 Stockpile that do not become the Central Pit would be reclaimed by subsequent seeding and planting of grass and forb species similar to those planted for the Category 1 Stockpile top and benches (PolyMet 2015g, Attachment A). Depressions in both temporary stockpile footprints with sufficient hydrology and soil conditions would be seeded with a different group of native grasses (e.g., fringed brome, bluejoint, Virginia wild rye, tall manna grass, fowl bluegrass, tussock sedge, pointed broom sedge, dark green bulrush, and woolgrass) and forbs (e.g., Canada anemone, marsh milkweed, flat-topped aster, common boneset, grass-leaved goldenrod, spotted Joe Pye weed, blue monkey flower, giant goldenrod, and Eastern panicled aster) suitable for wet soils. The West Pit would become open water, while the combined East Central Pit would be partially filled with material from the Category 2/3 Stockpile and Category 4 Stockpile to support wetland vegetation with species discussed above for the removed stockpile depressions (see Table 5.2.4-2). The pit wall overburden slopes would be planted with the same mix mentioned for stockpile slopes above (PolyMet 2015g, Attachment A). The acres reclaimed (see Table 5.2.4-2) do not equal the acres disturbed as some haul roads and buildings would remain after cessation of operations.

Following demolition of Mine Site buildings and parking areas, suitable overburden would be placed over the footprint, to a depth of 2 ft., and revegetated (PolyMet 2015g). Mine Site roads deemed unnecessary for future access by the MDNR would be scarified and revegetated, as well. Disturbed areas, building sites, and reclaimed roads would all be seeded with a similar mix of grass and forb species as that planted on the Category 1 Stockpile top and benches (PolyMet 2015g, Attachment A).

Table 5.2.4-2 Proposed Vegetation Types and Acreages for Reclaimed Stockpiles and Pits at the Mine Site

Type	Proposed Reclamation Vegetation	Acres
Category 1 Stockpile	Grassland/herbaceous	526
Category 2/3 Stockpile (Removed)	Wetland; Grassland/herbaceous	180
Category 4 Stockpile (Removed)	Wetland; Grassland/herbaceous	57*
Ore Surge Pile (Removed)	Wetland; Grassland/herbaceous	31
Overburden Storage and Laydown Area (Removed)	Wetland; Grassland/herbaceous	41
Combined East Central Pit	Wetland	207*
West Pit	Open pit lake	321
Roads, Parking Areas, Buildings	Grassland/herbaceous	88

Sources: PolyMet 2015g, Attachment A; PolyMet 2015a; PolyMet 2015h; PolyMet 2014q; Barr, Pers. Comm., February 6, 2013.

*The Central Pit would be mined at the location of the temporary Category 4 Stockpile after it is removed. The reclamation acres for the Category 4 Stockpile and the Combined East Central Pit overlap.

Effects of Invasive Non-native Plants

Disturbances associated with the construction of the Mine Site would result in exposed soil surfaces that would have the potential for colonization by invasive species. PolyMet proposes to temporarily vegetate and stabilize disturbed areas during operation and permanently reclaim during closure by spreading seeds. Species proposed for revegetation on most disturbed areas and the Category 1 Stockpile top and benches include native and non-native species. There are native grass species (e.g., fringed brome, switchgrass, Canada wild rye, bluejoint, poverty

oatgrass, slender wheatgrass, fowl bluegrass, and false melic) and native forb species (e.g., common yarrow, pearly everlasting, flat-topped aster, tall cinquefoil, large-leaved aster, stiff goldenrod, smooth wild rose, black-eyed susan, gray goldenrod, upland white aster, Lindley's aster, smooth aster, and American vetch). According to the PolyMet Reclamation Seeding and Mulching procedure (PolyMet 2015g, Attachment A), preference would be given to establishing native plant communities, and the introduction of invasive plant species would be avoided to the extent practicable. Reclamation objectives include rapidly establishing a self-sustaining plant community, controlling air emissions, controlling soil erosion, providing wildlife habitat, and minimizing the need for maintenance.

Non-native species that could be planted include: oats, winter wheat, alfalfa, timothy, redtop, alsike clover, white clover, Canada bluegrass, intermediate wheatgrass, cicer milkvetch, birdsfoot trefoil, perennial ryegrass, smooth brome grass, meadow brome, and red fescue. These species are known to establish quickly and form a nearly complete groundcover, which can help prevent erosion, maintain water quality, and increase soil stability on more susceptible areas. The legume species listed would also fix atmospheric nitrogen into the soil to help re-establish soil nutrients. Generally, these species would be planted as temporary cover crops until the native species developed and could out-compete them. However, some of the proposed species are considered invasive (e.g., birdsfoot trefoil, redtop, smooth brome grass, Canada bluegrass). Section 5.2.4.2.4 discusses suggested mitigation measures for non-native or invasive species.

The proposed Type 1 mulch (hay, straw, and agricultural grass/legume cuttings) would be relatively free of seed-bearing stalks or propagules of noxious weed species, as defined by the rules and regulations of the Minnesota Department of Agriculture (PolyMet 2015g, Attachment A).

The introduction of invasive non-native species would be more detrimental to the relatively high-quality vegetation communities at the Mine Site than to those at the Plant Site, which is already heavily disturbed. Introduction of invasive non-native species could result in decreased diversity of plant species and habitats available to wildlife species. Several ETSC plant species at the Mine Site may be susceptible to increased competition from invasive non-native species. There are already a few occurrences of yellow sweetclover and bladder campion at the Mine Site, which may invade future disturbed areas.

Minnesota's noxious weed law (*Minnesota Statutes* § 18.75-18.91) contains procedures for controlling and eradicating noxious weeds on all lands within the state. None of the species proposed to be potentially planted are considered state-prohibited noxious weeds. The MDNR has made recommendations for non-invasive species for the seed mix and the final seed mix would be approved during permitting.

Effects on Threatened and Endangered Plant Species

The MDNR NHIS and separate rare species surveys were utilized to map known ETSC species locations using GIS data. Updated MDNR Element Occurrence attribute data were used to estimate the NorthMet Project area and statewide population numbers of a species, per MDNR guidance (MDNR, Pers. Comm., February 13, 2012). An individual is defined here as a single plant of a species. A colony (observation) is a group of individual plants of one species in a distinct geographic location. A population is a group of individuals or colonies of one species

that may be separated geographically, but are close enough geographically to interbreed and persist over time.

No federally listed threatened or endangered plant species occur at the Mine Site. However, the NorthMet Project Proposed Action would have both direct (eight species) and potential indirect (two species) effects on state-listed ETSC plant species at the Mine Site, affecting 1 percent of the known statewide populations for these 10 species. Table 5.2.4-3 summarizes the direct and indirect NorthMet Project Proposed Action effects on each of the ETSC plant species that are located in the vicinity of the Mine Site, which includes some of the Transportation and Utility Corridor. These numbers may overestimate the actual effects as a proportion of the number of actual populations in the state. Intensive surveys, such as those performed at the Mine Site, have not been performed throughout the state; therefore, the actual number of statewide populations may be larger than that identified in the MDNR NHIS.

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100–6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list.

Table 5.2.4-3 Effects on Known State-listed ETSC Plant Populations in the Vicinity of the Mine Site, Including the Transportation and Utility Corridor

	Known Mine Site Populations					Known Statewide Populations				
Plant Species (state status/ global status[1])	**Total Populations[2,7]**	**Total Individuals**	**Direct Effects[3] (Populations)**	**Indirect Effects[4] (Populations)**	**Unaffected Populations**	**Total Known Populations[5,7]**	**Average Individuals per Population[6]**	**Percent Directly Affected (Populations)**	**Percent Indirectly Affected (Populations)**	**Total Percent Affected (Populations)**
Botrychium campestre (SC/G3)	1	1	1	0	0	69	unknown	1	0	1
Botrychium pallidum (SC/G3)	1	21	1	0	0	99	15	1	0	1
Botrychium rugulosum (SC/G3)	1	4	1	0	0	72	14	1	0	1
Botrychium simplex (SC/G5)	3	1,580	3	0	0	210	25	1	0	1
Caltha natans (E/G5)	1	56	1	0	0	15	unknown	7	0	7
Eleocharis nitida (SC/G4)	1	~1,562 ft^2	1	0	0	49	450	2	0	2
Juncus stygius var. *americanus* (SC/G5)	1	1	0	1	0	30	unknown	0	3	3
Platanthera clavellata (SC/G5)	1	3	0	1	0	123	unknown	0	1	1
Ranunculus lapponicus (SC/G5)	1	~919 ft^2	1	0	0	83	51	1	0	1
Torreyochloa pallida (SC/G5)	1	~25 ft^2	1	0	0	74	unknown	1	0	1
Total	13	NA	11	2	0	982	NA	NA	NA	NA

Sources: MDNR 2011k; MDNR 2014d.

Notes:

[1] The state status is E – Endangered; T – Threatened; and SC – Species of Special Concern. The global ranks range from G1 to G5. A lower global ranking (e.g., G3) indicates a species at higher global risk than higher ranking (e.g., G5) (NatureServe 2014b).

[2] Populations are interpreted from MDNR NHIS data using Element Occurrence, which differs from the DEIS, which used colonies as the population estimate.

[3] Direct effects are expected for those populations that would be removed or buried by mine activities. Effects are calculated for populations rather than individuals because of the large variation and inaccuracies in the estimates of number of individuals per population.

[4] Indirect effects may occur to those populations within or near the Mine Site. These populations may be affected by changes in hydrology, water quality, dust, or inadvertent activities. As above, effects are given for populations rather than individuals.

[5] Statewide population data provided by Lisa Joyal (MDNR) on March 26, 2013.

[6] Population estimates are approximate and used for comparative purposes only. The number of individuals is based upon populations for which data exist.

[7] Data included here were provided by the Division of Ecological Resources, MDNR, and were current as of August 5, 2014. These data are not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that no significant features are present

The NorthMet Project Proposed Action would directly affect 8 of the 10 state-listed ETSC plant species found at or in the immediate vicinity of the Mine Site (see Table 5.2.4-3). Most of the direct effects would involve the complete loss of colonies within a population as a result of excavation of the mine pits, burial under stockpiles, or disturbance during infrastructure construction.

The NorthMet Project Proposed Action would potentially indirectly affect 2 of the10 state-listed ETSC plant species found at or in the immediate vicinity of the Mine Site (see Table 5.2.4-3). The NorthMet Project Proposed Action may also result in indirect effects on some colonies of the directly affected state-listed ETSC plant species at the Mine Site. These indirect effects may occur as a result of changes in hydrology or water quality, deposition of particulate matter (dust), application of road salts, or weed incursion. Individual species appear to differ in their response to these indirect effects. For example, several of the ETSC plant species typically occur along or in old tailings ponds or along roadsides where disturbance and dust are frequent. To a certain extent, each species' sensitivity to disturbance can be inferred from currently occupied habitats. Habitats were considered "disturbed" if they consisted of tailings ponds, gravel pits, landing pads, logging roads, ditches, or roadsides. Several species may not actually be disturbance-tolerant, as much as they are able to colonize previously disturbed sites. Repeated soil disturbance near these species may have an effect on such populations in the short term. Overall, less than 1 percent of the known statewide populations for these state-listed ETSC species would potentially be indirectly affected by the NorthMet Project Proposed Action. In some cases, potential indirect effects on ETSC plant species that would be near, but outside, the footprint of these facilities could be avoided or reduced by fencing or flagging ETSC populations to prevent disturbance.

Minnesota's endangered species law (*Minnesota Statute*, § 84.0895) and associated rules (*Minnesota Rules*, parts 6212.1800–6212.2300 and 6134) impose a variety of restrictions, permits, and exemptions pertaining to ETSC species. "The law and rules prohibit taking, purchasing, importing, possessing, transporting, or selling" endangered or threatened plants, including their parts or seeds, without a permit (MDNR 2013h). "Taking," as it relates to plants includes picking, digging, or destroying. There is the potential that PolyMet would need to seek a Taking Permit from the MDNR for state-listed ETSC plant species. If it is determined by the MDNR that there are no feasible alternatives to taking, the applicant must pursue compensatory mitigation. Transplantation is generally not considered by the MDNR to be acceptable mitigation for taking of endangered or threatened species (MDNR 2013h). The MDNR suggests that typical compensatory mitigation for taking endangered or threatened species in Minnesota include the following:

- Funding state acquisition of another site where the species occurs that is currently unprotected and vulnerable to destruction,
- Funding additional survey work to locate other sites, and/or
- Funding research to improve our understanding of the habitat requirements or protection needs of the species (MDNR 2011k).

A discussion of the effects on each individual ETSC species is provided below.

Prairie moonwort populations are commonly observed on sparsely vegetated mineral soil from sediments of iron mine tailings ponds and grassy railroad embankments (NatureServe 2014b). Of

the 69 known populations statewide, one colony of one population within the Mine Site area, along Dunka Road, could be directly affected by pipeline construction and road improvements/maintenance as part of the NorthMet Project Proposed Action (1 percent affected) (see Table 5.2.4-3). This species is less tolerant of disturbance than other *Botrychium* species; however, since it prefers sparsely vegetated areas, it may actually expand into disturbed areas along Dunka Road in the future. At the Mine Site, grassland areas would not be affected, but around 34 percent of previously disturbed areas would be affected, resulting in potentially reduced on-site habitat for this species (see Table 5.2.4-1).

Botrychium pallidum (pale moonwort) populations are most commonly observed on mine tailings basins and along roadsides. Of the 99 known populations statewide, three colonies of one population within the Mine Site, along Dunka Road, could be directly affected by pipeline construction and road improvements/maintenance as part of the NorthMet Project Proposed Action (1 percent affected) (see Table 5.2.4-3). One separate colony is located near the railroad track and may be indirectly affected. This species, however, appears to be semi-tolerant of disturbance since sites that are kept open by regular disturbance are particularly suitable (NatureServe 2014b). Colonies may actually expand into newly disturbed areas along Dunka Road and at the Mine Site. Grassland areas at the Mine Site would not be affected, but around 34 percent of previously disturbed areas would be affected, resulting in reduced on-site habitat for this species (see Table 5.2.4-1).

Botrychium rugulosum (ternate, or St. Lawrence, grapefern) often occurs on tailings basins, along roadsides, and in shaded wetland forests. Of the 72 known extant populations in Minnesota, one population (with four individuals) occurs along Dunka Road at the Mine Site (1 percent affected) (see Table 5.2.4-3). This population may be directly affected by vehicle operation or road improvements and maintenance as part of the NorthMet Project Proposed Action. This species appears to be semi-tolerant of disturbance and populations. At the Mine Site, around 62 percent of upland conifer forests and around 55 percent of upland deciduous forests would be affected, resulting in much less on-site habitat for this species (see Table 5.2.4-1).

Botrychium simplex (least moonwort) frequently occurs in shrublands, forests, tailings basins, and along roadsides. Of the 210 known populations statewide, three occur at the Mine Site, all of which are expected to be directly affected (see Table 5.2.4-3). Of these populations, 21 colonies are expected to be directly affected—seven from stockpiles and mine pits, and another 14 from construction of the haul roads, water pipeline, ditches, railroad track, or transmission line (1 percent affected). The colonies affected by stockpiles and mine pits would be removed, while the colonies affected by construction of pipelines or ditches may be reduced in the short term. Depending on proximity to construction activities, some of these colonies would likely recover by expanding along Dunka Road and at the Mine Site post-closure, as this species appears to be semi-tolerant of disturbance. At the Mine Site, around 34 percent of disturbed areas and around 55 percent of shrublands would be directly affected, resulting in less on-site habitat for this species (see Table 5.2.4-1).

Caltha natans (floating marsh-marigold) is found primarily in relatively undisturbed habitats and is not likely to be tolerant of disturbance. Of the15 known populations statewide, one population, which consists of 13 colonies, occurs at the Mine Site (see Table 5.2.4-3). One colony is expected to be directly affected by stockpile development. Two other colonies are located close to Dunka Road and could be potentially indirectly affected by road construction or

improvements. Ten other colonies are located in the vicinity of, but outside, the Mine Site, several of which occur along the Partridge River. Since water from the West Pit would be discharged downstream of these colonies, it is unlikely there would be indirect effects on them. Effects would not occur to all thirteen colonies of the Mine Site population as indicated in Table 5.2.4-3 because direct and indirect effects due to the NorthMet Project Proposed Action would be limited to three of the thirteen colonies. All known Minnesota populations occur in St. Louis County; one in the northern third of the county, two in the southern third, and twelve in the central third. A few of the statewide populations contain many more individuals (thousands) than the population at the Mine Site. Since the known statewide population for this species is smaller than the other species present, the effect on its population in Minnesota would be correspondingly larger (seven percent affected). As mentioned, however, due to the size of other statewide populations, and since three out of thirteen colonies of the Mine Site population could be affected, the actual percent affected would be smaller than seven percent (using available data, approximately less than one percent). The mitigation measures mentioned above, particularly the purchase of an unprotected site with a population of the species, should be assessed. At the Mine Site, around 47 percent of aquatic environments would be directly affected, resulting in reduced on-site habitat for this species (see Table 5.2.4-1).

Eleocharis nitida (neat spike-rush) at the Mine Site is primarily observed in roadside ditches along Dunka Road with gravel or sandy substrates. Of the 49 known populations in the state, one occurs on the Mine Site (2 percent affected) (see Table 5.2.4-3). Of this population, eight colonies are found along Dunka Road, and three colonies are located along the railroad tracks. All of the eight Dunka Road colonies are likely to be directly affected by ditch construction. The other three colonies may be potentially indirectly affected by changes in hydrology or water quality. This species seems to be semi-tolerant of disturbance since it has inhabited roadside ditches. At the Mine Site, around 47 percent of aquatic environments and 34 percent of disturbed areas would be directly affected, resulting in less on-site habitat for this species (see Table 5.2.4-1).

Juncus stygius var. *americanus* (bog rush) has 30 known populations in the state, none of which occur at the Mine Site; however, one population is located upgradient of the Mine Site within the One Hundred Mile Swamp (see Table 5.2.4-3). This population would not be directly affected, but it may be potentially indirectly affected by changes in hydrology (3 percent affected). However, Section 5.2.3 indicates there would likely be no wetland hydrology effects in this area. At the Mine Site, around 56 percent of lowland coniferous forests would be directly affected, resulting in reduced habitat nearby for this species (see Table 5.2.4-1).

Platanthera clavellata (club-spur orchid) has 123 known populations in the state, none of which occur at the Mine Site; however, one population is located upgradient of the Mine Site within the One Hundred Mile Swamp (see Table 5.2.4-3). This population would not be directly affected, but three colonies may be potentially indirectly affected by changes in hydrology, since the species is sensitive to this type of change (1 percent affected). However, Section 5.2.3 indicates there would likely be no wetland hydrology effects in this area. At the Mine Site, around 56 percent of lowland coniferous forests would be directly affected, resulting in reduced habitat nearby for this species (see Table 5.2.4-1).

Ranunculus lapponicus (lapland buttercup) is found in conifer/sphagnum bogs on the Mine Site. Of the 83 known populations statewide, one population occurs at the Mine Site (1 percent affected) (see Table 5.2.4-3). Of this population, three colonies are expected to be directly

affected by construction of a waste rock stockpile. The other four colonies may be potentially indirectly affected by changes in hydrology, water chemistry, or dust. This species may face short- and long-term effects at the Mine Site since it is most likely intolerant of disturbance. At the Mine Site, around 56 percent of lowland coniferous forests would be directly affected, resulting in much less on-site habitat for this species (see Table 5.2.4-1).

Torreyochloa pallida (Torrey's manna-grass) is often seen along roadsides and may be semi-tolerant of disturbance. Of the 74 known populations statewide, one occurs at the Mine Site (1 percent affected) (see Table 5.2.4-3). Of this population, one colony along Dunka Road may be directly affected by construction of a transmission line. The remaining three colonies are located away from any proposed construction and may be sufficiently removed from potential direct and indirect effects of the NorthMet Project Proposed Action. At the Mine Site, around 47 percent of aquatic environments and 56 percent of lowland coniferous forests would be directly affected, resulting in less on-site habitat for this species (see Table 5.2.4-1).

Regional Foresters Sensitive Species

The USFS RFSS data layer indicates there are no known RFSS plants on the federal lands, which include the majority of the Mine Site. However, several state-listed ETSC plant species known to exist on the Mine Site are also listed as RFSS plants in the Superior National Forest. Six of these species would be affected by the NorthMet Project Proposed Action, including *Botrychium pallidum*, *Botrychium rugulosum*, *Botrychium simplex*, *Caltha natans*, *Eleocharis nitida*, and *Juncus stygius* var. *americanus*.

MIH types are not fully mapped for the Mine Site since not all of it consists of federal land, but MIH types are mapped for the federal lands located within the Mine Site. On this portion of the Mine Site, upland forest (MIH 1; approximately 531 acres affected) would be affected the most of all MIH types, which means RFSS plant species listed under the upland forest category (see Table 4.2.4-5) could be most affected by the NorthMet Project Proposed Action. However, since there are suitable habitats for each RFSS species within each MIH type, a direct correlation between loss of MIH and loss of RFSS plants cannot be made. Upland conifer forest (MIH 5; approximately 505 acres affected) lands would be the next group most affected, though there is overlap of this category with upland forest since upland conifer forest occurs within upland forest types. Some RFSS species that occupy upland forest may also be affected by this category. Lowland black spruce-tamarack forest (MIH 9; approximately 483 acres affected) would be subject to effects comparable to upland conifer forest, and some of the RFSS species listed in this category would be affected similarly. The lowland emergent wetland type would be affected (approximately 11 acres affected), but likely only one of the five RFSS plant species listed for that type may be minimally affected. Aquatic habitat (MIH 14) is not mapped at the Mine Site; however, there are some aquatic habitats on the parcel that would be affected and, thus, some of the RFSS species listed in this category may be affected. Section 5.2.6 provides further discussion of effects on aquatic habitats and species.

The one RFSS plant not listed as an ETSC species but that is known to occur on the Mine Site, according to MDNR NHIS data, is *Botrychium michiganense*, which is very closely related to *Botrychium hesperium*. *B. hesperium* typically occurs in western states, while *B. michiganense* typically occurs around the Great Lakes states. One population is known to occur on the Mine Site, of which five colonies would be affected by stockpile development, haul road placement, or the Transportation and Utility Corridor immediately adjacent to the Mine Site (MDNR 2014d). It

often occurs in grassy roadsides and fields, and requires at least somewhat open habitat created by natural disturbance events. While anthropogenically disturbed areas have been observed to harbor reasonably large numbers of individuals, habitat created in this way has not been proven to support long-term viable populations (NatureServe 2013). At the Mine Site, grassland areas would not be affected, but around 34 percent of previously disturbed areas would be affected, resulting in potentially reduced on-site habitat for this species (see Table 5.2.4-1).

The USFS determined that the NorthMet Project Proposed Action would not affect 20 RFSS plants on the Superior National Forest. These 20 species include: alpine milkvetch, *Arctoparmelia centrifuga*, *Arctoparmelia subcentrifuga*, Braun's holly fern, creeping rush, Chilean sweet-cicely, Douglas' hawthorn, white mountain saxifrage, largeleaf sandwort, little goblin moonwort, Northern arnica, maidenhair spleenwort, muskroot, nodding saxifrage, Oakes' pondweed, Scotch false asphodel, short sedge, smooth woodsia, triangle grapefern, and Wain's cup lichen. In addition, the NorthMet Project Proposed Action may affect individuals, but are not likely to cause a trend to federal listing or loss of viability for the remaining 38 RFSS plants on the Superior National Forest. The Biological Evaluation is included in Appendix D for more information about effects on RFSS plants.

5.2.4.2.2 Transportation and Utility Corridor

Effects on Cover Types

Habitat Types

Construction and transportation activities within the Transportation and Utility Corridor, as part of the NorthMet Project Proposed Action, would affect all 120.2 acres of the MDNR GAP land cover designations (see Table 5.2.4-4). The majority of effects would be on formerly disturbed (94.4 acres) and grassland areas (9.8 acres).

Table 5.2.4-4 Direct Effects on Cover Types along the Transportation and Utility Corridor

Cover Types	Affected Acres	Non-affected Acres	Total Cover Type Acres	Percent of Cover Type Affected
Disturbed	94.4	0	94.4	100
Cropland/grassland	9.8	0	9.8	100
Shrubland	7.7	0	7.7	100
Aquatic environments	2.7	0	2.7	100
Upland deciduous forest	2.7	0	2.7	100
Upland coniferous forest	2.6	0	2.6	100
Lowland coniferous forest	0.2	0	0.2	100
Lowland deciduous forest	0.0	0	0.0	100
Upland conifer-deciduous mixed forest	0.0	0	0.0	100
Total [1]	120.2	0	120.2	100

Source: MDNR 2006b.

Note:
[1] Total acres may be more or less than presented due to rounding.

Minnesota Biological Survey

The NorthMet Project Proposed Action would affect 22.5 acres of MBS Sites of High Biodiversity Significance (2.9 acres of the One Hundred Mile Swamp and 19.6 acres of the Upper Partridge River) within the Transportation and Utility Corridor. Similar to the Mine Site, this 22.5-acre area represents a very small portion of the mapped Sites of High Biodiversity Significance in St. Louis County (less than 1 percent) and the State of Minnesota (less than 1 percent). Habitat effects associated with the NorthMet Project Proposed Action would not result in a large percentage decline in those areas ranked as high by the MBS.

NorthMet Project Proposed Action activities within the corridor would also affect approximately 2 acres of "widespread and secure" native plant communities, including 2 acres of the aspen-birch forest: balsam fir subtype (FDn43b1; less than 1 percent of community within Laurentian Uplands subsection), and less than 0.1 acre of the low shrub poor fen (APn91a; less than 1 percent of community within Laurentian Uplands subsection).

Indirect Effects

Potential indirect effects on vegetative cover types remaining along the Transportation and Utility Corridor could include those caused by dust from road traffic or spillage from rail cars. Section 5.2.4.2.1 provides further discussion on the effects of dust. PolyMet plans to use the existing but currently decommissioned fleet of LTVSMC side-dump rail ore cars. These cars are a different design than the bottom-dump rail pellet cars that are used across the Iron Range and during past LTVSMC operations. Prior to the start of operations, PolyMet would refurbish these ore cars, which would include tightening or replacement of the couplings and linkages to minimize gaps along the hinges and joint areas where spillage could occur. Refurbishment of these cars would largely reduce the potential for spillage along the Transportation and Utility Corridor (PolyMet 2014a). Larger pieces of ore that are spilled from the cars would be recovered during routine maintenance of the track, thus minimizing indirect effects. As Section 5.2.7 further describes, no significant reactive airborne fugitive dust from the rail transport is expected. Smaller effects in already-disturbed areas could occur along Dunka Road near the Mine Site. A water pipeline for treated water and a transmission line would be constructed along Dunka Road on previously disturbed land. Construction of the pipeline and transmission line would expose soil during construction and could bury vegetation under rock fill.

Reclamation

Dunka Road would not be reclaimed after the NorthMet Project area is closed, since it is an existing private road. Railroad track and ties that are not used by common carriers would be removed and recycled (PolyMet 2015a). The Treated Water Pipeline between the Mine Site and Plant Site would be removed (PolyMet 2015g).

Effects of Invasive Non-native Plants

The Transportation and Utility Corridor is already disturbed, and contains several non-native and/or invasive species. Disturbance associated with the widening of Dunka Road and installation of the water pipeline, transmission line, and rail line would result in exposed soil surfaces that would have the potential for colonization of invasive species. Therefore, the general effects of invasive non-native plant species along the Transportation and Utility Corridor would be the same as the Mine Site or Plant Site.

Effects on Threatened and Endangered Plant Species

No federally listed threatened or endangered plant species occur within the Transportation and Utility Corridor. The NorthMet Project Proposed Action would have both direct and potential indirect effects on the same state-listed ETSC plant species as those found at the Mine Site. Since some of the populations occur along Dunka Road near or overlapping the Mine Site, they are discussed in Section 5.2.4.2.1 along with the effects on plant populations at the Mine Site. Table 5.2.4-3 summarizes the direct and indirect effects of the NorthMet Project Proposed Action on each of those ETSC plant species. For the ETSC species located within the Transportation and Utility Corridor not adjacent to the Mine Site (*Botrychium pallidum*), effects are discussed below (see Table 5.2.4-5). As mentioned for the Mine Site, these numbers may overestimate the actual effects as a proportion of the number of actual populations in the state.

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100–6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list.

Table 5.2.4-5 Effects on Known State-listed ETSC Plant Populations in the Transportation and Utility Corridor

	Known Mine Site Populations					Known Statewide Populations				
Plant Species (state status/ global status[1])	**Total Populations**	**Total Individuals**	**Direct Effects[2] (Populations)**	**Indirect Effects (Populations)**	**Unaffected Populations**	**Total Known Populations[3]**	**Average Individuals per Population[4]**	**Percent Directly Affected (Populations)**	**Percent Indirectly Affected (Populations)**	**Total Percent Affected (Populations)**
Botrychium pallidum (SC/G3)	3	16	3	0	0	99	15	3	0	3
Total	3	16	3	0	0	99	NA	NA	NA	NA

Source: Barr 2012n.

Notes:

1 The state status is E – Endangered. The global ranks range from G1 to G5. A lower global ranking (e.g., G3) indicates a species at higher global risk than higher ranking (e.g., G5) (NatureServe 2014b).

2 Direct effects are expected for those populations that would be removed or buried by road improvement activities. Effects are calculated for populations rather than individuals because of the large variation and inaccuracies in the estimates of number of individuals per population.

3 Statewide population data provided by Lisa Joyal (MDNR) on March 26, 2013. Statewide population data does not include the three populations of *B. pallidum* found during NorthMet Project Proposed Action-specific survey (Barr 2012n), as these were not included in NHIS data, thus inflating effects on statewide population.

4 Population estimates are approximate and used for comparative purposes only. The number of individuals is based upon populations for which data exist.

The NorthMet Project Proposed Action would directly affect the one state-listed ETSC plant species (*Botrychium pallidum*) found within the Transportation and Utility Corridor not adjacent to the Mine Site (see Table 5.2.4-5). The direct effects would involve the complete loss of populations as a result of disturbance during road construction and improvement activities. Section 5.2.4.2.1 above discusses Minnesota's endangered species law, as well as permits and mitigation for ETSC species.

Botrychium pallidum (pale moonwort) populations are most commonly observed on mine tailings basins and along roadsides. Of the 99 known NHIS populations statewide, six colonies of three populations along Dunka Road could be directly affected by road improvements or maintenance as part of the NorthMet Project Proposed Action (3 percent affected) (see Table 5.2.4-5). These populations were found during a separate species survey and are not included in the NHIS data. In addition, without the NHIS element occurrence attribute, it was estimated that there are three distinct populations by virtue of three separate locations of the six colonies. Thus, the effects on statewide populations are slightly inflated. All of the grassland and previously disturbed areas along the Transportation and Utility Corridor would be affected, resulting in reduced on-site habitat for this species (see Table 5.2.4-4).

5.2.4.2.3 Plant Site

Effects on Cover Types

Habitat Types

Construction, operation, and closure of the NorthMet Project area at the Plant Site would have fewer effects on native vegetation than at the Mine Site because much of the Plant Site (61 percent) has already been heavily disturbed or is barren (see Table 4.2.4-8). Most of the effects of the NorthMet Project Proposed Action are on disturbed areas or tailings ponds, but other affected areas include isolated stands of forest or shrublands (see Table 5.2.4-6). Other effects on MDNR GAP land cover types at the Plant Site are smaller. Approximately 2,189.7 acres (48 percent) of the Plant Site would be affected by NorthMet Project Proposed Action activities. A description of the potential effects on wetlands north of the Tailings Basin is presented in Section 5.2.3.

Table 5.2.4-6 Direct Effects on Cover Types at the Plant Site[1]

Cover Types	Affected Acres	Non-affected Acres [2]	Total Cover Type Acres	Percent of Cover Type Affected
Disturbed	1,104.0	1,651.5	2,755.5	40
Aquatic environments	573.0	63.8	636.8	90
Upland deciduous forest	295.1	352.5	647.6	46
Shrubland	144.9	188.9	333.8	43
Upland coniferous forest	52.0	47.8	99.8	52
Lowland coniferous forest	20.7	21.2	41.9	49
Cropland/grassland	0.0	0.0	0.0	0
Lowland deciduous forest	0.0	0.0	0.0	0
Upland conifer-deciduous mixed forest	0.0	0.0	0.0	0
Total	2,189.7	2,325.8	4,515.4	48

Source: MDNR 2006b.

Notes:
1 This table reflects only those effects on plant communities occurring within the boundaries of the Plant Site. The table does not include the potential indirect effects on the wetlands north of the Tailings Basin due to hydrology changes.
2 Areas of cover types not within a 50-ft buffer of buildings, Tailings Basin/spillway reclamation area, or railroad connection.

Minnesota Biological Survey

There are no MBS Sites of Biodiversity Significance or native plant communities identified at the Plant Site.

Indirect Effects

In addition to the direct effects mentioned above, potential indirect effects on vegetation at and surrounding the Plant Site could include dust or erosion. Vegetation would be established on tailings dams during construction to minimize erosion and fugitive dust (PolyMet 2015n). Water level would be managed in the Tailings Basin to limit the amount of exposed beach, which would minimize dust. Additionally, other fugitive dust control measures (e.g., mulching, temporary seeding, and dust suppressants) would be applied to inactive beaches. As Section 5.2.7 further describes, fugitive dust control measures would result in an 80 percent reduction of emissions at the Plant Site. Section 5.2.7.2.6 states that the NorthMet Project Proposed Action is not expected to have a significant effect on sulfate deposition in the state, and so no threat to sensitive vegetation is expected. Potential mercury emissions at the Plant Site are expected to be 4.6 lb/yr. Overall, about 95 percent of the mercury originating in the ore is expected to remain within—or be adsorbed to—the tailings and the hydrometallurgical residue, where it would remain isolated from further transport to the environment. The mercury deposition on terrestrial environments would be expected to be not significant when compared to variability in background mercury concentrations. In the event erosion occurs on the Tailings Basin, it would be corrected and re-vegetated; if necessary for repetitive or excessive erosion, channels or outfall structures would be designed to address the issue.

Reclamation

At closure, the buildings and other infrastructure at the Plant Site would be removed, and foundations would be razed and buried to a minimum depth of 2 ft. with overburden material suitable for vegetation. Plant Site roads that are not deemed necessary for access by the MDNR

would be scarified and vegetated, and asphalt from paved surfaces would be removed and recycled. These disturbed areas would be seeded with the same potential three mixes (native, non-native, or mixed) as those mentioned for disturbed areas in Section 5.2.4.2.1 (PolyMet 2015g, Attachment A).

The Tailings Basin would be incrementally reclaimed by a qualified professional pursuant to *Minnesota Rules*, part 6132.2700. As dams are constructed, exterior slopes would be stabilized and vegetated in accordance with requirements in the Fugitive Emissions Control Plan (PolyMet 2015l). Inactive interior beach areas would be temporarily vegetated as necessary for fugitive dust control, using oats, winter wheat, annual ryegrass, white clover, redtop, and alsike clover, or some combination of these species for various times of the year (PolyMet 2015g, Attachment A). The exterior dam faces would be permanently vegetated by a qualified reclamation contractor according to requirements of the Reclamation Seeding Plan. Upland areas would be planted with permanent vegetation and mulched to control potential fugitive dust in accordance with requirements in the Fugitive Emissions Control Plan. Upland beach areas would be planted with the same potential three mixes (native, non-native, or mixed) as that mentioned for disturbed areas in Section 5.2.4.2.1, while the dam slopes and benches would be planted with the same mix as that mentioned for the slopes of the Category 1 Stockpile (PolyMet 2015g, Attachment A). Interior portions would be graded to provide a gently sloping surface that effectively routes storm water runoff to the interior of the Tailings Basin and promotes wetlands creation between the beach and pond areas. Exposed beach areas would be amended with bentonite to limit oxygen infiltration into the tailings. The cover layer of tailings would be replaced and vegetated in accordance with requirements of the Reclamation Seeding Plan (PolyMet 2013l). Wet soils near the Tailings Basin pond would be planted with the same mix as that mentioned for the East Pit backfill and depressions in the temporary stockpile footprints (see Section 5.2.4.2.1) (PolyMet 2015g, Attachment A). Establishment of dense vegetative cover and root mass is among the most effective methods to minimize erosion, so the quality and density of the vegetation would be periodically reviewed after final reclamation construction is complete. Areas where vegetation does not become well established would receive additional seeding and/or fertilizer and other amendments in accordance with requirements of the Reclamation Seeding Plan. Reclamation areas would be inspected in spring and fall to repair erosion areas and failed seeding areas, until MDNR determines that the areas are stable and self-sustaining.

Reclamation of the Hydrometallurgical Residue Facility would include removal of ponded water from the cell surface, removal of pore water from the residue, construction of the cell cover system, and establishment of vegetation and surface water runoff controls. The exterior slopes of the Hydrometallurgical Residue Facility dams would be incrementally reclaimed throughout the life of the mine. This would include stabilization and vegetation in accordance with *Minnesota Rules*, part 6132.3200. Final reclamation would generally consist of grading the cell area into a gently sloping surface. The cover would consist of a layer of LTVSMC tailings immediately above the drained residue. This would be topped, if necessary, with a non-woven needle-punched geotextile fabric. Next, a geosynthetic clay barrier layer and a 40 mm LDPE or similar MPCA-approved geomembrane barrier layer would be placed (PolyMet 2015a). Additional LTVSMC coarse tailings and/or common borrow and cover soils would be placed on top of the barrier layer to create a surface capable of sustaining a vegetated cover (PolyMet 2012e). The Hydrometallurgical Residue Facility dam slopes and benches would be planted with the same mix as that mentioned for the Category 1 Stockpile slopes in Section 5.2.4.2.1 (PolyMet 2015g, Attachment A). Turf and final cover would be inspected and maintained by mowing once per

year or as needed, fertilizing when visual inspection indicates poor vegetation growth, and implementing repairs.

The Colby Lake Water Pipeline Corridor would not be subject to any additional disturbance or effects as a result of the NorthMet Project Proposed Action. Maintenance activities would likely continue to occur on the pipeline.

Effects of Invasive Non-native Plants

The revegetation plan following closure at the Plant Site is similar to what is planned at the Mine Site as described above. Use of the proposed seed mix could introduce invasive non-native species, depending on which species are included in the mix, to an area of primarily native vegetation that surrounds the Plant Site. However, the existing LTVSMC Tailings Basin and most of the Plant Site are already heavily disturbed, and several invasive non-native species currently inhabit these areas (e.g., smooth brome grass, reed-canary grass, yellow sweetclover). These species, once introduced, are difficult to remove and could spread to and colonize susceptible areas following future disturbance (e.g., blowdown, logging, fire). These species may reduce diversity, out-compete native vegetation, and provide lower quality habitat for some specialist animal species. Generally, dominance by invasive non-native species would reduce the quality of native cover types and habitat remaining at the Plant Site. The MDNR has made recommendations for non-invasive species for the seed mix and the final seed mix would be approved during permitting.

Effects on Threatened and Endangered Plant Species

The NorthMet Project Proposed Action would likely have no effect on federal or state ETSC plant species at the Plant Site or Colby Lake Water Pipeline Corridor because none are known to occur within the boundaries of these areas, according to MDNR NHIS data. However, no site-specific studies have been conducted at the Plant Site and so potential species not reported in the NHIS data may not be represented.

5.2.4.2.4 Potential Mitigation Measures

Mine Site Mitigation Measures

A preferred mitigation measure would be to reseed with the native species, provided they can perform as effectively as the non-native species. In some areas where erosion control would be critical to prevent slope failures, non-native species may be needed. Temporary stabilization efforts using non-native species should use non-invasive plant species to minimize the long-term risk to surrounding plant communities. In the event invasive non-native species are introduced, an additional mitigation measure would be to implement a monitoring and control program for invasive species (including noxious weeds) to ensure these species do not overtake surrounding native communities. Additionally, the purchase of an unprotected site with a population of *Caltha natans* should be assessed as mitigation, since the statewide population is lower than the other ETSC species affected.

Plant Site Mitigation Measures

The measures outlined in the Mine Site Mitigation Measures section above should be applied to the Plant Site as well. Another recommended mitigation measure may also benefit vegetation at the Plant Site specifically. The addition of organic amendments (peat) to the top foot of the Tailings Basin would improve soil and water quality and promote the development of shoreline and near-shore wetland vegetation.

5.2.4.3 NorthMet Project No Action Alternative

5.2.4.3.1 Effects on Cover Types

Under the NorthMet Project No Action Alternative, the Mine Site would not be developed, the Transportation and Utility Corridor would not be disturbed beyond routine maintenance, and the Plant Site would have no additional tailings added to the existing LTVSMC Tailings Basin. Forest-harvesting would continue to occur on the federal land portions of the Mine Site under the Forest Plan. While timber harvests would result in the immediate loss of some habitat types, permanent changes are not expected. The Forest Plan calls for an increase in older-age stands, which would likely come at the expense of younger-age stands in the long term. The majority of the federal lands are designated as General Forest – Longer Rotation Management Area, which correlates with the increase in older-age stands overall. The former LTVSMC processing plant would be reclaimed and revegetated in accordance with its separate closure plan sooner than under the NorthMet Project Proposed Action. Direct and indirect effects of the NorthMet Project No Action Alternative on cover types are considered minimal, as the Mine Site and portions of federal lands would continue to be managed in the same way they have been, and the Transportation and Utility Corridor and Plant Site have been disturbed in the past.

5.2.4.3.2 Effects of Invasive Non-native Plants

Invasive or non-native species may still invade the Mine Site as a result of logging, mineral exploration, vehicle traffic, and natural disturbances, but are likely to do so much more slowly than under the NorthMet Project Proposed Action. Invasive non-native species already exist along the Transportation and Utility Corridor and Plant Site, but they would likely spread more slowly under the NorthMet Project No Action Alternative than under the NorthMet Project Proposed Action due to less disturbance.

5.2.4.3.3 Effects on Threatened and Endangered Plant Species

Under the NorthMet Project No Action Alternative, colonies of state-listed ETSC plant species would not be affected. Timber harvests are expected to continue to occur on the federal land portions of the Mine Site. The NorthMet Project area has historically been logged and the state-listed ETSC plant species present on site have persisted. It is unlikely that continued logging, which now is more likely to employ best management practices to minimize detrimental effects, would affect the species in the long term. Potential indirect effects under the NorthMet Project No Action Alternative could come from increased competition as succession proceeds to older-age forest stands or with invasive non-native species. Effects of increased competition could include reduced spore production and consequently reduced population size in the early successional plant species (e.g., *Botrychium* spp.). Continued maintenance would likely occur along Dunka Road and the railroad where several of the *Botrychium* populations occur. Long-

term succession at these locations is unlikely due to this maintenance, and these populations could persist given available habitats. The Transportation and Utility Corridor and Plant Site contain no occurrences of state-listed ETSC plant species and so the NorthMet Project No Action Alternative is not expected to have any effects.

The USFS determined that the NorthMet Project No Action Alternative would have no effect on all 58 RFSS plants on the Superior National Forest. A Biological Evaluation has been prepared that contains further information about RFSS. The Biological Evaluation is included in Appendix D.

5.2.5 Wildlife

This section describes the environmental consequences of the NorthMet Project Proposed Action to wildlife including direct effects such as the loss of individuals/ populations of affected species or a decrease in habitat, as well as indirect effects such as displacement, competition, or changes in the greater regional area.

Summary

The NorthMet Project Proposed Action is expected to affect three federally listed species, the Canada lynx, gray wolf, and northern long-eared bat. The Canada lynx would likely be affected through localized direct decrease and fragmentation of designated critical habitat and the increased potential (albeit low) for incidental take resulting from vehicular collisions due to increased NorthMet Project Proposed Action-related traffic. Restoration of disturbed areas as part of mine closure would potentially create lynx habitat, although this successional process could take decades. The gray wolf would likely be affected through loss of habitat and the increased potential (albeit low) for incidental take resulting from vehicular collisions due to increased NorthMet Project Proposed Action-related traffic. The northern long-eared bat would likely be affected through loss of potential summer roost habitat and foraging areas. The NorthMet Project Proposed Action is not likely to affect the bald eagle, which is also protected under federal law (although not a federally listed endangered or threatened species). Eight additional state-listed and special concern species, which include eastern heather vole, moose, little brown bat, eastern pipistrelle, northern goshawk, boreal owl, wood turtle, and yellow rail, may be affected by the NorthMet Project Proposed Action. It is expected that the Laurentian tiger beetle, taiga alpine butterfly, Freija's grizzled skipper butterfly, Nabokov's blue butterfly, and Quebec emerald dragonfly would not be affected. SGCN, RFSS, and other wildlife species, including those considered tribally or culturally significant, may be affected by human activity, noise and vibration, rail and vehicle traffic, and decrease of habitat.

5.2.5.1 Methodology and Evaluation Criteria

This section uses data presented in Section 4.2.5 to analyze effects on wildlife. Specifically, survey reports and GIS data were obtained regarding land cover and habitat types, forest stand age classes, listed ETSC, SGCN, RFSS, and other wildlife species. GIS analysis was used to calculate direct and indirect effects on these resources.

The analysis of direct effects included the potential of a take of federally or state-listed species. Pursuant to the federal ESA, *take* is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Take of an individual or population could occur for various reasons such as traffic collisions, habitat destruction, or change in an individual or population's habitat use due to noise, other disturbance, or contamination of food or water sources. Take of a listed species would be considered a significant effect. The USFWS can issue a permit for the incidental take of a federally listed wildlife species consistent with the goal of conservation of the species. Permit applicants must design, implement, and demonstrate availability of funding for a conservation plan that minimizes and mitigates harm to the affected species during the proposed project. Without a permit, the take of a federally listed protected species is punishable by fines or imprisonment. Permitting for taking of a state-listed species is regulated by the MDNR.

Analysis was also conducted for potential indirect effects on federally or state-listed species, such as increased competition for resources or habitat due to displacement of individuals from the affected area into the territory of other animals, or other indirect effects that cause mortality or reduced breeding and recruitment in the future population.

In addition to listed species, analysis was completed of potential direct and indirect effects on habitat types that affect population size and long-term viability for other species potentially at risk (SGCN, RFSS, and species of cultural concern). Direct effects could include vegetation removal by clearing, burial, or other destructive activity. Indirect effects could include changes within larger ecological units (e.g., the Laurentian Uplands or Partridge River Watershed), but not necessarily at the Mine Site or Plant Site, that could occur at a later point in time, such as a change in long-term vegetation composition or dominance, habitat conversion due to hydrologic changes, invasion by non-native species, or disruption of natural disturbance regimes (e.g., the annual natural hydrological cycle). Depending on the magnitude of the effect, direct effects may require mitigation.

5.2.5.2 NorthMet Project Proposed Action

This section describes the effects on wildlife due to construction and operation activities.

5.2.5.2.1 Federally Listed Species

As required under Section 7 of the ESA, the USACE and the USFS have initiated consultation with the USFWS regarding potential effects on federally listed species to ensure that actions they authorize or permit would not jeopardize listed species or designated critical habitats. Consultation is currently ongoing and will continue throughout the EIS process.

A Biological Assessment has been prepared that contains further information about federally listed species. The Biological Assessment is included in Appendix D. The Biological Assessment analyzes effects on the Canada lynx, gray wolf, and northern long-eared bat. The organization of the methodologies and discussion in the Biological Assessment may be different from the FEIS. The Biological Assessment also contains a determination of effects for the three species.

The Co-lead Agencies met with the USFWS several times during informal consultation. The USACE, USFS, and USFWS initiated informal consultation on February 26, 2010, when the agencies met to discuss the NorthMet Project. The USACE subsequently met with the USFWS on May 3, 2011, September 1, 2011, and February 28, 2013 to discuss it further. The USACE, USFS, and USFWS met on July 9, 2014 to identify tasks to be accomplished in the development of the Biological Assessment. Specifically, the northern long-eared bat and habitat were discussed, which led to further USFS bat survey work being proposed. The USACE, USFS, and USFWS met on October 29, 2014, February 5, 2015, and March 23, 2015, to discuss comments received on the draft Biological Assessment and potential mitigation measures. The Co-lead Agencies signed the cover letter to the BA to initiate formal consultation with USFWS on August 21, 2015.

Canada Lynx

In 2009, it was estimated that there were likely fewer than 200 lynx in Minnesota (Moen 2009). However, individuals can travel well beyond their home range, specifically when prey is scarce, at times more than 1,000 km (Moen 2010). Three individual lynx have been harvested in

Ontario, approximately 400 road miles from their known locations in Minnesota. Of the 55 incidental take records the USFWS has documented from 2001 through 2013, two of the records involved lynx killed by trains, and seven of the records involved lynx struck by vehicle traffic along roads (USFWS 2013).

The NorthMet Project area is currently within the 8,065 square mile designated critical habitat for the Canada lynx (USFWS 2009), which includes much of St. Louis, Lake, and Cook counties. Surveys identified at least 20 different individual lynx were identified within 18 miles (ENSR 2006), and lynx sign was observed on the Mine Site in 2010. A collared and studied lynx, L11, was identified adjacent to the NorthMet Project area, south of Dunka Road. This animal may have been using the NorthMet Project area for forage and travel as part of her home range between when she was collared in early 2004 and when she was trapped in Ontario, Canada in 2006. Lynx tracks were observed at the Mine Site in 2010, and there have been multiple observations of lynx sign within 5 miles of the federal lands (USFS 2013).

Site clearing and mining activities associated with the NorthMet Project Proposed Action would potentially affect lynx by reducing available habitat and increasing habitat fragmentation. The total effect from increased activity is not known, as lynx have been known to habituate to increased human activity (Sunde et al. 1998). The NorthMet Project Proposed Action mining activities would disturb approximately 2 square miles (1,454.0 acres) of suitable lynx habitat, currently a mix of upland forest and lowland forest and bog. Restoration of disturbed areas as part of mine closure would eventually create potential lynx habitat, although this successional process could take decades. Potential lynx habitat would be lost for the duration of mine operations (over 20 years) and an additional 20 years or more after closure before suitable lynx habitat would again occur at the Mine Site (ENSR 2006).

Assuming that the territory of a resident lynx is 58 square miles for males and 28 square miles for females, the reduction of habitat at the Mine Site corresponds to a reduction of three to seven percent of an individual's territory (ENSR 2006). Territory size expands in response to periods of reduced snowshoe hare density, and the related lynx and snowshoe hare populations tend to loosely follow a 10-year cycle, though other factors contribute to lynx population shifts. ENSR 2006 surveys for the NorthMet Project Proposed Action were done during a low point in the lynx/snowshoe hare density cycle.

Though no lynx were identified during the ENSR 2006 surveys, those that may currently be using the Mine Site could expand their territory into surrounding areas. Surveys conducted in 2006 by Moen et al. found evidence of at least 20 individuals within 18 miles of the NorthMet Project area, and lynx sign has been observed on the Mine Site by the USFS. Lynx density in the vicinity is considered low relative to the rest of the Minnesota lynx range (ENSR 2006). Individuals displaced from the Mine Site may be affected by increased stress and potential mortality due to utilization of unfamiliar territory and competition with other lynx or predator species. Although the NorthMet Project Proposed Action would result in a reduction and fragmentation of lynx habitat at the Mine Site, little to no effect on statewide lynx populations would occur as it is unlikely that an individual lynx or pair of lynx would be affected by the habitat decrease.

According to the USFS, LAUs are land areas identified for purposes of analysis and development of conservation measures for lynx (USFS 2004b). They range in size from just

under 17,000 acres up to more than 91,000 acres. As discussed in Section 4.2.5.2.1, the federal lands (including the Mine Site) are located within LAU 12.

The USFS determined that approximately 2,737 acres, or 4.0 percent of LAU 12 is currently unsuitable for lynx use (USFS 2013). As noted above, the NorthMet Project Proposed Action would disturb 1,454 acres of lynx habitat, making them unsuitable for lynx. The percent of LAU 12 unsuitable for lynx would increase to 6.1 percent. This percentage is well within the Forest Plan guideline (G-WL-3) that unsuitable habitat not exceed 30 percent of the LAU.

The increased vehicle traffic associated with the NorthMet Project Proposed Action mining activities could affect species such as the lynx. An average of 2,066 miles per day of vehicular traffic is expected within the Mine Site, primarily to haul ore to the rail siding and waste rock to the stockpiles (see Table 5.2.5-1).

Table 5.2.5-1 Vehicle Traffic within the Mine Site Only

Vehicle type	Vehicle Weight (Tons)	Speed (Average MPH)	Total Road Miles in Mine Site	Annual Vehicle Miles Traveled (Estimated)	Estimated Average Total Miles Per Day (Estimated)
Haul Trucks and Construction Vehicles	81.5-425	12-14	15.3	61,400-979,000	2,066.0

Source: Barr 2012g.

Although there is the potential for incidental take as a result of vehicle collisions with lynx, haul traffic at the Mine Site would likely have little direct effect on lynx. Current lynx use of the Mine Site appears to be very low; in the future, the area would be heavily affected by mining operations and not likely to be used by lynx.

The NorthMet Project area is currently within designated critical habitat for the Canada lynx (USFS 2008a). Lynx may be affected by increased vehicle and train traffic. Lynx are highly mobile and lynx habitat can be found immediately adjacent to the corridor. The increased vehicle traffic associated with the NorthMet Project Proposed Action, including train and small vehicle traffic between the Mine Site and Plant Site, could potentially result in vehicle collisions with lynx (see Table 5.2.5-2). The NorthMet Project Proposed Action would generate 1,734.9 miles of vehicle traffic between the Mine Site and Plant Site each day. This traffic would consist primarily of light trucks and maintenance vehicles traveling 30 to 45 mph and a few large fuel trucks, waste/supply trucks, and trains traveling 15 to 40 mph.

Table 5.2.5-2 Vehicular and Train Traffic Volume along the Transportation and Utility Corridor

Vehicle Type	Vehicle Weight (Tons)	Speed (Min – Max MPH)	Total Miles (Per Day)
Light Cars, Trucks, and Vans – primarily Mine Site to Area 2 Shops	2	30-45	961.1
Fuel Trucks, Supply and Waste Trucks	40	25-40	346.7
Haul Trucks	81.5 – 240	35	9.1
Trains	3,000	15-25	418.0
Total			1,734.9

Source: Barr 2012g.

Though vehicle traffic increases the chance of incidental lynx mortality, this species does not rely strictly upon roads for long-distance travel, though they use less energy doing so (Moen 2010). Straight-line movement of collared lynx through the roadless BWCAW suggests that when roads are not available, lynx will still travel in a line where possible. As such, while lynx may be affected by vehicle traffic along the Transportation and Utility Corridor, the flat terrain near the NorthMet Project area would allow lynx to travel through the area.

Evidence of lynx was not found during surveys of the Plant Site. Approximately 76 percent of the Plant Site cover/habitat type is disturbed or aquatic, which is considered unsuitable lynx habitat. Lynx are unlikely to utilize the Plant Site, but may forage in the surrounding area. As such, activities at the Plant Site are unlikely to affect the Canada lynx.

State and federal forest lands near the Mine Site or Plant Site would continue to provide refuge for lynx, and it is likely lynx would favor these areas over those affected by mining for the duration of mine operations. Overall, the effects on the Canada lynx described above would result in the localized direct decrease and fragmentation of habitat, including designated critical habitat, and the increased potential (albeit low) for incidental take resulting from vehicular collisions; however, these effects are not anticipated to threaten the overall species population level and abundance in Minnesota. The Biological Assessment concludes that the NorthMet Project Proposed Action would be likely to adversely affect the Canada lynx and would be likely to adversely affect Canada lynx critical habitat.

Gray Wolf

As noted in Section 4.2.5, the Mine Site and Plant Site are likely part of a territory occupied by a single pack of wolves. The footprint of the Mine Site would remove approximately 2 square miles (1,454 acres) of habitat, or 1 percent to a maximum of 10 percent of a single wolf pack territory. This reduction in available habitat is small and is not expected to affect the highly mobile wolf population in the region, which is considered healthy by the MDNR. After closure, this area would again be available and suitable as wolf habitat, but, as described above for the lynx, this would not occur for 40 to 45 years.

Vehicle collisions are a cause of wolf mortality (Fuller and Harrison 2005). The increased vehicular activity associated with the NorthMet Project Proposed Action could potentially result in vehicle collisions with wolves. The haul road network would increase the road density (linear miles of road per square mile of habitat) at the Mine Site; however, mining operations would disturb the Mine Site such that it would reduce habitat availability for the gray wolf. Therefore, the haul road network itself would not influence the overall effects of the NorthMet Project Proposed Action on the gray wolf.

State and federal forest lands near the Mine Site or Plant Site would continue to provide refuge for wolves, and it is likely wolves would favor these areas over those affected by mining for the duration of mine operations. The gray wolf population in Minnesota (estimated at 2,423 gray wolves) is considered fully recovered by the MDNR as it has surpassed the federal delisting goal of 1,251 to 1,400 wolves. However, the gray wolf was re-listed as federally threatened by the U.S. District Court on December 19, 2014.

Overall the effects described above would result in the direct decrease and fragmentation of habitat suitable for the gray wolf, the increased potential for incidental take from vehicular collisions, and indirect decline in prey species due to habitat decrease. Together these factors are

not anticipated to threaten the overall species population level and abundance in Minnesota. The Biological Assessment concludes that the NorthMet Project Proposed Action would be likely to adversely affect the gray wolf. It also concludes that the NorthMet Project Proposed Action would be likely to adversely affect gray wolf critical habitat.

Northern Long-Eared Bat

Northern long-eared bats were detected in surveys throughout much of northeastern Minnesota (USFS 2014b; Grandmaison et al. 2013; USFS 2014c). The most prominent threat to the northern long-eared bat is white-nose syndrome. The fungus known to cause white-nose syndrome, *Pseudogymnoascus destructans*, has been observed in the Tower/Soudan Mine, a hibernacula for several bat species located about 15 miles northwest of the NorthMet Project area. White-nose syndrome has advanced geographically from New York in 2006, causing 99 percent decreases in population numbers in the northeast United States (USFWS 2013b).

Bats may forage along the forest edge habitat along the Transportation and Utility Corridor, but there are no caves or mine shafts present that may be used for hibernation. Abel (2011) generally found that bat foraging activity is highest near aquatic features. Forest edges along utility corridors are also used for bat foraging, and they may forage along these features more frequently than in interior forest habitat. Generally, the West Pit, water treatment ponds, and Tailings Basin pond would not offer suitable habitat for emerging insects. Bats would be unlikely to use the wide open exposures of the West Pit and Tailings Basin and were not found during surveys within the Tailings Basin. Additionally, the pit lake would likely be too deep and have too little littoral area to sustain insect life. The treatment ponds would have a substrate not conducive to plant growth or invertebrate activity, the water would be low in organic carbon and nutrients, and the ponds would generally not be productive systems for invertebrates. Bats would be more likely to forage above natural wetlands that support more insect activity. Bats have been observed in Plant Site buildings, but do not hibernate or roost in great numbers at the Plant Site. Approximately eight percent of the Plant Site also contains possible tree roosting habitat that would be affected.

At the Mine Site, 1,718.6 acres would be disturbed due to the NorthMet Project Proposed Action, of which approximately 90 percent would be upland or lowland deciduous/coniferous forests and aquatic areas that could be utilized by the northern long-eared bat. Forest clearing activities at the Mine Site are likely to affect northern long-eared bat individuals as there would be a loss of potential summer roost habitat and foraging areas. The interim 4(d) rule (50 CFR Part 17, April 2, 2015) specifies that forest clearing activities may not occur within the summer maternity roosting season within one quarter mile of known occupied roost trees. Tree removal outside of the summer maternity roosting season (June 1 through July 31) would help mitigate and reduce lethal take of northern long-eared bat individuals.

Resuming operations at the Plant Site buildings would likely disrupt the bat's use of them for roosting. The NorthMet Project Proposed Action is not expected to affect bat hibernacula, as none have been observed on the Mine Site, Transportation and Utility Corridor, or Plant Site, but would reduce potential roosting and foraging habitat. The Biological Assessment concludes that the NorthMet Project Proposed Action would be likely to adversely affect the northern long-eared bat. The Biological Assessment contains additional details on effects to the northern long-eared bat.

5.2.5.2.2 State-listed Species

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, part 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list.

Moose

There is habitat available for the moose on the Mine Site, and individuals and their sign (e.g., tracks, droppings, browsing evidence, etc.) have been observed on it. This is in close proximity to the Transportation and Utility Corridor and Plant Site. Due to the primarily disturbed nature of these latter areas, it is likely that moose occur but unlikely that they utilize the areas often. Habitat fragmentation and loss, climate change, disease, and predation are all potential factors in moose population decline (MDNR 2013d). The key habitat types considered moose habitat include mature forest, grassland/brushland, and aquatic environments. A total of 2,785.9 acres of these key habitat types would be directly affected by the NorthMet Project Proposed Action (see Table 5.2.5-3). As such, the NorthMet Project Proposed Action would likely affect moose individuals in the vicinity through habitat loss and fragmentation, though not likely at a population level.

Little Brown Bat

The little brown bat is known to occur at the Mine Site, Transportation and Utility Corridor, and Plant Site. As a habitat generalist, it has suitable foraging and potential roosting habitat in these three areas. Of the bats observed in the NorthMet Project area and in northeastern Minnesota, the majority are little brown bat (USFS 2014b; Grandmaison et al. 2013; USFS 2014c). The most prominent threat to the little brown bat is white-nose syndrome. The fungus known to cause white-nose syndrome, *Pseudogymnoascus destructans*, which has been observed in the Tower/Soudan Mine, a hibernacula for several bat species located about 15 miles northwest of the NorthMet Project area. As discussed above in Section 5.2.5.2.1 for the northern long-eared bat, white-nose syndrome has caused 99 percent decreases in bat populations throughout the northeast U.S. where it originated (USFWS 2013b). No known hibernacula sites would be disturbed as a result of the NorthMet Project Proposed Action. It is expected that the reduction of foraging and potential summer roosting habitat would affect individuals, but likely not at a population level.

Eastern Pipistrelle

Potential summer roosting habitat is available for the eastern pipistrelle at the Mine Site, Transportation and Utility Corridor, and Plant Site. However, no individuals have been observed or detected within any of these areas during field surveys. USFS surveys from the Kawishiwi District in 2013 and St. Louis/Lake counties in 2014 did not detect eastern pipistrelle (Grandmaison et al. 2013; USFS 2014c). As with the bats discussed above, the most prominent threat to the eastern pipistrelle is white-nose syndrome. It is unlikely that the species would be affected by the NorthMet Project Proposed Action, as none are known to occur in the area, and no known hibernacula sites would be disturbed.

Northern Goshawk

The northern goshawk may occasionally be present at the Mine Site, since nest sites have been identified by the USFS approximately 0.75 mile west of the Mine Site and near the proposed East Pit and Central Pit areas. Two northern goshawk territories have been identified at or near the Mine Site, as they have nested on the Mine Site and adjacent federal lands in 2000, 2009, 2011, and 2013 (USFS 2013). The One Hundred Mile Swamp northern goshawk territory, which is within the Mine Site, is no longer considered active. The Wetlegs Creek northern goshawk territory, located on the federal lands adjacent to the Mine Site, is still considered active and is being monitored. The NorthMet Project Proposed Action would directly affect one of the two known nest site areas. The northern goshawk may be occasionally present along the Transportation and Utility Corridor, due to the proximity of the active northern goshawk territory. No nests are known to occur at the Plant Site. Because the northern goshawk has nested in the NorthMet Project area and was identified during calling surveys, activities at the Mine Site may affect the northern goshawk due to loss of habitat. The NorthMet Project Proposed Action would not likely affect individual goshawks protected under the MBTA, but may affect habitat and nest sites used by northern goshawks.

Boreal Owl

There is suitable habitat available for the boreal owl at the Mine Site and along the Transportation and Utility Corridor. An individual was heard along Dunka Road in 1988 to 1989, but none were observed in subsequent surveys. Since the Minnesota NHIS does not contain any occurrences within 10 miles of the NorthMet Project area, and they have not been observed since 1988 to 1989, it is unlikely that boreal owls utilize the Mine Site, Transportation and Utility Corridor, or Plant Site often. The NorthMet Project area is located at the southern edge of its range. The removal of mixed forest habitats at the Mine Site and along the Transportation and Utility Corridor is unlikely to jeopardize the boreal owl's presence in Minnesota. The NorthMet Project Proposed Action would not likely affect individual owls protected under the MBTA, but may affect habitat used by boreal owls.

Wood Turtle

There is no habitat suitable for wood turtles at the Mine Site and no individuals are known to occur. Individuals could potentially use the southern riparian fringe of the Mine Site though no wood turtles are currently known to occur in the fringe areas that would be affected by the project. The fringe areas would also not be affected by activities at the Transportation and Utility Corridor. There is no suitable habitat for wood turtles at the Plant Site and no individuals are known to occur.

The predicted small decrease in Upper Partridge River flow during active mining is not likely to negatively affect the wood turtle. The most likely effect of a decrease in water level would be to expose additional nesting areas. Over the long term, the exposed soil on the lower bank would be overtaken by vegetation from the upper bank and become less suitable habitat for the wood turtle.

Wood turtles are not likely to be affected by project activities because there would be no direct loss of individuals, populations, or suitable habitat and the NorthMet Project Proposed Action would have no indirect effects on downstream habitat.

Eastern Heather Vole

The eastern heather vole has not been observed within 10 miles of the Mine Site nor has it been found in small mammal surveys in the region (Christian 1993; Jannett 1998). The NorthMet Project area is at the southern edge of its range. Approximately 1,445 acres of potentially suitable habitat exist at the Mine Site (see Table 4.2.4-1), and there is potentially suitable habitat for the species along the Transportation and Utility Corridor. Additionally, there is potentially suitable habitat for the eastern heather vole at the Plant Site, 45 percent of which may be affected by the NorthMet Project Proposed Action (see Table 5.2.4-6). The eastern heather vole could be present at the NorthMet Project area, but, if so, it is likely to be in very small numbers. Given the lack of known occurrences of eastern heather vole in the area, the habitat effects are unlikely to jeopardize the presence of eastern heather vole in Minnesota.

Yellow Rail

The yellow rail was not found during PolyMet's surveys at the Mine Site and was not reported in the NHIS database within 10 miles of the NorthMet Project area. Small, scattered areas of its preferred habitat, sedge/wet meadow, are present at the Mine Site, but the minimum nesting patch size used by rails (54 acres) (Goldade et al. 2002) exceeds the total amount of suitable habitat available (39.5 acres at the Mine Site and 1.5 acres at the Plant Site; refer to Section 4.2.3). Since the yellow rail was not detected in surveys and patches of its preferred habitat are smaller than the reported minimum patch size for nesting, it is not expected that the NorthMet Project Proposed Action would affect the yellow rail. As a result, the yellow rail and its habitat would not likely be affected under the MBTA.

Laurentian Tiger Beetle

The lack of suitable habitat and any NHIS recorded observations in the NorthMet Project area for the tiger beetle suggest that the species does not occur at the Mine Site, Plant Site, or Transportation and Utility Corridor. Therefore, the NorthMet Project Proposed Action should have no effect on the tiger beetle.

Taiga Alpine

The taiga alpine butterfly was not observed during surveys and the NHIS has no records of one occurring within 10 miles of the NorthMet Project area. The preferred habitat types (black spruce bogs and swamps) do occur on the Mine Site and in proximity to the Transportation and Utility Corridor and Plant Site. The NorthMet Project Proposed Action may affect individuals but would not likely have any effect on the species at a population level.

Freija's Grizzled Skipper

The Freija's grizzled skipper butterfly was not observed during surveys and the NHIS has no records of the species occurring within 10 miles of the NorthMet Project area. The only known Minnesota occurrence is in Lake County. The preferred habitat types (forest openings bordered by black spruce and tamarack swamps) do occur on the Mine Site and in proximity to the Transportation and Utility Corridor and Plant Site. The NorthMet Project Proposed Action may affect individuals but would not likely have any effect on the species at a population level.

Nabokov's Blue

The Nabokov's blue butterfly was not observed during surveys and the NHIS has no records of one occurring within 10 miles of the NorthMet Project area. The preferred habitat type for the larval butterfly (open woodlands with abundant dwarf bilberry) potentially occurs on the Mine Site, Transportation and Utility Corridor, or Plant Site. The NorthMet Project Proposed Action may affect individuals but would not likely have any effect on the species at a population level.

Quebec Emerald

The Quebec emerald dragonfly inhabits poor fens, a wetland type not identified at the Mine Site but similar to the sedge/wet meadow that is present. Approximately 38.2 of the existing 39.5 acres of wet meadow/sedge meadow at the Mine Site would be affected by mining activities. There are no poor fens found along the Transportation and Utility Corridor or Plant Site, though approximately 1.5 acres of sedge/wet meadow are present at the Plant Site, and 1.4 acres would be affected by activities. There has only been one documented occurrence of this species in Minnesota (Lake County in 2006, more than 20 miles east of the NorthMet Project area) (Minnesota Odonata Survey Project 2012); therefore, the likelihood of observing Quebec emerald dragonfly individuals or populations within the vicinity of the NorthMet Project area is low. As such, this species is not expected to be affected.

5.2.5.2.3 Species of Greatest Conservation Need

Along with federally and state-listed species, the NorthMet Project Proposed Action would affect SGCN at the Mine Site as a result of increased human activity and noise, collisions with vehicular and rail traffic, and decrease of habitat. Due to the number of SGCN species identified (see Table 4.2.5-1) effects are classified below by the type of disturbance.

Increased Human Activity

SGCN would be directly affected through increased human activity due to mining activities. Factors such as noise, dust, light, and vehicle traffic may frighten some species and discourage their use of otherwise suitable habitat. In general, suitable habitat is available in the area adjacent to the NorthMet Project area and most mobile wildlife species would be displaced. Following migration to new areas, displaced individuals could increase the competition for resources in their new habitat. Displaced species could also suffer increased mortality due to foraging in new areas. Less mobile species, such as herptiles (e.g., frogs, turtles), would likely incur relatively high mortality rates since they cannot quickly migrate from the area and would be more susceptible to changing habitat conditions. During the winter, a combination of plowing and sand, gravel, or salt (magnesium chloride) applications would be used to keep roadways passable. The potential exists for sand and salts to accumulate in the trenches adjacent to the roadways and affect less mobile species. These areas are not considered high quality habitat and are not likely to affect wildlife.

Effects on wildlife due to trapping and hunting are minimal because public access would be restricted. Through the Land Exchange Proposed Action, NorthMet Project area lands would enter into private ownership and would not be accessible for public use. As discussed in Section 5.2.11.2.1, public access is limited and would remain limited during mining operations and following mine closure. As such, wildlife species are not likely to be affected by changes in hunting and trapping activity.

Ground-nesting bird species and some raptor species have been known to utilize cliff areas for nesting and foraging. The SGCN include the northern goshawk, common nighthawk, and northern harrier. These birds could be affected by disturbance if they were to nest along the cliffs created by the pit rims.

Noise Effects

The Biological Assessment concludes that noise effects on wildlife are largely unknown and the assessment of effects is subjective. However, noise associated with mining activities, including noise from vehicle and rail traffic, would likely affect wildlife. Mammals can be sensitive to sound levels below the range of human hearing, which is 20-16,000 hertz. The sensitivity thresholds for animals are generally lower, some below 20 hertz (US FHWA 2011). Effects due to acute noise (such as blasting) are not well studied, but would likely cause animals to startle and would interrupt forage or nesting activities (Larkin 1994). Noise does not appear to seriously affect invertebrates or fish, but does result in some disturbance to mammals (such as startling, forage interruption, and avoidance of the area of potential effect [Larkin 1994]). Bird communication would be masked by noise if the vocalizations are less than 18-20 dB above noise levels in the environment (US FHWA 2011). Changes in communication have been known to result in decreased reproduction and anomalies in learned vocalizations (Larkin 1994). Songbird populations have been shown to decrease with noise levels as low as 35 dB (Forman and Alexander 1998). Section 5.2.8 provides further discussion on the noise modeling predictions for the NorthMet Project area. Though wildlife species are likely to be sensitive to changes in noise levels, there are no local, national, or international standards or limits that are applicable to the NorthMet Project Proposed Action. Wildlife species may be affected by noise in the NorthMet Project area, though adjacent habitat is available.

Vehicular and Rail Traffic Effects

Wildlife mortality generally increases with increasing traffic volumes and vehicle speed. In general, highly mobile species and habitat generalists (species that utilize a wide variety of habitats) are known to have higher road mortalities.

As discussed above, vehicular traffic would average 2,066 miles per day within the Mine Site (see Table 5.2.5-1). Traffic effects from collisions with wildlife depend upon factors such as traffic volume, traffic speed, and the species involved. The potential for road effects increases if the roads are bordered by high-quality habitat or are crossed by wildlife travel corridors. The high density of affected wetlands at the Mine Site bordering the haul roads may result in a relatively high rate of amphibian and reptile effects. Shrubs and trees near roadsides can increase road crossings by deer and birds. The barrier effect of roads is greater for small mammals, amphibians, and reptiles than for birds and large mammals (Kaseloo 2004). Species that utilize the small preserved forest island remnants between haul roads at the Mine Site would be most affected. Indirect effects from vehicle activities are expected locally at the Mine Site for SGCN species but would not be measurable at the scale of the Nashwauk and Laurentian Uplands or the Partridge River Watershed.

Effects at the Transportation and Utility Corridor are primarily related to vehicle and rail traffic. Travel between the Mine Site and Plant Site is expected to average 1,735 miles per day with travel speeds averaging between 15 and 45 mph, with trains, fuel, and waste/supply trucks

traveling somewhat slower (see Table 5.2.5-2). SGCN may be affected by noise and light associated with vehicle and rail traffic, and by collisions with vehicles or trains.

Transportation effects at the Plant Site are primarily related to vehicle traffic associated with construction of the NorthMet Project Proposed Action. Typical daily operations at the Plant Site would generate approximately 828 miles of vehicle traffic, primarily light trucks. Though noise and light may affect SGCN at the Plant Site, the disturbed nature of the area would mean that effects would be negligible.

Wildlife Habitat Effects

The direct effect on wildlife habitat (and by inference on SGCN species) was assessed by evaluating the acres of habitat types that would be lost under the NorthMet Project Proposed Action (see Figure 4.2.4-4). The changes in cover type are summarized in Table 5.2.5-3. The NorthMet Project Proposed Action would not likely affect individual migratory songbirds or other bird species protected under the MBTA, but would likely affect habitat and nest sites used by them.

Table 5.2.5-3 Direct Effects on Key Habitat Types

Key Habitat Types	Total Acres[1] of Cover Type Present at Mine Site (Total Acres[1] of Cover Type Directly Affected)	Total Acres[1] of Cover Type Present at Transportation and Utility Corridor (Total Acres[1] of Cover Type Directly Affected)	Total Acres[1] of Cover Type Present at Plant Site (Total Acres[1] of Cover Type Directly Affected)
Mature Upland Forest, Continuous Upland/Lowland Forest (MIH1-13)	2,627.2 (1,535.3)	5.5 (5.5)	789.3 (367.8)
Open Ground, Bare Soils (no MIH)	128.0 (44.0)	94.4 (94.4)	2,755.5 (1,104.0)
Grassland and Brushland, Early Successional Forest (no MIH)	246.6 (133.2)	17.5 (17.5)	333.8 (144.9)
Aquatic Environments (MIH 14)	12.7 (6.0)	2.7 (2.7)	636.8 (573.0)
Total	**3,014.5 (1,718.6)**	**120.1 (120.1)**	**4,515.4 (2,189.7)**

Data from Tables 5.2.4-1, 5.2.4-4, and 5.2.4-6.

Note:
[1] Total acres may be more or less than presented due to rounding.

Mature Upland/Lowland Forest

At the Mine Site, approximately 1,535 acres (58 percent) of the mature forest would be lost as a result of the NorthMet Project Proposed Action. All of the SGCN found in this mature upland forest habitat are birds (see Table 4.2.5-1), which would be displaced, but likely not injured or killed, during mine construction and operation. Nesting birds could be affected during the breeding season, especially during brooding and until fledglings become independent. Reclamation of the Mine Site would include revegetating nearly all disturbed ground according to *Minnesota Rules*, part 6132.2700.

Of the 5.5 acres of mature upland/lowland forest along the Transportation and Utility Corridor, all 5.5 acres would be affected. As such, activities would affect SGCN in mature upland/lowland forest habitat along the Transportation and Utility Corridor, though effects would be narrow and primarily located along the corridor.

Most of the Plant Site is developed or disturbed with only approximately 17 percent (789 acres) consisting of forest habitat (see Table 5.2.5-3). Approximately 368 acres of this forest habitat at the Plant Site would be disturbed, most of which is in small or isolated patches of aspen-birch forest that are in poor to fair condition (MDNR 2013a). Therefore, activities at the Plant Site would not have an effect on SGCN using mature upland/lowland forest habitat.

Reclamation and revegetation of the NorthMet Project area would initiate vegetative succession on stockpiles, the East Pit and Central Pit, and Mine Site infrastructure (PolyMet 2015h). The Category 1 Stockpile would be incrementally and progressively reclaimed throughout the life of the mine through contouring the stockpile to provide topographic variety, covering with a layer of evapotranspiration soil, and finally seeding of grasses and forbs.

Reclamation and re-vegetation of the NorthMet Project area would improve wildlife habitat relative to conditions during mine operations; however, the quality of habitat for SGCN is likely to remain degraded for some decades after closure relative to pre-mining operations due to conversion of high-quality habitat to lower-quality habitat.

Open Ground/Bare Soils

The likelihood of SGCN using open ground or bare soils at the Mine Site, Transportation and Utility Corridor, or Plant Site is small. These areas were the result of past mining activity, are generally of low-quality, and are expected to decrease after mine closure as a result of reclamation.

Therefore, NorthMet Project Proposed Action effects on open ground/bare ground habitat should result in little effect on wildlife.

Brush/Grassland

Approximately 133 of the 247 total acres (54 percent) of brush/grassland at the Mine Site would be directly affected by the NorthMet Project Proposed Action. Brush and grassland (including early successional forest) at the Mine Site and Plant Site consist of small vegetative patches that are generally not suitable for SGCN. Young trees (less than 4 inches dbh) make up most of this habitat type (ENSR 2005). One SGCN associated with this habitat type, the American woodcock, was observed by USFS personnel at the Mine Site. The least weasel may occur as well. Most of the other SGCN (see Table 4.2.5-1) are associated with large patches of grassland and savanna habitats, which are not present at the Mine Site.

Stands of brush/grassland (including early successional forest) along the Transportation and Utility Corridor consist of small vegetative patches that are generally not suitable to SGCN. Young trees (less than 4 inches dbh) make up most of this habitat type (ENSR 2005). Most of the other SGCN (see Table 4.2.5-1) are associated with large patches of grassland and savanna habitats. Though all 17.5 acres of brush/grassland along the Transportation and Utility Corridor would be directly affected, activities along the Transportation and Utility Corridor would not affect grassland/brush SGCN based on the fragmented nature of this habitat.

Similar to the Mine Site, brush/grassland (including early successional forest) at the Plant Site consists of small vegetative patches that are generally not suitable to SGCN. Young trees (less than 4 inches dbh) make up most of this habitat type (ENSR 2005). Most of the other SGCN (see Table 4.2.5-1) are associated with large patches of grassland and savanna habitats. Approximately 145 of the 334 acres of brush/grassland at the Plant Site would be directly affected by the activities at the Plant Site. The reclaimed Plant Site, specifically the Tailings Basin, would be revegetated with grassland vegetation species. Overall, the NorthMet Project Proposed Action would have no adverse effects on grassland/brush SGCN.

During reclamation, PolyMet would remove or cover portions of the existing road, railroad, and ditch and dike systems and restore them. Reclamation of these areas, which currently constitute poor wildlife habitat, would ultimately enhance wildlife habitat when compared to current conditions. Some SGCN, such as the eastern meadowlark, northern harrier, and common nighthawk would most likely use the grasslands until they are replaced by early successional forest about 20 to 50 years after closure. Early successional forests are likely to support the two following SGCN: white-throated sparrow and American woodcock.

Open Water

SGCN such as the black duck, American bittern, and swamp sparrow utilize open water habitats. The NorthMet Project Proposed Action would create approximately 321 acres of open water at the Mine Site by eventually flooding the West Pit, which is estimated to fill between year 40 and 45. The West Pit would be fenced as a deterrent to wildlife species even though this habitat is not likely to provide high quality foraging habitat for waterfowl because of a lack of emergent or submerged vegetation along the pit fringes. Ponds at the wastewater treatment facilities would also be fenced to prevent wildlife from using the water. At the Plant Site, open water habitat primarily occurs in the existing LTVSMC Tailings Basin. None of the SGCN targeted during a 2005 survey were observed on open water during the survey (ENSR 2005); however, common waterfowl and water birds were observed at the Tailings Basin during migration, in particular Canada goose and ducks. Existing open water habitat would be maintained during operations, though the acreage of open water would fluctuate according to processing needs.

Wildlife, specifically aquatic birds, may utilize open water habitat created by the NorthMet Project Proposed Action. Wildlife species have been observed utilizing the existing LTVSMC Tailings Basin, as well as other Mesabi Iron Range tailings basins, specifically during migration. Unlike arid states such as Nevada, pit lakes and tailings basins are not the only readily available source of open water for wildlife use. Minnesota has over 13 million acres of lakes and wetlands, and the NorthMet Project Proposed Action would result in less than one hundredth of a percent increase in habitat. Though adjacent habitat is readily available, wildlife species may still utilize the Tailings Basin.

Some wildlife species, specifically those that feed on aquatic prey, may be susceptible to mercury exposure (USEPA 1997) directly from open water sources such as the pit lake and Tailings Basin pond, and indirectly at the Partridge River and Embarrass River. Effects to aquatic species are discussed in Section 5.2.6.2. Specific species such as loons, osprey, mink, and otter may be affected. As discussed in Section 5.2.5.2.2, eagles may be less likely to be affected by mercury. While wildlife use of open water created by the NorthMet Project Proposed Action may be limited due to fencing and available habitat, wildlife species may be affected.

Surface water quality standards do not apply to the pit lake or Tailings Basin. Any discharge water, such as the pit lake overtopping, would be treated in order to meet water quality standards and, as such, would not likely affect wildlife species.

Wetlands

Of the wetland-related SGCN, the marbled godwit and olive-sided flycatcher were surveyed for, but not found (ENSR 2005). The bog copper butterfly also was not found during surveys and there are no known NHIS records of any sightings within 12 miles of the Mine Site. As discussed above, the black duck, American bittern, and swamp sparrow are not likely to be present because they require open water and non-forested wetlands, which are relatively scarce at the Mine Site. The red-backed salamander is primarily an upland species, but may be present along the edges of mixed hardwood swamps. The taiga alpine butterfly may inhabit the black spruce bogs of the Mine Site and is historically known to occur in the Laurentian and Nashwauk Uplands (MDNR 2006d).

Based on the site-specific wetland delineation, the NorthMet Project Proposed Action would directly affect 758.2 acres of wetlands at the Mine Site, primarily coniferous bog (508.3 acres directly affected), shrub swamp (97.8 acres directly affected), and coniferous swamp (70.3 acres directly affected). These wetland types are common in the Partridge River Watershed. Consequently, the decrease of this habitat at the Mine Site is expected to displace wildlife into surrounding similar habitat, which would be large enough to absorb the displaced wildlife.

There are 7.2 acres of wetlands/open water along the Transportation and Utility Corridor, and those 7.2 acres would be affected by activities along the corridor. There are 148.4 acres of affected wetland at the Plant Site. On-site wetland use by the SGCN described above may be limited, and these wetlands are generally considered to be of low quality.

Wetland mitigation is proposed off-site at three mitigation sites (see Section 5.2.3). Off-site mitigation would consist of 1,602.7 acres of wetland restoration and preservation and 197.1 acres of upland buffer areas of various habitat types at the three sites. In addition, approximately 101.8 acres of wetland may be restored on-site; however, this would not result in mitigation credits at this time.

Multiple Habitats

Species using multiple habitats and known to occur on or near the NorthMet Project area (e.g., gray wolf, Canada lynx, least flycatcher, Connecticut warbler) are discussed above. Most multiple-habitat SGCN use mature/continuous and early successional forest. NorthMet Project Proposed Action effects are therefore largely limited to the mature/continuous forest habitats described above.

Wildlife Corridors

There is one wildlife corridor located approximately 0.5 mile northwest of the Mine Site (see Figure 6.2.5-2). Mine Site operations, which provide a source of disturbance from noise and mining activity, would indirectly affect the corridor by reducing the effective, undisturbed size of the large habitat block southeast of the corridor. These activities would limit access to the corridor in the vicinity of the Mine Site; however, the corridor would continue to be accessible north of the Mine Site and from south and southwest of the corridor. Vegetative restoration of

the stockpiles and disturbed areas, as proposed during closure, would mitigate some of the effects of habitat loss in this large habitat block in the long term. Not all of the Mine Site would be available for habitat restoration due to fencing around the mine pits and the open water in the West Pit.

Rail and vehicular traffic between the Mine Site and Plant Site would increase as a result of the NorthMet Project Proposed Action. While the Transportation and Utility Corridor is outside of wildlife corridors, they run parallel and perpendicular to the wildlife corridors and would potentially affect wildlife use. Tepper (2011) demonstrates the importance of road ecology, which studies the barrier effect of roads on plant and animal ecology. Tepper cites several examples of road underpasses (i.e., tunnels) or overpasses to provide corridors for plant and wildlife movement without having to cross the roadways. However, these wildlife crossings generally require a large financial cost to construct. Leete and Alcott (2011) stated that Minnesota's relatively flat topography would not be suitable for large wildlife crossings, and suggested instead utilizing multiple low cost wildlife-friendly mitigation designs rather than one large crossing. Examples of such low-cost mitigation measures include passage benches under bridges, various sizes of fencing effective on small herptiles to large mammals, and offset culverts. Mitigation measures for wildlife species would be considered during the Endangered Species Act Section 7 consultation process.

Additionally, there is one wildlife corridor located approximately 1 mile southeast of the existing Plant Site. The existing LTVSMC Tailings Basin provides poor habitat, is not likely to be heavily used by wildlife, and currently obstructs animal movement. Because current use is already limited, increased activity at the Tailings Basin would likely have minimal effect on wildlife movement through the corridor. The proposed vegetative restoration of the Tailings Basin and adjacent processing plant at closure may increase the value of the corridor by improving habitat to the northwest. The mining features surrounding this corridor would not be complete barriers to wildlife movement (Barr 2009a).

5.2.5.2.4 Regional Forester Sensitive Species

A Biological Evaluation has been prepared that contains further information about RFSS. The Biological Evaluation is included in Appendix D. Similar to the Biological Assessment, the organization of the methodologies and discussion in the Biological Evaluation may be different from the FEIS. The Biological Evaluation also contains determinations of effect for RFSS species.

The USFS determined that the NorthMet Project Proposed Action may affect individuals but is not likely to cause a trend to federal listing or loss of viability for 18 RFSS terrestrial wildlife species on the Superior National Forest.

Of the 18 terrestrial RFSS on the 2011 list for the Superior National Forest, 12 of these are also federally- or state-listed ETSC species (gray wolf, eastern heather vole, northern long-eared bat, little brown bat, eastern pipistrelle, northern goshawk, boreal owl, wood turtle, taiga alpine butterfly, Freija's grizzled skipper butterfly, Nabokov's blue butterfly, and Quebec emerald) and are discussed above. Three other RFSS (the olive-sided flycatcher, bay-breasted warbler, Connecticut warbler) are on the SGCN list and are discussed by habitat type or disturbance type in Section 5.2.5.2.3 above. Three other species, including the bald eagle, great gray owl, and three-toed woodpecker are discussed below.

Bald Eagle

Bald eagles typically nest in large trees within 500 ft of lakes or rivers (Guinn 2004). There are no large lakes or rivers at the Mine Site that would provide optimal nesting/ foraging habitat, though the Partridge River (approximately 0.5 mile south of the Mine Site) would provide some, though less-than-optimal, habitat. The Partridge River is 4.9 miles south of the Plant Site, and the Embarrass River is 2.5 miles north and west. The USFWS National Bald Eagle Management Guidelines (USFWS 2007) suggest that human activity within 0.25 mile to 2 miles can be seen or heard by eagles and, depending on the level of screening and habituation of individual eagles, may cause them to abandon a nest. Generally, the closer the activity is, the greater the effect. If eagles were to nest on the portion of the Partridge River or the Embarrass River near the NorthMet Project area, they could be within the 2-mile disturbance range. The nearest recorded bald eagle nest to the Mine Site is approximately 6.5 miles to the southeast (MDNR 2013a).

Bald eagle nesting territories in Minnesota generally have a 10-mile radius that varies with habitat quality (Guinn 2004). Bald eagle nests near the NorthMet Project area are on average 5.7 miles apart (3.8 to 9.4 mile range), which is less than the average territory radius. This suggests that the area is densely populated with bald eagle nesting territories and that no new eagles are likely to move into the area (MDNR 2014d). As eagles become more numerous, any eagles seeking to establish new territories in the area would need to select lower quality habitat and/or move into closer proximity to human activity.

Surface water contaminants (e.g., mercury) that are absorbed by prey species such as waterfowl via dietary exposure (e.g., through the consumption of fish) could lead to ingestion of contamination by eagles (Marr 2008). However, bald eagles are relatively insensitive to the toxic effect of mercury exposure through their food (Judd 2013). In addition, waterfowl and some birds of prey demethylate mercury, which reduces their potential exposure.

In summary, the NorthMet Project Proposed Action is not likely to affect bald eagles because the known nesting sites are more than 2 miles from the NorthMet Project area; optimal habitat for nesting and foraging bald eagles is not present at the Mine Site, Plant Site, or Transportation and Utility Corridor; and bald eagles are not sensitive to mercury exposure. As a result, the bald eagle and its habitat would not likely be affected under the MBTA.

Great Gray Owl

During owl surveys (AECOM 2009a), one great gray owl was observed foraging along the Transportation and Utility Corridor near the Mine Site. A great gray owl had used a historic goshawk nest at the Mine Site. Great gray owls nested in the NorthMet Project area in 2006 (AECOM 2009a), 2010, and 2011 (USFS 2013). Owls are sensitive to disturbance, so populations would be unlikely to use the NorthMet Project area during mine operations, though the species may be affected by the NorthMet Project Proposed Action as it has been observed and has nested in the area. The NorthMet Project Proposed Action would not likely affect individual owls protected under the MBTA, but may affect habitat and nest sites used by great gray owls.

Three-Toed Woodpecker

Systematic survey data for three-toed woodpeckers are lacking; however, one bird was observed during overall field surveys (ENSR 2000) and by USFS personnel in 2007. Generally, the young

age of the forest habitat at the Mine Site is not suitable for three-toed woodpeckers, and populations or individuals in the area are not likely to occur. Woodpeckers are sensitive to disturbance and would not be expected to use the Mine Site during mining operations. Though not surveyed, the Transportation and Utility Corridor and Plant Site lack the old-growth forest or recent burn habitat preferred by the three-toed woodpecker. Woodpeckers are sensitive to disturbance and would not be expected to use the Transportation and Utility Corridor or Plant Site. Though existing populations are estimated to be low, and prime habitat is not available, the three-toed woodpecker may be affected by loss of overall forest habitat in the NorthMet Project area. The NorthMet Project Proposed Action would not likely affect individual birds protected under the MBTA, but may affect habitat used by three-toed woodpeckers.

5.2.5.2.5 Other Wildlife Species

Other wildlife species in the NorthMet Project area, including common and/or game species (such as white-tailed deer, bear, fox, porcupine, etc.) would likely be affected in ways similar to special status species. Mobile individuals would avoid direct effects but may be indirectly affected by a decrease of habitat. Given the adjacent habitat available to these species, local effects are expected due to competition from migrating individuals, but these would not threaten overall populations. The NorthMet Project Proposed Action would not likely affect individual migratory songbirds or other bird species protected under the MBTA, but would likely affect habitat and nest sites used by them. Effects on wildlife species important to the Bands are discussed in Section 5.2.9 on a connected ecosystems level.

Due to the relative stability in population and harvest levels for white-tailed deer and bear (MDNR 2013b, MDNR 2013c), along with the limited hunting access at the NorthMet Project area and available adjacent habitat, the NorthMet Project Proposed Action is not likely to threaten deer or bear populations or hunting opportunities. Model estimates show that changes in the average annual flow of the Partridge and Embarrass rivers would be within naturally occurring annual variations. As a result, effects to amphibians or sensitive wildlife species due to hydrologic changes in these systems would be limited.

5.2.5.3 NorthMet Project No Action Alternative

5.2.5.3.1 Mine Site

Under the NorthMet Project No Action Alternative, mining would not occur. As described in Section 5.2.4.3.1, forest harvesting would continue to occur in portions of the federal lands, including the Mine Site. While timber harvests would result in the immediate decrease of some habitat types, permanent changes are not expected and conversion from one habitat type to another would benefit some species. Direct and indirect effects of the NorthMet Project No Action Alternative on wildlife and their habitat types are not expected, as the federal lands would continue to be managed as they currently are. Species individuals may still be affected due to existing land use (timber harvest, exploration, vehicle traffic, etc.) but effects are less than those expected under the NorthMet Project Proposed Action. The use of privately owned land at the Mine Site would also determine effects on wildlife under the NorthMet Project No Action Alternative.

5.2.5.3.2 Plant Site and Transportation and Utility Corridor

Under the NorthMet Project No Action Alternative, the former LTVSMC processing plant would be reclaimed and areas revegetated in accordance with the Reclamation Plan (PolyMet 2015g) much sooner than under the NorthMet Project Proposed Action. Revegetation would restore habitat for some species. Species individuals may still be affected due to disturbances related to reclamation, but effects are less than those expected under the NorthMet Project Proposed Action. The Transportation and Utility Corridor would remain in private ownership and would likely continue to be used in a similar manner as under existing conditions. Wildlife could be affected along the Transportation and Utility Corridor by noise and light associated with vehicle traffic, and by collisions with vehicles. However, impacts would be fewer than under the NorthMet Project Proposed Action due to a lower frequency of vehicle activity along these routes.

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5.2.6 Aquatic Species

This section describes the potential effects of the NorthMet Project Proposed Action on fish and aquatic macroinvertebrate communities, especially special status species, associated with waterbodies found in the NorthMet Project area. These potential effects include changes in physical habitat (including flow), riparian and aquatic connectivity, and water quality.

Summary

The NorthMet Project Proposed Action could affect aquatic physical habitat via changes in flow, affect riparian and aquatic connectivity via construction activities within the riparian zone, affect water quality by increasing solute concentrations above Class 2B standards, and, as a result of these changes, potentially affect aquatic species including special status species (i.e., federally or state-listed threatened and endangered species, RFSS, and MDNR SGCN).

The NorthMet Project Proposed Action would reduce annual daily mean flow in the Partridge River at SW-004a by a maximum of about 4 percent (Section 5.2.2.3.2) and reduce average annual flow in the Embarrass River at PM-13 by a maximum of about 3 percent (Section 5.2.2.3.3), and generally change flows in several tributary streams draining to the Partridge River and Embarrass River by a maximum of about plus or minus 20 percent, which would fall into the range of annual natural variability in terms of precipitation (Section 5.2.2.3). These reduced flows are not anticipated to result in any measurable effect on available aquatic habitat in any streams in the NorthMet Project area, as long as seasonal flow variation is also maintained. Studies conducted by the USGS in streams and rivers indicated that the severity of flow alteration had a direct correlation on the community alteration of fish and macroinvertebrates (Carlisle et al. 2013).

The NorthMet Project Proposed Action activities would not occur within the riparian buffer of any streams; therefore the NorthMet Project Proposed Action would not affect the extent of natural vegetative cover along riparian areas and would not result in a decrease in the RCI. The NorthMet Project Proposed Action would also not result in any new dams, bridges, or culverts within perennial or intermittent streams; therefore, the NorthMet Project Proposed Action would not affect the hydrologic connectivity along streams and would not result in a decrease in the ACI. In the general vicinity of the NorthMet Project area, there are numerous case histories of dewatered mine pits in wetland areas. The historical information clearly indicates that there has not been extensive loss (i.e., drying up) of wetlands next to these pits except perhaps within 100 ft or so of the pit rim. This may be explained by the hydrogeology, which typically consists of a thin and moderately permeable surficial unit overlying low-permeability bedrock. Even when the pit water level is well below the top of bedrock, the low-permeability bedrock limits the amount of surficial groundwater that can drain downward into the pit and there is sufficient recharge to the surficial unit to maintain wetland conditions. It is anticipated that riparian zones (wetlands) adjacent to the Partridge River would not experience any measurable groundwater drawdown, particularly coupled with minimal surface water flow change due to the NorthMet Project Proposed Action.

Water quality modeling (see Section 5.2.2) predicts that the NorthMet Project Proposed Action would meet all Class 2B (aquatic life) water quality standards with the possible exception of aluminum in Embarrass River tributaries draining the Tailings Basin. For aluminum, ambient water quality, at times, already exceeds the Class 2B standard in both the Partridge River and

Embarrass River. In the Partridge River, the NorthMet Project Proposed Action would not measurably increase aluminum concentrations relative to the CEC Scenario results (Section 5.2.2.3.2). In the Embarrass River, the increase in concentration relative to the CEC Scenario would not be the result of increased aluminum loadings from the NorthMet Project Proposed Action, but rather the result of mass loading from surface runoff and the loading from other minor sources (Section 5.2.2.3.3). Although all other solutes are predicted to meet evaluation criteria or not cause or add to exceedances of evaluation criteria, the aggregate of these solutes, primarily metals, has the potential to affect aquatic biota.

In terms of special status species, there are no federal or state-listed threatened or endangered fish or macroinvertebrate species known to occur in the NorthMet Project area (USFWS 2011). There are four special status aquatic species (i.e., RFSS and SGCN) that have not been found in the NorthMet Project area, but suitable habitat is likely to occur and the species could be present.

The NorthMet Project area encompasses several waterbodies within both the Partridge and Embarrass River watersheds that provide a variety of habitats for aquatic biota. Predicted effects on aquatic biota from the NorthMet Project Proposed Action are possible due to changes in water chemistry, including increases in heavy metals. Effects on the success of fish spawning in tributary streams would be addressed by maintenance of seasonal, bankfull flows over the life of the NorthMet Project Proposed Action, especially when stream-related flow augmentation occurs within the Embarrass River Watershed.

5.2.6.1 Methodology and Evaluation Criteria

The operation, reclamation, and closure of the NorthMet Project Proposed Action may result in changes in the physical aquatic habitat or water quality that would result in effects on fish and aquatic species. To assess these effects, predicted changes in water quality and flow, as presented in Section 5.2.2, were used in combination with data on existing aquatic biota conditions, as discussed in Section 4.2.6, to determine potential effects on aquatic biota in surface waterbodies located in the NorthMet Project area.

The following criteria were considered in this evaluation:

- Physical alteration of stream conditions and the effect on fish and macroinvertebrate assemblages;
- Numeric water quality standards established for the protection of aquatic life in affected waterbodies;
- The structure or function of the aquatic species assemblages in affected stream segments; and
- Effects on one or more protected aquatic species or their habitat.

With respect to mercury, the evaluation criteria is an increase in the body burden of mercury in aquatic biota since this is the primary mechanism through which mercury affects aquatic life.

5.2.6.2 NorthMet Project Proposed Action

5.2.6.2.1 Partridge River

This section describes the potential effects of the NorthMet Project Proposed Action on aquatic resources in the Partridge River Watershed, including effects on physical habitat, riparian and aquatic connectivity, and water quality.

Physical Habitat Effects

Hydrologic changes often have effects on fish and aquatic macroinvertebrates. While many aspects of the hydrologic regime can be important to the maintenance of fish and macroinvertebrate assemblages, reduction in baseflow (the portion of streamflow from groundwater) is particularly relevant because it represents a loss of habitat.

In the Partridge River, results of the water modeling (described in Section 4.2.2)—as predicted at monitoring stations SW-002, SW-004, and SW-004a—were used to describe predicted flow for the upper Partridge River Watershed within the vicinity of the Mine Site. These monitoring stations were selected due to their geographical location (see Figure 5.2.6-1), and likely represent the area that would best describe potential maximum effects along the Partridge River.

At SW-002, SW-004, and SW-004a, baseflow (i.e., average 30-day annual low flow) gradually decreases during the first 11 years of mining, but in the worst case only represents a 4 to 5 percent reduction and a 0.3 to 1.6 cfs reduction in absolute flow (year 11). In terms of long-term closure, the average annual 30-day minimum flow is estimated to decrease from 0.41 cfs (existing conditions) to 0.40 cfs at SW-002 and from 0.92 cfs (existing conditions) to 0.89 cfs at SW-004. At SW-004a, the average annual 30-day minimum flow is estimated to increase from 2.44 cfs (existing conditions) to 2.98 cfs (see Table 5.2.6-1). The annual daily mean flow would follow similar trends as the 30-day annual low flow, with a maximum decrease of 5 percent at year 11 and remain approximately the same as existing conditions for long-term closure (PolyMet 2015m, Attachment J). Most of these changes in flow are too small to be measurable and, therefore, hydrologic alteration is not expected to degrade physical aquatic habitat by destabilizing the stream channel.

The effects from the NorthMet Project Proposed Action on seasonal flow would be negligible and, therefore, no adverse effects on aquatic habitat or species are anticipated.

Flow monitoring methods have been determined by the MDNR based on professional judgement and accumulated data. Monitoring would be conducted at a minimum of three sites for each of the impacted streams whenever there is a 20 percent fluctuation in watershed area or an addition / reduction of flow that exceeds 20 percent of the mean annual flow located: 1) within 2,000 ft of each outflow; 2) at the endpoint of impact; and 3) midway between the two points (Chisholm 2006).

Flows within the Partridge River would be reduced by a maximum 4 percent. Varying degrees of hydrologic alteration can be tied to ecological condition using the Limits of Hydrologic Alteration (LOHA) Method, which is intended to provide a better articulation of the aspects of flow rate and timing thought to be most important to ecological condition, and provide more elaboration on the ecological changes that are associated with increasing degrees of hydrologic alteration. Research in review lists 10 percent, 20 percent, and greater than 20 percent flow alteration as setting the ecological condition of “natural,” “minimally altered,” and “moderately

altered," respectively (Chisholm 2006). A review of case studies (Richter et al. 2011) found that recommendations for flow protection are quite consistent, typically resulting in a range of allowable cumulative depletion of 6 percent to 20 percent of normal to low flows, but with occasional allowance for greater depletion in seasons or flow levels during which aquatic species are thought to be less sensitive. This review supports the conclusion that flow reductions in the Partridge River Watershed due to the NorthMet Project Proposed Action are anticipated to be generally within the natural ecological condition and less likely to have significant impacts to ecosystem function and aquatic species.

Proposed flow monitoring details would be finalized during the permitting process to ensure average annual flow standards are being met during mine operations, reclamation, and post-closure maintenance phases (see Table 5.2.2-53).

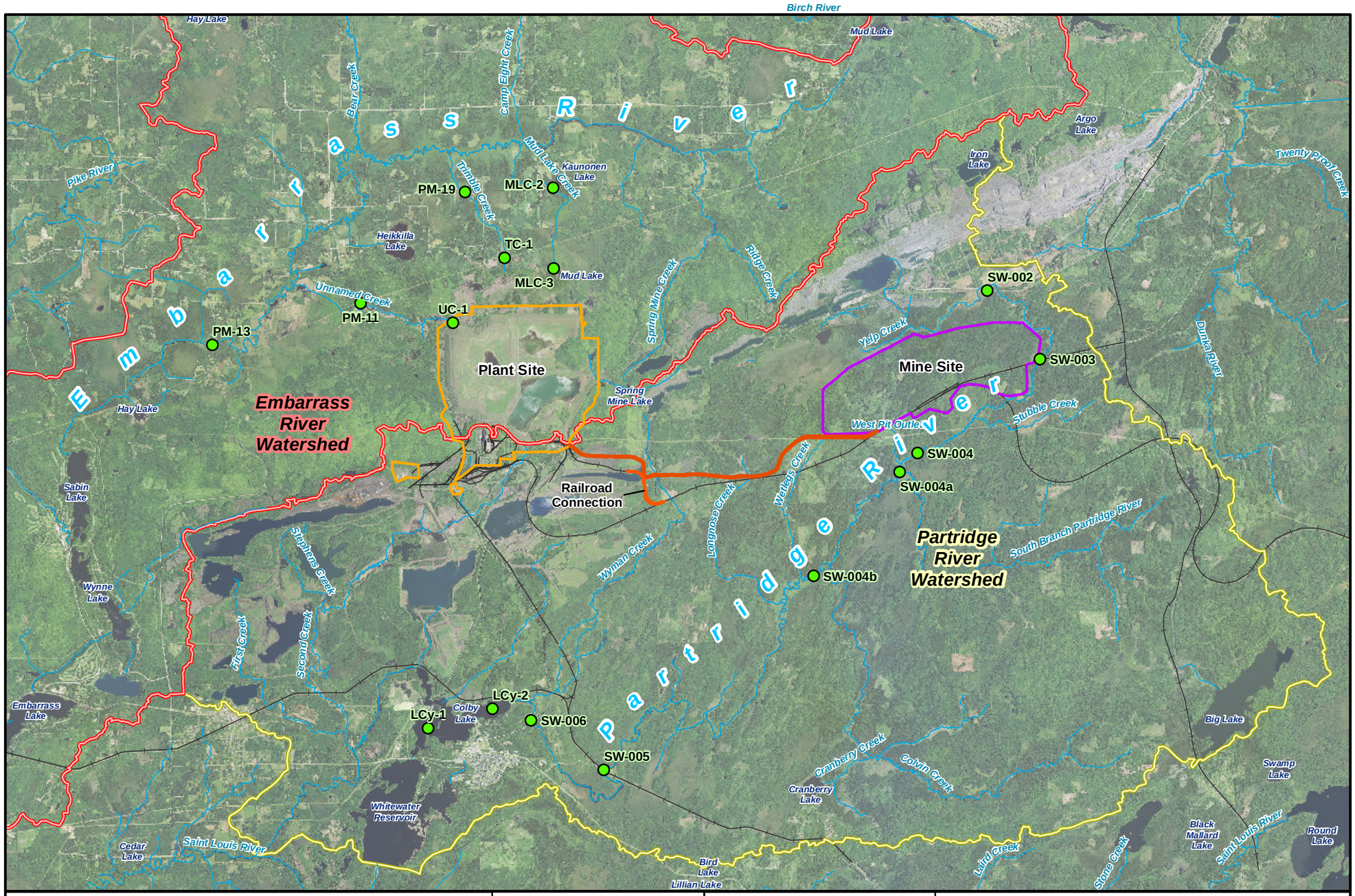

Water Sampling Location
Embarrass River Watershed
Partridge River Watershed
Stream/River
Mine Site
Plant Site
Transportation and Utility Corridor
Existing Railroad

US Army Corps of Engineers
St. Paul District

N W E S

0 0.5 1 2 3 Miles

Figure 5.2.6-1
Partridge and Embarrass River Watershed Surface Water Evaluation Locations
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Table 5.2.6-1 Partridge River Flow Modeling Results for Evaluation Locations SW-002, SW-004, and SW-004a

	SW-002							SW-004							SW-004a						
Statistic (Unit)	**Existing Conditions**	**Year 1**	**Year 2**	**Year 11**	**Year 20**	**West Pit Filling**	**Long-term Closure**	**Existing Conditions**	**Year 1**	**Year 2**	**Year 11**	**Year 20**	**West Pit Filling**	**Long-term Closure**	**Existing Conditions**	**Year 1**	**Year 2**	**Year 11**	**Year 20**	**West Pit Filling**	**Long-term Closure**
Annual Daily Mean (cfs)	6.09	5.84	5.84	5.79	6.12	6.09	6.09	13.97	13.51	13.52	13.37	13.70	14.08	14.07	38.33	37.74	37.62	36.66	37.32	37.10	38.72
October Mean (cfs)	22.76	21.81	21.83	21.63	22.86	22.75	22.75	52.43	50.60	50.64	50.07	51.26	52.74	52.73	144.03	141.74	141.25	137.55	140.03	139.19	143.92
November Mean (cfs)	4.59	4.33	4.32	4.27	4.47	4.46	4.46	11.68	10.77	10.77	10.66	10.91	11.16	11.16	31.61	30.45	30.35	29.68	30.14	30.02	31.64
December Mean (cfs)	1.7	1.64	1.64	1.62	1.71	1.70	1.70	4.43	4.02	4.02	3.97	4.06	4.16	4.16	12.85	12.33	12.29	12.02	12.19	12.13	13.80
January Mean (cfs)	0.57	0.54	0.54	0.54	0.56	0.56	0.56	1.37	1.26	1.26	1.25	1.28	1.31	1.31	3.95	3.83	3.81	3.72	3.78	3.76	4.60
February Mean (cfs)	1.06	1.01	1.01	1.00	1.06	1.05	1.05	2.40	2.32	2.32	2.30	2.35	2.42	2.42	6.59	6.48	6.46	6.29	6.41	6.37	7.02
March Mean (cfs)	1.44	1.38	1.38	1.37	1.45	1.44	1.44	3.10	3.04	3.04	3.01	3.08	3.18	3.18	8.50	8.42	8.39	8.15	8.32	8.26	8.59
April Mean (cfs)	30.58	29.23	29.24	28.96	30.56	30.41	30.42	71.41	68.77	68.80	68.04	69.66	71.58	71.58	200.60	197.10	196.46	191.58	194.90	193.79	198.90
May Mean (cfs)	7.36	7.04	7.06	7.01	7.46	7.43	7.43	17.52	16.90	16.92	16.74	17.17	17.66	17.66	49.01	48.33	48.20	46.98	47.88	47.55	49.58
June Mean (cfs)	11.55	11.15	11.17	11.08	11.70	11.65	11.65	25.56	25.32	25.38	25.11	25.78	26.45	26.45	67.75	67.46	67.23	65.54	66.77	66.44	69.71
July Mean (cfs)	5.97	5.78	5.78	5.74	6.06	6.04	6.04	13.54	13.23	13.22	13.10	13.43	13.75	13.75	35.56	35.14	34.92	34.04	34.67	34.46	36.68
August Mean (cfs)	3.00	2.89	2.89	2.87	3.03	3.03	3.03	6.40	6.41	6.39	6.33	6.48	6.67	6.67	16.71	16.64	16.75	16.32	16.62	16.53	17.48
September Mean (cfs)	8.93	8.62	8.61	8.52	9.02	8.97	8.97	20.14	19.47	19.43	19.24	19.70	20.19	20.18	52.93	51.97	51.64	50.26	51.20	50.83	53.44
Average Annual 30-day Max (cfs)	25.59	22.58	22.60	22.39	23.67	23.57	23.58	54.01	52.46	52.49	51.91	53.19	54.70	54.70	150.46	148.47	148.21	144.46	147.03	146.24	149.90
Average Annual 90-day Max (cfs)	13.71	13.14	13.14	13.02	13.77	13.71	13.71	31.66	30.66	30.66	30.33	31.07	31.95	31.94	87.78	86.48	86.26	84.06	85.58	85.07	87.62
Average Annual 30-day Min (cfs)	0.41	0.39	0.39	0.38	0.40	0.40	0.40	0.92	0.86	0.86	0.85	0.87	0.89	0.89	2.44	2.38	2.36	2.30	2.33	2.32	2.98
Average Annual 90-day Min (cfs)	0.63	0.60	0.60	0.60	0.62	0.62	0.62	1.46	1.35	1.35	1.34	1.36	1.39	1.39	3.87	3.76	3.73	3.64	3.70	3.68	4.50
Avg. Hydrograph Increase (cfs/day)	3.94	3.84	3.85	3.86	4.04	4.03	4.01	6.93	6.91	6.96	6.89	7.14	7.40	7.40	20.61	20.82	20.87	20.17	20.47	20.65	20.92
Avg. Hydrograph Decrease (cfs/day)	1.49	1.44	1.45	1.44	1.52	1.51	1.51	2.46	2.49	2.50	2.47	2.56	2.64	2.65	7.06	7.18	7.19	7.04	7.13	7.18	7.25

Source: PolyMet 2015m, Attachment J (Partridge River Hydrologic Impact Assessment Results).

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No effects on aquatic resources are anticipated from hydrologic changes at the Partridge River tributary streams, Colby Lake, or Whitewater Reservoir, from the NorthMet Project Proposed Action. On an annual average basis, inflow to Colby Lake would be reduced about 1.7 percent during operations (in mine year 11) and have virtually no change during closure (see Section 5.2.2.3.2) (PolyMet 2015m). Withdrawals at Colby Lake would create an average annual water level fluctuation of about 3.6 ft, compared to 3.9 ft for zero withdrawal. Withdrawals at the Whitewater Reservoir would create an annual fluctuation of about 4.2 ft compared to 2.9 ft for zero withdrawal. Effects on Colby Lake and Whitewater Reservoir are expected to be negligible as they would be well within the range of effects experienced during the former LTVSMC taconite mining operations.

Approximately 227 gpm of surface water seepage flows from the existing LTVSMC Tailings Basin to the headwaters of Second Creek. Under the current LTVSMC Consent Decree, most of this seepage is captured and pumped back to the Tailings Basin, resulting in a net reduction in base flow to Second Creek. The NorthMet Project Proposed Action would continue pumping this seepage back to the Tailings Basin for water quality protection reasons, but would augment flows in Second Creek at approximately 80 percent of the current seepage volume (i.e., about 184 gpm) with WWTP effluent throughout NorthMet Project Proposed Action operations, reclamation, and long term closure. With these augmentation flows, total flow volume in Second Creek would be equivalent to at least 80 percent of historic flow volume and fluctuations through the year would mimic the natural hydrograph (PolyMet 2015j); therefore, the designed flow augmentation to Second Creek is not expected to affect the available aquatic species habitat by degrading the habitat with decreased flow to the headwater portions of this stream and would in fact help mitigate the hydrologic effect associated with the current pump back requirements.

Riparian and Aquatic Connectivity

The NorthMet Project Proposed Action activities would not occur within the riparian buffer of any streams; therefore, the NorthMet Project Proposed Action would not affect the extent of natural vegetative cover along riparian areas and would not result in a change in the RCI for the Partridge River.

The NorthMet Project Proposed Action would not result in any new dams, bridges, or culverts within perennial or intermittent streams; therefore, the NorthMet Project Proposed Action would not affect the hydrologic connectivity along streams and would not result in a change in the ACI for the Partridge River.

Water Quality Effects

Surface water chronic standards, specifically the Class 2B standards, were developed to be protective of aquatic life and to promote the "propagation and maintenance of a healthy community of cool or warm water sport or commercial fish and associated aquatic life, and their habitats" (*Minnesota Rules*, part 7050.0222). The chronic standards reflect "the highest water concentration of a toxicant to which organisms can be exposed indefinitely without causing chronic toxicity" (*Minnesota Rules*, part 7050.0218, subpart 3, item I).

As described in more detail in Section 5.2.2, the GoldSim water quality model results were initially screened to compare the single highest monthly P90 water quality prediction from among 2,400 months covered over the 200 year Mine Site model period, CEC Scenario values,

and the water quality evaluation criteria (see Section 5.2.2.1). The screening analysis indicates that the NorthMet Project Proposed Action would not exceed evaluation criteria with the exception of aluminum (see Table 5.2.6-2).

The results indicate aluminum would exceed the evaluation criterion (125 µg/L) at all evaluation locations. Maximum aluminum P90 values for the NorthMet Project Proposed Action ranged from a low 306 µg/L (SW-006) to a high of 313 µg/L (SW-002). However, Partridge River concentrations at the same locations for the CEC Scenario are nearly identical, also exceeding the evaluation criterion. Therefore, the NorthMet Project Proposed Action would not worsen existing conditions relative to aluminum concentrations in the Partridge River (see Table 5.2.2-31).

Mercury was not included in the GoldSim model for either the Mine Site or the Plant Site, as insufficient data and unique modeling requirements for mercury dynamics prevented modeling mercury like the other solutes. Regardless, the NorthMet Project Proposed Action would still need to demonstrate that the mercury evaluation criteria would be protected (see Section 5.2.2.1). Therefore, a simple mass balance model estimation method was used. This simple estimation method was preferred over a detailed mechanistic model because it incorporated the important input and removal processes for mercury, was very transparent with regard to data inputs, and allowed for easy assessment of the effects of changing parameter values on mercury concentrations. For the Mine Site, this method, in combination with analog data from existing natural and mine pit lakes in the region, was used to assess future mercury concentrations in the West Pit lake and in the overflow water. Mercury air emissions and subsequent mercury deposition were not assessed for the Mine Site because potential emissions are less than 1.0 lb/yr (PolyMet 2015e). Information pertaining to mercury deposition is discussed in Section 5.2.7.2.5. The NorthMet Project Proposed Action is also estimated to result in a net decrease in mercury loadings to the Partridge River (see Sections 5.2.2.3.4 and 6.2.2.4).

As described in detail in Section 5.2.2.3.4, adding sulfate to aquatic systems where sulfate is limiting can stimulate sulfate-reducing bacteria activity, leading to increased mercury methylation as the sulfate is consumed (Gilmour et al. 1992; Harmon et al. 2004; Branfireun et al. 1999; Branfireun et al. 2001). The MPCA and MDNR recognize the important role of sulfate in methylmercury production, as well as the uncertainties regarding site-specific relationships between sulfate discharges and water body impairment. The MPCA has set forth a strategy (MPCA 2006a) for addressing the effects of sulfate on methylmercury production that encompasses technical, policy, and permitting issues. In response to this policy, as well as to comply with sulfate standards that apply to waters recommended as supporting the production of wild rice, PolyMet has proposed several significant changes to the NorthMet Project Proposed Action design from that proposed in the DEIS. These changes would significantly reduce sulfate loadings, and they would include a surface and groundwater seepage containment system around the Category 1 Stockpile and a WWTF to treat the West Pit overflow at the Mine Site and a containment system around the Tailings Basin and a WWTP to treat tailings seepage at the Plant Site. Effluent from the WWTF would be discharged at a water quality-based effluent limit concentration that protects the sulfate standard for waters used for the production of wild rice (10 mg/L), beginning when the West Pit is predicted to flood around year 55. Sulfate concentrations in this range coupled with the oxygenated hydrologic environment to which the effluent would be discharged would not be expected to promote mercury methylation; therefore, impacts to

aquatic species are not anticipated. Potential cumulative impacts to fish from mercury and methylmercury are discussed in Section 6.2.6.3.3.

An exceedance of aluminum could potentially affect aquatic species by causing pulmonary problems, developmental issues, and osmoregulatroy disturbances (Soucek 2006). However, given the similarity between the CEC Scenario and the NorthMet Project Proposed Action aluminum values at Partridge River evaluation locations, impacts from aluminum to aquatic species due to the NorthMet Project Proposed Action are not anticipated.

Table 5.2.6-2 Partridge River Maximum P90 Solute Concentration Over Entire 200-Year Simulation at Each Evaluation Location Based on GoldSim Probabilistic Model

Parameter	Evaluation Criteria	Units	SW-002		SW-004		SW-004a	
			NorthMet Project Proposed Action	CEC Scenario	NorthMet Project Proposed Action	CEC Scenario	NorthMet Project Proposed Action	CEC Scenario
General								
Chloride	230	mg/L	16.9	16.9	16.8	16.7	16.8	16.9
TDS[2]	700[3]	mg/L	207	207	204	204	214	204
Metals Total								
Aluminum	125	µg/L	**313**	**313**	**312**	**311**	**310**	**315**
Antimony	31	µg/L	0.25	0.3	0.26	0.3	4.2	0.3
Arsenic	53	µg/L	2.6	2.6	2.6	2.6	2.7	2.6
Boron	500	µg/L	200	199	198	197	200	202
Cadmium	NA[1]	µg/L	0.17	0.17	0.16	0.16	0.93	0.17
Chromium	11	µg/L	1.4	1.4	1.4	1.4	1.7	1.5
Cobalt	5	µg/L	1.3	1.3	1.3	1.3	3.1	1.3
Copper	NA[1]	µg/L	3.5	3.5	3.4	3.4	5.8	3.5
Lead	NA[1]	µg/L	0.94	0.94	0.92	0.92	1.9	0.97
Nickel	NA[1]	µg/L	4.3	4.3	4.3	4.3	26.7	4.4
Selenium	5	µg/L	1.5	1.5	1.5	1.5	1.5	1.5
Silver	1	µg/L	0.11	0.11	0.11	0.11	0.16	0.11
Thallium	0.56	µg/L	0.12	0.12	0.11	0.11	0.11	0.12
Zinc	[1]NA[2]	µg/L	25.4	25.4	25.5	25.4	48.7	25.4

Sources: PolyMet 2015m; PolyMet 2014v.

Notes:
Bolded numbers show exceedances at the P90 modeled concentrations.

For each constituent at each location, the maximum solute concentration over the entire 500-year simulation period is recorded for each of 500 realizations of the Monte Carlo run. At the end of the Monte Carlo run, there is a list of 500 maximum concentration values for each constituent at each location. Each list is converted to a cumulative frequency distribution. Each value in this table is the 90th percentile concentration from the associated distribution.

[1] Parameter has a hardness-based evaluation criterion and is screened using a different procedure (see Table 5.2.2.-42).
[2] TDS is calculated as the sum of 90th-percentile alkalinity, calcium, magnesium, sodium, potassium, chloride, sulfate, and fluoride using the formula provided in PolyMet (2015m; Section 6.2.6.2).

Colby Lake

As discussed in Section 5.2.2 and exhibited in Table 5.2.6-3, Colby Lake would exceed the evaluation criteria for aluminum, arsenic, iron, and manganese under the NorthMet Project Proposed Action. Potential effects of aluminum on aquatic species are discussed in Section 5.6.2.2.1. Exceedances of arsenic could potentially result in poor growth rates and mortality in aquatic species; however, adverse effects have only been reported in water containing concentrations between 19 and 48 µg/L (Eisler 1988a). However, comparing the evaluation criteria exceedances to the CEC Scenario indicates no effects on aquatic species would result from the NorthMet Project Proposed Action, as modeled values are nearly identical under the No Action Continuation of Existing Conditions Scenario.

Table 5.2.6-3 Maximum P90 Surface Water Concentrations for Colby Lake

Parameter	Colby Lake Evaluation Criteria	Units	CEC Scenario (Max P90 Value)	NorthMet Project Proposed Action (Max P90 Value)
General				
Chloride	230	mg/L	15.3	15.3
Metals Total				
Aluminum	125	µg/L	**266**	**266**
Antimony	5.5	µg/L	0.26	0.48
Arsenic	2	µg/L	**2.44**	**2.46**
Cadmium	NA[1]	µg/L	0.17	0.20
Chromium	100	µg/L	1.28	1.28
Cobalt	2.8	µg/L	1.22	1.26
Copper	NA[1]	µg/L	9.83	9.88
Iron	300	µg/L	**5,043**	**5,034**
Lead	NA[1]	µg/L	1.26	1.31
Manganese	50	µg/L	**207**	**202**
Nickel	NA[1]	µg/L	4.42	5.43
Selenium	5	µg/L	1.29	1.29
Silver	1	µg/L	0.11	0.11
Thallium	0.28	µg/L	0.07	0.08
Zinc	NA[1]	µg/L	26.7	27.6

Source: PolyMet 2014v.

Note: Bold font indicates an exceedance of the Class 2B water quality standards evaluation criteria.

Special Status Species

There are no federally listed or state-listed threatened or endangered fish or macroinvertebrate species known to occur in the Partridge River (USFWS 2011). There are four special status aquatic species that have not been found in the NorthMet Project area, but suitable habitat is likely to occur and the species could be present, including:

- Quebec emerald dragonfly – RFSS species,
- Ebony boghaunter – RFSS species,

- Creek heelsplitter mussel – SGCN and RFSS species, and
- Northern brook lamprey – SGCN and RFSS species.

Since the NorthMet Project Proposed Action is not predicted to result in any measurable changes in low flows and negligible changes in average flows, no effects on RCI and ACI, and no change in water quality for any of the Class 2B water quality standards, no effects on aquatic special status species is expected within the Partridge River Watershed.

Furthermore, aquatic species on the Superior National Forest, which include lake sturgeon, nipigon cisco, and shortjaw cisco, will not be impacted as the species are not included in the NorthMet Project area. In addition, the NorthMet Project Proposed Action may affect individuals, but would not likely cause a trend to federal listing or loss of viability for the remaining six RFSS aquatic species, discussed in Section 4.2.6, on the Superior National Forest. Please see the Biological Evaluation included in Appendix D for more information about effects on RFSS aquatic species.

5.2.6.2.2 Embarrass River Watershed

This section describes the potential effects of the NorthMet Proposed Action on aquatic resources in the Embarrass River Watershed, including effects on physical habitat, riparian and aquatic connectivity, and water quality.

Physical Habitat Effects

The NorthMet Project Proposed Action could potentially affect flows in the three tributary streams draining the Tailings Basin (i.e., Mud Lake Creek, Trimble Creek, and Unnamed Creek) and flow in the Embarrass River downstream of these tributary effects (i.e., PM-13). As discussed in Section 5.2.2, the NorthMet Project Proposed Action includes engineering controls that would capture nearly all seepage from the Tailings Basin, and mitigate this effect by augmenting flows to two of the three Embarrass River tributary streams, Unnamed Creek and Trimble Creek, and a Partridge River tributary, Second Creek, with WWTP effluent to maintain average annual flows within 20 percent of existing conditions (see Table 5.2.6-4). Mud Lake Creek would be augmented via a drainage swale on the east side of the Tailings Basin. The tributary streams flow augmentation would result in only about a 3 percent reduction in average annual flow at PM-13 in the Embarrass River. Changes in average annual flow of this magnitude (less than 20 percent) would fall into the range of annual natural variability in terms of precipitation and would have minimal impacts to ecosystem function and aquatic species within the Embarrass River Watershed; however, seasonal flow data was not available for this watershed—in particular the tributaries. Flow monitoring details under the NorthMet Project Proposed Action would be finalized during the permitting process to ensure average annual flow standards are being met during mine operations, reclamation, and post-closure maintenance phases (see Table 5.2.2-54).

Dampening of the hydrologic curve could have an adverse effect on aquatic biota due to stream destabilization, including aggredation, degradation, and resultant loss of habitat. Maintenance of spring bankfull flow is particularly important for the success of fish spawning in tributaries because high flows trigger spawning runs and maintain spawning habitat. Effects on the success of fish spawning in tributary streams would be addressed by maintenance of seasonal, bankfull

flows over the life of the NorthMet Project Proposed Action, especially when stream-related flow augmentation occurs within the Embarrass River Watershed.

Table 5.2.6-4 WWTP Minimum Flow Requirements for Stream Augmentation

Tributary	Historical Average Annual Flow (gpm)	WWTP Minimum Flow Requirements for Stream Augmentation (gpm)[1]
Second Creek	227	184
Trimble Creek	1,888	1,178
Unnamed creek	1,180	336
Total	**3,295**	**1,698**

Source: PolyMet 2015i.

Note:
[1] The value is the minimum flow of treated water the WWTP has to discharge on an average annual basis to each of the three streams that require augmentation to compensate for the river flow that would be cut off from the containment system, thereby maintaining plus or minus 20 percent of the current mean annual flow.

Water Quality Effects

Heavy metals have a wide spectrum of adverse effects on aquatic life that could include impacts to reproduction, growth, behavior, and metabolism. These effects are dependent upon such factors as species, age, weight, sex, trophic level, concentration of the metal, and ambient water conditions such as pH, salinity, hardness, temperature, and dissolved oxygen (Girgin et al. 2010). The bioavailability of heavy metals such as cadmium, copper, nickel, lead, and zinc generally decreases with increasing hardness in freshwater systems (Girgin et al. 2010). See Section 5.2.2.1.2 for details regarding the relationship between heavy metals and hardness. Exceedances of mercury could cause adverse impacts such as reproduction, growth, and osmoregulation issues in aquatic organisms. Mercury rapidly accumulates in aquatic biota and can inhibit fish reproduction at water concentrations as low as 0.03 µg/L (Eisler 1987); however, seepage water from the Tailings Basin is expected to be less than 0.001 µg/L. Conversely, lead does not bioaccumulate and tends to decrease with increasing trophic levels in freshwater habitats. Exposure to high levels of lead could result in muscular and neurological degeneration and destruction, growth inhibition, reproductive problems, paralysis, and mortality in fish. It could also negatively affect invertebrate reproduction as well as reduce growth, photosynthesis, mitosis, and water absorption in aquatic plants (Eisler 1988b).The NorthMet Project Proposed Action is designed to capture metals with engineering controls and adaptive management. Water monitoring (see Table 5.2.2-54) would ensure that water quality standards would be met with engineering controls and adaptive management. In addition, spill prevention plans would be implemented. These measures would minimize any potential impacts to aquatic species.

As described in more detail in Section 5.2.2, the Plant Site GoldSim water quality model results were initially screened to compare the single highest monthly P90 water quality prediction from among 6,000 months covered over the 500-year model period with the CEC Scenario modeled values and the water quality evaluation criteria (see Section 5.2.2.1). The initial screening analysis indicates that the NorthMet Project Proposed Action would not exceed surface water evaluation criteria with the exception of aluminum (see Table 5.2.6-5). In addition, surface water constituents that have hardness-based evaluation criteria were screened. It was not possible to develop a single evaluation criterion to which the GoldSim-predicted solute concentrations could be compared. The secondary screening approach was therefore based on evaluating the

frequency and magnitude of potential impacts. Aluminum surface water concentrations were the only values that did not pass secondary screening (Section 5.2.2.3.3).

The results indicate the maximum P90 values of aluminum would exceed the Class 2B standard (125 µg/L) at all evaluation locations except TC-1 for both the CEC Scenario and the NorthMet Project Proposed Action. Maximum aluminum P90 values for the NorthMet Project Proposed Action ranged from a low 112 µg/L (TC-1) to a high of 189 µg/L (MLC-3). As discussed in Section 5.2.2, however, the predicted increases in aluminum are not the result of increased aluminum loadings from the NorthMet Project Proposed Action, but rather the result of mass loading from surface runoff and the loading from other minor sources. Given the similarity between the CEC Scenario and the NorthMet Project Proposed Action aluminum values at Embarrass River evaluation locations, impacts from aluminum to aquatic species due to the NorthMet Project Proposed Action are not anticipated.

As discussed in Section 5.2.2.3.3, NorthMet Project Proposed Action lead concentrations at PM-11 are generally higher than CEC Scenario concentrations. However, it is concluded that due to the expected performance of the WWTP, it is likely that actual lead concentrations at PM-11 would have acceptably low frequencies of exceedance. Therefore, impacts from lead to aquatic species due to the NorthMet Project Proposed Action are not anticipated.

Although maximum solute P90 concentrations are expected to meet Class 2B water quality standards for solutes other than aluminum, the NorthMet Project Proposed Action is projected to alter the existing water quality of the Embarrass River by increasing some solute concentrations from 2 to almost 30 times the existing level (Tables 4.2.2-32 and 5.2.2-45). Non-contact surface runoff and the addition of WWTP effluent to Unnamed Creek, Trimble Creek, and Second Creek as part of the augmentation program is projected to contribute to these loading increases.

Mercury was not included in the GoldSim model for either the Mine Site or the Plant Site, as insufficient data and unique modeling requirements for mercury dynamics prevented modeling mercury like the other solutes. Regardless, the NorthMet Project Proposed Action would still need to demonstrate that the mercury evaluation criteria would be protected (see Section 5.2.2.1). Therefore, a simple mass balance model estimation method was used. This simple estimation method was preferred over a detailed mechanistic model because it incorporated the important input and removal processes for mercury, was very transparent with regard to data inputs, and allowed for easy assessment of the effects of changing parameter values on mercury concentrations. For the Plant Site, this method, in combination with analog data from existing natural and mine pit lakes in the region, was used to assess future mercury concentrations in seepage, discharge from the WWTP, and volatilization from the Tailings Basin pond (this mechanism is discussed in Section 5.2.7, Air Quality). Mercury air emissions and subsequent mercury deposition were assessed for the Plant Site, whereby the output from the mercury air emissions was included in the simple mass balance model (Polymet 2015j). Information pertaining to mercury deposition is discussed in Section 5.2.7.2.5. The NorthMet Project Proposed Action is predicted to result in a net increase in mercury loadings to the Embarrass River (see Sections 5.2.2.3.4 and 6.2.2.4). This is primarily attributable to the redirection of surface runoff diverted via the drainage swale constructed east of the Tailings Basin East Dam directly to Mud Lake Creek as part of the Tailings Basin expansion to the Embarrass River.

Table 5.2.6-5 Embarrass River Maximum P90 Solute Concentration Over Entire 500-Year Simulation Period Based on GoldSim

			PM-13		PM-11		PM-19		MLC-2	
Parameter	**Evaluation Criteria**	**Units**	**NorthMet Project Proposed Action**	**Continuation of Existing Conditions**	**NorthMet Project Proposed Action**	**Continuation of Existing Conditions**	**NorthMet Project Proposed Action**	**Continuation of Existing Conditions**	**NorthMet Project Proposed Action**	**Continuation of Existing Condition**
Chloride	230	mg/L	9.7	13.1	8.8	22.1	7.5	22.2	10.2	20.7
TDS[2]		mg/L	257	479	131	919	138	667	213	531
Metals Total										
Aluminum	125	µg/L	**180**	**179**	**159**	**151**	**135**	**129**	**187**	**158**
Antimony	31	µg/L	9.2	0.40	19.6	0.68	19.0	0.49	0.40	0.44
Arsenic	53	µg/L	5.8	4.2	10.0	3.6	9.8	4.0	4.4	4.4
Boron	500	µg/L	151	225	356	**517**	349	370	94.5	282
Cadmium	NA[1]	µg/L	1.0	0.15	2.0	0.26	1.9	0.19	0.16	0.17
Chromium	86	µg/L	4.1	1.7	7.5	1.5	7.4	1.3	1.8	1.6
Cobalt	5	µg/L	3.0	2.6	5.0	4.7	4.9	2.7	2.7	2.5
Copper	NA[1]	µg/L	5.7	2.6	9.0	5.2	8.9	3.3	2.2	2.7
Lead	NA[1]	µg/L	1.7	0.59	3.0	0.42	2.9	1.1	1.4	1.3
Nickel	NA[1]	µg/L	28.4	4.5	50.0	9.8	49.1	5.8	4.1	4.5
Selenium	5	µg/L	2.74	0.76	4.99	0.93	4.87	0.77	0.87	0.76
Silver	1	µg/L	0.18	0.14	0.32	0.25	0.32	0.18	0.13	0.15
Thallium	0.56	µg/L	0.17	0.15	0.23	0.16	0.23	0.18	0.17	0.19
Vanadium	NA	µg/L	6.5	3.7	9.5	1.0	9.3	3.7	5.2	4.8
Zinc	NA[1]	µg/L	57.0	18.5	99.9	15.8	98.2	15.3	19.2	18.1

Source: PolyMet 2014w and PolyMet 2015j.

Notes:
For each constituent at each location, the maximum solute concentration over the entire 500-year simulation period is recorded for each of 500 realizations of the Monte Carlo run. At the end of the Monte Carlo run, there is a list of 500 maximum concentration values for each constituent at each location. Each list is converted to a cumulative frequency distribution. Each value in this table is the 90th percentile concentration from the associated distribution.
Bold value indicates exceedance of the evaluation criterion at the P90 modeled concentrations.
[1] Parameter has a hardness-based evaluation criterion and is screened using a different procedure (see Table 5.2.2.-42).
[2] TDS is calculated as the sum of 90th-percentile alkalinity, calcium, magnesium, sodium, potassium, chloride, sulfate, and fluoride using the formula provided in PolyMet (2015m, section 6.2.6.2).

Special Status Species

There are no federally listed or state-listed threatened or endangered fish or macroinvertebrate species known to occur in the Embarrass River (USFWS 2011). There are four special status aquatic species that have not been found in the NorthMet Project area, but suitable habitat is likely to occur and the species could be present, including:

- Quebec emerald dragonfly – RFSS species;
- Ebony boghaunter – RFSS species;
- Creek heelsplitter mussel – SGCN and RFSS species; and
- Northern brook lamprey – SGCN and RFSS species.

The NorthMet Project Proposed Action is not predicted to result in any measurable changes in low flows, and there would be negligible changes in average annual flows, no effects on RCI and ACI, and no change in water quality for any of the Class 2B water quality standards.

Similarly for the Embarrass River, as stated above for the Partridge River, aquatic species on the Superior National Forest, which include lake sturgeon, nipigon cisco, and shortjaw cisco, will not be impacted as the species are not included in the NorthMet Project area. In addition, the NorthMet Project Proposed Action may affect individuals, but would not likely cause a trend to federal listing or loss of viability for the remaining six RFSS aquatic species, discussed in Section 4.2.6, on the Superior National Forest.

5.2.6.3 NorthMet Project No Action Alternative

Under the NorthMet Project No Action Alternative, the NorthMet Project Proposed Action would not occur and associated effects on fish and other aquatic life would not occur.

Although under the No Action Alternative, the NorthMet Project Proposed Action, including the proposed Tailings Basin seepage collection and water treatment engineering controls, would not occur, the No Action Alternative would not necessarily be static. In this case, it is anticipated that the water quality of seepage from the existing LTVSMC Tailings Basin would improve over time as a result of natural attenuation and/or possible additional mitigation measures pursuant to the Consent Decree between the MPCA and Cliffs Erie, new requirements in reissued permits, or other state or federal remediation requirements.

5.2.7 Air Quality

This section assesses the effects of the NorthMet Project Proposed Action on air quality. Procedures for air quality assessments vary depending upon the level of emissions from a proposed project. The USEPA defines sources as "major" or "minor," depending on their emissions levels of regulated pollutants (250 tpy of any criteria pollutant, 100,000 tpy of GHGs, 10 tpy of a single HAP, or 25 tpy of all HAPs). As presented in this section, the NorthMet Project Proposed Action has been defined as a synthetic minor source according to this definition, since the project would limit its emissions through permit restrictions to less than the emission levels stated above. However, at the request of several state and federal agencies, much of the analyses were conducted to address requirements for major sources. Discussions of the air quality assessment methodologies, air quality effects, and potential mitigation measures are addressed for criteria pollutants, air toxics, and amphibole fibers.

Summary

The NorthMet Project Proposed Action has been designed so that it is considered a synthetic minor source for air permitting purposes. However, the evaluation of the NorthMet Project Proposed Action in this FEIS has treated it as a major source due to its sensitive nature. Compliance with state and federal ambient air quality standards and growth increments, designed to protect human health and the environment, were evaluated using generally accepted state and federal threshold criteria. The NorthMet Project Proposed Action has been shown to not cause or contribute to significant air quality effects. Local and regional effects, up to 300-km from the project facilities, were evaluated to incorporate federally sensitive, pristine area resources such as BWCAW and Voyageurs National Park. Effects of dust from mining and ore transport are generally confined to areas disturbed by project activities. The effects of reactive dust emissions on wetlands are discussed in Section 5.2.3. Control technologies similar to federal Best Available Control Technologies (termed BACT-like) were evaluated and applied to the project equipment in order to minimize the potential for air emissions. In particular, BACT-like controls were incorporated to reduce mercury emissions to levels that would not impede current State of Minnesota mercury emissions reduction goals. BACT-like fine-particulate matter emission controls were also incorporated to specifically control the release of more than 99.9 percent of amphibole fibers in the ore.

5.2.7.1 Methodology and Evaluation Criteria

The following subsections describe the air quality standards used in the assessments, local and federal regulations that affect the NorthMet Project Proposed Action, and modeling methodologies and specific modeling assessments conducted, as well as the evaluation criteria used to define significant effects from operation of the NorthMet Project Proposed Action.

5.2.7.1.1 Regulatory Setting

Air Quality Standards

The USEPA has established NAAQS for seven criteria air pollutants including NO_2, SO_2, CO, O_3, PM_{10}, $PM_{2.5}$, and lead. Primary standards are established to protect the public health; secondary standards are set to protect public welfare, including protection from damage to animals, crops, vegetation, visibility, and buildings. It should be noted that Title 42, Chapter 85,

Subchapter I, Part A, Section 7408 (a)(2) of the CAA directs the USEPA to develop air quality criteria for air pollutants that have identifiable effects on public health or "welfare." The term "welfare" in the context of the CAA includes the protection of vegetation, and the secondary NAAQS are designed to be protective of plant life including the effects of both concentration and deposition of material.

The MPCA has also promulgated ambient air standards for the State of Minnesota, known as the MAAQS. In addition to the criteria pollutants, the MAAQS contain standards for TSP and hydrogen sulfide (H_2S). As with the NAAQS, the MAAQS primary standards are established to protect the public health; secondary standards are set to protect public welfare, including protection from damage to animals, crops, vegetation, visibility, and buildings.

The NAAQS and MAAQS are summarized in Table 5.2.7-1.

Table 5.2.7-1 Summary of NAAQS and MAAQS

Pollutant	Averaging Period	Standard Value (ppm)	Standard Value (µg/m^3)	Standard Type[1]	Notes
Carbon Monoxide	1-Hour	35	40,000	Primary	Not to be exceeded more than once per year
	1-Hour[2]	30	35,000	Primary	
	8-Hour	9	10,000	Primary and Secondary	
Nitrogen Dioxide	Annual Arithmetic Mean	0.05	100	Primary and Secondary	Not to be exceeded
	1-Hour	0.10	188	Primary	Not to exceed the 98th percentile of the Maximum Daily 1-hour Values averaged over a 3-year period
Ozone	8-Hour	0.075	147	Primary and Secondary	4th highest daily maximum 8-hour average
Lead	Quarterly		0.15	Primary and Secondary	Rolling 3-month average
Total Suspended Particulate (TSP)[2]	Annual Geometric Mean		75 60	Primary Secondary	Not to be exceeded
	24-Hour		260 150	Primary Secondary	Not to be exceeded more than once per year
PM_{10}	Annual Arithmetic Mean[2]		50	Primary and Secondary	Not to be exceeded
	24-Hour		150	Primary and Secondary	Not to be exceeded more than once per year on average over 3 years

Pollutant	Averaging Period	Standard Value (ppm)	Standard Value (µg/m^3)	Standard Type[1]	Notes
$PM_{2.5}$	Annual Arithmetic Mean		12	Primary and Secondary	Not to exceed the 3-year average of the weighted annual mean concentrations
	24-Hour		35	Primary and Secondary	Not to exceed the 3-year average of the 98th percentile of 24-hour concentrations
Sulfur Dioxide	Annual Arithmetic Mean	0.03 0.02	80 60	Primary Secondary[2]	Not to be exceeded
	24-Hour	0.14	365	Primary and Secondary	Not to be exceeded more than once per year
	3-Hour	0.5	1,300	Primary and Secondary	
	3-Hour[2]	0.35	915	Secondary	
	1-Hour[2]	0.5	1,300	Primary	
	1-Hour	0.075	196	Primary	Not to exceed the 99th percentile of the Maximum Daily 1-hour Values averaged over a 3-year period
Hydrogen Sulfide[2]	½-Hour	0.05	70	Primary	Not to be exceeded over 2 times per year
	½-Hour	0.03	42	Primary	Not to be exceeded over 2 times in any 5 consecutive days

Source: MPCA 2013b; USEPA 2013.

Notes:
[1] Primary standards set limits to protect human health; secondary standards set limits to protect public welfare.
[2] MAAQS only.

Federal Regulations

Attainment Status

Under the CAA, the USEPA has defined all areas within the United States as one of two classifications, attainment or non-attainment. “Attainment areas” are those areas that either have collected ambient air quality data to demonstrate that they are in compliance or do not have demonstrated non-compliance with the NAAQS, and so they are known as “unclassified areas.” An area that does not meet NAAQS is considered to be a “nonattainment area” for that pollutant, and the USEPA requires the state to develop state implementation plans to control existing and future emissions in order to bring the area into compliance with the NAAQS. The NorthMet Project area has been designated by the USEPA as attainment or unclassified for all air quality pollutants.

Prevention of Significant Deterioration Review

Under the CAA, the federal Prevention of Significant Deterioration (PSD) requirements provide for a pre-construction review and permit process for the construction and operation of a new or modified major stationary source in attainment areas. The review includes the following:

- BACT demonstration;
- Ambient air quality analysis to assess potential project effects with NAAQS and PSD increments;
- An assessment of Air Quality Related Value (AQRV) of the direct and indirect effects of a Project on general growth, soil, vegetation, and visibility for Class I regions within 300 km;
- An ambient monitoring program if no representative data are available; and
- Public comment.

The USEPA's PSD program allows all attainment areas various levels of air quality protection and growth depending upon its designated class. Class I areas are special areas of natural wonder and scenic beauty—such as national parks, national monuments, and wilderness areas—where air quality should be given special protection. Class II areas are non-Class I areas that are allowed moderate growth and air quality degradation with Class II incremental limits. Class III areas are all non-Class I areas that are deemed unclassified and allow maximum growth and air quality degradation with no incremental limits. Although states and other governing bodies can petition USEPA for reclassification of non-statutory Class I or Class II areas to the Class III designation, there are no Class III areas at this time; therefore, the Class III increments are not included in this discussion. For attainment areas, the USEPA has promulgated PSD increments for four pollutants (NO_2, SO_2, PM_{10}, and $PM_{2.5}$) for both Class I and Class II regions. The increments are designed to allow for ambient concentrations within an area to increase by the maximum allowable amount above baseline concentrations. Class I PSD increments are designed to keep pristine areas clean and have more restrictive allowable increment thresholds. Class II PSD increments are designed to allow further growth within the rest of the country. Table 5.2.7-2 provides a summary of the Class I and Class II PSD increments.

Table 5.2.7-2 Summary of Allowable Prevention of Significant Deterioration Class I and Class II Increments

	Allowable Increment (µg/m^3)	
Pollutant, Averaging Period	**Class I Region**	**Class II Region**
SO_2, 3-hour	25	512
SO_2, 24-hour	5	91
SO_2, Annual	2	20
NO_2, Annual	2.5	25
PM_{10}, 24-hour	8	30
$PM_{2.5}$, 24-hour	2	9
$PM_{2.5}$, Annual	1	4

The NorthMet Project area is located within a Class II attainment area, as designated by the USEPA. In relation to the NorthMet Project Proposed Action, the federal CAA defines a source as a major source in an attainment area if it has any criteria pollutant emissions above 250 tpy or

100,000 tpy of GHG emissions. Because the NorthMet Project Proposed Action is proposing to limit its actual emissions below "major source" thresholds for the federal PSD program, the NorthMet Project Proposed Action is not subject to PSD requirements and, thus, modeling of PSD increment consumption requirements do not specifically apply for permitting. For the purposes of this FEIS, NorthMet Project Proposed Action effects have been compared to the PSD Class I (generally pristine areas) and Class II (remaining areas) increments, as requested by several agencies, to ensure that the NorthMet Project Proposed Action is not contributing to any significant air quality effects.

Air Quality Related Values

In addition to PSD increments, major PSD sources that are located within 186 miles (300 km) of a Class I area may be required by the FLM to evaluate effects on AQRVs, which may include flora/fauna, visibility, water quality, soils, and odor for a specific Class I area. The NorthMet Project area is within 186 miles (300 km) of four Class I areas: BWCAW and Rainbow Lakes Wilderness (administered by the USFS) and Voyageurs National Park and Isle Royale National Park (under the administration of the National Park Service). Although the NorthMet Project Proposed Action is agreeing to emission limits to avoid being a major PSD source, an evaluation of the applicable AQRV was conducted for comparison in this FEIS. Table 5.2.7-3 provides the distances to each Class I area from the NorthMet Project area.

Table 5.2.7-3 NorthMet Project Setting Relative to Class I Regions

Class I Region	Distance from NorthMet Project Area (km/mi)
BWCAW	34/21
Voyageurs National Park	82/51
Rainbow Lakes Wilderness	142/88
Isle Royale National Park	218/135

New Source Performance Standards

The federal New Source Performance Standards are technology-based standards that are applicable to new or modified stationary sources of regulated emissions. The New Source Performance Standards program has defined emission limitations for approximately 70 source categories that are designated by size, as well as type of process. A comprehensive list of the applicable regulations for this facility would be included as part of the air quality permit. The following is a partial list of standards that apply to the NorthMet Project Proposed Action; these could vary depending on the final assessment of the permit application by the MPCA:

- Subpart A – General Provisions, which provides for general notification, recordkeeping, and monitoring requirements.
- Subpart LL – Standards of Performance for Metallic Minerals Processing Plants, which covers particulate and opacity emission limits for any new, modified, or reconstructed sources.
- Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants, which limits particulate emissions and opacity from new, modified, or reconstructed sources processing nonmetallic mineral (e.g., limestone or construction rock).

- Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, which limits NO_x, PM, CO, fuel oil sulfur content, and opacity for new, modified, and reconstructed stationary compression ignition internal combustion engines.
- Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units which, depending on fuel type, can regulate PM and/or SO_2 emissions from new, modified, or reconstructed boilers.

Air Conformity Determination

A conformity determination must be conducted by the lead federal agency if a federal action would generate emissions exceeding the conformity threshold levels (de minimis) of the pollutant(s) for which a Class I or Class II region is designated as a nonattainment area or as a maintenance area. Since the NorthMet Project area is classified as in attainment for all criteria pollutants, a General Conformity Determination is not required.

State of Minnesota Regulations

Nonferrous Mineland Reclamation rules, *Minnesota Rules*, part 6132.800, administered by the MDNR, require the control of dust from areas disturbed specifically by mining operations.

Also, the MPCA has promulgated rules concerning the control and permitting of all sources (not just for mining operations) throughout Minnesota. The following regulations are evaluated for the NorthMet Project Proposed Action.

Prevention of Significant Deterioration Review

Minnesota Rules, part 7007.3000, incorporate by reference the federal PSD requirements that provide for a pre-construction review and permit process for the construction and operation of a new or modified major stationary source in attainment areas.

The NorthMet Project Proposed Action is designed to limit emissions below major source thresholds (i.e., to be permitted as a synthetic minor source). Thus, for permitting purposes, the NorthMet Project Proposed Action would not be considered a major source for PSD (BACT demonstration, PSD increment assessment, and AQRV assessment would not be required via *Minnesota Rules*, part 7007.3000). However, a comprehensive analysis of NAAQS, MAAQS, PSD Class I and II increments, and AQRV is allowed, under Minnesota Rules, part 7007.0100(7)(k) and (v), as part of the evaluation of effect. An evaluation of pollution control technology was conducted for the Mine Site and Plant Site (PolyMet 2014m, PolyMet 2014n, PolyMet 2015e).

Minnesota Standards of Performance

A comprehensive list of Minnesota Standards of Performance would be identified in the air quality permit. The following is a list of Minnesota Standards of Performance applicable to the NorthMet Project Proposed Action. This list may change, depending upon the final assessment of the permit application by the MPCA.

Control of Fugitive PM (*Minnesota Rules*, part 7011.0150), which applies to bulk material handling operation, roads, and other fugitive sources. The rule prohibits the release of “avoidable

amounts" of PM, and facilities are required to take reasonable precautions to prevent the discharge of visible fugitive emissions beyond the property line.

Standards of Performance of Stationary Internal Combustion Engines (*Minnesota Rules*, part 7011.2300). This applies to the emergency fire water pumps and the emergency generators, and limits SO_2 emissions to 0.5 pound per million British thermal units (lb/MMBTU) heat input.

Standards of Performance for Post-1969 Industrial Process Equipment (*Minnesota Rules*, part 7011.0715). This would apply to all new ore-handling equipment and other new sources that would generate PM emissions for which a standard of performance has not been promulgated in a specific rule. Due to the remote location of the NorthMet Project area (i.e., any source that is not in the Minneapolis-Saint Paul Air Quality Control Region or the City of Duluth, and which is located not less than 0.25 mile from any residence or public roadway), the required control equipment efficiency standard would be 85 percent.

Standards of Performance for Existing Indirect Heating Equipment (*Minnesota Rules*, part 7011.0510). The rule limits the PM emissions to between 0.4 and 0.6 lb/MMBTU, limits SO_2 emissions to between 1.6 and 4.0 lb/MMBTU, and limits opacity to 20 percent. This may apply to existing indirect heaters if used in the mining and processing operations.

Standards of Performance for New Indirect Heating Equipment (*Minnesota Rules*, part 7011.0515). The rule limits emissions of PM to between 0.1 and 0.4 lb/MMBTU, SO_2 emissions to between 0.8 and 4.0 lb/MMBTU, NO_x emissions to between 0.2 to 0.7 lb/MMBTU, and opacity to 20 percent. This may apply to new indirect heaters that may be used in the mine processing operations.

Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment (*Minnesota Rules*, part 7011.0610). The rule limits PM emissions based upon process throughput and limits opacity to 20 percent. This may apply to process heaters that may be used in the mine processing operations.

Standards of Performance for Pre-1969 Industrial Process Equipment (*Minnesota Rules*, part 7011.0710). The rule limits mass PM emissions based upon process weight and limits opacity to 20 percent. Alternatively, due to the remote location of the NorthMet Project area, compliance can be demonstrated with a pollution control equipment efficiency of 85 percent. This may apply to existing ore-handling equipment that may be used in the mine processing operations.

Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (*Minnesota Rules*, part 7011.3520). The rule incorporates federal Standards of Performance for Stationary Compression Ignition Internal Combustion Engines under 40 CFR, Part 60, Subpart IIII. This may apply to fire water pumps and emergency generators that may be used in the mine processing operations.

Stationary Reciprocating Internal Combustion Engines (*Minnesota Rules*, part 7011.8150). The rule incorporates federal National Emissions Standards for Hazardous Air Pollutants under 40 CFR, Part 63, Subpart ZZZZ. This may apply to fire water pumps and emergency generators that may be used in the mine processing operations.

5.2.7.1.2 Evaluation Criteria

Various state and federal air quality standards and emissions standards have been established to minimize degradation of air quality. The criteria used for the evaluation of potential effects on air

quality from the NorthMet Project Proposed Action or an alternative are whether it would cause an exceedance of NAAQS or MAAQS.

In addition to legally applicable statutory or regulatory requirements, the following criteria also were considered in evaluating effects from the NorthMet Project Proposed Action:

- Consumption of PSD increments as defined by the CAA Title I, PSD rule;
- Adverse effects on visibility in Class I areas;
- Adverse effects on other AQRV in Class I areas; and
- Adverse effects on human health as determined by an Air Emissions Risk Analysis (AERA) (MPCA 2013b).

5.2.7.1.3 NorthMet Project Proposed Action Emissions

From an air quality perspective, emissions from the NorthMet Project Proposed Action would be expected to occur from the mining operations at the Mine Site and ore/concentrate processing at the Plant Site. Although the emission generating activities at these two sites are separated geographically, they are joined by the rail line that would be used to transport ore from the Mine Site to the Plant Site. As such, the three components constitute a single project for permitting purposes, and, thus, the total emissions from both sites are summed for the purposes of this analysis.

The indirect non-GHG emissions from electrical purchases are not estimated for the NorthMet Project Proposed Action. If additional electrical capacity were required, over and above the current maximum operating capacity which required construction of new equipment, the electrical generating units would be subject to environmental permitting and regulation and would need to meet stringent emission limits for both criteria and non-criteria pollutants. In addition, no direct emissions of odor-causing compounds from the Mine Site or Plant Site are anticipated.

At the Mine Site, emissions were estimated for material handling sources associated with excavation, portable crushing and screening operations, blast hole drilling, use of unpaved roads, and vehicle exhaust.

Material handling includes the loading of overburden, waste rock, lean ore, and ore into trucks with shovels or loaders. After it is hauled, the ore would be dumped into the Rail Transfer Hopper and the overburden, waste rock, and lean ore would be unloaded at the appropriate stockpile or pit. The crushing and screening operations would be used to break up and separate the larger rocks from soil and gravel in the overburden to produce rock suitable for construction purposes. Haul trucks would travel over unpaved roads from the excavation site to the rail loading and stockpiling areas. Fugitive emissions would be generated as part of these operations. In order to minimize fugitive emissions, the NorthMet Project Proposed Action would utilize several control measures. These include minimization of drop distances for ore-screening, truck loading/unloading, and rail-loading; water and other dust suppressants on haul roads (90 percent control); water sprays for rock crushing and screening; down-hole watering during blasting operations; and environmental observations and recording. In addition, two PM10 air quality monitors are proposed to be placed at the Mine Site to monitor fugitive emissions.

At the Plant Site, point source emissions are predicted to occur from the crushing plant, flotation operation autoclaves and other hydrometallurgical processes, process consumables handling, and combustion. In addition, fugitive emissions are expected to occur from raw materials handling, Plant Site roads, the Tailings Basin, and from vehicle use of Dunka Road. Water spraying or other dust suppression would be used on all unpaved roads at the Plant Site, resulting in an 80 percent reduction in associated fugitive emissions.

PolyMet is proposing to accept emission limits below the major source threshold (stationary sources less than 250 tpy for criteria pollutants) so as to be classified as a synthetic minor PSD source and therefore not be subject to PSD requirements including modeling attainment with PSD increments for permitting purposes. As demonstrated in Table 5.2.7-4, below, the NorthMet Project Proposed Action does not have projected controlled emissions above major PSD thresholds on an annual basis. PSD required modeling analyses, however, were performed for this FEIS to assess its effect to ensure that the minor-source NorthMet Project Proposed Action does not cause or contribute to significant effects.

Criteria Pollutants

Criteria pollutant emissions are expected from both the Mine Site and Plant Site. Detailed information on the emission calculations for each site source is available as separate documents (MPCA 2012e; PolyMet 2015e). Table 5.2.7-4 summarizes the NorthMet Project Proposed Action maximum emissions for the Mine Site, Plant Site, and total emissions from PSD-regulated stationary sources for comparison with PSD Major Source Thresholds.

Table 5.2.7-4 Annual Criteria Air Pollutant Emissions for Prevention of Significant Deterioration-regulated Stationary Sources

Pollutant	Plant Site Projected Controlled Emissions (tpy) (controlled potential)	Mine Site Projected Controlled Emissions (tpy) (controlled potential)	Total Projected Controlled Emissions (tpy) (controlled potential)	PSD Major Source Thresholds (tpy)
NO_x	117	5	122	250
SO_2	7	0.8	8	250
TSP	201	9	210	250
PM_{10}	192	4	196	250
$PM_{2.5}$	190	2	192	250
VOC	50	0.2	50	250
Lead	0	0	0	250
CO	127	2	129	250

Note:
[1] The Plant Site emissions shown in Table 5.2.7-4 are the basis for the air dispersion modeling an impact assessment for the Project; however, planned changes to the Plant Site unit operations and configuration result in lower emissions of all criteria pollutants; therefore, additional air dispersion modeling analysis is not necessary because the worst case emissions were modeled.

In accordance with PSD permitting requirements, for this assessment, mobile emissions and fugitive emissions sources are not included in the determination of a major source. Under PSD requirements, fugitive sources are only included if the stationary source is defined as one of 28 named source categories. The NorthMet Project Proposed Action is not included in any of the USEPA-listed source categories; therefore, fugitive sources are not included in the determination

of a major source. However, to assess modeled air effects, mobile and fugitive emissions from the operations were evaluated. The non-PSD-regulated mobile source emissions and fugitive emissions are summed in Table 5.2.7-5. Due to the size of the ore rock being transported, the design of the railcars, and the short distance of transport from the Mine Site to the Plant Site, the ore fines are expected to be coarse in nature. Thus, no significant reactive airborne fugitive dust from the rail transport is expected (MDNR et al. 2011) and is not included in the fugitive emissions. Any spillage of the ore fines is expected to be within 2 meters of the rail line, along the path, and any effects of the reactive ore on the ground has been addressed in Section 5.2.3.

Table 5.2.7-5 Annual Air Pollutant Emissions for non-Prevention of Significant Deterioration-regulated Mobile Sources and Fugitive Sources

Pollutant	Plant Site Projected Controlled Emissions (tpy)	Mine Site Projected Controlled Emissions (tpy)	Total Projected Controlled Emissions (tpy)
NO_x	58	321	379
SO_2	0	2	2
PM_{10}	238	462	700
$PM_{2.5}$	31	77	108

Hazardous Air Pollutants Emissions

Small amounts of potentially toxic compounds, which are referred to as HAPs, are expected to be associated with the NorthMet Project Proposed Action. Table 5.2.7-6 provides the estimate of HAP emissions for the NorthMet Project Proposed Action stationary sources. These emission levels reflect potential emissions taking into account the proposed pollution control equipment for the NorthMet Project Proposed Action (controlled). As seen in the table, total emissions of a single HAP are below 10 tpy and the combined HAP emissions are below 25 tpy, indicating that the HAP emissions would not exceed USEPA major source thresholds for HAPs. Although HAP emissions from mobile sources were not included in the table to address emission thresholds, these emissions were used in assessing the potential effects on human health. The AERA itself is not limited to an assessment of HAPs, but is inclusive of any air toxic pollutant that screened in during the scoping process.

Table 5.2.7-6 Annual Hazardous Air Pollutant Emissions

Pollutant	Plant Site Projected Controlled Emissions (tpy) (controlled potential)	Mine Site Projected Controlled Emissions (tpy) (controlled potential)	Total Projected Controlled Emissions (tpy) (controlled potential)	Major Source Threshold (tpy)
Single HAP[1]	4	1	5	10
Combined HAPs	14	3	17	25

Note:
[1] Nickel is the HAP with the highest emissions for the Plant Site (4 tpy); manganese has the highest emissions at the Mine Site (2 tpy). Highest single HAP emissions for the NorthMet Project Proposed Action (Plant Site plus Mine Site) are the nickel emissions, so the Single HAP values in Table 5.2.7-6 reflect nickel emissions for both the Plant Site and the Mine Site.

Greenhouse Gas Emissions

Direct and indirect GHG emissions would be associated with the NorthMet Project Proposed Action. Direct emissions are emitted from project sources; indirect emissions are from sources that are not part of the project, but are generated from activities that support the project (e.g., off-site electrical needs). These gases include primarily carbon dioxide (CO_2), N_2O, and methane (CH_4). GHG emissions are estimated based upon their global warming potential and are expressed in carbon dioxide equivalents (CO_2e). Global warming potential is the relative effect a specific compound has on the overall global warming effects. The global warming potential factors for the three pollutants are 1, 310, and 21, respectively. For this assessment, the CO_2e is estimated by multiplying the specific emissions by its global warming potential factor and then summing the results. Table 5.2.7-7 summarizes the controlled direct GHG emissions for the NorthMet Project Proposed Action. As seen from the table, total direct GHG emissions are less than 100,000 tpy of CO_2e and would not exceed the USEPA major source thresholds for GHGs.

Table 5.2.7-7 Annual Greenhouse Gas Emissions for Prevention of Significant Deterioration-regulated Stationary Sources[2]

Pollutant	Plant Site Projected Controlled Emissions (tpy)	Mine Site Projected Controlled Emissions (tpy)	Total Projected Controlled Emissions (tpy)	Major Source Threshold (tpy)
CO_2	75,532	1,740	77,232	-
N_2O	0.9	0.08	1.0	-
CH_4	0.5	0.02	0.5	-
Total CO_2e[1]	**75,836**	**1,764**	**77,600**	**100,000**

Notes:
[1] CO_2e is used to assess PSD applicability and considers only emissions from stationary sources. The PSD applicability is based on short tons of emissions and the Table 5.2.7-7 values are all in short tons per year.
[2] The values in Table 5.2.7-7 are not proposed permit limits.

Estimated annual maximum potential emissions of the NorthMet Project Proposed Action are based as it is currently proposed running at maximum capacity (potential) (see Table 5.2.7-7). Potential annual GHG emissions from the NorthMet Project Proposed Action, as opposed to maximum potential emissions, are shown below in Table 5.2.7-8. Potential emissions are the sum of direct and indirect GHG emissions. Potential GHG emissions from the NorthMet Project Proposed Action are calculated using The Climate Registry General Reporting Protocol (Climate Registry 2008) and the MPCA General Guidance for Carbon Footprint Development in Environmental Review (MPCA 2011e). Emissions are calculated using default emission factors for specific fuels from the two documents. The annualized carbon footprint is summarized in Table 5.2.7-8; the lifetime carbon footprint is provided in Table 5.2.7-9.

For this analysis, emission estimates for the direct and indirect source equipment used generally accepted emission factors and estimation methods from the World Resource Institute Greenhouse Gas Protocol Standard, the Intergovernmental Panel on Climate Change (IPCC), and the MPCA General Guidance on Carbon Footprint in Environmental Review (MPCA 2009d). Emissions estimates from secondary emissions sources generally utilized emissions factors that would represent estimates greater than actual values (high estimation) or best estimates of actual values based upon literature review (central tendency) (PolyMet 2015e).

Table 5.2.7-8 NorthMet Project Proposed Action Annual Greenhouse Gas Emissions

Pollutant	Potential Direct Emissions[1] (CO_2e – mtpy)[2]	Potential Indirect Emissions[3] (CO_2e – mtpy)	Potential Total Emissions (CO_2e – mtpy)
Mine Site Point Source	1,600	--	--
Mine Site Mobile Source	38,086	--	--
Plant Site Point Source	138,641	--	--
Plant Site Mobile Source	8,014	--	--
Terrestrial Carbon Loss	10,000		
Totals	**196,341**	**511,000**	**707,342**

Notes:
1 Maximum Potential Direct Emissions are all emissions from sources that are under direct control of the NorthMet Project Proposed Action and full maximum capacity.
2 CO_2e is in metric tons per year (mtpy). Emission estimates are expressed as metric tons per year in Table 5.2.7-8 because that unit is the international discussion of CO_2e emissions.
3 Indirect emissions: Emissions that are a consequence of the activities of the reporting entity, but that occur at sources owned or controlled by another entity. For example, emissions that occur at a power plant as a result of electricity being generated and subsequently used by the NorthMet Project Proposed Action.

Table 5.2.7-9 NorthMet Project Proposed Action Lifetime Greenhouse Gas Emissions

Pollutant	Potential Direct Emissions[1] (CO_2e – mt)[2]	Potential Indirect Emissions (CO_2e – mt)[6]	Potential Total Emissions (CO_2e – mt)
Mine Site Emissions[3]	793,734		
Plant Site Emissions[3]	2,933,181		
Construction Emissions[4]	94,186		
Reclamation Emission[5]	1,549,688		
Subtotals	**5,370,789**	**10,220,000**	**15,590,789**
Terrestrial Carbon Loss[7]	199,963	-	199,963
Totals	**5,570,752**	**10,220,000**	**15,790,752**

Notes:
1 Maximum Potential Direct Emissions are all emissions from sources that are under direct control of the NorthMet Project Proposed Action and full maximum capacity.
2 CO_2e is in metric tons (mt).
3 Based upon maximum annual emissions occurring for 20 years.
4 Includes Phase I (flotation concentration production only) and Phase II (Hydrometallurgical Plant) construction.
5 Based on 20-year closure period and 30-year long-term closure period for the WWTF and WWTP.
6 Indirect emissions: Emissions that are a consequence of the activities of the reporting entity, but that occur at sources owned or controlled by another entity. For example, emissions that occur at a power plant as a result of electricity being generated and subsequently used by the NorthMet Project Proposed Action.
7 Terrestrial carbon loss includes: wetland carbon loss, 20 years of emissions from stockpiled peat, and emission from peat used in reclamation.

5.2.7.1.4 Predictive Modeling Approach

Detailed air dispersion modeling was conducted to evaluate compliance with NAAQS and MAAQS, to support PSD increment analysis, and to identify other potential effects on Class I and Class II areas. Although the NorthMet Project Proposed Action is not considered a major source for PSD considerations, the modeling analysis was conducted pursuant to the PSD regulations. The methods used for modeling are summarized below.

NAAQS, MAAQS, and Class II Increment Modeling Approach

To assess the effects on air quality, air dispersion modeling techniques were utilized. The MPCA prefers the AERMOD modeling system, and USEPA has included AERMOD as an approved guideline model. Meteorological data (2006 to 2010) from the Hibbing station and concurrent International Falls mixing height data, suitable for input to AERMOD, were used to evaluate the NorthMet Project Proposed Action. The AERMINUTE meteorological processor was used to develop the meteorological dataset for AERMOD.

The air quality modeling addressed individual point sources, as well as all sources of fugitive particulate matter. The modeling was conducted to determine the extent of effects from criteria pollutant emissions on ambient air quality and to identify the significant impact area for each pollutant. Modeling was conducted for PM_{10}, $PM_{2.5}$, NO_2, and SO_2 and their respective applicable averaging times at both the Mine Site and Plant Site (PolyMet 2014m; PolyMet 2014n). Ozone emissions were not modeled or analyzed for NAAQS due to the regional nature of ozone formation involving complex interaction of multi-pollutants. It should be noted that ozone is not emitted directly from any mining or ore-processing source. Emissions of lead and CO were not modeled for the NorthMet Project Proposed Action following the MPCA-approved modeling protocols for the Plant Site and Mine Site. NorthMet Project Proposed Action emissions were initially modeled and compared to their respective Significant Impact Limit (SIL), as provided in Table 5.2.7-10 for each of the pollutants and averaging times. The SIL is the threshold for a given pollutant and averaging time, where no further modeling analysis is required. Modeled concentrations above the SIL do not define a significant effect in the context of the EIS; rather, where the modeled concentrations are above the SIL, more refined modeling is required in order to evaluate compliance with PSD increments and NAAQS. The farthest distance from the source where the concentration is above the SIL defines the circular region that would require further affect modeling.

All point and fugitive sources associated with the Mine Site and Plant Site were included in the source input files for PSD Class II increment modeling, with the exception of the Plant Site unpaved roads, which were in operation at the baseline date. Additionally, data on the following nearby major increment-consuming (or increment-expanding) sources, which were determined and provided by the MPCA, were also included as source input:

- Mesabi Nugget;
- Mesabi Mining Project;
- Cliffs Erie pellet yard; and
- Former LTVSMC processing plant.

It should be noted that the Northshore Mine was determined to be permitted before the PSD baseline date, and is not an increment-consuming source; therefore, it was not included in the increment modeling.

Model inputs for these sources were provided by the MPCA. For comparison to the NAAQS, a background concentration was added to the modeled concentration. PM_{10} background concentrations represent the 2008 to 2010, 3-year average concentrations for the high-second-high 24-hour concentration and maximum annual average concentration from the Virginia, Minnesota air quality monitoring site. $PM_{2.5}$ background concentrations represent the 2008-2010

average concentrations for the highest 2nd high (H2H) 24-hour and annual average concentrations from the same station. Hourly SO_2 and NO_2 background concentrations are from 2008-2010 MPCA update data for use in modeling assessments (MPCA 2012i) for sites outside Minneapolis.

Project design modifications were made to the NorthMet Project Proposed Action since modeling was undertaken. These modifications include the addition of a SAG Mill, relocation of the Coal Ash Landfill, installation of cement deep soil mixing, and construction of a water containment system on the eastern side of the Tailings Basin. The Co-lead Agencies considered information provided by PolyMet pertaining to these project modifications and determined that the existing air dispersion modeling was representative and additional modeling was not required for the EIS but may be required for permitting.

Class I Area-Related Modeling Approach

An air quality modeling analysis was conducted to estimate effects of the NorthMet Project Proposed Action on air quality in Class I areas. The Class I AQRV analyses addressed PSD Class I increments for SO_2, PM_{10}, NO_2, sulfur and nitrogen deposition, and visibility impairment. Regional haze is addressed in Section 6.2.3.8.8. The dispersion modeling analysis used standard USEPA long-range transport modeling methodologies and followed guidance as presented in: 1) USEPA's Guideline on Air Quality Models, the Interagency Workgroup on Air Quality Modeling Phase 2 report; 2) the Federal Land Managers' Air Quality Related Values Work Group (FLAG) Phase I report (revised November 2010); and 3) the "FLM Recommendations on Class I Area Analyses." The analyses also incorporated suggestions and guidance received from the USFS and the National Park Service. The California Puff (CALPUFF) air quality modeling system (version 5.8, June 23, 2007 release) was used for all Class I area analyses.

Input options and data utilized in the models generally corresponded to default or USEPA-recommended values along with representative, NorthMet Project Proposed Action-specific source input parameters. The CALPUFF modeling analysis used refined meteorological fields from the CALMET subprogram of CALPUFF, developed from the 5th Generation NCAR/Penn State Mesoscale Model prognostic meteorological data for the available years 2002, 2003, and 2004. These were refined using concurrent surface, upper air, and precipitation data as outlined in the Final SDD. CALMET settings were based on the USEPA Office of Air Quality Planning and Standards memorandum "Clarification on EPA-FLM Recommended Settings for CALMET" (August 31, 2009) (USEPA 2009a). Hourly surface data from approximately 88 stations and precipitation data from 99 stations were used along with upper air data from four stations. No cloud data were used.

Pollutant emissions modeled in CALPUFF were SO_2, NO_x, PMC (coarse particulate matter), PMF (fine particulate matter), elemental carbon, secondary organic aerosols, and SO_4. Additionally, the pollutants SO_4, NO_3, and HNO_3 were modeled as products of the chemical transformation of SO_2 and NO_x. For the AQRV analysis, the MESOPUFF II scheme was used for the chemical mechanism to compute chemical transformation rates based on user-supplied background values for ozone and ammonia. Per MPCA guidance, the MESOPUFF II algorithm and secondary particulate formation were not used in the PM_{10} increment consumption evaluation. Finally, the CALPOST and POSTUTIL post-processing programs were used to generate values of pollutant concentration, deposition, and visibility.

For the increment consumption analysis, emissions were modeled as the worst case over the expected life of the NorthMet Project Proposed Action. For the AQRV analysis, four emissions scenarios, representing emissions at different stages of the NorthMet Project Proposed Action, were modeled. The scenarios differ only in mobile source emissions (which were not included in the increment analysis). The effects of all four scenarios on visibility within the Class I areas are presented in Section 5.2.7.2.1.

5.2.7.2 NorthMet Project Proposed Action

This section describes effects that may occur on local and regional air quality from implementing the NorthMet Project Proposed Action. Potential effects on visibility that could occur from increases in project emissions are also discussed. The results of the modeling are used to represent an upper bound for assessing potential effects from the NorthMet Project Proposed Action.

5.2.7.2.1 NAAQS and Prevention of Significant Deterioration Increment Impact Analysis

State and federal air quality rules prohibit emissions from a new facility that cause or contribute to an exceedance of MAAQS or NAAQS. To demonstrate NorthMet Project Proposed Action effects relative to NAAQS and PSD increments, an air dispersion modeling analysis for the NorthMet Project Proposed Action was conducted (PolyMet 2014m; PolyMet 2014n; PolyMet 2015e).

Initial Significant Impact Limit Analysis

The Mine Site and Plant Site are located 8 miles apart, but are connected by a private railway that was originally constructed to transport iron ore pellets from Cliffs Erie's process plant to their ore dock. A portion of this railway is proposed to be used for the transportation of ore from the Mine Site to the Plant Site. Although the site may be permitted as a single facility, the Mine Site and Plant Site emission sources are not adjacent to each other but rather separated by a substantial (8 miles) distance. Therefore, it is appropriate and informative to perform individual air dispersion modeling for two distinct sets of receptors, one set surrounding the Mine Site and the second surrounding the Plant Site. For the Mine Site receptor grid, both Mine Site and Plant Site emissions were modeled explicitly. However, for the Plant Site receptor grid, only the emissions from the Plant Site were included, since previous modeling of the Mine Site emissions showed that effects were below the SIL in the region encompassing the Plant Site receptor grid. SILs have been established by the USEPA such that concentrations below these levels are not anticipated to contribute to a change in the overall effect when combined with other nearby source effects. The MPCA approved the exclusion of the Mine Site emissions in assessing the effects at the Plant Site receptor grid locations, as they would not likely contribute to a change in the overall effects. The results are discussed below.

The Plant Site PM_{10} emissions were modeled with all sources operating at full capacity in a single modeling run. This conservatively predicts (overestimates) the effects, as not all sources would be capable of operating simultaneously at full capacity. PM_{10} and $PM_{2.5}$ are the primary pollutants emitted from the Plant Site. Emissions of SO_2 and NO_x would be relatively small because the process is conducted at relatively low temperatures and would not include any continuously operating fuel combustion sources. The Mine Site emission rates are based on a daily average mining rate of 32,000 tons of ore.

Table 5.2.7-10 shows modeled effects at the Mine Site and Plant Site receptors compared to the SIL. The maximum modeled effects are maximums from either the Mine Site or the Plant Site analyses, since each analysis includes all NorthMet Project emissions, as defined above. The USEPA has developed SILs as a way to screen out, from further PSD analysis, pollutants that are not expected to cause any significant contribution to existing air quality levels. The emissions included are at 100 percent capacity for each averaging period.

The overall effects within the Plant Site receptor grid predicted higher maximum concentrations than the effects within the Mine Site receptor grid for all pollutants modeled. As seen in the table, maximum PM_{10} and $PM_{2.5}$ concentrations in both regions (and for all averaging periods) were above their respective SILs, so further analysis in those regions, for those pollutants, was conducted. For NO_2 and SO_2, the effects in the Plant Site receptor grid exceed their SILs for all averaging periods and additional analysis was conducted for this receptor region. The NO_2 and SO_2 effects in the Mine Site receptor grid are all below each respective SIL, and, thus, no additional analysis was conducted.

Table 5.2.7-10 Highest NorthMet Project Proposed Action Effects and Prevention of Significant Deterioration Class II Significant Impact Limits

Pollutant	Averaging Time	PSD Class II Significant Impact Limits (µg/m^3)	Plant Site Area Modeled Effects (µg/m^3) [1]	Mine Site Area Modeled Effects (µg/m^3)[1]
SO_2	1-hour	7.83	***103***	0.7
	3-hour	25	***85***	0.5
	24-hour	5	***35***	0.1
	Annual	2	***6***	0.01
PM_{10}	24-hour	5	***44***	***30***
	Annual	1	***12***	***6.3***
$PM_{2.5}$	24-hour	1.2	***17***	***10***
	Annual	0.3	***6***	***2.2***
NO_2	1-hour	7.52	***88***	5.3
	Annual	1	***3***	0.1

Note:
[1] Bold and italicized values exceed SIL.

Prevention of Significant Deterioration Class II Increment Analysis

Based upon the results of the SIL analysis, PSD Class II increment analyses were completed for PM_{10} for both the Mine Site and Plant Site receptor grid locations. In addition, a PSD Class II increment analysis was conducted for NO_2 and SO_2 only at the Plant Site receptors. Even though maximum $PM_{2.5}$ concentrations exceed the SILs, the minor source baseline date for increment analysis in St. Louis County has not been set. Therefore, no increment analysis can be conducted for this pollutant. However, modeling of $PM_{2.5}$ was conducted for comparison with the $PM_{2.5}$ NAAQS; the results are presented later in this section. The modeling included all NorthMet Project Proposed Action increment-consuming sources at maximum emission rates plus all nearby increment-consuming (and expanding) emissions sources, including the Cliffs Erie pellet yard, the former LTVSMC processing plant, and Mesabi Nugget. The results of the increment analyses are shown in Table 5.2.7-11, along with a comparison to the allowable Class II PSD increments.

Table 5.2.7-11 Results of Class II Prevention of Significant Deterioration Increment Analysis

Pollutant	Averaging Time	Plant Site Receptor Grid Modeled Effects ($\mu g/m^3$)[1,3]	Mine Site Receptor Grid Modeled Effects ($\mu g/m^3$)[1,3]	PSD Increment Limits ($\mu g/m^3$)
SO_2	3-hour	85	NA	512
	24-hour	35	NA	91
	Annual	6	NA	20
PM_{10}[(2)]	24-hour	27	27, 29	30
	Annual	-0.1	6	17
NO_2	Annual	3.2	NA	25

Notes:
1 SO_2 concentrations were not modeled due to negligible incremental effect.
2 Modeled PM_{10} concentrations are based on operating scenarios at year 8 and year 13.
3 Plant Site modeled emissions include expansion credit and are evaluated at Plant Site boundary. Mine Site modeled emissions include Plant Site, Mesabi Nugget, Cliffs Erie pellet yard, and former LTVSMC processing plant and existing LTVSMC Tailings Basin.

The table displays the maximum predicted concentrations for each pollutant of concern and each averaging period for both the Mine Site and Plant Site receptor grid locations. Since the receptor grid locations for the Mine Site and Plant Site represent separate distinct regions, the maximum modeled effect for each modeling region is compared separately with the PSD Class II increment limit to assess potential significant effects. Overall, all modeled effects are below their respective PSD Class II limits; however, the maximum 24-hour PM_{10} effects in the Mine Site and Plant Site modeling regions approach the Class II increment (27 $\mu g/m^3$ versus 30 $\mu g/m^3$).

Mine Site Receptors Analysis

The PM_{10} modeling was conducted for two operating scenarios corresponding to the temporary stockpile phase and the in-pit disposal/stockpile reclamation phase that would occur over the 20-year life of the mine. The worst case years for temporary stockpile phase waste rock (year 8) and in-pit disposal (year 13) were chosen to represent the worst case for the entire mine life. Due to the low modeled concentrations and constant emission rates for NO_x and SO_2, only one scenario (year 8) was modeled for these two criteria pollutants. The modeling results for the Mine Site receptors, including sources from the haul road, material handling, mine pits, and diesel locomotives indicate that the highest modeled 24-hour H2H PM_{10} concentration was 27 $\mu g/m^3$ for the year 8 operating scenario and 29 $\mu g/m^3$ for the year 13 operating scenario (shown on Table 5.2.7.11). The H2H corresponds to not exceeding a standard more than once per year, as defined by the applicable standard. NO_2 and SO_2 effects from the NorthMet Project Proposed Action at the Mine Site were below the SILs, so no additional modeling including nearby sources was performed.

Plant Site Receptors Analysis

The Plant Site PM_{10} emissions were modeled with all sources operating at full capacity in a single modeling run (independent of operating year). This conservatively predicts (overestimates) the effects, as not all sources would be capable of operating simultaneously at full capacity. The operation at the Plant Site, including fugitive sources, building vents, limestone material handling, and vehicular traffic on unpaved roads results in a maximum increment concentration for PM_{10} of 27 $\mu g/m^3$ on the Plant Site boundary receptor grid, based on

the 24-hour H2H modeling. Modeled effects for SO_2 and NO_x at the Plant Site receptors are also below the PSD Class II increments thresholds.

The data in Table 5.2.7-11 summarize the PSD increment modeling results and demonstrate that the NorthMet Project Proposed Action, in conjunction with all other neighboring PSD sources, would satisfy all state and federal increment requirements. The maximum concentrations for the Mine Site receptor grid and the Plant Site receptor grid are presented separately. Since the two receptor grids represent two separate AOCs, the maximum concentrations are not additive.

NAAQS and MAAQS Impact Analysis

The NAAQS modeling predicted the maximum effect of development at the Mine Site and Plant Site combined with activities at other regional sources. The highest total effects modeled, plus background concentrations, are compared to applicable MAAQS and NAAQS. Maximum emission rates were modeled for all NorthMet Project Proposed Action sources and key criteria pollutants (i.e., NO_x, SO_2, PM_{10}, and $PM_{2.5}$).

Table 5.2.7-12 summarizes the results of the NAAQS model analysis for the Mine Site and Plant Site separately and with both sites modeled together. The modeled concentration from either the Mine Site receptors or the Plant Site receptors was added to the ambient background to assess total effect, since, in each area, modeling analysis included the entire NorthMet Project area and nearby sources. The highest 6th high (H6H) PM_{10} concentration for the 5-year modeling period was used for comparison to the NAAQS PM_{10} 24-hour standard. The highest 8th high (H8H) 1-hour NO_2 and 24-hour $PM_{2.5}$ concentration for the 5-year modeling period was used for comparison to the NAAQS NO_2 1-hour standard and the $PM_{2.5}$ 24-hour standard, respectively. The H8H concentration represents the 98th-percentile daily maximum concentrations modeled over a 5-year period, as defined by each standard. The highest 4th high (H4H) 1-hour SO_2 concentration for the 5-year modeling period was used for comparison to the 1-hour SO_2 NAAQS. The H4H concentration represents the 99th-percentile daily maximum 1-hour concentrations modeled over a 5-year period, as defined by the standard. The H2H 3-hour and 24-hour SO_2 concentrations were used for comparison with the 3-hour and 24-hour SO_2 NAAQS. Maximum annual average concentrations for NO_2, SO_2, PM_{10}, and $PM_{2.5}$ were compared against their respective annual average NAAQS.

Mine Site

The analysis for the Mine Site included potential emissions from the nearby sources included in the NAAQS analysis, specifically Mesabi Nugget, Cliffs Erie Pellet Yard, Northshore Mine, and the Plant Site. The sources to the west of the Mine Site (Mesabi Nugget, Cliffs Erie Pellet Yard, and the Plant Site) were modeled collectively in a separate modeling run to determine their maximum modeled effect on the Mine Site receptor grid (PolyMet 2015b).

The PM_{10} NAAQS modeling results conservatively added the maximum modeled emissions from the Mine Site and Plant Site and the maximum modeled effect from the other nearby sources to background concentrations for comparison to the NAAQS. Cumulative modeling and further analyses for NO_2 and SO_2 were not performed because the NO_2 and SO_2 concentrations at the Mine Site were shown to be well below the SILs.

The maximum effects from the Mine Site analysis are slightly higher for PM_{10} and slightly lower for $PM_{2.5}$ than the effects from the Plant Site summarized below in Table 5.2.7-12. The

maximum predicted annual $PM_{2.5}$ concentration (Mine Site contribution plus background) was 10 μg/m^3 or approximately 83 percent of the corresponding NAAQS. The maximum predicted 24-hour $PM_{2.5}$ concentration was 32 μg/m^3 or approximately 91 percent of the short-term $PM_{2.5}$ standard. All other predicted concentrations are at or below 60 percent of the allowable levels, which demonstrates compliance with MAAQS and NAAQS.

Table 5.2.7-12 Results of Class II NAAQS Modeling

Pollutant	Averaging Time	Maximum Modeled – Plant Site (μg/m^3)[1,2]	Maximum Modeled – Mine Site (μg/m^3)[1]	Total (μg/m^3)[2,3]	NAAQS and MAAQS (μg/m^3)
SO_2	1-hour	***109***	NA	109	1,300[(4)]
	1-hour	***109***	NA	*109*	196[(5)]
	3-hour	***97***	NA	97	915
	24-hour	***40***	NA	40	365
	Annual	*7*	NA	7	60
PM_{10}	24-hour	80	***88***	88	150
	Annual	***26***	29	29	50[(6)]
$PM_{2.5}$	24-hour	***34***	32	34	35
	Annual	***11***[(7)]	10	11	12
NO_2	1-hour	***177***	NA	*177*	188[(8)]
NO_2	Annual	***21***	NA	21	100

Notes:
1 Maximum concentrations include background.
2 Concentrations exceeding the standard are bolded and italicized.
3 Total concentration displayed is the maximum modeled concentration, from either the Plant Site receptors or Mine Site receptors, added to the background concentration.
4 MAAQS for 1-hour SO_2.
5 NAAQS for 1-hour SO_2.
6 The annual NAAQS for PM_{10} was rescinded on October 17, 2006.
7 The maximum modeled Plant Site concentration was calculated as the maximum design value as defined by the USEPA guidance (USEPA 2013).
8 NAAQS for 1-hour NO_2.

Plant Site

The NAAQS modeling on the Plant Site ambient boundary included all Plant Site sources plus emissions from the Tailings Basin and unpaved roads. Maximum predicted concentrations were added to background values to calculate maximum ambient air concentrations. All predicted concentrations are below allowable levels, and the results demonstrate compliance with all MAAQS and NAAQS.

5.2.7.2.2 Prevention of Significant Deterioration Class I Modeling Analysis

Modeling analysis was conducted to assess the effects from the emissions of the NorthMet Project Proposed Action in four USEPA-designated Class I areas within the NorthMet Project area. Modeled effects were assessed against the PSD Class I Increment and AQRVs.

Prevention of Significant Deterioration Class I Increment Modeling Results

Maximum pollutant concentrations within the BWCAW, Voyageurs National Park, Isle Royale National Park, and Rainbow Lakes Wilderness Class I areas were estimated for each of three years and are provided in Table 5.2.7-13. As shown in the table, all of the concentrations, except

for the maximum 24-hour PM_{10} concentration at BWCAW, are below their respective Class I SIL threshold. This indicates that the NorthMet Project Proposed Action contribution to increment consumption would be considered de minimis relative to other sources. The exceedance of the PM_{10} 24-hour Class I SIL at BWCAW triggers an additional cumulative modeling analysis, including all nearby increment consuming and expanding PM_{10} sources. The cumulative analysis for this pollutant and averaging period are discussed in Section 6.2.7.

Table 5.2.7-13 Summary of Prevention of Significant Deterioration Class I Increment Analysis

Pollutant	Averaging Period	Year Evaluated 2002	2003	2004	Max (µg/m³)	Class I Inc (µg/m³)	Class I SIL (µg/m³)
Boundary Waters Canoe Area Wilderness							
SO_2	3-Hour	0.106	0.082	0.088	0.106	25	1
	24-Hour	0.020	0.025	0.021	0.025	5	0.2
	Annual	0.001	0.001	0.001	0.001	2	0.1
NO_2	Annual	0.037	0.036	0.029	0.037	2.5	0.1
PM_{10}	24-Hour	0.331	0.263	0.278	**0.331**	8	0.3
	Annual	0.016	0.020	0.015	0.020	4	0.2
Voyageurs National Park							
SO_2	3-Hour	0.014	0.010	0.020	0.020	25	1
	24-Hour	0.004	0.005	0.004	0.005	5	0.2
	Annual	0.000	0.000	0.000	0.000	2	0.1
NO_2	Annual	0.004	0.005	0.005	0.005	2.5	0.1
PM_{10}	24-Hour	0.072	0.131	0.081	0.131	8	0.3
	Annual	0.004	0.004	0.004	0.004	4	0.2
Isle Royale National Park							
SO_2	3-Hour	0.001	0.001	0.001	0.001	25	1
	24-Hour	0.001	0.000	0.000	0.000	5	0.2
	Annual	0.000	0.000	0.000	0.000	2	0.1
NO_2	Annual	0.002	0.001	0.001	0.002	2.5	0.1
PM_{10}	24-Hour	0.031	0.018	0.019	0.031	8	0.3
	Annual	0.002	0.001	0.001	0.002	4	0.2
Rainbow Lakes Wilderness							
SO_2	3-Hour	0.003	0.003	0.003	0.003	25	1
	24-Hour	0.001	0.001	0.001	0.001	5	0.2
	Annual	0.000	0.000	0.000	0.000	2	0.1
NO_2	Annual	0.002	0.002	0.002	0.002	2.5	0.1
PM_{10}	24-Hour	0.030	0.033	0.021	0.033	8	0.3
	Annual	0.002	0.001	0.002	0.002	4	0.2

In 2010, the USEPA promulgated a Class I increment for $PM_{2.5}$. However, the minor source baseline date for $PM_{2.5}$ has not been triggered for the NorthMet Project area. Therefore, a comparison of $PM_{2.5}$ concentration with the $PM_{2.5}$ Class I increment and SILs is not required and was not performed.

Class I Areas – Air Quality Related Values Impact Analysis

An air quality modeling analysis was conducted to estimate the effect of the NorthMet Project Proposed Action on air quality in Class I areas. The analysis addressed visibility impacts on the BWCAW, Rainbow Lakes Wilderness, Voyageurs National Park, and Isle Royale National Park.

The Class I AQRV analyses also included sulfur and nitrogen deposition and SO_2 effects on soils, water, and vegetation. The results are discussed below.

Class I Visibility Analysis

A visibility impact analysis was carried out for BWCAW, Voyageurs National Park, and Isle Royale National Park. The Rainbow Lakes Wilderness does not have an AQRV for visibility. The recommended methodology for assessing visibility impacts, according to FLAG guidance, involves the use of CALPOST to process the data on concentrations of pollutants from the CALPUFF modeling of 24-hour emissions. In CALPOST, a daily value of light extinction is defined by the concentrations of each pollutant that can affect visibility, taking into account the efficiency of each particle type in scattering light and the relative humidity, which influences the size of sulfates and nitrates. The FLM has established threshold changes in light extinction (Δb_{ext}) as a percentage of natural background that represent potential adverse effects on visibility. These thresholds are 5 percent (a potentially detectable change) and 10 percent (a level that may represent an unacceptable degradation). In the revised FLAG guidance of 2010, the FLM also lists a threshold of less than 5 percent as "presumptive no adverse impact" when compared to the highest 98th percentile daily predicted impact.

The FLAG 2010 guidance indicates that CALPOST Method 8 is now the preferred visibility impact calculation method for Class I AQRV analysis. Method 8 uses Class I area-specific monthly average relative humidity to calculate light extinction. Method 8 also compares visibility impacts with the 20 percent best pristine days. The previous preferred methodology, Method 2, used the CALPUFF-generated hourly relative humidity data to calculate light extinction. Method 2 compares visibility impacts on annual average pristine conditions. Since previous NorthMet Project Proposed Action modeling used the FLAG 2000 guidance, NorthMet Project Proposed Action visibility impact results calculated using both Method 8 and Method 2 are presented below for comparison.

Table 5.2.7-14 presents results of the initial CALPUFF visibility analysis following the previous FLAG methodology, Method 2, for each NorthMet Project Proposed Action scenario. The maximum change in light extinction for Voyageurs National Park and Isle Royale National Park is below the 5 percent threshold with changes predicted at 4.50 percent and 1.23 percent, respectively. The maximum change in light extinction at the BWCAW for the three years modeled was predicted to be 11.08 percent. The data in Table 5.2.7-14 indicate that calculated visibility impacts greater than 5 or 10 percent could occur at some point within the BWCAW on a small number of days each year.

Table 5.2.7-14 Class I Area Visibility Results for NorthMet Project Proposed Action (Method 2 Analysis)

Class I Area and Meteorological Data Year	Days with ≥5% Visibility Impact	Days with ≥10% Visibility Impact	Maximum Δb_{ext} (%)
	Scenario 1		
BWCAW 2002/2003/2004	8/1/0	1/0/0	11.08/7.88/4.66
Voyageurs National Park 2002/2003/2004	0/0/0	0/0/0	2.28/4.50/2.76
Isle Royale National Park 2002/2003/2004	0/0/0	0/0/0	1.12/1.13/1.23
	Scenario 2		
BWCAW 2002/2003/2004	7/1/0	1/0/0	10.88/7.75/4.56
Voyageurs National Park 2002/2003/2004	0/0/0	0/0/0	2.23/4.41/2.72
Isle Royale National Park 2002/2003/2004	0/0/0	0/0/0	1.10/1.11/1.20
	Scenario 3		
BWCAW 2002/2003/2004	7/1/0	1/0/0	10.99/7.82/4.61
Voyageurs National Park 2002/2003/2004	0/0/0	0/0/0	2.26/4.46/2.74
Isle Royale National Park 2002/2003/2004	0/0/0	0/0/0	1.11/1.12/1.22
	Scenario 4		
BWCAW 2002/2003/2004	3/1/0	0/0/0	9.44/6.80/3.97
Voyageurs National Park 2002/2003/2004	0/0/0	0/0/0	1.84/3.80/2.39
Isle Royale National Park 2002/2003/2004	0/0/0	0/0/0	0.93/0.93/0.99

Table 5.2.7-15 presents results of the initial CALPUFF visibility analysis following the current FLAG methodology, Method 8, for each NorthMet Project Proposed Action scenario. Method 8 requires the eighth-highest visibility impact to be compared with the 5 percent and 10 percent thresholds. The eighth-highest changes in light extinction for the BWCAW, Voyageurs National Park, and Isle Royale National Park are below the 5 percent threshold with changes predicted at 4.86 percent, 1.11 percent, and 0.44 percent, respectively, and demonstrate no expected adverse visibility impacts compared to pristine conditions. These results of the NorthMet Project Proposed Action reflect emission reduction measures to reduce the potential for visibility impacts in the BWCAW, which include: upgrades to the insulation in the existing Crusher and Concentrator buildings, utilization of low-NO_x space heating equipment, a plan to phase in vehicles that meet Tier 4 emission standards, use of efficient gen-set locomotives, the reduction of dust collector exhaust for heating demand reductions, use of appropriate pollution control equipment, and use of lower emitting fuels where feasible.

Table 5.2.7-15 Class I Area Visibility Results for NorthMet Project Proposed Action (Method 8 Analysis)

Class I Area and Meteorological Data Year	98% Days with ≥5% Visibility Impact	98% Days with ≥10% Visibility Impact	8th Highest Δb_{ext} (%)
Scenario 1			
BWCAW 2002/2003/2004	0/0/0	0/0/0	4.86/3.92/3.85
Voyageurs National Park 2002/2003/2004	0/0/0	0/0/0	0.89/1.11/0.97
Isle Royale National Park 2002/2003/2004	0/0/0	0/0/0	0.44/0.21/0.23
Scenario 2			
BWCAW 2002/2003/2004	0/0/0	0/0/0	4.74/3.83/3.80
Voyageurs National Park 2002/2003/2004	0/0/0	0/0/0	0.85/1.09/0.96
Isle Royale National Park 2002/2003/2004	0/0/0	0/0/0	0.43/0.19/0.22
Scenario 3			
BWCAW 2002/2003/2004	0/0/0	0/0/0	4.80/3.87/3.83
Voyageurs National Park 2002/2003/2004	0/0/0	0/0/0	0.86/1.09/0.97
Isle Royale National Park 2002/2003/2004	0/0/0	0/0/0	0.43/0.20/0.22
Scenario 4			
BWCAW 2002/2003/2004	0/0/0	0/0/0	4.21/3.45/3.42
Voyageurs National Park 2002/2003/2004	0/0/0	0/0/0	0.74/0.97/0.82
Isle Royale National Park 2002/2003/2004	0/0/0	0/0/0	0.36/0.17/0.19

Effects on Soils, Waters, and Vegetation

Deposition of Nitrogen and Sulfur

Potential effects on soils, waters, and vegetation in Class I areas due to deposition of sulfur and nitrogen were evaluated based upon model-predicted annual deposition for the NorthMet Project Proposed Action emissions from the Mine Site and Plant Site. Impacts were evaluated according to the USFS publication "Screening Procedures to Evaluate Effects of Air Pollution on Eastern Wildernesses Cited as Class I Air Quality Areas." Criteria for assessment of deposition impacts are different for USFS areas (BWCAW and Rainbow Lakes Wilderness) and National Park System areas (Voyageurs National Park and Isle Royale National Park). The National Park Service has established a Deposition Analysis Threshold (DAT) of 0.01 kilograms per hectare per year (kg/ha/yr) for both sulfur and nitrogen deposition for Class I areas in the eastern United States. The DAT is a level below which adverse effects from a new or modified source are not anticipated and are considered insignificant. The USFS has established Green Line Values for assessing impacts of deposition at BWCAW and Rainbow Lakes Wilderness, which account for soil conditions and water chemistry in development of safe levels. The Green Line values represent the total pollutant loading below which there are no adverse effects (PolyMet 2015e). As such, for BWCAW and Rainbow Lakes Wilderness, background deposition levels are added to the maximum NorthMet Project Proposed Action impacts from all scenarios to assess against Green Line Values. The current background nitrogen deposition for Rainbow Lakes Wilderness (5.88 kg/ha/yr) is at the Green Line Value range for nitrogen (5 to 8 kg/ha/yr). All other

background deposition values for BWCAW and Rainbow Lakes Wilderness are below their respective Green Line Values (see Table 5.2.7-16).

The CALPUFF results for each of the Class I areas were processed with CALPOST to calculate total annual deposition of sulfur and nitrogen at each receptor as a result of the NorthMet Project Proposed Action maximum annual average emissions. Total sulfur deposition is calculated from the wet (rain, snow, fog) and dry (particle, gas) deposition of SO_2 and sulfate; total nitrogen is represented by the sum of nitrogen from wet and dry fluxes of nitric acid, nitrate, ammonium sulfate, and ammonium nitrate, and the dry flux of NO_x.

Terrestrial effects of nitrogen and sulfur deposition for the Class I areas are shown in Table 5.2.7-16. As stated earlier, Green Line Values (Wilderness Areas) are compared to the maximum modeled NorthMet Project Proposed Action deposition plus background; the DAT values (National Parks) are compared to the modeled NorthMet Project Proposed Action effects only. As seen from the table, the maximum predicted total sulfur and nitrogen deposition are all below Green Line Value ranges for BWCAW. The maximum predicted total sulfur deposition is also below the Green Line Value for Rainbow Lakes Wilderness. However, the maximum predicted total nitrogen deposition at Rainbow Lakes Wilderness (5.9 kg/ha/yr) is within the Green Line Value range of 5 to 8 kg/ha/yr. The nitrogen deposition contribution from the NorthMet Project Proposed Action emissions is 0.02 percent of the total nitrogen deposition impact (0.001 kg/ha/yr). Table 5.2.7-16 also compares the ambient annual and 3-hour SO_2 concentrations due to the NorthMet Project Proposed Action to the Green Line Values. Modeled concentrations of SO_2 in both wilderness areas are below the Green Line Values for SO_2 concentration.

Finally, Table 5.2.7-16 compares terrestrial impacts of sulfur and nitrogen deposition in the Class I areas to the DAT values. The maximum predicted total sulfur and nitrogen values are below the DAT value of 0.01 kg/ha/year.

Table 5.2.7-16 Terrestrial Effects of Annual Deposition of Sulfur and Nitrogen from the NorthMet Project Proposed Action in Class I Areas

Class I Area	Proposed Action Effects	Background Level	Total (Proposed Action + Background)	Terrestrial Green Line Value	Deposition Analysis Threshold
BWCAW					
Annual avg. SO_2 ($\mu g/m^3$)	0.001	1.2	1.2	5 $\mu g/m^3$	NA
3-hour max. SO_2 ($\mu g/m^3$)	0.105	10.8	10.9	100 $\mu g/m^3$	NA
Sulfur (kg/ha/yr)	0.000	2.85	2.9	5-7 kg/ha/yr	NA
Nitrogen (kg/ha/yr)	0.009	4.75	4.8	5-8 kg/ha/yr	NA
Rainbow Lakes Wilderness					
Ann. avg. SO_2 ($\mu g/m^3$)	0.000	1.6	1.6	5 $\mu g/m^3$	NA
3-hour max. SO_2 ($\mu g/m^3$)	0.003	14.4	14.4	100 $\mu g/m^3$	NA
Sulfur (kg/ha/yr)	0.000	2.98	3.0	5-7 kg/ha/yr	NA
Nitrogen (kg/ha/yr)	0.000	5.88	5.9	5-8 kg/ha/yr	NA
Isle Royale National Park					
Sulfur	0.000	NA	NA	NA	0.01 kg/ha/yr
Nitrogen	0.000	NA	NA	NA	0.01 kg/ha/yr
Voyageurs National Park					
Sulfur	0.000	NA	NA	NA	0.01 kg/ha/yr
Nitrogen	0.001	NA	NA	NA	0.01 kg/ha/yr

Table 5.2.7-17 summarizes the aquatic effects from sulfur and nitrogen deposition for the Class I areas. Green Line Values for aquatic effects at the wilderness areas are based upon total sulfur deposition, as well as total sulfur deposition plus 20 percent of the total nitrogen deposition (sulfur + 20 percent nitrogen). Maximum predicted values for these two measures for all scenarios were below the Green Line Value ranges for BWCAW. The maximum predicted total sulfur deposition and total sulfur plus 20 percent nitrogen deposition for Rainbow Lakes Wilderness are just below the Green Line Value, and nearly all of the effects are associated with the current background level. Aquatic effects at the National Parks are also compared to the DAT values. The modeled maximum annual nitrogen and sulfur deposition effects due to the NorthMet Project Proposed Action have levels below the respective National Park Service DAT levels for both Voyageurs National Park and Isle Royale National Park. The highest effects are predicted in Voyageurs National Park, with values approximately one-tenth of the incremental DAT level for sulfur and one-fifth of the incremental nitrogen DAT level.

Table 5.2.7-17 Aquatic Effects of Deposition of Sulfur and Nitrogen from the NorthMet Project Proposed Action in Class I National Park Areas

Class I Area	Proposed Action Effects (kg/ha/yr)	Background Level (kg/ha/yr)	Total (Proposed Action + Background) (kg/ha/yr)	Aquatic Green Line Value (kg/ha/yr)	Deposition Analysis Threshold (kg/ha/yr)
BWCAW					
Total Sulfur	0.000	2.85	2.85	7.5-8.0	NA
Total S + 20% of Total N	0.002	3.80	3.80	9-10	NA
Rainbow Lakes Wilderness					
Total Sulfur	0.000	2.98	2.98	3.5-4.5	NA
Total S + 20% of Total N	0.000	4.16	4.16	4.5-5.5	NA
Isle Royale National Park					
Total Sulfur	0.000	NA	NA	NA	0.01
Total N	0.000	NA	NA	NA	0.01
Voyageurs National Park,					
Total Sulfur	0.000	NA	NA	NA	0.01
Total N	0.001	NA	NA	NA	0.01

SO_2 Effects on Flora and Fauna

Potential SO_2 effects on flora and fauna in Class I areas were evaluated using the model-predicted concentrations from NorthMet Project Proposed Action emissions. The USFS has set screening criteria for potential air pollution effects on vegetation for SO_2 as a total annual average ambient concentration of 5 µg/m^3. As stated earlier, Green Line screening values "were set at levels at which it was reasonably certain that no significant change would be observed in ecosystems that contain large numbers of sensitive components."

Though the USFS screening levels were established specifically for Class I areas administered by the USFS (i.e., BWCAW and Rainbow Lakes Wilderness) the same criteria were applied to Voyageurs National Park and Isle Royale National Park, which are administered by the National Park Service but do not have published standards similar to the USFS. Table 5.2.7-18 compares maximum CALPUFF NorthMet Project Proposed Action impacts from all scenarios and existing background concentrations to the Green Line screening levels for each Class I area. The summation of the NorthMet Project Proposed Action and background contributions is well below the Green Line levels so no threat to sensitive vegetation in Class I areas is expected from direct SO_2 emissions produced by the NorthMet Project Proposed Action.

There are no established screening criteria for NO_2 and PM_{10} for effects on flora and fauna. As shown in Class I increment modeling results (PolyMet 2015e), modeled maximum annual concentrations of NO_2 and PM_{10} from the NorthMet Project Proposed Action are below the secondary NAAQS standards (protecting vegetation), so it is not expected that there would be impacts on the Class I areas from these pollutants.

Table 5.2.7-18 Comparison of Projected Class I SO_2 Concentrations to Green Line Screening Criteria for Vegetation Effects

Class I Area	Background Air Concentration (µg/m^3)	Max. Modeled Proposed Action Contribution (µg/m^3)	Total Proposed Action Air Concentration (µg/m^3)	Green Line Concentration (µg/m^3)
	Annual	Annual	Annual	Annual
BWCAW	1.2	0.001	1.2	5
Isle Royale National Park	2.0	0.000	2.0	5
Rainbow Lakes Wilderness	1.6	0.000	1.6	5
Voyageurs National Park	0.7	0.000	0.7	5

5.2.7.2.3 Potential Estimated Human Health Risk from the Plant and Mine Sites Air Emissions

This section includes the assessment of potential human health effects from the NorthMet Project Proposed Action. Separate AERAs were conducted for the Mine Site and Plant Site due to the large distances (approximately 6 miles) between the Mine Site and Plant Site sources. It should be noted that AERAs from the Mine Site and Plant Site are also considered cumulatively in Section 6.7.5.

Estimations of additional lifetime cancer risk, potential for non-cancer effects from chronic exposures, and potential non-cancer health effects from short-term exposures were conducted for hypothetical residents, farmers, off-site workers, and/or for short-term visitors. The hypothetical individuals were assumed to breathe outdoor air for the entire exposure duration. Inhalation exposures were assessed for an approximate lifetime (approximately 70 years) for the resident and farmer; a maximum hour for the short-term visitor; and 8-hour days, 250 days per year for 25 years for the off-site worker (USEPA 1993). Hypothetical short-term and off-site worker ingestion exposures were not assessed. The farmer ingestion exposure was assessed for a 40-year duration and the resident ingestion exposure was assessed for a 30-year duration. When both ingestion and inhalation risks were assessed, these were summed for a total multi-pathway risk. This screening procedure is conservative and is intended as a regulatory tool to define whether more detailed analysis is warranted rather than estimating risk levels for actual individuals.

Mine Site Air Emissions Risk Analysis

An AERA was conducted for the Mine Site in January 2008 for the DEIS. A Supplemental AERA was conducted as part of the project changes defined with the current NorthMet Project Proposed Action (Barr 2013i). The screening human health risk analysis followed the MPCA-accepted November 2011 Work Plan (PolyMet 2015e). Sulfuric acid aerosol emissions were screened out of the quantitative assessment for potential acute inhalation effects by scaling the Plant Site 2005 modeled acute inhalation hazard quotients to the current potential sulfuric acid emissions. As identified in the Mine Site AERA, the quantitative evaluation identified 11 chemicals for evaluation (CFEs), which are summarized in Table 5.2.7-19. The identified CFEs include six risk-driver chemicals from the 2008 AERA (dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, manganese compounds, nickel compounds, NO_2, and dioxins/furans). The remaining five compounds are from the 2008 AERA that now have toxicity values (acetaldehyde, arsenic compounds, cobalt compounds, crystalline silica, and diesel particulate).

Table 5.2.7-19 Chemicals for Evaluation of the Incremental Human Health Risk Assessment for the Mine Site

Chemical	Total Mine Site Maximum Hourly Emission Rate (Year 8) (g/sec)	Total Mine Site Annual Emission Rate (Year 8) (g/sec)	Total Mine Site Maximum Hourly Emission Rate (Year 13) (g/sec)	Total Mine Site Annual Emission Rate (Year 13) (g/sec)
Acetaldehyde	2.44E-05	1.40E-06	2.44E-05	1.40E-06
Arsenic	0.0013	0.0004	0.0014	0.0005
Cobalt	0.0036	0.0025	0.0040	0.0027
Crystalline Silica	0.5820	0.3952	0.6467	0.4339
Dibenzo(a,h)anthracene	2.92E-06	2.57E-06	2.92E-06	2.57E-06
Diesel Particulate Matter	0.2276	0.2237	0.2276	0.2237
Indeno(1,2,3-cd)pyrene	3.41E-06	2.99E-06	3.41E-06	2.99E-06
Manganese	0.0638	0.0450	0.0702	0.0488
Nickel	0.0245	0.0152	0.0266	0.0166
Oxides of Nitrogen	12,5173	9.2554	12,5173	9.2254
Dioxins/Furans (as 2,3,7,8-TCDD TEQ)	4.12E-10	3.73E-10	4.12E-10	3.73E-10
Number of CFEs	11			

Note:
g/sec = gram(s) per second

Estimations of additional lifetime risk and potential non-cancer effects from chronic (long-term) exposures were conducted for both inhalation and ingestion exposures for the hypothetical resident and farmer. The resident is assumed to inhale outdoor air and ingest soil and produce grown at a site of maximum air concentration. The farmer scenario assumed inhalation of outdoor air and ingestion of soil and produce, and also includes ingestion of meat and dairy products grown at the location of maximum air concentration.

Air dispersion modeling was conducted for the Mine Site to estimate maximal annual and hourly air concentrations for the CFE using the AERMOD model with 5 years of hourly meteorological data from the Hibbing weather station. The assessment was conducted for the years 8 and 13, which were determined to be the years of highest air emissions. Direct (inhalation) and indirect (ingestion) risk estimates were made for inhalation and bioaccumulative toxic pollutant ingestion, respectively, using the MPCA Risk Analysis Screening Spreadsheet, which estimates potential incremental cancer and noncarcinogenic human health effects for long-term exposures.

Acute inhalation risks were estimated for the ambient air at and beyond the Mine Site property boundary (see Large Figure 4 in PolyMet 2015e). Because of the historical and present mining and industrial land use around the Mine Site, the reasonable future land use for residential and farming was considered in assessing chronic risks for areas (i.e., receptors) outside of the Mineral Mining/Industrial District air boundary (see Large Figure 5 in PolyMet 2015e). The Mineral Mining/Industrial District air boundary encompasses an area approximately 1 km beyond the Mine Site air boundary and no farmers or residents are expected to be present within this area either presently or for the foreseeable future.

The results of the Mine Site assessment demonstrate that the chronic additional lifetime cancer and non-cancer effects, as well as the potential acute non-cancer health effects from direct

exposure (inhalation) at the Mine Site property boundary for off-site workers were below guidance levels (PolyMet 2015e). The MEI inhalation pathway additional lifetime cancer risk at the Mine Site ambient air boundary was estimated from the assessment of year 13 emissions with a maximum value of 5E-06, which is below the MDH guideline value of 1E-05. The maximum potential sub-chronic and acute non-cancer risk estimates were calculated to be 0.2 and 0.8 respectively, which are both below the guidance level of 1.0.

The multi-pathway cancer risk for the hypothetical farmer was estimated to be 1E-05. This is at the MDH additional lifetime cancer risk guidance level of 1E-05. The major risk drivers were dioxins and dibenzo(a,h)anthracene associated with potential emissions from mine vehicles. It should be noted that maximum multi-pathway additional lifetime cancer risk is located at the Mining/Industrial District boundary. The nearest small farms are located 6.5 miles from the Mine Site.

The multi-pathway additional lifetime cancer risk for a hypothetical nearby resident at the Mining/Industrial District boundary was 8E-07, which is below the MDH guidance value of 1E-05. The major risk drivers for cancer endpoints for this receptor were nickel compounds, arsenic compounds, and dioxins.

The non-cancer chronic multi-pathway hazard indices (HIs) for the farmers and residents were each calculated to be 0.04, which is below the MDH guidance value of 1.0. Due to the variation (i.e., each compound has a unique concentration where health effects are expected for a target organ) in estimating the health effects for noncarcinogenic effects, the HI is the sum of the individual ratios of the maximum concentration divided by the chemicals' health benchmark. This ratio is then compared to a general guidance value of 1.0. Thus, the chronic non-cancer results for both the hypothetical farmer and resident were approximately 4 percent of the guidance value where health effects become more likely to occur.

The acute non-cancer HI was predicted at the Mine Site operating boundary with a value of 0.8, as compared to the MDH's acute HI guidance level of 1.0. This screening value sums all of the acute HIs for all pollutants regardless of their toxic endpoint (specific target organ) and the specific locations of maximum modeled air concentrations of the compounds. The risk driver for acute inhalation was NO_2 from the diesel fuel combustion. When adjusting HIs for the various locations of the maximum modeled annual average air concentration for risk-driver pollutants (i.e., risk-driver pollutant concentrations differ in space), the maximum acute HI for the off-site worker was reduced to 0.8, below the acute guidance level. Table 5.2.7-20 provides a summary of the Mine Site risk assessment.

Table 5.2.7-20 Summary of the Incremental Human Health Risk Assessment for the Mine Site

Exposure Route	Exposure Scenario	Location and Type of Receptor	Potential Non-cancer Health Effects (HI)[1]	Potential Cancer Effects (Risk Estimate)[2]
Inhalation Exposure Only	Acute (1-hour)	Mine Site Property Boundary	0.80	NA
	Chronic (~lifetime)	Mine Site Property Boundary	0.20	5E-06
Multi-pathway Exposure	Chronic (~lifetime)	Farmer	0.04	1E-05
		Resident	0.04	8E-07

Notes:
[1] HI is the sum of individual non-cancer chemical quotients for acute or chronic exposure. Incremental non-cancer (chronic and acute) guideline value is 1.0.
[2] Potential human health risks from carcinogenic chemicals (summed for all chemicals) were estimated using the MPCA's Risk Assessment Screening Spreadsheet. Incremental cancer risk guideline value is 1E-05.

Plant Site Air Emission Risk Analysis

As with the Mine Site, an AERA was conducted for the Plant Site and results were reported in the scoping EAW (May 2005). The 2005 AERA included specific chemicals for potential evaluation as defined in MPCA's AERA Guidance. NorthMet Project Proposed Action changes since May 2005 resulted in the AERA being revised for the DEIS. A Supplemental AERA was conducted, as part of the changes defined with the FEIS NorthMet Project Proposed Action (PolyMet 2015e) and although some project modifications have been made to the Plant Site since the SDEIS (Section 3.2), the Supplemental AERA is adequate for the FEIS (PolyMet 2015e). The screening human health risk analysis followed the MPCA-accepted August 2011 Work Plan (PolyMet 2015e). Sulfuric acid aerosol emissions were screened out of the quantitative assessment for potential acute inhalation effects by scaling the 2005 modeled acute inhalation hazard quotients to the current potential sulfuric acid emissions. As identified in the Plant Site AERA, the quantitative evaluation identified 10 CFEs, which are summarized in Table 5.2.7-21. The identified CFEs include three risk-driver chemicals from the 2007 AERA (arsenic compounds, nickel compounds, and NO_2) and four compounds from the 2007 AERA that now have toxicity values (acetaldehyde, cobalt compounds, crystalline silica, and diesel particulate). The remaining three were added either because of increased emissions (hydrochloric acid and manganese) or new emissions from mobile diesel sources included in the analysis (dioxins/furans).

Table 5.2.7-21 Chemicals for Evaluation of the Incremental Human Health Risk Assessment for the Plant Site

Chemical	Maximum Hourly Emission Rate 2012 (g/sec)	Annual Emission Rate 2012 (g/sec)
Acetaldehyde	1.66E-05	9.49E-07
Arsenic	3.03E-03	7.75E-04
Cobalt		5.44E-03
Crystalline Silica		1.30E+00
Diesel Particulate Matter		4.47E-02
Hydrochloric Acid	2.45E+00	2.90E-02
Manganese		5.91E-02
Nickel	1.33E-01	1.36E-01
Oxides of Nitrogen	1.10E+01	
Dioxins/Furans (as 2,3,7,8-TCDD TEQ)		1.12E-10
Number of CFEs		10

Note:
g/sec = gram(s) per second

Similar to the Mine Site AERA, air dispersion modeling was conducted to estimate air concentrations for the CFE, using the AERMOD model with 5 years of hourly meteorological data from the Hibbing weather station. Direct and indirect risk estimates were made for inhalation and bioaccumulative toxic pollutant ingestion, respectively, using the MPCA Risk Analysis Screening Spreadsheet, which estimates potential incremental cancer and noncarcinogenic human health risks for both acute and long-term effects.

Acute risks were estimated for the ambient air at and beyond the NorthMet Project area ownership boundary for off-site workers. Because of the historical and present mining and industrial land use around the Plant Site, the reasonable future land use for residential and farming was considered in assessing chronic risks for areas (i.e., receptors) outside of the former LTVSMC processing plant air boundary. The former LTVSMC processing plant ambient air boundary encompasses most of the industrial land use in the Hoyt Lakes area and no farmers or residents are expected to be present within this area for the foreseeable future.

Initially, a screening level human health risk is conducted where all CFEs maximum concentrations are assumed to occur at the same location. A refinement to the risk assessment is the calculation of maximal potential health effects paired in both space and time. That is, when the health effect impacts are calculated for all pollutants at each receptor and meteorological condition modeled. The results of the Plant Site assessment demonstrate that the chronic additional lifetime cancer and noncarcinogenic effects are at or below guidance levels and the acute noncarcinogenic health effects are also below the guidance level, when adjusted for locational differences (PolyMet 2015e).

The multi-pathway (ingestion and inhalation) additional lifetime cancer risk at the former LTVSMC processing plant ambient air boundary was estimated to be 1E-05 for farmers and 5E-06 for a hypothetical nearby residents, which is below the MDH guidance level value of 1E-05. Similarly, the off-site worker inhalation additional lifetime cancer risk at the NorthMet Project area boundary was predicted at 1E-05, also at the MDH additional lifetime cancer risk

guidance level. The major risk drivers for these estimated cancer endpoints were cobalt, nickel, and dioxins/furans (farmers only).

The non-cancer chronic multi-pathway HI for the farmers and residents were each calculated to be 0.2, primarily from the potential nickel emissions. Due to the variation (i.e., each compound has a unique concentration where health effects are expected for a target organ) in estimating the health effects for noncarcinogenic effects, the HI is the sum of the individual ratios of the maximum concentration divided by the chemicals' reference exposure level and compared to a general guidance value for chronic HI as 1.0. Thus, the chronic non-cancer results for both the hypothetical farmer and resident were approximately 20 percent of the chronic guidance level, below which health effects would not occur. The chronic HI for the hypothetical off-site worker was estimated to be 1, which is at the chronic guidance level.

The acute inhalation HI at the former LTVSMC processing plant ambient air boundary was 0.5, as compared to the MDH's acute HI guidance level of 1.0. This boundary was the location assessed in consideration of a potential resident. This HI is a summation of all of the acute hazard quotients for all pollutants regardless of their toxic endpoint (specific target organ) and the specific locations of maximum modeled air concentrations of the compounds. The risk drivers for the acute inhalation pathway at the location of a potential resident were NO_2 emissions from the natural gas combustion and nickel from the Hydrometallurgical Plant. When adjusting HIs for the various locations of the maximum modeled annual average air concentration for risk-driver pollutants (i.e., risk-driver pollutant concentrations differ in space), the acute inhalation HI for the off-site worker was 1.0, at the acute guidance level. Table 5.2.7-22 provides a summary of the Plant Site risk estimates.

Table 5.2.7-22 Summary of the Incremental Human Health Risk Impacts for the Plant Site

Exposure Route	Exposure Scenario	Location and Type of Receptor	Potential Non-cancer Health Effects (HI)[1]	Potential Cancer Effects (Risk Estimate)[2]
Inhalation Exposure Only	Acute (1-hour)	Off-Site Worker Plant Site Property Boundary	1.0	NA
	Acute (1-hour)	Resident at former LTVSMC ambient air boundary	0.5	NA
	Chronic (~ lifetime)	Plant Site Property Boundary	1.0	1E-05
Multi-pathway Exposure	Chronic (~ lifetime)	Farmer	0.2	1E-05
		Resident	0.2	5E-06

Notes:
[1] HI is the sum of individual non-cancer chemical risks for acute or chronic exposure. Incremental non-cancer (chronic and acute) guideline value is 1.0.
[2] Potential human health risks from carcinogenic chemicals (summed for all chemicals) were estimated using the MPCA's Risk Assessment Screening Spreadsheet. Incremental cancer risk guideline value is 1E-05.

5.2.7.2.4 Greenhouse Gases Impact Analysis

The science, policy, and regulatory frameworks regarding GHGs are continually evolving and are often subject to differing interpretation. For the purposes of the FEIS, the information presented below is intended to provide the current understanding through June 15, 2012 with subsequent information regarding climate change updated in the FEIS.

Global Effects

According to the IPCC, since preindustrial times, human activities, particularly the burning of fossil fuels, have resulted in increases in the concentrations of GHGs in the earth's atmosphere (Solomon et al. 2007). It is estimated that 40 percent of a pulse emission of CO_2 remains in the atmosphere for approximately 100 years. Approximately 15 to 30 percent of the emissions are expected to remain after 1,000 years and 10 to 15 percent are expected to remain after 10,000 years. The estimated mean lifetime of emitted fossil CO_2 is between 30,000 and 50,000 years (Archer 2005). As such, the atmospheric GHG levels are likely to continue to rise over the next few decades. GHGs absorb in the infrared part of the electromagnetic spectrum. At elevated atmospheric concentrations, they act to warm the lower atmosphere and surface of the earth. The IPCC's most recent report (Solomon et al. 2007) found that, under a business-as-usual scenario, globally averaged surface temperature would increase 2.5 to 10.4°F between 1990 and 2100.

Globally, an "unequivocal" warming of 1.3°F (plus or minus 0.3°F) occurred between 1905 and 2005 (Solomon et al. 2007). Other data have shown that the global average temperature has increased by about 1.2 to 1.4°F since 1890, with the 14 warmest years of the past century occurring between 1997 and 2012 (Hansen et al. 2013). The observed increases in global average surface temperature may also be seen in the records of average annual temperatures at the regional and state level. Over the past century, temperatures in the United States have risen at an average rate of 0.11°F per decade, with the past 25 years showing temperature increases of approximately 0.56°F per decade (NOAA 2007). The annual average temperature of Minnesota has increased approximately 1°F in the last century, from 43.9°F (1888 to 1917 average) to 44.9°F (1963 to 1992 average) (MPCA 2009a). The winter season has brought even more dramatic increases of up to five degrees in parts of northern Minnesota (MPCA 2009a). Much of the warming observed in Minnesota has occurred over the last few decades. The observed rate and total increase in temperatures appear more extreme when the more recent years on record are averaged.

Climate changes can involve changes in temperature as well as changes in other meteorological conditions, such as precipitation patterns and shifts in seasons. These changes could affect forest ecosystems, water resources, other unique ecosystems, agriculture, and human health over the next century. Future emissions scenarios, using an ensemble of results from multiple global climate models, suggest an increase in annual precipitation of 10 to 15 percent over the next 70 to 90 years in the Great Lakes Region (USGCRP 2009), although regional results from these models are more uncertain than global results. The current modeling also suggests that winter and spring precipitation would increase 20 to 25 percent; summer rainfall declines 5 to 10 percent in the model results.

Although the degree of effect is uncertain, particularly when analyzed at the regional and local levels, water resources could be affected by changes in climate patterns. Due to increased temperature, evaporation would likely increase which could reduce levels in lakes, rivers, and

streams up to 12 inches (MDNR 2009). Increased precipitation could also affect flooding conditions. In addition, severe weather patterns could be affected, resulting in more frequent maximum 25- and 100-year precipitation events and flood patterns. Warmer temperatures may shorten winter seasons, resulting in decreased ice cover on the lakes and streams, as well as early ice breakup in the spring.

If Minnesota's climate becomes drier, forest areas near the prairie-forest border could be replaced with grassland ecosystems (Frelich and Reich 2009). Minnesota's forested areas could decrease by 50 to 70 percent (MPCA 2003). On the other hand, if increased precipitation occurs, resulting in a wetter climate, over long periods of time the current conifers would be replaced with hardwood trees. Pine, birch, and maple forests would be replaced with oak, elm, and ash.

Minnesota's wetland and bog ecosystems may also face changes due to increased precipitation. Variation in wet periods, dry periods, and severe storm frequency could lead to changes in wetland type and distribution that includes wetland losses in some areas and wetland gains in other areas.

Due to the negative effects of peak daytime temperatures during anthesis and grain filling on crop growth, climate change could have a dramatic effect on agriculture. However, climate change would also lengthen the growing season of certain crops within the region, leading in some instances to increased, rather than decreased, agricultural productivity. Droughts, floods, and damage from insects and invasive weeds, could increase the challenges by farmers in the day-to-day management of farms and livestock.

Increased temperatures could increase the potential for heat-related illnesses and insect-borne diseases. Changes in air quality health effects could occur due to the increased temperatures. Higher VOC and ozone levels may occur, as increased temperatures may increase duration and frequency of stagnation conditions that would allow air pollution to build up.

Regulatory Actions

The USEPA has issued regulations under the CAA, and in some cases other statutory authorities, to address issues related to climate change. In addition, MPCA has recently modified its air permit rules to incorporate new federal permit requirements for GHG emissions and currently requires an evaluation of GHG emissions in the environmental review process for projects that must obtain stationary source air permits.

On October 30, 2009, the Final Mandatory Greenhouse Gas Reporting Rule was published requiring suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 or more mtpy of GHGs to submit annual emission reports to USEPA. The gases covered by the emissions reporting rule are CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, and other fluorinated gases including nitrogen trifluoride and hydrofluorinated ether. The rule required that the first annual GHG emission report be submitted on March 31, 2011, for 2010 emissions. The first reporting deadline was extended to September 20, 2011.

In response to the 2007 United Stated Supreme Court ruling in Massachusetts v EPA, 549 US 497 (2007), on April 17, 2009 the USEPA Administrator signed a Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202a of the CAA. The Administrator found that current and projected concentrations of the mix of six key GHGs in the atmosphere threaten the public health and welfare of current and future generations. The Administrator further found that the combined emissions of CO_2, CH_4, N_2O, and HFCs from

motor vehicles and motor vehicle engines contribute to rising atmospheric concentrations of these key GHGs and hence are a threat to public health and welfare. These findings were a prerequisite to finalizing the GHG standards for light-duty vehicles. On April 1, 2010, USEPA and the DOT's National Highway Safety Administration issued the first national rule limiting GHG emissions from cars and light trucks. This rule confirmed that January 2, 2011 was the first date that a 2012 model year vehicle meeting these rule requirements may be sold in the U.S.

Based upon the above and USEPA's "PSD Interpretive Memo" (identifying that a pollutant is subject to regulation either by a specific provision in the CAA or a regulation adopted by USEPA), USEPA issued a final rule on May 13, 2010 that set GHG thresholds for permits for new and existing sources under New Source Review PSD permit and Title V operating permit requirements, known as the Greenhouse Gas Tailoring Rule. Under the rule and beginning on July 1, 2011, new sources, such as the NorthMet Project Proposed Action, with greater than 100,000 tpy of GHG or existing facilities that increase their GHG emissions by more than 75,000 tpy are subject to PSD and would require BACT for GHG emissions.

Concurrent with USEPA actions, a series of Congressional proposals were developed that, had they been passed, would have changed the U.S. climate policy. GHG emissions legislation considered during the 109th and 110th sessions (January 2005 to January 2007, and January 2007 to January 2009, respectively) of the U.S. Congress ranged from carbon taxes to cap-and-trade and from energy efficiency requirements to moratoriums on coal-fired power plant approvals. Of the legislation proposed during the 109th and 110th Congresses, notable legislative actions include the following:

- Lieberman-Warner Climate Security Act of 2007 (S. 2191);
- Boxer-Lieberman-Warner Climate Security Act Substitution Amendment of 2008 (S. 3036);
- American Clean Energy and Security Act of 2009 (Waxman-Markey – H.R. 2454);
- Clean Energy Jobs and American Power Act of 2009 (Kerry-Boxer (S. 1733)); and
- Kerry-Lieberman American Power Act of 2010.

None of these bills have passed both houses of Congress.

At the state level, efforts to curb statewide and regional GHG emissions are underway. More than half of U.S. states have joined in regional efforts to reduce GHG emissions. In 2007, as part of the Midwestern Greenhouse Gas Reduction Accord, Minnesota committed (along with Illinois, Iowa, Kansas, Michigan, Wisconsin, and the Province of Manitoba, Canada) to long-term GHG reduction targets of 60 to 80 percent below 2005 emission levels. Participants have agreed to pursue the implementation of a regional cap-and-trade system as well as a consistent regional GHG emissions tracking system.

In May 2008, the Governor of Minnesota signed legislation requiring the Minnesota Department of Commerce (MDC) and the MPCA to track and report GHG emissions. In 2007 legislation was passed and signed into law that established GHG emissions reduction targets for 2015 and 2025 of 15 percent and 30 percent, respectively, and directed the Department of Commerce to develop interim reduction recommendations through a length stakeholder process. The 2015 and 2025 goals were designed as milestones toward meeting the State's goal of reducing GHG emissions to a level at least 80 percent below 2005 levels by 2050. Developments in Minnesota's climate

change and GHG policy would likely continue as Minnesota strives to meet the goals established in the Next Generation Energy Act of 2007.

On January 13, 2013, the MPCA adopted permanent rules to implement the new GHG permit requirements set by the USEPA. These rules set Part 70 permit thresholds for GHGs at 100,000 tpy. The rule changes also modify requirements for capped and registration permits and insignificant activities. The MPCA has implemented USEPA's final decision to defer including biogenic CO_2 emissions in permitting through permanent rulemaking for biogenic sources for PSD and Title V purposes.

In addition to policies directed at reducing statewide GHG emissions, Minnesota has instituted policies requiring the evaluation of GHG emissions as a part of the environmental review process for certain proposed actions that require stationary source air emissions permits. In July 2008, MPCA issued a General Guidance for Carbon Footprint Development in Environmental Review. The MPCA guidance requests that proposers, in the course of environmental review under MEPA, prepare a GHG inventory for proposed actions that would require stationary source air emissions permits.

Finally, on August 3, 2015, USEPA published the final Clean Power Plan (CPP) rules. These rules set standards for CO_2 emissions from existing fossil fuel-fired electrical generating units. These standards air to reduce CO_2 emissions by 32 percent by 2030. This means that there will be less GHG emissions associated with mine electrical purchases in the future as the CPP is implemented.

NorthMet Project Proposed Action and Climate Change

The NorthMet Project Proposed Action results in direct on-site emissions of GHGs and off-site indirect emissions associated with power generation. There are no analytical or modeling tools to reliably evaluate the incremental effect of a proposed action's discrete GHG emissions on the global and regional climate. In addition, there are no analytical or modeling tools to reliably evaluate any cascading effects, or cumulative effects, from a particular proposed action's GHG emissions on natural ecosystems and human economic systems in a given state or region.

The total potential direct annual emissions from the NorthMet Project Proposed Action are projected to be 196,342 mtpy of CO_2e. This is 0.12 percent of the statewide emissions for Minnesota, 0.003 percent of the United States emissions, and 0.00038 percent of the annual global emission estimations. Combining the direct and indirect emissions from the NorthMet Project Proposed Action (697,342 mtpy CO_2e), the total represents 0.44 percent, 0.01 percent, and 0.0014 percent of the annual statewide, U.S., and global emissions, respectively (PolyMet 2015e). It is possible that, due to global demand for copper, nickel, and precious metals, some of these emissions would occur regardless of the development of the NorthMet Project Proposed Action.

With climate change, average annual temperatures in Minnesota may increase 3 to 5°F over the lifetime of the facility. There may also be a 5 to 15 percent increase in precipitation over the life of the operation (20 years) and reclamation (60 years) (NOAA 2013). Increased temperatures and precipitation may have effects on wetlands, forests, and other cover types that are likely to affect carbon storage and sequestration in these ecosystems. There could be localized impacts due to meteorological changes. Even though a quantitative assessment of the effects could not be

conducted, proposed reclamation and mitigation activities described in Section 5.2.7.4.3 can offset some of the carbon emissions caused by NorthMet Project Proposed Action.

5.2.7.2.5 Mercury Deposition Impact Analysis

Total potential mercury emissions to air are estimated to be 4.6 lbs/year from the Plant Site. The primary sources of air emissions are expected to be two emission units that are part of the hydrometallurgical process: the autoclave vent and the autoclave flash vent. The combined air emissions from these two units are estimated to be 4.1 lbs/year. Most of the remaining estimated mercury emissions (0.4 lb/year) are from natural gas used to fuel a package boiler and for space heating. Less than 0.1 lb/year are estimated to be released by the mining, crushing, and milling processes and through wind erosion from the Tailings Basin. Additional information regarding each of these emission sources is summarized in *Mercury Emission Control Technology Review Version 2* (Barr 2012k). Overall, about 95 percent of the mercury originating in the ore is expected to remain within—or be adsorbed to—the tailings and the hydrometallurgical residue, where it would remain isolated from further transport to the environment. Mine Site mercury air emissions would contribute a maximum of 0.17 lbs/year from Tailings Basin construction vehicles (diesel fuel combustion emissions) and approximately 0.6 lbs/year from diesel fuel combustion during normal operations (PolyMet 2015e). For comparison, Minnesota's statewide mercury air emissions were estimated to be 3,011 pounds in 2005 and about 2,835 pounds in 2011 (PolyMet 2015e).

The low percentage of estimated mercury released to the air is primarily because the oxidizing conditions in the autoclave would cause most of the mercury that is released from the concentrate into the exhaust gas to be in either the oxidized (Hg^{+2}) or particle-bound (Hg(p)) form. Oxidized mercury is water soluble and would be captured in the facility's wet scrubber system. Particle bound mercury would be collected in any device designed to control particulate emissions, such as the autoclave scrubber system. Speciation of mercury air emissions from the autoclave stack (after pollution controls) is uncertain, but expected to be primarily in the elemental (Hg^0) form (PolyMet 2015e). Detailed calculations for all Plant Site emission units are provided in UpdatedCalcsPlant Ver7.0_2_26_13 (PolyMet 2015e). The estimated 4.1 lb/yr of Hg^0 emitted from the Plant Site would add to the estimated 19,580,000 pound atmospheric mercury loading and would ultimately return to the terrestrial environment through long-range transport and atmospheric processes (Gaffney and Marley 2014).

The MMREM was used to conduct an evaluation for the potential deposition of mercury related to the Plant Site air emissions to assess the NorthMet Project Proposed Action's potential effects on mercury concentrations in fish and the potential health risks to a hypothetical recreational fisher, as well as a subsistence fisher consuming locally caught fish. The analysis was conducted for five nearby lakes: Heikkila Lake, Colby Lake, and Whitewater Lake (located within 10 km of the Plant Site) and Wynne Lake and Sabin Lake (located within 12 km of the Plant Site). The analysis used the MMREM to assess the potential incremental change in fish mercury concentrations and the potential incremental risks to human health.

Only the Plant Site's potential mercury air emissions were evaluated, as they represent essentially all of the NorthMet Project Proposed Action-related mercury air emissions (PolyMet 2015e). The Mine Site AERA did not assess potential local mercury deposition because potential emissions are less than 1.0 lb/yr (PolyMet 2015e).

Because of uncertainty in speciation of emissions associated with autoclave operations, two speciation scenarios were used for assessing potential effects for the local impacts assessment (PolyMet 2015e). The results of the analysis from the two mercury speciation scenarios on the five nearby lakes estimated that the potential incremental increase in mercury concentrations in the top predator fish would range from 0.002 ppm (Scenario 2, Whitewater Lake) to 0.016 ppm (Scenario 1, Wynne Lake), depending upon the lake and scenario evaluated (see PolyMet 2015e, Attachment T). Scenario 1 assumed that the oxidized and particle-bound mercury released would be 50 percent and 25 percent of the total mercury, respectively. Scenario 2 assumed maximum control efficiency for these fractions, reducing the total percentage released to 10 percent for each. It should be noted that due to the conservatively higher oxidized and particle-bound mercury speciation assumption in Scenario 1, the effects for Scenario 1 are greater than the mercury effects for Scenario 2 for each lake evaluated. These are small compared to the existing Hg concentrations in the top predator fish (95th percentile), which range from 0.35 ppm at Whitewater Lake to 1.34 ppm at Wynne Lake. The NorthMet Project Proposed Action incremental risk quotients for a recreational fisher ranged from 0.013 (Scenario 1) at Whitewater Lake to 0.081 at Wynne Lake; both are below the incremental risk guideline level of 1.0. The incremental risk quotients for subsistence and tribal anglers ranged from 0.098 (Whitewater Lake) to 0.606 (Wynne Lake) for Scenario 1, also below the incremental risk guidance level. Finally, the incremental risk quotients for the subsistence fisher (Treaty Protected catch rate) ranged from 0.132 (Scenario 1, Whitewater Lake) to 0.538 (Scenario 1, Wynne Lake), again below the incremental risk guidance level. Additional information pertaining to fish mercury concentration and the specific Hazard Quotients summarized in the report *Cumulative Impacts Analysis: Local Deposition and Bioaccumulation in Fish* (Barr 2012b) have been included in Section 6.2.6.3.3 summarizing the cumulative effects assessment for mercury deposition. It should be noted that all of the lakes' mercury background concentrations result in a background risk quotient above 1.0 without any incremental increase from the NorthMet Project Proposed Action, which is a common occurrence in Minnesota lakes. Widespread contamination of fish from atmospheric pollution is why Minnesota established a statewide mercury TMDL. The TMDL seeks to reduce atmospheric deposition everywhere in the state in order to make the state's lakes and streams fishable, as required by federal regulations.

In September 2009, the MPCA published Guidelines for New and Modified Mercury Air Emission Sources. The guidelines were developed to limit the mercury emissions from new and expanding sources in order to meet the TMDL goal of total statewide mercury emissions of 789 lbs/year by 2025. In 2012, MPCA revised the guidelines (MPCA 2012h), which includes the following requirements that apply to the NorthMet Project Proposed Action:

- Define and employ BACT on mercury emitting sources. If best controls reduce emissions by less than 90 percent, the new source would be subject to periodic review for opportunities for improved control efficiency and must comply with TMDL requirements.
- Complete environmental review as required by Minnesota law, including for a proposed action and associated cumulative effects.
- For facilities where the MPCA determines a project's mercury emissions would not impede the statewide mercury emissions reduction goals within the mercury TMDL, an emissions limit would be placed into the facility's permit and the project is not be required to submit a mitigation plan.

The NorthMet Project Proposed Action mercury air emissions are about 0.16 percent of 2011 estimated statewide emissions and about 0.6 percent of the TMDL statewide target emissions. The NorthMet Project Proposed Action selected a two-stage mercury control system that is expected to achieve 25 percent control for elemental mercury and 90 percent control for particle bound and oxidized mercury (PolyMet 2015e). Because the total mercury control is less than 90 percent, PolyMet moved forward with the remaining TMDL requirement. In addition, PolyMet has conducted a cumulative effects analysis on the local mercury deposition and bioaccumulation in fish (PolyMet 2015e) and the assessment of the cumulative effects is provided in Section 6.2.6.4.3.

The MPCA has conducted a review of the NorthMet Project Proposed Action mercury emissions and has determined that it would not impede the reduction goals (MPCA 2013l). Thus, no minimization and mitigation plan would be required for the NorthMet Project Proposed Action.

5.2.7.2.6 Sulfur Deposition and Potential Indirect Effects on Mercury Methylation

The Ecosystem Acidification report, in support of the Minnesota Steel EIS, indicates that up to 90 percent of the sulfate deposition in Minnesota is due to out-of-state emissions of SO_2 and that sulfate deposition has been on a downward trend since the mid-1980s. Given the current downward trend of sulfate deposition in Minnesota and the relatively small contribution from Minnesota sources to sulfate deposition in Minnesota, the NorthMet Project Proposed Action is not expected to have a measurable effect on sulfate deposition in the state. The trend of decreasing sulfate deposition in Minnesota is expected to continue into the future due to foreseeable regulatory actions that are expected to further reduce sulfur dioxide emissions on a national basis as well as from specific Minnesota sources. A supplemental assessment of the potential additional sulfur from stack and fugitive dust air emissions was conducted to evaluate the NorthMet Project Proposed Action's effects from sulfate as related to mercury methylation and fish concentrations. Sulfur related emissions include SO_2, sulfuric acid mist (SAM), reduced sulfur compounds and sulfur in particulate (e.g., sulfur in the mineral matrix of the ore). Because the estimated Plant Site and Mine Site emissions for each of these are below the PSD permitting thresholds and Significant Emission Rate (SER), no further consideration of these sources were required for environmental impact purposes (Barr 2015f). However, a summary of each is included in Section 4.0 of the document *Mercury Overview a Summary of Potential Mercury Releases from the NorthMet Project and Potential Effects on the Environment* (Barr 2015f). The evaluation estimates the potential sulfur deposition to the Partridge River (Colby Lake) and Embarrass River (Sabin Lake) watersheds and is summarized below.

Sulfur Dioxide

Plant Site stack SO_2 emissions are estimated at about 7 tpy, while stack emissions of SO_2 at the Mine Site are estimated at about 1.9 tpy. The values are too small for PSD air permitting and therefore are not required to be modeled and are not considered to have significant impacts according to the PSD program. Nevertheless, air concentrations of SO_2 were modeled for the Plant Site Class II Air Quality Air Dispersion Modeling Report (Barr 2012j) and can be used to estimate a potential deposition of sulfur related to SO_2 air emissions. Average watershed air concentrations for SO_2 are based on Class II modeling and reflect the Class II modeling receptor grid (Barr 2012j).

Because SO_2 emissions are in the gas phase and are emitted from a taller stack, they tend to disperse further, and therefore represent a more reasonable approximation of a potential air concentration. Additional inputs such as deposition velocity, lake surface area, and water mixing zone were included for evaluation. Based on the results of the modeling, the potential deposition over the Partridge River (Colby Lake) would be 0.003 g/m^2/yr or about 2 percent of background, with a potential surface water concentration from deposition to the lake surface of 0.03 mg/L. The potential deposition over the Embarrass River (Sabin Lake) would be 0.002 g/m^2/yr or about 2 percent of background), with potential surface water concentration from deposition to the lake surface of 0.02 mg/L. With conservative estimates of potential air concentrations and general overestimates of potential deposition associated with screening equations, potential sulfur deposition from SO_2 emissions is a small percent of background sulfur deposition for both the Embarrass River and Partridge River watersheds.

Sulfuric Acid Mist

The revised air concentration estimate for SAM is 0.12 μg/m^3, as adjusted for the current estimate of SAM emissions of 5.02 tpy (PolyMet 2015e). Additional inputs such as deposition velocity, lake surface area, and water mixing zone were included for evaluation. Based on the results of the modeling, the potential deposition over the Partridge River (Colby Lake) would be 0.0005 g/m^2/yr or about 0.4 percent of background, with a potential surface water concentration from deposition to the lake surface as 0.005 mg/L. The potential deposition and estimated potential incremental sulfate concentration for Embarrass River (Sabin Lake) would also be 0.0005 g/m^2/yr and 0.005 mg/L, respectively. Overall, the deposition from SAM emissions is a small percentage of background sulfur deposition to both the Embarrass River and Partridge River watersheds.

Reduced Sulfur Compounds

Potential NorthMet Project Proposed Action emissions of total reduced sulfur (TRS) compounds, includes hydrogen sulfide (1.88 tpy) and carbon disulfide (5.1 tpy) as estimated to be 6.98 tpy. All of the TRS emissions are from the Plant Site (PolyMet 2015e). No modeling of TRS emissions was required for ambient air quality purposes or the Supplemental Plant Site AERA. However, the potential deposition of sulfur is estimated to be small due to factors such as the ability to remain as a gas under normal environmental conditions, further transport from an emissions source due to oxidation by molecular oxygen and hydroxyl radicals, residence times ranging from 1 day to 40 days, and gas phase at ambient temperatures reacting with photochemically produced hydroxyl radicals (Barr 2015f). Overall, the potential local deposition of sulfur from TRS compounds is uncertain, but it is not expected to exceed evaluation criteria.

Sulfur in Particulate Matter

The estimate of potential sulfur deposition from sulfur in particulate was calculated using the air concentration for the annual averaging time period of 5.8 μg/m^3 at the Plant Site property boundary (PolyMet 2015e). It is assumed that ore processing would be responsible for all modeled air concentrations. Additional inputs such as deposition velocity, lake surface area, and water mixing zone were included for evaluation. Based on the results of the modeling, the potential deposition over the Partridge River (Colby Lake) would be 0.0045 g/m^2/yr or about 4 percent of background, with a potential surface water concentration from deposition to the lake surface as 0.04 mg/L. The potential deposition and estimated potential incremental sulfate

concentration for Embarrass River (Sabin Lake) would also be 0.0045 $g/m^2/yr$ and 0.04 mg/L, respectively. Overall, the sulfur in the particulate and the potential sulfur surface water concentrations would be a small percentage of background deposition for the Embarrass River and Partridge River watersheds.

Based on the results of the additional assessment of sulfur deposition, the potential addition of sulfur from these emissions sources would be small to negligible, and therefore would not be expected to have effects on mercury methylation or fish mercury concentrations. Additional information regarding to mercury methylation is provided in Section 5.2.2.3.4. Mercury deposition and bioaccumulation in fish (PolyMet 2015e) and the assessment of the cumulative effects is provided in Section 6.2.6.4.3.

5.2.7.3 NorthMet Project No Action Alternative

Since this alternative would not involve introducing new emission sources, the NorthMet Project No Action Alternative would have no additional effects on air quality either regionally or locally. Therefore, air quality would be substantially similar to existing conditions.

5.2.7.4 Mitigation Measures

If, during permitting, it is determined that mitigation measures are necessary, the measures described in this section could be considered; however, most of the mitigation measures described are incorporated into the design. PolyMet has proposed the following mitigation measures to reduce effects on air quality associated with GHGs.

5.2.7.4.1 Greenhouse Gas Reduction Measures

Review of Current Mitigation Included In the NorthMet Project Proposed Action

The NorthMet Project Proposed Action incorporates both energy and production efficiency to reduce associated GHGs (Barr 2011e). The potential to minimize and reduce GHG emissions from changes in existing land cover (i.e., release of carbon tied up in terrestrial biomass, soils, or peat and the loss of carbon sequestration capacity from the environment) are also discussed (PolyMet 2015e). The following provides a summary of the reduction measures.

PolyMet proposes a hydrometallurgical process, rather than a pyrometallurgical process, which would result in reduced energy usage. The hydrometallurgical process is expected to reduce the NorthMet Project Proposed Action's energy demand by 50 percent over comparable pyrometallurgical processes. However, while energy use is reduced by one-half, GHG emissions do not decline per unit of production from what would be expected from a pyrometallurgical process, principally because of the large load of non-energy process emissions associated with hydro processing.

PolyMet also proposes to use premium efficiency motors in selected locations rather than standard motors. Motor efficiencies typically vary between 85 and 96 percent, depending upon the size and load of the motor. Gravity transport of process slurries would also be used where possible, instead of pumps. PolyMet proposes to configure the processing plant such that the overall power factor for the facility is as close to one (energy input to energy output) as practical, which would help minimize electricity use.

The primary production excavators and two of the three blast-hole drills would be electric rather than diesel powered, eliminating a direct source of GHG emissions. PolyMet would purchase new gen-set locomotives, which are more efficient and use less fuel than conventional locomotives. Space heating in the former LTVSMC processing plant is a major contributor to total direct GHG emissions and PolyMet would employ natural gas heaters. Per unit of useful energy, the combustion of natural gas results in lower CO_2e emissions than does the combustion of other fuels. Of the three feasible space heating options, electric heating, propane-fired heating, and natural gas-fired heating, natural gas-fired heating would result in aggregate in CO_2 emissions that would be about 80 percent lower than those for electric heating and 66 percent lower than those for propane-fired heaters.

PolyMet evaluated additional methods to reduce the NorthMet Project Proposed Action's GHG emissions but found the additional methods infeasible (PolyMet 2015e). The methods evaluated included electric drive mine haul trucks, electric locomotives, mill technology, flotation alternatives, and the use of waste heat from autoclaves for space heating.

Additional Mitigation

To mitigate GHG effects associated with a change in existing land cover (i.e., secondary effects), PolyMet would provide compensatory wetland mitigation (see Section 5.2.3 of this FEIS) for direct effects on wetlands as well as for indirect effects on fragmented wetlands. One of the goals of the compensatory mitigation is to restore high-quality wetland communities of the same type, quality, function, and value as those affected by the NorthMet Project Proposed Action. Given site limitations and technical feasibility, it is impracticable to replace all affected wetland types with an equivalent area of in-kind wetlands. Off-site wetland compensation of 1,631.4 acres wetland restoration and/or preservation, and 225.0 acres of upland buffer have been planned. This off-site mitigation would take place at three sites in northern Minnesota. Based upon the proposed wetland mitigation plan, the number of acres replaced would equal and/or exceed the total number of acres of all types of wetlands lost to NorthMet Project Proposed Action-related activities, other than deep marsh and the final ratios would be determined during wetland permitting. However, the excess replacement would contribute to some degree to compensation of the NorthMet Project Proposed Action's effects on deep marsh wetlands.

5.2.7.4.2 Rail Car Ore Transport Fugitive Dust Mitigation Measures

Rail cars have been designed to centralize the ore fines to the central portion of the rail car to minimize the potential for spillage during transport. Due to the natural moisture content and large size of the ore being mined, fugitive dust from rail car transport is expected to be minimal. Three additional fugitive dust control measures have been identified as part of the Mine Site Fugitive Emission Control Plan. These include the minimizing the drop distance of the ore into the railcars, reporting dusty conditions during loading and transport, and conducting one observation per train to evaluate rail car loading conditions. In addition, annual training would be conducted for all locomotive workers on methods to minimize fugitive dust during ore transport and loading.

5.2.7.4.3 Voluntary Mitigation Measures

Based upon the emissions defined in Section 5.2.7.1.3, the majority of the NO_x and SO_2 emissions are associated with mobile sources (e.g., diesel trucks, locomotives, mining

equipment). Although the analysis of these pollutants showed that the NorthMet Project Proposed Action would not cause or significantly contribute to air quality exceedances, a voluntary anti-idle program could further reduce these emissions, as well as PM and GHG. Although there is no regulatory requirement for a program, PolyMet is considering the implementation of an idling reduction policy that would consider the size, fuel type, and function of each type of vehicle, as well as weather conditions and anticipated duration of vehicle stoppage. The policy would need to account for extreme weather conditions in order to avoid potential construction or production delays from the inability of vehicles to restart once turned off. In addition, vehicle owner's policies and maintenance requirements would have to be incorporated for heavy construction equipment and light vehicles that are not owned and operated by PolyMet. The results of such a policy would benefit by reducing environmental impacts, improving worker health and safety, and reducing fuel usage and engine wear.

5.2.7.5 Amphibole Mineral Fibers

5.2.7.5.1 Environmental Consequences

Background

The NorthMet Project Proposed Action would mine ore from the Duluth Complex, which may contain amphibole mineral fibers. Taconite ore mined from the Biwabik Iron Formation at the Northshore Mine and processed at the Silver Bay plant, has received public attention with regard to potential releases of amphibole mineral fibers such as those found with taconite ore on the east end of the Mesabi Iron Range in northeast Minnesota.

Regulatory Definitions and Mineralogy

Amphibole mineral fibers are a naturally occurring type of mineral fiber that can be found in two different crystalline structures: the asbestiform and non-asbestiform types. Asbestiform type amphibole fibers consist of aggregates of long, thick, flexible fibrils that separate along grain boundaries between fibrils. The effects on human health as a result of inhalation exposure to this form of amphibole mineral fiber has been well documented. These effects include an increased risk of developing lung cancer and mesothelioma. The non-asbestiform type of amphibole mineral fiber can be found as blockier cleavage fragments. These cleavage fragments can be released through the crushing or fracturing of rock containing the mineral fibers. There is ongoing debate about whether exposure to thoracic-size non-asbestiform amphibole cleavage fragments also increase the risk for certain respiratory diseases, but there is currently no consensus on the issue.

The term "asbestos" has a long history of use within industrial/commercial and regulatory contexts, but is not appropriately used as a mineralogical definition. Asbestos is the name of a group of highly fibrous minerals with separable, long, and thin fibers. Individual asbestos fibers are strong and flexible, heat resistant, and chemically inert. There are six regulated types of asbestos. The six regulated minerals and their associated mineral group are:

- Chrysotile (Serpentine),
- Crocidolite (Reibeckitte) (Amphibole),
- Amosite (Cummingtonite-grunerite) (Amphibole),

- Anthophyllite Asbestos (Amphibole),
- Tremolite Asbestos (Amphibole), and
- Actinolite Asbestos (Amphibole).

From a mineral perspective, amphibole minerals are distinguished from each other by the amount of sodium, calcium, magnesium, and iron that they contain.

A mineral fiber can be analyzed and classified using a microscope. Chrysotile is easily identified by microscopic analysis because of its distinct particle shape. For amphiboles, the distinction between asbestiform and non-asbestiform is less clear. Amphibole particles have a spectrum of shapes from blocky to prismatic to acicular. Amphiboles also break (or cleave) into smaller fragments when finely ground. Long, thin cleavage fragments resemble asbestos fibers, but may not be asbestiform. Cleavage fragments tend to be roughly twice as thick as asbestos fibers (Addison and McConnell 2008). The aspect ratio distributions (i.e., length-to-width ratio) of a population of cleavage fragments and a population of asbestos fibers can overlap. This overlap means that some fibers may be classified as either cleavage fragments or asbestos fibers (Millette 2006). An analyst can compare particle shapes to asbestos reference materials but it can be difficult to classify individual fibers as asbestiform or cleavage fragments because individual fibers do not exhibit all the characteristics of a population.

Regulatory definitions for classifying asbestos and other mineral fibers vary and often do not differentiate between asbestiform and non-asbestiform minerals. The USEPA defines the dimensions of an “asbestos fiber” as a particle 5 micrometers (µm) in length or longer with an aspect ratio of at least 20:1 (USEPA 1993). The National Institute for Occupational Safety and Health (NIOSH) defines an “occupational fiber” as a particle 5 µm in length or longer with an aspect ratio of at least 3:1 (NIOSH 1994). Minnesota agencies define a Minnesota regulated fiber (MN-fiber) as an amphibole or chrysotile mineral particle with an aspect ratio of 3:1 or greater with no limit on length (MDH Methods 851 and 852). The State of Minnesota’s definition of fibers does not distinguish between asbestiform and non-asbestiform amphibole fibers, including cleavage fragments.

Health Impact

The health impacts from exposure to asbestiform members of the serpentine and amphibole mineral groups via respiration of those minerals are well known. Less certain are the health risks associated with exposure to the non-asbestiform varieties of amphibole minerals, which may be present in the air as cleavage fragments. While chemically and elementally identical to asbestos, these fibers have different physical properties. It is not certain exactly what properties of a mineral fiber affect its potency and, in turn, impact the health of an exposed population.

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS and there is incomplete or unavailable information because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, NEPA directs the agency to make it clear that such information is lacking, discuss the relevance of the lacking information, and discuss any information relevant to evaluation the future impacts. In these cases, NEPA also directs the agency to evaluate these impacts based upon theoretical approaches or research methods generally accepted in the scientific community provided that the analysis of

the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.

The Co-lead Agencies believe that there is currently incomplete and unavailable scientific information to characterize the health risk to the public from exposure to mineral fibers and that the means to obtain such information are not known. Because of this, it is not possible to evaluate the potential for significant adverse effects on the human environment from the release of amphibole mineral fibers associated with the NorthMet Project Proposed Action. This section provides a summary of existing credible scientific evidence that, with additional research, may one day provide guidance for future development of a human health based standard for amphibole mineral fiber. There is an ongoing effort in the environmental health community to develop the scientific tools and expertise to arrive at such a standard in the future. Since the health impacts from exposure to fibers cannot be evaluated at this point in time, the approach is to minimize the release of fibers through control and treatment technology and to conduct ambient air monitoring for fibers.

The toxicological literature review prepared for the MDNR (MDNR 2009b) discussed non-asbestiform fibers. A brief summary follows.

Palekar et al. (1979) found non-asbestiform particles to be cytotoxic (meaning toxic to cells); however, epidemiological studies have found limited potential for carcinogenesis from cleavage fragments. Gamble and Gibbs (2008) provided a review of several epidemiological studies regarding exposure to cleavage fragments including several involving taconite miners. They found that there was no statistically significant increase in either lung cancer or mesothelioma from exposure to taconite mining. Ilgren (2004) reviewed animal and human studies and came to the same conclusion. Additionally, Gylseth et al. (1981) performed a study in which non-asbestiform amphibole dust in the lungs of taconite miners was examined. Whereas Gylseth et al. (1981) concluded that exposure to the miners constituted a minor carcinogenic risk, they could not exclude exposure to taconite as a contributing factor to the lung cancer found in the miners examined. Asbestosis and mesothelioma latency periods of 15 to 50 years are not uncommon, creating uncertainties in the interpretation of studies performed to date. It should be noted that taconite is mined in the Biwabik Formation, whereas the ore proposed to be mined for the NorthMet Project Proposed Action is from the Duluth Complex, which is not in contact with the Biwabik Formation at the NorthMet Deposit.

In 1997, the Minnesota Cancer Surveillance System first identified an excess of mesothelioma cases among a cohort of males who worked in the mining industry in Northeastern Minnesota. In response to this information, the MDH conducted an epidemiologic study to investigate the exposure of these workers to commercial asbestos. This study identified exposure to commercial asbestos as a probable cause for a part of the observed increase in mesothelioma rates. The results of this study were published in the 2003 report *Exposures to Commercial Asbestos in Northeastern Minnesota Iron Miners who Developed Mesothelioma* (MDH 2003). In a February 2015 press release that provided an update on new mesothelioma cases in the cohort, the MDH stated that “based on the available evidence, the elevation in mesothelioma cases in Northeastern Minnesota is most likely an occupational health concern, and does not reflect any increased risk for the broader community” (MDH 2015b). The MDH continues surveillance for newly diagnosed cases of mesothelioma in Minnesota.

The study did not address the potential occupational or public health risks associated with exposure to non-asbetiform amphibole mineral fibers and is unable to provide any scientific evidence for or against the existence of such risks. Furthermore, the MDH considers the role of non-asbestiform amphibole fibers in the induction of health effects to be uncertain at this time but concludes that amphibole mineral fibers have the potential for an undetermined toxicity and potency.

The University of Minnesota School of Public Health conducted a research effort, known as the Minnesota Taconite Workers Health Study (University of Minnesota 2013), funded by the State of Minnesota, to better understand taconite worker health issues, including an epidemiological investigation into causes of excess rates of disease, including mesothelioma, among taconite workers. The results of this study did not rule out exposure to amphibole mineral fibers as being a potential source of health risk or having some role in the incidence of disease among taconite workers. The results also do not define what level of exposure would pose a medically significant hazard or risk to the surrounding community, but research from this and other scientific studies will be considered in developing any future health-based fiber standard.

Occurrence in the Duluth Complex

The October 2005 SDD for the NorthMet Proposed Action EIS identified that the "… EIS will provide information about the presence of fibers in the NorthMet deposit." Since February 2006 fibers-related information has been submitted to the Minnesota State Agencies (MDNR; MPCA; MDH) for their review and consideration. The report entitled *Fiber Information, NorthMet Mine and Ore Processing Facilities Project, Fibers Data Related to the Processing of NorthMet Deposit Ore* (2007l), hereafter referred to as the "2007 Mineral Fibers Report," provided the bulk of the fibers-related data and information.

The Minnesota Environmental Quality Board (MEQB) has reported that the Duluth Complex contains minor amounts of amphibole minerals, but did not identify chrysotile as a mineral of concern (MEQB 1979). The MEQB (1979) identified that the concentration of asbestiform amphibole minerals in the Duluth Complex ore is expected to be low, "…less than 0.1 ppm by weight in the mineralized areas of the Duluth Complex…." Composite samples using ore from the NorthMet Deposit collected during flotation pilot plant studies in 2000 conducted for PolyMet (SGS 2004) provided results for amphibole and serpentine minerals representative of the MEQB (1979) conclusions. Recognizing the differences between the NorthMet Deposit versus the Biwabik Iron Formation, the MPCA, MDNR, and MDH requested that PolyMet provide additional information on fiber-related data for its mining and processing operations in the NorthMet Deposit.

PolyMet conducted additional flotation pilot testing in July and August 2005. Collected samples considered to be representative of the head feed, tailings, and flotation process water associated with processing ore from the NorthMet Deposit were prepared for analysis by Transmission Electron Microscopy by additional grinding of the ore and tailings samples with mortar and pestle to produce a very fine powder. Stevenson (1978) states that the finer a material is ground, the higher the number of fibers identified by MDH counting rules (MDH Methods 851 and 852). According to the laboratory conducting this analysis, this only affects fiber counts, not the identification of asbestiform fibers since asbestiform fibers have high tensile strength and flexibility (PolyMet 2015e).

Overall, amphibole mineral fibers were found to represent a relatively small percent of the mineral fibers associated with the processing of NorthMet Deposit ore (Flotation Pilot Testing in July and August 2005); approximately 9 percent of the fibers identified from all collected samples of ore, tailings, and process water. Chrysotile mineral fibers were not identified in samples of ore, tailings, or process water collected from the flotation pilot testing. However, PolyMet's petrographic observations indicate that chrysotile minerals are about 2 percent of the minerals associated with the waste rock from the NorthMet Project Proposed Action.

It is not possible to accurately quantify the amount of fibers that might be emitted from the facility. Instead, this data was used to confirm the presence of amphibole minerals in the ore body and, thus, that the potential exists for both MN-fibers to be emitted from the facility and for the public to be exposed to these fibers.

Data provided in the 2007 Mineral Fibers Report indicates that about 95 percent of the mineral fibers identified in samples collected from the flotation pilot testing were 3 microns or smaller in size, with most being less than 2 microns in size. Therefore, $PM_{2.5}$ (fine particulate) could be used as a surrogate for all mineral fibers, including amphibole mineral fibers.

5.2.7.5.2 Evaluation Criteria

Because the exact human health risk of exposure to non-asbestiform amphibole mineral particles is unknown as well and because there is no method to quantify the potential fiber emissions, there is no accepted scientific methodology for performing a formal health risk assessment for the quantitative assessment of human health effects from the proposed operations. Thus, there is an uncertain level of potential health risk from airborne amphibole mineral fibers for the NorthMet Project Proposed Action. As such, the focus is on minimizing any potential release of airborne amphibole mineral fibers and to conduct monitoring for fibers in the ambient air.

5.2.7.5.3 NorthMet Project Proposed Action

The presence of amphibole minerals in the Duluth Complex indicates that the potential exists for the emissions of amphibole mineral fibers from the proposed operations. MN-fibers identified in samples collected from the 2005 flotation pilot testing of material representative of processing NorthMet Deposit ore (Barr 2007d) were predominately less than 2.5 µm in aerodynamic diameter (99.6 percent less than 2.5 µm), placing them in the fine fraction of particulate matter ($PM_{2.5}$). A small fraction of these fibers were identified as amphibole (approximately 9 percent). There is the potential that amphibole mineral fibers may be found in water that has come in contact with ore at the Mine Site.

The MPCA and the MDH have emphasized additional control of airborne fine particles to minimize the environmental release and potential exposure of the public to asbestiform and non-asbestiform amphibole mineral fibers These additional controls include measures to minimize fugitive dust emissions from blasting and tailings basin activities, the use of BACT-like particulate emission control technology, water treatment, and ambient air monitoring. These minimization measures are outlined in the following paragraphs.

Fugitive Dust Control

Several measures of regulatory requirements would assist in minimizing emissions of fibers. Compliance with the requirements for blasting, found in *Minnesota Rules*, chapter 6132, would

minimize fugitive dust from blasting operations. A fugitive dust suppression plan for the Tailings Basin would be evaluated and approved by the MPCA as part of the air permit. In addition, the NorthMet Project Proposed Action would be required to comply with Federal Mine Safety and Health Administration's regulations for mining operations that include implementation of standards for asbestos exposure to minimize worker exposure. Such measures would also minimize release of amphibole mineral fibers.

The potential for the release of amphibole mineral fibers to the air at the Mine Site would be low because the ore would not be crushed at the Mine Site and the unpaved road surfaces would be constructed of material that is not likely to contain amphibole minerals. PolyMet's decision to use larger haul trucks at the Mine Site, as well as the incorporation of an updated mine plan into the emission calculations, has reduced the estimated fugitive particulate emissions, further reducing the potential for emissions of airborne amphibole mineral particles.

The Tailings Basin would be operated to minimize all fugitive particulate emissions by management to minimize exposed beach areas and wind erosion fugitive dust by treatment of the Tailings Basin roads and inactive beach areas. The deposition of wet tailings would keep the active work area wet and prevent wind erosion. Capillary action near the pond edge is expected to keep the fines wet and minimize the potential for entrainment of the fines into the air.

Particulate Emissions Control Technology

In order to minimize amphibole mineral fiber emissions, and since MN-fibers are predominately in the $PM_{2.5}$ size range, a $PM_{2.5}$ BACT-like analysis for the proposed PolyMet operations was performed in accordance with the USEPA's guidance. The NorthMet Project Proposed Action is not subject to PSD, so this analysis is not otherwise required. The purpose of this analysis was solely to determine the best control for $PM_{2.5}$ and thus for fibers. For this analysis, control technologies are ranked in order of effectiveness, and starting with the most stringent technology, each are evaluated until a technology cannot be ruled out on technological or economic grounds.

The vast majority of potential emissions of MN-fibers for the NorthMet Project Proposed Action would occur from the ore crushing operations at the Plant Site, with minor potential emissions from the Tailings Basin and the Mine Site (PolyMet 2015e).

As a result of the BACT-like analysis, the NorthMet Project Proposed Action would install emission controls in the crushing plant, such that the emissions of fine particulate matter from the ore crushing and associated material handling sources are controlled consistent with recent BACT determinations. The controls would include the use of fabric filters (baghouse or cartridge) designed to reduce emissions to 0.0025 gram per dry standard cubic foot at each unit (PolyMet 2015e). These controls would be applied to all emission sources within the coarse crushing operations (10 units), the drive house (2 units), the fine crushers (8 units), and the concentrator (15 units).

In addition to these controls, the NorthMet Project Proposed Action would also use high-efficiency particulate air (HEPA) filters following the fabric filters on selected units. The HEPA filters would be used when exhaust air from the fabric filters is routed back into the building to provide an added level of assurance that worker exposure to inhalable dust is minimized. In this case, the venting of exhaust air back into a building provides a benefit of reducing the heating fuel demand that offsets the additional cost and energy usage associated with re-routing of air

back into a building (PolyMet 2015e). The combination of the cartridge and HEPA filters for fine particulates has a removal efficiency of 99.97 percent. Six units within the coarse crushing operations and nine units within the concentrator would utilize the HEPA filters year-round. Eight of the 10 units within the drive house and fine crusher operations would utilize the HEPA filters during heating season only (PolyMet 2015e).

The use of HEPA filters, during non-essential operations, would provide little air quality benefits for reducing exposure to fine particulates outside the facility boundary. In addition, the modeled $PM_{2.5}$ effects demonstrate that the $PM_{2.5}$ concentrations, which are in the same size range as the amphibole mineral fibers, rapidly decrease in magnitude in all directions. As such, the operational and air pollution equipment controls for the NorthMet Project Proposed Action represent the highest feasible level of fine particulate matter control and, coupled with Hoyt Lakes being 5 miles from the Plant Site, further reduce the potential for public exposure to airborne amphibole mineral fibers.

Amphibole Mineral Fibers in Water Discharges

There is the potential that amphibole mineral fibers may be found in water that has come in contact with ore at the Mine Site. There is no applicable water quality standard specific to non-asbestiform amphibole mineral fibers. The USEPA has developed drinking water standards for asbestos that drinking water utilities must comply with based upon information on the USEPA website(http://water.epa.gov/drink/contaminants/basicinformation/asbestos.cfm). This standard, an MCL, is 7 million fibers per liter. The USEPA has provided proven methods of water treatment to meet the MCL, including coagulation/filtration, direct and diatomite filtration, and corrosion control.

Water in contact with waste rock, ore, and pit walls would be treated during operations utilizing a greensand filter. No discharge would occur off site during operations. During post-closure, a greensand filter, pre-filters, and a RO system (or equivalent performing technology) would be used to treat water to meet water quality standards prior to discharge. This treated water would be discharged into the West Pit Creek, flows to the Partridge River, which then flows into Colby Lake, the only lake in the area used for drinking water. It is the source of drinking water for the City of Hoyt Lakes. Currently, the City utilizes sand filters, coagulation, and settling and has been in compliance with the USEPA asbestos standard. When the RO treatment or equivalently performing system is constructed at the Mine Site, it would operate in the same fashion as the City's treatment system. As such, the discharge from the Mine Site is expected to be in compliance with the federal standard prior to it being treated again by the City of Hoyt Lakes.

Nearby Ambient Fiber Monitoring

Baseline ambient air monitoring for mineral fiber concentration is currently being done at Hoyt Lakes. The monitoring location was approved by the MPCA and the monitoring is being conducted according to MPCA methodology. Ambient air monitoring for mineral fibers would also be conducted following facility startup. This would allow the MPCA to compare baseline ambient fiber concentrations with fiber concentrations observed during project activities and with other proposed NorthMet Project Proposed Action emissions.

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5.2.8 Noise and Vibration

This section describes effects on humans, including effects on recreational and cultural/spiritual activity, of noise, vibration, and airblast related to the NorthMet Project Proposed Action. The effects on wildlife are described in Section 5.2.5.

Summary

Both noise and vibration dissipate with distance. The residences closest to the mine are at a distance where blasting and other NorthMet Project Proposed Action-related noise would not be heard. The NorthMet Project Proposed Action would comply with all daytime and nighttime regulatory noise limits at sensitive receptors, and the changes in total noise level from current conditions during nighttime operations would not be perceptible. Immediate access to areas around the mine would be restricted. Members of the general public who may be recreating near the NorthMet Project area and tribal members who may have a cultural and spiritual connection to archeological sites in the Superior National Forest, in areas immediately near the mine, may occasionally experience noise and/or vibration associated with the NorthMet Project Proposed Action.

5.2.8.1 Methodology and Evaluation Criteria

This section describes the methodologies and criteria used to evaluate potential noise, ground vibration, and airblast at areas of the Mine Site and Plant Site. NorthMet Project Proposed Action-related sound levels were estimated using the International Standards Organization (ISO) 9613-2 sound-propagation model. The Site Law Formula was the basis for estimating vibration effects. Airblast was estimated using the Terrock model. Each is a desktop model that estimates project effects using site-specific conditions. Estimated effects were compared to federal, state, or local regulations or to project design standards, as appropriate. For noise and vibration, the area of potential effect was defined as a 20-mile radius from the Mine Site and a 20-mile radius from the Plant Site. The area of potential effect for airblast was the distance from the source where measured effects were below the known level for human effects.

5.2.8.1.1 Noise

Noise Impact Assessment Methodology

The noise impact assessment areas for the NorthMet Project Proposed Action include the noise-sensitive receptors within a 20-mile radius of the Mine Site and a 20-mile radius of the Plant Site. The 20-mile radius was selected in order to include the southern edge of the BWCAW, which is located approximately 20 miles north of the Mine Site and Plant Site. The ISO 9613-2 sound-propagation model (*Acoustics-Attenuation of Sound during Propagation Outdoors)* is accepted worldwide and was used to determine the extent of noise effects from the NorthMet Project Proposed Action. This model is the only one that encompasses a standardized method for calculating sound propagation and is the basis for most sophisticated computer modeling programs (Ray 2010). This sound-propagation model consists of octave-band algorithms with nominal mid-band frequencies from 63 to 8,000 Hz for computing the attenuation of sound originating from a point sound source or an assembly of point sources. The source(s) may be mobile or stationary. The model predicts equivalent continuous A-weighted sound pressure

levels (L_{eq}) from sources of known sound emission and accounts for the following site conditions and physical effects:

- Meteorological conditions favorable to sound propagation (i.e., downwind propagation with wind speeds between 1 and 5 meters per second when measured 3 to 11 meters above the ground). This is a conservative approach because not all receptors may be located downwind of the sources (i.e., receptors located upwind would experience less noise since noise propagates farther downwind than upwind).
- Topography and the extent of ground absorption from different surfaces.
- Noise emission of each source, as well as its location and elevation.
- Location and elevation above local ground level of all sensitive receptors.
- Screening from any enclosures, barriers, earth berms, buildings, or vegetation.
- Attenuation due to distance (geometrical divergence) and atmospheric absorption.
- Increase in noise level due to reflections from nearby facades and reflective objects.

For the noise assessment of the NorthMet Project Proposed Action, ground topography or surface effects were modeled assuming that the area around the source and the receptors would be a mixed 50 percent hard non-absorptive ground (e.g., paved surfaces, water, ice, concrete, and all other ground surfaces having a low porosity) and 50 percent soft absorptive surface (e.g., ground covered by grass, trees, and farm land, and all other ground surfaces having a high porosity). This is a conservative assumption, as almost 100 percent of the ground adjacent to the mine sound sources and closest receptors is porous with more absorptive capacity that can attenuate noise levels. Temperature and relative humidity of 20 ºC and 70 percent, respectively, were used in estimating the attenuation due to atmospheric absorption. Attenuation due to geometric divergence or spreading is mainly a function of the distance between the sound source and the receiver. A further conservative assumption is that the modeling analysis did not include any potential shielding effects from pit walls, waste rock stockpiles, berms, or vegetation.

Sound power levels for all equipment and trucks at the Mine Site and Plant Site were based on measured octave-band sound power data obtained from similar mine projects in Australia (Bassett Acoustics 2004; URS 2005). For modeling purposes, it was conservatively assumed that all equipment at the Mine Site and Plant Site would be steady noise sources (except for high-energy impulsive noise from blasting [explosives]) and would operate simultaneously and continuously for 24 hours per day. Impact assessment methodology for blasting noise (i.e., airblast overpressures) discussed in Section 5.2.8.1.2, Vibration and Airblast.

Noise Impact Assessment Criteria

Noise effects are commonly judged according to two general criteria: the extent to which a project would exceed federal, state, or (where applicable) local noise regulations, and the estimated degree of disturbance to people who live in or use an area.

According to the noise standards for Minnesota (*Minnesota Rules*, part 7030.0040, subpart 2), permissible noise levels are broadly classified according to land uses such as residential, commercial, or industrial. The standards distinguish between daytime and nighttime noise, with less noise permitted at night. The standards list the sound levels not to be exceeded for more than

10 and 50 percent of the time (L_{10} and L_{50}) during any 1 hour period. The applicable Minnesota Noise Standards are shown in Table 5.2.8-1. Section 4.2.8 provides additional discussion of common noise levels.

Table 5.2.8-1 Applicable Noise Standards for Different Land Uses in Minnesota

Noise Area Classification[1]	Noise Standard (dBA)			
	Daytime (7 a.m. to 10 p.m.)		Nighttime (10 p.m. to 7 a.m.)	
	L_{50}	L_{10}	L_{50}	L_{10}
1	60.0	65.0	50.0	55.0
2	65.0	70.0	65.0	70.0
3	75.0	80.0	75.0	80.0

Source: *Minnesota Rules*, part 7030.0040, subpart 2; MPCA 2008a.

Note:
[1] The land use activities associated with each Noise Area Classification (NAC) are described in Minnesota Rules, part 7030.0040, subpart 2 and MPCA 2008a.

- Land use activities under NAC 1 include household units, group quarters, residential hotels, transient lodging camp grounds, correctional institutions, mobile home parks or courts, health and educational services, religious activities, resorts, camping and picnicking areas, motion picture production, and other cultural, entertainment, and recreational activities.
- Land use activities under NAC 2 include rail, road, water, and air transportation activities (passenger), wholesale and retail trade, parks, recreational activities (except entertainment assembly and race tracts), automobile parking, personal services, business services, and other professional services (repair, legal, and contract construction services).
- Land use activities under NAC 3 include manufacturing, petroleum refining and related industries, primary metal industries, race tracks, fair grounds and amusement parks, agricultural and fishing-related activities, retail trade (eating and drinking) and transportation, communication, and utilities (except transportation services and arrangements).

As shown in Table 5.2.8-1, the most stringent standard is the nighttime (10 p.m. to 7 a.m.) standard in a NAC 1, which is 50 dBA for no more than 50 percent of the time (L_{50}). In other words, a nighttime L_{50} of 50 dBA means that from 10 p.m. to 7 a.m., noise levels may not exceed 50 dBA more than 30 minutes in an hour. Similarly, a nighttime L_{10} of 55 dBA means that during these same hours, noise levels may not exceed 55 dBA more than 6 minutes in an hour. Land use activities under NAC 1 include household units or private residences, mobile home parks, transient lodging campgrounds and picnic areas, churches, schools, hospitals, and other cultural, entertainment, and recreational activities.

There are no federal or local noise regulations that would apply to the NorthMet Project Proposed Action.

In addition to state and federal standards, the degree of disturbance becomes a key factor in the evaluation of noise effects, which, in this case, includes a focus on residents in the vicinity of the NorthMet Project Proposed Action, as well as people who frequent the area for recreation, fishing, and hunting, and tribal members who may be involved in traditional natural resource harvests on national forest lands. The concept of human disturbance is known to vary with a number of interrelated factors including: changes in noise levels; the presence of other, non-project-related noise sources in the vicinity; people's attitudes toward the project; the number of people exposed; and the type of human activity affected (e.g., sleep or quiet conversation as compared to physical work or active recreation).

NorthMet Project Proposed Action-related noise effects have been evaluated at sensitive receptors using the state daytime and nighttime noise standards (L_{50} and L_{10}) for NAC 1. These

noise standards would apply to the NorthMet Project area throughout the years that the mine is operating (years 1 to 20), when elevated sound level activities from mining, hauling, and crushing operations would occur. The same noise standards would also apply to any potential noise source during closure and post-closure (i.e., after year 20).

Area of Audibility for Boundary Waters Canoe Area Wilderness

Sound from project activities may be audible even if the sound level is lower than the background ambient level. This is because stationary (e.g., drill rigs, crushers) and mobile sources (e.g., dump trucks, graders) associated with mining and crushing activities at the Mine Site and Plant Site may be of a different quality (e.g., electric motor or diesel engine versus a bird call) than natural ambient sound.

It is assumed that noise associated with drilling, excavating, hauling, and crushing activities may be audible up to the location that sound level emitted from these project-related sources attenuates to a level that is 8 dBA below ambient A-weighted sound level. This is identified by the National Park Service at 64 FR 3969-3972 for noise emitted by aircraft that may affect Park visitors. There may be some variability when comparing sound propagation from aircraft engines as done by the National Park Service versus project-related sources (electric motors, diesel engines, etc.). However, for the purpose of this analysis, the 8 dBA method is considered adequate to estimate audible distance from noise sources at the Mine Site and Plant Site. It should be noted that the area of audibility usually applies to certain areas considered by the National Park Service to require substantial restoration of natural quiet (64 FR 3969-3972). For the NorthMet Project Proposed Action, the area of audibility or audibility impacts applies to the BWCAW only. An area of audibility could also be calculated for other non-wilderness receptor locations such as recreational sites within the vicinity of the NorthMet Project area. However, since the area of audibility is based on measured baseline levels for each receptor of concern, separate areas of audibility would be needed for each receptor type. Applying the area of audibility for the BWCAW for other receptor locations is conservative due to the expected higher baseline levels in these areas.

5.2.8.1.2 Vibration and Airblast

Ground Vibration Impact Assessment Methodology

The ground vibration impact assessment area for the NorthMet Project Proposed Action encompasses a 20-mile radius from the Mine Site. When an explosive is detonated in a blasthole, a pressure wave is generated in the surrounding rock. As this pressure wave moves from the borehole, it forms seismic waves by displacing particles in the earth (e.g., glacial till, bedrock). Ground vibration varies with distance from the blast, charge mass per hole, type of explosive, geological conditions, and blasting specifications. For similar geological conditions and blasting specifications, ground vibration varies with distance from the blast and charge mass per hole, according to the Site Law formula. This formula has been used for assessing ground vibration effects from blasting activities at multiple mine and quarry sites in Australia and has also been used in this assessment. The formula accounts for different rock types with a site constant K_g (see note in Table 5.2.8-5 for definition of K_g). Typical K_g factors for free-face hard or highly structured rock, free-face average rock, and heavily confined rock are 500, 1,140, and 5,000,

respectively (Dyno Nobel 2010). This vibration assessment has been conducted using a range of these three K_g factors to allow for varying degrees of vibration transmission through different rock types.

Airblast Overpressures Impact Assessment Methodology

The impact assessment area for airblast overpressure (or blasting noise) for the NorthMet Project Proposed Action is the same area that was used to evaluate ground vibration. An airblast is an airborne shock wave that results from the detonation of explosives. The magnitude of airblast overpressure levels at a point remote from the blast is a function of many parameters including charge mass (mass of explosive per drilled hole), confinement, burden (distance between two drilled holes and perpendicular to the free face), attenuation rate, shielding direction relative to the blast, and meteorological conditions at the time of the blast. The attenuation rate for low-frequency blast vibration has been found from experience to be a 9 dBL reduction per doubling of distance (Terrock Consulting Engineers 2009).

Analysis of blasting data from mines and quarries has permitted a relationship to be established between the maximum 120 dBL distance (the distance in front of the blast that the 120 dBL contour occurs), charge mass per hole, and burden using the Terrock model. This model has been used for assessing airblast effects from blasting activities at multiple mine and quarry sites in Australia and has also been used in this assessment. The model accounts for a dimensionless empirical constant, k_a (usually 250 for quarry and mine blasting), and determines the maximum distance to the 120 dBL contour from the blast site.

Ground Vibration and Airblast Overpressure Evaluation Criteria

Humans can feel ground vibration and airblast overpressures at levels well below those that can cause damage to property. Ground vibration and airblast overpressure limits, therefore, have two aspects: an environmental or acceptable human response (annoyance) limit, and a limit to prevent structural damage (which should be considered separately).

To minimize human annoyance and prevent structural damage to properties outside mining areas, the effects of ground vibration and air overpressure from blasting operations must meet the requirements of *Minnesota Rules*, part 6132.2900, subpart 2. According to the *Minnesota Rules*, the maximum PPV from blasting should not exceed 1 in/s (25.4 mm/s) at the location of a structure located on lands not owned or controlled by the permittee. Air overpressure on lands not owned or controlled by the permittee should not exceed 130 dB, as measured on a linear peak scale (dBL) sensitive to a frequency band ranging from 6 cycles per second to 200 cycles per second.

Ground vibration and air blast (overpressure) from rock blasting are primarily related to the weight of explosive detonated at any single instant and the distance to a structure or sensitive receptor.

PolyMet would be required to construct and maintain their own facilities to withstand expected vibration levels and to meet city code requirements. Aside from the *Minnesota Rules*, there are no specific federal or local vibration regulations associated with mine blasting that would apply to the NorthMet Project Proposed Action.

5.2.8.2 NorthMet Project Proposed Action

5.2.8.2.1 Noise

The primary sources of noise from the Mine Site (3,014.5 acres) during operations would be drilling; blasting; excavation work (hydraulic excavators, front-end loaders); dump trucks hauling material along mine haul roads; material-handling activities at the Rail Transfer Hopper, Overburden Storage and Laydown Area, and waste rock stockpiles; and train horns. Noise would also be generated from auxiliary and support equipment such as tracked dozers, wheel dozers, graders, water trucks, backhoes, and fuel trucks. The sound power levels for each of these sources, based on data from operating mines, are summarized in Table 5.2.8-2.

Table 5.2.8-2 Maximum Sound Power Levels of Major Equipment and Trucks during Operations at the Mine Site and Plant Site

Noise Source Description	Octave Band Center Frequency (Hz)								Overall Linear-Weighted Sound Power Level (dBL)	Overall A-Weighted Sound Power Level (dBA)
	63.0	125.0	250.0	500.0	1000.0	2000.0	4000.0	8000.0		
Mine Site										
Rotary Drill Rig	110.0	123.0	114.0	119.0	111.0	109.0	103.0	98.0	125.0	119.0
Hydraulic Excavator (31-cy)	111.0	122.0	118.0	117.0	115.0	110.0	104.0	99.0	125.0	119.0
Hydraulic Excavator (31-cy)	111.0	122.0	118.0	117.0	115.0	110.0	104.0	99.0	125.0	119.0
Hydraulic Excavator (31-cy)	111.0	122.0	118.0	117.0	115.0	110.0	104.0	99.0	125.0	119.0
Front-end Loader (21.5-cy)	112.0	111.0	112.0	114.0	112.0	112.0	106.0	101.0	120.0	117.0
Tracked Dozer (582-hp)	118.0	118.0	104.0	100.0	104.0	102.0	97.0	92.0	121.0	109.0
Tracked Dozer (582-hp)	118.0	118.0	104.0	100.0	104.0	102.0	97.0	92.0	121.0	109.0
Wheel Dozer (450-hp)	117.0	123.0	119.0	111.0	107.0	101.0	91.0	83.0	125.0	115.0
Grader (275-hp)	111.0	117.0	113.0	105.0	101.0	95.0	85.0	77.0	119.0	109.0
Grader (275-hp)	111.0	117.0	113.0	105.0	101.0	95.0	85.0	77.0	119.0	109.0
Water Truck (937-hp)	107.0	110.0	116.0	114.0	109.0	107.0	101.0	102.0	120.0	116.0
Water Truck (937-hp)	107.0	110.0	116.0	114.0	109.0	107.0	101.0	102.0	120.0	116.0
Wheel Loader (800-hp)	112.0	111.0	112.0	114.0	112.0	112.0	106	101.0	120.0	117.0
Backhoe (110-hp)	111.0	117.0	113.0	105.0	101.0	95.0	85.0	77.0	119.0	109.0
Fuel Truck (150-hp)	111.0	117.0	113.0	105.0	101.0	95.0	85.0	77.0	119.0	109.0
Fuel Truck (150-hp)	111.0	117.0	113.0	105.0	101.0	95.0	85.0	77.0	119.0	109.0

Noise Source Description	Octave Band Center Frequency (Hz)								Overall Linear-Weighted Sound Power Level (dBL)	Overall A-Weighted Sound Power Level (dBA)
	63.0	125.0	250.0	500.0	1000.0	2000.0	4000.0	8000.0		
Mine Site										
Dump Truck (240-ton)	95.0	100.0	109.0	114.0	117.0	116.0	111.0	100.0	121.0	121.0
Dump Truck (240-ton)	95.0	100.0	109.0	114.0	117.0	116.0	111.0	100.0	121.0	121.0
Dump Truck (240-ton)	95.0	100.0	109.0	114.0	117.0	116.0	111.0	100.0	121.0	121.0
Dump Truck (240-ton)	95.0	100.0	109.0	114.0	117.0	116.0	111.0	100.0	121.0	121.0
Dump Truck (240-ton)	95.0	100.0	109.0	114.0	117.0	116.0	111.0	100.0	121.0	121.0
Dump Truck (240-ton)	95.0	100.0	109.0	114.0	117.0	116.0	111.0	100.0	121.0	121.0
Dump Truck (240-ton)	95.0	100.0	109.0	114.0	117.0	116.0	111.0	100.0	121.0	121.0
Dump Truck (240-ton)	95.0	100.0	109.0	114.0	117.0	116.0	111.0	100.0	121.0	121.0
Dump Truck (240-ton)	95.0	100.0	109.0	114.0	117.0	116.0	111.0	100.0	121.0	121.0
Total Sound Power Level from all equipment at the Mine Site	125.0	131.0	128.0	128.0	128.0	127.0	121.0	113.0	136.0	133.0
Plant Site										
Primary Crusher	123.0	123.0	121.0	111.0	106.0	105.0	100.0	94.0	127.0	116.0

Notes:
[1] Assumes all mine equipment and trucks would be in continuous operation at any given time at the Mine Site.
[2] Sound power levels for all equipment and trucks at the Mine Site were taken from the Noise and Vibration Assessment for the Clermont Coal Mine Project, Queensland Australia, August 2004 (Bassett Acoustics 2004). Sound power levels for backhoe and fuel trucks were not available and were assumed to be the same as for the graders due to their similar hp ratings.
[3] Sound power levels for the primary crusher at the Plant Site (116 dBA) were taken from the McArthur River Mine Open Cut Project, Australia (URS 2005).
[4] All mine and plant equipment were assumed to be approximately 5 meters from ground level.
[5] Total sound power level from all equipment at the Mine Site was calculated by logarithmically adding all the octave-band sound power levels for each piece of equipment at the site.

To estimate potential noise effects on closest receptors, noise from proposed mine operations was modeled using the ISO 9613-2 sound-propagation model, as described in Section 5.2.8.1. The Mine Site assessment predicted effects at nine different receptor locations scattered throughout the vicinity of the site. The closest noise-sensitive areas to the Mine Site are shown on Figure 4.2.8-1; the closest of these is the City of Babbitt, located 6.5 miles north of the Mine Site. In addition to the nine identified receptors, other sensitive receptors such as trails and recreational sites (family campgrounds, camp sites, boating, fishing, swimming, and family picnic areas) within the NorthMet Project are vicinity are also shown on Figure 4.2.8-1.

All major mine equipment and trucks shown in Table 5.2.8-2 were assumed to be steady noise sources (see Section 4.2.8.1, Types of Noise) operating simultaneously and continuously for 24 hours per day. This is a conservative assumption, as most noise sources identified in Table 5.2.8-2 are mobile sources such as dump trucks, fuel trucks, dozer, graders, etc., which are non-steady sources (i.e., fluctuating or intermittent sources) that would not operate simultaneously or continuously for 24 hours per day. Tonal noise may occur as a result of the moving parts of internal combustion engines of mobile sources; however, the overestimated sound power levels resulting from the conservative assumption described above (i.e., that all mobile sources are steady sources operating simultaneously) would likely offset any noise increases associated with tonal sounds. The NorthMet Project Proposed Action would not generate highly impulsive sounds such as drop hammering, pile driving, or pavement breaking. High-energy impulsive sounds associated with the use of explosives during blasting (i.e., blasting noise or airblast overpressures) are discussed in Section 5.2.8.2.2. As indicated in Section 4.2.8.1, Types of Noise, annoyance to sounds with strong low-frequency content is virtually only an indoor problem. Because the closest residences (i.e., indoor receptors) are over 8 and 4 miles from the Mine Site and Plant Site, respectively (see Tables 5.2.8-3 and 5.2.8-4), the likelihood of low-frequency-induced annoyance at such distances is very low.

Modeled sound levels from all mine equipment and trucks experienced at the nearest receptors during daytime and nighttime mine operations (excluding baseline levels and plant sources), are shown in Table 5.2.8-3.

Table 5.2.8-3 Predicted Noise Levels at Nearest Receptors to Mining and Hauling Operations at Mine Site (excludes Baseline Levels)

	Distance to Mine Site (miles)[2]		**Daytime Noise Levels at Closest Receptors to Mine Site (excludes Baseline Levels) (dBA)**			**Nighttime Noise Levels at Closest Receptors to Mine Site (excludes Baseline Levels) (dBA)**		
Receptor	**Distance**	**Direction**	**L_{eq}**	**L_{50}**	**L_{10}**	**L_{eq}**	**L_{50}**	**L_{10}**
Private Residences (R-1)	8.4	NW	11.9	10.9	14.7	11.9	10.9	14.7
Hoyt Lakes (R-2)	10.3	SW	9.1	8.1	11.9	9.1	8.1	11.9
Boy Scout Camp (R-3)	12.3	SW	6.7	5.7	9.5	6.7	5.7	9.5
Babbitt (R-4)	6.5	N	15.2	14.2	18.0	15.2	14.2	18.0
Skibo (R-5)	9.1	S	10.8	9.8	13.6	10.8	9.8	13.6
Aurora (R-6)	13.8	SW	5.1	4.1	7.9	5.1	4.1	7.9
Ely (R-7)	20.4	N-NE	0.0	0.0	3.8	0.0	0.0	3.8
BWCA Wilderness (R-8)	21.9	N	0.0	0.0	3.8	0.0	0.0	3.8
Tower (R-9)	19.3	NW	0.3	0.0	3.8	0.3	0.0	3.8

Note:
[1] N = North, S = South, E = East, W = West, NW = Northwest, NE = Northeast, SW = Southwest

Table 5.2.8-3 indicates that the highest noise levels that would be experienced during operations at the Mine Site would occur at the closest receptors in Babbitt. Excluding baseline levels, L_{50} and L_{10} noise levels from the Mine Site are 14.2 and 18.0 dBA, respectively. Due to the low noise contribution from the Mine Site sources, total L_{50} and L_{10} noise levels at Babbitt and other receptors during daytime and nighttime, inclusive of baseline noise levels, would remain the same (i.e., no change in baseline levels when combined with Mine Site noise levels). The predicted L_{eq} at noise-sensitive receptors around the Mine Site were converted to L_{50} and L_{10} using a USEPA calculation methodology (USEPA 1974). The calculation was based on an assumed standard deviation of 3 dBA for sound level distribution.

The primary sources of noise along the Transportation and Utility Corridor would be trains and train horns used during ore transport from the Mine Site to the Plant Site. The noise from the trains and their horns is expected to have minimal effects because the railroad route between the two locations is approximately 4 to 5 miles from the nearest receptors. Up to 22 trains per day are expected to deliver ore to the Plant Site. This frequency of traffic is less than that experienced on the rail line during past mining operations.

The primary sources of noise from the Plant Site would be crushers. Noise from other sources such as pumps at the existing LTVSMC Tailings Basin is expected to be minor in comparison to noise from the crushers, and, as such, was not quantified. The sound power level for the crushers was estimated to be 116 dBA (Table 5.2.8-2). Sound-propagation modeling was performed for the crushers using the ISO 9613-2 sound-propagation model and assumptions described in Section 5.2.8.1. Modeled sound levels experienced at the nearest receptors during ore-crushing operations, plus baseline levels (excluding baseline levels and mine sources), are shown in Table 5.2.8-4.

Table 5.2.8-4 Predicted Noise Levels at Nearest Receptors to Ore-crushing Operations at Plant Site (excludes Baseline Levels)

	Distance to Mine Site (miles)[2]		Daytime Noise Levels at Closest Receptors to Plant Site (excludes Baseline Levels) (dBA)			Nighttime Noise Levels at Closest Receptors to Plant Site (excludes Baseline Levels) (dBA)		
Receptor	**Distance**	**Direction**	**L_{eq}**	**L_{50}**	**L_{10}**	**L_{eq}**	**L_{50}**	**L_{10}**
Private Residences (R-1)	4.2	N	14.5	13.5	17.3	14.5	13.5	17.3
Hoyt Lakes (R-2)	5.6	S	11.0	9.9	13.8	11.0	9.9	13.8
Boy Scout Camp (R-3)	6.5	S	9.2	8.2	12.0	9.2	8.2	12.0
Babbitt (R-4)	11.8	NE	2.1	1.1	4.9	2.1	1.1	4.9
Skibo (R-5)	10.5	SE	3.5	2.5	6.3	3.5	2.5	6.3
Aurora (R-6)	6.7	SW	9.0	7.9	11.8	9.0	7.9	11.8
Ely (R-7)	24.4	NE	0.0	0.0	3.8	0.0	0.0	3.8
BWCA Wilderness (R-8)	23.0	N	0.0	0.0	3.8	0.0	0.0	3.8
Tower (R-9)	15.4	NW	0.0	0.0	3.8	0.0	0.0	3.8

Note:
[1] N = North, S = South, NW = Northwest, NE = Northeast, SW = Southwest, SE = Southeast

Table 5.2.8-4 indicates the highest nighttime L_{50} and L_{10} levels that would be experienced at the closest receptor (private residences, 4.2 miles north of the Plant Site) due to operations at the Plant Site are 13.5 and 17.3 dBA, respectively, exclusive of baseline levels. Due to the low noise contribution from the Plant Site crushers, total L_{50} and L_{10} at the private residences and other receptors during daytime and nighttime, inclusive of baseline noise levels, would remain the same (i.e., no change in baseline levels at closest receptors when combined with Plant Site noise levels).

PolyMet plans to relocate the coal ash landfill from its current location to disposal in the hydrometallurgical residue facility. This relocation of the coal ash landfill would result in temporary noise associated with the use of tracked excavators or front-end loaders for removing fill materials, truck movements along a 2.5-mile haul road to the future Hydrometallurgical Residue Facility, and other construction equipment such as a grader, dozer, and water truck. These activities would be short-term (approximately 50 shifts with 8 hours per shift) and would occur mostly during daytime when noise increases are more tolerable. In addition, there are no noise sensitive receptors in close proximity or within a 1-mile radius of these activities. Based on the information above, noise impacts associated with the relocation of the coal ash landfill would not exceed applicable evaluation criteria.

Aside from the relocation of the landfill, PolyMet also plans to replace the existing conventional ball mills at the Plant Site with semi-autogenous mills. The sound power levels for the replacement semi-autogenous mills are expected to generate a less or equal amount of noise level when compared to the existing ball mills and, as such, are not likely to result in any noise increases. Therefore, noise impact from this change would not exceed applicable evaluation criteria.

The total combined noise effect from operations at the Mine Site, Transportation and Utility Corridor, and Plant Site plus baseline levels is discussed in Section 5.2.8.2.3, Total Noise Effects from NorthMet Project Proposed Action Operations. The area of audibility and noise effects on off-site transportation are also discussed in Section 5.2.8.2.3.

5.2.8.2.2 Ground Vibration and Airblast Overpressure

The potential for ground vibration from hauling material via dump trucks along the mine haul road is expected to be low since rubber-tired vehicles do not generate any significant amount of ground vibration. However, blasting at the Mine Site could affect surrounding (off-site) residential receptors and structures or buildings with regard to ground vibration and airblast overpressure. Blasting could also affect Mine Site infrastructure such as wooden transmission power poles, the electrical substation, water pipelines, railway lines and infrastructure, and fixed mine plant and industrial buildings. The potential effects of ground vibration and airblast overpressure are discussed below. PolyMet has committed to develop an ore and rock blasting program with industry standard methods and experiences from other area mines, including blast vibration damage prevention and monitoring.

Ground Vibration from Blasting at the Mine Site

Except at very close distances to a blast, when permanent ground displacement could occur, ground vibration is an elastic wave motion and the ground returns to its original position after the wave passes. The attenuation rate varies based on the characteristics of the rock through which the vibration travels. Characteristics such as faults and jointing planes, degree and depth of weathering, and the top soil profile contribute to a wide variation of vibration levels.

The potential effect of ground vibration from blasting at the Mine Site was assessed using the Site Law formula, as described in Section 5.2.8.1. The vibration assessment was conducted over a range of K_g factors that represent the vibration transmission through different types of ore or waste rock. Using the Site Law formula and appropriate blast parameters, the limiting distances (i.e., distances beyond which an effect would not occur using different K_g factors) for ore and waste rock blasts at incremental ground vibration levels for off-site structures and Mine Site infrastructure were calculated and are shown in Table 5.2.8-5. Ground vibration contours from blasting at the Mine Site are shown on Figure 5.2.8-1 (based on a maximum K_g factor of 5,000 for heavily confined rocks).

Table 5.2.8-5 Limiting Distances for Ore and Waste Rock Blasts at Incremental Ground Vibration Levels

Ground Vibration, PPV	**Limiting Distance from Blast, D (m)[1]**		
(mm/sec)	k_g = 500	k_g = 1,140	k_g = 5,000
25.4	375	627	1,581
20	435	728	1,835
15	521	872	2,197
10	671	1,123	2,830
5	1,035	1,733	4,365
3	1,424	2,384	6,007
1	2,830	4,738	11,936
0.5	4,365	7,306	18,407

Notes:
kg = Site specific empirical constant for predicting ground vibration levels (dimensionless). Usually determined by site calibration. Typical K_g factors for free face hard /highly structured rock, free face average rock, and heavily confined rock are 500, 1140, and 5000, respectively.

[1] Limiting distances for predicting ground vibration levels from blasting were estimated based on the charge mass per hole (3,388 kg/hole). The charge mass per hole was estimated using the blast parameters and specification for this project such as blasthole diameter (311 mm), hole length (22.6 m), burden (8.84 m), spacing (10.1 m), and explosive density (1.69 kg/m^3).

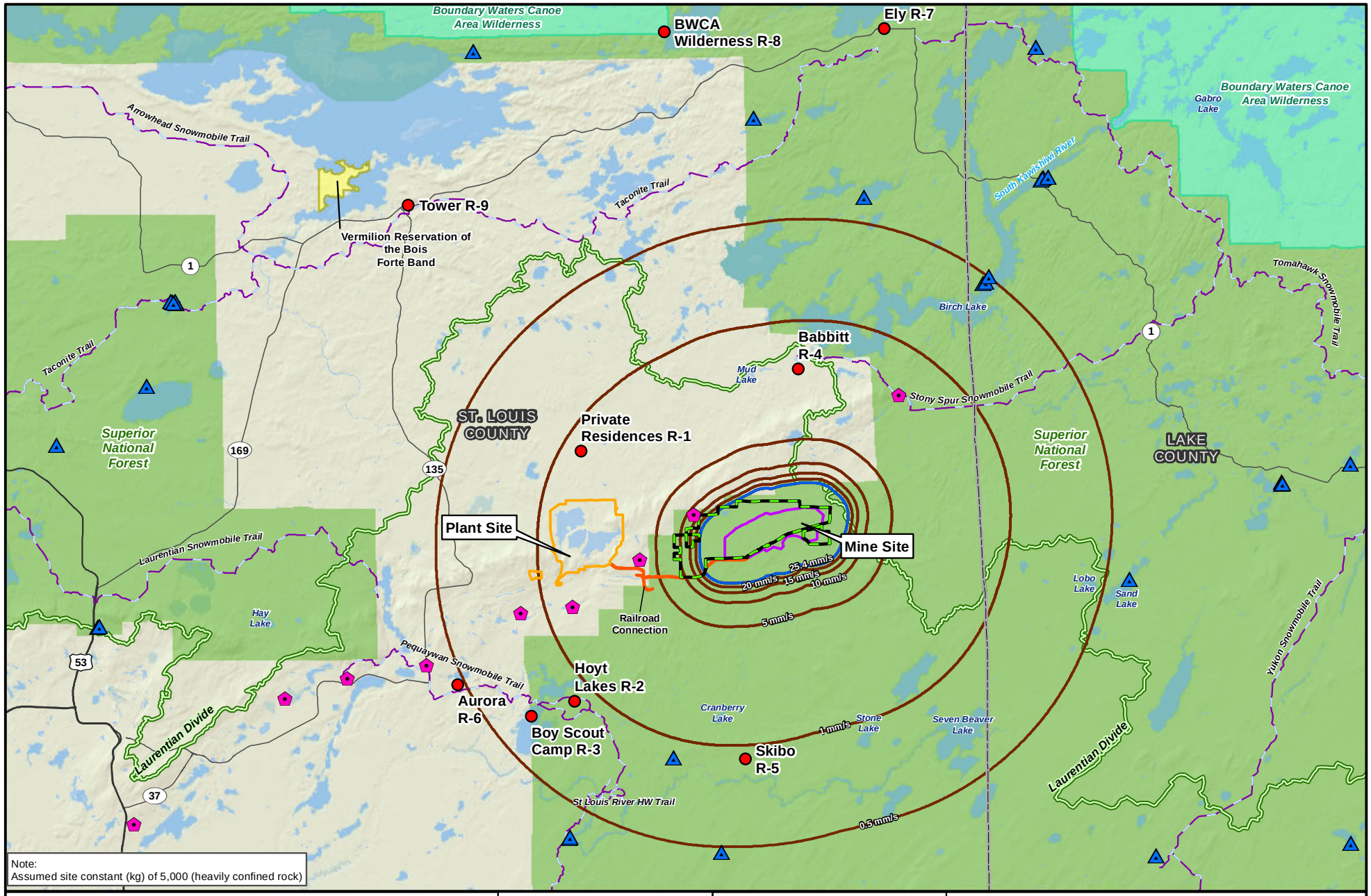

Figure 5.2.8-1
Predicted Ground Vibration Contours from Blasting at the Mine Site
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The environmental effects of blasting at non-ferrous mining operations are regulated by the MDNR to ensure that the effects of ground vibrations from production blasts would not be detrimental to human health or welfare or property outside the mining area. According to *Minnesota Rules*, part 6132.2900, subpart 2, the maximum PPV from blasting shall not exceed 1 in/s (25.4 mm/s) at the location of a structure located on lands not owned or controlled by the permittee. Assuming a worst-case K_g of 5,000 (heavily confined rocks) and 3,388 kg (7,471 lbs) of explosives per blast hole, the limiting distance for blasts at ground vibration levels of 25.4 mm/s (1 in/s) is 1,581 meters (0.98 mile) and the impact area for this Minnesota ground vibration limit is approximately 11,334 acres (see Table 5.2.8-5; Figure 5.2.8-1). None of the human or structural receptors (off-site) are located within this ground vibration impact area. The maximum ground vibration level for the closest human or structural receptor in the City of Babbitt, 6.5 miles north of the Mine Site, from the blast site is predicted to be on the order of 1.24 mm/s (0.05 in/s). The predicted ground vibration at all nearby human and structural receptors resulting from blasting at the Mine Site would be well below the applicable limits in Minnesota. Blasting would not occur at night.

For Mine Site infrastructure, assuming a worst-case K_g of 5,000 (heavily confined rocks) and 3,388 kg (7,471 lbs) of explosives per blast hole, the limiting distance for blasts at ground vibration levels ranging from 100 to 300 mm/s (3.93 to 11.8 in/s) are 671 and 338 meters (0.42 and 0.21 miles), respectively. Most of the Mine Site infrastructure is outside the calculated limiting distance for blasts; however, some infrastructure, such as the transmission lines and process water pipes, may be located around the mine pit edges (see Figures 3.2-5 to 3.2-8) and could be within these limiting distances if blasting were conducted at the mine pit edges. Because this is a conservative worst-case assessment, PolyMet would be required to construct and maintain their own facilities to withstand expected vibration levels and meet city code requirements. Ground vibration could be controlled at these locations (i.e., infrastructure around mine pit edges) by limiting the charge mass per hole.

Figure 5.2.8-1 shows that there are no residences, recreational sites, trails, or MPCA staff recommended wild rice waters within the Minnesota ground vibration impact area (i.e., the Minnesota ground vibration limit of 25.4 mm/s, which is the blue contour line on the figure [11,334 acres]). The closest recreational site is a family picnic area located approximately 9 miles south of the Mine Site and Plant Site (near Skibo). This family picnic area as well as other recreational sites located further away such as those near Birch Lake and South Kawishiwi River are outside the impact area. The closest wildlife corridor located northeast of the Mine Site is also outside the impact area. The Upper St. Louis River contains wild rice beds used by tribal members for traditional resource harvests. The wild rice beds are usually in close proximity to draft MPCA staff-recommended wild rice waters such as Mud Lake and Birch Lake (north of Mine Site), Lobo Lake and Sand Lake (east of Mine Site), Stone Lake and Seven Beaver Lake (southeast of Mine Site), Cranberry Lake (south of Mine Site), and Hay Lake (west of Plant Site). There are no wild rice beds or draft MPCA staff-recommended wild rice waters within the impact area.

Though not depicted on Figure 5.2.8-1 due to sensitivity regarding cultural resources and locations, three archaeological sites have been identified within the NorthMet Project area: Spring Mine Lake Sugarbush, *Mesabe Widjiu* [Laurentian Divide], and BBLV Trail Segment #1 (USFS #01-569). The Spring Mine Lake Sugarbush and the *Mesabe Widjiu* are located more than 2 miles away from the Mine Site (approximately 1 mile from the Plant Site). Since ground

vibration impacts from blasting at the Mine Site would be experienced less than a mile from the blast site, both archaeological sites are expected to be outside the ground vibration impact area (11,334 acres). The Partridge River Segment of the BBLV Trail, used by the Ojibwe people for hundreds of years, remains an important cultural and spiritual connection for the Bands. The BBLV Trail Segment #1 (USFS #01-569) crosses the NorthMet Project area. Portions of the trail segment that cross the Mine Site are expected to be within the ground vibration impact area and may experience ground vibration levels close to the Minnesota standards. Details of the location and uses of the archaeological sites are discussed in Section 4.2.9, Cultural Resources.

Based on the information above, ground vibration levels from mine blasting are expected to be below the Minnesota ground vibration standards for humans and off-site structures (*Minnesota Rules*, part 6132.2900, subpart 2), including people that use the Superior National Forest for recreational activities such as family campgrounds, camp sites, fishing, boating, swimming, and family picnic areas. Immediate access to areas around the Mine Site would be restricted, but tribal members who may have a cultural and spiritual connection to archaeological sites in the Superior National Forest, in areas immediately near the mine, may occasionally experience ground vibration associated with the NorthMet Project Proposed Action. Mitigation measures for the impacted cultural resource areas are discussed in Section 5.2.9, Cultural Resources. During the closure and post-closure phases (i.e., after year 20), blasting at the Mine Site would cease, so no blast-related ground vibration would occur. Machinery, such as planters used to restore and rehabilitate the Mine Site during the closure phase, would not generate a significant amount of ground vibration. Therefore, potential ground vibration levels during the closure and post-closure phases are expected to be below the Minnesota ground vibration standards for humans and structures (*Minnesota Rules*, part 6132.2900, subpart 2).

Airblast Overpressure from Blasting at the Mine Site

The airblast overpressure (or blasting noise) effect from the Mine Site was assessed using the Terrock model, as described in Section 5.2.8.1. Using this analytical method for ore and/or waste rock blasts at the Mine Site, the 120 dBL distance for the assumed blast specifications is a maximum of 3,451 meters (2.2 miles) in front of the blast (see Table 5.2.8-6). The incremental distances for airblast overpressure levels from 100 to 130 dBL were calculated using an attenuation rate of a 9 dBL decrease per doubling of distance (Terrock Consulting Engineers 2009). Airblast contours for these overpressure levels from blasting at the Mine Site are shown on Figure 5.2.8-2.

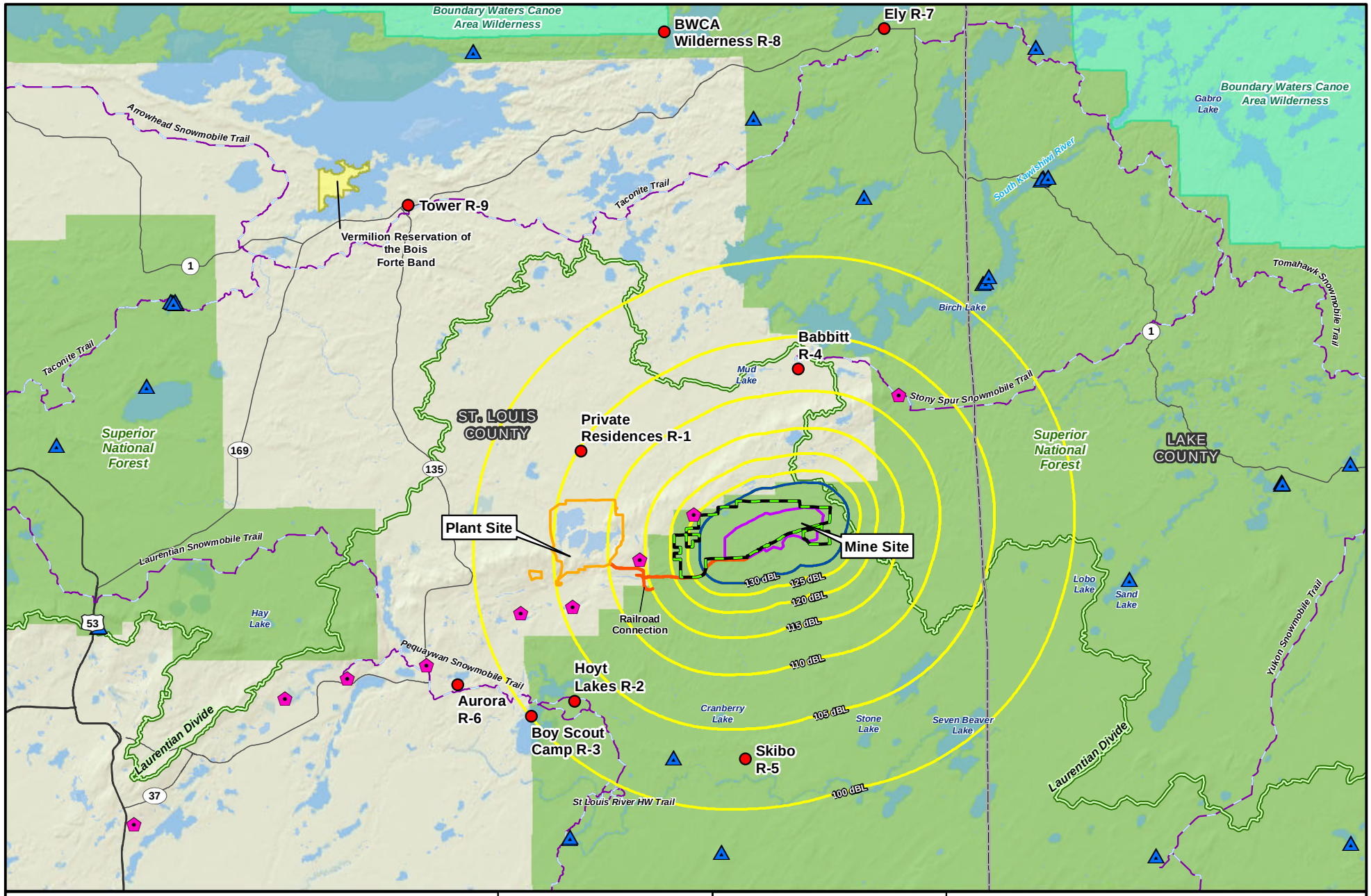

Figure 5.2.8-2
Predicted Airblast Contours from Blasting at the Mine Site
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Table 5.2.8-6 Limiting Distances for Ore and Waste Rock Blasts at Incremental Airblast Overpressure Levels

Hole Diameter, d (mm)	Burden, B (mm)	Charge Mass per Hole, M (kg/hole)	Distance to the 120 dBL Contour, D_{120} (m)	Distance to the 130 dBL Contour, D_{130} (m)	Distance to the 125 dBL Contour, D_{125} (m)	Distance to the 115 dBL Contour, D_{115} (m)	Distance to the 110 dBL Contour, D_{110} (m)	Distance to the 105 dBL Contour, D_{105} (m)	Distance to the 100 dBL Contour, D_{100} (m)
311	8,839	3,388	3,451	1,602	2,351	5,065	7,434	10,912	16,016

Note:
Based on the computed distance for the 120 dBL contours, the distances for the other airblast contour levels (130 dBL, 125 dBL, 115 dBL, 110 dBL, 105 dBL, and 100 dBL) were calculated using an attenuation rate of 9 dBL decrease per doubling of distance.

As with ground vibration, the environmental effects of airblasts are regulated by the MDNR. According to *Minnesota Rules*, part 6132.2900, subpart 2, air overpressure on lands not owned or controlled by the permittee shall not exceed 130 dBL. The distance from the Mine Site to the 130 dBL compliance level is 1,602 meters (1 mile) and the impact area for this Minnesota airblast overpressure limit is approximately 11,469 acres. None of the receptors (buildings or structures) is close enough to the Mine Site to achieve this level of exposure (Figure 5.2.8-2). The maximum airblast overpressure level for the closest receptor in the City of Babbitt is predicted to be approximately 106 dBL. The predicted airblast overpressures at all nearby receptors resulting from blasting activities at the Mine Site would be below the applicable limits in Minnesota. Blasting would not occur at night.

Figure 5.2.8-2 shows that there are no residences, recreational sites, trails, or state wild rice beds within the Minnesota airblast overpressure impact area (11,469 acres). The closest recreational site is a family picnic area located approximately 9 miles south of the Mine Site and Plant Site (near Skibo). This family picnic area as well as other recreational sites located further away such as those near Birch Lake and South Kawishiwi River are outside the impact area. The closest wildlife corridor located northeast of the Mine Site is also outside the impact area.

Though not depicted on Figure 5.2.8-2 due to sensitivity regarding cultural resources and locations, three archaeological sites have been identified within the NorthMet Project area: Spring Mine Lake Sugarbush, *Mesabe Widjiu* [Laurentian Divide], and BBLV Trail Segment #1 (USFS #01-569). The Spring Mine Lake Sugarbush and the *Mesabe Widjiu* are located more than 2 miles away from the Mine Site and (approximately 1 mile from the Plant Site). Since airblast impacts from blasting at the Mine Site would be experienced approximately 1 mile from the blast site, both archaeological sites would be outside the airblast impact area (11,469 acres). As noted previously, the BBLV Trail Segment #1 (USFS #01-569) crosses the NorthMet Project area. Portions of the trail segment that cross the Mine Site would be within the airblast impact area and may experience airblast levels close to the Minnesota standards. Details of the location and uses of the archaeological sites are discussed in Section 4.2.9, Cultural Resources.

Based on the information above, airblast overpressure levels from mine blasting would be below the Minnesota airblast standards for humans and structures (*Minnesota Rules*, part 6132.2900, subpart 2); including people that use the Superior National Forest for recreational activities such as family campgrounds, camp sites, hiking, fishing, boating, swimming, and family picnic areas. Immediate access to areas around the mine would be restricted, but tribal members who may have a cultural and spiritual connection to archaeological sites in the Superior National Forest, in

areas immediately near the mine, may occasionally experience airblast overpressures associated with the NorthMet Project Proposed Action. Mitigation measures for the impacted cultural resource areas are discussed in Section 5.2.9, Cultural Resources.

During the closure and post-closure phases (i.e., after year 20), blasting at the Mine Site would cease, so no airblast overpressures would occur during the closure and post-closure phases.

Vibration and Airblast Overpressure from Rail Transport

The transport of ore via trains from the Mine Site to the Plant Site could generate ground vibration within a few ft of the rail ROW, but due to the low volume of trains, such vibration levels are expected to be below the Minnesota ground vibration standards for humans and structures (*Minnesota Rules*, part 6132.2900, subpart 2). No blasting would occur along the Transportation and Utility Corridor, so ground vibration or airblast overpressure effects are not expected in this area.

Vibration and Airblast Overpressure at Plant Site

The crushers, water pumps (near the Tailings Basin) and other large stationary equipment that would be located at the Plant Site are designed to ensure that potential ground vibration effects are minimized to acceptable levels. Therefore, during operation, vibration levels at the receptors closest to the Plant Site would be below the Minnesota vibration standards for humans and structures (*Minnesota Rules*, part 6132.2900, subpart 2). No blasting would occur at the Plant Site, so ground vibration or airblast overpressure effects are not expected.

5.2.8.2.3 Total Noise Effects from NorthMet Project Proposed Action Operations

To determine the combined noise effect of the NorthMet Project Proposed Action, the total noise generated from operations at both the Mine Site and Plant Site was logarithmically added to the existing ambient daytime and nighttime baseline levels. Noise effects from rail transport were also assessed, but qualitatively.

Operations at the Mine Site and Plant Site would occur 24 hours per day. The total noise that would be experienced at any receptor location during the daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.) would be equal to the combined noise from both the mining and hauling operations at the Mine Site and the ore-crushing operations at the Plant Site, plus baseline noise levels.

Decibels are logarithmic values, so calculating the additive effect of two separate noise sources is a logarithmic calculation rather than an algebraic addition. This means that individual sound levels cannot be added directly to get the combined sound level. This also means that the greater the distance between two sound levels, the smaller the effect the lesser dB level would have on the total sound level.

The total noise associated with NorthMet Project Proposed Action operations when mining, hauling, and ore-crushing operations occur concurrently was calculated using data from Tables 5.2.8-3 (Mine Site) and 5.2.8-4 (Plant Site), along with baseline noise levels, and is summarized in Table 5.2.8-7. The calculations for daytime and nighttime noise levels are presented for comparison with the Minnesota noise standards. Aside from comparison to absolute noise limits, the NorthMet Project Proposed Action was also evaluated based on projected noise increases above baseline levels (i.e., 3 dB threshold of perception per MPCA 2008a). In all cases, the

NorthMet Project Proposed Action, when in operation, would comply with the applicable standard. Figures 5.2.8-3, 5.2.8-4, 5.2.8-5, and 5.2.8-6 show L_{50} and L_{10} noise contours at 5 dBA intervals during the daytime and nighttime.

Table 5.2.8-7 Total Noise Associated with Concurrent Operations at the Mine Site and Plant Site (includes Baseline Levels)

	Daytime and Nighttime Baseline Noise Levels (dBA)			**Daytime Noise Levels at Closest Receptors to Mine Site and Plant Site Operations (plus Baseline Levels)[1], (dBA)**			**Nighttime Noise Levels at Closest Receptors to Mine Site and Plant Site Operations (plus Baseline Levels), (dBA)**			**Minnesota Daytime and Nighttime Noise Standards for Residential Areas (dBA)**		
Receptor	**L_{eq}**	**L_{50}**	**L_{10}**	**L_{eq}**	**L_{50}**	**L_{10}**	**L_{eq}**	**L_{50}**	**L_{10}**	**L_{eq}**	**L_{50}**	**L_{10}**
Private Residences (R-1)	45.0 dBA (D); 35.0 dBA (N)	44.0 dBA (D); 34.0 dBA (N)	48.8 dBA (D); 37.8 dBA (N)	45.0	44.0	48.8	35.1	34.1	37.9	NA	60.0 dBA (D); 50.0 dBA (N)	65.0 dBA (D); 55.0 dBA (N)
Hoyt Lakes (R-2)	45.0 dBA (D); 35.0 dBA (N)	44.0 dBA (D); 34.0 dBA (N)	48.8 dBA (D); 37.8 dBA (N)	45.0	44.0	48.8	35.0	34.0	37.8	NA	60.0 dBA (D); 50.0 dBA (N)	65.0 dBA (D); 55.0 dBA (N)
Boy Scout Camp (R-3)	45.0 dBA (D); 35.0 dBA (N)	44.0 dBA (D); 34.0 dBA (N)	48.8 dBA (D); 37.8 dBA (N)	45.0	44.0	48.8	35.0	34.0	37.8	NA	60.0 dBA (D); 50.0 dBA (N)	65.0 dBA (D); 55.0 dBA (N)
Babbitt (R-4)	45.0 dBA (D); 35.0 dBA (N)	44.0 dBA (D); 34.0 dBA (N)	48.8 dBA (D); 37.8 dBA (N)	45.0	44.0	48.8	35.0	34.0	37.8	NA	60.0 dBA (D); 50.0 dBA (N)	65.0 dBA (D); 55.0 dBA (N)
Skibo (R-5)	45.0 dBA (D); 35.0 dBA (N)	44.0 dBA (D); 34.0 dBA (N)	48.8 dBA (D); 37.8 dBA (N)	45.0	44.0	48.8	35.0	34.0	37.8	NA	60.0 dBA (D); 50.0 dBA (N)	65.0 dBA (D); 55.0 dBA (N)
Aurora (R-6)	45.0 dBA (D); 35.0 dBA (N)	44.0 dBA (D); 34.0 dBA (N)	48.8 dBA (D); 37.8 dBA (N)	45.0	44.0	48.8	35.0	34.0	37.8	NA	60.0 dBA (D); 50.0 dBA (N)	65.0 dBA (D); 55.0 dBA (N)
Ely (R-7)	45.0 dBA (D); 35.0 dBA (N)	44.0 dBA (D); 34.0 dBA (N)	48.8 dBA (D); 37.8 dBA (N)	45.0	44.0	48.8	35.0	34.0	37.8	NA	60.0 dBA (D); 50.0 dBA (N)	65.0 dBA (D); 55.0 dBA (N)
BWCA Wilderness (R-8)	34.0 dBA (D); 34.0 dBA (N)	23.4 dBA (D); 23.4 dBA (N)	33.2 dBA (D); 33.2 dBA (N)	34.0	23.4	33.2	34.0	23.4	33.2	NA	60.0 dBA (D); 50.0 dBA (N)	65.0 dBA (D); 55.0 dBA (N)
Tower (R-9)	45.0 dBA (D); 35.0 dBA (N)	44.0 dBA (D); 34.0 dBA (N)	48.8 dBA (D); 37.8 dBA (N)	45.0	44.0	48.8	35.0	34.0	37.8	NA	60.0 dBA (D); 50.0 dBA (N)	65.0 dBA (D); 55.0 dBA (N)

Notes:

D= Daytime; N = Nighttime; NA = Not applicable (there are no L_{eq} standards for noise under the Minnesota Noise Standards).

[1] Total noise levels during daytime and nighttime were estimated by logarithmically adding the predicted noise levels from operations at the Mine Site (Table 5.2.8-3) and Plant Site (Table 5.2.8-4) with the existing baseline noise levels (baseline levels are provided in Table 4.2.8-3).

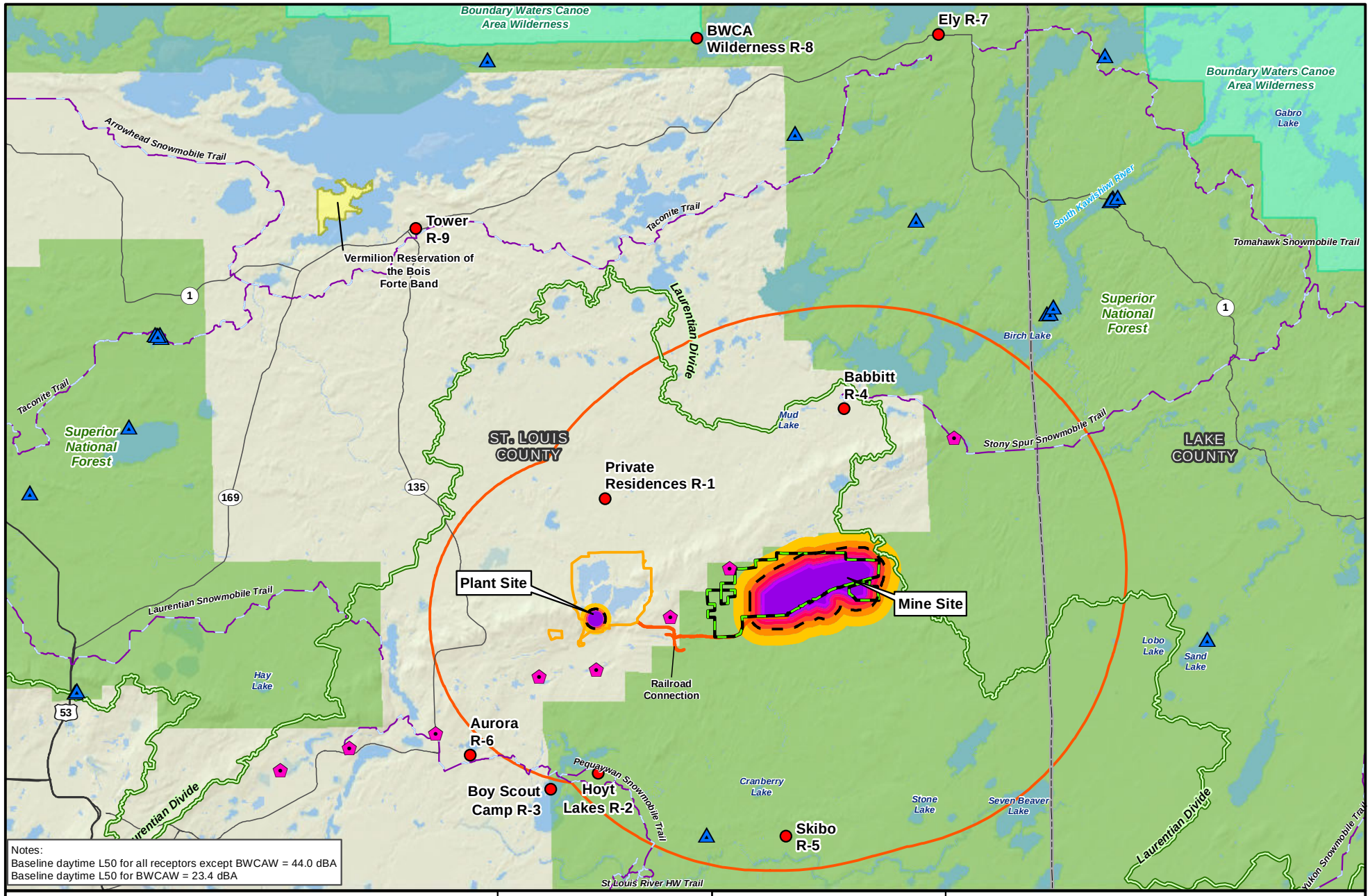

Figure 5.2.8-3

Predicted Daytime L50 Noise Contours at Closest Receptors (Includes Baseline L50 Levels)

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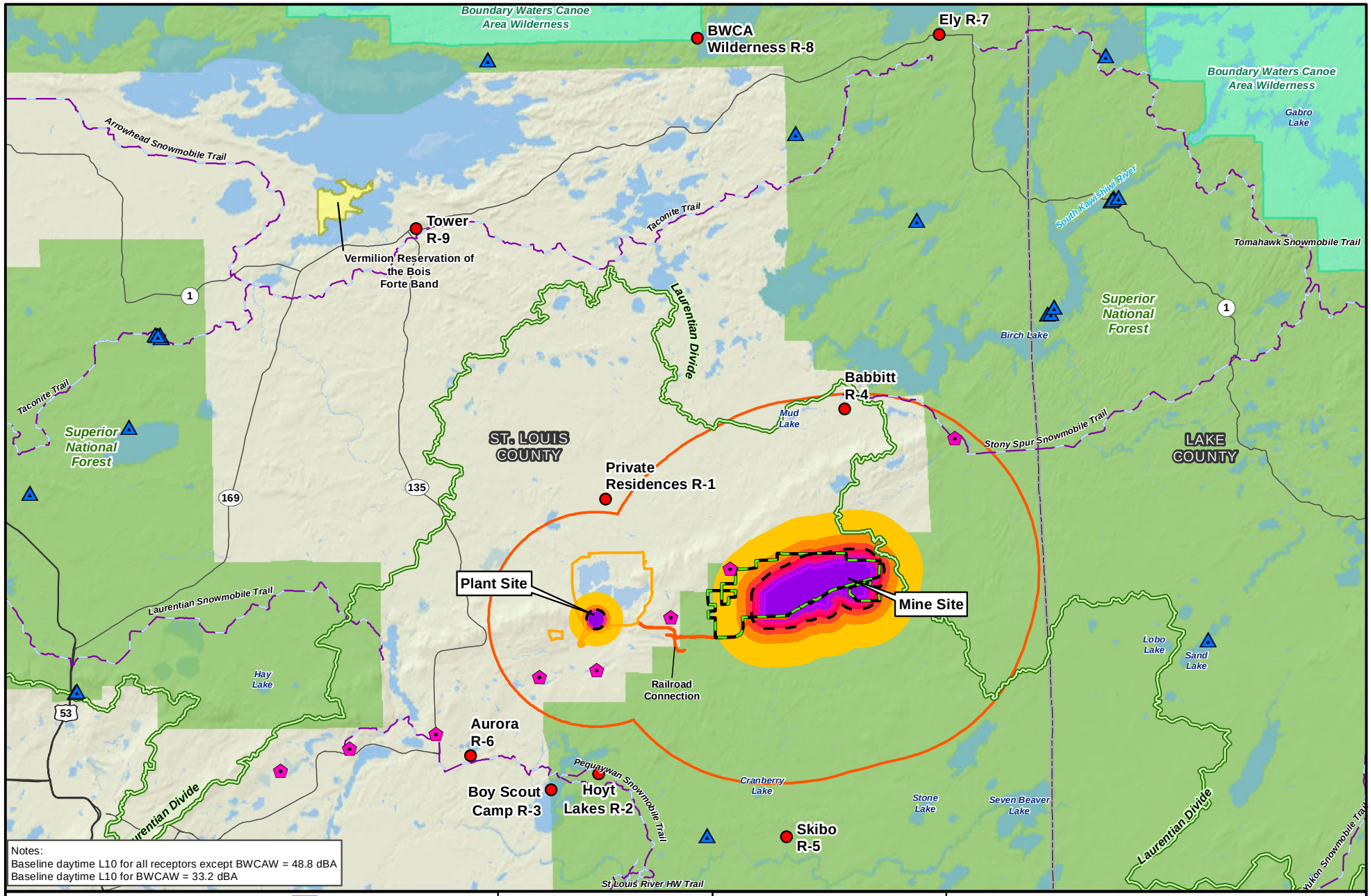

Figure 5.2.8-4

Predicted Daytime L10 Noise Contours at Closest Receptors (Includes Baseline L10 Levels)

NorthMet Mining Project and Land Exchange FEIS
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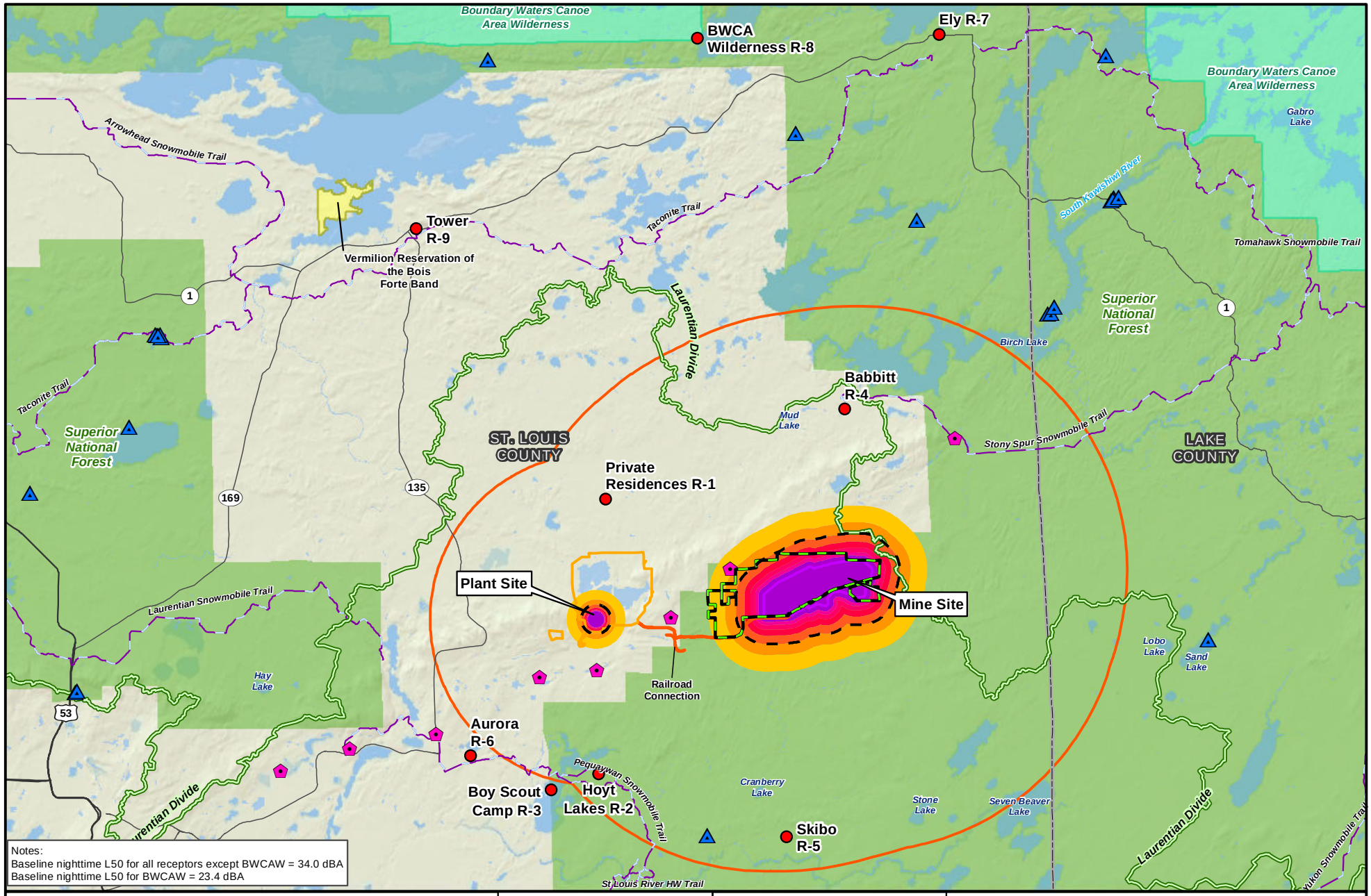

Figure 5.2.8-5

Predicted Nighttime L50 Noise Contours at Closest Receptors (Includes Baseline L50 Levels)

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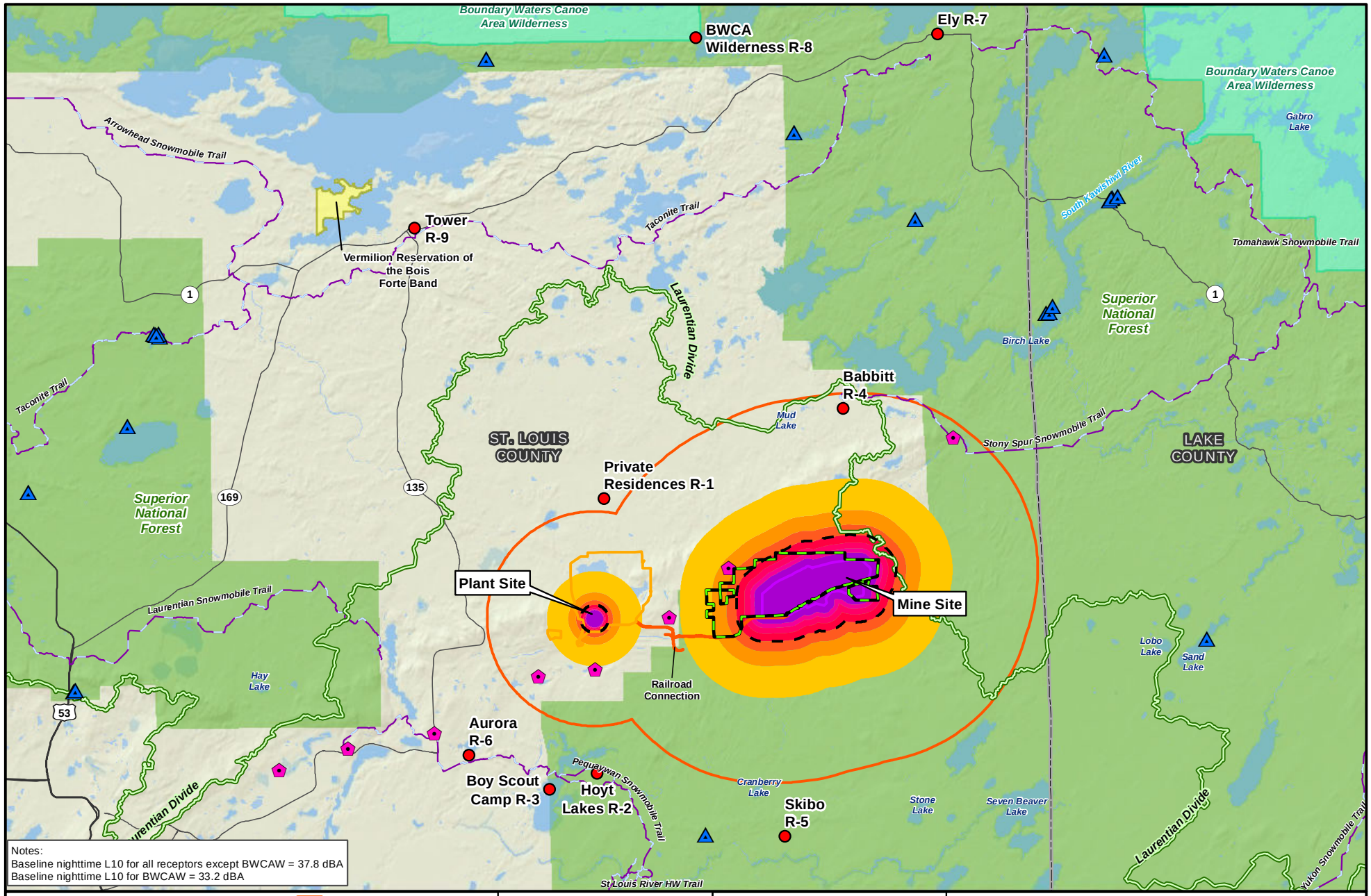

Notes:
Baseline nighttime L10 for all receptors except BWCAW = 37.8 dBA
Baseline nighttime L10 for BWCAW = 33.2 dBA

Noise Sensitive Receptor
Federal Lands
Plant Site
Mine Site
Transportation and Utility Corridor
Native American Reservation
Boundary Waters Canoe Area Wilderness
National Forest
MN L10 Nighttime Noise Standard: 55 dBA
L10 Audibility Limit
Wildlife Travel Corridor
Recreational Site
L10 dBA Levels
40-44.9
45-49.9
50-54.9
55-59.9
60-64.9
65-69.9
70+

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

0 1 2 4 6 Miles

Figure 5.2.8-6
Predicted Nighttime L10 Noise Contours at Closest Receptors (Includes Baseline L10 Levels)
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Daytime Operation Impacts (7 a.m. to 10 p.m.)

Table 5.2.8-7 and Figures 5.2.8-3 and 5.2.8-4 present the total estimated daytime L_{50} and L_{10} levels that would be experienced at the closest receptors to the Mine Site and Plant Site. Noise from Mine Site and Plant Site operations, plus baseline levels, are predicted to be well below the Minnesota daytime noise standards of 60 dBA (L_{50}) and 65 dBA (L_{10}) for residential areas, trails, recreational sites (family campgrounds, campsites, boating, fishing, swimming, and family picnic areas), and draft MPCA staff-recommended wild rice waters and beds (used by tribal members for traditional resource harvests).

As an example of how the total noise level is calculated, the L_{50} daytime level of 44 dBA for private residences shown in Table 5.2.8.7 is the result of adding 10.9 dBA (daytime L_{50} levels from Mine Site operations only, excluding Plant Site operations and baseline levels), 13.5 dBA (daytime L_{50} levels from Plant Site operations only, excluding Mine Site operations and baseline levels), and 44 dBA, which is the assumed daytime L_{50} baseline level. The result of the logarithmic addition indicates that noise from the Mine Site and Plant Site has no measureable effect on the baseline conditions of the closest receptors. Figure 5.2.8-3 shows that the daytime L_{50} impact area for the closest receptors would be 6,629 and 255 acres at the Mine Site and Plant Site, respectively. Similarly, Figure 5.2.8-4 shows that the daytime L_{10} impact area for the closest receptors would be 6,266 and 242 acres at the Mine Site and Plant Site, respectively. These receptors are well outside the daytime impact areas. The closest recreational site is a family picnic area located approximately 9 miles south of the Mine Site and Plant Site (near Skibo). This family picnic area as well as other recreational sites located further away such as those near Birch Lake and South Kawishiwi River are outside the daytime impact area.

The Upper St. Louis River contains wild rice beds harvested by tribal members. The wild rice beds are usually in close proximity to draft MPCA staff-recommended wild rice waters such as Mud Lake and Birch Lake (north of Mine Site), Lobo Lake and Sand Lake (east of Mine Site), Stone Lake and Seven Beaver Lake (southeast of Mine Site), Cranberry Lake (south of Mine Site), and Hay Lake (west of Plant Site). Details of the location and uses of the cultural/tribal resource areas are discussed in Section 4.2.9, Cultural Resources.

The closest wildlife corridor located northeast of the Mine Site is also outside the daytime impact area. The highest daytime noise levels, including baseline levels, predicted for the closest NAC 1 receptor to the Mine Site (i.e., Babbitt (R-4)) were 44 dBA (L_{50}) and 48.8 dBA (L_{10}). The daytime noise effect of the Mine Site on Babbitt is an increase of 0 dBA (L_{50}) and 0 dBA (L_{10}) from baseline levels. Similarly, the highest daytime noise levels, including baseline levels, predicted for the closest NAC 1 receptor to the Plant Site (i.e., Private Residences (R-1)) were 44 dBA (L_{50}) and 48.8 dBA (L_{10}). The daytime noise effect of the Plant Site on the private residences is an increase of 0 dBA (L_{50}) and 0 dBA (L_{10}) from baseline levels. This 0 dBA increase is below the 3 dBA threshold of perception per the MCPA's *Guide to Noise Control in Minnesota* (MPCA 2008a) and would not be perceptible to residents, recreational users, or tribal members that use the draft MPCA staff-recommended wild rice waters and beds for harvesting purposes.

As discussed earlier, noise from trains and train horns during ore transportation during the day from the Mine Site to the Plant Site is expected to be minimal because the railroad route between the two is approximately 4 to 5 miles from the nearest receptors. Up to 22 trains per day are expected to deliver ore to the Plant Site. This frequency of traffic is less than that experienced on the rail line during past mining operations.

Blasting at the Mine Site is a source of impulsive or non-continuous noise. Blasting noise is not included in the noise level estimates shown in Table 5.2.8-7 because mine-blasting is typically an instantaneous event (not continuous or steady), and would occur only during daytime periods. PolyMet expects that blasting of ore and waste rock would take place approximately once every 2 or 3 days. This would usually include separate blasts of ore and waste rock benches. Rock-blasting could potentially have noise levels ranging from 111 to 115 dBA at 50 ft from the blasting site. With modern blasting techniques, the blasting would be experienced by the nearest receptors as a faint warning whistle or siren, followed by a very brief, muted clap of thunder.

Public acceptance is generally improved by scheduling blasting at the same time every day to further reduce the startle factor. The closest receptor (City of Babbitt) is located 6.5 miles from the Mine Site, so noise effects from blasting are not expected to be significant. In addition, noise effects from blasting would only occur during the early stages of mining, when blasting occurs at the surface down to a few ft below ground levels. As the depth of the pit increases over the life of the mine, noise effects from blasting would be attenuated by the pit walls.

Though not depicted on Figures 5.2.8-3 and 5.2.8-4 due to sensitivity regarding cultural resources and locations, three archaeological sites have been identified within the NorthMet Project area: Spring Mine Lake Sugarbush, *Mesabe Widjiu* [Laurentian Divide], and BBLV Trail Segment #1 (USFS #01-569). The Spring Mine Lake Sugarbush and the *Mesabe Widjiu* are located more than 2 miles away from the Mine Site and approximately 1 mile from the Plant Site (approximated 2 miles from the plant crushers). Based on these distances, both archaeological sites are expected to be outside the daytime noise impact area for the Mine Site (6,629 acres) and Plant Site (255 acres). As noted previously, the BBLV Trail Segment #1 (USFS #01-569) crosses the NorthMet Project area. Portions of the trail segment that cross the Mine Site and Plant Site are expected to be within the daytime impact area and may experience daytime noise levels close to the Minnesota standards.

Details of the location and uses of the archaeological sites are discussed in Section 4.2.9, Cultural Resources.

Nighttime Operation Impacts (10 p.m. to 7 a.m.)

Table 5.2.8-7 and Figures 5.2.8-5 and 5.2.8-6 indicate that the total estimated nighttime L_{50} and L_{10} levels that would be experienced at the receptors closest to the Mine Site and Plant Site are expected to be below the Minnesota nighttime noise standards of 50 dBA (L_{50}) and 55 dBA (L_{10}). Figure 5.2.8-5 shows that the nighttime L_{50} impact areas for the closest residential areas, trails, draft MPCA staff-recommended wild rice waters (used by tribal members for traditional resource harvests), and recreational sites would be 11,456 acres and 568 acres at the Mine Site and Plant Site, respectively.

Similarly, Figure 5.2.8-6 shows that the nighttime L_{10} impact areas for the closest residential areas, trails, draft MPCA staff-recommended wild rice waters, and recreational sites would be 10,695 acres and 503 acres at the Mine Site and Plant Site, respectively. These receptors are well outside the nighttime impact areas. As indicated above, the closest recreational site is a family picnic area located approximately 9 miles south of the Mine Site and Plant Site (near Skibo). This family picnic area as well as other recreational sites located further away such as those near Birch Lake and South Kawishiwi River are outside the nighttime impact area. There are no draft MPCA staff-recommended wild rice waters or beds within the nighttime impact area. Details of the location and use of cultural/tribal resource areas are discussed in Section 4.2.9 and 5.2.9. The closest wildlife corridor located northeast of the Mine Site is also outside the impact area. The highest nighttime L_{50} and L_{10} levels, including baseline levels, predicted for the closest receptor to the Mine Site (i.e., Babbitt (R-4)) were 34 dBA and 37.8 dBA, respectively. The nighttime noise effect of Mine Site operations on Babbitt is a net increase of 0 dBA (L_{50}) and 0 dBA (L_{10}) from baseline levels. Similarly, the highest nighttime L_{50} and L_{10} levels, including baseline levels, predicted for the closest receptor to the Plant Site (i.e., Private Residences (R-1)) were 34.1 dBA and 37.9 dBA, respectively. The nighttime noise effect of the Plant Site on the private residences is an increase of 0.1 dBA (L_{50}) and 0.1 dBA (L_{10}) from baseline levels. This increase of 0.1 dBA is below the 3 dBA threshold of perception per the MCPA's *Guide to Noise Control in Minnesota* (MPCA 2008a) and would not be perceptible to residents, recreational users, and tribal members that use draft MPCA staff-recommended wild rice waters and beds for traditional resource harvests. It should be noted that the noise model conservatively assumes that all mine equipment shown in Table 5.2.8-2 would be operating simultaneously during daytime and nighttime. Under actual conditions, the predicted noise levels would be lower because not all equipment would be operating simultaneously and some equipment would not operate at all during nighttime.

Though not depicted on Figures 5.2.8-5 and 5.2.8-6 due to sensitivity regarding cultural resources and locations, three archaeological sites have been identified within the NorthMet Project area: Spring Mine Lake Sugarbush, *Mesabe Widjiu* [Laurentian Divide], and BBLV Trail Segment #1 (USFS #01-569). The Spring Mine Lake Sugarbush and the *Mesabe Widjiu* are located more than 2 miles from the Mine Site and approximately 1 mile from the Plant Site (approximated 2 miles from the plant crushers). Based on the distances, both archaeological sites are expected to be outside the nighttime noise impact areas for the Mine Site (11,456 acres) and Plant Site (568 acres). As noted previously, the BBLV Trail Segment #1 (USFS #01-569) crosses the NorthMet Project area. Portions of the trail segment that cross the Mine Site and Plant Site are expected to be within the nighttime impact area and may experience nighttime noise levels close to the Minnesota standards. Details of the location and uses of the archaeological sites are discussed in Section 4.2.9, Cultural Resources.

Mine-blasting and ore transportation via trains along the Transportation and Utility Corridor would not occur between 10 p.m. and 7 a.m., so there would not be noise effects associated with these activities at night.

Summary of Daytime and Nighttime Operation Noise Impacts

Based on the information above, the total predicted daytime and nighttime noise (L_{50} and L_{10}) level experienced at NAC 1 areas such as the closest residential areas (the City of Babbitt north of the Mine Site, and private residences located north of the Plant Site), trails, recreational sites

(including recreational sites at Birch Lake and South Kawashiwi River), and draft MPCA staff-recommended wild rice waters and beds used by tribal members for traditional resource harvests would meet the Minnesota daytime and nighttime noise standards. In addition, the projected noise increase above baseline levels would be below the 3 dBA threshold of perception. Immediate access to areas around the mine would be restricted, but tribal members who may have a cultural and spiritual connection to archaeological sites in the Superior National Forest, in areas immediately near the Mine Site or Plant Site, may occasionally experience noise associated with the NorthMet Project Proposed Action. Mitigation measures for the impacted cultural resource areas are discussed in Section 5.2.9, Cultural Resources.

During closure and post-closure (i.e., after year 20), the major noise sources and activities at the Mine Site and Plant Site (e.g., drilling, blasting, mining, excavation work, hauling, and crushing operations) would cease. Progressive reclamation would occur throughout the 20-year mine life for features such as the permanent stockpile and pit areas at the Mine Site and at the exterior slopes of the Tailings Basin at the Plant Site. This would leave a smaller portion of the Mine Site and Plant Site needing to be reclaimed at closure. During the closure phase, machinery, such as planters, used to restore and/or rehabilitate the Mine Site and Plant Site and conduct other reclamation activities (e.g., structure demolition, dike removal, etc.) would generate some noise; however, such noise would occur over a short time period and mostly during daytime periods when increased noise levels would be more tolerable. Therefore, noise levels at the Mine Site and Plant Site during the closure and post-closure phases are expected to be below the Minnesota noise standards and below the 3 dBA threshold of perception.

Area of Audibility for the Boundary Waters Canoe Area Wilderness

The L_{50} audibility area would be approximately 247,612 acres around the Mine Site and Plant Site, assuming all noise sources are operating simultaneously during daytime and nighttime (Figure 5.2.8-3 and 5.2.8-5). Similarly, the L_{10} audibility area would be approximately 131,035 acres around the Mine Site and Plant Site, assuming all noise sources are operating simultaneously during daytime and nighttime (see Figures 5.2.8-4 and 5.2.8-6). The BWCAW is outside this area of audibility. Therefore, sound from the Mine Site and Plant Site operations would not be audible at the BWCAW. While some receptors (e.g., residential areas like Babbitt and Hoyt Lakes and a family picnic area near Skibo) are within this area of audibility shown on Figures 5.2.8-3 to 5.2.8-6, it should be noted that the area of audibility was calculated based on the low measured baseline levels for BWCAW, which is a place of natural quiet (L50 of 23.4 dBA and L10 of 33.2 dBA). The baseline levels for the recreational sites and residential areas are likely higher than the BWCAW baseline levels (though actual measurements have not been taken at these areas), so actual area of audibility for these other receptors would be much smaller than that for BWCAW.

Noise Effects on Off-Site Transportation

Transportation of NorthMet Project Proposed Action consumables and products could result in some noise from increased traffic on public roads and commercial railroads. Public roads could also experience minor increase in noise levels due to additional traffic from employees and service providers, particularly along State Highway 135 and County Road 666.

Traffic noise from employee vehicles, service provider vehicles, and trucks transporting process consumables and products result in a small increase in daily traffic volumes (approximately 7

trucks per day and 149 employee and service provider vehicles per day along State Highway 135; and approximately 42 employee and service provider vehicles per day along County Road 666 [see BA provided in Appendix D]) in comparison to the existing annual average daily traffic (AADT) volumes of State Highway 135 and County Road 666. Based on AADT data that Barr Engineering Company obtained from the Minnesota Department of Transportation (Barr 2014a), the NorthMet Project offsite traffic volumes are approximately 2 to 18 percent and 5 to 30 percent of existing AADT at State Highway 135 (850 to 8300 vehicles per day) and County Road 666 (140 to 810 vehicles per day), respectively.

Similarly, railway noise from trains carrying process consumables and concentrates from the Plant Site to Virginia, Minnesota, and/or vice versa (via Canadian National Railroad) are not expected to be significant due to the small increase in monthly railway traffic volumes (approximately 100-car train once per month and a 30-car train four times per month, year round, for product shipment; and approximately 100-car train once per week, April through October, for process consumables [see BA provided in Appendix D]) in comparison to the existing monthly traffic volumes of the Canadian National Railroad. Based on existing rail traffic information that Barr Engineering Company obtained from Canadian National Railway Company (Barr, Pers. Comm., November 6, 2014) the NorthMet Project Proposed Action off-site traffic volumes are approximately 3.0 and 3.8 percent of existing rail traffic near the Plant Site (i.e., the Iron Junction to Allen Junction rail segment) during non-summer months (8 trains per day or approximately 240 trains per month) and during summer months (10 trains per day or approximately 300 trains per month), respectively.

Based on the off-site traffic information described above, noise effects on off-site transportation are not expected to be significant. In addition, all NorthMet Project Proposed Action-related off-site roadway and railway traffic would occur during daytime hours only, and the off-site trucks would not exceed 40 miles per hour and would avoid densely populated areas to the extent practicable. Any noise sensitive receptor near the Canadian National Railroad, State Highway 135, and County Road 666 would not be exposed to a new noise source since these infrastructures have been in operation for decades.

5.2.8.3 NorthMet Project No Action Alternative

Under the NorthMet Project No Action Alternative, the NorthMet Project Proposed Action would not occur and there would be no increase in noise and vibration levels in any of the areas proposed for project development Therefore, there would be no change in existing noise and vibration levels at the closest receptors.

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5.2.9 Cultural Resources

This section summarizes the environmental consequences of the NorthMet Project Proposed Action on historic properties, including the potential effects, types of avoidance, effect minimization measures, and potential mitigation measures that are relevant to these historic properties. Additionally, this section summarizes the environmental consequences of the NorthMet Project Proposed Action on 1854 Treaty resources—i.e., those species and/or habitats that are traditionally or culturally important to the Bands.

The federal Co-lead Agencies have identified several historic properties in consultation with the SHPO, Bands, and PolyMet. The federal Co-lead Agencies have also consulted with the SHPO, Bands, and PolyMet concerning NRHP eligibility of the historic properties, and have determined that the Spring Mine Lake Sugarbush; the Partridge River Section of the *Mesabe Widjiu*; the Partridge River Segment of the BBLV Trail; Erie Mining Company Railroad Mine and Plant Track, Main Line Segment, and Dunka Railroad Segment; Erie Mining Company Concentrator Building; Erie Mining Company Administration Building; Erie Mining Company Hoyt Lakes Operation Mining Landscape Historic District; and DM&IR Segment are eligible for inclusion in the NRHP. All other cultural resources identified as part of the NorthMet Project Proposed Action, as identified in Section 4.2.9.2.4, were determined to be not eligible for inclusion in the NRHP, and therefore will not receive further consideration under Section 106 during review of the NorthMet Project Proposed Action. The SHPO concurred with these determinations.

After consultation with the SHPO, Bands, and PolyMet, the federal Co-lead Agencies have determined that there would be no adverse effect on the Erie Mining Company Railroad Mine and Plant Track, Main Line Segment, and Dunka Railroad Segment; Erie Mining Company Administration Building; and DM&IR Segment. However, the federal Co-lead Agencies determined that the Partridge River Section of the *Mesabe Widjiu*, the Partridge River Segment of the BBLVTrail, Spring Mine Lake Sugarbush, Erie Mining Company Concentrator Building, and Erie Mining Company Hoyt Lakes Operation Mining Landscape Historic District would be adversely affected by the NorthMet Project Proposed Action. The SHPO agreed with these findings. The federal Co-lead Agencies submitted the adverse effects determinations to the ACHP, which chose not to participate in the resolution of adverse effects. These determinations were used to facilitate consultation with the SHPO, Bands, and PolyMet pertaining to the resolution of adverse effects. Mitigation measures to resolve adverse effects are being developed through consultation and the Co-lead Agencies have drafted an MOA for consulting party review. An MOA resolving adverse effects will be executed and the NHPA process completed prior to the Co-lead Agencies' final decisions.

The Co-lead Agencies committed to providing an appendix in the FEIS that contains the Tribal Cooperating Agencies' comments and supporting documentation representing MDOs. See Appendix C for comments and supporting documentation from the Bois Forte, Grand Portage, Fond du Lac, GLIFWC, and the 1854 Treaty Authority. These take the form of eight position papers and a Co-lead Agency Preliminary SDEIS comment disposition spreadsheet for the Tribal Cooperating Agencies.

The Tribal Cooperating Agency submittals in Appendix C are provided verbatim and in identical form as they were for the SDEIS. They were considered in the development of the FEIS. Refer to Chapter 8 for more information.

5.2.9.1 Methodology and Evaluation Criteria Overview

In consultation with the SHPO, the Bands, and PolyMet, the federal Co-lead Agencies applied the criteria of adverse effects to historic properties within the APE to evaluate the potential effect of the NorthMet Project Proposed Action on the historic properties, as codified in 36 CFR 800.5.

An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. These elements of integrity are discussed at length in Section 4.2.9. Adverse effects may include reasonably foreseeable indirect effects that occur later in time, are farther removed, or are cumulative.

Direct effects caused by the undertaking occur at the same time and place. Indirect effects caused by the undertaking are later in time or further removed in distance but are still reasonably foreseeable. The federal Co-lead Agencies confer with consulting parties to determine the undertaking's effects on historic properties, to resolve adverse effects, and to develop mitigation measures as necessary. For the NorthMet Project Proposed Action, the following is a summary of potential effect types:

- Physical disturbance or damage to all or part of the property caused by ground disturbance (e.g., digging, trenching, etc.);
- Introduction of visual, atmospheric, or audible elements that could diminish the integrity of the property's significant historic features during short-term NorthMet Project Proposed Action-related construction and operation of aboveground facilities and roads, as well as long-term effects from operation;
- Change in the character of the use or of physical features within the property's setting that contribute to its significance; and
- Transfer of property out of federal ownership without adequate conditions to ensure consideration of historic properties.

Effects determinations have the following three possible outcomes:

1. Finding of no historic property affected – The undertaking does not have the potential to cause effects on historic properties that may be present.
2. Finding of no adverse effect – The historic property would be affected; however, the effects of an undertaking do not meet the criteria of adverse effect, or measures have been taken to avoid or minimize adverse effects.
3. Finding of adverse effect – The undertaking may affect the integrity, which would alter, directly or indirectly, any of the characteristics of a historic property that qualify it for inclusion in the NRHP. If an adverse effect is found, the federal Co-lead Agencies shall consult further to resolve the adverse effect.

5.2.9.1.1 Types of Potential Effects

The potential for the NorthMet Project Proposed Action to affect a historic property may depend on the project stage and the development and use of the NorthMet Project area. Potential effects that may occur during the construction and operations of the NorthMet Project Proposed Action are discussed in the following subsections.

Construction

NorthMet Project Proposed Action construction activities could affect cultural resources in a variety of ways, including the following:

- Possible direct damage to cultural resources within the construction footprint;
- Possible indirect damage to cultural resources through vibrations caused by earth-moving and heavy equipment;
- Temporary loss of community access to cultural resources, such as cultural resources of traditional significance;
- Potential permanent visual effects that alter the viewshed to or from a cultural resource as it pertains to the cultural resource's setting and feeling;
- Potential temporary visual effects on cultural resources while heavy equipment and numerous personnel are present;
- Increased dust and noise that may affect historic structures or cultural resources of traditional significance near the construction area; and
- Discovery of previously unknown cultural resources within the construction footprint.

The duration of the construction phase would affect the degree of effects on cultural resources. Potential indirect effects during construction—such as noise, dust, vibrations, heavy equipment traffic, and changes in viewshed—could be temporary and would be expected to last for the duration of construction in specific areas and for discrete periods of time.

Operations

During the operations phase of the NorthMet Project Proposed Action, only previously surveyed and assessed areas would be expected to require periodic disturbance; therefore, the potential for additional direct effects to cultural resources would be limited.

Indirect effects during operations could consist of a permanent change in viewshed to historic structures near NorthMet Project area facilities, and a periodic increase in noise, vibration, and dust created by vehicular traffic conducting operation and maintenance activities.

5.2.9.1.2 Resolution of Adverse Effects

Adverse effects on eligible properties have been determined. Mitigation measures would be taken to avoid or minimize effects on historic properties, to the extent practicable. The following are potential mitigation measures:

- Avoidance, which could be accomplished by shifting the footprint away from the resource, limiting activities in the vicinity of the resource, monitoring construction activities near the

resource to inform whether additional actions are warranted, or through any combination of these techniques;

- Minimization, which would reduce the effects on the resource through avoidance measures as described above, but would not completely eliminate the effects; and
- Mitigation, which would offset that effect through some of the following means:
  - protection of a similar resource nearby;
  - detailed documentation of the resource through data recovery (e.g., excavations, in the case of archaeological sites, or Historic American Buildings Survey/Historic American Engineering Record documentation, in the case of historic structures);
  - contributions to the preservation of cultural heritage in the affected community;
  - interpretative exhibits highlighting information gained about cultural resources through the NorthMet Project Proposed Action; or
  - some combination of these strategies.

The federal Co-lead Agencies have taken into account the effects of the NorthMet Project Proposed Action on properties that are listed on, or considered eligible for listing on, the NRHP per Section 106 of the NHPA and consistent with USFS and USACE practices. Because the NorthMet Project Proposed Action would result in an adverse effect on certain eligible properties, as discussed further below, the federal Co-lead Agencies have consulted with the SHPO, the Bands, and PolyMet to identify practicable ways to avoid, minimize, or mitigate the harmful effects of the undertaking. The ACHP was notified of adverse effect by letter on May 21, 2015, but declined to participate. The federal Co-lead Agencies are currently in the process of developing an MOA, which identifies the steps the federal Co-lead Agencies would take to avoid, minimize, or mitigate the adverse effects.

5.2.9.2 Affected Cultural Resources

This section describes the effects of the NorthMet Project Proposed Action on historic properties within the APE, as well as other cultural resources. As outlined in Section 4.2.9, the federal Co-lead Agencies determined that the Erie Mining Company Railroad Mine and Plant Track, Main Line Segment, and Dunka Railroad Segment; Erie Mining Company Concentrator Building; Erie Mining Company Administration Building; Erie Mining Company Hoyt Lakes Operation Mining Landscape Historic District; DM&IR Segment, Spring Mine Lake Sugarbush, the Partridge River Section of the *Mesabe Widjiu*, and the Partridge River Segment of the BBLV Trail are eligible for inclusion in the NRHP. The federal Co-lead Agencies, in consultation with the SHPO, Bands, and PolyMet, have determined effects for the eligible properties and are currently working to resolve adverse effects. The Co-lead Agencies have drafted an MOA for consulting party review. While the MOA will recognize that, given the current stage of planning, there are no anticipated adverse effects on the Erie Mining Company Railroad Mine and Plant Track, Mina Line Segment, the DM&IR Segment, and the Erie Mining Company Administration Building, the document acknowledges the possibility of adverse effects at some point in the future and will include a stipulation to address those effects. The MOA will also have a provision to address post-review discoveries.

5.2.9.2.1 Historic Properties

Erie Mining Company Concentrator Building

The Concentrator Building reflects Erie Mining Company's decades of experimentation in production and engineering design (Zellie 2007). The Co-lead Agencies have determined the Concentrator Building eligible for inclusion in the NRHP under Criterion A in the areas of industry and engineering, and also under Criterion C in the area of engineering.

Direct effects to this property would consist of interior and exterior refurbishment and use. For example, emission controls on ore grinding equipment would be replaced with components that meet or exceed the particulate emission standard required of new sources at taconite plants. To reduce space heating requirements, the building insulation would be improved. Additionally, the concentrator building would be demolished at mine closure and decommissioning, consistent with Minnesota state mining standards. There would be minor exterior and interior alterations to the other primary plant buildings and structures. The NorthMet Project Proposed Action would include the construction of several new buildings adjacent to the Concentrator Building. Based on the above considerations, the federal Co-lead Agencies have determined that the NorthMet Project Proposed Action would adversely affect the Concentrator Building. The SHPO has agreed with this finding. The federal Co-lead Agencies, in consultation with the SHPO, Bands, and PolyMet, are currently working on an MOA to resolve adverse effects.

Erie Mining Company Railroad Mine and Plant Track, Main Line Segment, and Dunka Railroad Segment

The federal Co-lead Agencies have determined the Erie Mining Company Railroad Mine and Plant Track, Main Line Segment, and Dunka Railroad Segment (SL-HLC-015) eligible for inclusion in the NRHP under Criterion A in the areas of Commerce, Industry, and Transportation, and under Criterion C. Although the majority of the main track of railroad is outside of the NorthMet Project area, the segments of the Erie Main Line Railroad and Mine and Plant Track, and Dunka Railroad within the APE would be directly affected near the NorthMet Project area.

Direct effects to this property would consist of refurbishment and use. Refurbishment, however, is not expected to result in significant alterations. Nonetheless, the Erie Mining Company railroad would be removed at mine closure and decommission, consistent with Minnesota state mine reclamation standards. There would be no expected indirect effects, as the use of the Plant Site and mining activities would be consistent with the railroad's original use. Based on the above considerations, the federal Co-lead Agencies have determined that the NorthMet Project Proposed Action would not adversely affect the Erie Mining Company railroad. The SHPO has agreed with this finding. The federal Co-lead Agencies, in consultation with the SHPO, Bands, and PolyMet, are currently working on an MOA to resolve adverse effects.

Erie Mining Company Administration Building

The Erie Mining Company Administration Building remains a well-preserved component of the original taconite plant design. It is significant under NRHP Criterion A in the areas of Industry and Engineering and is associated with the statewide historic context, "Minnesota's Iron Ore Industry, 1880s-1945," and under Criterion C. The Administration Building is within the APE

for the NorthMet Project Proposed Action; however, refurbishment is not part of the current undertaking. While the federal Co-lead Agencies have determined the Administration Building would need to be updated subsequent to mine permitting, no plans have been provided to the Co-lead Agencies for analysis of effects. The Co-lead Agencies have evaluated the potential for ambient air quality to adversely affect the structure pursuant to air modeling data analyzed during the FEIS process. The Administration Building would not be affected by isopleths (dust particulate) as modeled. The Administration Building is located in an area of the APE where air quality is not expected to exceed current background levels; therefore, no adverse effect is anticipated from changes in air quality. Therefore, the federal Co-lead Agencies have determined that the NorthMet Project Proposed Action would not adversely affect the Erie Mining Company Administration Building. The SHPO has agreed with this finding. The federal Co-lead Agencies, in consultation with the SHPO, Bands, and PolyMet, are currently working on an MOA to resolve adverse effects.

Erie Mining Company Hoyt Lakes Operation Mining Landscape Historic District

The NorthMet Project Proposed Action is contingent upon reuse of the Erie Plant Site and existing railroad infrastructure. Proposed new construction within the Erie Plant Site area includes an oxygen plant, Hydrometallurgical Plant, Hydrometallurgical Residue Facility, and WWTP. The Erie Heating and Additive Plan (SL-HLC-049), which is considered as a contributing element of the Erie Mining Company Landscape Historic District, is proposed for demolition under the NorthMet Project Proposed Action. Several non-contributing temporary structures associated with the LTVSMC period of use (from 1986 to 2001) within the footprint of the proposed WWTP would be relocated and repurposed on site. Key infrastructure at the Plant Site would be refurbished and reused under the NorthMet Project Proposed Action.

Processes at the Beneficiation Plant would include ore crushing, grinding, floatation, dewatering, storage, and shipping. Crushing and grinding would occur at the existing coarse-crusher building, fine-crusher building, and concentrator building, all of which are associated with the overall industrial processes of Erie operations during the period of significance. The Co-lead Agencies have determined that the proposed refurbishment and reuse of these facilities is compatible with the industrial processes that occurred during the period of historic significance. Ore would continue to be transported to the Plant Site by rail from an adjacent Mine Site, and the buildings would continue to function in a similar fashion as they did during the period of historic significance. Dewatering would take place at a new concentrate dewatering and storage building. This building would be constructed near the new Hydrometallurgical Plant, on the footprint of the Erie (LTVSMC) Heating and Additive Plant (SL-HLC-049), which would be demolished. The Area 1 Shop, rail car maintenance shop (Area 2 Shops), and Colby Lake pumphouse would be reused under the current proposal. The expected activities at each location would be consistent with those carried out during the period of significance. The current information suggests that refurbishment would be limited to painting and exterior rehabilitation, as needed. Refurbishment would likely include updates to building interiors; however, outside of the concentrator building, these interior renovations are not expected to diminish the integrity of those structures that contribute to the Erie Hoyt Lakes Operation Mining Landscape Historic District.

The Co-lead Agencies have considered the potential effects on both the properties determined to be individually eligible and to those properties considered as contributing elements to the larger

mining landscape historic district. Given that both new construction and demolition of contributing buildings is proposed within the Plant Site boundaries, the federal Co-lead Agencies have determined that an adverse effect finding is warranted for this larger mining landscape historic district. The SHPO has agreed with this finding. The federal Co-lead Agencies, in consultation with the SHPO, Bands, and PolyMet, are currently working on an MOA to resolve adverse effects.

DM&IR Segment

The Canadian Northern Railway currently owns the DM&IR segment of track within the APE of the NorthMet Project Proposed Action. While PolyMet asserts that reuse of part of the DM&IR segment is "likely," there are no immediate plans for reuse of this railroad as part of the current NorthMet Project Proposed Action. Although it is possible that the DM&IR segment would be reused if permitting proceeds, since there are no reasonably foreseeable proposals, there are no adverse effects to be identified in this analysis. Therefore, the federal Co-lead Agencies have determined that there would be no adverse effect. The SHPO has agreed with this finding. The federal Co-lead Agencies, in consultation with the SHPO, Bands, and PolyMet, are currently working on an MOA to resolve adverse effects.

Spring Mine Lake Sugarbush

The federal Co-lead Agencies have determined the Spring Mine Lake Sugarbush eligible for inclusion in the NRHP under Criterion A for its association with important Ojibwe spiritual and cultural practices. Under Criterion D, the site is significant for its potential to answer important questions about possible 19th century and 20th century Ojibwe maple sugaring practices.

Direct effects on this property would not result from the NorthMet Project Proposed Action. The Spring Mine Lake Sugarbush is not within the footprint of the Mine Site, the Plant Site, or any other ancillary NorthMet Project area features.

Based on an indirect visual effects analysis conducted for the NorthMet Project Proposed Action and the site visits conducted in 2010, the federal Co-lead Agencies have determined that the NorthMet Project Proposed Action would not result in a visual intrusion that would diminish the integrity of setting, feeling, or associations. The Spring Mine Lake Sugarbush is a number of miles from the Mine Site and sufficiently screened from the Plant Site and the Tailings Basin where those project features are not visible. The Plant Site and Tailings Basin are existing LTVSMC mine features. Their footprint would not be expanded to any significant extent, nor would the addition of material be visible from the Spring Mine Lake Sugarbush to a significantly greater extent than current conditions.

The analysis of possible atmospheric effects that was completed for the NorthMet Project Proposed Action indicates that the Spring Mine Lake Sugarbush is not in an area expected to be affected by dust deposition. The Spring Mine Lake Sugarbush and its grove of mature maple trees has existed throughout the past 50 years of mining, which included the use of the existing Plant Site and Tailings Basin as well as numerous mineral extraction locations (mine pits) in close proximity to the Spring Mine Lake Sugarbush in comparison to the Mine Site.

The Spring Mine Lake Sugarbush may be associated with the trail systems, such as the BBLV Trail Segment, that are known to have traversed this area. The portion of that trail corridor in proximity to the Spring Mine Lake Sugarbush has been for the most part destroyed by past

mining operations. The NorthMet Project Proposed Action would not result in the loss of any additional portions of that corridor, or trails, in proximity to the Spring Mine Lake Sugarbush. For further discussion, see the discussion of effects on the BBLV Trail Segment.

Based on this analysis, the federal Co-lead Agencies made the determination that there would be no direct effects resulting from the NorthMet Project Proposed Action nor would there be any significant changes to the setting, feeling, or associations of the Spring Mine Lake Sugarbush.

After consultation with the Bands concerning effects on the Spring Mine Lake Sugarbush, the federal Co-lead Agencies acknowledged that the analysis of atmospheric effects on the Spring Mine Lake Sugarbush was an estimation based on modeling and that dust deposition is expected to occur near this property. The Co-lead Agencies, through consultation with the Bands, are also aware of concerns among the consulting parties for potential inadvertent damage to the site given the proximity of the site to key operational areas associated with the proposed Plant Site. After consideration of concerns and perceptions raised by the consulting parties, the federal Co-lead Agencies have determined that the NorthMet Project Proposed Action would adversely affect the Spring Mine Lake Sugarbush. The SHPO has agreed with this finding. The federal Co-lead Agencies, in consultation with the SHPO, Bands, and PolyMet, are currently working on an MOA to resolve adverse effects.

Partridge River Section of the Mesabe Widjiu

The federal Co-lead Agencies have determined the *Mesabe Widjiu* eligible for inclusion in the NRHP under Criterion A for its association with important Ojibwe spiritual and cultural practices, and under Criterion B. Although the federal Co-lead Agencies are assessing the effects of the NorthMet Project Proposed Action on only the portion of the *Mesabe Widjiu* within the APE, it is recognized that the property and its significance extends beyond the APE.

The Partridge River Section of the *Mesabe Widjiu* was previously disturbed both directly and indirectly by the former LTVSMC Plant Site and Tailings Basin, as well as by mining and logging activities in the Mine Site area. The Tailings Basin would be reused by PolyMet, as would buildings within the Plant Site.

Direct effects on the *Mesabe Widjiu* would occur at the Tailing Basin, which currently abuts a portion of that land form. A slight expansion of the Tailings Basin would intrude on that portion of the *Mesabe Widjiu*. Otherwise, the use of existing facilities at the Plant Site would involve minimal ground disturbance of previously undisturbed parts of the *Mesabe Widjiu*. Direct effects on the *Mesabe Widjiu* at the Mine Site would not occur as the *Mesabe Widjiu* is not considered to be within the footprint of the Mine Site.

Indirect effects to the *Mesabe Widjiu* would result from the features at the Mine Site location. Although there are existing mine features between the *Mesabe Widjiu* and the Mine Site location, the NorthMet Project Proposed Action would further diminish the integrity of setting and feeling. The large-scale alterations to the landscape resulting from mine pits, stockpiles, material handling facilities, etc., would be long-term changes that would further diminish the association of the *Mesabe Widjiu* with the natural features of the Partridge River headwaters.

Although the multiple cultural resources investigations for the NorthMet Project Proposed Action did not reveal any specific locations adjacent to the NorthMet Project area that are used by the Bands, this does not diminish the significance of effects for that portion of the *Mesabe Widjiu*. Given the nature of Ojibwe spiritual practices, which is a personal connection to the

natural elements of the environment, locations of this type are very difficult to identify. The *Mesabe Widjiu* is a historic property to which the Ojibwe have had a spiritual connection for hundreds of years.

Based on the above considerations, the federal Co-lead Agencies have determined that the NorthMet Project Proposed Action would adversely affect the *Mesabe Widjiu*. The SHPO has agreed with this finding. The federal Co-lead Agencies, in consultation with the SHPO, Bands, and PolyMet, are currently working on an MOA to resolve adverse effects.

Partridge River Segment of the Beaver Bay to Lake Vermilion Trail

The federal Co-lead Agencies have determined that the Partridge River Segment of the BBLV Trail is significant for the role it played in the broad patterns of Ojibwe land use and early mineral exploration. It is eligible for inclusion in the NRHP under Criterion A.

The portion of the BBLV Trail Segment that lies within the Mine Site would be directly affected by the NorthMet Project Proposed Action, which would result in its permanent removal. Based on this, the federal Co-lead Agencies have determined that the NorthMet Project Proposed Action would adversely affect the BBLV Trail Segment. The SHPO has agreed with this finding. The federal Co-lead Agencies, in consultation with the SHPO, Bands, and PolyMet, are currently working on an MOA to resolve adverse effects.

Potential for Properties of Tribal Significance Constituting a Historic District

The federal Co-lead Agencies have consulted with the Bands regarding the possibility of the historic properties of tribal significance being considered as part of a National Register District. A District, as defined in National Register Bulletin 15 *How to Apply the National Register Criteria for Evaluation*, in addition to having integrity, "possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development" (NPS 1995). While the BBLV Trail Segment and the Spring Mine Lake Sugarbush appear to share a similar period of significance and are related to 19th century Ojibwe land use and transportation contexts, the federal Co-lead Agencies have determined that these properties do not collectively retain integrity of setting and association nor are they arranged in such a way that they could be considered a "unified entity" *(ibid)*. In addition, prior resource extractive developments have significantly altered the landscape within and adjacent to the NorthMet Project area. These developments and landscape alterations make it difficult to ascertain the linkages that may have historically existed between these properties. The federal Co-lead Agencies do not find that the identified historic properties constitute a "significant concentration" of sites, as further defined in Bulletin 15 (*ibid*). While the federal Co-lead Agencies recognize and affirm that overland trails (and at least one reported "encampment") existed in the NorthMet Project area at the time of the initial Government Land Office surveys, the level of post-19th century development has destroyed and largely obscured the ability of the extant historic properties to convey a sense of continuity and linkage. The oral interview information that has been provided to the Co-lead Agencies does not contain details that speak specifically to these sites; however, the information provided in the oral interviews regarding the *Mesabi Widjiu* was fully considered, and played a key role in the federal Co-lead Agencies prior determination of adverse effect. That said, the federal Co-lead Agencies recognize the position of the consulting Bands regarding the connected nature of cultural resources throughout the 1854

Ceded Territory and affirm that the historical context of these properties has been a key component of resolution of adverse effects on eligible properties.

The federal Co-lead Agencies have previously commented on the consulting Bands' request (Grand Portage 2013) to consider a much larger historic district that extends down to the north shore of Lake Superior for the purposes of Section 106 review for the NorthMet Project Proposed Action. For the reasons stated in the above paragraph, the federal Co-lead Agencies, at this time, have determined that additional identification and evaluation efforts within this area would be outside of the scope of NorthMet Project Proposed Action.

5.2.9.2.2 1854 Treaty Resources

Natural resources important to Ojibwe culture can be recognized even when tribal use of a natural resource may not qualify that resource as a historic property for further consideration under Section 106. The right to hunt, fish, and gather on lands within the 1854 Ceded Territory is protected by the 1854 Treaty. Limitation or elimination of access to public lands within the 1854 Ceded Territory for these purposes may be considered an effect on 1854 Treaty rights. The loss of 1854 Treaty resources may also have an effect on the Bands' ability to exercise 1854 Treaty rights in the NorthMet Project area, but the NorthMet Project Proposed Action is not likely to have a significant impact on the overall availability of 1854 Treaty resources that are typically part of subsistence activities in the 1854 Ceded Territory.

An analysis of effects on 1854 Treaty resources, as described and discussed in Section 4.2.9, is limited by the lack of available information concerning the use of such resources. To help determine how the Bands have traditionally exercised their usufructuary rights on or near the NorthMet Project area, the Bands conducted interviews of individual members of Bois Forte, Fond du Lac, and Grand Portage, although only the results of interviews with Bois Forte were made available.

There is little specific information concerning the use of natural resources by the Bands in the NorthMet Project area, other than the Spring Mine Lake Sugarbush, which is being considered under Section 106 of the NHPA. This likely reflects limited present day or recent past subsistence gathering in the NorthMet Project area due to general inaccessibility. This lack of data also precludes the quantitative analysis of how Band members would be affected socioeconomically by effects on 1854 Treaty resources, further discussed in Section 5.2.10. The primary source of data for assessing effects from the NorthMet Project Proposed Action on 1854 Treaty resources is from the analysis of the environment discussed in detail in Section 4.2.9 of this FEIS.

As stated in Table 5.2.9-1 below, the NorthMet Project Proposed Action would affect 4,028.3 acres within the Nashwauk Uplands and Laurentian Uplands subsections, which constitutes a total of 0.3 percent of these two subsections.

Table 5.2.9-1 Acres of the Laurentian Uplands and Nashwauk Uplands Subsections Affected by the NorthMet Project Proposed Action

Land Cover	Total Acres	Acres Affected by the NorthMet Project Proposed Action	Percent of Combined Nashwauk Uplands and Laurentian Uplands Subsections Affected by the NorthMet Project Proposed Action
Aquatic Environments	396,966	581.7	0.1
Disturbed	46,174	1,242.4	2.7
Forest	885,566	1,908.6	0.2
Cropland/Grassland/ Shrubland	48,602	295.6	0.6
Total	1,377,308	4,028.3	0.3

Source: MDNR 2011f; MDNR 2011i.

The cover type most affected by the NorthMet Project Proposed Action is disturbed land, which includes reuse of the existing LTVSMC Tailings Basin. Less than 1 percent of each of the remaining cover types would be affected. Effects on the 1854 Treaty resources associated with these cover types are discussed below.

Vegetation

Vegetation that would be affected by the NorthMet Project Proposed Action is covered in the vegetation analysis in Section 5.2.4. Consequences of the NorthMet Project Proposed Action would include direct effects on land cover types.

The NorthMet Project Proposed Action would disturb 1,718.6 acres of land at the Mine Site, with the largest effects to upland conifer forest and lowland conifer forest. Consequently, the plant species or resources regulated by the 1854 Treaty Authority for gathering within these cover types would likely be most affected (see Table 5.2.9-2). The Plant Site contains 2,189.7 acres that would be disturbed, although most effects occur in areas already previously disturbed. Though the aquatic environment cover type would be heavily affected at the Plant Site, it consists mostly of tailings ponds where no regulated plant species or resources would be present. The majority of the 120.1 acres of the Transportation and Utility Corridor has also already been disturbed.

Table 5.2.9-2 Affected Cover Types of Associated Species and Resources Regulated by the 1854 Treaty Authority at the NorthMet Project Area

Cover Types	Associated Plant Species or Resource	Affected Mine Site (Acres)[1]	Affected Transportation and Utility Corridor (Acres)[1]	Affected Plant Site (Acres)[1]
Upland coniferous forest	Conifer boughs, princess pine, birch bark, firewood, other plants or forest products	741.9	2.6	52.0
Lowland coniferous forest	Conifer boughs, princess pine, firewood, other plants or forest products	437.2	0.2	20.7
Upland deciduous forest	Princess pine, ginseng, birch bark, firewood, other plants or forest products	354.7	2.7	295.1
Shrubland	Firewood, other plants or forest products	133.0	7.7	144.9
Disturbed	NA	44.0	94.4	1,104.0
Aquatic environments	Wild rice, other plants or forest products	6.0	2.7	573.0
Cropland/Grassland	NA	0.2	9.8	0.0
Upland conifer-deciduous mixed forest	Conifer boughs, princess pine, ginseng, birch bark, firewood, other plants or forest products	1.5	0.0	0.0
Lowland deciduous forest	Princess pine, birch bark, firewood, other plants or forest products	0.0	0.0	0.0
Total		**1,718.6**	**120.1**	**2,189.7**

Source: 1854 Treaty Authority 2007.

Note:
[1] Acres from Section 5.2.4.

In addition to the direct effects discussed above, there may also be indirect effects on cover types. Hydrology changes and dust from traffic and mining operations could affect plant communities near the NorthMet Project area, which could further reduce plant species or resources regulated by 1854 Treaty Authority. Mitigation measures, which would minimize these effects, are discussed in Section 5.2.4. Subsistence gathering at these locations is probably limited because of general inaccessibility.

According to the NorthMet Project Cultural Landscape Study (Zellie 2012), some of the most common species include balsam fir, speckled alder, and low-bush blueberry (see Table 4.2.9-4). These species were identified in multiple community types and are more likely to remain within the NorthMet Project area, despite the direct and indirect effects from the NorthMet Project Proposed Action. Within the combined Laurentian Uplands and Nashwauk Uplands ecological subsections, less than 0.3 percent would be affected by the NorthMet Project Proposed Action. As an estimate, the species or resources listed in Table 4.2.9-4 could likely decrease by the same margin within these Ecological Classification System (ECS) subsections.

Wildlife

Similar to the effects on SGCNs discussed in Section 5.2.5, the NorthMet Project Proposed Action would affect 1854 Treaty Authority-regulated species as a result of increased human activity and noise, potential collisions with vehicular and rail traffic, and decrease of habitat. Generally, effects on common and/or game animals (such as white-tailed deer, fox, grouse, waterfowl, etc.) would be similar to the effects on ETSC species (e.g., gray wolf, moose, etc.),

which are discussed in Sections 5.2.5.2.1 and 5.2.5.2.2. Local effects are expected due to competition from migrating individuals, but these would not threaten overall populations. See Section 5.2.5 for a more thorough discussion of the types of effects on wildlife.

As there is likely limited present day or recent past subsistence gathering in the NorthMet Project area due to general inaccessibility, the NorthMet Project Proposed Action is unlikely to further diminish the exercise of 1854 Treaty rights in the area.

Increased Human Activity

The 1854 Treaty Authority-regulated species would be directly and indirectly affected through increased human activity due to mining activities. Factors such as noise, dust, light, and vehicle traffic may frighten some species and discourage their use of otherwise suitable habitat. Displaced to other habitat, individuals could face increased competition for resources. Less mobile species, such as herptiles (e.g., frogs, turtles), would likely incur relatively high mortality rates due to less ability to leave the affected area. Cliff-nesting birds could be affected by disturbance if they were to nest along the cliffs created by the pit rims.

Noise Effects

Noise associated with mining activities, including noise from vehicle and rail traffic, would likely affect wildlife, including 1854 Treaty Authority-regulated species. Section 5.2.8 provides further discussion on the noise modeling predictions for the NorthMet Project area. Though wildlife species are likely to be sensitive to changes in noise levels, there are no local, national, or international standards or limits that are applicable to the NorthMet Project Proposed Action. State standards are discussed Section 5.2.8, Noise. Wildlife species may be affected by noise in the NorthMet Project area, though adjacent habitat is available.

Vehicular and Rail Traffic Effects

Traffic effects from collisions with wildlife depend upon factors such as traffic volume, traffic speed, and the species involved. Species that utilize the small preserved forest island remnants between haul roads at the Mine Site would be most affected. Indirect effects from vehicle activities are expected locally at the Mine Site for 1854 Treaty Authority-regulated species and the overall local ecosystem. Effects at the Transportation and Utility Corridor are primarily related to vehicle and rail traffic. The 1854 Treaty Authority-regulated species may be affected by noise and light associated with vehicle and rail traffic, and by collisions with vehicles or trains. Transportation effects at the Plant Site are primarily related to vehicle traffic associated with the construction of the Tailings Basin embankments and bentonite application, primarily during the construction phase of the NorthMet Project Proposed Action. The 1854 Treaty Authority-regulated species may be affected by noise and light associated with vehicle traffic and by collisions with vehicles.

Habitat Effects

The direct effect on wildlife habitat, and thus on species regulated by the 1854 Treaty Authority, was assessed by evaluating the acres of habitat types that would be lost under the NorthMet Project Proposed Action. The changes in cover type are summarized in Table 5.2.9-3.

Table 5.2.9-3 Direct Effects on Key Habitat Types

Key Habitat Types	Total Acres[1] of Cover Type Directly Affected at the Mine Site	Total Acres[1] of Cover Type Directly Affected at the Transportation and Utility Corridor	Total Acres[1] of Cover Type Directly Affected at the Plant Site
Mature Upland Forest, Continuous Upland/Lowland Forest (MIH1-13)	1,535.3	5.5	367.8
Open Ground, Bare Soils (no MIH)	44.0	94.4	1,104.0
Grassland and Brushland, Early Successional Forest (no MIH)	133.2	17.5	144.9
Aquatic Environments (MIH 14)	6.0	2.7	573.0
Total	**1,718.6**	**120.1**	**2,189.7**

Data from Tables 5.2.4-1, 5.2.4-4, and 5.2.4-6.

Note:
[1] Total acres may be more or less than presented due to rounding.

Mature Upland/Lowland Forest

At the Mine Site, 1,535.3 acres of the mature forest would be lost as a result of the NorthMet Project Proposed Action. All 5.5 acres of mature upland/lowland forest along the Transportation and Utility Corridor would be affected. Approximately 368 acres of forest habitat at the Plant Site would be disturbed, most of which is in small or isolated patches of aspen-birch forest that are in poor to fair condition (MDNR 2013a).

The 1854 Treaty Authority-regulated species consist of several common and/or game animals. These species are largely mobile and would likely be displaced, not injured or killed, during mine construction and operation. Reclamation of the Mine Site would include revegetating nearly all disturbed ground according to *Minnesota Rules*, part 6132.2700. Reclamation and revegetation of the NorthMet Project area would improve wildlife habitat relative to conditions during mine operations; however, the quality of habitat for 1854 Treaty Authority-regulated species would remain degraded for decades after closure relative to pre-mining conditions.

Open Ground/Bare Soils

No 1854 Treaty Authority-regulated species are identified as utilizing open ground or bare soils habitat at the Mine Site, Transportation and Utility Corridor, or Plant Site. These areas were the result of past mining activity, are generally of low-quality, and are expected to decrease after mine closure as a result of reclamation.

Brush/Grassland

Approximately 133 acres of brush/grassland at the Mine Site would be directly affected by the NorthMet Project Proposed Action. Young trees (less than 4 inches dbh) make up most of this habitat type (ENSR 2005). Although all 17.5 acres of brush/grassland at the Transportation and Utility Corridor would be directly affected, activities at the Transportation and Utility Corridor

would not affect grassland/brush 1854 Treaty Authority-regulated species based on the fragmented nature of this habitat. Approximately 145 acres of brush/grassland at the Plant Site would be directly affected by the activities at the Plant Site. The reclaimed Plant Site, specifically the Tailings Basin, would be revegetated with grassland vegetation species. Overall, the NorthMet Project Proposed Action would have a minimal effect on grassland/brush 1854 Treaty Authority-regulated species.

Open Water

The NorthMet Project Proposed Action would create approximately 321 acres of open water at the Mine Site by eventually flooding the West Pit, which is estimated to fill by year 52. At the Plant Site, open water habitat primarily occurs in the existing LTVSMC Tailings Basin. Existing open water habitat would be maintained during operations, though the acreage of open water would fluctuate according to processing needs. See Section 5.2.5 for further discussion of wildlife use of the open water at the NorthMet Project area.

Wetlands

Based on the site-specific wetland delineation, the NorthMet Project Proposed Action would directly impact 758.2 acres of wetlands at the Mine Site, though surrounding similar wetland habitat would likely be adequate to absorb the displaced wildlife. There are 7.2 acres of wetlands along the Transportation and Utility Corridor, all of which would be impacted by activities along the corridor. There would be 148.4 acres of wetland at the Plant Site directly impacted (see Sections 4.2.3 and 5.2.3). On-site wetland use by 1854 Treaty Authority-regulated species may be limited by the NorthMet Project Proposed Action. Wetlands at the Mine Site are considered 99 percent high quality and 1 percent moderate quality, 100 percent high quality along the Transportation and Utility Corridor, and 94 percent low quality and 6 percent moderate quality at the Plant Site.

Wetland mitigation is proposed off-site at three mitigation sites (See Section 5.2.3). Off-site wetland compensation of 1,602.7 acres could provide up to 1,513.3 wetland mitigation credits. In addition, a total of 197.1 acres of upland buffer areas are proposed to be established with native vegetation around the wetland restoration areas. In accordance with USACE guidelines, credit for the upland buffer areas would be at a 4:1 ratio, resulting in an additional 49.3 credits. The total off-site mitigation could provide up to 1,562.5 wetland mitigation credits. Compensatory ratios determined in permitting may vary from these assumptions. The determination of final mitigation credits required to offset the impacts of the proposed NorthMet Project Proposed Action would be determined during permitting.

Aquatic Species

The potential environmental effects of the NorthMet Project Proposed Action on fish and aquatic macroinvertebrate communities found in the vicinity of the NorthMet Project area are primarily discussed in Section 5.2.6. Direct and indirect effects could include changes in water quality and alteration of physical habitat.

The NorthMet Project Proposed Action would not result in physical habitat effects on the Partridge River or Embarrass River watersheds as a result of hydrologic changes. Generally, fish species regulated by the 1854 Treaty Authority (see Table 4.2.9-7) that occur in the NorthMet Project area would not experience effects from physical habitat loss or alteration.

For the 29 solutes evaluated, the GoldSim model predicted that the NorthMet Project Proposed Action would not cause any significant water quality impacts because: 1) exceedances of the P90 threshold did not occur, 2) the NorthMet Project Proposed Action concentrations were no higher than concentrations predicted for the CEC scenario, 3) the frequency or magnitude of exceedances for NorthMet Project Proposed Action conditions was within an acceptable range, or 4) the effects were not attributable to NorthMet Project Proposed Action discharges. See Section 5.2.2 for a more thorough discussion of water quality effects and 5.2.6 for a discussion of water quality effects pertaining to aquatic species.

The NorthMet Project Proposed Action is expected to result in a net decrease in mercury loadings to the Partridge River from 24.2 to 23.0 grams per year, primarily as a result of a decrease in natural runoff and a proportional increase in water discharged from the West Pit via the WWTF. It is also expected to result in a net increase in mercury loadings to the Embarrass River from 22.3 to 22.5 grams per year, primarily due to the redirection of flow associated with the construction of the East Dam as part of the Tailings Basin expansion to the Embarrass River. However, the NorthMet Project Proposed Action would also result in a 45 percent reduction in sulfate loads (P50 modeling results) at PM-13, which would reduce the potential for mercury methylation. Overall, the NorthMet Project Proposed Action is not expected to increase the mercury content in fish in the St. Louis River. See Sections 5.2.2 and 5.2.6 for a more thorough discussion of mercury bioaccumulation.

Overall Effects on 1854 Treaty Resources

As discussed above, the NorthMet Project Proposed Action would have effects on 1854 Treaty resources—i.e., those areas and species that are traditionally or culturally important to the Bands. There are two categories of effects: those relating to plant and animal species of interest to Band members, and those relating to areas where these plant and animal species are hunted, fished, or gathered. As discussed above and in other resource-specific sections of the FEIS, the NorthMet Project Proposed Action would result in direct environmental effects due to ground-disturbing activities. Band members' use of the NorthMet Project area is not well-defined, and did not emerge through interviews. A good faith effort was made on the part of the Co-lead Agencies to identify use areas in or adjacent to the NorthMet Project area; however, those efforts resulted in little specific information concerning recent-historic subsistence use and no information regarding contemporary subsistence activity at the Mine Site, Transportation and Utility Corridor, or Plant Site. In addition, as described in Section 5.2.11, the NorthMet Project area is surrounded by private land and cannot be easily accessed due to private roads. Without private landowner permission, there is minimal opportunity for the Bands to exercise usufructuary rights (hunting, fishing, and gathering) on this property.

Construction and operation of the NorthMet Project Proposed Action is not likely to significantly reduce overall availability of 1854 Treaty resources that are typically part of subsistence activities in the 1854 Ceded Territory. Some individuals and localized populations may be affected, but overall species populations are expected to remain available. Additionally, noise and other consequences of operations would affect migration or other animal species behavior.

The importance of fish as a subsistence resource in Ojibwe communities is well documented historically, and fish continue to be an important component of the day-to-day diet, while fishing itself remains an important socio-cultural and economic activity in Tribal communities across the Upper Great Lakes. The NorthMet Project Proposed Action could affect the availability of 1854

Treaty resources for some Band members because of real or perceived factors. For instance, bioaccumulation of mercury in fish could affect Band members' willingness to rely on subsistence fishing as a contribution to household economies, as well as affect continuation of traditional fishing practices, but there is no evidence that this availability would significantly affect subsistence use given the lack of information showing recent or historic fishing activity in the NorthMet Project area.

Effects on the environment, including any from increased mercury, are all expected to meet the standards and regulations set forth by the appropriate state or federal agency or program. These laws are intended to protect important natural and cultural resources and include, but are not limited to the ESA, CWA, and CAA. Effects on 1854 Treaty resources are difficult to quantify when the effects are within environmental standards, yet above current baseline conditions. As such, cultural effects on the Bands would be difficult to quantify in regards to such incremental increases below standards or effects to species where appropriate mitigation is used.

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5.2.10 Socioeconomics

This section describes the potential socioeconomic consequences of the NorthMet Project Proposed Action on communities in the study area (consisting of St. Louis, Lake, and Cook counties—see Section 4.2.10 and Figure 4.2.10-1). Socioeconomics includes demographic characteristics of the study area's population, economic characteristics (employment, income, market composition—i.e., the types of firms and employers located in the study area), public finance, housing, public services, and the economic characteristics of subsistence activities. The cultural aspects of subsistence, specifically for Native American populations, are discussed in Section 5.2.9. Individual subsistence products (e.g., wild rice, game animals, etc.) are discussed in appropriate resource-specific sections of the FEIS.

Summary

The NorthMet Project Proposed Action would generate as many as 500 direct jobs during peak construction and 360 direct jobs during operation. These direct jobs would generate additional indirect and induced employment, estimated to be 332 additional construction-phase jobs and 631 additional operations-phase jobs. While some skilled workers would be involved only temporarily and possibly relocate from outside the region, the majority of the NorthMet Project Proposed Action-related jobs are expected to be filled by those currently residing in the Arrowhead region.

Federal, state, and local taxes would total up to an estimated $80 million annually. During operations, there would be approximately $231 million per year in direct value added through wages and rents and $332 million per year in direct output related to the value of the extracted minerals. As with employment, these direct economic contributions would create indirect and induced contributions estimated at $99 million in value added and $182 million in output.

The NorthMet Project Proposed Action would create slightly increased demand for housing and public services in cities and towns near the NorthMet Project area. The resulting increase in housing demand and prices could have minor effects on the Environmental Justice (EJ) populations.

The NorthMet Project No Action Alternative would have no effects.

5.2.10.1 Methodology and Evaluation Criteria

As discussed in Section 4.2.10, the study area for socioeconomics includes Cook, Lake, and St. Louis counties. Because socioeconomic consequences are measured and felt across a broad geographic area, this section does not distinguish between the Mine Site, Transportation and Utility Corridor, and Plant Site. Rather, this section describes the socioeconomic consequences of the NorthMet Project Proposed Action across the entire three-county study area and, where appropriate, includes the study area communities listed in Section 4.2.10.

5.2.10.1.1 Evaluation Criteria

Specific criteria used to evaluate socioeconomic consequences include the following:

- Changes in local population, employment, or earnings associated with NorthMet Project Proposed Action operations.
- Changes in public sector revenues, expenditures, or the underlying fiscal conditions of local governments.
- Changes in economic activity for non-mining industries in the region, particularly the tourism industry.
- Changes in demand for temporary or permanent housing during NorthMet Project Proposed Action construction, operation, and closure periods.
- Changes in long-term demands on public services and infrastructure that reduce capacities in these systems, either triggering the need for capital expansion or resulting in a discernible reduction in the level of service provided.
- Displacement or other use of property that affects residences or businesses.
- Disproportionate effects on minority (including Native American) or low-income populations, including human health or environmental effects, and subsistence—especially if the NorthMet Project Proposed Action results in large reductions in abundance or major redistribution of subsistence resources, substantial interference with harvestable access to active subsistence sites, or major increases in non-rural resident hunting (Barnard Dunkelberg 2009).

5.2.10.1.2 Determination of Study Area

As discussed in Section 4.2.10, the socioeconomic study area for this section includes all of Cook, Lake, and St. Louis counties (the three counties that comprise the Arrowhead region of Northeastern Minnesota). This study area includes the Mine Site, Transportation and Utility Corridor, and Plant Site, as well as all of the tracts involved in the Land Exchange Proposed Action. The size of this study area also captures much of the region's recreational resources (which are important economic engines) and a substantial portion of the 1854 Ceded Territory, which is important to the Bands. Finally, the three-county study area is large enough to reflect a regional economic picture against which the NorthMet Project Proposed Action's effects can be compared.

Where possible, the analysis of effects is based on a quantitative comparison of baseline conditions (see Section 4.2.10) against predicted future conditions in the entire three-county area. In cases where such quantitative data are not available for the entire region (e.g., the IMPLAN model discussed in Section 5.2.10.1.3), the evaluation of effects is either limited to St. Louis County—the site of the NorthMet Project area—or includes the other counties but only qualitatively.

5.2.10.1.3 IMPLAN Model Methodology

Many of the socioeconomic effects of the NorthMet Project such as increased population, housing demand, and effects on public facilities and services are functions of the jobs and revenue that the NorthMet Project Proposed Action creates. To model these effects, the

University of Minnesota Duluth Labovitz Bureau of Business and Economic Research (BBER) used the IMPLAN software package. IMPLAN uses an input-output approach to model the economic effects of changes in baseline conditions (e.g., a large industrial project such as the NorthMet Project Proposed Action). IMPLAN reports direct, indirect, and induced effects (definitions of these terms are provided below) in terms of employment, output (the value of production), and value added (wages, rents, taxes, etc.).

For both the SDEIS and the FEIS, BBER used version 3.0 of IMPLAN; this version uses economic baseline data from 2009, the most recent year for which data were available to BBER at the time the model was developed (BBER 2012). (The model does assume a recovery—by the mining industry, and the overall economy—from the recession that was in place in 2009.) Due to their small populations, workforces, and their distance from the NorthMet Project area, Cook and Lake counties are not expected to experience substantial additional effects from the NorthMet Project Proposed Action. As a result, the IMPLAN model includes only St. Louis County, which acts as a proxy for the entire three-county study area.

Economic effects were modeled for two construction phases: a 15-month Phase I and a 12-month Phase II that would begin 6 months after completion of Phase I. The phases represent two distinct periods of activity in mine construction involving distinct skill sets and activities. Two operations phases were also modeled: a 6-month Startup Phase and a Typical Year (BBER 2012). The IMPLAN model did not project the number of years of operation, due to the inherent difficulty of predicting how variations in the grade of the extracted material or macroeconomic forces—such as industry cycles or metal prices (see below)—would affect mine life. The Typical Year estimate is intended to model the economic effects of standard operations, recognizing that "some years will be a little better, others a little worse" (BBER 2012). The IMPLAN model also did not include effects during the closure phase or the post-closure period, again due to the difficulty of predicting the timing and extent of those phases.

The IMPLAN model focuses on three categories of economic effects:

- Employment: calculated in terms of jobs, not full-time equivalent (FTE) positions. The model does not make a distinction between full-time, part-time, permanent, or temporary jobs. Direct employment estimates were provided by PolyMet.
- Value added: measures economic contributions to the local economy through wages, rents, interest, and profits.
- Output: the value of the goods or services (e.g., minerals and processed mineral products) produced.

Each category of effects comprises three separate components:

- Direct effects: new jobs, spending, and output resulting directly from the NorthMet Project Proposed Action (e.g., PolyMet employees, salaries, spending, and sales).
- Indirect effects: additional inter-industry spending and employment resulting from direct effects (e.g., wholesale purchase of tires by tire retailers who are NorthMet Project Proposed Action vendors).
- Induced effects: additional household expenditure resulting from the direct and indirect effects (e.g., increased patronage of local restaurants by employees of PolyMet or affiliated industries).

The findings of the IMPLAN model are presented in section 5.2.10.2.

5.2.10.1.4 Sources of Uncertainty and Variability

The anticipated socioeconomic effects of the NorthMet Project Proposed Action are based on the best available data, economic modeling, and lessons learned from the history of metal mining in the Mesabi Iron Range. As this history shows, there are numerous sources of economic uncertainty surrounding a project such as the NorthMet Project Proposed Action. The largest overarching socioeconomic concerns related to the NorthMet Project Proposed Action are listed below. Their relationship to the determination of effects is discussed, as appropriate, throughout the remainder of Section 5.2.10.

Industry Cycles

The feasibility of mining is strongly tied to the market price of the commodities being extracted. When prices are high, mining activity is high (the "boom"); when prices drop, mining activity can often slow down or cease entirely (the "bust"). Such changes in mining activity would have effects on host communities. The diverse economy of the study area could offset the degree to which the effects of a bust are experienced. Though this "boom and bust" phenomenon is often present in mining economies, IMPLAN does not model this phenomenon (or assume that it would occur) because the duration of a boom or bust and the severity relative to modeled commodity prices cannot be predicted. Table 5.2.10-1 shows the metal prices assumed in the IMPLAN model, along with recent average prices and the lowest prices experienced during the 2008-9 recession. The potential effects of major changes in commodity prices are addressed in the discussions of effects during the operations phase.

Table 5.2.10-1 Comparison of Assumed (IMPLAN) and Actual Commodity Prices

Commodity	Price Assumed in IMPLAN[1]	Average Actual Price[2]	Comparison Low Price[3]
Copper	$2.90/lb	$3.56/lb	$1.39/lb
Nickel	$12.20/lb	$9.47/lb	$4.39/lb
Cobalt	$23.50/lb	$111.69/lb	$13.56/lb
Platinum	$1,230.00/oz	$1,689.00/oz	$843.00/oz
Gold	$635.00/oz	$1,485.00/oz	$755.00/oz

Sources: BBER 2012 (commodity prices); Foth 2012 (average actual price); PolyMet, Pers. Comm., March 29, 2012 (recent low price).

Notes:
1 Prices based on PolyMet's 2008 Bankable Feasibility Study (PolyMet 2008b). This is the most detailed published information available, and PolyMet is legally bound to these data.
2 Three-year rolling average metal prices as of June 30, 2012 (Foth 2012).
3 Monthly low during 2008-2009 recession.

Changes in Industrial Productivity

Throughout the nation, "regional labor productivity [in mining and overall]…has increased dramatically" since publication of the 2009 DEIS (BBER 2012). Over the longer term (since approximately 1980), mining productivity in the Arrowhead region has also increased, due to mechanization and technological innovation (Power 2007). As a result, far fewer miners are now required per unit of extracted material than before, which therefore lessens the effects of booms

and busts in mining communities. Continued technologically driven productivity increases could lead to lower employment than assumed by IMPLAN or other projections.

Local Employment

The NorthMet Project Proposed Action's socioeconomic effects may be influenced by the degree to which PolyMet hires employees who already live in the socioeconomic study area. The FEIS assumes that at least some (but not all) direct and indirect jobs would be filled by current study area residents; more specific assumptions about the construction, operations, and closure phases are discussed in subsequent portions of this section, as are the ways in which changes in "local" employment shares would affect different aspects of the study area's socioeconomic character.

Environmental Costs and Non-market Value

The FEIS contains extensive discussion of the environmental and social effects of the NorthMet Project Proposed Action (and the Land Exchange Proposed Action) in this section and other resource-specific sections. These effects could, in turn, have real and/or perceived economic costs. Non-market values refer to the importance given to characteristics of the land that have personal or community value, but that are not typically expressed in monetary value. Beauty, quiet, and the ability to view nature are examples of non-market values.

Neither NEPA nor CEQ requires the cost and benefits of a proposed action to be quantified in dollars or any other common metric; however, this FEIS acknowledges that economic costs and loss of non-market value may result from environmental and social effects. Also acknowledged is that the agreement on the value (i.e., the "cost") of environmental effects is often difficult to achieve. Therefore, the approach of this FEIS is to evaluate environmental and social effects directly, in the appropriate resource-specific section (e.g., the impacts on wildlife are discussed in the Wildlife section, and impacts on water quality are discussed in the Water Resources section).

5.2.10.2 NorthMet Project Proposed Action

This section evaluates the NorthMet Project Proposed Action's effects on socioeconomics in the three-county study area.

5.2.10.2.1 Population and Population Trends

This section discusses the changes in the study area's population resulting from the NorthMet Project Proposed Action. These population changes would be driven primarily by NorthMet Project Proposed Action-related changes in employment.

Construction

IMPLAN modeling estimates that construction activities would create an average of 500 direct and 128 indirect construction jobs over the 18-month Phase I period (the most labor-intensive portion of the construction phase). The 204 induced jobs during this phase are likely to be existing residents hired to accommodate the additional demand from direct and indirect jobs.

Typical mine construction involves fluctuating work flows and specialized crews that may be employed for short duration tasks within the construction time frame. Very few construction

phase employees would work within the NorthMet Project area for the entire 30-month construction period (including Phase I, the 6-month gap, and Phase II).

Given the NorthMet Project area, most construction employees would likely be from Minnesota, and many would already live in the study area. Many direct and indirect employees are likely to reside outside of the communities in the immediate vicinity of the NorthMet Project area (e.g., Hoyt Lakes, Babbitt, Biwabik, Aurora). However, mine workers in the Arrowhead region and beyond "are willing to commute considerable distance to…well-paid jobs…to protect investment in their homes" (Power 2007). This finding is generally true of mine construction workers as well. As a result, most employees (regardless of project phase) would not need to relocate.

Due to the proximity of the NorthMet Project area to population centers such as Duluth (80 miles), Hibbing (50 miles), and Virginia (25 miles), the FEIS assumes that 80 percent of direct and indirect construction labor (approximately 500 employees during Phase I of construction, which requires more workers than Phase II) would commute to the NorthMet Project Proposed Action construction site on a regular basis (PolyMet 2012d). The FEIS assumes that another 5 to 10 percent of direct and indirect workers (approximately 25 to 50 employees) would temporarily reside in the study area, at local hotels or in designated mobile home facilities, but would not relocate their families to the region.

The remaining 10 to 15 percent of the direct and indirect workforce (as many as approximately 100 employees) would relocate to the study area for portions (or all) of the construction process (PolyMet 2012d). An influx of 100 workers would equate to as many as 225 total new residents (including family members—see the average population per housing unit in Table 4.2.10-14) who would seek long-term (e.g., more than a few months) residences in nearby communities. This represents an increase of less than one quarter of 1 percent over the 2010 population of the study area (approximately 216,000 residents—see Table 4.2.10-1), and slightly more than a 2 percent increase in the population of nearby cities (Aurora, Babbitt, Biwabik, Hoyt Lakes, Tower, and Virginia). Such a small increase would not meaningfully change the demographic composition of the study area; thus, construction of the NorthMet Project Proposed Action would have negligible effects on population.

Operations

During typical operations, the NorthMet Project Proposed Action would generate 360 direct and 330 indirect jobs. Direct and indirect employees are likely to work at the Mine Site, Plant Site, and in the study area for a substantial period of time (perhaps as long as the 20-year projected life of the mine). Direct and indirect employees who do not already live within commuting distance of the Mine Site and Plant Site (i.e., in the study area) are likely to relocate to the study area. It is not known how many direct employees would be current study area residents. PolyMet estimates that as many as 338 of the 360 new direct operations-phase positions (94 percent of these positions) could be filled by study area residents (PolyMet 2012c).

For purposes of this analysis, the FEIS assumes that approximately 75 percent of direct and indirect operations phase employees would be local residents who would not need to relocate as a result of employment. The FEIS also assumes that the vast majority of the 301 induced jobs created during operations would be filled by existing residents or the spouses and children of new NorthMet Project Proposed Action employees.

The remaining 25 percent of operations-phase workers (approximately 175 employees) would relocate to the study area with their families, causing a total increase of approximately 400 new residents (see the average population per housing unit in Table 4.2.10-14). This is less than one quarter of one percent of the study area population (approximately 216,000 residents).

These workers are likely to be younger, on average, than the existing populations of the study area communities, and may have higher overall incomes. Other demographic characteristics (race, level of education) cannot be determined. The effect of such a shift on housing and public services is discussed below.

Increases in worker productivity spurred by technological change could reduce the anticipated number of direct, indirect, and induced employees. The effect of such reductions would be to reduce the overall new population of the study area. This in turn would diminish the NorthMet Project Proposed Action's demographic effects.

Reclamation and Closure

During the closure of the NorthMet Project Proposed Action, PolyMet estimates that a reduced number of employees and contractors would remain employed for approximately 3 to 4 years for building demolition, but other closure activities would likely be followed by several years of reclamation activities (e.g., surface water quality monitoring). PolyMet is in the process of preparing reclamation designs and estimates. Current estimates are based on experience at closure of the former LTVSMC processing plant and include 30 to 50 FTEs for the first 7 years, which includes demolition, remediation, reclamation, construction, and monitoring, and 5 to 10 FTEs for the following 30 years, which includes a period of monitoring, reporting, and active water treatment. During closure, direct, indirect, and induced employment associated with the project would decline. All other factors being equal, by the end of the seven-year closure period, the demographic characteristics of the study area would likely revert to levels that could be expected under the NorthMet Project No Action Alternative.

5.2.10.2.2 Employment and Income

Table 5.2.10-2 shows the anticipated economic contributions of the NorthMet Project Proposed Action, as modeled using IMPLAN. Detailed estimates of jobs by type are provided in the IMPLAN Report (BBER 2012). The IMPLAN model includes assumptions about the portion of employment, value added, and output that accrues to the study area (in the case of the IMPLAN model, this is limited to St. Louis County), as opposed to the amount that "leaks" to locations outside of St. Louis County (BBER 2012). While the data in Table 5.2.10-2 depict the economic effects of the project specifically on St. Louis County alone, they capture the vast majority of the NorthMet Project Proposed Action's effects in the entire three-county study area. By comparison, the total value added to the Minnesota economy in 2009 (from all sources) was $268 billion (USFS, Pers. Comm., July 26, 2013).

Table 5.2.10-2 Summary of IMPLAN Model Results

Phase[1]	Direct Effect	Indirect Effect	Induced Effect	Total
Construction Phase I				
Value Added[2]	$143,637,243	$41,774,260	$61,120,854	**$246,532,357**
Output[3]	$312,000,009	$75,343,964	$101,199,927	**$488,543,900**
Employment	500	128	204	**832**
Construction Phase II				
Value Added	$75,501,628	$21,958,266	$32,127,628	**$129,587,122**
Output	$164,000,005	$39,603,897	$53,194,833	**$256,798,717**
Employment	264	68	107	**439**
Operations Phase – Startup				
Value Added	$44,619,571	$12,117,664	$6,865,833	**$63,603,068**
Output	$64,122,003	$23,821,174	$11,367,855	**$99,311,032**
Employment	300	275	251	**826**
Operations Phase – Typical Year				
Value Added	$231,315,193	$62,819,962	$35,593,610	**$329,728,765**
Output	$332,418,993	$123,492,880	$58,932,833	**$514,844,706**
Employment	360	330	301	**991**

Source: BBER 2012.

Notes:
1 The IMPLAN model did not include effects during the closure phase or post-closure period.
2 Defined in BBER 2012 as "a measure of the affecting industry's contribution to the local community; it includes wages, rents, interest and profits."
3 Defined in BBER 2012 as "the value of local production required to sustain activities."

Construction

Construction of the NorthMet Project would create as many as 832 jobs during the peak of Phase I, of which 500 would be mine construction jobs. Indirect and induced employment would be spread across a variety of industries, such as engineering, restaurants, medical providers, and hospitals (see Table 10 in BBER 2012). The NorthMet Project Proposed Action-related construction employment would increase overall study area employment by less than one percent at its peak (less during Phase II).

As discussed in Section 5.2.10.2.1, the FEIS assumes that a substantial share of direct construction jobs would be filled by study area residents—particularly those with construction experience—while other study area residents would obtain indirect and induced jobs. Construction is therefore expected to at least marginally reduce the unemployment rate in the study area.

It is not known how much of the estimated $376 million in total value added during the two parts of the construction phase would be dedicated to employee salaries, although employee pay is assumed to be a substantial share. The value added from the NorthMet Project Proposed Action is likely to be substantial compared to other non-ferrous (e.g., copper, nickel, lead, zinc) mining activity.

While employment related to the construction phase of the NorthMet Project Proposed Action would have minimal effects, the earnings from construction employees would be positive, albeit relatively short-lived (e.g., for no more than the 36-month overall construction phase).

Operations

Overall Effects

During typical year operations, the NorthMet Project Proposed Action would generate nearly 1,000 total direct, indirect, and induced jobs. This would increase study area employment by approximately one percent. One-third of new employment (360 jobs) would be direct mine-related jobs. The remainder would be spread among a variety of industries, such computer programming, restaurants, engineering, and health care (BBER 2012).

As discussed in Section 5.2.10.2.1, the FEIS assumes that a substantial share of direct operations jobs would be filled by study area residents, particularly those with mining experience. In 2009, there were approximately 3,000 mining jobs in the study area (U.S. Census Bureau 2009). This figure does not include residents who have skills appropriate for the mining sector but who are not currently employed in mining. Other local residents are likely to obtain indirect and induced jobs. Operation of the NorthMet Project Proposed Action could reduce unemployment in the study area by nearly one percent (991 new jobs out of 111,090 members of the workforce, see Table 4.2.10-9).

It is not known how much of the estimated $330 million in total value added during typical operations would be dedicated to employee salaries, although employee pay is assumed to be a substantial share. The NorthMet Project Proposed Action's estimated value added (and thus earnings) is substantial compared to the 2007 estimate of $250 million in annual statewide value added economic effects from non-ferrous mining (BBER 2009).

Earnings and all economic contributions of the NorthMet Project are influenced by external market factors, such as those discussed in Section 5.2.10.1.4. Significant decreases in metal prices and/or competition from other regions or countries can lead to reduced production. PolyMet states that, due to its structure as a "low-cost producer," the NorthMet Project Proposed Action would be unlikely to completely cease operations during a recession (PolyMet, Pers. Comm., March 29, 2012). That statement notwithstanding, complete suspension of mining activity is not an uncommon response to recession or significant drops in commodity prices. This "bust" aspect of the cyclical economy is familiar to mining regions in Minnesota and beyond (Power 2007; Freudenberg and Wilson 2002). Increases in productivity may not affect the output of the NorthMet Project Proposed Action (i.e., the sales price of the extracted and processed materials), but could reduce employment and value added.

To account for some of these concerns, commodity prices in the IMPLAN model are generally conservative, compared to price trends. In particular, copper, gold, and platinum prices used in the IMPLAN model are significantly below recent average prices. Nickel and cobalt, which are expected to comprise a small share of the total volume extracted by PolyMet, are significantly above current average prices, but were also conservative compared to contemporary prices that formed the basis of PolyMet's 2008 Bankable Feasibility Study (see notes in Table 5.2.10-1) (PolyMet 2008b). Section 5.2.10.1.4 provides more information about sources of uncertainty and variability.

Effects on Regional Tourism

Effects on species (game animals, fish, and vegetation) and resources (water quality, air quality, and noise) that contribute to the tourism industry are discussed in appropriate sections of Chapter 5. Housing is also an important component of the tourism industry—the Arrowhead region is often regarded as a location for long vacations, rather than short day-trips—and is discussed in Section 5.2.10.2.4. To the degree that the NorthMet Project Proposed Action adversely affects those resources, then it also has the potential to affect the tourism industry. However, the presence of the NorthMet Project Proposed Action would not significantly affect regional recreation or visual resources (see Section 5.2.11.2.1), nor would it affect air or water quality or increase noise levels in popular regional recreation resources such as BWCAW (see Section 5.2.12). Consequently, there is also insufficient evidence to suggest that the presence of the NorthMet Project Proposed Action would affect the tourism industry as a whole.

As discussed in 5.2.10.2.1, the NorthMet Project Proposed Action would retain a small workforce, generating a corresponding small number of indirect and induced jobs, to perform post-mining activities such as demolition and reclamation as well as to maintain a very small post-closure staff. Using the IMPLAN model's construction-phase employment multipliers (BBER 2012) a 50-person closure staff (direct employment) could equate to as many as 30 indirect and induced jobs (a decline, compared to the 1,000 operations-phase jobs generated by the NorthMet Project Proposed Action). Because no minerals or other commodities would be extracted, the value added from the closure phase would be limited to employee salaries, rents, and other contributions.

Closure

Overall, the employment, output, and value added from the closure phase would be small compared to the study area's overall economy. More important, at mine closure, workers who held operations-phase direct, indirect, and induced jobs would be expected to secure alternative local employment, retire, or relocate out of area. There would likely be a spike in unemployment and a resulting decline in income during the transition between the operations and closure phases. The 991 operations-phase jobs (including direct, indirect, and induced jobs) collectively account for less than one percent of the overall study area workforce (111,090 individuals—see Table 4.2.10-9). Any increase in study area unemployment during and after closure—resulting from individuals who remain in the study area workforce but who cannot find jobs—would be minimal. As former employees moved, found new work in the area, or retired, unemployment and income would normalize to levels predicted for the NorthMet Project No Action Alternative (holding all other economic variables constant).

5.2.10.2.3 Public Finance

The IMPLAN model estimates the value of several federal and state taxes, including personal income taxes (i.e., taxes paid by employees on their salaries), indirect business taxes, and other taxes paid as a result of the NorthMet Project Proposed Action for the duration of the project (BBER 2012). PolyMet provided the tax estimates for taxes that would be paid directly by the company (PolyMet, Pers. Comm., March 29, 2012). The remainder of this section discusses those tax estimates.

Construction

Construction of the NorthMet Project Proposed Action would generate approximately $51 million in federal tax revenue, and $24 million in state tax revenue (combined, both construction phases) (BBER 2012). A portion of these tax contributions would be returned to the study area through various federal programs (e.g., grants to school systems and state governments) and through distributions from the state's general fund. However, such effects on local public finances are indirect and difficult to quantify. Other construction-phase revenues could include sales and use tax on some materials used for NorthMet Project Proposed Action construction, although most such materials and supplies are exempt from the tax (MDR 2011).

Operations

The majority of economic benefits to the local community through taxes would be realized during the operations period. IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action.

PolyMet estimates that, if the NorthMet Project Proposed Action was currently in operation, its direct federal and state tax payments would have ranged from approximately $37 to $80 million per year during the previous 5-year period (PolyMet, Pers. Comm., March 29, 2012). Table 5.2.10-3 details how these direct tax payments would be divided among different state and federal taxes (as described in Section 4.2.10.1.3), if the NorthMet Project Proposed Action would have been in full operation in 2011. A substantial portion of state taxes would be returned to study area school systems, local governments, and local general funds.

Table 5.2.10-3 Estimated Annual NorthMet Project Proposed Action Taxes Paid, 2011 Dollars (millions)

	Minnesota Taxes[1]	**Federal Taxes[1]**
Net Proceeds Tax	$5.9	NA
Occupation Tax	$7.1	NA
Sales and Use Tax	$2.4	NA
Withholding Tax on Royalty Payments[2]	Undetermined	Undetermined
Ad Valorem Tax	$0.2	NA
Total	**$15.6**	**$64**

Source: PolyMet, Pers. Comm., March 29, 2012.

Notes:
[1] Assumes full operation at 2011 metal prices.
[2] Royalty payments would be subject to a 6.25% withholding tax. The value of this tax cannot be calculated or estimated at this time.

The magnitude of tax contributions is strongly linked to commodity prices. A significant drop in commodity prices would likely result in a significant reduction in tax revenue generated by the NorthMet Project Proposed Action. Even under such circumstances, operation of the NorthMet Project Proposed Action would benefit the local economy.

Reclamation and Closure

Closure activities would last approximately 20 years after cessation of operations. The first seven years of this period would be the most active, and would include reclamation, demolition, and restoration of the site. Years 7 to 20 of closure would include low-intensity monitoring, maintenance, and water treatment activities, followed by covering of the Tailings Basin at the end of this period. Low-intensity post-closure activities (such as long-term monitoring and maintenance) would extend indefinitely beyond year 20 of closure.

During closure and post-closure, the NorthMet Project Proposed Action would generate a small amount of tax revenue from the above activities, primarily from income taxes and business taxes. Other revenue sources, such as net proceeds taxes, and local ad valorem taxes would no longer apply. By the end of the closure phase, contributions to public finances would return to levels that would be expected for the NorthMet Project No Action Alternative. Relative to existing conditions, closure of the NorthMet Project Proposed Action would generate a negligible benefit for public finances in the study area.

5.2.10.2.4 Housing

Housing effects are tied to both employment and earnings; increases in both of these factors can cause increased demand for housing. There are more than 24,000 vacant housing units in the study area, of which approximately 7,000 are “permanent” (not seasonal) vacant units (see Table 4.2.10-14). Of that total, approximately 4,000 non-seasonal vacant units are located in the individual study area communities listed in Section 4.2.10 (the remainder are scattered throughout St. Louis, Lake, and Cook counties). All of these communities are within a reasonable commuting distance of the NorthMet Project area (Power 2007).

Construction

As described in Section 5.2.10.2.1, 75 percent of the construction-phase employees are expected to commute to their jobs from existing residences in or near the study area. Relatively few construction-phase employees (approximately 100) are expected to permanently relocate to the study area, due to the short-term and transient nature of mine construction. Given the existing vacant housing stock (and including seasonal units, which could be converted to permanent units at the owners’ discretion), this added demand in permanent housing in the study area would be largely imperceptible.

Approximately 25 to 50 employees may choose to procure temporary housing. This could consist of short-term rentals of available housing units (seasonal or otherwise), and use of mobile home parks or hotels/motels. Lodging and mobile home facilities close to the NorthMet Project area, such as those in Aurora, Hoyt Lakes and Babbitt, could be more heavily occupied throughout both phases of the construction period, affecting both availability and pricing for the region’s tourist demand. However, there are approximately 5,400 hotel rooms and more than 1,400 mobile home berths (as well as park facilities that permit mobile homes) in the study area (Northland Connection 2012). Construction-phase demand for these accommodations would not substantially limit availability.

Operations

Demand for permanent housing is likely to increase during the operations phase. As discussed in Section 5.2.10.2.1, approximately 175 workers would choose to relocate to the study area. The actual number of housing units required to accommodate this demand may be lower (less than 380), due to the presence of two-worker in-migrating households (e.g., the spouse of a direct employee may obtain an indirect or induced job). Even if there are no multiple-worker in-migrating households (an unlikely scenario), the study area has approximately 7,000 vacant non-seasonal housing units. Thus, the study area has adequate housing to accommodate the influx of workers associated with the NorthMet Project Proposed Action.

Individual communities close to the NorthMet Project area may experience more competition for available housing units. While it is unlikely that any single community would achieve 100 percent non-seasonal occupancy, such competition could drive up housing prices and could also encourage the renovation of existing housing units and/or construction of new housing units (either on vacant land or as replacements of older housing units). Given the small number of new residents, such effects would be minor.

As with other economic effects of the NorthMet Project Proposed Action, effects on housing are tied to market fluctuations and workforce productivity. Major changes in levels of production (caused by major changes in commodity prices) could cause effects on housing demand and value. However, the total estimated new housing demand associated with the NorthMet Project Proposed Action is relatively small compared to the region's existing housing supply. Even a market "bust" (a drop in commodity prices so severe that it causes shutdown of the NorthMet Project Proposed Action) should not dramatically alter the housing market in any single community, let alone the study area as a whole.

There are concerns that the presence of the NorthMet Project Proposed Action could reduce housing demand (and thus housing value) in the study area, because of the conflict between the NorthMet Project Proposed Action's heavy industrial character and the high-quality natural environment that supports the region's tourism economy and thus the housing market. As described in Section 5.2.11, the NorthMet Project Proposed Action's effects on recreation and visual resources would be very limited.

Given the coexistence of mining and tourism in the Arrowhead region, the NorthMet Project Proposed Action's effects on the study area's housing values would be minimal. The most likely result of the operation of the NorthMet Project Proposed Action is a minor increase in housing demand and prices in study area communities, with moderate effects in individual communities closest to the NorthMet Project area. Increased housing prices may or may not be a negative effect; average housing values in the communities closest to the NorthMet Project area are relatively low compared to other study area communities. Minor to moderate increases in housing value would likely be seen as a benefit by homeowners, and the opportunity to add newer housing stock (either through rehabilitation of existing units or the construction of new units) to the study area would generally improve property values, thus improving local property tax revenues in those communities.

Reclamation and Closure

During and following reclamation and closure of the NorthMet Project Proposed Action, it is likely that the demand for housing would drop as workers migrate from the area. Housing characteristics (vacancy rates and values) would likely revert to levels that would be expected for the NorthMet Project No Action Alternative. However, increases in housing demand spurred by the strength of the tourism industry and the increasing popularity of the study area for retirement could obscure any such declines.

5.2.10.2.5 Public Services and Facilities

The NorthMet Project Proposed Action would affect public services and facilities in the study area both directly and indirectly. Direct effects would include services provided to the NorthMet Project Proposed Action itself, and would largely be limited to demand for emergency response in the case of an accident. Indirect effects would include increased demand for public services such as potable water, sewer, emergency services, and schools in communities where direct, indirect, and induced employees and their families live.

Most public water and sewer infrastructure in the study area was designed to accommodate larger populations than currently exist; therefore, the NorthMet Project Proposed Action would generally have no effect on these services (see Table 4.2.10-15). As Section 4.2.10.1.5 shows, emergency and medical services are equipped to handle existing demand, and most have mutual aid agreements in place with nearby cities to cooperatively respond to major emergencies.

The public schools in the study area were constructed to accommodate larger populations than currently exist in the study area (e.g., the larger populations that were associated with the iron and taconite mining industry in the 1960s and 1970s). Collectively, public schools in the study area have capacity for nearly 22,000 students, with existing enrollment of nearly 16,000 students. Thus, these schools are able to support new students without building new facilities. To address concerns about maintenance of older buildings, several school facilities in the region have already established renovation programs, and some schools in Duluth plan to downsize (see Section 4.2.10.1.5). These plans predate the NorthMet Project Proposed Action, and would not be accelerated or changed by new population associated with any phase of the NorthMet Project Proposed Action.

The five technical and community colleges and two four-year colleges located throughout the study area provide a variety of degree programs. These schools would continue to provide educational opportunities to new and existing study area residents seeking further education, including high school graduates and existing employees seeking to enhance their job skills. Several community colleges and universities in the study area offer, or are developing, educational curriculum related to jobs in the mining industry.

Construction

Direct demands from construction of the NorthMet Project Proposed Action would primarily fall on local emergency service providers who would respond to any emergencies at the NorthMet Project area.

A small number of construction-phase employees and their families (approximately 225 total new residents, as described in Section 5.2.10.2.1) are expected to permanently relocate to the study area, while another 150 employees would stay in the study area for moderate periods of time (from several weeks to several months), in hotels or mobile homes. All of these employees would generate indirect demand for drinking water, wastewater capacity, and emergency services; the relocated residents would also generate demand for space in public schools.

Public schools in the study area generally have sufficient capacity to accommodate new students. As described in Section 4.2.10.1.5, several school facilities in the region are in need of renovation. This need predates the NorthMet Project Proposed Action, and would not be exacerbated by the relatively small number of new students added by NorthMet Project Proposed Action construction.

Operations

Direct demands from operation of the NorthMet Project Proposed Action would primarily fall on local emergency service providers who would respond to any emergencies within the NorthMet Project area. Approximately 400 operation-phase employees and family members are expected to relocate to the study area (see Section 5.2.10.2.1). All of these employees and their families would generate demand for drinking water, wastewater capacity, emergency services, and school capacity.

Additional police, fire, and ambulance staff may be required to service increased populations in study area cities, particularly in smaller cities. However, these expansions are likely to consist of one to two employees per service (e.g., one new police officer, two new firefighters), per city, as well as upgrades of existing equipment, rather than wholesale expansions of police and fire departments. Increased tax revenues from the NorthMet Project Proposed Action would be expected to cover the costs of these expansions.

Reclamation and Closure

During reclamation and closure of the NorthMet Project Proposed Action, direct and indirect demands for public service would decrease to baseline levels (those present at the start of the NorthMet Project Proposed Action) due to the anticipated decrease in population and activity at the Mine Site and Plant Site. Any cap upgrades to public services and facilities constructed to accommodate operations-phase demands, such as newer police and fire vehicles, would be available to the remaining residents of the study area during closure and post-closure activities.

5.2.10.2.6 Environmental Justice and Subsistence

Evaluation of EJ effects—the degree to which the potential effects of the NorthMet Project Proposed Action or any alternative are felt disproportionately across a community, considering ethnicity, age, and income—follows criteria set forth in the following federal EOs:

- EO 12898, (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, 1994), directs federal agencies to incorporate EJ into their mission and activities. Federal agencies are to accomplish this by conducting programs, policies, and activities that substantially affect human health or the environment in a manner that does not exclude communities from participation in, deny communities the benefits of, or subject

communities to discrimination under such actions, because of their race, color, or national origin.

- EO 13045, (*Protection of Children from Environmental Health Risks and Safety Risks*, 1997), requires each federal agency give high priority to the identification and assessment of environmental health and safety risks to children.

In particular, this EJ analysis focuses on the degree to which the NorthMet Project Proposed Action could disproportionately affect the populations described above and includes residents of the study area, as well as Band members who use the study area for subsistence, regardless of where they live.

Minority (non-white) populations comprise less than 5 percent of the study area, and less than 5 percent of the individual communities listed in Table 4.2.10-3 (except for the three reservations). By comparison, the minority population of Minnesota was approximately 15 percent. The following groups in the study area meet the criteria described above:

- Approximately 13.5 percent of the study area population is below the federal poverty level, compared to 10 percent for the state.
- Native Americans comprise 2.3 percent of the study area, compared to 1.1 percent of the state population.
- Children (individuals under 18 years of age) comprise nearly 29 percent of the study area population, compared to 24 percent for the state.

Native American tribes exercise usufructuary rights to hunt, fish, and gather plants within the 1854 Ceded Territory, which includes the study area. This section discusses the degree to which the NorthMet Project Proposed Action would disproportionately affect these subsistence practices, with the understanding that these practices have both socioeconomic and cultural value for the Native American tribes. Section 5.2.9 discusses the cultural aspects of subsistence in greater detail.

Construction

As described in Section 5.2.10.2.2, the economic effects of construction of the NorthMet Project Proposed Action would be largely positive. Construction would provide new jobs, substantial new earnings, and indirect contributions to public finances. Potential negative socioeconomic effects of construction of the NorthMet Project Proposed Action include increased demand for short-term housing (hotels and mobile home facilities)—although this is a benefit for the owners of those facilities—and increased demand for public services (especially emergency services). These negative effects are generally minor.

Increased public service demands would not disproportionately affect EJ populations. Increased prices would negatively affect the study area's poorest residents who did not receive a commensurate direct or indirect economic benefit from the NorthMet Project Proposed Action. Approximately 150 workers are expected to relocate to or occupy short-term housing in the study area during construction. This number of new and temporary residents, and therefore demand for public services, is small compared to available vacant housing, although poor residents closer to the NorthMet Project area may experience higher prices and demand than in the study area as a whole.

The NorthMet Project area is within the 1854 Ceded Territory. Section 4.2.10.1.6 and Table 4.2.9-1 in Section 4.2.9 summarize available information about subsistence patterns and resources within the 1854 Ceded Territory. Construction of the NorthMet Proposed Action would make the Mine Site unavailable for subsistence use. The degree to which construction of the NorthMet Project Proposed Action would affect individual subsistence resources (i.e., fish, game, and plant species) outside of the Mine Site, Transportation and Utility Corridor, and Plant Site is discussed in Section 5.2.9 (Cultural Resources).

Operations

As described in Section 5.2.10.2.2, the economic effects of operation of the NorthMet Project Proposed Action would be largely positive. Operations would provide new jobs, substantial new earnings, and substantial direct and indirect contributions to public finances.

Potential negative socioeconomic effects of operation of the NorthMet Project Proposed Action include increased demand for housing (which could negatively affect the study area's poorest residents who did not receive a direct or indirect commensurate economic benefit from the NorthMet Project Proposed Action) and increased demand for public services and facilities.

Increased public service demands would not disproportionately affect minority and low income populations. The influx of direct, indirect, and induced NorthMet Project Proposed Action employees could cause demand for as many as 175 housing units across the study area. While this number is small compared to available vacant housing in the study area, some marginal increase in housing demand and cost, as well as demand for public services, is possible, particularly in communities closer to the NorthMet Project area. Increased housing competition would likely affect the study area’s poorest residents, particularly renters (whose housing costs are more volatile), and particularly those living closer to the NorthMet Project area.

Operation of the NorthMet Project Proposed Action would make the Mine Site unavailable for subsistence use; noise and other consequences of operations could affect migration or other animal species behavior in the vicinity of the Mine Site and Plant Site (see Section 5.2.5, Wildlife).

Operations could affect individuals who consume fish harvested from nearby waterbodies. The NorthMet Project Proposed Action would increase mercury concentrations in the Embarrass River Watershed, as well as some nearby lakes, although it would decrease mercury concentrations in the Partridge River watershed (see Section 5.2.2.3.4). As described in Section 4.2.10.1.6, subsistence fishing and consumption is a common activity for Native American bands in the 1854 Ceded Territory. Members of the Grand Portage and Fond du Lac bands are known to consume substantially more fish than the assumed statewide average. As a result, increased mercury concentrations, and potential increases in mercury bioaccumulation in fish tissue could therefore constitute an EJ impact for Band members and other subsistence consumers of fish. However, the AERA assessed health effects for recreational and tribal fishermen and their families consuming fish that could potentially contain elevated bioaccumulated levels of methylmercury. A potential small change in fish mercury concentration was estimated based on modeled emissions and deposition. The potential change in methylmercury concentration is not statistically measureable given variability in background concentrations and current laboratory analytical methods (Barr 2013j). Therefore, there is no expected change in fish mercury

concentrations, and no subsequent change in human health risks related to fish consumption (see Section 5.2.7.2.5). This information is summarized in Section 7.3.4.4.3 of the FEIS.

Reclamation and Closure

During reclamation and closure, socioeconomic characteristics of the study area would revert to conditions that would be expected for the NorthMet Project No Action Alternative. Employment, earnings, and contributions to public finances generated by the NorthMet Project Proposed Action would end (potentially with a phase-out period); housing demand and prices would ease as would demands for public services and facilities. Poorer residents of the study area would have more difficulty coping with this transition if they hold lower-paying, less secure "induced" jobs (as opposed to direct or indirect jobs), as they may have more difficulty moving out of the study area to secure new jobs (particularly if housing values drop). However, given the relatively small number of jobs generated by the NorthMet Project Proposed Action (compared to the total number of jobs held by study area residents), these difficulties would not be substantially higher than existing conditions.

As during other phases, land access to the NorthMet Project area would remain closed to the public during and following the closure phase. Deposition of mercury from the NorthMet Project Proposed Action would cease at closure. Per the AERA assessment, there is no expected change in mercury concentrations in fish, and no subsequent change in human health risks related to fish consumption (see Section 5.2.7.2.5).

5.2.10.3 NorthMet Project No Action Alternative

Under the NorthMet Project No Action Alternative, the NorthMet Project Proposed Action would not be developed. There would be no NorthMet Project Proposed Action-related change to the study area. Externally existing demographic trends such as population growth or decline, and shifts in employment patterns would continue. The study area would not accrue the economic benefits of the NorthMet Project Proposed Action, nor would it experience any of the negative effects identified in this FEIS. As described in Section 5.2.10.2, the presence of the NorthMet Project Proposed Action would not hamper growth of the Arrowhead region's tourism industry; the NorthMet Project No Action Alternative would not hasten this growth, either. Overall, the NorthMet Project No Action Alternative would have no effect on socioeconomics in the study area.

5.2.11 Recreation and Visual Resources

This section describes the potential environmental effects of the NorthMet Project Proposed Action on recreational facilities and activities that typically take place in the NorthMet Project area, as well as the surrounding Arrowhead region. Recreation in this region is strongly tied to the aesthetic condition of the landscape so this section also describes the effects of anticipated project activities on visual resources in the NorthMet Project area and surrounding land.

Summary

Most of the Mine Site, a part of the Superior National Forest, is currently public land. However, the Mine Site is surrounded by private land that lacks public roads or trails and is therefore not publicly accessible by land. The Transportation and Utility Corridor and Plant Site are privately owned lands and are not open to the public for recreation. Direct effects on recreation in this area from the NorthMet Project Proposed Action would be limited. With the exception of the Skibo Vista Scenic Outlook, views of project activities would be limited by topography and distance. The NorthMet Project could reduce recreational use of nearby lands, including portions of the Superior National Forest, but would not affect recreational patterns and facilities in the Arrowhead region as a whole. The BWCAW and Voyageurs National Park (recreational resources that are discussed in greater detail in Section 5.2.12) are each more than 19 miles from the NorthMet Project Area. An analysis of potential air quality effects demonstrated that there are no expected effects on visibility in these areas when compared to pristine conditions.

5.2.11.1 Methodology and Evaluation Criteria

5.2.11.1.1 Recreation

The primary issues related to recreational facilities and activities on and near the proposed project facilities include the following:

- Direct effects due to construction, operation, and closure of the NorthMet Project Proposed Action resulting in the reduction of the number and/or acreage of recreational facilities (parks, lakes, trails, etc.) potentially available for public use;
- Indirect effects of the NorthMet Project Proposed Action, including reduction in the use of recreational facilities in areas surrounding the proposed project facilities due to noise, dust, and other disturbances; and
- The net effect of local (i.e., the area surrounding the Mine Site and Plant Site) and regional recreation during post closure.

Evaluation of the NorthMet Project Proposed Action against these criteria was based on comparison to the USFS ROS for land that is controlled by USFS. The USFS uses the ROS to inventory recreational settings and characteristics (see Section 4.2.11.1 for further explanation of the ROS).

Effects on the region’s overall recreation resources (e.g., lands not necessarily controlled by USFS) are based on qualitative analysis of NorthMet Project Proposed Action activities, as they relate to the region’s recreational opportunities (as summarized in Section 4.2.11). Specific considerations include distance (both direct and via road or trail) between the NorthMet Project and various recreation resources, and the likelihood that the NorthMet Project Proposed Action

would change the noise or visual environment, or the character of water, flora, and fauna present in these resources. These evaluations are based on extensive touring of the region and review of available mapping and descriptive material about the region's recreation resources.

5.2.11.1.2 Visual Resources

The primary issues related to visual resources on and near the Mine Site and Plant Site include the following:

- The nature and severity of effects of the NorthMet Project Proposed Action on sensitive viewpoints, including nearby homes, businesses, and vistas;
- Changes to the extent or scale of visible mining disturbances; and
- The ultimate appearance of the NorthMet Project Proposed Action after reclamation is completed versus current and interim stages of active mining.

Evaluation of the NorthMet Project Proposed Action against these criteria was based on comparison to the USFS Scenery Management System classes for land that is or would be controlled by the USFS. The USFS uses the Scenery Management System to identify desired visual conditions, as expressed by SIOs (see Section 4.2.11.1 for further explanation of SIOs).

Effects on the region's overall visual environment (e.g., lands not necessarily controlled by USFS) are based on qualitative analysis of the NorthMet Project's activities (particularly structures, stockpiles, and other visible activities), as they relate to what observers are likely to see in the region. This understanding is based on extensive touring and photo-documentation of views and visual conditions in the region. In addition, GIS, printed maps, and aerial photography were used to identify potential sensitive viewpoints, for which visual simulations of future mine facilities were developed.

5.2.11.2 NorthMet Project Proposed Action

5.2.11.2.1 Recreation

Surface rights to most of the Mine Site are held by the USFS, as part of the Superior National Forest. As described in Section 4.2.11, the ROS classes for the portion of the Mine Site located on federal lands are Semi-Primitive Motorized and Roaded Natural. The setting and characteristics of the portion of the Mine Site located on private lands is similar to the Roaded Natural class. However, there is no officially established public access (e.g., roads or trails) to the Mine Site (see Section 4.2.11.1), and thus limited opportunity for recreational activity. No access (or recreational opportunities) would be allowed during construction, operation, or closure of the NorthMet Project Proposed Action. Accordingly, the NorthMet Project Proposed Action would have no effect on recreation within the Mine Site.

Construction and operation of the NorthMet Project Proposed Action would be entirely contained within the NorthMet Project area (i.e., the Mine Site, Transportation and Utility Corridor, and Plant Site). Thus, the NorthMet Project Proposed Action would not directly affect access to or use of regional recreational facilities such as other portions of the Superior National Forest, nearby parks and other public lands, or the BWCAW.

The public's enjoyment of recreational activities in the region—such as hunting, fishing, boating, hiking, and winter sports—is tied in part to visual resources, as discussed below, and also to a

wide variety of factors evaluated in other sections of Chapter 5.0. Such factors include, but are not limited to, recreation access including roads, trail access, boat access, and parking areas; the availability and quality of fish and other aquatic species; vegetation; wildlife (particularly game species); noise; air quality; water quality; and wetlands. Effects on these resources are presented in the corresponding sections in Chapter 5.0.

The mine facilities such as mine pits, stockpiles, and associated facilities would be set back from most publicly accessible land, including portions of the Superior National Forest south of the Transportation and Utility Corridor. In addition, the lack of designated trails in these portions of the Superior National Forest means that the number of recreational users who would approach the Mine Site would be limited. Nonetheless, the presence of the NorthMet Project Proposed Action would likely make recreational activities in the immediate vicinity of to the Mine Site, Transportation and Utility Corridor, and Plant Site less enjoyable (and therefore less likely) for some observers. In particular, three potential effects of the NorthMet Project Proposed Action could reduce recreational activity: noise, effects on fish populations (related to recreational fishing), and effects on wildlife populations (related to recreational hunting).

The presence of noise could discourage use of the portions of the Superior National Forest closest to the Mine Site and Plant Site (e.g., immediately south of the Transportation and Utility Corridor). Noise levels, including operational noise, ground vibration, and airblast overpressure, that exceed the most stringent category of state noise standards generally would not extend more than 0.9 mile from the Mine Site during the day and 2.3 miles at night (see Figures 5.2.8-1 through 5.2.8-4).

The ROS classes for those portions of the Superior National Forest within 2.3 miles of the Mine Site are Semi-Primitive Motorized and Non-Motorized. NorthMet Project Proposed Action-related noise would affect up to 6,450 acres of the Superior National Forest within this 2.3 mile area. In these areas, project-related noise could limit full realization of the intended ROS classifications. Outside of the 2.3 mile area, NorthMet Project Proposed Action-related noise would not be inconsistent with ROS classes.

NorthMet Project Proposed Action-related noise, air emissions, and water discharges could potentially influence wildlife behavior in portions of the Superior National Forest closest to the Mine Site and Plant Site, as discussed in the wildlife Section 5.2.5. To the degree that game species are disturbed by NorthMet Project Proposed Action-related noise, they could choose to avoid this portion of the Superior National Forest, leading to reduced hunting opportunities in these areas. However, the area affected by noise comprises approximately 0.2 percent of the more than 3 million acres of the Superior National Forest. Species displaced by noise are likely to remain in surrounding areas of the Superior National Forest; overall opportunities for hunting and wildlife viewing on public lands in the region are not expected to change substantially.

Excluding effects related to noise, fisheries, air quality, and other effects described elsewhere in Chapter 5.0, and given the proximity of active and past mining and industrial activity to high-quality recreational activity in the Arrowhead region (such as the BWCAW), there is no evidence that the presence of the NorthMet Project Proposed Action in and of itself would affect the public's ability to hunt, fish, and conduct other recreational activities, or that it would affect the overall recreational experience (apart from specific activities) in the Arrowhead region as a whole.

After closure, PolyMet would retain ownership of the Mine Site and the federal lands, and public access would likely remain restricted.

The Plant Site is located at the former LTVSMC processing plant. It is owned by PolyMet, and it is not open to the public. Entry roads are gated and/or guarded. No recreational activity is permitted at this site, nor would it be permitted during construction, operation, and closure of the NorthMet Project Proposed Action.

5.2.11.2.2 Visual Resources

At the Mine Site, the maximum height of the waste rock stockpiles would range from approximately 1,840 ft amsl (Category 1 Stockpile and Category 4 Stockpile) to 1,770 ft amsl (Category 2/3 Stockpile), or a maximum stockpile elevation of 180 to 240 ft above ground surface (PolyMet 2015a). The Giants Range rises sharply to the north of the Mine Site, blocking views of the mine, stockpiles, and safety lights (used when the stockpiles are active) from receptors to the north and west, including the BWCAW.

The Mine Site would be in operation 24 hours per day; therefore, nighttime safety lighting of the active stockpiles would potentially contribute to a localized “glow” effect that could be visible in the night sky. Light sources at the Mine Site would be similar to light levels at other mining projects across the Iron Range. For example, most of the lighting at the Mine Site would be directed downward, such as at the digging area in the case of the shovels and loaders, at the driving surface in the case of the haul trucks and locomotives, and at the dumping area at the stockpiles and the rail transfer hopper. The area around the blasthole drills would be illuminated so the drill can maneuver around the pattern. PolyMet does not propose any further specific mitigation measures with respect to light effects (PolyMet, Pers. Comm., July 25, 2012).

The upland forest surrounding the Mine Site to the east, south, and west would shield ground-level views of the Mine Site (including mine, stockpiles, and associated facilities) in those areas. These forest stands are a mix of coniferous and deciduous forests upwards of 60 ft in height and would provide year-round screening within several miles of the Mine Site (except, perhaps, from portions of the Superior National Forest that are very close to the southern boundary of the Transportation and Utility Corridor).

Viewers at elevated vistas to the south would have clearer views of the Mine Site. Figure 5.2.11-1 simulates the profile of the maximum extent of stockpiles (the largest visible component of the Mine Site) from the Skibo Vista Overlook on the Superior National Forest Scenic Byway, approximately 12 miles south-southwest of the Mine Site. Given the 180- to 240-ft height of the stockpiles, a portion of these would be visible above the treeline. The stockpiles would not project above Giants Range or alter the silhouette of the skyline.

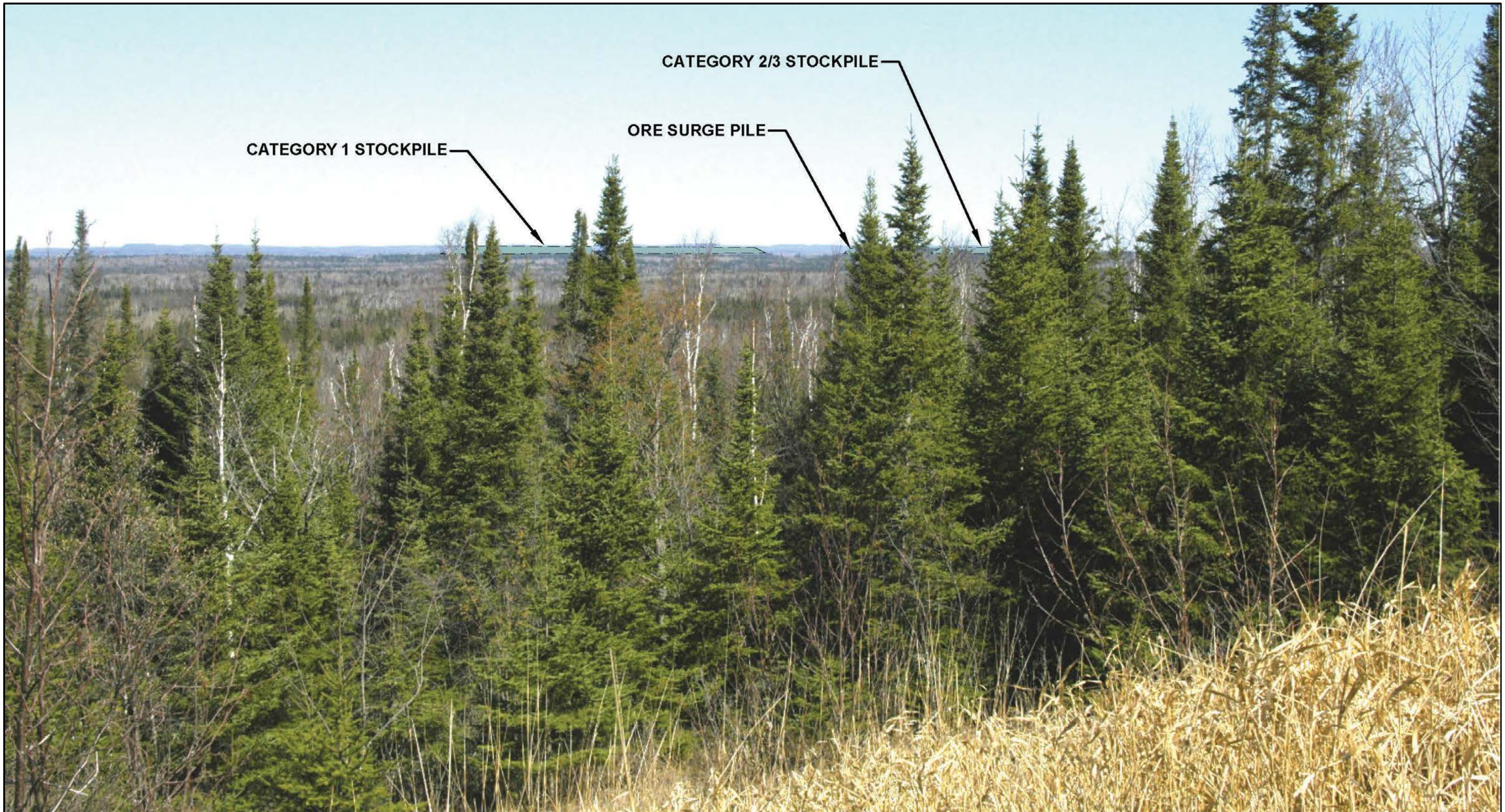

Figure 5.2.11-1
Photo Simulation - View of Mine Site from Skibo Overlook
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Visual conditions would vary throughout the course of the mine's life. Initially, stockpiles would be less visible until heights exceed the surrounding treeline. The Category 2/3 Stockpile and Category 4 Stockpile would reach their maximum heights in year 11, after which they would be relocated into the East Pit. The Category 1 Stockpile would reach its maximum and permanent height in year 12 (excluding the cover material placed over the stockpile at mine closure). The height, shape, and coloring of the stockpiles would vary throughout the life of the mine; however, the coloring of the stockpiles would likely differ from the surrounding landscape, and would likely be more visible during winter months when screening from deciduous trees is at a minimum (although snow cover could tend to make the stockpiles look more like natural landforms). Viewers on elevated terrain to the east, north, or west of the Mine Site would generally have more limited views of the mine and stockpiles, although there could be sporadic direct views of the Mine Site, depending on exact location and vegetative screening

Mining and associated industrial activities are long-established aspects of the Mesabi Iron Range landscape. The NorthMet Project Proposed Action would introduce visual elements to the landscape that are similar to other active mines in the region, such as the adjacent Northshore Mine. However, these visual disturbances would occur in an area that, as shown in Figure 5.2.11-1, is currently vegetated.

In addition to the new visible components of the Mine Site and Plant Site (see below), mine construction, operations, and closure would likely generate some visible diesel exhaust and fugitive dust emissions from mine vehicles. Construction and closure emissions would likely be difficult to discern from the Skibo Vista Overlook and other distant viewpoints (see Section 5.2.7 for more details on anticipated emissions). As with the mine facilities themselves, construction emissions would generally be difficult to see from closer viewpoints due to the screening effect of terrain and vegetation.

Evaluations of visual conditions are subjective, and are based in part on individual preferences. Many viewers consider any substantial disturbance of the existing landscape to be undesirable, but some viewers find industrial sites visually compelling. While much of northeast Minnesota's recreation and tourist economy is based on high-quality wildlife, wilderness, and vegetation, there are distinct mine-related tourism resources. The Low SIO of the federal lands associated with the Mine Site indicates that the Mine Site is an area where the USFS has determined that evidence of management activities may dominate the view.

Following the completion of the mining activities, the PolyMet reclamation plan would remove all buildings and facilities at the Mine Site, and would revegetate disturbed areas with an approved vegetation mix. The Category 1 Stockpile would remain in place, and would also be vegetated, to the degree possible. This structure would be noticeable above the treeline, especially in winter, as shown in Figure 5.2.11-1. However, other similar stockpiles are found throughout the region. Over time, this feature would take on the appearance of a vegetated hill, and would blend in with the overall landscape.

No substantial changes are anticipated to the visual character of the Plant Site during NorthMet Project Proposed Action operations. The NorthMet Project Proposed Action would use, update, and expand existing infrastructure at the former LTVSMC processing plant, including an expanded Tailings Basin, additional hydrometallurgical processing facilities, and refurbished mill buildings. Figure 5.2.11-2 shows the current view of the Plant Site from Skibo Overlook. New structures constructed as a result of the NorthMet Project Proposed Action would not be

visible from the overlook. During operations, steam plumes from the Plant Site would be visible under certain conditions, particularly from distant viewpoints such as Skibo Vista. To the degree that existing processing buildings are refurbished or removed (as appropriate), the NorthMet Project area would create the appearance of an active, maintained industrial site, rather than the current dilapidated appearance.

The Tailings Basin is visible to rural residences on County Road 358, located approximately 1 mile to the north of the Plant Site. The NorthMet Project Proposed Action would raise the elevation of Cells 1E and 2E to approximately the same elevation as the existing Cell 2W. The hydrometallurgical residue cells would raise the elevation on the southern portion of Cell 2W by about 40 ft. These changes would not be out of character with the existing Tailings Basin, although the low silhouette of the Tailings Basin on the southern horizon would be noticeably expanded.

Through the closure process, all buildings and facilities at the Plant Site would be removed. At-grade (or below-grade) slabs and foundations would remain and would be covered with surface overburden. Most structures would be removed within three years of the start of closure, except for water treatment facilities necessary to maintain post-closure water quality standards. The Plant Site would be revegetated and seeded to promote a self-sustaining community of regionally-appropriate vegetation. As a result, the visual appearance of the Plant Site during and following closure would evolve rapidly from the operations-phase industrial character to a vegetated area that progressively becomes indistinguishable from adjacent vegetated areas.

5.2.11.3 NorthMet Project No Action Alternative

5.2.11.3.1 Recreation

Under the NorthMet Project No Action Alternative, the NorthMet Project Proposed Action would not be developed. The Mine Site would remain unchanged, and the USFS would continue to retain surface rights to the federal lands that comprise portions of the Mine Site. Given other private ownership (e.g., the Transportation and Utility Corridor), the federal lands would remain generally inaccessible to the public. There would be no direct or indirect effects on recreational activities at the Mine Site or the region's surrounding recreational resources. Under the NorthMet Project No Action Alternative, the NorthMet Project Proposed Action would not be developed, and the Plant Site would remain off-limits to the public for recreation or other uses.

5.2.11.3.2 Visual Resources

Under the NorthMet Project No Action Alternative, the NorthMet Project Proposed Action would not be developed, and would retain the Low SIO assigned by USFS. The Mine Site would remain unchanged, and there would be no effects on visual resources at the Mine Site. Under the NorthMet Project No Action Alternative, the NorthMet Project Proposed Action would not be developed. The former LTVSMC process facility would be reclaimed, including building removal, in accordance with a separate closure plan. Reclamation activities could create a short-term disruption of the visual landscape, while long-term effects would be to reduce the developed nature of the site sooner than under the NorthMet Project Proposed Action.

MNDNR

US Army Corps of Engineers
St. Paul District

Figure 5.2.11-2
Photo Simulation - View of Plant Site from Skibo Overlook
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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5.2.12 Wilderness and Other Special Designation Areas

Designations such as Wilderness or RNAs emphasize higher restrictions on human activity and access, while other designations, such as historic landmarks or scenic byways, emphasize management that seeks to enhance public enjoyment of certain spaces. Evaluation of the effects on each type of designation considered how each set of characteristics or management objectives would be changed by the NorthMet Project Proposed Action or the project alternatives. Potential effects could occur due to mining activity or due to changes in other human activity resulting from mining activity. No specific issues related to wilderness or special designation areas were identified during public scoping. As discussed in Section 4.2.12, for the purposes of this analysis, the term "wilderness" is defined by the Wilderness Act of 1964 (Public Law 88-577) (16 USC § 1131-1136). In its planning, management, and monitoring, the USFS identifies four characteristics of wilderness, as defined in the Wilderness Act: Untrammeled, Undeveloped, Natural, and Solitude or a Primitive and Unconfined Type of Recreation.

Summary

The NorthMet Project Proposed Action would have no direct effects on wilderness or special designation areas. Air quality and water quality in these areas would be virtually unchanged from existing conditions; distance from activities associated with the NorthMet Project Proposed Action would leave ambient noise levels also unchanged. The absence of these direct effects means that there would be no indirect effects on wildlife, vegetation, or aquatic species. There could be a minimal visual effect on the Skibo Vista Scenic Overlook along the Superior National Forest Scenic Byway, and therefore an associated indirect effect on recreation.

5.2.12.1 Methodology and Evaluation Criteria

This section uses data presented in Section 4.2.12 for all wilderness or special designation areas (including state parks) within a 25-mile radius of the NorthMet Project area. While no direct effects on wilderness character or special designation areas are anticipated due to changes in air quality, water quality or noise, recreation opportunities could be indirectly affected because of a small change in visual character.

For land that is or would be controlled by the USFS, the recreation evaluation criteria of the ROS system were used to determine indirect project effects (see Section 5.2.11.1.1).

5.2.12.2 NorthMet Project Proposed Action

5.2.12.2.1 Federally Managed Areas

Table 5.2.12-1 lists the federally managed wilderness and other special designation areas within or adjacent to the NorthMet Project area and indicates significant features that would have the most bearing on the potential effects of the NorthMet Project Proposed Action. Isle Royale National Park is outside of the study area for evaluation of Wilderness and Other Special Designation; however, the visibility analyses in Section 5.2.7.2.2 do include Isle Royale National Park.

Table 5.2.12-1 Federally Managed Wilderness and Other Special Designation Areas located within or Adjacent to the NorthMet Project Area

Special Designation Area	Distance (miles) to the NorthMet Project Area	Significant Feature
Boundary Waters Canoe Area Wilderness	25	Laurentian Divide
Voyageurs National Park	50	Laurentian Divide
Research Natural Areas		
Big Lake-Seven Beavers cRNA	12	Watershed, topography, vegetation
Keeley Creek RNA	25	Watershed, topography, vegetation
Dragon Lake cRNA	25	Watershed, topography, vegetation
Unique Biological Areas		
Little Isabella River UBA	25	Watershed, topography, vegetation
Harris Lake National Natural Landmark	20	Watershed, topography, vegetation
National Historic Landmark		
Soudan Iron Mine	18	Topography, vegetation
National Recreation Trail		
Taconite State Trail	15-17	Topography, vegetation

The table shows that all of the federally managed areas would be well-removed from activities related to the NorthMet Project Proposed Action, and generally would be screened by intervening topography and vegetation.

Effects from the NorthMet Project Proposed Action associated with Class I Increment, visibility, and sulfur dioxide effects on flora and fauna would be all well below their respective significance levels in all Class I areas, including the BWCAW and Voyageurs National Park. In addition, all sulfur dioxide and sulfur deposition relating to terrestrial and aquatic settings would be well below “green light” significance levels in these areas. Total nitrogen deposition effects approach their significance levels at the BWCAW (see Section 5.2.7.2.2).

Due to the presence of the Laurentian Divide, there would be no direct effects on waters of the BWCAW or Voyageurs National Park. The NorthMet Project area is in the Lake Superior Basin, while these two Class I areas are to the northeast of the Laurentian Divide where streams and rivers flow to the Hudson Bay Basin.

As described in Section 5.2.8, daytime noise standards for sensitive receptors would not be reached beyond 0.8 mile from the Mine Site and 0.5 mile from the Plant Site. The nighttime noise standards would not be exceeded beyond 2.3 miles from the Mine Site and 1.5 miles from the Plant Site. The BWCAW and Voyageurs National Park, as well as the rest of the specially designated areas within 25 miles of the NorthMet Project area are all located at distances much greater than these ranges and so would not be expected to be directly affected by NorthMet Project Proposed Action-related noise. Nighttime views from the BWCAW toward the NorthMet Project area and nearby towns are such that light from the NorthMet Project Proposed Action would be indistinguishable from other sources of illumination.

The RNAs, cRNAs, and UBAs are also in watersheds not affected by the NorthMet Project Proposed Action so there would be no direct or indirect effects on surface water or groundwater in these areas. Topography and vegetation again screen these areas from view of the NorthMet Project Proposed Action-related activities so there are no direct effects on visual resources or indirect effects on recreation.

By virtue of distance, as well as topography and vegetation, the Taconite State Trail would experience neither direct nor indirect effects from the NorthMet Project Proposed Action.

By virtue of distance, topography, watershed, or vegetation, none of the four characteristics of Wilderness defined above (Untrammeled, Undeveloped, Natural, and Solitude or a Primitive and Unconfined Type of Recreation) would be affected by the NorthMet Project Proposed Action.

5.2.12.2.2 State-Managed Areas

Table 5.2.12-2 shows that all of the state-managed wilderness and other special designation areas would be well-removed from activities related to the NorthMet Project Proposed Action and generally would be screened by intervening topography and vegetation.

Table 5.2.12-2 State-Managed Wilderness and Other Special Designation Areas located within or Adjacent to the NorthMet Project Area

Special Designation Area	Distance (miles) to the NorthMet Project Area	Significant Feature
Boundary Waters Canoe Area Wilderness	25	Laurentian Divide
State Parks		
Soudan Underground Mine State Park	18	Watershed, topography, vegetation
Lake Vermilion State Park	16	Watershed, topography, vegetation
Iron Range Off-Highway State Park	11	Watershed, topography, vegetation
Bear Head Lake State Park	17	Watershed, topography, vegetation
National Historic Landmark		
Soudan Iron Mine	18	Topography, vegetation
National Scenic Byway		
Superior National Forest Scenic Byway	9	Topography, vegetation

All of the state parks have been shown to be in areas where predicted concentrations would be below secondary air standards that are designed to protect public welfare, including decreased visibility and damage to animals, crops, and vegetation. None of the state parks are within watersheds potentially affected by the NorthMet Project Proposed Action, so there would be neither direct effects on water quality nor indirect effects on aquatic species or wetlands.

Topography and vegetation screen the parks from view of the activities within NorthMet Project area, so there would be no direct effects on visual resources and no indirect effects on recreation.

The Superior National Forest Scenic Byway is at a distance where it would be unaffected by NorthMet Project Proposed Action-related noise. Similar to other specially designated resources, there would be no direct or indirect effects due to air quality or water quality (i.e., visibility of waters potentially affected by the NorthMet Project Proposed Action). Most of the Byway is screened from view of the NorthMet Project Proposed Action by topography and vegetation. However, from Skibo Vista Scenic Overlook, which is approximately 12 miles south-southwest of the Mine Site, a portion of the stockpiles would be visible above the treeline. This direct effect would also mean a potentially small indirect effect on recreation.

By virtue of distance, topography, watershed, or vegetation, none of the four characteristics of Wilderness defined above (Untrammeled, Undeveloped, Natural, and Solitude or a Primitive and Unconfined Type of Recreation) would be affected by the NorthMet Project Proposed Action.

5.2.12.3 NorthMet Project No Action Alternative

Under the NorthMet Project No Action Alternative, the NorthMet Project Proposed Action would not be developed. The NorthMet Project No Action Alternative presents no anticipated effect on the BWCAW, Voyageurs National Park, established and candidate RNAs, UBAs, National Historic Landmarks, the Superior National Forest Scenic Byway, and a National Recreation Trail, as the Mine Site and portions of the federal lands would continue to be managed in the same way they have been.

5.2.13 Hazardous Materials

Issues relating to the presence of hazardous materials or waste may include the accidental release of these materials during transportation, storage, handling, and/or use at the NorthMet Project area and any resulting potential effects on the environment. Environmental resources that could potentially be affected by hazardous materials and hazardous waste if they are accidentally released include: air, water, soil, and ecological resources. The APE therefore corresponds to the areas defined for each specific resource.

The NorthMet Project Proposed Action would use, or generate as waste, the following hazardous materials (Barr 2007d; PolyMet, Pers. Comm., November 17, 2011; PolyMet, Pers. Comm., May 11, 2012):

- Fuels, equipment maintenance products, and solvents – diesel fuel, gasoline, oils, grease, lubricants, anti-freeze, solvents, and lead-acid batteries used for equipment operation and maintenance;
- Plant reagents – sodium hydrosulfide, sodium hydroxide, acids, flocculants, and antiscalants used in processing plant applications;
- Mine Site WWTF chemicals – calcium hydroxide (hydrated lime), sodium metasilicate, ferric chloride, sodium hydroxide, polymer flocculent, carbon dioxide liquid, citric acid, and sodium hypochlorite;
- Plant Site WWTP chemicals – potassium permanganate, antiscalant, carbon dioxide liquid, and calcium hydroxide (hydrated lime);
- Blasting agents – ANFO, emulsions, emulsion blends (a blend of ANFO and emulsion), blasting caps, initiators and fuses, and other high explosives used in blasting; and
- Other materials – assay chemicals, and other by-products characterized as hazardous waste.

The MPCA has determined that the hydrometallurgical residue is not hazardous by legal definition under RCRA. PolyMet has provided supporting calculations that have determined the hydrometallurgical residue is not lethal per MN01 definition (PolyMet 2015t). Mishandling of hazardous materials or wastes could result in spills, accidental release, or discharge into the environment, which could cause effects on workers, waters of the state, or the general public. Mitigation measures to prevent releases in transportation, storage, and handling or use of these materials are described in several hazardous material management plans necessary to comply with various regulatory requirements for the NorthMet Project Proposed Action. The following sections present the methodology and evaluation criteria used to estimate the risks to the public and environment from the use of hazardous materials and the generation of hazardous waste during the construction, operation, and closure phases of the NorthMet Project Proposed Action. The presentation is broken down into the major activities of transportation, storage, and handling and use.

Summary

Materials defined as hazardous are a routine part of mining and ore processing. Their handling, storage, and disposal are regulated by a number of state and federal laws. Adherence to these would limit the potential for off-site effects on only the transport of large quantities of hazardous

materials. Transport routes have been defined that limit the potential for effects on population centers and sensitive resources. Given overall Project design and operational commitments, there would be no significant adverse effects from the proposed use or generation of hazardous wastes by the NorthMet Project Proposed Action.

5.2.13.1 Evaluation Criteria

Several criteria are generally used in federal and State of Minnesota regulations and statutes to define the effects from an accidental spill, release, or discharge of contaminants or hazardous material or waste to the environment. The basic principle of these criteria is the protection of people and the environment. Based on this principle, the NorthMet Project Proposed Action would have an environmental effect if the following were to occur:

- A spill, release, or discharge of any hazardous material or hazardous waste during transportation that, if not recovered in a timely manner, could cause pollution of waters of the state, or other harm to the environment or to the public;
- A spill, release, or discharge of any hazardous material or hazardous waste during handling or use, which could cause pollution of waters of the state, or other harm to the environment or to the public;
- Hazardous emissions from handling of any hazardous materials or hazardous waste that have the potential to cause harm to the public or the environment; and
- A spill, release, or discharge from on-site storage facilities exceeding the volumes of the primary and secondary containment structures, and which could not be recovered in a timely manner, and thus pollute waters of the state or cause other harm to the environment or to the public.

5.2.13.2 NorthMet Project Proposed Action

Federal and State of Minnesota regulations establish management and reporting requirements for hazardous materials. Based on current design, applicable administrative rules and statutes include the following:

- *Minnesota Statute* 115.061 – Duty to Notify and Avoid Water Pollution (*Minnesota Statues*, chapter 115, Water Pollution Control; Sanitary Districts);
- USEPA 40 CFR 302 – Designation, Reportable Quantities, and Notification, Section 6 – Notification Requirements (USEPA 40 CFR 300–399, Superfund; Emergency Planning; Community Right-to-Know Programs);
- USEPA 40 CFR 355 – Emergency Planning and Notification, Subpart C – Emergency Release Notification (USEPA 40 CFR 300–399, Superfund; Emergency Planning; Community Right-to-Know Programs);
- USEPA 40 CFR 355–372 – EPCRA (USEPA 40 CFR 300–399, Superfund; Emergency Planning; Community Right-to-Know Programs);
- USEPA 40 CFR 112 – Oil Pollution Prevention (USEPA 40 CFR 100–149, Water Programs);

- USEPA 40 CFR 68 – Chemical Accident Prevention Provisions (USEPA 40 CFR 70–99, Air Programs II);
- USEPA Clean Air Act, Section 112(b) – Hazardous Air Pollutants (42 USC chapter 85, Air Pollution Prevention and Control);
- OSHA 29 CFR 1910.120 – Hazardous Waste Operations and Emergency Response (OSHA 29 CFR 1900–1910);
- DOT 49 CFR 100–180 – Hazardous Materials Transportation (Hazardous Materials Transportation 49 CFR 100–180, Chapter I, Pipeline and Hazardous Materials Safety Administration, DOT);
- MSHA Rule 30 CFR Part 47 Hazard Communication (Mine Safety Administration 30 CFR 1–199);
- *Minnesota Statutes*, chapters 115 and 115A–115E – Water Pollution Control, through Oil and Hazardous Substance Discharge Preparedness (*Minnesota Statues*, chapter 115, Water Pollution Control; Sanitary Districts);
- *Minnesota Rules*, chapter 7151 – Aboveground Storage of Liquid Substances (*Minnesota Rules*, MPCA, chapter 7151);
- *Minnesota Rules*, chapters 7045–7048 – Hazardous Waste (*Minnesota Rules*, MPCA, chapter 7045–7048);
- *Minnesota Rules*, chapters 7507 and 7513 – Hazardous Materials (*Minnesota Rules*, MPCA, chapter 7507–7513);
- *Minnesota Rules*, chapter 7035 – Solid Waste (*Minnesota Rules*, MPCA, chapter 7035); and
- *Minnesota Rules*, chapter 6132 – Nonferrous Metallic Mineral Mining (*Minnesota Rules*, Department of Natural Resources, chapter 6132).

A list of the larger quantity hazardous materials transported, stored, handled, recycled, or disposed, and their classifications, that would be associated with the NorthMet Project Proposed Action construction, operation, and closure is provided in Table 5.2.13-1. The estimated delivery frequency, volumes, and annual use of these materials are also listed in Table 5.2.13-1.

The MPCA reviewed hydrometallurgical residue pilot-testing and analysis data provided by PolyMet and has established the following statements (MPCA, Pers. Comm., October 24, 2014):

1. TCLP testing results of pilot test residues in 2005 and 2009 did not meet the thresholds to be regulated as a RCRA hazardous waste.
2. Elimination of the bulk hydrometallurgical mode from the NorthMet Project Proposed Action since the DEIS would not materially affect the chemical composition of residue stored in the Hydrometallurgical Residue Facility, and 2005 and 2009 testing results will be representative of the residue stored in the Hydrometallurgical Residue Facility if the current Project is approved.
3. New residue resulting from future hydrometallurgical pilot-testing and/or Phase 2 of the NorthMet Project Proposed Action should be tested to verify that the residue remains under RCRA hazardous waste thresholds.

Table 5.2.13-1 Hazardous Materials used during Construction, Operation, and Closure Phases of the NorthMet Project Proposed Action

Material	Classifications & Precautions**	Environmental Concern	Storage Capacity	Deliveries (Estimated Frequency) Means	Deliveries (Estimated Frequency) Approximate Rate	Annual Use (Est.)
ANFO	Explosive 1.1D or 1.5D: Irritant to skin and eyes. May cause nausea if ingested and irritation to nose and throat if ingested.	Harmful to aquatic life at low concentrations.	No on-site storage. Vendor provided on a daily basis.	Vendor/truck	883,333 lbs/month	10,600,000 lbs/year
Booster (solid - cord sensitive)	Explosive 1.1D: Eye irritant. Skin irritant. Inhalation of dust may cause irritation, sneezing or coughing.	May cause elevated nitrate levels in water and could affect aquatic animals.	No on-site storage. Vendor provided on a daily basis.	Vendor/truck	1,555/month	18,650/year
Emulsion	Explosive 1.5D: Eye irritant. May be harmful if ingested. Inhalation may cause dizziness, nausea, or intestinal upset.	May cause elevated nitrate levels in water and could affect aquatic animals.	No on-site storage. Vendor provided on a daily basis.	Vendor/truck	387,500 lbs/month	4,650,000 lbs/year
Diesel fuel	Flammable: Continued exposure to vapors can irritate eyes and lungs. Potentially fatal if ingested.	Any spill or release may cause adsorption to sediment and soil and may cause a visible sheen or deposit of a sludge or emulsion if released to surface waters creating a hazard for plants and animals.	Mine: 3 - 12,000 gal or 2 - 20,000 gal Locomotives: 15,000 gal Plant: 12,000 gal	Tanker truck (volume/ tanker truck = 5,500-9,000 gal)	74 tanker truck loads/month	Mine: 5,910,000 gal/year Plant: Uncertain, but relatively minor Locomotives: 473,040 gal/year
Grease (385 lbs/55-gallon drum)	Mild skin irritant, ingestion may cause discomfort.	Spill or release may cause adsorption to sediment and soil and may cause a visible sheen or deposit of a sludge or emulsion if released to surface waters creating a hazard for plants and animals.	Existing bulk storage at Area 1 and Area 2 Shops.	55-gal drums	<1 truck/month	Mine: Unknown Plant: Uncertain, but relatively minor Locomotives: 16 lb/year – each locomotive

Material	Classifications & Precautions**	Environmental Concern	Storage Capacity	Deliveries (Estimated Frequency) Means	Approximate Rate	Annual Use (Est.)
Lubricating oil	Minimal health hazards.	Spill or release may cause adsorption to sediment and soil and may cause a visible sheen or deposit of a sludge or emulsion if released to surface waters creating a hazard for plants and animals.	Mine: 2,000 gal Plant: 2 – 7,000 gal 2 – 12,000 gal 1 – 12,338 gal	Tanker truck (typically <3,000 gal/tanker truck)	2 tanker truck loads/month	Mine: 47,000 gal/year Plant: Uncertain, but relatively minor Locomotives: 200 gal/year – each locomotive
Transmission oil	Minimal health hazards.	Spill or release may cause adsorption to sediment and soil and may cause a visible sheen or deposit of a sludge or emulsion if released to surface waters creating a hazard for plants and animals.	Mine: 1,500 gal	Tanker truck (typically <3,000 gal/tanker truck)	< 2 loads/month	Mine: 33,000 gal/year
Hydraulic oil	Minimal health hazards.	Spill or release may cause adsorption to sediment and soil and may cause a visible sheen or deposit of a sludge or emulsion if released to surface waters creating a hazard for plants and animals. Bio-accumulation is unlikely due to the very low water solubility; bio-availability to aquatic organisms is minimal.	Mine: 2,000 gal Plant: 2 - 2,500 gal	Tanker truck (typically <3,000 gal/tanker truck)	< 1 load/month	Mine: 13,000 gal/year Plant: Uncertain, but relatively minor
Coolant (ethylene glycol mix)	Harmful or fatal if swallowed; eye, skin, and respiratory irritant.	Practically non-toxic to aquatic organisms on an acute basis.	Mine: 600 gal Plant: 6,000 gal	55-gal drums and tanker truck (typically <3,000 gal/tanker truck)	1 delivery/month	Mine: 12,000 gal/year Plant: Uncertain, but relatively minor

Material	Classifications & Precautions**	Environmental Concern	Storage Capacity	Deliveries (Estimated Frequency) Means	Approximate Rate	Annual Use (Est.)
Gasoline (light vehicles)	Flammable; harmful or fatal if swallowed; eye, skin, and respiratory irritant.	Spill or release may cause adsorption to sediment and soil and may cause a visible sheen or deposit of a sludge or emulsion if released to surface waters creating a hazard for plants and animals.	Plant: 2 - 6,000 gal	Tanker truck (typically <3,000 gal/tanker truck)	2 deliveries/month	Plant: 500 gal/day or 178,000 gal/year
Degreaser	Skin and eye irritant, potential inhalation hazard.	Spill or release may cause adsorption to sediment and soil and may cause a visible sheen or deposit of a sludge or emulsion if released to surface waters creating a hazard for plants and animals. Should not be released undiluted into the environment.	Plant: 1 - 400 gal 1 - 2,500 gal	55-gal drums and/or tanker truck (typically <3,000 gal/tanker truck)	As needed to keep full; < 1 delivery/month	Uncertain, likely less than 15,000 gal/year
Used oil	Minimal health hazards.	Spill or release may cause adsorption to sediment and soil and may cause a visible sheen or deposit of a sludge or emulsion if released to surface waters creating a hazard for plants and animals.	55-gal drums or storage tank	Not Applicable	Removed from site as needed typically by vendor with bulk tank truck; approximately 2 times/month	Mine: 47,000 gal/year Plant: Uncertain, but relatively minor Locomotives: 200 gal/year – each locomotive
Caustic (NaOH) (assume 10.7 lbs/gal)	Skin and eye irritant, corrosive.	No known environmental effects.	1,100-gal storage tank	Tanker truck (typically <3,000 gal/tanker truck)	1 load/month	64 t/year
Flocculant (MagnaFloc 10)	Inhalation irritant.	No known environmental effects.	1,875-lb bulk bags	Freight truck	1 truck/2 months	16.5 t/year
Flocculant (MagnaFloc 342)	Low overall toxicity.	Toxic to some species of fish if released into waters.	1,875-lb bulk bags of powder	Freight truck	< 1 truck/month	26 t/year

Material	Classifications & Precautions**	Environmental Concern	Storage Capacity	Deliveries (Estimated Frequency) Means	Approximate Rate	Annual Use (Est.)
Flocculant (MagnaFloc 351)	Low overall toxicity.	No known environmental effects.	1,875-lb bulk bags of powder	Freight truck	<1 truck/month	179 t/year
Sulfuric acid (assume 15 lbs/gal)	Skin and eye irritant, corrosive.	Toxic to some species of fish if released into waters.	78,700-gal storage tank with secondary containment	Bulk rail tank car (13,000-gal or 98-t capacity)	2 tank cars/year	138 t/year
Hydrochloric acid (assume 10 lbs/gal)	Skin and eye irritant, corrosive.	If released into the soil, this material is not expected to bio-degrade and may leach into groundwater.	59,500-gal storage tank with secondary containment	Bulk rail tank car (13,000-gal or 65-t capacity)	2 tank cars/month	1,485 t/year
Liquid sulfur dioxide	Extremely corrosive to exposed tissues, DOT poison gas, corrosive.	Toxic to some plants and animals if released into waters.	30,000-gal pressurized storage tank with secondary containment	Bulk rail tank car (15-55 t/car)	2 tank cars/month	1,254 t/year
Sodium hydrosulfide (assume 11 lbs/gal)	Extremely corrosive to exposed tissues. Contact with acid releases toxic gas. DOT corrosive.	Toxic to aquatic organisms if released into waters.	52,600-gal storage tank	Tanker truck (volume/tanker truck = 5,500-9,000 gal;	< 1 tanker/month	334 t/year
Potassium amyl xanthate (PAX)	DOT spontaneously combustible. Mild irritant. Heating and moisture produces H_2S, a toxic gas.	Toxic to animals in large quantities. Contact with water liberates extremely flammable gases, which can cause rapid burning and release of toxins into the air.	~30,000-gal storage tank	1,650-lb bulk bags, 25 bags/truck load	~5 trucks/month	1,075 t/year
Methyl isobutyl carbinol (assume 6.72 lbs/gal)	Flammable liquid.	This material is readily bio-degradable and practically not bio-accumulable and is slightly adsorptive in soils and sediments. Practically non-toxic to aquatic animals if released into waters.	~10,000-gal storage tank	Tanker truck (volume/tanker truck = 5,500-9,000 gal)	~ 6 trucks/month	1,124 t/year
Limestone	Harmful if swallowed; eye, skin, and respiratory irritant.	Airborne particulates may cause some harm to environment dependent on concentrations.	Bulk - stockpiled on-site	Bulk rail car (70-110 t/rail car)	Up to 100 rail cars/week from April to October	87,341 t/year

Material	Classifications & Precautions**	Environmental Concern	Storage Capacity	Deliveries (Estimated Frequency) Means	Approximate Rate	Annual Use (Est.)
Lime	Eye and skin irritant; harmful if swallowed. Avoid breathing vapor or dust.	Possibly hazardous in the short term. Degradation products are not likely; however, long-term degradation products may arise.	Bulk - lime silo	Freight truck (20 – 25 t/truck)	15 loads/month	5,181 t/year
Magnesium hydroxide	Harmful if swallowed; eye, skin, and respiratory irritant.	Possibly hazardous in the short term. Degradation products are not likely; however, long-term degradation products may arise.	Storage tank	Bulk rail car (65 – 104 t/rail car)	3 tank cars/month	3,674 t/year
Grinding metals (metal alloy grinding rods and balls)	Harmful if swallowed; eye and respiratory irritant, if fine particles.	Airborne particulates may cause some harm to environment dependent on concentrations.	None required	Bulk rail car (100 t/rail car)	13 rail cars/month	15,600 t/year
Flotation activators (copper sulfate)	Harmful if swallowed; eye and respiratory irritant.	Toxic to fish and plants if released into waters.	9,200-gal activator storage tank	Reuse from Oxidation Autoclave	Not applicable	650 t/year
Ferric chloride (35%)	Very hazardous if ingested; corrosive to eyes and skin; respiratory irritant.	Mutagen; harmful to fish and invertebrates; reproductive effects, low potential for bio-accumulation; no information regarding environmental fate or toxicity.	6,000- and 1,000-gal storage tank	Tanker truck (typically <3,000 gal/tanker truck)	1,200 gal/month	14,400 gal/year
Potassium permanganate	Eye and skin irritant; respiratory irritant.	Mutagen; ecological information not available.	Bulk (dry)	Freight truck	1,300 lbs/month	16,000 lbs/year
Liquid carbon dioxide	Gas is an asphyxiant; prolonged skin or eye contact to gas, liquid or solid (crystals) may cause severe frostbite.	No adverse effects; carbon dioxide does not contain Class I or II ozone depleting chemicals.	Bulk (liquefied gas)	Tanker (cylinder) truck	105 t/month	1250 t/year

Notes:

t = short tons; equal to 2,000 lbs.

Notes:
The United Nations hazard classification system for classifying explosive materials and explosive components is recognized internationally and is used universally by the United States Department of Defense, United States Department of Energy (USDOE) contractors, and the DOT. UN numbers however, are different from the hazard class and division designations used by the DOT.

Hazard Classification 1.1D and 1.5D: 1.1 is a Hazard Class division for Class 1 (Explosives) and is defined as a Mass Detonation Hazard. It is expected that if one item in a container or pallet inadvertently detonates, the explosion will sympathetically detonate the surrounding items. The explosion could propagate to all or the majority of the items stored together, causing a mass detonation. There will also be fragments from the item's casing and/or structures in the blast area. Hazard Class division 1.5 is an Explosive substance, very insensitive (with a mass explosion hazard).

The "D" is the Class 1 Compatibility Group defined as the secondary detonating explosive substance or black powder or article containing a secondary detonating explosive substance, in each case without means of initiation and without a propelling charge, or article containing a primary explosive substance and containing two or more effective protective features (UNO 2012).

**Precautions are described as indicated by NIOSH (2007), or those described in chemical-specific Material Safety Data Sheets (MSDSs) (Montana Refining Company 2011), (Dow 2009), (EDS 2009a), (CSCC 2005), (EDS 2009b), (Praxair Technology 2009b), (Flottec 2009), (Martin Marietta Materials 2007), (Western Lime Corporation 2009), (AluChem 2010), (Old Bridge Chemicals 1999), (H-Valley Chemical 2006), (ClearTech Industries 2010), and (Praxair Technology 2009a).

Material, Storage Capacity, Delivery Means, Delivery Approximate Rate, and Annual Use Estimate (PolyMet, Pers. Comm., November 17, 2011; PolyMet, Pers. Comm., May 11, 2012).

5.2.13.2.1 Transportation

All hazardous materials would be transported by commercial carriers in accordance with state and federal hazardous material shipping requirements. Such carriers would be licensed and inspected by the Minnesota DOT. Tanker trucks would possess a Certificate of Compliance issued by the Minnesota Motor Vehicle Division. These permits, licenses, and certificates would be the responsibility of the carrier. Federal regulations (49 CFR) require that all shipments of hazardous materials be properly identified and placarded. Shipping documents must be accessible and include MSDSs that describe the hazardous material, immediate health hazards, fire and explosion risks, immediate precautions, fire-fighting information, procedures for handling leaks or spills, first aid measures, and emergency response telephone numbers.

Hazardous waste would also be transported from the Mine Site and Plant Site for proper disposal. Transportation of these wastes would require compliance with state and federal regulations that include requirements for hazardous waste manifests with the shipments, labeling, and/or use of placards, and emergency information. PolyMet employees would be trained to manage all wastes in accordance with their specific job duties. Transportation of hazardous waste would be conducted by vendors also licensed and trained to manage hazardous waste.

As identified in Table 5.2.13-1, trucks would be used to transport a variety of hazardous materials to the Mine Site and Plant Site. Shipments of hazardous materials would originate from a number of locations. The risk of accidental truck spills was evaluated using two representative hazardous materials, diesel fuel and PAX, due to the relatively large number of deliveries and health risks associated with these materials (Rhyne 1994). Approximately 74 tanker truck loads of diesel fuel and 5 truckloads of PAX would be delivered monthly. These quantities would amount to approximately 17,800 and 1,200 shipments of diesel fuel and PAX, respectively, based on 20 years of estimated mine life.

For this evaluation, materials were assumed to be shipped from Duluth. These materials would be transported approximately 60 miles along State Highway 53 (four-lane divided highway) from Duluth to Eveleth, and then approximately 20 miles along State Highways 37 and 135 (two-lane highways) from Eveleth to the North Gate access road to the site. This route would take the materials through the towns of Duluth, Twig, Independence, Canyon, Cotton, Central Lakes, Eveleth, Gilbert, Biwabik, and Pineville and across the Cloquet, Whiteface, St Louis, and Embarrass rivers and Paleface Creek. These state highways already provide transportation routes for freight that includes hazardous materials and waste. St. Louis County Emergency Services are available for response to incidents associated with hazardous materials due to the current transport of these materials from existing businesses that use hazardous materials or generate hazardous waste within their operations. Emergency response services vary from medical rescue and ambulance services to fire-fighting and local HazMat-trained response teams stationed in various cities or districts along the defined transportation route. The locations of emergency response services are identified in multiple sectors within the county as defined by the St. Louis County Hazard Mitigation Plan prepared by the St. Louis County Emergency Management division of the St Louis County Sheriff’s Office (St. Louis County 2013). The County HazMat Response Team is stationed in Duluth.

The effect of an accidental release would depend on the location in relation to population, local activities, the quantity released, environmental factors, and the nature of the released material. The probability of an accidental release of the representative hazardous materials described above during transportation was calculated using the Federal Highway Administration truck accident statistics model (Rhyne 1994) as presented in Table 5.2.13-2. The definition of hazardous materials, per the Minnesota Hazardous Materials and Uniform HazMat Registration Program is, "a substance or material capable of posing unreasonable risk to health, safety, and property when transported in commerce, as determined by the US Secretary of Transportation." According to these statistics, the average rate of truck accidents for transport along a rural interstate highway, such as State Highway 53, is 0.64 per million miles traveled. For rural two-lane highways, such as State Highways 37 and 135, the average truck accident rate is 2.19 accidents per million miles traveled.

Table 5.2.13-2 Release Probability of Representative Materials Transported during Construction, Operation, and Closure Phases of the NorthMet Project Proposed Action

	Rural State/Interstate Highway (four lane)						Rural State Highway (two lane)						
Material Transported	**No. of Truck Deliveries**	**Haul Distance (Miles)**	**Accident Rate Per Million Miles Traveled**	**Calculated Number of Accidents**	**Probability of Release Given an Accident (%)**	**Calculated Number of Spills**	**No. of Truck Deliveries**	**Haul Distance (Miles)**	**Accident Rate Per Million Miles Traveled**	**Calculated Number of Accidents**	**Probability of Release Given an Accident (%)**	**Calculated Number of Spills**	**Combined Total Estimated Release (Freeway and Rural Two- Lane)**
Diesel Fuel	17,800.0	60.0	0.64	0.68352	18.8	0.12850	17,800.0	20.0	2.19	0.77964	18.8	0.14657	0.27
PAX	1,200.0	60.0	0.64	0.04608	18.8	0.00866	1,200.0	20.0	2.19	0.05256	18.8	0.00988	0.018

Source: Federal Highway Administration truck accident statistics model (Rhyne 1994).

The probability of a release or spill was based on accident statistics for liquid tankers carrying hazardous materials. The Federal Highway Administration statistics indicate that on average, 18.8 percent of the total accidents involving liquid tankers carrying hazardous materials resulted in a spill or release.

Using the accident and liquid tanker spill statistics, the evaluation indicates that the probability for an accidental release of liquids under truck transport during the life of the NorthMet Project Proposed Action is less than one spill accident for each of the representative materials considered. The release probability indicates there is a 1.8 percent probability of an accident resulting in a release of PAX, and a 27 percent probability of an accident resulting in a release of diesel fuel that could occur over the entire 20-year life of the NorthMet Project Proposed Action. The higher probability of a diesel fuel accident is due to the greater expected number of diesel fuel deliveries to the site.

The odds of a potential release of hazardous materials during a transportation accident would incrementally increase if the other shipments listed in Table 5.2.13-1 were included. An accidental release could range from a minor oil spill at the Mine Site and Plant Site, where cleanup equipment would be readily available, to a severe spill during transport involving a large release of diesel fuel or other hazardous material, where emergency cleanup equipment would not be readily available. Some of the chemicals could have immediate adverse effects on water quality and aquatic resources if a spill were to enter a surface water body. Considering the overall risk of an accident involving a spill, and the anticipated transport routes, the probability of a spill into a waterway would be moderate. An alternative transportation route, shorter by about 17 miles, was evaluated but rejected because of its close proximity to water bodies such as Wild Rice and Island lakes. The transportation route selected for this evaluation is longer, but is farther away from waterbodies, so in the event that an accidental spill or release of materials occurs, it could be managed in a more timely manner to reduce the likelihood of environmental harm. A shorter route could be used, but the probability of effect on a water body would be greater due to the proximity of the waterbodies.

A large-scale release of hazardous liquids delivered to the site by tanker truck (9,000-gallon capacity) or rail car (up to 13,000-gallon capacity)—such as diesel fuel, acid, or other hazardous materials—could have implications for public health and safety. The location of the release would again be the primary factor in determining potential effects. As indicated in Table 5.2.13-2, the probability of a release anywhere along a proposed transportation route was calculated to be low. Review of the Hazmat Intelligence Portal of the U.S. DOT indicates that the likelihood of a bulk rail incident is 40 percent less than that of a highway incident (PHMSA 2012b). The likelihood of a rail incident, when all incidents are included, is 82 percent less than that of a highway incident (PHMSA 2012a).

In addition to location, the potential harm presented by the material released is a factor in determining the effect of a release. A qualitative evaluation of the materials to be shipped indicates that the probability of causing harm is low for most materials. For example, though ANFO is an explosive, it will only detonate under specific conditions, such as when ignited with detonators, heat, or a sudden shock wave in a confined space. Caustic soda is corrosive and can be fatal if ingested or has prolonged contact with the skin; however, in a spill situation, emergency response would be undertaken to prevent or minimize exposure, such as restricting site access and immediate containment and removal. In the event of a release during transport, the commercial transportation company would be responsible for first response and cleanup.

Local and regional law enforcement, fire protection, and emergency planning agencies would also mobilize to secure the site and protect public safety.

In the event of an accident involving the release of hazardous material, 49 CFR requires that the carrier notify local emergency response personnel, the National Response Center (for discharge of reportable quantities of hazardous materials) (Hazardous Materials Transportation 49 CFR 100–180, Chapter I, Pipeline And Hazardous Materials Safety Administration, DOT). Minnesota Statutes require notification of the Minnesota State Duty Officer (Minnesota Statues, chapter 115, Water Pollution Control). PolyMet and its hazardous material handlers and/or DOT-regulated contractors would be required to comply with these and similar regulatory requirements, which also stipulate emergency planning and response actions.

5.2.13.2.2 Storage

The approximate capacities of hazardous material storage tanks that would be at the NorthMet Project area are listed in Table 5.2.13-1. Mobile tanker trucks may be used on site to fuel and maintain haul trucks, mobile equipment, and locomotives. The number of these trucks and their capacities would be based on NorthMet Project Proposed Action specifications. Tanks and vessels would be positioned on approved secondary containment with interior sumps to route spilled products or process solutions to lined collection areas. In addition, hazardous materials would be unloaded on an approved containment surface with sumps to route spills to lined collection areas. Some of the hazardous material storage tanks at the Mine Site would be double-walled for provision of secondary containment. Mine Site hazardous material storage tanks without double-walls and Plant Site hazardous material storage tanks would be designed to have secondary containment sufficient to hold at least 110 percent of the volume of the largest tank in the containment area. Waste materials such as used motor oil, hazardous waste, and spent hazardous materials would be managed by PolyMet employees while on-site, and shipped off-site for recycling or disposal using a DOT-licensed transporter. In addition, fire assay wastes—including cupels, crucibles, and slag—would be managed by PolyMet employees while on site and shipped off site for recycling or disposal at a licensed facility using a DOT-licensed transporter. Certain materials may be stored on-site for a period before shipment. These materials would be stored in compliance with safety storage requirements as dictated by state and federal requirements. The storage period would also comply with Minnesota and federal storage timeline stipulations. All stored wastes would be appropriately labeled and dated for timeline inspection purposes.

5.2.13.2.3 Handling and Use

Over the life of the NorthMet Project Proposed Action, the probability of minor spills of oils and lubricants would be relatively high. Releases could occur during operations because of a poor connection of an oil or hydraulic line, or as the result of equipment failure. Effects of such minor spills could include contamination of surface water and soil; however, spills of this nature would likely be small, localized, and contained.

Some of these spills may be reportable. In Minnesota, spills or discharges of more than 5 gallons of petroleum products or any quantity of chemicals or materials, whether accidental or otherwise, are required by law to be reported to the Minnesota State Duty Officer at the MPCA, by the person with control of the spill, which, if not recovered, may cause pollution of waters of the state. The responsible NorthMet Project Proposed Action person is required to recover as rapidly

and thoroughly as possible such spilled material, and take immediate action as reasonably possible to minimize or abate pollution of waters of the state (*Minnesota Statutes*, section 115.061, Duty to Notify and Avoid Water Pollution).

Emergency release notification requirements under EPCRA (USEPA 40 CFR, chapter 355) exist in addition to the release notification requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (USEPA 40 CFR, chapter 302). If the NorthMet Project Proposed Action had a release of a CERCLA hazardous substance, it would be required to comply with the notification requirements of EPCRA, and the release notification requirements of CERCLA. If the reportable quantity of a substance were released within a 24-hour period at the NorthMet Project area, and the substance was on the list of extremely hazardous substances under EPCRA or the list of CERCLA hazardous substances (USEPA 40 CFR, chapter 302.4), then PolyMet would be subject to reporting requirements described in 40 CFR 355.60, 40 CFR 302, and the Emergency Notification Procedures in Minnesota as required by Title III of the Superfund Amendments and Reauthorization Act (USEPA 40 CFR, chapters 300 to 399).

The requirements for storage of oils and lubricants, including the requirement for spill prevention, control, and countermeasure (SPCC) planning are found in the Oil Pollution Prevention Act (USEPA 40 CFR, chapter 112) and MN § 115E (Minnesota Statues, chapter 115, Water Pollution Control; Sanitary Districts). Applicable Minnesota Statutes include: Prevention and Response Plans (Section 115E.04), Response Plans for Tank Facilities (Section 115E.045, Subdivision 2), and Responses to Releases (Section 115C.03). A list of hazardous material management and response plans is presented in Table 5.2.13-3.

Table 5.2.13-3 Hazardous Material Management Plans

Plans	Applicable Statute/Regulation	Materials/Applications
SPCC Plan	USEPA 40 CFR chapter 112	Oil/petroleum spills
Toxic Pollution Prevention Plan (TPPP)	Minnesota Statutes, chapter 115D Subdivision 1(a) USEPA 40 CFR 260 - 279 DOT 49 CFR	Waste minimization, handling, storage, disposal, recycling of hazardous substances, chemicals, fluids, and other wastes. Transportation of hazardous materials.
Hazard Communications Standards	MSHA Rule 30 CFR Part 47	Evaluation of the hazards of chemicals mines produce or use and the provision of information to miners.
Emergency Response Plan	OSHA 29 CFR 1910.120 USEPA 40 CFR 68	Hazardous material release response guidance.
Spill Prevention/Response Plan	29 CFR 1910.120/CAA Section 112 Minnesota Statutes, chapter 115E (may also be applicable to trucking vendors)	General guidance Minnesota state guideline for responding to spills and releases.
Risk Management Program	USEPA 40 CFR 68	Hazard assessment, accident history, prevention program and training, and emergency response program.

The threshold quantity, as defined in 40 CFR 112, for triggering the requirement for development of a SPCC plan is 1,320 gallons of petroleum products in bulk container storage greater than 55 gallons. Since the NorthMet Project area would have more than 1,320 but less than 1,000,000 gallons of oil storage, an SPCC plan would be required under 40 CFR 112. The primary goal of an SPCC plan is to develop strategies to prevent oil spills from reaching Minnesota and United States waters. An SPCC plan is thus specific to each facility, providing persons responsible for planning emergency response site-specific information such as a description of facilities, storage information, preventative measures, response action, equipment, and contact information. An SPCC plan must also provide information for routine facility inspections.

To reduce the likelihood of incidental spills of petroleum products, a preliminary SPCC plan has been prepared for the NorthMet Project Proposed Action. The plan identifies potential emergencies that may arise during operations or an activity within the NorthMet Project area. The plan establishes a framework to respond effectively to the identified potential emergencies.

The final SPCC plan would include procedures, methods, equipment, and other requirements to prevent discharges of oil from facilities, and to contain such discharges, should they occur. The SPCC plan would also contain a detailed, facility-specific description of how the operations comply with the requirements of the Oil Pollution Prevention regulation (USEPA 40 CFR, Part 112). The SPCC plan would address measures such as secondary containment, facility drainage, dikes and barriers, sump and collection systems, retention ponds, curbing, tank corrosion protection systems, liquid level devices, and emergency shut-off or release alarms. The final SPCC plan must be certified by a Professional Engineer that in their professional judgment the following are true:

- The SPCC plan is adequate for the facility;
- Technical standards have been considered;
- Inspections and tests are adequate for the facility; and
- The SPCC plan has been prepared in accordance with good engineering practices, including consideration of applicable industry practice.

A final SPCC plan is not possible for the NorthMet Project Proposed Action until construction has been completed. However, PolyMet has prepared a preliminary SPCC plan that is compliant with 40 CFR 112 requirements.

The policies and procedures set forth in the SPCC plan, inclusive of PolyMet's Standard Operating Procedure for Storage Tank Management, would be prepared to comply with *Minnesota Rules*, chapter 7151, Aboveground Storage of Liquid Materials.

The preliminary SPCC plan would be finalized and certified by a Professional Engineer, as required, after petroleum storage and handling facilities have been constructed. Based on current planning information, the final SPCC plan would need to address at least the following areas or activities involving petroleum and other oils:

- A truck fueling station;
- Remote fueling activities (i.e., at the equipment operating location);
- ASTs;

- Large-quantity oil-filled equipment;
- Locomotive fueling (at Area 2); and
- A gasoline fueling station (at the main gate).

The fueling station would consist of an enclosed building for fueling, including floor drain sumps and holding tanks for collection of spills. The holding tanks would be cleaned out, as needed, by a contractor with appropriate certification or license, and the waste would be transported to a recycling, treatment, or disposal facility. One fueling station would typically be provided to fuel all mobile equipment with rubber tires (trucks, dumps, front end loaders, dozers, etc.). This equipment also may be fueled in place by remote fuel tankers. Remote fueling typically would be conducted for equipment located within the mine pits and at material stockpiles (e.g., excavators, dozers, and other tracked equipment). Portable spill clean-up kits would be available at the fueling stations and on the fuel tankers. Standard operating procedures, including spill response plans, would be prepared and associated training would be conducted for fueling operations. Equipment would be attended during fueling operations. When possible, remote fueling would not be performed near sensitive areas, where, if a release were to occur, surface water could be affected. At final design stage, an updated or final version of the current SPCC plan would be prepared for the NorthMet Project Proposed Action facilities, to address specific spill response, cleanup, release notifications, etc. For oil-filled equipment, an appropriate containment system would be constructed so that discharge from a primary containment system would not escape the containment system before cleanup occurs. Alternatively, facility procedures and a contingency plan would be established that define inspections and/or a monitoring program to detect equipment requiring service or failure, and/or discharge. ASTs would be located at the truck fueling station where fuel storage would meet secondary containment standards. The tanks would have a containment dike with membrane, or a concrete enclosure to contain leaks or spills. As previously indicated, double-walled ASTs would not require secondary containment.

The SPCC documents, along with manufacturer MSDSs, would be available in all areas where hazardous materials were expected to be used or produced, and at all areas of fuel and lube-oil storage.

5.2.13.2.4 Emergency Planning and Community Right-to-Know

Management of hazardous materials at the NorthMet Project area would be governed by a number of interrelated federal, state, and local regulations, as listed in the first part of this Hazardous Materials Section. The following discusses federal and Minnesota state actions under EPCRA, including its emergency response-planning activities, Hazardous Chemical Inventory Reporting (Tier II) requirements, and Toxics Release Inventory (TRI) reporting requirements. Minnesota's hazardous materials regulations are codified in the *Minnesota Rules*, chapters 7507 and 7513, and in *Minnesota Statutes*, chapter 299K.

As required by EPCRA, Minnesota has established the Minnesota Emergency Response Commission (ERC), an agency within the Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management. The Minnesota ERC coordinates information specific to hazardous materials at facilities around the state so that local emergency officials are able to prepare for emergencies. The Minnesota ERC serves as the repository for the EPCRA hazardous chemical inventory reports (Tier II reports). Along with the listing of hazardous

materials identified on Table 5.2.13-1, PolyMet would prepare and submit Tier II Emergency and Hazardous Chemical Inventory Report Forms for sodium hydroxide, hydrochloric acid, sodium hydroxide, sulfuric acid, and SO_2, and would be subject to reporting additional hazardous materials or chemicals maintained on-site in quantities greater than the Tier II reporting thresholds.

The Minnesota ERC also collects data from facilities reporting under the federal TRI report program mandated by SARA Title III, Section 313. The NorthMet Project Proposed Action would be subject to TRI reporting based on the quantities of sulfuric acid and SO_2 to be maintained at the NorthMet Project area and could include others depending on actual quantities.

Under the federal Pollution Prevention Act of 1990, facilities subject to TRI reporting must also provide information on the pollution prevention and recycling activities associated with the reported toxic chemicals. The NorthMet Project Proposed Action would be subject to Minnesota's Toxic Pollution Prevention Act (Minnesota Statutes, section 115D.07), and PolyMet would have to prepare a TPPP. The TPPP would describe the facility's processes and operations, and set objectives for the handling, storage, and disposal or recycling of hazardous materials and toxic chemicals to eliminate or reduce at the source, the use, generation, or release of toxic pollutants, hazardous substances, materials, and hazardous wastes.

Under the federal CAA Amendments of 1990 Section 112(r), the NorthMet Project Proposed Action would be subject to the Accidental Release Prevention/Risk Management Plan rule, based on the projected use of hydrochloric acid and other flammable and toxic substances (42 USC, chapter 85, Air Pollution Prevention and Control). PolyMet would be required to develop a Risk Management Program that would include:

- Hazard assessment and potential effects of an accidental release, accident history, and evaluation of worst-case and accidental release scenarios;
- Prevention program including safety precautions, maintenance, monitoring, and training measures; and
- Emergency response program detailing emergency health care, training, and procedures for informing the public and response agencies should an accident occur.

The hazardous material management plans include procedures for evacuating personnel, maintaining safety, cleanup, neutralization activities, emergency contacts, internal and external notifications to regulatory authorities, and incident documentation. Proper implementation of the SPCC plan, TPPP, Hazard Communications, Emergency Response Plan, Spill Response Plans, and the Risk Management Program would minimize the incidents and effects associated with potential releases of hazardous materials.

If present, other hazardous or potentially hazardous materials or wastes would be characterized and managed per the hazardous materials management plans described in Table 5.2.13-3 above, and, if applicable, would adhere to the requirements defined in *Minnesota Rules*, chapter 7045, Hazardous Waste.

5.2.13.3 Potential Mitigation Measures

Mitigation of a hazardous material release would follow the principle of prevention, minimization, and treatment. Prevention would be achieved when any hazardous material was avoided, where possible, by replacing it with a substitute material that was not hazardous. To the extent possible, this has been done; where not possible, precautions to be defined in the TPPP would be taken to properly manage hazardous materials or substances, and keep the potential risk of exposure to a minimum. Accidentally released hazardous material would be treated quickly in accordance with the described plans.

In addition, mitigation processes or procedure definitions would be included in the following:

- Hazardous communication materials, through communications and training programs;
- Overfill protection procedures;
- Provision for secondary containment;
- Establishment of leak detection systems;
- Preventative inspection and maintenance procedures; and
- Emergency response plan.

These measures would be designed to ensure that accidental releases were prevented or minimized, and when they did occur, were responded to quickly and properly.

Monitoring activities proposed for prevention of incidental releases, mitigation, or quick removal of the effects, if hazardous materials were released, include the following:

- Regular inspection and testing of storage containers and facilities;
- Inspection of vessels for leaks, drips, or loss content of containers;
- Verification of locks, emergency valves, and other safety devices, protective equipment, and floors;
- Regular checks on the operability of emergency systems;
- Periodic awareness training for employees;
- Maintaining MSDSs at visible locations for easy access at all times; and
- Regular monitoring of surface water and groundwater quality.

Monitoring and inspection would be an integral part of the hazardous material management processes at the NorthMet Project area.

Given current Project design and operational commitments, this analysis did not identify significant adverse effects from proposed hazardous materials use or hazardous waste generation by the NorthMet Project Proposed Action. Therefore, no additional mitigation measures are proposed.

5.2.13.4 NorthMet Project No Action Alternative

The NorthMet Project No Action Alternative has no risk of environmental effect since no hazardous materials would be used, and no hazardous waste would be generated under this alternative.

5.2.14 Geotechnical Stability

The geotechnical stability of the proposed large-scale material storage facilities for the NorthMet Project Proposed Action is addressed in this section. These facilities are the waste rock stockpiles that would be created at the Mine Site; the Tailings Basin, which would be constructed on top of the existing LTVSMC Tailings Basin; and the Hydrometallurgical Residue Facility, which would be constructed at the existing LTVSMC Emergency Basin.

This section provides a summary of the required design criteria and the methodology and results of the iterative modeling and design process, as well as an overview of the proposed monitoring and mitigation plans.

Summary

Preliminary designs of the waste rock stockpiles, Tailings Basin, and Hydrometallurgical Residue Facility have been developed and shown by PolyMet, through an iterative design and modeling process, to meet the minimum Factors of Safety and water quality evaluation criteria (see Section 5.2.2) acceptable to the Co-lead Agencies. The slope stability and liner integrity of these facilities would be monitored throughout operations and long-term closure. This approach would allow for identification of a need to implement adaptive mitigation measures as a contingency to improve performance should the facilities perform differently from their design.

5.2.14.1 Methodology and Evaluation Criteria

The direct environmental consequences of the proposed large-scale waste material storage facilities, including the disturbance footprint and impacts to water, are discussed under the respective environmental factors in Chapter 5.0. This section addresses the slope stability and liner integrity of the proposed facilities.

If incorrectly designed, constructed, and/or managed, or from other unforeseen circumstances, waste material storage facilities have the potential to increase hydrologic and/or water quality effects and may become unstable, potentially leading to slope or dam failure (and/or other environmental impacts to downstream areas).

The large-scale waste material storage facilities proposed for the NorthMet Project Proposed Action would require compliance with MDNR nonferrous mining and dam safety rules, as well as the MPCA NPDES/SDS Permit. The Dam Safety permit requires that design and safety criteria be met to reduce the risk of potential failure.

The design of geotechnical structures is typically developed using an iterative design and modeling approach where the design is amended until modeling results meet the required minimum design criteria, including Factors of Safety and other requirements for permitting. Factor of Safety is used to describe the ratio of resisting forces to driving forces along a potential failure surface, whereby a Factor of Safety of 1.0 represents equilibrium between the estimated resisting shear strength and the applied shearing load along a specific plane of potential movement. Systems are often designed to a Factor of Safety above 1.0 to allow for unexpected loading conditions, unexpected operating conditions, and variations in estimated material properties.

The specific design and minimum required Factor of Safety criteria for the proposed large-scale waste materials storage facilities and the methodology applied to develop the designs of the

proposed facilities in order to meet these criteria are discussed for each facility in the respective sections below. Technical analysis was performed by PolyMet and reviewed by the Co-lead Agencies.

The potential effects of hypothetical failure scenarios have not been assessed in this FEIS, as the risk of failure is mitigated through application of design and safety requirements including adaptive management procedures.

5.2.14.2 NorthMet Project Proposed Action

5.2.14.2.1 Waste Rock Stockpiles

The proposed large scale waste material storage facilities at the Mine Site are:

- A permanent waste rock stockpile for Category 1 waste rock encompassed by a surface water and groundwater containment system and with an engineered geomembrane cover system at closure, and
- Temporary, lined stockpiles for Category 4 waste rock, combined Category 2/3 waste rock, and an Ore Surge Pile.

In addition to the stockpiles above, PolyMet would also prepare an Overburden Storage and Laydown Area that would be used for temporarily stockpiling overburden prior to its use.

PolyMet expects that the NorthMet Project Proposed Action would produce approximately 308 million tons of waste rock over the life of mine. Waste rock would be categorized and managed based on its potential to oxidize. The least reactive, Category 1, waste rock would be placed into a permanent stockpile, while Category 2/3 waste rock and Category 4 waste rock would be stored in temporary stockpiles before being placed as backfill into the East Pit after year 11 of operations. The location of the stockpiles is shown in Figure 5.2.14-1. The total weight of waste rock stored in a permanent stockpile (Category 1 Stockpile) would be approximately 168 million tons (see Section 3.2.2.1.7).

The data inputs, evaluation methodology, results, and design and operating requirements for the stockpiles were reported in Geotechnical Data Package Volume 3 (PolyMet 2014p) and Rock and Overburden Management Plan (PolyMet 2015h) and reviewed by the Co-lead Agencies. Additional geotechnical investigations are required to gain a better understanding of the liner interface frictional values (for the composite liners that would be used at the proposed facility), as well as the geotechnical material properties of the foundation soils in the wetland areas and stockpile geotechnical material properties prior to construction of the stockpiles. PolyMet has committed to undertake further investigations as necessary.

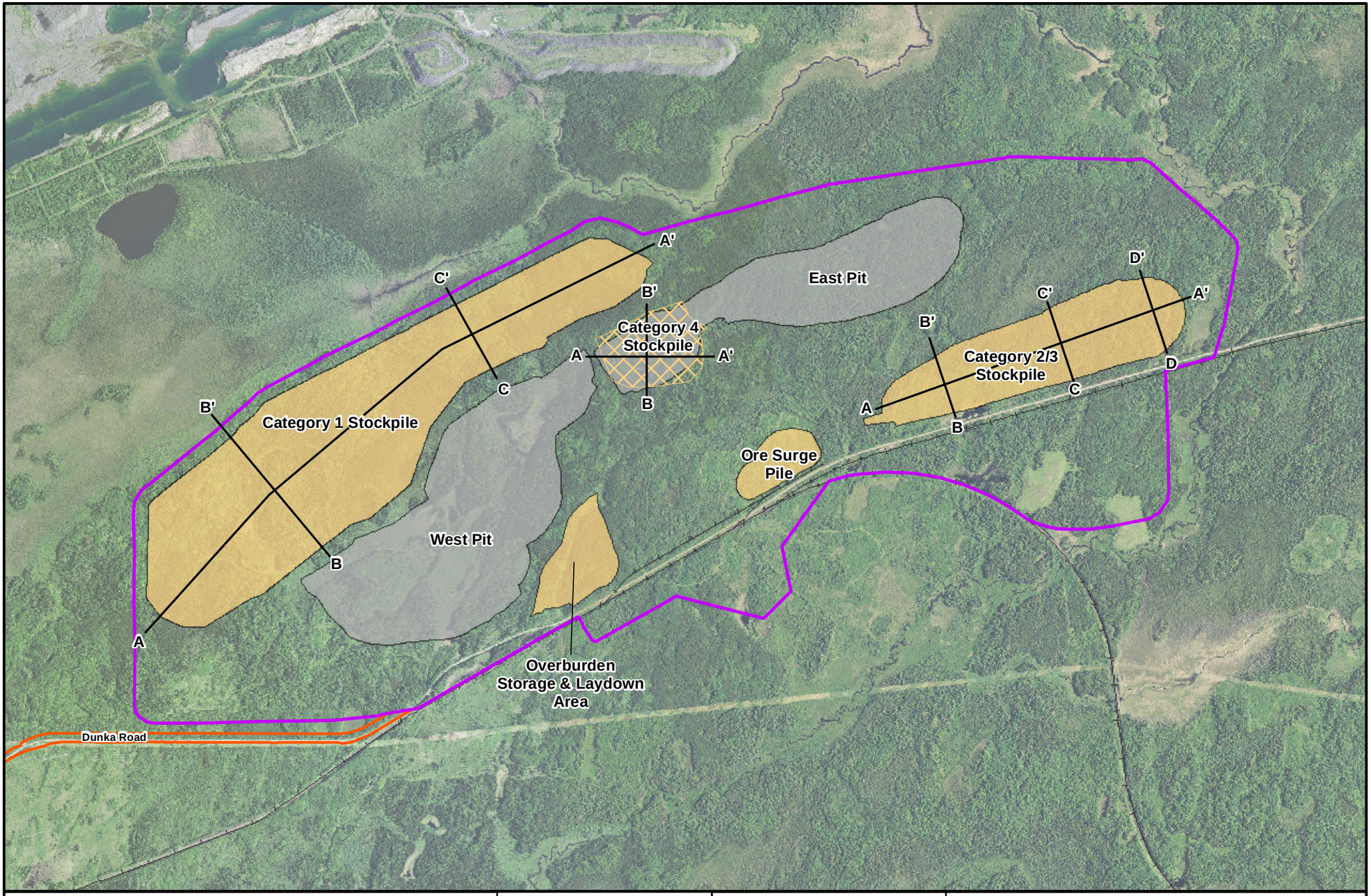

Mine Site
Active Stockpile
Category 4 Stockpile
Mine Pit
Stockpile Cross-Section
Transportation and Utility Corridor
Existing Railroad

MNDNR
US Army Corps of Engineers
St. Paul District

N
W
E
S

0 500 1,000 2,000 3,000
Feet

Figure 5.2.14-1
Mine Site Plan - Year 11
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Design Criteria

Waste rock stockpiles must be designed to comply with *Minnesota Rules*, parts 6132.2200 and 6132.2400 (stockpile slopes are required to meet *Minnesota Rules*, part 6132.2400, subpart 2B and stockpile foundations are required to meet *Minnesota Rules*, part 6132.2400, subpart 2A(1)). These are design requirements that have been established to attain acceptable slope stability Factors of Safety for global stability and acceptable foundation deformations, the latter of which relates to the capability of the composite geomembrane liner system to withstand the strain anticipated due to differential settlement that may occur in the stockpile foundation materials.

The NorthMet Geotechnical Modeling Work Plan (PolyMet 2015l, Attachment A) requires PolyMet to perform stockpile subgrade settlement analysis to predict magnitude of deformation and resulting strain in the stockpile geomembrane liners for comparison to allowable strain in the proposed liner system. Allowable strains are material-specific and would be determined from manufacturers specifications for the materials selected for the stockpile liners.

Methodology

In order to demonstrate that the design of the stockpiles would meet the geotechnical requirements, PolyMet completed the following:

- Collected existing conditions data needed to support foundation design (refer to Section 4.2.14);
- Configured stockpile slopes to meet or exceed the minimum dimensional requirements established by *Minnesota Rules*, part 6132.2400;
- Conducted a stockpile subgrade settlement analysis to predict the magnitude of deformation and resulting strain in the stockpile liners for comparison to allowable strain in the liner system;
- Completed slope stability analyses using RocScience's limit equilibrium program SLIDE; and
- Developed the stockpile design and operating requirements necessary to maintain required slope stability Factors of Safety and liner performance.

Design

The design of the stockpiles would need to conform to *Minnesota Rules*, parts 6132.2200 and 6132.2400. Various design specifications have been established and used for the stockpile analysis (PolyMet 2014p). The following is a summary of the design characteristics applied and considered in geotechnical evaluation.

Preconstruction Design Considerations for Stability and Water Management

Additional geotechnical investigation such as soil borings, test trenches, and geotechnical laboratory tests of on-site materials are required at the locations of the proposed stockpiles to verify the geotechnical information currently available. Examples of information that the additional investigation would yield include: confirmation of the classification of native soils, identification of depths to bedrock and groundwater, identification and delineation of on-site borrow sources, and procurement of additional material samples of waste rock and overburden

soils for laboratory testing. Information would be used to modify stockpile and foundation design and confirm the design assumptions and earthwork balance computations. The additional investigations would take place before stockpile construction but cannot be undertaken until the land exchange has been completed, appropriate permitting has been received, and dewatering of the wetland areas has been performed. As noted above, before construction, the sites would be dewatered and stockpile foundations would be established on soils identified through permitting, that the MDNR agrees to be suitable for structural support; unsuitable soils on the stockpile's perimeter would be removed and replaced with structural fill for stability purposes.

The Category 1 Stockpile would be a permanent, unlined facility. A drainage system would be progressively installed around the stockpile, prior to waste rock placement, to capture ground and surface water flows that may seep from the stockpile.

The temporary Category 2/3 and 4 Stockpiles would include a composite geomembrane liner systems comprised of, from the bottom up, a foundation underdrain system, an impermeable composite liner barrier, and an overliner drainage layer. The composite liner systems are designed to perform on a level commensurate with the level of environmental risk expected by the waste rock classification type. The composite liner system for each temporary stockpile consists of a minimum of one foot of compacted soil overlain by an 80-millimeter thick Linear Low Density Polyethylene (LLDPE) geomembrane liner and a minimum of two ft of granular drainage material. The liners would utilize gravity drainage to a series of collection sumps, and an overliner drainage layer would be constructed to reduce the potential for leaks due to puncturing of the geomembrane by the waste rock. For angular overliner materials, a geomembrane liner load integrity test would be conducted during the additional investigation work mentioned above to support specification of the acceptable geomembrane thickness and polymer type.

Additional information on water containment and management is provided in Section 3.2.2.1.8.

Stockpile Design and Construction

- Stockpile design geometry used for analysis is as follows: minimum width at the top of stockpile: approximately 150 ft or as controlled by the minimum safe turning radius for operating mine haulage trucks
- Perimeter access road for light truck traffic (plus allowance for berms): 20 ft
- Nominal angle of repose slopes: 1.4H:1V (horizontal:vertical) (assumed)
- Maximum slope for stockpile foundation excavation: 2H:1V
- Grading considerations at closure:
  - For the Category 1 Stockpile: 3.75H:1V regraded interbench slopes for the geomembrane cover
  - Regrading is not necessary for Categories 2/3 and 4 stockpiles or the Ore Surge Pile as these are temporary stockpiles
- Height of first lift (over geomembrane, where located): 15 ft
- Height of second lift (over geomembrane, where located): 25 ft
- Nominal lift height (after initial two lifts over geomembrane and where no geomembrane is located): 40 ft

- Maximum stockpile heights and interbench slope configurations considered for stability analyses are:
  - 160 ft at interbench slope angles of 1.4H:1V and 2.5H:1V
  - 200 ft at interbench slope angle of 3H:1V
  - 240 ft at interbench slope angle of 3.7H:1V

Stockpile liner systems and foundation designs used for analysis are as follows:

- Number of development phases: to be determined in permitting
- Minimum grade for foundation underdrains: 0.5 percent
- Minimum grade for drainage collection overliner: 0.5 percent
- Liner system design, including piping and underliner and overliner collection points
- Liner system geomembrane: 80-millimeter linear low density polyethylene (LLDPE)

Cross sections of the proposed stockpiles are shown in Figure 5.2.14-2 and Figure 5.2.14-3.

The stability model (SLIDE) assumed a geomembrane liner interface friction angle (i.e., the strength that the geomembrane possesses for resisting sliding against the adjacent earthen material) of 19 degrees, meeting the criteria of 15.7 degrees or greater. Further geotechnical investigation and laboratory testing is required to verify the liner interface shear strength values as placed against potential borrow materials comprising the underliner material, as well as the shear strength parameters for the foundation and stockpile materials prior to construction. To mitigate associated uncertainty, PolyMet has committed to removing all unsuitable foundation soils from beneath lined stockpiles and replace them (where required) with structural fill to meet strength and grade requirements (PolyMet 2015h). PolyMet has also committed to undertaking further geotechnical investigations prior to the construction of the stockpiles to define the foundation management needs.

Temporary stockpiles at the Overburden Storage and Laydown Area have not been included in stability analysis given their temporary nature and relatively small size.

Closure of the Stockpiles

The Category 1 Stockpile would be a permanent feature that would be progressively reclaimed, starting in mine year 14, with an engineered geomembrane cover system. Reclaimed configurations are described in the section above and in the stability modeling results below. The cover would include an engineered geomembrane system that would be vegetated to meet the requirements of *Minnesota Rules*, part 6132.2200, subpart 2, item B. A subgrade layer would be placed over the Category 1 Stockpile to provide a uniform layer upon which to construct the cover system. The cover would be designed to promote runoff with reduced erosion potential. To provide an adequate base for sloping of cover materials, Category 1 Stockpile side slopes would be re-shaped to no steeper than a horizontal-to-vertical ratio of 3.75H:1V, with the cover system placed on top of the re-shaped waste rock. The outermost layer would consist of local till soils (also known as “overburden” per *Minnesota Rules*, part 6132.0100, subpart 32) adequate for native vegetation growth. To provide further erosion control, catch benches at least 30 ft in width would remain on the stockpile. Long-term maintenance of the Category 1 Stockpile would

include repairing erosion and removal of woody species and trees from the stockpile cover system to mitigate against the potential for deep root systems puncturing the underlying geomembrane. Additional information on reclamation is provided in Section 3.2.2.1.10 and an overview of monitoring and maintenance actions for stability is provided below.

The Category 2/3 and 4 stockpiles and Ore Surge Pile would be temporary and would be backfilled into the East Pit following year 11. The footprint of the temporary stockpiles would be reclaimed to wetlands or other native habitats where practical.

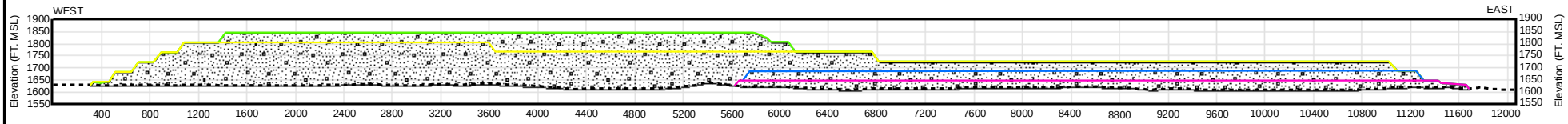

A: Operational Configuration Section

0 400 800
Horizontal Scale in Feet
2X Vertical Exaggeration

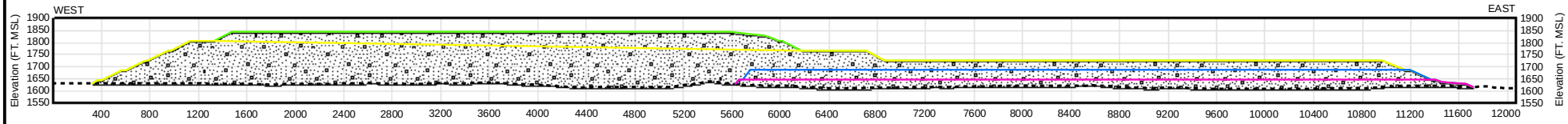

A: Reclamation Configuration Section - Interbench Slopes 3.75H:1V

0 400 800
Horizontal Scale in Feet
2X Vertical Exaggeration

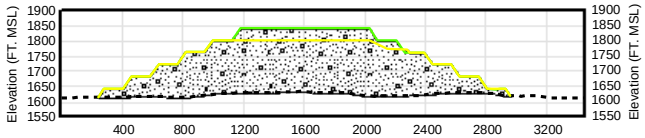

B: Operational Configuration - West Section

0 400 800
Horizontal Scale in Feet
2X Vertical Exaggeration

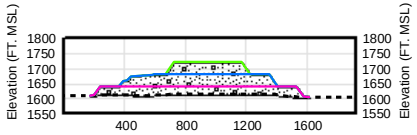

B: Operational Configuration - East Section

0 400 800
Horizontal Scale in Feet
2X Vertical Exaggeration

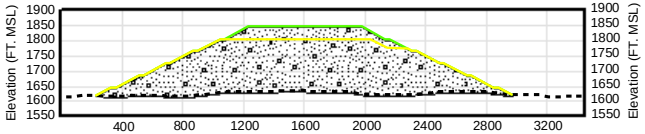

B: Reclamation Configuration - West Section, Interbench Slopes 3.75H:1V

0 400 800
Horizontal Scale in Feet
2X Vertical Exaggeration

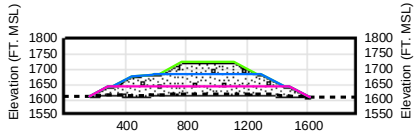

B: Reclamation Configuration - East Section, Interbench Slopes 3.75H:1V

0 400 800
Horizontal Scale in Feet
2X Vertical Exaggeration

Year 1
Year 2
Year 11
Ultimate Extent
Existing Ground Surface

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Figure 5.2.14-2
Cross Sections of the Proposed Category 1 Stockpile
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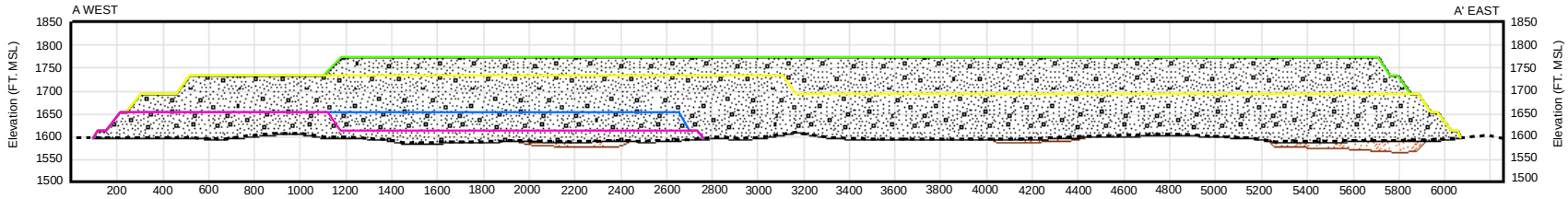

A: Category 2/3 Stockpile

2:1 Vertical Exaggeration

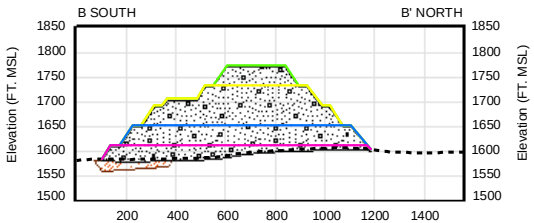

B: Category 2/3 Stockpile

2:1 Vertical Exaggeration

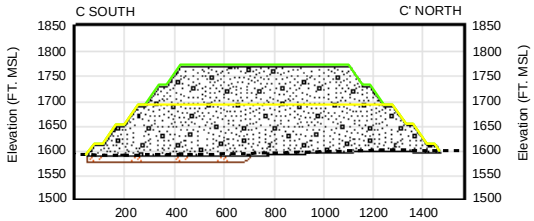

C: Category 2/3 Stockpile

2:1 Vertical Exaggeration

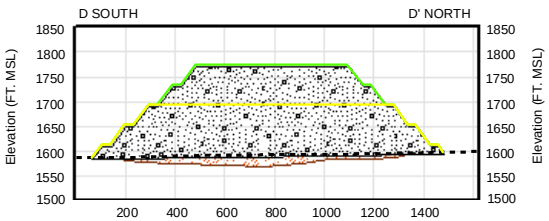

D: Category 2/3 Stockpile

2:1 Vertical Exaggeration

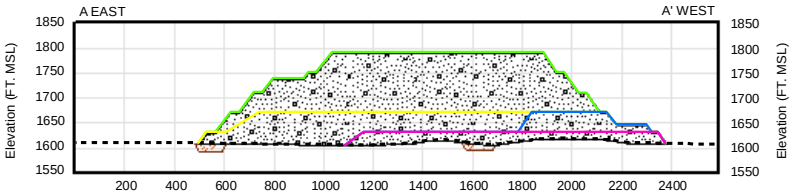

A: Category 4 Stockpile

2:1 Vertical Exaggeration

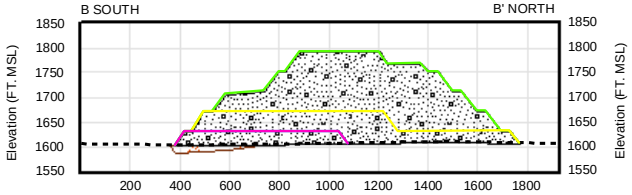

B: Category 4 Stockpile

2:1 Vertical Exaggeration

Horizontal 0 500 1000 Feet

Vertical 0 250 500 Feet

Year 1
Year 2
Year 11
Ultimate Extent
Existing Ground Surface
Unsuitable Soil Excavation Surface

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Figure 5.2.14-3

Cross Sections of the Proposed Category 2/3 and 4 Stockpiles at Maximum Extent

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Modeling Results

The results reported in Geotechnical Data Package Volume 3 indicate that the proposed design of the stockpiles would meet the required Factors of Safety (PolyMet 2014p). The geotechnical evaluation is summarized below.

Stability

PolyMet undertook a stability analysis of the design cross sections developed to represent the following typical conditions at different phases of stockpile development:

- Temporary Category 2/3 Stockpile, Category 4 Stockpile, and Ore Surge Pile
    1. Initial operational configuration (single lift of waste rock placed in two stages).
    2. Operational configuration at proposed final buildout (excludes the Ore Surge Pile, which would fluctuate).
- Permanent Category 1 Stockpile
    1. Initial operational configuration (a single lift of waste rock with a maximum height of 40 ft placed at the angle of repose).
    2. Operational configuration at proposed final buildout prior to reclamation (assume four lifts of waste rock).
    3. Reclaimed configuration, interbench slopes regraded to 2.5H:1V.
    4. Reclaimed configuration, interbench slopes regraded to 3H:1V.
    5. Reclaimed configuration, interbench slopes regraded to 3.75H:1V.
    6. Assuming a liner interface (i.e., overliner material/LLDPE geomembrane liner/soil liner) friction angle of 19 degrees.

Results indicated that all sections analyzed met the minimum required Factors of Safety.

Estimated liner strains resulting from foundation settlement are less than 1 percent; well below the 30 percent maximum strain allowed in the LLDPE geomembrane proposed for the geomembrane barrier layer component of the basal liner system for the Category 2/3 Stockpile, Category 4 Stockpile, and the Ore Surge Pile.

Proposed Monitoring, Maintenance, and Mitigation

A Construction Quality Assurance Plan would be developed by PolyMet for the stockpile construction prior to permitting. The objective of the plan would be to assure that the construction of the soil and geosynthetic components would be in compliance with the project specifications and to demonstrate that the regulatory requirements for the construction would be achieved. The plan also would provide the means for resolution of problems that may occur during construction. The Construction Quality Assurance Plan would be independent of the quality control programs to be followed by the manufacturers, installers, and the contractor.

A Rock and Overburden Management Plan (PolyMet 2015h) has been prepared by PolyMet that includes a description of the operating plans, monitoring procedures, and adaptive management approaches for the stockpiles.

The stockpile quantities would be monitored throughout the life of the mine and the stockpile heights and footprints would be monitored to verify that they are constructed as designed. Monitoring and maintenance of the Category 1 Stockpile would also continue through the post-closure period until the MDNR determines that the cover is stable. An annual compliance report would be developed each year for submittal to the MDNR to comply with the Permit to Mine requirements.

Information gained through ongoing monitoring would also be used to advise adaptive waste management requirements should the capacity of the Category 2/3 Stockpile, the Category 4 Stockpile, and/or the East Pit be insufficient for the mined volume of Category 2/3 and Category 4 waste rock generated by mining. Adaptive waste rock management could include expansion of the waste rock stockpiles. While moving all of the Category 1 waste rock into the West Pit as backfill was eliminated as a potential alternative (refer to Section 3.2.3.4.2), it may be possible to dispose of some excess waste rock or saturated overburden in the West Pit in areas where mining has ceased, if necessary as an adaptive measure.

Each year, an operating plan and annual report would be completed, as required for the Permit to Mine, to keep the Rock and Overburden Management Plan (PolyMet 2015h) current and to track changes in the mine plan, rock type schedule, and characterization of the material. Modifications to the Rock and Overburden Management Plan based on changes to the material characterization would be completed, as necessary.

5.2.14.2.2 Tailings Basin

Tailings from the beneficiation process would be disposed of in a Tailings Basin, constructed on top of Cell 1E and Cell 2E of the existing LTVSMC Tailings Basin. Figure 5.2.14-4 depicts the Tailings Basin at its proposed final elevation (year 20).

The data inputs, modeling methodology, results, and design and operating requirements for the Tailings Basin were reported in Geotechnical Data Package Volume 1 (PolyMet 2015l) and Flotation Tailings Management Plan (PolyMet 2015n), which were reviewed by the Co-lead Agencies. The information provided in the data package informs the permitting process and is summarized below.

Design Criteria

In Minnesota, dams must be constructed in accordance with applicable requirements of *Minnesota Rules*, parts 6115.0300–6115.0520. In addition, under the NorthMet Geotechnical Modeling Work Plan (PolyMet 2015l, Attachment A), the Co-lead Agencies require that the critical cross section of the Tailings Basin is demonstrated to meet or exceed the following minimum Factors of Safety as required for various loading scenarios:

- Factor of Safety greater than or equal to 1.5 for effective stress conditions using parameters that reflect long-term, drained strength conditions.
- Factor of Safety greater than or equal to 1.3 for short-term, undrained strength conditions for soils that are not prone to static liquefaction using undrained strength conditions.
- Liquefaction analysis of potentially liquefiable materials in undrained strength conditions including:
  - Liquefaction triggering analysis Factor of Safety greater than or equal to 1.1;

- Seismic liquefaction triggering analysis (i.e., induced by design earthquake event) Factor of Safety greater than or equal to 1.2 (or, the Co-lead Agencies may accept a Factor of Safety between 1.2 and 1.0 if the results of deformation modeling are also deemed acceptable by the Co-lead Agencies); and
- Liquefied scenario (assumes all saturated contractive materials have liquefied) Factor of Safety greater than or equal to 1.10.

These minimum Factors of Safety were selected with consideration for:

- The proposed construction of the Tailings Basin on top of the existing LTVSMC Tailings Basin and the known geotechnical conditions and material characteristics of the existing facility;
- The expected characteristics of the NorthMet Project tailings and construction materials and methods, including long-term wet closure; and
- Similar industry standards and other large tailings dams in Minnesota.

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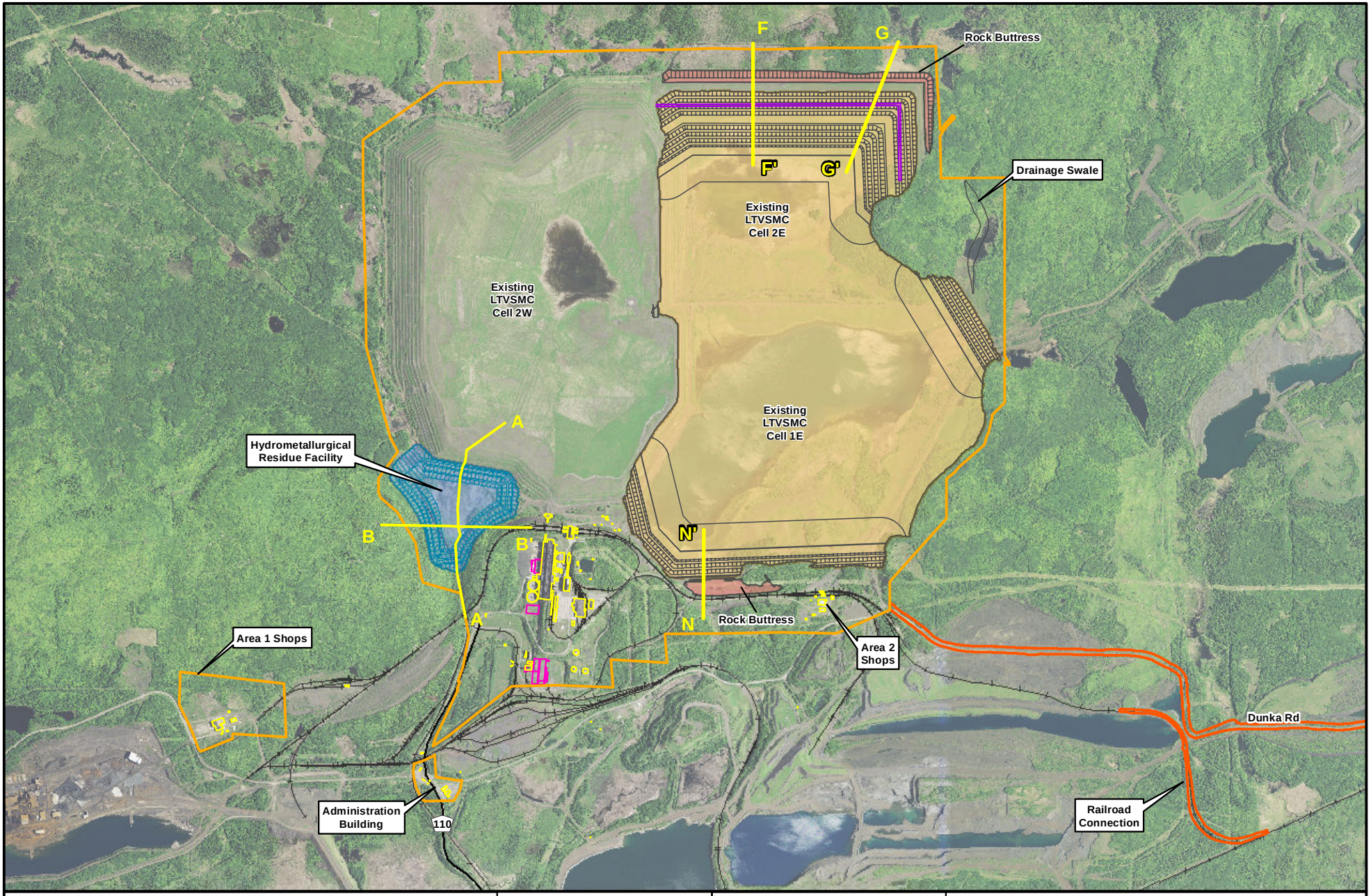

Plant Site
Tailings Basin
Proposed Buildings
Existing Building
Hydrometallurgical Residue Facility
Rock Buttress
Transportation and Utility Corridor
Cross-Section
Proposed Cement Deep Soil Mix
Existing Railroad

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N
W E
S

0 1,000 2,000 4,000
Feet

Figure 5.2.14-4
Proposed Plant Site Layout
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Methodology

In order to demonstrate that the design of the Tailings Basin would meet the respective geotechnical requirements, PolyMet, in accordance with the NorthMet Geotechnical Modeling Work Plan (PolyMet 2015l, Attachment A) took the following steps:

1. Gathered existing conditions data (i.e., existing basin topography, stratigraphy, soil and tailings strength and hydraulic characteristics [see Section 4.2.14], characteristics of NorthMet tailings based on material produced during the pilot-plant processing, and other data as needed to support geotechnical modeling and Tailings Basin design).
2. Developed Tailings Basin cross sections (i.e., geometry and stratigraphy for existing and planned conditions) for the Tailings Basin for seepage and stability modeling.
3. Developed seepage and stability models using Geo-Slope International, Inc. modeling software (i.e., SLOPE/W, SEEP/W and SIGMA/W as necessary) for various construction and loading scenarios (such as various dam crest and pond surface elevations during construction and closure).
4. Established the geotechnical design data for model input including identification of hydraulic and strength parameters and the triggering potential for static and seismic events of the various tailings material types.
5. Performed modeling and results interpretation.
6. Refined the design and operating requirements necessary until modeling showed that the required slope stability Factors of Safety are achieved for the critical slope cross section.

Design

Various design specifications have been established and used for Tailings Basin geotechnical analysis (PolyMet 2015l). The following is a summary of the design characteristics applied and considered in modeling.

Preconstruction Design Considerations for Stability and Water Management

Before placement of NorthMet tailings, coarse tailings sourced from the existing LTVSMC Tailings Basin would be used to construct a drainage layer to maintain a lowered phreatic surface within the new dam. A lower phreatic surface would help to prevent saturation of the dam embankments. Additional modeling would be conducted to ascertain if this drainage layer needs to be continuous along the length of the dam, or if narrow segments of foundation material would prove to be sufficiently effective.

Rock buttresses would be placed at the northern toe of the existing Cell 2E starter dam, and at the south end of Cell 1E near the railroad fill to provide resistance to the driving forces created by the dam raises. The location of the proposed rock buttress is shown in Figure 5.2.14-4. Peat would be removed from below the rock buttress footprint before placement, so that the rock can be founded on the firmer till and bedrock. Buttress material would likely consist of waste rock sourced from the LTVSMC Area 5 Stockpile (assumed to have the same geochemical properties as Category 1 waste rock for water impact modeling purposes).

Installation of CDSM columns would also be used along the northern and northeastern sides of Cell 2E to enhance the shear strength of the existing LTVSMC fine tailings, slimes, and peat

layers by mixing in situ soil with cement or other suitable stabilizing agent. The location of one proposed CDSM option is shown in plan view on Figure 5.2.14-4, and cross section view on Figures 5.2.14-6 and 5.2.14-7. A potential arrangement of CDSM that may be applied at the Tailings Basin is shown in Figure 5.2.14-5.

As described in Section 3.2.2.3.10, the Tailings Basin design includes a containment system and a storm water management system that would encompass the northern, western and eastern sides of the Tailings Basin. Storm water runoff is not expected to cause significant erosion to the dams. However, if erosion were to occur, more robust erosion control measures would be implemented. A drainage swale would be added to redirect runoff storm waters falling outside of the dams. These design features would not affect the stability of the dams (PolyMet 2015l). Precipitation that falls within the Tailings Basin would be contained by a freeboard that has been designed based on the predicted bounce from a PMP event (PolyMet 2015n). Overflow would be prevented by pumping excess pond water to the WWTP. In the rare event that freeboard within the Tailings Basin, and pumping of excess water to the WWTP, is not sufficient to contain all storm water, water would be directed to an emergency overflow spillway.

A seismic hazard assessment and subsequent liquefaction analysis were undertaken for the Tailings Basin. Results indicated that a significant earthquake is unlikely in Minnesota, and a seismic design event with a peak ground acceleration of 0.024g (2,475 year return period) is not likely to trigger liquefaction in the Tailings Basin materials. Seismic deformation was also considered and the effect of settlement resulting from a design earthquake event would not affect the stability or pond containment of the Tailings Basin.

NorthMet Tailings Basin Design and Construction

The Tailings Basin would be constructed using the upstream method, whereby NorthMet dam embankments would be constructed using preferentially borrowed LTVSMC tailings on top of the existing LTVSMC tailings embankment and on the spigotted tailings adjacent to the perimeter embankment. NorthMet bulk tailings would be discharged into the new basin by perimeter spigots and a pond barge pump. New dam embankments (using LTVSMC Bulk tailings) would be raised in stages on top of the existing LTVSMC tailings impoundment, and the new tailings deposited upstream of the dam into the basin from spigots at the dam's edge. Tailings would also be discharged subaqueously in the basin via a barge.

The Tailings Basin incorporates construction of new dam embankments over the existing LTVSMC Tailings Basin Cells 1E and 2E. The design process is an iterative approach whereby various combinations of stabilization factors including slope angle, lift heights, intermediate slope bench width, drainage layers beneath the proposed NorthMet tailings, CDSM, and supporting rock buttresses were modeled to identify a design that would achieve the following:

- Provide safe permanent storage of tailings generated over the proposed 20-year operating life of the NorthMet Project Proposed Action and maintain stability post-closure;
- Efficiently and effectively recover process water from the surface of the Tailings Basin during operation, and contain groundwater and surface water seepage during operation and over the long term (refer to Section 5.2.2 for more information on water management);
- Accommodate the planned wet cover system at closure; and
- Meet project regulatory requirements (including Factors of Safety).

As shown in Figure 5.2.14-6, Figure 5.2.14-7, and Figure 5.2.14-8 the proposed design consists of eight lifts with a proposed final crest elevation (selected on the basis of tailings storage capacity requirements) modeled as 1,732 ft amsl. This would be an additional 150 ft on top of the existing LTVSMC Tailings Basin Cell 2E. This proposed elevation is similar to the elevation of the existing north dam of Cell 2W, which is at a designed final elevation of 1,735 ft amsl. A schematic cross section of the Tailings Basin is shown in Section 3.2.2.3.5.

The proposed dams would be constructed from mechanically placed and compacted "bulk tailings" taken from the existing LTVSMC Tailings Basin as needed to produce the desired dam lift height and geometry. LTVSMC "bulk tailings" are currently defined as a mixture of tailings from the existing LTVSMC Tailings Basin. The exterior face of the dams would be augmented with a bentonite layer to limit oxygen and rain water infiltration into the Tailings Basin.

The individual lifts would have a slope of 4.5H:1V, which, including setbacks, would provide for an overall slope of approximately 8.6H:1V. Each lift would be 20 ft high, with the exception of the final lift, Lift 8, which would be 10 ft in height. There is a 60-ft bench on top of each lift, with an additional 200-ft setback on top of Lift 4, and a 625-ft beach extending from the interior crest of dam to the edge of the Tailings Basin pond.

Closure of the Tailings Basin

As dams are constructed, exterior slopes would be covered with bentonite and vegetated. Upon reaching the final proposed dam elevation (after 20 years of operation), the Tailings Basin would be closed in accordance with *Minnesota Rules*, part 6132.3200 and would also include the following:

- Bentonite augmentation of the pond area bottom to reduce infiltration to a sufficient degree to maintain desired pond water elevations at closure;
- Slight slope grading of the interior portions for effective storm water routing into the pond area;
- Bentonite augmentation of the exposed embankments and beach areas; and
- Mulching and planting/seeding of native vegetation of upland areas (plants would be selected and monitored to limit root growth from penetrating bentonite).

Monitoring and maintenance measures that would be applied post closure are further addressed below and additional details on closure are provided in Section 3.2.2.3.12.

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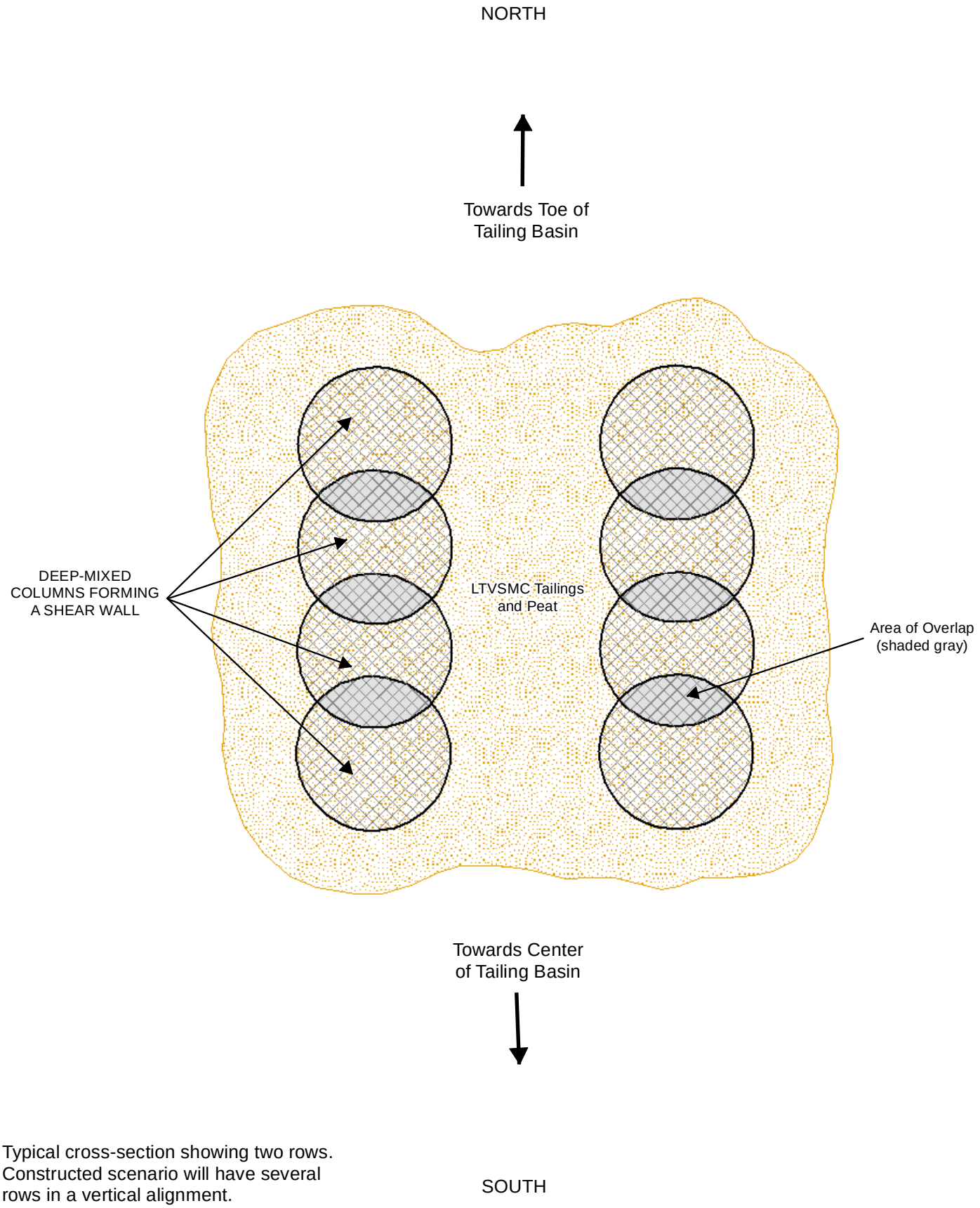

Typical cross-section showing two rows. Constructed scenario will have several rows in a vertical alignment.

NOT TO SCALE

Figure 5.2.14-5

Potential Cross-section of Cement Deep Soil Mixed Columns Forming a Shear Wall

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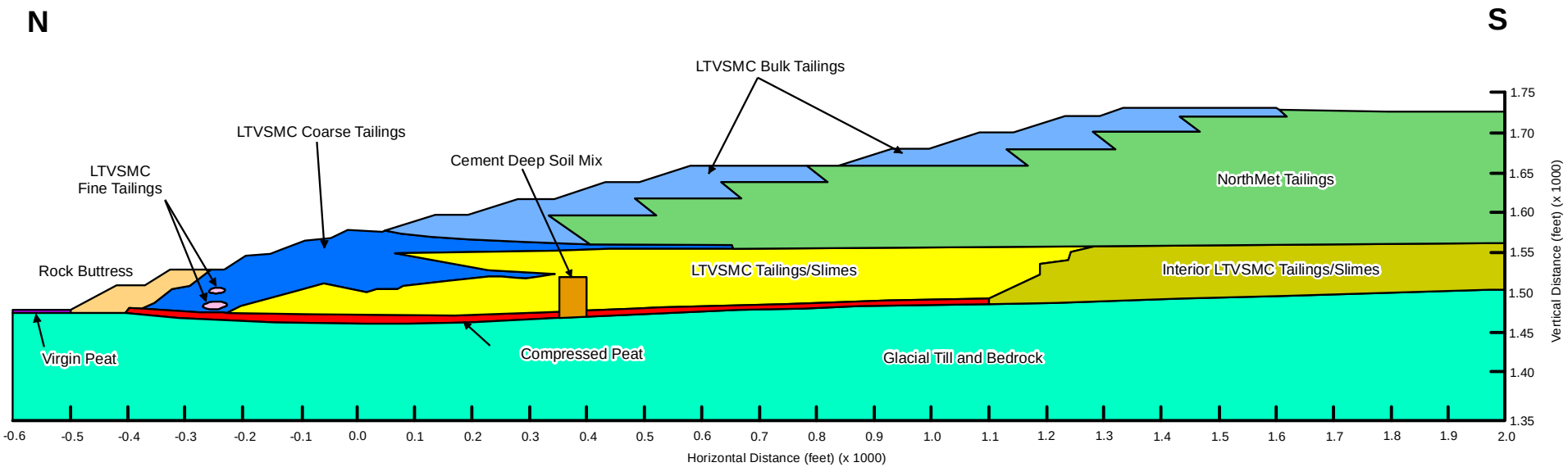

- Compressed Peat
- Interior LTVSMC Tailings/Slimes
- NorthMet Tailings
- LTVSMC Bulk Tailings
- LTVSMC Coarse Tailings
- LTVSMC Tailings/Slimes
- LTVSMC Fine Tailings
- Rock Buttress
- Cement Deep Soil Mix
- Virgin Peat
- Glacial Till and Bedrock

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Figure 5.2.14-6
Cross Section F of the Tailings Basin at Maximum Extent
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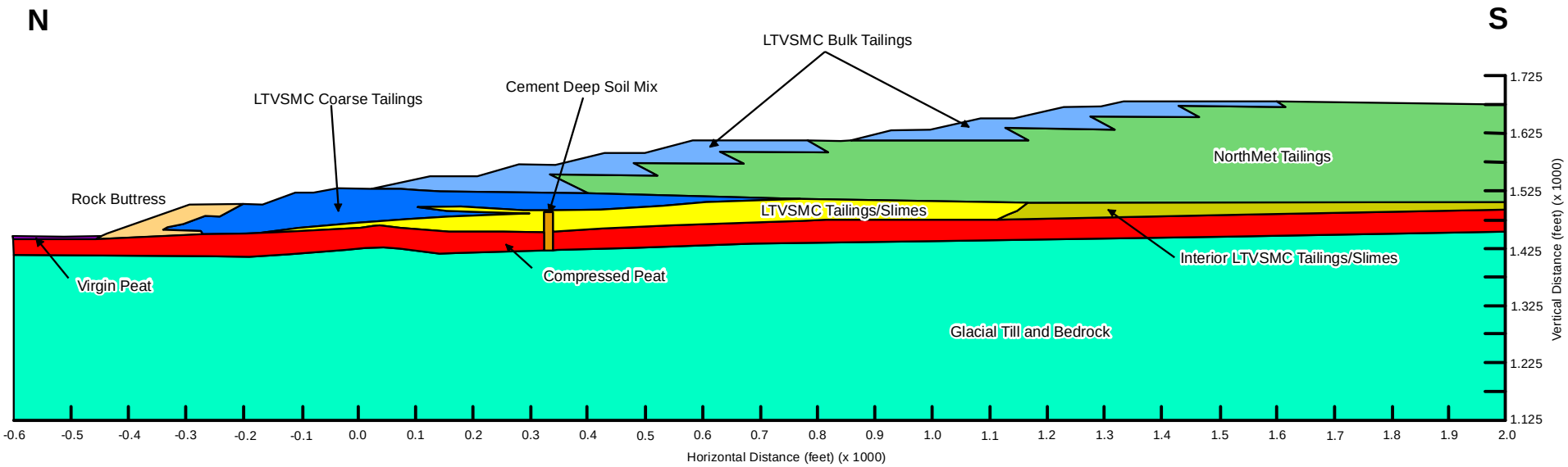

- Compressed Peat
- Interior LTVSMC Tailings/Slimes
- NorthMet Tailings
- LTVSMC Bulk Tailings
- LTVSMC Coarse Tailings
- LTVSMC Tailings/Slimes
- Rock Buttress
- Cement Deep Soil Mix
- Virgin Peat
- Glacial Till and Bedrock

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Figure 5.2.14-7
Cross Section G of the Tailings Basin at Maximum Extent
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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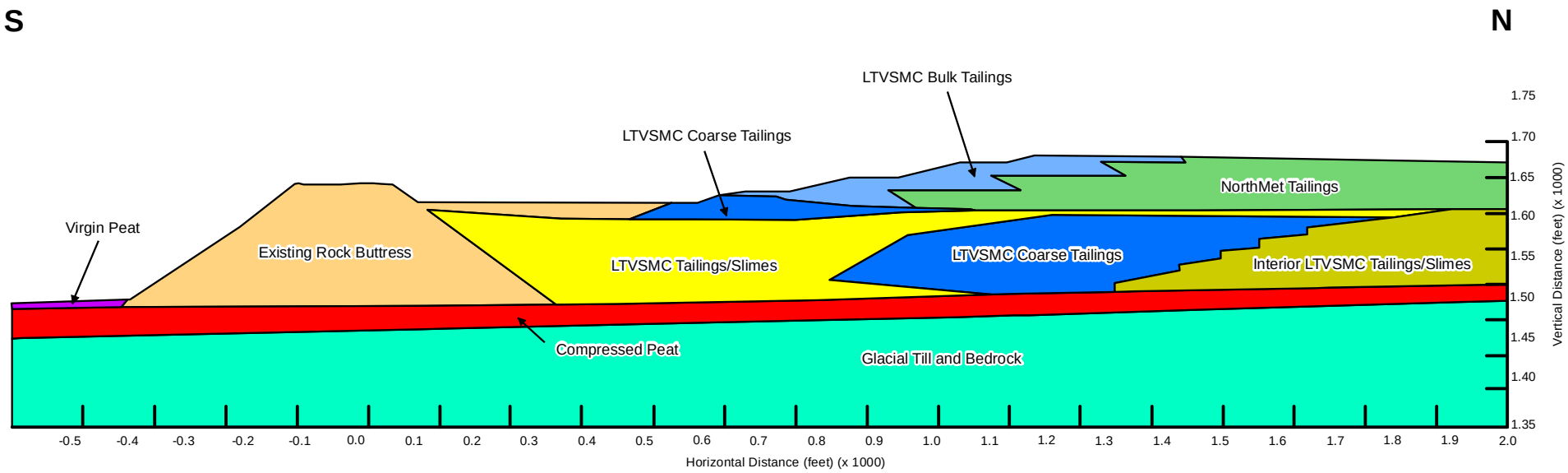

- Compressed Peat
- Interior LTVSMC Tailings/Slimes
- NorthMet Tailings
- LTVSMC Bulk Tailings
- LTVSMC Coarse Tailings
- LTVSMC Tailings/Slimes
- Existing Rock Buttress
- Cement Deep Soil Mix
- Virgin Peat
- Glacial Till and Bedrock

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Figure 5.2.14-8
Cross Section N of the Tailings Basin at Maximum Extent
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Identification of the Critical Cross Section

Geotechnical conditions along the length of existing LTVSMC Tailings Basin dams have varying layers of coarse tailings, fine tailings, and slimes. Cross Section F, which intersects the northern dam of Cell 2E, as shown in Figure 5.2.14-4, was selected to represent the critical cross section for stability analysis purposes as it is the maximum section based on height as measured from the downstream toe to the proposed final crest, some layers of the weaker fine tailings and slimes extend close to the dam, and the original starter dam is underlain by peat. Material types identified from borings in the existing LTVSMC Tailings Basin along Cross Section F are shown in Figure 4.2.14-3. Figure 5.2.14-6 shows the proposed design of the NorthMet Project Proposed Action Tailings Basin along Cross Section F at its full extent.

Cross Section F was analyzed in a sequential manner consisting of the development of the dam cross section stratigraphy for analyses, application of the material strength and permeability characteristics, and modeling of seepage conditions at the dam cross section, followed by stability analyses.

Cross Section F also was evaluated with the Tailings Basin at the proposed final crest height to determine whether liquefaction would be triggered in the contractive materials, based on certain triggers prescribed in the NorthMet Geotechnical Modeling Work Plan (PolyMet 2015l, Attachment A).

In addition to Cross Section F, Cross Section G and N were selected to represent separate, non-critical sections of the Tailings Basin. These cross sections are shown in plan view on Figure 5.2.14-4. Figures 5.2.14-7 and 5.2.14-8 show the proposed design of the NorthMet Project Proposed Action Tailings Basin along Cross Sections G and N at their full extent respectively. Stability modeling was also performed for these cross sections as described below.

Modeling Results

The results reported in Geotechnical Data Package Volume 1 indicate that the proposed design of the Tailings Basin would meet all respective Factors of Safety as required (PolyMet 2015l). The modeling undertaken and results obtained are summarized below. Subsequent to Geotechnical Data Package Volume 1, PolyMet evaluated the effect that the Tailings Basin groundwater containment system would have on stability. Results indicated that the groundwater containment system would not impact the stability of the Tailings Basin or the Factor of Safety results for Cross Sections F, G, and N determined in Geotechnical Data Package Volume 1 and provided below (PolyMet 2015l). All minimum Factors of Safety correspond to Cross-Section F, confirming that it is the critical cross-section given the analyses performed.

Technical documents have been reviewed by the Co-lead Agencies and these results would be further verified before the completion of permitting.

Slope Stability

The predicted Factor of Safety values for Cross Sections F, G and N at various stages of development of the Tailings Basin are summarized in Table 5.2.14-1. The geometry and physical changes to the embankments (such as CDSM) were incorporated into the design so that all computed slope stability Factors of Safety met or exceeded the Factors of Safety required by the NorthMet Geotechnical Modeling Work Plan (PolyMet 2015l, Attachment A).

Table 5.2.14-1 Summary of Stability Modeling Results

Cross-Section Location	Cross-Section F			Cross- Section G			Cross-Section N		
Case	USSA yield	ESSA	USSA liq	USSA liq	ESSA	USSA liq	USSA yield	ESSA	USSA liq
Target Factor of Safety	1.3	1.5	1.1	1.3	1.5	1.1	1.3	1.5	1.1
Design Scenarios – Steady State Seepage									
Existing Conditions	-	1.83	-	-	2.21	-	-	3.11	-
Interim Lift 2	1.89	3.12	-	2.28	3.43	-	-	-	-
Interim Lift 4	1.74	3.18	-	2.09	3.42	-	-	-	-
Interim Lift 6	1.88	3.18	-	1.93	3.43	-	1.88	4.43	-
Interim Lift 8 – Normal Pool	1.69	3.17	-	1.86	3.44	-	2.00	4.58	-
Interim Lift 8 – PMP Event	1.77	3.18	-	1.85	3.46	-	1.91	4.34	-
Long-Term Stability – Steady State Seepage									
End of Operations	-	3.07	-	-	-	-	-	-	-
20 Years after Closure	-	3.09	-	-	-	-	-	-	-
200 Years after Closure	-	3.21	-	-	-	-	-	-	-
2,000 Years after Closure	-	3.15	-	-	-	-	-	-	-
Cross-Section F Liquefaction Triggering Analysis									
Baseline	2.06	-	-	-	-	-	-	-	-
Plugged Drain	2.06	-	-	-	-	-	-	-	-
Lift 1 Rapid Loading	-	-	1.78	-	-	-	-	-	-
Erosion	1.99	-	-	-	-	-	-	-	-
Plugged Drain	1.91	-	-	-	-	-	-	-	-
Fully Liquefied with Unknown Trigger									
Operations	-	-	1.10	-	-	1.25	-	-	1.16
20 Years after Closure	-	-	1.35	-	-	-	-	-	-
200 Years after Closure	-	-	1.45	-	-	-	-	-	-
2,000 Years after Closure	-	-	1.53	-	-	-	-	-	-

Source: PolyMet 2015l

Notes:
USSA = Undrained Strength Stability Analysis
ESSA = Effective Strength Stability Analysis
Liq = Liquefied conditions
Yield = point of elastic deformation

Liquefaction

The potential for liquefaction, where a triggering event changes the stress state of the material such that it loses a significant amount of its strength, was assessed under different scenarios, including rapid loading and construction, ineffective underdrain resulting in increased saturation, and erosion events. Results shown in Table 5.2.14-1 indicate that the design under these conditions meets the minimum Factor of Safety for Cross Sections F, G, and N.

A scenario for potential liquefaction was evaluated whereby all contractive, saturated soils were modeled with their liquefied shear strengths. Table 5.2.14-1 shows that if the contractive, saturated soils were to liquefy at the end of operations, or 20, 200, or 2,000 years after operations, the design would meet the minimum Factors of Safety deemed acceptable by the Co-lead Agencies.

Potential for seismic activity was also analyzed and assessed. Results indicated that there is a very low likelihood of liquefaction as a result of seismic events.

Long-Term Closure Stability Conditions

While it is normally preferable from a stability perspective to allow tailings facilities to drain following closure, the NorthMet Project Proposed Action involves maintaining a pond on top of the Tailings Basin for water quality management purposes.

The Tailings Basin would be covered with a bentonite-amended surface on the exterior face of the NorthMet Project dam lifts (amended during construction). After the Tailings Basin has been filled to its maximum height, the dam would be prepared for reclamation by amending the 625-ft beach of tailings and the bottom of the pond with bentonite. A closure overflow channel would be constructed to drain excess water from the Tailings Basin pond in order to maintain appropriate freeboard and beach lengths.

Modeling was undertaken to predict the long-term stability of the Tailings Basin. As shown in Table 5.2.14-1, the long-term closure slope stability Factors of Safety are above the minimum value required under the Work Plan.

Proposed Monitoring

Geotechnical investigations would be performed on the Tailings Basin during construction and operations to confirm that the construction and performance of the dam meet design criteria. Results may inform adaptive design changes to ensure stability criteria would be met as construction progresses. This approach is typical for large earthen structures that are developed incrementally over long periods of time.

A Flotation Tailings Management Plan (PolyMet 2015n) has been prepared by PolyMet that includes a description of the operating plans, monitoring procedures, and adaptive management approaches for the Tailings Basin. Monitoring activities include construction material sampling, geotechnical instrumentation, geotechnical investigations, and systematic dam safety inspections.

Existing and proposed geotechnical instrumentation would measure actual tailings dam performance by monitoring stability, seepage, and deformation. Monitoring instrumentation relevant to geotechnical stability would include:

- **Piezometers** to facilitate monitoring of the pore water pressure within the Tailings Basin and perimeter dams (the phreatic surface has a significant effect on slope stability), which would be compared to modeled phreatic surface.
- **Inclinometers** to facilitate monitoring of the movement of the Tailings Basin dams.
- **Survey monitoring points** to facilitate the monitoring of horizontal and vertical deformation (including settlement) of the Tailings Basin dams.

Geotechnical investigations and systematic dam safety inspections would include:

- Staff observation of the condition of the dam and the reporting of any conditions that indicate a departure from the design specifications.
- Weekly/daily routine dam inspections by staff to observe the conditions and performance of the Tailings Basin dams and associated facilities so that any changes to dam conditions could be identified and promptly addressed. These would supplement more detailed Dam Safety Inspections (below).

- Regulator Dam Safety Inspections to evaluate, on a regular basis, the current and past performance of the Tailings Basin dams and to observe potential deficiencies in their condition, performance, and/or operation.
- Semi-annual Dam Safety Inspections undertaken by an independent Minnesota-registered consulting engineer retained specifically for dam safety expertise.
- Inspection after unusual events to monitor and report observations.
- Routine Dam Safety Reviews every 5 years by a qualified geotechnical engineer registered in the State of Minnesota. The review would ascertain that the dam has an adequate margin of safety, based on the current Dam Safety Permit, current engineering practice, and updated operations and design input data. A Dam Safety Review may also be carried out to address a specific problem.

Annual reports on the conditions of the Tailings Basin are required under the MDNR Dam Safety Permit and Permit to Mine. Monitoring and maintenance would continue post closure in accordance with permit requirements.

Proposed Maintenance and Mitigation

Typical maintenance of the facility would include repairing eroded surfaces and repair and/or replacement of damaged monitoring and operational infrastructure. The majority of the non-mechanical maintenance work at the Tailings Basin would be carried out on an as-required basis, rather than on a scheduled basis because it is driven by weather events rather than hours of operation.

Where monitoring or model updates indicate that the Factor of Safety for the Tailings Basin may no longer meet design criteria, appropriate modifications to the Tailings Basin would be considered, modeled, and, if necessary, undertaken. Modifications could include but are not limited to: modification of bench widths between lifts of the dam, modification of lift heights, and modification of slope angles. Other modifications could include increasing the size of the rock buttress, improving the performance of underdrains, and increasing mid-slope setbacks.

A Contingency Action Plan has been prepared as part of the Flotation Tailings Management Plan (PolyMet 2015n). The plan provides guidance to on-site personnel and emergency responders in the case of unplanned occurrences at the Tailings Basin. The plan defines three levels of hazardous and emergency conditions response:

1. Level 1 is defined as unusual conditions that do not warrant an emergency response but require prompt investigation and resolution.
2. Level 2 is defined as conditions that represent a potential emergency, if sustained or allowed to progress, but no emergency situation is imminent. The first action in the event of a Level 2 emergency condition is to discuss and define a response plan.
3. Level 3 is defined by either imminent failure of the Tailings Basin or a significant component thereof. The first actions in the event of any Level 3 condition are to check all persons who could potentially be affected are safe, initiate the appropriate chain of communications, and immediately undertake appropriate response actions.

Long-term maintenance tasks at the Tailings Basin would include:

- Annual inspection of vegetation on the exterior dam faces and interior beaches, with erosion repaired and vegetation reseeded in accordance with requirements of plans as needed until released from these activities by the MDNR;
- Snow removal from the dam crest to allow access during winter months;
- Reconstruction of eroded dam crest, slope or toe;
- Mulching for fugitive dust control in accordance with requirements of plans; and
- Repair and/or replacement of damaged instrumentation and monitoring.

5.2.14.2.3 Hydrometallurgical Residue Facility

As shown in Figure 5.2.14-4, hydrometallurgical residue would be disposed of in a new Hydrometallurgical Residue Facility that would be located at the site of the existing LTVSMC Emergency Basin, adjacent to the southern extent of existing LTVSMC Tailings Basin Cell 2W.

The data inputs, modeling methodology, results, and design and operating requirements for the Hydrometallurgical Residue Facility were reported in Geotechnical Data Package Volume 2 (PolyMet 2014c) and reviewed by the Co-lead Agencies. The information provided in the data package informs the permitting process and is summarized below.

Design Criteria

The design of the Hydrometallurgical Residue Facility must meet the applicable requirements of *Minnesota Rules*, parts 6115.0300–6115.0520 and the requirements of the NorthMet Geotechnical Modeling Work Plan (PolyMet 2015l, Attachment A), which include the following:

- The ability of the most sensitive slope cross section to meet a global slope stability Factor of Safety of 1.5;
- The ability of the composite liner system to comply with infinite slope stability Factor of Safety of 1.5, and
- The capability of the composite liner system to withstand the longitudinal strain anticipated due to differential settlement that may occur in the facility foundation materials.

Methodology

PolyMet took the steps listed below in order to demonstrate that the design of the Hydrometallurgical Residue Facility would meet the respective geotechnical requirements and would be in accordance with the NorthMet Geotechnical Modeling Work Plan (PolyMet 2015l, Attachment A):

1. Gathered existing conditions data (i.e., facility foundation material stratigraphy and strength data, hydrogeological data, characteristics of NorthMet Project Proposed Action residues based on those produced during the pilot-plant processing, and other data as needed to support geotechnical modeling of the Hydrometallurgical Residue Facility) (see Section 4.2.14).

2. Developed residue facility layout and cross sections (i.e., geometry and stratigraphy for existing and planned conditions) for proposed residue facility stability and deformation modeling.
3. Developed seepage and stability models using Geo-Slope International, Inc. modeling software (i.e., SLOPE/W, SEEP/W and SIGMA/W as necessary) for maximum facility dam height with minimum and maximum pond elevation, and post-closure – cover effective with minimum pond elevation.
4. Established the geotechnical design data for model input including identification of strength parameters and the triggering potential for static and seismic events.
5. Ran the models to determine Factors of Safety, and the potential for slope failure and deformation of the foundation and liner.
6. Refined the design and operating requirements necessary to maintain required slope stability Factors of Safety and deformation requirements for the critical slope cross section.

Design

Various design specifications have been established and used for the Hydrometallurgical Residue Facility geotechnical analysis (PolyMet 2014c). The following is a summary of the design characteristics applied and considered in modeling.

Preconstruction Design Considerations for Stability and Water Management

The proposed Hydrometallurgical Residue Facility would be located on top of the existing LTVSMC Emergency Basin, and would include a double liner and leakage collection system. To prevent stress deformation and strain on the liner system, the emergency tailings would be consolidated by applying a preload fill material on top of the emergency tailings to achieve the required consolidated conditions prior to construction of the Hydrometallurgical Residue Facility.

To achieve this, PolyMet would perform the following tasks:

1. Install a granular drainage layer at the existing LTVSMC Emergency Basin, as needed to facilitate wick drain installation and operation;
2. Install wick drains (if required); and
3. Place, monitor, and remove a preload fill in the existing LTVSMC Emergency Basin to pre-consolidate existing material, thereby reducing future anticipated settlements to mitigate the potential future strains.

In addition to consolidation of the existing LTVSMC emergency tailings, a railroad grade would also be abandoned and removed to facilitate construction.

Seeps have been observed along the southern edge of the LTVSMC Tailings Basin Cell 2W. These seeps have diminished since the termination of the LTVSMC operations and are expected to remain minimal as Cell 2W is not proposed for use as part of the NorthMet Project Proposed Action. The design of the Hydrometallurgical Residue Facility includes a collection drain that would collect water from the seep below the proposed constructed embankment and liner systems to transmit the collected seep to the exterior of the facility. This seepage collection

system would consist of a layer of free draining soil which would reduce the potential for phreatic build-up below the liner.

The double liner and collection system would be installed with the following components, listed in order from top to bottom:

1. Upper geomembrane;
2. Geocomposite (geonet) (for leakage collection and recovery);
3. Lower geomembrane; and
4. Geosynthetic clay liner.

PolyMet initiated laboratory testing to consider the chemical compatibility of the potential geosynthetic liner to be used with leakage from residue (PolyMet 2014r). Results indicated that a polymer-treated geosynthetic liner should be used that is manufactured specifically in anticipation of the chemical characteristics of the liquid and the pore water that would be contained within the facility. The hydraulic conductivity of the leakage collection system is not expected to degrade over time. Typical liner performance assumes a 500 year service life of the geomembrane, therefore, hydraulic conductivity of the liner is not expected to degrade over that time. Specific attributes would be determined during the geosynthetic clay layer development to achieve the desired performance before final installation.

As noted in Section 4.2.14.3.4, the Minnesota Geological Survey has inferred but not confirmed the presence of a north-south trending fault that would underlie the proposed Hydrometallurgical Residue Facility. The potential presence of faults within the footprint of the Hydrometallurgical Residue Facility is not anticipated to have a negative impact on the storage of residue within the double lined facility. A probabilistic seismic hazard analysis was done for the Hydrometallurgical Residue Facility. Results indicated that a severe earthquake is highly unlikely in Minnesota, and any seismically induced forces would not likely affect the stability of the Hydrometallurgical Residue Facility.

Hydrometallurgical Residue Facility Design and Construction

The Hydrometallurgical Residue Facility has been designed as a single cell structure with a design capacity of 6,400,000 cubic yards. The perimeter would have an irregular shape consisting of the north dam (a portion of the existing southern LTVSMC Tailings Basin Cell 2W dam), natural high ground, and new dams (see Figure 5.2.14-4). New dams would be located beyond the extent of the LTVSMC Emergency Basin and founded on existing silty sand, gravel glacial till, and Giants Range granite.

The maximum height of the proposed dams is approximately 85 ft, with a crest elevation of 1,650 ft amsl and an additional 3-ft minimum freeboard (14-ft maximum freeboard at a residue surface slope of 0.5 percent). The exterior, downstream face of the dam would be constructed at a slope of 4H:1V) The interior of the Hydrometallurgical Residue Facility would be sloped at 4H:1V and 30-ft horizontal benches would be placed at elevations of 1,600 and 1,630 ft amsl.

The dams would be constructed using downstream construction methods that involve constructing a smaller starter dam first and then raising the dam upward and outward over the downstream shell of the dam as additional capacity is needed. Construction material would be sourced from natural soil and quarried bedrock between the high ground and south dam. Some

LTVSMC coarse tailings may also be utilized for dam construction. While the material is placed, it would be compacted to the design density.

Materials placed in thin, well-compacted lifts, such as those proposed for the Hydrometallurgical Residue Facility embankment fill, are understood to be sufficiently dense so that liquefaction is not anticipated under the various loading conditions, including the design earthquake event with a peak ground acceleration of 0.024g (2,475 year return period). Although liquefaction of the hydrometallurgical residue (within the basin) may occur, the embankment dam is sufficiently designed so that containment would not be lost. Therefore, the integrity of the facility would not be impacted by the loss of strength associated with potential residue liquefaction.

Closure of the Hydrometallurgical Residue Facility

Reclamation of the Hydrometallurgical Residue Facility would include removal of ponded water, removal of pore water from the residue, construction of the cover system, and establishment of vegetation and surface water runoff controls.

Turf and final cover would be inspected and maintained by mowing once per year or as needed, fertilizing when visual inspection indicates poor vegetation growth, and implementing repairs. Additional information relating to closure of the Hydrometallurgical Residue Facility is provided in Section 3.2.2.3.12.

Identification of the Design Cross Section

Cross Section A, depicted in Figure 5.2.14-4, has been identified as the design cross section. It approximates the base of a former ravine, beginning south of the future south dam and terminating near the crest of the Hydrometallurgical Residue Facility north dam. It is considered as the design cross section, as it incorporates the thickest sections of LTVSMC slimes. Fine tailings and slimes in the Emergency Basin are the thickest at approximately 50 ft located 280 ft away from the toe of the south dam of Cell 2W. A cross section of the Hydrometallurgical Residue Facility at its maximum extent along cross sections A and B is shown in Figure 5.2.14-9.

The global slope stability discussed below was assessed along Cross Section A.

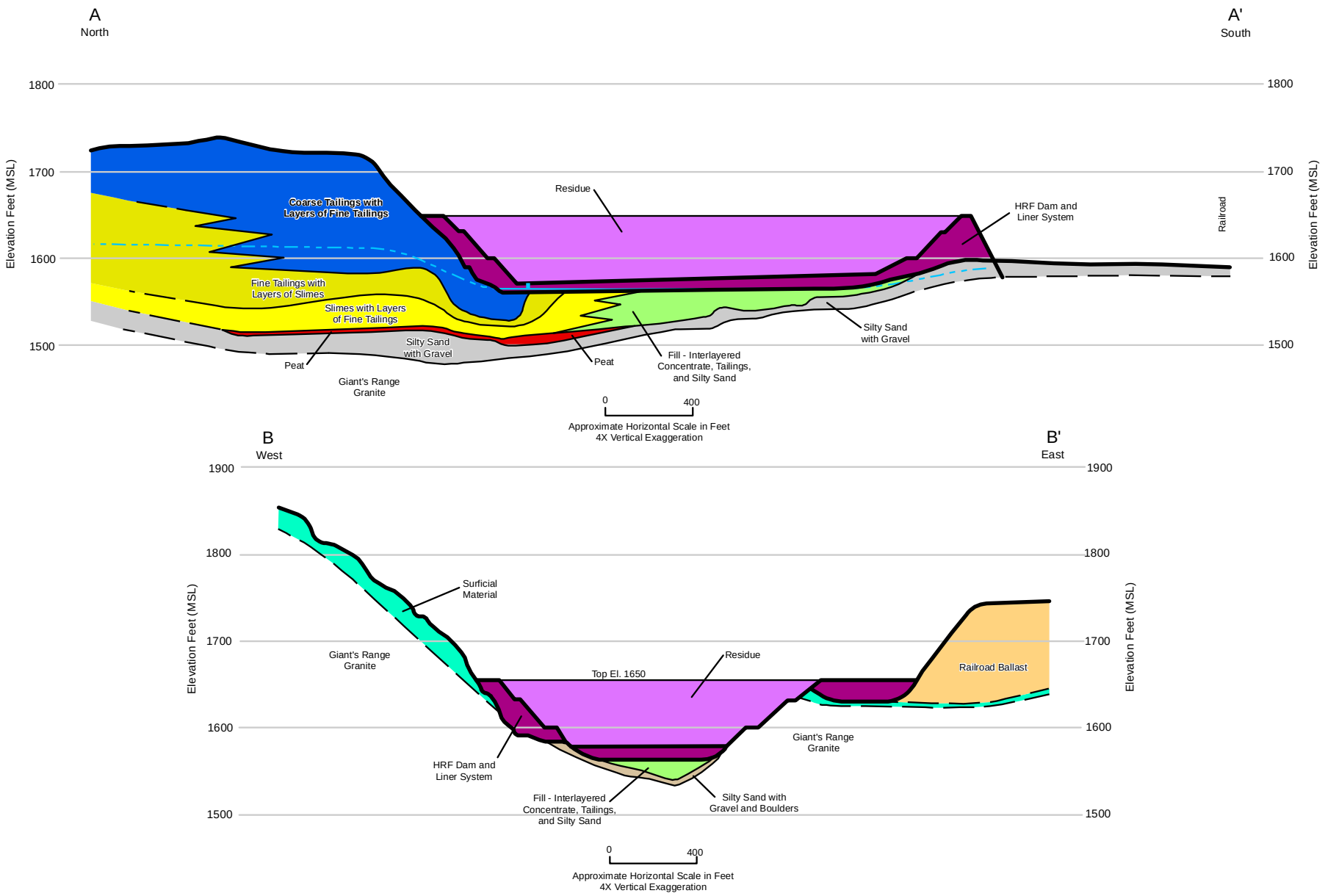

- Coarse Tailings with Layers of Fine Tailings
- Fill - Interlayered Concentrate, Tailings, and Silty Sand
- Fine Tailings with Layers of Slimes
- Slimes with Layers of Fine Tailings
- Peat
- Railroad Ballast
- Residue
- Silty Sand with Gravel
- Silty Sand with Gravel and Boulders
- HRF Dam and Liner System
- Surficial Material

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Figure 5.2.14-9
Cross Sections A and B of the
Hydrometallurgical Residue Facility at Year 20
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Minnesota

November 2015

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Modeling Results

The results reported in Geotechnical Data Package Volume 2 indicate that the proposed design of the Hydrometallurgical Residue Facility would meet all respective Factors of Safety as required (PolyMet 2014c). The modeling undertaken and results are summarized below.

Stress Deformation and Strain in the Liner System

A preload would be placed on the existing LTVSMC Emergency Basin to consolidate the foundation materials before construction of the Hydrometallurgical Residue Facility. Wick drains may be used to help accelerate the consolidation time by increasing the effective hydraulic conductivity of the tailings due to decrease in flowpath length. Some portion of this load would be removed before construction, and the remaining material would be graded to provide sufficient drainage slope and provide a suitable foundation material for the facility. The material would rebound a small amount after the preload is removed. The aggregate settlement at a representative location within the Emergency Basin, considering the maximum anticipated tailings thickness in the foundation, is computed to be 3.9 ft. The material at this location is modeled to consolidate an additional 1.4 ft by the end of operations of the Hydrometallurgical Residue Facility.

Residue consolidation within the basin is modeled as beginning after the cessation of residue discharge to the Hydrometallurgical Residue Facility. Over time, the rate of consolidation would decrease with the greatest amount of consolidation occurring before pore-water pressure reaches hydrostatic equilibrium (approximately 10 years following closure). Total settlement in areas with the greatest depth of residue is estimated to be on the order of 9.6 ft. As the depth of residue decreases near the edge of the Hydrometallurgical Residue Facility, less settlement would occur. The resulting deformed surface of the Hydrometallurgical Residue Facility would be concave with the greatest deformation in areas of greatest residue thickness.

Strain in the Hydrometallurgical Residue Facility liner system would result from differential settlement in the facility foundation between points along the liner. The maximum strain in the liner system is estimated to be 0.20 percent. This value is well within acceptable limits of most geosynthetics, which range from 1 to 19 percent.

Global Slope Stability

Analysis of the new dams (i.e., those not supported by the existing LTVSMC Tailings Basin or natural topography) at their greatest height (at year 20) resulted in a computed Factor of Safety for the ESSA of 2.32, which is greater than the required minimum of 1.5. Because the friction angle for the dam fill material (approximately 30 degrees) is greater than the proposed dam downstream slope angle (18 degrees), significant surficial slope failures are not expected.

Liquefaction analysis was not applicable and not performed because the material proposed in the constructed dams would be well-compacted and the Hydrometallurgical Residue Facility liner system would limit leakage through the dams. Therefore, the embankment is not anticipated to be saturated during and after operations.

Infinite Slope Stability

The components of the double liner system are designed to act as hydraulic barriers to leakage; not as structural members of the dam system. Therefore, the liner layers must not be allowed to

slide relative to one another. Evaluation of this potential for sliding was performed using infinite slope stability analyses. The minimum infinite slope stability Factor of Safety for all Hydrometallurgical Residue Facility liner system components is 1.5.

The interior slope angle for the Hydrometallurgical Residue Facility and the geosynthetic materials of the liner that would directly contact the underlying soils used for dam construction must be selected to produce a stable liner system—a system that would not slide down-slope during operations. In addition, each successive layer of the liner system must have an adequate interface-friction angle with the adjacent layer to prevent down-slope movement of any layer of the liner system. Infinite slope stability for the liner system layer interface configurations currently expected is shown in Table 5.2.14-2. Computed Factors of Safety shown in Table 5.2.14-2 are based on commonly reported interface friction angles between the materials anticipated to be used for the Hydrometallurgical Residue Facility liner. Any variation from the anticipated material types warrants project-specific interface shear testing to confirm that the friction angles are equal to or greater than those used in this analysis.

Shear failure in the geosynthetic clay/geomembrane liner systems would occur at the interface with the lowest peak shear strength. On the basis of the interface friction angles used in the analysis, the design proposed for the Hydrometallurgical Residue Facility achieves a computed Factor of Safety of 2.94.

Table 5.2.14-2 Infinite Slope Stability Analysis Results for the Hydrometallurgical Residue Facility

Interface Number	Material Types	Slope Angle, (deg)	Predicted friction Angle, (deg)	Minimum required Factor of Safety	Predicted Factor of Safety
4	Textured Geomembrane above Geocomposite Drainage Net	15.95	28	1.5	1.86
3	Geocomposite Drainage Net above Textured Geomembrane	15.95	28	1.5	1.86
2	Textured Geomembrane above Geosynthetic Clay Liner	15.95	28	1.5	1.86
1	Geosynthetic Clay Liner above Granular Soil	15.95	24	1.5	1.56

Proposed Monitoring, Maintenance, and Mitigation

A Hydrometallurgical Residue Management Plan (PolyMet 2014r) prepared by PolyMet includes a description of the operating plans, monitoring procedures, and adaptive management approaches for the Hydrometallurgical Residue Facility.

Monitoring and maintenance for the Hydrometallurgical Residue Facility would be similar to that discussed for the Tailings Basin at the end of Section 5.2.14.2.2 above.

Construction quality control and assurance would occur throughout construction of the Hydrometallurgical Residue Facility, beginning with regulatory agency review and approval of the construction quality control and assurance plan. A Construction Quality Assurance Manual template for the installation of the soil and geosynthetic components of liner and cover systems

has been drafted to addresses QA/QC procedures for earthwork, geomembrane and geosynthetic clay liner installation, and piping components of the HRF double liner and leakage collection system, drainage collection system, and cover system (PolyMet 2014r). Upon completion of construction, a construction documentation report would be prepared to document that construction of the Hydrometallurgical Residue Facility was completed in conformance with regulatory agency permit requirements.

A Contingency Action Plan has been prepared as part of the Residue Management Plan (PolyMet 2014r). The plan provides guidance to on-site personnel and emergency responders in the case of unplanned occurrences at the Hydrometallurgical Residue Facility.

5.2.14.3 NorthMet Project No Action Alternative

Under the No Action Alternative, no waste rock stockpiles, or expanded Tailings Basin, or Hydrometallurgical Residue Facility would be created. The existing geotechnical conditions are discussed in Section 4.2.14. The existing LTVSMC Tailings Basin as discussed in Section 4.2.14 would remain at the site and monitoring and inspection would continue under the LTVSMC site closure plan and the MDNR Dam Safety regulations.

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5.3 LAND EXCHANGE

5.3.1 Land Use

The Land Exchange Proposed Action represents a transfer of surface rights of 6,495.4 acres from the Superior National Forest to PolyMet to eliminate the conflict between federal surface and private mineral estate. This action would remove those acres from Superior National Forest management and public use. The Land Exchange Proposed Action would remove these acres, which are part of the 1854 Ceded Territory, from lands available to the Bands to exercise reserved 1854 Treaty rights. Given the existing lack of overland public access and the current and historic use of the federal lands for mineral exploration (see Section 4.2.9), the Land Exchange Proposed Action represents little to no change in the actual level of recent or current use of the federal lands. At the same time, the Land Exchange Proposed Action brings as many as 7,075.0 acres of private land into the public domain, making it available for the Bands to exercise 1854 Treaty rights (see Section 4.3.9).

When compared with the Land Exchange No Action Alternative, the Land Exchange Proposed Action and the Land Exchange Alternative B would provide a slight improvement in key indicators described in Section 5.3.1.1. The Land Exchange Proposed Action provides for more of an improvement in overall indicators than under the Land Exchange Alternative B. The Land Exchange Proposed Action and the Land Exchange Alternative B are both compatible with adjacent zoning and management area designations.

There is no current legacy contamination on the non-federal parcels. Past legacy contamination concerns are discussed in Section 4.3.1.

5.3.1.1 Methodology and Evaluation Criteria

The area of analysis for land use effects from the Land Exchange Proposed Action included the federal and non-federal tracts, as well as properties abutting the tracts, which provide the basis for determining compatibility of land uses on the federal and non-federal parcels. The temporal analysis is based on the time of change in ownership. Management areas and subsequent land uses would be established at the time of the ownership change.

The analysis of the land use resources affected by the Land Exchange Proposed Action was guided by evaluation criteria that were developed by the USFS and the other Co-lead Agencies. The following impact indicators identify anticipated outcomes of the Land Exchange Proposed Action alternatives being considered for the NorthMet Project Proposed Action:

- Net change in the number of acres controlled by the USFS on the Superior National Forest;
- Net change in the length of the boundary around USFS-controlled land in the Superior National Forest (including internal boundaries around private in-holdings) to be managed under each of the proposed alternatives;
- Net change in the level of land fragmentation, expressed as a ratio of linear boundary-to-area (linear miles per acre) of the USFS-controlled portions of the Superior National Forest under each of the proposed alternatives;

- The degree of access to lands owned by the USFS in the Superior National Forest, as determined through the identification of public access points via road or trail;
- Degree of compatibility between USFS management areas and zoning or land use designations (in the absence of zoning) of adjacent areas;
- Potential for mineral development within the parcels, assessed by the USFS based on mineral ownership, the type of mineral, and the precedent/history for exploitation of this mineral within Minnesota; and
- Quality of title within each of the parcels being considered. Quality was evaluated by the USFS according to outstanding encumbrances on the parcels considered for each of the Land Exchange Proposed Action alternatives, including mineral ownership and development potential.

Quantitative criteria, such as boundary length and land area, were calculated using GIS. Evaluations of mineral development potential were conducted by third party professional geologists (Barr 2011c). The risk of conflict between mineral interests and USFS surface management and quality of title were assessed by a USFS Forest Realty Specialist.

5.3.1.2 Land Exchange Proposed Action

5.3.1.2.1 Forest Available for Public Access and Use

Through the Land Exchange Proposed Action, 6,495.4 acres of federal lands in the Superior National Forest would be transferred to PolyMet in exchange for up to approximately 7,075.0 acres of non-federal lands presently in private ownership. This would result in a net increase of up to 579.6 acres for the Superior National Forest.

All of the non-federal lands are within the 1854 Ceded Territory and would thus be subject to Treaty rights reserved by the Bands as a result of the Land Exchange Proposed Action. This would result in a net increase of up to 579.6 acres of publicly owned land in the 1854 Ceded Territory. Table 5.3.1-1 shows the Management Area designations that the USFS would apply to the non-federal lands under the Land Exchange.

Table 5.3.1-1 Management Area Allocations under the Land Exchange Proposed Action

	Acreage by Management Area[1]				
Tract	**General Forest**	**General Forest-Longer Rotation**	**Riparian Emphasis Areas**	**cRNA[5]**	**Total[6]**
Federal Lands[2]	355.3	6,140.1	0.0	0.0	6,495.4
Non-federal Lands[3]					
Tract 1	4,619.3	0.0	0.0	306.9	4,926.2
Tract 2	0.0	161.0	220.9	0.0	381.9
Tract 3	1,450.0	125.8	0.0	0.0	1,575.8
Tract 4	0.0	160.2	0.0	0.0	160.2
Tract 5	0.0	30.8	0.0	0.0	30.8
Subtotal, Non-federal Lands	6,069.3	477.8	220.9	306.9	7,075.0
Net Increase/(Decrease)[4]	5,714.0	(5,662.3)	220.9	306.9	579.6

Notes:
[1] See definitions of USFS Management Areas in Section 4.2.3.
[2] Source: USFS 2011a.
[3] Source: USFS 2011b.
[4] Calculated as (non-federal) minus (federal).
[5] Candidate Research Natural Area (see Section 4.2.3).
[6] Totals may not match overall NorthMet Project area acreages due to rounding.

The 6,495.4 acres of federal lands are not accessible for public use via land (see Section 4.2.11), while substantial portions of the non-federal lands do have public access via public roads or hiking trails. This distinction is a factor in evaluating land use effects, because public access defines the degree to which the lands in question can actually be used—either by the public for recreational purposes, by forestry interests for economic purposes, or for research and conservation purposes (in the case of Riparian Emphasis and cRNA management areas, defined in Section 4.3.1). Tract 1 has direct public access via existing county roads (see Figure 5.3.1-1), and Tract 4 has public access via other roads (see Figure 5.3.1-2). Tracts 2 and 3 have no direct public access (see Figure 5.3.1-1). When considered collectively, public access to, and therefore use of the Superior National Forest, would be increased under the Land Exchange Proposed Action.

Table 5.3.1-2 shows the effect of the Land Exchange Proposed Action on the total acreage within the Superior National Forest that is controlled by the USFS, the boundary of the USFS-controlled land (see Section 5.3.1.2.2), and the fragmentation ratio (see Section 5.3.1.2.3). The Land Exchange Proposed Action would increase the federal estate by adding a net of 385.1 acres to the 2,171,603.9 acres of USFS-controlled land within the Superior National Forest.

Table 5.3.1-2 Superior National Forest Boundary, Acreage, and Fragmentation under the Land Exchange Proposed Action

	Baseline / Land Exchange No Action Alternative	Land Exchange Proposed Action	
		Predicted Value	Net Increase/ (Decrease)[1]
Acreage in Superior National Forest controlled by USFS	2,171,603.9	2,171,989.0	385.1
Boundary length (linear miles)	10,054.8	10,021.6	(33.2)
Fragmentation (linear miles per acre)	0.005	0.005	0.00

Note:
[1] Totals differ from acreage reported in Section 5.3.1.2.1 (579.6 acres) due to inconsistencies in GIS data and because Mud Lake (30.5 acres) would continue to be managed by the MDNR.

5.3.1.2.2 Boundary Managed

A reduced boundary length is more desirable for the USFS, because it reduces the difficulty of accessing and managing the forest. The Land Exchange Proposed Action would result in a 33.2-linear mile net reduction of the perimeter around the USFS-controlled portions of the Superior National Forest (see Table 5.3.1-2).

5.3.1.2.3 Forest Fragmentation

The underlying assumption regarding land fragmentation of USFS-controlled portions of the Superior National Forest is that a lower ratio of boundary to area is more desirable, because it reduces the difficulty of accessing and managing the forest in addition to increasing the forest's overall quality and function. All of the non-federal parcels are contiguous with National Forest System lands, thus decreasing the ratio of boundary to area. This reduction would be marginal in magnitude, and the Land Exchange Proposed Action would not alter the existing ratio of fragmentation in the Superior National Forest of approximately 0.005 linear mile of boundary per acre of USFS-controlled Superior National Forest land (see Table 5.3.1-2).

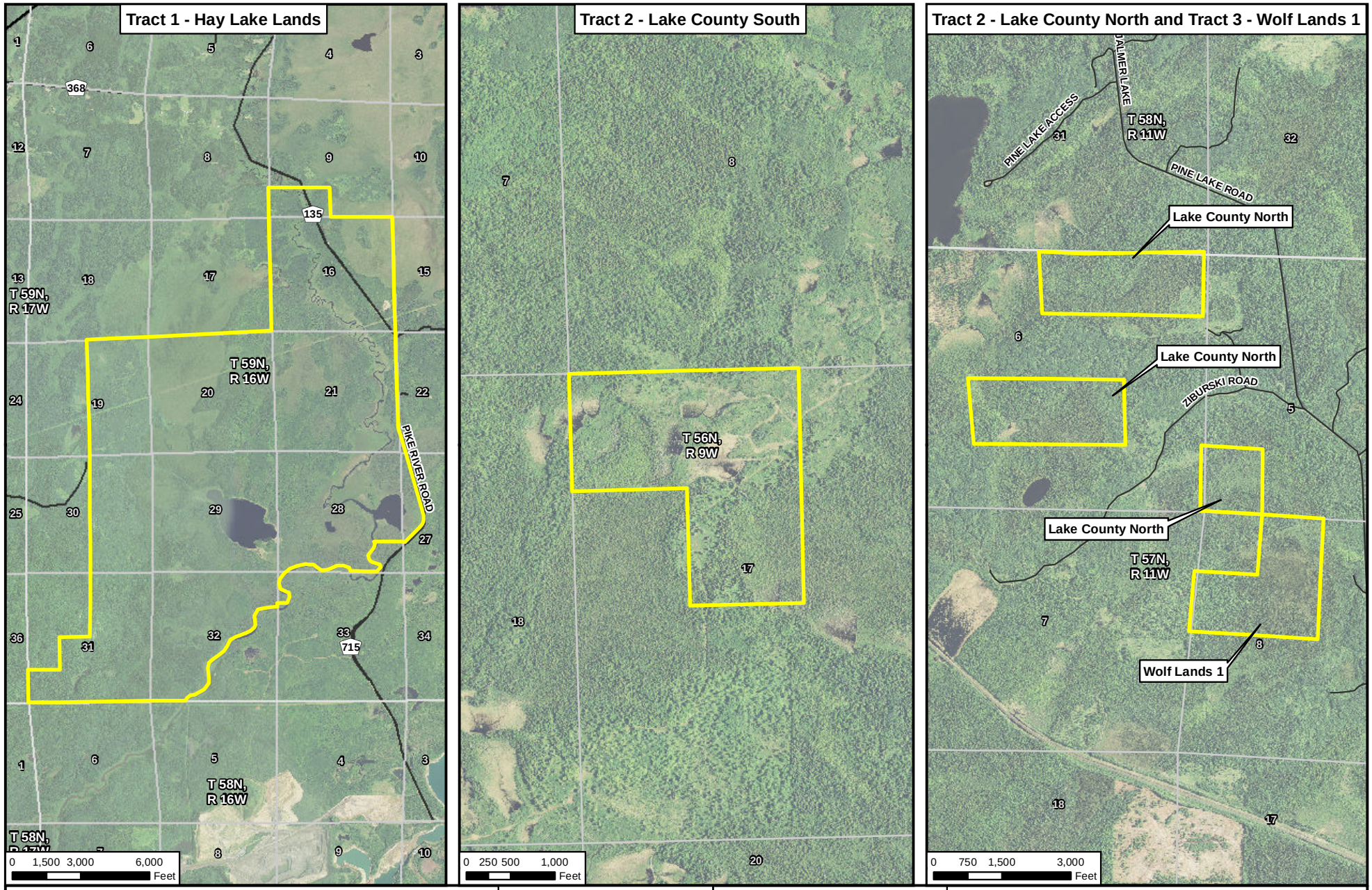

Non-federal Lands

Section Boundary

Section Label

Road

MNDNR

US Army Corps of Engineers St. Paul District

N W E S

Figure 5.3.1-1

Tracts 1, 2, and 3 Roads

NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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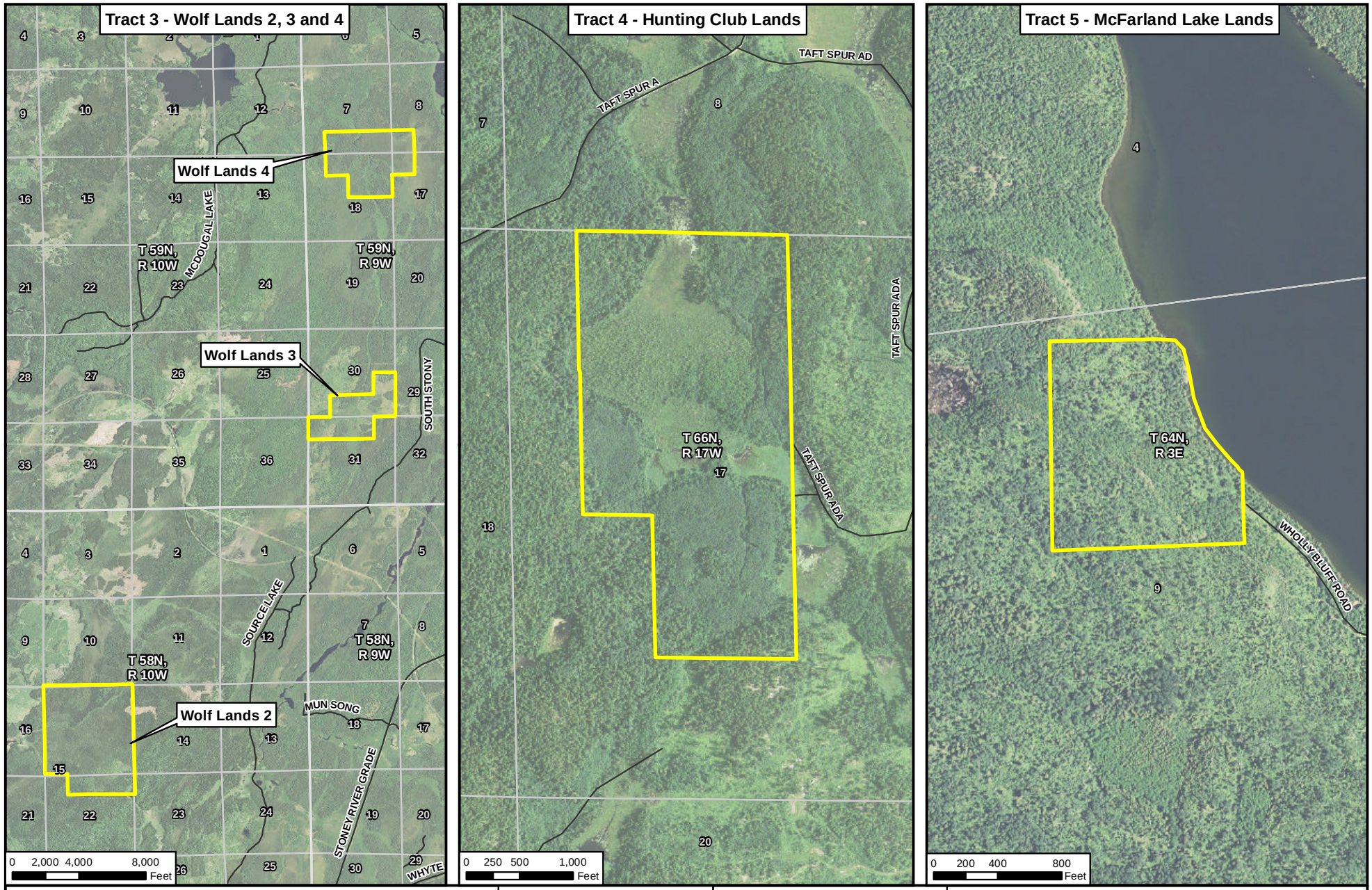

Non-federal Lands

Section Boundary

Section Label

Road

US Army Corps of Engineers
St. Paul District

N
W E
S

Figure 5.3.1-2

Tracts 3, 4, and 5 Roads

NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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5.3.1.2.4 Zoning Compatibility

Management area designations establish USFS policy for public use of National Forest System lands (e.g., recreation, scenic resources, and facilities). Section 4.3.1 provides definitions of the intended uses of the management area designations that apply to the federal and non-federal tracts, as well as surrounding areas within the Superior National Forest.

Zoning in areas adjacent to the non-federal lands outside of the Superior National Forest and compatibility with the management area designations of non-federal lands are summarized below:

- Zoning on privately owned ("non-forest") lands adjacent to Tract 1 is split among multiple zoning districts that collectively provide for residential development, wild rice production, timber, and hunting (St. Louis County 2011). With the exception of residential development and timber, these uses are generally compatible with the proposed General Forest Management Area designation of Tract 1. Recreational uses such as personal-use riding and hunting would be consistent with the cRNA designation. Non-forest lands to the east and south of Tract 1 are in the Multiple-Use Non-Shoreland (MUNS-4) district (St. Louis County 2011), which is generally compatible with the General Forest and cRNA management areas.
- Non-forest lands adjacent to Tracts 2 and 3 are in the Forest-Recreation district, as defined by the Lake County Zoning Ordinance (ERM, Pers. Comm., October 10, 2011). This is compatible with the proposed General Forest, General Forest – Longer Rotation, and Riparian Emphasis Area Management Area designations.
- Non-forest lands adjacent to Tract 4 to the west and southeast are within the St. Louis County FAM-1 zoning district, which emphasizes forestry, agricultural, and recreational uses (St. Louis County 2011). These uses are generally compatible with the proposed General Forest – Longer Rotation Management Area designation.
- Privately owned lands adjacent to Tract 5 to the north and southeast are within Cook County's Recreational Development zoning district (Cook County 2011), which is generally compatible with the proposed General Forest – Longer Rotation Management Area.

Overall, the management area designations of the non-federal lands are compatible with surrounding zoning. The Land Exchange Proposed Action would be compatible with the USFS Management Areas and zoning/land use designations of adjacent lands.

5.3.1.2.5 Mineral Development Potential and Quality of Title

The Land Exchange Proposed Action would remove from the Superior National Forest 6,495.4 acres of land with privately held, minable mineral development potential and USFS-held surface rights, in exchange for up to 7,075.0 acres of non-federal land with a low mineral development potential. As described in Section 3.3, the Land Exchange would eliminate conflict between mineral estate and surface rights on the federal lands by transferring the federal surface to the holder of the private mineral rights, fulfilling the USFS's purpose and need.

Table 5.3.1-3 summarizes the risk of conflict between mineral potential and the USFS surface management objectives on each of the non-federal parcels, as well as the overall quality of title to the land.

Table 5.3.1-3 Mineral Interests and Quality of Title for Non-Federal Lands

Tract/Parcel	Risk of Conflict Between Mineral Interests and USFS Surface Management[1]	Quality of Title[2,3]
1: Hay Lake	Moderate	Moderate
2: Lake County North	Low	Moderate
2: Lake County South	Low	Moderate
3: Wolf Lands 1	Low	Moderate
3: Wolf Lands 2	Low	Moderate
3: Wolf Lands 3	Low	Moderate
3: Wolf Lands 4	Low	Moderate
4: Hunting Club	Low	High
5: McFarland Lake	Low	Moderate

Source: USFS 2011c.

Notes:
1 Low is the best and high is the worst, as defined in USFS 2011c and Barr 2011c.
2 Condition of title represents review as of December 21, 2011 -- may be revised per specialist investigation or advice of USDA, Office of General Counsel.
3 High is the best and poor is the worst, as defined in USFS 2011c.

The risk of conflict determination in Table 5.3.1-3 expresses the degree to which "split estate" conditions could complicate achievement of USFS management goals and objectives. Split estate refers to situations where private ownership of mineral rights would occur on land whose surface is owned by the Superior National Forest after the Land Exchange Proposed Action. This concern notwithstanding, the USFS allows exploration, development, and production of mineral resources on National Forest System lands under conditions where the activities "are conducted in an environmentally sound manner so that they may contribute to economic growth and national defense" (USFS 2004b).

The "moderate" risk of conflict on Tract 1 reflects the presence of potential surficial aggregate resources in the far northeastern corner of the tract. There are also some potential surficial aggregate resources near Greenwood Lake in Tract 3, but development of these resources is constrained due to the presence of wetlands, which may limit or prohibit access (Barr 2011c). For all other tracts, the risk of conflict is low due to the low potential for mineral development.

The quality of title determination assesses existing uncertainties in surface ownership, title insurance, or other encumbrances that may be transferred to the USFS in the event of the Land Exchange moving forward, as well as the risk of conflict defined above. Details of the quality of title determination are presented below by tract (USFS 2011c):

- Tract 1: Moderate, due to the presence of surficial aggregate resources in the northeastern portion of the site and certain title encumbrances that may be cured by endorsements in the final title insurance policy.
- Tract 2: Moderate, due to the presence of privately held mineral exploitation rights. This potential is constrained by the low potential presence of subsurface mineral resources and the absence of surficial deposits.
- Tract 3: Moderate, due to the presence of privately held mineral exploitation rights on portions of all Tract 3 parcels and the presence of private timber rights for one parcel. Mining potential is constrained by the low potential presence of subsurface mineral resources, the

absence of surficial deposits, and the presence of wetlands that may make mineral exploitation difficult.

- Tract 4: High, because the mineral estate was never severed from this parcel.
- Tract 5: Moderate, due to the potential for privately held mineral exploitation rights. This potential is constrained by the low potential presence of subsurface mineral resources and the absence of surficial deposits.

By comparison, the risk of conflict between mineral and surface rights on the federal lands is high due to the presence of privately owned mineral rights and economically developable minerals and USFS surface ownership. The Land Exchange Proposed Action would reduce this risk by exchanging the high-risk federal lands for predominantly low-risk non-federal lands. The risk of conflict on the non-federal lands may be reduced and title quality further improved through subsequent arrangements with holders of mineral rights on the non-federal lands or affirmative title insurance coverage. Thus, the overall effect of the Land Exchange Proposed Action improves the quality of title and reduces the complexity of title to the federal and non-federal lands.

5.3.1.3 Land Exchange Alternative B

5.3.1.3.1 Forest Available for Public Access and Use

Under the Land Exchange Alternative B, 4,752.6 acres of federal lands would be transferred to private ownership in exchange for up to approximately 4,926.3 acres of land (Tract 1 only), as determined by appraisals. This land is currently in private ownership, resulting in a net increase of approximately 173.6 acres for the Superior National Forest. The federal lands transferred out of the Superior National Forest in this scenario have poor public access (see Section 4.3.11). The smaller federal parcel would leave an isolated island of federal lands to the west of the Mine Site. These federal lands would be difficult to access because the railroad and road are private property. Access points managed by the USFS to the isolated area are limited. The non-federal tract has relatively good public access. Land Exchange Alternative B would result in a net increase of up to 173.6 acres for the Superior National Forest. All of Tract 1 is within the 1854 Ceded Territory and would thus be available for exercise of 1854 Treaty rights reserved by the Bands. Table 5.3.1-4 shows the Management Area designations that the USFS would apply to Tract 1 under Land Exchange Alternative B.

Table 5.3.1-4 Management Area Allocations under Land Exchange Alternative B

	Acreage by Management Area[1]				
Tract	**General Forest**	**General Forest-Longer Rotation**	**Riparian Emphasis Areas**	**cRNA[5]**	**Total[6]**
Federal lands[2]	355.3	4,397.3	0.0	0.0	4,752.6
Non-federal lands[3]					
Tract 1	4,619.3	0.0	0.0	306.9	4,926.2
Net Increase/(Decrease)[4]	4,264.0	(4,397.3)	0.0	306.9	173.6

Notes:
1 See definitions of USFS Management Areas in Section 4.2.3.
2 Source: USFS 2011a.
3 Source: USFS 2011b.
4 Calculated as (non-federal) minus (federal).
5 Candidate Research Natural Area (see Section 4.2.3).
6 Totals may not match overall project area acreages due to rounding.

Table 5.3.1-5 shows the effect of the Land Exchange Alternative B on the total acreage within the Superior National Forest that is controlled by the USFS, the boundary of the USFS-controlled land (see Section 5.3.1.4.2), and the fragmentation ratio (see Section 5.3.1.4.3). The Land Exchange Alternative B would increase the federal estate by a net of 38.7 acres to the 2,171,603.9 acres of USFS-controlled land within the Superior National Forest.

Table 5.3.1-5 Superior National Forest Boundary, Acreage, and Fragmentation for Land Exchange Alternative B

	Baseline/ Land Exchange No Action Alternative	**Land Exchange Alternative B**	
		Predicted Value	**Net Increase/(Decrease)[1]**
Acreage in Superior National Forest controlled by USFS	2,171,603.9	2,171,642.6	38.7
Boundary length (linear miles)	10,054.8	10,046.2	(8.6)
Fragmentation (linear miles per acre)	0.005	0.005	0.00

Note:
1 Totals differ from acreage reported in Table 5.3.1-4 (173.6 acres) due to inconsistencies in GIS data and because Mud Lake (30.5 acres) would continue to be managed by the MDNR.

5.3.1.3.2 Boundary Managed

The Land Exchange Alternative B would result in an 8.6-mile net reduction of the perimeter around the USFS-controlled portions of the Superior National Forest (see Table 5.3.1-5).

5.3.1.3.3 Forest Fragmentation

The Land Exchange Alternative B would not change the fragmentation ratio in USFS-controlled portions of the Superior National Forest (see Table 5.3.1-5).

5.3.1.3.4 Zoning Compatibility

Under the Land Exchange Alternative B, the forest lands that would become isolated under this alternative to the west of the smaller federal parcel would remain within the Superior National

Forest, and would retain their General Forest – Longer Rotation Management Area designation. This management area is compatible with nearby mining activity. There is no existing public access to this portion of the Superior National Forest, and it is reasonable to expect that permission of the private landowner to access the land would be restricted, for health and safety reasons, for the anticipated life of the mine.

The proposed management area designation for Tract 1 under the Land Exchange Alternative B would be the same as in the Land Exchange Proposed Action (see Section 5.3.1.2.4). The Land Exchange Alternative B would be compatible with the USFS management areas and zoning/land use designations of adjacent lands.

5.3.1.3.5 Mineral Development Potential and Quality of Title

The Land Exchange Alternative B would remove 4,752.6 acres of forest lands with proven mineral development potential from the Superior National Forest, in return for up to 4,926.3 acres with moderate mineral development potential, except for potential surficial aggregate resources in the far northeastern corner of Tract 1 (Barr 2011c). The risk of conflict and quality of title for the Land Exchange Alternative B is the same as for Tract 1 in the Land Exchange Proposed Action (see Table 5.3.1-3).

As with the Land Exchange Proposed Action, the Land Exchange Alternative B would result in a reduced risk of conflict and improved quality of title. The Land Exchange Alternative B would result in relinquishing the federal parcel with severed, private mineral rights and known, economically developable minerals and acquiring parcels with low to moderate risk of conflict and moderate to high title quality. The risk of conflict and title quality may be further improved through subsequent arrangements with holders of mineral rights on the non-federal lands or affirmative title insurance coverage. Thus, the Land Exchange Alternative B would also benefit efforts to manage the Superior National Forest, although to a lesser degree than the Land Exchange Proposed Action.

Mineral rights to the Mine Site are held by PolyMet, while surface rights are held by USFS, creating a conflict between surface and mineral rights. As described in Section 3.3, the USFS's Purpose and Need is to resolve the conflict between surface and mineral rights (see Section 5.3.1).

The Land Exchange Alternative B would be consistent with this Purpose and Need, as well as existing land use designations surrounding the Mine Site. Therefore, the Land Exchange Alternative B would have no adverse effect on land use at the Mine Site. Effects on recreational and natural resource use at the Mine Site are addressed in other sections of this chapter.

5.3.1.4 Land Exchange No Action Alternative

The Land Exchange No Action Alternative represents no change to current land use on the federal and non-federal lands. There would be no change in the amount of forest boundary managed, level of forest fragmentation, or acres available for public access and use.

Under the Land Exchange No Action Alternative, interest in development of mineral potential on the federal lands could continue, and would be compatible with relevant local zoning ordinances and planning designations. The Land Exchange No Action Alternative is also compatible with the General Forest and General Forest – Longer Rotation Management Area classifications.

However, the mineral rights would remain severed from federal ownership. The potential conflict between mineral interests and USFS surface management of the federal parcel would remain.

The presence of a privately owned road (Dunka Road) and rail on the southern border of the federal lands would continue to limit public access to and use of the federal lands, as envisioned by the management area designations.

5.3.2 Water Resources

This section describes the potential effects and compares the resource value of the Land Exchange Proposed Action on water resources of the federal and non-federal lands to be exchanged, as well as for Land Exchange Alternative B and the Land Exchange No Action Alternative. The effects on the federal and non-federal lands are discussed together to facilitate comparison between the water resources of the lands exchanged. The total yield and quality of surface and groundwater currently leaving the non-federal tracts and flowing into the federal estate would not be altered by any of the Land Exchange alternatives. Under the Land Exchange Proposed Action and alternatives, the Superior National Forest would retain its ongoing responsibility for managing water resources on USFS lands in accordance with the Forest Plan. Table 5.3.2-1 shows the effects of the Land Exchange Proposed Action and Land Exchange alternatives on acreage of surface water and wild rice beds.

Under the Land Exchange Proposed Action, a net increase of 95.2 acres of MDNR-designated public water lakes (2.1 miles of shoreline) and 4.6 miles of public water streams would be added to the federal estate. By comparison, under Land Exchange Alternative B, a net increase of 116.8 acres of public water lakes (2.6 miles of shoreline) and 3.6 miles of public water streams would be added to the federal estate. One difference is that, under the Land Exchange Proposed Action, all of Mud Lake (30.5 acres) would be exchanged for the private lands, while under Land Exchange Alternative B only about 8.9 acres of Mud Lake would be included in the land exchange.

Both the Land Exchange Proposed Action and Land Exchange Alternative B would result in a net increase of wild rice beds to the federal estate. The federal lands do not contain any known wild rice beds, but Hay Lake Lands (Tract 1) contain known wild rice beds (approximately 126 acres). No wild rice beds would be affected as a result of the Land Exchange Proposed Action or Land Exchange Alternative B as no activities are proposed on the non-federal lands and the proposed mining activities would not affect these lands. Furthermore, though the Land Exchange Proposed Action would result in an increase in wild rice stands within the federal estate boundaries, there would be no change to the wild rice harvest opportunities for the public due to the Land Exchange Proposed Action or the Land Exchange Alternative B.

Table 5.3.2-1 Net Change in Surface Water and Wild Rice Beds to the Federal Estate under the Land Exchange Proposed Action and Alternatives

	Net Increase/(Decrease) of Water Resources			
Alternative	**Public Water Lakes (acres)**	**Public Water Lakes (miles of shoreline)**	**Public Water Streams (miles)**	**Wild Rice Beds (acres)[1]**
Land Exchange Proposed Action	95.2	2.1	4.6	>125.7[(2)]
Land Exchange Alternative B	116.8	2.6	3.6	>125.7[(2)]
Land Exchange No Action Alternative	0	0	0	0

Notes:
[1] Wild rice beds within the Land Exchange Proposed Action and the Land Exchange Alternative B boundaries are currently, and would continue to be, located in MDNR-designated public waters.
[2] Excludes area of wild rice beds in Pike River. Presence of wild rice in the Pike River, which runs through Rice Lake, was noted in Barr's surveys (2011a; 2012a; 2013l), but the area of rice was not calculated.

There is limited groundwater or surface water quality data available for the non-federal tracts, with the exception of sulfate data for the Hay Lake Lands. There are, however, no known reasons to suspect surface water or groundwater contamination of any of the tracts from human activities. In general, water quality is expected to reflect natural conditions as similar to that found from MPCA regional studies (see Section 4.3.2.2.3).

5.3.2.1 Methodology and Evaluation Criteria

The area of analysis for water resource effects of the Land Exchange alternatives included the federal and non-federal tracts proposed for the exchange.

Since the Land Exchange Proposed Action would not actually result in any direct effects, as there are no construction or other activities proposed that would affect water resources, this assessment focuses on a comparison of the net change in the quantity and quality of water resources between the federal and non-federal tracts involved in the exchange.

5.3.2.1.1 Groundwater Evaluation Criteria

Groundwater resource evaluation criteria for the Land Exchange Proposed Action include a qualitative assessment of potential for groundwater contamination of the non-federal properties using MDNR and MPCA groundwater quality data.

5.3.2.1.2 Surface Water and Wild Rice Evaluation Criteria

Surface water evaluation criteria for the Land Exchange Proposed Action include a comparison of the length of public water streams/rivers, public water lake acreage, and shoreline length between the federal and non-federal lands. This was used to determine the net change in quantity of waterbodies. In addition, a qualitative assessment of surface water quality was conducted taking into consideration available water quality data, aerial photographs, and GIS information.

Wild rice evaluation criteria include a comparison in the amount of known or potential wild rice beds between federal and non-federal lands. This was used to determine the potential change in

acres of wild rice on the federal estate. Information that was used in the analysis of wild rice beds included available field data, aerial photographs, and GIS layers.

5.3.2.2 Land Exchange Proposed Action

The Land Exchange Proposed Action would involve the transfer of 6,495.4 acres of federal lands from public to private ownership, and up to 7,075.0 acres of private land to public ownership (see Figure 3.3-1).

5.3.2.2.1 Groundwater

The Land Exchange Proposed Action would not directly result in a change in groundwater quantity or quality presently at the non-federal tracts. Evaluation of existing hydrogeologic data did not suggest the potential for groundwater contamination from human activity from any of the tracts. Therefore, there does not appear to be any substantive difference in the quality of groundwater resources between the federal and non-federal tracts.

5.3.2.2.2 Surface Water and Wild Rice

The Land Exchange Proposed Action would not directly result in a change in surface water quantity or quality at the non-federal tracts. There would be a net increase to the federal estate of 4.6 miles of public water streams and 95.2 acres of public water lakes (including 2.1 miles of additional shoreline).

No wild rice stands are known to occur on the federal lands, and suitable habitat is limited. The non-federal lands that contain wild rice beds would not be affected as a result of the Land Exchange Proposed Action or Land Exchange Alternative B, because no activities are proposed on these lands and the proposed mining activities would not affect these lands. As noted in the FEIS, the Land Exchange Proposed Action would result in a net increase of 125.7 acres of wild rice beds to the federal estate. FEIS Sections 5.3.2 and 5.3.4 clarify that, although the Land Exchange would result in an increase in wild rice stands within the federal estate boundaries, there would be no change to the existing public access to Tract 1 wild rice stands via the Pike River. Consequently, there would be no increase in wild rice harvest opportunities for the public.

Table 5.3.2-2 summarizes the federal and non-federal surface water resources and shows the net changes in these resources to the federal estate that would result from the Land Exchange Proposed Action. The Hay Lake lands (Tract 1) account for the majority of the net gain in surface water and wild rice beds to the federal estate from all the non-federal lands.

Table 5.3.2-2 Net Change in Surface Water and Wild Rice Beds to the Federal Estate under the Land Exchange Proposed Action

	Surface Water Resource			
	Public Water Lakes (acres)	**Public Water Lakes (miles of shoreline)**	**Public Water Streams (miles)**	**Wild Rice Beds (acres)[1]**
	Lands Conveyed			
Federal Lands	30.5	0.9	4.5	0.0
	Lands Acquired			
Tract 1 – Hay Lake	125.7	2.8	8.1	>125.7[(2)]
Tract 2 – Lake County	0.0	0.0	0.0	0.0
Tract 3 – Wolf Lands	0.0	0.0	1.0	0.0
Tract 4 – Hunting Club	0.0	0.0	0.0	0.0
Tract 5 – McFarland Lake	0.0	0.2	0.0	0.0
Subtotal: Non-federal Lands	125.7	3.0	9.1	>125.7[(2)]
Net Increase/(Decrease)	**95.2**	**2.1**	**4.6**	**>125.7[(2)]**

Notes:
[1] Wild rice beds within the Land Exchange Proposed Action boundaries are currently, and would continue to be, in MDNR-designated public waters.
[2] Excludes area of wild rice beds in Pike River.

5.3.2.3 Land Exchange Alternative B

Under the Land Exchange Alternative B, 4,752.6 acres of federal lands would be transferred from public to private ownership, and 4,926.3 acres of land from private to public ownership, for a net increase in 173.7 acres in the federal estate (see Figure 3.3-2).

5.3.2.3.1 Groundwater

The Land Exchange Alternative B would not directly result in a change in groundwater quantity or quality at the non-federal tracts. Evaluation of existing hydrogeologic data did not suggest the potential for groundwater contamination from human activity from any of the tracts. Therefore, there does not appear to be any substantive difference in the quality of groundwater resources between the federal and non-federal tracts.

5.3.2.3.2 Surface Water and Wild Rice

The Land Exchange Alternative B would not directly result in a change in surface water quantity or quality at the non-federal tracts. There would be a net increase to the federal estate of about 3.6 miles of public water streams, under Land Exchange Alternative B. There would also be a net increase of about 116.8 acres of public water lake area (including 2.6 miles of shoreline) and at least 125.7 acres of wild rice beds contained within the federal estate under the Land Exchange Alternative B.

No wild rice stands are known to occur on the smaller federal parcel, and suitable habitat is limited. The non-federal lands that contain wild rice beds would not be affected as a result of the Land Exchange Proposed Action or Land Exchange Alternative B, because no activities are proposed on these lands and the proposed mining activities would not affect these lands. As

noted in the FEIS, the Land Exchange Alternative B would result in a net increase of 125.7 acres of wild rice beds to the federal estate. FEIS Sections 5.3.2 and 5.3.4 clarify that, although the Land Exchange would result in an increase in wild rice stands within the federal estate boundaries, there would be no change to the existing public access to Tract 1 wild rice stands via the Pike River. Consequently, there would be no increase in wild rice harvest opportunities for the public.

Table 5.3.2-3 summarizes the federal and non-federal surface water resources and shows the net changes in these resources to the federal estate that would result from the Land Exchange Alternative B.

Table 5.3.2-3 Net Change in Surface Water and Wild Rice Beds to the Federal Estate under Land Exchange Alternative B

	Surface Water Resource			
	Public Water Lakes (acres)	**Public Water Lakes (miles of shoreline)**	**Public Water Streams (miles)**	**Wild Rice Beds (acres)[1]**
	Lands Conveyed			
Federal Lands	8.9	0.2	4.5	0.0
	Lands Acquired			
Tract 1	125.7	2.8	8.1	>125.7[(2)]
Net Increase/(Decrease)	**116.8**	**2.6**	**3.6**	**>125.7[(2)]**

Notes:
[1] Wild rice beds within the Land Exchange Alternative B boundaries are currently, and would continue to be, in MDNR-designated public waters.
[2] Excludes area of wild rice beds in Pike River.

5.3.2.4 Land Exchange No Action Alternative

Under the Land Exchange No Action Alternative, the Land Exchange Proposed Action would not take place and would result in no changes in existing water resources under federal ownership. The Superior National Forest would have an ongoing responsibility for managing water resources on the federal lands in accordance with the Forest Plan. The Land Exchange No Action Alternative would not change the USFS responsibility for managing water resources.

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5.3.3 Wetlands

This section describes the potential environmental consequences of the Land Exchange Proposed Action on wetland resources that occur on the federal and non-federal lands. In this section, effects on the federal and non-federal lands are discussed together, to facilitate calculation of net changes to wetland resources. Under the Land Exchange Proposed Action and alternatives, the Superior National Forest would retain its ongoing responsibility for managing wetland resources on Forest Service lands in accordance with the Forest Plan.

Overall, the Land Exchange Proposed Action would result in an increase to the federal estate of wetland acreage by up to 505.5 acres through the acquisition of up to 7,075.0 acres of non-federal lands in exchange for 6,495.4 acres of federal land, and thus would be in conformity with EO 11990 (see Table 5.3.3-1). The Land Exchange Proposed Action would result in a net increase to the federal estate of 376.2 acres of mapped floodplain area, but would result in a decrease of 1,602.2 acres of unmapped floodplain area, for a net decrease of 1,226.0 acres of overall floodplain area (see Table 5.3.3-1). There would be no decrease in the amount of mapped floodplain or increase in the flood damage potential associated with the Land Exchange Proposed Action. The effects on the ecological function of the floodplain wetlands would be mitigated through the Section 404 Permit and the proposed mitigation described in Section 5.2.3. The Land Exchange Proposed Action would also increase the wetlands within the federal estate. The Land Exchange Proposed Action would be in conformance with EO 11988 (USFS 2004d [FSH 5409.13 § 33.43c]). The Land Exchange Proposed Action would result in an increase of coniferous swamp, hardwood swamp, open water, shallow marsh, and shrub swamp wetland resources to the federal estate, but would result in a decrease of coniferous bog, open bog, and sedge/wet meadows wetland resources to the federal estate (see Table 5.3.3-2). In addition, the Land Exchange Proposed Action would result in an increase in waterway acreage and frontage to the federal estate (see Table 5.3.3-3).

Due to the reduced land area involved, Land Exchange Alternative B would result in a lesser degree of wetlands, floodplains, and other water resources exchanged to the federal estate as compared to the proposed Land Exchange Proposed Action. Overall, Land Exchange Alternative B would increase wetland areas to the federal estate by 69.9 acres (see Table 5.3.3-1) through the acquisition of up to 4,926.3 acres of the non-federal lands in exchange for 4,752.6 acres of federal land, and would thus be in conformity with EO 11990. The Land Exchange Alternative B would result in a net increase to the federal estate of 376.2 acres of mapped floodplain area, but would result in a decrease of 1,237.9 acres of unmapped floodplain area, for a net decrease of 861.7 acres of overall floodplain area (see Table 5.3.3-1). There would be no decrease in the amount of mapped floodplain or increase in the flood damage potential associated with the Land Exchange Alternative B. The effects on the ecological function of the floodplain wetlands would be mitigated through the Section 404 Permit and the proposed mitigation described in Section 4.2.3. The Land Exchange Alternative B would also increase the wetlands within the federal estate. The Land Exchange Alternative B would be in conformance with EO 11988 (USFS 2004d [FSH 5409.13 § 33.43c]). Land Exchange Alternative B would result in an increase of coniferous swamp, open water, shallow marsh, and shrub swamp wetland resources to the federal estate but would result in a decrease to coniferous bog, hardwood swamp, open bog, and sedge/wet meadows wetland resources to the federal estate (see Table 5.3.3-2). In addition, Land

Exchange Alternative B would result in an increase of waterway acreage and frontage to the federal estate (see Table 5.3.3-3).

Table 5.3.3-1 Net Increase or Decrease of Wetland and Floodplain Acres on the Federal Estate from the Land Exchange Proposed Action and Alternatives

	Increase (or Decrease) of Wetland and Floodplain Acres	
Alternative	**Wetlands (Acres)**	**Floodplains[1,2] (Acres)**
Land Exchange Proposed Action	505.5	(1,226.0)
Land Exchange Alternative B	69.9	(861.7)

Notes:
1 The federal floodplain area is a 500-year (0.2%) probability floodplain.
2 Includes an increase of 376.2 acres of mapped floodplains to the federal estate.

Table 5.3.3-2 Net Increase or Decrease of Wetland Resource Types on the Federal Estate from the Land Exchange Proposed Action and Alternatives

	Increase (or Decrease) of Wetland Resource Types (Acres)								
Alternative	**Coniferous Bog**	**Coniferous Swamp[1]**	**Deep Marsh**	**Hardwood Swamp[2]**	**Open Bog**	**Open Water (includes shallow, open water, and lakes)**	**Sedge/Wet Meadow**	**Shallow Marsh[3]**	**Shrub Swamp (includes alder thicket and shrub-carr)**
Land Exchange Proposed Action	(1,961.4)	1,954.6	0.0	36.9	(202.4)	151.7	(35.7)	20.5	541.3
Land Exchange Alternative B	(1,677.0)	1,477.8	0.0	(5.7)	(172.9)	168.0	(34.9)	3.2	311.4

Notes:
1 Coniferous bogs on the non-federal lands were grouped with coniferous swamps during field data collection.
2 Hardwood swamps on the non-federal lands may contain coniferous tree species.
3 Shallow marsh areas on the non-federal lands may contain deep marshes.

Table 5.3.3-3 Net Increase or Decrease of Frontage of Waterways on the Federal Estate from the Land Exchange Proposed Action and Alternatives

	Increase (or Decrease) of Frontage of Waterways					
	Lake			River/Stream/Creek		
Alternative	**Acres**	**Frontage (ft)**	**Length of Lake Frontage/Acre**	**Miles**	**Frontage (linear ft)**	**Length of River Frontage/Acre**
Land Exchange Proposed Action	99.1	12,864.0	129.8	3.8	27,456.0	34.0
Land Exchange Alternative B	120.7	15,224.0	126.1	2.8	16,896.0	3.5

Source: Data from Section 4.3.3.

Based on a qualitative assessment, the Land Exchange Proposed Action and Land Exchange Alternative B would appear to result in an increase to the federal estate of wetlands rated as high for vegetation diversity/integrity, wetland water quality, fish habitat, and amphibian habitat.

Land Exchange Alternative B would also appear to result in an increase to the federal estate of wetlands rated as high for hydrology and wildlife habitat. The Land Exchange Proposed Action would result in an increase to the federal estate of moderate and low rated wetlands for amphibian habitat, as where Land Exchange Alternative B would also result in an increase to the federal estate of wetlands rated low for amphibian habitat. The Land Exchange Proposed Action would have similarly rated hydrology, flood attenuation, downstream water quality, wildlife habitat, and aesthetics/education/cultural functions. Land Exchange Alternative B would result in a decrease to the federal estate of wetlands rated high and moderate for flood attenuation and downstream water quality and would not result in a change to aesthetics/education/cultural functions.

5.3.3.1 Methodology and Evaluation Criteria

The potential effect that the Land Exchange Proposed Action and alternatives would have on wetland resources was evaluated using two types of criteria: 1) criteria assessing conformity to EOs 11990 and 11988, which requires a wetland acre-for-acre analysis and a floodplain acre-for-acre analysis of the federal estate; and 2) criteria used in an analysis of wetlands and floodplain habitat, as well as other water resource indicators.

As previously discussed, to satisfy the requirements of EOs 11990 and 11988, the USFS policy is to use the following three conditions (USFS 2004d [FSH 5409.13 § 33.43c]): 1) the value of the wetlands or floodplains for properties received and conveyed is equal (balancing test) and the land exchange is in the public interest, 2) reservations or restrictions are retained on the unbalanced portion of the wetlands and floodplains on the federal lands when the land exchange is in the public interest but does not meet the balancing test, and 3) the federal property is removed from the exchange proposal when the conditions described in the preceding paragraphs 1 or 2 cannot be met.

In addition to evaluating wetlands in accordance with the two EOs, analysis of the Land Exchange included information on wetland community types as well as ecological floodplains.

To evaluate conformity to the EOs, the following evaluation criteria were used:

- Comparative difference in acres of wetland between the federal and non-federal parcels; and
- Comparative difference in acres of floodplain between the federal and non-federal parcels.

Other wetland resources indicators that were used are the following:

- Comparative difference in acres of wetland types between the federal and non-federal parcels;
- A MnRAM assessment of wetland function and value;
- Change in flood damage potential on the parcels and to the surrounding parcels;
- A MnRAM assessment of floodplain assets; and
- Comparative difference of length of streams, rivers, and lake frontage between the federal and non-federal parcels.

The spatial area of analysis for wetland resource effects from the Land Exchange Proposed Action and alternatives included the federal and non-federal tracts proposed for the exchange,

while the temporal area of analysis assessed was the point in time at which the change in ownership would occur.

The analysis of the wetland resources affected by the Land Exchange Proposed Action and alternatives was guided by evaluation criteria that were developed by the USFS and other Co-lead Agencies, which included a comparison of wetland resource acreages, wetland resources types, wetland function and values, floodplain acreages, and other water resources acreages. GIS data and field observations were used and then compared over an area of analysis that included the federal and non-federal lands.

5.3.3.1.1 Wetlands

The federal lands contain 4,164.4 acres of wetlands (see Table 5.3.3-4). By comparison, the five non-federal land tracts contain 4,669.9 acres of wetlands. The Land Exchange Proposed Action would result in a net increase of up to 505.5 acres of wetlands to the federal estate if all five tracts are exchanged (see Table 5.3.3-4). The Land Exchange Proposed Action would increase wetland acreage to the federal estate by up to 505.5 acres through the acquisition of up to 7,075.0 acres of non-federal lands in exchange for 6,495.4 acres of federal land, and thus would be in conformity with EO 11990.

Table 5.3.3-4 Wetland and Floodplain Acres for the Land Exchange Proposed Action

Parcel		Acres of Wetlands	Acres of Floodplains
Lands Conveyed			
Federal Lands		4,164.4	1,889.4[(1)]
Lands Acquired			
Tract 1		2,930.8	551.2
Tract 2	Lake County North	209.3	0.0
	Lake County South	73.6	0.0
Tract 3	Wolf Lands 1	90.4	0.0
	Wolf Lands 2	706.2	0.0
	Wolf Lands 3	233.2	32.8
	Wolf Lands 4	362.8	79.4
Tract 4		63.6	0.0
Tract 5		0.0	0.0
Subtotal: Non-federal lands		4,669.9	633.4
Net Change			
Net Increase/(Decrease)		505.5	(1,226.0)[(2)]

Notes:
[1] The federal floodplain area is a 500-year (0.2%) probability floodplain.
[2] Includes an increase of 376.2 acres of mapped floodplains to the federal estate.

As part of the increase in total wetland acreage, the Land Exchange Proposed Action would result in a net increase to the federal estate of the following wetland resource types (see Table 5.3.3-5): coniferous swamp (1,954.6 acres), hardwood swamp (36.9 acres), open water (151.7 acres), shallow marsh (20.5 acres), and shrub swamp (541.3 acres). However, the Land Exchange Proposed Action would result in a net decrease to the federal estate of the following wetland resource types: coniferous bog (1,961.4 acres), open bog (202.4 acres), and sedge/wet meadow (35.7 acres).

Table 5.3.3-5 Wetland Resource Types for the Land Exchange Proposed Action

Parcel		Acres of Wetland Resource Types								
		Coniferous Bog	**Coniferous Swamp[1]**	**Deep Marsh**	**Hardwood Swamp[2]**	**Open Bog**	**Open Water (includes shallow, open water, and lakes)**	**Sedge/Wet Meadow**	**Shallow Marsh[3]**	**Shrub Swamp (includes alder thicket and shrub-carr)**
Lands Conveyed										
Federal Lands		1,961.4	1,287.8	0.0	21.1	209.5	30.8	35.7	97.0	521.1
Lands Acquired										
Tract 1		0.0	1,953.9	0.0	8.0	2.1	176.6	0.0	84.1	706.1
Tract 2	Lake County North	0.0	135.0	0.0	34.7	1.8	0.2	0.0	2.5	35.1
	Lake County South	0.0	32.4	0.0	9.9	0.0	2.5	0.0	12.3	16.5
Tract 3	Wolf Lands 1	0.0	75.4	0.0	0.0	3.0	0.0	0.0	0.0	12.0
	Wolf Lands 2	0.0	627.4	0.0	5.0	0.0	0.4	0.0	0.4	73.0
	Wolf Lands 3	0.0	82.6	0.0	0.0	0.0	0.0	0.0	5.2	145.4
	Wolf Lands 4	0.0	320.3	0.0	0.0	0.2	0.0	0.0	0.0	42.3
Tract 4		0.0	15.4	0.0	0.4	0.0	2.8	0.0	13.0	32.0
Tract 5		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal: Non-federal lands		0.0	3,242.4	0.0	58.0	7.1	182.5	0.0	117.5	1,062.4
Net Change										
Net Increase/(Decrease)		(1,961.4)	1,954.6	0.0	36.9	(202.4)	151.7	(35.7)	20.5	541.3

Notes:
[1] Coniferous bogs on the non-federal lands were grouped with coniferous swamps during field data collection.
[2] Hardwood swamps on the non-federal lands may contain coniferous tree species.
[3] Shallow marsh areas on the non-federal lands may contain deep marshes.

5.3.3.1.2 Wetland Functional Assessment

Based on a qualitative assessment, the Land Exchange Proposed Action would appear to result in an increase to the federal estate of the following high rated wetland functions: vegetation diversity/integrity, wetland water quality, fish habitat, and amphibian habitat. The Land Exchange Proposed Action would result in an increase to the federal estate of moderate- and low-rated wetlands for amphibian habitat. The Land Exchange Proposed Action would have similarly rated hydrology, flood attenuation, downstream water quality, wildlife habitat, and aesthetics/education/cultural functions. It is recognized that the federal land contains a large contiguous wetland complex with an intact upland. Such a complex offers additional value beyond simply the accounting of the number of acres. This is reflected in the MnRAM analysis as the setting is considered. However, it should also be noted that although there are a number of separate non-federal lands proposed in the exchange, they are also part of larger ecological complexes that are intact and offer similar benefits. Conversion of these lands into federal ownership and management will provide additional protection of the values associated with larger wetland complexes.

5.3.3.1.3 Floodplains

There are no mapped floodplains within the federal lands as described in Section 4.3.3. The Land Exchange Proposed Action would result in a net increase to the federal estate of 376.2 acres of mapped floodplain area, but would result in a decrease of 1,602.2 acres of unmapped floodplain area, for a net decrease of 1,226.0 acres of overall floodplain area (see Table 5.3.3-4). There would be no decrease in the amount of mapped floodplain or increase in the flood damage potential associated with the Land Exchange Proposed Action. The effects on the ecological function of the floodplain wetlands would be mitigated through the Section 404 Permit and the proposed mitigation described in Section 4.2.3. The Land Exchange Proposed Action would also increase the wetlands within the federal estate. The Land Exchange Proposed Action would be in conformance with EO 11988 (USFS 2004d [FSH 5409.13 § 33.43c]).

5.3.3.1.4 Frontage of Waterways

The Land Exchange Proposed Action would result in a net increase of other water resources to the federal estate (see Table 5.3.3-6). A net increase of 99.1 acres of lake and 3.8 miles of rivers would be added to the federal estate from the Land Exchange Proposed Action. These increases would result in additional frontage of lakes and rivers to the federal estate.

Table 5.3.3-6 Frontage of Waterways for the Land Exchange Proposed Action

		Lake			Rivers/Creeks/Streams		
Parcel		**Acres**	**Frontage (ft)**	**Length of Lake Frontage/ Acre**	**Miles**	**Frontage (linear ft)**	**Length of River Frontage/ Acre**
Lands Conveyed							
Federal Lands		30.5	4,550.0	0.7	5.3	55,968.0	8.6
Lands Acquired							
Tract 1		129.6	16,424.0	3.5	8.1	72,864.0	15.3
Tract 2		0.0	0.0	0.0	0.0	0.0	0.0
Tract 3	Wolf Lands 1	0.0	0.0	0.0	0.0	0.0	0.0
	Wolf Lands 2	0.0	0.0	0.0	0.0	0.0	0.0
	Wolf Lands 3	0.0	0.0	0.0	0.1	1,056.0	3.8
	Wolf Lands 4	0.0	0.0	0.0	0.9	9,504.0	23.5
Tract 4		0.0	0.0	0.0	0.0	0.0	0.0
Tract 5		0.0	990.0	32.1	0.0	0.0	0.0
Subtotal: Non-federal lands		129.6	17,414.0	35.6	9.1	83,424.0	42.6
Net Change							
Net Increase/(Decrease)		99.1	12,864.0	34.9	3.8	27,456.0	34.0

Source: Data from Section 4.3.3.

5.3.3.2 Land Exchange Alternative B

5.3.3.2.1 Wetlands

The smaller federal parcel contains 2,860.9 acres of wetlands (see Table 5.3.3-7). By comparison, the non-federal lands contain 2,930.8 acres of wetlands. The Land Exchange Alternative B would result in a net increase of 69.9 acres of wetlands to the federal estate. The Land Exchange Alternative B would increase wetland areas to the federal estate by 69.9 acres through the acquisition of up to 4,926.3 acres of the non-federal lands in exchange for 4,752.6 acres of federal land, and would thus be in conformity with EO 11990.

Table 5.3.3-7 Wetland and Floodplain Acres for Land Exchange Alternative B

	Acres of Wetlands	**Acres of Floodplains**
Lands Conveyed		
Smaller Federal Parcel	2,860.9	1,412.9[1]
Lands Acquired		
Tract 1	2,930.8	551.2
Net Change		
Net Increase/(Decrease)	69.9	(861.7)[2]

Notes:
[1] The federal floodplain area is a 500-year (0.2%) probability floodplain.
[2] Includes an increase of 376.2 acres of mapped floodplains to the federal estate.

As part of the increase in wetland acreage, Land Exchange Alternative B would result in a net increase to the federal estate of the following wetland resource types (see Table 5.3.3-8): coniferous swamp (1,477.8 acres), open water (168.0 acres), shallow marsh (3.2), and shrub swamp (311.4 acres). However, the Land Exchange Alternative B would result in a net decrease to the federal estate of the following wetland resource types: coniferous bog (1,677.0 acres), hardwood swamp (5.7 acres), open bog (172.9 acres), and sedge/wet meadow (34.9 acres).

Table 5.3.3-8 Wetland Resource Types for Land Exchange Alternative B

	Acres of Wetland Resource Types								
Parcel	**Coniferous Bog**	**Coniferous Swamp[1]**	**Deep Marsh**	**Hardwood Swamp[2]**	**Open Bog**	**Open Water (includes shallow, open water, and lakes)**	**Sedge/Wet Meadow**	**Shallow Marsh[3]**	**Shrub Swamp (includes alder thicket and shrub-carr)**
Lands Conveyed									
Smaller Federal Parcel	1,677.0	476.1	0.0	13.7	175.0	8.6	34.9	80.9	394.7
Lands Acquired									
Tract 1	0.0	1,953.9	0.0	8.0	2.1	176.6	0.0	84.1	706.1
Net Change									
Net Increase/(Decrease)	(1,677.0)	1,477.8	0.0	(5.7)	(172.9)	168.0	(34.9)	3.2	311.4

Notes:
[1] Coniferous bogs on the non-federal lands were grouped with coniferous swamps during field data collection.
[2] Hardwood swamps on the non-federal lands may contain coniferous tree species.
[3] Shallow marsh areas on the non-federal lands may contain deep marshes.

5.3.3.2.2 Wetland Functional Assessment

The Land Exchange Alternative B would result in an increase to the federal estate of wetlands rated as high for vegetation diversity/integrity, hydrology, wetland water quality, wildlife habitat, fish habitat, and amphibian habitat. There would be a decrease to the federal estate of wetlands rated high and moderate for flood attenuation and downstream water quality. The Land Exchange Alternative B would also result in an increase to the federal estate of wetlands rated low for amphibian habitat. The Land Exchange Alternative B would not result in a change to aesthetics/education/cultural functions to the federal estate.

5.3.3.2.3 Floodplains

There are no mapped floodplains within the federal lands as described in Section 4.3.3. The Land Exchange Alternative B would result in a net increase to the federal estate of 376.2 acres of mapped floodplain area and 1,237.9 acres of unmapped floodplain area, for a net decrease of 861.7 acres of overall floodplain area (see Table 5.3.3-7). There would be no decrease in the amount of mapped floodplain or increase in the flood damage potential associated with the Land Exchange Alternative B. The effects on the ecological function of the floodplain wetlands would be mitigated through the Section 404 Permit and the proposed mitigation described in Section 4.2.3. The Land Exchange Alternative B would also increase the wetlands within the federal estate. The Land Exchange Alternative B would be in conformance with EO 11988 (USFS 2004d [FSH 5409.13 § 33.43c]).

5.3.3.2.4 Frontage of Waterways

The Land Exchange Alternative B would result in a net increase of other water resources to the federal estate (see Table 5.3.3-9). A net increase of 120.7 acres of lake and 2.8 miles of rivers would be added to the federal estate from the Land Exchange Alternative B. These increases would result in additional frontage of lakes and rivers to the federal estate.

Table 5.3.3-9 Frontage of Waterways for Land Exchange Alternative B

	Lake			Rivers/Creeks/Streams		
Parcel	**Acres**	**Frontage (ft)**	**Length of Lake Frontage/Acre**	**Miles**	**Frontage (linear ft)**	**Length of River Frontage/Acre**
Lands Conveyed						
Smaller Federal Parcel	8.9	1,200.0	0.3	5.3	55,968.0	11.8
Lands Acquired						
Tract 1	129.6	16,424.0	3.5	8.1	72,864.0	15.3
Net Change						
Net Increase/(Decrease)	120.7	15,224.0	3.2	2.8	16,896.0	3.5

Source: Data from Section 4.3.3.

5.3.3.3 Land Exchange No Action Alternative

Under the Land Exchange No Action Alternative, the Superior National Forest would have an ongoing responsibility for managing wetland resources, floodplains, and surface waters on the federal lands in accordance with the Forest Plan. The Land Exchange No Action Alternative would not change USFS's responsibility for managing wetland resources, floodplains, and surface waters and would result in no further effects on these resources.

5.3.4 Vegetation

This section provides an evaluation of the effects of the Land Exchange Proposed Action on vegetation, including comparisons of MDNR GAP land cover types, native plant community types, MBS Sites of Biodiversity Significance, MIH types, age classes, threatened and endangered plant species, and biodiversity between the federal and non-federal lands. Table 5.3.4-1 provides a summary of these data on a net increase or decrease basis to the federal estate.

When comparing the total acres of the federal and non-federal lands, the federal estate would have an increase of 579.6 acres of MDNR GAP land cover types (see Table 5.3.4-1) as a result of the Land Exchange Proposed Action. The shrublands (1,199.4 acres) would increase the most and the upland conifer forests (919.5 acres) would decrease the most (see Table 5.3.4-2). There would be an acreage increase of upland forest (MIH 1) with lesser amounts of lowland black spruce-tamarack forest (MIH 9) and aquatic habitat (MIH 14), but a decrease of upland conifer forest (MIH 5) to the federal estate (see Table 5.3.4-1). There would be an increase to the federal estate of immature forest stands with lesser amounts of young stands, but a decrease in mature forest stands.

There would be a decrease to the federal estate of up to approximately 6,025.8 acres of MBS Sites of High Biodiversity Significance and an increase of up to 767.9 acres of MBS Sites of Moderate Biodiversity Significance under the Land Exchange Proposed Action (see Table 5.3.4-1). There would be a decrease to the federal estate of three native plant communities that are “imperiled,” “imperiled-vulnerable,” or “vulnerable,” as well as others that are ranked as “apparently secure” or “widespread and secure,” in exchange for one native plant community that is ranked as “vulnerable” and two that are ranked as “apparently secure.” There would be a decrease to the federal estate of up to 2,016.6 acres in the Jack Pine-Black Spruce landscape ecosystem, and an increase of up to 994.7 acres in the Lowland Conifer landscape ecosystem and 558.7 acres in the Mesic Red and White Pine landscape ecosystem. Additionally, the USFS would increase representation in the Dry-Mesic Red and White Pine, Mesic Birch-Aspen-Spruce-Fir, Lowland Hardwood, and Sugar Maple landscape ecosystems. Overall, there would be an increase to the federal estate of 625.2 acres of landscape ecosystems as a result of the Land Exchange Proposed Action.

There would be a decrease to the federal estate of 12 populations of 10 state-listed ETSC plant species on the federal lands in exchange for three populations of three known state-listed ETSC plant species on the non-federal lands. Though the 10 state-listed plant species on the federal lands are not known to occur on the non-federal lands, the Land Exchange Proposed Action would result in an increase to the federal estate of most habitats important to them. Drawing from the MIH exchange, RFSS plants associated with upland forest (MIH 1), lowland black spruce-tamarack forest (MIH 9), and aquatic habitat (MIH 14) could potentially exist on or spread to the habitats on the non-federal parcels. There would also be a gain of Rove Formation cliff microhabitats to the federal estate, which are important for a variety of RFSS plants in the Superior National Forest.

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list. The FEIS also considers any federal listing changes.

A Biological Evaluation has been prepared that contains further information about RFSS. The Biological Evaluation is included in Appendix D. The organization of the methodologies and discussion in the Biological Evaluation may be different from the FEIS. The document also contains determinations of effect for the species discussed.

Table 5.3.4-1 Vegetation and Cover Type Increase or Decrease to the Federal Estate Due to Land Exchange Proposed Action and Alternatives

		Net Increase/(Decrease)		
Category		**Land Exchange Proposed Action**	**Land Exchange Alternative B**	**Land Exchange No Action Alternative**
Habitat Types (acres)	MDNR GAP Land Cover Types	579.6	173.6	0.0
	MIH 1 (Upland Forest)	1,364.5	1,411.8	0.0
	MIH 5 (Upland Conifer Forest)	(1,172.5)	(1,084.6)	0.0
	MIH 9 (Lowland Black Spruce-tamarack Forest)	248.3	(261.1)	0.0
	MIH 14 (Aquatic Habitat)	226.7	206.2	0.0
	Lowland Shrub	(160.1)	(272.1)	0.0
	Lowland Emergent	200.2	249.6	0.0
	Upland Grass	43.3	0.0	0.0
	Young Forest Stands	507.1	262.7	0.0
	Immature Forest Stands	2,000.5	1,933.9	0.0
	Mature Forest Stands	(2,029.6)	(2,114.5)	0.0
MBS Sites (acres)	High Biodiversity Sites	(6,025.8)	(4,573.1)	0.0
	Moderate Biodiversity Sites	767.9	(0.3)	0.0
Native Plant Communities	Imperiled (S2)	(1.0)	0.0	0.0
	Imperiled/Vulnerable (S2-3)	(1.0)	(1.0)	0.0
	Vulnerable (S3)	(1) and +1 other	(1.0)	0.0
	Apparently Secure (S4)	(6) and +2 others	(2.0)	0.0
	Widespread and Secure (S5)	(6.0)	(4.0)	0.0
Landscape Ecosystems (acres)	Dry-Mesic Red and White Pine	683.0	589.2	0.0
	Jack Pine-black Spruce	(2,016.6)	(1,411.6)	0.0
	Lowland Conifer	994.7	486.2	0.0
	Lowland Hardwood	66.5	0.0	0.0
	Mesic Birch-aspen-spruce-fir	302.2	0.9	0.0
	Mesic Red and White Pine	558.7	528.0	0.0
	Sugar Maple	36.7	0.0	0.0
ETSC Species (number of species)	State-listed Plant Species	(10) species +3 different species	(10) species +1 different species	0.0
Management Area (acres)	General Forest	5,714.1	4,264.0	0.0
	General Forest – Longer Rotation	(5,658.0)	(4,397.3)	0.0
	cRNA	306.9	306.9	0.0
	Riparian Emphasis Area	220.9	0.0	0.0

5.3.4.1 Methodology and Evaluation Criteria

The vegetation assessment area for the Land Exchange Proposed Action would involve 6,495.4 acres of federal lands transferred from public to private ownership, and up to 7,075.0 acres of land transferred from private to public ownership. The spatial and temporal area of analysis for vegetation as part of the Land Exchange Proposed Action included direct and indirect effects resulting from the change in ownership of the federal and non-federal lands, including the extent of landscape ecosystems as defined in the Forest Plan or the extent of similar landscape ecosystems on the abutting forest lands.

An evaluation was conducted to determine the potential effect that the Land Exchange Proposed Action would have on the following vegetation resources:

- The quality and quantity of forest resources/lands (change in forest types and age classes);
- Change in state-listed ETSC plant species and RFSS plants (individuals, habitat, and/or populations);
- Change in biodiversity or overall vegetation and habitat; and
- The introduction and spread of invasive non-native species.

The analysis of the vegetation resources affected by the Land Exchange Proposed Action was guided by evaluation criteria that were developed by the USFS and other Co-lead Agencies, which included a comparison of the MDNR GAP land cover types, native plant communities, MBS Sites of Biodiversity Significance, MIH types (MIH 1, 5, 9, and 14, as well as lowland shrublands, lowland emergent wetlands, and upland grass), age classes (young, immature, and mature), large mature forest patches, landscape ecosystems, management areas, threatened and endangered plant species, RFSS plants, and invasive non-native plant species. GIS data for these categories were gathered to the extent possible, and then compared over an area of analysis that included the federal and non-federal lands, and also the surrounding landscape ecosystems of the Superior National Forest or ecological subsections. MIH types and age classes have also been compared within the context of landscape ecosystems to reveal how many acres of each MIH and age class would be increased or decreased on the federal estate by the Land Exchange Proposed Action within each landscape ecosystem. MIH type and age class data for the non-federal lands were interpreted from field survey maps, aerial maps, surrounding federal MIH data, topographic maps, and USFS review. These were then compared to the federal lands MIH data to determine MIH type and age class increases or decreases of acreage to the federal estate. Additionally, all of the data types mentioned have been compared to summarize the vegetative biodiversity of the federal and non-federal lands.

5.3.4.2 Land Exchange Proposed Action

5.3.4.2.1 Cover Types

Cover types consist of several categories of classification, including MDNR GAP land cover types, USFS management areas, USFS ELTs, and USFS MIH types.

Habitat Types

The Land Exchange Proposed Action would result in an increase to the federal estate of up to 579.6 acres of MDNR GAP land cover designations, with the greatest increase in shrubland

acreage of 1,199.4 acres and the greatest decrease in upland conifer forest of 919.5 acres (see Table 5.3.4-2). The decrease of upland conifer forest is contrary to a goal of the 2004 Forest Plan. The Forest Plan calls for an increase in the acreage of red, white, and jack pine habitats (and a decrease in the acreage of aspen vegetation communities). In addition, the Land Exchange Proposed Action would support other Forest Plan goals to maintain acreage of lowland deciduous habitats and non-forested wetlands. The Land Exchange Proposed Action would result in a small increase to the federal estate of lowland deciduous forests, an increase in aquatic habitats, and a large increase of shrublands.

Table 5.3.4-2 Net Increase or Decrease to the Federal Estate of MDNR GAP Land Cover Types under the Land Exchange Proposed Action

Cover Types	Federal Land Acres	Non-federal Land Acres	Net Increase/ (Decrease) Acres
Shrubland	645.6	1,845.0	1,199.4
Aquatic environments	60.1	266.6	206.5
Upland deciduous forest	1,091.8	1,232.9	141.1
Upland conifer-deciduous mixed forest	20.9	50.4	29.5
Cropland/grassland	6.2	31.7	25.5
Lowland deciduous forest	9.5	28.6	19.1
Lowland coniferous forest	2,978.6	2,920.5	(58.1)
Disturbed	63.8	0.0	(63.8)
Upland coniferous forest	1,618.9	699.4	(919.5)
Total [1]	6,495.4	7,075.0	579.6

Source: MDNR 2006b.

Note:
[1] Total acres may be more or less than presented due to rounding.

Culturally Important Plants

The Land Exchange Proposed Action would result in additional wild rice beds on the federal estate by the acquisition of Tract 1. Tract 1 contains Little Rice Lake, which supports a continuous population of wild rice. Wild rice also grows along the Pike River south of Little Rice Lake and in isolated populations on Hay Lake. Section 4.3.4.2.5 provides further discussion of wild rice on Tract 1. Wild rice does not currently grow within the proposed federal land boundaries. Though the Land Exchange would result in an increase in wild rice beds within the federal estate boundaries, there is existing public access to Tract 1 wild rice beds via the Pike River. Consequently, there would be no change in wild rice harvest opportunities for the public. A carry-down boat launching access point is located on Tract 1, which may provide private access for wild rice harvesting on the Tract 1 lands.

Natural resources culturally important to the Bands are discussed in Section 4.2.9.3.3.

Minnesota Biological Survey

The Land Exchange Proposed Action would result in a decrease to the federal estate of 6,142.7 acres of MBS Sites of High Biodiversity Significance in the Laurentian Uplands subsection, and an increase of 116.9 acres of MBS Sites of High Biodiversity Significance in the North Shore Highlands subsection. Furthermore, the Land Exchange Proposed Action would result in an

increase to the federal estate of 767.6 acres of MBS Sites of Moderate Biodiversity Significance in the Laurentian Uplands subsection.

Native plant community rankings are largely unavailable for the non-federal lands, with the exception of Lake County South, which has one site ranked as "vulnerable" and others ranked as "apparently secure." Section 4.3.4.2.6 provides further discussion of native plant community types on the Lake County South parcel. The Land Exchange Proposed Action would result in a decrease to the federal estate of three native plant communities on the federal lands that are ranked as "imperiled" to "vulnerable" in the state. A native plant community increase or decrease comparison cannot be accurately made since rankings are unavailable for much of the non-federal lands.

Management Areas

In conjunction with landscape ecosystem objectives, the USFS has developed desired future conditions and objectives, based on management areas, which describe what is desired socially and economically (USFS 2004b). The majority of the non-federal lands (86 percent) would be allocated to the General Forest Management Area upon completion of the Land Exchange Proposed Action. This management area provides a wide variety of goods, uses, and services, including wood products, scenic quality, recreation opportunities, and habitat types (USFS 2004b). The remaining non-federal lands would be allocated to the General Forest – Longer Rotation Management Area (7 percent), Potential/cRNA (4 percent), and Riparian Areas Management Area (3 percent). Section 5.3.1 provides a discussion of management area allocations on the non-federal lands for the Land Exchange Proposed Action.

Through the acquisition of Tract 1, the Land Exchange Proposed Action would result in a gain of a large contiguous block of land and lakeshore/river frontage. The majority of this tract (94 percent) would be allocated to the General Forest Management Area, with the balance allocated as a cRNA (6 percent). Two cRNA lands abut Tract 1 (USFS 2011b) and, upon completion of the Land Exchange Proposed Action, these two cRNA lands would be extended onto the parcel. The Pike Mountain cRNA is located at the southwestern corner of Tract 1. Approximately 135 acres of Tract 1 are proposed to be added to the Pike Mountain cRNA because it is an extension of the northern hardwood uplands with a high sugar maple component. The Loka Lake cRNA is located at the northeastern corner of Tract 1. Approximately 172 acres of the parcel are proposed to be added to the Loka Lake cRNA because it is an extension of the high-quality lowland black spruce and tamarack swamp.

The Land Exchange Proposed Action would result in Tract 2 being allocated as Riparian Areas (83 percent) and General Forest – Longer Rotation Management Area (17 percent) (USFS 2011b). The Riparian Emphasis Area Management Area provides protection to diverse age classes, but generally for older-growth forest stands along sensitive riparian areas.

The majority of Tract 3 would be allocated to the General Forest Management Area (92 percent), with the remaining 8 percent allocated to the General Forest – Longer Rotation Management Area (USFS 2011b).

All of Tracts 4 and 5 would be allocated to the General Forest – Longer Rotation Management Area (USFS 2011b). Obtaining Tract 5 would result in a gain of lakeshore property.

Overall, there would be a large increase to the federal estate in the General Forest Management Area (5,714.1 acres) and smaller increases in the cRNA (306.9 acres) and Riparian Areas (220.9

acres) Management Areas as a result of the Land Exchange Proposed Action (see Table 5.3.4-3). There would be a decrease to the federal estate of 5,662.3 acres of the General Forest – Longer Rotation Management Area. The lands to be acquired as part of the Land Exchange Proposed Action would be managed in accordance with Forest Plan standards and guidelines. Section 5.3.1 describes the management areas in detail.

Table 5.3.4-3 Net Increase or Decrease to the Federal Estate of Management Areas under the Land Exchange Proposed Action

	Federal Lands		Non-federal Lands		Net Increase/ (Decrease)
Category	**Acres**	**%**	**Acres**	**%**	**Acres**
General Forest	355.3	5	6,069.4	86	5,714.1
General Forest – Longer Rotation	6,140.2	95	477.8	7	(5,662.3)
Potential/cRNAs	0.0	0	306.9	4	306.9
Riparian Areas	0.0	0	220.9	3	220.9

Source: USFS 2011j.

Ecological Land Types

The Land Exchange Proposed Action would result in an increase to the federal estate of seven ELTs, including ELT 3, 4, 10, 11, 14, 17, and 18. Five of these ELTs are upland soils and two are lowland soils. The USFS would not lose representation of any ELTs currently on the federal lands, based on available data.

Management Indicator Habitats

The Land Exchange Proposed Action would result in an increase to the federal estate of upland forest (MIH 1; 1,364.5 acres), lowland black spruce-tamarack forest (MIH 9; 248.3 acres), and aquatic habitat (MIH 14; 226.7 acres), and a decrease of upland conifer forest (MIH 5; 1,172.5 acres) (see Table 5.3.4-4). The Land Exchange Proposed Action would also result in a decrease to the federal estate of lowland shrub habitat (160.1 acres), but an increase in lowland emergent (200.2 acres) and upland grass (43.3 acres) habitat types. While not considered MIH types, these are important habitats for several wildlife species. The fact that aquatic habitat (MIH 14) is not mapped on the federal lands results in an apparent increase to the federal estate in these categories, even though this habitat type does occur on the federal lands.

The Land Exchange Proposed Action would result in an increase to the federal estate of 2,507.6 acres of young and immature forest stands. However, it would result in a decrease to the federal estate of 2,029.6 acres of mature forest types. The Land Exchange Proposed Action would not result in a change to the federal estate of large patches (stands over 300 acres) of mature upland forests (MIH 13), as none exist on the federal lands (USFS 2012c) and the patches of mature forest on the non-federal lands are not part of the USFS Patch layer.

Table 5.3.4-4 Net Increase or Decrease to the Federal Estate of MIH Types and Age Classes under the Land Exchange Proposed Action

Category	Federal Land Acres [2]	Non-federal Land Acres [1,2]	Net Increase/ (Decrease) Acres
MIH Types			
MIH 1 (Upland Forest)	1,330.0	2,694.5	1,364.5
MIH 5 (Upland Conifer Forest)	1,252.4	79.9	(1,172.5)
MIH 9 (Lowland Black Spruce-tamarack Forest)	3,060.2	3,308.5	248.3
MIH 14 (Aquatic Habitat)	0.0	226.7	226.7
Lowland Shrub	492.3	332.2	(160.1)
Lowland Emergent	185.5	385.7	200.2
Upland Grass	0.0	43.3	43.3
Age Classes			
Young	271.1	778.2	507.1
Immature	1,539.2	3,539.7	2,000.5
Mature	3,854.2	1,824.6	(2,029.6)

Source: USFS 2010b.

Notes:
[1] According to non-federal lands cover type table (see Table 4.3.4-3).
[2] Total acres may be more or less than presented due to rounding.

Landscape Ecosystems

The Land Exchange Proposed Action would result in a decrease to the federal estate of 2,016.6 acres of the Jack Pine-Black Spruce landscape ecosystem (0.65 percent decrease), but there would be an increase of 994.7 acres in the Lowland Conifer landscape ecosystem (0.08 percent increase) and 558.7 acres of the Mesic Red and White Pine landscape ecosystem (0.73 percent increase). The Superior National Forest, as part of the Land Exchange Proposed Action, would have increased representation in the Dry-Mesic Red and White Pine landscape ecosystem (682.9 acres; 0.11 percent increase), Mesic Birch-Aspen-Spruce-Fir landscape ecosystem (302.2 acres; 0.04 percent increase), Lowland Hardwood landscape ecosystem (66.5 acres; 0.01 percent increase), and the Sugar Maple landscape ecosystem (36.7 acres; 0.04 percent increase), and there would be an overall increase to the federal estate of 625.1 acres.

Within the Superior National Forest, the USFS tracks acreage of MIH types and age classes within each landscape ecosystem to better manage them within the broader ecological context. As a result of the Land Exchange Proposed Action, there would be an increase to the federal estate in acreage of MIH types and age classes within some landscape ecosystems and a decrease in others (see Table 5.3.4-5). The greatest percentage increase to the federal estate in MIH acreage within a landscape ecosystem is lowland black spruce-tamarack forest (MIH 9) in the Mesic Birch-Aspen-Spruce-Fir landscape ecosystem, while the greatest decrease is upland conifer forest (MIH 5) in the Jack Pine-Black Spruce landscape ecosystem. The greatest percentage increase to the federal estate in age class acreage within a landscape ecosystem is the immature age class in the Lowland Conifer landscape ecosystem, while the greatest decrease is the immature and mature age classes in the Jack Pine-Black Spruce landscape ecosystem. Overall, the Lowland Conifer landscape ecosystem would have the highest acreage increase to the federal estate in MIH types and age classes, while the Jack Pine-Black Spruce landscape ecosystem would have the highest acreage decrease in MIH types and age classes.

Table 5.3.4-5 Net Increase or Decrease to the Federal Estate of MIH Types and Age Classes within Landscape Ecosystems in the Superior National Forest under the Land Exchange Proposed Action

Landscape Ecosystem Name			Dry-Mesic Red and White Pine	Jack Pine-Black Spruce	Lowland Conifer	Lowland Hardwood	Mesic Birch-Aspen-Spruce-Fir	Mesic Red and White Pine	Sugar Maple
Category			**Net Increase/(Decrease)**						
MIH Types	MIH 1	Acres [1]	517.0	(1,374.7)	289.0	10.1	140.8	527.1	1.1
		% [2]	2	(4)	2	2	0	1	1
	MIH 5	Acres [1]	15.5	(1,089.3)	(121.2)	3.2	7.6	11.6	0.0
		% [2]	0	(8)	(2)	2	0	0	0
	MIH 9	Acres [1]	26.2	(390.7)	928.9	17.1	134.7	13.8	7.8
		% [2]	1	(7)	2	1	4	0	0
	MIH 14	Acres [1]	115.5	2.2	97.8	9.1	0.3	0.8	0.9
		% [2,3]	NA	NA	NA	NA	NA	NA	NA
Lowland Shrub		Acres [1]	3.0	(95.0)	(113.0)	24.0	19.0	0.0	0.0
		% [2]	0	(4)	(1)	4	1	0	0
Lowland Emergent		Acres [1]	6.0	(62.3)	348.1	3.2	0.0	2.4	3.1
		% [2]	1	(7)	5	1	0	0	0
Upland Grass		Acres [1]	0.0	(0.2)	15.4	0.0	0.0	0.0	23.6
		% [2]	0	0	5	0	0	0	0
Age Classes	Young	Acres [1]	250.8	(21.5)	188.0	5.6	51.1	9.3	23.6
		% [2]	15	(1)	18	7	2	0	0
	Immature	Acres [1]	178.7	(700.3)	2,170.2	2.3	50.4	298.9	0.0
		% [2]	1	(4)	28	1	0	1	0
	Mature	Acres [1]	129.2	(1,079.0)	(1,559.6)	22.5	181.6	247.1	8.9
		% [2]	1	(4)	(2)	1	1	1	6

Source: USFS 2010b; USFS 2011g.

Notes:
[1] Total acres may be more or less than presented due to rounding.
[2] Percentage of acres increased or decreased on the federal estate within the entire landscape ecosystem.
[3] MIH 14 is not tracked on the federal lands; thus, percentage is NA (not applicable).

5.3.4.2.2 Invasive Non-native Plants

The Land Exchange Proposed Action would result in a reduction of occurrences of invasive non-native species on the federal lands, but an increase to the federal estate of similar occurrences of invasive non-native species on Tracts 1, 2, and 3, including common tansy, orange hawkweed, ox-eye daisy, and thistles. Tracts 4 and 5 would not have an increase of any occurrences of invasive non-native species.

5.3.4.2.3 Threatened and Endangered Plant Species

Endangered, Threatened, and Special Concern Plant Species

There are fewer occurrences of state-listed ETSC plant species on the non-federal lands (one species on Tract 1 and two species on Tract 5) than on the federal lands (10 species), so the USFS would have fewer populations as a result of the Land Exchange Proposed Action (see Table 5.3.4-6). The three species gained in the exchange are *Carex ormostachya*, *Woodsia scopulina*, and *Saxifraga paniculata*. Sections 4.3.4.2.5 and 4.3.4.2.9 provide a discussion of these species. There are no federally listed plant species in St. Louis, Lake, or Cook counties (USFWS 2012). Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list.

Though the 10 known state-listed ETSC plant species on the federal lands are not known to occur on the non-federal lands, the Land Exchange Proposed Action would result in an increase to the federal estate of most habitats important to them. The Land Exchange Proposed Action would result in additional grassland habitat, which *Botrychium campestre* and *Botrychium pallidum* occupy. The Land Exchange Proposed Action would also result in an increase to the federal estate of upland deciduous and mixed forest habitats, used by *Botrychium pallidum*, *Botrychium rugulosum*, and *Botrychium simplex*. There would be an increase to the federal estate of aquatic habitats (open water or wetlands) for *Caltha natans*, *Eleocharis nitida*, *Juncus stygius* var. *americanus*, and *Torreyochloa pallida*. According to the MIH analysis, the Land Exchange Proposed Action would result in an increase to the federal estate of lowland black spruce or tamarack habitats, which could mean more habitats for *Platanthera clavellata*, *Pyrola minor*, and *Ranunculus lapponicus*.

Table 5.3.4-6 Increase or Decrease to the Federal Estate of State-listed ETSC Plant Populations under the Land Exchange Proposed Action

Plant Species (State Status/ Global Status[1])	Federal Lands Populations		Non-federal Lands Populations		Net Species Increase/ (Decrease)
	Total Populations[2,3]	Total Individuals[3]	Total Populations[2,3]	Total Individuals[3]	
Botrychium pallidum (SC/G3)	1	2	0	NA	(1)
Botrychium rugulosum (SC/G3)	1	4	0	NA	(1)
Botrychium simplex (SC/G5)	3	905	0	NA	(1)
Caltha natans (E/G5)	1	29	0	NA	(1)
Eleocharis nitida (SC/G4)	1	~486 ft^2	0	NA	(1)
Juncus stygius var. *americanus* (SC/G5)	1	1	0	NA	(1)
Platanthera clavellata (SC/G5)	1	5	0	NA	(1)
Pyrola minor (SC/G5)	1	10	0	NA	(1)
Ranunculus lapponicus (SC/G5)	1	~919 ft^2	0	NA	(1)
Torreyochloa pallida (SC/G5)	1	~25 ft^2	0	NA	(1)
Carex ormostachya (SC/G4)	0	NA	1	>20	1
Woodsia scopulina (T/G5)	0	NA	1	2	1
Saxifraga paniculata (SC/G5)	0	NA	1	1,000	1
Total	12	NA	3	NA	(7)

Source: MDNR 2014d.

Notes:
1 The state status is E – Endangered; T – Threatened; and SC – Species of Special Concern. The global ranks range from G1 to G5. A lower global ranking (e.g., G3) indicates a species at higher global risk than higher ranking (e.g., G5) (NatureServe 2014b).
2 Populations are interpreted from MDNR NHIS data using Element Occurrence; this differs from the DEIS, which used colonies as the population estimate.
3 Data included here were provided by the Division of Ecological Resources, MDNR, and were current as of August 5, 2014. These data are not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that no significant features are present.

Regional Foresters Sensitive Species

The USFS RFSS data layer indicates there are no RFSS plants on the federal lands. However, several state-listed ETSC plant species that occur on the federal lands are also listed as RFSS plants, including *Botrychium pallidum*, *Botrychium rugulosum*, *Botrychium simplex*, *Caltha natans*, *Eleocharis nitida*, *Juncus stygius* var. *americanus*, and *Pyrola minor*. The USFS would have a decrease to the federal estate in these RFSS plant species as a result of the Land Exchange Proposed Action. *Saxifraga paniculata* is a state-listed ETSC plant species that is also listed as a RFSS plant on the Tract 5 lands. The USFS would gain this RFSS plant species under the Land Exchange Proposed Action.

As with the NorthMet Project Proposed Action, the Land Exchange Proposed Action would not affect 20 RFSS plants on the Superior National Forest. In addition, the Land Exchange Proposed Action may affect individuals, but would not be likely to cause a trend to federal listing or loss of viability for the remaining 38 RFSS plants on the Superior National Forest. Please see the Biological Evaluation included in Appendix D for more information about effects to RFSS plants.

There would be the greatest increase to the federal estate in acres of lowland black spruce-tamarack forest (MIH 1; see Table 5.3.4-4) as a result of the Land Exchange Proposed Action, which means there is the highest chance to gain the RFSS plants listed under that category in Table 4.2.4-5, as long as the suitable habitats exist on the non-federal lands. There would be smaller acreage increases of both upland forest (MIH 9) and aquatic habitat (MIH 14), meaning the RFSS plants in those categories could also be gained. The largest acreage decrease to the federal estate would be upland conifer forest (MIH 5). There are no RFSS plants specifically listed under upland conifer forest (MIH 5); however, it is likely that some RFSS plants that occupy upland forest (MIH 9) habitats would also occupy upland conifer forest (MIH 5) habitats and the USFS could therefore have a decrease to the federal estate in RFSS plant species that prefer coniferous upland habitats. There would also be a gain of Rove Formation cliff microhabitats, which are important for a variety of RFSS plants in the Superior National Forest.

5.3.4.2.4 Biodiversity

Biodiversity is described in the Forest Plan as the "variety of life and its ecological processes … [as well as] ecosystems, which comprise both the communities of organisms within particular habitats, and the physical conditions under which they live" (USFS 2004b). Biodiversity is important to consider for managing natural communities in a sustainable and ecological manner. Several data sources mentioned above and in Section 4.2.4 were compared on an increase or decrease basis to the federal estate to measure or estimate the biodiversity of both the federal and non-federal lands.

The federal land contains a high level of biodiversity because the majority of the parcel has been classified for inclusion in two Sites of High Biodiversity Significance. Additionally, several different native plant communities exist on it, as do 10 state-listed ETSC plant species. Because the non-federal lands have not been fully studied yet, they contain less biodiversity classification since they lack MBS Sites of High Biodiversity Significance and native plant communities. Table 5.3.4-1 provides a summary of the various data used to estimate biodiversity.

In summary, the non-federal lands contain 116.9 acres of MBS Sites of High Biodiversity Significance in the North Shore Highlands subsection and 767.9 acres of MBS Sites of Moderate Biodiversity Significance in the Laurentian Uplands subsection. The Land Exchange Proposed Action would result in a decrease to the federal estate of 6,142.7 acres of MBS Sites of High Biodiversity Significance in the Laurentian Uplands subsection, and an increase of 116.9 acres of MBS Sites of High Biodiversity Significance in the North Shore Highlands subsection. Furthermore, the Land Exchange Proposed Action would result in an increase to the federal estate of 767.6 acres of MBS Sites of Moderate Biodiversity Significance in the Laurentian Uplands subsection. Overall, there would be a decrease to the federal estate of 6,025.8 acres of MBS Sites of High Biodiversity Significance and an increase of 767.6 acres of MBS Sites of Moderate Biodiversity Significance under the Land Exchange Proposed Action. However, several of the non-federal lands have preliminary classifications of Sites as Moderate, High, or Outstanding Biodiversity Significance, which, if approved by the MDNR MBS program, would help balance the exchange.

Native plant community rankings are largely unavailable for the non-federal lands, with the exception of Lake County South, which has one site ranked as "vulnerable" and others ranked as "apparently secure." Section 4.3.4.2.6 provides further discussion of native plant community types on the Lake County South parcel. The Land Exchange Proposed Action would result in a

decrease to the federal estate of three native plant communities on the federal lands that are ranked as "imperiled" to "vulnerable" in the state. A native plant community increase or decrease comparison cannot be accurately made since rankings are unavailable for much of the non-federal lands.

Endangered, Threatened, and Special Concern Plant Species

As previously stated, the federal lands support 10 known state-listed ETSC plant species, while the non-federal lands currently support three known state-listed ETSC plant species. This would be a decrease to the federal estate in known state-listed species as a result of the Land Exchange Proposed Action.

5.3.4.3 Land Exchange Alternative B

5.3.4.3.1 Cover Types

The effects of Land Exchange Alternative B would be comparable to those from the Land Exchange Proposed Action, although to a lesser extent. A smaller portion of the federal lands (approximately 4,752.6 acres) would be transferred into private ownership for the non-federal Tract 1 lands (approximately 4,926.3 acres), which would be conveyed into USFS ownership. Under this alternative, the USFS would retain a smaller federal parcel located on the northwestern and western sides of the current federal lands, which would create additional linear boundaries for the USFS to maintain (see Section 5.3.1).

Habitat Types

This alternative would result in an overall increase to the federal estate of 173.6 acres of MDNR GAP land cover types. As under the Land Exchange Proposed Action, the greatest increase to the federal estate would be shrubland acreage (1,227.7 acres), and upland conifer forest would have the greatest acreage decrease (928.8 acres), as shown in Table 5.3.4-7 below.

Table 5.3.4-7 Net Increase or Decrease to the Federal Estate of MDNR GAP Land Cover Types under Land Exchange Alternative B

Cover Types	Alternative B: Smaller Federal Parcel Acres	Tract 1 Acres [1]	Net Increase/ (Decrease) Acres
Shrubland	436.9	1,664.6	1,227.7
Aquatic environments	26.3	251.1	224.8
Upland deciduous forest	804.7	999.9	195.2
Cropland/grassland	2.2	31.7	29.5
Lowland deciduous forest	4.7	17.4	12.7
Upland conifer-deciduous mixed forest	17.8	0.0	(17.8)
Disturbed	29.1	0.0	(29.1)
Lowland coniferous forest	2,064.8	1,524.2	(540.6)
Upland coniferous forest	1,366.1	437.3	(928.8)
Total [2]	4,752.6	4,926.2	173.6

Source: MDNR 2006b.

Notes:
[1] According to Tract 1 land cover type table (see Table 4.3.4-11).
[2] Total acres may be more or less than presented due to rounding.

Culturally Important Plants

As with the Land Exchange Proposed Action, Land Exchange Alternative B would result in additional wild rice beds on the federal estate from the acquisition of Tract 1, but would not result in a change in harvesting opportunities for the public. Section 5.3.4.2 provides additional information on wild rice.

As with the Land Exchange Proposed Action, see Section 4.2.9.3.3 for a discussion of natural resources culturally important to the Bands.

Minnesota Biological Survey

Land Exchange Alternative B would result in a decrease to the federal estate of 4,573.1 acres of MBS Sites of High Biodiversity Significance and a decrease of 0.3 acre of MBS Sites of Moderate Biodiversity Significance within the Laurentian Uplands subsection (see Table 5.3.4-1). Portions of the west end of One Hundred Mile Swamp would remain in federal ownership. Furthermore, Land Exchange Alternative B would result in removal from the Superior National Forest of three native plant communities that are ranked as “imperiled” to “vulnerable” in the state. As previously discussed, Tract 1 does not contain any MBS Sites of Biodiversity Significance or native plant communities, so, unlike the Land Exchange Proposed Action, the federal estate would not have an increase of either MBS sites or native plant communities under this alternative.

Management Areas

Lands included as part of Land Exchange Alternative B are currently managed under the General Forest – Longer Rotation Management Area (93 percent) and the General Forest Management Area (7 percent) (see Table 5.3.4-8). The majority of Tract 1 (94 percent) would be allocated to the General Forest Management Area upon completion of Land Exchange Alternative B, and the

remaining area would be managed under the cRNA Management Area (6 percent). Land Exchange Alternative B would be comparable to the Land Exchange Proposed Action in that cRNA lands would be increased on the federal estate, but Riparian Areas would not be. Section 5.3.1 describes the management areas in detail.

Table 5.3.4-8 Net Increase or Decrease to the Federal Estate of Management Areas under Land Exchange Alternative B

	Alternative B: Smaller Federal Parcel		Tract 1		Net Increase/ (Decrease)
Category	**Acres**	**%**	**Acres**	**%**	**Acres**
General Forest	355.3	7	4,619.3	94	4,264.0
General Forest - Longer Rotation	4,397.3	93	0.0	0	(4,397.3)
Potential/candidate Research Natural Areas	0.0	0	306.9	6	306.9
Riparian Areas	0.0	0	0.0	0	0

Source: USFS 2011j.

Ecological Land Types

Land Exchange Alternative B would result in a decrease to the federal estate of five ELTs, including ELT 1, 2, 6, 13, and 16, which are currently located on the proposed smaller federal parcel. The ELTs are unavailable for Tract 1, and so a comparison cannot be made.

Management Indicator Habitats

Land Exchange Alternative B would result in an increase to the federal estate in upland forest (MIH 1; 1,411.8 acres) and aquatic habitat (MIH 14; 206.2 acres); however, there would be a decrease of upland conifer forest (MIH 5; 1,084.6 acres) and lowland black spruce-tamarack forest (MIH 9; 261.1 acres) (see Table 5.3.4-9). Though not considered MIH types, there would be a decrease to the federal estate of lowland shrubland habitat (272.1 acres) and an increase of lowland emergent wetlands (249.6 acres). Similar to the Land Exchange Proposed Action, the aquatic habitat (MIH 14) type is not fully mapped on lands that are part of Land Exchange Alternative B, resulting in an apparent increase to the federal estate in this category; however, this habitat type does occur on these lands.

There would be a large increase to the federal estate of immature forest stands (1,933.9 acres) with lesser amounts of young stands (262.7 acres), corresponding to a decrease of mature forest stands (2,114.5 acres). Land Exchange Alternative B would not result in a change to the federal estate of large patches (stands over 300 acres) of mature upland forest, as none exist on the Alternative B: Smaller Federal Parcel lands (USFS 2012c) and patch data does not exist for the Tract 1 lands.

Table 5.3.4-9 Net Increase or Decrease to the Federal Estate of MIH Types and Age Classes under Land Exchange Alternative B

Category	Alternative B: Smaller Federal Parcel Acres[2]	Tract 1 Acres[1,2]	Net Increase/ (Decrease) Acres
MIH Types			
MIH 1 (Upland Forest)	954.2	2,366.0	1,411.8
MIH 5 (Upland Conifer Forest)	1,138.8	54.2	(1,084.6)
MIH 9 (Lowland Black Spruce-tamarack Forest)	2,078.7	1,817.6	(261.1)
MIH 14 (Aquatic Habitats)	0.0	206.2	206.2
Lowland Shrubland	385.4	113.3	(272.1)
Lowland Emergent	115.4	365.0	249.6
Upland Grass	0.0	0.0	0.0
Age Classes			
Young	271.1	533.8	262.7
Immature	1,325.9	3,259.8	1,933.9
Mature	2,574.7	460.2	(2,114.5)

Source: USFS 2010b.

Notes:
[1] According to Tract 1 lands MIH table (see Table 4.3.4-3).
[2] Total acres may be more or less than presented due to rounding.

Landscape Ecosystems

Land Exchange Alternative B would result in a decrease to the federal estate of 1,411.6 acres of the Jack Pine-Black Spruce landscape ecosystem (0.46 percent decrease), but result in an increase of 486.2 acres of the Lowland Conifer landscape ecosystem (0.04 percent increase). Furthermore, there would be an increase in representation in the Dry-Mesic Red and White Pine landscape ecosystem (589.2 acres; 0.10 percent increase), Mesic Red and White Pine landscape ecosystem (528.0 acres; 0.69 percent increase), and the Mesic Birch-Aspen-Spruce-Fir landscape ecosystem (0.9 acres; less than 0.01 percent increase), and an overall increase to the federal estate of 192.7 acres.

Similar to the Land Exchange Proposed Action, Land Exchange Alternative B would result in an increase to the federal estate in acreage of MIH types and age classes within various landscape ecosystems, and a decrease in acreage in others (see Table 5.3.4-10). The greatest percentage increase to the federal estate in MIH acreage within a landscape ecosystem is upland forest (MIH 1) in the Lowland Conifer and Dry-Mesic Red and White Pine landscape ecosystems, while the greatest decrease is upland conifer forest (MIH 5) in the Jack Pine-Black Spruce landscape ecosystem. The largest percentage increase to the federal estate in age class acreage within a landscape ecosystem is the immature age class in the Lowland Conifer landscape ecosystem, while the largest decrease is in the immature age class in the Jack Pine-Black Spruce landscape ecosystem and the mature age classes within the Jack Pine-Black Spruce and Lowland Conifer landscape ecosystems. Overall, the Dry-Mesic Red and White Pine landscape ecosystem would have the highest acreage increase to the federal estate of MIH types and age classes and the Jack Pine-Black Spruce landscape ecosystem would have the highest acreage decrease of MIH types and age classes.

Table 5.3.4-10 Net Increase or Decrease to the Federal Estate of MIH Types and Age Classes within Landscape Ecosystems in the Superior National Forest under Land Exchange Alternative B

Landscape Ecosystem Name			Dry-Mesic Red and White Pine	Jack Pine-Black Spruce	Lowland Conifer	Lowland Hardwood	Mesic Birch-Aspen-Spruce-Fir	Mesic Red and White Pine	Sugar Maple
Category			**Net Increase/(Decrease)**						
MIH Types	MIH 1	Acres [1]	437.8	(1,007.1)	340.3	0.0	0.9	501.1	0.0
		% [2]	2	(3)	2	0	0	1	0
	MIH 5	Acres [1]	6.0	(998.2)	(100.1)	0.0	0.0	7.7	0.0
		% [2]	0	(7)	(2)	0	0	0	0
	MIH 9	Acres [1]	26.2	(290.9)	(10.5)	0.0	0.0	13.9	0.0
		% [2]	1	(6)	0	0	0	0	0
	MIH 14	Acres [1]	114.2	2.2	89.6	0.0	0.0	0.2	0.0
		% [2,3]	NA	NA	NA	NA	NA	NA	NA
Lowland Shrub		Acres [1]	0.0	(66.4)	(207.3)	0.0	0.0	0.1	0.0
		% [2]	0	(3)	(1)	0	0	0	0
Lowland Emergent		Acres [1]	5.0	(23.5)	265.7	0.0	0.0	2.4	0.0
		% [2]	1	(3)	4	0	0	0	0
Upland Grass		Acres [1]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		% [2]	0	0	0	0	0	0	0
Age Classes	Young	Acres [1]	229.4	(21.5)	45.5	0.0	0.0	9.3	0.0
		% [2]	14	(1)	4	0	0	0	0
	Immature	Acres [1]	148.5	(528.7)	2,014.3	0.0	0.9	298.9	0.0
		% [2]	1	(3)	26	0	0	1	0
	Mature	Acres [1]	92.1	(726.1)	(1,709.8)	0.0	0.0	217.1	0.0
		% [2]	1	(3)	(3)	0	0	1	0

Source: USFS 2010b; USFS 2011g.

Notes:
[1] Total acres may be more or less than presented due to rounding.
[2] Percentage of acres increased or decreased on the federal estate within the entire landscape ecosystem.
[3] MIH 14 is not tracked on the federal lands; thus, percentage is NA.

5.3.4.3.2 Invasive Non-native Plants

Land Exchange Alternative B would result in a reduction of occurrences of invasive non-native species on the smaller federal parcel, but in an increase to the federal estate of similar occurrences of invasive non-native species on Tract 1, including common tansy, orange hawkweed, and ox-eye daisy.

5.3.4.3.3 Threatened and Endangered Plant Species

Endangered, Threatened, and Special Concern Plant Species

Under Land Exchange Alternative B, a smaller portion of the federal lands would be exchanged for Tract 1. The same 10 ETSC plant species would be exchanged as for the Land Exchange Proposed Action, but fewer colonies would be exchanged. There is one known state-listed ETSC

plant species located on Tract 1 (*Carex ormostachya*). Overall, 12 populations of 10 different species on the smaller federal parcel would be exchanged for one population of one species on Tract 1 (see Table 5.3.4-11). Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list.

Table 5.3.4-11 Increase or Decrease to the Federal Estate of State-listed ETSC Plant Populations under Land Exchange Alternative B

	Alternative B: Smaller Federal Parcel Populations		Tract 1 Populations		Net Species Increase/ (Decrease)
Plant Species (State Status/ Global Status[1])	**Total Populations[2,3]**	**Total Individuals[3, 4]**	**Total Populations[2,3]**	**Total Individuals[3]**	
Botrychium pallidum (SC/G3)	1	2	0	NA	(1)
Botrychium rugulosum (SC/G3)	1	4	0	NA	(1)
Botrychium simplex (SC/G5)	3	905	0	NA	(1)
Caltha natans (E/G5)	1	29	0	NA	(1)
Eleocharis nitida (SC/G4)	1	~486 ft^2	0	NA	(1)
Juncus stygius var. *americanus* (SC/G5)	1	1	0	NA	(1)
Platanthera clavellata (SC/G5)	1	3	0	NA	(1)
Pyrola minor (SC/G5)	1	10	0	NA	(1)
Ranunculus lapponicus (SC/G5)	1	~919 ft^2	0	NA	(1)
Torreyochloa pallida (SC/G5)	1	~25 ft^2	0	NA	(1)
Carex ormostachya (SC/G4)	0	NA	1	>20	1
Total	12	NA	1	NA	(9)

Source: MDNR 2014d.

Notes:

[1] The state status is E – Endangered; T – Threatened; and SC – Species of Special Concern. The global ranks range from G1 to G5. A lower global ranking (e.g., G3) indicates a species at higher global risk than higher ranking (e.g., G5) (NatureServe 2014b).

[2] Populations are interpreted from MDNR NHIS data using Element Occurrence; this differs from the DEIS, which used colonies as the population estimate.

[3] Data included here were provided by the Division of Ecological Resources, MDNR, and were current as of August 5, 2014. . These data are not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that no significant features are present. NA = Not Applicable.

[4] Where the number of individuals could not be determined without damaging the population, then patch size was used as a representative abundance measure.

Regional Foresters Sensitive Species

The USFS RFSS data layer indicates there are no RFSS plants on the federal lands, which includes the smaller federal parcel. However, several state-listed ETSC plant species occur on the smaller federal parcel that are also RFSS plants, including *Botrychium pallidum*, *Botrychium rugulosum*, *Botrychium simplex*, *Caltha natans*, *Eleocharis nitida*, *Juncus stygius* var. *americanus*, and *Pyrola minor*.

As with the Land Exchange Proposed Action, the Land Exchange Alternative B would not affect 20 RFSS plants on the Superior National Forest. In addition, the Land Exchange Alternative B may affect individuals, but would not be likely to cause a trend to federal listing or loss of

viability for the remaining 38 RFSS plants on the Superior National Forest. Please see the Biological Evaluation included in Appendix D for more information about effects to RFSS plants.

There would be an increase to the federal estate in acres of upland forest (MIH 1) and aquatic habitat (MIH 14) as a result of Land Exchange Alternative B (see Table 5.3.4-9), which means there would be the greatest opportunity to gain the RFSS plants listed under those categories in Table 4.2.4-5. There would be a decrease to the federal estate in acreage of upland conifer forest (MIH 5) and lowland black spruce-tamarack forest (MIH 9), which means the RFSS plant species that prefer these habitat types and have suitable microhabitats may also be decreased on National Forest System lands.

5.3.4.3.4 Biodiversity

The smaller federal parcel contains a high level of biodiversity because the majority of the parcel has been classified for inclusion in two MBS Sites of High Biodiversity Significance. Additionally, several different native plant communities exist on it, as well as 10 state-listed ETSC plant species. Because Tract 1 has not been fully studied, it is assumed to contain less biodiversity because it lacks MBS Sites of High Biodiversity Significance and native plant communities. However, inclusion of the preliminary Site of Outstanding Biodiversity Significance on Tract 1 would balance the exchange, if not make it more biodiverse than the smaller federal parcel. Table 5.3.4-1 provides a summary of the various data used to estimate biodiversity.

Land Exchange Alternative B would result in a decrease to the federal estate of 4,573.1 acres of MBS Sites of High Biodiversity Significance and a decrease of 0.3 acres of MBS Sites of Moderate Biodiversity Significance within the Laurentian Uplands subsection (see Table 5.3.4-1). Portions of the west end of One Hundred Mile Swamp would remain in federal ownership.

Furthermore, Land Exchange Alternative B would result in removal from the Superior National Forest of three native plant community sites that are ranked as “imperiled” to “vulnerable” in the state. As previously discussed, Tract 1 does not contain any MBS Sites of Biodiversity Significance or native plant communities, so, unlike the Land Exchange Proposed Action, the federal estate would not have an increase of either MBS Sites or native plant communities under this alternative.

5.3.4.4 Land Exchange No Action Alternative

Under the Land Exchange No Action Alternative, the Superior National Forest would have an ongoing responsibility for managing vegetation resources on the federal lands in accordance with the Forest Plan. The Land Exchange No Action Alternative would not change the USFS’s responsibility for managing vegetation resources and would result in no further effects on existing vegetation.

5.3.4.4.1 Cover Types

Under the Land Exchange No Action Alternative, the current federal lands would remain in federal ownership and the lands would continue to be managed under the General Forest – Longer Rotation Management Area and the General Forest Management Area. Direct and

indirect effects of the Land Exchange No Action Alternative on cover types would be unchanged, as the management of these forests has occurred on site in the past. None of the federal lands currently have any vegetation management actions planned in the near future, regardless of whether the Land Exchange Proposed Action were to occur.

5.3.4.4.2 Invasive Non-native Plants

Non-native species may still invade the federal lands as a result of logging, mineral exploration, vehicle traffic, and natural disturbances, but are likely to do so much more slowly than they would under the Land Exchange Proposed Action. The proximity of the federal lands to the already-disturbed Plant Site may put the federal lands at risk of eventual colonization by invasive non-native species.

5.3.4.4.3 Threatened and Endangered Plant Species

Under the Land Exchange No Action Alternative, timber harvests are expected to continue to occur on the federal lands, though there are not any planned in the near future. Effects on ETSC plant species and RFSS plants, for different management techniques, are addressed in the Forest Plan (USFS 2004b). As discussed in the Biological Evaluation, the Land Exchange No Action Alternative would not have effects on RFSS species.

5.3.4.4.4 Biodiversity

The Land Exchange No Action Alternative would not result in any change to biodiversity on the federal lands.

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5.3.5 Wildlife

This section describes the environmental consequences of the Land Exchange to wildlife on the federal and non-federal lands. Effects from the change in federal ownership could be either beneficial or adverse, based on the change in species occurrences, habitat, and habitat connectivity on land that is under direct federal control. Effects due to the NorthMet Project Proposed Action are discussed in Section 5.2.5.

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). This FEIS considers any new listings, or changes in the previous listings, associated with the updated list.

A Biological Assessment that provides further information on federally listed species, and a Biological Evaluation that contains further information about RFSS have been prepared. The Biological Assessment and Biological Evaluation are included in Appendix D. The Biological Assessment analyzes impacts to the Canada lynx, gray wolf, and northern long-eared bat. Land Exchange alternatives were analyzed in the Biological Assessment for the NorthMet Mining Project and Land Exchange. The organization of the methodologies and discussion in the Biological Assessment and Biological Evaluation may be different from the FEIS. Both documents also contain determinations of effect for the species discussed.

The Land Exchange Proposed Action would have mixed effects for the Canada lynx. It would result in an increase in suitable habitat for lynx and for snowshoe hare (prey species) on the federal estate (although the amount of unsuitable lynx habitat would also increase). It would also result in a decrease of denning habitat and a decrease to the federal estate within designated LAUs. Critical lynx habitat would not change regardless of ownership.

The Land Exchange Proposed Action would result in an increase in the number of occurrences and forage habitat availability for the gray wolf within the federal estate, but would result in a decrease in cover habitat. The Land Exchange Proposed Action would result in a net decrease of potential northern long-eared bat roosting habitat but an increase in foraging habitat within the federal estate.

Overall, the Land Exchange Proposed Action would result in an increase (to the federal estate) of the number of occurrences and habitat availability for two state-listed species of special concern, which include the Laurentian tiger beetle and the trumpeter swan (see Table 5.3.5-1). The Land Exchange Proposed Action is not expected to result in changes to the three additional state-listed and special concern species, which include the wood turtle, the eastern heather vole, and the yellow rail.

Under the Land Exchange Proposed Action, one additional state-listed species and 22 additional SGCN would be affected due to their presence on the federally held lands. The Land Exchange Proposed Action would result in an increase of up to 579.6 acres of habitat within the federal state in the Superior National Forest. While forested habitat would be decreased, shrubland/grassland and aquatic habitats would be increased as part of the Land Exchange Proposed Action. Under the Land Exchange Proposed Action, lands to be acquired would be managed by the USFS in accordance with the current Forest Plan. No activities are planned on these lands.

Under the Land Exchange Alternative B, one additional state-listed species but one less SGCN would be affected because they occur within the federal estate. Forest habitat under federal ownership would also decrease, though by a smaller amount than under the Land Exchange Proposed Action. Similarly, the Land Exchange Alternative B would result in an increase of 173.6 acres of habitat to the federal estate, with a distribution of habitat similar to the Land Exchange Proposed Action. As with the Land Exchange Proposed Action, lands acquired under the Land Exchange Alternative B would be managed by the USFS in accordance with the current Forest Plan. There are no activities planned on these lands.

As discussed in the Biological Evaluation, the USFS determined that the Land Exchange Proposed Action and Land Exchange Alternative B may affect individuals but are not likely to cause a trend to federal listing or loss of viability for 18 RFSS terrestrial wildlife species on the Superior National Forest.

Under the Land Exchange No Action Alternative, no action would be taken. No lands would be exchanged and no changes in wildlife species on the federal estate would be anticipated. As discussed in the Biological Evaluation, the Land Exchange No Action Alternative would have no effect on RFSS species.

Table 5.3.5-1 Increase or Decrease of Special Status Wildlife Species on the Federal Estate Resulting from the Land Exchange Proposed Action and Alternatives

	Increase or (Decrease) of Special Status Wildlife Species			
Alternative	**Federally Listed Species**	**State-listed Species**	**Regional Forester Sensitive Species**	**Species of Greatest Conservation Need**
Land Exchange Proposed Action	0	2	0	22
Land Exchange Alternative B	0	2	0	(1)
Land Exchange No Action Alternative	0	0	0	0

Table 5.3.5-2 Increase or Decrease of Key Habitat Types on the Federal Estate Resulting from the Land Exchange Proposed Action and Alternatives

	Increase or (Decrease) of Acres[1] of Key Habitat Types				
Alternative	**Mature Upland Forest, Continuous Upland/Lowland Forest (MIH1-13)**	**Open Ground, Bare Soils (no MIH)**	**Grassland and Brushland, Early Successional Forest (no MIH)**	**Aquatic Environments (MIH 14)**	**Total Net Increase or (Decrease)**
Land Exchange Proposed Action	(787.9)	(63.8)	1,224.9	206.5	579.6
Land Exchange Alternative B	(1,279.3)	(29.1)	1,257.2	224.8	173.6
Land Exchange No Action Alternative	0	0	0	0	0

Source: Tables 5.3.4-2 and 5.3.4-7.

Note:
[1] Total acres may be more or less than presented due to rounding.

5.3.5.1 Methodology and Evaluation Criteria

Evaluation was conducted to determine the potential effect that the Land Exchange Proposed Action would have on wildlife on the federal estate species from the following:

- A change in federal and state-listed ETSC, SGCN, RFSS, and other wildlife species; and
- A change in habitat availability, prey species habitat availability, habitat connectivity, and adjacent land use.

Analysis of wildlife species affected by the Land Exchange Proposed Action was guided by evaluation criteria that were developed by the USFS and other Co-lead Agencies, which included a comparison of the vegetation land cover and habitat types, forest age classes (young, immature, and mature), large mature forest patches, road and trail densities, federal and state-listed ETSC, SGCN, RFSS, and other wildlife species. GIS data and field observations for these categories were gathered to the extent possible and then compared over an area of analysis that included the federal and non-federal lands and LAU.

5.3.5.2 Land Exchange Proposed Action

5.3.5.2.1 Federally Listed Species

Canada Lynx

The federal lands of the Land Exchange Proposed Action include lynx habitat and habitat for lynx prey species. Lynx habitat includes a wide variety of upland and lowland habitats and forest types/ages, shrubland, and grasslands, but excludes aquatic environments and disturbed areas. Preferred denning habitat is typically found in mature forest and is generally more dependent on forest age classes, with trees older than saplings and with a dbh greater than 5 inches (immature and mature age classes; see Table 4.3.4-3). Snowshoe hare are the primary prey species for the

Canada lynx, and hare habitat includes all types and age classes of forest and shrubland, but not aquatic environments, disturbed areas, or grassland/croplands (see Table 5.3.5-3).

Table 5.3.5-3 Increase or Decrease in Suitable Habitat Types for Canada Lynx and Prey Species on the Federal Estate Resulting from the Land Exchange Proposed Action and Alternatives

Parcel	General Suitable Lynx Habitat (Acres[1])	Suitable Denning Habitat (Acres[1])	Suitable Snowshoe Hare Forage Habitat (Acres[1])	Unsuitable Lynx Habitat (Acres[1])
Land Exchange Proposed Action				
Federal Lands	6,371.5	5,393.4	6,365.3	123.9
Non-Federal Lands Total	6,808.4	5,364.3	6,776.7	250.8
Tract 1 – Hay Lake	4,675.1	3,720.0	4,643.4	251.1
Tract 2 – Lake County North	263.3	219.5	263.3	1.8
Tract 2 – Lake County South	112.8	48.4	112.8	4.0
Tract 3 – Wolf Lands 1	125.9	113.9	125.9	0.0
Tract 3 – Wolf Lands 2	767.9	683.8	767.9	0.0
Tract 3 – Wolf Lands 3	277.4	96.7	277.4	0.0
Tract 3 – Wolf Lands 4	404.7	359.7	404.7	0.0
Tract 4 – Hunting Club	150.7	92.2	150.7	9.6
Tract 5 – McFarland Lake	30.6	30.1	30.6	0.2
Net Increase/(Decrease)	436.9	(29.1)	411.4	126.9
Land Exchange Alternative B				
Smaller Federal Parcel	4,697.2	3,912.9	4,695.0	55.4
Tract 1 – Hay Lake	4,675.1	3,720.0	4,643.4	251.1
Net Increase/(Decrease)	(22.1)	(192.9)	(51.6)	195.7

Source: Tables 5.2.5-5, 4.3.4-3, and 4.3.4-8.

Note:
[1] Total acres may be more or less than presented due to rounding.

As shown in Table 5.3.5-3, the federal lands of the Land Exchange Proposed Action include 6,371.5 acres of suitable general habitat for lynx. The non-federal lands include a total of 6,808.4 acres of potentially suitable habitat, which is an increase of 436.9 acres. Aquatic environments and disturbed areas are considered unsuitable habitat, along with lowlands with dead trees (though this habitat was not specifically called out in habitat/cover data). The Land Exchange Proposed Action would also result in an increase to the federal estate of 411.4 acres of hare habitat. However, the Land Exchange Proposed Action would result in a decrease to the federal estate of 29.1 acres of denning habitat and an increase of 126.9 acres of unsuitable lynx habitat.

Lynx may utilize snow packed trails and roads as travel corridors as they are energetically easier to navigate, but they do not rely strictly on them. The federal lands do not contain any established snow packed trails (such as snowmobile trails) but are crossed by 6.9 miles of road surface. The non-federal lands are crossed by 0.03 mile of snow packed trail (snowmobile trail) and 2.2 miles of roads. The Land Exchange Proposed Action would result in a decrease to the federal estate of 4.7 miles of road and an increase to the federal estate of 0.03 mile of snow packed trails available for lynx use (see Table 5.3.5-4).

Table 5.3.5-4 Increase or Decrease of Lynx Travel Corridors on the Federal Estate Resulting from the Land Exchange Proposed Action and Alternatives

Travel Corridor Type	Established Snow Pack Trails (Miles)	Established Roads (Miles)
Land Exchange Proposed Action		
Federal Lands	0.0	6.9
Non-Federal Lands Total	0.03	2.2
Tract 1 – Hay Lake	0.0	2.2
Tract 2 – Lake County North	0.0	0.0
Tract 2 – Lake County South	0.0	0.0
Tract 3 – Wolf Lands 1	0.0	0.0
Tract 3 – Wolf Lands 2	0.0	0.0
Tract 3 – Wolf Lands 3	0.03	0.0
Tract 3 – Wolf Lands 4	0.0	0.0
Tract 4 – Hunting Club	0.0	0.0
Tract 5 – McFarland Lake	0.0	0.0
Net Increase/(Decrease)	0.03	(4.7)
Land Exchange Alternative B		
Smaller Federal Parcel	0.0	6.9
Tract 1 – Hay Lake	0.0	2.2
Net Increase/(Decrease)	0.0	(4.7)

Source: USFS 2011e.

Land ownership immediately adjacent to the federal lands is a mix of private, state, and federal. The proximity of private lands and disturbance to the north and west may limit lynx passage and utilization of habitat on the federal lands.

Overall, the land ownership patterns surrounding the non-federal lands are mixed. Federal land proximity and, thus potential habitat connectivity, is marginal on Tract 1. Connectivity on the other tracts is generally more favorable. Located in less developed areas of the Superior National Forest, these tracts are generally bordered by federal, state, or county lands and are intended to reduce fragmentation. As such, the Land Exchange Proposed Action is likely to result in generally improved habitat connectivity overall.

Because all federal and non-federal lands are located within lynx critical habitat and would remain so regardless of ownership, the Land Exchange Proposed Action would not result in a change to lynx critical habitat to the federal estate. As previously discussed, LAU were identified for purposes of analysis and development of conservation measures for lynx (USFS 2004b). The federal lands are located within LAU 12 and the non-federal lands are located in LAU 4, 16, 21, 22, and 42. Tract 1 is not located within an LAU. The USFS indicated that no development or activities are planned on the non-federal lands, which means that there would be no increase in unsuitable habitat due to the Land Exchange Proposed Action (see Table 5.3.5-5). As such, the percentage of currently unsuitable habitat in the overall LAU is not expected to change, nor would it affect the Forest Plan condition that unsuitable habitat not exceed 30 percent of the LAU (USFS 2013).

Table 5.3.5-5 Increase or Decrease in Lynx Analysis Units on the Federal Estate Resulting from the Land Exchange Proposed Action and Alternatives

Parcel	Lynx Analysis Unit	Total Acres[1] of Proposed Land Exchange Federal/Non-Federal Land Within LAU	Overall Lynx Analysis Unit Acreage[1]	Current Percentage (%) of LAU Unsuitable (Determined by USFS)
Land Exchange Proposed Action				
Federal Parcel	12	6,495.4	70,980.5	4.0
Non-Federal Lands Subtotal		2,149.7		
Tract 1 – Hay Lake	No LAU	NA	NA	NA
Tract 2 – Lake County North	16	265.2	76,108.3	4.4
Tract 2 – Lake County South	22	116.9	58,154.2	1.6
Tract 3 – Wolf Lands 1	16	126.0	76,108.3	4.4
Tract 3 – Wolf Lands 2	21	768.0	73,265.8	4.2
Tract 3 – Wolf Lands 3	21	277.5	73,265.8	4.2
Tract 3 – Wolf Lands 4	21	404.8	73,265.8	4.2
Tract 4 – Hunting Club	4	160.4	55,071.4	4.9
Tract 5 – McFarland Lake	42	30.9	32,305.4	1.9
Net Increase/(Decrease)		(4,345.7)		
Land Exchange Alternative B				
Smaller Federal Parcel	12	4,752.7		
Tract 1 – Hay Lake	No LAU	NA	NA	NA
Net Increase/(Decrease)		(4,752.7)		

Source: Superior National Forest Monitoring and Evaluation Report (USFS 2009a)

Note:
[1] Total acres may be more or less than presented due to rounding.

The Land Exchange Proposed Action would have mixed effects for the Canada lynx. It would result in an increase to the federal estate of overall suitable habitat for lynx and for snowshoe hare (prey species) to the federal estate (although the amount of unsuitable lynx habitat would also increase). It would also result in a decrease to the federal estate of denning habitat and a decrease of federal lands within designated LAU. Critical lynx habitat would not change regardless of ownership. Effects on the Canada lynx and its critical habitat are described in more detail in the Biological Assessment.

Gray Wolf

The federal lands are likely part of a territory occupied by a single pack of wolves. The federal lands are dominated by trees that range in age from immature to mature, which is adequate cover habitat for wolves. Approximately 271 acres of young forest are present for forage opportunities on the federal lands and 778 acres are present on the non-federal lands (see Table 4.3.4-3). There are 5,393.4 acres of cover habitat on the federal lands and 5,364.3 acres on the non-federal lands (see Table 5.3.5-6). Gray wolves or their sign were observed on Tracts 1, 2, 3, and 5.

Table 5.3.5-6 Increase or Decrease in Gray Wolf Habitat on the Federal Estate Resulting from the Land Exchange Proposed Action and Alternatives

Parcel	Forage Habitat (Acres)	Cover Habitat (Acres[1])
Land Exchange Proposed Action		
Federal Lands	271.1	5,393.4
Non-Federal Lands Total	778.2	5,364.3
Tract 1 – Hay Lake	533.8	3,720.0
Tract 2 – Lake County North	24.4	219.5
Tract 2 – Lake County South	43.3	48.4
Tract 3 – Wolf Lands 1	2.2	113.9
Tract 3 – Wolf Lands 2	7.6	683.8
Tract 3 – Wolf Lands 3	130.4	93.7
Tract 3 – Wolf Lands 4	9.5	359.7
Tract 4 – Hunting Club	27.0	92.2
Tract 5 – McFarland Lake	0.0	30.1
Net Increase/(Decrease)	507.1	(29.1)
Land Exchange Alternative B		
Smaller Federal Parcel	271.1	3,912.9
Tract 1 – Hay Lake	533.8	3,720.0
Net Increase/(Decrease)	262.7	(192.9)

The amount of cover habitat is similar between the federal and non-federal lands, but the non-federal lands include more potential forage habitat; therefore, the Land Exchange Proposed Action would result in a very small decrease (29.1 acres) to the federal estate of cover habitat but an increase to the federal estate of forage habitat (507.1) for the gray wolf. Overall, the Land Exchange Proposed Action would result in an increase (to the federal estate) of the number of occurrences and habitat availability for the gray wolf.

Northern Long-Eared Bat

Potential summer roosting and foraging habitat for the northern long-eared bat is present and individuals have been observed on the federal lands, though no hibernacula have been observed. Similarly, both forage and potential summer roosting habitat is present on the non-federal lands, though no hibernacula have been observed. Bats were observed, though not identified to species, on Tract 1 during field studies in 2009. The Land Exchange Proposed Action would result in a net decrease of mature forest habitat to the federal estate, but an increase in grassland/ brushland, which constitutes a decrease in potential bat roosting habitat but increase in foraging habitat within the federal estate. Effects on the northern long-eared bat are described in more detail in the Biological Assessment and Biological Evaluation.

5.3.5.2.2 State-listed Species

Moose

There is habitat present on the federal lands for the moose, and individuals and their sign have been observed during surveys. Similarly, there is habitat present, and moose individuals or their sign have been observed on Tracts 1, 2, and 3. The Land Exchange Proposed Action would result in a decrease of mature mixed forest types on the federal estate, but an increase in moose preferred habitats, including early successional forests, brushland, and aquatic environments. As

moose or their sign have been observed on both the federal and non-federal lands, there would be neither an increase nor decrease in occurrences to the federal estate.

Little Brown Bat

Habitat for the little brown bat is present and individuals have been observed on the federal lands, though no hibernacula have been observed. Similarly, both forage and potential summer roosting habitat may be present on the non-federal lands, though no hibernacula have been observed. Bats were observed, though not identified to species, on Tract 1 during field studies in 2009. The Land Exchange Proposed Action would result in a net decrease of mature forest habitat to the federal estate, but an increase in grassland/ brushland, which constitutes a decrease in potential bat roosting habitat but increase in foraging habitat within the federal estate.

Eastern Pipistrelle

Habitat for the eastern pipistrelle is present on the federal lands, but no hibernacula or individuals have been observed. Similarly, both forage and potential summer roosting habitat may be present on the non-federal lands, though no hibernacula have been observed. Bats were observed, though not identified to species, on Tract 1 during field studies in 2009. The Land Exchange Proposed Action would result in a net decrease of mature forest habitat to the federal estate, but an increase in grassland/ brushland, which constitutes a decrease in potential bat roosting habitat but increase in foraging habitat within the federal estate.

Northern Goshawk

The northern goshawk may be occasionally present since northern goshawk nests have been observed on the federal parcel. Northern goshawk individuals and nests have also been identified on Tract 1 since 2010, and an active northern goshawk territory (Pike Mountain 2 territory) has been identified and is being monitored by the MDNR. According to the MDNR NHIS database, there have also been northern goshawk observations within 10 miles of the non-federal lands (Tract 1, Tract 3, and Tract 4). More forested habitat for the species is present on the federal lands than the non-federal lands (see Table 5.3.5-2). As such, the Land Exchange Proposed Action would result in a decrease of forested habitat available for the northern goshawk on the federal estate.

Boreal Owl

Mature coniferous and deciduous forests are available as potential habitat for the boreal owl on the federal lands and non-federal lands. However, there would be a decrease of these forests to the federal estate under the Land Exchange Proposed Action (see Table 5.3.5-2). No boreal owls are known to occur on the non-federal lands, and one boreal owl was observed near the federal lands in 1988 to 1989. According to the MDNR NHIS database, there have been boreal owl observations within 10 miles of the non-federal lands (Tract 2, Tract 3, and Tract 5). It is unlikely boreal owls use either the federal or non-federal lands often.

Wood Turtle

The only known population of wood turtles near the federal lands is downstream from the Mine Site, along the southern border of the federal lands. Though there is no known suitable habitat for wood turtles on the federal lands and no individuals are known to occur, wood turtles may use

adjacent areas to the south of the federal lands. Similarly, no wood turtles or optimal wood turtle habitat was identified on the non-federal lands. According to the MDNR NHIS database, there have been wood turtle observations within 10 miles of the non-federal lands (Tract 1, Tract 2, and Tract 3).

Given that no wood turtles or wood turtle habitat were identified on either the federal or non-federal lands, the Land Exchange Proposed Action would not result in an increase or decrease of individuals, populations, or suitable habitat.

Eastern Heather Vole

The eastern heather vole has not been observed during field surveys or within 10 miles of the federal lands. Approximately 2,292 acres of potentially suitable habitat (upland coniferous forest, upland mixed forest, shrubland, and cropland/grassland) exists on the federal lands (see Table 4.3.4-1), so the eastern heather vole could be present, but, if so, likely in very small numbers. The eastern heather vole was not identified on the non-federal lands by surveys or in the NHIS, but the non-federal lands contain 2,626.5 acres of habitat (see Table 4.3.4-10). According to the MDNR NHIS database, there have been eastern heather vole observations within 10 miles of the non-federal lands (Tract 3). As such, the Land Exchange Proposed Action would result in an increase to the federal estate of up to 334.9 acres of habitat.

Yellow Rail

The yellow rail was not found during surveys and was not reported in the NHIS database within 10 miles of the federal lands. As previously mentioned, small, scattered areas of its preferred habitat are present on the federal lands (35.7 acres), but not the minimum nesting patch size (54 acres) needed for the species (see Table 4.3.3-1). No yellow rails or yellow rail habitat were identified on the non-federal lands. The Land Exchange Proposed Action would not result in a net change to the species or habitat.

Laurentian Tiger Beetle

The lack of suitable habitat and any recorded observations for the Laurentian tiger beetle suggest that the species does not occur on the federal lands. However, the habitat for the Laurentian tiger beetle is present at Tract 1, in an area formerly used as a sand and gravel mine. No disturbance activities are currently planned on the non-federal lands, so this potential habitat would be preserved. According to the MDNR NHIS database, there have been Laurentian tiger beetles observed within 10 miles of the non-federal lands (Tract 4). As such, the Land Exchange Proposed Action would result in an increase of suitable habitat for this species.

Taiga Alpine

Lowland coniferous swamp is present on both the federal lands and non-federal lands, which is potential habitat for the taiga alpine. However, there would be a decrease to the federal estate of lowland coniferous swamp habitat under the Land Exchange Proposed Action. According to the MDNR NHIS database, there are no known occurrences of taiga alpine within 10 miles of the federal lands, and none were observed during surveys. There have been taiga alpine observations within 10 miles of the non-federal lands (Tract 2 and Tract 3). The Land Exchange Proposed Action would result in a decrease in potential habitat for the species but unlikely result in a change in species occurrences.

Freija's Grizzled Skipper

Grassland and shrubland is present on both the federal lands and non-federal lands, which is potential habitat for the Freija's grizzled skipper. There would be an increase to the federal estate of grassland and shrubland habitats under the Land Exchange Proposed Action. According to the MDNR NHIS database, there are no known occurrences of Freija's grizzled skipper within 10 miles of the federal lands, and none were observed during surveys. There have been Freija's grizzled skipper observations within 10 miles of the non-federal lands (Tract 2 and Tract 3). The Land Exchange Proposed Action would result in an increase in potential habitat for the species but unlikely result in a change in species occurrences.

Nabokov's Blue

Upper woodland habitat is present on both the federal lands and non-federal lands for the Nabokov's blue, though the larval host plant was not observed at either. There would be a decrease to the federal estate of upland woodland habitat under the Land Exchange Proposed Action. According to the MDNR NHIS database, there are no known occurrences within 10 miles of the federal lands, and none were observed during surveys. There have been Nabokov's blue observations within 10 miles of the non-federal lands (Tract 2, Tract 3, and Tract 5). The larval host plant, dwarf bilberry, was noted to be locally moderate to common around the observation sites. The Land Exchange Proposed Action would result in a decrease in potential habitat for the species but unlikely result in a change in species occurrences.

Quebec Emerald

The Quebec emerald dragonfly can inhabit wet meadow/sedge meadow. Approximately 36 acres of this habitat type are present on the federal lands. There has only been one documented occurrence of this species in Minnesota (Lake County in 2006), and that occurrence was not on either the federal or non-federal lands. The non-federal lands do not contain any sedge/wet meadow wetlands. The Land Exchange Proposed Action would result in a decrease of potential habitat used by this species on the federal estate.

Trumpeter Swan

Trumpeter swans were observed on Tract 1 during surveys in 2009. A pair of adults with young was seen on Little Rice Lake. The species has not been observed on the federal lands. According to the MDNR NHIS database, there have been trumpeter swan observations within 10 miles of the non-federal lands (Tract 1, Tract 2, and Tract 3). Because the species has been observed on the non-federal lands and not on the federal lands, the Land Exchange Proposed Action would result in an increase of the occurrence of this listed species within the federal estate.

5.3.5.2.3 Species of Greatest Conservation Need

Sections 4.3.5.1.1 and 4.3.5.2 discuss the SGCN in the context of their habitat. The federal lands include a wide variety of habitat types, grouped into key habitat types and MIH types (see Table 5.3.5-7).

Some acreage of some key habitat types, MIH types, and cover types within the federal estate would increase through the Land Exchange Proposed Action, while others would decrease. The key habitat types that would increase or decrease under the Land Exchange Proposed Action are

listed in Table 5.3.5-7. Species dependent on these habitat types are listed by ecological subsection in Tables 4.3.5-1 through 4.3.5-5.

Table 5.3.5-7 Increase or Decrease of Habitat Types on the Federal Estate Resulting from the Land Exchange Proposed Action

		Non-Federal Lands[1,2]					
Key Habitat Type and Management Indicator Habitat	**Federal Lands Acres**	**Tract 1 – Hay Lake Lands Acres**	**Tract 2 – Lake County Lands Acres**	**Tract 3 – Wolf Lands Acres**	**Tract 4 – Hunting Club Lands Acres**	**Tract 5 – McFarland Lake Lands Acres**	**Net Increase or (Decrease) Acres**
Mature Upland Forest, Continuous Upland/Lowland Forest (MIH1-13)	5,719.7	2,978.8	337.2	1,479.4	105.7	30.6	(788.0)
Open Ground, Bare Soils (no MIH)	63.8	0.0	0.0	0.0	0.0	0.0	(63.8)
Grassland and Brushland, Early Successional Forest (no MIH)	651.8	1,696.3	38.9	96.5	45.0	0.0	1,224.9
Aquatic Environments (MIH 14)	60.1	251.1	5.8	0.0	9.6	0.2	206.6
Total	6,495.4	4,926.2	381.9	1,575.9	160.3	30.8	579.7

Note:
[1] According to non-federal land cover type summary tables (see Tables 4.3.4-1, 4.3.4-11, 4.3.4-13-20).
[2] Total acres may be more or less than presented due to rounding.

The Land Exchange Proposed Action would result in a decrease of 788.0 acres of forest habitat and 63.8 acres of open ground/bare soil to the federal estate. In addition, the Land Exchange Proposed Action would result in an increase of 1,224.9 acres of grassland/brushland and 206.6 acres of aquatic environment to the federal estate. Overall, the Land Exchange Proposed Action would result in an increase of up to 579.7 acres of habitat to the federal estate, though there would be a decrease of forest and open ground habitat. As such, forest-dependent species are more likely to be affected through habitat decrease by the Land Exchange Proposed Action. Grassland and brushland species (mostly bird species and one species of insect) would have more habitat available under the Land Exchange Proposed Action, as would species dependent on aquatic environments (bird species, reptile/amphibian species, and insect species). Overall, the Land Exchange Proposed Action would result in an increase of SGCN habitat to the federal estate.

5.3.5.2.4 Regional Forester Sensitive Species

A Biological Evaluation has been prepared that contains further information about RFSS. The Biological Evaluation is included in Appendix D. Similar to the Biological Assessment, the organization of the methodologies and discussion in the Biological Evaluation may be different

from the FEIS. The Biological Evaluation also contains determinations of effect for RFSS species.

The USFS determined that the Land Exchange Proposed Action and Land Exchange Alternative B may affect individuals but are not likely to cause a trend to federal listing or loss of viability for 18 RFSS terrestrial wildlife species on the Superior National Forest.

Of the 18 terrestrial RFSS on the 2011 list for the Superior National Forest, the gray wolf, eastern heather vole, northern long-eared bat, little brown bat, eastern pipistrelle, northern goshawk, boreal owl, wood turtle, taiga alpine, Freija's grizzled skipper, Nabokov's blue, and Quebec emerald dragonfly are discussed above as federally or state-listed species. Three additional RFSS (the olive-sided flycatcher, bay-breasted warbler, and Connecticut warbler) are included as SGCN and are also discussed above. The three remaining RFSS species are discussed below. Effects on the RFSS are described in more detail in the Biological Evaluation.

Bald Eagle

As discussed in Section 5.2.5.2.2, eagles may utilize the area around the federal lands. The federal lands are located between the Embarrass and Partridge rivers, which eagles may use for foraging. Mud Lake may also be used for foraging. The nearest known nesting sites are more than 2 miles (5.8 miles south-southwest of the federal lands) from the federal lands and optimal habitat for nesting is not present. Eagles may utilize Mud Lake for nesting, though they tend to utilize larger lakes for nesting. Though optimal nesting and foraging habitat are not present in the federal lands, eagles may still utilize these areas.

Eagle habitat is present on several of the non-federal lands. Though they are smaller waterbodies than are optimal for eagles, Tract 1 includes the Pike River, Hay Lake, and Rice Lake. Tracts 2 and 3 are located near large lakes such as Pine and Greenwood. Tract 5 borders McFarland Lake, which is connected to other lakes within the BWCAW. With the exception of Tract 1, these lands are also further from developed mining areas and disturbances are less likely than on the federal lands. Overall, the Land Exchange Proposed Action would result in an increase (to the federal estate) of the number of occurrences and habitat availability for the bald eagle.

Great Gray Owl

Though not observed during call surveys, the great gray owl may be occasionally present on the federal lands. Because owl calling surveys (ENSR 2005) found no great gray owls, populations in the area are likely small and/or occasional. No observations of great gray owls have been made on the non-federal lands. However, because the species utilizes forested habitat and the Land Exchange Proposed Action would result in a decrease of 788.0 acres of forested habitat, the Land Exchange Proposed Action would result in a decrease of this species' habitat on the federal estate.

Three-Toed Woodpecker

A three-toed woodpecker was identified on the federal lands during surveys in 2000 and was observed on the parcel again in 2007. Area populations are expected to be low, and these habitat specialists require standing dead or dying trees where they can forage for bark beetles. The species has not been observed on the non-federal lands. As such, the Land Exchange Proposed Action would result in a decrease of this species' occurrence. Since the Land Exchange Proposed

Action would result in a decrease of approximately 788.0 acres of forest, the Land Exchange Proposed Action would also result in a habitat decrease for this species on the federal estate.

Other factors, such as lower disturbance levels and increase of contiguous habitat, would potentially increase RFSS utilization of the non-federal lands. The federal lands contain two stands of contiguous forest habitat greater than 300 acres (340.6 acres and 1,352.3 acres) while the non-federal lands include one forest stand greater than 300 acres (598.2 acres – Tract 3, Wolf Lands 2). The Land Exchange Proposed Action would result in a net decrease of 1,094.7 acres of contiguous habitat stands greater than 300 acres to the federal estate.

5.3.5.2.5 Other Wildlife Species

Other regionally common wildlife species, such as ravens, grouse, beaver, wolves, black bear, white-tailed deer, fox, marten, and snowshoe hare, have been observed on both the federal and non-federal lands. Effects on wildlife species important to the Bands are discussed in Section 5.2.9 on a connected ecosystems level. Similar to SGCN, habitat for some other species of wildlife would increase via the Land Exchange Proposed Action while habitat would decrease for others. As previously discussed, forested habitat would decrease via the Land Exchange Proposed Action, but grassland/shrubland habitat and aquatic habitat would increase. Grassland and brushland species would have more habitat available under the Land Exchange Proposed Action, as would species dependent on aquatic environments. The Land Exchange Proposed Action would result in 579.7 additional acres of wildlife habitat to the federal estate.

Game species such as white-tailed deer and black bear are of significant concern to the Bands. As mentioned above, forested habitat on the federal estate would decrease under the Land Exchange Proposed Action, but grassland and brushland and aquatic habitat would increase. The Land Exchange Proposed Action would result in increased hunting opportunities on the federal estate, as the non-federal lands would become available for use while the federal lands, which currently have limited access, would become private.

5.3.5.3 Land Exchange Alternative B

Under the Land Exchange Alternative B, a smaller federal parcel would be exchanged for only one non-federal parcel, Tract 1. The effects that would result from this alternative are similar to those of the Land Exchange Proposed Action.

5.3.5.3.1 Federally Listed Species

Canada Lynx

As shown in Table 5.3.5-3, the smaller federal parcel includes 4,697.2 acres of suitable general habitat for lynx. Tract 1 has a total of 4,675.1 acres of habitat potentially suitable for the Canada lynx, which would result in a decrease of 22.1 acres to the federal estate. The Land Exchange Alternative B would also result in a decrease of 192.9 acres of denning habitat. Snowshoe hare habitat would increase by 51.6 acres, but there would also be an increase of 195.7 acres of unsuitable lynx habitat to the federal estate under the Land Exchange Alternative B.

The smaller federal parcel does not contain any established snow packed trails (such as snowmobile trails) but is crossed by 6.9 miles of road surface. Tract 1 is crossed by 2.2 miles of roads and no established snow trails. Since lynx use snow packed trails and roads as travel

corridors, the Land Exchange Alternative B would result in a decrease to the federal estate of 4.7 miles of road use for lynx.

Land ownership under the Land Exchange Alternative B would be similar to the Land Exchange Proposed Action, but the smaller federal parcel would be bordered to the west by USFS-managed federal lands. Tract 1 is bordered by federal lands to the north, west, and partially east, but the area is generally surrounded by private lands and developed areas. Habitat connectivity to Tract 1 is marginal. The Land Exchange Alternative B is likely to result in limited habitat connectivity overall. Similar to the Land Exchange Proposed Action, the smaller federal parcel and non-federal lands are located within lynx critical habitat and would remain so regardless of ownership; the Land Exchange Alternative B would not result in a change to lynx critical habitat. As shown in Table 5.3.5-5, the Land Exchange Alternative B would result in the decrease of 4,753 acres of land within an LAU because the federal parcel is within an LAU, but the Tract 1 lands are not.

The Land Exchange Alternative B would have mixed habitat effects for the Canada lynx. It would result in a decrease of overall suitable habitat for lynx and denning habitat, but would result in an increase of suitable snowshoe hare habitat. It would also result in a decrease of federal lands within designated LAUs. Critical lynx habitat would not change regardless of ownership. As such, the Land Exchange Alternative B is not likely to have either a net increase or decrease on Canada lynx on the federal estate.

Gray Wolf

Gray wolves have been observed on both the smaller federal parcel and on Tract 1. Approximately 271 acres of forage habitat is present on the smaller federal parcel (young age class, see Table 5.3.4-4) and 533.8 acres are present on Tract 1. There are 3,912.9 acres of cover habitat on the smaller federal parcel (immature and mature age classes) and 3,720.0 acres on Tract 1. This would result in an increase of 262.8 acres of forage habitat but also in a decrease of 192.9 acres of cover habitat on the federal estate under Land Exchange Alternative B.

Northern Long-Eared Bat

Potential summer roosting and foraging habitat for the northern long-eared bat is present and individuals have been observed on the smaller federal parcel, though no hibernacula have been observed. Bats were observed, though not identified to species, on Tract 1 during field studies in 2009. The Land Exchange Alternative B would result in a net decrease of mature forest habitat to the federal estate, but an increase in grassland/brushland, which constitutes a decrease in potential summer roosting habitat but increase in foraging habitat within the federal estate.

5.3.5.3.2 State-listed Species

Wood Turtle

No wood turtles or optimal wood turtle habitat were identified on Tract 1 or the smaller federal parcel. According to the MDNR NHIS database, there have been wood turtles observed within 10 miles of the non-federal lands (Tract 1). As such, the Land Exchange Alternative B would not result in an increase or decrease of habitat for the species on the federal estate.

Eastern Heather Vole

The eastern heather vole has not been observed during field surveys within 10 miles of the federal lands. There are 1,261.6 acres of potentially suitable habitat on the smaller federal parcel (see Table 4.3.4-6). Eastern heather voles were not identified on the non-federal lands by surveys or in the NHIS, but Tract 1 contains 2,133.6 acres of habitat, which would result in an increase of 872.0 acres of habitat for the eastern heather vole on the federal estate. As such, the Land Exchange Alternative B would result in an increase of habitat for this species.

Yellow Rail

The yellow rail was not found during surveys and was not reported in the NHIS database within 10 miles of the federal lands. As previously mentioned, small, scattered areas of its preferred habitat are present on the federal lands (34.9 acres), but not the minimum nesting patch size (54 acres) needed for the species. Similar to the Land Exchange Prosed Action, the Land Exchange Alternative B would not result in a net change to the species or its habitat on the federal estate.

Laurentian Tiger Beetle

Similar to the Land Exchange Proposed Action, the lack of suitable habitat and any recorded observations for the Laurentian tiger beetle suggest that the species does not occur on the smaller federal parcel. However, habitat for the Laurentian tiger beetle is present on Tract 1, in an area formerly used as a sand and gravel mine. No disturbance activities are currently planned on Tract 1, so this potential habitat would be preserved. As such, the Land Exchange Alternative B, similar to the Land Exchange Proposed Action, would result in an increase of suitable habitat for the species on the federal estate.

Taiga Alpine

There is potential habitat present for the taiga alpine on both the Alternative B: Smaller Federal Parcel and Tract 1 lands. Under the Land Exchange Alternative B, there would be a decrease to the federal estate of lowland coniferous swamp habitat, and therefore a decrease in potential habitat for the species, but it is unlikely this would result in a change in species occurrences.

Freija's Grizzled Skipper

There is potential habitat present for the Freija's grizzled skipper on both the Alternative B: Smaller Federal Parcel and Tract 1 lands. Under the Land Exchange Alternative B, there would be an increase to the federal estate of grassland and shrubland habitats, and therefore an increase in potential habitat for the species, but it is unlikely this would result in a change in species occurrences.

Nabokov's Blue

There is potential habitat present for the Nabokov's blue on both the Alternative B: Smaller Federal Parcel and Tract 1 lands, though the larval host plant was not observed at either. Under the Land Exchange Alternative B there would be a decrease to the federal estate of upland woodland habitat and a decrease in potential habitat for the species; but it is unlikely this would result in a change in species occurrences.

Quebec Emerald

The Quebec emerald dragonfly has not been identified on the smaller federal parcel, as there has only been one documented occurrence of this species in Minnesota in Lake County in 2006 (Minnesota Odonata Survey Project 2012). Tract 1 does not contain any sedge/wet meadow wetlands, and so the Land Exchange Alternative B would result in a decrease of potential habitat used by this species on the federal estate.

Trumpeter Swan

Trumpeter swans were observed on Tract 1 during surveys in 2009. A pair of adults with young was seen on Little Rice Lake. The species has not been observed on the smaller federal parcel. Similar to the Land Exchange Proposed Action, because the species has been observed on Tract 1 but not on the smaller federal parcel, the Land Exchange Alternative B would result in an increase of the occurrence of this listed species within the federal estate.

5.3.5.3.3 Species of Greatest Conservation Need

Like the Land Exchange Proposed Action, the SGCN for the Land Exchange Alternative B are discussed in the context of their habitat. The smaller federal parcel also includes a wide variety of habitat types, grouped into key habitat types and MIH types (see Table 5.3.5-8).

Similar to the Land Exchange Proposed Action, the Land Exchange Alternative B would result in a decrease of forest habitat (1,279.3 acres) and open ground/bare soil (29.1 acres) on the federal estate. The Land Exchange Proposed Action, however, would result in an increase of grassland/brushland (1,257.2 acres) and aquatic environments (224.8 acres) on the federal estate. Overall, the Land Exchange Proposed Action would result in an increase of up to 173.6 acres of habitat to the federal estate, though there would be a decrease of forest and open ground habitat. As such, forest-dependent species are more likely to be affected through habitat decrease under the Land Exchange Alternative B. Grassland and brushland species (mostly bird species and one species of insect) would have more habitat available under the Land Exchange Alternative B, as would species dependent on aquatic environments (bird species, reptile/amphibian species, and insect species). Overall, the Land Exchange Alternative B would result in an increase of SGCN habitat to the federal estate.

Table 5.3.5-8 Increase or Decrease of Habitat Types on the Federal Estate Resulting from Land Exchange Alternative B

Key Habitat Type and Management Indicator Habitat	Smaller Federal Parcel (Acres)	Non-Federal Land Tract 1 (Acres)	Net Increase or (Decrease) (Acres)
Mature Upland Forest, Continuous Upland/Lowland Forest (MIH1-13)	4,258.1	2,978.8	(1,279.3)
Open Ground, Bare Soils (no MIH)	29.1	0.0	(29.1)
Grassland and Brushland, Early Successional Forest (no MIH)	439.1	1,696.3	1,257.2
Aquatic Environments (MIH 14)	26.3	251.1	224.8
Total[1]	4,752.6	4,926.2	173.6

Note:

[1] Total acres may be more or less than presented due to rounding.

5.3.5.3.4 Regional Forester Sensitive Species

Bald Eagle

As under the Land Exchange Proposed Action, the smaller federal parcel and surrounding areas may be utilized by bald eagles. Similar to the Land Exchange Proposed Action, the smaller federal parcel is also located between the Embarrass and Partridge rivers, which eagles may use for foraging. However, the smaller federal parcel excludes a portion of Mud Lake. The nearest known nesting sites are greater than 2 miles (5.8 miles south-southwest of the smaller federal parcel) from the federal lands and optimal habitat for nesting is not present.

Tract 1 contains waterbodies (Pike River, Hay Lake, and Rice Lake) and large trees, which eagles may use for nesting, though no nests have been observed. The nearest known eagle nest is approximately 4 miles southwest of the parcel.

Great Gray Owl

Though not observed during call surveys, the great gray owl may be occasionally present on the smaller federal parcel, as an individual was observed along Dunka Road south of the Mine Site in 2009. No observations of great gray owls have been made on Tract 1. However, because the species utilizes forested habitat and the Land Exchange Alternative B would result in a decrease of 1,279.3 acres of forested habitat, the Land Exchange Alternative B would result in a decrease of this species' habitat on the federal estate.

Three-Toed Woodpecker

Three-toed woodpeckers were observed on or near the smaller federal parcel in 2000 and again in 2007. Area populations are expected to be low, and the species has not been observed on Tract 1. As such, the Land Exchange Alternative B would result in the decrease of this species' occurrence. Since the Land Exchange Alternative B would result in a decrease of 1,279.3 acres of forest, this would result in a habitat decrease for this species on the federal estate.

Other factors, such as lower disturbance levels and increase of contiguous habitat, would potentially increase RFSS utilization of Tract 1 lands. The smaller federal parcel contains two stands of contiguous forest habitat greater than 300 acres (340.6 and 926.1 acres) while there are no stands greater than 300 acres on Tract 1.

5.3.5.3.5 Other Wildlife Species

Similar to the Land Exchange Proposed Action, forested habitat within the federal estate would decrease under the Land Exchange Alternative B, but grassland/shrubland habitat and aquatic habitat would be increased. Grassland and brushland species would have more habitat available under the Land Exchange Alternative B, as would species dependent on aquatic environments. The Land Exchange Alternative B would result in 173.6 additional acres of wildlife habitat on the federal estate.

5.3.5.4 Land Exchange No Action Alternative

Under the Land Exchange No Action Alternative, the current federal lands would remain in federal ownership and would continue to be managed under the General Forest – Longer Rotation Management Area and the General Forest Management Area. Wildlife would be directly affected by logging, mineral exploration, vehicle traffic, natural disturbances, and thinning activities, which would occur as planned by the USFS, and would be indirectly affected by changes in habitat caused by forest management. However, these activities would affect wildlife to a lesser degree than under the Land Exchange Proposed Action. Section 5.2.4.3.1 provides further discussion of the effects on management of cover types and habitat on the federal lands. Under the Land Exchange No Action Alternative, the USFS has an ongoing responsibility for managing wildlife resources on Superior National Forest lands in accordance with the Forest Plan (USFS 2004b). The Land Exchange No Action Alternative would not change the Forest Service's responsibility for managing wildlife resources and would result in no change in anticipated effects on existing wildlife.

Under the Land Exchange No Action Alternative, the non-federal lands would not go into USFS ownership, and land use would be determined by the private land owners. Effects on wildlife species are difficult to predict given the uncertainty of future potential land use. Lands may be developed, resulting in potential effects on individuals and local populations, habitat decrease, and effects on wildlife travel corridors.

5.3.6 Aquatic Species

This section describes the environmental consequences of the Land Exchange alternatives on aquatic biota, using comparisons of the existing conditions presented in Sections 4.2.6 and 4.3.6 to conditions after the Land Exchange alternatives in terms of net increase or decrease in aquatic biological resources for the federal and non-federal lands.

The Land Exchange Proposed Action would result in a net increase to the federal estate of surface waters (MIH 14), including 99.1 acres of lakes, 3.8 miles of rivers, and 8.1 miles of third-order streams. It would also result in a decrease to the federal estate of 0.3 miles of first-order streams and 4.0 miles of second-order streams. The Land Exchange Proposed Action would result in an increase in watershed riparian connectivity and aquatic connectivity for the federal estate. Based on available data, the Land Exchange Proposed Action would potentially result in an increase of nine additional fish species to the federal estate, while the macroinvertebrate assemblage would be similar. The Land Exchange Proposed Action could result in an increase to the federal estate of six new potential SGCN species, based on ecoregion data.

Land Exchange Alternative B would result in a net increase to the federal estate of surface waters (MIH 14), including 120.7 acres of lakes, 2.8 miles of rivers, and 8.1 miles of third-order streams. Additionally, it would result in a decrease to the federal estate of 1.3 miles of first-order streams and 4.0 miles of second-order streams, and an increase to the federal estate of. Land Exchange Alternative B would result in an increase in watershed riparian connectivity and aquatic connectivity for the federal estate. Based on available data, Land Exchange Alternative B would potentially result in a decrease to the federal estate of four fish species, while the macroinvertebrate assemblage would likely be similar. Land Exchange Alternative B would result in no net change of SGCN species, based on ecoregion data.

The Land Exchange No Action Alternative would not result in any increase or decrease of aquatic habitats or SGCN species to the federal estate.

Rulemaking was conducted with the intent to update the list of ETSC species (*Minnesota Rules*, parts 6134.0100 to 6134.0400), with new listings becoming effective on August 19, 2013 (MDNR 2013h). The FEIS considers any new listings, or changes in the previous listings, associated with the updated list. The FEIS also considers any federal listing changes. A Biological Evaluation has been prepared that contains further information about RFSS species. The Biological Evaluation is included in Appendix D.

5.3.6.1 Methodology and Evaluation Criteria

The criteria used to describe the direct and indirect effects of the Land Exchange alternatives focused on the ecological integrity of the aquatic systems present at the federal lands and non-federal lands where physical, chemical, and biological characteristics that are important to biotic quality were considered. The spatial and temporal area of analysis for aquatic resources included the federal and non-federal lands that are proposed for the exchange based on current conditions.

The methodology used for analysis of the Land Exchange alternatives included review and evaluation of available literature, aerial photography review, and GIS analysis of all surface waters and aquatic species habitat present within the Land Exchange areas. Both quantitative and

qualitative analyses were used. The analysis of the aquatic resources affected by the Land Exchange alternatives was guided by evaluation criteria that were developed by the USFS and other Co-lead Agencies as follows:

- Change in the amount of Superior National Forest MIHs (MIH 14 [aquatic habitat]) available for species on the federal and non-federal lands;
- Changes in the length of stream segments;
- Changes in the area of lake or deepwater wetland;
- Qualitative determination of community habitat and ecological value;
- Qualitative assessment of the aquatic connectivity (network created by streams, rivers, and lakes as they flow into one another) and the potential for barriers to fish passage; and
- Net change in aquatic species.

5.3.6.2 Land Exchange Proposed Action

5.3.6.2.1 Surface Water Features (MIH 14)

Comparing the footprints of the surface water features present within the federal and non-federal lands provides a direct assessment of the increase or decrease to the federal estate in aquatic environments that support aquatic biota and associated habitats. This comparison was made by analyzing the linear shoreline frontage and frontage index of the surface water features within the federal and non-federal lands, where the frontage index indicates the linear ft of lake and shoreline frontage per acre of land.

The Land Exchange Proposed Action would result in a net increase of surface water resources to the federal estate (see Table 5.3.6-1). A net increase of 99.1 acres of lake and 3.8 miles of rivers would be added to the federal estate from the Land Exchange Proposed Action. For both lakes and streams, the frontage index would increase substantially by 34.0 shoreline/acre units as a result of the exchange.

Table 5.3.6-1 Federal and Non-federal Land Surface Water Comparisons

	Lake			Rivers/Creeks/Streams		
Parcel	**Acres**	**Frontage (ft)**	**Frontage Index (shoreline/acre)**	**Miles**	**Frontage (linear ft)[1]**	**Frontage Index (shoreline/acre)[2]**
Lands Conveyed						
Federal Lands	30.5	4,550.0	0.7	5.3	55,968.0	8.6
Lands Acquired						
Tract 1 – Hay Lake	129.6	16,424.0	3.5	8.1	72,864.0	15.3
Tract 2 – Lake County	0.0	0.0	0.0	0.0	0.0	0.0
Tract 3 – Wolf Lands						
Wolf Lands 1	0.0	0.0	0.0	0.0	0.0	0.0
Wolf Lands 2	0.0	0.0	0.0	0.0	0.0	0.0
Wolf Lands 3	0.0	0.0	0.0	0.1	1,056.0	3.9
Wolf Lands 4	0.0	0.0	0.0	0.9	9,504.0	23.5
Tract 4 – Hunting Club	0.0	0.0	0.0	0.0	0.0	0.0
Tract 5 – McFarland Lake	0.0	990.0	32.1	0.0	0.0	0.0
Total Non-federal lands	129.6	17,414.0	35.6	9.1	83,424.0	42.6
Net Change						
Net Increase/(Decrease)	99.1	12,864.0	34.9	3.8	27,456.0	34.0

Notes:

Surface water shoreline distance calculated by GIS analysis.

[1] Includes shoreline distance on both sides of streams.
[2] Frontage Index calculated by dividing total acres of parcel by total shoreline within parcel.

5.3.6.2.2 Differences of Strahler Stream Orders and Habitat

For the purposes of this FEIS, the Strahler Order (USEPA 2011a) is used to describe the hierarchical ordering of streams, where a first-order stream describes a headwater type stream with no branching. Where two first-order streams meet, they become larger second-order streams and where two second-order streams meet, they become larger third-order streams, etc. A quantitative comparison of the Strahler Stream Order indicates the Land Exchange Proposed Action would result in a decrease of 0.3 miles of first-order headwater streams and 4.0 miles of second-order streams, and an increase in 8.1 miles of third-order streams to the federal estate (see Table 5.3.6-2).

The net increase of third-order streams and decrease in second-order streams would likely add more habitat diversity to the Superior National Forest since, generally, stream habitat diversity increases with higher-order streams. No significant habitat changes would likely occur associated with the slight decreases in first-order, headwater streams acquired as a result of the Land Exchange Proposed Action; however, the net reduction to the Superior National Forest of 0.3 mile of first order streams may result in slightly less habitat available for headwater stream dependent species.

Table 5.3.6-2 Increase or Decrease of Stream Orders from the Land Exchange Proposed Action

	Stream Distance (miles)		
Parcel (Stream)	**1st Order**	**2nd Order**	**3rd Order**
Lands Conveyed			
Federal Lands (Yelp Creek and Partridge River)	1.3	4.0	0.0
Lands Acquired			
Tract 1 – Hay Lake (Pike River)	0.0	0.0	8.1
Tract 2 – Lake County	0.0	0.0	0.0
Tract 3 – Wolf Lands			
Wolf Lands 1	0.0	0.0	0.0
Wolf Lands 2	0.0	0.0	0.0
Wolf Lands 3 (Coyote Creek)	0.1	0.0	0.0
Wolf Lands 4 (Coyote Creek)	0.9	0.0	0.0
Tract 4 – Hunting Club	0.0	0.0	0.0
Tract 5 – McFarland Lake	0.0	0.0	0.0
Total Non-federal Lands	1.0	0.0	8.1
Net Increase/(Decrease)	**(0.3)**	**(4.0)**	**8.1**

Note:

Surface water shoreline distance calculated by GIS analysis.

5.3.6.2.3 Watershed Level Riparian and Aquatic Connectivity

Riparian Connectivity

Intact riparian areas are an important factor contributing to diverse and productive aquatic ecosystems and function to maintain available water quality and physical habitat. The streams present on the federal and non-federal lands (Partridge River, Pike River, and Coyote Creek) are each part of a network of streams, creeks, and rivers that makes up a larger watershed. The connections between these surface water features are affected by the vegetated, undisturbed riparian edges bordering these water bodies. A comparison of the watersheds using the RCI is presented in Table 5.3.6-3. The index was developed from GIS analysis of vegetative cover along riparian areas where agriculture and land development have affected natural riparian vegetative cover.

The Land Exchange Proposed Action would result in a slight increase in watershed riparian connectivity, which indicates that the streams on both the federal and non-federal lands are located within watersheds with existing high-quality riparian connectivity.

Table 5.3.6-3 Watershed Riparian Connectivity Index Comparison

Surface Water	Tract	Watershed	Percent Agriculture in Riparian Zone	Percent Development in Riparian Zone	RCI Score[1]
Lands Conveyed					
Partridge River/Yelp Creek	Federal Lands	St. Louis	0	5	95
Lands Acquired					
Pike River	1 - Hay Lake	Vermillion	0	1	99
Coyote Creek	3 - Wolf Lands 3 and 4	Rainy River-Headwaters	0	0	100
Net Increase/(Decrease)[2]			0	(4)	4.5

Source: Adopted from MDNR 2015a.

Notes:

[1] RCI score calculated with MDNR formula using Percent Agriculture and Percent Development in Riparian Zone; scale is from 0 to 100 where 100 indicates excellent riparian conductivity.
[2] Non-federal lands RCI score averaged to determine net increase/decrease.

Aquatic Connectivity

Structures within streams, such as dams, bridges, and culverts reduce the longitudinal and lateral connectivity of the watershed. These structures can degrade the aquatic habitat in the watershed by slowing stream flow, increasing sedimentation, incising stream channels, changing the depth, and disconnecting portions of streams from the floodplain. The ACI was developed from GIS analysis of number of structures per stream mile for each watershed, and the watershed ACI scores were used to provide a comparison of each watershed.

The Land Exchange Proposed Action would result in the Superior National Forest acquiring streams located in watersheds with better aquatic connectivity values (see Table 5.3.6-4).

Table 5.3.6-4 Watershed Aquatic Connectivity Index Comparison

Surface Water	Tract	Watershed	Aquatic: Bridges and Culverts (miles stream/# structures)	Aquatic: Dams (miles stream/# structures)	ACI Score[1]
Lands Conveyed					
Partridge River/Yelp Creek	Federal Lands	St. Louis	15	6	11
Lands Acquired					
Pike River	1 - Hay Lake	Vermillion	41	11	26
Coyote Creek	3 - Wolf Lands 3 and 4	Rainy River-Headwaters	89	19	54
Net Increase/(Decrease)[2]			50	9	29

Source: Adopted from MDNR 2015b.

Notes:

[1] ACI score calculated by dividing total miles of streams and ditches per watershed by total number of culverts, bridges, and dams; scale is from 0 to 100 where 100 indicates free flowing streams (no structures) and 0 indicates one structure for every 20 miles of flowing water.
[2] Non-federal lands averaged to determine net increase/decrease.

5.3.6.2.4 Aquatic Species Assemblages

A complete quantitative comparison of the net increase or decrease of aquatic species cannot be made for the purposes of the Land Exchange Proposed Action due to the absence of complete baseline information. Only the federal lands had aquatic biota and habitat sampling sites within the parcel boundaries. . A qualitative comparison can be made for species located at the two sites within the federal parcels and the four sites near the non-federal parcels (see Section 4.2.6). The exception to this statement includes the differences between the Coyote Creek headwater stream habitat and the Stony River sampling sites chosen to qualitatively represent Tract 3, which are summarized below.

Fish Assemblages

Two survey sites were analyzed within the vicinity of the federal lands while four survey sites were analyzed among the non-federal lands (in the vicinity of Pike River and Coyote Creek; see Figure 5.3.6-1). The federal lands and the survey sites within the vicinity of the non-federal lands had 11 species in common (see Table 5.3.6-5). The Land Exchange Proposed Action would result in a potential increase to the federal estate of 12 additional species, including two pollution-intolerant species and two pollution-tolerant species (see Tables 5.3.6-5 and 5.3.6-7). There would be a potential decrease to the federal estate of one different pollution-intolerant species and one different pollution-tolerant species. Given the fact that the survey sites used for non-federal lands may not be representative, it is possible that some species are more or less prevalent than is noted here.

The fish assemblages located at each survey site indicate that the Land Exchange Proposed Action potentially would result in minimal change to the fish assemblages for the streams the Superior National Forest would acquire. Additionally, the dominant fish species present at each site (see Table 5.3.6-6) indicate that the stream characteristics were consistent with slower moving, glide pool features with the exception of the segment on the Stony River where the MCAB_05RN024 survey site was located. Longnose dace dominate the fish community at the site, which indicate riffle-run habitats are likely present as described in Section 4.2.6. Note that Coyote Creek, within Tract 3, likely exhibits first order, headwater stream characteristics and if riffle-run habitat is present there, it would likely be smaller and support a less diverse fish community than the Stony River sampling site.

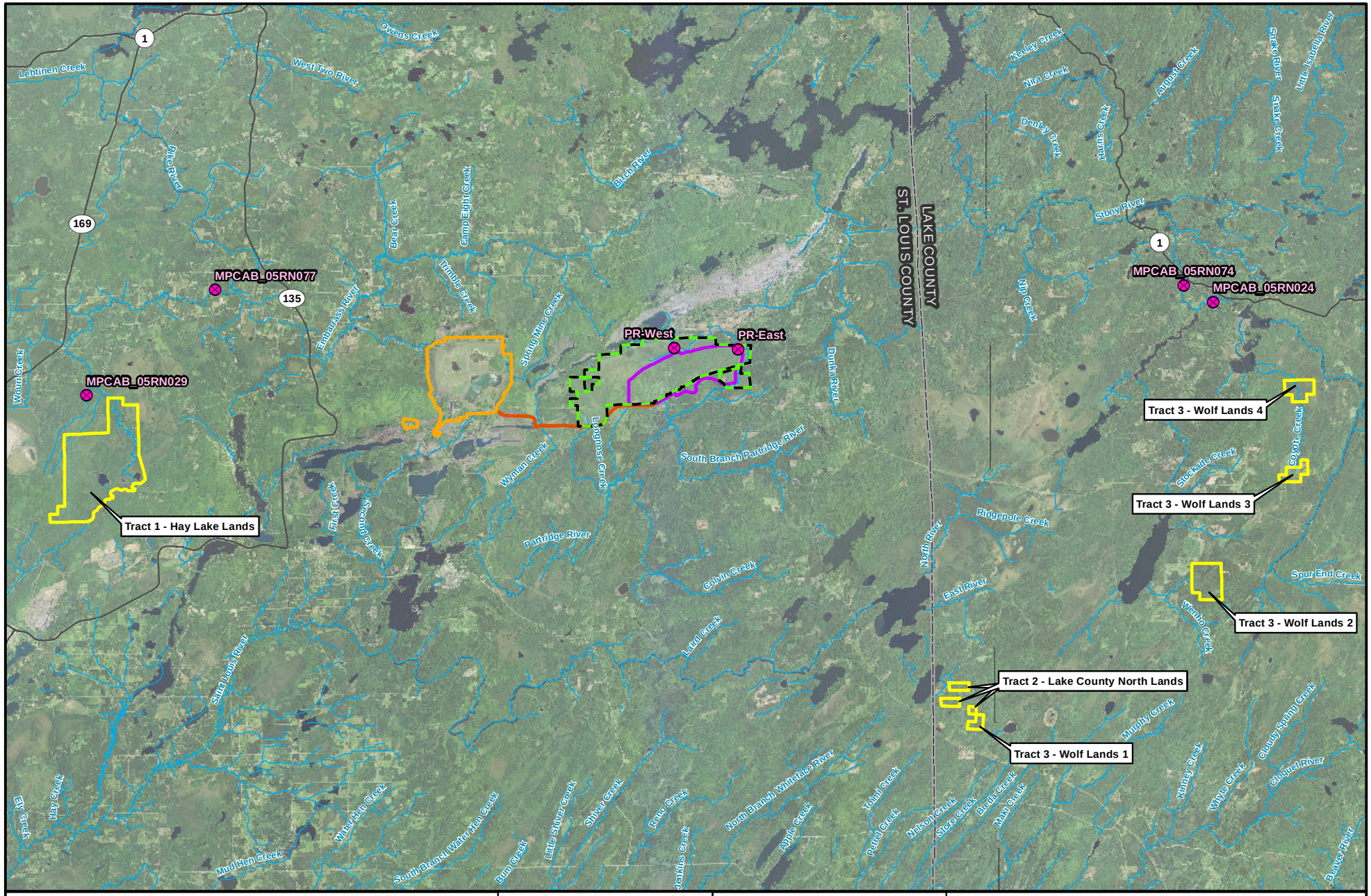

Study Site
Federal Lands
Non-federal Lands
Mine Site
Plant Site
Trasportation and Utility Corridor
Streams/Rivers
Existing Road

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1.5 3 6 Miles

Figure 5.3.6-1
Federal and Non-federal Lands Aquatic Study Area
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Table 5.3.6-5 Potential Increase or Decrease of Stream Fish Assemblage for the Land Exchange Proposed Action

Species	Common Name	Tolerance Designation[1]	Federal Land Parcel	Non-federal Land Parcels (study areas within vicinity of Tract 1 and Tract 3-Wolf Lands 3 and 4)
Catostomus commersonii	White sucker	Tolerant	X	X
Luxilus cornutus	Common shiner	Intermediate	X	X
Notemigonus crysoleucas	Golden shiner	Tolerant		X
Notropis heterolepis	Blacknose shiner	Intolerant		X
Notropis hudsonius	Spottail shiner	Intermediate		X
Notropis volucellus	Mimic shiner	Intolerant		X
Etheostoma nigrum	Johnny darter	Intermediate	X	X
Perca flavescens	Yellow perch	Intermediate		X
Sander vitreus	Walleye	Intermediate		X
Percina caprodes	Logperch	Intermediate		X
Lota lota	Burbot	Intermediate	X	X
Ambloplites rupestris	Rock bass	Intermediate		X
Micropterus dolomieu	Smallmouth bass	Intermediate		X
Esox lucius	Northern pike	Intermediate	X	X
Phoxinus eos	Northern redbelly dace	Tolerant	X	
Culaea inconstans	Brook stickleback	Intermediate	X	X
Phoxinus neogaeus	Finescale dace	Intermediate		X
Rhinichthys atratulus	Blacknose dace	Intolerant	X	
Rhinichthys cataractae	Longnose dace	Intolerant	X	X
Semotilus margarita	Pearl dace	Intermediate	X	
Noturus gyrinus	Tadpole madtom	Intermediate	X	X
Umbra limi	Central mudminnow	Tolerant	X	X
Hybognathus hankinsoni	Brassy minnow	Intermediate	X	
Pimephales promelas	Fathead minnow	Tolerant	X	X
Cottus bairdii	Mottled sculpin	Intolerant	X	X
Semotilus atromaculatus	Creek chub	Tolerant		X
Coregonus clupeaformis	Lake whitefish	Intermediate		X
Total Species			15	23
# Intolerant Species			3	4
# Tolerant Species			4	5
Net Increase or Decrease Species			(8)	8
Net Increase or Decrease Intolerant Species			(1)	1
Net Increase or Decrease Tolerant Species			(1)	1

Note:

[1] Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish - Second Edition EPA 841-B-99-002 (USEPA 2012b).

Table 5.3.6-6 Dominant Fish Species Present at Study Sites

Attributes	Federal Land (within parcel)		Non-federal Land (study areas within vicinity of Tract 1)		Non-federal Land (study areas within vicinity of Tract 3- Wolf Lands 3 and 4)	
Study site	PR-west	PR-east	MPCAB-05RN029	MPCAB-05RN077	MPCAB-05RN024	MPCAB-05RN074
Dominant Species	Brook stickleback	Northern redbelly dace	White sucker	White sucker	Longnose dace	Blacknose shiner

Sources: Adopted from Barr 2011b and MPCA 2011c.

Table 5.3.6-7 Increase or Decrease of Stream Fish Assemblage for the Land Exchange Proposed Action

Combined Studies Within, or Within Vicinity of, Surface Water	Tract	Total Species (#)	Pollution-Intolerant Species (#)	Pollution-Tolerant Species (#)
Lands Conveyed				
Partridge River	Federal Lands	15	3	4
Lands Acquired				
Pike River	Tract 1	11	0	4
Coyote Creek	Tract 3 - Wolf Lands 3 and 4	18	4	4
Total Non-Federal Lands		21[1]	4	5[2]
Net Increase/(Decrease)		12 species (4) other species	1	1

Source: Adopted from Section 4.3.6.

Notes:

[1] Species would overlap between Tract 1 and Tract 3; thus, 21 species are distinct number of species for combined non-federal lands.

[2] Does not equal sum of non-federal lands since some species overlap or vary between Tract 1 and Tract 3.

Benthic Macroinvertebrate Assemblages

Macroinvertebrate baseline surveys completed within and in the vicinity of the federal lands ranked macroinvertebrate assemblages as fair within the second-order stretches of the Partridge River, as indicated by the HBI (see Table 5.3.6-8). The first-, third-, and fourth-order segments of the streams within the vicinity of the non-federal lands indicated macroinvertebrate assemblages ranging from good to fair. A qualitative comparison using the attributes of HBI, stream order, total families (diversity), and percent pollution-tolerant organisms indicate that the macroinvertebrate assemblages likely would remain the same under the Land Exchange Proposed Action. This qualitative comparison assumes the habitat and associated macroinvertebrate assemblages are similar in the stream segments within the non-federal lands boundaries including the third-order segment of the Pike River on Tract 1 and the first-order segments of Coyote Creek within Tract 3 (see Figure 5.3.6-1).

Table 5.3.6-8 Stream Macroinvertebrate Assemblage Comparisons for the Land Exchange Proposed Action

Attributes	Federal Parcel (within parcel)		Non-federal Land (study areas within vicinity of Tract 1)		Non-federal Land (study areas within vicinity of Tract 3- Wolf Lands 3 and 4)	
Study site	PR-west	PR-east	MPCAB-05RN029	MPCAB-05RN077	MPCAB-05RN024	MPCAB-05RN074
Stream order	2	2	1	4	3	4
HBI score	6.4	6.0	5.7	5.1	5.9	5.2
HBI ranking	Fair	Fair	Fair	Good	Fair	Good
Total families	11	10	11	31	23	27
Percent pollution-tolerant	8	18	3	5	10	26

Sources: Adopted from Barr 2011b and MPCA 2011c.

5.3.6.2.5 Aquatic Species of Greatest Conservation Need

The MDNR and USFS have developed the ECS for ecological mapping and landscape classification (MDNR 2011a), which defines uniform ecological features within a mapped area. The federal and non-federal lands are located in the Northern Superior Uplands Section of the Laurentian Mixed Forest Province. These lands are further divided into several subsections. The federal lands include the Laurentian and Nashwauk Uplands subsections while the non-federal lands include these two subsections and the Border Lakes subsection.

As discussed in Section 4.2.6.1.4, SGCN aquatic species are associated with these ecological subsections based on occurrence and habitat considerations. Using the approach of comparing SGCN species by subsection association only, the Land Exchange Proposed Action could result in an increase of six new potential SGCN species (see Table 5.3.6-9). Of these, the spoonhead sculpin, lake chub, and longear sunfish have the highest potential to be found near the shoreline habitat of Tract 5 (within the Border Lakes subsection).

Regardless of the potential indicated by subsection association, no SGCN species were identified within the boundaries of the federal or non-federal lands during field surveys. While habitat is present in at least some locations within these boundaries for SGCN species, the surveys performed within the vicinity of the federal lands found no SGCN aquatic species, suggesting that SGCN species are likely not present on the federal lands. Conversely, occurrences of the creek heelsplitter, an SGCN species, have been documented within the vicinity of the non-federal lands on segments of the Pike River (downstream of Tract 1) and the Stony River (downstream of Tract 3) as discussed in Section 4.3.6.2. The predominant sand substrate documented in survey areas within the vicinity of these SGCN occurrence locations and the possibility that similar substrates exist within the boundaries of Tract 1 and Tract 3 indicate the creek heelsplitter may exist within the river segments of these non-federal lands. A qualitative review of these data indicates the Land Exchange Proposed Action may result in the added presence of the creek heelsplitter.

The USFS determined that the Land Exchange Proposed Action would not affect three RFSS aquatic species on the Superior National Forest, which include lake sturgeon, nipigon cisco, and shortjaw ciscoe. In addition, the Land Exchange Proposed Action may affect individuals, but would not be likely to cause a trend to federal listing or loss of viability for the remaining six RFSS aquatic species on the Superior National Forest. Please see the Biological Evaluation listed

on the USFS website (http://www.fs.usda.gov/goto/superior/northmet) for more information about effects on RFSS aquatic species.

Table 5.3.6-9 Ecoregion SGCN Species Comparisons for the Land Exchange Proposed Action

SGCN Species	Common Name	Federal Land (Laurentian and Nashwauk Uplands)	Non-federal Lands (Laurentian Uplands, Nashwauk Uplands, Border Lakes)
Fish			
Acipenser fulvescens	Lake sturgeon		X
Coregonus nipigon	Nipigon cisco		X
Coregonus zenithicus	Shortjaw cisco		X
Cottus ricei	Spoonhead sculpin		X
Couesius plumbeus	Lake chub		X
Ichthyomyzon fossor	Brook lamprey	X	X
Lepomis megalotis	Longear sunfish		X
Mussels			
Lasmigona compressa	Creek heelsplitter	X	X
Ligumia recta	Black sandshell	X	X
Total species		3	9

Source: Adopted from Section 4.3.6.

5.3.6.3 Land Exchange Alternative B

5.3.6.3.1 Surface Water Features (MIH 14)

Land Exchange Alternative B would result in a net increase of lake and river surface water features to the federal estate (see Table 5.3.6-10). A total of 120.7 acres of lake and 2.8 miles of rivers would be added to the Superior National Forest under this alternative. The increase in lake and river frontage would provide a net increase to the federal estate of habitat for aquatic species (MIH 14). The frontage index would increase in the federal estate for both lakes and streams as a result of Land Exchange Alternative B.

Table 5.3.6-10 Frontage of Waterways for Land Exchange Alternative B

	Lake			Rivers/Creeks/Streams		
Parcel	**Acres**	**Frontage (ft)**	**Frontage Index (shoreline/acre)**	**Miles**	**Frontage (linear ft)[1]**	**Frontage Index (shoreline/acre)[2]**
Lands Conveyed						
Land Exchange Alternative B	8.9	1,200.0	0.3	5.3	55,968.0	11.8
Lands Acquired						
Tract 1	129.6	16,424.0	3.5	8.1	72,864.0	15.3
Net Change						
Net Increase/(Decrease)	120.7	15,224.0	3.2	2.8	16,896.0	3.5

Note:

Surface water shoreline distance calculated by GIS analysis.

[1] Includes shoreline distance on both sides of streams.
[2] Frontage Index calculated by dividing total acres of parcel by total shoreline within parcel.

5.3.6.3.2 Differences of Strahler Stream Orders and Habitat

A quantitative comparison of the Strahler Stream Order indicates that Land Exchange Alternative B would result in a decrease of 1.3 and 4.0 miles of first- and second-order streams, respectively, and an increase of 8.1 miles of third-order streams to the federal estate (see Table 5.3.6-11).

As with the Land Exchange Proposed Action, the net increase of third-order streams and decrease in first- and second-order streams would likely add more habitat diversity to the Superior National Forest. The net decrease to the federal estate of first-order streams would slightly reduce the amount of available spawning habitat for some aquatic species as headwater streams provide specialized spawning habitat for some species.

Table 5.3.6-11 Increase or Decrease of Stream Orders from Land Exchange Alternative B

	Stream Distance (miles)		
Parcel (Stream)	**1st Order**	**2nd Order**	**3rd Order**
Lands Conveyed			
Federal Lands (Yelp Creek and Partridge River)	1.3	4.0	0.0
Lands Acquired			
Tract 1 – Hay Lake (Pike River)	0.0	0.0	8.1
Net Increase/(Decrease)	**(1.3)**	**(4.0)**	**8.1**

Note:

Surface water shoreline distance calculated by GIS analysis.

5.3.6.3.3 Watershed Level Riparian and Aquatic Connectivity

Riparian Connectivity

A comparison of the watersheds containing streams present on the federal lands (Partridge River) and Tract 1 (Pike River) using the RCI is presented in Table 5.3.6-12. The index was developed from GIS analysis of vegetative cover along riparian areas where agriculture and land development have affected natural riparian vegetative cover.

Under Land Exchange Alternative B, there would be a slight increase to the federal estate in watershed riparian connectivity. The streams on both the federal lands and Tract 1 are located within watersheds with existing high quality riparian connectivity.

Table 5.3.6-12 Watershed Riparian Connectivity Index Comparison

Surface Water	Tract	Watershed	Percent Agriculture in Riparian Zone	Percent Development in Riparian Zone	RCI Score[1]
Lands Conveyed					
Partridge River/Yelp Creek	Federal Lands	St. Louis	0	5	95
Lands Acquired					
Pike River	1 - Hay Lake	Vermillion	0	1	99
Net Increase (Decrease)			0	(4)	4.0

Source: Adopted from MDNR 2015a.

Note:

[1] RCI score calculated with MDNR formula using *Percent Agriculture and Percent Development in Riparian Zone*; scale is from 0 to 100 where 100 indicates excellent riparian conductivity.

Aquatic Connectivity

A comparison of the watersheds containing streams present on the federal lands (Partridge River) and Tract 1 (Pike River) using the ACI is presented in Table 5.3.6-13. The index was developed from GIS analysis of structures (i.e., dams, bridges, and culverts) along stream systems in the watershed.

Land Exchange Alternative B would result in the Superior National Forest acquiring streams located in watersheds with significantly better aquatic connectivity values, indicating increased aquatic habitat.

Table 5.3.6-13 Watershed Aquatic Connectivity Index Comparison

Surface Water	Tract	Watershed	Aquatic: Bridges and Culverts (miles stream/# structures)	Aquatic: Dams (miles stream/# structures)	ACI Score[1]
Lands Conveyed					
Partridge River	Federal Lands	St. Louis	15	6	11
Lands Acquired					
Pike River	1 - Hay Lake	Vermillion	41	11	26
Net Increase (Decrease)			26	5	15

Source: Adopted from MDNR 2015b.

Note:

[1] ACI score calculated by dividing total miles of streams and ditches per watershed by total number of culverts, bridges, and dams; scale is from 0 to 100 where 100 indicates free flowing streams (no structures) and 0 indicates one structure for every 20 miles of flowing water.

5.3.6.3.4 Aquatic Species

As with the Land Exchange Proposed Action, a semi-quantitative comparison of the net increase or decrease to the federal estate of aquatic species was made for species located within the vicinity of the Tract 1 parcel boundaries since representative survey sites located in the vicinity of the parcel are likely similar to the existing aquatic habitats present at the parcel (see Section 4.2.6).

Fish Assemblages

Two survey sites were analyzed within the vicinity of both the smaller federal parcel and within the vicinity of Tract 1. The smaller federal parcel and Tract 1 had six species in common. Land Exchange Alternative B would potentially result in a net decrease to the federal estate of four species, including two pollution-intolerant species (see Table 5.3.6-14). Given the fact that only representative survey sites were used for Tract 1, it is possible that some species are more or less prevalent than is noted here. The attributes of the fish assemblages located at each survey site indicate that Land Exchange Alternative B would result in minimal change to the fish habitat for the portions of the river the Superior National Forest would acquire. The dominant fish species present at each site indicate that the stream characteristics were consistent with slower-moving, glide pool features.

Table 5.3.6-14 Increase or Decrease of Stream Fish Assemblage for Land Exchange Alternative B

Combined Studies Within, or Within Vicinity of, Surface Water	Tract	Total Species (#)	Pollution-Intolerant Species (#)	Pollution-Tolerant Species (#)
Lands Conveyed				
Partridge River/Yelp Creek	Federal Lands	15	4	4
Lands Acquired				
Pike River	Tract 1	11	2	4
Net Increase (Decrease)		(4)	(2)	0

Source: Adopted from Section 4.2.6.

Benthic Macroinvertebrate Assemblages

Macroinvertebrate baseline surveys completed within, and in the vicinity of, the smaller federal parcel ranked macroinvertebrate assemblages as fair within the second-order stretches of the Partridge River, as indicated by the HBI pollution index (see Table 5.3.6-15). The first- and fourth-order segments of the streams within the vicinity of Tract 1 indicated macroinvertebrate assemblages ranging from good to fair. A qualitative comparison using the attributes of HBI, stream order, total families (diversity), and percent pollution-tolerant organisms indicate that the macroinvertebrate assemblages would likely be similar under Land Exchange Alternative B. This qualitative comparison assumes the habitat and associated macroinvertebrate assemblages are similar in the stream segments within the third-order segment of the Pike River on Tract 1.

Table 5.3.6-15 Stream Macroinvertebrate Assemblage Comparisons for Land Exchange Alternative B

Attributes	Federal Lands		Non-federal Lands (study areas within vicinity of Tract 1)	
Study site	PR-west	PR-east	MPCAB-05RN029	MPCAB-05RN077
Stream order	2	2	1	4
HBI score	6.4	6.0	5.7	5.1
HBI ranking	Fair	Fair	Fair	Good
Total families	11	10	11	31
Percent pollution-tolerant	8	18	3	5

Source: Adopted from Barr 2011b and MPCA 2011c.

5.3.6.3.5 Aquatic Species of Greatest Conservation Need

The smaller federal parcel includes the Laurentian and Nashwauk Uplands ecological subsections, while Tract 1 includes only the Nashwauk Uplands.

As discussed in Section 5.3.6.2.5, SGCN species are associated with these ecological subsections based on occurrence and habitat considerations. Using the approach of comparing SGCN species by subsection association only, Land Exchange Alternative B would likely result in no net change to the federal estate of SGCN species (see Table 5.3.6-16).

Regardless of the potential indicated by subsection association, no SGCN species were identified within the boundaries of the smaller federal parcel. Habitat is present in at least some locations within these boundaries for SGCN species. Although no surveys were completed within the boundaries of Tract 1, occurrences of the creek heelsplitter, an SGCN species, have been documented within the vicinity of Tract 1 on segments of the Pike River (downstream of Tract 1). The predominant sand substrate documented in survey areas within the vicinity of this SGCN occurrence location and the possibility that similar substrates exist within the boundaries of Tract 1 indicate the creek heelsplitter may exist within the Pike River segments of Tract 1. A qualitative review of these data indicates that Land Exchange Alternative B may result in the added presence to the federal estate of the creek heelsplitter.

Table 5.3.6-16 Ecoregion SGCN Species Comparisons for Land Exchange Alternative B

SGCN Species	Common Name	Federal Lands (Laurentian and Nashwauk Uplands)	Tract 1 (Nashwauk Uplands only)
Fish			
Ichthyomyzon fossor	Brook lamprey	X	X
Mussels			
Lasmigona compressa	Creek heelsplitter	X	X
Ligumia recta	Black sandshell	X	X
Total species		3	3

Source: Adopted from Section 4.3.6.

5.3.6.4 Land Exchange No Action Alternative

Under the Land Exchange No Action Alternative, the Superior National Forest would have an ongoing responsibility for managing aquatic resources on the federal lands in accordance with the Forest Plan. The Land Exchange No Action Alternative would not change the USFS responsibility for managing aquatic resources and would result in no further effects on existing aquatic species or habitats.

Fish and other aquatic life on the federal lands would be exposed to the water quality, hydrologic, and physical habitat conditions that currently exist as a result of past mining activities. There would be no change from existing conditions, although it is expected that the water quality of the Embarrass River may improve as a result of corrective actions potentially required by the reissuance of existing NPDES/SDS permits in the NorthMet Project area. Future actions conducted under the Cliffs Erie Consent Decree may also change these conditions.

The non-federal lands would not go into USFS ownership, and land use would be determined by the private land owners. Effects to aquatic resources are difficult to predict given the uncertainty

of future potential land use. Some lands may be developed, resulting in potential effects to aquatic species at the individual and local population levels, decreases in habitat, and adverse effects on habitat connectivity.

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5.3.7 Air Quality

Because there are no current operations or activities on the non-federal parcels that would result in a change to ambient air quality, the Land Exchange Proposed Action (and alternatives) would not result in new effects on the federal estate. Indirect effects from the NorthMet Project Proposed Action on the non-federal parcels are considered under Class I area modeling and are discussed in Section 5.2.7.

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5.3.8 Noise and Vibration

Evaluation of potential noise, vibration, and airblast effects in the areas of the Land Exchange Proposed Action used the same methodologies and criteria that were described previously for the NorthMet Project Proposed Action. The results of the modeling indicate that noise, vibration, and airblast levels that would be experienced at or by sensitive receptors would be below the Minnesota standards. Therefore, operations at the Mine Site and Plant Site would not have a significant effect on human receptors within the federal and non-federal lands, including people that may use the non-federal lands for recreational activities such as hunting and hiking (if the Land Exchange Proposed Action were to occur and the non-federal lands were added to the Superior National Forest). As discussed in Section 5.2.8, tribal users of archaeological sites (Spring Mine Lake Sugarbush, *Mesabe Widjiu*, and BBLV Trail; see Section 4.2.9) in the immediate vicinity of the Mine Site and Plant Site could experience some effects from noise. The non-federal land tracts are approximately 10 to 90 miles from operations at the Mine Site and Plant Site; tracts located 50 to 90 miles away from the federal lands are outside the area of analysis for noise modeling and would be not affected by noise from operations at the Mine Site and Plant Site.

5.3.8.1 Methodology and Evaluation Criteria

The noise and vibration impact assessment area for the Land Exchange Proposed Action would involve transferring 6,495.4 acres of federal lands from public to private ownership, and up to 7,075.0 acres of land from private to public ownership. The spatial and temporal area of analysis assessed for noise, vibration, and airblast as part of the Land Exchange Proposed Action included the indirect effects resulting from the mining activities; therefore, the area of analysis is the same as that described in Section 5.2.8.1. As indicated before, three desktop computer models (ISO 9613-2 sound-propagation model, the Site Law formula, and the Terrock model) were used to evaluate noise, ground vibration, and airblast effects, respectively, on the federal and non-federal lands.

5.3.8.2 Land Exchange Proposed Action

5.3.8.2.1 Federal Lands

The topography and land cover of the federal lands are similar to those of the Mine Site previously discussed, but include additional area to the west and northwest that are mostly wetland. NorthMet Project Proposed Action-related activities that would result in noise, vibration, or airblast would not occur on the additional federal lands (3,776.1 acres) situated west and northwest of the Mine Site, so no additional noise, vibration, or airblast effects would occur in this area. It should be noted that the federal land excludes private lands (295.2 acres) situated south of Dunka Road. There are no residential areas or individual houses within the federal lands that could be affected by the NorthMet Project Proposed Action’s noise and vibration-related activities (see Figures 5.3.8-1 to 5.3.8-4). As discussed in Section 5.2.8.2, noise and vibration levels from the Mine Site would be too low to significantly affect the recreational use of the federal land (i.e., minor effects in 11,456 acres around the Mine Site).

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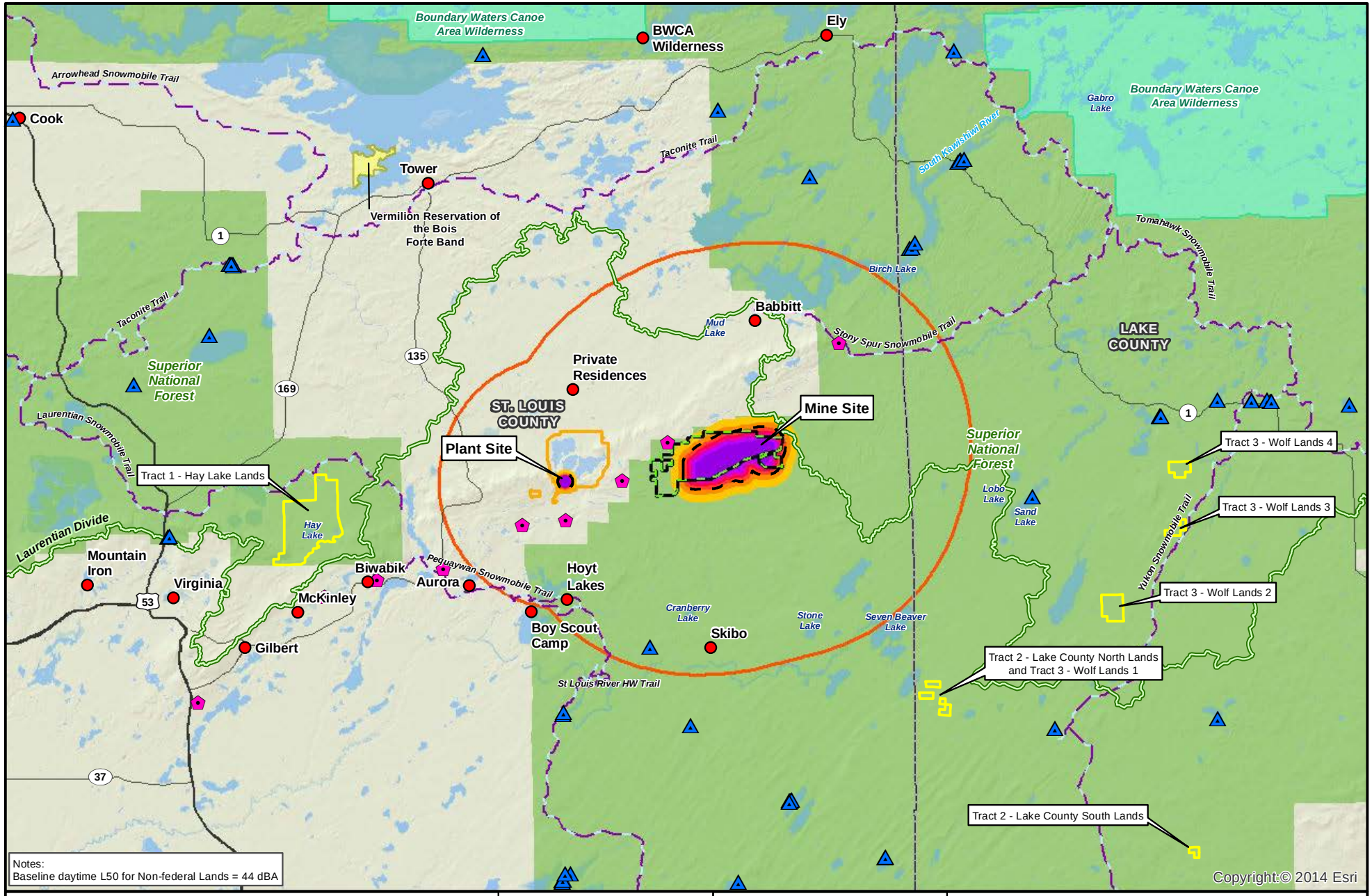

Figure 5.3.8-1
Predicted Daytime L50 Noise Contours at Non-federal Tracts (Includes Baseline L50 Levels)
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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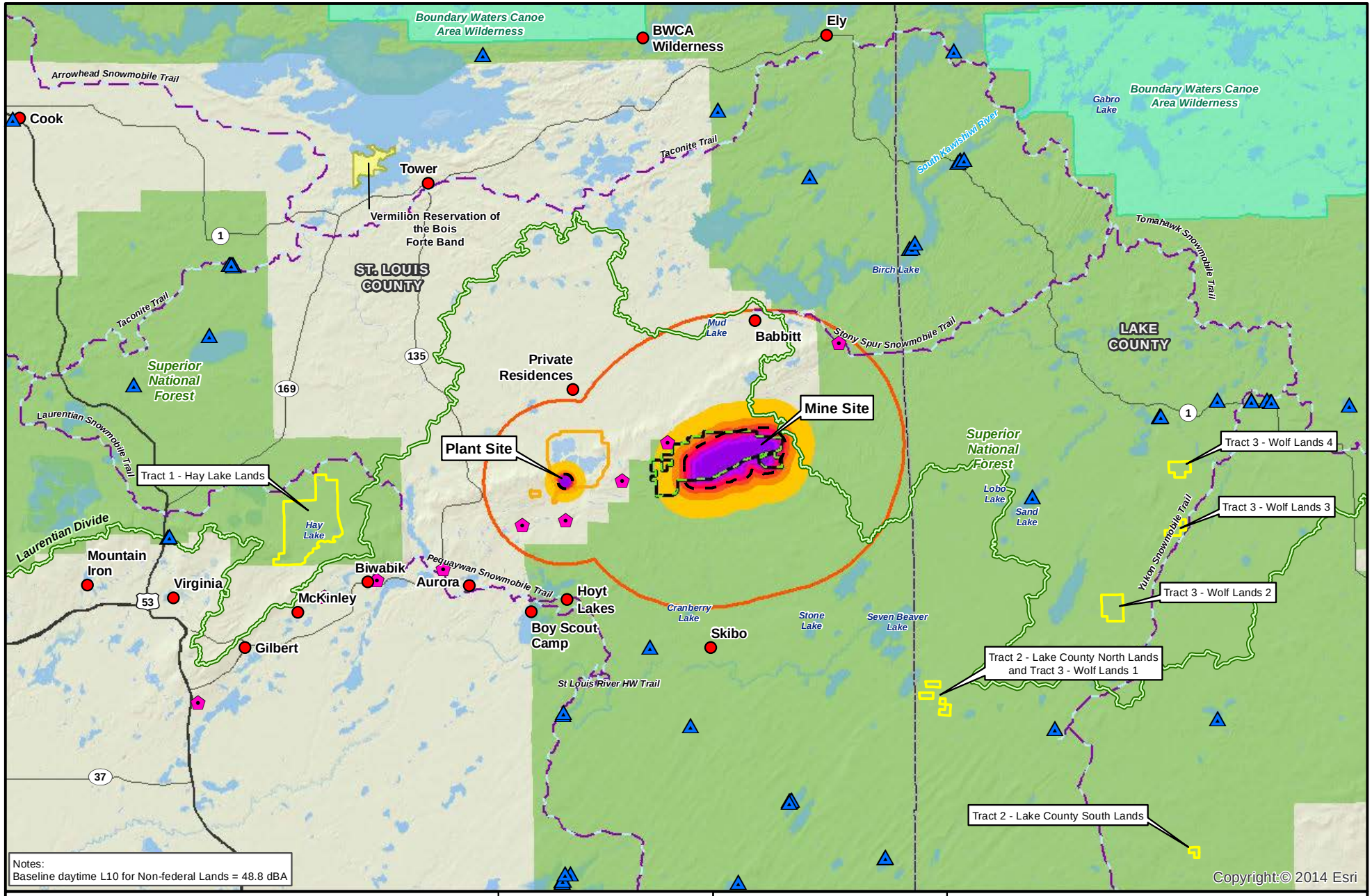

Figure 5.3.8-2

Predicted Daytime L10 Noise Contours at Non-federal Tracts (Includes Baseline L10 Levels)

NorthMet Mining Project and Land Exchange FEIS

Minnesota

November 2015

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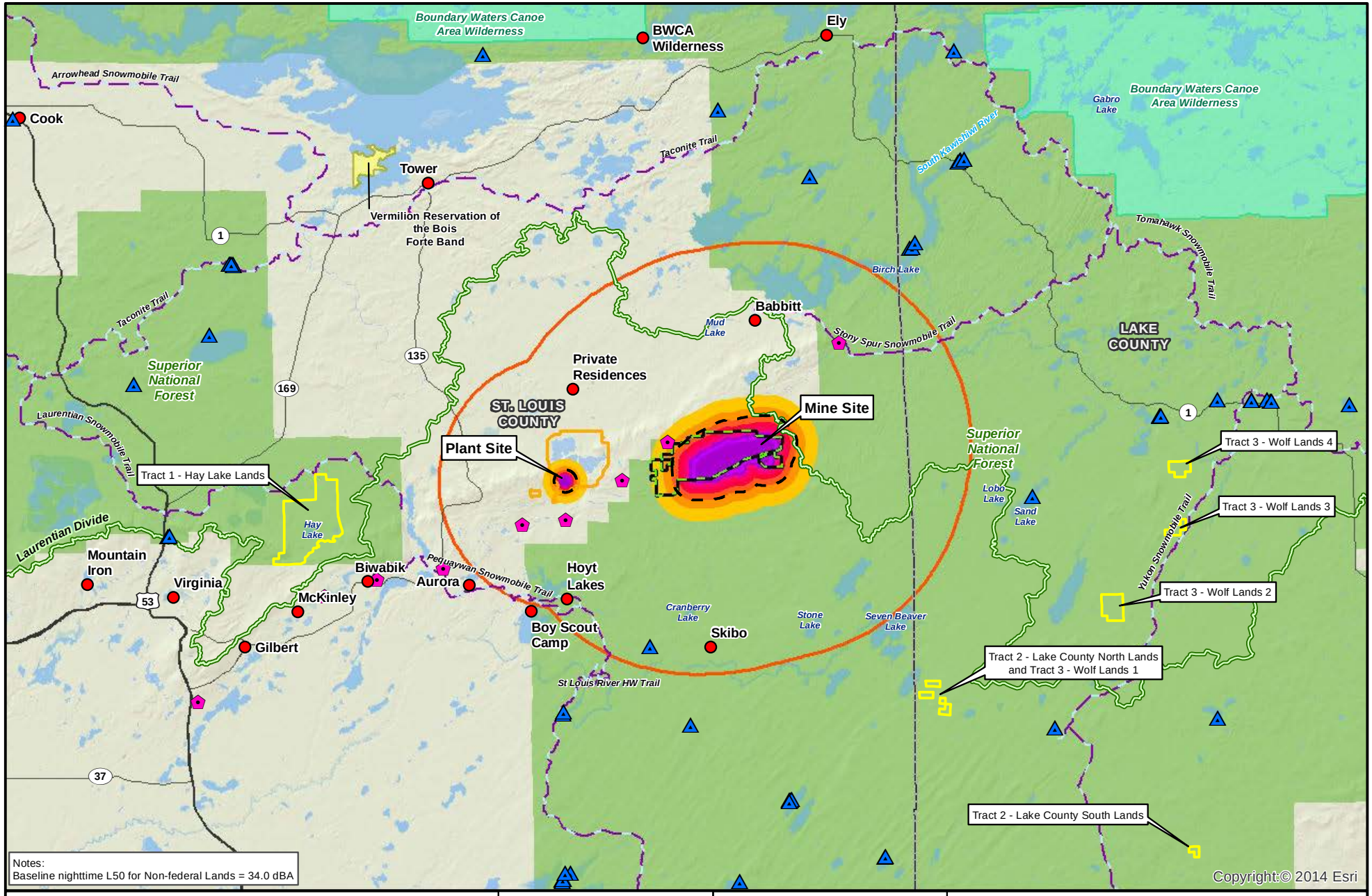

Figure 5.3.8-3
Predicted Nighttime L50 Noise Contours at Non-federal Tracts (Includes Baseline L50 Levels)
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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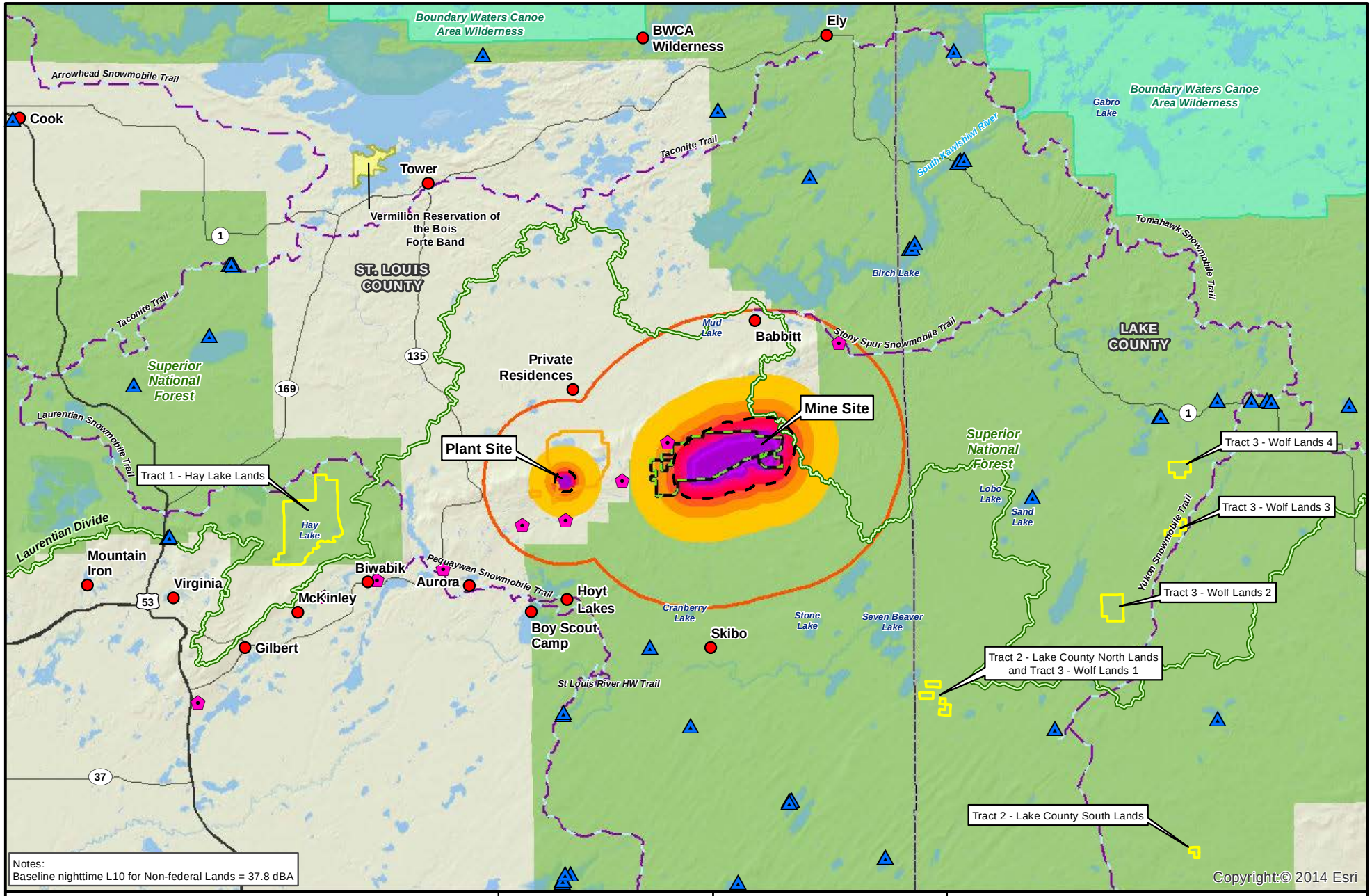

Notes:
Baseline nighttime L10 for Non-federal Lands = 37.8 dBA

Noise Sensitive Receptor
Non-federal Lands
Federal Lands
Plant Site
Mine Site
Wildlife Travel Corridor
Recreational Site
Native American Reservation
Boundary Waters Canoe Area Wilderness
National Forest
MN L10 Nighttime Noise Standard: 55 dBA
L10 Audibility Limit
L10 dBA Levels
40-44.9
45-49.9
50-54.9
55-59.9
60-64.9
65-69.9
70+

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 2 4 8 Miles

Figure 5.3.8-4
Predicted Nighttime L10 Noise Contours at Non-federal Tracts (Includes Baseline L10 Levels)
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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5.3.8.2.2 Non-federal Lands

The non-federal lands would be managed consistent with the adjacent forest lands management (see Section 4.3.1). No direct effects from the Land Exchange Proposed Action are anticipated since the USFS currently has no plans for operations on the non-federal lands and no NorthMet Project Proposed Action-related activity (e.g., drilling, blasting, excavation work, material haulage via trucks, and ore crushing) would occur within the non-federal lands.

Review of the most-up-to-date aerial maps indicates that there are no human or residential receptors within or adjacent to the non-federal lands (Tracts 1 to 5). If the Land Exchange Proposed Action were to occur and the non-federal lands were added to the Superior National Forest (i.e., if the tracts became federal lands), public recreational use such as hiking and hunting would likely occur on these tracts.

To determine the indirect effect of operations at the Mine Site and Plant Site on people that may use the non-federal lands for recreational activities such as hiking and hunting, the modeled area was expanded to a 20-mile radius from both the Mine Site and the Plant Site. Daytime and nighttime noise contours (L_{50} and L_{10}) generated from the modeling are shown in Figures 5.3.8-1 through 5.3.8-4. During the daytime, all potential receptors within the non-federal lands were outside the 50-dBA (L_{50} and L_{10}) noise contours. During the nighttime, all potential receptors within the non-federal lands were outside the 40-dBA (L_{50} and L_{10}) noise contours. This shows that the predicted daytime and nighttime noise levels at the non-federal lands due to operations at the Mine Site and Plant Site are well below Minnesota's noise standards. The results of the noise assessment indicate that operations at the Mine Site and Plant Site would add no perceptible noise (0 dBA) to the current baseline levels experienced at the non-federal lands. Non-federal Tracts 4 and 5 are approximately 50 and 90 miles away, respectively, from the federal lands and are outside the area of analysis for noise modeling; neither tract would be affected by noise from operations at the Mine Site and Plant Site.

Based on the information above, it is anticipated that noise from typical mining and hauling operations at the Mine Site and ore-crushing operations at the Plant Site would not affect the people that may use the non-federal lands for recreational activities such as hiking and hunting under the Land Exchange Proposed Action. However, as discussed in Section 5.2.8, tribal users of archaeological sites (Spring Mine Lake Sugarbush, *Mesabe Widjiu*, and BBLV Trail; see Section 4.2.9) in the immediate vicinity of the Mine Site and Plant Site could experience some effects from noise. The non-federal lands are far from the Mine Site and Plant Site (10 to 90 miles away), so indirect vibration levels from operations at both locations would not affect potential receptors within the non-federal lands that would be acquired under the Land Exchange Proposed Action.

5.3.8.3 Land Exchange Alternative B

Under the Land Exchange Alternative B, 4,752.6 acres would be conveyed to PolyMet. The type, quantity, and location of noise- and vibration-related sources (i.e., drilling, blasting, excavation work, haul trucks, trains, and crushers) for the Land Exchange Alternative B would be the same as that for the Land Exchange Proposed Action. Therefore, the Land Exchange Alternative B would not change noise and vibration levels experienced at the federal lands or modify noise and vibration effects on nearest receptors. If the 4,752.6 acres of land were to become privately owned, public recreational use currently associated with the smaller federal parcel would no

longer occur on that portion of the federal lands (i.e., the Land Exchange Alternative B would have no effects associated with public recreational use on that portion). Sections 5.2.8.2.1 and 5.2.8.2.2 provide a discussion of the noise and vibration effects on the federal lands.

Under the Land Exchange Alternative B, Tract 1 (4,926.3 acres) would be acquired by the USFS. The type, quantity, and location of noise- and vibration-related sources (i.e., drilling, blasting, excavation work, haul trucks, trains, and crushers) for this alternative would be the same as that for the Land Exchange Proposed Action. Therefore, the Land Exchange Alternative B would not change noise and vibration levels experienced at the non-federal lands or modify noise and vibration effects on the nearest receptors.

As indicated above, during the daytime, all modeled potential receptors within Tract 1 were outside the 50-dBA (L_{50} and L_{10}) noise contours (see Figure 5.3.8-1 and 5.3.8-2). Similarly, during the nighttime, all potential receptors within Tract 1 were outside the 40-dBA (L_{50} and L_{10}) noise contours (see Figure 5.3.8-3 and 5.3.8-4). The predicted daytime and nighttime noise levels at Tract 1 due to operations at the Mine Site and Plant Site are well below Minnesota's noise standards. The results of the noise assessment indicate that operations at the Mine Site and Plant Site would add no additional noise (0 dBA) to the current baseline levels experienced at Tract 1.

5.3.8.4 Land Exchange No Action Alternative

Under the Land Exchange No Action Alternative, the transfer of lands would not occur and there would be no increase in noise and vibration levels at the federal and non-federal lands. Therefore, there would be no change in noise and vibration levels at the nearest receptors.

5.3.9 Cultural Resources

This section summarizes the environmental consequences of the Land Exchange Proposed Action on historic properties that are present on the federal and non-federal lands, including the potential effects, types of avoidance, effect minimization measures, and potential mitigation measures that are relevant to these historic properties. Additionally, this section summarizes the environmental consequences of the Land Exchange Proposed Action and alternatives on 1854 Treaty resources—i.e., those areas and species that are traditionally or culturally important to the Bands. Under the Land Exchange Proposed Action and alternatives, the Superior National Forest would retain its ongoing responsibility for managing cultural resources on Superior National Forest lands in accordance with the Forest Plan.

The federal Co-lead Agencies, after consulting with the SHPO, Bands, and PolyMet, have determined that the Partridge River Segment of the BBLV Trail is eligible for inclusion in the NRHP. The SHPO concurred in this determination. All other cultural resources identified as part of the Land Exchange Proposed Action, as identified in Section 4.3.9.1.1, were determined to be not eligible for inclusion in the NRHP, and therefore did not receive further consideration under Section 106 during review of the Land Exchange Proposed Action.

After consultation with the SHPO, Bands, and PolyMet, the federal Co-lead Agencies have determined that the BBLV Trail Segment would be adversely affected by the Land Exchange Proposed Action. The SHPO agreed with this finding. This determination was used to facilitate consultation with the SHPO, Bands, and PolyMet pertaining to the resolution of adverse effects. The ACHP was notified of adverse effect by letter on May 21, 2015, but declined to participate. The federal Co-lead Agencies are currently in the process of developing a Memorandum of Agreement (MOA), which identifies the steps the federal Co-lead Agencies would take to avoid, minimize, or mitigate the adverse effect.

5.3.9.1 Methodology and Evaluation Criteria

Potential effects associated with the Land Exchange Proposed Action would be the destruction of historic properties and the loss of the historic information and cultural significance that these properties could represent. An additional potential effect would be the loss of federal protection for any unknown historic properties, such as those provided under the NHPA, the Archaeological Resource Protection Act, and the Native American Graves and Repatriation Act. The methodology and evaluation criteria used to determine potential effects on cultural resources from the Land Exchange Proposed Action are similar to those used for the NorthMet Project Proposed Action (see Section 5.2.9).

The analysis of cultural resources for the non-federal lands was performed based on readily available information, and no additional field work was performed. Intensive analysis is only needed for the federal parcel leaving federal ownership. The non-federal lands that would be going into federal ownership would not be of primary concern since future management of these lands would be per Forest Plan direction for heritage resources.

The spatial area of analysis for Land Exchange Proposed Action effects on cultural resources included the boundaries of the federal tracts proposed for the exchange, while the temporal area of analysis was the point in time at which the change in ownership would occur. The geographic extent is appropriate because it includes all cultural resources that would be affected by a change

in site protection. In a temporal sense, the change in ownership is appropriate because this is when there would be a gain or loss of legal protections.

The analysis of the cultural resources affected by the Land Exchange Proposed Action was guided by effects criteria that were developed by the USFS and the USACE. The analysis included a review of known and recorded heritage resources (i.e., historic structures, artifacts, TCPs) within or immediately adjacent to the federal and non-federal lands and a qualitative assessment to determine if there were portions of the federal and non-federal lands that have not been surveyed previously and would have a high probability to yield heritage resources.

5.3.9.2 Land Exchange Proposed Action

5.3.9.2.1 Federal Lands

As outlined in Section 5.2.9, the federal Co-lead Agencies have determined, and the SHPO concurred, that the BBLV Trail Segment is eligible for inclusion in the NRHP. The federal Co-lead Agencies, after consultation with the SHPO, Bands, and PolyMet, have determined that the eligible property will be adversely affected and the SHPO agreed with that finding. Cultural resources located on private lands being transferred to federal ownership would not be considered as adversely affected, but would be considered to have greater preservation protection under federal law in the event the Land Exchange Proposed Action were to occur. The federal Co-lead Agencies are currently in the process of developing an MOA, which identifies the steps the federal Co-lead Agencies would take to avoid, minimize, or mitigate the adverse effect.

The 1854 Treaty resources located within the Land Exchange Proposed Action would be similar to the Mine Site portion of the NorthMet Project area previously discussed in Section 4.2.9. Section 4.2.9 provides further discussion of the existing conditions on the Mine Site and associated federal lands. The Land Exchange Proposed Action represents an exchange of private and federal land, but it is also represents an exchange of access to natural resources expressed in treaties made between the United States and Bands of Ojibwe Indians in the 19th Century. Due to the nature of a land exchange, therefore, the effects would be limited to access to such resources versus direct or indirect effects, as would be the case with the Land Exchange Proposed Action.

An analysis of effects on 1854 Treaty resources, as described and discussed in Section 4.2.9, is limited by the lack of specific information concerning the use of such resources in the Land Exchange area. The cultural resources investigations conducted as part of the Land Exchange Proposed Action included Band member interviews with Bois Forte, Fond du Lac, and Grand Portage, although only Bois Forte's results were made available. The results of the interviews and the cultural resources investigation did not find any natural resources that would be considered a TCP or other traditional cultural place.

There is also no quantitative analysis of current use of 1854 Treaty resources in or near the federal lands. This lack of data also precludes the analysis of how Band members would be quantitatively affected socioeconomically by effects on 1854 Treaty resources, further discussed in Section 5.2.10. The primary source of data for assessing effects on 1854 Treaty resources is from the analysis of the environment in other chapters of this FEIS as discussed in Section 4.2.9.4 and 5.2.9.2.2.

As discussed above, the Land Exchange Proposed Action could have effects on 1854 Treaty resources—i.e., lack of access to those areas and species that are traditionally or culturally

important to the Bands. For example, coniferous bogs contain several plant species that are tribally harvested resources (e.g., cranberries, Labrador tea, creeping snowberry, etc.). Because the non-federal lands contain fewer acres of coniferous bogs than the federal lands, the Land Exchange Proposed Action would result in a net decrease of coniferous bog wetlands on the federal estate.

Band members' use of the federal lands is not well-defined through research at this time and did not emerge through interviews. A good faith effort was made on the part of the federal Co-lead Agencies to identify use areas in or adjacent to the federal lands; however, those efforts resulted in little specific information concerning historic subsistence use and no information regarding recent subsistence activity within the federal lands. As such, cultural effects on the Bands would be difficult to quantify in regards to such incremental increases below standards or effects on species where appropriate mitigation is used.

5.3.9.2.2 Non-federal Lands

There are no known cultural resources on the non-federal lands, except known 1854 Treaty resources consisting of wild rice beds within the Hay Lake lands. Cultural resources located on private lands being transferred to federal ownership would not be considered adversely affected, but would be considered to have greater preservation protection under federal law in the event the Land Exchange Proposed Action were to occur. No wild rice beds would be affected as a result of the Land Exchange Proposed Action as no activities are proposed on the non-federal lands and the proposed mining activities would not affect these lands.

The Land Exchange Proposed Action represents an exchange of non-federal and federal land, but it also represents an exchange of access to natural resources expressed in treaties made between the United States and Bands of Ojibwe Indians in the 19th Century. Due to the nature of a land exchange, therefore, the 1854 Treaty resources would be available for resource gathering and subsistence use by the Bands and would receive greater protection under federal law than they are currently receiving.

5.3.9.3 Land Exchange Alternative B

5.3.9.3.1 Federal Lands

All of the cultural resources and 1854 Treaty resources identified and discussed in Section 5.3.9 are located within the Land Exchange Alternative B. Effects on these resources would be the same as discussed in Section 5.3.9.

5.3.9.3.2 Non-federal Lands

There are no known cultural resources on the non-federal lands, except known 1854 Treaty resources consisting of wild rice beds within the Hay Lake lands. The non-federal lands that would be going into federal ownership would not be of primary concern for cultural resources since future management of these lands would be as per the Forest Plan direction for cultural resources. Cultural resources located on private lands being transferred to federal ownership would not be considered adversely affected, but would be considered to have greater preservation protection under federal law in the event the Land Exchange Proposed Action were to occur. No wild rice beds would be affected as a result of the Land Exchange Alternative B as no activities are proposed on the non-federal lands and the proposed mining activities would not

affect these lands. The Land Exchange Alternative B represents an exchange of private and federal land, but it also represents an exchange of access to natural resources expressed in treaties made between the United States and Bands of Ojibwe Indians in the 19th Century. Due to the nature of a land exchange, therefore, the 1854 Treaty resources would be available for resource gathering and subsistence use by the Bands and would receive greater protection under federal law than they are currently receiving.

5.3.9.4 Land Exchange No Action Alternative

There would be no effects on cultural resources or 1854 Treaty resources under the Land Exchange No Action Alternative.

5.3.10 Socioeconomics

This section describes the potential socioeconomic consequences of the Land Exchange Proposed Action. Overall, the Land Exchange Proposed Action would have the following socioeconomic effects:

- Positive economic effects due to the value of forestry products made available on the non-federal lands, as well as jobs and revenue due to increased visitation of the non-federal lands;
- Undetermined effects for EJ populations and subsistence activities, due to the net increase in the amount of land available for subsistence activities, but unknown changes in the type and extent of subsistence resources on the federal and non-federal lands; and
- Negligible effects on other socioeconomic considerations.

5.3.10.1 Methodology and Evaluation Criteria

As discussed in Section 5.2.10, the study area for socioeconomics differs from the study area used for much of the rest of this FEIS. It includes Cook, Lake, and St. Louis counties. This includes, where appropriate, the St. Louis County municipalities listed in Section 4.2.10. The primary issues related to socioeconomics on and near the non-federal lands, and therefore the potential for effects, would include the following:

- The amount of annual property taxes lost to the county from non-federal lands going to federal ownership;
- The potential change in payment in lieu of taxes to the county from the Land Exchange Proposed Action;
- The differences in assessed market values of federal lands compared to non-federal lands proposed for exchange;
- The difference between present values of recently harvested (past 10 years) products from the federal parcels and the value of products from the federal parcels;
- The difference between present and future values of potential forest products in Land Exchange Proposed Action parcels;
- The change in forestry employment on federal and non-federal parcels (estimated);
- A qualitative assessment of public visitation to the federal tract and estimated/potential visitation to non-federal tracts;
- The difference between present and future estimated spending on recreational tourism;
- The difference between present and future amounts of 1854 Treaty resources in Land Exchange Proposed Action parcels; and
- A qualitative assessment of tribal use of the federal parcels and estimated/potential use of the non-federal parcels.

5.3.10.2 Land Exchange Proposed Action

This section describes the potential socioeconomic effects of the Land Exchange Proposed Action on communities in the socioeconomics study area. The Land Exchange Proposed Action would create moderate positive economic effects through increased opportunity for forestry and recreation and associated employment, earnings, and revenue. The Land Exchange Proposed Action would have negligible negative effects on other socioeconomic factors, including housing, public facilities and services, EJ populations, and subsistence.

5.3.10.2.1 Economic Activity

There is no current economic activity (e.g., forestry, etc.) on the federal lands, although harvesting of forest products is permitted by the Forest Plan. More importantly, the federal lands are not accessible to the public for economically measurable use, such as forestry or recreation (see Section 5.2.11). Thus, while the federal lands may hold some theoretical economic value for timber harvest, their practical economic value is zero. Table 5.3.10-1 lists data and observations relevant to the economic value of the federal and non-federal lands.

Tax Payments

Implementation of the Land Exchange Proposed Action would transfer ownership of the federal lands to PolyMet, and would result in an active mining operation that would generate federal, state, and local tax revenue, in addition to employment. As described in Section 5.2.10.2.3, total annual direct tax payments from the NorthMet Project Proposed Action during operations are expected to be in the range of $37 to $80 million, a positive economic effect, both on an absolute basis and when compared with the minimal current economic activity within the NorthMet Project area.

The amount of property taxes that would be paid to St. Louis County for the federal lands has not yet been determined; however, property taxes would be included in the overall taxes paid by PolyMet, shown in Table 5.2.10-3. For the non-federal lands, increases to federal payments in lieu of taxes to study area counties as a result of the Land Exchange Proposed Action would be negligible (compared to the current payment in lieu for the federal lands).

Table 5.3.10-1 Economic Value of Federal and Non-federal Lands (in 2012 dollars)

Land	Acreage	Annual Property Tax[1]	Annual Payment in Lieu of Taxes (PILT)[2]	Market Value of Land[3]	Other Economic Value
Federal Lands	6495.4	NA[3]	$2,273.39	TBD	NA
Tract 1	4,926.3	$20,714.68	$1,724.10	TBD	Potential recreational value due to the presence of Hay Lake (boating, fishing), existing trails, evidence of ongoing hunting, and other recreational activity (see Section 4.3.11).
Tract 2	381.9	$2,563.54	$133.70	TBD	NA
Tract 3	1,575.8	Unknown	$551.60	TBD	NA
Tract 4	160.2	$739.30	$56.00	TBD	NA
Tract 5	30.8	$1,938.00	$10.85	TBD	Potential recreational value. Former site of a cabin and camp site owned by Carleton College. Adjacent to highly scenic McFarland Lake (boating, fishing, access to BWCAW) (see Section 4.3.11).
Subtotal, Non-Federal Lands	7,075.0	$25,995.52	$2,476.25	TBD	NA
Net Change[5]	**579.6**	**NA**	**$202.86**	**TBD**	**NA**

Notes:
1 Source: PolyMet, Pers. Comm., April 17, 2012.
2 Source: DOI 2012
3 See Market Value section below.
4 Table 5.2.10-3 describes total estimated taxes that PolyMet expects to pay for the federal lands. The amount specifically anticipated for property taxes has not been determined.
5 Calculated as (non-federal) minus (federal).

TBD = To be determined

Market Value

Federal regulations governing land exchanges, contained in 36 CFR 254.12, require that the assessed value of non-federal land being exchanged be equal to or within 25 percent of the assessed value of the federal land being exchanged. Assessment data have been updated and are included in this FEIS.

Recreation Value

Tracts 1 and 5 also have the potential for recreational use (whereas the federal lands are not easily accessible for any purpose). To the degree that the USFS manages these lands (and the other non-federal lands) for active recreational activity, the Land Exchange Proposed Action could increase economic activity associated with recreation and tourism. The non-federal lands comprise less than half of 1 percent of the 2,171,603.9 acres of Superior National Forest that are managed by USFS, so any such increase would be small.

Timber

There is no ongoing forestry activity on the federal lands, and no evidence of recent past forestry activity. Portions of Tracts 2, 3, and 4 show some evidence of timber harvesting, and a timber harvest agreement is in place through 2013 for the Wolf Lands 3 parcel (see Section 4.3.1). Likely USFS management area designations for the non-federal lands would allow timber harvesting on 6,547.1 acres of the non-federal lands (the lands designated General Forest or General Forest – Longer Rotation; see Table 5.3.1-1). Thus, the Land Exchange Proposed Action could increase timber production in Superior National Forest.

On average, 1 percent of timber land in Superior National Forest is harvested each year, with an estimated value of $400 (gross) per harvested acre (MDNR, Pers. Comm., April 26, 2012). Timber harvesting on the non-federal lands (and any other USFS lands) would occur only after completion of forest planning, when acres that are eligible for harvest are identified and the offered for sale. For planning purposes, if 1 percent of the non-federal lands would therefore generate gross proceeds of approximately $26,188 per year. This represents approximately 2 percent of the $1,435,900 value of timber harvests in Superior National Forest in 2011 (MDNR, Pers. Comm., April 26, 2012), although the markets for timber, and thus the value of harvested timber, can change dramatically. This additional activity would be estimated to generate fewer than 20 new jobs in the region. Minnesota averages approximately one forestry job (including logging and primary manufacturing) per 350 acres of annual harvest, and each direct forestry job generates another 3.6 indirect and induced jobs (MDNR, Pers. Comm., April 26, 2012). Using these estimates, the Land Exchange Proposed Action could generate four direct and 12 indirect jobs. As of 2009, forestry activities employed approximately 1,287 individuals in the study area (Headwaters Economics 2009).

Environmental Justice and Subsistence

Potential EJ populations, as well as the EJ and subsistence effects of the Land Exchange Proposed Action on the federal lands, are described in Section 5.2.10.2.7. Although tribal entities possess usufructuary rights to hunt, fish, and gather throughout the 1854 Ceded Territory, the federal lands are not easily accessible for such subsistence activities. The Land Exchange Proposed Action would involve the transfer of 6,495.4 acres of inaccessible federal lands from

public to private ownership, and up to 7,075.0 acres of publicly accessible land from private to public ownership. To the degree that increased availability of publicly accessible land improves property value and generates revenue (see above) in the study area, the Land Exchange Proposed Action could have positive effects on EJ populations.

As a result of the Land Exchange Proposed Action, the current federal lands would become unavailable for subsistence use. Resource-specific sections of the FEIS address the degree to which subsistence species and resources are likely to be available on the non-federal lands. As described in Section 5.2.9, subsistence has both economic and cultural components; for the Bands, the harvest of a particular animal or plant is intrinsically linked to the place and nature in which it was harvested. Thus, a "net change" in subsistence activity associated with the Land Exchange Proposed Action cannot be calculated in the same way as, for example, the net change in employment or income. The Land Exchange Proposed Action would result in the loss of subsistence resources and opportunities on the federal lands, and a gain in subsistence resources and opportunities on the non-federal lands.

Other Socioeconomic Considerations

The Land Exchange Proposed Action would result in slight increases in demand for public safety services to assist recreational or other users of the non-federal lands. This is a demand that currently does not exist on the inaccessible federal lands. The non-federal lands represent 0.2 percent of the Superior National Forest. Thus, any such increased demand would be marginal. No new housing (and thus no increased demand for educational facilities) is anticipated on the non-federal lands. Any utilities extended to the non-federal lands (such as electricity) would likely be minimal in nature (given the ROS categories assigned to the non-federal lands—see Section 5.3.11). Thus, the Land Exchange Proposed Action would have negligible effects on other socioeconomic considerations.

The Land Exchange Proposed Action would result in a loss of some of the ecosystem functions provided by the forest, wetland, and other natural habitats on the federal lands, particularly the portions of the federal lands (i.e., the Mine Site) where habitat would be replaced by mine facilities. Some of these functions could be restored during the post-closure period, when the federal lands (as well as the Plant Site) are revegetated. In exchange, the Land Exchange Proposed Action would enable the USFS to directly manage the ecosystems functions on the non-federal lands.

5.3.10.3 Land Exchange Alternative B

Under the Land Exchange Alternative B, 4,752.6 acres of federal lands would be exchanged for the 4,926.3-acre Tract 1. The remainder of the federal lands would remain inaccessible by land. The Land Exchange Alternative B would create moderate positive economic effects through increased opportunity for forestry and recreation and associated employment, earnings, and revenue (see Table 5.3.10-1); however, these benefits would be less than from the Land Exchange Proposed Action. Similarly, the Land Exchange Alternative B would have negligible negative effects on other socioeconomic factors, including housing, public facilities and services, EJ populations, and subsistence, although less so than the Land Exchange Proposed Action.

5.3.10.4 Land Exchange No Action Alternative

Under the Land Exchange No Action Alternative, the NorthMet Project Proposed Action would not be developed, there would be no change to the federal lands, and the non-federal lands would remain inaccessible to the public (including tribal entities). Given other private ownership (e.g., the Dunka Road and railroad), the federal and non-federal lands would remain generally inaccessible to the public. Therefore, there would be no direct or indirect effects on socioeconomics.

5.3.11 Recreation and Visual Resources

This section describes the potential environmental consequences of the Land Exchange Proposed Action on recreational facilities and activities that typically take place on the federal and non-federal lands. In this section, effects on the federal and non-federal lands are discussed together, to facilitate calculation of net changes in recreation and scenic classes. Under the Land Exchange Proposed Action and Land Exchange Alternative B, the Superior National Forest would retain its ongoing responsibility for managing recreational resources on National Forest System lands in accordance with the Forest Plan.

Overall, the Land Exchange Proposed Action would increase opportunities for recreational activity through the acquisition of up to 7,075.0 acres of publicly accessible land (the non-federal lands) in exchange for 6,495.4 acres of federal land that are not publicly accessible by land, and thus cannot be practically used for recreation. The Land Exchange Proposed Action would also increase the amount of land controlled by the USFS in the Superior National Forest with Moderate and High SIOs.

The Land Exchange Alternative B would have a lesser degree of the same type of benefits for recreation and visual resources as the Land Exchange Proposed Action, due to the reduced land area involved.

Table 5.3.11-1 shows the effects of the Land Exchange Proposed Action and the Land Exchange Alternative B on acreage of various ROS classes; Table 5.3.11-2 shows the effects on SIO classes.

Table 5.3.11-1 Net Increase or Decrease of Recreation Opportunity Spectrum Classes

	Increase (Decrease) of ROS Class (Acres)			
Alternative	**Semi-Primitive Motorized**	**Semi-Primitive Non-Motorized**	**Roaded Natural**	**Total**
Land Exchange Proposed Action	(2,243.3)	2,309.9	513.0	579.6
Land Exchange Alternative B	(2,972.7)	2,162.2	984.2	173.7

Table 5.3.11-2 Net Increase or Decrease of Scenic Integrity Objectives

	Increase (Decrease) of Scenic Integrity Objective (Acres)			
Alternative	**High**	**Moderate**	**Low[1]**	**Total[1]**
Land Exchange Proposed Action	136.3	1,644.6	(1,170.8)	610.1
Land Exchange Alternative B	20.4	1,315.4	(1,153.2)	182.6

Note:
[1] Mud Lake would not be managed by the USFS, and therefore does not have an SIO.

5.3.11.1 Methodology and Evaluation Criteria

5.3.11.1.1 Recreation

The primary issues related to recreational facilities and activities associated with the Land Exchange Proposed Action on and near the federal lands and non-federal lands include the following:

- Change in areas of ROS classes within the Superior National Forest; and
- Qualitative difference in recreation opportunities, as measured using ROS classes, between outgoing federal land and non-federal lands to be acquired.

ROS classes are defined by the USFS (1982) and ROS classes for the non-federal lands were mapped to match the existing mapped ROS Spectrum areas on surrounding adjacent federal lands. GIS analysis was employed to determine the net change in acreage by ROS class. ROS classes are discussed in Section 4.2.11.1.1.

5.3.11.1.2 Visual Resources

The primary issue related to visual resources on and near the non-federal lands is the change in acreage of High, Moderate, and Low SIO classified land within Superior National Forest lands. SIOs were provided by USFS (1995), and as with ROS classes, SIOs for the non-federal lands were mapped to match the existing mapped SIOs on surrounding adjacent federal lands. GIS analysis was employed to determine the net change in acreage by SIO. SIOs are discussed in section 4.2.11.1.2. This quantitative analysis was supplemented by a qualitative description of loss of scenery opportunities on federal lands that would be conveyed to PolyMet and the gain of scenery opportunities on non-federal lands to be acquired and managed by USFS.

5.3.11.2 Land Exchange Proposed Action

5.3.11.2.1 Recreation

ROS classes for the federal lands are shown on Figure 5.3.11-1; the classes that would be applied to the non-federal lands are also shown on Figures 5.3.11-2 and 5.3.11-3. These classifications are summarized in Table 5.3.11-3. No developed recreational sites or opportunities are planned at this time. All of the tracts would be open for non-motorized, dispersed recreational activities. The federal lands in the Land Exchange Proposed Action consist of 967.0 acres designated as Roaded Natural and 5,528.4 acres designated Semi-Primitive Motorized (see Table 5.3.11-3). As described in Sections 4.2.11 and 4.3.11, the Semi-Primitive (Motorized and Non-Motorized) classes indicate areas where interaction between visitors is rare, but where human activities may be visible. The Roaded Natural class indicates an area where evidence of human activity and interactions are more frequent, and occasionally prevalent.

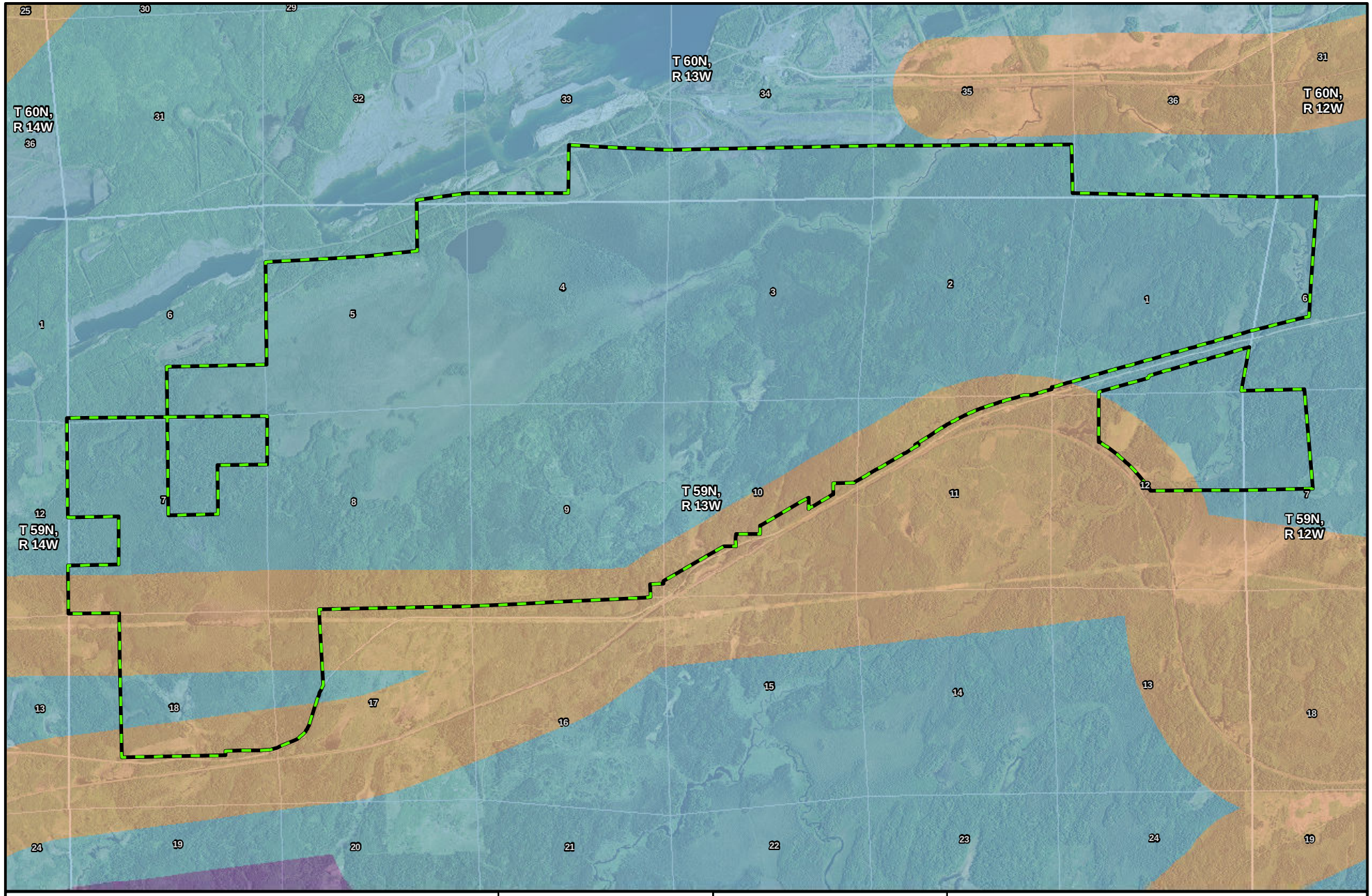

Federal Lands
Section Boundary
Section Label
Recreation Opportunity Spectrum
Semi-Primitive Motorized
Semi-Primitive Non-motorized
Roaded Natural
Rural

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1,000 2,000 4,000 Feet

Figure 5.3.11-1
Recreation Opportunity Spectrum
Federal Lands
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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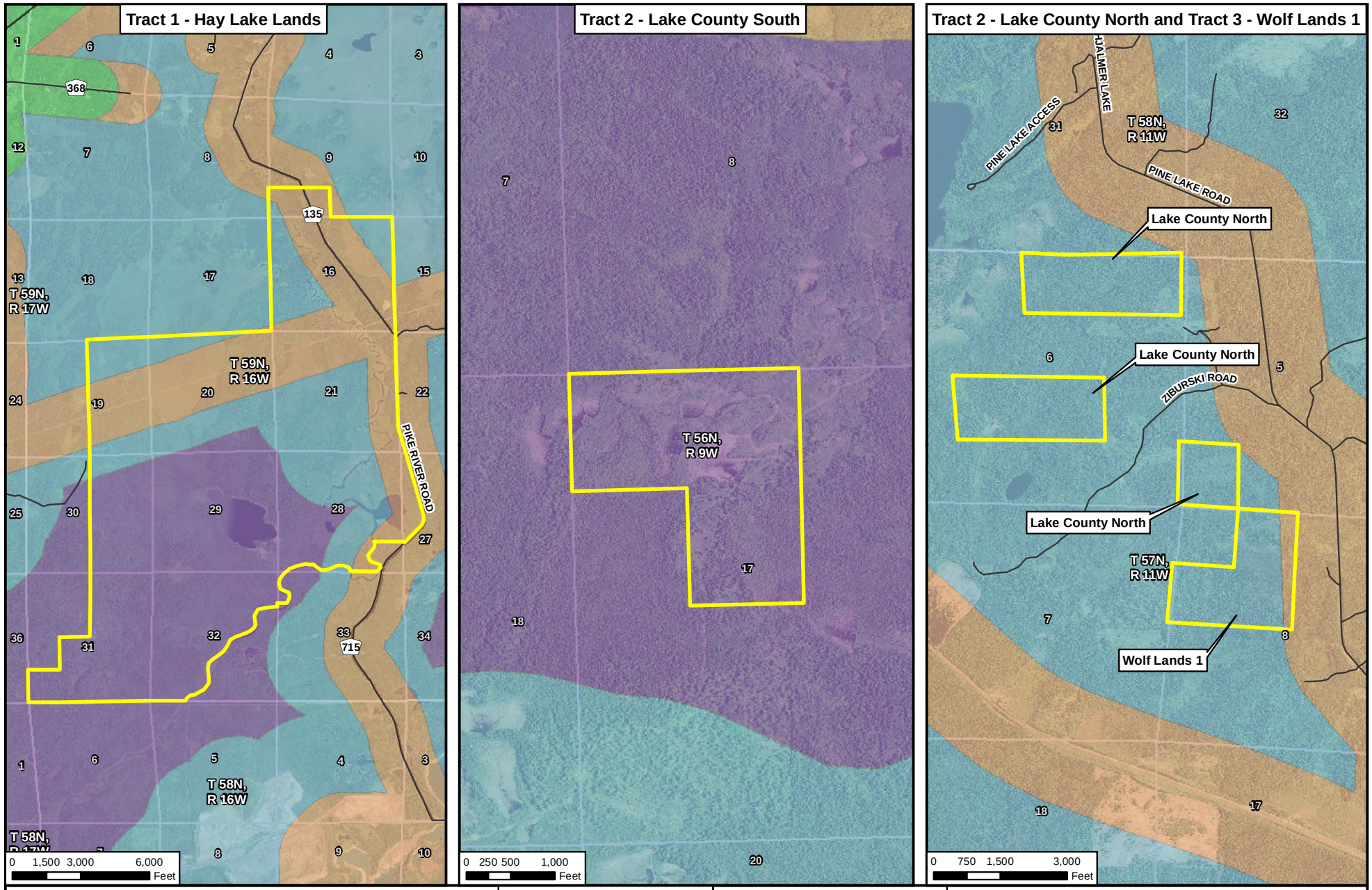

Non-federal Lands
Section Boundary
Section Label
Recreation Opportunity Spectrum
Semi-Primitive Motorized
Semi-Primitive Non-motorized
Roaded Natural
Rural

MNDNR
US Army Corps of Engineers
St. Paul District

N
W
E
S

Figure 5.3.11-2
Recreation Opportunity Spectrum
Tracts 1, 2, and 3
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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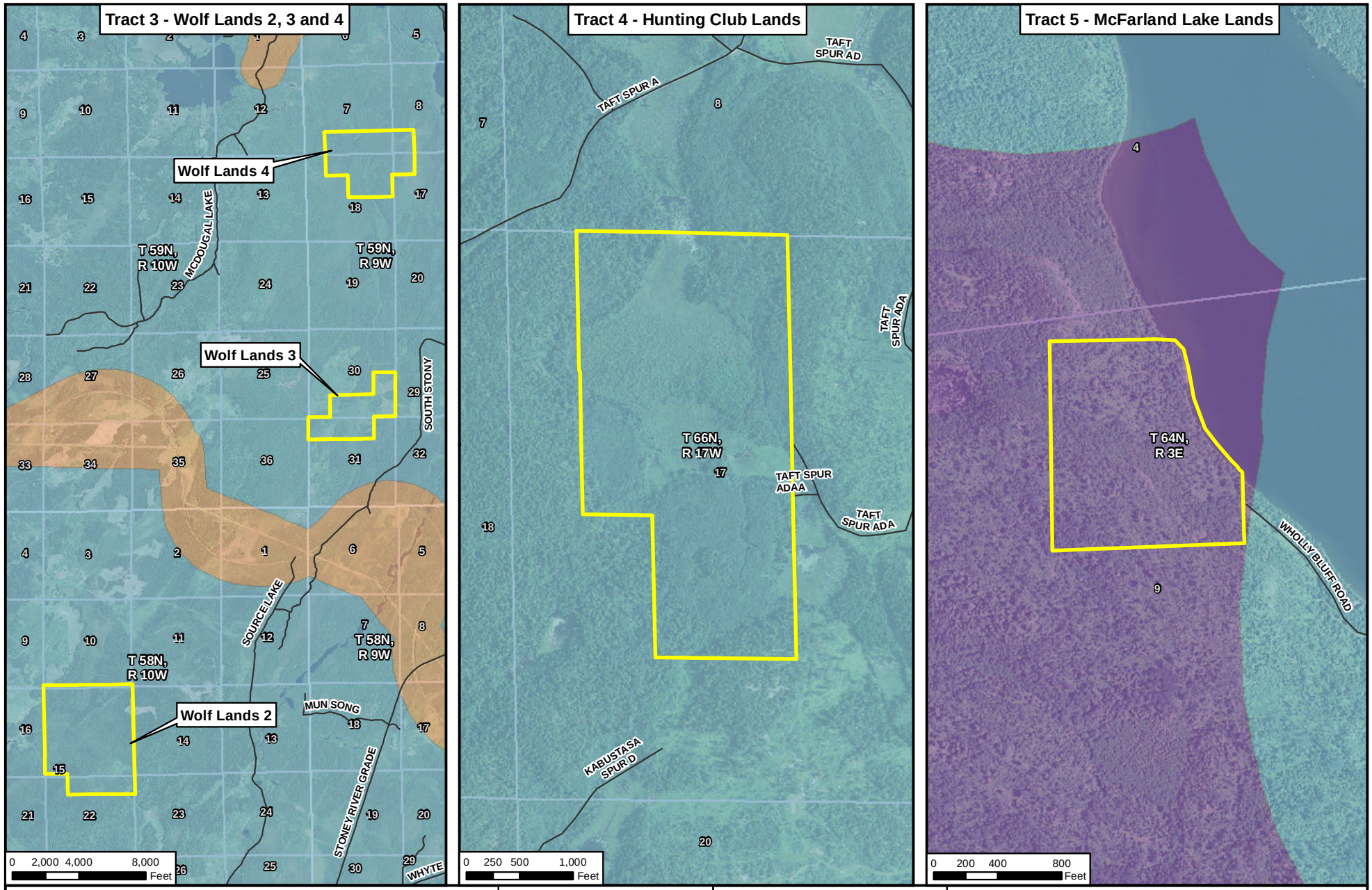

Non-federal Lands
Section Boundary
Section Label
Recreation Opportunity Spectrum
Semi-Primitive Motorized
Semi-Primitive Non-motorized
Roaded Natural
Rural

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

Figure 5.3.11-3
Recreation Opportunity Spectrum
Tracts 3, 4, and 5
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Table 5.3.11-3 Recreation Opportunity Spectrum Classifications of Federal and Non-Federal Lands (Land Exchange Proposed Action)

	Acres of ROS Class			
Parcel	**Semi-Primitive Motorized**	**Semi-Primitive Non-Motorized**	**Roaded Natural**	**Total**
Lands Conveyed				
Federal lands	5,528.4	0.0	967.0	6,495.4
Lands Acquired				
Tract 1 - Hay Lake	1,303.8	2,162.2	1,460.3	4,926.3
Tract 2 - Lake County North	265.0	0.0	0.0	265.0
Tract 2 - Lake County South	0.0	116.9	0.0	116.9
Tract 3 - Wolf Lands 1	106.1	0.0	19.7	125.8
Tract 3 - Wolf Lands 2	767.9	0.0	0.0	767.9
Tract 3 - Wolf Lands 3	277.4	0.0	0.0	277.4
Tract 3 - Wolf Lands 4	404.7	0.0	0.0	404.7
Tract 4 - Hunting Club	160.2	0.0	0.0	160.2
Tract 5 – McFarland Lake	0.0	30.8	0.0	30.8
Subtotal: Non-federal Lands	3,285.1	2,319.9	1,480.0	7,075.0
Net Change				
Net Increase/(Decrease)	(2,243.3)	2,309.9	513.0	579.6

Source: USFS, Pers. Comm., November 29, 2011.

There is no public land access to and no practical opportunity for recreational activity on the federal lands, and the federal lands would remain inaccessible after completion of the Land Exchange Proposed Action. By comparison, the non-federal lands would be accessible to varying degrees, and therefore could host recreational activities, as defined by their respective ROS class. Tract 1 is the most accessible and therefore has the greatest potential for public recreational use. Tract 5 would likely be accessible from adjacent Superior National Forest land and/or the lake itself, while Tract 4 is also accessible via road and trail. Tracts 2 and 3 would be more difficult to access.

As Table 5.3.11-3 shows, the Land Exchange Proposed Action would result in a net decrease to the federal estate of 2,243.3 acres of land designated Semi-Primitive Motorized, an increase to the federal estate of 2,309.9 acres of land designated Semi-Primitive Non-Motorized, and an increase to the federal estate of 513.0 acres of Roaded Natural land. Although there would be a decrease of Semi-Primitive Motorized land to the federal estate, the Land Exchange Proposed Action overall would affect less than one-quarter of one percent of the total area of the Superior National Forest (approximately 3 million acres), and the reduction to the federal estate of this ROS type would be exceeded by the increase to the federal estate in other ROS types.

Because the federal lands are not accessible to the public by land, the Land Exchange Proposed Action represents an addition to the amount of potential publicly accessible land in the Superior National Forest. As a result, the Land Exchange Proposed Action would increase opportunities for hunting, fishing, and other recreational activities.

5.3.11.2.2 Visual Resources

SIOs for the federal lands are shown on Figure 5.3.11-4, while the SIOs that would be applied to the non-federal lands are shown in Figures 5.3.11-5 and 5.3.11-6. These are summarized in Table 5.3.11-4. The Low SIO of the federal lands indicates that the area may be dominated by management activities. Effects on visual resources on the federal lands are similar to those at the Mine Site, as discussed in Section 5.2.11.2.1.

The non-federal lands are only somewhat visible from public roads, few of which are elevated enough to afford views of the tracts themselves. Still, transfer of the non-federal lands to Superior National Forest ownership would generally help to preserve the scenic quality of those parcels. The NorthMet Project area would not be visible from any of the Land Exchange Proposed Action parcels.

The Land Exchange Proposed Action would result in a net decrease to the federal estate of 1,170.8 acres of land with a Low SIO and an increase to the federal estate of 136.3 acres of land with a High SIO and 1,644.6 acres of land with a Moderate SIO (see Table 5.3.11-4). This change in the composition of the visual character of the Superior National Forest, which affects less than one-quarter of one percent of the total area of the forest, would have generally positive effects. The addition of land with Moderate and High SIO (in lieu of land with a Low SIO) could affect the types of forestry and management activities that could occur on those lands. The USFS would acquire land with a wider diversity of SIOs (i.e., the addition of land with Moderate and High SIOs) and the Land Exchange Proposed Action would result in a net increase to the federal estate.

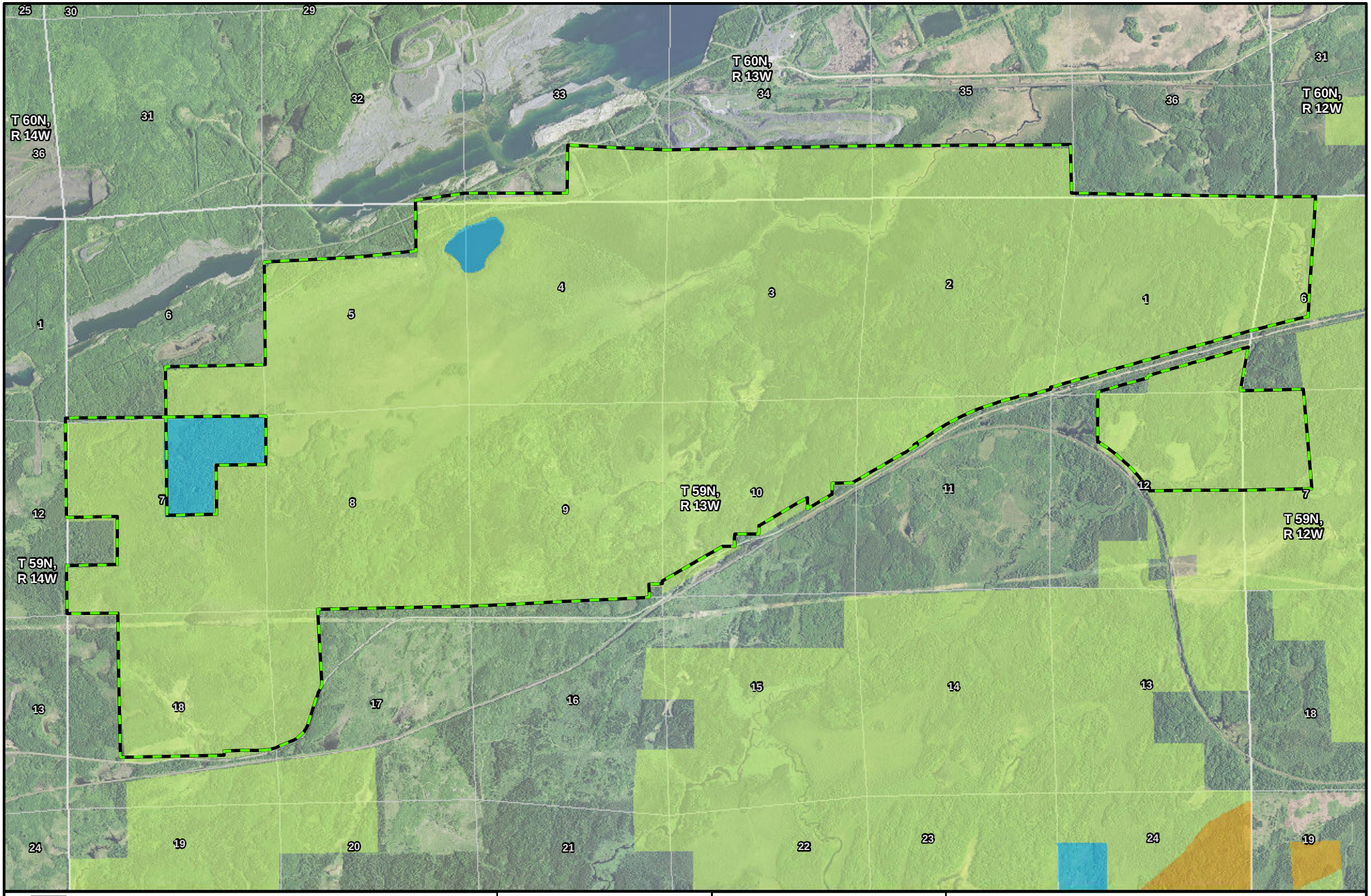

Federal Lands
Section Boundary
Section Label

Scenic Integrity Objective
High
Moderate
Low
N/A

MNDNR
US Army Corps of Engineers
St. Paul District

N
W
E
S

0 1,000 2,000 4,000 Feet

Figure 5.3.11-4
Scenic Integrity Objective
Federal Lands
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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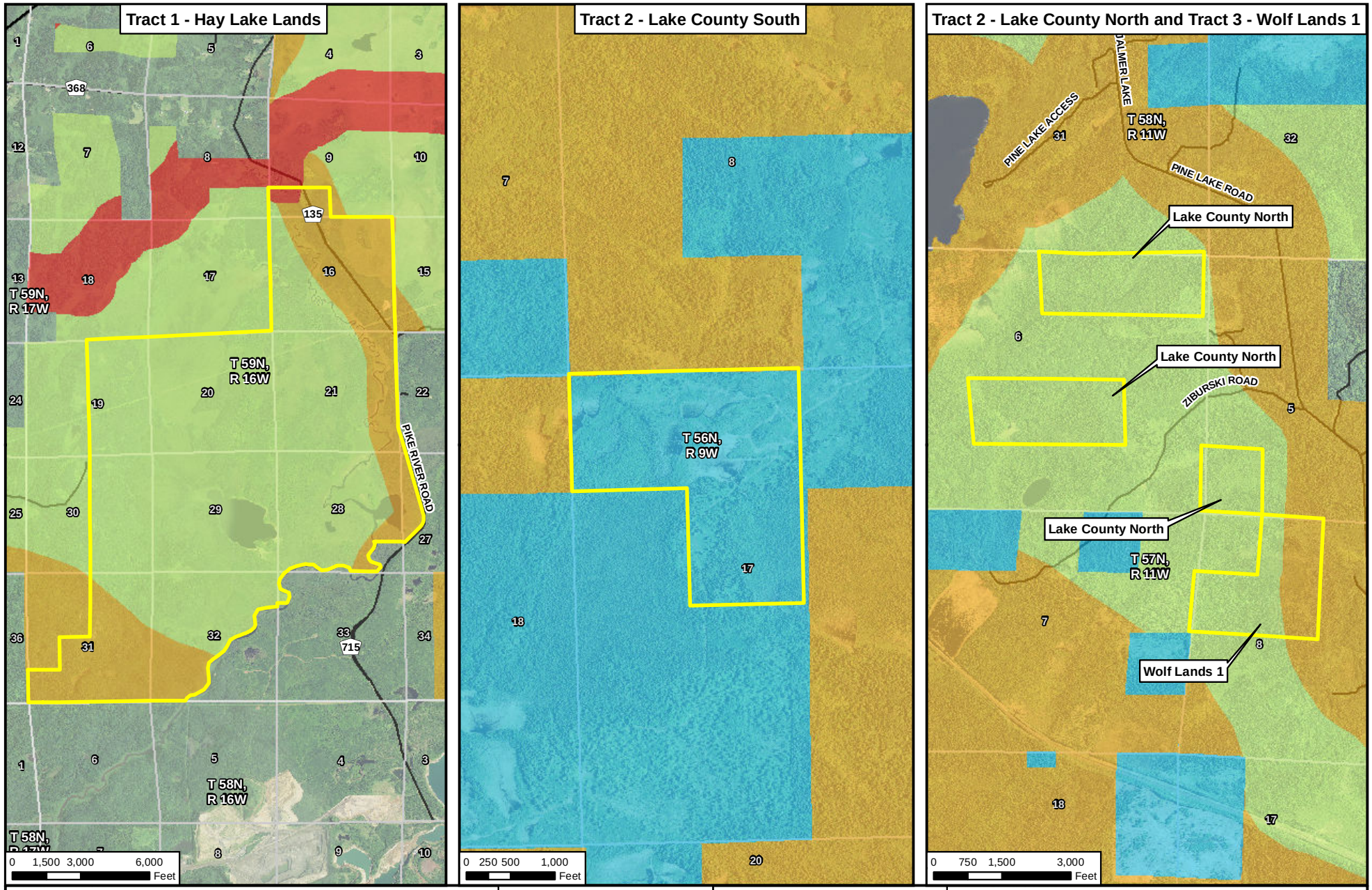

Non-federal Lands
Section Boundary
Section Label

Scenic Integrity Objective
High
Moderate
Low
N/A

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

Figure 5.3.11-5
Scenic Integrity Objective
Tracts 1, 2, and 3
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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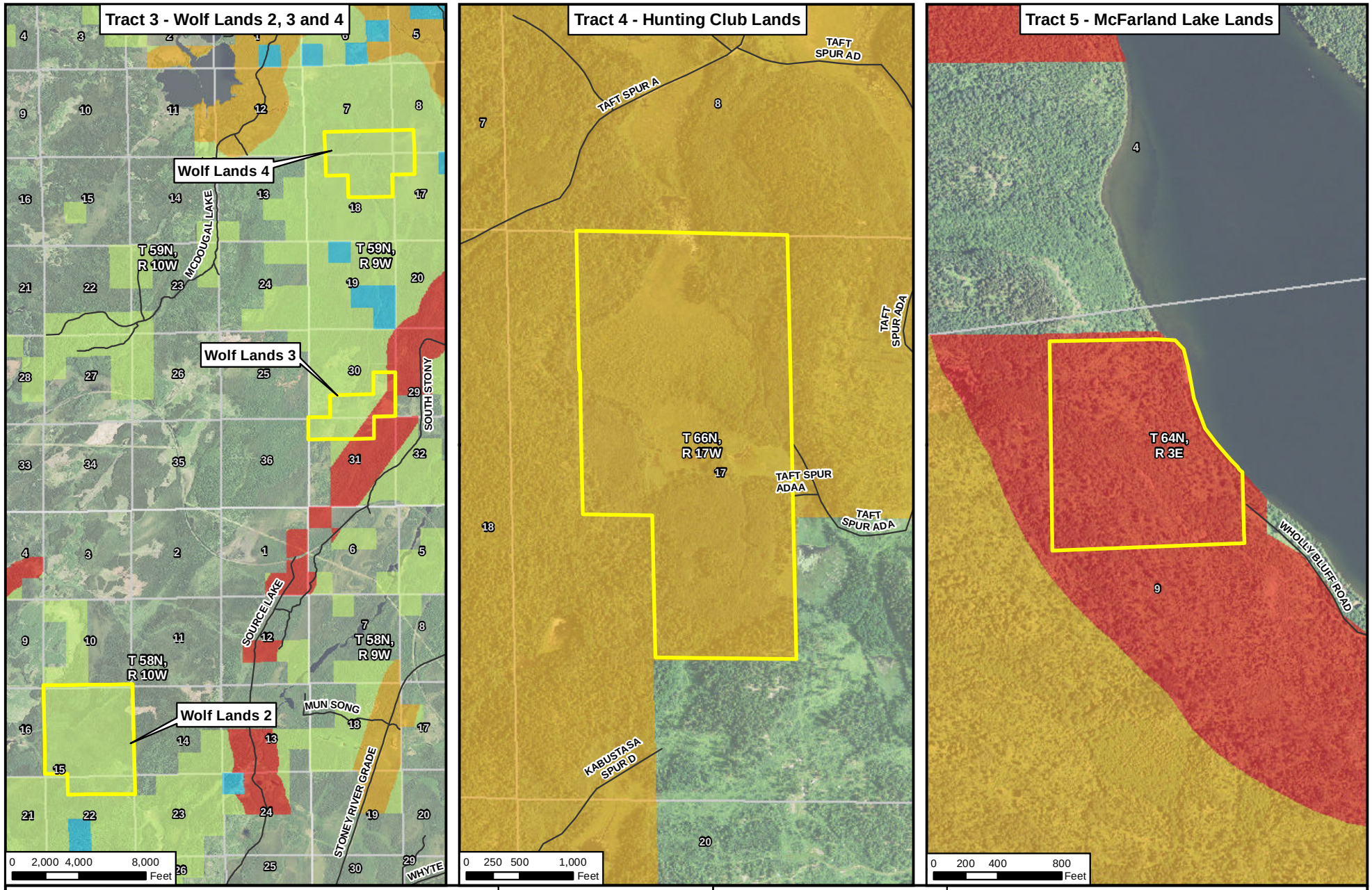

Non-federal Lands
Section Boundary
Section Label

Scenic Integrity Objective
High
Moderate
Low
N/A

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

Figure 5.3.11-6
Scenic Integrity Objective
Tracts 3, 4, and 5
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Table 5.3.11-4 Scenic Integrity Objectives of Federal and Non-Federal Lands (Proposed Action)

	Acres of Scenic Integrity Objective			
Parcel	**High**	**Moderate**	**Low**	**Total**
Lands Conveyed				
Federal lands	0.0	0.0	6,464.9[(1)]	6,464.9[(1)]
Lands Acquired				
Tract 1 - Hay Lake	20.4	1,315.4	3,590.5	4,926.3
Tract 2 - Lake County North	0.0	0.0	265.0	265.0
Tract 2 - Lake County South	0.0	116.9	0.0	116.9
Tract 3 - Wolf Lands 1	0.0	52.1	73.7	125.8
Tract 3 - Wolf Lands 2	0.0	0.0	767.9	767.9
Tract 3 - Wolf Lands 3	85.1	0.0	192.3	277.4
Tract 3 - Wolf Lands 4	0.0	0.0	404.7	404.7
Tract 4 - Hunting Club	0.0	160.2	0.0	160.2
Tract 5 – McFarland Lake	30.8	0.0	0.0	30.8
Subtotal: Non-federal Lands	136.3	1,644.6	5294.1	7,075.0
Net Change				
Net Increase/(Decrease)	136.3	1,644.6	(1,170.8)	610.1

Source: USFS, Pers. Comm., November 29, 2011.

Note:
[1] Mud Lake (comprising 30.5 acres of the 6,495.4 acres in the federal lands) would not be managed by USFS, and therefore does not have a SIO.

5.3.11.3 Land Exchange Alternative B

5.3.11.3.1 Recreation

Under the Land Exchange Alternative B, 4,752.6 acres of federal lands would be exchanged for the 4,926.3-acre Tract 1. ROS classes for the federal lands portion of the Land Exchange Alternative B are shown on Figure 5.3.11-7 (Tract 1 classes would remain unchanged from the Land Exchange Proposed Action). Table 5.3.11-5 summarizes the ROS classes of these lands.

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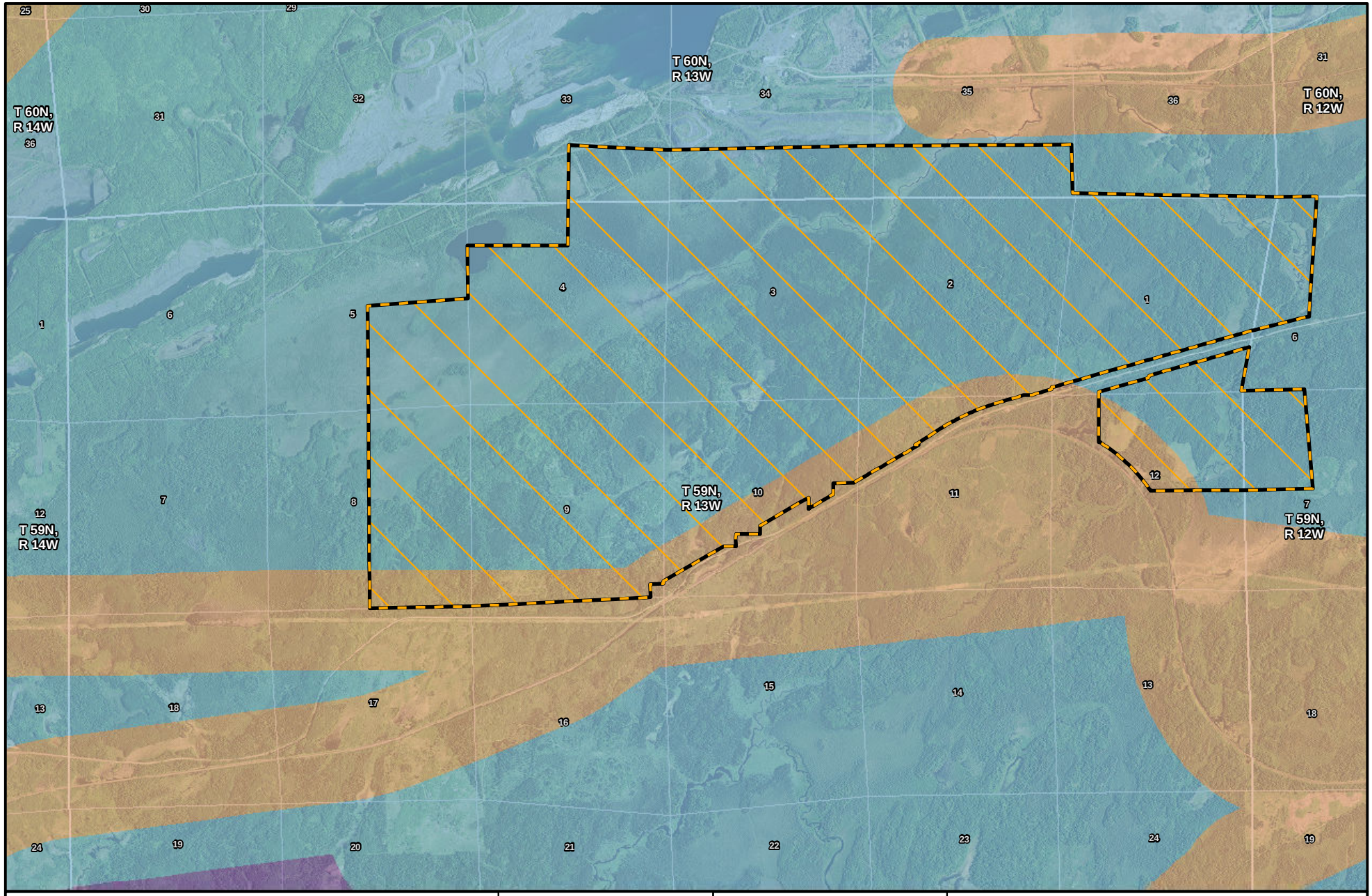

Alternative B: Smaller Federal Parcel
Section Boundary
Section Label
Recreation Opportunity Spectrum
Semi-Primitive Motorized
Semi-Primitive Non-motorized
Roaded Natural
Rural

MNDNR
US Army Corps of Engineers
St. Paul District

N W E S

0 1,000 2,000 4,000 Feet

Figure 5.3.11-7
Recreation Opportunity Spectrum
Alternative B: Smaller Federal Parcel
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Table 5.3.11-5 Recreation Opportunity Spectrum Class of Federal and Non-federal Lands (Land Exchange Alternative B)

	Acres of ROS Class			
Parcel	**Semi-Primitive Motorized**	**Semi-Primitive Non-Motorized**	**Roaded Natural**	**Total**
Lands Conveyed				
Alternative B	4,276.5	0.0	476.1	4,752.6
Lands Acquired				
Tract 1 - Hay Lake	1,303.8	2,162.2	1,460.3	4,926.3
Net Change				
Net Increase (Decrease)	(2,972.7)	2,162.2	984.2	173.7

Source: USFS, Pers. Comm., November 29, 2011.

Similar to the Land Exchange Proposed Action, there is no public land access to and no opportunity for recreational activity on the federal lands, and the smaller federal parcel would remain inaccessible after completion of the Land Exchange Alternative B. By comparison, the non-federal lands (Tract 1) would be accessible (to varying degrees), and therefore would be capable of hosting recreational activities, as defined by their respective ROS classes. Tract 1 is accessible and therefore would result in the greatest potential for public recreational use.

As Table 5.3.11-5 shows, the Land Exchange Alternative B would result in a net decrease to the federal estate of 2,972.7 acres of land designated as Semi-Primitive Motorized, and an increase to the federal estate of 2,162.2 acres of Semi-Primitive Non-Motorized land and 984.2 acres of Roaded Natural land. Although there would be a decrease of Semi-Primitive Motorized land, the Land Exchange Alternative B overall would affect less than one-quarter of one percent of the total area of the Superior National Forest, and the reduction to the federal estate of this ROS class would be exceeded by the increase to the federal estate in other ROS classes.

As with the Land Exchange Proposed Action, because the federal lands are not accessible to the public, the Land Exchange Alternative B represents an addition to the amount of potential publicly accessible land in the Superior National Forest. As a result, the Land Exchange Alternative B would increase opportunities for hunting, fishing, and other recreational activities. Overall, the effects of the Land Exchange Alternative B on recreation are similar to those of the Land Exchange Proposed Action, but smaller in magnitude, due to the reduced amount of land involved.

5.3.11.3.2 Visual Resources

SIO classifications for the smaller federal parcel are shown on Figure 5.3.11-8 (Tract 1 classifications would remain unchanged from the Land Exchange Proposed Action) and are summarized in Table 5.3.11-6. As with the Land Exchange Proposed Action, the Land Exchange Alternative B has a Low SIO, indicating the lands may be dominated by management activities; however, Tract 1 would only be somewhat visible from public roads and would generally help to preserve the scenic quality of the parcel. The NorthMet Project area would not be visible from Tract 1.

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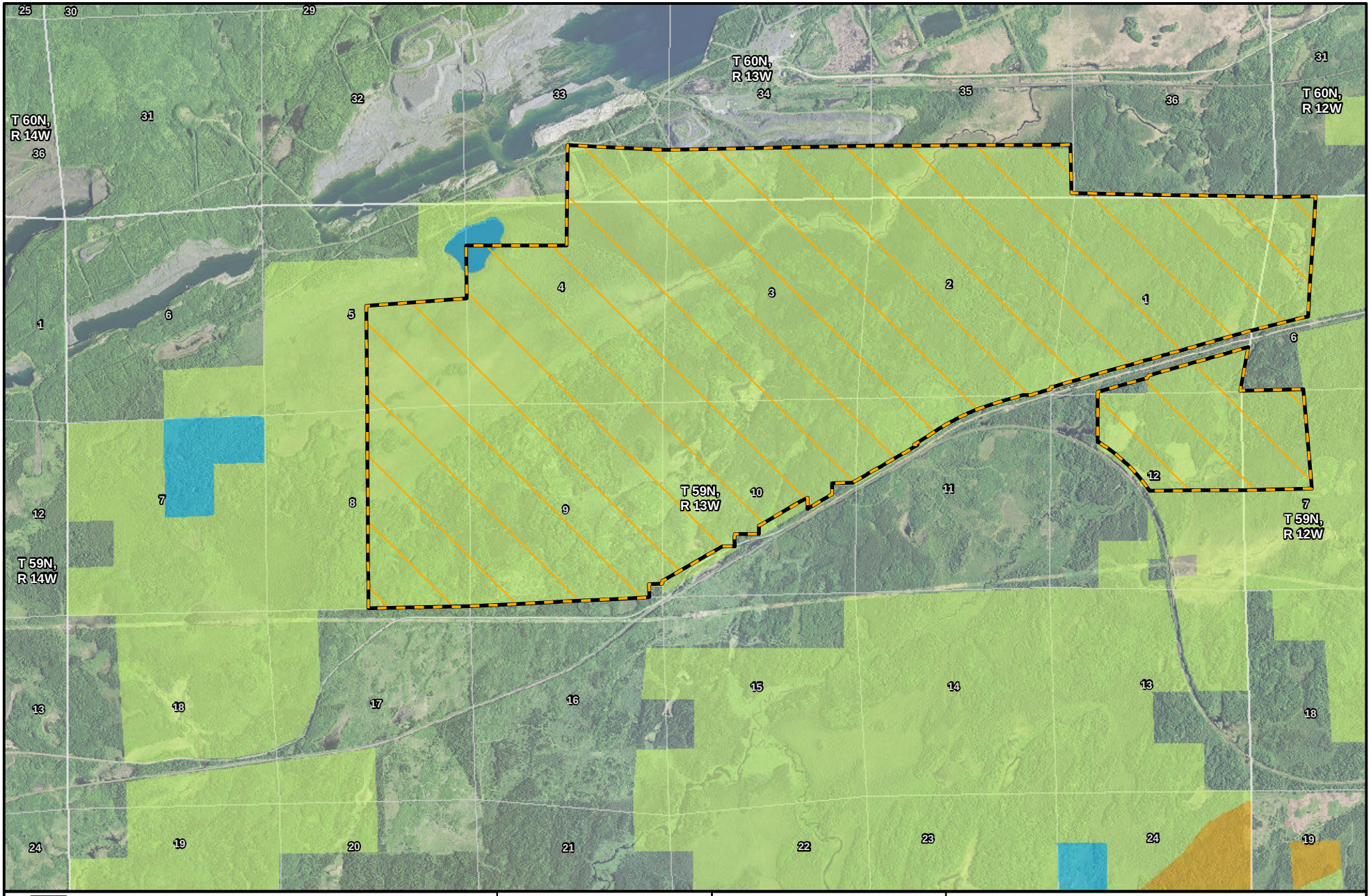

Alternative B: Smaller Federal Parcel

Section Boundary

Section Label

Scenic Integrity Objective

High

Moderate

Low

N/A

MNDNR

US Army Corps of Engineers
St. Paul District

N
W
E
S

0 1,000 2,000 4,000 Feet

Figure 5.3.11-8
Scenic Integrity Objective
Alternative B: Smaller Federal Parcel
NorthMet Mining Project and Land Exchange FEIS
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The Land Exchange Alternative B would result in a net decrease to the federal estate of 1,153.2 acres of land with a Low SIO, in exchange for an increase to the federal estate of 20.4 acres of land with a High SIO and 1,153.2 acres of land with a Moderate SIO. This change in the composition of the visual character of the Superior National Forest, which affects less than one-tenth of one percent of the total area of the Superior National Forest, would have generally positive effects. The addition of land with Moderate and High SIOs (in lieu of land with a Low SIO) could affect the types of forestry and management activities that can occur on those lands. The USFS would acquire land with a wider diversity of SIOs and the Land Exchange Alternative B would result in a net increase to the federal estate, although less than in the Land Exchange Proposed Action.

Table 5.3.11-6 Scenic Integrity Objectives of Federal and Non-federal Lands (Land Exchange Alternative B)

	Acres of Scenic Integrity Objective Classification			
Parcel	**High**	**Moderate**	**Low**	**Total**
Lands Conveyed				
Alternative B	0	0	4,743.7[(1)]	4,743.7[(1)]
Lands Acquired				
Tract 1 - Hay Lake	20.4	1,315.4	3,590.5	4,926.3
Net Change				
Net Increase (Decrease)	20.4	1,315.4	(1,153.2)	182.6

Source: USFS, Pers. Comm., November 29, 2011.

Note:
[1] Mud Lake (comprising 8.9 acres of the 4,752.6 acres in the smaller federal parcel), would not be managed by USFS, and therefore does not have a SIO.

5.3.11.4 Land Exchange No Action Alternative

5.3.11.4.1 Recreation

Under the Land Exchange No Action Alternative, the federal and non-federal lands would remain generally inaccessible to the public for recreation or other uses.

5.3.11.4.2 Visual Resources

Under the Land Exchange No Action Alternative, the visual appearance of the federal and non-federal lands would remain unchanged.

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5.3.12 Wilderness and Other Special Designation Areas

This section describes the potential environmental consequences of the Land Exchange Proposed Action on wilderness and other special designation area resources that are on or near the federal and non-federal lands.

The Land Exchange Proposed Action would not result in a net increase or decrease in any wilderness areas. However, the Land Exchange Proposed Action would result in a net increase of 306.9 acres of cRNAs to the federal estate through exchange of Tract 1. Land Exchange Alternative B would still include exchange of Tract 1; therefore, it would result in the same net changes to cRNA acreage as the Land Exchange Proposed Action.

The Land Exchange No Action Alternative would not affect wilderness or special-designation areas as the Land Exchange would not occur.

5.3.12.1 Methodology and Evaluation Criteria

An evaluation was conducted to determine the potential effect that the Land Exchange Proposed Action would have on the wilderness character of the area. Potential effects on noise, water resources, and recreation and visual resources were evaluated. The analysis of the wilderness character affected by the Land Exchange Proposed Action was guided by evaluation criteria that were developed by the USFS and other Co-lead Agencies.

Estimated ambient noise levels at each of the sensitive receptor sites adjacent to the federal lands were compared with modeled noise levels to determine effects. An appropriate noise propagation model was used to generate noise contours from the Mine Site and Plant Site. To determine effects on water resources, in addition to available information from field efforts already performed by PolyMet for the NorthMet Project Proposed Action, analysis of air photos and available GIS layers for federal and non-federal lands included data layers and other collected data such as NWI maps, soil maps/ecological land type maps, and FEMA floodplain maps. Scenic quality and integrity of lands being acquired and conveyed was determined based on desktop study and limited field observations where necessary. The Forest Plan uses a nationally recognized classification system, the ROS, to describe different recreation settings, opportunities, and experiences. Reviewing existing information and consultation with area land managers provided the information needed to understand the existing and potential recreation opportunities.

5.3.12.2 Land Exchange Proposed Action

The Land Exchange Proposed Action would result in a net increase of cRNAs to the federal estate. As indicated in Section 5.3.1, the USFS has determined that Tract 1 would have the following management area designations: General Forest and cRNA. Therefore, the Land Exchange Proposed Action would include the Pike Mountain and Loka Lake cRNAs (southwest corner and northeast corner of the tract, respectively). The addition of Tract 1 into the federally managed areas would extend the Pike Mountain cRNA by 135.7 acres of primarily hardwoods plant community, and would extend the Loka Lake cRNA by 171.2 acres of lowland black spruce and tamarack swamp. The remaining 4,619.3 acres would be allocated to General Forest.

Tracts 2, 3, 4, and 5 would not result in a net change to wilderness or other special designation areas.

5.3.12.3 Land Exchange Alternative B

The Land Exchange Alternative B would result in the same net increase of cRNAs to the federal estate as the Land Exchange Proposed Action. The Land Exchange Alternative B would not result in a net change to any wilderness area.

5.3.12.4 Land Exchange No Action Alternative

Under the Land Exchange No Action Alternative, the Superior National Forest would have an ongoing responsibility for managing the wilderness and other special designations on or near the federal lands in accordance with the Forest Plan. The Land Exchange No Action Alternative would not change the USFS's responsibility for managing these resources and would result in no further effects on existing wilderness areas or other special designated areas.

5.3.13 Hazardous Materials

The Land Exchange Proposed Action and the Land Exchange Alternative B would not include operations or activities that involve the use of hazardous materials on federal or non-federal lands beyond those activities specific to the NorthMet Project Proposed Action described in Section 5.2.13. AOCs associated with legacy contamination by hazardous materials from former activities and operations on these lands are discussed in Section 5.3.1.

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5.3.14 Geotechnical Stability

Geotechnical stability considerations for the proposed stockpiles that would be located on federal land subject to the Land Exchange Proposed Action or Land Exchange Alternative B within the NorthMet Project area are discussed in Section 5.2.14. There are no other existing or proposed large-scale waste material storage facilities on land subject to the Land Exchange Proposed Action or Land Exchange Alternative B.

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6.0 CUMULATIVE EFFECTS

6.1 INTRODUCTION

Both NEPA and MEPA require an assessment of potential cumulative effects. The CEQ defines cumulative effects as:

> ...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other action. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR § 1508.7)

The MEQB's regulations in *Minnesota Rules*, part 4410.0200, subparts 11 and 11a, mirror the CEQ cumulative effects definition. In addition to the regulations, this analysis follows the guidance in the 1997 CEQ guidance presented in *Considering Cumulative Effects under the National Environmental Policy Act* and the USEPA's NEPA review guidance *Consideration of Cumulative Impacts in EPA Review of NEPA Documents* (CEQ 1997 and USEPA 1999, respectively).

This section presents the resource-specific cumulative effects analysis of the NorthMet Project Proposed Action and Land Exchange Proposed Action that may result when combined with effects from other activities (e.g., projects and/or actions). Each resource has specific spatial (geographic) or temporal (time) boundaries, which are called Cumulative Effects Assessment Areas (CEAAs). The cumulative projects and/or actions applied to this analysis are those past, present, and reasonably foreseeable activities within the various resource-specific CEAAs that, when combined with the NorthMet Project Proposed Action and Land Exchange Proposed Action, may cause cumulative effects as measured by the evaluation criteria and defined by NEPA and MEPA. In addition to additive effects, cumulative effects may be further magnified by synergisms or cross-interactions in the environment.

This chapter is divided into two major subsections: Section 6.2 describes the cumulative effects of the NorthMet Project Proposed Action and Section 6.3 describes the cumulative effects of the Land Exchange Proposed Action.

Two basic factors are used to quantify how a proposed project and/or action may cause cumulative effects. The first summarizes existing environmental conditions, which are the result of actions that have taken place in the past or are subject to present activities. It is not possible, however, to catalogue all past human actions to quantify how the natural environment has been affected by anthropogenic activities. Chapter 4 describes the baseline conditions for the NorthMet Project area and Land Exchange parcels, which may include contributions from past and present activities. Intensive land uses, such as towns, cities, roads, hunting, fishing and trapping, mines, forest practices, farming, and damming of rivers and creation of reservoirs have all had an influence on the natural environment of the region, which has resulted in present day conditions. In addition, natural trends in the environment would be affected into the future by currently permitted and approved land uses and projects. The direct and indirect effects of the NorthMet Proposed Action and Land Exchange Proposed Action are discussed in Chapter 5.

The second factor in determining how the NorthMet Project Proposed Action would, in combination with other reasonably foreseeable actions as defined in Section 6.1.1.1 below, cumulatively affect resources in the future. The method and set of assumptions for identifying which projects, actions, and activities that could contribute to cumulative effects are described below in Section 6.1.1.1. In addition to the identified cumulative projects, actions, and activities, the USFS identified six projects which are land exchanges and/or land acquisition projects that are reasonably foreseeable to be considered in the cumulative effects assessment for the Land Exchange Proposed Action (see Sections 6.1.2 and 6.3).

Throughout this section, we refer to *Past*, *Present*, and *Reasonably Foreseeable Future Actions* when describing potential cumulative effects. The past and present actions are described in detail in Chapter 4, Affected Environment.

6.1.1 NorthMet Project Proposed Action

6.1.1.1 Cumulative Effects Analysis Approach

Potential cumulative effects for the NorthMet Project Proposed Action have been assessed at the resource level. The spatial and temporal extents of the CEAAs depend on several resource-specific factors. For example, given that noise effects decrease in direct proportion to the distance between the source and sensitive receptors, the geographic extent is necessarily limited. Conversely, air effects can extend many miles from the source and are conversely much broader. For the purposes of the cumulative effects assessment, the timing or scheduling of specific cumulative actions is also important to the context of the assessment given the overlapping and possibly synergistic effects they may have on some resources, such as sediment loading to waterbodies or dust and particle emissions to visual resources.

For all resources, future temporal boundaries are the expected service life of the mining activities, including closure and post-closure restoration. The spatial and temporal boundaries for each resource are defined within the respective resources' sections of this analysis.

Resource-specific spatial and temporal boundaries are used to identify past, present, and reasonably foreseeable future projects/actions that would likely affect the same environmental resources as the NorthMet Project Proposed Action. MEQB, CEQ, and USEPA guidance allow for a fairly broad interpretation of "reasonably foreseeable" to accommodate project-specific conditions, but indicate that actions that would be considered "speculative" should be excluded. For the purposes of this assessment, "reasonably foreseeable" actions are defined as those actions that are included in approved planning documents and have approved funding, are permitted, or have a currently active federal or state permit or site plan application under review. The discussion of potential cumulative effects assumes the successful implementation of the best management practices and mitigation measures discussed throughout this FEIS, as well as compliance with all applicable federal, state, and local regulations and permit requirements.

In addition to other cumulative effects that may be identified through the analysis, Section 6.2 also addresses the following cumulative effects topics, identified in the Final SDD (MDNR 2005):

- Hoyt Lakes area projects and air concentrations in Class II areas;
- Class I areas PM_{10} increment;
- Ecosystem acidification resulting from deposition of air pollutants;
- Mercury deposition and bioaccumulation in fish;
- Visibility impairment;
- Loss of threatened and endangered plant species;
- Loss of wetlands;
- Loss or fragmentation of wildlife habitat;
- Streamflow and lake level changes;
- Water quality changes;
- Economic effects; and
- Social effects.

These topics are discussed under their respective resource sections in Section 6.2 below.

6.1.1.2 Past, Present, and Reasonably Foreseeable Actions and Projects

For the purposes of this analysis, the NorthMet Project Proposed Action may contribute to cumulative effects when considered along with 47 other actions and projects in the region. These projects and/or actions are shown on Table 6.1-1 and Figure 6.1.1-1, and are further described in Section 6.1.1.2.1. Air Resources and Wilderness and other Special Designation Areas have unique extents of consideration and the specific actions considered are identified under those resource sections. Existing conditions that may be related to past or present actions on specific environmental resources are fully described in their respective sections in Chapter 4 and the direct and indirect impacts of the NorthMet Proposed Action are described in Chapter 5. Section 6.1.1.2.1 provides a brief description of the cumulative actions considered in this assessment. Some actions unique to a particular resource are discussed under those resources.

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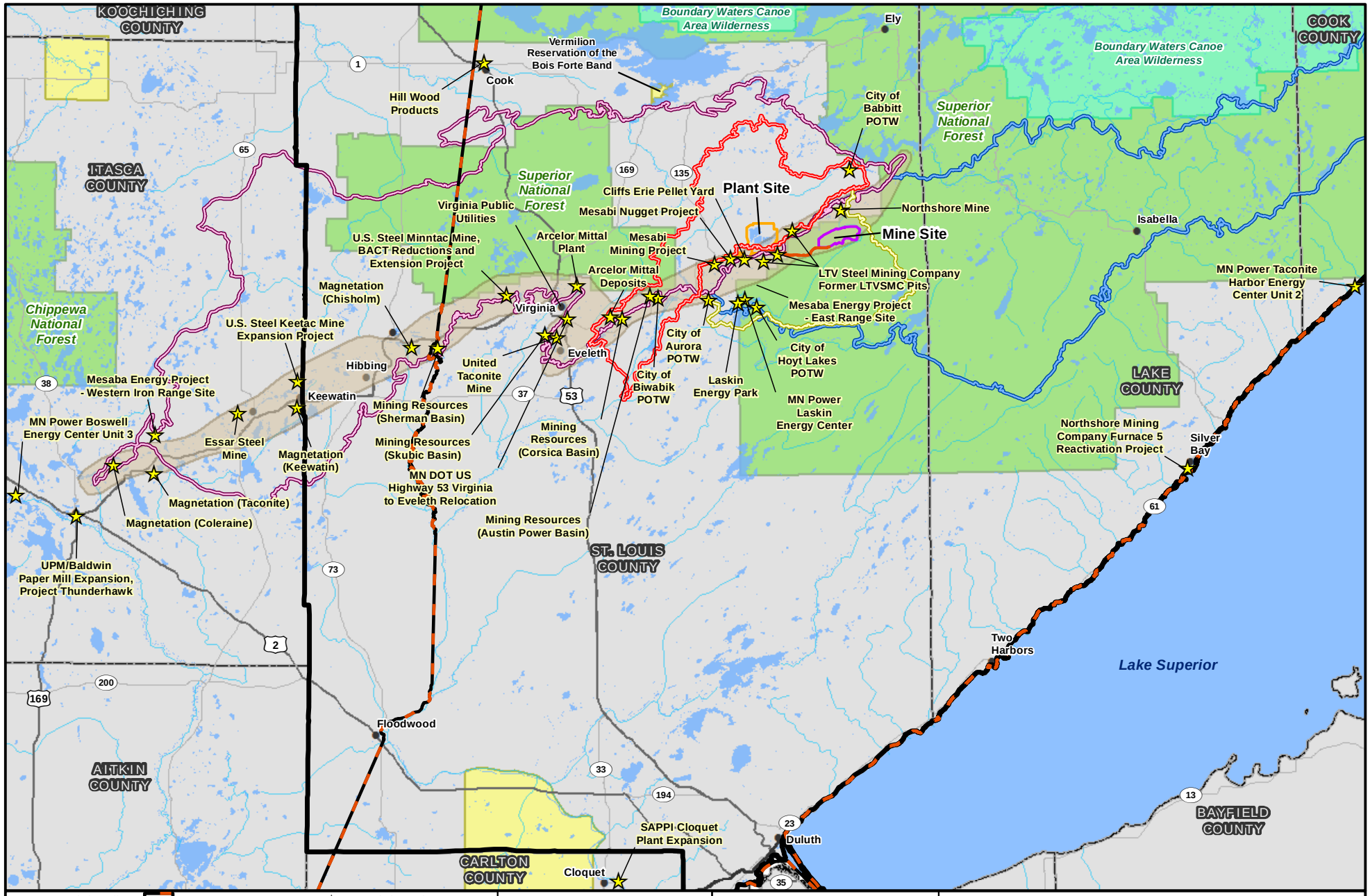

Figure 6.1.1-1
Cumulative Effects Assessment Area
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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Table 6.1.1-1 Projects and Actions Considered and Affected Resources in the Cumulative Effects Assessment

	Activity	Status	Approx. Distance from NorthMet Project Area[1] (Miles)	Affected Environment
1	ArcelorMittal Deposits (Laurentian and East Reserve Deposits)	Present	18	Land Use, Water Aquatic Species, Wetlands, Vegetation, Wildlife, Cultural, Socioeconomics, Recreation and Visual Resources
2	ArcelorMittal Deposit Push Back Project	Reasonably Foreseeable	18	Wetlands, Vegetation, Wildlife, Cultural, Socioeconomics, Recreation and Visual Resources
3	ArcelorMittal Plant and Modifications	Reasonably Foreseeable	18	Air Quality
4	City of Aurora POTW	Present	6	Water, Aquatic Species
5	City of Babbitt POTW	Present	10	Water, Aquatic Species
6	City of Biwabik POTW	Present	10	Water, Aquatic Species
7	City of Hoyt Lakes POTW	Present	7	Water, Aquatic Species
8	Cliffs Erie Pellet Yard	Present	<1	Vegetation, Wildlife, Air Quality
9	Essar Steel Mine	Present	55	Vegetation, Wildlife, Air Quality
10	Hill Wood Products	Present	50	Air Quality
11	Hill Wood Products Major Modification Amendment	Reasonably Foreseeable	50	Air Quality
12	Laskin Energy Park	Reasonably Foreseeable	5	Wetlands
13	LTV Steel Mining Company Former LTVSMC Pits	Present	<1	Water, Wetlands, Vegetation, Wildlife, Aquatic Species, Air Quality, Cultural, Socioeconomics, Wilderness
14	Magnetation Keewatin	Present	55	Vegetation, Wildlife
15	Magnetation Taconite	Present	61	Vegetation, Wildlife
16	Magnetation Chisholm	Present	41	Vegetation, Wildlife
	Magnetation Coleraine	Reasonably Foreseeable	63	Vegetation, Wildlife
17	MDOT US Highway 53 Virginia to Eveleth Relocation	Reasonably Foreseeable	23	Vegetation, Wildlife, Cultural
18	Mesaba Energy Project – Western Iron Range Site[2]	Reasonably Foreseeable	55	Cultural, Air Quality
19	Mesabi Nugget Project (formerly Mesabi Nugget Phase I)	Present	<1	Water, Wetlands, Vegetation, Wildlife, Aquatic Species, Air Quality, Noise, Socioeconomics, Cultural, Wilderness
20	Mesabi Mining Project (formerly Mesabi Nugget Phase II)[3]	Reasonably Foreseeable	2	Land Use, Water, Vegetation, Wetlands, Wildlife, Aquatic Species, Air Quality, Noise, Cultural, Socioeconomics, Recreation and Visual Resources, Wilderness
21	Mining Resources - Austin Powder Basin near Biwabik	Reasonably Foreseeable	10	Wetlands, Cultural, Socioeconomics
22	Mining Resources - Corsica Basin near McKinley	Reasonably Foreseeable	15	Wetlands, Cultural, Socioeconomics

	Activity	Status	Approx. Distance from NorthMet Project Area[1] (Miles)	Affected Environment
23	Mining Resources - Skubic Basin (SW of Virginia)	Reasonably Foreseeable	23	Cultural, Socioeconomics
24	Mining Resources Sherman Basin (SE of Chisholm)	Reasonably Foreseeable	41	Vegetation, Wildlife, Cultural, Socioeconomics
25	Minnesota Power Boswell Energy Center Unit 3[(4)]		85	Air Quality
26	Minnesota Power Laskin Energy Center[5]	Present	5	Water, Wetlands, Air Quality, Wilderness
27	Minnesota Power Taconite Harbor Energy Center Unit 2, Emission control modifications	Reasonably Foreseeable	48	Air Quality, Wilderness
28	Northshore Mining Company: Furnace 5 Reactivation Project	Present	39	Air Quality, Wilderness
29	Northshore Mine	Present	7	Water, Wetlands, Vegetation, Wildlife, Aquatic Species, Air Quality, Cultural, Socioeconomics, Wilderness
30	Northshore Mine Ultimate Pit Progression Project	Reasonably Foreseeable	7	Vegetation, Wildlife, Cultural, Socioeconomics, Recreation and Visual Resources, Wilderness
31	Northshore Mine Closure	Reasonably Foreseeable	7	Land Use, Water, Aquatic Species, Wetlands
32	Northshore Mine BART Reductions	Reasonably Foreseeable	7	Air Quality
33	Sappi Cloquet Plant Expansion	Reasonably Foreseeable	73	Air Quality
34	St Louis County Public Works Bridge replacements	Reasonably Foreseeable	Within the Embarrass and Partridge River watersheds	Wetlands ,Vegetation, Wildlife,
35	U.S. Steel Keetac Mine	Present	45	Land Use, Vegetation, Wildlife, Socioeconomics, Recreation and Visual Resources
36	U.S. Steel Keetac Mine Expansion Project (Keewatin)[6]	Reasonably Foreseeable	45	Air Quality, Vegetation, Wildlife
37	U.S. Steel Minntac Mine	Present	25	Vegetation, Wildlife, Air Quality, Cultural, Socioeconomics, Wilderness
38	U.S. Steel Minntac BACT Reductions	Reasonably Foreseeable	25	Air Quality
39	U.S. Steel Minntac Mine Extension Project	Reasonably Foreseeable	25	Land Use, Wildlife, Vegetation, Cultural, Aquatic Species, Air Quality, Socioeconomics, Recreation and Visual Resources, Wilderness
40	United Taconite Mine	Present	27	Air Quality
41	United Taconite Mine Modifications	Present		Vegetation, Wildlife, Air Quality
42	United Taconite Mine Expansions	Reasonably Foreseeable	27	Vegetation, Wildlife, Air Quality, Socioeconomics

	Activity	Status	Approx. Distance from NorthMet Project Area[1] (Miles)	Affected Environment
43	United Taconite Green Production Project	Reasonably Foreseeable	27	Air Quality
44	United Taconite Bart Reductions	Reasonably Foreseeable	27	Air Quality
45	UPM/Blandin Paper Mill Expansion, Project Thunderhawk[6]	Reasonably Foreseeable	80	Air Quality
46	Virginia Public Utilities	Present	24	Air Quality
47	Community growth and development	Present and Reasonably Foreseeable	Regional, no specific locations	Vegetation, Wildlife, Cultural
48	Forestry practices on public and private lands	Past, Present, and Reasonably Foreseeable	Regional, no specific locations	Vegetation, Wildlife, Cultural

Notes:
[1] At closest point to NorthMet Project area.
[2] The State of Minnesota has issued permits for the West Range site. However, the United States Department of Energy has not issued a ROD for this EIS. See below for more information. Given this, the East Range site is included as a reasonably foreseeable project for this cumulative effects assessment.
[3] This project was included in the cumulative effects analysis in the SDEIS. While the applications are still active, the likelihood of them occurring has diminished. Class II modeling for the Plant Site was already completed when the MPCA recommended that the Mesabi Mining project not be included; therefore, the modeling results reported can be considered conservative.
[4] Note that this project was not built.
[5] Class II modeling for the SDEIS included this facility as burning coal. Natural gas is now the primary fuel; therefore, the modeling performed for the SDEIS was conservative.
[6] This project was included in the cumulative effects analysis in the SDEIS. While the application are still active, the likelihood of the project occurring has diminished.

Table 6.1.1-2 summarizes the CEAA spatial areas that were utilized by each resource area for the projects identified above.

Table 6.1.1-2 Summary of the Spatial Areas Used for the Cumulative Effects Analysis of the NorthMet Project Proposed Action

Resource Area	Spatial Area Assessed
Land Use, Recreation and Visual Resources, Wilderness	The portion of the Mesabi Iron Range encompassed by St. Louis County.
Water Resources, Wetlands[1], Aquatics[2]	Partridge River and Embarrass River watersheds.
Vegetation, Wildlife	The portion of the Mesabi Iron Range located within the Nashwauk Uplands and Laurentian Uplands ecological subsections.
Air Quality	Areas with sources that generally are located within the Arrowhead region and outside the boundaries of the NorthMet Plant Site and Mine Site, the Mesabi Nugget Ambient Air Boundary, Cliffs Erie Pellet Yard, and the Northshore Mine.
Noise and Vibration	An approximate 0.5-mile radius of the Mine Site and Plant Site; no past, present, or reasonably foreseeable actions located within a 0.5-mile radius of the Mine Site and Plant Site that would interact in such a way as to have cumulative effects on identified receptors.
Hazardous Materials, Geotechnical Stability	The topic areas were not assessed for cumulative effects because they would not interact with any other past, present, or reasonably foreseeable actions in such a way as to cause cumulative effects.
Cultural Resources	The portion of the 1854 Ceded Territory that is within the Mesabi Iron Range.
Socioeconomics	The Mesabi Iron Range within St. Louis, Lake, and Cook counties.

Notes:
[1] A qualitative assessment for wetlands was also performed and the spatial area was the St. Louis River below the ordinary high water mark from its confluence with the Embarrass River to Lake Superior.
[2] A qualitative assessment for aquatics was also performed and the spatial area was the St. Louis River, as the Partridge River and Embarrass River are tributaries to the St. Louis River, which flows through the Fond du Lac Indian Reservation and empties into Lake Superior near Duluth.

6.1.1.2.1 Brief Description of Cumulative Actions Considered

ArcelorMittal Mines (Laurentian and East Reserve Deposits, Push-Back Project, and Plant)

ArcelorMittal operates two separate taconite deposits, the Laurentian and the East Reserve. These deposits are approximately 2 miles apart between Gilbert and Biwabik, in St. Louis County, Minnesota. Both are located approximately 18 miles from the NorthMet Project area.

The Laurentian Deposit has been operating since the early 1990s and is 2 miles southwest of the East Reserve Deposit. East Reserve Pit #1 began operations in 2008. A second pit, East Reserve Pit #2, has been permitted and stripping/site development has begun.

Ore from the East Reserve #1 Pit is being blended with, and intended to gradually replace, ore from the Laurentian Deposit. It is used to make steel, primarily for the automobile industry and the transportation sector.

ArcelorMittal plans to amend the Permit to Mine with a pushback project that would extend the limits of East Pits 1 and 2, which are referred to as push-back areas, to the south, allowing for economical mining/increased ore reserve. Specifically, there are two elements to the proposed push-back project: extending the permitted mining area by 103 acres and extending the permitted plant site by 11 acres to construct a new construction equipment pole area. The push-backs would not result in additional mining roads, production rates, plant emission rates, or dewatering rates.

The taconite facility is capable of producing up to approximately 3.2 million long tons of finished pellets per year. There are three main areas where emissions are released: the mine, the tailings basin, and the pellet plant. Emissions from the mine are fugitive emissions, which are primarily particulate matter, and are created from blasting, coarse ore loading and unloading, overburden loading and unloading, and haul truck traffic on unpaved roads. Emissions from the tailings basin are fugitive emissions, which are primarily particulate matter, and are created by tailings basin dike construction, truck traffic on unpaved roads, and wind erosion of exposed tailings beaches. Emissions from the pellet plant consist of point source emissions from crushing, concentrating, and agglomerating operations, which primarily create particulate matter emissions. The indurating furnace emits particulate matter, SO_2, NO_X, CO, and other pollutants such as HAPs. HAPs emissions tend to be metals and products of combustion. Fugitive emissions from the pellet plant are from pellet loadout and wind erosion of fine particles from the pellet storage piles and are particulate matter. The facility uses a variety of bag houses and wet scrubbers to control emissions from the point sources located in the pellet plant. Water and chemical dust suppressants are applied to haul roads and other fugitive sources to reduce particulate emissions when weather permits.

City of Aurora Publicly Owned Treatment Works

To support its POTW, the City of Aurora withdraws water from the St. James Pit, which is a former natural ore pit within the Embarrass River Watershed. The facility discharges treated wastewater into Silver Creek, which, in turn, drains into the St. Louis River.

City of Babbitt Publicly Owned Treatment Works

The City of Babbitt uses several wells, some of which are in the Dunka River Watershed, for its municipal water supply. The City POTW discharges treated wastewater effluent to the Embarrass River. Because some of the discharged water originates in the Dunka River Watershed and is transferred to the Embarrass River, the treatment work is assumed to increase the flow in the Embarrass River and decrease flow in the Dunka River.

City of Biwabik Publicly Owned Treatment Works

The City of Biwabik withdraws water from the flooded Canton Mine Pit for its municipal water supply and discharges treated wastewater to a tributary of Embarrass Lake.

City of Hoyt Lakes Publicly Owned Treatment Works

The City of Hoyt Lakes withdraws water from Colby Lake for municipal water supply and discharges treated wastewater to the Whitewater Reservoir. Most of this water returns to the Partridge River Watershed during droughts, when it is pumped from the Whitewater Reservoir to maintain water levels in Colby Lake or seeps into the Lower Partridge River through a dike.

Cliffs Erie Pellet Yard

Under Amendment 005 to Emission Permit No, 13700009, Cliffs Erie LLC would provide commercial taconite pellet shipping and storage for pellets produced on the Mesabi Iron Range utilizing the Cliffs Erie (formerly LTV Steel Mining Company) site in Hoyt Lakes. These facilities include a pellet yard at Hoyt Lakes, shipping docks at Taconite Harbor, and

interconnected railroads. Modifications to the existing facilities are required to accommodate commercial pellet shipping operations.

Essar Steel Mine

Essar is permitted and has begun constructing a new taconite mine and processing plant near Nashwauk, Minnesota, in Itasca County. The project would produce 6.5 million metric tonnes per year (mtpy) of high-flux pellets, or 7.0 million mtpy of low-flux taconite pellets. Essar estimates that, once operational, the modifications would operate at full capacity for up to 15 years. The project is located approximately 55 miles southwest of the NorthMet Project area. Essar has stated that it intends to complete construction and begin operation in 2016.

Hill Wood Products (Hill Wood Products and Major Modifications Amendment)

Hill Wood Products is a sawmill and lumber-processing facility. The facility purchases birch log rough-cut wood to produce various wood products including wood pallets, wood biscuits, and flooring. The facility sources include:

- Two boilers and dryer combustion sources. The boilers and dryer burn wood waste. The dryer dries wood waste for processing in the hammermills for use as a fuel both on and off site. The dryer has an electrified filter bed and cyclone for emissions control. The boilers provide steam for a lumber kiln.
- Particulate emission sources such as debarking, skragging, sawing, trimming, molding, sanding, hammermills, and storage silos. Some units are vented internally without controls, some internally with controls, and some externally with controls.
- Miscellaneous sources such as a small extruder for surface coating, an emergency fire pump, and an emergency generator.

Non-permitted equipment was documented by MPCA staff during a site inspection in August 2007, which led to the signing of a Stipulation Agreement on October 13, 2008. A major permit amendment was issued in 2010 to incorporate 17 emission units, 2 fugitive sources, and 1 baghouse and to delete 21 removed emission units, 1 baghouse, and 1 stack vent from the permit.

Laskin Energy Park

The Laskin Energy Park is proposed 220-acre industrial park that is located in the Partridge River Watershed and south of the Minnesota Power Laskin Energy Center. It is located adjacent to Colby Lake and Whitewater Lake, near the City of Hoyt Lakes.

LTV Steel Mining Company Former LTVSMC Pits

LTVSMC mined and processed taconite from the 1950s to 2001, when it went bankrupt. Cliffs Erie LLC (a subsidiary of Cliffs Natural Resources, Inc. [both names for this company are used in this document, depending on the specific context of the citation]) acquired a port of the former LTVSMC lands and is currently managing legacy issues through voluntary actions (e.g., VIC agreements), NPDES/SDS permits, and a Consent Decree with the MPCA. Mesabi Nugget LLC (a joint venture of Steel Dynamics and Kobe Steel) and Mesabi Mining LLC, a subsidiary of Steel Dynamics, own the remainder of the former LTVSMC lands. The former LTVSMC processing plant and tailings facility now owned by Cliffs Erie is proposed for use by the

NorthMet Project Proposed Action. The former LTVSMC mine pits are now owned by Mesabi Nugget, Mesabi Mining, and Cliffs Erie and are located to the west, south, and east of the NorthMet Project area. Ownership and the current hydrologic status of each of these pits is described below.

Mesabi Nugget

Pit 1: Because of Mesabi Nugget, this pit has seasonal (September to March) discharges of approximately 4,000 gpm (9.0 cfs) to Second Creek; no discharges occur from April to August. The proposed Mesabi Mining Project would result in the partial dewatering of this pit to a currently unspecified water at an unspecified rate.

Mesabi Mining

- Pit 2WX: The pit is currently in the process of filling. Within a few years, this pit may overflow to an unnamed creek that discharges to the Partridge River just below Colby Lake.
- Pit 6: This pit currently releases water to Second Creek via the surficial aquifer. There is no surface water discharge.
- Pit 9S: This pit is currently stable (with likely groundwater discharge off-site and/or to Pit 6).
- Pit 9N: This pit is currently stable (with a likely groundwater connection to Pit 1).

Cliffs Erie

- Pit 2/2E: This pit is stabilized with no direct discharge. There is likely groundwater flow from this pit to Pit 2W.
- Pit 2W: This pit discharges intermittently to Second Creek at a current rate of approximately 350 gpm (0.8 cfs)
- Pit 3: This pit currently discharges to Wyman Creek at approximately 400 gpm (0.9 cfs). Cliffs Erie is currently considering the feasibility of pumping from this pit to Pit 2W, which ultimately discharges to Second Creek, as part of its NPDES/SDS permit reissuance process.
- Pit 5SW: This pit overflows via “dispersed” discharge, at an estimated rate of less than 350 gpm (0.8 cfs) to Wyman Creek. PolyMet has an option agreement to purchase this pit; however, Pit 5SW is not part of the NorthMet Project Proposed Action.
- Pit 5NW: This pit has an overflow discharge of approximately 539 gpm (1.2 cfs) to Spring Mine Creek, a tributary of the Embarrass River. PolyMet has an option agreement to purchase this pit; however, Pit 5NW is not part of the NorthMet Project Proposed Action.

Magnetation (Keewatin, Taconite, Chisolm, Coleraine)

Magnetation is currently permitted and operating (or co-operating) scram mining operations near Keewatin, Taconite, and Chisholm. Scram mining is a mining process that produces natural iron ore, natural iron ore concentrates, or taconite ore from previously developed stockpiles, tailing basins, underground mine workings, or open pits and that involves no more than 80 acres of land not previously affected by mining, or more than 80 acres of land not previously affected by mining if the operator can demonstrate that impacts would be substantially the same as other scram operations. “Land not previously affected by mining” means land upon which mine wastes

have not been deposited and land from which materials have not been removed in connection with the production or extraction of metallic minerals (*Minnesota Statutes* 93.46, Subd.10). Magnetation has received a permit for a new operation near Coleraine. Magnetation has an EAW underway for dewatering the Canisteo pit in order to explore potential future scram mining.

Minnesota Department of Transportation US Highway 53 Virginia to Eveleth Relocation

This highway project is needed to allow United Taconite to continue its permitted mining operations near Eveleth, St. Louis County, Minnesota. United Taconite has authority to continue its mining operations, including an area that crosses the current location of Highway 53. The Minnesota Department of Transportation (MDOT) has proposed a new route (Preferred Alternative E-2), analyzed in a Draft EIS released in December 2014 (MDOT 2014). No other details are available at this time regarding the timing and exact scope of this road construction project. The proposed road construction is planned for 2017.

Mesaba Energy Project – Western Iron Range Site

Excelsior Energy has received permits to develop the Mesaba Energy Project, a natural gas fueled electric power-generating station. The project would be designed, constructed, and operated in two phases, each phase generally producing 600 megawatts. Excelsior's preferred site is the Western Iron Range site near Taconite, Minnesota, about 55 miles from the NorthMet Project area. Pit 2/2E, Pit 2W, and Pit 3 of the LTVSMC mine (see above) could be drawn down as part of the Mesaba Energy Project. An FEIS was prepared in 2009 by the USDOE and MDC.

On March 12, 2010, the Minnesota Public Utilities Commission (PUC) granted Excelsior Energy's Mesaba Energy Project a Large Electric Power Generating Plant Site Permit, a High Voltage Transmission Line Route Permit, and a Pipeline Route Permit (together, "the Site and Route Permits"), for construction of an Integrated Coal Gasification Combined Cycle electric power-generating station. On May 31, 2012, Excelsior Energy requested that the PUC confirm that the Site and Route Permits issued in 2010 were valid for a construction of a gas-fired plant at the same site, and that no additional environmental review was required. On September 19, 2012, the PUC issued an Order finding the Site and Route Permits valid and requiring additional filings prior to construction of the natural gas-fueled facility. At the time of this FEIS, the project has not yet been constructed.

Mesabi Nugget (Formerly Mesabi Nugget Phase I)

The Mesabi Nugget facility, located within approximately 2 miles of the NorthMet Project area, is currently producing iron nuggets from iron ore concentrate. The concentrate is mixed, dried, and fed into a rotary hearth furnace and reduced to a metallic iron and slag material. Water is appropriate from Pit 1 and/or Pit 2WX for contact and non-contact cooling and air pollution control equipment. Treated wastewater is discharged into Pit 1, which, in turn, is discharged on a seasonal basis (September through March) into Second Creek.

Mesabi Mining Project (Formerly Mesabi Nugget Phase II)

The Mesabi Mining Project area is located approximately 2 miles from the NorthMet Project area, and is currently under a Closure Plan. This facility would involve the reactivation of a taconite mine and construction of a taconite concentration facility near Hoyt Lakes. Under the most recent proposal, Pits 2WX and 6 would be dewatered to access the iron ore and tailings

would be disposed into Pit 1. Most of the concentrate generated at the Mesabi Mining Project facility would be used in the Mesabi Nugget facility, and the remainder would be shipped by rail to other facilities for processing. This project is currently on indefinite hold by the applicant, but was considered as reasonably foreseeable for this assessment.

Mining Resources (Austin Powder Basin, Corsica Basin, Skubic Basin, and Sherman Basin)

Mining Resources is a scram operation that received their original Permit to Mine in November 2011. Mining Resources is currently operating in the Duncan, Niles, Douglas, Dunwoody Tailings Basin just south of Chisholm, Minnesota (Section 35, Township 58N, Range 20 West). Proposed scram projects to extend the mine life of this operation include expansion into the Sherman Tailings Basin located approximately 1 mile east of the current facility, as well as expansion in to further afield basins, called "backhauls," which refers to the plan to load tailings into trucks returning from the Mesabi Nugget facility. Mesabi Nugget currently runs Mining Resources' concentrate through the pelletization process. Backhaul basins included in the current permit amendment application are the Austin Powder Basin located near Biwabik, the Corsica Basin located near McKinley, and Skubic Basin located southwest of Virginia.

Minnesota Power Boswell Energy Center Unit 3

In 2006, Minnesota Power submitted an emission reduction proposal, the Boswell 3 Environmental Improvement Plan, pursuant to *Minnesota Statutes* 216B.682 and 216B.6851. The proposal was designed to remove existing air pollution control equipment on Unit 3 of the Boswell station, and replace the equipment to control mercury, NO_x, SO_2, and particulate matter emissions. The project would result in considerable reductions in key pollutant emissions from the Boswell electric power generating station. Emissions of SO_2 would be reduced by 90 percent and NO_x would be reduced by 81 percent from Unit 3. Emissions of mercury would be reduced by more than 90 percent from Unit 3.

In 2007, the MPCA issued a major permit amendment (003) to the facility's total facility operating permit. This amendment allowed for a project to be conducted to comply with USEPA's Regional Haze Rule, CAIR, Minnesota's Mercury Reduction Act, and USEPA's Clean Air Mercury Rule. The amendment authorized the installation of new air quality control equipment, including wet flue gas desulfurization, low NO_x burners, selective catalytic reduction, baghouse filter, and a carbon injection system.

Minnesota Power Laskin Energy Center

The Minnesota Power Laskin Energy Center is a former natural gas power plant on Colby Lake between Aurora and Holt Lakes, about 5 miles from the NorthMet Project area. The facility was permitted in 2014 for conversion from coal to natural gas combustion. For the purposes of this cumulative effects analysis, it was assumed that the plant would be gas-fired. The project also included installation of low-NOx burners. The facility withdraws cooling water from Colby Lake and discharges it into the downstream portion of the lake. The plant produces more than 110 megawatts of power. The project also includes retrofits similar to Minnesota Power Taconite Harbor Energy Center Unit 2 described below. Work on these retrofits began in 2006.

Minnesota Power Taconite Harbor Energy Center Unit 2, Emission Control Modifications

In 2009, Minnesota Power was permitted for implementing emission control modifications to Unit 2 of its Taconite Harbor Center in Schroeder, Cook County, Minnesota. This facility is located approximately 48 miles east of the NorthMet Project area. The company installed a custom-designed control system that injects sorbents into the combustion process to control SO_2, NO_x, and mercury. Minnesota Power anticipates the system would cut NO_x emissions by more than 60 percent and SO_2 emissions by 65 percent.

The project also included similar retrofits at Minnesota Power's Laskin Energy Center in Hoyt Lakes. Work on these retrofits began in 2006.

Northshore Mining Company: Furnace 5 Reactivation Project

The Reserve Mining Company opened the facility in Babbitt, St. Louis County, Minnesota, in the 1950s and operated it until 1986, when the facility closed. Cyprus Minerals acquired and reopened the facility in 1989 and operated it until 1994, when Cliffs Natural Resources, Inc. acquired it. The Northshore Mining Company is a wholly-owned subsidiary of Cliffs Natural Resources, Inc.

In the early 2000s, the Northshore Mining Company reactivated Furnace 5, a pelletizing furnace at its taconite processing facility near Silver Bay on Lake Superior, Minnesota, about 39 miles to the southeast of the proposed NorthMet Mine Site and about 46 miles from the proposed NorthMet Plant Site.

The reactivated equipment included two crushing units and nine ore concentrator sections, as well as the construction of a concentrate handling system and an expansion of the facility's WWTP.

Northshore Mine (Mine, Ultimate Pit Progression, Closure and BART Reductions)

The Northshore Mine (also known as the Peter Mitchell Mine) is an open-pit taconite mine near Babbitt, St. Louis County, Minnesota, that opened in 1951, about 4 miles northwest and northeast from the NorthMet Plant Site and about 1 mile north of the NorthMet Mine Site. One of the mine areas currently discharges to the Partridge River. Northshore Mining Company has recognized at least another 60 years of minable reserves at current production rates. Conceptual post-closure plans for the Northshore Mine pit allow for the pit to flood due to groundwater inflow and runoff. Predicted ultimate outflow from the pit would be from the northeast end of the pit, to the Dunka River in the Rainy River Watershed. No water from mine dewatering would be anticipated to be flowing to the Partridge River post-closure (MDNR 2011p).

The mine is operated by Northshore Mining Company, Inc. the ore and processes it into pellets at Silver Bay, which ships it to steel producing blast furnaces throughout the country.

Northshore Mining Company is proposing a 108-acre progression of the Ultimate Pit Limit within its Permit to Mine at its Northshore Mine to access additional economic taconite ore, consistent with the company's long-term development plan for the mine. MDNR was the RGU for environmental review of Northshore's proposed progression project (the EAW process was completed in April 2015). The company is now in the process of seeking permit amendments that would address the progression.

Sappi Cloquet Plant Expansion

Sappi Cloquet LLC is an existing pulp and paper mill that uses the Kraft process to make pulp from wood chips. The pulp is bleached and made into coated paper. Currently, the mill operates four boilers, including a chemical recovery boiler to provide heating and process steam and to generate electricity.

Other sources of air emissions, besides the boilers, include the sources in the chemical recovery system. The bleach plant sources include the chlorine dioxide plant and a bleach line. These sources are primarily sources of chlorine dioxide and chloroform emissions; the bleaching system is also a source of CO and VOC emissions. Some of the particulate emissions, besides the boilers and chemical recovery sources, include fugitive sources such as woodpiles and roadways.

Sappi controls odor-causing non-condensable gases by collecting them in three different systems: a Low-Volume/High Concentration system, a High-Volume/Low Concentration system, and a steam Stripper Off-Gas system. The non-condensable gases are currently burned in the Incinerator-Quencher scrubber, with Power Boiler #7 or #9 used as backup.

The latest permit amendment, 014, issued on March 13, 2012, authorizes Sappi to modify the pulp mill to manufacture chemical cellulose pulp, also known as dissolving pulp. The project emissions increases are quite small, but include a projected increase in ozone emissions, which is subject to PSD requirements at any increase greater than zero.

This project replaces a previously planned plant expansion ("Project Hercules"), which was authorized through permit amendment 011, issued on October 28, 2009. Most of the facility changes permitted through that permit action will be "unpermitted" through this permit action.

St. Louis County Public Works Bridge Replacement

St. Louis County Public Works will be conducting eight bridge replacements in the Partridge River and Embarrass River watersheds over the next 10 years. Bridge replacements generally directly impact 10,000 ft^2 of wetlands or less, so the maximum direct wetland impact from the bridge projects would be 1.8 acres.

U.S. Steel Keetac Mine and Mine Expansion Project (Keewatin)

U.S. Steel is permitted to restart an idled production line and expand contiguous sections at the Keetac Mine and taconite processing facility near Keewatin, Itasca County, Minnesota, about 45 miles from the NorthMet Project area, on the boundary between St. Louis and Itasca counties. The project would increase iron pellet production from 6 million to 9.6 million tpy.

The project involved preparation of a joint State-Federal EIS; the State ROD was issued in December 2010. The expanded facility is scheduled to begin full operations between 2013 and 2015. U.S. Steel has announced that this project is currently on indefinite hold. Media reports in September 2014 stated that U.S. Steel had cancelled these projects (Minneapolis/St. Paul Business Journal 2014). These projects, however, were included in the cumulative effects air quality assessment for the NorthMet Project Proposed Action SDEIS, so they have been included in this analysis, and until a final decision by the federal agency (USACE) is made, this project is considered reasonably foreseeable for the purposes of this assessment. This change would reduce overall air emissions in the cumulative effects analysis area for air resources.

U.S. Steel Minntac Mine, Best Available Control Technology Reductions (Mountain Iron) and Minntac Mine Extension Project

The U.S. Steel Minntac Mine Project included three components for the cumulative effects analysis: the active mine, BACT reductions, and the proposed Minntac Mine Extension Project.

The BACT reductions project implemented technological modifications to reduce air emissions from the existing facility. In 2008, the MPCA issued a draft permit to U.S. Steel establishing BACT limits for VOCs, CO, and fluorides at the company's Minntac facility in Mountain Iron, Minnesota. The permit addresses potential effects on visibility from NO_x emissions and establishes a procedure to set a BACT limit for NO_x. The draft permits set interim NO_x limits and requires the ongoing testing of control technologies for NO_x, with a goal to reduce emissions more than 70 percent compared to the initial permit limit.

U.S. Steel is also proposing to extend its open pit facilities by 483 permitted acres at the Minntac Mine in Mountain Iron, St. Louis County, Minnesota. The project is expected to extend mine life and taconite production to 2031.

The Minntac Mine is a taconite mine and pelletizing operation about 25 miles from the NorthMet Project area. The Minntac plant consists of a series of crushers and screens, a concentrator, an agglomerator, and auxiliary facilities. Taconite produced from the extension would continue to be processed at the existing Minntac facility at the current levels of production.

MDNR issued a ROD on April 11, 2013, stating that the project would not cause significant environmental effects and that an EIS was not required (MDNR 2013f).

United Taconite Mine

This is a taconite mine near Eveleth, St. Louis County, Minnesota that began operations in 1965 and has an annual capacity of approximately 5.2 million gross tons of taconite pellets. It is located about 27 miles west of the NorthMet Project area. The United Taconite mine has six permitted mine pit dewatering discharges, all of which discharge to the St. Louis River Basin. United Taconite make-up water comes from the St. Louis River.

At the mine site, crushed ore is unloaded in a covered building. The ore is then transferred by a covered conveyor to the fine crusher building where it is immediately crushed at the third stage crusher or sent to the coarse ore surge pile. The coarse ore surge pile is used to store ore between train shipments or during times when the crusher is down.

Ore is returned from the coarse ore surge pile and fed into one of the 5 third-stage crushers. Particulate emissions from the third-stage crusher are controlled by wet scrubbers. The oversize material is conveyed to 1 of 8 fourth-stage crushers. Each fourth-stage crusher has a dedicated wet scrubber to control particulate emissions. Undersize material is transferred to the fine ore storage building. Oversize material is recirculated to the fourth-stage crushers.

Five concentrator lines receive ore from the fine ore surge building. Particulate emissions from the transfer of fine ore to the concentrator lines are controlled using wet scrubbers. Here ore is ground and magnetic separators remove the magnetite ore from the tailings. Low-magnetic coarse tailing are transported by truck for use as construction material for the tailings basin sidewalls. Fine tailings are pumped in slurry form to the tailings basin. Processes performed in the concentrator are wet operations. Concentrate is piped as a slurry to the pelletizing plant. The slurry is dewatered with filters and additives are introduced. Green pellets are produced in

balling drums and conveyed to one of two travelling grate kilns. Grate feed, grate discharge, kiln induration, and kiln cooler emissions are controlled with wet scrubbers.

Fired pellets are conveyed to pellet storage silos. Pellets are then loaded into rail cars and transported from the facility. Particulate emissions from the pellets are controlled with wet scrubbers and dust suppressants. Intermediate products and byproducts, including but not limited to rocks, tailings, and concentrate, are also sold by the United Taconite.

United Taconite Mine Modifications

The MPCA issued a major air permit amendment in 2002 for the installation and operation of the replacement pellet reclaim screening system. Furthermore, the MPCA issued a major permit amendment in 2010 for the installation of air pollution control equipment, implementation of an energy reduction project, and conversion of fuel type. The MPCA is currently working on a major amendment that would authorize the replacement of particulate controls and modification of scrubber solids wasting requirements.

United Taconite Mine Expansion

United Taconite has an original Department of the Army (DA) Permit for the Basin 3 tailings pond from the original permit issued in 1982. The original permit authorized discharge and fill material into 2,200 acres of wetlands as part of construction of three tailings basins. Construction of Basin 3 has not occurred to date. When United Taconite is ready to develop the Basin 3 tailings basin, they would need to apply for a Wetland Conservation Act (WCA) permit for the disturbance of approximately 1,200 acres of wetlands.

United Taconite Green Production Project

This project involves fuel changes and improvements to the concentrator and the Line 1 pellet plant to increase pellet production and was a PSD minor project. Because it was a PSD minor project, specific considerations for BACT/MACT were not required. However, the Line 1 pellet plant has an existing wet scrubber to control particulate and SO_2 emissions. Emission estimates are taken from the Technical Support Document for Permit No. 13700113-005 authorizing the project on August 19, 2010.

UPM/Blandin Paper Mill Expansion, Project Thunderhawk

This project would include the installation of a complete new paper manufacturing line, efficiency improvements to a second paper manufacturing line, shutdown of another existing paper machine and related infrastructure, additional pulping capacity, a new water intake structure, energy infrastructure improvements, a new paper warehousing facility, and WWTF modifications. Paper production would increase by an estimated 314,000 tons per year. The MPCA issued a permit action that incorporated a major amendment application (for Project Thunderhawk) dated August 23, 2005, for a modification that will increase paper production. Note that this project was not built.

Virginia Public Utilities

The City of Virginia Department of Public Utilities provides steam and electricity to businesses and residents of the local Virginia area. The department has the potential to operate any combination of four boilers using coal and/or natural gas and/or wood as fuel. Boiler 7 (EU001)

and Boiler 9 (EU003) can burn only coal, and Boiler 10 (EU004) is a natural gas fired boiler. Boiler 11 (EU006) is a wood-fired boiler to be used for district heating and electric generation. There is an additional boiler, Boiler 8, located at the facility but it is physically disconnected from the utility system. Pollution control equipment consists of wet scrubbers, baghouses, and/or electrostatic precipitators in combination with good combustion practices.

Community Growth and Development

Where community growth and development are assessed, they are based on historical and projected population and economic trends derived from state census data and regional land use plans as described in the appropriate resource sections.

Forestry Practices on Public and Private Lands

Where forestry practices are assessed, they are based on historical and projected trends derived from state databases and regional forestry plans as described in the appropriate resource sections.

6.1.1.2.2 Speculative Actions

Other projects in the early stages of development by mining companies are considered to be speculative by the Co-lead Agencies. While these projects have been identified to provide an indication of regional development interest, these actions have not been mapped or considered in the cumulative analysis.

Twin Metals

Twin Metals Minnesota Antofagasta PLC has begun looking at the feasibility of creating an underground copper-nickel-PGE mine near Ely, Lake County, Minnesota. This venture is known as the Twin Metals Project. At this time, a permit application has not been submitted for activities that would require state and federal permits, including a DA permit pursuant to Section 404 of the CWA. This project would likely require preparation of a joint State-Federal EIS. Preliminary data collection and maps to support environmental review and permitting is underway by the company.

Essar Steel

The Essar Steel Nashwauk, Itasca County, Minnesota, facility was permitted in 2007 and is under construction, and a plant expansion of its taconite operations is permitted and under construction. The construction of a legacy scram processing facility is being considered. Scram operations produce natural iron ore or iron ore concentrates from previously developed stockpiles, basins, underground workings, or open pits. The legacy scram facility is exempt from state environmental review, but requires state permitting.

Rio Tinto (Kennecott Exploration)

Rio Tinto is currently performing exploration drilling of a non-ferrous (copper-nickel) deposit near Tamarack, Aitkin County, Minnesota, about 45 miles west of Duluth, St. Louis County, Minnesota. The project may require preparation of a joint State-Federal EIS. Preliminary data collection to support environmental review and permitting is currently underway by the company (Rio Tinto 2010).

Teck

Teck is considering operations to mine the Mesaba deposit near Babbitt, St. Louis County, Minnesota, approximately 3 miles east of the NorthMet Mine Site, for non-ferrous metals (copper-nickel). The current phase is exploration and drilling. The project may require a joint State-Federal EIS. Preliminary data collection to support environmental review and permitting is underway.

North Star Blue Scope Steel

North Star Blue Scope Steel is considering a direct reduced iron (DRI) plant to process iron ore concentrate purchased from others into DRI-grade pellets. A site for the plant has not been selected. The project may require preparation of a joint State-Federal EIS.

ArcelorMittal

The ArcelorMittal facility is an operating iron taconite plant in Virginia, St. Louis County, Minnesota. The company is considering an expansion by initiating mining operations in a central pit, thereby connecting two existing pits. The project may require preparation of a joint State-Federal EIS and reissuance of NPDES permits for the mine and plant sites. The Town of McKinley is located between the two pits.

Cardero Resource Group (Two Projects)

Cardero Resource Group has initiated exploration activities for non-ferrous deposits (titanium) for its Longnose and Titac properties. Although both properties are located near Aurora, St. Louis County, Minnesota, they are separated by approximately 25 miles. The two are considered separate mines and each project may require preparation of a joint State-Federal EIS.

Cooperative Mineral Resources

Cooperative Mineral Resources is a subsidiary of Crow Wing Power located near Emily, Crow Wing County, Minnesota. The project is located 50 miles south and west of the Iron Range area and is proposed as a non-ferrous mine with an interest in manganese extraction from deposits 200 to 400 ft bgs. The project proposer has conducted small-scale pilot testing of extraction technology at the site. Based on results of the pilot-testing, the company does not intend to proceed with the project at this time. If the project were to move ahead, it would require preparation of a State EIS, and may require preparation of a joint State-Federal EIS.

Encampment Minerals

Encampment Minerals, Inc. is currently exploring the Serpentine copper-nickel deposit. This project would require a State EIS.

Magnetation

Magnetation has considered a similar scram mining operation near Calumet, Minnesota, but has not submitted permit applications for this facility and does not plan to pursue this project at this time.

6.1.2 Land Exchange Proposed Action

6.1.2.1 Cumulative Effects Analysis Approach and Baseline Conditions

Potential cumulative effects for the Land Exchange Proposed Action have been assessed at the resource level. The spatial and temporal extents of the CEAAs depend on several resource-specific factors. As discussed in the NorthMet Project Proposed Action cumulative effects introduction, some resources would not be directly affected by the action of a land exchange. These topics include noise, cultural/historic resources, geotechnical stability, wilderness and other special designation areas, and hazardous materials. The cumulative effects analysis for these topics, including the indirect effects of mining operations following any land exchange, are identified in their respective headings under Section 6.2, NorthMet Project Proposed Action.

The resource discussions in Chapter 4 provide the baseline conditions of the natural and human environment affected by past and present actions. Future actions—also called reasonably foreseeable projects—are those activities that could combine with the Land Exchange Proposed Action to potentially cause cumulative effects. The focus of this analysis is on those future activities when placed against baseline conditions that include the effects of past and present activities.

Land exchanges are property purchase and transfer transactions, whereas land acquisitions are only property purchases. The land exchange and property acquisition actions described in this section are designed to consolidate and enhance the functional boundaries of the Superior National Forest. The effects measure the net increase or decrease of each specific resource that would result from the Land Exchange Proposed Action and other cumulative actions in context of the entire Superior National Forest system.

In addition to the Land Exchange Proposed Action, two alternatives have been carried forward: Land Exchange Alternative B and the Land Exchange No Action Alternative. A description of these alternatives is presented in Chapter 3.

6.1.2.2 Cumulative Forest Service Land Actions

Because past land exchange and land acquisition actions through 2011 have been incorporated into the existing Superior National Forest boundaries and the subsequent area and resource calculations, it is assumed that the aggregate effect of these past land exchange actions has been absorbed into and are represented in the current Superior National Forest baseline data. Based on this assumption, the Land Exchange Proposed Action and other current and foreseeable land exchange and land acquisition actions are evaluated as cumulative actions.

The USFS identified the following six current and reasonably foreseeable land exchange and land acquisition (Figure 6.1.2-1) actions that would be cumulative to the Land Exchange Proposed Action:

- Cook County Land Exchange;
- Crane Lake Land Exchange;
- Fall Lake Land Acquisition;
- Gunflint Land Acquisition;

- School Trust Land Exchange and Land Acquisition; and
- Wolf Island Phase 2 Land Acquisition.

A brief description of each of the current and reasonable foreseeable land exchange and land acquisition actions is presented below.

6.1.2.2.1 Cook County Land Exchange

The USFS proposes to exchange up to 1,620 acres for 1,911 acres of Cook County lands within the BWCAW to assist in meeting the goals and objectives of the BWCAW elements of the Forest Plan. The federal lands consist of 14 parcels located throughout Cook County and would be conveyed to Cook County to allow for sustainable development. The lands the USFS would receive would consolidate National Forest System land within the BWCAW.

6.1.2.2.2 Crane Lake Land Exchange

In 2014, this project exchanged 352 acres of federal land located within and adjacent to the Town of Crane Lake for 265 acres of private land in the general vicinity of Crane Lake and the BWCAW. The federal lands were adjacent to the Town of Crane Lake in T67N, R17W, Sections 23 and 26. The non-federal lands acquired included three separate parcels in the general vicinity of Crane Lake and some distance south of the town.

The USFS's purpose was to acquire and consolidate land adjoining the BWCAW, the Vermillion River, and other existing National Forest System lands. The Town of Crane Lake's purpose was to acquire land that would better allow for sustainable municipal development and management of municipal facilities by the Town of Crane Lake.

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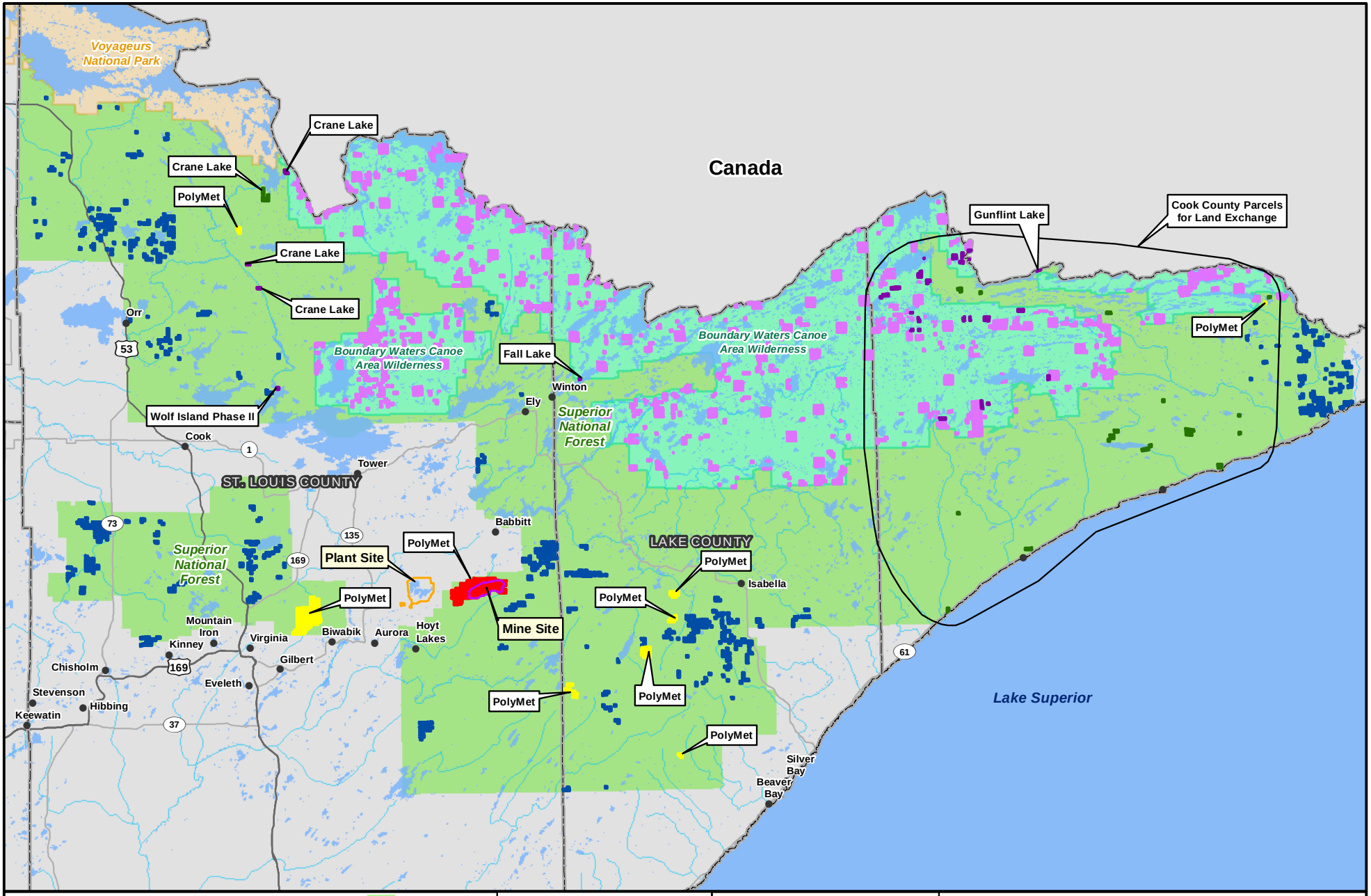

Property to Be Acquired by USFS (PolyMet)
Property to Be Relinquished by USFS (PolyMet)
Property to Be Acquired by USFS (Other Projects)
Property to Be Relinquished by USFS (Other Projects)
Property to Be Acquired by USFS (School Trust Project)
Property to Be Relinquished by USFS (School Trust Project)
Boundary Waters Canoe Area Wilderness
National Park
National Forest
Streams/Rivers
Lakes
City/Town
Plant Site
Mine Site

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 2.5 5 10 15 Miles

Figure 6.1.2-1
Parcels Involved in Proposed USFS Land Exchanges
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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6.1.2.2.3 Fall Lake Land Acquisition

In 2014, the Forest Service purchased two properties totaling approximately 27 acres from The Trust for Public Land. The two properties included Duvall (11 acres of Fall Lake) and Laur (17 acres on Fall Lake). The properties are located on the shores of Fall Lake, across from the Fall Lake boat landing/campground and within 0.5 mile of the Fall Lake entry to the BWCAW.

6.1.2.2.4 Gunflint Land Acquisition

The Conservation Fund purchased this 32-acre property in 2014 and is holding title until the USFS receives the funds to acquire the lands in order to consolidate them into the Superior National Forest. The request for funds to purchase these properties was included in the USFS's Land and Water Conservation Fund request with the potential to receive funds as early as 2016.

The property is located in Cook County along Gunflint and Little Gunflint Lakes at the US-Canadian border along the "Voyageurs Route." The acquisition would protect 5,465 ft of shoreline along Gunflint Lake and Little Gunflint Lake.

6.1.2.2.5 School Trust Land Exchange and Land Acquisition

The State of Minnesota and the USFS are working together on a mutually beneficial strategy to transfer ownership of approximately 86,000 acres of currently designated school trust lands, located within the BWCAW, to federal ownership as part of a combined purchase and land exchange. The USFS would exchange federal lands outside the BWCAW for one-third of the school trust parcels within the BWCAW. The USFS would purchase the remaining two-thirds of the school trust lands within the BWCAW.

6.1.2.2.6 Wolf Island Phase 2 Land Acquisition (Domine Phase 2)

The Forest Service purchased this 27.54-acre property from The Trust for Public Land in 2013. This parcel represents the northern portion of Wolf Island in the northern arm of Lake Vermilion, 1 mile from the head of the Vermillion River. The USFS acquired the southern portion of Wolf Island in 2010. Acquisition of the remainder of Wolf Island resulted in public ownership of the entire 60-acre island and approximately 10,500 ft of lakeshore on Lake Vermilion. The island provides riparian habitat for sensitive species, including bald eagles and other resident and migratory birds such as osprey, loons, and blue herons.

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6.2 CUMULATIVE EFFECTS BY RESOURCE FOR THE NORTHMET PROJECT PROPOSED ACTION

This section considers cumulative effects by resource area. Only the direct and indirect effects of the NorthMet Project Proposed Action described in Chapter 5 of the FEIS are considered to potentially cause cumulative effects for the purposes of this analysis. For each of the resources analyzed in this chapter, the specific methodologies used to approach the cumulative analysis, as well as the spatial and temporal boundaries that limit the analysis, are described.

6.2.1 Land Use

The NorthMet Project Proposed Action would affect approximately 6,498 acres of land near Hoyt Lakes and Babbitt, in St. Louis County, Minnesota. This area includes public lands in the Superior National Forest, as well as private lands within the municipal boundaries of Hoyt Lakes and Babbitt.

6.2.1.1 Approach

The cumulative actions were evaluated against existing land use plans and ordinances. These include the St. Louis County Comprehensive Land Use Plan, provisions of the 1854 Treaty with the Chippewa of Lake Superior as they may affect or be affected by land use, and local (municipal) land use plans and zoning ordinances.

6.2.1.2 Cumulative Effects Assessment Area

6.2.1.2.1 Spatial

The CEAA for land use includes effects associated with the NorthMet Project Proposed Action combined with other industrial (including mining) or public works projects located within the portion of the Mesabi Iron Range encompassed by St. Louis County (see Figure 6.1.1-1). While changes in land use patterns do not necessarily depend on such projects, historical census data indicate changes in population in St. Louis County have been historically linked to such projects, especially mines. As discussed in Section 4.2.10, the iron deposits associated with the Mesabi Iron Range have been mined on an industrial scale for more than 100 years.

Recreation and natural areas (such as the BWCAW, Voyageurs National Park, and Superior National Forest) are also important economic and land use resources; however, the spatial extent of these designated lands is largely fixed (i.e., they have designated federal boundaries). Changes in use of these resources are due to evolving socioeconomic preferences, such as preferred type and amount of recreational activity.

6.2.1.2.2 Temporal

This evaluation focuses on existing and reasonably foreseeable land use patterns within the CEAA. Because mining and public resource management have been historically the primary drivers defining regional development and land use within the CEAA for over 100 years, existing conditions are considered indicative and representative of historical mining and resource management activities.

6.2.1.3 Contributing Past, Present, and Reasonably Foreseeable Actions

As noted previously, it is not possible to identify all past activities that may contribute to a cumulative effect. Similarly, all present activities would continue to affect the environment. The impacts of these combined activities are described in Chapter 4, Affected Environment. While not a new project, the Northshore Mine is anticipated to close in 2070.

The foreseeable future actions included in this analysis are discussed in Section 6.1.1.2. Activities specifically associated with potential cumulative effects on land use include permitted mines and other projects in the portions of the Mesabi Iron Range in St. Louis County where future activities are likely to be different from current activities. These projects include:

- ArcelorMittal Deposits (Laurentian and East Reserve Deposits);
- Mesabi Mining Project;
- Northshore Closure;
- U.S. Steel Keetac Mine (Keewatin); and
- U.S. Steel Minntac Mine, Extension Project.

6.2.1.4 Cumulative Effects Assessment

The cumulative actions described in Section 6.2.1.3 are largely existing, expanded, or reconfigured mines operating on private land. These activities total approximately 2,650 acres, including more than 2,000 acres at the Keetac mine alone (MDNR and USACE 2010). While much of this land has not previously been mined, all of the cumulative actions are found within the Mesabi Iron Range. Expanded mining in this area does not necessarily reflect a change in land use and is consistent with land use regulations (St. Louis County 2011).

Together, the five projects included in the cumulative assessment would generate new jobs (Section 6.2.10). As with the NorthMet Project Proposed Action, this could increase housing demand in the region although a majority of this increased demand could be absorbed by the substantial available housing stock in St. Louis County (see Section 5.2.10.2.4). Any new housing would need to be consistent with the St. Louis County Land Use Ordinance 27 (Comprehensive Plan Land Use).

Post-closure, the Northshore Mine pit lake is estimated to be approximately 2,800 acres at an elevation of 1,500 ft amsl. Mitigation for changes to the watershed includes in-pit aquatic habitat development and upland enhancements. Public access to the reclaimed pit lake would be provided (Barr 2010e).

The sources for data regarding cumulative actions include MDNR and USACE 2007, USDOE and MDC 2007, and MDNR and USACE 2010.

6.2.2 Water Resources

The FSDD identified several resources with the potential to be cumulatively affected, including water resources, which would be subjected to a cumulative effects analysis using guidance from the CEQ (CEQ 1997). The FSDD identified hydrology and water quality as elements with the potential for cumulative effects. The analysis within this FEIS also identified the potential for cumulative effects on surface water hydrology and water quality. Neither the FSDD nor this FEIS identified potential cumulative effects on surficial groundwater. The NorthMet Project Proposed Action would supplant the existing seepage from the existing LTVSMC Tailings Basin and extend the duration of these effects, but these effects are localized and already incorporated in the groundwater quality models the results of which are in Section 5.2.2. The existing LTVSMC Tailings Basin is not considered a part of the cumulative effects because the NorthMet Project Proposed Action would replace these effects; therefore, they cannot be considered in addition to the NorthMet Project Proposed Action. Although the NorthMet Project Proposed Action would affect groundwater levels, this effect would be very limited geographically and temporally (e.g., groundwater levels would begin to restore once pit dewatering ceases) and not subject to any off-site cumulative effects. The effects of mine pit dewatering are considered in terms of effects on surface water flows. Therefore, the scope of this cumulative effects assessment focuses on the effects of past, present, and reasonably foreseeable future activities on surface water hydrology and quality.

6.2.2.1 Cumulative Effects Assessment Areas

In accordance with the CEQ guidance, a cumulative effects assessment should define the spatial and temporal scope of its analysis. These are described below.

6.2.2.1.1 Spatial

The FSDD identified the Partridge River and the Embarrass River as the geographic scope for the hydrology and water quality analyses. The analysis in this FEIS supports this study area. The St. Louis River was considered for inclusion in the cumulative effects assessment, but was not included in the assessment of project-specific impacts for the reasons described below. The cumulative effects actions with the potential to affect flow within the Partridge River and Colby Lake include the Northshore Mine, Laskin Energy City of Hoyt Lakes, Mesabi Mining, and Mesabi Nugget. In the Embarrass River, the projects include ArcelorMittal Deposits (Laurentian and East Reserve Deposits), City of Aurora POTW, City of Babbitt POTW, and the City of Biwabik POTW.

As concluded in Section 5.2.2, the NorthMet Project Proposed Action, which includes augmentation to Embarrass River tributaries, is predicted to only result in minor changes to hydrology within the Partridge River and Embarrass River. Most of the actions considered in this cumulative effects analysis (see Table 6.1.1-1) with the potential to cumulatively affect hydrology within the Partridge River and Embarrass River exist and their hydrologic effects are already incorporated into the impact assessment water modeling for the NorthMet Project Proposed Action.

The water quality modeling for the NorthMet Project Proposed Action already takes into consideration low flow conditions, and even during low flows, it is not predicted to result in any

direct exceedances of water quality evaluation criteria, although achieving this would require indefinite water treatment and WWTF and WWTP maintenance. Other reasonably foreseeable actions may also increase metal and other solute loadings downstream, but it is assumed that these other actions would also be required to meet federal and state water quality requirements, including nondegradation. Therefore, the potential for exceedances of water quality evaluation criteria as a result of cumulative effects from the NorthMet Project Proposed Action and other reasonably foreseeable actions is considered unlikely.

Although not expected to result in any direct exceedances of water quality evaluation criteria, the NorthMet Project Proposed Action, in combination with other reasonably foreseeable actions, would increase metal and other solute loadings to the Partridge River and Embarrass River, and further downstream in the St. Louis River. These loadings would, however, be diluted as the solutes are transported downstream (i.e., average annual flow in the St. Louis River at the confluence with the Embarrass River is approximately four times more than in the Partridge and Embarrass rivers alone). Further, the MPCA will review the NorthMet Project Proposed Action for consistency with the State's non-degradation requirements prior to any permitting, as it would also do at the time of permitting for any other reasonably foreseeable actions.

Finally, sulfate and mercury loadings, two key constituents of concern, are predicted to decrease overall as a result of the NorthMet Project Proposed Action. Although sulfate loadings are predicted to increase slightly in the Partridge River Watershed (less than 1 percent) as a result of the NorthMet Project Proposed Action, this is offset by a large decrease in the Embarrass River Watershed (greater than 40 percent at PM-13), resulting in a significant net decrease in overall sulfate loadings to the St. Louis River as a result of the NorthMet Project Proposed Action. Similarly, mercury loadings are predicted to increase slightly in the Embarrass River Watershed (0.1 percent) as a result of the NorthMet Project Proposed Action, but this is offset by a larger decrease (1 percent) in the Partridge River Watershed, resulting in a net decrease in overall mercury loadings to the St. Louis River as a result of the NorthMet Project Proposed Action.

Therefore, the NorthMet Project Proposed Action is not considered to have the potential for cumulative effects on hydrology and water quality in the St. Louis River. As a result, the CEAA for surface water is defined by the Partridge River and Embarrass River watersheds as shown on Figure 6.2.2-1.

Mine Site
Plant Site
Transportation and Utility Corridor
Embarrass River Watershed
Partridge River Watershed
Cumulative Actions
See Table 6.2-1
Stream/River
Lakes
National Forest

MNDNR
US Army Corps of Engineers
St. Paul District

N
W E
S

0 1 2 4 6 Miles

Figure 6.2.2-1
Water Resources Cumulative Effects Assessment Areas, Projects, and Actions
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6.2.2.1.2 Temporal

In terms of temporal scope, this assessment considered past and present and reasonably foreseeable effects on flow and water quality in the Partridge River and Embarrass River as reflected in existing baseline hydrologic and water quality conditions. Limited flow data are available back to 1942 for the Embarrass River and for the Partridge River. Limited water quality data are available dating back to the 1970s. In addition to the NorthMet Project Proposed Action, this assessment considered the activities identified below.

6.2.2.2 Contributing Past, Present, and Reasonably Foreseeable Actions

Existing and potential future actions, in combination with the NorthMet Project Proposed Action, which could cumulatively affect surface water hydrology and quality within the Partridge River and Embarrass River watersheds, include the following:

- ArcelorMittal Deposits (Laurentian and East Reserve Deposits);
- City of Aurora POTW;
- City of Babbitt POTW;
- City of Biwabik POTW;
- City of Hoyt Lakes POTW;
- LTVSMC Pits (Cliffs Erie Pits);
- Mesabi Mining Project;
- Mesabi Nugget Project;
- Minnesota Power Laskin Energy Center;
- Northshore Mine; and
- Northshore Mine Closure.

6.2.2.3 Cumulative Effects on Hydrology

This section discusses cumulative effects on the hydrology within the Partridge River and Embarrass River watersheds.

6.2.2.3.1 Partridge River Watershed

There are several mines (active, closed, and proposed), the City of Hoyt Lakes POTW, and Minnesota Power's Laskin Energy Center (a power plant) that have withdrawn or discharged water in the past and/or are currently withdrawing or discharging water that affects flows in the Partridge River (see Figure 4.2.2-10). Table 4.2.2-10 summarizes the NPDES/SDS discharges to and surface water withdrawals from the Partridge River and its tributaries. Most of these outfalls do not discharge continuously, and many, although still "active" in terms of permit status, have not discharged for many years (such as various mine pit dewatering discharges). The existing or predicted future hydrologic effects of these activities are briefly described below and summarized in Table 6.2.2-1. The average net hydrologic effect listed reflects the extent to which the listed activity impacts natural average annual flow in the Partridge River. For example,

flooded pit overflows (without artificial management) are assumed to generally reflect natural flow contributions.

Table 6.2.2-1 Cumulative Effects on Partridge River and Colby Lake Hydrology by Activity

Activity	Average Net Hydrologic Effect (cfs)	Location of Effects	Timing	Magnitude	Future Duration
Northshore Mine	+5.0	Upper Partridge River and Colby Lake	Intermittent	Varies	>50 years ongoing
Northshore Mine Closure	0.0	Upper Partridge River and Colby lake	NA	NA	Beginning in 2070
City of Hoyt Lakes POTW	-0.1	Colby Lake	Continuous	Relatively consistent	Long-term ongoing
LTVSMC Pits	+6.2	Wyman Creek, Upper and Lower Partridge River, Second Creek and Colby Lake	Varies	Varies	Long-term ongoing
NorthMet Project Proposed Action Mine Site WWTF	+0.65	Upper Partridge River and Colby Lake	Continuous	Relatively consistent	Long-term
Mesabi Nugget	+7.4	Second Creek and Lower Partridge River	October to March	Relatively consistent	Ongoing
Mesabi Mining Project	Unknown	Second Creek and Lower Partridge River	Unknown	Unknown	Unknown
Mesabi Mining Site Existing Conditions	0.0	Second Creek and Lower Partridge River	NA	NA	NA
Minnesota Power Laskin Energy Center	-4.2	Colby Lake	Continuous	Relatively consistent	Long-term ongoing
NorthMet Project Proposed Action Plant Site WWTP	±0.1	Second Creek and Lower Partridge River	Continuous	Relatively consistent	Long-term

Sources: PolyMet 2015i; MPCA 2012l; MPCA 2012m; MPCA 2013h; MPCA 2013j; MPCA 2013k; MPCA 2014d; MPCA 2014e; MPCA 2014f.

- Northshore Mine – This is an open pit taconite mine. The mine consists of three mining areas, only one of which (water appropriation permit Area 003) discharges to the Partridge River Watershed. There are several permitted discharges from Area 003, but only two mine pit discharges and a crusher discharge are active, with a collective maximum water appropriation-permitted discharge to the Partridge River of 29 cfs. Upper Partridge River flows are currently influenced by the timing and magnitude of Northshore Mine discharges from the Peter Mitchell Pit at SD-009 and SD-010, and would be influenced by the cessation of those discharges in approximately mine year 55.

Available records show an average annual discharge to the Partridge River ranging from 6.8 to 15.1 cfs, with a highest reported monthly discharge of 34 cfs (Barr 2008f). Since 2004, the average annual daily discharge from the Northshore Mine has been approximately 5.0 cfs, but this rate is quite variable, ranging from zero (mostly during the winter and summer droughts) to as high as approximately 20 cfs (MDNR et al. 2015a). The 5.0 cfs rate is used for cumulative hydrologic evaluations because it is the best representation of actual flows. For the direct impact assessment, a 2.6 cfs flow rate is used because it provides a better calibration for assessing water quality. The same flow rate is used for the cumulative water quality assessment (MDNR et al. 2015a).

- Northshore Mine Closure – Following closure in year 2070 of the Northshore Mine, its discharge to the Partridge River Watershed would cease as the pit is allowed to flood with water. After the pit lake is flooded, the pit would discharge towards the Dunka River into the Rainy River Watershed, effectively removing the pit discharge from the Partridge River Watershed (PolyMet 2015m).
- City of Hoyt Lakes POTW – The City of Hoyt Lakes is authorized to withdraw up to 2.3 cfs, but currently withdraws approximately 0.6 cfs of water from Colby Lake for municipal potable use, and discharges approximately 0.5 cfs of treated wastewater from its POTW to Whitewater Reservoir. Most of this water is returned to the Partridge River Watershed either via pumping during droughts to maintain water levels in Colby Lake or via seepage through its northwest dike to the Lower Partridge River. For purposes of this cumulative effects analysis, a consumptive loss of 0.1 cfs is assumed from the Partridge River Watershed.
- Mesabi Nugget, Pit 1 –This existing plant processes taconite concentrate into nuggets. It is not an active mine site. Wastewater from the plant is routed through a chemical precipitation unit and discharged into the west end of the Area 1 Pit. Water from the east end of the Area 1 Pit is then pumped to Outfall SD001 with ultimate discharge into Second Creek. This pit has seasonal (September to March) discharges to Second Creek that average approximately 7.4 cfs; no discharges occur from April to August.
- Mesabi Mining Project – This is a proposed project involving reactivation of a taconite mine and construction of a new taconite concentration facility. The iron ore concentrate would be used as feedstock for the Mesabi Nugget facility, with the remaining balance shipped by rail for use in other facilities. The project underwent some NEPA and MEPA review from 2009 to 2011, but that work is currently in suspension while the project is revaluated/redesigned. The water management strategy for this facility is still in the process of development, so the future hydrologic effects of this action are unknown.

- Mesabi Mining Site Existing Conditions:
  - Pit 2WX: The pit is currently in the process of filling. Within a few years, this pit may overflow to an unnamed creek that discharges to Colby Lake.
  - Pit 6: This pit currently releases water to Second Creek via the surficial aquifer. There is no surface water discharge.
  - Pit 9S: This pit is currently stable (with likely groundwater discharge off site and/or to Pit 6).
  - Pit 9N: This pit is currently stable (with groundwater connection to Pit 1 and the surficial aquifer).
- LTVSMC Pits (Cliffs Erie Pits) – These pits would influence the flow of the Upper Partridge River downstream of Wyman Creek's confluence with the Partridge River and the Lower Partridge River:
  - Pit 2/2E: This pit is stabilized with no direct discharge. There is likely groundwater flow from this pit to Pit 2W.
  - Pit 2W: This pit discharges intermittently to Second Creek at approximately 4.5 cfs.
  - Pit 3: This pit currently discharges to Wyman Creek, a tributary to the Upper Partridge River, at approximately 0.9 cfs.
  - Pit 5SW: This pit overflows to Wyman Creek via "dispersed" discharge, at an estimated rate of less than 0.8 cfs.
- Minnesota Power Laskin Energy Center – This is a natural gas power plant that withdraws cooling water from Colby Lake. It discharges once-through, non-contact cooling water to the downstream portion of Colby Lake, but has a 4.2 cfs evaporative loss of water to the atmosphere. No changes to its current mode of operation are anticipated for the foreseeable future.
- NorthMet Project Proposed Action – The NorthMet Project Proposed Action would also influence future Partridge River flows through: 1) WWTF discharges starting in mine year 52; 2) a watershed reduction; 3) pit inflows during operations and reclamation; and 4) groundwater flowpath contributions from stockpiles and pits during operations, reclamation, and closure. The WWTF would discharge continuously at rate of 0.65 cfs. Watershed area reductions resulting from the NorthMet Project Proposed Action for SW-001, SW-002, SW-003, SW-004, and SW-004a range from 0 to 2.1 percent during closure and long-term maintenance, which translates to a reduction of 0.39 cfs below current and future flows at SW-004a. Pit inflows would reduce Partridge River flows by less than 2 cfs. Changes to groundwater flows are considered negligible. There would be a decrease in flows during operations (about mine year 12) when the rate of pit inflows would be the greatest. There would be an increase in flows during closure for about a 3-year period when the WWTF would be discharging to the Partridge River.

The south discharge from the Tailings Basin into Second Creek would be managed within plus or minus 20 percent of flows, estimated to be 0.5 cfs, prior to the installation of the containment system. The expected flows from the WWTP that would augment these flows are predicted to range between 0.4 and 0.6 cfs.

Upper Partridge River

The P50 average annual modeled flows were assessed for the 200-year simulation in the Partridge River at SW-004a. The NorthMet Project Proposed Action would decrease flows by no more than 1.2 cfs and increase them by no more than 0.5 cfs Figure 6.2.2-2 shows P10, P50, and P90 average annual flow rates to capture the uncertainty in the hydrology. The decrease in flows would occur during operations.

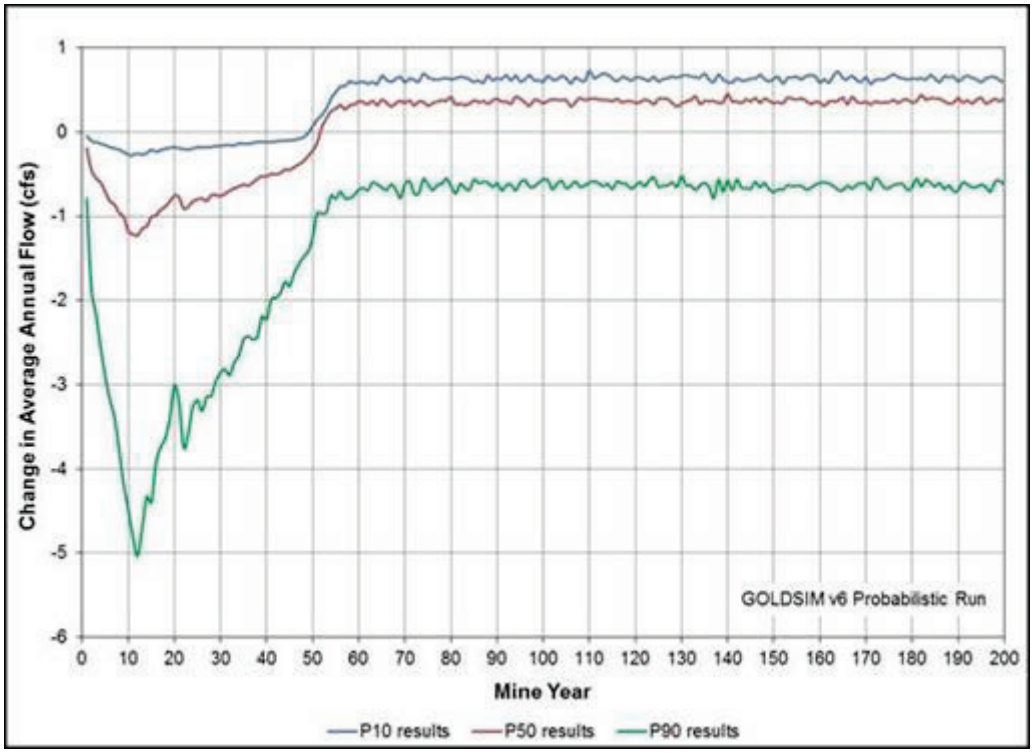

Figure 6.2.2-2 Change in Average Annual Stream Flow at SW-004a

Downstream of SW-004a and upstream of Colby Lake, contributions to the tributaries to the Partridge River from existing LTVSMC pits total approximately 6.2 cfs. In year 2070, Northshore is expected to stop pumping water to the Upper Partridge River. Elimination of this pumping activity would decrease Upper Partridge River flows by approximately 5.0 cfs on an annual average basis.

Depressed water levels in the Northshore Peter Mitchell Pit also influence the flows of the Upper Partridge River by redirecting surficial aquifer recharge into the Peter Mitchell Pit that would have otherwise fed the Partridge River. Northshore currently pumps water out of the Peter Mitchell Pit into the Partridge River, which has the effect of replacing the redirected recharge water. However, because pumping to the Partridge River is sporadic, the Partridge River experiences more variable flow than would have occurred without the pumping.

In year 2070, pumping to the Partridge River from the Peter Mitchell Pit is anticipated to end. The volume of aquifer recharge water redirected from the Partridge River Watershed would then become a function of the Peter Mitchell Pit lake elevation, which would be at its lowest point in 2070 and refill over approximately a decade to its final planned pit lake elevation, which is below the elevation of the Partridge River. It is expected that surficial aquifer recharge water that would have fed the Partridge River would be redirected to the Peter Mitchell Pit as long as the elevation of the Peter Mitchell Pit remains below the Partridge River.

Colby Lake

Cumulative hydrologic effects on Colby Lake would be influenced by activities in the Upper Partridge River identified above and three additional activities: 1) NorthMet Project Proposed Action pumping from Colby Lake in mine years 1 to 20, at an average rate of 1.7 cfs, for Plant Site operational needs; 2) Laskin Energy Center pumping from Colby Lake, at a rate of 4.2 cfs, to support its operations; and 3) City of Hoyt Lakes POTW pumping with a net effect of a 0.1 cfs decrease.

This recognized, Colby Lake water elevations are regulated and managed and this ultimately dictates flows from Colby Lake into the Lower Partridge River. Partridge River flows into Colby Lake during peak flow events are diverted through a set of gates to the Whitewater Reservoir, thereby mitigating potential increases in flows to the Lower Partridge River from this source. There is a minimum regulated water level threshold of 1,439 amsl on Colby Lake as required under MDNR Water Appropriation Permit 1949-0135. As this threshold is approached, water is pumped out of Whitewater Reservoir to Colby Lake to increase water elevations in the lake and, with it, flow to the lower Partridge River. Due to Colby Lake's hydrologic relationship with the Whitewater Reservoir, as well as regulated management, no impacts to hydrology in Colby Lake are expected.

Lower Partridge River

Historically, water has been discharged from SD-026 south of the Tailings Basin at various rates into Second Creek, a tributary to the Lower Partridge River. The NorthMet Project Proposed Action would stop this flow. Flows from SD-026 would be augmented by the NorthMet Project Proposed Action to maintain flows that existed prior to the installation of the containment system. Due to this augmentation, discharges from SD-026 could deviate ±0.1 cfs from the baseline. This impact would be added to Mesabi Nugget's 7.4 cfs seasonal discharge increase and an unknown impact from the proposed Mesabi Mining Project.

Bedrock Flow Direction North of the Mine Site

Pit lake elevations for the NorthMet Proposed Action and Northshore mining operations would vary for both facilities through operations, reclamation, and closure. Differences in pit water level elevations between the facilities could influence the direction of bedrock groundwater flow between the NorthMet and Northshore mines. However, a second mechanism may also influence bedrock flow direction: downward leakage from wetlands and surficial materials into bedrock. If downward leakage rates were high enough relative to NorthMet and Northshore pit water level elevations, a bedrock groundwater mound could be created that would prevent bedrock groundwater from traveling from the NorthMet Mine Site to the Northshore mine. A groundwater mound would occur if the highest elevation of the bedrock groundwater profile

were above the pit water levels at each site. The mound would represent a groundwater flow divide between the mines and would indicate that there is no continuous unidirectional flow between them.

At present, the lack of response seen in bedrock well data north of the NorthMet Mine Site, despite the influence of progressively decreasing Northshore Peter Mitchell Pit water level elevations, is consistent with the idea that there is some downward leakage into bedrock from wetlands and surficial materials. Furthermore, if the surface water source were adequate (e.g., in wetlands), scoping calculations show that the vertical hydraulic conductivity used in MODFLOW for surficial deposits would be high enough for sufficient downward leakage to occur to create a bedrock groundwater mound. However, it is uncertain if enough water would be available at ground surface to support this level of leakage (MDNR et al. 2015c).

Of the approximately 28 inches of precipitation falling annually in the NorthMet Project area, scoping calculations suggest that 5 in/yr would need to reach bedrock to create a bedrock groundwater mound for the long-term closure condition (post-year 2080) and up to 8 in/yr under worst-case conditions (year 2070). Surface water available for downward leakage is influenced by evapotranspiration, runoff, and baseflow to the Partridge River (MDNR et al. 2015c).

Given available information, development of a naturally forming bedrock groundwater mound over the course of both NorthMet and Northshore mining operations through closure is not certain. Therefore, the possibility of a northward bedrock groundwater flowpath cannot be ruled out. Monitoring of bedrock groundwater levels would be required and possibly mitigation applied to prevent it (MDNR et al. 2015c). For information on mitigation and monitoring of the NorthMet Project Proposed Action related to this issue, see Sections 5.2.2.3.5 and 5.2.2.3.6.

6.2.2.3.2 Embarrass River Watershed

In general, flows in the Embarrass River have been affected to a minor extent by municipal water withdrawals and wastewater discharges, and, since the mid-1950s, by mining (e.g., seepage from the existing LTVSMC Tailings Basin). Most of these discharges are relatively continuous, although there can be wide variations in their magnitudes, most of which are attributable to precipitation trends. Larger discharges tend to coincide with either snow melt or large storm events when flows in the Embarrass River are typically high, thereby reducing the magnitude of these discharges. On the other hand, there can be less discharge during drier periods when river flows are lower. Including the NorthMet Project Proposed Action, there are seven past, present, and reasonably foreseeable future activities that could affect the hydrology of the Embarrass River. The existing or predicted future hydrologic effects of these activities are briefly described below and summarized in Table 6.2.2-2. The average net hydrologic effect listed reflects the extent to which the particular activity impacts natural average annual flow in the Embarrass River. For example, flooded pit overflows (without artificial management) are assumed to generally reflect natural flow contributions.

Table 6.2.2-2 Existing Cumulative Effects on Embarrass River Hydrology by Activity

Activity	Average Net Hydrologic Effect (cfs)	Location of Effects	Discharge Timing	Magnitude	Duration
City of Babbitt POTW	+0.1	Upper and Lower Embarrass River	Continuous	Relatively consistent	Long-term ongoing
LTVSMC Area 5NW Pit	+1.2	Upper and Lower Embarrass River	Continuous	Varies	Long-term ongoing
ArcelorMittal Laurentian Deposit	-5.1	Lower Embarrass River	Continuous	Varies	Ongoing until mid-2010s then ceasing
ArcelorMittal East Reserve Deposit	+9.3	Lower Embarrass River	Continuous	Varies	Ongoing until ~2025
City of Aurora POTW	-0.3	Lower Embarrass River	Continuous	Relatively consistent	Long-term ongoing
City of Biwabik POTW	0.0	Lower Embarrass River	Continuous	Relatively consistent	Long-term ongoing
NorthMet Project Proposed Action Plant Site WWTP	±1.0	Upper and Lower Embarrass River	Continuous	Relatively consistent	Long-term

Sources: PolyMet 2015i; MPCA2012i; MPCA 2012j; MPCA 2013g; MPCA 2013h; MPCA 2014c; MPCA 2014d.

- City of Babbitt POTW – The City of Babbitt uses several wells, some of which are in the Dunka River Watershed, as its water supply source, and discharges 0.33 cfs of treated wastewater effluent to the headwaters of the Embarrass River. Since some of this discharge is Dunka River Watershed water, it is estimated that the City of Babbitt provides an annual average net increase of 0.1 cfs to the Embarrass River.
- LTVSMC Pits (Cliffs Erie Pits) – Pit 5NW overflows to Spring Mine Creek, a tributary of the Embarrass River. This pit has an overflow discharge of approximately 1.2 cfs, but its flow varies with precipitation and has been measured as low as 0.23 cfs.
- NorthMet Project Proposed Action Plant Site – Tributaries extending north of the Tailings Basin would be augmented to maintain existing flows within ±20 percent. The effect of the NorthMet Project Proposed Action decreases with distance downstream, as can be seen at PM-13, where the maximum change in flow is an approximate 3 percent decrease in the annual average flow during operations, with a long-term closure decrease of less than 2 percent.
- ArcelorMittal Laurentian Deposit – This is a taconite mine that has been in operation since approximately 1993. The mine has three permitted dewatering discharges to an unnamed tributary of the Lower Embarrass River (immediately downstream of Esquagama Lake), but only one is actively used (SD-003). This mine is expected to close sometime in the late 2010s, at which time pit dewatering would stop, and flow to the Embarrass River would be reduced until the pit floods.

  Pit dewatering discharges averaged approximately 5.1 cfs annually between 2012 and 2014 (MPCA 2010a; MPCA 2011f; MPCA 2012i). Discharges were reasonably constant over the period, with most monthly values ranging between 4.5 and 6.0 cfs. Flows similar to these are expected until the mine closes, at which time pit dewatering and discharge to the Embarrass

River would stop. This would result in a net reduction in flow to the Embarrass River of approximately 5.0 cfs until the pit floods.

- ArcelorMittal East Reserve Deposit – This is an open-pit taconite mine, which began operations (East Reserve #1) in 2008. The second pit (East Reserve #2) is permitted and is operating as of 2014.

  The first pit has a single permitted dewatering discharge (SD-005) to an unnamed tributary of the Lower Embarrass River (immediately downstream of Esquagama Lake). Pit dewatering discharges from East Reserve #1 averaged approximately 2.7 cfs from 2012 to 2014, but this discharge would likely gradually increase as the pit gets deeper. When discharging, the flow rate is constant, but currently there are several months of the year (primarily in winter) when no discharge occurs. At some yet-to-be-determined point, East Reserve #2 would be opened and pit dewatering would begin through a second permitted discharge (SD-006). The East Reserve Deposit (Pit 1 and Pit 2) would have a combined permitted discharge to the Lower Embarrass River of up to 9.3 cfs, though the actual discharge would likely vary seasonally, and as the mines are developed, at a rate somewhat lower than that. As with the Laurentian Mine, it is important to note that a substantial portion of the permitted discharge replaces natural runoff that is captured by the pit watershed.

- City of Aurora POTW – The City of Aurora withdraws approximately 0.32 cfs from the St. James Pit, a former natural ore pit within the Embarrass River Watershed, and discharges approximately 0.31 cfs of treated wastewater to Silver Creek, which drains to the St. Louis River. Therefore, this withdrawal represents a loss of water from the Embarrass River Watershed of 0.32 cfs.

- City of Biwabik POTW – The City of Biwabik withdraws approximately 0.25 cfs from the Canton Pit for municipal water supply and discharges treated wastewater to a tributary of Embarrass Lake at approximately the same rate. There is effectively no net loss of water associated with the City's water usage.

The net effect of these hydrologic changes would be an approximately 5.2 cfs increase in flow, plus about a 2.6 cfs (operations) to 1.6 cfs (closure) reduction as a result of the NorthMet Project Proposed Action, for a total increase in flow of between 7.8 and 3.6 cfs at the confluence with the St. Louis River, or about 7 percent of average annual flow (assuming an average annual flow of about 117 cfs for a 180.8 square mile watershed with an average annual flow of 0.65 cfs per square mile based on flow at the McKinley gage).

6.2.2.4 Cumulative Effects on Surface Water Quality

This section discusses cumulative effects on water quality for the Partridge River and the Embarrass River.

6.2.2.4.1 Partridge River

Water quality in the Partridge River has been affected by discharges from the Northshore Mine, discharges/overflows from several former LTVSMC pits, and two permitted discharges from Minnesota Power's Laskin Energy Center for decades. As mentioned in Section 5.2.2, the NorthMet Project Proposed Action does not propose any surface water discharges (other than flow augmentation to Second Creek) until the West Pit overflows and the WWTF begins

discharging around year 52. However, non-contact stormwater runoff, unrecoverable groundwater seepage from the five groundwater flowpaths (i.e., from the waste rock stockpiles, pits, Ore Surge Pile, WWTF, and Overburden Storage and Laydown Area), and the WWTF discharge would all serve as potential contaminant sources. Stormwater from undisturbed areas of the proposed Mine Site would be similar in chemistry to current runoff from the proposed Mine Site area. The WWTF discharge would be permitted under the NPDES permitting program.

The NorthMet Project Proposed Action is predicted to meet or not cause or add to an exceedance of all surface water quality evaluation criteria at all evaluation locations within the Partridge River watershed for the entire 200-year modeling period. Consequently, there would not be potential cumulative environmental impacts. The scope of cumulative impacts analysis is therefore focused on parameters with a potential to bioaccumulate in aquatic organisms or adversely impact wild rice, an important cultural resource. As a result, the cumulative effects analysis focuses on sulfate (because of its relationship with mercury methylation and wild rice) and mercury (because it is the only parameter on the Partridge River 303(d) list). Mercury is only discussed from a water quality perspective; the potential cumulative effects of the NorthMet Project Proposed Action on the bioaccumulation of methylmercury in fish are discussed in Section 6.2.6.3.3.

Sulfate

Sulfate is a concern along the Partridge River because of the presence of waters supporting the production of wild rice immediately downstream of the NorthMet Project area (including evaluation locations SW-005 and SW-006 immediately above Colby Lake and the portion of the river below Colby Lake). According to available surface water monitoring data, including sulfate sampling conducted as part of recent wild rice field surveys (Barr 2009b, 2011a, 2012a, and 2013m), sulfate concentrations in the Upper Partridge River range from 0.5 to 21 mg/L, which are slightly elevated relative to baseline conditions, assumed to be similar to values in the South Branch of the Partridge River reported in the 1970s (average of 5.2 mg/L). Sampling in Colby Lake found a range of concentrations between 37 and 42 mg/L. Downstream of Colby Lake, sulfate concentrations increase as the result of groundwater seepage into the surficial aquifer from inactive mine pits (e.g., Pit 6 with a sulfate concentration of about 1,200 mg/L) and overflow from inactive mine pits (i.e., Pit 2W, which discharges intermittently at about 4.5 cfs with a sulfate concentration of approximately 125 mg/L). Pit 1 water is discharged October through March with a daily average flow of 7.4 cfs and an average sulfate concentration of 478 mg/L (MPCA, Pers. Comm., March 24, 2015). Pit 2WX, Pit 6, Pit 9, and Pit 9s are not currently discharging surface water. Average sulfate concentrations in the Partridge River in 2013 were 71.3 mg/L at station S005-752, which is just downstream of the confluence with Second Creek at the County Road 110 Bridge. The wild rice surveys found sulfate concentrations as high as 1,100 mg/L in Second Creek.

The baseline sulfate concentrations found in the Partridge River reflect the effects of discharges from existing activities within the watershed. Table 6.2.2-3 summarizes the relative sulfate load contributions from the various identified activities in the watershed. In terms of historic increases in Lower Partridge River sulfate concentration, three important existing loads of sulfate to the Lower Partridge River include the Mesabi Nugget operation, the previous SD-026 seep from the

existing LTVSMC Tailings Basin, and the Mesabi Mining Pit 6 seepage, all entering Lower Partridge River via Second Creek.

Table 6.2.2-3 Cumulative Sulfate Loadings to the Partridge River by Activity

Activity	Average Discharge/ Release Rate (cfs)	Representative Sulfate Concentration (mg/L)	Average Sulfate Load (kg/d)
Northshore Mine Operations	2.6	28	178
Northshore Mine Closure	0.0	NA	NA
City of Hoyt Lakes POTW	0.4	~0(1)	~0
Mesabi Nugget	7.4 (7 mo.)	473	6,480
Mesabi Mining Site Existing Conditions[1]	0.0	0.0	0.0
Mesabi Mining Project	unknown	unknown	unknown
Laskin Energy Center	-4.2	No change in loading	No addition to ambient load
Cliffs Erie Pits 2/2E/2W	4.5	125.	1,380
Cliffs Erie Pit 3	0.9	74	163
Cliffs Erie Pit 5SW	0.8	85	166
NorthMet Project Proposed Action Plant Site WWTP	0.5 (operations & closure)	10	12.23 (operations & closure)
NorthMet Project Proposed Action Plant Site WWTF	0.65	9	14.3

Sources: PolyMet 2015i; PolyMet 2015r; MPCA 2012l; MPCA 2012m; MPCA 2013h; ; MPCA 2013j; MPCA 2013k; MPCA 2014d; MPCA 2014e; MPCA 2014f; USDOE and MDC 2009, Table 5.3-4; MDNR et al. 2014c).

Note:
[1] Does not include the subsurface sulfate contribution from Pit 6, which is likely to have a similar concentration.

Modeling of the NorthMet Project Proposed Action indicates that when the project causes or adds to an exceedance, the magnitude change in concentration is less than 0.9 percent. Therefore, the NorthMet Project Proposed Action should not adversely affect downstream waters that support the production of wild rice (see Tables 5.2.2-31, 5.2.2-44, and 5.2.2-45). The potential cumulative effect of sulfate on mercury methylation in the Partridge River Watershed is discussed below.

Mercury

Based on sampling in studies done for PolyMet, it is estimated that current total mercury concentrations average about 3.3 ng/L in the Upper Partridge River (Barr 2011a) and between 4.6 and 8.7 ng/L in Colby Lake.

Details of the effect of the NorthMet Project Proposed Action on mercury deposition impacts and mercury concentrations are discussed in Section 5.2.7. Table 6.2.2-4 summarizes the relative mercury contributions from the various identified activities in the watershed. Research has found that taconite tailings are effective in sequestering mercury from seepage. Analog data from natural lakes and mine pit lakes in northeastern Minnesota suggest that mercury concentrations generally remain below the GLI's 1.3 ng/L standard, despite precipitation averaging

approximately 13 ng/L mercury. Mercury in surface waters undergoes transformations when exposed to sunlight, which can limit its concentration in lakes. For example, methylmercury degrades to soluble oxidized mercury in sunlight, which in turn degrades to elemental mercury, which volatilizes from lakes. Further, much of the mercury in lakes associates with particulate matter, which often settles to the bottom.

The NorthMet Project Proposed Action is predicted to result in a net decrease in mercury loadings to the Partridge River from 24.2 grams per year to 23.0 grams per year. This would primarily be a result of a decrease in natural runoff (with a total mercury concentration of 3.6 ng/L) and a proportional increase in water discharged from the West Pit via the WWTF (with a total mercury concentration of 1.3 ng/L). As discussed above, sulfate concentrations and loadings from the NorthMet Project Proposed Action to the Partridge River are predicted to remain about the same as existing conditions, so the NorthMet Project Proposed Action would not be contributing additional sulfate that could promote mercury methylation. Therefore, the NorthMet Project Proposed Action would not likely contribute to cumulative effects on mercury loading in the Partridge River.

Table 6.2.2-4 Cumulative Mercury Loadings to the Partridge River by Activity

Activity	Average Discharge/ Release Rate (cfs)	Representative Mercury Concentration (ng/L)	Average Mercury Load (kg/d)
Northshore Mine Operations	2.6	0.7	4.5E-06
Northshore Mine in Closure	0.0	0.0	0.0
City of Hoyt Lakes POTW	0.4	7.7	7.5E-06
Mesabi Nugget	7.4	0.6	8.2E-06
Mesabi Mining Site Existing Conditions	0.0	0.0	0.0
Mesabi Mining Project	unknown	unknown	unknown
Laskin Energy Center	-4.2	No change in loading	0.0
Cliffs Erie Pits 2E/2W[1]	4.5	1.0	1.1E-05
Cliffs Erie Pit 3	0.9	0.55	1.2E-06
Cliffs Erie Pit 5SW	0.8	0.55	1.1E-06
NorthMet Project Proposed Action Plant Site WWTP	0.5 (operations & closure)	1.0–1.3	1.2E-06 to 1.6E-06
NorthMet Project Proposed Action Mine Site WWTF (closure)	0.65	1.0–1.3	1.6E-06 to 2.1E-06

Sources: PolyMet 2015i; PolyMet 2015r; MPCA 2012i; MPCA 2012j; MPCA 2012k; MPCA 2013g; MPCA 2013h; MPCA 2013j; MPCA 2014b; MPCA 2014c; MPCA 2014d; MPCA 2014e; MPCA 2014f; MDNR et al. 2014c; MPCA, Pers. Comm., March 24, 2015.;

Note:
[1] Does not include the subsurface mercury contribution from Pit 6, which is likely to have a similar concentration.

6.2.2.4.2 Embarrass River

Section 5.2.2.3.3 contains a detailed discussion of modeled water quality changes in the Embarrass River at PM-13. The placement of the Embarrass River headwaters and Spring Mine Creek on the MPCA 2012 Impaired Waters list indicates that aquatic biota are already under stress in this system (MPCA 2012n). Although stressors have not been identified, the water quality change predicted under the NorthMet Project Proposed Action would have potential to add to these stressors. Therefore, this cumulative effects analysis focuses on sulfate (because of its relationship with mercury methylation and wild rice) and mercury (because it is the only parameter on the 303(d) list). Mercury is only discussed here from a water quality perspective; the potential cumulative effects of the NorthMet Project Proposed Action on the bioaccumulation of methylmercury in fish are discussed in Section 6.2.6.3.3.

Sulfate

Sulfate is a concern within the Embarrass River because of the presence of waters supporting the production of wild rice downstream of PM-13. Present sulfate concentrations in the Embarrass River downstream of the NorthMet Project area are elevated well above natural background levels and currently exceed the wild rice sulfate standard of 10 mg/L. Median sulfate concentration at PM-12, upstream of any historic mining activity, is about 7.2 mg/L compared to a median of about 39.4 mg/L at PM-13. This increase in sulfate concentrations is primarily attributable to the Pit 5NW overflow (average discharge at SD-033 of 1.2 cfs and sulfate concentration of 1,088 mg/L) and seepage from the existing LTVSMC Tailings Basin (average surface and groundwater seepage of 5.7 cfs and a range of mean sulfate concentrations from 109 to 185 mg/L). The combined effects of the Tailings Basin containment system and stream augmentation would reduce the predicted P90 sulfate concentration (see Section 5.2.2.1.3) at PM-13 by about 50 percent relative to the CEC scenario model results.

Considering cumulative downstream effects, the Embarrass chain of seven lakes tend to attenuate the sulfate concentrations by dilution and biological uptake, with concentrations gradually declining in a downstream direction from 21.3 mg/L in Embarrass Lake to 17.1 mg/L at the outlet from Esquagama Lake.

The existing sulfate concentrations in the Embarrass River reflect the effects of discharges from existing activities within the watershed. Table 6.2.2-5 summarizes the relative sulfate load contributions from the various identified activities in the watershed.

Table 6.2.2-5 Cumulative Sulfate Loadings to the Embarrass River by Activity

Activity	Average Discharge/ Release Rate (cfs)	Representative Sulfate Concentration (mg/L)	Average Sulfate Load (kg/d)
City of Babbitt POTW	0.1	37.4	9.1
LTVSMC Area 5NW Pit	1.2	1,088	3,194
ArcelorMittal Mine (Laurentian and East Reserve Mine)	9.3	186	4,232
City of Aurora POTW	0.3[(1)]	NA	NA
City of Biwabik POTW	0.0	0.0	0.0
NorthMet Project Proposed Action Plant Site WWTP	5.7 (operations) 4.3 (closure)	10.0	139 (operations) 105 (closure)

Sources: PolyMet 2014w; MPCA 2012d; MPCA2012i; MPCA 2012j; MPCA 2013g; MPCA 2013h; MPCA 2014c; MPCA 2014d; PolyMet 2015i; MPCA, Pers. Comm., April 29, 2013.

Note:
[1] Discharge is to the St. Louis River.

The NorthMet Project Proposed Action would reduce the sulfate load from the existing LTVSMC Tailings Basin as a result of the containment of tailings seepage by the containment system and subsequent treatment via the WWTP before discharge as part of the tributary stream flow augmentation. This NorthMet Project Proposed Action would result in a greater than 40 percent overall reduction in sulfate loading at PM-13 and would have a positive effect on reducing the sulfate concentration in the Embarrass River downstream of PM-13 (where wild rice is present), the chain of lakes, and the Lower Embarrass River. The Embarrass River at PM-13 would still have sulfate concentrations well above 10 mg/L (see Table 5.2.2-48).

Mercury

The Embarrass River is not on the 303(d) list of impaired waters for mercury impairment; however, several lakes downstream of the NorthMet Project Proposed Action along the Embarrass River are listed for “mercury in fish tissue” impairment, including Sabin, Wynne, Embarrass, and Esquagama lakes. These lakes are not covered by the statewide mercury TMDL, but are impaired waters and in need of a TMDL pollution reduction study. These waters are not included in Minnesota’s regional mercury TMDL because the mercury concentrations in fish are too high to be returned to Minnesota’s mercury water quality standard through reductions in mercury emissions from Minnesota sources alone. Based on limited sampling in studies done by PolyMet, it is estimated that total mercury concentrations in the Embarrass River averaged 4.8 ng/L at monitoring station PM-12 and 4.0 ng/L at monitoring station PM-13 from 2004 to 2013. Methylmercury concentrations in the Embarrass River averaged 0.5 ng/L at PM-12 and 0.4 ng/L at PM-13 over the same period (see Section 4.2.2.1.4). The overall average total mercury concentration at two discharge locations at the existing LTVSMC Tailings Basin (SD-026 and SD-004) over a 5-year period was 1.0 ng/L, indicating relatively low mercury concentrations in the seepage from this basin. All monitoring results were well below average concentrations in precipitation (approximately 13 ng/L), suggesting that some mercury appears to be sequestered in the existing LTVSMC tailings.

As discussed in Section 5.2.2.3.4, mercury would be released from the Tailings Basin via seepage, discharge from the WWTP, and volatilization from the Tailings Basin pond. As with the Mine Site, analog data and simple mass balance model estimation methods were used to estimate future mercury concentrations. Table 6.2.2-6 summarizes the relative mercury contributions from the various identified activities in the watershed. As discussed in Section 5.2.2.3.4 and above, research indicates that mining itself is not expected to appreciably affect total mercury discharges; rather, the greater concern is the potential for sulfate discharges/releases to promote mercury methylation.

Table 6.2.2-6 Cumulative Mercury Loadings to the Embarrass River by Activity

Activity	Average Discharge/ Release Rate (cfs)	Representative Mercury Concentration (ng/L)	Average Total Mercury Load (kg/d)
City of Babbitt POTW	0.1	2.6	6.4E-07
Cliffs Erie Area 5 NW Pit	1.2	0.93	2.7E-06
City of Aurora POTW	0.3[(1)]	NA	NA
City of Biwabik POTW	0.0	0.0	0.0
ArcelorMittal Mines (Laurentian and East Reserve Mine)	9.3	1.6	3.6E-05
NorthMet Project Proposed Action Plant Site WWTP	5.7 (operations) 4.3 (closure)	1.0–1.3	1.4E-05 to 1.8E-05 (operations) 1.1E-05 to 1.4E-05 (closure)

Sources: PolyMet 2014w; PolyMet 2015i; MPCA2012i; MPCA 2012j; MPCA 2013g; MPCA 2013h; MPCA 2014b; MPCA 2014c; MPCA 2014d.

Note:
[1] Discharge is to the St. Louis River.

The NorthMet Project Proposed Action is predicted to result in a net increase in mercury loadings to the Embarrass River of up to 0.2 grams per year (from 22.3 grams per year to 22.5 grams per year), which represents about a 1 percent increase. This increase is primarily attributable to the redirection of surface runoff diverted via the drainage swale constructed east of the Tailings Dam East Dam directly to Mud Lake Creek at an assumed mercury concentration of 3.5 ng/L (versus a seepage concentration of 1.0 ng/L). The Tailings Basin Containment System, which collects seepage from the Tailings Basin, with an estimated mercury concentration of 1.0 ng/L, routes it to the WWTP, which discharges with an assumed mercury concentration of 1.3 ng/L, which is considered conservative in that the WWTP and the greensand filter are expected to remove some mercury from effluent.

Overall, the NorthMet Project Proposed Action is predicted to result in a net decrease of mercury-loadings of approximately 1.0 grams per year (i.e., a net decrease of 1.2 grams per year in the Partridge River and a net increase of 0.2 grams per year in the Embarrass River), which is too small to distinguish from natural background variability using available laboratory methods. Therefore, the NorthMet Project Proposed Action would not contribute to cumulative effects on mercury loading to the St. Louis River.

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6.2.3 Wetlands

The cumulative effects analysis for wetlands included both a quantitative analysis as well as a qualitative analysis for determining cumulative effects to wetlands. An analysis was done to determine cumulative effects of direct impacts from all past, present, and reasonably foreseeable future projects to wetlands, lakes, and deepwater resources (i.e., mine pits) located in the Partridge River and Embarrass River watersheds (PolyMet 2015b). Three time periods were used in the effects analysis, including pre-settlement, existing, and the foreseeable future. In addition, a qualitative analysis was done: 1) to assess the potential cumulative wetland indirect effects (Section 6.2.3.4.4), and 2) for cumulative wetland effects for the St. Louis River below the ordinary high water mark from its confluence with the Embarrass River to Lake Superior (Section 6.2.3.4.5). A qualitative assessment of the potential impacts of climate change on wetlands is discussed in Section 5.2.7.2.4 and 6.2.7.

6.2.3.1 Approach

An estimate of pre-settlement wetland, lake, and deepwater (i.e., mine pits) acreages within the Partridge River and Embarrass River watersheds was developed using the USFWS NWI maps and the original survey maps developed using data from the original General Land Office surveys (PolyMet 2015b).

Existing wetland, lake, and deepwater resources were estimated using wetland delineations completed in the area, NWI maps, USGS National Hydrograph Dataset (to estimate lacustrine waterbodies), and MDNR Mesabi Mining features in combination with 2010 LiDAR data and aerial photographs from 2003, 2008, 2009, and 2010 to estimate deepwater or mine pit waterbodies (PolyMet 2015b).

Federal, state, and local agencies were contacted to identify foreseeable future actions within the Partridge River and Embarrass River watersheds. Agency officials were asked to identify actual or potential development projects that may occur in these two watersheds during the life of the NorthMet Project Proposed Action. The projects and their proposed mitigation for this assessment are provided below (PolyMet 2015b):

- The NorthMet Project Proposed Action, located in the Embarrass and Partridge River watersheds, would directly affect 913.8 acres of wetlands located within the NorthMet Project area over the next 20 years (see Table 6.2.3-1). Approximately 321 acres of deepwater habitat is planned at the Mine Site at the conclusion of the NorthMet Project Proposed Action.
- The proposed Mesabi Mining Project, located in the Partridge River Watershed, has identified the potential for approximately 267 acres of direct wetland impact over the life of the project (see Table 6.2.3-1). Approximately 1,601 acres of deepwater habitat is planned at the conclusion of the project, resulting in an increase of 49 acres from existing 1,552 acres of deepwater habitat (see Table 6.2.3-1).
- The ArcelorMittal Deposit East Reserve Project, located in the Embarrass River Watershed, has identified the potential for 116.2 acres of direct wetland impact over the life of the project (see Table 6.2-3-1). Through 2014 there have been 67.1 acres of direct wetland impacts, which have been accounted for under present conditions. Therefore, potential future

wetland impacts of 49.1 acres would still be anticipated over the life of the project (see Table 6.2.3-1). Approximately 275 acres of deepwater habitat is planned at the conclusion of the project, resulting in an increase of 275 acres from the existing zero acres of deepwater habitat.

- The ArcelorMittal Deposit Push Back Project, located in the Embarrass River Watershed, has identified the potential for approximately 23 acres of direct wetland impact over the life of the project (see Table 6.2.3-1). Approximately 107 acres of deepwater habitat may develop at the conclusion of the project, resulting in an increase of 107 acres from the existing zero acres of deepwater habitat.
- The Mining Resources Austin Powder Project, located in the Embarrass River Watershed, has identified the potential for 3.4 acres of direct wetland impact over the life of the project (see Table 6.2.3-1). No deepwater habitat is planned at the conclusion of the project.
- The Mining Resources Corsica Basin Project, located in the Embarrass River Watershed, has identified the potential for approximately 50 acres of direct wetland impact over the life of the project (see Table 6.2.3-1). No deepwater habitat is planned at the conclusion of the project.
- The Laskin Energy Park is located in the Partridge River Watershed and south of the Minnesota Power Laskin Energy Center (see Table 6.2.3-1). It is located adjacent to Colby and Whitewater Lakes, near the City of Hoyt Lakes. If every lot in the 220-acre industrial park was fully developed, the potential direct wetland impacts could range from zero to seven acres. The amount of wetland mitigation that may be conducted in the Partridge River Watershed is unknown at this time.
- St. Louis County Public Works are planning eight bridge replacements in the Partridge River and Embarrass River watersheds over the next 10 years. These bridge replacements generally directly impact 10,000 ft^2 of wetlands or less, so the maximum direct wetland impact from the bridge projects would be about 1.8 acres (see Table 6.2.3-1).

Table 6.2.3-1 below summarizes the direct wetland effects, proposed wetland mitigation, and the existing and future deepwater habitat, as well as the proposed net change for wetlands and deepwater habitat that would occur from the foreseeable future actions that were identified within the wetland CEAA. Tables 6.2.3-2 and 6.2.3-3 summarize the overall wetland and water resources found during the pre-settlement condition time period and that currently exist within the CEAA. Tables 6.2.3-4 and 6.2.3-5 summarize the overall wetland and water resources that would be expected to be future conditions within the CEAA when taking into account the projects that were assessed within the CEAA direct wetland effects and future deepwater habitat as presented in Table 6.2.3-1.

Table 6.2.3-1 Future Conditions for Wetland and Deepwater Habitat Resources for the Foreseeable Future Actions within the Partridge River and Embarrass River Watersheds

Project Name	Wetland Impact (acres)	Proposed Wetland Mitigation (acres)	Net Change in Wetlands (acres)	Existing Deepwater Habitat (acres)	Future Deepwater Habitat (acres)	Net Change in Deepwater (acres)
Partridge River Watershed[1]						
NorthMet Project Proposed Action	-767.6	0.0	-767.6	0.0	321.0	321.0
Mesabi Mining Project	-266.8	0.0	-266.8	1,552.0	1,601.0	49.0
Laskin Energy Park - worst case scenario	-6.8	0.0	-6.8	0.0	0.0	0.0
St. Louis County Public Works Bridge Replacements	-0.9	0.0	-0.9	0.0	0.0	0.0
Total - Partridge River Watershed with Project	**-1,042.1**	**0.0**	**-1042.1**	**1,552.0**	**1,922.0**	**370.0**
Total - Partridge River Watershed without Project	**-274.5**	**0.0**	**-274.5**	**1,552.0**	**1,601.0**	**49.0**
Embarrass River Watershed[1]						
NorthMet Project Proposed Action	-146.2	0.0	-146.2	0.0	0.0	0.0
NorthMet Project Proposed Action	-28.6[2]	NA[2]	-28.6	0.0	0.0	0.0
St. Louis County Public Works Bridge Replacements	-0.9	0.0	-0.9	0.0	0.0	0.0
ArcelorMittal East Reserve	-49.1	0.0	-49.1	0.0	275	275
ArcelorMittal Pushback	-23.5	0.0	-23.5	0.0	107	107
Mining Resources – Powder Basin (Biwabik)	-3.4	0.0	-3.4	0.0	0.0	0.0
Mining Resources – McKinley	-50.1	0.0	-50.1	0.0	0.0	0.0
Total - Embarrass River Watershed with Project	**-301.8**	**0.0**	**-301.8**	**0.0**	**382**	**382**
Total - Embarrass River Watershed without Project	**-127.0**	**0.0**	**-127.0**	**0.0**	**382**	**382**

Source: PolyMet 2015b.

Notes:
1 The (-) represents a loss of water resources acres and the (+) represents a gain of water resources acres.
2 These wetlands as exempt because the wetlands are located within the LTVSMC Permit to Mine Ultimate Tailings Basin Limit boundary and are not regulated by state and federal wetland regulations (see Section 5.2.3).

To estimate the future projected wetland, lake, and deepwater resource effects from the NorthMet Project Proposed Action, the Mesabi Mining Project, the Laskin Energy Park project, and the St. Louis County bridge replacements, the maximum effect acreages were used to calculate total acreages. The projected foreseeable future conditions were estimated by calculating the net change in wetlands, lakes, and deepwater resources (see Table 6.2.3-1) and then adding this future projected development of wetland, lake, and deepwater resources to the existing resource totals (PolyMet 2015b).

6.2.3.2 Cumulative Effects Assessment Area

6.2.3.2.1 Spatial

The Partridge River and Embarrass River watersheds were used as the spatial boundary for wetland cumulative effects, as these are the only watersheds in which proposed direct and indirect wetland effects would occur. A qualitative analysis of cumulative wetland effects for the St. Louis River below the ordinary high water mark from its confluence with the Embarrass River to Lake Superior was also evaluated based on a qualitative estimate of flow changes in the river.

6.2.3.2.2 Temporal

The pre-settlement condition time period represents wetland, lake, and deepwater resources as they existed prior to mining and urban development in the late 1800s to early 1900s. The existing conditions time period represents those resources as they exist today, prior to the development of the NorthMet Project Proposed Action. The future conditions time period represents wetland, lake, and deepwater resources expected to be present following the conclusion and long-term closure of the NorthMet Project Proposed Action. It was assumed that the future conditions represent the time period after the conclusion of the future projects when the mine pits would have flooded with water (PolyMet 2015b).

6.2.3.3 Cumulative Actions

This assessment included physical cumulative effects on wetland, lake, and deepwater resources associated with the current and foreseeable mining actions listed below (PolyMet 2015b). The following reasonably foreseeable cumulative actions were included in the cumulative effects assessment for wetlands:

- ArcelorMittal East Reserve Project;
- ArcelorMittal Deposits Push Back;
- LTV Steel Mining Company Former LTVSMC Pits;
- Laskin Energy Park;
- Mesabi Mining Project;
- Mesabi Nugget;
- Mining Resources Austin Powder Basin Project;
- Mining Resources Corsica Basin Project;
- Minnesota Power Laskin Energy Center;
- Northshore Mine;
- Northshore Closure; and
- St. Louis County Public Works Bridge Replacements.

6.2.3.4 Cumulative Effects Assessment

6.2.3.4.1 Pre-settlement Wetland and Water Resources

A relationship (ratio) was developed between the NWI mapping and pre-settlement mapping of wetland, lake, and deepwater resources to serve as an adjustment factor. This factor converted the original survey data to the standards of the NWI data for estimating the pre-settlement wetland, lake, and deepwater resources within disturbed areas of each watershed.

Partridge River Watershed

Using the disturbance at the township level (0.2 percent in the entire township and 0.4 percent for the portion within the watershed), the ratio of NWI to pre-settlement wetlands, lakes, and deepwater resources was calculated to be 1.21 for the least-disturbed township in the Partridge River Watershed. This ratio indicates there were approximately 21 percent more wetlands, lakes, and deepwater resources identified on the NWI maps than on the pre-settlement maps for the Partridge River Watershed (PolyMet 2015b).

Disturbance in the townships located within the Partridge River Watershed ranged between 0.4 and 52 percent, with approximately 15 percent of the entire Partridge River Watershed containing substantial human disturbance since settlement of the area. The disturbance types in the watershed consisted of: mining features such as stockpiles, mine pits, roads, and other infrastructure (82 percent of the disturbed areas); municipal/residential development (e.g., cities of Aurora and Hoyt Lakes) with some barren land and cultivated crops (13 percent of the disturbed areas); and roads and railroads (5 percent of the disturbed areas). Approximately 85 percent of the Partridge River Watershed was deemed to be relatively undisturbed; therefore, NWI mapping was used in these areas to represent pre-settlement conditions for wetlands, lakes, and deepwater resources (PolyMet 2015b).

Based on the original survey maps, approximately 2,991 acres of wetland were mapped within the disturbed areas in the Partridge River Watershed. This wetland acreage was adjusted to 3,620 acres using the 1.21 adjustment factor. After accounting for the disturbed areas, a total of 33,601 acres of wetlands was identified in the 101,812-acre watershed, comprising 33 percent of the watershed (see Table 6.2.3-2).

Based on the original survey maps, 24 acres of lake were mapped within the disturbed areas in the Partridge River Watershed. This lake acreage was adjusted to 29 acres using the 1.21 adjustment factor. After accounting for the disturbed areas, a total of 2,688 acres of lake was identified in the 101,812-acre watershed, comprising 3 percent of the watershed (see Table 6.2.3-2).

No deepwater resources were identified in the watershed for the pre-settlement conditions (see Table 6.2.3-2).

Table 6.2.3-2 Pre-settlement Wetland and Water Resources by Watershed

Watershed	Total Land Area (Acres)	Wetland Area		Lake Area		Deepwater Area	
		Acres	% of Watershed	Acres	% of Watershed	Acres	% of Watershed
Partridge River	101,812	33,601	33	2,688	3	0	0
Embarrass River	116,797	34,650	30	3,121	3	0	0

Source: PolyMet 2015b.

Embarrass River Watershed

Using the disturbance at the township level (0.6 percent in the entire township and 0.7 percent for the portion contained within the watershed), the ratio of NWI to original survey wetlands, lakes, and deepwater resources was calculated to be 0.85 for the least-disturbed township in the Embarrass River Watershed. Based on this analysis, the ratio of NWI to original survey wetlands, lakes, and deepwater resources was calculated to be approximately 15 percent fewer wetlands, lakes, and deepwater resources identified on the NWI maps than the original survey maps for the Embarrass River Watershed (PolyMet 2015b).

Disturbance in the portions of townships located within the Embarrass River Watershed range between 0.7 percent and 63 percent, with approximately 12 percent of the entire Embarrass River Watershed containing substantial human disturbance since settlement of the area. The disturbance types in the watershed consisted of: mining features including stockpiles, mine pits, roads, and other infrastructure (61 percent of the disturbed areas); municipal/residential development (e.g., cities of Babbitt, Biwabik, Gilbert, and McKinley) with some barren land and cultivated crops (27 percent of the disturbed areas); and roads and railroads (12 percent of the disturbed areas). Approximately 88 percent of the Embarrass River Watershed was deemed to be relatively undisturbed; therefore, NWI mapping was used in these areas to represent pre-settlement conditions for wetlands, lakes, and deepwater resources (PolyMet 2015b).

Based on the original survey maps, approximately 2,388 acres of wetland were mapped within the disturbed areas of the Embarrass River Watershed. This wetland acreage was adjusted to 2,030 acres using the 0.85 adjustment factor. After accounting for the disturbed areas, a total of 34,650 acres of wetlands was identified in the 116,797-acre Embarrass River Watershed, comprising approximately 30 percent of the watershed (see Table 6.2.3-2).

Based on the original survey maps, 224 acres of lake were mapped within the disturbed areas in the Embarrass River Watershed. This lake acreage was adjusted to 190 acres using the 0.85 adjustment factor. After accounting for the disturbed areas, a total of 3,121 acres of lakes was identified in the 116,797-acre watershed, comprising less than 3 percent of the watershed (see Table 6.2.3-2).

No deepwater resources (i.e., mine pits) were identified in the watershed for the pre-settlement conditions (see Table 6.2.3-2).

6.2.3.4.2 Existing Wetland and Water Resources

Partridge River Watershed

A total of 31,318 acres of existing wetlands was identified in the 101,812-acre watershed, comprising 31 percent of the land area (see Table 6.2.3-3). There has been a decrease of approximately 2,283 acres of wetland; this represents a 7 percent reduction in wetland area compared to pre-settlement conditions (PolyMet 2015b).

A total of 3,194 acres of lakes was identified in the 101,812-acre watershed, comprising 3 percent of the land area (see Table 6.2.3-3). There has been an increase of approximately 506 acres of lakes; this represents a 19 percent increase in lake area compared to pre-settlement conditions (PolyMet 2015b).

A total of 3,146 acres of deepwater resources (i.e., mine pits) was identified in the 101,812-acre watershed, comprising 3 percent of the land area (see Table 6.2.3-3). There has been an increase of 3,146 acres of deepwater resources in the watershed compared to no deepwater resources present under pre-settlement conditions (PolyMet 2015b).

The change in wetland, lake, and deepwater acreage has resulted primarily from mining projects, development of municipalities, and construction of transportation infrastructure such as roads and railroads.

Table 6.2.3-3 Existing Wetland and Water Resources by Watershed

Watershed	Total Land Area (Acres)	Wetland Area		Lake Area		Deepwater Area	
		Acres	% of Watershed	Acres	% of Watershed	Acres	% of Watershed
Partridge River	101,812	31,318	31	3,194	3	3,146	3
Embarrass River	116,797	34,249	29	2,904	3	977	1

Source: PolyMet 2015b.

Embarrass River Watershed

A total of 34,249 acres of existing wetlands was identified in the 116,797-acre watershed, comprising 29 percent of the land area (see Table 6.2.3-3). There has been a decrease of approximately 401 acres of wetlands; this represents a 1 percent reduction in wetland area compared to pre-settlement conditions (PolyMet 2015b).

A total of 2,904 acres of lakes was identified in the 116,797-acre watershed, comprising 3 percent of the land area (see Table 6.2.3-3). There was a decrease of approximately 217 acres of lakes in the watershed; this represents a 7 percent reduction in lake area compared to pre-settlement conditions (PolyMet 2015b).

A total of 977 acres of deepwater resources (i.e., mine pits) was identified in the 116,797-acre watershed, comprising less than 1 percent of the land area (see Table 6.2.3-3). There has been an increase of 977 acres of deepwater resources in the watershed compared to no deepwater resources present under pre-settlement conditions (PolyMet 2015b).

The change in wetland, lake, and deepwater acreage has resulted primarily from mining projects, development of municipalities, and construction of transportation infrastructure such as roads and railroads.

6.2.3.4.3 Future Wetland and Water Resources

Partridge River Watershed

The NorthMet Project Proposed Action in combination with present and reasonably foreseeable future projects would likely result in the following cumulative wetlands effects:

- Approximately 30,276 acres of wetlands are projected to be present in the 101,812-acre watershed in the foreseeable future, comprising 30 percent of the land area (see Table 6.2.3-4). The change in wetlands, as a proportion of all wetlands within the study area, would be a 10 percent reduction from pre-settlement conditions and a 3 percent reduction compared to existing conditions (PolyMet 2015b).
- Approximately 3,194 acres of lakes are projected to be present in the 101,812-acre watershed in the foreseeable future, comprising 3 percent of the land area (see Table 6.2.3-4). The change in lakes, as a proportion of the total study area, would be a 19 percent increase from pre-settlement conditions and there would be no changes compared to existing conditions (PolyMet 2015b).
- Approximately 3,516 acres of deepwater resources are projected to be present in the 101,812-acre watershed in the foreseeable future, comprising 3 percent of the land area (see Table 6.2.3-4). The change in deepwater resources, as a proportion of the total study area, would be an introduction of 3,516 acres of new deepwater resources (compared to zero pre-settlement) and a 12 percent increase compared to existing conditions (PolyMet 2015b).

Some of these projects would include mitigation of wetlands, lakes, and deepwater resources in the Partridge River Watershed.

Table 6.2.3-4 Future Wetland and Water Resources by Watershed under the NorthMet Project Proposed Action

Watershed	Total Land Area (Acres)	Wetland Area		Lake Area		Deepwater Area	
		Acres	% of Watershed	Acres	% of Watershed	Acres	% of Watershed
Partridge River	101,812	30,276	30	3,194	3	3,516	3
Embarrass River	116,797	33,947,	29	2,904	3	1,359	1

Source: PolyMet 2015b.

Under the NorthMet Project No Action Alternative, development of other projects (and associated effects on and mitigation of wetlands, lakes, and deepwater resources in the Partridge River Watershed) would still occur under the foreseeable future conditions.

Under the NorthMet Project No Action Alternative, approximately 31,044 acres of wetlands have been projected to be present in the 101,812-acre watershed in the foreseeable future, comprising 30 percent of the land area (see Table 6.2.3-5). The change in wetlands, as a

proportion of all wetlands within the study area, would be an 8 percent reduction from pre-settlement conditions and a 1 percent reduction compared to existing conditions (PolyMet 2015b).

Similar to under the NorthMet Project Proposed Action, under the NorthMet Project No Action Alternative, approximately 3,194 acres of lakes are projected to be present in the 101,812-acre watershed in the foreseeable future, comprising 3 percent of the land area (see Table 6.2.3-5). The change in lakes, as a proportion of the total study area, would be a 19 percent increase from pre-settlement conditions and there would be no changes compared to existing conditions (PolyMet 2015b).

Under the NorthMet Project No Action Alternative, approximately 3,195 acres of deepwater resources are projected to be present in the 101,812-acre watershed in the foreseeable future, comprising 3 percent of the land area (see Table 6.2.3-5). The change in deepwater resources, as a proportion of the total study area, would be an introduction of 3,195 acres of new deepwater resources (compared to zero pre-settlement) and a 2 percent increase compared to existing conditions (PolyMet 2015b).

Table 6.2.3-5 Future Wetland and Water Resources by Watershed under the NorthMet Project No Action Alternative

Watershed	Total Land Area (Acres)	Wetland Area		Lake Area		Deepwater Area	
		Acres	% of Watershed	Acres	% of Watershed	Acres	% of Watershed
Partridge River	101,812	31,044	30	3,194	3	3,195	3
Embarrass River	116,797	34,122	29	2,904	3	1,359	1

Source: PolyMet 2015b.

Embarrass River Watershed

The NorthMet Proposed Project, in combination with present and reasonably foreseeable future projects, would likely result in the following cumulative wetlands effects:

- Approximately 33,947 acres of wetlands are projected to be present in the 116,797-acre watershed in the foreseeable future, comprising 29 percent of the land area (see Table 6.2.3-4). The change in wetlands, as a proportion of all wetlands within the study area, would be a 2 percent reduction from pre-settlement conditions and a 1 percent reduction compared to existing conditions (PolyMet 2015b).
- Approximately 2,904 acres of lakes are projected to be present in the 116,797-acre watershed in the foreseeable future, comprising 3 percent of the land area (see Table 6.2.3-4). The change in lakes, as a proportion of the total study area, would be a 7 percent reduction from pre-settlement conditions and there would be no changes compared to existing conditions (PolyMet 2015b).

- Approximately 1,359 acres of deepwater resources are projected to be present in the 116,797-acre watershed in the foreseeable future, comprising a 1 percent of the land area (see Table 6.2.3-4). There would be an introduction of 1,359 acres of new deepwater resources (compared to zero pre-settlement) and there would be a 39 percent increase in deepwater resources compared to existing conditions (PolyMet 2015b).

Under the NorthMet Project No Action Alternative, development of other projects (and associated effects on and mitigation of wetlands, lakes, and deepwater resources in the Partridge River Watershed) would still occur under the foreseeable future conditions.

Under the NorthMet Project No Action Alternative, approximately 34,122 acres of wetlands have been projected to be present in the 116,797-acre watershed in the foreseeable future, comprising 29 percent of the land area (see Table 6.2.3-5). The change in wetlands, as a proportion of all wetlands within the study area, would be a 2 percent reduction from pre-settlement conditions and less than 1 percent reduction compared to existing conditions (PolyMet 2015b).

Similar to under the NorthMet Project Proposed Action, under the NorthMet Project No Action Alternative, approximately 2,904 acres of lakes are projected to be present in the 116,797-acre watershed in the foreseeable future, comprising 3 percent of the land area (see Table 6.2.3-5). The change in lakes, as a proportion of the total study area, would be a 7 percent reduction from pre-settlement conditions and there would be no changes compared to existing conditions (PolyMet 2015b).

Similar to the NorthMet Project Proposed Action, under the NorthMet Project No Action Alternative, approximately 1,359 acres of deepwater resources are projected to be present in the 116,797-acre watershed in the foreseeable future, comprising 1 percent of the land area (see Table 6.2.3-5). The change in deepwater resources, as a proportion of the total study area, would be an introduction of 1,359 acres of new deepwater resources (compared to zero pre-settlement) and there would be a 39 percent increase in deepwater resources compared to existing conditions (PolyMet 2015b).

6.2.3.4.4 Qualitative Assessment of Cumulative Potential Indirect Effects

It is difficult to predict indirect wetland effects within the CEAA, as well as to know what the potential indirect wetland effects would be for the projects assessed other than the NorthMet Project Proposed Action. However, based on the amount of potential indirect wetland effects that could occur from the NorthMet Proposed Action, there could be 0.1 to 12.0 percent cumulatively lost, in addition to the direct wetland impacts assessed, within the Partridge and Embarrass River watersheds.

Based on the wetlands crossing analog zones analysis approach, the acreage of wetlands whose hydrology would have a high likelihood of being affected by drawdown at the Mine Site is 866.9 acres. The wetlands categorized as high likelihood are dominated by one alder thicket (848 acres) that has approximately 4 acres (less than 1 percent) within the 0-1,000 ft analog impact zone. The remainder of this wetland (more than 99 percent) is located more than 1,000 ft away from the edge of the mine pits and extends out to the edge of Area 1 (see Figure 5.2.3-6). Furthermore, based on this method, there would be 1,854.5 acres of wetlands within the 0-2,000 ft zone and 2,147.6 acres within the 0-3,500 ft zone that could be affected by potential drawdown. Based on this approach, the total projected potential indirect effects from all six

factors that were assessed under this method could be up to 7,694.2 acres of wetlands potentially indirectly affected by the NorthMet Project Proposed Action. Therefore, the potential indirect cumulative effect from the NorthMet Project Proposed Action, in addition to the direct wetland impacts assessed, under this method would range between 1.3 to 12 percent.

Based on the method approach of wetlands within analog zones, the acreage of wetlands whose hydrology would have a high likelihood of being affected by drawdown at the Mine Site is 46.4 acres. Furthermore, based on this method, there would be 348.4 acres of wetlands within the 0-2,000 ft zone and 733.3 acres within the 0-3,500 ft zone that could be affected by potential drawdown. Based on this approach, the total projected potential indirect effects from all six factors that were assessed under this method could be up to 6,568.8 acres of wetlands potentially indirectly affected by the NorthMet Project Proposed Action. Therefore, the potential indirect cumulative effect from the NorthMet Project Proposed Action, in addition to the direct wetland impacts assessed, under this method would range between 0.1 to 10.2 percent.

6.2.3.4.5 Qualitative Analysis of Cumulative Wetland Impacts for the St. Louis River below the Ordinary High Water Mark from Its Confluence with the Embarrass River to Lake Superior

The XP-SWMM model developed for the Partridge River identified that the changes in average annual flow (and therefore stage) of the Partridge River would be within the naturally occurring annual variation for the Partridge River. Section 5.2.2 provides more details on the XP-SWMM model. Therefore, no potential indirect cumulative wetland effects are identified for the wetlands abutting the Partridge River.

The St. Louis River is located downstream of the Partridge River. Effects on flows (and, by extension, water surface elevations) generated by the NorthMet Project Proposed Action are anticipated to be less than those estimated for the Partridge River and within the natural variation of flow within the St. Louis River (e.g., less than 1 percent reduction in average annual flow as measured at the confluence of the Embarrass River with the St. Louis River). Therefore, no potential indirect cumulative wetland effects are identified for the wetlands within the St. Louis River below the ordinary high water mark, from its confluence with the Embarrass River to Lake Superior.

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6.2.4 Vegetation

The cumulative effects analysis for vegetation focuses on potential losses of vegetative cover types, plant communities, MBS Sites of Biodiversity Significance, and ETSC plant species. As described below, the NorthMet Project Proposed Action would contribute to a loss of vegetative cover and ETSC plant species populations, which would combine with other past, present, and reasonably foreseeable future actions in the CEAA. Given the risk to the viability of ETSC species and their sensitivity to changes to their habitat from development projects, the analysis focuses on these species. Wildlife habitat is addressed in Section 6.2.5.

6.2.4.1 Approach

The GIS data presented in Sections 4.2.4 and 5.2.4 was compared to other actions within the CEAA, and the cumulative effects were assessed. Specifically, GIS data were obtained from the MDNR regarding the GAP, which is vegetation land cover types derived from satellite imagery, and listed ETSC plant species within the NHIS database.

GIS analysis was used to calculate effects on the resources described above. The effects were calculated for habitat types, classifications, and species where they physically overlap tailings piles, mine pits, tailings basins, roads, buildings, or other new infrastructure associated with the cumulative actions below.

NorthMet Project Proposed Action-related effects on the 10 state-listed ETSC plant species that may be present in the NorthMet Project area were identified and evaluated in Section 5.2.4.2. As discussed below, of these 10, three have a distribution that may be subject to cumulative effects. No federally listed ETSC plant species would be affected by the NorthMet Project Proposed Action (see Section 5.2.4.2). Because six of the ETSC species are also RFSS plants, the analysis below also applies to the known RFSS plants in the NorthMet Project area.

This section evaluates the potential cumulative effects of the NorthMet Project Proposed Action on these 10 ETSC plant species. Potential future effects were identified by analyzing Taking Permits (issued by the USFWS or MDNR to authorize activities resulting in the loss of federally or state-listed species), as well as GIS information from the MDNR, to determine the extent of expected losses from recently permitted projects.

6.2.4.2 Cumulative Effects Assessment Area

The NorthMet Project Proposed Action’s CEAA boundary for vegetation is described below, both spatially and temporally.

6.2.4.2.1 Spatial

The CEAA for evaluation of cumulative effects on vegetation is defined geographically by the portion of the Mesabi Iron Range encompassed by the Nashwauk Uplands and Laurentian Uplands ecological subsections (see Figure 6.1.1-1). The ecological subsections are described in detail in Section 4.2.4.1. The area has been limited to the Mesabi Iron Range as it is a definable physiographic region encompassing the region’s mining, which represents the largest and most influential land use within a reasonable distance from the NorthMet Project area.

6.2.4.2.2 Temporal

Overall habitat composition changes in the ecological subsections were evaluated as the temporal area of assessment, based on pre-settlement conditions (approximately 1890) through the present day (1990 to present). These timespans are indicative of past and relatively current trends in regional habitat changes relevant to the CEAA. An estimate of future trends would be based on estimated development/habitat loss, direct loss of species and individuals, and the regulatory requirements for protected species and habitats (i.e., approximately 40 years, which is consistent with the life of the NorthMet Project Proposed Action, including construction, operations, and closure).

6.2.4.3 Contributing Past, Present, and Reasonably Foreseeable Actions

As noted previously, it is not possible to identify all past activities that may contribute to a cumulative effect. Similarly, all present activities would continue to affect the environment. The impacts of these combined activities are described in Chapter 4, Affected Environment. This assessment includes physical cumulative effects on vegetation cover types and protected ETSC plant species associated with current and foreseeable mining actions listed below. The following reasonably foreseeable projects and/or actions, described further in Section 6.1.1.2, are included in the cumulative effects assessment for vegetation:

- ArcelorMittal Deposits (Laurentian and East Reserve deposits);
- ArcelorMittal Deposit Push Back;
- Cliffs Erie Pellet Yard;
- Community growth and development;
- Essar Steel;
- Forestry on public and private lands;
- Magnetation (Coleraine, Keewatin, Chisholm);
- Mining Resources (Sherman Basin);
- MDOT Highway 53 Relocation;
- St. Louis County Public Works Bridge Replacements;
- United Taconite Mine Expansions; and
- U.S. Steel Keetac Mine Expansion Project.

This analysis also looked at the six actions listed below:

- LTV Steel Mining Company (Former LTVSMC Pits);
- Mesabi Mining Project;
- Mesabi Nugget;
- Northshore Mine;
- Northshore Mine Ultimate Pit Progression Project; and

- U.S. Steel Minntac Mine.

Using best available information, the NHIS data and MDNR Taking Permit data were reviewed and no vegetation records were available for these six actions. As a result, these actions are not considered in the cumulative effects analysis for vegetation.

6.2.4.4 Cumulative Effects Assessment

6.2.4.4.1 Evaluation Criteria

The cumulative effects assessment on vegetation is guided by evaluation criteria, which are outlined below:

- Direct effects on vegetative cover types, plant communities, MBS Sites of Biodiversity Significance, and rare species would occur through clearing, filling, and other construction activities. Direct effects would include the removal of vegetation in the construction, operation, maintenance, or closure of the NorthMet Project Proposed Action when an ETSC plant species is removed (i.e., taking of an individual plant or entire plant populations).
- An indirect effect occurs on vegetation when a change in conditions results in a change over time in cover type, plant community, or MBS Sites of Biodiversity Significance, or a rare species experiences a change in vegetative composition. Potential indirect effects on vegetation may include changes in hydrology, deposition of particulate matter (dust), changes in successional stage, alteration of microclimate (e.g., tree removal resulting in drier soil conditions, rise or fall in water table, loss of pollinators, or loss of fungal associates in the rooting zone), new or increased erosion and sedimentation, and invasion of non-native species.

6.2.4.4.2 Existing Baseline Conditions and Past Losses

As discussed in detail in Chapter 4, past changes in cover types show a mixed pattern of gains and losses from the 1890s to the 1990s (see Table 6.2.4-1). These trends are continuing today and would be expected to continue into the future. In the Laurentian Uplands subsection, few cover types discussed below have decreased. In the Nashwauk Uplands subsection, many of the cover types have experienced declines over this period, with the largest percentage decline to upland coniferous forests and upland conifer-deciduous mixed forests. Among the ETSC plant species that occur within the NorthMet Project area boundaries, ternate, or St. Lawrence, grapefern (*Botrychium rugulosum*) is most likely to occur in the upland coniferous type (see Table 6.2.4-2). Floating marsh marigold (*Caltha natans*) and least grapefern (*Botrychium simplex*) are most likely among these species to occur in the lowland deciduous type. Floating marsh marigold occupies edges of ponds, lakes, and streams in the lowland deciduous type, and least grapefern also occupies open wetlands, grasslands, and disturbed areas; consequently, a loss in lowland deciduous types is a less accurate reflection of trends in these species' habitats. While it appears the Laurentian Uplands subsection lost a large portion of shrublands, it is likely that habitat type was allowed to grow older, which explains the increases in upland coniferous and deciduous forests. The opposite is true for the Nashwauk Uplands subsection. Upland forest types were likely harvested in this subsection, which resulted in the increase of younger stands and shrubland habitat types.

Table 6.2.4-1 Changes in Habitat Acreage between 1890 and 1990 by Ecological Subsection

Habitat Type	Percentage of Laurentian Uplands Gain/(Loss)	Percentage of Nashwauk Uplands Gain/(Loss)
Lowland coniferous forest	7	(4)
Lowland deciduous forest	<1	2
Upland coniferous forest	4	(8)
Upland deciduous forest	2	(1)
Upland conifer-deciduous mixed forest	<1	(5)
Shrubland	(15)	9
Aquatic environments	1	<1
Disturbed[1]	na	na
Cropland/Grassland[1]	na	na

Source: MDNR 2006a.

Note:
[1] "na" indicates that insufficient data were available to determine percent coverage within the ecological subsections, although these habitat types likely occurred at low levels.

This conclusion should be qualified by the understanding that the mapped habitat type does not precisely match the habitat actually used by an ETSC or RFSS plant species. Because these plant species occupy preferred habitats within larger mapped habitat types, the effect of habitat loss may not directly correlate on a 1:1 basis to the effect on a plant species. Given this lack of precision and uncertainty, the analysis assumed that large losses in mapped habitat types represent a trend in losses of preferred habitat types for these ETSC or RFSS plant species.

Table 6.2.4-2 Preferred Habitat for State-listed ETSC/RFSS Plant Species and Most Likely Associated Habitat Types

Species	Preferred Plant Species Habitat	Corresponding Map Habitat Type
Botrychium campestre	Prairies, dunes, railroad sidings, fields	Disturbed; Cropland/ Grassland
Botrychium pallidum[1]	Open, disturbed habitats, log landings, roadsides, dunes, sandy gravel pits	Disturbed; Cropland/ Grassland
Botrychium rugulosum[1]	Generally open habitats, such as old log landings and edges of trails	Disturbed; Upland coniferous
Botrychium simplex[1]	Generally open habitats, such as old log landings, roadside ditch, trails, open fields, base of cliff, railroad rights of way	Disturbed; Cropland/Grassland; Lowland deciduous
Caltha natans[1]	Shallow water of pools, ditches, sheltered lake margins, slow moving creeks, sloughs/oxbows, pools in shrub swamps	Aquatic environments; Lowland coniferous; Lowland deciduous
Eleocharis nitida[1]	Mineral soil of wetlands, often with open canopy and disturbance, such as logging roads/ditches through wetlands	Lowland coniferous; Disturbed
Juncus stygius var. americanus[1]	Shallow pools in non-forested peatlands, often in a sedge-dominated community	Lowland coniferous
Platanthera clavellata	Coniferous swamps, fens	Lowland coniferous
Ranunculus lapponicus	Lowland conifer forests and peat bogs	Lowland coniferous
Torreyochloa pallida	Pond/stream margins, lowland coniferous forest	Aquatic environments; Lowland coniferous

Source: MDNR 2011k; USFS 2010d.

Note:
[1] These species are also RFSS plants as tracked by the USFS.

6.2.4.4.3 Environmental Consequences of Reasonably Foreseeable Actions on ETSC and RFSS Plant Species

Future effects on ETSC and RFSS plant species were evaluated by comparing ETSC plant species Taking Permits from the MDNR to the reasonably foreseeable actions within the cumulative spatial boundary. In addition, MDNR Lands and Minerals Division data provided reasonably foreseeable action footprints for comparison. These were combined with best available data that identified all known populations of ETSC plant species. Populations are defined as a number of individuals of a species within proximity to each other and within a defined habitat that can be self-sustaining under current conditions. MDNR NHIS populations that match the ETSC Taking Permits from the MDNR or are contained within them are presented below for the cumulative discussion. These populations can contain from a few to thousands of individual plants. Of the 10 ETSC plant species present in the NorthMet Project area, three species would also be affected by other cumulative projects within the CEAA (see Table 6.2.4-3). Cumulative effects on each of the state-listed ETSC species known to occur on the Mine Site are discussed below. As discussed in Section 5.2.4.2, no federally listed ETSC plant species would be affected by the NorthMet Project Proposed Action.

Table 6.2.4-3 Potential Future Effects on ETSC or RFSS Plant Species Populations Occurring from Reasonably Foreseeable Activities[1,2]

Species[1]	Other Projects Direct Effect (Populations)	Other Projects Indirect Effect (Populations)	NorthMet Project Proposed Action Total Effect (Populations)	Total Known Statewide Populations[3]	Percent of Known Statewide Populations Affected
Botrychium pallidum[4]	4	0	1	99	5
Botrychium rugulosum[4]	5	0	1	72	8
Botrychium simplex	3	0	3	210	3

Notes:
1 Species upon which no other actions besides the NorthMet Project Proposed Action are expected to have effects are discussed in the "Proposed Action" section.
2 Data included here were provided by the Division of Ecological Resources, MDNR, and were current as of August 5, 2014. These data are not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that no significant features are present.
3 Statewide population data provided by Lisa Joyal (MDNR) on March 26, 2013.
4 These species are also RFSS plants as tracked by the USFS.

Pale moonwort (*Botrychium pallidum*) is widely distributed across five Canadian provinces and eight U.S. states (Colorado, Maine, Michigan, Minnesota, Montana, South Dakota, Wisconsin, and Wyoming). The NorthMet Project Proposed Action would directly affect one population. The cumulative actions within the CEAA would directly affect four additional populations, while no populations are expected to be indirectly affected. In total, approximately 5 percent of the known populations in Minnesota would be directly affected by the NorthMet Project Proposed Action and other present or reasonably foreseeable activities (see Table 6.2.4-3). Due to its small size, the species is easily overlooked and additional populations may yet be located. *B. pallidum* was listed as a state endangered species in 1996 when there were just six documented occurrences in Minnesota. By 2009, the number had risen to 65 (MDNR 2011k). Its relatively short lifespan (emergence to senescence within four weeks) may account for the few populations documented to date. Given its preference for disturbed sites, the cumulative effects of the NorthMet Project Proposed Action and other reasonably foreseeable activities are not expected to jeopardize the presence of *B. pallidum* in Minnesota or in North America.

Ternate, or St. Lawrence, grapefern (*Botrychium rugulosum*) is widely distributed across three Canadian provinces and six U.S. states (Connecticut, Michigan, Minnesota, New York, Vermont, and Wisconsin). The NorthMet Project Proposed Action would directly affect one population of the species (see Section 5.2.4.2). Other reasonably foreseeable activities would directly affect five populations; no populations would be indirectly affected. In total, approximately 8 percent of the known populations in Minnesota would be directly affected by the NorthMet Project Proposed Action and other reasonably foreseeable activities (see Table 6.2.4-3). *B. rugulosum* was listed as a state threatened species in Minnesota in 1996 (MDNR 2011k). This species' tolerance for disturbance in early successional communities allows it to establish in areas previously disturbed by human activity. Because of this habitat preference, and the early successional habitats that develop around disturbed areas, the cumulative effects of the NorthMet Project Proposed Action and other reasonably foreseeable activities are not expected to jeopardize the presence of *B. rugulosum* in Minnesota or in North America.

Least grapefern (*Botrychium simplex*) is widely distributed across 34 U.S. states and 11 Canadian provinces. The NorthMet Project Proposed Action would directly affect three populations of the species. Other reasonably foreseeable activities would directly affect three populations; no populations would be indirectly affected. In total, approximately 3 percent of the known populations in Minnesota would be directly affected. Given its tolerance for disturbance and that the species is considered "secure," the cumulative effects of the NorthMet Project Proposed Action and other reasonably foreseeable activities are not expected to jeopardize the presence of *B. simplex* in Minnesota or in North America.

In addition to past, present, and reasonably foreseeable activities, other future changes in habitat types may affect ETSC plant populations. Forestry management generally has a greater influence on habitat acreage within the range of these ETSC plant species than does mining and other land development. It should be noted, however, that forestry management offers a greater range of options for ETSC plant species to co-exist with the practice, as it can mimic natural disturbances, whereas mining represents a complete land conversion that could affect long-term ETSC habitat availability. Between 2005 and 2014, the average annual forest acres within the Laurentian Uplands subsection that were harvested on state lands was approximately 1,034 acres (0.2 percent of the subsection) (MDNR 2006b). Between 2010 and 2019, the average annual forest acres within the Nashwauk Uplands subsection that were or will be harvested on state lands was approximately 1,189 acres (0.1 percent of the subsection) (MDNR 2010b). On average, 1 percent of timber land in the Superior National Forest is harvested annually (MDNR, Pers. Comm., April 26, 2012). Private timber harvest data are generally not available. The potential cumulative effects on the three state-listed ETSC species identified by this assessment are small relative to the extent of the populations and distribution within the Superior National Forest and within the state.

6.2.4.4.4 Effects from Acid (NO_2/SO_2) and Mercury Deposition

Acid (sulfuric and nitric) and mercury deposition from air sources could also affect vegetation and ETSC species. The sources and analysis are described in Section 6.2.7.5. These depositions may have an adverse effect on the overall biodiversity of terrestrial ecosystems, including forested habitats, cover types, and plant communities. These pollutants may travel long distances and contribute to complex chemical and physical reactions within a variety of forested habitats, which could contribute to increased vulnerability of sensitive vegetation. Additionally, these pollutants can be carried by precipitation into nearby lakes and rivers, which sustain some vegetation and forested habitats. The lakes (and their associated watersheds) in the vicinity of the CEAA include Heikkila Lake, Colby Lake, Sabin Lake, Wynne Lake, and Whitewater Lake.

As described in Section 6.2.7.5, since the NorthMet Project Proposed Action would have relatively low emissions of SO_2 and NO_2 and potential deposition of sulfate would be below both the Minnesota standard threshold value and the federal Class I threshold values, in combination with the overall reduction in sulfate and nitrate-producing emissions cumulatively since 2008, the actions and projects would not likely cause a cumulative effect on the ecosystems.

The MPCA estimated that over 90 percent of the mercury deposition within Minnesota is a result of other states and countries (MPCA 2013e). However, as described in Section 5.2.7.2.5, the Plant Site would be expected to contribute essentially all of the NorthMet Project Proposed Action-related mercury air emissions of 4.6 lbs/year, as the Mine Site only contributes potential emissions of less than 1.0 lb/yr (Barr 2011g). Based on the results of the MMREM evaluation

summarized in cumulative effects Section 6.2.6.3.3, the potential additional mercury load that might be added to the Embarrass River and the Partridge River from air emissions is not expected to adversely affect these ecosystems when compared to the variability in background mercury concentrations. Similarly, the mercury deposition on terrestrial environments is not expected to adversely affect these ecosystems when compared to variability in background mercury concentrations. Additional information on the cumulative analysis of acid and mercury deposition associated with air emissions is summarized in Section 6.2.6.3.3 and 6.2.7.5.

6.2.5 Wildlife

The cumulative effects analysis for wildlife focuses on potential losses of sensitive wildlife species (federally and state-listed species and Species of Special Concern, SGCN, RFSS, and other wildlife species), effects on wildlife habitat, and effects on wildlife travel corridors. The analysis reveals that, while some loss and fragmentation of wildlife habitat would occur as a result of the NorthMet Project Proposed Action and other cumulative projects in the CEAA, these actions would not further threaten special status wildlife species. See Section 6.2.4 for the discussion of potential cumulative effects from loss of vegetation cover types.

6.2.5.1 Approach

Cumulative effects on wildlife may include the loss and/or fragmentation of habitat and encroachments into critical wildlife travel corridors. Similar to the direct and indirect effects for the NorthMet Project Proposed Action, analysis was also conducted for cumulative effects on sensitive species such as federally or state-listed species, SGCN, and RFSS. These effects were assessed by evaluating the effects of the NorthMet Project Proposed Action with other past, present, and reasonably foreseeable future federal, state, and private actions.

Analysis of cumulative effects on wildlife was assessed both qualitatively and quantitatively using the following methods:

- MCWCS Action Plan, *Tomorrow's Habitat for the Wild & Rare* (MDNR 2006d);
- Marschner's Original Pre-settlement Vegetation Map of Minnesota as interpreted and analyzed by researchers, the Minnesota Forest Resources Council, and at the subsection level in the MCWCS approach by the MDNR (MFRC 2003a; MDNR 2006d); and
- Reports on mining, infrastructure, and forestry effects (e.g., Emmons & Olivier 2006; USFS 2004b); state timber harvest reports (MDNR 2006b; MDNR 2010b).

The MCWCS is a central component of MDNR's strategy for managing wildlife populations in the state; use of the strategy is therefore appropriate as the basis for assessing cumulative effects on wildlife habitat loss and fragmentation.

6.2.5.2 Cumulative Effects Assessment Boundary

6.2.5.2.1 Spatial

The spatial CEAA for wildlife includes the portions of the Mesabi Iron Range located within the Nashwauk Uplands and Laurentian Uplands ecological subsections (see Figure 6.1.1-1). The area has been limited to the Mesabi Iron Range, as it is a definable physiographic region encompassing the region's mining, which represents an influential land use in regards to wildlife and wildlife habitat.

6.2.5.2.2 Temporal

Overall habitat composition changes in the ecological subsections were evaluated as the temporal area of assessment, based on pre-settlement conditions (approximately 1890) through the present day (1990 to present). These timespans are indicative of past and relatively current trends in regional habitat changes relevant to the CEAA. An estimate of future trends is based on

estimated development/habitat loss, direct loss of species and individuals, and the regulatory requirements for habitat and protected species (e.g., approximately 40 years, which is consistent with the life of the NorthMet Project Proposed Action, including construction, operations, and closure).

6.2.5.3 Past, Present, and Reasonably Foreseeable Future Actions

The following projects and actions, described in Section 6.1.1.2, have been included in the cumulative effects analysis due to their potential effects on wildlife across the Laurentian Uplands and Nashwauk Uplands ecological subsections:

- ArcelorMittal Deposits (Laurentian and East Reserve Deposits);
- ArcelorMittal Deposit Push Back;
- Cliffs Erie Pellet Yard;
- Community growth and development (regional), including road construction and expansion projects;
- Essar Steel Mine;
- Forestry practices (regional);
- LTV Steel Mining Company Former LTVSMC Pits;
- Magnetation (Coleraine, Keewatin, and Chisholm);
- Mesabi Mining Project;
- Mesabi Nugget;
- Mining Resources (Sherman Basin);
- MDOT US Highway 53 Virginia to Eveleth Relocation;
- Northshore Mine and Northshore Ultimate Pit Progression Project;
- United Taconite Mine Expansions;
- U.S. Steel Mine Expansion Project (Keetac); and
- U.S. Steel Minntac Mine and Extension Project.

6.2.5.4 Cumulative Effects Assessment

6.2.5.4.1 Wildlife Habitat

The study area for loss and fragmentation of habitat is the 810,000-acre Nashwauk Uplands and the 567,000-acre Laurentian Uplands ecological subsections. Forest composition changes from the pre-settlement period through current conditions are indicative of wildlife habitat trends. The MCWCS approach uses Marschner pre-settlement mapping as a baseline for describing changes taking place in vegetation types/ecosystems since the 1800s, using recent land cover data from the Minnesota GAP land cover data and reported by ecological subsection (MDNR 2006d). The effects on wildlife were evaluated by noting the change in amount of each Marschner habitat type in terms of the effect on wildlife species that use that habitat type.

Wildlife habitats that decreased in acreage from pre-settlement to current conditions present a higher risk of future SGCN population decreases and are in greater need of conservation in Minnesota.

The changes in habitat types in the Nashwauk Upland and Laurentian Upland subsections from pre-settlement through today are presented in Section 6.2.4.4, in Table 6.2.4-1. These data indicate an overall decrease in upland and lowland forest types in the Nashwauk Uplands ecological subsection during these periods. Forest types increased in the Laurentian Uplands.

In the majority of the region, forest communities have transitioned from predominately pine- and tamarack-dominated forests to aspen and other non-pine community-dominated forest species. Further, research indicates that current mature forest represents only about 4.4 percent of the old growth acreage that existed in the 1800s (Jaakko Poyry 1994). Forest composition has changed, and the MFRC (2003b) concluded that forest fragmentation has increased, with decreased patch sizes and more miles of forest edge.

Within the Laurentian Uplands and Nashwauk Uplands subsections, agricultural land use is minimal. Developed land including mined lands, non-mine related industrial use, commercial and residential use, cropland, and pasture total 11 percent of the Nashwauk Uplands and 1 percent of the Laurentian Uplands. The balance is higher quality wildlife habitat, including forest, wetlands, and open water.

Some wildlife species in northeast Minnesota are sensitive to habitat changes and may be adversely affected by change. Disturbance (such as fire and forestry) produces a landscape pattern that contains less habitat for species needing large habitat patches, such as ovenbirds, and poorer quality habitat for species requiring older and more diverse forest vegetation, such as northern goshawks (MFRC 2003a). Some wildlife populations are more affected by timber harvest and forest composition than others, and species whose habitat range edges are affected by forest composition changes are more likely to be affected (Jaakko Poyry 1994).

An assessment of cumulative effects through 2014 from forestry, and for an unstated near-term period from mining and non-mining development, was completed for the 12.5 million-acre Arrowhead Region, which includes the Laurentian Uplands and Nashwauk Uplands ecological subsections (Emmons & Olivier 2006). Potential disturbances to wildlife habitat within the Laurentian Uplands ecological subsection were primarily due to timber harvest and mining, and habitat types most likely to be affected included upland and lowland coniferous forest, upland deciduous forest, and upland shrub/woodland. Within the Nashwauk Uplands ecological subsection, mining activities and urban development were more likely to affect wildlife habitat, with upland deciduous forests and upland shrub/woodland habitats most affected (Emmons & Olivier 2006).

A subsequent study for the Keetac Expansion Project (Barr 2009a) expanded on a previous wildlife corridor and habitat analysis and quantified the effects on habitat from reasonably foreseeable mining and urban/development projects along the Iron Range (Emmons & Olivier 2006). The study differentiated between “high-impact” and “moderate-impact” features as related to mining and other urban/development. High-impact features create physically impenetrable barriers to wildlife including mining pits, in-pit activities, and operations plants and buildings. Moderate-impact features are areas that experience a change in topography, community structure, diversity, and function but would not be physically impenetrable for many

species, such as stockpiles, tailings basins, borrow areas, settling ponds, and haul roads. Moderate-impact areas may naturalize and revegetate over time (Barr 2009a).

6.2.5.4.2 Wildlife Travel Corridors

Wildlife could be affected by the NorthMet Project Proposed Action and other actions through a cumulative disruption of their travel corridors. These actions could pose additional barriers to wildlife movement by increasing the number of isolated patches of suitable habitat, increasing mortality during transit, and physically blocking travel. This may lead to increased population and genetic isolation and decreased meta-population dynamics, which in turn could lead to decreases in overall population stability and persistence. See Section 5.2.5.2.3 for a discussion on studies regarding wildlife corridor mitigation options.

Two studies have examined the potential cumulative effects of mining operations on wildlife movement along the Iron Range, the conclusions of which form the base of cumulative effect analysis in this FEIS: Emmons & Olivier (2006) supplemented with additional findings from Barr (2009a).

As noted in Chapter 4, there are 13 major wildlife travel corridors connecting large roadless blocks along the Mesabi Iron Range (Emmons & Olivier 2006). These corridors range from less than 0.1 mile to over 3.2 miles wide, with a total combined length of 20.2 miles.

Barr Engineering (2009a) also analyzed wildlife corridors along the Mesabi Iron Range, identifying five additional corridors (for a total of 18) along the same extent and differentiating between mine features that precluded wildlife movement (high-impact features) and mine features that were still passable and would potentially revegetate over time (moderate-impact features) (see Figure 6.2.5-1).

Effects on these wildlife travel corridors were classified as: 1) direct loss of habitat inside the corridor, 2) fragmentation of habitat inside the corridor, 3) isolation of a corridor by the creation of a barrier inside or near its termini, and 4) direct loss or fragmentation of large habitat blocks outside the corridor, which are the presumed destinations of the animals using the corridors. This analysis included the following projects that could potentially represent barriers to wildlife travel:

- ArcelorMittal Deposits (Laurentian and East Reserve Deposits);
- Essar Steel Mine;
- Magnetation (Chisholm);
- Mesabi Mining Project;
- Mesabi Nugget;
- Mining Resources (Sherman Basin);
- Northshore Mine;
- U.S. Steel Keetac Mine Expansion Project; and
- U.S. Steel Minntac Mine Extension Project.

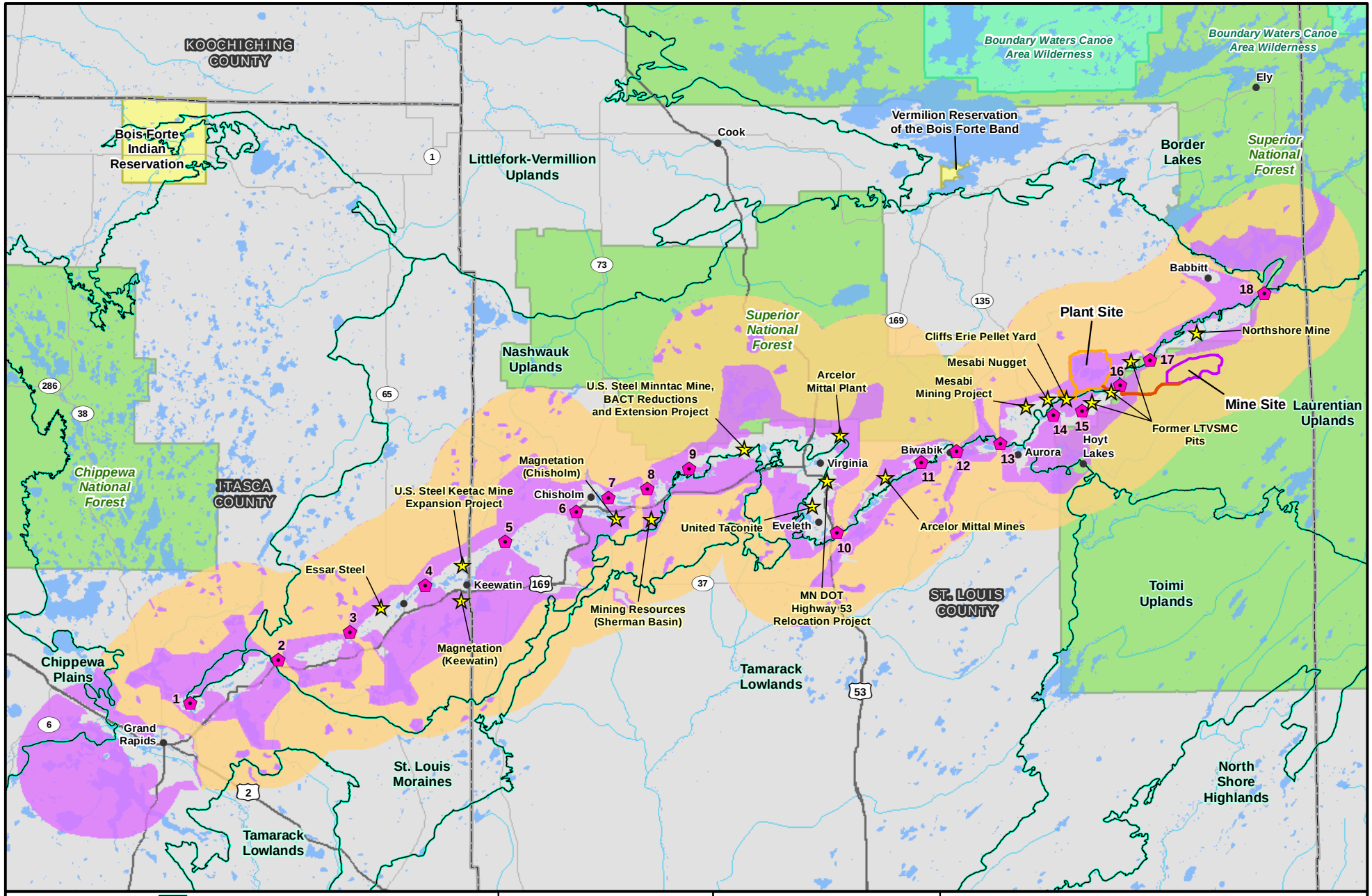

Wildlife Travel Corridors
Cumulative Actions See Table 6.2-1
Mine Site
Plant Site
Transportation and Utility Corridor
Ecosystem Subsections
Native American Reservation
High Quality Wildlife Corridor
Moderate Quality Wildlife Corridor
Streams/Rivers
Lakes
National Forest
Boundary Waters Canoe Area Wilderness

MNDNR
US Army Corps of Engineers St. Paul District

N W E S

0 2.5 5 10 Miles

Figure 6.2.5-1
North-South Wildlife Travel Corridors
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Of the 13 large mammal wildlife crossing corridors identified by Emmons & Olivier, two are in the vicinity of the Mine Site or Plant Site. The first is located approximately 1 mile southeast of the existing Plant Site (see Figure 6.2.5-1). Though small, this corridor has been identified as important (Emmons and Olivier 2006) and of moderate quality (Barr 2009a). The existing LTVSMC Tailings Basin is located within the corridor, but does not obstruct the entire width of it. The Tailings Basin provides poor habitat and is not likely to be heavily used by wildlife. Because current use is already limited, increased activity at the Tailings Basin is not likely to adversely affect wildlife movement through the corridor.

The second corridor is located approximately 0.5 mile northwest of the Mine Site. It has been identified as important (Emmons and Olivier 2006) and contains high quality habitat (Barr 2009a). Operations at the Mine Site would indirectly affect the corridor by reducing its size and acting as a source of noise and activity near the large habitat block southeast of the corridor. Though the Transportation and Utility Corridor is outside the wildlife corridors identified by Emmons & Olivier, it runs parallel and perpendicular to the corridors and would potentially affect wildlife use.

The other reasonably foreseeable projects may also affect the 18 wildlife travel corridors mapped by Emmons & Olivier and Barr (see Table 6.2.5-1 and Figure 6.2.5-1) (Emmons & Olivier 2006; Barr 2009a). These effects may include blocking or encroachment into the mapped wildlife corridors, which affects adjacent habitat that may make the corridor less valuable to wildlife, and increasing traffic along new or existing roads through the corridor. The effects on these corridors include complete loss (depending upon final extent of activities), habitat isolation, fragmentation, and/or minimal effect.

Table 6.2.5-1 Cumulative Effects on Wildlife Travel Corridors in the Mesabi Iron Range

Wildlife Travel Corridor	Project	Type of Effect
1	Urban Development, Highway Traffic	Minimal habitat isolation; may restrict wildlife travel through corridor due to roads, railroads, and potential expansion of the City of Grand Rapids.
2	Highway Traffic	Habitat isolation; may restrict wildlife travel through corridor due to highway traffic (US 169), which may increase over time.
3	Urban Development, Essar Steel	Direct loss of travel corridor; wildlife travel through the western half of the corridor is currently restricted by historical mining effects, eastern half of corridor would be directly affected by the Essar Steel project, resulting in overall loss of the corridor.
4	Highway Traffic, Essar Steel Mine, U.S. Steel Keetac Mine	Habitat isolation; may restrict wildlife travel through the corridor due to the Keetac Expansion project, which would be south of the corridor, and the Essar Steel project, which would be west of the corridor.
5	U.S. Steel Keetac Mine	Direct loss of travel corridor; wildlife travel through this corridor would be restricted by the U.S. Steel Keetac Mine and existing Hibbing Taconite, resulting in a direct loss of this low-quality corridor.

Wildlife Travel Corridor	Project	Type of Effect
6	Highway Traffic, Urban Development, U.S. Steel Keetac Mine	Fragmentation and direct loss of travel corridor; wildlife travel through this corridor is restricted by Hibbing Taconite to the west of the corridor, highway traffic on State Highway 73, and fragmentation of travel corridor habitat may occur due to urban development of Chisholm (on the northern end of the corridor) and Hibbing (on the southern end of the corridor).
7	Urban Development, Magnetation (Chisholm)	Habitat isolation; eastward expansion of Chisholm may restrict wildlife travel through this corridor. Scram mining operations south of the corridor may further restrict travel.
8	Highway Traffic, U.S. Steel Minntac, Mining Resources (Sherman Basin)	Habitat isolation; may restrict wildlife travel through corridor due to highway traffic (US 169) south of the corridor, U.S. Steel Minntac may affect habitat to the northeast of the corridor, while Mining Resources' scram mining activities may affect habitat to the south of the corridor.
9	U.S. Steel Minntac	Direct loss of travel corridor; the U.S. Steel Minntac mine pit expansion would eliminate eastern end of corridor.
10	Urban Development	Minimal effect; wildlife travel through this corridor may be restricted by expansion of Eveleth or Gilbert and associated roads.
11	ArcelorMittal Deposits	Habitat isolation and direct loss; wildlife travel through this corridor may be restricted by ArcelorMittal's Project, which would prevent access between northern and southern blocks of the corridor.
12	Urban Development	Minimal effect; wildlife travel through this corridor may be restricted by expansion of the City of Biwabik.
13	Mesabi Nugget, Mesabi Mining Project, Urban Development	Minimal effect; wildlife travel through this corridor may be restricted by westward expansion of the City of Aurora, and likely increase in traffic/noise due to the Mesabi Nugget Project.
14	Mesabi Nugget and Mesabi Mining Projects	Minimal effect; wildlife travel through this corridor may be restricted by the Mesabi Nugget Project, which would reduce the corridor width, but not eliminate use.
15	Mesabi Nugget and Mesabi Mining Projects	Minimal effect; wildlife travel through this corridor may be restricted by the Mesabi Nugget Project, which would reduce the corridor width, but not eliminate use.
16	NorthMet Project Proposed Action	Minimal effect; wildlife travel through this corridor may be restricted by noise and activities at the NorthMet Project Proposed Action Plant Site, which would be located northwest of the corridor.
17	NorthMet Project Proposed Action and Northshore Mine	Direct loss and fragmentation; the NorthMet Project Proposed Action would reduce habitat to southeast of the corridor. The NorthMet Project Proposed Action would not physically encroach into the corridor, but noise and activities at the NorthMet and Northshore mine operations could discourage use during mine operations.
18	Northshore Mine	Direct loss and fragmentation; possible expansion of Northshore mine eastward may block or fragment this corridor.

Sources: Emmons & Olivier 2006; Barr 2009a.

6.2.5.4.3 Special Status Species

In addition to habitat fragmentation and loss and effects on wildlife crossing corridors, wildlife species of concern in the Nashwauk Uplands and Laurentian Uplands ecological subsections are subject to other stressors that could result in cumulative effects. Traffic and activity related to mining projects, urban development, forestry, tourism, and road expansions all increase the risk for special status wildlife species and, as such, could result in cumulative effects. See Section 5.2.5.2.3 for a discussion on studies regarding wildlife corridor mitigation options.

The Canada lynx is listed as a threatened species by the federal government, and is listed as a species of special concern in Minnesota. The NorthMet Project Proposed Action and other cumulative actions would result in additional habitat fragmentation, and may increase pressures from loss of habitat and disruptions in travel corridors for Canada lynx. Forest management would contribute the largest acreage effect for lynx, but this effect would be offset by the regeneration of forest stands over time. Additional human activity due to the NorthMet Project Proposed Action and other cumulative actions would likely result in additional vehicle and rail traffic and the potential for collisions with lynx.

The northern long-eared bat is listed as a threatened species by the federal government, and is listed as a species of special concern in Minnesota. The NorthMet Project Proposed Action and other cumulative actions, including community growth and forest management, could affect northern long-eared bats through removal of summer roosting habitat and additional habitat fragmentation from timber harvests and road construction. The interim 4(d) rule specifies that forest clearing activities may not occur within the summer maternity roosting season within one quarter mile of known occupied roost trees or a known occupied hibernacula.

The gray wolf has been re-listed as threatened by the federal government, but it was removed from the Minnesota ETSC species list in 2013. The wolf had rebounded sufficiently that the state held a limited hunting season in 2012 through 2014. A 2014 winter survey by the MDNR (Erb et. al. 2014) estimated that 2,423 gray wolves were present in Minnesota, which, along with the 2012-2014 hunts, indicates that populations have stabilized to the point that the wolf in Minnesota is viable. The NorthMet Project Proposed Action and other cumulative actions may increase pressures from loss of habitat and disruptions in travel corridors which may affect the total numbers of animals in the future.

6.2.5.4.4 Effects from Acid (NO_2/SO_2) and Mercury Deposition

Acid depositions from sulfate (from SO_2 emissions) and nitrate (from NO_2 emissions) can have an adverse effect on terrestrial ecosystems, including forested wildlife habitat. These pollutants may travel long distances and contribute to complex chemical and physical reactions within a variety of habitats. These reactions could contribute to increased vulnerability of sensitive wildlife species and their habitats. Additionally, these pollutants can be carried by precipitation into nearby lakes and rivers, which wildlife species rely upon for food and water.

As described in Section 6.2.7.5, emissions from the NorthMet Project Proposed Action, in combination with other projects, would emit increased amounts of SO_2 and NO_2 emissions, resulting in a potential increase in acid deposition that may be too small to measure. However, the projects would not likely cause a cumulative effect on the ecosystems due to the NorthMet Project Proposed Action having relatively low emissions of SO_2 and NO_2 and potential deposition of sulfate and nitrate that are below both the Minnesota standard threshold value and

the federal Class I threshold values, in combination with the overall reduction in sulfate and nitrate-producing emissions cumulatively since 2008.

The MPCA estimated that over 90 percent of the mercury deposition within Minnesota is a result of other states and countries (MPCA 2013e). However, as described in Section 5.2.7.2.5, the Plant Site would be expected to contribute essentially all of the NorthMet Project Proposed Action-related mercury air emissions of 4.6 lbs/year, as the Mine Site only contributes potential emissions of less than 1.0 lb/yr (Barr 2011g). Based on the results of the MMREM evaluation summarized in cumulative effects Section 6.2.6.3.3, the potential additional mercury load that might be added to the Embarrass River and the Partridge River from air emissions is not expected to adversely affect these ecosystems when compared to the variability in background mercury concentrations. Similarly, the mercury deposition on terrestrial environments is not expected to adversely affect these ecosystems when compared to variability in background mercury concentrations. Additional information on the cumulative analysis of acid and mercury deposition associated with air emissions is summarized in Section 6.2.6.3.3 and 6.2.7.5.

6.2.6 Aquatic Species

The NorthMet Proposed Project Action could affect aquatic physical habitat and species via changes in flow and water quality in the Partridge River and Embarrass River. The analysis found the NorthMet Project Proposed Action would meet or not cause or add to exceedances of water quality evaluation criteria with the exception of aluminum (Section 5.2.2.3.3). For aluminum, ambient water quality already exceeds the Class 2B standard in the Embarrass River, but would increase in several tributaries to the Embarrass River as a result of a decrease in Tailings Basin seepage with low aluminum concentrations and a proportional increase in natural runoff with higher aluminum concentrations. Although all other solutes are predicted to meet Class 2B water quality standards, the aggregate of these solutes, primarily metals, has the potential to impact aquatic biota.

Although there is historic and current mining in the area, the water quality of these watersheds is generally good, with some exceptions. One exception involves portions of the Embarrass River that are included on the 303(d) list as impaired for "Fishes Bioassessment" (non-supportive of aquatic life and indicative of habitat stressors that limit aquatic life). Another exception relates to some lakes through which the Partridge River and Embarrass River flow that are on the 303(d) list of impaired waters for "mercury in fish tissue." The MDH has issued fish consumption advisories for the "mercury in fish tissue" impaired waters to provide site-specific consumption guidance on the quantity and frequency of fish species consumed. The following sections provide a quantitative and semi-quantitative analysis of the potential cumulative effects of the NorthMet Project Proposed Action and other activities in the Partridge River and Embarrass River watersheds.

Both the Partridge River and Embarrass River are tributaries to the St. Louis River, which flows through the Fond du Lac Indian Reservation and empties into Lake Superior near Duluth. A qualitative assessment of the cumulative effects to aquatic resources in St. Louis River has been included.

The St. Louis River is not included within the spatial scale of the NorthMet Project's cumulative effects analysis for these reasons:

- The NorthMet Project Proposed Action would not have any direct effects (i.e., habitat disturbance) on the St. Louis River, or even perennial waterbodies within the Partridge River and Embarrass River watersheds.
- The NorthMet Project Proposed Action would not pose any obstructions to fish movement between the St. Louis River and the Partridge River or Embarrass River.
- The NorthMet Project Proposed Action would result in about a 2 percent (about 6 cfs) reduction in average annual flow in the St. Louis River at the confluence with the Embarrass River during operations, and less than 1 percent reduction during closure. The NorthMet Project Proposed Action effects would be even less during low flows because of flow augmentation from Whitewater Reservoir once water levels in Colby Lake fall below 1,439 ft, which equates to a flow of approximately 13 cfs.

- With the proposed design modifications and engineering controls, the water quality model predicted that the NorthMet Project Proposed Action would not cause any significant water quality impacts because: 1) exceedances of the P90 threshold did not occur, 2) the NorthMet Project Proposed Action concentrations were no higher than concentrations predicted for the Continuation of Existing Conditions (CEC) Scenario, 3) the frequency or magnitude of exceedances for NorthMet Project Proposed Action conditions was within an acceptable range, or 4) the effects were not attributable to NorthMet Project Proposed Action discharges.
- The NorthMet Project Proposed Action would result in a net decrease in overall mercury loadings (1.0 grams per year) with no detectable change in mercury concentrations to the St. Louis River.

Therefore, the NorthMet Project Proposed Action would not have any direct effects on aquatic habitat in the St. Louis River and would not have any measureable indirect effects on fish or aquatic invertebrates as a result in changes in flow or water quality, and, therefore, it would not contribute any measureable cumulative effects to the St. Louis River.

The NorthMet Proposed Project Action could affect aquatic physical habitat and species via changes in flow and water quality in the Partridge River and Embarrass River. The analysis found that changes in water chemistry would not exceed water quality evaluation criteria.

6.2.6.1 Spatial

This assessment considered past and present and reasonably foreseeable effects on aquatic species in the Partridge River and Embarrass River as reflected in existing baseline hydrologic and water quality conditions.

6.2.6.2 Temporal

The temporal scope of the analysis begins with existing conditions through the long-term closure of the NorthMet Project Proposed Action, including the cessation of Northshore Peter Mitchell Pit surface water discharges.

6.2.6.3 Contributing Past, Present, and Reasonably Foreseeable Future Actions

The assessment discusses potential cumulative effects on surface water habitats and aquatic species associated with the following current and future actions listed below in conjunction with the NorthMet Project Proposed Action:

- ArcelorMittal Deposits (Laurentian and East Reserve Deposits);
- City of Aurora POTW;
- City of Aurora POTW;
- City of Biwabik POTW;
- City of Hoyt Lakes POTW;
- LTV Steel Mining Company Former LTVSMC Pits;
- Mesabi Mining Project;

- Mesabi Nugget Project; and
- Northshore Mine Operations and Closure.

6.2.6.4 Cumulative Effects Assessment

6.2.6.4.1 Water Quality Effects

As described in Section 5.2.2, with the proposed design modifications and engineering controls, the water quality model predicted that the NorthMet Project Proposed Action would not cause any significant water quality impacts because: 1) exceedances of the P90 threshold did not occur, 2) the NorthMet Project Proposed Action concentrations were no higher than concentrations predicted for the Continuation of Existing Conditions (CEC) Scenario, 3) the frequency or magnitude of exceedances for NorthMet Project Proposed Action conditions was within an acceptable range, or 4) not attributable to NorthMet Project Proposed Action discharges. Nevertheless, while the NorthMet Project Proposed Action discharges would not cause or add to exceedances of water quality evaluation criteria, it could combine with other past, present and reasonably foreseeable future activities to create cumulative effects within the CEAA. The analysis below describes these combined effects to arrive at a finding that the NorthMet Proposed Action would not cause cumulative effects on aquatic resources within the CEAA. However, there is potential for cumulative effects on aquatic biota due to changes in water quality, especially in impaired waters for the Embarrass River, and in the Upper Partridge River from cessation of Northshore Mine dewatering post-closure. Cumulative effects related to water quality are summarized in Section 6.2.2.

The Class 2B standards were developed to be protective of aquatic life and to promote the "propagation and maintenance of a healthy community of cool or warm water sport or commercial fish and associated aquatic life, and their habitats" (*Minnesota Rules*, part 7050.0222). The chronic standards are restrictive standards and reflect "the highest water concentration of a toxicant to which organisms can be exposed indefinitely without causing chronic toxicity" (*Minnesota Rules*, part 7050.0218, subpart 3, item I).

The NorthMet Project Proposed Action, in combination with other reasonably foreseeable projects, could increase solute concentrations for many constituents in the Partridge River and Embarrass River. The NorthMet Project Proposed Action, in particular, but to some extent in combination with other existing and reasonably foreseeable projects, would shift maintenance of water quality in the Partridge River and Embarrass River from natural systems (i.e., essentially an ecosystem service) to mechanical systems (e.g., the NorthMet Project Proposed Action WWTF and WWTP). Given this shift resulting from the proposed design modifications and engineering controls, the water quality model predicted that the NorthMet Project Proposed Action discharges would not cause any significant water quality impacts. Impacts due to changes in water quality from NorthMet Project Proposed Action, in combination with other reasonably foreseeable projects, to aquatic species are not anticipated.

6.2.6.4.2 Physical Habitat Effects

Hydrologic changes are often one of the major sources of effects on fish and macroinvertebrate habitat. While many aspects of the hydrologic regime can be important to the maintenance of fish and macroinvertebrate assemblages, reduction in baseflow (the portion of streamflow from groundwater) is particularly relevant because it represents a change or even a loss of habitat.

Section 5.2.6.2 concluded that the NorthMet Project Proposed Action would reduce flow upstream of Colby Lake and in the Embarrass River by very small amounts from the current baseline habitat conditions. Alterations due to multiple projects in the Second Creek Watershed within the Partridge River Watershed along with the planned flow augmentation of Second Creek due to the NorthMet Project Proposed Action may contribute to small cumulative effects on aquatic habitat if flows fluctuate by more than 20 percent, but fluctuations of this magnitude are not expected (see Section 6.2.2). Changes in average annual flow of less than 20 percent would fall into the range of annual natural variability in terms of precipitation and would have minimal impacts to ecosystem function and aquatic species within the Embarrass River Watershed.

After 2070, when Northshore Mine dewatering discharge is predicted to end, there may be effects on the headwater Partridge River instream habitat due to loss of flow. The NorthMet Project Proposed Action, however, would not be expected to contribute measurably to this cumulative effect, but instead would incidentally reduce the effect downstream of SW-004 by discharging treated water in mine year 52.

6.2.6.4.3 Effects from Mercury

Estimated Mercury Deposition

The NorthMet Project Proposed Action, along with other reasonably foreseeable projects have the potential for adverse effects from mercury deposition on nearby lakes, including the Heikkila, Colby, Sabin, Wynne, and Whitewater lakes, the Partridge River and Embarrass River watersheds, and the aquatic biota within these waterbodies.

The cumulative effects of mercury from the NorthMet Project Proposed Action and other cumulative actions on risks to fish consumption were analyzed using the MMREM. As described in Section 5.2.7.2.5, the MMREM assessed the potential changes in fish mercury concentrations in the following nearby lakes (Barr 2015f):

- Heikkila Lake;
- Colby Lake;
- Sabin Lake;
- Wynne Lake; and
- Whitewater Lake.

The five lakes are located within 12 km, about 7 miles, of the Plant Site. Heikkila Lake, Sabin Lake, and Wynne Lake are included in the Embarrass River watershed, while Colby Lake and Whitewater Lake are closest to the Plant Site and are part of the Partridge River watershed. The closer a lake is to the Plant Site, the greater the potential for more effects from deposition related to Plant Site operations.

The MMREM method relies on empirical fish contamination data (Barr 2012b), combined with the principle of proportionality between mercury in fish and atmospheric deposition (MPCA 2006a). As other cumulative analyses have identified that local impacts from mercury deposition are small and likely not measureable in terms of fish mercury concentration within 10 kilometers of a single project, it is expected that projects located further away would have fewer impacts. Consequently, it has been determined that the maximum extent of the quantitative cumulative impact assessments using the MMREM is about 25 kilometers (about 16 miles) from the specific project of interest (Barr 2015f). The analysis considered deposition from the NorthMet Project Proposed Action and the Mesabi Nugget emissions over existing risks. The Mesabi Nugget Large Scale Demonstration Plant was assessed because it is the only "reasonably foreseeable" project within 25 km of the NorthMet Project Proposed Action.

Because of uncertainty in speciation of emissions of the NorthMet Project Proposed Action, two speciation scenarios were used for assessing potential effects for the NorthMet Project (Barr 2015f), while only one scenario was used to evaluate the Mesabi Nugget Large Scale Demonstration Plant emissions since there was no uncertainty in the speciation of the emissions from this action. The first scenario for the NorthMet Project Proposed Action represents a conservative overestimation of oxidized mercury (25 percent elemental mercury, 50 percent oxidized mercury, and 25 percent particle bound mercury), while the second scenario is a more conservative and more likely speciation for air emissions (80 percent elemental mercury, 10 percent oxidized mercury, and 10 percent particle bound mercury) that is considered to provide a worst-case emissions scenario for the NorthMet Project Proposed Action. The scenario for the Mesabi Nugget Large Scale Demonstration plant evaluates 99.3 percent elemental mercury (see Section 5.2.7.2.5).

The current MPCA-estimated mercury atmospheric deposition rate is 12.5 $\mu g/m^2/yr$ for northeast Minnesota (MPCA 2007), which translates into about 250 pounds of mercury currently being deposited onto the St. Louis River Watershed (3,600 square miles) every year due to background deposition. The potential total annual deposition in the watershed from the NorthMet Project Proposed Action is estimated to be about 0.17 pounds per year (Barr 2012b), which is less than 0.1 percent of the estimated 250 pounds per year of mercury already being deposited to the St. Louis River watershed due to background deposition.

The cumulative analysis assessment showed that projected increase in mercury concentrations from the two reasonably foreseeable cumulative sources in the fish for the five lakes ranges from 0.3 to 1.8 percent (when considering both speciation scenarios), of which the increased percentage from the NorthMet Project Proposed Action alone ranges from 0.2 to 1.6 percent. Therefore, although the NorthMet Project Proposed Action would account for the majority of the increase, the total added mercury to the lakes is small compared to background conditions. The highest impact in fish concentration from the NorthMet Project Proposed Action alone was at Wynne Lake where the estimated incremental increase to fish tissue mercury concentration is 0.016 ppm. This estimated incremental change in fish mercury concentration is small compared to the background fish tissue mercury concentrations in Wynne Lake range, which range from

0.35 to 2.06 ppm. The increase to fish tissue mercury concentrations at the remaining four lakes was at or below 0.012 ppm (Barr 2013c) with the background fish tissue mercury concentrations in these lakes ranging from 0.12 ppm in Whitewater Lake to 2.06 ppm in Heikkila Lake (Barr 2015f). These potential increases would not be expected to have an appreciable effect on fish tissue mercury concentrations in the Embarrass River or Partridge River and would not have any effect on the current fish consumption advisories for the respective lakes.

Hazard Quotient

The Hazard Quotient is the ratio of the mercury concentration in fish to a health-based target of 0.2 ppm; a Hazard Quotient greater than 1 exceeds the health-based target. To estimate the potential incremental Hazard Quotient, the incremental methylmercury exposure in mg/kg body weight per day and the reference dose are accounted for in the calculation. The incremental Hazard Quotient calculation in the MMREM Spreadsheet uses the following methodology:

- Incremental daily mercury consumed (mg) = estimated incremental increase in fish mercury due to the Project (mg/kg) x the amount of fish consumed (e.g. 0.142 kg for a subsistence fisher);
- Incremental methylmercury exposure (mg/kg body weight per day) = Incremental daily mercury consumed x 1.07945 / adult body weight (70 kg); and then
- Incremental Hazard Quotient = incremental methylmercury exposure (mg/kg body weight per day) / Reference Dose of 1.00E-04 mg methylmercury/kg body weight per day (i.e., the ratio of the incremental methylmercury exposure divided by the reference dose in the same units).

The maximum incremental cumulative Hazard Quotient from the two reasonably foreseeable cumulative projects over existing fish mercury concentrations is 0.08 for recreational anglers, 0.61 for subsistence/tribal anglers, and 0.54 for subsistence fishers. This is only about a 0.3 to 1.8 percent increase over the existing incremental risk levels, for recreational, subsistence/tribal and subsistence anglers. Of this, the NorthMet Project Proposed Action would contribute approximately 59 to 92 percent of the incremental cumulative Hazard Quotient. Note that the current fish tissue concentration in the five lakes results in Hazard Quotients that exceed 1, leading to the need for the fish consumption advisories currently in effect (see Table 6.2.6-1).

Table 6.2.6-1 Analysis of Existing Hazard Quotients of Cumulative Impacts from Mercury Deposition for Five Lakes following Three Fish-Consumption Scenarios

			Recreational Angler[1]		Subsistence/Tribal Angler[2]		Subsistence Fisher[3]	
Lake	**MDNR #**	**Speciation Scenario**	**Existing HQ**	**Incremental Cumulative HQ**	**Existing HQ**	**Incremental Cumulative HQ**	**Existing HQ**	**Incremental Cumulative HQ**
Colby Lake	69024900	Scenario 1	4.3	0.05	32	0.4	28.4	0.35
		Scenario 2		0.02		0.1		0.10
Heikkila Lake	69025300	Scenario 1	3	0.05	22.3	0.4	19.8	0.35
		Scenario 2		0.01		0.1		0.09
Sabin Lake	69043401	Scenario 1	4.7	0.06	35.1	0.5	31.2	0.41
		Scenario 2		0.02		0.1		0.11
Whitewater Lake	69037600	Scenario 1	1.6	0.01	11.9	0.1	10.6	0.09
		Scenario 2		0.01		0.0		0.03
Wynne Lake	69043402	Scenario 1	6.2	0.08	46.2	0.6	41	0.54
		Scenario 2		0.02		0.2		0.15

Source: Barr 2012b.

Notes:
[1] Consumption rate assumed to be 30 grams/ day.
[2] Consumption rate assumed to be 224 grams/ day and approximates the allowed take of fish by a Tribal member (~180 pounds per year of fish).
[3] Consumption rate assumed to be 199 grams/day.

Water Mercury Mass Balance

In addition to atmospheric mercury deposition, water discharges from the NorthMet Project area would affect the mercury load in the Embarrass and Partridge rivers (and ultimately on downstream portions of the St. Louis River). As discussed in Section 5.2.2.3.4, a water mass balance was performed to assess mercury load from NorthMet Project Proposed Action. The mass balance indicated that overall, the NorthMet Project Proposed Action is predicted to result in a net decrease in mercury loading to the St. Louis River watershed and is not likely to result in an appreciable change in the mercury concentration in fish in waterbodies of the St. Louis River watershed, including the Embarrass River or Partridge River, or in the St. Louis River itself (Barr 2015f). Potential mercury increases from air deposition discussed above would not be expected to have any appreciable effect on inputs into the water quality mass loading calculations.

Statewide Mercury TMDL and Mitigation Measures

The MPCA Statewide Mercury TMDL is intended to provide the long-term framework to reduce mercury in fish within Minnesota lakes, including the five lakes targeted in this assessment. The MPCA and industries emitting mercury into the atmosphere are working to reduce Minnesota sources' contribution to fish contamination. Minnesota is relying on actions by other states and the USEPA to address deposition from long-range sources.

In the period of time between completion of the cumulative effects analysis background study for Minnesota Steel and the development of this FEIS, Minnesota stakeholders created an implementation plan for Minnesota's mercury TMDL (MPCA 2009c). Within the implementation plan, there is a process for assessing new and expanding sources of mercury in Minnesota. It is important to assess sources so that while existing sources reduce emissions, new sources do not interfere or confound the state's progress in reducing mercury emissions overall. At the recommendation of the Minnesota stakeholders, MPCA has developed guidance for new and modified sources of mercury in Minnesota (MPCA 2013d). The guidance requires sources to: employ best controls to reduce mercury emissions and apply emissions limits to permit conditions. MPCA has conducted a review of the NorthMet Project Proposed Action mercury emissions and has determined that it would not impede the reduction goals (MPCA 2013l). Thus, no minimization and mitigation plan would be required for the NorthMet Project Proposed Action (see Section 5.2.7.2.5). Mercury mitigation measures are summarized in Section 5.2.2.3.5 (water) and in Section 5.2.7.4 (air).

6.2.7 Air Quality

Several components of the NorthMet Project Proposed Action would combine with other past, present, and reasonably foreseeable proposed actions to cause cumulative effects on air quality. Of particular concern are the effects on Class I and Class II areas, especially with respect to acid deposition, particulates, and visibility impairment. Both direct and indirect effects of the NorthMet Project Proposed Action were used to calculate its effects in combination with those of other emission sources. Given the public's concern over air quality in the BWCAW and Voyageurs National Park, the analysis modeled how emissions from the NorthMet Project Proposed Action and other projects in the airshed would affect air quality and visibility in these areas.

6.2.7.1 Approach

Cumulative effects have been evaluated to assess the potential effects from other foreseeable projects that have been approved by regulatory agencies, but have not been implemented or accounted for in existing air quality conditions. The assessments of these projects, in combination with the NorthMet Project Proposed Action, were conducted to evaluate the overall effects on the NAAQS/MAAQS, the USEPA PSD Class I and Class II standards, and the USEPA Class I Visibility and Regional Haze criteria.

6.2.7.2 Cumulative Effects Assessment Area

6.2.7.2.1 Spatial

The CEAA for air quality is defined as those areas that are beyond the boundaries of the Plant Site, Mine Site, the Mesabi Nugget Ambient Air Boundary, and the Northshore Mine (labeled as St. Louis County Tax Records) identified on Figure 6.2.7-1. The cumulative receptors on the figure (in blue) provide spatial projection of the closest receptors used in the modeling that are at or beyond the four boundary areas identified above.

6.2.7.2.2 Temporal

Based on the approved model's limitations, this evaluation used a qualitative baseline of industrial growth within the Arrowhead Regional Airshed as indicative of the historical and more recent effects on air quality resulting in the current ambient conditions.

6.2.7.3 Past, Present, and Reasonably Foreseeable Future Actions

The air quality modeling used existing background to represent the cumulative effects from all past, present, and reasonably foreseeable future actions that affect air quality in the region.

6.2.7.4 Cumulative Effects Assessment

Air quality modeling analyses were conducted to assess cumulative effects on NAAQS, MAAQS, PSD Class II Increments, and Class I Increments using a similar modeling approach discussed in Section 5.2.7.2.1. However, relative to NAAQS, MAAQS, and PSD Class II Increments, the receptor locations were restricted to areas at and beyond the former LTVSMC ambient air boundary as defined in the Final SDD. However, the Class II modeling report for the

Plant Site included a more detailed and up-to-date assessment of combined effects at the Plant Site. For PSD Class I Increments, the cumulative analysis was conducted by adding the maximum effects from the NorthMet Project Proposed Action to the maximum effects from the cumulative analysis prepared for the Minnesota Steel EIS (MDNR and USACE 2007), in order to assess overall cumulative effects. The following sections describe the results of these assessments.

6.2.7.4.1 Cumulative Ambient Air Quality Effects (NAAQS/MAAQS)

As stated earlier, an assessment of the Plant Site was conducted using the same modeling approach as presented in Section 5.2.7, except that receptor locations were limited to the Plant Site's boundary combined with the shared properties of the Mesabi Nugget and Cliffs Erie Pellet Yard (using the former LTVSMC processing plant boundary) as the ambient air boundary. It should be noted that the NorthMet Project Proposed Action emissions were evaluated on both Mesabi Nugget and Cliffs Erie property. Figure 6.2.7-1 shows the ambient air boundary for the former LTVSMC processing plant. The cumulative analysis included potential emissions for all NorthMet Project Proposed Action sources, nearby sources as defined in the Final SDD, and additional sources agreed upon with the MPCA, as identified above.

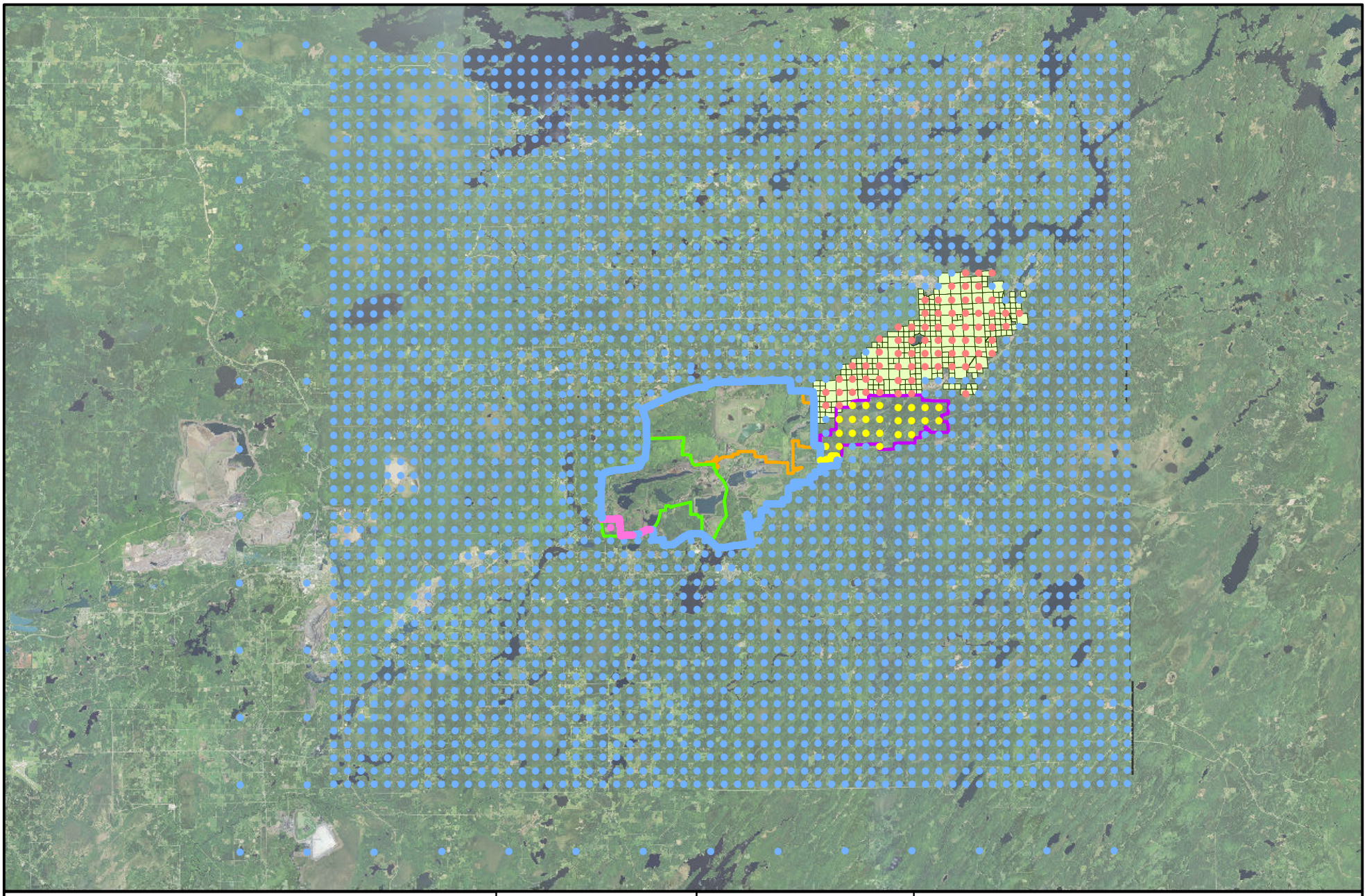

Cumulative Receptors
Mesabi Nugget
NorthMet Project Mine Site
NorthShore Mine
Mesabi Nugget Ambient Air Boundary
Mine Site Ambient Air Boundary
Plant Site Ambient Air Boundary
St Louis County Tax Records

MNDNR
US Army Corps of Engineers
St. Paul District

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Miles

Figure 6.2.7-1
Ambient Air Boundary - EIS Cumulative NAAQS/Increment Receptor Grid NorthMet Plant Site EIS Class II Modeling Report
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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Table 6.2.7-1 summarizes the results of the cumulative NAAQS/MAAQS model analysis. These model results did not include tailpipe emissions from mobile sources (e.g., NOx from mine trucks) and were not included in the NAAQS or increment modeling. Except for the cumulative 1-hour SO_2 and 1-hour NO_2 effects, all other maximum cumulative effects were below the respective NAAQS and MAAQS, ranging from 24 percent to 97 percent of their respective standards. In order to compare with the applicable standards, the following calculated maximum concentrations were defined, as defined in Section 5.2.7, by the "highest nth high" concentration (HnH) as follows:

- 24-hour PM_{10} – H6H;
- 24-hour $PM_{2.5}$ and 1-hour NO_2 – H8H;
- 1-hour SO_2 – H4H;
- 3-hour and 24-hour SO_2 – H2H; and
- All annual – maximum.

Ambient air background concentrations were added to modeled concentrations to determine compliance with NAAQS and MAAQS. Background concentrations represent the 2008 to 2010 values from the Blaine-Anoka Airport Monitor (the nearest monitoring station available for model input), Rosemont Monitor, and Virginia Monitoring Stations for NO_2, SO_2, and PM_{10}/$PM_{2.5}$, respectively.

The maximum predicted ambient 1-hour NO_2 concentration was 292 μg/m^3, which was predicted to occur to the southwest portion of the ambient air quality boundary, and exceeded the 1-hour NO_2 NAAQS (188 μg/m^3). The Plant Site modeled contribution at the location of maximum effect was 0.002 μg/m^3. Other receptors where concentrations were lower than the maximum but exceeded the 1-hour NO_2 NAAQS were predicted primarily on the western half of the receptor grid and were due to the nearby sources (see Figure 6.2.7-2). For all receptors that exceeded the 1-hour NO_2 NAAQS, the contributions from the Plant Site sources were less than the 1-hour NO_2 Significance Threshold of 7.5 μg/m^3 and are considered to have no significant contribution to the predicted exceedances.

Similarly, the maximum 1-hour SO_2 ambient concentration was predicted at the southwestern border of the ambient boundary with a value of 893 μg/m^3 and exceeded the 1-hour SO_2 NAAQS of 196 μg/m^3 (see Figure 6.2.7-3). The Plant Site maximum modeled contribution to this maximum was 0.002 μg/m^3, well below the 1-hour SO_2 SIL threshold of 7.8 μg/m^3. For all receptors that exceeded the 1-hour SO_2 NAAQS, the contributions from the Plant Site sources were less than the 1-hour SO_2 Significance Threshold, thus having no cumulative effect on any predicted exceedances.

It should be noted that modeled NAAQS exceedances do not mean that the region is in non-attainment for these standards. NAAQS attainment is determined by measuring the actual concentration of pollutants in the air by monitoring. There is no monitoring data in the region that indicates that NAAQS standards are not being met. The NAAQS model results represent the maximum allowable emissions from NorthMet and all of the nearby sources, not the actual emission rates or actual pollutant concentrations, which are lower. In addition, the model results represent worst case meteorological conditions and background pollutant concentrations. Because the NorthMet Project Proposed Action is considered a synthetic minor PSD source and

is not culpable for the modeled exceedances, per EPA guidance, permits can be issued for the project without addressing the modeled exceedances.

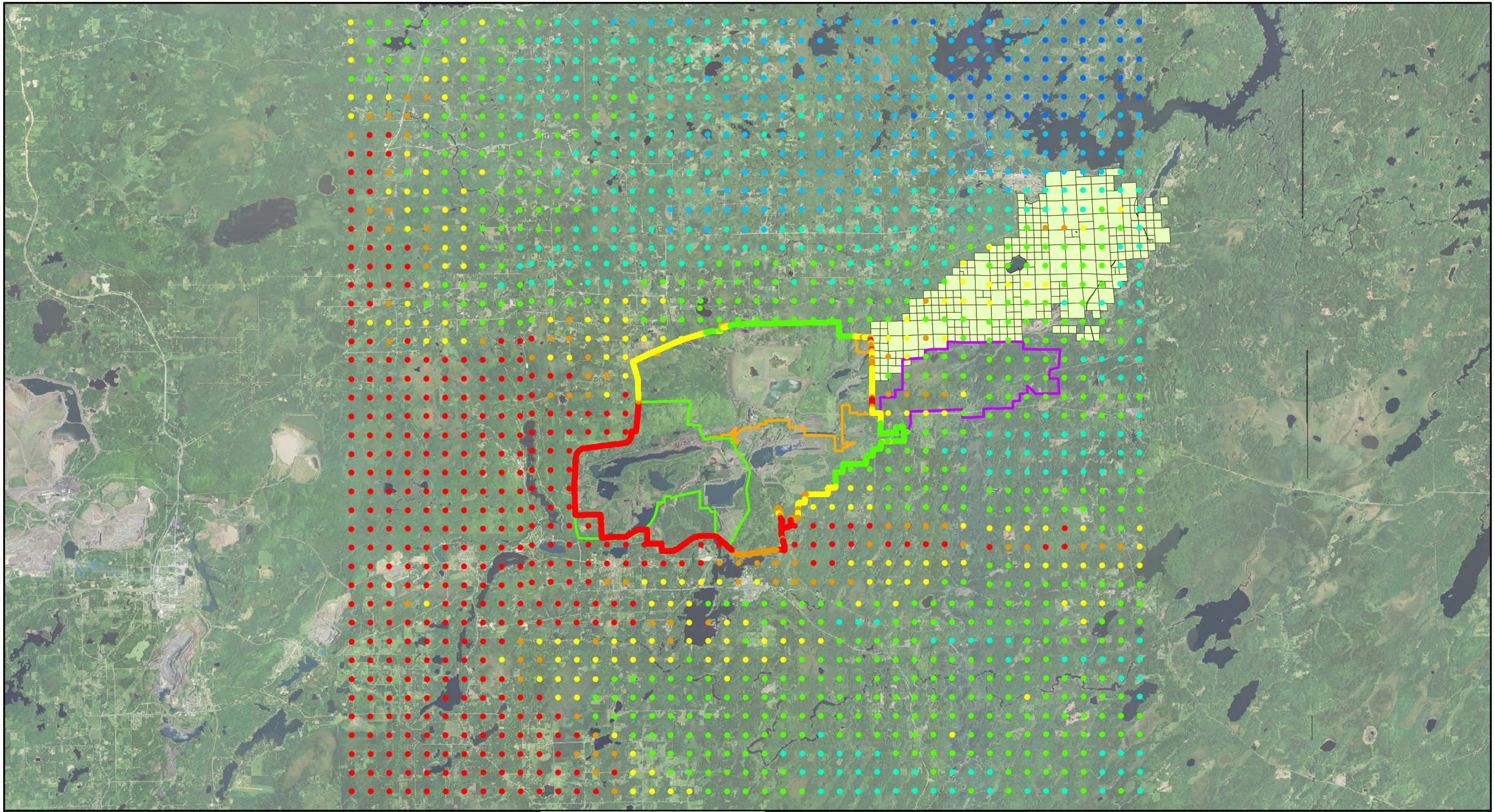

H8H Concentration ug/m

- 142 - 149
- 150 - 159
- 160 - 169
- 170 - 179
- 180 - 185
- 186 - 188
- 189 - 292

- Mesabi Nugget Ambient Air Boundary
- Mine Site Ambient Air Boundary
- Plant Site Ambient Air Boundary
- St Louis County Tax Records

MNDNR

US Army Corps of Engineers
St. Paul District

N
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Miles

Figure 6.2.7-2
1-Hour NO_2 Cumulative Effect NAAQS Results
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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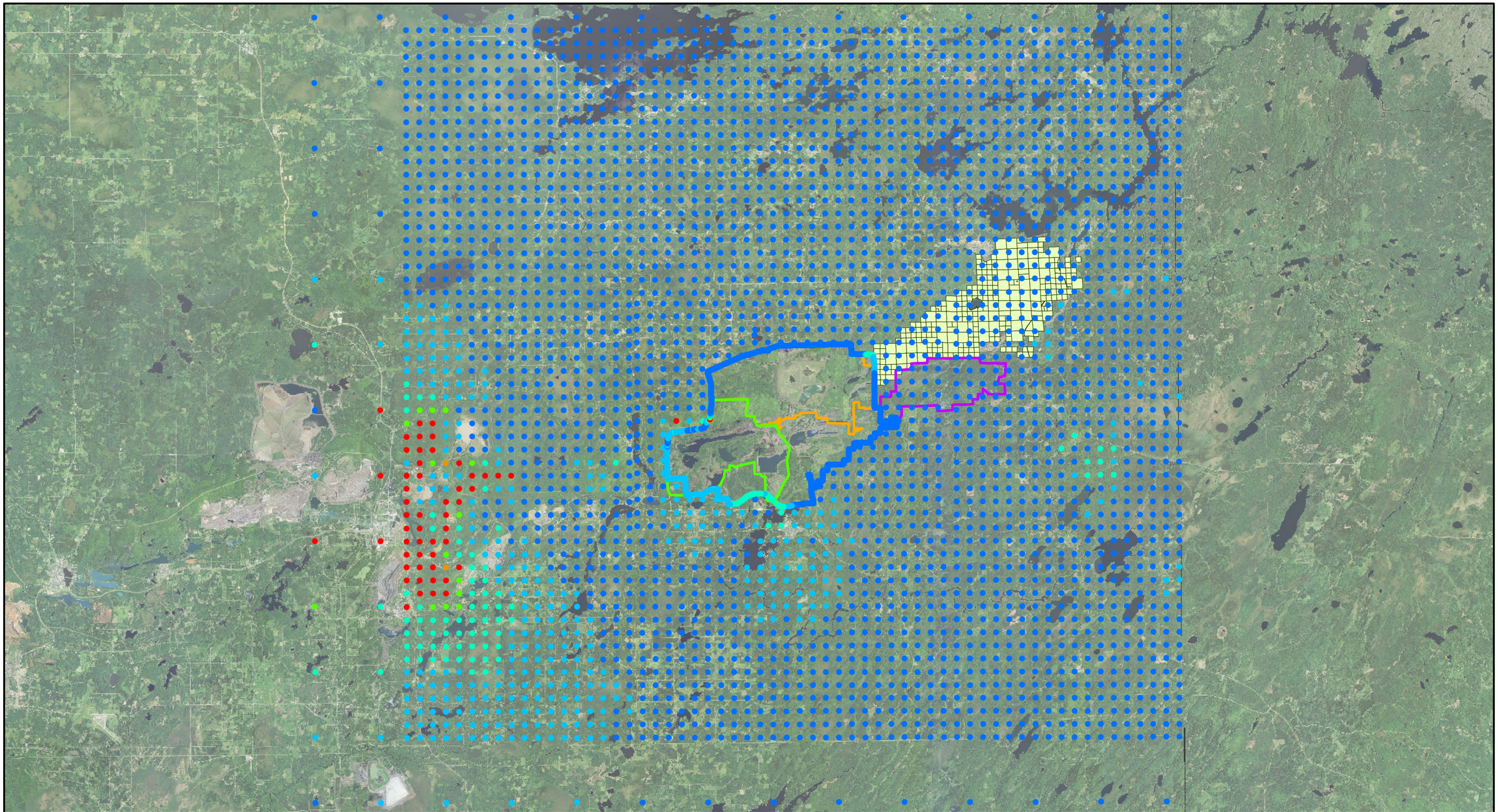

H4H Concentration ug/m

- 61 - 100
- 101 - 130 [3]
- 131 - 160
- 161 - 180
- 181 - 190
- 191 - 196
- 197 - 925

- Mesabi Nugget Ambient Air Boundary
- Mine Site Ambient Air Boundary
- Plant Site Ambient Air Boundary
- St Louis County Tax Records

MNDNR

US Army Corps of Engineers
St. Paul District

N W E S

0 2 4 8 Miles

Figure 6.2.7-3
1-Hour SO_2 Cumulative Effect NAAQS Results
NorthMet Mining Project and Land Exchange FEIS
Minnesota

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The MPCA has taken actions to reduce emissions from taconite facilities, which, in concert with federal actions by USEPA regarding regional haze Best Available Retrofit Technology (BART) obligations for certain taconite facilities, will result in the evolution of controls at such facilities and permanent emissions reductions. The MPCA's Long Term Strategy contained in its Regional Haze SIP included administrative orders (AOs) requiring taconite companies to demonstrate compliance (via modeling and/or the implementation of emissions limits) with the one-hour NAAQS for NO_2 and SO_2. Subsequent to this, the USEPA implemented federal BART limits on the facilities. These federal BART limits have been stayed pending resolution of litigation. However, the USEPA is working through settlements with the facilities to ensure finalized limits. So to avoid interference with federal actions, the MPCA has deferred implementation of its AOs, but is retaining the AOs as a "backstop" if the USEPA fails to finalize federal BART limits.

Table 6.2.7-1 Results of Cumulative Class II NAAQS Modeling

Pollutant	Averaging Time	Maximum Modeled Concentration ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total ($\mu g/m^3$)	NAAQS/ MAAQS ($\mu g/m^3$)
SO_2	1-hour	887	6	**893**	196/1300
	3-hour	772	12	784	NA/915
	24-hour	249	6	255	NA/365
	Annual	24	1	25	NA/40
PM_{10}	24-hour	41	36	77	150/150
	Annual	5	14	19	NA/50
$PM_{2.5}$	24-hour	17	17	34	35/65
	Annual	4	6	10	15/15
NO_2	1-hour	202	90	**292**	188/NA
	Annual	6	18	24	100/100

Note: Concentrations in **Bold** indicate exceedance with standard.

6.2.7.4.2 Cumulative Class II Increment Effects

Cumulative Class II Increment analysis was completed for PM_{10}, NO_X, and SO_2 for all increment consuming NorthMet sources at both the Mine Site and Plant Site. The modeling included all sources at maximum emission rates plus all nearby increment-consuming (and expanding) emissions sources identified in Section 5.2.7.1.4. Increment consuming (or expanding) sources are all sources with emission increases (or decreases) after the PSD Major Source baseline date for that pollutant. The results of the increment analyses are shown in Table 6.2.7-2, along with a comparison to the allowable Class II PSD increments.

The data in Table 6.2.7-2 summarize the PSD Class II Increment modeling results and demonstrate that the NorthMet Project Proposed Action, in conjunction with all other neighboring PSD sources, would satisfy all state and federal increment limits.

Table 6.2.7-2 Results of Cumulative Class II PSD Increment Analysis

Pollutant	Averaging Time	Cumulative Modeled Concentrations (µg/m3)	PSD Increment Limits (µg/m3)
SO_2	3-hour	11	512
	24-hour	1.9	91
	Annual	0.2	20
PM_{10}	24-hour	18	30
	Annual	3	17
NO_X	Annual	0.9	25

6.2.7.4.3 Cumulative Class I Increment Effects

Based upon the analysis presented in Section 5.2.7, the only modeling analysis with results above the acceptable screening thresholds was the 24-Hour Class I SIL for PM_{10} at BWCAW, which triggers a cumulative modeling assessment. The PM_{10} maximum modeled effect was below the SIL at Voyagers National Park, but Voyagers National Park receptors were included at the request of MPCA. The NorthMet Project Proposed Action is not a major source; however, a cumulative assessment was prepared following the same methodology that is used for assessing effects from major sources. A cumulative assessment requires modeling of all PSD increment consuming and expanding facilities within 300 km of BWCAW. The cumulative emission inventory, containing increment consuming and expanding sources, was obtained from MPCA. No other major sources within the region have submitted permit applications since the inventory was prepared. Recently permitted new sources, which have not begun operation or have recently begun operation, are also included in the inventory, as are certain minor sources near the Class I areas selected by MPCA.

The April 2006 FLM guidance suggests that area and mobile sources may be included in the cumulative effect assessment. However, PM_{10} emissions from these sources is small in the region due to its rural nature; furthermore, total population in the nearby counties has decreased since the minor source baseline trigger date. Therefore, no increase in area and mobile sources emissions are expected to have occurred, and these emissions are not included in the increment assessment.

Modeling was conducted to assess the 24-hour average PM_{10} concentrations within the Class I areas from the cumulative source inventory, and compared to effects from the NorthMet Project Proposed Action alone. The maximum concentration from project emissions was added to the maximum 24-hour PM_{10} concentration from the comprehensive cumulative analysis. This is a conservative approach, since the maximum modeled concentration due to the project sources is not at the same location and time as the maximum from the comprehensive assessment. Table 6.2.7-3 summarizes the results of the analysis, showing that the cumulative Class I 24-hour PM_{10} is below the Class I PSD increment, indicating that the full increment has not been consumed. Furthermore, sufficient increment remains in the area to allow for future growth.

Table 6.2.7-3 Results of Cumulative Class I PSD PM_{10} Increment Analysis

Class I Area	Averaging Time	Maximum Modeled Air Concentration For NorthMet Modeled Emissions (µg/m³)	Maximum Modeled Air Concentration For Cumulative Modeled Emissions (MPCA Inventory[1]) (µg/m³)	Total Cumulative Modeled Air Concentration (µg/m³)[2]	PSD Increment Limit (µg/m³)
BWCAW	24-hour	0.33	1.76	2.09	8
Voyageurs National Park	24-hour	0.13	0.22	0.35	8

Notes:
[1] The MPCA inventory includes the NorthMet Project Proposed Action, but not the same emission data that were modeled for the SDEIS.
[2] The value is conservative because the NorthMet Project Proposed Action is included in both the MPCA inventory and the modeling done for the NorthMet Project Proposed Action alone for the SDEIS.

6.2.7.5 Cumulative Effects of Acid Deposition on Ecosystems

The potential for cumulative effects of acid deposition on ecosystems was evaluated in terms of the potential increased acidification on the terrestrial and aquatic systems within a six county area (Carlton, Itasca, St. Louis, Koochiching, Lake, and Cook counties) from 1980 to 2015, as defined in the Final SDD (MDNR 2005). The pollutants of consideration included both wet and dry deposition due to sulfate depositions from SO_2 emissions to the air and nitrate deposition from NO_2 emissions to the air. Both of these pollutants can be exposed to long-range transport and are subject to complex chemical and physical reactions prior to being washed out by precipitation into lakes and rivers. MPCA has estimated that over 90 percent of the acid deposition within Minnesota is a result of out-of-state emissions from long-range transport (State of Minnesota 1985). Findings from other states and NAPAP (Mahoney et al. 1998) led the USEPA to develop the federal Acid Deposition Control Program.

Based upon the most recent information available at the time this cumulative analysis was conducted by PolyMet in January 2012, there are approximately 11 new projects for the six-county area, including the NorthMet Project Proposed Action. Collectively, without accounting for recent past reductions or expected future reductions, these sources could emit up to an additional 6,635 tons per year NO_x and 2,807 tons per year SO_2, if all were constructed and operated (Barr 2012o). This represents approximately a 12 percent and 7 percent increase, respectively, in the estimated emissions for the two pollutants in the six county "zone of interest" through 2009 (Carlton, Itasca, St. Louis, Koochiching, Lake, and Cook counties). However, due to the projected decreases in emissions from the Minnesota Power Arrowhead Regional Emission Abatement proposal in combination with various federal programs, including the implementation of the taconite and electric utility Maximum Achievable Control Technologies (MACTs), Best Achievable Retrofit Technology (BART) on Regional Haze Program and Clean Fuels Regulations, the overall emissions would be reduced by 5,503 tpy and 3,292 tpy for NO_2 and SO_2 respectively, since 2009 (Barr 2012o). In addition, supplemental decreases in emissions from the two pollutants are expected to occur due to other reasonably foreseeable actions.

As such, the emissions from the NorthMet Project Proposed Action, in combination with other projects, would emit increased amounts of SO_2 and NO_2 emissions, resulting in a potential increase in acid deposition that may be too small to measure. However, due to the NorthMet Project Proposed Action having relatively low emissions of SO_2 and NO_2 and potential deposition of sulfate and nitrate are below both the Minnesota standard threshold value(up to 11 kilograms per hectare of wet sulfate to be deposited within the designated sensitive resource areas of Minnesota during any 52-week period) and the federal Class I threshold values, in combination with the overall reduction in sulfate and nitrate-producing emissions cumulatively since 2008, the projects would not likely cause a cumulative effect on the ecosystems.

6.2.7.6 Cumulative Visibility Effects

A cumulative effects analysis assessing the potential visibility effects on Federal Class I areas was performed to provide information for the DEIS (Barr 2006h). Also, in addition to the quantitative assessment of cumulative PM_{10} increment consumption in the BWCAW described in Section 6.2.7.4.3, a semi-quantitative assessment of potential cumulative PM_{10} air concentrations and the potential effect on increment consumption in Minnesota Class I areas was also completed (Barr 2012o).

6.2.7.7 Cumulative Effects Analysis – Class I Visibility

To help determine the potential effects on visibility impairment in the Class I areas in Minnesota from the NorthMet Project Proposed Action when combined with all other concurrent projects, a cumulative effects analysis for visibility was performed by PolyMet. The semi-quantitative analysis took into account the NorthMet Project Proposed Action along with other projects that were recently permitted or are currently in the permitting or environmental review process. The results of the analysis were described in a technical report – *Cumulative Impacts Analysis Minnesota Iron Range Industrial Development Projects; Assessment of Potential Visibility Impacts in Federal Class I Areas in Minnesota* (hereafter called the '2006 Visibility Class I Study' [Barr 2006h]). An updated report was also submitted in 2012 (Barr 2012o). The 2006 Visibility Class I Study addresses the effects of the NorthMet Project Proposed Action and all other past and "reasonably foreseeable" proposed projects consistent with the SDD. This analysis focused on a four-county project area (Itasca, St. Louis, Lake, and Cook counties).

The analysis presented here represents an update to the study previously prepared for the DEIS (Barr 2006h). The updated analysis includes a six-county project area (two additional counties added: Koochiching and Carlton), additional projects, and updated information on some projects included in the 2006 study (Barr 2012o). These updates were incorporated to make the analysis consistent with the work done in Minnesota to address the federal Regional Haze Rule since the 2006 Visibility Class I Study was submitted to the state agencies.

6.2.7.8 Background on the Regional Haze Rule

The USEPA published regulations in July 1999 intended to improve visibility in the nation's Class I areas. On June 15, 2005, the USEPA issued final amendments to the July 1999 rule. This rule and amendments are referred to as the Regional Haze Rule. Minnesota has two Class I areas—the BWCAW and Voyageurs National Park. In addition, emissions from Minnesota contribute to visibility impairment to Michigan's Isle Royale National Park Class I area. The rule requires that by year 2064, visibility in the Class I areas reflect no man-made impairment and

also requires the installation of BART emission controls that reduce visibility impairment, for certain industrial facilities emitting air pollutants. The MPCA submitted a SIP to the USEPA in 2009, updated in 2012, that describes a 2018 visibility goal that makes reasonable progress towards the ultimate 2064 goal. Minnesota's Regional Haze SIP outlines the 2018 visibility goal and includes a target for 30 percent reduction in combined NOx and SO_2 emissions by 2018 from 2002 levels from point sources in Northeast Minnesota that emit over 100 tons per year of either NOx and SO_2 (MPCA 2009a).

Minnesota has been included in the Cross-State Air Pollution Rule (CSAPR), as described in 40 CFR 52.1240-1241. In 2011, the USEPA proposed that the emissions reductions in CSAPR achieved greater reasonable progress than source-specific BART determinations for power plants. As such, Minnesota has submitted a Regional Haze SIP Supplement (MPCA 2012g) to substitute CSAPR for BART for power plants. On June 12, 2012, the USEPA partially approved the SIP supplement. The partial approval allowed the substitution of CSAPR for BART of power plants; however, it failed to approve the BART emission limits for the taconite facilities. The partially approved plan also includes the identification of Class I areas, calculating baseline and natural visibility, establishing reasonable progress goals, adopting a long-term strategy for progress toward visibility goals, providing a monitoring strategy, and consulting with other states and FLMs prior to development of a regional haze plan. On February 6, 2013, the USEPA issued a Federal Implementation Plan (FIP) to set emissions standards for the six taconite facilities in Minnesota (and one in Michigan). The FIP is currently stayed by the United States Eighth Circuit Court of Appeals, while the USEPA works with the taconite facilities to settle litigation challenging the 2013 federal limits. While the level of final limits is not known at this time, it is expected that any final limits would result in significant emissions reductions, of NOx in particular, at the affected facilities.

6.2.7.8.1 Summary of the 2006 Visibility Class I Study Scope (Updated in 2011) – Background

Regional Haze and Visibility Impairment

The USEPA defines "regional haze" as visibility impairment caused by the cumulative air pollutant emissions from numerous sources over a wide geographic area (USEPA 2003). The primary pollutants that are contributing to regional haze in Minnesota's Class I areas are anthropogenic emissions of fine particulate matter ($PM_{2.5}$). $PM_{2.5}$ includes ammonium sulfate, ammonium nitrate, and organic carbon matter (MPCA 2009a). Each of these components can be naturally occurring or can be the result of human activity. The natural levels of these species result in some level of visibility impairment in the absence of any human influences, and would vary with season, daily meteorology, and geography (USEPA 2003).

There are two categories of fine particulates: primary and secondary. Fine particulates, 2.5 microns or less in diameter, that are placed directly into the atmosphere are called primary particulates. Secondary particulates are formed as a secondary pollutant by the chemical transformation of NOx, SO_2, or VOC. Secondary particulates are the main contributor to regional haze. Both categories of fine particulates (primary and secondary) can be transported long distances.

Coarse particles between 2.5 and 10 microns in diameter do contribute to light extinction. However, these particles tend to settle out from the air more rapidly than fine particles and can

be found relatively close to their emission sources (USEPA 2004, MPCA 2005), so emissions from the NorthMet Project Proposed Action in this size range are not likely to impact Class I areas.

Measuring Visibility

Visibility is characterized by the light extinction coefficient and haze index. Additional description on these two measures of visibility is provided below.

Light Extinction Coefficient

The light extinction coefficient is the sum of the atmospheric concentration of each species of interest multiplied by a corresponding coefficient. The light extinction coefficient is referred to as b_{ext} and has units of 10^{-6} m^{-1} or $(10^6 \text{ m})^{-1}$, or as typically labeled, inverse megameters (Mm^{-1}). Data from the Interagency Monitoring of Protected Visual Environments (IMPROVE) network is used to calculate light extinction coefficients for those Class I areas where monitoring is conducted.

Haze Index (Deciview)

The haze index or deciview (dv) was developed to address the issue that light extinction coefficients are non-linear with respect to human perception of visual changes. The dv is derived from calculated light extinction, and is designed such that uniform changes in haze correspond approximately to uniform incremental changes in perception, across the entire range of conditions, from pristine to highly impaired (40 CFR Part 51.301).

Visibility Impairment "Cumulative Impact" Approach

The scope of the updated cumulative effects on visibility for the NorthMet Project Proposed Action was completed in essentially four general steps:

- Assess the IMPROVE data for Voyageurs National Park and the BWCAW to provide the current status of particulate air concentrations and haze index including a trends analysis where there is sufficient data. PM_{10} concentrations are used to assess particulate concentration trends.
- Assess available information from the Regional Haze State SIP that identifies emission sources and/or emission source regions as significant contributors to ambient air concentrations in the Class I areas located in Minnesota.
- Evaluate local, statewide, and national SO_2, NOx, and PM_{10} emissions and trends using existing emission inventory data.
- Evaluate the cumulative effects from the proposed projects based on the potential increases in SO_2, NOx, and PM_{10} emissions and concurrent reductions from current and reasonably foreseeable projects and the expected decrease in state and national emissions.

Analysis Boundaries

The following boundaries were identified to define the extent of the analysis for the visibility cumulative effects study:

- The timeframe for the trends analysis, both past and future.
- The timeframe for this analysis is 1990 to 2035.
- Other "reasonably foreseeable" actions to be assessed in addition to the NorthMet Project Proposed Action.

The following projects and actions are considered to be underway or "reasonably foreseeable":

- Proposed Projects:
  - Excelsior Energy, Mesaba Energy Project, Coal Gasification Power Plant;
  - Essar Steel Minnesota LLC (formerly Minnesota Steel Industries), Mining/Taconite/DRI/Steel Plant;
  - Essar Steel Minnesota LLC, Project Modifications;
  - Mesabi Nugget, Large Scale Demonstration Plant;
  - Mesabi Mining Project; Northshore Mining Company, Furnace 5 Reactivation Project;
  - NorthMet Mining Project;
  - Sappi Cloquet Plant Expansion;
  - UPM/Blandin Paper Mill Expansion, Project Thunderhawk;
  - U.S. Steel Keetac Expansion Project; and
  - United Taconite Green Production Project.
- Emission Reduction Projects:
  - Hill Wood Products major modification amendment;
  - Minnesota Power Taconite Harbor Energy Center Unit 2, Emission Control Modifications;
  - Minnesota Power Laskin Energy Center Unit 2, NOx Reductions;
  - Minnesota Power Boswell Energy Center Unit 3;Northshore Mining Company: BART Reductions;
  - U.S. Steel Minntac BACT Reductions; and
  - United Taconite BART Reductions.
- Regulatory and other actions:
  - Implementation of the CSAPR (40 CFR parts 52.1240-1241); and
  - Implementation of the Regional Haze Rule and BART Rule.
- On-road mobile source programs:
  - Fuel blending standards; and
  - Tier II/Low-sulfur gasoline.
- Non-road mobile source programs:

- Control of emissions from unregulated non-road engines;
- Locomotive/marine engine reductions;
- Non-road diesel rule; and
- Updates and additions to the NAAQS for SO_2, NO_2, $PM/PM_{2.5}$, and ozone, including 1-hour NO_2 and SO_2 standards.

Geographic Area that May be Affected ("Zone of Impact")

The "zone of impact" is defined as the area of concern to be evaluated for potential cumulative effects due to the above-listed actions. Based on the scope defined in the SDD for the NorthMet Project Proposed Action, the selected zone of impact is defined as Voyageurs National Park and the BWCAW. Voyageurs National Park is primarily located in St. Louis County, while the BWCAW encompasses parts of St. Louis, Lake, and Cook counties.

Assessment of Existing Conditions

An assessment of the baseline visibility conditions for Minnesota's Class I areas is based on monitoring data from the IMPROVE program. Monitor sites from both the BWCAW (monitor ID: BOWA1) and Voyageurs National Park (monitor ID: VOYA2) were included in the analysis. The IMPROVE website (http://vista.cira.colostate.edu/improve/Default/htm) along with the Visibility Information Exchange Web System (VIEWS) (http://vista.cira.colostate.edu/views/Web/Data/DataWizard.aspx), provide ambient air concentrations for particulate speciated by chemical and relative humidity data. Although another site collected data at Voyagers National Park (VOYA1), it was not used in the trend analysis due to a lack of continuous measurements and change in monitoring location, a comparison with VOYA2 was made. The VIEWS website provides the total light extinction coefficient from aerosol measurements and relative humidity.

Minnesota achieved its modeled 34 percent emissions reduction goal for total SO_2 emissions (2002-2018) by 2008, and saw a 61 percent reduction by 2011. Minnesota achieved a 38 percent emissions reduction in total NOx emissions by 2011, nearly reaching its entire (2002-2018) modeled emissions reduction goal of 41 percent. Based on this, the MPCA has determined that its existing, USEPA-approved Regional Haze SIP (the 2009 Regional Haze SIP and the 2012 Regional Haze SIP Supplement) is adequate to meet the requirements of the Regional Haze Rule and to ensure achievement of the established reasonable progress goals for Minnesota's Class I areas. The plan requires no further substantive revision to achieve established goals for visibility improvement and emissions reductions.

Natural, local, state, national, and international emission sources contribute to visibility impairment in Minnesota's Class I areas. Minnesota's Regional Haze SIP recognizes that the main states that contribute to visibility impairment in Minnesota's Class I areas are Minnesota, Wisconsin, Illinois, Iowa, Missouri, and North Dakota. .

The Regional Haze SIP includes a modeling analysis of the potential contributions to light extinction for ammonium sulfate and ammonium nitrate on the 20 percent worst days by Minnesota and surrounding states for the projection year 2018 for BWCAW and Voyageurs National Park. The analysis indicates that Minnesota is the single largest contributor to visibility impairment at approximately 30 percent. The remaining 70 percent of the estimated contribution

is from surrounding states such as Iowa, Illinois, and Wisconsin, as well as other distant areas. Northeast Minnesota sources make up approximately 50 percent of the contribution of visibility impairment coming from Minnesota (MPCA 2009a) or about 15 percent of the total from all sources.

6.2.7.9 Summary of Emission Trends

Table 6.2.7-4 shows the estimated potential emissions of SO_2, NOx, and PM_{10} from each of the proposed projects included in this analysis. Concurrent emission reductions are provided for comparison to the emissions estimated for the proposed projects. Proposed projects were included only if they were not operating for most of 2009. This cutoff date was chosen since the monitoring and emission inventory data used to assess the past or existing conditions includes information up to 2009. Any sources not operating during most of 2009 were not included in the analysis of the existing conditions and therefore need to be considered in the assessment of future cumulative effects.

Emissions of both NO_x and SO_2 have been reduced in northeast Minnesota by reductions from power generation facilities. However, both power generation facilities and the mining facilities contribute to visibility impairment in the area. As discussed in the *Background on Regional Haze* section above, the MPCA currently has a Regional Haze SIP goal to reduce combined NO_x and SO_2 emissions from northeast Minnesota from 2002 levels by 30 percent by 2018. Current MPCA estimates indicate that emission reductions at power generation facilities and additional reasonably foreseeable projects in northeast Minnesota are not enough to meet the current Regional Haze SIP goal; however, they are on track to meeting the reduction goal. Therefore, additional mitigation or reductions may be necessary.

Even though there is a net increase in PM_{10} for all the proposed projects combined, direct PM_{10} emissions are not considered to be a concern for visibility impairment in the BWCAW or Voyageurs National Park as described in Minnesota's Regional Haze SIP (MPCA 2009a).

Table 6.2.7-4 Maximum Potential SO_2, NO_x, and Particulate Emissions from the Proposed Projects in the Six-County Project Area CEAA in Comparison to Emission Reductions

Project	City/County	SO_2 (tpy)	NO_x (tpy)	PM_{10}[18] (tpy)	BACT/ MACT[18]
Increases					
Excelsior Energy, Mesaba Energy Project[1]	Taconite or Hoyt Lakes, St. Louis or Itasca County	1,390	2,872	532	Yes
Mesabi Nugget LSDP[2]	Hoyt Lakes, St. Louis County	417	955	587	Yes
Mesabi Mining Project[3]	Hoyt Lakes, St. Louis County	7	298	1,260	Yes
Essar Steel Minnesota LLC (formerly Minnesota Steel)[4]	Nashwauk, Itasca County	421	1,505	1,354	Yes
Essar Steel Minnesota LLC Project Modifications[5]	Nashwauk, Itasca County	146	-69	-90	Yes
Northshore Mining Company, Furnace 5 Reactivation[6]	Silver Bay, Lake County	56	200	149	Yes

Project	City/County	SO_2 (tpy)	NO_x (tpy)	PM_{10}[18] (tpy)	BACT/ MACT[18]
PolyMet Mining, NorthMet Project[7]	Hoyt Lakes, St. Louis County	40	473	1,186	No
Sappi Cloquet[12]	Cloquet, Carlton County	1	162	29	Yes
UPM/Blandin Paper Mill Expansion, Project Thunderhawk[8]	Grand Rapids, Itasca County	213	169	-7	Yes
U. S. Steel Keewatin, Keetac, Expansion[9]	Keewatin, Itasca and St. Louis County	81	35	1,284	Yes
United Taconite Green Production Project[13]	Forbes, St. Louis County	35	35	-10	No[13]
Total Increases		2,807	6,635	6,274	--
Reductions					
Minnesota Power Taconite Harbor Energy Center Unit 2, Emission Control Modifications for SO_2, NO_x, and Mercury[11]	Schroeder, Cook County	-1,549	-423	--	--
Minnesota Power Laskin Energy Center Unit 2, NO_x Reductions[10,11]	Hoyt Lakes, St. Louis County	0	0	--	--
Minnesota Power Boswell Energy Center Unit 3[(11)]	Cohasset, Itasca County	-4,224	-6,372	--	--
U. S. Steel Minntac BACT Reductions[15]	Mtn. Iron, St. Louis County	--	-1,973	--	--
Hill Wood Products[14]	Cook, St. Louis County	--	--	-14	--
Northshore Mining Company: BART Reductions[11,17]	Silver Bay, Lake County	-583	-1,159	--	--
United Taconite BART Reductions[11,17]	Forbes, St. Louis County	-1,954	--	--	--
Total Reductions		-8,310	-9,927	-14	--
Net Reductions/Increase		**-5,503**	**-3,292**	**6,260**	--

Notes:

1 Emission estimates (Phase I and Phase II) based on emissions used in the air quality analysis in the draft EIS (USDOE and MDC 2007), website: http://nepa.energy.gov/documents/EIS-0382_Mesaba_FEIS_Vol_1.pdf. Accessed on May 5, 2011.

2 Mesabi Nugget's Proposed Large Scale Demonstration Plant (LSDP): No crushing/grinding at the site; receive concentrate from offsite. Technical Support Document for MPCA permit 13700318-003. Included in Northeast Minnesota Plan Project Tracking for MPCA SIP, version 1-20-2011.

3 Preliminary emission estimates Barr Engineering, as of 1/29/2011.

4 Baseline emission from Potential to emit from Technical Support Document for Minnesota Steel (MPCA permit #06100067-002).

5 Project modifications preliminary emission estimates Barr Engineering, emission estimate from EI Spreadsheet submitted to MPCA on 4/5/2011.

6 Northshore Mining's Furnace 5 Project: reactivating two crushing lines, nine concentrating lines, one pellet furnace (Furnace 5); new sources emissions only (MPCA permit #07500003-003). Although construction for the project was completed prior to the January 1, 2009 cut-off date for this analysis, due to plant turnaround and current demand, the furnace has not yet operated at a capacity reflecting the expected increase and is therefore included in this evaluation.

7 PolyMet Mining's Proposed Facility: crushing/grinding of ore, reagent and materials handling, flotation, hydrometallurgical processing, mobile emissions. Emission estimates from Barr 2012r (RS57).

8 Net Emission Increase from Blandin Project Thunderhawk MPCA permit #06100001-009. No change in emissions for -010 or -011. Note that this project was not built.

[9] U.S. Steel Keetac Mine, and Keetac (Keewatin) mine expansion and restart of taconite processing line – preliminary emission calculations, Barr Engineering. Submitted to MPCA in May 2011 permit application. NOx emission increase is from the baseline actual emissions used to determine PSD applicability. Although there would be a small increase in actual emissions, there would be a decrease in the allowable emissions.

[10] Minnesota Power completed installation of the Low NOx burner system project in Spring 2010. Although actual 2009 emissions already show reductions in excess of the anticipated reductions from 2002 levels, additional reductions are expected to result from the use of the low NOx burners in 2010 and future years. A reduction of zero is used in this analysis because the actual future restrictions are unknown.

[11] Emission estimates provided by the MPCA from the "Northeast Minnesota Plan Emission Tracking Spreadsheet" 1-20-2011. Reductions are the estimated reduction from 2002 emissions minus any reduction in actual emissions that has occurred between 2002 and 2009.

[12] Net emission change estimates from final EAW dated 5/1/2009. Plant expansion, new paper machine, new boiler.

[13] United Taconite Green Production Project – Involves fuel changes and improvements to concentrator and the Line 1 pellet plant to increase pellet production and was a PSD minor project. Because it was a PSD minor project, specific considerations for BACT/MACT were not required. However, the Line 1 pellet plant has an existing wet scrubber to control particulate and SO_2 emission, Emissions estimates are taken from the Technical Support Document of Permit Number 13700113-005 authorizing the project on August 19, 2010.

[14] Net emissions increase from TSD of Air Emission Permit No. 13700030-003.

[15] Reductions calculated based on data in "US Steel Minntac Line 7 Low NOx Main Burner Final Testing Report", May 13, 2011 of 3,990 ton per year goal for NOx emissions and the 2009 actual emissions provided in the MPCA "Northeast Minnesota Plan Emissions Tracking Spreadsheet" 1-20-2011.

[16] PM_{10} emissions estimates include stationary and fugitive emissions for all sources at a facility.

[17] The MPCA RH SIP is still being reviewed by the USEPA for approval including the recommended BART determinations for affected facilities. Actual BART requirements are pending discussions with the MPCA and have not yet been implemented.

[18] Abbreviations: tpy = tons per year
BACT = Best Available Control Technology
MACT = Maximum Achievable Control Technology
SO_2 = sulfur dioxide
PM_{10} = particulate matter less than 10 micrometers in size
NO_x = nitrogen oxides
NA = not applicable

6.2.7.9.1 Summary of Visibility Cumulative Effects Analysis

The following items outline the results and environmental consequences of the 2011 Visibility Class I Study and newly released IMPROVE data:

1. **Visibility progress:** Both of Minnesota's Class I areas have seen improvements in worst-day visibility conditions. Minnesota has achieved the reasonable progress goal for Voyageurs, and excluding the effects of the 2011 Pagami Creek Wildfire, would be expected to do so for Boundary Waters. The MPCA reported the measured progress towards meeting the 2018 RPG at Voyageurs and Boundary Waters (MPCA 2014h). IMPROVE data currently exists through 2014; the FEIS goes through 2010. The MPCA used data through 2013 in their recent 5-year progress report (MPCA 2014h). The 5-year trends in the FEIS are sensitive to the baseline and end date selected and hence are of limited value. Since visibility is impaired at all Class I areas, the trend must go down to achieve the goals of the regional haze program. The appropriate question is whether the visibility measurements are going down at a fast enough pace; therefore, the appropriate comparison is to the glide slope.

2. **Sulfate and Nitrate Particles Are Largest Contributor to Visibility Impairment.** Ammonium sulfate, ammonium nitrate, and organic carbon matter particulates are the largest contributors to visibility impairment in both Class I areas. The ammonium sulfate and nitrate are due to emissions of SO_2 and NO_x, respectively.

3. **Overall Emissions Decreases in Pollutants that are Precursors to Sulfate and Nitrate Particulates.** When the emissions from the proposed projects in northeast Minnesota are viewed together with the concurrent emission reduction projects of SO_2 and NO_x from power generation facilities in northeast Minnesota, there is a net decrease in emissions of both pollutants in the six-county area of northeast Minnesota. As noted in the Environmental Consequences section above, current MPCA estimates indicate that emission reductions at power generation facilities and additional "reasonably foreseeable" projects in northeast Minnesota are not enough to meet the current Regional Haze SIP goal. Therefore, additional mitigation or reductions may be necessary to reach the 2018 goal.
4. **30 Percent of Visibility Impairment Due to Minnesota Emissions and 70 Percent Due to Out-of- State Emissions**. Predictive modeling done in support of the Minnesota Regional Haze SIP shows that Minnesota sources are expected to contribute approximately 30 percent of the visibility impairment at Minnesota's Class I areas and approximately 14 percent of the visibility impairment at Isle Royale (MPCA 2009a). Of the visibility impairment in the Minnesota Class I Areas, Northeast Minnesota sources contribute about half of the total from Minnesota sources or 15 percent overall. The remainder is likely due to sources in other states and Canada. Emissions from Minnesota are the single largest contributor to regional haze at its own Class I areas.
5. **Net Effect from Proposed Projects.** The net effect from the proposed projects, the voluntary reductions of power generation facilities, and the foreseeable regulatory actions shown in Table 6.2.7-2 would likely reduce emissions of SO_2 and NO_x in Minnesota. However, as addressed above, the MPCA has developed Regional Haze SIP goals to reduce combined NO_x and SO_2 from 2002 levels. The reduction is 20 percent by 2012 and 30 percent by 2018. Based on current projections including the NorthMet Project Proposed Action, the reductions addressed in this section are not projected to be enough to meet the 2018 goal. The reductions would be enough to meet the 2012 goal.

In the event that additional emission reduction measures are required by the MPCA to meet Regional Haze SIP goals, emissions from the NorthMet Project Proposed Action may be included for reduction consideration through the MPCA's Regional Haze Rule and permitting programs.

6.2.7.10 Climate Change

As noted in Section 5.2.7, and in this cumulative effects assessment, the construction and operation of the NorthMet Proposed Action would emit gases known to contribute to global climate change. For an in-depth discussion of global climate change, please refer to the Keetac Project EIS published in 2010 (MDNR and USACE 2010). That EIS's cumulative effects assessment provided an exhaustive discussion of the state of scientific knowledge and policy framework regarding global climate change and has been incorporated by reference to this EIS as background information provided by the CEQ regulations (40 CFR 1502.21).

The Keetac EIS found the following:

- Global GHG emissions increased by about 19.6 percent between 1990 and 2004;
- U.S. GHG emissions increased by about 17 percent between 1990 and 2007; and
- Minnesota GHG emissions (for all economic sectors) increased by about 16.2 percent between 1990 and 2006.

It should be noted that for the global figure, a portion of the increase in GHG emissions can be attributed to deforestation and biomass decay. Nevertheless, these numbers show a definite increasing trend in anthropogenic sources of GHGs, which the IPCC has determined is contributing to an increase in global temperatures (MDNR and USACE 2010).

As noted in Section 5.2.7, the NorthMet Proposed Action would directly produce approximately 196,342 mtpy of GHG. Table 6.2.7-5 shows the amount of GHG that the NorthMet Proposed Action would produce in comparison to global, national, and Minnesota GHG emissions. It shows that the NorthMet Proposed Action's direct GHG emissions would be several orders of magnitude lower than total global, national, and even statewide GHG emissions.

Table 6.2.7-5 Greenhouse Gas Emissions

	Total GHG Emissions (million mtpy)	Proposed Action GHG Emissions as a Proportion of Total
Global	49,000	0.00038%
National	7,282	0.0026%
Minnesota	159.4	0.12%
NorthMet	0.1963	

Source: Barr 2012l.

Given the minor GHG contribution of the NorthMet Proposed Action to global GHG emissions, it is impossible to predict how much the NorthMet Proposed Action would factor into climate change, as noted in the Keetac EIS on Page 5-35. In general, increased GHG emissions from the NorthMet Project Proposed Action contribute to a cumulative adverse effect on the earth's climate. Based on the science available, there is the potential that climate change could have a significant effect on terrestrial and aquatic systems and economies worldwide. However, determining the significance of any single project is beyond the capabilities of current science.

6.2.7.11 Potential Cumulative Inhalation Risk Assessment

A cumulative risk assessment was conducted to assess the estimated potential cumulative inhalation risk to a potential resident receptor which included background, non-Project air emissions. Potential projects considered for inclusion in the cumulative risk analysis were those within about 10 kilometers (about 6 miles) of the NorthMet Project Proposed Action and included the Mesabi Mining Project for particulate metals and NO_2 and the Minnesota Power Laskin Plant for NO_x.

A summary of the maximum estimated potential cumulative inhalation risk to a potential resident receptor from background exposure (calculated by the MPCA from ambient air monitoring data), non-NorthMet Project Proposed Action air emissions (Mesabi Mining Project and the existing Minnesota Power Laskin Plant), and NorthMet Project Proposed Action air emissions (the incremental risk estimated from the Mine Site and the Plant Site) are summarized in

Table 6.2.7-6. The estimated cumulative risk is compared to the incremental risk guideline values for a single facility or project, since there are no guideline values for cumulative risk, and is intended to provide a broad context for reviewing the results.

The potential incremental risk from the NorthMet Mine Site and Plant Site together contribute about 57 percent of the estimated potential cumulative acute risk. Total cumulative inhalation acute risk does not exceed the incremental acute risk guideline value of one. Potential incremental risk from the NorthMet Mine Site and Plant Site accounts for only 7 percent of the estimated potential total cumulative chronic noncancer risk. Potential cumulative noncancer chronic risks do not exceed the incremental chronic noncancer guideline value of one and are predominately from risks based on monitored background air concentrations. Potential incremental risk from the NorthMet Mine Site and Plant Site accounts for only 9 percent of the estimated potential total cumulative cancer risk (4E-05). Cancer risk from monitored background air concentrations (3E-05) is greater than the incremental cancer risk guideline value of 1E-05, thus cumulative risk is also above this value.

Table 6.2.7-6 Summary of Cumulative Inhalation Risks

Estimated Potential Inhalation Risk[1]	Cancer	Noncancer Chronic	Noncancer Acute
Background[2]			
Ambient Air (calculated by MPCA)	3E-05	1	0.4
Laskin Energy Center	NA	NA	0.01
Total Background	3E-05	1	0.4
Incremental[3]			
Mine Site and Plant Site	3E-06	0.1	0.6
Mesabi Mining Project	NA	0.1	0.03
Total Incremental	3E-06	0.2	0.6
Cumulative[4]			
Total Cumulative Inhalation Risk	4E-05	1	1
Report Calculated Values as Percentages	9	7	57

Source: Supplemental Air Emission Risk Analysis – Plant Site (Barr 2013j).

Notes:
[1] The maximum potential cumulative risk represents the highest risk from the four receptors evaluated in the supplemental analysis for the Plant Site (Barr 2013j).
[2] Background risks were calculated by the MPCA based on MPCA 2008-2010 monitoring data from Virginia, Ely and Cloquet.
[3] As per USEPA (2005) HHRAP guidance, all reported risk values are rounded to one significant digit. Totals, however, are calculated from unrounded values (i.e., two or more significant figures) and may differ from the value obtained by adding the rounded values shown in the table.
[4] LSDP = Large-Scale Demonstration Plant (Mesabi Nugget).

6.2.8 Noise and Vibration

As described in Section 5.2.8, there would be a long-term increase in the levels and duration of noise above ambient levels throughout the construction, operation, and reclamation period in the vicinity (approximately half-mile radius) of the Mine Site (approximately 11,456 acres affected) and Plant Site (approximately 568 acres affected). The total noise modeling results presented in Table 5.2.8-7 include sources from the Mine Site and Plant Site (NorthMet Project Proposed Action) plus baseline noise levels in the region, which includes existing noise sources from past and present actions near the NorthMet Project area such as Northshore Mine and Mesabi Nugget Plant (formerly Mesabi Nugget Phase I).

There are no other past, present, or reasonably foreseeable actions within the half-mile radius of the Mine Site and Plant Site that would interact in such a way as to have a cumulative effect on the receptors identified in Sections 4.2.8 and 5.2.8. Therefore, adverse cumulative noise and vibration effects are not expected on nearby sensitive receptors (residences/dwelling places, recreational sites, cultural sites) due to the distance of the NorthMet Project Proposed Action from the closest reasonable foreseeable action, Mesabi Mining Project (formerly Mesabi Nugget Phase II) (approximately 2 miles west of the Plant Site and 10 miles west of the Mine Site). Other reasonable foreseeable projects in the region are 25 to 55 miles away from the NorthMet Project Proposed Action and, as such, would have no cumulative effect on nearest receptors (see Figure 6.1.1-1 and Table 6.1.1-1). As indicated above, other past and present actions are already accounted for in the baseline or ambient levels. Actual noise and vibration source terms from future projects such as the Mesabi Mining Project were not publicly available, and contour maps for such future projects were not provided. It should be noted that even if noise and vibration source terms for the Mesabi Mining Project were available, such contour maps would not be expected to overlap with the NorthMet Project noise and vibration contours due to the distance between both projects (i.e., considering the rapid decay of sound with increased distance [6 decibel decrease per doubling of distance] and attenuation from individual mine pit walls [i.e., as the pits become deeper] and dense foliage [Superior National Forest]).

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6.2.9 Cultural Resources

The cumulative effects analysis for cultural resources focuses on past, present, and reasonably foreseeable future effects on historic properties and 1854 Treaty resources. This section provides a qualitative, and quantitative where appropriate and feasible, analysis of cumulative effects on historic properties eligible for listing on the NRHP, as well as 1854 Treaty resources. The approach to the analysis of cumulative effects on historic properties and 1854 Treaty resources has been informed through discussions and consultation between the Co-lead Agencies and the Bands.

6.2.9.1 Approach

Cumulative effects on cultural resources were assessed by evaluating the effects of the NorthMet Project Proposed Action in conjunction with other past, present, and reasonably foreseeable future federal, state, and private actions within the CEAA for cultural resources. The cumulative effects on cultural resources are described below in Section 6.2.9.2. The baseline conditions of cultural resources, as directly and indirectly affected by past actions, are described in Section 4.2.9, and direct and indirect effects from the NorthMet Project Proposed Action are described in Section 5.2.9.

Assessment of effects on cultural resources is done specific to the cultural resources identified within the CEAA. Although cultural resources surveys have been conducted within the Project area, no cultural resource surveys for the entire CEAA have been completed.

Cultural resource surveys are conducted on a project-by-project basis reflective of an individual project area. For cumulative effects analysis areas, generally the areas are too large and expansive to warrant a Section 106 equivalent cultural resources field survey. In such cases, therefore, a cumulative effects analysis is performed using a qualitative analysis of the cumulative effects analysis area for comparison purposes.

Section 4.2.9 provides background information on existing conditions as a result of field surveys and investigations within the APE of the NorthMet Project Proposed Action; however, there is no similar level of data specific to the entire CEAA to allow an impact assessment comparable to the one found in Section 5.2.9. Instead, data on cultural resources located within the CEAA that were previously recorded at the SHPO and the USFS were gathered and compiled in Section 6.2.9.4.1. These data included publically available information related to NEPA and NHPA analysis of potential impacts on cultural resources from other current and future projects within the CEAA. These data, along with the data presented in Section 4.2.9, were used to determine what cultural resource types are typically found within the CEAA. In turn the cumulative effects on cultural resources were analyzed qualitatively according to the cultural resource types typically found within the CEAA.

Cultural resources may be destroyed by erosion, construction, excavation, data collection, and looting; through the removal of artifacts from their surrounding contexts, moving the material such that it loses context; or through the removal or redeposition of artifacts and their surrounding context to another location. Cultural properties—including camps, structures, hunting and fishing sites, graves, and areas of particular religious or traditional importance—lose their integrity, and thus their potential eligibility for the NRHP, when they become degraded as a result of natural or human disturbance processes, or when the groups, such as the Ojibwe Bands,

who value these places, can no longer access them, thus losing their cultural connection to the site or place over time.

The determination of effects for cultural resources is based on a resource's eligibility for inclusion on the NRHP. It should be noted that the NRHP status of some cultural resources within the CEAA remain undetermined, and surveys would be required to determine if these resources would be eligible for inclusion in the NRHP. Effects on cultural resources listed in the NRHP, considered to be eligible for listing in the NRHP, or identified but unevaluated would be avoided or mitigated to the degree practicable as required by Section 106 of the NHPA of 1966 during implementation of federal undertakings. For all cultural resources listed in the NRHP, considered to be eligible for listing in the NRHP, or unevaluated, avoidance would continue to be the preferred mitigation strategy. For any historic properties unavoidably and adversely affected by a proposed project, mitigation measures would be developed as part of a Treatment Plan for that project.

In determining how the Bands have traditionally conducted their usufructuary rights on or near the NorthMet Project area, interviews of individual Band members of Bois Forte, Fond du Lac, and Grand Portage were conducted. Only the results of interviews with Bois Forte were made available. These interviews yielded little specific information concerning both recent-historic and contemporary use of natural resources by the Bands in the NorthMet Project area. This likely reflects limited subsistence gathering in the NorthMet Project area due to general inaccessibility. This lack of data also precludes the quantitative analysis of how Band members would be affected socioeconomically by effects on 1854 Treaty resources, as discussed in Section 5.2.10. The primary source of data for assessing effects from the NorthMet Project Proposed Action on 1854 Treaty resources is from the analysis of the environment discussed in detail in Section 4.2.9 of this EIS.

6.2.9.2 Cumulative Effects Assessment Area

The NorthMet Project Proposed Action's CEAA for cultural resources is described below, both spatially and temporally.

6.2.9.2.1 Spatial

The CEAA for cultural resources is defined as the area of the Mesabi Iron Range that is within the 1854 Ceded Territory (see Figures 6.1.1-1 and 1.1-1). The area has been limited to the Mesabi Iron Range as it is a definable region encompassing the region's mining, which represents the largest and most influential land use within a reasonable distance from the NorthMet Project area. Additionally, the area is further limited to the 1854 Ceded Territory as it is an area of cultural importance to the Bands.

At various times during consultation for the NorthMet Project Proposed Action, the Bands have proposed using an expanded area for analysis of cumulative effects on cultural resources and natural resources of significance to the Bands, including use of the 1854 Ceded Territory as the CEAA. The Co-lead Agencies believe that the use of the 1854 Ceded Territory as the CEAA for cultural resources would actually diminish the significance of any cumulative effect. By evaluating the effects of the NorthMet Project Proposed Action along with other past, present, and reasonably foreseeable future projects in the context of a much larger area with a much larger number of resources similar to those affected by the NorthMet Project Proposed Action,

the effect of the NorthMet Project Proposed Action on those resources is diminished. The cumulative effects analysis focuses on the specific resources, or types of resources, affected by the NorthMet Project Proposed Action within an area that is geographically meaningful considering the resource and project under review. For these reasons, the Co-lead Agencies believe that the CEAA used in this section is appropriate for this analysis.

6.2.9.2.2 Temporal

This evaluation includes a qualitative discussion of land use and public resource management developments within the 1854 Ceded Territory since the development and use of timber/mineral resources began as a result of European settlement in the area, from roughly the 1850s on.

6.2.9.3 Cumulative Actions

This assessment includes direct and indirect cumulative effects on cultural resources associated with current and foreseeable actions listed below. The following current and reasonably foreseeable projects, described in Section 6.1.1.2, are included in the cumulative effects assessment for cultural resources:

- ArcelorMittal Deposits (Laurentian and East Reserve Deposits);
- ArcelorMittal Mines Push-Back Project;
- Community growth and development;
- Forestry practices (regional);
- LTV Steel Mining Company Former LTVSMC Pits;
- Mesaba Energy Project – West Range Site;
- Mesabi Mining Project;
- Mesabi Nugget;
- Mining Resources (Austin Powder Basin, Corsica Basin, Skubic Basin, and Sherman Basin);
- Minnesota Department of Transportation Highway 53 Relocation;
- Northshore Mine;
- Northshore Mine Ultimate Pit Progression Project;
- U.S. Steel Minntac Mine and Processing; and
- U.S. Steel Minntac Mine Extension Project.

6.2.9.4 Cumulative Effects Assessment

The NorthMet Project Proposed Action would result in both direct and indirect effects on historic properties and culturally important resources. Some of the historic properties affected by the NorthMet Project Proposed Action are part of a thematically related group of properties associated with Ojibwe land use patterns, while others could be thematically grouped by their relation to historic mining and development in Northern Minnesota. Cumulative effects on

natural resources of cultural significance to the Bands are addressed in more detail in the specific natural resources sections and are only summarized in this section.

Cumulative effects on historic properties may be both direct and indirect and result in the physical loss of properties or changes to location, setting, design, materials, craftsmanship, feeling, or associations. Similar to the analysis of the direct and indirect effects of the NorthMet Project Proposed Action, analysis was conducted for the cumulative effects on historic properties and natural resources of significance to the Bands. Cumulative effects were assessed by evaluating the effects of the NorthMet Project Proposed Action with other past, present, and reasonably foreseeable future federal, state, tribal, and private actions.

6.2.9.4.1 Cultural Resources Previously Recorded within the CEAA

There have not been comprehensive cultural resource surveys of the defined CEAA in its entirety. However, data on cultural resources located within the CEAA that were previously recorded at the SHPO and the USFS were gathered and compiled below. These data, along with the data presented in Section 4.2.9, were used to determine the known cultural resources within the CEAA and what cultural resource types are typically found within the CEAA. In addition to the quantative information that was available for analysis, the cumulative effects on cultural resources were also analyzed qualitatively according to the cultural resource types typically found within the CEAA. Also considered was the nature of some of the properties affected (i.e., thematic groups of properties), and the geographically extensive nature of some specific properties affected.

Archaeological Resources

Two archaeological sites have been previously recorded outside the NorthMet Project Proposed Action APE, but within the CEAA.

Site 21SL0457, the Jackson Site, consists of a sparse pre-contact-period lithic scatter identified on the surface of a ridgetop just west of US Highway 53 between Eveleth and Midway, Minnesota. The lithic material identified at the site appeared to be some form of taconite. Subsurface investigation of the site was not carried out as part of the 1995 site documentation. The site has not been evaluated for inclusion in the NRHP.

Site 21SL1128, the Staff Family Farmstead Site, consists of a cellar depression, two outbuilding foundations, a milk house, an isolated concrete pad, a root cellar, a stone-bordered depression, a well house depression, a surface dump, and an artifact scatter. The early 20th century farmstead is located within a general upland in Nichols Township, Minnesota. The site was recommended to be potentially eligible for listing in the NRHP per the *Historic Context Study of Minnesota Farmsteads, 1820-1960* for its association with the agricultural development of the Cutover Region of Minnesota and under Criterion D for its potential to yield important information regarding the agricultural development of St. Louis County.

Architectural Resources

Research indicates that 174 architectural properties and two historic districts have been previously inventoried outside the NorthMet Project Proposed Action APE, but within the CEAA.

The NRHP-Eligible Mountain Iron Mining Landscape Historic District comprises 10 properties and sites representing a system of open-pit natural ore mines, rail corridors, and other features associated with the early development of the Mesabi iron range between 1892 and 1909. The Mountain Iron Mining Landscape Historic District is located within the incorporated limits of the City of Mountain Iron.

The NRHP-Listed Virginia Commercial Historic District consists of 103 buildings, three vacant lots, and a clock tower. The district is located adjacent to Chestnut Street between 1st Avenue and 6th Avenue in the City of Virginia and reflects the city's main historical industries—mining and logging.

The majority of the architectural properties previously inventoried within the CEAA consists of residential structures, commercial and industrial buildings, mining-related developments, government facilities, and infrastructure-related improvements such as bridges and railroads. Of the 174 architectural properties previously identified within the CEAA, 31 are listed or eligible for listing in the NRHP. An additional 57 architectural properties, which have not been evaluated for listing in the NRHP or have been designated not eligible for listing in the NRHP, have been deemed locally significant.

6.2.9.4.2 Past Actions

The Ojibwe called the hills *Missabe*, the "sleeping giant"—land that lay undisturbed for millennia until the demand for iron drew prospectors to the area in the 1800s. On the Mesabi Range, stretching 100 miles from Grand Rapids to Babbitt, soft ore lay close to the surface, where it could be scooped from open pit mines. Prospectors came to Lake Vermilion in the 1860s to search for gold (Lamppa 2004). It was the discovery of iron ore on the Vermilion Range, however, that led vast tracts of land to be purchased (Risjord 2005). Explorations in 1890 by the Merritt brothers of Duluth—known as the "Seven Iron Men"—laid the groundwork for their Mountain Iron Mine, which marked the opening of the great Mesabi Range. Their second mine, opened at Biwabik in 1891, secured the Mesabi Range's future legacy in rich hematite ore. The Merritt brothers' railroad, the Duluth, Mesabi & Northern, carried its first carload of ore in 1892 to ore docks in Superior, Wisconsin, across the bay from Duluth, itself a major shipping port (Minnesota Historical Society 2008). A decade later, the Mesabi Range boasted over 100 open pit mines. From 1900 to 1980, the Mesabi Range contributed about 60 percent of the country's total iron ore output. Production peaked in the 1940s, when about 600,000,000 tons were shipped to serve the nation's needs during World War II. Production remained high in the 1950s, and then began to decline. It had taken less than 100 years for industrial demand to deplete the supply of high-grade ore (Risjord 2005).

In addition to the mining industry, thick forests of pine, fir, spruce, cedar, birch, and aspen covered much of what is now the Mesabi Range when the first Europeans arrived in Northern Minnesota. In the early 1860s, sawmills in Duluth, Superior City (modern-day Superior), and Beaver Bay found a growing market for timber, shipping lumber to other towns on the Lake and beyond. By 1870, there were 207 saw mills in Minnesota. In 1877, a law allowing sale of timber off state lands further opened the state for logging. The logging boom had tapered off by the early 1900s (Risjord 2005).

Both the mining and logging industries would forever change the relatively pristine environment that existed at the time of contact between Native Americans and Europeans in the mid-1600s.

The historic effects of these industries, prior to the development of historic preservation legislation in the 1960s (i.e., prior to NHPA), occurred with little analysis of cultural resource effects. Areas logged (such as past forestry practices), mined (such as the LTVSMC), roaded (such as past road construction and expansion projects), or otherwise subjected to extensive ground disturbance (such as past community growth and development) resulted in undocumented and unregulated effects on cultural resources. Cultural properties tend to degrade over time due to natural forces; however, many survive for hundreds or thousands of years. Modern human activity tends to exacerbate the damage and as a consequence cultural resources are being damaged and disappearing at an increasing rate. The CEAA exhibits effects as a result from modern use of the land. Cultural resources are likely to have sustained damage from previous mining, logging, road construction, recreation, wildfires and erosion resulting from these activities. Although difficult to quantify, the paucity of artifacts at some sites may be due to removal by artifact collectors.

Many specific use areas exist, or have existed, along the *Mesabe Widjiu.* Throughout the length of the Mesabi Iron Range, which includes a large portion of the *Mesabe Widjiu*, the setting and associated use areas have been affected by alterations to the landscape brought about by mining, community growth, road construction, and logging. Use of the *Mesabe Widjiu* and surrounding areas has changed as past development mines expanded and consumed areas once used by the Ojibwe. The setting of the *Mesabe Widjiu* and the association of the use areas and trails with the *Mesabe Widjiu* contribute to its significance.

As discussed in Section 4.2.9, an interconnected system of trails along the *Mesabe Widjiu* was documented in the 19th century GLO surveys. Past mining operations have directly affected the setting in many locations where this trail system was historically documented.

Historic documentation and oral history, as demonstrated through the Band member interviews conducted for the NorthMet Project Proposed Action, document Ojibwe occupation and use of the area throughout the CEAA. The Bands have ancestral ties to the CEAA and the Trygg Maps document a trail system and occupation sites at the time of the United States GLO surveys in the mid-to-late 1800s. Landscapes such as the *Mesabe Widjiu* are part of Ojibwe oral history and traditional practices. From the signing of treaties in the 19th century to the expansion of mining operations today, mining activities in the Mesabi Iron Range likely have had substantial cumulative effect on historic properties of traditional religious and cultural significance to the Ojibwe Bands; however, the details concerning these effects are not well understood.

To address cumulative effects related to historic properties associated with taconite mining, the period that is most relevant to cumulative effects runs from 1957 (Initiation of Erie activities within the CEAA) to the present day. The concentrator building, railroads, and the majority of contributing structures were built in present form between 1957 and 1958. These structures and transportation features continued to be used in the industrial taconite process through 2001, when LTV idled activities at the Mine Site. The properties remained relatively unaltered throughout this period of use; however, there were regular periodic upgrades, maintenance, and engineering system improvements. Given the dynamic and evolving nature of mining landscapes, certain features were created, utilized, and subsequently abandoned throughout the 50-odd years of taconite mining. Mine Area No. 2, for example, was opened in 1957, but eventually merged with Mine Area No. 3 sometime after 1970. Concurrent with this evolving landscape is the movement of transportation infrastructure such as railroads and access roads, which typically have a dynamic and shifting use-life. The Erie/LTVSMC Tailings Basin is another mining feature that

evolved extensively from 1957 through 2001. The spatial massing, height, and footprint of this particular feature changed regularly while mining was occurring, and its current form is vastly different than that during the period of significance for Erie. Following LTVSMC's bankruptcy in 2001 and idling of the mine site, the vast majority of the structures were deactivated, and the system railroads were not used. Cliffs Erie continued to provide site security, but maintenance activities were not known to have occurred. PolyMet acquired options to the Plant Site through Cliffs Erie in 2005/2006. Outside of general maintenance to the Administration Building, PolyMet has not initiated any notable maintenance or rehabilitation projects in the APE. The pelletizer building was demolished in 2007, though it is the only structure from Erie's period of significance that has been removed.

6.2.9.4.3 Current and Future Actions

Known or newly identified cultural resources, as part of current and future projects, are evaluated for their eligibility for listing on the NRHP based on their integrity at the time of documentation and evaluation. The combination of the implementation of an Unanticipated Discovery Plan (minimizing effects on unknown cultural resources that may be inadvertently encountered), as well as associated mitigation measures, and/or a Treatment Plan would mitigate cumulative effects on cultural resources. As discussed in Sections 4.2.9 and 5.2.9, identified cultural resources would be evaluated and avoided or minimized to the degree practicable as required by Section 106 of the NHPA during implementation of the NorthMet Project Proposed Action. Although continued current development could affect cultural resources, considerations such as these conducted through the NEPA and NHPA processes would help to mitigate many of the effects caused by currently proposed projects. However, cumulative effects on cultural resources could include reasonably foreseeable incremental effects in the form of unauthorized artifact collection and inadvertent disturbance in the CEAA caused by increased human activity.

The following current and reasonably foreseeable projects have the potential to effect cultural resources: ArcelorMittal Mines, Essar Steel Project, Mesabi Nugget and Mesabi Mining Project, Northshore Mine, and U.S. Steel Minntac Project. Generally, these types of large mining and energy projects could have similar types of direct and indirect effects (e.g., physical disturbance; introduction of visual, atmospheric, or audible elements; change in character; etc.), although how they affect the significance of a given cultural resource (i.e., the reason for its potential eligibility in the NRHP) could be different. It is important to note that, while the Mesaba Energy projects are outside of the CEAA, they are located immediately adjacent to it. Because many historic properties of traditional religious and cultural significance are not as readily documented for the cultural resources practitioner and the physical boundaries of properties, such as *Mesabe Widjiu*, for example, generally consist of a subjective boundary-based social, cultural, or traditional perceptions or perspectives of the property, these projects were included within the CEAA for analysis purposes. Larger categories of current and future regional projects, such as forestry practices, road construction and expansion projects, and community growth and development would not generally be expected to have unmitigated adverse impacts to historic properties due to the requirements of Section 106 of the NHPA for federal undertakings and various other local and state historic preservation requirements. There could be effects to historic properties, however, due to projects occurring on private lands where no local, state, or federal permits are required.

Landscape properties can be exposed to a number of potential direct and indirect effects. Not all effects to a landscape property, such as *Mesabe Widjiu*, would result in an adverse effect. For instance, larger landscape properties may allow for changes in landscape to a non-contributing portion of the property or minor changes to the landscape or setting. Factors to consider would include the scale of the landscape, the prominence of the affected elements, the magnitude of the proposed project, and the permanency of the change.

For large-scale natural landscapes, such as the *Mesabe Widjiu*, the relationship of landscape characteristics and integrity is complex, as discussed in Section 4.2.9 and 5.2.9. As is the case in Northern Minnesota, the compatibility of the *Mesabe Widjiu* and historic and modern mining presents change, an inescapable part of any landscape. In the case of the *Mesabe Widjiu*, direct impacts can come from new construction or incompatible land uses, such as modern logging, mining, growth or development of commercial or residential areas, transportation construction, or other activities that reshape the land or disturb significant aspects of the landscape.

For the *Mesabe Widjiu*, setting is an essential component of its use by Band members. Once pristine in nature, peacefulness and solitude contribute to its cultural significance as a traditional and sacred location. Indirect effects outside the *Mesabe Widjiu's* boundaries can constitute intrusions when such changes introduce incompatible visible, audible, or atmospheric elements. Ultimately, such effects could result in an interruption in the continuity of its historic integrity or use. More directly, changes in land ownership or segregation of the landscape or a specific use area could result in inaccessibility for Band members to experience the property for the very factors that made it eligible.

In the case of Native American trails, anticipated direct and indirect effects would come in the form of continuing segmentation and disassociation of once-related sites and resources. In particular, changes to the trail system due to expanded mining operations, would also have residual effects on this and potentially other cultural resources. Visual effects on these trails would also continue indefinitely and are considered to be cumulative, as well. There would also be continued cumulative visual intrusions (shape of the landscape) and noise effects on this type of cultural resource, as the NorthMet Project Proposed Action and other current and future projects are visible along the trails.

Direct and indirect effects on the Spring Mine Lake Sugarbush and other more finite historic properties of traditional religious and cultural significance would be similar to those described above for the *Mesabe Widjiu* and Native American trails. In addition to those mentioned above, effects could result from increases in human access leading to subsequent disturbance (e.g., looting, vandalism, and trampling) of historic properties and features. These effects could result from the establishment of corridors or facilities in otherwise intact and inaccessible areas, or increased human access. Additionally, historic properties with natural resources components, such as the Spring Mine Lake Sugarbush, could be exposed to other indirect effects such as those related to water, air, and invasive species.

Additionally, within the CEAA, there are significant historic mining properties that have structural components. Reuse of the Erie Mining Company Concentrator Building as part of the NorthMet Project Proposed Action is an example of a known mining property that would be affected within the CEAA. A mining landscape still being worked may retain integrity if modern extraction methods and character are similar to those practiced historically, important physical elements remain, and comparable properties are less intact. Continued use of a property also may

destroy it, such as modern mining, which obliterates all traces of earlier mining activity. Continued mining on the Mesabi Iron Range has and would continue to eliminate, or alter, the landscape or structures resulting from prior mining activity, which may qualify for the NRHP. This is a cumulative effect of mining on historic mining properties that is inherent in the mining industry itself.

The NorthMet Project Proposed Action has essentially provided a temporary reprieve in demolition and site reclamation activities required by *Minnesota Rules*, part 6132.3200, which calls, among other remediation activities, for the removal of mining equipment, facilities, railroad tracks and ties (not required by common carriers), and structures. This administrative rule is applicable to the other Erie infrastructure, and is cited here for review purposes:

> *Minnesota Rules*, part 6132.3200 CLOSURE AND POSTCLOSURE MAINTENANCE, Subpart 2, E(4). Within three years after closure begins, or within a longer period if approved by the commissioner, the following shall be accomplished:
>
> (b) permittee-owned power plants and associated facilities except public utilities, transmission lines, pipelines, docks and associated facilities, and railroads except common carrier transportation facilities shall be removed or provisions made for continued subsequent use; and
>
> (c) all other equipment, facilities, and structures shall be removed and foundations razed and covered with a minimum of two feet of surface overburden.

PolyMet would be required to implement a closure and remediation plan for the Mine Site in the event of permitting. Specific language regarding the removal of structures and features is available in Section 3.2.2.3.12. Given the requirements for closure pursuant to *Minnesota Rules*, part 6132.3200, it is reasonable to assume that all buildings and structures not approved for potential future use within the APE of the NorthMet Project Proposed Action that are considered to be contributing to the overall Erie Mining Landscape Historic District would be demolished and reclaimed after the 20-year mining period.

The Co-lead Agencies are working with the consulting parties on the terms of an MOA resolving adverse effects to historic properties. It is anticipated that the MOA will include resolution measures that mitigate potential cumulative effects on these properties. The MOA will be executed and the NHPA process will be completed prior to the Co-lead Agencies' issuance of Records of Decision.

6.2.9.4.4 1854 Treaty Resources

Given the broad range of resources under the term "1854 Treaty resources," the reader should reference the appropriate natural resource sections for detail regarding cumulative effects on specific natural resources of concern.

As discussed in Section 5.2.9.2.2, the NorthMet Project Proposed Action would have effects on 1854 Treaty resources, that is, those plant and animal species that are traditionally or culturally important to the Bands. Band members' use of the NorthMet Project area, and the entire CEAA, is not well-defined through research, and did not emerge through interviews. Noise and other consequences of operations could affect migration or other animal species behavior. The NorthMet Project Proposed Action could affect the availability or use of 1854 Treaty resources

for some Band members through real or perceived factors, as discussed further in Section 5.2.9.2.2.

Construction and operation of the NorthMet Project Proposed Action and other past, present, and reasonably foreseeable future projects are not likely to reduce overall availability of 1854 Treaty resources that are typically part of subsistence activities in the 1854 Ceded Territory. As with the NorthMet Project Proposed Action itself, some individuals and localized populations may be affected by other projects in the CEAA, but overall species populations are expected to remain available. Effects on the environment, including those from increased mercury, are all expected to meet the standards and regulations set forth by the appropriate state or federal agency or program. These laws are intended to protect important natural and cultural resources and include but are not limited to the ESA, the CWA, and the CAA. Cumulative effects on 1854 Treaty resources are difficult to quantify when the effects are within environmental standards yet above current baseline conditions. As such, cultural effects on the Bands would be difficult to quantify in regards to such incremental increases below standards or effects on species where appropriate mitigation is used. However, it is anticipated that current and future projects would mitigate for potential effects on 1854 Treaty resources.

6.2.10 Socioeconomics

Socioeconomics includes demographic characteristics of population, employment, income, market composition, public finance, housing, public services, and the economic characteristics of subsistence activities. The cultural aspects of subsistence, specifically for Native American populations, are discussed in the Cultural Resources section of Chapter 5. Individual subsistence products (e.g., wild rice, game animals, etc.) are discussed in appropriate resource-specific sections.

The assessment found that, while the NorthMet Project Proposed Action and other past, present, and reasonably foreseeable future actions would generate economic activity within the CEAA, the combined actions would not cause cumulative socioeconomic effects.

6.2.10.1 Approach

As discussed in Chapter 5, many of the socioeconomic effects of the NorthMet Project Proposed Action—such as increased population, housing demand, and effects on public facilities and services—are functions of the jobs and revenue that the NorthMet Project Proposed Action would create, as modeled using IMPLAN. Conclusions in this analysis were drawn using readily available data for the cumulative actions under consideration and IMPLAN estimations for the NorthMet Project Proposed Action.

Evaluation of socioeconomic cumulative effects is based largely on the number of new full-time (or full-time equivalent) jobs created by operation of the cumulative actions. While specific factors may vary, other socioeconomic effects (earnings, value added, demand for housing and community services, etc.) are presumed to vary proportionally with employment changes.

6.2.10.2 Cumulative Effects Assessment Area

6.2.10.2.1 Spatial

The CEAA for socioeconomics includes effects associated with the NorthMet Project Proposed Action, combined with other industrial (including mining) projects located within the portion of the Mesabi Iron Range encompassed by St. Louis, Lake, and Cook counties (see Figure 6.2.10-1). As with the NorthMet Project Proposed Action (see Section 5.2.10), iron, taconite, and precious metal mining in the Mesabi Iron Range have helped to define the region's socioeconomic conditions for decades. While mining activity has decreased greatly from its peak in the middle of the 20th century, it remains an important economic factor.

Tourism and other economic activity associated with the region's high-quality recreation and natural areas (such as BWCAW) are also important economic and land use drivers. These economic contributions are based largely on socioeconomic preferences (e.g., retirees choosing to live in the region to be close to recreational resources), rather than definable projects or activities. The CEAA for socioeconomics includes many of the largest and most important recreational and tourist resources in northeastern Minnesota.

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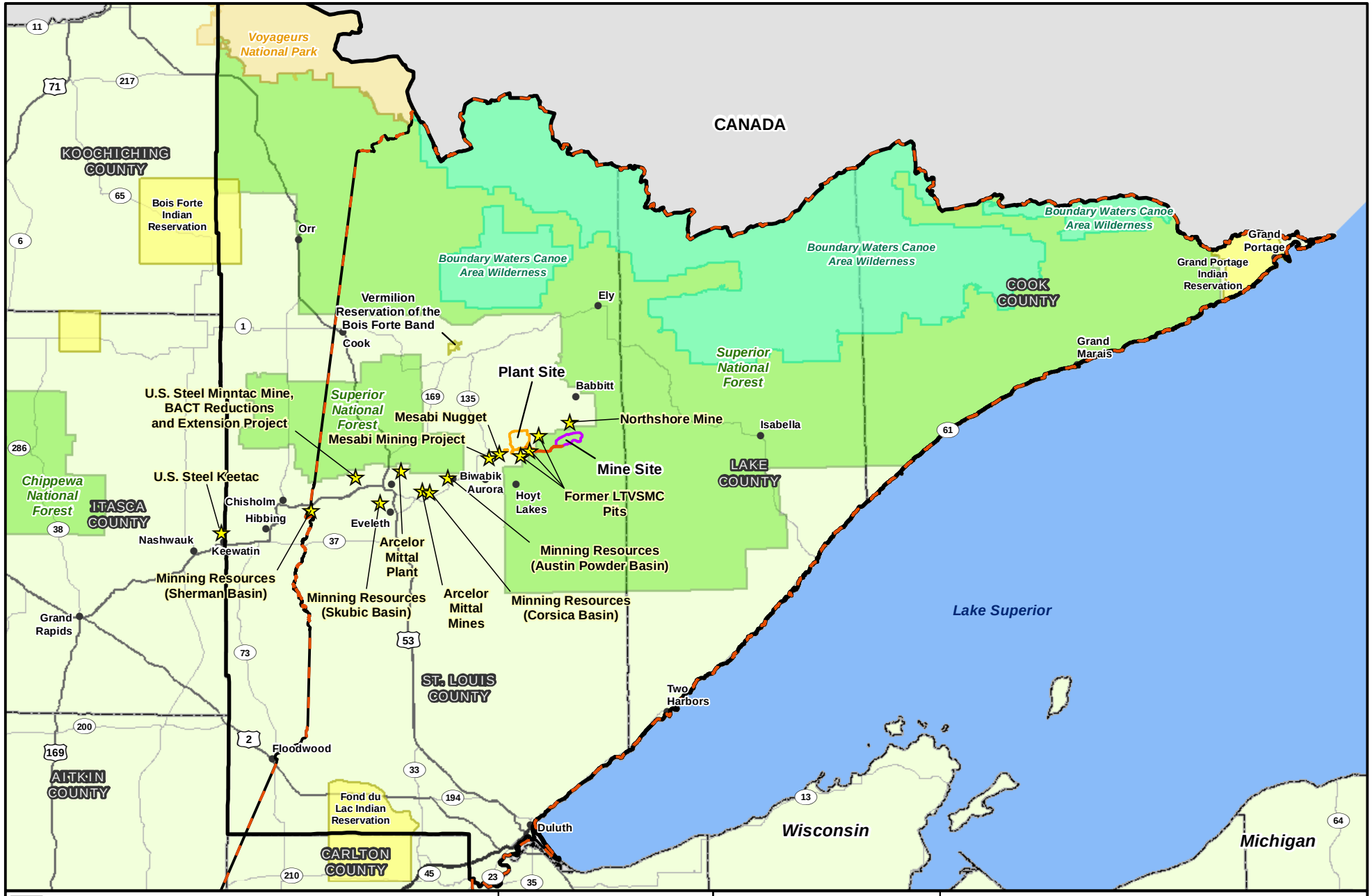

Figure 6.2.10-1
Socioeconomics Cumulative Effects Assessment Area
NorthMet Mining Project and Land Exchange FEIS
Minnesota

November 2015

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6.2.10.2.2 Temporal

This evaluation focused on the existing and anticipated future use of the CEAA. Because mining and public resource management (including recreation and natural resource tourism) have been the primary drivers defining regional socioeconomic development within the CEAA for over 100 years, existing conditions are considered indicative and representative of historical mining and resource management activities.

6.2.10.3 Past, Present, and Reasonably Foreseeable Future Actions

For the purposes of this assessment, cumulative actions are those current and permitted mine projects located in the portion of the Mesabi Iron Range within St. Louis, Lake, and Cook counties. The socioeconomic effects of the region's recreation and tourism resources are discussed in Section 5.2.10, and no specific cumulative actions or activities related to these resources have been identified. These projects, described in Section 6.1.1.2, are listed below.

- ArcelorMittal Deposits (Laurentian and East Reserve Deposits);
- ArcelorMittal Deposit Push-Back;
- LTV Steel Mining Company Former LTVSMC Pits;
- Mesabi Mining Project;
- Mesabi Nugget;
- Mining Resources, (Austin Powder Basin, Corsica Basin, Skubic Basin, and Sherman Basin;
- Northshore Mine;
- Northshore Mine Ultimate Pit Progression Project;
- U.S. Steel Keetac Mine (Keewatin);
- U.S. Steel Minntac Mine;
- U.S. Steel Minntac Extension Project; and
- United Taconite Mine Expansions.

The locations of these actions relative to the NorthMet Project Proposed Action are shown on Figure 6.2.10-1.

6.2.10.4 Cumulative Effects Assessment

Table 6.2.10-1 summarizes the anticipated cumulative effects of the NorthMet Project Proposed Action and cumulative actions. Existing studies, approved NEPA documents, and other information about the cumulative actions did not include detailed economic modeling—such as the IMPLAN model conducted for the Proposed Action. As shown in Table 6.2.10-1, these existing documents do estimate direct employment from some of the cumulative actions, but there are no substantive data or estimates of output and value added (as defined in Section 5.2.10.1). As a result, much of the analysis in this section is largely qualitative in nature.

Table 6.2.10-1 Summary of Socioeconomic Cumulative Effects

Project	Temporal Scale	New Direct Employment	
		Construction	Operation
NorthMet Project Proposed Action[1]	Future	764	360
ArcelorMittal Mines (Laurentian and East Reserve Deposits)	Present	0	0
ArcelorMittal Deposit Push Back	Reasonably Foreseeable	Undetermined	Undetermined
Mesabi Nugget	Present	Undetermined	Undetermined
Mesabi Mining Project[3]	Reasonably Foreseeable	250	220
Mining Resources, Austin Powder Basin	Reasonably Foreseeable	Undetermined	Undetermined
Mining Resources, Corsica Basin	Reasonably Foreseeable	Undetermined	Undetermined
Mining Resources, Skubic Basin	Reasonably Foreseeable	Undetermined	Undetermined
Mining Resources, Sherman Basin	Reasonably Foreseeable	Undetermined	Undetermined
Northshore Mine	Present	0	0
Northshore Mine Ultimate Pit Progression Project	Reasonably Foreseeable	Undetermined	Undetermined
U.S. Steel Keetac Mine (Keewatin)[4]	Present	500	170
U.S. Steel Minntac Mine[2]	Present,	Undetermined	0
U.S. Steel Minntac Mine, Extension Project[2]	Reasonably Foreseeable	Undetermined	0
United Taconite Mine expansions	Reasonably Foreseeable	Undetermined	Undetermined
Total, Cumulative Projects Only		**750**	**390**

Notes:
1 Operations employment reflects typical year of operations.
2 U.S. Steel announced in March that it will temporarily idle these operations due to low iron ore prices (Coyle 2015). Analysis assumes they are in full operation.
3 Indicates the maximum typical construction employment.
4 Reflects peak of 4-year construction period.

Construction of the above-mentioned projects would generate approximately 750 new jobs directly in the CEAA (in addition to jobs associated with projects whose employment needs are undetermined), one percent of the total existing study area employment. Given the timing of these projects, the effects are likely to be experienced across different geographies over time.

The operational phases of the cumulative actions would generate approximately 390 new jobs in the CEAA (in addition to jobs associated with projects whose employment needs are undetermined), less than one percent of the area's total current employment. Including indirect and induced employment, this figure could triple (based on multipliers associated with the NorthMet Project Proposed Action), resulting in approximately 1,170 total new jobs. Added to the NorthMet Project Proposed Action, cumulative effects on employment could surpass 1,934 total new jobs in the three-county study area.

Earnings and value added from the cumulative actions would likely be generated at a similar rate (per new employee) to the NorthMet Project Proposed Action. Therefore, it is estimated that the economic contribution of the cumulative actions, together, would likely match (and could exceed) that of the NorthMet Project Proposed Action.

Demand for housing and public services due to the cumulative actions would also likely match that of the NorthMet Project Proposed Action, although these demands would likely occur in cities and towns not evaluated in Section 5.2.10, such as Mountain Iron, Chisholm, and cities in other counties to the west, which would be in commuting distance to the cumulative actions, but that are not within commuting distance of the NorthMet Project Proposed Action. As of 2011, there were approximately 700 vacant, non-seasonal housing units in Itasca County (as well as 6,900 seasonal units, some of which could conceivably be converted or marketed for full-year use).

As with the NorthMet Project Proposed Action, some portion of these new employees are likely to already be residents of the CEAA, while some indirect and induced jobs may be filled by spouses or children of cumulative project employees. By comparison, St. Louis and Itasca counties have approximately 245,000 residents and 130,000 housing units (vacant and occupied) (US Census Bureau 2010b). Increases in population and housing demand to the cumulative actions would likely represent less than one percent of these figures. Such increases would not likely strain overall service capacity in the region due to existing capacity (see Section 5.2.10), but could create localized pressures on housing markets or public service agencies.

The cumulative actions would all occur in areas already affected by mining and many are, in fact, expansions of previous mining projects. These projects are largely on private land already zoned or otherwise designated for such activities. While EJ effects could occur on properly zoned land, there is no evidence that these cumulative actions would generate EJ effects associated with economic factors.

Increases of mercury in waterbodies from the NorthMet Project Proposed Action are discussed in Section 5.2.2.3.4, and cumulative increases are discussed in Section 6.2.2.4 and Section 6.2.6.3.3. Cumulative increases in mercury concentrations and the resultant increased mercury concentrations in fish tissue could constitute an EJ impact for Band members and other subsistence consumers of fish. However, the AERA assessed health effects for recreational and tribal fishermen and their families consuming fish that could potentially contain elevated bioaccumulated levels of methylmercury. A potential small change in fish mercury concentration was estimated based on modelled emissions and deposition. The potential change in methylmercury concentration is not statistically measureable given variability in background concentrations and current laboratory analytical methods (Barr 2013j). Therefore, there is no expected change in fish mercury concentrations, and no subsequent change in human health risks related to fish consumption (see Section 5.2.7.2.5). Also, this information is summarized in Section 7.3.4.4.3 of the FEIS.

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6.2.11 Recreation and Visual Resources

The NorthMet Project Proposed Action (including the Mine Site, Transportation and Utility Corridor, and Plant Site), occupies 7,650.1 acres of land near Hoyt Lakes and Babbitt, in St. Louis County, Minnesota. This includes public lands in the Superior National Forest, as well as private lands within the municipal boundaries of Hoyt Lakes and Babbitt.

6.2.11.1 Approach

The cumulative actions are evaluated to determine whether they would directly affect recreational lands or activities, or whether they would cause direct or indirect changes in recreational patterns or views on a regional scale.

6.2.11.2 Cumulative Effects Assessment Area

6.2.11.2.1 Spatial

The CEAA for recreation and visual resources includes the portion of the Mesabi Iron Range within St. Louis County (see Figure 6.1.1-1). The Mesabi Iron Range encompasses the region's mining activity, which has the greatest potential to affect recreational resources and activities.

This analysis also recognizes the Arrowhead Region's substantial existing high-quality recreational resources, such as BWCAW, Voyageurs National Park, and Superior National Forest. Changes in recreational activity associated with these sources are typically associated with socioeconomic preferences (e.g., increased population and/or changes in recreational preferences and patterns).

6.2.11.2.2 Temporal

This evaluation focused on existing and anticipated future activities that would affect recreation and visual resources within the CEAA. Existing conditions are considered indicative and representative of historical mining and resource management activities. Some additional qualitative consideration has been given to the pre-historic viewshed conditions documented by regional tribes in their cultural and religious teachings.

6.2.11.3 Contributing Past, Present, and Reasonably Foreseeable Actions

As noted previously, it is not possible to identify all past activities that may contribute to a cumulative effect. Similarly, all present activities would continue to affect the environment. The impacts of these combined activities are described in Chapter 4, Affected Environment. Activities included with the NorthMet Project Proposed Action for the assessment of cumulative effects are shown on Figure 6.1.1-1 and described in Section 6.1. Activities specifically associated with potential cumulative effects on recreation include permitted mines and other projects in portions of the Mesabi Iron Range in St. Louis County where future activities would likely be different from current activities. These projects include:

- ArcelorMittal Deposits (Laurentian and East Reserve Deposits);
- ArcelorMittal Deposit Push-Back;
- Mesabi Mining Project;

- Northshore Mine Ultimate Pit Progression Project;
- U.S. Steel Keetac Mine; and
- U.S. Steel Minntac Mine, Extension Project.

6.2.11.4 Cumulative Effects Assessment

The cumulative actions described in Section 6.2.11.3 are largely existing, expanded, or reconfigured mines on private land, totaling approximately 2,650 acres. Sources for the data regarding cumulative actions include MDNR and USACE 2007, USDOE and MDC 2007, and MDNR and USACE 2010.

6.2.11.4.1 Recreation

None of the cumulative actions would directly affect recreational lands such as local or state parks. The public's enjoyment of recreational activities in the region—such as hunting, fishing, boating, hiking, and winter sports—is tied in part to visual resources, as well as to factors such as the availability and quality of fish and other aquatic species, vegetation, and wildlife (particularly game species), noise, air quality, water quality, and wetlands. Direct and indirect effects on these resources are presented in their respective sections in Chapter 5.

The cumulative actions would all occur on or in close proximity to existing or previously mined land. Excluding effects related to noise, fisheries, air quality, and other effects described elsewhere in Chapters 5 and 6, and given the proximity of active and past mining and industrial activity to high-quality recreational activity in the Arrowhead Region (such as the BWCAW), there is no evidence that the activities associated with the NorthMet Project Proposed Action, in and of themselves, would directly affect the public's overall ability to hunt, fish, and conduct other recreational activities, or affect their overall recreational experience in the Arrowhead Region as a whole.

6.2.11.4.2 Visual Resources

Changes in visual conditions associated with the cumulative actions are expected to be comparable to those described for the NorthMet Project Proposed Action in Section 5.2.11.2.1. Whereas portions of the NorthMet Project Proposed Action would occur on previously unmined land, the mining-related cumulative actions would occur in areas where mine pits and processing facilities are already part of the visual landscape. After reclamation, the Northshore Mine Ultimate Pit Progression Project would introduce new visual elements to the mining area including: the construction of islands for bird habitat, areas for fish spawning, public access to the lake (post-closure) and flooding organic debris to aid in the initiation of biological productivity (MDNR 2014f).

6.2.12 Wilderness and Other Special Designation Areas

6.2.12.1 Approach

The Mine Site, Plant Site, and surrounding federal lands are not located within or adjacent to any wilderness areas, nor are there any special designation areas within or adjacent to the NorthMet Project area. For the purposes of analysis, the study area is an approximate 25-mile radius from the NorthMet Project area, as described below (see Figure 4.2.12-1).

For the purposes of this analysis, the term "wilderness" is defined by the Wilderness Act of 1964 (Public Law 88-577) (16 USC §1131–1136). Other special-designated areas (listed below) are identified by Presidential Designation, Congressional Designation, or Administrative Designation, and define lands that are considered to have remarkable ecological, paleontological, historic, scenic, recreational, geologic, or fish and wildlife value. They include wilderness areas, wilderness study areas, research natural areas, national scenic or historic trails, wild or scenic rivers, unique biological areas, national natural landmarks, national historic landmarks, and national monuments, among others. They fall under the management jurisdiction of the federal land management agencies, including the MDNR, USFS, National Park Service, and USFWS.

- Designated Wilderness Areas within the study area:
  - BWCAW – 25 miles north of the NorthMet Project area.
- National Park System Units near the study area:
  - Voyageurs National Park – 50 miles northwest of the NorthMet Project area.
- State Parks within the study area:
  - Soudan Underground Mine State Park – 18 miles west of the NorthMet Project area;
  - Lake Vermilion State Park – 16 miles northeast of the NorthMet Project area;
  - Bear Head Lake State Park – 11 miles northeast of the NorthMet Project area; and
  - Iron Range Off-Highway Vehicle State Park – 17 miles northeast of the NorthMet Project area.
- Established and Candidate Research Natural Areas (cRNAs) within the study area:
  - The Big Lake-Seven Beavers Area – 12 miles east of the NorthMet Project area;
  - Keeley Creek Natural Area – 25 miles northeast of the NorthMet Project area; and
  - Dragon Lake – 25 miles east of the NorthMet Project area.
- Unique Biological Areas (UBAs) within the study area:
  - Little Isabella River – 25 miles east of the NorthMet Project area; and
  - Harris Lake National Natural Landmark – 20 miles northeast of the NorthMet Project area.
- National Historic Landmarks within the study area:
  - Soudan Iron Mine –18 miles northwest of the NorthMet Project area.

- Scenic Byways within the study area:
  - Superior National Forest Scenic Byway – a portion of the road is 9 miles southwest of the NorthMet Project area.
- Designated Recreation Trails within the study area:
  - Taconite State Trail – a portion of the trail is 15 to 17 miles north of the NorthMet Project area.

The cumulative actions have been evaluated against Class I air modeling to determine potential visual effects of haze from the NorthMet Project Proposed Action.

6.2.12.2 Cumulative Effects Assessment Area

6.2.12.2.1 Spatial

The CEAA for Wilderness and Other Special Designation Areas includes effects associated with the Proposed Action and combined with other industrial (including mining) or public works projects located within the portion of the Mesabi Iron Range encompassed by St. Louis County (see Figure 6.1.1-1). While no direct effects on wilderness character are anticipated, there may be measurable indirect cumulative air effects associated with the NorthMet Project Proposed Action. The CEAA for assessment of potential air effects on designated wilderness and other designated areas is the boundary of measurable air effects identified in Chapter 5.

6.2.12.2.2 Temporal

This evaluation includes a brief discussion of documented air quality degradation in the designated areas since the establishment of these wilderness or other designated areas.

6.2.12.3 Contributing Past, Present, and Reasonably Foreseeable Actions

As noted previously, it is not possible to identify all past activities that may contribute to a cumulative effect. Similarly, all present activities would continue to affect the environment. The impacts of these combined activities are described in Chapter 4, Affected Environment. Activities included with the NorthMet Project Proposed Action for the assessment of cumulative effects are shown on Figure 6.1.1-1 and described in Section 6.1.1. Activities specifically associated with potential cumulative effects on wilderness and other special designated areas include permitted mines and other projects in the portions of the Mesabi Iron Range in St. Louis County where future activities would likely be different from current activities. These projects include:

- Mesabi Mining Project;
- Mesabi Nugget;
- LTV Steel Mining Company Former LTVSMC Pits;
- Minnesota Power Laskin Energy Center;
- Minnesota Power Taconite Harbor Energy Center Unit 2, Emission control modifications;
- Northshore Mine;

- Northshore Mining Company Furnace 5 Reactivation Project;Northshore Mine Ultimate Pit Progression Project;
- U.S. Steel Minntac; and
- U.S. Steel Minntac Mine Extension Project.

6.2.12.4 Cumulative Effects Assessment

The cumulative actions described in Section 6.2.12.3 are largely existing, expanded, or reconfigured mines on private land.

Based on the detailed visibility analysis presented in the Air Quality Section (6.2.7), even though there would be a net increase in PM_{10} from the cumulative actions, these emissions would not impair visibility in the BWCAW or Voyageurs National Park as described in Minnesota's Regional Haze SIP (MPCA 2009a).

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6.2.13 Hazardous Materials

As described in Section 4.2.13 and 5.2.13, transport, handling, management, storage, and disposal of hazardous materials are a site-specific issue, and any potential event would unlikely contribute to measurable cumulative impacts.

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6.2.14 Geotechnical Stability

This topic relates to the waste material storage facilities (Tailings Basin, waste rock stockpiles, and Hydrometallurgical Residue Facility). The stability of these facilities is guided by local geology and design (operation and maintenance) and would not interact with other similar facilities outside of the NorthMet Project area. Given the discrete nature of these facilities, it has been concluded that no cumulative geotechnical effects would occur as a result of the NorthMet Project Proposed Action.

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6.3 CUMULATIVE EFFECTS BY RESOURCE FOR THE LAND EXCHANGE PROPOSED ACTION

6.3.1 Land Use

The cumulative effects analysis for land use for the Land Exchange Proposed Action focused on potential changes in the land area and boundary length of the Superior National Forest; changes in land fragmentation (i.e., size of patches of federal and non-federal properties) that would occur that could affect USFS management of the forest; changes in the extent or types of designated land uses, as defined by management area designations, where known; and changes in the potential for additional lands open to public use.

6.3.1.1 Approach

This section compared the types of data presented in Sections 4.3.1 and 5.3.1, for each of the projects within the CEAA Land Exchange Proposed Action boundary. Projects within the CEAA Land Exchange Proposed Action boundary were evaluated based on the most current available Superior National Forest land ownership GIS data, as well as the other datasets used in the land use discussions in Sections 4.3.1 and 5.3.1.

6.3.1.2 Cumulative Assessment Boundary

The CEAA Land Exchange boundary for land use is described below, both spatially and temporally.

6.3.1.2.1 Spatial

The CEAA for Land Exchange effects on land use was the entire Superior National Forest.

6.3.1.2.2 Temporal

This evaluation focused on the existing and anticipated future use of the CEAA for the life of the NorthMet Project Proposed Action (approximately 40 years). This includes the approximate 15-year life of the Superior National Forest Plan, which would extend through approximately 2019. Because Superior National Forest was established in 1909, existing conditions are considered indicative and representative of historical resource management activities.

6.3.1.3 Cumulative Assessment

The cumulative assessment for the Land Exchange Proposed Action portion focused on the net increase or decrease of land ownership, boundary managed, fragmentation, and management areas. Effects were evaluated by comparing GIS shapefiles of the Superior National Forest before any exchanges or acquisitions to GIS shapefiles of the Superior National Forest after all cumulative actions and the NorthMet Project Proposed Action alternatives occur.

The cumulative actions would result in a net increase in lands within the Superior National Forest. All of the lands that would be acquired are within the 1854 Ceded Territory and would thus replace the Mine Site lands with an equal or greater number of acres available for traditional land use by the Bands. Table 6.3.1-1 shows the management area designations that would result from the cumulative actions.

Table 6.3.1-1 Potential Increase/Decrease of Management Area Allocations Occurring from the Cumulative Actions

	Existing Superior National Forest	Superior National Forest – Land Exchange Proposed Action Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange Alternative B Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange No Action Alternative but other Exchanges and Acquisitions	
Management Area[1,2]	**Acres**	**Acres**	**Net Increase (Decrease)[3]**	**Acres**	**Net Increase (Decrease)[3]**	**Acres**	**Net Increase (Decrease)[3]**
Eligible Wild, Scenic, and Recreational Rivers	32,298.8	32,339.5	40.7	32,339.5	40.7	32,339.5	40.7
General Forest	640,907.0	620,917.7	(19,989.3)	619,381.8	(21,525.2)	614,851.1	(26,055.9)
General Forest - Longer Rotation	411,825.7	400,805.7	(11,020.2)	402,052.3	(9,773.4)	406,519.2	(5,306.5)
Potential RNAs/cRNAs	19,006.8	19,296.8	290.0	19,296.8	290.0	19,006.8	(0.0)
Primitive Wilderness	300,786.3	334,046.5	33,260.2	334,046.5	33,260.2	334,046.5	33,260.2
Pristine Wilderness	114,380.0	124,370.4	9,990.4	124,370.4	9,990.4	124,370.4	9,990.4
Recreation Use in a Scenic Landscape	157,044.2	152,926.1	(4,118.1)	152,926.1	(4,118.1)	152,926.1	(4,118.1)
RNAs	3,170.1	3,170.1	0.0	3,170.1	0.0	3,170.1	0.0
Riparian Areas	17,893.5	18,081.2	187.7	17,859.8	(33.7)	17,859.8	(33.7)
Semi-primitive Motorized Recreation	68,733.6	64,595.9	(4,137.7)	64,595.9	(4,137.7)	64,595.9	(4,137.7)
Semi-primitive Motorized Wilderness	53,529.1	57,331.6	3,802.5	57,331.6	3,802.5	57,331.6	3,802.5
Semi-primitive Non-motorized Recreation	4,564.9	4,565.7	0.8	4,565.7	0.8	4,565.7	0.8
Semi-primitive Non-motorized Wilderness	343,149.2	381,092.9	37,943.7	381,092.9	37,943.7	381,092.9	37,943.7
UBAs	2,495.4	2,495.4	0.0	2,495.4	0.0	2,495.4	0.0
Unidentified	0.1	0.1	0.0	0.1	0.0	0.1	0.0
Total[4]	2,169,784.7	2,216,035.7	46,251.0	2,215,524.9	45,740.2	2,215,171.1	45,386.4

Notes:
1 See definitions of USFS management areas in Section 4.2.3.
2 Developed based off of Table 5.3.1-1.
3 Calculated as (Cumulative Action) minus (Existing Superior National Forest).
4 Totals may not match overall project area acreages due to rounding and/or due to inconsistencies in GIS data layers.

Table 6.3.1-2 summarizes the Superior National Forest boundary, acreage, and fragmentation involved in each of the cumulative actions.

Table 6.3.1-2 Potential Increase/Decrease of Superior National Forest Boundary, Acreage, and Fragmentation Occurring from the Cumulative Actions

	Existing Superior National Forest	**Superior National Forest – Land Exchange Proposed Action Plus other Exchanges and Acquisitions**		**Superior National Forest – Land Exchange Alternative B Plus other Exchanges and Acquisitions**		**Superior National Forest – Land Exchange No Action Alternative but other Exchanges and Acquisitions**	
		Acres	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**
Acreage in Superior National Forest controlled by USFS	2,171,603.9	2,217,701.2	46,097.3	2,217,197.7	45,593.8	2,216,831.0	45,227.1
Boundary length (linear miles)	10,054.8	9,185.9	(868.9)	9,207.1	(847.7)	9,215.2	(839.7)
Fragmentation (linear miles per acre)	0.005	0.004	(0.001)	0.005	0.0	0.004	(0.001)

The cumulative effects of the Land Exchange Proposed Action, Land Exchange Alternative B, and the Land Exchange No Action Alternative would all result in an increase to the federal estate by adding acreage to the 2,171,603.9 acres of USFS-managed land within the Superior National Forest. Furthermore, the cumulative actions would all result in net reduction of the perimeter around the USFS-managed portions of the Superior National Forest. Two of the three cumulative actions would slightly alter the existing ratio of fragmentation in the Superior National Forest of approximately 0.005 linear mile of boundary per acre of USFS-managed Superior National Forest land (see Table 6.3.1-2).

The Land Exchange and the cumulative projects would also include the following net land use effects:

- consolidation of federal ownership of land within Superior National Forest, specifically of land abutting Fall Lake, Gunflint Lake, and Little Gunflint Lake; land on Wolf Island; and 86,000 acres of currently designated school trust lands, resulting in decreased fragmentation and easier access by Forest Service managers;
- reduced mineral, residential, and commercial development potential within Superior National Forest and decreased conflict related to split surface and subsurface ownership;
- increased opportunities for public recreational use of stream and lake shorelines and semi-primitive non-motorized activities in the Superior National Forest;
- decreased opportunities for public recreational use of scenic landscapes and semi-primitive motorized activities in the Superior National Forest;
- contribution to local land use and economic goals such as growth and development of the Town of Crane Lake and School Trust Land revenue; and

- minimal net effect on land available for tribal use under the 1854 Treaty.

Land Exchange Alternative B would have similar effects, but to a lesser degree. Under the Land Exchange No Action Alternative, none of the effects described above would occur.

6.3.2 Water Resources

6.3.2.1 Surface Water

The cumulative effects analysis for water resources for the Land Exchange Proposed Action focused on the potential increases or decreases of water resources, including lakes, streams, and wild rice beds.

6.3.2.2 Approach

The cumulative projects were evaluated against water resources including the acreages and miles of shoreline for lakes, miles of public streams, and wild rice beds. This section evaluated the cumulative effects on water resources similar to those resources included in Section 5.3.2.

This section compared the types of data presented in Sections 4.3.2 and 5.3.2, but for each of the projects within the CEAA Land Exchange Proposed Action boundary. The GIS data obtained for the sections mentioned above were compared to projects within the CEAA Land Exchange Proposed Action boundary, and effects were determined based on this proximity. Specifically, NWI GIS data was used to determine the analysis.

6.3.2.3 Cumulative Effects Assessment Area

The project's CEAA Land Exchange Proposed Action boundary for water resources is described below, both spatially and temporally.

6.3.2.3.1 Spatial

The spatial boundary includes the Superior National Forest. The net increase or decrease of waterways that result from the Land Exchange Proposed Action and other cumulative actions have been examined in the context of the entire forest in Section 6.1.2.

6.3.2.3.2 Temporal

The temporal boundary includes the present through 2024 (the end of the second decade of the Forest Plan).

6.3.2.4 Cumulative Effects Assessment

The cumulative assessment for the Land Exchange Proposed Action portion focused on the net increase or decrease of water resources (acres/miles of shoreline for lakes, acreages of wild rice beds, and miles of streams). Effects were evaluated by comparing GIS shapefiles of the Superior National Forest before any exchanges or acquisitions to the Superior National Forest after all cumulative actions and alternatives occur.

Table 6.3.2-1 summarizes the amount and type of water resources in each of the cumulative actions.

Table 6.3.2-1 Potential Increase/Decrease of Water Resources Occurring from Cumulative Actions

Water Resource Types	Existing Superior National Forest	Superior National Forest – Land Exchange Proposed Action Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange Alternative B Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange No Action Alternative but other Exchanges and Acquisitions	
		Acres	Net Increase (Decrease)	Acres	Net Increase (Decrease)	Acres	Net Increase (Decrease)
Public Water Lakes, Acres	73,307.8	80,562.9	7,255.10	8,0574	7,266.20	80,456.7	7,148.90
Public Water Lakes, Miles of Shoreline	5,232.2	5,627.1	394.90	5,627.3	395.10	5,624.8	392.60
Public Water Streams, Miles	2,196.0	2,243.5	47.50	2,242.4	46.40	2,236.5	40.50
Wild Rice Beds, Acres	10,452.4	11,093.3	640.90[1]	11,093.3	640.90[1]	10,964.8	512.40

Notes:
Totals may not match overall Land Exchange area acreages due to rounding and/or due to inconsistencies in GIS data layers.
[1] Excludes area of wild rice stands in Pike River. Presence of wild rice in the Pike River, which runs through Little Rice Lake, was noted in Barr's surveys (2011a; 2012a; 2013l), but the area of rice was not calculated. The net increase in wild rice due to the Land Exchange Proposed Action is approximately 125 acres.

The Land Exchange Proposed Action, Land Exchange Alternative B, and Land Exchange No Action Alternative cumulative effects would all result in an increase to water resource areas, including wild rice within the Superior National Forest.

6.3.3 Wetlands

The cumulative effects analysis for wetlands for the Land Exchange Proposed Action focused on the potential increases or decreases of wetland acres and wetland types.

6.3.3.1 Approach

The cumulative projects were evaluated against wetland acres and wetland types. This section evaluated effects on wetland resources similar to Chapter 5.

This section compared the types of data presented in Sections 4.3.3 and 5.3.3, but for each of the projects within the CEAA Land Exchange Proposed Action boundary (see Section 6.1.2 and Figure 6.1.2-1). The GIS data obtained for the sections mentioned above were compared to projects within the CEAA Land Exchange Proposed Action boundary and effects were determined based on this proximity. Specifically, NWI GIS data was used to determine the analysis. Floodplain data for the CEAA Land Exchange Proposed Action boundary was not available for all areas; therefore, an analysis was not performed.

6.3.3.2 Cumulative Effects Assessment Area

The project's CEAA Land Exchange Proposed Action boundary for wetlands is described below, both spatially and temporally.

6.3.3.2.1 Spatial

The spatial boundary included the Superior National Forest. The net increase or decrease of wetland resources that result from the Land Exchange Proposed Action and other cumulative actions has been examined in context of the entire forest.

6.3.3.2.2 Temporal

The temporal boundary included the present through 2024 (the end of the second decade of the Forest Plan).

6.3.3.3 Cumulative Effects Assessment

The cumulative assessment for the Land Exchange Proposed Action portion focused on the net increase or decrease of wetland resources (acres of wetlands and acres of wetland types). Effects were evaluated by comparing GIS shapefiles of the Superior National Forest before any exchanges or acquisitions to the Superior National Forest after all cumulative actions and the NorthMet Project Proposed Action alternatives occur.

Table 6.3.3-1 summarizes the amount and type of wetland resources in each of the Cumulative Actions.

Table 6.3.3-1 Potential Increase/Decrease of Wetland Resources Occurring from Cumulative Actions

	Existing Superior National Forest	**Superior National Forest – Land Exchange Proposed Action Plus other Exchanges and Acquisitions**		**Superior National Forest – Land Exchange Alternative B Plus other Exchanges and Acquisitions**		**Superior National Forest – Land Exchange No Action Alternative but other Exchanges and Acquisitions**	
	Acres	**Acres**	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**
Net Change in Wetlands	532,851.2	545,633.1	12,781.9	544,976.7	12,125.5	544,461.8	11,610.6
Wetland Types							
Freshwater Emergent Wetland	35,852.6	37,480.1	1,627.5	37,469.0	1,616.4	37,450.5	1,597.9
Freshwater Forested/Shrub Wetland	427,440.8	433,733.4	6,292.6	433,074.7	5,633.9	432,697.0	5,256.2
Freshwater Pond	14,609.8	14,988.8	379.0	14,990.2	380.4	14,989.5	379.7
Lake	51,763.1	56,123.9	4,360.8	56,135.8	4,372.7	56,020.1	4,257.0
Other	38.2	38.2	0.0	38.2	0.0	38.2	0.0
Riverine	3,146.7	3,268.8	122.1	3,268.8	122.1	3,266.4	119.7

The cumulative effects of the Land Exchange Proposed Action, Land Exchange Alternative B, and Land Exchange No Action Alternative would result in an increase to wetland resource areas as well as wetland types.

6.3.4 Vegetation

The cumulative effects analysis for vegetation for the Land Exchange Proposed Action focused on potential increases or decreases of land cover types, landscape ecosystems, MBS Sites of Biodiversity Significance, and ETSC plant species. Other comparisons that cannot be fully made include MIH types, age classes, mature patches, RFSS plants, and invasive non-native species.

6.3.4.1 Approach

This section compared the types of data presented in Sections 4.3.4 and 5.3.4, but for each of the projects within the CEAA Land Exchange Proposed Action boundary. The GIS data obtained for the sections mentioned above were compared to projects within the CEAA Land Exchange Proposed Action boundary, and effects were determined based on this proximity. Specifically, GIS data were obtained from the MDNR regarding GAP land cover types and listed ETSC plant species within the NHIS database. Data were obtained from the USFS MIH types, forest stand age classes, landscape ecosystems, RFSS plants, and invasive non-native species.

6.3.4.2 Cumulative Effects Assessment Area

The CEAA Land Exchange Proposed Action boundary for vegetation is described below, both spatially and temporally.

6.3.4.2.1 Spatial

The spatial boundary includes the Superior National Forest. The net increase or decrease of vegetation categories mentioned below that result from the Land Exchange Proposed Action and other cumulative actions has been examined in context of the entire forest. For state-listed ETSC plant species and RFSS species, federal and non-federal lands proposed for exchange are also analyzed in ecological context of the subsection.

6.3.4.2.2 Temporal

The temporal boundary includes the present through 2024 (the end of the second decade of the Forest Plan). The Forest Plan establishes management objectives for the landscape ecosystems (Forest Plan pages 2-61 through 2-78) primarily for composition (forest type) and age class distribution. All of these may be subject to change in a future plan revision (post-2019), but the second decade would incorporate this timeframe.

6.3.4.3 Cumulative Effects Assessment

The cumulative assessment for the Land Exchange Proposed Action portion focused on the net increase or decrease of vegetation cover types, MIH types, age classes, mature patches, landscape ecosystems, ETSC plant species, RFSS plants, and invasive non-native species. For all analyses, effects were evaluated by comparing GIS shapefiles of the Superior National Forest before any exchanges or acquisitions to the Superior National Forest after all cumulative actions and the NorthMet Project Proposed Action alternatives occur.

6.3.4.3.1 Effect of Cumulative Actions on Gap Analysis Program Land Cover Types

Effects were based on a net increase or decrease basis of GAP land cover type acres after all cumulative actions and the Land Exchange Proposed Action alternatives occur (see Section 6.1.2.2 for details on the Land Exchange actions) (see Table 6.3.4-1).

Table 6.3.4-1 Potential Increase/Decrease of GAP Land Cover Types Occurring from Cumulative Actions

	Existing Superior National Forest	Superior National Forest – Land Exchange Proposed Action Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange Alternative B Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange No Action Alternative but other Exchanges and Acquisitions	
Cover Types	**Acres**	**Acres**	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**
Aquatic environments	90,559.8	95,622.6	5,062.7	95,634.7	5,074.9	95,403.0	4,843.1
Cropland/ Grassland	8,639.8	8,205.8	(434.0)	8,210.2	(429.6)	8,187.0	(452.8)
Disturbed	3,599.5	3,203.2	(396.3)	3,252.2	(347.3)	3,286.1	(313.4)
Lowland coniferous forest	288,212.4	293,756.6	5,544.2	293,147.1	4,934.6	293,659.1	5,446.7
Lowland deciduous forest	9,303.4	9,342.2	38.8	9,336.3	32.9	9,324.3	20.9
Shrubland	239,549.4	241,123.3	1,573.9	241,151.4	1,601.9	239,870.6	321.2
Upland conifer-deciduous mixed forest	94,636.8	100,879.5	6,242.8	100,832.0	6,195.3	100,843.2	6,206.4
Upland coniferous forest	443,125.9	459,302.8	16,176.9	459,318.2	16,192.2	460,151.6	17,025.6
Upland deciduous forest	993,698.8	1,005,960.5	12,261.7	1,006,011.0	12,312.2	1,005,801.6	12,102.8
Total[1]	2,171,325.9	2,217,396.6	46,070.7	2,216,893.1	45,567.1	2,216,526.4	45,200.5

Notes:
[1] Totals may not match overall project area acreages due to rounding and/or due to inconsistencies in GIS data layers.

Under all cumulative Land Exchange scenarios (i.e., Land Exchange Proposed Action and all other exchanges and acquisitions, Land Exchange Alternative B and all other exchanges and acquisitions, and Land Exchange No Action Alternative with all other exchanges and acquisitions), there would be a decrease in disturbed areas and cropland/grassland cover types on the Superior National Forest. There would be an increase to the Superior National Forest of aquatic environments, lowland coniferous forest, lowland deciduous forest, shrubland, upland conifer-deciduous mixed forest, upland coniferous forest, and upland deciduous forest.

Generally, the effects of the Land Exchange Alternative B would be less pronounced than those of the Land Exchange Proposed Action since less land would be exchanged, but all other exchanges and acquisitions would continue.

6.3.4.3.2 Effect of Cumulative Actions on Landscape Ecosystems

Effects were based on a net increase or decrease basis of landscape ecosystem acres (see Table 6.3.4-2).

Table 6.3.4-2 Potential Increase/Decrease of Landscape Ecosystems Occurring from Cumulative Actions

	Existing Superior National Forest	Superior National Forest – Land Exchange Proposed Action Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange Alternative B Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange No Action Alternative but other Exchanges and Acquisitions	
Landscape Ecosystem	**Acres**	**Acres**	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**
Dry-Mesic Red and White Pine	257,939.5	256,649.1	(1,290.4)	256,555.3	(1,384.2)	255,980.8	(1,958.7)
Jack Pine-Black Spruce	869,304.9	918,260.1	48,955.2	918,913.2	49,608.2	920,153.5	50,848.6
Lowland Conifer	398,395.6	407,344.1	8,948.5	406,709.7	8,314.0	406,184.2	7,788.6
Lowland Hardwood	25,754.6	25,219.0	(535.6)	25,154.2	(600.4)	25,154.2	(600.4)
Mesic Birch-Aspen-Spruce-Fir	376,587.2	369,552.4	(7,034.8)	369,239.3	(7,347.9)	369,239.3	(7,347.9)
Mesic Red and White Pine	185,392.5	183,251.9	(2,140.6)	183,233.8	(2,158.7)	182,739.5	(2,653.0)
Sugar Maple	56,390.0	55,718.9	(671.1)	55,679.4	(710.6)	55,679.4	(710.6)
Total[1]	2,169,764.4	2,215,995.6	46,231.2	2,215,484.8	45,720.4	2,215,131.0	45,366.5

Notes:
[1] Totals may not match overall project area acreages due to rounding and/or due to inconsistencies in GIS data layers.

Under all cumulative Land Exchange scenarios (i.e., Land Exchange Proposed Action and all other exchanges and acquisitions, Land Exchange Alternative B and all other exchanges and acquisitions, and Land Exchange No Action Alternative with all other exchanges and acquisitions), there would be a decrease in dry-mesic red and white pine, lowland hardwood, mesic birch-aspen-spruce-fir, mesic red and white pine, and sugar maple landscape ecosystems on the Superior National Forest. There would be an increase to the Superior National Forest of the jack pine-black spruce and lowland conifer landscape ecosystems.

6.3.4.3.3 Effect of Cumulative Actions on Minnesota Biological Survey Sites of Biodiversity Significance

Effects were based on a net increase or decrease basis of landscape ecosystem acres (see Table 6.3.4-3).

Table 6.3.4-3 Potential Increase/Decrease of MBS Sites of Biodiversity Significance Occurring from Cumulative Actions

	Existing Superior National Forest	Superior National Forest – Land Exchange Proposed Action Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange Alternative B Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange No Action Alternative but other Exchanges and Acquisitions	
MBS Sites	**Acres**	**Acres**	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**
High Biodiversity Significance	127,903.3	145,448.3	17,544.9	146,846.8	18,943.4	151,106.3	23,203.0
Moderate Biodiversity Significance	111,250.4	146,528.4	35,278.0	145,771.5	34,521.1	145,771.5	34,521.1
Total	239,153.7	291,976.6	52,822.9	292,618.3	53,464.6	296,877.8	57,724.1

There would be an increase in MBS Sites of "High" and "Moderate" Biodiversity Significance on the Superior National Forest under all cumulative Land Exchange scenarios (i.e., Land Exchange Proposed Action and all other exchanges and acquisitions, Land Exchange Alternative B and all other exchanges and acquisitions, and Land Exchange No Action Alternative with all other exchanges and acquisitions). There would be greater increases in the "Moderate" sites than "High" sites under all scenarios.

6.3.4.3.4 Effect of Cumulative Actions on Management Indicator Habitat Types

Generally, the non-federal lands do not have any MIH types identified on them, as it is a federal designation. Additionally, not all federal lands have been fully mapped for MIH types. As a result, an MIH comparison cannot be made for the Superior National Forest before and after all exchanges and acquisitions. Additionally, age classes and mature patches cannot be fully analyzed since they are a subset of the MIH data.

6.3.4.3.5 Effect of Cumulative Actions on Endangered, Threatened, and Special Concern Plant Species

Effects on ETSC plant species were evaluated by comparing the MDNR NHIS database for the Superior National Forest before and after all exchanges or acquisitions would occur. Effects were based on a net increase or decrease basis of number of species to federal land holdings. No federally listed ETSC plant species would be affected by the Land Exchange Proposed Action. The Land Exchange Proposed Action and all exchanges and acquisitions would not result in the decrease or absence to the Superior National Forest of any of the 10 ETSC plant species listed for the NorthMet Project Proposed Action or 4 ETSC plant species listed for the Land Exchange Proposed Action.

Land Exchange Alternative B, and all exchanges and acquisitions, would not result in a decrease or absence to the Superior National Forest of any of the 10 ETSC plant species listed for the NorthMet Project Proposed Action or 4 ETSC plant species listed for the Land Exchange Proposed Action.

The Land Exchange No Action Alternative, and all exchanges and acquisitions, would not result in a decrease or absence to the Superior National Forest of any of the 10 ETSC plant species listed for the NorthMet Project Proposed Action or 4 ETSC plant species listed for the Land Exchange Proposed Action.

6.3.4.3.6 Effect of Cumulative Actions on Regional Foresters Sensitive Species Plants

Effects on RFSS plants were evaluated by comparing the federal RFSS GIS layer on the Superior National Forest before and after all exchanges and acquisitions. Effects were based on a net increase or decrease basis of species to the federal estate. Based on the GIS layer alone, there would be no change to RFSS plants on the Superior National Forest due to all exchanges and acquisitions. However, RFSS plants have not been identified on all federal and non-federal lands, and so a true comparison cannot be made.

6.3.4.3.7 Effect of Cumulative Actions on Invasive Non-native Species

Effects on the federal estate regarding invasive non-native plant species were evaluated by comparing the federal invasive non-native species GIS layer on the Superior National Forest before and after all exchanges and acquisitions. Based on the GIS layer alone, there would be no change to invasive non-native plant species on the Superior National Forest due to all exchanges and acquisitions. However, invasive non-native species have not been identified on all federal and non-federal lands, and so a true comparison cannot be made.

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6.3.5 Wildlife

The cumulative effects analysis for wildlife for the Land Exchange Proposed Action focuses on potential increases or decreases of habitat availability and occurrences of ETSC wildlife species.

6.3.5.1 Approach

This section evaluated effects on species similar to Chapter 5, but for the CEAA Land Exchange Proposed Action boundary. Land cover type GIS data from the MDNR, discussed in Section 6.3.4, determined available habitat for wildlife species. Federally and state-listed wildlife species were identified in the NHIS database. Data obtained from the USFS identified miles of roads and trails available for use by Canada lynx.

6.3.5.2 Cumulative Effects Assessment Area

The CEAA Land Exchange Proposed Action boundary for wildlife is described below, both spatially and temporally.

6.3.5.2.1 Spatial

The FEIS analyzed effects on the Canada lynx, gray wolf, and northern long-eared bat occurring within the federal and non-federal lands proposed for exchange.

State-listed species were analyzed on the federal and non-federal lands proposed for exchange.

6.3.5.2.2 Temporal

The temporal boundary includes the present through 2019.

6.3.5.3 Cumulative Effects Assessment

The cumulative assessment for the Land Exchange Proposed Action portion focused on the net increase or decrease of habitat types, of road and snow trail miles (for Canada lynx), and of ETSC and RFSS wildlife species occurrences.

6.3.5.3.1 Environmental Consequences of Reasonably Foreseeable Actions on Wildlife Habitat

Effects on key habitat type were evaluated by comparing GIS shapefiles of the Superior National Forest before any exchanges or acquisitions to GIS shapefiles of the Superior National Forest after all cumulative actions and the Land Exchange Proposed Action alternatives occur (see Section 6.1.2.2 for details on the Land Exchange actions). Effects were based on a net increase or decrease of habitat acres types to the federal estate (see Table 6.3.5-1).

Table 6.3.5-1 Potential Increase/Decrease of Key Habitat Types Occurring from Cumulative Actions

Increase or (Decrease) of Acres of Key Habitat Types	Existing Superior National Forest	Superior National Forest – Land Exchange Proposed Action Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange Alternative B Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange No Action Alternative but other Exchanges and Acquisitions	
	Acres	Acres	Net Increase (Decrease)	Acres	Net Increase (Decrease)	Acres	Net Increase (Decrease)
Mature Upland Forest, Continuous Upland/Lowland Forest (MIH1-13)	1,828,977.3	1,869,241.7	40,264.4	1,868,644.5	39,667.2	1,869,779.8	40,802.4
Open Ground, Bare Soils (no MIH)	3,599.5	3,203.2	(396.3)	3,252.2	(347.3)	3,286.1	(313.4)
Grassland and Brushland, Early Successional Forest (no MIH)	248,189.2	249,329.1	1,139.9	249,361.6	1,172.4	248,057.6	(131.6)
Aquatic Environments (MIH 14)	90,559.8	95,622.6	5,062.7	95,634.7	5,074.9	95,403.0	4,843.1
Total[1]	2,171,325.9	2,217,396.6	46,070.7	2,216,893.1	45,567.1	2,216,526.4	45,200.5

Note:
[1] Totals may not match overall project area acreages due to rounding and/or due to inconsistencies in GIS data layers.

The cumulative effect of the Land Exchange Proposed Action, plus other exchanges and acquisitions, would result in an increase of wildlife habitat on the federal estate. While mature forest, grassland/ shrubland, and aquatic habitats would increase, there would be a decrease in habitat acres for disturbed areas. The cumulative effect of Land Exchange Alternative B plus other exchanges and acquisitions would result in a smaller but similar increase or decrease in wildlife habitat. The Land Exchange No Action Alternative, plus other exchanges and acquisitions, would result in an increase of wildlife habitat on the federal estate. Mature forest and aquatic habitats would increase, but there would be a decrease in acres for disturbed and grassland/shrubland habitats.

6.3.5.3.2 Environmental Consequences of Reasonably Foreseeable Actions on Special Status Wildlife Species

Effects on special status wildlife species were evaluated by comparing GIS shapefiles of the Superior National Forest before any exchanges or acquisitions to the Superior National Forest after all cumulative actions and the Land Exchange Proposed Action alternatives occur. Effects on special status wildlife species were evaluated by comparing the MDNR NHIS database for the Superior National Forest before and after all exchanges or acquisitions would occur. Effects were based on a net increase or decrease basis of species to the federal estate.

Based upon the MDNR NHIS database information, there would be a net decrease of special status wildlife species to the federal estate due to all three actions (Land Exchange Proposed Action, Land Exchange Alternative B, and Land Exchange No Action Alternative), plus other exchanges and acquisitions. According to available information, a species of special concern, the red-shouldered hawk (*Buteo lineatus*), would decrease due to one of the exchanges and acquisitions. Special status species studies that inform the NHIS database have not been completed for all federal and non-federal lands; therefore, a true comparison cannot be made.

There are 17 terrestrial wildlife species on the Superior National Forest RFSS list. These species are not legally protected and species studies have not been completed. Similar to the special status species studies mentioned above, a true comparison of the increase or decrease of RFSS species occurrences cannot be made.

6.3.5.3.3 Environmental Consequences of Reasonably Foreseeable Actions on the Federally Listed Species

Canada Lynx

The Superior National Forest, where the Land Exchange Proposed Action included in the CEAA is located, includes lynx habitat and habitat for lynx prey species. As discussed in Section 5.3.5.2.1, lynx habitat includes a wide variety of upland and lowland habitats and forest types/ages, shrubland, and grasslands, but excludes aquatic environments. Denning habitat is typically found in mature forest and is generally more dependent on forest age classes, with trees older than saplings and with a dbh greater than 5 inches. Snowshoe hare are the primary prey species for the Canada lynx, and hare habitat includes all types and age classes of forest and shrubland, but not aquatic environments, disturbed areas, or grassland/croplands. Unsuitable habitat includes aquatic environments and disturbed areas.

The effects on lynx habitat were evaluated by comparing GIS shapefiles of the Superior National Forest before any exchanges or acquisitions to the Superior National Forest after all cumulative actions and the Land Exchange Proposed Action alternatives occur. Effects were based on a net increase or decrease of habitat acres to the federal estate (see Table 6.3.5-2).

Table 6.3.5-2 Potential Increase/Decrease of Suitable Habitat Types for Canada Lynx and Prey Species Occurring from Cumulative Actions

Suitable Habitat for Lynx and Prey Species	Existing Superior National Forest	Superior National Forest – Land Exchange Proposed Action Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange Alternative B Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange No Action Alternative but other Exchanges and Acquisitions	
	Acres	Acres	Net Increase (Decrease)	Acres	Net Increase (Decrease)	Acres	Net Increase (Decrease)
General Suitable Lynx Habitat (acres)	2,077,166.5	2,118,570.8	41,404.3	2,118,006.1	40,839.6	2,117,837.3	40,670.8
Suitable Denning Habitat (acres)	748,762.1	722,946.7	(25,815.4)	723,840.7	(24,921.4)	726,361.0	(22,401.1)
Suitable Snowshoe Hare Forage Habitat (acres)	2,068,526.8	2,110,365.0	41,838.2	2,109,795.9	41,269.1	2,109,650.4	41,123.6
Unsuitable Lynx Habitat (acres)	94,159.4	98,825.8	4,666.4	98,887.0	4,727.6	98,689.1	4,529.7

All three actions (Land Exchange Proposed Action, Land Exchange Alternative B, and Land Exchange No Action Alternative) plus other exchanges and acquisitions would result in some increases in general suitable lynx habitat, snowshoe hare forage habitat, and unsuitable habitat. Under all three actions plus other exchanges and acquisitions, there would be a decrease in lynx denning habitat, using mature MIH forest types as a predictor.

Lynx utilize snow pack trails and roads as travel corridors. The effects on lynx travel corridors were evaluated by comparing GIS shapefiles of the Superior National Forest before any exchanges or acquisitions to GIS shapefiles of the Superior National Forest after all cumulative actions and the Land Exchange Proposed Action alternatives occur. Effects were based on a net increase or decrease of miles of snow pack trails and established roads to the federal estate (see Table 6.3.5-3).

Table 6.3.5-3 Potential Increase/Decrease of Lynx Travel Corridors on the Federal Estate Occurring from Cumulative Actions

Travel Corridor Type	Existing Superior National Forest	Superior National Forest – Land Exchange Proposed Action Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange Alternative B Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange No Action Alternative but other Exchanges and Acquisitions	
	Miles	Miles	Net Increase (Decrease)	Miles	Net Increase (Decrease)	Miles	Net Increase (Decrease)
Established Snow Pack Trails	1,818.7	1,803.5	(15.2)	1,803.0	(15.7)	1,803.0	(15.7)
Established Roads	3,167.3	2,968.2	(199.1)	2,968.3	(199.0)	2,972.1	(195.2)

All three actions (Land Exchange Proposed Action, Land Exchange Alternative B, and Land Exchange No Action Alternative), plus other exchanges and acquisitions, would result in a decrease in established road and established snow pack trails available for lynx use.

Gray Wolf

The Superior National Forest, where the Land Exchange Proposed Action included in the CEAA is located, includes gray wolf habitat and habitat for wolf prey species. As discussed in Section 5.3.5.2.1, wolf cover habitat includes a wide variety of upland and lowland habitats and forest types of immature to mature age classes. Forage habitat is typically found in young forest types. Unsuitable habitat includes aquatic environments and disturbed areas.

The effects on wolf habitat were evaluated by comparing GIS shapefiles of the Superior National Forest before any exchanges or acquisitions to the Superior National Forest after all cumulative actions and the Land Exchange Proposed Action alternatives occur. MIH types and age classes are not fully mapped on non-federal lands, and so a true comparison is impossible to make. Effects were based on a net increase or decrease of habitat acres to the federal estate (see Table 6.3.5-4).

Table 6.3.5-4 Potential Increase/Decrease of Gray Wolf Habitat on the Federal Estate Occurring from Cumulative Actions

	Existing Superior National Forest	**Superior National Forest – Land Exchange Proposed Action Plus other Exchanges and Acquisitions**		**Superior National Forest – Land Exchange Alternative B Plus other Exchanges and Acquisitions**		**Superior National Forest – Land Exchange No Action Alternative but other Exchanges and Acquisitions**	
Suitable Habitat for Gray Wolf	**Acres**	**Acres**	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**
Forage Habitat (acres)	66,681.1	64,312.5	(2,368.6)	64,307.0	(2,374.1)	64,539.2	(2,141.9)
Cover Habitat (acres)	1,107,492.2	1,071,398.5	(36,093.7)	1,072,436.2	(35,056.0)	1,076,177.3	(31,314.9)

All three actions (Land Exchange Proposed Action, Land Exchange Alternative B, and Land Exchange No Action Alternative), plus other exchanges and acquisitions, would result in a decrease in forage and cover habitat available for gray wolves.

Northern Long-Eared Bat

The Superior National Forest, where the Land Exchange Proposed Action included in the CEAA is located, includes northern long-eared bat habitat. As discussed in Section 5.3.5.2.1, northern long-eared bat summer roosting habitat includes mature forest types. Forage habitat is typically found in mature forest understories or openings in such habitat types.

The effects on northern long-eared bat habitat were evaluated by comparing GIS shapefiles of the Superior National Forest before any exchanges or acquisitions to the Superior National Forest after all cumulative actions and the Land Exchange Proposed Action alternatives occur. MIH types and age classes are not fully mapped on non-federal lands, and so a true comparison

is impossible to make. Effects were based on a net increase or decrease of habitat acres to the federal estate (see Table 6.3.5-5).

Table 6.3.5-5 Potential Increase/Decrease of Northern Long-Eared Bat Habitat on the Federal Estate Occurring from Cumulative Actions

Suitable Habitat for Northern Long-Eared Bat	**Existing Superior National Forest**	**Superior National Forest – Land Exchange Proposed Action Plus other Exchanges and Acquisitions**		**Superior National Forest – Land Exchange Alternative B Plus other Exchanges and Acquisitions**		**Superior National Forest – Land Exchange No Action Alternative but other Exchanges and Acquisitions**	
	Acres	**Acres**	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**
Forage and Roosting Habitat (acres)	748,762.1	722,946.7	(25,815.4)	723,840.7	(24,921.4)	726,361.0	(22,401.1)

All three actions (Land Exchange Proposed Action, Land Exchange Alternative B, and Land Exchange No Action Alternative), plus other exchanges and acquisitions, would result in a decrease in forage and summer roosting habitat available for northern long-eared bats.

6.3.6 Aquatic Species

The cumulative effects analysis for aquatic species for the Land Exchange Proposed Action focused on the potential increases or decreases of surface water area and available shoreline, as these parameters are the limiting factors that determine the available aquatic species habitat.

6.3.6.1 Approach

The cumulative effects of the Land Exchange Proposed Action, in combination with other existing and reasonably foreseeable projects were evaluated against stream shoreline frontage, lake surface area, and lake shoreline frontage. This section evaluated effects on aquatic species available habitat similar to Chapter 5.

This section compared the types of data presented in Sections 4.3.6 and 5.3.6, but for each of the projects within the CEAA Land Exchange Proposed Action boundary. The GIS data obtained for the sections mentioned above were compared to projects within the CEAA Land Exchange boundary, and effects were determined based on this proximity. Specifically, DNR 24K Lakes and DNR 24K Streams GIS data were used to determine the analysis; however, a shoreline frontage index was not analyzed, as in Section 5.3.6, due to limited data availability.

The surface water features analyzed were assumed to correlate to available aquatic species habitat.

6.3.6.2 Cumulative Effects Assessment Area

The CEAA Land Exchange Proposed Action boundary for aquatic species habitat is described below, both spatially and temporally.

6.3.6.2.1 Spatial

The spatial boundary included the Superior National Forest. The net increase or decrease of surface water features or SGCN species that result from the Land Exchange Proposed Action and other cumulative actions has been examined in context of the entire Superior National Forest.

6.3.6.2.2 Temporal

The temporal boundary included the present through 2024 (the end of the second decade of the Forest Land and Resource Management Plan).

6.3.6.3 Cumulative Effects Assessment

The cumulative assessment for the Land Exchange Proposed Action portion focused on the net increase or decrease of surface water features and federal/state sensitive aquatic species (SGCN, ETSC, and RFSS species). Effects were evaluated by comparing GIS shapefiles of the Superior National Forest before any exchanges or acquisitions to GIS shapefiles of the Superior National Forest after all cumulative actions and the NorthMet Project Proposed Action alternatives occur.

6.3.6.3.1 Effect of Cumulative Actions on Net Increase/Decrease of Surface Water Features

Table 6.3.6-1 summarizes the surface water area and shoreline linear distance in each of the cumulative actions. For this qualitative assessment, it is assumed that the surface water features provide aquatic species habitat; however, the quality of that habitat could not be assessed or compared.

The effects of the cumulative actions for each scenario summarized below indicate there would be an increase in the lake area and lake shoreline distances, and a decrease in the riverine shoreline distances.

6.3.6.3.2 Environmental Effects of Cumulative Actions on Special Status Aquatic Species

Effects on special status aquatic species (federal and state ETSC, SGCN, and RFSS) were evaluated by comparing maps (derived from GIS data) of the existing Superior National Forest to the Forest if all cumulative actions and the alternatives to the Land Exchange were to occur. GIS analysis determined that no known special status aquatic species are located within the lands that would be relinquished or acquired by the Superior National Forest. However, it is likely that special status aquatic species habitat does exist on some of these lands, but the limited available data does not allow for an accurate comparison.

Table 6.3.6-1 Potential Increase/Decrease of Surface Water Resources Occurring from Cumulative Actions

	Existing Superior National Forest	**Superior National Forest – Land Exchange Proposed Action Plus other Exchanges and Acquisitions**		**Superior National Forest – Land Exchange Alternative B Plus other Exchanges and Acquisitions**		**Superior National Forest – Land Exchange No Action Alternative but other Exchanges and Acquisitions**	
	Total	**Total**	**Net Increase (Decrease)**	**Total**	**Net Increase (Decrease)**	**Total**	**Net Increase (Decrease)**
Lake (acres)	80,885.0	88,067.5	7,182.5	88,080.7	7,195.7	87,961.7	7,076.7
Lake (shoreline miles)	7,145.6	7,641.6	496.0	7,642.1	496.5	7,639.1	493.5
Riverine (miles)	3,646.7	3,749.7	(103)	3,749.1	(102.4)	3,746.4	(99.7)

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6.3.7 Air Quality

This resource would not be subject to any cumulative effects as a result of the Land Exchange Proposed Action in conjunction with other past, present, or reasonably foreseeable actions.

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6.3.8 Noise and Vibration

It was determined that this resource has discrete spatial and/or temporal extents which limit their direct and indirect impacts to the immediate area around the NorthMet Project Proposed Action and Land Exchange Proposed Action. Therefore, it is expected that there would not be any cumulative effects when combined with other past, present or reasonably foreseeable actions.

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6.3.9 Cultural Resources

It was determined that this resource has discrete spatial and/or temporal extents which limit their direct and indirect impacts to the immediate area around the NorthMet Project Proposed Action and Land Exchange Proposed Action. Therefore, it is expected that there would not be any cumulative effects when combined with other past, present or reasonably foreseeable actions.

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6.3.10 Socioeconomics

The cumulative effects analysis for socioeconomics for the Land Exchange Proposed Action focused on changes to revenue streams, timber harvesting, employment related to forestry and timber activities, recreation, and amount of accessible 1854 Ceded Territory area and resources.

6.3.10.1 Approach

Criteria for evaluating the socioeconomic cumulative effects of the Land Exchange Proposed Action include:

- Changes in revenue streams (taxes, payment in lieu of taxes) and assessed market value associated with transfers of land from non-federal to federal ownership;
- Changes in the amount and value of land available for timber harvest and employment related to forestry and timber activities;
- Changes in visitation, recreational tourism spending to the Superior National Forest; and
- Changes in the amount of accessible 1854 Ceded Territory land and the availability of treaty resources (e.g., wild rice, fish, and game).

6.3.10.2 Cumulative Effects Assessment Area

The CEAA Land Exchange Proposed Action boundary for socioeconomics is described below, both spatially and temporally.

6.3.10.2.1 Spatial

The CEAA for socioeconomic effects of the Land Exchange Proposed Action is the portions of Superior National Forest in St. Louis, Lake, and Cook counties.

6.3.10.2.2 Temporal

This evaluation focuses on the existing and anticipated future use of the CEAA for the life of the NorthMet Project Proposed Action (approximately 20 years). This includes the approximate 15-year life of the Forest Plan, which would extend through approximately 2019. Because Superior National Forest was established in 1909, existing conditions are considered indicative and representative of historical resource management activities.

6.3.10.3 Cumulative Effects Assessment

The net socioeconomic effects of the Crane Lake Land Exchange would be a marginal increase in recreational activity (and thus regional tourism revenue) in the Superior National Forest, and increased economic benefit to the Town of Crane Lake due to additional development (consistent with existing plans).

The net socioeconomic effects of the Cook County Land Exchange would include increased revenue to Cook County through management activities (timber and development) on newly acquired parcels and reduced cost of federal management of the Superior National Forest and BWCAW.

The net socioeconomic effects of the School Trust Land Exchange and Land Acquisition would be a decrease in logging or mining activity (and thus timber and mineral revenue) in the Superior National Forest, and increased School Trust Land revenue due to additional development (consistent with existing plans).

The Fall Lake land acquisition and the Gunflint land acquisition would open additional areas of land to potential public use (as well as exercise of usufructuary rights under the 1854 Treaty) in an area that already experiences recreational activity (see Section 6.2.11). Any increases in economic activity associated with these expansions would be minimal. The Wolf Island Phase 2 land acquisition would also open additional areas of land to potential public and tribal use and would consolidate Forest Service ownership of Wolf Island and its documented historical resources. Any increases in economic activity associated with this acquisition would be minimal.

In summary, the Land Exchange Proposed Action and cumulative actions would consolidate federal ownership within the Superior National Forest, thus reducing costs associated with management activities. At the same time, the Land Exchange Proposed Action and cumulative actions would provide more land to federal and county governments that could generate economic activity (for those entities and for the region as a whole) through timber, development, or increased recreational use. Increased activity could result in increased employment related to timber, development, and/or recreation.

Net change in public land available under the 1854 Treaty would increase due to the NorthMet Proposed Action and Land Exchange Proposed Action; although the federal lands proposed for exchange would no longer be available. The Land Exchange Proposed Action would transfer 6,650.2 acres of USFS administered land to PolyMet for the NorthMet Project Proposed Action mine and acquire up to 6,722.5 acres of private land for administration by the USFS. The proposed land exchange is a discrete action for the sole purpose of resolving the instant conflict between surface and subsurface rights and would not spur additional conversion of land from private to public ownership.

There is no evidence that the land exchanges in question would create EJ effects.

Land Exchange Alternative B would have similar effects, although to a lesser degree.

Under the Land Exchange No Action Alternative, none of the effects described above would occur.

6.3.11 Recreation and Visual Resources

The cumulative effects analysis for recreation and visual resources for the Land Exchange Proposed Action focused on potential increases or decreases in recreation opportunities between recreation opportunity spectrum classes and in scenic integrity objective designated lands.

6.3.11.1 Approach

This section compared the types of data presented in Sections 4.3.11 and 5.3.11, for each of the projects within the CEAA Land Exchange Proposed Action boundary. Effects were determined based on GIS data for these projects, including USFS mapping of ROS classes and SIO designated lands.

ROS classes (see Section 4.2.11.1.1) were defined for the Superior National Forest by the USFS (1982). Likely ROS classes for the non-federal lands were identified by the USFS through the SDEIS process, and are generally the same as the existing mapped ROS classes on surrounding adjacent federal lands. GIS analysis was employed to determine the net change in acreage by ROS class.

SIOs (see Section 4.2.11.1.2) were defined for Superior National Forest by the USFS (1995). As with the ROS classes, likely SIO designations for the non-federal lands were identified through the SDEIS process and generally match the existing mapped SIO designations on surrounding adjacent federal lands. GIS analysis was employed to determine the net change in acreage by SIO.

6.3.11.2 Cumulative Effects Assessment Area

The CEAA Land Exchange Proposed Action boundary for recreation and visual resources is described below, both spatially and temporally.

6.3.11.2.1 Spatial

The spatial boundary for recreational resources included the Superior National Forest. The spatial boundary for visual resources included the Superior National Forest, including the viewshed of the federal tract. The net gain or loss of recreation and visual resources from the exchange and other foreseeable activities was examined in context of the entire forest.

6.3.11.2.2 Temporal

This evaluation focuses on the existing and anticipated future use of the CEAA for the life of the NorthMet Project Proposed Action (approximately 20 years). This includes the approximate 15-year life of the Forest Plan, which would extend through approximately 2019. Because Superior National Forest was established in 1909, existing conditions are considered indicative and representative of historical resource management activities.

6.3.11.3 Cumulative Effects Assessment

The cumulative assessment for the Land Exchange Proposed Action portion focused on the net increase or decrease of ROS classes and SIO-designated lands. For all analyses, effects were evaluated by comparing GIS shapefiles of the Superior National Forest before any exchanges or

acquisitions to GIS shapefiles of the Superior National Forest after all cumulative actions and the NorthMet Project Proposed Action alternatives occur.

Table 6.3.11-1 summarizes the net increase or decrease of recreation opportunity spectrum classifications in each of the cumulative actions.

Table 6.3.11-1 Potential Increase/Decrease of Recreation Opportunity Spectrum Classifications Occurring from Cumulative Actions

Recreation Opportunity Spectrum	Existing Superior National Forest	Superior National Forest – Land Exchange Proposed Action Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange Alternative B Plus other Exchanges and Acquisitions		Superior National Forest – Land Exchange No Action Alternative but other Exchanges and Acquisitions	
	Acres	Acres	Net Increase (Decrease)	Acres	Net Increase (Decrease)	Acres	Net Increase (Decrease)
Primitive	481,022.1	523,201.5	42,179.4	523,201.5	42,179.4	523,201.5	42,179.4
Roaded Natural	314,667.2	307,664.1	(7,003.1)	308,129.9	(6,537.3)	307,099.1	(7,568.1)
Rural	9,838.0	9,448.1	(389.9)	9,448.1	(389.9)	9,448.1	(389.9)
Semi-Primitive Motorized	954,020.3	933,211.6	(20,808.7)	932,391.0	(21,629.3)	935,194.1	(18,826.2)
Semi-Primitive Non-motorized	411,717.2	443,837.0	32,119.8	443,688.2	31,971.0	441,549.2	29,832.0
Urban	93.2	93.0	(0.2)	93.0	(0.2)	93.0	(0.2)
Total[1]	2,171,357.9	2,217,455.3	46,097.4	2,216,951.7	45,593.8	2,216,585.1	45,227.2

Notes:
[1] Totals may not match overall project area acreages due to rounding and/or due to inconsistencies in GIS data layers.

The cumulative actions from the Land Exchange Proposed Action would result in an increase to Primitive and Semi-primitive Non-motorized classes, and a decrease in Roaded Natural, Rural, Semi-primitive Motorized, and Urban classes. The Land Exchange Alternative B would result in an increase to Primitive and Semi-primitive Non-motorized classes while there would be a decrease in Roaded Natural, Rural, Semi-primitive Motorized, and Urban classes. The Land Exchange No Action Alternative would result in a decrease to Roaded Natural, Rural, Semi-primitive Motorized, and Urban classes, but an increase to Primitive and Semi-primitive Non-motorized classes.

The Cook County Land Exchange action would help consolidate federal ownership of land within BWCAW, but would not change recreational opportunities within BWCAW. The Fall Lake land acquisition action (see Section 6.1.2.2) would result in federal acquisition of tracts with recreational value along Fall Lake. The properties are located on the shores of Fall Lake, across from the Fall Lake boat landing/campground and within 0.5 mile of the Fall Lake entry to the BWCAW. The Gunflint Land acquisition action would result in federal acquisition of tracts with recreational value along Gunflint and Little Gunflint Lakes at the US-Canadian border along the “Voyageurs Route”. The School Trust Land Exchange and Land acquisition action would help consolidate federal ownership of land within BWCAW and would not change recreational opportunities within the BWCAW, but would decrease opportunities for public recreational use of scenic landscapes and Semi-primitive Motorized activities in the Superior National Forest. The Wolf Island Phase 2 land acquisition action would result in federal

acquisition of the northern portion of Wolf Island, and consolidation of federal ownership of the entire island. The island has documented historical resources, and is close to the BWCAW (TPL 2012).

In summary, the cumulative actions would increase the amount of public land available and accessible for recreational activity; however, some specific recreational opportunities, such as recreational use of scenic landscapes and Semi-primitive Motorized activities in the Superior National Forest, would be diminished.

Table 6.3.11-2 summarizes the net increase or decrease of SIO classifications in each of the cumulative actions.

Table 6.3.11-2 Potential Increase/Decrease of Scenic Integrity Objectives Classifications Occurring from Cumulative Actions

	Existing Superior National Forest	**Superior National Forest – Land Exchange Proposed Action Plus other Exchanges and Acquisitions**		**Superior National Forest – Land Exchange Alternative B Plus other Exchanges and Acquisitions**		**Superior National Forest – Land Exchange No Action Alternative but other Exchanges and Acquisitions**	
SIO Classifications	**Acres**	**Acres**	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**	**Acres**	**Net Increase (Decrease)**
High	344,508.1	341,220.9	(3,287.2)	341,018.8	(3,489.3)	341,000.7	(3,507.4)
Moderate	798,922.5	778,350.5	(20,572.0)	778,022.2	(20,900.3)	776,732.9	(22,189.6)
Low	158,944.9	149,235.3	(9,709.6)	148,980.6	(9,964.3)	149,907.3	(9,037.6)
Unclassified	22,177.12	21,722.9	(454.2)	21,778.9	(398.3)	21,786.8	(390.3)
Total	1,324,553.0	1,290,529.5	(34,023.5)	289,800.5	(34,752.5)	1,289,427.7	(35,125.3)

The cumulative actions from the Land Exchange Proposed Action, Land Exchange Alternative B, and Land Exchange No Action Alternative would result in a net decrease to the federal estate of acres of land with a High, Moderate, Low, and Unclassified SIO.

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6.3.12 Wilderness and Other Special Designation Areas

It was determined that this resource has discrete spatial and/or temporal extents which limit their direct and indirect impacts to the immediate area around the NorthMet Project Proposed Action and Land Exchange Proposed Action. Therefore, it is expected that there would not be any cumulative effects when combined with other past, present or reasonably foreseeable actions.

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6.3.13 Hazardous Materials

It was determined that this resource has discrete spatial and/or temporal extents which limit their direct and indirect impacts to the immediate area around the NorthMet Project Proposed Action and Land Exchange Proposed Action. Therefore, it is expected that there would not be any cumulative effects when combined with other past, present or reasonably foreseeable actions.

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6.3.14 Geotechnical Stability

It was determined that this resource has discrete spatial and/or temporal extents which limit their direct and indirect impacts to the immediate area around the NorthMet Project Proposed Action and Land Exchange Proposed Action. Therefore, it is expected that there would not be any cumulative effects when combined with other past, present, or reasonably foreseeable actions.

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7.0 COMPARISON OF ALTERNATIVES AND OTHER CONSIDERATIONS

7.1 INTRODUCTION

This chapter compares the alternatives and their environmental consequences for the NorthMet Project Proposed Action and Land Exchange Proposed Action. It also addresses irretrievable and irreversible effects, short-term uses verses long-term productivity of the environment, unavoidable adverse effects, impacts on human health, and consideration of how the Land Exchange Proposed Action and alternatives meet the public interest. This chapter concludes with a statement on the federal Co-lead Agencies' preferred alternatives.

7.2 COMPARISON OF ALTERNATIVES

Alternatives to the NorthMet Project Proposed Action and Land Exchange Proposed Action were screened and analyzed relatively independently of each other because of the different nature of the actions and separate decision-making authority of each federal agency and the state. This section consolidates the connected actions, and summarizes the detailed analysis presented in the respective sections in Chapter 5 and 6. A description of the connected alternatives is provided below, followed by a comparison of the environmental consequences.

7.2.1 Proposed Connected Actions

The Proposed Connected Actions would involve both the NorthMet Project Proposed Action and Land Exchange Proposed Action as presented and described in Sections 3.2.2 and 3.3.2, respectively.

The NorthMet Project Proposed Action would involve three major components: a new copper-nickel-PGE Mine Site, a refurbished Plant Site at the former LTVSMC processing plant, and an existing Transportation and Utility Corridor that would connect the Mine Site and Plant Site. The NorthMet Project Proposed Action would comprise three phases. The first phase would last for approximately 18 months and would include site preparation, refurbishment of some existing buildings, and construction of new facilities and infrastructure. The second phase, which would last approximately 20 years, would include operation of the mine and processing facilities; blasting, hauling, and processing of the ore to be shipped; stockpiling of waste rock; and progressive reclamation (at the same time as mining). The third phase would occur after mining and would include infrastructure removal and final land reclamation, and post-closure maintenance.

The water quality objective of closure is to provide mechanical or non-mechanical treatment for as long as necessary to meet regulatory standards at applicable groundwater and surface water compliance points. Water quality modeling performed in support of this FEIS indicates that water treatment systems would be needed at the Mine Site and Plant Site indefinitely. The water models constructed to assess the potential effects from the NorthMet Project Proposed Action were not designed to predict the duration of treatment nor do they capture all the factors that influence the duration of treatment (e.g., potential future regulatory and technological changes).

Therefore, the models cannot be used to predict when treatment would end. Actual treatment requirements would be assessed on a recurring basis throughout operations and closure based on results of ongoing discharges, performance, and water resource monitoring, ensuring continuous protection of ground and surface water quality and compliance with applicable water quality standards. This reassessment process would rely on measured monitoring results (evaluated through modeling) rather than the results of the predictive modeling included in this FEIS. Regardless of the precise duration of effects or water treatment at either the Mine Site or Plant Site, there are measures available to address impacts to natural resources. PolyMet would be held accountable for maintenance and monitoring required under the permit and would not be released until all conditions have been met. PolyMet would be required to provide financial assurance to MDNR (managed independently) for closure and maintenance costs as a contingency if PolyMet or the operating company at that time were unable to fulfill the obligations under the Permit to Mine.

The configuration of the NorthMet Project Proposed Action is shown in Figure 3.2-1 in Section 3.2.1. The development of the Mine Site is shown in Figures 3.2-4 through 3.2-9 in Section 3.2.2.1. The Transportation and Utility Corridor is shown in Figure 3.2-20 in Section 3.2.2.2, and development of the Plant Site is shown in Figure 3.2-23 and Figure 3.2-29 in Section 3.2.2.3.

The Land Exchange Proposed Action would involve exchange of a single 6,650.2-acre (GLO) tract of federal land (encompassing the activities proposed at the Mine Site) with up to 6,722.5 acres (GLO) of privately owned, non-federal lands located within five different tracts throughout the proclamation boundary of the Superior National Forest within St. Louis, Lake, and Cook counties of northeastern Minnesota. The location of the federal and non-federal lands is shown in Figure 3.3-1 in Section 3.3.2.

7.2.2 Proposed Connected Actions Alternative B

Proposed Connected Actions Alternative B would involve the NorthMet Project Proposed Action as described in Section 3.2.2 and summarized above in Section 7.2.1, and the Land Exchange Alternative B as described in Section 3.3.3.2.

Compared to the Land Exchange Proposed Action, the Land Exchange Alternative B would involve conveying fewer acres of federal lands, approximately 4,887.3 acres (GLO), for fewer acres of non-federal land, approximately 4,651.5 acres (GLO) from a single tract (Tract 1). The configuration of the smaller federal parcel is shown in Figure 3.3-2 in Section 3.3.3.2.

7.2.3 No Action Alternative

Under the No Action Alternative there would be no NorthMet Project Proposed Action or Land Exchange Proposed Action. Refer to Section 3.2.3.2 and Section 3.3.3.1 for a discussion on the No Action alternative for the respective connected actions.

At the Mine Site, PolyMet would be required under exploration approvals to reclaim surface disturbance associated with exploratory and development drilling activities. Other existing surface uses would be allowed to continue consistent with the Superior National Forest Plan. No further upgrades or new segments would be constructed along the existing power transmission line, railroad, and Dunka Road, which would continue to be used by their private owners. At the former LTVSMC processing plant and Tailings Basin, the land owner, Cliffs Erie, would be

required to complete closure and reclamation activities as required under existing state permits, plans, and the Consent Decree.

The federal government would not convey federal lands to PolyMet and the USFS would continue managing these lands as has been done in the past. Furthermore, the federal government would not acquire the five tracts of non-federal lands and the lands would remain as private lands.

7.2.4 Comparison of Effects

A summarized comparison of the environmental consequences of the alternatives—as described in Sections 7.2.1, 7.2.2, and 7.2.3—is provided in Table 7.2.4-1. Refer to the respective sections in Chapter 4 for discussion on the affected environment and to Chapter 5 for more detail on the environmental consequences.

In comparison to the Proposed Connected Actions (see Section 7.2.1), the Proposed Connected Actions Alternative B (see Section 7.2.2) would have the same effects from the NorthMet Project Proposed Action, but would convey fewer lands through the Land Exchange, resulting in smaller net increases/decreases in environmental resources. The No Action Alternative would not directly affect the existing environment and management of these lands would continue in accordance with their current permits. Compared to the Proposed Connected Actions and Proposed Connected Actions Alternative B, the No Action Alternative would likely result in active but different comprehensive management of water from the existing LTVSMC Tailings Basin. There would be no other measurable effect on other resources compared to their existing conditions.

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Table 7.2.4-1 Comparison of Environmental Consequences by Alternative

Resource	Proposed Connected Actions	Proposed Connected Actions Alternative B	No Action Alternative
Land Use	• No effects on land use that would require changes in ordinances or comprehensive forest plans • Federal lands within the NorthMet Project area would be replaced with acreage of equal value through a land exchange	• Mostly similar effects as Proposed Connected Actions, with fewer federal acres exchanged	• Existing LTVSMC site would be reclaimed in accordance with the Cliffs Erie reclamation/closure plan
Water Resources	• Greater than 90 percent of groundwater and 100 percent of surface water at the Tailings Basin would be captured and treated to a concentration at or below applicable water quality evaluation criteria • The NorthMet Project Proposed Action would not cause any significant water quality impacts because: 1) exceedances of the P90 threshold did not occur, 2) the NorthMet Project Proposed Action concentrations were no higher than concentrations predicted for the CEC scenario, 3) the frequency or magnitude of exceedances for NorthMet Project Proposed Action conditions was within an acceptable range, or 4) the effects were not attributable to NorthMet Project Proposed Action discharges • Mercury loadings to the Embarrass River would increase slightly, decrease slightly to the Partridge River, with an overall net decrease in NorthMet Project Proposed Action loadings to the downstream St. Louis River. Discharges from the Plant Site WWTP	• Same as under Proposed Connected Actions	• Seepage water quality from the existing LTVSMC Tailings Basin would be expected to improve over time as a result of the Cliffs Erie Consent Decree, other permit requirements (e.g., Permit to Mine), and natural attenuation of contaminants

Resource	Proposed Connected Actions	Proposed Connected Actions Alternative B	No Action Alternative
	and Mine Site WWTF would be at or below the Great Lakes Initiative discharge standard of 1.3 ng/L • Sulfate concentrations would remain unchanged in the Partridge River and would be significantly reduced in the Embarrass River • Plant Site WWTP effluent would be used to augment flows to tributary streams and wetlands downgradient from the Tailings Basin to offset seepage captured in the containment system and the south surface seepage management system for water quality reasons		
Wetlands and Floodplains	• 913.8 acres of wetlands in NorthMet Project area would be directly affected • 6,568.8 to 7,694.2 acres of wetlands in NorthMet Project area could be indirectly affected • 940.7 acres of directly affected and fragmented wetlands to be mitigated up front • 1,602.7 acres of compensatory off-site wetlands • Wetland mitigation plan would be implemented to offset increased CO_2 emissions to extent practicable • 505.5-acre net increase of wetlands to the federal estate (through Land Exchange Proposed Action); therefore, Land Exchange Proposed Action conforms to EO 11990 • 376.2-acre net increase of mapped floodplain but would result in a 1,226.0-acre net decrease of floodplain area to the federal estate (through Land	• Same direct and indirect effects and compensatory mitigation at NorthMet Project area as under Proposed Connected Actions • 69.9-acre net increase of wetlands to the federal estate (through Land Exchange Alternative B); therefore, Land Exchange Alternative B conforms to EO 11990 • 376.2-acre net increase of mapped floodplain but would result in a 861.7-acre net decrease of floodplains to the federal estate (through Land Exchange Alternative B); however, no decrease in regulatory floodplains, no increase in flood damage potential, and no change in ecological function of floodplain; therefore, Land Exchange Alternative B conforms to EO 11988	• No change in wetland or floodplain acreage

Resource	Proposed Connected Actions	Proposed Connected Actions Alternative B	No Action Alternative
	Exchange Proposed Action); however, no decrease in mapped floodplains, no increase in flood damage potential, and no change in ecological function of floodplain. Therefore, Land Exchange Proposed Action conforms to EO 11988		
Vegetation (includes habitat and Special Status Species)	• 4,028.5-acre decrease in vegetation in the NorthMet Project area • Special concern plant species: eight directly affected, two indirectly affected in the NorthMet Project area • 579.6-acre net increase of vegetation land cover types to federal estate (through Land Exchange Proposed Action) • 6,025.8-acre decrease of MBS High Biodiversity sites, and 767.9-acre increase of MBS Moderate Biodiversity Sites • Decrease of 10 plant species, increase of three different plant species to the federal estate (through Land Exchange Proposed Action)	• Same decrease of vegetation in NorthMet Project area as under Proposed Connected Actions • Same effects on plant species in the NorthMet Project area as under Proposed Connected Actions • 173.6-acre net increase of vegetation land cover types to the federal estate (through Land Exchange Alternative B)	• No effects on vegetation
Wildlife (includes Special Status Species)	• 4,028.5-acre decrease of wildlife habitat in the NorthMet Project area • Localized population decrease and fragmentation of critical habitat of the gray wolf and Canada lynx • Localized population decrease and loss of habitat for northern long-eared bat • Low potential for incidental take resulting from vehicular collisions due to increased NorthMet Project Proposed Action-related traffic • Special status species, including	• Same as under Proposed Connected Actions at the NorthMet Project area • 173.6-acre net increase of vegetation land cover types for wildlife habitat to the federal estate (through Land Exchange Alternative B)	• No effects on wildlife

Resource	Proposed Connected Actions	Proposed Connected Actions Alternative B	No Action Alternative
	SGCN, RFSS, and other wildlife species (such as those considered tribally or culturally significant) may be affected by human activity, noise and vibration, rail and vehicle traffic, and decrease of habitat • Wildlife corridors at and adjacent to the NorthMet Project area would be affected through the reduction of access to these corridors • 579.6-acre net increase of vegetation land cover types for wildlife habitat to the federal estate (through Land Exchange Proposed Action)		
Aquatic Species	• No effects from changes in stream flow, which would remain within natural variability • No decrease in the Riparian Connectivity Index • Would not directly exceed or increase existing exceedances of Class 2B water quality standards, with the exception of aluminum that is not attributable to process water from the NorthMet Project Proposed Action (i.e., is attributable to non-contact stormwater runoff • No effect on federally or state-listed aquatic species	• Same as under Proposed Connected Actions	• Water seepage from the existing LTVSMC site would be managed in accordance with the Cliffs Erie Consent Decree
Air Quality (includes Greenhouse Gases and Global Climate Change)	• Increased emissions of criteria air pollutants, but below Prevention of Significant Deterioration major source thresholds • Amphibole mineral fiber emissions minimized by installing best available particulate emission control equipment and preventing fugitive dust generation	• Same as under Proposed Connected Actions	• Continued air (fugitive dust) effects at LTVSMC site until remediation occurs under closure/reclamation plan

Resource	Proposed Connected Actions	Proposed Connected Actions Alternative B	No Action Alternative
	• The air quality of the BWCAW would not be adversely affected by the NorthMet Project Proposed Action		
Noise and Vibration	• Added noise emissions and vibration. However, in all cases, the NorthMet Project Proposed Action, during the operations phase, would comply with the applicable state standards • Noise, ground vibration, and air blast impact area/zone would be limited to 11,456, 11,334, and 11,469 acres, respectively. The BWCAW, which is 20 miles away, is outside the maximum area of audibility (247,612 acres)	• Same as under Proposed Connected Actions	• No effects
Cultural Resources and Historic Properties	• Adverse direct and indirect effects on the *Mesabe Widjiu* (Laurentian Divide), Spring Mine Lake Sugarbush, BBLV Trail Segment, Erie Mining Company Concentrator Building, and Erie Mining Company Landscape Historic District due to loss of sites and proximity to proposed activities • Direct effects, but no adverse effects, on the Erie Mining Company Railroad Mine and Plant Track, Main Line Segment, and Dunka Railroad Segment; Erie Mining Company Railroad Corridor Historic District; DM&IR Segment; and Erie Mining Company Administration Building due to refurbishment and new construction • Potential to affect 1854 Treaty resources by potential limitation or elimination of access to public lands within the 1854 Ceded Territory and effects on 1854 Treaty resources	• Same as under Proposed Connected Actions	• No effects

Resource	Proposed Connected Actions	Proposed Connected Actions Alternative B	No Action Alternative
Socioeconomics (includes Environmental Justice)	• Up to 500 new direct jobs (maximum during construction), plus additional indirect and induced jobs • Millions of dollars revenue for State of Minnesota and federal taxes • Environmental Justice (Native American) populations affected by changes in subsistence uses and potential increased living costs	• Same as under Proposed Connected Actions	• No effects
Recreation and Visual Resources	• Net increase to the federal estate of recreational land on acquired tracts through Land Exchange Proposed Action • Visual effects would occur, but would not exceed USFS standards	• Fewer federal lands conveyed at NorthMet Project Mine Site under Land Exchange Alternative B • Remaining federal lands at Mine Site would not have public access • Fewer acres acquired through Land Exchange Alternative B • Same visual resources effects as under Proposed Connected Actions	• No effects
Wilderness and Special Designation Areas	• No effects on Wilderness or Special Designation Areas • The air quality of the BWCAW would not be adversely affected by the NorthMet Project Proposed Action	• Same as under Proposed Connected Actions	• No effects
Hazardous Materials	• Potential effects from spills and use of explosives during operations	• Same as under Proposed Connected Actions	• No effects
Geotechnical Stability	• Waste rock stockpiles, Tailings Basin, and Hydrometallurgical Residue Facility would be constructed in accordance with applicable State of Minnesota standards • Monitoring and adaptive management would maintain geotechnical stability	• Same as under Proposed Connected Actions	• Tailings Basin would be subject to closure and reclamation activities in accordance with MDNR requirements

7.3 OTHER CONSIDERATIONS

In addition to disclosure of direct, indirect, and cumulative effects, NEPA requires that federal agencies identify whether, and to what extent, the proposed action would cause irreversible or irretrievable commitments of resources and considers the short-term use of the environment versus maintenance and enhancement of long-term productivity (40 CFR 1502.16). Each of these considerations is explained and disclosed below and the resultant unavoidable adverse effects are described in Table 7.2.4-1.

A number of comments were received during the SDEIS public comment period requesting that human health impacts of the NorthMet Project Proposed Action be considered in the FEIS. While human health is considered in establishing the evaluation criteria used in the resource-specific analysis in Chapter 5, a summary of the potential impacts on human health is provided below.

In addition, a summary of how the Land Exchange Proposed Action addresses the public interest review and factors that the USFS will consider in the ROD is provided below.

7.3.1 Irreversible or Irretrievable Commitment of Resources

Irreversible commitments of resources are those that involve permanent loss because the affected resource cannot be returned to its previous condition (e.g., mined ore or wetlands that would be permanently converted to rock stockpile). Irretrievable commitments of resources are more temporary in nature because the environment can be returned to its previous state through reclamation and restoration activities (e.g., wetlands that would be restored or former facilities that would be removed and the land recontoured and replanted per the reclamation plan).

The construction and operation of the NorthMet Project Proposed Action would result in the irreversible loss of approximately 225 million tons of base and precious metal ore. Mining activities would remove 913.8 acres of wetlands that would be irreversibly lost. Off-site wetland compensatory mitigation would be eventually replaced by the restoration of 1,602.7 acres of wetlands.

Other resources could also be irreversibly lost by the NorthMet Project Proposed Action. For example, changes in the viewshed from the expansion of the existing LTVSMC Tailings Basin would permanently alter visual resources. While cultural resources may be adversely affected, irreversible commitments would be minimized through avoidance. There would be both irreversible and irretrievable loss of federally managed wildlife habitat under the NorthMet Project Proposed Action and Land Exchange Proposed Action. Some species, such as white-tailed deer, may not avoid the area throughout the mine life, although some habitat would be disturbed. Others, such as the Canada lynx, may seek other, better habitat elsewhere. Air quality effects, primarily from fugitive dust, would occur during the mine life, but air quality would return to pre-mining conditions after closure and rehabilitation and restoration of disturbed areas. As discussed in Section 5.2.2, any effects on water quality would be considered irretrievable commitments due to mitigation activities.

The federal lands may contain natural resources culturally important to tribal entities, including access to the land itself, which would be irreversibly lost following the Land Exchange Proposed Action and conversion of the land from public to private ownership.

7.3.2 Short-Term Uses versus Long-Term Productivity of the Environment

Section 102(2)(C)(iv) of NEPA requires that an EIS include information on the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity. The local use of the human environment by the proposed project can be summarized in terms of the unavoidable adverse environmental impacts of construction and operation and the irreversible and irretrievable commitments of resources. With the exception of the consumption of depletable resources as a result of construction, operation and closure of the NorthMet Project Proposed Action, these uses may be classed as short term. The short-term benefit of the NorthMet Project Proposed Action is to mine mineral resources. The economic productivity of the site, when used for this purpose, is larger compared to the productivity from timber or other uses for the site under current management direction.

The maximum long-term impact on productivity would result from the loss from the federal estate and continuation of the USFS's management objectives for the land and, consequently, the Mine Site would not be available for any other use. It is conceivable that after closure, much of the land within the Mine Site area could be reforested and harvested, although not by the U.S. Government.

The construction and operation of the NorthMet Project Proposed Action would cause short-term effects on air, aquatic, noise, visual, wildlife, and water resources during the 20-year life of the mine. For example, the NorthMet Project Proposed Action would increase air pollutant concentrations throughout the study area. The activities would not cause an exceedance of any NAAQS air quality standard. Once mining and reclamation activities are completed, the pollutant concentrations would return to pre-mining levels.

The noise levels in the area, while below standards, would increase during operation of the mine. After closure, the noise levels would return to pre-mining levels.

The visual effects from the NorthMet Project Proposed Action would be most noticeable during year 11, when the Category 2/3 Stockpile and Category 4 Stockpile would be at their maximum heights (after which time they would be placed into the East Pit as backfill), and year 12, when the Category 1 Stockpile would reach its maximum height. Additionally, there would be short-term effects on visual resources from fugitive dust and night-lighting during operations. Long-term visual effects would be landform changes as a result of mining activities (e.g., pit lake, Category 1 stockpile, etc.)

The Land Exchange Proposed Action would result in the permanent loss of the federal lands for mining purposes, which would be offset by the long-term increased productivity of the non-federal lands as they would be managed under the Forest Plan. As a result of the Land Exchange Proposed Action, there would be no effects as a result of short-term use of aquatic species, cultural resources, vegetation, wildlife, water resources, air resources, wetlands, or recreational and visual resources.

The NorthMet Project Proposed Action and Land Exchange Proposed Action would remove 6,650.2 acres (GLO) at the Mine Site from Forest Service administration and management under the Forest Plan. Currently, the federal lands, which include the Mine Site, are managed under the Forest Plan as General Forest – Longer Rotation (6,140.1 acres) and as General Forest (355.3 acres). If the land were exchanged, the long-term productivity of the federal lands at the Mine

Site would be lost to timber production and other forest uses for the short-term use as a mine. This would represent an unquantified opportunity cost in which the lands and resources could not be used for forest purposes. The Proposed Connected Actions Alternative B would result in 4,397.3 acres lost under General Forest – Longer Rotation management and 355.3 acres under the General Forest management category. These losses would be replaced by the acquisition, through the Land Exchange Proposed Action, of land for Forest purposes.

7.3.3 Unavoidable Adverse Effects

Regardless of the inclusion of all reasonable mitigation, some effects may not be avoided. For example, the NorthMet Project Proposed Action would utilize technologies to mitigate effects on water quality, which have been demonstrated through modeling to meet applicable water quality evaluation criteria (refer to Section 5.2.2). However, effects on water quality would remain after all reasonable mitigation measures have been applied.

After the implementation of mitigation measures that have been built into the design, the NorthMet Project Proposed Action would have unavoidable adverse effects on wetlands, vegetation, wildlife, air quality, noise and vibration, visual resources, cultural resources, water resources, and aquatic species. Unavoidable direct effects on surface features such as wetlands, vegetation, and wildlife resources would be offset by gains through off-site mitigation (wetlands) and through lands acquired through the Land Exchange Proposed Action. Unavoidable noise and vibration, air, and water emissions from the NorthMet Project Proposed Action would affect the existing conditions, but would not trigger new exceedances of relevant water quality evaluation criteria (with two exceptions, refer to Section 5.2.2) and would result in comparatively small increases to existing levels. The residual practical effects of the Land Exchange Proposed Action would be the loss of federal land, which would be used for the NorthMet Project Proposed Action, and the gain of non-federal lands.

7.3.4 Human Health Considerations

7.3.4.1 Introduction

This section summarizes relevant health issues and potential impacts for the NorthMet Project Proposed Action and identifies where specific health information can be found in the FEIS.

Public comments on the SDEIS identified several concerns based on potential interactions between the NorthMet Project Proposed Action and resources/receptors in the area. Public concerns identified potential health impacts as a result of the following:

- Exposure to air contaminants, particularly airborne amphibole mineral fibers;
- Exposure to contaminants in drinking water, surface water, and food sources (e.g., wild rice, and fish);
- Increased risk of traffic accidents involving chemicals;
- Increased exposure to noise and vibration; and
- Strain on emergency response services.

7.3.4.2 Baseline Community Health

A baseline assessment of community health can be found at the America's Health Rankings website (www.countyhealthrankings.org). The health rankings are based on composite indices of health outcomes (e.g., premature death, diabetes prevalence) and health determinants (circumstances that can affect the future health of a population, such as lifestyle behaviors, health policies, and environmental quality).

Minnesota's population health status is good relative to other states in the nation (ranking sixth-best out of 50 (www.americashealthrankings.org/MN). Within Minnesota, health in Cook County is above the state average as it ranks 28th out of 87 counties for health measures (United Health Foundation 2014). Health in Lake and St. Louis counties are poor relative to other counties in Minnesota, ranking 82nd and 75th out of 87, respectively. The FEIS did not analyze how or whether these counties' community health rankings would be affected by the NorthMet Project Proposed Action.

7.3.4.3 Human Health Impacts

The following sections describe how human health could be affected by exposure to airborne and waterborne chemicals from the NorthMet Project Proposed Action. This information is drawn from the relevant resource sections in Chapter 5 of the FEIS.

7.3.4.3.1 Exposure to Chemicals in Air Emissions

Industrial emissions to air have the potential to affect human health in several ways by the hazardous chemicals and dust irritants they may contain. State and federal ambient air quality standards have been established to protect human health and the FEIS analysis was conducted using these standards as threshold criteria to determine the magnitude and level of significance of the potential air quality impacts of the NorthMet Project Proposed Action. Section 5.2.7.2.3 analyzes human health risks from Mine Site and Plant Site air emissions. The quantitative analysis evaluated 11 chemicals to determine the lifetime cancer and non-cancer health risks of the NorthMet Project Proposed Action. The assessment found that Mine Site and Plant Site emissions would not exceed MDH lifetime cancer and non-cancer guidance levels.

An AERA addressing the emissions from site operations of the NorthMet Project Proposed Action was conducted and is summarized in Section 5.2.7.2.3 of the FEIS. Separate AERAs were conducted for the Mine Site and Plant Site due to the distance (approximately 6 miles) between Mine Site and Plant Site sources.

The AERA included an evaluation of the most sensitive health endpoint for each chemical, e.g., neurological morbidity from manganese, reproductive toxicity of methylmercury, and the carcinogenic potential of diesel, nickel, and arsenic. The FEIS concludes that there would be negligible lead emissions as a result of the NorthMet Project Proposed Action (Section 5.2.7.1.3). Toxicological information for arsenic, cobalt, diesel, nickel, manganese, mercury, and methylmercury (plus additional chemicals) was obtained from the MPCA Risk Assessment Screening Spreadsheet (RASS) and is found as an appendix to the AERA. The AERA includes an analysis of the potential health effects of those chemicals (MPCA 2013b).

Controls were incorporated to reduce airborne mercury emissions. The MPCA reviewed the NorthMet Proposed Action and determined that it would not impede State mercury reduction

goals (MPCA 2013b). At the levels estimated in the FEIS, airborne mercury emissions resulting from the NorthMet Project Proposed Action were found to not be a health concern.

In summary, the FEIS concludes that the NorthMet Project Proposed Action, as designed and with the addition of mitigation measures, would meet all NAAQS (Section 5.2.7).

7.3.4.3.2 Exposure to Airborne Amphibole Mineral Fibers

The NorthMet Project Proposed Action would mine ore from the Duluth Complex, which may contain amphibole mineral fibers. The potential air emissions of amphibole mineral fibers were analyzed in Section 5.2.7.5 of the FEIS. The vast majority of potential emissions of MN-fibers for the NorthMet Project Proposed Action would occur from the ore-crushing operations at the Plant Site, with minor potential emissions from the Tailings Basin and the Mine Site (Barr 2007o). Fine-particulate matter emission controls were incorporated to minimize any release of fiber emissions.

Overall, amphibole mineral fibers were found to represent a relatively small percent of the mineral fibers associated with the processing of NorthMet Deposit ore (Flotation Pilot Testing in July and August 2005), approximately 9 percent of the fibers identified from all collected samples of ore, tailings, and process water. Chrysotile mineral fibers were not found in samples of ore, tailings, or process water collected from the flotation pilot-testing. However, PolyMet's petrographic observations indicate that chrysotile minerals are about 2 percent of the minerals associated with the waste rock from the NorthMet Project Proposed Action.

The University of Minnesota conducted a research effort, known as the Minnesota Taconite Workers Health Study (University of Minnesota 2013), funded by the State of Minnesota, to better understand taconite worker health issues, including an epidemiological investigation into causes of excess rates of disease, including mesothelioma, among taconite workers. The Study did not rule out amphibole mineral fibers as a potential source of health risk or as playing some role in the incidence of disease among taconite workers. Mine workers' health is regulated by the U.S. Department of Labor, Mine Safety and Health Administration. Exposure limits for airborne contaminants, including amphibole mineral fibers, is found in 30 CFR, Ch. 1, Subc. K, Part 56, § 56.5001

The MDH considers the role of non-asbestiform amphibole mineral fibers in the induction of health effects to be uncertain at this time. The MDH concludes that non-asbestiform amphibole mineral fibers have the potential for an undetermined toxicity and potency.

7.3.4.4 Health Impacts from Chemicals in Water

Human health impacts could occur by ingestion of water borne chemicals either directly through drinking water or through food sources. In addition, sulfates in wild rice stands could reduce productivity which may affect its availability as a subsistence food source.

7.3.4.4.1 Drinking Water

Potential arsenic and lead releases to groundwater and surface water are evaluated in Section 5.2.2.3. GoldSim model output indicates that the dominating chemical controls on arsenic concentrations in Colby Lake (a drinking water source) are natural surface runoff, natural groundwater baseflow, and contaminant sources contributing directly to Colby Lake, all of which are not related to the NorthMet Project Proposed Action.

For conditions where arsenic would cause or add to an exceedance of the evaluation criterion in Colby Lake, the NorthMet Project Proposed Action would not likely change concentrations by more than +2.0 percent. It is therefore concluded that the NorthMet Project Proposed Action would not significantly impact Colby Lake.

Examination of GoldSim results show that lead would infrequently cause or add to an exceedance of the evaluation criterion at the Plant Site. In Unnamed Creek, when lead concentrations at PM-11 are predicted to be elevated, the flow at PM-11 is dominated by WWTP discharges. In GoldSim, the WWTP effluent lead concentration is assumed to be 3 µg/L.

Given that pilot testing shows that 2 µg/L lead concentration is achievable in the WWTP effluent, it is likely that actual lead concentrations at PM-11 would have acceptably low frequencies of exceedances.

Based on the analysis, the FEIS found that no discharges of water or seepage from the NorthMet Project Proposed Action would affect off-site domestic water wells or public sources in the area.

Amphibole mineral fibers may be found in water that has come in contact with ore at the Mine Site. There is no applicable water quality standard specific to non-asbestiform amphibole mineral fibers. The USEPA has developed drinking water standards for asbestos for drinking water utilities (USEPA 2015). This standard, called an MCL, is 7 million fibers per liter. The USEPA has provided proven methods of water treatment to meet the MCL, including coagulation/filtration, direct and diatomite filtration, and corrosion control.

Water in contact with waste rock, ore, and pit walls would be treated at the WWTF during operations utilizing a greensand filter. No discharge would occur off site during operations. During post-closure, a greensand filter, pre-filters, and a RO system or equivalently performing technology would be used to treat water to meet water quality standards prior to discharge. This treated water would be discharged into the Partridge River, which flows into Colby Lake, the only lake in the area used for drinking water. It is the source of drinking water for the City of Hoyt Lakes. Currently, the City utilizes sand filters, coagulation, and settling and has been in compliance with the USEPA asbestos standards. When the RO treatment system would be constructed at the Mine Site, it would operate in the same fashion as the City's treatment system. As such, the discharge from the Mine Site would be expected to be in compliance with the federal standard prior to it being treated again by the City of Hoyt Lakes.

7.3.4.4.2 Fish

The AERA assessed the health effects for recreational and tribal fishermen and their families consuming fish which may contain elevated bioaccumulated levels of methylmercury. It estimated a potential small change in fish mercury concentration based on modelled emissions and deposition. The FEIS concludes that this potential change in methylmercury concentration is not statistically measurable given the variability in background concentrations and the current laboratory analytical methods (see also Barr 2013j and Barr 2015g). Given that evidence and finding, no potential change in human health risks related to the fish consumption pathway is expected (Sections 5.2.2.3.4, 5.2.6.2.1, and 5.2.6.2.2 describe the impacts on water and aquatic resources, respectively, that would have a pathway to potential human health). Section 6.2.6 of the FEIS contains an assessment of cumulative effects to aquatic resources. It found that the NorthMet Project Proposed Action, in combination with other reasonably foreseeable projects, could increase solute concentrations for many constituents in the Partridge River and Embarrass

River, although not above water quality evaluation criteria. This change in existing water quality and the interactions between effects from a number of projects in the area, natural conditions, and current and future hydrology could be addressed as part of the non-degradation analysis for the NorthMet Project Proposed Action in permitting. The NorthMet Project Proposed Action, in particular, but to some extent in combination with other existing and reasonably foreseeable projects, would shift treatment of water discharged into the Partridge River and Embarrass River from natural systems (i.e., essentially an ecosystem service) to mechanical systems (e.g., the NorthMet Project Proposed Action WWTF and WWTP). Given that the solute concentrations for constituents in the Partridge River and Embarrass River are not expected to increase above water quality evaluation criteria, cumulative impacts to aquatic species due to changes in water quality from the NorthMet Project Proposed Action, in combination with other reasonably foreseeable projects, are not anticipated.

7.3.4.4.3 Wild Rice

Waters downstream from the NorthMet Project area are used as a source of wild rice by the Ojibwe people who continue to harvest it in traditional ways. Research indicates that increased sulfate levels in wild rice habitat can adversely affect its growth and productivity during certain times of its lifecycle. It is possible that Tribal member health could be indirectly affected if their diet would need to increasingly rely on less-healthy replacement foods if wild rice production were to decrease as a result of the NorthMet Project Proposed Action.

In order to protect this food source, the State has issued regulations that place limits on the allowable level of sulfate in waters used for production of wild rice (*Minnesota Rules*, part 7052.0100). Sections 5.2.2.3.2 and 5.2.2.3.3 of the FEIS analyze any sulfate released from the NorthMet Mine Site and Plant Site, respectively, that could affect the production of wild rice downstream from both the Mine Site and Tailings Basin. The analysis concludes that in the Partridge River the NorthMet Project Proposed Action would not cause or add to exceedances of the sulfate evaluation criteria of 10 mg/L applicable at the draft MPCA staff-recommended wild rice production waters near SW-005 and SW-006. In the Embarrass River, the NorthMet Project Proposed Action would decrease sulfate concentrations at PM-13 near the draft MPCA staff-recommended wild rice production waters. In neither case would wild rice productivity be adversely affected or reduce its availability as a subsistence food source.

7.3.4.5 Health Impacts from Traffic Accidents Involving Chemicals

Section 5.2.13 discusses risks involved in the transportation, storage and use of regulated hazardous materials used in mining and ore processing. These materials are regulated by state and federal rules, which limit the potential risks of off-site effects, especially if large quantities were transported to and from the NorthMet Project area. The hazardous materials analysis also included a risk assessment of large scale events which could affect populations along the transportation routes. This analysis found that given overall design and operational commitments of the NorthMet Project Proposed Action, there would not be any significant adverse effects from the proposed transportation of hazardous wastes.

7.3.4.6 Health Impacts from Noise and Vibration

Impacts of noise and ground vibration from the NorthMet Project Proposed Action are discussed in Section 5.2.8. While health effects were not explicitly discussed, modelling shows that the NorthMet Project Proposed Action would meet State of Minnesota noise and vibration limits and would not, therefore, result in health concerns.

7.3.4.7 Health Impacts from Strain on Emergency Response Services

Section 5.2.10.2 of the FEIS discusses changes in the local area's work force (local versus population influx), and demands on available services, including the medical infrastructure. A sudden increase in population can place strain on local health resources including emergency management services, primary care, and acute health care services. Similarly, a large-scale emergency event can put a strain on emergency resources. The FEIS found that the NorthMet Project Proposed Action would result in minimal population and employment changes. Hence, it is not expected that the NorthMet Project Proposed Action would place a strain on existing emergency and health care services in the area.

As a requirement of the permit to mine, the operator of the NorthMet Mining Project would be required to prepare an Emergency Response Plan, which would require them to coordinate their emergency response planning with local agencies, as described in Section 5.2.13.2.4.

7.3.5 Land Exchange Public Interest Consideration

The ROD from the USFS will describe how the public interest is served under 36 CFR 254.3(b). As stated in Section 1.4.3 of this FEIS, factors that must be considered include the opportunity to: achieve better management of federal lands and resources to meet the needs of state and local residents and their economies and secure important objectives, including but not limited to protection of fish and wildlife habitats, cultural resources, watersheds, and wilderness and aesthetic values; enhancement of recreation opportunities and public access; consolidation of lands and/or interests in lands, such as mineral and timber interests, for more logical and efficient management and development; consolidation of split estates; expansion of communities; accommodation of existing or planned land use authorizations; promotion of multiple-use values; implementations of applicable Forest Land and Resource Management Plans; and fulfillment of public needs (see 36 CFR 254.3(b) and 254.4(c)(4)). The ROD will also incorporate the finding of these factors and how the factors relate to how the public interest would be served by the Land Exchange Proposed Action, Land Exchange Alternative B, and the Land Exchange No Action Alternative. Table 7.3.5-1 below presents a comparison of how the alternatives address these factors.

Table 7.3.5-1 Public Interest Factors That Must be Considered for the Land Exchange Proposed Action

Factors		EIS Section Citation	Land Exchange Proposed Action	Land Exchange Alternative B	Land Exchange No Action Alternative
Opportunity to achieve better management of federal lands and resources to meet the needs of state and local residents and their economies	Boundary (Perimeter) Managed	5.3.1	33.2-mile net reduction in Forest boundary to be managed	8.6-mile net reduction in Forest boundary to be managed	No change
	Fragmentation (ratio of boundary to area)	5.3.1	No change	No change	No change
	Net Federal Estate Acreage	5.3.1	385.1 acres net increase to the federal estate	38.7 acres net increase to the federal estate	No change
Secure important objectives, including but not limited to:	Protection of fish and wildlife habitats	5.3.4/5.3.5/ 5.3.6/7.2.4	• See Wildlife and Aquatic Species in Table 7.2.4-1 for a summary of potential effects to fish and wildlife resources from NorthMet Project Proposed Action • 579.6-acre net increase of vegetation land cover types to the federal estate • 1,364.5-acre, 248.3-acre, 226.7-acre net increase of MIH-1, MIH-9, and MIH-14, respectively; 1,172.5-acre net decrease of MIH-5 • 6,025.8-acre net decrease in high MBS Sites; 767.9-acre net increase in medium MBS Sites • Decrease of 10 plant species, increase of three different plant species to the federal estate • Net increase in acreage of landscape ecosystems (dry-mesic red and white pine, lowland conifer, lowland hardwood, mesic birch-aspen-spruce fir, mesic red and white pine, and sugar maple) with a net decrease to jack pine-black spruce to the federal estate • Forested habitat would decrease; shrubland/grassland and aquatic habitats would increase • Increase to the federal estate of overall suitable habitat for lynx and for snowshoe hare (prey species); however the amount of unsuitable lynx habitat would also increase • Decrease to the federal estate of denning habitat and of federal lands within designated LAU • Critical lynx habitat would not change • Decrease of 29.1 acres to the federal estate of cover habitat; increase to the federal estate of forage habitat of 507.1 acres for the gray wolf • Increase of SGCN habitat to the federal estate • Net increase of surface water resources (MIH 14) to the federal estate thereby increase aquatic habitat • 99.1-acre of lake, 3.8-mile of river, and 8.1 miles of third-order stream net increase to the federal estate • 34.0-shoreline/acre unit for lakes and streams (frontage index) net increase to federal estate • Increase in watershed riparian connectivity, which indicates that the streams on both the federal and non-federal lands are located within watersheds with existing high-quality riparian connectivity • Acquiring streams located in watersheds with better aquatic connectivity values	• See Wildlife and Aquatic Species in Table 7.2.4-1 for a summary of potential effects to fish and wildlife resources from NorthMet Project Proposed Action • 173.6-acre net increase of vegetation land cover types to the federal estate • 1,411.8-acre and 206.2-acre net increase of MIH-1, MIH-14, respectively; 1,084.6-acre and 261.1 net decrease of MIH-5 and MIH-9, respectively • 4,573.1-acres and 0.3-acre net decrease in high and medium MBS Sites, respectively • Decrease of 10 plant species to the federal estate, increase of 1 different plant species to the federal estate • Net increase in acreage of landscape ecosystems (dry-mesic red and white pine, lowland conifer, lowland hardwood, mesic birch-aspen-spruce fir, mesic red and white pine, and sugar maple) with a net decrease to jack pine-black spruce to the federal estate • Forested habitat would decrease; shrubland/grassland and aquatic habitats would increase • Decrease to the federal estate of overall suitable habitat for lynx and denning habitat; however, increase of suitable snowshoe hare habitat • Decrease of federal lands within designated LAUs • Critical lynx habitat would not change • Increase of 262.7 acres of forage habitat; however, decrease of 192.9 acres of cover habitat on the federal estate for gray wolf • Increase of SGCN habitat to the federal estate • Net increase of surface water resources (MIH 14) to the federal estate thereby increase aquatic habitat • 120.7-acre of lake, 2.8-mile of river, and 8.1 miles of third-order stream net increase to the federal estate • 3.2 and 3.5-shoreline/acre unit for lakes and streams, respectively, (frontage index) net increase to federal estate • Increase in watershed riparian connectivity, which indicates that the streams on both the federal and non-federal lands are located within watersheds with existing high-quality riparian connectivity • Acquiring streams located in watersheds with better aquatic connectivity values	• See Wildlife and Aquatic Species in Table 7.2.4-1 for a summary of potential effects to fish and wildlife resources from NorthMet Project Proposed Action • Would not change the USFS' responsibility for managing wildlife and aquatic resources and would result in no change in anticipated effects on existing wildlife and aquatic species

Factors		EIS Section Citation	Land Exchange Proposed Action	Land Exchange Alternative B	Land Exchange No Action Alternative
			• The USFS determined, through a Biological Evaluation, that the project would have no beneficial impact to RFSS species, and would not likely impact individuals or result in a trend to federal listing or loss of viability for the RFSS species	• The USFS determined, through a Biological Evaluation, that the project would have no beneficial impact to RFSS species, and would not likely impact individuals or result in a trend to federal listing or loss of viability for the RFSS species	
	Cultural resources	5.3.9/7.2.4	• See Cultural Resources & Historic Properties in Table 7.2.4-1 for a summary of potential effects to cultural resources from NorthMet Project Proposed Action • For federal lands the exchange could result in lack of access to those areas and species that are traditionally or culturally important to the Bands. Band members use of the Land Exchange area is not well-defined • No known cultural resources on the non-federal lands, however, cultural resources located on private lands being transferred to federal ownership would be considered to have greater preservation protection under federal law	• See Cultural Resources & Historic Properties in Table 7.2.4-1 for a summary of potential effects to cultural resources from NorthMet Project Proposed Action • For federal lands the exchange could result in lack of access to those areas and species that are traditionally or culturally important to the Bands. Band members use of the Land Exchange area is not well-defined • No known cultural resources on the non-federal lands, however, cultural resources located on private lands being transferred to federal ownership would be considered to have greater preservation protection under federal law	• No change
	Watersheds	5.3.2/5.3.3/ 7.2.4	• See Water Resources Wetlands & Floodplains in Table 7.2.4-1 for a summary of potential effects to water resources from NorthMet Project Proposed Action • No substantive difference in the quality of groundwater resources between the federal and non-federal tracts • 4.6-mile net increase of public water streams to the federal estate • 95.2-acre net increase of public water lakes to the federal estate • 2.1-mile net increase of shoreline to the federal estate • 125.7-acre net increase of wild rice beds to the federal estate • 505.5-acre net increase of wetlands to the federal estate; therefore conforms to EO 11990 • 376.2-acre net increase of mapped floodplain but would result in a 1,226.0-acre net decrease of floodplains to the federal estate; however, no decrease in regulatory floodplains, no increase in flood damage potential, and no change in ecological function of floodplain. Therefore, conforms to EO 11988 • 99.1-acre net increase of lakes and 3.8-mile net increase of rivers to federal estate	• See Water Resources and Wetlands & Floodplains in Table 7.2.4-1 for a summary of potential effects to water resources from NorthMet Project Proposed Action • No substantive difference in the quality of groundwater resources between the federal and non-federal tracts • 3.6-mile net increase of public water streams to the federal estate • 116.8-acre net increase of public water lakes to the federal estate • 2.6-mile net increase of shoreline to the federal estate • 125.7-acre net increase of wild rice beds to the federal estate • 69.9-acre net increase of wetlands to the federal estate; therefore conforms to EO 11990 • 376.2-acre net increase of mapped floodplain but would result in an 861.7-acre net decrease of floodplains to the federal estate; however, no decrease in regulatory floodplains, no increase in flood damage potential, and no change in ecological function of floodplain. Therefore, conforms to EO 11988 • 120.7-acre net increase of lakes and 2.8-mile net increase of rivers to federal estate	• Would not change the USFS' responsibility for managing water and wetland resources and would result in no change in anticipated effects on existing water and wetland resources • See Water Resources and Wetlands & Floodplains in Table 7.2.4-1 for a summary of potential effects to water resources from NorthMet Project Proposed Action
	Wilderness and Special Designation Areas	5.3.12/7.2.4	• No change • See Table 7.2.4-1 for a summary of potential effects to Wilderness & Special Designation Areas from NorthMet Project Proposed Action	• No change • See Table 7.2.4-1 for a summary of potential effects to Wilderness & Special Designation Areas from NorthMet Project Proposed Action	• No change • See Table 7.2.4-1 for a summary of potential effects to Wilderness & Special Designation Areas from NorthMet Project Proposed Action
	Aesthetic values	5.3.11/7.2.4	• See Recreation and Visual Resources in Table 7.2.4-1 for a summary of potential effects to visual resources from NorthMet Project Proposed Action • Change in the composition of the visual character of the Superior National Forest, affecting less than one-quarter of one percent of the total area of the forest, has	• See Recreation and Visual Resources in Table 7.2.4-1 for a summary of potential effects to visual resources from NorthMet Project Proposed Action • Change in the composition of the visual character of the Superior National Forest, affecting less than one-tenth of one percent of the total area of the forest, has	• See Recreation and Visual Resources in Table 7.2.4-1 for a summary of potential effects to visual resources from NorthMet Project Proposed Action • Visual appearance of the federal and non-federal lands would remain unchanged

Factors	EIS Section Citation	Land Exchange Proposed Action	Land Exchange Alternative B	Land Exchange No Action Alternative
		generally positive aspects • Addition of land with Moderate and High SIO (in lieu of land with a Low SIO) could affect the types of forestry and management activities that can occur on those lands • USFS would acquire land with a wider diversity of SIOs and would result in a net increase to the federal estate	generally positive aspects • Addition of land with Moderate and High SIO (in lieu of land with a Low SIO) could affect the types of forestry and management activities that can occur on those lands • USFS would acquire land with a wider diversity of SIOs and would result in a net increase to the federal estate	
Enhancement of recreation opportunities and public access	5.3.1/5.3.11/ 7.2.4	• Net increase of up to 579.6 acres of publicly owned land in the 1854 Ceded Territory	• Net increase of 173.6 acres of publicly owned land in the 1854 Ceded Territory	• There would be no change in the amount of acres available for public access and recreational use • The presence of a privately owned road (Dunka Road) and rail on the southern border of the federal lands would continue to limit public access to and use of the federal lands
Consolidation of lands and/or interests in lands, such as mineral and timber interests, for more logical and efficient management and development	5.3.1	• Would result in relinquishing the federal parcel with severed, private mineral rights and known, economically developable minerals and acquiring parcels with predominantly low risk of conflict and predominantly moderate title quality • Improves the quality of title and reduces the complexity of title to the federal and non-federal lands • Risk of conflict and title quality may be further improved through subsequent arrangements with holders of mineral rights on the non-federal lands or affirmative title insurance coverage	• Would result in relinquishing the federal parcel with severed, private mineral rights and known, economically developable minerals and acquiring parcels with moderate risk of conflict and moderate title quality • Improves the quality of title and reduces the complexity of title to the federal and non-federal lands • Risk of conflict and title quality may be further improved through subsequent arrangements with holders of mineral rights on the non-federal lands or affirmative title insurance coverage	• Interest in development of mineral potential on the federal lands could continue
Consolidation of split estates	5.3.1.2.5/ 5.3.1.3.5	• Eliminates about 6,495.4 acres of split estate at the site of proposed open pit mine • Superior National Forest acquires 7,075.0 acres with moderate to low (primarily low) risk of conflict between mineral interests and USFS surface management	• Eliminates about 4,752.6 acres of split estate at the site of proposed open pit mine • Superior National Forest acquires up to about 4,926.3 acres with moderate mineral development potential, except for potential surficial aggregate resources in the far northeastern corner of Tract 1	• Existing split estates would continue • Conflict between mineral interests and USFS surface management of the federal parcel would remain
Expansion of communities	5.3.10	• Creates positive economic effects through increased opportunity for forestry and recreation and associated employment, earnings, and revenue • Negligible negative effects on other socioeconomic factors, including housing, public facilities and services, EJ populations, and subsistence	• Creates positive economic effects (to a lesser degree than the Land Exchange Proposed Action) through increased opportunity for forestry and recreation and associated employment, earnings, and revenue • Negligible negative effects on other socioeconomic factors, including housing, public facilities and services, EJ populations, and subsistence	• No change to the federal lands, and the non-federal lands would remain inaccessible to the public (including tribal entities) • No direct or indirect effects on socioeconomics
Accommodation of existing or planned land use authorizations	5.3.1	• Compatible with the USFS Management Areas and zoning/land use designations of adjacent lands	• Compatible with the USFS management areas and zoning/land use designations of adjacent lands	• Compatible with relevant local zoning ordinances and planning designations
Promotion of multiple-use values		• Current National Forest System lands would be mined on 1,673.2 acres; remainder would be privately owned forested lands • 7,075.0 aces of non-federal parcels would become subject to Superior National Forest Land and Resource Management Plan	• Current National Forest System lands would be mined on 1,673.2 acres; remainder would be privately owned forested lands • 4,926.3 aces of non-federal parcels would become subject to Superior National Forest Land and Resource Management Plan	• Existing multiple-use uses would continue on federal lands at the proposed mine site
Implementations of applicable Forest Land and Resource Management Plans	1.0/3.3.3	• Addresses Purpose and Need described in Section 1.3.2.2 and Forest Plan desired condition direction • Eliminates Conflict in terms of D-LA-1 arrangement of	• Addresses Purpose and Need described in Section 1.3.2.2 and Forest Plan desired condition direction • Eliminates Conflict in terms of D-LA-1 arrangement	• Does not fully address Purpose and Need described in section 1.3.2.2. • Does Not Eliminate Conflict in terms D-LA-1

Factors	EIS Section Citation	Land Exchange Proposed Action	Land Exchange Alternative B	Land Exchange No Action Alternative
		National Forest System lands and eliminating conflicts, and • Environmentally Sound in terms of D-MN-2, mineral development and production are conducted in environmentally sound manner • Pending necessary agency decisions and permitting, the proposed mining, and minerals production would take place as described in Chapter 3 with the potential environmental and socioeconomic consequences identified in Chapters 5 and 6.	of National Forest System lands and eliminating conflicts, and • Environmentally Sound in terms of D-MN-2, mineral development and production are conducted in environmentally sound manner • Pending necessary agency decisions and permitting, the proposed mining, and minerals production would take place as described in Chapter 3 with the potential environmental and socioeconomic consequences identified in Chapters 5 and 6.	arrangement of National Forest System lands and eliminating conflicts, and • Environmentally Sound in terms D-MN-2, mineral development and production are conducted in environmentally sound manner • Conflicts resulting from split estate would continue to require resolution with the potential environmental and socioeconomic consequences identified in Chapters 5 and 6.
Fulfillment of public needs	5.3.10/7.2.4	• See Water Resources in Table 7.2.4-1 for a summary of potential effects to water resources from NorthMet Project Proposed Action • Would result in an active mining operation that would generate federal, state, and local tax revenue, in addition to employment • Could increase economic activity associated with recreation and tourism. • Could generate four direct and 12 indirect forestry jobs. • To the degree that increased availability of publicly accessible land improves property value and generates revenue in the study area, could have positive effects on environmental justice populations • Would result in the loss of subsistence resources and opportunities on the federal lands, and a gain in subsistence resources and opportunities on the non-federal lands. • Would result in a loss of some of the ecosystem functions provided by the forest, wetland, and other natural habitats on the federal lands, particularly the portions of the federal lands (i.e., the Mine Site) where habitat would be replaced by mine facilities. Some of these functions could be restored during the post-closure period, when the federal lands (as well as the Plant Site) are revegetated. In exchange, would enable the USFS to directly manage the ecosystems functions on the non-federal lands.	• See Water Resources in Table 7.2.4-1 for a summary of potential effects to water resources from NorthMet Project Proposed Action • Would result in an active mining operation that would generate federal, state, and local tax revenue, in addition to employment • Could increase economic activity associated with recreation and tourism. • Could generate some direct and indirect forestry jobs (fewer than under the Land Exchange Proposed Action). • To the degree that increased availability of publicly accessible land improves property value and generates revenue in the study area, could have positive effects on environmental justice populations • Would result in the loss of subsistence resources and opportunities on the federal lands, and a gain (smaller than in the Land Exchange Proposed Action) in subsistence resources and opportunities on the non-federal lands. • Would result in a loss of some of the ecosystem functions provided by the forest, wetland, and other natural habitats on the federal lands, particularly the portions of the federal lands (i.e., the Mine Site) where habitat would be replaced by mine facilities. Some of these functions could be restored during the post-closure period, when the federal lands (as well as the Plant Site) are revegetated. In exchange, would enable the USFS to directly manage the ecosystems functions on the non-federal lands. However, this loss of some of the ecosystem functions would be less than from the Land Exchange Proposed Action.	• See Water Resources in Table 7.2.4-1 for a summary of potential effects to water resources from NorthMet Project Proposed Action • No change to the federal lands, and the non-federal lands would remain inaccessible to the public (including tribal entities) • Given other private ownership (e.g., the Dunka Road and railroad), the federal and non-federal lands would remain generally inaccessible to the public • No direct or indirect effects on socioeconomics

7.4 AGENCY-PREFERRED ALTERNATIVE

CEQ regulations (40 CFR 1502.14) states that based on the information and analysis presented in the affected environment and environmental consequences sections of an EIS, the EIS should present the environmental impacts of the proposal and the alternatives in comparative form to provide a clear basis for choice among the alternative options by the decision makers and the public. The regulations further state under 1502.14(e) that federal agencies shall identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference; however, the regulations do not require a rationale for the choice. No similar requirement to identify a preferred alternative exists for the MDNR under state law.

For the USFS, the Agency-Preferred Alternative is the Land Exchange Proposed Action described in Section 3.3.2. Potential effects specifically relating to the Land Exchange Proposed Action are identified in Sections 5.3 and 6.3. Table 7.3.5-1 summarizes potential effects relating to public interest factors considered for the Land Exchange Proposed Action and its alternatives.

For the USACE, Appendix B of 33 CFR 325 supersedes the CEQ requirement to identify an agency-preferred alternative. These procedures state that, "the Corps is neither an opponent nor a proponent of the applicant's proposal; therefore the applicant's final proposal will be identified as the 'applicant's preferred alternative' in the Final EIS." The information in the FEIS will be used by USACE to determine whether the applicant's proposal is in compliance with the requirements of Section 404 of the CWA and in the overall public interest.

7.5 LEAST ENVIRONMENTALLY DAMAGING PRACTICABLE ALTERNATIVE

The CWA Section 404(b)(1) Guidelines require that the USACE determine whether a project is water dependent. "Water dependent" means that the project requires access or proximity to, or siting within, a special aquatic site to fulfill its basic purpose. If a project is determined not to be water dependent, the regulations presume that: 1) an alternative site that does not involve special aquatic sites (in this case, wetlands) is available, and 2) practicable alternatives are available that would result in less environmental loss, unless clearly demonstrated otherwise by the applicant (40 CFR 230.10(a)(3)). The regulations further require that the USACE alternatives analysis identifies the least environmentally damaging practicable alternative (LEDPA). Under the Section 404(b)(1) Guidelines, the USACE may not permit discharges of dredged or fill material into waters of the United States if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences (40 CFR 230.10(a)). "Environmental" in this context is defined by the USACE as non-aquatic natural resources. The term "practicable" is defined in 40 CFR 230.3(q) as "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purposes."

The regulations also require that the USACE consider a full range of public interest factors and conduct an alternative analysis in order to identify the least environmentally damaging practicable alternative. NEPA provides a broad-based approach to impact balancing. However, NEPA does not contain substantive requirements that compel agencies to choose a particular

alternative as is required by Section 404(b)(1) of the CWA. Compliance with NEPA requirements may not necessarily translate to compliance with Section 404(b)(1) Guidelines during the Section 404 permit process. For NEPA actions where the USACE is a permitting agency, the analysis of alternatives required for NEPA EISs will, in most cases, provide the necessary information for the evaluation of alternatives under the CWA Section 404(b)(1) Guidelines (40 CFR 230.10(a)(4)). The NEPA alternative analysis would be evaluated by the USACE to determine if it is considered the LEDPA in order to proceed with authorization under the CWA. The alternatives screening process should therefore be designed to provide sufficient information regarding impacts to the aquatic ecosystem, purpose and need, and proposed impacts to the natural environment. The FEIS should contain sufficient information to identify and substantiate the LEDPA but is it not required to identify a LEDPA; however, the final determination on the LEDPA will be made within the ROD, which serves as the USACE's decision document and the basis for the DA permit decision. The LEDPA is the only alternative that is allowable pursuant to the CWA Section 404(b)(1) Guidelines. The applicant must clearly demonstrate that the preferred alternative in the FEIS is the LEDPA and that the other alternatives are not practicable for reasons of logistics, technology, cost, or other elements of project viability. Failing this, other alternatives may be considered "practicable" for the Section 404 alternatives analysis.

Under Subpart B of the Section 404(b)(1) Guidelines, the USACE's evaluation of the NorthMet Project Proposed Action is required to address the following four tests that the NorthMet Project Proposed Action must meet in order to receive a Section 404 permit:

- 40 CFR 230.10(a): Whether there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as that alternative would not result in other significant adverse environmental consequences. The alternative identified by this test is referred to as the LEDPA.
- 40 CFR 230.10(b): Whether the discharge would violate any applicable state water quality standards, Section 307 of the CWA, the ESA, or federal laws concerning marine sanctuaries.
- 40 CFR 230.10(c): Whether the discharge would cause or contribute to significant degradation of waters of the United States.
- 40 CFR 230.10(d): Whether appropriate and practicable steps have been taken that would minimize potential adverse impacts of the discharge on the aquatic ecosystem.

The ROD will include the Section 404(b)(1) analysis and the public interest review, and would determine the LEDPA. Furthermore, the ROD for the USACE cannot be finalized until 30 days after release of an FEIS and would include responses to comments that raised substantive issues that were not addressed in the FEIS. The ROD will recommend issuance, issuance with conditions, or denial of the NorthMet Project Proposed Action.

In order to determine the LEDPA for the NorthMet Project Proposed Action, the identified project alternatives would be evaluated pursuant to the four tests identified above. Alternatives that do not meet the objectives of the project sponsor will not be further evaluated. Those alternatives that satisfy the criteria of 40 CFR 230.10(a)-(d) and meet the objectives of the project sponsor would be further investigated for selection of the LEPDA. In order to determine which alternative is the LEPDA, each alternative would be evaluated for its potential impact to air quality, biological resources, floodplains, geology and soils, hazardous material and wastes,

infrastructure, land use, noise, prime farmland, water resources, and wetlands. In evaluating those resources, best professional judgment will be necessary in order to determine the degree of potential adverse effect resultant from evaluated alternatives. Similarly, in determining which alternative is the LEDPA, best professional judgment will be necessary because some alternatives may impose greater environmental harm to some resources over others. As such, a qualitative approach to selecting the LEDPA is the most effective.

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8.0 MAJOR DIFFERENCES OF OPINION

8.1 SUMMARY

This chapter discloses major differences of opinion Tribal Cooperating Agencies identified with the analysis that was presented in the SDEIS with updated Co-lead Agency responses for the FEIS. This information is provided to ensure that EIS reviewers are aware that major differences of opinion (MDOs) exist between the Co-lead Agencies and the Bands, GLIFWC, and 1854 Treaty Authority regarding the effects of the NorthMet Project Proposed Action and Land Exchange Proposed Action on the environment. The Co-lead Agencies' rationale for the analysis as presented in the FEIS, including references to where relevant concepts are discussed in the document, is also provided.

The USEPA is also a Cooperating Agency. Although the USEPA provided comments, the USEPA did not identify MDOs during preparation of the SDEIS.

8.2 INTRODUCTION

In developing the NorthMet Mining Project and Land Exchange EIS, the Co-lead Agencies invited the Bois Forte, Grand Portage, and Fond du Lac Bands to be Cooperating Agencies in preparation of the EIS. Other Tribal entities participating in the EIS process include the 1854 Treaty Authority and GLIFWC. In addition, THPOs and staff from the 1854 Ceded Territory Bands have been, and continue to be, involved in Section 106 consultation with the USACE and USFS regarding potential effects on historic properties in the NorthMet Project area as directed in 36 CFR 800.

The EIS process anticipated comment and input from the Tribal Cooperating Agencies in the development of the FEIS. The Communications and Coordination Plan commits the Co-lead Agencies to actively seek input from the Bands on how potential effects of the NorthMet Project Proposed Action and Land Exchange Proposed Action on natural and cultural resources would affect the Bands' traditional cultural practices, and to identify and disclose where differences exist between the parties.

Consistent with the Communications and Coordination Plan commitment, the Co-lead Agencies engaged the Tribal Cooperating Agencies throughout development of the EIS and took into consideration their comments on the DEIS and SDEIS, and other concerns brought forth through their participation in a series of post-DEIS technical teams, along with other information-sharing and disclosure venues. These include:

- **Impact Assessment Planning (IAP)**. The Co-lead Agencies convened a series of workgroups from September 2010 through July 2011 to identify the evaluations necessary to determine effects on the environment of the Agencies' Draft Alternative for the NorthMet Project Proposed Action. Impact areas assessed in the IAP process included air, wetlands, geotechnical stability, and water resources in four areas (surface water, groundwater, geochemistry, and impact criteria). Each workgroup was charged to update the analyses from the DEIS required for the analysis of the Agencies' Draft Alternative in terms of: 1) impact analysis requirements, 2) modeling assumptions, and 3) work plan requirements. Tribal

Agencies and USEPA involvement varied across teams as a function of relevant expertise and subject matter, including instances where these agencies did not participate because the subject matter fell outside of their areas of expertise. Each workgroup adopted a Final IAP Summary Memo to capture these requirements, but also identified key issues, decision points, and areas of disagreement with the Tribal Cooperating Agencies where applicable. See IAP Final Summary Memos (MDNR et al. 2011).

- **Tribal Issue Review Meetings**. After the DEIS and prior to the release of the SDEIS, meetings were held approximately every other month between the Co-lead Agencies and Tribal Cooperating Agencies to discuss the potential effects of the proposed NorthMet Project Proposed Action and Land Exchange Proposed Action on tribal interests. These sessions included the Co-lead Agencies' feedback on how these same comments and concerns have been taken into consideration in the development of the SDEIS. Participants typically included staff from the Co-lead Agencies, Tribal Cooperating Agencies, and the USEPA. Twelve meetings were held from June 2011 through March 2013, and included numerous opportunities for the Tribal Cooperating Agencies to engage the Co-lead Agencies on issues of concern and disagreement.
- **Monthly Cooperating Agency Meetings**. Meetings were held once a month between the DEIS and SDEIS publications to provide the opportunity for the Co-lead Agencies to brief the Tribal Cooperating Agencies on the status of concerns from the Tribal Issue Review Meetings or otherwise articulated by the Bands. These sessions were facilitated by the USACE using a general agenda, where participants typically included staff from the Co-lead Agencies, Tribal Cooperating Agencies, and USEPA. High-level outcomes typically addressed coordination and information needs or gaps identified by the Cooperating Agencies.

These were the primary venues where Tribal Cooperating Agencies were provided opportunities to express their points of view on the potential effects of the NorthMet Project Proposed Action and Land Exchange Proposed Action on the environment, including points of disagreement with the Co-lead Agencies, prior to the release and review of the SDEIS. Other opportunities took the form of ongoing coordination for information development and availability, and ad hoc technical meetings.

Following the publication of the SDEIS, the Cooperating Agencies were invited to participate at the three public meetings held during the SDEIS public comment period. The Tribal Cooperating Agencies hosted a Tribal Cooperating Agency informational booth at each of the meetings, which were open to the public.

Regular Cooperating Agency meetings were reestablished prior to the SDEIS comment period (December 2013), through development of the FEIS (October 2015). These meetings were facilitated by the USFS to provide a continuing opportunity for the Co-lead Agencies to brief the Tribal Cooperating Agencies and USEPA on the status of the project, and for the Cooperating Agencies to identify specific topics for more detailed discussion at separate technical meetings. Several technical meetings were conducted in order for the Co-lead Agencies to fully understand and consider the specific Cooperating Agency comments received on the SDEIS, as well as for the Co-lead Agencies to update the Cooperating Agencies on how the comments would be addressed for the FEIS.

The Communications and Coordination Plan also included provisions for the Co-lead Agencies to identify and disclose in the SDEIS differences of opinion with the Cooperating Agencies. The Communications and Coordination Plan notes for the MDNR, in its capacity as RGU, that *Minnesota Rules* part 4410.2300, item H, states: "The EIS shall identify and briefly discuss any major differences of opinion concerning significant impacts of the proposed project on the environment." For the USACE and USFS, in their capacity as federal Co-lead Agencies, 40 CFR § 1502.9 and 1503.4 note they are obligated to work with the Cooperating Agencies to obtain their comments and "shall make every effort to disclose and discuss at appropriate points in the draft statement all major points of view on the environmental impacts of the alternatives including the proposed action." The Co-lead Agencies believe these information disclosure requirements were satisfied by providing the Tribal Cooperating Agencies MDOs in chapter 8 of the SDEIS.

8.3 MAJOR DIFFERENCES OF OPINION

The Co-lead Agencies distributed a Preliminary Supplemental Draft Environmental Impact Statement (PSDEIS) and requested review by the Cooperating Agencies (both Tribal and USEPA) and the MPCA. Reviewers assessed the document for accuracy and identified gaps in technical information or general logic that could substantially affect the reader's understanding of the subject material. Comments were generated from all entities involved. The Co-lead Agencies reviewed all comments and incorporated suggested edits or provided additional clarification or analysis in the SDEIS as required. All substantive comments were reviewed and discussed by work groups comprised of technical experts from the Co-lead Agencies and MPCA.

The Co-lead Agencies worked diligently with the Cooperating Agencies over the course of the PSDEIS's development to consider and resolve any concerns prior to its release for Cooperating Agencies' review and comment. While the USEPA provided comments and suggested edits on the PSDEIS, none of these were identified as representing an MDO. For comments from the Tribal Cooperating Agencies on the PSDEIS, there were cases where the Co-lead Agencies disagreed with the comments and determined that the PSDEIS analysis was valid and best disclosed potential environmental effects and permitting requirements as directed by NEPA and MEPA. Those comments were identified as potentially representing MDOs. Three workshops were held to identify the specific issue areas and reach consensus on the language summarizing tribal views. Ultimately, 18 issue areas were identified in the workshops as being "unresolved" and determined to represent MDOs in the SDEIS.

Supporting documentation and independent analyses for the 18 issue areas were also provided by the Tribal Cooperating Agencies (see Section 8.4). Although this information was considered, the Co-lead Agencies ultimately determined that the analyses and supporting documentation presented in the SDEIS were valid and best disclose potential environmental effects as directed by NEPA and MEPA.

All Cooperating Agencies submitted comment letters on the SDEIS. The USEPA gave the SDEIS a rating of EC-2 (Environmental Concerns – Insufficient Information) and provided detailed recommendations to improve the analysis. The Tribal Cooperating Agencies provided comments that included the previously identified MDOs, as well as additional comments on the SDEIS. In order to address the comments received on the SDEIS, the Co-lead Agencies

considered new information, and also engaged with the Cooperating Agencies to fully understand their comments prior to addressing or responding to them in the FEIS.

As a result of addressing the SDEIS comments, the analysis relating to some of the Tribal Cooperating Agencies' MDOs was updated.

Table 8-1 summarizes the information presented by the Tribal Cooperating Agencies by providing:

- the 18 issue areas as identified in the SDEIS;
- the Tribal Position Summaries as identified in the SDEIS;
- the Tribal Cooperating Agency(ies) holding the MDO;
- the Co-lead Agencies' responses on the issues for the SDEIS and updated responses for the FEIS; and
- the location in the FEIS of reference material supporting the Co-lead Agencies' opinion on the issues.

Table 8-1 Major Differences of Opinion

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	**FEIS**
1	Impacts to flow in Embarrass and Partridge Rivers	Grand Portage, Fond du Lac, and GLIFWC believe that projected reductions in average stream flows in the Partridge and Embarrass Rivers, and subsequent impacts to aquatic habitat in these same systems, result in measurable impacts. They believe that the interaction of the project's impacts with natural variability in precipitation would be more adverse than reported in the SDEIS. This is because effects of climatic variability are additive to the project-related change, which would be especially true for drier periods. These agencies believe there is very little understanding of the hydrology of the Upper Partridge River, and the XP-SWMM model used to extrapolate flow data is flawed and does not produce usable results. Appendix C provides additional information from these agencies on this major difference of opinion revealed in the development of the SDEIS.	The Co-lead Agencies believe the understanding of the hydrology of the Partridge and Embarrass rivers is sufficient to assess effects and that the SDEIS adequately predicts potential changes to flow in the Embarrass and Partridge rivers. The NorthMet Project Proposed Action is not predicted to result in any substantial changes to average stream flow when compared to existing conditions. Underlying impact assessment methodologies are presented in SDEIS Section 5.2.2.2.2 and provide readers with specific information and cited reference documents that support the basis for the Co-lead Agencies' position. Surface water flow monitoring is proposed for both rivers and is presented in SDEIS Section 5.2.2.3.5 for permitting agencies to consider. If actual NorthMet Project Proposed Action effects were found to be higher than predictions, then steps could be taken to reduce those effects.	The Co-lead Agencies believe the understanding of the hydrology of the Partridge and Embarrass rivers is sufficient to assess effects and that the FEIS adequately predicts potential changes to flow in the Embarrass and Partridge rivers. The NorthMet Project Proposed Action is not predicted to result in any substantial changes to average stream flow when compared to existing conditions. FEIS Section 5.2.2.2.2 describes the results of the water impact analysis. Surface water flow monitoring is proposed for both rivers. Sections 5.2.2.3.5 and 5.2.2.3.6 describe the monitoring and adaptive management measures that could be applied to minimize impact on flow, including impacts to tributaries extending from the Tailings Basin (as appropriate). Section 5.2.6 describes the impacts on aquatic species.
2	Predicted decrease in mercury loading	Fond du Lac, Grand Portage, and GLIFWC do not believe the proposed project will result in a decrease in mercury loading to the Embarrass and Partridge River aquatic systems. For the Embarrass River, they do not believe that: 1) the tailings basin will function as a mercury sink; and 2) mercury	The Co-lead Agencies believe that the SDEIS thoroughly considers potential sources of mercury, including those identified by the Tribal Cooperating Agencies. The SDEIS discloses in Section	The Co-lead Agencies' position as reflected in the SDEIS response remains unchanged for the FEIS. The mercury mass balance presented in the SDEIS has been revised to reflect updates to the water models and

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
		methylation would decrease due to projected reductions in sulfate contributions. For the flows for the Partridge River, Embarrass River, or their tributaries, they disagree that the project would not significantly impact flow and water level fluctuations, thus leading to increased mercury methylation and bioaccumulation, which taken together may be sufficient to impact habitat leading to alterations of species composition, food web structure, and ultimately mercury bioaccumulation. Potential mercury contributions from peat stored at the Overburden Laydown and Storage Area have also not been addressed. Mercury-related concerns are present for created wetlands at the East Pit and mercury concentrations in water discharged from the West Pit. Air-related mercury emissions do not account for sources from energy generation of vehicle use at the site. For the Lake Superior watershed, any additional mercury releases to the environment are exacerbating already existing impairments including fish advisories set for recreational fishing. Increased fish mercury levels will also have direct impacts on both the cultural and recreational resources of the region. Appendix C provides additional information from these agencies on this major difference of opinion revealed in the development of the SDEIS.	5.2.2.3.4 that the Embarrass River is predicted to result in a net increase in mercury-loadings of up to 0.6 grams per year, from 22.3 grams to 22.9 grams. For the Partridge River, the SDEIS indicates mercury-loading is predicted to decrease 1.2 grams per year, from 24.2 grams to 23.0 grams. This represents a projected 0.6 grams per year reduction across both river systems. Mercury-related analyses include water mass-balances, human health air risk assessments, potential bioaccumulation, and wetland/riparian sources of methylmercury generation. Impact assessment methodologies are presented in SDEIS Section 5.2.2.1.2 and provide readers with specific information and cited reference documents that support the basis for the Co-lead Agencies' position. The Co-lead Agencies understand the NorthMet Project Proposed Action includes features to control air emissions such that statewide TMDL reduction goals would not be impeded. The wastewater treatment facilities are also expected to provide mercury removal from the process water waste streams. The Co-lead Agencies respectfully disagree with the Tribal Cooperating Agencies and believe the Tailings Basin would act as a mercury sink, at least similar to other media like soils, and believe it cannot be predicted	air emissions inventory. The new results disclosed in Chapter 5, Section 5.2.2, are consistent with the conclusions made in the SDEIS that predict a net decrease of mercury-loadings of approximately 1.0 grams per year (i.e., a net decrease of 0.8 grams per year in the Partridge River and a net increase of 0.2 grams per year in the Embarrass River), resulting in a net decrease in overall mercury loadings to the St. Louis River. Total potential mercury emissions to air are estimated to be 4.6 lbs/year from the Plant Site and less than 1.0 lb/yr for the Mine Site. Mercury-related effects are addressed in FEIS Sections 5.2.2, 5.2.5, 5.2.6, 5.2.7, 5.2.9, 5.2.10, and 6.2.3. Surface water quality monitoring and adaptive management methods are presented in FEIS Section 5.2.2.3.5 for permitting agencies to consider.

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
			whether methylmercury production may or may not change under the NorthMet Project Proposed Action. In addition, surface water quality monitoring and adaptive management methods are presented in SDEIS Section 5.2.2.3.5 for permitting agencies to consider. If actual NorthMet Project Proposed Action effects were found to be higher than predictions, then steps could be taken to reduce those effects.	
3	Wild rice standard regulatory applicability determinations and areas of production	Grand Portage, Fond du Lac, GLIFWC, and The 1854 Treaty Authority disagree with the MPCA's draft staff recommendations about the applicability determination of the wild rice 10 mg/L sulfate surface water standard to the NorthMet Project. These agencies do not agree with a seasonal application of the standard, or the reaches of waters determined as used for the production of wild rice, and compliance points for the sulfate standard, nor do they agree with basing a determination of a wild rice production water on the density of wild rice found growing there. The 1854 Treaty Authority states that it is arbitrary to define how much rice presence is required, especially given the lack of long-term monitoring data on a given water. Embarrass Lake is considered a water used for the production of wild rice under current MPCA draft staff recommendations; water quality is not meeting the wild rice water quality	The Co-lead Agencies acknowledge that both the proper application of the existing standard and the questions of whether and how that standard should be applied are the subjects of continuing general controversy. The Co-lead Agencies believe the MPCA's project-specific guidance on the applicability of the wild rice standard is a relevant and appropriate water quality evaluation criterion to use in the SDEIS. The Co-lead Agencies acknowledge that the MPCA's project-specific guidance may change as their NPDES/SDS permitting process progresses. If their guidance were to change in the future while the EIS is underway, the new guidance would be considered as appropriate for use in the FEIS and permitting. The wild rice standard is based in rule where applicability is determined by the MPCA. Any future regulatory	The Co-lead Agencies' position as reflected in the SDEIS response remains unchanged for the FEIS.

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
		standard there and wild rice is also found further upstream in the Embarrass River because it is an existing use defined by the Clean Water Act. Grand Portage states that the wild rice sulfate standard for waters used in the production of wild rice applies in the Embarrass River. The 1854 Treaty Authority notes that research and evaluation of the standard are ongoing, and that application of the standard may change. All believe the State's application of the wild rice standard is not in compliance with the Clean Water Act. This difference of opinion is directed at an element of the State's water quality regulatory program, but is offered in the SDEIS because the effects analysis presented in the SDEIS is based on the regulatory program. Appendix C provides additional information from these agencies on this major difference of opinion revealed in the development of the SDEIS.	determinations and basis for applicability of the wild rice standard is outside of the scope of this SDEIS. The Co-lead Agencies also note there will be opportunities for Grand Portage, Fond du Lac, GLIFWC, and The 1854 Treaty Authority to engage the MPCA in these regulatory determinations outside of this project-specific EIS, and these opportunities would be the more appropriate venue to raise these concerns.	
4	Impaired waters list regulatory designation should be made for Embarrass River watershed	Grand Portage and Fond du Lac believe that sulfate concentrations should be a criteria used for designation of an impaired wild rice water. They note that no wild rice waters in the state have been designated impaired by the MPCA. Grand Portage states that all segments of the Embarrass River that are identified as wild rice waters by MPCA are impaired due to water quality exceedances for sulfate. Grand Portage further notes waters where wild rice historically occurred, all exceed the 10 mg/L sulfate standard and therefore should be on the impaired waters list because it is	The Co-lead Agencies believe it is appropriate to rely on the MPCA's Clean Water Act Section 303(d) final 2012 TMDL List of impaired waters in the SDEIS. The Co-lead Agencies recognize that there are segments of the Embarrass River on the 2012 List, but the listing is for an impairment not specific to sulfate and/or wild rice. The Co-lead Agencies give regulatory deference to the MPCA and USEPA's process for determining the basis for, and finalizing, the impairments	The Co-lead Agencies' position as reflected in the SDEIS response remains unchanged for the FEIS.

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
		known that wild rice previously grew in these waters. These agencies contend the Embarrass River is already impaired so any sulfate additions constitute cumulative effects. This difference of opinion is directed at the MPCA's impaired waters regulatory program, but is offered in the SDEIS because the effects analysis impact criteria presented in the SDEIS are based on information developed with respect to this regulatory program. Appendix C provides additional information from these agencies on this major difference of opinion revealed in the development of the SDEIS.	assigned to a given reach of water on the 303(d) list. The development of the 303(d) list is a separate biennial process outside the scope of the EIS. Furthermore, the Co-lead Agencies will continue to rely on MPCA's project-specific guidance on the applicability of the wild rice standard as a relevant and appropriate water quality evaluation criterion to use in the SDEIS.	
5	Underground Mining analysis	GLIFWC believes that the Underground Mine Alternative has been prematurely eliminated from consideration in the NorthMet Project SDEIS and it would provide significant environmental benefits when compared to the proposed project. An underground mine would largely eliminate impacts to wetlands, and would substantially limit water quantity and quality impacts for surface- and groundwater resources. GLIFWC concurs that underground mining is technically feasible and available at the site, leaving only the lack of economic feasibility as the rationale used by the Co-lead Agencies to eliminate the alternative. On this GLIFWC's opinion is that the Co-lead Agencies did not fully assess information on economic feasibility provided by the proposer. Deficiencies noted by GLIFWC are related to the: error term for economic	The Co-lead Agencies believe that adequate consideration was given to the Underground Mining Alternative prior to eliminating it from further consideration for the SDEIS. This option was screened against specific alternatives-consideration criteria in terms of purpose and need, technical and economic feasibility, availability, and environmental and socioeconomic benefit. Both the SDEIS Section 3.2.3.4.1 and the Co-lead Agency position paper (Appendix B) disclose that an underground mine would result in a smaller footprint, thus offering certain environmental benefits such as reduced effects on wetlands, vegetation, and wildlife habitat. However, both the SDEIS and the Co-	The Co-lead Agencies' position as reflected in the SDEIS response remains unchanged for the FEIS.

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
		projections; rates on return on investment; costs of the land exchange; environmental goods and services provided by natural systems; economic impact and inconsistency with state mineland reclamation program goals regarding perpetual maintenance and water treatment at the site. Appendix C provides additional information from this agency on this major difference of opinion revealed in the development of the SDEIS.	lead Agency position paper also disclose that the tonnage/volume and grade (amount of metals) of rock would not generate enough revenue to pay for all costs associated with underground mining. Therefore, underground mining would not be economically feasible. The Co-lead Agencies also considered that a smaller mining operation would employ fewer workers for a shorter amount of time, resulting in fewer socioeconomic benefits than the NorthMet Project Proposed Action. Also, preliminary economic screening by PolyMet determined that sale of metal precipitates produced from an underground mine would not meet the NorthMet Project Proposed Action Purpose and Need, which is integral to whether an alternative should be evaluated in the SDEIS. Therefore, it was found to not be a reasonable alternative and was eliminated from further consideration.	
6	West Pit backfill option analysis	GLIFWC believes that the West Pit Backfill option has been prematurely eliminated from consideration in the NorthMet Project SDEIS. They believe the potential environmental benefits to long term water quality have not been fully assessed and mineral encumbrance issues can be avoided. This alternative meets the purpose and need, is available, and is technically and economically feasible. By limiting the consideration of environmental benefits to only a screening-level analysis, the full effect of the alternative on the	The Co-lead Agencies believe that the West Pit Backfill option was given adequate consideration prior to eliminating it from further examination for the SDEIS. SDEIS Section 3.2.3.4.2 details the factors considered by the Co-lead Agencies regarding this potential alternative, including: backfill sequencing; volume of material; water quality and WWTP treatment; visual aesthetics; operational air, noise, and	The Co-lead Agencies' position as reflected in the SDEIS response remains unchanged for the FEIS. FEIS Section 3.2.3.4.2 details the factors considered by the Co-lead Agencies regarding this potential alternative.

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
		environment is not known, especially for water quality and potential need for perpetual treatment (contrary to state mineland reclamation program goals). The issue of mineral encumbrance is raised as proposer concern, but is avoided by employing standard underground mining techniques from other locations. GLIFWC's opinion is that economic considerations of a future mine expansion are the only concrete reasons for not conducting a full analysis, and every available option that might improve long term impacts should be explored regardless of mineral lease commitments. Appendix C provides additional information from this agency on this major difference of opinion revealed in the development of the SDEIS.	dust impacts; footprint impacts for wetlands; mineral encumbrance lease provisions; and costs. These factors were weighed against specific alternatives-consideration criteria in terms of purpose and need, technical and economic feasibility, availability, and environmental and socioeconomic benefit. The screening analysis revealed the opportunity to reclaim wetlands and vegetation at the Category 1 Stockpile footprint would be the only measurable environmental benefit offered by backfilling the Category 1 Stockpile into the West Pit. However, because the stockpile would have to be constructed anyway even under a backfilled option, these impacts would still occur with mitigation required under wetlands-related permitting or site reclamation requirements under the Permit to Mine. On balance, it is the Co-lead Agencies' opinion that the West Pit Backfill option would not provide substantial environmental benefit to the project as proposed. As such, the option to backfill the West Pit was eliminated from further consideration in the SDEIS.	
7	Partridge River baseline base flow and XP-SWMM model	Grand Portage, Fond du Lac, and GLIFWC believe that basic site surface water flow hydrology at the Mine Site is inadequately characterized. The XP-SWMM model predictions may have underestimated	The Co-lead Agencies believe that the SDEIS adequately predicts Partridge River baseline baseflow and that the XP-SWMM model calibration was	The Co-lead Agencies have concluded after additional analysis and discussion that the USGS gage data and derived XP-SWMM values used in the EIS remain the most reasonable estimate of

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
	calibration	baseflow conditions in the Partridge River by a factor of five (5). If true, this mis-characterization might affect water quality compliance projections in that although more baseflow might mean more dilution of contaminants, it could also mean transport of greater quantities of pollutants or drawdown for the Partridge River. They also contend that XP-SWMM's projections, which are based on data from 17 miles away collected from 1978 to 1987, do not align with the rating curve from new MDNR winter monitoring data, or the results of GLIFWC's own projections taken from two years of new data from the Dunka Road gage. Because XP-SWMM's low estimates of baseflow are used in the calibration of the MODFLOW model, it will influence many aspects of the baseline site characterization and impact prediction. These include pit inflow, dewatering impacts to the Partridge River and wetlands, water treatment needs, groundwater flow rates, contaminant transport times and concentrations, and contaminant dilution in the Partridge River watershed. Appendix C provides additional information from these agencies on this major difference of opinion revealed in the development of the SDEIS.	appropriate. Baseflow estimation methodologies, including limitations, and data sources are presented in SDEIS section 4.2.2.2.2 and provide readers with specific information and cited reference documents that support the basis for the Co-lead Agencies' position. Section 5.2.2.2.2 identifies the methods to assess existing conditions in the Partridge River, while Table 5.2.2-4 provides the results of the XP-SWMM modeling for various reaches of the river. Regarding the use of the 1978 to 1987 flow data, the Co-lead Agencies believe it is reasonable to rely on this information because there have not been any relevant changes in the watershed since that time. In addition, the SDEIS acknowledges the issue by noting in Section 4.2.2.2.2 the implications of using a lower modeled baseflow are that any changes of flow volume due to withdrawals, discharges, or augmentation would result in greater effects during the impact modeling than if higher baseflow values were used, such as showing higher concentrations of solutes in the rivers and creeks. Surface water flow monitoring is proposed for the Partridge River and is presented in SDEIS Section 5.2.2.3.5 for permitting agencies to consider. If actual NorthMet Project Proposed Action effects were found to be higher	groundwater baseflow conditions in the Partridge River for the purposes of MODFLOW and GoldSim modeling. Groundwater baseflows for the Partridge River developed in the SDEIS are best-estimate values and were retained for the FEIS. In addition, a groundwater baseflow sensitivity analysis was performed to consider the effect of variable groundwater baseflow inputs on water quality. Results show that modeled groundwater and surface water concentrations are sensitive to changes in groundwater baseflow. However, the NorthMet Project Proposed Action's ability to meet groundwater quality and surface water quality evaluation criteria is not sensitive to changes in groundwater baseflow. As per the SDEIS, FEIS Section 5.2.2.2.2 describes the methodology and results of water impact analysis. Surface water flow monitoring is proposed for the Partridge River, in Section 5.2.2.3.6. Section 5.2.2.3.5 describes the adaptive management measures that could be applied to minimize impacts to water resources. Section 5.2.6 describes the impacts on aquatic species.

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
			than predictions, then steps could be taken to reduce those effects.	
8	Analog method to assess indirect impacts from mine dewatering	Grand Portage, Fond du Lac, GLIFWC, and The 1854 Treaty Authority believe that the Co-lead Agencies' proposed analog method of assessing potential indirect impacts from mine site pit dewatering is not rigorous, and as such should not be the sole means of indirect impact assessment for the SDEIS. Resource assessment areas of concern include wetlands, groundwater, and surface waters. All these agencies consider the impact zones and distances to be somewhat arbitrary, and also challenge the automatic exclusion of ombrotrophic wetlands from potential drawdown effects. Accounting for these factors GLIFWC conducted an independent assessment using the same methods as the Co-lead Agencies, along with additional analog data from other mining-impacted sites, which found an estimated total of 5719.75 acres of wetlands would be potentially susceptible to severe indirect impacts from mine pit drawdown. These agencies are of the opinion that the USACE should require up front mitigation for all severely impacted wetlands, but at a minimum up front mitigation should be required for wetlands occurring in zone 1. They also contend that additional up front mitigation should be considered for wetlands that are classified in the moderate to severe category, with robust monitoring being required for wetlands in the moderate category. These agencies also note that the upper Partridge River is located in Zone 2;	The Co-lead Agencies believe that the SDEIS adequately uses the analog method to assess potential indirect effects from mine dewatering. The complex mixes of bedrock, glacial till, and wetland soils at the Mine Site impede the ability to reasonably model and accurately assess the potential effect of pit dewatering on wetlands. In light of this modeling limitation, wetlands were divided into zones based on distance from the open pit. The closer a wetland was to the pit during dewatering, the greater the water table drawdown would be and the greater potential there would be for hydrologic effects on overlying wetlands. These impact assessment methodologies are presented in SDEIS Sections 5.2.2.3.2 and 5.2.3.1.2. The Co-lead Agencies respectfully believe reliance on potential impact zones is appropriate but recognize uncertainty remains. In the event that the required wetland monitoring identifies additional indirect effects, permit conditions would likely include a plan for adaptive management practices to be implemented, such as hydrologic controls or additional off-site compensatory mitigation, which may be identified through annual reporting.	The Co-lead Agencies believe that the analog method used in the SDEIS to assess potential indirect effects from mine dewatering is adequate. Further, the FEIS has been revised to address concerns raised by the Bands regarding the assertion that ombrotrophic bogs would not be impacted by mine dewatering. Section 5.2.3.2.2 of the FEIS applies a more conservative assumption of the potential indirect effects for all bog communities within the 0-1,000-ft analog zone. Specifically, ombrotrophic bogs were reclassified from the "no effect" category to the "low likelihood" category, the same status as that assigned to minerotrophic bogs. The complex mixes of bedrock, glacial till, and wetland soils at the Mine Site impede the ability to reasonably model (e.g., using MODFLOW) and accurately assess the potential effect of pit dewatering on wetlands. In light of this modeling limitation, wetlands were divided into zones based on distance from the open pit. The closer a wetland was to the pit during dewatering, the greater the water table drawdown would be and the greater potential there would be for hydrologic effects on overlying wetlands. These impact assessment methodologies are presented in

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
		GLIFWC's independent analysis estimated drawdowns of 3 to 5 ft under the river, which would severely reduce baseflow in the channel, indirectly impact riparian wetlands downstream, and affect other surface water features. Appendix C provides additional information from these agencies on this major difference of opinion revealed in the development of the SDEIS.		Sections 5.2.2.3.2 and 5.2.3.1.2 of the FEIS. The Co-lead Agencies are not relying solely on the potential impact zones determined in the analog method for the FEIS but would monitor wetlands for potential indirect effects if the NorthMet Project Proposed Action were approved. In the event that the required wetland monitoring identifies additional indirect effects, permit conditions would likely include a plan for adaptive management practices to be implemented. Additional compensatory mitigation would be required if indirect wetland impacts were identified during monitoring and annual reporting.
9	Mine Site groundwater impact travel times	Grand Portage and GLIFWC believe that assumed groundwater pollutant travel times at the mine site are underestimated. They contend that relevant literature and data suggest otherwise, and this has not been captured in the modeling of bedrock aquifer transport of pollutants from the mine pit to surface water features. Grand Portage further disagrees with the Co-lead Agencies' assumption that the Duluth Complex would remain highly competent with extremely low hydraulic conductivities post-blasting. If true, resulting groundwater travel times through bedrock would be shorter than predicted in the SDEIS. They recommend conducting a greater characterization of the entire Partridge River watershed and mine site.	The Co-lead Agencies believe that the SDEIS adequately predicts groundwater impact travel times at the Mine Site as a function of bedrock hydraulic conductivity. The hydrogeology of the mine site bedrock units has been evaluated as detailed in SDEIS Section 4.2.2.2.1, including the potential that fractures, including faults and fracture zones, may exist that could permit transmission of groundwater through the bedrock over distances of thousands of feet. SDEIS Section 5.2.2.2.1 considers how fractures may affect hydraulic conductivities at the Mine Site, and although the presence of fractures	The Mine Site GoldSim model was changed following the SDEIS in response to comments and additional analysis occurred relating to hydraulic conductivities. The modeled bedrock and surficial aquifers contribute groundwater baseflow to the Partridge River. The Duluth bedrock hydraulic conductivity was increased and a bedrock flowpath thickness was established at 15 m at the Mine Site to better represent the likelihood of an upper zone of more fractured bedrock than deeper in the formation. The increased bedrock hydraulic conductivity is still less than the value for the surficial deposits. For

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
		Appendix C provides additional information from these agencies on this major difference of opinion revealed in the development of the SDEIS.	cannot be completely ruled out, site-specific data such as boring logs indicate the bedrock appears competent. Deep fractures are rarely encountered near the surface, and hydrogeologic investigations have indicated that the bulk of hydraulic conductivity of bedrock at this Mine Site is very low. Blasting-related effects within the pit wall have also been considered. They are expected to be limited in terms of lateral extent and do not have much effect on solute transport in bedrock. In addition, bedrock groundwater monitoring to evaluate bedrock water quality trends is proposed at the Mine Site as presented in SDEIS Section 5.2.2.3.5 for permitting agencies to consider. If actual NorthMet Project Proposed Action effects were found to be higher than predictions, then steps could be taken to reduce those effects.	the bedrock flowpaths that originate at the mine pits, the travel time for water to reach the property boundary is much longer than the modeled 200-year period. Surficial groundwater travel times are related to river groundwater baseflow estimates. Partridge River groundwater baseflow estimates used in the SDEIS are reasonable. A groundwater sensitivity analysis was completed which predicted higher peak concentrations that occur sooner for some constituents. However these peaks remain below evaluation criteria for most parameters. Groundwater monitoring and adaptive measures to manage pit groundwater flows, including for any water conducting features or faults if encountered, are described in FEIS Sections 5.2.2.3.5 and 5.2.2.3.6.
10	No Action Alternative analysis	Fond du Lac, Grand Portage and GLIFWC believe CEQ guidance require that water quality modeling of a No Action alternative should include activities that will occur under the existing Cliffs Consent Decree. The consent decree requires mitigation for water quality exceedances from Area Pit 5, the LTVSMC tailings basin, and the Dunka Pit, all of which under the No Action alternative would cause compliance with all water quality standards with no additional reductions in flows. Further, they contend the current modeling of the	The Co-lead Agencies believe that the SDEIS adequately analyzes effects on water resources under the No Action Alternative as required by NEPA/MEPA. Future remedial actions that would be required at the LTVSMC Tailings Basin under the consent decree and other permits are not established so it is not possible to model those conditions. The No Action Alternative is described in SDEIS Section 5.2.2.4 and acknowledges it is not static, but at this	The Co-lead Agencies' position as reflected in the SDEIS response remains unchanged for the FEIS. To further refine the impact assess and consistent with this position, the Co-lead Agencies have elected to remove the Northshore Pit discharges to the Partridge River from both the continuation of existing conditions and project model scenarios at year 2070. This was done because the timing and the effects of the Northshore Pit discharge cessation are reasonably

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
		"continuation of existing conditions," which omits the dilution effect of precipitation on the water quality of the basin, is not appropriate. Claims that the basin's water quality has stabilized and that current conditions will not change over time is based on pond water sampling for only 4 years (2001-2004). If precipitation since 2004 has not influenced water quality by further diluting water chemistry in the pond, then more recent data on basin pool water chemistry is needed to support the assumption. These agencies are of the opinion while the CEQ makes it clear that a blind "continuation of existing conditions" model is inappropriate as a No Action alternative, a "continuation of existing conditions" model that ignores simple environmental processes such as precipitation is even less appropriate. Appendix C provides additional information from these agencies on this major difference of opinion revealed in the development of the SDEIS.	time the exact nature, timing, and effectiveness of measures under the consent decree are unknown, and thus are not quantifiable for the SDEIS. The Co-lead Agencies have considered the water quality implications of the No Action Alternative and believe it is reasonable to expect that water quality within the Embarrass River could improve over time, absent other unforeseen activities that could affect water quality. The Co-lead Agencies are not relying on the continuation of existing conditions modeling scenario in consideration of the No Action Alternative. This model run represents conditions in the absence of the NorthMet Project Proposed Action and allows for a direct comparison of the predicted water quality model results with the same run with the proposed project. The Continuation of Existing Conditions Scenario facilitates the assessment of the extent to which the NorthMet Project Proposed Action would result in changes in water quality as captured in the model. The Co-lead Agencies believe this comparison is valuable in considering the efficacy of measures available to mitigate potential NorthMet Project Proposed Action-related adverse water quality effects for both the mine and plant sites. These mitigative measures are already	known.

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
			contained in the design of the NorthMet Project Proposed Action, or are available as adaptive or contingent NorthMet Project Proposed Action features as detailed in SDEIS Section 5.2.2.2.5.	
11	Cumulative Effects to groundwater and surface water quality and quantity	Grand Portage, Fond du Lac, GLIFWC, and The 1854 Treaty Authority disagree with the Final SDD and SDEIS conclusion that no cumulative effects to groundwater resources are expected. They note bedrock and surficial groundwater pollution is already documented at the old LTVSMC site (i.e., plant site; area pits 5, 6, and 9S) and the Dunka Pit. Cumulative effects at these locations should be assessed with the proposed project along with potential groundwater pollution from the Peter Mitchell Pit, Laskin Energy, Arcelor-Mittal, United Taconite, and US Steel Minntac. They suggest a future action that should be considered in a cumulative effects analysis is any potential future backfill of Virginia Formation waste rock for in-pit disposal at the Cliffs Peter Mitchell Pit. And they contend that potential dewatering-related interaction effects between the proposed NorthMet Project and the Peter Mitchell Pit should be evaluated for cumulative effects. Appendix C provides additional information on this major difference of opinion revealed in the development of the SDEIS.	The Co-lead Agencies believe that the SDEIS appropriately considered the potential for cumulative groundwater effects and accurately predicts cumulative effects to surface water quality and quantity. Cumulative effects impact assessment methodologies for both groundwater and surface water resources are presented in SDEIS Section 6.2.3.3 and provide readers with specific information and cited reference documents that support the basis for our position. The Co-lead Agencies believe the potential for cumulative effects on groundwater resources from the NorthMet Project Proposed Action is not supported. The SDEIS reports the NorthMet Project Proposed Action would affect groundwater levels, but this effect would be limited geographically and temporally, the latter being that groundwater levels would begin to be restored once pit dewatering ceases, and is subject to interactions causing cumulative effects. The Co-lead Agencies do believe, however, that assessment of cumulative effects on surface water quality does	The Co-lead Agencies believe that the FEIS appropriately considers cumulative effects for both groundwater and surface water resources. Water-related cumulative effects assessment methodologies and results are presented in FEIS Section 6.2.2. In addition to the NorthMet Project Proposed Action, water-related cumulative actions considered in the FEIS include: ArcelorMittal Deposits (Laurentian and East Reserve deposits), City of Aurora POTW, City of Babbitt POTW, City of Biwabik POTW, City of Hoyt Lakes POTW, Former LTVSMC Pits and Tailings Basin, Mesabi Nugget (formerly Mesabi Nugget Phase I), Mesabi Mining Project (formerly Mesabi Nugget Phase II), Minnesota Power Laskin Energy Center, Northshore Mine, and Northshore Mine Closure. Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time. The modeled groundwater flowpaths of the NorthMet Project

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
			require consideration of potential groundwater solute contributions. SDEIS Section 6.3.3.3 provides a complete examination of this concern, including existing and potential future actions. The actions considered are: Arcelor-Mittal; Northshore Mine; Area 5 NW Pit; four POTWs; Cliffs Erie LTVSMC site; Mesabi Nugget; Mesabi Mining; Mesaba Energy – East Range Site; and Minnesota Power Laskin Energy Center.	Proposed Action do not interact with other groundwater flowpaths. There may be other plumes from other projects in the vicinity of the NorthMet Project Proposed Action, but the effects of these plumes would only interact with NorthMet Project Proposed action impacts within surface waters. This has been evaluated. The only exception is the seepage effects from existing LTVSMC Tailings Basin that the NorthMet Project Proposed Action would supplant. This combined effect has been considered in the groundwater quality models presented in Section 5.2.2. The Northshore Mine Progression Ultimate Pit Limit project which includes the in-pit stockpiling of Virginia Formation waste rock in the Peter Mitchell Pit would have no impact on the Partridge River, as all operations discharges would be primarily to Langley Creek. The FEIS considers potential interaction effects between the NorthMet Project Proposed Action and the Northshore Mine through operations and closure of both facilities; see Section 6.2.2.3.1. The FEIS indicates that expanded bedrock groundwater monitoring would be required between the sites; see Section 5.2.2.3.6. Contingency mitigation measures to prevent any interaction effects are also identified; see Section

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
				5.2.2.3.5.
12	CEAA for Partridge and Embarrass Rivers	Fond du Lac, Grand Portage, GLIFWC, and The 1854 Treaty Authority believe that limiting the cumulative effects analysis area (CEAA) for water resources to the Partridge and Embarrass River watersheds is too small. Rather, they contend the analysis should be expanded to include the St. Louis River. Impacts associated with United Taconite's proposal for 1,200 acres of wetland destruction to build a new tailings basin should be considered. More broadly, they contend the project would add to the load of pollutants that are already causing an excursion from the water quality standards in the St. Louis River and would reduce tributary flows to the river. If true, then project-related impacts that may occur due to the project could be underestimated (due to modeling concerns), and would not stop before reaching the St. Louis River. This would mean that any added impact from the project to the St. Louis River would in turn impact Lake Superior, so this should be the scale to analyze cumulative effects. Appendix C provides additional information from these agencies on this major difference of opinion revealed in the development of the SDEIS.	The Co-lead Agencies believe that the SDEIS uses an appropriate cumulative effects assessment area, or CEAA. The Co-lead Agencies have appropriately defined the spatial extent for the water resources CEAA to be at the scale of contributing watersheds. This is reasonable geographic area because the Plant Site is within the Embarrass River watershed and the Mine Site is within the Partridge River watershed as detailed in SDEIS Section 6.2.3.3.1 The Co-lead Agencies have also considered the appropriateness of defining the CEAA for surface water quality to include the St. Louis River. Because the NorthMet Project Proposed Action would result in only minor changes in surface water hydrology and quality of the Embarrass and Partridge rivers, cumulative effects to the St. Louis River cannot be definitively assigned so it is not included in the CEAA.	The Co-lead Agencies' position as reflected in the SDEIS response remains unchanged for the FEIS. Section 6.2.2.1.1 describes the water resources CEAA.

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
13	Effects on groundwater and surface water hydrology	Fond du Lac, Grand Portage, and GLIFWC disagree with the conclusion that the Proposed Project is not predicted to result in any significant effects on groundwater or surface water hydrology. XP-SWMM relies on antiquated data from far downstream, which means the model's projection of hydrologic effects cannot be supported. They believe GoldSim cannot reliably predict whether the 28 solutes modeled at both the plant and mine sites would meet the Minnesota water quality standards. Appendix C provides additional information from these agencies on this major difference of opinion revealed in the development of the SDEIS.	Similar and related to MDOs #1 and #7 above, the Co-lead Agencies believe that the SDEIS adequately predicts effects on groundwater and surface water hydrology. Overall water impact assessment methodologies are presented in SDEIS Section 5.2.2.2 and provide readers with specific information and cited reference documents that support the basis for the Co-leads Agencies' position. The Co-lead Agencies approved GoldSim to be programmed with a suite of complex algorithms to estimate the release of 28 solutes or contaminants from the mine facilities and their transport to groundwater and surface water evaluation locations. A probabilistic method was also approved to estimate the probability of a given water quality outcome occurring as a means to account for uncertainties. This is unlike deterministic modeling where all inputs are known or estimated, and when modeled, always produce a single result without accounting for uncertainty. Lack of accounting for uncertainty was identified as a concern regarding the original DEIS's analyses. The Co-lead Agencies believe focusing on the P90 threshold in assessing the NorthMet Project Proposed Action's potential to meet applicable water quality standards is logical because it generally equates to a reasonable worst-case scenario and has been adopted for	The Co-lead Agencies' position as reflected in the SDEIS response remains unchanged for the FEIS. The water models were updated to address comments received on the SDEIS and to consider new information. As described in FEIS Section 5.2.2, the conclusions of the updated model results support those in the SDEIS. In addition, a groundwater baseflow sensitivity analysis was performed to consider the effect of variable baseflow inputs on water quality. Results show that modeled groundwater and surface water concentrations are sensitive to changes in groundwater baseflow. However, the NorthMet Project Proposed Action's ability to meet groundwater quality and surface water quality evaluation criteria is not sensitive to changes in groundwater baseflow

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
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			other mining NEPA documents where probabilistic modeling was used. Regardless, the Co-lead Agencies' reliance on the P90 criterion does not supersede how water quality-based effluent limits (WQBELs) would be developed for NPDES/SDS permitting. Appropriate WQBELs would be derived based on water quality standards and implemented in the permit. In addition, water monitoring and adaptive management methods are presented in SDEIS section 5.2.2.3.5 for permitting agencies to consider. If actual NorthMet Project Proposed Action effects were found to be higher than predictions, then steps could be taken to reduce those effects.	
14	GoldSim not able to replicate Tailings Basin water/Partridge River Water Quality under the No Action Alternative	GLIFWC believes that the GoldSim model does not accurately predict existing water quality conditions, such as the existing exceedance of the aluminum standard in the Embarrass River, or existing conditions in the Partridge River. This agency contends that if a model is unable to accurately predict current conditions, then it is even less likely to accurately predict future project conditions. GLIFWC notes that for many parameters at several water bodies, the No-Action P50 model of annual average value is substantially different than the observed average under existing conditions. The GoldSim model(s) need to be better calibrated to existing conditions.	The Co-lead Agencies believe that the GoldSim model adequately replicates NorthMet Project Proposed Action water quality for Tailings Basin water and the Partridge River under the Continuation of Existing Conditions modeling scenario for the SDEIS. The same hydrology and water quality existing conditions datasets that were used for modeling the Proposed Action were used for the Continuation of Existing Conditions modeling scenario. Also, this scenario never introduces any NorthMet mine features or activities and conducts the same simulations for the same durations.	While the Co-lead Agencies' position remains consistent with that reflected in the SDEIS, the Mine Site and Plant Site water models were updated to address SDEIS comments, including using new, available data collected since the SDEIS. This required new calibrations to better reflect existing conditions. In addition for the Mine Site modeling, a new variable was added to account for runoff contributions to Colby Lake. The FEIS water sections for the NorthMet Project, Sections 4.2.2, 5.2.2, and 6.2.2, have been updated

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
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		Without new calibrations, the GoldSim model's projections are not adequate to ensure protection of water resources. Appendix C provides additional information from this agency on this major difference of opinion revealed in the development of the SDEIS.	Models calibrated for the SDEIS to address differences between observed and simulated values include Mine Site MODFLOW and XP-SWMM models, Mine Site Natural Runoff, Plant Site MODFLOW, Plant Site Natural Runoff, and existing LTVSMC Tailings Basin loading. The existing tailings basin calibration included aluminum, as well as a number of other solutes. The Co-lead Agencies evaluated the various model calibrations underlying GoldSim and believe the differences between the observed and simulated values for each of the calibration targets are minimized within accepted modeling norms. The GoldSim model set up and calibration information is presented in SDEIS section 5.2.2.2.3. Model predictions are also reliable and are presented in the "GoldSim Model Operations and Output" and "Application of Evaluation Criteria to Probabilistic Modeling Results" subsections in SDEIS Section 5.2.2.2.3.	accordingly. The conclusions of the updated model results are consistent with those in the SDEIS.

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
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15	Mineral fibers	Fond du Lac, Grand Portage, and The 1854 Treaty Authority believe the risks associated with exposure to mineral fibers are greater than portrayed in the SDEIS. Fond du Lac disagrees that 9% amphibole fibers identified by PolyMet testing can be considered a "small" percentage of the fibers identified, while Grand Portage notes chrysotile fibers that would be expected to be found in the NorthMet deposit are not considered. Grand Portage and Fond du Lac indicate that information cited from studies in this section is outdated and that the section should be updated to rely on the most recent reports (i.e.; U of M study released in April 2013). The Bands contend that one year of monitoring as currently proposed is not adequate to account for the variability and unpredictable mineralogy in the rock to be mined, and that monitoring for mineral fibers should be conducted for the duration of the mining operation. Fond du Lac identifies that risks associated with ingestion should be considered in addition to inhalation; risks from ingestion are not discussed in the air quality section or the human health risk section of the document. Appendix C provides additional information from these agencies on this major difference of opinion revealed in the development of the SDEIS.	The Co-lead Agencies believe that the SDEIS adequately describes the risks associated with mineral fibers, including chrysotile (or serpentine) minerals, and potential ingestion risks. Findings from the University of Minnesota study updates to the Minnesota Legislature in April 2013 are considered in the mineral fibers portion of the document. The SDEIS also includes monitoring and mitigation measures described in Section 5.2.7.5.	The Co-lead Agencies' position as reflected in the SDEIS response remains unchanged for the FEIS.

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
16	Rail car spillage and dust	GLIFWC disagrees that the amount of ore that could escape from rail cars would be small because the rail cars proposed for use are not sealed. GLIFWC states that, given the design and current condition of rail cars proposed for transport, an ecologically significant amount of spillage could occur into streams, wetlands, and their watersheds. GLIFWC believes that fugitive dust escaping through gaps in the rail cars is also a concern. GLIFWC does not believe that the method described to segregate fines in the center of the rail car, away from the gaps, is realistic. Further, GLIFWC does not believe that monitoring of the creeks along the rail line will be effective in preventing or minimizing impacts because once detected in monitoring, the impact will have already occurred. GLIFWC states that cleanup of ore dust in an aquatic environment is a long and difficult process. Appendix C provides additional information from this agency on this major difference of opinion revealed in the development of the SDEIS.	The Co-lead Agencies believe that the SDEIS adequately predicts the rail car spillage and potential environmental effects. No substantial reactive airborne fugitive dust emissions from rail transport are expected. However, the Co-lead Agencies note that estimates of potential spillage are presented in SDEIS Section 5.2.2.3.2, and potential effects are presented in Sections 5.2.2.3.2, 5.2.3.2.2, and 5.2.7.1.3. These sections provide readers with specific information and cited reference documents that support the basis for the Co-lead Agencies' position. Water quality monitoring for the streams located along the Transportation and Utility Corridor is recommended. If streams along the railroad corridor between the Mine Site and Plant Site were to show degradation in water quality as a result of material spilled from railcars, then contingency mitigation would be available through developing catchment areas adjacent to the tracks at stream crossings to minimize the amount of material that reaches the streams. This information is available for permitting agencies to consider as necessary.	While the Co-lead Agencies' position as reflected in the SDEIS response remains unchanged for the FEIS, the proposer has made a commitment to refurbish the proposed rail cars to minimize gaps and therefore spillage between the Mine Site and the Plant Site. Further detail on the rail cars is provided in FEIS Section 3.2.2.2.4.

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
17	Use of water evaluation criteria vs. water quality standards	Fond du Lac and Grand Portage do not agree with statements in the document that indicate there is "no impact" when that assertion is based on not exceeding an evaluation criteria. They believe the SDEIS should acknowledge where there is a change, regardless if a criteria or standard is exceeded. With regard to the water quality effects analysis, Grand Portage and GLIFWC note that evaluation criteria are not equivalent to water quality standards. Grand Portage further notes that some evaluation criteria are high enough to cause human health impacts and evaluation criteria are not equal to or a substitute for water quality standards compliance. GLIFWC notes that in some areas, for example the cumulative effects section for the Partridge River, the text states all water evaluation criteria would be met, though water quality standards would be exceeded for several constituents. Appendix C provides additional information from these agencies on this major difference of opinion revealed in the development of the SDEIS.	The Co-lead Agencies believe that the SDEIS appropriately considers effects on water, including the evaluation criteria specific to the NorthMet Project Proposed Action. It is also appropriate for the reporting of effects to reflect specific evaluation criteria based on the applicable water quality standard. CEQ guidance identifies that whether an action threatens to violate a federal, state, or local law or requirements imposed for the protection of the environment is an appropriate intensity factor for evaluating significance. The SDEIS also discloses where any given evaluation criterion differs from the water quality standards, which is necessary for some constituents because a specific standard has not been formulated. Regarding assessing effects on the Partridge River, relevant cumulative effect water evaluation criteria are described in SDEIS Section 6.2.3.3.4.	The Co-lead Agencies' position as reflected in the SDEIS response remains unchanged for the FEIS. Section 6.2.2.4.1 contains details on cumulative effects for the Partridge River.
18	Loss of "High Biodiversity Significance Values" sites	Fond du Lac, GLIFWC, and Grand Portage believe that native plant communities identified by the Minnesota Biological Survey will be impacted by the proposed mine site and related transportation and utility corridor without appropriate mitigation for their landscape-scale and ecosystem values. There are two MBS sites of high biodiversity significance (18.8 acres) located within the transportation and utility corridor, including the 100 mile	The Co-lead Agencies believe that the SDEIS appropriately discloses potential effects (loss) to high biodiversity significant sites as listed in the Minnesota Biological Survey characterization data. There is no policy or requirement to mitigate effects on MBS Sites of High Biodiversity Significance for those attributes. SDEIS Section 4.2.4 discloses these MBS sites. Sections 3.2.2 and 5.2.4 also describe	Based on consideration of comments received on the SDEIS, the Co-lead Agencies have clarified information regarding sites of biodiversity significance in the FEIS and believe that the FEIS appropriately discloses potential effects (loss) to high biodiversity significant sites as listed in the Minnesota Biological Survey characterization data. In addition, FEIS Sections 4.2.4 and 4.3.4 discuss

MDO #	Specific Major Difference of Opinion Area	Tribal Position Summary	Co-lead Agencies' Response	
			SDEIS	FEIS
		swamp and the upper Partridge River. They state that forty-one percent of the mine site consists of imperiled/vulnerable communities, but there is no proposed mitigation. Fond du Lac and Grand Portage's opinion is that there will be a net loss to the federal estate of these MBS communities that would not be compensated with equivalent MBS land exchange parcels gained through the USFS land exchange. Appendix C provides additional information from these agencies on this major difference of opinion revealed in the development of the SDEIS.	mine reclamation that would be completed as part of the NorthMet Project Proposed Action, some of which may allow such MBS sites to re-establish.	and provide maps of the MBS Sites (Figures 4.2.4-1, 4.2.4-2, 4.2.4-5, 4.3.4-1, and 4.3.4-2) to provide clarity on locations and extent. WCA rules (including those parts applicable to mining projects under *Minnesota Rules* 8420.0930) include a special consideration for wetlands that are rare natural communities (*Minnesota Rules* 8420.0515, subp 3). There is no state or federal policy or requirement to mitigate effects on MBS Sites of High Biodiversity Significance that are not wetlands. However, FEIS Sections 3.2.2 and 5.2.4 describe mine reclamation activities that would be completed as part of the NorthMet Project Proposed Action, some of which may allow such MBS sites to re-establish. The Permit to Mine would address special consideration of wetlands that include rare natural communities. Additional information on rare natural communities would be included in the wetland permit application as part of the Permit to Mine process for further refinement of site-specific conditions.

8.4 TRIBAL AGENCY APPENDIX – SUPPORTING INFORMATION FOR TRIBAL COMMENTS

Although not required by NEPA and MEPA, the Co-lead Agencies committed to providing an appendix in the SDEIS that contained the Tribal Cooperating Agencies' comments and supporting documentation representing MDOs. The Co-lead Agencies have engaged the Tribal Cooperating Agencies extensively on these issues in preparation of the SDEIS and FEIS, and examined the information provided in the appendix in support of Tribal Cooperating Agency comments submitted on the SDEIS. Response to the Tribal Cooperating Agency comments on the SDEIS is provided in Appendix A.

See Appendix C for comments and supporting documentation from the Bois Forte, Grand Portage, Fond du Lac, GLIFWC, and the 1854 Treaty Authority. These take the form of eight position papers and a Co-lead Agencies' PSDEIS comment disposition spreadsheet for the Tribal Cooperating Agencies. The Tribal Cooperating Agency submittals in Appendix C are provided verbatim and in identical form as they were for the SDEIS. They were considered in the development of the FEIS.

Issue areas provided in Appendix C include:

- Hydrology Section;
- Mercury Section;
- Wild Rice Section;
- Underground Mine and West Pit Backfill Alternatives Section;
- Wetlands Section;
- Cumulative Effects Analysis Section;
- Proposed Transport of Ore Section;
- Perpetual Maintenance and Water Treatment at the NorthMet Project Section; and
- Tribal Responses to Co-lead Agencies' Disposition of Tribal PSDEIS Comments.

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Throughout the EIS process, multiple individuals have contributed to EIS development in varying degrees related to their areas of expertise. Individual staff involvement has varied both in time and in level of involvement, and has ranged from development of text for the EIS and Co-lead Agencies' papers, to review of text in these documents and/or supporting documents prepared by consultants, the project proposer, and others.

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Name and Affiliation	FEIS Responsibility and Qualifications
Adeyinka Afon	Noise B.S. Chemical Engineering, M.S.E. Environmental Process Engineering 6 years of consulting experience in environmental impact assessments, feasibility studies, and environmental permitting & compliance with specialization in air quality, air emissions inventory, noise, vibration, surface water quality, and sediment quality
Andy Bielakowski	Tribal and Cultural Resources B.S., B.A. Anthropology, Classical Civilizations, Philosophy; M.A. Archaeology 15 years experience in cultural resources and environmental impact assessment, survey, consultation, permitting, and impact mitigation
Bec Gawtry	Project Management, Biological Resources B.A. Biology 10 years experience in wildlife and vegetation impact assessments on mining and oil and gas projects
Heather Heater	Land Exchange, Wetlands, and Biological Resources B.S. Marine Biology; M.S. Environmental Resource Management 14 years experience in environmental impact assessments/statements, feasibility studies, environmental permitting including NEPA, and agency consultation
Steve Koster, P.E.	Biological and Natural Resources B.S. Letters and Engineering; B.S. Civil Engineering; M.S. Environmental Engineering 28 years experience in environmental impact assessment, permitting, and impact mitigation and remediation
Danny Kringel	Air Resources and Climate Change B.A. Mathematics 31 years experience in the management of a variety of air pollution studies, including dispersion modeling, air quality permitting, odor evaluations, air toxics/risk assessments, and litigation support
Dirk Leemkuil	Hazardous Materials and Legacy Contamination B.S. Geology 32 years experience in soil and groundwater contaminant assessment, investigation and corrective action; environmental assessment and environmental compliance

Name and Affiliation	FEIS Responsibility and Qualifications
Fred Marinelli, Ph.D., P.E.	Water Resources (hydrology and water quality) B.A. Geology; M.S. Hydrology; Ph.D. Civil Engineering 37 years experience in hydrology and hydraulics; 11 years experience developing dynamic system models for water management
Steve Peterson, Ph.D.	Fish and Macroinvertebrates; Mercury B.S. Biological Sciences, Ph.D. Biological Sciences 27 years environmental impact and risk analysis focusing on ecological fate and effects of pollutants in aquatic ecosystems
Benjamin Sussman, A.I.C.P.	Land Use; Recreation and Visual Resources; Socioeconomics B.S. Science, Technology, and Society; MCRP City and Regional Planning 15 years experience in urban planning and impact assessment, focusing on land use, socioeconomics, transportation, recreation, and visual resources
Jeff Williams	Fish and Macroinvertabrates B.S. Biology 21 years experience in fisheries, aquaculture, wetland and habitat assessments, baseline environmental surveys, impact assessments and permitting
Melinda Todorov	Water and Aquatic Resources B.S. Biology; MSc. Aquatic Ecology; DEL NEPA Certificate 8 years experience in impact assessment, focusing on water, biological, and aquatic resources; 4 years experience in the field of aquatic ecology, including studies of marine invasive species and the development of biomimetic technologies
Ryan Lisson	Vegetation and Wildlife B.S. Biological Sciences 7 years experience in vegetation and wildlife impact assessments for mining and linear projects, wetland and habitat assessments, and ecological restoration
Michael Zebell, P.E.	Air Quality B.S. Civil and Environmental Engineering 29 years of experience in air pollution control engineering and permitting.

Name and Affiliation	FEIS Responsibility and Qualifications
Houston Kempton Knight Piésold	Environmental Geochemist B.S. Geology and Geography; M.S. Geology 24 years experience in environmental geochemistry and hydrogeology related to modeling the mobility and removal of metals at hard-rock mines, and pilot testing of in situ groundwater remediation technologies
Bryan Ulrich, P.E., Pr. Eng. Knight Piésold	Geotechnical Engineer B.S. Mining Engineering; B.S. Geological Engineering; M.E. Geotechnical Engineering 27 years experience in the design, construction and assessment of civil/geotechnical design for mine facilities, including tailings facilities, heap leach pads, and waste rock facilities

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GENERAL INFORMATION

The Reference Section follows the general Chicago Manual of Style Guidelines, in that the following information is included in each citation, where possible, and in this order:

1. Author Last Name, First Name [followed by second author First Name Last Name, and third author First Name Last Name, etc., if applicable].
2. Year of Publication.
3. Title of Document.
4. Publication Information.

For Example:

- Smith, David. 2013. *Updated Formatting Guide for NorthMet Reference List*. St. Paul, MN: The Best Printing Press.
- Smith, David and Mark Jones. 2012. *Basic Formatting for NorthMet Master Reference List*. References Today, 4(31): 50-62. April 1, 2012.
- Smith, David, Mark Jones, and John Doe. 2011. *Guidelines for Creating Consistency in Formatting*. Accessed: September 22, 2013. Retrieved from: http://www.allaboutnorthmetrefs.com

The intext citations help the reader locate the full reference information in the Master Reference List. There are unique intext citations for each reference, and they include the following information:

1. First author last name and second author last name, if applicable (first author last name followed by et al. for three or more authors)
2. Year of publication

For Example:

- (Smith 2013)
- (Smith and Jones 2012)
- (Smith et al. 2011)

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Appendix A

Response to Comments on the DEIS for the NorthMet Mining Project and SDEIS for the NorthMet Mining Project and Land Exchange

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A. RESPONSE TO COMMENTS ON THE DEIS FOR THE NORTHMET MINING PROJECT AND SDEIS FOR THE NORTHMET MINING PROJECT AND LAND EXCHANGE

A.1 INTRODUCTION

The Supplemental Draft Environmental Impact Statement (SDEIS) for the NorthMet Mining Project and Land Exchange was published on December 13, 2013. A 90-day public comment period followed publication of the SDEIS, extending from December 14, 2014, to March 13, 2014. This Appendix summarizes the process used by the Co-lead Agencies' Final EIS (FEIS) to organize, analyze, and respond to the comments received on the SDEIS, and includes the responses to those comments. This Appendix also includes the comment themes received on the 2009 Draft EIS (DEIS) and shows the relationship between those DEIS comment themes and the SDEIS comments themes and responses.

A.1.1 Opportunities for Public Comment on the Supplemental Draft EIS

The SDEIS was made available to the public for download on MDNR's Project-specific website, http://www.dnr.state.mn.us/input/environmentalreview/polymet/index.html. Paper copies of the SDEIS were also sent to Cooperating Agencies and other entities that requested them, as described in FEIS Section 2.3.4. Public review copies of the SDEIS were also placed in libraries in Minnesota: St. Paul, Grand Rapids, Hibbing, Hoyt Lakes, Babbitt, Duluth, and Minneapolis. A limited number of paper copies and multiple CD-ROMs were distributed by MDNR upon request.

As discussed in the FEIS Section 2.3.5, three public meetings were held during the public comment period:

- January 16, 2014, at the Duluth Entertainment Convention Center;
- January 22, 2014, at Mesabi East High School in Aurora, MN; and
- January 28, 2014, at the Saint Paul River Center.

Attendees were provided three options to submit public comments at these meetings:

- Public oral testimony, transcribed by a court reporter;
- Individual oral testimony, also transcribed by a court reporter; and/or
- Written comments, placed in designated collection boxes.

In addition to the testimony and comments received at the public meetings, commenters were instructed to submit comments via a Project-specific email address or via mail.

A.1.2 Amount and Type of Input Received

In total, the Co-lead Agencies received 57,703 e-mails, written and typed letters, postcards, and instances of public testimony (henceforth referred to as *submissions*) during the public comment period for the SDEIS. Senders included federal, state, and local representatives; members of the public; federal, state, and local government agencies; American Indian tribes; non-governmental

organizations (NGOs); and other interested groups and stakeholders. Table A-1 summarizes the number and type of submissions received. Copies of these submissions are available in Attachment 1.

Table A-1 Number and Type of Public Comment Submissions on the SDEIS

Submission Type	Definition	Number	Percent of Total
All Submissions		57,703	100%
Form Letters	Identical or substantively identical submissions	53,901	93%
Form Letter Variants	Standard form letter text that was altered by the sender by deleting standard text and/or by adding sender-composed text	3,464	6%
Form Letter Non-Variants	Standard form letter text was not substantively altered.	50,437	87%
Unique Submissions	Submissions composed entirely by the sender.	3,802	7%
Comments	Unique, substantive comments extracted from within the submissions		16,469

Of the 57,703 total submissions, 53,901 submissions (93 percent of the total) were duplicate *form letters* sponsored by outside entities (NGOs, unions, and other groups). A total of 43 distinct form letters were received from 14 outside entities, in addition to 6 form letters whose source could not be determined. Form letters were identified when two or more unrelated individuals submitted identical or substantively identical submissions, or when a submission was determined to consist entirely (or nearly so) of text provided by a website (such as a website maintained by an NGO) for the purpose of mass e-mailing.

Within the 53,901 form letter submissions were 3,464 form letter *variants*, submissions that consist of standard form letter text that was altered by the sender by deleting standard text and/or by adding sender-composed text (the remaining 50,437 form letters are referred to as *non-variant*). Variants were identified through use of a computer algorithm that evaluated the similarity of a submission against the known form letter "template." The algorithm's results were confirmed through a manual review of a statistically significant sample of submissions.

The 3,802 submissions (7 percent of the total) not identified as form letters were *unique* submissions composed entirely by the sender (including oral testimony at public meetings).

The 57,703 submissions, including both form letters and unique submissions, contained 16,469 unique, substantive comments. However, not all unique submissions contained substantive comments. For example, many only stated an opinion as to whether the proposed Project should or should not be built, with minimal or no additional content. A *comment* is defined as an individual statement, question, or concern within a submission that substantively addresses the proposed Project and that contains more than just a statement of approval or disapproval of the Project. Comments were extracted from all unique and variant submissions. One copy of each standard form letter was also used for the purpose of extracting comments. Each unique, substantive comment received on the SDEIS is provided in Attachment 1.

Previously published materials, such as newspaper or journal articles, website content, or submissions provided during previous phases of the EIS process were not reviewed for comments, but were retained for reference by the Co-lead Agencies. In cases where the same comment appeared more than once in a submission, only one instance was recorded.

A.2 COMMENT REVIEW METHODOLOGY

As required under MEPA (*Minnesota Rules*, part 4410.2600, subpart 10) and NEPA (40 CFR 1503.4), the Co-lead Agencies considered and responded to all substantive comments received during the SDEIS public comment period. Given the large number of submissions and individual comments received on the SDEIS, the Co-lead Agencies determined that it was necessary to group similar comments into *themes* and respond to those themes, instead of responding to each comment individually.

Initially, the text of all submissions was entered into a database to facilitate the review. Non-variant form letters were identified via computer matching algorithm. Each unique and variant submission was reviewed in order to identify substantive comments.

Each comment was categorized according to the overall topic area, or *issue*, addressed in the comment. Issues are listed in Table A-2 and generally correspond to the resource areas addressed in Chapters 4, 5, and 6. Issue codes were used for ease of comment management. A total of 23 issue areas were identified. In many cases, a comment was categorized as applicable to more than one issue. Submissions and issue assignments were each reviewed at least twice to ensure accuracy. The unique, substantive SDEIS comments, grouped by commenter and their associated theme linkages (described below) are provided in Attachment 1.

Table A-2 Issue Codes for Public Comments on the SDEIS

Issue	Issue Code	Description (Comments related to…)
Air Quality	AIR	The Project's impacts on local and regional air quality and visibility.
Alternatives	ALT	Alternatives to the proposed Project such as underground mining, as well as the No Action Alternative.
Aquatic Species	AQ	The Project's effects on aquatic species.
US Army Corps of Engineers 404 Permit	COE	The USACE permit issued under Section 404 of the Clean Water Act.
Cultural Resources	CR	The Project's impacts on historic and cultural resources, including Tribal resources, as well as the process for interacting with the Bands and other Tribal entities.
Financial Assurance	FIN	The Co-lead Agencies' approach to, and/or the proponent's ability to provide sufficient financial assurance for potential impacts of the Project.
General Topics	GEN	General statements regarding the Project that are substantive (i.e., that express more than simple approval or disapproval), but that are too general to belong in other issue areas.
Geotechnical Stability	GT	The geotechnical stability of the stockpiles, mine pits, Tailings Basin, and other elements of the NorthMet Project Proposed Action.
Hazardous Materials	HAZ	Hazardous materials used, generated, transported, and/or disposed of as part of the NorthMet Project Proposed Action.
Human Health and Safety	HU	The Project's effects on human health and safety.

Issue	Issue Code	Description (Comments related to…)
US Forest Service Land Exchange	LAN	The nature, extent, and/or appropriateness of, and/or the process for defining the Land Exchange Proposed Action
Land Use, Recreation, and Visual Resources	LU	The Project's effects on private land use, recreational resources and activities, and visual resources (except for regional visibility issues addressed in AIR).
Mercury	MERC	The generation, removal, management, and consequences of Mercury from the NorthMet Project Proposed Action.
Noise and Vibration	N	The nature, extent, and impacts of noise and vibration generated by the NorthMet Project Proposed Action
NEPA and MEPA Topics	NEPA	Purpose and Need statements, the public engagement process, and the SDEIS's adherence to NEPA and MEPA requirements, guidelines, and principles.
Project Description	PD	The description of the NorthMet Project Proposed Action and/or Land Exchange Proposed Action, including suggested revisions to the proposed actions.
Permitting and Regulatory Considerations	PER	The type and appropriateness of permits that the Project would need (except for the USACE 404 Permit), as well as the relationship of the Project and SDEIS process to existing regulations.
Socioeconomics and Environmental Justice	SO	The Project's impacts on economic factors (such as employment, income, public tax revenues), as well as public services, housing, and the SDEIS's evaluation of Environmental Justice considerations under Executive Order 12898.
Vegetation	VEG	The Project's impacts on vegetation, including threatened and endangered species.
Wetlands	WET	The Project's impacts on wetlands (except for comments related to the USACE 404 Permit).
Terrestrial Wildlife	WI	The Project's impacts on terrestrial wildlife, including threatened and endangered species.
Wilderness and Special Designation Areas	WILD	The Project's impacts on the Boundary Waters Canoe Area Wilderness (BWCAW), national, state, and local parks, portions of Superior National Forest designated for environmental conservation, and other special-designated areas.
Water Resources	WR	The Project's impacts on water quality, water quantity, and the modeling of water resources conditions and effects.

Some comments that did not fall within one of the issue areas listed in Table A-2 were tracked to ensure that they received consideration by the Co-lead Agencies. These include the categories listed below (issue codes are listed in parentheses):

- Suggestions for editorial changes (EDIT), such as grammar, punctuation, or word choice, or suggested text revisions (as long as those suggested revisions did not constitute a change in the intent of the FEIS's findings or conclusions).
- Requests for information (RFIs), such as requests for CD-ROM copies of the SDEIS.
- Suggestions that the Co-lead Agencies review specific publications or other references (REF).

The comment evaluation process used a thematic response approach. Subject matter experts from the Co-lead Agencies and their consultants reviewed and grouped comments within each issue area according to the common topic they addressed; each common topic area is referred to as a *theme*. Each of the 23 issue areas includes multiple themes in order to characterize the specific topics addressed by comments. Each comment was assigned to at least one theme. In cases where a comment addressed more than one theme, it was either assigned to the most appropriate theme or, in some cases, was assigned concurrently to multiple themes. A total of 580 themes were identified. For ease of sorting, each theme was given a code corresponding to its issue; for example, the third theme in the Financial Assurance issue is referred to as FIN 03.

For each theme, the Co-lead Agencies developed a concise statement that paraphrased and/or summarized the intent of each group of similar comments. Subject matter experts developed a *thematic response* for each theme statement. The response briefly describes how the theme is addressed in the FEIS. Where applicable, the actual text of the FEIS is referenced for a more complete response to comments. Theme statements and responses are provided in Section A.4.

Comments characterized as REF were addressed by FEIS authors; RFIs were processed by representatives from the Co-lead Agencies. Editorial (EDIT) comments received direct responses. Comments from Cooperating Agencies were assigned to issues and themes as described above, but also received direct responses (see Section A.3).

A.3 COMMENTS RECEIVED AFTER END OF PUBLIC COMMENT PERIOD

The public comment period on the SDEIS closed on March 13, 2014. Comments received after this date were retained and were provided to FEIS authors for their review; however, these comments are not included in the theme statements and responses in Section A.4, nor in the list of individual comments in Section A.6.

A.4 COOPERATING AGENCY COMMENTS AND RESPONSES

Cooperating Agencies provided seven submissions, within which 466 discrete comments were identified. Table A-3 lists each of these comments, the response to each comment, and the theme(s) to which each Cooperating Agency comment was assigned.

Table A-3 Cooperating Agency Comments and Responses

Comment ID	Comment	Response	Theme(s)
Comments from the USEPA (Submission ID 47834)			
2981	Comment # 1. Spill prevention is an important part of the mitigation for this project. Using new or retrofit side dump rail cars (possibly with hydraulic air-operation conversions) should be considered as part of the mitigation package for the proposed action. Proactive mitigation through the use of updated rail infrastructure would help reduce spillage and subsequent environmental concerns, possibly including the need for additional long-term water treatment. Recommendation: Consider use of new or retrofit side-dump rail cars when producing the spilled ore plan.	To guard against possible adverse effects from spilled ore, PolyMet plans to refurbish the ore cars, tightening or replacing the couplings and linkages to minimize gaps along the hinges and joint areas where spillage would occur. The quantity of ore that could potentially spill through the door and hinge gaps of a refurbished ore car is estimated to be 0.20 ton per year. This is a 97 percent reduction from the originally calculated value of 6.14 tons per year. Water quality monitoring is identified downstream from the rail line on the Partridge River tributary streams to check for any potential deteriorations of water quality over time from ore spillage, and, if detected, adaptive water management measures would be implemented. Dust could be mitigated by spraying water on the loaded ore prior to transport. If significant accumulation of ore spillage occurs, it would be removed. The Permit to Mine would further address rail cars design in a section titled Ore Management, Handling and Transport.	WR 151
2982	Comment # 2. Pages 5-50 forward describe how the company has classified its waste rock and tailings into four categories based on their likelihood to generate acid rock drainage. We understand from discussion with the co-lead agencies that lime will be added to Category l waste rock, which is expected to result in neutral to slightly basic pH. Recommendation: The FEIS should indicate that Category I waste rock leachate is expected to have a neutral to slightly basic pH due to the addition of lime.	Mine waste rock would be sorted and stored into four categories based on its sulfur content. Category 1 waste rock would not produce acid leachate. Category 2/3 waste rock may produce acid leachate if allowed to weather for several years. Category 4 waste rock would produce acidic leachate if allowed to weather for several years. Category 1 waste rock would be stored in a permanent stockpile that would be encompassed by a water containment system to capture surface water and groundwater from the stockpile and direct it to a water treatment facility and would have a geomembrane cover at closure. Because Category 1 waste rock would not generate acid, and because water from the stockpile would be captured and treated, lime is not anticipated to be needed for neutralization, and, therefore, the addition of lime for Category 1 waste rock is not proposed. Category 2/3 and Category 4 waste rock would be stored temporarily in lined stockpiles, and then backfilled into the East Pit following completion of mining there. Lime may be added to the waste rock during East Pit backfilling to maintain pH in the pit pore water as needed. The volume of lime required would be based on monitoring results. Waste rock characterization and categorization, as well as management and storage	WR 027

Comment ID	Comment	Response	Theme(s)
		during operations and closure, and water management at the stockpiles, are addressed in FEIS Sections 3.2.2.1.7, 3.2.2.1.8, 3.2.2.1.9, and 3.2.2.1.10.	
2983	Comment # 3. Page 5-157, Section 5.2.2.3.3, 2nd Paragraph: information on the design, operations, and monitoring plans for the hydrometallurgical research facility (HRF) is insufficiently detailed. Recommendation: The FEIS should provide information on the HRF's design and operations in sufficient detail for the reader to understand potential impacts associated with this facility and how those impacts will be avoided or mitigated. This includes explaining that a detailed Residue Management Plan for this facility will be required during permitting.	FEIS Section 5.2.14.2.3, which expands upon the discussion from the SDEIS on the design and construction of the Hydrometallurgical Residue Facility, and Geotechnical Data Package Volume 2 (PolyMet 2014c, as cited in the FEIS), indicate that the design would meet appropriate factors of safety. The Hydrometallurgical Residue Facility would be constructed over the LTVSMC emergency basin. During operations, the double liner system for the Hydrometallurgical Residue Facility would minimize release of residue leachate, and any collected leakage through the primary liner would be collected in the leakage collection and recovery system (LCRS) and pumped back to the Hydrometallurgical Residue Facility pond. During reclamation and closure and long-term maintenance, any leakage would be routed and cycled through the WWTP. The Hydrometallurgical Residue Facility would be double-lined at the bottom to facilitate collection of water that has contacted the hydrometallurgical residue. More specifically, the double liner would consist of a composite liner system that utilizes a geomembrane liner above a geosynthetic clay liner with a second liner placed above the first, separated by a LCRS, substantially reducing hydraulic head from the lower liner. This design is intended to mitigate leakage from the Hydrometallurgical Residue Facility to groundwater resources. The collection system capture rate was calculated and included in Appendix E of Geotechnical Data Package Volume 2 (PolyMet 2014c, as cited in the FEIS). The Residue Management Plan (PolyMet 2014r, as cited in the FEIS) includes a description of the operating plans, monitoring procedures, and adaptive management approaches for the Hydrometallurgical Residue Facility. Information on the design of the Hydrometallurgical Residue Facility is in FEIS Section 3.2.2.3.10. The FEIS includes available details from Plant Site Water Management Plan (PolyMet 2015i, as cited in the FEIS), which is updated from the version used in the SDEIS. The management plan details proposed operational plans, monitoring activities, annual reporting requirements, and plans for reclamation and closure and long-term maintenance for the Hydrometallurgical Residue Facility. Details would be finalized in permitting and be subject to periodic reassessment.	PD 17 WR 066
2984	Comment # 4. Page 4-336 discusses the possibility of inundating an existing coal ash landfill located	The coal ash landfill (landfill) is located on the east side of the former LTVSMC Tailings Basin Cell 1E in approximately the northeast quarter.	WR 028

Comment ID	Comment	Response	Theme(s)
	within the proposed tailings basin. Based on current knowledge of leachate concentrations found in groundwater at such landfills, inundation may lead to future water quality impacts. Recommendation: The FEIS should discuss how constituents found in the coal ash landfill may impact water quality in the Embarrass River, how this landfill will be protectively managed, and how any impacts will be mitigated.	The landfill was operated by LTVSMC to accept coal ash from LTVSMC's Taconite Harbor facility, and coal contaminated soil from the LTVSMC abandoned coal yard. The landfill was closed per the "Closure Plan for the Tailings Basin Coal Ash Disposal Area." The final footprint of the landfill (AOC 36) is estimated to cover approximately 4 acres and contain approximately 260,000 cubic yards total of material (including coal ash, tailings, and soil covers). As the current footprint of the landfill lies within the future footprint of an area to be inundated by placement of NorthMet Project flotation tailings, the plan is to relocate the contents of the landfill to the future NorthMet Hydrometallurgical Residue Facility, which has a design capacity of 6,170,000 cubic yards, and would be a double-lined storage facility. The double liner would consist of a composite liner system utilizing a geomembrane liner above a geosynthetic clay liner, with a second liner placed above the first, separated by a leakage collection system. This would substantially remove hydraulic head from the lower liner and thereby virtually eliminate leakage to groundwater from the Hydrometallurgical Residue Facility. Leakage that is collected would be pumped back to the Hydrometallurgical Residue Facility pond, which is collected and pumped back for use at the Hydrometallurgical Plant. This facility is currently planned to be constructed and in use prior to the time period at which the landfill would be inundated with NorthMet flotation tailings (mine year 7).	
2985	Comment # 5. CWA requirements for antidegradation ("nondegradation" in Minnesota' s terminology) help ensure that a proposed project will not result in a loss of existing uses of surface waters, and preclude reduced water quality unless the State determines it is necessary to accommodate important social and economic development (see 40 CFR 131.12). This review must occur before project activity that may result in a new or increased discharge commences, and should not be deferred until NPDES permitting. EPA understands from discussion with MPCA that much, if not all, of the information needed for an antidegradation review is already contained in the SDEIS. Recommendation: The FEIS should include an evaluation of which of Minnesota's	*Minnesota Rules*, part 7050.0180 describes the nondegradation rules applicable to discharges to Outstanding Resource Value Waters (ORWV) and waters upstream of ORVWs. The NorthMet Project Proposed Action would not discharge to listed ORVWs, nor would there be any deterioration of water quality in Lake Superior, the nearest ORVW downstream of the proposed NorthMet Project area. Thus, the requirements of this rule are not applicable. *Minnesota Rules*, part 7080.0185 describes the nondegradation requirements applicable to discharges to all waters of the state. As part of the permitting process for the project, the MPCA would determine whether additional control measures are required to minimize the impact of the project on downstream waters while considering the factors identified in the rule. *Minnesota Rules*, part 7052.0300 describes the nondegradation requirements applicable to waters in the Lake Superior basin for bioaccumulative chemicals of concern (BCCs) and bioaccumulative substances of immediate concern (BSICs) of which mercury is the only one applicable to the NorthMet Project Proposed Action. As part of the permitting process, the MPCA would apply these requirements to mercury	PER 09 WR 109

Comment ID	Comment	Response	Theme(s)
	nondegradation rules (7050.0180, 7050.0185, 7052.0300) apply to this project, and explain how the project complies with the applicable nondegradation rules	discharges as appropriate.	
2986	Comment # 6. The proposed project provides significant overall environmental improvements over the proposal in the DEIS through installation of seepage containment and other controls at the former LTV tailings basin. However, the SDEIS modeling predicts increases in aluminum (Al) and lead (Pb) in surface waters affected by the proposed project- including exceedances of evaluation criteria for Al and Pb at locations on four tributaries to the Embarrass River (p. 5-7 to 5-8). These predicted increases are based on a number of assumptions, including the contribution from remediation of the former LTV tailings basin. The SDEIS modeling also predicts other increases and exceedances of evaluation criteria based on the "Continuation of Existing Conditions" scenario. EPA understands that monitoring of receiving waters downgradient of the existing tailings basin is being carried out now. This monitoring data will be an important source of information to consider along with modeling results. Recommendation: Available monitoring data should be used to inform NPDES permitting. Monitoring should continue throughout the life of the project to inform permitting, adaptive management, and additional measures to prevent or mitigate impacts to aquatic life as necessary.	Monitoring would be a critical component of the NorthMet Project Proposed Action to better understand impacts and to inform facility operation and maintenance and the selection and implementation of possible adaptive or contingency mitigation measures. Overviews of the water monitoring plans at the Mine Site and Plant Site, with PolyMet proposed monitoring locations and frequencies, are presented in the FEIS. The specifics of monitoring—including specific locations, frequencies, and parameters—would be finalized during the permitting process after a detailed evaluation. An NPDES permit would be required for any point source water discharge that adds pollutants to waters of the United States.	AQ 12 AQ 30 WR 139
2987	Comment # 7. The SDEIS anticipates that pollutants will be discharged from mine site features, travel via groundwater pathways and reach the Partridge River several years following the start of the mining project. See SDEIS Table 5.2.2-26. However, as EPA has stated previously, the pollutants originating from mine site features	It is acknowledged that while there could be a groundwater discharge to jurisdictional wetlands along a flowpath, this process is not incorporated into the GoldSim model because it is considered speculative and quantitatively uncertain. The EIS considers that permitting for the NorthMet Project Proposed Action, if approved, would require monitoring that would likely include water levels and water quality in groundwater and potentially affected waters of the U.S., including wetlands and tributaries.	PER 05

Comment ID	Comment	Response	Theme(s)
	may discharge to jurisdictional wetlands and tributaries prior to reaching the Partridge River. CWA Section 301 prohibits any point source discharge of pollutants to waters of the United States, either directly or via directly connected groundwater, unless the discharge complies with a NPDES permit. Waters of the United States include jurisdictional wetlands and tributaries. See 40 CFR 122.2. Recommendation: The FEIS should reflect the fact that a NPDES permit is required before the pollutants from the mine site reach waters of the U.S. (including jurisdictional wetlands and tributaries). Statements in the SDEIS about when discharges will reach waters of the U.S. should be revised, and these changes should be reflected in the FEIS.	The goal of this monitoring is to anticipate or predict the potential for an NPDES discharge so that the NPDES discharge can either be eliminated, or alternatively permitted with NPDES permit coverage prior to its occurrence. See FEIS Section 5.2.2.3.6 for more information on groundwater and wetland monitoring and possible future mitigations. The FEIS states that an NPDES permit would be required for any point source water discharge that adds pollutants to waters of the U.S. The Final EIS correctly identifies the waters of the U.S.	
2988	Comment # 8. The Tribal Cooperating Agencies Cumulative Effects Analysis (September 2013) included in Appendix C of the SDEIS states: "PSDEIS Table 4.2.2-18 reports Colby Lake as currently having an observed mean for Arsenic of 0.78 to 1.4 ug/L (depending on the data set), whereas Figure 5.2.2-35, the No-Action (continuation of current conditions)" P50 model for Colby Lake Arsenic shows annual maximum values of 0.5 ug/L." In addition, the SDEIS shows Colby Lake's current mean arsenic concentration as 0.78-1.4 ug/L on Table 4.2.2-18, with a range of 0.25-2.3 ug/L, while the modeled P90 maximum value in Figure 5.2.2-35 lists the maximum concentration of arsenic in Colby Lake as 0.70 ug/L. Comparing the modeled mean for arsenic in Colby Lake to existing site-specific data in the SDEIS, the model outputs underestimate arsenic concentrations by up to l 00%. Colby Lake is currently modeled as a continuation of the Partridge River because there is insufficient data to model it as a lake, which may be causing this	The Mine Site GoldSim model used for the SDEIS was modified for the FEIS (PolyMet 2015m, as cited in the FEIS) to include a new chemical loading source in Colby Lake and was calibrated to the measured chemical concentrations in the lake. This calibration considered new surface water chemistry data collected through the end of 2013. The same chemical loading source was applied to both the Continuation of Existing Conditions model and Proposed Action model (PolyMet 2015m, as cited in the FEIS). The chemical loading source was constant and did not exhibit seasonal or long-term variations for future conditions. Incorporation of the loading source addressed the issue by providing predicted chemical concentrations in Colby Lake for existing conditions that are similar to currently measured concentrations. The average arsenic concentration based on 33 samples in Colby Lake is 0.95 µg/L. The GoldSim Continuation of Existing Conditions modeling scenario predicts an average concentration of 0.80 µg/L at P50 over the 200 year modeling period.	WR 046

Comment ID	Comment	Response	Theme(s)
	discrepancy. We understand that monitoring is ongoing, which may provide additional information on observed arsenic concentrations. Recommendation: The FEIS should document an analysis that addresses this discrepancy between existing conditions in Colby Lake and modeling results, taking into account all necessary data. The FEIS should include any follow-up actions that will be necessary based on this analysis.		
2989	Comment # 9. Modeling using MODFLOW assumes no seepage through the berm on the east side of the tailings basin. The co-lead agencies have agreed to reexamine this assumption. MODFLOW outputs are used as an input to the GoldSim model, so changes to these outputs may require updated GoldSim modeling as well. Recommendation: Recalibrate MODFLOW as necessary to reflect seepage on the east side of the tailings basin, and update GoldSim modeling as necessary. The FEIS should explain how this comment was addressed.	The Plant Site MODFLOW and GoldSim water quality models were updated to incorporate the east side of the Tailings Basin to reflect a surficial material layer at this site. The FEIS also addresses inclusion of a new containment system at this site in Section 5.2.2.	WR 054 WR 102
2990	Comment #10. Modeling of water quality parameters is subject to inherent uncertainties that call for ongoing evaluation. For example, acid rock drainage (ARD) in cold, wet climates raises uncertainty due to climatic factors including distinct freeze-thaw cycles, varying contributions from rain and snow, and a period of significant melting during the spring thaw. Recommendation: The permit to mine should require water quality modeling throughout the life of the mine, assuring that the model uses input from actual monitoring discharge data as it becomes available, so this information can be used to support adaptive management. The model should accommodate specific climatic factors associated with the site.	The NPDES/SDS permit and MDNR Permit to Mine would require a periodic 'model verification analysis' for as long as is necessary (during both operation and closure) to compare actual monitoring data against model assumptions, inputs and predictions generated during the EIS process. This analysis can then be used to support adaptive mitigation as appropriate. The details of the analysis procedures and methods would be developed during permitting but are likely to utilize on-site 'internal' performance data and groundwater data in addition to discharge monitoring data.	WR 130 WR 139

Comment ID	Comment	Response	Theme(s)
2991	Comment #11. MDNR has collected new Partridge River flow data that vary from the base flow calculations used for modeling in the SDEIS. The co-lead agencies have explained that the model accounts for this discrepancy, which is correlated with pit dewatering from the upstream Peter Mitchell Pit, a factor that was not present during the time period used for continuous flow data in the SDEIS (1978-1987), Details are provided in a technical memorandum from the Co-lead Agencies. While the flow data used in the S DEIS was appropriate, low-flow conditions may not represent the most conservative conditions, though they are conservative in that they assume less dilution of contaminants. However, dilution is the only variable considered. High-flow conditions, while increasing dilution, may mobilize contaminants to a greater extent than expected under low-flow conditions. Recommendation: The FEIS should evaluate how base flow affects variables other than dilution, taking into account high-flow as well as low-flow scenarios.	The FEIS reports a formal sensitivity analysis of groundwater baseflow for the Partridge River. The analysis used the FEIS Mine Site GoldSim model (PolyMet 2015m, as cited in the FEIS) with groundwater baseflows at all locations on the Partridge River artificially increased by a factor of 4 (e.g., from 0.5 to 2 cfs at SW-003 and 5.3 to 21 cfs at SW-006). Other hydrologic parameters affected under the sensitivity analysis include aquifer recharge values and hydraulic conductivities of surficial deposits. Both of these increased by a factor of 3 to 4 as a function of recalibrating the Mine Site MODFLOW model to measured groundwater heads and the higher groundwater baseflows. The higher values of groundwater baseflow, aquifer recharge, and hydraulic conductivity of surficial deposits were input into the Mine Site GoldSim model (PolyMet 2014v, as cited in the FEIS). In a separate but related analysis using the GoldSim existing conditions model, surface runoff concentrations were also recalibrated to new values based on higher groundwater baseflows and these were also incorporated into the GoldSim Mine Site model to create the “high groundwater baseflow scenario.” This scenario accounted for all GoldSim parameters that would be directly or indirectly affected by considering higher groundwater baseflows in the Partridge River, not just the dilution effect. Results of the GoldSim high groundwater baseflow scenario were compared with the best-estimate scenario to evaluate the degree to which predicted Proposed Action impacts are sensitive to groundwater baseflow and related inputs. The sensitivity GoldSim run indicated that groundwater and surface water concentrations did not change appreciably when higher groundwater baseflow (and associated input parameters) were modeled for the Mine Site (i.e., water quality impacts were not sensitive to groundwater baseflow). The only substantive changes in GoldSim results were: 1) migration velocities in the surficial groundwater flowpaths increased by approximately a factor of 3-4, 2) groundwater travel times to evaluation locations and the Partridge River were reduced by approximately a factor of 3-4, 3) peak groundwater concentrations increased for some constituents at some locations, and 4) mine pit groundwater inflow rates increased nominally. The HGB results showed that, although the estimated concentrations in the groundwater and surface water are moderately sensitive to Partridge River baseflows, the NorthMet Project Proposed Action’s ability to comply with the applicable groundwater and surface water evaluation criteria is not a concern .	WR 091 WR 165

Comment ID	Comment	Response	Theme(s)
		The interpretation of these results is that the increased chemical loadings at the upgradient end of the flowpaths (due to higher groundwater flow rates) are offset by: 1) increased dilution from aquifer recharge water along the flowpath, and 2) increased dilution in the river from higher groundwater baseflows during winter low-flow conditions. In other words, for low (i.e., winter) streamflow conditions, the higher chemical mass loading into the river was offset by dilution associated with the higher river groundwater baseflows. In regard to chemical concentrations and FEIS evaluation criteria, it is reasonable to conclude from the results of the sensitivity analysis that the Mine Site GoldSim model is relatively insensitive to the Partridge River groundwater baseflow variable. By analogy, the Plant Site GoldSim model is also considered insensitive to groundwater baseflows in the Embarrass River (PolyMet 2015j, as cited in the FEIS). The FEIS reports the results of the Partridge River groundwater baseflow sensitivity analysis in Section 5.2.2.3.2.	
2992	Comment # 12. There is insufficient detail to explain why "outlier" data were excluded from consideration in the GoldSim model. Recommendation: The FEIS should provide a specific justification to support excluding any such data from modeling.	Various data sufficiency documents within the FEIS record support decisions related to the exclusion or inclusion of data. The primary data sufficiency document for the FEIS is titled, "Technical Memorandum: Ongoing Groundwater and Surface Water Data Collection for NorthMet Water Quality Modeling Version 1" (Barr 2014d, as cited in the FEIS). The FEIS does not provide specific justification to include or exclude data from modeling because the FEIS is focused on evaluating effects to the human and natural environment, alternatives, and mitigation.	WR 072
2993	Comment # 13. Page 5-61: the SDEIS shows that tailings leachate pH increases after 300 weeks, but does not show how leachate pH was extrapolated to the longer term, such as 50-100 years. We understand this data is already available. Recommendation: The FEIS should show how leachate pH was extrapolated to the longer term, such as 50-100 years, through a graph or chart.	The pH in leachate from the various mining features was not predicted by the GoldSim model. However, the permanent subaerial waste facilities (e.g., Category 1 Stockpile and Tailings Basin) would contain material that testing results indicate would not produce acidic leachate. The nonacid generating waste was identified using multi-year kinetic tests (humidity cells) on NorthMet Project Proposed Action rock samples. The long-term humidity cell tests on NorthMet waste rock consist of 38 samples of Category 1 waste rock, with tests that have run for up to 337 weeks; and 33 NorthMet tailings humidity cell tests run between 84 and 304 weeks. This information is presented Attachment C and F, respectively, of PolyMet 2015q, as cited in the FEIS. These tests demonstrate that tailings and Category 1 waste rock do not generate acidic leachate, and acid generation rates decrease by depletion of sulfide S minerals. Regarding the tailings in particular, the pH in the flotation tailings humidity	WR 001 WR 025-14

Comment ID	Comment	Response	Theme(s)
		cells have been observed to be stable or increasing between 100 and 300 weeks of humidity cell testing. However, pH of the flotation tailings in the GoldSim model is not directly based on, or extrapolated from, the observed pH in the humidity cells. This is because the neutralization mechanism for NorthMet Project Proposed Action tailings is understood to be silicate mineral dissolution, not carbonate weathering. As noted above, the humidity cells provide information on rates of acid producing and acid neutralizing reactions, which are similar for flotation tailings and Category 1 waste rock due to the similar sulfur content of these materials. A separate geochemical model was used to estimate long-term pH resulting from these reactions, including the conservative assumption that CO_2 is elevated above atmospheric levels throughout the tailings. See FEIS Section 5.2.2.2.3 for more information.	
2994	Comment # 14. The SDEIS could be interpreted to imply that the plant site is expected to need water treatment for up to 500 years and the mine site for up to 200 years. We understand from discussion with the co-lead agencies that this interpretation is incorrect. Recommendation: The FEIS should clearly explain the timeframe during which water treatment is projected, for both the plant and mine sites.	The water quality objective of closure is to provide mechanical or non-mechanical treatment for as long as necessary to protect regulatory standards at applicable groundwater and surface water compliance points. Water quality modeling performed in support of the FEIS indicates that water treatment systems would be needed at the Mine Site and Plant Site indefinitely. The water models constructed to assess the potential effects from the NorthMet Project Proposed Action were not designed to predict the duration of treatment nor do they capture all the factors that influence the duration of treatment, for example potential future regulatory and technological changes. Therefore, the models cannot be used to predict when treatment would end. Actual treatment requirements would be assessed on a recurring basis throughout operation and closure based on results of ongoing discharges, performance, and water resource monitoring, ensuring continuous protection of ground and surface water quality and compliance with applicable water quality standards. This reassessment process would rely on measured monitoring results rather than the results of the predictive modeling included in the FEIS. Regardless of the precise duration of effects or water treatment at either the Mine Site or Plant Site, there are measures available to address impacts to natural resources, such as those identified in the Adaptive Water Management Plan (PolyMet 2015d, as cited in the FEIS) and permit conditions. PolyMet would be held accountable for maintenance and monitoring required under the permit and would not be released until all conditions have been met. PolyMet would be required to provide financial assurance to MDNR (managed independently) for closure and maintenance costs as a contingency if PolyMet or the operating company at that time were unable to fulfill the obligations under	WR 036

Comment ID	Comment	Response	Theme(s)
		the Permit to Mine.	
2995	Comment # 15. Page 5-20: the SDEIS states that "mercury was not included in the GoldSim model, as insufficient data and a general lack of definitive understanding of mercury dynamics prevented modeling mercury like the other solutes." It also states that "regardless, the NorthMet Project Proposed Action would still need to demonstrate consistency with the mercury evaluation criteria (see Section 5.2.2.1)." Given the absence of modeling data for mercury, it is unclear how consistency with mercury evaluation criteria will be determined. Recommendation: The FEIS should either provide a supporting rationale that explains why elemental mercury does not warrant modeling, and how consistency with mercury evaluation criteria will be determined; or include modeling and evaluation of elemental mercury. If GoldSim is not suitable to model this pollutant, elemental mercury can be modeled using a different water quality model, such as the Water Quality Analysis Simulation Program (WASP), which is commonly used by EPA to model elemental mercury.	Elemental mercury is unlikely to exist in the water column. However, elemental mercury was evaluated using the MPCA's Mercury Risk Estimation Method to assess the potential incremental change in fish mercury concentrations and the potential incremental risks to human health. The results indicate that impacts would be small and would not result in the need for additional precautions to protect human health, The FEIS assesses NorthMet Project Proposed Action-related mercury contributions using a mass-balance methodology. This approach was identified during scoping of this EIS as the appropriate analytic tool for predicting mercury concentrations and it is a common and reliable analytical tool used by agencies to assess mercury impacts in impact assessments. This estimation method is preferred over a detailed mechanistic model because it incorporates the important input and removal processes for mercury, it is transparent with regard to data inputs, it typically provides conservative estimates of aqueous mercury concentrations, and it allows for easy assessment of the effect of changing parameter values on mercury concentrations. The RO treatment plant is expected to discharge mercury at or below the mercury standard of 1.3 ng/L, which includes all surface water that would be discharged at the Plant Site, including water used for flow augmentation. Mercury loadings from the Mine Site are projected to decrease due to the NorthMet Project Proposed Action and the combined contributions from the Embarrass River and Partridge River are unchanged when estimated at the St. Louis River at the Fond du Lac reservation boundary. Therefore, the potential effects are expected to be less than significant, and the mass balance approach is appropriate to provide a reasonable estimate of potential contributions for purposes of environmental review. West Pit inflows during pit flooding are not projected to exceed the 1.3 ng/L water quality evaluation criterion; RO (or equivalent performing technology) would further reduce these concentrations in closure. The WWTP and WWTF would use mercury-capturing greensand filtration for pretreatment prior to RO. Adaptive management would be implemented as necessary based on monitoring for total mercury to determine whether the treated water could be discharged to surface waters, or whether some additional treatment is needed. PolyMet has identified the following adaptive management strategies: • Pretreatment modifications such as chemical scavenger addition to	MERC 13

Comment ID	Comment	Response	Theme(s)
		obtain additional metals; • Use of tighter RO membranes for the primary RO system; • Treatment of some portion of the VSEP permeate by the primary RO system to further remove some dissolved constituents; and • Addition of polishing treatment units for removal of trace metals (e.g., ion exchange).	
2996	Comment # 16. Page 5-509, Section 5.2.10.2.6, 5th paragraph: The SDEIS states that "increased mercury concentrations, and associated increases in mercury bioaccumulation in fish tissue could therefore constitute an environmental justice impact for Band members and other subsistence consumers of fish;" and that "deposition of mercury from the NorthMet Project Proposed Action would cease at closure, but mercury bioaccumulation in fish tissue and existing fish consumption limits could persist beyond the mine's operational life." Table 5.2.2-51 shows how much elemental mercury is expected to leave the project site under currently-proposed control measures. Further consideration of mercury impacts is needed. Recommendation: The FEIS should refine the quoted statement to more clearly characterize the risks associated with mercury releases. Based on this risk characterization, the FEIS should explain what has been and will be done to avoid, minimize, and mitigate mercury releases from the project.	FEIS Table 1.7-1 provides a summary of FEIS sections that address mercury. Specifically, FEIS Section 5.2.7.2.5 discloses results of the MPCA's Mercury Risk Estimation Method to assess the potential incremental change in fish mercury concentrations and the potential incremental risks to human health; and FEIS Section 5.2.2.3.4 explains the status of mercury science. FEIS Section 5.2.2.3.5 lists methods to reduce mercury discharges, and FEIS Section 5.2.7.2.5 identifies mercury air emissions controls. Adaptive management would be implemented as necessary based on monitoring for total mercury to determine whether the treated water could be discharged to surface waters, or whether some additional treatment is needed. Adaptive management strategies would include pretreatment modifications such as chemical scavenger addition to obtain additional metals, the use of tighter reverse osmosis membranes for the primary reverse osmosis system, treatment of some portion of the Vibratory Shear Enhanced Processing (VSEP) permeate by the primary reverse osmosis system to further remove some dissolved constituents, and addition of polishing treatment units for removal of trace metals (e.g., ion exchange).	MERC 02 MERC 24
2997	Comment # 17. The SDEIS describes current site conditions, including the acreage, type, and quality of the wetland resources at the tailings basin and mine sites. The SDEIS also describes the proposed direct impacts remaining after measures to avoid or minimize direct impacts. However, the SDEIS does not quantitatively assess indirect impacts or measures to minimize and mitigate these impacts,	FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. In addition, the SDEIS and FEIS Section 5.2.3 quantitatively assessed all potential indirect wetland effects from the NorthMet Project Proposed Action that may result from one of the following six factors: 1) wetland fragmentation; 2) change in wetland hydrology from changes in watershed area; 3) changes in wetland hydrology from groundwater drawdown resulting from open pit mine dewatering; 4) changes in wetland hydrology	COE 02 WET 18

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	except with respect to wetland losses due to fragmentation. The SDEIS also omits all indirect impacts from the cumulative impacts analysis for wetlands (Section 6.2.3.4). Recommendation: The FEIS should quantitatively assess all indirect impacts. The FEIS should more clearly describe the proposed mitigation plan, including mitigation for indirect impacts. The monitoring and mitigation plans in the CWA Section 404 permit should clearly explain proposed measures to minimize and mitigate indirect wetland impacts during the project. Recommendation: The FEIS should include indirect impacts in the analysis of cumulative impacts to wetlands.	from groundwater drawdown resulting from operation of the Plant Site, including groundwater mounding and seepage containment; 5) changes in stream flow near the Mine Site and Plant Site and associated effects on wetlands abutting the streams; and 6) change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations. The assessments provided wetland type and acreage for all six factors; however only wetland acreages were provided for change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations. The following table summarizes the page location of where the indirect wetland effects were discussed in the SDEIS.	

Indirect Effects Factor Assessed	Mine Site	Transportation and Utility Corridor	Plant Site	Second Creek
Wetland fragmentation	page 5-239	page 5-239	page 5-291	page 5-291
Change in wetland hydrology from changes in watershed area	page 5-243	---	---	---
Changes in wetland hydrology from groundwater drawdown resulting from open pit mine dewatering	pages 5-247, 5-259, 5-260; Tables 5.2.3-3, 5.2.3-4	---	---	---
Changes in wetland hydrology from groundwater drawdown resulting from operation of the plant site including groundwater seepage containment	---	---	pages 5-297 and 5-298; Table 5.2.3-10	pages 5-297 and 5-298
Changes in stream flow near the Mine Site and Plant Site and associated effects to wetlands abutting the streams	page 5-273	---	page 5-299	page 5-299
Change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations as well as leakage from Stockpiles/Mine Features and Seepage from Mine Pits	page 5-276, 5-284; Table 5.2.3-7	page 5-277	page 5-302, 5-307; Table 5.2.3-13	page 5-291

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		It is difficult to predict potential indirect wetland effects within the CEAA, as well as to know what the potential indirect wetland effects would be for the projects assessed other than the NorthMet Project Proposed Action. However, based on the amount of potential indirect wetland effects that could occur from the NorthMet Proposed Action, there could be 0.1 to 12.0 percent cumulatively lost, in addition to the direct wetland impacts assessed, within the Partridge and Embarrass River watersheds as a result of the NorthMet Project Proposed Action. The total wetland resources within the two watersheds during the time periods assessed are as follows: • Pre-settlement wetland resources - 68,251 acres; • Existing conditions wetland resources - 65,567 acres; • Foreseeable future conditions with the NorthMet Project Proposed Action and the other foreseeable projects assessed, which includes direct wetland impacts and future deepwater habitat - 64,979 acres; and • Foreseeable future conditions without the NorthMet Project Proposed Action but with the other foreseeable projects assessed, which includes direct wetland impacts and future deepwater habitat (No Action Alternative) - 65,292 acres. Based on the wetlands crossing analog zones analysis approach, the acreage of wetlands whose hydrology would have a high likelihood of being affected by drawdown at the Mine Site is 866.9 acres. The wetlands categorized as high likelihood are dominated by one alder thicket (848 acres) that has approximately 4 acres (less than 1 percent) within the 0-1,000 ft analog impact zone. The remainder of this wetland (more than 99 percent) is located more than 1,000 ft away from the edge of the mine pits and extends out to the edge of Area 1 (see Figure 5.2.3-6 in the FEIS). Furthermore, based on this method, there would be 1,854.5 acres of wetlands within the 0-2,000 ft zone and 2,147.6 acres within the 0-3,500 ft zone that could be affected by potential drawdown. Based on this approach, the total projected potential indirect effects from all six factors that were assessed under this method could be up to 7,694.2 acres of wetlands potentially indirectly affected by the NorthMet Project Proposed Action. Therefore, the potential indirect cumulative effect from the NorthMet Project Proposed Action, in addition to the direct wetland impacts assessed, under this method would range between 1.3 to 12.0 percent. Based on the method approach of wetlands within analog zones, the	

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		acreage of wetlands whose hydrology would have a high likelihood of being affected by drawdown at the Mine Site is 46.4 acres. Furthermore, based on this method, there would be 348.4 acres of wetlands within the 0-2,000 ft zone and 733.3 acres within the 0-3,500 ft zone that could be affected by potential drawdown. Based on this approach, the total projected potential indirect effects from all six factors that were assessed under this method could be up to 6,568.8 acres of wetlands potentially indirectly affected by the NorthMet Project Proposed Action. Therefore, the potential indirect cumulative effect from the NorthMet Project Proposed Action, in addition to the direct wetland impacts assessed, under this method would range between 0.1 to 10.2 percent.	
2999	Comment # 18. The SDEIS uses wetland assessment sites as an approach for evaluating impacts. The location of these assessment sites is discussed in the SDEIS, and Figure 4.2.3-2 shows locations of wetland assessment sites as points in a diagram. There are few wetland assessment site locations north and south of the mine site, and those shown on Figure 4.2.3-2 are far from the site boundary. The SDEIS does not sufficiently explain the assessment approach. Recommendation: The FEIS should describe in more detail the wetland assessment protocol and the assessment sites used, including the assessment methods used at those locations, why these locations were chosen, and how will they be used (e.g., for monitoring future wetland conditions).	FEIS Section 4.2.3 provides a discussion of the wetland functional assessment that was performed for the wetlands in the NorthMet Project areas; this discussion notes that the MnRAM was used to assess wetland functions on the Mine Site, along the Transportation and Utility Corridor, and the Plant Site. During the field wetland surveys for the NorthMet Project areas, data was collected related to the functions of each wetland within the proposed Project areas (i.e., Mine Site, Transportation and Utility Corridor, Plant Site) under an abbreviated MnRAM approach. A total of 87 wetlands were evaluated at the Mine Site for vegetative diversity/integrity and overall functional quality rating and is summarized in FEIS Table 4.2.3-4. Wetland data forms with the MnRAM information collected in the field was presented in Wetland Delineation and Wetland Functional Assessment Report (Barr 2006d, as cited in the FEIS). Approximately 92 percent of the wetland resources in the Mine Site are of high overall wetland quality and 8 percent are of moderate overall wetland quality. The wetlands along the Transportation and Utility Corridor have all been rated as high quality. The wetland resources along the Railroad Connection Corridor are moderately affected and have a high vegetative diversity/integrity. The majority (92 percent) of the wetlands within the Plant Site are currently rated as low-quality with low vegetative diversity/integrity. Eight percent are rated as moderate quality. The wetlands within the Hydrometallurgical Residue Facility are currently rated as low-quality. FEIS Section 5.2.3 discusses the percentage of high, medium, low quality wetlands to be affected by the mine features. In addition, FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. The wetland assessment sites that were shown on SDEIS Figure 4.2.3-2 are	WET 21

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		wetland assessment sites, using MnRAM, that were collected for the federal lands and are now shown on FEIS Figure 4.3.3-1. FEIS Section 4.3.3 includes a discussion on these findings.	
3000	Comment # 19. Section 5.2.3 states that 26.9 acres will be impacted by fragmentation, and that these losses will be mitigated. The criteria used to determine fragmentation are broadly described in Section 5.2.3.1.2, but lack sufficient detail. Recommendation: The FEIS should describe in more detail the criteria used to determine fragmentation losses.	For each wetland that would not be directly impacted at the Mine Site, along the Transportation and Utility Corridor, or at the Plant Site, an estimate of indirect wetland effects (wetland acres by wetland type, and type of effect) from wetland fragmentation by NorthMet Project area features (e.g., open pits, stockpiles, haul roads) was determined based on an analysis of the various factors that may contribute to fragmentation. A wetland may be fragmented as the result of direct impacts that may split a wetland resource area into multiple parts. These fragmented parts could potentially be isolated from other wetlands and would no longer have any adjacent upland watershed area, which could result in the loss of functions in the wetland fragments. While a wetland may be fragmented by direct impacts, this does not necessarily mean the remaining fragmented part of the wetland resource area would be affected. These fragmented parts therefore required further evaluation to determine if these areas would remain viable and/or would retain its functions (PolyMet 2015b, as cited in the FEIS; PolyMet 2015j, as cited in the FEIS). PolyMet's evaluation (PolyMet 2015b, as cited in the FEIS; PolyMet 2015j, as cited in the FEIS) to determine if a wetland resources area would remain viable included the following criteria: change in the size of remaining wetland, wetland type, source of hydrology, direction of flow in the area, location in the current watershed, location in the future watershed, and connectivity to other wetlands. The criteria used are described below: • **The Size of Remaining Wetland:** Wetland fragments that were identified using GIS as having less than about 0.5 acres in size were determined to small to retain their functions. These wetlands were determined for the analysis to be considered fragmented. • **Wetland Type:** The wetland types for the wetland fragments that were greater than 0.5 acres in size were reviewed to determine if they were bogs vs. non-bogs. Ombrotrophic bogs that would become fragmented were not identified as indirectly impacted by fragmentation because they would maintain their functions since their sole source of hydrology is precipitation (see below). Minerotrophic bogs and small non-bog wetlands that were fragmented were further evaluated to determine their hydrologic sustainability. • **Source of Hydrology:** Wetlands were further subclassified as	WET 08

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		ombrotrophic (solely precipitation-fed) or minerotrophic (receives surface and/or groundwater inputs). The hydrology of ombrotrophic bogs is solely supported by precipitation; therefore, these wetlands are not dependent on the watershed size to maintain their functions and were not identified as indirectly impacted by fragmentation. The hydrology of minerotrophic bogs and non-bog wetlands is primarily supported by shallow, groundwater systems that are connected within different scales – wetland watershed, local (e.g., Mine Site) watershed, or regional watershed. Therefore, these minerotrophic bogs and non-bog wetlands were further evaluated because they are considered to be dependent on their watershed size to maintain their functions and their watersheds would be altered due to construction of Project infrastructure. • **Direction of Flow in the Area:** The Mine Site is located in the Upper Partridge River watershed and water on the Mine Site eventually drains to the Partridge River. Under this criterion, PolyMet evaluated the locations of the minerotrophic bogs and non-bog wetlands relative to the sub-watersheds on each side of the Mine Site groundwater divide which is generally located from southwest to northeast near the northern boundary of the Mine Site. Under existing conditions, water in the northernmost area of the Mine Site generally drains (flows) north and water in the southern area of the Mine Site generally drains (flows) south. There are several sub-watersheds on each side of the divide. Based on the location of predicted wetland fragments on the Mine Site, their locations within the sub-watersheds in relation to direct impacts within that same sub-watershed and the direction of flow were noted. A wetland is more likely to retain its function if the fragment that remains is located in the upper portion of its sub-watershed than in the lower portion. Ultimately, if the area of the wetland's watershed is modified, it could result in a change to the equivalent flow (expressed as ac-ft/yr per acre of wetland), a measure of hydrologic support. • **Determination of the Wetland's Current Watershed:** The current watersheds for ombrotrophic bog wetlands were not analyzed since they are not dependent on watershed area for their hydrology as they are precipitation-fed. The current (existing) conditions include the wetlands and watersheds which represent the existing, relatively undisturbed conditions in the Mine Site Area. The watersheds for the	

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		minerotrophic bogs and non-bog wetlands are the land areas that contribute surface water to the wetlands (upland areas and wetland areas). For each minerotrophic bog and non-bog wetland in the analysis, GIS was used to determine the acreage of its watershed area. The location of each minerotrophic bog and non-bog wetland in its current (existing) watershed was compared with its location in the future watershed. • **Location of the Minerotrophic Bog and Non-bog Wetland Fragment in the Wetland's Future Watershed:** During operations, some watershed areas would be directly impacted by the NorthMet Project Proposed Action and would no longer be considered as tributary areas to the minerotrophic bogs and non-bog wetlands. Using the same methodology as in the previous criteria, for each minerotrophic bog and non-bog wetland in the analysis, GIS was used to determine the acreage of upland area and wetland area within its watershed area. As a result, the amount of water potentially contributed by the watershed to support the hydrology of the remaining wetland may also change (increase or decrease). If the wetland fragments had a change in equivalent yield of plus or minus 20 percent, the minerotrophic bogs and non-bog wetlands were further determined to have a potential for indirect impacts. Depending on the results of the other criteria, the minerotrophic bog and non-bog wetland fragments were either considered to be indirectly affected or included as a monitoring location in the wetland hydrology monitoring plan. • **Connectivity to Other Wetlands:** Each wetland fragment was evaluated based on its location, adjacency to upland, and adjacent infrastructure characteristics to determine if it would be expected to maintain its functions. Some of the wetland fragments as a result being divided by Mine Site infrastructure would become isolated from other wetlands; therefore, no longer located within or adjacent to an intact, relatively undisturbed upland. These wetland fragments were not expected to maintain their functions. However, other wetland fragments would still be hydrologically connected to wetlands and would be located within or adjacent to an intact, relatively undisturbed upland. These fragmented wetlands would be located in the vicinity of the haul roads on the Mine Site. Construction of the haul roads would require excavation and fill with blasted rock that would allow	

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		groundwater connectivity for wetlands on either side of the haul road. The purpose of this analysis for the fragmentation factor was to provide an estimate of potential indirect wetland effects from fragmentation. The wetland fragments that are not expected to maintain their functions, approximately 26.9 acres, have been identified in FEIS Section 5.2.3 and on FEIS Figure 5.2.3-1. PolyMet's proposed mitigation for the NorthMet Project Proposed Action would be providing upfront compensatory mitigation for the 26.9 acres of wetland fragmentation. The monitoring and mitigation requirements for potential indirect effects, including fragmentation, would be determined during permitting. The wetland fragments that have not been accounted for in the upfront mitigation would be included in the wetland hydrology and vegetation monitoring plan that would be developed and implemented for the NorthMet Project Proposed Action. FEIS Section 5.2.3.3 includes a detailed discussion on the monitoring and mitigation plan for the potential indirect wetland effects. The proposed wetland impact, avoidance, minimization, mitigation, and monitoring plan presented in the FEIS would be reviewed, modified as required, and approved during permitting; therefore, this information could change during permitting.	
3001	Comment # 20. Figure 5.2.3-4 highlights wetland acres at the mine site where the proposed mine features would indirectly impact wetlands by fragmentation. Fragmentation is defined in the SDEIS as causing a change in the watershed area by greater than 20%. The SDEIS (Page 5-226) briefly describes how fragmented wetlands were identified, but does not explain the method for determining the 20% threshold. Indirect impacts from fragmentation at the mine site will also include habitat fragmentation, divisions in vegetative communities, and the general loss of functions in wetlands that are divided from adjacent wetlands and made smaller by mine features. Wetland acres that are surrounded on all sides by mine features will be fragmented because their ecological functions will be impaired. Recommendation: The FEIS should explain how the 20% threshold was determined. The FEIS	Figure 5.2.3-4 of the FEIS has been clarified. The potential indirect wetland effects as a result of: 1) fragmented wetlands; and 2) change in watershed area, share a common graphic and the title of the figure has been revised. FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. The indirect effects analyses performed for the EIS were not performed to characterize impacts but were done to inform where monitoring should take place for those areas that were identified as having a potential for indirect wetland effects. As a result of these analyses performed to determine where monitoring should occur, quantification of wetland types and acres of potential indirect wetland effects were also generated. The Co-lead Agencies agree that multiple factors can affect whether a wetland would experience indirect effects due to a project. Fragmentation and a change in watershed area (20 percent or greater) are two of the six factors being considered in the identification of potential indirect wetland effects that would be actively monitored due to the NorthMet Project Proposed Action, if the project were to be permitted. Other factors in the consideration of monitoring for potential indirect wetland effects as described in the FEIS: changes in hydrology at the mine site (drawdown), changes in hydrology at	WET 01 WET 08

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	should also recognize that the term "fragmentation" may define indirect impacts other than changes in watershed size. These other factors should be included when estimating fragmentation impacts. Compensatory mitigation should also be proposed for all losses of wetland functions due to wetland fragmentation (in addition to adverse impacts from changes to a wetland's watershed).	the Plant Site (mounding or drawdown), changes in stream or river flow, and changes in water quality. PolyMet proposes that if a wetland would potentially experience three or more of these factors, a monitoring well and a vegetation plot would be installed at that wetland for use in monitoring for indirect effects. A rating system (0-6) was developed for the wetlands based on the number of factors that may potentially affect it. Wetlands that were not determined to be potentially indirectly affected would be rated as zero, and wetlands that were determined to be potentially indirectly affected by all six factors would be rated as a six; however, no wetlands were rated as a six (see FEIS Figures 5.2.3-24 through 5.2.3-29). Monitoring is proposed within all wetlands with a factor rating of 3 to 5 and also for a subset of those wetlands with factor ratings of 1 or 2 as described in FEIS Section 5.2.3.3 (see Figures 5.2.3-31 and 5.2.3-32). The 20 percent change in watershed area is a metric used to assist in identifying wetlands to be monitored for indirect effects (see FEIS Figure 5.2.3-4). It comes from a scientific paper (Richter et al. 2011) and its use in the EIS indirect effects wetland assessment is based on the assessment of potential water-related impacts (including to aquatics) in the EIS. With regard to daily flow alterations (i.e., in streams or rivers), the paper states that, "Alterations greater than 20 percent will likely result in moderate to major changes in natural structure and ecosystem functions." Though the 20 percent metric discussed in this paper is applied to streams and rivers, the Co-lead Agencies believe that a 20 percent change is a reasonable metric to apply when identifying wetlands for monitoring, in particular with respect to potential ecological changes that may be triggered with a change in watershed contribution (water yield) of this magnitude or greater. As stated above, the 20 percent change in watershed is just one of six factors used to identify which wetlands would be proposed to be actively monitored for indirect effects. Fragmentation is another of the six factors described above. As noted in FEIS Section 5.2.3.2.2, wetlands were determined to be fragmented, and their associated remaining acreage identified as being indirectly affected if the remaining portions of the wetlands were small remnants of a directly impacted wetland located between project features (e.g., in the area between the Category 1 Waste Rock Stockpile and the West Pit). FEIS Section 5.3.2.1.2 provides a discussion of the criteria considered in identifying a wetland as fragmented.	

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		As noted in the FEIS, compensatory mitigation for the 26.9 acres of wetland fragmentation (see FEIS Figure 5.2.3-1) estimated to occur due to the NorthMet Project Proposed Action is proposed to occur up front (see FEIS Tables 5.2.3-17, 5.2.3-18, 5.2.3-19). Potential indirect effects to wetlands due to factors other than fragmentation would be identified through monitoring. The monitoring and mitigation for potential indirect effects would be determined during permitting. Additional compensatory mitigation for indirect wetland effects would also be addressed in permitting. When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS and there is incomplete or unavailable information because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, NEPA directs the agency to make it clear that such information is lacking, discuss the relevance of the lacking information, and discuss any information relevant to evaluation of the future impacts. In these cases, NEPA also directs the agency to evaluate these impacts based upon theoretical approaches or research methods generally accepted in the scientific community provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason. The Co-lead Agencies believe this is the case for evaluating indirect wetland effects. The Co-lead Agencies have thoroughly considered throughout the development of the EIS and through the Wetland Impact Assessment Planning Work Group how to assess potential indirect wetland effects. As a result, strengths and weaknesses of the approach used as well as other suggested approaches have been carefully considered. The Co-lead Agencies ultimately decided the use of the 20 percent metric described in Section 5.2.3 as one of the factors considered in identifying potential indirect effects to wetlands is a credible and reasonable approach consistent with the requirements of NEPA.	
3002	Comment # 21. Section 5.2.3 describes the proposed wetland mitigation plan. EPA previously commented on the proposed mitigation ratios, and supports the mitigation ratios proposed in USACE's May 29,2013 Draft Memorandum on The Application of the Federal Mitigation Rule and St. Paul District Policy Guidance on Compensatory Mitigation, as described on page 5-	The USACE has determined—based on the mitigation plans, information gathered on site, and review of the monitoring reports—that the three mitigation sites selected (Aitkin, Hinckley, and Zim) and the wetland mitigation credits generated at these sites would be acceptable for use in compensating for direct wetland losses. The USACE has not made a final decision on the mitigation ratios that would be required to compensate for direct wetland impacts; however, if fully successful, it is likely these mitigation sites would generate sufficient credits to compensate for the 940	WET 04

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	316. The SDEIS describes the proposed ratios, but also states, "The determination of final mitigation credits...would be determined during permitting" (p 5-224). Recommendation: The FEIS should provide a status update on development of final wetland mitigation credits. EPA will work with USACE during CWA Section 404 permitting to determine the final wetland mitigation credits needed, including mitigation for indirect impacts.	acres of direct and fragmented wetland impacts. In the event that not all of the credits generated at these sites are utilized to compensate for direct wetland impacts, any excess credits could be used to compensate for indirect losses (USACE 2015a, as cited in the FEIS). The FEIS (see FEIS Section 5.2.3.3) includes the proposed direct compensatory mitigation credits and ratios for the NorthMet Project Proposed Action (see FEIS Tables 5.2.3-17, 5.2.3-18, and 5.2.3-19), which are based on the federal guidance policies and state replacement ratio rules. The amount of credit generated by the mitigation sites would ultimately be determined by the permitting agencies. This would be based on the extent to which the sites meet the target goals established during permitting. These include, among other things, restoration of wetland appropriate hydrology and the establishment of a target plant community or type. Financial assurances for the direct wetland impact mitigation would be required until success of the mitigation sites can be assured. While this wetland mitigation is expected to be approved and constructed in advance of any authorized wetland impacts, it is unclear whether these sites would be well enough established for financial assurances to be waived. The USACE would also consider the application of financial assurances for potential indirect wetland effects and monitoring. Both the USACE and state would require consideration of financial assurances during the permitting process. The NorthMet Project Proposed Action is estimated to directly impact 913.8 acres of wetlands. Depending on the location, type, and timing of compensatory mitigation, the minimum required amount of replacement wetlands for direct impacts could range from 913.8 acres up to 1,827.6 acres (i.e., 1:1 up to 2:1 compensation ratios). In addition, compensatory mitigation for the 26.9 acres of wetland fragmentation would also be provided up front. The USACE St. Paul District guidance allows for in-kind, in-place, and in-advance incentives to reduce the recommended base ratios and these would be considered at the time of permitting. Please refer to the response to theme WET 01.	
3003	Comment # 22. The proposed mitigation plan includes post-mining on-site wetland mitigation. Restoration of wetlands on the site as part of reclamation is positive and important, but EPA and USACE have agreed that mitigation credits are not appropriate given how long it will be before this mitigation is carried out. The SDEIS contains	The post-closure establishment of the estimated 101.8 acres of on-site wetland is not included in the wetland mitigation credits. The generation of wetland credits in these areas has the potential to be used on a contingency basis, but compensatory credit would not be considered at this time for a variety of reasons including the fact that any restoration efforts would not occur for many years. The summary of proposed wetland mitigation credits, presented in FEIS Table 5.2.3-17, does not include the on-site	COE 01

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	inconsistent statements regarding whether or not on-site mitigation is proposed to generate mitigation credits. Recommendation: The FEIS should be clear that post-mining, on-site mitigation will not be used for mitigation credits. The mitigation plan in the CWA Section 404 permit should exclude mitigation credits for post-mining, on-site wetland mitigation.	wetland restoration. The Executive Summary and FEIS Section 5.2.3.3.3 have been updated to also note that the on-site wetland would not be considered in the wetland mitigation credits at this time.	
3004	Comment# 23. Page 6-36, Table 6.2-8 and Pages 6-40 to 6-42, Table 6.2-11: There appear to be some inconsistencies between Table 6.2-8 and Table 6.2-11 with respect to reported future wetland and water resource numbers, including the bullet summaries for the Partridge River (Page 6-40) and Embarrass River (Page 6-42). For the Partridge River, Table 6.2-11 and bullet summary text note future condition with 3,516 acres of deepwater resources, while Table 6.2-8 indicates 1,922 acres. Recommendation: The FEIS should resolve or explain these inconsistencies.	FEIS Table 6.2.3-1 (formerly Table 6.2-8 in the SDEIS) shows the proposed net change in wetland and water resources for the eight specific projects that were included in the wetlands cumulative effects analysis. Table 6.2.3-4 (formerly Table 6.2-11 in the SDEIS) shows the projected future resources in total for the two watersheds when combined with the eight projects that were assessed. For example, the 1,922 acres of deepwater resources shown in FEIS Table 6.2.3-1 is the amount that would be added to the Partridge River watershed from the projects that were evaluated, which would result in a net increase of 370 acres of deepwater habitat from these projects (existing deepwater habitat from these projects is 1,552 acres). The 3,516 acres of deepwater habitat discussed in the bullets on page 6-40 and in FEIS Table 6.2.3-4 is correct. There is a total of 3,146 acres of existing deepwater resources in the Partridge River watershed, which, when combined with the net increase of 370 acres of deepwater habitat from the four projects, results in 3,516 acres. Section 6.2.3 of the FEIS has been updated to clarify the information presented in the tables.	EDIT 01
3005	Comment# 24. Page 6-21, Section 6.2.3.3.2: the “Contributing Past, Present, and Reasonably Foreseeable Actions” section, lists twelve foreseeable future actions with potential cumulative effects on surface water hydrology and quality in the Partridge River and Embarrass River watersheds. There is some inconsistency between this list and Table 6.2-1 (Page 6-7). “Cliffs Erie, LLC- Hoyt Lakes Area (former LTVSMC),” and “Cliffs Erie, LLC- Area 5 NW Pit” are not included in the table, at least not by these names.	The FEIS has been revised to ensure consistency with project names.	EDIT 01

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	Recommendation: The FEIS should resolve or explain these inconsistencies, and use consistent names for foreseeable future actions to simplify cross-referencing by the reader.		
3006	Comment # 25. Page 6-26 states: "In summary, the maximum cumulative effects of the NorthMet Project Proposed Action, plus present and reasonably foreseeable future actions on the hydrology of the Partridge River, would be expected to reduce average annual flow in the Lower Partridge River at any time during operations by no more than 8.4 cubic feet per second (cfs) and 2.4 cfs (2 percent) during closure of the NorthMet Project Proposed Action, based on average annual flow of 112 cfs at USGS gauging station 04016000 downstream of Colby Lake." In some cases, this effect is well above the mean recorded flow of the Upper Partridge River during certain times of the year. The SDEIS does not address how flow reductions will affect the Partridge River and its resources. Recommendations: The FEIS should include a total or net effect calculation for each table in the water resources section, similar to that provided for the wetlands analysis in Table 6.2-8, (Page 6-36) which shows total and incremental cumulative effects. The FEIS should add a row for the total or net effect to Table 6.2.2. The FEIS should discuss the magnitude and significance of these flow reductions, including additional analysis or information as necessary. Potential impacts caused by these reductions should be discussed in section 6.2.3.3.3.	Upper Partridge River flows are currently influenced by the timing and magnitude of Northshore Mine discharges from the Peter Mitchell Pit at SD-009 and SD-010 and would be influenced by the cessation of those discharges in approximately mine year 52. Available records show an average annual discharge to the Partridge River ranging from 6.8 to 15.1 cfs, with a highest reported monthly discharge of 34 cfs (Barr 2008f, as cited in the FEIS). Over the past several years (2004 to present), the average annual daily discharge from the Northshore Mine has been approximately 5.0 cfs, but this rate is quite variable, ranging from zero (mostly during the winter and summer droughts) to as high as approximately 20 cfs. These flow contributions would cease around 2070. Additional evaluation is offered in Section 6.2.2.3.1 on the cumulative effects to the flow of the Upper Partridge River.	WR 024
3008	Comment # 26. Pages 6-22 to 6-25 and 6-27 to 6-28, Section 6.2.3.3.3: This text does not reference sources of hydrological effects data for each	Change has been made, as requested.	EDIT 01

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	action. Recommendation: The FEIS should reference sources of hydrological effects data for each action.		
3009	Comment# 27. Table 6.2-15 shows the direct effect of other actions in terms of populations of each plant species affected. However, the SDEIS notes that for 4 out of 9 potentially contributing actions, "The NHIS data and MDNR take permit data were reviewed and no vegetation records were available for these actions. As a result, these actions are not considered in the cumulative effects analysis for vegetation." Recommendation: The FEIS should indicate whether the lack of vegetation records indicate no cumulative effects on vegetation, or simply lack of data on the subject.	The FEIS uses MDNR Natural Heritage Information System (NHIS) data to analyze the statewide status of each species, and Table 6.2.4-3 summarizes the percentage of statewide populations affected. The NHIS data also clarifies whether there is a lack of data in the cumulative project footprints or an absence of species in surveys conducted on site. The FEIS has been updated to include the new state ETSC status listings from August 19, 2013, as well as any new federal status listing changes to assess effects to species in the cumulative analysis.	VEG 08
3010	Comment # 28. We understand that MDNR will not calculate detailed financial assurance until the Permit to Mine process, although it may have additional information before the FEIS is issued. Recommendation: The FEIS should include additional information on financial assurance as available.	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates and calculations that would be required for the project would be addressed during permitting. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine.	FIN 01 FIN 08
3011	Comment # 29. The SDEIS does not identify the least environmentally damaging practicable alterative (LEDPA). This information will be required for CWA Section 404 permitting under CWA Section 404(b)(l). Recommendation: The FEIS should describe the process that will be used to determine the LEDPA, and should provide LEDPA information to the extent it is available.	The LEDPA process is described in FEIS Section 7.5. The ROD for the USACE would include the Section 404(b)(1) analysis and the public interest review, and would determine the LEDPA. Furthermore, the ROD for the USACE cannot be finalized until 30 days after release of an FEIS. Any comments received during the 30 day period may be considered in the ROD for the USACE. The ROD for the USACE would recommend issuance, issuance with conditions, or denial of the Project.	COE 02
3012	Comment # 30. The Noise section and page 5-370 of the SDEIS does not sufficiently describe potential noise impacts from blasting and vibrations on wildlife. A cited Federal Highway	FEIS section 5.2.5 (Wildlife Impacts) has been updated to include noise and vibration impacts to wildlife, including Canada lynx and song birds at the local and regional level. Appropriate mitigation and impact areas have been clearly defined. For more details please see response to Theme Code	N 04

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	Administration technical document in Appendix C of the SDEIS provides information on the sound threshold and frequency range for four biologic classes (mammals, birds, reptiles, and amphibians). Recommendation: The FEIS should contain analyses of noise and vibration impacts to wildlife based on the above biologic classes' sound threshold and frequency range, based on information included and cited in the SDEIS. Any impacts and/or mitigation measures should be noted in the FEIS.	WI 05 (under wildlife). In addition, please see the Biological Assessment (Appendix D of the FEIS) for further details on noise impacts to the Canada lynx, gray wolf, and northern long-eared bat, as well as the Biological Evaluation (also in Appendix D of the FEIS) for details on noise impacts to wildlife.	
3013	Comment # 31. On pages 1-14 and 1-15, the SDEIS notes that the USFS must determine that "the public interest will be well served" before it can enter into a discretionary, voluntary real estate transfer (36 CFR 254.3(b)). This analysis is included in the SDEIS, but should be made clearer and more focused. Recommendation: The FEIS should clearly and concisely summarize the analysis of the proposed land exchange (Alternative A) and Alternative B under 36 CFR 254.3(b), including a clear explanation of the rationale and criteria for selecting the preferred land exchange alternative, and of how protecting cultural resources is included in the public interest determination.	CEQ regulations (40 CFR 1502.14) state that an EIS should present the environmental impacts of a proposal and its alternatives in comparative form to provide a clear basis for choice among the alternative options by the decision makers and the public. The regulations further state (40 CFR 1502.14(e)) that agencies shall identify their preferred alternative (or alternatives, if one or more exists) in the DEIS as well as the FEIS, unless another law prohibits the expression of such a preference; however, the regulations do not require a rationale for the choice. The ROD from the USFS would contain the rationale for the selected alternative, as well as a discussion of how the public interest is served under 36 CFR 254.3(b). The FEIS includes the factors relating to how the public interest would be served by the Land Exchange Proposed Action, Land Exchange Alternative B, and the Land Exchange No Action Alternative. The ROD would incorporate these findings in its determination. As stated in FEIS Section 1.4.3, factors that must be considered include: • the opportunity to achieve better management of federal lands and resources; • to meet the needs of state and local residents and their economies; and • to secure important objectives, including but not limited to: protection of fish and wildlife habitats, cultural resources, watersheds, and wilderness and aesthetic values; enhancement of recreation opportunities and public access; consolidation of lands and/or interests in lands, such as mineral and timber interests, for more logical and efficient management and development; consolidation of split estates; expansion of communities; accommodation of existing or planned land use authorizations; promotion of multiple-use values; implementations of applicable Forest Land and Resource Management Plans; and fulfillment of public needs. See 36 CFR	LAN 01

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		254.3(b) and 254.4(c)(4). Table 7.3.5-1 of the FEIS presents a comparison of how the alternatives address these factors. To determine that a land exchange serves the public interest, the authorized officer must find that: 1. The resource values and the public objectives served by the non-federal lands or interests to be acquired must equal or exceed the resource values and the public objectives served by the federal lands to be conveyed; and 2. The intended use of the conveyed federal land will not substantially conflict with established management objectives on adjacent federal lands, including Indian Trust lands (36 CFR 254.3(b)(2)). The findings and supporting rationale for the public interest determination would be documented and made part of the administrative record pursuant to 36 CFR 254.3(b)(3).	
3014	Comment# 32. The SDEIS states that modeled groundwater capture system efficiency at the tailings basin is at least 90%. However, it does not explain the basis for this estimate. Recommendation: The FEIS should provide the specific model assumptions that were used to make this determination. Recommendation: The FEIS should indicate that any discharge not captured by the proposed capture systems and entering waters of the U.S. (e.g., jurisdictional wetlands, the Partridge and Embarrass Rivers and their tributaries) is subject to NPDES permitting.	The design of the Tailings Basin capture system includes: 1) a slurry wall keyed into bedrock, 2) a collection trench on the tailings side, and 3) permanent pumping of the collection trench to depress the groundwater level on the tailings side. The proposed capture system uses pumping on the tailings side of the slurry wall to reverse hydraulic gradients across the slurry wall and in underlying bedrock inward back toward the Tailings Basin. The conceptual hydraulics of this type of system predicts that it would achieve complete or nearly complete groundwater capture in the surficial aquifer. See FEIS Figure 5.2.2-7. To more fully assess capture efficiencies, the FEIS relies on revising cross-section models from the SDEIS to evaluate containment systems on the northern, northwestern, and western sides of the Tailings Basin. The updated modeling relies on data from a 2014 field program that investigated bedrock along the alignment of the proposed capture system on the northern, northwestern, and western sides of the Tailings Basin. New data were collected on bedrock hydraulic conductivity, Rock Quality Designation, and depth to top of bedrock. Along with the new data, the revised model also considers the presence of an upper more permeable bedrock zone directly below the slurry wall. Sensitivity analyses have included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 100 feet. The cross-section model results predict that the groundwater capture efficiencies of the proposed Tailings Basin capture systems would be	PER 05 WR 018

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		substantially greater than 90 percent. This analysis supports the conclusion that the assumption of 90 percent or greater capture efficiency of groundwater in the surficial aquifer is justified. If the NorthMet Project Proposed Action moves ahead with permitting, the MPCA would issue a combined NPDES/SDS permit. The requirements of such a combined NPDES/SDS permit would directly address the potential for contaminants in the groundwater to impact surface waters. The NPDES/SDS permit covering the facility would prohibit a point source water discharge from the containment system that adds pollutants to waters of the U.S. See response to comment 2987 for more information.	
3016	Comment # 33. Pages 4-261 through 4-264 refer to cultural resources/Section 106 resources solely as historic properties. Recommendation: The FEIS should make it clear that cultural resources include archaeological resources.	Change has been made, as requested.	EDIT 01
3017	Comment # 34. Moose is a culturally-important species that has traditionally been subsistence hunted by the Chippewa Tribe. The SDEIS does not adequately describe how the proposed project will impact moose population and habitat of moose. Based on information in the SDEIS, it appears that there are unconsidered impacts to moose population and habitat, such as the proposed impacts to two local wildlife corridors, moose reliance on wetlands during warm weather, and impacts on foraging. Recommendation: The FEIS should more completely explain how the proposed action will impact moose population and habitat.	FEIS Sections 4.2.5, 4.3.5, 5.2.5, and 5.3.5 (Wildlife) have been updated to include the new state endangered, threatened, and special concern (ETSC) status listings from August 19, 2013, as well as new federal status listing changes. The FEIS includes a more robust analysis on effects to moose, including habitat and displacement.	WI 01
3018	Comment# 35. On March 13, 2014, MPCA released preliminary findings on the effects of sulfate on wild rice growth. Recommendation: The FEIS should provide the most current available information on MPCA's findings, and on next steps based on these findings.	The MPCA is overseeing a variety of studies on wild rice. At applicable surface water locations, the FEIS evaluates impacts using an evaluation criterion based on the current MPCA 10 mg/L standard for sulfate concentration in waters used for production of wild rice. This impact assessment metric is keyed to the current regulation. It is recognized that the MPCA is currently evaluating the current wild rice sulfate water quality standard and, as part of that process, new information	WR 152

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		on potential contributing factors on the growth of wild rice has been generated. However, that information has not yet been holistically reviewed in the context of its possible influence on the wild rice standard. Future change to the wild rice sulfate standard, if any, is speculative and outside the scope of the FEIS; applying research findings outside the basis of the current rule is not appropriate.	
3019	Comment # 36. Section 5.2.14 addresses geotechnical issues at the mine. Reasonable stability analyses were conducted for the permanent waste rock pile, but it is unclear if the company has committed to designing this unit so it meets conservative static stability Factors of Safety (FOS) (static FOS of 1.5 and seismic FOS >1). The company has committed to meeting conservative FOS for both the tailings basin and the HRF. Recommendation: The FEIS should clarify the company's commitment with respect to design of the permanent waste rock pile.	The design of the Category 1 Stockpile would need to conform to *Minnesota Rules*, part 6132.2400. FEIS Section 5.2.14.2.1 provides a summary of the design requirements for the stockpiles, including angles of repose, configured stockpile slopes, factors of safety, as well as the material tests that have occurred to date and that would be required prior to stockpile construction approval under the Permit to Mine. The Category 1 Stockpile would be progressively reclaimed and at closure would be covered with a geomembrane system that would be vegetated to meet the requirements of *Minnesota Rules*, part 6132.2200, subpart 2, item B. The design of the Category 1 Stockpile cover system was derived from landfill requirements in *Minnesota Rules*, part 7035.2815, subpart 6, item D. Long-term maintenance of the Category 1 Stockpile would include repair of erosional damage and removal of woody species and trees from the stockpile cover system. The Factors of Safety estimated during slope stability are not anticipated to change due to long-term performance variation in the geomembrane. FEIS Sections 3.2.2.1.7 and 3.2.2.1.10 provide a summary of the Category 1 Stockpile, including reclamation. Further information on the design and management of the stockpiles is provided in the Geotechnical Data Package, Volume 3 (Stockpiles) (PolyMet 2014p, as cited in the FEIS) and the Rock and Overburden Management Plan (PolyMet 2015h, as cited in the FEIS). Additional geotechnical investigations to address site conditions, materials and design would be required prior to stockpile construction approval under the Permit to Mine.	GT 04
3020	Comment # 37. Liquefaction analyses were not conducted for the HRF, based on the assumption that those wastes could compress and that the likelihood of liquefaction is remote. However, liquefaction and liner leakage could occur at the HRF because the HRF is proposed to be located above a hydraulically-active seep, which will place inward hydraulic pressure on the HRF liners.	The Hydrometallurgical Residue Facility would be constructed using the downstream construction method, whereby dams would be built from dense, well-compacted materials prior to the placement of hydrometallurgical residue. This allows for a constructed dam that is discrete from the residue it holds. The potential for liquefaction in the dams is very low due to the proposed downstream construction method, upstream liners, seepage collection system, and well-compacted materials. While liquefaction may happen in the residue, it would not affect the integrity of	GT 11

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	Recommendation: The potential for liquefaction should be analyzed. The FEIS should clearly summarize the results of this analysis, including next steps in response to this analysis.	the separate dam materials. FEIS Section 5.2.14.2.3 expands upon the SDEIS discussion of the design and construction of the Hydrometallurgical Residue Facility. The Geotechnical Data Package, Volume 2 (PolyMet 2014c, as cited in the FEIS) indicates the design would meet appropriate factors of safety. The current Hydrometallurgical Residue Facility design acknowledges the presence of an active seep in the proposed area of construction. As such, a collection drain has been designed to collect water from the active seep below the proposed constructed embankment and liner systems, and to transmit the collected seep to the exterior of the facility. This seepage collection system would include a layer of free-draining soil that would reduce the potential for phreatic build-up below the liner. Details on this design consideration are provided in Section 5.1 of the Geotechnical Data Package, Volume 2 (PolyMet 2014c, as cited in the FEIS). FEIS Section 4.2.14.3 describes the details of the existing conditions at the location of the proposed Hydrometallurgical Residue Facility, including the fact that it is proposed to be constructed at the location of the LTVSMC Emergency Basin. FEIS Section FEIS 3.2.2.3.7 broadly describes the Hydrometallurgical Residue Facility, while Section 5.2.14.2.3 provides details on the construction, operation, monitoring, and maintenance for geotechnical stability, including potential liquefaction. Additional technical details on design and construction, factors of safety analysis, operation and management, and reclamation and closure are found in the Geotechnical Data Package, Volume 2 (PolyMet 2014c, as cited in the FEIS) the Residue Management Plan (PolyMet 2014r, as cited in the FEIS). Details would be finalized in permitting and would be subject to periodic reassessment.	

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Comments from the USEPA Regarding Section 404 Permit (Submission ID 47835)			
3021	The alternatives analysis in the application references the 2009 Draft Environmental Impact Statement (DEIS) and 2013 Supplemental Draft Environmental Impact Statement (SDEIS), but does not include the necessary detail to determine that the preferred alternative is the Least Environmentally Damaging Practicable Alternative (LEDPA). Since the DEIS was published in 2009, the project has evolved and many alterative have been eliminated. Chapter 6 in the application describes some of those alternatives as they relate to direct wetland impacts; it is not a comprehensive list of alternatives, and it does not consider indirect impacts to wetlands and streams. EPA recommends that the applicant develop a table describing all alternatives considered during the environmental review process (e.g., mine methods, mine configurations, tailings processing options). The table would assist EPA in determining whether or not the preferred alternative is the LEDPA. The table should also include the reasons each alternative was eliminated, including references, and the potential direct and indirect effects to wetlands and streams.	The LEDPA process is described in FEIS Section 7.5. The ROD for the USACE would include the Section 404(b)(1) analysis and the public interest review, and would determine the LEDPA. Furthermore, the ROD for the USACE cannot be finalized until 30 days after release of an FEIS. Any comments received during the 30 day period may be considered in the ROD for the USACE. The ROD for the USACE would recommend issuance, issuance with conditions, or denial of the Project. Please also refer to FEIS Sections 3.2.3, FEIS Tables 3.2-16 and 3.2-17 for information on alternatives for the NorthMet Project and Section 3.3.3 for information on alternatives for the Land Exchange and Chapter 7 for additional information on alternatives. This would be considered during the Section 404 permitting process.	COE 04
3022	The application does not provide a quantitative assessment of all indirect impacts (except for fragmentation impacts). We recognize that the heterogeneity of the project site and the complexity of the wetlands and hydrology make it difficult to quantity indirect impact, but we recommend that specific impacts to wetlands within the mine site be identified to the extent possible. The application should better estimate the changes in functions and values at wetlands, especially those surrounded by mine features.	FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. The indirect effects analyses performed for the EIS were not performed to characterize impacts but were done to inform where monitoring should take place for those areas that were identified as having a potential for indirect wetland effects. As a result of these analyses performed to determine where monitoring should occur, quantification of wetland types and acres of potential indirect wetland effects were also generated. FEIS Section 5.2.3 provides these quantitative values of potential indirect wetland effects. Potential indirect wetland effects from the NorthMet Project Proposed Action were assessed as a result from one of the following six factors: 1) wetland fragmentation; 2) change in wetland hydrology from changes in	COE 02

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		watershed area; 3) changes in wetland hydrology from groundwater drawdown resulting from open pit mine dewatering; 4) changes in wetland hydrology from groundwater drawdown resulting from operation of the Plant Site, including groundwater mounding and seepage containment; 5) changes in stream flow near the Mine Site and Plant Site and associated effects on wetlands abutting the streams; and 6) change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations. The assessments provided wetland type and acreage for all six factors; however, only wetland acreages were provided for factor 6 (change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations). Dust, ore spillage, and stockpile leakage is not a regulated discharge to wetlands under the Section 404 of the CWA; however, USACE would consider these types of potential effects in their determination of the LEDPA under the Section 404(b)(1) permit alternative analysis. The potential effects of dust, ore spillage, and stockpile leakage would be evaluated by MPCA under the Section 401 Water Quality Certification and NPDES permitting.	
3023	Specifically, EPA is concerned that there will be indirect impacts to remaining wetland areas in Wetlands Nos. 33A, 45, 48, 57, 68, 101, 88, 96, and 107. Indirect impacts in these wetland areas will include habitat fragmentation, divisions in vegetative communities, and the general loss of functions in wetlands that are separated from adjacent wetlands and made smaller by mine features. Specific compensatory mitigation should be proposed for all losses of wetland functions (including identification of ratios and site locations).	FEIS Section 5.2.3.1.2 has been updated to provide more information on the methodology and criteria for determining potential indirect fragmented wetland effects. The wetland fragments that are not expected to maintain their functions, approximately 26.9 acres, have been identified in FEIS Section 5.2.3 and on Figure 5.2.3-1. PolyMet's proposed mitigation for the NorthMet Project Proposed Action would be providing upfront compensatory mitigation for the 26.9 acres of wetland fragmentation (see FEIS Tables 5.2.3-17, 5.2.3-18, 5.2.3-19). The monitoring and mitigation requirements for indirect effects, including fragmentation, would be determined during permitting. The wetland fragments that have not been accounted for in the upfront mitigation would be included in the wetland hydrology and vegetation monitoring plan that would be developed and implemented for the NorthMet Project Proposed Action. FEIS Section 5.2.3.3 includes a detailed discussion on the monitoring and mitigation plan for the indirect wetland effects. The proposed wetland impact, avoidance, minimization, mitigation and monitoring plan presented in the FEIS would be reviewed, modified as required, and approved during permitting; therefore, this information could change during permitting.	COE 01
3024	Large Figure 9 and 10 and Large Table 2 in the	FEIS Section 5.2.3.1.2 has been updated to provide more information on	COE 02

Comment ID	Comment	Response	Theme(s)
	application highlight wetland areas at the mine and plant sites where the proposed mine features would indirectly impact wetlands by fragmentation. Compensatory mitigation is proposed for those areas. Page 3 of the Wetland Analysis Workplan (Attachment B) gives a brief description of how fragmented wetlands were identified, but the application should also describe the impact thresholds and how the fragmentation impact criteria were developed.	the methodology and criteria for determining potential indirect fragmented wetland effects. The wetland fragments that are not expected to maintain their functions, approximately 26.9 acres, have been identified in FEIS Section 5.2.3 and on Figure 5.2.3-1. PolyMet's proposed mitigation for the NorthMet Project Proposed Action would be providing upfront compensatory mitigation for the 26.9 acres of wetland fragmentation (see FEIS Tables 5.2.3-17, 5.2.3-18, 5.2.3-19). The monitoring and mitigation requirements for indirect effects, including fragmentation, would be determined during permitting. The wetland fragments that have not been accounted for in the upfront mitigation would be included in the wetland hydrology and vegetation monitoring plan that would be developed and implemented for the NorthMet Project Proposed Action. FEIS Section 5.2.3.3 includes a detailed discussion on the monitoring and mitigation plan for the indirect wetland effects. The proposed wetland impact, avoidance, minimization, mitigation and monitoring plan presented in the FEIS would be reviewed, modified as required, and approved during permitting; therefore, this information could change during permitting.	
3025	Page 58 of the application states that the purpose of the indirect impacts analysis is to inform the monitoring plan for indirect wetland impacts. The application should include a description of how the impacts analysis will be used to ensure that indirect impacts are avoided, minimized, and mitigated. Section 11-5 in the application implies that the indirect impact monitoring plan will focus on wetlands that are under threat by multiple indirect impact factors (Table 11-1); this is not a valid approach because even wetlands that are under risk of one factor (such as only drawdown or only decreased water quality) would result in a loss of wetland function. We recommend more comprehensive monitoring for indirect impacts at the plant and mine sites.	FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. The indirect effects analyses performed for the EIS were not performed to characterize impacts but were done to inform where monitoring should take place for those areas that were identified as having a potential for indirect wetland effects. As a result of these analyses performed to determine where monitoring should occur, quantification of wetland types and acres of potential indirect wetland effects were also generated. FEIS Section 5.2.3 provides these quantitative values of potential indirect wetland effects. Potential indirect wetland effects from the NorthMet Project Proposed Action were assessed as a result from one of the following six factors: 1) wetland fragmentation; 2) change in wetland hydrology from changes in watershed area; 3) changes in wetland hydrology from groundwater drawdown resulting from open pit mine dewatering; 4) changes in wetland hydrology from groundwater drawdown resulting from operation of the Plant Site, including groundwater mounding and seepage containment; 5) changes in stream flow near the Mine Site and Plant Site and associated effects on wetlands abutting the streams; and 6) change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations. The assessments provided wetland type and acreage for all six factors; however, only wetland acreages were provided for factor 6 (change in wetland water	COE 02

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		quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations).	
3026	The application does not describe monitoring for stream impacts surrounding the project areas. We recommend that the U.S. Army Corps of Engineers (Corps) require monitoring for indirect impacts to headwater streams surrounding the site as well as impacts to wetlands.	FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. Proposed wetland hydrology monitoring locations for determining whether potential indirect effects are occurring are shown on Figures 5.2.3-31 and 5.2.3-32 of the FEIS. Wetland hydrology and vegetation would be monitored, and additional monitoring locations may be considered during permitting. The wetland mitigation and monitoring would be reviewed and approved by the appropriate regulatory agencies responsible for authorizing the permit application during the permitting process.	COE 02
3027	There is a potential for indirect impacts to wetlands, Spring Mine Creek, and Spring Mine Lake on the east side of the tailings basin, but no monitoring sites are proposed for that area. Wetland and stream monitoring sites should be required for the east side of the tailings basin.	FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. Proposed wetland hydrology monitoring locations for determining whether potential indirect effects are occurring are shown on Figures 5.2.3-31 and 5.2.3-32 of the FEIS which includes a wetland hydrology monitoring well located east of the Plant Site along Spring Mine Creek and west of Spring Mine Lake. Wetland hydrology and vegetation would be monitored, and additional monitoring locations may be considered during permitting. The wetland mitigation and monitoring would be reviewed and approved by the appropriate regulatory agencies responsible for authorizing the permit application during the permitting process.	COE 02
3028	Section 17.1 of the application describes that wetland monitoring wells 1, 4a, 6, 10, 12, 15, and 21 are “being removed because they are either within the direct project impacts or areas where no potential indirect impacts are anticipated”. Figure 16 shows Wells 4a, 6, 10, 12, and 15 just outside the project boundary and between mine features and Yelps Creek and the Partridge River. These wells are in wetland areas that would likely be impacted by adjacent mine features because of their close proximity to the mine features and wetland areas. For a more comprehensive impacts analysis, we recommend that the applicant continues to monitoring at the existing wells where they are outside the direct mine impact locations. Because there are baseline hydrologic data at these	FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. Proposed wetland hydrology monitoring locations for determining whether potential indirect effects are occurring are shown on Figures 5.2.3-31 and 5.2.3-32 of the FEIS. Wetland hydrology and vegetation would be monitored, and additional monitoring locations may be considered during permitting. The wetland mitigation and monitoring would be reviewed and approved by the appropriate regulatory agencies responsible for authorizing the permit application during the permitting process.	COE 06

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	locations, changes in wetland hydrology, if they occur, should be evident.		
3029	Some wetland types, such as coniferous and open bogs, are sensitive to subtle changes in hydrology. A 50% change in hydroperiod (the proposed impact criteria) may not be an adequate measure of adverse impacts to the wetland vegetation communities. The applicant should include a more complete description of impact criteria and rationale for the proposed monitoring and reporting schedule.	The wetland mitigation and monitoring section of the FEIS, Section 5.2.3.3, has been revised to include additional details on the proposed monitoring and wetland adaptive monitoring plan. The wetland mitigation and monitoring would be reviewed and approved by the appropriate regulatory agencies responsible for authorizing the permit application during the permitting process. Please refer to the response to theme COE 06.	COE 02
3030	Section 17.4 of the application states that wetland baseline conditions for wetland vegetation will be established during the first growing season after permit issuance. EPA recommends that the Corps require baseline vegetation monitoring prior to permitted impacts to ensure that a true pre-impact baseline is established.	FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan, which includes vegetation monitoring, for the potential indirect wetland effects.	COE 06
3031	The vegetation monitoring is proposed for every 5 years. The basis for the proposed monitoring frequency is not clear from the application. Effectively managing certain threats to the wetlands, such as invasive species or vegetation changes due to drawdown, requires early detection, and monitoring every 5 years might not be sufficient to adequately manage the threat. EPA recommends increasing monitoring for vegetation changes to every 2 years to better be able to identify and manage any adverse impacts to wetlands early.	The wetland mitigation and monitoring section of the FEIS, Section 5.2.3.3, has been revised to include additional details on the proposed monitoring and wetland adaptive monitoring plan. The wetland mitigation and monitoring would be reviewed and approved by the appropriate regulatory agencies responsible for authorizing the permit application during the permitting process.	COE 06
3032	The adaptive management plan described in Section 17.8 uses a phased approach to assessing indirect impacts and providing compensatory mitigation for adverse impacts to aquatic resources. Phase I is described a broad based monitoring; while Phase II would be a more detailed assessment. In order to determine if the adaptive management plan is sufficient, EPA	The wetland mitigation and monitoring section of the FEIS, Section 5.2.3.3, has been revised to include additional details on the proposed monitoring and wetland adaptive plan. The wetland mitigation and monitoring would be reviewed and approved by the appropriate regulatory agencies responsible for authorizing the permit application during the permitting process.	COE 02

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	needs more information on the timing and methodology of Phases I and II of the monitoring plan. EPA is concerned that Phase II monitoring would not be designed unless deemed necessary, and that the threshold for determining a need for Phase II is not described. Clear impact criteria must be established and potential mitigation options must be developed prior to permit issuance. EPA recommends that Phase II be planned prior to permit issuance to ensure that wetland and stream impacts are not missed.		
3033	The application lacks a description of cumulative effects to the aquatic resources within the watersheds except as they apply to wildlife corridors (Section 12.1.2.3). Cumulative Wetland Impacts (Section 5.3) is included in the March 1, 2013 Wetland Data Package V.7, but it is not referenced in the application. It is not clear if this analysis includes recently proposed projects, as it seems to be missing projects in the iron range (e.g., MINNTAC and UTAC). The cumulative effect assessment in the application should include the most recent and comprehensive information.	FEIS Section 6.2.3.1 provides a description of the approach that was used for the wetland cumulative analysis. The direct, indirect, and cumulative assessments that were performed for the NorthMet Project Proposed Action were agreed upon by the Wetland Impact Assessment Planning Group and per the Wetland Analysis Work Plan (PolyMet 2011m). The following projects were not considered in the wetland resources cumulative analysis as they are outside the Partridge and Embarrass River watersheds: U.S. Steel Minntac mine expansion, U.S. Steel Keetac expansion, United Taconite Tailings Basin, and Cliffs Erie's mine pit expansion. Those projects that were considered reasonably foreseeable and within the Partridge and Embarrass River watersheds were considered in the wetland cumulative analysis. Please refer to the response to themes COE 07, CU 02, and WET 18. Please refer to FEIS Section 6.2.6 for a discussion of aquatic resources.	COE 07
3034	Indirect impacts are not included in the cumulative impacts assessment for wetlands in the Wetlands Data Package V. 7. All adverse impacts to aquatic resources should be considered in this assessment.	It is difficult to predict potential indirect wetland effects within the CEAA, as well as to know what the potential indirect wetland effects would be for the projects assessed other than the NorthMet Project Proposed Action. However, based on the amount of potential indirect wetland effects that could occur from the NorthMet Proposed Action, there could be 0.1 to 12.0 percent cumulatively lost, in addition to the direct wetland impacts assessed, within the Partridge and Embarrass River watersheds as a result of the NorthMet Project Proposed Action. The total wetland resources within the two watersheds during the time periods assessed are as follows: • Pre-settlement wetland resources - 68,251 acres;	COE 07

Comment ID	Comment	Response	Theme(s)
		• Existing conditions wetland resources - 65,567 acres; • Foreseeable future conditions with the NorthMet Project Proposed Action and the other foreseeable projects assessed, which includes direct wetland impacts and future deepwater habitat - 64,979 acres; and • Foreseeable future conditions without the NorthMet Project Proposed Action but with the other foreseeable projects assessed, which includes direct wetland impacts and future deepwater habitat (No Action Alternative) - 65,292 acres. Based on the wetlands crossing analog zones analysis approach, the acreage of wetlands whose hydrology would have a high likelihood of being affected by drawdown at the Mine Site is 866.9 acres. The wetlands categorized as high likelihood are dominated by one alder thicket (848 acres) that has approximately 4 acres (less than 1 percent) within the 0-1,000 ft analog impact zone. The remainder of this wetland (more than 99 percent) is located more than 1,000 ft away from the edge of the mine pits and extends out to the edge of Area 1 (see Figure 5.2.3-6 in the FEIS). Furthermore, based on this method, there would be 1,854.5 acres of wetlands within the 0-2,000 ft zone and 2,147.6 acres within the 0-3,500 ft zone that could be affected by potential drawdown. Based on this approach, the total projected potential indirect effects from all six factors that were assessed under this method could be up to 7,694.2 acres of wetlands potentially indirectly affected by the NorthMet Project Proposed Action. Therefore, the potential indirect cumulative effect from the NorthMet Project Proposed Action, in addition to the direct wetland impacts assessed, under this method would range between 1.3 to 12.0 percent. Based on the method approach of wetlands within analog zones, the acreage of wetlands whose hydrology would have a high likelihood of being affected by drawdown at the Mine Site is 46.4 acres. Furthermore, based on this method, there would be 348.4 acres of wetlands within the 0-2,000 ft zone and 733.3 acres within the 0-3,500 ft zone that could be affected by potential drawdown. Based on this approach, the total projected potential indirect effects from all six factors that were assessed under this method could be up to 6,568.8 acres of wetlands potentially indirectly affected by the NorthMet Project Proposed Action. Therefore, the potential indirect cumulative effect from the NorthMet Project Proposed Action, in addition to the direct wetland impacts assessed, under this method would range between 0.1 to 10.2 percent.	

Comment ID	Comment	Response	Theme(s)
3035	The analysis of cumulative effects in the Wetland Data Package V.7 evaluates the percentage loss of all wetland types. Many of the wetlands proposed to be impacted at the PolyMet site are high quality bog and forested resources, and indirect impacts of mining often include wetland type changes due to changes in hydrology. The cumulative loss of different wetland types should also be evaluated.	It is difficult to predict potential indirect wetland effects within the CEAA, as well as to know what the potential indirect wetland effects would be for the projects assessed other than the NorthMet Project Proposed Action. However, based on the amount of potential indirect wetland effects that could occur from the NorthMet Proposed Action, there could be 0.1 to 12.0 percent cumulatively lost, in addition to the direct wetland impacts assessed, within the Partridge and Embarrass River watersheds as a result of the NorthMet Project Proposed Action. The total wetland resources within the two watersheds during the time periods assessed are as follows: • Pre-settlement wetland resources - 68,251 acres; • Existing conditions wetland resources - 65,567 acres; • Foreseeable future conditions with the NorthMet Project Proposed Action and the other foreseeable projects assessed, which includes direct wetland impacts and future deepwater habitat - 64,979 acres; and • Foreseeable future conditions without the NorthMet Project Proposed Action but with the other foreseeable projects assessed, which includes direct wetland impacts and future deepwater habitat (No Action Alternative) - 65,292 acres. Based on the wetlands crossing analog zones analysis approach, the acreage of wetlands whose hydrology would have a high likelihood of being affected by drawdown at the Mine Site is 866.9 acres. The wetlands categorized as high likelihood are dominated by one alder thicket (848 acres) that has approximately 4 acres (less than 1 percent) within the 0-1,000 ft analog impact zone. The remainder of this wetland (more than 99 percent) is located more than 1,000 ft away from the edge of the mine pits and extends out to the edge of Area 1 (see Figure 5.2.3-6 in the FEIS). Furthermore, based on this method, there would be 1,854.5 acres of wetlands within the 0-2,000 ft zone and 2,147.6 acres within the 0-3,500 ft zone that could be affected by potential drawdown. Based on this approach, the total projected potential indirect effects from all six factors that were assessed under this method could be up to 7,694.2 acres of wetlands potentially indirectly affected by the NorthMet Project Proposed Action. Therefore, the potential indirect cumulative effect from the NorthMet Project Proposed Action, in addition to the direct wetland impacts assessed, under this method would range between 1.3 to 12.0 percent. Based on the method approach of wetlands within analog zones, the	COE 07

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		acreage of wetlands whose hydrology would have a high likelihood of being affected by drawdown at the Mine Site is 46.4 acres. Furthermore, based on this method, there would be 348.4 acres of wetlands within the 0-2,000 ft zone and 733.3 acres within the 0-3,500 ft zone that could be affected by potential drawdown. Based on this approach, the total projected potential indirect effects from all six factors that were assessed under this method could be up to 6,568.8 acres of wetlands potentially indirectly affected by the NorthMet Project Proposed Action. Therefore, the potential indirect cumulative effect from the NorthMet Project Proposed Action, in addition to the direct wetland impacts assessed, under this method would range between 0.1 to 10.2 percent.	
3036	The mitigation ratios proposed in the application conform to the conditions included in the Corps' May 29, 2013 Memorandum: Application of the Federal Mitigation Rule and St. Paul District Policy Guidance on Compensatory Mitigation-Compensation Ratios for Loss of Wetlands/Aquatic Resources. EPA agrees that the mitigation ratios proposed in the Corps' Memorandum were reasonable.	The USACE has not made a final decision on the mitigation ratios that would be required to compensate for direct wetland impacts. The FEIS (see Section 5.2.3.3) includes the proposed direct compensatory mitigation credits and ratios for the NorthMet Project Proposed Action (see FEIS Tables 5.2.3-17, 5.2.3-18, 5.2.3-19), which are based on the federal guidance policies and state replacement ratio rules. The amount of credit generated by the mitigation sites would ultimately be determined by the permitting agencies. This would be based on the extent to which the sites meet the target goals established during permitting. These include, among other things, restoration of wetland appropriate hydrology and the establishment of a target plant community or type.	COE 12
3037	One concern that remains is that no compensatory mitigation plan exists for indirect impacts to wetlands and streams. Table 11-1 of the application indicates that more than 7,300 acres of wetland would be potentially impacted by the proposed project. Because in-watershed mitigation is so difficult to find, mitigation options for indirect impacts must be discussed in the application.	FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. The USACE would also consider the application of financial assurances for potential indirect wetland effects and monitoring. Both the USACE and state would require consideration of financial assurances during the permitting process.	COE 02
3038	EPA remains concerned that a majority of the compensatory mitigation for impacted wetlands will occur outside the St. Louis River and Lake Superior Watersheds. This constitutes a permanent loss of aquatic resources within these watersheds. EPA understands that it is difficult to find in-watershed wetland mitigation opportunities, but	This comment provides general information regarding mitigation that should be considered for wetland mitigation in the future. No changes were made to the FEIS as a result of this comment.	COE 13

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	the soon to be implemented Northeast Minnesota Wetland Mitigation Strategy may support the Corps and permit applicants to better implement a watershed approach to mitigation. Once implemented, EPA recommends that the strategy be used to find additional wetland mitigation sites within the St. Louis and Lake Superior Watersheds to compensate for indirect wetland impacts at the PolyMet Site.		

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Comments from the Bois Forte Band (Submission ID 42979)			
2974	The Area of Potential Effect (APE) for cultural resources divided the project into two separate sections surrounding the proposed mine site and the proposed plant site should be revised….An APE that encompasses the Mine and Plant sites and surrounding area affected by operations would better describe the undertaking for cultural resource investigations.	FEIS Section 4.2.9.2.3 provides a detailed discussion and analysis of the area in which cultural resources may be affected by the NorthMet Project Proposed Action. The APE takes into account both direct and indirect effects using a geographically expansive area that accounts for direct effects, as well as visual, audible, atmospheric, hydrological, and water quality effects. The APE is based on extensive modeling and other analysis completed for the NorthMet Mining Project and Land Exchange and includes an area much broader than the Plant Site and Mine Site. Since the SDEIS, the APE has been modified to encompass the proposed Mine Site and Plant Site, the Dunka Road corridor, several federal parcels included in the Land Exchange Proposed Action, and the Colby Lake Pumphouse and pipeline.	CR 02
2975	Mesabe Widjiu is correctly identified as a sacred landform, but needs to be considered in its entirety (see attached map as an example). The segment encountered within the project area is small, but integral to the property. Adverse effects to any portion impact the entire feature.	The federal Co-lead Agencies have determined the Partridge River section of the Mesabe Widjiu to be eligible for inclusion in the NRHP under Criterion A for its association with important Ojibwe spiritual and cultural practices. Although the federal Co-lead Agencies are assessing the effects of the NorthMet Project Proposed Action on only the portion of the Mesabe Widjiu within the APE, it is recognized that the property and its significance extends beyond the APE. The federal Co-lead Agencies have updated the FEIS to include a graphic of the entire Mesabe Widjiu, as provided by the consulting Bands.	CR 02 CR 05
2976	The Beaver Bay to Lake Vermilion Trail requires further clarification….Additional fieldwork should be conducted in the spring or fall when ephemeral features such as foot trails are less easily concealed by vegetation and more easily discerned.	The federal Co-lead Agencies believe that the work to justify consideration of the BBLV Trail Segment as an historic property is complete. There has been sufficient background research and fieldwork completed to date as discussed in FEIS Section 4.2.9.2.3. Additional research and fieldwork may be part of any resolution of adverse effect.	CR 05
2977	The Bois Forte THPO is skeptical of the co-leads claim that there will be no effect to the Spring Lake Mine Sugarbush from the proposed NorthMet Project. Indirect effects through dust deposition and unauthorized collection are anticipated since the Sugarbush is situated immediately adjacent to the proposed plant site. While the lead agencies dismiss particulate accumulation as a problem, based on visual effects analysis conducted for the project and a site visit in 2010, their lack of concern seems speculative.	As discussed in FEIS Section 5.2.9.2.1, the federal Co-lead Agencies have determined that the NorthMet Project Proposed Action would adversely affect the Spring Mine Lake Sugarbush. As part of an MOA, the federal Co-lead Agencies would ensure the avoidance, minimization, and mitigation of impacts to cultural resources that may be encountered, such as unauthorized collection, during construction or operation of the NorthMet Project Proposed Action. The federal Co-lead Agencies, in consultation with the Bands, SHPO, and PolyMet, are currently working to resolve adverse effects on this property. The NorthMet project would have fugitive dust emissions. To evaluate the impact of those fugitive dust emissions, air quality modeling was conducted	AIR 04 AIR 05

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	The proximity of the plant site to the Sugarbush and the cumulative effects of dust on leaves, trees and understory flora have not been examined in detail and their long term effects may well be detrimental to vegetation, other than maples, that comprise the Sugarbush. Furthermore, the potential for artifact collection is quite real. When the land containing the site was owned by Cleveland Cliffs, persons employed by the mine removed artifacts associated with Band member use of the Sugarbush. This assertion is based on a donation made to the Bois Forte Heritage Museum by an individual who conducted logging operations on LTV property in the 1970's. When asked where he had found the items, a ladle, bowl, birch bark sap baskets and cedar spiles, he described the location of the Spring Lake Mine Sugarbush and the wooden structure remnants noted by Michael Loftus (1977). Remnants of the structure still exist (see SDEIS 4.2.9.2.4). Loftus also removed artifacts when he visited the Sugarbush in the 1960's.	to assess impacts from those emissions. The modeled results determined impacts to be below applicable air quality standards. The FEIS used the evaluation criteria available to determine impacts. Secondary ambient air quality standards are used to provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. Significant impact on water resources or historic properties from dust is not expected because areas with the potential to generate dust would be controlled by a Fugitive Dust Control Plan and any dust leaving the site would most likely come from sources that would be characterized as having low sulfide/low metal content, All active areas at the Mine Site and Plant Site would be subject to a Fugitive Dust Control Plan approved by the MPCA, which describes management of fugitive dust generated from unpaved roads across the NorthMet Project Proposed Action area, rock dumping and loading locations on the Mine Site, and areas potentially subject to wind erosion on the Plant Site (see Sections 4.1.6 and 4.3.9 of PolyMet 2015a, as cited in the FEIS).	
2978	the three properties [Mesabe Widjiu, Beaver Bay to Lake Vermillion Trial, and Spring Lake Mine Sugarbush] would benefit from additional investigation; the sugarbush has not been formally recorded, the trail has been adequately documented within the SNF proposed land exchange, but requires additional survey in the upland sections of the project area and Mesabe Widjiu should be considered in its entirety. Finally, all three must be formally nominated to the National Register of Historic Places.	The federal Co-lead Agencies have officially documented the Spring Lake Mine Sugarbush with the SHPO. The federal Co-lead Agencies believe that there has been sufficient background research and fieldwork to justify consideration of the BBLV Trail Segment as an historic property. Additional research and fieldwork may be part of any resolution of adverse effect. The federal Co-lead Agencies have determined the Partridge River section of the Mesabe Widjiu and the Partridge River section of the BBLV Trail Segment to be eligible for inclusion in the NRHP under Criterion A; however, the federal Co-lead Agencies are assessing the effects of the NorthMet Project Proposed Action on only the portion of those properties within the APE. The federal Co-lead Agencies recognize that the two properties discussed above extend beyond the APE. All three historic properties have been determined eligible for the NRHP. The Co-lead Agencies, in consultation with the Bands, SHPO, and PolyMet, are currently working to resolve adverse effects on these properties. National Register Nomination of these properties may be part of an MOA; however, the federal Co-lead agencies are currently in the process of considering	CR 02 CR 05

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		what mitigations may be appropriate.	
2979	Acknowledgement by the SDEIS authors that adjacent habitat is available signifies a lack of analytical rigor in effects assessment of wholesale population displacement in response to mining activity….The SDEIS fails to assess cumulative effects to wildlife population changes, not only in the project area, but the entire region. The co-lead agencies should document how habitat destruction and concomitant wildlife migration will affect local and regional ecology.	The FEIS wildlife sections include an analysis of wildlife displacement effects due to the NorthMet Project Proposed Action. FEIS Section 5.2.5.2.3 discusses the potential effects to species at the NorthMet Project area based on habitat preferences, and uses available scientific literature to analyze displacement effects on local and regional ecology due to noise or increased human activities. FEIS Section 6.2.5.4.2 discusses displacement of wildlife by effects to wildlife corridors across the Mesabi Iron Range.	WI 05
2980	Cooperating agencies' concerns with cumulative effects remain valid and germane, but have yet to be addressed by the Lead Agencies.	The Co-lead Agencies considered the information included in the Tribal Cooperating Agencies' cumulative effects assessment and found no compelling information or analysis to change the original approach or conclusions.	CU 12
3097	A 216,300 acres area bounded by the St Louis River, Lake Superior, Lake Vermilion and the Beaver Bay to Vermilion Trail better describes cultural resources to be effected by the NorthMet project.	The historic district proposed by the Grand Portage Band in a June 27, 2013 letter was addressed (Grand Portage 2013, as cited in the FEIS). The federal Co-lead Agencies have considered an expanded area for analysis of cumulative effects on cultural resources and natural resources of significance to the Bands, including use of the 1854 Ceded Territory as the CEAA. Use of the 1854 Ceded Territory as the CEAA for cultural resources would actually diminish the significance of any cumulative effects. By evaluating the effects of the NorthMet Project Proposed Action along with other past, present, and reasonably foreseeable future projects in the context of a much larger area with a much larger number of resources similar to those affected by the NorthMet Project Proposed Action, the effect of the NorthMet Project Proposed Action on those resources is diminished. The cumulative effects analysis focuses on the specific resources, or types of resources, affected by the NorthMet Project Proposed Action within an area that is geographically meaningful considering the project under review. Cumulative effects are discussed and addressed differently based on the affected resource. Discussions related to socioeconomics, for instance, use an expanded analysis area compared to other resources. Such expanded analysis areas are used as appropriate. The Cultural Resources sections in FEIS Chapters 4, 5, and 6 address the Co-lead Agencies' determination of the NorthMet Project Proposed Action's direct, indirect, and cumulative areas of potential effect.	CR 04

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Comments from the Grand Portage Band (Submission ID 42994)			
2362	Regardless of the time taken to prepare it, the Band is reissuing many of the same comments on the SDEIS that it has issued on the last DEIS calling for basic evaluation of Project impacts and application of well-established CEQ standards for EIS preparation, and incorporates all those comments by reference here. See Band's Cmts. on DEIS at Ex. A (Band's Cmts. on June 2008 PDEIS) and Ex. B (Band's Cmts. on Jan. 2009 PDEIS).	Comments provided by the Cooperating Agencies were considered. FEIS Chapter 8 outlines the engagement process with the Cooperating Agencies through the development of the EIS. During the development of the SDEIS, MDOs regarding the analysis presented in the document were identified. These MDOs are between the Co-lead Agencies and the Bands, GLIFWC, and the 1854 Treaty Authority, and represent comments from the Tribal Cooperating Agencies that the Co-lead Agencies determined were adequately addressed in the existing analysis. The MDOs are discussed in SDEIS (and FEIS) Chapter 8. Comments submitted by the Bands on the SDEIS included comments reflecting the MDOs. In addressing and developing detailed responses to those comments, the Co-lead Agencies also addressed many aspects of the MDOs. In developing the FEIS, the Co-lead Agencies engaged in ongoing interaction regarding MDOs with the Bands/Tribal Cooperating Agencies. The Co-lead Agencies shared with the Bands how they intended to respond to the Bands' comments, how the MDOs were addressed in the FEIS, and which MDOs had achieved some resolution. FEIS Table 8-1 in Chapter 8 notes where and how the MDOs are addressed in the FEIS. Although it is beneficial to resolve differences of opinion on a project, MDOs often remain unresolved throughout the analysis process. In making decisions on proposed activities, responsible officials utilize information in the FEIS addressing differences of opinion to inform their decisions and to support rationale for those decisions. The Co-lead Agencies believe that they have adequately considered all Cooperating Agency comments. The Co-lead Agencies have also determined that the evaluation of impacts in the EIS meets and exceeds CEQ regulations for NEPA analysis.	NEPA 12
2364	The co-lead agencies have refused to extend the 90-day comment period on the SDEIS, despite repeated requests.	The SDEIS was circulated for public comment for 90 days, which is twice the amount of time required by the federal regulations, and three times the amount of time required by state regulations.	NEPA 07
2365	The SDEIS does not take the required "hard look" at all the environmental consequences of the Project, including polluting surface and groundwater resources and drying up or inundating thousands of acres of wetlands in the 1854 Ceded Territory.	The Co-lead Agencies believe that the EIS contains adequate information and analyses consistent with NEPA and MEPA guidance and best practices. Please refer to the response to themes NEPA 14 and NEPA 09 for more detail.	NEPA 14

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2366	The lead agencies must significantly supplement the SDEIS [with study of the adverse effects and determination of possible mitigation measures] and provide a full opportunity for agency and public review before issuing a final EIS.	The Co-lead Agencies believe that the EIS contains the best available data and analyses, consistent with NEPA and MEPA guidance and best practices. The Co-lead Agencies reviewed all applicable documentation submitted by the proposer to fully understand the NorthMet Project Proposed Action. These included detailed technical design documents, including the Project Description, Mine Plan, and several resource-specific management plans, all of which are summarized in FEIS Chapter 3. The level of detail describing the NorthMet Project Proposed Action provided in the EIS is consistent with the requirements of NEPA/MEPA for similar projects at this stage of environmental review. The Co-lead Agencies believe that the project description was sufficient to support a comprehensive scientific analysis of potential impacts to allow decision makers to make informed decisions on the NorthMet Project Proposed Action. The proposer would be required to provide more detailed information as the project is refined during the permit process, much of which would require additional public review.	NEPA 09
2372	In the SDEIS's evaluation of the underground mining alternative, the North Met Deposit is characterized as a "low- to medium-grade mineral resource," a far cry from the "one of the largest untapped deposits of copper and nickel, and other precious metals" or "world class resource" that is repeated throughout the SDEIS and in media coverage. The distinction is critical, as mining must provide sufficient profit to cover costs for adequate environmental protections and financial assurance.	Information obtained through preliminary exploration in the region show that the area potentially contains one of the largest untapped deposits of copper, nickel, and other precious metals in the world. The NorthMet Deposit is characterized as a low- to medium-grade mineral resource. These two characterizations are not in conflict as the commenter seems to suggest. One is a regional characterization while the other applies to the specific NorthMet Deposit being proposed by PolyMet to be mined. See the response to theme ALT 01 for more details on the Underground Mining Alternative. FEIS Section 3.2.3.4.1 states that tonnage/volume and grade of rock would not generate enough revenue to pay for costs associated with underground mining. The FEIS Executive Summary and FEIS Section 3.2.2.1.2 states that the NorthMet Deposit is a low- to medium-grade deposit, matching the language in Appendix B. FEIS Section 3.2.2.4 includes available details regarding financial assurance. Additional details on the cost estimates and calculations that would be required for the project would be addressed during permitting. Specific infrastructure timelines and life expectancies of equipment would be accounted for during permitting as well. FEIS Table 3.2-15 provides financial assurance cost estimates for various years of closure, as well as for monitoring and mitigation costs. FEIS Section 3.2.2.4.1 discusses the activities that would be considered in cost estimates, and states that cost	PD 25

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		estimates would be updated annually under the Permit to Mine. *Minnesota Rules*, part 6132.1200, subpart 3 states that cost estimates shall be annually adjusted, using current dollar value at the time of the estimate.	
2373	The financial assurance for long-term treatment presented in the SDEIS, ranging from $3.5 to 6 million appears to be an estimate for monitoring activities only, without any long-term wastewater treatment costs.	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, timeframes, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. Table 3.2-15 provides the annual financial assurance cost estimates for various years of closure, including long term water treatment and replacement costs, as well as monitoring and mitigation costs. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine.	FIN 05
2374	Perpetual operation and maintenance of mechanical wastewater treatment is an additional cost that must be represented in the estimate of financial assurance.	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, timeframes, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. Table 3.2-15 provides the annual financial assurance cost estimates for various years of closure, including long term water treatment and replacement costs, as well as monitoring and mitigation costs. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine. The WWTP and WWTF would undergo continued inspection and maintenance during operations, long-term treatment, and in closure. WWTP and WWTF replacement costs would be included in long-term financial assurance estimates.	FIN 05
2375	The cursory estimate of financial assurance in the SDEIS provides little detail about how the dollar amount was derived. Instead, discussions have been postponed for the permitting phase of this Project. This approach fundamentally contradicts federal and state environmental policy and the SDEIS must be revised, with significant additional study, to appropriately evaluate closure, mitigation, reclamation, and perpetual treatment cost estimates.	FEIS Section 3.2.2.4 provides available details regarding financial assurance as required under NEPA/MEPA. *Minnesota Rules*, part 6132.1200, subpart 4 states that the Commissioner shall evaluate all financial assurance cost estimates and adjustments to cost estimates using individuals with documented experience in material handling and construction and mining costs. Additional details on the financial assurance that would be required for the project would be addressed during permitting. The Permit to Mine, which would include financial assurance information, includes an opportunity for public input. Neither NEPA nor MEPA rules require that all financial assurance mechanisms be in place before the EIS is finalized.	FIN 13
2377	Although the SDEIS was revised to reflect the	The DEIS and SDEIS considered many different alternatives, which are	ALT 01

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	Project proponents' preferred action, still, the only alternative analyzed in any detail concerns the acreage of the proposed land exchange. This failure is a serious violation of NEPA and must be remedied before the SDEIS can be finalized.	discussed in FEIS Section 3.2.3 for the NorthMet Project and Section 3.3.3 for the Land Exchange. Neither Minnesota Rules nor CEQ regulations required the Co-lead Agencies to identify a preferred alternative in the SDEIS (40 CFR 1502.14(e)). FEIS Section 7.4 includes details regarding the identification of an Agency Preferred Alternative. The USFS has identified a preferred alternative for the Land Exchange in FEIS Section 3.3.2. The Minnesota Department of Natural Resources (MDNR) is not required to identify a preferred alternative under MEPA.	ALT 02 ALT 03 ALT 04 ALT 20 COE 04
2389	PolyMet proposes to build a reverse osmosis ("RO") wastewater treatment plant near the tailings basin to treat process water and tailings basin seepage. RO is very effective if sized correctly. While RO could successfully treat wastewater to comply with Minnesota WQS, it can only treat polluted water that has been collected. Therefore, the Project is not relying on RO during operations to comply with WQS; instead, it would rely on seepage capture efficiency. But as stated previously, seepage capture rates provided in the SDEIS are not realistic. After operations, the SDEIS contemplates that the RO plant would continue to treat tailings basin seepage and begin treating tailings pond water. The treated water would be used for augmentation of streams near the plant site. Colby Lake water is also proposed for stream augmentation. However, because Colby Lake water exceeds WQS for many pollutants including mercury, it would also need to be RO-treated before being used for augmentation.	Although relatively few containment systems have been built with this degree of pumping, the conceptual hydraulics of this type of system provides evidence that it would achieve complete or nearly complete capture. The FEIS relies on revised cross-section models from the SDEIS to evaluate containment systems on the northern, northwestern, and western sides of the Tailings Basin, which are documented in the revised NorthMet Project Proposed Action Water Management Plan - Plant Site (PolyMet 2015i, as cited in the FEIS). These new models consider the presence of an upper more-permeable bedrock zone directly below the slurry wall, with hydraulic properties based on 2014 packer tests conducted in five boreholes along the proposed containment system alignment. Sensitivity analyses have included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 100 feet. The model results predict that the overall capture efficiencies of the proposed Tailings Basin containment systems would be substantially greater than 90 percent. This analysis supports the conclusion that the assumption of 90 percent or greater capture efficiency is justified. Colby Lake water would no longer be directly discharged to the tributaries for augmentation. All augmentation water would be treated with the reverse osmosis water treatment system or equivalent technology that will meet water treatment targets	WR 124 WR 125 WR 189
2391	In order to ensure compliance with Minnesota WQS, and based on the Projects own modeling, adequate financial assurance must be set aside to maintain and operate perpetual RO treatment at both the mine and plant sites.	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, timeframes, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. Table 3.2-15 provides the annual financial assurance cost estimates for various years of closure, including long term water treatment and	FIN 05 FIN 06

Comment ID	Comment	Response	Theme(s)
		replacement costs, as well as monitoring and mitigation costs. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine. *Minnesota Rules*, part 6132.1200, subpart 3 states that cost estimates shall be annually adjusted using current dollar value at the time of the estimate. FEIS Sections 3.2.2.1.10, 3.2.2.3.12, and 5.2.2.3.1 provide available information regarding long-term water treatment and maintenance. Temporal aspects of financial assurance are addressed in *Minnesota Rules*, part 6132.3200, subpart 2, item E, which states that financial assurance is required for all areas that require continued maintenance following closure, and that no release from the Permit to Mine would be granted for portions of mining areas that require post-closure maintenance until the maintenance activities are no longer necessary.	
2395	While the use of RO is encouraged, further analysis and application is needed.	Reverse osmosis is a well-tested water treatment technology. Pilot-testing results enhance the Co-lead Agencies' knowledge of its performance relative to the NorthMet Project Proposed Action. Further analysis of the proposed system would occur in permitting.	WR 143
2399	The conclusion that underground mining is not viable, or preferable, remains substantially unjustified, despite repeated requests for further analysis… As the Band already argued in the Tribal Position, significant additional study of the underground mining alternative is mandated, and the SDEIS offers no new discussion of the reasons for rejecting the alternative.	The Underground Mine alternative was first considered but eliminated during the FSDD process. The FEIS Section 3.2.3.4.1 describes how it was reconsidered during the DEIS phase as alternative E7 in response to Cooperating Agency and stakeholder comments, but eliminated from further consideration. The economic feasibility of the Underground Mine alternative was reconsidered during development of the SDEIS. In response to a request from the Co-lead Agencies, PolyMet's consultants prepared an updated economic assessment of underground mining, which the Co-lead Agencies independently evaluated (see FEIS Appendix B). The Co-lead Agencies concluded that an underground mine would not be profitable, regardless of the tonnage extracted. The lower rate of ore production would not meet the Purpose and Need of the project. Though it would offer environmental benefits over the NorthMet Project Proposed Action, it would result in reduced socioeconomic benefits. They accordingly concluded that the Underground Mine alternative was not economically feasible, and would not meet the NorthMet Project's Purpose and Need. A position paper (FEIS Appendix B) was prepared to document the Co-lead Agencies' rationale for eliminating the Underground Mine alternative from further consideration. The FEIS Section 5.2.10.1.4 states, "Neither NEPA nor CEQ requires the	ALT 01

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		cost and benefits of a proposed action to be quantified in dollars or any other common metric; however, this EIS acknowledges that economic costs and loss of non-market value may result from environmental and social effects. Also acknowledged is that the agreement on the value (i.e., the 'cost') of environmental effects is often difficult to achieve. Therefore, the approach of this EIS is to evaluate environmental and social impacts directly, in the appropriate resource-specific section." CEQ regulations for implementing NEPA (40 CFR 1502.23) state that, "for purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations."	
2422	Exchanging thousands of acres of diverse, high-quality land--land with some of the few remaining large game corridors in northeastern Minnesota that are available to the Bands to exercise reserved 1854 Treaty rights--for lands that have moderate diversity and lack big-game corridors is inconsistent with the fiduciary responsibilities that are shared by all federal agencies.	The FEIS wildlife sections include an analysis of the wildlife corridors, including their use by various species. The FEIS wildlife sections also include information about NorthMet Project Proposed Action impacts to wildlife habitat types and Minnesota Biological Survey (MBS) Sites of Biodiversity Significance. FEIS Sections 4.2.4 and 4.3.4 provide maps of the MBS Sites (Figures 4.2.4-1, 4.2.4-4, 4.3.4-1, 4.3.4-2). The WCA rules (including those parts applicable to mining projects under *Minnesota Rules*, part 8420.0930) include a special consideration for wetlands that are rare natural communities (*Minnesota Rules*, part 8420.0515, subpart 3). The entire Tract 1 (Hay Lake lands) parcel is preliminarily listed as a MBS Site of Outstanding Biodiversity Significance, should the land exchange occur. It occurs in close proximity to two wildlife corridors (corridors 11 and 12). *Minnesota Rules*, part 6132.2700 requires that a project site be reclaimed once mining has ceased. The goals of such reclamation are to "control erosion, to screen mining areas from non-compatible uses, and to provide for subsequent land uses such as wildlife habitat or timber production." The rules also include requirements about the characteristics and planting schedule for vegetation used in reclamation. The Permit to Mine would address special consideration of wetlands that include rare natural communities. Additional information on rare natural communities would be included in the wetland permit application as part of the Permit to Mine process for further refinement of site-specific conditions.	CR 01 WI 02 WI 03
2655	It is well known that wetlands play an important role in the condition of downstream waters by retaining floodwaters, sediment, nutrients, and other pollutants, thereby benefitting the quality of	This comment has been received and acknowledged by the Co-lead Agencies. The Co-lead Agencies believe the identification of wetlands at the NorthMet Project area is accurately and adequately depicted in Section 4.2.3 for the purpose of the EIS.	WET 24

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	downstream waters.		
2656	Wetlands may also function as thermal refuge for moose when summertime temperatures exceed 14 o C, the point at which moose become thermally stressed. Additionally, wetlands with aquatic vegetation provide an important forage resource for moose during the open-water season.	FEIS Sections 4.2.5, 4.3.5, 5.2.5, and 5.3.5 (Wildlife) have been updated to include the new state endangered, threatened, and special concern (ETSC) status listings from August 19, 2013, as well as new federal status listing changes. The FEIS includes a more robust analysis on effects to moose, including habitat and displacement. The FEIS Section 4.2.5.1.1 discusses the role of wetlands with moose and thermal stress.	WI 01 WI 02
2658	[The SDEIS (Pg 5-643)] underestimates the impacts [to aquatic species due to the decrease of first-order streams to the federal estate]. While greater diversity is desirable, protection of headwater streams is critical because they powerfully influence both the character and functions of downstream waters. Headwater streams transport vegetation, woody debris, organic matter, macroinvertebrates, and other organisms downstream, while providing spawning areas for brook trout. Headwaters provide most of the water to rivers, which in turn provides temperature mitigation and oxygenation which are necessary for healthy fish communities.	Effects of the Land Exchange Proposed Action on headwater streams are discussed in detail in Sections 5.3.6.2.2 and 5.3.6.3.2 of the FEIS. A paragraph in FEIS Section 5.3.6.2.2 has been edited to state "...however, the net reduction to the Superior National Forest of 0.3 miles of first order streams may result in slightly less habitat available for headwater stream dependent species". There are no designated trout streams in the Land Exchange Proposed Action parcels or the Federal parcel.	AQ 29
2660	The loss of critical wildlife corridors, along with high quality and diverse land and water resources, directly connects the federal regulatory agencies' trust responsibilities to the Bands. The land exchange, and the Project, cannot proceed where they require the agencies to approve permits that will have impacts to treaty resources without additional evaluation and mitigation.	The FEIS wildlife sections include an analysis of the wildlife corridors, including their use by various species. The FEIS wildlife sections also include information about NorthMet Project Proposed Action impacts to wildlife habitat types and Minnesota Biological Survey (MBS) Sites of Biodiversity Significance. FEIS Sections 4.2.4 and 4.3.4 provide maps of the MBS Sites (Figures 4.2.4-1, 4.2.4-4, 4.3.4-1, 4.3.4-2). The WCA rules (including those parts applicable to mining projects under *Minnesota Rules*, part 8420.0930) include a special consideration for wetlands that are rare natural communities (*Minnesota Rules*, part 8420.0515, subpart 3). *Minnesota Rules*, part 6132.2700 requires that a project site be reclaimed once mining has ceased. The goals of such reclamation are to "control erosion, to screen mining areas from non-compatible uses, and to provide for subsequent land uses such as wildlife habitat or timber production." The rules also include requirements about the characteristics and planting schedule for vegetation used in reclamation. The Permit to Mine would address special consideration of wetlands that include rare natural communities. Additional information on rare natural communities would be	CR 01 WI 03

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		included in the wetland permit application as part of the Permit to Mine process for further refinement of site-specific conditions.	
2686	Also ignored [in the design of the Project] was experience with the Dunka Pit, located on the old LTVSMC site approximately five miles north and east of the PolyMet Project mine site.	NEPA/MEPA regulations do not require discussion or comparisons to other mining projects, as it is outside the scope of the project (see Minnesota Statutes 116D.04 and 40 CFR 1500). PolyMet would be required to address on-site legacy contamination and would provide financial assurance for the legacy components under a Permit to Mine application. The NorthMet Project design and mitigation is based on the site specific conditions. FEIS Section 5.2.2 discusses how the NorthMet Project would address existing water contamination and/or comply with water standards.	PD 26 WR 023
2689	The cumulative public information regarding risks to area hydrology from mining the PolyMet site cannot be dismissed by inserting extrapolated data in place of measured data, or by cherry-picking measured data. Impacts to surface waters, groundwater, and wetlands for a project of this size and complexity demand a scientific, data-driven approach, rather than one based on opinion and selectively used data.	Where field measurements were not available, model assumptions were reviewed and approved for use in impact analyses. The Co-lead Agencies believe that the FEIS contains adequate information and analyses consistent with the NEPA and MEPA guidance and best practices. Also refer to the response to theme NEPA 09 for more detail.	WR 072 WR 073
2694	Some of the wetlands that will be directly and indirectly impacted at the mine site are part of the 100 Mile Swamp, identified by a United States Fisheries Service biologist in 1997 as “lacking ecosystem representation in protected areas.”	FEIS Section 5.2.3, Table 5.2.3-1, indicates that there would be a total of 758.2 acres of direct wetland impacts at the Mine Site. A portion of the approximate boundary for the One Hundred Mile Swamp would be located within the Mine Site boundary. PolyMet would ultimately need to satisfy both the federal and state mitigation requirements for providing compensatory mitigation for impacts to wetlands. The number of mitigation credits to be earned by replacement wetlands would be determined during permitting by the appropriate agencies reviewing the wetland mitigation plan.	WET 19
2700	In response to the Co-Lead Agencies desire to use only analogue data to determine the Project dewatering effects, GLIFWC provided an independent analysis using information from other mine pits located on the Mesabi Range…The only substantial changes in GLIFWC’s method of analogue assessment were to use all available drawdown data for the Mesabi Iron Range, and to not automatically exclude wetlands classified as ombrotrophic from being considered impacted by	When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS and there is incomplete or unavailable information because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, NEPA directs the agency to make it clear that such information is lacking, discuss the relevance of the lacking information, and discuss any information relevant to evaluation of the future impacts. In these cases, NEPA also directs the agency to evaluate these impacts based upon theoretical approaches or research methods generally accepted in the scientific community provided that the analysis of the impacts is supported by credible scientific evidence,	WET 08

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	drawdown…All analogue data must be used to estimate wetland impacts, and additional hydrologic data collected from the mine site should be required.	is not based on pure conjecture, and is within the rule of reason. The Co-lead Agencies believe this is the case for evaluating indirect wetland effects. The Co-lead Agencies have thoroughly considered throughout the development of the EIS and through the Wetland Impact Assessment Planning Work Group how to assess potential indirect wetland effects. As a result, strengths and weaknesses of the approach used, as well as other suggested approaches, have been carefully considered. The Co-lead Agencies believe that the analog method used in the SDEIS to assess potential indirect effects from mine dewatering is adequate. Further, the FEIS has been revised to address concerns raised by the Bands regarding the assertion that ombrotrophic bogs would not be impacted by mine dewatering. FEIS Section 5.2.3.2.2 applies a more conservative assumption of the potential indirect effects for all bog communities within the 0-1,000-ft analog zone. Specifically, ombrotrophic bogs were reclassified from the "no effect" category to the "low likelihood" category, the same status as that assigned to minerotrophic bogs. The complex mixes of bedrock, surficial deposits, and wetland soils at the Mine Site impede the ability to reasonably model (e.g., using MODFLOW) and accurately assess the potential effect of pit dewatering on wetlands. In light of this modeling limitation, wetlands were divided into zones based on distance from the open pit. The closer a wetland was to the pit during dewatering, the greater the water table drawdown would be and the greater potential there would be for hydrologic effects on overlying wetlands. These impact assessment methodologies are presented in FEIS Sections 5.2.2.3.2 and 5.2.3.1.2. The Co-lead Agencies are not relying solely on the potential impact zones determined in the analog method for the FEIS, but would be monitoring wetlands for potential indirect effects as part of an adaptive management plan. Permit conditions would include a plan for additional compensatory mitigation if indirect wetland impacts were identified, and appropriate changes to the adaptive management plan would be made as required.	
2701	The CWA does not allow a permit when there are practicable alternatives that would have fewer adverse effects, when the Project would lead to a violation of state water quality standards, or when a permit would cause or contribute to significant degradation of waters of the United States.	The USACE is the federal agency responsible for regulating the discharge of dredged or fill material into Waters of the United States, including wetlands under Section 404 of the Clean Water Act. PolyMet has applied for a Section 404 Individual Permit from the USACE for the proposed fill into the Waters of the United States. In addition, if a permit from the USACE is issued, it is not valid until the State has either certified under Section 401 of the CWA that the proposed discharges to aquatic resources comply with the State's water quality standards or waived the 401	COE 03

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		certification requirements. When making a decision, the USACE takes into consideration numerous factors. Permit decisions are based on the probable expected effects associated with a proposed project including direct, indirect, and cumulative impacts. Public interest review factors include: conservation, economics, aesthetics, general environment, wetlands, cultural values, fish and wildlife, land use, flood hazards, property ownership, flood plain values, navigation, recreation, shore erosion and accretion, water supply and water quality, energy needs, safety, mineral needs, safety, food and fiber production, and the needs and welfare of the people. The decision to grant or deny a permit by the USACE is explained and described in a ROD. If the permit is issued, a copy of the permit is sent to the project sponsor for their signature, which signifies that they accept the permit requirements. If the USACE decides to deny the permit or the project sponsor does not agree with the conditions contained in the permit, the project sponsor may request an administrative appeal of the permit decision. A decision by the USACE on whether to grant or deny a Section 404 Individual Permit has not yet been made.	
2702	An agency-preferred alternative must be provided in addition to the LEDPA's before wetland impacts resulting from the Project can adequately be assessed, and before a 404 permit can be issued.	Neither Minnesota Rules nor CEQ regulations require the Co-lead Agencies to identify a preferred alternative in the SDEIS (40 CFR 1502.14(e)). The FEIS includes available details regarding the identification of an Agency Preferred Alternative. The FEIS contains sufficient information to identify and substantiate the LEDPA. The USACE is not required to identify a LEDPA in the FEIS; the final determination on the LEDPA would be made in the ROD for the USACE which serves as the USACE's decision document and the basis for the Department of the Army permit decision. The USFS will utilize the FEIS to show the factors relating to how the public interest would be served by the Land Exchange and the ROD would incorporate the findings of those factors and identify the preferred alternative. The MDNR is not required to identify a preferred alternative under MEPA. The FEIS Sections 3.2 and 3.3 further detail this process. The agency preferred alternative and LEDPA process is described in FEIS Sections 7.4 and 7.5. The ROD for the USACE would include the Section 404(b)(1) analysis and the public interest review, and would determine the LEDPA. Furthermore, the ROD for the USACE cannot be finalized until 30 days after release of an FEIS. Any comments received during the 30-day period may be considered in the ROD for the USACE. The ROD for the USACE would recommend issuance, issuance with conditions, or denial of	COE 04

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		the Project.	
2707	During the EIS scoping process for the Project, the Co-Leads failed to ever identify any cumulative impact issues associated with cultural resources, and Tribal Cooperating Agencies were not invited to participate in scoping. The Band's and other Tribal Cooperating Agencies' comments on the June 2008 PDEIS, the 2009 CPDEIS, and the 2009 DEIS detailed the nature of these substantial cumulative impacts and the need for further analysis, and are forced to do so yet again here.	Section 6.2.9 of the Final EIS provides a detailed discussion and analysis of the potential cumulative effects on cultural resources from the NorthMet undertaking within a defined cumulative effects analysis area. That discussion includes past, present, and reasonably foreseeable future federal, state, and private actions within that area. The approach to cumulative effects has been informed through consultation between the Co-lead Agencies and the Bands. Section 6.2.9 of the Final EIS acknowledges cumulative effects on cultural resources.	CR 03
2713	This omission [the SDEIS does not determine climate change implications of the proposed Project] undermines even the MDNR's own work. The MNDNR's Moose Advisory Committee, which studies the decline of the moose population in northeastern Minnesota, has recommended preserving wetlands as sanctuaries for moose from heat stress related to climate change.	FEIS Sections 4.2.5, 4.3.5, 5.2.5, and 5.3.5 (Wildlife) have been updated to include the new state endangered, threatened, and special concern (ETSC) status listings from August 19, 2013, as well as new federal status listing changes. The FEIS includes a more robust analysis on effects to moose, including habitat and displacement. The FEIS Section 4.2.5.1.1 discusses the role of wetlands with moose and thermal stress.	WI 01 WI 02
2715	A substantial moose population has been identified in the mine site area by aerial and ground surveys. Moose are likely to be impacted by the disturbance of two of the few wildlife corridors remaining along the Mesabi Range, not to mention by the massive wetland impacts of this project…There is no basis to dispute that the Project will have cumulative effects on the moose herd and Tribal harvest in the 1854 Ceded Territory. At a time when moose populations in Minnesota are declining, this analysis is particularly important and should have been done as part of this SDEIS.	The FEIS wildlife sections provide an analysis of wildlife species used for subsistence/harvest, as well as those culturally important to the Bands, such as moose. FEIS Section 4.2.9.3.3 identifies species potentially harvested in the 1854 Ceded Territory, while FEIS Section 5.2.9.2.2 explains that a lack of data regarding use of such species in the NorthMet Project area likely indicates limited present day use in that area due to general inaccessibility. FEIS Section 5.2.5.2.5 discusses the types of potential effects to common and/or game species, which are similar to effects on ETSC species. The FEIS has been revised to include additional detail regarding moose, and this discussion has been moved to the state ETSC species discussion, due to its new state listing status. The response to theme CR 01 also discusses effects to resources important to the Bands.	WI 01 WI 02 WI 03 WI 09
2721	The cumulative impacts assessment deficiencies identified above and within Appendix C are not exhaustive. Instead, they are solely an attempt to illustrate the incredible lack of cumulative effects analysis in the SDEIS. Profound revision is needed to this section.	The Co-lead Agencies considered the information included in the Tribal Cooperating Agencies' cumulative effects assessment and found no compelling information or analysis to change the original approach or conclusions.	CU 12

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2723	Additionally, the lead agencies must consult with any tribes that attach "religious or cultural significance to historic properties that may be affected by an undertaking," regardless of the location of the historic property.	The federal Co-lead Agencies have actively consulted with the federally recognized Bands that have expressed an interest in consulting on the NorthMet Project Proposed Action. Historic properties affected by the NorthMet Project Proposed Action have been identified and the impacts to those properties have been assessed. This also includes an assessment of actual use of those historic properties, as well as other resources in the APE, by tribal members. Effects on historic properties would be fully considered prior to the issuance of any permit or land exchange, pursuant to the NHPA and its implementing regulations. Effects on cultural resources and culturally significant natural resources are addressed in the Cultural Resources sections in FEIS Chapters 4, 5, and 6.	CR 06
2729	Mesabe Widjiu is correctly identified as a sacred landform but needs to be considered in its entirety instead of looking at only the area within the Project. The segment that is within the project area is small, but vital to the property. Adverse effects to any portion of the Mesabe Widjiu will negatively impact the entire feature.	The federal Co-lead Agencies have determined the Partridge River section of the Mesabe Widjiu to be eligible for inclusion in the NRHP under Criterion A for its association with important Ojibwe spiritual and cultural practices. In addition, the Co-lead Agencies have determined, in consultation with the Bands, that the Partridge River segment of the Mesabi Widjiu would be adversely affected by the NorthMet undertaking. Although the federal Co-lead Agencies are assessing the effects of the NorthMet Project Proposed Action on only the portion of the Mesabe Widjiu within the APE, it is recognized that the property and its significance extends beyond the APE. The federal Co-lead Agencies have updated the FEIS to include a graphic of the entire Mesabe Widjiu, as provided by the consulting Bands.	CR 02 CR 05
2738	Any increase of methylmercury bioavailability in the Embarrass River, Partridge River, or St. Louis River watersheds constitutes a significant adverse impact to a critical trust resource [(subsistence fisheries)]. Not only must this impact be fully evaluated, but it must be fully mitigated	The Cultural Resources sections in FEIS Chapters 4 and 5 address the federal Co-lead Agencies' federal tribal trust responsibilities under the 1854 Treaty. These sections, along with other relevant natural resources sections of FEIS Chapters 4, 5, and 6, also address effects on and any proposed mitigation for cultural resources and culturally significant natural resources. Effects from mercury deposition on fish, in particular, are addressed in Section 6.2.6.3.3, in the Human Health Impacts summary, Section 7.3.4.4.2, and in responses to Themes HU02, 03 and 04. Mitigation/compensation for effects on cultural resources and culturally significant natural resources is considered to the extent possible within the parameters of the statutes and regulations pertaining to the federal authorities for the NorthMet Project Proposed Action review.	CR 01 HU 02 HU 03 HU 06
2742	Wild rice waters are not only protected under the 1854 Treaty but under Minnesota State law. Given	Potential effects and mitigation actions are included in the FEIS. Wild rice beds impacts are addressed from an economic, environmental, and cultural	WR 156

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	the obviousness of the threatened impact to such wild rice beds, additional analysis and mitigation must be included throughout the SDEIS.	perspective with input from the Bands. The FEIS compares sulfate concentrations predicted to result from the NorthMet Project Proposed and the 10 mg/L evaluation criterion, which reflects the state water quality standard for waters used for production of wild rice.	WR 157
2745	The Project will certainly do nothing to aid in the recovery of moose and is likely to reduce available habitat, impact travel corridors, and increase greenhouse gases. Impacts on moose and habitat are impacts on the Band's cultural resources and must be analyzed as such in the SDEIS.	FEIS Sections 4.2.5, 4.3.5, 5.2.5, and 5.3.5 (Wildlife) have been updated to include the new state endangered, threatened, and special concern (ETSC) status listings from August 19, 2013, as well as new federal status listing changes. The FEIS includes a more robust analysis on effects to moose, including habitat and displacement. The FEIS Section 5.2.5.2.2 discusses effects to moose due to loss of habitat. The FEIS Sections 5.2.5.2.3 and 6.2.5.4.2 discuss effects to wildlife corridors.	WI 01 WI 02 WI 03 WI 09
2746	The APE for the Project was not determined until August 11, 2009, after tribal cooperators insisted upon it, and tribal consultation is ongoing. Since 2009, the size of the APE has been significantly diminished to the point of being the Project permitted area and nothing more.	The federal Co-lead Agencies have actively consulted with the federally recognized Bands that have expressed an interest in consulting on the NorthMet Project Proposed Action. Historic properties affected by the NorthMet Project Proposed Action have been identified and the impacts to those properties have been assessed. This also includes an assessment of actual use of those historic properties, as well as other resources in the APE, by tribal members. Effects on historic properties would be fully considered prior to the issuance of any permit or land exchange, pursuant to the NHPA and its implementing regulations. Effects on cultural resources and culturally significant natural resources are addressed in the Cultural Resources sections in FEIS Chapters 4, 5, and 6. The APE takes into account both direct and indirect effects using a geographically expansive area that accounts for direct effects as well as visual, audible, atmospheric, hydrological, and water quality effects. The APE is based on extensive modeling and other analysis completed for the NorthMet Mining Project and Land Exchange, and includes an area much broader than the Plant Site and Mine Site. Since the SDEIS, the APE has been revised slightly to include the Dunka Road corridor, several federal parcels included in the Land Exchange Proposed Action, and the Colby Lake Pumphouse and pipeline.	CR 02 CR 06
3039	The land exchange will cause irretrievable losses of resources for the Bands [including loss of the land itself, SDEIS pg 7-10]… Further, the SDEIS provides that the land exchange proposal could have direct and indirect effects on tribal cultural resources by creating noise, impeding access to area that are traditionally or culturally important to	The Agency's obligation is to ensure that Band members have ample opportunity to exercise their treaty-reserved usufructuary rights; that federal lands are managed to maintain both the diversity and abundance of natural resources; and to ensure that the Bands' usufructuary rights to 1854 Treaty resources are not impaired. The Land Exchange Proposed Action was analyzed to understand the potential effects on usufructuary rights. The Co-lead Agencies have consulted, and continue to consult with the Bois	CR 01 CR 05

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	the bands and affecting species of importance to the Bands.	Forte Band of Chippewa, the Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa, the three principle Bands that retain usufructuary rights in the proposed project area. In addition, the Co-lead Agencies have consulted with the Great Lakes Indian Fish and Wildlife Commission and the 1854 Treaty Authority, the principal natural resource agencies representing the aforementioned Bands. Through consultation, the Co-lead Agencies understand that the Bands' principle interest with regards to the Land Exchange Proposed Action are the following: to retain or increase the amount of public land within the 1854 Treaty Ceded Territory, shoreline wetlands, culturally important natural resources used in exercising treaty rights of hunting, fishing, and gathering, cultural or religious properties, and access to culturally important natural resources and cultural or religious properties. The Co-lead Agencies have a fiduciary obligation to understand and consider the effects that the Land Exchange Proposed Action would have on Band members exercising their Treaty rights in the 1854 ceded territory. While the Land Exchange Proposed Action would remove certain lands from federal ownership, this loss is potentially offset by incoming private lands that would become part of the federal estate within the 1854 Ceded Territory. Outside of the Land Exchange Proposed Action, the Co-lead Agencies have also analyzed the potential effects posed by the Proposed Connected Actions. The potential affects posed to natural resources and cultural resources of importance to the Bands have been disclosed and would be considered during the Co-lead Agencies' decision process. The resource values and public objectives of the non-federal lands must equal or exceed the resource values and public objectives of the federal lands. See FEIS Section 1.4.3. Mitigation for cultural resources as a result of the NorthMet Project Proposed Action is discussed in Section 5.2.9 of the FEIS. The NorthMet Project Proposed Action mining activities would result in a loss of bogs; however, as part of the NorthMet Proposed Action, the Applicant is required to provide compensatory mitigation for wetland impacts in accordance with state and federal permits. One of the proposed mitigation sites for wetland impacts (Zim Site) would be a compensation site for the loss of bogs, and would be located within the 1854 Ceded Territory. The Lake County lands were tax forfeit lands that were offered for sale by the County through a public auction. The Lake County lands would still be	

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		accessible to the Bands for their use if the exchange took place, because the lands would become part of the SNF managed lands. No heritage surveys were conducted on the non-federal lands. If any cultural resources are located on the non-federal lands, those cultural resources would be transferred to federal ownership. Such transfer would not adversely affect the heritage resource, but would provide greater preservation protection under federal law. The non-federal lands that contain wild rice beds would not be affected as a result of the Land Exchange Proposed Action or Land Exchange Alternative B, because no activities are proposed on these lands and the proposed mining activities would not affect these lands. As noted in the FEIS, the Land Exchange Proposed Action and Land Exchange Alternative B would increase wild rice stands within the federal estate. FEIS Sections 5.3.2 and 5.3.4 clarify that, although the Land Exchange would result in an increase in wild rice stands within the federal estate boundaries, there would be no change to the existing public access to Tract 1 wild rice stands via the Pike River. Consequently, there would be no increase in wild rice harvest opportunities for the public. No wild rice stands are known to occur on the federal lands, and suitable habitat is limited. Please refer to the response to theme LAN 01 for more information on the public interest determination.	
2697	[The decision to use an analogue method came from the Wetlands Impact Assessment Planning work group process, in spite of Tribal Cooperating Agency objections. These objections include:] (1) the PolyMet proposed mine pit will be hundreds of feet deeper than any of the “analogue” mine pits;	When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS and there is incomplete or unavailable information because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, NEPA directs the agency to make it clear that such information is lacking, discuss the relevance of the lacking information, and discuss any information relevant to evaluation of the future impacts. In these cases, NEPA also directs the agency to evaluate these impacts based upon theoretical approaches or research methods generally accepted in the scientific community provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason. The Co-lead Agencies believe this is the case for evaluating indirect wetland effects. The Co-lead Agencies have thoroughly considered throughout the development of the EIS and through the Wetland Impact Assessment Planning Work Group how to assess potential indirect wetland effects. As a result, strengths and weaknesses of the approach used, as well as other suggested approaches, have been carefully considered. The Co-	WET 08

Comment ID	Comment	Response	Theme(s)
		lead Agencies believe that the analog method used in the SDEIS to assess potential indirect effects from mine dewatering is adequate. Further, the FEIS has been revised to address concerns raised by the Bands regarding the assertion that ombrotrophic bogs would not be impacted by mine dewatering. FEIS Section 5.2.3.2.2 applies a more conservative assumption of the potential indirect effects for all bog communities within the 0-1,000-ft analog zone. Specifically, ombrotrophic bogs were reclassified from the "no effect" category to the "low likelihood" category, the same status as that assigned to minerotrophic bogs. The complex mixes of bedrock, surficial deposits, and wetland soils at the Mine Site impede the ability to reasonably model (e.g., using MODFLOW) and accurately assess the potential effect of pit dewatering on wetlands. In light of this modeling limitation, wetlands were divided into zones based on distance from the open pit. The closer a wetland was to the pit during dewatering, the greater the water table drawdown would be and the greater potential there would be for hydrologic effects on overlying wetlands. These impact assessment methodologies are presented in FEIS Sections 5.2.2.3.2 and 5.2.3.1.2. The Co-lead Agencies are not relying solely on the potential impact zones determined in the analog method for the FEIS, but would be monitoring wetlands for potential indirect effects as part of an adaptive management plan. Permit conditions would include a plan for additional compensatory mitigation if indirect wetland impacts were identified, and appropriate changes to the adaptive management plan would be made as required.	
3098	[The decision to use an analogue method came from the Wetlands Impact Assessment Planning work group process, in spite of Tribal Cooperating Agency objections. These objections include:] (2) PolyMet mine pit walls will be crystalline and sedimentary bedrock versus the analogue mine pits in sedimentary bedrock only;	When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS and there is incomplete or unavailable information because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, NEPA directs the agency to make it clear that such information is lacking, discuss the relevance of the lacking information, and discuss any information relevant to evaluation of the future impacts. In these cases, NEPA also directs the agency to evaluate these impacts based upon theoretical approaches or research methods generally accepted in the scientific community provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason. The Co-lead Agencies believe this is the case for evaluating indirect wetland effects. The Co-lead Agencies have thoroughly considered throughout the development of the EIS and through the Wetland Impact Assessment Planning Work Group how to assess potential indirect wetland	WET 08

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		effects. As a result, strengths and weaknesses of the approach used, as well as other suggested approaches, have been carefully considered. The Co-lead Agencies believe that the analog method used in the SDEIS to assess potential indirect effects from mine dewatering is adequate. Further, the FEIS has been revised to address concerns raised by the Bands regarding the assertion that ombrotrophic bogs would not be impacted by mine dewatering. FEIS Section 5.2.3.2.2 applies a more conservative assumption of the potential indirect effects for all bog communities within the 0-1,000-ft analog zone. Specifically, ombrotrophic bogs were reclassified from the "no effect" category to the "low likelihood" category, the same status as that assigned to minerotrophic bogs. The complex mixes of bedrock, surficial deposits, and wetland soils at the Mine Site impede the ability to reasonably model (e.g., using MODFLOW) and accurately assess the potential effect of pit dewatering on wetlands. In light of this modeling limitation, wetlands were divided into zones based on distance from the open pit. The closer a wetland was to the pit during dewatering, the greater the water table drawdown would be and the greater potential there would be for hydrologic effects on overlying wetlands. These impact assessment methodologies are presented in FEIS Sections 5.2.2.3.2 and 5.2.3.1.2. The Co-lead Agencies are not relying solely on the potential impact zones determined in the analog method for the FEIS, but would be monitoring wetlands for potential indirect effects as part of an adaptive management plan. Permit conditions would include a plan for additional compensatory mitigation if indirect wetland impacts were identified, and appropriate changes to the adaptive management plan would be made as required.	
3099	[The decision to use an analogue method came from the Wetlands Impact Assessment Planning work group process, in spite of Tribal Cooperating Agency objections. These objections include:] (3) data collected from the site would be relatively inexpensive and should be used to inform impact assessment;	When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS and there is incomplete or unavailable information because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, NEPA directs the agency to make it clear that such information is lacking, discuss the relevance of the lacking information, and discuss any information relevant to evaluation of the future impacts. In these cases, NEPA also directs the agency to evaluate these impacts based upon theoretical approaches or research methods generally accepted in the scientific community provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason. The Co-lead Agencies believe this is the case for evaluating indirect wetland effects. The Co-lead Agencies have thoroughly considered	WET 08

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		throughout the development of the EIS and through the Wetland Impact Assessment Planning Work Group how to assess potential indirect wetland effects. As a result, strengths and weaknesses of the approach used, as well as other suggested approaches, have been carefully considered. The Co-lead Agencies believe that the analog method used in the SDEIS to assess potential indirect effects from mine dewatering is adequate. Further, the FEIS has been revised to address concerns raised by the Bands regarding the assertion that ombrotrophic bogs would not be impacted by mine dewatering. FEIS Section 5.2.3.2.2 applies a more conservative assumption of the potential indirect effects for all bog communities within the 0-1,000-ft analog zone. Specifically, ombrotrophic bogs were reclassified from the "no effect" category to the "low likelihood" category, the same status as that assigned to minerotrophic bogs. The complex mixes of bedrock, surficial deposits, and wetland soils at the Mine Site impede the ability to reasonably model (e.g., using MODFLOW) and accurately assess the potential effect of pit dewatering on wetlands. In light of this modeling limitation, wetlands were divided into zones based on distance from the open pit. The closer a wetland was to the pit during dewatering, the greater the water table drawdown would be and the greater potential there would be for hydrologic effects on overlying wetlands. These impact assessment methodologies are presented in FEIS Sections 5.2.2.3.2 and 5.2.3.1.2. The Co-lead Agencies are not relying solely on the potential impact zones determined in the analog method for the FEIS but are monitoring wetlands for potential indirect effects. In the event that the required wetland monitoring identifies additional indirect effects, permit conditions would likely include a plan for adaptive management practices to be implemented. Additional compensatory mitigation would be required if indirect wetland impacts are identified during monitoring and annual reporting.	
3100	[The decision to use an analogue method came from the Wetlands Impact Assessment Planning work group process, in spite of Tribal Cooperating Agency objections. These objections include:] (4) relying on only a partial set of available "analogue" data as the source of information to estimate dewatering impacts is selective and not scientifically robust.	When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS and there is incomplete or unavailable information because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, NEPA directs the agency to make it clear that such information is lacking, discuss the relevance of the lacking information, and discuss any information relevant to evaluation of the future impacts. In these cases, NEPA also directs the agency to evaluate these impacts based upon theoretical approaches or research methods generally accepted in the scientific community provided that the analysis of the impacts is supported by credible scientific evidence,	WET 08

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		is not based on pure conjecture, and is within the rule of reason. The Co-lead Agencies believe this is the case for evaluating indirect wetland effects. The Co-lead Agencies have thoroughly considered throughout the development of the EIS and through the Wetland Impact Assessment Planning Work Group how to assess potential indirect wetland effects. As a result, strengths and weaknesses of the approach used, as well as other suggested approaches, have been carefully considered. The Co-lead Agencies believe that the analog method used in the SDEIS to assess potential indirect effects from mine dewatering is adequate. Further, the FEIS has been revised to address concerns raised by the Bands regarding the assertion that ombrotrophic bogs would not be impacted by mine dewatering. FEIS Section 5.2.3.2.2 applies a more conservative assumption of the potential indirect effects for all bog communities within the 0-1,000-ft analog zone. Specifically, ombrotrophic bogs were reclassified from the "no effect" category to the "low likelihood" category, the same status as that assigned to minerotrophic bogs. The complex mixes of bedrock, surficial deposits, and wetland soils at the Mine Site impede the ability to reasonably model (e.g., using MODFLOW) and accurately assess the potential effect of pit dewatering on wetlands. In light of this modeling limitation, wetlands were divided into zones based on distance from the open pit. The closer a wetland was to the pit during dewatering, the greater the water table drawdown would be and the greater potential there would be for hydrologic effects on overlying wetlands. These impact assessment methodologies are presented in FEIS Sections 5.2.2.3.2 and 5.2.3.1.2. The Co-lead Agencies are not relying solely on the potential impact zones determined in the analog method for the FEIS, but would be monitoring wetlands for potential indirect effects as part of an adaptive management plan. Permit conditions would include a plan for additional compensatory mitigation if indirect wetland impacts were identified, and appropriate changes to the adaptive management plan would be made as required.	
3112	The SDEIS also does not provide any rationale for more mercury to be added to a system that is already so high in mercury, only suggesting that a future TMDL should take care of the problem. A more through cumulative effects analysis is required for mercury and the appropriate spatial scale for considering cumulative impacts includes the entire St. Louis River watershed.	This comment was originally presented as part of the Tribal Position Summary included in MDO #2, which was previously addressed in SDEIS Table 8-1. Further explanation is provided below. MPCA's goal is to protect high-quality waters and improve the quality of impaired waters, so water quality standards are met and beneficial uses are maintained and restored, where these uses are attainable. As summarized in FEIS Section 5.2.7.2.5, widespread contamination of fish from atmospheric pollution is why Minnesota established a statewide mercury TMDL. The	MERC 10 MERC 22

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		TMDL seeks to reduce atmospheric deposition everywhere in the state, in order to make the state's lakes and streams fishable, as required by federal regulations, and is intended to provide the long-term framework to reduce mercury in fish. The MPCA published Guidelines for New and Modified Mercury Air Emission Sources, and revised those guidelines in 2012 (MPCA 2012g, as cited in the FEIS). The guidelines were developed to limit the mercury emissions from new and expanding sources in order to meet the TMDL goal of total statewide mercury emissions of 789 lbs/year by 2025. The MPCA has conducted a review of the NorthMet Project Proposed Action mercury emissions, and has determined that it would not impede the reduction goals (MPCA 2013l, as cited in the FEIS). Furthermore, WWTF and WWTP discharges are expected to meet the 1.3 ng/L standard for mercury, and overall the NorthMet Project Proposed Action is predicted to result in a net decrease of mercury-loading.	
3117	While the incremental risk [of mercury loading] from the Project may be small, the existing risk is large and has not yet been addressed through a total maximum daily load ("TMDL") or other reduction program.	The comments in this theme were originally presented as part of the Tribal Position Summary included in MDO #2, which was previously addressed in Table 8-1 of the SDEIS. Further explanation is provided below. MPCA's goal is to protect high-quality waters and improve the quality of impaired waters, so water quality standards are met and beneficial uses are maintained and restored, where these uses are attainable. As summarized in FEIS Section 5.2.7.2.5, widespread contamination of fish from atmospheric pollution is why Minnesota established a statewide mercury TMDL. The TMDL seeks to reduce atmospheric deposition everywhere in the state, in order to make the state's lakes and streams fishable, as required by federal regulations, and is intended to provide the long-term framework to reduce mercury in fish. The MPCA published Guidelines for New and Modified Mercury Air Emission Sources, and revised those guidelines in 2012 (MPCA 2012h, as cited in the FEIS). The guidelines were developed to limit the mercury emissions from new and expanding sources in order to meet the TMDL goal of total statewide mercury emissions of 789 lbs/year by 2025. The MPCA has conducted a review of the NorthMet Project Proposed Action mercury emissions, and has determined that it would not impede the reduction goals (MPCA 2013l, as cited in the FEIS). Accordingly, no minimization and mitigation plan is required for the NorthMet Project Proposed Action. Based on the results of MPCA's review, the NorthMet Project Proposed Action should not be required to buy mercury offsets at this time. Should an evaluation of the NorthMet Project Proposed Action determine that an additional mercury source has been added, mercury offsets would be sought in accordance with the	MERC 22

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		Implementation Plan for Minnesota's Statewide Mercury Total Maximum Daily Load (MPCA 2009c, as cited in the FEIS). Further, the NorthMet Project Proposed Action is not anticipated to be a major source of mercury into the environment. The RO treatment is expected to discharge mercury at or below the mercury standard of 1.3 ng/L, which includes all surface water that would be discharged at the Plant Site, including water used for flow augmentation. Mercury loadings from the Mine Site are projected to decrease due to the NorthMet Project Proposed Action. The combined contributions from the Embarrass River and Partridge River are unchanged when modeled for the St. Louis River at the Fond du Lac reservation boundary; therefore, further degradation of surface water quality, and by extension increased mercury in fish, is not expected.	
9007	In the SDEIS, there is no discussion regarding the type of financial assurance that would be used. No detail is provided regarding the estimated amount of financial assurance that would be sufficient for reclamation, closure, mitigation, and remediation of adverse effects from the Project. Even though the MNDNR has stated that PolyMet financial assurance will include clean-up costs for contamination resulting from LTVSMC operations, the SDEIS provides no discussion regarding financial assurance for the existing contamination associated with previous mining activities at the site.	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, time frames, contingency plan amounts for unforeseen challenges, calculations that would be required for the project, monitoring, mitigation, and legacy contamination would be addressed during permitting. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine. *Minnesota Rules*, part 6132.1200, subpart 3, states that cost estimates shall be annually adjusted using current dollar value at the time of the estimate. Maintenance, mitigation, and cleanup of legacy contamination, would be covered by financial assurance.	FIN 01 FIN 05 FIN 08 FIN 11
9008	Mining need not be synonymous with pollution: "In the right place – and with conscientious companies, new technologies and good planning – many of the potential impacts are avoidable. In fact, most mine pollution arises from negligence, not necessity." The NEPA "hard look" requires agencies to "exercise a degree of skepticism in dealing with self-serving statements from the prime beneficiary of a project" when analyzing alternatives. The SDEIS does not evaluate or examine Project alternatives in any substantive way; even the no-	The original project proposal and alternatives were developed during project scoping in 2005. The NorthMet Project Proposed Action was refined at various points in response to public and agency input. As a result, the NorthMet Project Proposed Action studied in the SDEIS is not identical to the proposed action in the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). Some alternatives to the proposed action were considered and eliminated during the scoping and DEIS phases of the NorthMet Project Proposed Action, so did not require re-evaluation in the SDEIS. Alternatives were eliminated from detailed evaluation if they did not offer substantial environmental or socioeconomic benefits, were not reasonable (technically or economically feasible), were not available, or would not	ALT 01 ALT 03 ALT 14 ALT 20

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	action alternative is lacking in detail and analysis. Instead, the SDEIS states: Consistent with the CEQ regulations, the federal Co-lead Agencies are required to identify an agency-preferred alternative in a DEIS, if one exists, and in the FEIS unless another law prohibits the expression of such a preference. At this time, the Co-lead Agencies have not identified a preferred alternative, and for the USACE, Appendix B of 33 CFR Part 325 supersedes the CEQ requirement to identify an agency-preferred alternative. Part 57(4) of 33 C.F.R. Part 325 at Appendix B, NEPA Implementation, only states: Alternatives. See 40 CFR 1502.14. The Corps is neither an opponent nor a proponent of the applicant's proposal; therefore, the applicant's final proposal will be identified as the "applicant's preferred alternative" in the final EIS. Decision options available to the district engineer, which embrace all of the applicant's alternatives, are issue the permit, issue with modifications or conditions or deny the permit. To the extent this limits USACE's obligation to identify an agency-preferred alternative, which is not clear, nothing there limits the USFS's obligation to do so. Moreover, Part 57(4) of Appendix B does require that "reasonable alternatives" must be considered in detail, along with "geographic alternatives, e.g., changes in location and other site specific variables, and functional alternatives, e.g., project substitutes and design modifications." The Band has long cited this defect in its comments,21 and EPA cited the lack of alternatives as a factor when issuing an EU-3 rating for the DEIS. Although the SDEIS was revised to reflect the Project proponents' preferred	meet the Purpose and Need. This review—beginning during the scoping process and concluding with the FEIS—is consistent with the alternatives review required by NEPA and MEPA, and with the CEQ rules for analyzing alternatives. Refer to FEIS Section 3.2.3 for a discussion on the process and outcomes for consideration of the NorthMet Project alternatives, and Section 3.3.3 for a discussion on the Land Exchange alternatives. FEIS discusses in section 3.2.3.2 how the Consent Decree under the NorthMet Project No Action Alternative would require Cliffs Erie to complete closure and reclamation activities at the Plant Site. This would include completing activities for the localized affected areas under the Minnesota VIC Program, removal of the former Plant Site facilities that are not going to be reused, and management of seepage at the Tailings Basin embankment. The FEIS mentions in Table 3.2-1 that under the NorthMet Project No Action Alternative, there would be no mining activities, and that existing management and land use of the federal lands would continue. The NorthMet Project No Action Alternative is also analyzed under each resource area in the FEIS Chapter 5, and summarized in the FEIS Table 7.2.4-1. Several other alternatives for both the NorthMet Mining Project and Land Exchange were screened before the FEIS (see FEIS Section 3.2.3.3).	

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	action, still, the only alternative analyzed in any detail concerns the acreage of the proposed land exchange. This failure is a serious violation of NEPA and must be remedied before the SDEIS can be finalized.		
9011	No effort was made to discuss or evaluate the least environmentally damaging practicable alternative ("LEDPA") required before rendering a Clean Water Act Section 404 Permit.	The LEDPA process is described in FEIS Section 7.5. The ROD for the USACE would include the Section 404(b)(1) analysis and the public interest review, and would determine the LEDPA. Furthermore, the ROD for the USACE cannot be finalized until 30 days after release of an FEIS. Any comments received during the 30 day period may be considered in the ROD for the USACE. The ROD for the USACE would recommend issuance, issuance with conditions, or denial of the permit.	COE 04
9014	The SDEIS failed to substantively consider many alternatives that may provide mitigation for, or prevent long-term environmental damage. Some of these alternatives include: paste tailings to reduce the project footprint and use less water thus decreasing risk of water pollution; perpetual pumping of the mine pit to prevent a pit lake from forming and by doing so protecting groundwater; back-filling waste rock into the east, central, and west mine pits to reduce the mine foot print and restore wetlands; engineered liners; providing reverse osmosis treatment at the mine site beginning in year one of operations to augment water loss in nearby high quality wetlands in the Partridge River watershed; and underground mining.	A thickened tailings (paste tailings) alternative (A1) was considered but eliminated in the DEIS and post-DEIS as it was determined not to offer significant environmental benefits over the NorthMet Project Proposed Action. See the response to Theme ALT 04, which describes the West Pit Water Elevation Alternative (see also MDNR et al. 2014, as cited in the FEIS). FEIS Section 3.2.2.1.10 states that waste rock would be backfilled into the East Pit starting at year 11 and in the combined East Central Pit starting in year 16. After backfilling is complete, a wetland would be constructed over the combined East Central Pit. See the response to Theme ALT03 for more information about the West Pit backfill alternative. The 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) discussed a liner system as part of its consideration of a modified design or layout at the Mine Site. Key aspects of this alternative from the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) were incorporated into the NorthMet Project Proposed Action and studied in the SDEIS. Liners would be installed for stockpiles or areas where there is a potential to generate acid and metal leachate from potentially reactive waste. The Hydrometallurgical Residue Facility would contain a double-liner system. Temporary stockpiles (Category 2/3 and Category 4) and the Ore Surge Pile would contain a liner. The Category 1 Stockpile would have a containment system to collect seepage, which would be pumped to the WWTF. The Overburden Storage and Laydown Area would hold peat soils and unsaturated overburden, which would not be expected to be reactive. During operations, effluent from the WWTF and runoff from the	ALT 01 ALT 04 ALT 06 ALT 10 ALT 13

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		Overburden Storage and Laydown Area would be pumped to the Tailings Basin for reuse. During this time, extensive monitoring would be required, and adaptive management would be used to ensure minimization of effects and compliance into the future. During reclamation, water from the West Pit would be treated at the WWTF, which would be upgraded to include a RO treatment unit (or equivalent performing technology). Treatment at this unit would result in an effluent that meets all applicable water quality standards. See the response to Theme ALT01 for more information about the underground mining alternative.	
9020	The SDEIS summarily dismissed the possibility of backfilling: The opportunity to reclaim wetlands and vegetation at the Category 1 Stockpile footprint area would be the only measurable environmental benefit offered by backfilling the Category 1 Stockpile into the West Pit. However, because of the temporal effect that the stockpile would have, those effects would be required to be mitigated regardless of future backfilling or not. Furthermore, the potential environmental benefit is moot or outweighed because encumbrance is not allowed in PolyMet's private mineral leases and because the costs associated with backfilling, additional water treatment (rates), and encumbrance compensation determined in revised lease agreements may affect the ability of PolyMet to secure financing (MDNR et al. 2013b). As such, the option to backfill the West Pit was eliminated from further consideration in the SDEIS. Back-filling all of the mine pits with waste rock would reduce the surface footprint of the mine and make possible 526 acres of wetland restoration where the Category 1 stockpile is now proposed to be stored without a liner in perpetuity.	The West Pit Backfill alternative (E20) was considered but eliminated during the development of the DEIS. It was eliminated from further consideration because it was determined that it would not offer significant environmental or socioeconomic benefits compared to the NorthMet Project Proposed Action and because backfilling the West Pit would prevent recovery of additional mineral resources. These factors are sufficient to qualify the West Pit Backfill alternative as unreasonable under NEPA, and justify its exclusion under *Minnesota Rules*, part 4410.2300, subpart G. It was reconsidered in the SDEIS in response to comments from the Cooperating Agencies. A Co-lead Agencies memorandum (MDNR et al. 2013b, as cited in the FEIS) was prepared to summarize the decision-making process, which is referenced in the FEIS Section 3.2.3.4.2. The Co-lead Agencies screened the alternative against criteria used for other alternatives, including Purpose and Need, Technical and Economic Feasibility, Availability, and Environmental or Socioeconomic Benefit. The opportunity to reclaim wetlands and vegetation at the Category 1 Stockpile footprint area would be the only measurable environmental benefit offered by backfilling the Category 1 Stockpile into the West Pit. However, because of the temporal impact that the stockpile would have, these impacts would be required to be mitigated regardless of future backfilling or not.	ALT 03 ALT 06
9022	Engineered liners for the Category 1 Waste rock Stockpile and the Overburden Storage Layout Area ("OSLA") would ensure that seepage would	Liners would be installed for temporary stockpiles where there is a potential to generate acid and metal leachate. The permanent Category 1 Stockpile would have a containment system to collect seepage, which	PD 16

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	not migrate into fractures below the storage facilities and increase the effectiveness of seepage capture...If the Category 1 Stockpile were lined, seepage capture efficiency would increase and less water carrying pollution would migrate from the pile into the fractures below the storage area thereby protecting groundwater.	would be pumped to the WWTF for treatment. The Category 1 stockpile would contain material that is not expected to produce acidic leachate. The non-acid generating waste was identified using multi-year kinetic tests (humidity cells) on NorthMet rock samples. Waste rock with 0.12 percent sulfide S or less is the threshold for selecting non-acid generation mine waste and is supported by long-term humidity cell tests on NorthMet waste (i.e., 42 samples of Category 1 waste rock, with tests now run between 187 and 337 weeks ([PolyMet 2015q Attachments C]) The Overburden Storage and Laydown Area would hold peat soils and unsaturated overburden, which is not expected to be reactive.	
9025	After operations, the SDEIS contemplates that the RO plant would continue to treat tailings basin seepage and begin treating tailings pond water. The treated water would be used for augmentation of streams near the plant site. Colby Lake water is also proposed for stream augmentation. However, because Colby Lake water exceeds WQS for many pollutants including mercury, it would also need to be RO-treated before being used for augmentation. RO-treated water should be used to augment stream flow at both the plant site and mine site. Colby Lake water should not be used for stream augmentation unless it is RO-treated first. RO will not cause waters in the vicinity of the plant site to comply with WQS due to low seepage capture efficiency at the tailings basin.	The NorthMet Project Proposed Action described in the FEIS includes treatment of all water that would be discharged at the Plant Site including water used for flow augmentation. The amount of water from Colby Lake used for flow augmentation would be low; however, any water used for augmentation would be treated prior to discharge. PolyMet recommends that tributaries that extend from the Tailings Basin be monitored, see FEIS Section 5.2.2.3.6 and comment ID 9022.	WR 018 WR 124 WR 184
9029	The MNDNR and USACE considered underground mining as an alternative to the proposed open pit(s) for the DEIS in 2009, but eliminated it because it would have had “a significantly reduced rate of operation that would not be considered economically feasible, and, therefore, would not meet the Purpose and Need of the Project.” Even though underground mining was reconsidered for the SDEIS, the Co-Lead Agencies did not “exercise a degree of skepticism in dealing with self-serving statements from the prime beneficiary of a project” when analyzing	The Underground Mine alternative was first considered but eliminated during the FSDD process. The FEIS Section 3.2.3.4.1 describes how it was reconsidered during the DEIS process as alternative E7 in response to Cooperating Agency and stakeholder comments, but eliminated from further consideration. The economic feasibility of the Underground Mine alternative was reconsidered during development of the SDEIS. In response to a request from the Co-lead Agencies, PolyMet’s consultants prepared an updated economic assessment of underground mining, which the Co-lead Agencies independently evaluated (see FEIS Appendix B). The Co-lead Agencies concluded that an underground mine would not be profitable, regardless of the tonnage extracted. The lower rate of ore production would not meet the Purpose and Need of the project. Though it would offer	ALT 06

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	alternatives. The Project proponent eliminated the alternative based solely on an economic decision that underground mining would not be as profitable as open pit mining. The co-leads state that "it was not possible to undertake a quantitative, side-by-side assessment of the underground mining alternative."37 An underground mine would have a reduced mining rate and life of mine, employed fewer workers for a shorter period of time, and reduced state and local tax revenues. Conversely, although the underground mining alternative would offer environmental benefits, the SDEIS includes no economic analysis of those benefits. Still, the Co-Lead Agencies determined that underground mining would result in reduced socioeconomic benefits, and "PolyMet would not move forward with an unprofitable project, thus any potential environmental or socioeconomic benefits associated with this alternative are moot."	environmental benefits over the NorthMet Project Proposed Action, it would result in reduced socioeconomic benefits. They accordingly concluded that the Underground Mine alternative was not economically feasible, and would not meet the NorthMet Project's Purpose and Need. A position paper (FEIS Appendix B) was prepared to document the Co-lead Agencies' rationale for eliminating the Underground Mine alternative from further consideration. FEIS Section 5.2.10.1.4 states, "Neither NEPA nor CEQ requires the cost and benefits of a proposed action to be quantified in dollars or any other common metric; however, this EIS acknowledges that economic costs and loss of non-market value may result from environmental and social effects. Also acknowledged is that the agreement on the value (i.e., the "cost") of environmental effects is often difficult to achieve. Therefore, the approach of this EIS is to evaluate environmental and social impacts directly, in the appropriate resource-specific section." CEQ regulations for implementing NEPA (40 CFR 1502.23) state that, "for purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations."	
9031	Although underground mining was considered technically feasible, the Co-Leads provided that: PolyMet is a private sector and for-profit company, the value of the saleable material would need to provide sufficient income to cover operating cost (which includes, but is not limited to, the cost of mining, processing, transportation, and waste management), capital cost (to build and sustain facilities), an adequate return to investors, reclamation, and closure costs and taxes. Using underground mining would result in most of the NorthMet Deposit left unmined because of its low metal value (i.e., less value than the cost of mining and mineral processing). Other material would have to be left in place for safety reasons, to prevent collapse. Therefore: …the Co-lead Agencies found that while underground mining is technically feasible,	The Underground Mine alternative was first considered but eliminated during the FSDD process. FEIS Section 3.2.3.4.1 describes how it was reconsidered during the DEIS process as alternative E7 in response to Cooperating Agency and stakeholder comments, but eliminated from further consideration. The economic feasibility of the Underground Mine alternative was reconsidered during development of the SDEIS. In response to a request from the Co-lead Agencies, PolyMet's consultants prepared an updated economic assessment of underground mining, which the Co-lead agencies independently evaluated (see FEIS Appendix B). The Co-lead Agencies concluded that an underground mine would not be profitable, regardless of the tonnage extracted. The lower rate of ore production would not meet the Purpose and Need of the project. Though it would offer environmental benefits over the NorthMet Project Proposed Action, it would result in reduced socioeconomic benefits. They accordingly concluded that the Underground Mine alternative was not economically feasible, and would not meet the NorthMet Project's Purpose and Need. A position paper (FEIS Appendix B) was prepared to document the Co-lead Agencies' rationale for eliminating the Underground Mine alternative from further consideration.	ALT 01

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	available, and would offer significant environmental benefits over the proposed NorthMet Project, it would not be economically feasible and would not meet the Purpose and Need. Since the underground mining alternative would not meet all of the screening criteria, it is not considered to be a reasonable alternative. Therefore, the underground mining alternative was eliminated from further evaluation in the SDEIS. In no way does this constitute an appropriate level of detail. The conclusion that underground mining is not viable, or preferable, remains substantially unjustified, despite repeated requests for further analysis. Without considering the economics of perpetual treatment the economic analysis provided by the Project proponent concludes that underground mining is "[n]ot economically viable," while simultaneously claiming that backfilling the west pit would create encumbrances not allowed in their lease due to minerals located below the west pit that can only be accessed through underground mining. This is not the appropriate use of a cost-benefit analysis for purposes of analyzing an EIS alternative. The CEQ regulations require that, where a cost-benefit analysis is "relevant to the choice among environmentally different alternatives," there are a variety of additional requirements, including "analysis of un-quantified environmental impacts, values, and amenities,"42 in addition to other CEQ alternatives rules.	FEIS Section 5.2.10.1.4 states, "Neither NEPA nor CEQ requires the cost and benefits of a proposed action to be quantified in dollars or any other common metric; however, this EIS acknowledges that economic costs and loss of non-market value may result from environmental and social effects. Also acknowledged is that the agreement on the value (i.e., the "cost") of environmental effects is often difficult to achieve. Therefore, the approach of this EIS is to evaluate environmental and social impacts directly, in the appropriate resource-specific section." CEQ regulations for implementing NEPA (40 CFR 1502.23) state that, "for purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations."	
9033	Additionally, the SDEIS does not provide adequate discussion of the adverse effects of the proposed land exchange on wetlands and headwater streams within the St. Louis River	The SDEIS FEIS Section 5.3.3 included a discussion of wetland resources to be gained or lost as part of the proposed action land exchange. The Land Exchange Proposed Action represents a transfer of surface rights of 6,495.4 acres from the SNF to PolyMet to eliminate the conflict between federal surface and private mineral estate. This action, if approved, would remove those acres from SNF management and public use and transfer them to private ownership. Effects to wetland resources as a result of the mining activities are discussed in FEIS Section 5.2.3. SDEIS Section 5.3.6	WET 14

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		included a discussion of headwater streams to be gained or lost from the Land Exchange Proposed Action.	
9036	The SDEIS attempts to diminish the significance of the loss of these high-quality lands by stating that "[g]iven the existing lack of overland public access and actual use of the federal lands, as well as historic use of this area for mineral exploration (see Section 4.2.9), the Land Exchange Proposed Action represents little to no change in the actual level of recent or current use of the federal lands." In fact, historic trails key to both the exercise of treaty rights and of historic significance connect what is now Beaver Bay with Lake Vermillion.	As discussed in FEIS Section 5.3.1.2.1, the only public access to the federal lands is via the Partridge and Embarrass rivers. The remainder of the federal lands is surrounded by private lands (or by other public lands that are themselves surrounded by private lands) (see Figure 4.3.1-1). While members of the public may obtain permission to cross these private lands and access the federal lands, there is no designated land-based access for the federal lands.	CR 05
9037	The Project proponent provides that "three monitoring wells were installed in 2005 and sampled quarterly or less frequently prior to 2011; an additional 21 wells were installed between October 2011 and February 2012 and were sampled monthly through August 2012. All 24 wells are currently sampled three times per year (quarterly, excluding winter (1st) quarter)." But no bedrock monitoring wells were installed near the tailings basin. Only nine bedrock wells were installed for the entire Project, all in the area where the proposed mine pit(s) would be located. Moreover, data collected specifically for the Project was selectively used, with several well and surface water monitoring stations' data completely excluded from the water quality models used to predict Project impacts.	The SDEIS was based on data generally collected through October 2012. The FEIS relied on new data collected through the end of 2013, which included 12 new monitoring wells at the Mine Site. In addition, the FEIS made use of new geotechnical data collected in 2014 along the north, northwest, and west perimeter of the Tailings Basin, including: geologic logs, ten new surficial aquifer piezometers, slug tests in the piezometers, and ten bedrock packer tests performed in five boreholes advanced into upper bedrock. Hydrogeologic site characterization was sufficient for purposes of environmental review. All publically available and relevant studies were considered in developing the SDEIS and FEIS. These include technical reports prepared by PolyMet, reports from state and federal agencies, technical papers in peer reviewed journals, and technical reports associated with other mine sites. The SDEIS and FEIS preparers drew on these information sources to the degree that they were reliable and relevant to the assessment of potential NorthMet Project Proposed Action impacts. The FEIS record provided a description of data used to assess impacts. It is correct that currently there are no bedrock monitoring wells at the Plant Site. Installation of bedrock monitoring wells would be specified as part of the permitting process, with the results used to assess NorthMet Project Proposed Action performance on an ongoing basis.	WR 008 WR 071 WR 072
9046	Baseflow is the component of streamflow attributed to groundwater discharge from both deep subsurface and delayed shallow subsurface	Groundwater baseflows used in the SDEIS are best-estimate values and should be retained in the FEIS. This is because the SDEIS groundwater baseflow values were based on: 1) winter 1986-87 and winter 1987-88	WR 003 WR 175

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	flow. It is established by measuring the rate of stream flow during low flow conditions; either in the winter months when groundwater continues flowing under the frozen surface, or in warmer months during periods of time when there is no precipitation. Baseflow is used to define the amount of groundwater contribution to streamflow, and helps determine the speed at which groundwater travels. The baseflow rate predicted by XP-SWMM is three times lower than flow data indicates, and implies recharge to the groundwater system from precipitation that is not consistent with published literature.	stream gaging in the Partridge River at SW-006 that occurred when there were no discharges from Northshore Mine; and 2) 1942 to 1963 gaging data in the Embarrass River, which includes years prior to the LTV tailings basin startup (1957). When expressed as a groundwater baseflow yield per unit area, the similar results for both watersheds (approximately 0.05 cfs per square mile) supports the approach used. The yield per unit area is similar to other watersheds in Northern Minnesota. Studies have shown that streamflow characteristics in this part of Minnesota have not changed systematically over the last 50 years. The only other available gaging data is from a station installed during 2011 at SW-003 on the Partridge River. Interpretation of groundwater baseflow at SW-003 is not reliable for use in the GoldSim modeling of groundwater baseflow due to the complicating effects of Northshore pumped discharges, seepage from the Northshore Western Pond, and complex storage/release mechanisms in the wetlands that receive these flows. More broadly, groundwater baseflow discharge varies with time and is a reflection of longer-term weather and climatic conditions. The variability of groundwater baseflow discharge is demonstrated by the examination of estimated values for several years using different methods. Evaluation of these values affirms continued reliance on the 1986-87 USGS data for the FEIS is reliable (PolyMet 2015m, as cited in the FEIS). To better understand the relationship of groundwater baseflow to the GoldSim model's water quality impact projections, a sensitivity analysis for the Mine Site was conducted to evaluate if predicted NorthMet Project Proposed Action impacts are sensitive to groundwater baseflow values. The sensitivity analysis considered the relationship of various model inputs to groundwater baseflow including hydraulic conductivity, recharge, and surface runoff chemical concentrations. It also reflected consideration of the flow data collected at SW-003 in requiring groundwater baseflows at all locations on the Partridge River be increased by a factor of 4 (e.g., 0.5 to 2 cfs at SW-003). The results indicate that modeled groundwater and surface water concentrations are sensitive to changes in groundwater baseflow. However, the NorthMet Project Proposed Action's ability to meet groundwater quality and surface water quality evaluation criteria is not sensitive to changes in baseflow (MDNR et al. 2015b, as cited in the FEIS). Evaluation criteria can be found in Section 5.2.2.	
9051	It is widely acknowledged that "[m]ining can deplete surface and groundwater supplies.	Impact assessment modeling relies on site characterization data that indicate the bulk hydraulic conductivity of upper bedrock is two to three	WR 010

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	Groundwater withdrawals may damage or destroy streamside habitat many miles from the actual mine site." The importance of accurate evaluation of geology cannot be underestimated in modeling: Hydrogeologic characterization studies should include geological descriptions of the site, including descriptions of rock types, intensity and depth of weathering, and the abundance and orientation of faults, fractures, and joints. Although difficult to evaluate, the hydrologic effects of fractures, joints, and faults are especially important to distinguish and characterize. Water moves more easily through faults, fractures, and dissolution zones, collectively termed secondary permeability, than through rock matrices. Secondary permeability can present significant problems for a mining facility because it can result in a greater amount of groundwater discharge to a mine than originally predicted. However, the SDEIS indicates that mine pit dewatering impacts will be very limited or non-existent based on the assumption that there is little or no connection between the bedrock and surficial aquifers. This assumption is not supported by the data used to characterize mine site hydrology; instead, it is based on an unsupported "professional opinion."	orders-of-magnitude lower than the hydraulic conductivity of the surficial aquifer. Thus, groundwater flow and transport at both the Mine Site and Plant Site are dominated by the hydraulics of the surficial aquifer. Bedrock plays a negligible role in transporting site-derived chemicals to the Partridge and Embarrass Rivers. It is acknowledge that there could be some hydraulic connections between bedrock and the surficial aquifer where transport is expected to be negligible. Given these factors, the approach was to not consider this possible connection in the NorthMet Project Proposed Action water quality models, but to recommend extensive monitoring during operations and closure to assess if interactions occur and if they would raise concerns for permitting agencies. If monitoring data indicate trends toward permit non-compliance, adaptive mitigation measures would be implemented to prevent or eliminate what is expected to be a small transport-related bedrock impact relative to surficial flows. See FEIS Section 5.2.2.3.5 for more information on adaptive mitigation measures and Section 5.2.2.3.6 for more information on monitoring. The FEIS further evaluated the possibility of fractures and faults at the Mine Site and Plant Site to determine what (if any) changes need to be made to model assumptions to accurately predict potential environmental effects for purposes of environmental review. Although no change was made to the Plant Site GoldSim model, the FEIS Mine Site GoldSim model was modified to include a flow/transport zone 15 meters thick from that present in the SDEIS. The results of the analysis are included in FEIS Section 5.2.2.3.2. The response to theme WR169 also contains additional information on fractures and faults. The SDEIS disclosed that bedrock is variably fractured. The effects of fracturing are incorporated into the bulk hydraulic conductivity values used to characterize bedrock for the water quality impact assessment modeling. This is common practice in large-scale evaluations of bedrock hydraulics and the Mine Site GoldSim model was updated for the FEIS to better represent the likelihood of an upper zone of more fractured bedrock than deeper in the formation. Background bedrock-related conductivity information was also updated for the FEIS. Structural faults may exist between mine facilities and perennial streams that receive groundwater discharge. Because the landscape is covered with surficial deposits and there are few bedrock outcrops, the existence of faults is conjectural and locations at best can only be inferred. It is unknown if	WR 012

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		faults (if and where they exist) behave as conduits or barriers to groundwater flow. Given these uncertainties, it is unlikely that any reasonable field program would be able to identify the existence, location, and hydraulic characteristics of faults that may or may not be present at the site. The FEIS documents the need to require a robust monitoring program during operations and closure to provide direct or indirect evidence on the existence of hydrologically significant faults. If significant faults are identified (that is, faults which could lead to violation of water quality standards), then adaptive measures would be employed to mitigate the fault-related effects. See FEIS Section 5.2.2.3.5 and theme WR169 for additional information.	
9052	In fact, information beyond the flow data collected by PolyMet implies that there may be substantial connection between the bedrock and surficial aquifers and that groundwater travel time will be exponentially faster than predicted. Water quality data collected from two deep boreholes in the area where the Project mine pit(s) will be located found tritium and un-ionized ammonia nitrogen. Both tritium and un-ionized ammonia indicate a strong connection with surface water. Tritium indicates that the water found in the deep boreholes was on the surface sometime after 1950, during or after nuclear testing when atmospheric deposition of this pollutant occurred. Un-ionized ammonia is produced by ore blasting activities. The bore holes where this pollution was measured are approximately one mile southwest of the Peter Mitchell Pit, which is the closest potential source of this pollution. Therefore, this data indicates that the PolyMet mine site is already hydrologically connected to the Peter Mitchell Pit through fractures. Upon review of the Peter Mitchell pit discharge monitoring data for SD001, the Band found that the average concentration of un-ionized ammonia exceeded the 0.04 mg/l NPDES permit in 2006 and 2008. The distance between the Peter Mitchell pit and the Project proposed pit(s) is approximately one mile, indicating that	Tritium and non-ionized ammonia can be indicators of relatively young water. However, when these constituents are identified in water extracted from a borehole, the overriding question is whether or not foreign (young) water was introduced during the drilling process. There are many documented cases where tritium in borehole water could be traced to makeup water introduced during the drilling process to help maintain circulation. Experience indicates that conclusions about the age of groundwater based on tritium and non-ionized ammonia are unreliable unless it can be absolutely verified that no foreign (makeup) water was introduced during the drilling process. Given the isolated occurrences additional verification is not warranted for the EIS. Impact assessment modeling relies on site characterization data that indicate the bulk hydraulic conductivity of upper bedrock is two to three orders-of-magnitude lower than the hydraulic conductivity of the surficial aquifer. Thus, groundwater flow and transport at both the Mine Site and Plant Site are dominated by the hydraulics of the surficial aquifer. Bedrock plays a negligible role in transporting site-derived chemicals to the Partridge and Embarrass Rivers. It is acknowledged that there could be some hydraulic connections between bedrock and the surficial aquifer where transport is expected to be negligible. Given these factors, the approach was to not consider this possible connection in the NorthMet Project Proposed Action water quality models, but to recommend extensive monitoring during operations and closure to assess if interactions occur and if they would raise concerns for permitting agencies. If monitoring data indicate trends toward permit non-compliance, adaptive mitigation measures would be implemented to prevent or eliminate what is expected to be a small transport-related	WR 010 WR 011 WR 012 WR 013 WR 061 WR 071 WR 087 WR 099 WR 168 WR 169

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	groundwater travel time through bedrock fractures will be orders of magnitude faster than Project modeling suggests. Such a connection means that dewatering of the mine pits will cause significant drawdown of the water table in the surficial aquifer, potentially dewatering wetlands and ephemeral streams. This also indicates that when the mine pit(s) refill, polluted water will seep and leak out into groundwater surrounding the project.	bedrock impact relative to surficial flows. See FEIS Section 5.2.2.3.5 for more information on adaptive mitigation measures and FEIS Section 5.2.2.3.6 for more information on monitoring. The FEIS further evaluated the possibility of fractures and faults at the Mine Site and Plant Site to determine what (if any) changes need to be made to model assumptions to accurately predict potential environmental effects for purposes of environmental review. Although no change was made to the Plant Site GoldSim model, the FEIS Mine Site GoldSim model was modified to include a flow/transport zone 15 meters thick from that present in the SDEIS. The results of the analysis are included in FEIS Section 5.2.2.3.5. The response to theme WR 169 also contains additional information on faults and fractures.	
9054	Groundwater is an important source of drinking water in the Great Lakes Basin…Glacial aquifers are commonly thin and limited in their extent and yield. Bedrock aquifers have limited yield, generally from fractures; groundwater movement is difficult to define. There are no large-scale regional aquifers. The Biwabik Iron Formation is the only source of groundwater for many Iron Range cities…Over the decades of operations at the LTVSMC tailings basin, thousands of gallons per minute of polluted tailings basin water were discharged through the bottom of the basin into groundwater…The monitoring wells that do exist near the tailings basin have concentrations of pollutants including iron, sulfate, manganese, aluminum, and fluoride that exceeded drinking water standards. But because of the limited distribution of monitoring wells, the extent of the existing contaminant plume is not known. No bedrock monitoring wells have been drilled in the vicinity of the tailings basin. However, domestic wells near the northern property line show substantial contamination of the groundwater aquifer…Despite this, the SDEIS entirely skirts the question of overall impacts on the groundwater aquifer from putting an already-contaminated [tailings basin] site back into production...Blasting	The Plant Site water quality model (GoldSim) properly accounts for the existence of the LTVSMC tailings that are currently disposed in the Tailings Basin. The solute release rates from tailings (NorthMet Project Proposed Action and existing LTVSMC) were based directly on laboratory measurements conducted on representative samples of these two materials, including tailings generated as part of the Proposer's processing and metallurgical pilot-testing. Specific measurements included total concentrations of metals and other elements in the tailings (e.g., based on elements extracted in dissolution by a strong acid "aqua regia" digest), or for the more soluble constituents, the rate at which they leach in multi-year humidity cell tests (Table 1-13 of PolyMet 2015j, as cited in the FEIS). Modeled groundwater concentrations at the Plant Site of the NorthMet Project Proposed Action are described in Section 5.2.2.3.3. This assessment of the GoldSim results provides strong evidence that the NorthMet Project Proposed Action would not cause impacts to Plant Site groundwater quality above and beyond what would occur without the NorthMet Project Proposed Action. Moreover, bedrock monitoring wells are likely to be included in the water quality permit. Case histories of open pit excavations show that effects of blasting and shoveling do not extend very far from the pit walls, extending at most, several tens of meters.	WR 016 WR 030 WR 060 WR 071

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	and shoveling ore will increase both the number of fractures and the connectivity of fractures potentially increasing baseflow and pit leakage into the bedrock layers below the bottom of the pit		
9056	Project baseline data used for both the Mine Site and the Tailings Basin are insufficient. A comparison of hydrologic data that was collected for two other projects in the region demonstrates that the PolyMet project is data-poor in the area of basic hydrology, much less mitigation. Moreover, given the utility of the many existing studies of area hydrology, it is perplexing that the preparers have continually refused to use them, even as tribal cooperating agencies have repeatedly requested that they be used. Just a few publicly available examples include: the Minnamax Project; the LTVSMC Dunka Pit; historic MNDNR fisheries documents; and data required under the Cliffs Erie Consent Decree. All these resources should be used to supplement the hydrologic analysis and fully inform the permitting agencies and the public.	The Co-lead Agencies rely upon the expertise and experience of their staff that bring to bear their knowledge of various studies and analyses performed on mine sites in Minnesota and elsewhere. This knowledge is applied in the review of documents prepared to evaluate the NorthMet Project Proposed Action potential effects. It should be noted that the NorthMet Project Proposed Action is different from other mining projects in this part of Minnesota in the following ways: different ore type, designs for groundwater containment systems, and use of long-term mechanical treatment. While experiences gained on other projects are informative, they do not necessarily apply to the NorthMet Project Proposed Action. This is particularly true for groundwater containment systems because the NorthMet Project Proposed Action uses a design that differs from those at other Iron Range mine sites. The mitigation designs of the NorthMet Project Proposed Action are unlike measures discussed in the Regional Copper-Nickel Study (MEQB 1979, as cited in the FEIS). The NorthMet Project Proposed Action measures include: long-term mechanical water treatment, uniquely designed groundwater containment systems, subaqueous disposal of reactive waste rock, and synthetic covers and under-liners used at waste rock stockpiles and treatment ponds. In addition, the level of construction QA/QC proposed at the NorthMet Project Proposed Action Site would be much higher than what has historically occurred at older mine sites in the Iron Range. It is erroneous to conclude that operation and closure of the NorthMet Project Proposed Action Site would necessarily entail the same types of failures that have occurred at some historical Iron Range mines. In fact, the unique designs and high-quality construction measures proposed are a response to past events. The detailed and sophisticated modeling work performed to support the FEIS exceed those conducted for some existing mines in Minnesota. The models used for the NorthMet Project Proposed Action represent years of development, with input from PolyMet, Co-lead Agencies and Cooperating Agencies. Based on comments received on the SDEIS, modifications were made to the models to improve FEIS impact evaluations. It is the Co-lead Agencies' position that incomplete or inaccurate predictions made in the	WR 023 WR 071

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		past at historical mining operations do not provide a basis for judging the quality of modeling to be used in the NorthMet FEIS. The FEIS reflects consideration of information pertaining to the Dunka Pit that was directly relevant to the NorthMet Project Proposed Action. It is noteworthy that many aspects of operations at the Dunka Pit are dissimilar to the NorthMet Project Proposed Action in terms of hydrogeology and mine design.	
9059	The proponent's claim that 90 percent of the seepage from this tailings basin can be captured is unrealistic, to say the least. Tribes requested any example of the "90 percent or better" capture efficiency rate to be provided by the Co-Lead Agencies, but they were not able to provide a single example anywhere in the world. In fact, the only authority the Co-Leads have ever cited is from an EPA guidance document that provided: Most barriers in the study have been in place for fewer than 10 years; therefore, long-term performance can only be extrapolated… All sites included in the study were existing sites that had vertical barriers and, in many cases, caps. None of the sites has an engineered bottom barrier. Therefore, the effect of leakage through aquitards was not evaluated in this study. That report also indicated that "10% of the containment systems reviewed failed to meet the performance objectives and required corrective action, and 19% of the evaluated facilities did not have sufficient data to conclude whether the containment system was operating successfully or not." In other words, even the Co-Leads' own authority does not support a 90 percent capture efficiency rate here. Actual examples in northeastern Minnesota, from U.S. Steel Minntac and the LTVSMC tailings basin seep SD0026 (the very tailings basin PolyMet proposes to re-use), demonstrate capture rates of less than 60 percent. Elsewhere, and similar to the Project's proposal, the Zortman-Landusky Mine in Montana installed containment	The design of the Tailings Basin capture system includes: 1) a slurry wall keyed into bedrock, 2) a collection trench on the tailings side, 3) permanent pumping of the collection trench to depress the groundwater level on the tailings side, and 4) a discharge pipe on the downgradient side to raise groundwater levels to near ground surface. As shown by the cross-section MODFLOW models, this design insures a reversal of hydraulic gradients across the slurry wall (complete capture in surficial deposits) and complete or very high capture efficiency in bedrock below the slurry wall. The examples cited in the comment for Northeastern Minnesota are very different designs and cannot be compared to the proposed design for the Tailings Basin. Modeling performed for the NorthMet Project Proposed Action capture system indicates that the overall capture efficiency would be substantially greater than 90 percent.	WR 017 WR 018 WR 020

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	and pump-back systems to be used in conjunction with a wastewater treatment facility. However, they "did not capture all surface and subsurface drainage." The Molycorp, Inc. Mine site in New Mexico concluded that "[t]he pathway for contaminant migration is the leaching of tailing seepage downward from the tailing facility to ground water that migrates through fractures to surface water." Therefore, it appears extremely unlikely that PolyMet will be able to capture 97 percent of the shallow seepage and 90 percent of the deep seepage from an unlined, leaking tailings basin.		
9062	The SDEIS provides that seepage from the existing LTV tailings basin continues to drain south to Second Creek long after LTVSMC operations have ceased. Because the seepage will continue to be pumped back under the PolyMet Proposed Action, it "is not considered further in this discussion." In Chapter 5, the SDEIS ensures the reader that the seepage collection system installed at the south side of the existing tailings basin has "essentially eliminated the flow of Tailings Basin seepage into Second Creek." However, the Project proponent is well aware that that the seepage pump-back system is not nearly as effective as claimed in the SDEIS. Because the pump-back system hasn't created the water quality improvements that were needed, the current owner of the tailings basin, Cliffs Erie, now offers two proposed modifications: (1) dewater the pond that is an additional source of water contributing to water quality concerns (pending an EPA wetlands determination); or (2) create another barrier (dam) for collection and pump back between the existing dam and monitoring station SD026. Contrary to SDEIS claims, all of the seepage from SD026 is not being captured and therefore must be considered further in the SDEIS and project	It is acknowledged that there is currently incomplete capture of impacted water at SD-026. The FEIS has been modified to reflect this fact. Cliffs Erie is currently addressing this issue by upgrading the performance of the existing capture system and, if necessary, constructing new systems to enhance capture. If 100 percent capture is not attained by the Cliffs Erie upgrades, PolyMet has committed to installing additional systems in Second Creek to achieve this level of performance regardless of the types of measures required.	WR 117

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	modeling. In fact, most of the tailings basin seepage flowing to SD026 is not being captured. Additional work will have to be done to achieve desired water quality improvements. It is unknown at this time if the modifications to the seepage capture system that have been proposed for SD026 will result in the required water quality improvements, or substantially increase capture efficiency. Contrary to SDEIS claims, all of the seepage from SD026 is not being captured and therefore must be considered further in the SDEIS and project modeling.		
9063	The SDEIS provides that construction of a groundwater containment system along the north, northwest, and west sides of its unlined tailings basin "would capture virtually all of the Tailings Basin seepage"… without installing a single monitoring well in the bedrock to test this assumption...the SDEIS's conclusion that the method would be effective essentially is unsupported.	The FEIS relies on revised cross-section models from the SDEIS to evaluate containment systems on the northern, northwestern, and western sides of the Tailings Basin, which are documented in PolyMet 2015j, as cited in the FEIS. These new models consider the presence of an upper more permeable bedrock zone directly below the slurry wall, with hydraulic properties based on 2014 packer tests conducted in five boreholes along the proposed capture system alignment. Sensitivity analyses have included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 100 feet. The model results predict that the overall capture efficiencies of the proposed Tailings Basin capture systems would be substantially greater than 90 percent. This analysis supports the conclusion that the assumption of 90 percent or greater capture efficiency is justified. The FEIS describes a 2014 field program that investigated bedrock along the alignment of the proposed capture system on the northern, northwestern, and western sides of the Tailings Basin in FEIS Section 4.2.2.3.1. This investigation provided field data on bedrock hydraulic conductivity, Rock Quality Designation, and depth to top of bedrock. This information was used to develop MODFLOW cross-section models at three locations on the alignment to assess capture efficiency. The models included bedrock below the slurry wall.	WR 010 WR 018 WR 061 WR 071 WR 079 WR 090 WR 099 WR 108
9069	Moreover, the tailings basin model uses storage coefficients that are not found anywhere in peer-reviewed scientific literature. This is significant because how much groundwater a geologic formation can contain (storativity or storage	In response to these issues, the Plant Site MODFLOW model was modified and recalibrated as follows: 1) Updated areal distribution of surficial deposits and bedrock outcrops, 2) established surficial deposits below and adjacent to the East Embankment, 3) used drain and river cells along the East Embankment to allow surface seepage of tailings water, 4)	WR 018 WR 019 WR 093 WR 095 WR 097

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	coefficient) and the rate of flow (hydraulic conductivity) is a function of the amount of open-pore spaces or fractures/faults in rock, the amount of water that infiltrates from the surface, and the groundwater gradient. The storage coefficients claimed for the entire plant site including the tailings basins is 0.20 for bedrock and 0.0002 for the surficial deposits, meaning that the bedrock contains orders of magnitude more water than the surficial deposits. When questioned about these extraordinary storage coefficients the explanation was that the model was calibrated to match predicted and measured groundwater levels. In sum, this model simulates a bedrock storage tank where lots of water goes in and virtually nothing comes out. Because this is not possible, these modeled hydraulic conductivity and/or modeled storage coefficients cannot reliably estimate the amount of seepage that will bypass the seepage capture system, nor the amount of time before seepage upwells in nearby wetlands or in the Embarrass River. Additionally, the model, although using "artesian" coefficients, does not allow the artesian water to surface, even in an area east of the tailings basin where head pressure suggests that the water would be 150 feet above the ground surface.	incorporated the hydrologic effects of the future swale to drain surface water from the East Embankment area, 5) recalibrated model material properties and boundary conditions using all available data through 2013 (this is mostly new hydraulic head information), and 6) expanded the use of river and drain cells to provide a more accurate representation of wetlands outside the Tailings Basin. As a result of these changes, the FEIS Plant Site MODFLOW model no longer has a no-flow boundary condition at the toe of the East Embankment, and river and drain cells in surficial deposits are in place to allow the potential for surface seepage along the embankment toes (See Attachment A, Plant Site Water Modeling Data Package [PolyMet 2015j, as cited in the FEIS]). The model was checked to ensure that hydraulic heads in the tailings and adjacent surficial deposits were not well above ground surface. In the FEIS Plant Site MODFLOW model, storage coefficients for the surficial deposits and bedrock outcrops were assigned and/or calibrated to be more in line with literature values for these types of materials.	
9073	There is unquestionably a need for a slurry wall at the existing tailings basin if it is to be re-used by PolyMet - but in order to work even reasonably well, it would have to be flawlessly "keyed" into the bedrock without creating new fractures, and operate at an unrealistically high efficiency, in order to capture most of the seepage from the surficial aquifer. As noted previously, "[t]he pathway for contaminant migration is the leaching of tailing seepage downward from the tailing facility to ground water that migrates through fractures to surface water, and even though the	The design of the Tailings Basin capture system includes: 1) a slurry wall keyed into bedrock, 2) a collection trench on the tailings side, 3) permanent pumping of the collection trench to depress the groundwater level on the tailings side, and 4) a discharge pipe on the opposite side to raise groundwater levels to near ground surface. As shown by the cross-section MODFLOW models, this design insures a reversal of hydraulic gradients across the slurry wall (complete capture in surficial deposits) and complete or very high capture efficiency in bedrock below the slurry wall. The model results predict that the overall capture efficiencies of the proposed Tailings Basin capture systems would be substantially greater than 90 percent. The design and modeling analysis supports the conclusion that the assumption of 90 percent or greater capture efficiency is justified.	WR 019 WR 020 WR 102

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	SDEIS states that 90% of the seepage from the surficial aquifer will be captured there are no plans to capture any seepage flowing through bedrock fractures. In fact, bedrock is the part of this seepage capture system that is supposed to prevent seepage from escaping from the east side of the tailings basin. At the Plant Site, most groundwater flow occurs in an unconfined surficial groundwater system composed of unconsolidated sands, silts, and clays, and has a saturated thickness on the order of 7 meters. Below the surficial groundwater system is a low-permeability fractured bedrock unit consisting of several rock types. Groundwater flow rates in the bedrock unit are much less than flow in the overlying surficial groundwater system.		
9074	"Semi-analytical flowpaths" for the tailings basin have been constrained in the Modflow model so that water cannot seep out of the east side of the tailings basin. However, winding underneath the east side of the tailings basin is a bedrock valley that used to be the headwaters of Trimble Creek…More water likely flows out of the east side of the tailings basin than does out the southern toe at monitoring site SD026. Therefore, without constructing the slurry wall containment system around the east end of the tailings basin, hundreds of gallons per minute of polluted water will drain into the Embarrass River watershed.	The water quality modeling has been updated for the FEIS to include the potential for water to seep from the east side of the Tailings Basin. The FEIS Section 5.2.2.3.3 describes that a containment system would be constructed around a portion of the east side of the Tailings Basin for seepage collection.	WR 102 WR 104 WR 133
9077	Even though the PolyMet project proposes to use a double-liner to prevent leakage from the [HRF], head pressure from the existing seeps and springs at this site mean that the liners, even installed perfectly will not last long before rupturing.	Comment themes GT11 and GT12 also provide information pertaining to the design, installation, and operation of the Hydrometallurgical Residue Facility with respect to seeps and stability considerations. Monitoring and maintenance would include routine inspections of the Hydrometallurgical Residue Facility, including the liners and collection system. The Residue Management Plan (PolyMet 2014r, as cited in the FEIS) presents the monitoring and maintenance plan proposed for the Hydrometallurgical Residue Facility at this time. Additional monitoring and maintenance requirements would be outlined by the responsible	PD 17

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		regulatory agency as part of facility permitting. The liner system components have been selected specifically to perform well, given the characteristics of the residue, which consists primarily of gypsum. The liner system components selected for the Hydrometallurgical Residue Facility are routinely used for similar facilities in other industries and have demonstrated the expected levels of performance. The design produces a liner system with virtually no leakage due to the system's ability to maintain a very low hydraulic head on the composite liner portion of the overall liner system. The two liner layers on the Hydrometallurgical Residue Facility would be separated by a leakage collection system, which is designed to collect any potential leakage from the bottom of the cell, as well as leakage from LTVSMC Cell 2W. Each liner layer would consist of a geomembrane layer above a geosynthetic clay layer. A drainage collection system would also be installed during reclamation to collect drainage above the upper liner. The cap would consist of a geotextile fabric, overlain by a clay barrier layer, and a 40-mil low-density polyethylene layer. This would be covered with additional LTVSMC coarse tailings or common borrow and cover soils to sustain a vegetated cover. During reclamation and long-term closure, leakage would be routed and cycled through the Plant Site WWTP. The FEIS includes additional details from the updated Residue Management Plan.	
9081	20 feet of pit wall will never be submerged and as such constitutes a perpetual source of mine related contaminants. Because of continued inputs from the stockpiles, the tailings basins, and the pit walls, the pit lake could exceed surface water quality standards for thousands of years. Therefore, it is likely that the wastewater treatment facility ("WWTF") would need to operate for thousands of years in order to treat leachate from the tailing basin, stockpiles, and contaminated pit water.	When the West Pit Lake water level reaches the outlet elevation (between 1573 and 1578 ft amsl), approximately 200,000 ft^2 of wall rock would remain above the water level and exposed to the atmosphere, including some Category 1, Category 2/3, Category 4 Duluth Complex, and ore (See Figure 1-4 and Figure 1.3b, respectively, in Barr 2012c, as cited in the FEIS). The load to the West Pit Lake produced by oxidation in this wall rock above the lake surface is incorporated explicitly in the GoldSim model of the Mine Site. The model estimates for loads from each wall rock type (along with other sources to the West Pit) are presented in Attachment I, figures I-02-01.2 through I-02.27.2 in PolyMet 2015m, as cited in the FEIS. The estimate of load from exposed wall rock in the West Pit Lake decreases over time in the GoldSim Mine Site model, reflecting the depletion of sulfide minerals in wall rock by oxidation. Wall-rock loading continues beyond mine-year 40, when the West Pit would be full; but for most solutes the predicted wall rock loading is much smaller than the load expected for	WR 035 WR 036 WR 173

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		water flow to the West Pit Lake from the East Pit wetland. Thus results presented in the FEIS, including predicted solute concentrations in the West Pit Lake, the West Pit groundwater flowpath, and the Partridge River, do include the load from wall rock exposed above the pit lake surface. Water quality modeling performed in support of the FEIS indicates that water treatment systems in some form and at some scale would be needed at the Mine Site and Plant Site indefinitely. The water models constructed to assess the potential effects from the NorthMet Project Proposed Action were not designed to predict the duration of treatment nor do they capture all the factors that influence the duration of treatment, for example potential future regulatory and technological changes. Therefore, the models cannot be used to predict a year treatment would end. Actual treatment requirements would be assessed on a reoccurring basis throughout operations and closure based on results of ongoing discharges, performance and water resource monitoring ensuring continuous protection of ground and surface water quality and compliance with applicable water quality standards. This reassessment process would rely on measured monitoring results (evaluated through modeling) rather than the results of the predictive modeling included in the FEIS. Regardless of the precise duration of effects or water treatment at either the Mine Site or Plant Site, there are adaptive and contingency mitigation measures available to address unexpected impacts to water resources.	
9083	As stated previously, many mitigation measures were not identified in the SDEIS, including the LEDPAs, nor are they evaluated using the required NEPA “hard look.” There is no agency-preferred alternative identified in the SDEIS either. Combined, this makes it exceptionally difficult, and meaningless, to provide any input on the 404 permit or the corresponding 401 certification.	Neither Minnesota Rules nor CEQ regulations require the Co-lead Agencies to identify a preferred alternative in the SDEIS (40 CFR 1502.14(e)). The FEIS includes available details regarding the identification of an Agency Preferred Alternative. The FEIS contains sufficient information to identify and substantiate the LEDPA. The USACE is not required to identify a LEDPA in the FEIS; the final determination on the LEDPA would be made in the ROD for the USACE, which serves as the USACE’s decision document and the basis for the Department of the Army permit decision. The USFS would utilize the FEIS to show the factors relating to how the public interest would be served by the Land Exchange and the ROD for the USFS would incorporate the findings of those factors and identify the preferred alternative. The MDNR is not required to identify a preferred alternative under MEPA. The FEIS Sections 3.2 and 3.3 further detail this process. The agency preferred alternative and LEDPA process is described in FEIS Sections 7.4 and 7.5. The ROD would include the Section 404(b)(1)	COE 04

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		analysis and the public interest review, and would determine the LEDPA. Furthermore, the ROD for the USACE cannot be finalized until 30 days after release of an FEIS. Any comments received during the 30 day period may be considered in the ROD for the USACE. The ROD would recommend issuance, issuance with conditions, or denial of the Project. The USACE is not anticipating the need to re-issue the Section 404 public notice for the NorthMet Project Proposed Action. However, MPCA would need to re-issue the Section 401 public notice for the Project. Under the provisions of the Clean Water Act, the MPCA has one year from the public notice (December 3, 2014) to act upon an application for 401 Certification. However, the MEPA (*Minnesota Statutes*, dvision116.04, subdivision 2b) and rules regarding environmental review (*Minnesota Rules*, part 4410.3100) prohibit final agency decisions, such as the Section 401 Certification, until all environmental review steps are completed. The environmental review process being undertaken by the Co-lead Agencies would not be completed within the one year time frame for issuance of the Section 401 Certification. Therefore, PolyMet has made a procedural decision to withdraw the Section 401 application before MPCA and resubmit it in the near future to allow for processing of the application.	
20089	After an agency preferred alternative and the LEDPAs are identified, the USACE should re-notice the 404 permit and MPCA should re-notice the 401 certification.	The agency preferred alternative and LEDPA process is described in FEIS Sections 7.4 and 7.5. The ROD for the USACE will include the Section 404(b)(1) analysis and the public interest review, and would determine the LEDPA. Furthermore, the ROD for the USACE cannot be finalized until 30 days after release of an FEIS. Any comments received during the 30 day period may be considered in the ROD. The ROD for the USACE will recommend issuance, issuance with conditions, or denial of the Project. The USACE is not anticipating the need to re-issue the Section 404 public notice for the NorthMet Project Proposed Action. However, MPCA will need to re-issue the Section 401 public notice for the Project. Under the provisions of the Clean Water Act, the MPCA has one year from the public notice (December 3, 2014) to act upon an application for 401 Certification. However, the MEPA (*Minnesota Statutes*, division 116.04, subdivision 2b) and rules regarding environmental review (*Minnesota Rules*, part 4410.3100) prohibit final agency decisions, such as the Section 401 Certification, until all environmental review steps are completed. The environmental review process being undertaken by the Co-lead Agencies will not be completed within the one year time frame for issuance of the Section 401 Certification. Therefore, PolyMet has made a procedural	COE 04

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		decision to withdraw the Section 401 application before MPCA and resubmit it in the near future to allow for processing of the application.	
9091	There has been no analysis of the 1854 Ceded Territory as a discrete area of impact. The Band continues to ask that it be included. Tribal Cooperating Agencies believe the Cumulative Effects Analysis for land use should encompass the 1854 Ceded Territory	The Co-lead Agencies have previously consulted with the Bands on the 1854 Ceded Territory as a discrete area of impact (i.e., traditional cultural property) and its use as an expanded area for determination of potential resource-specific Project effects. With regards to the 1854 Ceded Territory as a discrete area of impact, the Cultural Resources sections of FEIS Chapters 4 and 5 address the Co-lead Agencies' consideration of the 1854 Ceded Territory as a traditional cultural property. With regards to the 1854 Ceded Territory's use as the cumulative effects analysis area for land use, the vast majority of the 1854 Ceded Territory, along with the potential resources that may be within these areas, would not be directly or cumulatively affected by the Proposed Connected Actions. At this time, the Co-lead agencies believe that additional identification and evaluation efforts within these areas would be outside of the scope of this review. The Land Use section of FEIS Chapters 4, 5, and 6 address the Co-lead Agencies' determination of the NorthMet Project Proposed Action's direct, indirect, and cumulative areas of potential effect.	PER 08
9093	Tribal Cooperating Agencies consider a 216,300 acre area bounded by the St. Louis River, Lake Superior, Lake Vermilion and the Beaver Bay to Vermilion Trail to be a Tribal Historic District, and the pertinent area for consideration of cumulative effects to cultural resources.	The historic district proposed by the Grand Portage Band in a June 27, 2013 letter was addressed (Grand Portage 2013, as cited in the FEIS). The federal Co-lead Agencies have considered an expanded area for analysis of cumulative effects on cultural resources and natural resources of significance to the Bands, including use of the 1854 Ceded Territory as the CEAA. Use of the 1854 Ceded Territory as the CEAA for cultural resources would actually diminish the significance of any cumulative effects. By evaluating the effects of the NorthMet Project Proposed Action along with other past, present, and reasonably foreseeable future projects in the context of a much larger area with a much larger number of resources similar to those affected by the NorthMet Project Proposed Action, the effect of the NorthMet Project Proposed Action on those resources is diminished. The cumulative effects analysis focuses on the specific resources, or types of resources, affected by the NorthMet Project Proposed Action within an area that is geographically meaningful considering the project under review. Cumulative effects are discussed and addressed differently based on the affected resource. Discussions related to socioeconomics, for instance, use an expanded analysis area compared to other resources. Such expanded analysis areas are used as appropriate. The Cultural Resources sections in	CR 04

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		FEIS Chapters 4, 5, and 6 address the Co-lead Agencies' determination of the NorthMet Project Proposed Action's direct, indirect, and cumulative areas of potential effect.	
9097	The SDEIS also fails to analyze cumulative effects on water quality and quantity. The relevant spatial scale for water quality and hydrologic cumulative effects analysis is the entire St. Louis River watershed.	The cumulative effects section in the FEIS (Section 6.1.1.1) describes the rationale for the identification of Cumulative Effects Assessment Areas (CEAAs). The CEAAs for individual resource areas vary based on the potential for cumulative effects, and not on a single overall assessment area. FEIS Table 6.1.1-2 summarizes the spatial areas used for each resource area. Please also refer to Section 8.3, MDO 12 for the Co-lead Agencies' rationale for the CEAA identified for water resources.	CU 01
9101	Also missing is cumulative-impacts analysis of culturally-important plant and animal species that are listed as "Species of Concern." There is no basis to dispute that the Project will have cumulative effects on the moose herd and Tribal harvest in the 1854 Ceded Territory. At a time when moose populations in Minnesota are declining, this analysis is particularly important and should have been done as part of this SDEIS.	The FEIS wildlife sections provide an analysis of wildlife species used for subsistence/harvest, as well as those culturally important to the Bands. FEIS Section 4.2.9.3.3 identifies species potentially harvested in the 1854 Ceded Territory, while FEIS Section 5.2.9.2.2 explains that a lack of data regarding use of such species in the NorthMet Project area likely indicates limited present day use in that area due to general inaccessibility. FEIS Section 5.2.5.2.5 discusses the types of potential effects to common and/or game species, which are similar to effects on ETSC species. The FEIS has been revised to include additional detail regarding moose, and this discussion has been moved to the state ETSC species discussion, due to its new state listing status.	WI 03
9104	The Cumulative Effects Assessment Area defined by the Co-Leads for impacts to aquatic species is overly limited. It includes only the Partridge and Embarrass Rivers...The appropriate spatial scale for considering cumulative impacts to aquatic species is the entire St. Louis River watershed and Lake Superior Basin.	The NorthMet Project Proposed Action is not considered to have the potential for cumulative effects on hydrology and water quality in the lower St. Louis River Watershed (below the confluence with the Embarrass River). As a result, the Cumulative Effects Assessment Area (CEAA) for aquatic species is defined by the Partridge River and Embarrass River watersheds.	AQ 26
9105	The SDEIS states that the current fish tissue concentration in five local lakes results in Hazard Quotients ("HQs") that exceed 1, but gives no further information...In fact, Barr Engineering's July 2012 "Cumulative Impacts Analysis, Local Deposition and Bioaccumulation in Fish" showed modeled contributions from both the Mesabi Nugget Large Scale Demonstration Plant ("LDSP") on the site and PolyMet. And the Barr	Information pertaining to the specific Hazard Quotients summarized in Barr 2012b, as cited in the FEIS, has been included in FEIS Section 6.2.6, summarizing the cumulative effects assessment for mercury deposition.	MERC 02

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	report further provides the actual HQs, rather than just saying "they exceed 1."...This information should be explicitly included in the SDEIS for public review.		
9107	Meeting ambient noise standards is a different question than assessing impacts. Impacts should be fully characterized and contour maps showing overlapping noise pollution from different projects provided. Without this information, it is not possible to review the cumulative impacts of noise.	FEIS Section 6.2.8 has been updated, and provides more detailed analysis on the cumulative noise and vibration impacts on nearby residents and recreational visitors. In addition, see the response to theme N 03.	N 03
9109	The cumulative risk analysis of transportation of hazardous materials has not been analyzed. This should include rail car spills, pipeline ruptures, and truck transport accidents.	FEIS Section 5.2.13.2.1 addresses transportation and incident response of hazardous materials. Accidental spills or incidents resulting from rail or truck transportation of hazardous material or any materials would initially be assessed by the nearest local community fire department or other emergency responder, using the 2012 Emergency Response Guidebook (PHMSA 2012c, as cited in the FEIS), if necessary. The NorthMet Project Proposed Action would not involve the use of pipelines for hazardous materials. Depending on the severity of the local responder's initial assessment, additional resources may be requested via the State Duty Officer and/or the National Response Center. If needed, the Homeland Security and Emergency Management Division of the Minnesota Department of Public Safety, along with other appropriate state and federal agencies and the carrier company, among others, would be notified. Additional emergency resources would come from the City of Duluth-based HazMat team.	HAZ 06
9111	Post-closure impacts should also be included in the cumulative effects analysis because some mine features (e.g., pit lakes) would become permanent features of the landscape.	The FEIS describes the cumulative effects of the NorthMet Project Proposed Action, including those expected during closure and post-closure. The FEIS discloses post-closure effects in Section 6.2.	CU 16
9115	A key piece of the work that still has not been completed, despite some progress, is the traditional cultural property ("TCP") studies...An appropriate investigation of the Project site using this standard, and in cooperation with all involved THPOs, must be performed and properly documented. As noted in the chapter, consultation is underway on this topic, but is far from complete.	The federal Co-lead Agencies have made a reasonable and good-faith effort to identify cultural resources potentially affected by the NorthMet Project Proposed Action. The federal Co-lead Agencies have actively consulted with the federally recognized Bands that have expressed an interest in consulting on the NorthMet Project Proposed Action. Historic properties affected by the NorthMet Project Proposed Action have been identified and the impacts to those properties have been assessed through the traditional Section 106 methods/process. This also includes an assessment of actual use of those historic properties, as well as other resources in the APE, by	CR 05 CR 06

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		tribal members. In addition to traditional methods, elder interviews were conducted in 2010 and 2011 with members of the Bois Forte, Fond du Lac, and Grand Portage. Elders recalled that some Band members had utilized the general NorthMet Project area for hunting, fishing, and plant gathering of wild rice, maple-sugar, berries, and birch bark; however, they could not provide specific locations or uses within the NorthMet Project area. The federal Co-lead Agencies also conducted reconnaissance of trail corridors with participation from the Bands. The purpose of the traditional research and survey was to provide historic documentation and context for and to identify places important to the Bands. The elder interviews were to be used to further identify and understand tribal use areas and places of importance. The field investigation component was informed by the results of those efforts.	
9117	The SDEIS must include language to the effect that the Band continues to take the position that the Ceded Territory is itself a TCP and does not agree with the USACE's determination that it is not.	FEIS Section 4.2.9.2.3 states that the "the consulting Bands [have] proposed the 1854 Ceded Territory as a historic property."	CR 02 CR 05 CR 06
9120	The Project Area of Potential Effect ("APE") for cultural resources is divided into two separate sections surrounding the proposed mine site and the proposed plant site. These areas do not encompass the true extent of the APE...Until the cumulative effects analysis of the Project is better represented, the agency preferred alternative is defined, and the LEDPAs identified, it is premature to delineate the APE.	FEIS Section 4.2.9.2.3 provides a detailed discussion and analysis of the area in which cultural resources may be affected by the NorthMet Project Proposed Action. The APE takes into account both direct and indirect effects using a geographically expansive area that accounts for direct effects, as well as visual, audible, atmospheric, hydrological, and water quality effects. The APE is based on extensive modeling and other analysis completed for the NorthMet Mining Project and Land Exchange and includes an area much broader than the Plant Site and Mine Site. Since the SDEIS, the APE has been modified to encompass the proposed Mine Site and Plant Site, the Dunka Road Corridor, several federal parcels included in the Land Exchange Proposed Action, and the Colby Lake Pumphouse and pipeline.	CR 02 CR 03
9124	The Beaver Bay to Lake Vermilion Trail ("BBLVT")...is "associated with the lives of persons significant in our past"...To date, the BBLVT has not been fully researched or rigorously field-verified within the project area. Additional fieldwork should be conducted in the spring or fall when ephemeral features such as foot trails are less easily concealed by vegetation and	The federal Co-lead Agencies believe that the work to justify consideration of the BBLV Trail Segment as an historic property is complete. There has been sufficient background research and fieldwork completed to date as discussed in FEIS Section 4.2.9.2.3. Additional research and fieldwork may be part of any resolution of adverse effect.	CR 05

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	more easily discerned.		
9132	Wild rice is a culturally significant resource for the tribes in Minnesota. From historical reports, Band member accounts, and current MNDNR and tribal reports, wild rice has declined significantly throughout Minnesota, and in southern Minnesota wild rice has virtually disappeared. The Embarrass River, Second Creek, the Partridge River, and the St. Louis River all contain wild rice beds downstream of the Project...The MPCA has determined that the 10 mg/l standard can be applied seasonally, only when wild rice is in its growing season…Correspondingly, the SDEIS provides: PolyMet is not seeking application of the seasonal component of this standard for the NorthMet Proposed Action as currently proposed and evaluated in this SDEIS. During closure, PolyMet has indicated a desire to transition to non-mechanical treatment once pilot-testing and modeling indicate water quality standards could be met, which potentially could include application of the wild rice seasonal standard, but these are beyond the scope of this SDEIS…Several other sections indicate that the Project closure goal is to transition from mechanical water treatment to passive water treatment systems…The Band fundamentally disagrees with any seasonal sulfate release in wild rice waters, whether now or later. There is no scientific basis for stating that seed is not affected by high sulfate levels while it lays dormant over the winter, or that the effects of high-sulfate water would not remain or continue into the summer…Field data collected by Barr Engineering in 2011 indicates that mining effluent has already impacted the Embarrass River, exceeding the Minnesota WQS criteria for the protection of wild rice by orders of magnitude. Any language casting doubt on the current applicability of this standard, or suggesting that	The FEIS recognizes the MPCA is overseeing a variety of studies on wild rice beds. At applicable surface water locations, the FEIS evaluated impacts using an evaluation criterion based on the current MPCA 10 mg/L standard for sulfate concentration in waters used for the production of wild rice. This impact assessment metric is keyed to the current regulation and does not rely upon a seasonal application of the standard for the mechanical or non-mechanical treatment options. It is recognized that MPCA is currently evaluating the current wild rice sulfate water quality standard and as part of that process, new information on potential contributing factors on the growth of wild rice has been generated. However, that information has not yet been holistically reviewed in the context of its possible influence on the wild rice standard. Future change to the wild rice sulfate standard, if any, is speculative and outside the scope of the FEIS; applying research findings outside the basis of the current rule is not appropriate. The FEIS includes descriptions of the Plant Site WWTP and Mine Site WWTF, both of which would be capable of discharging treated wastewater at concentrations at or below 10 mg/L as demonstrated by pilot-testing already conducted. More detailed information on these treatment systems would be available as part of the permitting process. However, should a more stringent standard be developed in the future, operation of the reverse osmosis treatment systems, or equivalently performing technologies, can be adjusted to meet a more stringent effluent limit. FEIS Sections 5.2.2 and 5.2.4 includes a description of the NorthMet Project Proposed Action's effects on wild rice beds. The response to themes WR 152, WR 156, and WR 157 discuss wild rice beds and the sulfate standard for wild rice beds. FEIS Section 5.2.2 states that for MPCA previously recommended wild rice beds, the proposed engineering controls would prevent an increase in sulfate concentrations in the Partridge River and would decrease sulfate concentrations in the Embarrass River.	VEG 04 WR 152 WR 153 WR 157

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	seasonal discharge is acceptable, should be removed. Wild rice in the Embarrass River endures despite degraded water quality…Impacts to wild rice in the vicinity of the Project must be more rigorously analyzed and reported, and cumulative impacts to wild rice in the 1854 Ceded Territory also need to be addressed. The Project must also provide mitigation for impacts to wild rice.		
9135	There still has not yet been sufficient evaluation of Band member use of vegetation and other usufructuary resources in the APE, and there is no permissible basis to omit such evaluation where the USACE and other federal permitting agencies have a trust responsibility to the Band to maintain treaty resources in the 1854 Ceded Territory.	The Cultural Resources sections of FEIS Chapters 4 and 5 address the federal Co-lead Agencies' federal tribal trust responsibilities under the 1854 Treaty. These sections, along with other relevant natural resources sections of FEIS Chapters 4, 5, and 6 also address effects on, and any proposed mitigation for effects on cultural resources and culturally significant natural resources. Mitigation/compensation for effects on cultural resources and culturally significant natural resources is considered to the extent possible within the parameters of the statutes and regulations providing the federal authorities for the review of the NorthMet Project Proposed Action. The federal Co-lead Agencies have made a reasonable and good-faith effort to identify natural resources of cultural importance to the federally recognized Bands potentially affected by the NorthMet Project Proposed Action. The federal Co-lead Agencies have actively consulted with the federally recognized Bands that have expressed an interest in consulting on the NorthMet Project Proposed Action. This included an assessment of actual use of historic properties, as well as other resources in the APE, by tribal members. Elder interviews were conducted in 2010 and 2011 with members of the Bois Forte, Fond du Lac, and Grand Portage. Elders recalled that some Band members had utilized the general NorthMet Project area for hunting, fishing, and plant gathering of wild rice, maple-sugar, berries, and birch bark; however, they could not provide specific locations or uses within the NorthMet Project area. The elder interviews were to be used to further identify and understand tribal use areas and places of importance.	CR 01
9138	in the SDEIS Socioeconomics chapter, none of the issues identified [in Executive Order 12898] Executive Order have been addressed...It is the Band's position that any impacts to natural	FEIS section 5.2.10.2.6 discusses the NorthMet Project Proposed Action's potential Environmental Justice (EJ) impacts, as required by EO 12898. The NorthMet Project Proposed Action is within the 1854 Ceded Territory. FEIS Section 4.2.10.1.6 as well as Table 4.2.9-1 in FEIS Section 4.2.9	SO 09

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	resources will disproportionately affect tribes due to their subsistence consumption of wild rice, fish, and other wildlife, and gathering of traditional plants and medicines within the 1854 Ceded Territory.	summarize available information about subsistence patterns and resources within the 1854 Ceded Territory. Construction of the NorthMet Project Proposed Action would make the Mine Site unavailable for subsistence use. The degree to which construction of the NorthMet Project Proposed Action would affect individual subsistence resources (i.e., fish, game, and plant species) outside of the Mine Site, Transportation and Utility Corridor, and Plant Site is discussed in FEIS Section 5.2.9 (Cultural Resources). FEIS Section 5.2.10.2.6 discusses consumption of fish. Increased mercury concentrations and associated increases in mercury bioaccumulation in fish tissue could constitute an EJ impact for Band members and other subsistence consumers of fish.	
17731	Furthermore, the tailings basin seepage capture rate of 90 percent assumed in the preferred alternative has not been demonstrated anywhere in the U.S. and is simply not possible because the tailings basin was built without a liner. In fact, at the Project site, the existing seepage capture system that was installed as a requirement of the Cliffs Erie Consent Decree for SD026 is so ineffective that Cliffs Erie is proposing to build an additional dam and capture system further downstream.	The FEIS relies on revised cross-section models from the SDEIS to evaluate containment systems on the northern, northwestern, and western sides of the Tailings Basin, which are documented in PolyMet 2015j, as cited in the FEIS. These new models consider the presence of an upper more permeable bedrock zone directly below the slurry wall, with hydraulic properties based on 2014 packer tests conducted in five boreholes along the proposed capture system alignment. Sensitivity analyses have included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 100 feet. The model results predict that the overall capture efficiencies of the proposed Tailings Basin capture systems would be substantially greater than 90 percent. This analysis supports the conclusion that the assumption of 90 percent or greater capture efficiency is justified. The FEIS describes a 2014 field program that investigated bedrock along the alignment of the proposed capture system on the northern, northwestern, and western sides of the Tailings Basin in FEIS Section 4.2.2.3.1. This investigation provided field data on bedrock hydraulic conductivity, Rock Quality Designation data, and depth to top of bedrock. This information was used to develop MODFLOW cross-section models at three locations on the alignment to assess capture efficiency. The models included bedrock below the slurry wall.	PD 08 WR 018
17732	In fact, at the Project site, the existing seepage capture system that was installed as a requirement of the Cliffs Erie Consent Decree for SD026 is so ineffective that Cliffs Erie is proposing to build an additional dam and capture system further downstream. Therefore, paste tailings placed on a	A thickened tailings (paste tailings) alternative (A1) was considered but eliminated in the DEIS and post-DEIS as it was determined not to offer significant environmental benefits over the NorthMet Project Proposed Action. A co-disposal of waste rock and tailings on a lined Tailings Basin alternative (E14) was considered but eliminated in the DEIS because the	ALT 06 ALT 16

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	liner and covered could have a profound, minimizing effect on pollution reaching the Embarrass River watershed wetlands and the Embarrass River. The SDEIS does not even mention this modern technique used by many mines in U.S. and around the world, without justification. Converting to paste tailings technology from conventional slurry tailings at most mines makes sense both environmentally and economically. Paste tailings use less water; require less land; do not require engineered containment dams; generate less acid and contaminants; reduce long-term costs and allow for early reclamation. Slurry tailings use and discharge large volumes of water, require dust control measures, require large land areas and containment dams for disposal, and create contaminated water that must be captured and treated.	technical feasibility and cost of doing so were uncertain. Several different Tailings Basin alternatives (TB2-TB6) were reconsidered but eliminated since the DEIS. These Tailings Basin alternatives did not afford meaningful environmental benefits compared to the enhanced engineering controls (seepage collection and RO mechanical water treatment) built into the NorthMet Project Proposed Action. Dry cap seepage was predicted to result in substantially higher concentrations, which would make the future transition from mechanical to non-mechanical water treatment more difficult during post-closure.	
17733	Perpetual pumping of the mine pits to prevent formation of a pit lake is required by the State of New Mexico, Office of Natural Resource Trustee, for the Chino and Tyrone copper mines expressly to protect groundwater and waterfowl.29 Numerous western mines have discharged plumes of polluted water into the bedrock aquifer from leaking mine pits, tailings basins and waste rock piles, a problem that is not only difficult but expensive to fix. Requiring perpetual pump out of the mine pit would minimize leakage of contaminated water into the surrounding bedrock aquifer thereby protecting groundwater that the State is required to protect as source of drinking water.	An interagency memorandum was prepared regarding the West Pit Water Elevation Alternative (MDNR et al. 2014, as cited in the FEIS). This alternative includes both the option to maintain a dry West Pit through perpetual pumping and maintaining pit water levels below the elevation of the Partridge River. The alternative was screened against criteria used for other alternatives, including Purpose and Need, Technical and Economic Feasibility, Availability, and Environmental or Socioeconomic Benefit. The screening level assessment concluded that the alternative would meet all criteria except for the environmental or socioeconomic benefit criterion. Continuous dewatering of the West Pit would keep the pit walls exposed instead of covered by a pit lake as in the NorthMet Project Proposed Action. This exposure would potentially result in increased solute loading to a smaller pit lake volume, and thus higher concentrations of pollutants than under the NorthMet Project Proposed Action. Consequently, treatment would be required for a longer period of time. The Co-lead Agencies recommend that the alternative be considered as an adaptive mitigation measure in the event that monitoring during operations and reclamation indicate that implementing this action is better able to meet future environmental objectives compared to the NorthMet Project Proposed Action.	ALT 04

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17734	This alternative would prevent the need for a separate seepage capture system around an unlined waste rock pile, as proposed in the preferred alternative, that would have to work at an above optimum capture rate in perpetuity. Capping and re-vegetating the mine pits after backfilling with waste rock would prevent deep infiltration of precipitation. In combination, perpetual pumping and backfilling the Category 1 waste rock pile would substantially reduce the risk of polluting groundwater and wetlands in the Partridge River watershed.	The two alternatives are not fully compatible together, as backfilling of the Category 1 waste rock into the West Pit would eliminate the opportunity to perpetually pump the West Pit lake. The West Pit Backfill alternative (E20) was considered but eliminated during the development of the DEIS. It was eliminated from further consideration because it was determined that it would not offer significant environmental or socioeconomic benefits compared to the NorthMet Project Proposed Action and because backfilling the West Pit would prevent recovery of additional mineral resources. These factors are sufficient to qualify the West Pit Backfill alternative as unreasonable under NEPA, and justify its exclusion under *Minnesota Rules*, part 4410.2300, subpart G. It was reconsidered in the SDEIS in response to comments from the Cooperating Agencies. A Co-lead Agencies memorandum (MDNR et al. 2013b, as cited in the FEIS) was prepared to summarize the decision-making process, which is referenced in the FEIS Section 3.2.3.4.2. The Co-lead Agencies screened the alternative against criteria used for other alternatives, including Purpose and Need, Technical and Economic Feasibility, Availability, and Environmental or Socioeconomic Benefit. The opportunity to reclaim wetlands and vegetation at the Category 1 Stockpile footprint area would be the only measurable environmental benefit offered by backfilling the Category 1 Stockpile into the West Pit. However, because of the temporal impact that the stockpile would have, these impacts would be required to be mitigated regardless of future backfilling or not. An interagency memorandum was prepared regarding the West Pit Water Elevation Alternative (MDNR et al. 2014, as cited in the FEIS). This alternative includes both the option to maintain a dry West Pit through perpetual pumping and maintaining pit water levels below the elevation of the Partridge River. The alternative was screened against criteria used for other alternatives, including Purpose and Need, Technical and Economic Feasibility, Availability, and Environmental or Socioeconomic Benefit. The screening level assessment concluded that the alternative would meet all criteria except for the environmental or socioeconomic benefit criterion. Continuous dewatering of the West Pit would keep the pit walls exposed instead of covered by a pit lake as in the NorthMet Project Proposed Action. This exposure would potentially result in increased solute loading to a smaller pit lake volume, and thus higher concentrations of pollutants than under the NorthMet Project Proposed Action. Consequently, treatment would be required for a longer period of time. The Co-lead Agencies recommend that the alternative be considered as an adaptive mitigation	ALT 04 ALT 06 ALT 13

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		measure in the event that monitoring during operations and reclamation indicate that implementing this action is better able to meet future environmental objectives compared to the NorthMet Project Proposed Action.	
17735	The OSLA will contain peat that has sequestered mercury. When water flows through the OSLA the seepage will transport some of the mercury from the peat.	This comment was originally presented as part of the Tribal Position Summary included in MDO 2, which was previously addressed in SDEIS Table 8-1. Further explanation is provided below. Some of the temporarily stored organic material would decompose on site, which would release mercury into solution. Any dissolved mercury would be transported in solution with precipitation that falls on the Overburden Storage and Laydown Area (PolyMet 2015r, as cited in the FEIS). Any mercury released from the peat decomposition process is thought to be transported with precipitation that falls on the Overburden Storage and Laydown Area. The Overburden Storage and Laydown Area would be unlined; therefore, there would be some potential for seepage to enter the groundwater system from peat that has decomposed and released as a pulse of mercury. Water contacting the Overburden Storage and Laydown Area is considered to be process water and would be routed to Pond PW-OSLA. In years 1 to 11, the water from Pond PW-OSLA would be routed to the Tailings Basin, and any mercury in the routed water would have the chance to be sequestered in the tailings. In years 12 to 20, some of the water from Pond PW-OSLA would be used to backfill the East Pit. Any mercury in the water routed to the East Pit would mix with waste rock and become sequestered at depth in the East Pit. In addition, any contributions of water in years 21 to 65 from the East Pit to the West Pit would reflect water from the East Pit and its associated watershed runoff, and would not reflect process water from Pond PW-OSLA. Because peat removal from the areas to be mined would be completed between years 5 and 11, any potential release of mercury from stored peat materials would have occurred, or be ending, by the time water is routed from Pond PW-OSLA to the East Pit beginning in year 12. All water that is discharged would meet the GLI mercury standard of 1.3 ng/L.	MERC 24
17736	As the Project is currently proposed, after operations, the mine site wastewater treatment plant will be converted to RO to treat the west mine pit lake and Category 1 stockpile seepage for discharge to the west pit outlet creek that flows	The WWTP would include an RO treatment unit (or equivalent performing technology) that would provide mechanical treatment of Tailings Basin seepage during operations and closure and tailings pond water in closure. Some of this treated effluent would ultimately be discharged to several Embarrass River tributaries to augment flow. The WWTP would be	ALT 13

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	into the Partridge River. An alternative that was not considered in the SDEIS would use RO at the plant site to begin with to treat storm water, mine infiltration, and waste rock pile seepage. Using RO treated water for stream and wetland water augmentation in the Partridge River watershed would provide mitigation for the some of the adverse effects of mine pit dewatering.	operational from year one. During operations, water from the mine pits and Waste Rock stockpiles would be treated at the WWTF. Effluent from the WWTF and runoff from the Overburden Storage and Laydown Area would be pumped to the Tailings Basin for reuse. During this time, extensive monitoring would be required, and adaptive management would be used to ensure minimization of effects and compliance into the future. During reclamation, water from the West Pit would be treated at the WWTF, which would be upgraded to include an RO treatment unit (or equivalent performing technology). Treatment at this unit would result in an effluent that meets all applicable water quality standards. This effluent would ultimately be discharged to the Partridge River. Responses to comment themes WR186 and WR187 address impacts on flow in Partridge River and describe that augmentation is not required; however, flows would be monitored. Flows in Second Creek, which is a tributary to the Partridge River located to the south of the Tailings Basin would be augmented to pre-containment levels. Many alternatives and mitigation measures were considered throughout the EIS, including many relevant to mitigating potential water impacts, Refer to FEIS Section 3.2.3.3 for more information on the development of the NorthMet Project Proposed Action and alternatives. Refer to FEIS Table 3.2-16 for the engineering controls adopted into the NorthMet Project Proposed Action since the DEIS in order to reduce emissions and mitigate impacts. During operations, extensive monitoring would be required, and adaptive management would be used to ensure minimization of effects and compliance into the future.	
17737	As the Band already argued in the Tribal Position, significant additional study of the underground mining alternative is mandated, and the SDEIS offers no new discussion of the reasons for rejecting the alternative. The economic viability of an underground mine depends on a variety of factors including ore grade, market prices, cost of tailings, and waste rock disposal. A study of this particular deposit was performed by the prior owner of the site, U.S. Steel, which actually recommended underground mining.43 PolyMet is well aware of this study, given that the	The Underground Mine alternative was first considered but eliminated during the FSDD process. FEIS Section 3.2.3.4.1 describes how it was reconsidered during the DEIS process as alternative E7 in response to Cooperating Agency and stakeholder comments, but eliminated from further consideration. The economic feasibility of the Underground Mine alternative was reconsidered during development of the SDEIS. In response to a request from the Co-lead Agencies, PolyMet's consultants prepared an updated economic assessment of underground mining, which the Co-lead Agencies independently evaluated (see FEIS Appendix B). The Co-lead Agencies concluded that an underground mine would not be profitable, regardless of the tonnage extracted. The lower rate of ore production would not meet the Purpose and Need of the project. Though it would offer	ALT 01

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	company included it in a 2003 filing with the Securities and Exchange Commission. In fact, by examining cross-sections showing the distribution of ore by depth,45 it appears that there are substantial ore reserves at depths that likely could not be accessed by the proposed open-pit mine. The ecological costs of open-pit mining and above-ground disposal of tailings and waste rock are immense. This ecological cost, combined with the most current understanding of deposit ore grades and reasonably possible metals prices, and the costs associated with perpetual treatment must be evaluated to determine the viability of [the underground] alternative.	environmental benefits over the NorthMet Project Proposed Action, it would result in reduced socioeconomic benefits. They accordingly concluded that the Underground Mine alternative was not economically feasible, and would not meet the NorthMet Project's Purpose and Need. A position paper (FEIS Appendix B) was prepared to document the Co-lead Agencies' rationale for eliminating the Underground Mine alternative from further consideration. The FEIS Section 5.2.10.1.4 states, "Neither NEPA nor CEQ requires the cost and benefits of a proposed action to be quantified in dollars or any other common metric; however, this EIS acknowledges that economic costs and loss of non-market value may results from environmental and social effects. Also acknowledged is that the agreement on the value (i.e., the "cost") of environmental effects is often difficult to achieve. Therefore, the approach of this EIS is to evaluate environmental and social impacts directly, in the appropriate resource-specific section." CEQ regulations for implementing NEPA (40 CFR 1502.23) state that, "for purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations."	
17738	the SDEIS does not disclose appraisal information [for the Land Exchange]	Disclosure of appraisal information in the EIS is not required. Any decision, documented in the ROD, to move forward with a land exchange will be supported by a current appraisal, approved by the USFS, which verifies that the exchange meets the equal value requirements of applicable federal law and regulation. Requests for appraisal reports and appraisal review reports are processed under Freedom of Information Act procedures.	LAN 03
17739	Of the approximately 6,025 acres of MCBS Sites of High Biodiversity Significance under the Land Exchange Proposed Action, nearly 2,000 acres of coniferous bog wetlands will be lost to the federal estate, and therefore effectively lost to the Bands, if the proposed land exchange takes place. This is significant because many tribally harvested resources are only available in coniferous bogs (e.g. cranberries, labrador tea, creeping snowberry), and restoration of coniferous bogs is a very difficult and long process that has extremely	FEIS Sections 4.2.4 and 4.3.4 discuss and provide maps of MBS Sites (Figures 4.2.4-1, 4.2.4-2, 4.2.4-5, 4.3.4-1, and 4.3.4-2) to provide clarity on the location and extent. FEIS Sections 5.2.4 and 5.3.4 include information about the impacts to MBS sites and native plant communities. The vegetation analysis cross-references the cultural resources section (5.2.9) to ensure consistency and to discuss potential impacts on tribally harvested resources. FEIS Section 5.2.3 discusses restoration of coniferous bogs in mitigation wetlands. *Minnesota Rules*, part 6132.2700 requires that a project site be reclaimed once mining has ceased. The goals of such reclamation are to "control erosion, to screen mining areas from non-compatible uses, and to provide	CR 01 WET 05 WET 14 VEG 02

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	low success rates.	for subsequent land uses such as wildlife habitat or timber production." The rules also include requirements about the characteristics and planting schedule for vegetation used in reclamation. The WCA rules (including those parts applicable to mining projects under *Minnesota Rules*, part 8420.0930) include a special consideration for wetlands that are rare natural communities (*Minnesota Rules*, part 8420.0515, subpart 3). The Permit to Mine would address special consideration of wetlands that include rare natural communities. Additional information on rare natural communities would be included in the wetland permit application as part of the Permit to Mine process for further refinement of site-specific conditions.	
17740	The proposed action land exchange would trade water resources within the Lake Superior Basin for wetlands and surface water outside the Lake Superior Basin [resulting in] a loss of 3,791 acres of federally-managed wetlands within the Lake Superior Basin under the proposed exchange.	The proposed land exchange non-federal lands are not mitigation sites and are not required to be exchanged within the same watershed. The non-federal lands being considered are all lands that are located within the proclamation boundary of the SNF and would consolidate land ownership management.	WET 15
17741	Furthermore, the SDEIS acknowledges that the Land Exchange Proposed Action would create a "net increase of third-order streams and decrease in first- and second-order streams which would likely add more habitat diversity to the Superior National Forest." But the SDEIS underestimates the impact of this increase: "Headwater streams are the smallest parts of river and stream networks, but make up the majority of river miles in the United States. Many headwater streams have been lost or altered due to human activities … and this can impact species and water quality downstream." The SDEIS states that the decrease of first-order streams to the federal estate would "slightly reduce the amount of available spawning habitat for some aquatic species as headwater streams provide specialized spawning habitat for some species." Again, this underestimates the impacts. While greater diversity is desirable, protection of headwater streams is critical because they powerfully influence both the character and	The SDEIS and FEIS acknowledge a possibility that habitat could be affected from water chemistry changes resulting from the Land Exchange Proposed Action. Habitat loss from flow changes or riparian activities is not expected as a result of the NorthMet Project Proposed Action. It is noted that under the Land Exchange, the net reduction to the Superior National Forest of 0.3 miles of first order streams may result in slightly less habitat available for headwater stream dependent species.	WR 114 AQ 29

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	functions of downstream waters. Headwater streams transport vegetation, woody debris, organic matter, macroinvertebrates, and other organisms downstream, while providing spawning areas for brook trout. Headwaters provide most of the water to rivers, which in turn provides temperature mitigation and oxygenation which are necessary for healthy fish communities.		
17742	The SDEIS also erroneously concludes that no known cultural resources exist on the nonfederal lands, despite impacts to wild rice waters, and the proposed exchange will not sufficiently compensate for the loss. The Land Exchange Proposed Action would result in additional wild rice beds by the acquisition of Tract 1. Tract 1 contains Little Rice Lake, which supports a continuous population of wild rice. Wild rice also grows along the Pike River south of Little Rice Lake and in isolated populations on Hay Lake. The wild rice waters in Tract 1 are accessible to the Bands via the Pike River. Therefore, adding Tract 1 to the federal estate does not provide additional wild rice harvesting opportunities to Band members in the 1854 Ceded Territory.	No heritage surveys were conducted on the non-federal lands. If any cultural resources are located on the non-federal lands, those cultural resources would be transferred to federal ownership. Such transfer would not adversely affect the heritage resource, but would provide greater preservation protection under federal law. The non-federal lands that contain wild rice beds would not be affected as a result of the Land Exchange Proposed Action or Land Exchange Alternative B, because no activities are proposed on these lands and the proposed mining activities would not affect these lands. As noted in the FEIS, the Land Exchange Proposed Action and Land Exchange Alternative B would increase wild rice stands within the federal estate. The Land Exchange Proposed Action would result in the public ownership of additional wild rice beds by the acquisition of Tract 1. Tract 1 contains Little Rice Lake, which supports a continuous population of wild rice. Wild rice also grows along the Pike River south of Little Rice Lake and in isolated populations on Hay Lake. Section 4.3.4.2.5 provides further discussion of wild rice beds on Tract 1. As a result, the public would have better opportunities for wild rice harvesting on Tract 1, where there is currently no opportunity to harvest wild rice directly on the federal lands (i.e., no known wild rice populations) despite the public water access onto the federal lands. A carry-down boat launching access is located on Tract 1, which may provide private access for wild rice harvesting on the Tract 1 lands. Access to wild rice beds on the federal lands would not be lost as a result of the Land Exchange Proposed Action, but access to wild rice beds on Tract 1 would be gained. FEIS Sections 5.3.2 and 5.3.4 clarify that, although the Land Exchange would result in an increase in wild rice stands within the federal estate boundaries, there would be no change to the existing public access to Tract 1 wild rice stands via the Pike River. Consequently, there would be no increase in wild rice harvest opportunities for the public. No wild rice	LAN 05 VEG 08 WR 155

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		stands are known to occur on the federal lands, and suitable habitat is limited.	
17743	It is commonly acknowledged that "[w]ater has been called 'mining's most common casualty'... Mining affects fresh water through heavy use of water in processing ore, and through water pollution from discharged mine effluent and seepage from tailings and waste rock impoundments." Acid mine drainage ("AMD") is one of the greatest environmental liabilities associated with mining, especially in pristine environments like the Project mine site, that have economically and ecologically valuable natural resources. There are no hardrock surface mines that exist today that can demonstrate that AMD can be stopped once it occurs on a large scale. Inaccurate pre-mining characterization and interpretation often results in a failure to recognize or predict impacts to water quality and aquatic life. Evidence from literature and field observations suggests that permitting large scale surface mining in sulfide-hosted rock with the expectation that no degradation of surface water will result due to acid generation imparts a substantial and unquantifiable risk to water quality and fisheries. In a report comparing predicted and actual water quality at hardrock mines, there were two types of characterization failures that were key to explaining differences between the predicted water quality in EIS documents and the actual water quality either during or after mining began. These included: 1. Insufficient or inaccurate characterization of the hydrology: The authors reported primary causes of hydrologic characterization failures as overestimations of dilution, lack of hydrological characterization, overestimations of discharge volumes, and underestimations of storm size. 2. Insufficient or inaccurate geochemical characterization of the	The Co-lead Agencies have requested additional hydrologic and geochemical data and the incorporation of those data into EIS analyses periodically throughout the environmental review process. The criteria the Co-lead Agencies used to determine what data is included in the FEIS are as follows. Is the updated data: • Significantly different than the data already used in the model? • An integral component of a calibrated variable? • Linked to other data such that updating one necessitates updating the other? • Considered background information important to assessing the project's impacts? • Part of a greater dataset such that updating all of the dataset is necessary for consistency? • A type of input variable where GoldSim is sensitive? • Necessary for permitting-level analyses? Data collection and use in the FEIS are summarized in various data sufficiency documents. Nevertheless, a degree uncertainty in the predictions of environmental effects remains, as it would for any study of this type. The Co-lead Agencies have addressed this uncertainty is several ways. Water quality modeling results (concentrations) are presented in terms of a probability, which communicates the likelihood actual concentrations could be higher or lower than best estimate modeling results. Sensitivity analyses were performed on temperature and precipitation inputs, baseflows in the Partridge River and other inputs to provide greater certainty in the model results. The FEIS identifies monitoring and reliable mitigation measures that have been incorporated in the NorthMet Project Proposed Action, possible improvements to these measures and additional mitigation that could be implemented if effects to water quality are worse than predicted. Additionally, on-going monitoring would be used in modeling to help predict any issues before they occur. The Co-lead Agencies have been working to produce accurate predictions of water quality impacts of the NorthMet Project Proposed Action for	AQ 01 AQ 08 WR 071 WR 126 WR 128 WR 134 WR 136

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	proposed mine: The primary causes of geochemical characterization failures were identified as lack of adequate geochemical characterization, in terms of sample representativeness and sample adequacy. The primary causes of mitigation failures were that mitigation measures were not identified, were inadequate, or were not implemented; waste rock mixing and segregation was not effective; liners leaked; tailings were spilled; or embankments failed, and land application discharge was not effective. The SDEIS suffers from all of these characterization failures. An egregious lack of hydrologic characterization allows PolyMet to pretend that there will be no water pollution resulting from the Project. In fact, the SDEIS arbitrarily concludes water quality will actually improve as a result of the Project. The following is a short list of the problems with water modeling in the SDEIS.	nearly a decade. A decrease of concentrations of some water quality parameters at some evaluation locations is not a surprise and PolyMet is adding environmental mitigation measures at an existing tailings basin that has seepage with elevated levels of some water quality parameters. The FEIS considers the release of acidity from proposed NorthMet facilities in that leachate from all acid-generating material (Waste Rock and pit wall rock composed of Category 2/3 and Category 4 material) would be captured and treated prior to discharge. The permanent surficial waste facilities (Category 1 Stockpile and Tailings Basin) would contain material that is not expected to produce acidic leachate. The non-acid generating waste was identified using multi-year kinetic tests (humidity cells) on NorthMet rock samples. Waste rock with 0.12 percent sulfide S or less is the threshold for selecting non-acid generation mine waste and, is supported by long-term humidity cell tests on NorthMet waste (i.e., 38 samples of Category 1 waste rock, with tests now run between 187 and 337 weeks; and 33 humidity cell tests run between 84 and 304 weeks [PolyMet 2015q Attachments C and F, as cited in the FEIS]). These tests demonstrate that tailings and Category 1 waste rock materials do not generate acidic leachate, and acid generation rates decreases over time as sulfide S minerals are depleted. The NorthMet Project Proposed Action design thus prevents the introduction of acidic leachate to surface water that could affect fisheries. A detailed financial assurance analysis would be part of the permitting phase. The financial assurance process would fully consider long-term monitoring and periodic replacement of equipment including, but not limited to, water treatment hardware and synthetic liners/covers. The Financial Assurance package for the NorthMet Project Proposed Action would insure that future funding would be available if and when adaptive mitigation measures or component replacements are needed to achieve performance specifications. Taking the data, modeling, proposed monitoring, mitigation, adaptive management and financial assurance together, the NorthMet EIS sufficiently discloses and accurately predicts to the degree necessary potential effects to water quality for purposes of environmental review.	
17744	Moreover, data collected specifically for the	Data at GW-008, GW-009 and GW-010 were not used for water quality	WR 072

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	Project was selectively used, with several well and surface water monitoring stations' data completely excluded from the water quality models used to predict Project impacts. Specifically, all data collected from groundwater monitoring wells GW008 (13 sampling events), GW009 (12 sampling events), and GW010 (9 sampling events), were excluded from the models. These monitoring wells are northeast and north of the tailings basin between the tailings basin and the Embarrass River. Furthermore, none of the nine surface water quality sampling events collected at PM 11, a sampling station on unnamed creek located northwest of the tailings basin half-way between the tailings basin and the Embarrass River, were used in the Projects models. Also excluded from the models were data from nine sampling events collected at Station PM 12.1 in the Embarrass River upstream of the tailings basins. Instead, the model includes 53 sampling events in the Embarrass River at PM-13.85 PM-13 is 7.3 river miles downstream of the northwest corner of the tailings basin, and 16.2 river miles from monitoring location PM-12.2 - long past the first water quality compliance points in the Embarrass River.	modeling because these wells were not considered useful for developing probabilistic distributions for background surficial groundwater quality or establishing concentration targets for the calibration of existing conditions. For example, GW-009 and GW-010 are out in the adjacent watershed away from the tailings basin, impacted both by tailings basin seepage and background surficial groundwater. GW-008 is located essentially at the toe of the tailings basin, but the water quality data suggests it is not primarily tailings basin seepage but a mixture. Chloride data is around 0.8 mg/L to 1 mg/L. Chloride data in background wells is generally less than 1 mg/L if not non-detect at less than 0.5 mg/L. Chloride data in wells composed of seepage show concentrations closer to 20 mg/L. Therefore GW-008 is closer to background water quality with respect to chloride. However, sulfate data in GW-008 does not appear to show concentrations as low as is observed in the other background wells (GW-002 or GW-015 for example). In GW-008, sulfate concentrations are middle teens to nearly 20 mg/L, whereas sulfate data in the background wells is generally below 10 mg/L and closer to 5 mg/L. Therefore, though this well is close to the tailings basin, it appears to be a mix of seepage and background water, and therefore not useful for characterizing one or the other. Model results were checked against the observed data at PM-11, PM-13, PM-19, and MLC-2 in the validation step which had been presented earlier on in the modeling process. The report "Corroboration of Existing Conditions at the Plant Site", dated June 2012, includes a comparison of the model results to the observed water quality data and was reviewed by the agencies and used in the initial reviews of the modeling work to approve the modeling. Data at PM-12.1 was not used because the major sources of water contributing to this location are the natural contributing watershed and outflow at SD033. The water quality data at PM-12 was used to calibrate the water quality of the natural watershed, and the observed data at SD033 was used to define the water quality input to the model. The observed data at PM-12.1 was not needed to define any additional inputs to the model, but perhaps may have been used to validate the model if this specific location had been modeled. However, this location was not included as one of the modeled surface water locations.	WR 076
17745	An additional problem is that the models intended to predict impacts from the Project were not calibrated to existing water quality in Colby Lake.	The Mine Site GoldSim model used for the SDEIS (Barr 2013f, as cited in the FEIS) was modified for the FEIS (Mine Site GoldSim model) (PolyMet 2014v, as cited in the FEIS) include a new chemical loading source in	WR 046

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	Most of the data used to represent Colby Lake in the model was extrapolated from sampling sites well upstream in the Partridge River.	Colby Lake and was calibrated to the measured chemical concentrations in the lake. This calibration considered new surface water chemistry data collected through the end of 2013. The same chemical loading source was applied to both the Continuation of Existing Conditions model and Proposed Action model (PolyMet 2014v, as cited in the FEIS). The chemical loading source was constant and did not exhibit seasonal or long-term variations for future conditions. Incorporation of the loading source addressed the issue by providing predicted chemical concentrations in Colby Lake for existing conditions that are similar to currently measured concentrations. The average arsenic concentration based on 33 samples in Colby Lake is 0.95 µg/L. The GoldSim Continuation of Existing Conditions modeling scenario (PolyMet 2014v, as cited in the FEIS) predicts an average concentration of 0.80 µg/L at P50 over the 200 year modeling period.	
17746	Despite this selective use of water modeling data, the SDEIS claims "[t]he NorthMet Project Proposed Action is also not predicted to result in any significant changes to groundwater and surface water flows when compared to existing conditions." To achieve this prediction, the hydrologic models for the Project were built using modeled inputs rather than actual measurements or estimates from scientific literature. This makes the Project models unable to accurately characterize groundwater flow direction, water tables, potentiometric surface in the aquifers, fluxes to rivers and streams drawdown mounding impacts to the water tables or surface waters, or to predict water quality impacts. The models for the Project must be re-calibrated using all available measured data and scientifically credible basic model inputs.	The GoldSim models are informed by a combination of groundwater flow (MODFLOW) models, surface water runoff (XP-SWMM) models, and direct field measurements (groundwater levels, field borehole tests, groundwater and surface water sampling, and laboratory geochemical tests). For the FEIS, virtually all models (except XP-SWMM) were re-calibrated based on new field data obtained through the end of 2013. Where field data were not available, GoldSim inputs were based on a combination of literature values, experience at similar field sites, and best professional judgment. Reliance on site-level data provides a finer scale of resolution than afforded by regional assessments and associated estimates from scientific literature. Potentially important factors that are captured using site-level data include geologic, topographic, and hydrologic characteristics of the Partridge and Embarrass Rivers' basins respectively. The hydrologic assessments reflect: 1) the thin, discontinuous glacial drift; 2) the shallow depth to bedrock; 3) the low, hummocky topography; 4) the extensive wetlands; and 5) the generally shallow groundwater table. The re-calibration step allows for the modeling to achieve the most reasonable range of model inputs and outputs as the basis of impact assessment.	WR 056 WR 071 WR 086 WR 105
17747	Chapter 5 of the SDEIS acknowledges that "[t]he NorthMet Project Proposed Action would have the potential to affect groundwater and surface water hydrology and quality in both the Partridge River and Embarrass River watersheds." However, the	The Co-lead Agencies have discussed and assessed the USGS gage data for purposes of predicting potential water quality impacts to the Partridge River and have re-confirmed the use of this data as the best available for its intended purpose (MDNR et al. 2015a, as cited in the FEIS). The GoldSim models are informed by a combination of groundwater flow	WR 003 WR 052 WR 071 WR 073 WR 086

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	hydrology model that was developed to determine Project impacts relied on outdated data collected too far from the site. Because the Project proponent was not required to install stream gauges at the site, they used a model (XP-SWMM) to extrapolate baseflow far upstream from where the data was collected to the areas where the proposed mine pit(s) and tailings basin would be located. The extrapolated baseflow used twenty-year-old stream gauging data collected seventeen miles downstream of the mine site in the Partridge River, and stream gauging data that is more than fifty years old collected eleven miles downstream of the plant site in the Embarrass River... Therefore, the results are highly unlikely to be representative of current conditions at the mine or plant site.	(MODFLOW) models, surface water runoff (XP-SWMM) models, and direct field measurements (groundwater levels, field borehole tests, groundwater and surface water sampling, and laboratory geochemical tests). For the FEIS, virtually all models (except XP-SWMM) were re-calibrated based on new field data obtained through the end of 2013. Where field data were not available, GoldSim inputs were based on a combination of literature values, experience at similar field sites, and best professional judgment. Reliance on site-level data provides a finer scale of resolution than afforded by regional assessments and associated estimates from scientific literature. Potentially important factors that are captured using site-level data include geologic, topographic, and hydrologic characteristics of the Partridge and Embarrass Rivers' basins respectively. The hydrologic assessments reflect: 1) the thin, discontinuous glacial drift; 2) the shallow depth to bedrock; 3) the low, hummocky topography; 4) the extensive wetlands; and 5) the generally shallow groundwater table. The re-calibration step allows for the modeling to achieve the most reasonable range of model inputs and outputs as the basis of impact assessment.	WR 091
17748	During subzero temperatures January 25-26 and February 15-16, 2011, the minimum baseflow measured by the MNDNR in the Partridge River at the point nearest the proposed mine pits was of 3.4 cubic feet per second (cfs). Values calculated by staff from Great Lakes Indian Fish and Wildlife Commission ("GLIFWC") and MNDNR from low flow stream gauge data in the Partridge River ranged from 1.2 to 1.8 cfs, while the XP-SWMM model predicted a baseflow of 0.5 cfs. Not only is the Project modeled baseflow inconsistent with published literature, none of the measured data supports the baseflow predicted by XP-SWMM at SW003 of 0.5 cfs. XP-SWMM's extrapolation of unrealistically low baseflows was used to calibrate the MODFLOW model and therefore influences virtually all aspects of the Project water quality and quantity characterization and impact prediction, including: groundwater flow rates and pit inflow, dewatering impacts to the rivers and wetlands, water treatment needs, contaminant	The GoldSim models are informed by a combination of groundwater flow (MODFLOW) models, surface water runoff (XP-SWMM) models, and direct field measurements (groundwater levels, field borehole tests, groundwater and surface water sampling, and laboratory geochemical tests). For the FEIS, virtually all models (except XP-SWMM) were re-calibrated based on new field data obtained through the end of 2013. Where field data were not available, GoldSim inputs were based on a combination of literature values, experience at similar field sites, and best professional judgment. Reliance on site-level data provides a finer scale of resolution than afforded by regional assessments and associated estimates from scientific literature. Potentially important factors that are captured using site-level data include geologic, topographic, and hydrologic characteristics of the Partridge and Embarrass Rivers' basins respectively. The hydrologic assessments reflect: 1) the thin, discontinuous glacial drift; 2) the shallow depth to bedrock; 3) the low, hummocky topography; 4) the extensive wetlands; and 5) the generally shallow groundwater table. The re-calibration step allows for the modeling to achieve the most reasonable range of model inputs and outputs as the basis of impact assessment. The only other available gaging data is from a station installed during 2011 at SW003 on the Partridge River.	WR 003 WR 004 WR 091

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	transport times and concentrations, and contaminant dilution. Higher baseflows in the Partridge River indicate that the wetlands and river are connected to the groundwater aquifer, that mine pit inflow will be greater; and that groundwater will travel through the aquifer will occur at a much faster rate. During subzero temperatures January 25-26 and February 15-16, 2011, the minimum baseflow measured by the MNDNR four miles south of the LTVSMC tailings basin 13.9 to 15 cfs in the Embarrass River. Model estimated the average annual baseflow for the Embarrass River, based on data more than 50 years old, at 8.7 cfs.	Interpretation of groundwater baseflow at SW-003 is not reliable for use in the GoldSim modeling of groundwater baseflow due to the complicating effects of Northshore PMP pumped discharges, seepage from the Northshore Western Pond, and complex storage/release mechanisms in the wetlands that receive these flows. A sensitivity analysis for the Mine Site was also conducted to evaluate if predicted NorthMet Project Proposed Action impacts are sensitive to groundwater baseflow values. The sensitivity analysis considered the relationship of various model inputs to groundwater baseflow including hydraulic conductivity, recharge, and surface runoff chemical concentrations. It also reflected consideration of the flow data collected at SW003 in requiring groundwater baseflows at all locations on the Partridge River be increased by a factor of 4 (e.g., 0.5 to 2.0 cfs at SW-003). The results indicate that modeled groundwater and surface water concentrations are sensitive to changes in groundwater baseflow. However, the NorthMet Project Proposed Action's ability to meet groundwater quality and surface water quality evaluation criteria is not sensitive to changes in baseflow. Evaluation criteria can be found in Section 5.2.2.	
17749	Surface water quality at the Project remains insufficiently characterized or left uncharacterized, and the defects in analysis in this area are profound. The limited data the SDEIS uses indicates that surface waters have already been adversely impacted by mining activity--which should give rise to more scrutiny, not less. Contaminant transport modeling suggests that the Project will cause manganese, aluminum, and sulfate to exceed Minnesota Water Quality Standards ("MN WQS"). Mercury, sulfate, and specific conductance have already exceeded surface water criteria in surface water samples collected near the tailings basin at nearby Area Pit 5, and mercury and aluminum exceed surface water criteria in the Partridge River downstream of Colby Lake. Aluminum, iron, manganese, and mercury all exceed MN WQS in Colby Lake. Contaminants from the Project will likely contribute additional loading to these existing exceedances of MN WQS in the Embarrass River,	The FEIS identifies potential impacts to water resources and measures available to anticipate and control these same impacts. It is a fundamental regulatory premise that water resources are ruled to not be negatively impacted if water quality evaluation criteria are met at applicable evaluation locations. If water quality evaluation criteria are not met under current non-project conditions, it is ruled that project is not creating an impact if the range and average concentrations are not greater for project compared to non-project conditions and the frequency of exceedances are not greater for project compared to non-project conditions. Surface water quality evaluation criteria apply instream after the groundwater discharge has mixed with ambient surface water (independent of proximity to the NorthMet Project Proposed Action property boundary). The evaluation criteria that are used in the FEIS are based on a combination of health-based water quality standards for drinking water sources (such as groundwater and Colby Lake) and mercury in surface water (fish consumption) and on aquatic life-based standards for surface waters. Evaluation criteria can be found in Section 5.2.2. Groundwater evaluation criteria apply to groundwater at the project property boundary and the GoldSim models predict that these criteria would be met. For the different flowpaths, groundwater travel times to	WR 064 WR 075 WR 109 WR 123 WR 197

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	Colby Lake, and the Partridge River. And, as a result of the Project, it appears that arsenic will exceed drinking water standards in Colby Lake. No water samples have been collected from lakes near the tailings basin (including Hiekkilla, Mud, Kaunonen, or Hay Lakes) to determine if the pollutants found in the surface and groundwater at the existing tailings basin have caused contamination of those waterbodies. The SDEIS even acknowledges current exceedances: "…the existing LTVSMC Tailings Basin is not lined and currently releases seepage with elevated concentrations of sulfate, TDS, and hardness, among other constituents." It just does not propose any effective means of remediating them.	groundwater evaluation locations and surface water discharge points are presented in the FEIS, including the times for initial change in chemical concentrations and the times to reach peak concentrations. Once chemicals discharge from groundwater to surface water, it is assumed that migration is instantaneous to surface water evaluation locations. Regarding the lakes listed, sampling of them would not have added substantially to the overall Plant Site characterization for the purpose of impacts assessment. It should be noted that Spring Mine Lake is located upstream of the east side of the Tailings Basin and has been sampled for water quality.	
17800	The Band is profoundly concerned at the preparers' refusal to consider past state agency experience with this site that had disastrous consequences for water quality. The Band has located an MPCA document from the Minnamax Exploration Project, a test shaft drilled into the Duluth Complex, the rock formation where the mine would be sited, by AMAX Corporation in the 1970s, approximately three miles from the Project mine site. This document states that water was encountered 147 feet below the surface infiltrating into the test shaft at approximately 14 gallons per minute and identified another potentially water bearing fracture zone at 900 feet below the surface. This means that the volume of bedrock groundwater that may be encountered by the Project mine pit has been vastly underestimated.	Comments cite MPCA 1976a (Office Memorandum: AMAX Exploration, Incorporated Salt Water Spill. From Curtis Sparks, EIS Coordinator, to Louis Breimhurst, Director. September 8, 1976 [MPCA 1976a]), which pertains to the historical Minnamax/Amax exploration project located 1 to 2 miles east of the NorthMet project sites. The relevant text in this memo is as follows: "The depth of the [exploration] shaft, at the time of the inspection was approximately 520 feet. At the 147 foot level, a fracture zone was encountered. Approximately 14 gallons a minute of water was infiltrating into the shaft. The fracture was grouted and sealed. In the core drilling operation, the fracture was noted, however, it was not identified as a water bearing fracture. In the core drilling, another fracture zone was identified at the 900 foot level. It is possible that additional water would be encountered at 900 feet." It is uncertain if the observations made during this shaft excavation can be realistically applied to bedrock at the NorthMet Project Proposed Action site. The historical Minnamax/Amax project was located many miles away from the NorthMet Project Proposed Action and it is uncertain if geologic units and structures penetrated by the shaft are similar to those in the location of the NorthMet Project Proposed Action. Further, it is not stated in the memo if the 14 gpm inflow was a sustained flow or if it decreased over time as commonly occurs in fractured rocks. The comments do not indicate if the fracture zone identified by core drilling at 900 feet caused	WR 007 WR 010

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		significant inflows when the shaft reached that depth. It would be speculative to characterize the NorthMet Project Proposed Action Site using observations made in the referenced MPCA memorandum. Refer to WR010 and WR007 for additional information on faults and fractures.	
17802	Other MPCA documents detail an unexpected saline water discharge that resulted as part of the AMAX Exploration Project from a water pocket 1,391 feet below the surface. The large quantities of saline water discharged, as much as 275 gallons per minute to Langley Creek, killed much of the vegetation en route. Data show severe impacts to wetlands in the vicinity of the project. Water from stockpiles that were minuscule in comparison to the stockpiles proposed for the PolyMet Project drained water with very high concentrations of nickel, cobalt, copper, zinc, and sulfate, and discharged that water into Langley Creek and the Partridge River. The project polluted streams, groundwater, and a large wetland complex in its vicinity in order for the MNDNR to study potential impacts and mitigation strategies for non-ferrous mining. Yet the data collected from the AMAX project was not used to predict water quality or wetlands impacts presented in the PolyMet SDEIS.	The comment cites MPCA 1976b. (Office Memorandum: Minnamax Exploration Project Tour. From Curtis Sparks, EIS Coordinator, to Louis Breimhurst, Director. November 24, 1976), which discusses saline water encountered in an air-driven downhole hammer borehole at the Minnamax/Amax site. The relevant text in this memorandum is as follows: The [saline] discharge began after hitting a confined pocket of water at the 1391 foot level on July 13, 1976. Although large quantities of water, as much as 275 gallons a minute, were being discharge, the drilling operation was continued to July 15. It is uncertain if observations described in the MPCA memorandum are relevant to the NorthMet Project Proposed Action Site including bedrock types and hydrogeologic conditions. The maximum depths of NorthMet Project Proposed Action pits (approximately 700 feet) would be far less than the 1,391-ft depth at which saline water was encountered at the Minnamax/Amax site. It is also uncertain if the 275 gpm flow rate was short-term or maintained for an extended period of time. Note that inflows to the PolyMet mine pits would be treated by the WWTF during operations, reclamation, and closure, so if saline water were encountered, it would be treated and discharged at concentrations meeting applicable water quality standards. See FEIS Section 5.2.2.3.2 for a discussion of potential impacts from saline waters. The FEIS relies on AMAX-derived data in a variety of circumstances. Examples include: 1) assessment of pH-dependent concentration caps for Category 1 waste rock, 2) use of exploratory shaft data on stockpile hydrology for estimating evapotranspiration rates, and 3) comparison of modeled sulfate release to observed released values in collected drainage from AMAX stockpiles.	WR 007
17807	Also ignored was experience with the Dunka Pit, located on the old LTVSMC site approximately five miles north and east of the PolyMet Project mine site. In the Dunka Pit, LTVSMC contacted the Duluth Complex and the Virginia Formation while mining for taconite in the Biwabik Iron Formation. By 1991, LTVSMC had removed	The Co-lead Agencies rely upon the expertise and experience of their staff that bring to bear their knowledge of various studies and analyses performed on mine sites in Minnesota and elsewhere. This knowledge is applied in the review of documents prepared to evaluate the NorthMet Project Proposed Action potential effects. It should be noted that the NorthMet Project Proposed Action is different	CU 06 WR 023

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	about 50 million tons of Duluth Complex material from the Dunka pit and placed it in "gabbro" stockpiles. Monitoring of the drainage from these stockpiles beginning in 1976 revealed a decrease in pH and an increase in trace metals. Copper and nickel concentrations as high as 1.7 and 40 mg/l respectively were observed in seepage/run-off from the Duluth Complex waste rock stockpiles and pH was observed as low as 5.0 at seep 1 between 1976 and 1980. Most of the seepage from waste rock piles at the Dunka site was discharged to Bob's Bay in Birch Lake via Unnamed Creek. A 1976-1977 study of trace metals in Bob's Bay found that concentrations of copper, nickel, cobalt, and zinc in the water of the Bay were higher than regional average concentrations and decreased with distance from the mouth of Unnamed Creek. Additionally, it was determined that Unnamed Creek contributed more than 90 percent of the trace metals to Bob's Bay load. The October 2001 NPDES permit for this discharge expired in 2005 and another variance request is expected. The 2001 Dunka mine area permit has a variance provision allowing toxic pollutants to exceed the final acute value. A Waste Water Treatment Facility ("WWTF") located at the site has been inactive because Cliffs Erie, LLC, the owner after LTVSMC, declared bankruptcy and claims it is simply too expensive to continue running. Unfortunately, the passive wetland treatment system did not function well enough to remove nickel and copper in waters still discharging from the mine pit and stockpiles to a concentration that comports to comply with Minnesota WQS, and was rebuilt in 2010. Unfortunately, by 2012, copper, nickel, zinc, sulfate, and hardness concentrations from the treatment wetlands discharges (SD 8 and SD 9), were exceeding WQS. In accordance with a Consent Decree with	from other mining projects in this part of Minnesota in the following ways: different ore type, designs for groundwater containment systems, and use of long-term mechanical treatment. While experiences gained on other projects are informative, they do not necessarily apply to the NorthMet Project Proposed Action. This is particularly true for groundwater containment systems because the NorthMet Project Proposed Action uses a design that differs from those at other Iron Range mine sites. The mitigation designs of the NorthMet Project Proposed Action are unlike measures discussed in the Regional Copper-Nickel Study (MEQB 1979, as cited in the FEIS). The NorthMet Project Proposed Action measures include: long-term mechanical water treatment, uniquely designed groundwater containment systems, subaqueous disposal of reactive waste rock, and synthetic covers and under-liners used at waste rock stockpiles and treatment ponds. In addition, the level of construction QA/QC proposed at the NorthMet Project Proposed Action Site would be much higher than what has historically occurred at older mine sites in the Iron Range. It is erroneous to conclude that operation and closure of the NorthMet Project Proposed Action Site would necessarily entail the same types of failures that have occurred at some historical Iron Range mines. In fact, the unique designs and high-quality construction measures proposed are a response to past events. The detailed and sophisticated modeling work performed to support the FEIS exceeds that conducted for some existing mines in Minnesota. The models used for the NorthMet Project Proposed Action represent years of development, with input from PolyMet, Co-lead Agencies and Cooperating Agencies. Based on comments received on the SDEIS, modifications were made to the models to improve FEIS impact evaluations. It is the Co-lead Agencies' position that incomplete or inaccurate predictions made in the past at historical mining operations do not provide a basis for judging the quality of modeling used in the NorthMet FEIS. The FEIS reflects consideration of information pertaining to the Dunka Pit that was directly relevant to the NorthMet Project Proposed Action (including Dunka Mine field data that was used to develop scaling factors for the Category 1 Stockpile. It is noteworthy that many aspects of operations at the Dunka Pit are dissimilar to the NorthMet Project Proposed Action in terms of hydrogeology and mine design.	

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	the MPCA, Cliffs Erie is required to submit a plan for compliance with toxicity final concentration limits at SD008 and SD009 without a variance. Water quality impacts from prospecting and mining operations that have contacted the Duluth Complex are well known to the MNDNR and MPCA. The State of Minnesota spent $4.3 million over three years in the late 1970s to produce the Regional Copper-Nickel Study, a 5-volume compilation of technical information regarding the potential impacts of copper-nickel mining in the Duluth Complex. Nevertheless, predicted water quality impacts and ineffective mitigation methods referenced in the Study were ignored when the technical documents and SDEIS were drafted for PolyMet. Therefore, water quality impacts have likely been underestimated and the mitigations proposed may not be effective.		
17811	Similarly, the Mining Simulation Project (funded in part by a Minnesota Legislative appropriation of $185,000 to the MNDNR and MPCA) was a cooperative study to identify and resolve environmental issues associated with non-ferrous mining and to anticipate industry and government data needs to address those issues before commercial development occurred in Minnesota. The study clearly identified those state ground and surface water quality regulations that would apply to copper-nickel mining operations in Minnesota, including applying the 10 mg/l sulfate criterion to effluent discharges where wild rice is present, and prioritized nondegradation of both surface and groundwater and protection of groundwater as a drinking water source, and rejected using natural wetlands for mine effluent treatment ("as a toxic metals dumping ground").	Evaluation criteria are based on applicable water quality standards. Evaluation criteria can be found in Section 5.2.2. Where a water body is classified as Domestic Consumption (1B) or for groundwater, USEPA primary drinking water standards apply. The USEPA primary drinking water standards set mandatory maximum contaminant levels for drinking water to protect the public from consuming water that presents a risk to human health. The MPCA has previously provided draft staff recommendations as to what waters in the Embarrass River and Partridge River should be considered as waters used for production of wild rice to which the current 10 mg/L wild rice sulfate standard applies. The MPCA reviewed all available relevant information in making their recommendation. Water treatment using natural wetlands is not included in the NorthMet Project Proposed Action project description. The NorthMet Project Proposed Action would rely upon mechanical treatment for as long as necessary. During operations and closure, the use of wetland treatment may be considered as an adaptive management measure if pilot and other studies indicate that this method has potential utility and is cost-effective.	WR 110 WR 154

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17812	Finally, the SDEIS lists the sulfur concentrations of Project waste rock ranging between 0.01-5.0% with an average mass-weighted concentration of 0.15%. The Virginia Formation has the highest concentrations of sulfur 0.4 - 5.0%, and the Duluth Complex 0.13 – 0.6% sulfur. These concentrations are much higher than in Montana's Zortman-Landusky Mine waste rock (0.2% sulfur) that has required perpetual wastewater treatment. And, like Zortman-Landusky, the Project proponent has suggested that "most (70 percent) of the NorthMet waste rock would be the low-sulfur, non-acid-generating" and will never cause acid mine drainage. However, the north wall of the east pit is composed of the Virginia Formation meaning that it will be exposed to both air and water and will likely contribute a substantial load of sulfate and metals to mine pit water.	In closure, the Virginia Formation portions of the East Pit highwall would be treated with crushed limestone and capped with overburden and a permanent geomembrane cover. The amount of limestone would be designed to provide sufficient buffering capacity to create neutral or near-neutral conditions along the wall rock, rather than the acidic conditions common for oxidizing Virginia Formation rock. The combined effect of these treatments would be a dramatic reduction in oxidation rates and constituent release from the covered portions of the East Pit highwall." (PolyMet 2015q, as cited in the FEIS, page 106). The comparison between the NorthMet Project Proposed Action and the Zortman-Landusky Mine is misguided. The Zortman-Landusky Mine in Montana used cyanide heap leaching technology, while the NorthMet Project Proposed Action does not. In addition, the 0.2 percent S value stated by the commenter relates to the value that the Zortman-Landusky Mine used to determine non-acid generating rock. The average %S of the deposit was approximately 0.8 percent S.	WR 173
17867	The USACE has not developed a monitoring plan to assess after-the-fact Project impacts to lands, but claims that will be the way to best determine and mitigate indirect wetland impacts...So the SDEIS simply lacks sufficient detail even to comply with NEPA, and contains much less detail than is required to permit sufficient evaluation of potential wetland impacts.	When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS and there is incomplete or unavailable information because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, NEPA directs the agency to make it clear that such information is lacking, discuss the relevance of the lacking information, and discuss any information relevant to evaluation of the future impacts. In these cases, NEPA also directs the agency to evaluate these impacts based upon theoretical approaches or research methods generally accepted in the scientific community provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason. The Co-lead Agencies believe this is the case for evaluating indirect wetland effects. The Co-lead Agencies have thoroughly considered throughout the development of the EIS and through the Wetland Impact Assessment Planning Work Group how to assess potential indirect wetland effects. As a result, strengths and weaknesses of the approach used, as well as other suggested approaches, have been carefully considered. The Co-lead Agencies ultimately decided the use of the analog method and the 20 percent metric described in Section 5.2.3 as factors considered in identifying potential indirect effects to wetlands is a credible and	COE 02

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		reasonable approach consistent with the requirements of NEPA. FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the indirect wetland effects.	
17870	the mitigation measures that the SDEIS does identify are inadequate as to wetlands, just as they are for purposes of water modeling.	FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. The indirect effects analyses performed for the FEIS were not performed to characterize impacts but were done to inform where monitoring should take place for those areas that were identified as having a potential for indirect wetland effects. As a result of these analyses performed to determine where monitoring should occur, quantification of wetland types and acres of potential indirect wetland effects were also generated. FEIS Section 5.2.3 provides these quantitative values of potential indirect wetland effects. The identification of specific mitigation for indirect effects and a monitoring plan is not a requirement for an EIS; however, the FEIS has been updated with additional information on the approach for determining mitigation if the monitoring shows indirect effects are occurring. The monitoring and mitigation for potential indirect effects would be determined during permitting. FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. The proposed wetland impact, avoidance, minimization, mitigation and monitoring plan presented in the FEIS would be reviewed, modified as required, and approved during permitting; therefore, this information could change during permitting.	WET 01 WET 04
17873	The SDEIS's failure to properly model and mitigate seepage and baseflow rates could result in profound impacts on wetlands. The estimates of groundwater drawdown are currently based on anecdotal and limited observations. Because of the generally flat topography and extensive wetlands, mine pit dewatering would likely cause substantial dewatering in nearby wetlands. Estimated indirect impacts to wetlands due to groundwater drawdown at the mine site are summarized in SDEIS, but without the use of a reliable groundwater model. Instead, dewatering impacts are assessed using an analogue method where wetlands impacted by another "equivalent" site are compared with wetlands surrounding the Project to provide an	Monitoring well response to pit dewatering at the Canisteo Pit, located approximately 65 miles west of the NorthMet Project Proposed Action area in similar surficial geology, indicated significant aquifer heterogeneity. Modeling of aquifer response at the Canisteo site using MODFLOW resulted in differences between simulated and measured water levels ranging from plus 28 ft to minus 4 ft (Jones 2002, as cited in the FEIS). The model clearly could not accurately estimate water level changes of a few feet or less as would be desirable for assessing potential effects on nearby surface water features such as wetlands. Therefore, it was concluded that it was not reasonable to attempt to quantify drawdown at the Mine Site using the MODFLOW model. In lieu of using MODFLOW to estimate pit drawdown at the Mine Site, an analog approach was developed using available well data from the Canisteo Pit, which is the only mine pit within the Mesabi Iron Range that has an associated water balance study with well data that could be used to assess	WR 071 WR 120

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	estimate of both the depth and distance from the mine pit(s) that dewatering occurs. The decision to use an analogue method came from the Wetlands Impact Assessment Planning work group process, in spite of Tribal Cooperating Agency objections. These objections include:(1) the PolyMet proposed mine pit will be hundreds of feet deeper than any of the "analogue" mine pits; (2) PolyMet mine pit walls will be crystalline and sedimentary bedrock versus the analogue mine pits in sedimentary bedrock only; (3) data collected from the site would be relatively inexpensive and should be used to inform impact assessment; and (4) relying on only a partial set of available "analogue" data as the source of information to estimate dewatering impacts is selective and not scientifically robust. Without a quantitative assessment of the mine-related drawdown of the regional water table, there is no mechanism to develop an adequate indirect impact assessment method for wetlands. Based on the vegetation data collected from wetland delineations, it appears that groundwater-supported wetlands are common in the Project area. The hydraulic conductivity in the unconsolidated deposits around the mine site ranges between 0.012 to 31 feet per day, indicating significant water movement within the surficial aquifer. In spite of the range of conductivities provided, however, the SDEIS states that perched wetlands cover over 50% of wetlands at the mine site.	potential drawdown effects. Sixteen Canisteo wells were used for the analog evaluation. An additional shallow well near Kinney, Minnesota, adjacent to Minntac's West Pit, and one deep bedrock well, also near Kinney, were also used for the evaluation. A comparison of the hydrogeologic conditions at the Canisteo Mine Pit, the Kinney area wells, and the Mine Site concluded that the geologic and hydrogeologic settings of the Mine Site are relatively similar to the Canisteo and Minntac sites (Barr 2011i, as cited in the FEIS). The Canisteo Pit is not as deep as the proposed NorthMet mine pits. However, the surficial deposits at the Canisteo site ranges from 50 to 100 ft thick, while the surficial deposits at the Mine Site average only about 14 ft thick. Also, the underlying bedrock at the Canisteo site is composed exclusively of the Biwabik Iron Formation, which generally has a higher hydraulic conductivity than the Duluth Complex, Virginia Formation, and Giants Range Granite that underlie surficial deposits at the Mine Site. Despite the difference in pit depths, it is interpreted that there is potential for greater drawdown at the Canisteo site compared to the Mine Site. Overall, the Canisteo data are believed to provide a reasonably conservative estimate of the maximum extent of surficial aquifer drawdown that would result from the proposed PolyMet mine pits.	
17874	The Co-Lead Agencies suggest ombrotrophic bogs (meaning wetlands that receive all of their water and nutrients from precipitation) have no connection to groundwater, and therefore assume that drawdown will not affect these wetlands. But data supports at least a partial connection between ombrotrophic wetlands and groundwater Therefore, if groundwater under these "perched"	The FEIS has been revised to address concerns raised by the Bands regarding the assertion that ombrotrophic bogs would not be impacted by mine dewatering. FEIS Section 5.2.3.2.2 applies a more conservative assumption of the potential indirect effects for all bog communities within the 0-1,000-ft analog zone. Specifically, ombrotrophic bogs were reclassified from the "no effect" category to the "low likelihood" category, the same status as that assigned to minerotrophic bogs. The complex mixes of bedrock, surficial deposits, and wetland soils at the Mine Site impede the	WET 09 WR 058 WR 071 WR 166 WR 167 WR 177

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	wetlands was drawn down by several feet, the new head pressure would lead to impacts to the wetlands because water would seep out of ombrotrophic wetlands in areas where there was a hydrologic connection to the saturated layer. Even the SDEIS acknowledges that saturated conditions exist within the unconsolidated deposits and the underlying bedrock, and that that recharge to the bedrock comes from leakage from the overlying surficial aquifer. Given these statements describing vertical movement of water in the mine site area, a vertical hydrologic connection between ombrotrophic wetlands and the surficial aquifer is likely and the extent of the hydrologic connection should be investigated.	ability to reasonably model (e.g., using MODFLOW) and accurately assess the potential effect of pit dewatering on wetlands. In light of this modeling limitation, wetlands were divided into zones based on distance from the open pit. The closer a wetland was to the pit during dewatering, the greater the water table drawdown would be and the greater potential there would be for hydrologic effects on overlying wetlands. These impact assessment methodologies are presented in FEIS Sections 5.2.2.3.2 and 5.2.3.1.2. Using an observational approach based on data from similar nearby mine sites (i.e., analog method), the Co-lead Agencies concluded that drawdowns in the surficial aquifer would not be expected to extend very far from the mine pits. This is explained by the following factors: 1) the surficial aquifer is thin and moderately permeable, 2) the surficial aquifer is subject to aerial recharge, and 3) the surficial aquifer is underlain by low-permeability bedrock that limits downward leakage from the surficial unit. These factors support the conclusion that wetland drawdown did not need to be included in the Mine Site GoldSim model. See FEIS Section 5.2.2.3.2 for more information on the analog method. It is acknowledged that there is some degree of hydraulic interaction between wetlands and the surficial aquifer at the Mine Site. However, attempts to quantitatively model the effects of these interactions on drawdown and water quality would be highly uncertain and potentially misleading. The FEIS approach was to not model hydraulic connections between wetlands and the surficial aquifer in the Mine Site GoldSim model, but rely on future monitoring and adaptive mitigation measures in the event that some wetlands are affected by the NorthMet Project Proposed Action. See FEIS Sections 5.2.2.3.6 and 5.2.2.3.5 for more information on Closure monitoring and adaptive mitigation.	
17875	Despite specific and repeated requests from tribal cooperating agencies, the Co-Leads did not elect to utilize a tool developed in 2011 by the EPA in cooperation with tribes, Applying Cumulative Impact Analysis Tools to Tribes and Tribal Lands, in order to discern potential cumulative effects to resources important to the tribes who retain usufructuary rights within the 1854 Ceded Territory.	The Co-lead Agencies consulted a wide range of sources to conduct the cumulative effects assessment of the NorthMet Project Proposed Action and Land Exchange Proposed Action. In addition, the Co-lead Agencies followed USEPA (1999b, as cited in the FEIS), CEQ (1997, as cited in the FEIS), and Connaughton (2005, as cited in the FEIS) guidance on how to conduct the cumulative effects analysis. FEIS Section 6.1.1.1 describes the cumulative effects analysis approach. The cumulative effects analysis meets the requirements of MEPA/NEPA. Please also refer to the response to theme CR 08.	CU 03

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17877	The SDEIS failed to take into account most of the issues cited [in Appendix C of the SDEIS].	The Co-lead Agencies considered the information included in the Tribal Cooperating Agencies' cumulative effects assessment and found no compelling information or analysis to change the original approach or conclusions.	CU 12
17899	It is reasonably foreseeable that an additional 3,000 acres of wetlands within the watershed will be directly impacted by proposed new mining projects and expansions that are in active permitting and/or environmental review: the Project, U.S. Steel Minntac mine expansion; U.S. Steel Keetac expansion; United Taconite Tailings Basin 3 construction; and Cliffs Erie's mine pit expansion.	The following projects were not considered in the wetland resources cumulative analysis, because they are outside the Partridge and Embarrass River watersheds: U.S. Steel Minntac mine expansion, U.S. Steel Keetac expansion, United Taconite Tailings Basin, and Cliffs Erie's mine pit expansion. Those projects that were considered reasonably foreseeable and within the Partridge and Embarrass River watersheds were considered in the wetland cumulative analysis. Please refer to the responses to themes CU 02 and WET 18, as well as Section 8.3, MDO 12 for more information on the spatial boundary of the CEAA for water resources.	CU 02
17900	The SDEIS also fails to adequately analyze cumulative impacts to the water quality of the Partridge and Embarrass Rivers, much less the St. Louis River.	Section 5.2.2 of the FEIS discloses in-stream water quality concentrations as a result of the NorthMet Project Proposed Action which is added to existing impacted conditions from past projects. The FEIS goes on to discuss loading of sulfate and mercury from future projects in Section 6.2.2. The SDEIS and FEIS provide a rationale for not including the St. Louis River Basin in the cumulative effects analysis in Section 6.2.2.1.1. The SDEIS and FEIS considered in the cumulative effects analysis for water resources all of the facilities identified in FEIS Table 6.2.2-1 (formerly Table 6.2-1 in the SDEIS).	WR 024
17901	In fact, in Colby Lake (the community water supply for the City of Hoyt Lakes), aluminum, iron, copper, and mercury concentrations already exceed Minnesota WQS. Modeled concentrations of arsenic also exceed Minnesota WQS. This existing, large number of water-quality exceedances and the suite of constituents, particularly trace metals, that exceed WQS not only confirm the total lack of remediation for the previous mining activities at the LTVSMC site, but demonstrate the importance of evaluating the cumulative losses to water quality. Community drinking water wells, wetland degradation resulting from dewatering, and pollution of community and private drinking water aquifers by	Groundwater and surface water flow models predict that the NorthMet Project Proposed Action would have a minimal effect on drinking water standard-based evaluation criteria in the groundwater at the project area boundaries or in Colby Lake (the locations at which drinking water standards apply). Based on this, it is therefore expected that the NorthMet Project Proposed Action would not have any significant impacts on water quality downstream of the proposed NorthMet Project area or significantly contribute to any cumulative effects on drinking water resources.	WR 042

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	previous mining activity must be assessed throughout the St. Louis River watershed as part of this Project, as well as for all the other mining projects currently underway.		
17903	The SDEIS does not determine climate change implications of the proposed Project. But the Project has proposed the largest direct wetland fill ever permitted in this region and would disturb extensive areas of peat, which is known to be an important carbon and methane sink. Wetlands in general are recognized as important carbon sinks and areas where wildlife seeks refuge as the climate warms. Nevertheless, to date, virtually all required wetland mitigation for mining impacts has been implemented out of the basin, representing a permanent loss of high quality ecological resources and functions. This omission undermines even the MNDNR's own work. The MNDNR's Moose Advisory Committee, which studies the decline of the moose population in northeastern Minnesota, has recommended preserving wetlands as sanctuaries for moose from heat stress related to climate change.	Estimates of monthly and annual rainfall amounts were based on best available data obtained from weather stations near the Proposed Action site. In the GoldSim models, these parameters were treated as uncertain inputs and assigned probability distributions to capture the range of possible future conditions. While climate change may occur in the future, it cannot be stated at this time if in the long term there would be more or less rainfall. Thus, the probabilistic approach to rainfall used in GoldSim represents a technically defensible method for dealing with this issue. Individual storm events and frequency are not incorporated into the GoldSim models. Rainfall inputs are monthly and annual rainfall amounts. The effects of individual storms are considered by designing facilities to handle a 100-year, 24-hour storm event based on current data. If over time, climate change causes a gradual increase in annual rainfall, the 100 year storm event would be redefined to a larger precipitation value and mine facilities would be upgraded to handle a larger storm. For the Mine Site, a GoldSim sensitivity analysis was conducted to assess the possible effects of future climate change on groundwater and surface water impacts. It was concluded that reasonably foreseeable climate change would have little effect on pit inflows, pit lake water quality, groundwater chemical concentrations, and surface water chemical concentrations. These results are reported in the Sensitivity Analysis of the NorthMet Water Quality Models, Version 2 (Barr 2015d, as cited in the FEIS). By analogy, the Plant Site is also expected to be minimally affected by possible future climate change. The NorthMet Project Proposed Action would not result in the release of methane (CH_4) from the proposed loss of wetland habitats. Wetlands act as carbon sinks that sequester carbon dioxide (CO_2). As a result of carbon cycling through the wetland system, a portion of sequestered carbon is mineralized to gaseous end products resulting in the production of CH_4, which is released to the atmosphere. As such, the assumption that the NorthMet Project Proposed Action would result in an increase of methane stored in the peat bogs is incorrect. The loss of wetland habitat at the NorthMet Project area would result in a one-time release of 12,535 metric tons per year of greenhouse gas emissions (i.e., CO_2-equivalents	WR 077 WR 180

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		approximately stored carbon within those habitats (Barr 2012l, as cited in the FEIS). It is important to note that the loss of carbon sequestration capacity is fundamentally different from emission rates since it represents a loss of greenhouse gas absorptive capability (i.e., how effective the system is at absorbing carbon) and capacity (i.e., the amount of carbon able to be absorbed) as opposed to an actual contributing emission. However, Barr (2012l, as cited in the FEIS) also noted that the net effect of the loss of carbon sequestration capacity is essentially the same as emissions. The Barr report also noted that the projected calculated release of CO_2-equivalents is a one-time event; however, it should not be assumed that all aboveground forest carbon would necessarily be released over a short timescale and that net carbon cycle impacts are highly dependent on the end-use of the cleared vegetation. For example, timber harvested for boards manufactured into furniture or buildings which is typically maintained for an extended period of years or decades, will degrade and decompose (i.e., release their stored carbon) at a much slower pace than timber that is utilized for firewood or woodchips which will ultimately decompose at a much faster rate. Harvested timber is typically utilized for a multitude of purposes dependent on numerous variables including market value, stand quantity and quality, tree species, demand, among others. As such, predetermining the end-use of an entire stand of timber is unfeasible. Additionally, the assumption that the NorthMet Project Proposed Action would result in the destruction of the carbon storage potential of the region is erroneous. That assumption discounts the contributions of the proposed compensatory wetland mitigation. The NorthMet Project Proposed Action would result in the loss of approximately 913.8 acres of directly impacted wetlands whereas the NorthMet Project Proposed Action would result in 1,799.7 acres of wetland mitigation (an impact to mitigation ratio of approximately 2:1). The NorthMet Project Proposed Action would be located within the St. Louis River Watershed (#3) (8-digit HUC) within the Great Lakes Basin (4-digit HUC). The Zim Site is located within the same watershed as the NorthMet Project Proposed Action; however, the Aitkin and Hinckley sites are located within the Mississippi River Basin (4-digit HUC) and 8-digit HUC watersheds of Elk-Nokasippi #10 and Snake River #36, respectively. See also responses to themes WET 05, WET 15, and WET 24.	

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17905	Furthermore, underestimation of storm size and frequency is a serious problem for capture and treatment of polluted water from the Category 1 wasterock pile and tailings basin, tailings basin stability, storm water run-off from the Overburden Storage and Layout Area ("OSLA"), and mine pit dewatering. Storm size and frequency is known to be changing. These and other cumulative effects of climate change must be addressed.	Information in FEIS Section 5.2.7.2.4 addresses the potential for climate change impacts in the area, including the frequency and duration of severe weather events. GHG issues have been assessed in a manner consistent with USEPA and MPCA guidance, as well as CEQ 2010, as cited in the FEIS. Estimates of monthly and annual rainfall amounts were based on best available data obtained from weather stations near the NorthMet Project area from 1981 to 2010, which is the Climate Normal period. In the GoldSim models, these parameters were treated as uncertain inputs and assigned probability distributions to capture the range of possible future conditions. While climate change may occur in the future, it cannot be stated at this time if in the long term there would be more or less rainfall. Thus, the probabilistic approach to rainfall used in GoldSim represents a technically defensible method for dealing with this issue. The effects of individual storms are considered by designing facilities to handle a 100-year, 24-hour storm event based on current data. If over time, climate change causes a gradual increase in annual rainfall, the 100 year storm event would be redefined to a larger precipitation value and mine facilities would be upgraded to handle a larger storm. For the Mine Site, a GoldSim sensitivity analysis was conducted to assess the possible effects of future climate change on groundwater and surface water impacts. It was concluded that reasonably foreseeable climate change would have little effect on pit inflows, pit lake water quality, groundwater chemical concentrations, and surface water chemical concentrations. These results are reported in the Sensitivity Analysis of the NorthMet Water Quality Models, Version 2 (Barr 2015d, as cited in the FEIS). By analogy, the Plant Site is also expected to be minimally affected by possible future climate change. The NorthMet Project Proposed Action facilities would be designed with excess storage to handle large storm events. If climate change gradually increases the frequency and size of storms, there would be ample time to identify the issue and increase storage and treatment requirements at the site.	AIR 01 WR 180
17916	Section 106 consultation between the USACE and Tribes is ongoing. Therefore, despite significant changes through recent, increased consultation with tribal cooperators, the Cultural Resources chapter of the SDEIS is still incomplete, and the	The federal Co-lead Agencies have actively consulted with the federally recognized Bands that have expressed an interest in consulting for the NorthMet Project Proposed Action. Historic properties affected by the NorthMet Project Proposed Action have been identified and the impacts to those properties have been assessed. This also includes an assessment of	CR 06

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	requirements of the National Historic Preservation Act ("NHPA") have not yet been fulfilled. The Project cannot proceed until they are.	actual use of those historic properties, as well as other resources in the APE, by tribal members. Effects on historic properties would be fully considered prior to the issuance of any permit or land exchange pursuant to the NHPA and its implementing regulations. Effects on cultural resources and culturally significant natural resources are addressed in the Cultural Resources sections in FEIS Chapters 4, 5, and 6.	
17919	Where, as here, there are historic properties affected, then there is an entirely separate level of adverse-effects assessment that must be performed, again in coordination with consulting agencies.207 In light of these rules, and as the chapter itself acknowledges, it is apparent that far more consultation and site work must be done to comply with Section 106.	The federal Co-lead Agencies have made a reasonable and good-faith effort to identify cultural resources potentially affected by the NorthMet Project Proposed Action and determine which resources qualify for inclusion in the NRHP as historic properties. Impacts to historic properties have been appropriately assessed and the federal Co-lead Agencies are actively consulting with the federally recognized Bands, the SHPO, and other consulting parties to develop appropriate mitigation measures. Effects on resources significant to the Bands that do not qualify as historic properties, as well as general effects on natural resources have been considered within the parameters of the statutes that shape this review. Effects on cultural resources and culturally significant natural resources are addressed in the Cultural Resources sections in FEIS Chapters 4, 5, and 6.	CR 03
17925	The Bands remain skeptical of the Co-Lead Agencies' claim that there will be no adverse effect to the Spring Lake Mine Sugarbush from the Project. Indirect effects, through dust deposition and unauthorized collection of historic objects, are anticipated because the sugarbush is situated immediately adjacent to the proposed plant site.	As discussed in FEIS Section 5.2.9.2.1, the federal Co-lead Agencies have determined that the NorthMet Project Proposed Action would adversely affect the Spring Mine Lake Sugarbush. As part of an MOA, the federal Co-lead Agencies would ensure the avoidance, minimization, and/or mitigation of impacts to cultural resources that may be encountered, such as unauthorized collection, during construction or operation of the NorthMet Project Proposed Action. The federal Co-lead Agencies, in consultation with the Bands, SHPO, and PolyMet, are currently working to resolve adverse effects on this property.	CR 02 CR 05
17929	The three properties would benefit from additional investigation. The sugarbush has not been formally recorded. The trail has been adequately documented within the SNF proposed land exchange, but requires additional survey in the upland areas of the project area. Mesabe Widjiu should be considered in its entirety. All three should be formally nominated to the National Register of Historic Places.	The federal Co-lead agencies have officially documented the Spring Lake Mine Sugarbush with SHPO. The federal Co-lead Agencies believe that there has been sufficient background research and fieldwork to justify consideration of the BBLV Trail Segment as an historic property. Additional research and fieldwork may be part of any resolution of adverse effect. The federal Co-lead Agencies have determined the Partridge River section of the Mesabe Widjiu and the Partridge River section of the BBLV Trail Segment eligible for inclusion in the NRHP under Criterion A; however, the federal Co-lead Agencies are assessing the effects of the NorthMet Project Proposed Action on only the portion of those properties within the APE. The federal Co-lead Agencies recognize that the two	CR 02 CR 05

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		properties discussed above extend beyond the APE. All three historic properties have been determined eligible for the NRHP. The federal Co-lead Agencies, in consultation with the Bands, SHPO, and PolyMet, are currently working to resolve adverse effects on these properties. National Register Nomination of these properties may be part of an MOA; however, the federal Co-lead Agencies are currently in the process of considering what mitigations may be appropriate.	
17932	The Project is predicted to increase mercury loadings in the Embarrass River, but decrease mercury loadings in the Partridge River: Treated effluent would be used to augment flow in several Embarrass River tributary streams and Second Creek in the Partridge River watershed that would otherwise experience reduced flow because of the groundwater containment system. Additional water for flow augmentation in the nearby tributaries would be pumped from Colby Lake at periods during mine operations and reclamation. On the face of it, stream augmentation mitigation seems like a good idea. Unfortunately, Colby Lake water has high mercury concentrations that exceed the Minnesota WQS for wildlife. Colby Lake water used for augmentation will add mercury to the Embarrass River watershed both directly and indirectly by drying and re-wetting peat.	Colby Lake water would not be directly discharged to tributaries north or south of the Tailings Basin under the NorthMet Project Proposed Action, as described in the FEIS. The NorthMet Project Proposed Action includes treatment of all water that would be discharged at the Plant Site, including water used for flow augmentation. Additional information has been included in FEIS Section 5.2.2.3.6. The FEIS recommends that tributaries be monitored that extend from the Tailings Basin. In the event that the monitoring identifies the potential for any water quality standard exceedances, the Proposer would be obligated to take action to ensure compliance. Potential mitigation measures are included in FEIS Section 5.2.2.3.5.	MERC 12 WR 184
17933	High mercury concentrations in fish is a significant concern in the Embarrass River now, and mercury will only increase if the Project is allowed to use Colby Lake water for stream augmentation.	Colby Lake water would not be directly discharged to tributaries north or south of the Tailings Basin under the NorthMet Project Proposed Action, as described in the FEIS. The NorthMet Project Proposed Action described in the FEIS includes treatment of all water that would be discharged at the Plant Site, including water used for flow augmentation. The amount of water from Colby Lake used for flow augmentation would be low; however, any water used for augmentation would be treated prior to discharge. The FEIS recommends that tributaries be monitored that extend from the Tailings Basin. In the event that the monitoring identifies the potential for any water quality standard exceedances, the Proposer would be obligated to take action to ensure compliance. Potential mitigation measures are included in FEIS Section 5.2.2.3.5.	MERC 02 WR 184

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17934	Dewatering peatlands will also amplify water table fluctuations because peat has high water storage capacity and releases water more slowly than other surficial deposits. Drying and re-wetting peat will increase mercury methylation and release. Peatlands store methane and carbon that will be released into the environment when overburden is removed from the mine pits or during periods of dewatering. This is important in the context of subsistence fisheries and climate change because the temperature of water directly affects the oxygen content and defines what fish can survive. Mercury is also known to bioaccumulate in fish at a faster rate in warmer water.	Some of the temporarily stored organic material would decompose on site, which would release mercury into solution. Any dissolved mercury would be transported in solution with precipitation that falls on the Overburden Storage and Laydown Area (PolyMet 2015r, as cited in the FEIS). Any mercury released from the peat decomposition process is thought to be transported with precipitation that falls on the Overburden Storage and Laydown Area. However, water coming in contact with materials in the OSLA is considered to be process water and would not be directly discharged, but rather would be routed to pond PW-OSLA. In years 1 to 11 the water from pond PW-OSLA would be routed to the tailings basin and any mercury in the routed water would have the chance to be sequestered in the tailings. In years 12 to 20 some of the water from pond PW-OSLA would be used to backfill the East Pit. Any mercury in the water routed to the East Pit would have the chance to mix with waste rock and become sequestered at depth in the East Pit. In addition, any contributions of water in year 21 to 65 from the East Pit to the West Pit would reflect water from the East Pit and its associated watershed runoff, and would not reflect process water from pond PW-OSLA. Because peat removal from the areas to be mined would be completed between years 5 and 11, most of the potential release of mercury from stored peat materials would likely have already occurred, or be ending, by the time water is routed from pond PW-OSLA to the East Pit beginning in year 12. The hydrology of the wetlands outside the containment system would be maintained within an established range through flow augmentation so that wetlands would not experience substantial inundation or desiccation. Wetland hydrology is a complex mix of precipitation, surface runoff, and, in some cases, groundwater. Current understanding of how these factors interact at the project site is limited, making it beyond the current ability of the FEIS to predict site-specific changes in wetland hydrology. The FEIS recommends monitoring of wetland water quality at the Mine Site between Dunka Road and the Partridge River as well as the Partridge River itself. Effects of climate change on aquatic species were not identified as a concern during scoping, and are beyond the scope of the FEIS analysis, because the effects to aquatic species under future climate scenarios are speculative. A preliminary qualitative assessment of water resources impacts due to climate change is provided in Attachment W of the NorthMet Project Air Data Package, Version 5. January 15, 2015 (PolyMet 2015e, as cited in the FEIS).	AQ 16 AQ 28 WET 03 WR 086

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		In aquatic systems, there is generally a positive correlation between warmer water temperatures and accumulation of heavy metals. However, studies on the relationship between temperature and bioaccumulation of mercury in aquatic life are ongoing. Therefore, the degree to which the NorthMet Project Proposed Action could potentially affect aquatic species due to changes in temperature cannot be determined. Water monitoring would ensure that water quality standards would be met with engineering controls and adaptive management. Specific monitoring details would be addressed in permitting. In addition, spill prevention plans would be implemented.	
17935	Several lakes and the Partridge River watershed are likely to be negatively affected, which will impact fish species and thus the Band's 1854 Treaty rights to harvest fish in those water bodies. The SDEIS as written fails to mitigate the costs to fisheries and wildlife species that are protected under the 1854 Treaty...Treaty-reserved fishing rights cannot be fully exercised when fish consumption must be restricted for health reasons to one or two meals per week.	The Cultural Resources sections of FEIS Chapters 4 and 5 address the federal Co-lead Agencies' federal tribal trust responsibilities under the 1854 Treaty. These sections, along with other relevant natural resources sections of FEIS Chapters 4, 5, and 6 also address effects on, and any proposed mitigation for effects on cultural resources and culturally significant natural resources. Mitigation/compensation for effects on cultural resources and culturally significant natural resources is considered to the extent possible within the parameters of the statutes and regulations providing the federal authorities for the review of the NorthMet Project Proposed Action.	CR 01
17937	The SDEIS does not adequately address the potential impacts to Band members of a significant increase in mercury in fish harvested both on-Reservation and in Ceded Territory waters...Yet the SDEIS offers no mitigation for these known losses. The SDEIS must be revised to include sufficient analysis and mitigation.	Based on the results of water quality modeling, the water quality of the West Pit Lake, East Pit wetland, and Tailings Basin pond is predicted to be at concentrations not injurious to wildlife. On-site monitoring of waterbodies within facility boundaries would likely be a part of a monitoring program. Monitoring details would be finalized in the permitting process. FEIS Section 5.2.5.2.3 discusses potential impacts to wildlife from incidental contact with the Tailings Basin pond and pit lakes. FEIS Section 7.3.4 discusses potential human health impacts. FEIS Section 5.2.2.3.6 discusses on-site monitoring. FEIS Section 5.2.2.3.4 discusses bioaccumulation of methylmercury.	CR 01
17939	Minnesota's mercury TMDL process will not adequately address the fish consumption impairment in these waterbodies, and any new discharges that would result in further degradation to waters with an existing water quality impairment are not be legally permittable under the CWA.	This comment was originally presented as part of the Tribal Position Summary included in MDO #2, which was previously addressed in SDEIS Table 8-1. Further explanation is provided below. The MPCA's goal is to protect high-quality waters and improve the quality of impaired waters, so water quality standards are met and beneficial uses are maintained and restored, where these uses are attainable. As summarized in FEIS Section 5.2.7.2.5, widespread contamination of fish from atmospheric pollution is why Minnesota established a statewide mercury TMDL. The TMDL seeks to reduce atmospheric deposition	MERC 11

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		everywhere in the state, in order to make the state's lakes and streams fishable, as required by federal regulations, and is intended to provide the long-term framework to reduce mercury in fish. The MPCA published Guidelines for New and Modified Mercury Air Emission Sources, and revised those guidelines in 2012 (MPCA 2012h, as cited in the FEIS). The guidelines were developed to limit the mercury emissions from new and expanding sources in order to meet the TMDL goal of total statewide mercury emissions of 789 lbs/year by 2025. The MPCA has conducted a review of the NorthMet Project Proposed Action mercury emissions, and has determined that it would not impede the reduction goals (MPCA 2013l, as cited in the FEIS). Further, the NorthMet Project Proposed Action is not anticipated to be a major source of mercury into the environment. The RO treatment plant is expected to discharge mercury at or below the mercury standard of 1.3 ng/L, which includes all surface water that would be discharged at the Plant Site including water used for flow augmentation. Mercury loadings from the Mine Site are projected to decrease due to the NorthMet Project Proposed Action and the combined contributions from the Embarrass River and Partridge River are unchanged when modeled for the St. Louis River at the Fond du Lac reservation boundary. Therefore, further degradation of surface water quality, and by extension increased mercury in fish, is not expected.	
17940	The cumulative effects of invasive species, mining, and Project effects on sturgeon must be considered and the SDEIS revised.	The NorthMet Project Proposed Action is not considered to have the potential for cumulative effects on lake sturgeon. Recent MDNR and Fond du Lac Band of Lake Superior Chippewa sturgeon data provided since the SDEIS indicated sturgeon are not known to occur within the Project Area (see Section 4.2.6).	AQ 02 AQ 26
17944	Although the permitted area is significantly disturbed and will be for the foreseeable future, the closure and reclamation plans will have a significant effect on native vegetation as it is reintroduced. The prevalence of invasive, non-native species and their ability to outcompete native plants in disturbed areas, coupled with PolyMet's plan to introduce non-native and invasive species to this area, would result in significant impacts to cultural resources that have not been discussed in the SDEIS.	The FEIS vegetation sections include new details from the updated Reclamation Plan (PolyMet 2015g, as cited in the FEIS). In particular, invasive species would not be permitted in the seed mix. Some non-native species (e.g., oats, winter wheat) that are commonly used in seed mixes to temporarily stabilize soils in order to reduce erosion or dust potential could be planted. The species to be used for reclamation would be finalized during permitting. The FEIS Section 3.2.2.1.10 describes how the NorthMet Project area facilities would be operated to allow for progressive reclamation during operations. After mining ceases, PolyMet would finish reclamation activities under the Reclamation Plan, which is a required portion of the Permit to Mine. *Minnesota Rules*, part 6132.2700 states that	VEG 09

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		the establishment of vegetation shall begin during the first normal planting period after site features are determined by the Permit to Mine to be no longer scheduled to be disturbed. Reclaimed areas would be monitored and maintained as needed in the Spring and Fall or as required under the Permit to Mine. Any areas damaged by erosion or that lost vegetation would be identified, and plans to repair or reseed would be developed and implemented.	
17945	While the SDEIS provides that displaced wildlife will face increased competition for resources, no mention is made whether the displaced animals may cause populations in adjoining territory to approach or exceed carrying capacity. The SDEIS fails to assess cumulative effects of wildlife population changes, not only in the project area, but the entire region.	The FEIS wildlife sections include an analysis of wildlife displacement effects due to the NorthMet Project Proposed Action. FEIS Section 5.2.5.2.3 discusses the potential effects to species based on habitat preferences, and uses available scientific literature to analyze displacement effects on local and regional ecology due to noise or increased human activities.	WI 05
17948	the value of natural resources maintained in good condition is simply not represented in the SDEIS. Nor is the economic value of clean water provided or assessed.	EIS Section 5.2.10.1.4 states, “Neither NEPA nor CEQ requires the cost and benefits of a proposed action to be quantified in dollars or any other common metric; however, this EIS acknowledges that economic costs and loss of non-market value may results from environmental and social effects. Also acknowledged is that the agreement on the value (i.e., the “cost”) of environmental effects is often difficult to achieve. Therefore, the approach of this EIS is to evaluate environmental and social impacts directly, in the appropriate resource-specific section.” CEQ regulations for implementing NEPA (40 CFR 1502.23) state that, “for purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations.” The socioeconomic analysis provided in the FEIS satisfies NEPA and MEPA requirements. The NorthMet Project Proposed Action would take place in an area that has experienced mining previously. As discussed in FEIS Section 5.2.11.2.1, the presence of the NorthMet Project Proposed Action would not substantially affect regional recreation or visual resources, nor would it substantially affect air or water quality or increase noise levels in popular regional recreation lands such as the BWCAW (see FEIS Section 5.2.12).	SO 04
17949	The SDEIS also speculates that the tribes will benefit economically from the Project through additional visitation to Band-operated Casinos, but	No change made.	EDIT 01

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	provides no data to back up the statement: "Increased employment and income associated with the NorthMet Project Proposed Action could increase visitation and revenues at [area tribal gaming] facilities." This statement is entirely unsupported by any market analysis and must be deleted from the socioeconomic assessment of the Project.		

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Comments from the Fond du Lac Band (Submission ID 42920)			
2768	The land Exchange Proposed Action, as described in the SDEIS, serves to confirm our concerns for permanent, unmitigated impacts to treaty resources in the 1854 Ceded Territory. The Band submitted comments on the Feasibility Analysis… including: A full consideration of the fair market value and future use of the federal land in the proposed PolyMet land Exchange would recognize a private windfall instead of an equal exchange, in violation of federal statutes, rules and policies. …The Band is also concerned that most of the non-federal land proposed in the PolyMet land Exchange has a divided mineral estate. Divided ownership raises uncertainties about future benefits that that the non-federal surface could afford to the public, further diminishing the value of the non-federal lands, and is not consistent with Forest Service Conveyance policy (36 CFR 254.15)… Further, any proposed federal land exchange that is not consistent with forest resource management plans must be rejected under 36 CFR. 254.3….The Band expects that the U.S. Forest Service, in facilitating the PolyMet land Exchange, would coordinate with the policies expressed in our plans to protect natural resources on the Reservation and in the Ceded Territories. … The Band is extremely concerned about the loss of high quality, even exceptional, wetlands within the federal estate, without sufficient information to understand whether the proposed non-federal parcels provide equivalent functions and values. Access to treaty-protected resources is of prime importance to Band members. Loss of access to or use of public lands within the Ceded Territory can significantly impact exercise of treaty rights, and this issue should be thoroughly evaluated in the SDEIS process.	The Agency's obligation is to ensure that Band members have ample opportunity to exercise their treaty-reserved usufructuary rights; that federal lands are managed to maintain both the diversity and abundance of natural resources; and to ensure that the Bands' usufructuary rights to 1854 Treaty resources are not impaired. The Land Exchange Proposed Action was analyzed to understand the potential effects on usufructuary rights. The Co-lead Agencies have consulted, and continue to consult with the Bois Forte Band of Chippewa, the Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa, the three principle Bands that retain usufructuary rights in the proposed project area. In addition, the Co-lead Agencies have consulted with the Great Lakes Indian Fish and Wildlife Commission and the 1854 Treaty Authority, the principal natural resource agencies representing the aforementioned Bands. Through consultation, the Co-lead Agencies understand that the Bands' principle interest with regards to the Land Exchange Proposed Action are the following: to retain or increase the amount of public land within the 1854 Treaty Ceded Territory, shoreline wetlands, culturally important natural resources used in exercising treaty rights of hunting, fishing, and gathering, cultural or religious properties, and access to culturally important natural resources and cultural or religious properties. The Co-lead Agencies have a fiduciary obligation to understand and consider the effects that the Land Exchange Proposed Action would have on Band members exercising their Treaty rights in the 1854 ceded territory. While the Land Exchange Proposed Action would remove certain lands from federal ownership, this loss is potentially offset by incoming private lands that would become part of the federal estate within the 1854 Ceded Territory. Outside of the Land Exchange Proposed Action, the Co-lead Agencies have also analyzed the potential effects posed by the Proposed Connected Actions. The potential affects posed to natural resources and cultural resources of importance to the Bands have been disclosed and would be considered during the Co-lead Agencies' decision process. The resource values and public objectives of the non-federal lands must equal or exceed the resource values and public objectives of the federal lands. See FEIS Section 1.4.3. Mitigation for cultural resources as a result of the NorthMet Project Proposed Action is discussed in Section 5.2.9 of the FEIS. The NorthMet Project Proposed Action mining activities would	LAN 03 LAN 04 LAN 05 WET 14

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		result in a loss of bogs; however, as part of the NorthMet Proposed Action, the Applicant is required to provide compensatory mitigation for wetland impacts in accordance with state and federal permits. One of the proposed mitigation sites for wetland impacts (Zim Site) would be a compensation site for the loss of bogs, and would be located within the 1854 Ceded Territory. The Lake County lands were tax forfeit lands that were offered for sale by the County through a public auction. The Lake County lands would still be accessible to the Bands for their use if the exchange took place, because the lands would become part of the SNF managed lands. No heritage surveys were conducted on the non-federal lands. If any cultural resources are located on the non-federal lands, those cultural resources would be transferred to federal ownership. Such transfer would not adversely affect the heritage resource, but would provide greater preservation protection under federal law. The non-federal lands that contain wild rice beds would not be affected as a result of the Land Exchange Proposed Action or Land Exchange Alternative B, because no activities are proposed on these lands and the proposed mining activities would not affect these lands. As noted in the FEIS, the Land Exchange Proposed Action and Land Exchange Alternative B would increase wild rice stands within the federal estate. FEIS Sections 5.3.2 and 5.3.4 clarify that, although the Land Exchange would result in an increase in wild rice stands within the federal estate boundaries, there would be no change to the existing public access to Tract 1 wild rice stands via the Pike River. Consequently, there would be no increase in wild rice harvest opportunities for the public. No wild rice stands are known to occur on the federal lands, and suitable habitat is limited. Please refer to the response to theme LAN 01 for more information on the public interest determination.	
2782	Wetlands also function as thermal refuge for moose when summertime temperatures exceed 14°C, the point at which moose become thermally stressed, and wetlands provide an important forage resource for moose during the open water season.	FEIS Sections 4.2.5, 4.3.5, 5.2.5, and 5.3.5 (Wildlife) have been updated to include the new state endangered, threatened, and special concern (ETSC) status listings from August 19, 2013, as well as new federal status listing changes. The FEIS includes a more robust analysis on effects to moose, including habitat and displacement. The FEIS Section 4.2.5.1.1 discusses the role of wetlands with moose and thermal stress.	WI 01 WI 02
2788	In the co-lead agency evaluation of the underground mining alternative, the North Met	Information obtained through preliminary exploration in the region has indicated the area potentially contains one of the largest untapped deposits	PD 25

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	Deposit is described as a "low- to medium-grade mineral resource" which is somewhat at odds with its description as "one of the largest untapped deposits of copper and nickel, and other precious metals" or "world class resource" as it is represented throughout the SDEIS and in continual media coverage. From the SDEIS, we are not able to determine whether mining this mineral deposit in accordance with environmental standards will be profitable enough to provide adequate environmental protections and financial assurance.	of copper, nickel, and other precious metals. The NorthMet Deposit is characterized as a low- to medium-grade mineral resource. These two characterizations are not in conflict as the commenter seems to suggest. One is a regional characterization while the other applies to the NorthMet Deposit proposed by PolyMet to be mined. See the response to theme ALT 01 for more details on the Underground Mining Alternative. FEIS Section 3.2.3.4.1 states that tonnage/volume and grade of rock would not generate enough revenue to pay for costs associated with underground mining. The FEIS Executive Summary and FEIS Section 3.2.2.1.2 states that the NorthMet Deposit is a low- to medium-grade deposit, matching the language in Appendix B. FEIS Section 3.2.2.4 includes available details regarding financial assurance. Additional details on the cost estimates and calculations that would be required for the project would be addressed during permitting. Specific infrastructure timelines and life expectancies of equipment would be accounted for during permitting as well. FEIS Table 3.2-15 provides financial assurance cost estimates for various years of closure, as well as for monitoring and mitigation costs. FEIS Section 3.2.2.4.1 discusses the activities that would be considered in cost estimates, and states that cost estimates would be updated annually under the Permit to Mine. *Minnesota Rules*, part 6132.1200, subpart 3 states that cost estimates shall be annually adjusted, using current dollar value at the time of the estimate.	
2799	while the co-lead agencies stipulate in the SDEIS that PolyMet will bear liability through financial assurance[legacy contamination at LTV], it is troubling to see that apparently, they will not be required to complete remedial activities until closure, many decades from now	FEIS Section 4.2.1.4.2 discusses Legacy Contamination, and states that PolyMet would address AOCs "on a schedule to be approved by the MPCA", some of which would likely occur prior to closure. In addition, FEIS Section 4.2.1.4.2 states that, "all historic and any potentially operational AOCs not already addressed by the start of mine closure would be investigated and remediated as necessary."	LU 02
2845	The mass balance does not take into account seepage from the saturated overburden at the OSLA, or the load of mercury from Colby Lake stream augmentation. Given the known concentrations of mercury in Colby Lake, which consistently exceed the GLI standard, this mitigation measure is clearly not permittable as a discharge that would contribute to an existing water quality exceedance.	Some of the temporarily stored organic material would decompose on site, which would release mercury into solution. Any dissolved mercury would be transported in solution with precipitation that falls on the Overburden Storage and Laydown Area (PolyMet 2015r, as cited in the FEIS). Any mercury released from the peat decomposition process is thought to be transported with precipitation that falls on the Overburden Storage and Laydown Area. The Overburden Storage and Laydown Area would be unlined; therefore, there would be some potential for seepage to enter the groundwater system from peat that has decomposed and releases as a pulse of mercury. However, construction of the Overburden Storage and	MERC 20

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		Laydown Area would result in a compacted bed that would limit downward seepage and facilitate routing of water to storage ponds. Water contacting the Overburden Storage and Laydown Area is considered to be process water and would be routed to Pond PW-OSLA. In years 1 to 11, the water from Pond PW-OSLA would be routed to the Tailings Basin, and any mercury in the routed water would have the chance to be sequestered in the tailings. In years 12 to 20, some of the water from Pond PW-OSLA would be used to backfill the East Pit. Any mercury in the water routed to the East Pit would mix with waste rock and become sequestered at depth in the East Pit. In addition, any contributions of water in years 21 to 65 from the East Pit to the West Pit would reflect water from the East Pit and its associated watershed runoff, and would not reflect process water from Pond PW-OSLA. Because peat removal from the areas to be mined would be completed between years 5 and 11, any potential release of mercury from stored peat materials would have occurred, or be ending, by the time water is routed from Pond PW-OSLA to the East Pit beginning in year 12. All water that is discharged would meet the GLI mercury standard of 1.3 ng/L. Colby Lake water would not be directly discharged to tributaries north or south of the Tailings Basin under the NorthMet Project Proposed Action, as described in the FEIS. The NorthMet Project Proposed Action would include treatment of all water discharged at the Plant Site, including water used for flow augmentation. Additional information has been included in FEIS Section 5.2.2. The FEIS recommends that tributaries that extend from the Tailings Basin be monitored. In the event that the monitoring identifies the potential for any water quality standard exceedances, the Proposer would be obligated to take action to ensure compliance. Potential mitigation measures are included in FEIS Section 5.2.2.3.5.	
2856	Hunting pressure has been ruled out as a major contributing factor to population-level declines, but the appearance of holding a hunt does not sit well with the public, so the DNR, 1854 Treaty Authority and Fond du Lac all closed the 2013 moose season.	FEIS Sections 4.2.5, 4.3.5, 5.2.5, and 5.3.5 (Wildlife) have been updated to include the new state endangered, threatened, and special concern (ETSC) status listings from August 19, 2013, as well as new federal status listing changes. The FEIS includes a more robust analysis on effects to moose, including habitat and displacement.	WI 01
2860	The Band's consistently expressed concerns for potential air quality impacts from the Proposed Project (a new source of mercury, visibility in a Class 1 airshed, fugitive dust impacts to terrestrial	Air quality impacts from the NorthMet Project are addressed in FEIS Section 5.2.7.	AIR 08

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	and aquatic resources, asbestos-like mineral fibers) from the Proposed Project remain largely unaddressed in the SDEIS.		
2878	The Plant Site multi-pathway cancer risk for a farmer was found to be equal to the MDH additional lifetime cancer risk guidance level of 1E-05. Although this level is considered "guidance" and not a regulatory action level, the Band believes this value clearly indicates the potential for adverse health effects. The same result was found for the off-site worker inhalation additional lifetime cancer risk. The major drivers for these endpoints were cobalt, nickel, and dioxins (farmers only). Exposure to nickel has been linked with increased risk of lung cancer, cardiovascular disease, neurological and developmental deficits, and high blood pressure.	The calculations for cancer risk are based on an increased risk of contracting cancer using very conservative assumptions. The increased risk of contracting cancer due to the Project's emissions is extremely small. The AERA contains toxicological information for arsenic, diesel, nickel, manganese, mercury, and methylmercury (plus additional chemicals), as well as an analysis of the potential health effects of those chemicals. The toxicological information was included in the AERA summary in FEIS Section 7.3.4. Section 5.2.7.5 also includes a discussion of health risks from airborne fibers, as well as dust suppression measures that would be used to minimize fiber generation.	HU 02 HU 05 HU 07
2879	As shown in SDEIS Table 6.2-22, cumulative inhalation risks for non-cancer chronic and non-cancer acute effects from both the facility and existing sources are equal to the incremental acute risk guideline value of 1. This shows that the predicted impacts of NorthMet, when added to the toxic releases already prevalent in the area, have reached the level where health authorities begin to be concerned about cancer risks.	The cumulative inhalation risk estimate is a combination of modeled facility air emissions and background air concentrations measured at locations reflective of the proposed facility surroundings. These two pieces of information are based on several tiers of health protective (conservative) assumptions. Since there are no state or federal cumulative risk guidelines, the cumulative inhalation risk results are compared to facility risk guidelines for context and information. The cumulative respiratory acute non-cancer and chronic non-cancer risks were equal to facility risk guidelines. The cumulative inhalation cancer risk estimate is above facility risk guidelines (1 additional case of cancer in a population of 100,000 people), but lies within EPA's excess cancer risk goal range of 0.1 in 100,000 and 10 in 100,000. This excess cancer risk range is generally considered to be acceptable by EPA according to the 1999 Residual Risk Report to Congress (http://www.epa.gov/ttn/oarpg/t3/reports/risk_rep.pdf). For further discussions, see FEIS Sections 6.2.3.8.11, and the responses to themes HU02, HU06.	HU 05
2897	Cumulative effects result in a relentless, unmitigated diminishment of treaty resources and access to those resources. Yet across virtually all	The Co-lead Agencies considered the information included in the Tribal Cooperating Agencies' cumulative effects assessment and found no compelling information or analysis to change the original approach or	CU 11 CU 12

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	resource categories, the SDEIS predicts that there will be no adverse impacts….; this conclusion then enables the co-leads to determine 'no cumulative effects' from the project and the land exchange. ….over the course of the DEIS and SDEIS processes that support our misgivings for this circular logic. We presented a substantial alternative analysis of cumulative effects from the NorthMet Project Proposed Action as part of our commenting during the preliminary SDEIS review.	conclusions.	
2905	The Band's comments on the 2009 DEIS related to impacts to the 1854 Ceded Territory stand.	The Cultural Resources sections of FEIS Chapters 4 and 5 address the federal Co-lead Agencies' federal tribal trust responsibilities under the 1854 Treaty. These sections, along with other relevant natural resources sections of FEIS Chapters 4, 5, and 6 also address effects on, and any proposed mitigation for effects on cultural resources and culturally significant natural resources. Mitigation/compensation for effects on cultural resources and culturally significant natural resources is considered to the extent possible within the parameters of the statutes and regulations providing the federal authorities for the review of the NorthMet Project Proposed Action.	NEPA 12
2906	The Band's comments on the 2009 DEIS related to environmental justice impacts still stand.	FEIS Sections 5.2.10.2.7 and 5.3.10.2.1 discuss Environmental Justice effects. See also the response to theme NEPA 12.	SO 09 NEPA 12
2907	The Band's comments on the 2009 DEIS related to climate change impacts still stand.	Comments provided on the DEIS were considered for the SDEIS and therefore, in turn, the FEIS. Climate change is addressed in accordance with the requirements of NEPA and MEPA. Please refer to SDEIS comment themes AIR 01, AQ 16, COE 03, PD 22, VEG 03, WET 07, WET 13, WI 02, WI 03, WI 08, and WR 180, and DEIS comment themes AQ 03, and WR2B.	NEPA 12
2909	The Band also shares concerns communicated by the Bois Forte Tribal Historic Preservation Officer: Mesabe Widjiu is correctly identified as a sacred landform, but needs to be considered in its entirety (see attached map as an example). The segment encountered within the project area is small, but integral to the property. Adverse effects to any portion impact the entire feature.	The federal Co-lead Agencies have determined the Partridge River section of the Mesabe Widjiu to be eligible for inclusion in the NRHP under Criterion A for its association with important Ojibwe spiritual and cultural practices. Although the federal Co-lead Agencies are assessing the effects of the NorthMet Project Proposed Action on only the portion of the Mesabe Widjiu within the APE, it is recognized that the property and its significance extends beyond the APE. The federal Co-lead Agencies have updated the FEIS to include a graphic of the entire Mesabe Widjiu, as provided by the consulting Bands.	CR 02 CR 05

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3102	Multiple mine plan alternatives exist that could provide mitigation for or prevent long-term environmental damage... • paste or dry tailings disposal to reduce the project footprint and use less water (decrease risk of surface and groundwater pollution); • perpetual pumping of the west pit to prevent a pit lake from forming (protect surface and groundwater); • back-filling all waste rock into the east, central and west mine pits (reduce the mine foot print at closure, reduce contaminant runoff to surface and groundwater, reduce volume of water requiring perpetual treatment, restore mine site wetlands); • provide reverse osmosis treatment at the mine site immediately rather than waiting until year 40 (augment water loss in adjacent high quality wetlands in the Partridge River watershed), and; • underground mining (multiple environmental benefits).	The Underground Mine alternative was first considered but eliminated during the Final Scoping Decision Document (FSDD) process. The FEIS Section 3.2.3.4.1 describes how it was re-considered during the DEIS process as alternative E7 in response to Cooperating Agency and stakeholder comments, but eliminated from further consideration. The economic feasibility of the Underground Mine alternative was re-considered during development of the SDEIS. In response to a request from the Co-lead Agencies, PolyMet's consultants prepared an updated economic assessment of underground mining, which the Co-lead Agencies independently evaluated (see FEIS Appendix B). The Co-lead Agencies concluded that an underground mine would not be economically feasible, regardless of the tonnage extracted. In addition, the lower rate of ore production would not meet the Purpose and Need of the project. Although the Underground Mine alternative would offer environmental benefits over the NorthMet Project Proposed Action, it would result in reduced socioeconomic benefits. A position paper (FEIS Appendix B) was prepared to document the Co-lead Agencies' rationale for eliminating the Underground Mine alternative from further consideration. The West Pit Backfill alternative (E20) was considered but eliminated during the development of the DEIS. It was eliminated from further consideration because it was determined that it would not offer significant environmental or socioeconomic benefits compared to the NorthMet Project Proposed Action and because backfilling the West Pit would prevent recovery of additional mineral resources. These factors are sufficient to qualify the West Pit Backfill alternative as unreasonable under NEPA, and justify its exclusion under *Minnesota Rules*, part 4410.2300, subpart G. It was re-considered in the SDEIS in response to DEIS comments from the Cooperating Agencies. A Co-lead Agencies memorandum (MDNR et al. 2013b, as cited in the FEIS) was prepared to summarize the decision-making process, which is referenced in FEIS Section 3.2.3.4.2. The Co-lead Agencies screened the alternative against criteria used for other alternatives, including Purpose and Need, Technical and Economic Feasibility, Availability, and Environmental or Socioeconomic Benefit. The opportunity to reclaim wetlands and vegetation at the Category 1 Waste Rock Stockpile footprint area would be a measurable environmental benefit offered by backfilling the Category 1 Stockpile into the West Pit. However, some degree of these vegetation and wetland impacts would occur and would require mitigation regardless of future backfilling or not because of the need to "temporarily" store these	ALT 01 ALT 03 ALT 04 ALT 06

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		materials until mining operations cease. An interagency memorandum was prepared regarding the West Pit Water Elevation Alternative (MDNR et al. 2014, as cited in the FEIS). This alternative includes both the option to maintain a dry West Pit through perpetual pumping and maintaining pit water levels below the elevation of the Partridge River. The alternative was screened against criteria used for other alternatives, including Purpose and Need, Technical and Economic Feasibility, Availability, and Environmental or Socioeconomic Benefit. The screening level assessment concluded that the alternative would meet all criteria except for the environmental or socioeconomic benefit criterion. Continuous dewatering of the West Pit would keep the pit walls exposed instead of covered by a pit lake as in the NorthMet Project Proposed Action. This exposure would potentially result in increased solute loading to a smaller pit lake volume, and thus higher concentrations of pollutants than under the NorthMet Project Proposed Action. Consequently, treatment would be required for a longer period of time. The Co-lead Agencies recommend that the Alternative be considered as an adaptive mitigation measure in the event that monitoring during operations and reclamation indicate that implementing this action is better able to meet future environmental objectives compared to the NorthMet Project Proposed Action. See the response to themes ALT 06 and ALT 13 for more details on several other alternatives, including paste tailings, and RO treatment.	
3105	The Fond du Lac Band of Lake Superior Chippewa conducted meetings in February 2011 to discuss past and current traditional uses by the Band of the area in the NorthMet project. It was expected from the beginning that the distance between the NorthMet area and the Fond du Lac Reservation would reduce the chances of documenting specific use of the area by Fond du Lac Band members.	The federal Co-lead Agencies have made a reasonable and good-faith effort to identify cultural resources potentially affected by the NorthMet Project Proposed Action, and to determine which resources qualify for inclusion in the NRHP as historic properties. Impacts to historic properties have been appropriately assessed, and the federal Co-lead Agencies are actively consulting with the federally recognized Bands, the Minnesota SHPO, and other consulting parties to develop appropriate mitigation measures. Effects on resources significant to the Bands that do not qualify as historic properties, as well as general effects on natural resources, are considered within the parameters of the statutes that shape this review. Effects on cultural resources and culturally significant natural resources are addressed in the Cultural Resources sections in FEIS Chapters 4, 5, and 6.	CR 01 CR 05 CR 06
19571	The NEPA “hard look” requires agencies to “exercise a degree of skepticism in dealing with self-serving statements from the prime beneficiary	The original NorthMet Project proposal and alternatives were developed during project scoping in 2005. The NorthMet Project Proposed Action was refined at various points in response to public and agency input. As a result,	ALT 14 ALT 21

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	of a project" when analyzing alternatives. Contrary to the explicit requirements of the Council on Environmental Quality (CEQ) rules, the SDEIS does not evaluate or examine in any substantive way potentially viable Project alternatives. Even the no action alternative is lacking in detail and analysis. Tribal cooperating agencies identified this deficiency in the DEIS, consistently brought it forward for discussions throughout the SDEIS process, and US EPA cited the lack of alternatives as a factor when issuing an EU-3 rating for the DEIS.	the NorthMet Project Proposed Action studied in the SDEIS is not identical to the proposed action in the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). Because some of the alternatives to the proposed action were eliminated during the scoping and DEIS phases of the project, they were not re-evaluated in the SDEIS. Alternatives were eliminated from detailed evaluation if they did not offer substantial environmental or socioeconomic benefits, were not reasonable (technically or economically feasible), were not available, or would not meet the Purpose and Need. This review—beginning during the scoping process and concluding with the FEIS—is consistent with the alternatives review required by NEPA and MEPA, and with CEQ rules for analyzing alternatives. FEIS Section 3.2.3.2 discusses how the Consent Decree under the NorthMet Project No Action Alternative would require Cliffs Erie to complete closure and reclamation activities at the Plant Site. This would include completing activities for the localized affected areas under the Minnesota Voluntary Investigation and Cleanup (VIC) Program, removal of the former Plant Site building, and management of seepage at the Tailings Basin embankment. The FEIS mentions in Table 3.2-1 that under the NorthMet Project no Action Alternative, there would be no mining activities, and that existing management and land use of the federal lands would continue. The NorthMet Project No Action Alternative is also analyzed under each resource area in FEIS Chapter 5, and summarized in FEIS Table 7.2.4-1. Several other alternatives for both the NorthMet Mining Project and Land Exchange were screened before the FEIS (see FEIS Section 3.2.3.3). These alternatives were eliminated as they did not offer a substantial environmental or socioeconomic benefit, were not reasonable (economically or technically feasible in accordance with CEQ guidelines), or would not meet the Purpose and Need.	
19573	Although the SDEIS was revised to reflect the Project proponent's preferred action, the only alternative analyzed in any detail concerns simply the acreage of the proposed land exchange. This is not consistent with the CEQ regulations that require federal agencies to identify an agency-preferred alternative in a draft EIS. Yet the SDEIS states "At this time, the Co-lead Agencies have not identified a preferred alternative, and for the	Neither Minnesota Rules nor CEQ regulations required the Co-lead Agencies to identify a preferred alternative in the SDEIS (40 CFR 1502.14(e)). The FEIS includes available details regarding the identification of an Agency Preferred Alternative. Additional Land Exchange alternatives were identified, screened, and eliminated during scoping leading up to the SDEIS (see FEIS Sections 3.3.3 and 7.2). FEIS Section 7.4 includes additional information about the Agency Preferred Alternative. The United States Forest Service (USFS) must identify a preferred alternative for the Land Exchange in the FEIS. The Minnesota	ALT 21 ALT 23

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	USACE, Appendix B of 33 CFR Part 325 supersedes the CEQ requirement to identify an agency-preferred alternative."	Department of Natural Resources (MDNR) is not required to identify a preferred alternative under MEPA. FEIS Sections 3.2 and 3.3 further detail this process.	
19575	There is no evaluation or identification in the SDEIS of the 'least environmentally damaging practicable alternative' ("LEDPA") as required before approving a CWA §404 wetlands permit.	The LEDPA process is described in FEIS Section 7.5. The ROD for the USACE would include the Section 404(b)(1) analysis and the public interest review, and would determine the LEDPA. Furthermore, the ROD for the USACE cannot be finalized until 30 days after release of an FEIS. Any comments received during the 30 day period may be considered in the ROD for the USACE. The ROD for the USACE would recommend issuance, issuance with conditions, or denial of the Project.	COE 04
19577	A fundamental operational component of the Proponent's preferred alternative analysis described in the SDEIS is to deposit their reactive slurry tailings on top of existing taconite tailings in an unlined basin that is currently required, under a Consent Decree, to remediate seepage that has already polluted the nearby ground and surface waters. The SDEIS analysis assumes a tailings basin seepage capture rate of 95% – a performance efficiency that has not been demonstrated anywhere in the US, nor is it feasible since the tailings basin was constructed (per standard Minnesota ferrous mining practices) without a liner. There is an existing seepage capture system installed at SD026 as a requirement of the Consent Decree, yet it has proven to be so ineffective that Cliffs Erie LLC (the responsible party) has proposed building an additional dam and capture system further downstream.	The Co-lead Agencies acknowledge that there are existing water containment systems at other mine sites that do not operate with a high degree of capture, but these are different designs and cannot be compared to the system proposed for the NorthMet Project Proposed Action. The proposed containment system uses pumping on the tailings side and discharge on the opposite side to reverse hydraulic gradients across the slurry wall and in underlying bedrock. Relatively few containment systems have been built with this degree of pumping and discharge to ensure effective containment. The conceptual hydraulics of this type of system provides evidence that it would achieve complete or nearly complete capture. The FEIS describes a 2014 field program that investigated bedrock along the alignment of the proposed containment system on the northern, northwestern, and western sides of the Tailings Basin in Section 4.2.2.3.1. This investigation provided field data on bedrock hydraulic conductivity, Rock Quality Designation, and depth to top of bedrock. This information was used to develop revised MODFLOW cross-section models to evaluate containment system efficiencies on the northern, northwestern, and western sides of the Tailings Basin, which are documented in the Plant Site Water Management Plan (PolyMet 2015i, as cited in the FEIS). These new models considered the presence of an upper more-permeable bedrock zone directly below the slurry wall, with hydraulic properties based on 2014 packer tests conducted in five boreholes along the proposed containment system alignment. Sensitivity analyses included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 100 feet. The model results predict that the overall capture efficiencies of the proposed Tailings Basin containment systems would be substantially greater than 90 percent. The assumption in the Plant	GT 02 PD 12 WR 020 WR 117

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		Site GoldSim model of 90 percent or greater capture efficiency is justified by the analyses performed.	
19578	Dewatered or paste tailings placed on a liner and covered could substantially minimize the mass and concentration of pollutants reaching the Embarrass River watershed wetlands and the Embarrass River. This is a modern mine waste management technique used by many mines in the US and around the world, yet it has never been evaluated as an alternative for this project. "Converting to paste tailings technology from conventional slurry tailings at most mines makes sense, both environmentally and economically. Paste tailings use less water, require less land, do not require engineered containment dams, generate less acid and contaminants, reduce long-term costs and allow for early reclamation. Slurry tailings use and discharge large volumes of water, require dust control measures, require large land areas and containment dams for disposal, and create contaminated water that must be captured and treated."	A thickened tailings (paste tailings) alternative (A1) was considered but eliminated in the DEIS and post-DEIS as it was determined not to offer significant environmental benefits over the NorthMet Project Proposed Action. A co-disposal of waste rock and tailings on a lined tailings basin alternative (E14) was considered but eliminated in the DEIS because the technical feasibility and cost of doing so were uncertain. Several different tailings basin alternatives (TB2-TB6) were re-considered but eliminated since the DEIS. These Tailings Basin alternatives did not afford meaningful environmental benefits compared to the enhanced engineering controls, such as seepage collection and reverse osmosis [RO] mechanical water treatment (or equivalently performing technologies), built into the NorthMet Project Proposed Action. Dry cap seepage was predicted to result in substantially higher concentrations, under the current modeling approach, which would make the future transition from mechanical to non-mechanical water treatment more difficult during post-closure.	ALT 10 ALT 16
19580	The State of New Mexico, Office of Natural Resource Trustee, requires perpetual pumping of the mine pits to prevent formation of a pit lake at the Chino and Tyrone copper mines, specifically for the protection of groundwater. The experience of numerous western mines discharging plumes of polluted water into the bedrock aquifer from leaking mine pits, tailings basins and waste rock piles, highlights a predictable problem that is not only difficult but expensive to fix. By requiring perpetual pumping [alternative not considered in the SDEIS] of the mine pit, the regulatory agencies would minimize leakage of contaminated water into the surrounding bedrock aquifer, and thereby protect groundwater that the State of Minnesota is required to protect as source of drinking water.	An interagency memorandum was prepared regarding the West Pit Water Elevation Alternative (MDNR et al. 2014). This alternative includes both the option to maintain a dry West Pit through perpetual pumping and maintaining pit water levels below the elevation of the Partridge River. The alternative was screened against criteria used for other alternatives, including Purpose and Need, Technical and Economic Feasibility, Availability, and Environmental or Socioeconomic Benefit. The screening level assessment concluded that the alternative would meet all criteria except for the environmental or socioeconomic benefit criterion. Continuous dewatering of the West Pit would keep the pit walls exposed instead of covered by a pit lake as in the NorthMet Project Proposed Action. This exposure would potentially result in increased solute loading to a smaller pit lake volume, and thus higher concentrations of pollutants than under the NorthMet Project Proposed Action. Consequently, treatment would be required for a longer period of time. The Co-lead Agencies recommend that the Alternative be considered as an adaptive mitigation	ALT 04

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		measure in the event that monitoring during operations and reclamation indicate that implementing this action is better able to meet future environmental objectives compared to the NorthMet Project Proposed Action.	
19581	In the 2009 DEIS, the co-lead agencies maintained that all waste rock should be considered reactive. SDEIS Table 3.2-8, Waste Rock Characterization Properties , acknowledges that the Category 1 waste rock (rock that is <0.12% sulfur), which constitutes 70% of the volume of waste rock, has a "low potential to generate acid, but may leach metals." Back-filling all of the mine pits with all of the waste rock would reduce the final surface footprint of the mine at closure, and make possible 526 acres of wetland restoration where the Category 1 stockpile is now proposed to be stored in perpetuity. This alternative would prevent the need for a permanent separate seepage capture system around an unlined waste rock pile, as proposed in the preferred alternative, which would have to perform at an above-optimum capture rate in perpetuity to comply with Minnesota Water Quality Standards ("MN WQS"). Capping and re-vegetating the mine pits after backfilling with waste rock would prevent deep infiltration of precipitation and reduce mobilization of toxic metals.	FEIS Section 3.2.2.1.10 states that waste rock would be backfilled into the East Pit starting at year 11 and in the combined East Central Pit starting in year 16. After backfilling is complete, a wetland would be constructed over the combined East Central Pit. The West Pit Backfill alternative (E20) was considered but eliminated during the development of the DEIS. It was eliminated from further consideration because it was determined that it would not offer significant environmental or socioeconomic benefits compared to the NorthMet Project Proposed Action and because backfilling the West Pit would prevent recovery of additional mineral resources. These factors are sufficient to qualify the West Pit Backfill alternative as unreasonable under NEPA and justify its exclusion under *Minnesota Rules*, part 4410.2300, subpart G. It was reconsidered in the SDEIS in response to comments from the Cooperating Agencies. A Co-lead Agencies memorandum (MDNR et al. 2013b, as cited in the FEIS) was prepared to summarize the decision-making process, which is referenced in FEIS Section 3.2.3.4.2. The Co-lead Agencies screened the alternative against criteria used for other alternatives, including Purpose and Need, Technical and Economic Feasibility, Availability, and Environmental or Socioeconomic Benefit (see FEIS section 3.2.3 for more detail and alternative screening process and terms and definitions). The opportunity to reclaim wetlands and vegetation at the Category 1 Waste Rock Stockpile footprint area would be the only measurable environmental benefit offered by backfilling the Category 1 Stockpile into the West Pit. However, because of the temporal impact that the stockpile would have, these impacts would be required to be mitigated regardless of future backfilling or not.	ALT 06
19582	The SDEIS inexplicably removes the stockpile liner described in the 2009 DEIS for Category 1/2 waste rock in the current project proposed action. From Table 3.2-16 Comparison of DEIS and SDEIS NorthMet Project Proposed Action: DEIS: Category 1 and 2 waste rock would be stored in a permanent lined/covered stockpile (Category 1/2 Stockpile) north of the west pit	The Final Scoping Decision Document (FSDD) examined several modified design alternatives, as well as multiple mitigation and monitoring measures. The 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) also discussed a liner system as part of its consideration of a modified design or layout at the Mine Site. Key aspects of this alternative from the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) were incorporated into the NorthMet Project Proposed Action and studied in the SDEIS. As proposed in the FEIS, liners would be installed for stockpiles or areas where there is a potential to generate acid and metal leachate from	ALT 07 ALT 13

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	(years 1-11) SDEIS: Category 1 waste rock mined from years 1-13 would be stored in an unlined, permanent stockpile north of the West Pit. The stockpile would have a geomembrane cover system at completion and surface water and groundwater collection system would encompass the entire stockpile and direct water to the Mine Site WWTF. If not backfilled, the Category 1 waste rock stockpile must be lined.	potentially reactive waste. Temporary stockpiles (Category 2/3 and Category 4) and the Ore Surge Pile would contain a liner. The Category 1 Stockpile would have a containment system to collect seepage, which would be pumped to the Waste Water Treatment Facility (WWTF). The Overburden Storage and Laydown Area would hold peat soils and unsaturated overburden, which are not considered to be reactive.	
19583	However, combining the two alternatives of perpetual pumping and backfilling the Category 1 waste rock pile would substantially reduce the risk of polluting groundwater and wetlands in the Partridge River watershed.	The two alternatives are contradictory together, as backfilling of the Category 1 waste rock into the West Pit would eliminate the opportunity to perpetually pump the West Pit lake. The West Pit Backfill alternative (E20) was considered but eliminated during the development of the DEIS. It was eliminated from further consideration because it was determined that it would not offer significant environmental or socioeconomic benefits compared to the NorthMet Project Proposed Action and because backfilling the West Pit would prevent recovery of additional mineral resources. These factors are sufficient to qualify the West Pit Backfill alternative as unreasonable under NEPA and justify its exclusion under *Minnesota Rules*, part 4410.2300, subpart G. It was reconsidered in the SDEIS in response to comments from the Cooperating Agencies. A Co-lead Agencies memorandum (MDNR et al. 2013b, as cited in the FEIS) was prepared to summarize the decision-making process, which is referenced in the FEIS Section 3.2.3.4.2. The Co-lead Agencies screened the alternative against criteria used for other alternatives, including Purpose and Need, Technical and Economic Feasibility, Availability, and Environmental or Socioeconomic Benefit. The opportunity to reclaim wetlands and vegetation at the Category 1 Waste Rock Stockpile footprint area would be the only measurable environmental benefit offered by backfilling the Category 1 Stockpile into the West Pit. However, because of the temporal impact that the stockpile would have, these impacts would be required to be mitigated regardless of future backfilling or not. An interagency memorandum was prepared regarding the West Pit Water Elevation Alternative (MDNR et al. 2014, as cited in the FEIS). This	ALT 04 ALT 06

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		alternative includes both the option to maintain a dry West Pit through perpetual pumping and maintaining pit water levels below the elevation of the Partridge River. The alternative was screened against criteria used for other alternatives, including Purpose and Need, Technical and Economic Feasibility, Availability, and Environmental or Socioeconomic Benefit. The screening level assessment concluded that the alternative would meet all criteria except for the environmental or socioeconomic benefit criterion. Continuous dewatering of the West Pit would keep the pit walls exposed instead of covered by a pit lake as in the NorthMet Project Proposed Action. This exposure would potentially result in increased solute loading to a smaller pit lake volume, and thus higher concentrations of pollutants than under the NorthMet Project Proposed Action. Consequently, treatment would be required for a longer period of time. The Co-lead Agencies recommend that the Alternative be considered as an adaptive mitigation measure in the event that monitoring during operations and reclamation indicate that implementing this action is better able to meet future environmental objectives compared to the NorthMet Project Proposed Action.	
19584	The Minnesota Department of Natural Resources (DNR) and US Army Corps of Engineers (USACE) superficially evaluated and subsequently dismissed underground mining as an alternative to the proposed open pit Project for the 2009 DEIS. The co-lead agencies eliminated this alternative from further evaluation because it would have had "a significantly reduced rate of operation that would not be considered economically feasible, and, therefore, would not meet the Purpose and Need of the Project." Tribal cooperating agencies urged the co-lead agencies, now including the US Forest Service (USFS), to do a more robust analysis of the underground mining alternative for the SDEIS, but the co-lead agencies did not "exercise a degree of skepticism in dealing with self-serving statements from the prime beneficiary of a project" when analyzing this alternative. This alternative was eliminated by the Project proponent based purely on an economic decision that underground mining would not be as	The Underground Mine alternative was first considered but eliminated during the Final Scoping Decision Document (FSDD) process. The FEIS Section 3.2.3.4.1 describes how it was re-considered during the DEIS process as alternative E7 in response to Cooperating Agency and stakeholder comments, but eliminated from further consideration. The economic feasibility of the Underground Mine alternative was reconsidered during development of the SDEIS. In response to a request from the Co-lead Agencies, PolyMet's consultants prepared an updated economic assessment of underground mining, which the Co-lead Agencies independently evaluated (see FEIS Appendix B). The Co-lead Agencies concluded that an underground mine would not be profitable, regardless of the tonnage extracted. The lower rate of ore production would not meet the Purpose and Need of the project. Though it would offer environmental benefits over the NorthMet Project Proposed Action, it would result in reduced socioeconomic benefits. They accordingly concluded that the Underground Mine alternative was not economically feasible, and would not meet the NorthMet Project's Purpose and Need. A position paper (FEIS Appendix B) was prepared to document the Co-lead Agencies' rationale for eliminating the Underground Mine alternative from further consideration. FEIS Section 5.2.10.1.4 states, "Neither NEPA nor CEQ requires the cost and benefits of a proposed action to be quantified in dollars or any other	ALT 01

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	profitable as open pit mining. The co-lead agencies claim that "it was not possible to undertake a quantitative, side-by-side assessment of the underground mining alternative." An underground mine would have a reduced mining rate and life of mine, employed fewer workers for a shorter period of time, and reduced state and local tax revenues. Although the underground mining alternative would offer substantial environmental benefits (significantly less wetland destruction, less mine-generated waste, less groundwater and surface water pollution generated and requiring treatment and control, less reclamation and closure activities, less nuisance and reactive dust to be controlled, less noise and vibration impacts, less visual impacts), the economic and intrinsic value of those benefits are not even estimated. In addition, an underground mine project would not require a federal land exchange, resulting in lower start-up costs and avoiding the permanent loss of high quality resources (as discussed in later comments on Land Exchange impacts). Based upon an incomplete analysis of the benefits of an underground mine, the co-lead agencies determined that this alternative would result in reduced socioeconomic benefits, and; "PolyMet would not move forward with an unprofitable project, thus any potential environmental or socioeconomic benefits associated with this alternative are moot."	common metric; however, this EIS acknowledges that economic costs and loss of non-market value may results from environmental and social effects. Also acknowledged is that the agreement on the value (i.e., the "cost") of environmental effects is often difficult to achieve. Therefore, the approach of this EIS is to evaluate environmental and social impacts directly, in the appropriate resource-specific section." CEQ regulations for implementing NEPA (40 CFR 1502.23) state that, "for purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations."	
19585	The co-lead agencies determined that underground mining was considered technically feasible, but concluded that "PolyMet is a private sector and for-profit company, the value of the saleable material would need to provide sufficient income to cover operating cost (which includes, but is not limited to, the cost of mining, processing,	The Underground Mine alternative was first considered but eliminated during the Final Scoping Decision Document (FSDD) process. The FEIS Section 3.2.3.4.1 describes how it was re-considered during the DEIS process as alternative E7 in response to Cooperating Agency and stakeholder comments, but eliminated from further consideration. The economic feasibility of the Underground Mine alternative was re-considered during development of the SDEIS. In response to a request from	ALT 01

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	transportation, and waste management), capital cost (to build and sustain facilities), an adequate return to investors, reclamation, and closure costs and taxes. An underground mining project would leave most of the NorthMet Deposit unmined because of its low metal value relative to the cost of mining and mineral processing. Other material would have to be left in place for safety reasons, to prevent collapse." Therefore, "the Co-lead Agencies found that while underground mining is technically feasible, available, and would offer significant environmental benefits over the proposed NorthMet Project, it would not be economically feasible and would not meet the Purpose and Need. Since the underground mining alternative would not meet all of the screening criteria, it is not considered to be a reasonable alternative. Therefore, the underground mining alternative was eliminated from further evaluation in the SDEIS." The SDEIS does not contain the appropriate level of detail required to eliminate this alternative. The conclusion that underground mining is neither viable nor preferable remains substantially unjustified, despite repeated requests by the tribal cooperating agencies for further analysis.	the Co-lead agencies, PolyMet's consultants prepared an updated economic assessment of underground mining, which the Co-lead agencies independently evaluated (see FEIS Appendix B). The Co-lead agencies concluded that an underground mine would not be profitable, regardless of the tonnage extracted. The lower rate of ore production would not meet the purpose and need of the project. Though it would offer environmental benefits over the NorthMet Project Proposed Action, it would result in reduced socioeconomic benefits. They accordingly concluded that the Underground Mine alternative was not economically feasible, and would not meet the NorthMet Project's Purpose and Need. A position paper (FEIS Appendix B) was prepared to document the Co-lead Agencies' rationale for eliminating the Underground Mine alternative from further consideration.	
19587	The Project Proponent, without considering the economics of perpetual treatment, the purchase of thousands of acres of land for the federal land exchange, direct and indirect wetland mitigation costs, etc., concludes in their economic analysis that underground mining is "[n]ot economically viable" while simultaneously claiming that backfilling the west pit would create encumbrances not allowed in their mineral lease due to mineral resources located below the west pit that could only be accessed through underground mining. This is not the appropriate rigor in a cost-	The Underground Mine alternative was first considered but eliminated during the FSDD process. FEIS Section 3.2.3.4.1 describes how it was reconsidered during the DEIS process as alternative E7 in response to Cooperating Agency and stakeholder comments, but eliminated from further consideration. The economic feasibility of the Underground Mine alternative was reconsidered during development of the SDEIS. In response to a request from the Co-lead Agencies, PolyMet's consultants prepared an updated economic assessment of underground mining, which the Co-lead Agencies independently evaluated (see FEIS Appendix B). The Co-lead Agencies concluded that an underground mine would not be profitable, regardless of the tonnage extracted. The lower rate of ore production would not meet the Purpose and Need of the project. Though it would offer	ALT 01 ALT 03

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	benefit analysis for thoroughly evaluating an EIS alternative. The CEQ regulations require that, where a cost-benefit analysis is "relevant to the choice among environmentally different alternatives," there are a variety of additional requirements, including "analysis of un-quantified environmental impacts, values, and amenities," in addition to other CEQ alternatives rules.	environmental benefits over the NorthMet Project Proposed Action, it would result in reduced socioeconomic benefits. They accordingly concluded that the Underground Mine alternative was not economically feasible, and would not meet the NorthMet Project's Purpose and Need. A position paper (FEIS Appendix B) was prepared to document the Co-lead Agencies' rationale for eliminating the Underground Mine alternative from further consideration. The FEIS Section 5.2.10.1.4 states, "Neither NEPA nor CEQ requires the cost and benefits of a proposed action to be quantified in dollars or any other common metric; however, this EIS acknowledges that economic costs and loss of non-market value may results from environmental and social effects. Also acknowledged is that the agreement on the value (i.e., the "cost") of environmental effects is often difficult to achieve. Therefore, the approach of this EIS is to evaluate environmental and social impacts directly, in the appropriate resource-specific section." CEQ regulations for implementing NEPA (40 CFR 1502.23) state that, "for purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations."	
19588	As already argued in the Tribal Position, significant additional study of the underground mining alternative is mandated, and the SDEIS offers no new discussion of the reasons for rejecting the alternative. The economic viability of an underground mine depends on a variety of factors including ore grade, market prices, cost of tailings management, and waste rock disposal. A study of this particular deposit was performed by the prior owner of the site, US Steel, which actually recommended underground mining. PolyMet is well aware of this study, given that the company included it in a filing with the Securities and Exchange Commission in 2003. In fact, by examining geologic cross-sections showing the distribution of ore by depth, it appears that there are substantial ore reserves at depths that likely could not be accessed by the proposed open-pit	The Underground Mine alternative was first considered but eliminated during the FSDD process. The FEIS Section 3.2.3.4.1 describes how it was reconsidered during the DEIS process as alternative E7 in response to Cooperating Agency and stakeholder comments, but eliminated from further consideration. The economic feasibility of the Underground Mine alternative was reconsidered during development of the SDEIS. In response to a request from the Co-lead Agencies, PolyMet's consultants prepared an updated economic assessment of underground mining, which the Co-lead Agencies independently evaluated (see FEIS Appendix B). The Co-lead Agencies concluded that an underground mine would not be profitable, regardless of the tonnage extracted. The lower rate of ore production would not meet the Purpose and Need of the project. Though it would offer environmental benefits over the NorthMet Project Proposed Action, it would result in reduced socioeconomic benefits. They accordingly concluded that the Underground Mine alternative was not economically feasible, and would not meet the NorthMet Project's Purpose and Need. A position paper (FEIS Appendix B) was prepared to document the Co-lead Agencies' rationale for eliminating the Underground Mine alternative from	ALT 01

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	mine.	further consideration. The FEIS Section 5.2.10.1.4 states, "Neither NEPA nor CEQ requires the cost and benefits of a proposed action to be quantified in dollars or any other common metric; however, this EIS acknowledges that economic costs and loss of non-market value may results from environmental and social effects. Also acknowledged is that the agreement on the value (i.e., the "cost") of environmental effects is often difficult to achieve. Therefore, the approach of this EIS is to evaluate environmental and social impacts directly, in the appropriate resource-specific section." CEQ regulations for implementing NEPA (40 CFR 1502.23) state that, "for purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations."	
19589	The environmental costs of open-pit mining and the requisite wetland mitigation and above-ground disposal of tailings and waste rock are immense. These environmental costs, combined with the most current understanding of deposit ore grades, reasonably potential metals prices, and the costs associated with perpetual treatment must all be evaluated to determine the feasibility of this [underground mining] alternative.	The Underground Mine alternative was first considered but eliminated during the Final Scoping Decision Document (FSDD) process. FEIS Section 3.2.3.4.1 describes how it was re-considered during the DEIS process as alternative E7 in response to Cooperating Agency and stakeholder comments, but eliminated from further consideration. The economic feasibility of the Underground Mine alternative was re-considered during development of the SDEIS. In response to a request from the Co-lead Agencies, PolyMet's consultants prepared an updated economic assessment of underground mining, which the Co-lead Agencies independently evaluated (see FEIS Appendix B). The Co-lead Agencies concluded that an underground mine would not be economically feasible, regardless of the tonnage extracted. In addition, the lower rate of ore production would not meet the Purpose and Need of the project. Although the Underground Mine alternative would offer environmental benefits over the NorthMet Project Proposed Action, it would result in reduced socioeconomic benefits. A position paper (FEIS Appendix B) was prepared to document the Co-lead Agencies' rationale for eliminating the Underground Mine alternative from further consideration. FEIS Section 5.2.10.1.4 states, "neither NEPA nor CEQ requires the cost and benefits of a proposed action to be quantified in dollars or any other common metric. However, this EIS acknowledges that economic costs and loss of non-market value may result from environmental and social effects. Also acknowledged is that the agreement on the value (i.e., the "cost") of environmental effects is often difficult to achieve. Therefore, the approach	ALT 01

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		of this EIS is to evaluate environmental and social impacts directly, in the appropriate resource-specific section." CEQ regulations for implementing NEPA (40 CFR 1502.23) state that, "for purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations."	
19594	Even the No Action Alternative analysis is deficient: Under the NorthMet Project No Action Alternative, the NorthMet Project Proposed Action would not occur. The consideration of a No Action Alternative is required to be evaluated in the SDEIS in accordance with NEPA and MEPA. If the NorthMet Project Proposed Action is not approved, the Mine Site would be returned to pre-exploration conditions under the requirements of exploration approvals to reclaim surface disturbance associated with exploratory and development drilling activities. Other existing surface uses would be allowed to continue consistent with the Forest Plan. No further upgrades or new segments would be constructed along the existing power transmission line, railroad, or Dunka Road, which would continue to be used by their private owners. At the brownfield Plant Site, Cliffs Erie would continue to complete closure and reclamation activities as specified under state permits and plans and the Cliffs Erie Consent Decree. This would include completing activities for the localized affected areas under the Minnesota Voluntary Investigation and Cleanup (VIC) Program, removal of the former Plant Site building, and management of seepage at the Tailings Basin embankment. This evaluation must also acknowledge that there	The FEIS discusses in Section 3.2.3.2 how the Consent Decree under the NorthMet Project No Action Alternative would require Cliffs Erie to complete closure and reclamation activities at the Plant Site. This would include completing activities for the localized affected areas under the Minnesota Voluntary Investigation and Cleanup (VIC) Program, removal of the former Plant Site building, and management of seepage at the Tailings Basin embankment. The FEIS identifies in Table 3.2-1 that under the NorthMet Project No Action Alternative, there would be no mining activities, and that existing management and land use of the federal lands would continue. The NorthMet Project No Action Alternative is also analyzed under each resource area in the FEIS Chapter 5, and summarized in the FEIS Table 7.2.4-1. FEIS Section 5.2.3.4 identifies that under the NorthMet Project No Action Alternative there would be no direct or indirect effects on wetlands.	ALT 14 WR 108

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	would be no direct disturbance of over 900 acres of high quality wetlands, thousands more wetland acres that would not be indirectly affected, no loss of high quality forested uplands, no further diminishment of wildlife habitat, no permanent loss of treaty resources under the land exchange, no cumulative effects to resources and environmental quality. In fact, water quality should improve substantially under the No Action Alternative, as the Cliffs Erie Consent Decree requires that the closed tailings basin ultimately achieves compliance with MN WQS.		
19595	The SDEIS is approach to considering less environmentally degrading alternatives is fundamentally inadequate. CEQ rules require that the EIS "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public." The SDEIS must be revised to fully evaluate reasonable alternatives in the SDEIS, including identifying the federal agency preferred alternative and the LEDPA.	The original project proposal and alternatives were developed during project scoping in 2005. The NorthMet Project Proposed Action was refined at various points in response to public and agency input. As a result, the NorthMet Project Proposed Action studied in the SDEIS is not identical to the proposed action in the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). Because some of the alternatives to the proposed action were eliminated during the scoping and DEIS phases of the project, they were not re-evaluated in the SDEIS. Alternatives were eliminated from detailed evaluation if they did not offer substantial environmental or socioeconomic benefits, were not reasonable (technically or economically feasible), were not available, or would not meet the Purpose and Need. This review—beginning during the scoping process and concluding with the FEIS—is consistent with the alternatives review required by NEPA and MEPA, and with the CEQ rules for analyzing alternatives. The FEIS explains in Section 3.2.3 how alternatives were eliminated or incorporated. Minnesota Rules and CEQ rules (40 CFR 1502.14) require that the effects of the NorthMet Project Proposed Action and alternatives must be compared. The FEIS compares the NorthMet Project Proposed Action, NorthMet Project No Action, Land Exchange Proposed Action, Land Exchange Alternative B, and Land Exchange No Action Alternative separately.	ALT 20
19597	The land Exchange Proposed Action, as described in the SDEIS, serves to confirm our concerns for permanent, unmitigated impacts to treaty resources	As described in the FEIS, there would not be a net loss to the 1854 Ceded Territory. All of the non-federal lands proposed for exchange are located within the 1854 Ceded Territory. The resource values and public objectives of the non-federal lands must equal or exceed the resource values and	LAN 05

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	in the 1854 Ceded Territory.	public objectives of the federal lands. See Section 1.4.3 of the FEIS. Mitigation for cultural resources as a result of the NorthMet Project Proposed Action is discussed in Section 5.2.9 of the FEIS. The NorthMet Project Proposed Action mining activities would result in a loss of bogs; however, as part of the NorthMet Proposed Action, the Applicant is required to provide compensatory mitigation for wetland impacts in accordance with state and federal permits. One of the proposed mitigation sites (Zim Site) for wetland impacts is proposing to compensate for the loss of bogs and would be located within the 1854 Ceded Territory. The Lake County lands were tax forfeit lands that were offered for sale by the County through a public auction. The Lake County lands would still be accessible to the Bands for their use if the exchange took place because the lands would become part of the SNF managed lands. No heritage surveys were conducted on the non-federal lands. If any cultural resources are located on the non-federal lands, those cultural resources would be transferred to federal ownership. Such transfer would not adversely affect the heritage resource, but would provide greater preservation protection under federal law. The non-federal lands that contain wild rice beds would not be impacted as a result of the Land Exchange Proposed Action as no activities are proposed on these lands and the proposed mining activities would not affect these lands. As noted in the FEIS, the Land Exchange Proposed Action would result in additional wild rice beds to the federal estate. The FEIS, Section 5.3.2, clarifies that the Land Exchange Proposed Action would not result in a loss of wild rice beds, nor would the use of the wild rice beds change for the Bands. Please refer to theme LAN 01 for more information on the public interest determination as part of the USFS process.	
19599	The land Exchange Proposed Action does not meet the need of the Bands in the 1854 Ceded Territory. It results in a permanent loss of 382 acres, does not protect fish and wildlife habitat within the Mine Site, does not protect important cultural resources such as wild rice beds, historic trails, and a substantial portion of the Mesabi Widjiu, does not protect the Embarrass, Partridge or St. Louis River watersheds, does not consolidate mineral interests in the private parcels that would be conveyed to	The Agency's obligation is to ensure that Band members have ample opportunity to exercise their treaty-reserved usufructuary rights; that federal lands are managed to maintain both the diversity and abundance of natural resources; and to ensure that the Bands' usufructuary rights to 1854 Treaty resources are not impaired. The Land Exchange Proposed Action was analyzed to understand the potential effects on usufructuary rights. The Co-lead Agencies have consulted, and continue to consult with the Bois Forte Band of Chippewa, the Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa, the three principle Bands that retain usufructuary rights in the proposed project	LAN 05

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	the federal estate, does not promote multiple-use values, or fulfill public needs.	area. In addition, the Co-lead Agencies have consulted with the Great Lakes Indian Fish and Wildlife Commission and the 1854 Treaty Authority, the principal natural resource agencies representing the aforementioned Bands. Through consultation, the Co-lead Agencies understand that the Bands' principle interest with regards to the Land Exchange Proposed Action are the following: to retain or increase the amount of public land within the 1854 Treaty Ceded Territory, shoreline wetlands, culturally important natural resources used in exercising treaty rights of hunting, fishing, and gathering, cultural or religious properties, and access to culturally important natural resources and cultural or religious properties. The Co-lead Agencies have a fiduciary obligation to understand and consider the effects that the Land Exchange Proposed Action would have on Band members exercising their Treaty rights in the 1854 ceded territory. While the Land Exchange Proposed Action would remove certain lands from federal ownership, this loss is potentially offset by incoming private lands that would become part of the federal estate within the 1854 Ceded Territory. Outside of the Land Exchange Proposed Action, the Co-lead Agencies have also analyzed the potential effects posed by the Proposed Connected Actions. The potential affects posed to natural resources and cultural resources of importance to the Bands have been disclosed and would be considered during the Co-lead Agencies' decision process. The resource values and public objectives of the non-federal lands must equal or exceed the resource values and public objectives of the federal lands. See FEIS Section 1.4.3. Mitigation for cultural resources as a result of the NorthMet Project Proposed Action is discussed in Section 5.2.9 of the FEIS. The NorthMet Project Proposed Action mining activities would result in a loss of bogs; however, as part of the NorthMet Proposed Action, the Applicant is required to provide compensatory mitigation for wetland impacts in accordance with state and federal permits. One of the proposed mitigation sites for wetland impacts (Zim Site) would be a compensation site for the loss of bogs, and would be located within the 1854 Ceded Territory. The Lake County lands were tax forfeit lands that were offered for sale by the County through a public auction. The Lake County lands would still be accessible to the Bands for their use if the exchange took place, because the lands would become part of the SNF managed lands. No heritage surveys were conducted on the non-federal lands. If any	

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		cultural resources are located on the non-federal lands, those cultural resources would be transferred to federal ownership. Such transfer would not adversely affect the heritage resource, but would provide greater preservation protection under federal law. The non-federal lands that contain wild rice beds would not be affected as a result of the Land Exchange Proposed Action or Land Exchange Alternative B, because no activities are proposed on these lands and the proposed mining activities would not affect these lands. As noted in the FEIS, the Land Exchange Proposed Action and Land Exchange Alternative B would increase wild rice stands within the federal estate. FEIS Sections 5.3.2 and 5.3.4 clarify that, although the Land Exchange would result in an increase in wild rice stands within the federal estate boundaries, there would be no change to the existing public access to Tract 1 wild rice stands via the Pike River. Consequently, there would be no increase in wild rice harvest opportunities for the public. No wild rice stands are known to occur on the federal lands, and suitable habitat is limited. Please refer to the response to theme LAN 01 for more information on the public interest determination.	
19600	maintaining public land ownership is critical for the exercise of treaty rights. There are 382 acres of Lake County land proposed for the land exchange (Tract 2). This means a net loss, through the exchange, of publicly accessible land for band members exercising their treaty rights.	The Agency's obligation is to ensure that Band members have ample opportunity to exercise their treaty-reserved usufructuary rights; that federal lands are managed to maintain both the diversity and abundance of natural resources; and to ensure that the Bands' usufructuary rights to 1854 Treaty resources are not impaired. The Land Exchange Proposed Action was analyzed to understand the potential effects on usufructuary rights. The Co-lead Agencies have consulted, and continue to consult with the Bois Forte Band of Chippewa, the Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa, the three principle Bands that retain usufructuary rights in the proposed project area. In addition, the Co-lead Agencies have consulted with the Great Lakes Indian Fish and Wildlife Commission and the 1854 Treaty Authority, the principal natural resource agencies representing the aforementioned Bands. Through consultation, the Co-lead Agencies understand that the Bands' principle interest with regards to the Land Exchange Proposed Action are the following: to retain or increase the amount of public land within the 1854 Treaty Ceded Territory, shoreline wetlands, culturally important natural resources used in exercising treaty rights of hunting, fishing, and gathering, cultural or religious properties, and access to culturally important	LAN 05

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		natural resources and cultural or religious properties. The Co-lead Agencies have a fiduciary obligation to understand and consider the effects that the Land Exchange Proposed Action would have on Band members exercising their Treaty rights in the 1854 ceded territory. While the Land Exchange Proposed Action would remove certain lands from federal ownership, this loss is potentially offset by incoming private lands that would become part of the federal estate within the 1854 Ceded Territory. Outside of the Land Exchange Proposed Action, the Co-lead Agencies have also analyzed the potential effects posed by the Proposed Connected Actions. The potential affects posed to natural resources and cultural resources of importance to the Bands have been disclosed and would be considered during the Co-lead Agencies' decision process. The resource values and public objectives of the non-federal lands must equal or exceed the resource values and public objectives of the federal lands. See FEIS Section 1.4.3. Mitigation for cultural resources as a result of the NorthMet Project Proposed Action is discussed in Section 5.2.9 of the FEIS. The NorthMet Project Proposed Action mining activities would result in a loss of bogs; however, as part of the NorthMet Proposed Action, the Applicant is required to provide compensatory mitigation for wetland impacts in accordance with state and federal permits. One of the proposed mitigation sites for wetland impacts (Zim Site) would be a compensation site for the loss of bogs, and would be located within the 1854 Ceded Territory. The Lake County lands were tax forfeit lands that were offered for sale by the County through a public auction. The Lake County lands would still be accessible to the Bands for their use if the exchange took place, because the lands would become part of the SNF managed lands. No heritage surveys were conducted on the non-federal lands. If any cultural resources are located on the non-federal lands, those cultural resources would be transferred to federal ownership. Such transfer would not adversely affect the heritage resource, but would provide greater preservation protection under federal law. The non-federal lands that contain wild rice beds would not be affected as a result of the Land Exchange Proposed Action or Land Exchange Alternative B, because no activities are proposed on these lands and the proposed mining activities would not affect these lands. As noted in the FEIS, the Land Exchange Proposed Action and Land Exchange Alternative B would increase wild rice stands within the federal estate. FEIS Sections	

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		5.3.2 and 5.3.4 clarify that, although the Land Exchange would result in an increase in wild rice stands within the federal estate boundaries, there would be no change to the existing public access to Tract 1 wild rice stands via the Pike River. Consequently, there would be no increase in wild rice harvest opportunities for the public. No wild rice stands are known to occur on the federal lands, and suitable habitat is limited. Please refer to the response to theme LAN 01 for more information on the public interest determination.	
19601	The Forest Service should consider exchange for private lands only in order to maintain - or better yet, increase - the total public land acreage within the 1854 Ceded Territory.	The Agency's obligation is to ensure that Band members have ample opportunity to exercise their treaty-reserved usufructuary rights; that federal lands are managed to maintain both the diversity and abundance of natural resources; and to ensure that the Bands' usufructuary rights to 1854 Treaty resources are not impaired. The Land Exchange Proposed Action was analyzed to understand the potential effects on usufructuary rights. The Co-lead Agencies have consulted, and continue to consult with the Bois Forte Band of Chippewa, the Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa, the three principle Bands that retain usufructuary rights in the proposed project area. In addition, the Co-lead Agencies have consulted with the Great Lakes Indian Fish and Wildlife Commission and the 1854 Treaty Authority, the principal natural resource agencies representing the aforementioned Bands. Through consultation, the Co-lead Agencies understand that the Bands' principle interest with regards to the Land Exchange Proposed Action are the following: to retain or increase the amount of public land within the 1854 Treaty Ceded Territory, shoreline wetlands, culturally important natural resources used in exercising treaty rights of hunting, fishing, and gathering, cultural or religious properties, and access to culturally important natural resources and cultural or religious properties. The Co-lead Agencies have a fiduciary obligation to understand and consider the effects that the Land Exchange Proposed Action would have on Band members exercising their Treaty rights in the 1854 ceded territory. While the Land Exchange Proposed Action would remove certain lands from federal ownership, this loss is potentially offset by incoming private lands that would become part of the federal estate within the 1854 Ceded Territory. Outside of the Land Exchange Proposed Action, the Co-lead Agencies have also analyzed the potential effects posed by the Proposed Connected Actions. The potential affects posed to natural resources and cultural resources of importance to	LAN 05

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		the Bands have been disclosed and would be considered during the Co-lead Agencies' decision process. The resource values and public objectives of the non-federal lands must equal or exceed the resource values and public objectives of the federal lands. See FEIS Section 1.4.3. Mitigation for cultural resources as a result of the NorthMet Project Proposed Action is discussed in Section 5.2.9 of the FEIS. The NorthMet Project Proposed Action mining activities would result in a loss of bogs; however, as part of the NorthMet Proposed Action, the Applicant is required to provide compensatory mitigation for wetland impacts in accordance with state and federal permits. One of the proposed mitigation sites for wetland impacts (Zim Site) would be a compensation site for the loss of bogs, and would be located within the 1854 Ceded Territory. The Lake County lands were tax forfeit lands that were offered for sale by the County through a public auction. The Lake County lands would still be accessible to the Bands for their use if the exchange took place, because the lands would become part of the SNF managed lands. No heritage surveys were conducted on the non-federal lands. If any cultural resources are located on the non-federal lands, those cultural resources would be transferred to federal ownership. Such transfer would not adversely affect the heritage resource, but would provide greater preservation protection under federal law. The non-federal lands that contain wild rice beds would not be affected as a result of the Land Exchange Proposed Action or Land Exchange Alternative B, because no activities are proposed on these lands and the proposed mining activities would not affect these lands. As noted in the FEIS, the Land Exchange Proposed Action and Land Exchange Alternative B would increase wild rice stands within the federal estate. FEIS Sections 5.3.2 and 5.3.4 clarify that, although the Land Exchange would result in an increase in wild rice stands within the federal estate boundaries, there would be no change to the existing public access to Tract 1 wild rice stands via the Pike River. Consequently, there would be no increase in wild rice harvest opportunities for the public. No wild rice stands are known to occur on the federal lands, and suitable habitat is limited. Please refer to the response to theme LAN 01 for more information on the public interest determination.	
19603	This language and description [SDEIS 3.1.2, Land	The FEIS includes information about the baseline conditions of the federal	LAN 06

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	Exchange Overview] is misleading; it downplays the largely undisturbed nature and ecological and biodiversity significance of most of the contiguous lands (i.e., the Hundred Mile Swamp, St. Louis River Headwaters Site).	lands and MBS sites such as the One Hundred Mile Swamp Site in Sections 4.2.4.2.1 (Mine Site) and 4.3.4.1.1 (Federal Lands). The FEIS Sections 4.2.4 and 4.3.4 provide maps of the MBS Sites (Figures 4.2.4-1, 4.2.4-2, 4.2.4-5, 4.3.4-1, and 4.3.4-2) to provide further clarity on locations and extent.	VEG 02
19611	Of the approximately 6,025 acres of MBS Sites of High Biodiversity Significance under the Land Exchange Proposed Action, nearly 2,000 acres of coniferous bog wetlands will be lost to the federal estate and therefore effectively to the Bands, if the Land Exchange Proposed Action is implemented. This is significant because many tribally harvested resources are only available in coniferous bogs (e.g. cranberries, soft-leaved blueberries, sweet flag), and mitigation for coniferous bogs is simply not feasible.	The FEIS includes discussion about NorthMet Project impacts to habitat types, MBS sites, and native plant communities. The vegetation analysis cross-references the FEIS cultural resources section (Section 5.2.9) to ensure consistency and to discuss potential impacts on tribally harvested resources. FEIS Section 5.2.3 discusses restoration of coniferous bogs in mitigation wetlands. The WCA rules (including those parts applicable to mining projects under *Minnesota Rules*, part 8420.0930) include a special consideration for wetlands that are rare natural communities (*Minnesota Rules*, part 8420.0515, subpart 3). *Minnesota Rules*, part 6132.2700 requires that a project site be reclaimed once mining has ceased. The goals of such reclamation are to "control erosion, to screen mining areas from non-compatible uses, and to provide for subsequent land uses such as wildlife habitat or timber production." The rules also include requirements about the characteristics and planting schedule for vegetation used in reclamation. The Permit to Mine would address special consideration of wetlands that include rare natural communities. Additional information on rare natural communities would be included in the wetland permit application as part of the Permit to Mine process for further refinement of site-specific conditions. The Agency's obligation is to ensure that Band members have ample opportunity to exercise their treaty-reserved usufructuary rights; that federal lands are managed to maintain both the diversity and abundance of natural resources; and that the Bands' usufructuary rights to resources are not impaired. The Land Exchange Proposed Action was analyzed to understand the potential effect posed to usufructuary rights. The Co-lead Agencies have consulted, and continue to consult with the Bois Forte Band of Chippewa, the Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa, the three principle Bands that retain usufructuary rights in the proposed project area. In addition, the Co-lead Agencies have consulted with the Great Lakes Indian Fish and Wildlife Commission and the 1854 Treaty Authority, the principal natural resource agencies representing the aforementioned Bands Through consultation, the Co-lead Agencies understand that the Bands' principle	CR 01 WET 05 VEG 02

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		interest with regards to the Land Exchange Proposed Action are the following: to retain or increase the amount of public land within the 1854 Treaty Ceded Territory, shoreline wetlands, culturally important natural resources used in exercising treaty rights of hunting, fishing and gathering, cultural or religious resources, and access to culturally important natural resources and cultural or religious properties. The Co-lead Agencies have a fiduciary obligation to understand and consider the effects that the Land Exchange Proposed Action would have on Band members exercising their Treaty rights in the 1854 ceded territory. While the Land Exchange Proposed Action would remove certain lands from federal ownership, this loss is potentially offset by incoming private lands that would become part of the federal estate within the 1854 ceded territory. Outside of the Land Exchange Proposed Action, the Co-lead Agencies have also analyzed the potential effects posed by the Proposed Connected Actions. The potential affects posed to natural resources and cultural resources of importance to the Bands have been disclosed and would be considered during the Co-lead Agencies' decision process.	
19612	The exchange of thousands of acres of high quality wetlands and forests containing some of the few remaining wildlife corridors in northeastern Minnesota available to the Bands to exercise reserved 1854 Treaty rights, for lands that have moderate diversity is inconsistent with fiduciary responsibilities that are shared by all federal agencies.	The Agency's obligation is to ensure that Band members have ample opportunity to exercise their treaty-reserved usufructuary rights; that federal lands are managed to maintain both the diversity and abundance of natural resources; and to ensure that the Bands' usufructuary rights to 1854 Treaty resources are not impaired. The Land Exchange Proposed Action was analyzed to understand the potential effects on usufructuary rights. The Co-lead Agencies have consulted, and continue to consult with the Bois Forte Band of Chippewa, the Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa, the three principle Bands that retain usufructuary rights in the proposed project area. In addition, the Co-lead Agencies have consulted with the Great Lakes Indian Fish and Wildlife Commission and the 1854 Treaty Authority, the principal natural resource agencies representing the aforementioned Bands. Through consultation, the Co-lead Agencies understand that the Bands' principle interest with regards to the Land Exchange Proposed Action are the following: to retain or increase the amount of public land within the 1854 Treaty Ceded Territory, shoreline wetlands, culturally important natural resources used in exercising treaty rights of hunting, fishing, and gathering, cultural or religious properties, and access to culturally important natural resources and cultural or religious properties. The Co-lead Agencies have a fiduciary obligation to understand and consider the effects that the	CR 01 LAN 05

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		Land Exchange Proposed Action would have on Band members exercising their Treaty rights in the 1854 ceded territory. While the Land Exchange Proposed Action would remove certain lands from federal ownership, this loss is potentially offset by incoming private lands that would become part of the federal estate within the 1854 Ceded Territory. Outside of the Land Exchange Proposed Action, the Co-lead Agencies have also analyzed the potential effects posed by the Proposed Connected Actions. The potential affects posed to natural resources and cultural resources of importance to the Bands have been disclosed and would be considered during the Co-lead Agencies' decision process. The resource values and public objectives of the non-federal lands must equal or exceed the resource values and public objectives of the federal lands. See FEIS Section 1.4.3. Mitigation for cultural resources as a result of the NorthMet Project Proposed Action is discussed in Section 5.2.9 of the FEIS. The NorthMet Project Proposed Action mining activities would result in a loss of bogs; however, as part of the NorthMet Proposed Action, the Applicant is required to provide compensatory mitigation for wetland impacts in accordance with state and federal permits. One of the proposed mitigation sites for wetland impacts (Zim Site) would be a compensation site for the loss of bogs, and would be located within the 1854 Ceded Territory. The Lake County lands were tax forfeit lands that were offered for sale by the County through a public auction. The Lake County lands would still be accessible to the Bands for their use if the exchange took place, because the lands would become part of the SNF managed lands. No heritage surveys were conducted on the non-federal lands. If any cultural resources are located on the non-federal lands, those cultural resources would be transferred to federal ownership. Such transfer would not adversely affect the heritage resource, but would provide greater preservation protection under federal law. The non-federal lands that contain wild rice beds would not be affected as a result of the Land Exchange Proposed Action or Land Exchange Alternative B, because no activities are proposed on these lands and the proposed mining activities would not affect these lands. As noted in the FEIS, the Land Exchange Proposed Action and Land Exchange Alternative B would increase wild rice stands within the federal estate. FEIS Sections 5.3.2 and 5.3.4 clarify that, although the Land Exchange would result in an increase in wild rice stands within the federal estate boundaries, there	

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		would be no change to the existing public access to Tract 1 wild rice stands via the Pike River. Consequently, there would be no increase in wild rice harvest opportunities for the public. No wild rice stands are known to occur on the federal lands, and suitable habitat is limited. Please refer to the response to theme LAN 01 for more information on the public interest determination.	
19613	The SDEIS attempts to diminish the significance of the loss of these high quality lands by stating "Given the existing lack of overland public access and actual use of the federal lands, as well as historic use of this area for mineral exploration (see Section 4.2.9), the Land Exchange Proposed Action represents little to no change in the actual level of recent or current use of the federal lands." In fact, historic trails connect what is now Beaver Bay with Lake Vermillion. These trails "are associated with the lives of persons significant in our past" including John Beargrease, Peter Gagnon, and Alec Posey. In more recent history, Bois Forte Band members used a sugarbush near the plant site and harvested wild rice in the Embarrass River near the LTVSMC tailings basin.	As discussed in FEIS Section 5.3.1.2.1, the only public access to the federal lands is via the Partridge and Embarrass rivers. The remainder of the federal lands are surrounded by private lands (or by other public lands that are themselves surrounded by private lands) (see Figure 4.3.1-1). While members of the public may obtain permission to cross these private lands and access the federal lands, there is no designated land-based access for the federal lands.	CR 04
19614	The SDEIS does not provide adequate discussion of the adverse effects of the proposed land exchange on wetlands and headwater streams within the St. Louis River watershed/Lake Superior Basin, where the loss of first-order headwaters streams, second-order streams and wetlands have the potential to significantly adversely impact downstream water quality, fisheries, and wildlife that are important to the Bands. The Land Exchange Proposed Action would relinquish water resources within the Lake Superior basin for wetlands and surface water resources outside the Lake Superior basin and the St. Louis River watershed, although still within the 1854 Ceded Territory. Federal lands include 4,164 acres of wetlands within the Lake Superior basin;	The SDEIS and FEIS acknowledge a possibility that habitat could be affected from water chemistry changes resulting from the Land Exchange Proposed Action. Habitat loss from flow changes or riparian activities is not expected as a result of the NorthMet Project Proposed Action. It is noted that under the Land Exchange Proposed Action, , the net reduction to the Superior National Forest of 0.3 miles of first order streams may result in slightly less habitat available for headwater stream dependent species. The FEIS Section 5.3.3 included a discussion of wetland resources to be gained or lost as part of the Land Exchange Proposed Action. The Land Exchange Proposed Action represents a transfer of surface rights of 6,495.4 acres from the Superior National Forest to PolyMet to eliminate the conflict between federal surface and private mineral estate. This action, if approved, would remove those acres from Superior National Forest management and public use and transfer them to private ownership. Effects to wetland resources as a result of the mining activities are discussed in FEIS Section 5.2.3. The FEIS Section 5.3.6 included a discussion of headwater streams	AQ 29 CR 01 WET 14 WR 114 WI 02

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	non-federal lands contain 4,669 acres of wetlands, of which only 373 acres are within the Lake Superior Basin, demonstrating there would be a permanent loss of 3,791 acres of federally managed wetlands within the Lake Superior Basin. It is well known that wetlands play an important role in protecting the quality and condition of downstream waters by retaining floodwaters, sediment, nutrients, and other pollutants. wetlands also function as thermal refuge for moose when summertime temperatures exceed 14oC, the point at which moose become thermally stressed, and wetlands provide an important forage resource for moose during the open water season.	to be gained or lost from the proposed land exchange. The proposed land exchange non-federal lands are not mitigation sites and are not required to be exchanged within the same watershed. The non-federal lands being considered are all lands that are located within the proclamation boundary of the Superior National Forest and would consolidate land ownership management.	
19615	the SDEIS concedes that the land exchange will cause irretrievable losses of resources for the Bands	The Cultural Resources sections of FEIS Chapters 4 and 5 address the federal Co-lead Agencies' federal tribal trust responsibilities under the 1854 Treaty. These sections, along with other relevant natural resources sections of FEIS Chapters 4, 5, and 6 also address effects on, and any proposed mitigation for effects on cultural resources and culturally significant natural resources. Mitigation/compensation for effects on cultural resources and culturally significant natural resources is considered to the extent possible within the parameters of the statutes and regulations providing the federal authorities for the review of the NorthMet Project Proposed Action.	CR 01
19616	The SDEIS states, "The Land Exchange Proposed Action would result in additional wild rice beds by the acquisition of Tract 1. Tract 1 contains Little Rice Lake, which supports a continuous population of wild rice. Wild rice also grows along the Pike River south of Little Rice Lake and in isolated populations on Hay Lake." However, the wild rice waters in Tract 1 are already accessible to the Bands via the Pike River; adding Tract 1 to the federal estate does not provide additional wild rice harvesting opportunities to Band members in the 1854 Ceded Territories even though it would add an additional 126 acres of wild rice beds to the federal estate.	The non-federal lands that contain wild rice beds would not be affected as a result of the Land Exchange Proposed Action or Land Exchange Alternative B as no activities are proposed on these lands and the proposed mining activities would not affect these lands. As noted in the FEIS, the Land Exchange Proposed Action and Land Exchange Alternative B would result in additional wild rice beds to the federal estate. The FEIS, Sections 5.3.2 and 5.3.4 , clarifies that though the Land Exchange Proposed Action would result in an increase in wild rice beds within the federal estate boundaries there would be no change to the existing public access to Tract 1 wild rice beds via the Pike River. Consequently, there would be no increase in wild rice harvest opportunities for the public. No wild rice beds are known to occur on the federal lands, and suitable habitat is limited.	LAN 05 WR 155

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19617	This is the essential argument against Alternative B, from the Bands' perspective. The additional lands would essentially be permanently removed from tribal access, habitat and resources would be degraded, and there would be no compensation via conveyance of lands to the federal estate.	The Agency's obligation is to ensure that Band members have ample opportunity to exercise their treaty-reserved usufructuary rights; that federal lands are managed to maintain both the diversity and abundance of natural resources; and to ensure that the Bands' usufructuary rights to 1854 Treaty resources are not impaired. The Land Exchange Proposed Action was analyzed to understand the potential effects on usufructuary rights. The Co-lead Agencies have consulted, and continue to consult with the Bois Forte Band of Chippewa, the Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa, the three principle Bands that retain usufructuary rights in the proposed project area. In addition, the Co-lead Agencies have consulted with the Great Lakes Indian Fish and Wildlife Commission and the 1854 Treaty Authority, the principal natural resource agencies representing the aforementioned Bands. Through consultation, the Co-lead Agencies understand that the Bands' principle interest with regards to the Land Exchange Proposed Action are the following: to retain or increase the amount of public land within the 1854 Treaty Ceded Territory, shoreline wetlands, culturally important natural resources used in exercising treaty rights of hunting, fishing, and gathering, cultural or religious properties, and access to culturally important natural resources and cultural or religious properties. The Co-lead Agencies have a fiduciary obligation to understand and consider the effects that the Land Exchange Proposed Action would have on Band members exercising their Treaty rights in the 1854 ceded territory. While the Land Exchange Proposed Action would remove certain lands from federal ownership, this loss is potentially offset by incoming private lands that would become part of the federal estate within the 1854 Ceded Territory. Outside of the Land Exchange Proposed Action, the Co-lead Agencies have also analyzed the potential effects posed by the Proposed Connected Actions. The potential affects posed to natural resources and cultural resources of importance to the Bands have been disclosed and would be considered during the Co-lead Agencies' decision process. The resource values and public objectives of the non-federal lands must equal or exceed the resource values and public objectives of the federal lands. See FEIS Section 1.4.3. Mitigation for cultural resources as a result of the NorthMet Project Proposed Action is discussed in Section 5.2.9 of the FEIS. The NorthMet Project Proposed Action mining activities would result in a loss of bogs; however, as part of the NorthMet Proposed Action, the Applicant is required to provide compensatory mitigation for wetland	LAN 05

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		impacts in accordance with state and federal permits. One of the proposed mitigation sites for wetland impacts (Zim Site) would be a compensation site for the loss of bogs, and would be located within the 1854 Ceded Territory. The Lake County lands were tax forfeit lands that were offered for sale by the County through a public auction. The Lake County lands would still be accessible to the Bands for their use if the exchange took place, because the lands would become part of the SNF managed lands. No heritage surveys were conducted on the non-federal lands. If any cultural resources are located on the non-federal lands, those cultural resources would be transferred to federal ownership. Such transfer would not adversely affect the heritage resource, but would provide greater preservation protection under federal law. The non-federal lands that contain wild rice beds would not be affected as a result of the Land Exchange Proposed Action or Land Exchange Alternative B, because no activities are proposed on these lands and the proposed mining activities would not affect these lands. As noted in the FEIS, the Land Exchange Proposed Action and Land Exchange Alternative B would increase wild rice stands within the federal estate. FEIS Sections 5.3.2 and 5.3.4 clarify that, although the Land Exchange would result in an increase in wild rice stands within the federal estate boundaries, there would be no change to the existing public access to Tract 1 wild rice stands via the Pike River. Consequently, there would be no increase in wild rice harvest opportunities for the public. No wild rice stands are known to occur on the federal lands, and suitable habitat is limited. Please refer to the response to theme LAN 01 for more information on the public interest determination.	
19618	The desire to resolve “conflict” between the USFS and the Project proponent, whose goal to develop an open pit mine is barred due to deed restrictions on the federal estate, should not prevail over the federal fiduciary responsibility to the Bands. The potential for more roads and hiking trails may provide more access to the public, but does nothing to promote habitat diversity and long-term ecosystem sustainability that are requirements for the preservation of tribal usufructuary rights. Although the Land Exchange Proposed Action	The Agency’s obligation is to ensure that Band members have ample opportunity to exercise their treaty-reserved usufructuary rights; that federal lands are managed to maintain both the diversity and abundance of natural resources; and to ensure that the Bands’ usufructuary rights to 1854 Treaty resources are not impaired. The Land Exchange Proposed Action was analyzed to understand the potential effects on usufructuary rights. The Co-lead Agencies have consulted, and continue to consult with the Bois Forte Band of Chippewa, the Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa, the three principle Bands that retain usufructuary rights in the proposed project area. In addition, the Co-lead Agencies have consulted with the Great	LAN 05

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	may increase acreage in the federal estate, the countervailing permanent loss of Critical Wildlife corridors, high quality and diverse land and water resources that would result is simply not in the public interest.	Lakes Indian Fish and Wildlife Commission and the 1854 Treaty Authority, the principal natural resource agencies representing the aforementioned Bands. Through consultation, the Co-lead Agencies understand that the Bands' principle interest with regards to the Land Exchange Proposed Action are the following: to retain or increase the amount of public land within the 1854 Treaty Ceded Territory, shoreline wetlands, culturally important natural resources used in exercising treaty rights of hunting, fishing, and gathering, cultural or religious properties, and access to culturally important natural resources and cultural or religious properties. The Co-lead Agencies have a fiduciary obligation to understand and consider the effects that the Land Exchange Proposed Action would have on Band members exercising their Treaty rights in the 1854 ceded territory. While the Land Exchange Proposed Action would remove certain lands from federal ownership, this loss is potentially offset by incoming private lands that would become part of the federal estate within the 1854 Ceded Territory. Outside of the Land Exchange Proposed Action, the Co-lead Agencies have also analyzed the potential effects posed by the Proposed Connected Actions. The potential affects posed to natural resources and cultural resources of importance to the Bands have been disclosed and would be considered during the Co-lead Agencies' decision process. The resource values and public objectives of the non-federal lands must equal or exceed the resource values and public objectives of the federal lands. See FEIS Section 1.4.3. Mitigation for cultural resources as a result of the NorthMet Project Proposed Action is discussed in Section 5.2.9 of the FEIS. The NorthMet Project Proposed Action mining activities would result in a loss of bogs; however, as part of the NorthMet Proposed Action, the Applicant is required to provide compensatory mitigation for wetland impacts in accordance with state and federal permits. One of the proposed mitigation sites for wetland impacts (Zim Site) would be a compensation site for the loss of bogs, and would be located within the 1854 Ceded Territory. The Lake County lands were tax forfeit lands that were offered for sale by the County through a public auction. The Lake County lands would still be accessible to the Bands for their use if the exchange took place, because the lands would become part of the SNF managed lands. No heritage surveys were conducted on the non-federal lands. If any cultural resources are located on the non-federal lands, those cultural	

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19619	Federal land exchanges are discretionary, and federal agencies cannot approve permits that will have impacts to treaty resources without additional evaluation and mitigation. No mitigation has been identified in the SDEIS for this permanent loss of lands and resources (natural and cultural) to the 1854 Ceded Territory. The public interest determination must include a specific finding that "The intended use of the conveyed Federal land will not substantially conflict with established management objectives on adjacent Federal lands, including Indian Trust lands" (36 CFR. 254.3(b)(2)(ii)). This threshold has not been met, and the Fond du Lac Band objects to the implementation of the Land Exchange Proposed Action.	The Agency's obligation is to ensure that Band members have ample opportunity to exercise their treaty-reserved usufructuary rights; that federal lands are managed to maintain both the diversity and abundance of natural resources; and to ensure that the Bands' usufructuary rights to 1854 Treaty resources are not impaired. The Land Exchange Proposed Action was analyzed to understand the potential effects on usufructuary rights. The Co-lead Agencies have consulted, and continue to consult with the Bois Forte Band of Chippewa, the Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa, the three principle Bands that retain usufructuary rights in the proposed project area. In addition, the Co-lead Agencies have consulted with the Great Lakes Indian Fish and Wildlife Commission and the 1854 Treaty Authority, the principal natural resource agencies representing the aforementioned Bands. Through consultation, the Co-lead Agencies understand that the Bands' principle interest with regards to the Land Exchange Proposed Action are the following: to retain or increase the amount of public land within the 1854 Treaty Ceded Territory, shoreline wetlands, culturally important natural resources used in exercising treaty rights of hunting, fishing, and gathering, cultural or religious properties, and access to culturally important natural resources and cultural or religious properties. The Co-lead Agencies	CR 01 LAN 05

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		have a fiduciary obligation to understand and consider the effects that the Land Exchange Proposed Action would have on Band members exercising their Treaty rights in the 1854 ceded territory. While the Land Exchange Proposed Action would remove certain lands from federal ownership, this loss is potentially offset by incoming private lands that would become part of the federal estate within the 1854 Ceded Territory. Outside of the Land Exchange Proposed Action, the Co-lead Agencies have also analyzed the potential effects posed by the Proposed Connected Actions. The potential affects posed to natural resources and cultural resources of importance to the Bands have been disclosed and would be considered during the Co-lead Agencies' decision process. The resource values and public objectives of the non-federal lands must equal or exceed the resource values and public objectives of the federal lands. See FEIS Section 1.4.3. Mitigation for cultural resources as a result of the NorthMet Project Proposed Action is discussed in Section 5.2.9 of the FEIS. The NorthMet Project Proposed Action mining activities would result in a loss of bogs; however, as part of the NorthMet Proposed Action, the Applicant is required to provide compensatory mitigation for wetland impacts in accordance with state and federal permits. One of the proposed mitigation sites for wetland impacts (Zim Site) would be a compensation site for the loss of bogs, and would be located within the 1854 Ceded Territory. The Lake County lands were tax forfeit lands that were offered for sale by the County through a public auction. The Lake County lands would still be accessible to the Bands for their use if the exchange took place, because the lands would become part of the SNF managed lands. No heritage surveys were conducted on the non-federal lands. If any cultural resources are located on the non-federal lands, those cultural resources would be transferred to federal ownership. Such transfer would not adversely affect the heritage resource, but would provide greater preservation protection under federal law. The non-federal lands that contain wild rice beds would not be affected as a result of the Land Exchange Proposed Action or Land Exchange Alternative B, because no activities are proposed on these lands and the proposed mining activities would not affect these lands. As noted in the FEIS, the Land Exchange Proposed Action and Land Exchange Alternative B would increase wild rice stands within the federal estate. FEIS Sections 5.3.2 and 5.3.4 clarify that, although the Land Exchange would result in an	

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		increase in wild rice stands within the federal estate boundaries, there would be no change to the existing public access to Tract 1 wild rice stands via the Pike River. Consequently, there would be no increase in wild rice harvest opportunities for the public. No wild rice stands are known to occur on the federal lands, and suitable habitat is limited. The Cultural Resources sections of FEIS Chapters 4 and 5 address the federal Co-lead Agencies' federal tribal trust responsibilities under the 1854 Treaty. These sections, along with other relevant natural resources sections of FEIS Chapters 4, 5, and 6 also address effects on, and any proposed mitigation for effects on cultural resources and culturally significant natural resources. Mitigation/compensation for effects on cultural resources and culturally significant natural resources is considered to the extent possible within the parameters of the statutes and regulations providing the federal authorities for the review of the NorthMet Project Proposed Action. Please refer to the response to theme LAN 01 for more information on the public interest determination.	
19620	In the SDEIS, no detail is provided regarding the estimated amount of financial assurance that would be sufficient for reclamation, closure, mitigation, and remediation of adverse effects from the Project...the SDEIS provides neither a timeline nor a discussion regarding financial assurance for the existing contamination associated with previous mining activities at the site.	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, time frames, and calculations that would be required for the project would be addressed during permitting. Specific infrastructure timelines and life expectancies of equipment would be accounted for during permitting as well. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine. *Minnesota Rules*, part 6132.1200, subpart 3, states that cost estimates shall be annually adjusted using current dollar value at the time of the estimate. Maintenance, mitigation, and cleanup of legacy contamination, would be covered by financial assurance.	FIN 05
19621	The financial assurance costs for long-term treatment identified in the SDEIS range from $3.5 to $6 million, but appears to be an estimate for monitoring activities only without any long-term wastewater treatment costs.	FEIS Section 3.2.2.4 provides available details regarding financial assurance, including for reclamation of all disturbed areas and ongoing long-term treatment, monitoring and maintenance costs. Additional details on the cost estimates, time frames, and calculations that would be required for the project would be addressed during permitting. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1	FIN 05

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		discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine. *Minnesota Rules*, part 6132.1200, subpart 3, states that cost estimates shall be annually adjusted using current dollar value at the time of the estimate.	
19622	The cursory estimate of financial assurance provides little detail about how the cost estimates were derived. Instead, specific discussions about the scale and appropriate instruments for financial assurance have been postponed until the permitting phase of this Project. This approach fundamentally contradicts federal and state environmental policy and the SDEIS must be revised, with significant additional study, to appropriately evaluate closure, mitigation, reclamation, and perpetual treatment cost estimates.	FEIS Section 3.2.2.4 provides available details regarding financial assurance, including for reclamation of all disturbed areas and ongoing long-term monitoring and maintenance, as required under NEPA/MEPA. Additional details on the cost estimates, time frames, and calculations that would be required for the project would be addressed during permitting. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine. *Minnesota Rules*, part 6132.1200, subpart 3 states that cost estimates shall be annually adjusted, using current dollar value at the time of the estimate. *Minnesota Rules*, part 6132.1200, subpart 4 states that the Commissioner shall evaluate all financial assurance cost estimates and adjustments to cost estimates using individuals with documented experience in material handling and construction and mining costs. Neither NEPA nor MEPA rules require that all financial assurance mechanisms be in place before the EIS is finalized.	FIN 13
19623	Long-term treatment of contaminated water; consistency with maintenance-free closure goals: The SDEIS lists the sulfur concentrations of Project waste rock ranging between 0.01 - 5.0% with an average mass-weighted concentration of 0.15%. The Virginia Formation has the highest concentrations of sulfur at 0.4 - 5.0%, and the Duluth Complex 0.13 – 0.6% sulfur. These concentrations are at least equal to, or in some instances significantly higher than the Zortman-landusky mine waste rock (0.2% sulfur) that requires perpetual wastewater treatment. Just as Zortman-landusky predicted for their mine project, PolyMet has suggested that “most (70%) of the NorthMet waste rock would be the low-sulfur, non-acid-generating” and will never cause acid	The GoldSim model used probabilistic modeling to avoid improbable predictions that can occur when a deterministic simulation is done with a suite of “worst case” inputs. The probabilistic modeling approach used in GoldSim provides cumulative probability distributions for predicted concentrations that are far more useful for impacts assessment and project evaluation. Computing a “highest predicted concentration” is not useful if the probability of its occurrence is exceedingly small. Concentration caps are established at the highest expected concentrations of solutes in the various types of mine waste. Concentration caps incorporated into the GoldSim model are based upon the widely observed finding that the concentration of many solutes released by oxidation of sulfide metals in mine wastes can be limited by the precipitation of secondary minerals or adsorption to mineral surfaces. Because concentration caps vary with aqueous chemical conditions (i.e., most metals in mine waste pore waters have higher concentration caps in acidic conditions than neutral conditions), the GoldSim model applied different caps to water from acid-	PD 03 WR 056

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	mine drainage. Yet the SDEIS speaks to the need for at least centuries of wastewater treatment at both the Mine Site and Plant Site: "Once the West Pit is full (approximately year 40), discharge of treated water from the WWTF to the West Pit would be terminated. The WWTF would be upgraded to RO and include evaporator/crystalizers to convert the RO reject concentrate to residual solids, which would be disposed of at appropriate off-site facilities."…Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site"...Mechanical water treatment is part of the modeled NorthMet Project Proposed Action for the duration of the simulations (200 years at the Mine Site, and 500 years at the Plant Site). The duration of the simulations was determined based on capturing the highest predicted concentrations of the modeled NorthMet Project Proposed Action. It is uncertain how long the NorthMet Project Proposed Action would require water treatment, but it is expected to be long term; actual treatment requirements would be based on measured, rather than modeled, NorthMet Project water quality performance, as determined through monitoring requirements." The tribal cooperating agencies have provided substantial evidence that the modeling for the NorthMet Project Proposed Action potentially underestimates those "highest predicted concentrations." This will affect both volumes of water requiring treatment and duration of the need for mechanical treatment.	generating waste and non-acid generating waste. The selection of specific values for concentration caps was considered by the Co-lead Agencies (see Table 1 of MDNR, et. al. 2011, as cited in the FEIS); the specific ranges for concentration caps were estimated from mineral solubilities (for those solutes commonly found as secondary minerals in mine wastes) or observed in effluent from field-scale mine wastes (see Tables 1-15 and 1-30 through 1-33 in Barr 2012d, as cited in the FEIS). Concentration caps were based on field studies rather than laboratory studies so that the rock to water ratios would be similar to conditions expected at the NorthMet Project Site, and thus would avoid the higher water to rock ratios in humidity cell tests that could under-estimate caps. The use of concentration caps is described in FEIS Section 5.2.2.2.3.	
19624	After refill, the West Pit water level would be controlled by pumping to the WWTF to prevent surface water overflow from the pit lake. However, release of pit lake water to the West Pit Surficial	Section 5.2.2 of the FEIS says water quality modeling performed in support of the FEIS indicates that water treatment systems would be needed indefinitely at the Mine Site and Plant Site. If and when non-mechanical water treatment is implemented at the Plant Site, Unnamed Creek, Trimble	WR 035 WR 036

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	Flowpath would continue. The WWTF would also receive low flow rates from the Category 1 Stockpile groundwater containment system. The WWTF effluent would be discharged into a tributary channel that flows into the Partridge River at the location shown on Figure 5.2.2-15. Mine site: The WWTF would continue to operate during long-term closure, treating excess water from the West Pit and discharging the effluent to the small Partridge River tributary. The typical discharge rate from the WWTF is predicted to be 285 gpm. The water balance model predicts periodic temporary higher treatment/discharge rates to account for conditions when the freeboard in the pit becomes too small. By pumping pit lake water to the WWTF, the pit water level would be managed to always provide sufficient freeboard to absorb extreme precipitation events without overflowing. The estimated discharge for this condition is 570 gpm. In the water balance model, the occasional switch to the “high” treatment flow pushes the long-term average discharge rate to 290 gpm. Plant Site: During long-term closure, the WWTP would continue to treat water collected by the Tailings Basin containment systems. Some of the treated effluent would be used for flow augmentation to Unnamed Creek, Mud Lake Creek, Trimble Creek, and Second Creek. It is predicted that Colby Lake water would no longer be needed for augmentation (Barr 2013a). Tailings seepage bypassing the containment system (approximately 19.4 gpm) would continue to enter the North, Northwest, and West Surficial flowpaths, and migrate slowly toward the Embarrass River. By year 200 in closure, which reflects when effects would have peaked and would be decreasing, the WWTF would be discharging and all groundwater contaminant loads would have reached the Partridge River (except	Creek and Mud Lake Creek stream augmentation would no longer be necessary.	

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	negligible contributions from the bedrock flowpaths). Whatever the long-term goals to transition to non-mechanical treatment, this acknowledges a minimum of 200 years of operation of the WWTF. It is clear that the NorthMet Project Proposed Action would require long term treatment of water at both the Plant and Mine Sites. The minimum duration of this treatment is on the order of centuries, but the SDEIS does not provide an estimate of when mechanical treatment would no longer be needed to meet MN WQS. Therefore, as provided in multiple comments on the preliminary SDEIS, Fond du Lac conservatively assumes that water treatment for the proposed PolyMet mine is perpetual and the SDEIS should be clear on this issue.		
19625	However, instead of clarifying this factor, it appears that the co-lead agencies are attempting to minimize the significance of the necessity for long term/perpetual treatment by using vague and confusing language in the SDEIS. The specific language describing long term water treatment has changed during the development of the document, even though the model results have not. The co-lead agencies use creative wording to obscure the results of the modeling; this is misdirection at best and highly inappropriate for the co-lead agencies to present to the public.	Water quality modeling performed in support of the FEIS indicates that water treatment systems in some form and at some scale would be needed at the Mine Site and Plant Site indefinitely. The water models constructed to assess the potential effects from the NorthMet Project Proposed Action were not designed to predict the duration of treatment nor do they capture all the factors that influence the duration of treatment, for example potential future regulatory and technological changes. Therefore, the models cannot be used to predict a year treatment would end. Actual treatment requirements would be assessed on a reoccurring basis throughout operations and closure based on results of ongoing discharges, performance and water resource monitoring ensuring continuous protection of ground and surface water quality and compliance with applicable water quality standards. This reassessment process would rely on measured monitoring results (evaluated through modeling) rather than the results of the predictive modeling included in the FEIS. Regardless of the precise duration of effects or water treatment at either the Mine Site or Plant Site, there are measures available to address impacts to natural resources.	NEPA 09 WR 035
19626	In addition to water treatment, there will also need to be a substantial investment in long-term or perpetual operation, maintenance and replacement of other environmental controls for the Project,	It is acknowledged that operation, maintenance and periodic replacement of environmental controls would be required during closure. Financial Assurance would be required under the State's Permit to Mine to perform these activities on a continuous and/or periodic basis for as long as these	PER 03 WR 035 WR 037

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	including seepage capture and pumping at multiple locations at both the mine site and plant site, repair and replacement of liners, managing appropriate stream augmentation and Tailings Basin pond elevation, and pumping, treating, and disposal of seepage from the HRF: The Tailings Basin pond would primarily receive solute loadings from the tailings, treated Mine Site process water (primarily during years 1 to 11, and possibly through year 20, depending on the NorthMet Project Proposed Action water budget), and captured seepage from the groundwater containment system. The Tailings Basin pond, in turn, would become a primary source of contaminants as its water seeps into the tailings. Therefore, the composition of the Tailings Basin pond, which would be a permanent feature of the Tailings Basin, would be an important component in the quality of water that would be discharged from the Tailings Basin. Thus, PolyMet proposes to use the WWTP to treat the pond water during reclamation, and as necessary during closure, to maintain the design water level and prevent overflow. The presence of the pond in closure would provide benefits as it would create a saturated layer that would permanently reduce the oxygen flux and associated solute release in the underlying tailings. The groundwater containment system would continue to operate during reclamation and closure, although in those phases, the seepage could not be reused as process water, but would be treated at the WWTP and used to accelerate filling of the West Pit (during reclamation) and for streamflow augmentation (during closure). Although it is designed to capture all of the Tailings Basin seepage, the groundwater containment system is assumed to capture 90 percent of the groundwater flow that approaches the system (PolyMet 2013g). During reclamation, all WWTP effluent would be used to help flood	activities are needed. The FEIS Project description indicates that no Colby Lake water would be used for direct surface water augmentation. All water used for stream augmentation would be treated prior to being added to hydrologically affected waters. See the response to theme WR 035.	

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	the West Pit; therefore, during this phase, all augmentation water would come from Colby Lake (approximately 1,600 gpm). In closure, it is expected that effluent from the WWTP alone (estimated at approximately 2,000 gpm) would be sufficient to meet the minimum flow augmentation requirements of the tributaries without requiring additional water from Colby Lake.		
19627	The Tailings Basin pond would primarily receive solute loadings from the tailings, treated Mine Site process water (primarily during years 1 to 11, and possibly through year 20, depending on the NorthMet Project Proposed Action water budget), and captured seepage from the groundwater containment system. The Tailings Basin pond, in turn, would become a primary source of contaminants as its water seeps into the tailings. Therefore, the composition of the Tailings Basin pond, which would be a permanent feature of the Tailings Basin, would be an important component in the quality of water that would be discharged from the Tailings Basin. Thus, PolyMet proposes to use the WWTP to treat the pond water during reclamation, and as necessary during closure, to maintain the design water level and prevent overflow. The presence of the pond in closure would provide benefits as it would create a saturated layer that would permanently reduce the oxygen flux and associated solute release in the underlying tailings. The groundwater containment system would continue to operate during reclamation and closure, although in those phases, the seepage could not be reused as process water, but would be treated at the WWTP and used to accelerate filling of the West Pit (during reclamation) and for streamflow augmentation (during closure). Although it is designed to capture all of the Tailings Basin seepage, the groundwater containment system is assumed to capture 90	It is acknowledged that operation, maintenance and periodic replacement of environmental controls would be required during closure. Financial Assurance would be required under the State's Permit to Mine to perform these activities on a continuous and/or periodic basis for as long as these activities are needed. The NorthMet Project Proposed Action has been modified since the SDEIS to address the issue of using Colby Lake water for augmentation. The FEIS Project description indicates that no Colby Lake water would be used for direct surface water augmentation. All water used for stream augmentation would be treated prior to being added to hydrologically affected waters. See the response to theme WR 035. Section 5.2.2 of the FEIS says water quality modeling performed in support of the FEIS indicates that water treatment systems would be needed indefinitely at the Mine Site and Plant Site. If and when non-mechanical water treatment is implemented at the Plant Site, Unnamed Creek, Trimble Creek and Mud Lake Creek stream augmentation would no longer be necessary.	WR 035 WR 037 WR 124

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	percent of the groundwater flow that approaches the system (PolyMet 2013g). During reclamation, all WWTP effluent would be used to help flood the West Pit; therefore, during this phase, all augmentation water would come from Colby Lake (approximately 1,600 gpm). In closure, it is expected that effluent from the WWTP alone (estimated at approximately 2,000 gpm) would be sufficient to meet the minimum flow augmentation requirements of the tributaries without requiring additional water from Colby Lake. These statements indicate the need for perpetual WWTP operation, if for no other reason than needing clean water for stream augmentation, which will be required in perpetuity to compensate for the hydrologic impacts of the Tailings Basin.		
19628	The rate of drainage would decrease over time as the pore water within the hydrometallurgical residue is collected and removed. Once the entire facility is closed, the volume of water from the drainage collection systems would decline. In the long term, the volume of water requiring treatment would decline to the point that the remaining reclamation activity may consist of periodic pumping of remaining drainage into tank trucks for transportation, treatment, and disposal, as appropriate, and of inspection of the closed cells to verify integrity of the reclamation systems...The water quality of both mine pits, however, is predicted to improve over time as the pits become flooded, thereby effectively eliminating oxidation of the pit walls, the primary source of solutes, except for the upper few feet where water levels may fluctuate. Figures 5.2.2-37, 5.2.2-38, and 5.2.2-39 show how the water quality in the West Pit is predicted to improve over time for three representative solutes: cobalt, nickel, and sulfate. It is expected that eventually the solute concentrations in the pits would stabilize to more	The NorthMet Project Proposed Action relies on mechanical treatment for as long as necessary. FEIS Chapter 3 states that PolyMet has committed to conducting pilot and other feasibility studies on the use of non-mechanical treatment as an adaptive management measure if proven effective and cost efficient. The possible future use of non-mechanical treatment is stated as a long-term goal, but the details of how such systems would operate would be determined once operations begin and site specific data could be used for pilot/feasibility studies, and if eventually proposed would be addressed in future permitting.	PD 06 WR 137

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	or less steady-state values, although the timeframe for this would likely be greater than 200 years as indicated by Figures 5.2.2-37 to 5.2.2-39, which show solute concentrations continuing to decrease at year 200, although still above water quality standards. These predicted improvements in water quality suggest that the WWTF may not need to operate permanently, but that at some point, non-mechanical treatment systems may be sufficient to meet water quality standards. The SDEIS frequently states the long-term goal is to transition to non-mechanical treatment, but there is little evidence to suggest that current treatment technologies can consistently treat large volumes of water to meet WQS.		
19629	Furthermore, constructed wetlands would require substantial acreage to handle the volume of wastewater that will perpetually be collected, and do not function well in our cold climate for at least half of the year (when vegetation is not actively growing). They are not likely to be able to treat wastewater sufficiently to consistently meet water quality standards, including the wild rice sulfate criterion. But perhaps most the most significant factor to consider for the likelihood of successfully transitioning is that non-mechanical treatment, at least at the Mine Site, necessitates the seasonal application of the wild rice sulfate criterion: "…However, the non-mechanical system will be designed to discharge only during a portion of the year, to comply with the seasonal discharge criterion for wild rice downstream of the Mine Site. The design of the West Pit Overflow Non-Mechanical Treatment System is based on a discharge period of two months, September and October."	The NorthMet Project Proposed Action relies on mechanical treatment for as long as necessary. FEIS Chapter 3 states that PolyMet has committed to conducting pilot and other feasibility studies on the use of non-mechanical treatment as an adaptive management measure if proven effective and cost efficient. The possible future use of non-mechanical treatment is stated as a long-term goal, but the details of how such systems would operate would be determined once operations begin and site specific data could be used for pilot/feasibility studies, and if eventually proposed would be addresses in future permitting. Reference to a seasonal application of the wild rice standard has been removed from the description of these potential future non-mechanical treatment systems for the FEIS.	WR 137 WR 153
19630	"However, the non-mechanical system will be designed to discharge only during a portion of the	The NorthMet Project Proposed Action relies on mechanical treatment for as long as necessary. FEIS Chapter 3 states that PolyMet has committed to	WR 137

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	year, to comply with the seasonal discharge criterion for wild rice downstream of the Mine Site. The design of the West Pit Overflow Non-Mechanical Treatment System is based on a discharge period of two months, September and October." As described in the AWMP, this type of non-mechanical treatment system cannot meet the 10mg/l sulfate criterion. At this time, the continued implementation of the seasonal application of that criterion is highly questionable as recent research conducted by the University of Minnesota on behalf of the MPCA indicates excess sulfate loading is detrimental to wild rice regardless of the time of year.	conducting pilot and other feasibility studies on the use of non-mechanical treatment as an adaptive management measure if proven effective and cost efficient. The possible future use of non-mechanical treatment is stated as a long-term goal, but the details of how such systems would operate would be determined once operations begin and site specific data could be used for pilot/feasibility studies, and if eventually proposed would be addresses in future permitting. Reference to a seasonal application of the wild rice standard has been removed from the description of these potential future non-mechanical treatment systems for the FEIS.	WR 153
19631	The SDEIS requires substantially more public transparency and less equivocation on what is arguably one of the most fundamental issues at stake for this project: how long will the company be required to flawlessly operate and maintain expensive mechanical treatment to comply with MN WQS? Clearly there are other engineering controls and management actions that will absolutely have to flawlessly operate and require maintenance in perpetuity (seepage collection, liners, pumps, waste rock stockpile cover systems, waste disposal, stream augmentation, Tailings Basin pond elevation management). This singular issue has significant repercussions for the public interest determinations and the scale of required financial assurance.	Water quality modeling performed in support of the FEIS indicates that water treatment systems in some form and at some scale would be needed at the Mine Site and Plant Site indefinitely. The water models constructed to assess the potential effects from the NorthMet Project Proposed Action were not designed to predict the duration of treatment nor do they capture all the factors that influence the duration of treatment, for example potential future regulatory and technological changes. Therefore, the models cannot be used to predict a year treatment would end. Actual treatment requirements would be assessed on a reoccurring basis throughout operations and closure based on results of ongoing discharges, performance and water resource monitoring ensuring continuous protection of ground and surface water quality and compliance with applicable water quality standards. This reassessment process would rely on measured monitoring results (evaluated through modeling) rather than the results of the predictive modeling included in the FEIS. Regardless of the precise duration of effects or water treatment at either the Mine Site or Plant Site, there are measures available to address impacts to natural resources. Engineered systems can operate successfully over long periods of time if they are property monitored and maintained. The FEIS provides a comprehensive description of proposed water treatment and seep collection systems including surface water and groundwater containment and synthetic liners and covers. This includes the types of monitoring used to assess performance. Detailed designs are provided in supporting documents, which are fully referenced in the FEIS. The FEIS also discusses	PD 03 WR 036

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		long-term operation, maintenance, and periodic replacement of engineered systems. It is acknowledged that certain components of the engineered systems would need to be replaced when monitoring indicates that performance is marginal and not readily compensated for by adaptive mitigation measures. The financial assurance process would fully consider long-term monitoring and periodic replacement of equipment including, but not limited to, water treatment hardware and synthetic liners and covers. The Financial Assurance package for the NorthMet Project Proposed Action would insure that future funding would be available if and when adaptive mitigation measures or component replacements are needed to achieve performance specifications. FEIS Section 3.2.2.4 includes available details regarding financial assurance. Additional details on the cost estimates and calculations that would be required for the project would be addressed during permitting. Specific infrastructure timelines and life expectancies of equipment would be accounted for during permitting as well. FEIS Table 3.2-15 provides financial assurance cost estimates for various years of closure, as well as for monitoring and mitigation costs. FEIS Section 3.2.2.4.1 discusses the activities that would be considered in cost estimates, and states that cost estimates would be updated annually under the Permit to Mine. *Minnesota Rules*, part 6132.1200, subpart 3 states that cost estimates shall be annually adjusted, using current dollar value at the time of the estimate.	
19632	The SDEIS identifies 29 Areas of Concern (AOCs) that are now PolyMet's legal responsibility, but still does not provide the necessary clarity about the status of remedial investigations and/or actions necessary to clean up the contamination that occurred over decades of taconite mining and processing.	FEIS Table 4.2.1-2: NorthMet Project Proposed Action Area of Concern Summary List for Voluntary Investigation and Cleanup Program, has been updated in the FEIS to show the current status and additional information where available. Costs for assessment, investigation, and cleanup are not feasible to provide (MPCA, Pers. Comm., October 27 & 29, 2014). The April 6, 2010, Consent Decree is a court registered agreement between Cliffs Erie LLC and the MPCA to resolve alleged violations of Cliffs Erie's NPDES/SDS permits for its Hoyt Lakes and Dunka mining area facilities (State of Minnesota v. Cliffs Erie, LLC. 2010, as cited in the FEIS). Of particular relevance to the NorthMet project, the Consent Decree addresses issues at the current Cliffs Erie tailings basin (including outfall SD026) and discharges from the Cliffs Erie Area 5 mining area (SD033). The Tailings Basin is part of the NorthMet Project Proposed Action, whereas Area 5 is not; however, PolyMet has entered into an agreement with Cliffs Erie where both areas would be transferred to PolyMet upon issuance of project	HAZ 05

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		permits. Until that time, Cliffs Erie retains responsibilities for permit-related activities at the tailings basin and Area 5. While certain Consent Decree-related activities have been in progress or have been completed for these areas since the SDEIS, there has been no change in ownership or responsible parties since that time (MPCA, Pers. Comm., October 27 & 29, 2014).	
19633	The SDEIS does not provide sufficient information for the public to understand whether the NorthMet Project Proposed Action will be required to remediate these and other AOCs before commencing project operations, or be allowed to defer remediation until closure. It is not clear in the SDEIS how the Voluntary Investigation and Cleanup ("VIC") program requirements will be applied to PolyMet	FEIS Table 4.2.1-2: NorthMet Project Proposed Action Area of Concern Summary List for Voluntary Investigation and Cleanup (VIC) Program, has been updated in the FEIS to show the current status and additional information where available. Costs for assessment, investigation, and cleanup are not available. It is anticipated that PolyMet would assume and continue Cliffs Erie's participation in the MPCA's VIC program for the AOCs in the areas that would be transferred to PolyMet ownership. Specific schedules for addressing each AOC will continue to be developed as part of the VIC process. Current remedial actions relating to the AOCs pertaining to lands proposed for use as part of the NorthMet Project would be taken into consideration for the MDNR Permit to Mine and other permits.	HAZ 05
19634	Cliffs Erie (now Cliffs Natural Resources) was party to a Consent Decree and approved work plan(s) with MPCA regarding their remedial responsibilities, but there is little information in the SDEIS for the public to be assured regarding the need for PolyMet to enter into a legally binding agreement and develop approvable work plans to address their responsibilities.	The FEIS discusses in section 3.2.3.2 how the Consent Decree under the NorthMet Project No Action Alternative would require Cliffs Erie to complete closure and reclamation activities at the Plant Site. This would include completing activities for the localized affected areas under the Minnesota VIC Program, removal of the former Plant Site building, and management of seepage at the Tailings Basin embankment. The FEIS identifies in Table 3.2-1 that under the NorthMet Project No Action Alternative, there would be no mining activities, and that existing management and land use of the federal lands would continue. The NorthMet Project No Action Alternative is also analyzed under each resource area in the FEIS Chapter 5, and summarized in the FEIS Table 7.2.4-1. FEIS Section 5.2.3.4 identifies that under the NorthMet Project No Action Alternative there would be no direct or indirect effects on wetlands. If the project progresses through permitting, MPCA and MDNR would determine the responsible parties for cleanup of legacy and other project related impacts managed under permit. See also response to 19636.	ALT 14
19635	It seems reasonable to expect PolyMet to clean up	These comments provide information on the legacy contamination sites at	HAZ 05

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	all legacy contamination as quickly as possible; in fact, remedial actions should be integrated with the 'refurbishing' actions they plan to do to re-tool the taconite processing facilities to accommodate their processing needs.	the NorthMet Mining project. No changes were made to the EIS as a result of these comments.	
19636	the public may not realize that the actual cleanup of LTV's legacy contamination may be deferred until reclamation and closure of the NorthMet Project. This timeline is not acceptable, and the SDEIS should not be vague about the pace of fulfilling remedial requirements.	FEIS Table 4.2.1-2 includes the updated NorthMet Areas of Concern (AOCs) Summary List from the MPCA Voluntary Investigation and Clean-up Program. PolyMet has entered into an agreement with Cliffs Erie where the AOCs on the Mine Site would be transferred to PolyMet upon issuance of project permits. Until that time, Cliffs Erie retains responsibilities for permit-related activities at the AOCs. While certain Consent Decree related activities have been in progress or completed for these areas since the SDEIS, there has been no change in ownership or responsible parties since that time. Costs for assessment, investigation, and cleanup, are not feasible to provide.	HAZ 05

Comment ID	Comment	Response	Theme(s)
19637	Inadequate hydrologic and geochemical characterizations using all existing data; insufficient new data to support modeling and assumptions. Many of the deficiencies in site characterization and water modeling from the 2009 DEIS persist in the 2013 SDEIS despite some new data collection (not all of which was used) and new modeling (using unrealistic or unsupported assumptions and neglecting to consider critical features). As detailed in extensive comments submitted by tribal cooperating agencies to the co-lead agencies over the past seven years, water quality analyses for the Partridge and Embarrass Rivers are inadequate. Water modeling results, whether deterministic (DEIS) or in the form of probability distributions (SDEIS) are based on flawed understanding of hydrology at both the mine site and plant site. One example of this flawed understanding is the error in baseflow calculations, which is carried forward in the MODFLOW hydrologic modeling. At the mine site, MODFLOW under-predicts the amount of water that would flow into the mine pits and thus under-predicts the amount of water treatment needed for both short and long term closure. At the plant site, the MODFLOW model is constructed in a way that is not representative of the site's physical conditions and therefore yields results that are not logical.	In the FEIS Mine Site GoldSim model, bedrock flowpaths have been reconfigured with a bulk hydraulic conductivity that is approximately one order-of-magnitude higher than what was used in the SDEIS. In addition, the flowpaths are remodeled to be 15 meters thick to account for new information indicating that upper bedrock tends to have higher hydraulic conductivity, and this zone tends to control the overall groundwater flow within the bedrock. The model does consider the Virginia Formation as a separate hydrostratigraphic unit and assigns a higher hydraulic conductivity to this unit compared to the Duluth Complex. The presence of higher hydraulic conductivity Virginia Formation explains the higher pit inflows predicted for the East Pit, which is partially excavated into this bedrock unit. Note that Virginia Formation is not relevant to bedrock flowpaths in the Mine Site GoldSim model because the flowpaths only exist in Duluth Complex rock. The FEIS Plant Site MODFLOW model was modified and recalibrated for the FEIS as follows: 1) updated areal distribution of surficial deposits and bedrock outcrops, 2) established surficial deposits below and adjacent to the East Embankment, 3) used drain or river cells along the East Embankment to allow surface seepage of tailings water, 4) incorporated the hydrologic effects of the future swale to drain surface water from the East Embankment area, 5) recalibrated model material properties and boundary conditions using all available site data through 2013 (this is mostly new hydraulic head information), and 6) expanded the use of river and drain cells to provide a more accurate representation of wetlands outside the Tailings Basin. As a result of these changes, the FEIS Plant Site MODFLOW model no longer has no-flow boundary condition at the toe of the East Embankment, and river and/or drain cells in surficial deposits are in place to allow the potential for surface seepage ("upwelling") were added. The model was calibrated to insure that hydraulic heads in the tailings and adjacent surficial deposits were not well above ground surface. In the FEIS Plant Site MODFLOW model, storage coefficients for the surficial deposits and bedrock outcrops were assigned and/or calibrated to be more in line with literature values for these types of materials.	WR 011 WR 058 WR 060 WR 071 WR 093 WR 103 WR 176 WR 179

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19638	"Hard rock mining affects fresh water through heavy use of water in processing ore, and through water pollution from discharged mine effluent and seepage from tailings and waste rock impoundments." Acid mine drainage ("AMD") is one of the greatest environmental liabilities associated with mining, especially in pristine, water-rich environments like the Project mine site, that have economically and ecologically valuable natural resources. There are no hard rock surface mines that exist today that can demonstrate that AMD can be stopped once it occurs on a large scale. Inaccurate pre-mining characterization and interpretation often results in a failure to recognize or predict impacts to water quality and aquatic life. Evidence from literature and field observations suggests that permitting large scale surface mining in sulfide-hosted rock with the expectation that no degradation of surface water will result due to acid generation imparts a substantial and unquantifiable risk to water quality and fisheries. In a report comparing predicted and actual water quality at hard rock mines, two types of characterization failures were identified that led to differences between the predicted water quality in EIS documents and the actual water quality either during or after mining began. These included: (1) insufficient or inaccurate characterization of the hydrology. The authors reported primary causes of hydrologic characterization failures as overestimations of dilution, lack of hydrological characterization, overestimations of discharge volumes, and underestimations of storm size. (2) insufficient or inaccurate geochemical characterization of the proposed mine. The primary causes of geochemical characterization failures were identified as lack of adequate geochemical characterization, in terms of sample representativeness and sample adequacy. The	The Co-lead Agencies have requested additional hydrologic and geochemical data and the incorporation of those data into EIS analyses periodically throughout the environmental review process by the Co-lead Agencies. The criteria the Co-lead Agencies used to determine what data is included in the FEIS are as follows. Is the updated data: • Significantly different than the data already used in the model? • An integral component of a calibrated variable? • Linked to other data such that updating one necessitates updating the other? • Considered background information important to assessing the project's impacts? • Part of a greater dataset such that updating all of the dataset is necessary for consistency? • A type of input variable where GoldSim is sensitive? • Necessary for permitting-level analyses? Data collection and use in the FEIS are summarized in various data sufficiency documents. Nevertheless, a degree uncertainty in the predictions of environmental effects remains, as it would for any study of this type. The Co-lead Agencies have addressed this uncertainty is several ways. Water quality modeling results (concentrations) are presented in terms of a probability, which communicates the likelihood actual concentrations could be higher or lower than what was modeled. Sensitivity analyses were performed on temperature and precipitation inputs, baseflows in the Partridge River and other inputs. The FEIS identifies monitoring and reliable mitigation measures that have been incorporated in the NorthMet Project Proposed Action, possible improvements to these measures and additional mitigation that could be implemented if effects to water quality are worse than predicted. Additionally, on-going monitoring would be used in modeling to help predict any issues before they occur. A detailed financial assurance analysis would be part of the permitting phase. The financial assurance process would fully consider long-term monitoring and periodic replacement of equipment including, but not limited to, water treatment hardware and synthetic liners/covers. The Financial Assurance package for the NorthMet Project Proposed Action would insure that future funding would be available if and when adaptive	PD 01 WR 128

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	primary causes of mitigation failures were that mitigation measures were not identified, were inadequate, or were not implemented; waste rock mixing and segregation was not effective; liners leaked; tailings were spilled; or embankments failed, and land application discharge was not effective. The NorthMet Project Proposed Action, as defined in the SDEIS includes all of these characterization failures.	mitigation measures or component replacements are needed to achieve performance specifications. Taking the data, modeling, proposed monitoring, mitigation, adaptive management and financial assurance together, the NorthMet EIS sufficiently discloses and accurately predicts to the degree possible potential effects to water quality.	
19639	The Project overestimates dilution of polluted water by underestimating baseflow in the bedrock surficial aquifer at both the mine and plant sites.	Groundwater baseflows used in the SDEIS are best-estimate values and should be retained in the FEIS. This is because the SDEIS groundwater baseflow values were based on: 1) winter 1986-87 and winter 1987-88 stream gaging in the Partridge River at SW-006 that occurred when there were no discharges from Northshore; and 2) 1942 to 1963 gaging data in the Embarrass River, which includes years prior to the LTV tailings basin startup (1957). When expressed as a groundwater baseflow yield per unit area, the similar results for both watersheds (approximately 0.05 cfs per square mile) supports the approach used. The yield per unit area is similar to other watersheds in Northern Minnesota. Studies have shown that streamflow characteristics in this part of Minnesota have not changed systematically over the last 50 years. The water quality predictions generated by the Mine and Plant Site GoldSim models reasonably consider the groundwater baseflow contributions in projecting potential contaminant levels within the Partridge River and Embarrass River during project operations, reclamation, and closure. A Partridge River high groundwater baseflow scenario (sensitivity analysis) was also completed for the FEIS. Increased groundwater baseflows affect concentrations; however the predicted concentrations relative to FEIS evaluation criteria are not a concern.	WR 165
19640	A fundamental lack of hydrologic characterization enables PolyMet to reach a fictitious conclusion that there will be no water pollution resulting from the Project. No bedrock monitoring wells were installed near the tailings basin. The number of groundwater samples used to model the Mine Site included three or more samples from each of 23 monitoring wells in the surficial aquifer (a 24th	The SDEIS was based on data generally collected through October 2012. The FEIS relied on new data collected through the end of 2013, which included 12 new monitoring wells at the Mine Site. In addition, the FEIS made use of new geotechnical data collected in 2014 along the north, northwest, and west perimeter of the Tailings Basin; included geologic logs, ten new surficial aquifer piezometers, slug tests in the piezometers, and ten bedrock packer tests performed in five boreholes advanced into upper bedrock. Hydrogeologic site characterization was sufficient for	WR 071 WR 095

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	well was dry after the first sampling, so it only provided a single sample). Of these, 12 were new monitoring wells installed in the surficial aquifer in 2012, yet data collected from them was not used to model and predict potential impacts to water surrounding the Project. Storage coefficients used to model the entire Plant site area are not consistent with any peer reviewed scientific literature.	purposes of environmental review. All publically available and relevant studies were considered in developing the SDEIS and FEIS. These include technical reports prepared by the Proposer, reports from State and Federal agencies, technical papers in peer reviewed journals, and technical reports associated with other mine sites. The SDEIS and FEIS preparers drew on these information sources to the degree that they were reliable and relevant to the assessment of potential NorthMet Project Proposed Action impacts. The FEIS provided a description of data used to assess impacts. An explanation was provided regarding any data used and not used in finalizing the FEIS MODFLOW and GoldSim models. It is well known that unexplained sampling/laboratory issues can cause occasional chemical results to be incorrect and unusable for site characterization. This happens to some extent on all large projects where sampling is conducted at many locations and for long periods of time. When an occasional data value is clearly anomalous and does not fit in any reasonable way with the bulk of the related data, it is an acceptable practice to not use the anomalous value for characterization to develop a more accurate site characterization. During winter 2013-2014, an investigation of bedrock was conducted along the north, northwest, and west perimeter of the tailings basin. The investigation included five boreholes advanced into upper bedrock and 10 packer tests conducted in these holes. The investigation provided rock core, Rock Quality Designation data, and hydraulic conductivity of discrete intervals within the upper bedrock. The results of this investigation are reported in Barr 2014b, as cited in the FEIS, and in FEIS Section 4.2.2.3.1. It is correct there are currently no bedrock monitoring wells at the Plant Site. Installation of bedrock monitoring wells would be specified as part of the permitting process, with the results used to assess project performance on an ongoing basis. The MODFLOW and GoldSim models for the Mine and Plant Sites were modified and recalibrated using groundwater level and sampling data collected through the end of 2013. At the Mine Site, this included all 24 monitoring wells, including data from 12 newer wells that was not used in the SDEIS. Stream gaging data used in the SDEIS and FEIS is adequate to characterize groundwater baseflow, seasonal flow, and storm runoff in the Partridge and	

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		Embarrass Rivers. See the responses to themes WR 011 and WR 012 for additional discussions of fracture flow and hydrology. In the FEIS Plant Site MODFLOW model, storage coefficients for the surficial deposits and bedrock outcrops were assigned and/or calibrated to be more in line with literature values for these types of materials.	
19641	The hydrology model that was applied used outdated data collected at a significant distance from the site. The Project XP-SWMM model is based on a stream gauging station for the Partridge River that is seventeen miles from the mine site and the data from that station are twenty years old; and stream gauging data for the Embarrass River that is based in data that is more than fifty years old from eleven miles downstream. Therefore, the results are highly unlikely to be representative of current conditions at the mine or plant site. This baseline hydrologic data deficiency has been carried forward from the 2009 DEIS, despite ample time and opportunity to collect sufficient new hydrologic data. The tribal cooperating agencies have long urged the co-lead agencies to require a more rigorous modeling effort before any confidence can be placed in predictions of Project impacts. From the March 2, 2012 Coleman memo to the co-lead agencies: "The calibration of the Modflow model to a Partridge River baseflow of 0.76 cfs predicted by XP-SWMM results in a model that moves very little water through the groundwater system. This can result in low predicted rates of inflow to the mine pit and slow movement of contaminants from sources (stockpiles or reflooded pits) to points of evaluation. More generally, an incorrect baseflow calibration target results in excessively low estimates of recharge and likely incorrect estimates of horizontal and vertical conductivity. These hydrologic parameters are interrelated and getting	Groundwater baseflows used in the SDEIS are best-estimate values and should be retained in the FEIS. This is because the SDEIS groundwater baseflow values were based on: 1) winter 1986-87 and winter 1987-88 stream gaging in the Partridge River at SW006 that occurred when there were no discharges from Northshore; and 2) 1942 to 1963 gaging data in the Embarrass River, which includes years prior to the LTVSMC tailings basin startup (1957). When expressed as a groundwater baseflow yield per unit area, the similar results for both watersheds (approximately 0.05 cfs per square mile) supports the approach used. The yield per unit area is similar to other watersheds in Northern Minnesota. Studies have shown that streamflow characteristics in this part of Minnesota have not changed systematically over the last 50 years. The only other available gaging data is from a station installed during 2011 at SW003 on the Partridge River. Interpretation of groundwater baseflow at SW-003 is not reliable for use in the GoldSim modeling of groundwater baseflow due to the complicating effects of Northshore PMP pumped discharges, seepage from the Northshore Western Pond, and complex storage/release mechanisms in the wetlands that receive these flows. More broadly, groundwater baseflow discharge varies with time and is a reflection of longer-term weather and climatic conditions. The variability of groundwater baseflow discharge is demonstrated by the examination of estimated values for several years using different methods. Evaluation of these values affirms continued reliance on the 1986-87 USGS data for the FEIS is reliable (PolyMet 2015m, as cited in the FEIS). To better understand the relationship of groundwater baseflow to the GoldSim model's water quality impact projections, a sensitivity analysis for the Mine Site was conducted to evaluate if predicted Project impacts are sensitive to groundwater baseflow values. The sensitivity analysis considered the relationship of various model inputs to groundwater baseflow including hydraulic conductivity, recharge, and surface runoff chemical concentrations. It also reflected consideration of the flow data	WR 003 WR 071 WR 086 WR 091 WR 175

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	one wrong, as appears to be the case with baseflow, will almost certainly result in the other parameters being incorrectly estimated…Our long standing concern that the mine site hydrologic models incorporate incorrect assumptions about recharge are supported by Fred Marinelli's comment on line 39 and elsewhere of: "Agency Responses MS and PS WP and Waste Characterization Data package V7 2-7-12.xls". His comment states that "A net infiltration (recharge) range of 0.3 to 1.5 in/yr represents 1.1 to 5.4 percent of mean annual precipitation (MAP). This range for local net infiltration is unrealistically low for this area of the US." These low recharge values and the low vertical K values are related to calibration of the Modflow model to low baseflow. Until Modflow, and by extension the other related models XP-SWIMM and GoldSim, are calibrated to data from the site (e.g. observed baseflow and an adequate number of observed heads) and incorporate reasonable recharge rates, the results from the models are unlikely to accurately simulate current or future conditions…The Modflow model, in particular, needs to be calibrated with targets based on observed baseflow and observed well water heads. Calibration to projections by XP-SWMM, that appear to be incorrect, means that the fundamental characterization of the site hydrology is likely to be faulty…. The focus on water quality parameters to the near exclusion of hydrologic flow parameters is reflected in the Groundwater IAP summary memo of June 2011. Groundwater flow modeling underpins contaminant transport modeling and is interrelated to surface flow models. Without adequate vetting of flow model parameters and predictions, it is impossible to have confidence in predictions of contaminant movement and water quality."	collected at SW003 in requiring groundwater baseflows at all locations on the Partridge River be increased by a factor of 4 (e.g., 0.5 to 2.0 cfs at SW-003). The results indicate that modeled groundwater and surface water concentrations are sensitive to changes in groundwater baseflow. However, the NorthMet Project Proposed Action's ability to meet groundwater quality and surface water quality evaluation criteria is not sensitive to changes in baseflow. Evaluation criteria can be found in Section 5.2.2. The purpose of the groundwater baseflow analysis was to: 1) evaluate natural characteristics of the surficial aquifer such as recharge and hydraulic conductivity, and 2) estimate natural groundwater discharges into the rivers during low-flow conditions. Note that non-natural discharges into the rivers were estimated separately in the site models. Use of older data for evaluating natural hydrologic conditions was justified because it was not affected by artificial (non-natural) discharges into the stream channels by Northshore and LTVSMC operations.	

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19642	Underestimation of storm size and frequency is a serious problem for capture and treatment of polluted water from the Category 1 waste rock stockpile and tailings basin, tailings basin stability, and stormwater run-off from the Overburden Storage and Layout Area (OSLA). Project estimates were based on one-hundred-year storm events. Before recognition of climate change impacts, this would have been a reasonable assumption. Now, storm severity and frequency suggest that what was previously considered a one-hundred-year storm event may occur once every ten years.	Estimates of monthly and annual rainfall amounts inputted into the water models were based on best available data obtained from weather stations near the NorthMet Project Proposed Action site. Rainfall inputs were based at a minimum on the 30-year climatic normal data. In the GoldSim models, these parameters were treated as uncertain inputs and assigned probability distributions to capture the range of possible future conditions. While climate change may occur in the future, it cannot be stated at this time if in the long-term there would be more or less rainfall. Thus, the probabilistic approach to rainfall used in GoldSim represents a technically defensible method for dealing with this issue. Individual storm events and frequency are not incorporated into the GoldSim models. The effects of individual storms are considered by designing facilities to handle a 100 year - 24 hour storm event based on current data. If over time, climate change causes a gradual increase in annual rainfall, the 100 year storm event would be redefined to a larger precipitation value and mine facilities would be upgraded to handle a larger storm. For the Mine Site, a GoldSim sensitivity analysis was conducted to assess the possible effects of future climate change on groundwater and surface water impacts. It was concluded that reasonably foreseeable climate change would have little effect on pit inflows, pit lake water quality, groundwater chemical concentrations, and surface water chemical concentrations. These results are reported in the Sensitivity Analysis of the NorthMet Water Quality Models, Version 2 (Barr2015d, as cited in the FEIS). By analogy, the Plant Site is also expected to be minimally affected by possible future climate change. See the responses to themes WR 077 and WR 180.	WR 077 WR 180
19643	Many mitigation measures were not identified or evaluated using the required NEPA “hard look”. Those mitigation measures that have been identified and carried forward as the Proposed Project are inadequate, especially the tailings basin seepage capture system. The tailings basin is unlined, and the seepage capture system has not been designed to collect any seepage from the east side of the tailings basin. This flow path for project pollutants to reach surface and ground water has not been addressed at all. The waste rock mixing	The FEIS Plant Site MODFLOW model was modified from the SDEIS to include: 1) the presence of surficial deposits below the East Embankment, 2) boundary conditions (drain and/or river cells) along the embankment toe to allow the potential for surface seepage, and 3) hydrologic inputs to account for the presence of the proposed drainage swale. Similar to other locations along the perimeter of the Tailings Basin, the project was modified to include installation of a containment system along the East Embankment where it is underlain by surficial deposits. Given the hydrogeology of the area east of the Tailings Basin and the proposed swale to be constructed there, this containment system would have higher hydraulic head on the east side compared to the west (tailings) side where a	NEPA 14 WR 054 WR 126

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	and segregation has not been demonstrated to be effective at other similar projects. Liner leakage rates are very optimistically estimated using solid waste landfill average leakage rates (lined solid waste landfills are much smaller).	pumped trench would depress the groundwater level. This would create hydraulic gradients in the slurry wall and in shallow bedrock that would drive (low) flows from east to west across the containment system. This set of hydraulics would result in complete capture of all tailings water approaching the containment system from the Tailings Basin. Because the system would achieve complete capture of tailings water, an east side chemical transport flowpath is not needed in the Plant Site GoldSim model. There is no hydrologic reason to expect that impacted water from the Tailings Basin would migrate east of the containment system. There is a long history of rock segregation on the Iron Range and regulatory agencies annually review the placement of rock. Technology like GPS has improved segregation practices. See the responses to theme WR 134 for more information on waste rock segregation. The assumed liner leakage rates are based on a combination of literature values, experience at mine sites, experience at other types of industrial facilities, manufacturer documentation, and information provided in standard engineering guidance documents (Section 5.2.2.3 in the Mine Site Water Modeling Data Package [PolyMet 2015m, as cited in the FEIS]). Liner leakage rates were estimated using the USEPA-approved HELP model, where simulations combined NorthMet Project Proposed Action design values for slopes and subgrade design with the published values for average liner defects per acre. See response to theme WR 126 for more information.	
19644	There are no predictions or contingency plans addressing the potential for tailings piped from the processing plant to the tailings basin could be spilled, or that tailings embankments may fail. The Hydrometallurgical Residue Facility (HRF) is proposed to be constructed in an area that is currently under water, and has a prominent historic drainage channel that has not been accounted for in project design or water modeling.	FEIS Section 5.2.14.2.2 (geotechnical stability of the Tailings Basin) and Section 3.2.2.3.5 (tailings management under the NorthMet Project Proposed Action) indicates that the Tailings Basin design would meet appropriate Factors of Safety and that Tailings Basin embankments would be monitored and inspected on a routine basis and repaired or strengthened on an as-needed basis (Geotechnical Data Package Volume 1(PolyMet 2015l, as cited in the FEIS). The Hydrometallurgical Residue Facility would be constructed over the LTVSMC emergency basin. The design of the Hydrometallurgical Residue Facility acknowledges the presence of this seep by including a collection drain that would collect water from the seep below the proposed constructed embankment and liner systems to transmit the collected seep to the exterior of the facility. FEIS Section 5.2.2.3.3, and Section 5.2.14.2.3 discusses the design and construction of the Hydrometallurgical Residue Facility, and Geotechnical Data Package Volume 2 (PolyMet 2014c, as	WR 066 WR 131 WR 132 GT 01 GT 11

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		cited in the FEIS) indicates the design would meet all factors of safety as required. Management of hazardous materials (including piping and other means of transport) is addressed in section 5.2.13. Monitoring would allow potential failures to be recognized and corrected if and before there would be release of impacted water to the environment. Financial assurance would be adequate to: 1) monitor and inspect the engineered systems, 2) repair or replace components as necessary, and 3) apply adaptive mitigation measures that are shown to be cost-effective which would also be required under the Permit to Mine. Financial assurance is described in FEIS Section 3.2.2.4.	
19645	Project baseline data used for both the Mine Site and the Tailings Basin are still insufficient, even though this deficiency was highly criticized by many commenters on the 2009 DEIS. A comparison of hydrologic data that was collected for two other projects in the region demonstrates that the PolyMet project is data-poor in the area of basic hydrology, much less mitigation. Given the availability of the many existing studies of area hydrology, it is mystifying that the SDEIS preparers have continually neglected to use them, even as tribal cooperating agencies have repeatedly requested and recommended that they be used. A few examples of publicly available studies include: the Minnamax Project; the LTVSMC Dunka Pit, historic DNR fisheries documents; and data collected under the Cliffs Consent Decree.	Co-lead agencies rely upon the expertise and experience of their staff and consultants who bring to bear their knowledge of various studies and analyses performed on mine sites in Minnesota and elsewhere. This knowledge is applied in the review of documents prepared to evaluate the NorthMet Project Proposed Action potential effects. It should be noted that the NorthMet Project Proposed Action is different from other mining projects in this part of Minnesota in the following ways: different ore type, designs for groundwater containment systems, and use of long-term mechanical treatment. While experiences gained on other projects are informative, they do not necessarily apply to the NorthMet Project Proposed Action. This is particularly true for groundwater containment systems because the NorthMet Project Proposed Action uses a design that differs from those at other Iron Range mine sites. The mitigation designs of the NorthMet Project Proposed Action are unlike measures discussed in the Regional Copper-Nickel Study (MEQB 1979, as cited in the FEIS). The NorthMet Project Proposed Action measures include: long-term mechanical water treatment, uniquely designed groundwater containment systems, subaqueous disposal of reactive waste rock, and synthetic covers and under-liners used at waste rock stockpiles and treatment ponds. In addition, the level of construction QA/QC proposed at the NorthMet site would be much higher than what has historically occurred at older mine sites in the Iron Range. It is erroneous to conclude that operation and closure of the NorthMet Project Proposed Action site would necessarily entail the same types of failures that have occurred at some historical Iron Range mines. In fact, the unique designs and high-quality construction measures proposed are a response to past events.	WR 023 WR 071

Comment ID	Comment	Response	Theme(s)
		The detailed and sophisticated modeling work performed to support the FEIS exceed those conducted for some existing mines in Minnesota. The models used for the NorthMet Project Proposed Action represent years of development, with input from the Proposer, Co-lead Agencies and Cooperating Agencies. Based on comments received on the SDEIS, modifications were made to the models to improve FEIS impact evaluations. It is the Co-lead Agencies' position that incomplete or inaccurate predictions made in the past at historical mining operations do not provide a basis for judging the quality of modeling to be used in the NorthMet FEIS. The EIS reflects consideration of information pertaining to the Dunka Pit that was directly relevant to the NorthMet Project Proposed Action. It is noteworthy that many aspects of operations at the Dunka Pit are dissimilar to the NorthMet Project Proposed Action in terms of hydrogeology and mine design. See the response to theme WR 071.	
19646	there is no explanation for the failure to use pre-mining flow and sulfate data available through DNR fisheries reports to determine potential water quality and quantity impacts, or cumulative effects to flow and water quality in the Embarrass, Partridge, or St. Louis Rivers. In fact, decades-old flow data (1942 – 1964) was used instead of recently collected data in the Embarrass River watershed even though that historic flow data precedes any mining. Surface water and groundwater quality and quantity data collected for the Minnamax Project, LTVSMC Dunka Pit, and the VIC program were listed in SDEIS, but largely ignored in water quality and quantity predictions.	The Co-lead Agencies have requested additional hydrologic and geochemical data and the incorporation of those data into EIS analyses periodically throughout the environmental review process by the Co-lead Agencies. The criteria the Co-lead Agencies used to determine what data is included in the FEIS are as follows. Is the updated data: • Significantly different than the data already used in the model? • An integral component of a calibrated variable? • Linked to other data such that updating one necessitates updating the other? • Considered background information important to assessing the project's impacts? • Part of a greater dataset such that updating all of the dataset is necessary for consistency? • A type of input variable where GoldSim is sensitive? • Necessary for permitting-level analyses? Data collection and use in the FEIS are summarized in various data sufficiency documents. To assess the incremental effects of the NorthMet Project Proposed Action on water resources in the Embarrass River and Partridge River, the best information representative of existing conditions was used as the baseline.	WR 003 WR 023 WR 071 WR 175

Comment ID	Comment	Response	Theme(s)
		This method allows the proper assessment of the project on the environment. The assessment of cumulative effects does not require the tracing of water quality throughout time, but the aggregation of effects considering a proposed action. Water quality models were calibrated to existing conditions in and around the Plant Site and Mine Site. This allowed for the highest degree of model accuracy.	
19647	The cumulative body of data and public information regarding clear risks to area hydrology from mining at the PolyMet site cannot be ignored, with only new, favorable data be inserted into the SDEIS instead. Extensive experience from other hard rock mines and their faulty predictions of water quality impacts should compel the co-lead agencies to recognize the need for significant improvements to the modeling evaluations.	The detail and sophistication modeling work performed to support the FEIS far surpasses any analyses that have ever been performed at mines in Minnesota. The models used for the Proposed Action represent years of development, with input from the PolyMet, Co-lead Agencies and Cooperating Agencies. Based on comments received on the SDEIS, modification were made to the models to improve FEIS impact evaluations. Inaccurate predictions made in the past at historical mining operations do not provide a basis for judging the quality of modeling to be used in this FEIS. In addition, the mitigation designs of the Proposed Action differ from the many other hard rock mines. The Proposed Action measures include: long-term mechanical water treatment, uniquely designed groundwater capture systems, subaqueous disposal of reactive waste rock, and synthetic covers and under-liners used at waste rock stockpiles and treatment ponds. In addition, the level of construction QA/QC proposed at the NorthMet site would be much higher than what has historically occurred at older mine sites in the Iron Range. It is erroneous to conclude that operation and closure of the Proposed Action site would necessarily entail the same types of failures that have occurred at some historical Iron Range mines. Some of the unique designs and high-quality construction measures proposed are in response to past mine site events. Also see the response to theme WR 071.	PD 26 WR 023 WR 071 WR 189
19648	Inadequate water quality impacts analysis. From SDEIS 5.2.2, Water Resources: with the proposed design modifications and engineering controls, the water quality model predicts that the NorthMet Project Proposed Action would not cause or increase the magnitude of an exceedance of the groundwater and surface water quality evaluation criteria at the P90 level for any of 28 solutes at 29 groundwater or surface water evaluation locations	The FEIS discusses lead concentrations in the Embarrass River in Section 5.2.2.3.3, providing better discussion of results to avoid misinterpretation. According to the 2004 - 2012 surface water monitoring results, average lead concentrations on the Embarrass River do not exceed the water quality standard (3.2 µg/L) at 100 mg/L hardness. Under certain circumstances, water quality model results predict an exceedance of the lead surface water evaluation criterion in Unnamed Creek, north of the Tailings Basin. These exceedances would not be a	WR 003 WR 056 WR 071 WR 072 WR 082 WR 128 WR 129

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	within the Partridge River and Embarrass River watersheds, with two exceptions: Aluminum...Lead…Evidently, the public is expected to uncritically accept the project proponent's assertion that a 700-ft deep open pit sulfide mine, a 526-acre permanent reactive waste rock stockpile, a pit lake requiring water treatment in perpetuity, a tailings basin that has already contaminated ground and surface water that now will host reactive sulfide tailings, and a permanent hazardous waste facility constructed within a wetland, will collectively result in only two exceedances of water quality standards – and they are not even directly attributable to the Project Proposed Action! This stunning conclusion is a result of flawed modeling assumptions (baseflow, hydraulic connectivity, etc.), dubious decisions on data usage (omitting 'outliers', concentration caps, etc.), fuzzy compliance thresholds, and inordinate reliance on engineering controls that must perform flawlessly, most of them in perpetuity.	direct effect but a side effect of the NorthMet Project Proposed Action and would be the result of the capture and removal of dissolved solids by the Plant Site WWTP and the associated decrease in the hardness-based lead evaluation criterion. The WWTP effluent would meet the water quality evaluation criteria, but exceedances could infrequently occur when non-project, noncontact surface runoff mixes with the WWTP effluent and lowers hardness more than it dilutes lead concentrations. Evaluation criteria can be found in Section 5.2.2. The FEIS discusses current aluminum concentrations in the Embarrass River in Section 5.2.2.3.3, providing better discussion of results to avoid misinterpretation. According to the 2004 - 2012 historic surface water monitoring results, average aluminum concentrations on the Embarrass River do not exceed the water quality standard (125 µg/L). This is considered a NorthMet Project Proposed Action side effect. The NorthMet Project Proposed Action would not directly cause an exceedance of the groundwater and surface water quality evaluation criteria of aluminum. Additionally, the FEIS Project Description indicates that Colby Lake water, with higher aluminum concentrations, would not be used for direct surface water augmentation. However, the capture of Tailings Basin seepage with low aluminum concentrations (5 to 20 µg/L) by the groundwater containment system could result in exceedances of the aluminum evaluation criteria in tributary streams north of Tailings Basin. Capture of the seepage would result in less dilution, increasing the proportion of non-project, non-contact surface water runoff with higher natural aluminum concentrations (70 to 160 µg/L) reaching the streams. Elevated aluminum levels under the NorthMet Project Proposed Action modeling scenario are considered a side effect of the project.	
19649	The NorthMet Project Proposed Action is also not predicted to result in any significant changes to groundwater and surface water flows when compared to existing conditions. Again, a remarkable conclusion grounded in the assumption that all seepage capture systems will operate at unrealistic performance rates in perpetuity, and dismissing the significant error in the baseflow value used to model project impacts. Surface water quality remains insufficiently characterized or left uncharacterized, and the defects in analysis are	The FEIS relies on revised cross-section models from the SDEIS to evaluate containment systems on the northern, northwestern, and western sides of the Tailings Basin, which are documented in the revised NorthMet Project Water Management Plan - Plant (PolyMet 2015i, as cited in the FEIS). These new models consider the presence of an upper more-permeable bedrock zone directly below the slurry wall, with hydraulic properties based on 2014 packer tests conducted in five boreholes along the proposed capture system alignment. Sensitivity analyses have included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 100 feet. The model results predict that the overall groundwater capture efficiencies of the proposed Tailings Basin surface	WR 003 WR 017 WR 018 WR 021 WR 115

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	profound in this area.	and groundwater seepage containment system would be substantially greater than 90 percent. This analysis supports the conclusion that the assumption of 90 percent or greater groundwater capture efficiency is justified. Based on a MODFLOW groundwater model specifically developed to assess capture efficiency of the Category 1 system, it was concluded that the system would achieve an overall efficiency between 90 percent and 94 percent for groundwater flowing in surficial deposits and bedrock. This analysis supports the conclusion that the proposed Category 1 surface and groundwater seepage containment system has a high probability of meeting its performance specifications; thus, there was no need to consider a range of capture efficiency inputs in modeling. Groundwater baseflows used in the SDEIS are best-estimate values and were retained in the FEIS. The Co-lead Agencies have requested additional hydrologic and geochemical data and the incorporation of those data into EIS analyses periodically throughout the environmental review process by the Co-lead Agencies. The criteria the Co-lead Agencies used to determine what data is included in the FEIS are as follows. Is the updated data: • Significantly different than the data already used in the model? • An integral component of a calibrated variable? • Linked to other data such that updating one necessitates updating the other? • Considered background information important to assessing the project's impacts? • Part of a greater dataset such that updating all of the dataset is necessary for consistency? • A type of input variable where GoldSim is sensitive? • Necessary for permitting-level analyses? Data collection and use in the FEIS are summarized in various data sufficiency documents.	
19650	Contaminant transport modeling suggests that the Project will cause manganese, aluminum, and sulfate to exceed Minnesota Water Quality Standards ("MN WQS"). Mercury, sulfate, and specific conductance already exceed surface water	The evaluation and decision of whether or not the NorthMet Project Proposed Action may or may not discharge into surface waters where water quality standards are exceeded is a permit decision. The FEIS identifies potential impacts to water resources and measures available to anticipate and control these same impacts.	WR 064 WR 075 WR 109 WR 197

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	criteria in surface water samples collected near the tailings basin at nearby Area Pit 5, and mercury and aluminum exceed surface water criteria in the Partridge River downstream of Colby Lake. Aluminum, iron, manganese, and mercury all exceed MN WQS in Colby Lake. Contaminants from the Project will likely contribute additional loading to these existing exceedances of MN WQS in the Embarrass River, Colby Lake, and the Partridge River. There have not been any water samples collected from lakes in proximity to the tailings basin (Hiekkilla, Mud, Kaunonen, or Hay Lakes) to determine if the pollutants found in the surface and groundwater at the existing tailings basin have caused contamination of those waterbodies.	Water resources are considered not to be significantly impacted if evaluation criteria are met at evaluation locations. Evaluation criteria can be found in Section 5.2.2. If water quality evaluation criteria are not met under the CEC modeling scenario, the FEIS evaluates whether the NorthMet Project Proposed Action causes or increases concentrations. Surface water quality evaluation criteria apply instream after the groundwater discharge has mixed with ambient surface water (independent of proximity to the project property boundary). Evaluation criteria are based on a combination of health-based water quality standards for drinking water sources (such as groundwater and Colby Lake) and mercury in surface water (fish consumption) and on aquatic life-based standards for surface waters. Evaluation criteria can be found in Section 5.2.2. Groundwater evaluation criteria apply to groundwater at the project property boundary and the GoldSim models predicts that these criteria would be met. For the different flowpaths, groundwater travel times to groundwater evaluation locations and surface water discharge points are presented in the FEIS, including the times for initial change in chemical concentrations and the times to reach peak concentrations. Once chemicals are released from groundwater to surface water, it is assumed that migration is instantaneous to surface water evaluation locations. Sampling of the listed lakes would not have added substantially to the overall Plant Site characterization for the purpose of impacts assessment. It should be noted that Spring Mine Lake is located upstream of the east side of the Tailings Basin and has been sampled for water quality.	
19651	Groundwater contamination from previous mining activities persists near the LTVSMC tailings basin, more than twelve years after operations ceased. Over the decades of operations at the LTVSMC tailings basin, thousands of gallons per minute of tailings basin water were discharged through the bottom of the basin into groundwater. This plume of contaminated water has been slowly moving down gradient into surrounding wetlands and the Embarrass River. The monitoring wells that do exist near the tailings basin have concentrations of pollutants including iron, sulfate, manganese, aluminum, and fluoride that exceeded drinking water standards. But because of the limited	Section 4.2.2.3.1 has been revised to more clearly communicate groundwater quality at the existing LTVSMC Tailings Basin. The FEIS uses information from 27 domestic wells, Northeast Minnesota Baseline study and Regional Copper Nickel Study to characterize existing surficial groundwater quality. It is acknowledged that bedrock groundwater at the Plant Site has not been sampled for the FEIS. Effects to bedrock groundwater at the Plant Site are not anticipated. The characteristic hydraulic conductivity of upper bedrock is taken to be 4×10^{-2} m/day, which is two orders-of-magnitude lower than the hydraulic conductivity used in the GoldSim model for the overlying surficial deposits. Given this difference in hydraulic conductivities, the Co-lead Agencies conclude that the GoldSim water quality model does not need to be revised to specifically include groundwater flow and transport in bedrock. The cross-section modeling indicates that in the presence of more	HU 03 WR 008 WR 064

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	distribution of monitoring wells, the extent of the existing contaminant plume is not known. No bedrock monitoring wells have been drilled in the vicinity of the tailings basin. However, domestic wells near the northern property line show substantial contamination of the groundwater aquifer.	permeable upper bedrock, the groundwater capture systems would still achieve substantially higher capture efficiencies than what was assumed in the SDEIS GoldSim model.	
19652	Regardless, modeling of PolyMet contaminants at the tailings basin did not take existing pollutant concentrations into account, and pretends that existing contamination is an acceptable "baseline" from which only new contamination should be measured.	The FEIS does not consider the magnitude of change to water quality due to the NorthMet Project Proposed Action from a theoretical, "unimpacted" or "natural" background condition. Instead, the FEIS defines baseline for purposes of modeling as the CEC, be they impacted or unimpacted. The baseline water quality and predicted water quality with project are plotted against evaluation criteria for each water quality parameter so conclusions may be drawn about the baseline and project relative to the evaluation criteria and to one another. This approach was used because it discloses the actual changes expected to the environment from the Proposed Action. Evaluation criteria can be found in Section 5.2.2.	WR 082 WR 109
19653	The assumption that 93% of the seepage from the tailings basin can be captured is unrealistic. Tribes requested the co-lead agencies or their contractor to provide any references for the 90% or greater capture efficiency rate they were confident could be achieved; they were not able to provide a single example from anywhere in the world. The co-lead agencies provided a single citation from a USEPA guidance document (generally intended to inform solid waste sites) that revealed: • most barriers in the study have been in place for fewer than 10 years; therefore, long-term performance can only be extrapolated… • All sites included in the study were existing sites that had vertical barriers and, in many cases, caps. • None of the sites has an engineered bottom barrier. Therefore, the effect of leakage through aquitards was not evaluated in this study.	The Co-lead Agencies acknowledge that there are existing water containment systems at other mine sites that do not operate with a high degree of capture, but these are different designs and cannot be directly compared to the system proposed for the NorthMet Project Proposed Action. The proposed containment system uses pumping on the tailings side and reinjection on the downgradient side to reverse hydraulic gradients across the slurry wall and in underlying bedrock. Relatively few containment systems have been built with this degree of pumping and reinjection to ensure effective capture. The conceptual hydraulics of this type of system provides evidence that it would achieve complete or nearly complete capture. The FEIS describes a 2014 field program that investigated bedrock along the alignment of the proposed containment system on the northern, northwestern, and western sides of the Tailings Basin in FEIS Section 4.2.2.3.1. This investigation provided field data on bedrock hydraulic conductivity, Rock Quality Designation data, and depth to top of bedrock. This information was used to develop revised MODFLOW cross-section models to evaluate containment system efficiencies on the northern, northwestern, and western sides of the Tailings Basin, which are documented in the revised Plant Site Water Modeling Data Package (PolyMet 2015j, as cited in the FEIS).	WR 018

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		These revised cross-sections and MODFLOW models considered the presence of an upper more permeable bedrock zone directly below the slurry wall, with hydraulic properties based on 2014 packer tests conducted in five boreholes along the proposed containment system alignment. Sensitivity analyses included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 100 feet. The model results predict that the overall capture efficiencies of the proposed Tailings Basin containment systems would be substantially greater than 90 percent. It is the Co-lead Agencies' position that the assumption in the Plant Site GoldSim model of 90 percent or greater capture efficiency is justified by the analyses performed.	
19654	Regardless of this study's applicability (or lack thereof) to seepage capture systems proposed for the PolyMet project, the EPA found that • 10% of the reviewed containment systems failed to meet the desired performance objectives and required corrective action. • An additional 19% of the evaluated facilities did not have sufficient data to conclude weather the containment system was operating successfully or not. • There is no information on the effectiveness of any of these facilities at timeframes remotely comparable to what will be required for PolyMet… A search for examples similar to the Project Proposed Action identified the Zortman-Landusky mine in Montana…the Molycorp, Inc., mine site in New Mexico…Examples of similar seepage capture systems installed and operating in northeastern Minnesota are at the US Steel-MINNTAC tailings basin, and the former LTV tailings basin seep SD0026 (the same tailings basin PolyMet proposes to re-use), and demonstrate capture rates of less than 60%...The primary purpose of the seepage capture at the	The Co-lead Agencies acknowledge that there are existing water containment systems at other mine sites that do not operate with a high degree of capture, but these are different designs and cannot be directly compared to the system proposed for the NorthMet Project Proposed Action. The proposed containment system uses pumping on the tailings side and reinjection on the downgradient side to reverse hydraulic gradients across the slurry wall and in underlying bedrock. Relatively few containment systems have been built with this degree of pumping and reinjection to ensure effective capture. The conceptual hydraulics of this type of system provides evidence that it would achieve complete or nearly complete capture. The FEIS describes a 2014 field program that investigated bedrock along the alignment of the proposed containment system on the northern, northwestern, and western sides of the Tailings Basin in FEIS Section 4.2.2.3.1. This investigation provided field data on bedrock hydraulic conductivity, Rock Quality Designation data, and depth to top of bedrock. This information was used to develop revised MODFLOW cross-section models to evaluate containment system efficiencies on the northern, northwestern, and western sides of the Tailings Basin, which are documented in the revised Plant Site Water Modeling Data Package (PolyMet 2015j, as cited in the FEIS). These revised cross-sections and MODFLOW models considered the presence of an upper more permeable bedrock zone directly below the slurry wall, with hydraulic properties based on 2014 packer tests conducted in five boreholes along the proposed containment system alignment. Sensitivity analyses included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 100 feet. The model results	WR 018 WR 020

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	Proposed Project is to achieve compliance with MN WQS, but it is not likely to be successful, based upon limited but relevant regional experience.	predict that the overall capture efficiencies of the proposed Tailings Basin containment systems would be substantially greater than 90 percent. It is the Co-lead Agencies' position that the assumption in the Plant Site GoldSim model of 90 percent or greater capture efficiency is justified by the analyses performed.	
19655	The SDEIS acknowledges that seepage from the existing LTV tailings basin continues to drain south to Second Creek long after LTV operations have ceased (SDEIS p. 4-99). Because that seepage will need to continue to be pumped back under the PolyMet Proposed Action, it "is not considered further in this discussion" (SDEIS p. 5-89). On pages 5-121 and 5-158, the SDEIS maintains that the seepage collection system installed at the south side of the existing tailings basin has "essentially eliminated the flow of Tailings Basin seepage into Second Creek". This statement is clearly not supported by the facts. PolyMet and the state regulatory agencies are fully aware that that this seepage pumpback system is not nearly as effective as claimed in the SDEIS. According to MPCA staff, the pumpback system has not resulted in the water quality improvements required under the Consent Decree, so there are two modifications currently proposed by Cliffs Natural Resources: 1) dewater the pond that is an additional source of water contributing to water quality concerns (pending a US EPA wetlands determination); or 2) create an additional barrier (dam) for seepage collection and pumpback between the existing dam and monitoring station SD026.	It is acknowledged that there is currently incomplete capture of impacted water at SD-026. Text within the FEIS has been changed to recognize that fact. Cliffs Erie is currently addressing this issue by upgrading the performance of the existing capture system and, if necessary, constructing new systems to enhance capture. If 100 percent capture is not attained by the Cliffs Erie upgrades, the PolyMet has committed to installing additional systems in Second Creek to achieve this level of performance regardless of the types of measures required.	WR 101 WR 117
19656	There is simply no evidence to support the rosy scenario that PolyMet will be able to capture 97% of the shallow seepage and 90% of the deep seepage from an unlined, purposefully 'leaky' tailings basin, despite the co-lead agencies' assurances. The SDEIS must be revised to	The FEIS relies on revised cross-section models from the SDEIS to evaluate containment systems on the north, northwest, and west sides of the Tailings Basin, which are documented in the revised Water Management Plan - Plant Site (PolyMet 2015i, as cited in the FEIS). These new models consider the presence of an upper more permeable bedrock zone directly below the slurry wall, with hydraulic properties based on 2014 packer tests	PD 08 WR 018 WR 117 WR 118 WR 133

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	accurately describe the ineffectiveness of the current seepage collection system, and the need for a redesigned system or additional mitigation must be clearly stated. The SDEIS must evaluate the impacts of polluted tailings basin seepage to Second Creek and the Partridge River.	conducted in five boreholes along the proposed capture system alignment. Sensitivity analyses have included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 100 feet. The model results predict that the overall capture efficiencies of the proposed Tailings Basin capture systems would be substantially greater than 90 percent. This analysis supports the conclusion that the assumption of 90 percent or greater capture efficiency is justified. The FEIS describes a 2014 field program that investigated bedrock along the alignment of the proposed capture system on the north, northwest, and west sides of the Tailings Basin in Section 4.2.2.3.1. This investigation provided field data on bedrock hydraulic conductivity, rock RQD, and depth to top of bedrock. This information was used to develop MODFLOW cross-section models at three locations on the alignment to assess capture efficiency. The models included bedrock below the slurry wall. The water quality modeling has been updated for the FEIS to include the potential for water to seep from the east side of the Tailings Basin. FEIS Section 3.2.2.3.10 describes that a containment system would be constructed around a portion of the east side of the Tailings Basin for seepage collection. Key design considerations for the containment systems include but are not limited to the local geologic and hydrogeologic characteristics of the site, the depth to bedrock or other confining unit from the ground surface, the presence and prevalence of cobbles and boulders in the glacial till, the ground surface topography along and adjacent to the containment system alignment, the soil types to be encountered along the alignment, and the constituents in the groundwater to be contained. The proposed containment system technology is not new nor unique; the slurry cutoff wall and collection trench approach has been used for many decades, beginning initially as a means to facilitate construction of deep foundations in locations of shallow groundwater and difficult soil conditions, and subsequently expanding to other uses such as the containment of contaminated groundwater emanating from unlined waste disposal facilities (e.g., landfills, stockpiles, etc.). There are many papers written about the use of groundwater containment systems and a number of contractors well-experienced and proficient in containment system construction. The groundwater collection component of the system and the hydraulic barrier (cutoff wall) work in tandem to control the direction of groundwater flow and the amount of groundwater collected. Maintenance of a lower hydraulic	

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		head on the upgradient side of the cutoff wall than on the downgradient side of the cutoff effectively captures any seepage that would otherwise leave the site, while limiting the effect that the system has on groundwater conditions downgradient from (away from) the system. This barrier to flow thereby minimizes the potential for water quality effects on the downgradient side of the containment system. PolyMet has committed to collecting all of the south seepage from the Tailings Basin that makes its way to Second Creek by implementing additional improvements to the existing seepage management system if necessary. Potential measures that could bring the capture efficiency of the system to 100 percent include improvements to the existing dam such as lining the upstream dam face with bentonite and injecting grout into the dam. If seepage is observed to bypass the existing dam, a second dam could be constructed approximately 500 feet downstream of the existing system, in an area where the Second Creek headwaters valley is more constricted and any remaining subsurface seepage will have to come to the surface. This potential second dam could be constructed as an earthen dam with a clay or concrete cutoff wall (extending to bedrock if necessary) in order to achieve 100 percent capture of the surface seepage. See FEIS Section 5.2.2.3.2.	
19658	The unsupported prediction of 90% or better seepage capture efficiency is unfortunately carried forward into other critical analyses. The SDEIS claims that construction of a groundwater containment system along the north, northwest and west sides of its unlined tailings basin "would capture virtually all of the Tailings Basin seepage presently flowing in those directions to restore water quality" (SDEIS p. 5-174). Without even a single bedrock monitoring well installed to confirm or deny this assumption, the SDEIS maintains that this is prediction is "conservative", because the modeling done by PolyMet assumes that bedrock hydraulic conductivity is "negligible" (SDEIS, pp. 5-68 - 5-69). Disturbingly, the tailings basin model uses storage coefficients that are not found anywhere in peer reviewed scientific literature.	It is acknowledged that the Plant Site MODFLOW model does not include bedrock below surficial deposits and thus does not consider flow towards the Embarrass River in bedrock. This is because the bulk hydraulic conductivity of upper bedrock is estimated to be about two orders-of-magnitude lower than the hydraulic conductivity of the surficial aquifer, and it is interpreted that deeper bedrock has substantially lower hydraulic conductivity. Based on these assumptions, calculations show that chemical mass migration downgradient of Tailings Basin is dominated by flow in the surficial aquifer and for this reason only surficial flowpaths were modeled in MODFLOW and GoldSim; see FEIS Section 5.2.2.2.1 for greater detail. MODFLOW cross-section models of the Tailings Basin containment systems showed that groundwater capture substantially greater than 90 percent was achieved in both surficial deposits and the underlying zone of more "permeable" bedrock that was assumed to be 15 m thick. So even if there was chemical migration in upper bedrock, it would be effectively captured by the Tailings Basin containment systems. Absent predicted impacts there was no need for modeling of the underlying bedrock in MODFLOW or GoldSim to support the water resources impact assessment.	PD 08 WR 008 WR 018 WR 071 WR 095 WR 099

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		See WR62 for additional information. The water quality modeling has been updated for the FEIS to include the potential for water to seep from the east side of the Tailings Basin. In the FEIS Plant Site MODFLOW model, storage coefficients for the surficial deposits and bedrock outcrops were assigned and/or calibrated to be more in line with literature values for these types of materials. FEIS Section 3.2.2.3.10 states that a containment system would be constructed around a portion of the east side of the Tailings Basin for seepage collection. The proposed containment system technology is not new nor unique; the slurry cutoff wall and collection trench approach has been used for many decades, beginning initially as a means to facilitate construction of deep foundations in locations of shallow groundwater and difficult soil conditions, and subsequently expanding to other uses such as the containment of contaminated groundwater emanating from unlined waste disposal facilities (e.g., landfills, stockpiles, etc.). There are many papers written about the use of groundwater containment systems and a number of contractors well-experienced and proficient in containment system construction. Installation of paired monitoring wells on either side of the Tailings Basin containment systems would likely be identified during the permitting phase. Monitoring devices at these points would measure the head pressure differential, which would indicate the direction of groundwater flow through the containment system. The groundwater collection component of the system and the hydraulic barrier (cutoff wall) work in tandem to control the direction of groundwater flow and the amount of groundwater collected. Maintenance of a lower hydraulic head on the upgradient side of the cutoff wall than on the downgradient side of the cutoff effectively captures any seepage that would otherwise leave the site, while limiting the effect that the system has on groundwater conditions downgradient from (away from) the system. This barrier to flow thereby minimizes the potential for water quality effects on the downgradient side of the containment system.	
19659	These parameters are highly critical for establishing a reliable model, because the volume of groundwater that a geologic formation can contain (storativity or storage coefficient) and the rate of flow (hydraulic conductivity) are functions of the amount of open pore spaces or fractures/faults in rock, the quantity of water that	In the FEIS Plant Site MODFLOW model, storage coefficients for the surficial deposits and bedrock outcrops were assigned and/or calibrated to be more in line with literature values for these types of materials.	WR 095

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	infiltrates from the surface, and the groundwater gradient. The storage coefficient incorporated in the plant site model (including the tailings basin) for bedrock is 0.20, and for the surficial deposits 0.0002 (SDEIS p.5-41), suggesting that the bedrock contains several orders of magnitude more water than the surficial deposits.		
19660	When questioned about these extraordinary storage coefficients, the co-lead agencies' explanation was that the model was "calibrated to match predicted and measured groundwater levels," Essentially, this model is simulates a bedrock 'storage tank' where large volumes of water go in but virtually nothing comes out. Since this is not conceptually accurate, the modeled hydraulic conductivity and/or modeled storage coefficients cannot be relied upon to estimate the amount of seepage that will bypass the seepage capture system, or the amount of time before seepage upwells to surface waters in adjacent wetlands and the Embarrass River, where MN WQS must be met.	The FEIS relies on revised cross-section models to evaluate containment systems on the north, northwest, and west sides of the Tailings Basin, which are documented in the revised Water Management Plan – Plant (PolyMet 2015i, as cited in the FEIS). These new models considered the presence of an upper more permeable bedrock zone directly below the slurry wall, with hydraulic properties based on 2014 packer tests conducted in five boreholes along the proposed containment system alignment. Sensitivity analyses included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 100 feet. The new models explicitly consider groundwater flow in bedrock below the slurry wall and at the contact between the slurry wall and bedrock. The model results predicted that the overall capture efficiencies of the proposed Tailings Basin containment systems (with bedrock flow) would be substantially greater than 90 percent. FEIS Figure 3.2-28 has been revised to show that the slurry wall is keyed into bedrock. It is the Co-lead Agencies' opinion that engineered systems can operate successfully over long periods of time is they are property monitored and maintained. The FEIS provides a comprehensive description of proposed water treatment and seep collection systems including groundwater containment and synthetic liners and covers in Section 5.2.2. This includes conceptual designs and discussions of the types of monitoring used to assess performance. Detailed designs are provided in supporting documents, which are referenced in the FEIS. The FEIS also discusses long-term operation, maintenance, and periodic replacement of engineered systems. It is acknowledged that certain components of the engineered systems would need to be replaced when monitoring indicates that performance is marginal and not readily compensated for by adaptive mitigation measures. A detailed financial assurance analysis would be part of the permitting phase and is not a required component of the FEIS. The financial assurance	WR 019 WR 128

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		process would fully consider long-term monitoring and periodic replacement of equipment including, but not limited to, water treatment hardware and synthetic liners/covers. The Financial Assurance package for the Project would ensure that future funding would be available if and when adaptive mitigation measures or component replacements are needed to achieve performance specifications.	
19661	Another major deficiency in the plant site model is that seepage capture at the flotation tailings basin, as modeled with MODFLOW and GoldSim, does not account for any seepage out of the east side of the basin. SDEIS Figure 3.2-27, that indicates continuous bedrock on the east side of the tailings basin, is incorrect and must be corrected.	The FEIS Plant Site MODFLOW model was modified from the SDEIS to include: 1) the presence of surficial deposits below the East Embankment, 2) boundary conditions (drain and/or river cells) along the embankment toe to allow the potential for surface seepage, and 3) hydrologic inputs to account for the presence of the proposed drainage swale. See FEIS Section 5.2.2.2.1. Similar to other locations along the perimeter of the Tailings Basin, the project was modified to include installation of a containment system along the East Embankment where it is underlain by surficial deposits. Given the hydrogeology of the area east of the Tailings Basin and the proposed swale to be constructed there, this containment system would have higher hydraulic head on the east side compared to the west (tailings) side where a pumped trench would depress the groundwater level. This would create hydraulic gradients in the slurry wall and in shallow bedrock that would drive (low) flows from east to west across the containment system. This set of hydraulics would result in complete capture of all tailings water approaching the containment system from the Tailings Basin. Because the system would achieve complete capture of tailings water, an east side chemical transport flowpath is not needed in the Plant Site GoldSim model. There is no hydrologic reason to expect that impacted water from the Tailings Basin would migrate east of the containment system.	WR 054
19662	Baseline groundwater elevations, depths to bedrock, and surface water drainage locations have been used to identify four flowpaths (West, Northwest, North, and South) that represent the most direct paths between Tailings Basin facilities and evaluation locations (i.e., property boundaries and surface waters of the state) (MDNR 2011L [as cited in the submission]). The modeling approach used by PolyMet has placed an artificial and unrealistic no-flow boundary on the east side of the tailings basin, when a critical evaluation of	The Plant Site MODFLOW model was modified for the FEIS to better represent natural and Project-related conditions. These include: 1) more accurate representation of surficial deposits and bedrock outcrops around the perimeter of the Tailings Basin, 2) more extensive distribution of drain and/or river cells to provide for potential surface seepage and distribution of wetlands, 3) more appropriate storage coefficients, and 4) steady-state and transient calibrations using new data extending through the end of 2013. Many of the improvements pertained to the East Embankment area of the Tailings Basin, where it is acknowledged that tailings water seepage would be likely to occur and model changes were made to simulate this seepage more accurately. These changes in response to the Theme improve	WR 054 WR 102

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	hydraulic head clearly shows the potential for substantial groundwater movement to east. Because of this this flawed assumption, there has been no contaminant transport modeling or water quality impacts analysis for seepage leaving the east side of the tailings basin.	the SDEIS MODFLOW model that limited tailings seepage on the east side of the Tailings Basin.	
19663	Also, according to the plant site surficial geology and depth to bedrock figures, the thickest layer of glacial till for the entire Proposed Project occurs around the tailings basin, representing, essentially, the biggest "pipe" for conducting contaminated tailings basin seepage to downgradient wetlands and eventually the Embarrass River. Tribal agency re-analysis using MODFLOW for the east side of the tailings basin reveals that this is likely the most significant discharge area for the entire tailings basin.	The Plant Site MODFLOW model was modified for the FEIS to better represent natural and project-related conditions. These include: 1) more accurate representation of surficial deposits and bedrock outcrops around the perimeter of the Tailings Basin, 2) more extensive distribution of drain and/or river cells to provide for potential surface seepage and distribution of wetlands, 3) more appropriate storage coefficients, and 4) steady-state and transient calibrations using new data extending through the end of 2013. Many of the improvements pertained to the East Embankment area of the Tailings Basin, where it is acknowledged that tailings water seepage would be likely to occur and model changes were made to simulate this seepage more accurately. These changes correct deficiencies in the SDEIS MODFLOW model that limited tailings seepage on the east side of the Tailings Basin. With the modifications described above, the FEIS Plant Site MODFLOW model has provided reliable flow directions in this area.	WR 093
19664	The SDEIS maintains that mine pit dewatering impacts will be very limited or non-existent based on an assumption carried forward from the DEIS that there is little or no connection between the bedrock and surficial aquifers. This assumption is based solely on an unsupported "professional opinion," when in fact there is ample evidence that there may be substantial connection between the bedrock and surficial aquifers. Such a connection indicates that dewatering the mine pits could cause significant drawdown of the water table in the surficial aquifer, potentially dewatering wetlands and ephemeral streams.	Impact assessment modeling relies on site characterization data that indicate the bulk hydraulic conductivity of upper bedrock is two to three orders-of-magnitude lower than the hydraulic conductivity of the surficial aquifer. Thus, groundwater flow and transport at both the Mine Site and Plant Site are dominated by the hydraulics of the surficial aquifer. Bedrock plays a negligible role in transporting water. However, it is acknowledge that there could be some negligible hydraulic connections between bedrock and the surficial aquifer. Therefore, the approach in the FEIS was to not consider this possible connection in the NorthMet Project Proposed Action water quality models, but to recommend extensive monitoring during operations and closure to assess if interactions occur and if they would raise concerns for permitting agencies. If monitoring data indicate trends toward permit non-compliance, adaptive mitigation measures would be implemented to prevent or eliminate what is expected to be a small transport-related bedrock impact relative to surficial flows. See FEIS Section 5.2.2.3.5 for information on adaptive mitigation measures and Section 5.2.2.3.6 for information on monitoring. The FEIS further evaluated the possibility of fractures and faults at the	WR 010 WR 012 WR 013

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		Mine Site and Plant Site to determine what (if any) changes need to be made to model assumptions to accurately predict potential environmental effects for purposes of environmental review. Although no change was made to the Plant Site GoldSim model, the FEIS Mine Site GoldSim model was modified to include a flow/transport zone 15 meters thick from that present in the SDEIS. The results of the analysis are included in FEIS Section 5.2.2.3.2. The response to theme WR169 also contains additional information.	
19665	Tritium and unionized ammonia nitrogen were found in water samples collected from two deep boreholes in the area where the Project mine pits will be located. Both tritium and unionized ammonia are classic indicators for a strong connection with surface water. Tritium indicates water found in the deep boreholes was surface water that originated post-1952, during or after nuclear testing. The boreholes are approximately one mile southwest of the Peter Mitchell Pit, which is the closest and most likely source of this pollution. Production at the Northshore mine started in 1955. Review of the Peter Mitchell Pit discharge monitoring data for SD001 from 2006 and 2008 shows the average concentration of unionized ammonia exceeded their 0.04 mg/l NPDES permit limit. Unionized ammonia and tritium in the deep boreholes suggest that travel time of contaminants through bedrock fractures will be on the order of decades, not the hundreds or thousands of years that are assumed in the SDEIS. Impacts to surface waters, groundwater, and wetlands for a project of this size and complexity demand a scientific, data-driven approach rather than one based on opinion and scant, selectively used data.	Tritium and non-ionized ammonia can be indicators of relatively young water. However, when these constituents are identified in water extracted from a borehole, the overriding question is whether or not foreign (young) water was introduced during the drilling process. There are many documented cases where tritium in borehole water could be traced to makeup water introduced during the drilling process to help maintain circulation. Experience indicates that conclusions about the age of groundwater based on tritium and non-ionized ammonia are unreliable unless it can be absolutely verified that no foreign (makeup) water was introduced during the drilling process. Given the isolated occurrences additional verification is not warranted for the EIS. It is acknowledged that there could be some hydraulic connections between bedrock and the surficial aquifer where transport is expected to be negligible. Given these factors, the approach was to not consider this possible connection in the NorthMet Project Proposed Action water quality models, but to recommend extensive monitoring during operations and closure to assess if interactions occur and if they would raise concerns for permitting agencies. If monitoring data indicate trends toward permit non-compliance, adaptive mitigation measures would be implemented to prevent or eliminate what is expected to be a small transport-related bedrock impact relative to surficial flows. See FEIS Section 5.2.2.3.5 for information on adaptive mitigation measures and Section 5.2.2.3.6 for information on monitoring. The Co-lead Agencies believe that the EIS contains adequate information and analyses consistent with the NEPA and MEPA guidance and best practices. Also refer to the response to theme NEPA 09 for more detail.	NEPA 09 WR 010 WR 013
19667	The lack of fracture and fault analysis is a major deficiency of this SDEIS. The map provided by GLIFWC in their SDEIS comments, Geologic Faults at the PolyMet Mine and Plant Site ,	Regarding tritium and non-ionized ammonia, these can be indicators of relatively young water. However, when these constituents are identified in water extracted from a borehole, the overriding question is whether or not foreign (young) water was introduced during the drilling process. There are	WR 007 WR 008 WR 012

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	indicates: 1. There are several faults extending from Northshore pits to the PolyMet mine site. This may explain why there is ammonia and tritium in the deep borehole samples. 2. There is an inferred fault running right through the area of the Hydrometallurgic Residue Facility. (Not only is the HRF proposed to be constructed within wetland, with a buried stream and springs, but it will also be receiving seepage from the tailings basin and it could be geologically predisposed to facilitate groundwater movement. 3. There is a fault system right where water would exit the tailings basin on the east side. Notice that the inferred fault may connect to other fault systems running east-west to the south of the facility.	many documented cases where tritium in borehole water could be traced to makeup water introduced during the drilling process to help maintain circulation. Experience indicates that conclusions about the age of groundwater based on tritium and non-ionized ammonia are unreliable unless it can be absolutely verified that no foreign (makeup) water was introduced during the drilling process. Given the isolated occurrences additional verification is not warranted for the EIS. Geologic mapping suggests bedrock faults could exist in areas at the Hydrometallurgical Residue Facility and Tailings Basin. However, on published geologic maps, the faults in these areas are dashed and identified as conjectural with inferred (not exact) locations. Regional geologic maps of the Iron Range do show the existence of fault lines, but hydrogeologic studies have not provided evidence that any faults that may be present behave as conduits for groundwater flow. In addition, case histories at similar Iron Range mine sites indicate that groundwater movement is dominated by flow in surficial materials (where present) and not bedrock, regardless of the presence of fractures and faults. At the Plant Site, there is no field evidence to suggest that bedrock faults or fracture zones provide enhanced groundwater flow to the Partridge and Embarrass Rivers. It is possible that structural features with enhanced groundwater flow exist, but the Co-lead Agencies believe they are improbable given the body of evidence for the Project Site and other mines sites in the Iron Range with similar geology. Further, if such features do exist, it is highly unlikely that they could be intercepted and characterized by any reasonable field program of exploratory boreholes. The management approach is to require robust groundwater monitoring during operations and closure to identify if structurally controlled groundwater flow actually occurs at the site, and if this proves to be the case, require the implementation of adaptive management measures. Monitoring would include observations from paired piezometers to be installed on opposite sides of the containment systems to verify reversal of hydraulic gradients and thus, essentially complete capture of affected groundwater. If reversed gradients are not indicated, adaptive mitigation measures would be implemented to modify the groundwater hydraulics so that essentially complete capture is established.	WR 013
19668	The potential for water quality impacts from prospecting and mining operations that have contacted the Duluth Complex have long been	The Co-lead Agencies rely upon the expertise and experience of their staff and consultants who bring to bear their knowledge of various studies and analyses performed on mine sites in Minnesota and elsewhere. This	WR 023 WR 203

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	known to the MNDNR and MPCA. The State of Minnesota spent $4.3 million over three years in the late 1970s to produce the Regional Copper-Nickel Study, a 5-volume compilation of technical information regarding the potential impacts of copper-nickel mining in the Duluth Complex. Nevertheless, predicted water quality impacts and ineffective mitigation methods referenced in the Study were ignored when the technical documents and SDEIS were drafted for PolyMet.	knowledge is applied in the review of documents prepared to evaluate the NorthMet Project Proposed Action potential effects. It should be noted that the NorthMet Project Proposed Action is different from other mining projects in this part of Minnesota in the following ways: different ore type, designs for groundwater containment systems, and use of long-term mechanical treatment. While experiences gained on other projects are informative, they do not necessarily apply to the NorthMet Project Proposed Action. This is particularly true for groundwater containment systems because the NorthMet Project Proposed Action uses a design that differs from those at other Iron Range mine sites. The mitigation designs of the NorthMet Project Proposed Action are unlike measures discussed in the Regional Copper-Nickel Study (MEQB 1976, as cited in the FEIS). The NorthMet Project Proposed Action measures include: long-term mechanical water treatment, uniquely designed groundwater containment systems, subaqueous disposal of reactive waste rock, and synthetic covers and under-liners used at waste rock stockpiles and treatment ponds. In addition, the level of construction QA/QC proposed at the NorthMet site would be much higher than what has historically occurred at older mine sites in the Iron Range. It is erroneous to conclude that operation and closure of the NorthMet Project Proposed Action site would necessarily entail the same types of failures that have occurred at some historical Iron Range mines. In fact, the unique designs and high-quality construction measures proposed are a response to past events. The detailed and sophisticated modeling work performed to support the FEIS exceed those conducted for some existing mines in Minnesota. The models used for the NorthMet Project Proposed Action represent years of development, with input from the Proposer, Co-lead Agencies and Cooperating Agencies. Based on comments received on the SDEIS, modifications were made to the models to improve FEIS impact evaluations. It is the Co-lead Agencies' position that incomplete or inaccurate predictions made in the past at historical mining operations do not provide a basis for judging the quality of modeling to be used in the NorthMet FEIS. The EIS reflects consideration of information pertaining to the Dunka Pit that was directly relevant to the NorthMet Project Proposed Action. It is noteworthy that many aspects of operations at the Dunka Pit are dissimilar to the NorthMet Project Proposed Action in terms of hydrogeology and	

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		mine design.	
19669	The SDEIS also diminishes the lessons learned from the Dunka Pit, located on the former LTVSMC site approximately five miles north and east of the PolyMet Project mine site. Within the Dunka Pit, LTVSMC contacted the Duluth Complex and the Virginia Formation while mining for taconite in the Biwabik Iron Formation. By 1991, LTVSMC had removed about 50 million tons of Duluth Complex material from the Dunka pit and placed it in "gabbro" stockpiles. Monitoring of the drainage from these stockpiles beginning in 1976 revealed a decrease in pH and an increase in trace metals. Copper and nickel concentrations as high as 1.7 and 40 mg/l respectively were observed in seepage/run-off from the Duluth Complex waste rock stockpiles and pH was observed as low as 5.0 at seep 1 between 1976 and 1980. Most of the seepage from waste rock piles at the Dunka site was discharged to Bob's Bay in Birch Lake via Unnamed Creek. A 1976-1977 study of trace metals in Bob's Bay found that concentrations of copper, nickel, cobalt, and zinc in the water of the Bay were higher than regional average concentrations and decreased with distance from the mouth of Unnamed Creek. Additionally, it was determined that Unnamed Creek contributed more than 90% of the trace metals load to Bob's Bay. The NPDES permit for this discharge expired in 2005 and another variance request is expected. A WWTF located at the site has been inactive because Cliffs Erie, LLC, the owner who acquired the property from LTVSMC, declared bankruptcy and claims it is simply too expensive to continue running. Unfortunately, the passive wetland treatment system did not function well enough to remove nickel and copper in waters still discharging from the mine pit and stockpiles to a concentration that	The Co-lead Agencies rely upon the expertise and experience of their staff and consultants who bring to bear their knowledge of various studies and analyses performed on mine sites in Minnesota and elsewhere. This knowledge is applied in the review of documents prepared to evaluate the NorthMet Project Proposed Action potential effects. It should be noted that the NorthMet Project Proposed Action is different from other mining projects in this part of Minnesota in the following ways: different ore type, designs for groundwater containment systems, and use of long-term mechanical treatment. While experiences gained on other projects are informative, they do not necessarily apply to the Proposed Action. This is particularly true for groundwater containment systems because the NorthMet Project Proposed Action uses a design that differs from those at other Iron Range mine sites. The mitigation designs of the Proposed Action are unlike measures discussed in the Regional Copper-Nickel Study (MEQB 1979, as cited in the FEIS). The Proposed Action measures include: long-term mechanical water treatment, uniquely designed groundwater containment systems, subaqueous disposal of reactive waste rock, and synthetic covers and under-liners used at waste rock stockpiles and treatment ponds. In addition, the level of construction QA/QC proposed at the NorthMet site would be much higher than what has historically occurred at older mine sites in the Iron Range. It is erroneous to conclude that operation and closure of the NorthMet Project Proposed Action Site would necessarily entail the same types of failures that have occurred at some historical Iron Range mines. In fact, the unique designs and high-quality construction measures proposed are a response to past events. The detailed and sophisticated modeling work performed to support the FEIS exceed those conducted for some existing mines in Minnesota. The models used for the NorthMet Project Proposed Action represent years of development, with input from PolyMet, Co-lead Agencies and Cooperating Agencies. Based on comments received on the SDEIS, modifications were made to the models to improve FEIS impact evaluations. It is the Co-lead Agencies 'position that incomplete or inaccurate predictions made in the past at historical mining operations do not provide a basis for judging the quality of modeling to be used in the NorthMet FEIS. The FEIS reflects consideration of information pertaining to the Dunka Pit that was directly relevant to the NorthMet Project Proposed Action. It is	WR 023

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	complies with MN WQS.	noteworthy that many aspects of operations at the Dunka Pit are dissimilar to the NorthMet Project Proposed Action in terms of hydrogeology and mine design.	
19670	The Mining Simulation Project (funded in part by a Minnesota Legislative appropriation of $185,000 to the MNDNR and MPCA) was a cooperative study to identify and resolve environmental issues associated with non-ferrous mining and to anticipate industry and government data needs to address those issues before commercial development occurred in Minnesota. The study clearly identified those state ground and surface water quality regulations that would apply to copper-nickel mining operations in Minnesota, including applying the 10 mg/l sulfate criterion to effluent discharges where wild rice is present; it prioritized nondegradation of both surface and groundwater and protection of groundwater as a drinking water source; and it rejected using natural wetlands for mine effluent treatment ("as a toxic metals dumping ground"). The tribal cooperating agencies have also consistently elevated our concerns for the Proposed Project's potential to adversely impact groundwater quality and quantity. "Groundwater maintains stream flows and wetlands during dry periods, supporting significant ecosystem functions. Groundwater is an important source of drinking water in the Great Lakes Basin, where 8.2 million people, or 82% of the rural population, rely on groundwater for their drinking water." In Minnesota, all groundwater is protected for drinking water supplies, "constituting the highest priority use, and as such, to provide maximum protection to all underground waters." When considering water allocations, drinking water is supposed to be considered the highest priority by the MN DNR. According to MPCA's groundwater profile for Northeastern MN including the Project area: "Glacial aquifers are	Evaluation criteria are based on applicable water quality standards. Where a water body is classified as Domestic Consumption (1B) or for groundwater, USEPA primary drinking water standards apply. The USEPA primary drinking water standards set mandatory maximum contaminant levels for drinking water to protect the public from consuming water that presents a risk to human health. Evaluation criteria can be found in Section 5.2.2. The MPCA has previously provided draft staff recommendations as to what waters in the Embarrass and Partridge rivers are waters used for production of wild rice to which the current 10 mg/L wild rice sulfate standard applies. The MPCA reviewed all available relevant information in making their recommendation. Water treatment using natural wetlands is not included in the Project Description. The NorthMet Project Proposed Action would rely upon mechanical treatment for as long as necessary. During operations and closure, the use wetland treatment may be considered as an adaptive management measure if pilot and other studies indicate that this method has potential utility and is cost-effective. Groundwater and surface water flow model predict that the NorthMet Project Proposed Action would have a minimal effect on drinking water standard-based evaluation criteria in the groundwater at the project boundaries or in Colby Lake (the locations at which drinking water standards apply. Based on this, It is therefore expected that the NorthMet Project Proposed Action would not have any significant impacts on water quality downstream of the Project area or significantly contribute to any cumulative effects on drinking water resources.	WR 041 WR 042 WR 110 WR 154

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	commonly thin and limited in their extent and yield. Bedrock aquifers have limited yield, generally from fractures; groundwater movement is difficult to define. There are no large-scale regional aquifers. The Biwabik Iron Formation is the only source of groundwater for many Iron Range cities." The SDEIS has not adequately evaluated the potential for impacting drinking water sources, and it is clear from the state regulatory agencies' uncertainties about the frequency, volume, and water quality of other mine discharges (i.e., the Peter Mitchell Pit) even while regulated under permits, that this issue remains a significant deficiency in the SDEIS analysis.		
19671	The tribal cooperating agencies have consistently raised concerns about reactive dust and ore fines along the Transportation and Utility Corridor, and potential for water quality impacts to the three streams and wetlands that are crossed within the corridor. Yet these concerns have been repeatedly kicked back and forth between the Air IAP and Water Quality IAP work groups, with neither group ultimately resolving the information and risk analysis gap. The end result of this 'oversight' in the SDEIS is that no consideration, discussion, or proposed management of this potential water and wetland quality impact is provided for the public to review.	The Project Description in the FEIS includes routine inspections of the Transportation and Utility Corridor to identify accumulations of dust or ore spillage. Regarding dust, given the majority of the dust that could leave the NorthMet Project area could be characterized as low sulfide/low metal, potential impacts would be controlled by: 1) the commitment to treat all runoff from disturbed areas as process wastewater, and 2) the facilities would be subject to an air quality Fugitive Emissions Plan. Significant impact on water resources or historic properties is not expected. All active areas at the Mine Site and Plant Site would be subject to a Fugitive Dust Control Plan approved by the MPCA, which describes management of fugitive dust generated from unpaved roads across the NorthMet Project area, rock dumping and loading locations on the Mine Site, and areas potentially subject to wind erosion on the Plant Site (see Sections 4.1.6, and 4.3.9, in PolyMet 2015a, as cited in the FEIS). Regarding potential spillage, any significant accumulations would be removed by a combination of machines and hand work. Ore transport would be by special railcars that minimize dust and spillage, where, since the SDEIS, the Proposer has committed to retrofit the railcars to better control spillage and develop an ore management/transport plan for monitoring site conditions. It is unlikely that there would be sufficient spillage to affect the quality of surface water or groundwater (See FEIS Section 5.2.2.3.2). See FEIS Section 3.2.2.4 for more information on the	WET 11 WR 151

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		railcars, and Sections 5.2.3 and 5.2.7 for impacts of railcar spillage and dust on wetlands and air quality, respectively. The effect of dust falling on the disturbed portions of the Mine Site would be controlled by the perimeter dike and ditch system, which would route runoff to the WWTF (Section 4.1.5.3 and Large Figures 19 through 21 of PolyMet 2015a, as cited in the FEIS). Please refer to the responses to themes WET 11 and WR 151.	
19672	The only potential solute sources along the Transportation and Utility Corridor or at the processing plant (both within the Partridge River Watershed) would be from spills, as there would be no surface stockpiles of waste rock, ore, or other potential solute sources in these areas. There is the potential, however, for ore spillage from rail cars in transport from the Mine Site to the processing plant during operations. Based on observations at other mining operations using similar side-dump rail cars, it is assumed that spillage could occur along the first 1,000 meters of rail from the Rail Transfer Hopper (PolyMet 2013l). It is estimated that 55.7 kg ore per m2 track could spill from rail cars within the first 1,000 meters of the Transportation and Utility Corridor over the 20-year life of the NorthMet Project Proposed Action. This is equivalent to 1.25 inches of spilled material over a 2,000-m2 area. Rainfall contacting the spilled ore material has the potential to release solutes, but with the small volume of ore and dilution from other sources, water quality is expected to meet the evaluation criteria (PolyMet 2013l). This is not a trifling mass of ore, nor is it an insignificant quantity of reactive dust and fines, deposited directly into the watershed. It is unacceptable to dismiss the likely water quality impacts of twenty years of ore spillage and dust/fine deposition with a casual statement and zero analysis. It is especially disheartening to the tribal cooperating agencies that have attempted to elevate this issue for so	The FEIS Project Description includes routine inspections of the Transportation and Utility Corridor to identify accumulations of dust or ore spillage. Regarding dust, given the majority of the dust that could leave the NorthMet Project area could be characterized as low sulfide/low metal, potential impacts would be controlled by: 1) the commitment to treat all runoff from disturbed areas as process wastewater, and 2) the facilities would be subject to an air quality Fugitive Emissions Plan. Significant impact on water resources or historic properties is not expected. All active areas at the Mine Site and Plant Site would be subject to a Fugitive Dust Control Plan approved by the MPCA, which describes management of fugitive dust generated from unpaved roads across the NorthMet Project area, rock dumping and loading locations on the Mine Site, and areas potentially subject to wind erosion on the Plant Site (see Sections 4.1.6, and 4.3.9, in PolyMet 2015a, as cited in the FEIS). Regarding potential spillage, any significant accumulations would be removed by a combination of machines and hand work. Ore transport would be by special railcars that minimize dust and spillage, where, since the SDEIS, the Proposer has committed to retrofit the railcars to better control spillage and develop an ore management/transport plan for monitoring site conditions. It is unlikely that there would be sufficient spillage to affect the quality of surface water or groundwater. See FEIS Section 5.2.2.3.2. See FEIS Section 3.2.2.4 for more information on the railcars, and Sections 5.2.3 and 5.2.7 for impacts of railcar spillage and dust on wetlands and air quality, respectively. The effect of dust falling on the disturbed portions of the Mine Site would be controlled by the perimeter dike and ditch system, which would route runoff to the WWTF (Section 4.1.5.3 and Large Figures 19 through 21 of PolyMet 2015a, as cited in the FEIS).	WET 11 WR 023 WR 151

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	many years, that the co-leads have been completely unwilling to consider giving it the analysis it requires, or to even provide examples from other sulfide mines where this has not proven to be a concern.		
19673	Regardless of the 'footprint' of the equalization basins, the liner leakage estimate of 5 gallons per acre per day (gpad) is not consistent with what we have found in the literature for the maximum allowable, or "Action Leak Rate", above which a leak must be found and repaired.	The assumed liner leakage rates are based on a combination of literature values, experience at mine sites and other types of industrial facilities, manufacturer documentation, and information provided in standard engineering guidance documents (Section 5.2.2.3 in PolyMet 2015m, as cited in the FEIS). Liner leakage rates were estimated using the USEPA-approved HELP model, where simulations combined NorthMet Project design values for slopes and subgrade design with the published values for average liner defects per acre. It is acknowledged that there have been historical instances where poor-quality liner installations have failed or leaked at relatively high rates. However, for the high-quality liner installations to be used for the NorthMet Project Proposed Action, the assumed liner leakage rates are reasonable and consistent with industry standards. While solid waste landfills may typically be smaller than the NorthMet facilities, the liner leakage rates are expressed on a unit area basis, so the results can be scaled to larger facilities. Further, the waste rock stockpiles where liners would be used are only temporary and monitoring would give early warning if they are not functioning properly.	WR 126
19674	The Band has consistently raised concerns for the NorthMet Project potential to increase mercury concentrations in fish within the St. Louis River watershed, where we exercise water quality jurisdiction, and within the 1854 Ceded Territory where Band members can exercise treaty fishing rights.	The change in mercury concentration in fish is thought to be ultimately proportional to the percent increase in mercury load (MPCA 2006a, as cited in the FEIS). The current MPCA-estimated mercury deposition rate is 12.5 µg/m2/yr for northeast Minnesota (MPCA 2007, as cited in the FEIS), which translates into about 250 pounds per year of mercury currently being deposited onto the St. Louis River Watershed (3,600 square miles) due to background deposition. The potential total annual deposition in the watershed from the NorthMet Project Proposed Action is estimated to be about 0.17 pounds per year (Barr 2012b, as cited in the FEIS), which is less than 0.1 percent of the background deposition levels described above. Discharges from the WWTF and WWTP are expected to meet the 1.3 ng/L standard for mercury, and overall the NorthMet Project Proposed Action is predicted to result in a net decrease in mercury loading. Additionally MPCA's MMREM analysis showed a 0.5 to 1.8 percent and 0.3 to 0.5 percent potential increase in fish mercury concentrations above	AQ 05

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		background. However, the increase would not be expected to have any appreciable effect on loading estimates from permitted discharges to the Embarrass River, Partridge River, or the lower St. Louis River. Therefore, mercury concentrations are not likely to result in an appreciable change in the mercury concentration in fish in waterbodies of the St. Louis River watershed or in the St. Louis River itself (Barr 2015f, as cited in the FEIS). Per FEIS Section 6.2.6, the NorthMet Project Proposed Action would not have any direct effects on aquatic habitat in the St. Louis River, and would not have any appreciable indirect effects on fish or aquatic invertebrates as a result in changes in flow or water quality.	
19675	There has not been significant "ground-truthing" of mercury deposition rates that were used in the modeling assessment. Tribal cooperating agencies note that no studies have been conducted within this region of active mining to determine why fish tissue mercury concentrations are so high if the local sources mainly emit 'non-locally polluting' forms of mercury.	The assessment of potential local mercury deposition and resulting changes in fish mercury conducted for the NorthMet Project Proposed Action are consistent with the assessments conducted for other recent mining projects requiring environmental review. Such information in reference to mercury deposition has been summarized in Barr 2006g, as cited in the FEIS.	AQ 28
19676	The Band concurs with the letter recently signed by 19 Duluth health care professionals expressing concerns that the SDEIS fails to define the human health effects of increased mercury emissions, exposure to asbestos-like mineral fibers, and arsenic.	The AERA contains toxicological information for various emissions, including mercury and airborne fibers, as well as an analysis of the potential health effects of those chemicals. The toxicological information was included in the AERA summary in FEIS Section 7.3.4. The AERA includes an evaluation of the most sensitive health endpoint for each chemical (e.g., neurological morbidity from manganese, reproductive toxicity of methyl mercury, and the carcinogenic potential of diesel, nickel, and arsenic). Arsenic releases to groundwater and surface water were evaluated in FEIS Section 5.2.2.3.2, and modelled concentrations were compared to drinking water standards. Drinking water standards would not be exceeded for arsenic. FEIS Section 5.2.7.5 contains a discussion of various types of fibers, as well as the health effects found in the scientific literature, including a summary of toxicity information from a scientific literature review conducted in 2009. FEIS Section 5.2.7.5 concludes with a finding of "an uncertain level of potential public health risk" being present due to airborne fibers in the area, and provides a summary of the dust suppression practices that would be used to minimize fiber generation. This information is referenced in the human health section of Chapter 7 (FEIS Section 7.3.4).	HU 01 HU 02 HU 07

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19677	The SDEIS states that the current fish tissue concentrations in the five local lakes that were studied result in Hazard Quotients (HQs) that exceed 1 (page 6-63), but gives no further information. The Cumulative Impacts Analysis, Local Mercury Deposition and Bioaccumulation in Fish (July 2012) (Barr report) showed modeled contributions from both the Mesabi Nugget LDSP and PolyMet; this information should be included in the SDEIS for public review. The Barr report provides the actual HQs, rather than just saying "they exceed 1". The SDEIS should state clearly that in one case, the existing HQ equals 46.2, which is 46 times as high as the number where action is recommended. This is an unacceptable situation.	'Information pertaining to the specific Hazard Quotients summarized in Barr 2012b, as cited in the FEIS, have been included in FEIS Section 6.2.6, summarizing the cumulative effects assessment for mercury deposition.	AQ 03
19678	The SDEIS does not provide any rationale for more mercury to be added to a system that is already so high in mercury, but rather only suggests that the TMDL should take care of this.	This comment was originally presented as part of the Tribal Position Summary included in MDO #2, which was previously addressed in SDEIS Table 8-1. Further explanation is provided below. MPCA's goal is to protect high-quality waters and improve the quality of impaired waters, so water quality standards are met and beneficial uses are maintained and restored, where these uses are attainable. As summarized in FEIS Section 5.2.7.2.5, widespread contamination of fish from atmospheric pollution is why Minnesota established a statewide mercury TMDL. The TMDL seeks to reduce atmospheric deposition everywhere in the state, in order to make the state's lakes and streams fishable, as required by federal regulations, and is intended to provide the long-term framework to reduce mercury in fish. The MPCA published Guidelines for New and Modified Mercury Air Emission Sources, and revised those guidelines in 2012 (MPCA 2012h, as cited in the FEIS). The guidelines were developed to limit the mercury emissions from new and expanding sources in order to meet the TMDL goal of total statewide mercury emissions of 789 lbs/year by 2025. The MPCA has conducted a review of the NorthMet Project Proposed Action mercury emissions, and has determined that it would not impede the reduction goals (MPCA 2013l, as cited in the FEIS). The MPCA has provided guidance to the Co-lead Agencies that a discharge to a water body impaired for fish tissue mercury is not prohibited, provided that the discharge can meet the applicable water quality standard without	MERC 22

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		benefit of mixing or dilution (i.e., does not cause or contribute to the impairment). The FEIS has evaluated mercury concentrations from the Plant Site WWTP and Mine Site WWTF, and has concluded that effluent from both facilities can meet the applicable mercury water quality standard of 1.3 ng/L. Overall the NorthMet Project Proposed Action is predicted to result in a net decrease of mercury-loading.	
19679	The background site-specific analyses and data presented in the SDEIS for total mercury and methylmercury in surface and groundwater is not sufficient to adequately describe existing conditions or evaluate the potential for impact due to changes in hydrology and water quality as a result of the NorthMet Proposed Project.	The comments in this theme correctly recognize that impact assessment requires collection of background information to establish baseline conditions. For assessing mercury impacts, the SDEIS relied on monitoring data for total mercury and methylmercury collected through August 2012 at both the Mine Site and Plant Site. Because collection of baseline data is ongoing, data used for the impact assessment was expanded for the FEIS by using data collected through December 2013. Selected surface waters where water quality samples have been taken include, but are not limited to, the LTVSMC Tailings Basin, Unnamed Creek, Trimble Creek, Spring Mine Creek, Second Creek, Embarrass River, Sabin Lake, Wynne Lake, Esquagama Lake, Embarrass Lake, Heikkila Lake, Partridge River, Colby Lake, and the St. Louis River. FEIS Table 4.2.2-4 summarizes total mercury concentrations in the Partridge River and Embarrass River watersheds in the NorthMet Project area. Groundwater monitoring has also been conducted at the Mine Site and Plant Site. For surficial groundwater resources, 24 wells collected data at the Mine Site, while 8 wells were used at the Plant Site. Bedrock monitoring for the Mine Site includes 4 deep monitoring wells and 5 shallower bedrock wells. FEIS Table 4.2.2-6 summarizes total mercury concentrations sampled from these wells at the Mine Site. No bedrock water quality sampling has been required at the Plant Site. All of these data were subject to statistical analysis to estimate baseline mercury concentrations for surface water and groundwater resources at the Mine Site and Plant Site. This baseline estimate was subsequently used as input into the respective GoldSim water quality models, with the results reported in the FEIS. See FEIS Section 4.2.2. This data collection and subsequent analyses are documented in (all as cited in the FEIS): PolyMet 2015j, PolyMet 2015m, PolyMet 2015q, and Barr 2015f. Additional relevant documentation includes (all as cited in the FEIS): Barr 2010c, Barr 2012b, and Barr 2015g, as well as PolyMet 2011 (not cited in the FEIS). These analyses are considered adequate for FEIS	MERC 02

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		impact evaluations.	
19680	There is very little methylmercury data included in the analysis for any waterbodies, and there is no sediment mercury or methylmercury data used to evaluate and understanding existing conditions. For the data that is presented, there are numerous inconsistencies in reporting limits and method detection limits, casting doubt on data quality and its utility for critical analysis of project impacts.	Additional baseline monitoring was performed in 2009 and additional data was included in the SDEIS to evaluate the Embarrass River and tributary streams and assess relationships between sulfate and methylmercury. This data are summarized in FEIS Section 4.2.2.3.1 and 4.2.2.3.2. Data presented in the FEIS were gathered from various sources thereby leading to inconsistencies in the way the results are reported. The data presented in tables in the FEIS have been reviewed for consistency and updated as necessary. The quality assurance process is documented in the FEIS.	MERC 04
19681	The SDEIS also fails to evaluate other scientifically documented factors that affect mercury methylation and bioaccumulation. The SDEIS approach to evaluating mercury impacts of the Proposed Project avoids addressing complex but well-studied environmental processes by modeling, and instead relies upon an incomplete mercury mass balance to predict future conditions. It superficially references some of the large body of literature related to sulfate, pH, dissolved organic carbon, iron, and microbial activity, but in some cases erroneously interprets it.	The FEIS assesses NorthMet Project Proposed Action-related mercury contributions using a mass-balance methodology. This approach was identified as the appropriate analytic tool for predicting mercury concentrations during scoping of this EIS, and is a common and reliable analytical tool used by agencies to assess mercury impacts in impact assessments. This estimation method is preferred over a detailed mechanistic model because it incorporates the important input and removal processes for mercury, it is transparent with regard to data inputs, it typically provides conservative estimates of aqueous mercury concentrations, and it allows for easy assessment of the effect of changing parameter values on mercury concentrations. Further, the NorthMet Project Proposed Action is not anticipated to be a major discharger of mercury into the environment. The RO treatment is expected to discharge mercury at or below the mercury standard of 1.3 ng/L, which includes all surface water that would be discharged at the Plant Site, including water used for flow augmentation. Mercury at the Mine Site is projected to decrease due to the NorthMet Project Proposed Action and the combined contributions from the Embarrass River and Partridge River are unchanged when modeled at the St. Louis River at the Fond du Lac reservation boundary. Therefore, the potential effects are expected to be less than significant, and the mass balance approach is appropriate to provide a reasonable estimate of potential contributions for purposes of environmental review given these circumstances. Regarding mercury concentrations in fish, the scientific community's understanding of the relationship between total mercury, sulfate, methylmercury, etc., is evolving, and the science is complex. That said, changes in mercury concentration in fish is thought to be ultimately proportional to the percent increase in mercury load (MPCA 2006a, as cited	MERC 13

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		in the FEIS); therefore, sophisticated modeling of methylation and bioaccumulation may not lead to more accurate results, but instead could lead to erroneous conclusions.	
19682	The SDEIS assumes that existing tailings in the LTV Tailings Basin will indefinitely adsorb mercury. However, Table 4.2.2-34 Summary of Surface Water Quality Monitoring Data for the Tailings Basin Surface Seeps clearly demonstrates that existing seepage exceed the GLI standard, and are higher than many of the data shown for most of the tributary streams. Given the lack of confidence in predicted seepage capture rates, Tailings Basin seepage is another source that has been greatly underestimated in the SDEIS analysis.	The MDNR has found that taconite tailings appear to be a sink for mercury in full-scale actual tailings basins in northern Minnesota, at least similar to other media like soils, as evidenced by lower mercury concentrations in waters seeping from tailings basins (specifically at U.S. Steel's Minntac Mine and Northshore Mining's Northshore Mine) than in either precipitation input or pond water in the tailings basin. The loss of mercury through adsorption to solids in the tailings basin and subsequent burial in the sediments results in an overall permanent retention of mercury within the basin and decreases the mercury load released to receiving waters. MDNR research demonstrates that mercury released to surface waters during taconite processing is insignificant with respect to mercury concentrations found in local precipitation and existing background surface waters. The FEIS relies on revised cross-section models from the SDEIS to evaluate containment systems on the north, northwest, and west sides of the Tailings Basin, which are documented in PolyMet 2015i, as cited in the FEIS. These new models consider the presence of an upper more-permeable bedrock zone directly below the slurry wall, with hydraulic properties based on 2014 packer tests conducted in five boreholes along the proposed containment system alignment. Sensitivity analyses have included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 100 feet. The model results predict that the overall capture efficiencies of the proposed Tailings Basin containment systems would be substantially greater than 90 percent. This analysis supports the conclusion that the assumption of 90 percent or greater capture efficiency is justified. Water captured by the containment system would be treated by the WWTP thereby lowering mercury levels once again before water is discharged to the environment. The target mercury WWTP effluent concentration is 1.3 ng/L which would meet the GLI standard.	PD 08 WR 018 WR 021
19683	The SDEIS evaluation of mercury impacts is deficient, and the conclusion of no mercury impacts downstream in the St. Louis River watershed is not supported by the information presented. This issue remains a significant impact	As summarized in FEIS Section 6.2.3.3.4, the NorthMet Project Proposed Action is predicted to result in a net overall decrease of mercury loadings of approximately 1.0 grams per year (i.e., a net decrease of 1.2 grams per year in the Partridge River and a net increase of 0.2 grams per year in the Embarrass River), which is indistinguishable from natural background	MERC 19

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	to reservation and treaty resources.	variability. Therefore, the NorthMet Project Proposed Action would not contribute to cumulative effects on mercury loading to the St. Louis River. Supporting information is provided in FEIS Section 6.2.3.3.4.	
19684	Project's effect on wild rice waters sulfate loadings, compliance points, seasonal discharge. The Band has consistently challenged the conclusion that the NorthMet Project will not result in damage to wild rice waters in the Partridge and Embarrass Rivers and their watersheds. Our skepticism arises from growing knowledge of the extent to which state and federal regulatory agencies have consistently failed to enforce standards and regulations on the mining industry that are intended to protect wild rice. We have exhaustively commented on the specific threats of this project from the very beginning of our involvement as a cooperating agency, and our previous concerns are carried forward to the SDEIS, despite new engineering controls and water treatment. It is commendable that PolyMet has committed to constructing wastewater treatment plants that include reverse osmosis, which has the potential to meet the low sulfate effluent limit if designed and operated properly, including at the Mine Site at year 1. But the damage to wild rice will be just as real and just as permanent if it results from inadequate regulatory controls, as if it results from inadequate engineering controls. In order to effectively apply the standard, the period when wild rice may be susceptible to high sulfate needed to be determined. MPCA produced draft staff recommendations (MPCA 2012b; MPCA 2012a) that included reviews of supporting research findings and related information. The MPCA's recommendations were that the 10 mg/L sulfate standard is applicable for portions of the Partridge River and Embarrass River used for the production of wild rice and that in the portions of the	Neither seasonal application of the wild rice standard nor non-mechanical treatment systems are part of the NorthMet Project Proposed Action, which relies solely on mechanical treatment and year-round application of the sulfate standard. Non-mechanical treatment may be considered during operations and closure if pilot studies demonstrate their utility and cost-effectiveness for water treatment and water disposal. For purposes of the EIS, the MPCA has previously provided draft staff recommendations as to what waters in the Embarrass and Partridge rivers are waters used for production of wild rice to which the current 10 mg/L wild rice sulfate standard applies. The MPCA reviewed all available relevant information in making their recommendation; however.	WR 153 WR 154

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	Partridge River, the 10 mg/L sulfate standard is applicable from April 1 through August 31. As stated in earlier comments, recent research does not support seasonal-only restrictions on sulfate loading. There is no time of year when high sulfate discharges do not result in the generation of highly toxic sulfide in the sediments, and consequently, no time of year when wild rice is not susceptible to high sulfate.		
19685	The results over the 4 years of surveys indicate some variability in the location and density of observed wild rice and in associated water column sulfate concentrations between survey years. The 2012 survey showed generally fewer and less dense stands of wild rice than were observed in the 2009 to 2011 surveys...No wild rice was observed in Spring Mine Creek, Trimble Creek, or Unnamed Creek near the Plant Site and they are not recommended as waters used for production of wild rice (Barr 2009b; Barr 2011a; Barr 2012a; MPCA 2012b). Section 4.2.2 provides a discussion on wild rice survey results and water quality standards (see Figure 4.2.2-3)….The co-lead and cooperating agencies are all well aware of the historic flood event this region experienced in June 2012; tribal and state rice harvesters reported widespread resource losses (thousands of acres) across many of the region's wild rice lakes and flowages. It is not surprising that the 2012 surveys of wild rice waters impacted by mine discharges showed fewer, less dense stands of wild rice than in previous years…Minnesota tribes have engaged in consultation with the MPCA on this culturally vital issue and provided recommendations for better protection of the wild rice that remains across a much-diminished range. The tribal cooperating agencies have engaged in consultation with the federal co-lead agencies under Section 106 of the National Historic Preservation Act,	For purposes of the FEIS, the MPCA has previously provided draft staff recommendations as to what waters in the Embarrass and Partridge rivers are waters used for production of wild rice to which the current 10 mg/L wild rice sulfate standard applies. The MPCA reviewed all available relevant information in making their recommendation; however.	WR 154

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	continually elevating the need for protection of all remaining wild rice in the 1854 Ceded Territory. During consultation the Bands have provided information about tribal wild rice harvest in the Embarrass River far upstream of where the MPCA has recommended as "waters used for the production of wild rice." The wild rice sulfate standard must apply throughout the Embarrass River watershed.		
19686	The scant remaining stands[of wild rice] in the upper reaches [of the Embarrass River] have already been severely impacted by previous mining disturbances and continued releases of high-sulfate water, and are in need of restoration.	In 1973, Minnesota adopted a water quality standard of 10 mg/L applicable to "water used for production of wild rice during periods when the rice may be susceptible to damage by high sulfate levels." Water quality and quantity modeling predictions for SW-005 and PM-13 indicate that the project would not result in adverse impacts to wild rice. These locations are the nearest downstream locations in the Partridge and Embarrass Rivers respectively and were previously recommended by MPCA staff to be considered as waters used for production of wild rice. Impacts on wild rice further downstream in these waters, or on wild rice resources regionally throughout the treaty areas, would not be expected.	PER 10 WR 154 WR 157
19687	In MPCA-recommended wild rice waters along the Partridge and Embarrass rivers, the sulfate concentration already exceeds 10 mg/L, so it must be demonstrated that the NorthMet Project Proposed Action would have an acceptably high probability of not increasing sulfate concentrations in these areas. This contorted interpretation of compliance under the Clean Water Act is not defensible. The NorthMet Project Proposed Action must meet MN WQS, including the sulfate criterion to protect wild rice.	Federal Regulations 40 CFR 122.4(i) and 40 CFR 122.44(d)1 have the primary purpose of ensuring that impaired waters are not further degraded before a TMDL is complete. Enacted in the early 1980s, these regulations fulfill the Clean Water Act objective to restore and maintain the chemical, physical, and biological integrity of the nation's waters. 40 CFR. § 122.4(i) prohibits the net increase of any pollutant that will cause or contribute to a numeric or narrative water quality standard violation. 40 CFR. § 122.44(d) requires effluent limits in permits to ensure discharges do not cause, have a reasonable potential to cause, or contribute to the violation of a numeric or narrative water quality standard.	PER 10 WR 153 WR 154
19688	As stated previously, our concerns for protecting wild rice within this region of the 1854 Ceded Territory is based as much upon inadequate implementation of MN WQS protections, as upon the high likelihood that surface and groundwater discharges from the project will exceed MN WQS. We consider the high probability of continued	Water quality and quantity modeling predictions for SW-005 and PM-13 indicate that the project would not result in adverse impacts to wild rice. These locations are the nearest downstream locations in the Partridge and Embarrass Rivers respectively and were previously recommended by MPCA staff to be considered as waters used for production of wild rice. Impacts on wild rice further downstream in these waters, or on wild rice resources regionally throughout the treaty areas, would not be expected.	PER 10 WR 156 WR 157

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	degradation of remaining wild rice stands in the Partridge and Embarrass River watersheds as a result of the NorthMet Project to be an unacceptable environmental impact.		
19689	The SDEIS does not adequately discuss impacts to traditional uses such as hunting and trapping, nor does it adequately discuss impacts to traditional game and furbearer populations. This is a major discrepancy in these documents as healthy wildlife populations, particularly game and furbearer species, and access to them is critical for the exercise of treaty rights for tribal members.	Potential effects from the NorthMet Project Proposed Action on game species are discussed in FEIS Section 5.2.5. The potential cultural effects on the Bands from the NorthMet Project Proposed Action on game species are discussed in FEIS Section 5.2.9.2.2.	CR 01
19690	Fond du Lac's comments on the DEIS regarding the existing wildlife corridors are still applicable: they are fundamentally inadequate to maintain habitat connectivity across the heavily disturbed Mesabi Iron Range. As evidenced from aerial photographs, they're narrow and often heavily intruded upon by roads, utility corridors, mine pits and urban development. These features serve as barriers to many kinds of wildlife. While the existing corridors may function well enough for large, mobile species like deer or wolves, they are inadequate for smaller, less mobile species	The FEIS wildlife sections include an analysis of the wildlife corridors, including their use by various species. *Minnesota Rules*, part 6132.2700 requires that a project site be reclaimed once mining has ceased. The goals of such reclamation are to "control erosion, to screen mining areas from non-compatible uses, and to provide for subsequent land uses such as wildlife habitat or timber production." The rules also include requirements about the characteristics and planting schedule for vegetation used in reclamation. Mitigation measures for wildlife species would be considered during the Endangered Species Act Section 7 consultation process.	WI 02 WI 03
19691	The SDEIS concedes that increasing development of urban areas alongside the corridors will render some of the existing corridors less suitable for wildlife in the future. Increased urban development and associated transportation and utility infrastructure should be expected if the project provides the economic benefits stated in the SDEIS. Yet there is no mitigation proposed or even evaluated in the SDEIS for this environmental impact.	The FEIS wildlife sections include an analysis of the wildlife corridors, including their use by various species. *Minnesota Rules*, part 6132.2700 requires that a project site be reclaimed once mining has ceased. The goals of such reclamation are to "control erosion, to screen mining areas from non-compatible uses, and to provide for subsequent land uses such as wildlife habitat or timber production." The rules also include requirements about the characteristics and planting schedule for vegetation used in reclamation. Mitigation measures for wildlife species would be considered during the Endangered Species Act Section 7 consultation process.	WI 02 WI 03
19692	The Band specifically requests that state and federal regulatory agencies work with the tribal agencies to establish dedicated and protected	The FEIS wildlife sections include an analysis of the wildlife corridors, including their use by various species. *Minnesota Rules*, part 6132.2700 requires that a project site be reclaimed	WI 03 CR 01

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	wildlife corridors and enhance reclamation of existing mine lands to mitigate wildlife impacts within the 1854 Ceded Territory.	once mining has ceased. The goals of such reclamation are to "control erosion, to screen mining areas from non-compatible uses, and to provide for subsequent land uses such as wildlife habitat or timber production." The rules also include requirements about the characteristics and planting schedule for vegetation used in reclamation. Mitigation measures for wildlife species would be considered during the Endangered Species Act Section 7 consultation process. The Cultural Resources section of the Final EIS Chapters 4 and 5 addresses the federal Co-lead Agencies' federal tribal trust responsibilities under the 1854 Treaty. These sections, along with other relevant natural resources sections of Chapters 4, 5, and 6, also address effects on, and any proposed mitigation for effects on cultural resources and culturally significant natural resources. Mitigation for effects on cultural resources and culturally significant natural resources is considered to the extent possible within the parameters of the statutes and regulations providing the federal authorities for the NorthMet project review.	
19693	from the Band's perspective, perhaps the most significant deficiency in the SDEIS analysis of wildlife impacts is its failure to critically analyze potential impacts to moose.	FEIS Sections 4.2.5, 4.3.5, 5.2.5, and 5.3.5 (Wildlife) have been updated to include the new state endangered, threatened, and special concern (ETSC) status listings from August 19, 2013, as well as new federal status listing changes. The FEIS includes a more robust analysis on effects to moose, including habitat and displacement.	WI 01
19694	The tribal cooperating agencies have consistently raised impacts to moose as an issue of critical importance throughout the DEIS, SDEIS, Section 106 consultation, and 'sieve list' meeting processes. It is not acceptable to defer full consideration of this culturally significant species until the FEIS. We have valid concerns about the project's impact on moose habitat at a time when their population is crashing, and they should be addressed immediately.	FEIS Sections 4.2.5, 4.3.5, 5.2.5, and 5.3.5 (Wildlife) have been updated to include the new state ETSC status listings from August 19, 2013, as well as new federal status listing changes. The FEIS includes a more robust analysis on effects to moose, including habitat and displacement.	CR 03
19695	the Band's concern for project impacts to moose is not simply potential effects to hunting zones and seasons; we are gravely concerned about protecting sustainable moose populations for future generations	FEIS Sections 4.2.5, 4.3.5, 5.2.5, and 5.3.5 (Wildlife) have been updated to include the new state endangered, threatened, and special concern (ETSC) status listings from August 19, 2013, as well as new federal status listing changes. The FEIS includes a more robust analysis on effects to moose, including habitat and displacement.	WI 03
19696	This discussion [in the SDEIS] contains	FEIS Section 4.2.6.1.4 has been edited to state that lake sturgeon have been	AQ 02

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	substantially outdated information regarding sturgeon reintroduction, both in the St. Louis River estuary and upstream of the Minnesota Power dams on the Fond du Lac Reservation.	documented near Floodwood, MN, per 2012 - 2014 FDL sturgeon data.	
19697	Uncontrolled contaminant loading from existing mine facilities, along with elevated constituents from the Proposed Project, have the potential to affect the successful establishment of a sustainable lake sturgeon fishery throughout the St. Louis River. This potential impact should be fully evaluated in the SDEIS.	Existing data review indicates recruitment and a viable population of lake sturgeon do exist in the St. Louis River Watershed. The NorthMet Project Proposed Action is not considered to have the potential for cumulative effects on hydrology and water quality in the St. Louis River Watershed. As a result, no affects to lake sturgeon population within the St. Louis River Watershed system would occur.	AQ 02
19698	The SDEIS states that the property boundaries at both the Plant Site and Mine Site are used to define the maximum extent of NorthMet air impacts that would have the potential to affect historic properties, because the project is predicted to meet ambient air quality standards at those boundaries. The Band asserts that these property boundaries cannot arbitrarily be used for acid dust and metal deposition boundaries because there are no ambient air quality standards for these pollutants. While secondary ambient air quality standards do exist for vegetation, these are not to be used for deposition. It doesn't make sense to use or reference an ambient air quality standard for purposes of studying deposition because "ambient air quality" is a concentration of a pollutant found in a unit of air. "Deposition" is a concentration of a pollutant that settles out of the air onto a surface. Therefore, compliance with traditional ambient air quality modeling and the range where such compliance occurs cannot be used with regard to the deposition of these pollutants on the ground, water surfaces, and vegetation.	The NorthMet project would have fugitive dust emissions. To evaluate the impact of those fugitive dust emissions, air quality modeling was conducted to assess impacts from those emissions. The modeled results determined impacts to be below applicable air quality standards. The FEIS used the evaluation criteria available to determine impacts. Secondary ambient air quality standards are used to provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. Significant impact on environmental resources or historic properties from dust is not expected because areas with the potential to generate dust would be controlled by a Fugitive Dust Control Plan and any dust leaving the site would most likely come from sources that would be characterized as having low sulfide/low metal content, All active areas at the Mine Site and Plant Site would be subject to a Fugitive Dust Control Plan approved by the MPCA, which describes management of fugitive dust generated from unpaved roads across the NorthMet Project Proposed Action area, rock dumping and loading locations on the Mine Site, and areas potentially subject to wind erosion on the Plant Site (see Sections 4.1.6 and 4.3.9 of PolyMet 2015a, as cited in the FEIS). FEIS Sections 5.2.3.2.2 and 5.2.3.2.4 includes a discussion on the potential indirect deposition effects on wetlands from particulate emissions from the Mine Site, Transportation and Utility Corridor, and the Plant Site. The FEIS has been revised to clarify the assessment results. The deposition modeling results for dust, metals, and sulfur would likely not have an adverse effect on wetlands; however, the modeling only indicated those	AIR 05 AIR 08 WR 151

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		areas that had deposition rates greater than 100 percent of background deposition. These specific wetlands areas would be identified for consideration in any future monitoring to be conducted for the NorthMet Project Proposed Action. Please refer to theme WET 11 for more information.	
19700	The SDEIS also states that "Within the property boundary, modeling shows where fugitive dust from the Plant Site, Tailings Basin, and Mine Site stockpiles is predicted to settle. Outside of these areas, modeling does not indicate potential effects on historic properties from dust deposition." Again, it is inappropriate to use areas that show compliance with ambient air quality standards to show "no effects from dust and metal deposition", because ambient air quality and impacts caused by deposition are two separate concepts.	The NorthMet project would have fugitive dust emissions. To evaluate the impact of those fugitive dust emissions, air quality modeling was conducted to assess impacts from those emissions. The modeled results determined impacts to be below applicable air quality standards. The FEIS used the evaluation criteria available to determine impacts. Secondary ambient air quality standards are used to provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. Significant impact on environmental resources or historic properties from dust is not expected because areas with the potential to generate dust would be controlled by a Fugitive Dust Control Plan and any dust leaving the site would most likely come from sources that would be characterized as having low sulfide/low metal content, All active areas at the Mine Site and Plant Site would be subject to a Fugitive Dust Control Plan approved by the MPCA, which describes management of fugitive dust generated from unpaved roads across the NorthMet Project Proposed Action area, rock dumping and loading locations on the Mine Site, and areas potentially subject to wind erosion on the Plant Site (see Sections 4.1.6 and 4.3.9 of PolyMet 2015a, as cited in the FEIS). FEIS Sections 5.2.3.2.2 and 5.2.3.2.4 includes a discussion on the potential indirect deposition effects on wetlands from particulate emissions from the Mine Site, Transportation and Utility Corridor, and the Plant Site. The FEIS has been revised to clarify the assessment results. The deposition modeling results for dust, metals, and sulfur would likely not have an adverse effect on wetlands; however, the modeling only indicated those areas that had deposition rates greater than 100 percent of background deposition. These specific wetlands areas would be identified for consideration in any future monitoring to be conducted for the NorthMet Project Proposed Action. Please refer to theme WET 11 for more information.	AIR 05 WR 151
19701	Second, and more importantly, it is simply not true that "modeling does not indicate potential effects	Significant dust related impact on environmental resources or historic properties located out of the project boundary is not expected because	AIR 05

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	on historic properties from dust deposition". Figure 4.2.9-4 shows areas where the Fugitive Dust Area of Potential Effect extends outside both the Plant and Mine Sites.	project areas with the potential to generate dust would be controlled by a Fugitive Dust Control Plan and any dust leaving the site would most likely come from sources that would be characterized as having low sulfide/low metal content, All active areas at the Mine Site and Plant Site would be subject to a Fugitive Dust Control Plan approved by the MPCA, which describes management of fugitive dust generated from unpaved roads across the NorthMet Project Proposed Action area, rock dumping and loading locations on the Mine Site, and areas potentially subject to wind erosion on the Plant Site (see Sections 4.1.6 and 4.3.9 of PolyMet 2015a, as cited in the FEIS).	WR 151
19702	The SDEIS states that modeled annual dust deposition rates were compared to an "annual effects-level deposition rate" (background) of 365 g/m2/yr. This same "annual effects-level deposition rate" was given in the PSDEIS in May of 2013, but without providing a reference for how this number was derived.	The assessment approach for deposition of dust, metals, and sulfur to wetlands presented in FEIS Sections 5.2.3.2.2 and 5.2.3.2.4 was a summary from the *NorthMet Project Wetlands Data Package* (PolyMet 2015b, as cited in the FEIS) which includes a citation of the 365 g/m2/yr.	AIR 05 WR 151 WET 11
19703	direct physical effects of mineral dusts on vegetation can be seen at a surface load of 7 g/m2 and chemical effects of reactive materials can be seen at 2 g/m2 . These levels indicate that the proposed "impact" level of 365 g/m2/yr may be too high.	Minnesota's acid deposition standard recognized that aquatic systems were more sensitive to sulfur inputs and that a wet sulfate deposition standard of 11 kilogram/hectare/year (kg/ha/yr) (3.6 kg/ha/yr wet sulfur) was considered protective of chemistry and biota (MPCA 1985). Others identified that a wet sulfate deposition standard of 15 kg/ha/yr (approximately 5 kg/ha/yr wet sulfur) would be protective of the aquatic systems (MPCA 1985). Sulfate dosing of wetlands in the Marcell Experimental Forest near Grand Rapids that was more than four times background (approximately 28 kg/ha/yr wet sulfate; approximately 9 kg/ha/yr as wet sulfur) did not identify any vegetation-related affects due to the additional sulfur (Jeremiason et al. 2006, as cited in the FEIS). At 100 percent of background, the "total" potential sulfur deposition (wet plus dry) estimated for the NorthMet Project Proposed Action would be approximately 3.2 kg/ha/yr (background plus NorthMet Project Proposed Action). Given that higher doses of sulfur are considered protective of aquatic chemistry and biota, and/or did not show any toxic effects to wetland vegetation, the potential particle-bound sulfur that may be contributed to wetlands by the NorthMet Project Proposed Action would	AIR 04 WET 11

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		not be expected to result in any adverse effects to vegetation. The fugitive dust would not be reasonably expected to be toxic to the touch and would not be reasonably expected to be directly toxic to vegetation, as it is typically part of road construction materials and/or tailings. The wetland dust deposition analysis identified that metals are expected to be particle-bound, within the mineral matrix of the rock particle. Therefore, the mineral particle must undergo physical or chemical weathering to release the metals. This is typically a slow release over time, measured in years. Metals deposited or applied to mineral and wetland soils have been shown to be sequestered in the upper soil layers and not be available to vegetation. Because of the potential small amounts of metals from fugitive dust that may be available in surface soils for uptake by plants, and the sequestering of most of the metals in soil should they be weathered out of the dust over time, the potential for the metals to be toxic to vegetation is very low. Monitoring of the areas estimated to have metal deposition greater than 100 percent of background would occur as part of the wetland monitoring program which would assess if potential indirect effects occur as a result of the NorthMet Project Proposed Action.	
19704	Further, as the Band commented on the PSDEIS, the modeled deposition rates do not include the effects of contamination from other sources, such as pit leaks and seepage, nor are cumulative impacts from all of these sources included in Chapter 6.	The Co-lead Agencies considered the information included in the Tribal Cooperating Agencies' cumulative effects assessment and found no compelling information or analysis to change the original approach or conclusions.	CU 12
19705	The SDEIS statement that "all of the receptor nodes with the highest model-estimated deposition rates were located within the ambient air boundary" is incorrect, especially given that the following paragraph contradicts this statement by saying "of the 234 acres of wetlands, (that could be potentially indirectly affected) 228 acres would be located within the Mine Site ambient air boundary". While only 3% of the affected acres are outside of the boundary, these two statements should be reconciled. This same comment was made by the Band previously while reviewing the PSDEIS. The inaccuracy serves to diminish	FEIS Sections 5.2.3.2.2 and 5.2.3.2.4 includes a discussion on the potential indirect deposition effects on wetlands from particulate emissions from the Mine Site, Transportation and Utility Corridor, and the Plant Site. The FEIS has been revised to clarify the assessment results. The deposition modeling results for dust, metals, and sulfur would likely not have an adverse effect on wetlands; however, the modeling only indicated those areas that had deposition rates greater than 100 percent of background deposition. These specific wetlands areas would be identified for consideration in any future monitoring to be conducted for the NorthMet Project Proposed Action.	WET 11

Comment ID	Comment	Response	Theme(s)
	consideration of any impacts.		
19706	SDEIS Figure 5.2.3-22 depicts receptors outside the plant site that are predicted to receive dust deposition rates higher than 50% of background. Since the SDEIS asserts that only those areas receiving deposition greater than 100% of background will be affected, it is unclear why Figure 5.2.3-22 shows areas receiving more than 50% of this value.	The FEIS indicates that dust deposition was highest in three locations: southwest corner, northwest of the Plant Site; southeast corner; and the northeast corner, towards Area 5. The FEIS also states that all receptors have model-estimated dust deposition of 50 percent or less of the effects-level background. FEIS Figure 5.2.3-22 depicts those three locations that would receive dust deposition of 50 percent or less and is not intended to depict areas receiving deposition greater than 100 percent of background.	WET 11
19707	SDEIS Figure 5.2.3-23 depicts receptors outside the plant site that are predicted to receive metal deposition rates higher than 100% of background, but there is no discussion regarding monitoring or management actions to quantify or mitigate affects. Other SDEIS text is confusing or contradictory; from SDEIS 5-302: "all receptors have model-estimated dust deposition of 50% or less of the effects-level background of 365 g/m2/yr", but the very next sentence states "At the Plant Site, there would be two locations showing model-estimated deposition rates greater than 100% of background deposition". Later in the same paragraph "…the modeling only indicated those areas that had deposition rates greater than 100% of background deposition". It appears as though one statement may address dust deposition and the other metals deposition, but this is unclear.	FEIS Sections 5.2.3.2.2 and 5.2.3.2.4 includes a discussion on the potential indirect deposition effects on wetlands from particulate emissions from the Mine Site, Transportation and Utility Corridor, and the Plant Site. The FEIS has been revised to clarify the assessment results. The deposition modeling results for dust, metals, and sulfur would likely not have an adverse effect on wetlands; however, the modeling only indicated those areas that had deposition rates greater than 100 percent of background deposition. These specific wetlands areas would be identified for consideration in any future monitoring to be conducted for the NorthMet Project Proposed Action. Please refer to theme WET 11 for more information on deposition.	WET 11
19708	The SDEIS discussion on fugitive dust is quite often confusing. There should be clarification between when the text is referring to sulfide dust and when it is talking about metallic dust. The text apparently switches between the two without explanation. Also, the text is not clear which air emissions sources were modeled with regard to fugitive dust.	FEIS Sections 5.2.3.2.2 and 5.2.3.2.4 includes a discussion on the potential indirect deposition effects on wetlands from particulate emissions from the Mine Site, Transportation and Utility Corridor, and the Plant Site. The discussions is divided into a discussion on: 1) fugitive dust, and 2) metals and sulfide dust emissions. The deposition modeling results for dust, metals, and sulfur would likely not have an adverse effect on wetlands; however, the modeling only indicated those areas that had deposition rates greater than 100 percent of background deposition. These specific wetlands areas would be identified for consideration in any future monitoring to be conducted for the NorthMet Project Proposed Action.	WET 11

Comment ID	Comment	Response	Theme(s)
		Please refer to theme WET 11 for more information on deposition.	
19709	From the SDEIS, "90% of the receptor nodes with the highest model-estimated deposition rates are located within the ambient air quality boundary". As the Band has commented before, this is impossible to verify, as no map of the location of the receptor nodes has been included. Also, 90% of the area predicted to be impacted does not lie within the ambient air quality boundary; it appears to be only about 60% contained to the ambient air quality boundary (SDEIS Figure 5.2.3-22).	FEIS Sections 5.2.3.2.2 and 5.2.3.2.4 show the deposition impacts on wetlands from particulate emissions from the Mine Site, Transportation and Utility Corridor, and the Plant Site. The receptor nodes are depicted on Large Figure 15 and 16 of the *NorthMet Project Wetlands Data Package* (PolyMet 2015b, as cited in the FEIS).	WET 11
19710	the co-lead's only 'mitigation' for fugitive sulfide dust is recommending future wetlands monitoring.	The indirect effects analyses performed for the FEIS were not performed to characterize impacts but were done to inform where monitoring should take place for those areas that were identified as having a potential for indirect wetland effects. As a result of these analyses performed to determine where monitoring should occur, quantification of wetland types and acres of potential indirect wetland effects were also generated. FEIS Section 5.2.3 provides these quantitative values of potential indirect wetland effects. FEIS Section 5.2.3.3 (wetland mitigation and monitoring), has been revised to include additional details on the proposed monitoring and wetland adaptive plan. The wetland mitigation and monitoring would be reviewed and approved by the appropriate regulatory agencies responsible for authorizing the permit application during the permitting process. Monitoring is proposed within all wetlands containing a potential indirect wetland impact factor rating of 3 to 5 and a sampling of those wetlands with factor ratings of 1 or 2 as described in FEIS Section 5.2.3.3 (see Figures 5.2.3-31 and 5.2.3-32).	WET 11
19711	the Proposed Project suggests water spraying for areas of fugitive dust release during dry periods as mitigation. In the case of dust that may have high acidic content, this would be a poor choice for management action, as the addition of water to the dust would likely create or accelerate toxic run-off.	All active areas at the Mine Site and Plant Site would be subject to a Fugitive Dust Control Plan (FDCP) approved by the MPCA, which would discuss dust mitigation beyond water spray as a control technique for mitigating impacts from dust with acidic content. Reducing vehicle travel speeds, limiting blasting on days with low wind speed, and including chemical dust suppressants would also be in the FDCP. The FDCP would be part of the air quality permit public notice documents. (see Sections 4.1.6, and 4.3.9, in PolyMet 2015a, as cited in the FEIS). Fugitive dust from the project could generally be characterized as low sulfide/low metal. Using water spray on unvegetated surfaces would be appropriate because this would reduce the potential for dust generation and	WET 11 WR 151

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		transport off site where it would not be managed. Water that contacts dust falling on disturbed areas within the Project Site would be treated before discharged. The effect of dust falling on the disturbed portions of the Mine Site would be controlled by the perimeter dike and ditch system, which would route runoff to the WWTF (Section 4.1.5.3 and Large Figures 19 through 21 of PolyMet 2015a, as cited in the FEIS). Please refer to theme WET 11 for more information.	
19712	The Band does not agree with the statement that "no significant reactive airborne fugitive dust from the rail transport is expected". The SDEIS minimizes the potential adverse impacts from constant rail corridor spillage during the life of the mine project by claiming "Any spillage of the ore fines is expected to be within 2 meters of the rail line, along the path". The Band is concerned with the effect of any spillage on water run-off, as has been seen with other mines in the US: "The Fugitive Dust Risk Management Plan (FDRMP) for Red Dog Operations, Alaska (August 2008, draft) states: "Elevated metal concentrations have been identified in tundra in areas surrounding the DMTS, primarily as a result of deposition of fugitive dust originating from the DMTS corridor, which is used to transport zinc and lead ore concentrates from the Red Dog Mine, operated by Teck Cominco Alaska Incorporated (Teck Cominco)."	The NorthMet Project Proposed Action description in the FEIS includes routine inspections of the Transportation and Utility Corridor to identify accumulations of dust or ore spillage. Regarding dust, given the majority of the dust that could leave the NorthMet Project area could be characterized as low sulfide/low metal, potential impacts would be controlled by: 1) the commitment to treat all runoff from disturbed areas as process wastewater, and 2) the facilities would be subject to an air quality Fugitive Emissions Plan. Significant impact on water resources or historic properties is not expected. All active areas at the Mine Site and Plant Site would be subject to a Fugitive Dust Control Plan approved by the MPCA, which describes management of fugitive dust generated from unpaved roads across the NorthMet Project area, rock dumping and loading locations on the Mine Site, and areas potentially subject to wind erosion on the Plant Site (see Sections 4.1.6, and 4.3.9, in PolyMet 2015a, as cited in the FEIS). Regarding potential spillage, any significant accumulations would be removed by a combination of machines and hand work. Ore transport would be by special railcars that minimize dust and spillage, where, since the SDEIS, PolyMet has committed to retrofit the railcars to better control spillage and develop an ore management/transport plan for monitoring site conditions. It is unlikely that there would be sufficient spillage to affect the quality of surface water or groundwater (See FEIS Section 5.2.2.3.2). See FEIS Section 3.2.2.4 for more information on the railcars, and Sections 5.2.3 and 5.2.7 for impacts of railcar spillage and dust on wetlands and air quality, respectively. The effect of dust falling on the disturbed portions of the Mine Site would be controlled by the perimeter dike and ditch system, which would route runoff to the WWTF (Section 4.1.5.3 and Large Figures 19 through 21 of PolyMet 2015a, as cited in the FEIS).	WR 151
19713	There are other invalid and/or inconsistent	In FEIS Section 5.2.7.1.1, the statement, "The NorthMet Project area has	AIR 12

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	statements throughout the SDEIS related to air quality. The SDEIS states "The NorthMet Project area has been designated by the USEPA as attainment for all air quality pollutants". To be clear, attainment designations for the new short-term standards for NOx and SO2 have not yet been completed for the State of Minnesota. Also, 90% control efficiency is assumed for haul roads at the Mine Site, but only 80% control is assumed for unpaved roads at the Plant Site.	been designated by the USEPA as attainment for all air quality pollutants" has been revised to read, "The NorthMet Project area has been designated by the USEPA as attainment or unclassified for all air quality pollutants." The proposed project can have multiple control efficiencies for the various road segments located at the site. The MPCA approved Fugitive Dust Control Plan (FDCP) would have the control efficiencies and the required dust suppression details outlined within the document. The FDCP would be part of the air quality permit public notice documents.	
19714	The Band has continually questioned the Page 5-411 states that "The modeling results for the Mine Site receptors…indicate that the highest modeled 24-hour H2H PM-10 concentration was 27 ug/m3 for the year 8 operating scenario and 29 ug/m3 for the year 13 operating scenario". Yet the 29 ug/m3 result not shown in Table 5.2.7-11, even though this value is nearly the PM-10 24-hour increment limit (30 ug/m3).	The highest second-high PM_{10} concentration of 29 µg/m^3 for the year 13 operating scenario was added in FEIS Table 5.2.7-11.	AIR 12
19716	From Table 6.2-22, cumulative inhalation risks for cancer are four times greater than the guideline of 1E-05. Although much of this risk comes from existing facilities, this number indicates that the area cannot sustain pollution that adds to what is already there without compromising health.	Please also see Response to Comment ID 2879. The commenter is correct that the estimated inhalation cancer risk from the combination of background air data and modeled facility data are above the facility risk guideline for cancer risk. This is consistent with estimates for air data across the state of Minnesota, with levels generally higher in urban areas and lower in rural areas. The estimation of cancer risk from air concentrations is a mathematical exercise and is not equal to actual increases in cancer. Also, these estimates based on environmental hazards must be considered against the background cancer risk in Minnesota from all causes (genetics, tobacco, nutrition, etc.). For example, the background incidence in males is about 1 in a population of 2 (MDH 2001).	HU 05
19717	The Band has also continued to raise concerns for amphibole fibers, and what we perceive as insufficient analysis in the SDEIS. According to the SDEIS, the BACT-like fine particulate controls will control the release of more than "99.9% of amphibole fibers that are emitted from controlled sources", not "99.9% of fibers in the ore". The	FEIS Section 5.2.7.1 has been revised to incorporate additional information about limiting fugitive dust as a surrogate to limit potential fiber emissions. All active areas at the Mine Site and Plant Site would be subject to a Fugitive Dust Control Plan approved by the MPCA, which describes management of fugitive dust generated from unpaved roads across the NorthMet Project area, rock dumping and loading locations on the Mine Site, and areas potentially subject to wind erosion on the Plant Site (see	AIR 03

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	second statement is incorrect, because some sources of fibers from the ore are uncontrolled, like blasting operations, or are unable to be controlled up to 99.9%, like haul roads, tailings, crushing and screening, and stockpiles.	Sections 4.1.6, and 4.3.9, in PolyMet 2015a, as cited in the FEIS). Compliance with the requirements for blasting, found in *Minnesota Rules*, Chapter 6132, will minimize fugitive dust from blasting operations.	
19718	The SDEIS states that the Biwabik Iron Formation (which has been found to contain amphibole fibers) slopes under the Duluth Complex at the Mine Site, coming within 100 feet of the area that is planned to be mined. The Band's previous comments regarding unexamined hydrological connections between geologic layers or formations are also applicable in this instance. With fractured bedrock present, that could establish a hydrological connection, and 100 feet would be an insufficient barrier. Additionally, these types of formations are characteristically not homogeneously distributed, meaning that pockets of fibers could be found unexpectedly. While it is true that some information on the occurrence of amphibole fibers has been gathered from the site, the drill locations were chosen with regard to studying minerals of economic interest, and did not specifically target locations where fibers may be expected to occur.	The NorthMet Project Proposed Action would mine ore from the Duluth Complex, which has been shown to contain amphibole mineral fibers, though to a lesser extent than found in the Biwabik iron formation. The Duluth complex may contain geologic heterogeneities near the proposed project site, which could result in variability in both the concentrations of and type of fiber contained within the oar. The results of the analysis for quantification and identification of fibers collected from samples taken from PolyMet's various floatation tests (SGS 2004, as cited in the FEIS; Barr 2007l, as cited in the FEIS) were used only to confirm the presence of amphibole minerals in the ore and should not be used as a predictor of potential facility emissions. It is not possible to quantify the amount of fibers that may be emitted from the facility with any predictive accuracy. Any decisions as to the stringency of ambient air quality monitoring for fibers would be made during the air permitting process, during which there will be an opportunity for public participation.	WR 012
19719	The SDEIS maintains that the Minnesota Department of Health has reported that males within the area of the taconite mining and milling industry had more than two times the mesothelioma rate than the rest of the state. Actually, the report from the epidemiologic study of Minnesota iron mine workers states that it is three times the rate found in the rest of the state.	Both the MDH's study of cancer incidence rates in Northeastern Minnesota and the U of M's Taconite Miners Health Study found an increased risk of certain respiratory cancers in iron range mine workers when compared to incidence experienced in Minnesota as a whole. However, neither study was able to definitively link the exposure to occupational amphibole mineral fibers with this observed increase in risk. The design limitations of these epidemiologic studies did not allow for the development of data that could address the potential toxicity that amphibole mineral fibers may present to either those that work directly with mining operations or who live within the surrounding communities.	HU 05
19720	Page 5-443 The SDEIS assures that ambient air monitoring for amphibole fibers would be conducted following facility start-up. While no	Decisions on ambient air quality monitoring for fibers would be made during air permitting and there would be an opportunity for public	AIR 03

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	schedule of frequency or duration for amphibole fibers monitoring has been proposed in the SDEIS, the Band continues to assert, as we have throughout the environmental review process, that monitoring will need to continue over the life of the mine, as no one can predict when fibers might be contacted and released.	participation via that process.	
19722	The tribal cooperating agencies were not permitted to participate in the Geotechnical Stability IAP workgroup, so we are at a disadvantage for understanding how some of the profound geotechnical stability risks identified for the PolyMet project as defined in the 2009 DEIS were resolved for the 2013 SDEIS.	The proposed design and management of the proposed waste management facilities has evolved throughout the EIS. These modifications have resulted in improved expected stability as well as enhanced environmental outcomes (such as water impacts). Notable enhancements to the design of the proposed waste management facilities since the DEIS include: - improving stability at the Tailings Basin by adding rock buttressing along the northern edge, and adding cement deep soil mixing in the fines and slimes layers along the northern sections of the LTVSMC tailings basin; - moving the Hydrometallurgical Residue Facility from on top of the LTVSMC tailings basin, to a site adjacent to the LTVSMC tailings basin, and designing the Hydrometallurgical Residue Facility as a double-lined facility constructed using the downstream construction method; - designing the Category 1 Stockpile as a permanent feature with a containment system for groundwater runoff and seepage, and geomembrane cover for closure; and - designing the Category 2/3 and 4 waste stockpile as temporary features, with liners, and to reclaim (progressive reclamation) the stockpiles by placing the waste rock as backfill in the East and Central pits. FEIS Sections 2.3, 2.4 and 3.2.3 provide an overview of the evolution of the NorthMet Project Proposed Action. Details of the current NorthMet Project Proposed Action are provided in Section 3.2. Section 5.2.14 provides details of the design factors, management, and modeling results pertaining to geotechnical stability of the waste material storage facilities.	GT 14
19723	we do not share PolyMet's confidence in being able to virtually eliminate leakage to groundwater from any type of containment system. Some leakage must always be assumed, and given the site-specific conditions for the proposed location of the HRF, the risk for highly contaminated seepage to exit the HRF and flow to wetlands in	The Hydrometallurgical Residue Facility would be double-lined to minimize release of water that has contacted the hydrometallurgical residue. The double liner would consist of a composite liner system utilizing a geomembrane liner above a geosynthetic clay liner with a second liner placed above the first, separated by a leakage collection system. This would substantially remove all hydraulic head from the lower liner and thereby virtually eliminate leakage from the Hydrometallurgical Residue	WET 12

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	the Embarrass River watershed.	Facility. It is expected that no water would be released directly from the Hydrometallurgical Residue Facility, so, appropriately, leakage from the Hydrometallurgical Residue Facility is not included in modeling. PolyMet initiated laboratory testing to consider the chemical compatibility of the potential geosynthetic liner to be used with leakage from residue (PolyMet 2014r, as cited in the FEIS). Results indicated that a polymer-treated geosynthetic liner should be used that is manufactured specifically in anticipation of the chemical characteristics of the liquid and the pore water that would be contained within the facility. The hydraulic conductivity of the soil leakage collection system is not expected to degrade over time. Typical liner performance assumes a 500-year service life of the geomembrane; therefore, hydraulic conductivity of the liner is not expected to degrade over that time. Specific attributes would be determined during the geosynthetic clay layer development to achieve the desired performance before final installation. Findings of studies on geosynthetic liners indicate that performance is minimally affected by freeze-thaw cycles (PolyMet 2014c, as cited in the FEIS). At the Hydrometallurgical Residue Facility, the majority of the geosynthetic liner system would be below the water elevation, and therefore not exposed to freeze-thaw cycles.	
19724	[A] 'natural low point in the topography' is an open water wetland (as prominently displayed in the left photograph on the cover of the SDEIS) with distinct natural drainage channels .	This comment has been received and acknowledged by the Co-lead Agencies. The Co-lead Agencies believe the identification of wetlands at the NorthMet Project area are accurately and adequately depicted in Section 4.2.3 for the purpose of the EIS.	WET 17
19725	A 0.03-acre area of sedge/wet meadow within the Tailings Basin and a 28.6 acre area of shallow marsh within the Hydrometallurgical Residue Facility are exempt from state and federal wetland regulations as they are both located within the Cliffs Erie Permit to Mine Ultimate Tailings Basin Limit Boundary. The significance of the site topography and natural drainage features is more relevant to our concerns than the regulatory status of the wetlands. The SDEIS simply does not address the potential lack of integrity or risk of failure when constructing a hazardous waste facility within a wetland. Assumptions about hydraulic head being removed from the lower liner	The Hydrometallurgical Residue Facility would be constructed over the LTVSMC emergency basin. This site is known to have suitable subsurface conditions, and would minimize impacts to ecosystems and water resources as compared to a new site, since it is already disturbed. The two liner layers on the Hydrometallurgical Residue Facility would be separated by a leakage collection system, which is designed to collect any potential leakage from the bottom of the cell. Each liner layer would consist of a geomembrane layer above a geosynthetic clay layer. A drainage collection system would also be installed during reclamation to collect drainage above the upper liner. The cap would consist of a geotextile fabric, overlain by a clay barrier layer, and a 40-mil low-density polyethylene layer. This would be covered with additional LTVSMC coarse tailings or common borrow and cover soils to sustain a vegetated cover. During reclamation and long-term closure, leakage would be routed and cycled through the Plant Site	PD 18 WR 126

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	are not reassuring when the lower liner (geosynthetic clay) has been installed within a wetland and natural drainage ravine.	WWTP. The FEIS includes details from the updated Residue Management Plan. The liner system components have been selected specifically to perform well given the characteristics of the residue, which consists primarily of gypsum. The liner system components selected for the Hydrometallurgical Residue Facility are routinely used for similar facilities in other industries and have demonstrated the expected levels of performance. The design produces a liner system with virtually no leakage due to the system's ability to maintain a very low hydraulic head on the composite liner portion of the overall liner system. In order to install liners, the existing ground would be cleared and either dewatered or built up with fill material. It is not possible to install liners on saturated ground or in standing water. If needed to address foundation conditions, wick drains, including a granular drainage layer and geogrid reinforcement as needed, will be incorporated during construction. If after installation and placement of waste material, there is some head buildup below the liner (unlikely), the direction of leakage would be upward through the liner and into the facility collection system, not downward into groundwater. The Residue Management Plan presents the planned Hydrometallurgical Residue Facility monitoring and maintenance plan. Additional monitoring and maintenance requirements would be outlined by the responsible regulatory agency as part of facility permitting. A submittal containing two documents, *Information Provided by PolyMet Regarding 2009 Hydrometallurgical Residue Testing* and *Information Provided by Polymet Regarding Hydrometallurgical Residue Testing for RCRA Thresholds*, was provided to the Co-lead Agencies on August 5, 2014 (see PolyMet 2014a). The documentation summarized the results of two rounds of testing conducted in 2005 and 2009 respectively on the residue that is to be discharged to the Hydrometallurgical Residue Facility. It also reviewed the testing results against the regulations under the federal Resource Conservation and Recovery Act (RCRA). Mining wastes associated with extraction, beneficiation, and processing of ores and minerals are typically excluded from the RCRA definition of hazardous waste (40 CFR 261.4(b)(7)). PolyMet has conducted environmental testing to compare the properties of the hydrometallurgical residue with the RCRA hazardous waste thresholds. Comparison of the results from this testing with the RCRA hazardous waste thresholds shows that the	

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		hydrometallurgical residue does not have any toxicity characteristics of a hazardous waste. The MPCA concurs with this assessment.	
19726	The potential for substantial volumes of seepage flowing from the Tailings Basin to the HRF has not been addressed in the SDEIS; this represents a potential structural hazard.	Seeps have been observed along the southern edge of the LTVSMC Tailings Basin Cell 2W. These seeps have diminished since the termination of the LTVSMC operations and are expected to remain minimal as Cell 2W is not proposed for use as part of the NorthMet Project Proposed Action. The design of the Hydrometallurgical Residue Facility acknowledges the presence of this seep by including a collection drain that would collect water from the seep below the proposed constructed embankment and liner systems to transmit the collected seep to the exterior of the facility. This seepage collection system would include a layer of free-draining soil which would reduce the potential for phreatic build-up below the liner. Details on this design consideration are provided in Section 5.1 of the Geotechnical Data Package, Volume 2 (PolyMet 2014c, as cited in the FEIS). Geotechnical stability of the Hydrometallurgical Residue Facility is summarized in FEIS Section 5.2.14.2.3. Details are provided in the Geotechnical Data Package, Volume 2 (PolyMet 2014c, as cited in the FEIS). Design, construction, monitoring, maintenance, and adaptive management are addressed in the Residue Management Plan (PolyMet 2014r, as cited in the FEIS).	GT 11 WR 066
19727	But we have no assurance that the HRF is designed to structurally withstand thousands of gallons per day of Tailings Basin seepage along the dikes that do not have seepage capture features installed.	The current Hydrometallurgical Residue Facility design acknowledges the presence of an active seep in the proposed area of construction. As such, a collection drain has been designed to collect water from the active seep below the proposed constructed embankment and liner systems, and to transmit the collected seep to the exterior of the facility. This seepage collection system would include a layer of free-draining soil which would reduce the potential for phreatic build-up below the liner. Details on this design consideration are provided in Section 5.1 of the Geotechnical Data Package, Volume 2 (PolyMet 2014c, as cited in the FEIS). FEIS Section 4.2.14.3 describes the details of the existing conditions at the location of the proposed Hydrometallurgical Residue Facility, including the fact that it is proposed to be constructed at the location of the LTVSMC Emergency Basin. FEIS Section FEIS 3.2.2.3.7 broadly describes the Hydrometallurgical Residue Facility, while Section 5.2.14.2.3 provides details on the construction, operation, monitoring, and maintenance for geotechnical stability, including potential liquefaction. Additional technical details on design and construction, factors of safety analysis, operation and management, and reclamation and closure are found in the Geotechnical	GT 11

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		Data Package, Volume 2 (PolyMet 2014c, as cited in the FEIS) the Residue Management Plan (PolyMet 2014r, as cited in the FEIS).	
19728	the co-lead agencies' approach to predicting indirect impacts to wetlands and their resulting conclusions, [is] an overly simplistic method based upon a flawed concept of hydrology at the mine site.	When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS and there is incomplete or unavailable information because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, NEPA directs the agency to make it clear that such information is lacking, discuss the relevance of the lacking information, and discuss any information relevant to evaluation of the future impacts. In these cases, NEPA also directs the agency to evaluate these impacts based upon theoretical approaches or research methods generally accepted in the scientific community provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason. The Co-lead Agencies believe this is the case for evaluating indirect wetland effects. The Co-lead Agencies have thoroughly considered throughout the development of the EIS and through the wetland Impact Assessment Planning Work Group how to assess potential indirect wetland effects. As a result, strengths and weaknesses of the approach used, as well as other suggested approaches, have been carefully considered. The Co-lead Agencies believe that the analog method used in the SDEIS to assess potential indirect effects from mine dewatering is adequate. Further, the FEIS has been revised to address concerns raised by the Bands regarding the assertion that ombrotrophic bogs would not be impacted by mine dewatering. FEIS Section 5.2.3.2.2 applies a more conservative assumption of the potential indirect effects for all bog communities within the 0-1,000-ft analog zone. Specifically, ombrotrophic bogs were reclassified from the "no effect" category to the "low likelihood" category, the same status as that assigned to minerotrophic bogs. The complex mixes of bedrock, surficial deposits, and wetland soils at the Mine Site impede the ability to reasonably model (e.g., using MODFLOW) and accurately assess the potential effect of pit dewatering on wetlands. In light of this modeling limitation, wetlands were divided into zones based on distance from the open pit. The closer a wetland was to the pit during dewatering, the greater the water table drawdown would be and the greater potential there would be for hydrologic effects on overlying wetlands. These impact assessment methodologies are presented in FEIS Sections 5.2.2.3.2 and 5.2.3.1.2. The Co-lead Agencies are not relying solely on the potential impact zones determined in the analog method for the FEIS, but would be monitoring	WET 08

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		wetlands for potential indirect effects as part of an adaptive management plan. Permit conditions would include a plan for additional compensatory mitigation if indirect wetland impacts were identified, and appropriate changes to the adaptive management plan would be made as required.	
19729	The purpose of an EIS is to be "forward looking" by predicting potential impacts and adequate mitigation for those impacts; this SDEIS is deficient in that respect. The USACE has not yet developed a monitoring plan to assess after-the-fact Project impacts to wetlands, but maintains that will be the way to best determine and mitigate indirect wetland impacts. The Band is not aware of any previous instance for which the USACE St. Paul District Office has required reasonably foreseeable indirect wetland impacts to be later mitigated as direct effects based upon monitoring.	FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects.	COE 02 WET 02
19730	Given the persistent major differences of opinion between the co-lead agencies and the tribal cooperating agencies, the Band specifically requests that financial assurance for potential indirect wetland effects and monitoring be secured.	FEIS Section 3.2.2.4 states that compensatory wetland mitigation for the NorthMet Project Proposed Action is expected to be approved and constructed in advance of any authorized direct wetland impacts and would therefore not require financial assurance. If issued, USACE permits would require mitigation for indirect wetland effects. Guidance for USACE permits that are conditioned to include any type of financial assurance to ensure that required compensatory mitigation is completed can be found in FEIS Section 5.2.3.3.2, or at: • 33 CFR Parts 325 and 332, Compensatory Mitigation for Losses of Aquatic Resources; Final Rule, dated April 10, 2008. Financial assurances are specifically discussed at 33 CFR 332.3(n). • Regulatory Guidance Letter No. 05-1 Date: 14 February 2005 titled: Guidance on the Use of Financial Assurances, and Suggested language for Special Conditions for Department of the Army [i.e., USACE] Permits Requiring Performance Bonds, provides additional guidance on the use of financial assurances (USACE 2005).	FIN 03
19731	Nearly 2,000 acres of coniferous bog wetlands will be directly impacted by mine pit(s) and stockpiles, or indirectly impacted due to drawdown and/or pollution. This is particularly significant to the	The Co-lead Agencies/ obligation is to ensure that Band members have ample opportunity to exercise their treaty-reserved usufructuary rights; that federal lands are managed to maintain both the diversity and abundance of natural resources; and that the Bands' usufructuary rights to collect	WET 13

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	Band because many tribally harvested resources are only available in coniferous bogs, and restoration of coniferous bogs is a very difficult and long process that has extremely low success rates.	resources are not impaired. The Land Exchange Proposed Action was analyzed to understand the potential effect posed to usufructuary rights. The Co-lead Agencies have consulted, and continue to consult with the Bois Forte Band of Chippewa, the Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa, the three principle Bands that retain usufructuary rights in the proposed project area. In addition, the Co-lead Agencies have consulted with the GLIFWC and the 1854 Treaty Authority, the principal natural resource agencies representing the aforementioned Bands Through consultation, the Co-lead Agencies understand that the Bands' principle interest with regards to the Land Exchange Proposed Action are the following: to retain or increase the amount of public land within the 1854 Treaty Ceded Territory, shoreline wetlands, culturally important natural resources used in exercising treaty rights of hunting, fishing and gathering, cultural or religious resources, and access to culturally important natural resources and cultural or religious properties. The Co-lead Agencies have a fiduciary obligation to understand and consider the effects that the Land Exchange Proposed Action would have on Band members exercising their Treaty rights in the 1854 Ceded Territory. While the Land Exchange Proposed Action would remove certain lands from federal ownership, this loss is potentially offset by incoming private lands that would become part of the federal estate within the 1854 ceded territory. Outside of the Land Exchange Proposed Action, the Co-lead Agencies have also analyzed the potential effects posed by the Proposed Connected Actions. The potential affects posed to natural resources and cultural resources of importance to the Bands have been disclosed and would be considered during the Co-lead Agencies' decision process.	
19732	The proposed mitigation plan is inadequate; it allows for the vast majority of mitigation and/or restoration credits to come from outside the Partridge, Embarrass, and St. Louis River watersheds. There is no justifiable reason to permit out-of-watershed mitigation when in-watershed opportunities still exist…	FEIS Section 5.2.3.3.2 includes a discussion on the wetland mitigation study limits and the site selection process. The compensatory wetland mitigation site selection for the NorthMet Project Proposed Action began in 2005 and has gone through a rigorous site selection evaluation. Prior to the 2008 Federal Mitigation Rule, the Aitkin and Hinckley sites were selected, initial approvals by the USACE were received, and substantial investments were made by PolyMet to develop both sites for compensatory mitigation. The USACE guidance prior to the implementation of the 2008 Federal Mitigation Rule was to look for mitigation sites that could provide the following: restoration of historical wetlands, high probability of success, achieve at least partial in-kind mitigation and sites that had ditched and/or tiled peatlands to provide for restoration. When the 2008 Federal Mitigation	WET 03

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		Rule went into effect, the USACE informed PolyMet of the priority for siting any future compensatory mitigation within the St. Louis River/ Great Lakes Basin. The Zim Site was subsequently proposed as a third site. Please refer to the response to theme WET 03.	
19733	The Band objects to the approval of any further out-of-watershed mitigation credits or restoration for impacts to irreplaceable high quality aquatic resources of national importance, which include all remaining unimpacted wetlands within the St. Louis River watershed/Lake Superior Basin.	FEIS Section 5.2.3.3.2 includes a discussion on the wetland mitigation study limits and the site selection process. The compensatory wetland mitigation site selection for the NorthMet Project Proposed Action began in 2005 and has gone through a rigorous site selection evaluation. Prior to the 2008 Federal Mitigation Rule, the Aitkin and Hinckley sites were selected, initial approvals by the USACE were received, and substantial investments were made by PolyMet to develop both sites for compensatory mitigation. The USACE guidance prior to the implementation of the 2008 Federal Mitigation Rule was to look for mitigation sites that could provide the following: restoration of historical wetlands, high probability of success, achieve at least partial in-kind mitigation and sites that had ditched and/or tiled peatlands to provide for restoration. When the 2008 Federal Mitigation Rule went into effect, the USACE informed PolyMet of the priority for siting any future compensatory mitigation within the St. Louis River/ Great Lakes Basin. The Zim Site was subsequently proposed as a third site. Please refer to the response to theme WET 03.	WET 03
19734	Tribal cooperating agencies believe the CEA for land use should encompass the 1854 Ceded Territory, as the signatory Bands have lost access to substantial portions of the 1854 CT and the resources within.	The cumulative effects section in the FEIS (Section 6.1.1.1) describes the rationale how the cumulative effects assessment areas (CEAAs) were identified. The CEAAs for individual resource areas vary based on the potential for cumulative effects and not on a single overall assessment area. Table 6.1.1-2 of the FEIS summarizes the spatial areas utilized for each resource area. Please also refer to the response to themes CR 02 and CR 03. The federal Co-lead Agencies considered an expanded area for analysis of cumulative effects on cultural resources and natural resources of significance to the Bands including use of a portion of the 1854 Ceded Territory as the CEAA. By evaluating the effects of the NorthMet Project Proposed Action along with other past, present, and reasonably foreseeable future projects in the context of a much larger area with a much larger number of resources similar to those affected by the NorthMet Project Proposed Action, the effect of the NorthMet Project Proposed Action on those resources is diminished. The cumulative effects analysis focuses on the specific resources, or types of resources, affected by the NorthMet Project Proposed Action within an area that is geographically meaningful considering the project under review. The Cultural Resources section of	CU 01 CR 01 CR 03

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		FEIS Chapter 6 addresses the Co-lead Agencies' determination of the NorthMet Project Proposed Action's cumulative areas of potential effect.	
19735	The tribal cooperating agencies believe the water quality and hydrologic cumulative effects analysis should incorporate the entire St. Louis River watershed. This watershed has experienced substantial historic, current and proposed expanded mining activities, as well as other industrial, agricultural and urban development. In addition to the direct surface water and wetland impacts (loss and/or degradation) from these activities, nearly half of the watershed has experienced hydrologic alteration from extensive ditching.	The cumulative effects section in the FEIS (Section 6.1.1.1) describes the rationale how the cumulative effects assessment areas (CEAAs) were identified. The CEAAs for individual resource areas vary based on the potential for cumulative effects and not on a single overall assessment area. Table 6.1.1-2 of FEIS summarizes the spatial areas utilized for each resource area. Please also refer to Section 8.3, MDO 12 for the Co-lead Agencies' rationale for the CEAA identified for water resources.	CU 01
19736	Tribal cooperating agencies consider a 216,300 acre area bounded by the St Louis River, Lake Superior, Lake Vermilion and the Beaver Bay to Vermilion Trail to be a Tribal Historic District, and the pertinent area for consideration of cumulative effects to cultural resources.	The historic district proposed by the Grand Portage Band in a June 27, 2013 letter was addressed (Grand Portage 2013, as cited in the FEIS). The federal Co-lead Agencies have considered an expanded area for analysis of cumulative effects on cultural resources and natural resources of significance to the Bands, including use of the 1854 Ceded Territory as the CEAA. Use of the 1854 Ceded Territory as the CEAA for cultural resources would actually diminish the significance of any cumulative effects. By evaluating the effects of the NorthMet Project Proposed Action along with other past, present, and reasonably foreseeable future projects in the context of a much larger area with a much larger number of resources similar to those affected by the NorthMet Project Proposed Action, the effect of the NorthMet Project Proposed Action on those resources is diminished. The cumulative effects analysis focuses on the specific resources, or types of resources, affected by the NorthMet Project Proposed Action within an area that is geographically meaningful considering the project under review. Cumulative effects are discussed and addressed differently based on the affected resource. Discussions related to socioeconomics, for instance, use an expanded analysis area compared to other resources. Such expanded analysis areas are used as appropriate. The Cultural Resources sections in FEIS Chapters 4, 5, and 6 address the Co-lead Agencies' determination of the NorthMet Project Proposed Action's direct, indirect, and cumulative areas of potential effect.	CR 03 CR 04

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19737	Inadequate cumulative effects analysis, across all resource categories. Cumulative effects result in a relentless, unmitigated diminishment of treaty resources and access to those resources. Yet across virtually all resource categories, the SDEIS predicts that there will be no adverse impacts as a result of the NorthMet Project Proposed Action; this conclusion then enables the co-leads to determine 'no cumulative effects' from the project and the land exchange. But those initial no-impact predictions are contingent upon assumptions that all best management practices, engineering controls and mitigation measures discussed throughout the SDEIS will be successfully and flawlessly implemented, and that the NorthMet Project will comply with all applicable federal state and local regulations and permit requirements, particularly water quality standards. The tribal cooperating agencies have provided extensive comments and analyses over the course of the DEIS and SDEIS processes that support our misgivings for this circular logic. We presented a substantial alternative analysis of cumulative effects from the NorthMet Project Proposed Action as part of our commenting during the preliminary SDEIS review. Key concepts from our tribal CEA include: The tribal cooperating agencies' review of the water modeling data packages for the NorthMet Project Proposed Action led to our conclusion that GoldSim did not accurately predict existing conditions, and cannot be relied upon to accurately predict future project conditions.	The FEIS does not conclude there would be no adverse impacts or there would be no cumulative effects from the NorthMet Project Proposed Action or Land Exchange. The rationale for the geographic and temporal scope of the cumulative effects analysis is well documented in Chapter 6. FEIS Table 6.2.2-1 (formerly Table 6.2-1 in the SDEIS) has been updated to include additional projects that have been identified since publication of the SDEIS. In addition, FEIS Section 6.1.1.2.1 has expanded descriptions regarding the actions included the cumulative effects assessment. FEIS Section 6.2.9 describes specific cumulative effects for cultural resources, including effects to treaty-protected resources and access to those resources. The FEIS's estimates of predicted water quality impacts represent years of study and deliberation and are expected to be reasonable estimates of actual impacts in the event the project is constructed. The NorthMet Project Proposed Action has undergone substantial changes throughout this time to improve predicted water quality, most notably the addition on reverse osmosis treatment plants and water capture systems, liners and covers. The FEIS discloses the probability of water quality impacts and identifies mitigation measures that can be implemented in the event they are needed. The FEIS Mine Site GoldSim model was recalibrated to provide a better correspondence between predicted and observed water chemistry data in the Partridge River for existing conditions. This calibration considered new surface water chemistry data collected through the end of 2013. For Colby Lake, a new chemical source term was added to the Mine Site GoldSim model and calibrated to measured concentrations in the lake to ensure there was an adequate basis for assessing Proposed Action potential impacts.	WR 044 WR 045 WR 049
19738	While any individual mine may not have significant impacts on plants, wildlife or the landscape, the cumulative impacts of thousands of acres of habitat loss and degradation correspond to a legitimate, significant concern for treaty-	FEIS Table 6.2.2-1 (formerly Table 6.2-1 in the SDEIS) has been updated to include additional projects that have been identified since publication of the SDEIS. In addition, FEIS Section 6.1.1.2.1 has expanded descriptions regarding the actions included the cumulative effects assessment. FEIS Section 6.2.9 describes specific cumulative effects for cultural	CU 11

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	protected resources and access to them.	resources, including effects to treaty-protected resources. Please also refer to the responses to themes CR 02, VEG 08, and WI 09.	
19739	General reluctance to share information with non-Band members is often prevalent [at NorthMet Project meetings] as well as cultural restrictions on who (inside and outside the Band) can legitimately and safely be trusted with sensitive information.	Refer to FEIS section 1.2 for roles and responsibilities of the agencies, and Chapter 2 for an overview of the EIS process undertaken. The federal Co-lead Agencies have made a reasonable and good-faith effort to identify cultural resources potentially affected by the NorthMet Project Proposed Action. The federal Co-lead Agencies have actively consulted with the federally recognized Bands that have expressed an interest in consulting on the NorthMet Project Proposed Action. Historic properties affected by the NorthMet Project Proposed Action have been identified and the impacts to those properties have been assessed through the traditional Section 106 methods/process. This also includes an assessment of actual use of those historic properties, as well as other resources in the APE, by tribal members. In addition to traditional methods, elder interviews were conducted in 2010 and 2011 with members of the Bois Forte, Fond du Lac, and Grand Portage. Elders recalled that some Band members had utilized the general NorthMet Project area for hunting, fishing, and plant gathering of wild rice, maple-sugar, berries, and birch bark; however, they could not provide specific locations or uses within the NorthMet Project area. The federal Co-lead Agencies also conducted reconnaissance of trail corridors with participation from the Bands. The purpose of the traditional research and survey was to provide historic documentation and context for and to identify places important to the Bands. The elder interviews were to be used to further identify and understand tribal use areas and places of importance. The field investigation component was informed by the results of those efforts.	NEPA 14
19740	The Area of Potential Effect (APE) for cultural resources divided the project into two separate sections surrounding the proposed mine site and the proposed plant site should be revised. “Figure 4.2.9-1, Cultural Resource Analysis-Area of Potential Effect” needs only to have the two areas joined to compose an APE that reflects an undertaking as defined in Section 106 of the National Historic Preservation Act of 1966...]).” An APE that encompasses the Mine and Plant sites and surrounding area affected by operations would better describe the undertaking for cultural	The APE is based on extensive modeling and other analysis completed for the NorthMet Mining Project and Land Exchange, and includes an area much broader than the Plant Site and Mine Site. Since the SDEIS, the APE has been modified to encompass the proposed Mine Site and Plant Site, the Dunka Road corridor, several federal parcels included in the Land Exchange Proposed Action, and the Colby Lake Pumphouse and pipeline.	CR 02

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	resource investigations.		
19741	The Beaver Bay to Lake Vermilion Trail requires further clarification...There has been no rigorous attempt to research the BBLVT by the Bands or Lead Agencies, although the Superior National Forest Heritage Program reviewed the GLO plats and conducted field investigations on SNF land. Additional fieldwork should be conducted in the spring or fall when ephemeral features such as foot trails are less easily concealed by vegetation and more easily discerned.	The federal Co-lead Agencies believe that the work to justify consideration of the BBLV Trail Segment as an historic property is complete. There has been sufficient background research and fieldwork completed to date as discussed in FEIS Section 4.2.9.2.3. Additional research and fieldwork may be part of any resolution of adverse effect.	CR 04
19742	The proximity of the plant site to the Sugarbush and the cumulative effects of dust on leaves, trees and understory flora have not been examined in detail and their long term effects may well be detrimental to vegetation, other than maples, that comprise the Sugarbush.”	As discussed in FEIS Section 5.2.9.2.1 , the federal Co-lead Agencies have determined that the NorthMet Project Proposed Action would adversely affect the Spring Mine Lake Sugarbush. As part of an MOA, the federal Co-lead Agencies would ensure the avoidance, minimization, and/or mitigation of impacts to cultural resources that may be encountered, such as unauthorized collection, during construction or operation of the NorthMet Project Proposed Action. The federal Co-lead Agencies, in consultation with the Bands, SHPO, and PolyMet, are currently working to resolve adverse effects on this property.	CR 02 CR 03 CR 05
19743	The SDEIS must be revised to fully evaluate reasonable alternatives in the SDEIS, including identifying the federal agency preferred alternative and the LEDPA.	Neither Minnesota Rules nor CEQ regulations require the Co-lead Agencies to identify a preferred alternative in the SDEIS (40 CFR 1502.14(e)). The FEIS includes available details regarding the identification of an Agency Preferred Alternative. The FEIS contains sufficient information to identify and substantiate the Least Environmentally Damaging Preferred Alternative (LEDPA). The LEDPA is the only alternative that is permittable pursuant to the Clean Water Act (CWA) Section 404(b)(1) Guidelines. The applicant must clearly demonstrate that the preferred alternative in the FEIS is the LEDPA, in that there is not a practicable alternative that would have less adverse impact on the aquatic ecosystem and no other significant adverse environmental consequences. An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics. The USACE is not required to identify a LEDPA in the FEIS; the final determination on the LEDPA would be made in the ROD for the USACE which serves as the USACE’s decision document and the basis for the Department of the Army permit decision. FEIS Section 7.5 includes additional information about the Area of Potential Effect (APE) and	ALT 20 COE 04

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		LEDPA. The USFS would utilize the FEIS to show the factors relating to how the public interest would be served by the Land Exchange, and the ROD for the USFS would incorporate the findings of those factors and identify the preferred alternative. The MDNR is not required to identify a preferred alternative under MEPA. The FEIS Sections 3.2 and 3.3 further detail this process. The agency preferred alternative and LEDPA process are described in FEIS Sections 7.4 and 7.5. The ROD for the USACE would include the Section 404(b)(1) analysis and the public interest review, and would determine the LEDPA. Furthermore, the ROD for the USACE cannot be finalized until 30 days after release of an FEIS. Any comments received during the 30 day period may be considered in the ROD for the USACE. The ROD for the USACE would recommend issuance, issuance with conditions, or denial of the Project.	
19744	No mitigation has been identified in the SDEIS for this permanent loss of lands and resources (natural and cultural) to the 1854 Ceded Territory. The public interest determination must include a specific finding that "The intended use of the conveyed Federal land will not substantially conflict with established management objectives on adjacent Federal lands, including Indian Trust lands" (36 C.F.R. 254.3(b)(2)(ii)). This threshold has not been met, and the Fond du Lac Band objects to the implementation of the Land Exchange Proposed Action.	The Cultural Resources sections of FEIS Chapters 4 and 5 address the federal Co-lead Agencies' federal tribal trust responsibilities under the 1854 Treaty. These sections, along with other relevant natural resources sections of FEIS Chapters 4, 5, and 6, also address effects on, and any proposed mitigation for effects on cultural resources and culturally significant natural resources. Mitigation/compensation for effects on cultural resources and culturally significant natural resources is considered to the extent possible within the parameters of the statutes and regulations providing the federal authorities for the NorthMet project review The federal Co-lead Agencies' obligation is to ensure that Band members have ample opportunity to exercise their treaty-reserved usufructuary rights; that federal lands are managed to maintain both the diversity and abundance of natural resources; and to ensure that the Bands' usufructuary rights to 1854 Treaty resources are not impaired. The Cultural Resources sections of FEIS Chapters 4 and 5 address these federal tribal trust responsibilities under the 1854 Treaty. The Land Exchange Proposed Action was analyzed to understand the potential effects on usufructuary rights. The Co-lead Agencies have consulted, and continue to consult with the Bois Forte Band of Chippewa, the Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa, the three principle Bands that retain usufructuary rights in the proposed project area. In addition, the Co-lead Agencies have consulted with the Great Lakes Indian Fish and Wildlife	CR 01 LAN 05

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		Commission and the 1854 Treaty Authority, the principal natural resource agencies representing the aforementioned Bands. Through consultation, the Co-lead Agencies understand that the Bands' principle interest with regards to the Land Exchange Proposed Action are the following: to retain or increase the amount of public land within the 1854 Treaty Ceded Territory, shoreline wetlands, culturally important natural resources used in exercising treaty rights of hunting, fishing, and gathering, cultural or religious properties, and access to culturally important natural resources and cultural or religious properties. The Co-lead Agencies have a fiduciary obligation to understand and consider the effects that the Land Exchange Proposed Action would have on Band members exercising their Treaty rights in the 1854 ceded territory. While the Land Exchange Proposed Action would remove certain lands from federal ownership, this loss is potentially offset by incoming private lands that would become part of the federal estate within the 1854 Ceded Territory. Outside of the Land Exchange Proposed Action, the Co-lead Agencies have also analyzed the potential effects posed by the Proposed Connected Actions. The potential affects posed to natural resources and cultural resources of importance to the Bands have been disclosed and would be considered during the Co-lead Agencies' decision process. The resource values and public objectives of the non-federal lands must equal or exceed the resource values and public objectives of the federal lands. See FEIS Section 1.4.3. Mitigation for cultural resources as a result of the NorthMet Project Proposed Action is discussed in Section 5.2.9 of the FEIS. The NorthMet Project Proposed Action mining activities would result in a loss of bogs; however, as part of the NorthMet Proposed Action, the Applicant is required to provide compensatory mitigation for wetland impacts in accordance with state and federal permits. One of the proposed mitigation sites for wetland impacts (Zim Site) would be a compensation site for the loss of bogs, and would be located within the 1854 Ceded Territory. The Lake County lands were tax forfeit lands that were offered for sale by the County through a public auction. The Lake County lands would still be accessible to the Bands for their use if the exchange took place, because the lands would become part of the SNF managed lands. No heritage surveys were conducted on the non-federal lands. If any cultural resources are located on the non-federal lands, those cultural resources would be transferred to federal ownership. Such transfer would	

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		not adversely affect the heritage resource, but would provide greater preservation protection under federal law. The non-federal lands that contain wild rice beds would not be affected as a result of the Land Exchange Proposed Action or Land Exchange Alternative B, because no activities are proposed on these lands and the proposed mining activities would not affect these lands. As noted in the FEIS, the Land Exchange Proposed Action and Land Exchange Alternative B would increase wild rice stands within the federal estate. FEIS Sections 5.3.2 and 5.3.4 clarify that, although the Land Exchange would result in an increase in wild rice stands within the federal estate boundaries, there would be no change to the existing public access to Tract 1 wild rice stands via the Pike River. Consequently, there would be no increase in wild rice harvest opportunities for the public. No wild rice stands are known to occur on the federal lands, and suitable habitat is limited. Please refer to the response to theme LAN 01 for more information on the public interest determination.	
19745	Summary: Based upon our extensive evaluation of the SDEIS and supporting technical documents, we conclude that there will undoubtedly be significant and unmitigated impacts to natural and cultural resources that the tribal cooperating agencies have consistently elevated to the attention of the co-lead agencies. There will be significant and unmitigated tribal resource losses within the 1854 Ceded Territory and the Lake Superior basin, including the St. Louis River watershed. The NorthMet Project Proposed Action and Land Exchange Proposed Action would decrease the amount of land available for public access and use, and would decrease portions of the 1854 Ceded Territory available for use by the Bands. The SDEIS must be revised, with significant additional study, to appropriately evaluate closure, mitigation, reclamation, and perpetual treatment cost estimates. The SDEIS requires substantially more public transparency and less equivocation on what is arguably one of the most fundamental issues at stake for this project: perpetual treatment.	FEIS Section 4.2.9.2.3 provides a detailed discussion and analysis of the area in which cultural resources may be affected by the undertaking. The APE takes into account both direct and indirect effects using a geographically expansive area that accounts for direct effects as well as visual, audible, atmospheric, hydrological, and water quality effects. The APE is based on extensive modeling and other analysis completed for the NorthMet Mining Project and Land Exchange, and includes an area much broader than the Plant Site and Mine Site. Since the SDEIS, the APE has been revised slightly to include the Dunka Road corridor, several federal parcels included in the Land Exchange Proposed Action, and the Colby Lake Pumphouse and pipeline. It is acknowledged that operation, maintenance and periodic replacement of environmental controls would be required during closure. Financial Assurance would be required under the State's Permit to Mine to perform these activities on a continuous and/or periodic basis for as long as these activities are needed. The FEIS includes available details regarding financial assurance (Section 3.2.2.4). Final details on the cost estimates, timeframes, contingency plan amounts, and calculations that would be required for the project would be addressed during permitting. In addition, see the response to theme WR 035.	FIN 06 PER 03 WR 035 WR 037 CR03

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19746	The SDEIS does not provide sufficient information for the public to understand whether the NorthMet Project Proposed Action will be required to remediate these and other AOCs before commencing project operations, or be allowed to defer remediation until closure.	FEIS Table 4.2.1-2: NorthMet Project Proposed Action Area of Concern Summary List for Voluntary Investigation and Cleanup Program, has been updated in the FEIS to show the current status and additional information where available. Costs for assessment, investigation, and cleanup are not available. The April 6, 2010, Consent Decree is a court registered agreement between Cliffs Erie LLC and the MPCA to resolve alleged violations of Cliffs Erie's NPDES/SDS permits for its Hoyt Lakes and Dunka mining area facilities. The Consent Decree addresses issues at the Tailings Basin (including outfall SD026) and discharges from the Cliffs Erie Area 5 mining area (SD033). While the latter area is not part of the NorthMet Project Proposed Action, PolyMet has entered into an agreement with Cliffs Erie, whereby it would be transferred to PolyMet upon issuance of permits for the NorthMet Project Proposed Action. Until that time, Cliffs Erie retains responsibilities for permit-related activities at both the Tailings Basin and Area 5. While certain Consent Decree-related activities have been in progress or have been completed for these areas since the SDEIS, there has been no change in ownership or responsible parties since that time.	HAZ 05
19747	Based upon our extensive evaluation of the SDEIS and supporting technical documents, we conclude that there will undoubtedly be significant and unmitigated impacts to natural and cultural resources that the tribal cooperating agencies have consistently elevated to the attention of the co-lead agencies. There will be significant and unmitigated tribal resource losses within the 1854 Ceded Territory and the Lake Superior basin, including the St. Louis River watershed. The NorthMet Project Proposed Action and Land Exchange Proposed Action would decrease the amount of land available for public access and use, and would decrease portions of the 1854 Ceded Territory available for use by the Bands…There is a demonstrated need for significant improvements to the modeling evaluations. The lack of fracture and fault analysis is also major deficiency of this SDEIS.	The Co-lead Agencies acknowledge that bedrock is variably fractured. The effects of fracturing are incorporated into the bulk hydraulic conductivity values used to characterize bedrock. This is common practice in large-scale evaluations of bedrock hydraulics. The Co-lead Agencies acknowledge that structural faults may exist between mine facilities and perennial streams that receive groundwater discharge. Because the landscape is covered with surficial deposits and there few bedrock outcrops, the existence of faults is conjectural and locations at best can only be inferred. It is unknown if faults (if and where they exist) behave as conduits or barriers to groundwater flow. Given these uncertainties, it is unlikely that any reasonable field program would be able to identify the existence, location, and hydraulic characteristics of faults that may or may not be present at the site. The Co-lead Agencies' approach is to set up a robust monitoring program during operations and closure to provide direct or indirect evidence on the existence of hydrologically significant faults. If significant faults are identified (that is, faults which could lead to violation of water quality standards), then adaptive measures would be employed to mitigate the fault-related effects.	WR 012
19748	Based upon our extensive evaluation of the SDEIS	Water quality modeling predictions for SW-005 and PM-13 indicate that	WR 115

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	and supporting technical documents, we conclude that there will undoubtedly be significant and unmitigated impacts to natural and cultural resources that the tribal cooperating agencies have consistently elevated to the attention of the co-lead agencies. There will be significant and unmitigated tribal resource losses within the 1854 Ceded Territory and the Lake Superior basin, including the St. Louis River watershed. The NorthMet Project Proposed Action and Land Exchange Proposed Action would decrease the amount of land available for public access and use, and would decrease portions of the 1854 Ceded Territory available for use by the Bands. We consider the high probability of continued degradation of remaining wild rice stands in the Partridge and Embarrass River watersheds as a result of the NorthMet Project to be an unacceptable environmental impact...The water quality analysis is fundamentally inadequate; it must be redone	the NorthMet Project Proposed Action would not result in significant adverse impacts to water quality. These evaluation locations are the nearest downstream locations from the NorthMet Project Proposed Action in the Partridge and Embarrass Rivers respectively and were previously recommended by MPCA staff to be considered as waters used for production of wild rice for purposes of the FEIS. Impacts on wild rice further downstream in these waters, or on wild rice resources regionally throughout the treaty areas, would not be expected.	WR 157
19749	The SDEIS evaluation of mercury impacts is deficient, and the conclusion of no mercury impacts downstream in the St. Louis River watershed is not supported by the information presented.	As summarized in FEIS Section 6.2.3.3.4, the NorthMet Project Proposed Action is predicted to result in a net overall decrease of mercury loadings of approximately 1.0 grams per year (i.e., a net decrease of 1.2 grams per year in the Partridge River and a net increase of 0.2 grams per year in the Embarrass River), which is indistinguishable from natural background variability. Therefore, the NorthMet Project Proposed Action would not contribute to cumulative effects on mercury loading to the St. Louis River. Supporting information is provided in FEIS Section 6.2.3.3.4.	MERC 19
19750	We consider the high probability of continued degradation of remaining wild rice stands in the Partridge and Embarrass River watersheds as a result of the NorthMet Project to be an unacceptable environmental impact.	This comment states that the continued degradation of wild rice stands in the Partridge and Embarrass Rivers will result from the NorthMet Mining project. Since no specific information was provided, no changes were made to the EIS. See also response to comment 19748.	PER 10 VEG 04
19751	The most significant deficiency in the SDEIS analysis of wildlife impacts is its failure to critically analyze potential impacts to moose.	FEIS Sections 4.2.5, 4.3.5, 5.2.5, and 5.3.5 (Wildlife) have been updated to include the new state endangered, threatened, and special concern (ETSC) status listings from August 19, 2013, as well as new federal status listing changes. The FEIS includes a more robust analysis on effects to moose,	WI 01

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		including habitat and displacement.	
19752	Uncontrolled contaminant loading from existing mine facilities, along with elevated constituents from the Proposed Project, have the potential to affect the successful establishment of a sustainable lake sturgeon fishery throughout the St. Louis River. This potential impact should be fully evaluated in the SDEIS.	Existing data review indicates recruitment and a viable population of lake sturgeon do exist in the St. Louis River Watershed. The NorthMet Project Proposed Action is not considered to have the potential for cumulative effects on hydrology and water quality in the St. Louis River Watershed. As a result, no affects to lake sturgeon population within the St. Louis River Watershed system would occur.	AQ 02
19753	A cumulative analysis of fibers expected from the site along with fibers currently being emitted from other sources should be performed. Human health risk assessments should be expanded to include scenarios of worker exposure to amphibole fibers. Fugitive dust impacts must be evaluated for human health and environmental impacts.	FEIS Section 5.2.7.5.3 contains information on amphibole mineral fibers resulting from mining activities. The exact human health risk of amphibole mineral fiber exposure is not known, and it is not possible to quantify amphibole mineral fiber emissions. Section 5.2.7.5.3 includes information on activities that can minimize fiber emissions, ongoing ambient monitoring to collect baseline mineral fiber data, and information on the commitment to continue fiber emission monitoring after start-up of the NorthMet Project Proposed Action for comparison to the baseline. Amphibole mineral fiber emissions would also be addressed during air permitting. Off-site worker exposure is discussed in the air section of FEIS Chapter 5, specifically in sections 5.2.7.5.2 and 5.2.7.5.3. On-site worker health and safety is regulated by other agencies such as the MSHA, NIOSH, and the OSHA.	AIR 03 HU 04
19754	The SDEIS simply does not address the potential lack of integrity or risk of failure when constructing a hazardous waste facility within a wetland.	Based on MPCA preliminary analysis of the material being placed in the Hydrometallurgical Residue Facility, it is not expected to be classified as a hazardous waste facility subject to RCRA. Samples would be collected routinely to confirm that physical and chemical characteristics of residue and materials disposed of in the Hydrometallurgical Residue Facility are not characteristically hazardous, subject to RCRA, and are in compliance with the Permit to Mine and NPDES/SDS permits. FEIS Section 4.2.14.3 describes the details of the existing conditions at the location of the proposed Hydrometallurgical Residue Facility, including the fact that it is proposed to be constructed at the location of the LTVSMC Emergency Basin. The LTVSMC emergency tailings would be consolidated and compacted prior to the construction of the proposed facility. New dams would be located beyond the extent of the emergency basin and founded on existing silty sand, gravel glacial till, and Giants Range granite. The Hydrometallurgical Residue Facility would be	GT 07 GT 15

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		constructed using the downstream method and stability modeling indicates that the Hydrometallurgical Residue Facility would meet the required factors of safety. Construction monitoring and mitigation plans would require further detail during permitting to evaluate consolidation of the LTVSMC tailings, settlement for the Hydrometallurgical Residue Facility, and performance of the wick drains. For more information, see the responses to themes GT 11 and GT 15. Geotechnical stability of the Hydrometallurgical Residue Facility is summarized in FEIS Section 5.2.14.2.3. Details are provided in the Geotechnical Data Package, Volume 2 (PolyMet 2014c, as cited in the FEIS). Design, construction, monitoring, maintenance, and adaptive management are addressed in the Residue Management Plan (PolyMet 2014r, as cited in the FEIS).	
19756	The Band specifically requests that financial assurance for potential indirect wetland effects and monitoring be secured.	FEIS Section 3.2.2.4 states that compensatory wetland mitigation for the NorthMet Project Proposed Action is expected to be approved and constructed in advance of any authorized direct wetland impacts and would therefore not require financial assurance. If issued, USACE permits would require mitigation for indirect wetland effects. Guidance for USACE permits that are conditioned to include any type of financial assurance to ensure that required compensatory mitigation is completed can be found in FEIS Section 5.2.3.3.2, or at: - 33 CFR Parts 325 and 332, Compensatory Mitigation for Losses of Aquatic Resources; Final Rule, dated April 19, 2008. Financial assurances are specifically discussed at 33 CFR 332.3(n). - Regulatory Guidance Letter No. 05-1 Date: 14 February 2005 titled: Guidance on the Use of Financial Assurances, and Suggested language for Special Conditions for Department of the Army [i.e., USACE] Permits Requiring Performance Bonds, provides additional guidance on the use of financial assurances (USACE 2005).	FIN 03
19757	The Band objects to the approval of any further out-of-watershed mitigation credits or restoration for impacts to irreplaceable high quality aquatic resources of national importance, which include all remaining unimpacted wetlands within the St. Louis River watershed/Lake Superior Basin.	FEIS Section 5.2.3.3.2 includes a discussion on the wetland mitigation study limits and the site selection process. The compensatory wetland mitigation site selection for the NorthMet Project Proposed Action began in 2005 and has gone through a rigorous site selection evaluation. Prior to the 2008 Federal Mitigation Rule, the Aitkin and Hinckley sites were selected, initial approvals by the USACE were received, and substantial investments were made by PolyMet to develop both sites for compensatory mitigation.	WET 03 WET 14

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		The USACE guidance prior to the implementation of the 2008 Federal Mitigation Rule was to look for mitigation sites that could provide the following: restoration of historical wetlands, high probability of success, achieve at least partial in-kind mitigation and sites that had ditched and/or tiled peatlands to provide for restoration. When the 2008 Federal Mitigation Rule went into effect, the USACE informed PolyMet of the priority for siting any future compensatory mitigation within the St. Louis River/ Great Lakes Basin. The Zim Site was subsequently proposed as a third site. Please refer to the response to theme WET 03.	
19758	Tribal cooperating agencies believe the CEAA for land use should encompass the 1854 Ceded Territory, as the signatory Bands have lost access to substantial portions of the 1854 CT and the resources within.	The cumulative effects section in the FEIS (Section 6.1.1.1) describes the rationale for the identification of CEAAs. The CEAAs for individual resource areas vary based on the potential for cumulative effects, and not on a single overall assessment area. FEIS Table 6.1.1-2 summarizes the spatial areas used for each resource area. Please refer to the responses to themes CR 02 and CR 03.	CU 01
19759	The tribal cooperating agencies believe the water quality and hydrologic cumulative effects analysis should incorporate the entire St. Louis River watershed.	The cumulative effects section in the FEIS (Section 6.1.1.1) describes the rationale for the identification of CEAAs. The CEAAs for individual resource areas vary based on the potential for cumulative effects, and not on a single overall assessment area. FEIS Table 6.1.1-2 summarizes the spatial areas used for each resource area. Please also refer to Section 8.3, MDO12 for the Co-lead Agencies' rationale for the CEAA identified for water resources.	CU 01
19760	Tribal cooperating agencies consider a 216,300 acre area bounded by the St Louis River, Lake Superior, Lake Vermilion and the Beaver Bay to Vermilion Trail to be a Tribal Historic District, and the pertinent area for consideration of cumulative effects to cultural resources.	The historic district proposed by the Grand Portage Band in a June 27, 2013 letter was addressed (Grand Portage 2013, as cited in the FEIS). The federal Co-lead Agencies do not believe that this area meets the definition of a district, nor does it have sufficient integrity as a district to qualify for inclusion in the NRHP. The federal Co-lead Agencies have considered an expanded area for analysis of cumulative effects on cultural resources and natural resources of significance to the Bands, including use of the 1854 Ceded Territory as the CEAA. Use of the 1854 Ceded Territory as the CEAA for cultural resources would actually diminish the significance of any cumulative effects. By evaluating the effects of the NorthMet Project Proposed Action along with other past, present, and reasonably foreseeable future projects in the context of a much larger area with a much larger number of resources similar to those affected by the NorthMet Project Proposed Action, the effect of the NorthMet Project Proposed Action on those resources is diminished. The cumulative effects analysis focuses on the specific resources, or types of resources, affected by the NorthMet	CR 03 CR 04

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		Project Proposed Action within an area that is geographically meaningful considering the project under review. Cumulative effects are discussed and addressed differently based on the affected resource. Discussions related to socioeconomics, for instance, use an expanded analysis area compared to other resources. Such expanded analysis areas are used as appropriate. The Cultural Resources sections in FEIS Chapters 4, 5, and 6 address the Co-lead Agencies' determination of the NorthMet Project Proposed Action's direct, indirect, and cumulative areas of potential effect.	

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Comments from GLIFWC (Submission ID 42952)			
2924	In the SDEIS or supporting documents, there is no discussion of tailings pond water exiting the basin into this topographically closed area. There is no accounting for contaminants moving eastward, and there is no description of their possible impact on receiving ground or surface waters.	The FEIS contains new text describing pond leakage and how the chemistry of this leakage would affect chemical concentrations at the Tailings Basin toes. In general, the chemistry of water at the Tailings Basin toes results from a combination of chemical-loading from pond leakage, meteoric infiltration, chemical release from currently existing LTVSMC tailings, and chemical release from future NorthMet Project Proposed Action-related tailings. See FEIS Section 5.2.2.2.1 for additional information. The 6.5-inches-per-year pond leakage flux is not computed, but is a stated engineering performance specification. The hydraulic conductivity that achieves this leakage flux is computed using a Darcy's law calculation. The GoldSim model contains algorithms that can allow the pond to overflow during periods of high rainfall, so the model does in fact evaluate pond overflow. The pond size and design are such that the GoldSim model predicts that the pond never overflows during the 200-year simulation period. The FEIS acknowledges that there would be future leakage from the tailings pond and the GoldSim model performs calculations to estimate this flow rate. The FEIS Plant Site MODFLOW model was modified from the SDEIS to include: 1) the presence of surficial deposits below the East Embankment, 2) boundary conditions (drain and/or river cells) along the embankment toe to allow the potential for surface seepage, and 3) hydrologic inputs to account for the presence of the proposed drainage swale. See FEIS Section 5.2.2.3.3 and PolyMet 2015j and PolyMet 2015i (both as cited in the FEIS) for more information.	WR 054 WR 057
2925	Because of the no-flow boundaries, the model output files (NorthMet Model Files DVD, BARR July 2012) show extremely unrealistic groundwater heads in the aquifer surrounding the east side of the FTB.	In response to these issues, the Plant Site MODFLOW model was modified and recalibrated as follows: 1) Updated areal distribution of surficial deposits and bedrock outcrops, 2) established surficial deposits below and adjacent to the East Embankment, 3) used drain or river cells along the East Embankment to allow surface seepage of tailings water, 4) incorporated the hydrologic effects of the future swale to drain surface water from the East Embankment area, 5) recalibrated model material properties and boundary conditions using all available data through 2013 (this is mostly new hydraulic head information), and 6) expanded the use of river and drain cells to provide a more accurate representation of wetlands outside the Tailings Basin. As a result of these changes, the FEIS Plant Site MODFLOW model no	WR 093 WR 097

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		longer has a no-flow boundary condition at the toe of the East Embankment, and river and/or drain cells in surficial deposits are in place to allow the potential for surface seepage along the embankment toes (See Attachment A, Plant Site Water Modeling Data Package [PolyMet 2015j, as cited in the FEIS]). The model was checked to ensure that hydraulic heads in the tailings and adjacent surficial deposits were not well above ground surface. In the FEIS Plant Site MODFLOW model, storage coefficients for the surficial deposits and bedrock outcrops were assigned and/or calibrated to be more in line with literature values for these types of materials.	
2950	Staff continue to believe that the underground mine and west pit backfill alternatives have not been properly explored given the environmental benefits they could bring to the project. Our comments stand as detailed in Appendix C.	The Co-lead agencies considered the information provided by the Tribal Cooperating Agencies in SDEIS Appendix C, and considered both Underground Mining and Backfilling the West Pit as potential alternatives; however, they did not pass screening analysis and were therefore eliminated from detailed analysis in the EIS. The screening process and results for these potential alternatives is described in FEIS Section 3.2.3. See the response to theme ALT 01 for more details on the Underground Mining Alternative and ALT 03 for more details on the West Pit Backfill Alternative.	ALT 01 ALT 03
2951	In addition, there are a number of alternatives that the SDEIS fails to explore. These include paste backfill, immediate operation of the RO treatment facility at the mine site, etc. Additional details are found in the comments submitted by the Fond du Lac Band.	The Co-lead Agencies considered many potential alternatives and mitigation measures including several options for tailings and water management throughout the development of the EIS. As described in Chapter 2 of the FEIS, consideration of these alternatives and mitigation measures influenced the development of the NorthMet Project Proposed Action. Section 3.2.3 of the FEIS describes the alternatives considered and either adopted or eliminated (with reason) from detailed analysis in the EIS. See the response to themes ALT 06 and ALT 13 for more details on several other alternatives, including paste tailings, RO treatment, etc.	ALT 06 ALT 13
2952	Unfortunately the SDEIS has no serious analysis of a No Action Alternative. Section 5.2.2.4 is less than 1 page long and gives a very general and hypothetical discussion. It in no way represents a serious analysis of a No Action Alternative. The SDEIS needs to have modeling of a No Action Alternative	FEIS Section 3.2.3.2 discusses how the Consent Decree under the NorthMet Project No Action Alternative would require Cliffs Erie to complete closure and reclamation activities at the Plant Site. This would include completing activities for the localized affected areas under the Minnesota Voluntary Investigation and Cleanup (VIC) Program, removal of the former Plant Site building, and management of seepage at the Tailings Basin embankment. FEIS Table 3.2-1 shows that under the NorthMet Project No Action Alternative, there would be no mining activities, and that existing management and land use of the federal lands would continue. The NorthMet Project No Action Alternative is also	ALT 14

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		analyzed under each resource area in FEIS Chapter 5, and summarized in FEIS Table 7.2.4-1.	
2953	The concerns regarding the cumulative effects analysis have not been resolved. The information provided in Appendix C is still applicable to the SDEIS.	The Co-lead Agencies considered the information included in the Tribal Cooperating Agencies' cumulative effects assessment and found no compelling information or analysis to change the original approach or conclusions.	CU 12
2959	The ACOE and Forest Service's position in the SDEIS is that these items can addressed at a later time by the Minnesota Department of Natural Resources in the review of future mining permits. This action is an ill-conceived attempt to abdicate their federal trust responsibility to protect the habitats that support treaty harvests. Despite their attempts, the ACOE and Forest Service cannot delegate their federal trust responsibility to protect habitats that sustain treaty harvests to state of Minnesota when it undertakes the process of permitting the mine.	The Cultural Resources sections in FEIS Chapters 4 and 5 address the federal Co-lead Agencies' federal tribal trust responsibilities under the 1854 Treaty. These sections, along with other relevant natural resources sections of FEIS Chapters 4, 5, and 6, also address effects on and any proposed mitigation for cultural resources and culturally significant natural resources. Mitigation/compensation for effects on cultural resources and culturally significant natural resources is considered to the extent possible within the parameters of the statutes and regulations pertaining to the federal authorities for the NorthMet Project Proposed Action review. Effects on historic properties would be fully considered prior to the issuance of any permit or land exchange, pursuant to the NHPA and its implementing regulations. Effects on cultural resources and culturally significant natural resources are addressed in the Cultural Resources sections in FEIS Chapters 4, 5, and 6.	CR 01
2961	The superficial estimate of financial assurance provides inadequate detail as to how any of the cost estimates were developed. The DEIS provided a discussion about the options for financial assurance instruments however any substantial discussion of costs and assumptions on the metrics were not provided and instead postponed until the permitting phase of this Project.	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, timeframes, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine. Section 3.2.2.4.2 discusses the types of financial assurance instruments that could be used in combination to assure the project. Additional details on the cost estimates, methods, and instruments that would be required for the project, and how the instruments would be updated and dedicated to the project would be addressed during permitting.	FIN 05 FIN 08
2963	The Executive Summary fails to provide: 1) an estimated cost for reclamation, 2) an estimated cost for post-closure maintenance and water treatment, 3) any realistic estimate as to the length	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, timeframes, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting.	FIN 05 FIN 06 FIN 08

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	of time that post-closure maintenance and water treatment would be required, or 4) information as to how financial assurance instruments would be structured to ensure the costs of post-closure maintenance and water treatment are paid for an uncertain amount of time and for which models indicate would be longer than 200 years at the mine site and 500 years at the plant site.	Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine. *Minnesota Rules*, part 6132.1200, subpart 3, states that cost estimates shall be annually adjusted, using current dollar value at the time of the estimate. FEIS Sections 3.2.2.1.10, 3.2.2.3.12, and 5.2.2.3.1 provide available information regarding long-term water treatment and maintenance. Temporal aspects of financial assurance are addressed in *Minnesota Rules*, part 6132.3200, subpart 2, item E, which states that financial assurance is required for all areas that require continued maintenance following closure, and that no release from the Permit to Mine would be granted for portions of mining areas that require post-closure maintenance until the maintenance activities are no longer necessary. Section 3.2.2.4.2 discusses the types of financial assurance instruments that could be used in combination to assure the project. Additional details on the cost estimates, methods, and instruments that would be required for the project, and how the instruments would be updated and dedicated to the project would be addressed during permitting.	
2964	The SDEIS Executive Summary failed to provide either an estimated cost of reclamation or an estimated cost for post-closure maintenance and water treatment.	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, timeframes, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine.	FIN 05
2965	The Executive Summary also failed to explain how financial assurance instruments can be established to cover the cost of reclamation and post-closure maintenance and water treatment costs if “it is uncertain how long the NorthMet Project Proposed Action would require water treatment4”.	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine to account for the proceeding year’s activities. *Minnesota Rules*, part 6132.1200, subpart 3, states that cost estimates shall be annually adjusted, using current dollar value at the time of the estimate. Section 3.2.2.4.2 discusses the types of financial assurance instruments that	FIN 08

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		could be used in combination to assure the project. Additional details on the cost estimates, methods, and instruments that would be required for the project, and how the instruments would be updated and dedicated to the project would be addressed during permitting. At this time, PolyMet estimates that based on preliminary information that will need to be confirmed by pilot/feasibility studies, they can transition from mechanical to non-mechanical water treatment at the Tailings Basin upon mine closure, and at the Mine Site within 30 years after mine closure.	
2966	The SDEIS provides a listing of items for which costs must be included in the financial assurance instrument (i.e. demolition of all structures and remediation of sites [fencing the perimeters, sloping and seeding the overburden, constructing outlet structures, removing culverts, etc.]) yet fails to provide any estimated costs or the basis for these costs.	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, timeframes, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine.	FIN 05
2967	The SDEIS notes, PolyMet would ensure that the financial assurance amount is established as a function of at least three main variables: 1) extent of surface disturbance and potential releases from waste storage facilities, 2) reclamation and long-term care standards (including mechanical water treatment), and 3) reasonable assessment of the costs to execute the Contingency Reclamation Plan. The SDEIS provides no discussion as to how these variables are likely to impact overall costs of the financial assurance instrument and how large the variance of cost estimates are likely to be.	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, timeframes, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine. Section 3.2.2.4.2 discusses the types of financial assurance instruments that could be used in combination to assure the project. Additional details on the cost estimates, methods, and instruments that would be required for the project, and how the instruments would be updated and dedicated to the project would be addressed during permitting.	FIN 05 FIN 08
2968	The costs provided in Table 3.2-15 provide no basis for their estimation or other assumptions. The SDEIS failed to provide detailed costs for the physical closure and reclamation of the mine site that will need to be covered by Financial Assurance Instruments – a detailed discussion as to how much money will be needed from financial	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, timeframes, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost	FIN 05 FIN 08

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	assurance instruments and when.	estimates, and that cost estimates would be updated annually under the Permit to Mine. Section 3.2.2.4.2 discusses the types of financial assurance instruments that could be used in combination to assure the project. Additional details on the cost estimates, methods, and instruments that would be required for the project, and how the instruments would be updated and dedicated to the project would be addressed during permitting.	
2969	Cost to be covered by Financial Assurance need to include detailed information and cover the following areas: 1) interim operations and maintenance for agencies when a company declares bankruptcy and leaves the site, 2) water management and treatment, 3) removal of hazardous wastes and substances, 4) demolition, removal and disposal of facilities and equipment, 5) earthwork (sloping, backfill, grading), 6) revegetation, 7) long-term operations and maintenance, 8) Monitoring costs, 9) detailed inflation estimates, 9) provide a cash flow analysis, and 10) detail assumptions in the determination of risk and uncertainty.	FEIS Section 3.2.2.4 provides available details regarding financial assurance. As stated in *Minnesota Rules*, part 6132.1200, subpart 5, financial assurance criteria require that funds must not be dischargeable through bankruptcy and are fully binding and enforceable under state and federal law. *Minnesota Rules*, part 6132.1200, subpart 7 states that the Permit to Mine could be suspended or revoked if the proponent does not comply with financial assurance criteria. The Commissioner may also order imposition of a civil penalty in such a situation, under *Minnesota Rules*, part 6132.5100. Additional details on the legal framework for the financial assurance required for the project would be addressed during permitting. Also see the response to theme FIN 08, which addresses long-term financial assurance assumptions and instruments/investments. Additional details on the cost estimates, timeframes, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. Specific infrastructure timelines and life expectancies of equipment would be accounted for during permitting as well. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine. *Minnesota Rules*, part 6132.1200, subpart 3, states that cost estimates shall be annually adjusted, using current dollar value at the time of the estimate.	FIN 03 FIN 05
2970	In addition to providing detailed cost estimation, the final EIS needs to clearly identify and communicate assumptions regarding inflation rates, rates of return, contingencies, and labor rates. Closure and maintenance costs will need to be covered years into the future, so a net present value must be included in the final EIS.	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, timeframes, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the	FIN 05 FIN 08

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		Permit to Mine. Section 3.2.2.4.2 discusses the types of financial assurance instruments that could be used in combination to assure the project. Additional details on the cost estimates, methods, and instruments that would be required for the project, and how the instruments would be updated and dedicated to the project would be addressed during permitting.	
2971	The SDEIS provides a listing of contingencies that may have to be covered by financial instruments… Unfortunately the SDEIS provides no discussion as to any of the costs of the contingencies that are identified. The SDEIS also fails to discuss how financial instruments would be structured to meet those contingencies or the assumptions made by PolyMet to ensure an adequate stream of revenue is available to meet closure and maintenance costs	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, timeframes, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine. Section 3.2.2.4.2 discusses the types of financial assurance instruments that could be used in combination to assure the project. Additional details on the cost estimates, methods, and instruments that would be required for the project, and how the instruments would be updated and dedicated to the project would be addressed during permitting.	FIN 05 FIN 08
2973	The SDEIS notes, PolyMet may cancel financial assurance only upon approval by the MDNR after it is replaced by an alternative mechanism or after being released (in whole or in part) from financial assurance. The SDEIS fails to discuss any federal oversight of this process and how the federal government will meet its trust responsibility in protecting habitats that support off-reservation treaty harvests.	Section 3.2.2.4 discusses financial assurance requirements of the Project, and the response to Theme FIN15 addresses federal requirements for financial assurance. The Cultural Resources sections in FEIS Chapters 4 and 5 address the federal Co-lead Agencies' federal tribal trust responsibilities under the 1854 Treaty. These sections, along with other relevant natural resources sections of FEIS Chapters 4, 5, and 6, also address effects on and any proposed mitigation for cultural resources and culturally significant natural resources. Mitigation/compensation for effects on cultural resources and culturally significant natural resources is considered to the extent possible within the parameters of the statutes and regulations pertaining to the federal authorities for the NorthMet Project Proposed Action review.	CR 01
3049	Depending on the exact placement of the drain cells, the modified modeling [GLIFWC conducted] resulted in an estimate of 588 to 847 gpm of flow through the east berm of the basin. This flow is on a scale similar to the flow predicted for the south berm discharge at SD026	The Plant Site MODFLOW model was modified for the FEIS to better represent natural and NorthMet Project Proposed Action-related conditions. These include: 1) more accurate representation of surficial deposits and bedrock outcrops around the perimeter of the Tailings Basin, 2) more extensive distribution of drain and/or river cells to provide for potential surface seepage and distribution of wetlands, 3) more appropriate storage	WR 102

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	(570 gpm, RS13B Draft-01; or 540 gpm, PolyMet 2013j). That the predicted discharges at the south berm and at the east berm are similar is logical because both areas are underlain by bedrock valleys filled with high conductivity surficial deposits. In the context of the predicted total discharge from the FTB at year 20 (3340 gpm, RS13B; or 3230 gpm, PolyMet 2013j) the 588-847 gpm prediction suggests that approximately 1/5 of the FTB water would exit through the east berm.	coefficients, and 4) steady-state and transient calibrations using new data extending through the end of 2013. Many of the improvements pertained to the East Embankment area of the Tailings Basin, where it is acknowledged that tailings water seepage would be likely to occur and model changes were made to simulate this seepage more accurately.	
3054	NorthMet water management plan version 2 states that the south side seepage capture facility is already operational. The SDEIS further states that the system is operating effectively and capturing all seepage out of the south end of the facility. This statement is factually incorrect.	FEIS text has been changed to acknowledge that the south side Tailings Basin containment system is not capturing all seepage from the southern end of the Tailings Basin. Cliffs Erie is currently addressing this issue by upgrading the performance of the existing capture system and, if necessary, constructing new systems to enhance capture. If 100 percent capture is not attained by the Cliffs Erie upgrades, PolyMet has committed to installing additional systems in Second Creek to achieve this level of performance regardless of the types of measures required.	WR 117
3055	The SDEIS discusses Cliffs Erie site, identifies 62 Areas of Concern (AOCs), and discusses PolyMets role in site remediation. The SDEIS failed to provide any information as to cost estimates for addressing the legal requirements for mitigating the AOCs as identified. This information is needed to ascertain if the proposed project would further contaminant AOCs and increase clean-up/remediation costs.	FEIS Table 4.2.1-2: NorthMet Project Proposed Action Area of Concern Summary List for Voluntary Investigation and Cleanup Program, has been updated in the FEIS to show the current status and additional information where available. Costs for assessment, investigation, and cleanup are not feasible to provide (MPCA, Pers. Comm., October 27 & 29, 2014. The April 6, 2010, Consent Decree is a court registered agreement between Cliffs Erie LLC and the MPCA to resolve alleged violations of Cliffs Erie's NPDES/SDS permits for its Hoyt Lakes and Dunka mining area facilities (State of Minnesota v. Cliffs Erie, LLC. 2010, as cited in the FEIS). Of particular relevance to the NorthMet project, the Consent Decree addresses issues at the current Cliffs Erie tailings basin (including outfall SD026) and discharges from the Cliffs Erie Area 5 mining area (SD033). The tailings basin is part of the NorthMet Project Proposed Action whereas Area 5 is not; however, PolyMet has entered into an agreement with Cliffs Erie where both areas would be transferred to PolyMet upon issuance of project permits. Until that time, Cliffs Erie retains responsibilities for permit-related activities at the tailings basin and Area 5. While certain Consent Decree-related activities have been in progress or have been completed for these areas since the SDEIS, there has been no change in ownership or responsible parties since that time (MPCA, Pers. Comm., October 27 & 29,	HAZ 05

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		2014).	
12501	The importance of baseflow in understanding site hydrogeology is hard to overstate. Unfortunately, the quality of flow data collected at the Polymet site is poor and fraught with uncertainty. Because there has not been a Polymet stream gage at the site and Northshore pit dewatering has occurred into the Partridge at varying and uncertain times, all flow data from the site is suspect. Simple upstream, at-site, and downstream flow measurement would have provided higher quality data but was never collected by the applicant nor required by the state.	Groundwater baseflows used in the SDEIS are best-estimate values and are retained in the FEIS. This is because the SDEIS groundwater baseflow values were based on: 1) winter 1986-87 and winter 1987-88 stream gaging in the Partridge River at SW-006 that occurred when there were no discharges from Northshore; and 2) 1942 to 1963 gaging data in the Embarrass River, which includes years prior to the LTVSMC Tailings Basin startup (1957). When expressed as a groundwater baseflow yield per unit area, the similar results for both watersheds (approximately 0.05 cfs per square mile) supports the approach used. The yield per unit area is similar to other watersheds in Northern Minnesota. Studies have shown that streamflow characteristics in this part of Minnesota have not changed systematically over the last 50 years. The only other available gaging data is from a station installed during 2011 at SW-003 on the Partridge River. Interpretation of groundwater baseflow at SW-003 is not reliable for use in the GoldSim modeling of groundwater baseflow due to the complicating effects of Northshore Pit pumped discharges, seepage from the Northshore Western Pond, and complex storage and release mechanisms in the wetlands that receive these flows. More broadly, groundwater baseflow discharge varies with time and is a reflection of longer-term weather and climatic conditions. The variability of groundwater baseflow discharge is demonstrated by the examination of estimated values for several years using different methods. Evaluation of these values affirms continued reliance on the 1986-87 USGS data for the FEIS is reliable(PolyMet 2015m, as cited in the FEIS) . To better understand the relationship of groundwater baseflow to the GoldSim model's water quality impact projections, a sensitivity analysis for the Mine Site was conducted to evaluate if predicted NorthMet Project Proposed Action impacts are sensitive to groundwater baseflow values. The sensitivity analysis considered the relationship of various model inputs to groundwater baseflow including hydraulic conductivity, recharge, and surface runoff chemical concentrations. The results indicate that modeled groundwater and surface water concentrations are sensitive to changes in baseflow. However, the NorthMet Project Proposed Action's ability to meet groundwater quality and surface water quality evaluation criteria is not sensitive to changes in baseflow. Evaluation criteria can be found in Section 5.2.2.	WR 003

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12502	The mine site water modeling data package very clearly states (SDEIS reference PolyMet 2013i, pg 123 & 133) that the 1 cfs added to Goldsim modeling was to account for constituents added to the Partridge by pit dewatering from Northshore; It is not relevant to baseflow calculations nor is it relevant to determination of aquifer conductivity or groundwater travel times.	The 1 cfs added to GoldSim modeling was to account for constituents added to the Partridge River by pit dewatering and other discharges from the Northshore Mine. It is not part of groundwater baseflow as defined in the Mine Site GoldSim model and is therefore not relevant to determination of aquifer hydraulic conductivity, areal recharge, or groundwater travel times. This variable was updated to be 2.6 cfs at a sulfate concentration of 28 mg/l in the FEIS Mine Site GoldSim model.	WR 005
12504	Polymet Modeling of Flow from the Basin: Polymet modeling with MODFLOW (RS13 Attachment A-6 2007; RS13B Attachment A-6 2008; Polymet 2013j Attachment A 2011), for the FTB has prevented any discharge of basin water to the east by erecting a no-flow boundary at the surface of the berm and at the ground surface. This no-flow boundary is an artificial construct that has no basis in reality. In reality, flow to the east will be controlled by the relative head pressures and the conductivity of the materials in the FTB, beneath the FTB and in the berms.	In response to these issues, the Plant Site MODFLOW model was modified and recalibrated as follows: 1) Updated areal distribution of surficial deposits and bedrock outcrops, 2) established surficial deposits below and adjacent to the East Embankment, 3) used drain or river cells along the East Embankment to allow surface seepage of tailings water, 4) incorporated the hydrologic effects of the future swale to drain surface water from the East Embankment area, 5) recalibrated model material properties and boundary conditions using all available data through 2013 (this is mostly new hydraulic head information), and 6) expanded the use of river and drain cells to provide a more accurate representation of wetlands outside the Tailings Basin. As a result of these changes, the FEIS Plant Site MODFLOW model no longer has a no-flow boundary condition at the toe of the East Embankment, and river and/or drain cells in surficial deposits are in place to allow the potential for surface seepage along the embankment toes (See Attachment A, Plant Site Water Modeling Data Package [PolyMet 2015j, as cited in the FEIS]). The model was checked to ensure that hydraulic heads in the tailings and adjacent surficial deposits were not well above ground surface. In the FEIS Plant Site MODFLOW model, storage coefficients for the surficial deposits and bedrock outcrops were assigned and/or calibrated to be more in line with literature values for these types of materials.	WR 093
12510	Geology Beneath the East Berm: Examination of the geologic data for the site indicates that the east berm of the FTB sits on a bedrock valley filled with surficial material that is 25 to 50 feet deep. The bedrock valley under the east berm is the historical stream channel for Trimble Creek prior to the creation of the current tailings basins (Figure 1). The thickness of the	The Tailings Basin design and footprint used in the FEIS Plant Site MODFLOW model was updated from the version used in the SDEIS to address this comment.	WR 094

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	surficial material under the east berm is indicated as 25 to 50 feet in the depth to bedrock map of the SDEIS Figure 4.2.2.-12 (Figure 2) and in the depth to bedrock map MN Geological Survey M-126. The distribution of bedrock under the FTB has been represented in 2 ways during Polymet MODFLOW modeling. Technical document RS13 of Nov. 16, 2007 Attachment A-6 Fig. 4-2 showed bedrock in the 2007 MODFLOW model as extending under the eastern quarter of the tailings basin. In technical document RS13b of Sept. 8, 2008 Attachment A-6 Fig. 4-7h, bedrock in the 2008 model did not extend under the basin but rather showed the basin to be underlain with surficial material. The text of RS13b, section 4.6.1 of Attachment A-6 states: "The location of the bedrock hills that flank the Tailings Basin to the east and south were updated. The location of the bedrock hills is used in the model to define the extent of the low hydraulic conductivity zone that represents the bedrock. Because the footprint of the Tailings Basin – Mitigation Design is closer to these hills on the southeast side of the footprint than was the footprint for the proposed design, it was important to get the location of these hills as accurate as possible. The location of the bedrock hills was defined using information from the Minnesota Geological Survey's map M-164. The resulting zones of hydraulic conductivity can be seen on Figure 4-7." The extent of the tailings basin footprint represented in RS13b is the same extent as currently proposed in the SDEIS. However, evaluation of flow from the basin using MODFLOW and Goldsim appears to have fallen back to the 2007 representation of the basin footprint and of the underlying bedrock (see GLIFWC comment re: SDEIS modeling and		

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	mitigation basin design).		
12520	Conceptual Model of East Berm: A conceptual diagram of the east berm is provided below. The head difference between the top of the basin (~1720 ft), the head pressures expected in the surficial deposits below the center of the basin (1700 ft; RS13b, 2008), and the head pressure at the toe of the basin (1660 ft) will push water toward the toe of the east berm. The 25-50 feet of surficial deposits in the bedrock valley under the east berm will conduct water under the east berm and beyond. Revised MODFLOW Modeling of Discharge from East Berm: In order to investigate the approximate magnitude of discharge that would exit the east berm of the FTB, we conducted modified MODFLOW modeling of basin flows in year 20 of the project. To simulate the basin but without the no-flow boundary imposed in previous Polymet modeling, we used the 2008 Polymet MODFLOW model (RS13B Draft-01), with the sole modification being the placement of model drain cells at the east berm. The original 2008 model predicted flows of 3340 gpm from the basins, 570 of which was predicted to flow to the seepage barrier on the south side of the basins (SD026) but no flow to the east because of the no-flow boundary instituted in that model (RS13B Draft-01). Our placement of drain cells in the east berm area of the MODFLOW model enabled water to move east from the berm, rather than reverse flow to the north, west and south as was dictated by the no-flow boundary. The use of drain cells at the east berm to allow eastward movement of water is an identical approach as that implemented by Polymet for the south berm of the tailings basin where the discharge to SD026 is modeled by drain cells.	The Plant Site MODFLOW model was modified for the FEIS to better represent natural and NorthMet Project Proposed Action-related conditions. These include: 1) more accurate representation of surficial deposits and bedrock outcrops around the perimeter of the Tailings Basin, 2) more extensive distribution of drain and/or river cells to provide for potential surface seepage and distribution of wetlands, 3) more appropriate storage coefficients, and 4) steady-state and transient calibrations using new data extending through the end of 2013. Many of the improvements pertained to the East Embankment area of the Tailings Basin, where it is acknowledged that tailings water seepage would be likely to occur and model changes were made to simulate this seepage more accurately. These changes in response to the comment improve the SDEIS MODFLOW model that limited tailings seepage on the east side of the Tailings Basin.	WR 054 WR 056 WR 102 WR 105

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	Depending on the exact placement of the drain cells, the modified modeling resulted in an estimate of 588 to 847 gpm of flow through the east berm of the basin. This flow is on a scale similar to the flow predicted for the south berm discharge at SD026 (570 gpm, RS13B Draft-01; or 540 gpm, Polymet 2013j). That the predicted discharges at the south berm and at the east berm are similar is logical because both areas are underlain by bedrock valleys filled with high conductivity surficial deposits. In the context of the predicted total discharge from the FTB at year 20 (3340 gpm, RS13B; or 3230 gpm, Polymet 2013j) the 588-847 gpm prediction suggests that approximately 1/5 of the FTB water would exit through the east berm. Implication of Faulty Modeling of Discharge to the East: At least three problems arise from the current situation of SDEIS modeling of the FTB with a no-flow boundary on the east and inaccurate representation of bedrock: 1) There is no contaminant transport modeling or evaluation of the water leaving the east side of the basin. Without substantial engineering to remove the water, a lake toward the 1680 foot contour would form (Figure 4) until water spilled toward Spring Mine Lake. The Flotation Tailings Management Plan (Polymet 2013m, page16) discusses the need for a drainage swale to release stormwater from the topographically closed area to the east of cell 1E. In the SDEIS or supporting documents, there is no discussion of tailings pond water exiting the basin into this topographically closed area. There is no accounting for contaminants moving eastward, and there is no description of their possible impact on receiving ground or surface waters. 2) There are potential receiving surface waters near to the east berm; wetlands at the toe of		

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	the east berm, Spring Mine Lake & Spring Mine Creek to the east, and wetlands and an unnamed creek to the north of the proposed drainage swale. 3) The Polymet MODFLOW modeling was designed to prevent any water from leaving the east side of the basin by establishing no-flow boundaries on that side of the model. Because of the no flow boundaries, the model output files (NorthMet Model Files DVD, BARR July 2012) show extremely unrealistic groundwater heads in the aquifer surrounding the east side of the FTB. For example, the Polymet MODFLOW 2011 model predicts groundwater head to be over 1800 ft in elevation where the ground elevation is 1660 ft on the east side of the tailings basin. A model with such distorted groundwater head predictions is unlikely to produce accurate flow information, rendering the flowpaths to the north, west and south and flow quantities used by Goldsim in the SDEIS unreliable. Realistic flow modeling of the proposed FTB must be conducted to determine flow directions, flow quantities and travel rates for environmental impact prediction. Information on water flow direction and quantity is also needed so that water management plans can be formulated.		
12525	SDEIS MODFLOW Modeling Appears to be of Fatally Flawed and Discarded Tailings Basin Design. Modeling in the SDEIS appears to be of a Flotation Tailings Basin (FTB) design that was discarded several years ago and does not model the currently proposed basin design. The 2007 FTB design, that is modeled in Attachment A (2011) of Polymet 2013j, was deemed to be “fatally flawed” by the MNDNR (Mitigation Table, Arkley email of 2008/12/09) and was replaced by the “mitigation” design developed in 2008. GLIFWC staff have posed a series of questions to the lead agencies regarding the modeling for water quantity	The Tailings Basin design and footprint used in the FEIS Plant Site MODFLOW model was updated from the version used in the SDEIS to address this comment.	WR 094 WR 098

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	and flow direction at the FTB. ERM has provided a series of written responses to those questions. The 2014-03-10 Response 4 from ERM re: the Plant Site MODFLOW modeling identified Attachment A of the Water Modeling Data package of March 2013 (SDEIS reference Polymet 2013j) as the documentation of the tailings basin flow modeling for the SDEIS. Careful examination of the scant information in the above referenced Attachment A (2011) indicates that the modeling done in 2011 for that attachment was not of the FTB as currently proposed. The footprint modeled for attachment A is the footprint of an early FTB proposal from 2007 (Figure 5) that was supplanted by the FTB design developed during the "Mitigation Options" process of 2008. The 2008 mitigation FTB design (Figure 6) is the current design footprint assumed in the text of the SDEIS (SDEIS Fig. 3.2-23). In addition to using a discarded FTB design footprint, the modeling in Attachment A also used a crude representation of bedrock that was supplanted by a more refined bedrock representation during the modeling of the 2008 mitigation design (RS13B Draft-01, 2008). The diagrams and model files supporting Appendix A (2011) further demonstrate that the modeled footprint is of the 2007 fatally flawed FTB design (see footprints in layer 1 of 2007 (Figure 7) and 2011(Figure 8) models, attached), instead of the mitigation basin design (see footprint in layer 1 of 2008 model, (Figure 9)). The rejected basin design had a smaller footprint and did not extend as far to the south and south-east. Unlike the current design, the rejected design did not cover the ash disposal site in the south-east end of the FTB. It appears that the SDEIS Goldsim (water quality) modeling is based on MODFLOW (water quantity) modeling of an old FTB design that was deemed fatally flawed and is not		

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	modeling the currently proposed FTB design.		
12541	Perpetual Water Treatment The proposed Polymet project would require long term treatment of water at both the plant and mine sites. This treatment would be needed for centuries but the lead agencies have not required that the applicant provide an estimate of when treatment would no longer be needed. Therefore, as articulated in Chapter C, GLIFWC staff maintain that water treatment for the proposed Polymet mine is perpetual. GLIFWC staff are gravely concerned that the lead agencies are attempting to minimize the issue of perpetual/long term treatment by using vague and confusing language in the SDEIS. In addition, the language the lead agencies have used has changed during the development of the document even though the model results have not. The SDEIS states on page 5-7: "Mechanical water treatment is part of the modeled NorthMet Project Proposed Action for the duration of the simulations (200 years at the Mine Site, and 500 years at the Plant Site). The duration of the simulations was determined based on capturing the highest predicted concentrations of the modeled NorthMet Project Proposed Action. It is uncertain how long the NorthMet Project Proposed Action would require water treatment, but it is expected to be long term; actual treatment requirements would be based on measured, rather than modeled, NorthMet Project water quality performance, as determined through monitoring requirements." (Emphasis added) In response to comments on the PSDEIS (Comment GLIFWC1) the Co-Lead agency disposition states: "Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at	Although precise estimates cannot be developed, the FEIS modeling indicates that the East Pit, West Pit, and Category 1 Stockpile would be permanent features that would provide solute-loading for a minimum of 200 years at the Mine Site. Similarly, the Tailings Basin is a permanent feature that would provide solute loading for a minimum of 500 years at the Plant Site. It is acknowledged that operation, maintenance and periodic replacement of environmental controls would be required during closure. Financial Assurance would be required under Minnesota's Permit to Mine to perform these activities on a continuous and/or periodic basis for as long as these activities are needed. FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, time frames, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. Specific infrastructure timelines and life expectancies of equipment would be accounted for during permitting as well. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. FEIS Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine. *Minnesota Rules*, part 6132.1200, subpart 3 states that cost estimates shall be annually adjusted, using current dollar value at the time of the estimate. The liner and cover systems selected for waste containment are selected on the basis of numerous factors discussed in the Rock and Overburden Management Plan and FEIS Sections 3.2.2.1.8 and 3.2.2.3.10. The WWTP and WWTF would undergo continued inspection and maintenance during operations, long-term treatment, and in closure. The WWTP and WWTF replacement costs would be included in long-term financial assurance estimates. The USEPA guidance on utilization of adaptive management defines it as a decision making process that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. *Minnesota Rules*, part 6132.1200, subparts 4 and 5 require the MDNR to evaluate financial assurance cost estimates, terms, and conditions using individuals with documented experience in the relevant field. Those individuals would consider all relevant information in making their evaluations.	FIN 05 WR 035 WR 036 WR 037

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	the Plant Site. While long-term, these time frames are not necessarily perpetual. The owning company would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions are met" (Appendix C SDEIS) (Emphasis added) It is impossible to reconcile these 2 statements. We agree that the duration of simulations were based on capturing the highest predicted concentrations of the modeled action. However, those concentrations require water treatment to avoid violating water quality standards. This treatment is at minimum 200 years at the mine site and 500 years at the plant site. As the lead agencies indicate, these time estimates are only minimums and there is no information that points to a time when water treatment would not be needed. Finally, while the maximum contaminant plume is predicted to occur at the 200 and 500 year mark for the mine and plant sites respectively, this does not mean that contaminants immediately drop to zero. The reduction would be gradual and perhaps last for another few centuries. In addition the SDEIS states on page 5-56: "The attenuation effect resulting from sorption is significant enough that arsenic, copper, and nickel are not predicted to travel from source areas to any evaluation locations or the Partridge River within the 200 year model simulation period (Barr 2013f). Analytical calculations suggest that the travel times for these solutes would be in the order of thousands of years." This statement suggests that water treatment activities would be required far beyond the 200 year time frame at the mine site and would be on the order of thousands of years. Therefore, the only logical conclusion is that water treatment is perpetual at this project.	In addition, see the response to theme WR 035.	

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	It is also important to note that, in the response to GLIFWC comments on the PSDEIS, the lead agencies acknowledge monitoring and maintenance requirements during the same 200 (mine site) and 500 (plant site) year timeframe. The SDEIS requires substantially more transparency on one of the most fundamental issues at stake for this project. The fundamental question is: how long will the company be required to operate and maintain expensive mechanical treatment to meet water quality standards? This singular issue has significant repercussions for the public interest determination		
12544	Indirect Wetland Impacts. The methods used in the analysis of indirect wetland impacts in the SDEIS are essentially the same as the 2009 DEIS. GLIFWC staff reiterate the comments we have provided in the past that the method is overly simplistic, based on a flawed conceptual understanding of hydrology at the mine site and inadequate for the NEPA process of a large scale sulfide mine. The SDEIS has underestimated baseflow at the mine site. The entire conceptual model of perched wetlands with hydrology that is completely decoupled from groundwater was supported by the use of unrealistically low baseflow numbers. Now that the applicants XP-SWMM model has been discredited and that it is obvious that the movement of groundwater at the mine site is 3 times greater than the SDEIS indicates, the assumption that wetlands will not be impacted by groundwater drawdown should be abandoned. The higher baseflow numbers support the independent analysis of indirect wetland impacts provided by the tribal cooperating agencies in Appendix C. The lead agencies have also based their analysis on the Bog Memo prepared by the Army Corps of Engineers (Eggers, Steve (2011)	Groundwater baseflows used in the SDEIS are best-estimate values and should be retained in the FEIS. This is because the SDEIS groundwater baseflow values were based on: 1) winter 1986-87 and winter 1987-88 stream gaging in the Partridge River at SW-006 that occurred when there were no discharges from the Northshore Mine; and 2) 1942 to 1963 gaging data in the Embarrass River, which includes years prior to the LTVSMC Tailings Basin startup (1957). When expressed as a groundwater baseflow yield per unit area, the similar results for both watersheds (approximately 0.05 cfs per square mile) supports the approach used. The yield per unit area is similar to other watersheds in Northern Minnesota. Studies have shown that streamflow characteristics in this part of Minnesota have not changed systematically over the last 50 years. The only other available gaging data is from a station installed during 2011 at SW-003 on the Partridge River. Interpretation of groundwater baseflow at SW-003 is not reliable for use in the GoldSim modeling of groundwater baseflow due to the complicating effects of Northshore Mine probable maximum precipitation pumped discharges, seepage from the Northshore Western Pond, and complex storage/release mechanisms in the wetlands that receive these flows. More broadly, groundwater baseflow discharge varies with time and is a reflection of longer-term weather and climatic conditions. The variability of groundwater baseflow discharge is demonstrated by the examination of estimated values for several years using different methods. Evaluation of these values affirms continued reliance on the 1986-87 USGS data for the FEIS is reliable (PolyMet 2015m, as cited in the FEIS).	WET 08 WR 003 WR 175

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	MEMORANDUM SUBJECT: Distinguishing Between Bogs That Are Entirely Precipitation Driven Versus Those with Some Degree of Mineral Inputs from Groundwater and/or Surface Water Runoff). This memo uses plant community information to determine the degree of hydrologic connectivity between a wetland and groundwater. The conclusions in the memo are appropriate for a system that is not experiencing depressurization of the aquifer (drawdown). However, when mine induced drawdown occurs, new downward pressure gradients are created. Whittington and Price documented that these downward hydrologic gradients can in fact dewater wetlands that are entirely surface water dependent under normal conditions (Whittington, PN and JS Price, The effects of water table drawdown (as a surrogate for climate change) on the hydrology of a fen peatland, Canada.) HYDROLOGICAL PROCESSES, 20(17), 3589-3600. 2006). The bog memo is not an assessment of the hydrologic conditions of wetlands in a dewatered state but rather an assessment of surface hydrology under normal conditions. The indirect wetland impact analysis should be performed using realistic hydrologic assumptions and appropriate mitigation should be required.	To better understand the relationship of groundwater baseflow to the GoldSim model's water quality impact projections, a sensitivity analysis for the Mine Site was conducted to evaluate if predicted NorthMet Project Proposed Action impacts are sensitive to groundwater baseflow values. The sensitivity analysis considered the relationship of various model inputs to groundwater baseflow including hydraulic conductivity, recharge, and surface runoff chemical concentrations. It also reflected consideration of the flow data collected at SW-003 in requiring groundwater baseflows at all locations on the Partridge River be increased by a factor of 4 (e.g., 0.5 to 2.0 cfs at SW-003). The results indicate that modeled groundwater and surface water concentrations are sensitive to changes in groundwater baseflow. However, the NorthMet Project Proposed Action's ability to meet groundwater quality and surface water quality evaluation criteria is not sensitive to changes in baseflow. Evaluation criteria can be found in Section 5.2.2. The Co-lead Agencies are responsible for determining the requirements and adequacy of data used for the EIS. Where field measurements were not available, model assumptions were reviewed and approved for use in impact analyses. The Co-lead Agencies believe that the FEIS contains the best available data and analyses consistent with NEPA and MEPA guidance and best practices. While the Co-lead Agencies believe that the analog method used in the SDEIS to assess potential indirect effects from mine dewatering is adequate, the FEIS has been updated with a more conservative approach to address concerns raised by the Bands. FEIS Section 5.2.3.2.2 has been updated to make a more conservative assumption of the potential indirect effects for all bog communities within the 0-1,000-feet analog zone such that all bogs are reclassified from the "no effect" category to "low likelihood" category of wetland hydrology effects. The Co-lead Agencies are not relying solely on the potential impact zones determined in the analog method for the FEIS, but would be monitoring wetlands for potential indirect effects as part of an adaptive management plan. Permit conditions would include a plan for additional compensatory mitigation if indirect wetland impacts were identified, and appropriate changes to the adaptive management plan would be made as required.	
12566	Seepage Capture Efficiency. As detailed in comments submitted to the lead agencies for the 2009 DEIS and for the current SDEIS, water	Although relatively few containment systems have been built with this degree of pumping, the conceptual hydraulics of this type of system provides evidence that it would achieve complete or nearly complete	WR 003 WR 009 WR 010

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	quality analyses for the Partridge and Embarrass Rivers are inadequate. The results, be they deterministic (DEIS) or in the form of probability distributions (SDEIS) are based on a flawed understanding of hydrology at both mine site and plant site. This flawed understanding, reflected most prominently in the errors in baseflow calculations, is carried forward to the MODFLOW hydrologic modeling. At the mine site MODFLOW under-predicts the amount of water that would flow into the mine pits and thus under-predicts the amount of water treatment needed for both short and long term closure. At the plant site, the MODFLOW model is constructed in a way that is not representative of reality and therefore yields results that are not logical. The lead agencies appear to disregard these problems because there is faith that the seepage capture and treatment systems will work at over 90% effectiveness for centuries. The SDEIS claims of long term compliance with applicable water quality standards depend entirely on this leap of faith. On conference calls scheduled to discuss these issues, the lead agency consultants have stated that the effectiveness of the capture systems have not been questioned and the lead agencies have not been able to provide any references that would support their position. We suggest that there are substantial reasons for skepticism regarding capture efficiency for the flotation tailings basin, hydrometallurgical tailings basin, and category 1 stockpile seepage capture systems. This skepticism is based on available literature and the performance of other facilities in the immediate vicinity. The EPA conducted an analysis of the effectiveness of seepage capture systems (Evaluation of Subsurface Engineered Barriers at Waster Sites, United States Environmental Protection Agency (EPA), 1998). This analysis	capture. The FEIS relies on revised cross-section models from the FEIS to evaluate containment systems on the northern, northwestern, and western sides of the Tailings Basin, which are documented in PolyMet 2015j, as cited in the FEIS. These new models consider the presence of an upper more-permeable bedrock zone directly below the slurry wall, with hydraulic properties based on 2014 packer tests conducted in five boreholes along the proposed containment system alignment. Sensitivity analyses have included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 100 feet. The model results predict that the overall capture efficiencies of the proposed Tailings Basin containment systems would be substantially greater than 90 percent. This analysis supports the conclusion that the assumption of 90 percent or greater capture efficiency is justified. The FEIS describes a 2014 field program that investigated bedrock along the alignment of the proposed containment system on the northern, northwestern, and western sides of the Tailings Basin in FEIS Section 5.2.2.2.3. This investigation provided field data on bedrock hydraulic conductivity, Rock Quality Designation, and depth to top of bedrock. This information was used to develop MODFLOW cross-section models at three locations on the alignment to assess capture efficiency. The models included bedrock below the slurry wall. The FEIS has been changed to recognize that currently not all water is being pumped back to the Tailings Basin, and therefore it is being released into Second Creek. Impact assessment modeling relies on site 19649 data that indicate the bulk hydraulic conductivity of upper bedrock is two to three orders-of-magnitude lower than the hydraulic conductivity of the surficial aquifer. Thus, groundwater flow and transport at both the Mine Site and Plant Site are dominated by the hydraulics of the surficial aquifer. Bedrock plays a negligible role in transporting NorthMet Project Proposed Action Site-derived chemicals to the Partridge River and Embarrass River. It is acknowledged that there could be some hydraulic connections between bedrock and the surficial aquifer where transport is expected to be negligible. Given these factors, the approach was to not consider this possible connection in the NorthMet Project Proposed Action water quality models, but to recommend extensive monitoring during operations and closure to assess if interactions occur and if they would raise concerns for permitting agencies. If monitoring data indicate trends toward permit non-	WR 013 WR 018 WR 019 WR 020 WR 099 WR 117 WR 123

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	looked at capture systems at 36 facilities and evaluated their effectiveness based on the performance requirements at each site. It is difficult to extrapolate the results of this analysis to the Polymet setting because a) the required effectiveness varied from facility to facility; b) the way in which effectiveness was measured was different (i.e. water quality improvements downstream versus change in hydrologic head pressure) and c) data collection varied between facilities. Despite these difficulties, the report indicates that 10% of the reviewed containment systems failed to meet the desired performance objectives and required corrective action. An additional 19% of the evaluated facilities did not have sufficient data to conclude whether the containment system was operating successfully or not. Furthermore, there is no information on the effectiveness of any of these facilities at timeframes remotely comparable to the needs at Polymet. In the EPA report, long term is considered 30 years whereas the water capture needs at Polymet are perpetual for the flotation tailings basin, category 1 stockpile and hydrometallurgical tailings basin. Finally, none of the facilities in the study are as large as the one proposed at Polymet. At the tailings basin, Polymet has proposed to install a seepage collection system around the north and west sides of the facility. The scale of this engineering control is extensive. It would be approximately 5 miles long and would have to be keyed to bedrock that is 25 to 50 feet below ground surface. The most likely pathway for leakage at this barrier will be in the vicinity of the key with bedrock (EPA 1998). This feature, and the similar containment system at the Category 1 waste rock stockpile are assumed to capture 93% of water leaving the facilities for an indeterminate period of time. As	compliance, adaptive mitigation measures would be implemented to prevent or eliminate what is expected to be a small transport-related bedrock impact relative to surficial flows. See FEIS Section 5.2.2.3.5 for more information on adaptive mitigation measures and FEIS Section 5.2.2.3.6 for more information on monitoring. The Hydrometallurgical Residue Facility would be double-lined to minimize release of water that has contacted the hydrometallurgical residue. The double liner would consist of a composite liner system utilizing a geomembrane liner above a geosynthetic clay liner with a second liner placed above the first, separated by a leakage collection system. This would substantially remove all hydraulic head from the lower liner and thereby virtually eliminate leakage from the Hydrometallurgical Residue Facility. It is expected that no water would be released directly from the Hydrometallurgical Residue Facility. PolyMet initiated laboratory testing to consider the chemical compatibility of the potential geosynthetic liner to be used with leakage from residue (Residue Management Plan [PolyMet 2014r, as cited in the FEIS]). Results indicated that a polymer-treated geosynthetic liner should be used that is manufactured specifically in anticipation of the chemical characteristics of the liquid and the pore water that would be contained within the facility. The hydraulic conductivity of the soil leakage collection system is not expected to degrade over time. Typical liner performance assumes a 500-year service life of the geomembrane; therefore, hydraulic conductivity of the liner is not expected to degrade over that time. Specific attributes would be determined during the geosynthetic clay layer development to achieve the desired performance before final installation. Findings of studies on geosynthetic liners indicate that performance is minimally affected by freeze-thaw cycles (PolyMet 2014c, as cited in the FEIS). At the Hydrometallurgical Residue Facility, the majority of the geosynthetic liner system would be below the water elevation, and therefore not exposed to freeze-thaw cycles. Based on a MODFLOW groundwater model specifically developed to assess capture efficiency of the Category 1 system, it was concluded that the system would achieve an overall efficiency between 90 percent and 94 percent for groundwater flowing in surficial deposits and bedrock. The FEIS further evaluated the possibility of fractures and faults at the Mine Site and Plant Site to determine what (if any) changes need to be made to model assumptions to accurately predict potential environmental	

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	previously stated, there is no scientific justification for this number. The only examples we are able to identify at this time suggest capture rates that are lower. In t	effects for purposes of environmental review. Although no change was made to the Plant Site GoldSim model, the FEIS Mine Site GoldSim model was modified to include a flow/transport zone 15 meters thick from that present in the SDEIS. The results of the analysis are included in FEIS Section 5.2.2.3.2.	
12568	Summary for Seepage Capture Comments. The prediction of water quality standard compliance for this proposed project hinges on the perfect operation of the water capture systems. The reliance on this engineered containment system that uses overly optimistic capture rates and must function in perpetuity is not scientifically supported and therefore is not appropriate for the SDEIS. The water quality and quantity impacts at both plant site and mine site should be remodeled by using a range of capture efficiencies. We suggest 60%, 70%, 80% capture rates be modeled for the tailings basin and category 1 stockpile. Water quality values for each of these capture rates should be reported. This will allow the public and decision makes to have a realistic picture of the risk and uncertainty for this project. Seepage capture at the flotation tailings basin does not account for seepage out of the east side of the basin. The seepage capture system should be expanded to account for this expected discharge. A MODFLOW model was developed to assess the amount of seepage that would flow out of the basin. As detailed in GLIFWC comments, that model is designed in a way that does not conform to reality and therefore the results are unreliable.	The design of the tailings basin capture system includes: 1) a slurry wall keyed into bedrock, 2) a collection trench on the tailings side, 3) permanent pumping of the collection trench to depress the groundwater level on the tailings side, and 4) a discharge pipe on the opposite side to raise groundwater levels to near ground surface. As shown by the cross-section MODFLOW models, this design insures a reversal of hydraulic gradients across the slurry wall (complete capture in surficial deposits) and complete or very high capture efficiency in bedrock below the slurry wall. The examples cited in the comment for northeastern Minnesota are very different designs and cannot be compared to the proposed design for the Tailings Basin. Modeling performed for the NorthMet Project Proposed Action capture system indicates that the overall capture efficiency would be substantially greater than 90 percent. The proposed capture system for the Category 1 Stockpile is a unique design that uses a slurry wall keyed into bedrock and a pumped collection trench that maintains depressed groundwater levels on the inside (Category 1 Stockpile side) of the system. It is acknowledged that there are existing capture systems at other mine sites that do not operate with a high degree of capture, but these are different designs and cannot be directly compared to the system proposed for the Category 1 Stockpile. Based on a MODFLOW groundwater model specifically developed to assess capture efficiency of the Category 1 Stockpile system, it was concluded that the system would achieve an overall efficiency between 90 percent and 93 percent for groundwater flowing in surficial deposits and bedrock. This analysis supports the conclusion that the proposed Category 1 capture system has a high probability of meeting its performance specifications.	WR 017 WR 018 WR 022 WR 035 WR 093 WR 129 WR 133
12573	Ability of Goldsim to Accurately Predict Contaminant Concentrations:. We remain concerned about the inability of Goldsim to accurately predict current and future contaminant concentrations. This is particularly troubling in the lower Partridge River (e.g. SW005) and in Colby Lake where Goldsim	The Mine Site GoldSim model used for the SDEIS (Barr 2013f, as cited in the FEIS) was modified for the FEIS (Mine Site GoldSim model) (PolyMet 2014v, as cited in the FEIS) to include a new chemical loading source in Colby Lake and was calibrated to the measured chemical concentrations in Colby Lake. This calibration considered new surface water chemistry data collected through the end of 2013. The same chemical loading source was applied to both the Continuation of Existing Conditions model and	WR 049

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	predictions of current conditions appear to be inaccurate. In recent conversations with the lead agencies and ERM, there has been agreement that the modeling in the SDEIS does not accurately capture the environmental conditions at Colby Lake. Additional modeling of this waterbody is needed to assess impacts of the proposed project and to evaluate the suitability of Colby Lake water for use in augmenting the flow of other waterbodies. In addition, the discrepancies between modeled and observed data at SW005 should be addressed in detail.	NorthMet Project Proposed Action model (PolyMet 2014v, as cited in the FEIS). The chemical loading source was constant and did not exhibit seasonal or long-term variations for future conditions. Incorporation of the loading source addressed the issue by providing predicted chemical concentrations in Colby Lake for existing conditions that are similar to currently measured concentrations. The average arsenic concentration based on 33 samples in Colby Lake is 0.95 µg/L. The GoldSim Continuation of Existing Conditions (PolyMet 2014v, as cited in the FEIS) modeling scenario predicts an average concentration of 0.80 µg/L at P50 over the 200 year modeling period.	
12575	The SDEIS does not adequately address mercury concerns.	This comment has been received and acknowledged by the Co-lead Agencies. An index of information on mercury associated with the NorthMet Project Proposed Action can be found in FEIS Section 1.7.	MERC 01
12580	Wild Rice Standard. The concerns over the MPCA's interpretations and recommendations regarding the wild rice sulfate standard have not been resolved. The information provided in Appendix C is still applicable to the SDEIS. In addition, staff believe that water quality modeling underestimates the amount of sulfate at points of compliance. Even with this problem, contaminant modeling suggests that the sulfate standard will be violated in the Partridge River points of compliance approximately 10% of the time. While this may meet the lead agencies arbitrary evaluation criteria (standard met 90% of the time) it certainly is not enough to warrant the issuance of an NPDES permit. At the Embarrass River the standard is already exceeded at the point of compliance because of historic contamination from the tailings basin and the area 5 pits. It is not clear if the capture system around the tailings basin will function well enough to allow the standard to be met.	The GoldSim model results predict that for all situations where a potential impact could be attributed to the NorthMet Project Proposed Action, the expected increase in sulfate concentration at SW-005 (and SW-006) would be less than 1.0 percent when assessing if the NorthMet Project Proposed Action would cause or add to an exceedance. A practical consequence of this result is that the effects of the NorthMet Project Proposed Action would not be identifiable by even the most robust field monitoring program. The small modeled sulfate increases associated with the NorthMet Project Proposed Action are explained by the small amounts of impacted and untreated water leaving the Mine Site in the model, which only occurs as groundwater migration. For P50 best-estimate predictions of the model during all phases of the NorthMet Project Proposed Action, the maximum amount of impacted and untreated groundwater leaving the NorthMet Project Proposed Action Site is 0.031 cfs (14 gpm). The maximum impact to the Partridge River would occur when this affected groundwater is released to the Partridge River during low-flow conditions. At SW-005, the average annual 1-day low flow is estimated to be 6.9 cfs (3,100 gpm) when Northshore Mine is discharging (up to year 52) and 5.0 cfs (2,240 cfs) when only the wastewater treatment facility discharges to the Partridge River (after year 52). Given the difference between groundwater and river flows, it is apparent that the mass loading associated with groundwater flow from the Mine Site is far too small to impart a noticeable impact on sulfate	WR 152 WR 153 WR 154

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		concentrations in the Partridge River.	
12601	Impacts from Rail Car Spillage. The concerns regarding the hydrologic impacts of sulfide ore dust spillage along the rail corridor have not been resolved. The information provided in Appendix C is still applicable to the SDEIS.	The potential for rail car spillage and dust has been minimized since the SDEIS by PolyMet committing to (PolyMet 2015a): - additional rail car refurbishments as part of the NorthMet Project Proposed Action (FEIS Section 3.2.2.2.4 and PolyMet 2014a, as cited in the FEIS). - Developing and implementing monitoring and mitigation activities with the MDNR and MPCA in the permit process (including surface water quality sampling in the streams traversed by the rail line). The FEIS includes available information from the updated Project Description document. Routine inspections would be undertaken along the Transportation and Utility Corridor to identify accumulations of dust or ore spillage. Any significant accumulations would be removed by a combination of machines and hand work. It is unlikely that there would be sufficient spillage to affect the quality of surface water or groundwater. Facilities and activities with the potential to generate fugitive dust would be subject to an air quality Fugitive Dust Control Plan which would be (regulated by the MPCA) (see Section 4.1.6 and Section 4.3.9 of PolyMet 2015a, as cited in the FEIS). See FEIS Sections 5.2.2.3.2, 5.2.3, and 5.2.7 for impacts of railcar spillage and dust on wetlands and air quality, respectively. See also the response to comment 19698.	PD 07 WR 151 AIR 05
12602	Loss of High Biodiversity Significance Values Sites. The concerns regarding the loss of high biodiversity sites such as the 100 mile swamp, Lynx and Moose habitat and remaining wildlife corridors have not been resolved. The information provided in Appendix C is still applicable to the SDEIS.	The USGS National Atlas shows a single wetland complex (referred to as the One Hundred Mile Swamp) as straddling the major watershed divide separating the Superior Basin from the Rainy River Watershed, which suggests that this wetland complex creates a conduit for surface water or surficial groundwater originating from the Mine Site to reach the Dunka River, and ultimately, the BWCAW. Wetlands are delineated using many factors in addition to hydrology; the delineation of the One Hundred Mile Swamp as continuous across this boundary does not equate to a hydrologic connection. There are two hydrologic barriers between the Mine Site and the Rainy River Watershed, including: 1) High ground north of the	VEG 02 WI 02 WI 03 WR 080

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		Partridge River creates a watershed divide separating the Superior and Rainy River Basins, and prevents surface water from passing between the two. This major watershed divide is included in the National Atlas, as well as USGS and MDNR data sets(this divide is accurately presented in the FEIS); and 2) Yelp Creek and the Partridge River encircle the north, east, and south sides of the Mine Site. These streams create a hydrologic "sink" for sources of surface water and surficial groundwater originating at the Mine Site. Surface runoff and groundwater in surficial deposits leaving the Mine Site would follow a gradient into Yelp Creek or the Partridge River, as opposed to continuing uphill towards the watershed divide. Yelp Creek and the Partridge River extend further west (i.e., more fully encompassing the Mine Site) than is shown on the map in question. If it is predicted that water via bedrock would flow north from the Mine Site, mitigation would be implemented to prevent this from occurring. See FEIS sections 5.2.2.3.5 5.2.2.3.6 and 6.2.2.3.1. The FEIS wildlife sections include information about NorthMet Project Proposed Action impacts to wildlife habitat types and Minnesota Biological Survey (MBS) Sites of Biodiversity Significance. FEIS Sections 4.2.4 and 4.3.4 provide maps of the MBS Sites (Figures 4.2.4-1, 4.2.4-4, 4.3.4-1, 4.3.4-2). The WCA rules (including those parts applicable to mining projects under *Minnesota Rules*, part 8420.0930) include a special consideration for wetlands that are rare natural communities (*Minnesota Rules*, part 8420.0515, subpart 3). The Permit to Mine would address special consideration of wetlands that include rare natural communities. Additional information on rare natural communities would be included in the wetland permit application as part of the Permit to Mine process for further refinement of site-specific conditions. *Minnesota Rules*, part 6132.2700 requires that a project site be reclaimed once mining has ceased. The goals of such reclamation are to "control erosion, to screen mining areas from non-compatible uses, and to provide for subsequent land uses such as wildlife habitat or timber production." The rules also include requirements about the characteristics and planting schedule for vegetation used in reclamation. Mitigation measures for wildlife species would be considered during the Endangered Species Act Section 7 consultation process.	
12604	The Supplemental Draft Environmental Impact Statement (SDEIS) NorthMet Mining Project and	FEIS Sections 3.2.2.1.10, 3.2.2.3.12, and 5.2.2.3.1 include available information regarding long-term water treatment and maintenance.	FIN 05

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	Land Exchange failed to adequately address closure and maintenance costs and length of time for post-closure treatment in the context of financial assurance requirements.	Temporal aspects of financial assurance can be managed through *Minnesota Rules*, part 6132.3200 subpart 2, item E, which states that financial assurance is required for all areas that require continued maintenance following closure, and that no release from the Permit to Mine would be granted for portions of mining areas that require post-closure maintenance until the maintenance activities are no longer necessary. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine.	
12605	Within the 54 pages of Executive Summary only a single paragraph addresses the issue of financial assurance as noted below:	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, time frames, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. Specific infrastructure timelines and life expectancies of equipment would be accounted for during permitting as well. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine. *Minnesota Rules*, part 6132.1200, subpart 3 states that cost estimates shall be annually adjusted, using current dollar value at the time of the estimate. Neither NEPA nor MEPA rules require that all financial assurance mechanisms be in place before the EIS is finalized.	FIN 08
12607	The SDEIS failed to clearly state how the State of Minnesota will determine the maximum bond requirements,	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates and calculations that would be required for the project would be addressed during permitting. Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine. *Minnesota Rules*, part 6132.1200, subpart 3, states that cost estimates shall be annually adjusted using current dollar value at the time of the estimate. Financial assurance is required upfront and would be updated throughout the project under the Permit to Mine, which would be required prior to the start of mining. *Minnesota Rules*, part 6132.1200, subpart 4 also dictates that the Commissioner shall evaluate all financial assurance cost	FIN 05

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		estimates and adjustments to cost estimates using individuals with documented experience in material handling and construction and mining costs.	
15020	In determination of baseflow, all GLIFWC's calculations have excluded Northshore pumping from the calculation. The Dec. 17th MNDNR memo (Attachment A) also picked a period when pumping for Northshore pit dewatering was not occurring so as to calculate true baseflow. The 1 cfs added to GoldSim modeling of the Partridge, mentioned in various DNR documents, is irrelevant to the calculation of baseflow and does not solve the modeling problems in XP-SWMM, MODFLOW and by extension GoldSim. Some of the implications of incorrect baseflow are highlighted on page 114 of the water modeling data package (March 2013), in our memo of 2012-03-02, and in GLIFWC's baseflow summary of 2014-02-13 (Attachments B, C, and D respectively).	The FEIS reflects Co-lead Agencies' reconsideration of the appropriate groundwater baseflow rate to employ in the water impact assessment modeling. Information considered included: 1) definition of groundwater baseflow, 2) potential Northshore Peter Mitchell Pit contributions to flow, 3) available data from SW-006 gage versus SW-003 gage, and 4) confounding factors. The Co-lead Agencies continued to rely on the USGS-collected data at SW-006 as the basis for determining groundwater baseflow for the water impact assessment in the EIS. To better understand how groundwater baseflow affected water quality projections, a detailed GoldSim sensitivity analysis was conducted using groundwater baseflows four times larger than the best-estimate values. As part of the sensitivity analysis, appropriate modifications were made to surficial aquifer hydraulic conductivities and aerial recharge based on a recalibration of the Mine Site MODFLOW model. In addition, a recalibration was performed for surface water runoff concentrations. Results of the high groundwater baseflow rate scenario were compared with the best-estimate scenario to evaluate the degree to which predicted NorthMet Project Proposed Action impacts are sensitive to groundwater baseflow and related inputs. The FEIS reports the results of the sensitivity analysis in FEIS Section 5.2.2.3.2. The Mine Site sensitivity analysis indicates that modeled groundwater and surface water concentrations are sensitive to changes in baseflow. However, the NorthMet Project Proposed Action's ability to meet groundwater quality and surface water quality evaluation criteria is not sensitive to changes in baseflow. Evaluation criteria can be found in Section 5.2.2.	WR 052
15021	Because the implications of baseflow are substantial when it comes to a basic understanding of the mine site hydrogeology, all modeling of flow and by extension contaminant transport must be re-calibrated to the higher baseflow numbers indicated by GLIFWC's analysis of 2013-07-02 (Attachment E) and DNR's 2013-12-17 analysis (Attachment A). Page 114 of the mine site Water Modeling Data Package makes it clear that re-calibration of the MODFLOW model generates	Groundwater baseflows used in the SDEIS are best-estimate values and should be retained in the FEIS. This is because the SDEIS groundwater baseflow values were based on: 1) winter 1986-87 and winter 1987-88 stream gaging in the Partridge River at SW-006 that occurred when there were no discharges from Northshore Mine; and 2) 1942 to 1963 gaging data in the Embarrass River, which includes years prior to the LTV tailings basin startup (1957). When expressed as a groundwater baseflow yield per unit area, the similar results for both watersheds (approximately 0.05 cfs per square mile) supports the approach used. The yield per unit area is similar to other watersheds in Northern Minnesota. Studies have shown that	WR 003

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	new conductivity values that are then fed into Goldsim. It states: "The revised model calibration resulted in different optimized values for the horizontal hydraulic conductivity of the surficial aquifer and bedrock, which are used to establish the distribution of values used for the probabilistic groundwater flow path modeling (Section 5.2.3.1)." It is also clear that higher hydraulic conductivities for the aquifers result in faster contaminant transport to points of evaluation.	streamflow characteristics in this part of Minnesota have not changed systematically over the last 50 years. The only other available gaging data is from a station installed during 2011 at SW-003 on the Partridge River. Interpretation of groundwater baseflow at SW-003 is not reliable for use in the GoldSim modeling of groundwater baseflow due to the complicating effects of Northshore Mine probable maximum precipitation pumped discharges, seepage from the Northshore Western Pond, and complex storage/release mechanisms in the wetlands that receive these flows. More broadly, groundwater baseflow discharge varies with time and is a reflection of longer-term weather and climatic conditions. The variability of groundwater baseflow discharge is demonstrated by the examination of estimated values for several years using different methods. Evaluation of these values affirms continued reliance on the 1986-87 USGS data for the FEIS is reliable (PolyMet 2015m, as cited in the FEIS). To better understand the relationship of groundwater baseflow to the GoldSim model's water quality impact projections, a sensitivity analysis for the Mine Site was conducted to evaluate if predicted NorthMet Project Proposed Action impacts are sensitive to groundwater baseflow values. The sensitivity analysis considered the relationship of various model inputs to groundwater baseflow including hydraulic conductivity, recharge, and surface runoff chemical concentrations. The results indicate that modeled groundwater and surface water concentrations are sensitive to changes in baseflow. However, the NorthMet Project Proposed Action's ability to meet groundwater quality and surface water quality evaluation criteria is not sensitive to changes in baseflow. Evaluation criteria can be found in Section 5.2.2.	
15022	Although baseflow assumptions have significant effects on Goldsim modeling, the implication of re-calibrating the MODFLOW model go beyond the conductivities used in the GoldSim modeling. Higher baseflows imply higher conductivities that imply faster and greater groundwater flow rates. This affects: 1) The amount of water expected to flow into the mine pit as it is excavated. 2) The amount of drawdown of Partridge River flow that can be expected due to pit dewatering.	Mine Site groundwater baseflows used in the SDEIS and FEIS are reliable. This is because the SDEIS and FEIS groundwater baseflow values were based on winter 1986-77 and winter 1987-88 stream gaging in the Partridge River that occurred when there were no discharges from the Northshore Mine. When expressed as a groundwater baseflow yield per unit area, the similar results for both the Partridge and Embarrass River watersheds (approximately 0.05 cfs per square mile) lends credibility to the approach used. The yield per unit area is similar to other watersheds in Northern Minnesota. Interpretation of groundwater baseflow derived from new data collection at SW-003 is not reliable due to the complicating effects of Northshore Pit	WR 003 WR 086 WR 094 WR 098 WR 165 WR 166

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	3) The amount of wetland dewatering that can be expected due to pit dewatering. Given the uncertainty in baseflow numbers due to the poor quality flow data, it is reasonable to re-calibrate the MODFLOW model to a range of values that included the previously assumed baseflow and the newer, higher baseflow numbers.	pumped discharges, seepage from the Northshore Western Pond, and complex storage/release mechanisms in the wetlands that receive these flows. The Mine Site MODFLOW model was re-calibrated based on new groundwater level data collected through the end of 2013; however, calibrations performed for the FEIS used the same Partridge River baseflows as were used in SDEIS. Revised hydraulic conductivities and recharge values that come from MODFLOW recalibration informed the FEIS Mine Site GoldSim model. Groundwater baseflow discharge varies with time and is a reflection of longer-term weather and climatic conditions. The variability of groundwater baseflow discharge is demonstrated by the examination of estimated values for several years using different methods. Evaluation of these values affirms that groundwater baseflows used in the Mine Site GoldSim model are reliable and appropriate for FEIS impact evaluation. PolyMet performed a groundwater baseflow sensitivity analysis for the Mine Site to evaluate if predicted NorthMet Project Proposed Action impacts are sensitive to groundwater baseflow values. The sensitivity analysis fully considered the relationship of various model inputs to groundwater baseflow including hydraulic conductivity, recharge, and surface runoff chemical concentrations. See FEIS Section 5.2.2.3.2 regarding the results of the sensitivity analysis.	
15023	Discharge From East Berm of Flotation Tailings Basin: Significance: The contaminant transport analysis at the Flotation Tailings Basin (FTB) does not include any accounting for discharge through the east berm of the basin. There are 3 reasons why discharge through the east berm will be enough to cause environmental concern: 1) the flow distance between the final FTB pond in cell 1E and the exterior of the east berm is relatively short compared to flow distances from the pond to the north and west berms (SDEIS Figure 3.2-29). 2) the east berm is underlain with 25-50 feet of conductive surficial material (SDEIS Figure 4.2.2.-	It is acknowledged that there would likely be subsurface flow below the East Embankment from west to east and that surface seepage may occur at the toe. The FEIS Plant Site MODFLOW model was modified from the SDEIS to include: 1) the presence of surficial deposits below the East Embankment, 2) boundary conditions (drain and/or river cells) along the East Embankment toe to allow the potential for surface seepage, and 3) hydrologic inputs to account for the presence of the proposed drainage swale. See PolyMet 2015j, as cited in the FEIS, for more information. Similar to other locations along the perimeter of the Tailings Basin, the NorthMet Project Proposed Action was modified to include installation of a containment system along the East Embankment where it is underlain by surficial deposits. Given the hydrogeology of the area east of the Tailings Basin and the proposed swale to be constructed there, this containment system would have higher hydraulic head on the east side compared to the west (tailings) side where a pumped trench would depress the groundwater level. This would create hydraulic gradients in the slurry wall and in	WR 054

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	12 and Figure 2 below). 3) the basin pond level is 1720 ft, the land elevation east of the basin is 1660 ft (Lidar data: http://www.mngeo.state.mn.us/chouse/elevation/lidar.html). The elevation difference between the pond and the adjacent land surface is substantial; 1720 ft - 1660 ft = 60 ft.	shallow bedrock that would drive (low) flows from east to west across the containment system. This set of hydraulics would result in complete capture of all tailings water approaching the containment system from the Tailings Basin. Because the system would achieve complete capture of tailings water, an east side chemical transport flowpath is not needed in the Plant Site GoldSim model. There is no hydrologic reason to expect that impacted water from the Tailings Basin would migrate east of the containment system.	
15024	Discharge From East Berm of Flotation Tailings Basin: Significance: Because there has been no prediction of discharge from the east side of the FTB, there was no flow path established or contaminant transport analyzed in the easterly direction. The SDEIS is completely devoid of any mention or analysis of flow from the basin toward the east. Receiving waters for the contaminated discharge would be wetlands adjacent to the basin, Spring Mine Lake, Spring Mine Creek and wetlands to the north if a proposed storm water drainage swale is constructed.	The FEIS Plant Site MODFLOW model was modified from the SDEIS to include: 1) the presence of surficial deposits below the East Embankment, 2) boundary conditions (drain and/or river cells) along the embankment toe to allow the potential for surface seepage, and 3) hydrologic inputs to account for the presence of the proposed drainage swale. Similar to other locations along the perimeter of the Tailings Basin, the project was modified to include installation of a containment system along the East Embankment where it is underlain by surficial deposits. Given the hydrogeology of the area east of the Tailings Basin and the proposed swale to be constructed there, this containment system would have higher hydraulic head on the east side compared to the west (tailings) side where a pumped trench would depress the groundwater level. This would create hydraulic gradients in the slurry wall and in shallow bedrock that would drive (low) flows from east to west across the containment system. This set of hydraulics would result in complete capture of all tailings water approaching the containment system from the Tailings Basin. Because the system would achieve complete capture of tailings water, an east side chemical transport flowpath is not needed in the Plant Site GoldSim model. There is no hydrologic reason to expect that impacted water from the Tailings Basin would migrate east of the containment system.	WR 054

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Comments from the 1854 Treaty Authority (Submission ID 42968)			
3111	Under the proposed project, it appears that long term (perhaps perpetual) water treatment, site maintenance, and monitoring will be needed after closure to protect the environment and meet water quality standards. We don't believe that this meets the goal of a maintenance free closure, which is required under MN Rule 6132.3200…Regardless of how this issue is described or strategically worded in the document, it is our understanding that the project will require long term/perpetual monitoring, maintenance, and treatment. We would argue that a timeframe of potentially hundreds of years should be considered perpetual rather than long term. This will not constitute a site that is maintenance free at closure.	*Minnesota Rules*, part 6132.3200, Closure and Postclosure Maintenance, identifies several goals for non-ferrous mining areas, including sites be closed so that they are maintenance-free. If a maintenance-free site cannot be achieved, the permittee is required to implement post-closure maintenance techniques, identify who will manage the maintenance techniques, identify the performance level at which the techniques will be considered successful, and provide for financial assurance. A maintenance-free site is the goal of the MDNR for the NorthMet Project Proposed Action, as it is for every mining site. The NorthMet Project Proposed Action includes piloting of non-mechanical treatment system to move in the direction of achieving the goal. PolyMet would include funds in its reclamation cost estimate and financial assurance package to fund mechanical water treatment for as long as necessary. Any Permit to Mine would also require PolyMet to present a plan for eventual transition from mechanical water treatment to non-mechanical treatment. PolyMet cannot be released from its responsibilities, including financial assurance requirements, until there is no longer a need for closure/post-closure treatment/maintenance. Financial assurance is a component of any Permit to Mine, to ensure necessary maintenance can be provided for as long as it necessary.	PER 04
3113	Effectiveness of the proposed water treatment and seep collection methods are vital to the project meeting water quality standards. Analysis and design detail are lacking in the SDEIS as a whole. More detail is needed on water treatment and seep collection, including long-term operation and maintenance, since they are essential components of the project meeting environmental standards.	The FEIS relies on revised cross-section models to evaluate containment systems on the northern, northwestern, and western sides of the Tailings Basin, which are documented in PolyMet 2015j, as cited in the FEIS. These new models considered the presence of an upper more permeable bedrock zone directly below the slurry wall, with hydraulic properties based on 2014 packer tests conducted in five boreholes along the proposed containment system alignment. Sensitivity analyses included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 100 feet. The new models explicitly consider groundwater flow in bedrock below the slurry wall and at the contact between the slurry wall and bedrock. The model results predicted that the overall capture efficiencies of the proposed Tailings Basin containment systems (with bedrock flow) would be substantially greater than 90 percent. FEIS Figure 3.2-28 has been revised to show that the slurry wall is keyed into bedrock. Engineered systems can operate successfully over long periods of time if they are properly monitored and maintained. FEIS Section 5.2.2 provides a	PD 35 WR 019 WR 128 WR 143 WR 144 WR 148

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		comprehensive description of proposed water treatment and seep collection systems including groundwater containment and synthetic liners/covers. This includes conceptual designs and discussions of the types of monitoring used to assess performance. Detailed designs are provided in supporting documents, which are fully referenced in the FEIS. The FEIS also discusses long-term operation, maintenance, and periodic replacement of engineered systems. It is acknowledged that certain components of the engineered systems would need to be replaced when monitoring indicates that performance is marginal and not readily compensated for by adaptive mitigation measures. A detailed financial assurance analysis would be part of the permitting phase and is not a required component of the FEIS. The financial assurance process would fully consider long-term monitoring and periodic replacement of equipment including, but not limited to, water treatment hardware and synthetic liners and covers. The Financial Assurance package for the NorthMet Project Proposed Action would ensure that future funding would be available if and when adaptive mitigation measures or component replacements are needed to achieve performance specifications.	
3114	The seep collection system is modeled to have a capture efficiency of 90%. Description is needed on how this efficiency rate was determined. We question if such a high capture rate can be achieved, and it would be helpful to include examples and citations of other projects operating seep collections at that efficiency rate. Further, if such capture rates are not achieved, impacts to water quality and quantity should be described in the SDEIS.	The Co-lead Agencies acknowledge that there are existing water containment systems at other mine sites that do not operate with a high degree of capture, but these are different designs and cannot be directly compared to the system proposed for the NorthMet Project Proposed Action. The proposed containment system uses pumping on the tailings side and reinjection after treatment on the downgradient side to reverse hydraulic gradients across the slurry wall and in underlying bedrock. Relatively few containment systems have been built with this degree of pumping and reinjection to ensure effective capture. The conceptual hydraulics of this type of system provides evidence that it would achieve complete or nearly complete capture. The FEIS describes a 2014 field program that investigated bedrock along the alignment of the proposed containment system on the northern, northwestern, and western sides of the Tailings Basin in FEIS Section 4.2.2.3.1. This investigation provided field data on bedrock hydraulic conductivity, Rock Quality Designation, and depth to top of bedrock. This information was used to develop revised MODFLOW cross-section models to evaluate containment system efficiencies on the northern, northwestern, and western sides of the Tailings Basin, which are documented in the revised Plant Site Water Modeling Data Package (PolyMet 2015j, as cited	WR 018 WR 020

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		in the FEIS). These revised cross section models considered the presence of an upper more permeable bedrock zone directly below the slurry wall, with hydraulic properties based on 2014 packer tests conducted in five boreholes along the proposed containment system alignment. Sensitivity analyses included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 100 feet. The model results predict that the overall capture efficiencies of the proposed Tailings Basin containment systems would be substantially greater than 90 percent. It is the position of the Co-lead Agencies that the assumption in the Plant Site GoldSim model of 90 percent or greater capture efficiency is justified by the analyses performed.	
3115	Concern also exists over the methods used to estimate Partridge River baseflow (Section 5.2.2.2.2). XP-SWMM model estimates of Partridge River baseflow presented in the SDEIS have been found to be three times lower than observed values. The XP-SWMM projections, which are based on data from 17 miles away collected from 1978 to 1987, do not align with the rating curve from recent Minnesota Department of Natural Resources (MDNR) winter monitoring data, or the results of the Great Lakes Indian Fish and Wildlife (GLIFWC) projections taken from two years of recent data from the Dunka Road gage in the XP-SWMM model. Co-Lead Agencies have been working with Cooperating Agencies on this issue, but it needs to be addressed in the SDEIS regarding how it may affect modeling results. The models may be under-predicting the amount of water and contaminant load that will need to be treated and contained at the Mine Site. Questions have also arisen on data use, including if new data is being utilized and how existing data was selected (or not selected) for use.	Groundwater baseflows used in the SDEIS are best-estimate values and should be retained in the FEIS. This is because the SDEIS groundwater baseflow values were based on: 1) winter 1986-87 and winter 1987-88 stream gaging in the Partridge River at SW-006 that occurred when there were no discharges from the Northshore Mine; and 2) 1942 to 1963 gaging data in the Embarrass River, which includes years prior to the LTV tailings basin startup (1957). When expressed as a groundwater baseflow yield per unit area, the similar results for both watersheds (approximately 0.05 cfs per square mile) supports the approach used. The yield per unit area is similar to other watersheds in Northern Minnesota. Studies have shown that streamflow characteristics in this part of Minnesota have not changed systematically over the last 50 years. The only other available gaging data is from a station installed during 2011 at SW-003 on the Partridge River. Interpretation of groundwater baseflow at SW-003 is not reliable for use in the GoldSim modeling of groundwater baseflow due to the complicating effects of Northshore Mine pumped discharges, seepage from the Northshore Western Pond, and complex storage/release mechanisms in the wetlands that receive these flows. More broadly, groundwater baseflow discharge varies with time and is a reflection of longer-term weather and climatic conditions. The variability of groundwater baseflow discharge is demonstrated by the examination of estimated values for several years using different methods. Evaluation of these values affirms continued reliance on the 1986-87 USGS data for the FEIS is reliable (PolyMet 2015m, as cited in the FEIS). To better understand the relationship of groundwater baseflow to the GoldSim model's water quality impact projections, a sensitivity analysis for the Mine Site was conducted to evaluate if predicted NorthMet Project	WR 003 WR 175

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		Proposed Action impacts are sensitive to groundwater baseflow values. The sensitivity analysis considered the relationship of various model inputs to groundwater baseflow including hydraulic conductivity, recharge, and surface runoff chemical concentrations. It also reflected consideration of the flow data collected at SW-003 in requiring groundwater baseflows at all locations on the Partridge River be increased by a factor of 4 (e.g., 0.5 to 2 cfs at SW-003). The results indicate that modeled groundwater and surface water concentrations are sensitive to changes in groundwater baseflow. However, the NorthMet Project Proposed Action's ability to meet groundwater quality and surface water quality evaluation criteria is not sensitive to changes in baseflow. Evaluation criteria can be found in Section 5.2.2.	
3116	Questions have also arisen on data use, including if new data is being utilized and how existing data was selected (or not selected) for use. Additional analyses should be performed and included in the SDEIS that investigate how the XP-SWMM model predictions may change with using the new baseflow measurements for the Partridge River to calibrate the model, and how that may affect the MODFLOW and GoldSIM model predictions.	Mine Site groundwater baseflows used in the SDEIS and FEIS are reliable. This is because the SDEIS and FEIS groundwater baseflow values were based on winter 1986-77 and winter 1987-88 stream gaging in the Partridge River that occurred when there were no discharges from the Northshore Mine. When expressed as a groundwater baseflow yield per unit area, the similar results for both the Partridge and Embarrass River watersheds (approximately 0.05 cfs per square mile) lends credibility to the approach used. The yield per unit area is similar to other watersheds in Northern Minnesota. Interpretation of groundwater baseflow derived from new data collection at SW003 is not reliable due to the complicating effects of Northshore Pit pumped discharges, seepage from the Northshore Western Pond, and complex storage/release mechanisms in the wetlands that receive these flows. The Mine Site MODFLOW model was re-calibrated based on new groundwater level data collected through the end of 2013; however, calibrations performed for the FEIS used the same Partridge River baseflows as were used in SDEIS. Revised hydraulic conductivities and recharge values that come from MODFLOW recalibration informed the FEIS Mine Site GoldSim model. Groundwater baseflow discharge varies with time and is a reflection of longer-term weather and climatic conditions. The variability of groundwater baseflow discharge is demonstrated by the examination of estimated values for several years using different methods. Evaluation of these values affirms that groundwater baseflows used in the Mine Site GoldSim model are reliable and appropriate for FEIS impact evaluation.	WR 003 WR 091 WR 165

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3118	It is our understanding that MODFLOW modeling does not account for any water to move east from the tailings basin. The head differential between the tailings basin and surrounding elevation may push water through the east side of the basin, potentially forming a lake. Significant uncertainties exist with groundwater flows and related contaminated water transport.	In response to these issues, the Plant Site MODFLOW model was modified and recalibrated as follows: 1) Updated areal distribution of surficial deposits and bedrock outcrops, 2) established surficial deposits below and adjacent to the East Embankment, 3) used drain or river cells along the East Embankment to allow surface seepage of tailings water, 4) incorporated the hydrologic effects of the future swale to drain surface water from the East Embankment area, 5) recalibrated model material properties and boundary conditions using all available data through 2013 (this is mostly new hydraulic head information), and 6) expanded the use of river and drain cells to provide a more accurate representation of wetlands outside the Tailings Basin. As a result of these changes, the FEIS Plant Site MODFLOW model no longer has a no-flow boundary condition at the toe of the East Embankment, and river and/or drain cells in surficial deposits are in place to allow the potential for surface seepage along the embankment toes (See Attachment A, Plant Site Water Modeling Data Package [PolyMet 2015j, as cited in the FEIS]). The model was checked to ensure that hydraulic heads in the tailings and adjacent surficial deposits were not well above ground surface. In the FEIS Plant Site MODFLOW model, storage coefficients for the surficial deposits and bedrock outcrops were assigned and/or calibrated to be more in line with literature values for these types of materials.	WR 093
3119	We disagree with the conclusion in the SDEIS that the PolyMet project will not have any impacts on surface or ground water hydrology in the Partridge and Embarrass Rivers (Section 5.2.2, page 5-8). Augmenting stream flow to tributaries with treated and Colby Lake water will impact surface water hydrology.	The FEIS assesses the potential for the NorthMet Project Proposed Action to affect surface and groundwater hydrology for the Partridge and Embarrass Rivers. The FEIS updates this analysis in FEIS Sections 5.2.2.3.2 and 5.2.2.3.3 respectively. The FEIS acknowledges that the NorthMet Project Proposed Action would alter stream flows relative to existing conditions. However, the flows would be similar to existing conditions. Where and when necessary, surface streams would receive treated augmentation water to maintain stream flow to within plus or minus 20 percent of existing flows. The augmentation water would generally consist of water obtained from the containment systems or mine pits, and treated at the WWTF or WWTP prior to discharge.	WR 107 WR 183
3121	We believe that the interaction of the project's impacts with natural variability in precipitation would be more adverse than reported in the SDEIS. This is because effects of climatic	Estimates of monthly and annual rainfall amounts were based on best available data obtained from weather stations near the NorthMet Project Proposed Action site. In the GoldSim models, these parameters were treated as uncertain inputs and assigned probability distributions to capture	WR 077 WR 180

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	variability are additive to the project-related change, which would be especially true for drier periods.	the range of possible future conditions. While climate change may occur in the future, it cannot be stated at this time if in the long-term there would be more or less rainfall. Thus, the probabilistic approach to rainfall used in GoldSim represents a technically defensible method for dealing with this issue. Individual storm events and frequency are not incorporated into the GoldSim models. Rainfall inputs are monthly and annual. The effects of individual storms are considered by designing facilities to handle a 100-year, 24-hour storm event based on current data. If over time, climate change causes a gradual increase in annual rainfall, the 100-year storm event would be redefined to a larger precipitation value and mine facilities would be upgraded to handle a larger storm.	
3123	It is also noted in section 5.2.3 (Wetlands) that indirect effects on wetlands are expected due to groundwater drawdown. Groundwater drawdown will impact groundwater hydrology and it's connectivity to the surficial aquifer, which will likely impact surface water hydrology.	Using an observational approach based on data from similar nearby mine sites (i.e., analog method), the Co-lead Agencies concluded that drawdowns in the surficial aquifer would not be expected to extend very far from the mine pits. This is explained by the following factors: 1) the surficial aquifer is thin and moderately permeable, 2) the surficial aquifer is subject to aerial recharge, and 3) the surficial aquifer is underlain by low-permeability bedrock that limits downward leakage from the surficial unit. These factors support the conclusion that wetland drawdown did not need to be included in the Mine Site GoldSim model. See FEIS Section 5.2.2.3.2 for more information on the analog method. It is acknowledged that there is some degree of hydraulic interaction between wetlands and the surficial aquifer at the Mine Site. However, attempts to quantitatively model the effects of these interactions on drawdown and water quality would be highly uncertain and potentially misleading. The FEIS approach was to not model hydraulic connections between wetlands and the surficial aquifer in the Mine Site GoldSim model, but rely on future monitoring and adaptive mitigation measures in the event that some wetlands are affected by the NorthMet Project Proposed Action. See FEIS Sections 5.2.2.3.6 and 5.2.2.3.5 for more information on closure monitoring and adaptive mitigation.	WET 15 WR 053 WR 086 WR 166
3124	Disagreement exists over application of the 10 mg/L wild rice sulfate standard (Section 5.2.2.1.2, page 5-21). Although some of these comments relate more to Minnesota Pollution Control Agency (MPCA) determinations and permitting issues, they are important considerations for the	The FEIS recognizes the MPCA is overseeing a variety of studies on wild rice beds. At applicable surface water locations, the FEIS evaluated impacts using an evaluation criterion based on the current 10 mg/L water quality standard for sulfate in waters used for production of wild rice. This impact assessment metric is keyed to the current regulation. It is recognized that the MPCA is currently evaluating the current wild rice	PER 10 WR 152 WR 154

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	project to meet water quality standards and should be clearly addressed in the SDEIS. It is arbitrary to define how much rice presence is required for an area to be defined as a water used for the production of wild rice, especially given the lack of long-term monitoring data in the receiving waters of this project. Application of this standard may be evolving/changing as research has been completed and the standard is currently being evaluated by the MPCA. Wild rice exists upstream in the Embarrass River from the draft MPCA staff recommended definitions of water used for production of wild rice (compliance points). In the Partridge River, the 2009 survey identified rice near SW-004b, also upstream of the proposed compliance point. Barr Engineering conducted the survey and has indicated a possible error in the 2009 survey, bringing into question the accuracy of these upstream wild rice locations in the Partridge River. Currently, the wild rice water quality standard is not being met in portions of the Embarrass and Partridge river systems. The SDEIS states that the wild rice sulfate standard would be met for the Embarrass River, assuming the containment and seepage collection system would capture seepage presently going to the Embarrass tributaries. However, the Partridge River will exceed the standard during low-flow conditions. We question how this will be handled in permitting.	sulfate water quality standard and, as part of that process, new information on potential contributing factors on the growth of wild rice beds has been generated. However, that information has not yet been holistically reviewed in the context of its possible influence on the wild rice standard. Future change to the wild rice sulfate standard, if any, is speculative and outside the scope of the FEIS; applying research findings outside the basis of the current rule is not appropriate. The FEIS includes descriptions of the Plant Site WWTP and Mine Site WWTF, both of which would be capable of discharging treated wastewater at concentrations at or below 10 mg/L as demonstrated by pilot-testing already conducted. More detailed information on these treatment systems would be available as part of the permitting process. However, should a more stringent standard be developed in the future, operation of the reverse osmosis treatment systems, or equivalently performing technologies, could be adjusted to meet a more stringent effluent limit. During permitting, the MPCA would evaluate the latest water quality modeling results to ensure that surface water uses are being protected. Appropriate mitigation and monitoring would be required if and when a permit is drafted.	
3125	Disagreement also exists over the current MPCA staff recommendation of seasonal application of the wild rice sulfate standard from April 1 through August 31 (page 5-25). Application of this standard may be evolving/changing as research has been completed and the standard is currently being evaluated. According to SDEIS, PolyMet is seeking seasonal application [April 1 through August 31] of the standard during non-mechanical	PolyMet is not seeking a seasonal application of the wild rice sulfate standard. Neither seasonal application of the wild rice standard nor non-mechanical treatment systems are part of the NorthMet Project Proposed Action, which relies solely on mechanical treatment and year-round application of the sulfate standard. Non-mechanical treatment may be considered during operations and closure if pilot studies demonstrate their utility and cost-effectiveness for water treatment and water disposal. The NorthMet Project Proposed Action, as proposed, relies on well-tested mitigation and mechanical treatment technologies. Non-mechanical	WR 153

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	water treatment after closure. If seep collection and water treatment do not work as planned (substantial assumptions without a lot of detail), the seasonal discharge may become a larger issue. The SDEIS states that this is beyond the scope of the document, but we believe that it is relevant to the project meeting water quality standards and is an issue to be addressed.	treatment effectiveness in decreasing the concentration of sulfate and other parameters would need to be proven through bench and pilot testing before it would be relied upon to meet water quality standards.	
3126	We do not believe the proposed project will result in a decrease in mercury loading to the Embarrass and Partridge River aquatic systems (Section 5.2.2.3.4). For the Embarrass River, we do not believe that: 1) the tailings basin will function as a mercury sink; and 2) mercury methylation would decrease due to projected reductions in sulfate contributions. Regarding flows of the Partridge River, Embarrass River, or their tributaries, we disagree that the project would not significantly impact flow and water level fluctuations, thus leading to increased mercury methylation and bioaccumulation, which taken together may be sufficient to impact habitat leading to alterations of species composition, food web structure, and ultimately mercury bioaccumulation.	The MPCA's Cumulative Mercury Risk Estimation Method analysis for the two scenarios showed a 0.5 to 1.8 percent and 0.3 to 0.5 percent potential increase in fish mercury concentration above background. The increase is not expected to have an appreciable effect on the loading estimates from permitted discharges to the Embarrass, Partridge, or lower St. Louis rivers. Discharges are expected to meet the 1.3 ng/L standard for mercury, with an overall net decrease in mercury loading predicted for the NorthMet Project Proposed Action. FEIS Section 5.2.2.3.4 provides supporting documentation and a rationale explaining that tailings are a sink for mercury. Berndt (2003, as cited in the FEIS) further explains that the reaction of mercury in full-scale actual tailings basins (i.e., mercury assumed to be lost through adsorption to solids and then burial in the sediments) results in an overall permanent retention of mercury within the basin and decreases in mercury released to receiving waters. The overall findings in Berndt (2003) demonstrated that the release of mercury to surface waters during taconite processing was insignificant with respect to the mercury concentrations found in local precipitation and existing background surface waters. The findings are supported by surface and groundwater monitoring around the existing LTVSMC Tailings Basin, which found mercury concentrations generally averaging less than 2.0 ng/L. Additional documentation supporting sequestering of mercury in the Tailings Basin are presented in FEIS Sections 5.2.2.3.4 and 6.2.2. It is difficult to quantify the extent to which predictions of elevated mercury concentrations in the Tailings Basin surficial seepage would influence mercury methylation north of the Tailings Basin and further downstream, although the FEIS notes that sulfate can contribute to mercury methylation. The FEIS notes that the NorthMet Project Proposed Action would reduce sulfate concentrations within the Embarrass River watershed, and that this may result in downstream reductions in mercury methylation. Effects on flows (and, by extension, water surface elevations) generated by	MERC 06 MERC 20 MERC 23

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		the NorthMet Project Proposed Action are anticipated to be within the natural variation of flow within the St. Louis River (e.g., less than 1 percent reduction in average annual flow as measured at the confluence of the Embarrass River with the St. Louis River). Therefore, no potential indirect or cumulative wetland effects are identified for the wetlands within the St. Louis River below the ordinary high water mark, from its confluence with the Embarrass River to Lake Superior, and it is not expect that the NorthMet Project Proposed Action would contribute to water level fluctuations than can promote mercury methylation. Additional information regarding water level and flows to surrounding watersheds is included in FEIS Section 5.2.2.	
3128	Potential mercury contributions from peat stored at the Overburden Laydown and Storage Area have also not been addressed.	This comment was originally presented as part of the Tribal Position Summary included in MDO #2, which was previously addressed in SDEIS Table 8-1. Further explanation is provided below. Some of the temporarily stored organic material would decompose on site, which would release mercury into solution. Any dissolved mercury would be transported in solution with precipitation that falls on the Overburden Storage and Laydown Area (PolyMet 2015r, as cited in the FEIS). Any mercury released from the peat decomposition process is thought to be transported with precipitation that falls on the Overburden Storage and Laydown Area. The Overburden Storage and Laydown Area would be unlined; therefore, there would be some potential for seepage to enter the groundwater system from peat which has decomposed and releases as a pulse of mercury. Water contacting the Overburden Storage and Laydown Area is considered to be process water and would be routed to Pond PW-OSLA. In years 1 to 11, the water from Pond PW-OSLA would be routed to the Tailings Basin, and any mercury in the routed water would have the chance to be sequestered in the tailings. In years 12 to 20, some of the water from Pond PW-OSLA would be used to backfill the East Pit. Any mercury in the water routed to the East Pit would mix with waste rock and become sequestered at depth in the East Pit. In addition, any contributions of water in years 21 to 65 from the East Pit to the West Pit would reflect water from the East Pit and its associated watershed runoff, and would not reflect process water from Pond PW-OSLA. Because peat removal from the areas to be mined would be completed between years 5 and 11, any potential release of mercury from stored peat materials would have occurred, or be ending, by the time water is routed from Pond PW-OSLA to the East Pit beginning in	MERC 20

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		year 12. All water that is discharged would be meet the GLI mercury standard of 1.3 ng/L.	
3134	Mercury-related concerns are present for created wetlands at the East Pit and mercury concentrations in water discharged from the West Pit.	This comment was originally presented as part of the Tribal Position Summary included in MDO #2, which was previously addressed in SDEIS Table 8-1. Further explanation is provided below. Water levels in the East Pit would generally be controlled by passive wetland overflow to the West Pit. West Pit water would be treated via RO (or equivalent performing technology) at the WWTF in closure before being discharged into West Pit Overflow Creek. Depending on seasonal weather conditions, there could be occasional pumped flows from the wetland to the WWTF or treated effluent from the WWTF could be pumped to the wetland to further control the water levels (PolyMet 2015d, as cited in the FEIS).	MERC 09
3135	Air-related mercury emissions do not account for sources from energy generation or vehicle use at the site.	This comment was originally presented as part of the Tribal Position Summary included in MDO #2, which was previously addressed in SDEIS Table 8-1. Further explanation is provided below. As summarized in Section 5.2.7 of the FEIS, procedures for air quality assessments vary depending upon the level of emissions from a proposed project. The NorthMet Project Proposed Action has been defined as a synthetic minor source according to the USEPA definitions of “major” vs. “minor” sources, since the NorthMet Project Proposed Action would limit its emissions through permit restrictions to less than the defined emission levels (see Section 5.2.7 of FEIS). At the Mine Site, emissions were estimated for material handling sources associated with excavation, portable crushing and screening operations, blast hole drilling, use of unpaved roads, and vehicle exhaust. At the Plant Site, point source emissions are predicted to occur from the crushing plant, flotation operation autoclaves and other hydrometallurgical processes, process consumables handling, and combustion. Fugitive emissions are also expected to occur from raw materials handling, Plant Site roads, the Tailings Basin, and from vehicle use of Dunka Road. Additional information has been summarized below and is included in FEIS Section 5.2.7. Mercury in the ore is the primary source of mercury and air emissions of mercury are primarily associated with the Hydrometallurgical Plant (4.1 pounds/year). A small amount of mercury emissions are estimated to potentially be emitted from natural gas combustion associated with a package boiler and a natural gas fired process heater and space heaters (0.4 pounds/year). In addition, a small amount of particle-bound mercury is	AIR 02

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		associated with mining, ore crushing, milling processes, flotation concentrate handling, and fugitive dust emissions from the Tailings Basin (less than 0.1 pounds/year). A relatively small amount of mercury is estimated to be associated with diesel fuel combustion in mine vehicles. Overall, total potential emissions of mercury from the NorthMet Project Proposed Action are estimated to be 4.6 pounds/year from the Plant Site, a maximum of 0.17 pounds per year from Tailings Basin construction vehicles (diesel fuel combustion emissions), and approximately 0.6 pounds/year from diesel fuel combustion at the Mine Site (Barr 2012a, as cited in the FEIS). In comparison, Minnesota's statewide mercury emissions were estimated to be 3,011 pounds in 2005 and about 2,835 pounds in 2011 (MPCA 2013). The TMDL target emissions are set at 789 pounds/year by 2025 (MPCA 2014). The NorthMet Project Proposed Action's air emissions are about 0.16 percent of 2011 estimated statewide emissions and about 0.6 percent of the TMDL statewide target emissions. As summarized in FEIS Section 5.2.7, the MPCA has conducted a review of the NorthMet Project Proposed Action mercury emissions and has determined that it would not impede the TMDL reduction goals.	
3136	For the Lake Superior watershed, any additional mercury releases to the environment are exacerbating already existing impairments including fish advisories set for recreational fishing. Increased fish mercury levels will also have direct impacts on both the cultural and recreational resources of the region.	Based on the evaluations conducted for air emissions and water discharges for the FEIS, the NorthMet Project Proposed Action is not considered to have an appreciable effect on: 1) surface water mercury concentrations, 2) fish mercury concentrations, 3) methylation of mercury, or 4) risk to people consuming fish from lakes near the NorthMet Project Proposed Action site. Two mercury air emission scenarios were evaluated. Scenario 1 is a conservative overestimation of oxidized mercury and Scenario 2 is considered to be a conservative but more likely mercury speciation for the air emissions associated with the NorthMet Project Proposed Action. The MPCA's Cumulative Mercury Risk Estimation Method (MMREM) analysis for the two scenarios showed a 0.5-1.8 percent and 0.3-0.5 percent potential increase in fish mercury concentration above background in the following five lakes: Heikkila Lake, Colby Lake, Sabin Lake, Wynne Lake, and Whitewater Lake. This potential change is considered to be small compared to background levels and is not expected to affect fish consumption advisories or effect consumers of locally caught fish. Further, discharges from the Proposed Action are expected to meet the 1.3 ng/L water quality standard for mercury, with an overall net decrease in mercury loading to the St. Louis River Watershed predicted for the NorthMet Project Proposed Action Alternative, as compared to the CEC Scenario.	AQ 11 MERC 02

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		The Cultural Resources section of FEIS Chapters 4 and 5 addresses the Co-lead Agencies' federal tribal trust responsibilities as part of the 1854 Treaty. These sections, along with other relevant natural resources sections of Chapters 4, 5, and 6, also address effects on, and any proposed mitigation for effects on cultural resources and culturally significant natural resources that do not qualify for listing on the NRHP.	
3137	Indirect impacts to wetlands from mine pit dewatering (866.9 acres with high likelihood of wetland hydrology effects (Zone 1)) may be underestimated as a result of using the analog method described in the SDEIS (Section 5.2.3.2.2). We do not feel the proposed analog method of assessing potential indirect impacts from mine site pit dewatering is adequate, and as such should not be the sole means of indirect impact assessment for the SDEIS.	When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS and there is incomplete or unavailable information because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, NEPA directs the agency to make it clear that such information is lacking, discuss the relevance of the lacking information, and discuss any information relevant to evaluation of the future impacts. In these cases, NEPA also directs the agency to evaluate these impacts based upon theoretical approaches or research methods generally accepted in the scientific community provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason. The Co-lead Agencies believe this is the case for evaluating indirect wetland effects. The Co-lead Agencies have thoroughly considered throughout the development of the EIS and through the Wetland Impact Assessment Planning Work Group how to assess potential indirect wetland effects. As a result, strengths and weaknesses of the approach used, as well as other suggested approaches, have been carefully considered. The Co-lead Agencies believe that the analog method used in the SDEIS to assess potential indirect effects from mine dewatering is adequate. Further, the FEIS has been revised to address concerns raised by the Bands regarding the assertion that ombrotrophic bogs would not be impacted by mine dewatering. FEIS Section 5.2.3.2.2 applies a more conservative assumption of the potential indirect effects for all bog communities within the 0-1,000-ft analog zone. Specifically, ombrotrophic bogs were reclassified from the "no effect" category to the "low likelihood" category, the same status as that assigned to minerotrophic bogs. The complex mixes of bedrock, surficial deposits, and wetland soils at the Mine Site impede the ability to reasonably model (e.g., using MODFLOW) and accurately assess the potential effect of pit dewatering on wetlands. In light of this modeling limitation, wetlands were divided into zones based on distance from the	WET 08

Comment ID	Comment	Response	Theme(s)
		open pit. The closer a wetland was to the pit during dewatering, the greater the water table drawdown would be and the greater potential there would be for hydrologic effects on overlying wetlands. These impact assessment methodologies are presented in FEIS Sections 5.2.2.3.2 and 5.2.3.1.2. The Co-lead Agencies are not relying solely on the potential impact zones determined in the analog method for the FEIS, but would be monitoring wetlands for potential indirect effects as part of an adaptive management plan. Permit conditions would include a plan for additional compensatory mitigation if indirect wetland impacts were identified, and appropriate changes to the adaptive management plan would be made as required.	
3138	We do not feel the impact zones and distances are well described, and do not agree with the automatic exclusion of ombrotrophic wetlands from potential drawdown effects. ...GLIFWC conducted an independent assessment using the same methods as the Co-lead Agencies, along with additional analog data from other mining-impacted sites. The assessment found an estimated total of 5719.75 acres of wetlands would be potentially susceptible to severe indirect impacts from mine pit drawdown (Zone 1).	When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS and there is incomplete or unavailable information because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, NEPA directs the agency to make it clear that such information is lacking, discuss the relevance of the lacking information, and discuss any information relevant to evaluation of the future impacts. In these cases, NEPA also directs the agency to evaluate these impacts based upon theoretical approaches or research methods generally accepted in the scientific community provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason. The Co-lead Agencies believe this is the case for evaluating indirect wetland effects. The Co-lead Agencies have thoroughly considered throughout the development of the EIS and through the Wetland Impact Assessment Planning Work Group how to assess potential indirect wetland effects. As a result, strengths and weaknesses of the approach used, as well as other suggested approaches, have been carefully considered. The Co-lead Agencies believe that the analog method used in the SDEIS to assess potential indirect effects from mine dewatering is adequate. Further, the FEIS has been revised to address concerns raised by the Bands regarding the assertion that ombrotrophic bogs would not be impacted by mine dewatering. FEIS Section 5.2.3.2.2 applies a more conservative assumption of the potential indirect effects for all bog communities within the 0-1,000-ft analog zone. Specifically, ombrotrophic bogs were reclassified from the “no effect” category to the “low likelihood” category, the same status as that assigned to minerotrophic bogs. The complex mixes of bedrock, surficial deposits, and wetland soils at the Mine Site impede the ability to reasonably model (e.g., using MODFLOW) and accurately assess the	WET 10

Comment ID	Comment	Response	Theme(s)
		potential effect of pit dewatering on wetlands. In light of this modeling limitation, wetlands were divided into zones based on distance from the open pit. The closer a wetland was to the pit during dewatering, the greater the water table drawdown would be and the greater potential there would be for hydrologic effects on overlying wetlands. These impact assessment methodologies are presented in FEIS Sections 5.2.2.3.2 and 5.2.3.1.2. The Co-lead Agencies are not relying solely on the potential impact zones determined in the analog method for the FEIS, but would be monitoring wetlands for potential indirect effects as part of an adaptive management plan. Permit conditions would include a plan for additional compensatory mitigation if indirect wetland impacts were identified, and appropriate changes to the adaptive management plan would be made as required.	
3140	We also disagree the Partridge River would act as a “natural barrier” to the cone of depression, which suggests that the riparian zone of the Partridge River will not be affected by groundwater drawdown (page 5-243).The upper Partridge River is located in Zone 2; GLIFWC’s independent analysis estimated drawdowns of 3 to 5 feet under the river, which would severely reduce baseflow in the channel, indirectly impact riparian wetlands downstream, and affect other surface water features. GLIFWC’s analysis should be considered in the SDEIS for estimating potential indirect effects on wetlands from mine pit dewatering. This would also have implications for the cumulative effects analysis presented in Chapter 6 (Section 6.2.3.4.4).	Using an observational approach based on data from similar nearby mine sites (i.e., analog method), the Co-lead Agencies concluded that drawdowns in the surficial aquifer would not be expected to extend very far from the mine pits. This is explained by the following factors: 1) the surficial aquifer is thin and moderately permeable, 2) the surficial aquifer is subject to aerial recharge, and 3) the surficial aquifer is underlain by low-permeability bedrock that limits downward leakage from the surficial unit. These factors support the conclusion that wetland drawdown did not need to be included in the Mine Site GoldSim model. See FEIS Section 5.2.3 for more information on the analog method. It is acknowledged that there is some degree of hydraulic interaction between wetlands and the surficial aquifer at the Mine Site. However, attempts to quantitatively model the effects of these interactions on drawdown and water quality would be highly uncertain and potentially misleading. The FEIS approach was to not model hydraulic connections between wetlands and the surficial aquifer in the Mine Site GoldSim model, but rely on future monitoring and adaptive mitigation measures in the event that some wetlands are indirectly affected by the Proposed Project. See FEIS Section 5.2.2.3.6 and 5.2.2.3.5 for more information on Closure monitoring and adaptive mitigation. Please refer to the responses to themes WR 086 and WR 171.	WET 10 WET 18
3141	Much of the proposed mitigation (Aitkin and Hinckley sites) for directly impacted wetlands is outside of the watershed and 1854 Ceded Territory. This is a permanent loss to these areas and should be discussed in the document.	FEIS Section 5.2.3.3.2 includes a discussion on the wetland mitigation study limits and the site selection process. The compensatory wetland mitigation site selection for the NorthMet Project Proposed Action began in 2005 and has gone through a rigorous site selection evaluation. Prior to the 2008 Federal Mitigation Rule, the Aitkin and Hinckley sites were selected,	WET 03

Comment ID	Comment	Response	Theme(s)
	Mitigation options within the watershed and 1854 Ceded Territory should be re-visited.	initial approvals by the USACE were received, and substantial investments were made by PolyMet to develop both sites for compensatory mitigation. The USACE guidance prior to the implementation of the 2008 Federal Mitigation Rule was to look for mitigation sites that could provide the following: restoration of historical wetlands, high probability of success, achieve at least partial in-kind mitigation and sites that had ditched and/or tiled peatlands to provide for restoration. When the 2008 Federal Mitigation Rule went into effect, the USACE informed PolyMet of the priority for siting any future compensatory mitigation within the St. Louis River/Great Lakes Basin. The Zim Site was subsequently proposed as a third site. Initially, no practicable compensation sites were found in the St. Louis River Watershed, but subsequently, the Zim Site was found and incorporated as part of the compensatory mitigation plan. Although the 2008 Federal Mitigation Rule and 2009 USACE St. Paul District Policy (USACE 2009, as cited in the FEIS) do not require wetland mitigation sites to stay within the 1854 Ceded Territory, the Zim Site is located within the 1854 Ceded Territory. The permanent functional loss of wetlands within the St. Louis River Watershed/Great Lakes Basin would be considered by the USACE in its DA permit decision and has been accounted for in the proposed mitigation credits by PolyMet. Please refer to the response to theme WET 03.	
3143	Upfront mitigation for wetlands susceptible to severe indirect impacts is currently not proposed, and we believe that the USACE should require up front mitigation for all severely impacted wetlands. We also contend that additional up front mitigation should be considered for wetlands that are classified in the moderate to severe category, with robust monitoring being required for wetlands in the moderate category.	FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. The indirect effects analyses performed for the EIS were not performed to characterize impacts but were done to inform where monitoring should take place for those areas that were identified as having a potential for indirect wetland effects. As a result of these analyses performed to determine where monitoring should occur, quantification of wetland types and acres of potential indirect wetland effects were also generated. FEIS Section 5.2.3 provides these quantitative values of potential indirect wetland effects. Potential indirect wetland effects from the NorthMet Project Proposed Action were assessed as a result from one of the following six factors: 1) wetland fragmentation; 2) change in wetland hydrology from changes in watershed area; 3) changes in wetland hydrology from groundwater drawdown resulting from open pit mine dewatering; 4) changes in wetland hydrology from groundwater drawdown resulting from operation of the Plant Site, including groundwater mounding and seepage containment; 5) changes in stream flow near the Mine Site and Plant Site and associated	WET 01 WET 02

Comment ID	Comment	Response	Theme(s)
		effects on wetlands abutting the streams; and 6) change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations. The assessments provided wetland type and acreage for all six factors; however, only wetland acreages were provided for factor 6 (change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations).The identification of specific mitigation for indirect effects and a monitoring plan is not a requirement for an EIS; however, the FEIS has been updated with additional information on the approach for determining mitigation if the monitoring shows indirect effects are occurring. The monitoring and mitigation for potential indirect effects would be determined during permitting. FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for potential indirect wetland effects. The proposed wetland impact, avoidance, minimization, mitigation and monitoring plan presented in the FEIS would be reviewed, modified as required, and approved during permitting; therefore, this information could change during permitting.	
3144	Section 5.2.9.2.2 (Wildlife) does not contain information on game species such as moose, deer, grouse, waterfowl, furbearers, etc. These species are important to the Bands for the exercise of treaty rights, and further analysis is needed.	The FEIS wildlife sections provide an analysis of wildlife species used for subsistence/harvest, as well as those culturally important to the Bands. FEIS Section 4.2.9.3.3 identifies species potentially harvested in the 1854 Ceded Territory, while FEIS Section 5.2.9.2.2 explains that a lack of data regarding use of such species in the NorthMet Project area likely indicates limited present day use in that area due to general inaccessibility. FEIS Section 5.2.5.2.5 discusses the types of potential effects to common and/or game species, which are similar to effects on ETSC species. The FEIS has been revised to include additional detail regarding moose, and this discussion has been moved to the state ETSC species discussion, due to its new state listing status. The response to theme CR 01 also discusses effects to resources important to the Bands.	CR 01 WI 09
3145	This section also contains language about “1854 Treaty Authority-regulated species”. We suggest removing or altering this language. The Fond du Lac Band also exercises treaty rights in the 1854 Ceded Territory, and has their own regulations. Further, the 1854 Treaty Authority maintains seasons and limits on some species, but these are not the only species of importance.	Text has been added to clarify the definition of “1854 Treaty Authority-regulated species” in Section 5.2.9.2.2. As discussed in this section, Fond du Lac has its own regulations applicable to the 1854 Ceded Territory. The discussion of “1854 Treaty Authority-regulated” species or resources is not inclusive of all species important to the Bands. Instead, the lists serve as the most updated and best available data for the most common game species or tribally harvested resources on the 1854 Ceded Territory.	EDIT 01

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3146	The project would result in one more piece of the 1854 Ceded Territory permanently altered and impacted. When taken in combination of all the mining operations across the Iron Range and other general development, the Ceded Territory and related exercise of treaty rights have been significantly impacted.	The Cultural Resources sections of FEIS Chapters 4 and 5 address the federal Co-lead Agencies' federal tribal trust responsibilities under the 1854 Treaty. These sections, along with other relevant natural resources sections of FEIS Chapters 4, 5, and 6 also address effects on, and any proposed mitigation for effects on cultural resources and culturally significant natural resources. Mitigation/compensation for effects on cultural resources and culturally significant natural resources is considered to the extent possible within the parameters of the statutes and regulations providing the federal authorities for the review of the NorthMet Project Proposed Action.	CR 01
3147	The SDEIS states on page 4-340 that subsistence activity (including hunting, fishing, and plant gathering) accounted for approximately one meal per week among the survey respondents… Our interpretation and analysis of the results would likely show an increased consumption rate from what is reported in the SDEIS.	The NorthMet Project Proposed Action is within the 1854 Ceded Territory. FEIS Section 4.2.10.1.6, as well as Table 4.2.9-1 in FEIS Section 4.2.9 summarize available information about subsistence patterns and resources within the 1854 Ceded Territory. Construction of the NorthMet Project Proposed Action would make the Mine Site unavailable for subsistence use. The degree to which construction of the NorthMet Project Proposed Action would affect individual subsistence resources (i.e., fish, game, and plant species) outside of the Mine Site, Transportation and Utility Corridor, and Plant Site is discussed in FEIS Section 5.2.9 (Cultural Resources). FEIS Section 5.2.10.2.6 discusses consumption of fish. Increased mercury concentrations and associated increases in mercury bioaccumulation in fish tissue could constitute an EJ impact for Band members and other subsistence consumers of fish.	SO 09
3148	The SDEIS also states that harvest for all species (including big game and trapping) have generally declined since 1994. We believe that this statement is inaccurate and also seems to minimize the importance of the exercise of treaty rights.	The statement that harvest for all species (including big game and trapping) have generally declined since 1994 is based on the citation Edwards 2012, as cited in the FEIS. The 1854 Treaty as it relates to subsistence and the Project Area is described in Section FEIS 4.2.10.1.6.	SO 04
3149	In addition, this section focuses only on harvest activities regulated and reported by the 1854 Treaty Authority, and does not include the exercise of treaty rights by the Fond du Lac Band.	Text has been added to clarify the definition of "1854 Treaty Authority-regulated species" in FEIS Section 5.2.9.2.2. As discussed in this section, Fond du Lac has its own regulations applicable to the 1854 Ceded Territory. The discussion of "1854 Treaty Authority-regulated" species or resources is not inclusive of all species important to the Bands. Instead, the lists serve as the most updated and best available data for the most common game species or tribally harvested resources on the 1854 Ceded Territory.	CR 01
3150	The SDEIS essentially contains no analysis on	The FEIS includes an analysis about cumulative effects on special status	WI 01

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	moose. This issue has been raised by the cooperating agencies a number of times throughout the EIS development process. Given this listing [on August 19, 2013], and the cultural importance to the Bands, the SDEIS should analyze project impacts to moose and also consider it from a cumulative impacts perspective.	wildlife species of cultural importance. The FEIS Section 5.2.9.2.2 explains that a lack of data regarding use of such species in the NorthMet Project area likely indicates limited present day use in that area due to general inaccessibility. The FEIS Section 6.2.3.10.4 discusses general impacts to culturally-important plants and animals. The FEIS wildlife sections (4.2.5, 4.3.5, 5.2.5, and 5.3.5) have been updated to include the new state ETSC status listings from August 19, 2013, as well as any new federal status listing changes. The FEIS includes a more robust analysis on direct and cumulative effects to the moose.	
3151	Stating the economic benefits of the project, while not stating economic costs to resources and related uses, does not allow for a fair comparison or overall view of the project. Environmental economic tools do exist to value resources and the services they provide, and perhaps some would be applicable and beneficial for the SDEIS.	Section 102 of NEPA (42 USC 4321 et seq.) requires all Federal agencies, to the fullest extent possible, to do the following: "identify and develop methods and procedures, in consultation with the CEQ...which would insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations." Neither NEPA nor MEPA require the costs and benefits of a proposed action to be quantified in dollars or any other common metric; moreover, it is not possible to quantify and assign a value to all benefits and costs associated with the NorthMet Project Proposed Action. The FEIS focuses on the benefits and costs of such magnitude or importance that their inclusion in the analysis can inform the decision-making process. The FEIS fulfills NEPA and MEPA requirements in adequately addressing benefits and costs.	SO 04
3152	The document states that there will be a net increase of up to 579.6 acres for the Superior National Forest. Any gains or losses in federal ownership will not be known until the values of all the proposed lands in the exchange have been determined. The proposed exchange loses one large tract of public land for several smaller tracts. The project also results in permanent impacts and changes to the resources regardless of ownership. These issues should be clearly identified in the SDEIS.	The Land Exchange Proposed Action must comply with FLPMA's requirement that the values of the lands exchanged are equal or, if they are not equal, that the values shall be equalized by the payment of money so long as the payment does not exceed 25 percent of the total value of the lands transferred out of federal ownership. Disclosure of appraisal information in the EIS is not required. Any decision, documented in the ROD, to move forward with a land exchange will be supported by a current appraisal, approved by the USFS, which verifies that the exchange meets the equal value requirements of applicable federal law and regulation. Requests for appraisal reports and appraisal review reports are processed under Freedom of Information Act procedures. Appraisals must conform to Uniform Appraisal Standards for Federal Land Acquisitions and the Uniform Standards of Professional Appraisal Practice of the Appraisal Foundation. The effects to resources are discussed in detailed in Section 5.0.	LAN 03

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3153	The SDEIS also puts too much emphasis on the current lack of access to the Forest Service lands (Section 3 .1.2.1, page 5-579). This is seemingly done to minimize the impact of losing it.	Access is discussed because it defines the degree to which the lands in question can actually be used—either by the public for recreational purposes, by forestry interests for economic purposes, or for research and conservation purposes.	NEPA 12
3154	Access to the specific public waters and wild rice associated with the land exchange (Pike River, Hay Lake, Little Rice Lake) is currently available. Adjacent land ownership is not a direct impact to this access because wild rice is in public waters that are currently accessible. The SDEIS does not paint an accurate picture to say that the land exchange will result in additional wild rice beds, that there is currently no opportunity to harvest wild rice directly on the federal lands, or that the public would have better opportunities for wild rice harvesting (Section 5.3.4.2.1, page 5-609).	Wild rice does not currently grow within the proposed federal land boundaries, and suitable habitat is limited. The Land Exchange Proposed Action would result in the public ownership of additional wild rice beds by the acquisition of Tract 1. Tract 1 contains Little Rice Lake, which supports a continuous population of wild rice. Wild rice also grows along the Pike River south of Little Rice Lake and in isolated populations on Hay Lake. The FEIS vegetation sections clarify the discussion of access to locations of wild rice beds on the non-federal lands. The Land Exchange would result in an increase in wild rice beds within the federal estate. FEIS Section 4.3.4.2.5 provides further discussion of wild rice beds on Tract 1. As a result, the public would have better opportunities for wild rice harvesting on Tract 1, where there is currently no opportunity to harvest wild rice directly on the federal lands (i.e., no known wild rice populations) despite the public water access onto the federal lands. A carry-down boat launching access is located on Tract 1, which may provide private access for wild rice harvesting on the Tract 1 lands. Access to wild rice beds on the federal lands would not be lost as a result of the Land Exchange Proposed Action, but access to wild rice beds on Tract 1 would be gained. Overall, there would be no increase in wild rice harvest opportunities for the public.	VEG 04 VEG 08 WR 155
3155	page 5-591 states that the proposed land exchange would result in a net increase of wild rice beds to the federal estate. Wild rice in these locations are found in public waters (and would not be on federal lands or under federal ownership/management) and are currently accessible through an access on the Pike River. Some resource protection advantages may exist to gaining adjacent federal ownership as it relates to land management.	Wild rice does not currently grow within the proposed federal land boundaries, and suitable habitat is limited. The Land Exchange Proposed Action would result in the public ownership of additional wild rice beds by the acquisition of Tract 1. Tract 1 contains Little Rice Lake, which supports a continuous population of wild rice. Wild rice also grows along the Pike River south of Little Rice Lake and in isolated populations on Hay Lake. The FEIS vegetation sections clarify the discussion of access to locations of wild rice beds on the non-federal lands. The Land Exchange would result in an increase in wild rice beds within the federal estate. FEIS Section 4.3.4.2.5 provides further discussion of wild rice beds on Tract 1. As a result, the public would have better opportunities for wild rice harvesting on Tract 1, where there is currently no opportunity to harvest wild rice directly on the federal lands (i.e., no known wild rice populations) despite the public water access onto the federal lands. A carry-down boat	VEG 08 WR 155

Comment ID	Comment	Response	Theme(s)
		launching access is located on Tract 1, which may provide private access for wild rice harvesting on the Tract 1 lands. Access to wild rice beds on the federal lands would not be lost as a result of the Land Exchange Proposed Action, but access to wild rice beds on Tract 1 would be gained. Overall, there would be no increase in wild rice harvest opportunities for the public.	
3157	We do not agree that the project and proposed land exchange would increase habitat availability because even the with land exchange, the overall result of the project is permanent impacts, loss, and changes to the resources of northeastern Minnesota and the 1854 Ceded Territory (Section 5.3.5, page 625).	FEIS Sections 4.2.5, 4.3.5, 5.2.5, and 5.3.5 (Wildlife) include information about impacts of the NorthMet Project Proposed Action on wildlife habitat types and MBS Sites of Biodiversity Significance. FEIS Section 5.3.4 discusses that the increases in habitat under the Land Exchange Proposed Action would be to the federal estate. However, FEIS Section 5.2.4 discusses that with the Combined Proposed Actions, there would be a decrease in overall habitat. *Minnesota Rules*, part 6132.2700 does require that a project site be reclaimed once mining has ceased. The goals of such reclamation are to "control erosion, to screen mining areas from non-compatible uses, and to provide for subsequent land uses such as wildlife habitat or timber production." The rules also include requirements about the characteristics and planting schedule for vegetation used in reclamation.	WI 02 WI 03
3158	Regarding habitat availability and impacts from the proposed land exchange, there is no mention of effects on game species such as moose, deer, grouse, waterfowl, furbearers and others in Section 5.3.5.2.5 nor in Section 6.2.3.6 from the cumulative effects analysis.	The FEIS wildlife sections provide an analysis of wildlife species used for subsistence/harvest, as well as those culturally important to the Bands. FEIS Section 4.2.9.3.3 identifies species potentially harvested in the 1854 Ceded Territory, while FEIS Section 5.2.9.2.2 explains that a lack of data regarding use of such species in the NorthMet Project area likely indicates limited present day use in that area due to general inaccessibility. FEIS Section 5.2.5.2.5 discusses the types of potential effects to common and/or game species, which are similar to effects on ETSC species. The FEIS has been revised to include additional detail regarding moose, and this discussion has been moved to the state ETSC species discussion, due to its new state listing status. The response to theme CR 01 also discusses effects to resources important to the Bands.	WI 10
3160	We would suggest that the proposed School Trust Lands Exchange also be a consideration. The project would entail exchange, purchase, or some combination of both for the Forest Service to acquire the school trust lands within the Boundary Waters Canoe Area Wilderness.	FEIS Section 6.1.2 includes an updated list of projects and actions that were considered in the cumulative effects assessment for the Land Exchange Proposed Action, which includes the School Trust Lands project.	CU 08

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3161	We believe that limiting the cumulative effects analysis area (CEAA) for water resources (Section 6.2.3.3), wetlands (Section 6.2.3.4) and aquatic species (Sections 6.2.3.7) to the Partridge and Embarrass River watersheds is too small. These CEAA's should be expanded to include the St. Louis River watershed. Impacts associated with United Taconite's proposal for 1,200 acres of wetland destruction to build a new tailings basin within the St. Louis River watershed should be considered. The PolyMet project would add to the load of pollutants in the St. Louis River and would reduce tributary flows to the river. Impacts that may occur due to the project could be underestimated (due to modeling concerns), and would not stop before reaching the St. Louis River. Further, any added impact from the project to the St. Louis River watershed would in turn impact Lake Superior. We believe that this should be the appropriate scale to analyze cumulative effects for these resources.	The cumulative effects section in the FEIS (Section 6.1.1.1) describes the rationale for the identification of CEAAs, which for the water resources cumulative effects analysis excludes United Taconite, which lies within the St,. Louis River watersheds. FEIS Section 6.2.2.1.1 provides a rationale for not including the St. Louis River Basin in the cumulative effects analysis. The CEAAs for individual resource areas vary based on the potential for cumulative effects, and not on a single overall assessment area. FEIS Table 6.1.1-2 summarizes the spatial areas used for each resource area and FEIS Table 6.1.1-1 lists the project considered in the cumulative effects assessment. Please also refer to Section 8.3, MDO 12 for the Co-lead Agencies' rationale for the CEAA identified for water resources.	CU 01
3162	We disagree with the conclusion that no cumulative effects to groundwater resources are expected (Section 6.2.3.3, page 6-16)…Cumulative effects at these locations should be assessed with the proposed project along with potential groundwater pollution from the Peter Mitchell Pit, Laskin Energy, Arcelor-Mittal, United Taconite, and US Steel Minntac.	Cumulative effects result when the effects of an action are added to or interact with other effects in a particular place and within a particular time. The modeled groundwater flowpaths of the NorthMet Project Proposed Action do not interact with other groundwater flowpaths. There may be other plumes from other projects in the vicinity of the NorthMet Project Proposed Action, but the effects of these plumes would only interact with NorthMet Project Proposed Action impacts within surface waters. This has been evaluated. The only exception is the seepage effects from existing LTVSMC Tailings Basin that the NorthMet Project Proposed Action would supplant. This combined effect has been considered.	WR 024
3163	A future action that should be considered in the cumulative effects analysis is any potential future backfill of Virginia Formation waste rock for in-pit disposal at the Cliffs Peter Mitchell Pit. Potential dewatering-related interaction effects between the proposed PolyMet Project and the Peter Mitchell Pit should also be evaluated for	The Northshore Mining Company Progression of the Ultimate Pit Limit project which includes the in-pit stockpiling of Virginia Formation waste rock in the Northshore Mine Pit would have no impact on the Partridge River, as all operations discharges would be primarily to Langley Creek.	WR 024

Comment ID	Comment	Response	Theme(s)
	cumulative effects.		
3164	In Section 6.2.3.4.4 (Future Wetlands and Water Resources) wetlands that would be indirectly impacted from the PolyMet project (and other projects) should be considered for inclusion in the number of wetland acres lost.	It is difficult to predict potential indirect wetland effects within the CEAA, and difficult to know what the potential indirect wetland effects would be for the projects assessed other than the NorthMet Project Proposed Action. However, based on the amount of potential indirect wetland effects that could occur from the NorthMet Project Proposed Action, there could be 0.1 to 12.0 percent cumulatively lost, in addition to the direct wetland impacts assessed, within the Partridge and Embarrass River watersheds as a result of the NorthMet Project Proposed Action. FEIS Section 6.2.3 has been revised to include more information.	WET 18
3165	In Section 6.2.3.10.4 (page 6-95), it should be clarified that the project would result in permanent impacts, changes, and loss within the 1854 Ceded Territory… No matter how the proposed project is viewed, it would result in a permanent loss or change to treaty guaranteed resources and the exercise of treaty rights….Further consultation required by federal agencies is needed to better understand effects to cultural resources, and to properly plan for avoidance or mitigation.	The Cultural Resources section of the Final EIS Chapters 4 and 5 addresses the federal Co-lead Agencies' federal tribal trust responsibilities under the 1854 Treaty. These sections, along with other relevant natural resources sections of Chapters 4, 5, and 6, also address effects on, and any proposed mitigation for effects on cultural resources and culturally significant natural resources. Mitigation for effects on cultural resources and culturally significant natural resources is considered to the extent possible within the parameters of the statutes and regulations providing the federal authorities for the NorthMet project review.	CR 01
3166	it is anticipated that Minnesota Biological Survey sites of High Biodiversity Significance would be decreased by 6056.4 acres on Superior National Forest lands.	The FEIS vegetation sections include information about the decrease of Minnesota Biological Survey (MBS) sites due to the Land Exchange Proposed Action in Sections 5.2.4 and 5.3.4. There would be a decrease of 6,142.7 acres of MBS Sites of High Biodiversity Significance within the Laurentian Uplands subsection, and an increase of 116.9 acres of MBS Sites of High Biodiversity Significance in the North Shore Highlands subsection. The Land Exchange Proposed Action would also result in an increase to the federal estate of 767.6 acres of MBS Sites of Moderate Biodiversity Significance in the Laurentian Uplands subsection. The WCA rules (including those parts applicable to mining projects under *Minnesota Rules*, part 8420.0930) include a special consideration for wetlands that are rare natural communities (*Minnesota Rules*, part 8420.0515, subpart 3). *Minnesota Rules*, part 6132.2700 requires that a project site be reclaimed once mining has ceased. The goals of such reclamation are to "control erosion, to screen mining areas from non-compatible uses, and to provide for subsequent land uses such as wildlife habitat or timber production." The rules also include requirements about the characteristics and planting schedule for vegetation used in reclamation. The Permit to Mine would	VEG 02

Comment ID	Comment	Response	Theme(s)
		address special consideration of wetlands that include rare natural communities. Additional information on rare natural communities would be included in the wetland permit application as part of the Permit to Mine process for further refinement of site-specific conditions.	
3167	The SDEIS states that financial assurance requirements for the project are not included in the document, but will instead be determined during the permitting phase. We are concerned about this approach given the potential for long-term/perpetual treatment, maintenance, and monitoring that may be needed from the proposed project.	It is acknowledged that operation, maintenance and periodic replacement of environmental controls would be required during closure. Financial Assurance would be required under the State's Permit to Mine to perform these activities on a continuous and/or periodic basis for as long as these activities are needed. FEIS Section 3.2.2.4 provides available details regarding financial assurance, including for reclamation of all disturbed areas and ongoing long-term monitoring and maintenance. FEIS Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine. Additional details on the financial assurance required for the project effects, monitoring, and mitigation would be addressed during permitting. To the extent the reclamation plan includes maintenance and mitigation, those items would be covered by financial assurance. Neither NEPA nor MEPA rules require that all financial assurance mechanisms be in place before the EIS is finalized. In addition, see the response to theme WR 035.	FIN 12 WR 037
3168	The SDEIS states that contingency mitigation will not be included initially in the financial assurance package. Financial assurance must be monitored and updated as the project proceeds to properly cover site cleanup and closure.	FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, time frames, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. FEIS Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine to account for the proceeding year's activities. *Minnesota Rules*, part 6132.1200, subpart 3 states that cost estimates shall be annually adjusted, using current dollar value at the time of the estimate. This requires estimating the contingency funds required for closure and post-closure activities in the event of unplanned closure during the course of the year.	FIN 11

A.5 THEME STATEMENTS AND RESPONSES

A.5.1 Issue: Air Quality (AIR)

Theme AIR 01

Theme Statement

The project fails to adequately account for greenhouse gas emissions and their contribution to global climate change, as well as the effects of climate change on general air quality and local resources over the life of the project.

Thematic Response

The information contained in FEIS Tables 5.2.7-8 and 5.2.7-9 quantifies the direct and indirect emissions of greenhouse gases (GHGs) from the NorthMet Project Proposed Action. In addition, information in FEIS Section 5.2.7.2.4 addresses the potential for climate change impacts in the area, including the frequency and duration of severe weather events. GHG issues have been assessed in a manner consistent with USEPA and MPCA guidance, as well as CEQ's Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions, dated February 18, 2010 (CEQ 2010, as cited in the FEIS).

Theme AIR 02

Theme Statement

The project fails to adequately account for the impact of emissions from increased energy use/generation due to the project.

Thematic Response

The information contained FEIS Tables 5.2.7-8 and 5.2.7-9 quantifies the direct and indirect emissions of GHGs from the NorthMet Project Proposed Action. The FEIS does not quantify the emissions of non-GHG emissions from indirect sources. Electrical generating units (EGUs) are subject to their own permitting requirements and emission and capacity limitations. If additional electrical capacity is required, then any new EGUs would be subject to environmental permitting and regulation. FEIS Section 5.2.7.1.3 has been revised to address indirect emission of criteria pollutants.

Theme AIR 03

Theme Statement

The project fails to quantify the amount and assess the impact of amphibole mineral fibers resulting from mining activities.

Thematic Response

FEIS Section 5.2.7.5.3 contains information on amphibole mineral fibers resulting from mining activities. The exact human health risk of amphibole mineral fiber exposure is not known, and it

is not possible to quantify amphibole mineral fiber emissions. Section 5.2.7.5.3 includes information on activities that can minimize fiber emissions, ongoing ambient monitoring to collect baseline mineral fiber data, and the commitment to continue fiber emission monitoring after start-up of the NorthMet Project Proposed Action, for comparison to the baseline. Amphibole mineral fiber emissions would also be addressed during air permitting.

Theme AIR 04

Theme Statement

The project does not account for the impacts of planned air pollution control measures/equipment on other resources, such as plants and surface water, in the area around the plant.

Thematic Response

The modeling completed for the FEIS includes all facility emissions, taking into account air pollution control mechanisms, where appropriate.

Theme AIR 05

Theme Statement

The project does not accurately quantify or account for the impacts (e.g., reactivity) of fugitive dust emissions on human health and the environment, including plants and surface water, in the area around the plant.

Thematic Response

The NorthMet project would have fugitive dust emissions. To evaluate the impact of those fugitive dust emissions, air quality modeling was conducted to assess impacts from those emissions. The FEIS quantifies fugitive dust emissions. Language has been added to FEIS Section 5.2.7.1.1 that describes the purpose of the Secondary NAAQS, including as they relate to fugitive dust emissions. The modeled results determined impacts to be below applicable air quality standards. The FEIS used the evaluation criteria available to determine impacts. Secondary ambient air quality standards are used to provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Significant impact on water resources or historic properties from dust is not expected because areas with the potential to generate dust would be controlled by a Fugitive Dust Control Plan and any dust leaving the site would most likely come from sources that would be characterized as having low sulfide/low metal content.

All active areas at the Mine Site and Plant Site would be subject to a Fugitive Dust Control Plan approved by the MPCA, which describes management of fugitive dust generated from unpaved roads across the NorthMet Project Proposed Action area, rock dumping and loading locations on the Mine Site, and areas potentially subject to wind erosion on the Plant Site (see Sections 4.1.6 and 4.3.9 of PolyMet 2015a, as cited in the FEIS).

FEIS Sections 5.2.3.2.2 and 5.2.3.2.4 includes a discussion on the potential indirect deposition effects on wetlands from particulate emissions from the Mine Site, Transportation and Utility

Corridor, and the Plant Site. The deposition modeling results for dust, metals, and sulfur would likely not have an adverse effect on wetlands; however, the modeling only indicated those areas that had deposition rates greater than 100 percent of background deposition. These specific wetlands areas would be identified for consideration in any future monitoring to be conducted for the NorthMet Project Proposed Action. Please refer to theme WET 11 for more information.

Theme AIR 06

Theme Statement

The project does not adequately estimate mercury emissions from all sources, or the impacts of mercury on resources and human health.

Thematic Response

The FEIS estimates the mercury emissions from the NorthMet Project Proposed Action and other nearby sources, including their impact on mercury in fish tissue levels. The NorthMet Project Proposed Action does not jeopardize the State's mercury emission reduction goals, as discussed in FEIS Section 6.2.6.3. In addition, please see the responses to themes HU 02, HU 03, as well as the themes associated with Mercury (MERC 01 through 24).

Theme AIR 07

Theme Statement

The emission estimates for the project fail to adequately quantify or speciate the components of the emissions including those that cause odor.

Thematic Response

Emissions from the NorthMet Project Proposed Action are quantified and presented in FEIS Table 5.2.7-4. No odor-causing compounds are anticipated to result from the NorthMet Project Proposed Action. FEIS Section 5.2.7.1.3 has been revised to more clearly address comments associated with this theme.

Theme AIR 08

Theme Statement

The SDEIS does not adequately assess the air pollution caused by existing taconite ore processing facilities or further offsite processing of the project's final product.

Thematic Response

FEIS Table 6.2-7-4 (formerly Table 6.2-20 in the SDEIS) includes nearby source emissions, including existing (permitted allowed) and reasonable foreseeable sources. Ambient air modeling includes these sources, as well as background concentrations, which include regional emissions generated from vehicles, as well as both far-field and localized smaller sources. If further off-site processing is proposed in the future, it would be subject to all applicable permitting requirements. FEIS Section 6.2.7.3 has been revised to state that other sources and reasonable future activity are already included in the analysis.

Theme AIR 09

Theme Statement

The project fails to adequately assess the downwind interstate transport of mercury emissions.

Thematic Response

The introduction of FEIS Section 5.2.7.2.5 has been revised to clarification the discussion of mercury transport. FEIS Section 5.2.7.2.5 contains information on the mercury impacts of the NorthMet Project Proposed Action relative to the Minnesota statewide mercury TMDL.

Theme AIR 10

Theme Statement

The air dispersion modeling is not adequate for assessing the effects on plant life due to deposition.

Thematic Response

Title 42, Chapter 85, Subchapter I, Part A, Section 7408 (a)(2) of the Clean Air Act directs the USEPA to develop air quality criteria for air pollutants that have identifiable effects on public health or "welfare." The term "welfare" in the context of the CAA includes the protection of vegetation. As a result, the Secondary NAAQS are designed to be protective of plant life, including the effects of both concentration and deposition of material.

FEIS Section 5.2.7.1.1 has been revised to include the above language regarding plant life, the Secondary NAAQS, and the use of information gathered through the Integrated Science Assessment and Ecological Risk Assessment process. In addition, FEIS Section 5.2.7.1.4 includes the results of a deposition modeling assessment that assesses depositional impacts on nearby Class I areas.

Theme AIR 11

Theme Statement

The project does not adequately assess the contribution of the project to regional haze in Class I areas.

Thematic Response

FEIS Section 5.2.7.1.4 contains a Class I visibility impact analysis. The FEIS concludes that the NorthMet Project Proposed Action does not jeopardize the Minnesota's Regional Haze State Implementation Plan (MPCA 2009b, as cited in the FEIS). The full discussion of visibility impacts and Regional Haze is included in FEIS Section 6.2.7.6.

Theme AIR 12

Theme Statement

The SDEIS requires clarification of air quality terms, values, and concepts.

Thematic Response

The FEIS has been revised to better describe and provide updated values for air pollution control terms, values, and concepts, including:

- The Annual $PM_{2.5}$ Standard in FEIS Table 4.2.7-1 changed from 15 to 12 (footnote added to reflect December 2012 updated standard).
- The Sulfur Dioxide 3-hour Primary Standard value in FEIS Table 4.2.7-1 is aligned with "Primary" in the "Standard Type" column.
- The Sulfur Dioxide 1-hour Standard listed as 0.075 ppm identified as the state standard has been corrected to 0.5 ppm by volume. The federal standard remains 0.075 ppm.
- In FEIS Section 5.2.7.1.3, the last sentence of the third paragraph has been revised from "ambient air quality monitors" to "PM_{10} monitors."
- The column headings in FEIS Table 5.2.7-4 have been revised to include "controlled potential" parenthetically under the existing headings (which are acknowledged to be non-standard air permitting nomenclature).
- The title of FEIS Table 5.2.7-6 has been changed from "Annual Hazardous Air Pollutant Emissions for Prevention of Significant Deterioration-regulated Stationary Sources" to read "Annual Hazardous Air Pollutant Emissions."
- An explanation of the use of short tons has been added in FEIS Table 5.2.7-7 and metric tons in FEIS Table 5.2.7-8.
- A footnote has been added to FEIS Table 5.2.7-7, indicating that the emission estimates in the table are not proposed permit limitations.
- FEIS Section 5.2.7.1.4 has been revised to indicate that the North Shore Mine was determined to be permitted before the Prevention of Significant Deterioration (PSD) baseline date, and is not an increment-consuming source; therefore, it was not included in the increment modeling.
- The sentence reading "NO_x and SO_2 would be primarily emitted by mobile sources" was removed from FEIS Section 5.2.7.2.1.
- In FEIS Section 5.2.7.2.3, the sentence that reads, "The risk driver for acute inhalation was NO_2 from the natural gas combustion" has been revised to read, "The risk driver for acute inhalation was NO_2 from the diesel fuel combustion."
- The highest second-high PM_{10} concentration of 29 $\mu g/m^3$ for the year 13 operating scenario is shown in FEIS Table 5.2.7-11.

- In FEIS Section 5.2.7.5.1, the statement, "The State of Minnesota's definition of amphibole mineral fibers incorporates..." has been revised to read, "The State of Minnesota's definition of fibers incorporates..."
- In FEIS Section 5.2.7.1.1, the statement, "The NorthMet Project area has been designated by the USEPA as attainment for all air quality pollutants" has been revised to read, "The NorthMet Project area has been designated by the USEPA as attainment or unclassified for all air quality pollutants."
- As stated in the FEIS, all of the receptor nodes with the highest model-estimated deposition rates were located within the ambient air boundary.
- The distinction between metallic dust and sulfide dust has been clarified in the text.

Theme AIR 13

Theme Statement

Comments related to issues that will be determined in the air quality permitting process.

Thematic Response

Comments identified as permitting-related are outside of the scope of the FEIS, and would be resolved during air quality permitting. These are issues that would be negotiated by the applicant and MPCA; the public would be involved through the permit review process. The role of the air permitting process is described in FEIS Section 5.2.7. In addition, the permitting authority of the MPCA is described in FEIS Section 4.2.7. Issues identified by comments in this theme that would be part of the air permitting process include:

- Ambient air quality monitoring;
- Air emissions monitoring;
- Air emissions reporting;
- Emission limits and averaging times;
- Permit limit compliance demonstration;
- Additional air emission mitigation measures; and
- Permitting applicability.

Theme AIR 14

Theme Statement

General statements of support for the Project based on perceived compliance with air quality regulations.

Thematic Response

These comments have been received and acknowledged by the Co-lead agencies. No specific information related to the environmental effects of the NorthMet Project Proposed Action was provided. No changes were made to the FEIS in response to these comments.

A.5.2 Issue: Alternatives (ALT)

Theme ALT 01

Theme Statement

The FEIS should evaluate an underground mining alternative. Such an alternative would cost more, but would have environmental benefits, such as greatly reducing forest, rare habitat, and wetland losses. The company's economic analysis of the underground mining alternative lacks support, and the assumed costs for water treatment for that alternative should be updated, especially considering that perpetual water treatment might not be necessary. Economics alone should not eliminate an alternative from consideration in the FEIS. A cost/benefit analysis should be done for this alternative. Tribal Cooperating Agencies identified this deficiency in the DEIS, consistently brought it forward for discussions throughout the SDEIS process, and USEPA cited the lack of alternatives as a factor when issuing an EU-3 rating for the DEIS.

Thematic Response

The Underground Mine alternative was first considered but eliminated during the Final Scoping Decision Document (FSDD) process. FEIS Section 3.2.3.4.1 describes how it was re-considered during the DEIS process as alternative E7 in response to Cooperating Agency and stakeholder comments, but eliminated from further consideration. The economic feasibility of the Underground Mine alternative was re-considered during development of the SDEIS. In response to a request from the Co-lead Agencies, PolyMet's consultants prepared an updated economic assessment of underground mining, which the Co-lead Agencies independently evaluated (see FEIS Appendix B). The Co-lead Agencies concluded that an underground mine would not be economically feasible, regardless of the tonnage extracted. In addition, the lower rate of ore production would not meet the Purpose and Need of the project. Although the Underground Mine alternative would offer environmental benefits over the NorthMet Project Proposed Action, it would result in reduced socioeconomic benefits. A position paper (FEIS Appendix B) was prepared to document the Co-lead Agencies' rationale for eliminating the Underground Mine alternative from further consideration.

FEIS Section 5.2.10.1.4 states, "neither NEPA nor CEQ requires the cost and benefits of a proposed action to be quantified in dollars or any other common metric. However, this EIS acknowledges that economic costs and loss of non-market value may result from environmental and social effects. Also acknowledged is that the agreement on the value (i.e., the "cost") of environmental effects is often difficult to achieve. Therefore, the approach of this EIS is to evaluate environmental and social impacts directly, in the appropriate resource-specific section." CEQ regulations for implementing NEPA (40 CFR 1502.23) state that, "for purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations."

Theme ALT 02

Theme Statement

An underground mining alternative does not require a land exchange.

Thematic Response

FEIS Section 3.3.3.3.6 states that a land exchange would not be needed if underground mining was proposed for the NorthMet Deposit.

See the response to Theme ALT 01 which discusses why the Underground Mine alternative is not reasonable.

Theme ALT 03

Theme Statement

The FEIS should evaluate a West Pit backfill alternative. This alternative would cost more but would have greater environmental benefits, such as reduced wetlands and water quality effects. The company's economic analysis for the West Pit backfill alternative lacks support. Economics alone should not eliminate an alternative from consideration in the FEIS. A cost/benefit analysis should be done for this alternative.

Thematic Response

The West Pit Backfill alternative (E20) was considered but eliminated during the development of the DEIS. It was eliminated from further consideration because it was determined that it would not offer significant environmental or socioeconomic benefits compared to the NorthMet Project Proposed Action and because backfilling the West Pit would prevent recovery of additional mineral resources. These factors are sufficient to qualify the West Pit Backfill alternative as unreasonable under NEPA, and justify its exclusion under *Minnesota Rules*, part 4410.2300, subpart G. It was re-considered in the SDEIS in response to DEIS comments from the Cooperating Agencies. A Co-lead Agencies memorandum (MDNR et al. 2013b, as cited in the FEIS) was prepared to summarize the decision-making process, which is referenced in FEIS Section 3.2.3.4.2. The Co-lead Agencies screened the alternative against criteria used for other alternatives, including Purpose and Need, Technical and Economic Feasibility, Availability, and Environmental or Socioeconomic Benefit. It is also important to note that the Virginia formation in the East Pit is more reactive than the pit walls in the West Pit, and that the East Pit can

accommodate all of the reactive Category 2/3 and 4 waste rock. The opportunity to reclaim wetlands and vegetation at the Category 1 Waste Rock Stockpile footprint area would be a measurable environmental benefit offered by backfilling the Category 1 Stockpile into the West Pit. However, some degree of these vegetation and wetland impacts would occur and would require mitigation regardless of future backfilling or not, because of the need to "temporarily" store these materials until mining operations cease.

FEIS Section 5.2.10.1.4 states, "neither NEPA nor CEQ requires the cost and benefits of a proposed action to be quantified in dollars or any other common metric; however, this EIS acknowledges that economic costs and loss of non-market value may result from environmental and social effects. Also acknowledged is that the agreement on the value (i.e., the "cost") of environmental effects is often difficult to achieve. Therefore, the approach of this EIS is to evaluate environmental and social impacts directly, in the appropriate resource-specific section." CEQ regulations for implementing NEPA (40 CFR 1502.23) state that, "for purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations."

Theme ALT 04

Theme Statement

A perpetual pumping alternative for the West Pit could mitigate or prevent long-term environmental damage. It would prevent a pit lake from forming, thus protecting surface and groundwater.

Thematic Response

An interagency memorandum was prepared regarding the West Pit Water Elevation Alternative (MDNR et al. 2014, as cited in the FEIS). This alternative includes both the option to maintain a dry West Pit through perpetual pumping and maintaining pit water levels below the elevation of the Partridge River. The alternative was screened against criteria used for other alternatives, including Purpose and Need, Technical and Economic Feasibility, Availability, and Environmental or Socioeconomic Benefit. The screening level assessment concluded that the alternative would meet all criteria except for the environmental or socioeconomic benefit criterion. Continuous dewatering of the West Pit would keep the pit walls exposed instead of covered by a pit lake as in the NorthMet Project Proposed Action. This exposure would potentially result in increased solute loading to a smaller pit lake volume, and thus higher concentrations of pollutants than under the NorthMet Project Proposed Action. Consequently, treatment would be required for a longer period of time. The Co-lead Agencies recommend that the Alternative be considered as an adaptive mitigation measure in the event that monitoring during operations and reclamation indicate that implementing this action is better able to meet future environmental objectives, compared to the NorthMet Project Proposed Action.

Theme ALT 05

Theme Statement

The SDEIS fails to evaluate an alternative that would allow the West Pit to refill naturally without pumping, thereby avoiding effects on Yelp Creek.

Thematic Response

Allowing the West Pit to refill naturally without pumping water into the pit would keep the pit walls exposed for a longer time period, which would potentially result in increased solute loading to a smaller pit lake volume and higher concentrations of pollutants than under the NorthMet Project Proposed Action. Consequently, treatment would be required for a longer period of time.

In addition, groundwater from the West Pit is projected to flow towards the Partridge River rather than Yelp Creek under the NorthMet Project Proposed Action. The NorthMet Project Proposed Action would not be anticipated to have any different impact on Yelp Creek than would be expected with natural flooding. Allowing the West Pit to refill naturally without pumping water into the pit does not offer significant environmental benefits when compared to the NorthMet Project Proposed Action.

Theme ALT 06

Theme Statement

The FEIS should address other alternatives, such as mine design alternatives, a reduced scale of operations, paste tailings, more waste rock backfilling for wetland benefits, and limestone addition to reduce sulfate levels.

Thematic Response

An off-site disposal of waste rock alternative (E1) and off-site subaqueous in-pit disposal of waste rock in the LTVSMC Area 3 pit or other Dunka pits alternatives (E2, E6) were considered but eliminated in the DEIS. The Co-lead Agencies determined after independent review that off-site subaqueous disposal of waste rock would not have environmental benefits greater than on-site subaqueous disposal. In addition, the alternatives were eliminated because of the added potential impacts associated with transporting waste rock off site, or because off-site locations were insufficient in storage capacity or unavailable due to access rights.

The Co-lead Agencies considered several different reduced scales of operation (e.g., E21), but each was deemed unreasonable and eliminated because they were not economically feasible and/or they did not significantly reduce environmental impacts.

A thickened tailings (paste tailings) alternative (A1) was considered but eliminated in the DEIS and post-DEIS, as it was found not to offer significant environmental benefits when compared to the NorthMet Project Proposed Action.

FEIS Section 3.2.2.1.10 states that waste rock would be backfilled into the East Pit starting at year 11 and in the combined East Central Pit starting in year 16. After backfilling is complete, a wetland would be constructed over the combined East Central Pit.

FEIS Section 3.2.2.1.10 also discusses the possibility of adding lime to the East Pit during waste rock backfilling in order to maintain circumneutral pH in the pit pore water. The volume of lime required would be determined through monitoring during operations. During reclamation, water from the West Pit would be treated at the Wastewater Treatment Facility (WWTF), which would be upgraded to include a Reverse Osmosis (RO) treatment unit (or equivalent performing technology) to meet applicable water quality standards.

Theme ALT 07

Theme Statement

The SDEIS does not adequately analyze major design alternatives, such as the use of liners for the Overburden Storage and Laydown Area or Category 1 Stockpile.

Thematic Response

As described in the FEIS, liners would be installed for stockpiles or areas where there is a potential to generate acid and/or metal leachate from potentially reactive waste. Temporary stockpiles (Category 2/3 and Category 4) and the Ore Surge Pile would contain a liner. The Category 1 Stockpile would have a containment system to collect seepage, which would be pumped to the WWTF. The Overburden Storage and Laydown Area would hold peat soils and unsaturated overburden, which are not considered to be reactive.

The EIS scoping process, as documented in the FSDD, examined several modified design alternatives, as well as multiple mitigation and monitoring measures. The 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) also discussed a liner system as part of its consideration of a modified design or layout at the Mine Site. Key aspects of this alternative from the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) were incorporated into the NorthMet Project Proposed Action and assessed in the SDEIS.

Theme ALT 08

Theme Statement

The FEIS should consider an alternative that employs fly ash as a solution to potential acid mine drainage. For example, fly ash could be used as a mine cap and/or a neutralizing agent in the mine pit.

Thematic Response

The analysis in the FEIS shows that the treatment and mitigation measures employed as part of the NorthMet Project Proposed action would prevent acid mine drainage.

During operations, water from the mine pits would be treated at the WWTF. During reclamation, water from the West Pit would be treated at the WWTF, which would be upgraded to include a RO treatment unit (or equivalent performing technology). Treatment at this unit would result in an effluent that meets all applicable water quality standards.

FEIS Section 3.2.2.1.10 discusses the possibility of adding lime to the East Pit during waste rock backfilling in order to maintain circumneutral pH in the pit pore water. The necessity of this mitigation measure and the volume of lime required would be determined through monitoring.

Fly ash is regulated by the Minnesota Pollution Control Agency (MPCA) under their Industrial Solid Waste Rules and is proposed to be regulated by the U.S. Environmental Protection Agency (USEPA) under their draft amendment to the Resource Conservation and Recovery Act (RCRA) Subtitle D. In general, fly ash must be disposed of within a lined facility or be used in a manner approved by appropriate regulation. With the exception of beneficial use as a cement replacement, studies, permits, and approvals are required for both fly ash disposal and beneficial use. The potential use of fly ash could be assessed during the permitting process.

Theme ALT 09

Theme Statement

The FEIS should consider alternative means of storage, recycling, transport, and disposal of mining operation by-products, such as hydrometallurgical residue or reject concentrate.

Thematic Response

The FEIS discusses the storage, recycling, transport, and disposal of mining operation byproducts. For example, FEIS Section 3.2.2.3.7 describes the management of hydrometallurgical residue, which would be disposed of in the Hydrometallurgical Residue Facility. The facility would be located at the existing LTVSMC Emergency Basin. This facility would include a double-lined cell that could be expanded vertically and horizontally, as needed. The water ponded at the Hydrometallurgical Residue Facility would be returned/recycled to the Hydrometallurgical Plant as much as possible. Because solids from the Mine Site WWTF would be similar to hydrometallurgical residue, they would be recycled directly into the Hydrometallurgical Plant and disposed of in the Hydrometallurgical Residue Facility. Transporting these materials to an off-site location was found not to offer significant environmental benefits when compared to the NorthMet Project Proposed Action.

FEIS Section 3.2.2.3 also explains that reject concentrate from the Plant Site WWTP would be treated at the Mine Site WWTF. In the long term, reject concentrate from the WWTP and the WWTF would be evaporated, and the residual solids disposed of at appropriate off-site facilities (see FEIS Sections 3.2.2.1.10, 3.2.2.3.12).

Theme ALT 10

Theme Statement

The FEIS should evaluate different Tailings Basin design alternatives, such as a lined facility or a different location. Specifically, the FEIS should evaluate paste tailings placed on a lined and covered facility.

Thematic Response

FEIS Table 3.2-17 compares the previous alternatives that were screened for the SDEIS. An off-site subaqueous in-pit disposal of tailings alternative (E5) was considered but eliminated in the DEIS. The Co-lead Agencies determined after independent review that off-site subaqueous disposal of waste rock would not have environmental benefits greater than on-site subaqueous disposal. In addition, the alternatives were eliminated because of the added potential impacts

associated with transporting waste rock off-site or because off-site locations were insufficient in storage capacity or unavailable due to access rights.

A thickened tailings (paste tailings) alternative TB-1 was considered but eliminated in the DEIS, and post-DEIS it was reconsidered and determined not to offer significant environmental benefits when compared to the NorthMet Project Proposed Action.

A co-disposal of waste rock and tailings on a lined tailings basin alternative (E14) was considered but eliminated in the DEIS because it was not technically feasible and its economic feasibility was uncertain. Several different Tailings Basin alternatives (TB2-TB6) were reconsidered but eliminated during the SDEIS process. These Tailings Basin alternatives did not afford significant environmental benefits when compared to the enhanced engineering controls (seepage collection and RO mechanical water treatment) built into the NorthMet Project Proposed Action. A dry cap alternative was considered; however, seepage was predicted to result in substantially higher constituent concentrations.

After the close of the comment period on the SDEIS, but prior to publication of the FEIS, an Independent Expert Engineering Investigation and Review panel issued a *Report on Mount Polley Tailings Storage Facility Breach* (IEEIRP 2015). This report was reviewed by geotechnical staff from the Co-lead Agencies as part of developing this response. The report contained general recommendations that can be considered to reduce the risk of tailings dam failures. Environmental review of the NorthMet Project considered design and siting features similar to the recommendations in the report. The specific use of dry stacking technology would increase tailings basin stability, but when other site specific and environmental factors are considered, this alternative technology does not have significant environmental benefit over the proposed Project. Other factors considered included:

- Industry standard for dry stacking includes the use of a basin liner. Construction of a basin liner on the existing LTVSMC tailings basin has been evaluated and determined not to be feasible.
- Use of dry stack technology would require a new tailings basin to be constructed in a different location as a lined dry stack basin. A separate dry stack tailings basin would increase footprint effects of the project.
- The proposed Project addresses legacy water quality issues of the LTVSMC tailings basin while making use of the brownfield site for tailings disposal. A separate dry stack tailings basin would not address LTVSMC tailings basin legacy issues.

Theme ALT 11

Theme Statement

The FEIS should address Tailings Basin emergency overflow channel alternatives.

Thematic Response

According to *Minnesota Rules*, part 6132.2500, Tailings Basin designs must ensure that probable maximum precipitation (PMP) rainfall events do not result in overtopping the basin. The emergency overflow channel is a design feature required to prevent Tailings Basin failure in such

a situation. The emergency overflow for the Tailings Basin is discussed in the FEIS Section 3.2.2.3.10.

FEIS Table 3.2-17 compares the previous alternatives that were screened for the SDEIS. Various modified designs of the Tailings Basin and tailings management technologies were considered as an alternative (A1) during the DEIS process, but were found not to offer significant environmental benefits when compared to the NorthMet Project Proposed Action.

Theme ALT 12

Theme Statement

Water from Colby Lake for ore processing may not always be available. The FEIS should evaluate alternative sources, such as spring snow-melt.

Thematic Response

FEIS Table 3.2-17 describes an alternative that was considered in the DEIS (E19) that would have used non-contact stormwater from the Mine Site detention pond as process water at the Plant Site, to reduce withdrawals from Colby Lake. The Co-lead Agencies eliminated this alternative because it was found not to offer significant environmental benefits when compared to the NorthMet Project Proposed Action, as it would reduce the flow in the Partridge River. The water needed for ore processing would primarily be from the Tailings Basin pond and collected seepage. Colby Lake make-up water would only be drawn on an as-needed basis. Water management of the NorthMet Project Proposed Action changed since the publication of the SDEIS. Predicted average annual demand for Colby Lake water decreased from 1,170 gpm to 760 gpm.

Theme ALT 13

Theme Statement

The FEIS should specifically consider (or consider in greater detail) alternative designs and operational approaches that reduce air emissions and water contamination, while mitigating effects on aquatic ecosystems, wetlands, or important habitat types. Examples include earlier use of the reverse osmosis (RO) system beginning in year one, a Category 1 Stockpile liner, and other efforts to reduce or foreshorten the reactivity of waste rock and tailings.

Thematic Response

The WWTP would include a RO unit or equivalent technology beginning year one throughout operations, while the WWTF would be upgraded to include a RO unit or equivalent technology during closure. The Category 1 Stockpile would have a containment system to collect seepage that would be pumped to the WWTF.

Alternatives to the NorthMet Project Proposed Action were identified in accordance with the requirements of NEPA and MEPA. Engineering controls and mitigation measures have been incorporated into the NorthMet Project Proposed Action to minimize effects, including air emissions and water contamination, to subsequently minimize potential effects to aquatic ecosystems, wetlands, or other important habitat types. Refer to FEIS Section 3.2.3.3 for more

information on the development of the NorthMet Project Proposed Action and alternatives. Refer to FEIS Table 3.2-16 for the engineering controls adopted into the NorthMet Project Proposed Action since the DEIS in order to reduce emissions and mitigate impacts. During operations, extensive monitoring would be required, and adaptive management would be used to ensure minimization of effects and compliance into the future.

FEIS Table 3.2-17 compares the previous alternatives that were screened for the SDEIS. Alternatives were considered in the SDEIS (E2, E6) that would transport the Category 2/3 and Category 4 waste rock and/or tailings to an off-site pit for subaqueous disposal. These alternatives were eliminated because the added impacts associated with transport were found not to offer significant environmental benefits when compared to the NorthMet Project Proposed Action.

Theme ALT 14

Theme Statement

The SDEIS does not provide an adequate analysis of the No Action Alternative. In particular, there is no detailed discussion of the No Action Alternative, and the analysis provided does not accurately characterize changes that would occur under the Cliffs Erie Consent Decree, in the absence of the Project. In particular, the SDEIS does not recognize the direct and indirect effects on wetlands from the No Action Alternative.

Thematic Response

FEIS Section 3.2.3.2 discusses how the Consent Decree under the NorthMet Project No Action Alternative would require Cliffs Erie to complete closure and reclamation activities at the Plant Site. This would include completing activities for the localized affected areas under the Minnesota Voluntary Investigation and Cleanup (VIC) Program, removal of the former Plant Site building, and management of seepage at the Tailings Basin embankment. FEIS Table 3.2-1 shows that under the NorthMet Project No Action Alternative, there would be no mining activities, and that existing management and land use of the federal lands would continue. The NorthMet Project No Action Alternative is also analyzed under each resource area in FEIS Chapter 5, and summarized in FEIS Table 7.2.4-1. FEIS Section 5.2.3.4 identifies that under the NorthMet Project No Action Alternative, there would be no direct or indirect effects on wetlands.

Theme ALT 15

Theme Statement

The FEIS should analyze an alternative that achieves no active treatment (zero discharge) at closure.

Thematic Response

The DEIS considered two potential options that could be considered as no active treatment, or zero discharge, scenarios. They involved pre-treatment of reactive runoff from the Mine Site and process water from the Plant Site Tailings Basin, and discharge this water to the Cities of Hoyt Lakes' or Babbitt's Publically Owned Treatment Works (POTWs). See FEIS Table 3.2-17 for

alternatives E16 and E17, respectively. These alternatives were eliminated because the nearby POTW facilities would not have enough capacity to handle the projected volume of water, and were found not to offer significant environmental benefits when compared to the NorthMet Project Proposed Action. FEIS Sections 3.1.1.7 and 3.2.1 indicate that a goal for long-term water treatment in the NorthMet Project Proposed Action is to provide mechanical or non-mechanical treatment for as long as necessary to meet regulatory standards at applicable groundwater and surface water compliance points.

Minnesota Rules, part 6132.3200, subpart 2.E.6 allow for closure and post-closure maintenance, and state that post-closure maintenance includes those techniques or activities that are required to meet closure objectives. PolyMet plans to do pilot-scale testing of non-mechanical water treatment technologies (e.g., Permeable Reactive Barriers [PRBs], Sulfate Reducing Bacteria [SRB] cubes, etc.) during mine operations and following closure until an acceptable treatment performance could be achieved for full scale implementation.

Theme ALT 16

Theme Statement

The FEIS should identify and analyze alternatives that use more modern, less environmentally damaging mineral extraction techniques, including underground mining.

Thematic Response

As discussed in the response to Theme ALT01, the Co-lead Agencies considered an Underground Mine alternative that could have offered environmental benefits when compared to the NorthMet Project Proposed Action. A position paper (FEIS Appendix B) documents the Co-lead Agencies' rationale to eliminate the Underground Mine alternative from further consideration, because it would not meet the Purpose and Need and would not be economically feasible.

FEIS Table 3.2-17 states that other hydrometallurgical technologies were considered in an alternative (E8), but eliminated in the FSDD. The Co-lead Agencies concluded that these hydrometallurgical technologies were found not to offer significant environmental benefits when compared to the NorthMet Project Proposed Action.

Theme ALT 17

Theme Statement

The FEIS should address other alternatives, such as solar hydrogen or fumarole biotics to reduce sulfate levels. Use of slowly biodegradable electron donor materials should be considered.

Thematic Response

The Co-lead Agencies considered a reasonable range of alternatives during screening. FEIS Sections 3.1.1.7 and 3.2.1 indicate that a goal for long-term water treatment in the NorthMet Project Proposed Action is to provide mechanical or non-mechanical treatment for as long as necessary to meet regulatory standards at applicable groundwater and surface water compliance points. The Permit to Mine may also include a requirement to perform pilot testing on non-

mechanical treatment methods during operations. After closure, water from the West Pit would be treated at the WWTF, which would be upgraded to include a RO treatment unit (or equivalent performing technology). Treatment at this unit would result in an effluent that meets all applicable water quality standards, eliminating the need for alternative technologies in the mine pits. Similarly, water that could not be stored in the Tailings Basin would be treated at the WWTP, which would include a RO treatment unit (or equivalent performing technology).

Theme ALT 18

Theme Statement

Adaptive management is itself an alternative that must be analyzed in the FEIS.

Thematic Response

CEQ regulations (40 CFR 1502.14(f)) do not require adaptive management to be analyzed as its own alternative. Further, USEPA guidance on utilization of adaptive management defines it as a decision making process that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood - not as a separate alternative for NEPA purposes. The FEIS discusses adaptive management in Section 5.2.2.3.5.

Theme ALT 19

Theme Statement

The FEIS should evaluate alternatives to open-pit mining such as hydrometallurgy, where a leach liquor solution is used to extract the precious metal.

Thematic Response

The Co-lead Agencies considered a reasonable range of alternatives during screening. As discussed in response to ALT 16, other hydrometallurgical technologies were considered in an alternative (E8) but eliminated in the FSDD (see FEIS Table 3.2-17). The Co-lead Agencies concluded that these hydrometallurgical technologies would have no significant environmental benefit when compared to the NorthMet Project Proposed Action.

Theme ALT 20

Theme Statement

The SDEIS fails to identify an Agency Preferred Alternative and/or a Least Environmentally Damaging Practicable Alternative (LEDPA).

Thematic Response

CEQ regulations (40 CFR 1502.14) states that based on the information and analysis presented in the affected environment and environmental consequences sections of an EIS, the EIS should present the environmental impacts of the proposal and the alternatives in comparative form to provide a clear basis for choice among the alternative options by the decision makers and the public. The regulations further state under 1502.14(e) that federal agencies shall identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and

identify such alternative in the final statement unless another law prohibits the expression of such a preference; however, the regulations do not require a rationale for the choice. No similar requirement to identify a preferred alternative exists for the MDNR under state law.

For the USFS, the Agency-Preferred Alternative is the Land Exchange Proposed Action described in Section 3.3.2. Potential effects specifically relating to the Land Exchange Proposed Action are identified in Sections 5.3 and 6.3. Table 7.3.5-1 summarizes potential effects relating to public interest factors considered for the Land Exchange Proposed Action and its alternatives. The FEIS Sections 3.2.3.4, 7.4, and 7.5 further detail this process.

Theme ALT 21

Theme Statement

Alternatives screening in Section 3.2.3 was flawed because it either eliminated alternatives or incorporated them into the project, rather than subjecting them to detailed review in the body of the SDEIS. This is not consistent with the purpose of an EIS, and is therefore a violation of the National Environmental Policy Act (NEPA).

Thematic Response

FEIS Section 3.2.3 describes how the alternatives were developed from initial project scoping through the SDEIS. Minnesota Rules and CEQ rules (40 CFR 1502.14) require a comparison of the effects of the proposed action and alternatives. The FEIS compares the effects of the NorthMet Project Proposed Action, NorthMet Project No Action Alternative, Land Exchange Proposed Action, Land Exchange Alternative B, and Land Exchange No Action Alternative.

The original project proposal and alternatives were developed during project scoping in 2005. The project was refined at various points in response to public and agency input. As a result, the NorthMet Project Proposed Action studied in the SDEIS incorporates additional engineering controls that were not part of the proposed action in the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). The alternatives to the NorthMet Project Proposed Action that were eliminated during the scoping and DEIS phases of the project were re-assessed during development of the SDEIS.

Alternatives were eliminated from detailed evaluation if they did not offer substantial environmental or socioeconomic benefits, were not reasonable (were not technically or economically feasible), were not available, or would not meet the Purpose and Need. This review—beginning during the scoping process and concluding with the FEIS—is consistent with the alternatives review required by NEPA and MEPA, and with the CEQ rules for analyzing alternatives.

Theme ALT 22

Theme Statement

Section 3.2.3 of the SDEIS would be improved if it better reflected the thoroughness of the Co-lead Agencies' alternatives review, including review that occurred during scoping and the 2009 DEIS.

Thematic Response

Additional clarifying information has been included in the FEIS. The FEIS incorporates available and relevant details about the Co-lead Agencies' alternatives review, specifically in section 3.2.3. This section describes how the alternatives were developed from initial project scoping through the SDEIS. FEIS Table 3.2-17 identifies alternatives that were screened for the SDEIS.

Theme ALT 23

Theme Statement

The SDEIS analyzes an insufficient range of Land Exchange alternatives.

Thematic Response

Following the publication of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS), several land exchange alternatives were identified, screened, and made a part of the SDEIS scoping process. Some of the land exchange alternatives were ultimately eliminated from detailed analysis. The FEIS separately compares the Land Exchange Proposed Action, Land Exchange Alternative B, and Land Exchange No Action Alternative. FEIS Section 3.3.3 discusses the process by which land exchange alternatives were analyzed.

Theme ALT 24

Theme Statement

The SDEIS and associated documents provide sufficient alternatives analysis. However, additional detail is available and should be included in the FEIS.

Thematic Response

Additional clarifying information has been included in the FEIS. The FEIS incorporates available and relevant details about the Co-lead Agencies' alternatives review, specifically in Section 3.2.3. FEIS Table 3.2-17 identifies alternatives that were screened for the SDEIS, and FEIS Section 3.2.3 describes how alternatives were developed through a process from initial project scoping through the SDEIS (which includes the FSDD, DEIS, SDEIS, and FEIS—along with supporting attachments, appendices, and addenda).

A.5.3 Issue: Aquatic Species (AQ)

Theme AQ 01

Theme Statement

The SDEIS does not include adequate information and data on fisheries and aquatic organisms (e.g., microbiota; mollusks). The FEIS should include additional baseline data on the aquatic biota as well as habitat identification and monitoring, particularly of aquatic indicator species, in order to determine potential effects from the NorthMet Project. In addition, the assessment area defined by the Co-lead Agencies for effects on aquatic species from the Project is overly limited.

Thematic Response

Additional relevant aquatic species baseline data has been added to FEIS Tables 4.2.6-4, 4.2.6-5, and 4.2.6-6 in Section 4.2.6.1.3. Aquatic Monitoring would be finalized during permitting; however, overviews of water monitoring plans at the Mine Site and Plant Site are presented in FEIS Section 5.2.2.3.6. The NorthMet Project Proposed Action is not considered to have the potential for effects on hydrology and water quality in the St. Louis River Watershed. As a result, the assessment area for aquatic species is defined by the Partridge River and Embarrass River watersheds.

Theme AQ 02

Theme Statement

The SDEIS contains outdated information regarding tribal lake sturgeon (*Acipenser fulvescens*) reintroduction efforts. Uncontrolled contaminant loading from existing mine facilities, along with elevated constituents from the Proposed Project, have the potential to affect the successful establishment of a sustainable lake sturgeon fishery throughout the St. Louis River Watershed. Updated data on these efforts along with additional baseline data on the existing aquatic ecology is needed in order to determine potential effects on lake sturgeon from the Proposed Project.

Thematic Response

Existing data review from the Minnesota Department of Natural Resources (MDNR) and Fond du Lac Band of Lake Superior Chippewa (FDL) since publication of the SDEIS indicates recruitment and a viable population of lake sturgeon do exist in the St. Louis River Watershed (see FEIS Section 4.2.6). The NorthMet Project Proposed Action is not considered to have the potential for cumulative effects on hydrology and water quality in the St. Louis River Watershed (see FEIS Section 5.2.6). As a result, no effects to lake sturgeon population within the St. Louis Watershed would occur.

Theme AQ 03

Theme Statement

The SDEIS states that the current fish tissue concentration in five local lakes results in Hazard Quotients that exceed 1, but gives no further information. The actual values of the Hazard Quotients and their meaning should be included in the FEIS.

Thematic Response

Information pertaining to the specific Hazard Quotients summarized in the report *Cumulative Impacts Analysis, Local Deposition and Bioaccumulation in Fish* (Table 5 of Barr 2012b, as cited in the FEIS) and their significance have been included in the FEIS Section 6.2.6.3.3, which summarizes the cumulative effects assessment for mercury deposition.

Theme AQ 04

Theme Statement

The Index of Biotic Integrity scores in the SDEIS (Table 4.2.6-4) do not indicate good fish assemblage conditions.

Thematic Response

Index of Biological Integrity (IBI) scores were derived from two MPCA fish surveys conducted at sites MCA_97LS077 and MCA_09LS105. The scores of 61 and 87, respectively, represent average to good habitat quality. FEIS Table 4.2.6-4 has been edited to include data for 09LS105 and USFS_SBPR (see revised FEIS Figure 4.2.6-1). The IBI was not available for many of the Partridge River sites closest to the NorthMet Project area; however, the presence of one or more intolerant or intermediate species in each of these monitoring locations is one indication that quality habitat is present at these sites, and that chemical and physical stream deterioration is likely negligible.

Theme AQ 05

Theme Statement

Sulfates and toxic metals such as mercury, arsenic, copper, and nickel from the Project that are not captured for treatment would affect aquatic organisms—including their population size, community composition, and habitats. This may impact fish, mollusk, and wild rice resources and in turn affect people, birds, and wildlife that depend on fish and other aquatic organisms for food.

Thematic Response

The NorthMet Project Proposed Action is designed to capture sulfates and metals with engineering controls and adaptive management. FEIS Section 4.2 describes existing conditions that may be directly or indirectly affected by the NorthMet Project Proposed Action. Potential impacts to water resources and aquatic species from the NorthMet Project Proposed Action are discussed in detail in FEIS Section 5.2.2 and Section 5.2.6, respectively. The discussion in FEIS Section 5.2.6 now provides additional information on potential impacts to aquatic species from metals, specifically aluminum and lead. Water monitoring would ensure that water quality standards would be met with engineering controls. In addition, spill prevention plans would be implemented. These measures would minimize any potential impacts to aquatic species. See also the responses to themes AQ 06 and AQ 22.

Theme AQ 06

Theme Statement

The SDEIS does not address aquatic toxicity or effects on aquatic life from chemicals or other constituents in the Tailings Basin leachate or water leaving the Mine Site. Toxicity testing of mine waste, Tailings Basin and Hydrometallurgical Residue Facility leachates prior to issuing the FEIS would identify risks to aquatic life from inorganic ions as well as from metals solutes.

The FEIS should be revised to evaluate the significance of the potential effects on aquatic life from increased metal solutes under the NorthMet Project Proposed Action, including solutes not predicted to exceed water quality standards.

Thematic Response

Potential impacts to aquatic species from the NorthMet Project Proposed Action are discussed in detail in FEIS Section 5.2.6. The discussion in FEIS Section 5.2.6 now provides additional information on potential impacts to aquatic species from metals, specifically aluminum and lead. Toxicity testing of mine waste, Tailings Basin and Hydrometallurgical Residue Facility leachates themselves is not planned and are not necessary, because these are within the engineering controls; however, water monitoring, including Whole Effluent Toxicity (WET) testing, as appropriate, would ensure that water quality standards would be met with engineering controls. Specific monitoring details would be addressed in permitting. In addition, spill prevention plans would be implemented. See also the responses to themes AQ 05 and AQ 22.

Theme AQ 07

Theme Statement

To comply with NEPA and MEPA, the FEIS should provide substantially more information on the likely effects of aluminum and lead exceedances on the aquatic community.

Thematic Response

The discussion in FEIS Section 5.2.6 now provides additional information on potential impacts to aquatic species from metals, specifically aluminum and lead. An exceedance of aluminum could potentially affect aquatic species by causing pulmonary problems, developmental issues, and osmoregulatory disturbances (Soucek 2006, as cited in the FEIS). However, given the similarity between the Continuation of Existing Condition Scenario and the NorthMet Project Proposed Action, aluminum values at Embarrass River and Partridge River evaluation locations, impacts from aluminum to aquatic species due to the NorthMet Project Proposed Action are not anticipated. Lead does not bioaccumulate, and tends to decrease with increasing trophic levels in freshwater habitats. Exposure to high levels of lead could result in muscular and neurological degeneration and destruction, growth inhibition, reproductive problems, paralysis, and mortality in fish. It could also negatively affect invertebrate reproduction as well as reduce growth, photosynthesis, mitosis, and water absorption in aquatic plants (Eisler 1988b, as cited in the FEIS). The NorthMet Project Proposed Action is designed to capture metals with engineering controls and adaptive management. Water monitoring would ensure that water quality standards would be met with engineering controls. In addition, spill prevention plans would be implemented. These measures would minimize any potential impacts to aquatic species.

Theme AQ 08

Theme Statement

Acid mine drainage would pollute surrounding water and lower the pH of the water. Sulfuric acid runoff can kill many important fish species and can indirectly alter the food chain by reducing food availability for birds and other mammals. These consequences could impact the fishing industry and the health of those who consume fish (i.e., humans, birds, other wildlife) from areas exposed to acid mine drainage.

Thematic Response

The FEIS considers the release of acidity from proposed NorthMet facilities in that leachate from all acid-generating material (Waste Rock and pit wall rock composed of Category 2/3 and Category 4 material) would be captured and treated prior to discharge. The permanent surficial waste facilities (Category 1 Stockpile and Tailings Basin) would contain material that is not expected to produce acidic leachate. The non-acid generating waste was identified using multi-year kinetic tests (humidity cells) on NorthMet rock samples. Waste rock with 0.12 percent sulfide S or less is the threshold for selecting non-acid generation mine waste and, is supported by long-term humidity cell tests on NorthMet waste (i.e., 38 samples of Category 1 waste rock, with tests now run between 187 and 337 weeks; and 33 humidity cell tests run on NorthMet Tailings between 84 and 304 weeks [Attachments C and F, of PolyMet 2015q, as cited in the FEIS]). These tests demonstrate that tailings and Category 1 waste rock materials do not generate acidic leachate, and acid generation rates decreases over time as sulfide S minerals are depleted. The NorthMet Project Proposed Action design thus prevents the introduction of acidic leachate to surface water that could affect fisheries.

Theme AQ 09

Theme Statement

The SDEIS ignores the broad effects of underwater disposal on metal and other constituent concentrations. As the pits fill, the high concentrations of these parameters will seep or flow out of the pits, and will impact the adjacent wetlands and the Partridge River Watershed, as well as the aquatic life in them.

Thematic Response

The rate of oxidation and associated release of acidity and metals from waste rock and wall rock after it is submerged under water was considered by the Impact Assessment Process (see Table 1 of MPCA 2011d, as cited in the FEIS). Analysis found that after the rock was submerged by a layer of oxygenated water, the rate of oxidation in the rock would decrease by at least a factor of approximately 800 relative to the oxidation rate when it was exposed to atmospheric oxygen (Day 2008, as cited in the FEIS). Based on this analysis, which is consistent with general results of studies on subaqueous disposal of sulfide-bearing mine waste, the GoldSim model assumed that oxidation in submerged wall rock and waste rock was negligible. Therefore, modeling has indicated that the NorthMet Project Proposed Action would not impact the adjacent wetlands and the Partridge River Watershed, as well as the aquatic life in them. FEIS Section 5.2.5.2.3

discusses potential impacts to wildlife from incidental contact with the tailings basin pond and pit lakes. FEIS Section 5.2.2.3.6 discusses on-site monitoring.

Theme AQ 10

Theme Statement

Many Trust Resources will continue to have direct access to open water sources at the Mine Site (mainly migratory birds and northern long-eared bat). The FEIS should clearly state the anticipated water quality of the West Pit and East-Central Pit lakes and the potential for bioaccumulation of methylmercury from aquatic invertebrates and other food chain pathways, and should propose measures to minimize or mitigate for any effects on Trust Resources throughout the life of the mine and into reclamation phase.

Thematic Response

The Cultural Resources section of the FEIS Chapters 4 and 5 addresses the federal Co-lead Agencies' federal tribal trust responsibilities as part of the 1854 Treaty. These sections, along with other relevant natural resources sections of Chapters 4, 5, and 6, also address effects, and any proposed mitigation for effects, on cultural resources and culturally significant natural resources that do not qualify for listing on the National Register of Historic Places (NRHP).

Based on the results of water quality modeling, the water quality of the West Pit Lake, East Pit wetland and Tailings Basin pond is predicted to be at concentrations not injurious to wildlife. On-site monitoring of water bodies within facility boundaries would likely be a part of a monitoring program. Monitoring details would be finalized in the permitting process. FEIS Section 5.2.5.2.3 discusses potential impacts to wildlife from incidental contact with the tailings basin pond and pit lakes. FEIS Section 7.3.4 discusses potential human health impacts. FEIS Section 5.2.2.3.6 discusses on-site monitoring. FEIS Section 5.2.2.3.4 discusses bioaccumulation of methylmercury.

Theme AQ 11

Theme Statement

Several waterbodies within the Project area are impaired (as defined by the Clean Water Act) for Fishes Bioassessments, Mercury in Fish Tissue, and Aquatic Macroinvertebrates Bioassessments. Any additional releases of constituents, including metals such as mercury and copper, to the environment will exacerbate these already existing impairments.

Thematic Response

FEIS Section 4.2.2.1.2 and Table 4.2.2-2 identify the existing impairments of waters downstream of the NorthMet Project area. In particular, the Embarrass River is listed on the final 2012 "TMDL List" as impaired for Fishes Bioassessments, and the St. Louis River and several lakes in the Embarrass Chain of Lakes are listed as impaired for Mercury in Fish Tissue.

With respect to the Fishes Bioassessment impairment in the Embarrass River, the specific stressor (or pollutant) causing the impairment has not yet been identified – stressor identification studies are currently in progress by the MPCA to identify the cause of the impairment. Without

that identification, it is speculative to attempt to describe potential impacts on the impairment as a result of the proposed project. However, that said, the discharge from the Plant Site Wastewater Treatment Plant (WWTP) to the tributaries of the Embarrass River would be required to meet all applicable Water Quality Based Effluent Limits.

For the Mercury in Fish Tissue impairments, atmospheric deposition of mercury has been identified as the dominant source of mercury for these waters – this is summarized in FEIS Section 5.2.7.2.5. MPCA has conducted a review of potential mercury emissions from the proposed project and has determined that they would not impede the state's reduction goals (MPCA 2013l, as cited in the FEIS). Furthermore, discharges to surface water from the Plant Site WWTP and from the Mine Site Wastewater Treatment Facility (WWTF) are both expected to meet the 1.3 ng/L water quality standard for mercury at the point of discharge. Overall, the NorthMet Project Proposed Action is predicted to result in no increase in mercury loading and a net decrease in sulfate loading to downstream impaired waters (mercury and sulfate being contributory to methylation of mercury and accumulation of mercury in fish tissue) as compared to the Continuation of Existing Conditions Scenario. Potential impacts to water resources and aquatic species from the NorthMet Project Proposed Action are discussed in detail in FEIS Section 5.2.2 and FEIS Section 5.2.6, respectively. Water monitoring would ensure that water quality standards would be met with engineering controls. In addition, spill prevention plans would be implemented. These measures would minimize any potential impacts to aquatic species and ensure already existing impairments are not exacerbated.

Theme AQ 12

Theme Statement

The SDEIS completely ignores the potential for effects on aquatic fauna due to the reduction of sulfate to sulfide within the wetland environment. Considering that several streams within the Plant Site are on the impaired waters list for Fishes Bioassessments, PolyMet and the Co-lead Agencies need to investigate the role of sulfate in the degradation of aquatic wildlife before permitting any additional releases.

Thematic Response

Sulfur is one of six macronutrients essential for plant growth, and low levels of available sulfur have the potential to limit plant primary production (Marschner 1995, Leustek and Saito 1999). Sulfide is commonly found in the sufficiently saturated soils of wetland environments, and reduced sulfur compounds (i.e., sulfides) are known to be potent inhibitors of plant growth, as well as particular microbial processes (Wiessner et al. 2005). The reduction of sulfate can form insoluble sulfide precipitates, most commonly with iron in environments not contaminated with metals such as cadmium, copper, lead, or zinc; however, if the wetland dries as a result of flooding drought or other changes in hydrology, and aerobic conditions occur, the reaction would reverse and sulfates (along with their reactive metal counterparts) would once again become available (Schrauf and Smith 2005). The apex of the reduction of sulfate typically appears after aerobic conditions have been eliminated (i.e., flooding, sufficient saturation, etc.) and bacteria respire sulfate rather than oxygen. Following the depletion of oxygen, microbial respiration favors nitrate (NO_3), manganese (Mn), iron (Fe), and finally sulfate (SO_4) (Inglett et al. 2005). Sulfate is the last compound to be reduced in a wetland environment, resulting in the production

of hydrogen sulfide (H_2S), carbon dioxide (CO_2), and water (H_20). Free (not precipitated with metals) hydrogen sulfide can be highly toxic to plants and animals. However, toxic levels of sulfide can only accumulate in anaerobic conditions. If oxidation of the wetland soil occurs, the concentrations of sulfide would decrease, as would toxic accumulations. The difficulty in quantifying sulfide toxicity centers on other changes in the biochemical characteristics of the ecosystem, which often occur concurrently with the accumulation of sulfide, such as changes in salinity, substrate organic matter or composition, and the availability of oxygen and other macronutrients. Because there are many factors that control the net conversion of sulfate to sulfide, the degree to which the NorthMet Project Proposed Action might result in an increase in free hydrogen sulfide and result in a negative impact on wetlands, watercourses, or aquatic fauna is not well understood and cannot be confidently predicted at this time.

Theme AQ 13

Theme Statement

Project-related sulfate reduction would impact all types of aquatic flora in addition to wild rice.

Thematic Response

The reduction of sulfate results in the production of sulfide, including insoluble metal sulfides, if metals are available; however, in some instances, increased rates of sulfate inputs into a wetland system may result in the formation of free sulfide, which can function as a potent phytotoxin (Wiessner et al. 2005). The accumulation of toxic levels of sulfides is dependent on the maintenance of an anaerobic environment without oxidation of the substrate. The toxicity of sulfides varies greatly among species of plants and animals (Lamers et al. 2013). Research has shown that early successional plants typically have a lower tolerance of increased sulfide, as compared to that of late successional plants, such as shrubs and trees (Lamers et al. 2013).

Increased levels of sulfate in an aquatic ecosystem may or may not result in negative impacts to aquatic flora. Potential impacts resultant from increased sulfate inputs into an aquatic system are dependent on multiple variables including: the amount of existing organic material, temperature, amount of additional sulfate introduced, the species of organisms present within the ecosystem, and the availability of reactive metals. Therefore, the degree to which sulfate reduction may or may not impact all types of aquatic flora is not well understood and cannot be confidently predicted at this time.

Theme AQ 14

Theme Statement

The SDEIS fails to analyze specific conductivity and total dissolved solids, elements that are both governed by Minnesota water quality standards and are known to be stressors for aquatic life. Even though existing Tailings Basin seeps have exceeded standards for specific conductivity, the SDEIS neither reports existing conditions nor models effects of the Proposed Action on specific conductivity. To evaluate effects of the Proposed Action on aquatic life, the FEIS should analyze both specific conductance in the affected environment and predicted levels of this pollutant resulting from the Proposed Action.

Thematic Response

The SDEIS discussed Total Dissolved Solids (TDS) in Section 4.2.2 and Section 5.2.2. Minnesota does not have specific toxicity standards for TDS or specific conductivity and the water quality evaluation criteria used for TDS at the Tailings Basin are irrigation standards and not applicable to aquatic life. However, under the NorthMet Project Proposed Action, TDS concentrations were predicted to be below the current applicable 4A standards.

Baseline data for TDS and specific conductivity have been added to FEIS Section 4.2.2 and 4.2.6, respectively. Although neither of these parameters is included in the water model, the potential concentrations of TDS under the NorthMet Project Proposed Action and the CEC Scenario are calculated in Section 5.2.2.

Studies on the relationship between specific conductivity and aquatic life are ongoing; therefore, the degree to which the NorthMet Project Proposed Action could potentially affect aquatic species due to changes in specific conductivity cannot be conclusively determined. Adverse effects from the NorthMet Project Proposed Action are not anticipated because project-related conductivity and TDS releases are estimated to be lower than existing conditions. Water monitoring, including for TDS and specific conductivity, would ensure that water quality standards would be met with engineering controls and adaptive management. Specific monitoring details would be addressed in permitting. In addition, spill prevention plans would be implemented.

Theme AQ 15

Theme Statement

The FEIS should examine how aquatic and wetland species and communities in the Project area and downstream of the Project may be impacted by changes in water temperature, especially in relation to other parameters, due to the Project. The FEIS should determine whether warmed augmentation water from Colby Lake will kill off colder-water fish.

Thematic Response

The NorthMet Project Description has changed since the SDEIS. The FEIS Project Description indicates that no Colby Lake water would be used for direct surface water augmentation. All water used for stream augmentation would be treated prior to being added to hydrologically affected waters. Wyman Creek is the only designated trout stream in the NorthMet Project area; since no water is expected to be discharged there, temperature impacts to aquatic species are not anticipated. All other streams in the NorthMet Project area are classified as warm water streams; however, some Project area streams could exhibit cooler temperatures due to shading from riparian vegetation cover and the regional setting. Water temperatures for any treated water discharged to these streams would be regulated via the National Pollutant Discharge Elimination System (NPDES) process.

Theme AQ 16

Theme Statement

The FEIS should take into account not just the anticipated effects on aquatic species under the current climate, but the likely effects on aquatic species in the future under probable future climate scenarios.

Thematic Response

Effects of climate change on aquatic species was not identified as a concern during scoping and is beyond the scope of the FEIS analysis, because the effects to aquatic species under future climate scenarios is speculative. A preliminary qualitative assessment of water resources impacts due to climate change is provided in Attachment W of the NorthMet Project Air Data Package, Version 5. January 15, 2015 (PolyMet 2015e, as cited in the FEIS).

Theme AQ 17

Theme Statement

Increased calcium loads from mining discharges would enhance the zebra mussel's ability to colonize the watershed. The FEIS should analyze the consequences of increasing the amount of calcium in waters that could be invaded by zebra mussels.

Thematic Response

The water modeling results, which are discussed in FEIS Section 5.2.2, predict that calcium concentrations in surface water at the Plant Site would be lower under the NorthMet Project Proposed Action (max P90 concentrations in the tributaries range from 26.0 to 36.6 mg/L and in Embarrass River range from 23.4 to 41.5 mg/L) than under the CEC Scenario (tributaries range from 41.4 to 112 mg/L and Embarrass River range from 23.4 to 49.3 mg/L) due to project capture of Tailings Basin seepage. Calcium concentrations in surface water at the Mine Site are predicted to be similar under the NorthMet Project Proposed Action (range from 36.7 to 38.0 mg/L) and the CEC Scenario (range from 36.7 to 38.0 mg/L). Therefore, calcium concentrations in discharges from the NorthMet Project Proposed Action would not enhance the zebra mussel's ability to colonize either watershed as compared to the CEC Scenario.

Theme AQ 18

Theme Statement

The FEIS should address how listed and sensitive aquatic indicator species--including the mussel (*Ligumia recta*), Zigzag Darner dragonfly (*Aeshna sitchensis*), and the Lake Emerald dragonfly (*Somatochlora cingulata*)--will be impacted by the NorthMet Project. Two poorly chosen sampling sites missed an important indicator species—the mussel. Mussels are sensitive to sulfate, copper sulfate, and calcium arsenate levels and could be threatened by the Project or the alternative.

Thematic Response

There should be no direct effects to creek heelsplitter and black sandshell mussels from the NorthMet Project Proposed Action, because they have not been reported within the NorthMet Project area. Mussels were sampled in the NorthMet Project area at the Partridge River, Embarrass River, and Trimble Creek in 2004, and at two locations of the Partridge River in 2009 (Heath 2011, as cited in the FEIS; see FEIS Section 4.2.6.1.3 and FEIS Figure 4.2.6-3). Because the NorthMet Project Proposed Action would not result in any significant changes in habitat quality, flow regimes, or water quality (i.e., no project-caused exceedances of Class 2B water quality standards) in the NorthMet Project area, no effects to the habitat for these species are expected within the Partridge River or Embarrass River watersheds. FEIS Section 5.2.2 and FEIS Section 5.2.6 provide additional information on anticipated changes to flow regimes.

Theme AQ 19

Theme Statement

Amphibians are experiencing high rates of species extinction and seem to be very sensitive to environmental pollution. The FEIS should address how amphibians will be impacted by the NorthMet Project.

Thematic Response

The FEIS Section 5.2.5 (Wildlife) includes an analysis of hydrologic changes and impacts to amphibians or other sensitive species by cross-referencing Section 5.2.2 (Water Resources). The Wetland Data Package (PolyMet 2015b, as cited in the FEIS) XP-SWMM model estimates that changes in the average annual flow of the Partridge River and Embarrass River would be within naturally occurring annual variation; thus, there would be limited hydrologic changes. As a result, effects to amphibians and other sensitive wildlife species due to hydrologic changes would be limited. The NorthMet Project Reclamation Plan (PolyMet 2015g, as cited in the FEIS) explains that when roads or railroads are abandoned, culverts would be removed to prevent damming and access impediments for aquatic life. These locations would also be graded and vegetated to provide a stable stream bank. The Reclamation Plan states that during reclamation monitoring and maintenance, areas that have been damaged by erosion, animal activity (e.g., beaver dams), or that have lost vegetation would be identified and repaired.

Theme AQ 20

Theme Statement

The Embarrass River and Partridge River watersheds have some of the highest condition and watershed integrity scores in the St. Louis Watershed. Biological monitoring of the NorthMet Project site indicates the waters are capable of supporting many important fish and macrobiotic species. Specialists should be used to move/relocate aquatic species, including micro and macroinvertebrates in base sediments that would be harmed by Project activities. Failure to do so will result in loss of wildlife and destruction of food chains.

Thematic Response

Both the Embarrass River and Partridge River watersheds are listed for "Mercury in fish tissue" and "Fishes Bioassessments" impairments. Portions of the Embarrass River are also listed for "Macroinvertebrate Bioassessments" impairment. These impairments are discussed in FEIS Section 4.2.2.1.2.

Water monitoring (see FEIS Section 5.2.2.3.6) would ensure that water quality standards would be met with engineering controls. In addition, spill prevention plans would be implemented. These measures would minimize potential impacts to aquatic species. The need for biological monitoring would be determined in permitting.

Aquatic species would not be moved or relocated, because there is high mortality associated with relocation of wildlife. Relocation is often not successful, because it is stressful to the organisms, which makes them more vulnerable to disease and predation. Relocation also forces the relocated organisms to compete with established species for food and shelter, and increases the risk of the spread of diseases to new areas.

Theme AQ 21

Theme Statement

Because waterbodies in northern Minnesota are oligotrophic and often have long water residency times, the influences of mining contaminants can be long lasting. Decomposition and growth is slow in these systems, which can equate to more accumulation of toxins in sediments and increased bioaccumulation of toxins in the tissues of animals such as fish.

Thematic Response

Potential impacts to water quality from the NorthMet Project Proposed Action are discussed in FEIS Section 5.2.2. Most Minnesota Class 2 water quality standards (upon which project evaluation criteria were based) apply to all waters of the state in the NorthMet Project area, regardless of the trophic status of the water. Lakes downstream of the NorthMet Project area (Colby and Whitewater Lakes in the Partridge River Watershed and Wynne, Sabin, and the Embarrass chain of lakes in the Embarrass River Watershed) are riverine lakes, and do not have particularly long residence times. Water monitoring would ensure that water quality standards would be met with engineering controls. In addition, spill prevention plans would be implemented. These measures would minimize potential impacts to aquatic species. Moreover, water flow alterations would not cause measurable changes in ecosystem function if maintained under twenty percent of baseline flows.

Theme AQ 22

Theme Statement

The FEIS should address the probability, impact potential, and aquatic toxicity potential of an accidental release of chemicals and untreated water at the Mine Site and Plant Site.

Thematic Response

Stability modeling and the rationale for the design are discussed in FEIS Section 5.2.14. Final design is subject to permitting under the requirements of the MDNR Dam Safety Permit and Permit to Mine. The potential effects of hypothetical failure scenarios have not been assessed in this FEIS, as the risk of failure is mitigated through application of design and safety requirements including adaptive management procedures.

Potential impacts to aquatic species from the NorthMet Project Proposed Action are discussed in detail in FEIS Section 5.2.6. Testing for aquatic toxicity of the seepage or leachate from the various mine wastes (i.e., waste rock, tailings or Hydrometallurgical Residue Facility residues) prior to their treatment at the WWTF and/or WWTP is not expected, since these are internal waste streams that are not discharged untreated to the environment. Toxicity testing (Whole Effluent Testing or WET testing) of the treated discharges from the WWTP and WWTF to the environment, is anticipated to be included as a requirement of the water quality permit. Specific monitoring details would be addressed in permitting. In addition, spill prevention plans would be implemented. See also the responses to themes AQ 05 and AQ 06.

Theme AQ 23

Theme Statement

The SDEIS did not evaluate impacts to aquatic ecosystems from the volume as well as chemical composition of Wastewater Treatment Facility (WWTF) effluent that would be discharged to the Partridge River.

Thematic Response

By comparing modeled project water quality against evaluation criteria based, in part, on Class 2B water quality standards (protection of aquatic life and recreation), the SDEIS did indirectly evaluate impacts to aquatic ecosystems. Evaluation criteria can be found in Section 5.2.2. Water quality monitoring to be conducted pursuant to NPDES/State Disposal System (SDS) permitting would ensure that water quality standards would be met with engineering controls. In addition, spill prevention plans would be implemented. These measures would minimize potential impacts to aquatic species. Water flow alterations would not cause measurable changes in ecosystem function if maintained under twenty percent of baseline flows.

Varying degrees of hydrologic alteration can be tied to ecological condition using the Limits of Hydrologic Alteration (LOHA) Method, which is intended to provide a better articulation of the aspects of flow rate and timing thought to be most important to ecological condition, and provide more elaboration on the ecological changes that are associated with increasing degrees of hydrologic alteration. Research in review lists 10 percent, 20 percent, and greater than 20 percent flow alteration as setting the ecological condition of “natural,” “minimally altered,” and

"moderately altered," respectively. A review of case studies (Richter et al. 2011, as cited in the FEIS) found that recommendations for flow protection are quite consistent, typically resulting in a range of allowable cumulative depletion of 6 percent to 20 percent of normal to low flows, but with occasional allowance for greater depletion in seasons or flow levels during which aquatic species are thought to be less sensitive.

Based on the professional application of accumulated science, the MDNR has determined that monitoring should be conducted at a minimum of 3 sites for each impacted stream whenever there is a 20 percent change in watershed area or an extraction or addition of flow that exceeds 20 percent of the mean annual flow (MAF). Monitoring sites should be located:

1) within 2000 feet of the (each) outflow;

2) at the endpoint of impact; and,

3) midway between the two.

The only surface water discharge from the Mine Site to the Partridge River is the discharge of treated Category 1 Stockpile drainage and West Pit water via the WWTF in long-term closure. This discharge is included in the GoldSim model at location SW004a. The XP-SWMM model estimates an average annual flow of 1.2 cfs at the approximate location of the WWTF discharge under existing conditions. The estimated average annual flow at this location in long-term closure is increased to 1.4 cfs (due to changes in upstream watershed areas and the addition of the WWTF discharge). However, as a whole, the NorthMet Project Proposed Action would reduce flow within the Partridge River by a maximum of eight percent, respectively. Therefore, flow changes due to the NorthMet Project Proposed Action are anticipated to be within the natural ecological condition and have minimal impacts to ecosystem function.

Theme AQ 24

Theme Statement

Aquatic organisms that live in the streams, rivers, and wetlands in the Project area would likely be adversely affected by changes in streamflow and loss of connectivity of the streams. The conclusion in the SDEIS that allowing up to a 20 percent change in streamflow volumes is protective of aquatic life is unsubstantiated. For example, the SDEIS lacks details on potential effects on aquatic ecosystems from hydrologic changes resulting from the NorthMet Project in the Partridge River Watershed, including Yelp, Wetlegs, Wyman, Longnose, and Unnamed creeks as well as the Partridge River.

Thematic Response

Flow within both the Embarrass River and Partridge River would be reduced by a maximum of two percent and eight percent, respectively. Varying degrees of hydrologic alteration can be tied to ecological conditions using the LOHA Method, which is intended to provide a better articulation of the aspects of flow rate and timing thought to be most important to ecological condition, and provide more elaboration on the ecological changes that are associated with increasing degrees of hydrologic alteration. Research in review lists 10 percent, 20 percent, and greater than 20 percent flow alteration as setting the ecological condition of 'natural', 'minimally altered', and 'moderately altered', respectively. A review of case studies (Richter et al. 2011, as cited in the FEIS) found that recommendations for flow protection are quite consistent, typically

resulting in a range of allowable cumulative depletion of 6 percent to 20 percent of normal to low flows, but with occasional allowance for greater depletion in seasons or flow levels during which aquatic species are thought to be less sensitive.

Based on the professional application of accumulated science, the MDNR has determined that monitoring should be conducted at a minimum of 3 sites for each impacted stream whenever there is a 20 percent change in watershed area or an extraction or addition of flow that exceeds 20 percent of the mean annual flow (MAF). Monitoring sites should be located:

1) within 2000 feet of the (each) outflow;

2) at the endpoint of impact; and,

3) midway between the two.

Flow reductions due to the NorthMet Project Proposed Action are anticipated to be within the natural ecological condition and have minimal impacts to ecosystem function. Moreover, geomorphic surveys of the Partridge River and the unnamed creek south of Dunka Road indicate that the upper reaches of these systems are near 100 percent vegetated, and that the influence of riparian vegetation is very high. Moderate changes to flow within these systems are expected to be protected by the riparian vegetation, and these reaches are expected to be stable under moderate changes to stream flow and sediment supply (Barr 2013a, as cited in the FEIS). This characteristic is evident within these reaches as hydrologic changes are often caused by the influence of beaver dams.

Theme AQ 25

Theme Statement

The FEIS should include quantitative modeling in addition to the existing qualitative discussion for effects on fish. Specific analysis should include: mercury, methylmercury, specific conductance, and discharge and hydrologic changes.

Thematic Response

Hydrologic changes to the Partridge River were modeled and are discussed in FEIS Section 5.2.2. In addition, PolyMet performed geomorphology studies on the channel downstream of the proposed West Pit/WWTF discharge (Rosgen Classification: Unnamed Creek South of Dunka Road, Barr 2013o, as cited in the FEIS). Modelling predicted the mean flow would change by 5 percent or less during operations and reclamation, and would return to within approximately 1 percent of existing flow conditions during closure and long-term maintenance (see Figure 5.2.2-29). Additionally, a Level I Geomorphic Survey of the Partridge River determined the river to be stable under existing conditions, with no evidence of erosion except in its headwaters, well-armored steep reaches and flatter reaches with well-vegetated shorelines. See also the response to theme AQ 24.

Studies on the relationship between specific conductivity and aquatic life are ongoing. Therefore, the degree to which the NorthMet Project Proposed Action could potentially affect aquatic species due to changes in specific conductivity cannot be determined. Water monitoring, including for specific conductivity, would ensure that water quality standards would be met with engineering controls and adaptive management. Specific monitoring details would be addressed

in permitting. In addition, spill prevention plans would be implemented. See also the response to theme AQ 14.

The FEIS assesses project-related mercury contributions using a mass-balance methodology. This approach was identified as the appropriate analytic tool for predicting mercury concentrations during scoping of this EIS and it is a common, reliable, analytical tool used by agencies to assess mercury impacts in EISs. This estimation method is preferred over a detailed mechanistic model, because it incorporates the important input and removal processes for mercury, it is very transparent with regard to data inputs, it typically provides conservative estimates of aqueous mercury concentrations, and it allows for easy assessment of the effect of changing parameter values on mercury concentrations. The Reverse Osmosis (RO) treatment is expected to discharge mercury at or below the mercury standard of 1.3 ng/L, which includes all surface water that would be discharged at the Plant Site, including water used for flow augmentation. Mercury loadings from the Mine Site are projected to decrease due to the NorthMet Project Proposed Action, and the combined contributions from the Embarrass River and Partridge River are unchanged when modeled for the St. Louis River at the Fond du Lac reservation boundary. Therefore, the potential effects are expected to be less than significant, and the mass balance approach is appropriate to provide a reasonable estimate of potential contributions for purposes of environmental review given these circumstances.

In regards to mercury concentrations in fish, the scientific community's understanding of the relationship between total mercury, sulfate, methyl mercury, etc., is evolving, and the science is complex. That said, change in mercury concentration in fish is thought to be ultimately proportional to the percent increase in mercury load (MPCA 2006a, as cited in the FEIS). Therefore, sophisticated modeling of methylation and bioaccumulation is not likely to lead to more accurate results, but by failing to capture unknown or uncertain relationships and variables, could instead lead to erroneous conclusions.

Theme AQ 26

Theme Statement

The Cumulative Effects Assessment Area (CEAA) defined by the Co-lead Agencies for effects on aquatic species is overly limited. The appropriate spatial scale for considering cumulative effects on aquatic species is the entire St. Louis River Watershed and Lake Superior Basin. Some of the waters in the Project area and downstream of it are already impaired for aquatic life and aquatic consumption.

Thematic Response

The NorthMet Project Proposed Action is not considered to have the potential for cumulative effects on hydrology and water quality in the St. Louis River Watershed. As a result, the Cumulative Effects Assessment Area (CEAA) for aquatic species is defined by the Partridge River and Embarrass River watersheds.

Theme AQ 27

Theme Statement

The aquatic species cumulative effects section of the FEIS should provide a discussion of the significance of the predicted adverse cumulative effects on aquatic resources, as well as the relationship between these effects and legal standards preventing degradation of water quality. This includes solutes not predicted to exceed numeric water quality standards.

Thematic Response

Water quality standards and evaluation criteria are discussed in FEIS Section 5.2.2. As discussed in FEIS Section 6.2.2, the impact assessment water quality modeling for the NorthMet Project Proposed Action already takes into consideration low flow conditions. Even during low flows, the NorthMet Project Proposed Action is not predicted to significantly affect water quality, although achieving this prediction would require long-term water treatment and WWTF/WWTP maintenance. Other reasonably foreseeable actions may also increase metal and other solute loadings downstream, but it is assumed that these other actions would also be required to meet federal and state water quality requirements, including nondegradation. Therefore, the potential for significant cumulative effects from the NorthMet Project Proposed Action and other reasonably foreseeable actions is considered unlikely.

Although not expected to result in any direct exceedances of water quality evaluation criteria, the NorthMet Project Proposed Action, in combination with other reasonably foreseeable actions, would increase metal and other solute loadings to the Partridge River and Embarrass River, and further downstream in the St. Louis River Watershed. These loadings would, however, be diluted as the solutes are transported downstream (i.e., average annual flow in the St. Louis River at the confluence with the Embarrass River is approximately four times more than in the Partridge and Embarrass rivers alone). Further, the MPCA would review the NorthMet Project Proposed Action for consistency with the State's non-degradation requirements prior to any permitting, as it would also do at the time of permitting for any other reasonably foreseeable actions. FEIS Section 6.2.6 states that potential cumulative impacts to aquatic species are anticipated to be minimal. FEIS Section 5.2.6 now provides additional information on potential impacts to aquatic species from metals.

FEIS Section 6.2.6 discusses the predicted adverse cumulative effects on aquatic resources. The methodology and evaluation criteria that were utilized for determining direct and indirect effects to aquatic species are discussed in FEIS Section 5.2.6.1, and the effects that could occur from the NorthMet Project Proposed Action are discussed in detail in FEIS Section 5.2.6.2. The direct, indirect, and cumulative assessments that were performed for the NorthMet Project Proposed Action were agreed upon during the Scoping Process.

Theme AQ 28

Theme Statement

The SDEIS does not adequately address how the NorthMet Project Proposed Action, combined with other mines, would affect levels of mercury in fish. Any additional mercury releases to the environment will exacerbate already existing impairments, including fish advisories set for recreational fishing. Increased fish mercury levels will have direct effects on both the cultural and recreational resources of the region. Mercury is also known to bioaccumulate in fish at a faster rate in warmer water. Sulfate discharges and water level fluctuations from the Proposed Project will also contribute to increased mercury levels in fish.

Thematic Response

Based on the evaluations conducted for air emissions and water discharges for the FEIS, the NorthMet Project Proposed Action is not considered to have an appreciable effect on: 1) surface water mercury concentrations, 2) fish mercury concentrations, 3) methylation of mercury, or 4) risk to people consuming fish from lakes near the NorthMet Project Proposed Action site.

Sulfur is inherent to the mineral matrix of the dust particles, it is therefore likely that less than 100 percent of the sulfur would be weathered from the particles and be available to go into solution if deposited to soils or water. This potential incremental change may warrant future monitoring, as small sulfate increases in sulfate-poor wetlands may be expected to increase the production of methylmercury in wetlands (Jeremiason et al. 2006, as cited in the FEIS). However methylmercury produced in wetlands is not necessarily incorporated into food chains and concentrated to levels of concern.

MPCA's Cumulative Mercury Risk Estimation Method (MMREM) analysis for the two scenarios showed a 0.5-1.8 percent and 0.3-0.5 percent potential increase (respectively) in fish mercury concentration above background. This potential change is considered to be small compared to background levels and is not expected to affect fish consumption advisories or effect consumers of locally caught fish. The increase would not be expected to have any appreciable effect on the loading estimates from permitted discharges to the Embarrass River, Partridge River, or the lower St. Louis River Watershed. Discharges are expected to meet the 1.3 ng/L standard for mercury, with an overall net decrease in mercury loading predicted for the NorthMet Project Proposed Action Alternative.

The goal of the MPCA is to protect high-quality waters and improve the quality of impaired waters so water quality standards are met and beneficial uses are maintained and restored, where these uses are attainable. As summarized in FEIS Section 5.2.7.2.5, widespread contamination of fish from atmospheric pollution is why Minnesota established a statewide mercury TMDL. The TMDL seeks to reduce atmospheric deposition everywhere in the state in order to make the state's lakes and streams fishable, as required by federal regulations, and is intended to provide the long-term framework to reduce mercury in fish. The MPCA published Guidelines for New and Modified Mercury Air Emission Sources, and revised those guidelines in 2012 (MPCA 2012g, as cited in the FEIS). The guidelines were developed to limit the mercury emissions from new and expanding sources in order to meet the TMDL goal of total statewide mercury emissions. MPCA has conducted a review of the NorthMet Project Proposed Action mercury

emissions and has determined that it would not impede the reduction goals (MPCA 2013l, as cited in the FEIS).

Further, the NorthMet Project Proposed Action is not anticipated to be a significant discharger of mercury to the environment. The RO treatment (or equivalent performing technology) is expected to discharge mercury at or below the mercury standard of 1.3 ng/L, which includes all surface water that would be discharged at the Plant Site, including water used for flow augmentation. Mercury loadings from the Mine Site are projected to decrease due to the NorthMet Project Proposed Action, and the combined contributions from the Embarrass River and Partridge River are unchanged when modeled for the St. Louis River Watershed at the Fond du Lac reservation boundary. Therefore, further degradation of surface water quality, and by extension increased mercury in fish, is not expected.

The NorthMet Project Proposed Action is not anticipated to have any noticeable effect on water temperature, since only water from the Plant Site's WWTP would be used for stream augmentation. When discharged, the temperature of this water is expected to quickly equilibrate to ambient water temperatures such that temperature effects would not be expected in downstream rivers and lakes.

In general, in aquatic systems there is generally a positive correlation between warmer water temperatures and accumulation of heavy metals. However, studies on the relationship between temperature and bioaccumulation of mercury in aquatic life are ongoing. Therefore, the degree to which the NorthMet Project Proposed Action could potentially affect aquatic species due to changes in temperature cannot be determined. Water monitoring would ensure that water quality standards would be met with engineering controls and adaptive management. Specific monitoring details would be addressed in permitting. In addition, spill prevention plans would be implemented.

It is difficult to quantify the extent to which mercury concentrations in the Tailings Basin surficial seepage might affect mercury methylation north of the Tailings Basin and further downstream. The FEIS notes that sulfate can contribute to mercury methylation; however, the FEIS also notes that the NorthMet Project Proposed Action would reduce sulfate concentrations within the Embarrass River Watershed and that may result in downstream reductions in mercury methylation.

Effects on flows (and, by extension, water surface elevations) generated by the NorthMet Project Proposed Action are anticipated to be within the natural variation of flow within the St. Louis River Watershed (e.g., less than 1 percent reduction in average annual flow as measured at the confluence of the Embarrass River with the St. Louis River). Therefore, no potential indirect or cumulative wetland effects are identified for the wetlands within the St. Louis River Watershed below the ordinary high water mark, from its confluence with the Embarrass River to Lake Superior and it is not expected that the NorthMet Project Proposed Action would contribute to water level fluctuations than can promote mercury methylation. Additional information in regards to water level and flows to surrounding watersheds is included in FEIS Section 5.2.2.

Theme AQ 29

Theme Statement

The SDEIS underestimates the effects on aquatic species in the area affected by the Land Exchange, due to the decrease of first-order streams in the federal estate.

Thematic Response

Effects of the Land Exchange Proposed Action on headwater streams are discussed in detail in FEIS Sections 5.3.6.2.2 and 5.3.6.3.2. A paragraph in FEIS Section 5.3.6.2.2 has been revised to include: "...however, the net reduction to the Superior National Forest of 0.3 miles of first order streams may result in slightly less habitat available for headwater stream dependent species."

Theme AQ 30

Theme Statement

The FEIS should provide details on monitoring that would be conducted on site and elsewhere to ensure that nearby aquatic life is not affected.

Thematic Response

PolyMet, as the assigned permittee for the NorthMet Project Proposed Action, would be responsible of carrying out the proposed monitoring activities described in any legally enforceable permits. The permits, supported by state and federal laws, would include provisions that address failure to comply with the terms and conditions of the permit, including those related to conducting required monitoring.

Details on any aquatic monitoring would be finalized during permitting; however, overviews of water monitoring plans at the Mine Site and Plant Site are presented in FEIS Section 5.2.2.3.6. Monitoring would be used on a continual basis to document compliance with permit conditions, annually validate and update water models, and provide input to optimize operations of adaptive engineering controls. The FEIS provides information on objectives, monitoring summary and general location for monitoring of process water streams, stormwater, surface discharges, groundwater, wetlands, and surface water in the Partridge River and Embarrass River watersheds (as applicable). For groundwater monitoring, the general number of sampling locations and frequency are identified. For surface water, general sampling locations and timeline are identified. As mentioned in the FEIS, the water monitoring plans would be finalized in detail (including specific locations, frequencies, and parameters) during the NPDES/SDS water permitting, and water appropriations processes and updated as required during the Project's life.

A.5.4 Issue: US Army Corps of Engineers 404 Permit (COE)

Theme COE 01

Theme Statement

Compensatory mitigation for wetland effects should be located within the Lake Superior Basin, and should take into account wetland losses/replacements from a quality standpoint as well as the wetlands functions. Wetland mitigation efforts should focus on wetlands that have been completely or significantly drained, or significantly modified by agricultural practices. The replacement ratio for the mitigation of the loss of high quality wetlands and difficult to replace forested and bog wetland plant communities should be higher, such as 2:1. In addition, the Federal Mitigation Rule and the Guidelines require that compensatory mitigation be based on a watershed approach to the extent appropriate and practicable. Furthermore, the mitigation plan in the Section 404 Wetlands Permit should exclude mitigation credits for post-mining, on-site wetland mitigation. If the USACE determines that a greater percentage of the compensation for direct impacts should be accomplished within the St. Louis River Watershed/Great Lakes Basin, the public should be notified.

When mitigating outside of the watershed, consider other methods to replace wetland functions (i.e. water retention ponds, shore land buffers, and other “green” technology to collect and store runoff in these watersheds).

Thematic Response

Please refer to the response to theme WET 03 for a discussion of wetland mitigation, mitigation study limits and replacement of wetland functions. Please refer to response to theme WET 04 for a discussion on the mitigation plan and measure for direct compensatory mitigation. FEIS Section 5.2.3.3.2 includes a discussion on the wetland mitigation study limits, site selection process, and mitigation proposed for the NorthMet Project Proposed Action.

The post-closure establishment of the estimated 101.8 acres of on-site wetland is not included in the wetland mitigation credits. The generation of wetland credits in these areas has the potential to be used on a contingency basis, but compensatory credit would not be considered up front due to the post-closure timeframe. The summary of proposed wetland mitigation credits, presented in FEIS Table 5.2.3-17, does not include the on-site wetland restoration. The FEIS Executive Summary and Section 5.2.3.3.3 have also been updated note that the on-site wetland would not be considered in the wetland mitigation credits.

Theme COE 02

Theme Statement

The Section 404 Wetlands Permit application should include the following information:

- a quantitative assessment of all indirect wetland impacts;
- a description of the impact thresholds and how the fragmentation impact criteria were developed;
- an estimate of the change in functions and values at wetlands;
- a more detailed description of, and rationale for, how the impacts analysis would be used to ensure that indirect impacts are avoided, minimized, and mitigated—including more comprehensive monitoring and reporting for indirect impacts at the plant and mine sites as well as to vegetation and headwater streams surrounding the site;
- inclusion of hydroperiod in the quantitative assessment;
- design of Phase II monitoring prior to permit issuance, as well as a description of the threshold for determining the need for Phase II; and
- discussion of how the reference sites would be used to predict impacts.

Identified indirect impacts should be mitigated upfront; the SDEIS did not provide for such upfront mitigation. The ROD for the USACE and permit conditions should include advance commitment to mitigation for all indirect impacts, including identification of mitigation sites, compensation ratios, and notification to the public. If no mitigation for the foreseeable "indirect" wetland losses can be identified, the USACE should not issue a Section 404 permit. A robust monitoring design should require monitoring in all potential impact categories, not just in Highly and Moderately impacted zones. The Section 404 Wetlands Permit and the FEIS should contain more information on how the monitoring would be performed to determine if indirect impacts are occurring, including who would perform the monitoring. The SDEIS failed to describe what would be included in the adaptive management plan. The FEIS should include the criteria and process for determining when and what additional mitigation is needed.

Thematic Response

FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. The indirect effects analyses performed for the EIS were not performed to characterize impacts but were done to inform where monitoring should take place for those areas that were identified as having a potential for indirect wetland effects. As a result of these analyses performed to determine where monitoring should occur, quantification of wetland types and acres of potential indirect wetland effects were also generated. FEIS Section 5.2.3 provides these quantitative values of potential indirect wetland effects. Potential indirect wetland effects from the NorthMet Project Proposed Action were assessed as a result from one of the following six factors: 1) wetland fragmentation; 2) change in wetland hydrology from changes in watershed area; 3) changes in wetland hydrology from groundwater drawdown resulting from open pit mine dewatering; 4) changes in wetland hydrology from groundwater drawdown resulting from operation of the Plant Site, including

groundwater mounding and seepage containment; 5) changes in stream flow near the Mine Site and Plant Site and associated effects on wetlands abutting the streams; and 6) change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations. The assessments provided wetland type and acreage for all six factors; however, only wetland acreages were provided for factor 6 (change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations). The identification of specific mitigation for indirect effects and a monitoring plan is not a requirement for an EIS; however, the FEIS has been updated with additional information on the approach for determining mitigation if the monitoring shows indirect effects are occurring. The monitoring and mitigation for potential indirect effects would be determined during permitting. Section 5.2.3.3 of the FEIS has been revised to include more information on the monitoring and mitigation plan for the indirect wetland effects, including how the reference sites would help determine potential indirect effects. The proposed wetland impact, avoidance, minimization, mitigation and monitoring plan presented in the FEIS would be reviewed, modified as required, and approved during permitting; therefore, this information could change during permitting. Please refer to response to theme FIN 11 for more information on financial assurance.

Both the USACE and MDNR require functions to be replaced; however, both agencies use a set of defined ratio requirements to determine the number of acres required to replace functions lost, as there is currently no suitable quantitative functional assessment method in Minnesota. Based on the findings and where impacts occur (e.g., types of wetlands), the mitigation ratios and credits have been increased to take into account the functions lost due to the NorthMet Project Proposed Action. Please refer to response to theme WET 05 for more information on functions.

Section 5.2.3.1.2 of the FEIS provides information on the methodology and criteria for the indirect effects assessments for fragmented wetlands.

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS and there is incomplete or unavailable information because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, NEPA directs the agency to make it clear that such information is lacking, discuss the relevance of the lacking information, and discuss any information relevant to evaluation of the future impacts. In these cases, NEPA also directs the agency to evaluate these impacts based upon theoretical approaches or research methods generally accepted in the scientific community provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.

The Co-lead Agencies believe this is the case for evaluating indirect wetland effects. The Co-lead Agencies have thoroughly considered throughout the development of the EIS and through the Wetland Impact Assessment Planning Work Group, how to assess potential indirect wetland effects. As a result, strengths and weaknesses of the approach used as well as other suggested approaches have been carefully considered. The Co-lead Agencies ultimately decided the use of the analog method and the 20 percent metric described in Section 5.2.3 of the FEIS as factors considered in identifying potential indirect effects to wetlands is a credible and reasonable approach consistent with the requirements of NEPA.

Theme COE 03

Theme Statement

Residents of the state have clearly expressed their interest in water quality protection/enhancement. The mine runs counter to that public interest. The Section 404 Wetlands Permit should be denied because PolyMet's discharge would violate the Clean Water Act, violate water quality standards, affect our aquifers, groundwater, and water supplies (municipal and private wells), affect climate change due to the loss of peatlands, destroy animal and fish habitats, and threaten natural resources. In addition, the Permit should be denied due to an unaccepted amount of wetland loss.

Thematic Response

The USACE is the federal agency responsible for regulating the discharge of dredged or fill material into Waters of the United States, including wetlands under Section 404 of the Clean Water Act. PolyMet has applied for a Section 404 Individual Permit from the USACE for the proposed fill into the Waters of the United States. If a permit from the USACE is issued, it is not valid until the State has either certified under Section 401 of the CWA that the proposed discharges to aquatic resources comply with the State's water quality standards or waived the 401 certification requirements. When making a decision, the USACE takes into consideration numerous factors. Permit decisions are based on the probable expected effects associated with a proposed project including direct, indirect, and cumulative impacts. Public interest review factors include: conservation, economics, aesthetics, general environment, wetlands, cultural values, fish and wildlife, land use, flood hazards, property ownership, flood plain values, navigation, recreation, shore erosion and accretion, water supply and water quality, energy needs, safety, mineral needs, safety, food and fiber production, and the needs and welfare of the people. In determining whether the project is in the public interest, the USACE considers the project's impacts on these public interest factors. In addition, the project must comply with the 404(b)(1) guidelines to be considered in the public interest. Only those projects that the USACE determines to be in the public interest are authorized. The decision to grant or deny a permit by the USACE is explained and described in a ROD. If the permit is issued, a copy of the permit is sent to the project sponsor for their signature, which signifies that they accept the permit requirements. If the USACE decides to deny the permit or the project sponsor does not agree with the conditions contained in the permit, the project sponsor may request an administrative appeal of the permit decision. A decision by the USACE on whether to grant or deny a Section 404 Individual Permit has not yet been made.

Theme COE 04

Theme Statement

The SDEIS fails to identify alternatives to minimize and/or mitigate effects to wetlands as well as a Least Environmentally Damaging Practicable Alternative ("LEDPA"), which is required before approving a Section 404 Wetlands Permit. In addition, no agency-preferred alternative was identified in the SDEIS. Therefore, after an agency preferred alternative and the LEDPA are identified, the USACE should re-notice the 404 permit and MPCA should re-notice the 401 certification.

Thematic Response

Alternatives have been developed and evaluated in three stages during the Environmental Review Process; the scoping stage (2005), the DEIS stage (2009), and the SDEIS stage (2011). Section 3.2.3 of the FEIS includes a discussion of the process and alternatives that were considered for the NorthMet Project Proposed Action. The modifications that have occurred during the development of the EIS have resulted in avoidance and minimization of impacts to wetland resources. To date, these modifications have reduced the acreage of wetlands impacted from 1,257 to 913.8 acres, a 27 percent decrease. In addition to the NorthMet Project Proposed Action, a "No Action Alternative" is also being considered. Section 5.2.3.3.1 of the FEIS includes six considerations that were proposed in order to avoid unnecessary impacts to wetland resources and seven considerations that were proposed that would minimize impacts to wetland resources as part of the NorthMet Project Proposed Action. Section 5.2.3.3 of the FEIS also describes, in depth, the mitigation strategies for the NorthMet Project Proposed Action including how sites were selected, mitigation ratios, and other factors. Please refer to responses to themes WET 03, WET 05, and WET 06 for more information on siting and mitigation.

The agency preferred alternative and LEDPA process are discussed in Sections 7.4 and 7.5 of the FEIS.

The USACE is not anticipating the need to re-issue the Section 404 public notice for the NorthMet Project Proposed Action. However, MPCA would need to re-issue the Section 401 public notice for the Project. Under the provisions of the Clean Water Act, the MPCA has one year from the public notice (December 3, 2014) to act upon an application for 401 Certification. However, the MEPA (*Minnesota Statutes* division 116.04, subdivision 2b) and rules regarding environmental review (*Minnesota Rules*, part 4410.3100) prohibit final agency decisions, such as the Section 401 Certification, until all environmental review steps are completed. The environmental review process being undertaken by the Co-lead Agencies would not be completed within the one year time frame for issuance of the Section 401 Certification. Therefore, PolyMet has made a procedural decision to withdraw the Section 401 application before MPCA and resubmit it in the near future to allow for processing of the application.

Theme COE 05

Theme Statement

The Section 404 Wetlands Permit application should provide information on the accuracy of the wetland boundaries for the project areas, perform a reassessment of likely impacts to surrounding wetlands outside the project footprint, and should include an assessment of wetland functions in order to provide an assessment of lost wetland functions and a mitigation plan designed to replace those functions.

Thematic Response

As described in FEIS Section 4.2.3, wetland characterization, mapping, and surveys for the Mine Site, Transportation and Utility Corridor, Plant Site, Area 1, and Area 2 were conducted between 2004 and 2010 (Barr 2006d; Barr 2007c; Barr 2008k; Barr 2011d; PolyMet 2015b, as cited in the FEIS). Wetland acreages were determined using USGS topographic and USFWS National Wetlands Inventory (NWI) maps, aerial photographs, soil survey data, and field investigations. The Co-lead Agencies agreed to use the Eggers and Reed Classification system for the NorthMet

Project Proposed Action, and have reviewed the accuracy of the wetland characterization, mapping, and surveys. Wetland boundaries were identified using the routine wetland delineation procedures of the Corps of Engineers Wetlands Delineation Manual (USACE 1987, as cited in the FEIS), and were reviewed by the appropriate agencies. An abbreviated MnRAM functional assessment, which was agreed upon by the USACE, was utilized to assess wetland functions for the Mine Site, Transportation and Utility Corridor, and Plant Site. Please refer to the responses to themes WET 03 and WET 05 for more information on how the NorthMet Project Proposed Action considered wetland functions. FEIS Section 5.2.3 includes a detailed discussion of the direct impacts and potential indirect effects as a result of the mining activities.

The USACE is currently reviewing the Section 404 permit application. The ROD for the USACE would include the Section 404(b)(1) analysis and the public interest review, and would determine the LEDPA. Furthermore, the ROD for the USACE cannot be finalized until 30 days after release of FEIS; comments to the FEIS must also be addressed in the ROD for the USACE. The ROD for the USACE would recommend issuance, issuance with conditions, or denial of the Section 404 permit for NorthMet Project Proposed Action. Please refer to FEIS Sections 7.4 and 7.5 for more information on the USACE permit process.

Theme COE 06

Theme Statement

The Section 404 Wetlands Permit should require the following monitoring conditions:

- continued monitoring by the applicant at existing wells where they are outside the direct mine impact locations, because changes in wetland hydrology, if they occur, should be evident at these locations;
- wetland and stream monitoring sites for the east side of the tailings basin;
- baseline vegetation monitoring prior to permitted impacts, and increased post-construction monitoring frequency to every 2 years.

In addition, an independent agency, such as BWSR, should be given the task of monitoring and determining the mitigation required for the project.

Thematic Response

Mitigation and monitoring requirements would be determined during permitting. The USACE, MDNR, and MPCA have a suite of approaches for measuring effects for projects, based on an established set of procedures resulting in a better understanding of project effects. Monitoring requirements for each project that is permitted by the agencies is site-specific and tailored to the project.

FEIS Section 5.2.3.3 (wetland mitigation and monitoring) has been revised to include additional details on the proposed monitoring and wetland adaptive plan. Wetland mitigation and monitoring would be reviewed by the appropriate regulatory agencies responsible for authorizing the permit application during the permitting process. Monitoring is proposed within all wetlands containing a potential indirect wetland impact factor rating of 3 to 5, as well as a sampling of wetlands with factor ratings of 1 or 2, as described in FEIS Section 5.2.3.3 (see FEIS Figures 5.2.3-31 and 5.2.3-32).

Many suggestions were provided regarding how best to quantify indirect impacts. While changes to wetland plant communities would be monitored, changes in the vegetation community are typically slower to manifest and identify compared to changes in hydrology. The USACE believes that closely monitoring hydrology early and often during the NorthMet Project Proposed Action provides sufficient assurances of observing any indicators of anticipated changes to the wetland communities.

Theme COE 07

Theme Statement

The Section 404 Wetlands Permit application should include the most recent and comprehensive information on the cumulative effect assessment, including cumulative indirect effects to aquatic resources within the watersheds. The cumulative loss of different wetland types (e.g. as a result of indirect impacts such as changes in hydrology) should also be evaluated in the Section 404 Wetlands Permit application.

Thematic Response

FEIS Section 6.1.1 describes the rationale for how the cumulative effects assessment areas (CEAAs) were identified for NorthMet Project Proposed Action, and provides a list of projects and actions that were considered in the cumulative effects wetland analysis. The CEAAs for individual resource areas vary based on the potential for cumulative effects and not on a single overall assessment area. FEIS Section 6.2.3 describes the wetland resource CEAA. The spatial area for the wetland analysis for the DEIS was determined to be the Partridge and Embarrass River watersheds. It was determined during the Wetland IAP Working Group that the FEIS spatial area would not change from the DEIS. The wetland cumulative effects methodology and assessment approach was developed based on the Wetland IAP Working Group and is presented in the Wetland Analysis Work Plan (PolyMet 2011b, as cited in the FEIS). FEIS Section 6.2.3.1 provides a description of the wetland cumulative analysis.

It is difficult to predict potential indirect wetland effects within the CEAA, or to know what the potential indirect wetland effects would be for projects other than the NorthMet Project Proposed Action. Based on the amount of potential indirect wetland effects from the NorthMet Project Proposed Action, loss of wetlands could cumulatively be 0.1 to 12.0 percent of total wetland acres in the Partridge and Embarrass River watersheds. This would be in addition to the direct wetland impacts assessed in FEIS Section 6.2.3.

Theme COE 08

Theme Statement

Additional information on crediting, drainage, plant recommendations and sustainability, and permit requirements is needed for the Atkin wetland mitigation site.

Thematic Response

The Aitkin Mitigation Plan, updated in 2014, provides additional details related to crediting, drainage, plant recommendations and sustainability, and permit requirements. The updated Aitkin Mitigation Plan would be reviewed by the appropriate agencies and approved during the

permitting process. The USACE has concluded that the mitigation sites selected and the wetland credits generated at the three mitigation sites would be acceptable for use in compensating for direct wetland losses. The USACE has not made a final decision on the mitigation ratios that would be required to compensate for direct wetland impacts; if fully successful, it is likely these three mitigation sites would generate sufficient credits to compensate for the 940 acres of direct wetlands impacts, as well as wetland fragmentation associated with the NorthMet Project Proposed Action. In the event that not all of the credits generated by these sites are utilized to compensate for direct wetland impacts, any excess credits could be used to compensate for indirect losses (USACE 2015a, as cited in the FEIS).

Theme COE 09

Theme Statement

The Section 404 Wetlands Permit must be denied because the proposed action has substantial and unacceptable impacts on aquatic resources of national importance (ARNI).

Thematic Response

A Clean Water Act Section 404(q) Memorandum of an Agreement between the Environmental Protection Agency and the Department the Army was signed on 11 August 1992. Part IV of that MOA which is titled Elevation of Individual Permit Decisions, provides exclusive procedures for elevation of specific cases that involve aquatic resources of national importance (ARNI). Elevation of issues related to specific individual permit cases would be limited to those cases that involve aquatic resources of national importance. In such cases, the USEPA determines that issuance of the permit for a proposed project as proposed would result in unacceptable adverse effects to ARNI. Regarding the NorthMet Project Proposed Action, the USEPA raised ARNI as an initial concern in their February 18, 2010 comment letter on the USACE public notice. The SDEIS has addressed many of the USEPA's concerns regarding ARNIs, and the lead agencies continue to work with the USEPA to address their comments on the SDEIS. The USACE may also consult with the USEPA on issues of interest to them while writing the ROD.

The USEPA reviews and comments on Federal EISs pursuant to its authorities and responsibilities under NEPA, Section 309 of the CAA, and Section 404 of the CWA. Under Section 404(c) of the CWA, the USEPA has the authority to prohibit, restrict, or deny the discharge of dredged or fill material at defined sites in Waters of the United States (including wetlands) whenever it determines, after notice and opportunity for public hearing, that use of such sites for disposal would have an unacceptable adverse impact on one or more resources, including fisheries, wildlife, municipal water supplies, or recreational areas. The 404(q) Memorandum of Agreement between the USACE and USEPA provides a procedure for considering both agencies' views on projects, including procedures for elevating unresolved issues to regional and national levels. The 404(q) process is used by the USEPA when they wish to initiate consultation regarding concerns they may have about the impacts of a proposed project.

Theme COE 10

Theme Statement

The SDEIS and/or 404 Permit process should evaluate whether wetlands restoration mitigation project sites would require a Section 404 Wetlands Permit, and if so they must be included in the FEIS as connected actions. In addition, a wetland delineation and additional hydrologic monitoring information is needed for the wetland mitigation sites.

Thematic Response

Under Section 404 of the CWA, impacts to regulated aquatic resources considered to be Waters of the United States, including wetlands, must be mitigated to offset the impact to those resources. Compensatory mitigation is intended to compensate for the impacts associated with permitted activities and is intended to increase the acreage and/or function of other wetlands. Since compensatory mitigation is usually required in order receive a Section 404 permit, the USACE neither requires a separate permit for the proposed mitigation nor do they require that the beneficial impacts proposed by the mitigation be included in the final impact tally for a proposed project. Mitigation efforts that involve the discharge of dredged or fill material into Waters of the United States would require Department of the Army authorization. For project specific mitigation, the impacts are disclosed in the NEPA EIS document, evaluated in the ROD for the USACE, and required as a condition of the permit. Any required authorization would be conveyed by that permit condition.

A wetland delineation of the mitigation sites by PolyMet may be required, and would be submitted as part of the permitting process, if needed. Restoration activities at the mitigation sites have not commenced, and would not be initiated until appropriate approvals and permits have been obtained. Hydrology monitoring has begun at the mitigation sites; however, the state and federal agencies have not yet made a determination on the drainage status of the mitigation sites (i.e., drained, partially drained, etc.). This determination, including credit ratios, would be made during permitting. FEIS Section 5.2.3.3.2 discusses the wetland mitigation for the NorthMet Project Proposed Action, while Section 5.2.3.3.4 discusses the monitoring as part of the proposed mitigation.

Theme COE 11

Theme Statement

The USACE does not have jurisdiction on this project.

Thematic Response

FEIS Section 4.2.3 includes a discussion on the regulatory jurisdiction regarding the wetland resources on the NorthMet Project Proposed Action. As discussed in that section, wetlands in Minnesota are protected under both federal and state laws. The USACE regulates the discharge of dredged or fill material into Waters of the United States, including wetlands, under Section 404 of the CWA. Any project that proposes to impact federally-regulated wetlands must apply for a permit from the USACE to do so. In addition, if a permit from the USACE is issued, it is not valid until the State of Minnesota has either certified (under Section 401 of the CWA) that

the proposed discharges to aquatic resources comply with the State of Minnesota's water quality standards or waived the Section 401 certification requirements.

As discussed in the FEIS, the different federal and state programs that regulate aquatic resources differ in respect to the specific types of resources that are under the jurisdiction of the respective regulatory agencies. While each agency has the authority to regulate most wetlands in Minnesota, neither agency has jurisdiction over all wetlands in the state. For example, "incidental" wetlands are not regulated by the State of Minnesota, may be jurisdictional under Section 404 of the CWA; and in some circumstances wetlands not be subject to regulation under Section 404 of the CWA (see 33 CFR 328.3 for a definition of waters of the U.S.) may be regulated by the state of Minnesota. The wetlands within the NorthMet Project Proposed Action area are either regulated by the USACE under Section 404 of the CWA, under the various state regulatory programs previously discussed, or both, with the exception of two wetland areas that would not be regulated by either program, as a result of being located within an actively permitted waste storage facility. These two wetland areas are discussed in FEIS Section 4.2.3.2.

Theme COE 12

Theme Statement

The mitigation ratios proposed in the USACE (404) Memorandum are reasonable.

Thematic Response

These comments provide general information regarding the USACE Section 404 permit application review. No changes to the FEIS were made as a result of these comments.

Theme COE 13

Theme Statement

Once implemented, the Northeast Minnesota Wetland Mitigation Strategy should be used to identify additional wetland mitigation sites within the St. Louis River and Lake Superior Watersheds to compensate for indirect wetland effects at the PolyMet Site. Until then, mitigation options for indirect effects must be discussed in the 404 permit application.

Thematic Response

These comments provide general information regarding mitigation that should be considered for wetland mitigation in the future. No changes were made to the FEIS as a result of these comments.

A.5.5 Issue: Cultural Resources (CR)

Theme CR 01

Theme Statement

The SDEIS does not adequately discuss the federal government's trust responsibility as part of the 1854 Treaty, nor does it adequately address potential impacts to, and proposed mitigation/compensation for loss of access to, resources important to the Bands.

Thematic Response

The Cultural Resources section of the Final EIS Chapters 4 and 5 addresses the federal Co-lead Agencies' federal tribal trust responsibilities under the 1854 Treaty. These sections, along with other relevant natural resources sections of Chapters 4, 5, and 6, also address effects on, and any proposed mitigation for effects on cultural resources and culturally significant natural resources. Mitigation for effects on cultural resources and culturally significant natural resources is considered to the extent possible within the parameters of the statutes and regulations providing the federal authorities for the NorthMet project review.

Theme CR 02

Theme Statement

The Area of Potential Effect (APE) discussed in the SDEIS does not encompass the true APE within which the proposed project could affect cultural resources.

Thematic Response

FEIS Section 4.2.9.2.3 provides a detailed discussion and analysis of the area in which cultural resources may be affected by the undertaking. The APE takes into account both direct and indirect effects using a geographically expansive area that accounts for direct effects as well as visual, audible, atmospheric, hydrological, and water quality effects. The APE is based on extensive modeling and other analysis completed for the NorthMet Mining Project and Land Exchange, and includes an area much broader than the Plant Site and Mine Site. Since the SDEIS, the APE has been revised slightly to include the Dunka Road corridor, several federal parcels included in the Land Exchange Proposed Action, and the Colby Lake Pumphouse and pipeline.

Theme CR 03

Theme Statement

The SDEIS does not adequately discuss and address cumulative effects to cultural and 1854 Treaty resources.

Thematic Response

FEIS Section 4.2.9.2.3 provides a detailed discussion and analysis of the area in which cultural resources may be affected by the undertaking. The APE takes into account both direct and

indirect effects using a geographically expansive area that accounts for direct effects as well as visual, audible, atmospheric, hydrological, and water quality effects. The APE is based on extensive modeling and other analysis completed for the NorthMet Mining Project and Land Exchange, and includes an area much broader than the Plant Site and Mine Site. Since the SDEIS, the APE has been revised slightly to include the Dunka Road corridor, several federal parcels included in the Land Exchange Proposed Action, and the Colby Lake Pumphouse and pipeline.

Theme CR 04

Theme Statement

Tribal cooperating agencies consider a 216,300-acre area bounded by the St Louis River, Lake Superior, Lake Vermilion and the Beaver Bay to Vermilion Trail to be a Tribal Historic District. The cumulative effects analysis for cultural resources should include this Tribal Historic District.

Thematic Response

The historic district proposed by the Grand Portage Band in a June 27, 2013 letter was addressed (Grand Portage 2013, as cited in the FEIS). The federal Co-lead Agencies do not believe that this area meets the definition of a district, nor does it have sufficient integrity as a district to qualify for inclusion in the NRHP. The federal Co-lead Agencies have considered an expanded area for analysis of cumulative effects on cultural resources and natural resources of significance to the Bands, including use of the 1854 Ceded Territory as the CEAA. Use of the 1854 Ceded Territory as the CEAA for cultural resources would actually diminish the significance of any cumulative effects. By evaluating the effects of the NorthMet Project Proposed Action along with other past, present, and reasonably foreseeable future projects in the context of a much larger area with a much larger number of resources similar to those affected by the NorthMet Project Proposed Action, the effect of the NorthMet Project Proposed Action on those resources is diminished. The cumulative effects analysis focuses on the specific resources, or types of resources, affected by the NorthMet Project Proposed Action within an area that is geographically meaningful considering the project under review.

Cumulative effects are discussed and addressed differently based on the affected resource. Discussions related to socioeconomics, for instance, use an expanded analysis area compared to other resources. Such expanded analysis areas are used as appropriate. The Cultural Resources sections in FEIS Chapters 4, 5, and 6 address the Co-lead Agencies' determination of the NorthMet Project Proposed Action's direct, indirect, and cumulative areas of potential effect.

Theme CR 05

Theme Statement

The Section 106 survey and SDEIS did not adequately identify, address impacts to, and provide mitigation measures for cultural resources.

Thematic Response

The federal Co-lead Agencies have made a reasonable and good-faith effort to identify cultural resources potentially affected by the NorthMet Project Proposed Action, and to determine which

resources qualify for inclusion in the NRHP as historic properties. Impacts to historic properties have been appropriately assessed, and the federal Co-lead Agencies are actively consulting with the federally recognized Bands, the Minnesota SHPO, and other consulting parties to develop appropriate mitigation measures. Effects on resources significant to the Bands that do not qualify as historic properties, as well as general effects on natural resources, are considered within the parameters of the statutes that shape this review. Effects on cultural resources and culturally significant natural resources are addressed in the Cultural Resources sections in FEIS Chapters 4, 5, and 6.

Theme CR 06

Theme Statement

The Section 106 consultation and survey, and government to government consultation should be complete prior to the Final EIS, to address the presence of and impacts to cultural resources and use of resources by tribal members.

Thematic Response

The federal Co-lead Agencies have actively consulted with the federally recognized Bands that have expressed an interest in consulting on the NorthMet Project Proposed Action. Historic properties affected by the NorthMet Project Proposed Action have been identified and the impacts to those properties have been assessed. This also includes an assessment of actual use of those historic properties, as well as other resources in the APE, by tribal members. Effects on historic properties would be fully considered prior to the issuance of any permit or land exchange, pursuant to the NHPA and its implementing regulations. Effects on cultural resources and culturally significant natural resources are addressed in the Cultural Resources sections in FEIS Chapters 4, 5, and 6.

Theme CR 07

Theme Statement

The proposed avoidance and mitigation measures identified in the SDEIS are adequate to allow for the proposed Project to have a minimal effect on Cultural Resources.

Thematic Response

The federal Co-lead Agencies are actively consulting to avoid, minimize, and mitigate effects on historic properties to the extent practicable and within the parameters of the underlying statutes. Effects on cultural resources and culturally significant natural resources are addressed in the Cultural Resources sections in FEIS Chapters 4, 5, and 6.

Theme CR 08

Theme Statement

The FEIS should use the USEPA's 2011 NEPA review guidance titled "Applying Cumulative Impact Analysis Tools to Tribes and Tribal Lands."

Thematic Response

The 2011 USEPA guidance document on cumulative effects has been reviewed and discussed with the USEPA. The FEIS complies with CEQ guidance for the cumulative effects analysis.

A.5.6 Issue: Cumulative Effects (CU)

Theme CU 01

Theme Statement

The cumulative effects assessment areas (CEAAs) were incorrectly defined, and should include the BWCAW, Voyageurs National Park, Lake Superior (including Isle Royale and Apostle Island National Parks), the St. Louis River Watershed, and the 1854 Ceded Territory. The FEIS should also consider cumulative impacts within a larger region beyond just the Mesabi Iron Range, such as the Duluth Complex south and east of the range.

Thematic Response

The cumulative effects section in the FEIS (Sections 6.1.1.1 and 6.1.2.1) describes the rationale for the identification of cumulative effects assessment areas (CEAAs). The CEAAs for individual resource areas vary based on the potential for cumulative effects, and not on a single overall assessment area. FEIS Table 6.1.1-2 summarizes the spatial areas used for each resource area.

Theme CU 02

Theme Statement

The SDEIS did not consider the correct projects in the cumulative effects assessment. The FEIS should not exclude speculative projects just because they are not yet at the permitting stage. Instead, the cumulative effects analysis should include all potential projects, including those for mineral exploration and possible future expansion of the NorthMet Mine itself. Eventual Northshore Mine closure should also be considered.

Thematic Response

FEIS Sections 6.1.1.2 and 6.1.2.1 includes an updated list of projects and actions that were considered in the cumulative effects assessment. The Northshore Mine closure has been included in the list of actions as a reasonably foreseeable action. Any potential future expansion of the NorthMet Mine would be considered a speculative project.

The FEIS considered for the cumulative effects assessment "reasonably foreseeable" actions, which are defined as those actions that are included in approved planning documents and have approved funding, are permitted, or have a currently active federal or state permit or site plan application under review. The Co-lead agencies have followed cumulative effects guidance from CEQ and sources, as they relate to reasonably foreseeable projects, including other mining projects.

Theme CU 03

Theme Statement

The SDEIS did not use the correct methodology to consider cumulative effects. The FEIS should apply USEPA's approach for the Pebble Mine (Bristol Bay, Alaska) assessment. It should also reference USEPA guidance for considering cumulative effects and the "Cumulative Impact Analysis Tools to Tribes and Tribal Lands" guide. The FEIS should also include information from other sources, such as the Regional Copper-Nickel Study, in order to estimate the amount of mining potential in northern Minnesota.

Thematic Response

The Co-lead agencies consulted a wide range of sources to conduct the cumulative effects assessment of the NorthMet Project Proposed Action and Land Exchange Proposed Action. In addition, the Co-lead agencies followed USEPA (USEPA 1999b, as cited in the FEIS) and CEQ (CEQ 1997, as cited in the FEIS, and Connaughton 2005, as cited in the FEIS) guidance on how to conduct the cumulative effects analysis. FEIS Section 6.1.1.1 describes the cumulative effects analysis approach. The cumulative effects analysis meets the requirements of MEPA/NEPA.

Theme CU 04

Theme Statement

The FEIS cumulative effects analysis should describe how permitting the Proposed NorthMet Mining Project would facilitate the eventual permitting of additional similar mines in northern Minnesota, thus establishing a sulfide mining district. The FEIS should also discuss the possibility that excess capacity at the proposed NorthMet processing plant would also facilitate additional mining in the region.

Thematic Response

The FEIS considered for the cumulative effects assessment "reasonably foreseeable" actions, which are defined as those actions that are included in approved planning documents and have approved funding, are permitted, or have a currently active federal or state permit or site plan application under review. The degree to which the NorthMet Project Proposed Action and Land Exchange Proposed Action could facilitate future permitting of additional mines is outside the scope of the FEIS, and is thus not included in the analysis. The Co-lead agencies followed USEPA (USEPA 1999b, as cited in the FEIS), CEQ (CEQ 1997, as cited in the FEIS, and Connaughton 2005, as cited in the FEIS), and other cumulative effects guidance relating to reasonably foreseeable projects, such as other mining projects. The use of the NorthMet Processing Plant by other potential speculative mining projects is outside the scope of the FEIS.

Theme CU 05

Theme Statement

The cumulative effects analysis of the FEIS should be revised to better describe how the spatial and temporal boundaries were established. The FEIS should also make clear that the findings of the cumulative effects analysis rely on complete and successful implementation of mitigation measures.

Thematic Response

FEIS Sections 6.2 and 6.3 describe how each resource's cumulative effects assessment area was determined, including spatial and temporal areas. FEIS Table 6.1.1-2 summarizes the spatial areas used for each resource area.

Theme CU 06

Theme Statement

The zone of impact for PolyMet extends beyond the State of Minnesota to other states and foreign countries within the Lake Superior basin.

Thematic Response

The FEIS describes the cumulative effects of the NorthMet Mining Project. Refer to FEIS Chapter 6 under the individual resource topics for further information. The rationale for each resource CEAA have been defined as noted in the response to theme CU 01 and in FEIS Section 6.2. FEIS Table 6.1.1-2 summarizes the spatial areas used for each resource area.

Theme CU 07

Theme Statement

The FEIS should consider all other "actions" and not just "projects." The assessment is therefore unreasonably limited to reasonably foreseeable projects only.

Thematic Response

Section 6.1.1.2 describes all past, present, and reasonably foreseeable projects/actions that were considered in the NorthMet Project Proposed Action cumulative effects assessment. Section 6.1.2.2 describes the cumulative forest service land actions that were considered in the Land Exchange Proposed Action cumulative effects assessment.

Theme CU 08

Theme Statement

The FEIS cumulative effects analysis should include various land exchanges that are being considered, and should specifically evaluate how these exchanges could affect the potential environmental impacts related to the Proposed Action. This includes the Proposed School Trust Lands/Boundary Waters Land Exchange.

Thematic Response

FEIS Section 6.1.2 includes an updated list of projects and actions that were considered in the cumulative effects assessment for the Land Exchange Proposed Action, which includes the School Trust Lands project.

Theme CU 09

Theme Statement

The FEIS cumulative effects analysis should include numerous vegetation management projects conducted by the U.S. Forest Service (USFS). Some of these include: the Kabetogama Project, the Mixed Use Motorized Use Project, the Pearl Project, the Glacier Project, the Skibo Project, the Tracks Project, the Birch Project, the Echo Trail Project, the Travel Management Plan of 2009, the Pelican Project, the Tracks Project, the Virginia Project, and the Big Grass Project. Simply listing "forestry practices" as part of the analysis is not sufficient.

Thematic Response

The FEIS includes a qualitative cumulative effects assessment of USFS's ongoing management activities on the Superior National Forest in conjunction with the NorthMet Mining Project and Land Exchange. The vegetation management projects listed in theme CU 09 address Superior National Forest Landscape Ecosystems objectives stated in the Forest Plan. These projects' effects on the Forest Plan Landscape Ecosystems are cumulatively incorporated into the Superior National Forest databases. The cumulative effects analysis for the NorthMet Mining Project and Land Exchange used the Superior National Forest Landscape Ecosystems data in estimating potential effects, as shown in FEIS Section 6.3.4.3.2 and Table 6.3.4-2. Motorized Use and Travel Management projects are outside the scope of the effects of, and therefore would not be affected by the NorthMet Project Proposed Action.

Theme CU 10

Theme Statement

The SDEIS does not adequately address cumulative effects on National Forest lands from other mining projects that may require National Forest lands for tailings, ore processing, stockpiles, and other infrastructure.

Thematic Response

Sections 6.1.1 and 6.1.2 describes all past, present, and reasonably foreseeable projects/actions that were considered in the cumulative effects assessment.

Theme CU 11

Theme Statement

The Proposed NorthMet Mine would cause irreversible cumulative effects in the region, including impacts on treaty rights and subsistence practices.

Thematic Response

The FEIS describes the cumulative effects of the NorthMet Project Proposed Action and Land Exchange Proposed Action. FEIS Sections 6.2 and 6.3 have been updated with additional information that has become available since publication of the SDEIS. FEIS Section 6.2.9 describes cumulative effects for cultural resources.

Theme CU 12

Theme Statement

The cumulative effects analysis conducted by the Tribal Cooperating Agencies must be considered by the lead agencies.

Thematic Response

The Co-lead Agencies considered the information included in the Tribal Cooperating Agencies' cumulative effects assessment and found no compelling information or analysis to change the original approach or conclusions.

Theme CU 13

Theme Statement

The cumulative effects analysis must include a conceptual analysis of the impact of multiple copper/nickel mines operating in these headwaters. These projects are occurring because the State of Minnesota is permitting mine development anywhere in the Duluth Complex but restricting processing to the St. Louis River drainage only.

Thematic Response

The FEIS analyzed the direct, indirect and cumulative effects of the NorthMet Project Proposed Action and Land Exchange Proposed Action to include past, present, and reasonably foreseeable projects as defined in USEPA (USEPA 1999b, as cited in the FEIS) and CEQ (CEQ 1997, as cited in the FEIS, and Connaughton 2005, as cited in the FEIS) guidance. Speculative projects are considered outside the scope of the analysis. There are currently no copper/nickel mining projects permitted in the State of Minnesota. The NorthMet Project is the only proposed copper/nickel mining project currently under Environmental Review (EIS process). The State of Minnesota does not have any restrictions limiting mine processing to the St. Louis River Watershed.

Theme CU 14

Theme Statement

Cumulative effects analysis requires quantified or detailed information. Absent specific justification, general statements about possible effects and some risk do not constitute the NEPA-required "hard look."

Thematic Response

The FEIS includes both quantitative and qualitative analysis of the cumulative effects of the NorthMet Project Proposed Action and Land Exchange Proposed Action. Where quantification of conditions could not be ascertained, a qualitative analysis of the potential cumulative effects was used. The Co-lead Agencies considered these qualitative effects carefully where data did not exist or could not be collected using reasonable methods consistent with the CEQ regulations (40 CFR 1502.22).

Theme CU 15

Theme Statement

The FEIS should reveal the cumulative effects from all sources together on impacted resources, acknowledging that the Proposed Action would be one of many sources that cause the impacts.

Thematic Response

The FEIS describes the cumulative effects of the NorthMet Project Proposed Action and Land Exchange Proposed Action in conjunction with other projects on individual resources from a variety of sources. For example, water impacts to the Partridge River take into account the effect that the Northshore Mine has on flows, including projecting the conditions at future closure of the Northshore Mine. In addition, impacts to wildlife take into account the effects from noise, direct mortality (e.g., traffic), habitat fragmentation to wildlife corridors, and loss of 1854 Treaty resources due to other reasonably foreseeable projects.

Theme CU 16

Theme Statement

Post-closure impacts should be included in the cumulative effects analysis because some mine features would become permanent features on the landscape.

Thematic Response

The FEIS describes the cumulative effects of the NorthMet Project Proposed Action, including those expected during closure and post-closure. The FEIS discloses post-closure effects in Section 6.2.

Theme CU 17

Theme Statement

The SDEIS underestimated the cumulative effects on native habitats in this region. Native habitat has been destroyed from Grand Rapids to the BWCAW by mining, urbanization, and settlement, among other factors.

Thematic Response

FEIS Section 6.1.1.2 states that past effects on all resources are described as the current environmental conditions in FEIS Chapter 4. The FEIS discloses how native habitats have been modified in the past by human activity. Using the descriptions in FEIS Chapter 4 as a baseline, the FEIS describes how the NorthMet Project Proposed Action and Land Exchange Proposed Action, in addition to reasonably foreseeable projects and actions, would cause cumulative effects in the future.

Theme CU 18

Theme Statement

The state should conduct a regional or programmatic cumulative effects study of all sulfide mining in the Lake Superior Basin, including previous and potential future mining activities, before approving the NorthMet Mine.

Thematic Response

The preparation of a regional or programmatic analysis of past and potential mining activities is outside the scope of the FEIS. The cumulative effects analysis meets the requirements of MEPA/NEPA.

Theme CU 19

Theme Statement

A generic or programmatic EIS for sulfide mining would be the appropriate way to evaluate multiple mining projects currently being planned. Such an EIS should be used to determine whether sulfide mining in the Duluth Complex will be beneficial to the long-term interests of the State.

Thematic Response

The preparation of a regional or programmatic analysis of past and potential mining activities is outside the scope of the FEIS. The cumulative effects analysis meets the requirements of MEPA/NEPA.

Theme CU 20

Theme Statement

The SDEIS correctly identified the cumulative effects study areas, cumulative projects, and analysis approach.

Thematic Response

These comments provide general information regarding the cumulative effects assessment. Because no specific information was provided, no changes to the EIS were made.

A.5.7 Issue: Financial Assurance (FIN)

Theme FIN 01

Theme Statement

The SDEIS does not clearly state who will be financially responsible, how those parties will be held responsible for the Proposed Action, or who will monitor this process. Such considerations are crucial, given the mining industry's history and the 200-500 year or possible perpetual (even through bankruptcy) timeframe of the Project. The FEIS should also identify the parties that would monitor this process over such a long timeframe. Restrictions should be placed on PolyMet (with respect to financial assurance obligations) for any transfers of ownership or organizational restructuring once the project permits are granted.

Thematic Response

FEIS Section 3.2.2.4 provides available details regarding financial assurance. The project proponent (PolyMet) would be responsible for financial assurance costs. As stated in *Minnesota Rules*, part 6132.1200, subpart 5, financial assurance criteria require that funds must not be dischargeable through bankruptcy and are fully binding and enforceable under state and federal law. *Minnesota Rules*, part 6132.1200, subpart 7 states that the Permit to Mine could be suspended or revoked if the proponent does not comply with financial assurance criteria. The Commissioner may also order imposition of a civil penalty in such a situation, under *Minnesota Rules*, part 6132.5100. *Minnesota Rules*, part 6132.1200 subpart 4 also states that the Commissioner shall evaluate all financial assurance cost estimates and adjustments to cost estimates using individuals with documented experience in material handling and construction and mining costs. Costs incurred by the Commissioner in hiring third parties to perform the evaluation must be paid by the applicant. *Minnesota Rules*, part 6132.1200, subpart 4, item F states that any new permittee would be responsible for complying with the Permit to Mine and any outstanding obligations before the former permittee could be released from the requirements. Additional details on the financial assurance required for the project would be addressed during permitting.

Theme FIN 02

Theme Statement

Since PolyMet (Minnesota) has no assets, PolyMet's parent company (PolyMet, Canada) and major shareholder (Glencore Xstrata), must be included as responsible parties for financial assurance.

Thematic Response

FEIS Section 3.2.2.4 provides available details regarding financial assurance. PolyMet, the project proponent and not its shareholders, would be responsible for financial assurance. As stated in *Minnesota Rules*, part 6132.1200, subpart 5, financial assurance criteria require that funds must not be dischargeable through bankruptcy and are fully binding and enforceable under state and federal law. *Minnesota Rules*, part 6132.1200, subpart 4, item F states that any new permittee would be responsible for complying with the Permit to Mine and any outstanding obligations before the former permittee could be released from the requirements. Additional details on the financial assurance required for the project, including responsible parties, would be addressed during permitting.

Theme FIN 03

Theme Statement

The FEIS should describe the legal framework for financial assurance that would result in bankruptcy-proof and perpetual financial assurance investments/instruments, as well as the repercussions if PolyMet fails to meet its obligations.

Thematic Response

FEIS Section 3.2.2.4 provides available details regarding financial assurance. As stated in *Minnesota Rules*, part 6132.1200, subpart 5, financial assurance criteria require that funds must not be dischargeable through bankruptcy and are fully binding and enforceable under state and federal law. *Minnesota Rules*, part 6132.1200, subpart 7 states that the Permit to Mine could be suspended or revoked if the proponent does not comply with financial assurance criteria. The Commissioner may also order imposition of a civil penalty in such a situation, under *Minnesota Rules*, part, part 6132.5100. Additional details on the legal framework for the financial assurance required for the project would be addressed during permitting. Also see the response to theme FIN 08, which addresses long-term financial assurance instruments/investments.

Theme FIN 04

Theme Statement

The State of Minnesota should not let a foreign corporation (PolyMet, Canada and Glencore Xstrata) make profits off of U.S. land and/or send minerals to China, especially without financial assurances that address long-term cleanup of the site. The FEIS should provide a discussion of the feasibility and methods of enforcing U.S. laws regarding foreign companies.

Thematic Response

Financial assurance is required up front, and would be updated throughout the project under the Permit to Mine, which would be required prior to the start of mining. The purpose of financial assurance, as stated in *Minnesota Rules*, part 6132.1200, subpart 1, is to ensure that MDNR has a "source of funds" to perform reclamation activities if the permittee fails to do so. As stated in *Minnesota Rules*, part 6132.1200, subpart 5, financial assurance criteria require that funds must not be dischargeable through bankruptcy and are fully binding and enforceable under state and federal law. The NorthMet Project's financial assurance requirements are independent of PolyMet's parent company and its shareholders. FEIS Section 3.2.2.4 provides available details regarding financial assurance and applicable regulations. Additional details on the financial assurance required for the project would be addressed during permitting.

Theme FIN 05

Theme Statement

Relative to cost estimates, the SDEIS does not contain information regarding:

- Adequate reclamation and closure cost estimate information to ensure a sufficient amount is available when needed to meet evolving long-term care standards;
- How often the cost estimates for water treatment will be updated;
- How long the covers, liners, treatment equipment, Wastewater Treatment Plant (WWTP) and Wastewater Treatment Facility (WWTF) will last, and how they would be replaced;
- How cost estimates would be determined for contingency plans/unforeseen challenges (natural events and man-made accidents);
- Adaptive management as a mechanism to address uncertainties;
- How the economic value of water and human health is considered; and
- How alternative estimates (e.g., from the Grand Portage Band of Lake Superior Chippewa) are considered and reconciled with PolyMet's estimate.

Thematic Response

FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the cost estimates, timeframes, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. Specific infrastructure timelines and life expectancies of equipment would be accounted for during permitting as well. FEIS Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. FEIS Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated at least annually under the Permit to Mine. *Minnesota Rules*, part 6132.1200, subpart 3, states that cost estimates shall be annually adjusted using current dollar value at the time of the estimate. The liner and cover systems for waste containment are selected on the basis of numerous factors discussed in the Rock and Overburden Management Plan and FEIS Sections 3.2.2.1.8 and 3.2.2.3.10. The WWTP and WWTF would undergo continued inspection and maintenance during operations, long-term treatment, and in closure. The WWTP

and WWTF replacement costs would be included in long-term financial assurance estimates. USEPA guidance on utilization of adaptive management defines it as a decision making process that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. *Minnesota Rules*, part 6132.1200, subparts 4 and 5 require the MDNR to evaluate financial assurance cost estimates, terms, and conditions using individuals with documented experience in the relevant field. Those individuals would consider all relevant information in making their evaluations.

Theme FIN 06

Theme Statement

The FEIS should provide reasonable estimates on how long closure/post-closure treatment and maintenance will be required to assess project effects and risks in the context of financial assurance requirements.

Thematic Response

FEIS Sections 3.2.2.1.10, 3.2.2.3.12, and 5.2.2.3.1 provide available information regarding long-term water treatment and maintenance. Temporal aspects of financial assurance are addressed in *Minnesota Rules*, part 6132.3200, subpart 2, item E, which states that financial assurance is required for all areas that require continued maintenance following closure, and that no release from the Permit to Mine would be granted for portions of mining areas that require post-closure maintenance until the maintenance activities are no longer necessary. Refer to FEIS Section 3.2.2.4 for more information on financial assurance.

Theme FIN 07

Theme Statement

The State of Minnesota should set a value for financial assurance obligations and should require PolyMet to pay that amount as a condition of issuance of the Permit to Mine.

Thematic Response

FEIS Section 3.2.2.4 provides available details regarding financial assurance. Financial assurance is required up front, and would be updated throughout the project under the Permit to Mine, which would be required prior to the start of mining. *Minnesota Rules*, part 6132.1200, subpart 4 also dictates that the Commissioner shall evaluate all financial assurance cost estimates and adjustments to cost estimates using individuals with documented experience in material handling and construction and mining costs. Additional details on the cost estimates that would be required for the project would be addressed during permitting.

Theme FIN 08

Theme Statement

The SDEIS provides detailed project modeling, analysis, and discussion concluding the need for long term (perpetual) treatment, yet the financial assurance section presents very minimal, general information on how this long term treatment will be financed. It is unclear what methods (assumptions on discount rates, inflation, and rate of return on investments) or instruments (e.g., cash up front within the custody and control of the State, reliance on a reputable third-party insurer such as Lloyd's of London) will be used to do so, how to assure the investments are risk-free and account for market fluctuations, and determination of how the funds would be dedicated to this project. Annual adjustment of financial assurance is a "reactive" approach that does not seem adequate for project with such large potential risks and effects.

Thematic Response

FEIS Section 3.2.2.4 provides available details regarding financial assurance. FEIS Table 3.2-15 provides financial assurance cost estimates for various years of closure, long term annual monitoring and maintenance cost estimates. FEIS Section 3.2.2.4.1 discusses what activities would be considered in cost estimates, and that cost estimates would be updated annually under the Permit to Mine to account for the proceeding year's activities. *Minnesota Rules*, part 6132.1200, subpart 3 states that cost estimates shall be annually adjusted using current dollar value at the time of the estimate. FEIS Section 3.2.2.4.2 discusses the types of financial assurance instruments that could be used in combination to assure the project. Additional details on the cost estimates, methods, and instruments that would be required for the project, and how the instruments would be updated and dedicated to the project would be addressed during permitting.

Theme FIN 09

Theme Statement

The State of Minnesota does not have the staff expertise necessary to protect tax payers when assessing the types and adequacy of financial assurance and financial instruments necessary for this project.

Thematic Response

FEIS Section 3.2.2.4 provides available details regarding financial assurance. *Minnesota Rules*, part 6132.1200, subpart 4 states that the Commissioner shall evaluate all financial assurance cost estimates and adjustments to cost estimates using individuals with documented experience in material handling and construction and mining costs. Costs incurred by the Commissioner in hiring third parties to perform the evaluation must be paid by the applicant. Additional details on the financial assurance required for the project would be addressed during permitting.

Theme FIN 10

Theme Statement

The potential benefits from a limited number of jobs are outweighed by potential effects of open-pit sulfide mining on thousands of acres for hundreds of years. These costs cannot really be measured, and they are likely to fall on the shoulders of current and future generations of Minnesota taxpayers.

Thematic Response

The FEIS discusses the number of jobs potentially created by (and other socioeconomic impacts of) the NorthMet Project Proposed Action in Section 5.2.10. Other effects of the project, such as environmental effects, are discussed throughout FEIS Chapter 5. Long-term environmental monitoring and maintenance cost estimates are part of financial assurance, as discussed in FEIS Section 3.2.2.4. As stated in *Minnesota Rules*, part 6132.1200, subpart 5, financial assurance criteria require that funds must not be dischargeable through bankruptcy and are fully binding and enforceable under state and federal law. Additional details on the financial assurance cost estimates and commitment required for the project would be addressed during permitting.

Theme FIN 11

Theme Statement

The proposed extent of Financial Assurance is inadequate and should also be required for potential effects (indirect and unforeseen) to resources such as wetlands, waters, and wild rice. Financial Assurance should also address monitoring and maintenance costs, mitigation costs, and legacy contamination.

Thematic Response

FEIS Section 3.2.2.4 provides available details regarding financial assurance, including for reclamation of all disturbed areas and ongoing long-term monitoring and maintenance. Additional details on the financial assurance required for the project effects, monitoring, mitigation, and legacy contamination would be addressed during permitting. The FEIS analyzes the reasonably foreseeable effects of the NorthMet Project, and includes monitoring systems (i.e., environmental/compliance samples or measurements) to confirm modeled predictions. MDNR has the authority to require remedial action for unforeseen effects, and to adjust financial assurance on at least an annual basis when changes are necessary to the reclamation plan. To the extent that the reclamation plan includes maintenance, mitigation, and cleanup of legacy contamination, those items would be covered by financial assurance.

Guidance for USACE permits that are conditioned to include any type of financial assurance to ensure that required compensatory mitigation is completed can be found in FEIS Section 5.2.3.3.2, or at:

- 33 CFR Parts 325 and 332, Compensatory Mitigation for Losses of Aquatic Resources; Final Rule, dated April 10, 2008. Financial assurances are specifically discussed at 33 CFR 332.3(n).

- Regulatory Guidance Letter No. 05-1 Date: 14 February 2005 titled: Guidance on the Use of Financial Assurances, and Suggested Language for Special Conditions for Department of the Army [i.e., USACE] Permits Requiring Performance Bonds, provides additional guidance on the use of financial assurances (USACE 2005).

Theme FIN 12

Theme Statement

The FEIS should include a Failure Analysis, and should account for risks (e.g., mine pit wall failures or operation failures) associated with unprecedented duration of monitoring and treatment. This was the approach taken in USEPA's assessment of the Pebble Mine.

Thematic Response

The referenced document (USEPA's "Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska") does not address any specific mining proposal, and thus cannot appropriately be applied to the NorthMet Project Proposed Action. FEIS Section 3.2.2.4 provides available details regarding financial assurance. Additional details on the financial assurance would be addressed during permitting. The FEIS analyzes the reasonably foreseeable effects of the NorthMet Project Proposed Action, and includes monitoring systems (i.e., environmental/compliance samples or measurements) to confirm modeled predictions. MDNR has the authority to require remedial action for unforeseen effects or events, and to adjust financial assurance on at least an annual basis when changes are necessary to the reclamation plan.

Theme FIN 13

Theme Statement

Detailed financial assurance information must be included up front, as part of the Environmental Review process, as required by NEPA/MEPA. Without sufficient information on Financial Assurance in the SDEIS, the public's opportunity to comment on it during the public comment period was reduced, as was with the opportunity to understand key elements of the proposed financial assurance. The Project's Financial Assurance discussion should include a robust public debate involving financial and legal experts.

Thematic Response

FEIS Section 3.2.2.4 provides available details regarding financial assurance as required under NEPA/MEPA. *Minnesota Rules*, part 6132.1200, subpart 4 states that the Commissioner shall evaluate all financial assurance cost estimates and adjustments to cost estimates using individuals with documented experience in material handling and construction and mining costs. Additional details on the financial assurance that would be required for the project would be addressed during permitting. The Permit to Mine, which would include financial assurance information, includes an opportunity for public input. Neither NEPA nor MEPA rules require that all financial assurance mechanisms be in place before the EIS is finalized.

Theme FIN 14

Theme Statement

State statutes and rules (such as *Minnesota Rules*, part 6132.3200) prohibit projects requiring perpetual maintenance after closure. Financial Assurance laws are also inadequate for this project.

Thematic Response

The FEIS describes the state statutes and rules (specifically *Minnesota Rules*, part 6132.3200) as they relate to long-term maintenance. *Minnesota Rules*, part 6132.3200, subpart 2, item E states that financial assurance is required for all areas that require continued maintenance following closure, and that no release from the Permit to Mine would be granted for portions of mining areas that require post-closure maintenance until the maintenance activities are no longer necessary.

Theme FIN 15

Theme Statement

The SDEIS does not discuss federal requirements for Financial Assurance.

Thematic Response

FEIS Section 3.2.2.4 describes how financial assurance would be incorporated into the state Permit to Mine. If issued, USACE permits would require mitigation for indirect wetland effects. Guidance for USACE permits that are conditioned to include any type of financial assurance to ensure that required compensatory mitigation is completed can be found in FEIS Section 5.2.3.3.2, or at:

- 33 CFR Parts 325 and 332, Compensatory Mitigation for Losses of Aquatic Resources; Final Rule, dated April 10, 2008. Financial assurances are specifically discussed at 33 CFR 332.3(n).
- Regulatory Guidance Letter No. 05-1 Date: 14 February 2005 titled: Guidance on the Use of Financial Assurances, and Suggested Language for Special Conditions for Department of the Army [i.e., USACE] Permits Requiring Performance Bonds, provides additional guidance on the use of financial assurances (USACE 2005).

Theme FIN 16

Theme Statement

PolyMet has the ability to financially assure the project.

Thematic Response

These comments include general information supporting PolyMet's ability to provide sufficient financial resources for the NorthMet Mining project. No changes were made to the EIS as a result of these comments.

Theme FIN 17

Theme Statement

The Project should be permitted because Financial Assurance will protect against any future problems, and Financial Assurance laws and regulations are sufficient for this purpose.

Thematic Response

These comments include general support for the NorthMet Mining project because the company would provide sufficient funds to financially assure the project. Because no specific information was provided, no changes were made to the EIS as a result of these comments.

A.5.8 Issue: General Opinion (GEN)

Theme GEN 01

Theme Statement

General opposition to the project due to broad environmental concerns, such as “pollution” or “environmental damage.”

Thematic Response

These comments include general opposition to the NorthMet Mining project. Because no specific information was provided, no changes were made to the EIS as a result of these comments.

Theme GEN 02

Theme Statement

General support for the project.

Thematic Response

These comments include general support for the NorthMet Mining project. Because no specific information was provided, no changes were made to the EIS as a result of these comments.

Theme GEN 03

Theme Statement

General opposition to the project due to multiple environmental and/or social concerns.

Thematic Response

These comments include general opposition to the NorthMet Mining project. Because no specific information was provided, no changes were made to the EIS as a result of these comments.

A.5.9 Issue: Geotechnical Stability (GT)

Theme GT 01

Theme Statement

The SDEIS does not properly address the stability risks of using the existing tailings basin, including using the existing LTV tailings basin as a base, and the presence of erosion, peat, and LTV slimes, faults and streams.

Thematic Response

The FEIS summarizes the design of the proposed Tailings Basin in Section 5.2.14.2.2, and includes information on the analyses pertaining to its stability. Existing conditions are accounted for in the design through data gathered from surveys, material testing, and site exploration. Peat represents some of the weaker material within the existing LTVSMC Tailings Basin. The NorthMet Project Proposed Action includes adding a rock buttress within the existing dams to reinforce those areas where peat and fine tailings and slimes layers occur. Peat would be removed from locations where rock buttress would be added to allow the rock to key into the more competent glacial till. Peat, fines, and slimes layers within the existing tailings basin would also be strengthened through cement deep soil mixing prior to use in the Tailings Basin for NorthMet. The proposed water containment system would capture and remove water that seeps from the Tailings Basin. Results of a probabilistic seismic hazard analysis indicated that a severe earthquake is highly unlikely in Minnesota, and that any seismically induced forces would not likely affect the stability of the Tailings Basin. Geotechnical stability modeling undertaken for the FEIS takes into account the above proposed design measures, as well as the location where peat would remain after construction of the on-site facilities. Modeling indicates that the Factors of Safety would be met. Monitoring and adaptive management would be implemented throughout construction, operation, and maintenance of the Tailings Basin to account for measured stability characteristics to manage the risk of failure. Refer to FEIS Section 5.2.2 for more information about water management at the Tailings Basin. The Geotechnical Data Package, Volume 1 (Tailings Basin) (PolyMet 2015l, as cited in the FEIS) contains specific detail on the design and stability modeling. Stability would be monitored throughout construction and operation in accordance with permit requirements, and adaptive management could be implemented as necessary based on monitoring results (see FEIS Section 5.2.14.2.2). The Flotation Tailings Management Plan (PolyMet 2015n, as cited in the FEIS) contains details of monitoring and management for the Tailings Basin. The details of the design, as well as monitoring and management requirements would be further refined for permitting under the MDNR Dam Safety Permit and the Permit to Mine.

After the close of the comment period on the SDEIS, but prior to publication of the FEIS, an Independent Expert Engineering Investigation and Review panel issued a *Report on Mount Polley Tailings Storage Facility Breach* (IEEIRP 2015). This report was reviewed by geotechnical staff from the Co-lead Agencies as part of developing this response. Site specific information and design features are essential to understanding geotechnical stability of any tailings basin. The Co-lead Agencies are confident in the site specific data that has been collected for the NorthMet Project and that was used to model geotechnical stability. The design of the NorthMet Project tailings basin is sufficiently different (i.e., shallower slopes, use of buttressing,

incorporation of cement deep soil mixing technology) from the Mount Polley Tailings Storage Facility that a direct comparison cannot be made.

Theme GT 02

Theme Statement

The SDEIS does not properly address the stability risks of the tailings basin related to the design standards, including the risk of the liquefaction factor of safety 1.1 being too low. Design criteria are vague and shouldn't be based on existing tailings basins in Minnesota.

Thematic Response

The Co-lead Agencies believe that the design criteria and minimum Factors of Safety required for the NorthMet Project are adequate and are in-line with the state of the industry. These criteria are consistent with world-wide industry standards and not limited or restricted by local Minnesota regulations. The Geotechnical Data Package, Volume 1 (Tailings Basin) (PolyMet 2015l, as cited in the FEIS) contains specific detail on the design and stability modeling. Stability would be monitored throughout construction and operation in accordance with permit requirements, and adaptive management could be implemented as necessary based on monitoring results. Details of monitoring and management for the Tailings Basin are provided in the Flotation Tailings Management Plan (PolyMet 2015n, as cited in the FEIS). The details of the design, as well as monitoring and management requirements would be further refined for permitting under the MDNR Dam Safety Permit and the Permit to Mine. FEIS Section 5.2.14.2.2 summarizes the design, stability modeling results, monitoring and adaptive management measures for the proposed Tailings Basin.

Theme GT 03

Theme Statement

The SDEIS does not properly address the stability risks of the tailings basin related to components of the design proposal, including the suitability of the rock buttresses (including construction on top of peat) and the hydrostatic pressure resulting from the water containment system.

Thematic Response

The FEIS summarizes the design of the proposed Tailings Basin in Section 5.2.14.2.2 and includes information on the analyses pertaining to its stability, including the proposed rock buttress. Peat would be removed prior to the construction of the buttress so that the buttress could key into the stronger underlying glacial till. Since the SDEIS, PolyMet has included cement deep soil mixing in the proposed design to further stabilize the fines and slimes layers in the existing LTVSMC tailings before placing NorthMet tailings in the Tailings Basin. See FEIS Sections 3.2.2.3.3 and 3.5.2.14.2.2 for more information on cement deep soil mixing. The proposed water containment system would capture and remove water that seeps from the Tailings Basin. Hydrostatic pressure from this system was considered in the design and stability modeling. The Geotechnical Data Package, Volume 1 (Tailings Basin) (PolyMet 2015l, as cited in the FEIS) contains specific detail on the design and stability modeling. Stability would be

monitored throughout construction and operation in accordance with permit requirements, and adaptive management could be implemented as necessary based on monitoring results (see FEIS Section 5.2.14.2.2). The Flotation Tailings Management Plan (PolyMet 2015n, as cited in the FEIS) contains details of monitoring and management for the Tailings Basin. The details of the design, as well as monitoring and management requirements would be further refined for permitting under the MDNR Dam Safety Permit and the Permit to Mine.

Theme GT 04

Theme Statement

The FEIS should clarify the design of the waste rock stockpiles with respect to geotechnical stability, including:

- angle of repose;
- recommended minimum cover slope of least 2 %;
- site-specific and material specific tests prior to construction, and rigorous construction quality assurance;
- the required factors of safety; and
- design details.

Thematic Response

The design of the stockpiles would need to conform with Minnesota Rule 6132.2400. FEIS Section 5.2.14.2.1 provides a summary of the design requirements for the stockpiles including angles of repose, configured stockpile slopes, factors of safety, as well as the material tests that have occurred to date and that would be required prior to permitting. Geotechnical Data Package Volume 3 (Stockpiles) (PolyMet 2014p, as cited in the FEIS) and the Rock and Overburden Management Plan (PolyMet 2015h, as cited in the FEIS) contain further information on the design and management of the stockpiles. Additional geotechnical investigations to address site conditions, materials and design would be required prior to stockpile construction approval under the Permit to Mine.

Theme GT 05

Theme Statement

The SDEIS does not properly address the stability risks of the tailings basin related to unusual but possible events, including:

- seismic events (e.g. using probabilistic method for determining maximum credible seismic event);
- dynamic modeling (as recommended by Chambers and Levit report); and
- extreme weather events (what was the probable maximum precipitation event modeled).

Thematic Response

Geotechnical analysis conducted for the FEIS included consideration for potential seismic liquefaction and extreme weather events. Details are provided in the Flotation Tailings Management Plan (PolyMet 2015n, as cited in the FEIS) and the Geotechnical Data Package Volume 1 (PolyMet 2015l, as cited in the FEIS). The results are summarized in FEIS Section 5.2.14.2.2. The details of the design, as well as monitoring, maintenance, and adaptive management requirements would be further refined for permitting under the MDNR Dam Safety Permit and the Permit to Mine.

A seismic liquefaction analysis was undertaken for the Tailings Basin. Results indicated that a significant earthquake is unlikely in Minnesota, and a seismic design event (2,475-year return period) is not likely to trigger liquefaction in the Tailings Basin materials. Seismic deformation was also considered, and the effect of settlement resulting from a design earthquake event would not affect the stability or pond containment of the Tailings Basin.

Extreme weather events are accounted for in the design of the Tailings Basin, whereby the freeboard requirements have been determined to accommodate pond bounce from the Probable Maximum Precipitation (PMP) event. The PMP derived for the NorthMet site is a catastrophic event consisting of 38-inch storm event within a 72-hour period. The design of the Tailings Basin also includes an emergency overflow spillway to help limit pond storage if an event occurs where the freeboard is not sufficient to contain all stormwater. Tailings Basin stability modeling was undertaken to assess the effect of a PMP event pond bounce. Results indicated that the required Factor of Safety would be met.

Modeling showed that liquefaction was unlikely to occur; therefore, dynamic modeling was neither required nor performed for the design of the facility. Instead, a fully liquefied condition was analyzed to represent the critical condition.

Theme GT 06

Theme Statement

Would peat beneath the dikes present stability problems?

Thematic Response

Peat represents some of the weaker material within the existing LTVSMC tailings basin. It occurs in some areas under the existing LTVSMC dams, and beyond the toe of the dams. The NorthMet Project Proposed Action includes adding a rock buttress within the existing dams to reinforce those areas where peat and fine tailings and slimes layers occur. Virgin peat at the toe of the dams would be removed from the location of rock buttresses to allow the rock to key into the more competent glacial till. Peat, fines, and slimes layers within the existing tailings basin would also be strengthened through cement deep soil mixing prior to use of the Tailings Basin for NorthMet. See FEIS Sections 3.2.2.3.3 and 3.5.2.14.2.2 for more information on cement deep soil mixing. Geotechnical stability modeling undertaken for the FEIS takes into account the above proposed design measures, as well as the location where peat would remain after construction of the on-site facilities. Modeling indicates that the Factors of Safety would be met. Monitoring and adaptive management would be implemented throughout construction, operation and maintenance of the Tailings Basin to account for measured stability characteristics to

manage the risk of failure. FEIS Section 5.2.14.2.2 provides information on the design criteria, stability modeling methodology and results, and monitoring, maintenance and adaptive management relating to stability of the proposed Tailings Basin. Additional detail is provided in Geotechnical Data Package, Volume 1 (Tailings Basin) (PolyMet 2015l, as cited in the FEIS) as well as the Flotation Tailings Management Plan (PolyMet 2015n, as cited in the FEIS).

Theme GT 07

Theme Statement

More information should be provided on operations and monitoring, potential contingency actions (e.g. physical modifications), and response to unplanned and catastrophic events (e.g. extreme weather events, equipment failure, human error) at the Tailings Basin, Hydrometallurgical Residue facility, and stockpiles.

Thematic Response

FEIS Section 5.2.14 includes subsections addressing the waste rock Stockpiles, Tailings Basin, and Hydrometallurgical Residue Facility respectively that describe operations, monitoring and contingency management actions. These sections have been revised since the SDEIS to provide additional information and clarity. The Rock and Overburden Management Plan (PolyMet 2015h, as cited in the FEIS), the Residue Management Plan (PolyMet 2014r, as cited in the FEIS), and the Flotation Tailings Management Plan (PolyMet 2015n, as cited in the FEIS) provide detailed information on the monitoring and mitigation of these features. Details on operation and monitoring would be further refined during permitting.

Theme GT 08

Theme Statement

The FEIS should include additional detail regarding the borrow, tailings, and bentonite materials considered for construction of the waste facilities.

Thematic Response

FEIS Sections 3.2 and 5.2.14 provide a summary of the material to be used and disposed of in the proposed stockpiles, Tailings Basin, and Hydrometallurgical Reside Facility. FEIS Section 5.2.14 addresses the stability of the waste facilities (proposed stockpiles, Tailings Basin, and Hydrometallurgical Reside Facility), while the remainder of Chapter 5 addresses other potential environmental consequences relating to those materials (e.g., water impacts are addressed in FEIS Section 5.2.2). Additional information pertaining to tailings and construction materials is provided in the corresponding Geotechnical Data Packages for the Tailings Basin (PolyMet 2015l, as cited in the FEIS), Hydrometallurgical Residue Facility (PolyMet 2014c, as cited in the FEIS), and stockpiles (PolyMet 2014p, as cited in the FEIS), as well as the Flotation Tailings Management Plan (PolyMet 2015n, as cited in the FEIS), Residue Management Plan (PolyMet 2014r, as cited in the FEIS), and the Rock and Overburden Management Plan (PolyMet 2015h, as cited in the FEIS). Additional detail on construction materials would be included in the MDNR Dam Safety Permit and Permit to Mine.

Theme GT 09

Theme Statement

The FEIS should clarify closure concepts, including plans to address existing over-steepened embankments on Tailings Basin Cell 2W, as well as long term monitoring and maintenance (e.g. bentonite, erosion and vegetation cover) for the waste facilities.

Thematic Response

The NorthMet Project Proposed Action does not include actions to redesign the existing Cell 2W apart from utilizing coarse LTVSMC tailings as borrow for the construction of the new NorthMet Project Proposed Action lifts. Removing some of those coarse LTVSMC tailings could reduce the slope of the Cell 2W embankments. The conditions and stability of the entire basin is monitored and maintained under the existing permit requirements, and would be monitored under the NorthMet Project Proposed Action permit requirements, should the project be permitted. Closure of the NorthMet Project Proposed Action facilities is described in the respective parts of FEIS Section 3.2. FEIS Section 5.2.14 has been revised in the FEIS to improve clarity on closure requirements, including monitoring and maintenance for the waste facilities as it relates to stability. Additional detail can be found in the Flotation Tailings Management Plan (PolyMet 2015n, as cited in the FEIS), Residue Management Plan (PolyMet 2014r, as cited in the FEIS), and the Rock and Overburden Management Plan (PolyMet 2015h, as cited in the FEIS).

Theme GT 10

Theme Statement

The FEIS should provide additional details on the proposed stockpile liner and geomembrane systems including:

- Ground preparations, installation, and use;
- Short- and long-term performance (conductivity). The same conductivity (10-6) should be prescribed for both the Category 2/3 and Category 4 stockpiles;
- The potential for long-term deterioration due to acid, extreme weather, or other factors, and the impact of this deterioration on factors of safety;
- The potential for spreading and separation of the panel overlaps due to settling;
- Additional citations for expected liner performance;
- Site-specific and material-specific tests prior to construction and rigorous construction quality assurance; and
- Long term monitoring and maintenance.

Thematic Response

FEIS Sections 3.2.2.1.7 and Section 5.2.14.2.1 summarize the design of the proposed stockpiles and liners; these sections have been supplemented since the SDEIS. FEIS Section 3.2.2.1.10 provides a summary of the design of the Category 1 Stockpile geomembrane cover system. The

Geotechnical Data Package, Volume 3 (Stockpiles) (PolyMet 2014p, as cited in the FEIS) and the Rock and Overburden Management Plan (PolyMet 2015h, as cited in the FEIS) provide technical and design information for the stockpiles and liners (including liner leakage analysis and foundation settling).

The permanent Category 1 Stockpile would not be lined, but would instead be surrounded by a containment system to that would capture groundwater and surface runoff and direct it to a WWTF for treatment. The Category 1 Stockpile would be progressively reclaimed and at closure would be covered with a geomembrane system that would be vegetated to meet the requirements of *Minnesota Rules*, part 6132.2200, subpart 2, item B. The design of the Category 1 Stockpile cover system was derived from landfill requirements in *Minnesota Rules*, part 7035.2815, subpart 6, item D. Long-term maintenance of the Category 1 Stockpile would include repair of erosional damage and removal of woody species and trees from the stockpile cover system. The factors of safety estimated during slope stability are not anticipated to change due to long-term performance variation in the geomembrane.

Liners would be used at the temporary Category 2/3 and Category 4 stockpiles. Additional detail on the foundation materials and design would be required for permitting; however, local soils appear suitable (or could be treated) for foundation material in order to meet permeability design criteria. The Category 4 Stockpile liner has a lower permeability design criteria than the Category 2/3 Stockpile liner because the Category 4 waste rock would be more reactive. These stockpiles would be removed and reclaimed prior to the end of mining (i.e., prior to year 20). The liners for these stockpiles would perform to expectations throughout the duration of their need.

The Co-lead Agencies believe the level of analysis and information provided in the FEIS is sufficient for an environmental impact statement as required under NEPA and MEPA. Additional geotechnical analysis and design details would be required for permitting, including more detail on the foundation material characteristics, design details to ensure foundation and liner integrity, and details on the installation, operation, monitoring, and maintenance of the liners, covers, and stockpiles.

Theme GT 11

Theme Statement

The SDEIS does not properly address the stability risks of the Hydrometallurgical Residue Facility, including:

- Potential liquefaction scenarios;
- How seepage from the Tailings Basin may affect the Hydrometallurgical Residue Facility;
- The presence of emergency LTVSMC tailings at the base of the Hydrometallurgical Residue Facility—this material should be removed;
- Consequences of unsuccessful wick drain installation;
- Dynamic modeling, as recommended by the Chambers and Levit report;

- Insufficient consolidation tests and assumption of homogeneity in the settling analysis of LTVSMC tailings and slimes; and
- The presence of faults.

Thematic Response

FEIS Section 5.2.14.2.3 summarizes the geotechnical stability of the Hydrometallurgical Residue Facility. Details are provided in the Geotechnical Data Package, Volume 2 (PolyMet 2014c, as cited in the FEIS) and design, construction, monitoring, maintenance, and adaptive management is addressed in the Residue Management Plan (PolyMet 2014r, as cited in the FEIS).

The Hydrometallurgical Residue Facility would be constructed using the downstream methods at the existing LTVSMC Emergency Tailings basin. The LTVSMC emergency tailings would be consolidated and compacted prior to the construction of the proposed facility. New dams would be located beyond the extent of the emergency basin and founded on existing silty sand, gravel glacial till, and Giants Range granite.

Materials placed in thin, well-compacted lifts such as that proposed for the Hydrometallurgical Residue Facility embankment fill are understood to be sufficiently dense of critical state that liquefaction is not anticipated under the various loading conditions considered for the design of the Hydrometallurgical Residue Facility. Although liquefaction of the hydrometallurgical residue (within the basin) may occur, the facility is designed such that containment is not reliant upon the strength of the residue. Therefore, the integrity of the facility would not be impacted by a loss of strength associated with potential residue liquefaction.

Seeps have been observed along the southern edge of the LTVSMC Tailings Basin Cell 2W. These seeps have diminished since the termination of LTVSMC operations and are expected to remain minimal, because Cell 2W is not proposed for use as part of the NorthMet Project Proposed Action. The current design of the Hydrometallurgical Residue Facility acknowledges the presence of this seep by including a collection drain that would collect water from the seep below the proposed constructed embankment and liner systems to transmit the collected seep to the exterior of the facility. This seepage collection system would consist of a layer of free draining soil that would reduce the potential for phreatic build-up below the liner.

Construction monitoring and mitigation plans would require further detail for permitting to evaluate consolidation of the LTVSMC tailings, settlement for the Hydrometallurgical Residue Facility and performance of the wick drains.

One Minnesota Geological Survey figure indicates an inferred (but not confirmed) fault underlying the proposed Hydrometallurgical Residue Facility; however, the area has also been mapped without an inferred fault (PolyMet 2014c, as cited in the FEIS). The potential presence of faults within the footprint of the Hydrometallurgical Residue Facility is not anticipated to have a negative impact on the storage of residue within the double-lined facility. Results of a probabilistic seismic hazard analysis for the Hydrometallurgical Residue Facility indicated that a severe earthquake is highly unlikely in Minnesota, and that seismically induced forces would not likely affect the stability of the Hydrometallurgical Residue Facility.

A fully dynamic model was not developed for the Hydrometallurgical Residue Facility. Because the facility would be constructed of compacted borrow material in the downstream method, the

effects of the relatively small earthquake event are not believed to be significant relative to the performance of the Hydrometallurgical Residue Facility.

Theme GT 12

Theme Statement

The FEIS should provide additional geotechnical details on the proposed Hydrometallurgical Residue Facility liner and cover systems, including:

- Ground preparations, installation, and use;
- Short- and long-term performance (conductivity);
- The potential for long-term deterioration due to acid, extreme weather, or other factors, and the impact of this deterioration on factors of safety;
- The potential for spreading and separation of the liner panel overlaps due to settlement;
- Additional citations for expected liner performance;
- Site-specific and material-specific tests prior to construction and rigorous construction quality assurance; and
- Long term monitoring and maintenance.

Thematic Response

FEIS Section 3.2.2.3.7 summarizes the Hydrometallurgical Reside Facility design and construction, Section 3.2.2.3.10 summarizes water management at the Hydrometallurgical Reside Facility, and Section 3.2.2.3.12 summarizes reclamation of the Hydrometallurgical Reside Facility. FEIS Section 5.2.14.2.3 provides details pertaining to geotechnical stability, including ground preparations, construction, monitoring, and maintenance of the Hydrometallurgical Reside Facility. This section has been supplemented since the SDEIS to include additional detail and clarity.

The Hydrometallurgical Reside Facility design includes a double liner system using geosynthetic materials. Stress on the liner system resulting from settling of the foundation material would be mitigated by consolidation of the existing LTVSMC emergency tailings prior to construction of the facility. A collection drain would also be installed to collect water from below the proposed constructed embankment and liner systems and transmit it to the exterior of the facility to reduce the potential for phreatic build-up below the liner. A stress deformation analysis found that strain on the liner system would be within acceptable limits of most geosynthetics. Results would not be noticeably affected by a large precipitation event.

PolyMet initiated laboratory testing to consider the chemical compatibility of the potential geosynthetic liner to be used with leakage from residue (PolyMet 2014r, as cited in the FEIS). Results indicated that the best liner material would be a polymer-treated geosynthetic liner that is manufactured specifically in anticipation of the chemical characteristics of the liquid and the pore water that would be contained within the facility. The hydraulic conductivity of the soil leakage collection system is not expected to degrade over time. Typical liner performance assumes a 500-year service life of the geomembrane; therefore, hydraulic conductivity of the

liner is not expected to degrade over that time. Specific attributes would be determined during the geosynthetic clay layer development to achieve the desired performance before final installation.

Findings of studies on geosynthetic liners indicate that performance is minimally affected by freeze-thaw cycles (PolyMet 2014c, as cited in the FEIS). At the Hydrometallurgical Residue Facility, the majority of the geosynthetic liner system would be below the water elevation, and therefore not exposed to freeze-thaw cycles.

Reclamation of the Hydrometallurgical Residue Facility would include removal of ponded water, removal of pore water from the residue, construction of the cover system, and establishment of vegetation and surface water runoff controls. Maintenance activities that would continue throughout reclamation and post-reclamation include dam slope erosion repair, and woody species and tree removal.

The Co-lead Agencies believe the level of analysis and information provided in the FEIS are sufficient for an EIS, pursuant to NEPA and MEPA. Additional geotechnical analysis and design details would be required for permitting, including more detail on the foundation material characteristics, design details to ensure foundation and liner integrity, and details on the installation, operation, monitoring and maintenance of the liners, covers, and the stability of the Hydrometallurgical Residue Facility.

Theme GT 13

Theme Statement

Tailings Basin stability model inputs are inadequately explained (e.g. terms of methodology for selection validity and reliability). There seems to be missing values of compression index (Cc) and swell index (Cs) for the LTVSMC tailings, peat, and residue.

Thematic Response

FEIS Section 4.2.14.2 summarizes the existing conditions and material inputs for the proposed Tailings Basin geotechnical modeling. FEIS Section 5.2.14.2.2 summarizes the design, modeling methodology and results, as well as the monitoring, maintenance and adaptive management for the proposed Tailings Basin. These sections have been revised since the SDEIS to improve clarity and to incorporate updated modeling information. Details on geotechnical modeling for the Tailings Basin are provided in Geotechnical Data Package, Volume 1 (Tailings Basin) (PolyMet 2015l, as cited in the FEIS), and proposed monitoring and management of the Tailings Basin is described in the Flotation Tailings Management Plan (PolyMet 2015n, as cited in the FEIS).

Theme GT 14

Theme Statement

The project enhancements for geotechnical stability from the DEIS to the SDEIS were not clearly stated.

Thematic Response

The proposed design and management of the proposed waste management facilities has evolved throughout the EIS. These modifications have resulted in improved expected stability as well as enhanced environmental outcomes (such as water impacts). Notable enhancements to the design of the proposed waste management facilities since the DEIS include:

- improving stability at the Tailings Basin by adding rock buttressing along the northern edge, and adding cement deep soil mixing in the fines and slimes layers along the northern sections of the LTVSMC tailings basin;
- moving the Hydrometallurgical Residue Facility from on top of the LTVSMC tailings basin, to a site adjacent to the LTVSMC tailings basin, and designing the Hydrometallurgical Residue Facility as a double-lined facility constructed using the downstream construction method;
- designing the Category 1 Stockpile as a permanent feature with a containment system for groundwater runoff and seepage, and geomembrane cover for closure (progressively reclaimed); and
- designing the Category 2/3 and 4 waste stockpile as temporary features, with liners, and to use reclaim the stockpiles but using the waste rock as backfill in the East and Central pits.

FEIS Sections 2.3, 2.4 and 3.2.3 provide an overview of the evolution of the NorthMet Project Proposed Action. Details of the current NorthMet Project Proposed Action are provided in Section 3.2. FEIS Section 5.2.14 provides details of the design factors, management, and modeling results pertaining to geotechnical stability of the waste material storage facilities.

Theme GT 15

Theme Statement

The SDEIS does not properly address the potential environmental consequences of a geotechnical failure due to unplanned and catastrophic events (e.g. extreme weather events, equipment failure, human error) at the Tailings Basin, Hydrometallurgical Residue facility, stockpiles, or pit.

Thematic Response

If incorrectly designed, constructed, and/or managed, or from other unforeseen circumstances, waste material storage facilities would have the potential to result in increased hydrologic and/or water quality effects and could potentially lead to slope or dam failure. Because the risk of failure is mitigated through application of design and safety requirements, including adaptive management procedures, the potential effects of hypothetical failure scenarios are not assessed in

the FEIS. Design and safety requirements are summarized in FEIS Section 5.2.14, and detailed in the Geotechnical Data Packages (PolyMet 2015l, PolyMet 2014c, PolyMet 2014p [all as cited in the FEIS]) and management plans (PolyMet 2015n, PolyMet 2014r, and PolyMet 2015h [all as cited in the FEIS]).

The design of the NorthMet Project Proposed Action geotechnical features has been developed using an iterative approach, whereby the design has been amended until modeling results meet the required design criteria, including Factors of Safety and other requirements for permitting. Stability modeling undertaken to inform these design requirements included extreme scenarios such as maximum precipitation events and earthquakes. This process resulted in additional engineering design features to strengthen the waste disposal facilities that now form part of the NorthMet Project Proposed Action. These include moving the Hydrometallurgical Reside Facility to a location adjacent to, but off of the existing tailings basin, and proposing construction of that facility using the downstream construction method. The design of the proposed Tailings Basin was also enhanced through the addition of the rock buttress and cement deep soil mixing. Designs would be further refined during the permitting process and optimized during construction, operation and closure, based on monitoring and adaptive management that required under permits.

The large-scale waste material storage facilities proposed for the NorthMet Project Proposed Action require compliance with MDNR nonferrous mining and dam safety rules, as well as the MPCA NPDES/SDS Permit. The Dam Safety permit requires that design and safety criteria be met to reduce the risk of potential failure. Under Minnesota Rule 6115.0490, Class 1 dams require contingency plans that inform emergency responders in the unlikely event of dam failure. As such, a dam break analysis may be required for the Tailings Basin and considered for safety management purposes under the Dam Safety Permit. A preliminary dam break analysis is included as an appendix in the Tailings Management Plan (PolyMet 2015n, as cited in the FEIS).

A.5.10 Issue: Hazardous Materials (HAZ)

Theme HAZ 01

Theme Statement

The EIS does not adequately describe how hazardous materials would be managed within the project area, or the potential impacts of hazardous materials spills or other incidents. Materials of concern include gasoline, diesel, oil, chemicals, explosives, and reject concentrate. Impacts of concern include human health, groundwater, surface water, vegetation, or other natural resources.

Thematic Response

FEIS Section 5.2.13 provides descriptions and references or citations regarding hazardous materials management; hazardous material management plan requirements (transportation, storage, use and disposal); emergency planning and community right-to-know recordkeeping and reporting requirements; and hazardous material spill response management and mitigation measure requirements.

A hazardous substance is defined by 40 CFR 302.3 as any substance designated pursuant to 40 CFR Part 302.

Hazardous waste as defined by *Minnesota Statutes* 116.06, subdivision 11:

> means any refuse, sludge, or other waste material or combinations of refuse, sludge or other waste materials in solid, semisolid, liquid, or contained gaseous form which because of its quantity, concentration, or chemical, physical, or infectious characteristics may (a) cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. Categories of hazardous waste materials include, but are not limited to: explosives, flammables, oxidizers, poisons, irritants, and corrosives. Hazardous waste does not include source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended.

Hazardous waste may simply be defined as a waste that is a listed hazardous waste, or waste that exhibits ignitability, corrosivity, reactivity, toxicity, lethality, or is an oxidizer as described in *Minnesota Rules*, part 7045.0131, *Characteristics of Hazardous Waste*.

Potential impacts of hazardous materials to human health, groundwater, surface water, vegetation, and other natural resources may be found within the resource topic areas of FEIS Section 5.2.

The EIS process is not intended to replace good compliance planning, nor is it meant to provide explicit detail of spill response plans, hazardous material reduction plans, hazardous material or waste management plans, and contingency plans. Hazardous materials would be managed according to applicable Minnesota and Federal regulations.

Theme HAZ 02

Theme Statement

Materials deposited in the HRF should be assessed/characterized to determine whether HRF wastes or any part of them are hazardous wastes under Minnesota Law. Contaminants include nickel, arsenic, and mercury. The HRF should be considered a hazardous waste landfill and be regulated as such. Leakage will occur.

Thematic Response

Hazardous waste as defined by *Minnesota Statutes* 116.06, subdivision 11, “means any refuse, sludge, or other waste material or combinations of refuse, sludge or other waste materials in solid, semisolid, liquid, or contained gaseous form which because of its quantity, concentration, or chemical, physical, or infectious characteristics may (a) cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. Categories of hazardous waste materials include, but are not limited to: explosives, flammables, oxidizers, poisons, irritants, and corrosives. Hazardous waste does not include source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended.”

Minnesota Rules, part 7045.0120, subpart 1.I provides exemption to waste from extraction, beneficiation, and processing of ores and minerals in regard to storage, labeling, transportation, treatment, processing and disposal. Waste, hazardous only due to zinc, copper, nickel, and some other less common metals are not regulated as RCRA hazardous wastes. The MPCA anticipates that PolyMet would be licensed as a hazardous waste generator and not as a treatment, storage, and disposal facility.

The Hydrometallurgical Residue Facility would be constructed with the following layers from lower to higher: liner subgrade, geosynthetic clay liner, 60 millimeter low density polyethylene geomembrane, geocomposite leachate collection layer, 80 millimeter low density polyethylene geomembrane, geocomposite leachate drainage collection layer, and LTVSMC coarse tailings. Hydrometallurgical residue would be placed above the LTVSMC coarse tailings layer. The Residue would settle out within the Hydrometallurgical Residue Facility and remaining process water would be pumped from the Hydrometallurgical Residue Facility back to the Hydrometallurgical Plant. Water would be lost from this closed loop system to evaporation from the cell surface, and entrapment within the Residue's pore space. The double liner system would limit leachate leakage from the bottom of the cell. Precipitation falling within the Hydrometallurgical Residue Facility would be retained. During operations, leachate collected in the system would be recycled back into the Hydrometallurgical Residue Facility pond. During reclamation and long-term closure, leachate would be routed and cycled through the WWTP (PolyMet 2014r, as cited in the FEIS).

Material from the existing coal ash landfill is anticipated to be placed into the Hydrometallurgical Residue Facility during operations (PolyMet 2014b, as cited in the FEIS). Chemical and physical characteristics of materials placed in the Hydrometallurgical Residue Facility would be approved by the MPCA, within permit requirements, and would be placed in a manner as to not compromise the integrity of the liner system (PolyMet, Pers. Comm., November 4, 2014).

PolyMet reports ("Information Provided By PolyMet Regarding Hydrometallurgical Residue Testing for RCRA Thresholds," SRK 2014) indicate that 17 residue samples from 2005 pilot-plant testing and one residue sample from 2009 pilot-plant testing were analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) (EPA Method 1311). The method is typically used to assess solid waste to determine if the waste has toxicity characteristics exceeding RCRA hazardous waste thresholds. All 18 analytical tests resulted in TCLP analytical results less than the RCRA hazardous waste thresholds, indicating that for the metal parameters analyzed, the hydrometallurgical residue is not characteristically hazardous. All of the residues that were produced during the pilot plant testing in 2005 and 2009 represent residues that would be deposited into the Hydrometallurgical Residue Facility. Once Phase 2 is operational and as part of initial operational optimization, individual and combined residue samples would be analyzed weekly for physical characteristics, total metals, and TCLP. Once operations are optimized, individual and combined residue samples would be analyzed monthly for the same parameters. Hydrometallurgical Residue Facility pond and Hydrometallurgical Residue Facility leachate samples are expected to be sampled and analyzed for metals on a quarterly basis. These samples would continually be collected to confirm that physical and chemical characteristics of the hydrometallurgical residue are not characteristically hazardous, subject to RCRA, and are in compliance with the Permit to Mine and NPDES/SDS permits (PolyMet, Pers. Comm., September 12, 2014).

The MPCA reviewed residue pilot-testing and analysis data provided by PolyMet and has established the following statements (MPCA, Pers. Comm., October 24, 2014 [as cited in the FEIS]): 1) TCLP testing results of pilot test residues in 2005 and 2009 did not meet the thresholds to be regulated as a RCRA hazardous waste; 2) Elimination of the bulk hydrometallurgical mode from the project would not materially affect the chemical composition of residue stored in the Hydrometallurgical Residue Facility, and 2005 and 2009 testing results would be representative of the residue stored in the Hydrometallurgical Residue Facility if the current project is approved; and 3) New residue resulting from future hydrometallurgical pilot-testing and/or Phase 2 of the project should be tested to verify that the residue remains under RCRA hazardous waste thresholds.

Theme HAZ 03

Theme Statement

The EIS does not adequately define the toxicity of mining-related wastes. Mining-related waste could possibly release sulfuric acid and metals to the environment. Radioactive minerals could also be released.

Thematic Response

Mining-related waste and waste in general that has not been excluded from regulation as hazardous waste under *Minnesota Rules*, part 7045.0120, is a hazardous waste if the waste exhibits ignitability, corrosivity, reactivity, toxicity, lethality, or is an oxidizer as described in *Minnesota Rules*, part 7045.0131, *Characteristics of Hazardous Waste*.

Toxicity in the context of mining-related waste refers to the hazardous toxic characteristic of a solid waste. Toxicity of the waste is determined through laboratory analysis using the TCLP method (see response to theme HAZ 02). If the extract from a representative sample of the waste contains any of the contaminants at concentrations equal to or greater than the concentration values listed in *Minnesota Rules*, part 7045.0131, subpart 8, *Maximum Concentration of Contaminants for the Toxicity Characteristic*, the waste exhibits toxicity characteristics and is considered toxic hazardous waste, unless that waste has been excluded from hazardous waste regulation under *Minnesota Rules*, part 7045.0120.

Generally, a waste has the characteristic of corrosivity if the waste is aqueous, and either: 1) has a pH less than or equal to 2.0 or greater than or equal to 12.5, or 2) corrodes steel at a rate greater than 6.35 mm per year.

Analytical testing of nine hydrometallurgical residue samples from 2005 pilot-testing produced pH values ranging from 4.74 to 9.8. Analytical testing of one sample of autoclave leach residue from bulk concentrate from 2005 pilot-testing produced a pH value of 4.94. Analytical testing of one sample of autoclave leach residue from nickel rich concentrate from 2009 pilot-testing produced a pH value of 4.93 (SRK 2014).

Radiation or radionuclides, if detected, would be regulated through applicable *Minnesota Rules*, chapter 4731, *Radiation Safety*, by the Minnesota Department of Health and/or the USEPA through the Clean Water Act and Clean Air Act.

FEIS Section 4.2 describes existing conditions that may be affected directly or indirectly by the NorthMet Project Proposed Action.

Theme HAZ 04

Theme Statement

The EIS does not adequately describe the toxicity, fate, and transport to the environment of chemicals used in the flotation processes.

Thematic Response

FEIS Sections 3.2.2 and 3.2.3 describe large-quantity chemicals to be used at the Mine Site and the Plant Site, as well as transport through the processes and the consumption/fate of these chemicals. Toxicity of each individual chemical or consumable product/compound would be described on specific Material Safety Data Sheets (MSDSs) for each substance. MSDSs would be retained as part of Hazardous Material Management planning/compliance, and EPCRA documentation and reporting requirements.

Theme HAZ 05

Theme Statement

The EIS should provide additional information on Areas of Concern (AOCs), especially the current status and costs of clean-up, PolyMet's responsibilities, and requirements for mitigation.

Thematic Response

Table 4.2.1-2: NorthMet Project Proposed Action Area of Concern Summary List for Voluntary Investigation and Cleanup Program, has been updated in the FEIS to show the current status and additional information where available. Costs for assessment, investigation, and cleanup are not available or reasonably calculable at this time.

The April 6, 2010, Consent Decree is a court registered agreement between Cliffs Erie LLC and the MPCA to resolve alleged violations of Cliffs Erie's NPDES/SDS permits for its Hoyt Lakes and Dunka mining area facilities. Of particular relevance to the NorthMet project, the Consent Decree addresses issues at the current Cliffs Erie tailings basin (including outfall SD026) and discharges from the Cliffs Erie Area 5 mining area (SD033). The tailings basin is part of the NorthMet Project Proposed Action, whereas Area 5 is not; however, PolyMet has entered into an agreement with Cliffs Erie whereby both areas would be transferred to PolyMet upon issuance of project permits. Until that time, Cliffs Erie retains responsibilities for permit-related activities at the tailings basin and Area 5. While certain Consent Decree-related activities have been in progress or have been completed for these areas since preparation of the SDEIS, there has been no change in ownership or responsible parties since that time.

Theme HAZ 06

Theme Statement

The EIS does not adequately describe how accidents resulting from transportation of hazardous materials to and from the project site will be handled. Materials being shipped by rail and/or truck include copper concentrate, mixed nickel/copper hydroxide, PGE precipitate, and potassium amyl xanthate. Would local communities and emergency first responders be prepared

to handle emergency releases of these products, and what would be the environmental impacts of such releases?

Thematic Response

FEIS Section 5.2.13.2.1 addresses transportation and incident response for hazardous materials.

Accidental spills or incidents resulting from rail or truck transportation of hazardous material or any materials would initially be assessed by the nearest first responders, including local community fire departments or other emergency personnel. Local communities and emergency responders are trained in hazardous material awareness and operations, and are familiar with (or have access to) the 2012 Emergency Response Guidebook (PHMSA 2012c, as cited in the FEIS). The guidebook describes safety precautions, material identification and associated hazards, response steps to take based on the specific material, and notification requirements and request for additional technical information or assistance.

In the event of releases, first responders typically request additional resources through the State Duty Officer and/or the National Response Center, based on the assessed severity of the event. Where appropriate, the State Duty Officer or National Response Center may notify the State's Homeland Security and Emergency Management Division (part of the Minnesota Department of Public Safety), along with other appropriate state agencies, the USEPA, and the carrier company, among others. In the event of an incident or accident involving the release of a hazardous material, 49 CFR also requires that the carrier notify local emergency response personnel, the National Response Center, and the State Duty Officer. Additional emergency resources are available from the City of Duluth's HazMat team. HazMat team members are trained as hazardous materials Technicians and Specialists (those capable of full understanding of hazardous material characteristics, assessment, and mitigation of "hot-spot" zones). The team is also capable of initial or intermediate cleanup, dependent upon the nature and characteristics of the material, the severity, and the media affected as a result of the accident.

Should an incident or accident require additional soil, surface water, or groundwater investigation or cleanup, the MPCA, MDH or MDA would be the responsible agency to administer or provide oversight to an environmental engineering contractor, if hired by the transportation carrier. Under certain situations, state agency contractors might conduct the investigation or cleanup. St. Louis County maintains a Hazard Mitigation Plan, and an Emergency Operations Plan (St. Louis County 2013, as cited in the FEIS) for reference or general response guidance for a wide variety of hazards. The Western Lake Superior Area Maritime Security Committee and the Western Lake Superior Port Area Committee also maintain plans for recovery of hazardous materials. The Bois Forte Band of Chippewa maintains a Hazard Mitigation Plan.

Hazardous materials, hazardous waste management, and spill response training is stipulated by the administrative rules, statues, and regulations described in FEIS Section 5.2.13.2.

A.5.11 Issue: Human Health (HU)

Theme HU 01

Theme Statement

A Human Health Impact Assessment (HIA) should be prepared to address the human health risks of the NorthMet project. Specifically, the HIA should characterize the potential health impacts from the Project's effects on air water quality, and food (including drinking water). Societal costs from mining-related pollution should be identified. The HIA would integrate human health into the EIS from its current piecemeal fashion.

Thematic Response

The SDEIS analyzed risks to human health, specifically how the NorthMet Project Proposed Action could affect air quality, surface water quality, and ground water quality, including effects to drinking water and food sources. However, this information was presented in various media-specific chapters of the SDEIS, rather than in a consolidated section on the assessment of human health risks.

The MDNR and the Minnesota Department of Health (MDH) met after the close of the public comment period for the SDEIS to discuss the MDH comments, including the suggestion that a Health Impact Assessment (HIA) be completed for the NorthMet project. The agencies agreed that an HIA is not required for an EIS, but that it is a tool that can help inform the public about potential health impacts from a proposed project. Although additional HIA information can be developed as part of an EIS, the Co-lead Agencies in this instance took a more customary approach and addressed public health impacts based on water and air quality evaluation criteria and regulatory standards that are protective of human health. Public health impacts were addressed in document sections related to water quality, air quality and toxics, including potential effects to drinking water and food sources as required by MEPA and NEPA. The Co-lead Agencies carefully considered the additional information that could be obtained by completing an HIA, as well as the time and effort to obtain that information and how relevant that information would be to regulatory decisions. In evaluating these considerations, the Co-lead Agencies concluded that:

- Completing an HIA between the SDEIS and FEIS would require significant time and effort, and would represent a considerable delay to the FEIS;
- The SDEIS did include extensive public health information relative to air and water quality; and
- The additional information from an HIA would not significantly inform regulatory permits required for the project.

Based on these conclusions, the Co-lead Agencies have determined that an HIA would not be prepared as part of the EIS. However, the Co-lead Agencies agreed the human health information in the EIS could be more clearly articulated and better organized. The FEIS, therefore, includes a new section (7.3.4) that concisely summarizes all human health-related information and impact assessments included in the document. This section also directs readers to specific sections in the FEIS where human health risks are addressed in detail.

As presented in FEIS section 5.2.10, the FEIS found that predicted levels of environmental impacts from the NorthMet Project Proposed Action are not expected to cause substantial changes in local socioeconomic conditions, and therefore would not result in adverse societal costs.

Theme HU 02

Theme Statement

The FEIS should assess the human health risks in terms of: neurologic morbidity from manganese and lead release; carcinogenic effects of air emissions of diesel, nickel, and other particulates; arsenic releases to water; metals as endocrine disruptors; cumulative mercury and methylmercury exposure; and reproductive pathology.

Thematic Response

The AERA contains toxicological information for arsenic, diesel, nickel, manganese, mercury, and methyl mercury (plus additional chemicals), as well as an analysis of the potential health effects of those chemicals. While the toxicological information was not included in the AERA summary in FEIS Section 5.2.7.2.3, this information is included in FEIS Section 7.3.4, the summary of human health findings. The AERA includes an evaluation of the most sensitive health endpoint for each chemical (e.g., neurological morbidity from manganese, reproductive toxicity of methyl mercury, and the carcinogenic potential of diesel, nickel, and arsenic). Arsenic released to groundwater and surface water was extensively evaluated in FEIS Section 5.2.2.3.2, and modelled concentrations were compared to drinking water standards. Drinking water standards would not be exceeded for arsenic.

Theme HU 03

Theme Statement

The NorthMet Project could have significant adverse impacts on human health as a result of pollutants released to the air, surface water, and drinking water (including residential wells), such as mercury, arsenic, manganese, cadmium, lead, asbestos, diesel, and thallium.

Thematic Response

These chemicals and their releases to air and drinking water are extensively studied in the FEIS, and the potential concentrations are compared to health-based air and water standards. These chemicals are assessed according to current regulatory methodology. No adverse health risks have been identified. For discussion of these chemicals and their releases to surface water and drinking water, see FEIS Sections 5.2.2.1.1, 5.2.2.1.2, and 5.2.2.3.4. For a discussion of these chemicals and their releases to air, see FEIS Sections 5.2.7.1.1, 5.2.7.1.3, 5.2.7.2.3, 5.2.7.2.5, and 5.2.7.5.

Theme HU 04

Theme Statement

The discussion of human health risks and impacts should be expanded to include on-site worker exposure to pollution and worker safety.

Thematic Response

Off-site worker exposure is discussed in the air section of FEIS Chapter 5, specifically in sections 5.2.7.5.2 and 5.2.7.5.3. On-site worker health and safety is regulated by other agencies such as the MSHA, NIOSH, and the OSHA.

Theme HU 05

Theme Statement

The Arrowhead region already reaches the Minnesota Department of Health (MDH) additional lifetime cancer risk guidance level, and the NorthMet Project would increase this cancer risk. This includes increased risk of cancer due to increased exposure to amphibole mineral fibers and arsenic releases to drinking water supplies. Other risk drivers are also present.

Thematic Response

These calculations are based on an increased risk of contracting cancer using very conservative assumptions. The increased risk of contracting cancer due to the Project's emissions is extremely small. For further discussions, see FEIS Sections 5.2.7.2.3 and 7.3.4.3.

Theme HU 06

Theme Statement

The SDEIS should assess cumulative cancer and non-cancer risks using a 70-year lifetime.

Thematic Response

The AERA is a multi-step process, comparing a pollutant-specific exposure estimate and a toxicity value, and then summing these through pollutants and exposure pathways. All toxicity values used for comparison are: 1) based on a lifetime of exposure; and 2) are values where, if exposure occurs over a lifetime, health effects are unlikely. The exposure estimates for inhalation risks are not adjusted for exposure time (e.g., time spent outdoors, away from home, or operation time of the mine); therefore, they reflect the 70 year lifetime recommended in the theme. The ingestion risks assume 30 years of exposure for the resident scenario and 40 years of exposure for the farmer scenario from air pollutant deposition and subsequent uptake into the food chain. The AERA assumes that 100 percent of the pollutants at the exposure levels are absorbed into the human body. The total multi-pathway risks are then the sum of ingestion and inhalation. The AERA process follows USEPA guidance, and is considered a human health protective methodology.

Theme HU 07

Theme Statement

Information cited in SDEIS does not correlate with--and the SDEIS itself improperly characterizes the findings of--the University of Minnesota Taconite Workers Health Study.

Thematic Response

FEIS Section 5.2.7.5 contains an extensive discussion of various types of fibers, as well as the health effects found in the scientific literature, including a summary of toxicity information from an extensive scientific literature review conducted in 2009. FEIS Section 5.2.7.5 concludes with a finding of "an uncertain level of potential public health risk" being present due to airborne fibers in the area, and provides a summary of the dust suppression practices that would be used to minimize fiber generation. This information is referenced in the human health section of Chapter 7 (FEIS Section 7.3.4).

Theme HU 08

Theme Statement

The Taconite Workers Health Study contains several findings that support the conclusion in the SDEIS that amphibole mineral fiber emissions pose no threat to the health and safety of mine workers or the general public.

Thematic Response

The Taconite Workers Health study did not identify any areas of concern for community health. However, the study does not rule out amphibole mineral fibers as a potential source of health risk or from playing some role in the incidence of disease among taconite workers. The MPCA would consider this issue during the air permitting process.

Theme HU 09

Theme Statement

The Barr Engineering studies on mineral fibers rely on outdated information, the wrong aspect ratio, and the faulty assumption that low levels of fibers suggests no health harm is likely. A MDNR literature review showed short fibers contributed to health effects.

Thematic Response

The literature cited in Section 5.2.7.5 supports a connection between longer fibers and adverse health effects; the information on the health impacts of shorter fibers is still under investigation. The 2007 Mineral Fibers Report (Barr 2007l, as cited in the FEIS) assessed the shorter fibers by comparing toxicity to Fine particulates ($PM_{2.5}$). There is an extensive body of literature on $PM_{2.5}$ health effects. The FEIS concludes "public health risk of uncertain magnitude", and this conclusion is supported by the scientific literature. Additionally, the Barr report referenced in the comment was used solely to support the conclusion that the Project has the potential to release amphibole mineral fibers. For this reason, the FEIS focuses on how to avoid, minimize, and mitigate and potential fiber releases. See the responses to themes HU 07 and HU 08.

Theme HU 10

Theme Statement

The mineral fibers testing was tainted by additional grinding of samples.

Thematic Response

The additional grinding is discussed in FEIS Section 5.2.7.5.1. According to the laboratory conducting the analysis, this only affects fiber counts, not the identification of asbestiform fibers, since asbestiform fibers have high tensile strength and flexibility (Barr 2007l, as cited in the FEIS). Additionally, the Barr report was used solely to support the conclusion that the Project has the potential to release amphibole mineral fibers.

Theme HU 11

Theme Statement

The SDEIS should assess the cumulative health risks from air emissions resulting from coal combustion to supply the project's energy needs.

Thematic Response

Air quality cumulative effects are addressed in FEIS Section 6.2.3.8. A cumulative analysis that considers the cumulative health risks from air emissions resulting from coal combustion to supply the Project's energy needs is outside the scope of the FEIS. The studies described in FEIS Chapter 6 meet the requirements of MEPA/NEPA.

Theme HU 12

Theme Statement

Metals concentrations in the tailings basin are high.

Thematic Response

The tailings basin would be isolated from surface and groundwater so metals from the Tailings Basin would not adversely impact water quality. See FEIS Section 3.2.2.3.10 for a discussion of the Tailings Basin seepage containment system.

Theme HU 13

Theme Statement

How were the results of the tests on residential wells treated?

Thematic Response

This information was used as a baseline for groundwater quality downgradient from the existing LTVSMC Tailings Basin. The results of the water quality testing done on 15 residential wells is summarized in FEIS Table 4.2.2-24 and is discussed in Section 4.2.2.3.1.

Theme HU 14

Theme Statement

The FEIS should use 300 µg/L for the copper groundwater evaluation criterion instead of 1,000 µg/L, as was done in the SDEIS.

Thematic Response

This change does not affect any human health analysis. The MCL for copper is 1,300 µg/L; therefore, adverse human health effects would not be expected at copper concentrations below 1,000 µg/L. See the response to theme WR 177.

A.5.12 Issue: US Forest Service Land Exchange (LAN)

Theme LAN 01

Theme Statement

The FEIS should clearly and concisely summarize the analysis of the Proposed Land Exchange under 36 CFR 254.3(b), including a clear explanation of the rationale and criteria for selecting the preferred Land Exchange alternative, and should demonstrate that the public interest has been well served.

Thematic Response

CEQ regulations (40 CFR 1502.14) state that an EIS should present the environmental impacts of a proposal and its alternatives in comparative form to provide a clear basis for choice among the alternative options by the decision makers and the public. The regulations further state (40 CFR 1502.14(e)) that agencies shall identify their preferred alternative (or alternatives, if one or more exists) in the DEIS as well as the FEIS, unless another law prohibits the expression of such a preference; however, the regulations do not require a rationale for the choice. The ROD from the USFS would contain the rationale for the selected alternative, as well as a discussion of how the public interest is served under 36 CFR 254.3(b).

The FEIS includes the factors relating to how the public interest would be served by the Land Exchange Proposed Action, Land Exchange Alternative B, and the Land Exchange No Action Alternative. The ROD would incorporate these findings in its determination. As stated in FEIS Section 1.4.3, factors that must be considered include:

- the opportunity to achieve better management of federal lands and resources;
- to meet the needs of state and local residents and their economies; and
- to secure important objectives, including but not limited to: protection of fish and wildlife habitats, cultural resources, watersheds, and wilderness and aesthetic values; enhancement of recreation opportunities and public access; consolidation of lands and/or interests in lands, such as mineral and timber interests, for more logical and efficient management and development; consolidation of split estates; expansion of communities; accommodation of existing or planned land use authorizations; promotion of multiple-use values; implementations of applicable Forest Land and Resource Management Plans; and fulfillment of public needs. See 36 CFR 254.3(b) and 254.4(c)(4).

Table 7.3.5-1 presents a comparison of how the alternatives address these factors.

To determine that a land exchange serves the public interest, the authorized officer must find that:

1. the resource values and the public objectives served by the non-federal lands or interests to be acquired must equal or exceed the resource values and the public objectives served by the federal lands to be conveyed; and
2. the intended use of the conveyed federal land will not substantially conflict with established management objectives on adjacent federal lands, including Indian Trust lands (36 CFR 254.3(b)(2)).

The findings and supporting rationale for the public interest determination would be documented and made part of the administrative record pursuant to 36 CFR 254.3(b)(3).

Theme LAN 02

Theme Statement

The Proposed Land Exchange violates the Weeks Act of March 1, 1911; Federal Land Policy and Management Act of 1976; Federal Land Exchange Facilitation Act of 1988; the Minnesota Environmental Rights Act; NEPA; and MEPA. The Proposed Land Exchange would remove the protections intended under these laws. The FEIS should clarify whether the lands exchanged would have equal surface protections compared to the lands currently protected by the Weeks Act.

Thematic Response

The Co-lead agencies are following the applicable state and federal laws and regulations to the best of their knowledge, and with the guidance of agencies' legal counsel. The USFS manages the Superior National Forest in conformance with many laws, regulations, executive orders, and policies. In all cases, the Forest Plan is consistent with national law, policy, and direction (USFS 2004c, as cited in the EIS). As discussed in the FEIS, the USFS' position is that the mineral rights that were reserved do not include the right to surface mine as proposed by PolyMet. In order to resolve this conflict, a proposed land exchange has been presented as part of the NorthMet Mining Project. The Weeks Act authorizes land exchanges so long as "public interests would be benefitted thereby" (16 USC 516). Lands acquired by the United States pursuant to the Weeks Act, whether by purchase or exchange, are subject to all provisions of the Act (16 USC 516). Lands conveyed from federal ownership would no longer be under federal control, and therefore would not be managed under the Forest Plan and/or influenced by the authority (the Weeks Act) under which the United States acquired them. This is consistent with other land exchanges that have occurred in the Superior National Forest. The NEPA analysis would inform the USFS decision on the public interest determination, and the decision would be presented in the ROD. While the federal lands, if transferred to PolyMet, would still be located within the proclamation boundary of the Superior National Forest, they would be private lands and no longer managed by the Forest Service.

The proposed Land Exchange must comply with FLPMA's requirement that the values of the lands exchanged are equal or, if they are not equal, that the values shall be equalized by the payment of money so long as the payment does not exceed 25 percent of the total value of the

lands transferred out of federal ownership. Disclosure of appraisal information in the EIS is not required. Any decision, documented in the ROD, to move forward with a land exchange will be supported by a current appraisal, approved by the USFS, which verifies that the exchange meets the equal value requirements of applicable federal law and regulation. Requests for appraisal reports and appraisal review reports are processed under Freedom of Information Act procedures. Appraisals must conform to Uniform Appraisal Standards for Federal Land Acquisitions and the Uniform Standards of Professional Appraisal Practice of the Appraisal Foundation.

As part of the pending USFS decision, the Responsible Official must determine if the proposed exchange serves the public interest and supports the direction and guidance in the forest land management plan. The public interest determination must show that the resource values and the public objectives of the non-federal lands equal or exceed the resource values and the public objectives of the federal lands, and that the intended use of the conveyed federal land would not substantially conflict with established management objectives on adjacent federal lands, including Indian Trust lands (36 CFR 254.3(b)(2)). The findings and supporting rationale shall be made part of the decision (Forest Service Handbook 5409.13, section 34.1; 36 CFR 254.3(b) [USFS 2004d, as cited in the FEIS]). The ROD would contain the findings and supporting rationale for the selected alternative, would discuss how the public interest is served under 36 CFR 254.3(b), and would provide information for compliance with Forest Service requirements and Forest Plan. As part of the land exchange, several alternatives to the Land Exchange Proposed Action were identified and screened, including underground mining. The underground mining alternative is discussed in FEIS Section 3.2.3.4.1 and Appendix B, as well as the response to theme ALT 01.

Theme LAN 03

Theme Statement

The proposed lands involved for exchange are not a fair trade or of equal value and/or environmental quality, and the Land Exchange should not result in less acreage being acquired. In addition, the FEIS should include the real estate appraisals for the proposed exchanged lands.

Thematic Response

As described in FEIS Section 1.4.3, FLPMA requires that the values of the lands exchanged are equal or, if they are not equal, the values shall be equalized by the payment of money so long as the payment does not exceed 25 percent of the total value of the lands transferred out of federal ownership (36 CFR 254.12). The USFS relies on professional appraisals to determine market value. Such appraisals must conform to Uniform Appraisal Standards for Federal Land Acquisitions and the Uniform Standards of Professional Appraisal Practice of the Appraisal Foundation. Refer to the response to theme LAN 02 for more information.

The Land Exchange Proposed Action must also comply with two EOs related to wetlands and floodplains. EO 11990 (USEPA 1977) applies to land exchanges such that, as much as practicable, the exchange does not result in the loss of wetland resources. EO 11988 (USFS 2004d, as cited in the FEIS) applies to land exchanges such that, as much as practicable, the exchange does not result in an increase in the flood damage potential. USFS policy (Forest

Service Handbook 5409.13 § 33.43c) provides that any of three conditions satisfy the requirements of EOs 11990 (USEPA 1977) and 11988 (USFS 2004d, as cited in the FEIS):

1. the value of the wetlands or floodplains for properties received and conveyed is equal (balancing test) and the land exchange is in the public interest;
2. reservations or restrictions are retained on the unbalanced portion of the wetlands and floodplains on the federal lands when the land exchange is in the public interest but does not meet the balancing test; and
3. the federal property is removed from the exchange proposal when the conditions described in the preceding paragraphs 1 or 2 cannot be met.

The Land Exchange Proposed Action and the Land Exchange Alternative B meet the first condition (balancing test), which requires the value of the wetlands or floodplains is equal for properties received and conveyed. Therefore, as stated in FEIS Section 5.3.3, the Land Exchange Proposed Action would comply with EOs 11990 (USEPA 1977) and 11988 (USFS 2004d, as cited in the FEIS). All of the lands proposed for exchange are located throughout the 1854 Ceded Territory of northeastern Minnesota.

The Land Exchange Proposed Action equalization requirements are discussed in the response to theme LAN 02, as well as in FEIS Section 1.4.3. Furthermore, the FEIS discloses which non-federal tracts would be required for each land exchange alternative (see FEIS Section 5.3). Disclosure of appraisal information in the EIS is not required. Any decision, documented in the ROD, to move forward with a land exchange will be supported by a current appraisal, approved by the USFS, which verifies that the exchange meets the equal value requirements of applicable federal law and regulation. Requests for appraisal reports and appraisal review reports are processed under Freedom of Information Act procedures.

As part of the pending USFS decision, the Responsible Official must determine if the proposed exchange serves the public interest and supports the direction and guidance in the forest land management plan. The public interest determination must show that the resource values and the public objectives of the non-federal lands equal or exceed the resource values and the public objectives of the federal lands, and that the intended use of the conveyed federal land would not substantially conflict with established management objectives on adjacent federal lands, including Indian Trust lands (36 CFR 254.3(b)(2)). The findings and supporting rationale shall be made part of the decision (Forest Service Handbook 5409.13, section 34.1; 36 CFR 254.3(b)). The ROD would contain the findings and supporting rationale for the selected alternative and how the public interest is served under 36 CFR 254.3(b), and would provide information for compliance with Forest Service requirements and Forest Plan.

The lands to be exchanged are not required to be of a certain size, contiguous of each other, within the same watershed of the federal lands, within a reasonable distance to the federal lands to be exchanged, and/or within the 1854 Ceded Territory.

Theme LAN 04

Theme Statement

The Proposed Land Exchange does not comply with the USFS Superior National Forest Plan and other USFS policies. In particular, the Land Exchange would not consolidate the surface and mineral ownership of the lands. The FEIS needs to clarify title, mineral rights, and encumbrances on the lands involved.

Thematic Response

The Applicant's purpose and need states that the purpose of the Land Exchange Proposed Action is to "consolidate the surface and mineral ownership of the lands involved at the Mine Site." However, the USFS purpose of the Land Exchange Proposed Action is to resolve the conflict between USFS legal mandates for managing its lands (surface estate) and how PolyMet is proposing to exercise its mineral rights/leases. The conflict to be resolved does not result from the existence of the split estate alone, but rather from PolyMet's proposal to access the mineral estate by surface mining. As described in FEIS Section 1.3.2.2, the USFS purpose is to meet desired conditions in the Forest Plan, which includes: 1) ensuring the Land Exchange Proposed Action eliminates conflict, and 2) ensuring mineral resources are produced in an environmentally sound manner contributing to economic growth. To eliminate the conflict, a land exchange has been proposed, since the Mine Site is located on National Forest System lands but the mineral rights are privately held and under lease to PolyMet. It is the position of the United States that the mineral rights leased by PolyMet do not include the right to open pit mine the National Forest System land. PolyMet disagrees with the USFS position and argues that the mineral rights it seeks to utilize provide for access to the minerals by any mining method, including open pit or surface mining. The Land Exchange Proposed Action is being considered to resolve this fundamental conflict, rather than possible litigation that has no certain outcome. The desired conditions, D-LA-1 and D-MN-2, for the Land Exchange Proposed Action inform the USFS purpose for the project, while the Forest Plan standards and guidelines help to inform how the project would be designed. Although the desired condition for land adjustments, D-LA-1, identifies improving management effectiveness, the USFS is focusing on eliminating conflict in response to PolyMet's specific proposal to surface mine, as well as ensuring mineral resources are produced in an environmentally sound manner (D-MN-2). FEIS Section 3.3.1.1 discusses how the standards and guidelines help to inform how the Land Exchange Proposed Action would be designed.

The Weeks Act authorizes land exchanges so long as "public interests would be benefitted thereby" (16 USC 516). Lands acquired by the United States pursuant to the Weeks Act, whether by purchase or exchange, are subject to all provisions of the Act (16 USC 516). Lands conveyed from federal ownership would no longer be under federal control and therefore would not be managed under the Forest Plan and/or influenced by the authority (the Weeks Act) under which the United States acquired them. This is consistent with other land exchanges that have occurred in Superior National Forest. The NEPA analysis would inform the USFS decision on the public interest determination. This decision would be presented in the ROD.

Title, mineral rights, and encumbrances are evaluated as part of the USFS due diligence process prior to any land acquisition. If the mineral estate is severed from the land to be acquired, due

diligence includes evaluating mineral character. The Forest Supervisor relies on the mineral character determination, prepared by a geologist, to analyze the potential for future mineral development that would conflict with USFS surface management. If that conflict is likely, the USFS would decline to acquire the land. While most of the non-federal lands in the Land Exchange Proposed Action do not include mineral rights, the mineral character has been evaluated to determine there is a low potential for mineral development. Mineral development potential was considered as part of the Feasibility Analysis as well as in the FEIS (Section 5.3.1.2.5). Title commitments for the non-federal lands were reviewed and due diligence evaluations are presented in FEIS Section 5.3.1.2.5, along with the proper citations for the information. While it is preferable (but not required) to acquire lands from which minerals have not been severed, the lands are being acquired for multiple-use in accordance with the Forest Plan. Final title approval is not made at the Forest level. Any lands acquired by the USFS must meet the U.S. Department of Justice Title Standards 2001. The USDA, Office of the General Counsel determines whether title evidence meets the requirements of the Attorney General (see FSH 5409.13, 11.3).

The Land Exchange Proposed Action and the Land Exchange Alternative B would be designed to be consistent with the goals and objectives of the Forest Plan, including G-LA-2 and G-LA-3 (Forest Plan, pages 2-51 and 2-52; FEIS Section 3.3.1.1). The development of the FEIS under NEPA addresses Forest Plan desired conditions D-LA-1 and D-MN-2. The ROD would discuss whether and how the Land Exchange Proposed Action and the Land Exchange Alternative B meets these desired conditions. The non-federal lands for Land Exchange Proposed Action and the Land Exchange Alternative B would be incorporated within the adjacent federal ownership and managed in accordance with the Forest Plan direction for the particular management area.

In addition, the Land Exchange Proposed Action and Land Exchange Alternative B would be consistent with the goals of the Forest Plan for wetlands (page 2-15). The conveyance and acquisition of lands under either the Land Exchange Proposed Action or Land Exchange Alternative B would not result in wetland impacts. The mining activities of the NorthMet Proposed Action would result in wetland effects that cannot be avoided, although these losses would be minimized and/or compensated for. The Land Exchange Proposed Action and Land Exchange Alternative B would not result in a net loss of wetland acres to the federal estate and/or result in reduced water quality within a wetland, or upstream or downstream of a wetland. The NorthMet Project Proposed Action is subject to a number of regulatory permits, reviews, and approvals, including determination of whether the proposed mining activity would result in a change to water quality. The Forest Plan Standard S-WS-1 was established to manage the intensity of upland forest conversion on national forest land to young and open cover to manage the impacts of snowmelt on the morphology of streams at the HUC12 scale. The NorthMet Project Proposed Action was evaluated and it was determined that it is consistent with standard S-WS-1. Please see FEIS Section 5.2.2 for a detailed discussion on water resources and FEIS Section 5.2.3 for a discussion of wetland resources.

Theme LAN 05

Theme Statement

The Proposed Land Exchange would result in a loss of access to or use of public lands within the 1854 Ceded Territory, thereby affecting the ability to exercise Treaty rights. Additional information on the natural heritage and timber resources of the exchange lands should be provided. The federal agencies cannot approve permits that would have effects on 1854 Treaty resources without additional evaluation and mitigation. No mitigation has been identified in the SDEIS for this permanent loss of lands and resources. The USFS should consider exchanging for private lands only in order to maintain—or better yet, increase—the total public land acreage within the 1854 Ceded Territory.

Thematic Response

The Agency's obligation is to ensure that Band members have ample opportunity to exercise their treaty-reserved usufructuary rights; that federal lands are managed to maintain both the diversity and abundance of natural resources; and to ensure that the Bands' usufructuary rights to 1854 Treaty resources are not impaired. The Land Exchange Proposed Action was analyzed to understand the potential effects on usufructuary rights. The Co-lead Agencies have consulted, and continue to consult with the Bois Forte Band of Chippewa, the Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa, the three principle Bands that retain usufructuary rights in the proposed project area. In addition, the Co-lead Agencies have consulted with the GLIFWC and the 1854 Treaty Authority, the principal natural resource agencies representing the aforementioned Bands.

Through consultation, the Co-lead Agencies understand that the Bands' principle interest with regards to the Land Exchange Proposed Action are the following: to retain or increase the amount of public land within the 1854 Treaty Ceded Territory, shoreline wetlands, culturally important natural resources used in exercising treaty rights of hunting, fishing, and gathering, cultural or religious properties, and access to culturally important natural resources and cultural or religious properties. The Co-lead Agencies have a fiduciary obligation to understand and consider the effects that the Land Exchange Proposed Action would have on Band members exercising their Treaty rights in the 1854 ceded territory. While the Land Exchange Proposed Action would remove certain lands from federal ownership, this loss is potentially offset by incoming private lands that would become part of the federal estate within the 1854 Ceded Territory. Outside of the Land Exchange Proposed Action, the Co-lead Agencies have also analyzed the potential effects posed by the Proposed Connected Actions. The potential affects posed to natural resources and cultural resources of importance to the Bands have been disclosed and would be considered during the Co-lead Agencies' decision process.

The resource values and public objectives of the non-federal lands must equal or exceed the resource values and public objectives of the federal lands. See FEIS Section 1.4.3. Mitigation for cultural resources as a result of the NorthMet Project Proposed Action is discussed in FEIS Section 5.2.9. The NorthMet Project Proposed Action mining activities would result in a loss of bogs; however, as part of the NorthMet Proposed Action, the Applicant is required to provide compensatory mitigation for wetland impacts in accordance with state and federal permits. One

of the proposed mitigation sites for wetland impacts (Zim Site) would be a compensation site for the loss of bogs, and would be located within the 1854 Ceded Territory.

The Lake County lands were tax forfeit lands that were offered for sale by the County through a public auction. The Lake County lands would still be accessible to the Bands for their use if the exchange took place, because the lands would become part of the SNF managed lands.

No heritage surveys were conducted on the non-federal lands. If any cultural resources are located on the non-federal lands, those cultural resources would be transferred to federal ownership. Such transfer would not adversely affect the heritage resource, but would provide greater preservation protection under federal law.

The non-federal lands that contain wild rice beds would not be affected as a result of the Land Exchange Proposed Action or Land Exchange Alternative B, because no activities are proposed on these lands and the proposed mining activities would not affect these lands. As noted in the FEIS, the Land Exchange Proposed Action and Land Exchange Alternative B would increase wild rice stands within the federal estate. FEIS Sections 5.3.2 and 5.3.4 clarify that, although the Land Exchange would result in an increase in wild rice stands within the federal estate boundaries, there would be no change to the existing public access to Tract 1 wild rice stands via the Pike River. Consequently, there would be no increase in wild rice harvest opportunities for the public. No wild rice stands are known to occur on the federal lands, and suitable habitat is limited.

Please refer to the response to theme LAN 01 for more information on the public interest determination.

Theme LAN 06

Theme Statement

The selection process and the locations of the non-federal lands to be exchanged needs to be clarified. It is not clear why the non-federal lands were selected. In particular, the FEIS should clarify why non-federal lands in these locations were selected, as opposed to non-federal lands located closer to the federal lands. The FEIS should also justify the failure to select larger non-federal parcels or parcels within the same watershed, as well as the failure to consider restoring impacted lands instead of getting rid of lands. The FEIS needs to include information about how the boundaries for the federal lands to be exchanged were drawn and why, as well as an explanation of the rationale for giving up the riparian lands along the Partridge River. The FEIS also needs to acknowledge that the additional federal buffer lands in the proposed exchange most likely will be used to facilitate and expedite future mining.

Thematic Response

An assembled land exchange means an “exchange of Federal land for a package of multiple ownership parcels of non-Federal land consolidated for purposes of one land exchange transaction” (36 CFR 254.2). The selection process for the non-federal lands is described in FEIS Section 3.3.1.1. A goal of the land exchange, but not the USFS purpose for the NorthMet Project Proposed Action, is to consolidate landownership, reduce the managed boundary, and reduce managed land fragmentation. The five tracts of non-federal lands are located within St. Louis, Lake, and Cook counties (see Figure 3.3-1 and Table 3.3-2) and lie within the Superior National

Forest proclamation boundary and within the 1854 Ceded Territory. Lands to be exchanged are not required to be of a certain size, contiguous of each other, within the same watershed of the federal lands, within a reasonable distance to the federal lands to be exchanged, and/or within the 1854 Ceded Territory. As previously stated, it is the position of the United States that the mineral rights leased by PolyMet do not include the right to open-pit mine the National Forest System land. Simply performing restoration of the mining lands would not meet the purpose and need for the USFS (see FEIS Section 1.3.2.2). A land exchange must conform to the standards and guidelines of the Forest Plan, as well as be of equal value and need to meet EOs 11990 (USEPA 1977) and 11988 (USFS 2004d, as cited in the FEIS). A description of the tracts to be exchanged is provided in FEIS Section 3.3.2.2, and the environments resources on each tract are described in Sections 4.3 and 5.3.

The recommendation for the boundaries of the federal lands was based on standards and guidelines in the Forest Plan, as described in FEIS Section 3.3.1.1. The lands in the Land Exchange Proposed Action were included to avoid intermingled and inefficient ownership patterns that would result by retaining isolated federal lands without legal access.

A land exchange is a change of ownership of land; once an exchange occurs, the federal land then becomes private land, allowing the private landowner to use the land in accordance with necessary local, state, and federal permits and approvals. Any future work on the exchanged lands, which could include mining on these lands, would require the necessary permits and/or approvals from state and federal agencies. Most mineral rights within the federal lands are privately held. The United States owns 181 acres of mineral rights on lands that are not part of the NorthMet Project Proposed Action mine pits (Figure 3.2-3). The USFS would reserve ownership of these mineral rights. These mineral rights are located near the eastern boundary of the federal lands north of Dunka Road, and near the southeast corner of the federal lands south of Dunka Road (Figure 3.2-3).

The lands involved in the Land Exchange Proposed Action or Land Exchange Alternative B are not intended to be the wetland mitigation sites that are required as part of permitting of the mining activities (i.e., under Section 404, Section 401, and WCA). The wetlands mitigation sites for the wetland effects of the mining activities are discussed in FEIS Section 5.2.3.

The Lake County lands were tax forfeit lands that were offered for sale by the County through a public auction. The Lake County lands would still be accessible to the Bands for their use if the exchange took place, because the lands would become part of the Superior National Forest managed lands.

Theme LAN 07

Theme Statement

The Proposed Land Exchange would not result in a reduced boundary length to be accessed and/or maintained by the USFS, would increase the fragmentation of forest lands, and would complicate USFS land management.

Thematic Response

As stated in the FEIS, Section 5.3.1.2.2, a reduced boundary length is more desirable for the USFS because it reduces the difficulty of accessing and managing the forest. The Land Exchange

Proposed Action would result in a 33.2-mile net reduction of the perimeter around the USFS-controlled portions of the Superior National Forest. In addition, the underlying assumption regarding land fragmentation of USFS-controlled portions of the Superior National Forest is that a lower ratio of boundary to area is more desirable, because it reduces the difficulty of accessing and managing the forest, in addition to increasing the forest's overall quality and function. All of the non-federal parcels are contiguous with existing National Forest System lands, thus decreasing the ratio of boundary to area. The Land Exchange Proposed Action would not measurably alter the existing ratio of fragmentation in the Superior National Forest of approximately 0.005 linear mile of boundary per acre of USFS-controlled Superior National Forest land (see Table 5.3.1-2). The Land Exchange Proposed Action would consolidate land ownership, which is an effect of the land exchange and is not part of the purpose and need of the NorthMet Project Proposed Action. Consolidation is one of the guidelines designed to achieve the Forest Plan's desired condition for land adjustment (see FEIS Section 3.3.1.1).

Theme LAN 08

Theme Statement

The FEIS should more clearly state that the Land Exchange Proposed Action can proceed regardless of what happens with the NorthMet Mining Project Proposed Action. In addition, the FEIS should clarify that the Land Exchange Proposed Action may occur independently of the NorthMet Mining Project Proposed Action.

Thematic Response

As noted in FEIS Section 1.0, the Land Exchange Proposed Action is considered a "connected action" to the NorthMet Project Proposed Action. The purpose of the Land Exchange Proposed Action is to consolidate the surface and mineral ownership of the lands involved at the Mine Site. PolyMet has a lease to mine the minerals on its NorthMet Deposit, which is surrounded by active and abandoned taconite mines near Hoyt Lakes. The surface of these lands is owned by the United States. The purpose for the USFS is to meet desired conditions in the Forest Plan, including ensuring that the Land Exchange Proposed Action eliminates existing conflict, and ensuring mineral resources are produced in an environmentally sound manner contributing to economic growth. The USFS would implement the NEPA per 36 CFR part 220, and would use the FEIS to support the ROD documenting its decision on the Land Exchange Proposed Action.

Theme LAN 09

Theme Statement

If Lake County has indeed entered into an agreement with PolyMet, this would be illegal. Minnesota law requires that state agencies (including county governments) not take final action on a project prior to the completion of environmental review. Lake County actions would be prejudicial to the final approval of the NorthMet Project. The USFS should address whether the Lake County Lands were acquired in violation of Minnesota law and, if so, remove them from consideration in the Proposed Land Exchange.

Thematic Response

The Lake County lands were purchased by PolyMet at a public auction at which other private buyers could have purchased these lands. Lake County had already decided to auction the lands before they were identified as potential non-federal lands for the Land Exchange Proposed Action.

Theme LAN 10

Theme Statement

The Proposed Land Exchange should not be accelerated. Furthermore, the Land Exchange should have its own environmental review.

Thematic Response

The Land Exchange Proposed Action is proceeding consistent with all legal and procedural requirements. Under state and federal regulations, multiple actions or projects that are connected actions must be considered in total in preparing an EIS. NEPA requires that federal agencies consider the potential environmental consequences of proposed actions in their decision-making process. For the NorthMet Mining Project and Land Exchange FEIS, because the Land Exchange Proposed Action is closely related to the NorthMet Project Proposed Action, it is considered a connected action and, as such, is included in the analysis of environmental effects. Therefore, the Land Exchange Proposed Action is considered a "connected action" to the NorthMet Project Proposed Action (40 CFR part 1508.25), meaning that it is part of the overall Project proposal, and therefore would be included in the analysis of environmental impacts.

Theme LAN 11

Theme Statement

The Land Exchange Proposed Action would be consistent with the management of the Superior National Forest, the Forest Plan, and applicable regulatory standards. In addition, the Land Exchange Proposed Action will enhance the overall resources of the Superior National Forest and enable the USFS to better meet its long term mission. Environmental degradation will not occur on these existing forest lands.

Thematic Response

These comments generally support the Land Exchange Proposed Action. Because no specific information was provided, no changes were made to the EIS.

A.5.13 Issue: Land Use (LU)

Theme LU 01

Theme Statement

The EIS should provide additional information on the existing condition of public access to the USFS lands proposed for exchange.

Thematic Response

As discussed in FEIS Section 5.3.1.2.1, the only public access to the federal lands is via the Partridge and Embarrass Rivers. The remainder of the federal lands is surrounded by private lands (or by other public lands that are themselves surrounded by private lands) (see FEIS Figure 4.3.1-1). While members of the public may obtain permission to cross these private lands and access the federal lands, there is no designated land-based access for the federal lands.

Theme LU 02

Theme Statement

The EIS should provide a clearer discussion of future land use after reclamation of the tailings basin including a timeframe for completion.

Thematic Response

FEIS Section 3.2.2.3.12 discusses reclamation of the tailings basin. This is also discussed in more detail in the Flotation Tailings Management Plan (PolyMet 2015q, as cited in the FEIS). To minimize water quality impacts, water would be managed at the Tailings Basin through application of bentonite on surface areas to minimize water flow into the tailings, and the containment system surrounding the Tailings Basin would be used to capture groundwater and surface water for treatment for as long as needed. Other reclamation objectives would include mulching and establishing vegetation on upland areas, controlling dust, controlling soil erosion, monitoring stability parameters, and minimizing the need for maintenance.

Theme LU 03

Theme Statement

The Cumulative Effects Analysis for Land Use should encompass the 1854 Ceded Territory.

Thematic Response

The methodology for determining the Cumulative Effects Analysis for Land Use is discussed in FEIS Section 6.2.1.2. The Cumulative Effects Assessment Area for land use includes effects associated with the NorthMet Project Proposed Action combined with other industrial (including mining) or public works projects located within the portion of the Mesabi Iron Range encompassed by St. Louis County.

Theme LU 04

Theme Statement

The NorthMet Project will adversely affect the region's aesthetic character.

Thematic Response

As discussed in FEIS Section 4.2.11.1.2, the Mine Site (including waste rock piles) would be visible from a limited number of viewpoints (such as Skibo Vista). Visibility, the Mine Site would be limited by topography and vegetation. The Plant Site would be visible from a greater number of locations, but would not look meaningfully different from existing conditions. FEIS Section 5.2.7 [Air Quality] discusses the degree to which dust and vehicle emissions would be visible.

Theme LU 05

Theme Statement

The Scenic Integrity Objective designation for the mine site and/or Land Exchange parcels is arbitrary.

Thematic Response

Scenic Integrity Objective designations were established by the US Forest Service as part of the Superior National Forest Plan; a process that is separate from the Supplemental EIS. Management direction for Scenic Resources (including SIO designations) on the Superior National Forest are located in the Forest Plan Chapter 2, pages 2-45 – 2-48.

Theme LU 06

Theme Statement

The NorthMet Project would adversely affect recreation opportunities in the region, such as hunting, fishing, berry picking, hiking, canoeing, birding, etc.)

Thematic Response

Excluding effects related to noise, fisheries, air quality, and other effects described elsewhere in FEIS Chapter 5, and given the proximity of active and past mining and industrial activity to high-quality recreational activity in the Arrowhead region (such as the BWCAW), there is no evidence that the presence of the NorthMet Project Proposed Action in and of itself would affect the public's ability to hunt, fish, and conduct other recreational activities, or affect the overall recreational experience (apart from specific activities) in the Arrowhead region as a whole. See FEIS Section 5.2.11.2.1 for further discussion of impacts to recreation opportunities.

Theme LU 07

Theme Statement

There will not be any negative impacts to land, recreation opportunities, or visual character as a result of the NorthMet Project.

Thematic Response

FEIS Sections 5.2.1 (Land Use) and 5.2.11 (Recreation and Visual Resources) discuss the impacts as a result of the NorthMet Project.

A.5.14 Issue: Mercury (MERC)

Theme MERC 01

Theme Statement

The Proposed Action would add mercury to the environment, and would cause or worsen violations of mercury water quality standards. The Proposed Action should not be permitted until compliance with these standards can be demonstrated. Applicable standards include those issued by the State of Minnesota, Great Lakes Initiative, and the Binational Program to Restore and Protect Lake Superior.

Thematic Response

Because the NorthMet Project area is located within the Lake Superior Basin, the NorthMet Project Proposed Action is subject to the Great Lakes Initiative mercury discharge standard of 1.3 ng/L. Mercury numeric standards are based on total (particulate plus dissolved) concentrations. For the Lake Superior Basin, the Class 2B (aquatic life and recreation) numeric chronic standard for mercury in the water column protective of wildlife (1.3 ng/L) is the most stringent applicable standard (with the exception of the downstream human health chronic standard of 0.77 ng/L at the Fond du Lac Reservation). Discharges from the Plant Site WWTP and Mine Site WWTF would be at or below the Great Lakes Initiative discharge standard of 1.3 ng/L, as the WWTP and WWTF would be designed to meet the mercury standard for the effluent. The WWTP and WWTF would use a greensand filtration process followed by RO technology, which is known to remove mercury, particularly when the influent to the RO system is pretreated. Therefore, the total mercury concentration in the WWTP and WWTF discharge are expected to meet the evaluation criteria of 1.3 ng/L.

The following adaptive management strategies have been proposed for mercury and are included in FEIS Section 5.2.2.3.5:

- Pretreatment modifications such as chemical scavenger addition to obtain additional metals;
- Use of tighter RO membranes for the primary RO system;
- Treatment of some portion of the VSEP permeate by the primary RO system to further remove some dissolved constituents; and
- Addition of polishing treatment units for removal of trace metals (e.g., ion exchange).

Overall, mercury loadings are predicted to increase slightly in the Embarrass River (0.1 percent), and decrease in the Partridge River (1.0 percent). Overall, the changes in total mercury concentrations associated with the NorthMet Project Proposed Action in closure and long-term maintenance at the respective Mine Site and Plant Site are estimated to be too small to distinguish from natural background variability in the Partridge River and the Embarrass River using available laboratory methods (Barr 2015g, as cited in the FEIS).

The state of Minnesota fish tissue standard for mercury of 0.2 mg/kg is lower than the USEPA criterion of 0.3 mg/kg (wet weight, per USEPA criteria) to adjust for the higher per capita consumption of wild-caught fish in Minnesota. Based on the results of scientific investigations, this standard assumes that all fish tissue mercury is in the methylmercury form. In-stream mercury concentrations in the St. Louis River, measured by the Fond du Lac Band, have been below the Great Lakes Initiative Chronic Wildlife Standard of 1.3 ng/L, but exceed the Fond du Lac Band's human health chronic standard of 0.77 ng/L. However research has found that mercury concentrations can be higher than 1.3 ng/L in the St. Louis River especially after a large storm. The majority of this mercury is from wetlands and riparian zones within the St. Louis River Watershed. Research suggests that total mercury concentrations in streams and methylmercury content in fish are roughly proportional within individual watersheds (USGS 2010, as cited in the FEIS), such that an increase in total mercury in water may be expected to result in increase in mercury content in fish within that watershed. It can reasonably be considered that that the predicted decrease in mercury loadings to the St. Louis River would result in no change in mercury loading to fish.

The goal of the Binational Program to Restore and Protect Lake Superior is to reduce the release of mercury to Lake Superior through prevention of further inputs of the chemical. The ultimate goal of the Zero Discharge Demonstration Program (ZDDP) is zero discharge (100 percent reduction) of nine designated pollutants (including mercury) by the year 2020. Most major reduction milestones were met by 2010, including an 80 percent reduction in mercury releases. The ultimate goal is to reach 100 percent reduction by 2020 (Lake Superior Binational Program 2012b, as cited in the FEIS). In September 2009, the MPCA published Guidelines for New and Modified Mercury Air Emission Sources. The guidelines were developed to limit the mercury emissions from new and expanding sources in order to meet the TMDL goal of total statewide mercury emissions of 789 lbs/year by 2025. The MPCA conducted a review of the NorthMet Project Proposed Action mercury emissions, and has determined that it would not impede the reduction goals (MPCA 2013l, as cited in the FEIS).

Theme MERC 02

Theme Statement

The FEIS should provide more evaluation and detail on the effects of the Proposed Action on already high mercury levels in the water, as well as mercury methylation and bioaccumulation in fish. Local and downstream waters, including the Embarrass River, are already impaired for fish tissue mercury levels.

Thematic Response

Based on the evaluations conducted for air emissions and water discharges for the FEIS, the NorthMet Project Proposed Action is not considered to have an appreciable effect on: 1) surface water mercury concentrations, 2) fish mercury concentrations, 3) methylation of mercury, or 4) risk to people consuming fish from lakes near the NorthMet Project area.

The MPCA's MMREM analysis for the two scenarios showed a 0.5 to 1.8 percent and 0.3 to 0.5 percent potential increase in fish mercury concentration above background. However, the change is not expected to be significant as compared to background. The increase would not be expected to have any appreciable effect on the loading estimates from permitted discharges to the Embarrass River, Partridge River, or the lower St. Louis River. Discharges are expected to meet the 1.3 ng/L standard for mercury, with an overall net decrease in mercury loading to the St. Louis River predicted for the NorthMet Project Proposed Action. Per FEIS Section 6.2.6, the NorthMet Project Proposed Action would not have any direct effects on aquatic habitat in the St. Louis River, and would not have any measureable indirect effects on fish or aquatic invertebrates as a result of changes in flow or water quality.

Theme MERC 03

Theme Statement

The FEIS should include a robust Health Impact Assessment (HIA) that evaluates the effects of the Proposed Action's mercury (methylmercury) releases. The HIA should specifically investigate risks related to fetal development from the consumption of mercury that has bioaccumulated in fish and/or wild rice.

Thematic Response

The AERA contains toxicological information for arsenic, diesel, nickel, manganese, mercury, and methylmercury (plus additional chemicals), and an analysis of the health effects of those chemicals. The AERA included an evaluation of the most sensitive health endpoint for each chemical (e.g., neurological morbidity from manganese, reproductive toxicity of methylmercury, and the carcinogenic potential of diesel, nickel, and arsenic). Therefore, these human health risks have already been assessed. While the toxicological information was not included in the AERA summary in FEIS Section 5.2.7.2.3, additional toxicological information has now been included in FEIS Chapter 7. Note that mercury impacts via air emissions and via deposition on land and water were also specifically assessed in FEIS Section 5.2.7.2.5, and were not found to be a health concern. The risk assessment assessed the health effects for recreational and tribal fishermen and their families consuming methylmercury in fish. Additional information pertaining to the effects of mercury and methylmercury on subsistence consumers has been included in FEIS Section 5.2.10.2.6, and risk assessment information is summarized in FEIS Section 7.3.4.4.3. In addition, see the response to theme HU 01.

Theme MERC 04

Theme Statement

The data used in the SDEIS to document and evaluate effects associated with mercury releases is inadequate and flawed. Data presented in the SDEIS have numerous inconsistencies related to reporting limits and method detection limits, casting doubt on overall data quality and the accuracy of impact analysis.

Thematic Response

The FEIS has been revised to include additional mercury data through the year of 2013, where available. These data are summarized in FEIS Section 4.2.2.3.1. Data presented in the FEIS were gathered from various sources, thereby leading to inconsistencies in the way the results were reported. Additionally, variability in the data and data reporting exists to some extent on large projects where sampling is conducted at many locations over long periods of time. Publicly available and relevant studies were considered in developing the SDEIS and FEIS. These include technical reports prepared by PolyMet reports from state and federal agencies, technical papers in peer-reviewed journals, and technical reports associated with other mine sites. The SDEIS and FEIS preparers drew on these information sources to the degree that they were reliable and relevant to the assessment of potential impacts from the NorthMet Project Proposed Action. Corresponding text, tables, and/or figures have been revised to include the addition of data. Furthermore, the data have been reviewed for inconsistencies, and necessary updates have been included in the FEIS.

Theme MERC 05

Theme Statement

The presentation of non-detect values as half the detection limit is an overly simplistic way of handling non-detect samples.

Thematic Response

Based on professional judgment, half of the detection limit was utilized in presenting data throughout the FEIS. Although contemporary science has refrained from utilizing half the detection limit, per the USEPA Region II Technical Guidance Document Chemical Concentration Data Near the Detection Limit (USEPA 1991) the method is valid. Additionally, the evaluation of the data provides a reasonable estimate of potential environmental effects for purposes of environmental review.

Theme MERC 06

Theme Statement

SDEIS does not provide the data to support the assumption that existing taconite within the Tailings Basin does, or that the PolyMet tailings would, remove mercury from discharged water.

Thematic Response

FEIS Section 5.2.2.3.4 provides supporting documentation and a rationale explaining tailings as a sink for mercury, including Berndt (2003, as cited in the FEIS). Berndt further explains that the reaction of mercury in the Tailings Basin (i.e., loss of mercury that is assumed to be through adsorption to solids and then burial in the sediments) results in an overall permanent retention of mercury within the basin and decreases the mercury released to receiving waters. The overall findings in Berndt demonstrated that the release of mercury to surface waters during taconite processing was insignificant with respect to the mercury concentrations found in local precipitation and existing background surface waters. The findings are supported by surface and groundwater monitoring around the existing LTVSMC Tailings Basin, which found mercury concentrations generally averaging less than 2.0 ng/L.

Furthermore, FEIS Section 5.2.2.3.4 summarizes a study conducted by Northeast Technical Services, Inc. (NTS) in 2006 (PolyMet 2015j, as cited in the FEIS) where a bench study was conducted using NorthMet tailings to determine the rate of mercury adsorption by the tailings. The study utilized large-volume shake flask tests to evaluate mercury adsorption of tailings over time. The concentration of dissolved mercury in a treatment flask containing process water and NorthMet tailings decreased from 3.3 ng/L (at time 0) to 0.9 ng/L (at 480 minutes). The study shows the ability of NorthMet tailings to adsorb mercury. In combination with the proven ability of the underlying taconite tailings to adsorb mercury, this is expected to result in an overall increase in the adsorption of mercury and subsequent lower concentrations of mercury at the Tailings Basin with the addition of the NorthMet tailings. The average concentration of mercury in samples collected from discharge locations SD026 and SD004 show seepage from the Tailings Basin with an estimated mercury concentration of 1.0 ng/L, which is lower than mercury concentrations in precipitation.

Theme MERC 07

Theme Statement

The mercury data provided in the Water Resources section of Chapter 4 of the SDEIS are inconsistent.

Thematic Response

FEIS Chapter 4 has been revised to address the comments in this theme. Such revisions included, but are not limited to:

- Inclusion of data on background methylmercury;
- Evaluation of inconsistencies in minimum detection limits for total mercury and methylmercury;
- Evaluation of a standard approach to calculating, interpreting, and presenting mercury results;
- Explanation and evaluation of unfiltered versus filtered mercury samples; and
- Reporting of mercury concentrations as presented in the text and figures of the SDEIS.

Theme MERC 08

Theme Statement

The FEIS should include an assessment of the effects of sulfur air emissions from both the Mine Site and Plant Site on mercury methylation and bioaccumulation. The FEIS should also provide an analysis of the aerial deposition of mercury into waterbodies and describe the linkage between sulfate and mercury reduction. The scientific literature indicates increased sulfate loading to freshwater systems increases methylmercury production, but the SDEIS understates these effects. There is a significant potential for increased methylmercury in downstream wetlands and surface waters.

Thematic Response

A supplemental assessment of the potential additional sulfur from stack and fugitive dust air emissions was conducted to evaluate the NorthMet Project Proposed Action's effects from sulfate as related to mercury methylation and fish concentrations. Sulfur-related emissions include SO_2, SAM, reduced sulfur compounds, and sulfur in particulate (e.g., sulfur in the mineral matrix of the ore). Because the estimated Plant Site and Mine Site emissions for each of these are below the PSD permitting thresholds and SER, no further consideration of these sources were required for environmental impact purposes (Barr 2015f, as cited in the FEIS). However, a summary of each is included in Section 4.0 of the document Mercury Overview a Summary of Potential Mercury Releases from the NorthMet Project and Potential Effects on the Environment (Barr 2015f, as cited in the FEIS). The evaluation estimates the potential sulfur deposition to the Partridge River (Colby Lake) and Embarrass River (Sabin Lake) watersheds. Based on the results of the additional assessment of sulfur deposition, the potential addition of sulfur from these emissions sources is small to negligible, and therefore would not be expected to have effects on mercury methylation or fish mercury concentrations. A summary of the evaluation is included in FEIS Section 5.2.7.2.6.

The supplemental assessment of potential additional sulfur from fugitive dust air emissions evaluated for the NorthMet Project Proposed Action's effects from potential sulfate additions to wetlands from the Plant Site and Mine Site fugitive dust emissions is summarized in FEIS Section 5.2.3. Using AERMOD to estimate estimated annual dust deposition, grams per square meter of dust containing sulfur was estimated to be deposited on the landscape. Based on a conservative assumption that all sulfur in fugitive dust converts to sulfate and mixes with surface water in wetlands, a potential incremental increase in sulfate was calculated as 4.2 mg/L. When mixed with annual precipitation, the sulfate value is 1.7 mg/L. Because the sulfur is inherent to the mineral matrix of the dust particles, it is likely that less than 100 percent of the sulfur would be weathered from the particles and be available to go into solution if deposited to soils or water. This potential incremental change may warrant future monitoring as small sulfate increases in sulfate-poor wetlands would be expected to increase the production of methylmercury in wetlands. However, methylmercury produced in wetlands is not necessarily incorporated into food chains and concentrated to levels of concern. The fugitive dust control plan for both the Mine Site and the Plant Site (including the Tailings Basin) should minimize such deposition, and the sulfur from any rock dust particles that are deposited may not be released or only released slowly through weathering. Using a conservative assumption that all sulfur in the deposited dust is both released and transformed to sulfate, no significant increase in methylmercury concentrations would be expected (Barr 2015f, as cited in the FEIS).

Because the potential additional deposition of sulfur from the NorthMet Project Proposed Action's air emissions is estimated to be small, including the potential release of sulfur from potential fugitive dust emissions, the findings and conclusions of the local mercury deposition analysis do not require changes or adjustments and no changes to current surface water methylmercury concentrations or fish mercury concentrations are reasonably expected. As currently stated in the FEIS, the NorthMet Project Proposed Action would reduce the sulfate loading to the small streams to the north of the Tailings Basin, the Embarrass River, and the downstream lakes. It is uncertain whether this reduction in sulfate discharge from the Tailings Basin would reduce methylmercury concentrations. However, the NorthMet Project Proposed Action is not expected to increase methylmercury concentrations in any of the receiving waters and would be in compliance with MPCA's guidance (MPCA 2006b, as cited in the FEIS) on the discharge of sulfate to sensitive ecosystems (Barr 2015f, as cited in the FEIS). Additional information in regards to mercury methylation is provided in FEIS Section 5.2.2.3.4. Discussion of mercury deposition and bioaccumulation in fish (Barr 2012b, as cited in the FEIS) and the assessment of the cumulative effects is provided in FEIS Section 6.2.6.

Theme MERC 09

Theme Statement

The SDEIS does not assess the effects of aerial deposition of mercury on wetlands. Groundwater-based mercury contributions to wetlands are also not assessed. The FEIS should assess these processes and their effects, including how such impacts will affect mercury bioaccumulation and compliance with existing water quality standards.

Thematic Response

The MPCA noted considerable uncertainty in modeling mercury transport and deposition (MPCA 2005, as cited in the FEIS). The results of modeling are conflicting with regards to local, regional, national, and global source contributions to a specific receptor. Ongoing efforts have been made to use computer models to estimate the amount of mercury deposition in the Midwest attributable to specific mercury emission sources. No generally accepted modeling technique has emerged, although the USEPA considers the Community Multiscale Air Quality (CMAQ) model the best available for evaluating mercury deposition (USEPA 2006, as cited in the FEIS). Overall, the models are helpful in linking deposition in an area to emissions from large regions or groups of sources, but are not accurate enough to predict the amount of mercury deposition to a site attributable to a specific remote source or group of emission sources. The assessment of potential local mercury deposition and resulting changes in fish mercury conducted for the NorthMet Project Proposed Action are consistent with the assessments conducted for other recent mining projects requiring environmental review. Such information in reference to mercury deposition has been summarized in Barr 2006g, as cited in the FEIS.

The Co-lead Agencies acknowledge that there could be water quality effects on wetlands and propose a comprehensive monitoring approach during operations, reclamation, and closure to identify such effects (if any). If effects are identified, adaptive mitigation measures would be invoked to remediate the situation and assure that water quality standards are met. A mercury deposition impact analysis is summarized in FEIS Section 5.2.7.2.5. In addition, PolyMet conducted a cumulative effects analysis on the local mercury deposition and bioaccumulation in

fish (Barr 2012b, as cited in the FEIS), and FEIS Section 6.2.6.3.3 presents an assessment of the cumulative effects of the NorthMet Project Proposed Action.

Theme MERC 10

Theme Statement

The SDEIS does not adequately assess the cumulative effects of mercury and sulfate release and methylmercury formation. The CEAA for mercury should include the entire St. Louis River Watershed.

Thematic Response

To assess cumulative effects, the potential impacts from the NorthMet Project Proposed Action were evaluated in combination with past, present, and reasonably foreseeable actions. The mercury concentrations in the St. Louis River from the NorthMet Project Proposed Action are not expected to increase. Therefore, cumulative effects are not expected. The potential increase in sulfate in the Partridge River near the Mine Site is estimated to a maximum of 0.1 mg/L. Thus, potential effects would not be noticeable in the Upper Partridge River, and even less so in the St. Louis River. As discussed in the FEIS, no cumulative impacts are expected for mercury and sulfate.

Theme MERC 11

Theme Statement

Assumptions regarding future mercury levels are questionable, due to the inaccurate water flow model in the SDEIS. Because the water model seriously underestimates the flow of groundwater through the mine and waste rock storage area into the Partridge River, it also underestimates mercury loading.

Thematic Response

The FEIS has been updated to reflect changes to water modeling. The GoldSim models are informed by a combination of groundwater flow models (MODFLOW), surface water runoff models (XP-SWMM), direct field measurements (groundwater levels, field borehole tests, groundwater and surface water sampling), and laboratory geochemical tests. For the FEIS, models (except XP-SWMM) were re-calibrated based on new field data obtained through the end of 2013. Where field data were not available, GoldSim inputs were based on a combination of literature values, experience at similar field sites, and best professional judgment. Changes in results based on the model outputs were evaluated and included in FEIS Chapters 4 and 5. The Co-lead Agencies reviewed and approved water model calibrations to existing conditions. Model calibrations, other model assumptions, and the resulting impact predictions provide a reasonable estimate of potential environmental effects for purposes of environmental review. The revised model results did not significantly change the initial and final parameter values for the mercury mass balance or the annual average load of mercury.

Theme MERC 12

Theme Statement

It appears that the waste rock (which will fill the East Pit) does leach mercury. Based on the humidity cell tests, a more appropriate value for East Pit porewater would be at least 6.5 ng/L.

Thematic Response

Information regarding the laboratory analysis of humidity cell leachates from waste rock in regards to mercury was summarized in FEIS Section 5.2.2.3.4. The NorthMet waste rock and ore contain trace amounts of mercury. Laboratory analysis of humidity cell leachates from waste rock samples found average total mercury concentrations between 5 and 7 ng/L, with concentrations unrelated to rock type or sulfur content (SRK 2007b, as cited in the FEIS). Separate 36-day batch tests using local rainfall (12 ng/L total mercury) found that contact with Duluth Complex rock actually decreased total mercury concentrations to between 1.9 and 3.2 ng/L as a result of adsorption (SRK 2007b, as cited in the FEIS). The control test only showed a decrease to 7 ng/L. The results indicate that the rock has the ability to remove mercury from solution. Therefore, the data suggest that mercury present in rainfall or released by sulfide oxidation is typically adsorbed by other minerals present in the mine waste rock. For these reasons, mercury released from waste rock and ore at the Mine Site is not expected to be a constituent of concern in groundwater seepage.

Theme MERC 13

Theme Statement

GoldSim did not evaluate elemental mercury in the water quality modeling. For the FEIS, mercury should be added to modeling and transport analysis for water quality effects.

Thematic Response

There will be no elemental mercury (Hg^0) discharge, but rather as ionic mercury (Hg^{2+}). Surface waters near the NorthMet Project area have a water quality standard for total mercury of 1.3 ng/L. Total mercury includes all species of mercury, including elemental mercury; however, elemental mercury is unlikely to exist in the water column. While mercury was not explicitly modeled in the GoldSim platform, mercury was modeled using a mass balance approach. The NorthMet Project Proposed Action would need to demonstrate during permitting that total mercury concentrations in anticipated permitted discharges would meet the effluent limit. The surface and groundwater containment system is expected to capture about 90 percent of groundwater and surface seepage from the Tailings Basin. Although mercury detected in rain water is at a concentration of ranging from 8 to 10 ng/L, mercury that now escapes the Tailings Basin is at a level of 2.0 ng/L (at the toe). Additionally, the NorthMet Project Proposed Action is expected to discharge mercury at or below the mercury standard of 1.3 ng/L, which includes treatment of water pumped from Colby Lake. Mercury concentrations at the Mine Site are projected to decrease, and effects are expected to be undetectable in the St. Louis River at the Fond du Lac reservation boundary. Therefore, the potential effects are expected to be less than significant, and the mass balance approach is appropriate to provide a reasonable estimate of potential contributions for purposes of environmental review.

The use of a mass balance approach to evaluate mercury was identified as the appropriate analytical tool for predicting mercury concentrations during scoping of this EIS, and is a common analytical tool utilized and relied upon by agencies to assess mercury impacts in Environmental Impact Statements and environmental assessments in general. Given the scientific community's current understanding of the relationship between total mercury, sulfate, methylmercury, etc., the mercury mass balance approach used in the FEIS is ideal for estimating mercury impacts from the NorthMet Project Proposed Action. For the Mine Site, a mass balance model approach using annual inputs and outputs was used to estimate total mercury concentration in the West Pit Lake. The estimation method is preferred over a detailed mechanistic model, because it incorporates the important input and removal processes for mercury, it is very transparent with regard to data inputs, and allows for easy assessment of the effect of changing parameter values on mercury concentrations (PolyMet 2015m, as cited in the FEIS). For the Plant Site, major mercury sources for the mining facility were included in the mass balance model, with the estimate of input and output values based on measurements taken at each stage of the ore processing as in the 2004 SGS Lakefield Pilot Study and 2005 Pilot Plant Study (PolyMet 2015j, as cited in the FEIS). Additional information supporting the evaluation of mercury by the mass balance approach is included in FEIS Section 5.2.2.3.4.

Theme MERC 14

Theme Statement

The Hydrometallurgical Residue Facility may contain 0.7 to 1.5 tons of mercury. Mercury leakage from the Hydrometallurgical Residue Facility should be modeled, and the FEIS should discuss the increased risk to groundwater due to mercury release from the aging Hydrometallurgical Residue Facility liners. The FEIS should also discuss mercury speciation versus changes in the Hydrometallurgical Residue Facility, should acid conditions develop.

Thematic Response

Approximately 85 percent of the mercury in the ore processed is expected to remain in the concentrate and hydrometallurgical residue. The concentrate would be shipped off site, leaving 164 lbs/yr to be deposited in the Hydrometallurgical Residue Facility (Barr 2007b; Barr 2007c). Resource Conservation and Recovery Act (RCRA) testing as recent as 2014 indicates that the concentration of mercury in the Hydrometallurgical Residue Facility would be below RCRA hazardous waste thresholds, therefore not considered as hazardous waste (PolyMet 2014c).

As summarized in FEIS Section 3.2.2.3, the Hydrometallurgical Residue Facility would be built at the existing LTVSMC Emergency Basin. A double-liner system would be installed, with each layer consisting of a geomembrane layer above a geosynthetic clay liner for leachate control (leachate collection system), and a geocomposite drainage system for leachate collection. According to FEIS Section 3.2.2.3, water captured by the liner system during operations would be returned to the Hydrometallurgical Residue Facility pond. The amount of water pumped from the leachate collection system would be monitored on a long-term basis, and repairs and mitigation measures would be implemented in the event of increased leakage. Therefore, it is assumed that the leakage from this facility into underlying groundwater or adjacent surface water would be negligible.

A polyethylene Geomembrane Chemical Resistance Chart was included in the Residue Management Plan (PolyMet 2014r, as cited in the FEIS) for the Hydrometallurgical Residue Facility. This chart lists specific chemicals, their concentration and resistance at specified temperatures (20 degrees Celsius and 60 degrees Celsius). Per the guidelines of the chart, mercury at a concentration of 100 percent and at temperatures of 20 and 60 degrees Celsius displays a satisfactory result, meaning the liner is resistant to the given reagent at the given concentration and temperature(s) and no mechanical or chemical degradation is observed.

Theme MERC 15

Theme Statement

The FEIS should disclose the influent and effluent mercury assumptions and targets for the Wastewater Treatment Facility (WWTF), and should explain mercury removal technologies.

Thematic Response

There would be no surface water discharges to the Partridge River or its tributaries from the Mine Site until approximately year 60, when the West Pit would be flooded and the overflow would be directed to the Mine Site WWTF for treatment and discharge. The Mine Site WWTF discharge would be subject to the Great Lakes Initiative standard for mercury (1.3 ng/L). Mercury concentrations in the West Pit were estimated two ways: using analog data from other natural lakes and mine pit lakes in northeastern Minnesota, and using a mass balance approach. Based on conservative assumptions, the mass balance analysis estimated the average mercury concentration of the West Pit during flooding (year 20 to about year 52) to be about 0.3 ng/L. At the time of overflow, the mercury concentration was estimated to be about 0.5 ng/L, which then reached an equilibrium concentration near 0.9 ng/L, which can be assumed for the influent to the WWTF. Because the Mine Site WWTF would discharge to the Tailings Basin pond during operations and to the West Pit during reclamation, it is anticipated that the Mine Site WWTF effluent would be considered an internal waste stream during these periods, and would not have discharge limits. However, treatment goals are expected to be part of an overall water management strategy.

Discharges from the Mine Site WWTF would be at or below the Great Lakes Initiative discharge standard of 1.3 ng/L, as the WWTF would be designed to meet the mercury standard for the effluent. Additional mercury reduction that may result from the Mine Site WWTF treatment is not accounted for in the calculations. FEIS Sections 3.2.2.1.8 and 3.2.2.1.9 summarize treatment methodologies for the Mine Site WWTF and water management. The Mine Site WWTF would be constructed to treat affected water at the Mine Site and also treat the reject concentrate from the Plant Site WWTP (see FEIS Section 3.2.2.3.10). Water treatment would include chemical precipitation and membrane filtration treatment methodologies. The design of the Mine Site WWTF is based on the predicted water loads and constituents modeling described in FEIS Section 5.2.2. The Mine Site WWTF could be expanded or treatment capabilities modified to meet water quality standards if monitoring indicates the need. As summarized in FEIS Section 3.2.2.1.10, an RO unit (or equivalent performing technology) would be added to the Mine Site WWTF during closure. At the Mine Site, because of the low concentrations of mercury in pit lakes and the RO process at the Mine Site WWTF, the permitted discharge from the Mine Site is expected to meet the Lake Superior Basin water quality standard of 1.3 ng/L for effluent.

The WWTP at the Plant Site and the WWTF at the Mine Site would use mercury-capturing greensand filtration for pretreatment prior to RO. Adaptive management would be based on monitoring for total mercury to determine whether the treated water could be discharged to surface waters, or whether some additional treatment is needed. PolyMet has identified the following adaptive management strategies:

- Pretreatment modifications such as chemical scavenger addition to obtain additional metals;
- Use of tighter RO membranes for the primary RO system;
- Treatment of some portion of the VSEP permeate by the primary RO system to further remove some dissolved constituents; and
- Addition of polishing treatment units for removal of trace metals (e.g., ion exchange).

Theme MERC 16

Theme Statement

The SDEIS fails to clearly state the expected amount of mercury that will be released into surrounding watersheds over time. Estimates for other metals are provided, but not for mercury.

Thematic Response

As summarized in FEIS Section 6.2.2.4.2, the NorthMet Project Proposed Action is predicted to result in an overall net decrease of mercury loadings of approximately 1.0 grams per year (i.e., a net decrease of 1.2 grams per year in the Partridge River and a net increase of 0.2 grams per year in the Embarrass River), which is indistinguishable from natural background variability. Furthermore, discharges are expected to meet the 1.3 ng/L standard for mercury.

Theme MERC 17

Theme Statement

The total amount of mercury generated from the mining processes should be listed in the FEIS. This includes bulk tailings, hydrometallurgical tailings, and autoclave scrubber waste and disposal. The FEIS should also provide a detailed mercury monitoring plan.

Thematic Response

A screening total facility mercury mass balance was conducted for the NorthMet Project Proposed Action to identify the potential releases to the environment. The original mass balance included two autoclaves associated with the hydrometallurgical process. The total facility mass balance followed the MPCA's requirements and was similar to mass balances conducted for other recent mining projects in Minnesota. Similar to other mining operations, about 95 percent of the mercury in the process is expected to stay with the solids. Also similar to other mining projects, air emissions would be a small component of the total mass of mercury associated with ore processing.

The majority of the mercury, about 95 percent, is expected to be routed to the Tailings Basin or the reactive residue cells, where available information indicates it should remain sequestered and not be released to air, surface waters, or groundwater. Mercury in the ore is the primary source of

mercury at the Plant Site, and air emissions of mercury are primarily associated with the Hydrometallurgical Plant (4.1 pounds/year). A small amount of mercury emissions are estimated to potentially be emitted from natural gas combustion associated with a package boiler and a natural gas fired process heater and space heaters (0.4 pounds/year). In addition, a small amount of particle-bound mercury is associated with mining, ore crushing, milling processes, flotation concentrate handling, and fugitive dust emissions from the Tailings Basin (less than 0.1 pounds/year). A relatively small amount of mercury is estimated to be associated with diesel fuel combustion in mine vehicles. Overall, total potential emissions of mercury from the NorthMet Project Proposed Action are estimated to be 4.6 pounds/year from the Plant Site, a maximum of 0.17 pounds per year from Tailings Basin construction vehicles (diesel fuel combustion emissions), and approximately 0.6 pounds/year from diesel fuel combustion at the Mine Site.

Adaptive management would be implemented as necessary based on monitoring for total mercury to determine whether the treated water could be discharged to surface waters, or whether some additional treatment would be needed. PolyMet has identified the following adaptive management strategies:

- Pretreatment modifications such as chemical scavenger addition to obtain additional metals;
- Use of tighter RO membranes for the primary RO system;
- Treatment of some portion of the VSEP permeate by the primary RO system to further remove some dissolved constituents; and
- Addition of polishing treatment units for removal of trace metals (e.g., ion exchange).

Theme MERC 18

Theme Statement

The SDEIS relies on impermissible mercury trade-offs between the Partridge, St. Louis, and Embarrass rivers.

Thematic Response

Discharges from the Mine Site would flow to the Upper Partridge River, and discharges from the Plant Site would flow to the Upper Embarrass River and to the lower Partridge River via Second Creek. Both the Partridge River and the Embarrass River are tributaries of the St. Louis River. The SDEIS and FEIS evaluate the Embarrass River, Partridge River, and St. Louis River individually, as summarized in Barr 2015g, as cited in the FEIS. The current mercury load from the watersheds containing the NorthMet Project Proposed Action area were evaluated and compared with projected future mercury loads from these same watersheds, including discharges from the NorthMet Project Proposed Action. The analysis assessed potential impacts during long-term closure. Long-term closure is the period with maximum sustained water discharges from both the Mine Site and the Plant Site, and is thus the time period of greatest potential to impact total mercury concentrations in the St. Louis River.

These assessments showed that the mercury load from the Mine Site would slightly decrease during long-term closure, because a portion of the flow that is currently watershed yield (total mercury concentration of 3.6 ng/L) would be captured in the West Pit lake and discharged via the Mine Site WWTF at a conservatively assumed total mercury concentration of 1.3 ng/L.

Flows from the Mine Site in long-term closure are not expected to change from existing conditions; therefore, the change in total mercury concentration from 3.6 to 1.3 ng/L for a portion of the flow from the Mine Site results in reduced loading to the Partridge River.

The mercury load from the Plant Site would increase slightly during long-term closure for two reasons. First, the seepage from the existing LTVSMC Tailings Basin is assumed to have a total mercury concentration of 1.0 ng/L, while the combined seepage collected by the groundwater containment system and excess Tailings Basin pond water that would be discharged via the Plant Site WWTP is conservatively assumed to have a total mercury concentration of 1.3 ng/L. Second, runoff from the vicinity of the East Dam that currently flows into the existing LTVSMC Tailings Basin and emerges as seepage (total mercury concentration of 1.0 ng/L) would become surface runoff to the Embarrass River watershed via Mud Lake Creek (total mercury concentration of 3.5 ng/L). The assumed small changes in mercury concentrations for seepage water and runoff from near the East Dam would result in a slight increase in mercury concentration and loading to the Embarrass River.

Overall, the changes in total mercury concentrations associated with the NorthMet Project Proposed Action in long-term closure at the Mine Site and Plant Site are estimated to be too small to distinguish from natural background variability in the Partridge River and the Embarrass River using available laboratory methods.

The NorthMet Project Proposed Action and NorthMet Project area watershed information used to assess the potential effects on average annual mercury loading and concentrations at the Plant Site and Mine Site (Upper Embarrass River and Upper Partridge River, respectively) were also used to assess the potential effects from the NorthMet Project Proposed Action on mercury loading in the St. Louis River. For the lower St. Louis River, estimated changes in average annual total mercury concentration from the NorthMet Project Proposed Action were smaller than the estimated changes in the Upper Embarrass River and the Upper Partridge River. When the potential mercury load from the NorthMet Project Proposed Action in long-term closure is added to the respective St. Louis River evaluation locations, there is a slight decrease in mercury loading (-1.0 g/yr) and no detectable change in the mercury concentration (change less than 0.05 ng/L), given the variability in environmental concentrations and the current laboratory detection limits. These results indicate that the potential mercury load from the NorthMet Project Proposed Action would not degrade or lower water quality with respect to average annual total mercury concentrations at the respective evaluation locations. Overall, the NorthMet Project Proposed Action is not expected to have a statistically discernible effect on mercury loading or concentrations at the St. Louis River evaluation locations.

Theme MERC 19

Theme Statement

The SDEIS does not estimate the amount of mercury likely to affect the St. Louis River and Lake Superior.

Thematic Response

As summarized in FEIS Section 6.2.2.4.2, the NorthMet Project Proposed Action is predicted to result in an overall net decrease of mercury-loadings of approximately 1.0 grams per year (i.e., a net decrease of 1.2 grams per year in the Partridge River and a net increase of 0.2 grams per year

in the Embarrass River), which is indistinguishable from natural background variability. Furthermore, discharges are expected to meet the 1.3 ng/L standard for mercury. The NorthMet Project Proposed Action would not contribute to cumulative effects on mercury loading to the St. Louis River. Supporting information is provided in FEIS Section 6.2.2.4.2.

Theme MERC 20

Theme Statement

The SDEIS does not address the transport and fate of mercury releases through seepage and leaching from waste rock stockpiles, mine pits, drying and re-wetting of peat overburden, tailings, or liner leaks, and thus does not adequately characterize potential mercury methylation, conversion, and bioaccumulation. The FEIS should be revised to disclose mercury and sulfate concentrations in seepage from all potential project sources, and should explain existing and proposed mitigation measures for mercury.

Thematic Response

The most reactive waste rock mined at the NorthMet site (Category 4) would be temporarily stored on liners, then placed in the East Pit and flooded with water before closure. FEIS Section 5.2.2 discusses temporary pollutant release by leakage through these liners. The less-reactive Category 1 Stockpile that remains permanently on the surface would be surrounded with a water containment trench to capture seepage during and after mining. Additionally, a proposed geosynthetic cover would decrease water infiltration, and water captured in the trench would be treated.

The recycle/reuse water management plan would result in very little wastewater discharged from the Plant Site during ore processing. Because of the demonstrated ability of both taconite tailings and copper nickel tailings to rapidly absorb mercury, seepage water from the Tailings Basin is expected to have a low concentration of mercury (i.e., less than 1.3 ng/L). The Tailings Basin seepage water would be collected and routed to the Plant Site WWTP along with other water from the Plant Site. The Plant Site WWTP would use greensand filtration followed by RO technology (or equivalent performing technology), which is expected to remove some additional mercury, although removal efficiency at low concentrations is not established. Because of the low concentrations of mercury in the Tailings Basin and LTVSMC tailings seepage, and greensand filtration followed by RO technology, the Plant Site WWTP would be expected to meet the numeric water quality standard of 1.3 ng/L.

Some of the temporarily stored organic material would decompose on site, which would release mercury into solution. Any dissolved mercury would be transported in solution with precipitation that falls on the Overburden Storage and Laydown Area (PolyMet 2015r, as cited in the FEIS). Any mercury released from the peat decomposition process is thought to be transported with precipitation that falls on the Overburden Storage and Laydown Area. However, water coming in contact with materials in the Overburden Storage and Laydown Area is considered to be process water, and would be routed to Pond PW-OSLA. In years 1 to 11, the water from Pond PW-OSLA would be routed to the Tailings Basin and any mercury in the routed water would have the chance to be sequestered in the tailings. In years 12 to 20, some of the water from Pond PW-OSLA would be used to backfill the East Pit. Any mercury in the water routed to the East Pit would have the chance to mix with waste rock and become sequestered at depth in the East Pit.

In addition, any contributions of water in years 21 to 65 from the East Pit to the West Pit would reflect water from the East Pit and its associated watershed runoff and would not reflect process water from Pond PW-OSLA. Because peat removal from the areas to be mined would be completed between years 5 and 11, any potential release of mercury from stored peat materials would have occurred, or be ending, by the time water is routed from Pond PW-OSLA to the East Pit beginning in year 12.

Section 3.0 of Barr 2015f, as cited in the FEIS, provides a summary of the NorthMet Project Proposed Action's potential releases of mercury and sulfur. Mercury and sulfate loadings are predicted to decrease overall as a result of the NorthMet Project Proposed Action. A summary of mercury and sulfur releases and methylation and deposition impact analyses are discussed in FEIS Sections 5.2.2.3.4, 5.2.7.2, 5.2.7.2.5, and 6.2.3.3.4. The following adaptive management strategies proposed for mercury are included in FEIS Section 5.2.2.3.5:

- Pretreatment modifications such as chemical scavenger addition to obtain additional metals;
- Use of tighter RO membranes for the primary RO system;
- Treatment of some portion of the VSEP permeate by the primary RO system to further remove some dissolved constituents; and
- Addition of polishing treatment units for removal of trace metals (e.g., ion exchange).

Theme MERC 21

Theme Statement

The FEIS should evaluate the use of unsaturated overburden and peat for construction and reclamation activities as a source of potential mercury release, in addition to other sources such as constructed wetlands, West Pit, and Overburden Storage and Laydown area.

Thematic Response

Unsaturated overburden and peat material would be used for construction, as approved by the MDNR. Peat (organic soils) and unsaturated overburden that could be used in immediate construction and reclamation would be stored in unlined overburden stockpiles at the Overburden Storage and Laydown Area. Unsaturated overburden (e.g., surficial mineral soil) and peat would be placed in the Overburden Storage and Laydown Area for temporary storage until the material is used for reclamation purposes. The removal of the material would occur prior to the initiation of mining. Also, the Overburden Storage and Laydown Area would be one of the first storage areas to be constructed in order to accommodate the materials associated with the start-up overburden removal. Some of the temporarily stored organic material would decompose on site, which would release mercury into solution. Any dissolved mercury would be transported in solution with precipitation that falls on the Overburden Storage and Laydown Area (PolyMet 2015r, as cited in the FEIS). Any mercury released from the peat decomposition process is thought to be transported with precipitation that falls on the Overburden Storage and Laydown Area. However, water coming in contact with materials in the Overburden Storage and Laydown Area is considered to be process water, and would be routed to the Overburden Storage and Laydown Area Pond (Pond PW-OSLA). Runoff water from the Overburden Storage and Laydown Area would be collected in Pond PW-OSLA as long as materials were stored there. In

years 1 to 11, the water from Pond PW-OSLA would be routed to the Tailings Basin and any mercury in the routed water would have the chance to be sequestered in the tailings. In year 12 to 20, some of the water from Pond PW-OSLA would be used to backfill the East Pit. Any mercury in the water routed to the East Pit would have the chance to mix with waste rock and become sequestered at depth in the East Pit. In addition, any contributions of water in years 21 to 65 from the East Pit to the West Pit would reflect water from the East Pit and its associated watershed runoff and would not reflect process water from Pond PW-OSLA. Because peat removal from the areas to be mined would be completed between years 5 and 11, any potential release of mercury from stored peat materials would have occurred, or be ending, by the time water is routed from Pond PW-OSLA to the East Pit beginning in year 12.

Theme MERC 22

Theme Statement

The SDEIS does not provide a rationale for allowing more mercury to be added to a water system that is already too high in mercury, especially since the existing mercury risk has not been addressed by a Total Maximum Daily Load (TMDL). A mercury TMDL for the St. Louis River should be completed before the FEIS is published and before Permits to Mine are authorized. The FEIS should state whether the company would have to buy mercury offsets, as defined by the State Mercury Implementation Plan, for any new mercury source.

Thematic Response

The comments in this theme were originally presented as part of the Tribal Position Summary included in MDO #2, and is currently addressed in Table 8-1 of the FEIS. Further explanation is provided below.

MPCA's goal is to protect high-quality waters and improve the quality of impaired waters, so water quality standards are met and beneficial uses are maintained and restored, where these uses are attainable. As summarized in FEIS Section 5.2.7.2.5, widespread contamination of fish from atmospheric pollution is why Minnesota established a statewide mercury TMDL. The TMDL seeks to reduce atmospheric deposition everywhere in the state, in order to make the state's lakes and streams fishable, as required by federal regulations, and is intended to provide the long-term framework to reduce mercury in fish. The MPCA published Guidelines for New and Modified Mercury Air Emission Sources, and revised those guidelines in 2012. The guidelines were developed to limit the mercury emissions from new and expanding sources in order to meet the TMDL goal of total statewide mercury emissions of 789 lbs/year by 2025. The MPCA has conducted a review of the NorthMet Project Proposed Action mercury emissions, and has determined that it would not impede the reduction goals (MPCA 2013l, as cited in the FEIS). Accordingly, no minimization and mitigation plan is required for the NorthMet Project Proposed Action. Based on the results of MPCA's review, the NorthMet Project Proposed Action should not be required to buy mercury offsets at this time. Should an evaluation of the NorthMet Project Proposed Action determine that an additional mercury source has been added, mercury offsets would be sought in accordance with the Implementation Plan for Minnesota's Statewide Mercury Total Maximum Daily Load (MPCA 2009d, as cited in the FEIS).

Further, the NorthMet Project Proposed Action is not anticipated to be a major source of mercury into the environment. The RO treatment is expected to discharge mercury at or below the

mercury standard of 1.3 ng/L, which includes all surface water that would be discharged at the Plant Site, including water used for flow augmentation. Mercury loadings from the Mine Site are projected to decrease due to the NorthMet Project Proposed Action. The combined contributions from the Embarrass River and Partridge River are unchanged when modeled for the St. Louis River at the Fond du Lac reservation boundary; therefore, further degradation of surface water quality, and by extension increased mercury in fish, is not expected.

Theme MERC 23

Theme Statement

The Proposed Action will result in an increase (and not a decrease, as claimed by the SDEIS) in mercury loading to the Embarrass and Partridge River aquatic systems and other waterways, and its effects on water quantity will cause increased mercury methylation and bioaccumulation. Such an increase would be illegal.

Thematic Response

Based on the evaluations conducted for air emissions and water discharges for the FEIS, the NorthMet Project Proposed Action is not considered to have an appreciable effect on: 1) surface water mercury concentrations, 2) fish mercury concentrations, 3) methylation of mercury, or 4) risk to people consuming fish from lakes near the NorthMet Project Proposed Action site.

The MMREM analysis for two scenarios showed a 0.5 to1.8 percent and 0.3 to 0.5 percent potential increase in fish mercury concentration above background. This potential change is considered to be small compared to background levels and is not expected to affect fish consumption advisories or effect consumers of locally caught fish. The increase is not expected to have an appreciable effect on the loading estimates from permitted discharges to the Embarrass, Partridge, or lower St. Louis rivers. Discharges are expected to meet the 1.3 ng/L standard for mercury, with an overall net decrease in mercury loading predicted for the NorthMet Project Proposed Action.

Theme MERC 24

Theme Statement

The Environmental Justice section of the FEIS should evaluate effects on Band members, subsistence consumers, and other Environmental Justice populations associated with increases in mercury and methylmercury bioaccumulation in fish tissue.

Thematic Response

The effects of mercury bioaccumulation on subsistence activity are discussed in FEIS Sections 5.2.7.2.5 and 5.2.10.2.6. Additionally, the potential cumulative effects of the NorthMet Project Proposed Action on the bioaccumulation of methylmercury in fish are discussed in FEIS Section 6.2.6. The Environmental Justice analysis included disproportionately affected populations, as well as residents of the NorthMet Project area, including Band members who use the area for subsistence regardless of where they live. Operations could affect individuals who consume fish from nearby waterbodies with increased mercury concentrations and associated increases in mercury bioaccumulation in fish tissue. Additional information pertaining to the effects of

mercury and methylmercury on subsistence consumers has been included in FEIS Section 5.2.10.2.6, and is also summarized with the human health considerations text in FEIS Section 7.3.4.4.3.

A.5.15 Issue: Noise and Vibration (N)

Theme N 01

Theme Statement

The NorthMet Project will result in long-term and permanent noise effects on nearby residents and visitors.

Thematic Response

Long-term noise impacts to nearby residents and visitors are addressed based on state noise standards (*Minnesota Rules*, chapter 7030) for different Noise Area Classifications (NACs), including residential and recreational land uses. Long-term noise impacts are discussed in FEIS Section 5.2.8.

Theme N 02

Theme Statement

The FEIS should assess mine noise effects on recreational sites, including residential and tourism sites near Birch Lake and within the BWCAW.

Thematic Response

Mine-related noise impacts on recreational sites such as those near Birch lake are addressed based on state noise standards (*Minnesota Rules*, chapter 7030) for different Noise Area Classifications (NACs), including residential and recreational land uses. Mine-related noise impacts on nearby recreational sites are discussed in FEIS Section 5.2.8. The FEIS also discloses that mine-related noise would not be audible within the BWCAW.

Theme N 03

Theme Statement

The FEIS should further analyze cumulative noise and vibration effects on nearby residents and recreational visitors. This analysis should include the provision of contour maps showing overlapping noise pollution from different projects and a cumulative mining vibration analysis.

Thematic Response

FEIS Section 6.2.8, under Cumulative Effects by Resource - Noise and Vibration, has been updated in the FEIS, and provides more analysis on the cumulative noise and vibration impacts on nearby residents and recreational visitors. The updated section concludes that adverse cumulative noise and vibration impacts are not expected on nearby sensitive receptors (residences/ dwelling places, recreational sites, cultural sites), due to the distance of the

NorthMet Project to the closest reasonably foreseeable action, Mesabi Nugget Phase II Mine Project, (approximately 2 miles west of the Plant Site and 10 miles west of the Mine Site).

Other reasonably foreseeable projects in the region are 25 to 55 miles away from the NorthMet Project and as such, would have no cumulative effect on the nearest receptors (see Figure 6.1.1-1 and Table 6.1.1-1). Other past and present actions, such as the North Shore Mine are already accounted for in the baseline/ambient noise levels. Actual noise and vibration source terms from future projects such as the Mesabi Nugget Phase II Mine Project were not publicly available and contour maps for such future projects were not provided. It should be noted that even if noise and vibration source terms for the Mesabi Project were available, such contour maps are not expected to overlap with the NorthMet Project noise and vibration contours due to the distance between both projects (i.e., considering the rapid decay of sound with increased distance [6 decibel decrease per doubling of distance] and attenuation from individual mine pit walls (i.e., as the pits become deeper) and dense foliage [Superior National Forest]).

Theme N 04

Theme Statement

The FEIS should further analyze noise and vibration effects on wildlife, including Canada Lynx and songbirds. The analysis should include cumulative effects from other nearby mining projects, as well as additional mitigation and a clearly defined area of impact to wildlife.

Thematic Response

FEIS section 5.2.5 (Wildlife Impacts) has been updated to include noise and vibration impacts to wildlife, including Canada lynx and songbirds at the local and regional level. Appropriate mitigation and impact areas have been clearly defined. For more details please see response to theme WI 05. In addition, please see the Biological Assessment (Appendix D of the FEIS) for further details on noise impacts to the Canada lynx, as well as the Biological Evaluation (also in Appendix D of the FEIS) for details on noise impacts to wildlife.

Theme N 05

Theme Statement

The FEIS should include a quantitative analysis of blasting noise and ground borne vibration effects.

Thematic Response

Quantitative analysis of blasting noise and ground-borne vibration impacts are addressed in accordance with *Minnesota Rules*, part 6132.2900, for ground-borne vibration and airblast overpressures (i.e., blasting noise). Quantitative analysis of ground-borne vibration and airblast overpressures from blasting are discussed in FEIS Section 5.2.8.2.2.

Theme N 06

Theme Statement

The FEIS should analyze noise in terms of its tonality, low frequency, fluctuations, and impulsiveness.

Thematic Response

FEIS sections 4.2.8.1 and 5.2.8.2.1 include noise analysis in terms of its tonality, low frequency, fluctuation (or intermittent noise), and impulsiveness. The sections have been modified to increase clarity and provide qualitative analysis. The analysis shows no significant impacts.

Theme N 07

Theme Statement

The FEIS should assess noise effects from increased transportation in and out of the NorthMet Project.

Thematic Response

Transportation of Project consumables and products could result in some noise from increased traffic on public roads and commercial railroads. Public roads could also experience minor increases in noise levels due to additional traffic from employees and service providers, particularly along State Highway 135 and County Road 666. Traffic noise from employee vehicles, service provider vehicles, and trucks transporting process consumables and products are not expected to be significant due to the small increase in daily traffic volumes (approximately 7 trucks per day and 149 employee and service provider vehicles per day along State Highway 135; and approximately 42 employee and service provider vehicles per day along County Road 666 [see the Biological Assessment in Appendix D of the FEIS]) in comparison to the existing annual average daily traffic (AADT) volumes of State Highway 135 and County Road 666. The NorthMet Project Proposed Action's offsite traffic volumes are approximately 2 to 18 percent and 5 to 30 percent of existing AADT at State Highway 135 (850 to 8300 vehicles per day) and County Road 666 (140 to 810 vehicles per day), respectively (Barr 2014a, as cited in the FEIS).

Similarly, railway noise from trains carrying process consumables and concentrates from the Plant Site to Virginia, Minnesota and vice versa (via Canadian National Railroad) are not expected to be significant due to the small increase in monthly railway traffic volumes: approximately one 100-car train once per month and one 30-car train 4 times per month, year round for product shipment; and approximately one 100-car train once per week, April through October, for process consumables (see the Biological Assessment in Appendix D of the FEIS). This accounts for approximately 3 to 4 percent of the existing monthly traffic volumes of the Canadian National Railroad on the Iron Junction to Allen Junction rail segment. (Barr, Pers. Comm., November 6, 2014 [as cited in the FEIS]).

Based on the off-site traffic information described above, noise effects on off-site transportation are not expected to be significant. In addition, all project-related off-site roadway and railway traffic would occur during daytime hours only. The off-site trucks would not exceed 40 miles per

hour, and would avoid densely populated areas to the extent practicable. Any noise sensitive receptor near the Canadian National Railway segments close to the Plant Site, State Highway 135, and County Road 666 would not be exposed to a new noise source since these infrastructures have been in operation for decades. FEIS Section 5.2.8.2.3 has been updated to include a qualitative assessment of noise effects on off-site transportation.

A.5.16 Issue: National Environmental Policy Act and Minnesota Environmental Policy Act Considerations

Theme NEPA 01

Theme Statement

The purpose and need statements should be broadened to allow consideration of other alternatives to the NorthMet Mining Project.

Thematic Response

The Co-lead Agencies' purpose and need statements are based on their respective mandates, other legal guidance, and the proposal before them for review. The Co-lead Agencies believe that the NorthMet Mining Project and Land Exchange EIS considered a reasonable range of alternatives based on the agencies' respective purpose and need statements, issues raised during scoping, and potential impacts identified during the analysis.

Theme NEPA 02

Theme Statement

The purpose and need statements need to be revised to clearly define the agencies' respective mandates and requirements. The agencies may be confused about their roles and responsibilities regarding the project. Comments in this theme questioned why the agencies' purpose and need statements matched the proponent's purpose for the project.

Thematic Response

The Co-lead Agencies' purpose and need statements are based on their respective mandates, other legal guidance, and the proposal before them for review. The Co-lead Agencies believe that their roles are accurately described and fulfill their respective responsibilities under state and federal law.

The Co-lead Agencies' purpose and need statements may be similar in some ways to the proposer's purpose for the Project; however, the agency purpose and need statements are based on state and federal laws and agency responsibilities to consider applications to mine and the Section 404 permit, as well as the Land Exchange Proposed Action.

Theme NEPA 03

Theme Statement

The agencies' purpose and need statements should define why the NorthMet Mining Project should be considered at this time and/or in this location.

Thematic Response

The MDNR and USACE are required by law to consider proposals to mine and the application for a Section 404 permit, respectively, at the time they are submitted and in the proposed location.

Theme NEPA 04

Theme Statement

The USFS purpose and need statement should more clearly define why the agency needs to consider the proposed land exchange and how it would be in the public interest. The purpose and need in the SDEIS serves a private interest, not a public interest.

Thematic Response

In addition to the USFS purpose and need statement in FEIS Section 1.3.2.2, FEIS Section 7.3 (including Table 7.3.5-1) identifies the factors that would be considered in the ROD to determine whether the Land Exchange Proposed Action serves the public interest.

Theme NEPA 05

Theme Statement

The project is needed because the metals proposed to be mined are of strategic and national importance. Copper, nickel, and PGEs are essential elements in the manufacture of products such as cell phones, wind turbines, electric car batteries, medical applications, computers, and many other items. Mining these resources in Minnesota ensures it is done in an environmentally controlled manner.

Thematic Response

These comments provide general information in support of the NorthMet Project Proposed Action because the minerals it would provide are of strategic and national importance. Because no specific information was provided, no changes to the EIS were made as a result of the comments.

Theme NEPA 06

Theme Statement

The project is not needed because the US need for copper is declining. Demand for metals like copper and nickel can be met by means other than a new mine, including recycling, metals resource recovery operations, and greater reliance on green energy. A more sustainable option should be first evaluated. The minerals aren't going anywhere. Hold off on mining until it can be done without endangering the watershed.

Thematic Response

During the development of the Draft EIS for the NorthMet Project (2009) and the SDEIS for the NorthMet Mining Project and Land Exchange (2013), the Co-lead Agencies screened potential alternatives based on a variety of screening criteria. These criteria included whether the possible alternative: 1) met the Co-lead Agencies and proposer's purpose and need for the Project; 2) was technically feasible; 3) was economically feasible; 4) was available (i.e., the mineral and surface rights and technologies were currently available); and 5) provided an environmental or socioeconomic benefit over the proposed Project. Of these, the alternative of using recycling, metals resource recovery, and greater reliance on green energy did not meet the Co-lead Agencies or proposer's purpose for the Project.

Although NEPA guidance (40 CFR 1502.14(c)) allows agencies to consider alternatives not within their legal jurisdiction, the suggested alternatives did not meet the overall purpose and need for the Project, as noted in criterion #1 above. The EIS discloses the potential impacts of the NorthMet Project Proposed Action, including watershed effects. To receive the necessary permits to construct and operate the mine, the proposer would need to demonstrate to permitting agencies that the NorthMet Project Proposed Action would not exceed applicable environmental quality standards.

Theme NEPA 07

Theme Statement

The SDEIS document is too complex, written in a confusing style, and too lengthy to enable the reader to understand and/or make an informed decision about the Proposed Action. SDEIS materials were also difficult to obtain and new information became available. At a minimum, the comment period is too short and should be extended to allow the public more time to consider the contents of the SDEIS.

Thematic Response

The FEIS contains a scientific analysis of the potential effects of the NorthMet Project and Land Exchange Proposed Actions necessary for such a complex project. This analysis was accompanied by plain language descriptions of the scientific analyses, notably in the introductions of each resource section and in the Executive Summary.

The Co-lead Agencies identified reference materials and included in the SDEIS relevant information believed to be necessary to understand its analysis and findings. Reference materials were made available upon request within reasonable timeframes, in accordance with the policies

of state and federal agencies. The SDEIS was circulated for public comment for 90 days, which is twice the amount of time required by the federal regulations, and three times the amount of time required by state regulations.

Theme NEPA 08

Theme Statement

The SDEIS is flawed because it did not follow the legal requirements of NEPA and/or MEPA, such as by failing to properly describe mitigation measures or management plans that affect the Project's potential impacts. How can it be that the same agencies that prepared the EIS issue the critical Record of Decision?

Thematic Response

The Co-lead Agencies believe that the analysis of the Project as presented in the EIS meets the procedural and analytical requirements of NEPA and MEPA.

As a disclosure document, the EIS describes the potential effects of the NorthMet Project and Land Exchange Proposed Actions, and identifies mitigation measures that could be required as part of permitting and as conditions become better understood through monitoring. This is consistent with NEPA and MEPA rules, which stress that EISs not become encyclopedic descriptions of every possible outcome, but instead focus on likely impacts. NEPA requires that federal agencies issue RODs based on the EISs they prepare (or adopt as consistent with CEQ regulations). Thus, the federal agencies are meant to issue the RODs.

Minnesota Rules, part 4410.2800, subpart 4 requires the RGU (the MDNR) to find the FEIS adequate if it: a) addresses the potentially significant issues and alternatives raised in scoping so that all significant issues for which information can reasonably be obtained have been analyzed in conformance with EQB Rules, 4410.2300, items G and H; b) provides responses to the substantive comments received during the draft EIS review concerning issues raised in scoping; and c) was prepared in compliance with the procedures of the MEPA and the Environmental Quality Board Review Program Rules, parts 4410.0200 to 4410.6500.

Theme NEPA 09

Theme Statement

The analysis in the SDEIS is inadequate and demonstrates unacceptable environmental impacts for a variety of reasons. It is based on flawed data and inaccurate information. The EIS should be rejected.

The analyses are based on a conceptual description of the proposed action and an extensive set of assumptions of the environment and the performance of the conceptual design. Much of the information provided is encyclopedic, describing ways in which the Project purports to fit within various regulatory regimes.

The EIS assumes that all mitigation measures perform perfectly, not merely for the 20-year life of the mine, but for hundreds of years afterwards. This is simply not a supportable assumption,

and the SDEIS fails to evaluate both the effectiveness of mitigation measures, and the impacts in the event that they fail.

Thematic Response

As an analysis and disclosure document and consistent with NEPA and MEPA, the NorthMet Mining Project and Land Exchange EIS does not determine which impacts are or are not acceptable. Decision-makers from the federal Co-lead Agencies would evaluate the effects identified in the FEIS to make that determination in their respective RODs. As the RGU, the MDNR would evaluate the adequacy of the EIS under *Minnesota Rules*, part 4410.2800, subpart 4, which considers whether the significant issues and alternatives have been analyzed, whether substantive comments have been responded to, and whether the procedures of MEPA and regulations thereunder have been complied with.

The Co-lead Agencies believe that the EIS contains the best available data and analyses consistent with the NEPA and MEPA guidance and best practices.

The Co-lead Agencies reviewed all applicable documentation submitted by the proposer to fully understand the NorthMet Project Proposed Action. These included detailed technical design documents, including the Project Description, Mine Plan and several resource-specific management plans, all of which are summarized in FEIS Chapter 3. The level of detail describing the NorthMet Mining Project provided in the EIS is consistent with the requirements of NEPA/MEPA for similar projects at this stage of environmental review. The Co-lead Agencies believe that the project description was sufficient to support a comprehensive scientific analysis of potential impacts to allow decision makers to make informed decisions on the NorthMet Project Proposed Action. The proposer would be required to provide more detailed information as the project is refined during the permit process, much of which would require additional public review.

NEPA (as well as MEPA) recognize that EISs are planning tools that focus agency analyses on significant environmental issues (40 CFR 1501.1(d)). As a tool, an EIS analyzes proposals at an appropriate level, given that the permitting process would require more finely tuned analyses based on further understanding of environmental conditions and project design. This means that the NEPA and MEPA phase of the environmental review process requires less specificity for proposed projects, and demands additional detail for the permitting phase.

Pursuant to NEPA and MEPA, mitigation measures and their effectiveness have been considered in the EIS. The actual effectiveness of any approved and implemented mitigation measures would be monitored as <u>part</u> of permit conditions, which may lead to additional mitigation measures being required of the permit holder.

Theme NEPA 10

Theme Statement

There should have been more than three public meetings held on the SDEIS, and they should not have been held in January when it was difficult some people to attend.

Thematic Response

The Co-lead Agencies believe that the number and timing of the public meetings more than satisfied the requirements of NEPA and MEPA for public involvement. Approximately 4,500 people attended the three public meetings held in Duluth, Hoyt Lakes, and St. Paul for the NorthMet Mining Project and Land Exchange SDEIS. Hundreds of individuals provided oral and written comments at these meetings, and dozens more people provided oral comments for transcription by stenographers. These comments are included in this volume of the FEIS, along with all other written comments received during the 90-day public comment period.

Theme NEPA 11

Theme Statement

The agencies do not explain how the comments received on the SDEIS will be used in their decision making processes. For instance, will the agencies place higher value on comments if there are more of them than other comments? The public meetings did not provide all participants with equal opportunity to express their views. The process could have been more fair between individuals that are pro-mining versus anti-mining.

Thematic Response

All comments and supporting documentation received on the SDEIS have been considered equally. Because over 58,000 submissions and over 17,000 unique comments were received on the SDEIS, the Co-lead Agencies have combined similar comments into common themes, which have been responded to in this volume of the FEIS.

The oral comment periods of the public meetings were designed to allow comments from the broadest spectrum of opinion. The Co-lead Agencies believe that the process was fair and did not favor one group's opinions over another's.

Theme NEPA 12

Theme Statement

The agencies should explain how they will resolve the Major Differences of Opinion with the Tribal Agencies. Agency responses are inadequate or not believable.

Thematic Response

During the development of the SDEIS, MDOs regarding the analysis presented in the document were identified. These MDOs are between the Co-lead Agencies and the Bands, GLIFWC, and the 1854 Treaty Authority, and represent comments from the Tribal Cooperating Agencies that

the Co-lead Agencies determined were adequately addressed in the existing analysis. The MDOs are discussed in FEIS Chapter 8 (and were discussed in SDEIS Chapter 8).

Comments submitted by the Bands on the SDEIS included comments reflecting the MDOs. In addressing and developing detailed responses to those comments, the Co-lead agencies also addressed many aspects of the MDOs. In developing the FEIS, the Co-lead Agencies engaged in ongoing interaction regarding MDOs with the Bands/Tribal Cooperating Agencies. The Co-lead Agencies shared with the Bands how they intended to respond to the Bands' comments, how the MDOs were addressed in the FEIS, and which MDOs had achieved some resolution. In FEIS Chapter 8, Table 8-1 notes where and how the MDOs are addressed in the FEIS.

Although it is beneficial to resolve differences of opinion on a project, MDOs often remain unresolved throughout the analysis process. In making decisions on proposed activities, responsible officials utilize information in the FEIS addressing differences of opinion to inform their decisions and to support rationale for those decisions.

Theme NEPA 13

Theme Statement

There should be a separate EIS prepared solely for the Land Exchange.

Thematic Response

The Co-lead Agencies determined that the Land Exchange Proposed Action is a connected action to the NorthMet Project Proposed Action, and therefore needs to be assessed in the same EIS as the mine. This is consistent with NEPA and MEPA guidance that require agencies to consider connected actions such as the Land Exchange Proposed Action, since it has been triggered by the NorthMet Mining Project proposal and application for a Section 404 permit.

Because the resources of the Proposed Actions for the NorthMet Project and Land Exchange differ, the impact assessment discussions for each are provided in separate sections of the EIS.

Theme NEPA 14

Theme Statement

The analysis in the SDEIS fails to meet NEPA's standards for providing a hard look at impacts, considering proper data or including proper regulatory or permitting information.

Thematic Response

The Co-lead Agencies believe that the EIS contains adequate information and analyses consistent with NEPA and MEPA guidance and best practices. Please refer to the response to theme NEPA 09 for more detail.

Theme NEPA 15

Theme Statement

Statements generally opposing the NorthMet project, or questioning the conceptual nature of the project, validity of the underlying data and/or analysis, and whether the agencies followed and balanced their respective laws and regulations in conducting the impact assessment, including independent data analysis. The co-lead agencies should choose the "No Action" Alternative.

Thematic Response

The Co-lead Agencies believe that the EIS meets the procedural and analytical requirements of NEPA and MEPA. Also, refer to the response to theme NEPA 08 for more detail.

Theme NEPA 16

Theme Statement

The SDEIS adequately addresses the impacts of the NorthMet Mining Project and Land Exchange, which should be approved, including issuance of the required permits. Comments in the theme generally support the proposed NorthMet Mining Project and Land Exchange because the minerals are needed and/or the jobs that the mine would create would be beneficial to the region. Impacts can be controlled through the project's design and permits.

Thematic Response

These comments express support for the NorthMet Project Proposed Action, including issuance of the necessary permits. Because they do not provide any specific information related to the environmental effects of the NorthMet Project Proposed Action, no changes were made to the EIS as a result of the comments.

Theme NEPA 17

Theme Statement

The public involvement process and meetings were informative and allowed for all sides to share their opinions.

Thematic Response

These comments generally support the public involvement process, including the public meetings held on the SDEIS. Because no specific information was provided, no changes were made to the EIS.

Theme NEPA 18

Theme Statement

The SDEIS is inadequate, because the Co-lead Agencies and/or their contractors had a conflict of interest: it was to their political or monetary benefit to prepare a document that generally allows the Proposed Action to proceed. The laws direct state and federal agencies to promote and regulate mining, which is an inherent conflict that restricts the agencies' objectivity.

Thematic Response

The Co-lead Agencies and their contractors acted objectively and independently to fulfill their respective roles and responsibilities under state and federal law. See FEIS Chapter 1 for more information.

A.5.17 Issue: Project Description (PD)

Theme PD 01

Theme Statement

The long-term environmental mitigation plan in the SDEIS is insufficient to provide a reasonable assurance that the Proposed Action can meet environmental regulations. In particular, the SDEIS does not provide sufficient information to adequately address wastewater containment, light pollution, and Superfund site remediation.

Thematic Response

The FEIS includes available details regarding long-term water treatment (see the response to theme PD 02 for additional information). The various resource sections of FEIS Chapter 5 discuss mitigation measures for the NorthMet Project. See the response to theme FIN 05 for more details regarding financial assurance. Additional details on the cost estimates, time frames, contingency plan amounts for unforeseen challenges, and calculations that would be required for the project would be addressed during permitting. FEIS Chapter 3 indicates that the Tailings Basin and the Category 1 Stockpile would have water containment systems, and that wastewater would be routed to the WWTP or WWTF, respectively, to be treated. FEIS Section 5.2.11.2.2 discusses the potential for some light pollution due to 24-hour mine operations, although lighting would be directed downward. PolyMet does not propose any further specific mitigation measures for light effects.

FEIS Section 5.2.13.2.3 indicates that if the NorthMet Project Proposed Action had a release of a CERCLA hazardous substance, it would be required to comply with the notification requirements of EPCRA and CERCLA, specifically 40 CFR 355.60, 40 CFR 302, and the Emergency Notification Procedures in Minnesota as required by Title III of the Superfund Amendments and Reauthorization Act (40 CFR 300-399).

Theme PD 02

Theme Statement

The SDEIS does not comply with Minnesota state rules regarding mine closure (i.e., *Minnesota Rules* 6132.3200, 6132.4800, 6132.1300, 6132.1200, and 6132.1100). Perpetual mechanical water treatment is not allowed; passive treatment should be well defined and proven before approved. Waste rock stockpiles should have liners.

Thematic Response

There is a crucial distinction in the state's Non-Ferrous Rules between goals (*Minnesota Rules*, part 6132.3200, subpart 1) and requirements (*Minnesota Rules*, part 6132.3200, subpart 2). Subpart 1 describes the "Goal" of closure and post-closure maintenance. The goals in the Non-Ferrous Rules (specifically *Minnesota Rules*, parts 6132.2000–6132.3200, subpart 1) are aspirational targets for reclamation, and are not specific requirements that obligate permittees (see *Minnesota Rules*, part 6132.0100, subpart 8).

Minnesota Rules, part 6132.3200, subpart 2 contains the legal "requirements" with which mine permit holders must comply. The Non-Ferrous Rules address the issue of reclamation by creating "reclamation standards" for thirteen different aspects of any mining project, including siting, buffers, storage pile design, management of reactive mine waste, and closure and post-closure maintenance. The Non-Ferrous Rules (subpart 2) do not contain a specific requirement that mines must show how they would be maintenance-free before receiving a mine permit.

The Non-Ferrous Rules explicitly allow maintenance after closure, which is known as post-closure maintenance (*Minnesota Rules*, part 6132.3200, subpart 2.E.6). While closure is defined in the Rules to mean the process of terminating and completing final steps in reclaiming any specific portion of a mining operation, post-closure maintenance includes those activities that are required to sustain reclamation after closure (*Minnesota Rules*, part 6132.0100).

In addition to setting out the requirements for mining and reclamation, the Non-Ferrous Rules mandate that the permittee provide financial assurance sufficient to perform reclamation activities, including closure and post-closure maintenance, should the permittee be unable to do so (*Minnesota Rules*, part 6132.1200, subpart1). Financial assurance may also be required where corrective action is needed during the life of the mine.

Because mine closure is part of every reclamation plan, financial assurance must be provided to cover the anticipated costs of the cessation of use and stabilizing the site. The nature of post-closure maintenance activities and the associated costs are likely to change over the course of active mining. Thus, the financial assurance package would be adjusted during the annual updates of the reclamation plan (*Minnesota Rules*, part 6132.1300).

The FEIS includes available details regarding long-term water treatment and Minnesota state rules. Liners would be installed for stockpiles or areas where there is a potential to generate acid and metal leachate. The Category 1 Stockpile and Tailings Basin would have containment systems to collect seepage, which would be pumped to the WWTF and WWTP, respectively. The two liner layers on the Hydrometallurgical Residue Facility would be separated by a leakage collection system, which is designed to collect any potential leakage. Each liner layer would consist of a geomembrane layer above a geosynthetic clay layer. A drainage collection system

would also be installed during reclamation to collect drainage above the upper liner. The cap would consist of a geotextile fabric, overlain by a clay barrier layer, and a 40-mil low-density polyethylene layer. This would be covered with additional LTVSMC coarse tailings or common borrow and cover soils to sustain a vegetated cover. The FEIS includes available details from the updated Residue Management Plan.

Theme PD 03

Theme Statement

The SDEIS relies on inadequate detail and unrealistic assumptions about how water resources would be managed for the NorthMet Project. In particular, there is very little detail on the reverse osmosis (RO) process, and the SDEIS makes the unrealistic assumption that the proposed wastewater treatment systems will be effective for centuries after the mine closes. Due to this deficiency, the project should not proceed. The FEIS should provide more detail regarding the RO process and confidence in being able to treat water from this project to suitable levels.

Thematic Response

FEIS Section 5.2.2 explains that during reclamation, water from the West Pit and Category 1 Stockpile would be treated at the WWTF, which would be upgraded to include an RO treatment unit (or equivalent performing technology). Treatment at the RO unit would result in an effluent that meets all applicable water quality standards. The WWTP would also include an RO unit that would achieve a sulfate concentration of 10 mg/L in effluent. The WWTP RO system would treat captured Tailings Basin seepage during operations and closure, and tailings pond water during closure. PolyMet has conducted pilot scale testing of RO treatment technology, and the results from this testing showed that this technology would treat water to meet all required water quality standards (see FEIS Section 3.2.2.1.10). Both WWTF and WWTP systems would continue operating until monitoring and pilot-testing results indicate that a transition could be made to approved non-mechanical systems. Provisions of the financial assurance package, which is part of the Permit to Mine, would require that funds be available if the company is unable to meet its obligations for the ongoing maintenance of all equipment, as well as replacement of all equipment as often as necessary.

Theme PD 04

Theme Statement

The FEIS should provide sufficient detail to fully describe how water runoff will be contained and managed on site, including details on:

- The effectiveness of the covers;
- The west equalization basin; and
- Stormwater control.

Thematic Response

FEIS Sections 3.2.2.3.10 and 3.2.2.3.11 describes that direct precipitation, stormwater run-on, and water collected by the Tailings Basin seepage capture systems would be directed to the Tailings Basin. The Tailings Basin would have a water containment system around the northern, eastern, and western dams to intercept seepage and pump it back to the Tailings Basin. Excess Tailings Basin pond water would be pumped to the WWTP for treatment. FEIS Sections 3.2.2.1.7 and 3.2.2.1.8 state that the Category 1 Stockpile would have a cover system in closure and water containment system surrounding it to collect drainage that would be pumped to the WWTF for treatment. In closure, surface runoff (non-contact stormwater) would be directed off-site. FEIS Section 3.2.2.1.8 also discusses stormwater controls at the Mine Site, which would include a system of dikes and ditches to manage and control non-contact stormwater from flowing off-site. Stormwater would be directed to sedimentation ponds. Contact stormwater from the Category 2/3 or 4 stockpiles or the Ore Surge Pile would be stored in the West Equalization Basin at the WWTF for treatment.

FEIS Section 3.1.1.3 states, "Water control systems would be constructed to capture water that has contacted surfaces disturbed by mining operations, as well as water collected on stockpile liners (i.e., process water). Process water would be treated at a treatment facility located at the Mine Site and either pumped via a Central Pumping Station to the Plant Site for discharge to the Tailings Basin, or used to supplement flooding of the East Pit after year 11."

The effectiveness of the containment systems are taken into account in the water quality modeling that has been accomplished for the NorthMet Project. The results of the water quality modeling are addressed in FEIS Section 5.2.2.

Theme PD 05

Theme Statement

The description of the Proposed Action in the SDEIS does not identify all of the necessary elements of a water monitoring system.

Thematic Response

FEIS Sections 3.2.2.1.10 and 5.2.2.3.1 state that surface water and groundwater would be monitored as required by relevant permits. The water monitoring program is required under NPDES/SDS regulations, and would be detailed and finalized in the NPDES/SDS permitting process. FEIS Section 5.2.2.3.6 provides an overview of the proposed water monitoring program.

Theme PD 06

Theme Statement

The FEIS should provide more information about future non-mechanical treatment systems, and should demonstrate that non-mechanical treatments are effective in treating wastewater after closure of the mine.

Thematic Response

The NorthMet Project Proposed Action relies on mechanical treatment for as long as necessary. FEIS Chapter 3 states that PolyMet has committed to conducting pilot and other feasibility studies on the use of non-mechanical treatment as an adaptive management measure if proven effective and cost efficient. The possible future use of non-mechanical treatment is stated as a long-term goal, but the details of how such systems would operate would be determined once operations begin and site specific data could be used for pilot/feasibility studies, and if eventually proposed would be addresses in future permitting.

The WWTF would continue to treat water until water quality monitoring demonstrates that effluent would achieve water quality standards under non-mechanical treatment. Similarly, the WWTP would continue to treat Tailings Basin seepage until non-mechanical treatment would be demonstrably appropriate. FEIS Section 5.2.2.3.5 lists some non-mechanical systems that may be used, including constructed wetlands, PRBs, PSBs, and/or other technologies to still be identified. The Adaptive Water Management Plan (PolyMet 2015d, as cited in the FEIS) describes in more detail various non-mechanical treatment systems that could be utilized with details about each design and the degree of use of each design in industry.

Theme PD 07

Theme Statement

The Proposed Action calls for Tailings Basin water containment technologies, such as the slurry walls, berms, and trenches, which are not proven to work for the type of mining proposed in the SDEIS. The FEIS should describe how these water containment technologies, as described in documents such as the USACE EM 1110-2-1901 standard, will decrease water pollution rates.

Thematic Response

USACE EM 1110-2-1901 is an Engineer Manual from 1986 titled “Seepage Analysis and Control for Dams.” Design criteria for the Tailings Basin are based on well-established geotechnical design standards with significant precedent in Minnesota, in the greater United States, and worldwide. The effects of the containment system on Tailings Basin stability have also previously been analyzed, and the analysis results are on file with MDNR. The water containment system is designed to avoid hydrostatic pressure, which would transfer back into the Tailings Basin dams, potentially increasing the phreatic surface elevation within the dams. Rather, the system as preliminarily designed would the capability to lower the hydrostatic pressure on the upstream (Tailings Basin) side of the containment system cutoff wall, thereby potentially lowering rather than raising the hydrostatic pressure at the Tailings Basin dams.

The type of mining proposed does not directly affect the design, construction, and operation of proposed groundwater containment systems for the NorthMet Project. Rather, key design considerations for the containment systems include but are not limited to the local geologic and hydrogeologic characteristics of the site, the depth to bedrock or other confining unit from the ground surface, the presence and prevalence of cobbles and boulders in the glacial till, the ground surface topography along and adjacent to the containment system alignment, the soil types to be encountered along the alignment, and the constituents in the groundwater to be contained. The proposed containment system technology is not new nor unique; the slurry cutoff wall and collection trench approach has been used for many decades, beginning initially as a

means to facilitate construction of deep foundations in locations of shallow groundwater and difficult soil conditions, and subsequently expanding to other uses such as the containment of contaminated groundwater emanating from unlined waste disposal facilities (e.g., landfills, stockpiles, etc.).

Numerous scholarly papers have been written about the use of groundwater containment systems, and a number of contractors are well-experienced and proficient in containment system construction. The groundwater collection component of the system and the hydraulic barrier (cutoff wall) work in tandem to control the direction of groundwater flow and the amount of groundwater collected. Maintenance of a lower hydraulic head on the upgradient side of the cutoff wall than on the downgradient side of the cutoff effectively captures any seepage that would otherwise leave the site, while limiting the effect that the system has on groundwater conditions downgradient from (away from) the system. This barrier to flow thereby minimizes the potential for water quality effects on the downgradient side of the containment system.

Theme PD 08

Theme Statement

The SDEIS makes unsupported assumptions about the ability of the Tailings Basin to contain contaminants seeping into the surrounding watershed for centuries to come. The assumptions are based on faulty modeling inputs and overly optimistic environmental analyses that lead to faulty basin design considerations.

Thematic Response

The environmental review process is an objective review by regulatory agencies of the potential impacts to all resources. See the response to theme PD 07, which addresses the Tailings Basin containment technologies and how the cutoff wall and containment system would capture seepage. The north, west, and east seepage containment systems would capture 100 percent of surface seepage under expected conditions, and 90 percent, 90 percent, and 100 percent, respectively, of groundwater seepage. The Tailings Basin South Seepage Management System would capture 100 percent of surface water (Barr 2015e, as cited in the FEIS).

Theme PD 09

Theme Statement

The SDEIS should include a full Reclamation Plan for the Tailings Basin that provides details about goals, methods, financial assurance, reclamation techniques that have been successfully demonstrated, and the timing of activities. The Reclamation Plan must address over-steepening of the Tailings Basin banks and associated seepage.

Thematic Response

A detailed Reclamation Plan is required under the Permit to Mine. The FEIS includes details from the Reclamation Plan (PolyMet 2015g, as cited in the FEIS), which has been updated since the SDEIS. FEIS Section 3.2.2.3.12 describes how the NorthMet Project Plant Site facilities would be operated to allow for progressive or concurrent reclamation during operations, where possible. PolyMet would also submit an annual contingency reclamation plan per *Minnesota*

Rules, part 6132.1300, subpart 4, to identify activities that would be implemented if operations were to cease in that upcoming year. After mining ceases, PolyMet would finish reclamation activities under the Reclamation Plan, which would be part of the Permit to Mine. Reclaimed areas would be monitored and maintained as needed in the spring and fall or as required by the Permit to Mine. Areas damaged by erosion or that lost vegetation would be identified, and plans to repair or reseed would be developed and implemented. The goals and methods for reclamation on various Plant Site facilities and areas are listed in FEIS Section 3.2.2.3.12. In addition, FEIS Section 3.2.2.4 describes that financial assurance, covering the costs of reclamation should the mine close for any reason, would be required before a Permit to Mine would be issued.

Theme PD 10

Theme Statement

The SDEIS does not provide enough information on the existing condition of the former LTVSMC Tailings Basin, which would be reused in the Proposed Action. If the existing basin is already leaking, how will PolyMet control seepage from the basin?

Thematic Response

FEIS Section 3.2.2 cites the Reclamation Plan's (PolyMet 2015g, as cited in the FEIS) discussion the remediation of AOCs and ongoing mitigation of water quality at the Tailings Basin. Several Tailings Basin surface seeps and discharges are currently being mitigated via a Consent Decree. The Reclamation Plan states that Cliffs Erie is currently executing the MDNR-approved Closure Plan for legacy components. Under the NorthMet Project Proposed Action, PolyMet would install a water containment system around the northern, western, and eastern Tailings Basin dams to intercept seepage emerging near the toe, which is where several legacy seeps exist as well. PolyMet would monitor, maintain, and improve, if necessary, the legacy components that remain, such as the Tailings Basin South Surface Seepage Management System along the south Tailings Basin dam. PolyMet would be required to address legacy contamination within the NorthMet Project footprint and would provide financial assurance for the legacy components under a Permit to Mine application, consistent with *Minnesota Rules*, part 6132.1200.

Theme PD 11

Theme Statement

The Proposed Action's designs do not address overflow concerns at the Tailings Basin due to heavy rain events or other catastrophic events. The SDEIS does not provide contingency plans, failure analyses, and costs to protect the land and watershed from contaminated water.

Thematic Response

FEIS Section 3.2.2.3.10 discusses the emergency overflow channel at the Tailings Basin, which would be designed as a backup means to control the pond elevation during a PMP event. The Tailings Basin pond is designed to hold the PMP event, which is a catastrophic event consisting of 38-inch storm event within a 72-hour period.

The Flotation Tailings Management Plan (PolyMet 2015n, as cited in the FEIS) and Rock and Overburden Management Plan (PolyMet 2015h, as cited in the FEIS) include draft Contingency Action Plans. The purpose of these plans is to anticipate or envision the failures that could occur at these facilities, and to identify early warning signs of potential future failures and appropriate response actions. These plans would be further developed as project development continued, with updated Contingency Action Plans included in future regulatory agency submittals in support of environmental review and permitting.

In addition to setting out the requirements for mining and reclamation, the Minnesota Non-Ferrous Rules mandate that the permittee provide financial assurance sufficient to perform reclamation activities should the permittee be unable to do so. *Minnesota Rules*, part 6132.1200, subpart 1 requires financial assurance so that funds are available if the company is unable to meet its obligations for potential corrective actions.

Theme PD 12

Theme Statement

The SDEIS wrongfully assumes the east side of the Tailings Basin would not have groundwater seepage due to bedrock. This assumption forms the basis for the inaccurate models used to predict zero water flow from the basin.

Thematic Response

The water quality modeling in the FEIS has been updated to include the potential for water to seep from the east side of the Tailings Basin. FEIS Section 3.2.2.3.10 states that a containment system would be constructed around a portion of the east side of the Tailings Basin for seepage collection.

Theme PD 13

Theme Statement

The SDEIS does not provide enough information concerning the hydrology of the south water containment system of the Tailings Basin. Specifically, the SDEIS does not:

- Describe the placement of berms and trenches to cut off water seeping from the basin;
- Provide water seepage monitoring data for the area; and
- Describe the hydrogeological features of the area which can affect water containment.

Thematic Response

The Water Management Plan-Plant Site (PolyMet 2015i, as cited in the FEIS) includes the detailed design drawings of the South Surface Seepage Management System, which was installed as part of Cliffs Erie's Consent Decree to capture seepage along the south side of the Tailings Basin. This system is being monitored and evaluated for effectiveness under the Consent Decree. The collected monitoring data is being submitted to the MPCA. FEIS Section 3.2.2.3.10 discusses surface seepage out of the south side of the Tailings Basin, and PolyMet's

commitment to upgrade the south side capture efficiency to 100 percent in the event the Cliffs Erie improvements do not attain 100 percent capture.

Theme PD 14

Theme Statement

The SDEIS does not provide an accurate measure of how much raw water will be needed to operate the Tailings Basin.

Thematic Response

FEIS Section 3.2.2.3.4 describes the water needs of the NorthMet Project Proposed Action. Project water needs are for the milling and flotation circuits, which would be supplied from return water from the Tailings Basin. Water in the Tailings Basin would come from precipitation, the Mine Site, and the Seepage Capture Systems. Additional raw water needs would come from Colby Lake as necessary, and the anticipated pumping rate from Colby Lake would vary between 260 and 1,760 gallons per minute, with an average of 760 gallons per minute (FEIS Section 3.2.2.3.4).

Theme PD 15

Theme Statement

The FEIS should provide additional detail and clarity regarding waste rock management including:

- Descriptions of waste rock by type (e.g., why separate Category 2 and 3 waste rock material if it would be combined anyway);
- Consistent characterization of the acid-generating potential of the rock stockpiles;
- Separate management of the overburden types based on their use;
- Clarification on how long the temporary stockpiles would be in place; and
- Containment of water from the stockpiles and mine pits.

Thematic Response

FEIS Section 3.2.2.1.7 includes available details regarding waste rock management and characterization, overburden management, and temporary stockpile timeframes. FEIS Section 3.2.2.1.8 discusses water containment for the stockpiles and mine pits. The FEIS also references documents such as the Waste Characterization Data Package (PolyMet 2015q, as cited in the FEIS) and the Rock and Overburden Management Plan (PolyMet 2015h, as cited in the FEIS), which contain additional details regarding waste rock and overburden management. Responses to themes GT10, GT12, and WR127 also provide additional information on the use of liners.

Theme PD 16

Theme Statement

The FEIS should provide additional detail and clarity regarding management of the closure cover for the Category 1 Stockpile, including vegetation control and effectiveness of the cutoff wall.

Thematic Response

FEIS Section 3.2.2.1.8 includes available details regarding the cutoff wall effectiveness, based on PolyMet's updated Project Description document (PolyMet 2014b, as cited in the FEIS) and Reclamation Plan (PolyMet 2015g, as cited in the FEIS). FEIS Section 3.2.2.1.10 states that the reclaimed Category 1 Stockpile would be monitored and maintained as needed in the spring and fall or as required by the Permit to Mine. Any areas damaged by erosion or that lost vegetation would be identified, and plans to repair or reseed would be developed and implemented. Long-term maintenance of the Category 1 Stockpile would also include removal of woody species and trees from the cover system. The Reclamation Plan, required as part of the Permit to Mine, contains additional details on the Category 1 Stockpile cover system.

Theme PD 17

Theme Statement

The FEIS should be revised to provide a reasonable range of probabilities for containment failures at the Hydrometallurgical Residue Facility. Performance (leakage) and life expectancy of the liners and drainage systems and cap are concerns that need more detail. In addition, the Hydrometallurgical Residue Facility should be classified as a hazardous waste landfill.

Thematic Response

The Hydrometallurgical Residue Facility would be constructed over the LTVSMC emergency basin. The two liner layers on the Hydrometallurgical Residue Facility would be separated by a leakage collection system, which is designed to collect any potential leakage from the bottom of the cell. Each liner layer would consist of a geomembrane layer above a geosynthetic clay liner. A drainage collection system would also be installed during reclamation to collect drainage above the upper liner. The cap would consist of a geotextile fabric, overlain by a clay barrier layer, and a 40-mil low-density polyethylene layer. This would be covered with additional LTVSMC coarse tailings or common borrow and cover soils to sustain a vegetated cover. During reclamation and long-term closure, leakage would be routed and cycled through the Plant Site WWTP. The FEIS includes available details from the updated Residue Management Plan (PolyMet 2014r, as cited in the FEIS).

The liner system components have been selected specifically to perform well, given the characteristics of the residue, which consists primarily of gypsum. The liner system components selected for the Hydrometallurgical Residue Facility are routinely used for similar facilities in other industries and have demonstrated the expected levels of performance. The design produces a liner system with virtually no leakage due to the system's ability to maintain a very low hydraulic head on the composite liner portion of the overall liner system.

The Residue Management Plan presents the planned Hydrometallurgical Residue Facility monitoring and maintenance plan. Additional monitoring and maintenance requirements would be outlined by the responsible regulatory agency as part of facility permitting.

A submittal containing two documents, *Information Provided by PolyMet Regarding 2009 Hydrometallurgical Residue Testing* and *Information Provided by Polymet Regarding Hydrometallurgical Residue Testing for RCRA Thresholds*, was provided to the Co-lead Agencies on August 5, 2014 (see PolyMet 2014a). The documentation summarized the results of two rounds of testing, conducted in 2005 and 2009, on the residue that is to be discharged to the Hydrometallurgical Residue Facility. It also reviewed the testing results against the regulations under RCRA. Mining wastes associated with extraction, beneficiation, and processing of ores and minerals are typically excluded from the RCRA definition of hazardous waste (40 CFR 261.4(b)(7)). PolyMet has conducted environmental testing to compare the properties of the hydrometallurgical residue with the RCRA hazardous waste thresholds. Comparison of the results from this testing with the RCRA hazardous waste thresholds shows that the hydrometallurgical residue does not have any toxicity characteristics of a hazardous waste. The MPCA concurs with this assessment.

Theme PD 18

Theme Statement

The FEIS should disclose more details about the operation of the Hydrometallurgical Residue Facility, including:

- The extraction methods used to recover metal concentrates at the facility;
- The chemical composition and pH of the materials that would be disposed of in the facility; and
- Monitoring for leakage.

Thematic Response

FEIS Sections 3.2.2.3.6 and 3.2.2.3.7 discuss the operation of the Hydrometallurgical Residue Facility, including the autoclave leaching and solution purification steps to extract and isolate platinum group, precious metals, and base metals. Calcium in the form of either limestone or lime would be added to neutralize solutions from the upstream process. FEIS Section 3.2.2.3.10 states that the Hydrometallurgical Residue Facility would be double-lined to minimize release of residue leachate, and any collected leakage would be pumped back to the Hydrometallurgical Residue Facility pond. The Residue Management Plan (PolyMet 2014r, as cited in the FEIS) presents the planned Hydrometallurgical Residue Facility monitoring and maintenance plan. Additional monitoring and maintenance requirements would be outlined by the responsible regulatory agency as part of facility permitting.

Theme PD 19

Theme Statement

The SDEIS lacks sufficient detail regarding construction quality assurance, as well as the suitability of the proposed location of the Hydrometallurgical Residue Facility (as it relates to effects on critical ecosystems and water resources).

Thematic Response

FEIS Section 5.2.14.2.3 discusses the design and construction of the Hydrometallurgical Residue Facility, and the Geotechnical Data Package (PolyMet 2014c, as cited in the FEIS) indicates the design would meet all factors of safety as required. The Hydrometallurgical Residue Facility would be constructed over the LTVSMC emergency basin. This site is known to have suitable subsurface conditions and would minimize impacts to ecosystems and water resources as compared to a new site, since the existing site is already disturbed. During operations, the double liner system for the Hydrometallurgical Residue Facility would minimize release of residue leachate, and any collected leakage would be pumped back to the Hydrometallurgical Residue Facility pond. During reclamation and long-term closure, leakage would be routed and cycled through the WWTP. The FEIS includes available details from the updated Hydrometallurgical Residue Management Plan (PolyMet 2014r, as cited in the FEIS).

Rigorous construction quality assurance procedures for lined facilities are standard in Minnesota, and PolyMet would propose and be required via facility permitting to implement a rigorous liner system construction quality assurance/quality control program.

Site-specific and material-specific testing as deemed necessary by the facility designer and the responsible regulatory agency would be performed as part of final design and/or construction and as part of the construction quality assurance/quality control program for the Hydrometallurgical Residue Facility.

Theme PD 20

Theme Statement

The FEIS should disclose more details about the closure of the Hydrometallurgical Residue Facility, including:

- The dewatering process at closure (how would it work and where would the water be taken?); and
- Long term closure monitoring and maintenance requirements, including vegetation control and inspection for plugged inlet structures and piping systems (would this be perpetual?).

Thematic Response

FEIS Section 3.2.2.3.12 includes available details regarding the closure of the Hydrometallurgical Residue Facility, based on the updated Project Description (PolyMet 2014b, as cited in the FEIS) and Reclamation Plan (PolyMet 2015g, as cited in the FEIS) documents. At closure, the ponded water would be pumped to the WWTP for treatment. The area would then be graded, equipped with a cover system, and re-vegetated. The final cover would be inspected and

maintained by mowing once per year or as needed, and repairs to the cover would be made as necessary. Woody species or trees would be removed from the cover system during mowing. A rip-rapped drainage channel or plug-resistant inlet and piping system for surface water runoff control would be installed, and inspections would occur annually or as needed.

Theme PD 21

Theme Statement

The SDEIS lacks details on the hydrometallurgical processing of metal ores at the Plant Site. Specifically, it does not adequately provide details for how the copper/gold/PGE recovery will produce sulfide precipitates from the hydrometallurgical processes.

Thematic Response

FEIS Sections 3.2.2.3.6 and 3.2.2.3.7 discuss the operation of the Hydrometallurgical Residue Facility, including the autoclave leaching and solution purification steps to extract and isolate PGE and precious metal sulfide precipitates, and base metals.

Theme PD 22

Theme Statement

The SDEIS fails to provide impact analysis and contingency plans that address climate change, extreme precipitation, other weather events, or other failures and mishaps that typically occur in mining operations and closure. The FEIS should disclose the effects suggested by failure analyses, contingency plans, and adaptive management plans.

Thematic Response

The FEIS includes available details regarding contingency plans for unforeseen challenges or failures. Stormwater ponds are designed for the 100-year, 24-hour storm event plus one foot of freeboard. All process water ponds, with the exception of the OSLA pond, were designed for the 100-year, 24-hour storm event plus three feet of freeboard. The OSLA pond was designed for the 25-year, 24-hour storm event plus three feet of freeboard. Additionally, all process water systems with the exception of the Rail Transfer Hopper pond, would be able to manage runoff from these storm events without their pumps running, in the event of a power outage or at full capacity at the WWTF. Due to the design of the Tailings Basin for the PMP event, the potential for overflows is very low. The PMP is defined as “the theoretically greatest depth of precipitation for a given duration that is physically possible over a particular drainage area for a certain time of the year,” (Schreiner and Riedel 1978). Most if not all tailings basins on the Iron Range are designed for some level of PMP event. The Tailings Basin has been designed to hold the 72-hour PMP event, which is approximately 38 inches, without overtopping. The PMP does not have an assigned return period, but it is usually assumed by hydrologists to be on the order of thousands of years.

The Adaptive Water Management Plan (PolyMet 2015d, as cited in the FEIS) is currently a publicly available document, and would be referenced and available as part of the FEIS and Permit to Mine. See CEQ, Appropriate Use of Mitigation and Monitoring and Clarifying the

Appropriate Use of Mitigated Findings of No Significant Impact (Jan. 14, 2011) for more information about the use of adaptive management.

Contingency mitigation is part of the company's management plans. If monitoring or the refined model estimates show that with adaptive engineering controls water quantity or quality at compliance points would not meet compliance parameters, contingency mitigations would be available (and listed in the various management plans for the Project) to address specific situations.

Theme PD 23

Theme Statement

PolyMet has no mining experience, and aspects of the Proposed Action are untested or have otherwise failed elsewhere. What qualifications does PolyMet have to design, model, and manage the Proposed Action as outlined in the SDEIS?

Thematic Response

Regulatory agencies conduct the environmental review process to ensure impacts to the environment are minimized. Following environmental review, regulatory agencies review design plans, and draft permits that contain conditions that ensure compliance with all applicable state and federal regulations that protect the environment. The preliminary design work has been completed by experienced and licensed professionals. Detailed plans and specifications would be prepared by licensed professionals and reviewed by permitting agencies as part of the permitting process.

Theme PD 24

Theme Statement

The SDEIS does not indicate which parties will be responsible for implementing and monitoring the proposed mitigation measures and plans, nor the extent of public review of the final design during permitting.

Thematic Response

PolyMet is responsible for implementing and monitoring the proposed mitigation plans. The regulatory agencies would review monitoring results and annual reports to ensure compliance. The FEIS includes available details regarding mitigation measures in each resource section of Chapter 5. Final decisions on the mitigation measures would be made during permitting. Public review opportunities are outlined as part of each permit's existing process.

Theme PD 25

Theme Statement

The long-term financial assurance details in the SDEIS are insufficient for the Proposed Action. Also, the financial plans do not account for capital replacement costs for the mine. The SDEIS

also does not address how the financial and economic benefits of the mining project will be distributed.

Thematic Response

FEIS Section 3.2.2.4 includes available details regarding financial assurance. Additional details on the cost estimates and calculations that would be required for the project would be addressed during permitting. Specific infrastructure timelines and life expectancies of equipment would be accounted for during permitting as well. Table 3.2-15 provides financial assurance cost estimates for various years of closure, as well as for monitoring and mitigation costs. FEIS Section 3.2.2.4.1 discusses the activities that would be considered in cost estimates, and states that cost estimates would be updated annually under the Permit to Mine. *Minnesota Rules*, part 6132.1200, subpart 3, stated that cost estimates shall be annually adjusted using current dollar value at the time of the estimate. The liner and cover systems selected for waste containment are selected on the basis of numerous factors discussed in the Rock and Overburden Management Plan (PolyMet 2015h, as cited in the FEIS) and FEIS Sections 3.2.2.1.8 and 3.2.2.3.10. The WWTP and WWTF replacement costs would be included in long-term financial assurance estimates. The FEIS discusses economic benefits to local communities in FEIS Section 5.2.10.

Theme PD 26

Theme Statement

Historically, mining in sulfide-bearing rock has always led to water contamination. This is particularly concerning in the water-rich environment of northeastern Minnesota. The FEIS should describe how the Proposed Action differs from previous mines with sulfide-bearing rock (e.g., Ladysmith Mine in Wisconsin, Eagle Mine in Michigan, Talvivaara Mine in Finland) and how those differences would avoid water contamination.

Thematic Response

NEPA/MEPA regulations do not require discussion or comparisons to other Copper/PGE mine projects, as it is outside the scope of the project (see *Minnesota Statutes* 116D.04 and 40 CFR 1500). FEIS Section 5.2.2 discusses how the NorthMet Project would address water contamination and/or comply with water standards.

Theme PD 27

Theme Statement

The SDEIS incorrectly makes the comparison between taconite mining and sulfide mining. Sulfide mining would have a substantially greater impact on the environment than taconite mining historically has.

Thematic Response

These comments generally faulted the SDEIS because it erroneously compared taconite mining and sulfide mining, which would be more environmentally damaging than the historical mining in the region. Because no specific information was provided, no changes were made to the EIS.

Theme PD 28

Theme Statement

The SDEIS shows that the Proposed Action has been designed in a way that is environmentally responsible and will minimally impact the environment. The Proposed Action would accomplish these goals by reusing a former mining facility and controlling its existing pollution. It would be managed appropriately by regulators.

Thematic Response

These comments generally supported the NorthMet Mining Proposed Action. Because no specific information was provided, no changes were made to the EIS.

Theme PD 29

Theme Statement

The SDEIS relies on a number of improper and unsupported assumptions in the project design, as well as environmental models that minimize the threats of the Proposed Action on human health and the environment. The FEIS should disclose, with objective data, accurate environmental effects, especially with regards to water.

Thematic Response

FEIS Chapter 5 discusses effects that are known or predicted to occur, using several different types of models. The environmental review process is an objective review by regulatory agencies of the potential impacts.

Theme PD 30

Theme Statement

The SDEIS is misleading because it does not disclose the full extent of the project. The FEIS should provide additional detail about:

- The Proposed Mine's full operating capacities and opportunity to expand (e.g., the full size of the ore body and the capacity of the Plant Site);
- The definition of ore and the volume and sulfur content of waste rock;
- The geology of the mine pits;
- The volume of material that would be mined, processed, and sold;
- Siting, construction, and operation of the mine pits (e.g., how open pit mining works) and related facilities; and
- The full environmental footprint.

Thematic Response

The FEIS analyzes the NorthMet Project as planned and proposed by PolyMet. If, in the future, there is a proposed expansion of the Project's footprint or processing rate, or a substantive change in operations, the requisite additional environmental review would be performed. No such changes are reasonably foreseeable. FEIS Section 3.2.2.1 discusses the geology of the NorthMet Deposit and mine pits, the total volume of ore and waste rock that would be excavated, the sulfur content of the various categories of waste rock, and the process of siting, construction, and operation at the mine pits (e.g., Figure 3.2-10, Tables 3.2-4 and 3.2-8). FEIS Section 3.2.2.3 discusses the siting, construction, operation, and capacity of the Plant Site.

Theme PD 31

Theme Statement

The FEIS should provide additional detail and clarity regarding the description of the geologic formations (e.g., where is the Virginia Formation and the Duluth Complex located?). The assumption that unsaturated overburden would not be reactive is misleading.

Thematic Response

The FEIS references documents such as the Rock and Overburden Management Plan (PolyMet 2015h, as cited in the FEIS) and the Mine Plan (PolyMet 2014q, as cited in the FEIS), which contain more details regarding site geology and overburden characteristics. FEIS Section 3.2.2.1 discusses the geology of the Duluth Complex, Virginia Formation, and mine pits (see Figure 3.2-10). This section also discusses the unsaturated overburden and explains that it has been above the natural water table and exposed to air long enough for chemical reactions to have already taken place.

Theme PD 32

Theme Statement

Technologies proposed for the NorthMet Project are devised by the mining industry and will not solve the issue of hazardous wastes and air pollution generated by activities associated with the Proposed Action. The mine should be put on hold until proven technology is available.

Thematic Response

FEIS Section 5.2.13 provides applicable hazardous materials management regulation references/citations; hazardous material management plan requirements (transportation, storage, use, and disposal); emergency planning and community right-to-know recordkeeping and reporting requirements; and hazardous material spill response management and mitigation measures. The EIS is not meant to replace compliance planning, nor is it meant to provide explicit detail of spill response plans, hazardous material reduction plans, hazardous material or waste management plans and contingency plans. PolyMet would be required to dispose of all waste in accordance with all applicable state and federal laws and regulations.

Theme PD 33

Theme Statement

The FEIS should consider the environmental effects of metal smelting and downstream use of the metal concentrates.

Thematic Response

The NorthMet Project Proposed Action would utilize a beneficiation and hydrometallurgical processing technology rather than smelting. Copper smelting at a specific location is not a reasonably foreseeable effect of the NorthMet Project Proposed Action. Accordingly, these effects are not included in the FEIS. In addition, any downstream smelting processes would be the subject of a separate environmental review process, and would be subject to compliance with applicable water quality and air quality standards.

Theme PD 34

Theme Statement

The addition of limestone to sulfur bearing rock should be considered as a management strategy. The SDEIS should consider the potential benefits and ecological effects of using limestone.

Thematic Response

FEIS Section 3.2.2.1.10 discusses that lime could be added to the East Pit during waste rock backfilling in order to maintain circumneutral pH in the pit pore water. The determination of whether to add lime, and the details of such addition would be determined during permitting.

Theme PD 35

Theme Statement

The FEIS should include a full Reclamation Plan for the waste rock pits that provides details about goals, methods, financial assurance, reclamation techniques that have been successfully demonstrated, and timing of activities. The FEIS should also include:

- A characterization of waste disposed of in the East Pit;
- An evaluation of abandoned pipelines;
- A tracking system for hazardous materials to ensure appropriate disposal and compliance with laws; and
- A description of the water balance desired for the pits post-closure.

Thematic Response

FEIS Section 3.2.2.1.10 and the Reclamation Plan referenced in the FEIS describe how the NorthMet Project Mine Site facilities would be operated to allow for progressive or concurrent reclamation during operations. Further details would be added to the Reclamation Plan during the permitting process. After mining ceases, PolyMet would finish reclamation activities under the Reclamation Plan, part of the Permit to Mine. After mining in each mine pit ceases, the walls

and overburden portions would be sloped and graded in accordance with *Minnesota Rules*, part 6132.2300, and then vegetated to conform to *Minnesota Rules*, part 6132.2700. Category 2/3 and 4 waste rock would be placed into the East Pit beginning in year 11, and the combined East Central Pit would be completely backfilled after year 20. FEIS Table 3.2-8 defines the waste rock characterization properties.

Pipelines and various other dewatering systems not used in reclamation would be removed, and the areas graded and vegetated.

See the response to theme PD 32 for more information about hazardous materials.

During backfilling, the pit would be flooded concurrently to limit the oxidation potential of waste rock. A wetland would be constructed over the backfilled combined East Central Pit, and water depth would be maintained by a gravity overflow structure to the West Pit. The West Pit would be sloped as well, and then allowed to fill naturally, and supplemented with treated water.

See the response to theme WR 181 for more information about the water balance and mechanisms of consumptive use.

Theme PD 36

Theme Statement

The SDEIS does not adequately address the design or the social and environmental effects of transportation and end use of materials, including:

- Dust and spillage of ore and other materials along the Transportation Corridor;
- Construction and reclamation plans for all roads;
- Pipeline construction materials used to move sulfate water between the Mine Site and Plant Site;
- The presence of project features within and out of the Transportation and Utility Corridor; and
- Probabilities and consequences of spills and accidents during transportation.

Thematic Response

The Project Description document states that monitoring and mitigation activities (including surface water quality sampling in the streams traversed by the rail line) would be developed in the permitting process. FEIS Section 3.2.2.1.10 states that roads not used during reclamation would be demolished, the asphalt from paced surfaces removed, and disturbed areas reclaimed and vegetated according to *Minnesota Rules*, part 6132.2700. Any roads, including mine pit access roads (*Minnesota Rules*, part 6132.3200), that may develop into unofficial off-road vehicle trails would require a variance from MDNR reclamation rules to allow a 15-ft-wide unpaved, unvegetated track down the centerline of the road. FEIS Section 5.2.13 discusses the probabilities and consequences of spills or accidents during transportation. The FEIS includes available information from the updated Project Description document. The downstream use of the metal concentrates is outside the scope of the FEIS.

Theme PD 37

Theme Statement

The FEIS should address the potential effects of transporting copper and nickel concentrates to the metal smelters. The FEIS should also consider alternative methods for the transportation of copper and nickel concentrates leaving the site.

Thematic Response

FEIS Section 3.2.2.3.9 describes the transport of concentrate products using sealed bulk bags, sealed containers, or covered solid-bottom rail cars. The off-site transport and use of the metal concentrates is outside the scope of the FEIS. Any downstream smelting processes would be the subject of a separate environmental review process, and would be subject to compliance with applicable water quality and air quality standards.

Theme PD 38

Theme Statement

The maps in the SDEIS are incorrect, including the map for the One Hundred Mile Swamp. The errors mislead the public into thinking that the Proposed Project will not affect surrounding water resources, including the BWCAW.

Thematic Response

A National Atlas shows a single wetland complex (referred to as 100-mile swamp) as straddling the major watershed divide separating the Superior Basin from the Rainy River Watershed. This appears to indicate that this wetland complex creates a conduit for surface water and surficial groundwater originating from the Mine Site to reach the Dunka River, and ultimately, the BWCAW. However, wetlands are delineated using many factors in addition to hydrology; the delineation of 100-mile swamp as continuous across this boundary does not equate to a hydrologic connection. There are two hydrologic barriers between the Mine Site and the Rainy River Watershed, including:

- High ground north of the Partridge River creates a watershed divide separating the Superior Basin and Rainy River Watershed, and prevents surface water from passing between the two. This major watershed divide is included in the National Atlas, as well as USGS and MDNR data sets. This divide is accurately presented in the FEIS Figure 4.2.2-1.
- Yelp Creek and the Partridge River encircle the north, east, and south sides of the Mine Site. These streams create a hydrologic “sink” for surface water and groundwater originating at the Mine Site. Surface runoff or surficial groundwater seepage leaving the Mine Site would follow a gradient into Yelp Creek or the Partridge River, as opposed to continuing uphill towards the watershed divide (see FEIS Figure 5.2.2-7). Yelp Creek and the Partridge River extend further west (i.e., more fully encompassing the Mine Site) than is shown on the map in question.

If it is predicted that water via bedrock would flow north from the Mine Site, mitigation would be implemented to prevent this from occurring. See FEIS Sections 5.2.2.3.5, 5.2.2.3.6 and 6.2.2.3.1.

Theme PD 39

Theme Statement

The FEIS should identify Project energy requirements, and should consider implementing solutions to reduce energy consumption during the life of the mining project. Energy efficient solutions such as making use of renewable energy sources instead of using coal and implementing energy efficient construction standards would demonstrate a commitment to the environment.

Thematic Response

The FEIS considers effects from the Land Exchange and the NorthMet Project Proposed Action, which is a proposed mining and mineral processing project. The NorthMet Project would consume electricity. In Minnesota, designated electric utilities are the default service providers. The primary policy mechanism to encourage renewable energy in Minnesota is through the renewable energy standard and the solar-specific standard for electric utilities in *Minnesota Statutes* 216B.1691.

The FEIS Tables 5.2.7-8 and 5.2.7-9 list indirect GHG emissions due to (offsite) electricity generation required for the project. FEIS Section 5.2.7.4.1 also describes that a hydrometallurgical process reduces energy demand by 50 percent over a pyrometallurgical process, and that the select processing motors would be premium efficiency motors, which would also help minimize electricity use. Since the SDEIS, PolyMet modified the NorthMet Project Proposed Action to include a SAG mill, which would be much more efficient and use less energy than the existing rod mill and ball mill circuit originally proposed.

A.5.18 Issue: Permitting and Regulatory Considerations (PER)

Theme PER 01

Theme Statement

The permit process should allow for public access to information, review, and input (e.g., hearings, and/or a vote), and should have an objective third party consultant to evaluate applications and process, including the Permit to Mine and AWMP.

Thematic Response

Under the State of Minnesota Data Practices Act, all public government data collected, created, received, maintained, or disseminated during the permit process is accessible to the public, including, but not limited to, permit applications and draft permits. The public review and input process varies depending upon the permit and is controlled by state statute and/or rule.

The Freedom of Information Act (FOIA) gives the public the right to access information from the federal government. Under the FOIA, federal agencies must disclose any information that is requested, unless that information is protected from public disclosure. Not all records can be released under the FOIA, and there are nine categories of exemptions. For example, Exemption 5 covers information that concerns communications within or between agencies which are protected by legal privileges that include, but are not limited to: attorney-work product privilege,

attorney-client privilege, deliberative process privilege, and presidential communications privilege.

Theme PER 02

Theme Statement

PolyMet is an untested company with no experience in mine development, mine operations, or financial assurance. The MDNR should not allow a company to undertake such a huge mining operation without a record showing that they are a qualified company to safely operate the proposed NorthMet mine. The parent company of PolyMet (PolyMet, Canada) and major investor (Glencore Xstrata) should be held responsible for and be part of the Permit to Mine and Financial Assurance. Even so, Glencore Xstrata is not from the United States and does not have a trustworthy environmental record.

Thematic Response

FEIS Section 3.2.2.4 includes available details regarding financial assurance. PolyMet, the project proponent, and not its shareholders, would be responsible for the Permit to Mine and financial assurance. *Minnesota Rules*, part 6132.1200, subpart 5 states that financial assurance criteria require that funds must not be dischargeable through bankruptcy and are fully binding and enforceable under state and federal law. Final details on the financial assurance requirements for the NorthMet Project Proposed Action, as well as who would be responsible for it would be addressed during permitting.

Theme PER 03

Theme Statement

The NorthMet Project is a high risk project and has inherently high costs associated with planned and unplanned environmental mitigation needs, such as long-term, post-closure water treatment. Permits for the project should include financial assurance adequate to cover unplanned events, reclamation, monitoring, contingency mitigation, and long-term closure activities to protect the state from financial cost. PolyMet should also be held to harsh financial and legal penalties for failure to comply.

Thematic Response

FEIS Section 3.2.2.4 includes available details regarding financial assurance. *Minnesota Rules*, part 6132.1200 outlines financial assurance requirements, and subpart 5 specifically states that financial assurance funds must not be dischargeable through bankruptcy and are fully binding and enforceable under state and federal law. Final details on the financial assurance requirements for the NorthMet Project Proposed Action, as well as who would be responsible for it would be addressed during permitting. Refer to the response to comment theme NEPA 09 for a description of the requirements under NEPA and MEPA including a description of how the Co-lead Agencies reviewed the proposer's documentation and how additional documentation would be required during permitting, much of which would require additional public review.

Theme PER 04

Theme Statement

The NorthMet Project would not meet the Permit to Mine requirement for the mine to be maintenance free at closure (*Minnesota Rules* 6132.3200), especially because the 200 and 500 year timeframes for potential water effects are tantamount to "perpetual" water treatment. In addition, other long-term monitoring and maintenance requirements included as part of the Proposed Action are unrealistic and not practicable.

Thematic Response

Minnesota Rules, part 6132.3200, *Closure and Postclosure Maintenance*, identifies several goals for non-ferrous mining areas, including the goal that sites be closed so that they are maintenance-free. A maintenance-free site is the goal of the Minnesota Department of Natural Resources (MDNR) for the NorthMet Project Proposed Action, as it is for every mining site. The NorthMet Project Proposed Action includes piloting a non-mechanical treatment system to achieve this goal. PolyMet would include funds in its reclamation cost estimate and financial assurance package to fund mechanical water treatment for as long as necessary, but the Permit to Mine would require PolyMet to present a plan for eventual transition from mechanical water treatment to non-mechanical treatment. PolyMet cannot be released from its responsibilities, including financial assurance requirements, until there is no longer a need for closure/post-closure treatment/maintenance. Financial assurance is a component of any Permit to Mine, to ensure that necessary maintenance can be provided for as long as it necessary.

Theme PER 05

Theme Statement

If contaminants traveling through groundwater contribute to the pollution of surface water, USEPA and the federal courts require an NPDES permit for the discharge.

Thematic Response

The EIS considers that permitting for the NorthMet Project Proposed Action, if approved, would require monitoring that would likely include water levels and water quality in groundwater and potentially affected waters of the U.S., including wetlands and tributaries. The goal of this monitoring is to anticipate or predict the potential for an NPDES discharge so that the NPDES discharge can either be eliminated, or alternatively permitted with NPDES permit coverage prior to its occurrence. See FEIS Section 5.2.2.3.6 for more information on groundwater and wetland monitoring and possible future mitigations.

The FEIS states that an NPDES permit would be required for any point source water discharge that adds pollutants to waters of the U.S. The Final EIS correctly identifies the waters of the US.

Theme PER 06

Theme Statement

The permitting agencies have a poor track record for enforcement and holding mining companies accountable for compliance with permit conditions. Known AMD sites in Minnesota (Dunka Mine and LTV) have legacy pollution. The FEIS and permits should include assurances that PolyMet would be able to meet, and would be strictly held to conditions (if approved) with harsh penalties for violation. Permitting agencies should retain the right to update the permit conditions, including monitoring, to reflect best practice and/or more stringent environmental standards, should conditions or standards change (e.g. for mercury). Facility shutdown should be an option. Variances should not be granted.

Thematic Response

If state permits are issued, the MDNR and MPCA would retain the right to re-open and amend the permit as necessary to ensure compliance with state and federal rules. In addition, MPCA's water quality permits are issued for five year terms, and must go through a formal (and public) reissuance process thereafter. If a permit is reissued or re-opened, contemporary standards would be incorporated into the revised permit. The MPCA and MDNR retain any and all enforcement powers allowed under state law. State and federal rules allow for a permittee, under certain circumstances, to apply for a water quality variance, and the MPCA cannot unilaterally terminate that right. The application for a variance would be evaluated against the criteria in state and federal rules to determine whether the variance can be granted.

Theme PER 07

Theme Statement

Permitting of the NorthMet mine would create a precedent for other sulfide mines in the vicinity of the BWCAW that would have significant cumulative consequences.

Thematic Response

An Environmental Impact Statement (EIS) would be required for any proposed new mine in the vicinity of the BWCAW, and a cumulative effects analysis would be part of such an EIS. In addition, each new project or facility would be subject to its own separate and independent permitting process.

Theme PER 08

Theme Statement

The NorthMet project and Land Exchange are inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. Treaty usufructuary rights to hunt and gather unpolluted fish, wildlife, medicinal plants and wild rice should be honored.

Thematic Response

The Agency's obligation is to ensure that Band members have ample opportunity to exercise their treaty-reserved usufructuary rights; that federal lands are managed to maintain both the diversity and abundance of natural resources; and that the Bands' usufructuary rights to 1854 Treaty resources are not impaired. The Land Exchange Proposed Action was analyzed to understand the potential effect posed to usufructuary rights. The Co-lead Agencies have consulted, and continue to consult with the Bois Forte Band of Chippewa, the Grand Portage Band of Lake Superior Chippewa, and the Fond du Lac Band of Lake Superior Chippewa, the three principle Bands that retain usufructuary rights in the proposed project area. In addition, the Co-lead Agencies have consulted with the Great Lakes Indian Fish and Wildlife Commission and the 1854 Treaty Authority, the principal natural resource agencies representing the aforementioned Bands Through consultation, the Co-lead Agencies understand that the Bands' principle interest with regards to the Land Exchange Proposed Action are the following: to retain or increase the amount of public land within the 1854 Treaty Ceded Territory, shoreline wetlands, culturally important natural resources used in exercising treaty rights of hunting, fishing and gathering, cultural or religious properties, and access to culturally important natural resources and cultural or religious properties. The Co-lead Agencies have a fiduciary obligation to understand and consider the effects that the Land Exchange Proposed Action would have on Band members exercising their treaty rights in the 1854 Ceded Territory. While the Land Exchange Proposed Action would remove certain lands from federal ownership, this loss is potentially offset by incoming private lands that would become part of the federal estate within the 1854 Ceded territory. Outside of the Land Exchange Proposed Action, the Co-lead Agencies have also analyzed the potential effects posed by the Proposed Connected Actions. The potential affects posed to natural resources and cultural resources of importance to the Bands have been disclosed and would be considered during the Co-lead Agencies' decision process.

Theme PER 09

Theme Statement

The SDEIS did not include sufficient information to inform related water permits. For example:

- The SDEIS is not clear where compliance points would be—property boundaries are not sufficient;
- The FEIS must disclose the predicted quality of groundwater below each of the mine features and Tailings Basin, as well as other seepage locations;
- Baseline water quality along the Transportation and Utility Corridor should be monitored for permitting. It is not clear if there will be mixing zones, or how groundwater entering surface water would be held in compliance; and
- The FEIS should include the narrative state standards, which are more difficult and complex than simple numeric goals, and should address issues related to nondegradation and/or antidegradation.

Thematic Response

The MPCA worked closely with the MDNR during the preparation of the FEIS to ensure that this document fully informs the subsequent water quality permitting process. The impact analysis performed as part of the FEIS to estimate potential impacts to water resources would be used to inform any future permitting process with respect to the location of surface and groundwater compliance points, monitoring requirements, and compliance limits consistent with state and federal requirements. All applicable state water quality standards and permitting requirements, including nondegradation, would be addressed as part of any water quality permitting process.

Theme PER 10

Theme Statement

The FEIS should include more detail on how the project would comply with the wild rice standard, given the existing high levels of sulfate in Embarrass and Partridge Rivers. How would PolyMet meet a (potential future) revised standard? How would PolyMet comply with non-mechanical treatment in the long term?

Thematic Response

The FEIS includes descriptions of the Wastewater Treatment Plant (WWTP) at the Plant Site and the Wastewater Treatment Facility (WWTF) at the Mine Site, both of which would be capable of discharging treated wastewater at concentrations at or below 10 mg/L (the wild rice sulfate water quality standard), as demonstrated by pilot-testing already conducted. More detailed information on these treatment systems would be available as part of any future permitting process. Future changes to the wild rice sulfate standard, if any, are speculative and outside the scope of the FEIS. However, should a more stringent standard be developed in the future, operation of the reverse osmosis (RO) treatment systems, or equivalently performing technologies, can be adjusted to meet a more stringent effluent limit. Non-mechanical treatment effectiveness in decreasing the concentration of sulfate and other parameters to required levels would need to be proven through bench- and pilot-testing before it could be permitted to replace the currently proposed mechanical systems.

Theme PER 11

Theme Statement

Increased mercury cannot be allowed in the Embarrass River, regardless of a projected mercury decrease in the Partridge River. Quantification of methylmercury, bioaccumulation and compliance with the downstream Fond du Lac Band of Lake Superior Chippewa's water quality standard for mercury should be considered as part of the EIS before permitting proceeds.

Thematic Response

The FEIS has evaluated mercury concentrations from the Plant Site WWTP and Mine Site WWTF, and has concluded that effluent from both facilities can meet the applicable mercury water quality standard of 1.3 ng/L. The MPCA has provided guidance to the Co-lead Agencies that a discharge to a water body impaired for fish tissue mercury is not prohibited, provided that the discharge can meet the applicable water quality standard without benefit of mixing or

dilution (i.e., does not cause or contribute to the impairment). In preparing the FEIS, the Co-lead Agencies concluded that a quantification of methylmercury and its subsequent bioaccumulation cannot be made, given the limitations of today's scientific understanding of the complex processes contributing to methylation of mercury in the environment and introduction into fish tissue. The analysis in the FEIS acknowledges this scientific uncertainty. The FEIS has evaluated potential changes in mercury concentrations in the St. Louis River near the Fond du Lac Band's northern reservation boundary and concluded that mercury concentrations in the St. Louis River at the reservation boundary are not predicted to change from current levels as a result of the NorthMet Project Proposed Action.

Theme PER 12

Theme Statement

The Hydrometallurgical Residue Facility should be classified as a hazardous waste facility, and as such should meet the respective rules for hazardous waste facilities (i.e., the current location is not suitable).

Thematic Response

Minnesota Rules, part 7045.0120, subpart 1.l provides exemption to waste from extraction, beneficiation, and processing of ores and minerals in regard to storage, labeling, transportation, treatment, processing and disposal. Even if that were not the case, actual testing of hydrometallurgical residues obtained from pilot-testing indicates that these residues do not exceed RCRA hazardous waste thresholds. For more details, see the response to theme HAZ 02.

Theme PER 13

Theme Statement

Under what conditions and when would PolyMet be able to request release from the Permit to Mine?

Thematic Response

PolyMet would need to complete all requirements of the Permit to Mine to the satisfaction of the MDNR, which would include all financial assurance and closure requirements. *Minnesota Rules*, part 6132.4800, *Request for Release From Permit*, outlines requirements/conditions for a permittee requesting release from a Permit to Mine.

Theme PER 14

Theme Statement

Has the USEPA reviewed the contents and potential effects of this SDEIS under the Clean Water Act?

Thematic Response

The USEPA, as a Cooperating Agency, reviewed and provided written comments on the SDEIS. The USEPA comment letter is included as part of the FEIS in Appendix A.

Theme PER 15

Theme Statement

Proposed wetland fill at the Plant Site is likely to result in water quality standard violations.

Thematic Response

Water levels in wetlands adjacent to proposed facilities could go up or down as a result of proposed wetland fill, but the proposed wetland fill would unlikely have an effect on the water quality of wetlands. At the Plant Site, the seepage collection system would intercept approximately 90 percent of groundwater and 100 percent of surface water. That intercepted water would be replaced by treated water from the WWTP, which would be discharged outside the containment structure into wetlands to maintain their hydrology. It is expected that water quality permits would require monitoring of potentially affected surface waters near the Tailings Basin.

Theme PER 16

Theme Statement

There should be no change to existing allowable limits for water quality.

Thematic Response

The MPCA would apply all applicable water quality standards as they appear in state and federal rules at the time of permitting. The incorporation of any changes to water quality standards is a separate public process, and is not part of the evaluation in this FEIS.

Theme PER 17

Theme Statement

The agencies should require detailed monitoring of the water levels in the shallow aquifers.

Thematic Response

The MPCA, MDNR, USACE would assess the need to require ongoing monitoring of water levels in the shallow aquifer during their respective permitting processes.

Theme PER 18

Theme Statement

What level of runoff into adjacent rivers and lakes will be deemed acceptable, and what impact will that runoff have on fish, birds, and wildlife in the region?

Thematic Response

All runoff that contacts mine waste or mining disturbed areas is proposed to be captured and treated to meet applicable effluent limitations before it is discharged into the environment. Non-contact stormwater would be managed through best management practices as determined through the stormwater pollution prevention plan required by the MPCA's water quality permit.

Theme PER 19

Theme Statement

Who would be responsible for non-mechanical treatment pilot testing?

Thematic Response

The permittee would be responsible for pilot-testing of non-mechanical treatment systems. The permittee would need to demonstrate to the satisfaction of the permitting agencies (MPCA and MDNR) that the non-mechanical treatment systems would be able to meet required performance levels before they can be permitted to replace either of the mechanical systems (i.e., the WWTP or WWTF) that are part of the NorthMet Project Proposed Action.

Theme PER 20

Theme Statement

The process has taken too long. The decision to grant the permits (or not) should be made in a timely manner.

Thematic Response

These comments discuss the timing of the environmental review and permitting processes. Since no specific information was provided, no changes were made to the EIS.

Theme PER 21

Theme Statement

Tailings dam safety reports should be completed more frequently than every five years.

Thematic Response

Tailings Basin dams would be monitored and managed in accordance with the Dam Safety Permit. Examples of the monitoring and management measures that may be required under the permit are provided in FEIS Section 3.2.14.2. Exact requirements, including the frequency of reporting, would be established during permitting.

Theme PER 22

Theme Statement

Does the sulfate standard drive the whole seepage treatment plan? What dilution factor is valid for the St Louis River between the Embarrass River and the Partridge River?

Thematic Response

The sulfate standard of 10 mg/L, applicable to waters used for production of wild rice during periods when the rice may be susceptible to damage by high sulfate levels, is an important standard that informed PolyMet's treatment plan; however, it was not the only water quality parameter important to the design and selection of engineering controls. Efficient removal of metals and "salty" parameters were also important considerations. The modeling performed for

the FEIS considered effluent concentrations, watershed runoff, and contributions from stream flow and groundwater in estimating sulfate concentrations in surface water. The FEIS would inform permit decisions. If a permit is issued, the permit would be protective of all applicable beneficial uses.

Theme PER 23

Theme Statement

The SDEIS fails to study the project in the context of other sulfide copper/nickel mines, their history of impacts and regulatory compliance, including companies who are PolyMet investors. If permits are issued, will there be a constant battle to enforce regulations, will variances be sought?

Thematic Response

As required, the FEIS evaluates the potential environmental effects associated with the NorthMet Project Proposed Action. The original scoping of the EIS was informed by the available general body of knowledge related to non-ferrous mining. State and federal rules allow for a permittee, under certain circumstances, to apply for a water quality variance; however, variances are considered rarely and on only a case-by-case basis. Enforcement of regulations is an important component of any permit program, and available state tools have been shown to be effective in resolving non-compliance.

Theme PER 24

Theme Statement

PolyMet should fund an independent group to monitor the project on a full time basis in perpetuity. This entity should have the power to curtail or shut down operations and direct punitive measures as necessary.

Thematic Response

State and federal government agencies are the independent entities that have monitoring responsibility and authority. These responsibilities and authorities are embodied in law and policy, which are a reflection of the public interest.

Theme PER 25

Theme Statement

The State should institute a permanent or temporary moratorium on hard rock sulfide mining. If temporary, then a moratorium on the project should be in place until the reverse osmosis water treatment technology has been successfully installed at another comparable mine.

Thematic Response

To date, the Minnesota state legislature has enacted no moratoria on hard rock sulfide mining or wastewater treatment technologies. Such actions would require legislative approval, and would be enacted through a public process.

Theme PER 26

Theme Statement

The project violates the Weeks Act, Clean Water Act, Clean Air Act and/or National Land Management Policy.

Thematic Response

If permitted, the NorthMet Project Proposed Action would be required to comply with all applicable state and federal regulations and policies.

Theme PER 27

Theme Statement

The proposed project threatens Lake Superior, which is protected by international agreements, such as the International Boundary Waters Treaty of 1909, the Great Lakes Charter of 1985, the Great Lakes Charter Annex of 2001, the Great Lakes Compact of 2005, and the Lakewide Management Plan.

Thematic Response

If permitted, the NorthMet Project Proposed Action would be required to comply with all applicable state and federal regulations and policies.

Theme PER 28

Theme Statement

MDNR should require that sulfide in backfilled waste rock never oxidizes.

Thematic Response

The NorthMet Project Proposed Action is designed so that waste rock backfilled into the East Pit would remain permanently submerged under water. The rate at which sulfide minerals could oxidize in submerged waste rock (and pit wall rock) was considered explicitly in the Impact Assessment Planning (IAP) process undertaken by the Co-lead Agencies for the NorthMet Project Proposed Action. Specifically, the IAP geochemistry group considered the question of whether “Flooded wall rock and backfilled waste rock may still encounter some oxygen that is dissolved in the water, which would release some metals and sulfate” (MDNR et al. 2011, as cited in the FEIS). The IAP geochemistry group concluded that “The effect is too small to warrant incorporation into the pit lake water quality model.” Justification for this conclusion is supported by an analysis presented in a 2008 memo by SRK Consulting, which estimated that, even in the top meter of waste rock, the rate of sulfide oxidation would be less than 1/800th as fast underwater relative to rock exposed to the air (Day 2008).

Theme PER 29

Theme Statement

The Minnesota Department of Health (MDH) recommends groundwater evaluation criteria be used for specific contaminants.

Thematic Response

Minnesota's water quality permitting agency, the MPCA, would use the water quality evaluations in the FEIS to inform permitting. For any water quality permit drafted for the NorthMet Project Proposed Action discharges, the specific permit requirements, including compliance limits for groundwater, would be determined through well-established water quality permitting practices reflecting state and federal water quality regulations and associated guidance.

Theme PER 30

Theme Statement

Does Minnesota's regulatory process include water quality monitoring for mining to prevent water pollution from exceeding standards or reduce pollution that exceeds standards?

Thematic Response

PolyMet would be required to comply with all terms and conditions of any water quality permit issued for the Project. These terms and conditions are based on established state and federal water quality regulations, including applicable water quality standards. The permit would include required performance, effluent, and other compliance monitoring to ensure compliance with permit conditions.

Theme PER 31

Theme Statement

The permitting agencies should use previous negative experiences to improve permits for the NorthMet mine to make sure that mistakes are not repeated.

Thematic Response

Permitting agencies would rely upon information presented in the FEIS, any additional information included in permit applications, and their own experience and knowledge in their respective permitting programs in preparing permits that are consistent with applicable state and federal permitting regulations.

Theme PER 32

Theme Statement

How would the Air Quality permit for the NorthMet project comply with the State's established greenhouse gas reduction goals?

Thematic Response

The issues raised by this comment would be part of any future air permit review and approval process. The permitting process would result in permit requirements that are consistent with Minnesota's greenhouse gas reduction goals.

Theme PER 33

Theme Statement

Minnesota law prohibits degrading water quality below the original level, even if the original level exceeds the standard for modified or polluted waters.

Thematic Response

These comments provide general information regarding the degradation of water quality. No changes were made to the EIS as a result of these comments.

Theme PER 34

Theme Statement

The SDEIS has shown that the project will have state and federal regulatory oversight. The SDEIS also has shown that PolyMet can comply with Minnesota's tough environmental management requirements, and should thus be able to proceed through permitting and approvals.

Thematic Response

These comments generally supported the NorthMet Mining project. Because no specific information was provided, no changes to the EIS were made.

Theme PER 35

Theme Statement

The SDEIS does not show that the NorthMet Project would be compliant with federal, state, and provincial environmental laws, including MERA. Economic considerations alone cannot drive environmental decisions. Because the mining companies have poor track records, environmental risks (including reactive mine waste) and potential consequences (including to Lake Superior) are too great, the NorthMet Project should not be permitted. The Minnesota Department of Natural Resources, the U.S. Army Corps of Engineers and the U.S. Forest Service should choose the No Action Alternative and deny the requested permits and Land Exchange.

Thematic Response

These comments stated that the Co-lead Agencies should choose the No Action Alternative and deny the requested permits and Land Exchange. Because no specific information was provided, no changes to the EIS were made.

Theme PER 36

Theme Statement

Were the USFWS, MPCA, and Minnesota Department of Health (MDH) included in EIS process?

Thematic Response

Although not acting as Co-lead agencies, MPCA and MDH have been involved in this EIS process. As discussed in FEIS Section 1.2.3, while not Co-lead or Cooperating Agencies, other federal and state agencies have important roles on the project. The MPCA and MDH are assisting the MDNR pursuant to *Minnesota Rules*, part 4410.2200. The USFWS has reviewed the Biological Assessment (Appendix D of the FEIS) and would provide a Biological Opinion.

Theme PER 37

Theme Statement

Is the P90 threshold a permitting loophole?

Thematic Response

The P90 evaluation criterion was a tool developed for EIS purposes to help interpret the probabilistic distribution of water quality predictions generated by the GoldSim water quality model. Minnesota's water quality permitting agency, the MPCA, would use the water quality evaluations in the FEIS to inform the permitting process. If a water quality permit is drafted for the NorthMet Project Proposed Action discharges, specific effluent limits and other compliance requirements would be determined through well-established water quality permitting practices reflecting state and federal water quality regulations and associated guidance.

Theme PER 38

Theme Statement

Why and how has the permitting process already started (parallel with the EIS process)?

Thematic Response

Pre-application permit discussions have occurred in parallel with the development of the NorthMet EIS so that the NorthMet Project Proposed Action can be modified during the EIS process as necessary to meet anticipated permitting regulatory requirements. The goal of these discussions was to prevent major project modifications during any potential permit drafting process. Establishing a complete NorthMet Project Proposed Action description during the EIS process that anticipates potential permit requirements allowed the public to perform a more

meaningful review of the NorthMet Project Proposed Action and gain a clearer understanding of the its potential effects. The extent of the permitting discussions that occurred during the EIS process was permit- and agency-specific; however, these discussions were typically limited to additional information and analyses needed for the permitting processes, permit application content, and the sequence and timing of permitting process steps. Outcomes of these discussions important to the EIS were shared with the Co-lead Agencies. While permit applications may be submitted and permits drafted prior to the end of the EIS process, no permit decisions may be made until the EIS process is complete.

Theme PER 39

Theme Statement

Both state and federal policy support the development of mining projects such as the NorthMet project within the Superior National Forest.

Thematic Response

These comments suggest that state and federal policy support development such as mining projects within the Superior National Forest. Because no specific information was provided, no changes to the EIS were made.

Theme PER 40

Theme Statement

The PolyMet proposal meets none of the MDNR's mission statement "to conserve and manage the state's natural resources, provide recreation opportunities and…provide commercial uses…in a way that creates a sustainable quality of life" and to "manage…and sustain waterways and groundwater resources."

Thematic Response

These comments indicate that PolyMet's proposal would meet no aspect of the MDNR's mission statement. Because no specific information was provided, no changes were made to the EIS.

Theme PER 41

Theme Statement

Preserving wetlands must be considered crucial to the goal of Minnesota's 25-year effort to "enhance, protect and restore water quality."

Thematic Response

If permitted, the NorthMet Project Proposed Action would be required to comply with all applicable state and federal wetland regulations and policies.

Theme PER 42

Theme Statement

The MDNR has two contradictory mandates that must be fixed—both protect the environment and be required to make the most money from the same land.

Thematic Response

These comments discuss MDNR's contradictory mandates and that they must be fixed. Since these comments are considered to be outside the scope of the EIS, no changes were made to the EIS.

Theme PER 43

Theme Statement

The MDNR does not have the expertise to properly evaluate the mine's impacts on the resources of Minnesota.

Thematic Response

The Environmental Review process for the NorthMet Project Proposed Action has included both experienced state and federal technical staff and experienced consultants/technical experts.

Theme PER 44

Theme Statement

Minnesota has an excellent reputation and laws to protect the environment, and should not be compared to other countries and areas, or to policies in effect years ago.

Thematic Response

These comments have generally supported Minnesota's good reputation and laws that protect the environment. Because no specific information was provided, no changes were made to the EIS.

Theme PER 45

Theme Statement

By rule, the MDNR is the designated RGU for the NorthMet project. It has never made sense that the MDNR should have final decision over property that is currently owned and managed by the USFS for the benefit of all citizens.

Thematic Response

Under MEPA rules, the MDNR is specifically designated as the Responsible Governmental Unit (RGU) for any new mining project. The Proposed Connected Actions include a land exchange of federal lands administered by the United States Forest Service (USFS); therefore, the USFS has been involved with the Proposed Connected Actions as a Co-lead Agency since 2010.

A.5.19 Issue: Socioeconomics (SO)

Theme SO 01

Theme Statement

The proposed economic and employment benefits of the NorthMet Project are small in comparison to the economic cost and the high probability of damage to the environment. The short-term gains (i.e., 20 years of profits and jobs) as a result of the NorthMet Project are not worth the long-term environmental damage and associated costs, which could last 200-500 years.

Thematic Response

FEIS Section 5.2.10.2.2 provides a discussion of the economic effects of the NorthMet Project Proposed Action. Construction, operations, and closure would provide new jobs, substantial new earnings, and indirect contributions to public finances. Environmental impacts would be managed through engineering controls, monitoring, mitigation and adaptive mitigation under permits, and the proposed would be responsible for associated costs as well as financial assurance. See FEIS Section 5.2.2 for detailed discussion on water impacts that would require long-term management. Impacts on air quality are addressed in FEIS Section 5.2.7 and other environmental impacts are disclosed throughout FEIS Chapter 5 and 6. Financial assurance is discussed in FEIS Section 3.2.2.4; however, specific details and costs would be determined during permitting.

Theme SO 02

Theme Statement

Northern Minnesota relies on pristine wilderness to support its economy—especially its tourism economy—which the NorthMet Project would put at risk.

Thematic Response

The NorthMet Project Proposed Action would take place in an area that has experienced mining previously; for more discussion on this see FEIS Section ES-10. As discussed in FEIS Section 5.2.11.2.1, the presence of the NorthMet Project Proposed Action would not substantially affect regional recreation or visual resources, nor would it substantially affect air or water quality or increase noise levels in popular regional recreation lands such as the BWCAW (see FEIS Section 5.2.12). Consequently, there is insufficient evidence to demonstrate that the presence of the NorthMet Project Proposed Action would affect the tourism industry as a whole; see FEIS Section 5.2.10.2.2 for further discussion.

Theme SO 03

Theme Statement

The Proposed NorthMet Project would have negative effects on the real estate market in northeastern Minnesota, with related secondary effects on the local economy. These effects could include reduction of real estate values and/or impedance of the already slow market recovery.

Thematic Response

The NorthMet Project Proposed Action's effects on the Study Area's housing values are anticipated to be minimal. The most likely result of the operation of the NorthMet Project Proposed Action is a minor increase in housing demand and prices in study area communities, with moderate effects in individual communities closest to the NorthMet Project area. Increased housing prices may or may not be a negative effect; average housing values in the communities closest to the NorthMet Project area are relatively low compared to other Study Area communities. Minor to moderate increases in housing value would likely be seen as a benefit to homeowners, and the opportunity to add newer housing stock (either through rehabilitation of existing units or the construction of new units) to the Study Area would generally improve property values, thus improving local property tax revenues in those communities. For further discussion, see FEIS Section 5.2.10.2.4.

Theme SO 04

Theme Statement

The discussion of potential socioeconomic effects in the SDEIS is inadequate. The FEIS should include further analysis, including a detailed analysis of displaced economic activity, ceded territory effects, and how fluctuating workforce numbers impact infrastructure and services.

Thematic Response

The socioeconomic analysis provided in the FEIS satisfies NEPA and MEPA requirements. Regarding displaced economic activity, FEIS Section 4.2.10.1.2 shows the distribution of employment by industry type in the Study Area, and demonstrates that mining is one of many important industries in the region. FEIS Section 5.2.10.2.2 discusses the relationship of mining to the tourism industry. While the NorthMet Project Proposed Action would have substantial economic impacts on the Study Area, it would only add approximately 1,000 jobs (1 percent of the existing workforce). There is no evidence that the Project would prevent the diversification of, or cause displacement of other economic activities from, the Study Area. The FEIS acknowledges the concern about fluctuating workforce numbers (see FEIS Section 5.2.10.1.4 for further discussion). FEIS Section 5.2.10.1.5 provides further discussion of impacts to infrastructure and other services, while FEIS Section 5.2.10.2.6 and the response to theme SO 09 discuss potential impacts to the ceded territory.

Theme SO 05

Theme Statement

The SDEIS evaluation of the economic effects related to taxes is inadequate. The FEIS should be revised to include the following considerations:

- The State of Minnesota policy of rebating taxes to the mining industry;
- Why the estimates of federal, state, and local taxes differ between the DEIS and SDEIS; and
- More detail on the calculation of estimated taxes paid, given that the copper-nickel mining industry has its own unique tax structure.

Thematic Response

1. Discussion of the State of Minnesota's policy of rebating taxes to the mining industry is not required under NEPA or MEPA.

2. The difference in tax estimates between the DEIS and SDEIS is due to different assumptions in IMPLAN modeling about projected operations. In the original IMPLAN report (2005), the total projected output for a typical year of operations (assumed at the time to be 2009) was half that of the projected output in the 2011 IMPLAN report. The change in output assumptions reflects changes in the NorthMet Project Proposed Action between the DEIS and SDEIS. The IMPLAN model uses the proportion of total tax collection attributed to direct, indirect, and induced output to estimate tax revenue; therefore, when the total projected output increases, so does tax revenue.

3. FEIS Section 4.2.10.1.3 discusses all taxes applicable to mining, and Table 5.2.10-3 lists the estimated annual NorthMet Project taxes paid.

Theme SO 06

Theme Statement

The FEIS should provide additional detail about the economic effects of the Proposed Action, including whether jobs would be held by Minnesota workers, how many will be long term vs. short term, and the degree to which profits would stay in northern Minnesota.

Thematic Response

FEIS Section 5.2.10.2.1 discusses the number of direct and indirect jobs created during construction, operations, and closure of the NorthMet Project Proposed Action. Accurate prediction of the degree to which jobs associated with the NorthMet Project Proposed Action (let alone indirect and induced jobs) would be filled by Minnesota workers is not feasible, given the complexity of the labor market. FEIS Section 5.2.10.2.2 discusses employment, income, the number of long-term versus short-term jobs, as well as the degree to which profits would stay in Minnesota. FEIS Section 5.2.10.2.3 discusses the impacts of the NorthMet Project Proposed Action on public finance.

Theme SO 07

Theme Statement

The SDEIS lacks a cost-benefit analysis. The FEIS should include such an analysis to determine if the benefits of sulfide mining outweigh the risks and known effects from this type of mining. An FEIS cost-benefit analysis should specifically evaluate concerns about financial assurance—i.e., whether the public would eventually need to pay for cleanup and how such costs would affect the cost-benefit equation.

Thematic Response

A cost/benefit analysis is not required under NEPA or MEPA.

Section 102 of NEPA (42 USC 4321 et seq.) requires all Federal agencies, to the fullest extent possible, to do the following: "identify and develop methods and procedures, in consultation with the CEQ...which would insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations."

Neither NEPA nor MEPA require the costs and benefits of a proposed action to be quantified in dollars or any other common metric; moreover, it is not possible to quantify and assign a value to all benefits and costs associated with the NorthMet Project Proposed Action. The FEIS focuses on the benefits and costs of such magnitude or importance that their inclusion in the analysis can inform the decision-making process.

The FEIS fulfills NEPA and MEPA requirements in adequately addressing benefits and costs. Financial assurance is discussed in FEIS Section 3.2.2.4.

Theme SO 08

Theme Statement

The IMPLAN modeling is inadequate. An economic model that includes both inputs and outputs must be a part of the discussion. The IMPLAN model was limited in scope and accounts for the benefits but does not consider the total costs of this project relative to the benefits of jobs and taxes.

Thematic Response

IMPLAN modeling is an accepted means to assess socioeconomic impacts of a project. IMPLAN uses an input-output approach to model the economic effects of changes in baseline conditions. IMPLAN reports direct, indirect, and induced effects (as defined in FEIS Section 5.2.10.1.3) in terms of employment, output (the value of production), and value added (wages, rents, taxes, etc.). FEIS Section 5.2.10.1.3 provides further discussion of IMPLAN model methodology, while FEIS Section 5.2.10.2 presents findings of the IMPLAN model. The response to theme SO 07 addresses cost/benefit analysis.

Theme SO 09

Theme Statement

The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic that may be found in fish, game, wild rice, and water. These pollutants may cause particular harm to tribal members or low-income families who rely on fish, game, and wild rice for subsistence. Cumulative effects of the project on environmental justice should be analyzed.

Thematic Response

The NorthMet Project Proposed Action are within the 1854 Ceded Territory. FEIS Section 4.2.10.1.6, as well as Table 4.2.9-1 in FEIS Section 4.2.9 summarize available information about subsistence patterns and resources within the 1854 Ceded Territory. Construction of the NorthMet Project Proposed Action would make the Mine Site unavailable for subsistence use. The degree to which construction of the NorthMet Project Proposed Action would affect individual subsistence resources (i.e., fish, game, and plant species) outside of the Mine Site, Transportation and Utility Corridor, and Plant Site is discussed in FEIS Section 5.2.9 (Cultural Resources).

FEIS Section 5.2.10.2.6 discusses consumption of fish. Increased mercury concentrations and associated increases in mercury bioaccumulation in fish tissue could constitute an EJ impact for Band members and other subsistence consumers of fish.

Theme SO 10

Theme Statement

PolyMet should be allowed to move forward with the NorthMet Project. The project will create jobs that will support families and provide economic vitality to the region, as well as produce metals that the world needs. Mining can coexist with a natural resources-based tourism industry.

Thematic Response

These comments generally supported the NorthMet Mining project for its economic benefits. Because no specific information was provided, no changes were made to the EIS.

A.5.20 Issue: Vegetation (VEG)

Theme VEG 01

Theme Statement

The FEIS should provide additional species-level analysis of direct, indirect, and cumulative effects on Endangered, Threatened, and Special Concern (ETSC) species, Regional Forester Sensitive Species (RFSS), Species of Greatest Conservation Need (SGCN), and common vegetation species. The FEIS should incorporate the August 19, 2013, Minnesota ETSC species status list, along with any federal status changes. The FEIS should also include acceptable mitigation measures, such as sensitive species being moved to suitable adjacent habitats. Other measures that address the area, biodiversity, and procedures should be proposed and evaluated.

Species of concern include the floating marsh marigold, neat spike-rush, and bog rush. Disrupting one of the 12 currently existing floating marsh marigold populations in Minnesota will increase the pressure on the remaining populations; the floating marsh marigold should be examined for genetic uniqueness and protected.

Thematic Response

The FEIS vegetation sections were updated to include the new state ETSC status listings from August 19, 2013, as well as any new federal status listing changes. FEIS Section 5.2.4.2 includes a listing of MDNR-acceptable potential mitigation measures. These mitigation measures would be decided upon at the time of permitting. The MDNR generally does not consider transplantation of sensitive species to be an acceptable mitigation measure for several reasons: transplantation moves the species into an artificial habitat, transplantation may have unanticipated effects on other organisms at the new site, and it would be necessary to establish the species and monitor it for several years to determine if it could persist. Additional discussion was added to the FEIS regarding floating marsh marigold; specifically, FEIS Section 5.2.4 clarifies the impact on the statewide population, using updated statewide NHIS data. Additional populations have been added to the NHIS database since the SDEIS. There are 15 known populations, several of which have hundreds to thousands of individuals. Of the 13 colonies within the Mine Site, three would be directly affected by the NorthMet Project Proposed Action, as stated in FEIS Table 5.2.4-3. These affected colonies represent a small percentage of total individuals within the state (using available data, approximately less than 1 percent).

Theme VEG 02

Theme Statement

The NorthMet Project and Land Exchange would result in a large decrease of or impact to Minnesota Biological Survey Sites of Biodiversity Significance and imperiled or vulnerable native plant communities. These effects should be mapped in the FEIS and more thoroughly evaluated in terms of biodiversity rankings and biodiversity areas. The SDEIS contains insufficient information on mitigation measures for these areas. Areas of concern that should be further analyzed include the Rich Black Spruce Swamp, the One Hundred Mile Swamp, Superior National Forest, the St. Louis River Watershed, wetlands classified by the USEPA as a likely Aquatic Resource of National Importance, the Laurentian Uplands subsection, the MDNR Headwaters Site, the Sand Lake Peatlands Scientific and Natural Area, and the USFS Big Lake candidate Research Natural Area. Communities of concern include the black spruce and jack pine woodland.

Thematic Response

FEIS Sections 4.2.4 and 4.3.4 discuss and provide maps of MBS Sites (Figures 4.2.4-1, 4.2.4-2, 4.2.4-5, 4.3.4-1, and 4.3.4-2) to provide clarity on the location and extent. FEIS Sections 5.2.4 and 5.3.4 include information about the impacts to MBS sites and native plant communities. The WCA rules (including those parts applicable to mining projects under *Minnesota Rules*, part 8420.0930) include a special consideration for wetlands that are rare natural communities (*Minnesota Rules*, part 8420.0515, subpart 3).

Minnesota Rules, part 6132.2700 requires that a project site be reclaimed once mining has ceased. The goals of such reclamation are to “control erosion, to screen mining areas from non-compatible uses, and to provide for subsequent land uses such as wildlife habitat or timber production.” The rules also include requirements about the characteristics and planting schedule for vegetation used in reclamation. FEIS Sections 3.2.2 and 5.2.4 describe mine reclamation activities that would be completed as part of the NorthMet Project Proposed Action, some of

which may allow such MBS sites to re-establish. The Permit to Mine would address special consideration of wetlands that include rare natural communities. Additional information on rare natural communities would be included in the wetland permit application as part of the Permit to Mine process for further refinement of site-specific conditions.

There are no SNAs or RNAs located on the Mine Site, Transportation and Utility Corridor, or Plant Site.

Theme VEG 03

Theme Statement

A large expanse of high-quality mature forest, peatland, floodplain, wetland, and other habitat would be removed, impacted, or fragmented and its biodiversity role could never be successfully restored on site or elsewhere. These effects will be exacerbated by climate change, especially for vulnerable species. The FEIS should assess costs of replacing these lost functions. Potential effects of the removal of this forest—especially in the context of the Forest Plan—should be assessed in more detail, including effects on timber management/harvest.

Thematic Response

The FEIS vegetation sections include discussion of the NorthMet Project Proposed Action's effects on habitat types. In addition, FEIS Sections 5.2.4 and 5.3.4 also discuss the Forest Plan as it relates to timber management. As described in FEIS Section 4.2.4.2.1 timber-harvesting activities have occurred across the upland forest areas of the Mine Site for the last 20-60 years. The oldest forest areas at the Mine Site include 40 to 80-year-old trees.

The WCA rules (including those parts applicable to mining projects under *Minnesota Rules*, part 8420.0930) include a special consideration for wetlands that are rare natural communities (*Minnesota Rules*, part 8420.0515, subpart 3). *Minnesota Rules*, part 6132.2700 does require that a project site be reclaimed once mining has ceased. The goals of such reclamation are to "control erosion, to screen mining areas from non-compatible uses, and to provide for subsequent land uses such as wildlife habitat or timber production." The rules also include requirements about the characteristics and planting schedule for vegetation used in reclamation. The Permit to Mine would address special consideration of wetlands that include rare natural communities. Additional information on rare natural communities would be included in the wetland permit application as part of the Permit to Mine process for further refinement of site-specific conditions.

FEIS Section 5.2.3 discusses the wetland types that would be restored on- and off-site as mitigation for effects from the NorthMet Project Proposed Action. These types include forested and shrub swamps, coniferous bogs, etc. The responses to themes WET 05 and WET 14 also discuss effects to wetlands/peatlands, loss of wetland functions, and mitigation for wetland effects.

Theme VEG 04

Theme Statement

The FEIS should more accurately describe wild rice waters. The FEIS should also evaluate effects on wild rice stands (especially from water pollution due to sulfides, sulfates, acid mine drainage, asbestos, arsenic, mercury, iron, copper sulfate, sulfur, sulfuric acid, and hydrogen sulfide as converted by bacteria) downstream of the Project, along with techniques to benefit wild rice. Considering the traditional importance of wild rice and its use for food, adopting a sediment porewater sulfide standard to replace, complement, or work in conjunction with a sulfate standard should be considered. Areas of concern include the One Hundred Mile Swamp and the Embarrass, Partridge, and St. Louis rivers. The FEIS should also clarify access to rice beds on the federal and non-federal lands.

Thematic Response

FEIS Sections 5.2.2 and 5.2.4 includes a description of the NorthMet Project Proposed Action's effects on wild rice beds. The response to themes WR 152, WR 156, and WR 157 discuss wild rice beds and the sulfate standard for wild rice beds. Evaluation of a sediment porewater sulfide standard is outside the scope of this analysis. FEIS Section 5.2.2 states that for MPCA-previously recommended water used for production of wild rice, the proposed engineering controls would prevent an increase in sulfate concentrations in the Partridge River and would decrease sulfate concentrations in the Embarrass River. The area known as the One Hundred Mile Swamp is not known to support wild rice, and it is not identified as a draft MPCA staff-recommended water used for production of wild rice. Locations of and access to wild rice beds on the federal and non-federal lands are discussed in the FEIS vegetation sections. The Land Exchange would result in an increase in wild rice beds within the federal estate, the FEIS contains additional details about existing public access to Tract 1 wild rice beds via the Pike River. Overall, there would be no increase in wild rice harvest opportunities for the public.

Theme VEG 05

Theme Statement

The reclamation plan should:

- Outline clear re-vegetation goals and timelines;
- Describe woody species control on reclaimed stockpiles;
- Not allow the planting of non-native or invasive plant species;
- Include a noxious weed prevention program;
- Describe soil requirements (pH, fertility, microbial biota, ratios of sand/silt/clay, and nutrient cycles, such as for nitrogen and organic matter); and
- Discuss topsoil management based on soil characterization.

Thematic Response

The FEIS vegetation sections include new details from the updated Reclamation Plan. In particular, invasive species would not be permitted in the seed mix. Some non-native species (e.g., oats, winter wheat) that are commonly used in the state seed mixes to temporarily stabilize soils in order to reduce erosion or dust potential could be planted. The species to be used for reclamation would be finalized during permitting. FEIS Section 3.2.2.1.10 describes how the NorthMet Project area facilities would be operated to allow for progressive reclamation during operations.

After mining ceases, PolyMet would finish reclamation activities under the Reclamation Plan, which is a required portion of the Permit to Mine. *Minnesota Rules*, part 6132.2700 states that the establishment of vegetation shall begin during the first normal planting period after site features are determined by the Permit to Mine to be no longer scheduled to be disturbed. Reclaimed areas would be monitored and maintained as needed in the Spring and Fall or as required under the Permit to Mine. Areas damaged by erosion or that lost vegetation would be identified, and plans to repair or reseed would be developed and implemented. Long-term maintenance of the only remaining stockpile during closure (i.e., Category 1 Stockpile) would also include removal of deep-rooted woody species and trees from the cover system, according to the Adaptive Water Management Plan (PolyMet 2015d, as cited in the FEIS). Soil testing to evaluate appropriate fertilizer needs would be completed as available. FEIS Section 3.2.2.1.7 explains that topsoil or overburden would be separated into three types, including unsaturated overburden, saturated overburden, and peat, which is also described in the Rock and Overburden Management Plan. FEIS Section 3.2.2.1.10 further explains that on-site unsaturated overburden and peat would be used as topsoil for the Category 1 Stockpile cover system, while saturated overburden would be used for specific on-site construction applications as approved by MDNR or placed in the combined East Central Pit.

Theme VEG 06

Theme Statement

The FEIS should evaluate and more thoroughly model:

- Pollution (in the form of harmful substances, toxins, leachates, acid mine drainage, heavy metals, manganese, copper, aluminum, aluminum oxide, lead, asbestos, arsenic, dust, sulfates, sulfides, sulfuric acid, mercury, etc.);
- Poor water quality (including from reverse osmosis [RO] effects or due to pH levels) that will impact vegetation in the Project area; and
- Areas of concern including the Arrowhead Region, Lake Superior, the BWCAW, and the St. Louis, Embarrass, and Partridge rivers. The FEIS should provide a more detailed rationale for why effects on these areas are not considered significant, and should more thoroughly discuss the potential effects from bioaccumulation of pollutants within the food web.

Thematic Response

FEIS Sections 5.2.2 and 5.2.7 evaluate water and air modeling results (respectively), and these evaluations inform the analysis of potential effects from harmful pollutants or poor water quality on vegetation species and areas of concern. FEIS Section 5.2.2 states that the NorthMet Project Proposed Action has the potential to affect surface or groundwater hydrology and quality within the Partridge River and Embarrass River watersheds. These watersheds are part of the St. Louis River and Lake Superior watersheds, but are not part of the Hudson Bay basin, and would not affect the BWCAW. As described in FEIS Section 5.2.6, the NorthMet Project Proposed Action is estimated to result in a net decrease in mercury loadings to the Partridge River, but a net increase to the Embarrass River. The responses to theme AIR 04 and AIR 09 discuss the assessment of potentially reactive dust, and the Secondary National Ambient Air Quality Standards that would be protective of vegetation. The response to theme MERC 02 provides additional more information about how mercury bioaccumulation was estimated.

Theme VEG 07

Theme Statement

The analysis of indirect effects to plant species should be expanded (to include dust and other air pollutants such as sulfur dioxide, nitrogen oxide, and greenhouse gases; hydrologic changes; habitat fragmentation; microclimate; loss of fungal associates; erosion; and exotic species). The analysis should vary by each species and location.

Thematic Response

FEIS Section 5.2.4.2 includes an analysis of potential indirect effects to plant species, using available and updated air, water, and wetland modeling results. Potential foreseeable indirect effects analyzed include dust, hydrology effects, and exotic species. PolyMet proposes to implement various dust-control measures such as stabilizing disturbed soils by temporarily establishing vegetation and water spraying during dry periods (consistent with *Minnesota Rules*, part 6132.2800). As FEIS Section 5.2.7 further describes, fugitive dust control measures would result in 90 percent control at the Mine Site. FEIS Section 5.2.3 explains that vegetation located within zones with a high likelihood of hydrology effects would be more likely to have community changes than those with no or low likelihood of effect. FEIS Section 5.2.4.2.1 describes reclamation objectives, including rapidly establishing a self-sustaining plant community, controlling air emissions, controlling soil erosion, providing wildlife habitat, and minimizing the need for maintenance. The reclamation seeding mix would be determined during permitting, and MDNR would not allow the planting of invasive species.

Theme VEG 08

Theme Statement

The cumulative effects analysis for vegetation:

- Uses an unclear assessment area, data, and approach (past, present, and future);
- Should be expanded to discuss effects to treaty-protected (and state-listed) vegetation resources and access to them;

- Should evaluate the statewide status of each species and how effects on one population would cumulatively affect other populations;
- Should discuss the cumulative effects on resources (wetlands, wildlife, vegetation) and include Sites of Biodiversity Significance, native plant communities, threatened and endangered plant species, and invasive species; and
- Should clarify lack of effects or lack of data.

Thematic Response

The FEIS vegetation sections include an analysis of cumulative effects to vegetation species, treaty-protected resources, MBS sites, and native plant communities. The FEIS uses MDNR Natural Heritage Information System (NHIS) data to analyze the statewide status of each species. FEIS Table 6.2.4-3 (formerly Table 6.2-15 in the SDEIS) summarizes the percentage of statewide populations affected. The NHIS data also clarifies whether there is a lack of data in the cumulative project footprints or an absence of species in surveys conducted on-site. The FEIS has been updated to include the new state ETSC status listings from August 19, 2013, as well as any new federal status listing changes to assess effects to species in the cumulative analysis.

Theme VEG 09

Theme Statement

The FEIS should further describe, define, and explain baseline data on vegetation community types, invasive species, biodiversity, and relative abundance, including monitoring plans. The FEIS should also provide a correlation between Management Indicator Habitat types and Regional Foresters Sensitive Species (RFSS) abundance, along with overall justification for the data used in this analysis.

Thematic Response

FEIS Sections 4.2.4 and 4.3.4 include a discussion of baseline data on vegetation community types, invasive species, biodiversity, and relative abundance. PolyMet and agency documents have also been reviewed for new information. Detailed surveys for Regional Forester Sensitive Species (RFSS) have not been conducted; thus, FEIS Table 4.2.4-5 uses a correlation between RFSS preferred habitat types (Management Indicator Habitat [MIH]) and species abundance.

Theme VEG 10

Theme Statement

The risks to biodiversity and vegetation, and the loss of pristine ecosystems are too great to proceed with the Project as proposed.

Thematic Response

This comment has been received and acknowledged by the Co-lead agencies.

A.5.21 Issue: Wetlands (WET)

Theme WET 01

Theme Statement

The plan for indirect mitigation is inadequate. The SDEIS did not provide upfront mitigation for indirect impacts which should be mitigated upfront. The language on indirect impacts is too vague and does not provide enough assurance that mitigation for indirect impacts would actually occur.

Thematic Response

FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. The indirect effects analyses performed for the EIS were not performed to characterize impacts but were done to inform where monitoring should take place for those areas that were identified as having a potential for indirect wetland effects. As a result of these analyses performed to determine where monitoring should occur, quantification of wetland types and acres of potential indirect wetland effects were also generated. FEIS Section 5.2.3 provides these quantitative values of potential indirect wetland effects for the six factors. Potential indirect wetland effects from the NorthMet Project Proposed Action were assessed as a result from one of the following six factors: 1) wetland fragmentation; 2) change in wetland hydrology from changes in watershed area; 3) changes in wetland hydrology from groundwater drawdown resulting from open pit mine dewatering; 4) changes in wetland hydrology from groundwater drawdown resulting from operation of the Plant Site, including groundwater seepage containment; 5) changes in stream flow near the Mine Site and Plant Site and associated effects on wetlands abutting the streams; and 6) change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations. The assessments provided wetland type and acreage for all six factors; however, only wetland acreages were provided for factor 6 (change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations). The identification of specific mitigation for indirect effects and a monitoring plan is not a requirement for an EIS; however, the FEIS has been updated with additional information on the approach for determining mitigation if the monitoring shows indirect effects are occurring. The monitoring and mitigation for potential indirect effects would be determined during permitting. FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. The proposed wetland impact, avoidance, minimization, mitigation and monitoring plan presented in the FEIS would be reviewed, modified as required, and approved during permitting; therefore, this information could change during permitting. Please refer to the response to theme FIN 11 for more information on financial assurance.

Theme WET 02

Theme Statement

The USACE has not yet developed a monitoring plan to assess after-the-fact Project indirect impacts to wetlands, but maintains that will be the way to best determine and mitigate indirect wetland impacts. The monitoring plan for indirect impacts should include the following and should be addressed in the FEIS:

- monitoring in all potential indirect impact categories;
- how would the monitoring be performed, including who would perform the monitoring and what is the criteria;
- decision framework as well as the criteria and process for determining when and what additional mitigation would be needed;
- specify the type, location, and compensation ratios that would be required if monitoring determines indirect impacts are occurring; and
- what the adaptive management practices entail.

Thematic Response

FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. The indirect effects analyses performed for the EIS were not performed to characterize impacts but were done to inform where monitoring should take place for those areas that were identified as having a potential for indirect wetland effects. As a result of these analyses performed to determine where monitoring should occur, quantification of wetland types and acres of potential indirect wetland effects were also generated. FEIS Section 5.2.3 provides these quantitative values of potential indirect wetland effects for the six factors. Potential indirect wetland effects from the NorthMet Project Proposed Action were assessed as a result from one of the following six factors: 1) wetland fragmentation; 2) change in wetland hydrology from changes in watershed area; 3) changes in wetland hydrology from groundwater drawdown resulting from open pit mine dewatering; 4) changes in wetland hydrology from groundwater drawdown resulting from operation of the Plant Site, including groundwater seepage containment; 5) changes in stream flow near the Mine Site and Plant Site and associated effects on wetlands abutting the streams; and 6) change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations. The assessments provided wetland type and acreage for all six factors; however, only wetland acreages were provided for factor 6 (change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations). The identification of specific mitigation for indirect effects and a monitoring plan is not a requirement for an EIS; however, the FEIS has been updated with additional information on the approach for determining mitigation if the monitoring shows indirect effects are occurring. The monitoring and mitigation for potential indirect effects would be determined during permitting. FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects. The proposed wetland impact, avoidance, minimization, mitigation, and monitoring plan presented in the FEIS would be reviewed, modified as required, and approved during permitting; therefore,

this information could change during permitting. Please refer to the response to theme FIN 11 for more information on financial assurance.

Theme WET 03

Theme Statement

The mitigation for direct impacts is inappropriately sited and would not replace functions within the impacted watershed. In addition, the mitigation sites are too far from the area impacted. The proposed mitigation:

- is outside of the watershed and therefore the type and function of the wetlands will not help water quantity and quality within this watershed;
- is outside of the Ceded Territory;
- is not based on a watershed approach;
- should establish a better plan for replacing wetlands on-site; and
- should consider a larger number of smaller wetlands in the direct area, and should not be dismissed solely on whether the company deems it economically feasible to do so if those mitigations make more sense environmentally.

Thematic Response

FEIS Section 5.2.3.3.2 includes a discussion on the wetland mitigation study limits and the site selection process. The NorthMet Project Proposed Action would be located within the St. Louis River Watershed (#3) (8-digit HUC) within the Great Lakes Basin (4-digit HUC). The Zim Site is located within the same watershed as the NorthMet Project Proposed Action; however, the Aitkin and Hinckley sites are located within the Mississippi River Basin (4-digit HUC) and 8-digit HUC watersheds of Elk-Nokasippi #10 and Snake River #36, respectively. In accordance with the 2008 Federal Mitigation Rule, USACE policy, and overall requirements of the CWA, the primary focus of compensatory mitigation is to replace lost wetland functions within the same watershed as the impact site—in this case, the St. Louis River Watershed/Great Lakes Basin. The compensatory wetland mitigation site selection for the NorthMet Project Proposed Action began in 2005 and has gone through a rigorous site selection evaluation. Prior to the 2008 Federal Mitigation Rule, the Aitkin and Hinckley sites were selected, initial approvals by the USACE were received, and substantial investments were made by PolyMet to develop both sites for compensatory mitigation. The USACE guidance prior to the implementation of the 2008 Federal Mitigation Rule was to look for mitigation sites that could provide the following: restoration of historical wetlands, high probability of success, achievement of at least partial in-kind mitigation, and sites that had ditched and/or tiled peatlands to provide for restoration. When the 2008 Federal Mitigation Rule went into effect, the USACE informed PolyMet of the priority for siting any future compensatory mitigation within the St. Louis River/ Great Lakes Basin. The Zim Site was subsequently proposed as a third site. The Proponent, along with, in some cases, state and federal agencies, have conducted and are continuing to conduct extensive efforts to find additional suitable sites within in the Great Lakes Basin for wetland mitigation.

The 2008 Federal Mitigation Rule and 2009 USACE St. Paul District Policy (USACE 2009, as cited in the FEIS) specifies a preferential sequence for compensatory mitigation (i.e., use of

mitigation banking credits, use of project-specific compensation that is based on a watershed approach, use of project-specific compensation that is on-site and in-kind, and use of project-specific compensation that is off-site and/or out-of-kind), and aims to select mitigation sites as close as possible to the watershed of impact; however, sometimes this cannot be accomplished. The 2009 USACE St. Paul District Policy (USACE 2009, as cited in the FEIS) accepts out-of-watershed mitigation; however, the USACE's preference is for the mitigation to be within the same watershed as a proposed project. The term "watershed approach" is defined in 33 CFR § 332.2 as "an analytical process for making compensatory mitigation decisions that support the sustainability or improvement of aquatic resources in a waters. It involves consideration of watershed needs, and how locations and types of compensatory mitigation projects address those needs…"

Additionally, as described in FEIS Section 5.2.3.3.2, the wetland mitigation planning process relied on the WCA wetland replacement siting rules (*Minnesota Rules*, part 8420.0522), state compensatory mitigation requirements under state water quality standards (*Minnesota Rules*, part 7050.0186), and the federal requirements which are discussed above. Additionally, the NorthMet project considered *Minnesota Rules*, part 7050.0186, which requires compensatory mitigation to be sufficient to ensure replacement of the diminished or lost designated uses of the wetland system that was impacted. In addition, to the extent practicable, the same types of wetlands affected are to be replaced in the same watershed, before or concurrent with the actual alteration of the wetland. The WCA rule also states that wetlands in counties where 80 percent or more of pre-settlement wetlands currently exist (which includes wetlands in St. Louis County), the minimum replacement ratio requirements are as determined by the mitigation location and type ranging from 1:1 to 2.5:1. Moreover, *Minnesota Rules*, part 8420.0522 indicates the replacement standards for wetlands as regulated under the WCA.

The compensatory mitigation approach by PolyMet followed the St. Paul District Policy in effect at the time the proposed compensation sites were selected, as well as WCA siting rules. Further, the Zim Site was developed in accordance with a watershed approach. In combination, the proposed compensatory mitigation is appropriate for the siting and scale of the effects that would result from the NorthMet Project Proposed Action. As noted above for the project-specific compensation, the following compensatory mitigation siting sequence is required: on-site, in the same 10-digit HUC watershed, in same 8-digit HUC watershed, in same modified 6-digit watershed, in same 4-digit HUC watershed, then statewide.

Initially, no practicable compensation sites were found in the St. Louis River Watershed, but subsequently, the Zim Site was found and incorporated as part of the compensatory mitigation plan. The 2008 Federal Mitigation Rule and 2009 USACE St. Paul District Policy (USACE 2009, as cited in the FEIS) are watershed based, they do not require wetland mitigation sites to stay within the 1854 Ceded Territory; however, the Zim Site is located within the St. Louis Watershed and the 1854 Ceded Territory. The permanent functional loss of wetlands within the St. Louis River Watershed/Great Lakes Basin would be considered by the USACE in its DA permit decision and has been accounted for in the proposed mitigation credits by PolyMet.

The proposed wetland restoration and enhancement performance criteria place a strong emphasis on ensuring that the proposed mitigation strategy provides for the adequate replacement of lost functions. For purposes of compensatory mitigation, the focus is on functions. The 2008 Federal Mitigation Rule specifically eliminated use of the term "values." An abbreviated MnRAM functional assessment, which was agreed upon by the USACE, was utilized to assess wetland

functions for the Mine Site, Transportation and Utility Corridor, and Plant Site. Both the USACE and MDNR require functions to be replaced; however, both agencies use a set of defined ratio requirements to determine the number of acres required to replace functions lost, as there is currently no suitable quantitative functional assessment method in Minnesota. Based on the findings and where impacts occur (e.g., types of wetlands), the mitigation ratios and credits have been increased to take into account the functions lost due to the NorthMet Project Proposed Action. For example, additional compensatory mitigation (i.e., a higher replacement ratio) is proposed to offset loss of bog wetlands, a difficult-to-replace wetland type. All of the wetland mitigation proposed would be restoration with a minimal component of wetland preservation; no creation of wetlands would be part of the off-site mitigation. Furthermore, as previously noted, the mitigation sites would need to meet performance standards in order to be considered successful.

While on-site replacement of wetlands is listed first in the sequencing, on-site conditions may not be the most suitable for successful wetland mitigation. In fact, 33 CFR § 332.3(b) states that compensatory mitigation should be located where it is most likely to successfully replace lost functions and services within the watershed, not specifically on-site. Moreover, the preferred mitigation methodology stated under the 2008 Federal Mitigation Rule begins with the utilization of mitigation banks and in-lieu fee programs within appropriate service areas prior to permittee-responsible mitigation (33 CFR § 332.3(b)(2)-(3)). Following the use of mitigation banks and in-lieu fee programs, the 2008 Federal Mitigation Rule clearly states that permittee-responsible mitigation following a watershed approach (i.e., providing for mitigation in the best suitable location within the proposed impact watershed) should be used (33 CFR § 332.3(b)(4)). Only after mitigation banks, in-lieu fee programs, and permittee-responsible mitigation under a watershed approach have been exhausted or are infeasible should permittee-responsible mitigation through on-site and in-kind mitigation be considered (33 CFR § 332.3(b)(5). Prior to considering permittee-responsible mitigation, PolyMet investigated the potential to purchase wetland mitigation bank credits and/or use an in-lieu fee program; however, as stated in FEIS Section 5.2.3.3.2 of FEIS, there were insufficient credits available to satisfy the mitigation requirements of the NorthMet Project Proposed Action and no in-lieu fee programs are available in Minnesota.

PolyMet considered on-site mitigation first and there is the potential to provide 101.8 acres of wetland restoration on-site during reclamation. The post-closure establishment of the estimated 101.8 acres of on-site wetland is not included in the wetland mitigation credits. The generation of wetland credits from these areas has the potential to be used on a contingency basis, but compensatory credit would not be considered up front due to the post-closure timeframe. The summary of proposed wetland mitigation credits, presented in FEIS Table 5.2.3-17, does not include the on-site wetland restoration.

FEIS Section 5.2.3.3.2 under the off-site mitigation discussion states that mitigation sites were considered for areas meeting all of the required mitigation criteria with at least 100 contiguous acres. That analysis was limited to sites with more than 100 acres of wetland mitigation potential due to anticipated difficulties in planning numerous, small wetland mitigation projects, and the desire to identify opportunities that were feasible. In addition, the NorthMet Project Proposed Action represented an opportunity to restore large wetland systems and provide greater public and ecological benefits than typically available with smaller projects. In addition, smaller mitigation wetlands have a higher likelihood of failure whereas wetlands that are larger in size

are more likely to succeed and become self-sustaining. Financial assurance is a key component to compensatory mitigation. Please refer to the response to theme FIN 11 for more information on financial assurance. In addition, when considering potential mitigation location and methodologies, cost is an important factor, although it should not be given greater weight than other factors. However, if in order to establish a successful wetland mitigation area at a site is financially exorbitant as opposed to other similar areas which are more economically feasible, the more economically feasible location is acceptable if all other considerations are equal (e.g., habitat, potential future land uses, environmental suitability, etc.).

Proposed mitigation sites were selected based on availability and the high likelihood of meeting performance criteria. Locations for wetland mitigation projects were evaluated based on a four-tiered priority and are described in detail in FEIS Section 5.2.3.3.2:

- On-site;
- Off-site in the in St. Louis River Watershed (same 8-digit HUC);
- Off-site in the Great Lakes Basin (same 4-digit HUC); and
- Off-site in an adjacent 4-digit HUC, selecting an 8-digit HUC as close as possible to the impacted site.

In summary, on-site establishment of wetlands was considered first. There is the potential to provide 101.8 acres of restoration on-site during reclamation. An initial mitigation study investigation of off-site compensatory mitigation opportunities focused on available areas containing greater than 80 percent of their historic wetland resources as defined by the WCA. That area was selected as the initial study area to comprehensively cover the priority mitigation areas. Available mitigation banking credits that were available for purchase by PolyMet were evaluated in portions of bank service areas and found to be insufficient to satisfy the compensatory mitigation requirements. Subsequently, a GIS analysis was performed to identify potential wetland mitigation sites within the defined study area. PolyMet's primary goal of the analysis was to identify large, potentially drained wetlands located primarily on private or tax-forfeit land within the study area to provide preliminary data for more detailed ground investigations to proceed. To achieve the goal of the mitigation plan, which is to replace lost wetland functions using compensatory wetland types in-kind to the degree practicable, areas where drained wetlands could be restored were preferable over areas where wetlands could be created. The analysis was limited to sites with more than 100 acres of wetland mitigation potential due to the anticipated difficulties in planning numerous, small wetland mitigation projects, and the desire to identify opportunities that were feasible. In addition, the NorthMet Project Proposed Action represented an opportunity to restore large wetland systems and provide greater public and ecological benefit than typically available with smaller projects. The wetland mitigation investigation identified three off-site areas that would provide a total of 1,602.7 acres of wetland compensation and 197.1 acres of upland buffer. Please refer to FEIS Section 5.2.3.3.2 for more information on the mitigation site selection.

For those sites that were feasible, PolyMet has obtained rights to the land and mitigation plans were developed. While the two of the three mitigation sites are located outside the watershed (see FEIS Figure 5.2.3-30), PolyMet has sought out sites that would restore high functioning wetlands. PolyMet has plans, or obtained the rights, to develop three mitigation sites which would provide approximately 1,513.3 wetland mitigation credits off-site.

Theme WET 04

Theme Statement

The mitigation plan and measures are inadequate and the ratios for direct compensatory mitigation should be higher. The FEIS should provide a status update on the development of the final wetland mitigation credits (including type, location, acreages). The FEIS should discuss:

- use of a mitigation ratio of more than 2:1;
- mitigation ratio of a minimum of 2:1 and not reduced below this for the loss of high quality wetlands and difficult to replace forested and bog wetland plant communities;
- since no wetland bank is being developed by PolyMet, no excess wetland mitigation credits would be available. Permittee responsible mitigation sites do not generate credits;
- SDEIS suggests that PolyMet will have to replace only 27 acres that suffer this loss;
- wetlands destroyed will not be replaced in-kind;
- mitigation projects assume that permitting agencies will allow restoration and preservation credit for restoring and protecting coniferous bog and swamp that are already functioning as wetland communities;
- how the new wetlands are established;
- if there is a contingency plan if mitigation fails; and
- restoration should have already occurred.

Thematic Response

The FEIS includes the proposed direct compensatory mitigation credits and ratios for the NorthMet Project Proposed Action (see Tables 5.2.3-17, 5.2.3-18, and 5.2.3-19) which are based on the federal guidance policies and state replacement ratio rules. Currently, neither the USACE St. Paul District, nor the State of Minnesota has made a final determination of the compensation ratios required to offset the direct impacts of the NorthMet Project Proposed Action. The final decision on compensatory mitigation ratios for direct wetland impacts would be determined during permitting.

FEIS Section 5.2.3.3.2 discusses how the 2009 USACE St. Paul District Policy (USACE 2009, as cited in the FEIS) and the state policy for base compensation ratios could be applied for the NorthMet Project Proposed Action. As noted, the base compensation ratio for high-quality, difficult-to-replace bog and forested wetlands would be increased from 1.5:1 to 2:1 while the base compensation ratio for low- to moderate-quality wetlands would be set at 1.5:1 (USACE 2013, as cited in the FEIS). The 2009 USACE St. Paul District Policy (USACE 2009, as cited in the FEIS) allows for in-kind, in-place, and in-advance incentives to reduce the recommended base ratios and these would be considered at the time of permitting. The final decision on compensatory mitigation ratios will be determined at the time of the CWA Section 404 permit decision based on current District guidance.

Minnesota Rules, part 7050.0186 requires compensatory mitigation to be sufficient to ensure replacement of the diminished or lost designated uses of the wetland that was physically altered. Based on the WCA wetland replacement standards (*Minnesota Rules*, part 8420.0522, subpart 4),

the required replacement ratio would be either 1:1 or 1.5:1. For those wetlands that are replaced in the watershed with the same wetland type, a majority of which are in-kind, the base replacement ratio that would likely be required is 1:1 and for those wetlands that are replaced outside of the watershed, the ratio would be increased to 1.5:1. The final decision on replacement ratios will be determined at the time of the permit decision.

The NorthMet Project Proposed Action is estimated to directly impact 913.8 acres. Depending on the location, type, and timing of compensatory mitigation, the minimum required amount of replacement wetlands for direct impacts, based upon USEPA recommendations, could potentially range from 913.8 acres up to 1,827.6 acres (i.e., 1:1 up to 2:1 compensation ratios). The USACE has concluded that the mitigation sites selected and the wetland credits generated at the three mitigation sites would be acceptable for use in compensating for direct wetland losses. The USACE has not made a final decision on the mitigation ratios that would be required to compensate for direct wetland impacts; if fully successful, it is likely these three mitigation sites would generate sufficient credits to compensate for the 940 acres of direct and fragmented wetland impacts. In the event that not all of the credits generated by these sites are utilized to compensate for direct wetland impacts, any excess credits could be used to compensate for indirect losses (USACE 2015a, as cited in the FEIS). The current proposed mitigation presented in the FEIS shows that PolyMet could have an excess of mitigation credits from the three mitigation sites if the mitigation sites are successful and meet the performance standards. However, it is understood that mitigation sites sometimes are not fully successful and contingency plans (discussed below) would be developed for the NorthMet Project Proposed Action and approved during permitting. If the wetland monitoring identifies indirect effects and compensatory mitigation is required, the excess mitigation may be allowed to be used for the indirect effects. In the event that additional wetland mitigation is required for direct impacts, it would be consistent with current USACE guidelines which include a watershed approach. The USACE encourages the development of mitigation for foreseeable indirect effects. PolyMet is exploring mitigation options for indirect effects. The FEIS has been updated to note that the excess credits could be used for indirect effects if the monitoring shows mitigation is required. The three mitigation sites are not being developed under the federal banking process.

The majority of the credits proposed by PolyMet would be in-kind mitigation and nearly one-third of the credits would be from within the NorthMet Project area watershed (see Tables 5.2.3-17, 5.2.3-18, 5.2.3-19). Based on PolyMet's current mitigation proposal and assuming the mitigation efforts are fully successful and target communities are established, 83 percent of the impacts to coniferous bogs would be mitigated by in-kind and in-place credits, or 439.9 coniferous bog credits; the remaining 17 percent would be replaced out-of-kind. Out-of-kind credits would be used to mitigate for impacts on wet meadow, shallow marsh, deep marsh, open bog, and coniferous bog communities; these would not be replaced in-kind because of hydrological and ecological constraints at the proposed mitigation sites. Forty seven percent of the wetland impacts are proposed to be replaced in-kind, in-place, and before the impacts occur on-site. An additional 29 percent of the proposed impacts are proposed to be replaced in-kind and before the impacts occur. Most of the additional mitigation credits that are proposed outside of the watershed would fulfill mitigation requirements above the minimum 1:1 ratio. The proposed wetland impact, avoidance, minimization, mitigation, and monitoring plan presented in the FEIS would be reviewed, modified as required, and approved during permitting; therefore, this information could change during permitting.

With restoration, some functions are replaced quickly such as flood storage, water quality benefits, vegetation filter, water flow, pollutants binding with the soil, vegetation absorbing contaminants in the water column, etc. While wildlife habitat replacement would be a long-term benefit from restoration, some short-term benefits for certain species such as mallards, etc. would be provision of cover and nesting areas. Performance standards have been developed and incorporated into the mitigation plan for the three sites to guide the restoration activities and to monitor whether the vegetation and hydrology are meeting the design goals. Restoration activities at the mitigation sites have not commenced yet and would not be initiated until appropriate approvals and permits have been obtained. The state and federal agencies have not yet made a determination on the drainage status of the mitigation sites (i.e., drained, partially drained, etc.); this determination, including credit ratios, would be made during permitting. PolyMet plans to complete initial phases of restoration on all of the proposed off-site wetland mitigation at least one full growing season prior to the occurrence of the wetland impacts for which the mitigation would compensate.

FEIS Section 5.2.3.3.3 has been updated with additional information on the monitoring plan for the mitigation sites and the contingencies for unsuccessful mitigation. In addition, the FEIS Sections 5.2.3.3.2 and 5.2.3.3.4 have been updated with additional details on how the mitigation sites would be developed and monitored.

Theme WET 05

Theme Statement

Compensatory mitigation sites should replace lost wetland functions including:

- replace wetlands of the same caliber (quality, functions and values) and support the same complexity and biodiversity of species;
- address the loss of peat lands and that the formation takes decades;
- address that restoration of coniferous bogs is very difficult and a long process, and has a low success rate;
- should not displace other sensitive habitat;
- provide for in-kind for coniferous bogs; and
- address the loss of carbon and methane storage capacity.

Thematic Response

As described in FEIS Section 5.2.3.3.2, the planning process utilized the wetland replacement standards of the Minnesota Wetlands Conservation Act (*Minnesota Rules*, part 8420.0522), the compensatory mitigation requirements under the state water quality standards (*Minnesota Rules*, part 7050.0186), and the 2009 USACE Saint Paul District Policy. When developing the proposed compensatory mitigation strategy, the primary goal was to restore high-quality wetland communities with the same habitat type, quality, and functions as those areas likely to be impacted by the NorthMet Project Proposed Action. The proposed wetland restoration and enhancement performance criteria place a strong emphasis on ensuring that the proposed mitigation strategy provides for the adequate replacement of lost functions. In addition, it is

standard procedure to complete a baseline study of reference wetland habitats which is then often used to aid in the development of mitigation wetlands to restore native habitats. In order to enhance and preserve the integrity of the habitats created as part of the proposed compensatory mitigation, during the design phase of the wetland mitigation, a planting plan and vegetation performance criteria would be developed which would ensure vegetative species richness and diversity based on the results of a baseline study of reference wetland habitats. Mitigation plans for the three sites have been developed and submitted to the appropriate agencies for review and approval as part of the permitting process.

Wetland functions are defined as what the wetland actually does (e.g., detain floodwaters, provide habitat, and assimilate nutrients) and these functions can be measured (e.g., acre-feet of floodwater storage, plant species richness, rate of sediment deposition, uptake of phosphorus in pounds/acre/year).Values are human perceptions, which vary from individual to individual. For purposes of compensatory mitigation, the focus is on functions and the 2008 Federal Mitigation Rule specifically eliminated use of the term "values." An abbreviated MnRAM functional assessment, which was agreed upon by the USACE, was utilized to assess wetland functions for the Mine Site, Transportation and Utility Corridor, and Plant Site. Both the USACE and MDNR require functions to be replaced; however, both agencies use a set of defined ratio requirements to determine the number of acres required to replace functions lost, as there is currently no suitable quantitative functional assessment method in Minnesota. Based on the findings and where impacts occur (e.g., types of wetlands), the mitigation ratios and credits have been increased to take into account the functions lost due to the NorthMet Project Proposed Action. For example, additional compensatory mitigation (i.e., a higher replacement ratio) is proposed to offset loss of bog wetlands, a difficult-to-replace wetland type. All of the wetland mitigation proposed would be restoration with a minimal component of wetland preservation; no creation of wetlands would be part of the off-site mitigation.

The NorthMet Project Proposed Action would impact approximately 537.6 acres of bog habitat (approximately 530.0 acres of coniferous bog and approximately 7.6 acres of open bog). However, based on PolyMet's proposal, the proposed compensatory mitigation would restore approximately 439.9 acres of coniferous bog communities in-kind. Loss of coniferous bog and open bog communities would be offset at a mitigation ratio of 1.58:1 and 2:1, respectively (i.e., 1.58 credits and 2.0 credits to offset each acre lost) resulting in 840.0 credits to offset the loss of coniferous bog and 15.3 credits to offset the loss of open bog. The proposed mitigation proposes to restore previously impacted bog habitat as opposed to other methods of compensatory mitigation, namely creation. As such, the probability of the restored bog to become self-sustainable and successful is greatly increased. Bogs are difficult ecosystems to restore given their special biochemical and geophysical requirements combined with their long development periods to maturity. However, major advances in restoration methodologies have increased the success rate of restoring these habitats. Performance standards have been proposed by PolyMet and the necessary performance standards would be approved during permitting for the mitigation sites to guide the restoration activities and to monitor whether vegetation and hydrology are meeting the design goals.

Eilling and Knighton (1984) noted that one of the major factors inhibiting the successful restoration of bogs was the inability of previously impacted bogs to support recolonization by bog plants. Schouwenaars (1988a, 1988b, and 1993) has documented that insufficient hydrology is typically the one of the main reasons why bog restorations fail. Lastly, the successful

reintroduction of sphagnum moss (*Sphagnum* spp.) has been shown to be critical to long-term sustainability and viability for restorations of bog habitats (Clymo 1984, Trettin et al. 1996, and Schouwenaars 1988a). As such, during the design phase, methodologies to restore the bog habitats focus on ensuring that the site has suitable organic soils; restoration of sufficient groundwater hydrologic inputs and retention of available surface water; and re-establishment of sufficient *Sphagnum* spp. cover densities. More specifically, Schouwenaars (1993) was able to show that deep drainage systems (e.g., tile drains, ditching, and similar methodologies) may have increased the downward seepage. As such, blocking relic drainage structures is the first step to rewetting bogs and further interventions may be required to ensure bog plant diaspores are provided optimal growing conditions (Trettin et al. 1996).

For the Zim Site, which includes bog restoration, the interior ditches would be filled, raised berms would be leveled and drain tiles would be disabled to restore wetland hydrology. Native, harvested bog material would be spread throughout the site to facilitate the re-introduction of sphagnum mosses and other bog species that cannot be easily re-introduced by seed. Damming and/or filling the drainage ditches and breaching the tile drains is likely to contribute a considerable amount of groundwater within the 15-inch critical saturation zone for *Sphagnum* spp. regeneration (Schouwenaars 1988a). Additionally, the combination of inward and external water control measures would be considered in order to increase the available water storage capacity near the surface to limit fluctuations in water level (i.e., inward controls) and to decrease downward hydrologic losses to maintain a higher water table (i.e., external).

The successful reintroduction of *Sphagnum* spp. to the restored bogs has been included in the design criteria. Clymo (1984) observed that the reintroduction of *Sphagnum* spp. was critical since those species were responsible for specific conditions found in bogs. As such, the design of the restored bogs would include methodologies which have been shown to successfully reintroduce *Sphagnum* spp. such as those presented by Trettin et al. (1996) which include the collection of live *Sphagnum* spp. specimens from reference habitats to seed the restoration site by spreading the live specimens on sufficiently prepared substrates combined with suitable designed microtopography and the application of natural ground cover (e.g., weed-free straw). The use of live specimens to seed restored bogs resulted in no observed negative impacts to the collection habitat and resulted in the reestablishment of *Sphagnum* spp. populations within a few months (Trettin et al. 1996). Moreover, the application of phosphorus-rich nutrients, including fertilizers, has been shown to benefit bog mosses and improve the success of bog restorations (Sottocornola et al. 2007). As described in FEIS Section 5.2.3.3.2, vegetation and hydrology would be managed and monitored to ensure the performance standards of the restored bogs are successfully met.

The proposed compensatory mitigation sites include three off-site locations that are active sod farms and/or under agricultural production, and have been previously impacted via drainage structures, land manipulation, and other common anthropogenic sources typically associated with agricultural production. Therefore, there is little concern that sensitive habitats would be displaced as a result of the proposed mitigation sites. However, in order to ensure that other sensitive ecological receptors, such as threatened or endangered species and rare habitat communities, are not unintentionally adversely affected as a result of the proposed compensatory wetland mitigation, the proposed mitigation sites have been evaluated for the potential presence of and impact to existing sensitive habitats. A Biological Assessment (Appendix D of the FEIS)

has been prepared for the NorthMet Project Proposed Action which includes the three mitigation sites.

The majority of the credits proposed by PolyMet would be in-kind mitigation and nearly one-third of the credits would be from within the NorthMet Project area watershed (see Tables 5.23-17, 5.2.3-18, 5.2.3-19). Eighty-three percent of the impacts to coniferous bogs would be mitigated by in-kind and in-place credits, or 439.9 coniferous bog credits; the remaining 17 percent would be replaced out-of-kind. Out-of-kind credits would be used to mitigate for impacts on wet meadow, shallow marsh, deep marsh, open bog, and coniferous bog communities; these would not be replaced in-kind because of hydrological and ecological constraints at the proposed mitigation sites. Forty seven percent of the wetland impacts are proposed to be replaced in-kind, in-place, and before the impacts occur on-site. An additional 29 percent of the proposed impacts are proposed to be replaced in-kind and before the impacts occur on-site. Most of the additional mitigation credits that are proposed outside of the watershed would fulfill mitigation requirements above the minimum 1:1 ratio.

The NorthMet Project Proposed Action would result in a loss of carbon and methane storage capacity as a result of impacts to wetland resources. Established and functioning wetlands often serve as a carbon "sink" wherein carbon dioxide (CO_2) is sequestered as a result of natural biogeochemical processes. However, as a product of CO_2 sequestration, methane (CH_4) is produced and released into the atmosphere. Both CO_2 and CH_4 are greenhouse gases; however, they function differently. CO_2 remains active in the atmosphere longer while CH_4 absorbs more atmospheric infrared radiation (Whiting and Chanton 2001). Whiting and Chanton (1992) demonstrated that carbon fixation in flooded wetland habitats was intimately related to CH_4 production and emission into the atmosphere. In fact, Matthews and Fung (1987) found that northern latitude wetlands emitted relatively more CH_4 than southern wetlands, likely as a result of the long winters and resultant shorter growing season. As such, the directive to address the loss of both carbon and methane storage as a result of the NorthMet Project Proposed Action is impracticable. Barr (2012l, as cited in the FEIS) assessed the carbon cycle effects due to direct and indirect impacts proposed by the NorthMet Project Proposed Action. That assessment determined that approximately 12,535 metric tons per year of greenhouse gas emissions (in CO_2-equivalents) would be released as a one-time event (i.e., not recurring over the life of the project). The assessment also noted that the aboveground forest carbon stock loss due to NorthMet Project Proposed Action impacts is a theoretical maximum of the amount of CO_2 stored in the impacted forest vegetation and that the estimate should not be interpreted that all carbon would necessarily be emitted over a short timescale as CO_2. The NorthMet Project Proposed Action would result in the loss of approximately 940.7 acres of direct and fragmented wetland impacts; however, the proposed compensatory mitigation includes the restoration and preservation of approximately 1,602.7 acres of wetland habitat, an approximately 1.6:1 mitigation ratio per USACE Policy and WCA rule crediting. Therefore, the loss of potential carbon sequestration provided by existing wetlands would be sufficiently mitigated via the restoration of nearly twice the acreage of wetlands proposed to be impacted. The mitigation sites are peat soils that have been drained; however, if the hydrology to the peatlands is restored, the release of carbon would be stopped and the sites would again function as carbon storage.

Theme WET 06

Theme Statement

The FEIS should describe the site selection process used to designate the location of the mitigation sites as it is unclear where the compensatory wetlands would be found. In addition:

- restoration work should not occur at the Sax-Zim Bog;
- Zim Site is already wet and serves the functions of a wetland;
- data must be provided documenting the biodiversity of these lands;
- mitigation sites are currently being developed and have not yet been permitted by the USACE; and
- none of the sites should be qualified as mitigation.

Thematic Response

Please refer to the response to theme WET 03 regarding the discussion of the considerations for site selection process.

The Zim Site is not the same as the Sax-Zim Bog site (which is a current banking proposal in this area, unrelated to the NorthMet Project). Please refer to FEIS Figure 5.2.3-30 which shows the mitigation site locations. The state and federal agencies have not yet made a determination on the drainage status of the mitigation sites (i.e., drained, partially drained, etc.); this determination, including credit ratios, would be made during permitting. The USACE has concluded that the mitigation sites selected and the wetland credits generated at the three mitigation sites would be acceptable for use in compensating for direct wetland losses. The USACE has not made a final decision on the mitigation ratios that would be required to compensate for direct wetland impacts; if the mitigation is fully successful, it is likely these three mitigation sites would generate sufficient credits to compensate for the 940 acres of direct and fragmented wetland impacts. In the event that not all of the credits generated by these sites are utilized to compensate for direct wetland impacts, any excess credits could be used to compensate for indirect losses (USACE 2015a, as cited in the FEIS). Currently, neither the USACE St. Paul District, nor the State of Minnesota has made a final determination of the compensation ratios required to offset the direct impacts of the NorthMet Project Proposed Action. The final decision on compensatory mitigation ratios for direct wetland impacts would be determined during permitting.

The role of biodiversity, including floristic diversity, is included as part of the wetland habitat functions that are addressed during mitigation site selection. The goal of the selected mitigation sites is to provide robust and diverse plant communities. The proposed mitigation plan captures the importance of biodiversity; replacing in-kind to the extent practical, lost functions of the impacted wetlands including those specific to the proposed impacted coniferous bogs of the proposed project. The mitigation ratios would also be adjusted accordingly to account for uncertainties in quantifying the degree functions provided. As such, the mitigation ratios have been increased in order to account for that uncertainty. Please refer to the response to theme WET 03 for more information on functions.

Theme WET 07

Theme Statement

The FEIS should more fully and clearly disclose the environmental impacts of the direct and indirect losses of wetlands, and should assess the significance of those impacts. FEIS should consider/describe:

- was a standard definition of "wetland" used?;
- limiting direct impacts on less than 57 percent of existing wetlands;
- how the footprint of 912.5 acres was calculated and does this include wetland and buffer zones and was a standard definition of wetland used;
- total acres of wetlands in the Partridge River and Embarrass River watersheds where adverse impacts are reasonably foreseeable, whether as a result of fragmentation, mine drawdown, hydrologic changes, seepages, leaks, spills or deposition of contaminants;
- underestimation of the number of wetland acres to be permanently disturbed, as well as their biological quality;
- providing the number and/or range of estimates of indirect wetlands impacts and fragmentation of directly and indirectly affected wetlands;
- whether or not the analysis took into account climate change in the 200+ year project life; and
- why was only one wetland surveyed south of the Transportation and Utility Corridor.

Thematic Response

The NorthMet Project Proposed Action would directly impact 913.8 acres of wetlands; however, actions have been taken to avoid, minimize, and mitigate wetland impacts as discussed in FEIS Section 5.2.3.3. The modifications that have occurred during the development of the EIS have resulted in avoidance and minimization of impacts to wetland resources. To date, these modifications have reduced the acreage of wetlands impacted from 1,257 to 913.8 acres, a 27 percent decrease. The NorthMet Project Proposed Action would provide compensatory mitigation for the 913.8 acres of direct impacts as well as for the 26.9 acres of fragmented wetlands at three off-site mitigation sites. FEIS Section 5.2.3.2 provides a detailed discussion of the direct impacts and potential indirect effects as a result of the NorthMet Project Proposed Action. In addition, the proposed wetland mitigation and wetland monitoring plans are discussed in FEIS Section 5.2.3.3.2.

Wetland boundaries were identified using the routine wetland delineation procedures of the Corps of Engineers Wetlands Delineation Manual (USACE 1987, as cited in the FEIS) (the "Manual") and were reviewed by the appropriate agencies. The Manual contains a standard definition of "wetland" and methodology to apply that definition in the field; both USACE and MDNR use this Manual. The methodology and evaluation criteria that were utilized for determining direct impacts and indirect effects to wetlands resources is discussed in FEIS Section 5.2.3.1.1 and the impacts that could occur from the NorthMet Project Proposed Action are discussed in detail in FEIS Section 5.2.3.2.

FEIS Section 4.2.3.1.3 provides a discussion of the wetland functional assessment that was performed for the wetlands at the Mine Site and along the Transportation and Utility Corridor; this discussion notes that the MnRAM was used to assess wetland functions on the Mine Site and along the Transportation and Utility Corridor. During the field wetland surveys for the Project areas, data was collected related to the functions of each wetland within the proposed Project areas (i.e., Mine Site, Transportation and Utility Corridor, Plant Site) under an abbreviated MnRAM approach. The vegetative diversity/integrity within each wetland was rated using the guidelines in the Minnesota Routine Assessment Method for Evaluating Wetland Functions, Version 3.0 (MNRAM 3.0). A total of 87 wetlands were evaluated at the Mine Site for vegetative diversity/integrity and overall functional quality rating and is summarized in FEIS Table 4.2.3-4. Wetland data forms with the MnRAM information collected in the field was presented in Wetland Delineation and Wetland Functional Assessment Report (Barr 2006d, as cited in the FEIS). Approximately 92 percent of the wetland resources in the Mine Site are of high overall wetland quality and 8 percent are of moderate overall wetland quality. Furthermore, the wetlands along the Transportation and Utility Corridor were also assessed using the same approach, and all 21 wetlands have been rated as high quality. The four wetland resources along the Railroad Connection Corridor are moderately affected and have a high vegetative diversity/integrity. FEIS Section 4.2.3.2.3 describes the findings of the MnRAM assessment for the Plant Site. The majority (92 percent) of the wetlands within the Plant Site are currently rated as low-quality with low vegetative diversity/integrity and the eight percent are rated as moderate quality. The wetlands within the Hydrometallurgical Residue Facility are currently rated as low-quality and the wetlands within the Colby Lake Water Pipeline Corridor are rated as low quality (93 percent) and moderate quality (7 percent). The field work that was completed for the federal lands that are beyond the Mine Site boundary included a MnRAM evaluation for representative wetland locations. At these representative locations, 63 questions given in MnRAM 3.2 were addressed, and all factors were evaluated for each wetland surveyed (see FEIS Section 4.3.3). This approach differed from the Project areas where mining activities would occur and was agreed to by the USACE. Therefore, the wetland assessment sites that are identified on the figures in the FEIS are associated with the federal lands evaluations. However, as indicated above, all wetlands within the NorthMet Project areas associated with the mining activities had an abbreviated MnRAM performed.

FEIS Section 5.2.3 discusses the percentage of high, medium, and low quality wetlands to be impacted by the mining features. The wetland assessment sites that were shown on SDEIS Figure 4.2.3-2 are wetland assessment sites, using MnRAM, that were collected for the federal lands and are now shown on FEIS Figure 4.3.3-1. FEIS Section 4.3.3 includes a discussion on these findings.

A qualitative assessment of the potential impacts of climate change on wetlands is included in FEIS Section 5.2.7.2.4. The Greenhouse Gas and Climate Change Evaluation (Barr 2012l, as cited in the FEIS) addressed the 20 year project life plus the 60 year post-closure period.

The direct, indirect, and cumulative assessments that were performed for the NorthMet Project Proposed Action were agreed upon during the Wetland Impact Assessment Planning Group and per the Wetland Analysis Work Plan (PolyMet 2011b, as cited in the FEIS).

Theme WET 08

Theme Statement

The discussion of indirect wetlands impacts in the PolyMet SDEIS is inadequate and potentially misleading. The methodology and criteria used for assessing indirect impacts should be properly described. In particular,

- the proposed analog method of assessing potential indirect impacts from mine site pit dewatering is not adequate and is unverified and based on anecdotal and limited observations, and as such should not be the sole means of indirect impact assessment for the SDEIS (e.g. GLIFWC provided an analysis, etc.);
- Tribal Cooperating Agency objections to use an analogue method include: 1) mine pit will be hundreds of feet deeper than any of the analogue mine pits; 2) mine pit walls will be crystalline and sedimentary bedrock versus the analogue mine pits in sedimentary bedrock only; 3) data collected from the site would be relatively inexpensive and should be used to inform impact assessment; and 4) relying on only a partial set of available analogue data as the source of information to estimate dewatering impacts is selective and not scientifically robust;
- GLIFWC's method of analogue assessment used all available drawdown data for the Mesabi Iron Range, and did not automatically exclude wetlands classified as ombrotrophic from being considered impacted by drawdown;
- a hydrological study, pump test, and/or laser test must be done;
- the FEIS should also not use the natural range of variation in stream levels to determine indirect wetland effects;
- explain how the 20% threshold was determined and should also recognize that the term fragmentation may define indirect impacts other than changes in watershed size;
- the indirect wetland effects need to be assessed for evaporation resulting from loss of vegetation cover, which should include ombrotrophic wetlands;
- explain why were the wetlands in the Northshore Mine and areas directly north of that mine excluded; and
- describe in more detail the criteria used to determine fragmentation losses.

Thematic Response

FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the indirect wetland effects. The indirect effects analyses performed for the EIS were not performed to characterize impacts but were done to inform where monitoring should take place for those areas that were identified as having a potential for indirect wetland effects. As a result of these analyses performed to determine where monitoring should occur, quantification of wetland types and acres of potential indirect wetland effects were also generated. The Co-lead Agencies agree that multiple factors can affect whether a wetland would experience indirect effects due to a project. FEIS Section 5.2.3 provides these quantitative values of all potential indirect wetland effects. Potential indirect wetland effects from the NorthMet Project Proposed Action were assessed as a result from one of the following six factors: 1)

wetland fragmentation; 2) change in wetland hydrology from changes in watershed area; 3) changes in wetland hydrology from groundwater drawdown resulting from open pit mine dewatering; 4) changes in wetland hydrology from groundwater drawdown resulting from operation of the Plant Site, including groundwater seepage containment; 5) changes in stream flow near the Mine Site and Plant Site and associated effects on wetlands abutting the streams; and 6) change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations. The assessments provided wetland type and acreage for all six factors; however, only wetland acreages were provided for change in wetland water quality related to atmospheric deposition of dust and rail car spillage associated with Mine Site and Plant Site operations. The methodology and criteria used for assessing potential indirect wetland effects are described in FEIS Section 5.2.3.1.2.

The Co-lead Agencies believe that the analog method used in the SDEIS to assess potential indirect effects from mine dewatering is adequate. Further, the FEIS has been revised to address concerns raised by the Bands regarding the assertion that ombrotrophic bogs would not be impacted by mine dewatering. FEIS Section 5.2.3.2.2 applies a more conservative assumption of the potential indirect effects for all bog communities within the 0-1,000-ft analog zone. Specifically, ombrotrophic bogs were reclassified from the “no effect” category to the “low likelihood” category, the same status as that assigned to minerotrophic bogs. The complex mixes of bedrock, surficial deposits, and wetland soils at the Mine Site impede the ability to reasonably model (e.g., using MODFLOW) and accurately assess the potential effect of pit dewatering on wetlands. In light of this modeling limitation, wetlands were divided into zones based on distance from the open pit. The closer a wetland was to the pit during dewatering, the greater the water table drawdown would be and the greater potential there would be for hydrologic effects on overlying wetlands. These impact assessment methodologies are presented in FEIS Sections 5.2.2.3.2 and 5.2.3.1.2.

The Co-lead Agencies are not relying solely on the potential impact zones determined in the analog method for the FEIS, but would be monitoring wetlands for potential indirect effects as part of an adaptive management plan. Permit conditions would include a plan for additional compensatory mitigation if indirect wetland impacts were identified, and appropriate changes to the adaptive management plan would be made as required.

Fragmentation and a change in watershed area (20 percent or greater) are two of the six factors, as noted above, being considered in the identification of potential indirect wetland effects that would be actively monitored due to the NorthMet Project Proposed Action, if the project were to be permitted. PolyMet proposes that if a wetland would potentially experience three or more of these factors, a monitoring well and a vegetation plot would be installed at that wetland for use in monitoring for indirect effects. A rating system (0-6) was developed for the wetlands based on the number of factors that may potentially affect it. Wetlands that were not determined to be potentially indirectly affected would be rated as zero, and wetlands that were determined to be potentially indirectly affected by all six factors would be rated as a 6; however, no wetlands were rated as a 6 (see Figures 5.2.3-24 through 5.2.3-29). Monitoring is proposed within all wetlands with a factor rating of 3 to 5 and also for a subset of those wetlands with factor ratings of 1 or 2 as described in FEIS Section 5.2.3.3 (see Figures 5.2.3-31 and 5.2.3-32).

The 20 percent change in watershed area is a metric used to assist in identifying wetlands to be monitored for indirect effects. It comes from a scientific paper (Richter et. al 2011) and its use in the EIS indirect effects wetland assessment is based on the assessment of potential water-related

impacts (including to aquatics) in the EIS. With regard to daily flow alterations (i.e., in streams or rivers), the paper states that, "Alterations greater than 20 percent will likely result in moderate to major changes in natural structure and ecosystem functions,…"

Though the 20 percent metric discussed in this paper is applied to streams and rivers, the Co-lead Agencies believe that a 20 percent change is a reasonable metric to apply when identifying wetlands for monitoring, in particular with respect to potential ecological changes that may be triggered with a change in watershed contribution (water yield) of this magnitude or greater. As stated above, the 20 percent change in watershed is just one of six factors used to identify which wetlands would be proposed to be actively monitored for indirect effects.

FEIS Section 5.2.3.1.2 has been updated to provide more information on the methodology and criteria for determining potential indirect fragmented wetland effects. Fragmentation is another of the six factors described above. The wetland fragments that are not expected to maintain their functions, approximately 26.9 acres, have been identified in FEIS Section 5.2.3 and on Figure 5.2.3-1. PolyMet's proposed mitigation for the NorthMet Project Proposed Action would be providing upfront compensatory mitigation for the 26.9 acres of wetland fragmentation (see Tables 5.23-17, 5.2.3-18, 5.2.3-19). The monitoring and mitigation requirements for indirect effects, including fragmentation, would be determined during permitting. The wetland fragments that have not been accounted for in the upfront mitigation would be included in the wetland hydrology and vegetation monitoring plan that would be developed and implemented for the NorthMet Project Proposed Action. FEIS Section 5.2.3.3 includes a detailed discussion on the monitoring and mitigation plan for the indirect wetland effects. The proposed wetland impact, avoidance, minimization, mitigation and monitoring plan presented in the FEIS would be reviewed, modified as required, and approved during permitting; therefore, this information could change during permitting.

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS and there is incomplete or unavailable information because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, NEPA directs the agency to make it clear that such information is lacking, discuss the relevance of the lacking information, and discuss any information relevant to evaluation of the future impacts. In these cases, NEPA also directs the agency to evaluate these impacts based upon theoretical approaches or research methods generally accepted in the scientific community provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.

The Co-lead Agencies believe this is the case for evaluating indirect wetland effects. The Co-lead Agencies have thoroughly considered throughout the development of the EIS and through the Wetland Impact Assessment Planning Work Group how to assess potential indirect wetland effects. As a result, strengths and weaknesses of the approach used, as well as other suggested approaches, have been carefully considered. The Co-lead Agencies ultimately decided the use of the analog method and the 20 percent metric described in FEIS Section 5.2.3 as factors considered in identifying potential indirect effects to wetlands is a credible and reasonable approach consistent with the requirements of NEPA.

Please refer to the response to theme WET 09 for more information on ombrotrophic wetlands and the evaluation that was done. A hydrological study, pump test, and/or laser test was not

performed as the Co-lead Agencies utilized the analog approach for assessing potential groundwater drawdown.

Areas that would have a loss of vegetative cover were identified as directly impacted wetland resource areas. These de-vegetated areas would be located under infrastructure footprint such as stockpiles, haul roads, etc. The areas outside of the directly impacted areas would be monitored for changes in vegetation and hydrology as described in FEIS Section 5.2.3.3.

As stated in FEIS Section 5.2.3.1.2, wetland acreage by wetland type was calculated using GIS analysis with 500-ft radius increments beginning at the mine pits and continuing out to a total radius of 10,000 ft (for a total of 20 increments); and 500-ft radius increments beginning at the Plant Site and continuing out to the Embarrass River. The area of analysis for the indirect effects extended beyond the NorthMet Project area component boundaries and included Area 1 and Area 2, as identified in FEIS Section 4.2.3. Wetlands in the Northshore Mine and areas directly north of the Northshore Mine have been excluded from the evaluation as agreed upon during the Wetland IAP Group discussions and by the Co-lead Agencies. The wetlands located on the Northshore Mine site were excluded as they are associated with that active project, the Northshore (Peter Mitchell) pit would be the predominant influence to the adjacent wetlands, and it would be the responsibility of Northshore to determine wetland effects in that area. Furthermore, the fact that a portion of the Northshore Mine is located in a different watershed and there is a watershed divide was considered in that decision. The cumulative effects discussion included that portion of the Northshore Project that is located in the Partridge River Watershed.

Theme WET 09

Theme Statement

The identification of ombrotrophic and minerotrophic bogs should be reevaluated; limited data were collected, and these features may have been misclassified. The FEIS should also acknowledge (and if necessary, revise its analysis to reflect) that the memorandum used to identify bogs was not an assessment of the hydrologic conditions of wetlands in a dewatered state but rather an assessment of surface hydrology under normal conditions. The assessment should consider:

- appearance of fen indicator species (e.g. northern white cedar, bog birch, balsam fir, alder, and willow) in the coniferous bog type at the NorthMet site clearly indicates that these peatlands are minerotrophic fens and not ombrotrophic bogs;
- ombrotrophic bogs have the following features: 1) are mounded (i.e. raised) 2) contain no fen indicators 3) have surface waters with a pH less than 4.2 and Ca less than 2 mg/l.
- relying on a two-day site visit of the bog wetlands and on the data collected to support wetland delineation will not provide the detail needed to track changes in site-specific wetland plant communities and hydrology;
- use of the MDNR Field Guide to the Native Plant Communities of Northeastern Minnesota which separates bogs from fens by the absence of fen indicator species;

- recommend some data on peat depths (which can be quickly compiled with a probe). The periodic re-sampling of these plots would provide the best and most cost-efficient indicator for major impacts of mining operations on the wetlands in the NorthMet site; and
- unless the bogs were in fact perched (which is probable but not supported by data included within this memorandum) they would still be connected to underlying groundwater flow systems and could be affected by drawdown.

Thematic Response

Summary

Eggers (2015, as cited in the FEIS) emphasized that it is imperative to understand that the distinction between the types of bog vegetative communities (ombrotrophic vs. somewhat minerotrophic) was used to estimate potential indirect effects for discussion purposes in the SDEIS and to recognize that those estimates would not be used to determine compensatory mitigation requirements should the NorthMet Project Proposed Action be authorized by the regulatory agencies.

An assumption made in the SDEIS was that ombrotrophic bogs would not be impacted by the proposed mine dewatering compared to affects to the somewhat minerotrophic bogs. However, public comments submitted on the SDEIS prompted a more conservative approach (i.e., projecting greater wetland impacts) for the FEIS. That approach assigns all bog communities the same likelihood of hydrology effects due to mine dewatering. The wetland analysis presented in FEIS Section 5.2.3.2.2, incorporates this more conservative assumption of the potential indirect effects to bogs and reassigned all bog communities within the 0-1,000 ft analog zone the “low likelihood” category of wetland hydrology effects (Eggers 2015, as cited in the FEIS). This resulted in moving the ombrotrophic bog community from the “no effect” to the more conservative “low likelihood” category. The 0-1,000 ft analog zone was described by Adams and Liljegren (ERM and MDNR 2011, as cited in the FEIS) wherein significant surficial groundwater drawdown was most likely to occur and is most likely to be measurable. As such, Eggers (2015, as cited in the FEIS) concluded that it would be reasonable to expect that groundwater drawdown would likely result in some level of hydrology effect experienced by all wetland types within this zone.

For the 1,000-2,000 ft. analog zone, Eggers (2015, as cited in the FEIS) noted that Adams and Liljegren (ERM and MDNR 2011, as cited in the FEIS) stated that drawdown of the surficial groundwater may occur but would likely be much less than the 0-1,000 ft zone and may not be discernible from natural variation. The FEIS includes both ombrotrophic bogs and somewhat minerotrophic bogs in the “no effect” category for this zone.

Thus, for purposes, the differentiation of ombrotrophic versus somewhat minerotrophic bog communities is no longer an important factor for estimating potential indirect effects due to mine dewatering.

If the NorthMet Project Proposed Action receives all of the necessary regulatory authorizations, any compensatory mitigation requirements to offset indirect wetland effects would be based on quantitative field data (e.g., hydrology and vegetation) collected during monitoring that would confirm or refute assumptions made regarding indirect effects.

Presence of Any Minerotrophic Species Precludes Ombrotrophic Bog Status

It is inaccurate to assert that the presence of one or more plant species not listed by Appendix D – List of Bog Species in the "Field Guide to the Native Plant Communities of Minnesota – The Laurentian Mixed Forest Province" (MDNR 2003b, as cited in the FEIS) precludes a determination that the community is an ombrotrophic bog (Eggers 2015, as cited in the FEIS). The Acid Peatland System (MDNR 2003b, as cited in the FEIS) explains that single individuals and single clones of minerotrophic species can occur within ombrotrophic bogs. More specifically, the description of the Northern Spruce Bog (i.e., APn80) community clearly states that, "minerotrophic species are absent or present only as single individuals or single clones…" (MDNR 2003b, as cited in the FEIS). Similarly, the Northern Open Bog (i.e., APn90) community definition states that, "Minerotrophic indicators are absent or extremely rare; vegetation is composed mostly of bog species." (MDNR 2003b, as cited in the FEIS).

Fieldwork was Insufficient to Accurately Differentiate Ombrotrophic vs. Minerotrophic Bogs

The Wetlands IAP Group site visit in September 2010 focused on field-checking the wetland plant community mapping and wetland delineation work. All plant species within each plant community were recorded as part of the field work. Eggers (2015, as cited in the FEIS) noted that some of the non-dominant species recorded were only single individuals or small patches with less than one percent areal cover. However, that level of detail was not recorded in the field since it was not necessary in order to properly apply the Eggers and Reed classification system. It was also noted that the field investigation frequently included the upland (i.e., mineral soil)/wetland (i.e., peatland) boundary in an effort to validate the accuracy of the wetland delineation (Eggers 2015, as cited in the FEIS). As a result, it is likely that minerotrophic species were included in the species observations when in actuality those species did not occur in substantive quantities within the broader wetland community but were only present within the narrow ecotone between the upland/wetland interfaces (relates to discussion in Item 2 above). Eggers (2015, as cited in the FEIS) noted that the work completed during the 2010 field investigations was not optimal for distinguishing between ombrotrophic vs. somewhat minerotrophic bog communities. Following the 2010 field investigations, discussions occurred concerning whether more expansive and intensive field work utilizing relieves, precise measurements of pH and mineral concentrations, and other factors should be accomplished; however, this effort was not implemented because of a determination that more detailed information would not result in a definitive answer regarding potential indirect effects to bog communities (Eggers 2015, as cited in the FEIS). Major uncertainties would remain including:

- Because ombrotrophic bogs are precipitation-driven systems, to what degree, if any, would these communities by impacted by groundwater drawdown due to the mine dewatering; and
- Are flowpath connections with groundwater present within some or all of the ombrotrophic bog communities within the project site?

Instead, Eggers (2015, as cited in the FEIS) proposed an alternative approach to apply more conservative assumptions of potential indirect effects to all bog communities as discussed above.

Technical Criteria to Differentiate Bog Community Types

Dr. Paul H. Glaser, an expert on peatlands who has conducted extensive research on the peatlands of northern Minnesota, provided detailed comments regarding criteria for ombrotrophic bogs which are also noted by MDNR (2003b, as cited in the FEIS):

- The landform type is a raised bog that is always higher than the peatland margin;
- There is an absence of minerotrophic (i.e., fen) indicator species;
- The surface water chemistry has a pH of less than 4.2 and calcium concentrations of less than 2 mg/l; and
- The hydrology and source of minerals is entirely sourced from precipitation.

There was across-the-board agreement by the Co-lead Agencies, Wetlands IAP Group, and public comments on the SDEIS, that MDNR (2003b, as cited in the FEIS) was the appropriate standard to differentiate ombrotrophic vs. somewhat minerotrophic bog communities.

Measure Peat Depths as part of Monitoring for Indirect Impacts

Bogs are well known to have a long-term imbalance between litter production and the decomposition of organic matter resultant from high water tables (Strakova et al. 2012) which results in the accumulation of peat material within peatlands. The depth of peat material as well as the composition of the vegetative communities of peat bogs can change over time resultant from indirect effects to the habitat from decreased hydrology resulting in a reduced thickness of peat as well as a change in the vegetative community (Laine et al. 1995, Weltzin et al. 2000, Robroek et al. 2007, Breeuwer et al. 2009, and Strakova et al. 2012). Numerous studies have demonstrated that the overall quantity (i.e., thickness), quality, and location of peat that is produced in bogs is affected only after experiencing a reduction in the water table depth (Laiho et al. 2003; Murphy et al. 2009; and Strakova et al. 2010, 2012).

As such, the dewatering of peatlands resulting in the subsequent oxidation of peat soils often leads to subsidence over an extended period of time and can be measured; however, changes in the elevation of the water table would become evident much more quickly than subsidence of the peat material. Therefore, hydrology data generated by the proposed monitoring plan utilizing shallow wells and water level data loggers would exhibit indicators of indirect effects to bogs at the earliest stage. Subsequently, the vegetation would begin to exhibit changes. Measureable subsidence of peat soils would be less responsive (i.e., slower to occur). Consequently, the suggestion that data on the depth of peat within the bogs be gathered is not an efficient methodology to determine the occurrence of indirect impacts. In summary, the proposed monitoring efforts offer sufficient early detection of potential indirect effects to bogs.

Groundwater Flowpaths and Ombrotrophic Bogs

Ombrotrophic bog communities can have flowpath connections with groundwater; therefore, those communities could potentially be sensitive to effects resultant from groundwater drawdown unless they support perched water table mounds (Eggers 2015, as cited in the FEIS). Although perched recharge mounds may exist within the NorthMet Project area, Eggers (2015, as cited in the FEIS) noted that in order to confirm this hypothesis, an extensive study utilizing piezometer nests installed to depths both above and below the confining layer to demonstrate the presence/absence of a perched water table mound would be required. The comments submitted combined with cited literature (e.g., Siegel and Glaser 1987) present sufficient evidence to support the conclusion that ombrotrophic bogs can have flowpath connections with groundwater (Eggers 2015, as cited in the FEIS).

The effort to determine if the NorthMet Project area ombrotrophic bogs are in fact perched or if they exhibit flowpaths to groundwater would be exorbitantly cost prohibitive and would not

result in any sufficient information that would drastically alter the conclusions of whether ombrotrophic bogs would experience any potential indirect effects. FEIS Section 5.2.3.2.2 has been updated to make a more conservative assumption of the potential indirect effects for all bog communities within the 0-1,000 ft analog zone by reclassifying ombrotrophic bogs from the "no effect" category to "low likelihood" category for potential wetland hydrology effects.

Theme WET 10

Theme Statement

The FEIS should provide a more complete evaluation of indirect wetland impacts resulting from change in hydrology due to groundwater drawdown, and impacts to river baseflows and riparian wetlands. In particular, the FEIS should provide a single estimate or range of acres and wetland types that would be affected by groundwater drawdown and if needed provide the worst case analysis. The analysis is inaccurate, because:

- impact zones and distances are not well described and do not agree with the automatic exclusion of ombrotrophic wetlands from potential drawdown effects;
- the water table would be drawn down for an unknown distance around the mine resulting in significant impacts and higher than reported acreage impacts, as well as drawdown of Partridge River and its riparian wetlands, and would be expected to have a greater effect on smaller wetlands as opposed to larger ones;
- groundwater drawdown is likely to result in impacts on ombrotrophic bogs, and these impacts must be included in the SDEIS as the new head pressure could lead to impacts of water seeping out of the ombrotrophic wetlands where there is a hydrologic connection to the saturated layer;
- in the absence of adequate rationale for the assumption that groundwater flowing from the mine features would not enter [minerotrophic] wetlands, it must be assumed that contamination would impact all wetlands that are hydrologically connected to groundwater in each flow path; and
- use of the Canisteo Pit as an analog must be adjusted to account for the difference in depth of the NorthMet pit, and this assessment must use relevant information from other mine pits.

The SDEIS should be revised to remove assertions that coniferous and open bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data and FEIS should use hydrologic data to characterize the wetlands and identify groundwater connections with the wetlands. In addition, hydraulic testing needs to be conducted at the Tailings Basin.

GLIFWC conducted an independent assessment using the same methods as the Co-lead Agencies, along with additional analog data from other mining-impacted sites, and the assessment found an estimated total of 5719.75 acres of wetlands would be potentially susceptible to severe indirect impacts from mine pit drawdown (Zone 1). The finding that the Partridge River would act as a natural barrier to the cone of depression suggests that the riparian zone of the Partridge River will not be affected by groundwater drawdown. GLIFWC independent analysis estimated drawdowns of 3 to 5 feet under the river, which would severely

reduce baseflow in the channel, indirectly impact riparian wetlands downstream, and affect other surface water features.

Thematic Response

The indirect effects analyses performed for the EIS were not performed to characterize impacts but were done to inform where monitoring should take place for those areas that were identified as having a potential for indirect wetland effects. As a result of these analyses performed to determine where monitoring should occur, quantification of wetland types and acres of potential indirect wetland effects were also generated. The FEIS quantitatively assessed potential indirect wetland effects as a result from: 1) changes in wetland hydrology from groundwater drawdown resulting from open pit mine dewatering; and 2) changes in wetland hydrology from groundwater drawdown resulting from operation of the Plant Site, including groundwater seepage containment.

The wetland mitigation and monitoring plan would be reviewed and approved by the appropriate agencies during permitting. Monitoring is proposed within all wetlands containing a potential indirect wetland impact factor rating of 3 to 5 and a sampling of those wetlands with factor ratings of 1 or 2 as described in FEIS Section 5.2.3.3 (see Figures 5.2.3-31 and 5.2.3-32).

Please refer to the response to theme WET 08 for more information on the analog method and the response to theme WET 09 for more information on ombrotrophic bog wetlands.

Please refer to the responses to themes WR 10, WR 112, and WR 120 for more information on groundwater flow from the mine features. Please refer to the response to theme WR 86 for information on the how the Partridge River would act as a natural barrier to the cone of depression.

Theme WET 11

Theme Statement

The FEIS should more thoroughly examine, and should provide quantitative predictions for the potential for indirect wetland effects and their tributaries resulting from water quality changes due to fugitive dust and ore spillage along the Transportation and Utility Corridor. Examples should be provided from other sulfide mines where this has not proven to be a concern. The FEIS should provide an assessment of the potential for indirect wetland effects from water quality changes due to air deposition from dust, metals, and sulfur.

The FEIS should provide:

- rationale for using 100% of background level as a cutoff for impacts;
- an explanation of the impacts on water quality at this level of deposition;
- a discussion of why areas with less deposition will not be affected or contribute to impacts downstream;
- an assessment of impacts on water quality resulting from deposition greater than 100% of background levels; and
- information on the amount of sulfur or metals that will be deposited within the greater than 100% of background levels line;

The FEIS should also:

- Clarify whether indirect wetland effects from fugitive dust or air deposition would occur on Second Creek or Spring Mine Creek;
- Examine the potential impacts from fugitive dust on wetlands including evaluating how blasting activities might cause indirect wetlands impacts;
- Provide an analysis of the potential toxic effects of sulfur and heavy metals upon wetland vegetation from fugitive dust and precipitation;
- Reassess mitigation measures for fugitive sulfide dust;
- Reevaluate claims that the discharge of sulfates and metals will not impact wetlands and will not exceed water quality standards;
- Consider the impact of fugitive dust and plant emissions on mercury levels in the wetlands and address whether dust deposition will result in increased mercury methylation, and what will be done to control such affects, should they occur; and
- Evaluation of the transport of solutes during the spring snowmelt flush.

Thematic Response

The rail haul of ore is not unique, but it is not common either. In northern Minnesota, rail haulage used to be very common. LTVSMC hauled ore to their crusher at the NorthMet Plant Site during their operation. U.S. Steel's Minntac mine historically hauled their ore by rail for many years before changing to all truck haulage. Northshore hauls crushed ore by rail to Silver Bay. Canadian National Railroad hauls crushed limestone by rail to U.S. Steel's Minntac facility in similar side dump cars that PolyMet would be utilizing. Northshore Mining hauls tailings in similar side dump cars as U.S. Steel's Minntac facility. Carmeuse's lime quarry in Michigan hauls limestone by rail to their plant. Quebec Cartier Mining (QCM) hauls iron ore from their mine to their plant. However, PolyMet would be refurbishing the ore cars to minimize gaps along the hinges and joint areas, which would reduce the potential for ore spillage from rail cars.

Dust, ore spillage, and stockpile leakage is not a regulated discharge to wetlands under the Section 404 of the CWA; however, USACE would consider these types of potential effects in their determination of the LEDPA under the Section 404(b)(1) permit alternative analysis. The potential effects of dust, ore spillage, and stockpile leakage would be evaluated by MPCA under the Section 401 Water Quality Certification and NPDES permitting.

The analysis for potential indirect wetland effects resulting from water quality changes was a qualitative assessment of the types of effects that may affect each wetland. Wetlands that could be potentially affected through multiple pathways were identified as having a higher likelihood of indirect effects. The proposed wetland monitoring program has been designed with specific attention to these higher likelihood wetlands that are more likely to be affected. Quantitative analysis of these impacts has not been performed as agreed upon during the Wetland IAP Group and per the Wetland Analysis Work Plan (PolyMet 2011b, as cited in the FEIS).

As discussed in FEIS Section 5.2.3.2.2, subsection Water Quality Changes,, the deposition of dust, sulfate, and metals was modeled and compared to National Atmospheric Deposition Program or literature-based background deposition values. The screening analysis for depositional effects conducted to estimate potential annual deposition of dust, metals, and sulfur

to wetlands within and adjacent to the Mine Site was performed using AERMOD. The estimated deposition from fugitive dust emissions was used to identify wetlands that have the potential for water quality changes. The estimated deposition from fugitive dust emissions was used to identify a threshold for a negative effect on vegetation. The maximum area for potential indirect effects based on the modeling was identified to occur relatively close to the respective operating boundary of the Mine Site and Plant Site. The deposition modeling results for dust, metals, and sulfur would likely not have an adverse effect on wetlands; however, the modeling only indicated those areas that had deposition rates greater than 100 percent of background deposition. This screening analysis was intended to identify wetlands for potential inclusion in the future wetland monitoring program for the NorthMet Project Proposed Action.

Given the conservatism in air dispersion modeling in general and modeling fugitive dust specifically, an incremental potential change in dust-related deposition of 100 percent of background was selected because its represents a sufficiently large enough incremental increase that monitoring would have a higher probability of detecting a change if actual deposition due to the NorthMet Project Proposed Action were to increase to the modeled level. The reasons that the modeling used in the SDEIS is conservative include:

- The method for estimating fugitive dust emissions from the Tailings Basin and the Mine Site that are in the coarse size fraction, 10 microns in aerodynamic diameter or larger (PM_{10} up to about PM_{30});
- Modeling fugitive dust emissions with AERMOD over-predicts potential air concentrations and deposition (potential over-prediction by a factor of 4; Cowherd 2012); and
- This initial assessment assumes sulfur and metals are 100 percent soluble, but sulfur and metals (including Hg) associated with fugitive dust are within the mineral matrix of the particles and are not water soluble or bioavailable upon deposition.

It should be noted that some physical/chemical process is needed to release the sulfur and metals from the mineral matrix. Chemical weathering is the most likely release mechanism for sulfate and metals inherent to the mineral matrix of the deposited dust particles but this was not incorporated into the results presented in the Wetlands Data Package. Chemical weathering is affected by temperature (Brady 1974) and is likely to be slower within a wetland where the near-surface water table creates a generally cool microclimate. It is also important to recognize that wetlands are known to retain metals and serve as a net sink for nutrients and metals (O'Sullivan et al. 1999; Asapo and Coles 2012; Ness et al. 2014). As discussed by Ness et al. (2014), sequestration of metals by wetlands occurs naturally and has been ongoing for centuries through many processes including plant uptake, adsorption (binding to soil or organic matter), and precipitation (formation of solid compounds) (Wright and Reddy 2012). Any metal released into solution from deposited dust particles has a high probability to be adsorbed to organic matter and sequestered within the wetland (Urban et al. 2011; Ness et al. 2014). Any sulfate contributed by fugitive dust has a high probability to be sequestered (Urban et al. 1989). The potential amounts of sulfate and metals that may be released from fugitive dust to wetlands are estimated to be small and within the variability of background concentrations. Because wetlands are a net sink for metals and sulfate, wetland areas that may receive NorthMet Project Proposed Action's fugitive dust deposition and the small amount of sulfate and metals that may be released from the fugitive dust are not expected to be affected or contribute significantly to downstream areas.

In a preliminary conservative assessment, when accounting for weathering of the dust particles, the potential additional sulfate that could be added to a wetland ranges from 0.07 to 0.13 milligrams per liter (mg/L) at the location of maximum modeled deposition at the Mine Site and from 0.19 to 0.26 mg/L at the location of maximum modeled deposition at the Plant Site (Barr 2014c, as cited in the FEIS). Background concentrations of sulfate in streams draining wetlands in northeast Minnesota range from about 1 to 8 mg/L (Berndt and Bavin 2009; Barr 2010c, as cited in the FEIS, Barr 2014c, as cited in the FEIS; Rolfhus et al. 2015). The estimated potential incremental increase in sulfate from the deposition of the NorthMet Project Proposed Action's fugitive dust emissions is within the variability of background concentrations and is not expected to have a measurable effect on water quality. When accounting for weathering of dust particles, the potential additional concentrations of metals that could be added to a wetland are expected to be small compared to background concentrations of metals in streams draining wetlands. If metal concentrations would be higher than expected, as noted by Wright and Reddy (2012), "...elevated concentrations of metals do not necessarily result in problem releases to water or excessive plant uptake." Since natural wetlands are known to retain metals (such as sulfide minerals, organic complexes, etc.) (Wright and Reddy 2012; Dean et al. 2013; Ness et al. 2014), it is unlikely that metals from fugitive dust would have a significant effect on water quality or any downstream environments.

The amount of sulfur and metals potentially deposited would depend on a number of factors including the actual amount of dust deposited during operations and the metals inherent to the mineral matrix.

In general, this fugitive dust contains minor amounts of arsenic, cadmium, chromium, copper, lead, manganese, nickel, sulfur, selenium, vanadium, and zinc (PolyMet 2015b, as cited in the FEIS). But the fact that these metals are "deposited" within the mineral matrix of fugitive dust does not mean that they are "available." Availability depends on potential weathering of the fugitive dust and potential release of each parameter from the mineral matrix of the particle and this weathering is known to be relatively slow (PolyMet 2015q, as cited in the FEIS). Potential sulfate associated with the release of sulfur from fugitive dust is estimated to be small and well below background values. Metals that may be potentially released from fugitive dust have a high probability to be sequestered by organic matter. Overall, because the modeling of fugitive dust emissions is considered to provide a conservative overestimate of potential deposition it is unlikely that the sulfur and metals inherent to the mineral matrix of the fugitive dust particles would have any significant effect on nearby wetlands. Researchers have identified the overestimation of emissions from fugitive dust sources (Fitz et al. 2002) and the conservatism in the modeling of fugitive dust (Cowherd 2012) and deposition (Etyemezian et al. 2002). Because of the known conservatism (i.e., overestimation) in modeling fugitive dust emissions, the estimates of potential deposition are overestimates. As discussed in FEIS Sections 5.2.3.2.2 and 5.2.3.2.4, the localized area of potentially high deposition at the Mine Site is just south of the ore loading pocket and just east of the Category 2/3 Stockpile and for the Plant Site is adjacent to the Tailings Basin. These areas would be considered in any future monitoring to be conducted for the Project, if approved.

The FEIS indicates that there would be no potential indirect wetland effects from fugitive dust to Second Creek. In addition, there would be no indirect effect to Spring Mine Creek as the area is forested and dust would settle on the organic soil and be sequestered.

Dust emissions from blasting in the open pits were not included in the air quality modeling because the air dispersion models employed are not suitable for this type of potential emission source. PolyMet has developed a Fugitive Emission Control Plan for the NorthMet Project Proposed Action. Proper blast design and other procedures in the Fugitive Emission Control Plan would minimize dust generation and transport beyond the mine pits. PolyMet would be required to report exceptions from the Fugitive Emission Control Plan to MPCA. In addition, PolyMet would be required under the Permit to Mine to have a blast monitoring plan that would follow *Minnesota Rules*, chapter 6132, which outlines blast monitoring and auditing requirements. Also, drilling and blasting activities would be conducted in accordance with the Mine Safety and Health Administration (MSHA) Rules and Regulations. The blasting plan would require provisions to limit dispersion of dust, including monitoring of the weather and wind direction at the time of each blast. The monitoring results of the blast would be analyzed and any violations of the Permit to Mine would be immediately reported to the commissioner and the facility would implement immediate corrective action, or the facility would work with the commissioner and develop and implement contingency actions as required until the blast monitoring results are in compliance (*Minnesota Rules*, part 6132.3100).

The fugitive dust would not be reasonably expected to be toxic to the touch and would not be reasonably expected to be directly toxic to vegetation, as it is typically part of road construction materials and/or tailings. The wetland dust deposition analysis identified that metals are expected to be particle-bound, within the mineral matrix of the rock particle. Therefore, the mineral particle must undergo physical or chemical weathering to release the metals. This is typically a slow release over time, measured in years. Metals deposited or applied to mineral and wetland soils have been shown to be sequestered in the upper soil layers and not be available to vegetation. Because of the potential small amounts of metals from fugitive dust that may be available in surface soils for uptake by plants, and the sequestering of most of the metals in soil should they be weathered out of the dust over time, the potential for the metals to be toxic to vegetation is very low. Monitoring of the areas estimated to have metal deposition greater than 100 percent of background would occur as part of the wetland monitoring program which would assess if potential indirect effects occur as a result of the NorthMet Project Proposed Action.

The reevaluation indicates the estimated potential incremental increase in sulfate and metals from the deposition of the Project's fugitive dust emissions is expected to be within the variability of background concentrations and is not expected to have a measurable or significant effect on water quality.

The highest estimated deposition of mercury from the NorthMet Project Proposed Action stack emissions to a terrestrial watershed was 0.21 $\mu g/m^2/yr$ (air emissions scenario 1, 50 percent oxidized mercury; Heikkila Lake watershed; Barr 2013j, as cited in the FEIS). The potential release of mercury from fugitive dust particles (mercury that is inherent to the mineral matrix) is expected to be slow and is considered negligible compared to the potential input of mercury from the NorthMet Project Proposed Action's air emissions.

The potential small incremental addition of mercury to wetlands from the NorthMet Project Proposed Action is within the variability of background deposition estimates and is not expected to have any measurable effect on the mercury methylation process in wetlands in the NorthMet Project Proposed Action area. Sulfate addition to sensitive environments has been a concern for some time (MPCA 2006a, as cited in the FEIS). The NorthMet Project Proposed Action's potential deposition of sulfur to wetlands from fugitive dust and air emissions was evaluated in

the Mercury Overview document (Barr 2014c, as cited in the FEIS). At the location of maximum modeled deposition, the potential incremental increase in sulfate surface water concentrations from fugitive dust, when accounting for weathering, ranges from 0.07 to 0.13 mg/L at the Mine Site and 0.19 to 0.26 mg/L at the Plant Site, respectively. Sulfate from potential deposition of sulfur from stack air emissions (SO_2, sulfuric acid mist (SAM), particulate S) is much smaller than that estimated for fugitive dust. The potential incremental increases in sulfate surface water concentrations from deposition of fugitive dust and stack emissions were summed: Mine Site sum equals 0.13 mg/L (only dust deposition, no contribution from Plant Site air emissions); Plant Site sum equals 0.03 plus 0.005 plus 0.04 plus 0.26 equals 0.34 mg/L. Background sulfate concentrations in streams draining wetlands range from about 1 to 7 mg/L. The potential incremental increase in sulfate concentration that may be related to deposition of fugitive dust to wetlands and stack emissions is within background variability.

Fugitive dust deposition during the snow-free months of approximately mid-April through October is related to the coarse size fraction (10 microns and larger). Once deposited, these particles are expected to settle and mix with the existing materials at the ground/water surface. Under most conditions in the Hoyt Lakes area in a forested/vegetated watershed, the snowmelt does not result in notable erosion of the upland/wetland system. Therefore, any particles deposited during the snow free months are expected to remain in place at the soil/water surface during the active snowmelt. Fugitive dust particles deposited during the winter season (approximately November through March) are expected to be retained within the snowpack (Conway et al. 1996; Doherty et al. 2013). There may be periodic melting during the winter months that would redistribute some of these particles downward in the snowpack, but most of these insoluble mineral dust particles would be expected to remain in the snowpack (Conway et al. 1996; Doherty et al. 2013). Warming of the snowpack during early April occurs first, then ripening of the snowpack (decreasing snow depth and increase in the water content of the smaller snowpack), followed by output (release of water). In this stage of the melt, relatively insoluble fugitive dust particles (coarse size fraction) would be expected to remain in the snowpack, settling downward with the melting snow (Conway et al. 1996; Doherty et al. 2013) and eventually settling out on the soil or ice surface (if melting occurs on the surface of a lake or wetland). Conway et al. (1996) identified that particles larger than about 5 microns in size were not affected by melt waters and remained in the snowpack. In addition, the relatively flat slope of wetlands enhances downward movement of water and coarse size particles rather than lateral flow. As the water table rises in the wetland, water moves to the edge of the wetland/mineral soil interface (the lagg area) and then continues downgradient to form streamflow. Water moving across the wetland would carry dissolved constituents such as metals attached to dissolved organic carbon, but the larger particles (coarse size fraction) are not expected to be carried in the meltwater because they are insoluble (Conway et al. 1996; Doherty et al. 2013) and because the slow movement of water across the wetland to the lagg area does not have the capacity to carry these larger particles. The potential additional sulfate and metals released to wetlands from the NorthMet Project Proposed Action's estimated fugitive dust emissions are expected to be small and within the variability of background concentrations. Because of the slow movement of water within the relatively flat wetland that promotes the settling out of larger particles and the expected small amount of metals and sulfur that may be released from deposited particles because of the cold temperatures in the snowpack and the snowmelt water that limit chemical weathering, the NorthMet Project Proposed Action is not expected to have any significant effect on sulfur or metal concentrations during snowmelt.

Theme WET 12

Theme Statement

The FEIS should fully describe the basis that the project would not 1) result in indirect effects on wetlands abutting the rivers and creeks (e.g. Partridge River, Spring Mine Creek, Second Creek, etc.) near the mine and plant site and 2) that leakage and seepage from the proposed Project would not affect nearby wetland water quality and their tributaries or result in a lack of water flowing to the wetlands and tributaries. The FEIS should:

- Address the efficiency of the tailings basin seepage capture system as it is unlined and isn't designed to collect seepage from the east side. Seepage from the east side is likely to drain to Spring Mine Creek. There are no predictions regarding the possibility that tailings piped from the processing plant to the tailings basin could be spilled, what will happen if tailings embankments may fail, or that water standards would be exceeded;
- Provide adequate support for the assumption that seepage will not affect wetland water quality of Second Creek and its associated wetlands;
- Assume that some leakage would occur, and given the site-specific conditions for the proposed location of the HRF, the risk for highly contaminated seepage to exit the HRF and flow to wetlands in the Embarrass River Watershed;
- Address if, as a result of construction of the FTB containment system, there will be a lack of water to tributaries, it seems there would also be a lack of water flowing to adjacent wetlands. Although some wetlands will be monitored for hydrological and vegetation changes, it seems as if the extent of monitoring is not sufficient to ensure there are no secondary wetland impacts; and
- Clarify the conclusion, no indirect effects would occur on the Partridge River and four other creeks because augmented flows from the project would be within average flow (and stage) without the project, are based on potential added drying out of adjacent wetlands and rewetting since using averages can mask such events.

Thematic Response

Please refer to the responses to themes PD 08, PD 10, PD 12, PD 17, PD 18, WR 18, WR 54, WR 67, WR 69, WR 90, WR 102, WR 112, WR 117, WR 119, WR 120, WR 131, WR 132, WR 166, WR 185, and WR 202 for more information on potential indirect effects to wetlands abutting the rivers and creeks, leakage and seepage from the NorthMet Project Proposed Action, and stream flows.

Theme WET 13

Theme Statement

The Proposed Action would cause the release of carbon and methane stored in the peatland/bog wetlands that would be destroyed; the destruction of these systems would also reduce the regional capacity for future carbon sequestration and result in climate change concerns.

Thematic Response

As previously discussed in the response to theme WET 05, the NorthMet Project Proposed Action would not result in the release of methane (CH_4) from the proposed loss of wetland habitats. Wetlands act as carbon sinks that sequester carbon dioxide (CO_2). As a result of carbon cycling through the wetland system, a portion of sequestered carbon is mineralized to gaseous end products resulting in the production of CH_4, which is released to the atmosphere. As such, the assumption that the NorthMet Project Proposed Action would result in an increase of methane stored in the peat bogs is incorrect. The loss of wetland habitat at the NorthMet Project area would result in a one-time release of 12,535 metric tons per year of greenhouse gas emissions (i.e., CO_2-equivalents approximately stored carbon within those habitats (Barr 2012l, as cited in the FEIS). It is important to note that the loss of carbon sequestration capacity is fundamentally different from emission rates since it represents a loss of greenhouse gas absorptive capability (i.e., how effective the system is at absorbing carbon) and capacity (i.e., the amount of carbon able to be absorbed) as opposed to an actual contributing emission. However, Barr (2012l, as cited in the FEIS) also noted that the net effect of the loss of carbon sequestration capacity is essentially the same as emissions. The Barr report also noted that the projected calculated release of CO_2-equivalents is a one-time event; however, it should not be assumed that all aboveground forest carbon would necessarily be released over a short timescale and that net carbon cycle impacts are highly dependent on the end-use of the cleared vegetation. For example, timber harvested for boards manufactured into furniture or buildings which is typically maintained for an extended period of years or decades, would degrade and decompose (i.e., release their stored carbon) at a much slower pace than timber that is utilized for firewood or woodchips which would ultimately decompose at a much faster rate. Harvested timber is typically utilized for a multitude of purposes dependent on numerous variables including market value, stand quantity and quality, tree species, demand, among others. As such, predetermining the end-use of an entire stand of timber is unfeasible.

Additionally, the assumption that the NorthMet Project Proposed Action would result in the destruction of the carbon storage potential of the region is erroneous. That assumption discounts the contributions of the proposed compensatory wetland mitigation. The NorthMet Project Proposed Action would result in the loss of approximately 913.8 acres of directly impacted wetlands whereas the NorthMet Project Proposed Action would result in 1,799.7 acres of wetland mitigation (an impact to mitigation ratio of approximately 2:1).

Theme WET 14

Theme Statement

The proposed Land Exchange would be a significant net loss of wetlands both quality and function and would not be in compliance with Executive Orders 11990 (USEPA 1977) and 11988 (USFS 2004d, as cited in the FEIS). The Land Exchange:

- should be based on wetland quality and type, and not merely on acreage;
- would not increase wetland acreage or mitigate in any way for the wetland losses at the Mine Site by transferring the non-federal lands to the Forest Service;

- would result in trading a far more contiguous and of higher overall quality wetland area for scattered areas across the non-federal parcels and of not equal or ecological value;
- would the USFS be compensated for loss of biodiversity that is not equally replaced;
- does not calculate indirect wetland loses in the land exchange;
- needs to address how the loss of acres of wetlands and loss of the one hundred mile swamp would be made up and acknowledge that it is a loss; and
- needs to address if new protected wetlands would be provided and/or would new wetlands be created on the exchanged lands.

Thematic Response

As described in FEIS Section 1.4.3, FLPMA requires that the values of the lands exchanged are equal or, if they are not equal, the values shall be equalized by the payment of money so long as the payment does not exceed 25 percent of the total value of the lands transferred out of federal ownership. (36 CFR 254.12). The USFS relies on professional appraisals to determine market value. Such appraisals must conform to Uniform Appraisal Standards for Federal Land Acquisitions and the Uniform Standards of Professional Appraisal Practice of the Appraisal Foundation. Refer to theme LAN02 for more information.

The Land Exchange Proposed Action and Land Exchange Alternative B must also comply with two EOs that are related to wetlands and floodplains. EO 11990 (USEPA 1977) applies to land exchanges such that, as much as practicable, the exchange does not result in the loss of wetland resources. EO 11988 (USFS 2004d, as cited in the FEIS) applies to land exchanges such that, as much as practicable, the exchange does not result in an increase in the flood damage potential.

As noted in FEIS Section 5.3.3.1, the potential net change that the Land Exchange Proposed Action and alternatives would have on wetland resources was evaluated using two types of criteria: 1) criteria assessing conformity to EOs 11990 (USEPA 1977) and 11988 (USFS 2004d, as cited in the FEIS), which requires a wetland acre-for-acre analysis and a floodplain acre-for-acre analysis of the federal estate; and 2) criteria used in an analysis of wetlands and floodplain habitat, as well as other water resource indicators. As stated in the FEIS, to satisfy the requirements of EOs 11990 (USEPA 1977) and 11988 (USFS 2004d, as cited in the FEIS), the USFS policy is to use the following three conditions (FSH 5409.13 § 33.43c [USFS 2004d, as cited in the FEIS]): 1) the value of the wetlands or floodplains for properties received and conveyed is equal (balancing test) and the land exchange is in the public interest, 2) reservations or restrictions are retained on the unbalanced portion of the wetlands and floodplains on the federal lands when the land exchange is in the public interest but does not meet the balancing test, and 3) the federal property is removed from the exchange proposal when the conditions described in the preceding items 1 or 2 cannot be met. In addition to evaluating wetlands in accordance with the two EOs, analysis of the Land Exchange included information on wetland community types as well as ecological floodplains. The methodology and evaluation criteria utilized for the wetland resource evaluation for the Land Exchange is presented in FEIS Section 5.3.3.1.

The Land Exchange Proposed Action and the Land Exchange Alternative B meet the first condition (balancing test), which requires the value of the wetlands or floodplains is equal for properties received and conveyed. Therefore, as stated in FEIS Section 5.3.3, the Land Exchange

Proposed Action and Land Exchange Alternative B would comply with EOs 11990 (USEPA 1977) and 11988 (USFS 2004d, as cited in the FEIS), as there would not be a loss of wetland and floodplain resources to the federal estate. All of the lands proposed for exchange are located within the 1854 Ceded Territory of northeastern Minnesota. The Land Exchange Proposed Action equalization requirements are discussed in theme LAN02 as well as in FEIS Section 1.4.3.

Furthermore, the lands to be exchanged are not required to be of a certain size, contiguous of each other, within the same watershed of the federal lands, within a reasonable distance to the federal lands to be exchanged, and/or within the 1854 Ceded Territory. However, a land exchange must conform to the standards and guidelines of the Forest Plan as well as be of equal value and meet the EOs 11990 (USEPA 1977) and 11988 (USFS 2004d, as cited in the FEIS). The Land Exchange Proposed Action and Land Exchange Alternative B would conform to the Forest Plan and would not result in a loss of wetland and floodplain resources to the federal estate. Four of the five tracts involved with the land exchange have existing wetland resources located on them as described in FEIS Sections 4.3.3 and 5.3.3.

The lands involved in the Land Exchange Proposed Action or Land Exchange Alternative B are not intended to be the wetland mitigation sites that are required as part of permitting (Section 404, Section 401, and WCA) of the mining activities; the wetlands mitigation sites for the wetland impacts of the mining activities are discussed in FEIS Section 5.2.3. Compensatory mitigation that is required as a result of the impacts from the mining activities is described in FEIS Section 5.2.3.3. FEIS Section 5.2.3 includes information on functions that would be impacted and replaced by the proposed mitigation required as a result of the mining activities.

Please refer to the LAN01 for more information on the factors that are evaluated for the public interest review by the USFS, and the equalization requirements are discussed in LAN02 as well as in FEIS Section 1.4.3. Furthermore, the FEIS discloses which non-federal tracts would be required for each Land Exchange alternative (FEIS Section 5.3). Disclosure of appraisal information in the EIS is not required. Any decision, documented in the ROD, to move forward with a land exchange will be supported by a current appraisal, approved by the USFS, which verifies that the exchange meets the equal value requirements of applicable federal law and regulation. Requests for appraisal reports and appraisal review reports are processed under Freedom of Information Act procedures.

The Weeks Act authorizes land exchanges so long as “public interests would be benefitted thereby.” (16 USC 516) Lands acquired by the United States pursuant to the Weeks Act, whether by purchase or exchange, are subject to all provisions of the Act. (16 USC 516). Lands conveyed from federal ownership would no longer be under federal control and therefore would not be managed under the Forest Plan and/or influenced by the authority (the Weeks Act) under which the United States acquired them. This is consistent with other land exchanges that have occurred in the Superior National Forest. The NEPA analysis would inform the USFS decision on the public interest determination and the decision would be presented in the ROD. While the federal lands, if transferred to PolyMet, would still be located within the proclamation boundary of the Superior National Forest, they would be private lands and no longer managed by the Forest Service.

As presented in the FEIS, there would be little to no likelihood of potential indirect effects based on the analog approach to wetlands located on federal lands that would border the area, if the

land exchange is approved. However, monitoring would be performed to determine if effects occur and any effects would be addressed per permit conditions, if approved. Please refer to the response to theme WET 01 for more information on mitigation and monitoring for potential indirect effects.

Theme WET 15

Theme Statement

The proposed Land Exchange would result in a net loss of wetlands and function values for the St. Louis River Watershed/Lake Superior Basin, and the mitigation (e.g. wetland mitigation sites, non-federal exchange lands) would be outside of the watershed.

Thematic Response

The NorthMet Project Proposed Action would result in a loss of wetland resource areas in the St. Louis River Watershed. However, one of the three mitigation sites is located within the same watershed as the NorthMet Project Proposed Action. Overall, the Land Exchange Proposed Action and Land Exchange Alternative B would result in an increase to the federal estate of wetland acreage, and thus would be in conformity with EO 11990 (USEPA 1977) (see FEIS Table 5.3.3-1). The non-federal lands proposed as part of the land exchange are not the mitigation sites that are proposed as compensatory mitigation for the mining activities impacts. The non-federal lands to be exchanged, if approved, are not required to be within the same watershed. These lands are all lands that are located within the proclamation boundary of the Superior National Forest and would consolidate land ownership management. Please refer to themes LAN 01, LAN 03, and LAN 06 for more information.

Theme WET 16

Theme Statement

The proposed Land Exchange does not meet the Superior National Forest Plan's goals and objectives for avoiding loss of wetlands, specifically:

It is possible to avoid wetland impacts since PolyMet's deed does not allow them to open-pit mine, and the Forest Service is not obligated to go forward with the land exchange as land exchanges are discretionary and voluntary real estate transactions between the Federal government and a non-Federal party.

The land exchange and the PolyMet open-pit mine would be inconsistent within Forest Plan, G-WS-13, p. 2-15 and G-WS-15, p. 2-15.

Thematic Response

The USFS manages the Superior National Forest in conformance with many laws, regulations, executive orders, and policies. In all cases, the Forest Plan is consistent with national law, policy, and direction (USFS 2004c, as cited in the EIS). As discussed in the FEIS, the USFS' position is that the mineral rights that were reserved do not include the right to surface mine as proposed by PolyMet. In order to resolve this conflict, a proposed land exchange has been presented as part of

the NorthMet Mining Project. Please refer to the response to theme WET 14 for more information on the Weeks Act.

Please refer to the responses to themes LAN 02 and LAN 04 for more information on the public interest determination for the USFS and how the Land Exchange Proposed Action would comply with the Forest Plan and other USFS policies.

In addition, the Land Exchange Proposed Action and the Land Exchange Alternative B would be consistent with the goals of the Forest Plan for wetlands (G-WS-13 and G-WS-15; page 2-15). The Land Exchange Proposed Action and the Land Exchange Alternative B, the conveyance and acquisition of lands, would not result in wetland impacts; however, the mining activities of the NorthMet Project Proposed Action would result in wetland impacts that cannot be avoided but have been minimized and/or compensated for the loss through the Section 404, Section 401, and the WCA permitting processes. The Land Exchange Proposed Action and the Land Exchange Alternative B would not result in a net loss of wetland acres to the federal estate and/or result in reduced water quality within a wetland, or upstream or downstream of a wetland. The non-federal lands for the Land Exchange Proposed Action and the Land Exchange Alternative B would be incorporated within the adjacent federal ownership and managed in accordance with the Forest Plan direction for the particular management area. Lands conveyed from federal ownership would no longer be subject to federal control and would therefore not be managed under the Forest Plan. The No Action Alternative would continue to apply to the federal lands managed by the USFS. The NorthMet Project Proposed Action is subject to a number of regulatory permits, reviews, and approvals which would include determining if the proposed mining activities would result in a change to water quality. Please see FEIS Section 5.2.2 for detailed discussion on water resources and FEIS Section 5.2.3 for a discussion of wetland resources.

Theme WET 17

Theme Statement

The wetland boundaries on the lands proposed for exchange are approximate and not all wetlands have been delineated. Therefore it should not be assumed that there has been an appropriate examination of the wetland functions and values and that there would be an equal exchange. In addition, land exchange analysis should include:

- an assessment of the functions that would be lost to the Partridge and St. Louis River watersheds accompanied by an assessment of the degree to which the loss of those functions would be replaced by the proposed mitigation for the project; and
- an assessment and/or percentage of the non-Federal lands that contain coniferous bogs as was done for the Federal lands.

Thematic Response

As stated in FEIS Section 4.3.3.2.1, wetland boundaries and community types for the non-federal lands were identified from aerial photographic interpretation and field studies. The boundaries of wetlands were determined based on aerial photograph interpretation and NWI mapping, with some refining of wetland boundaries during field studies. Wetland boundaries were determined in the field based on hydrologic and vegetative characteristics and were more accurate where

survey routes crossed or were near wetland boundaries. Approximate wetland boundaries and wetland types based on habitat mapping are shown on Figures 4.3.3-3 and 4.3.3-4. Surveys covered nearly all portions of the parcels, although not all wetlands were field surveyed (AECOM 2011b, as cited in the FEIS; AECOM 2011c, as cited in the FEIS).The analysis for the land exchange did not require wetland delineations to be performed as no impacts or activities would be occurring on these lands and these lands would be incorporated into Superior National Forest and the USFS's responsibility for managing the lands. If any future activities were to occur on the lands, wetland delineation would then be required.

As stated in FEIS Section 5.3.3.1, the analysis of the wetland resources for the Land Exchange Proposed Action and Alternatives was guided by evaluation criteria that were developed by the USFS and other Co-lead Agencies, which included a comparison of wetland resource acreages, wetland resources types, wetland functions, floodplain acreages, and other water resources acreages. GIS data and field observations were used and then compared over an area of analysis that included the federal and non-federal lands.

The wetland assessment data that was collected for the non-federal lands was performed in the Cowardin et al. (1979) system and the federal lands were collected in Eggers and Reed (1997, as cited in the FEIS) classification system. Since the wetland data was characterized differently, the information is not directly comparable. Therefore, some wetland types were grouped on the non-federal lands and cannot be presented in the same format as the federal lands. The tables presented in 5.3.3 include footnotes explaining that the coniferous bogs on the non-federal lands were grouped with coniferous swamps during field data collection.

Please refer to the response to theme WET 14 for more information on the Land Exchange Proposed Action and Land Exchange Alternative B, including how the land exchange would meet equalization requirements and address EOs 11990 (USEPA 1977) and 11988 (USFS 2004d, as cited in the FEIS).

Theme WET 18

Theme Statement

The SDEIS contains inadequate analysis of the cumulative effects of wetland loss. The analysis should include additional projects (e.g. Northshore Mine, U.S. Steel Minntac mine expansion, U.S. Steel Keetac expansion, United Taconite Tailings Basin, Cliffs Erie's mine pit expansion, mining and/or road improvement projects), additional watersheds beyond the two that would be directly affected such as St. Louis River Watershed, indirect impacts, effects on wetland values, and should differentiate by wetland type and value. The cumulative analysis for wetlands:

- strictly compares wetland acreage between pre-settlement (which is based on imprecise estimates), current, and proposed conditions. Use accurate numbers for wetland acres lost in the area over the past few decades instead of using an unknown pre-settlement number as the baseline;
- should not include the East Pit wetland or the West Pit in its calculations as they would not meet water quality standards. Also referring to the West Pit as deep water habitat, habitat for what?; and

- disregarded the cumulative effects of evaporation drawdown from defoliated ground, accelerated defoliation from drying, dusting, the toxic effects of toxic dust or watering, increase runoff from dry defoliated ground, and draw down from the mine pit on vegetation.

Thematic Response

FEIS Section 6.2.1 describes the rationale for how the cumulative effects assessment areas (CEAAs) were identified for NorthMet Project Proposed Action as well as provides a list of projects and actions that were considered in the cumulative effects wetland analysis. The CEAAs for individual resource areas vary based on the potential for cumulative effects and not on a single overall assessment area. FEIS Section 6.2.3 explains the specific wetland resource CEAA used. The spatial area for the wetland analysis was determined to be the Partridge and Embarrass River watersheds for the DEIS and was determined during the Wetland IAP Working Group that the watershed spatial area would not change from the DEIS. The wetland cumulative effects methodology and assessment approach was developed based on the Wetland IAP Working Group and is presented in the Wetland Analysis Work Plan (PolyMet 2011b, as cited in the FEIS). FEIS Section 6.2.3.1 provides a description of the approach that was used for the wetland cumulative analysis. The direct, indirect, and cumulative assessments that were performed for the NorthMet Project Proposed Action were agreed upon by the Wetland Impact Assessment Planning Group and per the Wetland Analysis Work Plan (PolyMet 2011b, as cited in the FEIS). Furthermore, the east pit is no longer included in the cumulative analysis; however, the West Pit is considered as a deepwater resource (a mine pit water body) in the future. Deepwater resources were estimated for the analysis by using a combination of the MDNR Mesabi Mining Features (2008); interpretation of 2003, 2008, 2009, and 2010 FSA aerial photographs; and NWI datasets. Lake resources (lacustrine water body) acreages were estimated using the USGS National Hydrograph Dataset and the NWI datasets.

The majority of the Northshore Mine is located outside of the CEAA for wetlands; however, that portion of the NorthMet Project Proposed Action that is located within the Partridge River Watershed was included in the analysis. The following projects were not considered in the wetland resources cumulative analysis as they are outside the Partridge and Embarrass River watersheds: U.S. Steel Minntac mine expansion, U.S. Steel Keetac expansion, United Taconite Tailings Basin, and Cliffs Erie's mine pit expansion. Those projects that were considered reasonably foreseeable and within the Partridge and Embarrass River watersheds were considered in the wetland cumulative analysis. Please refer to response to theme CU 02 for more information.

It is difficult to predict potential indirect wetland effects within the CEAA, and difficult to know what the potential indirect wetland effects would be for the projects assessed other than the NorthMet Project Proposed Action. However, based on the amount of potential indirect wetland effects that could occur from the NorthMet Project Proposed Action, there could be 0.1 to 12.0 percent cumulatively lost, in addition to the direct wetland impacts assessed, within the Partridge and Embarrass River watersheds as a result of the NorthMet Project Proposed Action.

Please refer to the response to theme WET 08 for more information on evaporation.

Theme WET 19

Theme Statement

Wetlands that would be impacted by the Proposed Action, including the One Hundred Mile Swamp, have been named an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the U.S. EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. In addition, the EIS does not accurately portray the ecological significance, drainage, watershed, or borders of the One Hundred Mile Swamp. Specific concerns include:

- The loss of ecological significant habitat that provides critical habitat to plants and animals;
- the mapping misrepresents the boundary implying that the drainage of the swamp is in one direction only and away from the boundary waters and the area should be reevaluated and mapped;
- delineated boundaries for the One Hundred Mile Swamp do exist and are available at http://www.nationalatlas.gov/streamer;
- 10.4 mile long depression straddling the Laurentian Divide that drains to both the Partridge River which is a tributary to the St. Louis River and Langley Creek which is a tributary to the Rainy Lake (BWCAW) Watershed and therefore the mine cannot possibly be isolated geographically from the BWCAW;
- estimate the proportion of mine waste that flows to the two watersheds by requiring lateral hydraulic conductivity testing in the One Hundred Mile Swamp; and
- disrupting such a large contiguous wetland such as the One Hundred Mile Swamp with its calcareous fens violates Minnesota Statutes 103G.223 of the Minnesota Wetlands Conservation Act, and Minnesota Statutes 84.0895 because of Minnesota's endangered species law.

Thematic Response

FEIS Sections 4.2.4 and 4.3.4 discuss and provide maps of MBS Sites (see Figures 4.2.4-1, 4.2.4-4, 4.3.4-1, and 4.3.4-2) to clarify location and extent of these communities. FEIS Sections 5.2.4 and 5.3.4 include information about the impacts to MBS sites and native plant communities. The WCA rules (including those parts applicable to mining projects under *Minnesota Rules*, part 8420.0930) include a special consideration for wetlands that are rare natural communities (*Minnesota Rules*, part 8420.0515, subpart 3). FEIS Sections 3.2.2 and 5.2.4 describe mine reclamation activities that would be completed as part of the NorthMet Project Proposed Action, some of which may allow such MBS sites to re-establish. *Minnesota Rules*, part 6132.2700 requires that a project site be reclaimed once mining has ceased. The goals of such reclamation are to "control erosion, to screen mining areas from non-compatible uses, and to provide for subsequent land uses such as wildlife habitat or timber production." The rules also include requirements about the characteristics and planting schedule for vegetation used in reclamation. The Permit to Mine would address special consideration of wetlands that include rare natural communities. Additional information on rare natural communities would be included in the wetland permit application as part of the Permit to Mine process for further refinement of site-specific conditions.

FEIS Section 5.2.3, Table 5.2.3-1, indicates that there would be a total of 758.2 acres of direct wetland impacts at the Mine Site. A portion of the approximate boundary for the One Hundred Mile Swamp would be located within the Mine Site boundary. PolyMet would ultimately need to satisfy both the federal and state mitigation requirements for providing compensatory mitigation for impacts to wetlands. The number of mitigation credits to be earned by replacement wetlands would be determined during permitting by the appropriate agencies reviewing the wetland mitigation plan.

The USEPA reviews and comments on Federal Environmental Impact Statements pursuant to their authorities and responsibilities under the National Environmental Policy Act, Section 309 of the Clean Air Act, and Section 404 of the Clean Water Act. The USEPA has additional authorities under Section 404 of the CWA. Under Section 404(c) of the CWA, the USEPA has the authority to prohibit, restrict, or deny the discharge of dredged or fill material at defined sites in waters of the United States (including wetlands) whenever it determines, after notice and opportunity for public hearing, that use of such sites for disposal would have an unacceptable adverse impact on one or more resources, including fisheries, wildlife, municipal water supplies, or recreational areas. The 404(q) Memorandum of Agreement between the USACE and USEPA provides a procedure considering both agencies' views on projects including procedures for elevating unresolved issues to regional and national levels. The 404(q) process is used by the USEPA when they wish to initiate consultation regarding concerns they may have about the impacts of a proposed project. Elevation of issues related to specific individual permit cases would be limited to those cases that involve aquatic resources of national importance. Procedures for elevation of such specific cases are provided in Part IV - Elevation of Individual Permit Decisions. In these cases the USEPA determines that issuance of the permit would result in unacceptable adverse effects to Aquatic Resources of National Importance. The USEPA raised this as an initial concern in their February 18, 2010 comment letter on the USACE public notice. The SDEIS has addressed many of the USEPA's concerns, and the lead agencies continue to work with the USEPA to address their comments on the SDEIS. The USACE may also consult with the USEPA on issues of interest to them while writing the ROD.

There are no calcareous fens located within the NorthMet Project Proposed Action as confirmed through wetland mapping and field work. WCA requirements would be addressed under the MDNR Permit to Mine.

A National Atlas shows a single wetland complex (referred to as One Hundred Mile Swamp) as straddling the major watershed divide separating the Superior Basin from the Rainy River Watershed. This appears to indicate that this wetland complex creates a conduit for surface water and surficial groundwater originating from the Mine Site to reach the Dunka River, and ultimately, the BWCAW. This single wetland complex shown on the National Atlas is not a delineated wetland; it does not meet the definition in accordance with the Manual (USACE 1987, as cited in the FEIS). The One Hundred Mile Swamp has not been delineated. The FEIS shows the approximate boundary of this complex. Wetlands are delineated using many factors in addition to hydrology; the boundary, as shown on the National Atlas, of the One Hundred Mile Swamp as continuous across this boundary does not equate to a hydrologic connection. There are two hydrologic barriers between the Mine Site and the Rainy River Basin, including:

High ground north of the Partridge River creates a watershed divide separating the Superior Basin and Rainy River Watershed, and prevents surface water from passing between the two.

This major watershed divide is included in the National Atlas, as well as USGS and MDNR data sets. This divide is accurately presented in Figure 4.2.2-1.

Yelp Creek and the Partridge River encircle the north, east, and south sides of the Mine Site. These streams create a hydrologic "sink" for surface water and groundwater originating at the Mine Site. Surface runoff or groundwater seepage leaving the Mine Site would follow a gradient into Yelp Creek or the Partridge River, as opposed to continuing uphill towards the watershed divide (see FEIS Figure 5.2.2-7). Yelp Creek and the Partridge River extend further west (i.e., more fully encompassing the Mine Site) than is shown on the map in question.

If it is predicted that water via bedrock would flow north from the Mine Site, mitigation would be implemented to prevent this from occurring. See FEIS sections 5.2.2.3.5, 5.2.2.3.6, and 6.2.2.3.1.

Theme WET 20

Theme Statement

Alternatives for avoiding, minimizing, and/or mitigating impacts to wetlands were not considered. The FEIS should include a thorough sequencing plan that demonstrates adherence to the mitigation hierarchy of avoid, minimize, and mitigate impacts as required by state and federal law and evaluate meaningful alternatives for avoiding and minimizing wetland impacts such as underground mining which was taken out of consideration largely for economic justifications. Furthermore, alternatives for avoiding impacts to wetlands that are difficult to replace should be considered, given how difficult these features are to recreate.

Thematic Response

FEIS Section 5.2.3.3 discusses multiple measures that were assessed to avoid, minimize, and mitigate any potential impacts to regulated wetlands as a result of the proposed project. In addition, several project alternatives were considered including those alternative's potential impacts on wetland resources. As described in 3.2.3.1.2, alternatives to the NorthMet Project Proposed Action were identified in accordance with the requirements of NEPA, CEQ regulations, Forest Service NEPA regulations, and MEQB rules for MEPA.

Alternatives have been developed and evaluated in three stages during the Environmental Review Process; the scoping stage (2005), the DEIS stage (2009), and the SDEIS stage (2011). FEIS Section 3.2.3 includes a discussion of the process and alternatives that were considered for the NorthMet Project Proposed Action. The modifications that have occurred during the development of the EIS have resulted in avoidance and minimization of impacts to wetland resources. To date, these modifications have reduced the acreage of wetlands impacted from 1,257 to 913.8 acres, a 27 percent decrease. In addition to the NorthMet Project Proposed Action, a "No Action Alternative" is also being considered. PolyMet proposes to avoid and minimize wetland impacts through a number of measures that are incorporated into the NorthMet Project Proposed Action. Direct wetland impacts at the Mine Site have been reduced during the development of the NorthMet Project Proposed Action. FEIS Section 5.2.3.3.1 includes six considerations that were proposed in order to avoid unnecessary impacts to wetland resources and seven considerations that were proposed that would minimize impacts to wetland resources as part of the NorthMet Project Proposed Action.

FEIS Section 5.2.3.3 also describes, in depth, the mitigation strategies for the NorthMet Project Proposed Action including how sites were selected, mitigation ratios, and other factors. Please refer to the responses to themes WET 03, WET 05, and WET 06 for more information on siting and mitigation.

The screening of alternatives are described in FEIS Section 3.2.3.1.2 and were evaluated against the purpose and need for the proposed project, the technical feasibility of the alternative, the economic feasibility, the availability of necessary resources to implement the alternative, and the environmental or socioeconomic benefits of the alternative. Alternatives that did not meet the screening criteria were discarded from further consideration. Alternatives that were removed from further consideration are summarized in FEIS Table 3.2-17. Consideration of the Underground Mining Alternative was described in FEIS Section 3.2.3.4.1.

Theme WET 21

Theme Statement

To adequately evaluate wetland composition, structure and function, affected wetlands should be classified using a different classification system, such as the MDNR Native Plant Community (NPC) or the one used by County Biological Survey. In addition, the FEIS should clearly state the criteria used for the baseline wetland evaluation. The FEIS should include:

- description of what is the Eggers and Reed classification System and whether or not other classification system(s) could have been used;
- did the 2010 re-evaluation of wetlands use a lower standard;
- describe in more detail the wetland assessment protocol and the assessment sites used, including the methods used at those locations, why these locations were chosen, and how will they be used (e.g., for monitoring future wetland conditions);
- peer reviewed indicators of ombrotrophic bogs in classifying wetland plant communities and what are ombrotrophic wetlands;
- different types of wetlands are not well defined; and
- who performed the SDEIS classification of wetlands.

Thematic Response

The classification system utilized to characterize wetlands for the NorthMet Project Proposed Action, Wetland Plants and Plant Communities of Minnesota and Wisconsin (Eggers and Reed 1997, as cited in the FEIS, now expanded and updated in Version 3.1 (Eggers and Reed 2014, as cited in the FEIS)), is the same system adopted by the USACE-St. Paul District and Minnesota Board of Water and Soil Resources to track wetland impacts and compensatory mitigation for their respective wetland regulatory programs. This classification system was designed to be rapidly utilized to classify wetland plant communities without extensive vegetative analyses. Eggers and Reed (1997, 2014, as cited in the FEIS) provides a dichotomous key with a progressive series of either/or descriptions of plant community characteristics whereby an investigator is able to quickly and sufficiently classify the plant community being evaluated. Each plant community is described – including composition, structure, hydrology and soils –

along with descriptions, photographs and ink drawings of representative plant species. All wetland classification systems have some limitations; however, the Eggers and Reed (1997, 2014, as cited in the FEIS) methodology sufficiently characterizes and describes the 15 major wetland plant communities that occur in Minnesota. Utilization of a methodology the employs a more complex system of classification would be inefficient, time-consuming and not warranted for most regulatory applications. The purpose of classifying the wetland plant communities within the NorthMet Project area was to characterize wetlands as part of the evaluation of wetland functions, potential adverse impacts, compensatory mitigation requirements, alternative designs/locations for project features, etc. As such, utilization of the classifications described by Eggers and Reed (1997, 2014, as cited in the FEIS) are sufficient for the purposes of an EIS. Furthermore, the Co-lead Agencies agreed to use the Eggers and Reed Classification system for the NorthMet Project Proposed Action as well as have reviewed the accuracy of the wetland characterization, mapping, and surveys.

The 2010 re-evaluation completed by Barr (2011d, as cited in the FEIS) used the same classification standard, Eggers and Reed (1997, 2014, as cited in the FEIS) as did the previous evaluations. As described in FEIS Section 4.2.3, wetland characterization, mapping, and surveys for the NorthMet Project areas were conducted between 2004 and 2010 by PolyMet's contractors. Information for the evaluations conducted for the NorthMet Project Proposed Action utilized multiple data sources, as described in FEIS Section 4.2.3, including: USGS topographic and USFWS NWI maps, aerial photographs, soil survey data, and field investigations. Wetland types are described in FEIS Table 4.2.3-1.

An abbreviated MnRAM functional assessment, which was agreed upon by the USACE, was utilized to assess wetland functions for the Mine Site, Transportation and Utility Corridor, and Plant Site. Please refer to the responses to themes WET 03, WET 05, and WET 07 for more information on how the NorthMet Project Proposed Action considered wetland functions. Please refer to response to theme WET 01 for more information on monitoring.

As described in FEIS Section 4.2.3.1.2, wetlands that are primarily dependent on precipitation for their hydrology are classified as ombrotrophic. Although the hydrology of ombrotrophic wetlands is primarily driven by precipitation, they can have groundwater flowpaths. As such, they may be susceptible to effects from groundwater drawdown associated with mining operations; however, that susceptibility is estimated to be low (Eggers 2015, as cited in the FEIS). Please refer to the response to theme WET 09 for more information on ombrotrophic bogs. Also please refer to FEIS Table 4.2.3-1 for more information on wetland types.

Theme WET 22

Theme Statement

The monitoring plan is of insufficient detail and should include:

- additional reference wells for pre-project monitoring;
- biological monitoring, including annual vegetation surveys, done in conjunction with hydrologic monitoring locations, and hydrologic monitoring using continuous recorders (and collecting data at daily, weekly and monthly intervals) at all sampling sites, with all data collected made available to the Co-lead Agencies and to the public;

- shallow monitoring wells or piezometers and deeper wells at the same locations to provide better evidence of the impacts of groundwater drawdown and might determine whether there is a layer separating the surface from the aquifers;
- weather stations at one or more sites to help distinguish true drawdown impacts from the effects of weather and climate;
- multi-parameter biological monitoring is also recommended, not just of plants with focus on edges of the wetlands and other locations that provide early indicators of hydrologic impacts;
- annual and growing season hydroperiods and hydropatterns are biologically important for determining wetland function and should be reported in consultation with agency staff;
- monitoring parameters at reference wetlands should be the same as impacted wetlands in terms of frequencies, type and locations. Reference locations should be free of all direct and indirect effects from the NorthMet project or other disturbance, including existing or future mining projects, yet close enough in proximity, setting and type that weather and other regional factors are reasonably similar to that of the impacted wetlands;
- monitor all wetlands, including ombrotrophic bogs, for changes in hydrology and wetland plant diversity, assemblage and peat depth which should be done using a scientifically accepted and easily repeatable method such as relevé plots or randomized grid of sample points;
- vegetation plot observations every other growing season by a botanist with experience in identifying peatland plants with reporting to regulatory agency within four months of the observed change, to allow for timely mitigative actions;
- all wetland mitigation should occur within 1 growing season of the observed change;
- monitoring should continue for the life of the mine at all locations, even if indirect effects have been mitigated to ensure that the completed mitigation projects offset the eventual loss of wetland function and area; and
- all species within the plot need to be identified and assigned a semi-quantitative or quantitative measure of abundance and dispersion. In each plot, water samples should be collected from the peat surface (if there is standing water) or shallow pits. Recommended that pH measurements be made at the time of sampling or the end of each sampling day. The water samples should then be filtered and acidified for analysis of cations (but not anions). In addition to the metals and anions most likely to be contaminants from mining operations these measurements also need to include Ca.

Thematic Response

The USACE, MDNR, and MPCA have a suite of approaches for measuring effects for projects and are based on an established set of procedures resulting in a better understanding of project effects. Each project that is permitted by the agencies is tailored to the project and is site-specific. The mitigation and monitoring requirements would be determined during permitting.

The wetland mitigation and monitoring section, FEIS Section 5.2.3.3, has been revised to include additional details on the proposed monitoring and wetland adaptive plan. The wetland mitigation and monitoring would be reviewed and approved by the appropriate regulatory agencies responsible for authorizing the permit application during the permitting process. Monitoring is

proposed within all wetlands containing a potential indirect wetland impact factor rating of 3 to 5 and a sampling of those wetlands with factor ratings of 1 or 2 as described in FEIS Section 5.2.3.3 (see Figures 5.2.3-31 and 5.2.3-32).

Many suggestions were provided regarding how best to quantify indirect impacts. While potential changes to wetland plant communities would be monitored, change in the vegetation community are typically slower to manifest and identify compared to changes in hydrology. The USACE believes that closely monitoring hydrology early and often during the NorthMet Project Proposed Action provides sufficient assurances of observing any indicators of anticipated changes to the wetland communities.

Theme WET 23

Theme Statement

The FEIS should acknowledge, and its impact assessment discussion should reflect the fact that the proposed Project would result in the largest permitted loss of wetlands in the history of the state of Minnesota.

Thematic Response

These comments generally stated that the FEIS should acknowledge the extent of loss of wetlands from the NorthMet Mining Proposed Action. The FEIS does describe the amount of wetlands that would be impacted by the NorthMet Project Proposed Action and how this impact would be mitigated through the USACE and State of Minnesota permitting process after issuance. The USACE's ROD would reference information in the FEIS and present any additional information required by the USACE to support its permit decision. The final evaluation and determination in the ROD would be made pursuant to the USACE's statutory authority and regulatory responsibilities under NEPA, the CWA, the 404(b)(1) Guidelines, the USACE's Public Interest Review, and other applicable laws and regulatory requirements. No changes were made to the FEIS as a result of these comments Furthermore, WCA requirements would be addressed under the MDNR Permit to Mine.

Theme WET 24

Theme Statement

General opposition to the Project due to impacts on wetlands

Thematic Response

These comments generally opposed the NorthMet Project Proposed Action on the grounds of its impact on wetlands. Because no specific information was provided, no changes were made to the FEIS.

Theme WET 25

Theme Statement

General support for the Project due minimization of impacts on wetlands and the reclamation and mitigation plans that would replace the wetlands lost due to mining.

Thematic Response

These comments generally supported the NorthMet Project Proposed Action because it would have minimal impact on wetlands. Because no specific information was provided, no changes were made to the FEIS.

A.5.22 Issue: Terrestrial Wildlife Species (WI)

Theme WI 01

Theme Statement

The FEIS should provide additional analysis of direct, indirect, and cumulative effects (including those from the changing climate) on ETSC, RFSS, SGCN, migratory species, and common wildlife species, and should incorporate the August 19, 2013, Minnesota ETSC species status list, along with any federal status changes. Sensitive species should be moved to suitable adjacent habitats, and alternative mitigation should be considered (e.g., accelerated revegetation of the Mine Site after closure). Local knowledge could be used to assess current wildlife habits (e.g., for nesting eagles). Species of concern include moose, Canada lynx, gray wolf, long-eared bat, migratory bird species, bald and golden eagles, black bear, belted kingfishers, hooded mergansers, common terns, common loons, black-backed woodpecker, boreal owl, spruce grouse, Northern goshawk, wood turtle, and the monarch butterfly.

Thematic Response

FEIS sections 4.2.5, 4.3.5, 5.2.5, and 5.3.5 (Wildlife) have been updated to include the new state endangered, threatened, and special concern (ETSC) status listings from August 19, 2013, as well as new federal status listing changes (northern long-eared bat and gray wolf). FEIS Section 5.2.4.2 provides a listing of MDNR-acceptable potential mitigation measures for impacts on habitat. These mitigation measures would be decided upon at the time of permitting. Mitigation measures for wildlife species would be considered during the Endangered Species Act Section 7 consultation process. MDNR generally does not consider relocation of sensitive species to be an acceptable mitigation measure because may have unanticipated effects on other organisms at the new site. Additional discussion has been added to the FEIS regarding wildlife species, especially those species whose status was changed (Canada lynx, northern long-eared bat, gray wolf, moose, little brown myotis, eastern pipistrelle, boreal owl, northern goshawk, Laurentian tiger beetle, Freija's grizzled skipper, taiga alpine, Nabokov's blue, and bald eagle).

Theme WI 02

Theme Statement

The NorthMet Proposed Project and Land Exchange would lead to a net loss and fragmentation of wildlife habitat, wetlands, and biodiversity sites. These effects will be exacerbated by climate change, especially for sensitive species. The Land Exchange guidelines should be reconsidered, and similar habitats should be restored on site and elsewhere. A thorough evaluation is essential, given the risks and potential effects to natural resources. An assessment of all habitats, including local and regional ecology, could be used as a basis for a more thorough recovery plan. Areas of concern include the MDNR Headwaters Site, the Sand Lake Peatlands Scientific and Natural Area, the USFS Big Lake candidate Research Natural Area, Superior National Forest, designated Important Bird Areas, Areas of High Biodiversity Significance, and wetlands as Critical Canada lynx habitat and important moose, fish, and invertebrate habitat.

Thematic Response

The FEIS wildlife sections include information about NorthMet Project Proposed Action impacts to wildlife habitat types and Minnesota Biological Survey (MBS) Sites of Biodiversity Significance. FEIS Sections 4.2.4 and 4.3.4 provide maps of the MBS Sites (Figures 4.2.4-1, 4.2.4-4, 4.3.4-1, 4.3.4-2). The WCA rules (including those parts applicable to mining projects under *Minnesota Rules*, part 8420.0930) include a special consideration for wetlands that are rare natural communities (*Minnesota Rules*, part 8420.0515, subpart 3).

Minnesota Rules, part 6132.2700 requires that a project site be reclaimed once mining has ceased. The goals of such reclamation are to "control erosion, to screen mining areas from non-compatible uses, and to provide for subsequent land uses such as wildlife habitat or timber production." The rules also include requirements about the characteristics and planting schedule for vegetation used in reclamation. The Permit to Mine would address special consideration of wetlands that include rare natural communities. Additional information on rare natural communities would be included in the wetland permit application as part of the Permit to Mine process for further refinement of site-specific conditions.

FEIS Sections 4.2.5.1.1 and 5.2.5.2.2 discuss the additive effect of climate change on moose. As described in the response to theme AIR 01, there is little information in the literature specifically on climate change in Northern Minnesota. Information related to weather trends in the Midwestern United States (based on rainfall measurements, storm damage costs, and other information) is incorporated into FEIS Section 5.2.7.

Theme WI 03

Theme Statement

The FEIS should provide additional analysis of direct, indirect, and cumulative effects (including water, air, and noise pollution, and increased vulnerability due to climate change) on wildlife (e.g., moose and browsing habits, train collisions, additional energy expenditures) and wildlife travel corridors due to the Project and the Land Exchange. In particular, the FEIS should discuss mitigation measures for effects on corridors and species. A new wildlife corridor study should be undertaken, wildlife corridors should be designated and protected, and particular attention should be given to cumulative effects on Corridor 17. Contradictory language about the lynx's use of

corridors such as roads should be revised. Species of concern include moose, Canada lynx, aquatic animals, small vertebrates, wood turtle, and invertebrates.

Thematic Response

The FEIS wildlife sections include an analysis of the wildlife corridors, including their use by various species. The FEIS Section 6.2.5.4.2 discusses cumulative effects to several wildlife corridors, including Corridor 17. The NorthMet Project Proposed Action and other cumulative projects would result in loss and fragmentation of habitat near Corridor 17, and noise and activities during operation would likely discourage wildlife use. *Minnesota Rules*, part 6132.2700 requires that a project site be reclaimed once mining has ceased. The goals of such reclamation are to "control erosion, to screen mining areas from non-compatible uses, and to provide for subsequent land uses such as wildlife habitat or timber production." The rules also include requirements about the characteristics and planting schedule for vegetation used in reclamation. Mitigation measures for wildlife species would be considered during the Endangered Species Act Section 7 consultation process.

Theme WI 04

Theme Statement

Pollution from dust or windborne or waterborne chemicals such as arsenic, mercury, manganese, thallium, copper, nickel, or sulfuric acid, and light pollution from the Project would impact wildlife species such as the common loon, mink, or birds that depend on fish or other aquatic organisms, near and downstream of the Project. The FEIS should model these effects, should more thoroughly identify opportunities for mitigation, and should include a plan to discourage wildlife (e.g., waterfowl) use of mine pit lakes and the Tailings Basin.

Thematic Response

FEIS Section 5.2.5.2.3 includes descriptions of impacts to wildlife, including light and chemical pollution. The wildlife analysis utilizes the modeling in the Water Resources (FEIS Section 5.2.2), Air Quality (FEIS Section 5.2.7), and Visual Resources (FEIS Section 5.2.11) sections to analyze the types of potential wildlife effects. As stated in FEIS Section 5.2.5.2.3, the West Pit and WWTF ponds would be fenced to deter wildlife species from using the water. It is unlikely for the West Pit to provide quality foraging habitat as there would be a lack of emergent or submerged vegetation along the pit limits. Any water discharged from the pits would be treated to meet water quality standards and would not likely affect wildlife species downstream of discharge. As discussed in FEIS Section 5.2.6, the NorthMet Project Proposed Action would meet all Class 2B (aquatic life) water quality standards with the possible exception of aluminum and lead in the Embarrass River. These findings are applicable to non-aquatic species that use the Embarrass River. The responses to themes AIR 04 and AIR 09 discuss the assessment of potentially reactive dust, and the Secondary National Ambient Air Quality Standards that would be protective of vegetation and wildlife. The response to theme MERC 02 provides more information about how mercury bioaccumulation was estimated.

Theme WI 05

Theme Statement

The FEIS should provide additional analysis regarding effects on wildlife (e.g., moose, Canada lynx, gray wolf, northern long-eared bat) displaced by the NorthMet Project due to noise/vibration or habitat disturbance. This analysis should include effects on population dynamics, carrying capacity, and the local ecosystem, and should include an evaluation of potential effects at the local and regional level.

Thematic Response

The FEIS wildlife sections include an analysis of wildlife displacement effects due to the NorthMet Project Proposed Action. FEIS Section 5.2.5.2.3 discusses the potential effects to species based on habitat preferences, and uses available scientific literature to analyze displacement effects on local and regional ecology due to noise or increased human activities. The wildlife analysis cross-references FEIS Section 5.2.8 (Noise). The response to theme N04 also discusses potential effects on wildlife. Although wildlife species are likely to be sensitive to changes in noise levels, there are no local, national, or international standards or limits that are applicable to the NorthMet Project Proposed Action. Information about each individual species' tolerance of noise and vibration may not be available.

Theme WI 06

Theme Statement

The FEIS should describe how Project-related hydrologic changes and flow level fluctuations would affect amphibians and other sensitive wildlife species. The FEIS should also provide more details on long-term beaver control.

Thematic Response

The FEIS wildlife sections include an analysis of hydrology changes and impacts to amphibians or other sensitive species. As cited in the Wetlands Data Package (PolyMet 2015b, as cited in the FEIS), the XP-SWMM model estimates that changes in the average annual flow of the Partridge and Embarrass rivers would be within naturally occurring annual variation; thus, there would be limited hydrologic changes. As a result, effects to amphibians and other sensitive wildlife species due to hydrologic changes would be limited. The Reclamation Plan (PolyMet 2015g, as cited in the FEIS) explains that when roads or railroads are abandoned, culverts would be removed to prevent damming and access impediments for aquatic life. These locations would also be graded and vegetated to provide a stable stream bank.

The Reclamation Plan (PolyMet 2015g, as cited in the FEIS) states that during reclamation monitoring and maintenance, areas that have been damaged by erosion, animal activity (e.g., beaver dams), or that have lost vegetation would be identified and repaired.

Theme WI 07

Theme Statement

The SDEIS does not consider effects on animal populations and wildlife corridors from accidents, system failures, and unforeseen or catastrophic events.

Thematic Response

The FEIS wildlife sections cross-reference FEIS Section 5.2.13 (Hazardous Materials), which discusses probabilities of accidents, spills, system failures, or unforeseen events. FEIS Section 5.2.13 also states that, given the project design and operational commitments, there would be no significant adverse effects expected from the proposed use or generation of hazardous wastes by the NorthMet Project Proposed Action. FEIS Section 5.2.14 (Geotechnical Stability) also discusses slope and dam design, stability, monitoring, and adaptive management of the Tailings Basin and or Hydrometallurgical Residue Facility to reduce the risk of failure. Effects to animal populations and wildlife corridors due to accidents or system failures are not anticipated.

Theme WI 08

Theme Statement

The cumulative effects analysis should be expanded to consider effects on wildlife associated with climate change, and should generally provide the kind of detailed analysis required by NEPA. Analysis should include all projects seeking hard rock mineral prospecting permits, as well as state or local transportation projects. Lake Superior and the St. Louis River should be reconsidered in the cumulative effects analysis.

Thematic Response

FEIS Section 6.2.5, along with the rest of Chapter 6, has been updated since the SDEIS to include additional cumulative projects. The spatial assessment area for each resource has been described along with the rationale for why it is considered adequate in scope.

As described in the response to theme AIR 01, there is little information in the literature specifically on climate change in Northern Minnesota. Information related to weather trends in the Midwestern United States (based on rainfall measurements, storm damage costs, and other information) is incorporated into FEIS Section 5.2.7.

Theme WI 09

Theme Statement

The FEIS should provide additional analysis of effects on wildlife species used for subsistence and/or harvest (game and furbearer species), as well as those considered culturally important to the Bands (e.g., moose), especially within the 1854 Ceded Territory.

Thematic Response

The FEIS wildlife sections provide an analysis of wildlife species used for subsistence/harvest, as well as those culturally important to the Bands. FEIS Section 4.2.9.3.3 identifies species potentially harvested in the 1854 Ceded Territory, while FEIS Section 5.2.9.2.2 explains that a

lack of data regarding use of such species in the NorthMet Project area likely indicates limited present day use in that area due to general inaccessibility. FEIS Section 5.2.5.2.5 discusses the types of potential effects to common and/or game species, which are similar to effects on ETSC species. The FEIS has been revised to include additional detail regarding moose, and this discussion has been moved to the state ETSC species discussion, due to its new state listing status. The response to theme CR 01 also discusses effects to resources important to the Bands.

Theme WI 10

Theme Statement

The FEIS should fully evaluate West Pit Backfill, Underground Mine, or other alternatives to evaluate whether their effects on wildlife and wildlife habitat (in particular Canada lynx) would be less than in the Proposed Action. The FEIS should also consider additional alternatives and mitigation techniques, such as the construction of wildlife tunnels, widening of culverts, and the use of fencing.

Thematic Response

The FEIS wildlife sections have been revised to incorporate changes to the Project Description since the SDEIS, as they relate to impacts on wildlife species or habitat. Mitigation measures would be considered during the Endangered Species Act Section 7 consultation process, and decisions on incidental take would be determined at its conclusion. The FEIS Section 5.2.5.2.3 (Wildlife Corridors) discusses road underpasses (i.e., tunnels) and overpasses. It also discusses examples of low-cost mitigation measures, which could include passage benches under bridges, fencing sizes and options, and offset culverts. The Underground Mine, West Pit Backfill, and other alternatives have been screened against several factors, including the Purpose and Need, technical and economic feasibility, availability, and environmental or socioeconomic benefit. FEIS Section 3.2.3.3 describes alternatives (including the West Pit Backfill and Underground Mine) that have been considered but eliminated from detailed analysis in the EIS. The responses to themes ALT 01 and ALT 03 provide additional information about the Underground Mine and West Pit Backfill alternatives, respectively. FEIS Section 5.2.5.2.3 states that the West Pit and WWTF ponds would be fenced to deter wildlife species from using the water. The Reclamation Plan (PolyMet 2015g, as cited in the FEIS) explains that when roads or railroads would be abandoned, culverts would be removed to prevent damming and access impediments for aquatic life. These locations would also be graded and vegetated to provide a stable stream bank resembling natural conditions. FEIS Table 7.3.5-1 discusses the land exchange alternatives presented in the FEIS to compare effects to wildlife species.

Theme WI 11

Theme Statement

Conclusions in the FEIS should reference and be consistent with the Biological Assessment/Biological Opinion, the Endangered Species Act consultation, and Migratory Bird Treaty Act/Bald and Golden Eagle Protection Act compliance. In particular, the FEIS should ensure consistency when addressing the Canada lynx survey and habitat, mercury risks, and northern long-eared bat habitat.

Thematic Response

The FEIS wildlife sections discuss conclusions from the Biological Assessment (Appendix D of the FEIS)/Biological Opinion and the Endangered Species Act consultation, including conclusions regarding Canada lynx surveys and habitat, mercury risks, and northern long-eared bat. The Biological Assessment has been revised to further clarify Canada lynx surveys, and states that no lynx sign was found on the federal lands or Projects areas, and that lynx sign was found 5 miles south and east of the Mine Site. The Biological Assessment states that the NorthMet Project Proposed Action is likely to adversely affect Canada lynx, and may affect but is not likely to adversely affect Canada lynx critical habitat. Should the northern long-eared bat be listed as threatened or endangered under the ESA, the NorthMet Project Proposed Action may affect but is not likely to adversely affect the northern long-eared bat. The USFWS determined that critical habitat for the northern long-eared bat is not determinable at this time.

Theme WI 12

Theme Statement

The FEIS should discuss how the Project conflicts with or conforms to wildlife-related Forest Plan objectives.

Thematic Response

FEIS Section 5.2.5 discusses Forest Plan objectives in light of unsuitable habitat percentage within Lynx Analysis Units (LAU). For example, FEIS Section 5.2.5.2.1 explains that the percentage of LAU 12 unsuitable for lynx would increase from 4.0 to 6.1 percent under the NorthMet Project Proposed Action. The Forest Plan guideline G-WL-3 states that unsuitable habitat not exceed 30 percent of the LAU.

Theme WI 13

Theme Statement

The risks to sensitive and biodiverse ecosystems—the BWCAW, Lake Superior, and Superior National Forest—and to wildlife and wildlife habitat are too great to proceed with the Project as proposed.

Thematic Response

This comment has been received and acknowledged by the Co-lead Agencies. Impacts to wildlife species and habitats are addressed in FEIS Sections 5.2.5 and 5.3.5.

A.5.23 Issue: Wilderness and Special Designation Areas (WILD)

Theme WILD 01

Theme Statement

The SDEIS fails to adequately analyze, and/or incorrectly characterizes effects on wilderness and special designation areas, including the Superior National Forest, the BWCAW, Voyageurs National Park, and Quetico Provincial Park. Further information is required to assure the public that wilderness will be preserved and protected.

Thematic Response

The FEIS analyzes and characterizes the impacts to wilderness and other special designation areas in FEIS Section 5.2.12. This section uses data presented in Section 4.2.12 for wilderness or special designation areas (including the Superior National Forest, BWCAW). Both Voyageurs National Park and Quetico Provincial Park are outside of the 25 mile analysis area for the NorthMet FEIS and therefore have not been analyzed as no impacts are expected to these areas.

Theme WILD 02

Theme Statement

The NorthMet Mining Project will have unacceptable impacts on the BWCAW , Voyageurs National Park, Superior National Forest, and Lake Superior. Northeast Minnesota should remain pristine and untouched by industrial pollution.

Thematic Response

The NorthMet Project Proposed Action will have no direct effects on wilderness and special designation areas. Please see FEIS Section 5.2.12 for further discussion of this.

Theme WILD 03

Theme Statement

As demonstrated by the SDEIS, the NorthMet Mining Project would not adversely affect the BWCAW and Superior National Forest.

Thematic Response

The impacts from the NorthMet Project Proposed Action on wilderness and other special designation areas are discussed in detail in FEIS Section 5.2.12.2.

A.5.24 Issue: Water Resources (WR)

Please note that, due to the complexity of the subject matter, Themes WR 025, WR 060, and WR 173 each have several subthemes.

Theme WR 001

Theme Statement

When sulfide ore is exposed to water and oxygen, sulfuric acid is produced. A decrease in rock particle size increases the surface area exposed to water and oxygen. As acid dissolves rock, heavy metals are released. Natrojarosite would dissolve and cause acidity.

Acid mine drainage would start sooner than expected, occur for too long and pH would be lower than expected. The Tailings Basin would become acidic. Ferrous mine tailings produce acid runoff. Sulfuric acid, mercury and other metals contaminate water and impact human and aquatic life, wildlife and ecosystems.

The SDEIS does not describe how the future pH of leachate from waste rock and mine pits is predicted, why not all sulfide sulfur has the same potential for release, that predictions of pH are highly uncertain though likely underestimated, and how low pH would be effectively mitigated.

Thematic Response

Solution pH is a dynamic chemical condition, and the GoldSim model did not attempt to predict the actual pH of leachate from the various NorthMet facilities. However, sulfide mineral oxidation in mine waste does cause pH to decrease, and this causes an increase in oxidation rates, modeled concentration caps, and associated solute concentrations in leachate. These effects from pH decreases are incorporated explicitly into the GoldSim model for both non-acid-generating and acid-generating waste.

The non-acid-generating materials are tailings and Category 1 waste rock (0.12 percent sulfide S or less). This classification is based on humidity cell tests operated on 38 samples of NorthMet Category 1 waste rock continuously between 187 to 337 weeks, [PolyMet 2015q, as cited in the FEIS]). None of these materials produced acidic leachate (see time plots of effluent pH in “Attachment 2 Trend Analysis for Rock Humidity Cells” to “Attachment A Water Quality Modeling for Waste Rock and Pit Walls” [PolyMet 2015q, as cited in the FEIS]). The 0.12 percent sulfide S threshold for defining non-acid generating rock is supported by these multi-year humidity-cell tests, which indicate that sulfide minerals oxidize in approximately proportional to the concentration of sulfide, so that the oxidation rate (and thus the acid-production rate) decrease over time as the sulfide sulfur is consumed (PolyMet 2015q Attachment C, as cited in the FEIS). Between approximately 100 and 200 weeks after starting the kinetic tests, the pH of the effluents reaches a minimum, and thereafter the pH becomes steady or increase slightly (PolyMet 2015q, as cited in the FEIS). Thus, the GoldSim model of the tailings incorporates an estimated range for pH, but not temporal trend. Based on the measured pH in multi-year weathering tests on tailings (and also results from tests on Category 1 waste rock, which is also less than 0.12 percent sulfide S), and incorporating a small correction for the possibility that carbon dioxide pressure may be higher in the tailings s than in the atmosphere, the PolyMet tailing effluent over the long-term (i.e., 50 to 100 years, and beyond)

should range between pH of approximately 7.1 and 7.7, and the general trend should be fore pH to increase from the low end to the high end of this pH range with increasing time (PolyMet 2015q, as cited in the FEIS).

In the net-acid-generating waste, the effect of pH is incorporated by accounting for the duration of exposure before onset of acidic conditions (mean values range from 0 for Virginia Formation to 6.8 years for Duluth Complex), and the increase in oxidation rates and concentration caps that occur with acid onset ([PolyMet 2015q, as cited in the FEIS). Once acidic conditions begin, the model accounts for the rapid increase in oxidation rate and then associated decay as an increasing fraction of the original sulfide is consumed (PolyMet 2015q, as cited in the FEIS). Concentration caps also increase as the rock pore water changes from neutral to acidic (PolyMet 2015q, as cited in the FEIS; Barr 2012c, as cited in the FEIS). Leachate from these acid-generating materials are managed so that leachate is captured, either on lined facilities (Category 2/3, Category 4, and ore) or in pits (wall rock of East Pit and West Pit, or backfill to the East Pit) and treated prior to discharge.

The FEIS contains additional detail on the issue of how future pH of leachate is predicted; see FEIS Section 5.2.2.2.3 for more information.

Theme WR 002

Theme Statement

Lack of acidic leachate and pollutants from submerged waste rock and mine pit walls is assumed rather than verified by empirical data and testing. Impacts of high levels of chlorides in the inundated East Pit, Central Pit, and West Pit are not accurately evaluated. Other sources of chloride need to be identified as well. Pits should be lined and bentonite should be considered.

Thematic Response

The rate of oxidation and associated release of acidity and metals from waste rock and wall rock after it is submerged under water is discussed in the NorthMet Project Waste Characterization Data Package (PolyMet 2015q, as cited in the FEIS). An analysis based on the rate of oxygen diffusion in water found that after the waste rock was submerged by a layer of oxygenated water, the rate of oxidation in the rock would decrease by a factor of 1,000 relative to the oxidation rate when it was exposed to atmospheric oxygen. The analysis was based on the following two references: 1) Day, S. NorthMet Project Geochemical Uncertainty Analysis for Proposed Action - DRAFT [Memorandum to PolyMet and Barr] October 10, 2008 (Day 2008); and 2) Morin, KA. Rates of sulfide oxidation in submerged environments: Implications for subaqueous disposal. Proceedings of the 17th Annual Mine Reclamation Symposium. Port Hardy, British Columbia: Mining Association of British Columbia, May 4-7, 1993. pp. 235-247 (Morin 1993). Based on this analysis, which is consistent with general results of studies on subaqueous disposal of sulfide-bearing mine waste, the GoldSim model assumed that oxidation in submerged wall rock and waste rock was negligible. Waste rock in the East Pit backfill could undergo slow oxidation by oxygen dissolved in groundwater flows into the pit, and the solutes produced by this mechanism would be subject to capture and treatment of the pore water in the backfill.

Regarding chloride in inundated pits, the GoldSim model incorporates the release of chloride to the backfilled pits, with release rates based on measured chloride leached from waste rock in the weathering tests (i.e., humidity cells). The West Pit Lake, and backfilled East and Central pits,

are included in the monitoring and management planning, so that water from these would be pumped out and treated to achieve water quality targets.

Theme WR 003

Theme Statement

The gaging data used to estimate Partridge River and Embarrass River baseflows are inappropriate. The SDEIS baseflow estimates are based on gaging stations located many miles downstream of the Mine Site and Plant Site and use data that were collected decades ago. Current and future estimated baseflows using this data are unreliable.

Thematic Response

Groundwater baseflows used in the SDEIS are best-estimate values and were retained in the FEIS. SDEIS groundwater baseflow values were based on: 1) winter 1986-1987 and winter 1987-1988 USGS stream gaging in the Partridge River at SW-006--a time when there were no discharges from the Northshore Mine Peter Mitchell Pit; and 2) 1942-1963 gaging data in the Embarrass River, which includes years prior to the LTVSMC Tailings Basin startup (1957). When expressed as a groundwater baseflow yield per unit area, the similar results for both watersheds (approximately 0.05 cfs per square mile) support the approach used. The yield-per-unit area is similar to other watersheds in northern Minnesota. Studies have shown that streamflow characteristics in this part of Minnesota have not changed systematically over the last 50 years.

The only other available gaging data are from a station installed in 2011 at SW-003 on the Partridge River. However, interpretation of groundwater baseflow at SW-003 is not reliable for use in the GoldSim modeling of groundwater baseflow due to the complicating effects of Peter Mitchell Pit pumped discharges, seepage from the Northshore West Pond, and complex storage and release mechanisms in the wetlands that receive these flows.

More broadly, groundwater baseflow discharge varies with time and is a reflection of longer-term weather and climatic conditions. The variability of groundwater baseflow discharge is demonstrated by the examination of estimated values for several years using different methods. Evaluation of these values affirms continued reliance on the 1986-1987 USGS data for the Mine Site in the FEIS.

To better understand the relationship of groundwater baseflow to the GoldSim model's water quality impact projections, a sensitivity analysis for the Mine Site was conducted to evaluate if predicted NorthMet Project Proposed Action impacts would be sensitive to groundwater baseflow values. The sensitivity analysis considered the relationship of various model inputs to groundwater baseflow including hydraulic conductivity, recharge, and surface runoff chemical concentrations. The results indicate that modeled groundwater and surface water concentrations are moderately sensitive to changes in groundwater baseflow. However, the NorthMet Project Proposed Action's ability to meet groundwater quality and surface water quality evaluation criteria is not sensitive to changes in groundwater baseflow.

Theme WR 004

Theme Statement

Recent and ongoing gaging data collected in the Partridge River was not used in the SDEIS and must be incorporated into the baseflow analyses.

Thematic Response

The MDNR gage data were evaluated in determining the groundwater baseflow estimates for the FEIS. While the low-flow analyses conducted for SW-003 are considered high-quality, it is uncertain if the results can provide reliable estimates of groundwater baseflow for use in GoldSim due to the complicating effects of: 1) pumped discharges from the Northshore Mine Peter Mitchell Pit, 2) seepage from the Northshore West Pond, and 3) complex storage/release mechanisms in the wetlands that receive these flows. These confounding factors associated with use of the SW-003 gage data make using this information in GoldSim problematic. See the response to theme WR 003 for additional information on the groundwater baseflow determination.

Theme WR 005

Theme Statement

Mine Site baseflow does not accurately consider the effects of the Northshore Mine pit dewatering discharge. The use of a higher baseflow value would lead to higher recharge into groundwater, which would decrease solute transport times in groundwater. Higher recharge would also increase the expected groundwater inflow into the dewatered mine pits.

Thematic Response

In GoldSim, groundwater baseflow to the Partridge River and Northshore discharge to the Partridge River are two unrelated flow inputs, which are quantified separately in the model. One does not affect the other. Groundwater baseflow is a natural process (related to aquifer recharge) and Northshore discharge is human-controlled. In quantifying groundwater baseflow at the Mine Site, the complicating effects of Northshore discharge were removed from the analysis by using stream gaging data for a time period when Northshore was not discharging to the river. Northshore discharge is not part of groundwater baseflow as defined in the Mine Site GoldSim model and is therefore not relevant to determining aquifer hydraulic conductivity, areal recharge, or groundwater travel times.

The flow inputs from the Northshore Mine to the Partridge River include more than just pumped discharges at SD-009. Northshore Mine inputs to the river also include: 1) seepage from the Western Pond (which has been observed but cannot be directly measured), and 2) wetland storage and release mechanisms of previously pumped discharges. It is unlikely that flow inputs from the Northshore Mine to the Partridge River go to zero when there is no pumped discharge at SD-009.

The FEIS improves upon the SDEIS modeling by relying on recomputed Northshore flowrates using updated chemical data for surface water, groundwater, and Northshore discharge water.

The updated value is a constant 2.6 cfs at a sulfate concentration of 28 mg/L, which is considered to be a reasonable modeling approximation of a highly variable hydrologic regime.

As reported in the FEIS, PolyMet performed a sensitivity analysis of Partridge River groundwater baseflow to assess the sensitivity of model parameters and results to this input. The analysis involved increasing groundwater baseflows by a factor of four and recalibrating the MODFLOW groundwater model and GoldSim existing conditions model to incorporate this change. The factor of four increase did not reflect a reinterpretation of stream gaging data or the idea that actual groundwater baseflows could be that high. It was a hypothetical increase used to stress the models so that the sensitivity of model results could be assessed. As expected, with higher groundwater baseflows, the following model sensitivities were identified: 1) aquifer recharge was higher; and 2) surficial aquifer hydraulic conductivities were higher, pit inflows were higher, and groundwater chemical transport to the Partridge River was faster. An important result was that some chemical concentrations in the river were higher, but the increases were not sufficient to change conclusions regarding the NorthMet Project Proposed Action impacts.

Theme WR 006

Theme Statement

The Mine Site GoldSim model incorrectly assumes constant discharge from the Northshore Mine to the Partridge River; however, the pumping rates and timing from the Northshore Mine are highly variable and may cease in the future.

Thematic Response

It is acknowledged that pumped discharges from the Northshore Mine are sporadic and vary in magnitude. This discharge greatly affects the flow of the Partridge River. There are two sources of the Northshore Mine to the Partridge River that are more continuous and have less variable flow: Western Pond seepage and wetland storage and release (of previously pumped water). GoldSim consolidates these flows into a single integrated Partridge River input that has a constant flow rate and uniform chemical concentrations. This constant rate input adequately characterizes flow from the Northshore Mine. For the FEIS analysis, this flow was increased to 2.6 cfs and the concentration of sulfate was increased to 28 mg/L.

Theme WR 007

Theme Statement

With regard to bedrock at the Mine Site, there is inadequate or inaccurate characterization, insufficient field testing, and an inadequate number of monitoring wells. There has been no study that proves or disapproves that water pollution would migrate via natural permeability or existing fractures. Additional evaluation is needed.

Thematic Response

Bedrock testing at the Mine Site consisted of:

- Five single-borehole specific-capacity tests conducted in deep coreholes located within the southern portion of the proposed West Pit. These tests were conducted primarily in

the Duluth Complex and are considered most representative of bedrock between the Mine Site and the Partridge River.

- Five single-borehole specific-capacity tests conducted in deep coreholes located near the northern boundaries of the proposed West Pit and East Pit. These tests were conducted primarily in the Duluth Complex, but relatively close to its contact with the Virginia Formation.
- Four multiple-well pumping tests conducted along or near the northern boundaries of the proposed mine pits. These tests were conducted in both the Duluth Complex and Virginia Formation.

The bedrock tests provided reliable transmissivities and hydraulic conductivities of the Duluth Complex and Virginia Formation for impact assessment. In addition, bedrock hydraulic conductivities were estimated from calibration of the Mine Site MODFLOW model. The testing and model calibration program provided adequate characterization of bedrock properties at the Mine Site.

It is recognized that measured hydraulic conductivities from single-borehole tests performed in coreholes can sometimes underestimate the true in situ hydraulic conductivity. In consideration of this possibility and the interpretation that upper bedrock may be more permeable than deeper bedrock, the P50 (mode) hydraulic conductivity of bedrock flowpaths in the Mine Site GoldSim model (3.0 x 10-3 meters/day) was 21+E13 times greater than the geometric mean of values from the five Duluth tests conducted in the southern portion of the proposed West Pit (1.4×10^{-4} meters/day).

Bedrock water sampling was conducted in the following wells:

- Three aquifer test pumping wells located along or near the northern boundaries of the proposed mine pits that were sampled during 2005 and 2006. These wells were completed in both the Duluth Complex and Virginia Formation.
- Five observation wells located near the aquifer test pumping wells that were sampled between 2006 and 2013. Two wells were completed in the Duluth Complex and three were completed in the Virginia Formation.

The number of bedrock sampling wells and sampling events at the Mine Site is sufficient for the FEIS. See FEIS Section 5.2.2.3.2 for further information.

Comments cite a November 24, 1976 MPCA memorandum titled, “Minnamax Exploration Project Tour” that pertains to the historical Minnamax/Amax exploration project located 1 to 2 miles east of the NorthMet Project area. The relevant text in this memo is as follows:

The depth of the [exploration] shaft, at the time of the inspection was approximately 520 feet. At the 147 foot level, a fracture zone was encountered. Approximately 14 gallons a minute of water was infiltrating into the shaft. The fracture was grouted and sealed. In the core drilling operation, the fracture was noted; however, it was not identified as a water bearing fracture. In the core drilling, another fracture zone was identified at the 900 foot level. It is possible that additional water would be encountered at 900 feet.

It is uncertain if the observations made during this shaft excavation can be realistically applied to bedrock at the NorthMet Project area. The historical Minnamax/Amax project was located miles

away from the NorthMet project and it is uncertain if geologic units and structures penetrated by the shaft are similar to those in the location of the NorthMet project. Further, it is not stated in the memo if the 14 gpm inflow was a sustained flow or if it decreased over time as commonly occurs in fractured rocks. The comments do not indicate if the fracture zone identified by core drilling at 900 feet caused significant inflows when the shaft reached that depth. It would be speculative to characterize the NorthMet Project area using observations made in the referenced MPCA memorandum.

Comments also cite a September 8, 1976 MPCA memo titled, "Amax Exploration, Incorporated Salt Water Spill" that discusses saline water encountered in an air-driven downhole hammer borehole at the Minnamax/Amax site. The relevant text in this memorandum is as follows:

The [saline] discharge began after hitting a confined pocket of water at the 1391 foot level on July 13, 1976. Although large quantities of water, as much as 275 gallons a minute, were being discharge, the drilling operation was continued to July 15.

It is uncertain if observations described in the MPCA memorandum are relevant to the NorthMet Project area including bedrock types and hydrogeologic conditions. The maximum depths of proposed NorthMet pits (approximately 700 feet) would be far less than 1,391 foot depth at which saline water was encountered at the Minnamax/Amax site. It is also uncertain if the 275 gpm flow rate was short-term or maintained for an extended period of time. Note that inflows to the PolyMet mine pits would be treated by the WWTF during operations, reclamation, and closure, so if saline water were encountered, it would be treated and discharged at concentrations meeting applicable water quality standards. See FEIS Section 5.2.2.3.2 for a discussion of potential impacts from saline waters.

In response to fracture flow issues raised, the FEIS expands the SDEIS analysis by further evaluating the possibility of fractures and faults at the Mine Site and Plant Site to determine what (if any) changes would be made to model assumptions to more accurately predict potential environmental effects for purposes of environmental review. Note that PolyMet proposes to grout and seal any permeable, water-bearing fractures identified in the mine pit walls during excavation. These issues are further discussed in FEIS Sections 4.2.2.2.1 and 5.2.2.2.1.

Theme WR 008

Theme Statement

With regard to bedrock at the Plant Site, there is no site characterization, no monitoring wells, and no field testing. Hydraulic and water chemistry data from discrete intervals in shallow (less than 50 feet) bedrock at the Tailings Basin would be useful to test the inference of a no-flow bedrock boundary. Bedrock groundwater chemistry could be useful at the Plant Site because constituents resulting from past activities at the former LTVSMC Tailings Basin may serve as a tracer to better understand solute transport through the bedrock. Additional evaluation is needed.

Thematic Response

The comments in this theme correctly note that there are no bedrock monitoring wells between the Tailings Basin and the Embarrass River.

During winter 2013-2014, an investigation of bedrock was conducted along the north, northwest, and west perimeter of the Tailings Basin. The investigation included five coreholes advanced

into upper bedrock and 10 packer tests conducted in these holes. The investigation provided rock core, Rock Quality Designation data, and hydraulic conductivity of discrete intervals within the upper bedrock. The results of this investigation are reported in the document titled, "Hydrogeology of Fractured Bedrock in the Vicinity of the NorthMet Project" (Barr 2014b, as cited in the FEIS). Based on this investigation and studies performed at other Iron Range mine sites such as, "Hydrogeology of Glacial Drift, Mesabi Iron Range, Northeastern Minnesota" (Winter 1973, as cited in the FEIS) it is considered that bedrock at the Plant Site is adequately characterized for the FEIS; see FEIS Section 4.2.2.3.1 for more information. The Co-lead Agencies acknowledge that this investigation evaluated the hydraulic characteristics of upper bedrock, but did not sample bedrock groundwater for water quality analysis. However, bedrock groundwater sampling conducted at the Mine Site and regional studies of bedrock water quality are considered by the Co-lead Agencies to be adequate for characterizing bedrock water chemistry at the Plant Site.

The above investigation provides good evidence that upper bedrock has hydraulic conductivity that is about two orders of magnitude lower than that of the overlying surficial deposits. Further, investigations at the Mine Site suggest that deeper bedrock has hydraulic conductivity that is substantially lower than upper bedrock. Given these characterizations, it is reasonable to not consider flow/transport in bedrock between the Tailings Basin and the Embarrass River. Mathematical incorporation of a no-flow boundary at the base of the surficial aquifer in both the MODFLOW and GoldSim models is consistent with idea that flow/transport at the Plant Site is dominated by the hydrology of the surficial aquifer and that flow/transport in bedrock is comparatively not significant.

Considering chemicals in bedrock to constitute groundwater tracers of bedrock flow/transport is not likely to be definitive because there has been substantial surface seepage from the Tailings Basin for decades. This seepage migrates through wetlands and monitoring shows that in some locations the seepage has interacted with groundwater. If tailings basin chemicals were identified in bedrock, it would be uncertain if the chemicals were transported through bedrock or were derived from overlying groundwater in the surficial aquifer.

A comment states that "substantial contamination" has been found in domestic bedrock water wells north of the Plant Site. Based on a desktop review conducted by the MPCA of the residential well and monitoring well results (which in part included the consideration of chemical tracers), it is not apparent that elevated concentrations in some of the residential wells are caused by the Tailings Basin, but more likely reflect natural or localized background concentrations.

Theme WR 009

Theme Statement

The assumed bedrock hydraulic conductivity at the Mine Site is too low. It is lower than values used at similar sites and with similar rock types, and values used in regional studies.

Thematic Response

Bedrock hydraulic conductivity data from NorthMet Project Proposed Action site-specific field testing and information obtained from other similar mine sites were compiled Barr 2014b, as cited in the FEIS. The results of this compilation, which was prepared to address comments on this issue, show that bedrock hydraulic conductivity for different bedrock units is variable and

tends to be higher in the uppermost portions of bedrock. This new information supports the position that revised bedrock hydraulic conductivity probability distributions used in the FEIS are reasonable for impact analysis in the GoldSim model. In summary, the field-estimated conductivities are generally considered to be the lower-bound of hydraulic conductivity. The conductivity variable was adjusted in the FEIS Mine Site GoldSim model to recognize the potential higher hydraulic conductivities in the upper portion of the bedrock.

Theme WR 010

Theme Statement

Chemical migration in bedrock is not adequately addressed in the SDEIS. Chemical migration is treated as negligible at the Mine Site and is ignored at the Plant Site. The water quality models do not consider fracture transport, assume no hydraulic connection between bedrock and surficial deposits, and assume no connection to wetlands along flowpaths. The SDEIS does not consider flow through faults that could divert groundwater in uncertain directions, depth of pollution in bedrock, the presence of brackish water, or the area of the pollution plume within the groundwater flowpaths.

Thematic Response

Impact assessment modeling relies on site characterization data that indicate the bulk hydraulic conductivity of upper bedrock is two to three orders of magnitude lower than the hydraulic conductivity of the surficial aquifer. Thus, groundwater flow and transport at both the Mine Site and Plant Site are dominated by the hydraulics of the surficial aquifer. Bedrock plays a negligible role in transporting site-derived chemicals to the Partridge River and Embarrass River.

It is acknowledge that there could be some hydraulic connections between bedrock and the surficial aquifer where transport is expected to be negligible. Given these factors, the approach was to not consider this possible connection in the NorthMet Project Proposed Action water quality models, but to recommend extensive monitoring during operations and closure to assess if interactions occur and if they would raise concerns for permitting agencies. If monitoring data indicate trends toward permit non-compliance, adaptive mitigation measures would be implemented to prevent or eliminate what is expected to be a small transport-related bedrock impact relative to surficial flows. See FEIS Section 5.2.2.3.5 for more information on adaptive mitigation measures and Section 5.2.2.3.6 for more information on monitoring.

The FEIS further evaluated the possibility of fractures and faults at the Mine Site and Plant Site to determine what (if any) changes need to be made to model assumptions to accurately predict potential environmental effects for purposes of environmental review. Although no change was made to the Plant Site GoldSim model, the FEIS Mine Site GoldSim model was modified to include a flow/transport zone 15 meters thick from that present in the SDEIS. The results of the analysis are included in FEIS Section 5.2.2.3.2. The responses to themes WR 169 and WR 007 also contain additional information.

It is incorrect to interpret that the presence of fractures necessarily implies higher groundwater flow and chemical transport rates. Regardless of the nature of fracture flow, the chemical flux (chemical mass per unit time per unit cross-sectional area) from source areas to perennial streams is controlled by the bulk hydraulic conductivity of the rock mass (as quantified by Darcy's law). Site-specific and regional studies of the bedrock hydrology indicate that the bulk hydraulic

conductivity of bedrock is low. It doesn't matter if the flow is primarily through the rock matrix or fractures; the chemical mass flux on bedrock is simply not great enough to cause impacts to the Partridge or Embarrass rivers, or to any other receiving surface water bodies. Regardless of the interpretation of fracture flow, potential impacts to surface water are dominated by groundwater flow in the surficial aquifer, and the negligible effects of bedrock transport can be easily shown by hand calculations.

There are no bedrock boreholes at the Mine Site that have identified saline water at depths down to the ultimate pit bottoms. It is therefore unlikely that pit inflows would exhibit saline groundwater. Even if this were to occur, the pit water would be treated to reduce TDS to acceptable levels prior to discharge to surface water.

Theme WR 011

Theme Statement

Groundwater modeling does not consider that upper bedrock is more fractured and tends to be more permeable than deeper bedrock--a characteristic that is known to occur at similar sites. The models do not reflect the results of several well tests conducted in the upper bedrock Virginia Formation that exhibited relatively high hydraulic conductivities. The SDEIS does not consider more recent and reliable geologic data.

Thematic Response

In the FEIS Mine Site GoldSim model, bedrock flowpaths have been reconfigured with a bulk hydraulic conductivity that is approximately one order of magnitude higher than what was used in the SDEIS. In addition, the flowpaths are remodeled to be 15 meters thick to account for new information indicating that upper bedrock tends to have higher hydraulic conductivity, and this zone tends to control the overall groundwater flow within the bedrock. Note that there are no groundwater flowpaths in the Plant Site GoldSim model.

The Mine Site MODFLOW model does consider the Virginia Formation as a separate hydrostratigraphic unit and assigns a higher hydraulic conductivity to this unit compared to the Duluth Complex. The presence of higher hydraulic conductivity Virginia Formation explains the higher pit inflows predicted for the East Pit, which is partially excavated into this bedrock unit. Note that Virginia Formation is not relevant to bedrock flowpaths in the Mine Site GoldSim model because the flowpaths only exist in Duluth Complex rock.

The responses to themes WR 007, WR 008, and WR 017 contain additional information.

Theme WR 012

Theme Statement

The SDEIS does not consider the presence of known faults and fracture zones in the NorthMet Project Proposed Action area or the fact that isostatic rebound can create shallow open fractures. There is no site characterization or field testing of fracture properties and no acknowledgement that faults can transport groundwater in uncertain directions. Geological survey maps and PolyMet's own reports for the Canada Stock Exchange reveal significant faults and fractures. The SDEIS consistently downplays the significance of fracture flow and transport in bedrock,

while also documenting that Area of Concern #8 has a plume of pollution propagating through fractures.

Thematic Response

The SDEIS disclosed that bedrock is variably fractured. The effects of fracturing are incorporated into the bulk hydraulic conductivity values used to characterize bedrock for the water quality impact assessment modeling. This is common practice in large-scale evaluations of bedrock hydraulics and the Mine Site GoldSim model was updated for the FEIS to better represent the likelihood of an upper zone of more fractured bedrock than deeper in the formation. Background bedrock-related conductivity information was also updated for the FEIS.

Structural faults may exist between mine facilities and perennial streams that receive groundwater discharge. Because the landscape is covered with surficial deposits and there are few bedrock outcrops, the existence of faults can only be inferred. It is unknown if faults (if and where they exist) behave as conduits or barriers to groundwater flow. Given these uncertainties, it is unlikely that any reasonable field program would be able to identify the existence, location, and hydraulic characteristics of faults that may or may not be present at the site. The FEIS documents the need to require a robust monitoring program during operations and closure to provide direct or indirect evidence on the existence of hydrologically significant faults. If significant faults were identified (i.e., faults that could lead to violation of water quality standards), then adaptive measures would be employed to mitigate the fault-related effects. See FEIS Section 5.2.2.3.5 and theme WR 169 for additional information.

Site characterization data indicate that the bulk hydraulic conductivity of upper bedrock is two to three orders of magnitude lower than the hydraulic conductivity of the surficial aquifer. Thus, groundwater flow and transport at both the Mine Site and Plant Site are dominated by the hydraulics of the surficial aquifer. Bedrock plays a negligible role in transporting site-derived chemicals to the Partridge and Embarrass rivers.

Cross-section MODFLOW models of the Tailings Basin surface and groundwater seepage containment system indicate that very high capture (greater than 90 percent) would be achieved in both the surficial deposits and underlying upper fractured bedrock. If there were leakage from the Tailings Basin into bedrock, it would be collected by the containment systems and bypass (if any) would be sufficiently small to not cause impacts that exceed water quality evaluation criteria.

Finally, field-testing and MODFLOW modeling performed at the Mine Site indicate that geologic materials between the Biwabik Iron Formation and the pit excavations (combination of Duluth Complex and Virginia Formation) have sufficiently low hydraulic conductivity to limit pit inflows of water derived from the Biwabik Formation. Geologic maps and cross sections of the Mine Site show that the geologic unit below the Duluth Complex is the Virginia Formation, not the Biwabik Iron Formation. The linear distance between the Biwabik Iron Formation and the three proposed mine pit excavations is greater than 150 feet, which is a sufficient buffer zone to limit pit inflows.

It is incorrect to interpret that the presence of fractures necessarily implies higher groundwater flow and chemical transport rates. Regardless of the nature of fracture flow, the chemical flux (chemical mass per unit time per unit cross-sectional area) from source areas to perennial streams is controlled by the bulk hydraulic conductivity of the rock mass (as quantified by Darcy's law).

Site-specific and regional studies of the bedrock hydrology indicate that the bulk hydraulic conductivity of bedrock is low. It does not matter if the flow is primarily through the rock matrix or fractures; the chemical mass flux in bedrock is simply not great enough to cause impacts to the Partridge or Embarrass rivers, or to any other receiving surface waterbodies. Regardless of the interpretation of fracture flow, potential impacts to surface water are dominated by groundwater flow in the surficial aquifer, and the negligible effects of bedrock transport can be easily shown by hand calculations.

Theme WR 013

Theme Statement

The SDEIS does not consider that ammonia and tritium are observed in two deep Mine Site wells. Their presence indicates young groundwater at depth, an observation that conflicts with the assumption that bedrock has very low hydraulic conductivity. Reverse osmosis pilot testing did not consider ammonia and tritium pollutants.

Thematic Response

Tritium and non-ionized ammonia can be indicators of relatively young water. However, when these constituents are identified in water extracted from a borehole, the overriding question is whether or not foreign (young) water was introduced during the drilling process. There are many documented cases where tritium in borehole water could be traced to makeup water introduced during the drilling process to help maintain circulation. Experience indicates that conclusions about the age of groundwater based on tritium and non-ionized ammonia are unreliable unless it can be absolutely verified that no foreign (makeup) water was introduced during the drilling process. Given the isolated occurrences, additional verification is not warranted for the FEIS. Based upon this rationale, RO pilot-testing of ammonia and tritium is not justified.

Theme WR 014

Theme Statement

The SDEIS does not make use of bedrock information from hundreds of Mine Site boreholes including fracture traces, fracture weathering, and the presence of fault breccia or gouge.

Thematic Response

The FEIS relies on the report, “Hydrogeology of Fractured Bedrock in the Vicinity of the NorthMet Project” (Barr 2014b, as cited in the FEIS), which was reviewed by the Co-lead Agencies. Its relevant points include:

- There are, “...over 14,000 RQD measurements for the Duluth Complex within PolyMet’s data base” (“RQD” is a measure of breaks in a segment of rock drill core, where 100 percent indicates no breaks and 0 percent indicates that all pieces of core within a core run are less than 10 centimeters long); and

- In Duluth Complex rock, the “average RQD increases from 73 percent at the top of bedrock to 94 percent within 40 feet below the top of bedrock” (lower RQD indicates higher frequency of core breaks).

In particular, Figure 3-6 of the report "Number of Fractures per Foot (Fracture Index) with Depth in the Duluth Complex" (Barr 2014b, as cited in the FEIS) illustrates the borehole data on RQD in bedrock. The hydrology of bedrock in the Mine Site and Plant Site has been revised in response to the further evaluation of bedrock hydrology, and these are described in FEIS Section 5.2.2.2.1.

The RQD data provide strong evidence that the upper 10 to 15 meters of bedrock tend to be more fractured and have higher hydraulic conductivity than deeper bedrock. This new information has been incorporated into the FEIS Mine Site GoldSim model. In the FEIS GoldSim model, groundwater flowpaths are 15 meters thick (compared to 100 meters in the SDEIS) and have hydraulic conductivities that are about one order-of-magnitude higher than the SDEIS values.

Theme WR 015

Theme Statement

The SEIS does not make use of bedrock information from geotechnical boreholes in the Tailings Basin area.

Thematic Response

During winter 2013-2014, an investigation of bedrock was conducted along the northern, northwestern, and western perimeters of the Tailings Basin. The investigation included five coreholes advanced into upper bedrock and 10 packer tests conducted in these holes. The investigation provided rock core, RQD data, and hydraulic conductivity of discrete intervals within the upper bedrock. The results of this investigation are reported in FEIS Section 4.2.2.3.1. Based on this investigation and studies performed at other Iron Range mine sites, bedrock at the Plant Site is adequately characterized for the FEIS.

Theme WR 016

Theme Statement

The SDEIS does not consider that blasting can create fractures and increase bedrock hydraulic conductivity. It is also possible that acid mine drainage could cause fractures to widen and become more permeable.

Thematic Response

Case histories provide strong evidence that blasting effects in open pits tend to extend no more than several tens of feet from the pit walls. As stated in Scott 2009, "…provided the operations are designed using the approaches recommended and implemented to a reasonable standard then there should be negligible impact on the permeability of the pit walls more than 15 meters from the blast." This zone is very narrow when compared to the scale of the pits and the overall mine site. It is acknowledged that within this narrow zone, there may be increased fracture hydraulic conductivity and greater fracture surface area for chemical reactions to occur. This "damaged rock zone" was considered by the Co-lead Agencies during the Impact Assessment Planning process. The FEIS reasonably considers the effects of a narrow blast zone adjacent to the pit walls for the inputs used in the Mine Site GoldSim model.

Theme WR 017

Theme Statement

The assumed capture efficiency of the water collection systems at the Category 1 Stockpile has not been verified by modeling or calculations. A range of capture efficiency inputs should be used in modeling. The Category 1 Stockpile should be lined.

Thematic Response

The proposed capture system for the Category 1 Stockpile is a unique design that uses a slurry wall keyed into bedrock and a pumped collection trench that maintains depressed groundwater levels on the inside (stockpile-side) of the system. It is acknowledged that there are capture systems at other mine sites that do not operate with a high degree of capture, but these are different designs and cannot be directly compared to the system proposed for the Category 1 Stockpile. Based on a MODFLOW groundwater model specifically developed to assess capture efficiency of the Category 1 system, it was concluded that the system would achieve an overall efficiency between 90 and 94 percent for groundwater flowing in surficial deposits and bedrock. This analysis supports the conclusion that the proposed Category 1 surface and groundwater seepage containment system has a high probability of meeting its performance specifications; thus, there was no need to consider a range of capture efficiency inputs in modeling.

Theme WR 018

Theme Statement

Assumed capture efficiencies described for the Tailings Basin are wrong. The assumed capture efficiency of the water collection systems at the Tailings Basin (90% for groundwater and 100% for surface water) has not been verified by modeling or calculations.

Thematic Response

The FEIS relies on revised cross-section models from the SDEIS to evaluate containment systems on the northern, northwestern, and western sides of the Tailings Basin, which are documented in the revised PolyMet 2015i, as cited in the FEIS. These new models consider the presence of an upper more-permeable bedrock zone directly below the slurry wall, with hydraulic properties based on 2014 packer tests conducted in five boreholes along the proposed capture system alignment. Sensitivity analyses have included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 100 feet. The model results predict that the overall groundwater capture efficiencies of the proposed Tailings Basin surface and groundwater seepage containment system would be substantially greater than 90percent. This analysis supports the conclusion that the assumption of 90percent or greater groundwater capture efficiency is justified.

The FEIS describes a 2014 field program that investigated bedrock along the alignment of the proposed capture system on the northern, northwestern, and western sides of the Tailings Basin in FEIS Section 5.2.2.2.3. This investigation provided field data on bedrock hydraulic conductivity, RQD, and depth to top of bedrock. This information was used to develop

MODFLOW cross-section models at three locations on the alignment to assess capture efficiency. The models included bedrock below the slurry wall.

The proposed design for the seepage capture systems include a surface berm with drains into the collection trench. This portion of the system is designed and would be maintained to achieve 100percent capture of surface runoff on the tailings side of the system, which includes surface seepage from the Tailings Basins.

Theme WR 019

Theme Statement

The assumed capture efficiencies are unrealistically high because the SDEIS failed to consider leakage from cracks in the slurry wall at the contact point between the wall and bedrock. Capture efficiencies also did not consider groundwater underflow through bedrock below the slurry wall via fractures. Subsurface obstructions would also disrupt conductivity and the uniformity of the slurry wall. It is infeasible to construct a 1-foot thick slurry wall. The SDEIS is contradictory and unclear if the slurry wall is keyed into bedrock or not. There is a lack of capture system design detail in the SDEIS.

Thematic Response

For the surface and groundwater seepage containment system at the Tailings Basin, commenters expressed a concern that there could be bypass in bedrock below the slurry wall. To address this issue in the FEIS, cross-section models were revised to evaluate containment systems on the northern, northwestern, and western sides of the Tailings Basin, which are documented PolyMet 2015i, as cited in the FEIS. These new models considered the presence of an upper more-permeable bedrock zone directly below the slurry wall, with hydraulic properties based on 2014 packer tests conducted in five boreholes along the proposed capture system alignment. Sensitivity analyses included variable bedrock hydraulic conductivity and different upper bedrock zone thicknesses up to 15 meters. The new models explicitly consider groundwater flow in bedrock below the slurry wall and at the contact between the slurry wall and bedrock. For all scenarios considered, the model results predicted that the overall capture efficiencies of the proposed Tailings Basin surface and groundwater seepage containment system (with bedrock flow) would be substantially greater than 90percent.

The slurry wall would be keyed into bedrock and Figure 3.2-28 in the FEIS has been revised to show this that the slurry wall is keyed into bedrock.

The design basis for the containment system is not to create a groundwater dam that “holds back” groundwater flow, but to reverse the pre-existing hydraulic gradient (and flow direction) across the facility. This is equivalent to saying the groundwater heads on the basin side of the facility would be lower than the heads on the opposite side. Regardless of the hydraulic conductivities of surficial deposits and shallow underlying bedrock, the new flow direction would be toward the Tailings Basin rather than away from it (which is currently the case). The conceptual hydraulics of the proposed capture system are shown on Figures 5.2.2-7 and 5.2.2-57 in the FEIS. If there are flaws in the slurry wall or imperfections at the contact between the slurry wall and bedrock, the amount of reversed groundwater flow into the collection trench may increase, but the degree of system capture would not be affected. Hydraulic gradient (and flow direction) reversal would be verified by field monitoring using appropriately placed piezometers

in both surficial deposits and shallow bedrock. If monitoring shows that gradient reversal has not been achieved at some specific locations along the capture system, a variety of mitigation measures can be employed to insure that the gradient is reversed.

Details of the containment system design are beyond the scope, but are presented in the Plant Site Water Management Plan (PolyMet 2015i, as cited in the FEIS).

Theme WR 020

Theme Statement

The capture efficiency assumed in the SDEIS is higher than what is known to occur with similar collection systems (e.g., SD-026, Minntac and the Dunka Pit).

Thematic Response

The proposed containment system uses pumping on the tailings side of the slurry wall to reverse hydraulic gradients (i.e., groundwater flow directions) across the slurry wall and in underlying bedrock. In the vicinity of the system, the groundwater flows would be inward (toward) the Tailings Basin and not away from it. Relatively few capture systems have been built with this degree of pumping to cause a reversal of the pre-existing hydraulic gradients. The conceptual hydraulics of this type of system provides evidence that it would achieve complete or nearly complete capture. In addition, supporting MODFLOW cross-section models developed for the FEIS and documented in PolyMet 2015i, as cited in the FEIS predict that the system would achieve its performance specifications.

Theme WR 021

Theme Statement

The SDEIS includes no discussion of long-term monitoring to verify capture system performance. The SDEIS does not discuss system performance over time, or acknowledge that performance would likely degrade over time requiring periodic replacement of system components. Pumps within the containment system may also fail. PolyMet should commit to a particular magnitude of head differential upgradient and downgradient of the containment system and to a depth of bedrock penetration for the wall.

Thematic Response

PolyMet’s general plan for short- and long-term water monitoring is discussed in the FEIS and documented further in the water management plans (PolyMet 2015r; PolyMet 2015i; PolyMet 2015d, all as cited in the FEIS). The specific details of a comprehensive water monitoring plan would be developed during the permitting phase of the NorthMet Project Proposed Action.

The groundwater containment systems are designed to create inward hydraulic gradients across a low-permeability barrier wall keyed into bedrock. The gradient control is created by a pumped groundwater collection trench drain installed on the inside (facility-side) of the system. As described in the Water Management Plan (PolyMet 2015i, as cited in the FEIS), at important locations along the containment system alignment, paired piezometers would be installed on opposite sides of the barrier wall to verify that groundwater levels were lower on the inside

(facility-side) of the wall compared to the outside. If an inward gradient were not verified at a particular location, adaptive mitigation measures would be implemented to ensure that an inward gradient was re-established. These types of mitigation measures are described in the Water Management Plan (PolyMet 2015i, as cited in the FEIS) and include, but are not limited to, increased pumping of the inside groundwater collection trench drain and installation of pumped boreholes.

It is acknowledged that certain components of containment systems, like pumps, would need to be replaced periodically when water level monitoring indicates that performance is marginal and not readily compensated for by adaptive mitigation measures. The Permit to Mine financial assurance package for the NorthMet Project Proposed Action would ensure that future funding would be available if and when adaptive mitigation measures or component replacements were needed to achieve the containment system performance specifications. PolyMet has not made a commitment to a head differential or depth of penetration of the wall. These details would be specified as part of the permitting process.

Theme WR 022

Theme Statement

The FEIS should include a sensitivity analysis using capture efficiencies with appropriate adjustments of related model inputs. The FEIS should also define the acceptable level of capture efficiency.

Thematic Response

The capture efficiencies used in the FEIS GoldSim models are conservative and/or realistic for the purpose of impact analysis. The FEIS reports or reference documents that justify the assumed capture efficiencies are based on issue-specific groundwater modeling or credible hydrogeologic interpretations. Because these are engineered systems that can be designed and constructed to achieve required performance specifications, conducting a sensitivity analysis does not yield information relevant to understanding potential impacts.

Theme WR 023

Theme Statement

The SDEIS does not make adequate use of studies, experience or history at other relevant mines. Specific studies and sites that should be considered in the FEIS include, but are not limited to: the Regional Copper-Nickel Study; Maest and Kuipers, 2005 Predicting Water Quality at Hardrock Mines; Sudbury Mine; Butte Mine; Eagle Mine; Flambeau Mine; Dunka Pit; INCO exploration site; former LTVSMC Mine, Northshore Mine, Minntac, and data collected under the Cliffs Erie Consent Decree.

History shows that operations like PolyMet’s pollute and produce acid mine drainage. There are no exceptions. The FEIS should describe the effectiveness of mitigation of impacted water resources at other mining operations. The FEIS should provide objective reporting of information gained at other mine sites related to the use of bentonite amendments, seepage

capture systems, and reverse osmosis treatment, as well as effects related to sulfide ore and Minnesota pit lakes.

Thematic Response

The Co-lead Agencies rely upon the expertise and experience of their staff that bring to bear their knowledge of various studies and analyses performed on mine sites in Minnesota and elsewhere. This knowledge is applied in the review of documents prepared to evaluate the NorthMet Project Proposed Action potential effects.

It should be noted that the NorthMet Project Proposed Action is different from other mining projects in this part of Minnesota in the following ways: different ore type, designs for groundwater capture systems, and use of long-term mechanical treatment. While experiences gained on other projects are informative, they do not necessarily apply to the NorthMet Project Proposed Action. This is particularly true for groundwater capture systems because the NorthMet Project Proposed Action uses a design that differs from those at other Iron Range mine sites. The FEIS reflects consideration of information pertaining to the Dunka Pit that was directly relevant to the NorthMet Project Proposed Action. It is noteworthy that many aspects of operations at the Dunka Pit are dissimilar to the NorthMet Project Proposed Action in terms of hydrogeology and mine design.

The mitigation designs of the NorthMet Project Proposed Action are unlike measures discussed in the Regional Copper-Nickel Study (MEQB 1969, as cited in the FEIS). The NorthMet Project Proposed Action measures include: long-term mechanical water treatment, uniquely designed surface and groundwater seepage containment systems, subaqueous disposal of reactive waste rock, and synthetic covers and under-liners used at waste rock stockpiles and treatment ponds. In addition, the level of construction QA/QC proposed at the NorthMet Project site would be much higher than what has historically occurred at older mine sites in the Iron Range. It is erroneous to conclude that operation and closure of the NorthMet Project Proposed Action site would necessarily entail the same types of failures that have occurred at some historical mines. In fact, the unique designs and high-quality construction measures proposed are a response to past events.

The detailed and sophisticated water modeling work performed to support the FEIS far exceeds that conducted for existing mines in Minnesota. The models used for the NorthMet Project Proposed Action represent years of development, with input from the Proposer, Co-lead Agencies, Cooperating Agencies, and the public. Based on comments received on the SDEIS, modifications were made to the models to improve FEIS impact evaluations. It is the Co-lead Agencies' position that incomplete or inaccurate predictions made in the past at historical mining operations do not provide a basis for judging the quality of modeling used in the FEIS.

Theme WR 024

Theme Statement

The Cumulative Effects Assessment Area for Water Resources should include the entire St. Louis River Basin and should specifically consider the following mining facilities: the Northshore Mine Peter Mitchell Pit, Laskin Energy Center, ArcelorMittal, United Taconite, and Minntac. The FEIS should list total and cumulative effects in FEIS Table 6.2.2-2 (formerly Table 6.2-2 in the SDEIS) and should acknowledge that water quality standards are already exceeded

in Colby Lake. The FEIS should specifically consider cumulative effects on the BWCAW. The analysis should evaluate the significance of flow reductions from other projects.

Thematic Response

The SDEIS and FEIS provide a rationale for not including the St. Louis River Watershed in the cumulative effects analysis in Section 6.2.3.3.1. The SDEIS and FEIS considered in the CEAA for water resources all of the facilities identified in FEIS Table 6.2.2-1 (formerly Table 6.2-1 in the SDEIS). FEIS Table 4.2.2-18 summarizes existing water quality data for Colby Lake. This table shows the number of samples that exceeded the surface water evaluation criteria, which are based on water quality standards. Evaluation criteria can be found in Section 5.2.2. The BWCAW is in a different watershed than the NorthMet Project Proposed Action. Surface water and groundwater from the NorthMet Project Proposed Action would not enter BWCAW watersheds. If it is predicted that water via bedrock would flow north from the Mine Site, mitigation would be implemented to prevent this from occurring. See FEIS sections 5.2.2.3.5 and 5.2.2.3.6. See Section 6.2.2.3.1 for the discussion on cumulative flow impacts to the Partridge River.

Partridge River flows are currently highly influenced by the timing, magnitude, and number of discharges from human activities. The timing of the discharges can be intermittent, continuous, or otherwise varied depending upon the source, or the discharge may have ceased permanently or temporarily. The magnitude of discharges also varies.

Additional text was added to Section 6.2.2.3.1 to describe the effects of flows from other projects on the Partridge River.

Colby Lake water elevations are regulated and managed and this ultimately dictates flows from Colby Lake into the lower Partridge River. Partridge River flows into Colby Lake during peak flow events are pumped to the Whitewater Reservoir, thereby mitigating potential increases in flows from this source to the lower Partridge River. There is a minimum regulated water level threshold of 1,439 amsl on Colby Lake as required under MDNR Water Appropriation Permit 1949-0135. As this threshold is approached, water is diverted out of Whitewater Reservoir through set of gates to Colby Lake to increase Colby Lake water elevations and with it flow to the lower Partridge River. Due to Colby Lake's hydrologic relationship with the Whitewater Reservoir and regulated management, no impacts to Colby Lake hydrology are expected.

Water would be discharged from SD-026 south of the Tailings Basin into Second Creek that is tributary to the lower Partridge River. Flows from SD-026 would be augmented by the NorthMet Project Proposed Action to maintain flows that existed prior to the installation of the containment system. Due to this augmentation, discharges from SD-026 may deviate from plus or minus 0.1 cfs from the baseline. This impact would be added to Mesabi Nugget's 7.4 cfs seasonal discharge, an unknown impact from proposed Mesabi Mining Project, and discharges from LTVSMC pits.

Additional information has been added to Section 6.2.2.3.1 of the FEIS that describes the net effect of various activities on the upper and lower Partridge River and Colby Lake.

Theme WR 025

Theme Statement

There is insufficient geochemical characterization of materials to allow reliable estimates of chemical loading from the NorthMet Project Proposed Action. Geochemical model inputs, the approach to modeling geochemistry, and what pollution would be released to the environment are unclear.

Thematic Response

The geochemical characterization of NorthMet rock is related primarily to its net acid-generating potential, as indicated by the concentration of sulfide S in the rock and tailings. Rock with less than 0.12 percent sulfide S is determined to be non-acid-generating. This classification is based on humidity cell tests operated on 38 samples of NorthMet Category 1 waste rock continuously for between187 to 337 weeks, listed in Large Table 1 of PolyMet 2015q, as cited in the FEIS); none of these materials produced acidic leachate (see time plots of effluent pH in "Attachment 2 Trend Analysis for Rock Humidity Cells" to "Attachment A Water Quality Modeling for Waste Rock and Pit Walls" of PolyMet 2015q, as cited in the FEIS). The possibility of operational error resulting in acidity generation is a possibility. However, only one (0.2 wt% sulfur) of the 15 Category 2/3 Stockpile samples with a sulfur concentration with less than 0.3 wt% sulfur generated a net acidic leachate. Because the Category 2/3 Stockpile rock is on average 0.21 wt% sulfur misplacing the entirety of the Category 2/3 Stockpile with the Category 1 Stockpile rock would not result in a mass weighted sulfur concentration above 0.2 wt% sulfur (combined Category 1 Stockpile rock and Category 2/3 Stockpile would have an average sulfur concentration of about 0.1 wt%).

The samples subjected to humidity cell tests were selected to be: 1) spatially dispersed across the deposit, so that they included samples from each of the lithologic units and thus capture the variability in neutralizing potential and metal concentrations in the host rock (see Large Table 2 of PolyMet 2015q, as cited in the FEIS); and 2) chemically dispersed over the range of sulfide S concentrations, so that the estimates of oxidation rate and associated release of acid and metals could be reliably bracketed by ranges for uncertainty (PolyMet 2015q, as cited in the FEIS).

The estimates of sulfide S in all of NorthMet waste and ore are based on interpolation of sulfide S analyzed in recovered drill core (approximately 18,800 analyzed samples). An independent geostatistical evaluation found that the number and spatial distribution of these sulfide analyzes supported adequately the geologic block model developed to describe the ore and waste rock (Optitech 2012).

The sulfide S in tailings is controlled by the ore-processing method, and composition is constrained to be non-acid-generating (less than 0.12 percent sulfide S). Reaction rates and solute release from tailings are estimated from 33 humidity cells on NorthMet tailings and 4 on LTVSMC tailings (Large Table 5 of PolyMet 2015q, as cited in the FEIS).

Environmental mine-waste guidance does not provide firm sample requirements, but recommendations in the Global Acid Rock Drainage (GARD) Guide (INAP 2010) include: "1 to 2 samples of representative material of each material type"; "Provide adequate information to make cost-effective, sustainable, and environmentally protective decisions regarding the

management and disposal of waste materials;" and "Sufficient to adequately represent the variability within each geological unit and waste type" (INAP 2010, Chapter 4). The Co-lead Agencies believe that the distribution and number existing kinetic-test samples (38 of Category 1, 26 of Category 2/3, and 19 of Category 4) meet these guidance criteria, and are adequate for the NorthMet Mining Project and Land Exchange FEIS.

FEIS Section 5.2.2 reports what constituents would be released to the environment.

Subtheme WR 025-1

Theme Statement

The SDEIS assumes, incorrectly, that the only source of chloride in bedrock is brine that is present in fractures. This ignores the presence of chloride compounds in the bedrock. Include in the model of solute release from waste rock a quantitative estimate for chloride that is present in the mined rock itself and that will be released by blasting and/or crushing.

Thematic Response

The release of chloride from waste rock and tailings is included in the GoldSim water quality models applied to the NorthMet Project Proposed Action. For waste rock, chloride loading produced by dissolution of soluble minerals was estimated by the concentrations measured in the first flush of solutes from humidity cell tests (Waste Characterization Data Package, Large Tables 7 through 11 [PolyMet 2015q, as cited in the FEIS]). For NorthMet tailings, the crushing and metal-extraction processing is assumed to remove the majority of soluble chloride. In the GoldSim model of solute transport in tailings, chloride release from the tailings is thus assumed to be zero after they are emplaced in the tailings basin (PolyMet 2015q, as cited in the FEIS, Large Table 6; Barr 2012c, as cited in the FEIS, Tables 1-13 and 1-14). Instead, chloride released by the tailings is incorporated as a component of the slurry water used in transporting the tailings, with model concentrations listed for the initial Tailings Basin pond waters, and expected seepage of pore water at the toes of the Tailings Basin (PolyMet 2015q, as cited in the FEIS).

Subtheme WR 025-2

Theme Statement

Determine the effect of chloride dissolved in waters of the mine pits to: 1) groundwater quality, 2) the water treatment systems (WWTF, WWTP, and passive) effectiveness, and 3) requirements for disposal of water-treatment sludge.

Thematic Response

The analysis of effects from the NorthMet Project Proposed Action include estimates for the release of chloride from waste rock and tailings, based on chloride released by flushing of exposed rock (Large Tables 7 through 11, PolyMet 2015q, as cited in the FEIS). Results of the GoldSim water quality model incorporates sources of chloride, including water bypassing tailings and Category 1 waste rock interception trenches, in the estimates of surface and groundwater quality at evaluation locations downgradient from the proposed Mine Site (Figures J-01.10.2 and J-06-10.1, PolyMet 2015m, as cited in the FEIS). To support design of the water quality treatment systems, modeling includes estimates of solutes (including chloride) to the

West Pit Lake and backfilled East Pit (i.e., major sources of saline water to the proposed water treatment plants). Pilot-testing of the WWTP RO system produced over 95 percent removal of chloride from test waters (Table 15 of Barr 2013f, as cited in the FEIS). The concentrated brine from the reverse osmosis treatment plants, and (if applicable) from use of equivalently performing technologies, would be evaporated and disposed offsite as waste solids (Section 5.2.2.6, PolyMet 2015j, as cited in the FEIS).

Subtheme WR 025-3

Theme Statement

Conduct acid-base-accounting analyses on more samples of NorthMet waste rock--the current number of samples is fewer than recommended by environmental guidance documents such as the GARD Guide, and the environmental characterization of the waste rock is thus inaccurate.

Thematic Response

The Global Acid Rock Drainage (GARD) Guide (INAP 2010) is not specific on the number of samples required, but suggests enough to determine "the statistical degree of confidence that is required for the assessment." Acid/base accounting in NorthMet rock is estimated using only sulfide S concentration, and approximately 18,800 samples of rock from the NorthMet Project Proposed Action drill core database were analyzed for sulfide S to support development of the deposit block model (Section 8.1.2.3 of PolyMet 2015q, as cited in the FEIS). An independent statistical analysis of this sulfide S data set determined that the number and spatial distribution of samples was adequate to support the model of sulfide S distribution in the NorthMet deposit ore and waste rock (Optitech 2012).

Regarding actual acid production, the host rock for the NorthMet Deposit ("Duluth Complex") differs from most hard-rock mines in that it does not contain carbonate minerals that usually provide the majority of the acid neutralization. Instead, neutralization is provided by silicate minerals, which generally react more slowly to neutralize acids. Acid-generating potential was thus estimated from sulfide S concentration in rock, but actual net-acid release potential was determined by measuring directly the release of excess actual acidity in effluent from multi-year humidity cell test (i.e., 38 tests on Category 1 waste rock, 35 tests on Category 2/3 waste rock, and 22 of Category 4 waste rock; see Attachment A, Table 2 in PolyMet 2015q, as cited in the FEIS).

Subtheme WR 025-4

Theme Statement

Revise the water-quality modeling to address the possibility that virtually all NorthMet waste rock may be net acid generating when considered in terms of acid/base accounting analyses

Thematic Response

See response to WR025-3.

Subtheme WR 025-5

Theme Statement

Include in the groundwater solute transport model an analysis of arsenic (III) and arsenic (V) attenuation values

Thematic Response

The estimate for arsenic soil/water partition coefficient (i.e., "Kd," which is proportional to the retardation of arsenic transport in groundwater relative to water) used in the GoldSim model is 25 L/Kg (Table 1-16, Barr 2012c, as cited in the FEIS). This value was obtained from Table C4 in Appendix C of the USEPA's "Soil Screening Guidance: User's Guide" (USEPA 1986).

The range of arsenic Kd values presented in the USEPA guidance draws on values reported in published studies, but it does not report separate Kd values for arsenic (III) and arsenic (V) oxidation states. However, the NorthMet Project Proposed Action GoldSim model used the lowest value (i.e., the value that produces the fastest transport in groundwater) reported in the 1996 USEPA guidance.

Subtheme WR 025-6

Theme Statement

Add the effect of mineral fibers to the effects of the NorthMet project on air and water quality, and on human-health risk.

Thematic Response

The WWTF and WWTP systems would remove essentially all particulate matter from the inflow prior to discharge. The pilot tests for the water treatment system describe the use of a greensand filter to protect the RO membranes by removing particulate solids in the water before it ever reached the membrane. Beyond this pre-osmosis filtration, the RO water treatment membrane separates particles the size of dissolved ions, and thus removes essentially all particulate matter, including colloidal-sized suspended particulate material (see Sections 4.1.4 and 7.3.3.5, Barr 2013f, as cited in the FEIS). Thus, there is not increase in human health risk associated with mineral fibers in WWTF or WWTP discharge.

Subtheme WR 025-7

Theme Statement

Revise the methods used to estimate solute release from sulfide mine rock (tailings, waste rock, and ore) so that they don't use the complicated methods used in the SDEIS (e.g., Ni:S ratio in solid rock) and instead use simpler methods that rely on empirical releases measured in weathering-test leachates.

Thematic Response

The methods used to estimate the release of metals and other anions from sulfide-bearing waste rock, tailings, and ore was developed among the Co-lead Agencies. Estimates of solute release from mine waste based directly on measured concentrations in mine waste effluent were found to

be inaccurate for estimating long-term solute release from NorthMet rock. The source of this inaccuracy is the secondary precipitation of solutes in the waste material after it is released from the primary minerals. An example is the dissolution of the primary minerals pyrrhotite and olivine, both of which contain nickel. Although these two primary mineral phases dissolved, as indicated by SO_4 and Mg in effluents, nickel concentrations in effluent were initially lower than expected, but would then increase if leachate pH decreased. The rationale for estimating solute-release rates using the combination of solid-phase concentrations and concentration caps is summarized in Section 4.1.3.1, 2011 Geochemical Update, of the Waste Characterization Data Package (PolyMet 2015q, as cited in the FEIS).

To accommodate this approach, the GoldSim model was altered to better reflect observed solute leaching while also preserving mass balance. Metals were release as primarily minerals dissolved, but allowed to be stored in secondary phases (modeled using "concentration caps") as they leach over time, with adjustment of cap concentration if warranted by changes in pore-water pH. The solute release for tailings are listed in the NorthMet Plant Site Water Modeling Work Plan, Tables 1-13 and 1-14 (Barr 2012d, as cited in the FEIS), and, for rock, in the NorthMet Mine Site Water Modeling Work Plan, Tables 1-24 through 1-27 (Barr 2012c, as cited in the FEIS).

Subtheme WR 025-8

Theme Statement

The pH-dependent concentration caps for Category 1 wastes should use AMAX pile leachate concentrations for pH values between 6.0 or 6.5 and pH 7.5

Thematic Response

The range in pH assumed in Category 1 waste rock effluent (GoldSim model range 7.0 to 7.5) is based on measured pH in leachate tests on Category 1 waste rock, adjusted to lower pH to account for the possibility that the CO_2 pressure in the waste rock pore space would be 10 times higher than atmospheric (PolyMet 2015q, as cited in the FEIS; Section 8.3.1.1 describes the methods and Figure 8-17 illustrates the measured pH in effluent from Category 1 waste rock over a range in sulfide S concentrations, and the pH range after assuming higher pressure of CO_2 in pore gas.) The comment provides no rationale for altering the estimate of the pH for Category 1 waste rock effluent, so the Co-lead Agencies believe that the pH range used in the FEIS is appropriate.

Subtheme WR 025-9

Theme Statement

Re-Evaluate the laboratory-to-field scale-up factors.

Thematic Response

The comments in this subtheme do not provide any rationale for why laboratory-to-field scale-up factors should be re-evaluated or revised. The MDNR thus stands by the laboratory-to-field scale-up factor that they developed for Category 1 waste rock, and scale-up factors would not be further evaluated.

The Co-lead Agencies made the decision to use a "scale factor" approach for modeling solute release rates from NorthMet Project Proposed Action waste, and also selected the specific ranges for each "scale-up factor" used to extrapolate from laboratory or analog field-site conditions to the NorthMet Project Proposed Action. Reaction rates for waste-rock oxidation and solute release under field conditions are extrapolated from multi-year humidity cell tests (Attachment A, PolyMet 2015q, as cited in the FEIS). The scale-up of Category 1 waste rock that would remain permanently aerated is particularly well-supported, with multi-year studies by the MDNR demonstrating solute release rates from laboratory tests to field-scale piles of rock from the Dunka Mine (PolyMet 2015q, as cited in the FEIS).

Subtheme WR 025-10

Theme Statement

Add the effect of nickel dissolution from silicate minerals (e.g., olivene) as a source of solutes leached from mine waste.

Thematic Response

The NorthMet Project Proposed Action GoldSim water-quality model includes nickel released from waste rock and tailings by two mechanisms: 1) oxidation of nickel-bearing sulfide S minerals (calculated as the product of S released and the Ni/S ratio in sulfide minerals); and 2) dissolution of nickel-bearing silicates minerals, calculated as the product of Mg released and the Ni/Mg ratio in silicates (Large Table 3, PolyMet 2015q, as cited in the FEIS). For tailings, nickel release parameter values are in the NorthMet Plant Site Water Modeling Work Plan (Tables 1-13 and 1-14 for sulfide-phase release, and Table 1-17 for silicate-phase release) (Barr 2012d, as cited in the FEIS). For waste rock and ore, Tables 1-24 through 1-27 of the NorthMet Mine Site Water Modeling Work Plan (Barr 2012c, as cited in the FEIS) list nickel release parameter values from sulfide and silicate.

Subtheme WR 025-11

Theme Statement

Revise the method used to estimate sulfate release rates from rock sulfur concentrations for Category 1 and Category 2/3 waste rock to include higher sulfate release rate data and include the effect of the "first flush" from humidity cell tests.

Thematic Response

The relationship between sulfate release rate and rock sulfur concentration is applied as a probabilistic model input as a normal distribution with a 95 percent confidence interval that includes sulfur normalized sulfate release rate values from 12.78 to 15.06 (mg/kg/wk/%S). This value interval covers the average values for the zero-intercept model from each individual rock category. The zero-intercept model was assumed as a reasonable approach based on the chemical reality that a rock containing no sulfur cannot release sulfate. As indicated in the Waste Characterization Data Package (PolyMet 2015q, as cited in the FEIS) the estimation approach is intended to represent the average of the entire mass of waste rock. The variability of the average value is less than the variability of the entire population and the selection of a more restricted

rate value range reflects the limited variability of the average. The "first flush" from humidity cell tests is an artifact of sample handling, and not applicable to estimating reaction rates. GoldSim accounts for periodic rock flushing by accounting for solutes released between events that flush water through mine waste.

Subtheme WR 025-12

Theme Statement

Conduct humidity-cell tests on more samples of NorthMet waste rock, because the current number (89) is too few to characterize 309 million tons of waste rock.

Thematic Response

The net acid-generating potential in the NorthMet Deposit is based primarily on the concentration of sulfide S in the rock, and an independent geostatistical evaluation found that the number and spatial distribution of analyzes for sulfide S (approximately 18,800 rock samples) supported adequately the geologic block model developed to describe the ore and waste rock (Optitech 2012).

For kinetic tests, the samples were selected to be: 1) spatially dispersed across the deposit, so that they included samples from each rock type and lithologic units, weighed by expected tonnage of each, and thus capture the variability in neutralizing potential and metal concentrations in the host rock (see Large Table 3, PolyMet 2015q, as cited in the FEIS); and 2) chemically dispersed over the range of sulfide S concentrations, so that the estimates of oxidation rate and associated release of acid and metals could be reliably bracketed by ranges for uncertainty (Table 4-1 in SRK 2007b, as cited in the FEIS).

Environmental mine waste guidance does not provide firm sample requirements, but recommendations in the GARD guide include: "One to 2 samples of representative material of each material type" (from 2007 Australian guidance); "Provide adequate information to make cost-effective, sustainable, and environmentally protective decisions regarding the management and disposal of waste materials;" and "Sufficient to adequately represent the variability within each geological unit and waste type" (INAP 2010)

The Co-lead Agencies believe that the distribution and number existing kinetic-test samples (42 of Category 1, 26 of Category 2/3, and 21 of Category 4) meet these guidance criteria, and are adequate for the FEIS.

Subtheme WR 025-13

Theme Statement

Include all results of laboratory and field weathering tests in the GoldSim model, including specifically those test results that produced leachate pH below 6.0.

Thematic Response

The GoldSim model implementation of solute release from sulfide-bearing mine waste used the results of field and laboratory tests before and after the onset of acidic conditions. For Category 1 waste rock and tailings (i.e., non-acid-generating material), the estimates of solute release used

only results from field or lab tests that produced near-neutral pH effluent. But for Category 2/3 and Category 4 waste rock, the duration before onset of acidic conditions and the change in oxidation rate after acid onset are both based on changes in measured humidity-cell effluent as it shifts from neutral to acidic pH (Section 8.2 of the Waste Characterization Data Package [PolyMet 2015q, as cited in the FEIS] and model parameters "Acidic_Onset_Time" and "Acid_Factor" in Table 1 of the Mine Site Water Modeling Data Package [PolyMet 2015m, as cited in the FEIS). This same table includes the decay in oxidation rate after acid onset caused by depletion of sulfide S minerals ("Decay_a1" and "Decay_a2"), as described in Section 9.2 and Attachment A of the Waste Characterization Data Package (PolyMet 2015q, as cited in the FEIS).

Subtheme WR 025-14

Theme Statement

Change the GoldSim model predictions to include results demonstrating that Category 1 waste rock can produce acidic leachate and release solutes to contact waters.

Thematic Response

The non-acid-generating materials are tailings and Category 1 waste rock (0.12 percent sulfide S or less). This classification is based on humidity-cell tests operated on 38 samples of NorthMet Category 1 waste rock continuously for up to 6.4 years (duration 187 to 337 weeks, (PolyMet 2015q Attachment C) as cited in the FEIS]). None of these materials produced acidic leachate (see time plots of effluent pH in "Attachment 2 Trend Analysis for Rock Humidity Cells" to "Attachment A Water Quality Modeling for Waste Rock and Pit Walls" to the Waste Characterization Data Package [PolyMet 2015q, as cited in the FEIS]). The 0.12 percent sulfide S threshold for defining non-acid-generating rock is supported by the results of these humidity-cell tests, in which none of the samples became acidic, as indicated by a trend of increasing sulfate release rate and decreasing pH.

A stockpiling operational error resulting in acid generation is a possibility. However, only one (0.2 wt% sulfur) of the 15 Category 2/3 rock samples with a sulfur concentration less than 0.3 wt% sulfur generated a net acidic leachate. Because the Category 2/3 rock is on average 0.21 wt% sulfur, misplacing the entirety of the Category 2/3 rock with the Category 1 rock would not result in a mass weighted sulfur concentration above 0.2 wt% sulfur (combined Category 1 and Category 2/3 rock would have an average sulfur concentration of about 0.1 wt%.

Subtheme WR 025-15

Theme Statement

Provide an independent example showing how the release rate of two constituents in waste rock (Cu and Ni) are altered from laboratory test results to values applied in the model in response to application of factors for fragment size, temperature, pH, time to onset of acidic conditions, and water contact.

Thematic Response

The rate at which soluble copper and nickel are released from NorthMet mine rocks is proportional to the rate at which sulfide-sulfur minerals in these rocks oxidize. The sulfide-mineral oxidation rates in NorthMet rocks under field conditions are based on measured oxidation rates in multi-year laboratory weathering tests, where the rates are scaled from laboratory to field conditions by incorporating the effects of sulfide-mineral concentration, rock fragment size (Ksize), temperature (Ktemp), and acidity in the pore water. Once acidic conditions begin, rates increase and then decay, matching behavior seen in kinetic tests. Presented here is an example if metal leaching from ore (Duluth Complex).

- Ksize = 0.14: Average value of 0.14 is based on literature values (PolyMet 2015q, as cited in the FEIS)
- Ktemp = 0.229: Ktemp = Kt = e^{[Ea/R] * [(1/Tlab) - (1/Tfield)]}, where:
  - Ea = 55 kj/mole (activation energy of pyrrhotite oxidation)
  - Tfield = 2.004 C (temperature in the field, annual average, =275.154 K)
  - Tlab = 20 C (temperature in laboratory humidity cell tests, = 293.15 K)
  - R= 0.008134 kj/mole-deg K (Gas constant)
  - Ktemp = exp{(55/0.008134)*[(1/275.154)-(1/293.15)]} = 0.229 [unitless]

(Equation 8-17 of PolyMet 2015q, as cited in the FEIS)

- Time to Acid Onset (field) = 23.6 years.
  - Time to Acid Onset in laboratory conditions = 5.41 years (Figure 8.13 of PolyMet 2015q, both as cited in the FEIS) Correcting for the effect of field temperature; and
  - Time to acid onset (field) = 5.41 yrs lab * (1/0.229 yrs lab/yrs field) = 23.6 years.
- Sulfur_Conc = 0.608 %S (Average for ore: PolyMet 2015q, as cited in the FEIS)
- Oxidation_Rate_Regression = 13.92 mg SO_4/kg-rock/week/%S (Slope of oxidation rate vs. Sulfide S, PolyMet 2015q, as cited in the FEIS)
- Sulfate Release Rate: At the end of year 1, leaching to percolating water oxidation is:
  - Sulfur_conc (%S) * Oxidation_Rate_Regression (mg SO_4/kg/week/%S) * Ks [unitless] * Kt [unitless] = 0.608 * 13.92 * 0.14 * 0.229 = 0.194 mg SO_4/kg rock/wk
  - Converting sulfur release from SO_4 to S: 0.194 mg SO_4/kg rock/wk * (32 mg S/96 mg SO_4) = 0.0646 mg S/kg rock/wk
- Metal Release Rates: Copper and nickel are released in proportion to S (sulfide mineral oxidation), and additional nickel is also released in proportion magnesium release (olivine dissolution) in the following ratios (PolyMet 2015q, as cited in the FEIS):
  - Cu/S = 0.504 mg Cu/mg S;

  - Ni/S = 0.153 mg Ni/mg S
  - Mg/SO_4 = 0.0729 mg Mg/mg SO_4

  The metal-release rates are then:

  - Copper: (0.0646 mg S/kg rock/wk) * (0.504 mg Cu/mg S) = 0.0326 mg Cu/kg-rock/wk.
  - Magnesium: (0.194 mg SO_4/kg-rock/wk * 0.0729 mg Mg/mg SO_4) = 0.0141 mg Mg/kg-rock/wk.
  - Nickel: (0.0646 mg S/kg rock/wk * 0.153 mg Ni/mg S) + (0.0141 mg Mg/kg-rock/wk * 0.00459 mg Ni/mg Mg) = 0.0099 mg Ni/kg-rock/wk.

- After onset of acidic conditions: After 23.6 years of weathering, the ore is assumed to become acidic, and the oxidation rate (as SO_4 release rate) is estimated using only the a0 and a1 parameters derived from observed increase and decay in reaction rates in kinetic tests: SO_4(mg/kg-rock/wk) = 10^{((a1 * log(time)) + a0}, where (Table 1-1 of PolyMet 2015m, as cited in the FEIS—values are P50 used in GoldSim model of Mine Site):

  - Time = duration since onset of acidic conditions [in weeks since peak rate with acid onset]
  - a0 = 2.54 (sulfate production decay parameter [unitless])
  - a1 = -0.5875 (sulfate production decay parameter [unitless])

  For example, at the end of year 25, ore has aged 72.8 weeks beyond the time when acidic conditions begin (i.e., [25yrs -23.6 yrs]*52 wks/yr = 72.8 weeks).

  - SO_4 (mg/kg-rock/wk) = Ktemp * Ksize * 10^{(a1 * log(time))+a0}
  - =0.1 * 0.229 * 10^[{(-0.5875*log(72.8)} + 2.54]
  - = 0.64 mg SO_4/kg-rock/wk

  Thus the oxidation rate has increased at the onset of acidic conditions, but the rate decays after onset reflecting the observed decay as the remaining sulfide S is consumed.

The Co-lead Agencies conducted independent calculation to confirm that the scale factors, oxidation rates, and associated release of sulfate and metals before and after inundation by Mine Site pit water were applied in the GoldSim model as described in the Waste Characterization Data Package (NorthMet Mining Project GoldSim Water Quality Model - Phase 3 Quality Assurance, memo from ERM to Bill Johnson, MDNR, February 25, 2013 [ERM 2013]).

Subtheme WR 025-16

Theme Statement

Include the effect of rock dust (produced by blasting) on the quality of Mine Site surface runoff to the Partridge R.

Thematic Response

Dust emissions from blasting in the NorthMet Project Proposed Action open pits are not assessed quantitatively in the GoldSim modeling, and are not included in air quality analysis because the air dispersion models employed are not suitable for this type of potential emission source. Instead, blasting and associated dust releases are limited under applicable permitting and safety requirements, including:

- The Fugitive Emission Control (FEC) Plan, which would require proper blast design and other procedures to minimize dust generation and transport beyond the mine pits;
- A "blast monitoring plan" in the Permit to Mine, which, in accordance with state regulations, requires that "Mining shall be managed to control avoidable dust," that "overpressure and ground vibrations from production blasts shall be kept at levels which would not be injurious to human health or welfare and property outside mining areas," and requires monitoring for "meteorological conditions, including temperature inversions, wind speed, and directions" (Minnesota Administrative Rules 6130.700 Air Pollution, Rule 6130.3800 Goal of Blasting, and Rule 6130.3900 Blasting Requirements, respectively); and
- The Mine Health and Safety Administration (MHSA) Rules and Regulations, which include requirements for drilling and blasting activities that protect worker safety, including exposure to dust.

Collectively, these require that that blasting be conducted in a manner that minimizes dust to a level that protects human health. Further, much of the ground closest to the pits is disturbed "contact area" (e.g., waste rock and haul roads), where all runoff water would be captured and treated prior to discharge. Based on these requirements and existing controls, it is assumed that dust release from blasting would be below a level that would adversely affect water quality.

Theme WR 026

Theme Statement

Given the inadequate geochemical characterization, the GoldSim models unrealistically minimize the uncertainty associated with predicting future chemical loading. The probabilistic and deterministic inputs used for geochemical parameters in the GoldSim models should compensate for this uncertainty by using more conservative mean values and larger standard deviations, or greater ranges of values. The FEIS should disclose the uncertainties and discuss what they mean in regard to impacts on water quality and quantity. Water quality modeling should also take into account changes in flow due to the NorthMet Project Proposed Action.

Thematic Response

The geochemical characterization of NorthMet rock is related primarily to its net acid-generating potential, as indicated by the concentration of sulfide S in the rock and tailings. The humidity cell samples (38 of Category 1, 26 of Category 2/3, and 19 of Category 4) were dispersed spatially across the deposit to include the different formations (see Large Table 2 of the Waste Characterization Data Package [PolyMet 2015q, as cited in the FEIS]), and covered the range of sulfide S concentrations (Table 4-1 [Matrix for Sample Selection in Waste Rock Types] [SRK 2007b, as cited in the FEIS]). The chemical behavior of non-acid generating rock (less than 0.12 percent sulfide S) is based on long-term (up to 5-year duration) humidity cell tests on NorthMet Category 1 waste rock (duration 187 to 337 weeks, listed in Large Table 1 of the Waste Characterization Data Package [PolyMet 2015q, as cited in the FEIS]). None of these Category 1 materials produced acidic leachate (see time plots of effluent pH in "Attachment 2 Trend Analysis for Rock Humidity Cells" to "Attachment A Water Quality Modeling for Waste Rock and Pit Walls" from the Waste Characterization Data Package [PolyMet 2015q, as cited in the FEIS]). For tailings, ore processing would produce non-acid generating material (sulfide S less than or equal to 0.12 percent), and solute releases are estimated from 33 humidity cells on NorthMet tailings and 4 on LTVSMC tailings (Large Table 5, Waste Characterization Data Package [PolyMet2015q, as cited in the FEIS]). The sulfide S distribution in NorthMet waste and ore is estimated from approximately 18,800 analyses of sulfide S in core samples, and an independent geostatistical evaluation found that these data adequately supported PolyMet's model of the deposit (Optitech 2012). These geochemical data are adequate for the NorthMet FEIS.

The parameters used to estimate solute release rates applied in the GoldSim models were developed by the Co-lead Agencies as part of the Impact Assessment Planning process, and parameters values were selected to bracket evenly the uncertainty in model parameters and avoid underestimating estimates of chemical loading (MDNR et. al. 2011, as cited in the FEIS). In a few instances, model parameters are selected to produce larger ranges than indicated by simple statistical application of test data (e.g., solute release rates from waste rock are based on the range in individual humidity-cell tests, not the range in the average; Section 8.1.2.1 of the Waste Characterization Data Package [PolyMet 2015q, as cited in the FEIS]) release rate from an entire waste rock stockpile.

Uncertainty in model parameters is described in Table 1-1 of Water Modeling Work Plan – Plant Site (Barr 2012d, as cited in the FEIS), and Table 1-1 of the Water Modeling Work Plan – Mine Site (Barr 2012c, as cited in the FEIS).

Regarding changes in flow, the GoldSim models track surface and groundwater flow at both the Mine Site and Plant Site, to make up in part the flow removed by the Plant Site groundwater containment system, and modeling accounts for the augmentation of Plant Site tributary stream flows (at plus or minus 20 percent of existing flows) with treated water from the Plant Site WWTP.

Theme WR 027

Theme Statement

For the Mine Site, the SDEIS does not discuss the addition of lime to waste rock or pits to control pH. It does not discuss lining the pits with bentonite. These options should be studied.

Thematic Response

The mine waste rock would be sorted into and stored as four categories based on its potential to contaminate water, with Category 1 waste rock having a low potential and Category 4 waste rock having a high potential. Category 1 waste rock would be stored in a permanent stockpile that would be surrounded by a seepage collection system encompassed by a water containment system to capture surface and groundwater from the stockpile and direct it to a water treatment facility, as well as a geomembrane cover to limit infiltration at closure. Because Category 1 waste rock has a low potential to generate acid or metal leachate, and because water from the stockpile would be captured and treated, lime is not anticipated to be needed for neutralization, and, therefore, the addition of lime for Category 1 waste rock is not proposed. Category 2/3 and 4 waste rock would be stored temporarily in stockpiles with underliners and seepage collection, and then used to backfill the East Pit following completion of mining there. Lime would be added to the waste rock during East Pit backfilling to maintain pH in the pit pore water as needed. The volume of lime required would be based on operations monitoring results. Waste rock characterization and categorization, as well as management and storage during operations and closure and water management at the stockpiles, is addressed in FEIS Sections 3.2.2.1.7, 3.2.2.1.8, 3.2.2.1.9, and 3.2.2.1.10. A low-permeability soil barrier could be constructed along the Ore Grade Material portions of the exposed West Pit wall and this may be considered as a contingency mitigation.

Theme WR 028

Theme Statement

The SDEIS does not consider leaching from the coal ash landfill at the Plant Site.

Thematic Response

The coal ash landfill would be removed and disposed in the Hydrometallurgical Residue Facility. This is described in FEIS Section 3.2.2.3.5.

Theme WR 029

Theme Statement

It is not clear in the SDEIS whether the waste rock from the stockpiles would simply be deposited in the East Pit in year 11 and remain partly exposed for 20 years while the water rises around it, or if the placement of the waste rock would occur in stages to ensure the rock is either still on the stockpile liner (and leachate is collected and treated) or entirely submerged within the East Pit to minimize acid production and metal leaching.

Thematic Response

As soon as excavation of the East Pit is complete in mine year 11, backfilling of the East Pit would begin, using waste rock from the temporary Category 2/3 and 4 Stockpiles, and freshly mined material from the West Pit. To reduce oxidation in the backfill and wall rock, the backfill would be flooded with excess water from the Central Pumping Station as quickly as practicable leaving only approximately 5 feet of exposed backfill above the water elevation at any point in time. To the extent practicable, the thickness of unsaturated waste rock in the East Pit would not be more than 5 feet during the reclamation/closure periods. Thus, the reactive Category 2/3 and 4 waste rock would either be in lined stockpile facilities, where leachate is captured, or in the East Pit as backfill, where it would be flooded to stop oxidation and the extracted pore water would be treated prior to discharge or recycling back to the East Pit. This is described in Section 6.1.2.2 and Figure 6-6 of PolyMet 2015m, as cited in the FEIS.

The rate of oxidation and associated release of acidity and metals from waste rock and wall rock after it is submerged under water was considered directly by the Co-lead Agencies as part of the Impact Assessment Planning Process (See Table 1 of MDNR et. al. 2011, as cited in the FEIS). Supporting analysis found that after the rock was submerged by a layer of oxygenated water, the rate of oxidation in the rock would decrease by at least a factor of approximately 800 relative to the oxidation rate when it was exposed directly to atmospheric oxygen (PolyMet 2015q, as cited in the FEIS). Based on this analysis, which is consistent with general results of studies on subaqueous disposal of sulfide-bearing mine waste, the GoldSim model assumed that oxidation in submerged wall rock and waste rock was negligible.

Theme WR 030

Theme Statement

The FEIS discussion of solute release from Tailings Basin should be based on site-specific materials and conditions, not other tailings basin sites.

Thematic Response

The solute release rates from tailings (proposed NorthMet and existing LTVSMC) were based directly on laboratory measurements conducted on representative samples of these two materials, including tailings generated as part of the proposer's processing and metallurgical pilot-testing. Specific measurements included total concentrations of metals and other elements in the tailings (e.g., based on elements extracted in dissolution by a strong acid "aqua regia" digest), or for the more soluble constituents, the rate at which they leach in multi-year humidity cell tests (Table 1-13 in the Plant Site Water Modeling Work Plan—Barr 2012d, as cited in the FEIS).

The oxidation rates measured under laboratory conditions were scaled so as to more accurately estimate weathering rates under site-specific field conditions in the NorthMet Project area -- a process that accounts for well-established effects on weathering rates due to temperature, fragment size, and pore-gas oxygen concentrations (Section 10.2 of the Waste Characterization Data Package [PolyMet 2015q, as cited in the FEIS]).

It is the concentration caps, applied in the GoldSim models to reflect chemical limits on the concentrations of some solutes in pore waters that incorporated estimates from analogous mines (Table 1-15 in the Plant Site Water Modeling Work Plan). The decision to use effluent

concentrations measured at analog mine sites and the selection of specific method of incorporating values from these analog sites to the NorthMet Project Proposed Action modeling was made by the Co-lead Agencies as part of the Impact Assessment Planning process (See Table 1 of MDNR et. al. 2011, as cited in the FEIS; the discussion of Waste Rock Solubility Caps for Category 1 rock is applied to tailings).

Analog site data were applied because the standard laboratory procedure used to measure oxidation rates and solute release in mine waste (humidity cells) used water to rock ratios hundreds of times higher than expected under some NorthMet Project area field conditions. Assuming that maximum concentrations in humidity-cell tests were "concentration caps" could thus underestimate solute caps in the Mine Site's GoldSim tailings model. The analog data were selected from sources with similar host rock and climate (e.g., AMAX stockpiles, near the NorthMet Project area, and the Whistle Mine in Canada). The approach used in the FEIS to estimate solute release from tailings is valid.

Theme WR 031

Theme Statement

The FEIS discussion of solute release from waste rock at the Mine Site should be based on site-specific materials and conditions, not other mine sites.

Thematic Response

The solute release rates for NorthMet waste rock were based on laboratory measurements conducted on drill core samples of bedrock types that would ultimately become waste rock. Specific measurements included total concentrations of metals and other elements (e.g., based on elements extracted in dissolution by a strong acid "aqua regia" digest, or direct analysis of mineral phases by electron microprobe), or for the more soluble constituents, the rate at which they leach in multi-year humidity cell tests (see Tables 1-24 through Table 1-27 of Barr 2012c, as cited in the FEIS). The oxidation rates measured under laboratory conditions were scaled so as to more accurately estimate weathering rates under site-specific field conditions at the Mine Site -- a process that accounts for well-established effects on weathering rates due to temperature, fragment size, and water contact (see Section 8.2 of PolyMet 2015q, as cited in the FEIS).

It is the concentration caps, applied in the GoldSim models to reflect chemical limits on the concentrations of some solutes in pore waters that incorporated estimates from analogous mines (see Table 1-30 through Table 1-33 of Barr 2012c, as cited in the FEIS). The decision to use effluent concentrations measured at analog mine sites and the selection of specific method of incorporating values from these analog sites to the NorthMet Project Proposed Action modeling were made by the Co-lead Agencies as part of the Impact Assessment Planning process (See Table 1 of MDNR et. al. 2011, as cited in the FEIS).

Analog site data were applied because the standard laboratory procedure used to measure oxidation rates and solute release in mine waste (humidity cells) used water to rock ratios hundreds of times higher than expected under some field conditions in the NorthMet Project area. Assuming that maximum concentrations in humidity-cell tests were "concentration caps" could thus underestimate solute caps in the Mine Site's GoldSim tailings model. Further, analog field data provided estimates of solute under longer-duration weathering, broader ranges in effluent pH than laboratory tests. The analog data were selected from mines with similar host

rock and climate (e.g., Amax Stockpile, near the NorthMet Project area, and the Whistle Mine in Canada). The Co-lead Agencies stand behind the approach used in the FEIS to estimate solute release from tailings.

Theme WR 032

Theme Statement

The FEIS needs to consider increased nitrate and ammonia loading at the Mine Site due to blasting.

Thematic Response

Blasting would occur when pits are developing and being dewatered. The WWTF would treat mine pit water before being pumped to the Plant Site where it would be treated again by reverse osmosis or equivalently performing technology before being discharged to the environment. The potential environmental effects to water resources due to blasting would be negligible.

Theme WR 033

Theme Statement

The SDEIS does not fully describe the technical basis for concentration caps. Concentrations caps should not be used. Concentrations caps for West Pit water quality obscure the duration of water treatment. To better reflect the measured and likely pH conditions of Category 1 Stockpile leachate, pH-dependent concentration caps should use AMAX pile leachate concentrations for pH values between 6.0 or 6.5 and pH 7.5.

Thematic Response

Laboratory humidity cell tests are not intended to directly represent field conditions, but are instead standardized tests that provide a reference for the environmental behavior of mine wastes that contains sulfide minerals. Humidity-cell tests have been conducted on rock samples from most existing mines, and there are many published studies that compare weathering results in these laboratory scale tests to solute release from full scale mine waste facilities. Details on how the humidity cell test results are “scaled up” from laboratory results to estimate solute release in NorthMet mine waste under field conditions are presented in the NorthMet Waste Characterization Data Package (PolyMet 2015q, as cited in the FEIS) (Section 8.2 describes for waste rock, and Section 10.2 for tailings).

Theme WR 034

Theme Statement

Laboratory humidity cell tests do not represent anticipated field conditions.

Thematic Response

Laboratory humidity cell tests are not intended to directly represent field conditions, but are instead standardized tests that provide a reference for the environmental behavior of mine wastes that contain sulfide minerals. Humidity-cell tests have been conducted on rock samples from

most existing mines, and there are many published studies that compare weathering results in these laboratory tests to solute released from full-scale mine waste facilities. Details on how the humidity cell test results are "scaled up" from laboratory results to estimate solute release in NorthMet Project Proposed Action mine waste under field conditions are presented in the NorthMet Waste Characterization Data Package (PolyMet 2015q, as cited in the FEIS]) (Section 8.2 describes for waste rock, and Section 10.2 for tailings).

Theme WR 035

Theme Statement

The SDEIS states that water treatment at both the Mine Site and Plant Site would occur for "as long as necessary" to achieve applicable water quality criteria. There is no indication of whether this is decades, centuries, or is perpetual. A long-term water treatment plan is imperative to evaluate the environmental effects of this the NorthMet Project Proposed Action. Long-term treatment requires long-term monitoring. The need for perpetual augmentation requires the need for perpetual treatment. It is not clear which water quality parameter(s) drive the need for long-term treatment. Influent water quality to the WWTP and WWTF should be modeled and disclosed in the FEIS out to 500 years. The East Pit backfill would reduce treatment requirements over the long term.

Thematic Response

Water quality modeling performed in support indicates that water treatment systems in some form and at some scale would be needed indefinitely at the Mine Site and Plant Site. The water models constructed to assess the potential effects from the NorthMet Project Proposed Action were not designed to predict the duration of treatment nor do they capture all the factors that influence the duration of treatment (e.g., potential future regulatory and technological changes). Therefore, the models cannot be used to predict the year treatment would end. It is the sulfate wild rice standard of 10 mg/L that drives the need for long-term water treatment. Two hundred years of influent water quality predictions provide reasonable estimates of what can be expected over the long term.

Water monitoring would persist as long treatment is needed. Actual treatment requirements would be assessed on a reoccurring basis throughout operations and closure based on results of ongoing discharge, performance, and water resource monitoring, ensuring continuous protection of groundwater and surface water quality and compliance with applicable water quality standards. This reassessment process would rely on measured monitoring results (evaluated through modeling) rather than the results of the predictive modeling included in the FEIS. Regardless of the precise duration of effects or water treatment at either the Mine Site or Plant Site, there are measures available to address impacts to natural resources. Augmentation water would be treated for as long as necessary and augmentation would continue for a long as necessary. If and when non-mechanical water treatment is implemented at the Plant Site, Unnamed Creek, Trimble Creek and Mud Lake Creek stream augmentation would no longer be necessary.

Theme WR 036

Theme Statement

The FEIS should include a mathematical analysis to estimate the likely range of years that mechanical water treatment and monitoring would be required.

Thematic Response

Although precise estimates cannot be developed, the FEIS modeling indicates that the East Pit, West Pit, and Category 1 Stockpile would be permanent features that would provide solute-loading for a minimum of 200 years at the Mine Site. Similarly, the Tailings Basin is a permanent feature that would provide solute loading for a minimum of 500 years at the Plant Site. Monitoring would be required for the duration of permitted discharges. See Response WR 035.

Theme WR 037

Theme Statement

The FEIS should acknowledge that the NorthMet Project Proposed Action would not be maintenance free at closure. This violates Minnesota Rules. Treatment would also be expensive especially in meeting the wild rice sulfate standard. Given the duration of site maintenance post-closure, which is on the order of hundreds of years, and PolyMet's current assets and liabilities, it would be difficult if not impossible for PolyMet to meet its obligations in closure. There are likely to be financial consequences for Minnesotans.

Thematic Response

It is acknowledged that operation, maintenance, and periodic replacement of environmental controls would be required during closure. *Minnesota Rules* 6132.3200 specifies that it is a goal for a mining area to be maintenance-free. Financial assurance would be required under *Minnesota Rules* 6132.1100 before the State's Permit to Mine can be issued. Permit conditions and financial assurance would be required to perform reclamation and closure activities for as long as these activities are needed. If and when non-mechanical water treatment is implemented at the Plant Site, Unnamed Creek, Trimble Creek and Mud Lake Creek stream augmentation would no longer be necessary. FEIS Section 3.2.2.4 describes the financial assurance process and requirements. See the response to theme WR 035 for more information on monitoring.

Theme WR 038

Theme Statement

The FEIS should predict how long chemical sources would contribute pollutants to discharge water that has concentrations above regulatory standards. The FEIS should acknowledge that treatment of the West Pit water would be necessary until West Pit water meets water quality standards.

Thematic Response

Water quality modeling performed in support indicates that water treatment systems in some form and at some scale would be needed at the Mine Site and Plant Site indefinitely. The water models used to assess the potential effects from the NorthMet Project Proposed Action were not designed to predict the duration of treatment nor do they capture all the factors that influence the duration of treatment (e.g., potential future regulatory and technological changes). Therefore, the models cannot be used to predict the year treatment would end. Actual treatment requirements would be assessed on a reoccurring basis throughout operations and closure based on results of ongoing discharge, performance, and water resource monitoring, ensuring continuous protection of groundwater and surface water quality and compliance with applicable water quality standards. This reassessment process would rely on measured monitoring data (evaluated through modeling) rather than solely on the results of the predictive modeling as was done in the FEIS. Regardless of the precise duration of effects or water treatment at either the Mine Site or Plant Site, there are measures available to address impacts to natural resources. All affected water, including that from West Pit surface water discharges, would be treated until the discharge met applicable standards without treatment.

Theme WR 039

Theme Statement

The FEIS should include monthly monitoring and reporting of water quality in city and residential wells and drainage areas surrounding the Mine Site. Sufficient and properly trained state agency staff should be used to accomplish this task. The location of groundwater monitoring wells at the Mine Site and Plant Site should be sufficiently upgradient from the PolyMet property boundary to allow for mitigation if and when groundwater quality does not meet standards.

Thematic Response

There are no municipal or residential wells surrounding the Mine Site that would be potentially impacted by the NorthMet Project Proposed Action. Water quality monitoring of the Partridge River is anticipated. The details of PolyMet's proposal are disclosed in the FEIS in Section 5.2.2.3. Existing groundwater wells are upgradient from residential wells, including those at the toe of the Tailings Basin. See Figures 4.2.2-16, 4.2.2-17, and 4.2.2-18.

Theme WR 040

Theme Statement

The SDEIS does not provide a complete inventory of drinking water wells located near the Mine Site and Plant Site.

Thematic Response

There are no municipal or residential wells surrounding the Mine Site that would be potentially impacted by the NorthMet Project Proposed Action. There are 27 known domestic wells between the Tailings Basin and the Embarrass River, with the closest being approximately 1.6 miles from the toe of Cell 2E. Characteristics of the wells are presented in FEIS Table 4.2.2-26. Locations of

all residential wells (sampled and unsampled) were added to Figure 4.2.2-18 (formerly Figure 4.2.2-17 in the SDEIS). Analytical results for water collected the 15 sampled residential wells are summarized in FEIS Table 4.2.2-25.

Theme WR 041

Theme Statement

The SDEIS does not evaluate how drinking water has been and would be impacted by mine-affected groundwater. Treating impacted water to meet drinking water regulations would be expensive.

Thematic Response

There are no municipal or residential wells surrounding the Mine Site that would be potentially impacted by the NorthMet Project Proposed Action. At the Plant Site, characterization data indicate that the bulk hydraulic conductivity of upper bedrock is two to three orders of magnitude lower than the hydraulic conductivity of the surficial aquifer. Thus, groundwater flow and transport at the Plant Site is dominated by the hydraulics of the surficial aquifer. Bedrock plays a negligible role in transporting site-derived chemicals to the Embarrass River. Therefore, domestic wells screened solely in the bedrock aquifer are not anticipated to be affected by the NorthMet Project Proposed Action. Wells that are within a surficial aquifer flowpath and screened in the alluvium would have water quality similar to the corresponding flowpath reported in Table 5.2.2-38. Finally, the NorthMet Project Proposed Action is predicted to meet groundwater evaluation criteria at the property boundary and thus significant impacts to residential wells beyond the property boundary are not expected.

Theme WR 042

Theme Statement

The FEIS should address the NorthMet Project Proposed Action's impacts and risks on drinking water throughout St. Louis River Watershed including the City of Duluth and the City of Superior. Cumulative effects on drinking water from other current and proposed mining and industrial projects within the watershed should also be analyzed. Mitigation for drinking water impacts should be identified.

Thematic Response

In Chapter 6, the discussion of cumulative impacts in the St. Louis River watershed was expanded and all relevant tables were modified (to the extent that there was information to make these revisions).

Groundwater and surface water quality model predicts that the NorthMet Project Proposed Action would have a minimal effect on drinking water standard-based groundwater evaluation criteria at the NorthMet Project area boundaries, in the Embarrass and Partridge rivers, and in Colby Lake (the locations at which drinking water standards apply). Evaluation criteria can be found in Section 5.2.2. Based on this, it is therefore expected that the NorthMet Project Proposed Action would not have any significant impacts on water quality downstream of the NorthMet Project area or significantly contribute to any cumulative effects on drinking water supplies.

Given the downstream distance to the cities of Duluth or Superior, it is highly unlikely that the water supplies for these cities would be affected.

In the unlikely event that downstream water supplies were affected, mitigation would involve improving engineering controls at the NorthMet Project area and/or upgrading municipal water treatment plants to provide drinking water that meets applicable USEPA and state standards.

Theme WR 043

Theme Statement

The FEIS should specifically evaluate the NorthMet Project Proposed Action's effects on Colby Lake, which is used for domestic consumption by the City of Hoyt Lakes. The evaluation should include contributions of pollutants to Colby Lake from the NorthMet Project Proposed Action and water appropriations from Colby Lake. PolyMet should assist with water supply contingency planning for the City of Hoyt Lakes.

Thematic Response

The Mine Site water quality model was revised in the FEIS to more accurately reflect existing conditions and explicitly evaluate chemical concentrations in Colby Lake for the NorthMet Project Proposed Action. The primary modification was the addition and calibration of a new chemical source to the lake that accounted for non-NorthMet Project Proposed Action sources of chemical loading. For future conditions, the chemical concentrations in the lake were predicted by considering the mass loading of this new source and mass loading that enters the lake from the Partridge River (which may be affected by the NorthMet Project Proposed Action). The revised FEIS model provides a more accurate prediction of chemical concentrations in Colby Lake and a more accurate assessment of potential impacts related to the NorthMet Project Proposed Action.

Maximum P90 concentrations in Colby Lake were updated in Table 5.2.2-34 for the FEIS. Colby Lake is a Class 1B water. As such, primary and secondary drinking water standards apply. These standards are reported for comparison purposes in Table 5.2.2-34.

In the unlikely event that the NorthMet Project Proposed Action were to adversely affect drinking water quality in Colby Lake, mitigation would involve upgrading the City of Hoyt Lakes water treatment plant to provide drinking water that meets applicable USEPA and state standards. The Permit to Mine would specify the conditions under which PolyMet would be obligated to make improvements to the City's drinking water treatment plant.

Theme WR 044

Theme Statement

The Mine Site GoldSim model does not adequately predict existing chemical concentrations in the Partridge River, including trends of concentration versus downstream river distance.

Thematic Response

The FEIS Mine Site GoldSim model was recalibrated to provide a better correspondence between predicted and observed water chemistry in the Partridge River for existing conditions.

This calibration considered new surface water chemistry data collected through the end of 2013. For Colby Lake, a new chemical source term was added to the Mine Site GoldSim model and calibrated to measured concentrations in the lake to ensure there was an adequate basis for assessing potential impacts from the NorthMet Project Proposed Action.

Theme WR 045

Theme Statement

The Plant Site GoldSim model does not adequately predict existing chemical concentrations in the Embarrass River.

Thematic Response

The FEIS Plant Site GoldSim model was recalibrated to provide a better correspondence between predicted and observed water chemistry in the Embarrass River for existing conditions. This calibration considered new surface water chemistry data collected through the end of 2013 to ensure there was an adequate basis for assessing potential impacts from the NorthMet Project Proposed Action.

Theme WR 046

Theme Statement

The Mine Site GoldSim model does not adequately predict existing chemical concentrations in Colby Lake.

Thematic Response

The Mine Site GoldSim model was modified for the FEIS to include a new chemical-loading source in Colby Lake that was calibrated to the measured chemical concentrations in the lake. The same chemical-loading source was applied to both the Continuation of Existing Conditions model and Propose Action model in GoldSim. The chemical-loading source was constant and did not exhibit seasonal or long-term variations for future conditions. Incorporation of the loading source addressed the issue by providing predicted chemical concentrations in Colby Lake for existing conditions that are similar to currently measured concentrations.

Theme WR 047

Theme Statement

The Mine Site GoldSim model does not adequately predict existing streamflow in the Partridge River.

Thematic Response

In the Mine Site GoldSim model, Partridge River streamflows are based on results of an XP-SWMM surface water flow model calibrated to 10 years of stream gaging data collected at location SW006 by the U.S. Geological Survey. The gaging data are considered high-quality and appropriate for assessing river flow characteristics. The flow analysis performed for the Partridge River and incorporated into the GoldSim model is appropriate for impact analysis.

Theme WR 048

Theme Statement

The Plant Site GoldSim model does not adequately predict existing streamflow in the Embarrass River.

Thematic Response

In the Plant Site GoldSim model, Embarrass River streamflows are based on 20 years of measured stream gaging data collected at a U.S. Geological Survey gaging station located downstream of the Plant Site. The gaging data are considered high-quality and appropriate for assessing river flow characteristics. The flow analysis performed for the Embarrass River and incorporated into the GoldSim model is appropriate for impact analysis.

Theme WR 049

Theme Statement

Because the GoldSim models do not adequately reproduce existing flow and water quality conditions, the models cannot reliably predict future conditions associated with the NorthMet Project Proposed Action.

Thematic Response

For the FEIS, both the Mine Site and Plant Site GoldSim models were recalibrated to provide better correspondence between predicted and observed water quality for existing conditions. This calibration considered new surface water chemistry data collected through the end of 2013. Model calibrations, other model assumptions, and the resulting impact predictions provide a reasonable estimate of potential environmental effects for purposes of the EIS.

Theme WR 050

Theme Statement

The FEIS should include a scientific explanation of the calibration factors used for solutes leaving the former LTVSMC Tailings Basin.

Thematic Response

At the Plant Site are a number of monitoring wells in the surficial aquifer that have clearly been impacted by the existing LTVSMC tailings. The chemical concentrations in these wells are considered to be the direct result of chemical release from the existing tailings. Theoretical release rates from the existing LTVSMC tailings have been developed using humidity cell data and measurements made at other similar tailings facilities. Using the theoretical chemical release rates, the existing conditions GoldSim model simulates chemical release from the LTVSMC tailings and transport to the monitoring wells. When this simulation was first attempted, it was found that for tailings-related constituents, the predicted chemical concentrations at these monitoring wells were generally higher than the measured concentrations. To provide a better match between predicted and measured concentrations, a factor was applied to the theoretical chemical release rates for the LTVSMC tailings. Referred to as “calibration factors,” these

calibrated inputs reduce the rate of LTVSMC tailings chemical release so that the predicted concentrations in affected monitoring wells are similar to the measured concentrations. Depending on the chemical constituent, the values of the calibration factors range from 1 (no modification) to 0.0001 (large reduction). It is interpreted that the calibration factors account for geochemical and hydrological processes that tend to reduce chemical concentrations (e.g., mineral precipitation and adsorption), but which are not explicitly incorporated into the GoldSim model. Note that there is no field basis for calibrating the future tailings from the NorthMet Project Proposed Action, so no calibration factors are used to adjust the chemical release rates from these tailings.

Theme WR 051

Theme Statement

The Mine Site existing conditions model does not account for variable discharge from the Northshore Mine into the Partridge River. It is unclear whether the Northshore Mine appropriations permit would be transferred or if it is an approximation of the discharges expected for the East Pit and West Pit.

Thematic Response

The theme correctly notes that pumped discharges from the Northshore Mine are sporadic with a variable flow rate. The GoldSim model is not designed to simulate flow/chemical conditions in the Partridge River when the Northshore Mine is actively pumping and its discharge dominates the river flow. There are two sources of Northshore inputs to the Partridge River that are more continuous and with less variable flow rates: seepage from the Western Pond and storage/release from wetlands (of previously discharged water). GoldSim consolidates these flows into a single integrated Partridge River input that has a constant flow rate and uniform chemical concentrations. Based on calibration to existing Partridge River water quality, the Northshore discharge flow rate used in the FEIS GoldSim model is 2.6 cfs and has a sulfate concentration of 28 mg/L. For the impact assessment, this constant rate input to the river adequately characterizes flow inputs from the Northshore Mine when it is not actively pumping. See FEIS Section 5.2.2.3.2 for more information.

Note that the Northshore Mine is expected to end operations about calendar year 2070 and this would result in cessation of mine-related flow inputs into the Partridge River. The FEIS GoldSim models for Project Conditions and Continuation of Existing Conditions incorporate the ending of Northshore inputs in calendar year 2070 (mine year 52).

The Northshore Mine permit would not be transferred to PolyMet, but could be transferred to new owners of the Northshore Mine (in the event that the ownership changes), although no such transfer is currently anticipated.

Pit inflows and pit discharges from the NorthMet Project Proposed Action are estimated from site-specific data and analyses. Current Northshore discharges are not used to approximate potential discharges from the future NorthMet Project Proposed Action-related mine pits.

Theme WR 052

Theme Statement

Due to underestimated baseflow at the Plant Site, the GoldSim model's recharge and surficial deposit hydraulic conductivities are too low. This results in underestimated chemical loading to the Embarrass River.

Thematic Response

Groundwater baseflows used in the SDEIS and FEIS Plant Site GoldSim model are best-estimate values based on reliable stream gaging data. Areal recharge and surficial aquifer hydraulic conductivity are tied to groundwater baseflows, so at the Plant Site, these are best estimates, as well. See FEIS Section 5.2.2.2.3 for more information.

For the Partridge River at the Mine Site, a detailed GoldSim sensitivity analysis was conducted using groundwater baseflows four times larger than the best-estimate values. As part of the sensitivity analysis, appropriate modifications were made to surficial aquifer hydraulic conductivities and aerial recharge based on a recalibration of the Mine Site MODFLOW model. In addition, a recalibration was performed for surface water runoff concentrations. Results of the high groundwater baseflow rate scenario were compared with the best-estimate scenario to evaluate the degree to which predicted NorthMet Project Proposed Action impacts are sensitive to groundwater baseflow and related inputs. The FEIS reports the results of the sensitivity analysis in FEIS Section 5.2.2.3.2. The Mine Site sensitivity analysis indicates that modeled groundwater and surface water concentrations are sensitive to changes in baseflow. However, the NorthMet Project Proposed Action's ability to meet groundwater quality and surface water quality evaluation criteria is not sensitive to changes in baseflow. Evaluation criteria can be found in Section 5.2.2.

In addition, because the Plant Site GoldSim model uses similar equations and inputs pertaining to groundwater baseflow and related flow/transport processes, it is expected that the results of conducting similar sensitivity analyses would show that groundwater and Embarrass River chemical concentrations would also have little sensitivity to assumed groundwater baseflows.

Theme WR 053

Theme Statement

The Plant Site GoldSim model does not account for the hydraulic connection between groundwater in surficial deposits and overlying wetlands; it incorrectly assumes that they are hydrologically disconnected. The GoldSim model also incorrectly assumes that areal recharge is the only flow connection between ground surface and surficial aquifer groundwater.

Thematic Response

Using an observational approach based on data from similar nearby mine sites (i.e., analog method), drawdowns in the surficial aquifer are not expected to extend very far from the mine pits. This is explained by the following factors: 1) the surficial aquifer is thin and moderately permeable, 2) the surficial aquifer is subject to aerial recharge, and 3) the surficial aquifer is underlain by low-permeability bedrock that limits downward leakage from the surficial unit. These factors support the conclusion that some degree of hydraulic connection between the

surficial aquifer and wetlands did not need to be included in the GoldSim model. See FEIS Section 5.2.2.3.2 for more information.

Theme WR 054

Theme Statement

With regard to the east side of the Tailings Basin, the GoldSim model does not provide a groundwater flowpath, incorrectly assumes a no-low boundary condition at the embankment toe, and does not provide a transport analysis for tailings water that leaves the Tailings Basin.

Thematic Response

The theme correctly notes that there would likely be subsurface flow below the East Embankment from west to east and that surface seepage may occur at the toe. The FEIS Plant Site MODFLOW model was modified from the SDEIS to include: 1) the presence of surficial deposits below the East Embankment, 2) boundary conditions (drain and/or river cells) along the embankment toe to allow the potential for surface seepage, and 3) hydrologic inputs to account for the presence of the proposed drainage swale. See FEIS Section 5.2.2.3.3 and PolyMet 2015j and PolyMet 2015i, both as cited in the FEIS, for more information.

Similar to other locations along the perimeter of the Tailings Basin, the NorthMet Project Proposed Action was modified to include installation of a containment system along the East Embankment where it is underlain by surficial deposits. Given the hydrogeology of the area east of the Tailings Basin and the proposed swale to be constructed there, this containment system would have higher hydraulic head on the east side compared to the west (tailings) side where a pumped trench would depress the groundwater level. This would create hydraulic gradients in the slurry wall and in shallow bedrock that would drive (low) flows from east to west across the containment system. This set of hydraulics would result in complete capture of all tailings water approaching the containment system from the Tailings Basin. Because the system would achieve complete capture of tailings water, an east side chemical transport flowpath is not needed in the Plant Site GoldSim model. There is no hydrologic reason to expect that impacted water from the Tailings Basin would migrate east of the containment system.

Theme WR 055

Theme Statement

The FEIS should analyze the effects of water and soil contamination from copper smelting. There is considerable evidence that leaching from the slag waste piles at smelting facilities may extract and concentrate soluble radioactive materials, potentially affecting drinking water supplies.

Thematic Response

The NorthMet Project Proposed Action would not use smelting to produce metal concentrate. The Project Proposer plans to use chemical flotation and an autoclave as described in FEIS Section 3.1.1.6.

Theme WR 056

Theme Statement

There are numerous general concerns about the Plant Site GoldSim model. Two critical issues are that the model does not include a flow/transport analysis on the south side of Tailings Basin (including the SD-026) and that it does not include any bedrock flowpaths. In addition, the SDEIS does not show important GoldSim results including process makeup water requirements, Colby Lake pumping over time, and flow rates of treated and untreated water sent to or received from the Mine Site. The GoldSim model needs to consider lower capture efficiencies, more conservative assumptions in general, the effects of buried channels on flow/transport, and more accurate Tailings Basin runoff estimates. Due to incorrect assumptions about baseflow, the model underestimates chemical load to the Embarrass River. Inputs to the model do not consider all the available data, and model results would be different if all data had been used.

Thematic Response

PolyMet committed to upgrading and/or installing containment systems at the south side of the Tailings Basin (near SD0026) to achieve 100 percent capture of tailings water that migrates beyond the basin perimeter as groundwater or surface water. In conjunction with containment systems installed by Cliffs, PolyMet would be required to upgrade the performance of existing containment systems and/or construct additional controls to achieve this performance specification. Because 100 percent capture of tailings water would occur at the SD0026 location, there is no need to include a south groundwater flowpath in the Plant Site GoldSim model.

The Mine Site model and the Plant Site model explicitly consider buried stream channels by including a rendering of bedrock topography based on a compilation of bedrock topographic data. Additional information and modeling results is reported in the FEIS including process makeup water requirements, Colby Lake pumping over time for process makeup, surface water augmentation, and flow rates of treated/untreated water sent to (or received from) the Mine Site.

As discussed in the responses to themes WR 018, WR 019, WR 020, and WR 022, the assumed capture efficiencies of the groundwater containment systems are justified and supported by modeling.

As discussed in the responses to themes WR 003 and WR 052, the groundwater baseflows used for the Embarrass River are reliable and based on good-quality stream gaging data.

Inputs to the Plant Site GoldSim model are based on all site data collected through the end of 2013. Data not directly used to develop model inputs was either unreliable or not relevant.

Theme WR 057

Theme Statement

With regard to the Tailings Basin pond water balance, the GoldSim model is incomplete, does not justify the hydraulic conductivity value or calculations used to compute 6.5 in/yr of leakage, and does not evaluate Tailings Basin pond overflow during extreme storm events. There is no explanation of how the Tailings Basin pond size or chemistry affects water concentrations at the Tailings Basin toes or why the Tailings Basin must remain saturated. The FEIS should

acknowledge that the Tailings Basin pond would increase the leakage of impacted water to groundwater. Pond water would be toxic.

Thematic Response

Water from the Tailings Basin currently seeps and would continue to seep at its toe. The chemical makeup of this water is affected by the reactions with tailings materials as it moves through the Tailings Basin. These chemical reactions are minimized if the tailings remain saturated, thus removing oxygen from the chemical equation. Under the NorthMet Project Proposed Action, the tailings would remain saturated during operations as new tailings (saturated with process water) were added to the Tailings Basin. In post-closure, the Tailings Basin pond seepage would be managed by placing a bentonite layer at the bottom of the pond to reduce this seepage. Fluctuation in pond size would occur during operations and post-closure, which would affect the volume of water entering the underlying tailings. A containment system would be built around the Tailings Basin to capture all surface seepage and nearly all groundwater seepage from the Tailings Basin.

The FEIS contains new text describing pond leakage and how the chemistry of this leakage would affect chemical concentrations at the Tailings Basin toes. In general, the chemistry of water at the Tailings Basin toes results from a combination of chemical-loading from pond leakage, meteoric infiltration, chemical release from currently existing LTVSMC tailings, and chemical release from future NorthMet Project Proposed Action-related tailings. See FEIS Sections 5.2.2.2.1 for additional information.

The 6.5-inches-per-year pond leakage flux is not computed, but is a stated engineering performance specification. The hydraulic conductivity that achieves this leakage flux is computed using a credible Darcy's law calculation.

The GoldSim model contains algorithms that can allow the pond to overflow during periods of high rainfall, so the model does in fact evaluate pond overflow. The pond size and design are such that the GoldSim model predicts that the pond never overflows during the 500-year simulation period.

The FEIS acknowledges that there would be future leakage from the Tailings Basin pond and the GoldSim model performs calculations to estimate the flow rate and chemical loading associated with this leakage.

Theme WR 058

Theme Statement

There are numerous issues associated with how surficial groundwater flowpaths are modeled in GoldSim. Issues include the inappropriate assumption of constant saturated thickness; flowpath orientations that are inconsistent with MODFLOW results; failure to consider heterogeneity or the presence of high permeability features; failure to consider lateral and vertical dispersion; and the lack of a rationale for the assumption that groundwater can migrate long distances without discharging to wetlands. With regard to hydraulic conductivity, the assumed input probability distribution is not justified and does not include the full range of measured values; it is unclear whether different values are applied to different flowpaths for each simulation. The assumed longitudinal dispersivity values are highly speculative. The assumed sorption coefficients are

speculative, not sufficiently conservative and do not account for the saturation of adsorbed solutes within flowpaths or fractures. The FEIS should acknowledge that other constituents would be affected by sorption. With regard to capture system bypass, the calculated best-estimate flow rate of 21 gpm is too small for a facility this size, and even this flow rate represents too much chemical load leaving the site.

Thematic Response

The surficial groundwater flowpaths in the Plant Site GoldSim model were set up with one-dimensional uniform flow and were considered reasonable approximations to the site conditions for the purpose of evaluating groundwater chemical transport. Important inputs to the GoldSim transport analysis were flowpath length, width, saturated thickness, hydraulic conductivity, recharge, hydraulic gradient, porosity, and sorption. The input values used in GoldSim were reasonable given the one-dimensional nature of the transport analysis.

Longitudinal dispersivity is a scale dependent parameter (rather than a fixed material property) and the values used in the GoldSim surficial flowpaths were reasonable given their physical lengths. Neglecting lateral and vertical dispersivity was conservative and would tend to overestimate chemical concentrations within the flowpaths.

Treating the flowpaths as homogeneous was reasonable in that the purpose transport analysis was to estimate average groundwater travel times to the evaluation locations for impact assessment.

Most sorption values used for selected chemical constituents were based on USEPA guidance documents. The mean and max antimony values were based on the lowest two values from site-specific sorption test work. Due to the low absolute concentrations of constituents modeled with adsorption, it was reasonable (and standard practice) to assume that adsorption sites would not become “saturated.” This was also a reasonable assumption for fractured bedrock, because diffusion can transport chemicals from fractures into the rock matrix, which greatly increases the available adsorption sites. For constituents not modeled with adsorption, the approach was conservative in that groundwater concentrations and travel times would both tend to be underestimated in the transport analysis.

In GoldSim, the distribution used for hydraulic conductivity was meant to represent the uncertainty in the “mean” or a really averaged hydraulic conductivity within the flowpath. As such, the range of the input hydraulic conductivity did not need to cover the full range of measured values. For the GoldSim Plant Site model, the same hydraulic conductivity was used in all three flowpaths, but the value was statistically changed for each realization of the Monte Carlo simulation.

The capture systems along the Tailings Basin perimeter would collect (for treatment) groundwater, surface water, and wetland water on the inside (tailings side) of the containment system alignment and these water sources were incorporated into the GoldSim model. The assumed capture efficiency (90 percent) and bypass flow rates were conservatively low based on a series of vertical-section MODFLOW models presented in Attachment A of the Water Modeling Data Package - Plant Site (PolyMet 2015j, as cited in the FEIS).

It is acknowledged that the FEIS GoldSim model did not explicitly simulate groundwater upwelling into wetlands between the containment systems and the Embarrass River (if any). No attempt was made to model this highly uncertain process, but instead the FEIS relies on long-

term monitoring of the wetlands and implementation of adaptive mitigation measures (if necessary) in the event that wetlands are affected in the future.

In response to SDEIS comments, the FEIS Plant Site MODFLOW model was modified and recalibrated for the FEIS as follows: 1) updated areal distribution of surficial deposits and bedrock outcrops, 2) established surficial deposits below and adjacent to the East Embankment, 3) used drain or river cells along the East Embankment to allow surface seepage of tailings water, 4) incorporated the hydrologic effects of the future swale to drain surface water from the East Embankment area, 5) recalibrated model material properties and boundary conditions using all available site data through 2013 (this is mostly new hydraulic head information), and 6) expanded the use river and drain cells to provide a more accurate representation of wetlands outside the Tailings Basin. As a result of these changes, the FEIS Plant Site MODFLOW model no longer has no-flow boundary condition at the toe of the East Embankment, and river and/or drain cells in surficial deposits are in place to allow the potential for surface seepage ("upwelling") were added. The model was calibrated to insure that hydraulic heads in the tailings and adjacent surficial deposits were not well above ground surface. In the FEIS Plant Site MODFLOW model, storage coefficients for the surficial deposits and bedrock outcrops were assigned and/or calibrated to be more in line with literature values for these types of materials.

Theme WR 059

Theme Statement

Based on the Plant Site GoldSim model, the FEIS should show groundwater concentration profiles along flowpaths at different points in time and groundwater concentrations up to 500 years. The FEIS should acknowledge that lead loading would increase compared to existing conditions. Concentrations of selenium are above the standard, and that constituents treated as non-absorbed would have migration velocities less than or equal to the simulated velocity. The FEIS should better describe the "dilution effect" on aluminum.

Thematic Response

Potential groundwater impacts are assessed at specific evaluation locations defined for each flowpath. This methodology satisfies both federal and state environmental review requirements to inform regulators, the project proponent, and public of the type, extent, and reversibility of impacts. Monitoring would typically occur at the source origins to document whether flowpath water quality predictions are being satisfied. If not, then contingency and/or adaptive measures would be applied to address potential concerns. See FEIS Section 5.2.2.1.1 for information on evaluation locations.

The FEIS Section 5.2.6 Aquatic Species, Table 5.2.6-5, indicates that under the NorthMet Project Proposed Action, lead concentrations (maximum P90 values) are higher at Plant Site surface water stations than under Continuation of Existing Conditions (Stations MLC-2, PM-11, PM-13, and PM-19). The load rates for lead in each of the Plant Site surface water stations are listed in the Water Modeling Data Package Vol. 2 – Plant Site (PolyMet 2015j, as cited in the FEIS), Attachment K Median Loading Rates to the Surface Water Evaluation Locations (Culpability Analysis).

Regarding constituents assumed to be non-attenuated in groundwater, the FEIS has been modified and now states that one the constituents modeled as unattenuated in the GoldSim model may in fact exhibit some attenuation due to adsorption onto surfaces in the surficial and bedrock aquifer. The peak concentrations of these solutes would arrive at the evaluation locations later than estimated in the GoldSim model, though the peak concentrations of such late-arriving solutes would be lower than the concentrations estimated under the assumption in the FEIS of un-attenuated transport (FEIS Section 5.2.2.3.2 Partridge River Watershed, subheading "Contaminant Transport in Groundwater from Waste Rock).

The FEIS Section 5.2.2.3.3, Embarrass River Watershed (subsection Aluminum in Surface Waters of the Embarrass River Watershed), has been revised as follows to clarify the meaning of the "dilution effect" on aluminum: Because the aluminum concentration in the Tailings Basin seepage (5 to 20 µg/L) is lower than the aluminum concentration in the ambient groundwater (50 to 90 µg/L), the net effect of mixing these two waters is that the aluminum concentration in the ambient groundwater is decreases relative to what it was before mixing.

Theme WR 060

Theme Statement

The Plant Site GoldSim model as described in the SDEIS has numerous deficiencies. These include inadequate explanation and justification of general geochemical inputs, calibration factors, and concentration caps. GoldSim model inputs also do not capture the full range of possible chemical loadings, and do not account for increased leaching due to acidic conditions. The FEIS should include a better geochemical discussion of sulfate and the dilution factors applied in the model. The model underestimates seepage through the Tailings Basin and underestimates chemical loading to groundwater due to the unreasonable assumptions about high capture efficiency. In addition, the FEIS should report the following GoldSim information:

- Source concentrations over time;
- Chemical loading over time and a comparison to existing conditions;
- Long-term residual concentrations at chemical sources during closure; and
- P90 flow rates and chemical concentrations.

Thematic Response

Specific values for geochemical parameters, including calibration factors (applied only to the existing LTVSMC tailings) and concentration caps, were developed during the Impact Assessment Planning process for Geochemistry (MDNR et. al. 2011, as cited in the FEIS). These are presented in the Water Modeling Data Package Vol 2 - Plant Site (PolyMet 2015a, as cited in the FEIS), and in the Waste Characterization Data Package (PolyMet 2015q, as cited in the FEIS). The calibration factors applied to the LTV SMC tailings model were approved for use in the EIS during review of the model Waste Characterization Data Package (PolyMet 2015q, as cited in the FEIS). The geochemical parameters were selected based on direct measurements on material from the NorthMet and LTVSMC facilities, and where appropriate, from empirical studies at analogous mine sites, and the review of the technical studies deemed the selected and presentation of these values to be appropriate and sufficient for the FEIS.

The geochemical behavior of NorthMet rock is related primarily to its net acid-generating potential, as indicated by the concentration of sulfide S in the rock and tailings. The humidity cell samples (38 of Category 1, 26 of Category 2/3, and 19 of Category 4) were dispersed spatially across the deposit to include the different formations (see Large Table 2 of the Waste Characterization Data Package [PolyMet 2015q, as cited in the FEIS]), and covered the range of sulfide S concentrations (Table 4-1 [Matrix for Sample Selection in Waste Rock Types] in SRK 2007b, as cited in the FEIS). The accuracy of PolyMet's ability to categorize the waste rock in the NorthMet deposit was assessed by a comparison of the chemical data set (approximately 18,800 sulfide S analyses) to their geostatistical model of sulfide S in ore and waste. Results of this statistical audit found that the number and spatial distribution of these sulfide analyzes supported adequately the geologic block model developed to describe the ore and waste rock distribution in the deposit (Optitech 2012). Based on these results, and other supporting data, the Co-lead Agencies believe that the existing data is sufficient to support water quality modeling for the FEIS.

The increase in oxidation rate and solute release in response to the onset of acidic conditions is included explicitly in the GoldSim Mine Site model, as described in the Waste Characterization Data Package (PolyMet 2015q, as cited in the FEIS), Section 9.4 Acidification and Long-Term Decay in Constituent Release.

The discussion of sulfate release from mine waste and its transport in surface and groundwater, as described in the FEIS and Waste Characterization Data Package (PolyMet 2015q, as cited in the FEIS), is complete, as required to support the FEIS water quality modeling.

Seepage rates in the Tailings Basin (and hydraulic conductivity of the underlying surficial aquifer) are based on a calibration of the Plant Site MODFLOW model to past measurements of flow rates during drain down of the LTVSMC tailings. This model has been recalibrated and rerun for the FEIS to incorporate new data and input assumptions, and it is the results of the calibrated hydraulic model that produces the values of solute dilution between sources and the evaluation locations in surface and groundwater.

The capture efficiencies in water quality modeling were provided by the PolyMet (Barr 2015e, as cited in the FEIS). Cross-section MODFLOW models of the tailings basin capture systems indicate that very high capture (greater than 90 percent) would be achieved in both the surficial deposits and underlying upper bedrock. Containment on the south side of the Tailings Basin (near SD-026) was presented as an adaptive mitigation approach. If there were leakage from the tailings basin into bedrock, it would be collected by the capture systems and bypass (if any) would be sufficiently small to not cause impacts that exceed water quality evaluation criteria. Further, the project Proponent has committed to upgrading existing containment systems and/or constructing new systems as necessary to achieve 100 percent capture. The estimates for tailings seepage and tailings basin capture system are sufficient for the NorthMet FEIS.

Estimates for mass loading and effluent concentrations from Mine Site facilities over the model simulation period are presented in Attachment I and J of PolyMet 2015m, as cited in the FEIS; and for Plant Site tailings facility, values for these model results are presented in Attachments D through I of PolyMet 2015j, as cited in the FEIS.

Subtheme WR 060-1

Theme Statement

Provide values for volumetric flow rates and solute concentration estimates for the water released from each source and in each waste-water stream, with concentrations shown before and after application of concentration caps and adsorption and reported in units comparable to water quality standards.

Thematic Response

Estimates for mass loading and concentrations from the Plant Site Tailings Basin are presented in the attachments to the Plant Site Water Modeling Data Package (PolyMet 2015j, as cited in the FEIS).

The NorthMet GoldSim water quality has not been run without concentration caps in source materials or adsorption-related attenuation in groundwater because these are widely observed effects in mine environments. Thus eliminating these effects from the GoldSim model would not be realistic, and such a model would not improve the assessment of environmental effects.

The effect of concentration caps can be seen in measured composition of effluent from the Amax Stockpiles, in this case showing their dependence on pH (Large Figures 23 through 27, PolyMet 2015q, as cited in the FEIS).

The selection of specific values for concentration caps was considered by the Co-lead Agencies (PolyMet 2015q, as cited in the FEIS). The specific ranges for concentration caps were estimated from mineral solubilities (for those solutes commonly found as secondary minerals in mine wastes) or observed in effluent from field-scale mine wastes (see Table 1-30 through 1-33 in the NorthMet Mine Site Water Modeling Work Plan [Barr 2012c, as cited in the FEIS] and Table 1-15 in the NorthMet Plant Site Water Modeling Work Plan [Barr 2012d, as cited in the FEIS]). Concentration caps were based on field studies rather than laboratory studies so that the rock-to-water ratios would be similar to conditions expected at the Mine Site and Plant Site, and thus would avoid the higher rock to water ratios in humidity-cell tests that could underestimate caps. The use of concentration caps is described in Section 5.2.2.2.3, Water Quality Modeling (GoldSim), in the FEIS. The antimony concentration cap was in part based off of lab data.

Regarding adsorption, the values are from USEPA guidance intended to support exposure assessments, and the specific values applied in the NorthMet GoldSim model are from the low end of the ranges, (i.e., tend to produce estimates of rapid transport; PolyMet 2015j, as cited in the FEIS), with the exception of antimony which relied upon site-specific material testing data to establish an adsorption probabilistic input range.

Subtheme WR 060-2

Theme Statement

Provide substantiation for reduction in reaction rate in tailings produced by bentonite-amended layers.

Thematic Response

The proposal to blend bentonite clay into tailings layers is intended to reduce hydraulic conductivity and thus the rate of water flux, and to increase moisture retention in the amended layer and thus reduce the rate of oxygen diffusion and associated sulfate release. The effectiveness of a properly installed bentonite-amended layer of tailings to reduce oxygen diffusion and associated sulfate release was evaluated quantitatively as part of the QA review of the GoldSim model of water and solute flow in the Plant Site. Although this review did not match exactly the GoldSim results, it did find that the discrepancies were "not large compared to the higher sulfur generation rates in other subareas of the FTB," and "did not recommend modifying the current model for this QA audit" (ERM 2013, as cited in the FEIS).

The amendment approach at the Plant Site is discussed in PolyMet 2015d (AWMP Version 9, as cited in the FEIS). Published field-scale tests of bentonite amendment found that bentonite layers remain effective through freeze-thaw cycles, and, in one specific test, a 0.46-meter thick layer of sand (range 3 percent to 8 percent bentonite by weight) found that the amendment could reduce oxygen diffusion by approximately 90 percent. However, these publications indicate that uniform blending is important, so that amendments would probably be applied in multiple layers, and that site-specific field tests would be required prior to full-scale application to tailings surfaces or the tailings pond bottom.

The current bentonite amendment plan for the Tailings Basin dam and beaches can be found in the Flotation Tailings Management Plan, Section 7 (PolyMet 2015n, as cited in the FEIS). The plan would be updated as necessary as part of facility permitting, with future in-laboratory material testing performed to confirm percentage of bentonite addition requirements, and with in-field test plots constructed preceding initial cover construction activities to confirm material placement procedures. The specific methods for bentonite amendment at the Tailings Basin, including a material testing program and construction quality control plan would require approval by the facility engineer of record and PolyMet prior transitioning to full-scale implementation.

Subtheme WR 060-3

Theme Statement

Expand model analysis to consider solute transport in groundwater with no retardation effect.

Thematic Response

Adsorption is widely observed in studies of metal transport in groundwater, and is an important enough effect that the USEPA provides guidance documents with screening level values for adsorption (as "Kd") to support estimates of exposure to solutes migrating in groundwater (USEPA 2005, as cited in the FEIS). This literature review by the USEPA indicates that Kd for

the four metals assumed to be affected by adsorption in the NorthMet Project area surficial aquifer (arsenic, antimony, copper, and nickel) vary widely across different sites. In response, the GoldSim modeling selected values from the low end of this range, with the exception of antimony (i.e., values that produce rapid transport in groundwater, and thus earlier arrival at groundwater evaluation locations [PolyMet 2015j, as cited in the FEIS, Section 5.2.1.3.3 Sorption, Table 5-7 Sediment Sorption Factor (Kd)]. Antimony which relied upon site-specific material testing data to establish an adsorption probabilistic input range. But eliminating entirely the effect of adsorption from the GoldSim model would not improve the assessment of environmental effects. The Co-lead Agencies thus do not believe that the GoldSim water quality model needs to be re-run without adsorption-related attenuation in groundwater.

Subtheme WR 060-4

Theme Statement

Provide estimates for pH, sulfate, and alkalinity predicted in the PolyMet pit lakes and tailings effluent, and compare these to the values observed in natural and mine-produced lakes in the region.

Thematic Response

Estimates for the concentration of all modeled solutes in the West Pit Lake are presented in the Attachment H of the Mine Site Water Modeling Data Package (PolyMet 2015m, as cited in the FEIS). For the tailings basin effluent, estimated concentrations are presented in Attachment G of the Plant Site Water Modeling Data Package (PolyMet 2015j, as cited in the FEIS).

The pH and alkalinity of water is a dynamic parameter that reflects chemical equilibrium condition, and is not predicted explicitly by the GoldSim model for any of the NorthMet Project area waters, including the West Pit Lake and the tailings effluent. However, the West Pit Lake is a component of the active water management and treatment system during and after the 20-year operating life of the mine, and its water quality would be monitored as part of the NorthMet Project Proposed Action (PolyMet 2015d, as cited in the FEIS, Large Figure 1, Water Treatment Overall Flow Sheet-Operations, and Large Figure 3, Water Treatment Overall Flow Sheet- Long-Term Closure.)

Water quality in the West Pit lake would thus be controlled by pumping and, where necessary, treatment. Most of the effluent from the Tailings Basin would be captured and treated, and the GoldSim model results and associated effects presented in the FEIS account for some bypass of the capture system. Because the environmental effect of the West Pit Lake and Tailings Basin are not dependent on water quality of other lakes, the Co-lead Agencies do not plan to compare model results for the West Pit Lake to a compilation of water quality in other lakes in the region.

The acid-generation potential (as defined by the sulfide S concentration) in NorthMet floatation tailings would be low enough to ensure that these never produce acidic leachate. Specifically, the sulfide S concentration in the tailings , which would be controlled by the flotation process, would have a maximum value of 0.12 percent. Multi-year synthetic weathering tests (humidity cells) on NorthMet tailings demonstrated that the sulfide-mineral oxidation rate (and associated acid production) in the tailings decreases over time (Attachments C and A of the Waste Characterization Data Package [PolyMet 2015q, as cited in the FEIS]). Further, at some time between approximately 100 and 200 weeks after they start weathering under atmospheric

conditions, the pH of the effluents reaches a minimum, and thereafter the pH becomes steady or increases slightly (Attachment F of the Waste Characterization Data Package [PolyMet 2015q, as cited in the FEIS).

Based on these weathering tests on tailings (and also results from tests on Category 1 waste rock, which is also less than0.12 percent sulfide S), and incorporating a small correction for the possibility that CO_2 pressure may be higher in the tailings than in the atmosphere, the PolyMet tailing effluent should range between pH of approximately 7.1 and 7.7. Over the long-term (i.e., 50 to 100 years, and beyond), the general trend should be for pH to increase from the low end to the high end of this range (PolyMet 2015q, as cited in the FEIS).

Subtheme WR 060-5

Theme Statement

Provide details on field studies (e.g., monitoring results from existing mines and water treatment facilities) demonstrating that effluent from the NorthMet Project would not violate water quality criteria.

Thematic Response

The GoldSim model water quality predictions relied heavily on field-scale observations of water quality at analog mine sites, including the Dunka and Amax rock piles, which are located near the NorthMet Project area and are comprised of Duluth Complex rock.

The Amax Shaft Test Piles are six, 1,000-ton test piles constructed from rock removed from a test shaft sunk into the Babbitt Deposit in 1977 by AMAX, Inc. (Lapakko 1993, Lapakko et. al. 2002, and MDNR 2004). The rock contained sulfur concentrations varying from 0.64 to 1.41 percent, copper concentration of 0.3 to 0.4 percent, and nickel concentrations of 0.08 to 0.09 percent. The copper and nickel content were comparable to the NorthMet Project area but sulfur concentrations were much higher than would be expected for most waste rock at Mine Site. The piles were constructed on lined pads, and some of the rock surfaces were reclaimed with soils and glacial tills, and, in select cases, vegetated. Drainage from the piles was monitored from 1977 to 1994, after which the piles were dismantled and the rock encapsulated in concrete (SRK 2007b, as cited in the FEIS).

The Dunka Pit Stockpile is Duluth Complex rock that was removed to access underlying iron formation at the Dunka Pit, beginning in the 1960s (MDNR 1994 and MDNR 1996). Eight stockpiles varying in quantity from 0.1 to 21 million tons were constructed of which five contained mixed iron formation and Duluth Complex and three contained mainly Duluth Complex rock. Sulfur, nickel, and copper concentrations were determined on the rock. Treatment of the drainage from the stockpiles using wetlands has been investigated (Eger and Lapakko 1980, Eger and Lapakko 1988, and Eger et al. 2000). The ratio of solute release from stockpiles at the Dunka Mine relative to MDNR kinetic tests on Dunka Rock was used as the basis for the scale-up of solute release from NorthMet kinetic tests to estimate NorthMet Category 1 waste rock under field conditions (Section 8.2.8 of PolyMet 2015q, as cited in the FEIS).

The estimates for the concentration caps in NorthMet Project Proposed Action waste rock and tailings that drew from the analog-site effluent quality are described in Section 4.1.3.1 and Section 8.3 of PolyMet 2015q, as cited in the FEIS.

In tailings, resulting cap values are in the Water Modeling Work Plan – Plant Site, Table 1-15 Category 1 Concentration Cap Distributions (Barr 2012c, as cited in the FEIS). In waste rock, resulting caps values that are drawn from analog mines are listed in the Water Modeling Work Plan – Mine Site, Tables 1-30 (Category 1 rock), Table 1-31 (Category 2/3 Duluth complex rock and ore, non-acidic), Table 1-31 (Category 2/3 Duluth Complex rock and ore, acidic conditions), and Table 1-33 (Virginia Formation, acidic conditions) (Barr 2012d, as cited in the FEIS).

Finally, the reliability of the GoldSim model used for NorthMet Project Proposed Action acid-generating waste rock was checked by applying the model to observed effluent from the existing Amax waste rock piles (sulfide S concentration between 0.64 percent and 1.41 percent sulfide S). The comparison applied laboratory-scale humidity-cell test results and the model factors for temperature, fragment size, and oxidation rate change following the onset of acidification. Results found that the model fit well to median sulfate-release rates, but that 95th percentile model concentrations exceeded observed sulfate-release rates (Table 8-6 of PolyMet 2015q, as cited in the FEIS).

Reverse osmosis pilot plant results using water from NorthMet Project Proposed Action site has demonstrated the ability of the treatment technology to meet water quality standards. The FEIS Section 5.2.2 discusses modeling results using field-scale observations and other sources of information.

Theme WR 061

Theme Statement

The Plant Site GoldSim model has the following critical deficiencies pertaining to bedrock:

- The model has no bedrock groundwater flowpaths;

- The model assumes without justification that bedrock flow and transport are negligible;

- The model does not consider vertical flow or vertical dispersion of chemicals from surficial deposits into bedrock; and

- The model does not consider the likely presence of high permeability structures and fault zones.

Thematic Response

Field-testing at the Plant Site indicates that upper bedrock hydraulic conductivity is about two orders of magnitude lower than the hydraulic conductivity of surficial deposits. Given this difference, calculations show that groundwater flow and chemical transport between the Tailings Basin and Embarrass River are dominated by the surficial aquifer and the bedrock system can be safely neglected in the impacts analysis. As a consequence, bedrock flowpaths are not needed in the Plant Site GoldSim model. If bedrock flowpaths were included, the model would show that they would have minimal effect on chemical concentrations in the Embarrass River.

Vertical dispersion from the surficial aquifer into bedrock is not considered in the GoldSim model because chemical migration in bedrock can be shown to have minimal effect on chemical concentrations in the Embarrass River.

The FEIS indicates that structural faults may exist between mine facilities and perennial streams that receive groundwater discharge. Because the landscape is covered with surficial deposits and

there are limited bedrock outcrops, the existence of faults is conjectural and locations at best can only be inferred. It is unknown if faults (if and where they exist) behave as conduits or barriers to groundwater flow. Given these uncertainties, it is unlikely that a new, practical field program, with a goal to identify faults, would provide data to reasonably inform the impact assessments. The management approach is to set up a robust monitoring program during operations and closure to provide direct or indirect evidence on the existence of hydrologically significant faults. If significant faults are identified (i.e., faults that could lead to violation of water quality standards), then adaptive measures would be employed to mitigate the fault-related effects. See FEIS Sections 4.2.2.2.1 and 5.2.2.2.1 for further information.

Theme WR 062

Theme Statement

The FEIS should discuss differences between the Myers flow/transport model and modeling performed for the SDEIS. The Myers model predicts generally higher groundwater concentrations, higher concentrations in the Embarrass River, and greater flow effects on the Embarrass River. The FEIS should also discuss the higher recharge rates and hydraulic conductivities used in the Myers model, and it should acknowledge that the Myers model allows for lateral and vertical dispersion while the SDEIS model did not.

Thematic Response

The differences between the Myers model and the FEIS models can be compared/contrasted as follows:

- The Myers model considers higher groundwater baseflows in perennial streams and this leads to higher recharge and higher hydraulic conductivities for surficial deposits. Reliable gaging data for the Partridge and Embarrass Rivers justify the lower baseflows and associated lower recharge and hydraulic conductivities used in the FEIS models.

- The Myers model generally assigns higher hydraulic conductivities to bedrock units. These values are higher than what can be justified by field-testing at the NorthMet Project area or indicated in (Barr 2014b, as cited in the FEIS).

- The Myers model does not include all groundwater capture systems presented in the FEIS Project Description.

- The Myers model does not use concentration caps, so that computed chemical concentrations in some mine-related chemical sources are much higher than what is reasonable or observed at other similar mine sites.

- The Myers model uses lateral and vertical dispersion, while the FEIS models do not. These uncertain processes would tend to reduce chemical concentrations in the surficial aquifer, which is the dominating hydrogeologic unit that transports chemicals from mine facilities to the perennial rivers. With regard to dispersion, the Myers model would tend to compute lower chemical concentrations in the surficial aquifer compared to the FEIS models. By not considering lateral and vertical dispersion, the FEIS models tend to be conservative (i.e., more likely to overestimate impacts) compared to the Myers model.

These issues are discussed in more detail in the memorandum titled: "Comparison of the Myers Groundwater Flow/Transport model with the FEIS Impacts Analysis Models" (ERM 2015). Given the above deficiencies of the Myers model, it is not considered a reliable basis for evaluating future impacts associated with the NorthMet Project Proposed Action.

Theme WR 063

Theme Statement

The FEIS should present WWTF and WWTP flow rates and influent concentrations over time, justify assumed effluent concentrations, and describe treated water discharge locations, including flows and timing. Some figures show that treated water would be discharged in a diffuse manner from a pipe that parallels and is close to the Tailings Basin groundwater capture system; however, the GoldSim model assumes that treated water is discharged at tributary streams close to the Embarrass River. The FEIS should explain this discrepancy.

Thematic Response

The FEIS contains 5.2.2-27, influent flows for WWTF, 5.2.2-41, outflows from WWTP for stream augmentation and 5.2.2-28 which reports effluent target concentrations for the WWTF. The assumed effluent concentrations are based on pilot-testing conducted by PolyMet and these results are summarized in the FEIS.

At the Mine Site, water balance modeling estimates are that discharge would begin in mine year 53, which is when the West Pit is predicted to be completely flooded by the combination of natural inflow (groundwater inflow and surface runoff) and the addition of treated water pumped into the pit from the Plant Site. Prior to discharging Mine Site water, the WWTF would be upgraded with a reverse osmosis or similar treatment system to meet the 10 mg/L sulfate standard for wild rice. The WWTF effluent would be discharged into an existing wetland via a culvert under Dunka Road, and eventually into the Partridge River via an existing tributary. This is described in the NorthMet Project Description (Section 4.4.2.1 Mine Pit Reclamation, and Large Figure 30), and in FEIS Section 5.2.2.3.2.

At the Plant Site, treated effluent would be discharged to either tributary streams feeding the Embarrass River or as diffuse flow from a discharge pipe that parallels the containment and is located on the north and west sides. As an acceptable approximation, the Plant Site GoldSim model only considers effluent discharges to tributary streams of the Embarrass River. With regard to groundwater concentrations, this is considered conservative because it does not consider the dilution effect that would occur if treated water were to discharge and infiltrate into the surficial aquifer just north and west of the Tailings Basin containment systems. Detailed design of the discharge would be addressed during water quality permitting.

Theme WR 064

Theme Statement

The evaluation locations in the Plant Site GoldSim model are not adequate to assess all potential groundwater and surface water effects, do not acknowledge that impacted groundwater may affect wetlands, do not consider the closest locations where impacted groundwater could discharge to surface water, do not consider the area in which groundwater emerges into surface water, and do not consider that impacted groundwater could affect drinking water wells. The FEIS should acknowledge that groundwater concentrations would violate surface water quality standards at the point of discharge to surface water, that water quality in the Embarrass River would be degraded, that sulfate concentrations in groundwater and surface water are likely underestimated, and that there would be increased (or decreased) loading of lead and aluminum to groundwater and surface water. In addition, the GoldSim model does not evaluate specific conductance (a state water quality parameter with a standard). There needs to be more detailed discussion of chemical travel times to evaluation locations that are underestimated and a more detailed comparison of NorthMet Project Proposed Action-related effects on existing conditions. In addition to water quality criteria, effects should also be assessed using Health Risk Limits. The FEIS should also discuss the vertical extent of groundwater effects and the potential for chemicals migrating into bedrock.

Thematic Response

The groundwater quality evaluation criteria used in the FEIS are intended to be used to assess for impacts to groundwater at the Mine Site and Plant Site property boundaries, not within the NorthMet Project Proposed Action footprint. This approach is typically used in EISs for mining and industrial facilities, and the evaluation locations used in the NorthMet Mining Project and Land Exchange FEIS are consistent with this approach.

At the Plant Site, evaluation locations for surface water (other than the Embarrass River) are based on locations where groundwater is known to be released to perennial tributaries of the Embarrass River including Trimble Creek, Mud Lake Creek, and Unnamed Creek. These are verified groundwater release locations. To consider locations where groundwater release “could” occur would be speculative.

The groundwater capture system at the Plant Site would greatly minimize the potential for seepage to discharge to or otherwise affect downgradient wetlands. A comprehensive monitoring approach is recommended during operations, reclamation, and closure to identify such affects (if any). If effects are identified, adaptive mitigation measures would be invoked to remediate the situation and assure that water quality standards are met.

Because the GoldSim models predict that water quality evaluation criteria would be met at the property boundary, it is highly unlikely that water wells (all located downgradient of the property boundary) could be impacted. This is because natural groundwater transport processes always lead to a reduction in chemical concentrations. The Co-lead Agencies would recommend a comprehensive groundwater monitoring program during operations, reclamation, and closure to evaluate groundwater chemistry outside the NorthMet Project area boundaries. In the unlikely event that groundwater was adversely affected, adaptive mitigation measures would be invoked to remediate the situation and assure that water quality standards are met.

Groundwater evaluation criteria apply to groundwater at the NorthMet Project area boundary and the GoldSim models predicts that these criteria would be met. Surface water quality evaluation criteria apply instream after the groundwater discharge has mixed with ambient surface water (independent of proximity to the NorthMet Project area boundary); the GoldSim models predict that these criteria would be met, as well. Evaluation criteria can be found in Section 5.2.2.

The Co-lead Agencies acknowledge that there would be increased loading of lead, aluminum, and sulfate in certain portions of the groundwater and surface water systems at the Mine Site and Plant Site, but these would not cause exceedances of water quality evaluation criteria at the applicable evaluation locations.

Some of the comments attached to this theme state that concentrations of some constituents have been underestimated by the GoldSim model, but do not provide technical explanations for this claim. Without technical explanations, the Co-lead Agencies cannot provide a more comprehensive response to these comments.

For the different flowpaths, groundwater travel times to groundwater evaluation locations and surface water discharge points are presented in the FEIS, including the times for initial change in chemical concentrations and the times to reach peak concentrations. Once chemicals discharge from groundwater to surface water, it is assumed that migration is instantaneous to surface water evaluation locations.

The water quality evaluation criteria used in the FEIS are based on a combination of health-based water quality standards for drinking water sources (such as groundwater and Colby Lake) and mercury in surface water (fish consumption) and on aquatic life-based standards for surface waters.

Desktop calculations and GoldSim results clearly show that chemical migration in bedrock is negligible compared to migration in the surficial aquifer. Chemical migration in bedrock is not sufficient to affect chemical concentrations in surface water.

Electrical conductance provides an estimate for TDS and is used if there are no direct measurements of TDS. There are TDS standards for surface water (700 mg/L) and groundwater (500 mg/L), and at the request of the MPCA, GoldSim results include estimates for TDS at each time-step, calculated by summing major solutes (Water Modeling Data Package Vol 1 – Mine Site; PolyMet 2015m, as cited in the FEIS). In the FEIS, TDS has precedence over electrical conductance as a water quality criterion.

Theme WR 065

Theme Statement

The Plant Site GoldSim model does not account for seasonal effects, including variable recharge.

Thematic Response

Estimates of monthly and annual rainfall amounts were based on best available data obtained from weather stations near the NorthMet Project area. In both GoldSim models, these parameters were treated as uncertain inputs and assigned probability distributions to capture the range of conditions.

Theme WR 066

Theme Statement

The SDEIS does not adequately describe the design, performance, monitoring, and long-term operation of the Hydrometallurgical Residue Facility. Water would flow from the Tailings Basin to the Hydrometallurgical Residue Facility and this has not been analyzed.

Thematic Response

Text in FEIS Sections 3.2.2.3 and 5.2.14.2.3 discusses the design and construction of the Hydrometallurgical Residue Facility, and the Geotechnical Data Package Volume 2 (PolyMet 2014c, as cited in the FEIS) indicates the design would meet all factors of safety as required. The Hydrometallurgical Residue Facility would be constructed over the LTVSMC emergency basin. During operations, the double liner system for the Hydrometallurgical Residue Facility would minimize release of residue leachate, and any collected leakage would be pumped back to the Hydrometallurgical Residue Facility pond. During reclamation and closure and long-term maintenance, leakage would be routed and cycled through the Plant Site WWTP.

Seeps have been observed along the southern edge of the LTVSMC Tailings Basin Cell 2W. These seeps have diminished since the termination of the LTVSMC operations and are expected to remain minimal as Cell 2W is not proposed for use as part of the NorthMet Project Proposed Action. The design of the Hydrometallurgical Residue Facility acknowledges the presence of these seeps by including a collection drain that would collect water from the seeps below the proposed constructed embankment and liner systems to transmit the collected seepage away from the Hydrometallurgical Residue Facility. This seepage collection system would consist of a layer of free-draining soil that would reduce the potential for phreatic build-up below the liner.

The two liner layers on the Hydrometallurgical Residue Facility would be separated by a leakage collection system designed to collect any potential leakage. Each liner layer would consist of a geomembrane layer above a geosynthetic clay layer. A drainage collection system would also be installed during reclamation to collect drainage above the upper liner. The cap would consist of a geotextile fabric, overlain by a clay barrier layer, and a 40-mil low-density polyethylene layer. This would be covered with additional LTVSMC tailings or local till soils to sustain a vegetated cover. The FEIS includes available details from the updated Residue Management Plan (PolyMet 2014r, as cited in the FEIS).

Theme WR 067

Theme Statement

The assumed performance of the Hydrometallurgical Residue Facility liner system is not realistic for long-term closure and likely underestimates the amount of downward leakage from the Hydrometallurgical Residue Facility into groundwater and surface water. Leakage should be probabilistic input to the model. Seepage quality should be disclosed.

Thematic Response

The Hydrometallurgical Residue Facility would be double-lined to minimize release of water that has contacted the hydrometallurgical residue. The double liner would consist of a composite liner system utilizing a geomembrane liner above a geosynthetic clay liner with a second liner

placed above the first, separated by a leakage collection system. This would substantially remove all hydraulic head from the lower liner and thereby virtually eliminate leakage from the Hydrometallurgical Residue Facility. It is expected that no water would be released directly from the Hydrometallurgical Residue Facility, so, appropriately, leakage from the Hydrometallurgical Residue Facility is not included in modeling.

PolyMet initiated laboratory testing to consider the chemical compatibility of the potential geosynthetic liner to be used with leakage from residue (PolyMet 2014r, as cited in the FEIS). Results indicated that a polymer-treated geosynthetic liner should be used that is manufactured specifically in anticipation of the chemical characteristics of the liquid and the pore water that would be contained within the facility. The hydraulic conductivity of the soil leakage collection system is not expected to degrade over time. Typical liner performance assumes a 500-year service life of the geomembrane; therefore, hydraulic conductivity of the liner is not expected to degrade over that time. Specific attributes would be determined during the geosynthetic clay layer development to achieve the desired performance before final installation. Findings of studies on geosynthetic liners indicate that performance is minimally affected by freeze-thaw cycles (PolyMet 2014c, as cited in the FEIS). At the Hydrometallurgical Residue Facility, the majority of the geosynthetic liner system would be below the water elevation, and therefore not exposed to freeze-thaw cycles.

Theme WR 068

Theme Statement

The SDEIS does not show the composition and flow of Hydrometallurgical Residue Facility pore water over time. Hydrometallurgical Residue Facility waste needs to be re-evaluated based upon the change to the hydrometallurgical process.

Thematic Response

The Hydrometallurgical Residue Facility would be double-lined to minimize release of water containing the hydrometallurgical residue. The double liner would consist of a composite liner system utilizing a geomembrane liner above a geosynthetic clay liner with a second liner placed above the first, separated by a leakage collection system. This would substantially remove all hydraulic head from the lower liner and thereby virtually eliminate leakage from the Hydrometallurgical Residue Facility. It is expected that no water would be released directly from the Hydrometallurgical Residue Facility. The purpose is to assess effects on the environment; thus, it is not relevant to evaluate the flow of pore water within the Hydrometallurgical Residue Facility. A description of the hydrometallurgical waste material is provided in FEIS Section 3.2.2.3.7; also refer to the response to HAZ002 for more information.

Theme WR 069

Theme Statement

The SDEIS does not describe the fate and transport of impacted water that leaks from the Hydrometallurgical Residue Facility.

Thematic Response

The Hydrometallurgical Residue Facility would be double-lined to minimize release of water that has contacted the hydrometallurgical residue. The double liner would consist of a composite liner system utilizing a geomembrane liner above a geosynthetic clay liner with a second liner placed above the first, separated by a leakage collection system. This would substantially remove all hydraulic head from the lower liner and thereby virtually eliminate leakage from the Hydrometallurgical Residue Facility. It is expected that no water would be released directly from the Hydrometallurgical Residue Facility.

Theme WR 070

Theme Statement

The SDEIS does not address leaks and seeps of untreated, contaminated water. Possible discharges from the Tailings Basin emergency overflow is one example. The former LTVSMC Tailings Basin seeps and exceeds water quality standards for some parameters. Millions of gallons of polluted, untreated seepage would leave the Plant Site and Mine Site annually. The ground may filter this water. Clean-up may be needed and may not be possible.

Thematic Response

The FEIS identifies several features at the Mine Site and Plant Site where seeps may enter into surface water or groundwater, as well as environmental controls to eliminate or reduce and treat seepage exiting the NorthMet Project area. Discussion of seeps occurs throughout FEIS Section 5.2.2 in numerous subsections. During operations and in the initial portion of the closure and long-term maintenance period, the Tailings Basin would have substantial freeboard to accommodate large rainfall events, including precipitation from up to the 72-hour Probable Maximum Precipitation event (PMP). The PMP does not have an assigned return period, but it is usually assumed by hydrologists to be on the order of 100 million to 10 billion years. Tailings Basin pond water level would also be managed by pumping it to the WWTP. In the unlikely event that the pond fills, water would be directed to a constructed overflow channel that would manage water in order to maintain dam integrity.

Theme WR 071

Theme Statement

Field data for characterization is inadequate. The analysis has selectively used data, omitted important data, and failed to use recent data. Groundwater hydrology is not adequately characterized, and fractures are incorrectly characterized. Better hydraulic and water chemistry information would improve conceptual models for the prediction of solute transport and improve predictions of potential impacts to groundwater, engineering of containment systems, and design of monitoring systems. The FEIS is not credible because it misquotes cited references and assumptions on geology and hydrogeology go unsupported. The FEIS should depict the spatial relationship between the lowest rock quality designation values and fault zones and lineament trends mapped using LIDAR data.

Thematic Response

The FEIS relied on data collected through the end of 2013, which included 12 new monitoring wells at the Mine Site. In addition, the FEIS made use of new geotechnical data collected in 2014 along the northern, northwestern, and western perimeters of the Tailings Basin, which included geologic logs, 10 new surficial aquifer piezometers, slug tests in the piezometers, and 10 bedrock packer tests performed in five coreholes advanced into upper bedrock. Hydrogeologic site characterization was sufficient for purpose of environmental impact analysis.

All publically available and relevant studies were considered in developing the FEIS. These include technical reports prepared by the Proposer, reports from state and federal agencies, technical papers in peer-reviewed journals, and technical reports associated with other mine sites. The FEIS preparers drew on these information sources to the degree that they were reliable and relevant to the assessment of potential impacts from the NorthMet Project Proposed Action.

The FEIS provided a description of data used to assess impacts. An explanation was provided regarding any data used and not used in finalizing the FEIS MODFLOW and GoldSim models.

It is well-known that unexplained sampling/laboratory issues can cause occasional chemical results to be incorrect and unusable for site characterization. This happens to some extent on all large projects where sampling is conducted at many locations and for long periods of time. When an occasional data value is clearly anomalous and does not fit in any reasonable way with the bulk of the related data, it is an acceptable practice to not use the anomalous value for characterization to develop a more accurate site characterization.

During winter 2013-2014, an investigation of bedrock was conducted along the northern, northwestern, and western perimeters of the Tailings Basin. The investigation included five boreholes advanced into upper bedrock and 10 packer tests conducted in these holes. The investigation provided rock core, RQD data, and hydraulic conductivity of discrete intervals within the upper bedrock. The results of this investigation are reported in Barr 2014b, as cited in the FEIS) and in FEIS section 4.2.2.3.1.

It is correct that currently there are no bedrock monitoring wells at the Plant Site. Installation of bedrock monitoring wells would be specified as part of the permitting process, with the results used to assess the NorthMet Project Proposed Action performance on an ongoing basis.

The MODFLOW and GoldSim models for the Mine Site and Plant Site were modified and recalibrated using groundwater level and sampling data collected through the end of 2013. At the Mine Site, this included all 24 monitoring wells, including data from 12 newer wells.

Stream gaging data used in the SDEIS and FEIS are adequate to characterize groundwater baseflow, seasonal flow, and storm runoff in the Partridge and Embarrass rivers.

See the responses to themes WR 011 and WR 012 for additional discussions of fracture flow and hydrology.

Theme WR 072

Theme Statement

The FEIS should provide specific justification for the data that were collected (or not collected), as well as justification for any data excluded from the modeling.

Thematic Response

FEIS Chapter 4 contains a new table showing the categories of hydrology and water quality data collected. The table indicates the data were used and not used in the FEIS evaluation. Explanations are provided for data not used.

The SDEIS water quality modeling predicted that there would be no substantial flow/chemistry impacts to the Partridge River at downstream evaluation location SW-005, or to the Embarrass River at downstream evaluation location PM-13, both of which are downstream of all NorthMet Project Proposed Action-related effects. These results not conducting extensive characterization or impact assessment of the St. Louis River watershed downstream of these evaluation locations. The FEIS impacts analysis corroborates the SDEIS predictions of minimal impacts at SW-005 and PM-13.

Theme WR 073

Theme Statement

The FEIS should justify where assumed or extrapolated input values are used instead of field measurements.

Thematic Response

The Co-lead Agencies are responsible for determining the requirements and adequacy of data used for the EIS. Where field measurements were not available, model assumptions were reviewed and approved for use in impact analyses.

Theme WR 074

Theme Statement

The FEIS should acknowledge that the overall characterization of the Mine Site and Plant Site is less detailed than what is typically found in EISs for similar mines.

Thematic Response

Data collection and site characterization for any project's environmental review is unique based upon potential environmental impacts and applicable state regulations or guidance. The Mine Site characterization is adequate to assess the NorthMet Project Proposed Action impacts and measures available to avoid or minimize those potential impacts.

Theme WR 075

Theme Statement

The water resources analysis in the SDEIS includes no water samples from lakes near the Tailings Basin.

Thematic Response

Sampling these lakes would not have added substantially to the overall Plant Site characterization for the purpose of impacts assessment. Note that Spring Mine Lake is located upstream of the eastern side of the Tailings Basin and has been sampled for water quality.

Theme WR 076

Theme Statement

The FEIS needs to address why the SDEIS did not use sampling data from PM-11, nine sampling events from PM-12.1, and sampling data from wells GW-008, GW-009 and GW-010.

Thematic Response

Sample data from wells GW-008, GW-009, and GW-010 (see FEIS Figure 4.2.2-16) are used in the FEIS. Analyses of water from wells GW-009 and GW-010 (and GW-011) are used to estimate existing groundwater quality in the surficial aquifer downgradient of the existing LTVSMC Tailings Basin (FEIS Table 4.2.2-24), and well GW-008 is one of the wells used to estimate existing water quality in the surficial Plant Site aquifer at the toe of the existing LTVSMC Tailings Basin (see FEIS Table 4.2.2-23).

Surface water sampling location PM-11 is on Unnamed Creek, which is downgradient from the existing LTVSMC Tailings Basin (see FEIS Figure 4.2.2-1). Sampling results from PM-11 include measured flows and water quality (Table 4-6 Summary of Recent Observed Flow Data Around the Tailings Basin, and Large Table 4 Surface Water Data Summary Embarrass River Watershed, Plant Site Water Modeling Data Package—PolyMet 2015j, as cited in the FEIS). These monitoring results from PM-11, along with results at other surface water locations (PM-19, MLC-2, and PM-13), "were used to validate or corroborate other model inputs and assumptions," and "the calibration of the No Action Model was approved by the Co-lead

Agencies before modeling of the Project was conducted" (see Section 5.2.1.4.5 of PolyMet 2015j, as cited in the FEIS).

Surface water sampling location PM-12.1 is on Spring Mine Creek, which receives discharge from Pit 5NW outflow (see FEIS Figure 4.2.2-1). It discharges upstream on the Embarrass River from where the existing LTVSMC tailings seepage reaches the Embarrass River, but samples at PM-12.1 were collected and analyzed (see FEIS Chapter 4, Table 4.2.2-29), and results were used to assess dilution in the water quality model based on sulfate downstream of the Pit 5NW outflow (see Section 4.4.3.3 of PolyMet 2015j, as cited in the FEIS).

Theme WR 077

Theme Statement

Climate inputs to the models did not fully account for variation in precipitation, given recent conditions. The FEIS should explain how water dependent aspects of the NorthMet Project Proposed Action, such as the storage of waste rock under water to limit the production of toxic leachate as well as groundwater and surface water resources in the NorthMet Project Proposed Action area, would be affected during severe droughts or flooding.

Thematic Response

The SDEIS was based on data generally collected through October 2012. The FEIS relied on new data collected through the end of 2013, which included 12 new monitoring wells at the Mine Site. In addition, the FEIS made use of new geotechnical data collected in 2014 along the northern, northwestern, and western perimeters of the Tailings Basin, and included geologic logs, 10 new surficial aquifer piezometers, slug tests in the piezometers, and 10 bedrock packer tests performed in five coreholes advanced into upper bedrock. Hydrogeologic site characterization was sufficient for purposes of environmental review.

All publically available and relevant studies were considered in developing the SDEIS and FEIS. These include technical reports prepared by the Proposer, reports from state and federal agencies, technical papers in peer-reviewed journals, and technical reports associated with other mine sites. The SDEIS and FEIS preparers drew on these information sources to the degree that they were reliable and relevant to the assessment of potential impacts from the NorthMet Project Proposed Action.

For the Mine Site, a GoldSim sensitivity analysis was conducted to assess the possible effects of future climate change on groundwater and surface water. It was concluded that reasonably foreseeable climate change would have little effect on pit inflows, pit lake water quality, groundwater chemical concentrations, and surface water chemical concentrations. These results are reported in the Mine Site Water Modeling Data Package (PolyMet 2015m, as cited in the FEIS). By analogy, the Plant Site is also expected to be minimally affected by possible future climate change.

Estimates of monthly and annual rainfall amounts were based at a minimum on the 30-year climatic normal data obtained from weather stations near the NorthMet Project area. In the GoldSim models, annual precipitation is treated as an uncertain input and assigned a probability distribution to capture the range of possible future conditions. While climate change may occur in the future, it cannot be stated at this time if rainfall would increase or decrease over the long

term. Uncertain inputs to the GoldSim Model translate to a 50 percent probability that annual precipitation would be greater than 27.8 inches, a 15.7 percent probability that annual precipitation would be greater than 32.2 inches, and 2.3 percent probability that annual precipitation would be greater than 36.9 inches. Note that there are additional uncertain inputs to GoldSim for evaporation, runoff, and meteoric infiltration. Thus, the probabilistic approach to rainfall and associated climate parameters used in GoldSim represents a reasonable method for dealing with possible future climate change.

Severe drought conditions are not expected to affect the subaqueous storage of the tailings (under the pond) or the waste rock disposed of in the East Pit because a positive water balance is predicted for these facilities, making it unlikely that drought conditions would result in a long-term negative water balance that would affect constituents in those areas. The NorthMet Project Proposed Action facilities would be designed with excess storage to handle large storm events. If climate change gradually increased the frequency and size of storms, there would be ample time to identify the issue and increase storage and treatment requirements at the site.

Theme WR 078

Theme Statement

The number of monitoring wells at the Mine Site is insufficient and the deep groundwater wells should include continuous electrical conductivity monitoring to detect salinity changes as it is likely saline water would be encountered during the development of the East Pit and West Pit. The FEIS should disclose that exploratory drillings do not have to be sealed for 10 years and the possible impacts at these locations, especially to ubiquitous briny water formations. All monitoring wells should be hydraulically tested.

Thematic Response

The number and spatial distribution of monitoring wells installed and sampled at the Mine Site (24 wells in the surficial aquifer and 9 wells in bedrock; see FEIS Figure 4.2.2-8 [formerly Figure 4.2.2-7 in the SDEIS]) was recommended by the Co-lead Agencies in consultation with the USEPA. The USEPA's specific recommendations included the number of wells to install, the total number of samples to collect, and the statistical method to evaluate the adequacy of the dataset for reliably indicating baseline water quality (Westlake 2011). A statistical summary of the groundwater quality data set that responded to these sampling requirements is presented in Large Table 5 (surficial aquifer) and Large Table 6 (bedrock) in PolyMet 2015m, as cited in the FEIS.

Regarding monitoring for salinity in bedrock groundwater, the Impact Assessment Planning review of groundwater quality concluded that "the Co-lead Agencies believe that the [sampling] data the from 5 wells provide sufficient data to characterize the baseline groundwater quality of the bedrock groundwater at the Mine Site" (MDNR et al. 2011, as cited in the FEIS). Continuous electrical conductivity monitoring is required to measure conductivity and salinity. As the mine pits are excavated to greater depths, the groundwater inflows would be sampled on a frequent basis for salinity and other chemical parameters. While unlikely, if saline water were encountered, mitigation measures would be invoked to deal with it. This would likely involve modifications to the WWTF to handle water with higher TDS. Under any conditions, the WWTF would produce effluent that meets regulatory standards for discharge to surface water.

Regarding hydraulic conductivity in bedrock, the SDEIS was based on data generally collected through October 2012 and no additional hydraulic testing was performed after that time. The FEIS was updated to use sampling data collected through the end of 2013, which included 12 new monitoring wells at the Mine Site. The Co-lead Agencies further evaluated the possibility of fractures and faults at the Mine Site and Plant Site to determine what (if any) changes needed to be made to model assumptions to accurately predict potential environmental effects for purposes of environmental review. The results of the analysis are included in FEIS Sections 4.2.2.2.1 and 4.2.2.3.1. The MODFLOW and GoldSim models for the Mine Site and Plant Site were modified and recalibrated using groundwater level and sampling data collected through the end of 2013, which included all 24 Mine Site surficial-aquifer monitoring wells. Contaminant transport considerations applied in GoldSim are addressed in FEIS Section 5.2.2.2.3 and results are provided in Section 5.2.2.3.2 for the Partridge River watershed and Section 5.2.2.3.3 for the Embarrass River watershed.

Theme WR 079

Theme Statement

The number of existing surface and groundwater monitoring wells and data at the Mine Site is insufficient, and there is no bedrock monitoring at the Plant Site.

Thematic Response

At the direction of the USEPA, additional monitoring wells were installed at the Mine Site after the DEIS. There are now 24 monitoring wells installed between proposed mine facilities and the Partridge River. These wells were sampled on a monthly basis for at least one year after installation and continue to be sampled on a less frequent basis. The current Mine Site groundwater monitoring network is adequate for developing the FEIS.

The number of monitoring wells at the Plant Site is adequate for preforming the impact analysis and developing the FEIS. The Co-lead Agencies acknowledge that there are no monitoring wells installed in bedrock at the Plant Site. Available information indicates that the bulk hydraulic conductivity of upper bedrock is about two orders of magnitude lower than the hydraulic conductivity of the overlying surficial deposits, so flow in the overall groundwater system is dominated by flow in the surficial aquifer and not bedrock. For this reason, the focus of groundwater monitoring is on the surficial aquifer. The installation of additional monitoring wells at the Plant Site, including bedrock wells, would be assessed as part of the permitting process.

Theme WR 080

Theme Statement

Hydrologic interpretation of the One Hundred Mile Swamp is not adequate and does not consider flow to other watersheds. The correctly delineated boundary of the One Hundred Mile Swamp should be included in the FEIS. A comparative government map of the swamp area, available at www.nationalatlas.gov/streamer, shows the swamp to be considerably larger. PolyMet should include time prior to the commencement of operations to plan and execute water flowage tests within and out of the One Hundred Mile Swamp.

Thematic Response

A National Atlas shows a single wetland complex (referred to as One Hundred Mile Swamp) as straddling the major watershed divide separating the Superior Basin from the Rainy River Watershed. This appears to indicate that this wetland complex creates a conduit for surface water and surficial groundwater originating from the Mine Site to reach the Dunka River and, ultimately, the BWCAW. This single wetland complex shown on the National Atlas is not a delineated wetland; it does not meet the definition in accordance with the Manual (USACE 1987, as cited in the FEIS). The One Hundred Mile Swamp has not been delineated. The FEIS shows the approximate boundary of this complex. Wetlands are delineated using many factors in addition to hydrology; the boundary of One Hundred Mile Swamp, shown on the National Atlas as continuous, does not equate to a hydrologic connection. There are two surface water and surficial groundwater hydrologic barriers between the Mine Site and the Rainy River Watershed. The first barrier is high ground north of the Partridge River that creates a watershed divide separating the St. Louis River Watershed and Rainy River Watershed that prevents surface water from passing between the two. This major watershed divide is included in the National Atlas, as well as USGS and MDNR data sets. This divide is accurately presented in the FEIS Figures 4.2.2-2 and 5.2.2-22. The second barrier is Yelp Creek and the Partridge River which encircle the northern, eastern, and southern sides of the Mine Site. These streams create a hydrologic "sink" for sources of surface water and groundwater originating at the Mine Site. Surface runoff or surficial groundwater seepage leaving the Mine Site would follow a gradient into Yelp Creek or the Partridge River, as opposed to continuing uphill towards the watershed divide (see FEIS Figure 5.2.2-7). Yelp Creek and the Partridge River extend farther west (i.e., more fully encompassing the Mine Site) than is shown on the map in question.

If it is predicted that water via bedrock would flow north from the Mine Site, mitigation would be implemented to prevent this from occurring. See FEIS Sections 5.2.2.3.5, 5.2.2.3.6, and 6.2.2.3.1.

Theme WR 081

Theme Statement

The SDEIS does not accurately study the flow of water leaving the Mine Site to other surface water features. The FEIS should consider flows and water quality to and from other surface water features including Birch Lake, Unnamed Creek, Wetlegs Creek, Longnose Creek, Wyman Creek, Yelp Creek, Langley Creek, Dunka River, St. Louis River, Harris Lake, Lake Vermillion, Lake Superior, Hudson Bay, and the BWCAW. The SDEIS also does not analyze historical creeks beneath the Tailings Basin.

Thematic Response

Sampling of and impact analysis for surface waterbodies near the NorthMet Project area was sufficient for the purpose of impact analysis in FEIS (Sections 4.2.2 and 5.2.2). Most of the surface water features named in theme WR 081 are located in areas that have essentially no possibility of being affected by NorthMet Project Proposed Action-related activities, or for some features are outside the Lake Superior watershed (within which the NorthMet Project area is located). The FEIS impacts analysis predicts minimal impacts downstream of SW-006 on the Partridge River and PM-13 on the Embarrass River, so watersheds downstream of these

evaluation locations would not experience NorthMet Project Proposed Action-related impacts. The FEIS analysis predicts essentially no impacts north of the Mine Site or south of the Partridge River. The FEIS analysis predicts essentially no impacts north or west of the Embarrass River. The historic creeks beneath the Tailings Basin no longer exists, but are considered in the Plant Site MODFLOW model by an increased thickness of surficial deposits below the tailings in this area.

Theme WR 082

Theme Statement

The discussion of current lead and aluminum exceedances in the Embarrass River is misleading. The NorthMet Project Proposed Action should not be allowed to result in or contribute to an exceedance of lead or aluminum. For pollutants that are based on hardness, such as lead, the WWTP effluent may meet the evaluation criteria but fail to do so in-stream where hardness is diluted by rainwater and groundwater. No analysis of the headwaters was done, so no conclusion can be drawn regarding lead and copper.

Thematic Response

FEIS Sections 4.2.2.3.2 and 5.2.2.3.3 discuss lead concentrations in the Embarrass River. New text is provided to avoid misinterpretation.

For surface water constituents with hardness-based evaluation criteria (including lead), a modified screening procedure was developed in the FEIS that, based on GoldSim results, predicted the frequency at which the NorthMet Project Proposed Action would exceed the criterion when CEC would not exceed for the same month. The constituent was retained for further evaluation if the frequency for this condition was greater than 5 percent of all monthly timesteps and realizations used in the GoldSim models. At the Mine Site and Plant Site, the only constituent/location that exceeded the 5 percent frequency was lead and PM-11. The FEIS contains text that fully explains this procedure and summarizes the initial screening results.

The GoldSim models predict that aluminum commonly exceeds its evaluation criterion of 125 µg/L in surface water at the Mine Site and Plant Site. A more detailed evaluation of GoldSim results indicated that at surface water locations where aluminum exceeds the criterion, the magnitude and frequency of exceedance for the NorthMet Project Proposed Action was approximately equal to or less than the frequency or magnitude of exceedance for CEC conditions. It was concluded that the NorthMet Project Proposed Action would not cause significant additional exceedances of aluminum above and beyond what would occur without it. It was also concluded that predicted aluminum concentrations under the NorthMet Project Proposed Action would generally not be higher than predicted CEC concentrations. The FEIS contains text that describes this evaluation and summarizes the associated results.

Chemical impacts to surface water were analyzed at designated evaluation locations on the Partridge River, Embarrass River, and Embarrass River tributaries. The evaluation locations were surface water locations that were either upstream of the NorthMet Project area or could potentially be impacted by the NorthMet Project Proposed Action. Evaluations were not performed at other locations that were unlikely to be impacted.

Theme WR 083

Theme Statement

The discussion of current sulfate exceedances in the Partridge River is misleading. This is in part due to the continuation of existing conditions modeling scenario.

Thematic Response

FEIS Section 4.2.2.1.3 discusses current sulfate concentrations in the Partridge River. New text has been provided to avoid misinterpretation.

The wild rice sulfate standard of 10 mg/L only applies to waters determined by the MPCA to be waters used for production of wild rice. MPCA staff previously recommended that the 10 mg/L standard be applied downstream of Upper Partridge River Station SW-005 and downstream of Embarrass River station PM-13. Other upstream surface water monitoring stations might have sulfate values greater than 10 mg/L, but as these have not been designed wild rice waters, the standard does not apply at these locations. Additionally, as part of wild rice surveys conducted in 2009-2011, several monitoring stations reported relatively high concentrations of sulfate downstream of Colby Lake. Some of these stations were located in waters recommended by the MPCA to be waters used for production of wild rice, and therefore the sulfate values reported for those locations exceeded the current 10 mg/L wild rice sulfate water quality standard.

Surface water sampling data indicate that under existing conditions, the 10 mg/L wild rice evaluation criterion is exceeded about 50 percent of the time at SW-005 on the Partridge River, which is largely attributed to discharges into the river from the Northshore Mine located upstream of the NorthMet Project area. At PM-13 on the Embarrass River, the 10 mg/L sulfate evaluation criterion is exceeded 94 percent of the time, and this is attributed to Pit 5NW that discharges to the Embarrass River upstream of the NorthMet Plant Site.

Theme WR 084

Theme Statement

The SDEIS fails to include water wells listed in the Minnesota County Well Index database. Any unused or unsealed wells found during an inventory of wells could be conduits for contaminant transport and therefore need to be sealed.

Thematic Response

The Minnesota County Well Index Database was searched to identify domestic or other water supply wells near the NorthMet Project area as part of the 2008 draft EIS, and “This search found that no domestic wells are located up- or down-gradient between the Mine Site and the Partridge River” (Barr 2015a, as cited in the FEIS). All wells identified in the search were presented in this 2008 CDEIS (Table 4.1-20. Existing Wells Located Between the PolyMet Tailings Area and Embarrass River). Another search was undertaken in January 2015 to identify groundwater wells near the NorthMet Project area. Two additional wells were identified both approximately 2 miles north of the Tailings Basin. Wells listed in the Minnesota County Well Index are shown in FEIS Figure 4.2.2-18.

Theme WR 085

Theme Statement

The SDEIS does not provide characterization of the Rainy River Watershed.

Thematic Response

The Rainy Lake Watershed is located on the opposite side of the Laurentian Divide (the major watershed divide between the Rainy River Watershed and Lake Superior Basin) from the NorthMet Project area. As such, the Rainy Lake watershed would not be impacted by surface water or surficial groundwater flows of the NorthMet Project Proposed Action and therefore is not included in the FEIS. See FEIS Section 4.2.2.1 for more information. If it is predicted that water via bedrock would flow north from the Mine Site, mitigation would be implemented to prevent this from occurring. See FEIS Sections 5.2.2.3.5 and 5.2.2.3.6.

Theme WR 086

Theme Statement

The Mine Site MODFLOW model should be rerun and the FEIS should be revised to address the following issues:

- The FEIS should provide a better description of layers, boundary conditions, and material properties;

- The model should be probabilistic, and the automated calibration procedure should be better described;

- The model is not sufficiently accurate for effects evaluation, is not representative of actual hydrologic conditions, is not adequately calibrated to heads and river baseflows, and does not demonstrate that groundwater would not migrate into other watersheds;

- The model results are not clearly presented, and the SDEIS does not show all the groundwater flowpaths; and

- The model computes unconfined hydraulic heads next to the perennial Partridge River that are well above or below the river level, which is not reasonable, and does not reproduce known flow losses along some reaches of the river.

- The FEIS should explain and list the baseflow calibration targets, and compare these with the model results. The FEIS should also acknowledge that the NorthMet Project Proposed Action would cause a permanent loss or drawdown of groundwater resources. In contrast to the SDEIS modeling, the Myers MODFLOW model predicts more extensive drawdown between the pits and the Partridge River and more flow loss from the river into groundwater flowing toward the dewatered pits. The FEIS should explain these discrepancies.

Thematic Response

Attachment B of the Mine Site Water Modeling Data Package (PolyMet 2015m, as cited in the FEIS) has been updated to provide a complete description of the Mine Site MODFLOW model. The attachment no longer references earlier documents to provide basic information about the model and provides justifications for the layers, boundary conditions, material properties, and

areal recharge. The model has been recalibrated and rerun using all head data through 2013 and groundwater baseflows used in the SDEIS (and carried forward into the FEIS). Calibration targets are fully described in Attachment B.

The revised Mine Site MODFLOW model is well-calibrated and sufficiently accurate for impacts evaluation for the EIS.

An additional calibration step in the MODFLOW model was to ensure that computed heads in the surficial aquifer were not unrealistically above ground surface or above the level of the Partridge River.

It is noted that an independent flow/transport model developed by Myers uses higher bedrock hydraulic conductivities and predicts greater pit inflows and more extensive bedrock drawdown than the Mine Site MODFLOW model. In addition, the Myers model is calibrated to Partridge River groundwater baseflows that are too high and uses bedrock hydraulic conductivities that are higher than what is indicated by field-testing results.

The purpose of the Mine Site MODFLOW model was to: estimate pit inflows, define groundwater flowpaths between the Mine Site and the Partridge River, and provide refinement of surficial aquifer hydraulic conductivity and areal recharge. The parameters obtained from the MODFLOW model are considered best estimates that are carried forward to the GoldSim water quality model. Uncertainties associated with these best estimates are dealt with in the probabilistic GoldSim model.

Theme WR 087

Theme Statement

The FEIS should be revised to address the following deficiencies in the Mine Site MODFLOW regarding bedrock:

- The model’s hydraulic conductivity is too low;

- The model does not consider that upper bedrock is likely more permeable than deeper bedrock;

- The calibrated hydraulic conductivities are not reasonable given hydrogeologic information from other nearby sites;

- The model is biased in using the Duluth Complex as the basis for very low hydraulic conductivity for all bedrock;

- The model uses an incorrect top of bedrock surface and does not explicitly consider the effects of fractures and faults on groundwater flow directions and quantities;

- The FEIS should present a map showing the areal distribution of bedrock types used in the model;

- Table 4.2.2-5 should provide the actual test results rather than ranges;

- The conceptual model for bedrock does not consider the possibility of artesian flow conditions as has occurred at the Minnamax site; and

- In comparison to the SDEIS model, the Myers MODFLOW model uses higher bedrock hydraulic conductivities and provides different results; the FEIS should acknowledge and explain these discrepancies.

Thematic Response

In Barr 2014b, as cited in the FEIS, bedrock hydraulic conductivities used in the Mine Site MODFLOW model are consistent with the results of site-specific field testing and information obtained from other similar mine sites. The MODFLOW model does not consider the presence of an upper zone of more permeable bedrock because if overall measured transmissivity is retained, this approach would tend to underestimate pit inflow, which is a primary purpose that the model. The Duluth Complex justifies the low bedrock hydraulic conductivity used in much of the model domain because the mine pits are excavated in Duluth Complex rocks and the bedrock flowpaths used on the GoldSim model are also in Duluth Complex rocks. Higher-permeability Virginia Formation is modeled in the northern portion of the model and this affects inflows from the north wall of the East Pit, which is excavated into the Virginia Formation. The top of bedrock surface used in the model is reasonable given site-specific information. The effects of faults and fractures are considered in developing the bulk hydraulic conductivities used for the bedrock units. The model treats bedrock as an equivalent porous medium, which is a standard approach in large-scale groundwater flow models.

The FEIS references an appendix in revised Mine Site Water Modeling Data Package that provides a map showing the distribution of bedrock types in the Mine Site MODFLOW model.

The FEIS references a new table in the Mine Site Water Modeling Data Package that summarizes the results of all borehole tests performed in bedrock at the Mine Site.

The bedrock conceptual model for the Mine Site does not consider artesian conditions because bedrock boreholes at the site have not consistently exhibited artesian flow at ground surface.

Differences between the Myers model and the SDEIS Mine Site MODFLOW model are also discussed in the response to theme WR 062.

Theme WR 088

Theme Statement

The FEIS should be revised to address the following deficiencies in the Mine Site MODFLOW model:

- Mine pits, waste rock stockpiles, and WWTF ponds are not correctly incorporated into the Mine Site model;

- Pit water quality should be disclosed through the life of the mine.

- The physical models for the mine pits are fundamentally incorrect;

- The capture system surrounding the Category 1 Stockpile and the East Pit backfill are not explicitly incorporated into the model;

- The model does not demonstrate that the capture system would work or that pump-and-treat of the East Pit backfill is technically feasible;

- The model does not demonstrate that the East Pit backfill can be maintained in a saturated condition; and

- The FEIS should present model results to estimate the West Pit pumping rate required to prevent overflow during closure.

Thematic Response

The mine pits would be pumped dry during the operations to allow for safe access.

Attachment B of the Mine Site Water Modeling Data package (PolyMet 2015m, as cited in the FEIS) has been updated to provide a complete description of the Mine Site MODFLOW model. The attachment no longer references earlier documents to provide basic information about the model and provides justifications for the layers, boundary conditions, material properties, and areal recharge. The model has been recalibrated and rerun using all head data through 2013 and groundwater baseflows used in the SDEIS (and carried forward into the FEIS). Calibration targets are fully described in Attachment B.

The revised Mine Site MODFLOW model is well-calibrated and sufficiently accurate for impacts evaluation for the EIS.

An additional calibration step in the MODFLOW model was to ensure that computed heads in the surficial aquifer were not unrealistically above ground surface or above the level of the Partridge River.

It is noted that an independent flow/transport model developed by Myers uses higher bedrock hydraulic conductivities and predicts greater pit inflows and more extensive bedrock drawdown than the Mine Site MODFLOW model. In addition, the Myers model is calibrated to Partridge River groundwater baseflows that are too high and uses bedrock hydraulic conductivities that are higher than what is indicated by field-testing results.

The purpose of the Mine Site MODFLOW model was to: estimate pit inflows, define groundwater flowpaths between the Mine Site and the Partridge River, and provide refinement of surficial aquifer hydraulic conductivity and areal recharge. The parameters obtained from the MODFLOW model are considered best estimates that are carried forward to the GoldSim water quality model. Uncertainties associated with these best-estimates are dealt with in the probabilistic GoldSim model.

Theme WR 089

Theme Statement

Groundwater flowpaths associated with the Mine Site MODFLOW model are inaccurate and incorrectly interpreted from the model results. The FEIS should acknowledge that the model predicts northward flowpaths from the Category 1 Stockpile and the East Pit areas, and these flowpaths must be incorporated into the effects analysis. The flow trajectories predicted by the model are not accurately transferred to the GoldSim water quality model and grossly oversimplify the actual groundwater flow patterns. In contract to the SDEIS model, the Myers MODFLOW model has different flowpaths, and the FEIS should explain the discrepancies between these two models. The FEIS model cannot provide accurate flowpaths if it does not

incorporate the Category 1 Stockpile containment system, the East Pit backfill, and East Pit pump and treat.

Thematic Response

The groundwater flowpaths in the Mine Site GoldSim model are set up with uniform linear groundwater flow. The surficial deposit and bedrock material properties used in the these streamtubes are based on a combination of the Mine Site MODFLOW model calibration results, site-specific borehole testing, and information obtained from other similar mine sites. While the linear flowpath streamtubes do not exactly line up with flow trajectories predicted by the Mine Site MODFLOW Model, the streamtubes have hydraulic gradients, recharge, flow directions, and flowpath distances that are similar to those generated by the MODFLOW model. It is the Co-lead Agencies' position that difference between the GoldSim flowpaths and results of the MODFLOW model are of secondary importance and do not diminish the reliability of the GoldSim predictions of groundwater transport from mine facilities to the Partridge River.

Results of the Mine Site MODFLOW model, the Category 1 3D MODFLOW model, and hydrogeologic interpretations indicate that northward flow from the Category 1 Stockpile and East Pit during operations and closure would be non-existent or of sufficiently low-flow rates to not cause impacts to groundwater or surface water at or beyond the property boundary. For this reason, northward groundwater flowpaths are not developed in the Mine Site GoldSim model.

Hydraulics and capture efficiency of the Category 1 containment system is evaluated in a separate groundwater model referred to as the Category 1 3D MODFLOW model, which is reported in an appendix in the Water Management Plan (PolyMet 2025r, as cited in the FEIS). Hydraulics of the East Pit pump-and-treat system is evaluated using analytical calculations in the Water Management Plan (PolyMet 2015r, as cited in the FEIS).

Differences between the Myers model and the SDEIS Mine Site MODFLOW model are also discussed in the response to theme WR 062.

Theme WR 090

Theme Statement

The SDEIS does not mention testing, mitigation, or monitoring procedures or duration of these activities for the transfer of pollutants and contaminants. Transfer could occur through fractures, surface water, aquifers, soils, or watersheds, among other vectors.

Thematic Response

PolyMet has developed an Adaptive Water Management Plan (AWMP) (PolyMet 2015d, as cited in the FEIS) that includes adaptive engineering controls and contingency mitigation measures. Additionally, the NorthMet Project Proposed Action includes a water quality and quantity monitoring plan that would be finalized in permitting and updated as required. Overviews of the water monitoring plans at the Mine Site and Plant Site, with PolyMet recommended monitoring locations and frequencies, are presented in Tables 5.2.2-52 and 5.2.2-53. The specifics of monitoring—including specific locations, frequencies, and parameters—would be finalized during the NPDES/SDS permitting process. Monitoring and maintenance activities would continue for as long as needed to ensure permit water quality requirements are met.

Theme WR 091

Theme Statement

Calibration of the Mine Site MODFLOW model to erroneously low Partridge River baseflow targets leads to underestimates of areal recharge and surficial deposit hydraulic conductivity and may result in incorrect groundwater flowpaths. Use of incorrect baseflow calibration targets invalidates the MODFLOW results. The model must be recalibrated to the correct baseflow values. The FEIS should also include a baseflow sensitivity analysis. The Myers MODFLOW model considers higher Partridge River baseflow, which leads to results that are different from the SDEIS model. The FEIS should discuss and explain the discrepancies between the two models.

Thematic Response

The estimates for groundwater baseflow derived from the surficial aquifer applied in the SDEIS and FEIS are based on best available information (see the response to theme WR 003). Thus, the MODFLOW inputs related to groundwater baseflow did not change significantly in the FEIS (except for general recalibrations based on new water level and water quality data). It should be noted that an independent flow/transport model developed by Myers uses higher rates of surficial recharge and Partridge River groundwater baseflow than the Mine Site MODFLOW model. The revised Mine Site MODFLOW model is well-calibrated and sufficiently accurate for impacts evaluation, and that the Myers model is calibrated to Partridge River groundwater baseflows that are too high.

Attachment B of the Mine Site Water Modeling Data package (PolyMet 2015m, as cited in the FEIS) has been updated to provide a complete description of the Mine Site MODFLOW model. The attachment no longer references earlier documents to provide basic information about the model, but instead provides directly the justifications for the layers, boundary conditions, material properties, and areal recharge. Calibration targets are also fully described in Attachment B. The model has been recalibrated using all head data through 2013 and groundwater baseflows used in the SDEIS (and carried forward into the FEIS). The surficial- and bedrock-aquifer flowpaths used to estimate solute transport in Mine Site groundwater are consistent with the calibrated MODFLOW model.

To address comments on the relationship between groundwater baseflow and the impact assessment, a sensitivity analysis was conducted for the Mine Site to evaluate if predicted NorthMet Project Proposed Action impacts are sensitive to groundwater baseflow values. The sensitivity analysis considered the relationship of various model inputs to groundwater baseflow including hydraulic conductivity, recharge, and surface runoff chemical concentrations. The results of the sensitivity analysis are reported in FEIS Section 5.2.2.3.2.

Theme WR 092

Theme Statement

With regard to surficial deposits, the Mine Site MODFLOW model uses erroneously low hydraulic conductivity (due to the baseflow issue) and at the Plant Site does not consider the known presence of buried stream channels that likely have higher hydraulic conductivity. Table 4.2.2-5 should present all test results rather than ranges.

Thematic Response

The SDEIS groundwater baseflow values developed for the Partridge River are reasonable best estimates and are retained in the FEIS. Because the FEIS Mine Site MODFLOW model is calibrated to the SDEIS/FEIS groundwater baseflows, the calibrated recharge rates and hydraulic conductivities of surficial deposits are also appropriate best estimates. See FEIS Sections 5.2.2.2.1 and 5.2.2.3.2 for more information.

The Mine Site model and the Plant Site model explicitly consider buried stream channels by including a rendering of bedrock topography based on a compilation of bedrock topographic data. It is acknowledged that buried stream channels could exist in surficial deposits at the Mine Site, but given that the average thickness of surficial deposits is only 5 to 10 meters, it is unlikely that buried channels (if any) would have materials much higher in permeability than adjacent materials. Variation in the hydraulic conductivity of surficial deposits is accounted for by the probabilistic approach used in the GoldSim model, where hydraulic conductivity is input as a probability distribution rather than as a fixed, deterministic value.

Based on a pre-construction topographic map of the Tailings Basin area and an interpreted map for the top of bedrock, the thickness of surficial deposits varies below the Tailings Basin and this may reflect the presence of buried stream channels. This aspect has been incorporated into the FEIS model.

Theme WR 093

Theme Statement

The Plant Site MODFLOW model needs to be corrected and rerun. In particular, the model incorrectly treats the embankment outer surfaces as no-flow boundaries; where there are no drain cells or modeled wetlands, the model incorrectly treats ground surface adjacent to the embankment toes as no-flow boundaries. Both of these assumptions are theoretically incorrect for an unconfined groundwater system. The incorrect use of no-flow boundaries artificially shows a lack of surface seepage, rather than allowing the model to determine if surface seepage would occur. There are insufficient drain cells placed at the toes of the Tailings Basin perimeter to provide a credible evaluation of where seepage may or may not occur during and after operations. The placement of a small number of drain cells biases the model to allow surface seepage only at pre-determined locations and to underestimate total surface seepage. The model does not explicitly incorporate the groundwater capture system or the adjacent treated-water discharge pipe that are components of the Project Description. There are insufficient drain or river cells to simulate the known wetland areas. The FEIS should disclose where the model

predicts upwelling of groundwater into wetlands and other surface water features. The FEIS should disclose capture system design details so modeling assumptions can be assessed.

Thematic Response

In response to these issues, the Plant Site MODFLOW model was modified and recalibrated as follows: 1) Updated areal distribution of surficial deposits and bedrock outcrops, 2) established surficial deposits below and adjacent to the East Embankment, 3) used drain or river cells along the East Embankment to allow surface seepage of tailings water, 4) incorporated the hydrologic effects of the future swale to drain surface water from the East Embankment area, 5) recalibrated model material properties and boundary conditions using all available site data through 2013 (this is mostly new hydraulic head information), and 6) expanded the use river and drain cells to provide a more accurate representation of wetlands outside the Tailings Basin.

As a result of these changes, the FEIS Plant Site MODFLOW model no longer has a no-flow boundary condition at the toe of the East Embankment, and river and/or drain cells in surficial deposits are in place to allow the potential for surface seepage along the embankment toes (Reference: Attachment A, Plant Site Water Modeling Data Package—PolyMet 2015j, as cited in the FEIS).The model was checked to ensure that hydraulic heads in the tailings and adjacent surficial deposits were not well above ground surface. In the FEIS Plant Site MODFLOW model, storage coefficients for the surficial deposits and bedrock outcrops were assigned and/or calibrated to be more in line with literature values for these types of materials.

As discussed in the responses to themes WR 018, WR 019, WR 020, and WR 022, the assumed capture efficiencies of the groundwater containment systems are justified and supported by modeling. FEIS Section 5.2.2 appropriately summarizes the methodology and results of the water impact analysis. Full technical details on modeling including the assumptions made with regards to the capture system design are provided in the Water Modeling Data Packages for the Mine Site and Plant Site (PolyMet 2015m and 2015j, respectively, both as cited in the FEIS).

Theme WR 094

Theme Statement

The Plant Site MODFLOW model used an incorrect and outdated Tailings Basin design and footprint.

Thematic Response

The Tailings Basin design and footprint used in the FEIS Plant Site MODFLOW model was updated from the version used in the SDEIS to address the theme.

Theme WR 095

Theme Statement

The Plant Site MODFLOW model applies unreasonable storage coefficients and/or specific yields to surficial deposits and bedrock outcrops. The supporting documents mislead the reader into thinking that that the storage parameters were fully determined by calibration.

Thematic Response

In the FEIS Plant Site MODFLOW model, storage coefficients for the surficial deposits and bedrock outcrops were assigned and/or calibrated to be more in line with literature values for these types of materials.

Theme WR 096

Theme Statement

The Plant Site MODFLOW model uses the hydraulic conductivity rates for surficial deposits that are much greater than values used in the GoldSim and Seep-W models, and greater than values indicated by field testing. The FEIS should provide an explanation for these discrepancies. The hydraulic conductivity of surficial deposits should be reduced to more reasonable levels, or a justification provided for the higher values used. Inappropriate no-flow boundary conditions used in the model lead to unrealistic calibrated hydraulic conductivity values for the surficial deposits. The model does not consider the hydraulic effects of known buried channels that exist in surficial deposits below the Tailings Basin.

Thematic Response

The Co-lead Agencies acknowledge that the calibrated hydraulic conductivity of surficial deposits in the FEIS Plant Site MODFLOW model (approximately 70 feet per day) is greater than the hydraulic conductivities of surficial deposits used in the FEIS Plant Site GoldSim model (lognormal distribution with mean of 13 feet per day and standard deviation of 5.2 feet per day).

The GoldSim hydraulic conductivity distribution is based on the results of field tests and calculations showing that the values are reasonable given recharge, saturated thickness, and hydraulic gradients between the Tailings Basin and the Partridge River. It is the Co-lead Agencies' opinion that the hydraulic conductivity distribution used in the GoldSim model is reasonable given the purpose of the model, which is to evaluate groundwater flow and transport in flowpaths to the Embarrass River.

The main purpose of the MODFLOW model is to evaluate the distribution of tailings water flow from the interior of the Tailings Basin to the toes and this is an entirely different focus and area of interest from the GoldSim model. The hydraulic conductivity in the FEIS Plant Site MODFLOW model is a calibrated value that achieves a reasonable model match to measured hydraulic heads below the Tailings Basin and estimated leakage rates from the Tailings Basin ponds. For the purpose of the MODFLOW model, the higher calibrated hydraulic conductivity of surficial deposits allows that model to function in a more credible manner.

It is the Co-lead Agencies' position that the different surficial deposit hydraulic conductivities used in the Plant Site GoldSim model and Plant Site MODFLOW model allow each model to function more appropriately for its intended purpose. To force the hydraulic conductivities of the two models to be similar would be artificial and would detract from each model's ability to fulfill its purpose. Accordingly, the Co-lead Agencies recognize the difference between the two models, but do not recommend that the values be changed.

The extensive no-flow boundary condition used in the SDEIS Plant Site MODFLOW model has been corrected in the FEIS model by assigning a greater distribution of drain and river cells along the perimeter of the Tailings Basin. This is where significant wetlands are observed between the Tailings Basin and the Embarrass River. Drain and river cells allow the potential for groundwater discharge to ground surface, which is prevented by "no-flow" cells in MODFLOW.

Based on a pre-construction topographic map of the Tailings Basin area and an interpreted map for the top of bedrock, the thickness of surficial deposits varies below the Tailings Basin and this may reflect the presence of buried stream channels. This aspect has been incorporated into the FEIS model.

Theme WR 097

Theme Statement

At some locations in the Plant Site MODFLOW model, the predicted hydraulic heads are well above ground surface, which is not possible for unconfined groundwater conditions.

Thematic Response

The FEIS Plant Site MODFLOW model has been modified using different boundary conditions (drain and river cells) and calibrated with new hydraulic conductivities so that predicted hydraulic heads are below or just slightly above ground surface, but not well above ground surface as was the case in portions of the SDEIS model.

Theme WR 098

Theme Statement

In the Plant Site MODFLOW model, the areal distribution of surficial deposits and bedrock outcrops is inconsistent with geologic information. Use of the RS13 (Barr 2007a) areal distribution map is incorrect and should be replaced with the revised RS13b (2008c, as cited in the FEIS) distribution map.

Thematic Response

In the FEIS Plant Site MODFLOW model, storage coefficients for the surficial deposits and bedrock outcrops were assigned and/or calibrated to be more in line with literature values for these types of materials.

Theme WR 099

Theme Statement

The Plant Site MODFLOW model does not consider the presence of bedrock below the surficial deposits (as is the case in the Mine Site MODFLOW model). Except for outcrop areas, deeper bedrock is incorrectly assumed to be impermeable and excluded from model. The model does not consider known faults and fractures in bedrock. MODFLOW does not consider the effect of low pH water on bedrock hydraulic conductivity or capture system. In contrast to the SDEIS model, the Myers MODFLOW model does include deeper bedrock and assigns this material reasonable hydraulic conductivity values. The Myers model shows that groundwater flow in bedrock cannot be ignored. The FEIS should address the discrepancies between these models.

Thematic Response

The Co-lead Agencies acknowledge that the calibrated hydraulic conductivity of surficial deposits in the FEIS Plant Site MODFLOW model (approximately 70 feet per day) is greater than the hydraulic conductivities of surficial deposits used in the FEIS Plant Site GoldSim model (lognormal distribution with mean of 13 feet per day and standard deviation of 5.2 feet per day).

The GoldSim hydraulic conductivity distribution is based on the results of field tests and calculations showing that the values are reasonable given recharge, saturated thickness, and hydraulic gradients between the Tailings Basin and the Partridge River. It is the Co-lead Agencies' opinion that the hydraulic conductivity distribution used in the GoldSim model is reasonable given the purpose of the model, which is to evaluate groundwater flow and transport in flowpaths to the Embarrass River.

The main purpose of the MODFLOW model is to evaluate the distribution of tailings water flow from the interior of the Tailings Basin to the toes and this is an entirely different focus and area of interest from the GoldSim model. The hydraulic conductivity in the FEIS Plant Site MODFLOW model is a calibrated value that achieves a reasonable model match to measured hydraulic heads below the Tailings Basin and estimated leakage rates from the Tailings Basin ponds. For the purpose of the MODFLOW model, the higher calibrated hydraulic conductivity of surficial deposits allows that model to function in a more credible manner.

It is the Co-lead Agencies' position that the different surficial deposit hydraulic conductivities used in the Plant Site GoldSim model and Plant Site MODFLOW model allow each model to function more appropriately for its intended purpose. To force the hydraulic conductivities of the two models to be similar would be artificial and would detract from each model's ability to fulfill its purpose. Accordingly, the Co-lead Agencies recognize the difference between the two models, but do not recommend that the values be changed.

The extensive no-flow boundary condition used in the SDEIS Plant Site MODFLOW model has been corrected in the FEIS model by assigning a greater distribution of drain and river cells along the perimeter of the Tailings Basin. This is where significant wetlands are observed between the Tailings Basin and the Embarrass River. Drain and river cells allow the potential for groundwater discharge to ground surface, which is prevented by "no-flow" cells in MODFLOW.

Based on a pre-construction topographic map of the Tailings Basin area and an interpreted map for the top of bedrock, the thickness of surficial deposits varies below the Tailings Basin and this

may reflect the presence of buried stream channels. This aspect has been incorporated into the FEIS model.

MODFLOW is a groundwater hydraulics model and does not specifically consider water chemistry. Site characterization studies and water quality modeling do not predict that low pH groundwater would be generated by the Tailings Basin. As a consequence, the possible effects of low pH groundwater on hydraulic conductivity of surficial deposits or bedrock are not considered in the FEIS.

Theme WR 100

Theme Statement

The Plant Site MODFLOW model needs to include the groundwater capture system and adjacent treated-water discharge pipe on the north and west sides of the Tailings Basin. A groundwater capture system on the east side of the Tailings Basin is also required.

Thematic Response

The FEIS Plant Site MODFLOW model has been modified using different boundary conditions (drain and river cells) and calibrated with new hydraulic conductivities so that predicted hydraulic heads are below or just slightly above ground surface, but not well above ground surface as was the case in portions of the SDEIS model.

Theme WR 101

Theme Statement

The Plant Site MODFLOW model does not include a south groundwater flowpath and does not allow for potential surface seepage along most of the south side of the Tailings Basin.

Thematic Response

Local topography influences the behavior of seepage at the southern end of the Tailings Basin. It is expected that seepage at this part of the facility emerges as surface seepage within a short distance of the Tailings Basin toe rather than being transported via subsurface flow. The effectiveness of the recent improvements to the existing seepage management system, which include a dam, are currently being assessed by Cliffs Erie and PolyMet through water quality monitoring downstream of the existing system. PolyMet has committed to collecting essentially all of the seepage from the Tailings Basin in this area (Plant Site Water Management Plan, Section 4.1.3 [PolyMet 2015i, as cited in the FEIS]), and would implement additional improvements to the seepage management system if necessary. Potential measures that could bring the capture efficiency of the seepage management system to 100 percent include improvements to the existing in-stream dam such as lining the upstream dam face with bentonite and injecting grout into the dam. If seepage were observed to bypass the existing dam, a second structure could be constructed approximately 500 feet downstream of the existing system, in an area where the Second Creek headwaters valley is more constricted and any remaining subsurface seepage would have surfaced. This potential second structure could be constructed as an earthen dam with a clay or concrete cutoff wall (extending to bedrock if necessary) in order to achieve 100 percent capture of the Tailings Basin surface seepage. Based on PolyMet's

commitment to collect essentially all seepage to the south, the proposed South Surface Seepage Management System is assumed for the GoldSim modeling to capture 100 percent of the surface water and that there is no groundwater flow or seepage.

Theme WR 102

Theme Statement

At the east embankment of the Tailings Basin, the Plant Site MODFLOW model uses incorrect no-flow boundary conditions that prevent any possibility of surface seepage. The incorrect assumed distribution of surficial deposits also prevents the model from potentially showing significant eastward groundwater flow away from the Tailing Basin. The model should be revised to include the correct distribution of surficial deposits and to apply drain cells along the toe of the east embankment, which is the theoretically correct boundary condition for an unconfined groundwater system. The model materials and boundary conditions used in the MODFLOW model should be consistent with the hydrogeologic conceptual model for the east embankment area, including the Spring Mine Lake and Spring Mine Creek.

Thematic Response

The Plant Site MODFLOW model was modified for the FEIS to better represent natural and NorthMet Project Proposed Action-related conditions. These include: 1) more accurate representation of surficial deposits and bedrock outcrops around the perimeter of the Tailings Basin, 2) more extensive distribution of drain and/or river cells to provide for potential surface seepage and distribution of wetlands, 3) more appropriate storage coefficients, and 4) steady-state and transient calibrations using new data extending through the end of 2013. Many of the improvements pertained to the East Embankment area of the Tailings Basin, where it is acknowledged that tailings water seepage would be likely to occur and model changes were made to simulate this seepage more accurately. These changes in response to the theme improve the SDEIS MODFLOW model that limited tailings seepage on the east side of the Tailings Basin.

Theme WR 103

Theme Statement

The groundwater flow trajectories predicted by the Plant Site MODFLOW model are not accurately transferred to the GoldSim model to create flowpaths. The areal recharge used in the model is too low, which might lead to incorrect flowpaths. The model does not demonstrate that groundwater would not migrate into other watersheds.

Thematic Response

The Plant Site MODFLOW model was modified for the FEIS to better represent natural and NorthMet Project Proposed Action-related conditions. These modifications include: 1) more accurate representation of surficial deposits and bedrock outcrops around the perimeter of the Tailings Basin, 2) more extensive distribution of drain and/or river cells to provide for potential surface seepage and distribution of wetlands, 3) more appropriate storage coefficients, and 4) steady-state and transient calibrations using new data extending through the end of 2013. Many

of the improvements pertained to the East Embankment area of the Tailings Basin, where it is the acknowledged that tailings water seepage would be likely to occur and model changes were made to simulate this seepage more accurately. These changes correct deficiencies in the SDEIS MODFLOW model that limited tailings seepage on the eastern side of the Tailings Basin. With these modifications, the FEIS MODFLOW model provides reliable groundwater flow directions away from the Tailings Basin to the north, northwest, and west. Note that on eastern side of the Tailings Basin, current groundwater flows are from east to west -- i.e., toward and not away from the Tailings Basin.

The Plant Site GoldSim model uses one-dimensional flow/transport to simulate the migration of affected groundwater away from the Tailings Basin in the northern, northwestern, and western directions. For these analyses to be accurate, flow/transport parameters from the MODFLOW model were transferred to each GoldSim flowpath including average linear flow direction and hydraulic gradient. Saturated thickness, hydraulic conductivity, and porosity values used in the GoldSim flowpaths were based on field data and generic information, not the MODFLOW model. Recharge in the GoldSim flowpaths was based on Embarrass River baseflow analysis and not on the MODFLOW model.

The main purpose of the Plant Site MODFLOW model was to evaluate groundwater flows beneath the Tailings Basin and groundwater flows away from the Basin in the northern, northwestern, western, and eastern directions. The model was generally local to the Tailings Basin area and was not intended to evaluate the potential for groundwater flows outside the Embarrass River watershed.

Theme WR 104

Theme Statement

The Plant Site MODFLOW model does not account for known buried stream channels, with potentially higher hydraulic conductivity, below the Tailings Basin.

Thematic Response

The thickness of surficial deposits at the Plant Site is interpreted to vary below and adjacent to the Tailings Basin. The interpretation relies upon: 1) a preconstruction topographic map of the area, 2) a 2014 geotechnical investigation conducted along the Tailings Basin perimeter, and 3) an interpreted map for the top of the underlying bedrock. This allows for the model to at least partially reflect the presence of buried stream channels. The interpreted variable thickness of surficial deposits is incorporated into the Plant Site MODFLOW model. This is of interest because surficial deposit thickness affects transmissivity such that enhanced groundwater flow occurs in portions of the model having thicker surficial deposits. See FEIS Section 5.2.2.2.1 for more information.

Theme WR 105

Theme Statement

The Plant Site MODFLOW model should be re-run to address numerous general issues. Two critical issues are that all known wetlands and seepage areas are not modeled, and drain/river cells are based on current wetlands and seeps and do not account for future conditions. In addition, the SDEIS does not adequately explain the general model setup. The model does not conform to the known hydrogeology, is not adequately calibrated to steady-state and transient heads, predicts incorrect baseflows to the Embarrass River, and does not adequately show all groundwater flowpaths. The site hydrogeology is not sufficiently understood to develop a reliable model, and the model is therefore not sufficiently accurate for effects evaluation. The model should be probabilistic. Based on the model results, the FEIS should describe mounding below the Tailings Basin, present estimates of leakage from the unlined tailings into the surficial and bedrock groundwater systems, and provide estimates of groundwater discharge into wetlands upstream of surface water evaluation locations. The results of the Myers MODFLOW model are different from the SDEIS model. The FEIS should explain the discrepancies between the two models.

Thematic Response

The Plant Site MODFLOW model was modified for the FEIS to better represent natural and NorthMet Project Proposed Action-related conditions. These include: 1) more accurate representation of surficial deposits and bedrock outcrops around the perimeter of the Tailings Basin, 2) more extensive distribution of drain and/or river cells to provide for potential surface seepage and distribution of wetlands, 3) more appropriate storage coefficients, and 4) steady-state and transient calibrations using new data extending through the end of 2013. Many of the improvements pertained to the East Embankment area of the Tailings Basin, where it is acknowledged that tailings water seepage would be likely to occur and model changes were made to simulate this seepage more accurately. These changes correct deficiencies in the SDEIS MODFLOW model that limited tailings seepage on the east side of the Tailings Basin. With the modifications described above, the FEIS MODFLOW model has provided reliable flow directions in this area.

See the response to theme WR 003.

Rather than conduct probabilistic flow modeling, a detailed sensitivity analysis of baseflow was conducted to evaluate if impacts to groundwater and surface water are sensitive to baseflow values used in the water quality (GoldSim) models. The sensitivity analysis fully considered the relationship of various model inputs to baseflow including hydraulic conductivity, recharge, and surface runoff chemical concentrations.

It is also acknowledged that the Myers model provides some results that are different from the FEIS Plant Site MODFLOW model. A major difference is that the Myers model considers higher groundwater baseflows in the Embarrass River and this leads to higher hydraulic conductivities and recharge at the Plant Site. As stated in other theme responses, the FEIS groundwater baseflows for the Embarrass River are reasonable and represent a better estimate than what is assumed in the Myers model. In addition, the Myers model does not use concentration caps so that chemical concentrations and mass loading associated with tailings is unrealistically high.

Due to these differences, it is thought the Myers model unrealistically overestimates NorthMet Project Proposed Action-related flow and chemical impacts at the Plant Site.

Theme WR 106

Theme Statement

The water modeling (XP-SWMM, MODFLOW, and GoldSim) in the SDEIS does not incorporate known hydrology, is not calibrated to correct baseflows and heads, and gives different results from Myers MODFLOW model; therefore, it is not sufficiently accurate for evaluation of effects. The modeling needs to be redone and should use probabilistic methodology. Most of the available data was used in calibrating the model and thus is not usable to validate it.

Thematic Response

The inputs and assumptions of the water models used to predict the potential effects of the NorthMet Project Proposed Action have been subject to rigorous review over the course of the EIS. The Myers model was independently developed and its conclusions have been considered in the development of the FEIS.

It is acknowledged that the Myers model provides some results that are different from the FEIS Plant Site MODFLOW model. A major difference is that the Myers model considers higher groundwater baseflows in the Embarrass River and this leads to higher hydraulic conductivities and recharge at the Plant Site. As stated in other theme responses, FEIS groundwater baseflows for the Embarrass River are reasonable and represent a better estimate than what is assumed in the Myers model. In addition, the Myers model does not use concentration caps so that chemical concentrations and mass loading associated with tailings is unrealistic.

See the response to theme WR091.

Development of the site models used all available data for calibration in accordance with accepted industry practice. Validations would be performed as new data become available.

The models used for FEIS development are complete and sufficiently accurate for impact evaluation. There is no need to redo any of the FEIS models. Probabilistic analyses are performed by the GoldSim models and are not needed in the MODFLOW models.

Theme WR 107

Theme Statement

For the Mine Site, the FEIS should acknowledge that the NorthMet Project Proposed Action would increase chemical loading of contaminants, including fibers to groundwater and surface water compared to current existing conditions. Water quality standards would not be met.

Thematic Response

The FEIS reports that the NorthMet Project Proposed Action facilities would release solutes and cause an increase in loading of some solutes to surface water and groundwater relative to the continuation of existing conditions; See FEIS Section 5.2.2.3 for more detail and consideration

of these results with respect to water quality evaluation criteria. Estimates for mass loading from the Plant Site tailings facility are presented in the Water Modeling Data Package Vol 2 - Plant Site, Attachment G (PolyMet 2015j, as cited in the FEIS).

There is no technical reason to believe that groundwater affected by the Tailings Basin would have unacceptably high concentrations of fibers. The generally fine-grained nature of tailings materials would effectively filter suspended solids including fibers.

Based on modeling results, the Co-lead Agencies conclude that water quality evaluation criteria would be met. Evaluation criteria can be found in Section 5.2.2.

Theme WR 108

Theme Statement

For the Plant Site, the FEIS should acknowledge that the NorthMet Project Proposed Action would increase chemical loading of contaminants including fibers to groundwater and surface water compared to current existing conditions, as well as to no-action conditions that properly account for future mitigations associated with the Cliffs Erie Consent Decree.

Thematic Response

The Co-lead Agencies acknowledge in FEIS Section 5.2.2.3.3 that concentrations of some parameters at some evaluation location would increase at the P90 level as result of the NorthMet Project Proposed Action in comparison to the continuation of existing conditions modeling scenario. See response to theme ALT014.

There is no technical reason to believe that groundwater affected by the Tailings Basin would have unacceptably high concentrations of fibers. The generally fine-grained nature of tailings materials would effectively filter suspended solids including fibers.

Theme WR 109

Theme Statement

At some compliance locations, the NorthMet Project Proposed Action would cause exceedances or increase the chemical concentrations of constituents that already exceed water quality standards such as mercury. Thus, the FEIS should evaluate whether or not the NorthMet Project Proposed Action would comply with Minnesota nondegradation rules. Metals are toxic to aquatic life and would threaten public health.

Thematic Response

The evaluation and decision of whether or not the NorthMet Project Proposed Action could discharge into surface waters where water quality standards are exceeded is a permit decision.

The FEIS reports that the NorthMet Project Proposed Action facilities would release solutes and cause an increase in loading and concentrations of some solutes to surface water and groundwater relative to the continuation of existing conditions at some evaluation locations. See FEIS Section 5.2.2.3 for more detail and consideration of these results with respect to water quality evaluation criteria. The FEIS identifies potential impacts on water resources and

measures available to anticipate and control these same impacts. Potential effects on aquatic resources are addressed in FEIS Section 5.2.6. Public health considerations are summarized in FEIS Section 7.3.4. See Theme WR 173 and Theme WR 177 responses.

Theme WR 110

Theme Statement

The SDEIS uses the wrong criteria used for assessing water quality effects, and underestimates effects by using criteria that are not risk-based; thus, factors of safety are not appropriate. P90 is an unacceptable level of significance. The FEIS should use P99.

Thematic Response

Evaluation criteria are based on applicable water quality standards. Evaluation criteria can be found in Section 5.2.2. Where a waterbody is classified as Domestic Consumption (1B) or for groundwater, USEPA primary drinking water standards apply. The USEPA primary drinking water standards set mandatory maximum contaminant levels for drinking water to protect the public from consuming water that presents a risk to human health.

As described in FEIS Section 5.2.2.2.3, the P90 threshold is deemed appropriate for the EIS and has been adopted for other mining NEPA documents where probabilistic modeling was used (e.g., Idaho Cobalt Project—USFS 2009b, as cited in the FEIS). The use of the P90 criterion for determining whether or not evaluation criteria are being met is not equivalent to how WQBELs would be developed for NPDES permitting. Appropriate WQBELs would be derived based on water quality standards and implemented in the permit. Discharges would be evaluated during the NPDES permitting stage and WQBELs applied according to 40 CFR 122.44(d).

Theme WR 111

Theme Statement

NorthMet Project Proposed Action discharges would put at risk and potentially degrade water quality far beyond the mine, including Colby Lake, the BWCAW, St. Louis River, Lake Superior, Superior National Forest, the entire State of Minnesota, the Great Lakes, and Atlantic Ocean. No level of risk to these resources is acceptable. More analysis is necessary. Increased federal scrutiny is needed. Mining has already impacted the St. Louis River and efforts have been made to clean it up.

Thematic Response

As addressed in FEIS Section 5.2.2, the NorthMet Project Proposed Action would have the potential to affect groundwater and surface water hydrology and quality in both the Partridge River and Embarrass River watersheds. These two rivers are both tributaries to the St. Louis River and within the Lake Superior Basin. FEIS Section 6.2.2 identifies that the NorthMet Project Proposed Action is not considered to have the potential for cumulative effects on hydrology and water quality in the St. Louis River or Lake Superior.

The BWCAW and the Rainy Lake Watershed is located on the opposite side of the Laurentian Divide (the major watershed divide between the Rainy River Watershed and Lake Superior

Basin) from the NorthMet Project Proposed Action, and as such surface water and surficial groundwater would not be impacted by it; therefore, this is not included in the FEIS.

If it is predicted that water via bedrock would flow north from the Mine Site, mitigation would be implemented to prevent this from occurring. See FEIS Sections 5.2.2.3.5 and 5.2.2.3.6.

Theme WR 112

Theme Statement

The SDEIS does not adequately evaluate the water quality effects of drying up or inundating thousands of acres of wetlands, nor the water quality effects of dredging and filling wetlands or water discharges to wetlands that are likely to result in violations of wetland water quality standards.

Thematic Response

The hydrology of the wetlands outside the Tailings Basin containment system would be maintained within an established range through flow augmentation so that wetlands would not experience substantial inundation or desiccation. Wetland hydrology is a complex mix of precipitation, surface runoff, and, in some cases, groundwater. The indirect effects analyses performed for the EIS were not performed to characterize impacts but were done to inform where monitoring should take place for those areas that were identified as having a potential for indirect wetland effects. The Co-lead Agencies agree that multiple factors can affect whether a wetland would experience indirect effects due to a project. The direct and potential indirect effects from the NorthMet Project Proposed Action, as well as the proposed monitoring and mitigation, are described in detail in FEIS Section 5.2.3.

Theme WR 113

Theme Statement

The SDEIS does not adequately evaluate the water quality and fisheries effects of acid generation.

Thematic Response

The FEIS considers the release of acidity from proposed NorthMet facilities in that leachate from all acid-generating material (Waste Rock and pit wall rock composed of Category 2/3 and Category 4 material) would be captured and treated prior to discharge. The permanent surficial waste facilities (Category 1 stockpile and tailings basin) would contain material that is not expected to would never produce acidic leachate. The non-acid generating waste was identified using multi-year kinetic tests (humidity cells) on NorthMet rock samples, in which alkalinity released (by dissolution of the silicate minerals) exceeded acidity production (by sulfide-mineral oxidation) in all rock and tailings that contained less than 0.12 percent sulfide S. This less than 0.12 waste rock with 0.12 percent sulfide S or less is the threshold for selecting non-acid generation mine waste is further supported by long-term humidity cell tests on NorthMet waste (i.e., 42 samples of Category 1 waste rock, with tests now run for over 450 weeks; and 33 humidity cell tests run between 84 and 304 weeks [Waste Characterization Data Package v12 (PolyMet 2015q, as cited in the FEIS), Section 4.3 and Attachment E, respectively]). These tests

demonstrate that tailings and Category 1 waste rock materials do not generate acidic leachate, and acid generation rates decreases over time as sulfide S minerals are depleted. The NorthMet Project design thus prevents the introduction of acidic leachate to surface water that could affect fisheries.

Theme WR 114

Theme Statement

The SDEIS does not adequately evaluate the loss of stream headwaters and its effect on fisheries and wildlife.

Thematic Response

The SDEIS and FEIS acknowledge a possibility that habitat could be affected from water chemistry changes resulting from the Land Exchange Proposed Action. Habitat loss from flow changes or riparian activities is not expected as a result of the NorthMet Project Proposed Action.

It is noted that under the Land Exchange Proposed Action, the federal estate would have a slight loss to first-order stream spawning habitat.

Theme WR 115

Theme Statement

The NorthMet Project Proposed Action would cause detrimental and irreversible effects on water resources at and near the Mine Site and Plant Site and in other non-designated areas. These effects include chemical effects, loss of water resources, loss of wild rice and loss of wetlands. The SDEIS does not provide assurance that chemical concentrations in groundwater and surface water would continue to meet water quality standards. The detrimental effects cause by the NorthMet Project Proposed Action would persist for hundreds of years and mining would last only 20 years.

Thematic Response

The FEIS acknowledges that the NorthMet Project Proposed Action would cause adverse effects. FEIS modeling indicates that water quality impacts would not be significant as measured against FEIS evaluation criteria. It is also acknowledged that water quality modeling performed in support indicates that water treatment systems in some form and at some scale would be needed indefinitely at the Mine Site and Plant Site. This long-term treatment is proposed as part of the NorthMet Project Proposed Action. As described in FEIS Section 3.2.2.4, *Minnesota Rules* 6132.1200, require that before a Permit to Mine can be issued, financial assurance instruments covering the estimated cost of reclamation must be submitted and approved by the MDNR. Irreversible effects are disclosed in FEIS Section 7.3.1.

Theme WR 116

Theme Statement

Assumed leakage from WWTF ponds is lower than values cited in literature.

Thematic Response

The WWTF equalization basins have a single geomembrane liner. During the summer months (April through September), when water is expected to be in the basins, the liner leakage rate is 5 gallons/acre/day as determined in the Mine Site Water Modeling Data Package (PolyMet 2015m, as cited in the FEIS). The USEPA HELP model was used to estimate this value. This is a reasonable value for ponds installed with good site preparation and installation practices. It is unclear in the comments which literature values are being cited.

Theme WR 117

Theme Statement

The FEIS should acknowledge that current mitigation at the south end of the Tailings Basin does not capture all seepage, and that some of the tailings water is being released to Second Creek. A topographic map figure should be included in the FEIS to demonstrate this finding. This discharge would continue with the NorthMet Project Proposed Action. Additional details on the location of the cut-off berm and trench, groundwater contours, and water quality should be disclosed.

Thematic Response

It is acknowledged that there is currently incomplete capture of impacted water at SD026. Cliffs Erie is currently addressing this issue by upgrading the performance of the existing capture system and, if necessary, constructing new systems to enhance capture. If 100 percent capture is not attained by the Cliffs Erie upgrades, the Proposer has committed, under the NorthMet Project Proposed Action, to installing additional systems in Second Creek to achieve this level of performance regardless of the types of measures required. A summary of the southern seepage collection system is provided in FEIS Section 3.2.2.3.10; details are available in the Plant Site Water Management Plan (PolyMet 2015i, as cited in the FEIS).

Theme WR 118

Theme Statement

The FEIS should describe how the south Tailings Basin capture system would be modified to achieve acceptable capture efficiency. Designs should aim for 100 percent capture.

Thematic Response

The Project Proposer has committed to collecting all of the south seepage from the Tailings Basin that makes its way to Second Creek by implementing additional improvements to the existing seepage management system, if necessary. Potential measures that could bring the capture efficiency of the system to 100 percent include improvements to the existing dam such as

lining the upstream dam face with bentonite and injecting grout into the dam. If seepage were observed to bypass the existing dam, a second dam could be constructed approximately 500 feet downstream of the existing system, in an area where the Second Creek headwaters valley is more constricted and any remaining subsurface seepage would have come to the surface. This potential second dam could be constructed as an earthen dam with a clay or concrete cutoff wall (extending to bedrock if necessary) in order to achieve 100 percent capture of the surface seepage. See FEIS Section 5.2.2.3.2 for more information.

Theme WR 119

Theme Statement

The "analog method" used in the SDEIS is not acceptable for evaluating wetland effects associated with mine pit dewatering; this issue must be evaluated using a mathematical analysis that considers site-specific geology and hydrologic conditions. Alternatively, the analog method should be based not on the Canisteo Mine, but instead on the Soudan Mine in Soudan Underground Mine State Park, which is overlain by till similar in thickness and composition to that found at the NorthMet Mine Site, so the results would not be as overestimated.

Thematic Response

FEIS Section 5.2.2.3.2 summarizes the analog approach and its use in evaluating the extent of pit drawdown. The complex mix of bedrock, glacial till, and wetland soils at the Mine Site makes it difficult to accurately quantify drawdown at any specific location; thus, the use of the analog method was utilized in lieu of MODFLOW to estimate pit drawdown. Additionally, there is a general lack of connectivity between the shallow water table in the wetlands and the deeper bedrock aquifer.

The analog approach was developed using available well data from the Canisteo Mine Pit, which is the only mine pit within the Mesabi Iron Range that has an associated water balance study with well data that could be used to assess potential drawdown effects. Additionally, the Canisteo Mine Pit data are believed to provide a reasonably conservative estimate of the maximum extent of surficial groundwater drawdown that would result from the proposed PolyMet mine pits. Insufficient data exists for the Soudan Mine to be useful as an analog.

The Co-lead Agencies are not relying solely on the potential impact zones determined in the analog method for the FEIS, but would be monitoring wetlands for potential indirect effects as part of an adaptive management plan. Permit conditions would include a plan for additional compensatory mitigation if indirect wetland impacts were identified, and appropriate changes to the adaptive management plan would be made as required.

The Co-lead Agencies believe that the use of the analog approach and the use of 20 percent metric described in FEIS Section 5.2.3 as factors considered in identifying potential indirect effects to wetlands is a credible and reasonable approach consistent with the requirements of NEPA.

Theme WR 120

Theme Statement

The SDEIS assumption that wetlands have limited hydraulic connectivity to the underlying surficial aquifer is not supported by site information. There are no data to suggest that wetlands are perched or semi-perched waterbodies. The SDEIS does not indicate the closest locations where impacted surficial aquifer groundwater or impacted surface water could affect wetlands.

Thematic Response

The FEIS evaluates drawdown effects on wetlands and associated surface water features using observations made at other Iron Range mine sites with open pits and similar geology (i.e., analog method). See FEIS Sections 5.2.2.3.2 and 5.2.3 and responses to themes WR 119, WET 08, and WET 09 for additional information.

Theme WR 121

Theme Statement

Information from the Minnamax project was not used to evaluate wetland dewatering effects.

Thematic Response

FEIS Section 5.2.2.3.2 summarizes the analog approach used to evaluate dewatering effects. Available well data from the Canisteo Mine Pit near the Cities of Coleraine and Bovey, Minnesota -- which is the only mine pit within the Mesabi Iron Range that has an associated water balance study with well data -- was used to evaluate dewatering effects. Please refer to the responses to themes WET 08 and WET 09 and FEIS Section 5.2.3 for more information on the potential for wetland drawdown.

Theme WR 122

Theme Statement

Constructed wetlands for water treatment require substantial acreage and are not feasible if the wild rice standard is applied year-round (that is, not seasonally) due to cold weather.

Thematic Response

Non-mechanical treatment systems (e.g., constructed wetlands) are not part of the NorthMet Project Proposed Action, which relies solely on mechanical treatment. Non-mechanical treatment as an adaptive management measure may be considered during operations and closure if pilot studies demonstrate their utility and cost-effectiveness for water treatment and water disposal, and, if eventually proposed, would be addressed in future permitting.

Theme WR 123

Theme Statement

The FEIS should acknowledge that certain constituents in Colby Lake currently exceed water quality standards and arsenic concentrations are elevated and the NorthMet Project Proposed Action would increase these concentrations. A TMDL study on Colby Lake is needed.

Thematic Response

The water quality results of Colby Lake are reported in FEIS Section 5.2.2.3.2.

The Co-lead Agencies acknowledge that arsenic currently exceeds the water quality criterion of 2 µg/L in Colby Lake and is predicted to do so under the NorthMet Project Proposed Action. However, it is also predicted that Colby Lake arsenic would continue to exceed the criterion under the CEC scenario (i.e., without the NorthMet Project Proposed Action). As predicted by the water quality model, the NorthMet Project Proposed Action arsenic concentrations are virtually identical to the CEC concentrations up to mine year 52. After that time, the NorthMet Project Proposed Action concentrations are slightly higher than the CEC concentrations; however, the difference is not more than 0.05 µg/L. The Co-lead Agencies conclude that this small increase above CEC concentrations does not constitute an unacceptable impact associated with the NorthMet Project Proposed Action.

A TMDL study is not required to assess impacts in the FEIS.

Theme WR 124

Theme Statement

Colby Lake water used for augmentation is higher in sulfates than existing tributary stream water, and would result in damage to downstream wild rice beds. The use of Colby Lake water for augmentation would require reverse osmosis treatment prior to discharge to surface water. FEIS Table 6.2.2-6 (formerly Table 6.2-6 in the SDEIS) does not include NorthMet augmentation flow from Colby Lake to Embarrass River tributaries. This source has a higher sulfate concentration than the Waste WWTF effluent, and should be included in the Table.

Thematic Response

The NorthMet Project Proposed Action has been modified since the SDEIS to address this issue. The Project Description in the FEIS indicates that no Colby Lake water would be used for direct surface water augmentation. All water used for stream augmentation would be treated prior to being added to hydrologically affected waters. If and when non-mechanical water treatment is implemented at the Plant Site, Unnamed Creek, Trimble Creek and Mud Lake Creek stream augmentation would no longer be necessary.

Theme WR 125

Theme Statement

The FEIS should acknowledge that use of Colby Lake water for augmentation would increase mercury loading to the Embarrass River.

Thematic Response

The Project Description in the FEIS indicates that no Colby Lake water would be used for direct surface water augmentation. All water used for augmentation would be treated by the WWTP prior to discharge. See FEIS Section 5.2.2.3.2 for more information.

Theme WR 126

Theme Statement

Based on case history information, the SDEIS consistently underestimates liner leakage rates for waste rock stockpiles, WWTF equalization basin and the Hydrometallurgical Residue Facility. The FEIS should provide clear justification for assumptions and inputs used to estimate liner leakage. Liner leakage would pollute groundwater.

Thematic Response

The assumed liner leakage rates are based on a combination of literature values, experience at mine sites, experience at other types of industrial facilities, manufacturer documentation, and information provided in standard engineering guidance documents (Section 5.2.2.3 in the Mine Site Water Modeling Data Package [PolyMet 2015m, as cited in the FEIS]). Liner leakage rates were estimated using the USEPA-approved HELP model, where simulations combined NorthMet Project Proposed Action design values for slopes and subgrade design with the published values for average liner defects per acre.

It is acknowledged that there have been historical instances where poor-quality liner installations have failed or leaked at relatively high rates. However, for the high-quality liner installations to be used for the NorthMet Project Proposed Action, the assumed liner leakage rates are reasonable and consistent with industry standards. While solid waste landfills may typically be smaller than the project facilities, the liner leakage rates are expressed on a unit area basis, so the results can be scaled to larger facilities. Further, the waste rock stockpiles where liners would be used are only temporary and monitoring would provide early warning if they are not functioning properly.

Theme WR 127

Theme Statement

The assumed effectiveness of the Category 1 Stockpile cover is not supported and may be over-estimated. Cover effectiveness should be a probabilistic input. The FEIS should address deterioration in liner and cover performance and the need for periodic cover replacement. These assumptions should be reviewed to determine whether the FEIS should assume an increase in

liner leakage over time as the membranes deteriorate. The FEIS should describe the replacement schedule for the Category 1 Stockpile cover membrane, as well as contingencies if leakage below the Hydrometallurgical Residue Facility liner causes unacceptable effects on groundwater.

Thematic Response

Some water is predicted to leak through the liners as a result of tears or defects in the geomembrane liners and this potential effect is included in the GoldSim model. The quantity of water leaking through the liners is determined by the liner design and effectiveness.

The Hydrologic Evaluation of Landfill Performance model was used to estimate liner leakage, including the use of uncertainty analysis. Leakage rates are summarized in FEIS Table 5.2.2-27 and Section 5.2.2.5.4, and are included in the Mine Site and Plant Site Water Modeling Data Packages (PolyMet 2015m and 2015j, respectively, both as cited in the FEIS).

Water mitigation measures are summarized in Section 5.2.2.3.5.

It should be noted that the liners used for the Category 2/3 and 4 Stockpiles would be temporary and only be used for a maximum of 20 years. It is unlikely liner replacement would be required in this timeframe if the liner were installed properly.

For the Category 1 Stockpile geomembrane cover, which would be overlain by a vegetative soil cover, maintenance would be required to ensure its effectiveness. The Adaptive Water Management Plan (AWMP) (PolyMet 2015d, as cited in the FEIS) describes modification to the cover system in Section 3.4.3.2 that could also be made before and after installation. This is also summarized in FEIS Section 5.2.2.3.5. Despite maintenance and modifications, if deterioration of the liner were indicated, either visually or by systematic increases in flows to the containment system, then mitigative actions would be undertaken that may include liner repair/replacement and replacing soil that may have been eroded. If full depletion of constituents from the stockpile required more than 1,000 years, the geomembrane could need to be replaced.

The Hydrometallurgical Residue Facility would be double-lined at the bottom to facilitate collection of water that has contacted the hydrometallurgical residue. More specific, the double liner would consist of a composite liner system utilizing a geomembrane liner above a geosynthetic clay liner with a second liner placed above the first, separated by a leakage collection system, substantially removing all hydraulic head from the lower liner. This design would virtually eliminate leakage from the Hydrometallurgical Residue Facility to groundwater resources. The collection system capture rate was calculated and included in Section 5.2.2.5.4 of the document Plant Site Water Modeling Data Package (PolyMet 2015j, as cited in the FEIS). The Residue Management Plan (PolyMet 2014r, as cited in the FEIS) includes a description of the operating plans, monitoring procedures, and adaptive management approaches for the Hydrometallurgical Residue Facility. Information on the design of the Hydrometallurgical Residue Facility is in the FEIS in Section 3.2.2.3.7 and 3.2.2.3.10, and further detailed with respect to geotechnical stability in Section 5.2.14.2.3.

Theme WR 128

Theme Statement

The SDEIS places too much reliance on untested and unproven engineered mitigation measures and technologies, such as reverse osmosis, that must work flawlessly for very long periods of time to reduce pollutants from entering surface waterways and groundwater. There is no acknowledgement that many of these measures would degrade over time and require constant monitoring, periodic replacement, and financial assurance to pay for their upkeep. It is unclear what mitigation PolyMet has committed to, and who and by what means NorthMet Project Proposed Action performance would be enforced.

Thematic Response

It is the Co-lead Agencies' opinion that engineered systems can operate successfully over long periods of time is they are property monitored and maintained. The FEIS provides a comprehensive description of proposed water treatment and seep collection systems including groundwater containment and synthetic liners/covers. This includes conceptual designs and discussions of the types of monitoring used to assess performance. Detailed designs are provided in supporting documents, which are fully referenced in the FEIS. The FEIS also discusses long-term operation, maintenance, and periodic replacement of engineered systems. It is acknowledged that certain components of the engineered systems would need to be replaced when monitoring indicated that performance is marginal and not readily compensated for by adaptive mitigation measures.

A detailed financial assurance analysis would be part of the permitting phase and is not a required component of the FEIS. The financial assurance process would fully consider long-term monitoring and periodic replacement of equipment including, but not limited to, water treatment hardware and synthetic liners/covers. The Financial Assurance package for the NorthMet Project Proposed Action would insure that future funding would be available if and when adaptive mitigation measures or component replacements are needed to achieve performance specifications.

Mitigation measures have been adopted into the NorthMet Project Proposed Action through engineering design and management. An overview of the evolution of the NorthMet Project Proposed Action with respect to alternatives analysis is provided in FEIS Section 3.2.3.3. PolyMet commits to monitoring and management through application of management plans that form the NorthMet Project Proposed Action; these plans are listed at the start of FEIS Section 3.2.2. Specific mitigation and monitoring measures relating to water are described in FEIS Sections 5.2.2.3.5 and 5.2.2.3.6.

Theme WR 129

Theme Statement

Over timeframes of hundreds of years, it is likely that some mitigation measures would fail and release contaminated water to the environment before corrective actions can be taken.

Thematic Response

Provided that financial assurance and long-term management is in place, engineering controls could be operated within performance specifications for as long as necessary to meet environmental objectives. Monitoring would allow potential failures to be recognized and corrected before there is a release of impacted water to the environment. With appropriate monitoring and pre-planned contingency actions, and adequate financial assurance, it is technically feasible to maintain the operation of engineered systems indefinitely into the future.

Theme WR 130

Theme Statement

The NorthMet Project Proposed Action does not incorporate adequate mitigation. The SDEIS does not adequately discuss the adaptive mitigation measures that would be used to control unexpected water releases that could impact water chemistry, hydrologic or thermal regimes from the NorthMet Project Proposed Action sites to waterbodies such as the St. Louis River and its tributaries. In many cases, the SDEIS states that mitigation measures would be implemented if needed, but does not describe what those measures would be. What has been committed to by PolyMet is unclear. Triggers for potential changes to designs to collect and manage polluted drainage should be outlined in the FEIS, including why or how underdrains would be added to certain stockpiles should be fully described.

Thematic Response

Mitigation measures have been adopted into the NorthMet Project Proposed Action through engineering design and management. An overview of the evolution of the NorthMet Project Proposed Action with respect to alternatives analysis is provided in Section 3.2.3.3. PolyMet commits to monitoring and management through application of management plans that form the NorthMet Project Proposed Action; these plans are listed at the start of FEIS Section 3.2.2.

FEIS Section 5.2.2.3.5 describes Mine Site and Plant Site adaptive water management measures and under what circumstances they would be triggered and implemented. These adaptive measures would be adjusted accordingly during the construction and operation of the NorthMet Project Proposed Action, based on monitoring results, performance modeling, and engineering assessments. Examples include improving WWTP performance and Tailings Basin pond cover performance.

With regards to the use of foundation underdrains in stockpiles, these would be used to provide gravity drainage should elevated groundwater be encountered, to prevent or minimize the potential for excess pore pressures adversely affecting the performance of the liner system as the stockpile is loaded. As stated in FEIS Section5.2.2.3.2, all temporary stockpiles (Category 2/3,

Category 4, and Ore Surge Pile) would have an underdrain system of minimum grade of 0.5 percent.

Theme WR 131

Theme Statement

The SDEIS does not discuss monitoring or contingencies for failure of pumps, the Colby Lake pipeline, the tailings pipeline, or pipelines between the Plant Site to the Mine Site, despite the fact that these systems may need to run and be funded for centuries after the mine closes. What water is piped where and when is confusing.

Thematic Response

As discussed in the FEIS, financial assurance and long-term management would be in place to assure that engineering controls could be operated within performance specifications for as long as necessary to meet environmental objectives. The Permit to Mine, which would be required before the NorthMet Proposed Action Project could begin, would describe the monitoring required to comply with discharge requirements.

The monitoring would allow potential failures to be recognized and corrected before a release of impacted water to the environment. With appropriate monitoring and pre-planned contingency actions, it is technically feasible to maintain the operation of engineered systems indefinitely into the future. Financial assurance adequate to: 1) monitor/inspect the engineered systems, 2) repair or replace components as necessary, and 3) apply adaptive mitigation measures that are shown to be cost-effective would be required under the Permit to Mine. Financial assurance is described in FEIS Section 3.2.2.4.

FEIS Figures 3.2-5 through 3.2-8 show the proposed water management features, infrastructure, and flow at NorthMet Project area.

Theme WR 132

Theme Statement

The SDEIS provides no contingencies for tailings embankment failure.

Thematic Response

The Project Description in the FEIS indicates that the Tailings Basin design would meet appropriate Factors of Safety and that Tailings Basin embankments would be monitored and inspected on a routine basis and repaired or strengthened on an as-needed basis. Financial assurance would be in place to perform these activities indefinitely into the future.

Theme WR 133

Theme Statement

The SDEIS includes no discussion of the installation of the south Tailings Basin seepage capture system and the proposed seepage capture system has not been designed to collect any seepage from the east side of the Tailings Basin.

Thematic Response

The Project Proposer has committed to collecting all of the south seepage from the Tailings Basin that makes its way to Second Creek by implementing additional improvements to the existing seepage management system if necessary. Potential measures that could bring the capture efficiency of the system to 100 percent include improvements to the existing dam such as lining the upstream dam face with bentonite and injecting grout into the dam. If seepage is observed to bypass the existing dam, a second dam could be constructed approximately 500 feet downstream of the existing system. This is an area where the Second Creek headwaters valley is more constricted and any remaining subsurface seepage would have come to the surface. This potential second dam could be constructed as an earthen dam with a clay or concrete cutoff wall (extending to bedrock if necessary) in order to achieve 100 percent capture of the surface seepage.

The east side seepage containment system is designed in the same manner as the groundwater containment system on the northern and western sides of the Tailings Basin. The east side seepage containment system would be designed to efficiently collect the Tailings Basin seepage while minimizing the collection of unimpacted water that would continue to flow from east to west towards the Tailings Basin. The unimpacted water flowing towards the Tailings Basin would be directed to the swale that would be constructed north of the East Dam consistent with the NorthMet Project Proposed Action as described in the SDEIS and FEIS, while the seepage collection system on the interior of the groundwater containment system would be constructed at an elevation lower than the swale to maintain an inward gradient across the containment system.

Theme WR 134

Theme Statement

The SDEIS provides no technical justification for the finding that waste rock segregation would be effective. It is unclear why Category 1 Stockpile seepage capture and treatment is necessary given its percentage of sulfur and the predictions that it would not generated acidic leachate. Why doesn’t PolyMet stockpile the higher sulfur rock from the Category 1 stockpile in the Category 2/3 stockpile? This would potentially lower post-closure costs if it would eliminate the need to treat water that comes in contact with the Category 1 stockpile.

Thematic Response

Rock segregation by chemical properties is the primary purpose of mining operations. The designation of rock as waste and ore is a universally applied method for directing material excavated from hard rock mines. There is a long history of rock segregation on the Iron Range and regulatory agencies annually review the placement of rock. Technology like GPS has improved segregation practices. Moreover, calculations show if all Category 2/3 Stockpile rock

were to be placed in the Category 1 Stockpile, the average rock sulfur concentration would be 0.10 weight-percent sulfide S. This is less than the 0.12 weight-percent sulfide cut-off that defines the rock at the Category 1 Stockpile. While acid generation is not expected, the proposed containment system that would be constructed around the Category 1 Stockpile to capture water coming from the stockpile would ensure that water is managed in the event of unexpected constituent-loading from the stockpile.

To support the environmental classification of waste rock, 89 rock samples were subjected to kinetic tests (synthetic weathering). The samples were pre-selected to be spatially dispersed across the deposit, included rock from each of the major lithologic units, and captured the range in metal and sulfide S concentrations (see Table 4-1 in SRK 2007b, as cited in the FEIS). Non-acid-generating material (Category 1 waste rock samples defined as having no more than 0.12 weight-percent sulfide S) was identified through the results of 13 long-term (greater-than 420 weeks) kinetic tests. These tests found that all Category 1 rock samples, "...yielded pH above 6 throughout the program, typically fluctuating between 6.5 and 7.5 after an initial decline" (Section 4.1.4 and Large Table 1 in PolyMet 2015q, as cited in the FEIS). Although leachate from the Category 1 Stockpile is not predicted to be acidic, water quality model predictions indicate the need for mitigation.

To support mine planning and waste-rock handling, PolyMet developed a geologic "block model," which is a three-dimensional grid that represents the deposit and that provides an estimate for ore grade and sulfide S concentration in each grid block. The estimates of sulfide S in all of NorthMet waste and ore are based on interpolation of sulfide S analyzed in recovered drill core (approximately 18,800 analyzed samples). To ensure that the estimates of sulfide S concentration in the waste rock are accurate, the Co-lead Agencies commissioned an independent review of the geostatistical analysis used to develop the sulfide S distribution in the block model. For this, the reviewer obtained the entire dataset of sulfide S analyses on core samples. This audit found that the number and spatial distribution of the sulfide analyzed supported the geologic block model, which was developed to describe the ore and waste rock distribution in the deposit (Optitech 2012).

Theme WR 135

Theme Statement

Groundwater mapping is incomplete. The FEIS should address the flow and seepage of groundwater and should include information related to the stability of aquifers.

Thematic Response

Groundwater mapping has been performed by a combination of water levels measured in monitoring wells and calibrated groundwater flow models that predict hydraulic head distributions between the measurement locations. The calibration procedure refines the estimated hydrologic properties (e.g., hydraulic conductivity) of hydrogeologic units. The hydraulic head maps and refined properties developed in this manner are considered sufficiently reliable and accurate for impacts analysis and design of mitigation measures.

Theme WR 136

Theme Statement

The SDEIS provides no technical justification for the assumed effectiveness of land application of impacted waters.

Thematic Response

The NorthMet Project Proposed Action would not rely upon land application of impacted waters as a means for treatment.

Theme WR 137

Theme Statement

The SDEIS provides no technical description of potential non-mechanical water treatment systems. The SDEIS provides no technical justification of its effectiveness, details on when it would be implemented, nor does it describe how the commitment to transition to non-mechanical treatment would be enforced.

Thematic Response

A specific design of non-mechanical treatment is not included in the Project Description and the NorthMet Project Proposed Action would rely on mechanical treatment for as long as necessary. During operations and closure, the use of non-mechanical treatment may be considered as an adaptive management measure if pilot and other feasibility studies indicate that this method has potential utility in accordance with permit conditions, and is cost-effective. In the FEIS, the possible future use of non-mechanical treatment is stated as a long-term goal, but the details of how such systems would operate would be determined once operations begin and site specific data could be used for pilot/feasibility studies, and if the systems are eventually proposed they would be addressed in future permitting. Obtaining water quality measurements is highly desirable when designing site-specific non-mechanical treatment systems because they provide better reference points than modeling for necessary system performance. Reference to a seasonal application of the wild rice standard has been removed from the description of these potential future non-mechanical treatment systems for the FEIS.

Theme WR 138

Theme Statement

The SDEIS does not describe the frequency of cover and liner replacement or acknowledge that leaks are most often due to accidental flaws in installation.

Thematic Response

Some water is predicted to leak through the Category 2/3 and 4 geomembrane liners as a result of tears or defects and this effect is included in the GoldSim model. The Hydrologic Evaluation of Landfill Performance model was used to estimate liner leakage, including the use of uncertainty analysis. Leakage rates are summarized in FEIS Table 5.2.2-27 and Section 5.2.2.3.2, and are included in the documents Mine Site and Plant Site Water Modeling Data Packages

(PolyMet 2015m and 2015j, respectively, both as cited in the FEIS). Mitigation measures are summarized in FEIS Section 5.2.2.3.5. It should be noted that the liners used for the Category 2/3 and 4 Stockpiles would be temporary and would only be used for a maximum of 20 years. It is unlikely liner replacement would be required in this timeframe if the liner is installed properly.

For the Category 1 Stockpile geomembrane cover, which would be overlain by a vegetative soil cover, maintenance would be required to ensure its effectiveness. The Adaptive Water Management Plan (AWMP) (PolyMet 2015d, as cited in the FEIS) describes modification to the cover system in FEIS Section 3.4.3.2 that could also be made before and after installation. This is also summarized in FEIS Section 5.2.2.3.5. Despite maintenance and modifications, if deterioration of the liner were indicated, either visually or by systematic increases in flows to the containment system, then mitigative actions would be undertaken that may include liner repair/replacement and replacing soil that may have been eroded. If full depletion of constituents from the stockpile required more than 1,000 years, the geomembrane could need to be replaced.

The Hydrometallurgical Residue Facility would be double-lined at the bottom to facilitate collection of water that contacted the hydrometallurgical residue. More specifically, the double liner would consist of a composite liner system utilizing a geomembrane liner above a geosynthetic clay liner with a second liner placed above the first, separated by a leakage collection system, substantially removing all hydraulic head from the lower liner. This design would virtually eliminate leakage from the Hydrometallurgical Residue Facility to groundwater resources. The collection system capture rate was calculated and included in Section 5.2.2.5.4 of PolyMet 2015j, as cited in the FEIS. The Hydrometallurgical Residue Management Plan includes a description of the operating plans, monitoring procedures, and adaptive management approaches for the Hydrometallurgical Residue Facility. Information on the design of the Hydrometallurgical Residue Facility is in FEIS Section 3.2.2.3.10.

Theme WR 139

Theme Statement

The FEIS should describe the groundwater and surface water monitoring plans and systems rather than stating that monitoring plans would be determined during the permitting phase. Furthermore, the FEIS should state who would be responsible for water monitoring. It seems inadvisable to depend on PolyMet to perform such a critical function, especially when it is potentially hurtful to their bottom line. Where monitoring shows effluent limit exceedances, enforcement and corrective actions needs to be taken. An understanding of baseline groundwater flow direction is necessary before implementing a monitoring system.

Thematic Response

FEIS Section 5.2.2.3.6 provides a description of the monitoring plans proposed by PolyMet. Monitoring would be used on a continual basis to document compliance with permit conditions, annually validate and update water models, and provide input to optimize operations of adaptive engineering controls. The FEIS provides information on objectives, monitoring summary, and general location for monitoring of process water streams, storm water, surface discharges, groundwater, wetlands, and surface water in the Partridge River and Embarrass River watersheds (as applicable). For groundwater monitoring, the general number of sampling locations and frequency are identified. For surface water, general sampling locations and timeline are

identified. As mentioned in the FEIS, the water monitoring plans would be finalized in detail (including specific locations, frequencies, and parameters) during the NPDES/SDS water permitting and water appropriations processes and updated as required during the life of the NorthMet Project Proposed Action.

PolyMet, as the assigned Permittee for the NorthMet Project Proposed Action, would be responsible of carrying out the proposed monitoring activities as described in the legally enforceable permits. The permits, supported by state and federal laws, include provisions that address failure to comply with the terms and conditions of the permit, including those related to conducting required monitoring.

Theme WR 140

Theme Statement

The FEIS should discuss contingencies in the event that Colby Lake and Whitewater Reservoir cannot be used for drinking water due to mine withdrawals and contributions of polluted water.

Thematic Response

Colby Lake is classified listed as a Class 1B waterbody (protected for domestic consumption) and is currently used as a potable water source for the City of Hoyt Lakes. As stated in FEIS Sections 4.2.2.2.2 and 5.2.2.3.2, recent monitoring data show elevated concentrations of aluminum, iron, mercury, and manganese, which at times exceed secondary drinking water standards. The City of Hoyt Lakes currently treats the water drawn from Colby Lake to remove these constituents prior to distribution. Additionally, Colby Lake is classified as “impaired waters” as it is on the Minnesota 303(d) TMDL List due to mercury concentrations in fish tissue.

With the proposed designs and engineering controls, the water quality model predicts that the NorthMet Project Proposed Action would not cause or increase the magnitude of a current exceedance of Colby Lake surface water evaluation criteria at the P90 level. Furthermore, the model predicts a slight decrease in P90 concentrations of aluminum, iron, and manganese over time.

Based on current conditions and uses and the predicted conditions, no issues with continued use Colby Lake as a potable water source have been identified.

Theme WR 141

Theme Statement

The FEIS should discuss the monitoring necessary to ensure wildlife protection, human health, and water quality related to open water in the East Pit wetland, West Pit Lake, and Tailings Basin pond.

Thematic Response

Based on the results of water quality modeling, the water quality of the West Pit Lake, East Pit wetland, and Tailings Basin pond is predicted to be at concentrations not injurious to wildlife or incidental human contact. On-site monitoring of waterbodies within facility boundaries would likely be a part of a monitoring program. Monitoring details would be finalized in the permitting

process. FEIS Section 5.2.5.2.3 discusses potential effects on wildlife from incidental contact with the Tailings Basin pond and pit lakes. FEIS Section 7.3.4 discusses potential human health impacts. FEIS Section 5.2.2.3.6 discusses on-site water monitoring.

Theme WR 142

Theme Statement

The FEIS should discuss monitoring and mitigation associated with potential effects on drinking water wells.

Thematic Response

With regard to water wells, the FEIS groundwater impacts analysis indicates that drinking water standard-based evaluation criteria would be met at the Mine Site and Plant Site property boundaries, which are upgradient of current and possibly future residential or domestic water wells. Evaluation criteria can be found in Section 5.2.2. If evaluation criteria are met at the properties boundaries, it is highly unlikely that the NorthMet Project Proposed Action could cause exceedances of groundwater standards outside the property boundary. Note that at the Plant Site, groundwater standards for some parameters may currently be exceeded beyond the property boundary as a result of legacy issues with the Tailings Basin; however, engineering controls included as part of the NorthMet Project Proposed Action are expected to address these exceedances over time.

Theme WR 143

Theme Statement

SDEIS does not adequately describe the dual proposed reverse osmosis systems including: the design, discharge locations, and timing of implementation; treatment processes; the results of pilot testing; reliability; cost, effectiveness; operations; and management, including that of potential overflows.

Thematic Response

The Project Description in the FEIS indicates that an RO system (or equivalent performing technology) would be constructed at the WWTP at the Plant Site at the beginning of the NorthMet Project Proposed Action and that an RO unit would be added to the WWTF at closure if water monitoring of sulfate concentrations during operations indicated the need to do so. Pilot-testing of an RO system was conducted by the Proponent and is reported in the document *Final Pilot Testing Report* (Barr 2013f, as cited in the FEIS). The final detailed design, treatment process, operation, and maintenance of the RO systems to be installed would be included as part of the permitting process.

Theme WR 144

Theme Statement

The SDEIS does not adequately describe measures that would be taken in the event of short-term or long-term reverse osmosis system failure.

Thematic Response

RO is a standard water treatment technology and industrial-scale systems have been operated around the world for decades. The FEIS describes the proposed RO system as being modular with redundant treatment streams. If one or more of the membranes were to fail, the flow could be quickly diverted to standby cells and no flow would pass through the RO system untreated. Further, membrane failure tends to be gradual and provide advanced warning so corrective actions could be taken before there was a loss of treatment. The system would be designed to have storage capacity for the incoming influent so the system could be shut down for brief periods for equipment repair/replacement, with the stored influent treated after the system were back online.

PolyMet would contract with specialty service companies providing self-contained truck-mounted RO systems that could transported to the site on short notice for temporary treatment while modifications were made to the resident RO system (if ever necessary).

Theme WR 145

Theme Statement

The FEIS should provide additional detail on the characterization, and the risks of temporary storage, transportation and disposal of treatment residuals (brines and solids), including uranium.

Thematic Response

Sludge produced by the chemical precipitation system would be managed at the Hydrometallurgical Residue Facility during operations or disposed off-site at an appropriately licensed solid waste disposal facility. During reclamation sludge would be hauled to an approved off-site landfill. During operations, the reject concentrate from the WWTP would be transported to the WWTF via railcar, fed to the precipitation system via a transfer pump, and directed to the applicable precipitation train. During closure and long-term maintenance, the WWTP residual solids generated from thermal treatment would be transported off site for disposal. The description of treatment residual disposal in the FEIS is at a sufficient level of detail for the FEIS to assess their potential for impact on the environment. There is no uranium risk or exposure associated with the NorthMet Project. FEIS Section 5.2.13 addresses risk and management of hazardous materials associated with the NorthMet Project Proposed Action.

Theme WR 146

Theme Statement

The SDEIS does not adequately describe the precipitation process to be used at the WWTF.

Thematic Response

FEIS Section 5.2.2.3.1 describes the chemical precipitation and membrane filtration treatment methodologies to be used at the WWTF based on the predicted water loads and constituents modeling.

Theme WR 147

Theme Statement

The FEIS should describe the influent and effluent assumptions and targets for the WWTF and WWTP. Influent concentrations for some parameters are underestimated or not considered which effects effluent concentrations.

Thematic Response

The influent concentrations of all chemical constituents to the WWTF and WWTP, based on information from GoldSim modeling, are presented in the Mine Site Data Package and Plant Site Data Package (PolyMet 2015m and PolyMet 2015j, respectively, both as cited in the FEIS).

Because the water treatment facilities would be designed systems, they could be engineered to achieve target effluent concentrations. The assumed effluent treatment concentrations in the FEIS are based on extensive laboratory-scale and pilot-scale testing conducted by PolyMet and on case histories of currently operating systems at mine sites.

Theme WR 148

Theme Statement

The FEIS should describe contingencies if water treatment flow rates are higher than expected.

Thematic Response

The WWTF to be used at the Mine Site for mine years zero to 40 would be designed to have a larger treatment capacity than expected. The excess treatment capacity would be sufficient to handle all reasonable flow rates that could occur during mine operations and reclamation. In the unlikely event that influent flow rates were greater than the WWTF capacity, the excess flow could be diverted to the Plant Site RO system, which would also be designed to have excess treatment capacity. The preliminary design of the WWTP would be based on estimates for the volumetric flow and chemical composition of Plant Site water from the seepage capture pond-level management systems, but the WWTP treatment system would be part of the adaptive management system, so that its capacity could be “adapted, as necessary, in response to the actual conditions encountered during the Project, the monitoring results, and the conditions estimated by continued model updating” (Section 4.2.4 of PolyMet 2015d, as cited in the FEIS).

RO systems (or equivalent performing technology) would be used at the Plant Site for the entire life cycle of the NorthMet Project Proposed Action and at the Mine Site during closure. These systems would be designed with excess flow capacity and redundant treatment streams. The modular design of the RO systems would allow the ability to add capacity in the unlikely event that influent flow rates exceeded both the primary and redundant design flow rates. PolyMet would contract with specialty service companies providing self-contained truck-mounted RO systems that could transported to the site on short notice for temporary treatment while modifications were made to the resident RO system (if ever necessary).

Theme WR 149

Theme Statement

The SDEIS generally underestimates sulfate concentrations at points of compliance. There is insufficient information to determine whether this mine would contribute to significant degradation of the waters of the United States due to sulfate discharges. Permits must be denied on this basis.

Thematic Response

NorthMet Project Proposed Action-related sulfate concentrations at groundwater and surface water evaluation locations would mostly be dependent on chemical release rates from chemical source areas including mine pits, stockpiles, and the Tailings Basin. In addition, sulfate concentrations would be strongly influenced by the capture efficiency of containment systems along the outside perimeter of the Tailings Basin and surrounding the Category 1 Stockpile.

GoldSim inputs pertaining to chemical release rates were scrutinized by the Co-lead Agencies and extensively reviewed and modified through a cooperative process with the Project Proponent and Cooperating Agencies. These inputs are considered realistic median values based on NorthMet geochemical characterization and information obtained from similar mine sites. The capture efficiencies used for containment systems at the Mine Site and Plant Site are considered reasonable or conservatively low based on subsidiary MODFLOW modeling specifically meant to address this issue. The Co-lead Agencies believe that GoldSim inputs for these processes are reasonable and do not have any systematic tendencies leading to underestimates in sulfate concentrations at the evaluation locations.

The GoldSim modeling is probabilistic so that most chemical release inputs are put into the model as probability distributions (rather than single deterministic values). The mean (or central-tendency) values in these distributions are considered by the Co-lead Agencies to reasonably conform to median values based on geochemical characterization. In addition, the range of probable values above and below the mean do not bias the overall probability distributions to higher or lower release rates from what is indicated by the data. Note further that evaluation of NorthMet Project Proposed Action-related impacts is based on P90 sulfate concentrations, which are always higher than the P50 (median) concentrations.

Given the above discussion, the Co-lead Agencies believe that GoldSim-computed sulfate concentrations are not systematically underestimated at evaluation locations at the Plant Site and Mine Site.

The evaluation and decision of whether or not the NorthMet Project Proposed Action may or may not discharge into surface waters where water quality standards are exceeded is a permit decision.

Theme WR 150

Theme Statement

The SDEIS does not account for accumulation of sulfate in tailings or other waste.

Thematic Response

The GoldSim water- and solute-transport models track the mass of all sulfate released from the oxidation of sulfide minerals. If sulfate concentrations in pore water were below the concentration cap, all of the sulfate released in a time step could migrate out with the flowing water. But if enough sulfate were released over a time step that the sulfate concentrations in pore water exceeded the concentration cap, then the pore water would be set equal to the concentration cap, and the mass of excess sulfate would be stored in the model as a "labile" phases (i.e., a solid phases that remains in place, but is assumed to be able to dissolve in each new model time step). The result of this method is that when solute release produces sulfate concentrations above the concentration cap, the effluent remains at the concentration cap, and the eventual release of the stored "labile" sulfate causes the sulfate concentrations in effluent to remain at the cap for a longer duration. This method is applied to waste rock and tailings. Waste rock and wall rock contains "non-contacted" rock an additional reservoir for "labile" sulfate. This is the portion of the rock that is not flushed by percolating water, and sulfate is released from this zone when (and if) the rock is submerged in water. This same approach is applied to all solutes as part of the model design to preserve mass balance.

Theme WR 151

Theme Statement

The SDEIS does not adequately consider the amount or effects of dust and depositional impacts, and ore spillage from rail cars on groundwater, surface water, and wetlands.

Thematic Response

The Project Description in the FEIS includes routine inspections of the Transportation and Utility Corridor to identify accumulations of dust or ore spillage.

Regarding dust, given the majority of the dust that could leave the NorthMet Project area could be characterized as low sulfide/low metal, potential impacts would be controlled by: 1) the commitment to treat all runoff from disturbed areas as process wastewater, and 2) the facilities would be subject to an air quality Fugitive Emissions Plan. Significant impact on water resources or historic properties is not expected.

All active areas at the Mine Site and Plant Site would be subject to a Fugitive Dust Control Plan approved by the MPCA, which describes management of fugitive dust generated from unpaved roads across the NorthMet Project area, rock dumping and loading locations on the Mine Site,

and areas potentially subject to wind erosion on the Plant Site (see Section 4.1.6 and Section 4.3.9 in PolyMet 2015a, as cited in the FEIS).

Regarding potential spillage, any significant accumulations would be removed by a combination of machines and hand work. Ore transport would be by special railcars that minimize dust and spillage, where, since the SDEIS, the Proposer has committed to retrofit the railcars to better control spillage. It is unlikely that there would be sufficient spillage to affect the quality of surface water or groundwater, as discussed in FEIS Section 5.2.2.3.2. See FEIS Section 3.2.2.4 for more information on the railcars, and Sections 5.2.3 and 5.2.7 for impacts of railcar spillage and dust on wetlands and air quality, respectively. The effect of dust falling on the disturbed portions of the Mine Site would be controlled by the perimeter dike and ditch system, which would route runoff to the WWTF (see Section 4.1.5.3 and Large Figures 19 through 21 of PolyMet 2015a, as cited in the FEIS).

Theme WR 152

Theme Statement

The SDEIS does not adequately incorporate the findings of recent research on the influence of sulfates and sulfides on the growth of wild rice. Research into and evaluation of the Minnesota sulfate wild rice water standard are ongoing, and application of the standard (where it applies, what time of year, and what the numeric standard should be) may change. The FEIS should incorporate the most recent MPCA research and needs to consider the findings of "Effects of Sulfate on the Biomass and Seed Production of Wild Rice." Given regulatory uncertainty and the lack of wild rice locational data, the FEIS should assume all waters surrounding the NorthMet Project Proposed Action site are wild rice waters.

Thematic Response

The FEIS recognizes the MPCA is overseeing a variety of studies on wild rice. At applicable surface water locations, the FEIS evaluated impacts using an evaluation criterion based on the current 10 mg/L standard for sulfate concentration in waters used for production of wild rice. This impact assessment metric is keyed to the current regulation.

It is recognized that the MPCA is currently evaluating the current wild rice sulfate water quality standard and, as part of that process, new information on potential contributing factors on the growth of wild rice has been generated. However, that information has not yet been holistically reviewed in the context of its possible influence on the wild rice standard. Future change to the wild rice sulfate standard, if any, is speculative and outside the scope; applying research findings outside the basis of the current rule is not appropriate.

The FEIS includes descriptions of the Plant Site WWTP and Mine Site WWTF, both of which would be capable of discharging treated wastewater at concentrations at or below 10 mg/L as demonstrated by pilot-testing already conducted. More detailed information on these treatment systems would be available as part of the permitting process. However, should a more stringent standard be developed in the future, operation of the RO treatment systems (or equivalent performing technology) could be adjusted to meet a more stringent effluent limit.

See FEIS Sections 5.2.2.1.2, 5.2.2.3.2, and 5.2.2.3.3 for more information.

Theme WR 153

Theme Statement

Seasonal application of the Minnesota sulfate standard is not technically justified; the standard needs to be applied year round. If seep collection and non-mechanical water treatment after closure do not work as planned, the seasonal discharge would have a greater effect than predicted in the SDEIS.

Thematic Response

Neither seasonal application of the wild rice standard nor non-mechanical treatment systems would be part of the NorthMet Project Proposed Action, which would rely solely on mechanical treatment and year-round application of the sulfate standard. Non-mechanical treatment may be considered during operations and closure if pilot studies demonstrated their utility and cost-effectiveness for water treatment and water disposal.

Theme WR 154

Theme Statement

Regulatory standards need to consider historical and current wild rice areas. Historical wild rice harvesting occurred upstream of MPCA-designated waters. The wild rice standard therefore needs to be applied to entire Embarrass River Watershed and additional portions of the Partridge River Watershed.

Thematic Response

For purposes of the EIS, the MPCA has previously provided draft staff recommendations as to what waters in the Embarrass River and Partridge River should be considered waters used for production of wild rice, to which the current 10 mg/L wild rice sulfate standard applies. The MPCA staff reviewed all available relevant information in making their recommendations.

Theme WR 155

Theme Statement

The Land Exchange Proposed Action would not compensate for current and future loss of wild rice areas. The SDEIS must be rejected until it contains an analysis of the effects of groundwater pollution on Land Exchange Alternative B.

Thematic Response

The Land Exchange Proposed Action would result in the public ownership of additional wild rice beds by the acquisition of Tract 1. Tract 1 contains Little Rice Lake, which supports a continuous population of wild rice. Wild rice also grows along the Pike River south of Little Rice Lake and in isolated populations on Hay Lake. FEIS Section 4.3.4.2.5 provides further discussion of wild rice on Tract 1. Wild rice does not currently grow within the proposed federal land boundaries. As a result, the public would have better opportunities for wild rice harvesting on Tract 1, where there is currently no opportunity to harvest wild rice directly on the federal lands (i.e., no known wild rice populations) despite the public water access onto the federal lands. A carry-down boat

launching access is located on Tract 1, which may provide private access for wild rice harvesting on the Tract 1 lands. Access to wild rice beds on the federal lands would not be lost as a result of the Land Exchange Proposed Action, but access to wild rice beds on Tract 1 would be gained.

The Land Exchange Proposed Action and Lane Exchange Alternative B would not directly result in groundwater pollution. Any impacts from the NorthMet Project Proposed Action on groundwater within the federal lands included under Land Exchange Alternative B are considered in FEIS Section 5.2.2.3.2.

Theme WR 156

Theme Statement

Sulfates and toxic metals from the NorthMet Project Proposed Action that are not captured for treatment would affect water quality and wild rice production. This would harm and could even prevent the traditional, treaty-protected harvesting of wild rice by the Bands. Water quality is a legal right for Native Americans.

Thematic Response

It is acknowledged that the NorthMet Project Proposed Action would increase concentrations of some metals at some evaluation locations. However, the NorthMet Project Proposed Action would not cause predicted concentrations to be above applicable water quality standard-based evaluation criteria. Evaluation criteria can be found in Section 5.2.2. Water quality and quantity modeling predictions for SW-005 and PM-13 indicate that the NorthMet Project Proposed Action would not result in adverse impacts on wild rice. These locations are the nearest downstream locations in the Partridge River and Embarrass River, respectively, and were previously recommended by the MPCA staff to be considered as waters used for production of wild rice. Impacts on wild rice further downstream in these waters, or on wild rice resources regionally throughout the treaty areas, would not be expected.

Theme WR 157

Theme Statement

The NorthMet Project Proposed Action may affect wild rice and other aquatic plants that are making a recovery in these waters. Effects on wild rice in the vicinity of the NorthMet Project Proposed Action must be more rigorously analyzed and reported, including the extent to which wild rice beds would decrease as a result of the NorthMet Project Proposed Action and how this could impact the quality and quantity of wild rice available for consumption by people or wildlife. The FEIS should assess the effects of winter water releases from the NorthMet Project Proposed Action on spring sulfite levels in the seedlings of downstream wild rice beds. The FEIS should also provide additional details about mitigation of wild rice effects.

Thematic Response

Water quality and quantity modeling predictions for SW-005 and PM-13 indicate that the NorthMet Project Proposed Action would not result in adverse impacts on wild rice. These locations are the nearest downstream locations in the Partridge River and Embarrass River, respectively, and were previously recommended by MPCA staff to be considered as waters used

for production of wild rice. Impacts on wild rice further downstream in these waters, or on wild rice resources regionally throughout the treaty areas, would not be expected.

Theme WR 158

Theme Statement

The NorthMet Project Proposed Action would increase mercury and sulfate pollution in the St. Louis River Watershed, including the Partridge River and Embarrass River, which is already impaired for these pollutants. This has serious implications for human health and wild rice. Iron mines have already created water quality problems like wild rice dead zones and concerning mercury levels.

Thematic Response

The FEIS indicates that the NorthMet Project Proposed Action would result in a reduction in sulfate-loading to the Embarrass River at the monitoring site (PM-13), and a small increase in sulfate-loading to the Partridge River resulting in an overall decrease in loading to the St. Louis River. The FEIS also indicates a net decrease of mercury-loadings of approximately 0.6 grams per year (i.e., a net decrease of 1.2 grams per year in the Partridge River and a net increase of 0.6 grams per year in the Embarrass River) and therefore would not contribute to cumulative effects on mercury-loading to the St. Louis River. Based on FEIS modeling predictions, the NorthMet Project Proposed Action is not anticipated to have adverse effects on downstream wild rice. Consequently, the NorthMet Project Proposed Action does not include, or need to include, mitigation for the cultivation of new wild rice beds in unaffected waters.

Theme WR 159

Theme Statement

The St. Louis River downstream from the PolyMet site is already heavily impacted by sulfate, and wild rice production in the watershed is a fraction of what it once was. The state should reduce or eliminate problem pollution sites before permitting. The FEIS should analyze cumulative effects of the NorthMet Project Proposed Action on sulfates and wild rice in the NorthMet Project area and the St. Louis River Watershed as a whole. Cumulative effects on wild rice in the 1854 Ceded Territory also need to be addressed.

Thematic Response

Sulfate loading is predicted to decrease overall as a result of the NorthMet Project Proposed Action. Although sulfate loadings are predicted to increase slightly in the Partridge River Watershed (0.1 percent) as a result of the NorthMet Project Proposed Action, this is offset by a large decrease in the Embarrass River Watershed (21 percent at PM-13), resulting in a significant net decrease in overall sulfate-loadings to the St. Louis River as a result of the NorthMet Project Proposed Action. The NorthMet Project Proposed Action is also predicted to have negligible impact on the hydrology of either the Partridge River or Embarrass River. Therefore, the NorthMet Project Proposed Action is not considered to have the potential to contribute to cumulative effects on hydrology and water quality in the St. Louis River. As a result, the CEAA

for surface water is defined by the Partridge River and Embarrass River watersheds as shown on Figure 6.2.2-1.

Theme WR 160

Theme Statement

Given the mounting evidence demonstrating negative effects on wild rice from relatively low levels of sulfides, the positive correlation between levels of sulfate in water column and sulfides in sediment combined with the remaining uncertainties about long-term effects and the relationship between sulfate and methyl mercury, add to the weight of evidence against weakening the 10 mg/L sulfate standard.

Thematic Response

The water quality evaluation criterion for sulfate for the SDEIS and the FEIS for waters previously recommended by MPCA staff to be waters used for production of wild rice (represented by evaluation locations SW-005 in the Partridge River and PM-13 in the Embarrass River) is the current Class 4A wild rice sulfate water quality standard of 10 mg/L.

Theme WR 161

Theme Statement

The NorthMet Project Proposed Action would meet the strict Minnesota standard for wild rice waters. The SDEIS makes it very clear that there would be a net decrease in both sulfate and mercury loadings as a result of this NorthMet Project Proposed Action. The NorthMet Project Proposed Action is not expected to damage downstream wild rice beds. Overall concerns about wild rice beds are unfounded, since wild rice beds are found in many nearby lakes that historically had no wild rice. Wild rice harmed by sulfides associated with the NorthMet Project Proposed Action could be mitigated through the cultivation of new wild rice beds in unaffected waters. The USFS and the State of Minnesota have planted wild rice in the area with very good success.

Thematic Response

The FEIS indicates that the NorthMet Project Proposed Action would result in a reduction in sulfate loading to the Embarrass River at the monitoring site (PM-13), and a small increase in sulfate-loading to the Partridge River resulting in an overall decrease in loading to the St. Louis River. The FEIS also indicates a net decrease of mercury-loadings of approximately 0.6 grams per year (i.e., a net decrease of 1.2 grams per year in the Partridge River and a net increase of 0.6 grams per year in the Embarrass River) and therefore would not contribute to cumulative effects on mercury-loading to the St. Louis River. Based on FEIS modeling predictions, the NorthMet Project Proposed Action is not anticipated to have adverse effects on downstream wild rice. Consequently, the NorthMet Project Proposed Action does not include, or need to include, mitigation for the cultivation of new wild rice beds in unaffected waters.

Theme WR 162

Theme Statement

Sulfate and wastewater from the NorthMet Project Proposed Action would exceed the state 10 mg/L standard for wild rice and would likely eliminate wild rice in the St. Louis River and its tributaries. Since sulfate levels in wild rice beds downstream of the Proposed Mine already exceed the standard, the FEIS should demonstrate that the NorthMet Project Proposed Action "would have an acceptably high probability of not increasing sulfate concentrations in these areas." The SDEIS does not currently meet this test. The Partridge River would exceed the standard during low-flow conditions.

Thematic Response

The discharge from WWTFs using RO technology (or equivalent performing technology)is expected to meet the wild rice sulfate standard of 10mg/L during operations and closure. The FEIS closely evaluated the potential changes to sulfate concentrations as a result of the NorthMet Project Proposed Action in the Embarrass River and Partridge River at evaluation locations representing the location of wild rice production waters subject to the wild rice sulfate water quality standard of 10 mg/L. The analysis showed that the NorthMet Project Proposed Action would result in a reduction of sulfate loading to the Embarrass River and only a very slight potential increase in loading to the Partridge River. Consequently, the NorthMet Project Proposed Action is not anticipated to have adverse effects on downstream wild rice. As part of the permitting process, the MPCA would continue to evaluate the NorthMet Project Proposed Action's potential sulfate contributions to the Embarrass River and Partridge River based upon all available relevant information to ensure compliance with applicable standards.

Theme WR 163

Theme Statement

Although the MPCA has specified that only certain wild rice producing waters are protected under the wild rice sulfate water quality standard, the rights of Ojibwe people to gather wild rice on off-reservation land was affirmed by the U.S. Supreme Court in 1999. Therefore, all wild rice beds in the Ceded Territory are protected under 1864 Treaty. The SDEIS fails to explain how the NorthMet Project Proposed Action would meet the statutory requirements regarding wild rice water quality standards and the Clean Water Act.

Thematic Response

Water quality and quantity modeling predictions for SW-005 and PM-13 indicate that the NorthMet Project Proposed Action would not result in adverse impacts on wild rice. These locations are the nearest downstream locations in the Partridge River and Embarrass River, respectively, and were previously recommended by MPCA staff to be considered as waters used for production of wild rice. Impacts on wild rice further downstream in these waters, or on wild rice resources regionally throughout the treaty areas, would not be expected.

Theme WR 164

Theme Statement

The MPCA has postponed their decision on sulfate levels in waters that support wild rice beds. When standards are still undecided, decisions pertaining to those standards ought not to be concluded. If the rule-making process is not complete, the FEIS should not rely on a preliminary draft recommendation from MPCA based on incomplete knowledge.

Thematic Response

The evaluation in the FEIS is based on the current Class 4A wild rice sulfate standard of 10 mg/L applicable to waters used for production of wild rice and previous draft MPCA staff recommendations identifying the location of waters used for production of wild rice. It is not appropriate for the EIS to speculate as to if or how the standard, or application of the standard, may evolve.

Theme WR 165

Theme Statement

Underestimated Partridge River baseflows in the Mine Site GoldSim model lead to underestimated recharge, incorrect surficial deposit hydraulic conductivities, and underestimated chemical loading to groundwater and the Partridge River in the Mine Site GoldSim model. As a result, the SDEIS version of the Mine Site GoldSim model is invalid, and the model should be revised to include inputs that are consistent with the correct baseflows.

Thematic Response

As discussed in the response to theme WR 003, Partridge River groundwater baseflows used in the SDEIS and transferred to the FEIS are reliable best estimates and are not erroneously low. This is because the SDEIS (and FEIS) groundwater baseflow values were based on winter 1986-77 and winter 1987-88 stream gaging in the Partridge River that occurred when there were no discharges from the Northshore Mine. When expressed as a groundwater baseflow yield per unit area, the similar results for both the Partridge and Embarrass River watersheds (approximately 0.05 cfs per square mile) lends credibility to the approach used.

As discussed in the response to theme WR 004, the low-flow measurements at gaging station SW-003 are not reliable indicators of groundwater baseflow due to the complicating effects of Northshore Mine pumped discharges to the Partridge River.

The Mine Site MODFLOW model was recalibrated based on new groundwater level data collected through the end of 2013; however, calibrations performed for the FEIS used the same Partridge River baseflows as were used in SDEIS. Revised hydraulic conductivities and recharge values that come from MODFLOW recalibration informed the FEIS Mine Site GoldSim model.

Groundwater baseflow discharge varies with time and is a reflection of longer-term weather and climatic conditions. The variability of groundwater baseflow discharge is demonstrated by the examination of estimated values for several years using different methods. Evaluation of these values affirms that groundwater baseflows used in the Mine Site GoldSim model are reliable and appropriate for FEIS impact evaluation.

Theme WR 166

Theme Statement

The Mine Site GoldSim model does not adequately consider hydraulic connectivity between wetlands and groundwater in the surficial deposits.

Thematic Response

Using an observational approach based on data from similar nearby mine sites (i.e., analog method), the Co-lead Agencies concluded that drawdowns in the surficial aquifer would not be expected to extend very far from the mine pits. This is explained by the following factors: 1) the surficial aquifer is thin and moderately permeable, 2) the surficial aquifer is subject to aerial recharge, and 3) the surficial aquifer is underlain by low-permeability bedrock that limits downward leakage from the surficial unit. These factors support the conclusion that wetland drawdown did not need to be included in the Mine Site GoldSim model. See FEIS Section 5.2.2.3.2 for more information on the analog method.

It is acknowledged that there is some degree of hydraulic interaction between wetlands and the surficial aquifer at the Mine Site. However, attempts to quantitatively model the effects of these interactions on drawdown and water quality would be highly uncertain and potentially misleading. The FEIS approach was to not model hydraulic connections between wetlands and the surficial aquifer in the Mine Site GoldSim model, but instead to rely on future monitoring and adaptive mitigation measures in the unlikely event that wetlands were affected by the NorthMet Project Proposed Action. See FEIS Sections 5.2.2.3.5 and 5.2.2.3.6 for more information on adaptive mitigation and monitoring at closure.

Theme WR 167

Theme Statement

There are numerous discrepancies and concerns regarding surficial groundwater flowpaths in the Mine Site GoldSim model. Three critical issues are that the model does not account for northward flowpaths (e.g., to Yelp Creek and One Hundred Mile Swamp), inappropriately assumes constant saturated thickness for the surficial flowpaths, and uses the wrong distance to the Partridge River for the East Pit—Category 2/3 flowpath. In addition, the hydraulic conductivity distributions for the surficial aquifer are not technically justified, are based on means rather than the full range of measured values, and do not consider the likely presence of higher permeability features such as buried stream channels. It is unclear if different hydraulic conductivity values are chosen for each flowpath during each simulation. The GoldSim flowpaths are not accurate, compared to flow trajectories in the Mine Site MODFLOW model. With regard to transport, the effective porosity value is not justified and sorption parameters are speculative and not sufficiently conservative and do not account for the saturation of adsorbed solutes within flowpaths. Pollutant travel times are underestimated. The model does not consider lateral dispersion in the surficial flowpaths or vertical dispersion of chemicals into bedrock. The SDEIS provides no rationale for the assumption that groundwater can migrate long distances without any discharge to wetlands and streams. The FEIS should disclose where the model predicts upwelling of groundwater into wetlands and other surface water features.

Thematic Response

FEIS Mine Site MODFLOW modeling and hydrogeologic relationships for operations and closure conditions indicate that northward flow from the mine pits and Category 1 Stockpile would be non-existent or minimal. Northward flows (if any) would not be sufficient to cause impacts to groundwater or surface water. As a consequence, there are no northward groundwater flowpaths in the FEIS Mine Site GoldSim model.

The groundwater flowpaths in the Mine Site GoldSim model are simple streamtubes with uniform linear groundwater flow. While the linear flowpath streamtubes do not exactly line up with flow trajectories predicted by the Mine Site MODFLOW Model, the streamtubes have hydraulic gradients, recharge, flow directions, and flowpath distances that are similar to those generated by the MODFLOW model. The difference between the GoldSim flowpaths and results of the MODFLOW model are of secondary importance and do not diminish the reliability of the GoldSim predictions of groundwater transport from mine facilities to the evaluation locations and the Partridge River.

The assumption of constant saturated thickness for the GoldSim groundwater surficial flowpaths is reasonable given site data and the purpose of the flowpath analyses in the GoldSim model (that is, average groundwater flow and chemical transport).

The distance from the East Pit to the Partridge River is based on the average distance to the river shown on FEIS Figure 5.2.2-7 (2,120 meters or 6,955 feet).

The surficial aquifer hydraulic conductivity distribution used in the FEIS Mine Site GoldSim model represents the probabilistic distribution of the mean hydraulic conductivity and should not represent the full range of measured values. The range of the probability distribution is expected to capture natural heterogeneity in the flowpaths including the effects of buried channels (if any).

In the Mine Site GoldSim model, a different hydraulic conductivity distribution is used for each groundwater flowpath. A new hydraulic conductivity value for each flowpath is statistically selected at the beginning of each realization of the Monte Carlo simulation.

The effective porosity of 30 percent is reasonable for an unconsolidated granular material.

Not considering lateral and vertical dispersion tends to overestimate chemical concentrations in the surficial flowpath, which is conservative for impacts analysis.

The sorption values used for selected constituents are based on USEPA guidance documents. Due to the low absolute concentrations of constituents modeled with adsorption, it was reasonable (and standard practice) to assume that adsorption sites would not become “saturated.” This was also a reasonable assumption for fractured bedrock, because diffusion can transport chemicals from fractures into the rock matrix, which greatly increases the available adsorption sites. For constituents not modeled with adsorption, the approach was conservative because the transport analysis would tend to overestimate groundwater concentrations and underestimate travel times.

It is acknowledged that there could be groundwater discharge to wetlands along a surficial groundwater flowpath and this process is not incorporated into the GoldSim model. This process was not modeled because it is considered speculative and quantitatively uncertain. The Co-lead Agencies’ approach is to monitor water levels and water quality in the wetlands during operations, reclamation, and closure to identify mining effects on wetlands (if any). If monitoring

were to identify the potential for violation of regulatory criteria, adaptive mitigation measures would be initiated to mitigate the impact. See FEIS Section 5.2.3.3 for more information on wetland monitoring and possible future mitigations.

Theme WR 168

Theme Statement

There are numerous discrepancies and concerns regarding bedrock flowpaths used in the Mine Site GoldSim model. One critical issue is that the bedrock hydraulic conductivity is far too low compared to field testing and information from other sites. In addition:

- The model does not consider the effects of fractures, and uses inputs that are intentionally chosen to eliminate significant bedrock flow and transport;

- The model is biased in that it uses the Duluth Complex as the basis for very low bedrock hydraulic conductivity;

- The model inappropriately treats bedrock as being hydraulically isolated from the overlying surficial deposits; and

- The effective porosity and sorption values used for bedrock are unrealistic.

The SDEIS needs to be reviewed to account for these discrepancies.

Thematic Response

In the FEIS Mine Site GoldSim model, bedrock flowpaths have been reconfigured with a bulk hydraulic conductivity that is approximately one order of magnitude higher than what was used in the SDEIS. In addition, the flowpaths are remodeled to be 15 meters thick, consistent with the concept of an upper more-permeable bedrock zone interpreted from RQD data (in the SDEIS model, the bedrock flowpath was 100 meters thick). Fracture flow in bedrock is considered by using an appropriate bulk hydraulic conductivity and low effective porosity (0.05) as a reasonable surrogate for fracture porosity and chemical diffusion into the matrix between fractures.

The bedrock flowpaths in the Mine Site GoldSim model are physically situated in Duluth Complex rocks, so it is appropriate to use the Duluth Complex as the basis for bedrock hydraulic conductivity.

In the FEIS Mine Site GoldSim model, the bulk hydraulic conductivity of the bedrock flowpaths is two to three orders of magnitude lower than the hydraulic conductivity of the surficial flowpaths, so it is reasonable to neglect flow between bedrock and surficial deposits.

The sorption values used in the model are based on USEPA guidance documents.

Theme WR 169

Theme Statement

The Mine Site GoldSim model does not consider the presence of higher permeability bedrock structures (faults and fracture zones), despite the fact that these types of features are known to exist in bedrock. The model incorrectly assumes that pit water would not enter the bedrock groundwater system.

Thematic Response

The FEIS indicates that structural faults may exist between mine facilities and perennial streams that receive groundwater discharge. Because the landscape is covered with surficial deposits and there are limited bedrock outcrops, the existence of faults is conjectural and locations, at best, can only be inferred. It is unknown if faults (if and where they exist) behave as conduits or barriers to groundwater flow. Given these uncertainties, it is unlikely that a new, practical field program, with a goal to identify faults, would provide data to reasonably inform the impact assessments. The management approach is to set up a robust monitoring program during operations and closure to provide direct or indirect evidence on the existence of hydrologically significant faults. If significant faults are identified (i.e., faults which could lead to violation of water quality standards), then adaptive measures would be employed to mitigate the fault-related effects. See FEIS Sections 5.2.2.3.5 and 5.2.2.3.6 for further information.

Theme WR 170

Theme Statement

The Mine Site GoldSim model does consider the fact that uppermost bedrock tends to have higher hydraulic conductivity than deeper bedrock. This characteristic has been documented in evaluations at other nearby mine sites and in studies conducted by the Minnesota Geological Survey.

Thematic Response

In the FEIS Mine Site GoldSim model, bedrock flowpaths have been reconfigured with a bulk hydraulic conductivity that is approximately one order of magnitude higher than what was used in the SDEIS. In addition, the flowpaths are remodeled to be 15 meters thick, consistent with the concept of an upper more-permeable bedrock zone interpreted from RQD data (in the SDEIS model, the bedrock flowpath was 100 meters thick). Fracture flow in bedrock is considered by using an appropriate bulk hydraulic conductivity and low effective porosity (0.05) as a reasonable surrogate for fracture porosity and chemical diffusion into the matrix between fractures.

Theme WR 171

Theme Statement

An independent flow/transport model of the Mine Site and Plant Site developed and reported by Myers differs substantially from the SDEIS models. In particular, compared to the SDEIS models, the Myers model predicts: higher groundwater flow rates, higher pit dewatering rates, greater effects on the Partridge River, higher flow rates to the WWTF, higher sulfate concentrations in groundwater, higher stockpile seepage rates and concentrations, higher areal recharge, higher hydraulic conductivity of surficial deposits, and higher bedrock hydraulic conductivities. In addition, the Myers model predicts that copper concentrations would exceed water quality standards at the Partridge River that pump-and-treat of East Pit backfill is not hydraulically feasible, and that extensive drawdown would occur between the dewatered pits and the Partridge River. Some commenters have noted that the Myers model computed negative concentrations near chemical sources/sinks, which is impossible, and that some chemical sources have concentrations that are orders-of-magnitude higher than reasonable maximum field values.

Thematic Response

The differences between the Myers model and the FEIS models can be described as follows:

- The Myers model considers higher groundwater baseflows in perennial streams and this leads to higher recharge and higher hydraulic conductivities for surficial deposits. Reliable gaging data for the Partridge and Embarrass rivers indicate lower baseflows and associated lower recharge and hydraulic conductivities used in the FEIS models.
- The Myers model generally assigns higher hydraulic conductivities to bedrock units. These values are higher than what can be justified by field-testing at the NorthMet Project area or indicated in Barr 2014b, as cited in the FEIS).
- The Myers model does not include all groundwater capture systems presented in the FEIS Project Description.
- The Myers model does not use concentration caps, so that computed chemical concentrations in some mine-related chemical sources are much higher than what is reasonable or observed at other similar mine sites.
- The Myers model uses lateral and vertical dispersion, while the FEIS models do not. These uncertain processes tend to reduce chemical concentrations in the surficial aquifer, which is the dominating hydrogeologic unit that transports chemicals from mine facilities to the perennial rivers. With regard to dispersion, the Myers model would tend to compute lower chemical concentrations in the surficial aquifer compared to the FEIS models. By not considering lateral and vertical dispersion, the FEIS models tend to be conservative (i.e., more likely to overestimate impacts) compared to the Myers model.

These issues are discussed in more detail in the memorandum titled: “Comparison of the Myers Groundwater Flow/Transport model with the FEIS Impacts Analysis Models” (ERM 2015). Given the above deficiencies of the Myers model, it is not considered a reliable basis for evaluating future impacts associated with the NorthMet Project Proposed Action.

Theme WR 172

Theme Statement

The Mine Site GoldSim model should be revised to show groundwater concentration distributions along flowpaths at different points in time, as well as concentration distributions 200 years after closure. The FEIS should justify the use of cobalt as an indicator of nonreactive transport. For constituents assumed to be nonsorbed, the FEIS should state that actual migration velocities would be less than or equal to modeled seepage velocity. The FEIS should also acknowledge that groundwater concentrations are generally underestimated by the GoldSim model.

Thematic Response

Potential groundwater impacts are assessed at specific evaluation locations for each flowpath. This methodology satisfies both federal and state environmental review requirements to inform regulators, the project proponent, and public of the type, extent, and reversibility of impacts. Monitoring would typically occur at the source origins to document whether flowpath water quality predictions are being satisfied. If not, then contingency and/or adaptive measures would be applied to address potential concerns. See FEIS Section 5.2.2.1.1 for information on evaluation locations.

Cobalt was used to illustrate groundwater transport at the Mine Site because it is released by oxidation of the major source materials (waste rock and pit walls), is assumed in the GoldSim model to migrate unattenuated (i.e., travels in groundwater at an average velocity equal to the rate at which groundwater travels), and enter the surficial flowpaths at concentrations higher than baseline groundwater. Groundwater cobalt concentrations thus illustrate the time required for solutes released from sulfide-bearing mine waste to reach their peak concentration at the evaluation locations, as illustrated in concentration-versus-time plots (see FEIS Figure 5.2.2-19) and described in FEIS Section 5.2.2.3.2.

The FEIS has been modified to indicate that, “Some the constituents modeled as unattenuated in the GoldSim model may in fact exhibit some attenuation due to adsorption onto surfaces in the surficial and bedrock aquifer. The peak concentrations of these solutes would arrive at the evaluation locations later than estimated in the GoldSim model, though the peak concentrations of such late-arriving solutes would be lower than the concentrations estimated under the assumption in the FEIS of unattenuated transport” (FEIS Section 5.2.2.2.3, subheading “Contaminant Transport in Groundwater from Waste Rock”).

The GoldSim modeling was designed to evenly bracket uncertainty in model parameters, though ranges for a few parameters were skewed so as to tend towards producing higher concentrations at model evaluation locations. Thus, model results are an attempt to accurately represent a balanced assessment of uncertainty.

Theme WR 173

Theme Statement

There are numerous issues associated with chemical sources used in the Mine Site GoldSim model. Critical issues are that the model:

- Does not consider internal storage with the Category 1 and other stockpiles;

- Consistently underestimates chemical loadings (flow and concentration);

- Incorrectly assumes that chemical loading from submerged backfill and pit walls is near zero; and

- Provides no technical justification that East Pit backfill can be maintained saturated during pump-and-treat.

The FEIS should show flows and concentrations of water leaving chemical sources over time, flows and concentrations of water transferred between the Mine Site and Plant Site, residual concentrations at chemical sources after closure, and P90 concentrations over time. The use of concentration caps is not adequately explained or justified. In addition, the model does not consider: chemical leaching from unsubmerged pit walls, pit lake stratification, leaching from submerged pit walls due to dissolved oxygen in pit water, seasonal flushing of waste rock and pit walls, and that Category 1 stockpile drainage (and chemical loading) may vary over time or occur as slugs. The probabilistic inputs associated with chemical sources do not capture the full range of possible chemical loadings. The FEIS should acknowledge that the East Pit rinsing plan is untested and may fail, and that the north pit wall of the East Pit would contribute a substantial load of sulfate and metals to pit water. No groundwater capture systems are proposed downgradient of the pits, seepage through the Category 1 Stockpile may be underestimated, and pits and stockpiles remaining after closure would leach contaminated water for hundreds of years. With regard to the West Pit, the FEIS should acknowledge that the pit would not be a hydraulic/chemical sink when full, and that the plan for accelerated refill would cause contaminants to reach the Partridge River sooner, and the FEIS does not provide contaminant levels from the West Pit flowpath at the Partridge River where groundwater discharges to surface water. For the East Pit and West Pit, the FEIS should show predicted outflows (and concentrations) into surficial deposits and bedrock over time after closure. The Reclamation Plan should ensure that specific goals for pit pools are established and achieved.

Thematic Response

The GoldSim Mine Site model assumes that the waste rock and ore stockpiles start with water at an approximate “field capacity” (i.e., no water drains from the facility unless water enters the top, but if water does enter the top of the facility in a time step, then same amount would flow out the bottom). Although excess water is not stored in the rock, GoldSim maintains a mass balanced on all chemical constituents, so any solutes released from the rock than can’t dissolve and leach out in a time step are stored and released in later time.

The specific ranges for GoldSim parameters were selected to bracket evenly the uncertainty in model parameters and avoid underestimating estimates of chemical loading (MDNR et. al. 2011, as cited in the FEIS). In a few instances, model parameters are selected to produce larger ranges than indicated by simple statistical application of test data (e.g., solute release rates from waste

rock are based on the range in individual humidity-cell tests, not the range in the average; see Section 8.1.2.1 of PolyMet 2015q, as cited in the FEIS). But the Co-lead Agencies do not believe that there is a systematic bias toward underestimating flow or chemical load.

The rate of oxidation and associated release of acidity and metals from waste rock and wall rock after it is submerged under water was considered directly as part of the Impact Assessment Planning process (MDNR et. al. 2011, as cited in the FEIS). Supporting analysis found that after the rock was submerged by a layer of oxygenated water, the rate of oxidation in the rock would decrease by at least a factor of approximately 800 relative to the oxidation rate when it was exposed directly to atmospheric oxygen (Day 2008). Based on this analysis, which is consistent with general results of studies on subaqueous disposal of sulfide-bearing mine waste, the GoldSim model assumed that oxidation in submerged wall rock and waste rock was negligible.

FEIS Section 5.2.2.3.1 accurately describes how East Pit backfill would be flooded as it is emplaced during operations to maintain water within 5ft of the backfill surface using effluent from the WWTF and storm water runoff. The Co-lead Agencies' review of the model found that the footprints and depths of East/Central Pit are correctly incorporated into the three-dimensional model mesh, and that appropriate boundary conditions are used to simulate pit inflows. During reclamation (year 21 – 40), "water from the East Pit would also be pumped to the WWTF and treated...", after which treatment of water in the East Pit may continue into closure and long-term maintenance (Section 2.1.1 of PolyMet 2015d, as cited in the FEIS).

Estimates for mass loading and effluent concentrations from Mine Site facilities are presented in Attachment I and J of PolyMet 2015m, as cited in the FEIS; for Plant Site tailings facility, values for these model results are presented in Attachments D through I of PolyMet 2015j, as cited in the FEIS. Estimated flows between facilities vary in response to stochastic parameters such as monthly precipitation, but characteristics describing water flow into groundwater flowpaths and average flows to treatment facilities are in Attachment B of PolyMet 2015j, as cited in the FEIS, and Attachment B (Input Variables for the Mine Site Model) of PolyMet 2015m, as cited in the FEIS.

Concentration caps are, "empirical upper-concentration values…estimated in part using measured behavior of laboratory tests on waste rock from the NorthMet Deposit [and] measured in effluent from field-scale facilities of similar waste rock Section," is accurate (FEIS Section 5.2.2.2.3). Concentration caps are illustrated in measured composition of effluent from the Amax Stockpiles, in this case showing their dependence on pH (Large Figure 23 through 27 in the Waste Characterization Data Package—PolyMet 2015q, as cited in the FEIS).

Regarding the release of chemical loads as "slugs" from pit wall or waste rock, this can occur in the GoldSim model if solutes that exceed concentration caps are stored as labile phases. These stored loads would be released as a "slug" over a single time step if higher precipitation increases. Submerging backfill and wall rock produce a second type of slug, as any solutes stored in "non-contacted" rock are assumed to be released immediately upon inundated by water.

The ranges for probabilistic solute-release parameters were developed during the Impact Assessment Planning effort (MDNR et. al. 2011, as cited in the FEIS), and are adequate for representing uncertainty in estimates of water quality for the FEIS.

Regarding the absence of groundwater capture systems down gradient from the East Pit and West Pit, the analysis of effects presented in the FEIS are based on a model that does not have pit capture systems in place, and no additional capture trenches are proposed.

Seepage through the Category 1 stockpile is based on liner leakage rates for the cover, which are derived from combination of literature values, experience at mine sites, experience at other types of industrial facilities, manufacturer documentation, and information provided in standard engineering guidance documents (Section 5.2.2.3 in PolyMet 2015m, as cited in the FEIS). Liner leakage rates were estimated using the HELP model, where simulations combined NorthMet Project design values for slopes and subgrade design with the published values for average liner defects per acre.

It is acknowledged that there have been historical instances where poor-quality liner installations have failed or leaked at relatively high rates. However, for the high-quality liner installations to be used for the Proposed Action, the assumed liner leakage rates are reasonable and consistent with industry standards. While solid waste landfills may typically be smaller than the NorthMet facilities, the liner leakage rates are expressed on a unit area basis, so the results can be scaled to larger facilities.

It is acknowledged that the NorthMet Project Mine Site pits and waste rock would be long-term loads of some solutes to groundwater relative to the continuation of existing conditions. Estimates for these loads are presented in Attachment I of PolyMet 2015m, as cited in the FEIS.

The FEIS does not assume that the West Pit would be a sink, but instead acknowledges that outflow to the surficial and bedrock aquifers would be related to lake level. Concentrations in the West Pit Lake surficial and bedrock flowpaths are presented in Attachment J (Concentration Statistics at the Groundwater Evaluation Locations) of PolyMet 2015m, as cited in the FEIS.

The FEIS recognizes that active site management would be tied to attaining specific water-quality goals: “The objective of closure is to provide mechanical or non-mechanical treatment for as long as necessary to meet regulatory standards at applicable groundwater and surface water compliance points” (FEIS Section 5.2.2).

Finally, State rules for mineland reclamation and water appropriations require impacted watershed to be returned as close as possible to pre-mining characteristics.

Subtheme WR 173-1

Theme Statement

Provide values for volumetric flow rates and solute concentration estimates for the water released from each source and in each waste water stream, with concentrations before and after application of concentration caps and adsorption and reported in units comparable to water quality standards. Include specific values for solute concentrations and routing of runoff from waste rock.

Thematic Response

Estimates for mass loading and concentrations from the Mine Site facilities, including effluent from waste rock and ore stockpiles, are presented in Attachment H of the Mine Site Water Modeling Data Package (PolyMet 2015m, as cited in the FEIS). The assessment of

environmental effects is not based on concentrations in specific mine features, so the source concentrations are not presented with regulatory criteria. Rather, groundwater evaluation criteria are provided in Large Table 1 Groundwater Quality Standards Applicable to the NorthMet Project Modeling in the Mine Site Water Modeling Data Package (PolyMet 2015m, as cited in the FEIS). They also can be found in Section 5.2.2 of the FEIS.

The NorthMet GoldSim water quality model has not been run without concentration caps in source materials or adsorption-related attenuation in groundwater because these are widely observed effects in mine environments. Thus, eliminating these effects from the GoldSim model would not be realistic, and such a model would not improve the assessment of environmental effects.

Adsorption is widely observed in studies of metal transport in groundwater, and is an important-enough effect that the USEPA provides guidance documents with screening level values for adsorption (as "Kd") to support estimates of exposure to solutes migrating in groundwater (USEPA 2005, as cited in the FEIS). This literature review by the USEPA indicates that Kd for the four metals assumed to be affected by adsorption in the NorthMet surficial aquifer (arsenic, antimony, copper, and nickel) vary widely across different sites. In response, the GoldSim modeling at NorthMet selected values from the low end of this range (i.e., values that produce rapid transport in groundwater, and thus earlier arrival at groundwater evaluation locations [PolyMet 2015j, as cited in the FEIS]). But eliminating entirely the effect of adsorption from the GoldSim model would not improve the assessment of environmental effects. The Co-lead Agencies thus do not believe that the GoldSim water quality model needs to be been run without adsorption-related attenuation in groundwater.

The effect of concentration caps can be seen in measured composition of effluent from the Amax Stockpiles, in this case showing their dependence on pH (Large Figures 23 through 27, PolyMet 2015q, as cited in the FEIS). The selection of specific values for concentration caps was considered by the Co-lead Agencies (see Table 1, MDNR et al. 2011, as cited in the FEIS), and specific ranges for concentration caps in waste rock are presented in Tables 1-30 through 1-33 in the NorthMet Mine Site Water Modeling Work Plan (Barr 2012c, as cited in the FEIS).

Subtheme WR 173-2

Theme Statement

Provide estimates for pH, sulfate, and alkalinity predicted in the PolyMet pit lakes and tailings effluent, and compare these to the values observed in natural and mine-produced lakes in the region.

Thematic Response

Estimates for the concentration of all modeled solutes in the West Pit Lake are presented in the Attachment H of the Mine Site Water Modeling Data Package (PolyMet 2015m, as cited in the FEIS). For the Tailings Basin effluent, estimated concentrations are presented in Attachment G of the Plant Site Water Modeling Data Package (PolyMet 2015j, as cited in the FEIS).

The pH of water is a dynamic parameter that reflects chemical equilibrium condition, and is not predicted explicitly by the GoldSim model for any of the NorthMet Project area waters, including the West Pit Lake. However, the West Pit Lake is a component of the active water

management and treatment system during and after the 20-year operating life of the mine, and its water quality would be monitored as part of the NorthMet Project Proposed Action (PolyMet 2015d, as cited in the FEIS; Large Figure 1, Water Treatment Overall Flow Sheet-Operations, and Large Figure 3, Water Treatment Overall Flow Sheet- Long-Term Closure.)

Water quality in the West Pit Lake would be controlled by pumping and, where necessary, treatment. Most of the effluent from the Tailings Basin would be captured and treated, and the GoldSim model results and associated effects presented in the FEIS account for some bypass of the capture system. Because the environmental effect of the West Pit Lake and Tailings Basin are not dependent on water quality of other lakes, the Co-lead Agencies do not plan to compare model results for the West Pit Lake to water quality in other lakes in the region.

Subtheme WR 173-3

Theme Statement

Provide estimates of water balance on the Mine Site to illustrate whether the West Pit will eventually overflow.

Thematic Response

Plans for managing water in the West Pit during operations and into closure include actively maintaining the West Pit Lake water level so that it remains below the spillway to the Partridge River until the lake meets discharge standards. Specifically: “No discharges are planned from the Mine Site during operations and reclamation. During long-term closure, West Pit water would be pumped to the Mine Site Waste Water Treatment Facility (WWTF) as needed to prevent the West Pit from overflowing. An NPDES/SDS permit would be required to discharge WWTF effluent to the Partridge River” (PolyMet 2015m, as cited in the FEIS). Maintaining the West Pit Lake level below the discharge point is incorporated in the GoldSim modeling.

The FEIS Section 5.2.2.3.2 indicates that West Pit Lake water would not be allowed to overflow direct to the Partridge River until it can meet effluent limits.

Subtheme WR 173-4

Theme Statement

PolyMet should “bolt, wire, and shotcrete” the pit walls to inhibit the migration of water and pollutants in and out of the pit (as done by Kennecott at its Flambeau Mine).

Thematic Response

The current Mine Site GoldSim water quality model of the proposed West, Central, and East pits does not include any plans to add bolts or surficial coatings to the pit wall rock. Instead, the assessment of effects in the FEIS considers oxidation reactions and the associated solute release assuming that the wall rock is exposed to the atmosphere, and that oxidation ceases only when the wall rock is covered by backfill (in the East and Central pits), submerged by the pit lake (in the West Pit), or the available sulfide minerals are fully oxidized. The parameters used to estimate oxidation rates in pit walls (thickness of reactive veneer, decay in reaction rate, oxidation after wall rock is submerged in the lake, metal releases for different wall rock types,

etc.) were considered in detail by the Co-lead Agencies, and are described in the Waste Characterization Data Package (PolyMet 2015q, as cited in the FEIS), Section 9 Geochemical Parameters – Pit Lake. The estimates for wall rock oxidation rates used in GoldSim were consistent with observed rates in field studies at other mines. The Co-lead Agencies thus believe that that the current analysis of environmental effects is adequate, and that the NorthMet Project Proposed Action does not need to alter the pit wall surfaces with bolts, wire, shotcrete, or other surface treatments.

Subtheme WR 173-5

Theme Statement

Provide estimate for the effects of outflow from the West-Pit and backfilled East and Central Pits on the quality of receiving groundwater, including an analysis where the sulfate concentration is much higher than currently predicted.

Thematic Response

Estimates for mass loading from the Mine Site facilities are presented in Attachment H of the Mine Site Water Modeling Data Package (PolyMet 2015m, as cited in the FEIS). The effect of effluent from these Mine Site facilities on the quality of receiving groundwater is presented in Attachment J.

The specific ranges for GoldSim parameters were selected by the Co-lead Agencies to evenly bracket the uncertainty in model parameters and avoid underestimating estimates of chemical loading. Comparison tests of the GoldSim model found that the model may underestimate solute release in some cases (e.g., a comparison of GoldSim estimates to measured effluent from the existing Amax piles found that the model tended to overestimate sulfate concentrations [PolyMet 2015q, as cited in the FEIS, Section 8.2.7 Scale-Up Model Verification]). But the Co-lead Agencies do not believe that there is a systematic bias toward underestimating chemical loading or concentration of sulfate or other constituents.

Subtheme WR 173-6

Theme Statement

Demonstrate that the reactive backfilled East Pit would remain saturated during mining and perpetually beyond this in closure.

Thematic Response

Water quality in the backfilled East Pit would be managed by actions taken before, during, and after flooding of the pit. At the time of initial backfilling, the waste rock and overburden material that is backfilled into the East Pit would be treated with limestone to reduce acidity and maintain basic pH (PolyMet 2015q, as cited in the FEIS). During operations, the East Pit would be flooded as backfill is emplaced to maintain water within 5 ft of the backfill surface using effluent from the WWTF and storm water runoff, as described in Section 5.2.2.3.1 of the FEIS. The Co-lead Agencies' review of the GoldSim model found that the footprints and depths of the combined East/Central Pit are correctly incorporated into the three-dimensional model mesh, and that appropriate boundary conditions are used to simulate pit inflows. The plan for treating water

in the East Pit backfill is not contingent on rapid flushing, but instead allows pumping at a rate that would not dewater the backfill.

During reclamation (years 21 to 40), "…water from the East Pit would also be pumped to the WWTF and treated..." after which treatment of water in East Pit may continue into long-term closure (PolyMet 2015d, as cited in the FEIS). The Co-lead Agencies believe that the existing plans, as described in the FEIS, are sufficient to ensure that the East Pit backfill would remain saturated perpetually beyond closure.

Subtheme WR 173-7

Theme Statement

Provide an estimate for pH in the West Pit Lake, along flow paths, and in the Partridge River.

Thematic Response

Solution pH is a dynamic parameter that reflects chemical equilibrium condition, and is not predicted explicitly by the GoldSim model for any of the NorthMet Project area waters, including groundwater, the Partridge River, and the West Pit Lake. However, sulfide minerals oxidation in the NorthMet mine rock can cause pH to decrease, and where pH becomes acidic, this causes an increase in oxidation rates, modeled concentration caps, and associated solute concentrations in leachate. These effects from pH are incorporated explicitly into the GoldSim model in the calculations of solute loads from both the non-acid-generating and acid-generating wall rock in the West Pit (PolyMet 2015q, as cited in the FEIS).

The lake water quality would be affected by pH (e.g., if the lake water became acidic, then concentration caps would be higher, and the concentrations of some metals could be higher). However, the West Pit Lake is not a passive basin, but is instead a component of the NorthMet Project Proposed Action's active water management system, so that during and after the 20-year operating phase, its water quality would be monitored and treated as part of the NorthMet Project Proposed Action (Large Figure 1 and Large Figure 3 of PolyMet 2015d, as cited in the FEIS).

Regarding predicting water quality along flowpaths, please see the response to theme WR 177.

Subtheme WR 173-8

Theme Statement

Expand model analysis to determine whether a slug of water and solutes could be released periodically from Waste Rock stockpiles.

Thematic Response

The GoldSim model of waste rock stockpiles is configured so that it can release slugs of accumulated solutes under three conditions. As observed in weathering of waste rock under field conditions, solutes are released from waste rock in proportion to the time over which it is exposed to air. During a dry period, GoldSim stores constituents released by oxidation as a soluble but immobile phase. These stored constituents are then available to dissolve and flush out as a slug in the first occurrence of percolating water, as would occur in a rainy month following one or more dry months. A second type of concentration slug occurs at the onset of acidic

conditions, where the constituent-release rates and concentration caps applied in the GoldSim model both increase (PolyMet 2015q, as cited in the FEIS). Third, waste rock submerged under water (i.e., as occurs in the East Pit backfill) produces a slug release when the solutes stored in non-contacted portion during the air-oxidation period are allowed to dissolve (up to the concentration caps) when the rock is submerged. The Co-lead Agencies believe that the GoldSim model configuration described in the FEIS adequately addresses slug releases of constituents from waste rock.

Subtheme WR 173-9

Theme Statement

Expand model analysis to consider solute transport in groundwater with no retardation effect.

Thematic Response

Adsorption is widely observed in studies of metal transport in groundwater, and is an important enough effect that the USEPA provides guidance documents with screening level values for adsorption (as "Kd") to support estimates of exposure to solutes migrating in groundwater (USEPA 2005, as cited in the FEIS). This literature review by the USEPA indicates that Kd for the four metals assumed to be affected by adsorption in the NorthMet surficial aquifer (arsenic, antimony, copper, and nickel) vary widely across different sites. Adsorption parameters were also used from laboratory studies for antimony. In response, the GoldSim modeling selected values from the low end of this range (i.e., values that produce rapid transport in groundwater, and thus earlier arrival at groundwater evaluation locations [PolyMet 2015m, as cited in the FEIS]).

But eliminating entirely the effect of adsorption from the GoldSim model would not improve the assessment of environmental effects. The Co-lead Agencies thus do not believe that the NorthMet GoldSim water quality model needs to be rerun without adsorption-related attenuation in groundwater.

Subtheme WR 173-10

Theme Statement

Modify the model of the West Pit Lake to include the effect of sulfide oxidation caused by air pulled into the pit walls to fill the voids that are desaturated by groundwater drawdown.

Thematic Response

PolyMet provided the Co-lead Agencies with calculations used to determine the mass of sulfate released by the additional oxidation in pit wall rock caused by air pulled in to replace the voids emptied as groundwater in bedrock drains into the pit (PolyMet 2014b). This approach assumes that the volume of water extracted from bedrock is replaced by an equal volume of air, and all of the oxygen in this entering air reacts with sulfide minerals in the wall rock.

The volume of water extracted from bedrock was estimated to be equal to the total inflow to the pits from bedrock in the time between the beginning of mining and the time when pit flooding begins (i.e., the point of maximum drawdown in the bedrock). At the concentration of oxygen in

air (8.89 mole O_2/m^3), the reaction ratio for pyrrhotite oxidation (0.44 mole SO_4/mole O_2), and the molecular weight of sulfate (96 g/mole), each cubic meter of air pulled into the bedrock wall rock would release 375 g SO_4.

In the West Pit, the estimated volume of water extracted from bedrock is $2.79x10^5$ m^3, which when converted to airflow into pit wall rock, would release $1.13x10^5$ kg SO_4.

When this mass is mixed into the full West Pit ($1.05x10^8$ $m^{3)}$, this would add 1.1 mg/L to the concentration of the West Pit, or approximately 1.5 percent increase relative to the P50 concentration of 77 mg/L SO_4 estimated by GoldSim without this air-advection effect, and also approximately 1 percent of the range in uncertainty in West Pit sulfate concentration at year 20 (i.e., P10 to P90 range is approximately 50 to 100 mg/L [PolyMet 2015m, as cited in the FEIS; Figure H-11-24.2 SO_4 in the West Pit]).

For the East Pit, the MODFLOW model result indicates that $2.55x10^6$ m^3 of bedrock groundwater would be removed, and the air to replace it would produce $9.7x10^5$ kg SO_4. At the full volume of the East Pit ($1.44x10^7$ m^3), this would add 67 mg/L to the sulfate concentration, or an increase of 2.6 percent relative to the GoldSim model P50 prediction of 2,578 mg/L sulfate in the current model without the air-advection effect.

The effects of advection-induced air oxidation are small for the Mine Site pits in part because the bedrock porosity is small (0.05; Barr 2012c, as cited in the FEIS, Table 1-1), so that drawdown around the pits would produce a relatively small amount of water from bedrock.

The Co-lead Agencies believe that constituent release from this advective air flow into bedrock by dewatering is small enough relative to both absolute concentrations and current uncertainty in the GoldSim model that this effect can be ignored in the FEIS.

Theme WR 174

Theme Statement

The Mine Site GoldSim model underestimates chemical concentrations in non-contact runoff from the mine facilities (particularly sulfate).

Thematic Response

Non-contact runoff from the NorthMet Project Proposed Action-related mine facilities represents overland flow that would not contact ore, tailings, waste rock, or processing residues. This flow would generally contact natural ground, soil/vegetated covers, and synthetic plastic materials. This water would not be chemically impacted to any significant extent and its chemical concentrations would be similar to natural runoff. See the response to theme WR 151 for additional information.

Theme WR 175

Theme Statement

The FEIS should include a sensitivity analysis for numerous parameters used in the Mine Site GoldSim model, including Partridge River baseflow. In the model, evapotranspiration from stockpiles should use a sample standard deviation rather than population standard deviation. The

FEIS should indicate what all pumped flows are used for, and should acknowledge that accelerated refill of the West Pit would increase chemical loading to groundwater. The FEIS should also acknowledge that chemical loading from the Mine Site is very small compared to natural loading in the Partridge River, and that the One Hundred Mile Swamp flows into the BWCAW.

Thematic Response

To better understand the relationship of groundwater baseflow to the GoldSim model's water quality impact projections, a sensitivity analysis for the Mine Site was conducted to evaluate if predicted Project impacts are sensitive to groundwater baseflow values. The sensitivity analysis considered the relationship of various model inputs to groundwater baseflow including hydraulic conductivity, recharge, and surface runoff chemical concentrations. It also reflected consideration of the flow data collected at SW-003 in requiring groundwater baseflows at all locations on the Partridge River be increased by a factor of 4 (e.g., 0.5 to 2 cfs at SW-003). The results indicate that modeled groundwater and surface water concentrations are sensitive to changes in groundwater baseflow. However, the NorthMet Project Proposed Action's ability to meet groundwater quality and surface water quality evaluation criteria is not sensitive to changes in baseflow. Evaluation criteria can be found in Section 5.2.2.

The probabilistic inputs for evapotranspiration are based on an evaluation performed at the Amax test pile (Eger and Lapakko 1985). Measurements and back-calculations performed in that study were used to develop a best-estimate mean and standard deviation of the stockpile evapotranspiration.

The FEIS has revised text to indicate where pumped flows are transported at both the Mine Site and Plant Site and between the sites. It is acknowledged in the FEIS that accelerated refill of the West Pit would result in seepage of impacted pit water into the West Pit surficial flowpath sooner than if the pit were to refill naturally. The FEIS acknowledges that chemical loading from the Mine Site would be small compared to natural chemical loading in the Partridge River and that there are portions of the One Hundred Mile Swamp that contribute water to the BWCAW, however those portions would be unaffected by the NorthMet Project Proposed Action.

Theme WR 176

Theme Statement

With regard to water treatment and discharge, the Mine Site GoldSim model underestimates pit inflows and, therefore, underestimates water treatment flow rates. If treatment rates are higher, sludge production would be higher and costs would be higher. The FEIS should provide flow rates and influent concentrations over time, treated water discharge locations, flows, and timing, and contingencies to handle extreme weather events.

Thematic Response

Pit inflows predicted by the FEIS Mine Site MODFLOW model and used to inform the FEIS Mine Site GoldSim model are sensitive to the hydraulic conductivities of surficial deposits and bedrock units. The MODFLOW model's prediction of pit inflows is reasonable because the hydraulic conductivities used in the model are best estimates, based on site characterization.

The FEIS contains new text and tables indicating water treatment flow rates, influent concentrations, and effluent concentrations over time. The FEIS also indicates where treated water would be transported to at different stages of the NorthMet Project Proposed Action. Because the GoldSim model uses monthly time steps, the analysis does not explicitly consider extreme storm events. However, the design of engineered facilities would entail Factors of Safety that ensure the ability to handle a 100-year storm event.

Theme WR 177

Theme Statement

Evaluation locations in the Mine Site GoldSim model do not adequately assess effects on groundwater and Partridge River surface water, and specifically do not address effects on the Partridge River upstream of evaluation location SW-004, which would be affected by chemicals from the Category 2/3 Stockpile and East Pit. In general, evaluation locations need to consider the nearest locations where impacted groundwater could affect wetlands and other surface waterbodies. The Mine Site GoldSim model does not provide a quantitative analysis of wetland effects, and incorrectly assumes that groundwater does not upwell into wetlands or other surface waterbodies along the surficial flowpaths. The FEIS should disclose that the groundwater quality criteria for cobalt, aluminum, and possibly copper are exceeded in the Category 2/3-East Pit surficial flowpath. The FEIS should provide a more detailed discussion of sulfate in the Partridge River, and should acknowledge that the model likely underestimates sulfate concentration in the River. The FEIS should show the distribution of chemical concentrations in the groundwater flowpaths at 200 years after closure. The model does not simulate appropriate (seasonal) timing of natural processes such as recharge. The model should evaluate specific conductance, which is a regulated water quality criterion. The assessment of effects should be based on both Health Risk Limits and Clean Water Act compliance points. Implementation of the Land Exchange alternative would also require different evaluation locations (property boundaries).

Thematic Response

Potential groundwater impacts are assessed at specific evaluation locations defined for each flowpath. This methodology satisfies both federal and state environmental review requirements to inform regulators, the project proponent, and public of the type, extent, and reversibility of impacts. Monitoring would typically occur at the source origins to document whether flowpath water quality predictions were being satisfied. If not, then contingency and/or adaptive measures would be applied to address potential concerns. See FEIS Section 5.2.2.1.1 for information on evaluation locations.

Surface water monitoring station SW-004 is used to estimate the effects of Mine Site facilities on surface water because it has baseline values for water quality and flow (Mine Site Water Modeling Data Package, Large Table 10 Surface Water Data Summary Partridge River Watershed and Wyman Creek) and incorporates the cumulative effects of solutes released from the Category 2/3 Stockpile and East Pit, Ore Surge Pile, WWTF ponds, and Overburden Storage and Laydown Area (PolyMet 2015m, Large Figure 28 Mine Site Groundwater Flow Paths – Surficial Aquifer). Thus, if the NorthMet Project Proposed Action did not cause a water quality exceedance at SW-004, then it would not produce an exceedance farther upstream, where

cumulative mine site loads would be proportionately smaller than the lower flows that would be observed upstream.

Figures showing sulfate groundwater concentration distributions through time for the West Pit and the Category 2/3 flowpaths are in Section 6.3.2 of PolyMet 2015m, as cited in the FEIS.

It is acknowledged that there could be groundwater discharge to wetlands along a flowpath and the Mine Site GoldSim model does not explicitly incorporate wetlands or potential hydraulic connectivity between wetlands and the surficial aquifer. This process was not modeled because it is considered speculative and quantitatively uncertain. The Co-lead Agencies' approach is to monitor water levels and water quality in the wetlands during operations, reclamation, and closure to identify mining effects on wetlands (if any). If regulatory criteria were violated, adaptive water mitigation measures would be initiated to mediate the impact. The monitoring and mitigation for potential indirect effects would be determined during permitting. FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects.

Regarding exceedances in groundwater quality evaluation criteria in the Category 2/3-East Pit Surficial flowpath, predicted concentrations were compared to applicable criteria (Large Table 1 in PolyMet 2015m, as cited in the FEIS). Aluminum is a secondary standard (range 50–200 µg/L), established by the USEPA to assist with managing drinking water for aesthetic considerations; it is not based on risk to human health. Aluminum concentrations were estimated by GoldSim (Figure J-01-02.2 of PolyMet 2015m, as cited in the FEIS), but because local groundwater already exceeds the aluminum sMCL, estimated concentrations above the sMCLs are not be considered exceedances of the groundwater evaluation criteria (Section 2.1 of PolyMet 2015m, as cited in the FEIS). Cobalt is reported in the Category 2/3-East Pit Surficial flowpath (Figure J-01-02.2 of PolyMet 2015m, as cited in the FEIS), but cobalt does not have a groundwater quality criterion. The maximum copper concentration at the property boundary in this flowpath is far lower than 1,000 µg/L, the groundwater standard for copper of (Figure J-01-13.2 and Large Table 1, respectively, in PolyMet 2015m, as cited in the FEIS).

The GoldSim modeling was designed so as to bracket evenly the uncertainty in model parameters. The Co-lead Agencies do not believe that the Mine Site GoldSim model produces a systematic underestimate of sulfate concentrations in the Partridge River.

Recharge is simulated as a fraction of precipitation, and precipitation varies monthly (Attachment, B Input Variables for the Mine Site Model, Table 1-11 Seasonal Distribution of Annual Open Water Evaporation and Annual Precipitation, in PolyMet 2015m, as cited in the FEIS).

Electrical conductance provides an estimate for TDS. There are TDS standards for surface water (700 mg/L) and groundwater (500 mg/L), and, at the request of the MPCA, GoldSim results include estimates for TDS at each time step, calculated by summing major solutes (Section 6.2.6.2 of PolyMet 2015m, as cited in the FEIS).

The FEIS and associated estimates of solute concentrations in groundwater are for the evaluation locations as identified under the Land Exchange Proposed Action. There is no change in applicable evaluation locations across the land exchange alternatives.

The surface water quality standards used in the FEIS are from *Minnesota Rules* 7050, which derive from the Clean Water Act; where Lake Superior Basin rules apply (Chapter 7052, which

do consider human health), they are used as evaluation criteria (Section 2.2 of PolyMet 2015m, as cited in the FEIS). The groundwater evaluation criteria are generally federal or state drinking water standards, which are mostly health-based. Evaluation criteria can be found in Section 5.2.2.

Theme WR 178

Theme Statement

The Mine Site GoldSim model should be rerun. It does not incorporate known hydrology and geochemistry, and is not sufficiently accurate for effects evaluation. The Myers model produces results that are different from the SDEIS modeled effects.

Thematic Response

The Mine Site GoldSim model has been modified and rerun for the FEIS based on new monitoring data, recalibrations, and issues raised in comments to the SDEIS. The FEIS model is considered to be sufficiently accurate for impacts analysis.

The Co-lead Agencies have reviewed the Myers model (ERM 2015), but given the reliability issues discussed in WR 171, the Co-lead Agencies do not believe the results are valid for assessing NorthMet Project Proposed Action-related impacts in the FEIS.

Theme WR 179

Theme Statement

Due to the low bedrock hydraulic conductivities assumed at the Mine Site, the pit inflow rates used on the Mine Site GoldSim model are underestimated. The Myers model predicts pit inflow rates approximately two times higher than the rates used in the GoldSim model and also predicts extensive drawdown between the pits and the Partridge River. The GoldSim model should consider ranges of pit inflow rates, and should treat these as probability inputs in the model. West Pit inflows are also underestimated because Partridge River water would enter bedrock fractures and flow to the pit.

The GoldSim model does not evaluate the effects of large-scale drawdown associated with pit dewatering. The SDEIS should provide both the modeled drawdown at SW-003 and an explanation of the area used for groundwater inputs to the Partridge River and how those inputs correlate with the groundwater elevation contour map.

Thematic Response

Pit inflows predicted by the FEIS Mine Site MODFLOW model and used to inform the FEIS Mine Site GoldSim model are sensitive to the hydraulic conductivities of surficial deposits and bedrock units. These hydraulic conductivities are reasonable best-estimates, so the inflow predictions are reasonable best-estimates, as well. The Co-lead Agencies do not agree that the predicted pit inflows are underestimated.

The Co-lead Agencies have reviewed and acknowledge the existence of the Myers model, but given the reliability issues discussed in WR062 and WR171, the Co-lead Agencies do not

believe the results are valid for assessing NorthMet Project Proposed Action impacts in the FEIS. These issues are discussed in more detail in ERM 2015.

Best estimate pit inflows over time are determined from the calibrated FEIS Mine Site MODFLOW model and these results are used to inform the FEIS Mine Site GoldSim model. The uncertainty in the groundwater inflow rate is represented with a probability distribution that scales the model-estimated inflow values. This log-normal distribution is defined such that the mean is the MODFLOW-estimated value (scaling factor of 1.0) and the 95 percent confidence interval extends from approximately 0.75 to 2.0.

There is no evidence of pervasive fractures or faults that behave as groundwater conduits connecting the Partridge River mine pits. Pit inflows are related to the bulk hydraulic conductivity of bedrock units, which are inputs to the FEIS Mine Site MODFLOW model. Best-estimate pit inflows predicted by the MODFLOW model are used to inform the FEIS Mine Site GoldSim model.

Large-scale drawdown affects in bedrock associated with pit dewatering is assessed in the FEIS Mine Site MODFLOW model, not the Mine Site GoldSim model. See the Water Model Data Package for more information (PolyMet 2015m, as cited in the FEIS).

In the Mine Site MODFLOW model, the Partridge River is modeled with river cells having high conductance values. As a consequence, there is no appreciable groundwater drawdown at the River, including the SW-003 location. The model predicts that the Partridge River at SW-003 is a gaining stream for both the NorthMet Project Proposed Action and for Continuation of Existing Conditions. The areas used to compute river cell conductance values are explained in PolyMet 2015m, as cited in the FEIS. Conductance values were calibrated so that hydraulic heads in the vicinity of the river cells were similar to estimated groundwater levels in the surficial aquifer adjacent to the Partridge River.

Theme WR 180

Theme Statement

The SDEIS does not adequately consider future climate change impacts, including its effects on: weather patterns, rainfall, storm events, droughts, sea level rise, vegetation types, vegetation distributions or mitigation.

Thematic Response

Estimates of monthly and annual rainfall amounts were based on best available data obtained from weather stations near the Proposed Action site. In the GoldSim models, these parameters were treated as uncertain inputs and assigned probability distributions to capture the range of possible future conditions. While climate change may occur in the future, it cannot be stated at this time if in the long-term there would be more or less rainfall. Thus, the probabilistic approach to rainfall used in GoldSim represents a technically defensible method for dealing with this issue.

Individual storm events and frequency are not incorporated into the GoldSim models. Rainfall inputs are monthly and annual. The effects of individual storms are considered by designing facilities to handle a 100 year - 24 hour storm event based on current data. If over time, climate change causes a gradual increase in annual rainfall, the 100 year storm event would be redefined to a larger value and mine facilities would be upgraded to handle a larger design storm.

Theme WR 181

Theme Statement

The FEIS should describe the water balance and mechanisms of consumptive use at the Mine Site, including diversion of Colby Lake water for mine process, reduction of flows in the Partridge River, evaporation from ponds and pit lakes, increased evapotranspiration from wetlands, and evaporation and disposal of reverse osmosis reject water. The use of Colby Lake water for augmentation or consumptive use should be discouraged since it is a small lake and fresh water is scarce and valuable. Appropriating water from Colby Lake would lower its water quality. Regional impacts from water use should be considered.

Thematic Response

In the FEIS Project Description, there is no direct diversion of Colby Lake water to the Mine Site.

During operations, some of the mine pit inflow water would be sent to the Tailings Basin pond and used for process makeup water. This represents a water diversion from the Partridge River watershed to the Embarrass River watershed. Some of this water would percolate into the tailings, be collected at the tailings toes, treated, and discharged to Embarrass River tributaries for augmentation. The consumptive use this component of Colby Lake water would be evaporation from the Tailings Basin pond, water loss during ore processing, and disposal/evaporation of RO reject water when this water is eventually treated at the WWTP.

There is no expectation of increasing the overall area of wetlands at the Mine Site, so evapotranspiration from wetlands would not increase under the NorthMet Project Proposed Action compared to current (natural) conditions.

The Mine Site GoldSim model tracks all water diversions and the main consumptive uses at the Mine Site including evaporation from ponds, evaporation from pit lakes, and disposal/evaporation of RO reject water. Most other water flows are returned to the natural system with or without treatment.

The annual average water withdrawal rate from Colby Lake (sent to Plant Site) would be 1.68 cfs during operations. The annual maximum withdrawal rate during operations would be 3.89 cfs. During reclamation and closure and long-term maintenance, water would not be withdrawn from Colby Lake. There are no plans to use Colby Lake water to directly augment flows in perennial streams at the Plant Site.

During operations (mine years 0 to 20), water would be pumped from Colby Lake to the Plant Site and used for makeup water at the processing plant and the Hydrometallurgical Residue Facility. GoldSim tracks these flows and computes the water balance for Colby Lake on a time-step by time-step basis. The average Colby Lake drawdown was modeled at 0.3 feet, with an average annual water level fluctuation of about 3.6 feet, compared to 3.9 feet for zero withdrawal. During operations, the average inflow reduction to Colby Lake is estimated to be 0.6 cfs and the maximum inflow reduction (year 12) is estimated to be about 1 cfs. During closure and long-term maintenance, inflow to Colby Lake would be increased by an annual average of about 0.6 cfs. In the FEIS, the GoldSim model has been modified to provide more accurate estimates of the Lake water quality. While there are some project-related effects on the lake water chemistry, the Co-lead Agencies have concluded that the effects do not constitute an

unacceptable impact to Colby Lake. Because flow and water quality impacts to Colby Lake are minimal, it is further concluded that impacts downstream of Colby Lake would also be minimal and not constitute an unacceptable NorthMet Project Proposed Action-related impact.

Theme WR 182

Theme Statement

The FEIS should describe the water balance and mechanisms of consumptive use at the Plant Site, including reduction of flows in the Embarrass River, evaporation from the Tailings Basin pond, water use in ore processing, transfer of water to the Mine Site, and evaporation and disposal of reverse osmosis reject water. Dewatering water should be reused on site if possible. The FEIS should also describe the volume of water required, the water's origin, and the timeframes for use at the Tailings Basin.

Thematic Response

See the response to theme WR 181 for information on water diversions from Colby Lake, and between the Partridge River Watershed and the Embarrass River Watershed.

The Plant Site GoldSim model tracks all water diversions and the main consumptive uses at the Plant Site including evaporation from the Tailings Basin pond, water loss to ore processing, and disposal/evaporation of RO reject water. Most other water flows are returned to the natural system with or without treatment. The FEIS has a new table summarizing the quantities of consumptive water use at the Mine Site and Plant Site, including but not limited to items listed in the theme. See Mine Site Data Package and Plant Site Data Packages (PolyMet 2015m and PolyMet 2015j, respectively, both as cited in the FEIS) for a summary of NorthMet Project Proposed Action-related consumptive uses.

The GoldSim models track water balances for the Mine and Plant Site facilities, and many of these flows are reported in the FEIS. More comprehensive reporting of water balances is provided in the NorthMet Project Water Modeling Data Package Volume 1 - Mine Site" and "NorthMet Project Water Modeling Data Package Volume 2 - Plant Site" (PolyMet 2015m and 2015l, respectively, both as cited in the FEIS).

Theme WR 183

Theme Statement

The SDEIS does not demonstrate that mine water use and augmentation would maintain wetlands, headwater streams, and the St. Louis River Watershed hydrology.

Thematic Response

FEIS Section 5.2.2.3.2 summarizes that the NorthMet Project Proposed Action would not affect groundwater levels along the Transportation and Utility Corridor (other than as a result of the West Pit dewatering, which is discussed as part of the Mine Site) or at the former LTVSMC processing plant. The NorthMet Project Proposed Action would affect groundwater levels at the Mine Site during operations by dewatering the active mine pits and pumping water to the Plant Site (years 0 to 11) or to the East Pit and Tailings Basin (years 11 to 20). During years 20 to 40,

water from the Plant Site would be pumped to the West Pit to accelerate flooding and help return groundwater levels to near pre-mining conditions. However, potential impacts on wetland or stream hydrology are not expected beyond areas immediately adjacent to the West Pit (as estimated from the analog method of estimating indirect wetland impacts from mine pit dewatering). The monitoring and mitigation for potential indirect effects would be determined during permitting. FEIS Section 5.2.3.3 has been revised to include more information on the monitoring and mitigation plan for the potential indirect wetland effects.

The cumulative effects analysis in FEIS Section 6.2.3.3.1 of the SDEIS concludes that the NorthMet Project Proposed Action would not have a significant effect on the St. Louis River hydrology.

Theme WR 184

Theme Statement

Use of Colby Lake water (which has mercury concentrations of approximately 5 ng/L) to augment upstream flow would violate Great Lakes mercury standard of 1.3 ng/L.

Thematic Response

The NorthMet Project Proposed Action described in the FEIS would include treatment of all water that would be discharged at the Plant Site, including water used for flow augmentation. The amount of water from Colby Lake used for flow augmentation would be low; however, any water used for augmentation would be treated prior to discharge. PolyMet proposes that tributaries be monitored that extend from the Tailings Basin. Additional information has been included in FEIS Section 5.2.2.3.6.

Theme WR 185

Theme Statement

The SDEIS does not provide a technical justification for the requirement to augment flows to within 20 percent of current conditions, nor does it address minerals and nutrients to maintain aquatic ecology, wetland ecology, or the need of riverine systems to be flushed to maintain ecosystem health.

Thematic Response

The NorthMet Project Proposed Action described in the FEIS includes treatment of all water that would be discharged at the Plant Site including water used for flow augmentation. The amount of water from Colby Lake used for flow augmentation would be low; however, any water used for augmentation would be treated prior to discharge. PolyMet proposes that tributaries that extend from the Tailings Basin be monitored. Additional information has been included in FEIS Section 5.2.2.3.6. Potential impacts on aquatic species are addressed in FEIS Section 5.2.6.

Theme WR 186

Theme Statement

The FEIS discussion of stream augmentation needs to consider flows in Yelp Creek and other tributaries of the Partridge River and Embarrass River.

Thematic Response

The FEIS evaluated the need for stream augmentation as a result of the NorthMet Project Proposed Action. The flow of Yelp Creek would not change. Flow to the tributaries of the Embarrass River and Second Creek would be augmented under the NorthMet Project Proposed Action. Partridge River flows would not require augmentation. The FEIS recommends surface water flow monitoring in creeks and rivers surrounding the NorthMet Project area. If data were to indicate that the NorthMet Project Proposed Action had resulted in unacceptable flow reductions, augmentation would be considered.

Theme WR 187

Theme Statement

The FEIS discussion of stream augmentation needs to consider flows in the Partridge River at SW-004a, SW-004, SW-003 and SW-002.

Thematic Response

Partridge River flows would not require augmentation because the MDNR does not require augmentation unless the median annual flow changes by more than 20 percent. This threshold is not predicted to be exceeded at SW-004, which is an appropriate location to assess potential drawdown. The FEIS recommends surface water flow monitoring in creeks and rivers surrounding the NorthMet Project area. If data were to indicate that the NorthMet Project Proposed Action had resulted in unacceptable flow reductions, augmentation would be considered.

Theme WR 188

Theme Statement

The FEIS discussion of consumptive use and augmentation must consider the effects of prolonged droughts.

Thematic Response

This issue would be relevant to the NorthMet Project Proposed Action if augmentation water were not available to maintain surface water flows to within 20 percent of what they would be under drought conditions without the NorthMet Project Proposed Action. Typically the two go hand-in-hand. During a drought, there could be less water available for augmentation, but the amount of augmentation water needed to maintain lower surface water flows under drought conditions would also be less. The sources of augmentation water for the NorthMet Project Proposed Action (mainly water treatment effluents) are expected to be sufficient to handle

normal and drought conditions. The Co-lead Agencies' approach is to monitor the amount of augmentation water required and available for years with variable rainfall and evaluate if a shortfall could occur during a prolong drought. If it were apparent that a shortfall could occur, adaptive measures would be proposed to ensure that the 20 percent requirement could be met during a prolonged drought.

Theme WR 189

Theme Statement

There are numerous general concerns with and deficiencies in the GoldSim model used for the SDEIS. These concerns relate to model assumptions, inputs, and methodology, as well as inadequate QA/QC and the appropriateness of using GoldSim for a mining project. In addition, the model should include a scenario with probable maximum precipitation. Modeling is not reliable out hundreds of years. The water models should be re-run.

In addition, the SDEIS itself has numerous general deficiencies. The FEIS should have a better discussion and explanation of GoldSim setup, inputs, accuracy, and assumptions, which inputs are treated as probabilistic, and should acknowledge that GoldSim has not been widely used for NEPA effects analysis. The FEIS should better explain the reasons for using 200- and 500-year simulations. In addition, the FEIS should report flows and concentrations at all facilities and discharge locations; should acknowledge that chemically impacted mine water would enter groundwater and surface water outside the property boundary; and should acknowledge that under closure, streamflows would not return to pre-mining conditions. Presentation of exceedances is inconsistent between supporting documentation and the SDEIS.

Thematic Response

The GoldSim model was selected because it includes the computational tools required to conduct probabilistic simulation of the NorthMet Project Proposed Action water balance, solute release, and solute transport. Specific QA/QC procedures that were applied to the data collection and modeling are in Section 4.3.4.3 and Attachment L of PolyMet 2015m, as cited in the FEIS, and Section 4.3.4.3 and Attachment N of PolyMet 2015j, as cited in the FEIS. The level of QA/QC conducted for the FEIS is adequate, and the GoldSim Model is an appropriate tool for simulating water balance and water quality.

The FEIS provides adequate detail on the GoldSim model's setup. FEIS Section 5.2.2.2.3 (Water Quality Modeling [GoldSim]) describes GoldSim as a computer platform designed to conduct dynamic simulations and that includes the ability to conduct probabilistic analysis. Subsections of FEIS Section 5.2.2.2.3 provide details on the assumptions used to estimate water flow and the release and transport of solutes at both the Mine Site (Partridge River Watershed) and Tailings Basin (Embarrass River Watershed). In particular, details of the GoldSim model design and its simulation of proposed features are presented in FEIS Figures 5.2.2-7 and 5.2.2-10.

It is acknowledged that the NorthMet Project Proposed Action would release solutes and cause an increase in loading of some solutes to surface water and groundwater relative to the continuation of existing conditions. Estimates for mass-loading from Mine Site facilities are presented in Attachment I of the Mine Site Water Modeling Data Package. Estimates for mass-loading from the Plant Site Tailings Basin are presented in Attachment G of PolyMet 20105j (as cited in the FEIS).

It is also acknowledged that the NorthMet Project Proposed Action would alter stream flows relative to existing conditions. However, the flows would be similar to existing conditions. Where and when necessary, surface streams would receive treated augmentation water to maintain stream flow to within plus or minus 20 percent of existing natural flows. The augmentation water would generally consist of water obtained from the capture systems or mine pits, and treated at the WWTF or WWTP prior to discharge.

The Co-lead Agencies have made an attempt to communicate modeling results clearly in the FEIS. Deviations from the presentations in technical documents were at times necessary. Mine Site GoldSim inputs—be they deterministic or uncertain—are contained in Attachment C of PolyMet 2015m, as cited in the FEIS, and Attachment B of PolyMet 2015j, as cited in the FEIS. It is acknowledged that modeling results for hundreds of years in the future should be viewed with appropriate caution.

An Environmental Impact Statement need not evaluate worst-case scenarios associated with extreme flooding or drought or identify mitigation or management activities around those scenarios. The FEIS and its supporting documentation do disclose a range of potential environmental effects that can be anticipated and identifies mitigation for those effects as appropriate.

Theme WR 190

Theme Statement

The NorthMet Project Proposed Action minimizes water resource impacts. Similar mines have experienced success. Water model runs sufficiently disclose impacts by presenting results out to 200 or 500 years to address slow moving water. Effects on water resources in the NorthMet Project area and in the Lake Superior Basin have been thoroughly addressed in the SDEIS and reviewed by Co-lead agencies and deemed satisfactory. Water treatment and capture systems designs, engineering controls, and monitoring and mitigation measures would protect water resources. The water model demonstrates that the NorthMet Project Proposed Action would meet the standards set in Minnesota state law and federal initiatives. Acid rock drainage would not be created.

Thematic Response

These comments generally supported the findings in the SDEIS that the NorthMet Project Proposed Action would minimize impacts to water quality. Because no specific information was provided, no changes were made to the EIS.

Theme WR 191

Theme Statement

The FEIS should address the quantities or volumes of sediment from erosion that could contaminate surface water.

Thematic Response

PolyMet proposes to collect non-contact storm water runoff from undisturbed and reclaimed vegetated areas within the Mine Site and route it to the Partridge River via existing drainage patterns to the extent possible. There would be the potential for increased suspended solids. PolyMet would provide sedimentation ponds at the outlet locations to manage suspended solids prior to discharge to surface waterbodies (see Figures 3.2-5, 3.2-6, 3.2-7, and 3.2-8). These sedimentation ponds should be adequate to manage suspended solids, but monitoring of the discharge is recommended as part of any water quality permit. Due to the containment systems at the Plant Site, no erosion is expected to impact surface waters downgradient from the tailings basin.

Theme WR 192

Theme Statement

The P90 impact threshold can be interpreted differently. One in ten projects might result in unacceptable contamination. Ten percent of the time concentrations of solutes would be higher. Descriptions of how P90 values are determined from GoldSim runs (described in the SDEIS page 5-77) appears incorrect. P90 level presents the worst-case analysis of water quality (SDEIS page 5-77) are simply untrue as the P90 level presents a worst-case scenario only if everything goes exactly as intended: if no mistakes were made in designs, calculations, or modeling inputs, if no mistakes are made in operations, if no larger-than-expected storms occur, etc.

Thematic Response

The GoldSim model was developed primarily to estimate the effects on surface and groundwater quality from the NorthMet Project Proposed Action. NEPA does not require probabilistic analysis for disclosing effects, but a probabilistic model yields a more realistic estimate for predictions by addressing the uncertainty of some input parameters than simpler modeling methods. A second benefit of using a probabilistic model is the ability to accommodate divergent opinions. In this case, competing perspectives among technical experts could often be addressed by widening the range of values for specific model parameters.

A disadvantage of using a probabilistic model is that it increases the burden on the EIS preparer by producing results that are more complicated to interpret and explain. For the NorthMet Mining Project and Land Exchange FEIS, the major simplification is to use the P90 model results when comparing simulation results to water quality evaluation criteria. If the P90 concentration of a solute equals the evaluation criteria, then there is a 10 percent probability that the actual concentration would exceed the criteria. The P90 concentration is not a “worst-case” value, but rather a model threshold selected so that plans are based on solute concentrations than are probably higher than would actually occur. In the NorthMet GoldSim results, nearly all of the

P90 solute concentrations were below the evaluation criteria at evaluation locations, so the chance that any of these would exceed the criteria is less than 10 percent. Further, when comparing model results to evaluation criteria, the comparison used the maximum P90 model value obtained from over the entire simulation period (200 or 500 years for Mine Site and Plant Site, respectively). In these cases, if the P90 equaled the evaluation criterion, it would mean that there is a 10 percent chance that the concentration of the solute would ever exceed the criteria, and that over most of the simulation period, the chance of exceedance would be less than 10 percent. Importantly, the water quality model is designed to provide a reasonable estimate for water-quality effects and to help plan for water treatment, but it is not a guarantee of outcomes. Actual protection of quality in receiving waters would rely on the monitoring and contingency plans put in place during the permitting and financial assurance process.

The discussion in the FEIS under the "Application of Evaluation Criteria to Probabilistic Modeling Results" heading in Section 5.2.2.2.3 has been revised to more clearly describe the interpretation of probabilistic water quality model results.

Theme WR 193

Theme Statement

The XP -SWMM and GoldSim models are not accurate predictors of potential pollutant inputs into these riverine systems. The potential for overflow during large storm events were not part of these model calculations. The Co-lead Agencies did not require PolyMet to consider the stochastic modeling capabilities of MODFLOW and MT3DMS (the transport module available for use with MODFLOW). Nor does PolyMet provide any support for its statement that GoldSim is "widely used in the industry." The Co-lead Agencies have not demonstrated why a publicly available model, such as MODFLOW, which was used in the initial DEIS in 2009, is not adequate and more accepted to characterize the water quality and quantity at the PolyMet site. Use of a publicly available model, such as MODFLOW, rather than a proprietary one, would have made review and analysis of the PolyMet model far easier for the public.

Thematic Response

The NorthMet Project Proposed Action facilities would be designed with excess storage to handle large storm events by routing water to mine pits or the Tailings Basin pond instead of discharging untreated contact water. In the event of an extreme event (e.g., 100-year storm), excess water would remain in the mine pits, which would essentially have unlimited storage capacity with mine operations in the pits temporarily shut down. Even during an extreme event, no untreated water would be discharged to a natural waterbody. More information on storm water would be acquired during permitting.

Regarding use of a publicly available model, selecting GoldSim was in part a response to public comments on the DEIS to improve the transparency and comprehensibility of the modeling, as well as disclose probabilities of outcomes to help the public and Co-lead Agencies assess environmental risks. See FEIS Section 5.2.2 and FEIS definitions for more information.

By downloading the free GoldSim Player, one can view, navigate, and run GoldSim models. This allows a modeler to distribute a model to others without requiring them to license GoldSim. Manuals are also available free for download.

Theme WR 194

Theme Statement

The use of the Duluth Complex as a hydrogeologic analogue is difficult to support. The Giants Range Batholith is Archean in age, more than 1.5 billion years older than the Duluth Complex, and therefore the assumption that the two units have similar stress, weathering, and erosional histories is deficient when applied to numerical modelling of smaller-scale sites, especially for predicting solute transport. Instead, the development of conceptual models that employ techniques whereby discrete fractures or fracture zones are more fully considered, results in improved prediction of solute transport, including better estimates of travel times, and recognition of variation in flow directions and discrete pathways in three dimensions.

Thematic Response

It is presumed that this comment refers to using the Duluth Complex as a hydrologic analog for the Giants Range Granite at the Plant Site. In fact, the only conceptual connection made between the Duluth Complex and Giants Range Granite is the idea of the upper 10 to 15 meters of bedrock being more fractured and more permeable than deeper bedrock. Due to the large number of exploration coreholes at the Mine Site, there are abundant RQD data to support this concept. The limited RQD data at the Plant Site do not conflict with this concept, but do not provide sufficient independent data for a firm interpretation. There are studies conducted at other sites to indicate that an upper more-permeable zone in bedrock is typical of the Iron Range, regardless of the bedrock rock type. So the RQD observations in Duluth Complex rocks at the Mine Site are taken as credible evidence that upper Giants Ridge Granite at the Plant Site also has an upper zone 10 to 15 meters thick with increased fracturing and hydraulic conductivity compared to deeper bedrock. Note that the hydraulic conductivity of the upper zone of Giants Range Granite is determined from 2014 packer tests conducted in five boreholes along the perimeter of Tailings Basin that were advanced 4.0 to 6.2 meters below the top of rock (not Duluth Complex testing conducted at the Mine Site).

Methods have been developed evaluating chemical transport through discrete fracture systems in hard rock. However, it is acknowledged within the industry that these theoretically based methods are simply not practical and reliable for large field sites. Discrete fracture transport models require intensive characterization of fracture apertures, orientations, and pervasiveness that can never be accomplished for a large field area. These models have only been applied successfully to small rock masses at pilot test sites, but never to a large-scale field problem. For field-scale evaluations, the standard of the industry is to treat fractured rock as an equivalent porous medium and use surrogate parameters (e.g., low effective porosity) to model chemical transport within the large rock mass. This is the approach taken in the FEIS and it is the only practical method that can be employed for impact evaluation.

Theme WR 195

Theme Statement

The NorthMet Project Proposed Action is a source of great concern and should not proceed due to potential impacts to water resources or the duration of water treatment necessary. There is a lack of experiential and other evidence to support the claim that sulfide, open pit copper nickel, or copper cobalt mining can be done without causing watershed pollution; it cannot be demonstrated that contaminated groundwater or surface water won't leave the site; it is contrary to MDNR's mission, the NorthMet Project Proposed Action would violate water quality standards for generations to come; the costs would not be worth the benefits, water is a natural resource with inherent economic value, it is more valuable than ore, it is essential to Minnesotans' quality of life and water quality in lakes and rivers should be protected.

Thematic Response

The hydrologic and water quality modeling indicate that impacted groundwater would leave the NorthMet Project. At the Mine Site, this would include seepage of West Pit and East Pit water into groundwater during closure that would slowly migrate south to the Partridge River. If flow to the north via bedrock is predicted, mitigation will be implemented to prevent it. At the Plant Site, surficial groundwater would bypass the capture system and allow subsurface tailings water to continue a slow migration towards the Embarrass River. A key feature of the NorthMet Project Proposed Action is to evoke management strategies and engineered facilities that would minimize the flow of impacted water leaving the NorthMet Project area to a rate that is small compared to diluting recharge and diluting flows in the rivers (hundreds to thousands of gpm). The GoldSim water quality models acknowledge and quantify the flow rates and chemical concentrations of these excursions from the Mine Site and Plant Site, but show that the associated chemical-loading would be sufficiently small that groundwater quality evaluation criteria would not be exceeded at the evaluation locations. Further, the modeling shows that water quality evaluation criteria either would not be exceeded in surface water or would not increase the frequency of exceedances that would occur under non-NorthMet Project Proposed Action conditions.

It is acknowledged that operation, maintenance, and periodic replacement of environmental controls would be required during closure. Regardless of the precise duration of effects or water treatment at either the Mine Site or Plant Site, there would be measures available to address impacts to natural resources. *Minnesota Rules* 6132.3200 specifies that it is a goal for a mining area to be maintenance-free. Passive water treatment is described as a long-term goal if future pilot studies were to demonstrate that it could be successful. The decision to go to passive treatment at some time in the future would be based on monitoring of actual NorthMet Project area conditions and pilot-testing, rather than predictive modeling and would be subject to applicable permitting requirements at that time. Regardless of treatment mechanism, financial assurance would be required under *Minnesota Rules* 6132.1100 before the State of Minnesota's Permit to Mine can be issued. Permit conditions and financial assurance would be required to perform reclamation and closure activities for as long as these activities are needed. FEIS Section 3.2.2.4 describes financial assurance process and requirements.

Theme WR 196

Theme Statement

The effects to water resources cannot be modeled satisfactorily due to climate change and the uncertainty about future hydrology, which prevents a comprehensive analysis of water flow. Climate change is progressing so rapidly that it is not possible to predict with accuracy the extent of pollutant migration into the hydrological system. Mitigation must be planned from the basis that passive water treatment is not applicable due to the inability to accurately project rainfall and to accurately project future rainfall and climate change.

Thematic Response

Passive water treatment is not part of the Project Description and is only described as a long-term goal if future pilot studies were to demonstrate that it could be successful. The decision to go to passive treatment at some time in the future would be based on monitoring of actual NorthMet Project area conditions and pilot-testing, rather than predictive modeling and would be subject to applicable permitting requirements at that time.

Climate change is a legitimate concern, but its effects are not rapid as indicated by climate modeling done by research institutions and government agencies. It is the Co-lead position that long-term monitoring of climate and NorthMet Project area conditions would provide adequate advanced warning that climate change issues needed to be addressed and adequate time to implement adaptive mitigation measures if they are needed.

Theme WR 197

Theme Statement

The FEIS should address potential environmental impacts to water resources from the NorthMet Project Proposed Action, not only state if the water quality standards would be met. Potential environmental analyses or discussions that should be added to the FEIS include: how water quality is determined; if the environmental impacts are greater as water is being released into two watersheds; how evaporation in backwaters, marshes and ephemeral flooded ponds affects constituent loading; if filling of wetlands would increase flooding; whether or not there is any point along the Embarrass, Partridge, or St. Louis Rivers where sulfate or metals would tend to precipitate (due to local chemistry) and accumulate mass of additional sulfate and other metals build up in Colby Lake (Partridge River) or Sabine or Wynne Lakes (Embarrass River); whether or not the mass of sulfate would lead to an increase in the methyl mercury concentrations in Colby, Sabine, or Wynne Lakes; and whether the high volume carries those pollutants down to Lake Superior and the St. Louis River delta.

Thematic Response

Water resources are considered not to be significantly impacted if water quality evaluation criteria are met at evaluation locations and there are no substantial changes to surface water flows. If water quality evaluation criteria are not met under the Continuation of Existing Conditions modeling scenario, the FEIS evaluates whether the NorthMet Project Proposed Action causes or increases concentrations to an unacceptable degree. Using these definitions,

GoldSim water quality modeling predicts that the NorthMet Project Proposed Action would not lead to impacts to groundwater and surface water.

The modeling indicates no significant impacts at downstream station SW-005 on the Partridge River and PM-13 on the Embarrass River. Although modeling was generally not performed downstream of these surface water locations (except Colby Lake), it is concluded that there would be no impacts downstream of the locations since natural processes tend to not increase surface water concentrations.

Surface water features mentioned in the theme text are generally not on flowpaths with water potentially affected by the NorthMet Project Proposed Action.

Predicted chemical concentrations in off-site, potentially NorthMet Project Proposed Action-affected waters are not high enough to cause precipitation or solids accumulation in surface waterbodies.

Theme WR 198

Theme Statement

The Mine Site and Plant Site are in a water rich part of the country that is subjected to freeze and thaw conditions. This would cause extreme challenges to pollution prevention.

Thematic Response

Given the mitigation proposed for the NorthMet Project Proposed Action and the experience of the mining industry in cold climates, freeze and thaw are not expected to compromise PolyMet's ability to operate in accordance with regulatory requirements.

Theme WR 199

Theme Statement

Studies should be done of the water quality in areas proposed to substitute for the exchanged lands in the Partridge River watershed.

Thematic Response

FEIS Sections 4.3.2, 5.3.2, and 6.3.2 discuss water resources in area of the Land Exchange Proposed Action.

Theme WR 200

Theme Statement

Mining does not appear in the list of six water allocation priorities allocation determined by the commissioner (SDEIS page 4-23), and would appear to be a low priority for allocation of water. It is not explained who the commissioner is or what organization the commissioner is with.

Thematic Response

The MDNR Commissioner (currently Commissioner Landwehr) has responsibility for adopting rules allocating waters for consumptive use based upon priorities contained in Minnesota Statute 103G.261.

Theme WR 201

Theme Statement

Much of the information in Chapter 5 of the SDEIS depends upon the use of water models with which a layperson has no familiarity. Chapter 5 also uses technical terms and technical documents which are difficult to understand. Supporting information for technical documents sometimes cannot be found. Therefore, the ability to judge whether the models being used for decision making are competent has to fall to the experts; however, there is no discussion of the water models by experts in the SDEIS. Despite the use of many water models, a lot of this work appears to be "educated guesswork" that would have to be field monitored and checked for accuracy at the time the mine is operating and that is pretty late to make changes.

Thematic Response

The Co-lead Agencies have attempted to clarify and simplify FEIS text. Summaries are provided in the Executive Summary, and in the first part of each section within FEIS Chapter 5, including Section 5.2.2 for water impacts from the NorthMet Project Proposed Action. FEIS supporting information can be acquired by contacting the MDNR Environmental Review Unit. The text in the FEIS reflects the opinions of water resources experts from the Co-lead Agencies and that of other experts who have provided input to the FEIS through comments or direct dialogue with the Co-lead Agencies. It is acknowledge that monitoring of the NorthMet Project Proposed Action is a critical element to understanding and controlling environmental impacts and enforcing regulatory requirements.

Theme WR 202

Theme Statement

The SDEIS does not describe water resources impacts from probable or worst-case NorthMet Project Proposed Action failure scenarios or weather events.

Thematic Response

Neither NEPA nor MEPA implemented through Environmental Quality Board Rules requires the evaluation of worst-case or failure event scenarios. By not explicitly considering these scenarios, the Co-lead Agencies are adhering to these regulations.

Theme WR 203

Theme Statement

Mineral exploration leads to environmental harm. This impacts baseline conditions and was not considered. How can the USFS ignore the lack of funding to monitor the extent of exploratory drilling and the necessary future monitoring of the sites for acid mine drainage?

Thematic Response

Natural background (unimpacted) conditions have been disclosed in the FEIS informing the baseline for the evaluation of environmental effects.

Theme WR 204

Theme Statement

The discussion of beryllium, thallium and manganese groundwater concentrations at the NorthMet Project Proposed Action site is misleading. Water samples have been impacted by mining. Concentrations of manganese in surface waters at the former LTVSMC tailing basin already exceed Minnesota's Health Risk Limit.

Thematic Response

Natural background concentrations were used to establish groundwater evaluation criteria for impact evaluation in FEIS Section 5.2.2.1. The same dataset that was used to define natural background water quality for use in the water quality impact modeling was used to develop site-specific evaluation criteria for the FEIS. At the Plant Site, 49 background thallium samples were collected from the bedrock and 50 background manganese groundwater samples were collected from the surficial aquifer. At the Mine Site, 320 background beryllium groundwater samples were collected from the surficial aquifer and 49 samples were collected from the bedrock. Three hundred and eleven background manganese groundwater samples were collected from the surficial aquifer and 49 background manganese samples were collected from the bedrock. Forty-nine background thallium samples were collected from the bedrock. For information on how evaluation criteria were determined, see Section 4.3.4.2 of PolyMet 2015j, as cited in the FEIS, and Section 4.3.4.2 of PolyMet 2015m, as cited in the FEIS.

A.5.25 References Cited in Thematic Responses

The following references, cited in the Thematic Responses in Section A.4, have not been cited elsewhere in the FEIS. References used in the FEIS are listed in that document.

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A.6 RESPONSES TO EDITORIAL COMMENTS

Table A-4 lists each editorial comment, the name of the sender, and the corresponding response.

Table A-4 Editorial Comments and Responses

Sender	Comment	Response
1854 Treaty Authority	This section also contains language about "1854 Treaty Authority-regulated species". We suggest removing or altering this language. The Fond du Lac Band also exercises treaty rights in the 1854 Ceded Territory, and has their own regulations. Further, the 1854 Treaty Authority maintains seasons and limits on some species, but these are not the only species of importance.	Text has been added to clarify the definition of "1854 Treaty Authority-regulated species" in Section 5.2.9.2.2. As discussed in this section, Fond du Lac has its own regulations applicable to the 1854 Ceded Territory. The discussion of "1854 Treaty Authority-regulated" species or resources is not inclusive of all species important to the Bands. Instead, the lists serve as the most updated and best available data for the most common game species or tribally harvested resources on the 1854 Ceded Territory.
Becky Milanese	GLOSSARY Page lx- geosynthetic membrane cover- what is this made of and would we expect decomposition over time from natural forces or the sulphuric wastes?	Chapter 3 includes information on the proposed geomembrane covers.
Becky Milanese	IMPLAN- How accurate is this model? Who or which agency uses this modeling?	IMPLAN is described in Section 5.2.10.
Becky Milanese	MODFLOW- How accurate is this and who uses it?	MODFLOW is a water model used for impact analysis as described in FEIS Section 5.2.2.
Becky Milanese	National Pollutant Discharge Elimination System (NPDES) Permits- No agency is listed as responsible for issuance of these permits and setting their limits and requirements.	FEIS Section 2.6 discusses permits and describes that the MPCA would be responsible for NPDES permits
Becky Milanese	Page lx-GoldSim- what is a engineered systems model? Which analysis gets used in which place and who uses these models?	GoldSim is a water model used for impact analysis as described in FEIS Section 5.2.2.
Becky Milanese	Page lxi- Humidity cell- Who or which agency uses this test? Hydrometallurgical residue- what is an amorphous form?	Humidity cell tests are described in FEIS Section 5.2.2.2.3. The term "amorphous form" has been removed from the glossary.
Becky Milanese	Page lxiii- Monte Carlo Simulation- Who or what agency uses this simulation and determines its use and outcome?	Monte Carlo is defined in the glossary as, "A computerized mathematical technique that allows people to account for risk in quantitative analysis and decision-making. The simulation furnishes the decision-maker with a range of possible outcomes and the probabilities they will occur for any choice of action." It generates model permutations for probabilistic results and ranges as described FEIS in Section 5.2.2.2.3.
Becky	Page lxiv- Paste or thickened tailings- what is a homogeneous nonsegregated	Homogeneous nonsegregated mass is material that is uniformly mixed so there are not defined layers of different

Sender	Comment	Response
Milanese	mass?	materials.
Becky Milanese	Page lxix- Wastewater treatment facility (WWTF) & Wastewater Treatment Plant (WWTP) - What is the difference between these two and who permits and oversees their discharges?	The WWTP (Plant Site) and WWTF (Mine Site) are described in FEIS Sections 3.2.2.3.10 and 3.2.2.1.8, respectively, and discharges would be managed under the permits described in Section 2.6.
Becky Milanese	Page lxv- Permeable reactive barrier- Huh? Who installs and maintains this barrier? Is it a separate facility?	A permeable reactive barrier is an option for non-mechanical water treatment and is discussed in FEIS Chapter 3 and Section 5.2.2.
Becky Milanese	Page lxvi- Reject concentrate- What happens to this water or brine?	Reject concentrate from the WWTP would be treated at the WWTF, and the reject concentrate from the WWTF RO would be evaporated and the residual solids disposed of off-site.
Becky Milanese	Page lxvi-lxvii- Spill Prevention Control and Countermeasure (SPCC) Plan- Who produces, writes, revises and oversees this plan.	The project proponent would be responsible for the SPCC plan and would be overseen by regulators under permit.
Becky Milanese	Pumping Test- Who uses these tests and determines the results and effects that need to be considered?	Pumping tests are used and interpreted by the project proponent and their consultants. Results are analyzed in the FEIS to characterize groundwater flow and contaminant transport.
Becky Milanese	Reclamation- Who oversees this and decides that it is done in a proper manner?	Reclamation would be undertaken by the project proponent and overseen by the MDNR under the Permit to Mine per FEIS Section 3.1.1.6.
Becky Milanese	XP-SWMM- Which agency uses this modeling software and what is it used to determine.	XP-SWMM is a surface water model used for impact analysis as described in FEIS Section 5.2.2.
Bert Hyde	Pg 4-45 and 46, 47 – The content of these pages is so well hidden that I could not understand what the author was trying to communicate.	The FEIS has been revised to improve writing clarity.
Bert Hyde	Pg 3-114, 3.2.2.3.7. High purity gypsum is a useful product – it should not be managed as waste – waste is ultimately very expensive.	No change made.
Bob Tammen	It has been my experience in the industry that acid draining from a mine is referred to as Acid Mine Drainage. Industry efforts to euphemize the term to Acid Rock Drainage is sadly unprofessional and should be corrected in the glossary and in the SDEIS. 4-165 “The Plant Site is located north of the Laurention Divide...Misprint? The plant is South of the divide. See map. 4-376 Last paragraph. Heal should be heel. 5-5 “located in...Mesabi Iron Range” The mine is located in the Duluth Complex in the Superior National	Regarding the use of the term, “Acid Mine Drainage” or “Acid Rock Drainage,” no change has been made. Regarding the location of the Plant Site in relation to the Laurentian Divide, change has been made as requested. Regarding the use of “heal” or “heel,” change has been made as requested.

Sender	Comment	Response
	Forest. Once again, the SDEIS deserves an EU-3. 6-9 6.2.2.1.6 Essar...begin operation in 2014. Essar will not begin operation in 2014. Update SDEIS. 6-7 Table 6.2-1 Mesaba Energy Project. The IRRRB has granted Mesaba Energy an option to purchase land near Hibbing for a gas power plant. Update table. 6-1 reasonably foreseeable. The impacts of developing a 10 billion ton ore body as described by geologists in Minnesota should be evaluated as reasonably foreseeable.	
Bob Wagner	II. Contradicting statements on stream flow, Executive Summary p. 39, table 51 and (appendix C sub sec 1) "reduce water flows to range of annual natural variability	The text of the Executive Summary has been updated to improve clarity.
Center for Biological Diversity	the discussion of mine pit inflow does not provide a citation at all, see SDEIS 5-90.	Change has been made, as requested.
Grand Portage Band	The SDEIS also speculates that the tribes will benefit economically from the Project through additional visitation to Band-operated Casinos, but provides no data to back up the statement: "Increased employment and income associated with the NorthMet Project Proposed Action could increase visitation and revenues at [area tribal gaming] facilities." This statement is entirely unsupported by any market analysis and must be deleted from the socioeconomic assessment of the Project.	No change made.
Joel Roberts	There are discrepancies among the various descriptions of this construction in the SDEIS and the relevant references. These should have been resolved before the SDEIS was released.	No change made.
klhanson@frontiernet.net	[Text from SDEIS] "Based on the results...would not exceed applicable environmental evaluation criteria except for two water constituents as a side effect of the project." - [should read] Would exceed applicable environmental evaluation criteria for two water constituents.	FEIS text has been revised to read, "Based on the results….would exceed applicable environmental evaluation criteria for two water constituents as a side effects of the project."
Michele Ross	In most cases, either the federal MCL or the Minnesota Health Risk Limit (HRL) is selected, but higher SDEIS evaluation criteria were chosen for beryllium, manganese and thallium "…based on background water quality". Although manganese exceeded the federal MCL of 50 µg/L in most samples, Table 4.2.2-6 in the SDEIS indicates most of the groundwater samples collected near the proposed Mine Site were near or below the state Risk	There are no drinking water wells at the Mine Site. The FEIS bases water quality evaluation criteria off of regulatory requirements. Using regulatory requirements to assess risk best informs the permitting process--a major objective of EISs. RAA guidance is not likely to be promulgated, either because of a high level of uncertainty

Sender	Comment	Response
	Assessment Advice (RAA) levels of 100 µg/L for infants and 300 µg/L for children and adults. MDH recommends the RAA values be used as the groundwater evaluation criterion for manganese… Use 100 µg/L for infants and 300 µg/L for children and adults as the groundwater evaluation criterion for manganese.	about the numeric guidance, because the methods used to develop the guidance are different than the methods in rule, or because the resulting guidance is qualitative rather than a water value. The RAA values were added as a footnote to FEIS Table 5.2.2-1.
Michele Ross	[T]he detections of beryllium near the proposed Mine Site indicate background concentrations in the aquifers are generally below the federal MCL of 0.4 µg/L and only slightly above the MDH HRL of 0.08 µg/L. MDH recommends the HRL be used as the groundwater evaluation criterion, as beryllium concentrations in the Plant Site flow paths are also predicted to exceed the HRL in areas where domestic wells are present…Use 0.08 µg/L as the groundwater evaluation criterion for beryllium.	Groundwater standards include primary and secondary drinking water standards and the HRL. *Minnesota Rules*7060.0600, subpart 8, states that "where the background level of natural origin is reasonably definable and is higher than the accepted standard for potable water and the hydrology and extent of the aquifer are known, the natural level may be used as the standard." The groundwater evaluation criterion for beryllium at the Mine Site is 0.39 µg/L. At the Plant Site, it is 0.54 µg/L. The basis for the evaluation criteria is Minnesota Rules. The MDH HRL of 0.08 µg/L is disclosed in FEIS Table 5.2.2-1.
Northeastern Minnesotans for Wilderness	[The SDEIS] states that the proposition that "taconite tailings appear to be a sink for mercury in full-scale actual tailings basins in northern Minnesota, at least similar to other media like soils . . . is supported by surface and groundwater monitoring around the existing LTVSMC Tailings Basin, which found mercury concentrations consistent with baseline levels (see Table 4.1-31), generally averaging less than 2.0 ng/L." SDEIS 5-202. This statement in regards to groundwater appears to be blatantly false. And an attempt to learn more from Table 4.1-31 was thwarted by the fact that there is no Table 4.1-31.	Change has been made, as requested. The reference to Table 4.1-31 has been removed from the text, and replaced with an appropriate table reference.
Northeastern Minnesotans for Wilderness	Regarding scenic integrity objectives (SIOs), the SDEIS states that it used SIO definitions in the Forest Plan for evaluating the Federal lands but used a 1995 Forest Service publication to evaluate the non-Federal lands. SDEIS 4-349. The discrepancy is not explained. The SDEIS needs to provide sufficient information to determine whether this difference could lead to inaccurate comparisons.	No change made.
Patty Lange	It has been brought to my attention that the maps outlining the drainage area around the proposed mine in the environmental study for the Polymet mine are incorrect.	The referenced figures have been revised for the FEIS, and now include additional features that add clarity to the hydrology.
Patty Lange	The fact that the incorrect maps outline the swamp with a dashed teal line on satellite maps with green backgrounds makes it extremely difficult to see. This discrepancy between the environmental impact statement maps and US	The outline of the One Hundred Mile Swamp on figures has been revised to make it more visible. No other changes made.

Sender	Comment	Response
	government maps makes this environmental impact study inadequate.	
Paul Stolen	Sulfate loadings, reference to MPCA {2006), p. 5-208. This MPCA document is quoted in Reference #42 in Appendix A of these comments. This MPCA document refers primarily to sulfate permitting issues rather than impact assessment, and is also outdated in enough respects to question its utility for this EIS.	Citation has been revised to "MPCA 2006a," to refer to the MPCA Strategy to Address Indirect Effects of Elevated Sulfate on Methylmercury Production and Phosphorus Availability, published by the MPCA in October 2006, which is the approach source in this context.
Phil Larson	Glossary The glossary contains a number terms whose definition is inconsistent with standard usage. These include: Drift: Material such as sand, clay, gravel, and rocks transported and deposited by a glacier or glacial process. Glacial deposit: A collection of various-sized rocks and debris that is deposited by a glacier as it advances or recedes across a landscape. There are many types of deposits, including till, drift, erratics, and moraines. (Note: sediment deposits of glacial origin are termed 'drift', less commonly 'glacial drift'. Erratics refers to individual clasts, while 'moraines' refer to a landform, not a sediment type.) Glacial till: Direct glacial deposits of rocks, gravel, or boulders that are unsorted and unstratified. (Note: all till is by definition glacial in origin; there is no need to include the modifier 'glacial'.) Surficial glacial deposit: A collection of various sized rocks and debris deposited by glacial activity that is left on the earth's surface after the glacier recedes. (Note: 'surficial glacial deposit' is not used in the text of the SDEIS.) Till: see Glacial till These definitions should be revised to conform to accepted usage. The following definitions are taken from the Glossary of Geology (5th Edition) : Drift A general term applied to all rock material (clay, silt, sand, gravel, boulders) transported by a glacier and deposited directly by or from the ice, or by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines, and stratified deposits that form outwash plains, eskers, kames, varves, fluvioglacial sediments, etc. Outwash Stratified detritus (chiefly sand and gravel) removed or "washed out" from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of an active glacier. The coarser material usually is deposited nearer to the ice. Till Dominantly unsorted and unstratified drift, generally unconsolidated,	The glossary is deemed adequate for the FEIS.

Sender	Comment	Response
	deposited directly by and underneath a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, and boulders ranging widely in size and shape. In addition to adapting these definitions, I recommend that the definition of 'surficial aquifer' be modified to indicate that the aquifer is hosted by unconsolidated sediment, including drift.	
Phil Larson	Notes on Nomenclature The text of the SDEIS contains a number of inconsistent usages of terminology: • The text mentions 'glacial till' 33 times, and 'till' alone 29 times. 'Till' should be used in all cases. • The text mentions 'glacial drift' 6 times, and 'drift' alone 7 times. 'Drift' should be used in all these cases. • The glossary does not define 'outwash'. The text mentions 'glacial outwash' 5 times, and 'outwash alone 3 times. 'Outwash' should be used in all these cases. • The text uses the term 'surficial deposits' 25 times, although the term is not defined in the glossary. The usage suggests that this refers to all unconsolidated sediments lying above bedrock, including drift (till and outwash), peat, and other sediment. • In a number of cases, usage of the term 'till' is confused or inconsistent: • Page 4-95 – "several soil borings into the surficial till identified the composition as layers of clay and sand, plus cobbles and boulders". In this case 'till' is the sediment type, and by definition contains particle sizes ranging from clay to boulders. • Page 4-151 – "The depth of soil and till overlying the bedrock". • Page 4-367 – "areas of glacial till (typically silty sand)". Either the sediment is till, or silty sand. By definition it cannot be both. • Page 4-376 - "native till material that ranges from clay to gravel". In this case 'till' is the sediment type and by definition contains particle sizes ranging from clay to gravel. In several instances, the term 'till soil' is used. Till is a sediment type. A soil may develop at the surface of a till deposit, however the entire thickness of the till is not soil. 'Till' alone suffices in these instances. In a number of other cases, convoluted sediment descriptions are given, when	Text within the FEIS has been updated since the SDEIS - not all suggested edits have been applied.

Sender	Comment	Response
	it is likely the sediment is simply till. In these cases, the non-specific and complex description gives the impression of extreme heterogeneity in sediment deposits, rather than a relatively homogeneous till deposit. For example: • Page 4-45 – "The overlying surficial sediments at the Mine Site are poorly sorted and range from very dense clay to well-sorted sand with boulders and cobbles". This sediment is highly likely to be simply till. • The term 'overburden' as defined in the glossary appears to be inconsistently applied. Although it is defined as all unconsolidated sediment and waste rock overlying the mineral deposit, in most places it appears to refer to only the unconsolidated material overlying bedrock. For example: • Page 3-15 – "overburden and waste rock" • Page 3-17 – "overburden and waste rock" • Page 3-37 – "use of waste rock, overburden, and peat" • In other cases, 'overburden' clearly refers to only the unconsolidated sediment overlying bedrock. For example: • Page 3-44 – "Three types of overburden are present at the site: unsaturated overburden, saturated overburden, and peat." The term 'soil' is not defined in the glossary. In most cases, the term is used in a manner referring to unconsolidated materials at the surface, containing organic matter, and capable of supporting life. In other cases, it appears to be used in a geotechnical sense, referring to unconsolidated sediment overlying bedrock, equivalent to usage of the term 'overburden'. In these cases, the term appears to be applied to the entire thickness of drift or till overlying bedrock, similar to usage of 'surficial deposits' noted above. For example, • Page 4-149 – "lateral flow that is either on the surface or within the subsurface soil." Soil used in this sense refers to either drift or the surficial aquifer. • Page 5-201 – "mercury stored in rock, soil, peat, and vegetation." Soil used in this sense refers to drift. • Page 5-227 – "The Mine Site contains localized heterogeneous vertical and horizontal hydraulic conductivities within each soil unit." Soil used in this sense refers to drift. A clear distinction need to be made between soil referring to the shallow	

Sender	Comment	Response
	surface layer containing or	
Phil Larson	Note on usage of Unified Soils Classification System (ASTM D 2487-83) The USCS was used to describe unconsolidated sediments recovered from boreholes drilled in support of the NorthMet Project. It is important to note that this system is designed to best describe and name relatively well-sorted unconsolidated sediments with a unimodal particle size distribution. As such, poorly sorted sediments with potentially multimodal particle size distributions (e.g. till) are not well-described using this classification. Relatively minor changes in the relative proportions of clay-silt-sand-pebble-boulder may lead to application of multiple group symbols and the perception of significant heterogeneity within what is in actuality a relatively homogeneous till sequence. In cases where USGS group symbols and nomenclature are utilized in the SDEIS and supporting documents, it is advisable that sediment identified as till be explicitly name as such, e.g. GC (till).	Not all instances changed. The FEIS is for public use - technical description can be found in the reference materials.
Phil Larson	Geology of the Mine Site: The observation is made that "the surficial till is a heterogeneous and laterally discontinuous zone with a composition ranging from very dense clay to well-sorted sand." This statement seems to use the term 'heterogeneous' to refer to the poor sorting and wide particle size range of what is likely a relatively homogeneous till. The lateral discontinuity in the till referred to in this case is likely its thickness, not its sedimentological heterogeneity. Here, and elsewhere in the document, well-defined, consistent, and judicious application of the terms 'heterogeneous' and 'homogeneous' when describing tills is advised.	No change made.
Robert Tammen	Several documents refer to PolyMet and Poly Met (Two words). There must be a reason for having two different legal entities. The SDEIS should explain the difference and perhaps declare which will get dividends and which will have environmental clean up liability.	FEIS text has been revised to ensure consistent use of "PolyMet."
Robert Tammen	4-165 "The Plant Site is located north of the Laurentian Divide...Misprint? The plant is South of the divide. See map.	Text has been revised to indicate the Plant Site is south of the Laurentian Divide.
Robert Tammen	4-376 Last paragraph. Heal should be heel.	FEIS text has been revised to refer to the "base of the dam."
Robert Tammen	5-5 "located in...Mesabi Iron Range" The mine is located in the Duluth Complex in the Superior National Forest. Once again, the SDEIS deserves an EU-3.	Text has been revised to state, "The NorthMet Project Proposed Action would be located near an historic mining area, known as the Mesabi Iron Range …"
Robert Tammen	Table 6.2-1 Mesaba Energy Project. The IRRRB has granted Mesaba Energy an option to purchase land near Hibbing for a gas power plant. Update table.	The list of Projects has been updated.

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	At the same meeting the IRRRB granted the City of Hibbing an option to purchase land for a possible Racino. This was probably an effort to pressure tribal interests by threatening to compete with Fortune Bay and Black Bear casinos. The actions were connected and should be analyzed.	
Robert Tammen	6-9 6.2.2.1.6 Essar...begin operation in 2014. Essar will not begin operation in 2014. Update SDEIS.	The FEIS has been revised to address this comment.
Robert Tammen	A-5 Thematic Response. AQ-1. Oar should be ore.	Change has been made, as requested.
Roger A Powell	Figure 6.2.3-1 does not show the corridor that the text on page 5-374 states that it shows. The figure must be revised to show the corridor.	The SDEIS cited an incorrect figure number. The FEIS has updated the figure number to be 6.2.5-1.
Roger A Powell	Figures 5.2.2-18, 19 and 41a of the SDEIS show PSO, contradicting the text.	No change has been made to FEIS Figures 5.2.2-18 and 5.2.2-19. The text associated with FEIS Figure 5.2.2-44 has been changed, as requested.
PolyMet	PolyMet suggests revising the first sentence in the second full paragraph on page 5-6 to read: "…PolyMet proposes a containment system that would capture about 99 percent of seepage from the Tailings Basin…"	No change made.
PolyMet	The first sentence on page 5-54 states that for Category 1 rock, "…instead of using lab tests, the rate of oxidation and constituent release was estimated from studies of seepage release measured in Dunka Mine rock…. .". PolyMet suggests revising the first sentence to read "… instead of using lab tests, the rate of oxidation and constituent release in the field was estimated from lab release rates that were scaled using the results of studies of seepage release measured in Dunka Mine rock… ."	Change has been made, as requested.
PolyMet	It is important to note that the Central Pit will not exist until after the Category 4 Stockpile has been decommissioned and the Category 4 waste rock has been relocated to the East Pit for subaqueous disposal. The most apparent benefit of relocating the Category 4 Stockpile as part of the Proposed Action Design Changes is that by locating the stockpile over an area that will be subsequently engulfed by the Central Pit, the overall area of surface disturbance (including vegetation, wetlands, etc.) of the NorthMet project will be reduced.	No change made.
PolyMet	The second to last sentence should read: "Compensation proposed at the Aitkin Site would be expected to meet in-kind compensation, resulting in a compensation ratio for effects to wetlands with rare or exceptional functions or difficult-to-replace bogs of 1.75:1, and if in advance, the ratio would be reduced to 1.5:1."	No change made.

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PolyMet	The second to last sentence in the second paragraph should read: "Compensation proposed at the Hinckley Site would be expected to meet the in-kind incentive, resulting in a compensation ratio for effects to wetlands with rare or exceptional functions or difficult-to-replace bogs of 1.75:1, and if in-advance, the ratio would be reduced to 1.5:1."	No change made.
PolyMet	The last full sentence on the page should read: "Compensation proposed for the Zim Site would be expected to meet both in-kind and in-place incentives, thereby reducing the compensation ratio for effects on wetlands with rare or exceptional functions or difficult-to-replace bogs from 2:1 to 1.5:1."	No change made.
PolyMet	The third paragraph states that the United States Army Corps of Engineers ("USACE") and the Minnesota Department of Natural Resources ("MDNR") studied "the original NorthMet Project Proposed Action" between 2005 and 2009. Use of the defined term "NorthMet Project Proposed Action" in this context is confusing because the proposed action studied in the Draft EIS was substantially different than the proposed action being studied in the SDEIS. To avoid confusion over the nature of the alternatives studied in the two documents, PolyMet recommends changing the language to state that "Between 2005 and 2009, the USACE and MDNR evaluated PolyMet's original mining proposal."	Change has been made, as requested.
PolyMet	The terms "NorthMet Mining Project" and "Land Exchange," rather than the defined terms "NorthMet Project Proposed Action" and "Land Exchange Proposed Action," are used on these pages. To avoid confusion, PolyMet recommends consistent use of the defined terms.	FEIS text has been reviewed to ensure consistent use of these terms.
PolyMet	Under the heading "Cooperating Agencies," the SDEIS describes USEPA's responsibilities to review and comment on an EIS under Section 309 of the Clean Air Act. USEPA does this for all Environmental Impact Statements, even when it is not acting as a cooperating agency. USEPA has formally participated in the preparation of the current SDEIS as a cooperating agency, which is not the same thing as fulfilling its responsibilities under CAA Section 309. PolyMet recommends clarifying this point by adding a sentence to this paragraph that explicitly notes EPA's status as a cooperating agency.	Section 1.2.1 has been revised to provide improved clarity on the USEPA's role.
PolyMet	PolyMet recommends explicitly referencing and incorporating into the SDEIS those portions of the FSDD and the 2009 DEIS that address alternatives. This should increase understanding of the iterative process of alternatives review that the SDEIS already references in several places… these changes should also be reflected in the Executive Summary, which tends to focus on the SDEIS alternatives review process, without fully acknowledging the role	FEIS Section 3.2.3 has been revised to address this comment.

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	played by alternatives review in the FSDD and the 2009 DEIS.	
PolyMet	PolyMet recommends including an updated version of Table 3.2-4 from the 2009 DEIS somewhere in the Final EIS, either directly in the discussion of alternatives or as an appendix. This would provide context for the discussion of alternatives review and the elimination of alternatives that are not discussed as part of the SDEIS process… [these changes should also be reflected in the Executive Summary, which tends to focus on the SDEIS alternatives review process, without fully acknowledging the role played by alternatives review in the FSDD and the 2009 DEIS.]	No change made.
PolyMet	The Final EIS accordingly should clarify that the alternative of proceeding with the Land Exchange Proposed Action in the absence of the NorthMet Project Proposed Action was considered but eliminated from detailed analysis in the SDEIS because it is represented by the combination of "no action" on the NorthMet Project Proposed Action and Land Exchange Proposed Action Alternative A. This could be accomplished by adding a brief description of the Land Exchange Proposed Action as a "stand alone" action in Section 3.3.3.3. The alternative would not be eliminated as unreasonable, but rather it would not require further analysis because its impacts were already revealed and evaluated in the SDEIS detailed evaluation of other alternatives.	The FEIS presented the range of alternatives that were developed for the Land Exchange Proposed Action as well as those that were considered but eliminated from detailed analysis. The Land Exchange Proposed Action would not have been entertained if not for the NorthMet Project Proposed Action. While benefits of the Land Exchange Proposed Action could accrue without associated mining, this could be true for lands throughout the Superior National Forest. The catalyst for the Land Exchange Proposed Action is the proposed mining activities, current permit applications, and the need to address the conflict associated with split ownership of mineral and surface rights.
PolyMet	PolyMet recommends that the USFS ensure that the Executive Summary is updated to conform to any changes made in the Final EIS. The independent grounds for undertaking the Land Exchange Proposed Action should be particularly clear in the revised Executive Summary, because many readers likely will rely on the Executive Summary to understand the contents of the EIS.	The Executive Summary has been revised to reflect updated information since publication of the SDEIS.
PolyMet	the SDEIS concludes that there will be no cumulative impact on recreational and visual resources. It bases this conclusion on the fact that there are no significant cumulative impacts on individual specific resources that factor in to the assessment of recreational and visual resources (such as air quality, wetlands, etc.). The phrasing used implies that the co-leads have analyzed the effects on recreational and visual resources from impacts to these specific resources individually, rather than collectively. PolyMet suggests clarifying that the agencies have analyzed whether the impacts on these resources, although insignificant when considered individually, would have any impact on recreational and visual resources when combined and has concluded that	No change made.

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	there would be no significant impact.	
PolyMet	The SDEIS should also use consistent language regarding the scope of the cumulative effects assessment areas throughout Chapter 6. On page 6-2, the SDEIS states: "For all resources, future temporal boundaries are the expected service life of the mining activities, including closure (years 20 to 40) and post-closure restoration (year 40 and beyond)." PolyMet recommends removing this sentence, which is not an accurate description of the temporal boundaries for all resources. Indeed, the very next sentence on page 6-2 rightly states that "temporal boundaries for each resource are defined within the respective resources' sections of this analysis." That sentence should remain as the sole, accurate explanation of temporal boundaries.	FEIS language will be updated as appropriately
PolyMet	The first sentence on this page indicates that completion of mining in the East Pit will occur in "approximately year 11" after the start of mining. By contrast, the first sentence in the paragraph following the three bullet points states that mining in the East Pit will end "by year 11" after the start of mining. The second statement is inaccurate. Mining in the East Pit will end approximately 11 years after mining, but not necessarily by year 11.	No change made. The SDEIS stated that "after year 11," mining would be completed in the East Pit.
PolyMet	In the last paragraph of the Mining Operations Section on page ES-23, the SDEIS defines "process water" in connection with the Mine Site. On page ES-24, the SDEIS refers to "Plant Site process water." To clarify and define terms, page ES-23 should be changed to refer to "Mine Site process water," and "Plant Site process water" should be defined by adding a sentence (see bold text below) to the last paragraph of the Processing Operations Section on page ES-23: "Water seepage from the Tailings Basin would be collected by the groundwater containment system and sent to either the Tailings Basin pond or the Plant Site WWTP. All other water that is collected at the Plant Site, such as water used during processing, and water that contacts the plant site facilities (collectively referred to as Plant Site process water) will also be treated at the Plant Site WWTP. Treated water would be used to augment flows in the streams that would otherwise receive reduced flows because of the Tailings Basin groundwater containment system."	Terminology has been revised for clarity.
PolyMet	PolyMet recommends that the Executive Summary explicitly state that aluminum concentrations in the water, or the lowering of the hardness caused by storm water, represent natural or background concentrations and/or are the result of natural processes, not process water from the NorthMet Project.	The Executive Summary text has been updated to improve clarity.
PolyMet	The SDEIS indicates that the NorthMet Project could potentially "affect	The Executive Summary text has been updated to improve

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	water quality by increasing solute concentrations above Class 2B (aquatic life) standards." This appears to refer to the aluminum and lead exceedances discussed earlier in the Executive Summary. As explained in Comment 6 above, PolyMet recommends that the Executive Summary explicitly state that any such exceedances would be the result of background and/or naturally occurring concentrations or processes, not process water from the NorthMet project.	clarity.
PolyMet	The second full paragraph beginning with the phrase "natural resources" does not accurately summarize the discussion of cultural resources in the SDEIS. PolyMet recommends that the paragraph be replaced with the following: "Cultural resources under NEPA can also include natural resources of cultural importance to the Bands. The Co-lead agencies have considered the effects of the Proposed Action on such resources, including 1854 Treaty resources, under NEPA. The Co-lead agencies have concluded that, while the Proposed Action has the potential to have effects on 1854 Treaty resources, construction and operation of the Proposed Action is not likely to significantly reduce overall availability of 1854 Treaty resources that are typically part of subsistence activities in the 1854 Ceded Territory."	No change made.
PolyMet	In Table 1, the Land Use effects of the Proposed Connected Actions are described in the first bullet point as "[n]o effects on land use that would require changes in ordinances or comprehensive forest plans." This language is confusing, given that the NorthMet Project Proposed Action would involve the construction of an open pit mine. PolyMet proposes changing this language to say: "Changes in land use would occur after the Land Exchange Proposed Action and would not require changes in ordinances or comprehensive forest plans."	No change made.
PolyMet	Although the co-lead agencies have concluded that a segment of the Beaver Bay to Lake Vermilion Trail is an eligible historic property, the SDEIS alternates between referring to the "BBLV Trail" and the "BBLV Trail Segment." To ensure consistency with the co-leads' eligibility determination, PolyMet recommends that the agencies consistently refer to the property as the "BBLV Trail Segment." This comment applies throughout all Cultural Resources sections in the SDEIS.	FEIS text has been revised to ensure consistent use of "BBLV Trail Segment."
PolyMet	PolyMet recommends that the section of the chart dealing with "Cultural Resources & Historic Properties" be referred to simply as "Cultural Resources" since that term is inclusive of historic properties.	Change has been made, as requested.

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PolyMet	The first sentence in Section 2.3.2.2, "Revised Proposed Action and Alternatives," states that the NorthMet Project Proposed Action has "changed greatly since the release of the DEIS." The use of the phrase "changed greatly" is ambiguous. The modifications to the proposal studied in the DEIS are described in detail elsewhere in the SDEIS. PolyMet accordingly recommends revising the first sentence in Section 2.3.2.2 to read: "As a result of input from the public, Cooperating Agencies, and the Co-lead Agencies via the workgroups, and additional modeling and impact analyses, PolyMet's mining proposal has been modified since the release of the DEIS."	Section 2.3.2.2 has been revised based on this comment and other project modifications since publication of the SDEIS.
PolyMet	The second bullet point in Section 2.4.2, "Adequacy Determination/Records of Decision," states that the USACE will issue a ROD "[f]ollowing a 30-day comment period." Under NEPA, the 30-day period following issuance of a Final EIS is not a "comment period." Rather, under 40 C.F.R. § 1506.10(b), agencies are simply prohibited from making a decision on the proposed action until 90 days after publication of a notice of availability for a draft EIS, or 30 days after publication of a notice of availability for a final EIS. The Council on Environmental Quality regulations do not require agencies to solicit comments on the FEIS during this 30-day waiting period.	Section 2.4.2 of the FEIS, which addresses the Adequacy Determination and Record of Decision process, has been revised since the SDEIS.
PolyMet	The first bullet on this page does not specify which permits would be transferred to PolyMet. The Minnesota Pollution Control Agency has stated that the NPDES permit for the Tailings Basin would not be transferred. Instead, a new permit would be issued.	Section 2.6 of the FEIS, which identifies the key permits that would be required for the NorthMet Mining Project and any further changes would be beyond the scope of this EIS.
PolyMet	The fourth bullet on this page refers to a "bentonite layer on top of the Tailings Basin to restrict oxygen and water infiltration with pond." PolyMet recommends clarifying that there is a bentonite layer on the outer dam slopes during construction and that, during closure, a bentonite layer will be added to the top of the Tailings Basin. As currently written, the reader may incorrectly assume that a bentonite layer will be added at construction, below the new tailings.	Change has been made, as requested.
PolyMet	Reclamation of the Category 1 Stockpile is scheduled to begin in Year 14. As currently written, reclamation of the Category 1 Stockpile is included only in Years 16-20. It should also be included in Years 11-16.	Change has been made, as requested.
PolyMet	The movement of waste rock from the Category 2/3 stockpile to the pit will be completed by the end of operations (Year 20). As currently written, the SDEIS incorrectly indicates that this activity will occur after year 20.	Change has been made, as requested.
PolyMet	The transmission lines are not shown correctly on these figures [Figures 3.2-5 through 3.2-9]. The figures should show a connection between the	Change has been made, as requested, based on updated GIS mapping provided by PolyMet.

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	transmission line south of the Central Pit and the line south of the Category 1 stockpile.	
PolyMet	The second paragraph on this page states that unsaturated overburden use would require MDNR approval. This is not accurate. Unsaturated overburden should not require approval from the MDNR.	Change has been made, as requested.
PolyMet	The fourth sentence of the third paragraph on this page should state: "Applications for saturated overburden would include those where water contacting the construction material would be collected or drained to the mine pits, where it would be placed back below the water table or above a membrane liner system." There should be an 'or' in this sentence.	Change has been made, as requested.
PolyMet	For clarity, PolyMet suggests editing the second paragraph and the beginning of the third paragraph in this section as follows: "Figure 3.2-11 shows the containment system that would consist of a cutoff wall (a low permeability hydraulic barrier extending down to bedrock) combined with a drainage collection system surrounding the perimeter of the stockpile near its toe. The cutoff wall would have a hydraulic conductivity specification of no more than 1x10-5 centimeters per second (cm/sec)."	Change has been made, as requested.
PolyMet	The last sentence in the paragraph under the heading "Reclamation Planning" correctly states that PolyMet will submit an annual Contingency Reclamation Plan pursuant to *Minnesota Rules* 6132.1300. In the interest of completeness, the paragraph should also note that the rules require PolyMet to provide financial assurance sufficient to carry out that reclamation plan.	Change has been made, as requested.
PolyMet	The second paragraph inaccurately refers to disposal of material (remaining ore and sediment from ditches and process water ponds) in the West Pit. This material would be disposed in the East Pit, as described in Section 2.1.2 of the Reclamation Plan (v3) (Rail Transfer Hopper).	Change has been made, as requested.
PolyMet	The fifth sentence of the second paragraph on this page refers to the overburden sloping as "height-to-vertical ratio of 2.5:1." Height and vertical mean the same thing (i.e., both refer to the vertical plane). PolyMet suggests changing this to read either "horizontal-to-vertical" or "length-to-height".	FEIS text has been revised to "horizontal-to-vertical ratio of 2.5:1".
PolyMet	On page 3-64, the SDEIS states: "The WWTF would be upgraded to include RO treatment to achieve an effluent with a sulfate concentration of less than 10 mg/L." Similarly, the SDEIS states on page 3-123: "The WWTP would be constructed south of the Tailings Basin near the coarse-crusher and would	No change made.

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	include a RO unit designed to achieve a sulfate concentration of 10 mg/L in effluent. The design of the WWTP could be adjusted to accommodate varying influent streams and discharge requirements." It is not clear when reading the two statements copied above that the water treatment goal for the effluent sulfate concentration of 10 mg/L is based on meeting the current 10 mg/L sulfate standard for waters used for the production of wild rice (Minnesota Rule 7050.0224, Class 4A water quality standard). To clarify, and because that standard is subject to adjustment, the statement "to achieve an effluent sulfate concentration that meets the sulfate standard for waters used for the production of wild rice" should be used instead of "to achieve an effluent with a sulfate concentration of less than 10 mg/L."	
PolyMet	The last sentence inaccurately states state the Category 4 Stockpile would be completely removed by year 12 to allow mining in the Central Pit. The Central Pit mining begins in Year 11, as stated earlier in the SDEIS (such as Table 3.2-4). Therefore, the Category 4 Stockpile would be completely removed by year 11.	Change has been made, as requested.
PolyMet	The second paragraph describes reclamation of the Ore Surge Pile as "…any remaining material would be relocated to the West Pit after operations cease." However, no material will be disposed of in the West Pit. As described in Section 7.2.2 of the Rock and Overburden Management Plan (v5), any material remaining in the Ore Surge Pile at the end of operations will be transported to the Process Plant for processing or disposed of in the East Pit.	Change has been made, as requested.
PolyMet	The fifth paragraph on this page, which lists all ponds that would be either filled or converted to wetlands, should include the Rail Transfer Hopper Pond.	Change has been made, as requested.
PolyMet	The fourth paragraph under the heading "Water Management" states that "[b]ased on the current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site . . . ." This statement is inaccurate and inconsistent with the discussion of the GoldSim water quality modeling elsewhere in the SDEIS.	Change has been made, as requested.
PolyMet	Section 1.3.2.2 should identify the fact that PolyMet does not agree with the USFS legal position. This could be done by cross-reference to the appropriate sections in the 2009 DEIS that discuss this issue in greater detail than the SDEIS. For example, a simple cross-cite to Section 1.3.2.2 of the 2009 DEIS would ensure that the reader is aware that additional information on this topic is contained in the 2009 DEIS. PolyMet notes that the SDEIS repeats the	The FEIS has been revised to address this comment.

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	USFS position (i.e., that mining cannot occur within the Federal Lands) in many places; as a result, it would be appropriate to note that PolyMet does not agree in most of the places where this issue is described.	
PolyMet	The SDEIS states: "Throughout operations, the average annual makeup water drawn from Colby Lake would vary between 20 and 810 gallons per minute (gpm), with an average annual demand of 275 gpm." These numbers are inaccurate. The sentence should be revised to show a variation between 120 and 860 gallons per minute (gpm), with an average annual demand of 320 gpm. This section should also acknowledge that additional Colby Lake water would be needed for stream augmentation.	Change has been made, as requested.
PolyMet	In the second full paragraph on this page, PolyMet recommends providing additional details on the probable maximum precipitation (PMP) to make it clear that the likelihood of the emergency overflow channel being used is extremely low. PolyMet suggests editing the text to read: "Pond elevation would be controlled by pumping any excess FTB pond water to the WWTP. An emergency overflow channel would be constructed as a backup means of controlling pond elevation, but discharge from the emergency overflow is not expected. The emergency overflow is provided for protection of the dams in the rare event that freeboard within the FTB is not sufficient to contain all stormwater. Such instances have the potential to occur in the event of a probable maximum precipitation (PMP) rainfall event or some fraction thereof. PMP rainfall events are rare and such an event has a low likelihood of being experienced during the life of the basin. The PMP does not have an assigned return period, but it is usually assumed by hydrologists to be on the order of 100 million to 10 billion years. Based on extrapolation of 72-hour rainfall depth data from US Weather Bureau-Office of Hydrology Technical Paper TP 49, and the assumed return period of the PMP of 100 million years, a 1/3 PMP event could occur roughly once in 1,000 years and a 2/3 PMP could occur once in 500,000 years. On this basis, even though there is a low likelihood of overflow, it is standard practice in dam design to accommodate even low probability overflows in a manner that protects the integrity of the dams. Given the low likelihood that there would ever be flow in the emergency overflow channel, it is not considered in the impact analysis."	Change has been made, as requested.
PolyMet	The third paragraph in Section 3.2.2.3.12, "Reclamation and Long-term Closure Management," contains a list of "reclamation objectives" and "post-reclamation activities." These terms are not used consistently with the	Change has been made, as requested.

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	applicable Minnesota Rules. Under the non-ferrous rules, there are two distinct periods during reclamation: closure and post-closure. "Closure" is a "process" that begins when mining ceases, and ends when the reclamation standards identified in the reclamation plan have been achieved. Thus, while it may be reasonable to describe "reclamation objectives" for the NorthMet Project Proposed Action, it would be more accurate to indicate that these objectives will be achieved during the closure process. "Post-closure maintenance" activities are defined in the applicable rules as activities necessary to "sustain reclamation." Postclosure maintenance activities begin when the closure process is complete, and end when active reclamation (e.g., water treatment plants) is no longer necessary to sustain reclamation standards. Thus, the activities described in this paragraph as "postreclamation" are more accurately described as "post-closure maintenance activities." The same comment applies to text on page 3-137.	
PolyMet	The first sentence of the third paragraph in Section 3.2.2.4, "Financial Assurance," states that the engineering design and planning needed to calculate financial assurance "is typically made available during the permitting process and was not available at the time that this SDEIS was prepared." While this statement is generally accurate, it leaves a misleading impression that something is missing from the SDEIS. The paragraph should specify that NEPA and MEPA regulations do not require a discussion of financial assurance, and that PolyMet has voluntarily provided as much information as possible at the present time.	Section 3.2.2.4 has been revised to address this comment.
PolyMet	The first sentence in the second full, non-bulleted paragraph on this page indicates that a final Reclamation Plan and Contingency Reclamation Cost Estimate will be based on studies "finalized through permitting (pursuant to the EIS process)." This reference to permitting pursuant to the EIS process is confusing and should be clarified. PolyMet is not certain what the SDEIS is trying to convey about the relationship between the permitting and EIS processes, but it should be noted that those are separate processes and that information gathered during the EIS process will be used when agencies make permitting decisions.	Change has been made, as requested.
PolyMet	Table 3.2-16 on page 3-147 provides a comparison of DEIS and SDEIS proposed actions. The table cell corresponding to the first row/first column of the table should state that "Category 1 and 2 waste rock would be stored in a permanent lined/ soil covered stockpile (Category 1/2 Stockpile) north of the	Change has been made, as requested.

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	west pit (years 1-11).” This edit makes clear that the SDEIS proposed action (described in the second column of the table as including “a geomembrane cover system”) will include a significantly improved cover system relative to the cover described in the DEIS. The third column of Table 3.2-16 should also acknowledge the other improved outcomes related to the addition of a geomembrane cover system to the Category 1 Stockpile. For example, the following additional bullet could be added to column three: “Substantial reduction of stockpile seepage volume that will need to be collected and treated at the WWTF and significant improvement in West Pit water quality in closure.”	
PolyMet	General comment on all Cultural Resources Sections in Chapters 4, 5 and 6: The SDEIS often references consultation with the Bands and SHPO, but fails to include PolyMet in these references. When discussing consultation under Section 106 of the NHPA, PolyMet, as the project proponent, should be identified as a consulting party and should be included in the explanation of the Section 106 process. Examples of where PolyMet should be noted/included as a consulting party include: the third to last sentence on page 4-259 (Section 4.2.8.3); the last full sentence on page 4-262 (Section 4.2.9.2.1); the second to last sentence in Section 4.2.9.2.2 on page 4-263; the second to last sentence in the second to last paragraph on page 4-264; the second to last paragraph on page 4-302; the last full paragraph on page 4-303; the third paragraph on page 4-555; the second and third paragraphs on page 5-479; the first full paragraph on page 5-482; the second to last full paragraph on page 5-483; the last paragraph on page 5-673; and the first paragraph on page 6-89.	Change has been made, as requested.
PolyMet	This table lists the mercury TMDL target date for Sabin Lake, Esquagama Lake, and Colby Lake as 2015. The target date for those water bodies is 2025. (source: MPCA 2013. Minnesota’s Final 2012 TMDL List (Section 303(d) Impaired Waters List. List approved by USEPA, July 25, 2013).	Change has been made, as requested. Table 4.2.2-2 has been revised to include 2025 as the TMDL target date for Sabin Lake, Esquagama Lake, and Colby Lake.
PolyMet	In the first sentence of the second paragraph, the order of Duluth Complex and Partridge River intrusion should be switched. The Partridge River intrusion is part of the Duluth Complex.	Change has been made, as requested.
PolyMet	In the second sentence of the second paragraph, the use of “Mesabi Iron Range” is misleading, as it could give the impression that the Duluth Complex is in direct contact with the Biwabik Iron Formation, which is not the case. PolyMet recommends listing a geologic unit (Virginia Formation)	Change has been made, as requested.

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	here, rather than the more vague term "Mesabi Iron Range." In addition to the cross-section shown on Figure 3.2-10, it would be helpful to include a plan view bedrock geology map to illustrate the geometric relationships between the various bedrock units.	
PolyMet	The second sentence of the second full paragraph states: "Based on limited MDNR well records within the NorthMet Project area, natural groundwater levels in the glacial till vary seasonally between 3 and 10 ft bgs." This sentence incorrectly states that the data is limited. Site-specific data on seasonal water level fluctuations is found in the Water Modeling Data Package Volume 1 – Mine Site (referenced in the SDEIS as PolyMet 2013i). PolyMet 2013i provides information on water level fluctuations observed in 24 wells completed in the glacial till at the Mine Site, some with over nine years of water level measurements. Water level fluctuation varies between wells, but the overall range observed in a single well is typically less than 4 ft.	Change has been made, as requested.
PolyMet	The range of dates cited in the bullets listed under "Baseline Groundwater Quality" is inconsistent with the groundwater data used for water quality modeling. For example, 2012 data from MW-05-02, MW-05-08, and MW-05-09 were used for the modeling. PolyMet recommends removing the dates from these bullets or revising the list so that range of dates is consistent with data used to develop Table 4.2.2-6. The range of dates for groundwater data used for the water quality modeling is as follows: • Three older wells in the surficial aquifer, sampled from March 2005 through June 2012. • 21 newer wells in the surficial aquifer, installed in November 2011 – February 2012, sampled following installation through June 2012. • Five observation wells in the upper 100 ft of the bedrock, sampled from 2006 to 2010 (current SDEIS text is correct for this bullet). • Four large-diameter bedrock wells, sampled during aquifer testing in 2005 and 2006.	Change has been made, as requested.
PolyMet	It is not clear how the baseline values that are shown in Table 4.2.2-6, and used for comparison with the site-specific data, were selected. The Northeast MN baseline data appear to be derived only from the "unconfined buried Quaternary aquifer" category. However, the MPCA study also includes data for "buried Quaternary artesian aquifers" and "Quaternary water table aquifers." Either the range shown in Table 4.2.2-6 should reflect data from all	Values in FEIS Table 4.2.2-6 were taken only from one of the three tables provided in the 1999 MPCA study. For the FEIS, minimum and maximum data was extracted from all three tables and provided. Conclusions have not changed; however, the range of concentrations has increased.

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	Quaternary aquifers in the MPCA report or the Final EIS should provide an explanation as to why only a certain subset of data presented is provided.	
PolyMet	The first paragraph describes USGS gage 04015475 as the flow record most representative of the Project area. However, this section also should acknowledge the presence of the recently-installed (for Teck American) flow gage at the Dunka Road crossing near the southeast corner of the proposed Mine Site (monitoring location PM-3/SW003) and note that, while closer to the Mine Site, the short period of record is insufficient for use in the SDEIS. This gage also should be shown on Figure 4.2.2-1.	Change has been made, as requested.
PolyMet	In the first paragraph, the text describing existing upper Partridge River water quality should mention mercury and aluminum concentrations exceeding water quality standards. The text also describes dissolved oxygen at SW002 as the only consistent exceedances. PolyMet reads the term "consistent" as meaning that all samples at that location exceeded the standard, but that should be made more clear the text. The term "consistent exceedances" also appears in section 4.2.6.1.2 (page 4-220), and it should be used in the same way in that section.	No change made.
PolyMet	There are multiple inaccuracies in Table 4.2.2-14 that should be addressed: 1. The average concentrations presented in Table 2.2.2-14 should include 2012 data. The 2012 data is included in Large Table 10 of the Water Modeling Data Package, Volume 1 – Mine Site v12. 2. The number of samples at SW004a and SW004b in footnote 5 is incorrect and should also include 2012 samples. The 2012 data omitted from the number of samples is included in Large Table 10 of the Water Modeling Data Package, Volume 1 – Mine Site v12. The number of samples at SW004a and SW004b should be 12 samples for each location. 3. The ranges of concentrations presented in Table 4.2.2-14 do not include the 2012 data and, therefore, may be inaccurate if maxima or minima occurred in 2012. 4. The range provided for mercury concentrations (<0.0025 ng/L to 0 ng/L) is not accurate; mercury concentrations provided in the Water Modeling Data Package – Volume 1 Mine Site v10 range from <0.5 ng/L to 18.5 ng/L.	Change has been made, as requested.
PolyMet	Section 4.2.2.2.2, p. 4-77, Table 4.2.2-14, Section 4.2.2.2.2, p. 4-80, Table 4.2.2-15, Section 4.2.2.2.2, p. 4-87, Table 4.2.2-18, Section 4.2.2.3.2, p. 4-123, Table 4.2.2-29, Section 4.2.2.3.2, p. 4-132, Table 4.2.2-35:	The referenced tables have been revised to address this comment.

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	The minimum values in constituent concentration ranges shown in these tables are presented as less than half the minimum detection limit. Minimum concentrations (when not detected) should be presented consistently as either less than the minimum detection limit (e.g., " < 10 mg/L") or as a numeric value equal to half the minimum detection limit without a less than symbol (e.g., " 5 mg/L"). If the latter approach is used, the footnotes should note that minimum values represent one half the detection limits.	
PolyMet	The third sentence of the fourth paragraph presents a recharge rate of 0.3 in/yr, which is inconsistent with the mean value of 0.61 in/yr used in the GoldSim model. As discussed in Sections 5.2.1.3.1 and 5.2.1.3.2 of this document, average net recharge in the Embarrass River watershed is estimated at 0.61 inches per year. A recharge rate of 0.3 in/yr represents the minimum value used in the GoldSim recharge distribution (PolyMet, 2013j; Section 5.2.1.3.2); however, it would be more appropriate to use the average value, rather than the minimum value, for the groundwater flow discussion in the SDEIS.	FEIS Table 5.2.2-11 reports the GoldSim P50 (median) aquifer recharge flux input of 0.76 in/yr for all Tailings Basin flowpaths.
PolyMet	Data for the Cell 1E pond should be included in this table. Cell 1E pond data are shown in Large Table 7 of the NorthMet Project Water Modeling Data Package, Volume 2 - Plant Site, Version 9, March 1, 2013.	No change made.
PolyMet	Regarding the first sentence, PM-13 is not "just downstream of the Heikkila Lake tributary." It is more accurate to say PM-13 is downstream of the Unnamed Creek tributary.	The FEIS has been revised to address this comment.
PolyMet	In the second sentence, it is unclear what "low flows" refers to. Based on the low flows presented in Table 4.2.2-27, PolyMet assumes the co-leads are referring to "baseflow." This should be clarified.	Change has been made, as requested.
PolyMet	In the third paragraph, the text describing the number of samples collected at PM-12.2, PM-12.3, and PM-12.4 should include data from 2012 (2012 data appears to be included in subsequent Table 4.2.2-29). The 2012 data is included in Large Table 4 of the Water Modeling Data Package, Volume 2 – Plant Site v9.	The FEIS has been revised to address this comment.
PolyMet	The row for PM-12 should reflect that data was collected in 2012 at this location.	Change has been made, as requested.
PolyMet	Data for PM-11 should not be presented in Table 4.2.2-34, which is titled "Summary of Surface Water Quality Monitoring Data for the Tailings Basin Surface Seeps." Monitoring location PM-11 is located downstream of the Tailings Basin on Unnamed Creek and is not representative of a seep. Data for PM-11 should be included in Table 4.2.2-35 (which includes tributary	Change has been made, as requested.

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	streams) instead.	
PolyMet	In the second to last sentence of the first full paragraph, it should be clarified that seepage and dead spruce trees are not a cause-and-effect relationship. There are many beaver dams in the area that likely play a role in the presence of dead spruce trees.	The FEIS has been updated to address this comment.
PolyMet	The last sentence under "National Hierarchical Framework of Ecological Units" reads: "Inclusion of the One Hundred Mile Swamp would likely complete representation of prominent ELTs in LTA 212Le11." Polymet suggests clarifying by revising this sentence is to say: "The One Hundred Mile Swamp and the two other sites surveyed provide a complete representation of the prominent ELTs present within LTA 212Le11."	Change has been made, as requested.
PolyMet	The third sentence of the third paragraph suggests that PolyMet will submit a revised wetland permit application. In fact, PolyMet has already submitted a revised wetland permit application, which appears as "PolyMet 2013q. NorthMet Project Revised Wetland Permit Application, Version 1. Issued August 19, 2013" in the references.	The FEIS has been updated to address this comment.
PolyMet	The first sentence of this section references three figures for the location of the Mine Site, in relation to Iron Lake and the Laurentian Divide. However, none of the figures show Iron Lake or the Laurentian Divide. The text should be revised to account for this or the figures should be edited to include Iron Lake. This issue occurs in other sections as well, such as the first sentence of Section 4.3.3.1.	The FEIS text has been edited. The Laurentian Divide boundary was added to FEIS Figure 4.2.2-1, and FEIS Section 4.2.3 refers to this figure. The reference to Iron Lake was removed.
PolyMet	The third sentence of the first paragraph should cite the USACE memo (USACE, May 2013) in addition to the baseline wetland type evaluation.	No change to EIS; USACE memo does not cite this information.
PolyMet	The first sentence of the third paragraph reads as though vegetation types are indicative of pre-settlement conditions. However, this is misleading, as there has been a significant amount of logging disturbance throughout the mine site.	The FEIS has been updated to address this comment.
PolyMet	General comment in Sections 4.2.4, 4.3.4, 5.2.4 and 5.3.4 Scientific and common names are used inconsistently throughout these sections. PolyMet recommends using consistent terms throughout the document for clarity.	Change has been made, as requested.
PolyMet	The text on page 4-192 names three ETSC species in Transportation and Utility Corridor, but Table 4.2.4-7 only lists one of these species. This inconsistency should be resolved.	No changes made. The text preceding this Table 4.2.4-7 explains that the other species overlap the Mine Site, and thus are not double-counted in the Transportation and Utility Corridor.

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PolyMet	General Comment to Sections 4.2.5, 4.3.5, 5.2.5, 5.3.5[:] PolyMet recommends either substituting the word "bat" for the term "Myotis" or adding "(bat)" after "Myotis."	Change has been made, as requested.
PolyMet	In the fifth paragraph, the statement that lynx critical habitat "includes most of northeastern Minnesota" is imprecise. PolyMet recommends adding the clarification that the USFWS designated critical habitat does not include most of the Iron Range.	No change made.
PolyMet	The last sentence of the third paragraph references "forest and brush habitats" but parenthetically cites MIHs 1 to 14. PolyMet believes the citation was intended to be MIHs 1 and 14.	No change made.
PolyMet	Regarding the last sentence of the third paragraph [(under Bald eagle heading)], there are no standing dead trees in the existing LTVSMC Tailings Basin.	Text has been clarified to state, "Eagles may use standing dead trees near the existing LTVSMC Tailings Basin for perching."
PolyMet	The second paragraph should reference Moose zone 3, not Moose zone 30.	No change made. The moose zone is 30 according to MDNR information and maps.
PolyMet	The fourth sentence of the second paragraph incorrectly states that the Tailings Basin is "unlikely to be heavily used by wildlife." The Tailings Basin is a local refuge for herds of deer, small mammals and wolves.	No change made.
PolyMet	The first sentence in the first paragraph references the Longnose, Wetlegs and Wyman creeks as surface water features in the Upper Partridge River Watershed. However, there is no discussion on these creeks or a reference to a previous discussion in the SDEIS. PolyMet recommends either providing a similar discussion of that provided for Mud Lake, Yelp Creek, and Second Creek on page 4-214 or explaining why such analysis is not provided.	Change has been made, as requested.
PolyMet	The second sentence uses the term "watershed" while the third sentence uses the term "larger watershed." PolyMet suggests explaining the difference between a "watershed" and a "larger watershed."	No change made.
PolyMet	The first sentence of the third paragraph should be revised to add Yelp Creek to the list of streams where "no fish or macroinvertebrate community or habitat characteristics could be documented . . . ."	No change made. Fish and macroinvertebrate sampling occurred at the confluence of Yelp and Partridge River.
PolyMet	The source of data for these stream surveys should be revised as "Source: Breneman 2005, Barr 2011b, and MPCA 2011c." Barr 2011b is the source of the information for the PM sites.	Change has been made, as requested.
PolyMet	PolyMet recommends that the introductory paragraph state that the NHPA process is proceeding on a parallel path to the NEPA process, and that effects on cultural resources have also been considered and analyzed under NEPA.	No change made.

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PolyMet	The last sentence of the introductory paragraph states: "Cooperating agencies have not participated in production or endorsement of any components of the EIS or the NorthMet Project." This statement is not entirely accurate, since the tribes have participated in the production of components of the EIS relative to cultural resources as well as the Major Differences of Opinion. The EIS should describe the tribes' participation in the development of the EIS.	Change has been made, as requested.
PolyMet	The second-to-last paragraph is unclear, both with respect to whether it is discussing groundwater and/or surface water, and with respect to how that discussion fits into the APE analysis. Figure 4.2.9-5, which is not referenced in this paragraph, is a groundwater quality APE, but most of the paragraph discusses surface water quality. PolyMet recommends revising this paragraph to explain how groundwater and surface water affect the APE.	Change has been made, as requested.
PolyMet	The term "Sensitive Fines" is used on the Figure, yet neither Geotechnical Data Package, Vol. 1, Version 4, nor preceding versions use the name "Sensitive Fines." April 12, 2013 Geotechnical Data Package, Vol. 1, Version 4 uses the name "Fine Tailings/Slimes." This material type is missing from the Legend on the lower left corner of Figure 4.2.14-3.	Information in the figure was sourced from the Geotechnical Data Package Volume 1 (PolyMet 2014x, as cited in the FEIS). Sensitive fines have been removed from the FEIS figures.
PolyMet	Units and labels are missing from axes [of Figure 4.2.14-3] (e.g., elevation in feet amsl and distance in feet) and the dashed lines in the figures are not in the legend (layers of material).	Dashed lines removed, distance and elevation on axis.
PolyMet	In the first full sentence [of Section 4.3.3.1.1, p. 4-434], floodplains should be clearly defined, and PolyMet recommends including a figure showing mapped floodplains with wetlands.	A definition of floodplain is included in the FEIS and the floodplains are shown on Figures 4.3.3-2 and 4.3.3-5.
PolyMet	The table combines coniferous bogs and coniferous swamps. PolyMet recommends separating these two wetland types here, in the same way that they are separated for discussions of the federal lands. This is also an issue in Tables 4.3.3-6, 4.3.3-8, 4.3.3-10, 4.3.3-12.	Please refer to theme WET17 response.
PolyMet	The table contains inaccurate acreage for open bog and shallow marsh. Open bog should be 2.1 acres, and shallow marsh should be 84.1 acres. In addition, the third sentence under Table 4.3.3-6 should also be edited from: "Large bogs dominate much of the east-central portion of Tract 1" to the suggested "Shrub swamps dominate much of the east-central portion of Tract 1." The current sentence is inaccurate because there are only 2 small bogs (2.1 acres total) on the Hay Lake parcel.	Tables in the FEIS have been corrected. FEIS language was reviewed and no change to this sentence.
PolyMet	In footnote 2 [of Table 4.3.4-5], PolyMet suggests deleting the phrase "additional populations may be present in more marginal, secondary habitat that was not surveyed, or in wetter areas." There is no evidence (no survey) of	Change has been made, as requested.

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	additional populations in marginal, secondary habitat, and the SDEIS should make that clear.	
PolyMet	This section [(4.3.5.2.1)] discusses "species of tribal concern." This is not a legal category. PolyMet recommends deleting this phrase.	No change made.
PolyMet	The first sentence in the second paragraph should be revised to read "Some of the non-federal lands… ." Not all of the non-federal lands have streams, creeks, rivers, or lakes on them.	Change has been made, as requested.
PolyMet	This paragraph incorrectly compares Coyote Creek with Stony River. These are not comparable systems. The Stony River is a higher order, more diverse aquatic system than the first order, headwaters Coyote Creek. It cannot be assumed that the conclusions drawn from the studies for Stony River are applicable to Coyote Creek.	No change made. The text is not comparing the two systems but only states that since high quality habitat is likely present in Coyote Creek some of the fish species present within the Stony River could be present in the headwater habitats of Coyote Creek.
PolyMet	The second paragraph is one sentence and cites "MIH 14." PolyMet recommends that this paragraph first provide some description of the MIH 14 before making the statement it currently contains.	Change has been made, as requested.
PolyMet	The first sentence of the second full paragraph states that the "groundwater containment system would capture at least 90 percent of seepage from the Tailings Basin." This is incorrect. The system will capture 100% of surface seepage and upwelled water, and at least 90% of seepage that remains as groundwater flow. Overall, 99% of seepage from both surface and groundwater will be captured. The sentence, as written, implies that the system will be less effective than it will be.	Change has been made, as requested.
PolyMet	The 4th paragraph states: "With the proposed design modifications and engineering controls, the water quality model predicts that the NorthMet Project Proposed Action would not cause or increase the magnitude of an exceedance of the groundwater and surface water quality evaluation criteria at the P90 level for any of 28 solutes at 29 groundwater or surface water evaluation locations within the Partridge River and Embarrass River watersheds…" PolyMet proposes the following language: "With the proposed design modifications and engineering controls, the water quality model predicts that the NorthMet Project Proposed Action would not cause or increase the magnitude of an exceedance of the groundwater and surface water quality evaluation criteria at the P90 level for any of the 27 solutes and mercury (further addressed below) at 29 groundwater or surface water evaluation locations within the Partridge River and Embarrass River watersheds…"	The FEIS has been revised to address this comment.

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PolyMet	The 3rd paragraph states: "Within the water quality modeling, estimated concentrations for these six metals are compared to hardness-based standards at each model evaluation location and each model time step to determine compliance with the evaluation criteria." PolyMet proposes the following language: "Within the water quality modeling, modeled concentrations for these six metals are compared to hardness-based standards at each model evaluation location and each model time step to determine compliance with the evaluation criteria."	Change has been made, as requested.
PolyMet	The 4th paragraph states "Methylmercury is much more of a problem than inorganic mercury, in that it can accumulate to concentrations of concern in the aquatic food chain, it is more bioavailable than inorganic mercury, and it can bioaccumulate in fish, wildlife, and humans." The term "problem" suggests a conclusion, when this sentence is actually describing concerns. PolyMet proposes the following language: "Methylmercury is more of a concern than inorganic mercury, in that it can accumulate to concentrations of concern in the aquatic food chain, it is more bioavailable than inorganic mercury, and it can bioaccumulate in fish, wildlife, and humans."	Change has been made, as requested. The word "problem" has been replaced with the word "concern".
PolyMet	The first sentence at the top of the page reads: "Research suggests that total mercury concentrations in streams and methylmercury content in fish are roughly proportional within individual watersheds (USGS 2010), such that, for example, a 5 percent increase in total mercury in water would be expected to result in about a 5 percent increase in mercury content in fish within that watershed." This sentence should be changed to clearly state that the potential incremental change in fish mercury concentration is an evaluation criterion and that MPCA's Mercury Risk Estimation Method (MMREM) was used to assess the potential changes in fish mercury concentrations in nearby lakes. The MMREM is a method that relies on empirical fish contamination data, combined with the principle of proportionality between mercury in fish and atmospheric deposition (MPCA 2006a, as cited in the FEIS, MMREM guidance document).	Change has been made, as requested. Additional text has been included.
PolyMet	Modeling results for location UC-1 are not presented in the SDEIS. Therefore, this location should not be shown in Figure 5.2.2-6 as a model evaluation location.	Change has been made, as requested.
PolyMet	The 3rd and 4th sentences of the first paragraph should be clarified to reflect that the Plant Site MODFLOW model was not calibrated to baseflow in the Embarrass River, nor was the model used to estimate baseflow.	Change has been made, as requested.

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PolyMet	Regarding the last sentence on the page, the regional MODFLOW model calibration was not updated to the revised baseflow estimates from XP-SWMM. The Mine Site Water Modeling Data Package Attachment C provides: "The regional model calibration was not updated because the original calibration did not incorporate a baseflow estimate and previous sensitivity analysis indicated that the local-scale model results were not sensitive to the lateral boundary conditions that were defined by the regional model (Barr, 2007). Therefore, the perimeter boundary conditions for the local-scale model remained unchanged."	Change has been made, as requested.
PolyMet	The footnote on the "Specific yield" column of the table [(5.2.2-9)] only applies to the surficial deposits, not the entire column in the data table.	Change has been made, as requested.
PolyMet	The 1st paragraph states: "GoldSim was programmed with a suite of complex algorithms to estimate the release of contaminants from mine facilities (i.e., "sources") and their transport to groundwater and surface water evaluation locations." PolyMet suggests the following language: "GoldSim was programmed with a suite of algorithms to estimate the release of contaminants from mine facilities (i.e., "sources") and their transport to groundwater and surface water evaluation locations."	Change has been made, as requested.
PolyMet	The 1st paragraph states: "The onset of acidic pore water is also problematic, as these conditions cause the rate of sulfide oxidation to increase and the concentration of metals to increase as precipitates dissolve." PolyMet suggests the following revision: "The onset of acidic pore water is also of concern, as these conditions cause the rate of sulfide oxidation to increase and the concentration of metals to increase as precipitates dissolve."	Change has been made, as requested.
PolyMet	The bulleted list near the middle of the page provides slightly incorrect sulfide sulfur ranges for the waste rock classification criteria, as well as an incorrect reference for this information. The sulfide sulfur classification criteria for the categories of waste rock should be revised as follows: • Category 1 – sulfur content less than or equal to 0.12%. • Category 2 – sulfur content greater than 0.12% and less than or equal to 0.31%. • Category 3 – sulfur content greater than 0.31% and less than or equal to 0.60%. • Category 4 – sulfur content greater than 0.60%. Categories 2 and 3 are combined to produce Category 2/3 with sulfur content greater than 0.12% and less than or equal to 0.60%.	Change has been made, as requested.

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	This information can be found in Section 4.4.1 of the Waste Characterization Data Package v10 (PolyMet 2013)	
PolyMet	The first sentence of the last paragraph on page 5-53 states that "the GoldSim model simulates constituent release from waste rock based on assumptions that either extrapolate from conditions observed under field-scale weathering of similar rock (Category 1 waste rock) or in laboratory tests (Category 2, 3, and 4 waste rock, and ore)." This should be revised to indicate that constituent release for all categories of rock is based on data from laboratory tests. Constituent release rates for all categories of rock are estimated by applying a scaling factor to lab rates to account for likely differences between field and lab conditions. The scaling approach differs between Category 1 and the other categories of rock, but release rates for all categories of rock are based on laboratory data.	Change has been made, as requested.
PolyMet	The second paragraph states: "The 80 percent rate is used because seepage from the south side of Tailings Basin is likely higher than the flow contribution to Second Creek that would occur from the Basin footprint for natural ground conditions (i.e., if the Tailings Basin were not present)". This statement is not correct. The 80% is to limit the project impact on flow to +/- 20% of existing conditions, as is recommended by MDNR on Page 5-14.	Change has been made, as requested.
PolyMet	PolyMet suggests revising the third full paragraph as follows: "WWTP effluent that would be used remaining after flow augmentation to Second Creek would be discharged to the three Embarrass River tributaries (Unnamed, Trimble, and Mud Lake creeks), as partial or complete fulfillment of required augmentation to maintain downstream hydrology and wetland function in Second Creek and the three Embarrass River tributaries (Barr 2013a). Pumping from Colby Lake would be used to meet any remaining augmentation requirement."	No change made.
PolyMet	The second paragraph states: "Tailings seepage bypassing the containment system (approximately 19.4 gpm) would continue… ." On page 5-8 (Section 5.2.2) and in Table 5.2.2-36, the flow bypassing the containment system is said to be "about 21 gpm." PolyMet recommends revising for consistency.	Change has been made, as requested.
PolyMet	The active source period for the Category 4 Stockpile is incorrect. The stockpile will be removed during the development of the Central Pit and will be entirely removed by the end of Mine Year 11.	Change has been made, as requested.
PolyMet	The last full paragraph should acknowledge that the pH in the East Pit backfill will be monitored and adjusted by the addition of alkaline water from the WWTF as backfilling progresses in order to maintain circum-neutral	Change has been made, as requested.

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	conditions in the backfill pore water.	
PolyMet	The SDEIS states: "The quality of this aquifer inflow would reflect the quality of the pit lake water, which would gradually improve over time due to cycling through the WWTF." However, the West Pit water will not be cycled through the WWTF during reclamation. PolyMet suggest revising the text to: "The quality of this aquifer inflow would reflect the quality of the pit lake water, which would gradually improve over time due to the effectiveness of the reclamation activities at the site."	Change has been made, as requested.
PolyMet	The SDEIS states: "Cobalt was generally used to illustrate groundwater transport at the Mine Site because it is not attenuated and would enter the surficial flowpaths at concentrations higher than baseline groundwater." This statement is misleading. PolyMet suggests rewording to the following: "Cobalt was generally used to illustrate groundwater transport at the Mine Site because the model did not account for attenuation, and would enter the surficial flowpaths at concentrations higher than baseline groundwater."	Change has been made, as requested.
PolyMet	The first paragraph incorrectly states that flow augmentation must be at least 145 or 180 gpm, which is 80% of capture flow rate of the current south-side seepage. Table 5.2.2-40 shows 400 gpm, which is the correct rate for augmentation (see The Water Modeling Data Package – Volume 2 Plant Site v9). The same error is made in the last paragraph on Page 5-153 (Section 5.2.2.3.2).	No change made.
PolyMet	The first paragraph of this section only discusses quantities of seepage during closure and not operations. The paragraph below could be added to discuss these aspects during operation: "During operations, the Category 1 Stockpile would be uncovered. Infiltration would percolate to the bottom of the stockpile and be collected by the surrounding groundwater containment system. As the stockpile footprint is expanded, the total seepage during operations will increase up to a maximum annual flow of between 290 gpm and 440 gpm. Most of this seepage would be collected and sent to the WWTF for treatment; an estimated peak flow of 20 gpm to 30 gpm would pass below the containment system and be drawn by gravity into the dewatered West Pit."	Change has been made, as requested.
PolyMet	This table [(5.2.2-28)] is consistent with what was provided in the AWMP, but the corresponding text on Page 5-125 leaves the inaccurate impression that the effluent targets were what was modeled as effluent concentrations. The text should be modified to match the table.	No change made.

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PolyMet	The use of the term "non-contact stormwater" in this table [(5.2.2-29)] and elsewhere in the text is somewhat confusing, as it seems to imply that this is water being managed by PolyMet. PolyMet recommends using the more appropriate term "unimpacted watershed runoff."	No change made.
PolyMet	The first paragraph on this page should acknowledge that there is a low probability for exceedances caused by the project.	No change made.
PolyMet	Unnamed Creek should be included in the discharge locations for the WWTP effluent. SD006 is the location for Unnamed Creek, not Second Creek. The table organization contradicts language found in the last paragraph of page 5-177, which states "augmentation flow to Unnamed Creek would be via a single discharge near the current SD006 discharge."	Change has been made, as requested.
PolyMet	The text states: "The rate at which contaminants would move through the groundwater would be the same as the groundwater seepage velocity downgradient of the containment system for all but four constituents (arsenic, antimony, copper, and nickel)."...Because no attenuation values are used for the constituents – other than arsenic, antimony, copper, and nickel – the modeled rate of groundwater transport will be faster than the actual rate of transport in the ground. PolyMet recommends noting this fact in the text.	Change has been made, as requested.
PolyMet	The second to last paragraph states: "…the concentrations of these metals in the WWTP effluent would be significantly higher than the concentrations in the current Tailings Basin seepage…" This sentence should be revised to use the term "modeled concentrations…" The modeled effluent concentrations from the WWTP are higher than the values reported in pilot testing of the proposed treatment systems for the WWTP, but were selected to be near, and slightly below, the potential effluent limit for the modeled constituents to provide a conservative assessment of potential consequences related to downstream water quality. PolyMet also recommends making this adjustment in Table 5.2.2-47 on page 5-188.	Change has been made, as requested.
PolyMet	The second to last paragraph states: "…the average aluminum concentration in the WWTP influent and effluent would be about 10 mg/L…" This should be 10 µg/L.	Change has been made, as requested.
PolyMet	The first paragraph following the bulleted list states: "This dilution effect is demonstrated by the increase in measured aluminum concentrations from upstream tributary locations (UC-1, TC-1, and MLC-3) to downstream locations (PM-11, PM-19, and MLC-2), where upstream locations would average less than 100 µg/L compared to downstream locations averaging about 142 µg/L." It is unclear whether this refers to observed or modeled	Change has been made, as requested.

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	conditions. The use of the term "measured" implies reference to actual, observed data, but stating that upstream locations "would average less than…" implies model results. It also is unclear whether the 100 µg/L and 142 µg/L figures are modeled or observed.	
PolyMet	There appears to be inconsistency in the chromium standard that is used in this chapter. The referenced pages state: "Among the six constituents with hardness-based evaluation criteria (cadmium, chromium (III), copper, lead, nickel, and zinc)…" and Table 5.2.2-4 lists chromium (III), as the evaluation criteria with a hardness based standard. However, later in the document, the standard for chromium (VI) is used in Tables 5.2.2-30 and 5.2.2-42 for example. Please clarify which standard was used for chromium, and why.	Change has been made, as requested.
PolyMet	The number of pit lakes should be 16, not 21 as reported in this table [(5.2.2-49)].	Change has been made, as requested.
PolyMet	The third paragraph states "…precipitation, which averages about 9.8 ng/L based on average volume-weighted mercury in precipitation as measured at the Marcell Experimental Forest deposition site in Itasca County (NADP 2013)." Barr's analysis, consistent with the table on the next page, is based on 13 ng/L deposition based on the Fernberg Road site. PolyMet recommends citing the Fernberg Road concentration of 13.2 ng/L instead of the Marcell concentration of 9.8 ng/L. This comment also applies to the SDEIS's cumulative impact discussion in the first paragraph of p. 6-31 and second paragraph of p. 6-33 (Section 6.2.3.3.4).	Change has been made, as requested.
PolyMet	The second bullet, when explaining the predicted increase in mercury loading to the Embarrass River, states: "Tailings Basin containment system, which would collect seepage from the Tailings Basin, with an estimated mercury concentration of 1.1 ng/L, and route it to the WWTP, which would discharge with an assumed mercury concentration of 1.3 ng/L, for a net increase of 0.2 ng/L of mercury as a result of wastewater treatment, which is a conservative assumption." PolyMet suggests explaining that the reason this is conservative is because the WWTP would reduce mercury concentrations, and any additional mercury removal from installing a greensand filter, are not accounted for.	Change has been made, as requested.
PolyMet	The second bullet under NorthMet Project Proposed Action Design Changes states: "The location of the Category 4 Stockpile was shifted such that seepage would be captured in the Central Pit and East Pit and would minimize effects on surficial groundwater." The terminology and locations used here are confusing. PolyMet suggests the following instead: "The	Change has been made, as requested.

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	location of the Category 4 Stockpile was shifted such that water contacting the stockpile would be captured in the East Pit and would minimize effects on surficial groundwater."	
PolyMet	The sixth bullet states: "Refined Hydrometallurgical Flowsheet – A single (rather two) autoclave would be fed with nickel concentrate and produce copper concentrate produced with beneficiation refinements. The production of hydrometallurgical residue would be cut approximately in half with this design change. Residual copper would be recovered by cementation (contacting the leach solution with copper concentrate) to further upgrade the copper concentrate and to further reduce the production of hydrometallurgical residue." To be more precise, the last phrase should be changed to: "…, and to potentially further reduce the production of hydrometallurgical residue."	Change has been made, as requested.
PolyMet	The first bullet discusses subaqueous disposal of reactive waste rock, but it does not mention subaqueous disposal of some of the Category 1 waste rock. Although Category 1 waste rock is considered the least reactive waste rock, it should still be mentioned here.	Change has been made, as requested.
PolyMet	The fourth bullet discusses the use of side dump cars to haul ore and states: "Ore Transport – PolyMet proposes to use side-dump rail ore cars that would minimize ore spillage (PolyMet 2013c)." Side dump rail cars were proposed as part of the DEIS, as documented in DEIS Section 3.1.3; therefore, this is not a design change and should not be included in this section.	Change has been made, as requested.
PolyMet	The seventh bullet discusses the tailings basin containment system and refers to it as being "on the western, northern, and northeastern sides of the existing LTVSMC Tailings Basin." The containment system is not located along the northeastern side of the tailings basin; it is located on the western and northern sides of the tailings basin, as described appropriately on SDEIS Page 3-116 (under Engineering Water Controls).	Change has been made, as requested.
PolyMet	The first bullet, as part of a tabulation of fixed engineering controls, states: "Process water management, including pipes, pumps, and process water ponds that would be used to separate and control stormwater and process waters." This statement does not account for the fact that the process water ponds are lined. Accordingly, PolyMet recommends inserting "lined" before "process water ponds."	Change has been made, as requested.
PolyMet	The flow monitoring for stormwater has footnotes stating that flows would be monitored continuously. There are no pumps associated with this infrastructure, so continuous flow monitoring is not proposed for stormwater flows. Flows are proposed to be monitored on a monthly basis as specified in	Change has been made, as requested.

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	the Water Management Plan – Mine (v2) Section 5.2.	
PolyMet	table [5.2.2-53] includes water level monitoring for Whitewater Reservoir. This was not included in the Water Management Plan – Mine and has never been discussed with the agencies.	The FEIS has been revised to reflect most recent documentation.
PolyMet	The fourth bulleted item is misleading and should be clarified by changing the text in parentheses to say "within Area 1."	The FEIS has been revised to address this comment.
PolyMet	The first paragraph states "The analog approach was based on similar mine settings (e.g., within the glacial till region)." PolyMet proposes the following revision: "The analog approach used observations of groundwater response adjacent to iron range mines characterized by moderate to high hydraulic conductivity glacial and fluvial deposits overlying lower hydraulic conductivity bedrock."	The FEIS has been revised to address this comment.
PolyMet	The third sentence of the first full paragraph should be clarified by identifying the source and rationale behind using 675 square meters of watershed area per meter of track in the contributing watershed as the method for identifying potentially impacted wetlands.	The FEIS has been revised to address this comment.
PolyMet	In the second sentence of the third paragraph, it is an overstatement to suggest that wetlands represent pre-European settlement conditions, as the area was likely logged several times since settlement.	The FEIS has been revised to address this comment.
PolyMet	The second bullet should read: "In-kind mitigation means the replacement of the impacted aquatic site with the same wetland plant community type." See USACE, 2009, II.D.3.	The FEIS has been revised to address this comment.
PolyMet	The third bullet should read: "Out-of-kind mitigation means the replacement of an impacted aquatic site with a different wetland plant community type." See USACE, 2009, II.D.3.	The FEIS has been revised to address this comment.
PolyMet	In the second paragraph, the rule citation is incorrect as is the interpretation of the rule. The second paragraph should read: "The Federal Mitigation Rule also states that "difficult-to-replace" aquatic resources include bogs (33 CFR 332.3(e)(3) and Preamble, page 19633). The majority of the wetlands that would be affected by the NorthMet Project Proposed Action would be "difficult-to-replace" (coniferous bog and open bog) (USACE 2013, as cited in the FEIS). The Federal Mitigation Rule includes a provision for a case-by-case determination of mitigation ratios higher than the minimum 1:1 where necessary to account for the difficulty of restoring or establishing the desired aquatic resource type and functions."	The FEIS has been revised to address this comment.
PolyMet	The third sentence of the third paragraph is not supported by the data	The FEIS has been revised to address this comment.

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	collected for the project. None of the wetlands proposed to be affected by the project were rated as having exceptional vegetative diversity/integrity ratings.	
PolyMet	The second to last sentence in the fourth paragraph should read: "For effects on wetlands with rare or exceptional functions or difficult-to-replace bogs, the USACE may require additional compensation in accordance with District Policy and the Federal Mitigation Rule."	The FEIS has been revised to address this comment.
PolyMet	The first sentence of the second to last paragraph should read: "If none of these incentives are met, the minimum mitigation ratio required is 1.5:1."	The FEIS has been revised to address this comment.
PolyMet	The third paragraph states that base compensation ratios could be increased to 2:1. There is not rationale or reference provided for this statement, which is not specifically stated in the District Policy or Federal Mitigation Rule. The same comment applies to page 5-316 and page 5-321.	The FEIS has been revised to address this comment.
PolyMet	The 6 rows [in Table 5.2.3-17] beginning with "<50%..." and "<80%..." are not relevant to the PolyMet project and could be removed in order to maintain clarity.	The FEIS has been revised to address this comment.
PolyMet	The first paragraph after the list should read: "The financial assurance requirements would be part of the WCA permitting process for the NorthMet Project Proposed Action. Wetland replacement for the NorthMet Project Proposed Action is expected to be approved and constructed in advance of any authorized wetland effects (under the WCA approval) and, therefore, would not require financial assurance."	The FEIS has been revised to address this comment.
PolyMet	No reference is provided for the statements made in the fourth paragraph. Justification for why the wetland mitigation opportunities discussed in this paragraph were determined to not be practicable was provided in "Wetlands Mitigation Plan Supplement – Wetland Mitigation Planning and Siting Documentation," RS20T Draft-04, PolyMet, June 1, 2008. One additional difficulty with such wetland mitigation opportunities that was not discussed in the reference provided is the presence of severed mineral rights on many of those lands. In order to place restrictions on the land, as required for wetland mitigation, those mineral rights would need to be controlled.	The FEIS has been revised to address this comment.
PolyMet	In the last paragraph, the third sentence should read: "The mitigation would be considered in advance if the initial phases of restoration on all of the proposed off-site wetland mitigation sites would be completed at least one full growing season in advance of the authorized wetland effects provided initial performance standards are met for which the mitigation would compensate." Also, in the last paragraph, 939.4 acres is stated with no	The FEIS has been revised to address this comment.

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	reference. That number should be referenced to Tables 5.2.3-19 and 5.2.3-20 of the 404 permit application.	
PolyMet	In the fifth paragraph, the first sentence should read: "The minimum replacement ratio that would be allowed by the USACE is 1:1 (USACE, 2009) for those wetlands that would be replaced with the same wetland type, and at least one full growing season in advance of the authorized wetland effects provided initial performance standards are met; however, base compensation ratios could be increased to 2:1 (add reference) for effects on wetlands with rare or exceptional functions or difficult-to-replace bog wetlands."	The FEIS has been revised to address this comment.
PolyMet	The first sentence in the last paragraph (before the bullet), should read: "Under the Minnesota WCA, the replacement ratio that would likely be allowed is 1.5:1, because the Aitkin Site wetlands are out of the NorthMet Project area watershed (see Tables 5.2.3-18 and 5.2.3-20)."	The FEIS has been revised to address this comment.
PolyMet	The first sentence in the second paragraph should read: "The minimum replacement ratio that would be allowed by the USACE is 1:1 (USACE, 2009) for those wetlands that would be replaced with the same wetland type, and at least one full growing season in advance of the authorized wetland effects provided initial performance standards are met; however, base compensation ratios could be increased to 2:1 (add reference) for effects on wetlands with rare or exceptional functions or difficult-to-replace bog wetlands."	The FEIS has been revised to address this comment.
PolyMet	The first sentence in the third paragraph should read: "Under the Minnesota WCA, the replacement ratio that would likely be allowed is 1.5:1, because the Hinckley Site wetlands are out of the NorthMet Project area watershed (see Tables 5.2.3-18 and 5.2.3-20)."	The FEIS has been revised to address this comment.
PolyMet	The first sentence in the last paragraph should read: "The minimum replacement ratio that would be allowed by the USACE is 1:1 for those wetlands that are replaced with either the same wetland type, or at least one full growing season in advance of the authorized wetland effects provided initial performance standards are met; however base compensation ratios could be increased to 2:1 for effects on wetlands with rare or exceptional functions or difficult-to-replace bog wetlands."	The FEIS has been revised to address this comment.
PolyMet	The first sentence on the page (continuing from the previous page) should read: "For low- to moderate-quality wetlands, the recommended base ratio of 1.5:1 would be reduced to 1.25:1 for in place and could be reduced to 1:1 if also either in-advance or in-kind."	The FEIS has been revised to address this comment.

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PolyMet	The section on the Zim Site does not include any description of restoration methods and sequencing, which is included in the descriptions for the Aitkin and Hinckley sites. See "Zim Sod Wetland Mitigation Site Wetland Mitigation Plan" (PolyMet, November 2011) for an appropriate description.	The FEIS has been revised to address this comment.
PolyMet	A footnote should be added to the table [5.2.3-18] describing why there is 101.8 acres of on-site wetland mitigation shown in the second to last column but no associated wetland credits in the last column. Similarly, the same acreage is shown in the "On-Site (acres)" column, but no associated credits are shown in the "Total Credits" column.	The FEIS has been revised to address this comment.
PolyMet	The last paragraph states, "Approximately 72 percent of credits proposed would be located outside of the watershed." This statement is misleading because all of the proposed credits are above the minimum 1:1 replacement ratio. In fact, 48 percent of the proposed impacts are proposed to be replaced in-kind, in-place, and ahead of time. If the on-site wetland mitigation were factored in, approximately 56 percent of the wetland impacts would be replaced within the watershed.	The FEIS has been revised to address this comment.
PolyMet	The numbers in the second sentence of the second paragraph are inaccurate. In this sentence, 7,350.7 acres should be 1,771.5 acres (based on Table 5.2.3-3; excluding the "no effect" acres) and 6,498.1 acres should be 587.1 acres (based on Table 5.2.3-4; excluding the "no effect" acres).	No change was made.
PolyMet	In the third paragraph, the third sentence should read: "At The Mine Site, an additional 16 monitoring locations are proposed and are planned within all wetlands that have received effect factor ratings of 3, 4, or 5 near the North Met Project area features and in several wetland with effect factor ratings of 1 or 2 located throughout the areas of potential indirect wetland impacts." This is consistent with the information provided on page 5-336, second paragraph of the SDEIS.	The FEIS has been revised to address this comment.
PolyMet	The last sentence of the first full paragraph states: "Indirect effects were estimated by comparing the proximity of the NorthMet Project area infrastructure footprints to existing natural features." Polymet suggests revising the text to read: "Vegetation communities can be affected by more than one of these types of indirect effects. For this reason, indirect effects on vegetation cannot be precisely quantified, as this would result in double-counting of vegetation community acreage where multiple indirect effects are manifested. The relative magnitude of indirect effects on vegetation communities can, however, be estimated. Typically, indirect effects are more likely to occur	The FEIS addresses this comment by adding the following text: "Typically, indirect effects are more likely to occur and/or are more likely to be evident in vegetation communities that are closer to Project components and other infrastructure (e.g., roads). Indirect effects tend to diminish with increasing distance from Project components and other infrastructure."

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	and/or are more likely to be evident in vegetation communities that are closer to Project components and other infrastructure (e.g., roads). Indirect effects tend to diminish with increasing distance from Project components and other infrastructure."	
PolyMet	In the discussion of the NorthMet Project's effects on culturally important plants, the SDEIS discusses wild rice but notes that that "a distinct list of plant species important to the Bands is not available." The Bands were cooperating agencies in preparation of the SDEIS, and accordingly had every opportunity to provide a distinct plant species list. If such a list is not available, PolyMet recommends stating that the Bands have not identified culturally important plants not already identified and discussed in the SDEIS.	No change made.
PolyMet	The text describes indirect effects as a certainty, when there is no basis for determining the likelihood and/or magnitude of indirect effects. Where the text makes statements such as "[Species name] may be indirectly affected by changes in hydrology", the word "potentially" should be inserted ("may potentially be indirectly affected ") to more accurately reflect the uncertainty over the likelihood and/or magnitude of indirect effects.	Change has been made, as requested.
PolyMet	The eighth sentence of the second paragraph states: "Disturbance-tolerant species may, in some cases, actually be disturbance-dependent." PolyMet recommends providing a citation for this claim or removing the sentence.	Change has been made, as requested. Sentence has been deleted.
PolyMet	In the second sentence of the eighth paragraph, it is misleading to state that "an average of 2,066 miles per day of vehicular traffic" would contribute to potential lynx impacts. The majority of those miles would be traveled within the pit/mine site and not along outside roads where lynx encounters would be far more likely.	No change made. The FEIS states that this traffic would primarily be from hauling ore within the Mine Site to rail siding and waste rock to the stockpiles. Further, the FEIS states that haul traffic would likely have little direct effect on lynx.
PolyMet	Second paragraph: The Transportation and Utility Corridor runs both parallel and perpendicular to the identified wildlife travel corridors.	Change has been made, as requested.
PolyMet	The last paragraph states: "Effects on aquatic biota from the lead exceedance due to changes in hardness are not well understood, but would likely increase the potential to adversely affect aquatic life." This statement does not acknowledge that the modeling results predict increased potential for a lead exceedance (due to the use of a probabilistic model); rather, the statement incorrectly implies that there will inevitably be a lead exceedance.	Sentence was removed when updating section with v6 modeling results.
PolyMet	In the second paragraph, it should be noted that most of the floodplain on the federal land is outside of the Project Area.	No change made.
PolyMet	The right-most table column heading should be renamed "Non-FEMA	FEIS language has been revised to refer to mapped and

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	regulated floodplains." A column should be added for "FEMA-regulated floodplains." This comment also pertains to Table 5.3.3-7.	unmapped floodplains.
PolyMet	Table 5.3.3-5[:] The subtotal for open bog on non-federal lands is not accurate. The number should be 7.1 acres.	The FEIS has been revised to address this comment.
PolyMet	[In] Table 5.2.7-22… "Inhalation only acute" and "chronic non-cancer HI" should be displayed with 1 significant figure – i.e. 1 not 1.0.	The FEIS has been updated to address this comment.
PolyMet	In the last paragraph, the incremental risk at Wynne Lake for a recreational fisher should be as 0.07 in Plant Site AERA report, not 0.08.	No change made.
PolyMet	The third sentence of the first paragraph inaccurately states that H2SO4 was "screened out." The estimated risk was added to the other chemicals evaluated to obtain the total.	No change made.
PolyMet	The sixth sentence of the first paragraph inaccurately states that H2SO4 was "screened out." The estimated risk was added to the other chemicals evaluated to obtain the total.	No change made.
PolyMet	The third paragraph states: "Conceptual designs of the waste rock stockpiles, Tailings Basin, and Hydrometallurgical Residue Facility have been developed and shown by PolyMet, through an iterative design and model process, to meet the minimum safety factors and water quality criteria (see Section 5.2.2) acceptable to the Co-lead Agencies. PolyMet suggests changing the word 'conceptual' to 'preliminary'.	Change has been made, as requested.
PolyMet	The second bullet under Design Criteria states: "Factor of safety greater than or equal to 1.3 for short-term, undrained strength conditions for soils that are not prone to static liquefaction using undrained strength conditions." This sentence should be revised to indicate that this analysis does not include static liquefaction. Liquefaction is addressed subsequently.	No change made. The cited text is from the work-plan document.
PolyMet	The second paragraph uses the phrase "bulk tailings." PolyMet recommends defining "bulk tailings" to limit potential confusion. LTVSMC Coarse Tailings are proposed for use in dam construction but since the Coarse Tailings may have occasional inclusions of fine tailings and slimes, the term "Bulk Tailings" has been used by PolyMet to describe the planned tailings borrow. The same comment applies to page 5-562, which states: "The proposed dams would be constructed from mechanically placed and compacted bulk tailings taken from the existing LTVSMC Tailings Basin as needed to produce the desired dam lift height and geometry. LTVSMC bulk tailings are currently defined as a mixture of tailings from the existing LTVSMC Tailings Basin."	The use of bulk tailings is used respectively in context of NorthMet or LTVSMC.

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PolyMet	The eighth paragraph states: "As dams are constructed, exterior slopes would be covered with bentonite and vegetated. Upon reaching…" This statement is not completely accurate. On the exterior face of new dams, bentonite will be integrated into the near-surface layer of tailings. The dams will not be "covered with bentonite."	No change made.
PolyMet	The second sentence states: "The predicted Factor of Safety values for Cross Section F at various stages of development of the Tailings Basin are summarized in Table 5.2.14-1. All slope stability factors are designed to meet the factors of safety required by the NorthMet Geotechnical Modeling Work Plan (PolyMet 2013n, Attachment A)." It is more appropriate to say that the slope stability factors are designed to meet the "applicable requirements of *Minnesota Rules* 6115.0300 through 6115.0520 and the factors of safety required by the Co-Lead agencies in the NorthMet Geotechnical Modeling Work Plan (PolyMet 2013n, Attachment A)." The first paragraph under Design Criteria on p. 5-556 contains similar language.	No change made.
PolyMet	The third paragraph states: "Modeling was undertaken to predict the long-term stability of the Tailings Basin. As shown in Table 5.2.14-1 and Table 5.2.14-4, the long-term closure slope stability Factors of Safety are above the minimum value required under the Work Plan." It is more appropriate to say that the slope stability Factors of Safety "are above the minimum value deemed acceptable to the Co-lead Agencies and required under the Work Plan." There is similar language in the last paragraph on p. 5-566.	No change made.
PolyMet	The second paragraph states: "Where monitoring or model updates indicate that the Factor of Safety for the Tailings Basin no longer meets design criteria, appropriate modifications to the Tailings Basin would be considered, modeled, and, if necessary, undertaken." This sentence leaves doubt that prompt action will be taken if Factor of Safety values fall below design requirements. PolyMet recommends clarifying that mitigating measures will be explored and implemented as needed if at any time it is determined that Factor of Safety values have fallen below design requirements.	Change has been made, as requested.
PolyMet	The first paragraph states: "PolyMet took the steps listed below in order to demonstrate that the design of the Hydrometallurgical Residue Facility would meet the respective geotechnical requirements and would be in accordance with the NorthMet Geotechnical Modeling Work Plan (PolyMet 2013n, Attachment A):" PolyMet recommends revising the sentence to read: "PolyMet took the steps listed below in order to demonstrate that the design of the Hydrometallurgical Residue Facility would meet the Co-Lead Agencies respective geotechnical requirements and would be in accordance with the	The section describing the Hydrometallurgical Residue Facility has been updated for the FEIS.

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	NorthMet Geotechnical Modeling Work Plan (PolyMet 2013n, Attachment A) which was reviewed by the Co-Lead Agencies."	
PolyMet	The third item under the first paragraph states: "Developed seepage and stability models using Geo-Slope International, Inc. modeling software (i.e., SLOPE/W, SEEP/W and SIGMA/W as necessary) for maximum facility dam height with minimum and maximum pond elevation, and post-closure – cover effective with minimum pond elevation the maximum." The last phrase is poorly written and confusing. PolyMet suggests using the following revised text: "Developed seepage and global stability models using Geo-Slope International, Inc. modeling software (i.e., SLOPE/W, SEEP/W and SIGMA/W as necessary) for hydrometallurgical residue facility dam lifts 1, 2 and 3; each with maximum pond elevation, and an infinite stability model to analyze facility liner stability."	Change has been made, as requested.
PolyMet	The text describing the figure [5.2.14-6] (see paragraph under "Identification of Design Cross Section" on p. 5-571) makes reference to Node A. Yet, Node A is not shown in the figure. There also is a blue dashed line (presumably denoting the phreatic surface in surrounding materials) that is not defined in the figure legend nor is the dashed line labeled in the figure.	Change has been made, as requested.
PolyMet	This Section [(5.2.14.2.3)] does not clearly distinguish between (1) the settlement of the Hydrometallurgical Residue Facility (HRF) foundation materials and resulting movement of the HRF liner system and (2) future consolidation of the residue deposited within the HRF and resulting movement of the residue surface. PolyMet recommends more detail to provide clarification.	The section describing the Hydrometallurgical Residue Facility has been updated for the FEIS.
PolyMet	The first paragraph states: "The results reported in Geotechnical Data Package Volume 2 Version 3 indicate that the proposed design of the Hydrometallurgical Residue Facility would meet all respective factors of safety as required (PolyMet 2012a). The modeling undertaken and results are summarized below." PolyMet suggests revising the statement to say that the design "would meet all of the Co-Lead agencies' respective factors of safety as required (PolyMet 2012a)."	No change made.
PolyMet	The first paragraph states: "Analysis of the new dams (i.e., those not supported by the existing LTVSMC Tailings Basin or natural topography) at their greatest height (at year 20) resulted in a computed Factor of Safety for the ESSA of 2.32, which is greater than the required minimum of 1.5." The sentence should be revised to state that the resulting Factor of Safety is "greater than the Co-Lead Agencies' required minimum of 1.5."	No change made.

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PolyMet	The fourth sentence of the first paragraph states: "The minimum infinite slope stability safety factor for all Hydrometallurgical Residue Facility liner system components is 1.5." It would be more appropriate if the sentence was revised to read: "The Co-Lead Agencies' required minimum infinite slope stability safety factor for all…."	No change made.
PolyMet	The last sentence in this paragraph is inaccurate because Coyote Creek and Stony River on Tract 3-Wolf Lands are not comparable systems. The Stony River is a higher order, more diverse aquatic system than the first order, headwaters Coyote Creek. It cannot be assumed that the conclusions drawn from the studies for Stony River are applicable to Coyote Creek.	Minor edits to Section 5.3.6.2.4 were made to further indicate that the sites chosen to represent Tract 3 were only assessed qualitatively.
PolyMet	The fifth paragraph states: "The only two reasonably foreseeable actions with the potential to significantly affect flow within the Partridge River and Embarrass River are the Mesaba Energy Project East Range Alternative Site and the Mesabi Mining Project, which would result in a net increase in Lower Partridge River flow as a result of pit dewatering for the foreseeable future." This statement seems to ignore the eventual closure of the Northshore Peter Mitchell Pit (which is recognized elsewhere in the SDEIS). When that pit begins filling, Northshore will stop dewatering discharge to the Upper Partridge River. This would be a net decrease in flow relative to existing and modeled conditions. This action is anticipated within the modeling period but is not incorporated into the GoldSim model because the actual date of when this change would be made is not known. However, the potential for no discharge from Northshore to the Partridge River was considered in the sensitivity analysis conducted for the Project.	
PolyMet	The introduction to Section 6.2.3.4, "Wetlands," on page 6-34 states that the cumulative effects analysis "focuses on direct effects" on wetlands. Page 6-43 indicates that there will not be indirect cumulative effects on wetlands because water flows will not be changed. This discussion is in some tension with the effects analysis in Chapter 5, which anticipates the potential for some indirect effects on wetlands. PolyMet recommends referencing the discussion in Chapter 5 as part of the cumulative effects discussion.	The FEIS has been revised to address this comment.
PolyMet	Regarding the third sentence of the third paragraph, no federally-listed plant species would be affected by the project because there are no federally-listed plant species in all of St. Louis or Lake Counties. PolyMet recommends re-phrasing the sentence to read, "No federally-listed plant species are known to occur on the NorthMet Project site."	No change made.
PolyMet	In the final paragraph below Table 6.2-13, the qualifying statement regarding	No change made. This statement applies mostly to the

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	the lack of precision and the degree of uncertainty inherent in the evaluation methodology should be stated up front in Sections 4.2.4, 5.2.4 and 6.2.4.	cumulative analysis, as large habitat types are used in lieu of the NHIS database due to lack of data with reasonably foreseeable actions. This approach uses a best estimate based on available data.
PolyMet	The last paragraph states that "forestry management offers a greater range of options for ETSC plants to co-exist with the practice, as it can mimic natural disturbances." This statement seems to be based on the previous statement in Section 5.2.4.2.1, p. 5-348, that "Disturbance-tolerant species may, in some cases, actually be disturbance dependent." As stated in a prior comment, PolyMet believes this statement is misleading and that it is inaccurate to suggest that ETSC plants favor and/or are increased by disturbance regimes.	No change made. The statement regarding forestry management is accurate in that these practices can mimic windthrow or fire disturbances, which many native species are adapted to. Whereas many of the reasonably foreseeable projects would represent a complete land conversion. The statement in Section 5.2.4 was removed.
PolyMet	In the last sentence of the last paragraph, the increased percentage from the NorthMet Project Proposed Action alone should be 0.2 to 1.6 percent, not 0.2 to 1.8.	Change has been made, as requested.
PolyMet	PolyMet also recommends adding the following additional sentence at end of the paragraph at the top of the page: "This potential change is not likely statistically measureable and does not have any effect on the background fish Hg concentrations nor the current fish consumption advisories for the respective lakes."	The following text has been added at the end of the paragraph: "This potential increase is not expected to have an appreciable effect on fish tissue mercury concentrations in the Embarrass River or Partridge River and does not have any effect on the background fish mercury concentrations nor the current fish consumption advisories for the respective lakes."
PolyMet	In the first complete paragraph, the description of how the HQ is calculated does not reflect the calculations in the MMREM spreadsheet. To estimate the potential incremental HQ, the incremental methylmercury exposure in mg/kg body weight per day and the reference dose are accounted for in the calculation. The derivation of the incremental HQ can be described as noted below: The incremental HQ calculation in the MMREM Spreadsheet uses the following methodology: • Incremental daily mercury consumed (mg) = estimated incremental increase in fish mercury due to the Project (mg/kg) x the amount of fish consumed (e.g. 0.142 kg for a subsistence fisher) • Incremental methylmercury exposure (mg/kg BW – day) = Incremental daily mercury consumed x 1.07945 / adult body weight (70 kg) • Incremental HQ = Incremental methylmercury exposure (mg/kg BW – day) / Reference Dose of 1.00E-04 mg HgCH3/kg bw-day (i.e., the ratio	Change has been made, as requested.

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	of the incremental methylmercury exposure divided by the reference dose in the same units).	
PolyMet	[In] Table 6.2-22… The incremental result for Mesabi Nugget noncancer acute should be 0.03. The percentages at the bottom should be 9% for Cancer and 7% for Noncancer Chronic.	Changes made
PolyMet	The third paragraph under the heading "1854 Treaty Resources" states that the NorthMet Project Proposed Action could affect treaty resources through the bioaccumulation of mercury in fish tissue. This statement is inconsistent with the SDEIS's evaluation of cumulative effects on aquatic resources, which states that there will not be a significant increase of mercury in fish tissue. Because the subjective belief that such an effect may occur does not qualify as an effect under NEPA, the statement on page 6-95 should be removed from the SDEIS.	Increases of mercury in waterbodies from the NorthMet Project Proposed Action are discussed in FEIS Section 5.2.2, and cumulative increases are discussed in Section 6.2.3. Effects on the environment, including those from increased mercury, are all expected to meet the standards and regulations set forth by the appropriate state or federal agency or program. These laws are intended to protect important natural and cultural resources, and include but are not limited to the ESA, the CWA, and the CAA. Relative to 1854 Treaty resources and mercury, FEIS Section 6.2.3.10 is focused on the potential cultural cumulative effects on 1854 Treaty resources. Subsistence fishing and consumption is a common activity for the Bands in the 1854 Ceded Territory. Members of the Grand Portage and Fond du Lac bands are known to consume substantially more fish than the assumed statewide average. As such, increased cumulative mercury concentrations, and associated cumulative increases in mercury bioaccumulation in fish tissue, could therefore constitute an impact for Band members and other subsistence consumers of fish.
PolyMet	The final sentence in Section 7.3.1 indicates that the federal lands contain certain natural resources that are "culturally important" to the Bands. While it is accurate that these resources would be lost if the NorthMet Project Proposed Action moves forward, it is also true, and should be noted, that there is no evidence of the Bands accessing any resources at the Mine Site.	No change made.
PolyMet	The third sentence in the third paragraph of Section 7.3.1, "Irreversible or Irretrievable Commitment of Resources," states that while cultural resources may be adversely affected, those effects would be "minimized through avoidance." Under Section 106 of the National Historic Preservation Act, avoidance is not the only means of addressing adverse effects on historic properties, including the cultural resources identified in the SDEIS. Agencies may also choose to adopt minimization or mitigation measures. Those options	No change made.

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	should also be recognized in this paragraph.	
PolyMet	The final sentence in the first paragraph of Section 7.3.3, "Unavoidable Adverse Effects," states that effects on water quality would remain after the implementation of mitigation measures. The paragraph should note that these effects would be minor, and not qualify as significant environmental effects.	No change made.
PolyMet	The first paragraph of Section 7.4, "PREFERRED ALTERNATIVE," states that CEQ regulations do not require agencies to select a preferred alternative in a Draft EIS like the SDEIS. The same paragraph states that the USACE's NEPA regulations (Appendix B of 33 C.F.R. Part 325) supersede the CEQ regulations' "requirement to identify an agency-preferred alternative." This description of these requirements is confusing. Neither the CEQ regulations nor the USACE regulations require the selection of a preferred alternative in the SDEIS.	The FEIS has been updated to address this comment.
PolyMet	Appendix B, p. 1, 1.2 Assessment of Material[:] In the first sentence, "semi-qualitative" should be changed to "semi-quantitative."	The Underground Mining Alternative Position Paper has not been updated since the SDEIS.
PolyMet	Appendix B, p. 4, 2.2 Availability[:] The last sentence of this section should be changed to: "Notwithstanding economic considerations the underground mining alternative is available at the NorthMet Deposit."	The Underground Mining Alternative Position Paper has not been updated since the SDEIS.
PolyMet	Appendix B, p. 5, 2.4.1 Mineralization at the NorthMet Deposit[:] With respect to the bullet list of metal prices after the first paragraph, the referenced price for cobalt should be $17.69 per pound.	The Underground Mining Alternative Position Paper has not been updated since the SDEIS.
PolyMet	Appendix B, p. 7, 2.4.2 Underground Mining Costs[:] In Table 2, the Pre-production Capital Costs ($ million) of 300 should be changed to 250. The Profit: Metal Value – Costs ($ million) of -$193 should be changed to -$192 and -$364 should be changed to -$314.	The Underground Mining Alternative Position Paper has not been updated since the SDEIS.
USEPA	Comment# 23. Page 6-36, Table 6.2-8 and Pages 6-40 to 6-42, Table 6.2-11: There appear to be some inconsistencies between Table 6.2-8 and Table 6.2-11 with respect to reported future wetland and water resource numbers, including the bullet summaries for the Partridge River (Page 6-40) and Embarrass River (Page 6-42). For the Partridge River, Table 6.2-11 and bullet summary text note future condition with 3,516 acres of deepwater resources, while Table 6.2-8 indicates 1,922 acres. Recommendation: The FEIS should resolve or explain these inconsistencies.	The FEIS has been revised as requested.
USEPA	Comment# 24. Page 6-21, Section 6.2.3.3.2: the "Contributing Past, Present, and Reasonably Foreseeable Actions" section, lists twelve foreseeable future actions with potential cumulative effects on surface water hydrology and	The FEIS has been revised to ensure consistency with project names.

Sender	Comment	Response
	quality in the Partridge River and Embarrass River watersheds. There is some inconsistency between this list and Table 6.2-1 (Page 6-7). "Cliffs Erie, LLC- Hoyt Lakes Area (former LTVSMC)," and "Cliffs Erie, LLC- Area 5 NW Pit" are not included in the table, at least not by these names. Recommendation: The FEIS should resolve or explain these inconsistencies, and use consistent names for foreseeable future actions to simplify cross-referencing by the reader.	
USEPA	Comment # 26. Pages 6-22 to 6-25 and 6-27 to 6-28, Section 6.2.3.3.3: This text does not reference sources of hydrological effects data for each action. Recommendation: The FEIS should reference sources of hydrological effects data for each action.	Change has been made, as requested.
USEPA	Comment # 33. Pages 4-261 through 4-264 refer to cultural resources/Section 106 resources solely as historic properties. Recommendation: The FEIS should make it clear that cultural resources include archaeological resources.	Change has been made, as requested.
USFWS	The temporary nature of the projected 500 direct jobs created during construction and additional 631 "operations-phase" jobs may result in a substantial need for temporary lodging that could impact to Voyageurs-area visitors in the form of hotel or motel room shortages.	No change made.
USFWS	Finally, the major differences of opinion between the lead agencies and the Bands, the Great Lakes Indian Fish and Wildlife Commission (GLIFWC), and 1854 Treaty Authority regarding the effects of the proposed actions should be resolved before any permits are issued.	MDOs will be addressed during the appropriate permitting processes.
USFWS	This section needs maps to illustrate the location and extent of Minnesota Biological Survey (MBS) Sites of High Biodiversity Significance in order to support the claim that the number of sites within the project area is small, and to show how much of the 100 Mile Swamp and Upper Partridge River Sites will be impacted.	Change has been made, as requested.
USFWS	Stating that less than 1 percent of the state's Sites of High Biodiversity Significance would be affected is misleading because not all of these sites are of the same type.	No change made.
USFWS	When referring to Canada lynx (Lynx canadensis), page 5-365 the SDEIS states that, "Although the NorthMet Project Proposed Action would result in a reduction and fragmentation of lynx habitat at the Mine Site, little to no effect on statewide lynx populations would occur as it is unlikely that an individual lynx or pair of lynx would be affected by the habitat decrease." This is unclear and misleading. Our suggested rewording of this is, "Although	No change made.

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	the NorthMet Project Proposed Action would result in a reduction and fragmentation of lynx habitat at the Mine Site, little to no effect on statewide lynx populations would occur even if individual lynx are affected by the habitat decrease."	
Water Legacy	[SDEIS, p. 4-45] there are no Foose and Cooper references listed in the SDEIS from either 1979 or 1980, so it is assumed the references and conclusions in this paragraph are from Foose and Cooper 1978 and 1981 which are cited in the list of references.	References to Foose and Cooper have been updated as requested.
Water Legacy	these statements [on pg 4-45] made relating to bedrock fractures are not supported by the references cited in the SDEIS. Neither of the two Foose and Cooper papers report that "the most extensive faults are largely filled with gouge." Their only mention of fault gouge in these two papers is that they used its presence to trace fault zones in the field. Neither paper discusses distance groundwater may flow through faults and fractures in the Duluth Complex - in fact neither mention groundwater flow at all.	The FEIS now states that extensive bedrock fault zones may or may not be filled with gouge (references) and the effect of gouge on groundwater flow is uncertain.
Water Legacy	The SDEIS presents a discussion of lineaments lower on page 4-45 that, contrary to current geologic literature, downplays the relationship of lineaments to bedrock fractures and therefore their significance to the hydrogeology of the NorthMet Site. "Numerous lineaments have been mapped over northeastern Minnesota, but these have been associated with glacial deposition and not fracturing in the underlying bedrock (Morey 1981; Heutmaker and Morey 1982)." (SDEIS, p. 4-45) The cited literature refers to glacial "processes," not glacial "deposition" (Morey, 1981; Heutmaker and Morey, 1982). These terms do not have the same meaning.	The FEIS now states the following: "Numerous lineaments have been mapped over northeastern Minnesota. An individual lineament may be related to glacial deposition/erosion (Morey 1981, as cited in the FEIS; Heutmaker and Morey 1982, as cited in the FEIS), a geologic contact between different bedrock types, and/or bedrock structures such as fault and fracture zones."
Water Legacy	The quote… [(starting with "One exploration" ending with "world")] from page 4-45 of the SDEIS stating that the upper fractured zone of bedrock has been removed by glacial scouring should be properly referenced or otherwise supported by data to be taken seriously. This statement is not supported by any of the cited references and is contrary to common knowledge that fractured bedrock is present at NorthMet. Drilling logs included in the SDEIS' supplementary materials (PolyMet, 2013i; RS-35, RS-42 and RS-46) show intervals of weathered bedrock at multiple locations thereby reducing the credibility of this statement.	The FEIS now states that the top of bedrock has been scoured by glacial processes, but upper bedrock has not been necessarily removed.
Water Legacy	A few pages above, the term "till" was used as a general term, now in this paragraph [on page 4-46] the term "alluvium" seems to be used as a replacement term for all surficial sediments. On page 4-149 the entire package of surficial sediments is referred to as "soil". This is more than	Change has been made, as requested.

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	semantics; it leads to confusion as to exactly which surficial sediments are being referenced: the entire surficial sediment section or only till units or only alluvium units or only the post-glacial soil that exists at the land surface? This usage promotes a simplistic understanding of surficial geology, which in turn is converted into overly simple and inaccurate inputs to predictive models.	
Water Legacy	A figure showing this isopach map [referred to on page 4-45] inserted at this point in the SDEIS would be very helpful in envisioning how the surficial sediment type and thickness varies across the Mine Site. But this map neither appears in the SDEIS or among cited reference documents. The Table of Contents for Golder Associates (2007) lists the isopach map, but the file does not appear in the MDNR DVD set and was not available for review.	No change made.
Water Legacy	A detailed bedrock topography map would also be useful at several places in the SDEIS to illustrate where features such as troughs and bedrock valleys are located on the bedrock surface and to assess pathways that may transmit contaminated groundwater at the interface of the overburden and bedrock.	A figure has been added to the FEIS to address this comment.
Water Legacy	in Table 4.2.2-5… laboratory-derived hydraulic conductivity values for reported “silty sand” are shown as ranging from 0.00043 ft/day to 0.0081 ft/day. The difference between laboratory-derived hydraulic conductivity values of up to 167 ft/day reported in PolyMet, 2013 or even higher in Stark (1977) should be reconciled with the results from a silty sand presented in Table 4.2.2-5 in the SDEIS.	Laboratory permeameter tests nearly always underestimate the in situ hydraulic conductivity of natural materials. While the laboratory test results are reported, they were not used in estimating the hydraulic conductivity of surficial deposits. The estimated hydraulic conductivities of surficial deposits were based on a combination of borehole tests, model calibrations, and generic information.
Water Legacy	The SDEIS’ claim [on page 4-43] of hydrologic separation from the Biwabik Iron Formation aquifer should be supported by a more robust reference than personal communication from one of PolyMet’s consultants. The SDEIS should include an accurate geologic cross-section based on actual drilling information, showing the locations of faults and fractures, not a schematic or overly generalized cross-section where subsurface conditions can be so easily misrepresented.	Change has been made, as requested.
Water Legacy	The examples of incorrect usage of geologic terminology in the SDEIS below suggest the sections on geology were not given the level of editorial review appropriate for a scientific publication. “The NorthMet Deposit itself is below the surficial till in the layered mafic intrusive rocks of the Duluth Complex, which are part of the Partridge River intrusion.” (SDEIS, p. 4-43) Actually the Duluth Complex is not part of the Partridge River intrusion. The Partridge River intrusion is part of the Duluth Complex.	Change has been made, as requested.
Water Legacy	[The examples of incorrect usage of geologic terminology in the SDEIS	Change has been made, as requested.

Sender	Comment	Response
	below suggest the sections on geology were not given the level of editorial review appropriate for a scientific publication.] "The oldest of the sedimentary rocks is the Pokegama Quartzite. These sedimentary rocks are underlain by Archean granite of the Giants Ridge batholith." (SDEIS, p 4-43) The correct terminology is Giants Range batholith, not Giants Ridge batholith. This same incorrect usage is repeated in several additional places on pages 4-94 to 4-95.	
Water Legacy	On page ES--- 42, the claim is made that alternatives were identified and screened in accordance with the requirements of 40 CFR 1505.1(e). This is an erroneous citation. The reference to 40 CFR 1505.1(e) refers to NEPA and agency decision-making procedures, not the preparation of an EIS. The correct citation is 40 CFR 1502.14, which states, "Alternatives including the proposed action. This section is the heart of the environmental impact statement. Based in the information and analysis presented in the sections on the Affected Environment (1502.15) and Environmental Consequences (1502.16), it should present the environmental impacts of the proposed action and the alternatives in comparison form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public."	Change has been made, as requested.
Water Legacy	The PolyMet SDEIS misrepresents and overlooks available information regarding tailings site geology. The SDEIS states, "Jennings and Reynolds (2005) mapped the surficial deposits around and beneath the Tailings Basin as Rainy Lobe Till, which functions as the surficial aquifer and is generally a boulder-rich till with high clay content" (SDEIS p. 4-95). However, the cited reference reports the surficial Rainy lobe till mapped in the vicinity of the proposed NorthMet project as "clay-poor." Till matrix textures are reported to range from 48 to 87% sand, 9 to 40% silt and 0 to 13% clay, but "generally much less than 10% clay." (Jennings and Reynolds, 2005). This is a sandy till, not a till with high clay content.	Change has been made, as requested.

Sender	Comment	Response
Water Legacy	Statements in the SDEIS regarding groundwater seepage on the south side of the tailings site appear to be inconsistent. In one section, the SDEIS states, "Groundwater currently seeps from the existing LTVSMC Tailings Basin to the headwaters of Second Creek." (SDEIS, p. 5-153) In another narrative, the SDEIS claims that there would be no impacts on wetlands resulting from changes in groundwater flow since, "All of the seepage from the south side of the Plant Site is surface water." (SDEIS, p. 5-297).	Change has been made, as requested.
William K. Dustin	p.5-152 The evaluation criteria are not shown on the graph.	Change has been made, as requested.

A.7 INDIVIDUAL COMMENTS AND THEME ASSIGNMENTS

Each of the 16,469 unique, substantive comments identified within the submissions provided for the SDEIS is provided in Attachment 1 of Appendix A. The list is alphabetized by the sender's name, and also includes the theme(s) to which each comment was assigned.

A.8 DEIS COMMENT THEMES AND RESPONSES

The DEIS was made available to the public in the November 2009, with a 90-day comment period that ended on February 3, 2010. Following the release of the DEIS, public meetings were held in Aurora, Minnesota, on December 9, 2009 and Blaine, Minnesota, on December 10, 2009, to gather public comments on the DEIS.

The Co-lead Agencies received approximately 3,800 DEIS submissions from government agencies (federal, state, and local), tribal entities, local businesses, NGOs, private individuals, and PolyMet. These submissions generated approximately 5,900 distinct substantive comments. The comments were analyzed using a thematic approach, similar to the methodology described in Section A.2 of this appendix. Key issue areas identified by DEIS comments included cultural resources, air quality, wetlands, geotechnical stability, socioeconomics, and water resources.

Individual DEIS submissions, comments and theme assignments are included in Attachment 1 of this appendix.

SDEIS Appendix A listed the thematic statements and responses for public comment received on the 2009 DEIS. Table A-5 repeats these DEIS themes and responses, and also indicates which SDEIS theme(s) best respond to each DEIS theme. This listing does not necessarily include *all* applicable SDEIS themes. The relevant sections of the FEIS should be consulted for more detailed information.

Table A-5 DEIS Comment Themes and Relationship to SDEIS Themes

DEIS Theme Code	DEIS Theme Statement	DEIS Thematic Response	Corresponding FEIS Theme(s)
Section: Comparison of Alternatives (ALT)			
ALT1	The DEIS does not adequately define or study the No-Action Alternative.	The No Action Alternatives for the NorthMet Project Proposed Action and the Land Exchange Proposed Action are defined in Sections 3.2.3 and 3.3.3 of the SDEIS, respectively. The environmental consequences of the NorthMet Project No Action Alternative are addressed in the respective sections of Chapter 5. Comparisons of the NorthMet Project Proposed Action and the alternatives, including the No Action Alternative, are shown in Chapter 7.	ALT 14
ALT2	The DEIS does not adequately evaluate the Mine Site alternative and it fails to look beyond the proposed Mine Site.	The NorthMet Project Proposed Action and the alternatives have changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). The "Mine Site Alternative" was incorporated into the Proposed Action and is no longer applicable as an alternative (refer to Section 3.2.3 of the SDEIS for more information). The Mine Site location depends on the presence of the viable NorthMet Deposit. The location of the Mine Site and alternatives are discussed in Section 3.2.3 of the SDEIS.	ALT 06, ALT 07, ALT 16
ALT3	The DEIS does not adequately evaluate the underground mining alternative. This alternative should not be eliminated from consideration on the basis of costs.	The underground mining alternative was revisited and determined not to be a viable alternative; therefore, it remains eliminated from further evaluation. The Co-lead Agencies prepared a position paper on the underground mining alternative; this document is attached as an appendix to the SDEIS. Alternatives considered for the NorthMet Project Proposed Action in the SDEIS are described in Section 3.2.3.	ALT 01, ALT 02
ALT4	The DEIS does not adequately evaluate the tailings basin alternative and fails to consider the reactions between seepage and the existing tailings.	The SDEIS NorthMet Project Proposed Action (including tailings management) and the alternatives have changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). There is no longer a tailings basin alternative. Management of tailings as part of the NorthMet Project Proposed Action is addressed in Section 3.2.2 of the SDEIS. Environmental consequences are addressed in Section 5.2.	ALT 10, ALT 11
ALT5	The DEIS should provide additional details regarding mitigation and long-term management of the site, particularly related to water treatment.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). Mine Site and Plant Site water management are addressed in Section 3.2.2 of the SDEIS. Environmental consequences on water resources are	ALT 04, ALT 13, PD 01

DEIS Theme Code	DEIS Theme Statement	DEIS Thematic Response	Corresponding FEIS Theme(s)
		discussed in Section 5.2.2.	
ALT6	The DEIS fails to include quantitative information, such as numbers from key indicators for each resource, in the comparison of alternatives table.	The NorthMet Project Proposed Action and the alternatives have changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). The NorthMet Project Proposed Action and alternatives are described in Chapter 3 of the SDEIS; Chapter 7 of the SDEIS provides a comparison of alternatives.	ALT 22
ALT7	The DEIS fails to adequately identify a preferred alternative.	Chapter 7 of the SDEIS provides a comparison of alternatives and discusses the agency position on offering a preferred alternative. Consistent with the CEQ regulations, the federal Co-lead Agencies are required to identify an agency-preferred alternative in a DEIS, if one exists, and in the FEIS unless another law prohibits the expression of such a preference. At this time, the Co-lead agencies have not identified a preferred alternative, and for the USACE, 33 CFR Part 325, Appendix B, supersedes identification of an agency-preferred alternative. No similar requirement to identify a preferred alternative exists for the MDNR under state law.	ALT 20
ALT8	The DEIS fails to consider a full range of alternatives to meet the intent of NEPA.	CEQ (1997, as cited in the FEIS) requires that a “reasonable range of alternatives” be analyzed. These may include those not carried forward for detailed analysis. The NorthMet Project Proposed Action in the SDEIS represents a project that has incorporated a number of previous alternatives and mitigation measures considered as alternatives at earlier stages of the EIS process. Many other alternatives have been identified but eliminated from detailed analysis because they didn’t offer potentially significant environmental benefits, did not meet the project’s purpose and need, or were not otherwise reasonable (technically or financially viable) in accordance with CEQ guidance. The NorthMet Project Proposed Action and alternatives are described in Chapter 3 of the SDEIS. Various other alternatives identified but eliminated in the DEIS are discussed in Section 3.2.3.	ALT 21, ALT 23
ALT9	The DEIS must address modifications and mitigation methods with less uncertainty.	The NorthMet Project Proposed Action, alternatives, and mitigation measures have changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). Proposed mitigation measures are discussed in the respective parts of Section 5.2 and summarized in Chapter 7 of the SDEIS.	PD 01

DEIS Theme Code	DEIS Theme Statement	DEIS Thematic Response	Corresponding FEIS Theme(s)
Section: Air Quality (AQ) [Please note that "AQ" in the SDEIS applies to Aquatic Species]			
AQ1	The DEIS did not adequately address the potential for fugitive emissions from reactive waste rock, rail cars, tailings basin, or road travel. Further data is needed to evaluate the issue.	Based upon the comments provided on the DEIS, the analyses in Section 5.2.7 of the SDEIS were developed in the Co-lead Air IAP Workgroup. These include revised air emissions protocols for Class I, Class II, mercury deposition, AERA, and GHG assessments. Waste rock acidification was previously addressed and was updated as part of the SDEIS refinements. Based upon the Co-lead Air IAP workgroup, it was determined that any effects on air quality from fugitive dust from rail transport would be minimal due to the coarse nature of the ore. The potential for acidification effects associated with deposition of fugitive dust from rail car hauling was addressed under Water Resources. Surface Water IAP workgroup evaluated this issue and recommended that surface water quality data be collected to address this issue. Emissions from other fugitive emissions including mobile sources are also evaluated.	AIR 04
AQ2	The evaluation that the NorthMet Project Proposed Action would be a "new" rather than an "existing" source of air emissions was made incorrectly or needs further analysis.	Due to the 9-year inactivity of taconite-processing equipment currently owned by Cliffs Erie, LLC and backed by USEPA's well-established reactivation policy, the MPCA has made a preliminary determination that those units would need to go through PSD applicability and new permitting if they were to be restarted by PolyMet.	SDEIS comments did not raise this topic.
AQ3	The potential for GHG emissions that contribute to climate change was not thoroughly analyzed in the DEIS, including the effects on carbon sequestration resulting from the disturbance of peat and the resulting impact on wildlife.	To address these comments, GHG issues have been assessed in a manner consistent with USEPA and MPCA guidance, and the CEQ's Draft NEPA Guidance on Climate Change and Greenhouse Gas Emissions (February 18, 2010). This assessment is addressed in Section 5.2.7 and 5.3.7 of the SDEIS.	AIR 01
AQ4	Air quality modeling and analysis was not complete, lacks accurate data, did not consider all comments, or needs further explanation.	The procedures for inclusion of sources were described in the DEIS. Sources have been evaluated for inclusion based upon their potential to contribute to a significant effect. The proposed facility has not been determined to be a major source under the CAA for any of the criteria pollutants. Therefore, the analysis is consistent with MPCA requirements for permitting. Since the DEIS, the USEPA and federal courts have recently modified major source determination to include GHG emissions. The SDEIS revaluated the major source status for the NorthMet Project Proposed Action and has shown that the proposed facility would not be determined a major source for GHG, or any other regulated pollutant, and thus, no formal major NSR is required, including federal-mandated modeling and BACT requirements. This assessment is addressed in Section	AIR 09

DEIS Theme Code	DEIS Theme Statement	DEIS Thematic Response	Corresponding FEIS Theme(s)
		5.2.7 of the SDEIS. The Class I, Class II, AERA, mercury deposition, and cumulative modeling analyses protocols for the SDEIS were updated to include the latest air quality regulations, including 1-hour NO_2 and SO_2 analyses, $PM_{2.5}$ requirements, and GHG evaluations. The modeling protocols were revised in collaboration with the Co-lead Air IAP Workgroup and are incorporated as part of the SDEIS.	
AQ4A	Further modeling or studies, including a BACT analysis, should be completed.	There are no current requirements for federal BACT analysis for minor sources (see Theme AQ4). However, PolyMet conducted the equivalent of a major source BACT evaluations for $PM_{2.5}$ (a minor source) and mercury. These evaluations contributed to the SDEIS analysis of the AERA, mercury bioaccumulation, $PM_{2.5}$, and asbestos-like fibers. The analyses are summarized in Section 5.2.7 of the SDEIS.	AIR 09
AQ4B	The cumulative impacts analysis for air quality lacked complete analysis. Specific contributing projects should be included.	The procedures for inclusion of sources were described in the DEIS. Sources are evaluated for inclusion based upon their potential to contribute to a significant effect. Specific contributing projects are identified in Chapter 6 of the SDEIS.	CU 02
AQ4C	Evaluation of the potential for asbestiform fibers and mineral fibers must be completed for the assessment of impacts to be considered complete.	Based upon the revised project, a qualitative evaluation of the effects from asbestiform fibers is included in Section 5.2.7 of the SDEIS.	AIR 03
AQ4D	The potential for acid rain and the resulting impacts should be addressed and analyzed.	The potential for acid rain is evaluated in the Class I regions nearby the NorthMet Project area. Effects of acidification were addressed in the DEIS. An expanded discussion of these effects, including additional lake communities, is included in Section 5.2.7 of the SDEIS.	SDEIS comments did not raise this topic.
AQ4E	The geographical scope of the DEIS is not sufficient to capture potential impacts.	Air quality effects are addressed based upon statewide established criteria for significant effects. Additional analyses were conducted for all representative Class I regions, including visibility and mercury deposition. Expanded acidification assessment for additional lake communities surrounding the NorthMet Project area is assessed in Section 5.2.7 of the SDEIS.	AIR 06, AIR 08, AIR 09
AQ5	Air quality monitoring plans and mitigation measures are insufficient or should be more thoroughly explained in the EIS document. Further mitigation measures should be pursued.	As discussed in the SDEIS, air emissions from the NorthMet Project Proposed Action would be less than PSD major source thresholds for all criteria pollutants. The MPCA is responsible for ensuring that the NorthMet Project Proposed Action would not exceed applicable standards during the permitting process. Permit requirements needed to ensure compliance with	PD 01

DEIS Theme Code	DEIS Theme Statement	DEIS Thematic Response	Corresponding FEIS Theme(s)
		standards will be included in any future permits. There will be an opportunity for public participation in the permitting process, as well.	
AQ6	The NorthMet Project Proposed Action's potential to exceed standards for air quality or endanger the health of humans and wildlife should be more thoroughly addressed. More risk assessment for human health impacts should be completed.	Air quality impact analyses in the DEIS follow State of Minnesota and federal guidelines, and effects were addressed in the DEIS. Based upon comments received on the DEIS and the availability of more recent information, additional analyses were conducted for the Class I, Class II, MAAQS, and NAAQS. In addition, updated AERA and mercury assessments were conducted to address risk assessment of human health effects. The updated analyses are addressed in Section 5.2.7 of the SDEIS.	HU 03, WI 03
AQ6A	The potential for mercury emissions to exceed standards or endanger the health of humans and wildlife was not adequately addressed.	PolyMet has revised the Mercury Deposition Analysis in collaboration with the Co-lead Air IAP Workgroup to include an expanded area up to 10 km from the facility, and includes potential sources up to 25 km from the facility. This expanded analysis incorporates several new lake regions, including Sabin Lake, Wynne Lake, Heikkila Lake, Colby Lake, and Whitewater Lake. Results of this analysis are discussed in Section 5.2.7 of the SDEIS.	AIR 05, AIR 06
AQ7	Permitting questions regarding emission thresholds and permitting criteria should be addressed.	As discussed in the SDEIS, air emissions from the NorthMet Project Proposed Action would be less than PSD major source thresholds for all criteria pollutants. The MPCA is responsible for ensuring that the NorthMet Project Proposed Action would not exceed applicable standards during the permitting process. Permit requirements needed to ensure compliance with standards will be included in any future permits. There will be an opportunity for public participation in the permitting process, as well.	AIR 13
AQ8	Issues regarding Class II classifications were inadequately addressed.	The analysis in the DEIS was based upon the most current available data and guidance. The SDEIS updates the existing analysis with the most current information and reflects the most recent review of potential mitigation measures (See Theme AQ4).	AIR 09
AQ9	Issues regarding Class I classifications were inadequately addressed.	Please see response to Theme AQ8.	AIR 08

DEIS Theme Code	DEIS Theme Statement	DEIS Thematic Response	Corresponding FEIS Theme(s)
Section: Compatibility with Plans and Land Use (CPLU)			
CPLU1	The NorthMet Project Proposed Action is inconsistent with biodiversity and habitat policies, such as those in the MFRC Landscape Plan.	Although an informative plan, per NEPA, the MFRC Landscape Plan is not part of the legal framework to which the SDEIS must conform. The Land Use Sections of SDEIS Chapters 4, 5, and 6 address the NorthMet Project Proposed Action's performance with respect to the land use aspects of the legal framework.	PER 35
CPLU2	The NorthMet Project Proposed Action is inconsistent with water quality, recreation, and cultural resources policies, such as those in the St. Louis River Management Plan.	Conformance with water quality, recreation, and cultural resources policies is addressed in the Water Resources, Socioeconomics, Land Use, Recreation/Visual, and Cultural Resources sections of SDEIS Chapters 5 and 6.	SDEIS comments did not raise this topic.
CPLU3	The NorthMet Project's compatibility with the Superior National Forest's Forest Plan should be specifically considered.	The Land Use sections of SDEIS Chapters 4, 5, and 6 evaluate compatibility with the Superior National Forest Plan.	LU 05
CPLU4	The Land Exchange Proposed Action with USFS should be concluded and evaluated before the EIS is completed.	The Land Exchange Proposed Action is fully evaluated as part of the SDEIS. See Chapter 5.3 of the SDEIS.	NEPA 13
Section: Cultural Resources (CR)			
CR1	The DEIS does not adequately address impacts to and mitigation measures for cultural resources, including those that relate to 1854 Treaty rights and tribal resource gathering.	The federal Co-lead Agencies are actively consulting with the federally recognized bands that have expressed an interest in consulting for the NorthMet Project Proposed Action to identify and address these and other related concerns. Consideration of effects on cultural resources or culturally significant natural resource that do not qualify for the NHPA addressed in SDEIS Chapters 4, 5, and 6.	CR 01
CR2	Section 106 consultation is needed prior to the completion of the EIS to address the presence of cultural sites and use of resources by tribal members.	The federal Co-lead Agencies have actively consulted with the three federally recognized Bands that have expressed an interest in consulting for the NorthMet Project Proposed Action, including interviews with Band members. Effects to cultural resources and culturally significant natural resources are addressed in the Cultural Resources section of SDEIS Chapters 4, 5, and 6.	CR 06
CR3	The 1854 Treaty Ceded Territory should be considered a traditional cultural property and the NorthMet Project Proposed Action's area of potential effect should be expanded to include 1854 Treaty Ceded Territory.	At the time the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) was prepared, the Co-lead Agencies had not yet formally determined the area of potential effect determination. The Cultural Resources section of SDEIS Chapters 4 and 5 address the Co-lead Agencies' determination of the NorthMet Project Proposed Action's area of potential effect, as well as the	CR 04

DEIS Theme Code	DEIS Theme Statement	DEIS Thematic Response	Corresponding FEIS Theme(s)
		Co-lead Agencies' consideration of the 1854 Ceded Territory as a traditional cultural property.	
CR4	The EIS should discuss the federal government's trust responsibility as part of the 1854 Treaty and address potential impacts and proposed mitigation/compensation for loss of access to resources.	The Cultural Resources section of SDEIS Chapters 4 and 5 addresses the federal Co-lead Agencies' federal tribal trust responsibilities as part of the 1854 Treaty. These sections, along with relevant sections of Chapter 6, also address effects on, and any proposed mitigation for effects on cultural resources and culturally significant natural resources that do not qualify for listing on the NRHP.	CR 01
CR5	The EIS should further evaluate and /or remove reference and use of the draft work known as, "The Protocol to Assess Expanded Cumulative Impacts to Native Americans."	This document has been reviewed and protocol discussed. The SDEIS complies with CEQ guidance for the cumulative effects analysis.	CR 08
Section: Fish and Macroinvertebrates (FM) [FEIS Section Now Titled "Aquatic Species"]			
FM1	The DEIS does not adequately analyze the impacts from the Mine Site operation on fish and macroinvertebrate species. Particular concerns include seepage of mercury and other constituents, alteration of flow conditions, water quality exceedances, and bioaccumulation.	Effects on aquatic resources, such as fish and macroinvertebrate species, as a result of mercury seepage and potentially harmful constituents, alteration of flow, and bioaccumulation are discussed in detail in Sections 5.2.6 and 5.3.6 of the SDEIS.	AQ 05, AQ 06, AQ 07, AQ 11, AQ, 12, AQ 13, AQ 14, AQ 18, AQ 23, AQ 24, AQ 25, AQ 28
FM2	The DEIS does not provide sufficient baseline characterizations, including sampling and modeling, to effectively describe populations and potential effects on fish and macroinvertebrates.	Existing conditions, including baseline characterizations and any additional threatened or endangered species listed after the DEIS was released, are discussed in detail in Sections 4.2.6 and 4.3.6 of the SDEIS. Potential effects on these species are detailed in Sections 5.2.6 and 5.3.6 of the SDEIS.	AQ 01
FM3	The cumulative effects analysis needs to be expanded to include the effects of sulfate and mercury, bioaccumulation, climate change, and habitat degradation on the fisheries and macroinvertebrates of the region.	Cumulative effects on aquatic species and the metrics used for analysis of potential effects are included in Chapter 6 of the SDEIS.	AQ27
FM4	The DEIS lacks sufficient monitoring, adaptive management, and mitigation measures for aquatic species.	Monitoring plans and potential mitigation measures for the NorthMet Project Proposed Action are discussed in Sections 5.2.6 and 5.3.6, and Chapter 7 of the SDEIS.	AQ 30
FM5	The DEIS does not provide sufficient information to demonstrate compliance with	Existing aquatic habitat and species are described in Section 4.2.6 and 4.3.6 of the SDEIS. Effects to aquatic resources as a result of the NorthMet	PER 26

DEIS Theme Code	DEIS Theme Statement	DEIS Thematic Response	Corresponding FEIS Theme(s)
	federal and state permitting and guidance requirements including the CWA, state water quality standards, TMDL levels, and fish consumption advisories.	Project Proposed Action are described in Sections 5.2.6 and 5.3.6. The evaluation of the NorthMet Project Proposed Action's potential environmental effects against EIS evaluation criteria is included in Sections 5.2.2, 5.2.6, 5.3.3, and 5.3.6 of the SDEIS. The Adaptive Water Management Plan (PolyMet 2015d, as cited in the FEIS) addresses the wastewater treatment systems that would be used to manage water (see Section 3.2.2 of the SDEIS).	
Section: Geotechnical Stability (GT)			
GT1	Detailed mitigation, alternatives, stability analysis, and contingency plan information must be included in the EIS, not deferred to permitting.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and design and stability of the geotechnical features are further analyzed and addressed in Sections 3.2.2 and 5.2.14 of the SDEIS.	GT 07
GT2	Environmental consequences of dam failures must be disclosed in the EIS.	The NorthMet Project Proposed Action, including the design and geotechnical stability of the Tailings Basin and Hydrometallurgical Residue Facility, has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). The design of the Tailings Basin and Hydrometallurgical Residue Facility is discussed in Section 3.2.2 of the SDEIS. The structural integrity of the Tailings Basin and Hydrometallurgical Residue Facility and the proposed maintenance and adaptive management measures of these facilities to maintain that integrity is discussed in Section 5.2.14 and Chapter 7 of the SDEIS. Because the proposed design would meet the minimum factor of safety requirements, the potential for failure of the dams is considered low. Discussion of effects associated with such failure would be speculative and thus outside the scope of the SDEIS.	GT 15
GT3	The EIS must address disposal of coal ash and other non-taconite tailings materials in the existing LTVSMC Tailings Basin and any implications to Tailings Basin stability.	The NorthMet Project Proposed Action, including the design and geotechnical stability of the Tailings Basin and Hydrometallurgical Residue Facility, has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). The existing conditions at the existing LTVSMC Tailings Basin, and the structural integrity of the proposed Tailings Basin and Hydrometallurgical Residue Facility, are discussed in section 4.2.14 and 5.2.14 of the SDEIS.	HAZ 02

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Section: Hazardous Materials (HM)			
HM1	The DEIS does not adequately address the assessment of operational type chemical waste for recycling.	Section 5.2.13 of the SDEIS addresses the preparation of a Hazardous Materials Management Plan. The Hazardous Materials Management Plan will describe the methods for handling, storage, and disposal. This may also include recycling of materials used or generated during the operations.	ALT 09, HAZ 02
HM2	The DEIS does not properly characterize ore and waste rock piles from the mining process as hazardous materials and hazardous waste in accordance with Minnesota Rules, nor does it adequately discuss the cumulative effects of these materials as "hazardous materials".	Based on the *Minnesota Rules*, Chapter 7045.0120, Identification and Listing of Hazardous Waste-Exemptions and Special Requirements, this waste is exempted. Also see Chapter 7045.0214: Evaluation of Wastes, Subpart I, "Any waste evaluated and exempted under part 7045.0075 or 7045.0120 does not need to be re-evaluated under this part." Other waste in question will be properly evaluated and managed per the Hazardous Materials Management Plan for the facility. These issues are described in Section 5.2.13 of the SDEIS.	HAZ 02
HM3	The DEIS does not adequately analyze and address the risk associated with the transportation of materials of a hazardous nature.	Transportation of materials of a hazardous nature will be addressed in more detail in the NorthMet Project Proposed Action plan and the Hazardous Materials Management Plan (when developed), and is discussed in Section 5.3.13 the SDEIS.	HAZ 06
HM4	The chemical composition, toxicity, use, impact, and mitigation of chemical products discharged in wastewater and in the hydrometallurgical residue must be further addressed in accordance with federal and Minnesota hazardous waste regulations.	As described in Section 5.2.13 of the SDEIS, hazardous materials and potentially hazardous wastes will be characterized, managed, and disposed of or recycled per the Hazardous Materials Management Plan (to be completed), which will follow requirements of Minnesota Rules, Chapter 7045: Hazardous Waste.	HAZ 03
HM5	The DEIS does not adequately assess the nature and characteristics, including radioactivity, of cobalt.	Hazardous materials are addressed in Section 5.2.13 of the SDEIS. If present, cobalt-60 and other hazardous or potentially hazardous materials or wastes will be characterized and managed per the Hazardous Materials Management Plan (to be completed), which will follow requirements of Minnesota Rules, Chapter 7045: Hazardous Waste.	HAZ 03
HM6	The DEIS does not adequately consider the cumulative impacts of hazardous materials from other projects, including hazardous materials already in the watershed.	Evaluation of cumulative effects of hazardous materials on the watershed, as well as those from other projects, are addressed in further detail as appropriate in Chapter 6 of the SDEIS.	CU 15

DEIS Theme Code	DEIS Theme Statement	DEIS Thematic Response	Corresponding FEIS Theme(s)
Section: Irreversible and Irretrievable Commitment of Resources (IRR)			
IRR1	The DEIS does not adequately characterize the fossil fuels consumed during mine development, operation, and closure.	Irreversible and irretrievable commitments of these resources are discussed in Chapter 7 of the SDEIS.	AIR 02
IRR2	The DEIS does not adequately characterize the loss of natural and cultural resources, such as high-quality forests, wetlands, and traditional cultural activities.	Effects on cultural resources and the relationship between natural resources and cultural resources are discussed in Section 5.2.9 and 5.3.9 of the SDEIS. Irreversible and irretrievable commitments of these resources are discussed in Chapter 7 of the SDEIS.	NEPA 14
Section: Noise (N)			
N1	Noise impacts from operation of the NorthMet Project Proposed Action on the surrounding region are not properly modeled or explained in the DEIS.	To address this issue, Section 5.2.8 of the SDEIS includes a visual representation of noise contours to show the extent of noise effects on sensitive receptors within the surrounding region.	N 06
N2	The DEIS does not adequately address noise mitigation.	Noise mitigation measures and monitoring plans are addressed in Section 5.2.8 and Chapter 7 of the SDEIS.	PD 01
N3	The DEIS does not adequately characterize the cumulative effects of noise, including vibration, from the NorthMet Project Proposed Action and other activities.	Further modeling of the potential cumulative noise and vibration effects on the surrounding environment has been conducted since the preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). Cumulative noise and vibration effects, and the metrics used for analysis of potential effects, are discussed in Chapter 6 of the SDEIS.	N 03
N4	The DEIS does not adequately characterize the effects of NorthMet Project Proposed Action-related noise, including blasting, on wildlife.	NorthMet Project Proposed Action--related noise effects on wildlife, including blasting, are discussed in detail in the Section 5.2.5 of the SDEIS.	N 04, N 05
N5	The DEIS does not adequately characterize the effects of project-related noise, including blasting, on human health.	NorthMet Project Proposed Action-related noise effects on human health, including blasting, are discussed in detail in the Section 5.2.7 of the SDEIS.	N 01
N6	The DEIS does not adequately characterize the impacts of discontinuous noise, such as blasting, on people who use the NorthMet Project area for recreation, fishing, and hunting.	The effects of discontinuous noise, such as blasting, on people who use the NorthMet Project area for recreation, fishing, and hunting are discussed in detail in Section 5.2.8 of the SDEIS.	N 02

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Section: Project Description (PD)			
PD1	The DEIS does not adequately explain the Land Exchange Proposed Action, which is a connected action.	The Land Exchange Proposed Action is addressed as part of the NorthMet Project Proposed Action and alternatives throughout the SDEIS.	LAN 01
PD2	The DEIS NorthMet Project Description does not adequately describe the potential for release of contaminants, hazardous wastes, or acid rock drainage from waste rock, the Tailings Basin, or failure of liner systems on surface and groundwater quality standards.	The NorthMet Project Proposed Action, including management of waste rock and tailings, has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). Management of waste rock and tailings is addressed in Section 3.2.2 of the SDEIS. The potential effect of waste rock and tailings on surface and groundwater quality is addressed in Section 5.2.2 of the SDEIS.	GT 15
PD3	The DEIS does not adequately analyze the scope or effectiveness of closure and reclamation plans.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). Closure and reclamation of the NorthMet Project area is described in Section 3.2.2 and long term environmental consequences are described in Section 5.2 of the SDEIS.	PD 02, PD 06, PD 20
PD4	The DEIS does not adequately describe financial assurance.	Financial assurance for closure and remediation of the NorthMet Project area is addressed in Section 3.2.2.4 of the SDEIS.	FIN 01
PD5	The DEIS does not adequately describe the WWTF, including the seepage/discharge collection from the Tailings Basin or Hydrometallurgical Residue Facility.	The NorthMet Project Proposed Action, including details of water management at the Tailings Basin has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS), and is further addressed in Section 3.2.2 of the SDEIS.	PD 03, PD 07, PD 11, PD 12, PD 13, PD 18
PD6	The DEIS does not fully evaluate geotechnical stability, including a stockpile stability analysis.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). The existing geotechnical conditions at the NorthMet Project area are discussed in Section 4.2.14. The design and structural integrity of the proposed geotechnical features is addressed in Sections 3.2.2 and 5.2.14 of the SDEIS.	All GT themes
PD7	The DEIS does not adequately describe the transportation of ore between the Mine Site and Plant Site or the necessary transportation infrastructure.	The transportation of ore between the Mine Site and Plant Site is discussed in Section 3.2.2 of the SDEIS.	PD 36
PD8	The DEIS contains insufficient baseline data, monitoring measures, mitigation methods, and modeling, and does not include newly identified	Existing environmental conditions including results of baseline modeling are discussed in Chapter 4 of the SDEIS. Management and mitigation measures of the NorthMet Project Proposed Action and alternatives are	Addressed throughout the FEIS.

DEIS Theme Code	DEIS Theme Statement	DEIS Thematic Response	Corresponding FEIS Theme(s)
	issues.	described in Chapter 3. Environmental consequences are addressed in Chapter 5. A summary and comparison of the mitigation and management measures for the NorthMet Project Proposed Action and alternatives and the environmental consequences is provided in Chapter 7 of the SDEIS.	
PD9	The DEIS NorthMet Project Description is not complete, and/or is not consistent with the PDEIS.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS), and the description of the NorthMet Project Proposed Action and alternatives has been updated in the SDEIS.	All PD themes
PD10	The DEIS does not adequately describe the NorthMet Project Proposed Action's relationship to plant and wildlife species, habitat, and high quality forests and wetlands.	The existing environmental conditions and the potential environmental consequences relating to the NorthMet Project Proposed Action are addressed in Chapters 4 and 5 of the SDEIS, respectively.	All WI, VEG, and WET themes
PD11	The DEIS does not adequately describe the placement of waste rock piles and stockpiles of overburden.	The NorthMet Project Proposed Action, including management of waste rock and overburden, has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). Management of waste rock and overburden is addressed in Section 3.2.2 of the SDEIS.	PD 15
PD12	The DEIS does not adequately describe Superior National Forest plans and regulations or whether they will be adhered to.	The Land Exchange Proposed Action is described in Section 3.3. The potential effect of the proposed change in land use at the NorthMet Project area and the considerations for existing and surrounding land management are addressed in Sections 5.2.1 and 5.3.1 of the SDEIS.	PER 35
PD13	The DEIS does not adequately address due diligence on the NorthMet Project Proposed Action.	Due diligence for the NorthMet Project Proposed Action is addressed in Chapter 3 of the SDEIS.	All PD themes
PD14	The DEIS does not adequately describe the moratorium on sulfide mining in Wisconsin.	The moratorium in Wisconsin is outside the scope of the NorthMet Project Proposed Action, and is therefore not discussed in the SDEIS.	SDEIS comments did not raise this topic.
Section: Process (PRO)			
PRO1	The DEIS does not adequately adhere to the EIS/NEPA process or involve appropriate agencies.	Chapter 1 of the SDEIS provides information about the Cooperating Agencies that were included during the scoping period for the DEIS, as well as other agencies involved in development of the SDEIS. The three Co-lead Agencies (MDNR, USACE, and USFS) each ensured that federal and state environmental impact processes were followed, and that the process adhered to each agency's internal requirements.	NEPA 08
PRO2	The DEIS does not adequately analyze project	The NorthMet Project Proposed Action and the alternatives have changed	ALT 16, ALT 21

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	alternatives, as there is too much uncertainty.	substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). Alternatives (including the NorthMet Project No Action Alternative) are described in Chapter 3 of the SDEIS; a comparison of alternatives is provided in Chapter 7.	
PRO3	The DEIS contains insufficient data/studies, explanations of methodologies, and proposed mitigation measures.	New data and studies, methodologies, and mitigation measures are discussed in detail in the SDEIS. Individual resource-specific sections incorporate new data or studies and explanations of methodologies in Chapter 4, while mitigation measures are discussed in resource-specific sections of Chapter 5 of the SDEIS.	NEPA 08
PRO4	The DEIS does not adequately incorporate all connected actions and other actions into the cumulative effects analysis.	All connected actions, including the Land Exchange Proposed Action, are included in the cumulative effects analysis in Chapter 6 of the SDEIS. Resource-specific effects of the Land Exchange Proposed Action are included in Chapter 6 of the SDEIS.	CU 02, CU 08, CU 09, CU 13
PRO5	Analysis regarding the Cultural Resources section was not appropriately completed, as Section 106 consultation was incomplete.	The federal Co-lead Agencies are actively consulting with federally recognized Bands that have expressed an interest in consulting for the NorthMet Project Proposed Action. Consultation includes interviews with tribal members. Effects on cultural resources are addressed in the Section 5.2.9 of the SDEIS. The Section 106 evaluation must be complete before the federal agencies can complete their respective RODs.	CR 06
PRO6	The DEIS process did not allow adequate public participation, and specifically lacked adequate public comment periods or meetings. All issues of public opposition should be addressed.	The NEPA public participation process for the DEIS is discussed in detail in Section 2.2 of the SDEIS. Two meetings and a 90-day comment period were provided for the DEIS. A separate scoping period for the Land Exchange Proposed Action occurred in the fall of 2010. For the SDEIS, the number of public meetings and length of the comment period will be determined by the Co-lead Agencies. Public comments and positions voiced in the record at both public meetings and through written comments have been considered in the development of the SDEIS.	NEPA 11
PRO7	The DEIS does not adequately evaluate potential violations of laws or standards, such as the CAA, CWA, etc.	As described in Section 1.4 of the SDEIS, the NorthMet Project Proposed Action must comply with all applicable laws and standards. Resource-specific laws and regulations are discussed in the corresponding resource sections.	PER 26
PRO8	The DEIS does not adequately incorporate the Feasibility Study for the Land Exchange Proposed Action.	The Land Exchange Proposed Action is discussed in detail throughout the SDEIS. Individual chapters incorporate information from the USFS Land Exchange Feasibility Study, as well as other sources.	LAN 06

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PRO9	The DEIS does not fully include tribal Cooperating Agency comments.	The federal Co-lead Agencies are actively consulting with the three federally recognized bands that have expressed an interest in consulting for the NorthMet Project Proposed Action. Discussion of tribal comments and concerns are a part of this consultation. These comments are addressed in the SDEIS and through ongoing consultation.	CR 06
PRO10	The DEIS does not adequately describe any financial assurance for the project or implications of an environmental disaster.	Financial assurance for closure and remediation of the NorthMet Project area is addressed in Chapter 3 of the SDEIS. A Co-lead Agency document dated August 23, 2011, describes the mechanism for addressing financial assurance in the SDEIS (Co-lead Agencies 2011).	FIN 05
Section: Socioeconomics (SE)			
SE1	The DEIS incorrectly implies that there are no economic benefits from the NorthMet Project No Action Alternative.	The SDEIS more clearly states that there would be no additional economic benefits from mining activity in the NorthMet Project No Action Alternative, but that other economic activity in the region would remain unaffected. Existing non-mining economic activity is described in greater detail in Section 4.2.10 the SDEIS.	SDEIS comments did not raise this topic.
SE2	The EIS should include a full EJ evaluation, focused specifically on impacts to local tribes.	The EJ analysis has been expanded, and is presented in Section 5.2.10.2.6 of the SDEIS, based on input from the Socioeconomic IAP Workgroup.	SO 09
SE3	The DEIS overestimates the NorthMet Project Proposed Action's relatively short-term employment benefits, and does not adequately address long-term, post-closure costs, or the "boom and bust" cycle associated with extractive industries.	These issues are addressed in Section 5.2.10 of the SDEIS, based on input from the Socioeconomic IAP Workgroup.	SO 04
SE4	The DEIS does not adequately account for the NorthMet Project Proposed Action's adverse long-term impact on the region's tourism and real estate economies, which are based on high environmental quality (actual and perceived).	Please see response to Theme SE3.	SO 02, SO 03
SE5	The EIS should evaluate the long-term community health impacts associated with pollution from the NorthMet Project Proposed Action.	Effects on human health are primarily addressed in Section 5.2.7 and 5.3.7 of the SDEIS. These include health effects from airborne, water-borne, and other sources related to the NorthMet Project Proposed Action.	HU 01
SE6	The low-grade character of the ore body is not adequately addressed.	Calculations in the DEIS Socioeconomics Section already take the quality of the ore into account. These inputs are more clearly stated in Section	SDEIS comments did not raise this

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		5.2.10 of the SDEIS.	topic.
SE7	The EIS should address whether the NorthMet Project Proposed Action will emphasize hiring of local workers, therefore ensuring economic benefits to local communities.	Please see response to Theme SE3	SO 04
SE8	The DEIS did not discuss the specifics regarding inputs of the IMPLAN model and other economic data.	The inputs and methodology of the IMPLAN model are described in Section 5.2.10 of the SDEIS.	SO 08
SE9	The DEIS does not adequately evaluate socioeconomic impacts.	Potential socioeconomic effects on population, housing, employment, transportation, etc., are addressed in Sections 5.2.10 and 5.3.10 of the SDEIS. A Multi-agency (Co-lead and cooperating agencies) Workgroup met during 2011to help define the scope of the socioeconomics analysis.	SO 04, SO 06
SE10	The DEIS does not adequately evaluate mineral rights.	Mineral rights for the NorthMet Project Proposed Action are discussed in Section 3.2.2 of the SDEIS.	LAN 04
Section: Vegetation (VE)			
VE1	The DEIS does not provide sufficient baseline characterizations of vegetation and other factors related to vegetation, such as groundwater modeling.	Existing conditions, including baseline characterizations and any additional threatened or endangered species listed after the DEIS was released, are discussed in detail in Sections 4.2.4 and 4.3.4 of the SDEIS. Details regarding inputs to modeling are included in resource-specific Sections of SDEIS Chapter 5.	VEG 09
VE2	The DEIS does not adequately address impacts to wild rice, aquatic vegetation, and farming from sulfates, sulfides, mercury methylation, and other constituents.	Effects resulting from vegetation exposure to potentially harmful constituents are discussed in detail in relevant Sections of SDEIS Chapter 5, such as water resources.	VEG 04, VEG 07
VE3	The DEIS reclamation plans are not sufficiently detailed. They do not adequately consider impacts from non-native and invasive species and should instead include native species.	Issues such as the spread of non-native and invasive species and potential effects on vegetation resources are addressed in Section 5.2.4 of the SDEIS. Reclamation plans, revegetation plans (including plant species proposed to be used during closure and reclamation activities), monitoring plans, and potential mitigation measures for the NorthMet Project Proposed Action are discussed in SDEIS Chapter 3.	VEG 05
VE4	The DEIS does not adequately consider the cumulative effect on non-listed flora populations, in addition to threatened and endangered species, in northeast Minnesota from	Cumulative effects on vegetative species, and the metrics used for analysis of potential effects, are discussed in Chapter 6 of the SDEIS.	VEG 08

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	other similar projects, and does not discuss the extent and prevalence of these species in the region.		
VE5	The DEIS contains insufficient information to support its discussion of effects to threatened and endangered plant species, nor does it describe a plan to maintain these populations.	Potential effects on state-listed and RFSS plant species are discussed in Sections 5.2.4 and 5.3.4 of the SDEIS. A Biological Evaluation will be developed to address RFSS. There are no federally listed plant species in the NorthMet Project Area.	VEG 01
VE6	The DEIS does not adequately evaluate tribal utilization of important plant resources (wild rice, cedar, sage, etc.) at the Mine Site and Plant Site, since the Section 106 NHPA consultation was not finished at time of publication and documentation of these uses is often not available or recorded.	Section 106 consultation is ongoing. Potential effects on vegetation and plant species are discussed in Sections 5.2.4 and 5.3.4 of the SDEIS. Tribal utilization of plant species is discussed in the Cultural Resources sections of SDEIS Chapters 4 and 5.	CR 05, CR 06
VE7	The DEIS does not adequately identify the proposed organic nutrient amendments to the Tailings Basin and how these would promote the development of shoreline and near-shore aquatic vegetation.	Potential mitigation methods regarding vegetation are addressed in Section 5.2.4 of the SDEIS. This includes revegetation of the Tailings Basin and development of aquatic vegetation. Reclamation plans, revegetation plans, monitoring plans, and potential mitigation measures for the NorthMet Project Proposed Action are discussed in Chapter 3 of the SDEIS.	VEG 05
VE8	The DEIS does not adequately characterize impacts from sulfuric acid formation on vegetation, during transportation of the rock from the Mine Site to the Plant.	Spillage from rail cars is expected to be minimized through the use of mitigation methods such as seals on rail car doors and a different design than previous operations. Effects on vegetation resulting from rail car spillage are discussed in Section 5.2.4 of the SDEIS.	VEG 04, VEG 06
Section: Visual Resources (VI)			
VI1	The DEIS visual impact assessment does not provide sufficient characterizations of baseline conditions or impacts. A visual impact assessment that is comparable to past USACE practices should be provided.	Section 4.2.11 of the SDEIS includes an expanded discussion of baseline visual conditions.	SDEIS comments did not raise this topic.
VI2	The DEIS should include a discussion on the potential adverse visual impacts from the introduction of non-native species as a revegetation measure.	This topic is discussed in Sections 5.2.11 and 5.3.11 of the SDEIS.	SDEIS comments did not raise this topic.
VI3	The DEIS' conclusions regarding the extent and	This topic is discussed in Sections 5.2.11 and 5.3.11 of the SDEIS.	SDEIS comments

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	impacts of light pollution are inadequate.		did not raise this topic.
VI4	The DEIS should evaluate the potential for haze and haze-related impacts on the BWCAW as a result of the NorthMet Project Proposed Action.	Haze and related effects are discussed in Section 5.2.7 and 5.2.11.	AIR 08
Section: Wetlands (WE)			
WE1	The DEIS does not adequately characterize the wetland baseline information; the wetland delineation and characterization of wetland areas /species should be reevaluated.	Characterization of wetland resources at the Mine Site has been reevaluated since the DEIS. Existing conditions, including baseline characterizations of wetland resources, are discussed in detail in Section 4.2.3 of the SDEIS. Further details regarding inputs to modeling are discussed in Section 5.2.3 of the SDEIS.	WET 07, WET 21
WE2	The DEIS does not adequately characterize the direct and indirect impacts to wetland resources from the NorthMet Project Proposed Action.	Direct and indirect effects on wetland resources from the NorthMet Project Proposed Action are discussed in detail in Section 5.2.3 of the SDEIS. Further analysis of the potential direct, indirect, and cumulative effects on wetland resources has occurred since the development of the DEIS and a Wetlands IAP Workgroup was formed to address the concerns raised on the DEIS. Related discussions are included in other Sections of SDEIS Chapter 5 (such as water resources).	WET 07, WET 08, WET 10, WET 11
WE3	The DEIS does not adequately address wetland mitigation for the NorthMet Project Proposed Action.	Wetland monitoring plans are discussed in Section 5.2.3 of the SDEIS. Wetland mitigation methods, including wetland ratios and justification for mitigation site locations, are also addressed in Section 5.2.3. PolyMet has now proposed a compensatory wetland mitigation site in the St. Louis River Watershed and one in an adjacent watershed, in addition to the two other sites identified in the DEIS.	WET 01, WET 03, WET 04, WET 05
WE4	The DEIS provides insufficient information to demonstrate compliance with federal and state wetland permitting requirements.	Existing wetland habitat, including wetland/habitat quality, is described in Sections 4.2.3 and 4.3.3 of the SDEIS. Effects on wetland resources at the Mine Site and Plant Site are included in Section 5.2.3 of the SDEIS. This discussion includes (where applicable) information to show how the effects of the NorthMet Project Proposed Action compare with federal and state wetland permitting requirements, which includes justification for mitigation site locations.	COE 02, COE 04
WE5	The DEIS does not adequately address the cumulative effects for wetland resources and the analysis should be redone.	Further analysis of the potential cumulative effects on wetland resources has occurred since the development of the DEIS and a Wetlands IAP Workgroup was formed to address the concerns raised in the DEIS. Cumulative effects on wetland resources, and the metrics used for analysis	WET 18

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		of potential effects, are included in Chapter 6 of the SDEIS.	
WE6	The DEIS does not adequately analyze the effectiveness of the wetland treatment system (i.e., WWTF and passive wetland treatment system) and the potential for a longer duration. The SDEIS needs to further analyze the effectiveness and possibility for a longer duration.	Further analysis of the potential effects on wetland resources has occurred since the development of the DEIS, including formation of a Wetlands IAP Workgroup to address the concerns raised in the DEIS. The NorthMet Project Proposed Action no longer includes a wetland treatment system. See Chapter 3 for a description of the mechanical wastewater treatment systems planned for the Plant Site and Mine Site, as well as other wetland monitoring plans. Wetland monitoring plans and other wetlands effects are discussed in Section 5.2.3 of the SDEIS.	SDEIS comments did not raise this topic.
WE7	The DEIS does not adequately address the value of wetlands since the Land Exchange Proposed Action was not included in DEIS and the covenants on the Mine Site (Weeks Act) are being ignored.	Information on the Land Exchange Proposed Action, including conformance to the Weeks Act, Federal Land Policy and Management Act, the Forest Plan, and EOs 11990 (USEPA 1977) and 11988 (USFS 2004d, as cited in the FEIS) are included in Chapter 1 and Section 5.3.3 of the SDEIS.	WET 14, WET 17
WE8	The DEIS is inadequate in demonstrating how the water quality and release of mercury would impact wetlands.	Since publication of the DEIS, additional analysis of indirect wetland effects has been conducted, including effects on wetland water quality. A Wetlands IAP Workgroup was formed to address concerns raised in the DEIS. Potential wetland effects associated with degraded water quality and mercury release from the NorthMet Project Proposed Action have been further evaluated, and further analysis of potential effects on wetland resources has been conducted since the development of the DEIS. These effects are discussed in detail in Sections 5.2.3 and 5.3.3 of the SDEIS, and in related Sections of SDEIS Chapters 4 and 5 (such as water resources).	WET 11
Section: Wildlife (WI)			
WI1	The DEIS does not adequately incorporate the findings of biological assessments or comments prepared by other agencies (USACE, USFWS, USFS) related to impacts on threatened and endangered species or RFSS.	A BA and Biological Evaluation will be developed to address federally listed and RFSS, respectively. Discussions of potential effects on federally listed, state-listed, and Regional Forester Sensitive Species (wildlife) are included in the Vegetation and Wildlife Sections of SDEIS Chapter 5.	WI 11
WI2	The DEIS does not adequately analyze the direct and indirect effects (including habitat loss) on wildlife species including special-status species (e.g., endangered species). More surveys need to be completed for these species, and more emphasis should be placed on the effect on	Please see response to Theme WI1. Updated special-status species lists are included in Sections 4.2.5 and 5.2.5 of the SDEIS. Additional wildlife surveys were completed for the non-federal land exchange parcels and are discussed in Sections 4.3.5 and 5.3.5 of the SDEIS.	WI 01, WI 03

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	specific areas such as the Once Hundred Mile Swamp and Mud Lake/Yelp Lake.		
WI3	The DEIS does not adequately evaluate tribal utilization of important and treaty-protected wildlife species (moose, furbearer species, etc.), because the Section 106 NHPA consultation was not finished at time of publication and documentation of these uses is often not available or recorded.	Section 106 consultation is ongoing. Discussion of potential effects on wildlife species is included in Sections 5.2.5 and 5.3.5 of the SDEIS. In addition, potential effects on 1854 Treaty resources have been addressed in Sections 4.2.9 and 5.2.9.	WI 09
WI4	The DEIS does not adequately consider the cumulative effect on non-listed wildlife populations (in addition to threatened and endangered species) in northeast Minnesota from other similar projects, including synergistic impacts of bioaccumulation of contaminants.	Cumulative effects on wildlife species, including RFSS and SGCN, are discussed in Chapter 6 of the SDEIS. Further discussion of reclamation and post-closure activities are discussed in Chapter 3 of the SDEIS. Non-federal lands to become federal/public are addressed in topic-specific discussions in Section 5.3 and Chapter 6 of the SDEIS. Mitigation for and restoration of wildlife corridors is discussed in Chapter 6 of the SDEIS.	WI 08
WI5	The DEIS does not adequately address the habitat value of quality for restored wetlands, particularly the Hinckley and Aitkin sites. These would not offer the same habitat for northern wildlife species since they are located so far south.	Existing wetland habitat, including wetland/habitat quality, is described in Sections 4.2.3 and 4.3.3 of the SDEIS. Wetland mitigation methods, including justification for mitigation site locations, are addressed in Sections 5.2.3, 5.3.3, and Chapter 7 of the SDEIS.	SDEIS comments did not raise this topic.
Section: Water Resources (WR)			
WR1A	The plan for post closure management to prevent pollution of groundwater or surface water is inadequate or unclear and given the inherent uncertainty in hydrology and geochemistry, and the Mine's long term potential to degrade water quality. The post-closure plan should include contingencies, mitigation strategies, and a detailed reclamation plan and financial assurances.	The Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and water quality modeling has been revised accordingly. PolyMet has developed Adaptive Water Management Plans [PolyMet 2015d, as cited in the FEIS) that include contingencies and mitigation strategies if actual water effects turn out to be greater than modeled. Post-closure management is addressed in Section 3.2.2 and Chapter 7 of the SDEIS. During plant closure activities, demolition and reclamation of Plant Site infrastructure would be completed according to federal, state, and local agency permits and regulations. Financial assurance for closure and remediation of the NorthMet Project Proposed Action is addressed in Chapter 3 of the SDEIS. A Co-lead agency document dated August 23, 2011, describes the mechanism for addressing financial assurance in the SDEIS (Co-lead Agencies 2011).	WR 21, WR 35, WR131, WR 132

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WR1B	The overall NorthMet Project Proposed Action monitoring plan for water quality is not adequate or described in sufficient detail.	Monitoring is addressed in detail in Section 5.2.2.3.6 of the SDEIS. Groundwater specific monitoring points will be located to evaluate the accuracy of predicted water quality effect. These prediction points were selected based on groundwater flow paths between Mine Site facilities (e.g., waste rock, tailings, pits, etc.) and the nearest surface waters (i.e., the Partridge River and Embarrass River). Surface water quality must be monitored and water quality standards met in all Embarrass River and Partridge River tributaries and main branches of these rivers, as determined by the MPCA.	WR 21
WR1C	Leaching of contaminants from waste rock stockpiles is problematic.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). The most reactive waste rock will be temporarily stored on liners, then placed in the East Pit and flooded with water before closure. Discussions of water resources effects (Section 5.2.2 of the SDEIS) account for temporary pollutant release by leakage through these liners. The less-reactive Category 1 waste rock pile that remains permanently on the surface will be surrounded with a water containment trench to capture seepage during and after mining. Water captured in the trench would be treated. A proposed geosynthetic cover would decrease water infiltration. The issue is addressed in Sections 3.2.2 and 5.2.2 of the SDEIS.	WR 01, WR 17
WR1D	The potential for pollution from railroad car ore spillage needs analysis.	The estimate of water quality effects in the SDEIS includes the release and transport of pollutants from ore spilled from rail cars. A monitoring plan for characterization of background water quality and evaluation of effects during operations has been developed. Mitigation strategies are part of the monitoring plan. Sections 4.2.2 and 5.2.2 of the SDEIS address this issue.	WR 151
WR1E	Studies and sampling were inadequate to assess and characterize baseline conditions of acid mine drainage, pollution (including sulfates, mercury, and methylmercury), groundwater (including flows), surface water, wetlands, wild rice, wildlife, and financial risks. As a result, the impact analysis of the NorthMet Project Proposed Action is inadequate.	Environmental sampling and analysis has continued into 2012, expanding the set of baseline environmental data since the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). Updated baseline environmental conditions are presented in Section 4.2.2 (water quality, wild rice, and mercury), and Section 4.2.3 (Wetlands). The water quality model used to estimate effects of the project has been calibrated to these current conditions, and the deviation between the calibrated models and observed conditions are considered as one measure of prediction uncertainty (Section 5.2.3).	WR 03, WR 05, WR 08, WR 14, WR 25
WR1F	The proprietary models of pollutant production	The proprietary models used in the DEIS to estimate the release and transport of pollutants under NorthMet Project Proposed Action have been	WR 60, WR 61,

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	and transport cannot be independently evaluated.	replaced in the SDEIS with a model that, though still proprietary, is essentially transparent and can be viewed and executed independently. The technical review included independent assessment to confirm that the model used the parameter values agreed upon by the Co-lead Agencies, and that the major model results could be reproduced using independent calculations. See Section 5.2.2 of the SDEIS.	WR 106
WR2A	The hydrogeology of the NorthMet Project site is not well understood. Therefore, the DEIS cannot reliably determine reliably aquifer drawdown from dewatering or whether pollutants from the Mine could travel in groundwater and degrade water in wells, lakes or rivers.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and water balance studies. In particular, the number of wells used to characterize the Mine Site alluvium (the main area affected by dewatering) has been increased (Section 4.2.2), and the new information on water levels and water quality gained from these data have been used in the calibration of the updated water quality model (Section 5.2.2).	WR 07, WR 08, WR 10
WR2B	Climate change could increase (beyond assumptions in the DEIS) the volume of water flowing through the Mine causing increased transportation of pollutants in surface and groundwater.	This issue is addressed in Sections 5.2.2 and 5.3.2 of the SDEIS. Estimates of pollutant transport from the NorthMet Project Proposed Action use results of “down-scale” climate models (i.e., nested models that refine the estimated effect of climate change on local water balance using larger-scale model results) to estimate the range in pollutant migration from mine waste. The effects of extremely wet periods are included in the modeling.	WR 77, WR 180, WR 188, WR 196
WR2C	Pollutants released by the NorthMet Project Proposed Action could contaminate groundwater. These effects need to be estimated.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and water quality modeling has been revised accordingly. Estimating the rate at which pollutants from mine waste could leach into groundwater is given high priority in the SDEIS modeling and is specifically discussed in Section 5.2.2 of the SDEIS. Pollutant concentrations in groundwater were estimated using probabilistic models; descriptions of predicted effects on groundwater and surface water quality are presented along with a discussion of uncertainty in model parameters.	WR 10, WR 12
WR2D	The liners under waste rock and waste facilities and /or hydrometallurgical waste cells may fail over time and may need to be replaced.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and the SDEIS has changed accordingly. In particular, the lowest-sulfide (Category 1) waste rock that will be permanently stored in unlined facilities will be surrounded completely by a groundwater containment system that will capture seepage during and after mining to prevent discharge before it has been treated to meet discharge standards. After	WR 67, WR 126, WR 138

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		closure, the Category 1 waste rock will be covered with a geomembrane to reduce water percolation and pollutant transport. The more reactive (Category 2, 3, and 4) rock will be stored temporarily in lined facilities, before being placed in the East Pit for permanent stabilization under the water table. Hydrometallurgical waste will be blended with lime to reduce metal solubility prior to disposal, and this material will be placed in double-lined facilities, which have been shown to have negligible leakage.	
WR2E	The model of pollutant transport from Mine Site facilities to groundwater and surface water does not adequately represent the NorthMet Project Proposed Action. The model does not adequately consider water flow through the Mine Site, all of the chemical constituents that may be leached from mine waste, or the known mechanisms of pollutant release and transport at hard rock sulfide mines.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and water quality modeling has been revised accordingly. Estimating the rate at which pollutants from mine waste could leach into groundwater is given high priority in the SDEIS modeling and is specifically discussed in Section 5.2.2 of the SDEIS. The SDEIS expands the number of constituents included in the modeling from eight in the DEIS to 20 to include all inorganic constituents with drinking water standards. Pollutant concentrations in groundwater were estimated using probabilistic models. Descriptions of predicted effects on groundwater and surface water quality are presented along with a discussion of uncertainty in model parameters.	WR 49, WR 61
WR2F	The WWTF may not be able to adequately treat Mine Site water to meet discharge standards and there is no contingency for this. It is also unclear whether the WWTF would treat nitrates.	The state has reviewed the WWTF effluent water quality targets provided by PolyMet and, based upon currently available data, including RO pilot results, believes these targets could be met. Nitrates would be treated if they are included in the discharge permit. The WWTF will also be of modular construction, such that additional modules can be added for increased capacity if necessary.	WR 32
WR2G	The water quality models for the NorthMet Project Proposed Action produced recharge rates through the glacial till that seem implausible, based on USGS data. This should be reconciled by measuring recharge from water table wells and including recharge from all pathways, including meteoric water.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and water quality modeling has been revised accordingly. Water quality modeling is specifically addressed in Section 5.2.2 of the SDEIS. Hydraulic characteristics of the glacial till, including hydraulic conductivity and recharge, were refined by reviewing data (including specific measurements of recharge through surficial till) from two nearby mines with similar hydraulic and geologic settings.	SDEIS comments did not raise this topic.
WR2H	Many of the wetlands in the NorthMet Project area may be hydraulically connected to groundwater, contrary to the assumption in the DEIS. Air photo interpretation is inadequate to	The potential for indirect wetland effects at the Mine Site is discussed in Section 5.2.2 of the SDEIS. This discussion is refined and expanded, compared to the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS), in particular by evaluating the effects of dewatering at two nearby	WR 53

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	assess impacts on wetlands and Mud Lake. Empirical data used to address indirect wetland impacts needs better disclosure in the EIS.	mines with similar bedrock and surficial geologic conditions.	
WR2I	The point selected to evaluate impacts to surface or groundwater is inappropriate.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and water quality modeling, proposed monitoring points, and proposed model evaluation locations have been revised accordingly. Water quality monitoring is specifically addressed in detail in Section 5.2.2.3.6 of the SDEIS. For groundwater, specific monitoring points will be located to evaluate the accuracy of predicted water quality effect. These prediction points were selected based on groundwater flow paths between Mine Site facilities (e.g., waste rock, tailings, pits, etc.) and the nearest surface waters (i.e., the Partridge River and Embarrass River). The surface water quality modeling includes 18 evaluation locations along the main branch of the Embarrass River, its tributary streams, and the main branch of the Partridge River, plus one evaluation point in Colby Lake.	WR 64, WR 109
WR2J	The evapotranspiration capability of the vegetated soil layer on the stockpiles has not been demonstrated.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and no longer includes permanent stockpiles of Category 2, 3, or 4 waste rock where minimizing infiltration is important. The Category 1 Stockpile would be covered by a geomembrane liner, thereby dramatically reducing infiltration and the need to accurately model evapotranspiration. Section 5.2.2 of the SDEIS addresses this issue.	SDEIS comments did not raise this topic.
WR3A	The evaluation of tailings discharges is inadequate as there is a significant potential for oxidation from the tailings slurry discharge beach and the tailings pond, winter effects on tailings oxidation need better definition, and water quality and quantity leaving the tailings basin may be problematic, especially in the case of flooding.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and water quality modeling has been revised accordingly. Water quality modeling is specifically addressed in Section 5.2.2 of the SDEIS. In addition, the SDEIS now uses a more robust probabilistic modeling approach that incorporates current data and information to present sufficient additional analysis. Finally, the flotation tailings will now be surrounded with a water containment system to capture seepage for storage and eventual treatment prior to discharge. Sections 3.2.2 and 5.2.2 of the SDEIS address this issue.	WR 45, WE 50
WR3B	There are concerns about water quality effects beyond the immediate NorthMet Project area, including BWCAW, the overall St. Louis River	There is no groundwater seepage or surface water drainage from the NorthMet Project area to the BWCAW or its waters. Surficial groundwater seepage and surface runoff from the NorthMet Project area drains to either	WR 38, WR 42, WR 80

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	Watershed, and Lake Superior.	the Partridge River or the Embarrass River, both of which are tributaries of the St. Louis River and Lake Superior. All seepage and surface water runoff must meet applicable water quality standards at or before the property boundary. Section 5.2.2 of the SDEIS addresses this issue.	
WR3C	The DEIS' finding that there will be no surface water discharge is incorrect. The final EIS should acknowledge the application of NPDES permits to a variety of pathways for surface water discharge and to assess the potential for each, including the West Pit outflow.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and the SDEIS has changed accordingly. There will be groundwater seepage from the Tailings Basin and the East Pit after it fills with water. These seepages (which are quantified in Section 5.2.2 of the SDEIS) will eventually become surface water draining to tributaries of the Embarrass River and Partridge River. All applicable groundwater and surface water standards must be met. There may also be direct discharge from the WWTF, which would require a NPDES permit, if there is excess water after make-up water needs are met. Beginning in approximately year 40, there could also be direct discharges from the West Pit Overflow; this discharged water would be treated at the WWTF prior to diversion into the West Pit.	SDEIS comments did not raise this topic.
WR3D	The NorthMet Project Proposed Action could result in AMD and the potential for additive toxicity to Lake Superior.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). There is a discussion on the potential for effects as it pertains to the impaired status of the St. Louis River (which flows into Lake Superior) and/or the TMDL process in Section 5.2.2 and Chapter 6 of the SDEIS. See also response to theme WR3C.	WR 01, WR 08, WR 10, WR 19, WR 25
WR3E	Water level changes in the Partridge River and Embarrass River and wetlands downstream of the tailing basin needs quantifying.	Changes in streamflow to the Partridge River and Embarrass River were modeled for the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS), and that modeling was revised for the SDEIS to reflect substantial changes in the NorthMet Project Proposed Action. These changes are addressed in Section 5.2.2 of the SDEIS. The small reduction in streamflow due to the NorthMet Project Proposed Action will result in an imperceptible change in river water level.	WR 45, WR 46, WR 47, WR 48
WR3F	Water quality and quantity impacts to Colby Lake and Hoyt Lakes' municipal water supply need better analysis. The DEIS should have discussed the following related issues: development of a TMDL or Manganese criterion for Colby Lake; effects on Colby Lake's water levels; quantity of water pumped to the WWTP;	These issues are addressed in Section 5.2.2 of the SDEIS. Colby Lake is one of the water quality modeling evaluation locations downstream of the Mine Site. Effects on Colby Lake are discussed in Section 5.2.2.3.2.	WR 43, WR 123, WR 140

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	and levels of metals removal, including iron reduction, achieved by the Hoyt Lakes treatment plant.		
WR3G	In reference to lining the exposed Virginia Formation along the East Pit's north wall, literature citation notes that lime increases pH which, in turn, increases release of arsenic. The relationship between arsenic solubility and liming should be addressed.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). As described in Chapter 3 and Section 5.2.2 of the SDEIS, the more reactive waste rock and overburden would be backfilled to the East Pit, covering the Virginia formation, and would be permanently stored subaqueously, minimizing oxidation and the subsequent release of contaminants. Lime could be added to the East Pit during backfilling, as needed, in order to maintain circumneutral pH in the pit pore water, which would be pumped to the WWTF and returned to the East Pit as required to manage potential pollutant load. The volume of lime required would be determined through monitoring.	WR 27
WR3H	The DEIS needs to model for dissolved aluminum, not total, since dissolved is the standard.	Minnesota Rules 7050.0222 Subpart 1.B states that in the absence of a listed conversion factor for a particular metal to convert total to dissolved, the applicable conversion factor is one. Aluminum is not listed in Subpart 9; therefore, its conversation factor is one. That means, practically speaking, that total equals dissolved; therefore, modeling total aluminum is acceptable. Since the dissolved form of a metal, by definition, cannot be greater than the total metal, using total aluminum in the modeling can be considered conservative. Modeling criteria for aluminum and other constituents are discussed in Section 5.2.2.1.2, while future concentrations of aluminum are discussed in Section 5.2.2.3.2 (Partridge River) and Section 5.2.2.3.3 (Embarrass River).	WR 82
WR3I	There are potential exceedances of water quality standards due to the NorthMet Project Proposed Action, even after WWTF treatment. To demonstrate compliance with all applicable standards and regulations, the EIS should present additional analysis, suggest alternative designs and methods to prevent contamination that exceeds water quality standards, and should use more rigorous Impact Criteria imposed by downstream impaired waters (including TMDL and nondegradation criteria) for al chemicals on	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and water quality modeling has been revised accordingly. Water quality modeling is specifically addressed in Section 5.2.2 of the SDEIS. In addition, the SDEIS now uses a more robust probabilistic modeling approach that incorporates current data and information to present sufficient additional analysis to compare predicted effects against applicable standards and regulations. Specific (i.e., numeric) evaluation criteria related to sulfate and methylmercury for the impaired portion of the St. Louis River do not exist. Section 5.2.2 of the SDEIS therefore discusses potential methylmercury-related effects in downstream impaired waters qualitatively.	WR 52, WWR 54, WR 60, WR 64, WR 70, WR 82, WR 83

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	the GLI list.		
WR3J	Lack of on or near-site streamflow data makes the DEIS' impact assessment questionable.	The Co-lead Agencies are comfortable with the modeling approach used for hydrologic impact assessment, especially since data collected during recent winters confirms that the model's baseflow estimates are conservatively low. It is also important to note that the total watershed area consumed within the NorthMet Project area is less than 7 percent at any location along the Partridge River, meaning that actual changes in streamflow will be very small. One or more permanent gauging stations along the Partridge River will be required during operations to aide in the determination of compliance with water quality standards.	WR 03, WR 04, WR 05, WR 06, WR 81, WR 91, WR 101, WR 105
WR3K	Ditches and dikes are not 100 percent effective. The materials used in ditch and storm water leachate collection systems must preclude seepage and be resistant to freeze/thaw cycles.	It is understood that the ditches and dikes that are part of the Category 1 Stockpile seepage collection system are not 100 percent effective. However, they will be engineered to an acceptable level of efficiency considering the low reactive potential of the Category 1 waste rock, and the modeling used to estimate project effects on water quality have assumed leakage rates observed in similar systems. This issue is addressed in Sections 3.2.2 and 5.2.2 of the SDEIS.	WR 17, WR 127
WR3L	Wetland treatment in the East Pit is inadequate for water treatment.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and water quality modeling has been revised accordingly. Water quality modeling is specifically addressed in Section 5.2.2 of the SDEIS.	SDEIS comments did not raise this topic.
WR3M	The DEIS fails to analyze the impacts to water quality from the local deposition and run-off of metal emissions.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and water quality modeling has been revised accordingly. Water quality modeling is specifically addressed in Section 5.2.2 of the SDEIS. In addition, the SDEIS now uses a more robust probabilistic modeling approach that incorporates current data and information to present sufficient additional analysis. Projected mercury emissions from the Plant Site have been subjected to an AERA, where potential mercury-related risks were assessed for fishing and subsistence users, where chronic risks are based on fish consumption. The findings of the agency-approved AERA are presented in the SDEIS.	SDEIS comments did not raise this topic.
WR3N	The potential effects of the NorthMet Project Proposed Action on wetlands, bogs, and peatlands were not adequately evaluated in the	Please see response to Theme WR3M.	WR 53, WR 64, WR 105, WR 112, WR 119

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	DEIS.		
WR4A	The modeling used for the DEIS must consider mercury methylation and provide a quantitative analysis of the discharge of mercury from all pathways during and after mining based on realistic data. Modeling should also consider estimates of expected variation in measures under varied conditions (e.g., fluctuating water levels in reservoirs and flood plains).	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and water quality modeling has been revised accordingly. Water modeling is specifically discussed in Section 5.2.2 of the SDEIS. The SDEIS gives high priority to estimating the rate at which pollutants from mining waste (e.g., tailings, waste rock, stockpiled ore, pit-wall rock, and hydrometallurgical process residue) could leach into groundwater. To ensure that the analysis for the SDEIS identified a realistic range for possible effects on water quality, the Water Resources IAP Workgroup identified ranges for values of most parameters used to estimate pollutant migration. The model of pollutant dissolution and migration considers water percolation rates through mine waste, leakage rates through lined facilities, and uses empirical tests on project materials to estimate dissolution rates for sulfide minerals and chemical attenuation by adsorption and precipitation (see Section 5.2.2.2.3). Quantitative modeling of methylmercury is beyond the scope of the SDEIS, due to the inherent complexity of the fate and transport of methylmercury in the environment. However, the potential for enhanced methylation of mercury and uptake in fish as a result of project discharges is qualitatively addressed in the SDEIS.	WR 158, MERC 02, MERC 08, MERC 23
WR4B	The DEIS fails to adequately address impacts of mercury and methylmercury, particularly on fish and humans. The DEIS should include an analysis of the impacts of methylmercury on fish communities, as well as on people and wildlife that consume the fish, social and economic impacts to fisheries, groundwater, surface water, wetlands, and sensitive areas and waterbodies with existing mercury impairments. The EIS should also explain why the addition of sulfates from the NorthMet Project Proposed Action will not result in additional mercury pollution, how the St. Louis River Watershed will be able to attain TMDL standards, and the potential for mercury demethylation and/or methylation in flooded mine pits.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS) and water quality modeling has been revised accordingly. Estimating the rate at which pollutants from mining waste could leach into groundwater is given high priority in the SDEIS modeling and is specifically discussed in Section 5.2.2. Pollutant concentrations in groundwater were estimated using probabilistic models. Descriptions of predicted effects on groundwater and surface water quality are presented along with a discussion of uncertainty in model parameters. The SDEIS specifically addresses possible effects on people, fisheries, and wildlife based on the estimates of pollutant concentrations from the models. Quantitative modeling of methylmercury is beyond the scope of the SDEIS, due to the inherent complexity of the fate and transport of methylmercury in the environment. However, the potential for enhanced methylation of mercury and uptake in fish as a result of NorthMet Project Proposed Action discharges are qualitatively addressed in the SDEIS.	MERC 02, MERC 03, MERC 24

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WR4C	Monitoring, mitigation measures, and contingency responses for pollutant releases (especially sulfate and mercury) are inadequately described in the DEIS. The DEIS should explain how exceedances of these materials are to be regulated, define the goal of maintenance-free closure, and any financial safeguards that are in place to address future problems to water and soil as a consequence of industrial action.	These issues are addressed in Chapters 3 and 7 of the SDEIS. Under the SDEIS, the Category 1 waste rock facility and the Tailings Basin will be surrounded by containment systems to capture and treat seepage to reduce the pollutant load to groundwater. Groundwater monitoring points will be located to evaluate the accuracy of predicted water quality effect. During mine closure, the East Pit would be reclaimed as a wetland and the West Pit would flood with water to become a pit lake. Water from the West Pit will be treated as necessary at the WWTF and returned to the West Pit, or discharged to the Partridge River at concentrations that meet pollutant concentration thresholds. During post-closure, the WWTF will be used, as necessary, to treat effluent from the West Pit Lake, the Category 1 waste rock and the Tailings Basin to meet surface water quality standards before it is discharged. The WWTF will be run as long as necessary during operations and closure, until passive treatments are adequately demonstrated to meet water quality standards. During plant closure activities, demolition and reclamation of Plant Site infrastructure would be completed according to federal, state, and local agency permits and regulations.	WR 21, MERC 08, MERC 17
WR4D	The permitting of the NorthMet Project Proposed Action would violate the Great Lakes Compact of zero discharge of mercury to the basin and federal or state regulations that prohibit mixing zones (40 C.F.R. § 132, Appendix F, Procedure 3; Minn. R. 7052.0210, Subpart 3). The more rigorous Impact Criteria imposed by the downstream impaired waters and TMDL status and nondegradation under Minnesota Rules 7050 and 7052 should be used instead of the Great Lakes Initiative.	This issue is addressed in Chapter 1 of the SDEIS. Applicability of the Great Lakes Initiative is also discussed in Sections 5.2.2.1.2 (Evaluation Criteria), and Sections 5.2.2.3.4 (Mercury). The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS), and water quality modeling has been revised accordingly. The SDEIS will use a more robust probabilistic modeling approach that incorporates current data and information to present sufficient additional analysis to compare predicted effects against applicable standards and regulations. Specific (i.e., numeric) evaluation criteria related to sulfate and methylmercury for the impaired portion of the St. Louis River does not exist. The SDEIS discusses potential methylmercury-related effects in downstream 'impaired' waters qualitatively in the Chapter 5 of the SDEIS. The water quality evaluation criteria in the SDEIS include the Lake Superior mercury standard.	WR 38, WR 125, WR 158, MERC 01
WR4E	Sequestration of mercury by soil, peatlands, and/or minerals is not adequately discussed in the DEIS. The EIS should include quantitative information on mercury sequestration from the MDNR study.	This issue was addressed in the DEIS. The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). The SDEIS uses a more robust probabilistic modeling approach that incorporates current data and information to present sufficient additional analysis. Quantitative modeling	SDEIS comments did not raise this topic.

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		of mercury transport is beyond the scope of the SDEIS, due to the inherent complexity of the fate and transport of methylmercury in the environment. However, the potential for enhanced methylation of mercury are addressed in the SDEIS.	
WR4F	The NorthMet Project Proposed Action could potentially elevate sulfate concentrations above the 10 mg/L wild rice standard and could promote AMD with potential impacts on the health of aquatic vegetation, especially wild rice beds, which have significant cultural and ecological value. The EIS should thoroughly evaluate impacts on wild rice standards.	The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS (MDNR and USACE 2009, as cited in the FEIS). The MPCA staff have made a draft recommendation that portions of the Partridge River downstream of the Mine Site be treated as waters used for the production of wild rice, meaning that the 10 mg/L sulfate evaluation criterion would apply to these reaches from April 1 to August 31. The NorthMet Project Proposed Action includes controlled outflow from the West Pit to comply with this standard. Modeling of the NorthMet Project Proposed Action indicates that sulfate concentrations in tributaries north of the basin and at PM-13 would decrease in comparison to the Continuation of Existing Conditions modeling scenario. These aspects of the NorthMet Project Proposed Action are described in Chapter 3, Chapter 7, and Section 5.2.2 of the SDEIS.	WR 149, WR 152, WR 156
WR5A	Inadequate consideration has been given to the long-term impact of mercury and sulfate emissions from the NorthMet Project Proposed Action, in combination with other cumulative impacts, on water resources (including groundwater, water supplies, exceedances of water quality standards, metal leaching, flow fluctuations, and hardness), wetlands, wild rice beds, changes in cover, and hydrology.	This issue is addressed Chapter 7 of the SDEIS. The estimates of effects from the NorthMet Project Proposed Action include release of sulfate and mercury from mine waste to groundwater and surface water. Additional mitigation described in the SDEIS includes groundwater containment systems around the Category 1 waste rock and Tailings Basin. Also, Category 1 waste rock will be covered with a geosynthetic layer to reduce infiltration, and the Tailings Basin surface and slopes would be amended with bentonite to reduce oxygen and water flow and thus reduce pollutant releases. The tailings system is designed with a goal of eventual discontinuation of groundwater seepage collection.	WR24, WR 159
WR5B	The cumulative impacts of the NorthMet Project Proposed Action with other mining projects must be addressed, especially the capacity of the rivers to assimilate wastewater effluent.	This issue is addressed Chapter 6 of the SDEIS.	WR 24, WR 159
WR5C	The applicant's assessment of uniquely affected communities is incorrect and cumulative effects of the NorthMet Project Proposed Action on health and biological resources, including wild rice, and wildlife populations (e.g., fish, moose),	These concerns are addressed in the topic-specific portions of Chapter 6 of the SDEIS, including Water Resources, Wildlife, Fish and Macroinvertebrates, and Socioeconomics.	WR 156, WR 159

DEIS Theme Code	DEIS Theme Statement	DEIS Thematic Response	Corresponding FEIS Theme(s)
	must be considered. These impacts could disproportionately affect minority communities, low income persons, and Indian tribal members, whose diets rely on fish to a greater extent than their non-Indian neighbors.		

A.9 ATTACHMENTS

Attachments to Appendix A, which are available separately from the FEIS, include the following:

- A PDF file containing the full text of all public comments on the SDEIS and corresponding theme assignments (NMetFEIS_AppendixA_All_SDEIS_Comment_Themes.pdf);
- A PDF file containing the full text of all SDEIS submissions received in electronic formats such as email, as exported from the Microsoft Access database used to organize submissions (NMetFEIS_AppendixA_All_SDEIS_Submissions.pdf);
- A PDF file containing one full text copy of each form letter submitted during the public comment period for the SDEIS, as well as a list of all individuals who submitted a copy of that form letter (NMetFEIS_AppendixA_SDEIS_Form_Letter_List.pdf);
- A PDF file containing the full text of all public comments on the DEIS and corresponding theme assignments (NMetFEIS_AppendixA_All_DEIS_Comment_Themes.pdf);
- An electronic folder containing a mix of electronic files comprising all attachments to public submissions on the SDEIS, as well as the full text of submissions not otherwise captured in the abovementioned Microsoft Access database (SDEIS_Submissions); and
- A folder containing PDFs of all public submissions on the DEIS (DEIS_Submissions).

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Appendix B

Underground Mining Alternative Assessment for the NorthMet Mining Project and Land Exchange Environmental Impact Statement

Underground Mining Alternative Assessment for the NorthMet Mining Project and Land Exchange Environmental Impact Statement

Co-lead Agencies:

Minnesota Department of Natural Resources

United States Army Corps of Engineers

United States Forest Service

September 27, 2013

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1.0 INTRODUCTION

Section 1502.14 of the National Environmental Policy Act requires that Environmental Impact Statements (EISs) examine all reasonable alternatives to the proposed project. The Council on Environmental Quality defines reasonable alternatives as those that are practical or feasible from technical and economic standpoints and use common sense (Council on Environmental Quality 1981).

Under the Minnesota Environmental Protection Act, an EIS shall compare the potentially significant impacts of the proposed action with other reasonable alternatives to the project. However, *Minnesota Rule* 4410.2300 states that an alternative may be excluded from analysis in the EIS if it would not meet the underlying need or purpose of the project (State of Minnesota 2009).

In the Draft Environmental Impact Statement (DEIS) for the NorthMet Project, the Minnesota Department of Natural Resources (MDNR) and United States Army Corps of Engineers considered underground mining as an alternative to the proposed open pit(s) (MDNR and United States Army Corps of Engineers 2009). This alternative was eliminated because an underground mine would have a significantly reduced rate of operation that would not be considered economically feasible, and, therefore, would not meet the Purpose and Need of the NorthMet Project.

Following tribal and public comment on the DEIS, the Co-lead Agencies, who now include the United States Forest Service, reconsidered underground mining as an alternative to the NorthMet Project in preparation of a Supplemental Draft Environmental Impact Statement (SDEIS). This position paper provides an overview of the alternative screening process undertaken and the decision on whether to undertake a full evaluation of underground mining as an alternative in the SDEIS.

1.1 PURPOSE OF ASSESSMENT

Following its elimination from further consideration in the DEIS, tribal and public comments on the DEIS, as well as discussions during scoping of the Land Exchange, suggested the Co-lead Agencies reconsider underground mining as an alternative in the SDEIS.

The main reasons for reconsideration provided by the public and Bands were:

- the environmental benefits of underground mining compared to open pit mining, and
- that underground mining could be undertaken without the need for a Land Exchange.

1.2 ASSESSMENT MATERIAL

The information in the following subsections was used to inform a semi-qualitative screening analysis of the alternative. A detailed underground mine plan was not developed because PolyMet Mining Corporation (PolyMet) made the business decision to eliminate underground mining as a possible mining method at the NorthMet Deposit based on information that indicated it would not be economically feasible. Therefore, it was not possible to undertake a quantitative, side-by-side assessment of the underground mining alternative.

1.2.1 United States Steel

In the 1970s, the NorthMet Deposit was investigated by United States Steel (U.S. Steel) to evaluate the potential to mine the deposit using underground methods. The MDNR reviewed documentation relating to the U.S. Steel investigation (Patelke and Severson 2005; PolyMet 2007) and found the following was concluded by U.S. Steel:

- mineralization at the NorthMet Deposit was below the expected grades, and
- metallurgical technology available at that time was not sufficient to produce separate, distinct nickel and copper concentrates.

Consequently, the U.S. Steel information alone was not indicative of the potential economic viability of underground mining for the NorthMet Project.

1.2.2 PolyMet

PolyMet, through its consultant (Foth Infrastructure & Environment, LLC), assessed the economic feasibility of underground mining at the NorthMet Deposit based on the proposed open pit deposit (Foth 2012). The findings of this assessment are included in the *Economic Assessment of Conceptual Underground Mining Option for the NorthMet Project*, included with this paper as Attachment 1. A supplemental memorandum was also prepared by Foth to provide further information on the boundaries and model used in the analysis (Foth 2013). This memorandum, *Response to USEPA Questions Regarding: Economic Assessment of Underground Mining Report Dated October 2012*, is provided with this paper as Attachment 2. The information provided by PolyMet was reviewed by technical staff at the MDNR and was determined to be sufficient for a screening-level review of the feasibility of underground mining at the NorthMet Deposit.

2.0 SCREENING OF THE UNDERGROUND MINING ALTERNATIVE

The underground mining alternative for the NorthMet Project was reconsidered for the SDEIS using the same screening criteria as in the DEIS. The screening criteria were used to determine if the alternative would:

- offer significant environmental and/or socioeconomic benefits (over the Proposed Action or other alternatives),
- be available (legally, through surface access and mineral rights),
- be technically feasible (physically possible to construct and underground mine),
- be economically feasible (provide sufficient income to cover: operating, capital, and other costs with an adequate return to investors), and
- meet the Purpose and Need for the project.

The alternative would need to meet all of these criteria to merit further evaluation in the SDEIS. Evaluations of the underground mining alternative against each of the screening criteria are presented in the following subsections.

2.1 SIGNIFICANT ENVIRONMENTAL AND/OR SOCIOECONOMIC BENEFITS

Compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits, including:

- fewer direct effects on surface resources, including wetlands;
- less mine dewatering and, therefore, less water to be managed;
- less waste rock, which would result in:
  - a smaller surface footprint; and
  - reduced effects on surface water and groundwater.
- less ore mined at a slower rate, which would result in:
  - less tailings and hydrometallurgical residue to be managed;
  - fewer effects on surface water and groundwater; and
  - reduced air emissions from mining, transporting, and processing the ore, and constructing the Tailings Basin and Hydrometallurgical Residue Facility.

However, compared to the proposed open pit, an underground mining alternative for the NorthMet Deposit would have a reduced mining rate and life of mine. Consequently, a smaller mining operation would employ fewer workers for a shorter period of time, and would also reduce tax revenues to the state and localities (refer to Section 2.4, Economic Feasibility). Thus, the underground mining alternative would reduce the socioeconomic benefits, as compared to the proposed open pit.

Although the underground mining alternative would offer environmental benefits, it would result in reduced socioeconomic benefits. Additionally, because an underground mine at the NorthMet Deposit would not be profitable (refer to 2.4 Economic Feasibility), a for-profit company like PolyMet would not move forward with the project, thus any potential environmental or socio-economic benefits associated with this alternative are moot.

2.2 AVAILABILITY

Minerals are available for PolyMet to mine at the NorthMet Deposit through private mineral lease agreements. Surface use could be available through the Land Exchange or other United States Forest Service approvals if an underground mining alternative were deemed viable and adopted by PolyMet.

The underground mining alternative is available at the NorthMet Deposit.

2.3 TECHNICAL FEASIBILITY

Technical feasibility considers whether or not it would be physically possible to create an underground mine at the NorthMet Deposit, disregarding economic feasibility and other considerations.

The NorthMet Deposit is a shallow, large-tonnage, low- to medium-grade mineral resource. Such deposits typically require backfilling, if mined using underground methods, to prevent caving. PolyMet considers that the following methods of underground mining could be technically possible at the NorthMet Deposit:

- Long-hole open stoping (backfilled). This involves the development of large stopes or caved rooms within a steeply dipping orebody. Caving is accomplished by long drill holes and blasting to collection shoots below.
- Short-back open stoping (backfilled). This is similar to long-hole open stoping, but smaller-caved stopes are created within a moderately dipping ore deposit.
- Room and pillar (backfilled). This involves mining the ore deposit (steep or shallow dipping) in tabular layers, with pillars of ore left in place to support the roof (hang wall). Rooms are created by drilling horizontally, blasting, and rubber tired hauling away.
- Mechanized cut and fill (backfilled). This is similar to room and pillar, except that no pillars are left behind. Instead, backfill sand or rock is placed during mining to support the roof.

The underground mining alternative is technically feasible for the NorthMet Deposit.

2.4 ECONOMIC FEASIBILITY

Economic feasibility is based on the balance of costs and profit margins against the value of the mineable material. Since PolyMet is a private sector and for-profit company, the value of the saleable material would need to provide sufficient income to cover operating cost (which includes, but is not limited to, the cost of mining, processing, transportation, and waste management), capital cost (to build and sustain facilities), an adequate return to investors, reclamation, and closure costs and taxes.

While low-confidence mineralization is known to extend along the strike beyond the proposed open pit outline, this material has not been evaluated in detail, there is no mine plan for it, and it is not included as part of the proposed NorthMet Project. A mine plan has only been developed for the proposed open pit. The following discussion is based on qualitative information and the experience of PolyMet and its consultants.

2.4.1 Mineralization at the NorthMet Deposit

The NorthMet Deposit is considered to be a near-surface, bulk, low-grade mineralization of copper, nickel, cobalt, platinum, palladium, and gold. The contained metal value of mineralization at the NorthMet Deposit has been modeled with a high level of confidence in the area proposed to be mined as part of the NorthMet Project (20 year open pit), and with lower confidence beyond the proposed open pit outline. The metal prices used in calculating the contained metal values (dollars per ton) at the NorthMet Deposit for this assessment are listed below:

- Copper = $3.56 per pound,
- Nickel = $9.47 per pound,
- Cobalt = $11.69 per pound,
- Platinum = $1,689 per troy ounce,
- Palladium = $684 per troy ounce, and
- Gold = $1,485 per troy ounce.

These metal prices were calculated on June 30, 2012, and are consistent with the National Instrument 43-101 reporting standard that is used for public disclosure of information relating to mineral properties on bourses supervised by the Canadian Securities Administrators.

For each specific pre-extraction tonnage, an *in situ* average net metal value per ton was calculated based on the grade of ore and accounting for reasonable dilution and extraction losses (refer to Section 2.3, Technical Feasibility). Results showed that there is a generally linear relationship between the total cumulative tonnage of material and its average net metal value (Figure 1)—i.e., there is progressively less material available at higher net metal values. There are 85,614 short tons (cumulative) that have an average net metal value of $96.77 per short ton, and 227,017,162 short tons (cumulative) that have an average net metal value of $33.18 per short ton.

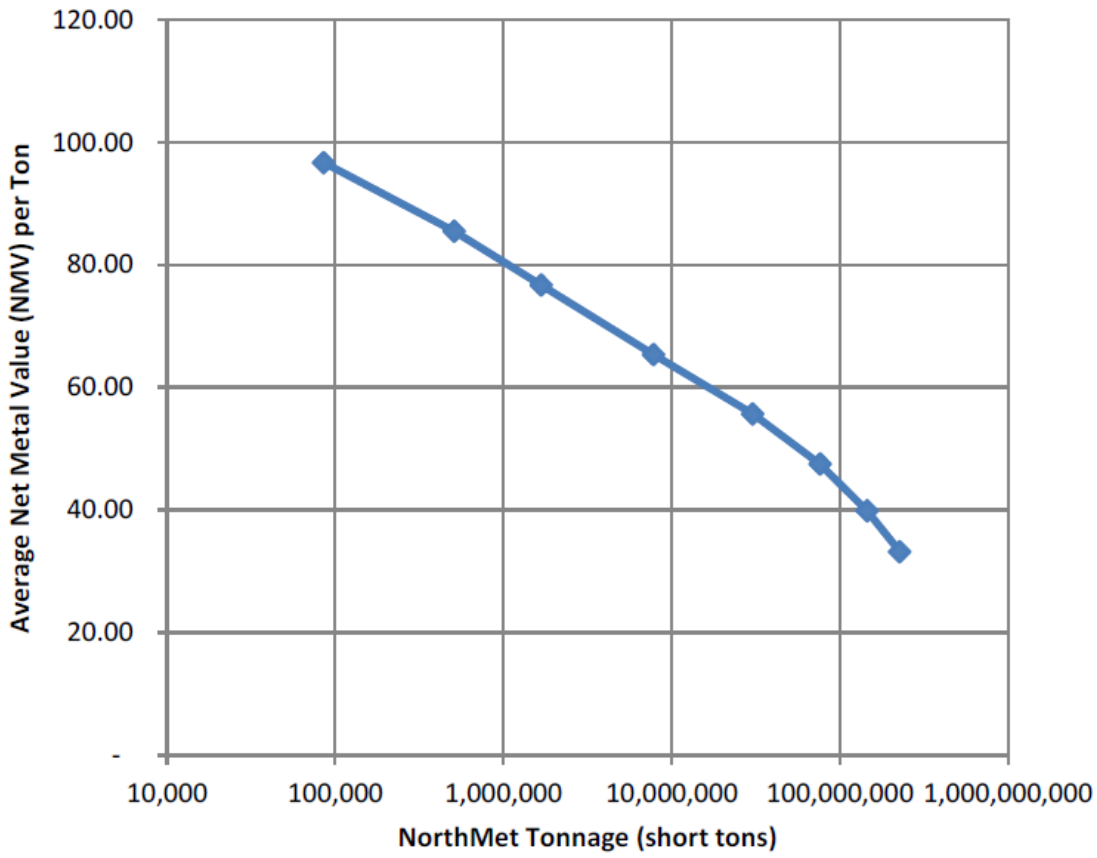

Figure 1 Tonnage vs. Average Net Metal Value

Using underground mining would result in most of the NorthMet Deposit left unmined because of its low metal value (i.e., less value than the cost of mining and mineral processing). Other material would have to be left in place for safety reasons, to prevent collapse. The underground rate of extraction for mining with backfilling is typically between 90 and 99 percent. PolyMet assumed a 95 percent rate of extraction for its economic assessment of the underground mining alternative. Mined ore could also be diluted between 5 and 30 percent by waste rock, as a result of overblasting and blending at ore-to-waste boundary lines. A dilution of 5 percent was used by PolyMet for the economic assessment of underground mining.

2.4.2 Underground Mining Costs

The estimated operating and capital costs vary depending on the rate and method of mining and processing. For the purpose of the economic assessment, PolyMet estimated operating costs and pre-production capital costs for underground mining and mineral processing at the NorthMet Deposit based on published cost models that were validated by comparable projects and mines (Table 1).

Table 1 Estimated Costs for an Underground Mine at the NorthMet Deposit

Tons per Day	Operating Mining and Mineral Processing Cost per Ton ($)	Pre-production Capital Costs ($ million)
2,000	74	125
5,000	56.5	200
7,500	49	250
10,000	48.5	300
15,000	47	400

2.4.3 Economic Feasibility

Based on an optimal formula, the productive life of an underground mine was determined for increments of tonnages, from fewer than 4 million to 100 million tons. From these numbers, the daily rate of production was calculated. The net metal value of that extracted material was calculated based on the average metal value for that tonnage minus 5 percent royalty costs that would apply at the NorthMet Deposit. To estimate the total operating cost, the extracted tonnage was multiplied by the total operating cost per ton. To calculate the life-of-mine profit balance, the total costs were subtracted from the net value of the mined material (Table 2).

Table 2 Economic Assessment of a Sample of Underground Mining Scenarios Considered

Extracted Tonnage (million short tons)	Net extracted net metal value ($ million)	Tons per Day	Productive Life of Mine (years)	Total Operating Cost ($ million)	Pre-production Capital Costs ($ million)	Profit: Metal Value – Costs ($ million)
5	302	2,000	7	370	125	-$193
20	1,077	5,000	11	1,130	200	-$253
30	1,552	7,500	11	1,470	250	-$168
50	2,386	10,000	14	2,450	300	-$364
100	4,143	15,000	18	4,700	400	-$957

Results show that for all tonnages the net profit is negative—i.e., underground mining is not economically feasible for the NorthMet Deposit.

2.5 PURPOSE AND NEED

The Purpose and Need of the NorthMet Project (Attachment 3) includes the ability to extract and process metals in a technically and economically feasible manner that generates sufficient income to cover: operating costs, capital costs, an adequate return to investors, reclamation, and closure costs and taxes.

Preliminary economic screening undertaken by PolyMet determined that the sale of metal precipitates and concentrates produced from an underground mining alternative would not be economically feasible to meet the requirements of the Purpose and Need. Because of this, the alternative was eliminated from further evaluation and a site-specific engineered underground mine plan was not developed.

The underground mining alternative does not meet the Purpose and Need for the project.

3.0 CONCLUSION

Alternatives need to meet all of the screening criteria to merit further evaluation. The summary of the screening results for the underground mining alternative are shown in Table 3.

The Co-lead Agencies found that while underground mining is technically feasible, available, and would offer significant environmental benefits over the proposed NorthMet Project, it would not be economically feasible and would not meet the Purpose and Need.

Since the underground mining alternative would not meet all of the screening criteria, it is not considered to be a reasonable alternative. Therefore, the underground mining alternative was eliminated from further evaluation in the SDEIS.

Table 3 Underground Mining Alternative Screening Table

Potentially Offer Significant Environmental or Socioeconomic Benefits?	**Available?**	**Technically Feasible?**	**Economically Feasible?**	**Meets the Purpose and Need?**
Yes*	Yes	Yes	No	No

*The underground mining alternative would offer significant environmental benefits, but would offer reduced socioeconomic benefits.

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ATTACHMENTS

Attachment 1 Foth 2012, Economic Assessment of Conceptual Underground Mining Option for the NorthMet Project

Attachment 2 Foth 2013, Memorandum: Response to USEPA Questions Regarding: Economic Assessment of Underground Mining Report Dated October 2012

Attachment 3 NorthMet Project and Land Exchange Purpose and Need Statement

Attachment 1
Foth 2012, Economic Assessment of Conceptual Underground Mining Option for the NorthMet Project

Report

Economic Assessment of Conceptual Underground Mining Option for the NorthMet Project

Project I.D.: 12P778

Poly Met Mining, Inc.
St. Paul, Minnesota

October 2012

POLYMET MINING

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Economic Assessment of Conceptual Underground Mining Option for the NorthMet Project

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Economic Assessment of Conceptual Underground Mining Option for the NorthMet Project

Executive Summary

This report assesses the prospects of the economic viability of extracting any portion of the NorthMet deposit by underground mining. While a Canadian National Instrument 43 101 (NI 43 101) compliant mineral resource has been published for NorthMet on the basis of open pit mining, no mineral resource has been defined for NorthMet on the basis of underground mining. This report has been prepared to provide information to agencies preparing the Environmental Impact Statement (EIS) for the NorthMet Project, in order to help them comply with National Environmental Policy Act (NEPA) and Minnesota Environmental Policy Act (MEPA) by adequately considering alternative mine development methods, such as underground mining.

There is no prospect of economically viable extraction of a portion of the shallow large tonnage low to medium grade NorthMet deposit by underground mining based on the analysis in this report. The tonnage/volume and grade (amount of metals) of rock within the NorthMet deposit does not generate enough revenue to pay for all costs associated with underground mining. The analysis of economic viability demonstrates that the value of metals per ton of rock, using metal prices defined in 2012, is too low to cover reasonable total operating costs and total pre production capital costs, defined by cost models, resulting in a negative operating profit (operating loss) or a negative project profit (capital loss). Underground mining is not economically viable for the NorthMet project which is consistent with early studies at NorthMet, general rules for assessment of economic viability and similar mining operations elsewhere.

List of Abbreviations, Acronyms, and Symbols

AGP	AGP Mining Consultants
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
EIS	Environmental Impact Statement
Foth	Foth Infrastructure & Environment, LLC
MEPA	Minnesota Environmental Policy Act
MSL	Mean Sea Level
NEPA	National Environmental Policy Act
NI	National Instrument
Poly Met	Poly Met Mining, Inc.
SEC	Securities and Exchange Commission
SEDAR	System for Electronic Document Analysis and Retrieval

1 Introduction

NorthMet is a large tonnage and low-to-medium grade polymetallic copper-nickel-cobalt-palladium-platinum-gold deposit hosted by thick intrusive rocks located in St. Louis County in northeastern Minnesota (Poly Met, 2007). The concentration of metals occurs in four broadly defined horizons dipping between 15o to 25o to the southeast as determined by data from drill holes. Figure 1 shows the location of the deposit within the open-pit projected upwards to the surface. NorthMet was discovered in 1969 and early studies concluded that the tonnages and grades were not high enough to support underground mining. Subsequent work by Poly Met Mining, Inc. (Poly Met) has led to a delineated polymetallic mineral resource capable of being extracted by open-pit mining. The purpose of this report is to answer the question: Is there a prospect of economically viable extraction of a portion of the NorthMet deposit by underground mining?

1.1 Definition of a Mineral Resource

Poly Met's parent company, PolyMet Mining Corp., is a Canadian company and, therefore, reports under Canadian securities guidelines. Regulations and guidelines associated with National Instrument (NI) 43-101 establish the reporting standards of a mineral resource by a public Canadian company to the Canadian Securities Administrators.

While there are similarities between Canadian and U.S. reporting, there is an important distinction between the two standards for reporting resources and reserves. Poly Met's filings in the U.S. include the following cautionary note: the terms "measured and indicated mineral resource", "mineral resource", and "inferred mineral resource" used in this Management Discussion and Analysis are Canadian geological and mining terms as defined in accordance with NI 43-101, Standards of Disclosure for Mineral Projects (NI 43-101) under the guidelines set out in the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards on Mineral Resources and Mineral Reserves. U.S. investors are advised that while such terms are recognized and required under Canadian regulations, the Securities and Exchange Commission (SEC) does not recognize these terms. Mineral resources do not have demonstrated economic viability. It cannot be assumed that all or any part of a mineral resource will be upgraded to mineral reserves. Under Canadian rules, estimates of inferred mineral resources may not form the basis of or be included in feasibility or other studies. U.S. investors are cautioned not to assume that any part of an inferred mineral resource exists, or is economically or legally mineable. The terms mineral resources and reserves as used in this report conform to the definitions contained in NI 43-101. Mineral resources are not reserves and do not have demonstrated economic viability. Reserves are contained within the envelope of "measured" and "indicated" mineral resources. All economic calculations are done in U.S. Dollars.

NI 43-101 regulations and associated guidelines define a mineral resource as a concentration or occurrence of metals "in such form and quantity and of such a grade that it has reasonable prospects for economic extraction" (CIM, 2010). The reasonable

prospect of economically viable extraction is determined by the total cost of extraction as compared to the total extractable value of the ore. The cost of extraction depends on, among other costs, the cost of mining and mineral processing. Since the cost of open-pit mining is considerably lower than the cost of underground mining, it is common that an economically viable open-pit mineral resource cannot be viably extracted by underground mining due to the higher cost of underground mining. Thus, a concentration of metals classified as a mineral resource under NI 43-101 by open-pit mining is <u>not</u> a mineral resource by underground mining unless proven to have a reasonable prospect of economically viable extraction by that mining method.

Those concentrations with a prospect for economically viable extraction are subdivided into three classifications on the basis of geological confidence. A "measured" mineral resource is "so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit" (CIM, 2010). An "indicated" mineral resource is less well characterized but, is sufficiently characterized to support evaluation of economic viability. An "inferred" mineral resource is only reasonably assumed to exist and since it is not sufficiently characterized it "must be excluded from estimates forming the basis of feasibility or other economic studies" (CIM, 2010).

The amount of geological data, the geological and grade continuity, and the mining method are factors (and others) in classifying a mineral resource as "measured", "indicated", or "inferred". An open-pit mineral resource classified as "measured" or "indicated" or "inferred" may be classified differently on the basis of underground mining. Since generally more data are needed to characterize an underground mineral resource, the degree of confidence is more likely to be lower on the basis of underground mining.

Poly Met has defined an open-pit mineral resource at NorthMet and has subdivided this open-pit resource into "measured", "indicated", and "inferred" categories (Poly Met, 2007). Since the cost of open-pit mining is considerably lower than the cost of underground mining, there is no reason to assume that any of this open-pit mineral resource has a reasonable prospect of economically viable extraction by underground mining. No underground mineral resource has been defined at NorthMet.

Although the NorthMet open-pit mineral resource includes "measured", "indicated", and "inferred" levels of geological confidence, one cannot assume that any of these resources would be classified at the same level with respect to underground mining. Using "measured" and "indicated" mineral resources classified on the basis of open-pit mining for economic assessment of underground mining will result in an optimistic economic assessment when underground mining criteria are applied.

1.2 Mining of Shallow Large Tonnage Low-to-Medium Grade Deposits

Shallow large tonnage low-to-medium grade deposits are typically mined by open-pit methods. Underground mining of low-to-medium grade materials may not be economically viable because of the much higher cost of extracting the rock by underground mining methods as compared to open-pit mining methods. Economic viability considerations would lead to only the higher grade sections of the open-pit resource being mined via underground mining methods leaving behind lower grade materials that could otherwise be utilized. From a socio-economic perspective, the value of the material left behind is lost. For comparison, Kevista Mine is a large tonnage and low-to-medium grade polymetallic copper-nickel-cobalt-palladium-platinum-gold deposit hosted by thick intrusive rocks in Finland and scheduled for production in 2012 (First Quantum, 2011). The tonnage and grades are similar to NorthMet and the Kevista mineral resource will be extracted using open-pit mining. While mineralized rock at Kevista extends below the open-pit, future extraction of it is speculative.

1.3 Disclaimer

This report relies upon information provided by Poly Met, AGP Mining Consultants (AGP), and publically available documents. The assessment of the prospects for economically viable extraction utilizes simplifications, generalizations, assumptions, and qualifications within the scope of the assignment and is believed to be substantially correct. While NI 43-101 reports are relied upon and referred to in this report; this independent report is not a NI 43-101 technical report.

2 Boundaries of the NorthMet Resources

The boundaries of the open-pit mineral resource as defined by NI 43-101 compliant technical report (Poly Met, 2007) are the same boundaries that will be used to assess the prospects of economic viability of extraction by underground mining (Figure 1). This underground evaluation will use “measured” and “indicated” open-pit mineral resources even though these may be an over statement of the sufficiently characterized volume/tonnage of mineralized rock with respect to underground mining or, in other words, using open-pit defined resource numbers may result in an overly optimistic economic assessment. “Inferred” open-pit mineral resources are excluded from this economic assessment. *The term NorthMet deposit used in this report will refer to NI43-101 compliant measured and indicated mineral resources within the open-pit.*

There is mineralized rock outside of the volume of rock contained within the proposed open-pit. This mineralized rock occurs below the open-pit. While this mineralized rock is excluded from this report, speculatively it may be possible for it to be economically viable to extract decades in the future. Only approximately 10% of the measured and indicated resource is below the open-pit (Poly Met, 2007). The majority of inferred resource defined by Poly Met (2007) is below the open-pit. There is a lack of geological data to characterize the deep mineralized rock that in turn results in a lack of geological

confidence leading to the inferred classification. Mineralized rock below the open-pit is, in general, too poorly characterized to justify inclusion in this economic assessment.

3 Approach to Analysis of Economic Viability

To assess the prospect for economically viable extraction by underground mining of the NorthMet deposit, the total cost of extraction of the metals must be compared to the total revenue from the metals that are extracted. For underground mining to have the potential to be economically viable, the extracted net metal value must be greater than the total operating cost by a sufficient margin to pay for capital costs, taxes, and provide a reasonable profit.

At the earliest stages of evaluating a mineral occurrence, costs are approximated by using cost models, such as from InfoMine. The cost predicted using cost models will be compared to and supplemented by data from selected existing and proposed mines. At the next stage in project evaluation, scoping or preliminary economic assessment, costs are refined, but complete site data can be lacking. Cost models are still used at this stage to estimate costs as well as to validate site specific cost estimates. The costs used in this report for the economic assessment are comparable to the earlier stages of evaluation. The revenue estimates in this report use metal prices applicable to later, feasibility, stage of evaluation, and are of lesser error than cost estimates. The grade and tonnage are maximum estimates as they are defined by open-pit rather than underground mining criteria.

Wellmer (Wellmer, 1998) describes several general approaches for evaluating the productive life of a mine. Generally, mining companies will use a minimum of 10 years to average out the risk of the variation of metal prices. The optimal productive life of a mine calculated by empirical formula yields values such as extracted tonnage of 5 to 25 million tons mined for 9.5 to 14 years at a rate of production of about 1,250 to 6,000 tons per day upwards to extracted tonnage of 100 million tons mined for 21 years at a rate of production of about 14,000 tons (Wellmer, 1998). To simplify the economic assessment in this report, increments of total and daily production are used which are roughly similar to those obtained from the empirical formula.

4 Mining Method

Poly Met has proposed to mine the NorthMet deposit using open-pit mining which will result in the maximum economically viable recovery of the metals. Using underground mining would result in a significant fraction of the NorthMet deposit being left unmined because the unmined rock is too low of value to be viably extracted by underground methods. Underground mining is being assessed as an alternative to open-pit mining to ensure that the Environmental Impact Statement (EIS) is in full compliance with National Environmental Policy Act (NEPA) and Minnesota Environmental Policy Act (MEPA) and that alternative mine development methods, such as underground mining, are considered.

Underground mining of large tonnages at shallow depths has the potential to lead to collapse of the mine openings unless they are backfilled. If mine openings are allowed to collapse, the collapse is likely to result in caving and fracturing of the overlying bedrock and could lead to land surface subsidence. This in turn disrupts ground water and surface water (Kendorski, 2006). The NorthMet deposit has a shallow dip of between 15° to 25° to the southeast, a strike length of about 2.5 miles, with probable thickness of mining of 45 to 100 feet when extractable tonnage is on the order of 10 million tons (AGP, 2011) (Figure 2; blocks in open pit resource greater than $65 net metal value per ton represent approximately 8 million tons). To minimize environmental impact by underground mining, the chance of collapse of the overlying rock must be minimized. Thus, this report is based on the assumption that backfilling of the mine will be required to minimize the chance of collapse of the overlying rock.

AGP (AGP, 2011) has assessed the applicable mining methods and concluded that possible mining methods include long-hole open stoping (backfilled), room and pillar (no back fill), or short back open stoping (no back fill) for a mine on the order of 10 million extractable tons. The latter two are considered unacceptable in this report unless backfilled to minimize the chance of collapse; only methods including backfill will be considered in this report. Mechanized cut and fill (backfilled) is another possible mining method. The underground rate of extraction for mining with backfilling is typically between 90 and 99% removal of the resource. For this report, the rate of extraction is assumed to be 95% removal of the resource.

Several factors can result in dilution of the ore such as overbreaking of rock by drill and blasting during underground mining and poor estimation of the boundary between valuable rock to be mined and waste rock. Dilution results in more tons of material to process and lowering of the overall grade of the material to be processed. In general, dilution varies between 5 and 30% (Wellmer, 1998); a value of 5% will be used in this report. At NorthMet the impact of dilution is small as higher value rock is surrounded by successively lower value rock. The diluting rock is assumed to have a value equivalent to the rock adjacent to the extracted tonnage along the tonnage-value curve described in Section 7.

5 Metal Prices

Evaluation of a mining project at the earliest stages may use metal prices that are lower than at a later stage to compensate for unknown risks. At later stages of evaluation when the start-up of a mine is nearer, pre-feasibility or feasibility study, metal prices often closely reflect current market conditions. NI 43-101 compliant feasibility studies use the three-year average metal prices, but also often include forecasts of price and demand for the purpose of evaluating the validity of using such metal prices. For the purpose of this report, the only metal prices used will be the three-year average metal price to June 30, 2012 provided to Theodore J. Bornhorst, LLC by Poly Met (personal communication) (Table 1); these metal prices are consistent with prices currently used in NI 43-101 feasibility and pre-feasibility studies published on System for Electronic Document Analysis and Retrieval (SEDAR) operated by Canadian Securities

Administrators. These metal prices are consistent with or higher than long-term forecasts.

6 Rates of Metal Recovery

The valuable rock extracted by underground mining is crushed, ground to a fine grain size, and subjected to a sequence of mineral processing steps to concentrate the minerals containing the metals of value. Due to imperfect mineral processing, some minerals containing metals of value are lost to the waste tailings. Laboratory testing quantifies the rate of recovery during processing of the valuable rock (ore) to a mineral concentrate. The metals in the concentrate are recovered by further processing (smelting or hydrometallurgy and refining); these rates have been quantified. The rates of recovery from rock to concentrate and from concentrate to metal are those specific to NorthMet as given in Table 1.

7 Net Metal Value

Net metal value per ton of rock represents the value of metal recoverable and payable from the rock at the assumed metal prices model after accounting for the rates of recovery and deduction of refining costs (described in Poly Met, 2007).

The total cumulative tonnage with grades higher than a specific level can be quantified by rigorous study (described in Poly Met, 2007). Using the open-pit model described by Poly Met (2007), AGP (personal communication) provided Theodore J. Bornhorst, LLC with a series of cumulative tonnages and average grades for the NorthMet deposit. The average net metal value per ton was calculated for each of these average grades (Table 2). The log cumulative tonnage versus average net metal value per ton has a well-defined regular variation (Figure 3). This relationship is adequate for the prediction of cumulative tonnage and average net metal value per ton for an economic assessment of underground mining of the NorthMet deposit.

8 Operating Costs of Mining

For this economic assessment, operating costs are estimated from cost models, such as InfoMine USA, Inc. Selected operating and proposed mines are used to compare and supplement the operating costs assumed for this report. While adjustments are made to the comparables to account for obvious differences with a possible NorthMet setting, there is no assurance these adjustments are adequate.

Operating cost models are usually subdivided according to mining or processing method and daily rate of production. Operating costs are linearly related to daily rate of production for the range of 1,000 to 5,000-7,500 tons per day depending on mining method (InfoMine USA, 2009). Above 5,000-7,500 tons per day the rate of change in operating cost decreases as operating costs approach a ‘minimum’. All costs are inflated to 2012 level based on the average rate of change in InfoMine cost models from 1998 to 2009. Increments of extractable tonnage and daily rate of production will be used in this study and for each increment a 2012 total operating cost will be assigned;

total operating cost is the sum of underground mining, mineral processing, and "general and contingency" costs (general is not central to production of saleable metal and contingency is added to cover uncertainties in cost estimates).

8.1 Discussion of Operating Costs at Rates of Production up to 5,000 Tons Per Day

The operating cost of room and pillar underground mining using shaft access without backfill from InfoMine cost model (InfoMine USA, 2009) is approximately $40 and $32 per ton for 2,000 and 5,000 tons per day production respectively without "general and contingency". Cemented backfill typically represents roughly 20% of mining operating costs (Grice, 1998; Stebbins and Schumacher, 2001). The operating cost of room and pillar underground mining with backfill is projected to be about $50 and $40 per ton for 2,000 and 5,000 tons per day production without "general and contingency". LongChole open stoping with sand backfill and shaft access from InfoMine (InfoMine USA, 2009) is about $32 and $20 per ton for 2,000 and 5,000 tons per day production respectively without "general and contingency", but at NorthMet cementing of backfill will likely be necessary which will increase the model cost. AGP (AGP, 2011) estimated that longC hole open stoping with backfill operating cost was in the range of $44 to $52 at 5,000 tons per day suggesting that the InfoMine estimates are too low. Mechanized cut and fill is about $49 for 2,000 tons per day. The Podolsky Mine, Levack Mine, McCreedy West Mine in the Sudbury district utilize a combination of longChole open stoping with cemented and uncemented backfill, cut and fill, and shrinkage mining methods with a range of mining operating costs of $76 to $38 for 1,250 and 2,250 tons per day without "general, administration and contingency" (FNX, 2009). *The estimated 2012 underground mining operating costs for this report are $51 for 2,000 tons per day and $40 for 5,000 tons per day without "general and contingency".*

A three concentrate flotation mill cost model from InfoMine (InfoMine USA, 2009) is the closest approximation to mineral processing of a complex ore such as NorthMet with cost of about $19.5 and $13 per ton for 2,000 and 5,000 tons per day production respectively without "general and contingency". For comparison, a one concentrate mineral processing InfoMine cost model at 5,000 tons per day is about $12.5 per ton as compared to the one concentrate Copperwood, Michigan prefeasibility mill cost estimate of $11.75 per ton at 5,000 tons per day without "general, administration, and contingency" (Orvana, 2011). A preliminary economic assessment for Lac des Iles in Thunder Bay, Ontario for complex ore with a similar suite of metals uses a mineral processing operating cost of $14 per ton at about 6,000 tons per day production without "general, administration, and contingency" (North American Palladium, 2010). *The estimated 2012 mineral processing operating costs for this report are $19.5 per ton for 2,000 tons per day and $13 per ton for 5,000 tons per day without "general and contingency".*

For copper and nickel Lac des Iles in Thunder Bay, Ontario (North American Palladium, 2010) the "general" and administration costs used in preliminary economic assessment were $3.30 per ton and "contingency" was $2.00 per ton (not inflated to 2012). For

Copperwood, Michigan the "general" and administration prefeasibility estimate was $3.35 per ton (Orvana, 2011; not inflated to 2012). *The 2012 "general and contingency" for this report are $3.50 per ton.*

8.2 Total Operating Costs at Rates of Production up to 5,000 Tons Per Day

This report will use 2012 total operating costs of $74 per ton at 2,000 tons per day and $56.5 at 5,000 tons per day with an assumed rate of extraction of 95% removal of the resource. These costs will be linearly extrapolated and applied to rates of production between 1,000 and 5,000 tons per day. Based on the optimal life of mine formula as described above, 5,000 tons per day operating cost will be applied to total extracted tonnage of up to 26 million tons (Table 3).

For comparison, total operating costs at copper – nickel-PGE Lac des Iles deposit are estimated at about $56 per ton (scaled to include backfill) at about 6,000 tons per day (North American Palladium, 2010). The lead-zinc-silver-copper Pitarrilla property pre-feasibility study reported total operating costs adjusted for shaft access and inflation of $39.5 per ton for a combination of backfilled room and pillar and long-hole stoping mining at the rate of 4,000 tons per day (Silver Standard, 2009). The nickel-copper-PGE-gold Eagle's Nest property has estimated total operating cost of $79 per ton for bulk stoping with cemented backfill at 4,500 tons per day production (Noront Resources, 2011). AGP (AGP, 2011) long-hole open stoping mining costs when combined with mineral processing and "general and contingency" costs yield total operating costs of between about $50 and $59 at 5,000 tons per day of production. The copper-nickel-PGE Podolsky Mine, Levack Mine, McCreedy West Mine in the Sudbury district utilize a combination of long-hole open stoping with cemented and uncemented backfill, cut and fill, and shrinkage have an average total operating cost of $88 per ton between 1,250 and 2,250 tons per day (FNX, 2009). The nickel-copper Lockerby Mine, in the Sudbury district, has estimated total operating costs of approximately $160 per ton using sublevel long-hole stoping with cemented backfill at approximately 1,000 tons per day production (First Nickel, 2011) as contrasted with the nickel-copper-cobalt-PGE-gold Bucko Mine, Manitoba which has estimated total operating costs of approximately $72 per ton using Long-hole stoping with cemented backfill at approximately 1,000 tons per day production (Crowflight Minerals Inc., 2009). In comparison, the linearly projected 1,000 ton per day total operating cost to be used in this report is approximately $80. While these comparisons demonstrate the difficulty in assigning a total operating cost lacking site specific data, they nevertheless support that the 2012 total operating costs used in this report are reasonable and within the level of error usually assumed at this level of assessment.

8.3 Discussion of Operating Costs at Rates of Production Between 5,000 to 15,000 Tons Per Day

The technical feasibility of mining of more than 50 million tons by underground methods from the shallow open-pit (Figure 2) is speculative. AGP (AGP, 2011) describes

probable openings of 45 to 100 feet high for extracted tonnage on the order of 10 million tons. For larger amounts of extracted tonnage (> 26 million tons) larger cumulative openings will increase the difficulty of mining. In spite of this technical uncertainty, tonnages up to 100 million will be assessed with rates of extraction of up to 15,000 tons per day.

Above 5,000-7,500 tons per day the rate of change in operating costs decreases as operating costs approach a 'minimum.' Estimating the operating cost of underground mining large tonnages at such shallow depths while avoiding collapse is difficult. InfoMine cost models are for standard underground mining and thus, will provide a cost minimum that is likely to be too low as applied to mining large tonnages underground at NorthMet in the shallow confines of the open-pit. InfoMine cost models (InfoMine USA, 2009) demonstrate that operating cost for long-hole open stoping with sand backfill begins to approach a "minimum" cost at about 3,600 tons per day; the rate of change from 3,600 to 7,200 tons per day is less. The operating cost of room and pillar mining and other mining methods, including backfill, tend to approach a "minimum" cost between 4,000 to 10,000 tons per day production. Applying the rate of change associated with backfilled room and pillar mining to a $40 per ton mining operating cost at 5,000 tons per day, yields an estimated underground mining operating cost of $28 per ton at 7,500 tons per day. Applying the rate of change associated with long-hole open stoping with sand backfill, to a $40 per ton mining operating cost at 5,000 tons per day, yields an estimated operating cost of $39 per ton at 7,500 tons per day production. Since long-hole open stoping reaches a minimum operating cost near 5,000 tons per day the difference between the mining operating cost at 5,000 and 7,500 tons per day is small.

As daily production increases from 7,500 to 15,000 tons per day it is expected that operating costs may be lower due to increased efficiencies related to scale but equally likely it is expected that operating costs may be even higher than increased efficiencies due to complexities of removal of such a large thickness of rock at such shallow depths while avoiding collapse. *Hence, for this report the same underground mining operating cost estimate will be used for 7,500, 10,000 and 15,000 tons per day production; $33 per ton 2012 underground mining operating cost without "general and contingency".*

Comparisons of mining costs from operating or proposed mines for high daily rates of underground production are more difficult to obtain and large daily rates of underground extraction with backfill are less common. In addition, differences with a possible NorthMet setting may render the comparison invalid. The Young-Davidson gold mine in Ontario utilizes a combination of sublevel caving, long-hole shrinkage, and longitudinal retreat with paste backfill and unconsolidated rock fill (www.auricogold.com). The underground mining operating cost is $32 to $34 per ton at 8,000 tons per day (www.auricogold.com). The Blue River tantalum-niobium mine, BC Canada, proposes using room and pillar mining with paste backfill to recover 70% of the orebody at a 2012 estimated mining cost of $32 per ton at 7,500 tons per day (AMEC, 2012). A Press Release by Commerce Resources Corp. states that the $32 per ton mining cost can be lowered to $22 with the elimination of backfilling (www.commerceresources.com); the

latter $22 is consistent with InfoMine (InfoMine USA, 2009) room and pillar mining with no backfill cost estimate of $23. These comparisons demonstrate the 2012 underground mining operating costs used in this report are reasonable and within the level of error usually assumed at this level of assessment.

Cost models for mineral processing at all levels of daily production are applicable for this economic assessment. A three concentrate flotation mill cost model from InfoMine (InfoMine USA, 2009) is the closest approximation to mineral processing of a complex ore such as NorthMet with costs of about $12.5, $12, and $10.5 per ton for 7,500, 10,000 and 15,000 tons per day production respectively without "general and contingency". *The 2012 operating cost for mineral processing used in this report will be $12.5, $12, and $10.5 per ton for 7,500, 10,000 and 15,000 tons per day production respectively without "general and contingency".*

The same "general and contingency" used for 1,000 to 5,000 tons per day production will be used for higher levels of daily production.

8.4 Total Operating Costs at Rates of Production Between 5,000 to 15,000 Tons Per Day

Total 2012 operating costs in this report will be $49, $48.5, and $47 per ton for 7,500, 10,000 and 15,000 tons per day production.

Comparisons of total operating costs from operating or proposed mines for high daily rates of underground production are more difficult to obtain. The Williams Mine, Marathon, Ontario uses longhole stoping with paste backfill to underground mine and process simple gold ore with an average grade of about 2.35 g/ton gold at a daily rate of about 8,500 tons per day (www.barrick.com). The total cash operating cost (includes limited amount of lower cost openpit mining) is about $775 per oz. for 2011 and $834 for the 1st quarter of 2012 (www.barrick.com). The estimated total operating cost is $58.5 per ton for 2011 and $63 per ton for the beginning of 2012. The Brunswick Mine, New Brunswick, Canada uses open stoping and end slicing with paste backfill to mine a zinc, lead, copper, and silver ore with about 8.3% zinc at the rate of about 10,000 tons per day (www.xstrata.com). Presentation materials by Xstrata shows that the Brunswick Mine has total cash operating costs higher than the other principal source of zinc for North America zinc operations and from a cash cost of $0.32 to 0.40 per lb of zinc, an estimated total operating cost is $53 to $66 per ton, but this is an uncertain estimate. The YoungDavidson gold mine in Ontario utilizes a combination of sublevel caving, longhole shrinkage, and longitudinal retreat with paste backfill and unconsolidated rock fill with estimated total operating cost of $45 to 51 per ton 8,000 tons per day (www.auricogold.com). These comparisons demonstrate the 2012 total operating costs used in this report are reasonable and within the level of error usually assumed at this level of assessment.

9 Pre-Production Capital Costs

For this economic assessment, estimates of pre-production capital costs are made from cost models, such as InfoMine USA, Inc., and are compared to and supplemented by selected operating and proposed mines. All costs are inflated to 2012 level based on the average rate of change in InfoMine cost models from 1998 to 2009.

Capital cost models are usually subdivided according to mining or processing method and daily rate of production. Capital costs are linearly related to daily rate of production from about 1,000 to 7,500 tons per day depending on mining and processing method (InfoMine USA, 2009). Increments of extractable tonnage and daily rate of production will be used in this study and for each increment a single capital cost will be assigned.

The pre-production capital cost of room and pillar underground mining using shaft access without backfill from InfoMine (InfoMine USA, 2009) is about $60 million, $95 million, and $125 million for 2,000 and 5,000, 7,500 tons per day production respectively without "contingency", environment, closure, and reclamation. The capital cost for long-hole open stoping with sand backfill and shaft access from InfoMine (InfoMine USA, 2009) is about $45 million, $80 million, and $115 million for 2,000 and 5,000, 7,500 tons per day production respectively without "contingency", environment, closure, and reclamation. Capital cost for mechanized cut and fill is about $60 million for 2,000 tons per day production without "contingency", environment, closure, reclamation. A three concentrate flotation mill cost model from InfoMine (InfoMine USA, 2009) is the closest approximation to mineral processing of a complex ore such as NorthMet with a capital cost of about $47 million, $71 million, and $98 million 2,000, 5,000, and 7,500 tons per day production respectively without "contingency", environment, closure, reclamation. The InfoMine cost model estimates of total pre-production capital cost are about $110 million, $170 million, and $225 million without "contingency", environment, closure, reclamation. For comparison, room and pillar mining without backfill and a one concentrate mineral processing plant at Copperwood, Michigan has a prefeasibility estimated pre-production capital cost of approximately $205 million at 7,500 tons per day without closure and sustaining capital (Orvana, 2011). A preliminary economic assessment for Lac des Iles in Thunder Bay, Ontario for complex ore with a similar suite of metals has an estimated pre-production capital cost of approximately $220 million at about 6,000 tons per day including "contingency" capital but without development and sustaining capital (North American Palladium, 2010). AGP (AGP, 2011) estimated that long-hole open stoping with backfill capital cost is approximately $190 million at 5,000 tons per day. The comparisons suggest that the pre-production capital cost InfoMine estimates are reasonable although more likely low because these estimates do not include "contingency" and pre-production expenditures especially exploration, permitting and environmental analysis. To develop underground mining at NorthMet a significant amount of additional exploration drilling is likely.

The 2012 pre-production capital costs with "contingency" for this report are estimated to be $125 million, $200 million, and $250 million for 1-2,000, 5,000, and 7,500 tons per day production but without environment, closure and reclamation. Linear extrapolation

yields 2012 pre-production capital cost of about $300 million and $400 million for 10,000 and 15,000 tons per day production.

10 Other Considerations

Inflation during production is not considered in this report. Inflation of costs is assumed to be offset by increases in the metal prices. The estimated federal and state tax on operating profits after depreciation and depletion is a significant cost that will lower the internal rate of return in cases when operating profit exceeds pre-production capital costs. Pre-production capital costs are assumed to be equity financed and thereby eliminating the cost of debt. The royalty applicable to this report for NorthMet is 5%.

11 Analysis of Economic Viability

The economic assessment in this report for the NorthMet deposit uses tonnage and grades specific to NorthMet, rates of recovery and refining deductions specific to NorthMet, current metal prices consistent with NI 43-101 reporting standards, total operating costs and pre-production capital costs from published cost models that are validated by comparable projects and mines, and the actual royalty specific for NorthMet. Based on optimal formula, the productive life of an underground mine was determined for increments of tonnages from <4 to 100 million tons and from these numbers the daily rate of production was calculated (Table 3). For each increment the daily rate of production was fixed to simplify the analysis since total operating costs and total pre-production capital costs are closely related to the daily rate of production; for simple cash flow analysis the productive life of mine rounded to the nearest year based on the life of mine calculated from daily production and total tonnage. A total operating cost and total pre-production capital cost, as in Sections 8 and 9, was assigned to each increment based on daily rate of production (Table 3).

A spectrum of extracted tonnages was assessed (Table 4). For each specific pre-extraction tonnage, an *in situ* average net metal value per ton was calculated by log10 linear extrapolation between adjacent pairs on the tonnage-average net metal value per ton curve. A rate of extraction of 95% removal of the resource was used in determining the total extracted value without dilution. A 5% dilution was used with the diluting average net metal value per ton calculated by log 10 linear extrapolation assuming the diluting rock has a value in continuum with the pre-extraction tonnage. The total net metal value was calculated for the pre-extraction cumulative tonnage and dilution minus the yearly treatment charge (Table 4). The extracted tonnage was multiplied by the total operating cost per ton to estimate the total operating cost. Operating profit was calculated by subtracting total operating cost from total revenue minus royalty. Pre-tax operating profit minus pre-production capital costs is also calculated (Table 4).

The "rules-of-thumb" is that operating cost should be about ½ of the total net metal revenue after royalty and the remaining ½ is generally sufficient to cover taxes, capital costs, and profit (Wellmer, 1998). On this basis, underground mining is not likely to be economically viable at NorthMet.

For tonnages with a negative operating profit or a loss, underground mining is not economically viable. For all extracted tons, except 30 and 35 million, there is a predicted operating loss or underground mining at these tonnages is not economically viable. The total operating profit has to exceed the total pre-production capital cost else the mining project is not economically viable; the initial investment is not recovered. *At all tonnages the total operating profit minus the total pre-production capital cost is negative or in other words for all tonnages underground mining is not economically viable.*

12 Discussion and Conclusions

This report assesses the economic viability of extracting the NorthMet deposit by underground mining methods. Due to the higher cost of underground mining as compared to open-pit mining, if the NorthMet deposit was extracted by underground mining a significant amount of the lower grade materials would inevitability be left behind or lost from a socio-economic perspective. This economic assessment utilizes reasonable estimates of input variables to answer the question: Is there a prospect of economically viable extraction of a portion of the NorthMet deposit by underground mining?

The volume/tonnage and grade of mineralized rock are defined using open-pit defined resource numbers rather than potentially more restrictive underground mining criteria and may result in an overly optimistic economic assessment. The metal prices are defined using a three-year trailing average and do not account for the risk of lower prices with no change in costs. While the total operating costs are less precise, they are demonstrably within acceptable error for this level of economic assessment. The operating costs do not include operating capital expenditures. While the total pre-production capital costs are also less precise, they too are demonstrably within acceptable error for this level of economic assessment. These estimates are more likely to be too low than too high since they do not fully account for capital costs associated with the environment, closure and reclamation.

Early studies of the NorthMet deposit concluded that the tonnages and grades were not sufficient to support underground mining. *This economic assessment of conceptual underground mining of the NorthMet deposit demonstrates that underground mining methods are not economically viable. Based on this assessment, there is no prospect of economically viable extraction of a portion of the NorthMet deposit by underground mining.*

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Tables

Table 1

Metal Prices, Recovery, and Refining Costs Used for Economic Assessment of Conceptual Underground Mining at NorthMet

Metal	Pricing Units	Metal Price[1] $	Recovery from Ore[2] %	Third Party Processing Concentrate Recovery and Payout[2] %	Refining Cost[2] $
Cu	lbs	3.56	94.2	96.5	0.04
Ni	lbs	9.47	71.2	78.0	0.16
Co	lbs	17.69	41.2	55.1	0.00
Pt	troy oz	1,689	77.9	92.0	4.97
Pd	troy oz	684	74.4	81.9	4.17
Au	troy oz	1,485	71.7	67.7	1.83

Notes:

1 - Metal Price model calculated as of June 30, 2012 by PolyMet (personal communication).

2 - Recovery from ore to concentrate, third-party payout, refining cost and treatment charge of $3.5 million per year provided to Theodore J. Bornhorst, LLC by Polymet (personal communication); treatment charge applied during economic analysis.

Prepared by: SVK
Checked by: JSL

Table 2
Cumulative Measured and Indicated Tonnage and Average Net Metal Value per Ton for NorthMet Deposit

Cumulative Measured and Indicated Short Tons[1]	Average Net Metal Value ($) per short ton
227,017,162	33.18
145,066,201	39.86
76,373,821	47.46
30,369,759	55.66
7,817,279	65.37
1,682,328	76.72
509,229	85.54
85,614	96.77

Notes:

1 - Cumulative measured and indicated tonnage and associated grade provided by AGP (personal communication).

Analysis by: TJB
Prepared by: SVK
Checked by: JSL

Table 3

Total Operating and Total Pre-Production Capital Costs Applied to Economic Assessment of Conceptual Underground Mining at NorthMet

Extracted Tonnage million short tons	Underground Daily Rate of Production tons/day	Productive Life of Mine ~ years	Total Operating Costs $/ton	Total Pre-production Capital Costs $
<4	1,000	5 to 11	80.00	125,000,000.00
4 to 6	2,000	6 to 8	74.00	125,000,000.00
7 to 13	3,000	6 to 12	68.20	150,000,000.00
13 to 18	4,000	9 to 12	62.30	175,000,000.00
18 to 26	5,000	10 to 14	56.50	200,000,000.00
26 to 50	7,500	10 to 18	49.00	250,000,000.00
51 to 75	10,000	14 to 21	48.50	300,000,000.00
75 to 100	15,000	14 to 18	47.00	400,000,000.00

Note:
Incremental extractable tonnages, total operating costs, and total pre-production capital costs based on text discussion.

Analysis by: TJB
Prepared by: SVK
Checked by: JSL

Table 4

Economic Analysis of Underground Mining of the NorthMet Deposit

Extracted Tonnage at 95 % rate of extraction and 5 % dilution tons	Total extracted net metal value $	Total revenue (average net metal value minus 5 % royalty) $	Total Operating Cost $	Operating Profit (Revenue minus operating cost) $	Pre-production capital cost $	Operating Profit minus pre-production capital costs $	Daily production tons	Life of mine for economic analysis years
2,000,000	129,847,971.83	123,355,573.24	160,000,000.00	-36,644,426.76	125,000,000.00	-161,644,426.76	1,000	6
5,000,000	318,769,570.88	302,831,092.34	370,000,000.00	-67,168,907.66	125,000,000.00	-192,168,907.66	2,000	7
10,000,000	604,406,603.41	574,186,273.24	682,000,000.00	-107,813,726.76	150,000,000.00	-257,813,726.76	3,000	9
15,000,000	875,343,935.13	831,576,738.38	934,500,000.00	-102,923,261.62	175,000,000.00	-277,923,261.62	4,000	10
20,000,000	1,134,125,150.76	1,077,418,893.23	1,130,000,000.00	-52,581,106.77	200,000,000.00	-252,581,106.77	5,000	11
25,000,000	1,376,867,161.05	1,308,023,803.00	1,412,500,000.00	-104,476,197.00	200,000,000.00	-304,476,197.00	5,000	14
30,000,000	1,633,916,992.93	1,552,221,143.28	1,470,000,000.00	82,221,143.28	250,000,000.00	-167,778,856.72	7,500	11
35,000,000	1,857,679,184.93	1,764,795,225.68	1,715,000,000.00	49,795,225.68	250,000,000.00	-200,204,774.32	7,500	13
50,000,000	2,511,252,374.91	2,385,689,756.16	2,450,000,000.00	-64,310,243.84	250,000,000.00	-314,310,243.84	10,000	14
75,000,000	3,496,138,949.08	3,321,332,001.63	3,637,500,000.00	-316,167,998.37	300,000,000.00	-616,167,998.37	10,000	21
100,000,000	4,360,816,362.32	4,142,775,544.20	4,700,000,000.00	-557,224,455.80	400,000,000.00	-957,224,455.80	15,000	18

Notes:

- In situ average net metal value per ton from Table 2 determined for specific tonnage by log 10 linear extrapolation minus treatment charge.
- Applicable day rate of production and associated total operating costs and pre-production capital costs from Table 3. Economic analysis life of mine based on day rate of production rounded to even year; once life of mine is fixed daily rate of production allowed to vary to accommodate rounding in simple cash flow analysis.
- Rate of extraction and dilution discussed in text. Total extracted net metal value includes deduction for treatment charge as given in Table 1.

Analysis by: TJB
Prepared by: SVK
Checked by: JSL

Figures

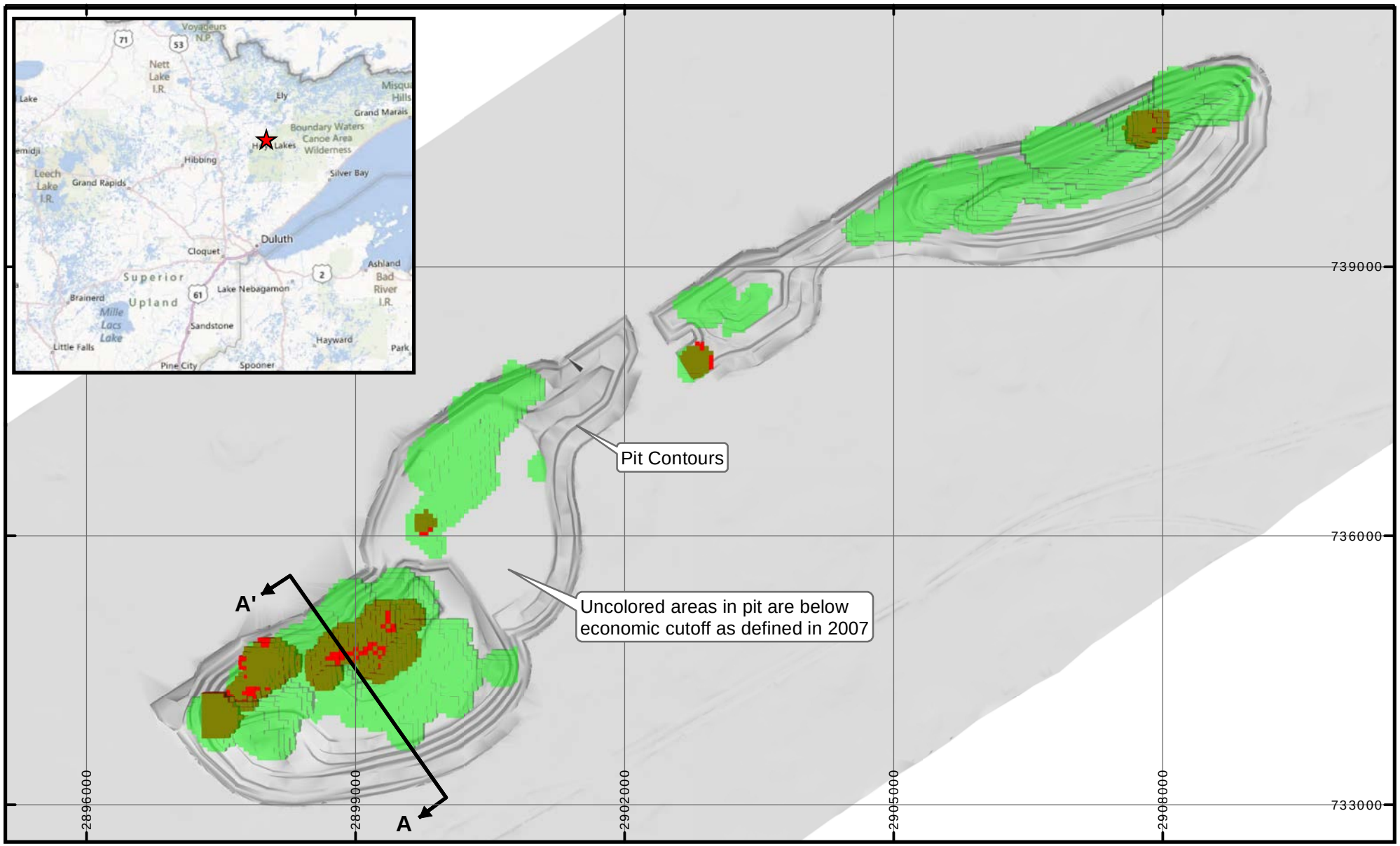

LEGEND

- Blocks in Open Pit Resource less than $65/ton average net metal value and above economic cutoff as defined in 2007
- Blocks in Open Pit Resource where less than $65/ton average net metal value rock overlies greater than $65/ton rock
- Blocks in Open Pit Resource Greater than $65/ton average net metal value

NOTES

1. Data from block model used in PolyMet (2007) provided by AGP.

PolyMet Mining

Foth

N

Foth Infrastructure & Environment, LLC			
REVISED	DATE	BY	DESCRIPTION

CHECKED BY: JSL	DATE: SEP. '12
APPROVED BY: TJB	DATE: SEP. '12
APPROVED BY:	DATE:

POLYMET MINING

FIGURE 1

SURFACE PLAN VIEW
BLOCK MODEL FOR NORTHMET

Scale: 0 750 1,500 Feet

Date: AUGUST 2012

Prepared by: DAT

Project No: 12P778

Path: X:\GB\IE\2012\12P778\GIS\mxd\Figure1.mxd Date: 10/22/2012

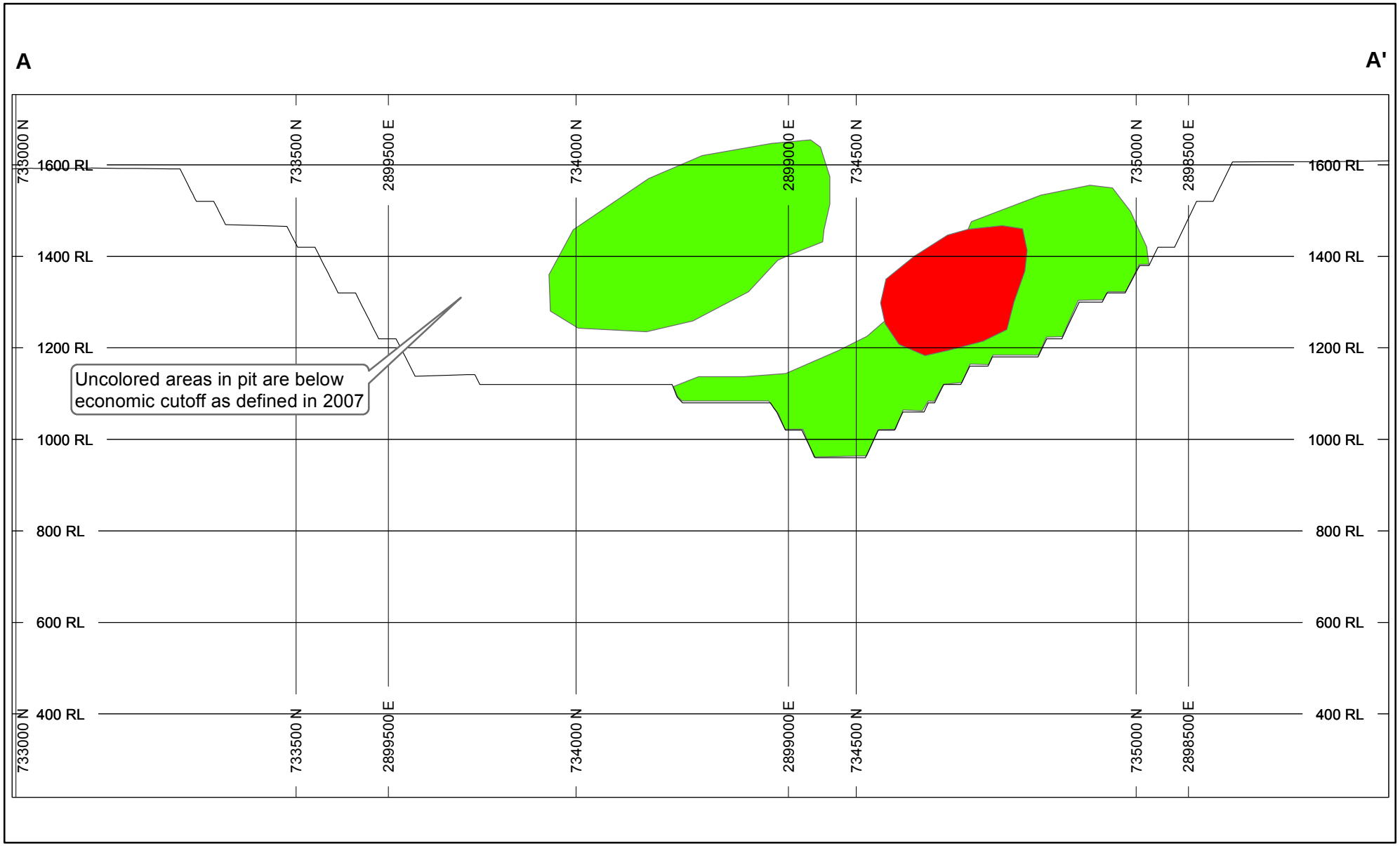

LEGEND

- Blocks in Open Pit Resource less than $65/ton average net metal value and above economic cutoff as defined in 2007
- Blocks in Open Pit Resource Greater than $65/ton average net metal value

NOTES

1. Data from block model used in PolyMet (2007) provided by AGP.

PolyMet Mining

Foth

N

Foth Infrastructure & Environment, LLC			
REVISED	DATE	BY	DESCRIPTION

CHECKED BY: JSL	DATE: SEP. '12
APPROVED BY: TJB	DATE: SEP. '12
APPROVED BY:	DATE:

POLYMET MINING

FIGURE 2
CROSS SECTION A-A'
BLOCK MODEL FOR NORTHMET.
LOCATION SHOWN IN FIGURE 1.

Scale: 0 750 1,500 Feet

Date: AUGUST 2012

Prepared by: DAT

Project No: 12P778

Path: X:\GB\IE\2012\12P778\GIS\mxd\Figure2.mxd Date: 10/22/2012

Fig 3. Tonnage vs. Average Net Metal Value

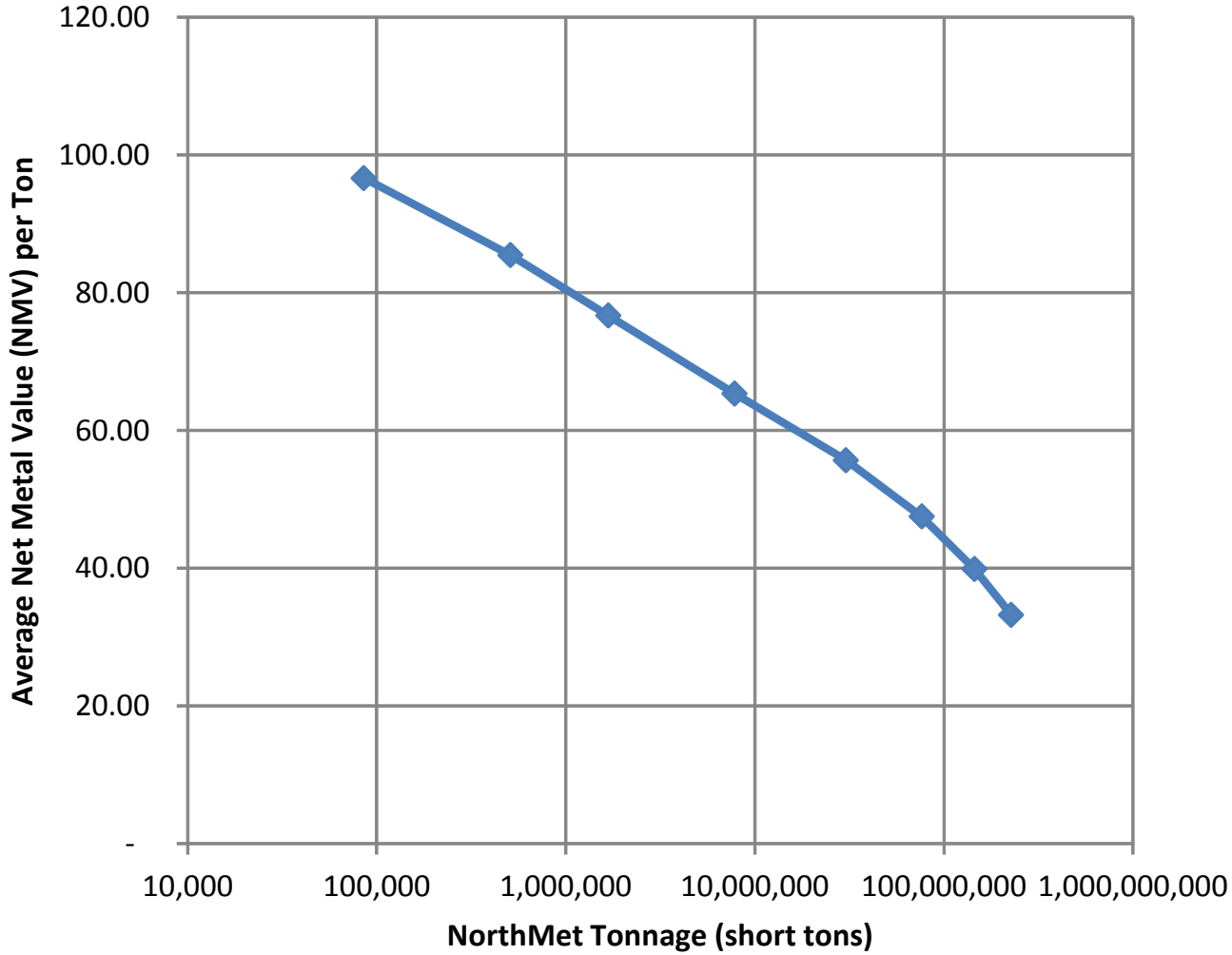

NOTES
1. Data from block model used in PolyMet (2007) provided by AGP.

PolyMet Mining

Foth

Foth Infrastructure & Environment, LLC			
REVISED	DATE	BY	DESCRIPTION

CHECKED BY: JSL	DATE: SEP, '12
APPROVED BY: TJB	DATE: SEP, '12
APPROVED BY:	DATE:

N

POLYMET MINING

FIGURE 3

TONNAGE VERSUS AVERAGE NET METAL VALUE PER TON FOR NORTHMET DEPOSIT

Scale: AS SHOWN	Date: AUGUST 2012
Prepared by: DAT	Project No: 12P777

Path: X:\GB\IE\2012\12P778\GIS\mxd\Figure3.mxd Date: 10/23/2012

Attachment 2
Foth 2013, Memorandum: Response to USEPA Questions Regarding: Economic Assessment of Underground Mining Report Dated October 2012

Memorandum

Foth Infrastructure & Environment, LLC
2737 South Ridge Road, Suite 600
P.O. Box 12326 • Green Bay, WI 54307-2326
(920) 497-2500 • Fax: (920) 497-8516
www.foth.com

May 10, 2013

TO: Brad Moore, Poly Met Mining, Inc.

CC: Steve Donohue, Foth Infrastructure & Environment, LLC
Master File: 12P778 - 5001

FR: Theodore J. Bornhorst, LLC
Jeff Lynott, Foth Infrastructure & Environment, LLC

RE: Response to USEPA Questions Regarding: Economic Assessment of Underground Mining Report Dated October 2012

The following document addresses the United States Environmental Protection Agency (EPA) comments and suggestions in their memo dated March 19, 2013 related to InfoMine, analog data, and inferred ore deposits.

InfoMine Parameters/Use of Analog Data

InfoMine cost data is a common source of information for mineral resource evaluation, but it has not been used exclusively to determine the economic viability of underground mining of the NorthMet Deposit. The October 2012 report also includes additional references to other mining project cost estimates to cross-validate the cost estimates used in the report.

The EPA response letter, dated March 19, 2013, requests additional documentation of the parameters and calculations with respect to the cost estimates. A list of costs used to arrive at the total cost is provided in the attached Table A. The mining, processing, and general and contingency costs are described in detail in the text of the report (Sections 8.1, 8.2, 8.3, and 8.4). The InfoMine cost models are given in increments of production rate. InfoMine model cost versus production rate graphs were used to estimate the cost at the production rate cited in the report. In some cases, the InfoMine cost estimates were adjusted to include cemented backfill as cited in the text. All InfoMine 2009 costs were inflated to 2012 levels based on the average rate of change in the InfoMine models from 1998 to 2009. The total operating costs given in Table 4 of the report are derived by multiplication of the extracted tonnage at 95% rate of

extraction and 5% dilution column times the total operating cost from Table 3 for the applicable daily rate of production.

Models at all levels include a degree of uncertainty. The report includes cross-validation of the cost estimates to decrease the degree of uncertainty even though an analysis of uncertainty of the cost estimates is not usually done at the stage of defining a mineral resource as described in the report. However, as suggested in the EPA response letter, dated March 19, 2013, the economic analysis was completed using 5% lower costs (best economic case) as given in the attached Table B. Table C, attached, provides an economic analysis using data from the original Tables 1 and 2 in the report, and Table B provided here, and further demonstrates underground mining is not economically viable.

Inferred Ore Deposits

Economic evaluation of mineral prospects follows a progressive path beginning with initial determination of a mineral resource, followed by a scoping study or preliminary economic assessment, and then pre-feasibility, and feasibility studies. A mine feasibility study is typically done when there has been sufficient drilling to define an ore body of sufficient size to be economically as well as technically viable. In most cases there is not a hard boundary to the mineralization. Therefore, exploration to define the initial ore body will generally identify mineralization beyond the actual ore body.

The NorthMet feasibility study and all of the analysis in the environmental review and proposed permit applications relate to the ore body. The company has not considered whether mineralization outside the defined pit envelope may be economically recoverable or by what means it could be economically recoverable, or what additional work would be needed to establish a data base of sufficient statistical quality to be able complete a feasibility study on such mineralization.

In the analysis of underground mining potential, we deliberately used very favorable scoping numbers in order to show potential underground mining economics in a positive light, yet the project still fails on the most fundamental economic grounds – revenues from the sale of product would not cover the cost of building and operating the project. AGP included mineralization that is outside the pit envelope even though there is insufficient information on this mineralization to be able to do more than a speculative, conjectural analysis. As discussed in the report, this mineralization does not meet Securities and Exchange Commission standards to be described as reserves under any mining method. Additionally, inferred mineral resources are speculative and are not allowed in economic assessment studies that conform with NI 43-101.

Attachments

Table A

Total Operating and Total Pre-production Capital Costs Applicable for Underground Mining at Incremental Extractable Tonnages

Extracted Tonnage million short tons	Underground Daily Rate of Production tons per day	Productive Life of Mine ~ years	Mining Operating Costs dollars per ton	Processing Operating Costs dollars per ton	General and Contingency Costs dollars per ton	Total Operating Costs dollars per ton
<4	1,000	5 to 11	54.67[1]	21.67[1]	3.5	80[2]
4 to 6	2,000	6 to 8	51	19.5	3.5	74.0
7 to 13	3,000	6 to 12	47.33[1]	17.33[1]	3.5	68.2
13 to 18	4,000	9 to 12	43.67[1]	15.17[1]	3.5	62.3
18 to 26	5,000	10 to 14	40	13	3.5	56.5
26 to 50	7,500	10 to 18	33	12.5	3.5	49.0
51 to 75	10,000	14 to 21	33	12	3.5	48.5
75 to 100	15,000	14 to 18	33	10.5	3.5	47.0

[1] Linear extrapolation using tons per day

[2] Total rounded up 0.16

Prepared By: JSL
Checked By: TJB

Table B

Total Operating and Total Pre-production Capital Costs Applicable for Underground Mining at Incremental Extractable Tonnages

Extracted Tonnage million short tons	Underground Daily Rate of Production tons per day	Productive Life of Mine ~ years	Base Case Total Operating Costs dollars per ton	5% Below Base Case Total Operating Costs dollars per ton	Total Pre-production Capital Costs dollars
<4	1,000	5 to 11	$80.0	$76.0	$125,000,000
4 to 6	2,000	6 to 8	$74.0	$70.3	$125,000,000
7 to 13	3,000	6 to 12	$68.2	$64.8	$150,000,000
13 to 18	4,000	9 to 12	$62.3	$59.2	$175,000,000
18 to 26	5,000	10 to 14	$56.5	$53.7	$200,000,000
26 to 50	7,500	10 to 18	$49.0	$46.6	$250,000,000
51 to 75	10,000	14 to 21	$48.5	$46.1	$300,000,000
75 to 100	15,000	14 to 18	$47.0	$44.7	$400,000,000

Prepared By: TJB
Checked By: JSL

Table C

Five Percent Below Base Case Costs Economic Analysis of Underground Mining of the Open-pit Resource at NorthMet

Extracted tonnage at 95% rate of extraction and 5% dilution tons	Total extracted net metal value dollars	Total revenue (net metal value minus 5% royalty) dollars	Total operating cost 5% below base case dollars	Operating profit (revenue minus operating cost 5% below base case) dollars	Pre-production capital cost dollars	Operating profit minus pre-production capital costs with operating costs 5% below base case dollars	Daily production tons	Life of mine for economic analysis years
2,000,000	$129,847,972	$123,355,573	$152,000,000	-$28,644,427	$125,000,000	-$153,644,427	1,000	6
5,000,000	$318,769,571	$302,831,092	$351,500,000	-$48,668,908	$125,000,000	-$173,668,908	2,000	7
10,000,000	$604,406,603	$574,186,273	$648,000,000	-$73,813,727	$150,000,000	-$223,813,727	3,000	9
15,000,000	$875,343,935	$831,576,738	$888,000,000	-$56,423,262	$175,000,000	-$231,423,262	4,000	10
20,000,000	$1,134,125,151	$1,077,418,893	$1,074,000,000	$3,418,893	$200,000,000	-$196,581,107	5,000	11
25,000,000	$1,376,867,161	$1,308,023,803	$1,342,500,000	-$34,476,197	$200,000,000	-$234,476,197	5,000	14
30,000,000	$1,633,916,993	$1,552,221,143	$1,398,000,000	$154,221,143	$250,000,000	-$95,778,857	7,500	11
35,000,000	$1,857,679,185	$1,764,795,226	$1,631,000,000	$133,795,226	$250,000,000	-$116,204,774	7,500	13
50,000,000	$2,511,252,375	$2,385,689,756	$2,330,000,000	$55,689,756	$250,000,000	-$194,310,244	10,000	14
75,000,000	$3,496,138,949	$3,321,332,002	$3,457,500,000	$208,701,494	$300,000,000	-$91,298,506	10,000	21
100,000,000	$4,360,816,362	$4,142,775,544	$4,470,000,000	-$327,224,456	$400,000,000	-$727,224,456	15,000	18

Notes:

- All table references refer to the Economic Assessment of Conceptual Underground Mining Option for the NorthMet Project October 2012.
- In situ net metal value from Table 2 determined for specific tonnage by log 10 linear extrapolation.
- Applicable day rate of production and associated total operating costs and pre-production capital costs from Table 3. Economic analysis life of mine based on day rate of production rounded to even year; once life of mine is fixed daily rate of production allowed to vary to accommodate rounding in simple cash flow analysis.
- Rate of extraction and dilution discussed in text. Total extracted net metal value includes deduction for treatment charge as given in Table 1.

Prepared By: TJB
Checked By: JSL

Attachment 3
NorthMet Project and Land Exchange Purpose and Need Statement

PURPOSE AND NEED

Applicant's Purpose and Need Statement

The applicant's stated purpose of the NorthMet Project is to exercise PolyMet's mineral lease to continuously mine, via open pit methods, the known ore deposits (NorthMet Deposit) containing copper, nickel, cobalt, and platinum group elements to produce base and precious metal precipitates and flotation concentrates by uninterrupted utilization of the former LTV Steel Mining Company (LTVSMC) processing plant.

The purpose of the proposed Land Exchange is to consolidate the surface and mineral ownership of the lands involved at the Mine Site. PolyMet has a lease to mine the minerals on its NorthMet Deposit, which is surrounded by active and abandoned taconite mines in the mining district near Hoyt Lakes. The surface of these lands is owned by the United States.

The need for the NorthMet Project is driven by domestic and global demand of these products. Demand continues to rise for these metals due to the expansion of the green economy and rising demand from developing countries like India, China, and Brazil. Based on the closure of LTVSMC and other job losses in northeastern Minnesota, there is also a need for jobs and economic development in the area.

Co-lead Agencies' Purpose and Need Statements

NorthMet Project and Land Exchange Purpose and Need Statement

The Purpose and Need for the Combined Proposed Action is:

- For PolyMet to utilize its leased mineral rights and recover commercial quantities and quality of semi-refined metal concentrates, hydroxides, and precipitates from the NorthMet ore body in northern Minnesota, and to process the recovered ore by reutilizing the former LTVSMC processing plant.
- To extract metals in a safe, environmentally responsible, energy-efficient, and economically feasible manner subject to mitigation measures designed to avoid or minimize environmental effects to the extent practicable.
- To extract and process metals in a technically and economically feasible manner, such that there would be sufficient income to cover: operating cost (which includes but is not limited to the cost of mining, processing, transportation, and waste management), capital cost (needed to build and sustain facilities), an adequate return to investors, reclamation, and closure costs and taxes.
- To eliminate surface and mineral conflicts within the Superior National Forest by exchanging federal lands for non-federal lands that have equal or greater value.

USDA, Forest Service

The purpose for the United States Forest Service (USFS) is to meet desired conditions in the Superior National Forest Land and Resource Management Plan (Forest Plan), including ensuring the proposed land exchange Proposed Action eliminates existing conflict and ensuring mineral resources are produced in an environmentally sound manner contributing to economic growth.

In regards to desired conditions for land exchange and mineral development, the Superior National Forest's Forest Plan includes the following direction:

> "D-LA-1 – The amount and spatial arrangement of National Forest System land within the proclamation boundary of the Forest are sufficient to protect resource values and interests, improve management effectiveness, eliminate conflicts, and reduce the costs of administering landlines and managing resources." (Forest Plan, Land Adjustment, pg. 2-51)
>
> "D-MN-2 – Ensure that exploring, developing, and producing mineral resources are conducted in an environmentally sound manner so that they may contribute to economic growth and national defense." (Forest Plan, Minerals, pg. 2-9)

PolyMet intends to exercise private mineral rights that were reserved when lands were conveyed to the United States and has proposed the development of a surface mine. This land was purchased by the USFS, for National Forest purposes, under the authority of the Weeks Act (16 USC 515). The USFS has taken the position that the mineral rights that were reserved do not include the right to surface mine as proposed by PolyMet.

In addition, allowing private surface mining would be inconsistent with USFS legal mandates for acquiring and managing these lands. The USFS needs to resolve this fundamental conflict.

U.S. Army Corps of Engineers

The Purpose and Need of the Proposed Action is to produce base and precious metals precipitates and flotation concentrates from ore mined at the NorthMet Deposit by uninterrupted operation of the former LTVSMC processing plant. The processed resources would help meet domestic and global demand by sale of these products to domestic and world markets.

Minnesota Department of Natural Resources

The Purpose and Need of the Proposed Action is to produce base and precious metals precipitates and flotation concentrates from ore mined at the NorthMet Deposit by uninterrupted operation of the former LTVSMC processing plant. The processed resources would help meet domestic and global demand by sale of these products to domestic and world markets.

Appendix C

Tribal Agency Position Supporting Materials

APPENDIX C – TRIBAL AGENCY POSITION SUPPORTING MATERIALS

Following this page, Appendix C is identical to Appendix C provided in the Supplemental Draft Environmental Impact Statement for the NorthMet Mining Project and Land Exchange.

C1 INTRODUCTION

Appendix C contains Tribal Cooperating Agencies' comments and supporting documentation that represent major differences of opinion with the analyses as presented in the SDEIS. The information was submitted by the Bois Forte, Grand Portage, Fond du Lac, Great Lakes Indian Fish & Wildlife Commission, and the 1854 Treaty Authority. All materials in this appendix are Tribal views provided verbatim and have not been validated or approved by the Co-lead Agencies.

See Chapter 8, Major Differences of Opinion, in the SDEIS for a complete listing of the 18 Tribal issues and summaries, and the Co-lead Agency responses.

Hydrology Section:

The hydrology section of the Tribal SDEIS Appendix consists of documents and reports related to three topics:

1. **Baseflow predictions by XPSWMM vs. measurements of baseflow in the upper Partridge River.**
   The data reported and analysis contained in the five letters and memos in this sub-section highlight the lack of agreement between the low baseflow predicted by the surface water model XPSWMM and the baseflows measured in the field and by continuous stream gauging. Estimates of impacts to the Partridge River and estimates to other surface and groundwaters in the mine site area are dependent on accurate information on river baseflow.

2. **The inability of the GoldSim model to accurately predict current water quality at the mine site or the plant site.**
   The results of the Goldsim modeling highlighted in the email and figure of this sub-section demonstrate that Goldsim does a poor job in predicting current ground and surface water quality. In some cases GoldSim mis-predicts water quality by more than 400%. Accurate prediction of current water quality by a model such as GoldSim is an easier task than predicting future water quality, given the uncertainty of input variables in the future. GoldSim's inability to accurately predict <u>current</u> water quality indicates it is poorly suited for predicting <u>future</u> water quality.

3. **The lack of inclusion of reasonably foreseeable events in the SDEIS No-Action Alternative modeling.**
   The documents and email in this sub-section highlight the CEQ requirement that "where a choice of "no action" by the agency would result in predictable actions by others, this consequence of the "no action" alternative should be included in the analysis." The no-action alternative analysis of future water quality used in the SDEIS includes nothing except continuation of the current water quality. This SDEIS No-Action alternative is so extremely unrealistic so as to not even include the dilution effects of precipitation on existing tailings basin water when predicting future water quality.

Sub-section 1

Baseflow predictions by XPSWMM vs. measurements of baseflow in the upper Partridge River.

Subject:	Partridge River baseflow, draft analysis of new data suggest XP-SWMM estimate inaccurate
From:	"john.coleman" <jcoleman@glifwc.org>
Date:	7/2/2013 11:56 AM
Attachments:	Baseflow_calibration_v2012-03-02.pdf (32.2 KB), 2012-06-12_baseflow info re NorthMet EIS Mine Site Hydrology Teleconference.eml (2.8 KB), 2012-06-18_watershed ratio predicts baseflow of 1.2cfs at SW-004 Re Model Calibration, NorthMet EIS.eml (3.1 KB), 2008-09-28_further comments on RS22 AppenB Draft-03.htm (4.5 KB)
CC:	"Sedlacek.Michael@epamail.epa.gov" <Sedlacek.Michael@epamail.epa.gov>, "Grimes.James@epamail.epa.gov" <Grimes.James@epamail.epa.gov>
To:	thomas hingsberger <thomas.j.hingsberger@usace.army.mil>, Ross Vellacott <Ross.Vellacott@erm.com>, "Shirley Frank (USFS)" <safrank@fs.fed.us>, "Bill Johnson (MN-DNR)" <Bill.Johnson@state.mn.us>, "Lisa Fay (MN-DNR)" <lisa.fay@state.mn.us>

To: Polymet EIS Co-leads 2013-07-02

From: John Coleman, GLIFWC

Re: Partridge River baseflow, draft analysis of new data suggest XP-SWMM estimate inaccurate

We remain concerned that the basic hydrology of the mine site is mis-characterized as being very non-conductive. The baseflow in the Partridge is a fundamental parameter to which many flow and contaminant transport models are calibrated. Unfortunate the baseflow at the site used in impact prediction is an estimate make by XP-SWMM. XP-SWMM appears to do a poor job of predicting baseflow at the mine site, possibly because it is based on a data set collected 17 miles downstream.

As we note in our recently submitted PSDEIS comments, the MDNR winter flow measurements in the PSDEIS (Table 4.2.2-9) indicate substantially higher baseflow in the Partridge than predicted by XP-SWMM. This is true even when the flow data is corrected for any possible Northshore (NS) discharge to the Partridge by subtracting the farthest upstream measurement from measurements taken farther downstream.

Even more compelling than the winter MDNR flow measurements is the flow data that has been recorded at the Dunka Road gage over the last 2 years. I have again calculated some statistics on the flow measurements taken at the Partridge River & Dunka Road, also known as monitoring site SW003. (http://www.dnr.state.mn.us/waters/csg/site_report.html?mode=get_site_report&site=03155002)
Earlier comments on this topic are attached and previous analysis was submitted to the lead agencies by email on 2012-06-12, 2012-06-18, and on 2008-09-28 (attached).

The stage and flow values measured by stream gage are available at 15 minute intervals. Based on 66,581 stage records collected between May 2011 and April 2013 and the DNR rating curve, I found:

Q90 at SW003 = 2.32 cfs (90% of the time flow was greater than 2.32 cfs) Q90 is sometimes used as an indicator of baseflow

Using 586 daily average flows from 2011-05-26 to 2012-12-31 calculated by the DNR and accounting for winter ice conditions, I found:
Q90 at SW003 = 1.9 cfs

Given that Northshore Peter Mitchel (PM) pit intermittently discharges to the Partridge River, I also analyzed 3 months in 2011 (Jul,Aug,Sep) and 3 months in 2012 (Feb,Mar,Apr) **when Northshore (NS) discharged zero (0) gallons** into the Partridge River.
Based on average daily flows calculated by the DNR:
In the 3 months of no NS pit discharge in 2011 Q90 at SW003 = 1.8 cfs
In the 3 months of no NS pit discharge in 2012 Q90 at SW003 = 1.1 cfs

Given that both these 3-month periods are typically low flow times, it seems that a baseflow estimate for site SW003 of 1 - 2 cfs would be reasonable.
While analysis based on only 6 months of flow data is not ideal, it should be noted that the XP-SWMM model is calibrated to only 2 months when Northshore did not discharge to the Partridge in 1985 (PSDEIS page 4.2.2-44, 1st paragraph).

Neither the direct field observations (minimum of 3.4 cfs) nor the values calculated from the DNR rating curve, support the **baseflow predicted by XP-SWMM at SW003 of 0.51 cfs** (Water Modeling Data package Vol.1-Mine Site, ver12, p.130 and PSDEIS Table 4.2.2-8). XP-SWMM's low estimates of baseflow are used in calibration of the MODFLOW model and thus influence many aspects of the site characterization and impact prediction, including pit inflow, dewatering impacts to the Partridge River, water treatment needs, groundwater flow rates, contaminant transport times and concentrations, and contaminant dilution in the Partridge watershed.

Although it is now an unfortunate time in the NEPA process to try to adequately characterize basic site hydrology, if appears that predictions of effects of the project may be far from accurate. It is not easy to say how the mis-characterization of river baseflow would affect compliance predictions because, although more baseflow might mean more dilution of contaminants, it could also mean transport of greater quantities of pollutants to the river and more drawdown of the Partridge River. We have repeatedly asked that the data at the Dunka Road gage be formally analyzed for baseflow as a check of the accuracy of the XP-SWMM modeling. If that analysis indicates that the XP-SWMM predictions under-represents baseflow, as our draft analysis suggests, that result should be incorporated into all project model calibration and prediction.

Thank you in considering this issue when revising the SDEIS.

--
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Subject: watershed ratio predicts baseflow of 1.2cfs at SW-004 Re: Model Calibration, NorthMet EIS
From: john coleman <jcolema1@wisc.edu>
Date: 6/18/2012 9:09 AM
To: thomas.j.hingsberger@usace.army.mil, "JMohr@barr.com" <JMohr@barr.com>, David Blaha <David.Blaha@erm.com>, "fmarinelli@interralogic.com" <fmarinelli@interralogic.com>, "John.Adams2@erm.com" <John.Adams2@erm.com>, "Poleck.Thomas@epamail.epa.gov" <Poleck.Thomas@epamail.epa.gov>, "erik.carlson@state.mn.us" <erik.carlson@state.mn.us>, Michael Sedlacek <Sedlacek.Michael@epamail.epa.gov>, James Grimes <Grimes.James@epamail.epa.gov>, Tina Pint <TPint@barr.com>, Greg Williams <GWilliams@barr.com>, 'Marty E Rye' <mrye@fs.fed.us>, "Liljegren,Michael W (DNR)" <Michael.Liljegren@state.mn.us>, "'Nancy Schuldt (nancyschuldt@fdlrez.com)'" <nancyschuldt@fdlrez.com>, "Margaret Watkins (watkins@boreal.org)" <watkins@boreal.org>, "wagener.christine@epa.gov" <wagener.christine@epa.gov>, "'Darren Vogt (DVogt@1854treatyauthority.org)'" <DVogt@1854treatyauthority.org>, Rose Berens <rberens@boisforte-NSN.gov>, Esteban Chiriboga <edchirib@wisc.edu>, Ann McCammon_Soltis <amsoltis@glifwc.org>, Neil Kmiecik <nkmiecik@glifwc.org>

The watershed upstream of SW-004 makes up 22% of the SW-006 watershed (23 of 103 sq.miles), yet XP-SWMM predicts that the watershed contributes only 17% (0.92 of 5.3 cfs) of the baseflow.

Using a ratio of watershed areas to extrapolate baseflow up from the USGS gage (SW-006) would suggest that baseflow at SW-004 is 1.2 cfs (5.3 X .22).

While using the watershed ratio technique is uncomplicated compared to XP-SWMM, it appears to give a prediction of baseflow at SW-004 closer to the flows actually observed at the site.

It seems that the Partridge River may be over-modeled with the use of XP-SWMM. Such a parameter-heavy model as XP-SWMM needs substantially more data from near the mine site in order to be justified. A more parsimonious approach appears to be a better fit.

Notes:
watershed areas from Table 1 of RS73B Sept. 2008
SP-SWMM predicted baseflows from Table 5-10 of CDF012
--
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Subject: baseflow info re:: NorthMet EIS: Mine Site Hydrology Teleconference
From: john coleman <jcolema1@wisc.edu>
Date: 6/12/2012 3:23 PM
CC: "JMohr@barr.com" <JMohr@barr.com>, David Blaha <David.Blaha@erm.com>, "fmarinelli@interralogic.com" <fmarinelli@interralogic.com>, "John.Adams2@erm.com" <John.Adams2@erm.com>, "Poleck.Thomas@epamail.epa.gov" <Poleck.Thomas@epamail.epa.gov>, "erik.carlson@state.mn.us" <erik.carlson@state.mn.us>, Michael Sedlacek <Sedlacek.Michael@epamail.epa.gov>, James Grimes <Grimes.James@epamail.epa.gov>, Tina Pint <TPint@barr.com>, Greg Williams <GWilliams@barr.com>, 'Marty E Rye' <mrye@fs.fed.us>, "Liljegren, Michael W (DNR)" <Michael.Liljegren@state.mn.us>, "'Nancy Schuldt (nancyschuldt@fdlrez.com)'" <nancyschuldt@fdlrez.com>, "Margaret Watkins (watkins@boreal.org)" <watkins@boreal.org>, "wagener.christine@epa.gov" <wagener.christine@epa.gov>, "'Darren Vogt (DVogt@1854treatyauthority.org)'" <DVogt@1854treatyauthority.org>, Rose Berens <rberens@boisforte-NSN.gov>, Esteban Chiriboga <edchirib@wisc.edu>
To: "Hingsberger, Thomas J MVP" <thomas.j.hingsberger@usace.army.mil>

As a contribution to the discussion tomorrow, I calculated some statistics on the flow measurements taken so far at the the Partridge River & Dunka Road. (http://www.dnr.state.mn.us/waters/csg/site_report.html?mode=get_site_report&site=03155002)

The stage and flow values are available at 15 minute intervals starting in February of 2012. Based on 10,300 records I found Flow stats of:
Q70 = 6.9 cfs (70% of the time flow was greater than 6.9 cfs) Q70 is sometimes used as an indicator of baseflow
Q90 = 2.8 cfs (90% of the time flow was greater than 2.8 cfs) Q90 is sometimes used as an indicator of baseflow
Q10 = 28.3 cfs (10% of the time flow was greater than 28.3 cfs)

Q99 = 0.4 cfs (99% of the time flow was greater than 0.4 cfs)

minimum 7day average flow was 2.37 cfs (this is sometime also used as an indicator of baseflow)

These flow values are based on a rating curve that is still being developed and cover less than a year, but neither the direct observations (minimum of 3.8 cfs) nor the values calculated from the rating curve support the XP-SWMM predicted baseflow 4 miles downstream of the gage (i.e. 0.76 cfs) and used in modeling.

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● MEMBER TRIBES ●

MICHIGAN	WISCONSIN		MINNESOTA
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Keweenaw Bay Community	Lac Courte Oreilles Band	St. Croix Chippewa	Mille Lacs Band
Lac Vieux Desert Band	Lac du Flambeau Band	Sokaogon Chippewa	

Via Electronic Mail / Original by Mail

March 2, 2012

Memorandum

To: Thomas Hingsberger USACE
Erik Carlson Minnesota DNR

From: John Coleman, Environmental Section Leader

Re: Polymet model calibration to Partridge River low flows

The hydrologic models for the Polymet mine site have been calibrated to targets that under-represent true baseflow. Models should be calibrated to a strong set of observational data. Construction of the site's basic hydrologic model to unrealistically low baseflows has ramifications for all the flow and contaminant modeling at the site.

Under-representation of Partridge River baseflow.

Review of the winter baseflow measurements and comparison to predictions made by XP-SWMM indicate that XP-SWMM substantially underpredicts baseflow (Barr June 9, 2011, Comparison of MDNR winter flow gauging to Partridge River XP-SWMM model). This has ramifications throughout the parameter sets being used in models characterizing hydrology at the Polymet mine site.

In the above referenced memo, Barr points out that the average measured baseflow at Dunka Rd. was 5.0 cfs while the XP-SWMM predicted baseflow is 0.4 cfs. Even when discharge from Northshore Mining was taken into account, the average baseflow measured at Dunka is 4.3 cfs while XP-SWMM predicts 0.42 cfs.

In its memo, Barr correctly points out that: "At all locations along the main stem of the Partridge River, the XP-SWMM-estimated baseflow is less than the MDNR-measured baseflow. The XP-SWMM model provides a conservative estimate of Partridge River baseflow for the purposes of modeling water quality impacts (e.g., less dilution of loads from the Mine Site)." What is not acknowledged in the Barr memo is that calibration of hydrologic models to an underestimate of baseflow produces models that characterize the groundwater hydrologic system as moving an unrealistically small quantity of water.

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Additional flow measures over the last 9 months on the Partridge River at the Dunka Road (site SW-003) further support the position that baseflow predicted by XP-SWMM under-represents true baseflow. The least flow measured at the Dunka Road site was 3.8 cfs. While there have so far been only 7 measurements taken at that site, the flow measured and the stage recorded by the gauge do not appear to support XP-SWMM's low baseflow predictions for the upper Partridge River.

Mis-calibration of groundwater flow models.

The calibration of the Modflow model to a Partridge River baseflow of 0.76 cfs predicted by XP-SWMM results in a model that moves very little water through the groundwater system. This can result in low predicted rates of inflow to the mine pit and slow movement of contaminants from sources (stockpiles or reflooded pits) to points of evaluation. More generally, an incorrect baseflow calibration target results in excessively low estimates of recharge and likely incorrect estimates of horizontal and vertical conductivity. These hydrologic parameters are interrelated and getting one wrong, as appears to be the case with baseflow, will almost certainly result in the other parameters being incorrectly estimated. Although there has been little sensitivity analysis conducted in the Polymet modeling efforts, flow models tend to be sensitive to these interrelated parameters.

Based on Modflow model calibration to a baseflow of 0.76 cfs and recharge values set at 0.3 and 1.5 in/yr (see page 61 of Water Modeling Data Package Vol 1-Mine Site v9 DEC2011.pdf and page 11 of RS22, Appendix B), some horizontal and vertical conductivities (K) were calculated by Barr using PEST (see Table 1 of Attachment B of Water Modeling Data Package Vol 1-Mine Site v9 DEC2011.pdf). These K values are likely to be inaccurate since they are calculated with a model that is calibrated to a baseflow that appears to be almost an order of magnitude too low. It is unlikely that any accurate predictions of water movement, transport of contaminant mass, or contaminant levels can be made when the characterization of the hydrologic system is so out-of-kilter.

Unusually low recharge and vertical K:

The low values used for recharge (0.3 and 1.5 in/yr) and the low wetland and till vertical K (0.0000033 ft/day [$1.16X10^{-9}$ cm/s]) used in the Modflow model are a reflection of a model constructed and calibrated to move an unrealistically small amount of water through the hydrologic system. For context, note that engineered clay liners in landfills typically aim for $1.0X10^{-7}$ cm/s hydraulic conductivity. I was unable to find any reference in the literature to wetland soil vertical conductivity as low as is used in the Modflow model. The lower end of the spectrum I found for wetland soil vertical conductivity was $1X10^{-6}$ cm/s.

Our long standing concern that the mine site hydrologic models incorporate incorrect assumptions about recharge are supported by Fred Marinelli's comment on line 39 and elsewhere of: "Agency Responses MS and PS WP and Waste Characterization Data package V7 2-7-12.xls". His comment states that "A net infiltration (recharge) range of 0.3 to 1.5 in/yr represents 1.1 to 5.4 percent of mean annual precipitation (MAP). This range for local net infiltration is unrealistically low for this area of the US." These low recharge values and the low

vertical K values are related to calibration of the Modflow model to low baseflow. Until Modflow, and by extension the other related models XP-SWIMM and GoldSim, are calibrated to data from the site (e.g. observed baseflow and an adequate number of observed heads) and incorporate reasonable recharge rates, the results from the models are unlikely to accurately simulate current or future conditions.

Recalibration of models needed:

The Modflow model, in particular, needs to be calibrated with targets based on observed baseflow and observed well water heads. Calibration to projections by XP-SWMM, that appear to be incorrect, means that the fundamental characterization of the site hydrology is likely to be faulty. In the document referenced above (Agency Responses ...) Barr Engineering states that many hydrologic model parameters were "discussed as part of the IAP process and will not be considered further at this time." While some parameters were discussed in the groundwater IAP process, the discussion was almost exclusively concerning water quality parameters, not flow model parameters such as recharge, baseflow and Kv and Kh. The focus on water quality parameters to the near exclusion of hydrologic flow parameters is reflected in the Groundwater IAP summary memo of June 2011. Groundwater flow modeling underpins contaminant transport modeling and is interrelated to surface flow models. Without adequate vetting of flow model parameters and predictions, it is impossible to have confidence in predictions of contaminant movement and water quality.

Now that the hydrologic models have been more fully articulated by Barr and additional data are available, the models must be calibrated to observed baseflow and well water levels. This should include the new water level data from the newly installed mine site wells. PEST can then be used to more reasonably estimate values for recharge and conductivity. The observed baseflow and the PEST estimated recharge and conductivity values should then be used in the XP-SWMM and GoldSim modeling efforts. Modeling efforts that are based on faulty initial assumptions and not on field observations will not be able to reasonably predict impacts. The current Polymet modeling effort needs to be well founded on a strong base of observations of the physical conditions at the site.

Thank you for considering this issue. Please contact me at 608-263-2873 if you have questions.

cc: Mike Olson, Minnesota DNR
Fred Marinelli, Interralogic
Mike Sedlacek, USEPA
James Grimes, USEPA
Marty Rye, USFS
Nancy Schuldt, Fond du Lac Environmental Program
Neil Kmiecik, GLIFWC Biological Services Director
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Date: Sun, 28 Sep 2008 10:24:02 -0600
To: Stuart Arkley <Stuart.Arkley@dnr.state.mn.us>
From: John Coleman <jcolema1@wisc.edu>
Subject: further comments on RS22 Appen.B Draft-03
Cc: "Ahlness, Jon K MVP" <jon.k.ahlness@usace.army.mil>, Nancy Schuldt <nancyschuldt@fdlrez.com>, Ann McCammon_Soltis <amsoltis@glifwc.org>, Esteban Chiriboga <edchirib@wisc.edu>
Bcc:
X-Attachments:
In-Reply-To:
References:

Stuart,
Here are additional issues related to RS22-Appen.B and RS73

1) The Kv of the wetland and drift materials are unrealistically low:
The Modflow model in RS22 Appen.B uses vertical conductivity values for wetland and glacial drift soils that are unrealistic to the extreme. Table 3-3 of RS22 Appen.B indicates that the hydraulic conductivity values used in the local-scale model are 0.0000033 ft/day (1.16X10-9 cm/s), for comparison, engineered clay liners in landfills typically aim for 1.0X10-7 cm/s hydraulic conductivity. I was unable to find any reference in the literature to wetland soil vertical conductivity as low as is used in the Modflow model. The lower end of the spectrum I found for wetland soil vertical conductivity was 1X10-6 cm/s. These low Kv values have effects on predicted recharge, mine pit inflow, groundwater drawdown, river baseflow impacts, and contaminant transport to the Partridge River.

2) No recharge to the Giant's Range or Biwabik Iron Formations is specified. These are material types in the Modflow layer one. Were they zero or just not reported?

3) The recharge for wetlands and drift (0.3 and 1.5 in/yr) are unusually low.
MODFLOW of Crandon project in an area of glacial drift and wetlands used 9 in/yr.
The Polymet MODFLOW mode for the plant/tailings site uses 8in/yr for wetland/drift areas.
The MODFLOW report supports the choice of 0.3 and 1.5 in/yr or recharge by citing the RS73A SWMM model "groundwater recharge coefficient". These are not equivalent parameters and the baseflow predicted by SWMM is most likely underestimated as explained below.

4) The 1.43 cfs of baseflow at SW-004 that the Modflow model is calibrated to (RS22 Appen.B, page 13) is a predicted value from the SWMM model which is calibrated to USGS gage 04015475 baseflow of 5.47 cfs, estimated from 1978-1988 flow data (RS73A). The USGS gage (near the inlet to Colby Lake) is 17 miles downstream of SW-004 and 26 miles downstream of the headwaters. Flow data collected in 2004 during 3 periods (see RS63) of low flow show significantly greater flows in the river at SW-004 and SW-003 than at the station (SW-005) 17 miles downstream near Colby Lake inlet (RS63). During these periods, SW-003 showed flows of 6 to 8.6 cfs while the downstream station (SW-005) showed flows of 2.7 to

7.6 cfs. In addition there was one measurement at SW-003 in 1978 that overlaps with the USGS gage 04015475. On 11/15/1978 flow at SW-003 was recorded as 25 cfs and at the USGS gage 23 cfs. The higher flows in the upper reaches of the Partridge River indicate that the river is gaining in its upper reaches and is loosing in its lower reaches. This is not at all surprising given the drop in elevation of 320 feet above SW-003. Below SW-003 there is only another 100 ft of drop over the 20 miles to the USGS gage.

The flow data from 2004 and 1978 appear to indicate that baseflow at SW-003 and SW-004 is approximately 1 to 2 times the baseflow in the Partridge River near the inlet to Colby Lake. Given the 1978 and 2004 data, it appears that the Modflow would more reasonably be calibrated to a baseflow of approximately 7-8 cfs at SW-003 and 4 cfs at SW-004. Calibration to higher baseflows in the Partridge River would likely produce a model with higher recharge, more flow to the pits, different contaminant transport results, and different drawdown and baseflow impact predictions.

Note: measurement stations in RS22, RS73, RS74 and RS63 have multiple names.

SW-001=PM1
SW-002=PM2=S-4
SW-003=PM3=CM126=S-1
SW-004=PM16
SW-005=PM4=CM123

Sub-section 2

The inability of the GoldSim model to accurately predict current water quality at the mine site or the plant site.

Subject:	Goldsim inaccurately predicts existing conditions, unlikely to accurately predict future project conditions
From:	"john.coleman" <jcoleman@glifwc.org>
Date:	7/2/2013 2:22 PM
Attachments:	Data_Pack_Plant_Site_Al_PM-13_Fig.I-05-02.2.pdf (271 KB)
CC:	"Sedlacek.Michael@epamail.epa.gov" <Sedlacek.Michael@epamail.epa.gov>, "Grimes.James@epamail.epa.gov" <Grimes.James@epamail.epa.gov>
To:	thomas.j.hingsberger@usace.army.mil, Ross.Vellacott@erm.com, safrank@fs.fed.us, "Bill.Johnson" <Bill.Johnson@state.mn.us>, lisa.fay@state.mn.us

To: Polymet EIS Co-leads 2013-07-02

From: John Coleman, GLIFWC

Re: Goldsim inaccurately predicts existing conditions, unlikely to accurately predict future project conditions

While we feel that modeling of the existing conditions is an inadequate substitute for a realistic No-Action Alternative model and does not follow CEQ guidelines, it appears that Goldsim does not even accurately model existing conditions. As we noted in our spreadsheet comments submitted June 25th, for many parameters at several water bodies the No-Action P50 model of annual average value is substantially different than the observed average existing conditions. Because of the inaccuracy of the Goldsim predictions of current conditions it is not clear that use of the Goldsim estimates of project impacts are adequate to ensure protection of water resources.

For example:

- -PSDEIS Table 4.2.2-18 reports Colby Lake as currently having an observed mean Arsenic of 0.78 to 1.4 ug/L (depending on the data set), whereas Figure 5.2.2-35, the No-Action (continuation of current conditions) P50 model for Colby Lake Arsenic shows annual maximum values of 0.5 ug/L.
- -PSDEIS Table 4.2.2-34 reports PM-10 (seep at the basin north toe) as having an observed mean Mn value of 100,192 ug/L, whereas Figure F-01-18.1 (Water Modeling Data Package Vol 2-Plant Site v9 MAR2013) shows the No-Action (continuation of existing conditions) P50 as an annual maximum Mn of 390 ug/L. at the north toe.
- -PSDEIS Table 4.2.2-34 reports PM-10 as having an observed mean Aluminum of 39.6 ug/L yet Figure F-01-02.1 (Water Modeling Data Package Vol 2-Plant Site v9 MAR2013) shows an annual maximum for No-Action (continuation of existing conditions) at the north toe as 11 ug/L.
- -PSDEIS Table 4.2.2-14 shows that observed average SO4 at SW-005 (9.11 mg/L) is nearly identical to the Goldsim P50 predicted current annual maximum for that site (PSDEIS Fig. 5.2.2-27, 9 mg/L). This suggests that Goldsim is under-predicting SO4 at SW-005. (The authors of the text on page 5.2.2-125 of the PSDEIS seem to misinterpret the P50 of the figure as a predicted annual average. This is not the case. The P50 of that figure is the "best" estimate of the annual maximum. The Goldsim model estimate of the annual average at SW-005 is shown as the P50 in Mine Site Data Package Attachment K Figure K-06-24.2, i.e. 6 mg/L) Again this suggests that Goldsim is underpredicting SO4 at SW-005.
- - PSDEIS Table 4.2.2-29 shows that observed average Al at PM-13 is 221 ug/L. This observed average is much higher than the modeled No-Action (continuation of existing conditions) P50 annual maximum (PSDEIS Table 5.2.2-47, 159-166 ug/L). The modeled No-Action P50 annual average for Al at PM-13 of 75 ug/L (attached Fig.I-05-02.2, Water Modeling Data Package Vol 2-Plant Site v9 MAR2013) is only 1/3 of the observed average.

The tables below compare the observed existing conditions values found in various PSDEIS tables to the P50 existing conditions predicted by Goldsim. While a very few of these model predictions are presented in the PSDEIS, many are not and therefor, the tables below refer back to the underlying data packages from which the PSDEIS was written.

Observed existing conditions in the Partridge River vs. annual average existing conditions predicted by Goldsim.

Parameter (ug/L)	Average existing water quality (PSDEIS Table 4.2.2-14)	Annual average P50 existing conditions predicted by Goldsim (Mine Site Data Package Attach.K)
Mn	SW-002 = 142	SW002 = 80 (Fig.K-01-18.2)
Tl	SW-002 = 0.6	SW002 = 0.11 (Fig.K-01-25.2)
Mn	SW-003 = 147	SW003 = 85 (Fig.K-02-18.2)
B	SW-004a = 126.5	SW004a = 30 (Fig.K-04-05.2)
K	SW-004a = 2,700	SW004a = 1,600 (Fig.K-04-16.2)
SO4	SW-004a = 15,900	SW004a = 8,000 (Fig.K-04-24.2)
Pb	SW-005 = 1.3	SW005 = 0.26 (Fig.K-06-21.2)
SO4	SW-005 = 9,110	SW005 = 6,000 (Fig.K-06-24.2)
Tl	SW-005 = 0.4	SW005 = 0.05 (Fig.K-06-25.2)

Observed mean existing conditions in Colby Lake vs. annual average existing conditions predicted by Goldsim.

Parameter (ug/L)	Colby Lake mean existing water quality (PSDEIS Table 4.2.2-18, Barr data)	Colby Lake Annual average P50 existing conditions predicted by Goldsim (Mine Site Data Package Attach.K)
Al	108	75 (Fig.K-08-02.2)
As	0.78	0.4 (Fig.K-08-04.2)
Cu	2.4	0.7 (Fig.K-08-13.2)
Ni	2.5	1.1 (Fig.K-08-20.2)
SO4	33,800	~10,000 (Fig.K-08-24.2)
Tl	0.1	0.025 (Fig.K-08-25.2)

Observed mean existing conditions at the tailings basin toe vs. annual maximum existing conditions predicted by Goldsim. (Goldsim predicted mean concentrations are not provided in Modeling Data Package Vol 2-Plant Site v9 MAR2013)

Parameter (ug/L)	Mean seep measured value at Basin Toe (Table 4.2.2-34)	Annual maximum P50 existing condition predicted by Goldsim (Plant Site Data Package Attach.F)
Al	PM-8 = 25.7	West toe = 14 (Fig.F-04-02.1)
AL	PM-9 = 29.9	NW toe = 13 (Fig.F-02-02.1)
AL	PM-10 = 39.6	North toe = 11 (Fig.F-01-02.1)
Mn	PM-8 = 3,039	West toe = 1,250 (Fig.F-04-18.1)
Mn	PM-10 = 100,192	North toe = 380 (Fig.F-01-18.1)
F	PM-8 = 2,900	West toe = 1,100 (Fig.F-04-14.1)
As	PM-8 = 3	West toe = 2 (Fig.F-04-04.1)
B	PM-10 = 379	North toe = 330 (Fig.F-01-05.1)

Pb	PM-10 = 1.3	North toe = 1 (Fig.F-01-21.1)

The above examples are not an exhaustive list of discrepancies between observed existing water quality data and the Goldsim P50 prediction of the No-Action alternative (continuation of existing conditions) but highlight some of the most notable discrepancies. What the discrepancies demonstrate is that the Goldsim model is a relatively poor predictor of current conditions. If a model is unable to accurately predict current conditions it is even less likely to accurately predict future Project conditions. The Goldsim models need to be better calibrated to existing conditions (the calibration effort reported in "Calibration of the Existing Natural Watershed at the Plant Site v4 MAR2012" only compared model output to upstream site PM-12 and apparently did a poor job of preparing the models to predict either the lower reaches of the Embarrass or the Partridge River.) and model results recalculated.

Thank you for considering this issue while revising the PSDEIS.

--
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221 ug/L average existing Al at PM-13 (PSDEIS Table 4.2.2-29)

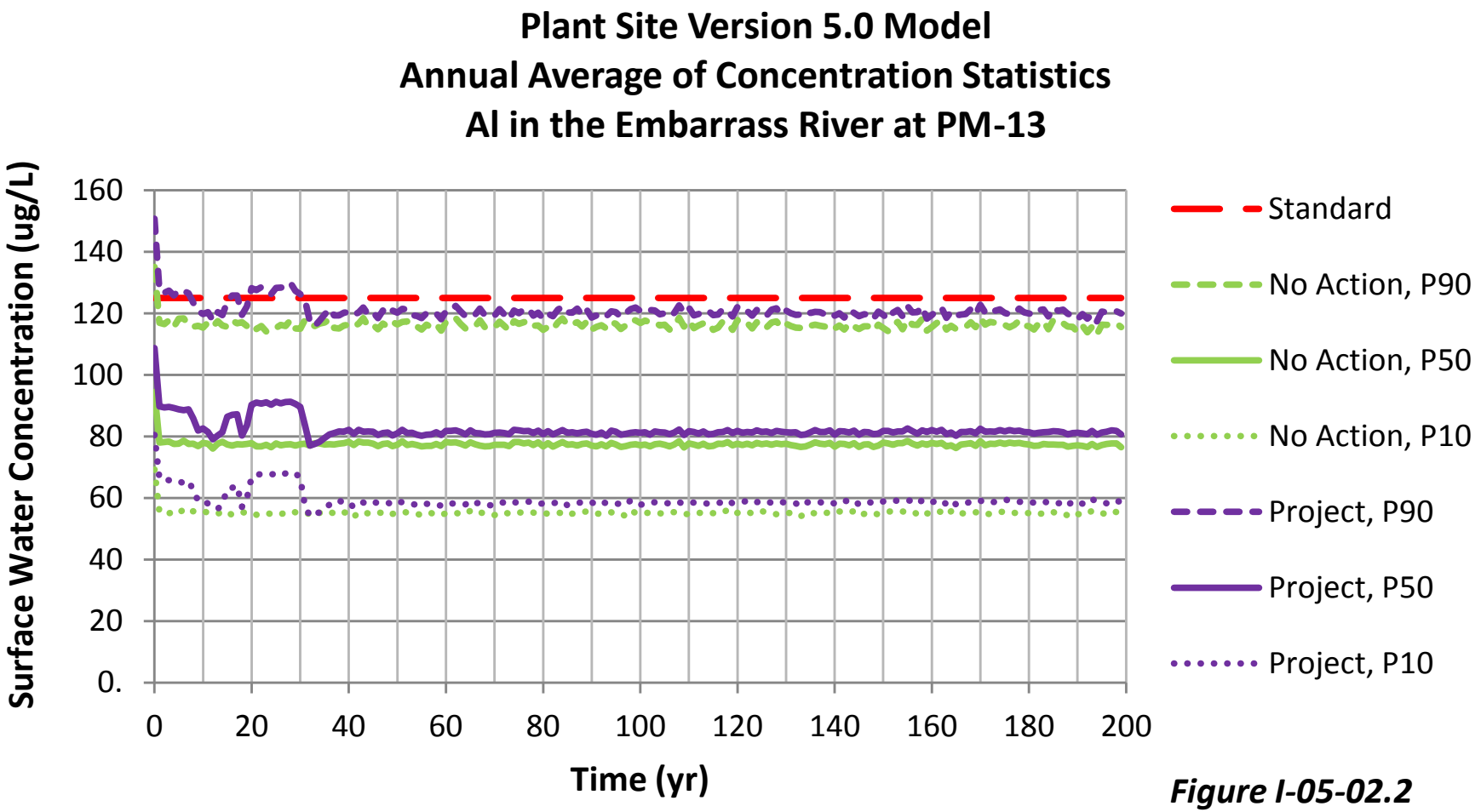

Figure I-05-02.2

Sub-section 3

The lack of inclusion of reasonably foreseeable events in the SDEIS No-Action Alternative modeling.

Subject:	Continuation of Existing Conditions an inappropriate No-Action alternative
From:	"john.coleman" <jcoleman@glifwc.org>
Date:	7/2/2013 3:15 PM
Attachments:	G-CEQ-40Questions.pdf (416 KB), Water Modeling Data Package Vol 2-Plant Site v9 MAR2013_F-01.10.1.pdf (47.5 KB)
CC:	"Sedlacek.Michael@epamail.epa.gov" <Sedlacek.Michael@epamail.epa.gov>, "Grimes.James@epamail.epa.gov" <Grimes.James@epamail.epa.gov>
To:	thomas.j.hingsberger@usace.army.mil, Ross.Vellacott@erm.com, safrank@fs.fed.us, "Bill.Johnson" <Bill.Johnson@state.mn.us>, lisa.fay@state.mn.us

To: Polymet EIS Co-leads 2013-07-02

From: John Coleman, GLIFWC

Re: Continuation of Existing Conditions an inappropriate No-Action alternative

According to CEQ guidelines (attached):

> "No action" in such cases would mean the proposed activity would not take place, and the resulting environmental effects from taking no action would be compared with the effects of permitting the proposed activity or an alternative activity to go forward.
>
> Where a choice of "no action" by the agency would result in predictable actions by others, this consequence of the "no action" alternative should be included in the analysis. For example, if denial of permission to build a railroad to a facility would lead to construction of a road and increased truck traffic, the EIS should analyze this consequence of the "no action" alternative.

Based on the above CEQ guidlines, it is clear that activities that will occur under the Cliffs Consent Decree should be included in modeling of a No Action alternative. Unfortunately not only are the consent decree activities not included, but the fact that it will be precipitating on the tailings basins for the foreseeable future has not been included in the No Action modeling. This is evident by the model results that show stable levels of Chloride coming from the basins for the next 200 years (Figure attached) when there is no ongoing source for Chloride. With no source for new Chloride, rainwater will gradually dilute the residual Chloride in the basin and levels will drop. The PSDEIS claims that the basins water quality has stabilized and that the current conditions will not change over time. The claim of chemical stability is based on basin pond water sampling for only 4 years (2001 - 2004, PSDEIS Table 4.2.2-23).

Since there has been no water quality data collected in the basin pond for 9 years it is reasonable to assume that the past 9 years of precipitation has diluted the water chemistry in the basin pond and that eventually the more dilute water will work its way though the basins and be discharged at the toe. If chemical stability is to be assumed, more recent data on basin pool water chemistry is needed. While the CEQ makes it clear that a blind "continuation of existing conditions" model is inappropriate as a No Action alternative, a "continuation of existing conditions" model that ignores simple environmental processes such as precipitation is even less appropriate.

Thank you for considering this issue.

46 Fed. Reg. 18026 (March 23, 1981)
As amended

COUNCIL ON ENVIRONMENTAL QUALITY

Executive Office of the President

Memorandum to Agencies:

Forty Most Asked Questions Concerning
CEQ's National Environmental Policy Act Regulations

SUMMARY: The Council on Environmental Quality, as part of its oversight of implementation of the National Environmental Policy Act, held meetings in the ten Federal regions with Federal, State, and local officials to discuss administration of the implementing regulations. The forty most asked questions were compiled in a memorandum to agencies for the information of relevant officials. In order efficiently to respond to public inquiries this memorandum is reprinted in this issue of the Federal Register.

Ref: 40 CFR Parts 1500 - 1508 (1987).

FOR FURTHER INFORMATION CONTACT:

General Counsel,
Council on Environmental Quality,
722 Jackson Place NW,
Washington, D.C. 20006;
(202)-395-5754.

March 16, 1981

MEMORANDUM FOR FEDERAL NEPA LIAISONS, FEDERAL, STATE, AND LOCAL OFFICIALS AND OTHER PERSONS INVOLVED IN THE NEPA PROCESS

Subject: Questions and Answers About the NEPA Regulations

During June and July of 1980 the Council on Environmental Quality, with the assistance and cooperation of EPA's EIS Coordinators from the ten EPA regions, held one-day meetings with federal, state and local officials in the ten EPA regional offices around the country. In addition, on July 10, 1980, CEQ conducted a similar meeting for the Washington, D.C. NEPA liaisons and persons involved in the NEPA process. At these meetings CEQ discussed (a) the results of its 1980 review of Draft EISs issued since the July 30, 1979 effective date of the NEPA regulations, (b) agency compliance with the Record of Decision requirements in Section 1505 of the NEPA regulations, and (c) CEQ's preliminary findings on how the scoping process is working. Participants at these meetings received copies of materials prepared by CEQ summarizing its oversight and findings.

Full CEQ document available at: http://energy.gov/sites/prod/files/G-CEQ-40Questions.pdf

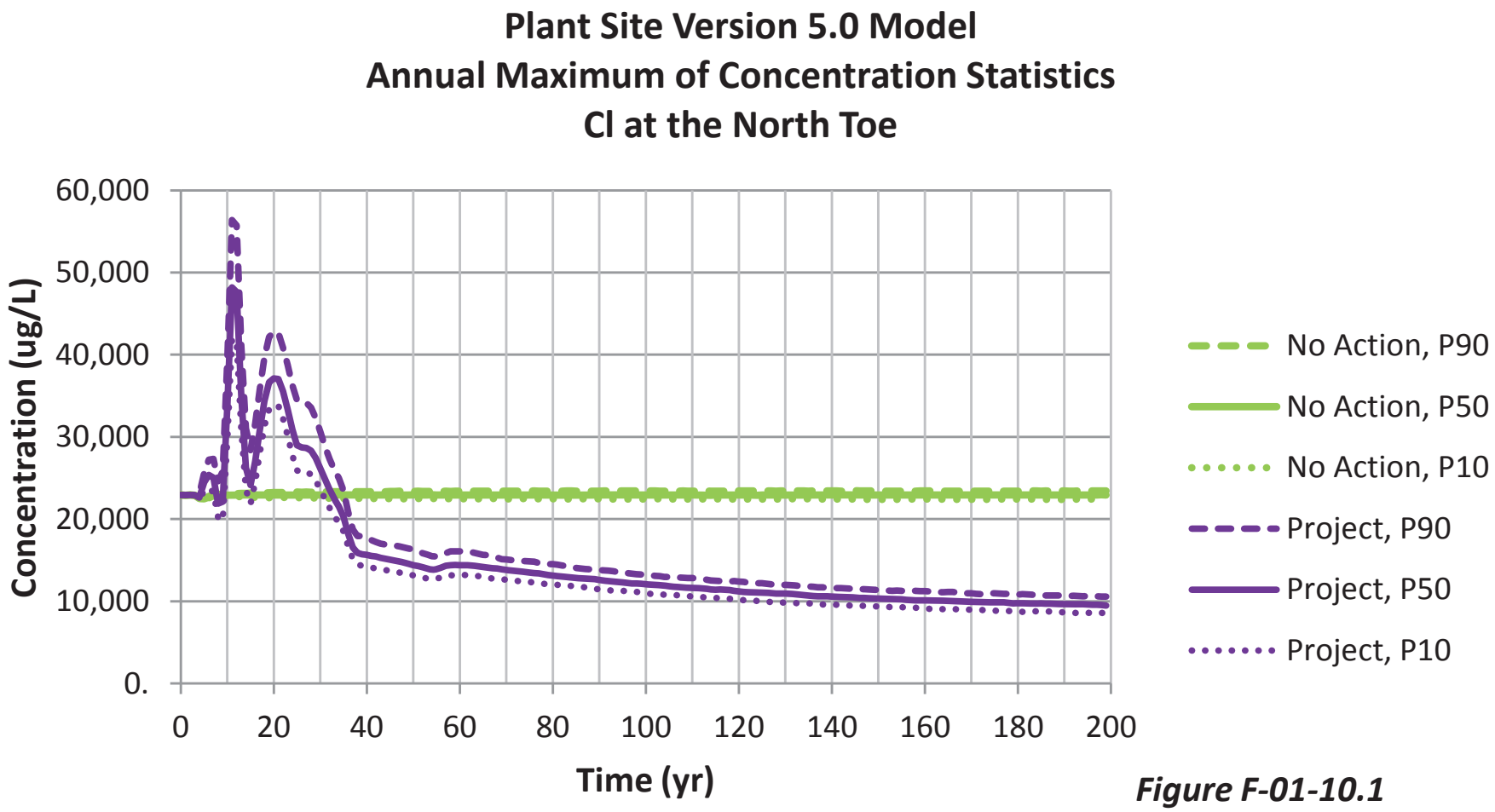

Figure F-01-10.1

Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Mercury Section

Below are comments from the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) related to mercury issues in the "NorthMet Mining Project and Land Exchange: Preliminary Supplemental Draft Environmental Impact Statement" (PSDEIS). Detailed rationale and comments follow the summary.

<u>Summary</u>

The understanding of mercury dynamics in the St. Louis River watershed is very limited and is insufficient to lead to the conclusion reached in the PSDEIS that "the NorthMet Project Proposed Action would not exceed applicable environmental evaluation criteria." This lack of scientific information is explicitly stated throughout the PSDEIS and is what led the Minnesota Pollution Control Agency (MPCA) early this year to delay the establishment of a St. Louis River TMDL until further mercury cycling data could be collected.

Further, the conclusion that "the NorthMet Project Proposed Action would not exceed applicable environmental evaluation criteria" is based on a number of flawed assumptions. Specifically, we do not agree with the following assumption in the PSDEIS (rationale provided below):

- The tailings basin will function as a mercury sink.
- Mercury methylation will not increase because the amount of sulfate being released to the environment will actually be reduced by the project.
- the NorthMet project would have minor effects on flows in the Partridge and Embarrass Rivers or their tributaries and is thus not expected to result in increases in flow fluctuations that promote mercury methylation.

Many lakes and rivers in the area are already classified as "impaired waters" by the MPCA due to elevated fish mercury. All additional increases in mercury contributions to the environment therefore constitute a risk to human and ecosystem health. The proposed project will result in increased mercury releases to the environment both via air and water, increasing human and ecosystem risk. All increases in mercury releases into the Lake Superior watershed are contrary to the goals of the 1991 "Binational Program to Restore and Protect the Lake Superior Basin" to establish a Zero Discharge Demonstration Program for nine critical pollutants, including mercury. These increased emissions are expected to have a measureable effect on mercury levels in fish and the subsequent health risk to recreational and subsistence fishers. Any additional mercury releases to the environment are exacerbating an already unacceptable risk situation in the area. Increased fish mercury levels fish will also have direct impacts on both the cultural and recreational resources of the region.

In addition, there are a several concerns related to mercury that are not addressed in the PSDEIS. These concerns are summarized here, with more detailed comments and rationale provided in the comments below. There is no discussion of the potential for the constructed wetlands over the East Pit and at the perimeter of the tailings basin to serve as a significant source of mercury methylation or as a route of mercury exposure to waterfowl and water birds that may utilize this habitat. The potential for the West Pit overflow to exceed the Great Lakes Initiative standard of 1.3 ng/L mercury is ignored. There is no consideration of the likely mercury pulse to the Partridge River resulting from placement of the stripped peat and unsaturated overburden into the unlined Overburden Storage and Laydown Area. It is not apparent whether mercury monitoring is included within the water quality monitoring of the Mine Site or Plant Site. The estimate of air emissions of mercury as a result of the project does not take into account emissions from electricity generation for the site or from the burning of fuel by mining vehicles or other equipment. Wetland monitoring following restoration is only vegetative and hydrologic in nature, but should include total and methyl mercury to collect information on mercury levels and methylation rates and identify any necessary remedial actions. The Wildlife Section does not discuss mercury contamination despite the fact that there are a number of fish- or aquatic invertebrate-eating species [such as the bald eagle (state listed and protected by federal law), otter, and wood turtle (state listed), and various amphibians] that may be impacted by increased methyl mercury in the food web. Flow to the Partridge River, Embarrass River, or their tributaries may be sufficient to impact habitat leading to alterations of species composition, food web structure, and ultimately mercury bioaccumulation.

<u>Comment 1</u>

The PSDEIS concludes that "Based on the results of the modeling and impacts analysis, the NorthMet Project Proposed Action would not exceed applicable environmental evaluation criteria." Due to a general lack of understanding of mercury dynamics, particularly in the St. Louis River (SLR) watershed, this conclusion is not defensible with regard to mercury. The PSDEIS explicitly points out this knowledge gap in a number of sections. For example:

- Section 5.2.2.1.2: indicates that even though mercury in fish tissue is relevant to water resources evaluation criteria considerations, the modeling did not attempt a numeric analysis of NorthMet Project Proposed Action-specific effects on mercury in fish tissue. In addition, the ability of numeric models to predict concentrations of mercury in fish tissue in response to changes in mercury-loading is currently inadequate due to gaps in scientific knowledge. Finally, the relationship of inorganic mercury-loading to uptake of methylmercury in fish is inherently complex and subject to numerous chemical, physical, and biological parameters, which vary geographically and are only partially understood.

- Sections 6.2.3.3.4 and 5.2.2.3.4: indicate that mercury was not included in the GoldSim model as insufficient data and a general lack of definitive understanding of mercury dynamics prevented modeling mercury like the other solutes.
- Section 5.2.2.3.4: indicates that current scientific understanding of the factors and mechanisms affecting mercury methylation and bioaccumulation is limited.

Further, the Minnesota Pollution Control Agency (MPCA) has concluded that a SLR mercury Total Maximum Daily Load (TMDL) is not feasible at this time due to a lack of understanding of mercury dynamics in the watershed. They have delayed completing the mercury TMDL process pending the collection of additional mercury data in the watershed. This brings into doubt the possibility that the PSDEIS could adequately assess mercury impacts from the proposed action to conclude there will be no exceedances of applicable environmental criteria related to mercury.

<u>Comment 2</u>

The conclusion that mercury will not increase in the environment or exceed applicable environmental evaluation criteria is based on several assumptions. One such assumption is that the tailings basin will function as a mercury sink (Section 5.2.2). This assumption is not justified for a number of reasons.

The assumption that the tailings basin will serve as a mercury sink is based only on a small-scale bench top study of tailings from the site of the NorthMet project, providing minimal information. Details of the study are not provided. Further, field conditions were not accurately simulated in the study. For example, the experiment used process water that was 3.3 ng/L to test the adsorption capacity of the tailings. But, the PSDEIS states that a pilot study found the process water from the project would contain an estimated 11.2 ng/L of mercury (3.4 times higher than the experimental concentration). Thus, the concentrations used in the experiment were not environmentally relevant to the anticipated conditions at the mine site. Process water with a much higher mercury concentration might not experience mercury reductions to the same degree as was seen in the small-scale bench top study.

In addition, the conclusions drawn from the bench top study are backed up in the PSDEIS by earlier Minnesota Department of Natural Resources (MDNR) research on taconite tailings. There are inherent differences in composition between taconite tailings and the tailings that would come from the NorthMet PGM type project. These differences are likely to affect metallic binding potential. Therefore it is not appropriate to apply conclusions from this research to the current project.

Also lacking from the discussion of the potential for mercury to be adsorbed by the mine tailings is a discussion of potential saturation of the tailings with mercury (or other metals) and whether the tailings could shift from a mercury sink to a source in the future. This information is not presented for the NorthMet tailings or for the taconite tailings already present on site. The time scale on which the experiments were conducted are not adequate for predicting the long-term behavior of mercury and its interactions with tailings materials. Questions that should be addressed include:

- Are there conditions under which the tailings would shift from a sink to a source (e.g., temperature or pH alterations as a result of mining activities or global climate change, oversaturation after a significant time period)?
- Is the mercury permanently and irreversibly adsorbed to the tailings?
- The PSDEIS indicates in section 5.2.7.2.5 that about 95 percent of the mercury originating in the ore is expected to remain within—or be adsorbed to—the tailings and the hydrometallurgical residue, where it would remain isolated from further transport to the environment. Has this been proven with regards to potential tailings saturation and changing environmental conditions?

<u>Comment 3</u>

The conclusion that mercury will not increase in the environment or exceed applicable environmental evaluation criteria is based on several assumptions. One such assumption is that mercury methylation will not increase because the amount of sulfate being released to the environment will actually be reduced by the project. This assumption is not justified. The MPCA 2006 strategy to address effects of sulfate on MeHg production focuses on avoiding discharges to "high risk" situations such as wetlands, low (<40 mg/L) sulfate waters where sulfate may be a limiting factor in the activity of sulfur-reducing bacteria, and waters that flow downstream to a lake that may stratify. As indicated in the PSDEIS (Section 5.2.2.3.4), most or all of these conditions apply to the area downstream of the tailings basin and waste water treatment facility (WWTF). As a result, sulfate releases from the mine site and subsequent impacts on mercury methylation are a critical consideration.

The assumption that mercury methylation will not increase because the amount of sulfate being released to the environment will actually be reduced by the project only holds true if water is captured and treated in perpetuity. The assumption no longer holds if this onsite water treatment ceases or is reduced. Further, there are concerns regarding the conclusion that sulfate releases will be decreased by the project. This may not be true in all instances (see GLIFWC hydrology attachment for comments related to sulfate releases). Finally, as the PSDEIS indicates (5.2.2.3.4), the current scientific understanding of the factors and mechanisms affecting mercury methylation and bioaccumulation is limited. It is known that the response of mercury

methylation to sulfate concentrations is non-linear and complex. It is not defensible to state that the mercury/sulfate cycle is not well understood and then conclude that the projected levels of sulfate releases are expected to result in a decrease on mercury methylation in the watershed. It is apparent that there is not sufficient scientific knowledge to assess the impact of any change in sulfate concentration, positive or negative, on mercury methylation and the subsequent impact on mercury levels in fish and throughout the aquatic food web.

Comment 4

The conclusion that mercury will not increase in the environment or exceed applicable environmental evaluation criteria is based on several assumptions. One such assumption is that the NorthMet project would have minor effects on flows in the Partridge and Embarrass Rivers or their tributaries and is thus not expected to result in increases in flow fluctuations that promote mercury methylation. As indicated in the PSDEIS, The methylation of environmental mercury by sulfate-reducing bacteria is also stimulated by drying and rewetting associated with hydrologic changes and water level fluctuations (Gilmour et al. 2004; Selch et al. 2007). Drying (and subsequent increase in exposure to oxygen) of substrate containing reduced sulfur species (sulfides and organic sulfur) oxidizes those species into sulfate, which is remobilized and available to sulfate-reducing bacteria upon rewetting of the substrate. The PSDEIS also indicates that this mechanism stimulates production of methylmercury in sediments exposed to wetting and drying cycles (Gilmour et al. 2004) and is likely to account for some of the elevated methylmercury concentrations seen in discharge from wetlands during high flow events (Balogh et al. 2006). Thus, hydrologic changes and water level fluctuations are known to stimulate mercury methylation and enhance its bioaccumulation.

We do not accept the conclusion that the project will not significantly impact flow and water level fluctuations. Therefore, it is possible, if not likely, that the project will lead to increased mercury methylation and bioaccumulation. GLIFWC comments regarding hydrology effects (e.g. perched vs. connected wetlands, old and inaccurate hydrology data for the Partridge River, water level fluctuations exposing riparian wetlands, and groundwater drawdown are provided in the wetlands attachment).

Comment 5

In year 21, the East Pit backfill will be completed and a mitigation wetland will be constructed over the back filled material and another wetland will be constructed at the perimeter of the tailings pond (Section 5.2.2.3.1). There is no discussion of the impact that these constructed wetlands could have on mercury methylation and bioaccumulation. Wetlands are known to promote enhanced mercury methylation. The methylation process is dependent on many factors, including the concentrations of mercury and sulfate present in the water and sediment of the

wetland. The East Pit and the tailings basin are regions of potentially elevated mercury and sulfate. Therefore, there is a reasonable potential for the constructed wetlands to be significant sources of methylmercury to the aquatic foodweb. This has not been accounted for in the assessment of mercury related impacts by the mining project.

Comment 6

There is a potential for the overflow from the West Pit (after year 40) to exceed the Great Lakes Initiative (GLI) standard for mercury of 1.3 ng/L (Section 5.2.2.3.4). This has not been considered when concluding the Proposed Action would not exceed applicable environmental evaluation criteria. The mercury concentration in the West Pit was estimated based on concentrations in other natural and mine pit lakes as well as by a mass balance approach.

Of the 16 mine pit lakes examined, two (12.5%) had average mercury concentrations >1.3 ng/L (1.61ng/L in Pit 2W and 1.87 ng/L in Pit 9S). Individual samples were as high as 2.55 ng/L, double the acceptable level. It is not stated how many of the 16 lakes had individual samples that exceeded the GLI standard. This result shows that there is a significant possibility that, based on comparisons with other similar mine pit lakes, the West Pit of the project may exceed the GLI standard for mercury of 1.3 ng/L.

The mass balance approach included an estimate that 3% of the mercury is lost via volatilization. Air emissions of mercury are known to be the primary source of mercury deposition to surface waters. This volatilized mercury then needs to be accounted for in the air emissions inventory since it will presumably primarily redeposit within the watershed.

Comment 7

There is no consideration of the likely mercury pulse to the Partridge River resulting from placement of the stripped peat and unsaturated overburden into the unlined Overburden Storage and Laydown Area. While the surface runoff will be collected, monitored and potentially routed to the WWTF, any potential water seepage into the ground below the Overburden Storage and Laydown Area will flow directly into the Partridge River. The result is a potentially unaccounted for and unquantified mercury pulse into the Partridge River.

Comment 8

It is not apparent whether mercury monitoring is included within the water quality monitoring of the Mine Site or Plant Site (Tables 5.2.2-52 and 5.2.2-53). If it is, this should be specified. If it is not, it should be added to the monitoring activities.

Comment 9

Air emissions of mercury are known to be the primary source of mercury deposition to surface waters. The estimate of air emissions of mercury as a result of the project (4.6 lbs/yr) does not take into account emissions from electricity generation for the site or from the burning of fuel by mining vehicles or other equipment (Section 5.2.7.2.5). This should be quantified and included in the analysis.

Comment 10

It appears that wetland monitoring following restoration is only vegetative and hydrologic in nature. Total and methyl mercury should be monitored pre-project through post-reclamation to collect information on mercury levels and methylation rates and identify any necessary remedial actions.

Comment 11

The Wildlife Section (5.2.5) does not discuss mercury contamination. There are a number of fish- or aquatic invertebrate-eating species [such as the bald eagle (state listed and protected by federal law), otter, and wood turtle (state listed), and various amphibians] that may be impacted by increased methyl mercury in the food web. The only fish-eating non-fish species considered in the PSDEIS is humans. Similarly the Aquatic Species Section (5.2.6) does not discuss direct health impacts to aquatic species due to mercury contamination. Presumably, these omissions are due to the fact that the PSDEIS concludes that mercury methylation in the watershed will actually be reduced due to reduced sulfate releases, mercury adsorption to tailings, and minimal resulting water level fluctuations. But, we do not accept these conclusions (see Comments 2, 3 and 4 in this document).

Comment 12

The PSDEIS dismisses the possibility of waterfowl and waterbirds utilizing the tailings basin despite the fact that common waterfowl and waterbirds have been observed at the LTVSMC tailings basin during migration (Section 5.2.5.2.3). We believe that this is a possibility and that it represents a significant potential pathway of mercury exposure to these individuals. The rationale given for the conclusion in the PSDEIS is that states this is not an issue because the tailings basin is <0.01% of the available open water in the area and because it does not contain any high quality foraging habitat. One aspect of this issue not considered is that wetlands will be constructed over the East Pit and adjacent to the tailings basin. If these wetlands are properly constructed they will represent potential waterfowl and/or waterbird habitat that is likely to result in increased mercury exposure and bioaccumulation (see Comment 5 of this document).

Comment 13

PSDEIS states there will be effects on flow in the Partridge R. and Embarrass R. tributaries, but that they are not expected to influence habitat (Section 5.2.6). We feel that the water level fluctuations may be sufficient to impact habitat (see GLIFWC hydrology attachment for comments on water fluctuations). Habitat alteration is likely to lead to changes in species composition or relative abundance. This in turn has an impact on food availability and the structure of the food web. Mercury bioaccumulation is highly influenced by the structure and length of the food web. Therefore, the project has a reasonable potential to impact mercury food web dynamics with the possibility of ultimately causing increased mercury levels in fish and exposure to fish-eating humans and wildlife.

Comment 14

Many lakes and rivers in the area are classified as "impaired waters" by the MPCA due to elevated fish mercury. All additional increases in mercury contributions to the environment therefore constitute a risk to human and ecosystem health. There are a number of aspects of the proposed action cited in the PSDEIS that will lead to increased mercury releases to the environment, increasing human and ecosystem risk. For example:

- There will be a predicted net increase in mercury loading to Embarrass River (22.3 to 22.9 g/year) due to redirection of flow and construction of east dam (Section 5.2.6.22). The PSDEIS concludes that despite this increase in mercury loading, mercury in fish would decrease because of reduced sulfate inputs. We do not agree with the conclusion that sulfate inputs would be reduced by the project in all instances (see Comment 3 of this document).
- There will be estimated air emissions of mercury of 4.6 lbs/yr from plant site (Section 5.2.7.2.5).

These increased emissions are expected to have a measureable effect on mercury levels in fish and the subsequent health risk to recreational and subsistence fishers. This will compound the facts that (1) many sport and subsistence fish species already have mercury concentrations exceeding acceptable threshold criteria, (2) background risk quotients (RQ) for all human populations analyzed already exceed 1, and (3) the mercury levels in the St. Louis River watershed have been deemed high enough that the statewide mercury TMDL will not be sufficient to remove fish consumption restrictions in this region. Therefore, any additional mercury releases to the environment are exacerbating an already unacceptable risk situation in the area.

All increases in mercury releases are contrary to the goals of the 1991 “Binational Program to Restore and Protect the Lake Superior Basin” to establish a Zero Discharge Demonstration Program for nine critical pollutants, including mercury.

Comment 15

According the PSDEIS, the MPCA conducted a review of the NorthMet Project Proposed Action mercury emissions and determined that it will not impede the reduction goals (Section 5.2.7.2.5). The mercury TMDL for the St. Louis River has not yet been established due to insufficient understanding of mercury dynamics in the watershed. It is known that the statewide TMDL is insufficient for reducing mercury to acceptable levels in fish of the SLR. Since there is no SLR mercury TMDL available, the impact of the project’s mercury emissions on reduction goals in the area cannot be adequately assessed.

Comment 16

Increased mercury, especially in fish, could negatively impact cultural resources, especially for local Native American tribes who rely on fish as a major source of subsistence food and who view fishing and fish consumption as vitally important cultural and spiritual activities. This is not acknowledge in the PSDEIS. Further, fish harvest is a treaty reserved right of these tribes. The presence of mercury in fish at levels that restrict consumption threaten the ability of the tribes to exercise this treaty right.

Wild Rice Section

Wild Rice Sulfate Standard

The State of Minnesota has promulgated a 10 mg/l sulfate standard for Wild Rice waters. There is extensive scientific support for the fact that sulfate negatively affects wild rice. Tribal cooperating agencies, the 1854 Treaty Authority, and GLIFWC have commented numerous times on this issue and provided extensive background information to support the need to protect wild rice from sulfate. Additional scientific support is available through the MPCA document *The Sulfate Standard to Protect Wild Rice Study Protocol* (MPCA 2011).

Yet, the PSDEIS, like the 2009 DEIS, continues to prevaricate on the issue of sulfate impacts to wild rice. It is puzzling that this error remains after all the information and perspectives provided to the lead agencies and their contractor.

The point is simply this. A 10 mg/l sulfate standard applies in wild rice waters. All extraneous discussion that attempt to minimize the validity or applicability of that standard should be removed from the PSDEIS.

Seasonal Application of the Sulfate Standard

The MPCA has determined that the 10 mg/l standard can be applied seasonally; essentially during winter months when the plant is not growing. We fundamentally disagree with this interpretation because there is no scientific basis for stating that seed is not affected by high sulfate levels while it lays dormant over the winter or that the effects of high sulfate water would not remain into the summer. It is GLIFWC staff position that the sulfate standard should apply all year.

The PSDEIS states the NorthMet is not seeking a seasonal application of the wild rice sulfate standard. This position is supported by an email from Bill Johnson of the MNDNR dated 6-19-2013 that states “Finally please note that PolyMet is not seeking the application of the seasonal wild rice standard at this time. They intend to meet the 10 mg/l standard year round.” We believe this statement is misleading. The PSDEIS indicates in several sections that the goal is to transition from mechanical water treatment to passive water treatment systems. These passive water treatment systems are described in the Adaptive Water Management Plan v5 (March 2013). Descriptions in the AWMP as well as page 5.5.2-200 of the PSDEIS state:

“The West Pit overflow non-mechanical treatment system would be designed to discharge only during September and October in order to comply with the seasonal sulfate discharge criterion for wild rice downstream of the Mine Site. The 2-month discharge period would result in a higher flow rate and larger treatment system than would be required for continuous discharge.”

The above statement is in contradiction of other sections of the PSDEIS and the MNDNR statements that the applicant is not seeking a seasonal application of the standard. This contradiction should be addressed.

Embarrass River Watershed

Historic Data and Information

We are aware of the MPCA determination on waters that are defined as supporting the production of wild rice. We believe that the process used to inform this determination must incorporate historic information of wild rice presence, abundance and habitat. The following section provides historic information on wild rice that, when viewed in combination with other more recent information, suggests that the Embarrass River produces or has produced wild rice in several areas upstream of the current point of compliance. Therefore, we suggest that the compliance point for the wild rice sulfate standard should be upstream of the current location at all areas where rice is growing.

Manoomin or Wild Rice can be found throughout the Great Lakes but the areas of greatest concentration are in Minnesota and Wisconsin (Figure 1) (Peter David, GLIFWC wild rice biologist, personal communication, Jenks 1901, Moyle 1944, MRC 1969). The areas of greatest concentration, which are defined as wild rice districts by Jenks, encompass lakes and streams within the region covered by glacial outwash. Jenks' description of the wild rice district is often cited in other publications that describe the range of wild rice (GLIFWC, 1999). Jenks provides additional information on wild rice distribution by stating that within the wild rice district, rice is found wherever there is suitable habitat. Specifically:

"Farther south the St. Louis River system tells the same tale – the streams all bear abundant stores of wild rice" (Jenks, 1901, page 1035)

This publication supports the accounts of tribal members from the tribes acting as cooperating agencies for this project. The draft Cultural Landscape Report prepared as part of the Polymet SDEIS dated September 15, 2011 states, "With the potential for wild rice in the shallow margins of lakes and streams, and abundant wild plant, fishing and hunting habitats, portions of the Preliminary Project APE may have been very attractive to the Ojibwe" (pg. 48). That report also includes an account from a Bois Forte tribal member indicating that harvest occurred on the Embarrass River. Another tribal member stated that she knows of a family that harvested wild rice in the vicinity of the LTV tailings dam on the Embarrass River. These specific descriptions would indicate harvest occurring upstream of Embarrass Lake and upstream of Wynne and Sabin Lakes. This supports the notion of abundant wild rice stands in areas where only smaller stands now remain.

Another corroborating piece of information is the presence of a wild rice farm straddling the Embarrass River. This wild rice farm operated from 1957 until 1993 when the operation went bankrupt (Barr, 1995). Aerial Photos taken in the spring of 1991 and 1992 show the flooded rice paddies and some ditches connecting the farm to the Embarrass River (Figure 2). The use of water from the river in the farm operation clearly defines the Embarrass River as used for the production of wild rice. Figure 2 also shows that Unnamed Creek (Labeled Rice Farm Creek in Figure 2) was likely a source of water for the farm. This creek currently originates at the northwest corner of the LTV tailings basin (Figure 3). According to the Clean Water Act (CWA) this use of water for production of wild rice is a designated use. As such, the sulfate standard applies for the Embarrass River.

Wild Rice Habitat

Field data collected by Barr Engineering (Barr, 2011) indicates that mine related sulfate effluent has already impacted the river to the point of exceeding the wild rice standard. The Draft Staff Recommendation does not provide information on how the MPCA considered the existing water quality in its recommendation and to what extent the high sulfate values have already impacted wild rice on the Embarrass River. This basic analysis should be part of describing existing conditions in the PSDEIS. A description of how the issues of wild rice habitat protection and existing elevated sulfate levels in the Embarrass River water were treated in the development of the recommendation is needed. Wild rice in this area is a degraded resource. As such, all remnant populations are in need of protection. This need is further emphasized by the designation of the Embarrass River as impaired in the 2012 draft 303d list (Figure 4)

The current wild rice standard language clearly states that wildlife use of wild rice is an important factor in protecting the plant. It is not clear how MPCA staff determined that the number of wild rice plants upstream of the current point of compliance is not enough to be used as a food source by wildlife. GLIFWC staff is not aware of research that defines the number of plants or the density of a rice bed that would make it usable to blackbirds, muskrat, geese, or other wildlife. A single plant can provide nutrition to wildlife. Furthermore, browsing by wildlife is one of the reasons that wild rice fluctuates in abundance and density from year to year (Peter David, GLIFWC wild rice biologist, personal communication). The variability that is observed in the wild rice survey data on the Embarrass River may well be the result of wildlife use. Finally, Barr Engineering field notes indicate wildlife is using the wild rice stands in the area. These observations of browsing include small stands that are classified in the lowest density and lowest abundance categories (Barr, 2013). This supports the tribal position that all locations where rice is growing should be points of compliance for the 10 mg/l sulfate standard.

Summary and Conclusion.

Based on available information the GLIFWC staff believes that productive wild rice waters on the Embarrass River are where wild rice is currently growing and is confirmed to have been present in the past. The basis for this view is:

- Wild Rice has been present at these locations during at least one of the four survey years (2009 – 2012).
- The wild rice sulfate standard is 10 mg/l. Language attempting to cast doubt of the current applicability of this standard should be removed. Further, there is no scientific support for the seasonal application of the standard.
- Wild Rice is food for wildlife regardless of its density and the observed inter annual fluctuation in abundance of wild rice in the Embarrass River is consistent with the ecology of wild rice. Barr field notes support this position.
- Historic information from tribal sources indicates past harvest in this area and non-tribal sources support the assertion that this is an area where wild rice was found.
- The existence of a rice farm in this area is consistent with the assertion that the Embarrass River water quality was supportive to wild rice prior to mining impacts.
- Wild rice in the Embarrass River endures despite degraded water quality. It is likely that the degraded water quality has decreased the abundance of wild rice in this river.

It is important to note that this view is based on current information and field data. Should new information be developed or field data be collected, this view may change.

Sources Cited

- Barr Engineering, 2010 Wild Rice and Water Quality Monitoring Report, January 2011.
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Figure 1: Manoomin in the Western Great Lakes

Areas of high monoomin density are mapped based on information in Jenks 1901, MRC 1969, and personal communications with Peter David, GLIFWC manoomin biologist.

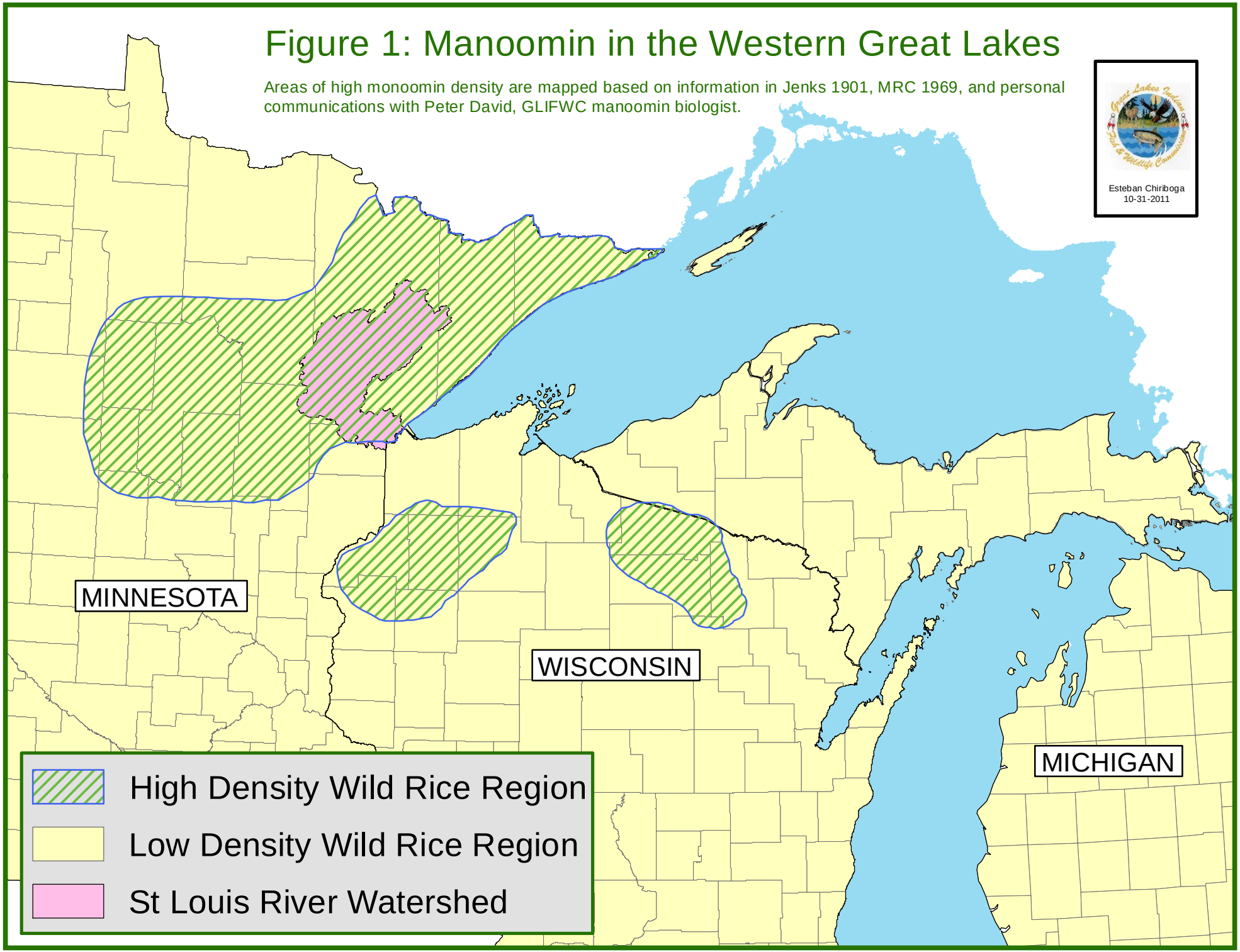

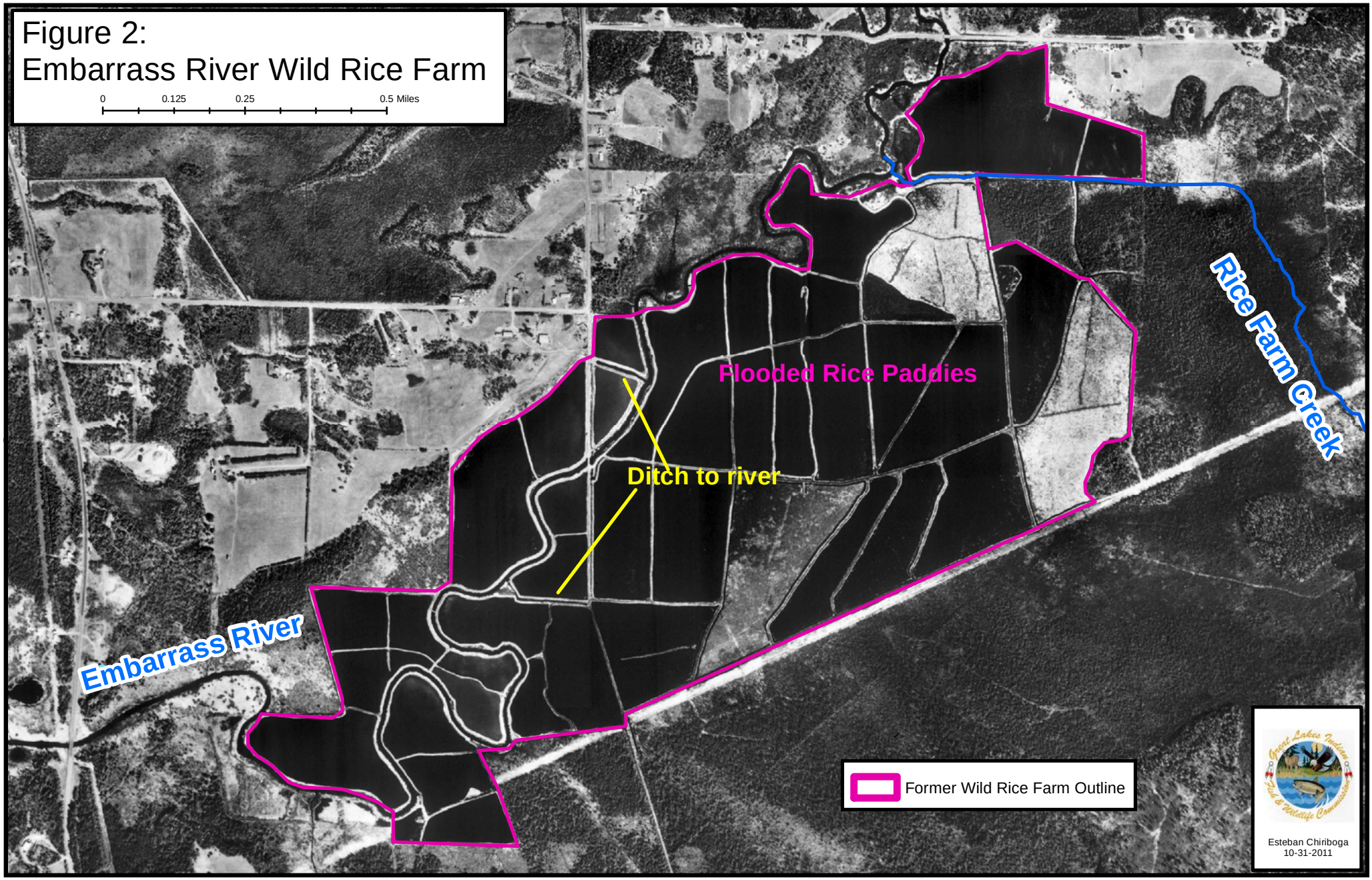
Figure 2:
Embarrass River Wild Rice Farm
0
0.125
0.25
0.5 Miles
Flooded Rice Paddies
Ditch to river
Rice Farm Creek
Embarrass River
Former Wild Rice Farm Outline
Esteban Chiriboga
10-31-2011

Fig 3: Proposed Polymet Mine: Upper Embarrass River Wild Rice

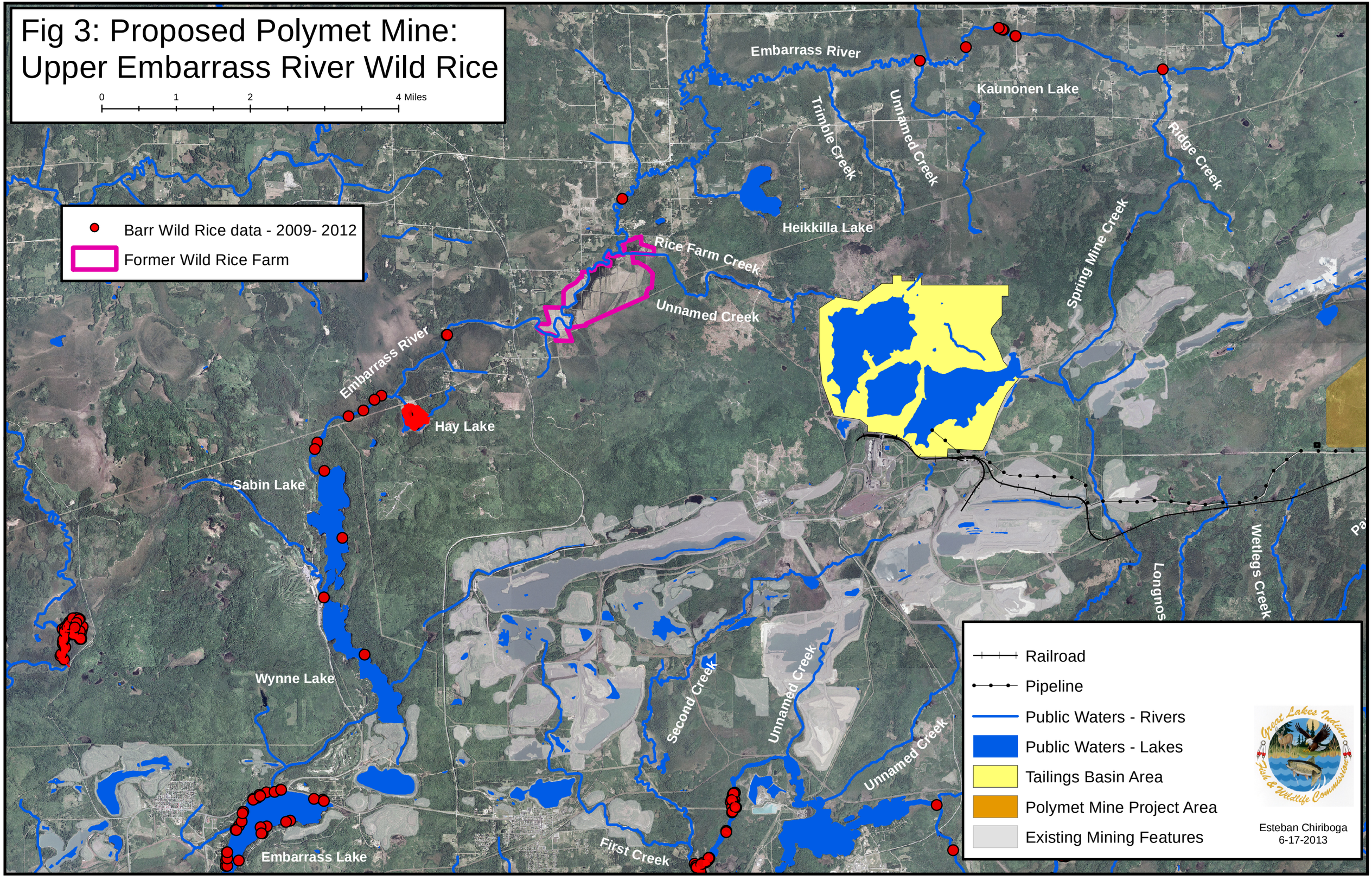

Esteban Chiriboga
6-17-2013

Fig 4. 303d Impaired Waters Surrounding the Proposed Polymet Mine

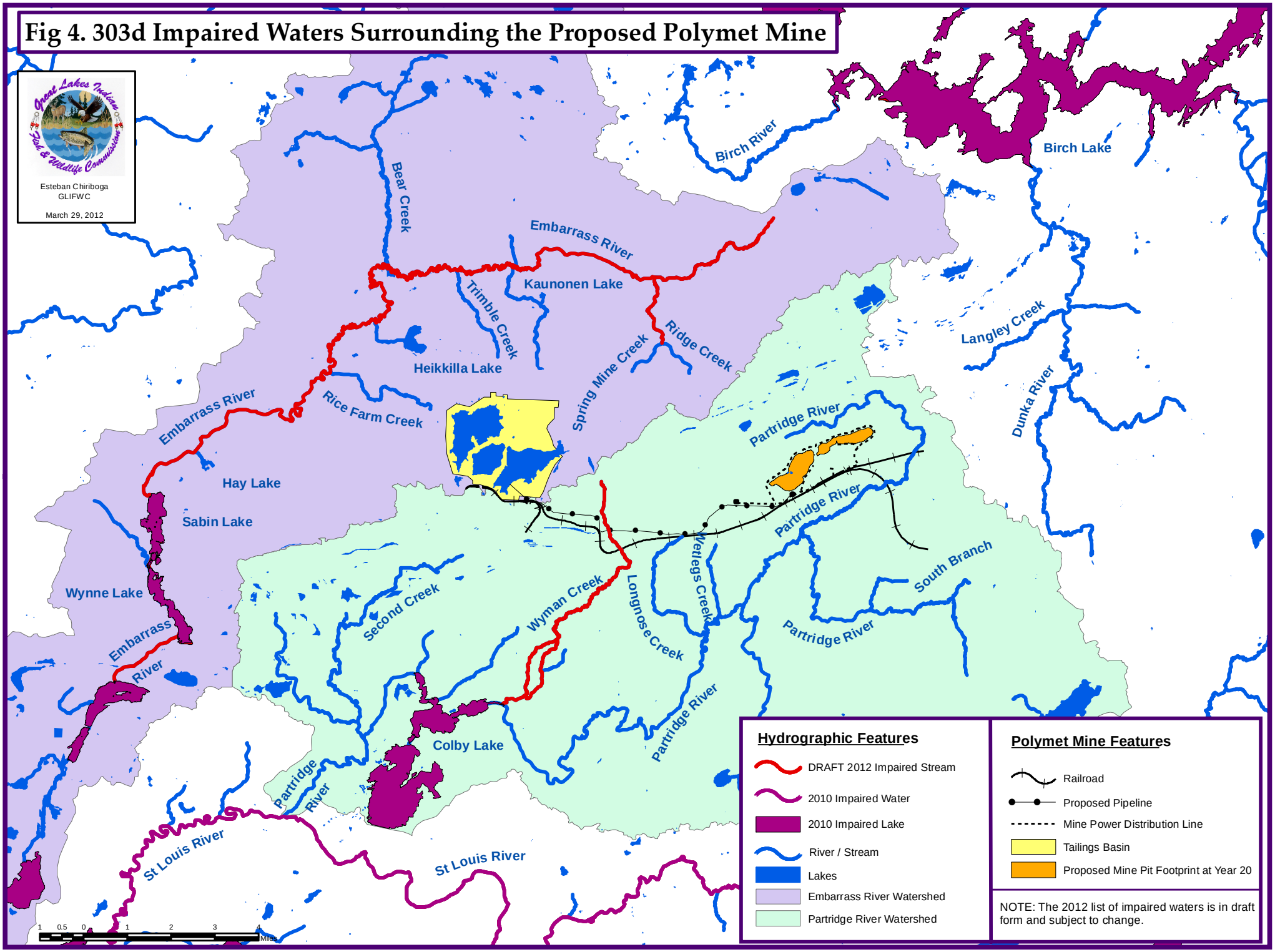

Underground Mine and West Pit Backfill Alternatives

GLIFWC staff believes that the underground mine and west pit backfill alternatives have been prematurely eliminated from consideration in the PSDEIS for the NorthMet project. We believe that there is potential for significant environmental benefits to these alternatives when compared to the proposed action. This document will provide questions and discussion on each of these alternatives. However, we believe that these alternatives are related to one another in terms of the issue of inferred ore deposits at depth and foreseeable future actions at this site. This issue impacts the accuracy of information in the PSDEIS and is discussed below.

Underground Mine Alternative

The Underground Mining Alternative Assessment for the NorthMet Mining Project and Land Exchange Environmental Impact Statement document dated February 5th 2013 provides the lead agency rationale for eliminating the alternative from further analysis in the SDEIS. The document states that for an alternative to be evaluated it must meet 5 screening criteria:

1. be technically feasible
2. be available
3. offer significant environmental benefits over the proposed project
4. meet the purpose and need
5. be economically feasible

The lead agency position paper correctly states that the underground alternative would offer significant environmental benefits over the proposed action. In some areas these benefits would be substantial. The roughly 1000 acre wetland fill could be almost completely eliminated and the amount of tailings and waste rock generated by the project would be significantly reduced. The water quality and quantity impacts on surface and groundwater would be mitigated. This is particularly important given the probability that the NorthMet project will violate water quality standards and the certainty that the project would require perpetual water treatment. In addition to the environmental benefits the document correctly states that underground mining is technically feasible and available at the site. It is important to note that with underground mining the land exchange with the Superior National Forest would not be needed therefore environmentally sensitive areas like the 100 mile swamp and essential Lynx habitat would remain in the federal estate.

The only rationale that is used to eliminate the alternative is economic feasibility. All other objectives of the purpose and need statements in section 1.3.2.1 of the PSDEIS are met. Therefore, the question on further analysis is determined by the applicants' assessment of the economics of the alternative. This leads to several questions.

Section 1.2 of the Underground Mining Alternative Assessment describes the assessment as a semi-quantitative screening analysis. Section 1.2.2 of the Underground Mine Alternative Assessment states "The information provided by PolyMet was reviewed by technical staff at the MNDNR and was determined to be sufficient for a screening level review of the feasibility of underground mining at the NorthMet Deposit". What is the accuracy of a screening level review? The determination that a project is economic or not necessarily relies on rather detailed analysis. The following are some descriptions of the accuracy that can be expected for different types of analysis:

- **Conceptual Studies - Desktop/Order of Magnitude:** Conceptual/Strategic studies are conducted early in the project life cycle to assist exploration strategy and to identify fatal flaws and development opportunities. These studies are typically used to support the decision to progress to Preliminary Economic Assessment. **Order of Magnitude (+/-50%) estimating accuracy** is typical for this level of study.

- **Preliminary Economic Estimates:** The Preliminary Economic Assessment (PEA) is a scooping-level study which relies on information from disciplines such as geotechnical, environmental, infrastructure and markets in addition to the core inputs from mining, geology and metallurgy. Capital and operating cost **estimates for the project will typically be estimated to +/-30%.**

- **Preliminary Feasibility Studies:** The Preliminary Feasibility Study (PFS) develops the concepts and work completed in scooping-level studies, examines necessary trade-offs or optimizations, and may progress resources into reserves. Multi-disciplinary technical teams will improve the accuracy of capital estimates through the completion of additional engineering. Disciplines such as geotechnical, environmental, infrastructure and markets are utilized in addition to the core inputs from mining, geology and metallurgy. Capital and operating cost estimates for the project **will typically be estimated to 20-25% overall accuracy.** Engineers and geologists have experience in the completion of Pre-Feasibility Studies and can manage the resources required for such work.

A description of the error term in the economic assessment needs to be developed and clearly explained in the SDEIS.

Section 2.0 of the Underground Mining Alternative Assessment states that the project should "(provide sufficient income to cover: operating capital and other costs with an adequate return to investors). If an adequate rate of return is to be included in the economic feasibility it should be defined. What do the authors ascertain is an adequate return to investors? Is the underground mine alterative excluded because of a net negative return to investors or a positive return that is not deemed adequate? The November 2012 PolyMet power point presented by Douglas Newby projects an after tax Internal Rate of Return (IRR) of 30.6% for the open pit mine. Is the same assumption made for an underground mine?

Section 2.1 discusses the significant environmental and/or socioeconomic benefits. However, no economic data was presented related to the environmental benefits related to the underground mining alternative. For example:

- There is no mention that an underground mine would not require a $4 million land exchange with the United States Forest Service.
- No mention of the economic benefits (environmental goods and services) provided by wetlands
- No mention of the economic impact of perpetual maintenance and water treatment at the site. Of note, there is no discussion on the cost of wetland mitigation activities that are needed with an open pit mine. An underground mine would not require extensive wetlands mitigation costs for wooded swamp and bog sites that could reach between

$35,460,000-$110,205,000 (i.e. 1200 acres x 1.5 rate x $19,700/acre ACOE source and 1200 acres x 1.5 rate x $61,225/acre MN Department of Transportation – (i.e. - Mitigation of Impacts to Fish and Wildlife Habitat: Estimating Costs and Identifying Opportunities, Environmental Law Institute, October 2007, Corps District, St. Paul, Corps District Data Average $19,700 and Wetland Mitigation in Abandoned Gravel Pits, Minnesota Department of Transportation, Research Services, Office of Policy Analysis, Research & Innovation, March 2010, Final Report#2010-11, Executive Summary page 3)

The Underground Mining Alternative Assessment relied heavily on an InfoMine model to determine economic feasibility. However there is no detail on the model itself, the model assumptions or how the model calculates its results. For a complete evaluation of the alternative, a review of this model should have been done by the lead agencies.

Finally, it appears likely that the project as proposed will violate applicable water quality standards. This means that the current proposal is not likely to be permitted. Because of this, it seems reasonable that an underground alternative be considered as an additional mitigation measure.

West Pit Backfill Alternative

Based on the lead agency memorandum titled Co-lead Agencies' Consideration of a West Pit Backfill Alternative dated April 11, 2013 it is clear that this alternative meets the purpose and need, is available, is technically feasible and is economically feasible. The document argues that environmental benefits are unclear. However, because of the screening level analysis used by the lead agencies the full effect of the alternative on the environment is not known. Page 3 indicates that there is no information to determine water quality projections under this alternative. Therefore the primary potential benefit of this alternative is not addressed. Until this information is developed, GLIFWC staff maintain that backfill of the west pit may provide long term water quality benefits. Given that the current project is expected to violate water quality standards, additional mitigation is needed and this alternative should be more fully analyzed.

Inferred Ore Deposits at Depth and Reasonably Foreseeable Future Actions

The proposed NorthMet project proposes to mine a relatively small portion of the ore body. Figure 3.2-10 of the PSDEIS indicates that an upper mineralization zone and a portion of the Unit 1 mineralization are the targets. This mine plan appears to leave behind a substantial portion of ore. GLIFWC staff has argued that the remaining ore could be accessed through underground mining methods. According to the Co-lead Agencies' document "Consideration of a West Pit Backfill Alternative" dated April 11, 2013, a major reason for the development of an open pit mine plan is that there is a lease agreement between PolyMet and the owners of mineral rights immediately southwest of the toe of NorthMet's west pit. These private lease agreements apparently include using the west pit as a portal for future mining activities. In addition, tribal cooperating agencies have provided the lead agencies with power point presentations from PolyMet staff to their investors that tout the potential for future mining of these mineral resources southwest of the west pit.

If the west pit is to be used as a portal for this future mining, then that should be described in the PSDEIS and the environmental consequences assessed. The Evaluation of Backfilling the NorthMet West Pit (December 2012) states on page 2 “mineralization on the western end is much more flat laying, dipping at about 15 degrees and could be developed in the future via expansion of the proposed open pit mining operation and/or underground mining from the base of the west pit.” It appears that the PSDEIS is describing a project that is not complete in that future mining is not included. What are the implications of developing an underground mine that extends from the west pit to surface and groundwater resources of the Partridge River watershed?

Another stated reason for avoiding backfill for the west pit is the lease requirement of not encumbering the mineral resources to the southwest. The lead agencies have also noted this goal in the PSDEIS. The assertion that backfilling the west pit would encumber minerals is ludicrous. We disagree with the notion that the only way to access minerals at depth is through the bottom of the west pit. These minerals could be accessed through other standard underground mining techniques from other locations. In fact, these minerals are accessible now and would continue to be accessible even if the NorthMet project is never built. Taking advantage of an existing pit may provide economic benefits to a mining company but it is unclear why a regulatory agency would prefer this method without first conducting an analysis. If the lead agencies are taking the position that the preferred alternative of a future underground project includes a portal through the west pit, then they need to provide a scientifically defensible reason for that decision.

Finally, the titled Co-lead Agencies’ Consideration of a West Pit Backfill Alternative dated April 11, 2013 provides several reasons for the conclusion that backfill would not provide significant environmental and socioeconomic improvements over the proposed action. Page 3 of the document clearly states that there has been no analysis done to support these conclusions.

It appears that economic considerations of a future mine expansion are the only concrete reasons for not conducting an analysis of the environmental and socioeconomic benefits of backfilling the west pit. The NorthMet project as proposed is a perpetual maintenance and water treatment facility. It seems logical that every available option that might improve the long term impacts of the project should be explored regardless of the commitments that applicant may have made on their mineral lease. GLIFWC staff suggests that this alternative has been eliminated prematurely and that a full analysis is needed.

GLIFWC Wetlands Attachment

Analysis of Indirect Wetland Impacts from Groundwater Drawdown

Enclosed please find an analysis of indirect impacts to wetlands due to drawdown at the NorthMet mine site developed by the Great Lakes Indian Fish and Wildlife Commission (GLIFWC). GLIFWC is an intertribal agency exercising delegated authority from 11 federally recognized Ojibwe (or Chippewa) tribes in Wisconsin, Michigan and Minnesota.[1] Those tribes have reserved hunting, fishing and gathering rights in territories ceded in various treaties with the United States. GLIFWC's mission is to assist its member tribes in the conservation and management of natural resources and to protect habitats and ecosystems that support those resources.

As you know, the proposed Polymet mine is located within the territory ceded in the Treaty of 1854. GLIFWC member tribes have expressed concern about the potential impacts of sulfide mining, whether those impacts occur within the 1854 ceded territory, in the 1842 ceded territory, which includes portions of Lake Superior, or the 1837 ceded territory. The following analysis is submitted by GLIFWC staff with the explicit understanding that each GLIFWC member tribe or any other tribe may choose to submit analysis and information from its own perspective.

Potential impacts to wetlands due to groundwater drawdown at the NorthMet mine site are described in the NorthMet Project Wetland Data Package Version 7 dated March 1, 2013 and summarized in the 2013 PSDEIS. Potential impacts due to drawdown are assessed using an analog method where information from another site is used to provide a best guess as to how wetlands surrounding NorthMet might be affected. The data package states that this method came out of the Wetlands IAP process however it does not state that GLIFWC and other cooperating and reviewing agencies have objected to using this method. The objections are detailed in the comments that GLIFWC provided within the IAP process (Attachment A).

GLIFWC continues to believe that the analog method can be informative in the process. We also reiterate that the lead agencies' reliance on analogs as the only source of information to gauge impacts from pit dewatering is not a rigorous approach to impact estimation. However, because of the lead agencies insistence that this method be used in the SDEIS, GLIFWC is providing an independent analysis using information from other mine pits located on the Mesabi Range.

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1 GLIFWC member tribes are: in Wisconsin -- the Bad River Band of the Lake Superior Tribe of Chippewa Indians, Lac du Flambeau Band of Lake Superior Chippewa Indians, Lac Courte Oreilles Band of Lake Superior Chippewa Indians, St. Croix Chippewa Indians of Wisconsin, Sokaogon Chippewa Community of the Mole Lake Band, and Red Cliff Band of Lake Superior Chippewa Indians; in Minnesota -- Fond du Lac Chippewa Tribe, and Mille Lacs Band of Chippewa Indians; and in Michigan -- Bay Mills Indian Community, Keweenaw Bay Indian Community, and Lac Vieux Desert Band of Lake Superior Chippewa Indians.

Analog Data Used

- Randal Property Wells T3 and T4 (Source: Crotteau, 2013), Rhino and Highway 7 wells in the vicinity of the Canisteo pit. (Source: Adams and Liljegren 2011)
- MNDNR observation well, in the vicinity of Hibtac pits (Source: Crotteau, 2013).
- Dom-ex and Pinto wells north of Hibbing in the vicinity of Hibtac (Source: Crotteau, 2013).
- Keewatin City wells #1 and #2 in the vicinity of the Keetac pit (Source: Liesh and Associates Technical Memorandum, 2009).

Contour lines showing the analog well information in relation to the proposed NorthMet mine site are provided in Figure 1.

Wetland Analog Impact Zones and Significance Criteria

GLIFWC objections to the impact zones developed by the lead agencies are presented in Attachment A. We believe these distance zones are somewhat arbitrary and continue to have concerns regarding their use. Despite these concerns, we are using similar impact zones so that the results we present can be compared to the analysis that in presented in the NorthMet Project Wetland Data Package Version 7.

GLIFWC impact zones (Figure 2) are:

- Zone 1 – 0 to 1000 feet from the mine pit edge.
- Zone 2 – 1000 to 2000 feet from the mine pit edge.
- Zone 3 – 2000 to 5000 feet from the mine pit edge.
- Zone 4 – 5000 to 10000 feet from the mine pit edge.

For impact assessment, this analysis applies the significance criteria outlined in large table 8 of the NorthMet Project Wetland Data Package Version 7. However, GLIFWC does not automatically exclude wetlands that have been classified as ombotrophic in the data package from being considered impacted by drawdown. Literature indicates that ombotrophic wetlands can and are impacted by drawdown. Several studies document vegetation changes at ombotrophic bogs in Finland (Murphy et al, 2009, Grootjans et al 2009, Jaatinen et al 2006, Vassander 1995). In general, groundwater drawdown beneath these ombotrophic bogs leads to increases in the root mass of woody vegetation species as well as greater dominance of woody species at the surface. The functions and values changes resulting from the drawdown induced change in vegetation in ombotrophic bogs are not characterized in the PSDEIS.

The analysis in the NorthMet Project Wetland Data Package Version 7 relies on surface observations of plant communities to classify bog wetlands as ombotrophic or minerotrophic. GLIFWC agrees that this is useful information but we maintain that it is not a substitute for detailed understanding of the relationship of the water table and wetlands at the site. NorthMet Project Wetland Data Package Version 7 states that hydraulic conductivity in the unconsolidated deposits around the mine site can range between 0.012 to 31 feet per day. This range of values indicates that substantial water movement within the aquifer can occur. Therefore unless there is information on whether the unconsolidated deposits that underlie wetlands are saturated or not it

is not possible to know the degree to which groundwater supports wetland hydrology. Despite the assumption in the wetlands section of perched conditions for over 50% of wetlands at the mine site, Section 4.2.2-5 of the PSDEIS states that saturated conditions exist within the unconsolidated deposits and the underlying bedrock. It also states that recharge to the bedrock comes from leakage from the overlying surficial aquifer. Given these statements describing vertical movement of water in the mine site area, it does seem reasonable to also assume a vertical hydrologic connection between ombotrophic wetlands and the surficial aquifer.

The data package and PSDEIS assume that wetlands deemed to be ombotrophic are not connected to groundwater and therefore are not impacted by drawdown. This assumption is based mostly on plant lists and surface observations. We believe that this assumption is not supportable. Instead, GLIFWC assumes that there is at least a partial connection between ombotrophic wetlands and groundwater. Therefore, if groundwater under these "perched" wetlands is drawn down by several feet, this new head pressure would lead to impacts to the wetlands because of a "bathtub effect". In other words, water would seep out of ombotrophic wetlands in areas where there is a hydrologic connection to the saturated layer. This assumption is the support for assigning significance criteria for Deep Mersh/Shallow Marsh and Open bog wetlands for the Crandon project. It is this project that is the basis for the significance criteria used in the PSDEIS (large table 8 of the NorthMet Project Wetland Data Package Version 7).

Finally, the data package ignores the fact that the proposed NorthMet pits would be over twice the depth of a typical pit located up on the Mesabi Range and double the depth of the Canisteo pit analog. Thus the hydrologic effects on the surrounding aquifer will likely be greater for the NorthMet project.

Zone 1 Impacts (0 – 1000 Feet)

Wetlands within Zone 1 are depicted in Figure 3. Information provided by MNDNR Mining Hydrologist Michael Crotteau indicates that 2 wells at the Randall property (Wells T3 and T4) were artesian before a drain tile was installed to reduce groundwater levels in the area. This indicates a strong hydrologic connection between these wells and the Canisteo pit approximately 700 feet from the edge of the pit (Figure 4). The basement of the Randall residence was built when the Canisteo pit was dewatered is at an elevation of 1300 feet above sea level. The surface elevation at the site is 1310.73 feet above sea level. This indicates at least an 8 to 10 foot increase in the elevation of the water table 792 feet away from a reflooded Canisteo pit.

Based on these analog wells, a drawdown of up to 10 feet could affect wetlands in zone 1. We believe it is reasonable to assume that 5 to 10 feet of drawdown would occur throughout zone 1. In addition, these wetlands are often remnants of wetlands directly impacted by the pits and stockpiles, are surrounded by roads and ditches, and directly border the pits. Therefore, all wetlands in zone 1 are assessed as severely impacted (Table 1).

UNIQUE ID	EGGERS & REED CLASS	ACRES	IMPACT	IMPACT DESCRIPTION
24	Alder thicket	5.920	Severe	Conversion of wetland type
33A	Alder thicket	142.927	Severe	Conversion of wetland type
43	Alder thicket	7.456	Severe	Conversion of wetland type
44	Alder thicket	14.704	Severe	Conversion of wetland type
45	Alder thicket	159.903	Severe	Conversion of wetland type
51	Alder thicket	5.542	Severe	Conversion of wetland type
52	Alder thicket	18.113	Severe	Conversion of wetland type
53D	Alder thicket	39.376	Severe	Conversion of wetland type
100	Coniferous bog	981.692	Severe	Possible conversion of wetland type
101	Coniferous bog	60.631	Severe	Possible conversion of wetland type
103	Coniferous bog	174.579	Severe	Possible conversion of wetland type
107	Coniferous bog	126.238	Severe	Possible conversion of wetland type
25	Coniferous bog	20.965	Severe	Possible conversion of wetland type
32	Coniferous bog	73.745	Severe	Possible conversion of wetland type
48	Coniferous bog	190.986	Severe	Possible conversion of wetland type
62	Coniferous bog	1.782	Severe	Possible conversion of wetland type
76	Coniferous bog	22.181	Severe	Possible conversion of wetland type
77	Coniferous bog	118.315	Severe	Possible conversion of wetland type
79	Coniferous bog	25.709	Severe	Possible conversion of wetland type
82	Coniferous bog	44.293	Severe	Possible conversion of wetland type
888	Coniferous bog	12.481	Severe	Possible conversion of wetland type
90	Coniferous bog	499.822	Severe	Possible conversion of wetland type
96	Coniferous bog	52.276	Severe	Possible conversion of wetland type
97	Coniferous bog	32.904	Severe	Possible conversion of wetland type
99	Coniferous bog	14.536	Severe	Possible conversion of wetland type
107A	Coniferous swamp	3.090	Severe	Change in vegetation
33B	Coniferous swamp	47.690	Severe	Change in vegetation
68	Coniferous swamp	172.129	Severe	Change in vegetation
72	Coniferous swamp	14.910	Severe	Change in vegetation
13	Deep marsh	54.139	Severe	Conversion of wetland type
20	Sedge meadow	2.237	Severe	Conversion to upland
107B	Shallow marsh	27.922	Severe	Conversion of wetland type
9	Shallow marsh	19.424	Severe	Conversion of wetland type

Table 1. Zone 1 impact assessment.

Zone 2 Impacts (1000 – 2000 Feet)

Wetlands within zone 2 are depicted in Figure 5. The Dom-ex well is located on the north side of the city of Hibbing is 1320 feet from the nearest dewatered pit at Hibtac. According to Mr. Crotteau this well experienced a drop of 3.07 feet in response to pit dewatering. Because wells in zone 3 (discussed below) indicate drawdown values ranging between 1 and 3 feet, and wells in zone 1 indicate dewatering of up to 10 feet, this analysis assumes that drawdowns in zone 2 are on the order of 3 to 5 feet. In addition to drawdown, wetlands in zone 2 are remnants of wetlands directly impacted by the project are surrounded by roads, ditches and other mine features, or have sections in zone 1. These wetlands can also be impacted by aerial deposition of mine related contaminants. The impact assessment for wetlands in zone 2 is outlined in Table 2.

It is important to note that a section of the upper Partridge River is located within Zone 2. Drawdowns of 3 to 5 feet under a river could severely reduce baseflow leading to reductions in flow in the river channel. Reductions in flow could indirectly impact riparian wetlands downstream.

UNIQUE ID	EGGERS & REED CLASS	ACRES	IMPACT	IMPACT DESCRIPTION
100A	Alder thicket	8.275	Moderate to Severe	Change in vegetation to change in wetland type
53D	Alder thicket	802.660	Moderate to Severe	Change in vegetation to change in wetland type
43	Alder thicket	9.150	Moderate to Severe	Change in vegetation to change in wetland type
53	Alder thicket	15.967	Moderate to Severe	Change in vegetation to change in wetland type
100A	Alder thicket	8.210	Moderate to Severe	Change in vegetation to change in wetland type
22C	Alder thicket or Shrub-carr	30.447	Moderate to Severe	Change in vegetation to change in wetland type
315	Alder thicket or Shrub-carr	185.118	Moderate to Severe	Change in vegetation to change in wetland type
100	Coniferous bog	49.041	Severe	Possible conversion of wetland type
48	Coniferous bog	556.958	Severe	Possible conversion of wetland type
62	Coniferous bog	108.797	Severe	Possible conversion of wetland type
80	Coniferous bog	3.138	Severe	Possible conversion of wetland type
86	Coniferous bog	4.866	Severe	Possible conversion of wetland type
88	Coniferous bog	14.561	Severe	Possible conversion of wetland type
100	Coniferous bog	105.174	Severe	Possible conversion of wetland type
104	Coniferous bog	4.747	Severe	Possible conversion of wetland type
90	Coniferous bog	383.229	Severe	Possible conversion of wetland type
773	Coniferous bog	53.424	Severe	Possible conversion of wetland type
888	Coniferous bog	940.711	Severe	Possible conversion of wetland type
77	Coniferous bog	20.517	Severe	Possible conversion of wetland type
552	Coniferous bog	31.210	Severe	Possible conversion of wetland type
61	Coniferous swamp	3.727	Moderate to Severe	Possible changes in vegetation
701	Coniferous swamp	3.968	Moderate to Severe	Possible changes in vegetation
856	Coniferous swamp	74.335	Moderate to Severe	Possible changes in vegetation
22A	Coniferous swamp	9.564	Moderate to Severe	Possible changes in vegetation
53C	Coniferous swamp	28.741	Moderate to Severe	Possible changes in vegetation
48A	Coniferous swamp	7.821	Moderate to Severe	Possible changes in vegetation
57	Coniferous swamp	36.143	Moderate to Severe	Possible changes in vegetation
64	Hardwood swamp	3.290	Moderate to Severe	Change in vegetation to change in wetland type
47	Open bog	2.341	Severe	Change in vegetation to change in wetland type
90A	Open bog	78.350	Severe	Change in vegetation to change in wetland type
22B	Shallow marsh	29.190	Severe	Conversion of wetland type
16	Shallow marsh	3.317	Severe	Conversion of wetland type
22	Shallow marsh	15.372	Severe	Conversion of wetland type

Table 2. Zone 2 impact assessment.

Zone 3 Impacts (2000 – 5000 Feet)

GLIFWC has modified Zone 3 in response to available data (from 2000 to 3500 feet in data package to 2000 to 5000 feet). Wetlands within zone 3 are depicted in Figure 6. The Rhino and Highway 7 wells are 2150 and 2625 feet respectively from the Canisteo pit. In response to reflooding in the pit, the Rhino well responded with a greater than 1 foot increase and the Highway 7 well responded with a greater than 2 foot increase. Two additional wells provide analog information for this zone. First, the Pinto well north of Hibbing is 2112 feet from the nearest active pit shows a drop of at least 3.55 feet in response to pit dewatering. Second, a MNDNR observation well located 4224 feet from the nearest active pit at Hibtac shows a 3.5 foot drop in water level. Attachment B is a slide from a presentation given by Mr. Crotteau outlining the water level drop at this well.

In addition to these wells, the city of Keewatin has been greatly impacted by pit dewatering. Well #2 at approximately 4220 feet from the Mesabi Chief pit dropped 75 feet in response to a 150 foot drop in water levels in the pit. Water levels in Well #1 at approximately 4750 feet from the pit are also correlated with pit dewatering at the pit although the report indicates that the amount of water drop was less than at well #2. The correlations between pit

dewatering and water level drop at the wells were also supported by chemical characterization of the water in the pit (Attachment C).

These two wells are drilled into the bedrock and therefore it is not clear how those large water level drops in bedrock wells are expressed in the surficial aqufer and in wetlands. However, as previously stated, the PSDEIS does document vertical movement of water between the surficial aquifer and the bedrock aquifer. Regardless, this information fits with the analog approach of the lead agencies for NorthMet and illustrates that pit induced groundwater drawdowns can be expected to extend well into zone 3. The analog information suggests that drawdowns of 1 to 3.5 feet can be expected throughout zone 3. The impact assessment for zone 3 wetlands is provided in Table 3.

Zone 3 wetlands on the north side of the mine pits are also subject to impacts related to the dewatering of the Northshore pit. Figure 8 illustrates the possible extent of drawdown impacts at the Northshore pit based on the Hibtac well data provided by the MNDNR Mining Hydrologist Michael Crotteau. This cumulative effect is not included in version 7 of the data package or the PSDEIS. This analysis should be conducted.

It should also be noted that there are wetlands that fall within Zone 3 that have not been delineated by PolyMet. These wetlands should be delineated and the impacts of the combined Northshore and NorthMet drawdown on these wetlands should be assessed by the applicant.

Most of the east west reach of the Partridge River on the north side of the mine pits is within zone 3. As previously suggested, 1 to 3.5 feet of drawdown could be a significant impact to the hydrology of the river. In addition, the City of Kewaatin wells indicate that groundwater drawdown of tens of feet in the bedrock aquifer below the Partridge River are likely. This potential hydrologic impact should be assessed as part of the NEPA process. Finally, reductions in flow to the Partridge River could indirectly impact riparian wetlands downstream.

UNIQUE ID	EGGERS & REED CLASS	ACRES	IMPACT	IMPACT DESCRIPTION
53	Alder thicket	184.092	Moderate	Change in vegetation
53D	Alder thicket	714.287	Moderate	Change in vegetation
54B	Alder thicket	6.040	Moderate	Change in vegetation
54C	Alder thicket	8.015	Moderate	Change in vegetation
58	Alder thicket	372.266	Moderate	Change in vegetation
53D	Alder thicket	1283.309	Moderate	Change in vegetation
55	Alder thicket	15.732	Moderate	Change in vegetation
678	Alder thicket	1.676	Moderate	Change in vegetation
743	Alder thicket	4.750	Moderate	Change in vegetation
744	Alder thicket	10.344	Moderate	Change in vegetation
746	Alder thicket	3.572	Moderate	Change in vegetation
747	Alder thicket	10.027	Moderate	Change in vegetation
749	Alder thicket	99.326	Moderate	Change in vegetation
752	Alder thicket	36.908	Moderate	Change in vegetation
315	Alder thicket or Shrub-carr	2907.52	Moderate	Change in vegetation
565	Alder thicket or Shrub-carr	20.622	Moderate	Change in vegetation
566	Alder thicket or Shrub-carr	63.204	Moderate	Change in vegetation
480	Alder thicket or Shrub-carr	47.863	Moderate	Change in vegetation
555	Alder thicket or Shrub-carr	61.723	Moderate	Change in vegetation
557	Alder thicket or Shrub-carr	31.464	Moderate	Change in vegetation
890	Alder thicket or Shrub-carr	157.349	Moderate	Change in vegetation
106	Coniferous bog	581.72	Moderate to Severe	Change in vegetation
114	Coniferous bog	7.911	Moderate to Severe	Change in vegetation
406	Coniferous bog	26.125	Moderate to Severe	Change in vegetation
48	Coniferous bog	14.142	Moderate to Severe	Change in vegetation
552	Coniferous bog	31.738	Moderate to Severe	Change in vegetation
559	Coniferous bog	229.834	Moderate to Severe	Change in vegetation
562	Coniferous bog	56.744	Moderate to Severe	Change in vegetation
564	Coniferous bog	38.575	Moderate to Severe	Change in vegetation
62	Coniferous bog	20.018	Moderate to Severe	Change in vegetation
714	Coniferous bog	1692.646	Moderate to Severe	Change in vegetation
773	Coniferous bog	33.980	Moderate to Severe	Change in vegetation
774	Coniferous bog	88.486	Moderate to Severe	Change in vegetation
84	Coniferous bog	14.276	Moderate to Severe	Change in vegetation
84A	Coniferous bog	55.627	Moderate to Severe	Change in vegetation
88	Coniferous bog	6.396	Moderate to Severe	Change in vegetation
887	Coniferous bog	1359.301	Moderate to Severe	Change in vegetation
888	Coniferous bog	1123.789	Moderate to Severe	Change in vegetation
90	Coniferous bog	685.002	Moderate to Severe	Change in vegetation
98	Coniferous bog	24.180	Moderate to Severe	Change in vegetation
984	Coniferous bog	162.094	Moderate to Severe	Change in vegetation
105	Coniferous bog	62.495	Moderate to Severe	Change in vegetation
11	Coniferous bog	95.587	Moderate to Severe	Change in vegetation
479	Coniferous bog	157.954	Moderate to Severe	Change in vegetation
558	Coniferous bog	50.111	Moderate to Severe	Change in vegetation
697	Coniferous bog	48.894	Moderate to Severe	Change in vegetation
699	Coniferous bog	23.740	Moderate to Severe	Change in vegetation
713	Coniferous bog	80.451	Moderate to Severe	Change in vegetation
782	Coniferous bog	10.815	Moderate to Severe	Change in vegetation
783	Coniferous bog	20.604	Moderate to Severe	Change in vegetation
949	Coniferous bog	19.484	Moderate to Severe	Change in vegetation
53B	Coniferous swamp	4.626	Moderate	Minor vegetation change
53C	Coniferous swamp	2.275	Moderate	Minor vegetation change
54	Coniferous swamp	44.113	Moderate	Minor vegetation change
54A	Coniferous swamp	34.455	Moderate	Minor vegetation change
54D	Coniferous swamp	17.547	Moderate	Minor vegetation change
553	Coniferous swamp	27.413	Moderate	Minor vegetation change
57	Coniferous swamp	293.943	Moderate	Minor vegetation change
701	Coniferous swamp	1642.996	Moderate	Minor vegetation change
745	Coniferous swamp	143.479	Moderate	Minor vegetation change
81	Coniferous swamp	13.507	Moderate	Minor vegetation change
856	Coniferous swamp	29.496	Moderate	Minor vegetation change
864	Coniferous swamp	1005.134	Moderate	Minor vegetation change
1145	Coniferous swamp	30.313	Moderate	Minor vegetation change
404	Coniferous swamp	137.651	Moderate	Minor vegetation change
53A	Coniferous swamp	25.257	Moderate	Minor vegetation change
53E	Coniferous swamp	20.088	Moderate	Minor vegetation change
554	Coniferous swamp	23.212	Moderate	Minor vegetation change
891	Coniferous swamp	74.816	Moderate	Minor vegetation change

Table 3. Zone 3 impact assessment.

Zone 4 Impacts (5000 – 10000)

Wetlands within zone 4 are depicted in Figure 7. There is no well data that can be used to draw conclusions about mine pit related drawdown in this zone. Based on Zone 3, it is reasonable to assume that 0 to 1 feet of drawdown would occur under wetlands within this zone.

As discussed above zone 4 wetlands on the north side of the proposed mine pits are also subject to impacts related to the dewatering of the Northshore pit (Figure 8).

UNIQUE ID	EGGERS & REED CLASS	ACRES	IMPACT	IMPACT DESCRIPTION
752	Alder thicket	36.908	None	None
53D	Alder thicket	1283.309	None	None
55	Alder thicket	15.732	None	None
58	Alder thicket	235.493	None	None
678	Alder thicket	1.676	None	None
743	Alder thicket	4.750	None	None
744	Alder thicket	10.344	None	None
746	Alder thicket	3.572	None	None
747	Alder thicket	10.027	None	None
749	Alder thicket	99.326	None	None
53	Alder thicket	130.786	None	None
480	Alder thicket or Shrub-carr	47.863	None to Moderate	None to vegetation change
555	Alder thicket or Shrub-carr	61.723	None to Moderate	None to vegetation change
557	Alder thicket or Shrub-carr	31.464	None to Moderate	None to vegetation change
566	Alder thicket or Shrub-carr	35.777	None to Moderate	None to vegetation change
890	Alder thicket or Shrub-carr	157.349	None to Moderate	None to vegetation change
315	Alder thicket or Shrub-carr	1256.836	None to Moderate	None to vegetation change
558	Coniferous bog	50.111	None	None
84A	Coniferous bog	41.351	None	None
11	Coniferous bog	95.587	None	None
105	Coniferous bog	62.495	None	None
90	Coniferous bog	230.686	None	None
479	Coniferous bog	157.954	None	None
559	Coniferous bog	228.822	None	None
564	Coniferous bog	33.827	None	None
697	Coniferous bog	48.894	None	None
699	Coniferous bog	23.740	None	None
713	Coniferous bog	80.451	None	None
714	Coniferous bog	1002.456	None	None
782	Coniferous bog	10.815	None	None
783	Coniferous bog	20.604	None	None
887	Coniferous bog	1128.525	None	None
888	Coniferous bog	90.125	None	None
949	Coniferous bog	19.484	None	None
106	Coniferous bog	451.616	None	None
54A	Coniferous swamp	16.573	None to Moderate	None to minor vegetation change
57	Coniferous swamp	20.917	None to Moderate	None to minor vegetation change
404	Coniferous swamp	137.651	None to Moderate	None to minor vegetation change
553	Coniferous swamp	18.531	None to Moderate	None to minor vegetation change
554	Coniferous swamp	23.212	None to Moderate	None to minor vegetation change
701	Coniferous swamp	852.230	None to Moderate	None to minor vegetation change
745	Coniferous swamp	82.463	None to Moderate	None to minor vegetation change
53A	Coniferous swamp	25.257	None to Moderate	None to minor vegetation change
891	Coniferous swamp	74.816	None to Moderate	None to minor vegetation change
864	Coniferous swamp	901.932	None to Moderate	None to minor vegetation change
1145	Coniferous swamp	30.313	None to Moderate	None to minor vegetation change
53E	Coniferous swamp	20.088	None to Moderate	None to minor vegetation change
899	Open bog	23.039	None	None
83	Open bog	16.555	None	None
83	Open bog	26.414	None	None
885	Open bog	950.076	None	None
889	Shallow marsh	3.279	None	None
17	Shallow marsh	12.072	None	None
1	Shallow marsh	4.560	None	None
3	Shallow marsh	3.808	None	None
6	Shallow marsh	6.654	None	None
29	Shallow marsh	126.876	None	None
708	Shallow marsh	42.189	None	None
709	Shallow marsh	18.496	None	None
NWI	Black Spruce Forest - Undelineated	778.140	Moderate	Change in vegetation

Table 4. Zone 4 impact assessment.

Impacts to Riparian Wetlands along the Partridge River

The applicant and lead agencies have ignored repeated requests by cooperating agencies to better characterize the hydrology of the mine site through a robust surface and groundwater data collection program. Therefore reliable data with which to assess the effects of drawdown in the surficial and bedrock aquifers to riparian wetlands along the Partridge River are not available. Based on pit dewatering induced drawdowns at other sites described in this report, it is reasonable to assume that flow in the Partridge River would be significantly reduced if the NorthMet project proceeds as currently designed. This would have an effect on riparian wetlands far downstream. These effects are highly important because of the potential for increased methylation of mercury that is released by the project. To date, these potential impacts have not been characterized.

Summary

GLIFWC disagrees with the use of the Canisteo pit analog as the only method for estimating drawdown impacts for the NorthMet project. Repeated requests for a robust approach have not been successful. Therefore, this analysis uses the lead agencies own analog approach with data that is not included in the PSDEIS analysis. It is important to note that this analysis also uses the impact criteria developed for the Crandon project in Wisconsin which is the basis for impact criteria in the PSDEIS.

The assumption that ombotrophic bogs are completely separated from the surficial aquifer is not supportable. The extent of the hydrologic connection should be investigated.

Based on GLIFWCs analysis, wetlands severely impacted by drawdown total 3188.62 acres in zone 1; 2458.12 acres in zone 2; and 273.01 acres in zone 3. Severe indirect impacts to wetlands from mine pit drawdown total 5719.75 acres. All wetlands potentially impacted by drawdown are depicted in Figure 9. The Corps should require up front mitigation for all severely impacted wetlands. At a minimum, up front mitigation for all wetlands in zone 1 should be required. Additional up front mitigation should be considered for wetlands that are classified in the moderate to severe category. Robust monitoring is required for wetlands in the moderate category.

Impacts for wetlands suffering the cumulative effect of NorthMet and Northshore projects should be assessed and mitigation required. Un-delineated wetlands south of the Northshore pits should be delineated and included in the analysis. Impacts to riparian wetlands cannot be discounted given the shortcomings of the analog method and the inadequate characterization of surface and groundwater hydrology for the mine site area.

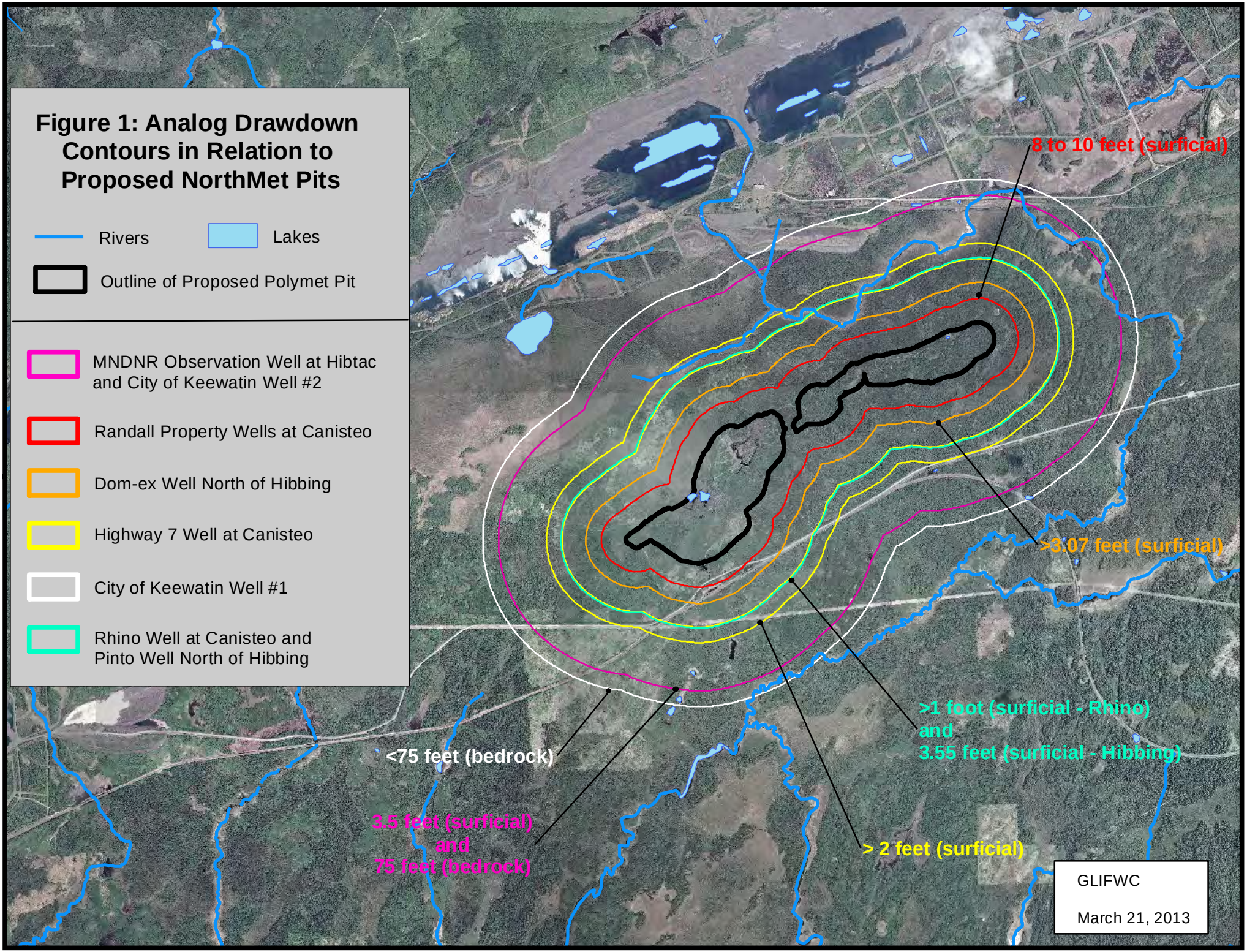
Figure 1: Analog Drawdown Contours in Relation to Proposed NorthMet Pits
Rivers
Lakes
Outline of Proposed Polymet Pit
MNDNR Observation Well at Hibtac and City of Keewatin Well #2
Randall Property Wells at Canisteo
Dom-ex Well North of Hibbing
Highway 7 Well at Canisteo
City of Keewatin Well #1
Rhino Well at Canisteo and Pinto Well North of Hibbing
8 to 10 feet (surficial)
>3.07 feet (surficial)
>1 foot (surficial - Rhino) and 3.55 feet (surficial - Hibbing)
<75 feet (bedrock)
3.5 feet (surficial) and 75 feet (bedrock)
> 2 feet (surficial)
GLIFWC
March 21, 2013

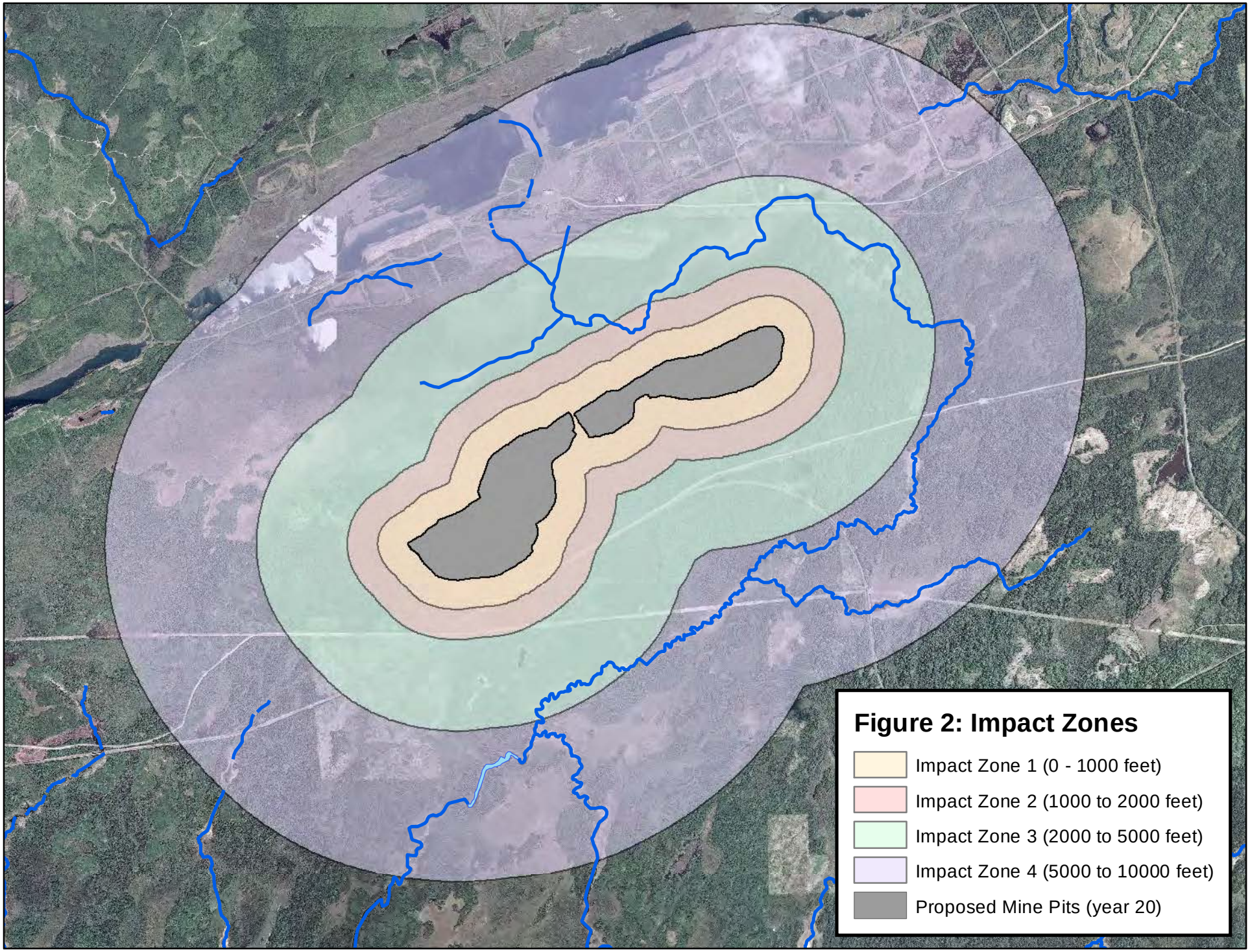
Figure 2: Impact Zones
Impact Zone 1 (0 - 1000 feet)
Impact Zone 2 (1000 to 2000 feet)
Impact Zone 3 (2000 to 5000 feet)
Impact Zone 4 (5000 to 10000 feet)
Proposed Mine Pits (year 20)

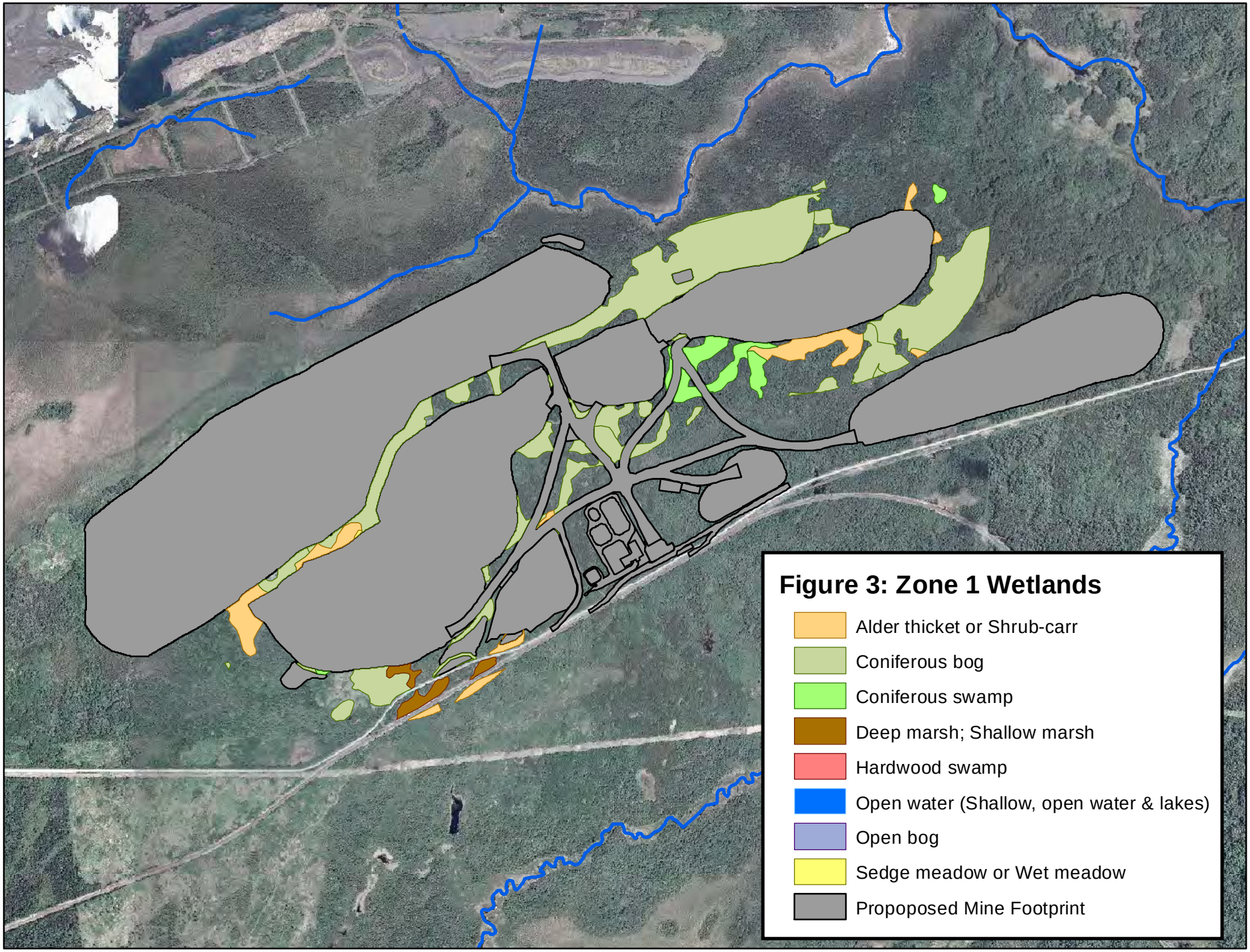
Figure 3: Zone 1 Wetlands
Alder thicket or Shrub-carr
Coniferous bog
Coniferous swamp
Deep marsh; Shallow marsh
Hardwood swamp
Open water (Shallow, open water & lakes)
Open bog
Sedge meadow or Wet meadow
Propoposed Mine Footprint

A

B

Figure 4

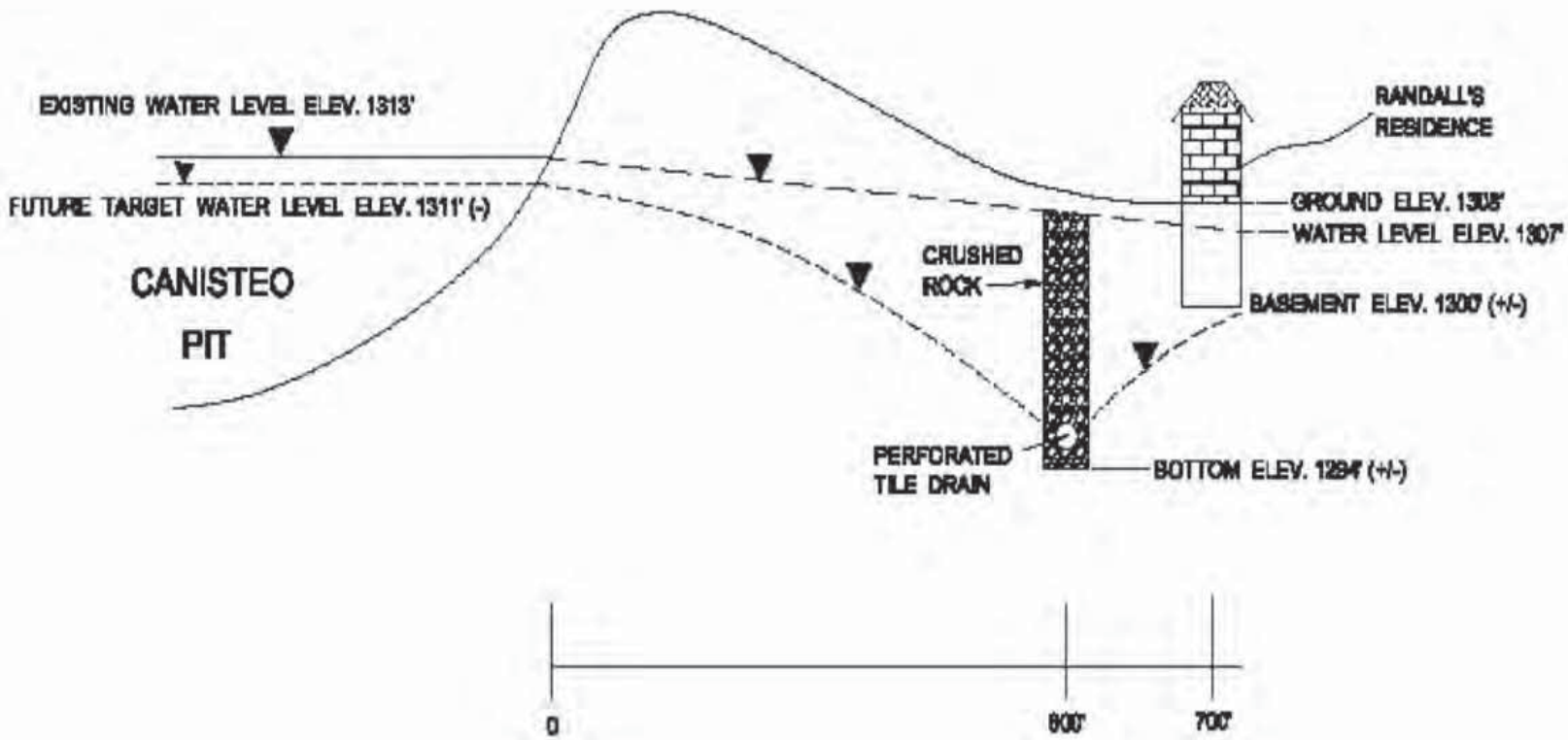

DNR Waters

3/2/09

EXISTING WATER LEVEL

FUTURE TARGET WATER LEVEL

NOT TO SCALE

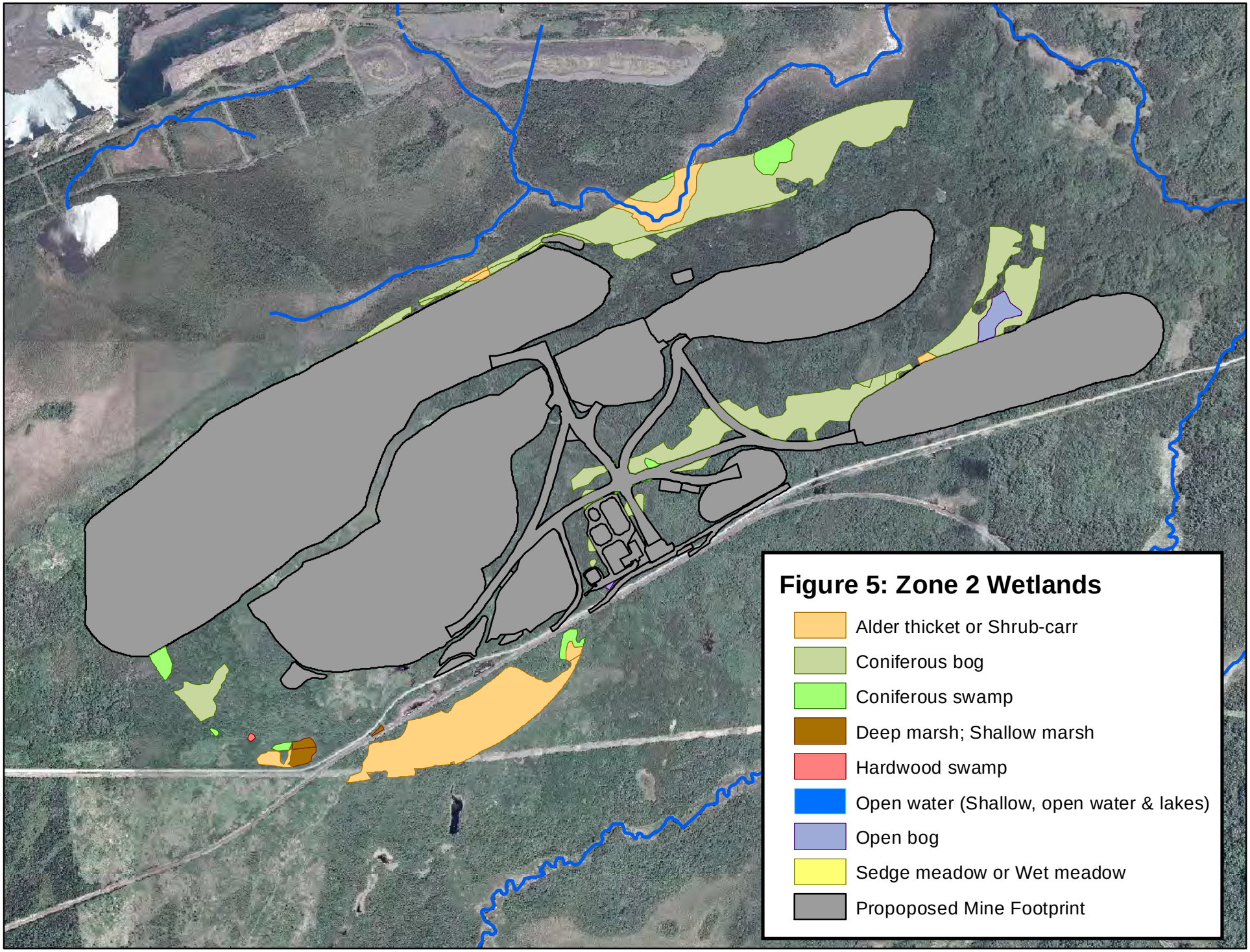
Figure 5: Zone 2 Wetlands
Alder thicket or Shrub-carr
Coniferous bog
Coniferous swamp
Deep marsh; Shallow marsh
Hardwood swamp
Open water (Shallow, open water & lakes)
Open bog
Sedge meadow or Wet meadow
Propoposed Mine Footprint

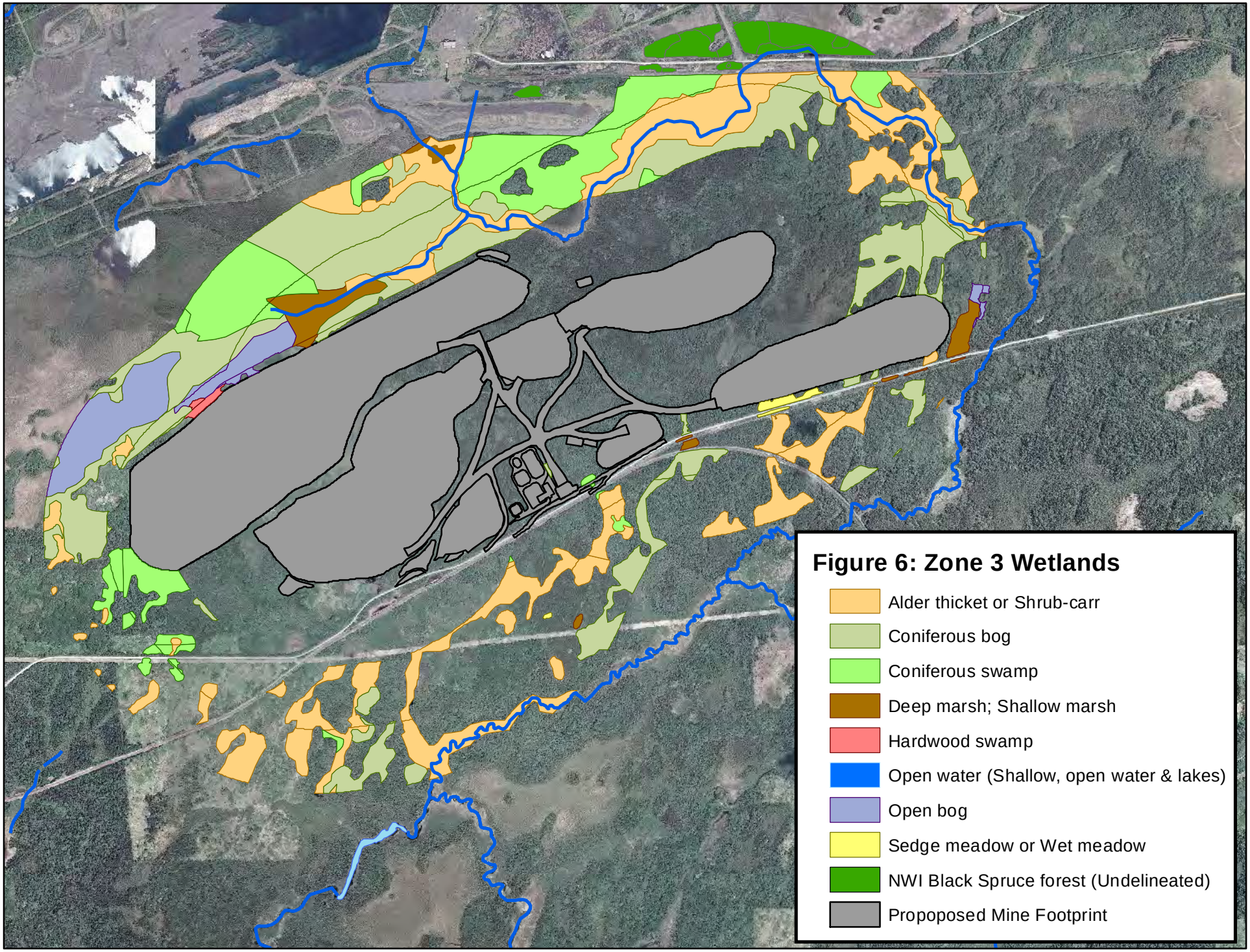
Figure 6: Zone 3 Wetlands
Alder thicket or Shrub-carr
Coniferous bog
Coniferous swamp
Deep marsh; Shallow marsh
Hardwood swamp
Open water (Shallow, open water & lakes)
Open bog
Sedge meadow or Wet meadow
NWI Black Spruce forest (Undelineated)
Propoposed Mine Footprint

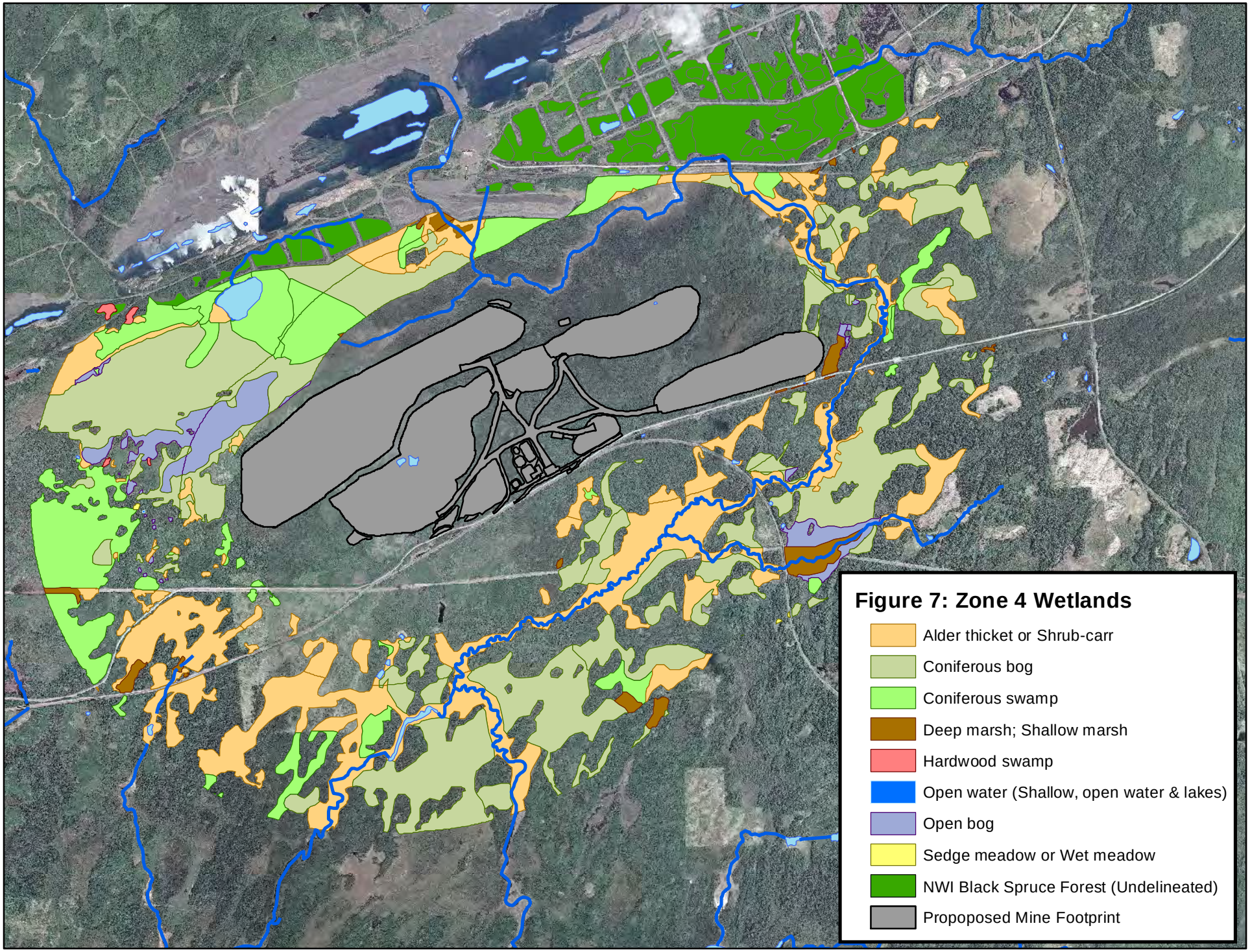
Figure 7: Zone 4 Wetlands
Alder thicket or Shrub-carr
Coniferous bog
Coniferous swamp
Deep marsh; Shallow marsh
Hardwood swamp
Open water (Shallow, open water & lakes)
Open bog
Sedge meadow or Wet meadow
NWI Black Spruce Forest (Undelineated)
Propoposed Mine Footprint

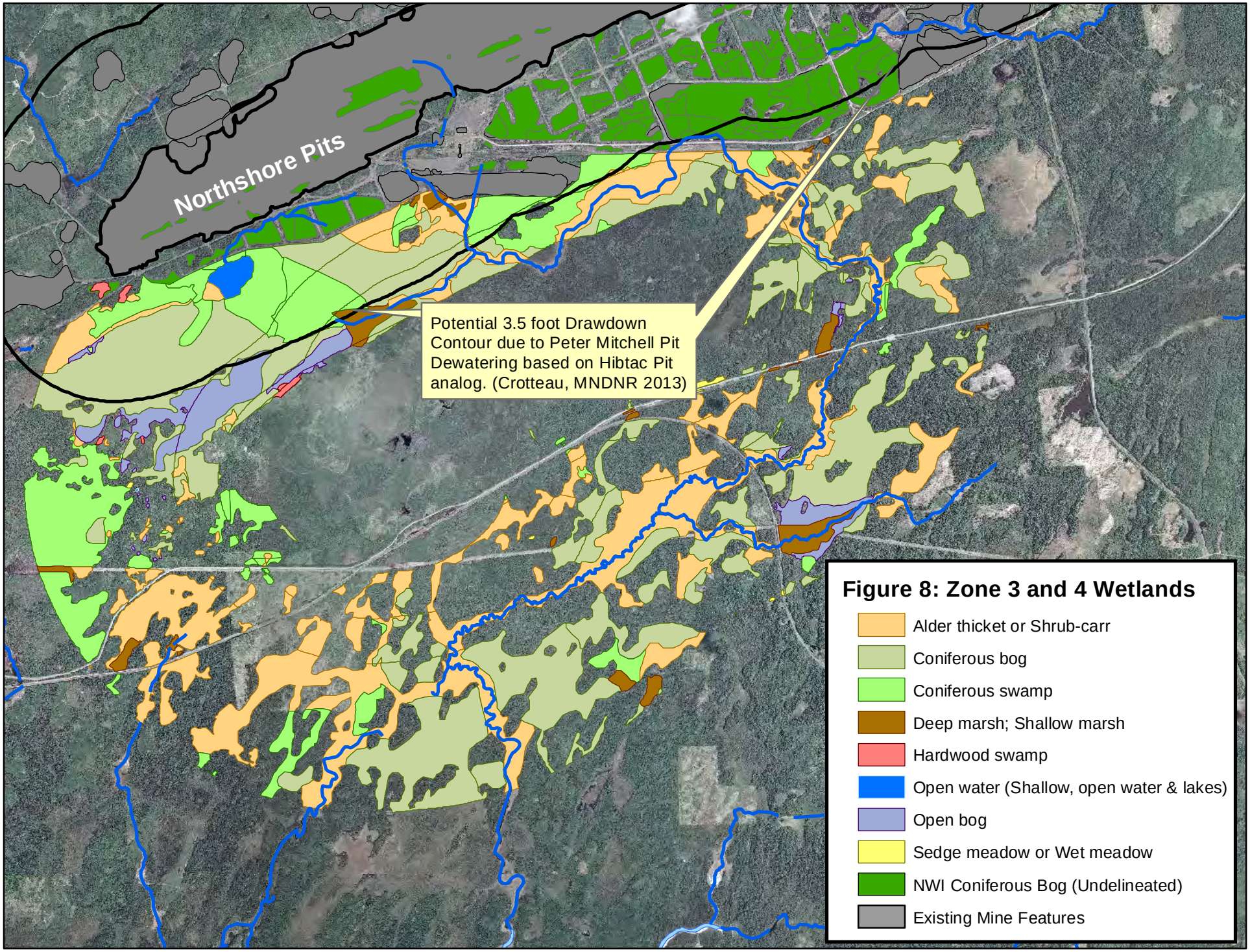
Northshore Pits
Potential 3.5 foot Drawdown Contour due to Peter Mitchell Pit Dewatering based on Hibtac Pit analog. (Crotteau, MNDNR 2013)
Figure 8: Zone 3 and 4 Wetlands
Alder thicket or Shrub-carr
Coniferous bog
Coniferous swamp
Deep marsh; Shallow marsh
Hardwood swamp
Open water (Shallow, open water & lakes)
Open bog
Sedge meadow or Wet meadow
NWI Coniferous Bog (Undelineated)
Existing Mine Features

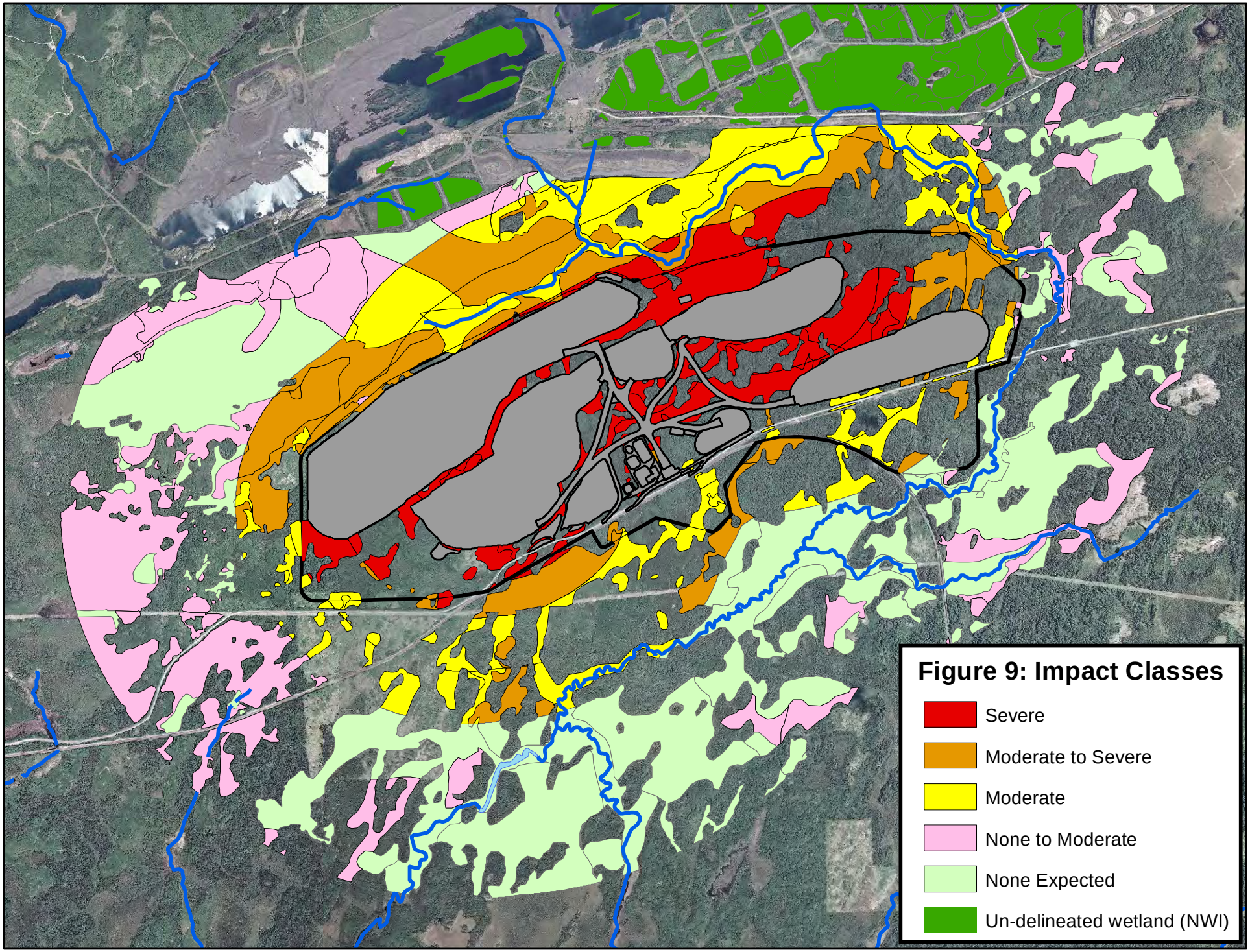
Figure 9: Impact Classes
Severe
Moderate to Severe
Moderate
None to Moderate
None Expected
Un-delineated wetland (NWI)

Attachment A

Wetland Resources IAP Draft Summary Memo

Line Number	Comments
	[insert your name]
General Comments (per line number)	
105	The Co-lead position described here is unchanged from the 2009 DEIS. This position is contrary to standard analysis that mining companies have to conduct as part of sulfide mine EIS processes across the country.
118	This characterization requires further detail. According to our meeting notes, the need for a quantitative assessment of drawdown at the mine site was a unanimous position among the tribal cooperating agencies, the EPA, and the Fish and Wildlife Service. This position also received strong support from the PCA. This is why the original request by the wetland workgroup for a quantitative method of assessing drawdown impacts at the mine site was described as a "consensus". This should be clarified in the summary memo. See attached comment letter for additional detail on the groundwater modeling issue.
143	GLIFWC staff concur with Margaret Watkins that the cumulative impact assessment should be conducted for the same area that is used in the cultural resource assessment (Wetland area of potential effect).
148	As discussed during the Wetland IAP call of May 13th 2011, baseline data for water quality in wetlands are essential to this analysis. We support the Corps request that the applicant provide a list of available baseline data that will be assessed for adequacy in describing the existing condition and no action alternative. We request that this be specifically included in the workplan.
PolyMet NorthMet Project Co-Lead Agency Workplan Preparation Guidance for Wetland Assessment General Comments	
032	GLIFWC staff maintains that the analogue method proposed by the Army Corps does not provide sufficient information to base the indirect wetland impact analysis for the entire project.
078	GLIFWC staff believe that the analysis area for cumulative impacts is not adequate. See comment on line 143 of the summary memo. In addition, the cumulative impact assessment should cover topics that were not part of the 2009 DEIS. Climate change in the region is a stressor for wetlands. This additional factor should be assessed. Cumulative impacts of Iron Range mine projects on water quality of wetlands should be described.
085	GLIFWC staff do not agree with the Corps' definition of "reasonably foreseeable project". Several mine projects to the east and northeast of Polymet are likely to be proposed, some as early as this summer. A mining company interested in the Dunka deposit will be installing a stream gauge on the upper Partridge River this spring. Because this project will likely impact some of the same areas as Polymet (Partridge River watershed), this project should be included in the analysis.

090	GLIFWC staff agree that the analogue data prepared by John Adams can be used as <u>part</u> of the indirect impact analysis. We remain concerned that this analysis is being used as the sole data source for the discussion of indirect wetland impacts at the Polymet mine site. As discussed during the wetland IAP call of May 13th 2011, a detailed report that includes all data and assumptions used by John Adams to assess the Canisteo Pit data should be developed and reviewed by the wetlands IAP group. After that review, a determination on the adequacy of the analysis as an analogue to Polymet can be made.
102	GLIFWC staff believe that these distances are open to a great deal of interpretation. We do not believe that the distance categories listed in this document are conservative interpretations of the Canisteo pit data.
118	The Canisteo Pit data indicated that water levels at a well 2300 feet from the pit were correlated with water fluctuations in the pit. Therefore it is inappropriate to exclude the "high likelihood" category from this distance category.
123	For the same reason stated in the comment on line 118, it is not appropriate to exclude the "high likelihood" or "moderate likelihood" of impact from this distance category.

Kelly Lake Watershed Premining and Current Watershed Area and Mining Features

Attachment B

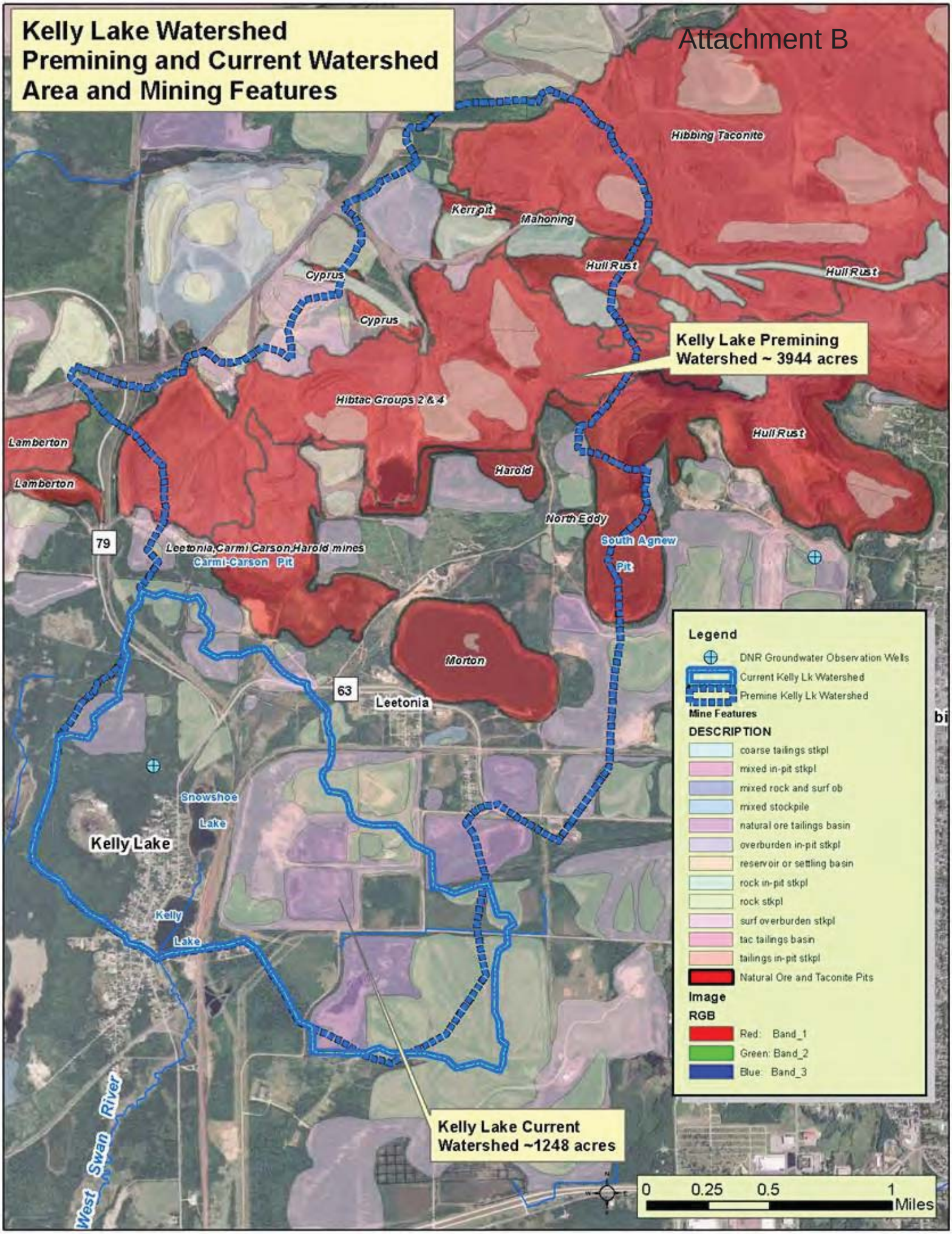

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TECHNICAL MEMORANDUM

TO: **Mike Johnson, PE - Liesch Associates, Inc.**

FROM: **Jim de Lambert, PG - Liesch Associates, Inc.**

DATE: **February 18, 2009**

RE: **Water Supply Contingency Plans for Keewatin and Nashwauk**

U.S. Steel – Minnesota Ore Operations (US Steel) is proposing to increase production at the US Steel Corporation Keewatin Taconite Facility under a project known the Keetac Expansion Project (the "Project"). The Project involves continuous dewatering operations that are ongoing and will continue in current and future mining areas. These planned activities are expected to generate drawdown in the aquifer locally and potentially at the water supply wells for the Cities of Keewatin and Nashwauk.

This memorandum is intended to provide background on the City water supplies and the Biwabik Iron Formation and to outline a plan to monitor the effects of mine pit dewatering on the aquifer so that appropriate steps can be taken to maintain the water supplies.

Relatively little information exists concerning the hydrogeology of the Biwabik Iron Formation (BIF) and the City water supplies. The Minnesota Department of Health (MDH) has assisted both Cities with Wellhead Protection activities and the results of this work probably represent the most comprehensive source of information concerning the source of water discharging at the City wells. In conducting this work it was apparent that traditional groundwater flow models would not be appropriate tools to estimate capture zones in the fractured BIF Aquifer. Instead, MDH utilized isotopic and chemical characteristics of water from the wells and nearby surface water bodies to estimate the source of water discharging at the wells. This work is summarized in separate reports titled Wellhead Protection Plan for the City of Keewatin - Part I (Walsh 2003) and Wellhead Protection Plan for the City of Nashwauk - Part I (Walsh 2007). Each report includes a delineation of the Wellhead Protection Area (WHPA), determination of the Drinking Water Supply Management Area (DWSMA) and assessments of Well and DWSMA Vulnerability. In addition, the reports include a summary of the hydrogeologic

conditions concerning the city water supplies. Additional information used in preparing this memorandum includes various published maps and reports and personal communication with representatives from MDH, Department of Natural Resources and the Cities.

Keetac Mine Hydrogeology

The Keetac Mine extracts iron ore from the Biwabik Iron Formation (BIF) of the Mesabi Iron Range. The BIF is Precambrian in age, was deposited under marine conditions and is composed primarily of chert and iron minerals. Its subcrop area extends along strike for a distance of at least 100 miles generally from Grand Rapids to Babbitt and varies in width from one to three miles. The BIF has an overall thickness 350 to 750 feet and dips generally to the south at three to twelve degrees (Grout 1951). Information provided by the MDH from a deep test hole drilled near Keewatin suggests a BIF thickness of 590 feet in this area.

According to a suggestion by J. F. Wolf in 1917, and elaboration by J. W. Gruner in 1946 (Grout 1951), the BIF is generally divided into four members. From top to bottom, these are Upper Slaty, Upper Cherty, Lower Slaty, and Lower Cherty. The low grade magnetic iron ores, known as taconite, are mined from the Upper Cherty and Lower Cherty members. The Upper Cherty Member has a thickness ranging from 80 to 250 feet. The Lower Cherty ores are typically 120 to 425 feet thick. The slaty units can alter to form a sticky, clayey rock that generally exhibits low permeability including the Intermediate Slate which is a thin bedded silicate taconite, also known as paint rock that occurs at the base of the Lower Slaty Member. This is an important marker horizon for water supply purposes as it marks the contact with the Lower Cherty Member. Borehole logs suggest that the more productive zones for water supply wells may occur below this contact in the Lower Cherty Member.

In addition to being an important source of iron ore the BIF is also an important aquifer locally. Both Nashwauk and Keewatin, and numerous other range Cities and water users, utilize the BIF Aquifer. Depending on the amount of water desired and other factors, BIF aquifer wells are typically constructed by drilling a casing to solid rock, usually the top of the BIF Formation, and then drilling an open hole to a sufficient depth to obtain the required quantity of water. Yields in the 300 to 600 gallon per minute (gpm) range have been reported from existing wells. For Nashwauk and Keewatin, geochemical work conducted by MDH has indicated that a significant percentage of the water discharging at some of the wells originates from nearby mine pits.

The BIF Aquifer consists primarily of fine grained chert and iron minerals, exhibiting very little primary porosity. Groundwater movement appears to be restricted to zones of secondary permeability controlled by fractures and joints particularly in the cherty portions of the BIF. The MDH has conducted a suite of borehole logs at available wells constructed in the BIF Aquifer in an attempt indentify preferred flow paths and to further characterize the hydrogeology of the formation. This information suggests the occurrence of preferred flow zones in both of the cherty members.

The Virginia Formation immediately overlies the BIF while the Pokegama Formation and the Giants Range Batholith underlay the BIF. These bedrock formations generally do not yield significant volumes of water to wells and are generally not considered important aquifers. Up to 200 feet of glacial drift lies above the consolidated bedrock near the Mesabi Range. Where these deposits include saturated granular outwash they may provide a potential source for significant volumes of water.

Little information is available regarding groundwater flow fields in the BIF due to a lack of available wells and detailed water level measurements over time. Mining operations conducted to date have undoubtedly altered natural flow patterns and planned mine dewatering activities in the Mesabi Range will continue to influence flow patterns.

Keewatin Water Supply

In recent years the City of Keewatin has obtained its water supply from two wells, designated Well 1 and Well 2. The City has indicated that it drilled an additional well in 2007, designated Well 3, in response to increasing manganese concentrations at Well 2. All wells are shown on the attached **Figure 1** (Attachment 1). Keewatin Well 3 has been added to the City's water supply system and Well 2 has been removed from service.

Basic information concerning Keewatin's wells is summarized on **Table 1** below and logs for each well are included in Attachment 2.

Table 1

Well	Well	Casing		Open Hole, Elevation (ft msl)			
Name	Number	Diameter	Depth (ft)	Top	Bottom	Status	Notes
1	192359	8-inch	249	1224	867	Active	Drilled in 1952/1982
2	228828	10-inch	344	1113	984	Observation	Drilled in 1951
3	751520	12-inch	198	1274	857	Active	Drilled in 2007

Water level information contained in Keewatin's Part 1 WHP plan shows a direct correlation between the dewatering of the Mesabi Chief Pit which was initiated in 1995 and Keewatin Well 2. As of 2002, the water level was lowered approximately 150 feet at the Mesabi Chief Mine while the static water level fell approximately 75 feet at Keewatin Well 2. Water levels were not collected at Keewatin Well 1 after 1998, however, the earlier measurements at Keewatin Well 1 also showed water level declines but somewhat less than those observed at Well 2. The WHP plan shows a correlation between water levels at select existing mine pits within the footprint of the proposed Project during dewatering and the water level at Well 2. The correlation was also supported by chemical characterization of water from the mine pits and well.

Details of the connection between mine dewatering, water levels and water chemistry at the City Wells are not clear. Long term monitoring is recommended to obtain additional

information concerning the connection and to provide a mechanism to determine whether additional steps are needed to maintain the City's source of water supply.

Keewatin Water Use

The City of Keewatin is currently operating under Minnesota Department of Natural Resources (DNR) Appropriations Permit number 1972-2192. This permit allows Keewatin to pump up to 75 million gallons of water per year (mgy) at a permitted rate not to exceed 350 gallons per minute. The yearly reported pumping volumes submitted to the DNR are provided on **Table 2**. The reported values illustrate that the City's annual water use has increased from 45 to approximately 65 mgy in recent years.

Table 2

Permit	Well	Unique Well No.	Permit Vol (mgy)	Permit Rate (gpm)	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998
1979-2192	1	192359	75.0	350.0	54.6	49.5	44.0	43.7	24.3	29.2	28.8	23.8	18.3	26.2
	2	228828			8.8	14.5	16.2	16.9	29.2	15.8	17.1	22.8	25.8	18.2
	3	751520			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ten Year Average = 52.8 mgy				**Total:**	63.4	64.1	60.2	60.5	53.5	45.0	45.9	46.6	44.1	44.4

Nashwauk Water Supply

The water supply for the City of Nashwauk is obtained from two bedrock wells located within the City limits of Nashwauk as shown on **Figure 1**. Like Keewatin, both of Nashwauk's wells tap portions of the BIF Aquifer. Basic information concerning Nashwauk's wells is summarized on **Table 3** below and logs for each well are included in Attachment 2. Less information is available concerning Nashwauk's wells and some discrepancies exist regarding well numbering and depths. The well names and unique numbers used here are as presented in the MDH Wellhead Protection Plan Part 1, prepared for the City. The log for Well 3 indicates a casing depth of 40 feet in combination with a depth to bedrock of 110 feet. This is an unlikely scenario as the casing would typically extend at least to the top of the rock.

Table 3

Well Name	Well Number	Casing Diameter	Casing Depth (ft)	Open Hole, Elevation (ft msl) Top	Open Hole, Elevation (ft msl) Bottom	Status	Notes
3	241017	8-inch	40	1449	1075	Active	Drilled in 1930
4	228819	16-inch	150	1289	899	Active	Drilled in 1947

The northern portion of the City of Nashwauk and the City's Well 3 are situated directly between two former natural ore pits, the Larue to the northeast and the Hawkins to the southwest. Well 4 is situated in the southern portion of the City approximately 3200 feet south of Well 3. Geochemical information provided in the MDH WHP report suggests that a significant percentage of water discharging at the wells originates at the Larue Pit. It is also likely that a connection exists between the levels in nearby mine pits and the

City wells. To the northeast, the nearest mining proposed under the Keetac Project is more than two miles away. The effects of mine pit dewatering under this Project on the City wells will likely depend on the effects at the former natural ore pits between the Project and the City. Anecdotal evidence suggests that the former natural ore pits are separated by “land bridges” that may serve to reduce the effects of dewatering at the City wells.

To the southwest of Nashwauk, Minnesota Steel also has plans for taconite extraction, including mine pit dewatering and water supply pumping that could also affect water levels in nearby natural ore pits and the City wells.

Nashwauk Water Use

Nashwauk is currently operating under Minnesota Department of Natural Resources (DNR) Appropriations Permit number 1975-2151. This permit allows the City of Nashwauk to pump up to 70 million gallons of water per year (MGY) at a permitted rate not to exceed 1,100 gallons per minute. The yearly reported pumping volumes submitted to the DNR are provided on **Table 4**. Pumping in recent years has ranged from approximately 45 to 65 mgy.

Table 4

Permit	Well	Unique Well No.	Permit Vol (mgy)	Permit Rate (gpm)	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998
1975-2151	4	228819	70.0	1,100.0	25.1	25.9	27.7	34.0	33.3	32.9	25.5	23.6	22.1	23.7
	3	241017			27.2	20.1	29.3	29.5	30.6	23.1	26.4	21.6	21.4	22.1
Ten Year Average = 52.5 mgy				**Total:**	52.3	46.0	57.1	63.6	63.9	55.9	52.0	45.2	43.4	45.8

Proposed Monitoring Plan

Monitoring is proposed to establish baseline conditions, to monitor changes in the BIF Aquifer that could impact the existing water supply wells for the Cities of Keewatin and Nashwauk and to assess potential measures to mitigate impacts, if necessary. Development and implementation of the Keetac Project will take place in stages over a period of several years. Sufficient time exists to monitor the resources in question and to develop a mitigation plan, if required. Impacts could include interference drawdown from dewatering activities or water supply pumping and/or changes in water quality that make use of the water undesirable. Therefore, the monitoring program should include both water quantity and quality components.

Water Quality

Existing water quality from both Cities supply wells should be obtained from the City and MDH. Additional baseline samples should be taken from existing wells for dissolved mineral constituents and general chemistry. Annual sampling of the wells should continue for select parameters to detect changes over time. Wells to be sampled include Nashwauk Wells 3 and 4 and Keewatin Wells 1 and 3. Parameter lists for

baseline and annual sampling are included in Attachment 3.

The MDH has recommended that the Cities sample for stable isotopes of water, chloride and sulfate as part of their ongoing WHP efforts. MDH has indicated that they will conduct the analysis but the City would be responsible for obtaining the samples. US Steel representatives responsible for sample collection will contact MDH prior to sampling to coordinate collection of MDH samples with the sampling recommended here. The results could assist the Cities in their WHP efforts and provide useful information concerning the hydrogeology of the BIF Aquifer and the source of water discharging at the City wells.

Water Quantity

Long term water level monitoring points are required to assess drawdown in the aquifer. A search should be conducted to identify potential monitoring points including wells and surface water locations. MDH and DNR staff have expressed an interest in long term monitoring and noted a lack of available points in the BIF aquifer.

We understand that not all of the City wells involved are accessible for water level measurements. Arrangements should be made for the wells to be accessible and for City utility personnel to make regular measurements of static levels, pumping levels, pumping rates and volume.

Former Well 2 at Keewatin is now out of service and could serve as a useful monitoring point. We understand that the DNR has recently conducted logging procedures at the well and that both the DNR and MDH are interested in data from this location. The City has indicated that this well is available for long term monitoring by US Steel. A data logger and transducer will be installed and maintained by US Steel for well water level measurement at this location.

At present we are not aware of a suitable BIF Aquifer well for long term monitoring near Nashwauk. A new observation well is proposed for use as a dedicated monitoring point generally between the City and the Keetac project. This well should also be equipped with a transducer and data logger. Transducers and data loggers will be visited quarterly to verify operation, collect data and to reset the instruments to correct for drift.

Measurements of water levels from select mine pits, should also be collected as part of the Monitoring Plan. This includes water levels from pits within the Keetac Project, the LaRue pit complex and data collected by Minnesota steel for their operations southwest of Nashwauk. This information will be useful for correlating mine pit water levels with the City wells and the BIF Aquifer water levels in general.

Reporting

All data should be collected and summarized in a report format annually. The report should include a summary of the data collected during the previous year, a description of any changes to the monitoring network, recommended changes to the monitoring network and a determination as to any effects of the dewatering activities on the Cities well water supplies. If the results of the planned monitoring suggest significant changes in well water quality or level that may be related to Keetac mining activities, additional

monitoring activities may be recommended. The annual report will be prepared by US Steel no later than February 15th for the previous calendar year and distributed to the Cities, DNR and MDH for review.

Potential Mitigation Measures

In the event that mine dewatering activities have an adverse impact on the production or quality of the City water supply additional monitoring, treatment, augmentation or replacement of the impacted supply may become necessary. The hydrogeology of the Keewatin/Nashwauk area limits the available options to the following:

- Increased monitoring or changes to the monitoring plan if suspected impacts do not immediately threaten the City's ability to supply water.
- Modification of existing facilities including lowering, or replacing, existing pumps and deepening wells.
- New wells drilled in the BIF Aquifer in areas where interference effects are not as great.
- New wells drilled in the glacial outwash if areas of sufficient saturated thickness and favorable water quality can be identified.
- A new water treatment system to treat surface water, mine water or affected well water.

The extent of potential interference effects associated with the Project cannot be predicted with certainty at this time. The BIF Aquifer is utilized throughout the area and has the potential to supply adequate amounts of water to satisfy municipal needs. However, a better understanding of the effects of pumping on the BIF Aquifer is required to assess the potential for ongoing use and locations for additional BIF wells.

Glacial outwash deposits are utilized as municipal water sources throughout Minnesota. Although historical publications suggest that glacial outwash deposits are present between Keewatin and Nashwauk, glacial outwash deposits can change significantly over very short distances and specific investigations would be required to identify and assess the suitability for use as sources of water supply.

There are surface water resources in the area that could potentially provide a source of water including lakes that fill old mine pits and underground workings. It is anticipated that such a system would require construction of a surface water treatment plant.

Select References

Grout, F. F., Gruner J. W., Schwartz G. M., and Thiel G. A. (1951) Precambrian Stratigraphy of Minnesota, Bulletin of the Geological Society of America, Volume 62, pages 1017-1078

Walsh, J. F. (2003) Wellhead Protection Plan for the City of Keewatin, Part 1 Delineation of the Wellhead Protection Area (WHPA), Drinking Water Supply Management Area (DWSMA) and Assessments of Well and DWSMA Vulnerability, Minnesota Department of Health, St. Paul, MN, 30 p.

Walsh, J. F. (2007) Wellhead Protection Plan, Part 1, Wellhead Protection Area Delineation, Drinking Water Supply Management Area Delineation, Well and Aquifer Vulnerability Assessments for the City of Nashwauk, Minnesota Department of Health, St. Paul, MN, 43 p.

Attachment 1

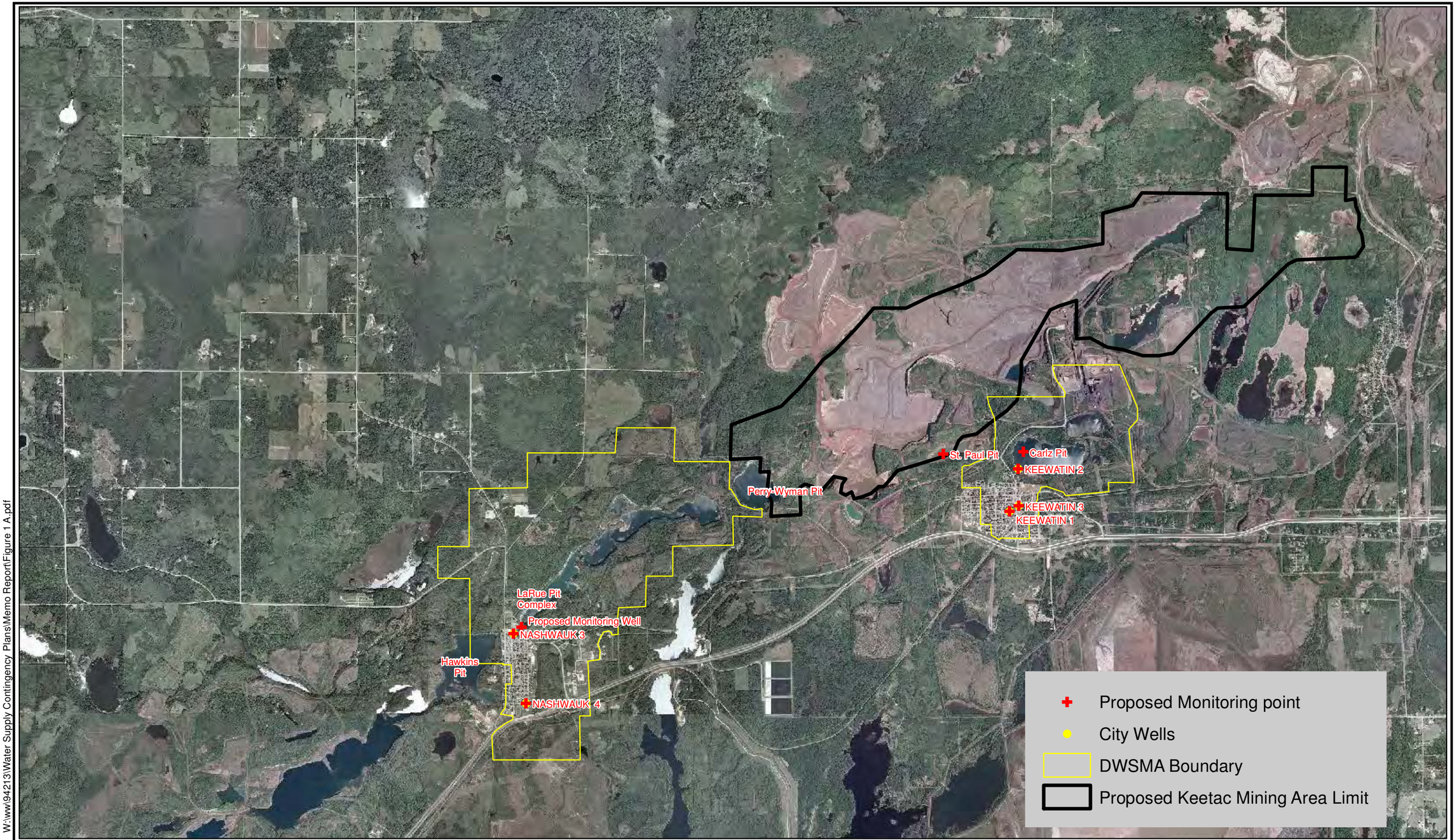

0 4,000 8,000 12,000 16,000 20,000
Feet

N

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Minneapolis ▪ Chicago ▪ Los Angeles ▪ Madison ▪ Milwaukee ▪ Phoenix

Keetac Expansion Project	Feb 09
Location Map Nashwauk and Keewatin Water Supplies	Figure 1

W:\ww\94213\Water Supply Contingency Plans\Memo Report\Figure 1 A.pdf

Attachment 2

Unique No. 00192359

County Name Itasca

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 2002/01/29

Entry Date 1992/08/03

Township Name	Township	Range	Dir	Section	Subsection
	57	22	W	25	ABDC

Well Depth	Depth Completed	Date Well Completed
606 ft.	606 ft.	1982/11/03

Well Name KEEWATIN 1

Drilling Method Cable Tool

Contact's Name KEEWATIN 1

KEEWATIN MN 55753

Drilling Fluid

Well Hydrofractured? ☐ Yes ☐ No

From ft. to ft.

Use Community Supply (municipal)

Casing Drive Shoe? ☐ Yes ☑ N

Hole Diameter

0 in. to 249 ft

in. to 606 ft

Casing Diameter 8 in. to 249 ft

Weight(lbs/ft) 28

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
CLAY			0	40
QUICKSAND			40	50
CLAY			50	80
QUICKSAND			80	90
CLAY			90	180
SLATE			180	211
DISSEMINATED TACONITE			211	216
DISSEM. CHERTY & SLATY			216	281
DISSEM. CHERTY & SLATY			281	471
DISSEM. CHERTY TAC. & P			471	481
PAINT ROCK NON-MAG.			481	491
DISSEM. CHERTY TAC. & P			491	496
PORUS DISSEM. CHERTY T			496	526
POURS DISSEM. CHERTY T			526	606

Screen N

Open Hole From 249 ft. to 606 ft.

Make

Type

Static Water Level 86 ft. from Land surface Date 1982/10/13

PUMPING LEVEL (below land surface)

ft. after hrs. pumping g.p.m.

Well Head Completion

Pitless adapter mfr Model

Casing Protection ☑ 12 in. above grade

☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)	
G	0	185	239	Y
G	185	223	22	Y
G	223	249	0.3	Y

Nearest Known Source of Contamination

50 ft. direction type

Well disinfected upon completion? ☑ Yes ☐ No

Pump ☐ Not Installed Date Installed Y

Mfr name RED JACKET

Model HP 60 Volts 460

Drop Pipe Length 441 ft. Capacity 375 g.p.m

Type S

Any not in use and not sealed well(s) on property? ☐ Yes ☐ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

REMARKS, ELEVATION, SOURCE OF DATA, etc.

ORIGIN CASING 12 INCH DIAMETER TO 217 FEET.

WELL ORIGINALLY DRILLED BY MCCARTHY WELL CO. APRIL 1952.

USGS Quad: Keewatin Elevation: 1473

Aquifer: PEBI Alt Id: 79-2192

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 69183

License Business Name

Name of Driller PETERSON, D.

Report Copy

Unique No. 00228828

County Name Itasca

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 2004/03/10

Entry Date 1992/08/03

Township Name	Township	Range	Dir	Section	Subsection
	57	22	W	24	DCDABB

Well Depth 473 ft. Depth Completed 473 ft. Date Well Completed 1951/00/00

Well Name KEEWATIN 2

Drilling Method Cable Tool

Contact's Name KEEWATIN 2

KEEWATIN MN 55753

Drilling Fluid

Well Hydrofractured? ☐ Yes ☐ No

From ft. to ft.

Use Community Supply (municipal)

Casing Drive Shoe? ☐ Yes ☐ N

Hole Diameter

Casing Diameter Weight(lbs/ft)

10 in. to 344 ft

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
CLAY	BLUE		0	6
CLAY & BIG STONES	BLUE		6	10
CLAY & BIG STONES, SAND	RED		10	24
CLAY & BIG BOULDERS	BLUE		24	29
CLAY	BLUE		29	58
SANDY CLAY, SOME GRAV			58	73
MUDDY SAND & BIG STONE			73	82
SANDY CLAY	BLUE	HARD	82	90
CLAY	BLUE	HARD	90	115
SLATE			115	124
DECOMPOSED TANCONITE			124	130
SOLID TACONITE			130	133
DECOMPOSED TACONITE			133	143
PAINTY DECOMPOSED TAC			143	165
DECOMPOSED TACONITE			165	170
PAINTY DECOMPOSED TAC			170	201
DECOMPOSED TACONITE			201	205
TACONITE		V.HARD	205	208
DECOMPOSED PAINTY CUT			208	212
SANDY DECOMPOSED TAC			212	220
SOLID TACONITE LITTLE SL			220	224
DECOMPOSED TACONITE L			224	230
SLATY TACONITE			230	345
DECOMPOSED TACONITE			345	350
DEC. TACONITE & PAINT R			350	355
PAINT ROCK			355	365
SAND & ORE (WATER)			365	369
CHERTY TACONITE			369	374

Screen N

Open Hole From 344 ft. to 473 ft.

Make Type

Static Water Level 279 ft. from Land surface Date 1951/00/00

PUMPING LEVEL (below land surface)

324 ft. after hrs. pumping 280 g.p.m.

Well Head Completion

Pitless adapter mfr Model

Casing Protection ☐ 12 in. above grade

☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☐ Yes ☐ No

Nearest Known Source of Contamination

ft. direction type

Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed Y

Mfr name

Model HP 60 Volts

Drop Pipe Length ft. Capacity g.p.m

Type

Any not in use and not sealed well(s) on property? ☐ Yes ☐ No

REMARKS, ELEVATION, SOURCE OF DATA, etc.

WELL DEEPENED FROM 374 TO APPROX.473 AROUND 1960, CASING IS SLOTTED FROM 344-374

USGS Quad: Keewatin
Aquifer: PEBI

Elevation: 1457
Alt Id: 79-2192

Report Copy

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 27022

License Business Name

Name of Driller MCCARTHY

HE-01205-06 (Rev. 9/96)

Unique No. 00751520

County Name Itasca

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 2007/10/01

Entry Date 2007/08/23

Township Name	Township	Range	Dir	Section	Subsection
	57	22	W	25	ABDADB

Well Depth	Depth Completed	Date Well Completed
615 ft.	615 ft.	2007/08/16

Well Name KEEWATIN 3

Drilling Method Multiple methods used

Contact's Name CITY OF KEEWATIN
P. O. BOX 190
KEEWATIN MN 55753

Drilling Fluid
Water

Well Hydrofractured? ☐ Yes ☑ No
From ft. to ft.

Well Owner's Name KEEWATIN 3
2ND E AV
KEEWATIN MN 55753

Use Community Supply (municipal)

Casing Drive Shoe? ☐ Yes ☐ N

Casing Diameter				Weight(lbs/ft)
18	in. to	80	ft	70.59
12	in. to	198	ft	49.56

Hole Diameter

in. to	80	ft
in. to	198	ft
in. to	615	ft

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
FILL	BROW	SOFT	0	3
CLAY	BROW	SOFT	3	7
SAND, GRAVEL, ROCKS	BROW	SOFT	7	20
SANDY CLAY	BROW	SOFT	20	22
SAND & GRAVEL	BROW	SOFT	22	32
GRAVEL & CLAY LAYERS	BROW	SOFT	32	35
CLAY & GRAVEL	GRAY	SOFT	35	163
SLATE & CLAY LAYERS	BLACK	V.SOFT	163	164
SLATE & CLAY LAYERS	BLACK	V.SOFT	164	168
SLATE & CLAY LAYERS (SO	BLK/G	V.SOFT	168	190
SLATE & QUARTZ	BLACK	SFT-MED	190	195
SLATE & QUARTZ	BLACK	SFT-MED	195	245
SLATE	GRN/G	SFT-MED	245	265
SLATE & TACONITE (MAGN	GRN/B	MED-HRD	265	315
TACONITE (MAGNETIC) GR	VARIE	HARD	315	450
TACONITE (MAGNETIC) RU	VARIE	MED-HRD	450	470
TACONITE (MAGNETIC)	VARIE	HARD	470	585
TACONITE (MAGNETIC)	GRN/G	HARD	585	615

Screen N
Make Type

Open Hole From 198 ft. to 615 ft.

Static Water Level 186 ft. from Land surface Date 2007/08/16

PUMPING LEVEL (below land surface)
370 ft. after 6 hrs. pumping 450 g.p.m.

Well Head Completion
Pitless adapter mfr Model
Casing Protection ☑ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)
G	80	3	Y

Nearest Known Source of Contamination
100 ft. direction E type SEW
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☑ Not Installed Date Installed N
Mfr name
Model HP Volts
Drop Pipe Length ft. Capacity g.p.m
Type

Any not in use and not sealed well(s) on property? ☐ Yes ☑ No

Was a variance granted from the MDH for this Well? ☐ Yes ☑ No

REMARKS, ELEVATION, SOURCE OF DATA, etc.

CALIPER, MULTI TOOL, & FLOW METERED 9-12-2007. LOGGED FOR MDH.

GAMMA LOGGED 8-31-2007. M.G.S. NO. 4741. LOGGED BY JIM TRAEN.

USGS Quad: Keewatin Elevation: 1472
Aquifer: PEBI Alt Id: 4741

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 1404
License Business Name
Name of Driller TONY/DAN

Report Copy

Unique No. 00241017	MINNESOTA DEPARTMENT OF HEALTH	Update Date 2005/06/23
County Name Itasca	**WELL AND BORING RECORD**	Entry Date 1992/08/03
	Minnesota Statutes Chapter 1031	

Township Name	Township	Range	Dir	Section	Subsection	Well Depth	Depth Completed	Date Well Completed
	57	22	W	32	BACD	414 ft.	414 ft.	1930/00/00

Well Name NASHWAUK 3

Drilling Method

Drilling Fluid

Well Hydrofractured? ☐ Yes ☐ No

From ft. to ft.

Use Community Supply (municipal)

Casing **Drive Shoe?** ☐ Yes ☐ N

Hole Diameter

Casing Diameter **Weight(lbs/ft)**

8 in. to 40 ft

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
DRIFT			0	110
BIWABIK OXIDES OF IRON			110	210
BIWABIK, MASSIVE IRON F			210	414

Screen

Make Type

Open Hole From ft. to ft.

Static Water Level ft. from Date

PUMPING LEVEL (below land surface)

ft. after hrs. pumping g.p.m.

Well Head Completion

Pitless adapter mfr Model

Casing Protection ☐ 12 in. above grade

☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☐ Yes ☐ No

Nearest Known Source of Contamination

ft. direction type

Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed

Mfr name

Model HP Volts

Drop Pipe Length ft. Capacity 450 g.p.m

Type T

Any not in use and not sealed well(s) on property? ☐ Yes ☐ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No.

License Business Name

Name of Driller

REMARKS, ELEVATION, SOURCE OF DATA, etc.

DATE OF SAMPLE 11/73

INFO FROM CITY CLERK

USGS Quad: Nashwauk Elevation: 1489

Aquifer: PEBI Alt Id: 75-2151

Report Copy

Unique No. 00228819

County Name Itasca

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 2005/06/23

Entry Date 1992/08/03

Township Name	Township	Range	Dir	Section	Subsection
	57	22	W	32	CDAD

Well Depth	Depth Completed	Date Well Completed
540 ft.	540 ft.	1947/00/00

Well Name NASHWAUK 4

Drilling Method

Drilling Fluid

Well Hydrofractured? ☐ Yes ☐ No

From ft. to ft.

Use Community Supply (municipal)

Casing Drive Shoe? ☐ Yes ☐ N

Hole Diameter

Casing Diameter Weight(lbs/ft)

16 in. to 150 ft

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
UPPER SLATEY ABSENT			0	144
UPPER CHERTY			144	335
LOWER SLATE			330	345
LOWER CHERTY MEMBER			345	540

Screen

Make Type

Open Hole From ft. to ft.

Static Water Level 150 ft. from Land surface Date

PUMPING LEVEL (below land surface)

ft. after hrs. pumping g.p.m.

Well Head Completion

Pitless adapter mfr Model

Casing Protection ☐ 12 in. above grade

☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☐ Yes ☐ No

Nearest Known Source of Contamination

ft. direction type

Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed

Mfr name

Model HP Volts

Drop Pipe Length ft. Capacity 450 g.p.m

Type T

Any not in use and not sealed well(s) on property? ☐ Yes ☐ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No.

License Business Name

Name of Driller

REMARKS, ELEVATION, SOURCE OF DATA, etc.

LOCATED BY CITY CLERK

USGS Quad: Pengilly Elevation: 1439

Aquifer: PEBI Alt Id: 1310024S02

Report Copy

HE-01205-06 (Rev. 9/96)

Attachment 3

Table 5 - Baseline and Annual Sampling Lists

Baseline List

Analyte	Units
Gross Alpha	pCI/L
Gross Beta	pCI/L
Uranium	ug/L
Radium 226	pCI/L
Radium 228	pCI/L
Radon 222	pCI/L
Alkalinity, Total	mg/L
Arsenic	mg/L
Barium	mg/L
Cadmium	mg/L
Calcium	mg/L
Carbonate/Bicarbonate	mg/L
Chloride	mg/L
Chromium	mg/L
Fluoride	mg/L
Hardness, Total	mg/L
Iron	mg/L
pH, Lab	units
Lead	mg/L
Magnesium	mg/L
Manganese	mg/L
Mercury	mg/L
Nitrogen, Nitrate +Nitrite	mg/L
Potassium	mg/L
Selenium	mg/L
Silver	mg/L
Sodium	mg/L
Sulfate	mg/L
Thallium	mg/L
Dissolved Solids, Total	mg/L
Cation/Anion Ballance	--
Volatile Organic Compounds 465 F	ug/l

Annual List

Analyte	Units
Alkalinity, Total	mg/L
Arsenic	mg/L
Barium	mg/L
Cadmium	mg/L
Calcium	mg/L
Carbonate/Bicarbonate	mg/L
Chloride	mg/L
Chromium	mg/L
Fluoride	mg/L
Hardness, Total	mg/L
Iron	mg/L
pH, Lab	units
Lead	mg/L
Magnesium	mg/L
Manganese	mg/L
Mercury	mg/L
Nitrogen, Nitrate +Nitrite	mg/L
Potassium	mg/L
Selenium	mg/L
Silver	mg/L
Sodium	mg/L
Sulfate	mg/L
Thallium	mg/L
Dissolved Solids, Total	mg/L
Cation/Anion Ballance	--

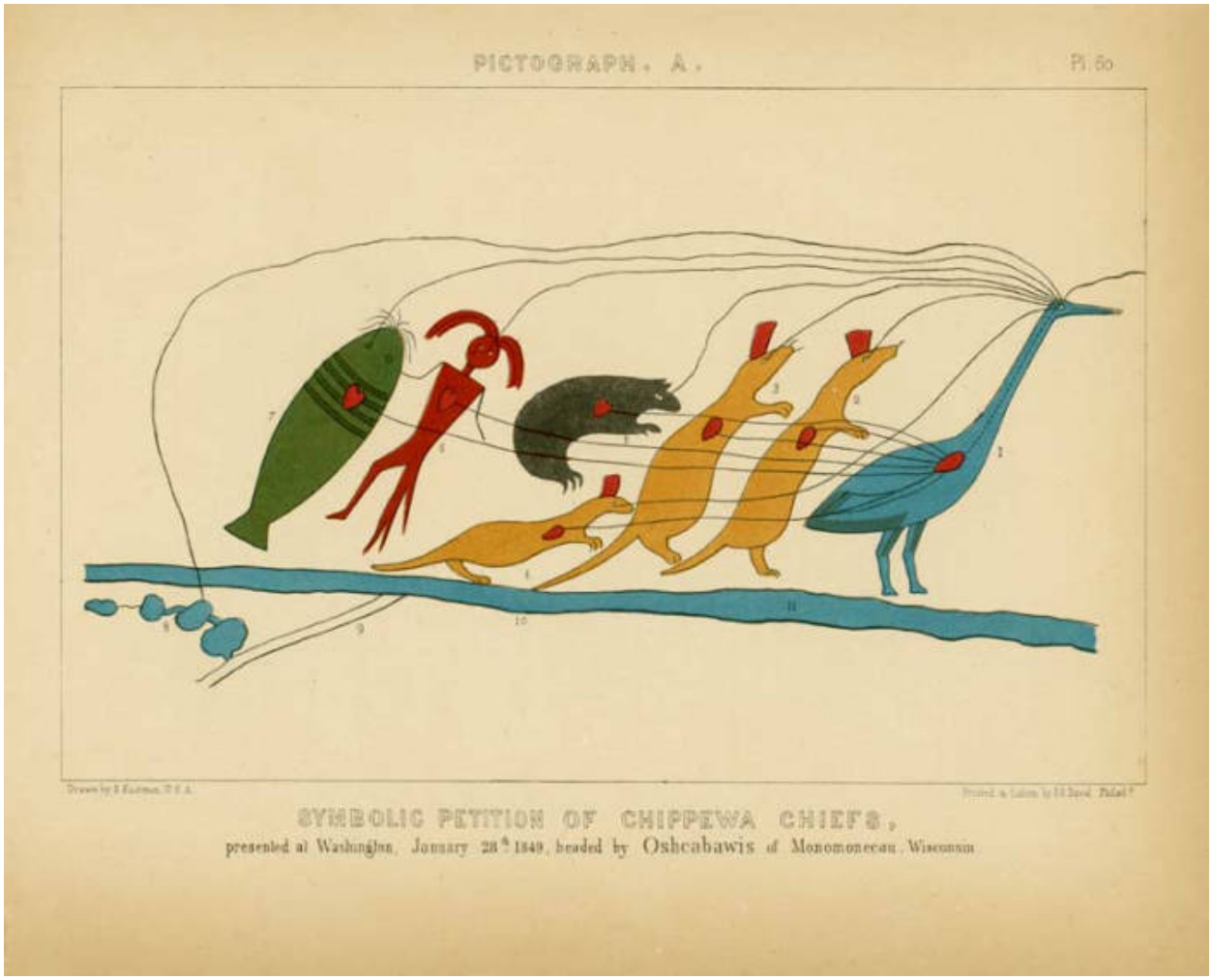

Tribal Cooperating Agencies Cumulative Effects Analysis

NorthMet Mining Project and Land Exchange

Prepared by staff from the Bois Forte Band of Chippewa, the Fond du Lac Band of Lake Superior Chippewa, the Grand Portage Band of Lake Superior Chippewa, the Great Lakes Indian Fish and Wildlife Commission, and the 1854 Treaty Authority

September 2013

Tribal Cooperating Agencies Cumulative Effects Analysis

NorthMet Mining Project and Land Exchange

In Chapter 6 of the *Preliminary Supplemental Draft Environmental Impact Statement (PSDEIS) for the NorthMet Mining Project and Land Exchange*, the co-lead agencies present a resource-specific cumulative effects analysis (CEA) for the NorthMet Project Proposed Action and Land Exchange Proposed Action that may result when combined with effects from other activities. It acknowledges that in addition to additive effects, cumulative effects may be further magnified by synergisms or cross-interactions in the environment. The analysis was developed by the co-lead agencies and their third-party contractor with consideration of the 1997 CEQ guidance *Considering Cumulative Effects under the National Environmental Policy Act* and EPA's 1999 NEPA review guidance *Consideration of Cumulative Impact in EPA Review of NEPA Documents.* However, despite specific and repeated requests from tribal cooperating agencies, the co-lead agencies did not elect to utilize a tool developed in 2011 by the EPA in cooperation with tribes, *Applying Cumulative Impact Analysis Tools to Tribes and Tribal Lands*, in order to discern potential cumulative effects to resources important to the tribes who retain usufructuary rights within the 1854 Ceded Territory. The NorthMet Project Proposed Action and Land Exchange Proposed Action are both located entirely within the boundaries of the 1854 Ceded Territory (Figure 1).

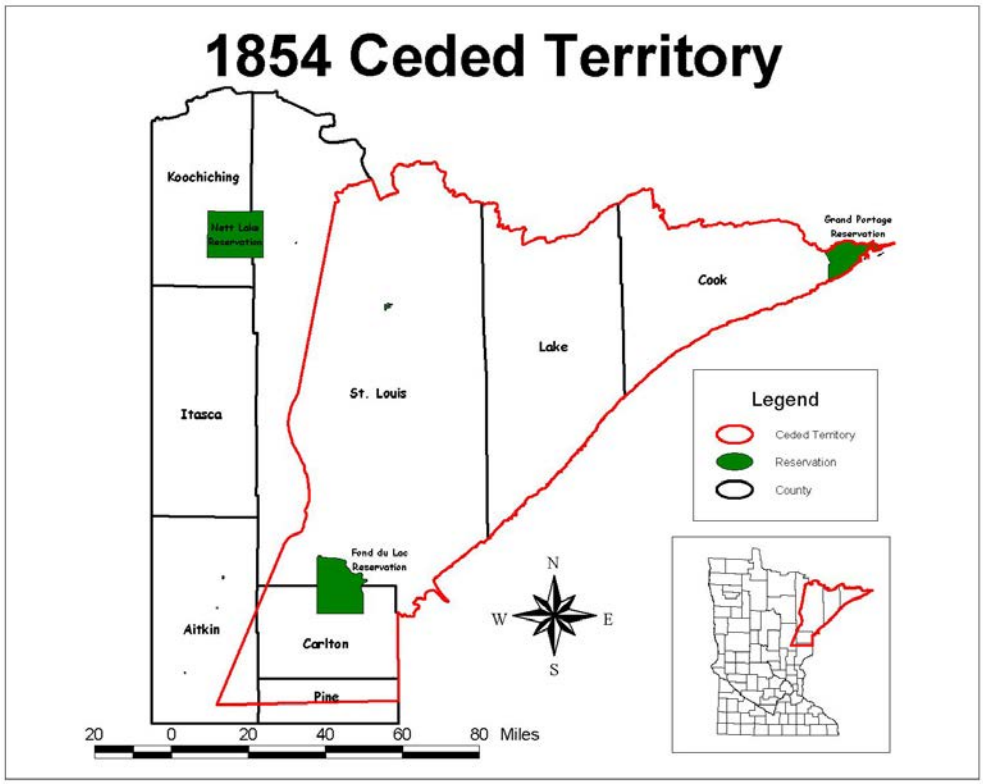

Figure 1.1854 Ceded Territory.

The Fond du Lac, Bois Forte, and Grand Portage Bands, as well as the 1854 Treaty Authority (1854) and the Great Lakes Indian Fish & Wildlife Commission (GLIFWC), have consistently advocated for a more robust, comprehensive CEA for the PolyMet NorthMet project and other mining projects. We have observed that current, historic, and 'reasonably foreseeable' mining activities have profoundly and, in many cases permanently, degraded vast areas of forests, wetlands, air and water resources, wildlife habitat, cultural sites and other critical treaty-protected resources within the 1854 Ceded Territory. As we have engaged with the lead federal and state agencies for the environmental review process under NEPA and the tribal consultation process under §106 of the National Historic Preservation Act (NHPA), we have clearly expressed our concerns for the incompleteness and inadequacy of their CEA.

In the 2008 CPDEIS section 2.2, Issues Identified During the EIS Scoping Process, it is stated that "The MnDNR and USACE determined that the following topics are not expected to present significant impacts, but would be addressed in the EIS using limited information beyond that provided in the Scoping EAW commensurate with the anticipated impacts: Cover Types; Vehicle Related Air Emissions; Air Emissions; Noise; Archeology; Visibility; Compatibility with Plans and Land Use Regulations; Infrastructure; Asbestiform Fibers; and 1854 Ceded Territory". Yet none of these resource categories or issues was fully evaluated from the standpoint of describing cumulative effects at spatial or temporal scales that the tribes find relevant, either in the earlier environmental impacts analysis or the current SDEIS process. The tribal cooperating agencies' perspectives on the resource-specific temporal and spatial boundaries for the CEA are significantly different from the co-lead agencies. Additionally, many of the tribal cooperating agencies' assumptions regarding predicted effects of the proposed actions (both the project and the land exchange) and the predicted success of proposed mitigations are significantly different from the co-lead agencies. Therefore, the tribal cooperating agencies have undertaken an alternative cumulative effects analysis, considering impacts to multiple resource categories to the extent we were able to do in the brief time within which we have been able review the draft PSDEIS, provide comments, and identify major differences of opinion.

In this CEA, we will be presenting major differences of opinion regarding cumulative effects to the 1854 Ceded Territory, Tribal Historic District (Figure 2) and the St. Louis River watershed. In addition, our analysis of the No-Action Alternative assumes current legal and regulatory requirements to remediate pollution from previous mining activities will, if implemented and enforced, lead to resource conditions that are substantially improved from their current degraded condition.

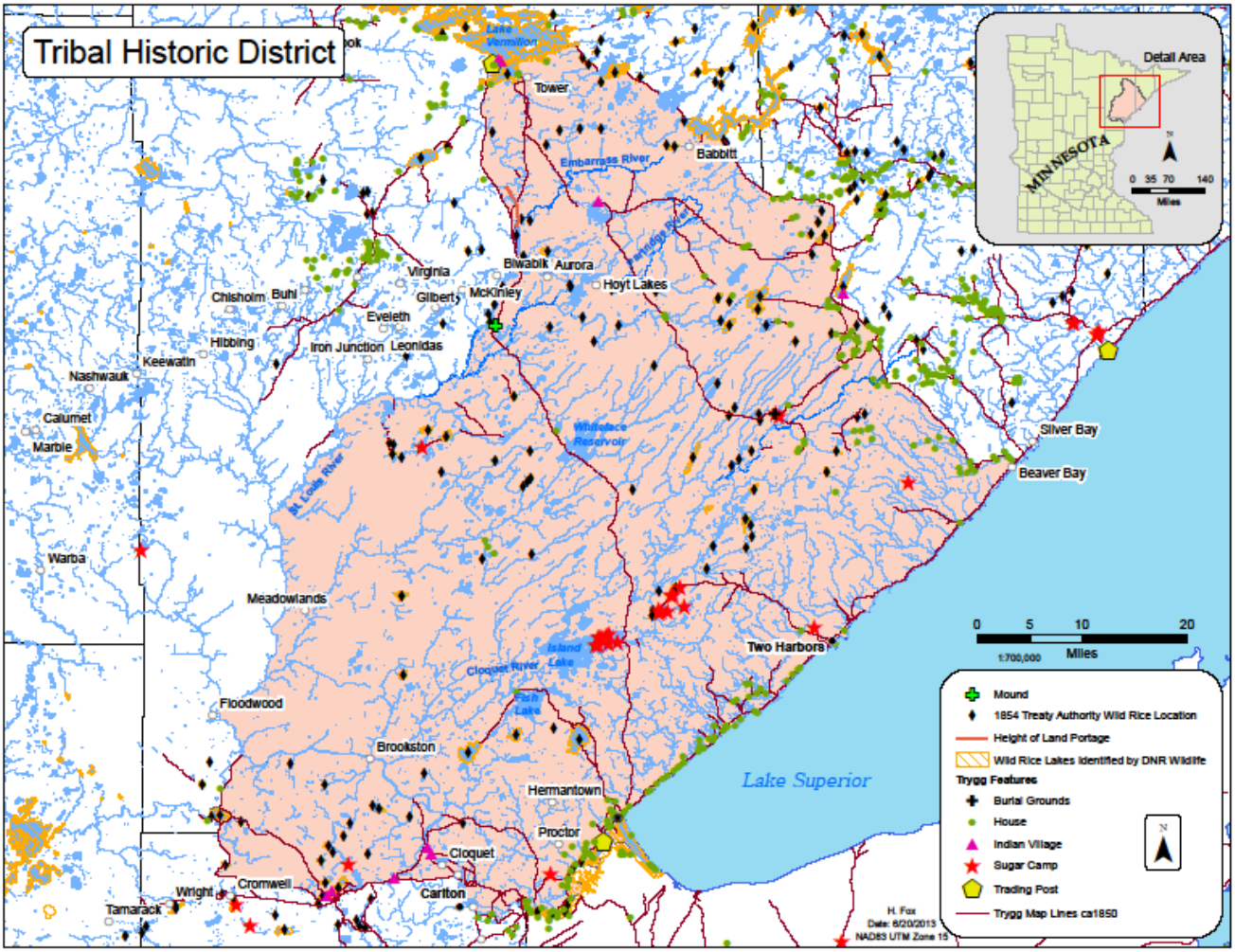

Figure 2. Tribal Historic District.

The tribal cooperating agencies use a resource-specific GIS-based approach as defined in the 2011 guidance to generate an alternative CEA that more accurately accounts for cumulative impacts to resources of tribal significance. From: *Applying Cumulative Impact Analysis Tools to Tribes and Tribal Lands:*

> The National Environmental Policy Act (NEPA) requires Federal agencies to evaluate the environmental impacts of their major projects. The scope of a federal Environmental Impact Statement (EIS) is spelled out in the NEPA legislation, in guidance documents published by the Council on Environmental Quality (CEQ) and EPA, and in various federal agencies' promulgated rules for implementing NEPA. An EIS evaluates the project's impacts to natural resources, the human environment, historical properties, and cultural properties. EIS documents are submitted for public review. Under Section 309 of the Clean Air Act, EPA is required to review and publicly comment on the environmental impacts of major federal actions including actions which are the subject of EISs.
>
> The assessment of cumulative impacts in NEPA documents is required by CEQ regulations. A cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (Title 40 Code of Federal Regulations (CFR) Section 1508.7, CEQ Regulations for Implementing NEPA, 1987). Only resources that are directly impacted or indirectly affected by an action are subject to a cumulative impacts analysis….
>
> In 1984, EPA issued its Indian Policy stressing two related themes: EPA will (1) pursue the principle of Indian self-government and (2) work directly with tribal governments on a government-to-government basis. Consistent with this Indian Policy and other EPA's statutory and regulatory authorities, EPA will identify and consider potential effects to reservation environments and take these potential effects into account as the Agency fulfills its regulatory duties. As a regulatory agency, EPA does not manage tribal trust resources or treaty resources in ceded territory. The U.S. Department of Interior, Bureau of Indian Affairs, does manage tribal trust resources. However, the Agency acknowledges its general trust responsibility to tribal governments which derives from the historical relationship between the Federal government and Indian tribes as expressed in certain treaties and Federal Indian laws, and understands that its regulatory activities can affect tribes.
>
> Tribal lands are fixed; that is the reservations, Indian lands, and ceded territories are specific places, defined by treaty, and tribes may hold certain rights within these areas. In addition, tribal cultural identity may be tied to specific areas, cultural properties, natural resources found within these areas or properties, and traditions and uses involving these places and resources. For this reason, tribes are not considered mobile. For these

reasons, many tribes have expressed interest and concern about cumulative impacts of actions relative to the areas they govern and/or use….

Tribal concerns about impacts to natural and cultural resources and properties and to their particular uses may include, but are not limited to the following:

- Water with naturally high quality and impacts involving -
    - Changes in concentrations of unregulated substances
    - Synergistic effects of multiple individually unregulated or regulated substances
    - Changes to water that make it unsuitable for cultural uses
- Lakes, rivers, wetlands, and other water bodies where plants of significance to tribes grow (e.g., wild rice)
- Water quality and quantity and soil quality that enable wild rice to grow
- Water quality necessary to support fish populations
- Plants and wildlife (e.g., moose, grouse, deer) of significance to tribes
- Sufficient wildlife populations and habitat to support traditional hunting, fishing, and gathering
- Fish and wildlife without contaminants that preclude their frequent consumption
- Archeological locations or areas
- Traditional or historic properties, locations or areas (e.g., traditional locations for hunting, fishing, and gathering; springs and ceremonial sites; other places where historic events occurred)
- Sacred locations or areas (e.g., gravesites, spiritual sites) without visual or noise impacts that would make them unsuitable for traditional activities
- Habitats that host culturally important resources (e.g., pipestone, sage, other culturally important plants)
- Access to areas where tribes have hunting, fishing, or gathering rights and to lands where off-reservation harvest under treaty rights occurs, including trails or passageways that link tribal use areas.
- Cultural items as defined by the Native American Graves Protection and Repatriation Act, 25 United States Code (USC) 3001, including funerary objects, sacred objects, and cultural patrimony
- Social bonds associated with traditional activities
- Tribal jurisdiction and control over reservation lands, thus improving or maintaining quality of life for residents of the reservations

An EIS that addresses cumulative impacts with respect to tribal uses and practices related to natural and cultural resources and properties should consider an analysis approach that uses:

1. A geographic area that is relevant to the tribe, for which information is collected and evaluated,

2. Information that reflects and describes tribal uses and tribal rights, and

3. A timeframe that is relevant to tribal uses.

In short, considering cumulative impacts to tribes may require a wider focus area and a discussion of direct and indirect impacts of all projects in an area, relative to tribal traditions, values, and concerns that involve using the resources affected by the project.

Regarding the geographic scope for a tribally relevant cumulative effects analysis:

- Scale is a central issue in the ecosystem approach.
- The appropriate boundary is one that ensures adequate consideration of all resources that are potentially subject to non-trivial impacts.
- For some resources, that boundary can be very large. For example, the long-range atmospheric transport of nutrients and contaminants into water bodies such as the Great Lakes and Chesapeake Bay transcends even the boundaries of their vast watersheds.
- At the other end of the spectrum, significant contributions to biodiversity protection can be made by identifying and avoiding small sensitive areas, such as rare plant communities.
- Determining relevant boundaries for assessment is guided by informed judgment, based on the resources potentially affected by an action and its predicted impacts.

The 1997 CEQ document notes that, for a project-specific analysis, it is often sufficient to analyze impacts within the immediate area of the proposed action. When analyzing the proposed action’s contribution to cumulative impacts, however, the geographic boundaries of the area should almost always be expanded. Project-specific analyses are usually conducted on the scale of forest management units, or facility footprints, or mixing zone in a waterbody pursuant to a discharge permit. Cumulative impacts analysis should be conducted in the scale of human communities, landscapes, watersheds, or airsheds.

Finally, EPA's 1999 document notes that the EPA reviewer can determine an appropriate spatial scope of the cumulative impact analysis by identifying a geographic area that includes resources potentially affected by the proposed project and extending that area, when necessary, to include the same and other resources affected by the combined impacts of the project and other actions. Furthermore:

- Geographical boundaries should not be extended to the point that the analysis becomes unwieldy and useless for decision-making.

- The analysis should use an ecological region boundary that focuses on the natural units that constitute the resources of concern.

- For non-ecological resources, other geographic areas, such as historic districts (for cultural resources) or metropolitan areas (for economics), should be used.

Cultural Resources

During the EIS scoping process for the NorthMet Project (see Section 2.1 of the Final Scoping Decision Document), no cumulative impact issues associated with cultural resources were identified. Tribes were not invited to participate in scoping. However, Tribal comments on the June 2008 PDEIS, the 2009 CPDEIS and the 2009 DEIS noted this cumulative impact and the need for analysis. The tribal cooperating agencies have repeatedly stated and commented in writing that there likely will be substantial impacts to cultural resources, and impacts to cultural resources need to be fully integrated into evaluation of potential impacts to cultural sites and cultural resources. However, there appears to be a concerted effort to diminish any and all comments on this subject and simply revert back to decisions made during the scoping phase.

The Traditional Use Survey conducted in 2011 (Latady and Isham 2011) focused on identifying and evaluating significance of places of importance to the Bands within the area to be affected by the proposed mine. Identification and evaluation is the first step before assessing adverse effects and integral to the development of a cultural resource management plan to facilitate preservation and management of cultural resources including traditional use areas. Beyond identification, the intent of the survey highlighted the potential to bridge the past and future in terms of native culture, history and natural resources.

Tribal cooperating agencies consider a 216,300 acre area bounded by the St Louis River, Lake Superior, Lake Vermilion and the Beaver Bay to Vermilion Trail to be a Tribal Historic District, and the pertinent area for consideration of cumulative effects to cultural resources. In addition to the St Louis River, the area supports three major drainage systems, the Cloquet, Embarrass and Pike Rivers. Trygg maps (1966), historic documents (Brownell 1967, Carey 1936, Chester 1902, Lancaster 2009, Trygg 1969, Van Brunt 1922, Jenks 1901, Moyle 1941) and information contained in site files located at the Bois Forte Tribal Historic Preservation Office were used to determine the extent of the district. Additional information on Historic places and properties are available at SHPO, Superior National Forest Headquarters and Duluth Archaeology Center. Included within the proposed historic district are the headwaters of the St. Louis River, the site of ongoing mineral exploration.

Ancestors of present day Band members resided in this area for centuries and many Band members followed traditional practices extensively until about a generation ago when the effects of mining devastated the rice beds in the Embarrass and St. Louis River watersheds and closed access to large tracts of public (USFS) land where traditional harvest and collection areas occur. This proposed Tribal Historic District encompasses complex trail systems, Indian villages, trading posts, encampments for fishing, hunting, wild rice harvest

and processing, sugar bush, and other traditional subsistence practices. It includes what was essentially a 'water highway' used by the Ojibwe at the time of European contact, and subsequently by Voyaguers during the era of heavy fur trading. In addition, numerous medicinal plant gathering sites, Midewewin lodges, vision quest locales and other sacred places occur.

Land Use

The co-lead agencies define the CEAA for land use to include effects associated with the NorthMet Project Proposed Action combined with other industrial (including mining) or public works projects located within the portion of the Mesabi Iron Range encompassed by St. Louis County". Tribal cooperating agencies believe the CEA for land use should encompass the 1854 Ceded Territory, as the signatory Bands have lost access to substantial portions of the 1854 CT and the resources within (Figure 3). The 1854 Ceded Territory encompasses 6,283,836 acres in North Eastern Minnesota. Of that, 4,095,146 acres are public land ranging from Federal to CRP lands. The remaining 2,188,578 is private to private industrial land[1]. Band members generally do not exercise usufructuary rights on private lands without landowner permission, although the treaty does not hold that restriction. Lands within the 1854 Ceded Territory that have experienced urban and/or industrial development are permanently 'lost' as a source of treaty resources.

[1] http://deli.dnr.state.mn.us/data_catalog.html using GAP Stewardship 2008 – all Ownership Types shape file and database

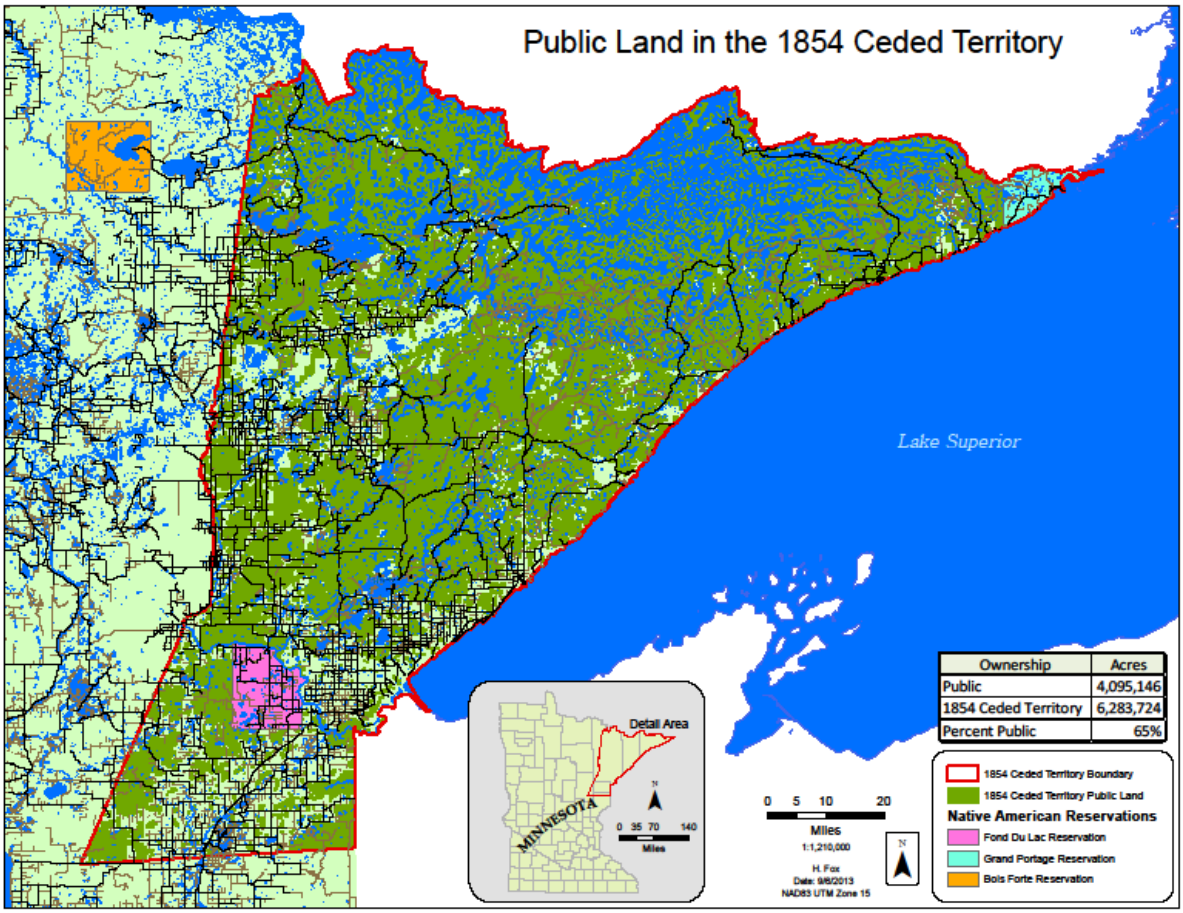

Figure 3. Public Lands within the 1854 Ceded Territory

Water Resources

The co-lead agencies evaluated cumulative impacts to surface water within the Partridge and Embarrass River watersheds only. From the preliminary SDEIS: "The St. Louis River was considered for inclusion in the cumulative effects assessment. The NorthMet Project Proposed Action is predicted to meet all water quality evaluation criteria or not make concentrations worse. Further, concentrations of sulfate and mercury, two key constituents of concern, are predicted to decrease as a result of the NorthMet Project Proposed Action. The NorthMet Project Proposed Action would also result in only minor changes in hydrology within the Partridge River and Embarrass River. Therefore, the NorthMet Project Proposed Action is not considered to have the potential for cumulative effects on hydrology and water quality in the St. Louis River. As a result, the CEAA for surface water is defined by the Partridge River and Embarrass River watersheds as shown on Figure 6.2.3-1."

The tribal cooperating agencies believe the relevant spatial scale for water quality and hydrologic cumulative effects analysis is the entire St. Louis River watershed. This watershed has experienced substantial historic, current and proposed expanded mining activities, as well as other industrial, agricultural and urban development. In addition to the direct surface water and wetland impacts (loss and/or degradation) from these activities, nearly half of the watershed has experienced hydrologic alteration from extensive ditching. It is reasonably foreseeable that an additional 3000 acres of wetlands within the watershed will be directly impacted by proposed new mining projects and expansions that are in active permitting and/or environmental review: the PolyMet NorthMet project, Mesabi Nugget Phase II, US Steel Minntac expansion, US Steel Keetac expansion, United Taconite Tailings Basin 3 construction. To date, virtually all required wetland mitigation for mining impacts has been implemented out of the basin, representing a permanent loss of high quality ecological resources and functions.

Modeling

The tribal cooperating agencies' review of the water modeling data packages for the NorthMet Project Proposed Action led to our conclusion that Goldsim did not accurately predict existing conditions, and cannot be relied upon to accurately predict future project conditions. While we feel that modeling of the existing conditions is an inadequate substitute for a realistic No-Action Alternative model and does not follow CEQ guidelines, it appears that Goldsim does not even accurately model existing conditions. As noted in spreadsheet comments submitted June 25, 2013, for many parameters at several waterbodies the No-Action P50 model of annual average value is substantially different than the observed average existing conditions. Because of the inaccuracy of the Goldsim predictions of current conditions it is not clear that use of the Goldsim estimates of project impacts are adequate to ensure protection of water resources. For example:

- PSDEIS Table 4.2.2-18 reports Colby Lake as currently having an observed mean Arsenic of 0.78 to 1.4 ug/L (depending on the data set), whereas Figure 5.2.2-35, the No-Action (continuation of current conditions) P50 model for Colby Lake Arsenic shows annual maximum values of 0.5 ug/L

- PSDEIS Table 4.2.2-34 reports PM-10 (seep at the basin north toe) as having an observed mean Mn value of 100,192 ug/L, whereas Figure F-01-18.1 (Water Modeling Data Package Vol 2-Plant Site v9 MAR2013) shows the No-Action (continuation of existing conditions) P50 as an annual maximum Mn of 390 ug/L. at the north toe.
- PSDEIS Table 4.2.2-34 reports PM-10 as having an observed mean Aluminum of 39.6 ug/L yet Figure F-01-02.1 (Water Modeling Data Package Vol 2-Plant Site v9 MAR2013) shows an annual maximum for No-Action (continuation of existing conditions) at the north toe as 11 ug/L.
- PSDEIS Table 4.2.2-14 shows that observed average SO4 at SW-005 (9.11 mg/L) is nearly identical to the Goldsim P50 predicted current annual maximum for that site (PSDEIS Fig. 5.2.2-27, 9 mg/L). This suggests that Goldsim is under-predicting SO4 at SW-005. (The authors of the text on page 5.2.2-125 of the PSDEIS seem to misinterpret the P50 of the figure as a predicted annual average. This is not the case. The P50 of that figure is the "best" estimate of the annual maximum. The Goldsim model estimate of the annual average at SW-005 is shown as the P50 in Mine Site Data Package Attachment K Figure K-06-24.2, i.e. 6 mg/L) Again, this suggests that Goldsim is underpredicting SO4 at SW-005.
- PSDEIS Table 4.2.2-29 shows that observed average Al at PM-13 is 221 ug/L. This observed average is much higher than the modeled No-Action (continuation of existing conditions) P50 annual maximum (PSDEIS Table 5.2.2-47, 159-166 ug/L). The modeled No-Action P50 annual average for Al at PM-13 of 75 ug/L (attached Fig.I-05-02.2, Water Modeling Data Package Vol 2-Plant Site v9 MAR2013) is only 1/3 of the observed average.

Tables 1-3 below compare the observed existing conditions values found in various PSDEIS tables to the P50 existing conditions predicted by Goldsim. While a very few of these model predictions are presented in the PSDEIS, many are not and therefor, the tables below refer back to the underlying data packages from which the PSDEIS was written.

Parameter (ug/L)	Average existing water quality (PSDEIS Table 4.2.2-14)	Annual average P50 existing conditions predicted by Goldsim (Mine Site Data Package Attach.K)
Mn	SW-002 = 142	SW002 = 80 (Fig.K-01-18.2)
Tl	SW-002 = 0.6	SW002 = 0.11 (Fig.K-01-25.2)
Mn	SW-003 = 147	SW003 = 85 (Fig.K-02-18.2)
B	SW-004a = 126.5	SW004a = 30 (Fig.K-04-05.2)
K	SW-004a = 2,700	SW004a = 1,600 (Fig.K-04-16.2)
SO4	SW-004a = 15,900	SW004a = 8,000 (Fig.K-04-24.2)
Pb	SW-005 = 1.3	SW005 = 0.26 (Fig.K-06-21.2)
SO4	SW-005 = 9,110	SW005 = 6,000 (Fig.K-06-24.2)
Tl	SW-005 = 0.4	SW005 = 0.05 (Fig.K-06-25.2)

Table 1. Observed existing conditions in the Partridge River vs. annual average existing conditions predicted by Goldsim.

Parameter (ug/L)	Colby Lake mean existing water quality (PSDEIS Table 4.2.2-18, Barr data)	Colby Lake Annual average P50 existing conditions predicted by Goldsim (Mine Site Data Package Attach.K)
Al	108	75 (Fig.K-08-02.2)
As	0.78	0.4 (Fig.K-08-04.2)
Cu	2.4	0.7 (Fig.K-08-13.2)
Ni	2.5	1.1 (Fig.K-08-20.2)
SO4	33,800	~10,000 (Fig.K-08-24.2)
Tl	0.1	0.025 (Fig.K-08-25.2)

Table 2. Observed mean existing conditions in Colby Lake vs. annual average existing conditions predicted by Goldsim.

Parameter (ug/L)	Mean seep measured value at Basin Toe (Table 4.2.2-34)	Annual maximum P50 existing condition predicted by Goldsim (Plant Site Data Package Attach.F)
Al	PM-8 = 25.7	West toe = 14 (Fig.F-04-02.1)
AL	PM-9 = 29.9	NW toe = 13 (Fig.F-02-02.1)
AL	PM-10 = 39.6	North toe = 11 (Fig.F-01-02.1)
Mn	PM-8 = 3,039	West toe = 1,250 (Fig.F-04-18.1)
Mn	PM-10 = 100,192	North toe = 380 (Fig.F-01-18.1)
F	PM-8 = 2,900	West toe = 1,100 (Fig.F-04-14.1)
As	PM-8 = 3	West toe = 2 (Fig.F-04-04.1)
B	PM-10 = 379	North toe = 330 (Fig.F-01-05.1)
Pb	PM-10 = 1.3	North toe = 1 (Fig.F-01-21.1)

Table 3. Observed mean existing conditions at the tailings basin toe vs. annual maximum existing conditions predicted by Goldsim. (Goldsim predicted mean concentrations are not provided in Modeling Data Package Vol 2-Plant Site v9 MAR2013).

The above examples are not an exhaustive list of discrepancies between observed existing water quality data and the Goldsim P50 prediction of the No-Action alternative (continuation of existing conditions) but highlight some of the most notable discrepancies. What the discrepancies demonstrate is that the Goldsim model is a relatively poor predictor of current conditions. If a model is unable to accurately predict current conditions it is even less likely to accurately predict future Project conditions. The Goldsim models need to be better calibrated to existing conditions (the calibration effort reported in "Calibration of the Existing Natural Watershed at the Plant Site v4 MAR2012" only compared model output to upstream site PM-12 and apparently did a poor job of preparing the models to predict either the lower reaches of the Embarrass or the Partridge River.) and model results recalculated.

Surface water quality

Evaluation Criteria that are used by the Project Proponent to evaluate the impacts of pollutants that are currently exceeding WQS do not comply with the Clean Water Act. 40 CFR § 122.44 (d) requires that all effluents be characterized to determine the need for a

Water Quality Based Effluent Limit (WQBEL). If a projected concentration of a specific pollutant exceeds the applicable numeric WQS, there is a reasonable potential that the discharge may cause or contribute to an excursion above WQS. Where existing data demonstrates an excursion from WQS, a WQBEL may be imposed without facility-specific effluent monitoring. In order to calculate a WQBEL, a Waste Load Allocation (WLA) for each permitted discharge must be established. The WLA is the portion of a Total Maximum Daily Load that is allowed for each point source to ensure compliance with WQS. However, it is very difficult to determine based on the information that has been provided by PolyMet if the additional contribution of each pollutant that currently exceeds WQS will exceed the load limit that would be required by a WLA to ensure compliance with WQS. And, the additional loading of pollutants that already exceed WQS demonstrates cumulative water quality impacts from the Project. Therefore, the Area of Potential Effect for water quality extends from the Embarrass and Partridge rivers to the mouth of the St. Louis River.

The Embarrass River, Partridge River and Colby Lake already have several constituents including sulfate, manganese, and mercury in concentrations that already exceed Minnesota Water Quality Standards ("WQS"). The existing large number of water-quality exceedances and the suite of constituents, particularly trace metals, exceeding WQS indicate the site has not been remediated from previous mining activities, and that the required reclamation was not adequate to ensure compliance with WQS. Concentrations of sulfate, specific conductance, manganese, mercury and arsenic that exceed MN WQS have been measured for NPDES permit Data Monitoring Reports and by the PolyMet project proponent demonstrate both water quality contamination issues and cumulative water quality impacts.

Specific conductance

Tribal staff have noted that elevated specific conductance is a water chemistry ‘signature’ for mining discharges. Specific conductance is the ability of a material to conduct an electric current measured in microSiemens per centimeter (µS/cm) standardized to 25°C. Specific conductance reflects concentrations of dissolved solids, including metal and other contaminants from mining, other industrial activities, and agriculture.

Tribal staff conducted analysis of specific conductance downstream of mine discharges using agency monitoring data (1990-2013). Analysis of specific conductance downstream of mine discharge sites indicated that specific conductance was highest nearest to mine discharge sites, and tended to only gradually decrease downstream of mine discharge sites. Linear regressions demonstrated that specific conductance was significantly negatively related to distance across all sample sites ($P < 0.01$, $R^2 = 0.15$; $n = 123$ sites; Fig. 4) and within the St. Louis River and Swan River systems ($P < 0.05$, $R^2 = 0.18$ and 0.52, respectively; Fig. 5). This analysis included stream and river monitoring only (not lakes). The regression suggests that specific conductance could drop to 150 µS/cm only 203 km (126 mi) downstream of the nearest upstream mine discharge site.

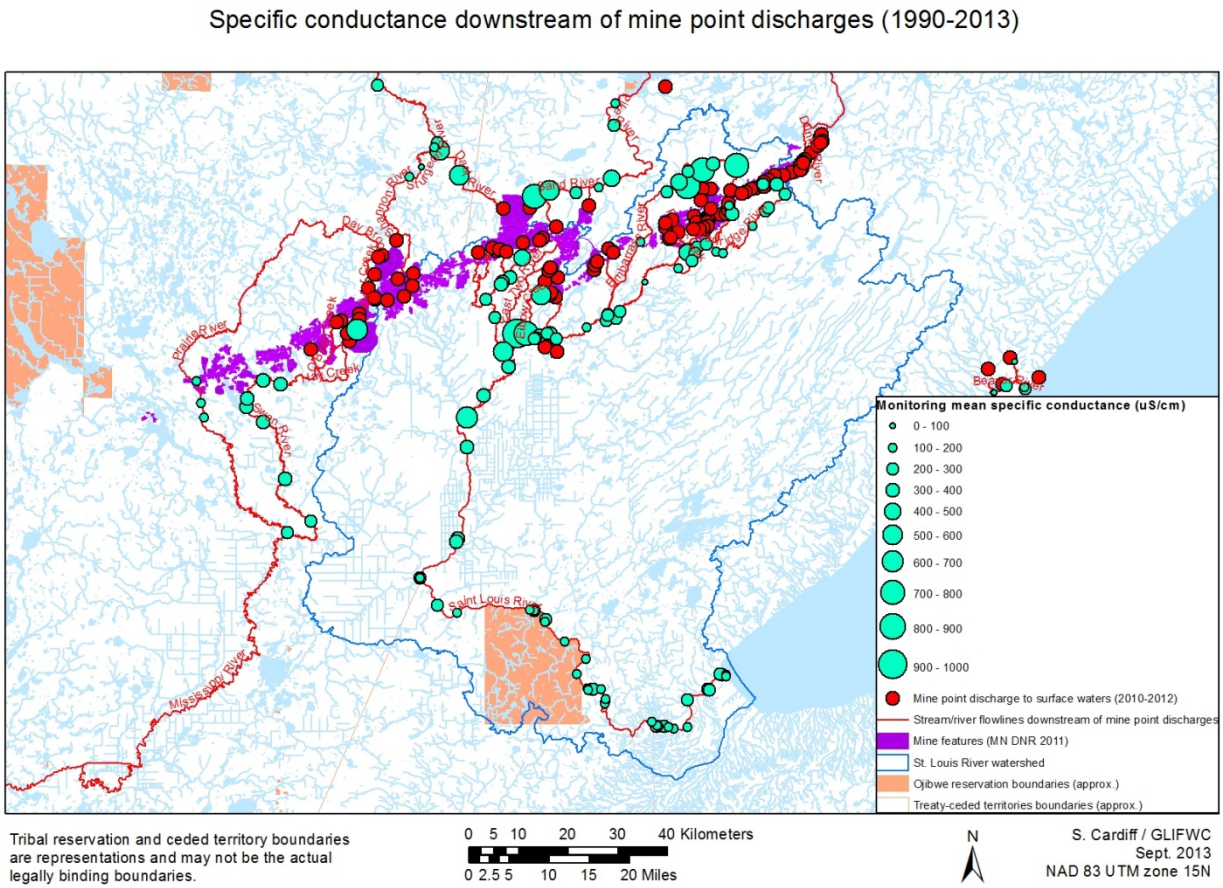

Figure 4. Mean specific conductance measurements at monitoring stations downstream of mine point discharges were inversely related to distance downstream from mine point discharge sites.

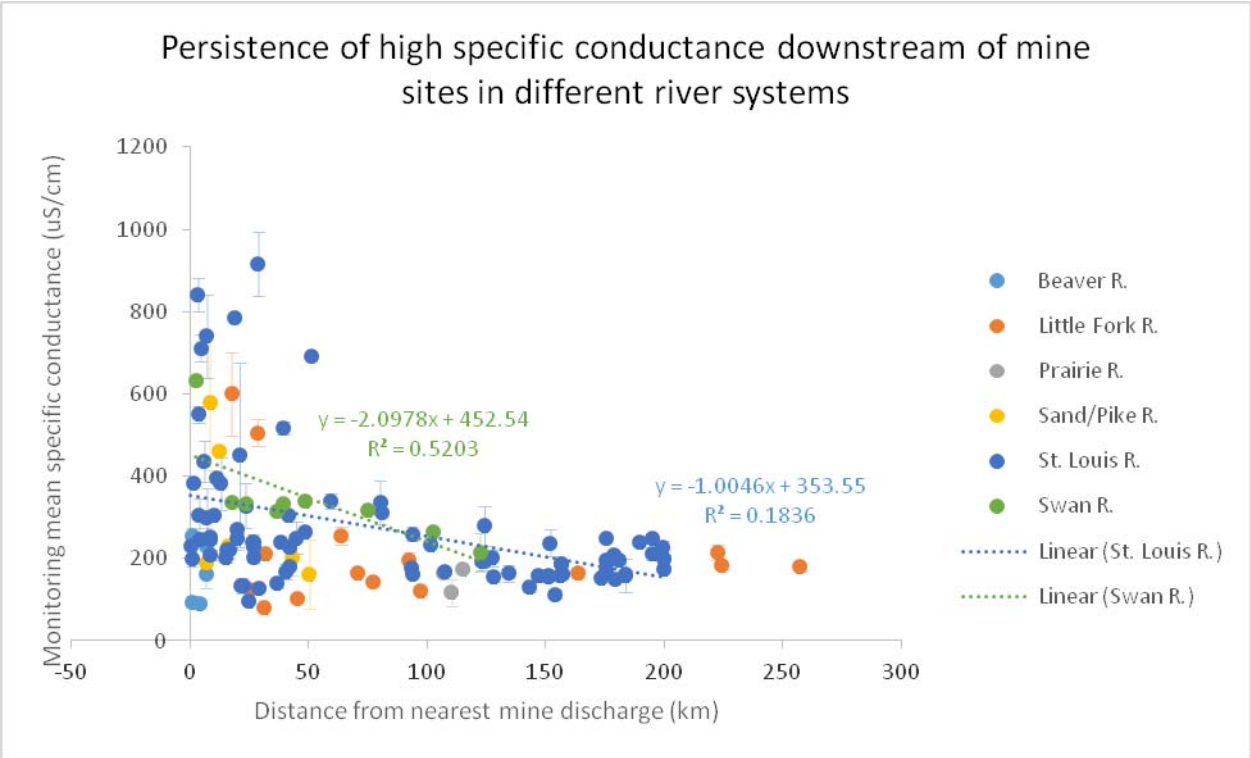

Figure 5. Linear regression indicated that mean specific conductance (±1 SE) was significantly negatively related to distance of the monitoring location downstream of the nearest mine discharge in two of the main downstream river systems, with highest specific conductance nearest to mine discharges and decreasing relatively gradually downstream (St. Louis River system $P < 0.01$, $R^2 = 0.18$, $n = 85$; and the Swan River system ($P < 0.05$, $R^2 = 0.52$, $n = 9$).

These analyses demonstrate that existing mining discharges result in elevated concentrations of pollutants that persist far downstream in the St. Louis River, which is consistent with the findings of the USEPA in their assessment report on the effects of mountaintop removal and valley fill mining[2].

Manganese

The Health Risk Limit (HRL) for manganese is 100 micrograms per liter (µg/l) because it is a potent neurotoxin known to cause brain damage when formula fed infants are exposed to high concentrations, and can cause Parkinsons-like symptoms in adults exposed to high concentrations. The average measured concentration of manganese in Wyman Creek between April 2005 and December 2012 was 1383 µg/l. Water discharging from Area Pit 5 to Spring Mine Creek, a tributary to the upper Embarrass River, between July 2010 and

[2] U.S. EPA (Environmental Protection Agency). 2011. The Effects of Mountaintop Mines and Valley Fills on Aquatic Ecosystems of the Central Appalachian Coalfields. Office of Research and Development, National Center for Environmental Assessment, Washington, DC. EPA/600/R-09/138F.

October 2011, had an average measured concentration of 804 µg/l. Test results from sixteen private drinking water wells located between the proposed project and the Embarrass River in 2008 revealed concentrations of manganese that exceeded the HRL in eight wells. The range of manganese concentrations from all of the wells was 0.66 – 4710 µg/l. The PolyMet project will contribute additional manganese to the groundwater from tailings basin water that is not captured and treated, and the water that seeps through fractures in the mine pit walls once the pit has filled with water.

In the Partridge river watershed, measured concentrations of manganese increase dramatically from the most upstream measurements to the furthest downstream measurements (Figure 6).

In the Embarrass River watershed, high concentrations of manganese are associated with mining features. SD033 is the discharge from Area Pit 5, and the former LTV tailings basin appears to be the source of pollution for monitoring locations MLC-2, PM-19, and PM-11 (Figure 7).

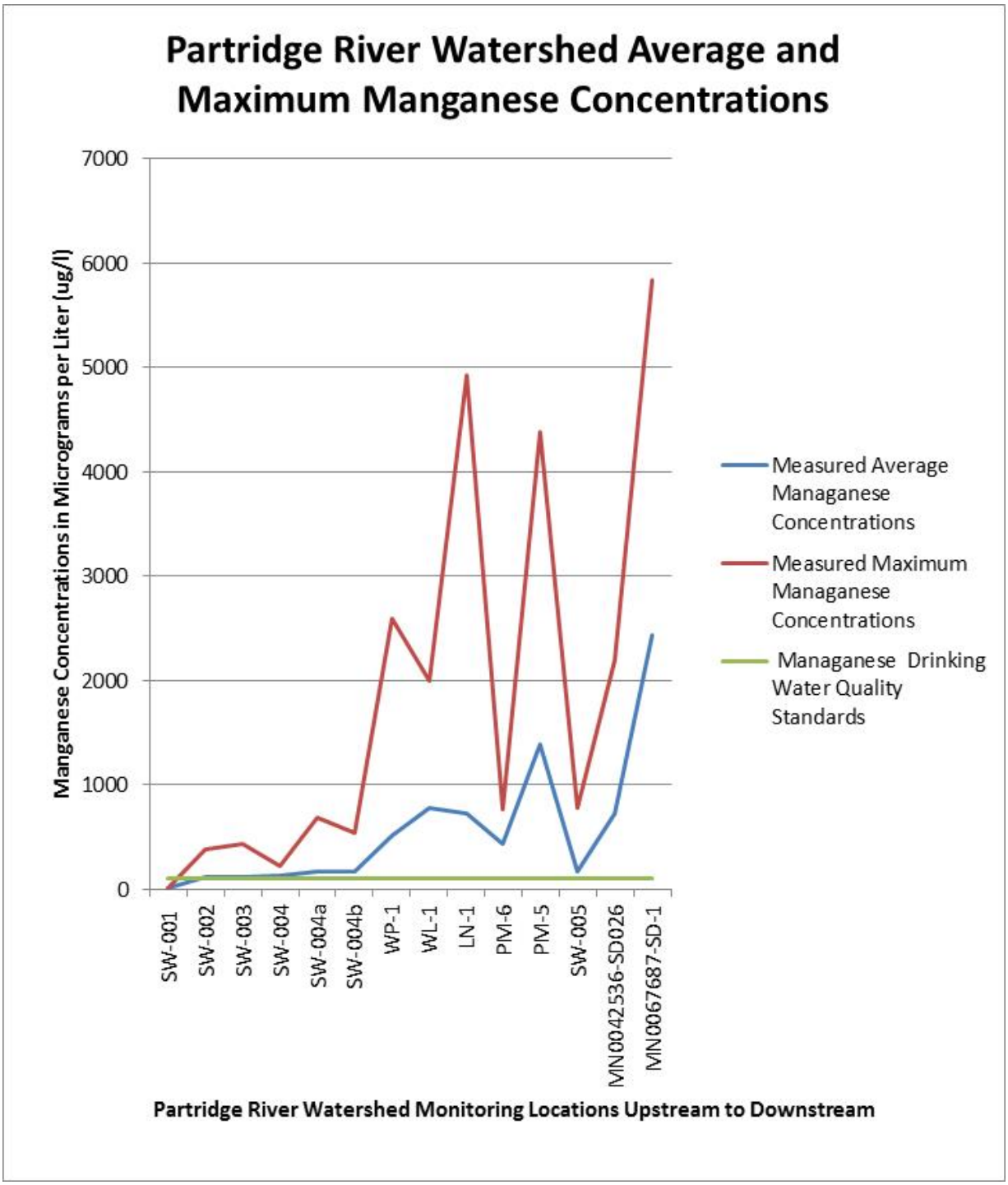

Figure 6. Partridge River Watershed Manganese Concentrations.

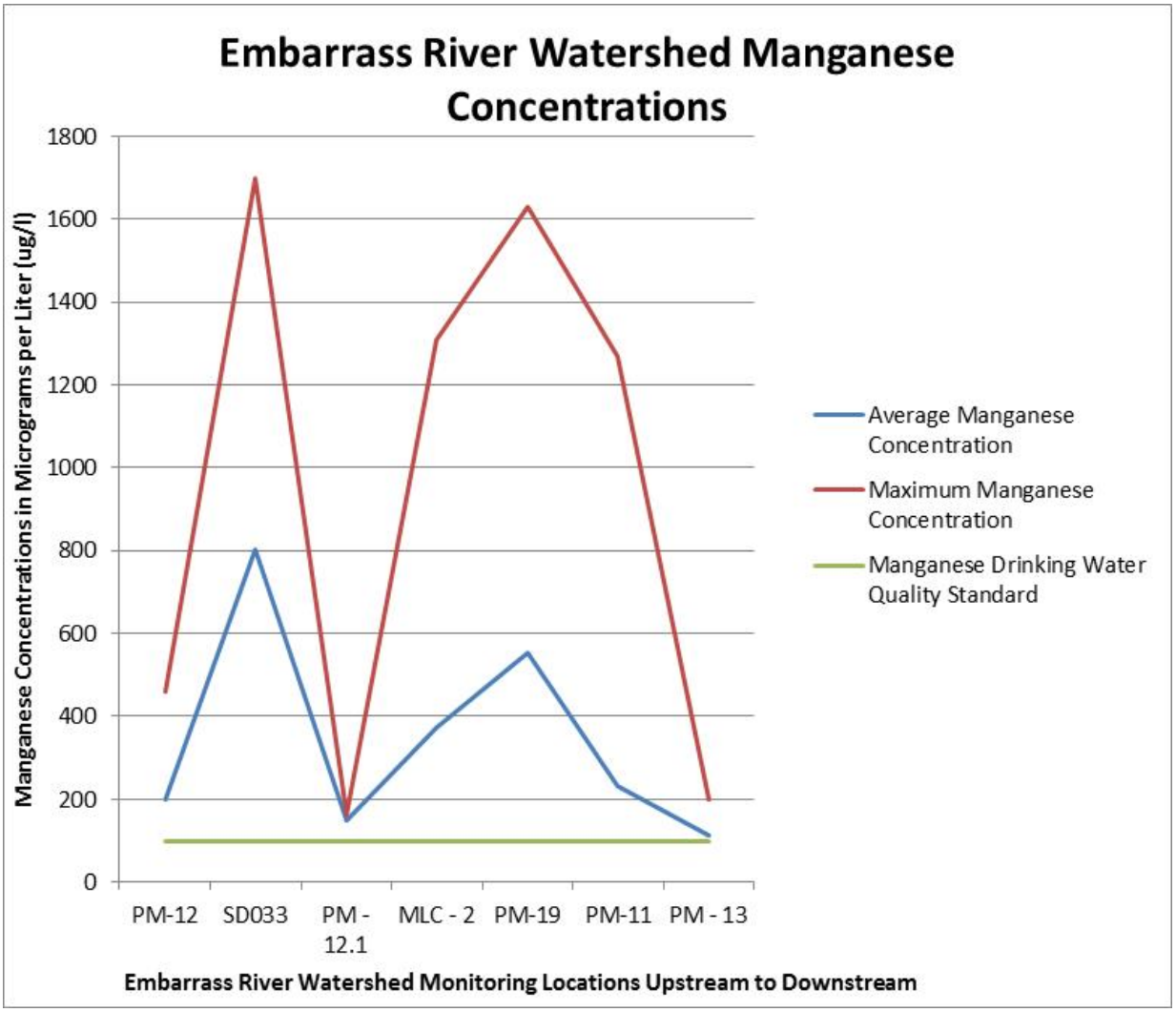

Figure 7. Embarrass River Watershed Manganese Concentrations.

Arsenic

Arsenic is a known carcinogen. The drinking water standard for arsenic is 10 µg/l, based on both human health and the economics of treating drinking water to meet the standard. Based on human health alone, the standard for arsenic is less than 2 µg/l[3]. Arsenic concentrations measured in sixteen private drinking water wells between the proposed project and the Embarrass River in 2008 ranged from less than the detection limit of 2 to 7.5 µg/l. Arsenic concentrations are projected to increase as a result of the PolyMet project[4].

In the Partridge River watershed, measured maximum arsenic concentrations exceed Class 2A and 2Bd water quality standards at all but three locations (Figure 8). The locations where the maximum measured concentration of arsenic does not exceed the Class 2A and 2Bd water quality standards are in the upper portion of the watershed.

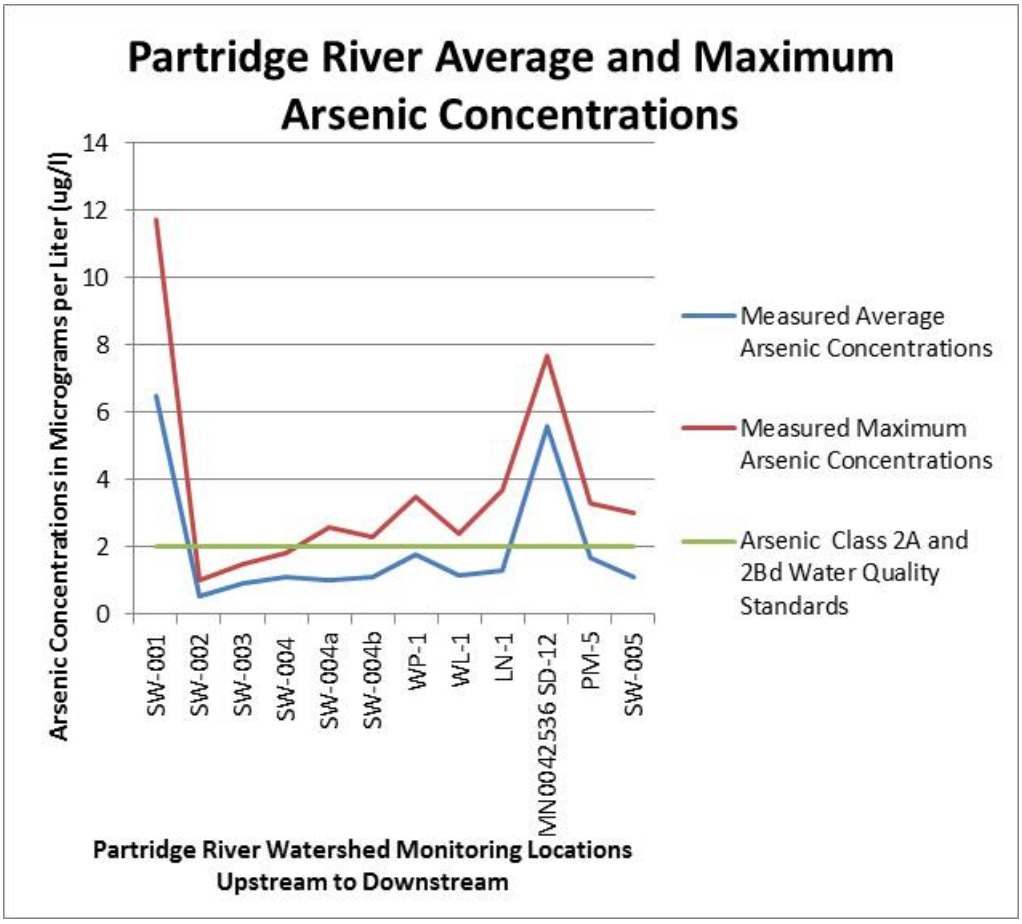

Figure 8. Partridge River Arsenic Concentrations.

[3] 40 CFR 131.36
[4] PolyMet Water Modeling Data Package

In Colby Lake, which is the City of Hoyt Lakes drinking water source, the increase in arsenic from the PolyMet project would be 38.5% (5.2.2-127 Table 5.2.2-33 Maximum Modeled Monthly P90 Surface Water Concentrations for the Colby Lake). This is significant because the US EPA's Priority Toxic Pollutants rule suggests that this level of arsenic would be more than an order of magnitude higher than what would prevent cancer in humans. The increased arsenic in the Partridge River — up to 55% at SW-004b are even more striking (p. 5.2.2-113, Table 5.2.2-29 Maximum Modeled Monthly P90 Surface Water Concentrations for the Mine Site), which may affect humans through fish consumption, even if the water isn't used for drinking.

Aluminum

The Class 2A chronic standard for total aluminum, applicable to Wyman Creek, is 87µg/l. The quality of Class 2Bd surface waters shall be such as to permit the propagation and maintenance of a healthy community of cool or warm water sport or commercial fish and associated aquatic life and their habitats. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. The Class 2Bd standard for aluminum is 125µg/l, applicable to the Embarrass River, Partridge River and St. Louis River. As Figure 9 below demonstrates, at every site where data is available the maximum aluminum concentrations exceed WQS, except at SW-001. The average aluminum concentration exceeds WQS at one quarter of the sites where monitoring data is available for aluminum.

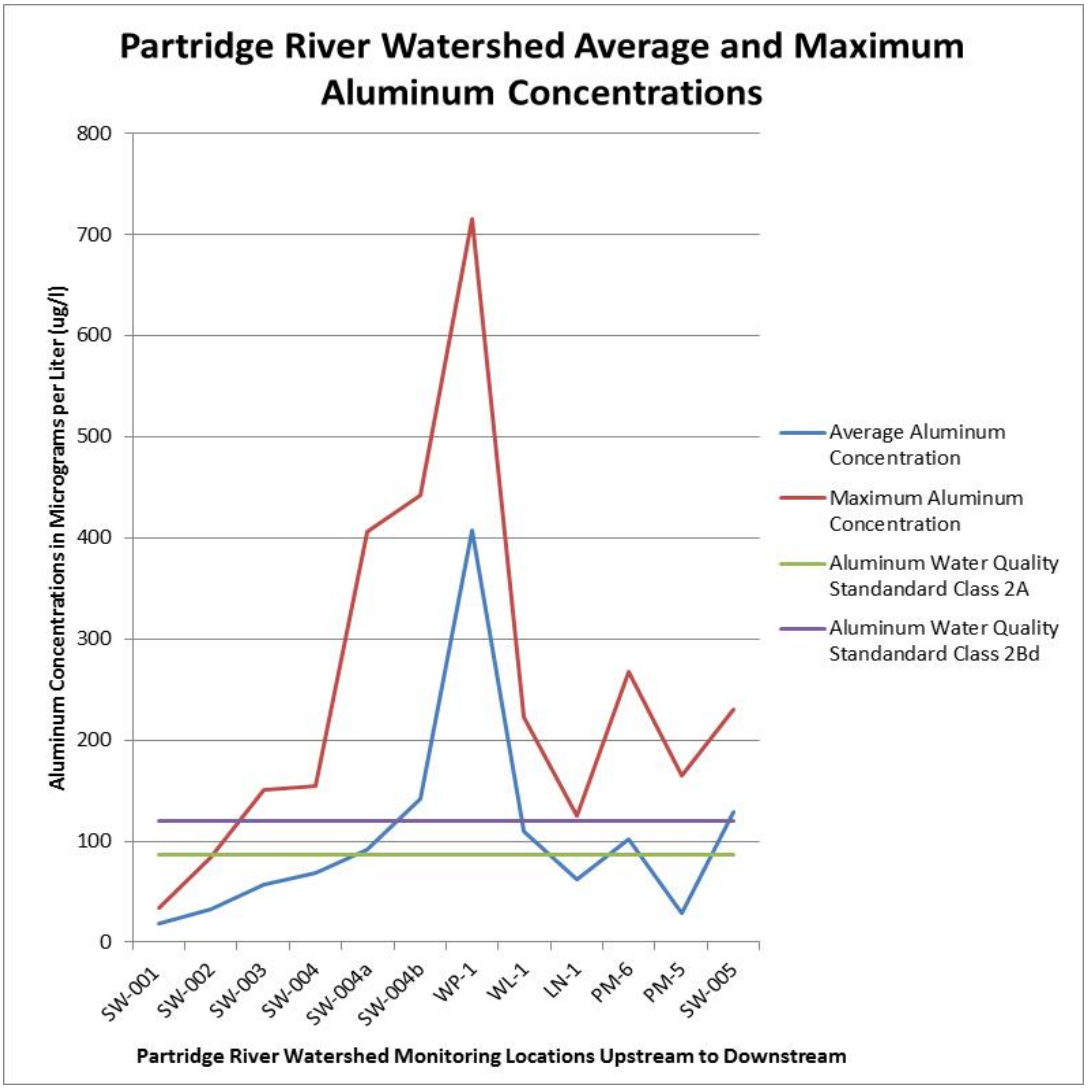

Figure 9. Partridge River Watershed Aluminum Concentrations.

Aquatic Species

Within the CEA area defined by the co-leads for impacts to aquatic species (the Partridge and Embarrass Rivers from their headwaters to a point approximately 15.5 miles downstream of the NorthMet Project Proposed Action activities, where the rivers form the St. Louis River), the MPCA has assessed and identified waterbodies that are impaired for fish and/or benthic macroinvertebrate communities, based upon recent monitoring data (since 2009). The draft 2012 §303(d) list prepared by the MPCA includes more headwaters streams and rivers in the St. Louis River watershed that are also impaired for aquatic communities (Figure 10). It is likely that the state-led stressor identification process underway will identify historic and existing mining operations as major causal factors for these impairments. The tribal cooperating agencies believe that the appropriate spatial scale for considering cumulative impacts to aquatic species is the St. Louis River watershed.

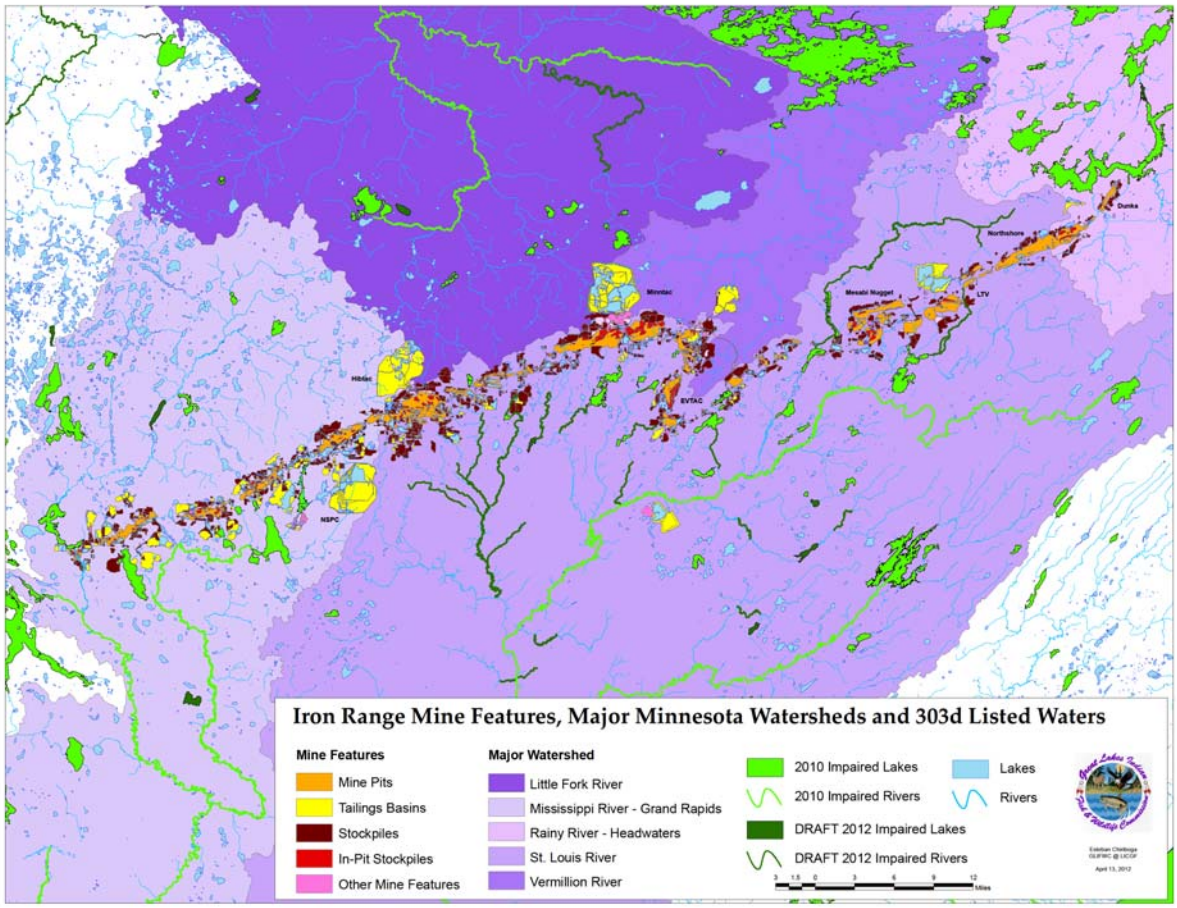

Figure 10. Impaired Waters (§303(d) Listed) within the St. Louis River and other mining-impacted watersheds.

The co-lead agencies conclude that, since the NorthMet Project Proposed Action is not predicted to result in any short- or long-term exceedances of surface water chronic standards in the Partridge River, Colby Lake, or the Embarrass River, even under extreme low-flow conditions during operations, no cumulative effects on aquatic resources are predicted within the CEAA. The co-lead agencies also conclude that there will be no effects on current baseline habitat conditions (as defined by hydrologic changes) from the NorthMet Project Proposed Action; therefore, no cumulative effects are anticipated. Both of these assumptions are major differences of opinion between the co-lead agencies and the tribal cooperating agencies. Clearly there are already adverse effects of mining operations and other development within these subwatersheds.

Mercury

From the PSDEIS: "The NorthMet Project Proposed Action is predicted to result in a net decrease in mercury loadings to the Partridge River from 24.2 grams per year to 23.0 grams per year. This would primarily be a result of a decrease in natural runoff (with a total mercury concentration of 3.6 ng/L) and a proportional increase in water discharged from the West Pit via the WWTF (with a total mercury concentration of 1.3 ng/L)."

The understanding of mercury dynamics in the St. Louis River watershed is very limited and is insufficient to lead to the conclusion reached in the PSDEIS that "the NorthMet Project Proposed Action would not exceed applicable environmental evaluation criteria." This lack of scientific information is explicitly stated throughout the PSDEIS and is what led the Minnesota Pollution Control Agency (MPCA) early this year to delay the establishment of a St. Louis River TMDL until further mercury cycling data could be collected.

The PSDEIS also states that the current fish tissue concentration in the five local lakes results in Hazard Quotients (HQs) that exceed 1 (page 6-58), but gives no further information. The *Cumulative Impacts Analysis, Local Mercury Deposition and Bioaccumulation in Fish (July 2012)* (Barr report) showed modeled contributions from both the Mesabi Nugget LDSP and PolyMet; this information should be included in the SDEIS for public review. The Barr report provides the actual HQs, rather than just saying "they exceed 1". The SDEIS should state clearly that in one case, the existing HQ equals 46.2, which is 46 times as high as the number where action is recommended.

The Barr report also states that "the existing health risk under Scenario 1 and 2 to subsistence/tribal and subsistence anglers eating three pounds or more per week of fish from these lakes would be significantly higher – up to fifteen times the EPA assumed safe risk intake level for a pregnant mother or child under the age of 15". While the incremental risk from the project may be small, the existing risk is large and has not yet been addressed through a total maximum daily load (TMDL) or other reduction program. Table 5 and Figure 9 from the Barr report should be included to give the public a clear idea of the existing condition of the local waters and why the tribes believe that no additional mercury should be added at this time. The SDEIS does not provide any rationale for more mercury to be added to a system that is already so high in mercury, but rather only suggests that the TMDL should take care of this.

Mercury is potent neurotoxin, with the primary human and wildlife route of exposure through consumption of fish. The Embarrass River, Wyman Creek, Whiteface Reservoir, Stony Creek, West Two River, numerous lakes, and the entire St. Louis River all have fish consumption advisories in place for recreational fishing. These advisories do not consider subsistence fishing. Mercury concentrations in fish from these impaired waters will require additional load reductions beyond the emissions reductions required by the statewide mercury TMDL.

Mercury levels in Lake Superior lake trout remain higher than the other Great Lakes, despite significant reductions in the amount of mercury being released from sources around the lake. The largest source of mercury from within the Lake Superior basin is the mining sector, at 63% of total emissions.[5] There has not been significant "ground-truthing" of mercury deposition rates that were used in the modeling assessment. Tribal cooperating agencies note that no studies have been conducted within this region of active mining to determine why fish tissue mercury concentrations are so high if the local sources mainly emit 'non-locally polluting' forms of mercury.

[5] Lake Superior Lakewide Management Plan Annual Report 2012, Catalogue No.: En161-9/2012E-PDF

A 2011 Minnesota Department of Health study[6] of infants in the Lake Superior basin found that 1 in 10 infants are born with unsafe mercury levels in blood. Blood spot mercury concentrations in infants from Minnesota were significantly higher than infants born in the Lake Superior basin in Wisconsin and Michigan.

Increased sulfate concentrations increase bioaccumulation of mercury. Additionally, mercury loadings to surface waters from the project is expected to increase from removing peat and storing peat in the overburden storage layout area without a cover or liner. Stormwater run-off containing concentrations of mercury that exceed MN WQS have been well documented (Aitkin AgriPeat). The Laskin Energy Center NPDES permit MN000990-SD-2 has a permit limit of 19.1 ng/l[7], even though the aquatic life WQS for the Lake Superior basin is 1.3 ng/l. Other existing permitted facilities contribute mercury loadings to the Partridge and Embarrass Rivers, in addition to the local atmospheric deposition (Figures 11, 12).

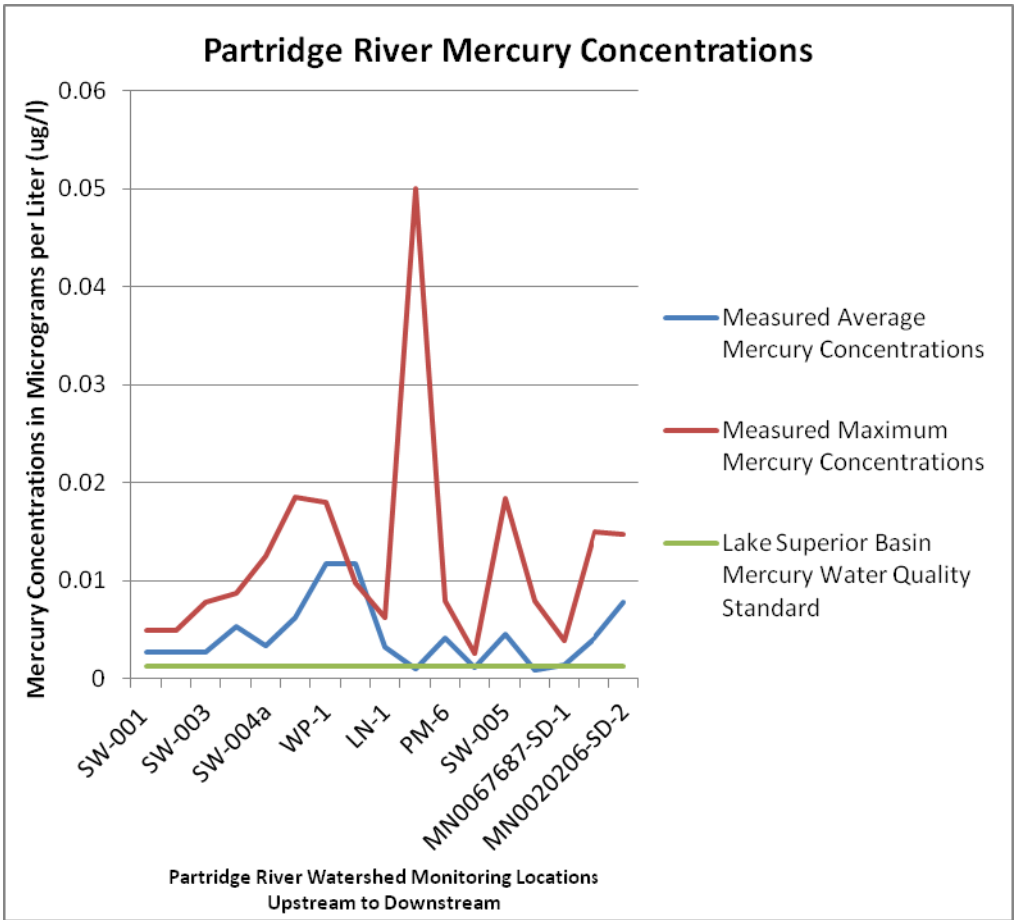

Figure 11. Partridge River Mercury Concentrations

[6] McCann, P. (2011). *Mercury Levels in Blood from Newborns in the Lake Superior Basin* (Minnesota Department of Health: Environmental Health, pp. 181)

[7] MPCA DMR data for NPDES permit MN0000990-SD-2 2000-2013.

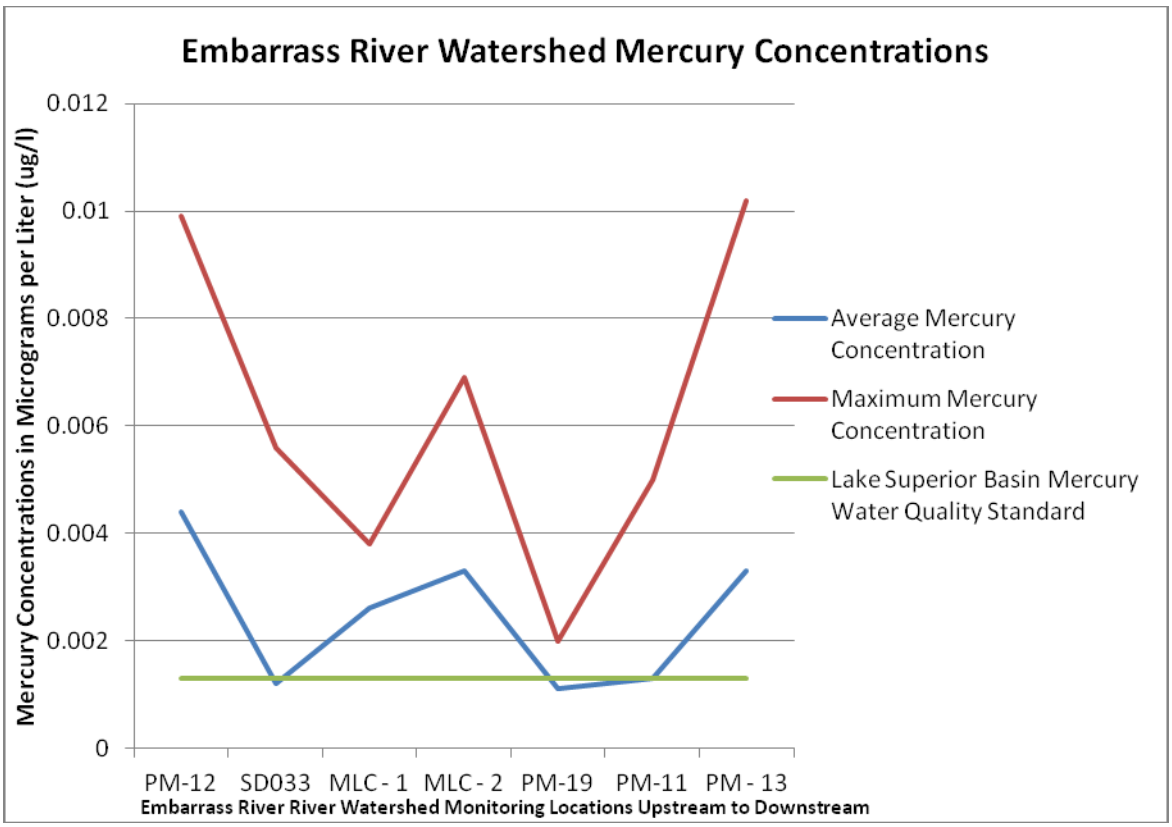

Figure 12. Embarrass River Mercury Concentrations.

Cumulative effects associated with mercury deposition and increased mercury methylation (mediated by increased sulfate loading and hydrologic alteration of peatlands) therefore extend from the plant site down the Embarrass River to the St. Louis River estuary. Additional analyses of predicted mercury impacts from the NorthMet Project Proposed Action have been provided by GLIFWC[8].

Sulfate

From the preliminary SDEIS: "Sulfate concentrations increase to an average of approximately 150 mg/L downstream of the confluence with Second Creek at the County Road 110 bridge (Mesabi Nugget monitoring location MNSW12). The wild rice surveys found sulfate concentrations as high as 289 mg/L below Second Creek during a relatively dry period. The baseline sulfate concentrations found in the Partridge River reflect the effects of discharges from existing activities within the watershed. The NorthMet sulfate load to the Partridge River would total an average of about 41 kg/d, which represents a 0.1 percent

[8] Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Comments Related to Mercury on the "Northmet Mining Project and Land Exchange: Preliminary Supplemental Draft Environmental Impact Statement"

increase over existing loads. Therefore, the NorthMet Project Proposed Action should not adversely affect downstream waters that support the production of wild rice."

Sulfate concentrations in Trimble Creek, the Embarrass River, and the Partridge River currently exceed the wild rice standard of 10 mg/l. The drinking water standard and the cold water fisheries standard for sulfate is 250 mg/l. Discharge from Area Pit 5 near the proposed PolyMet tailings basin has measured sulfate concentrations that range from 170 to 2520 mg/l, averaging 1,083 mg/l between 2001 and 2013[9]. Sulfate concentrations measured in the discharge from the Peter Mitchell Pit to the upper Partridge River for NPDES permit MN0046981-SD-9 ranged from 14-37 mg/l. Sulfate concentrations measured in the discharge from the LTV Tailings basin to Second Creek for NPDES permit MN0042536-SD026 ranged from 118-360 mg/l in the period between 2008 - 2013[10]. Sulfate impaired wild rice waters, for the first time ever, will be included in the MPCA impaired waters list in 2014. The Bands believe that the Embarrass River, Second Creek, the Partridge River, Dunka River, and Bobs Bay of Birch Lake should be included on that list. In addition, the Swan River, Swan Lake, Sand River and the Twin Lakes (Sandy and Little Sandy Lakes, adjacent to the US Steel Minntac tailings basin) are all impaired wild rice waters due to concentrations of sulfate that exceed the MN wild rice sulfate standard.

The wild rice sulfate WQS is exceeded at almost every point where data is available in the Embarrass River watershed (Figure 12), and the drinking water standard is exceeded at half of the monitoring locations. In the Partridge River watershed, the wild rice sulfate WQS is exceeded at fourteen of seventeen locations (Figure 13). And, the sulfate drinking water standard is exceeded at two locations in the Partridge river watershed. The NorthMet Project Proposed Action will contribute additional sulfate to the groundwater from tailings basin water that is not captured and treated, water that seeps through fractures in the mine pit walls once the pit has filled with water, and stockpile infiltration and run-off.

[9] MPCA DMR data for NPDES permit MN0042536-SD033 2001 -2013.
[10] MPCA DMR data for NPDES permit MN0042536-SD026 2008 -2013.

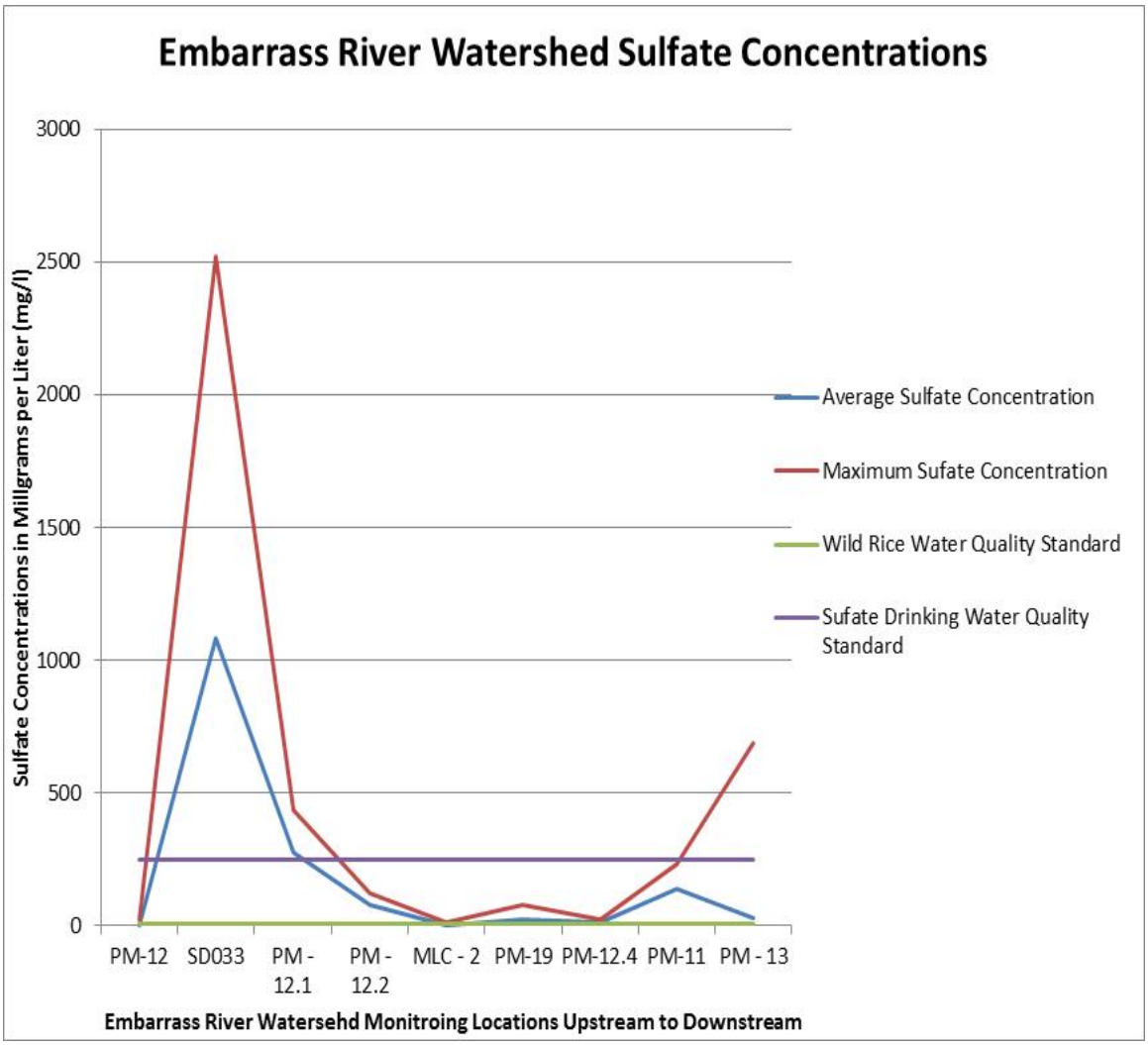

Figure 12. Embarrass River Watershed Sulfate Concentrations.

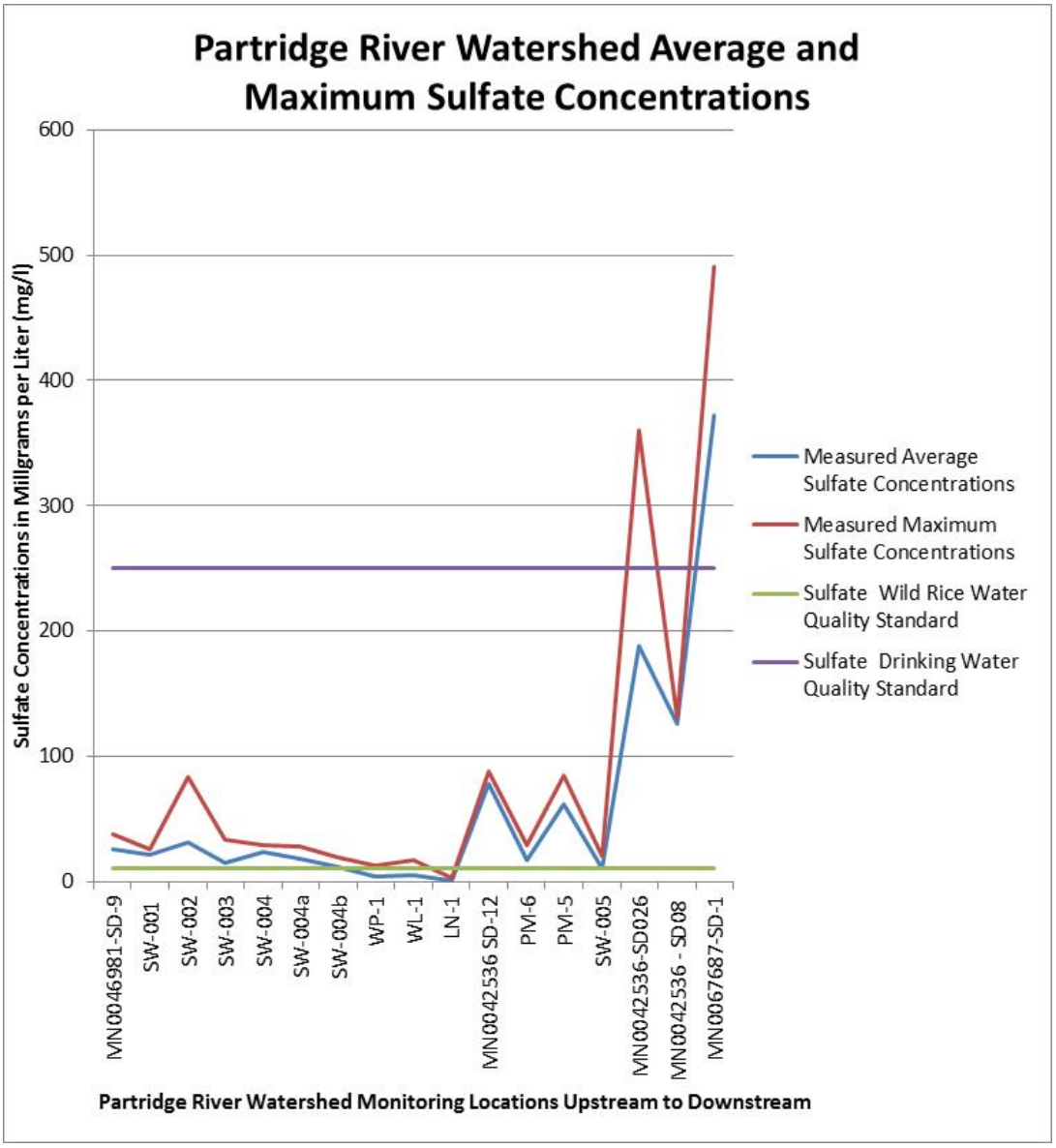

Figure 13. Partridge River Watershed Sulfate Concentrations.

Tribal staff did additional analysis of sulfate concentrations throughout the St. Louis River watershed. Analysis of sulfate concentrations downstream of mine discharge sites indicated that sulfate concentrations were highest nearest to mine discharge sites, and tended to only gradually decrease downstream of mine discharge sites. Linear regressions demonstrated that mean sulfate was significantly negatively related to distance across all sample sites ($P < 0.01$, $R^2 = 0.14$, $n = 92$) and within the Saint Louis River system ($P < 0.01$, $R^2 = 0.17$, $n = 73$; Figure 14). This analysis included stream and river monitoring only (not lakes).

The regression suggests that sulfate concentrations could drop to less than 10 mg/L only 170 km (105 mi) downstream of the nearest upstream mine discharge site (Figure 15).

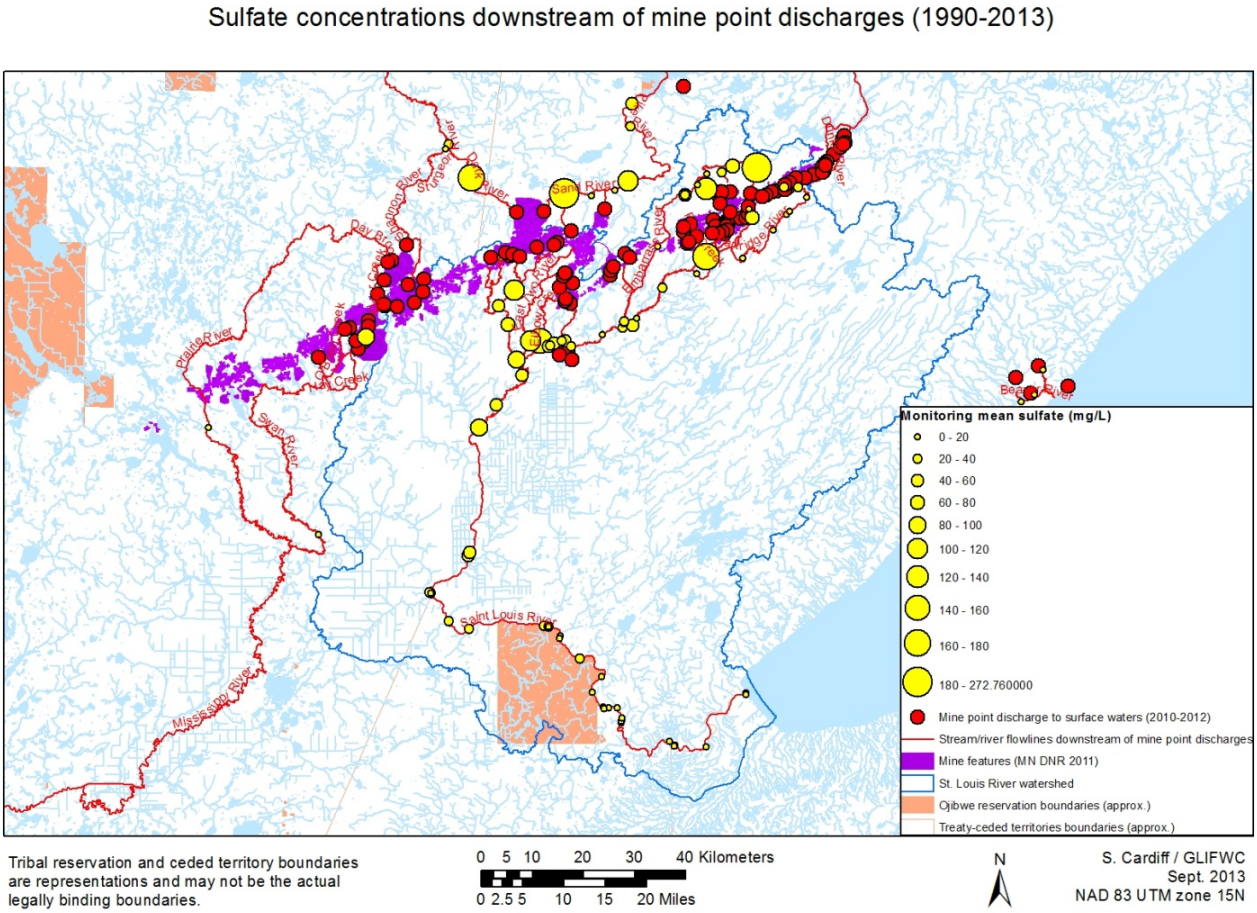

Figure 14. Mean sulfate concentrations at monitoring stations downstream of mine point discharges was inversely related to distance downstream from the discharge sites.

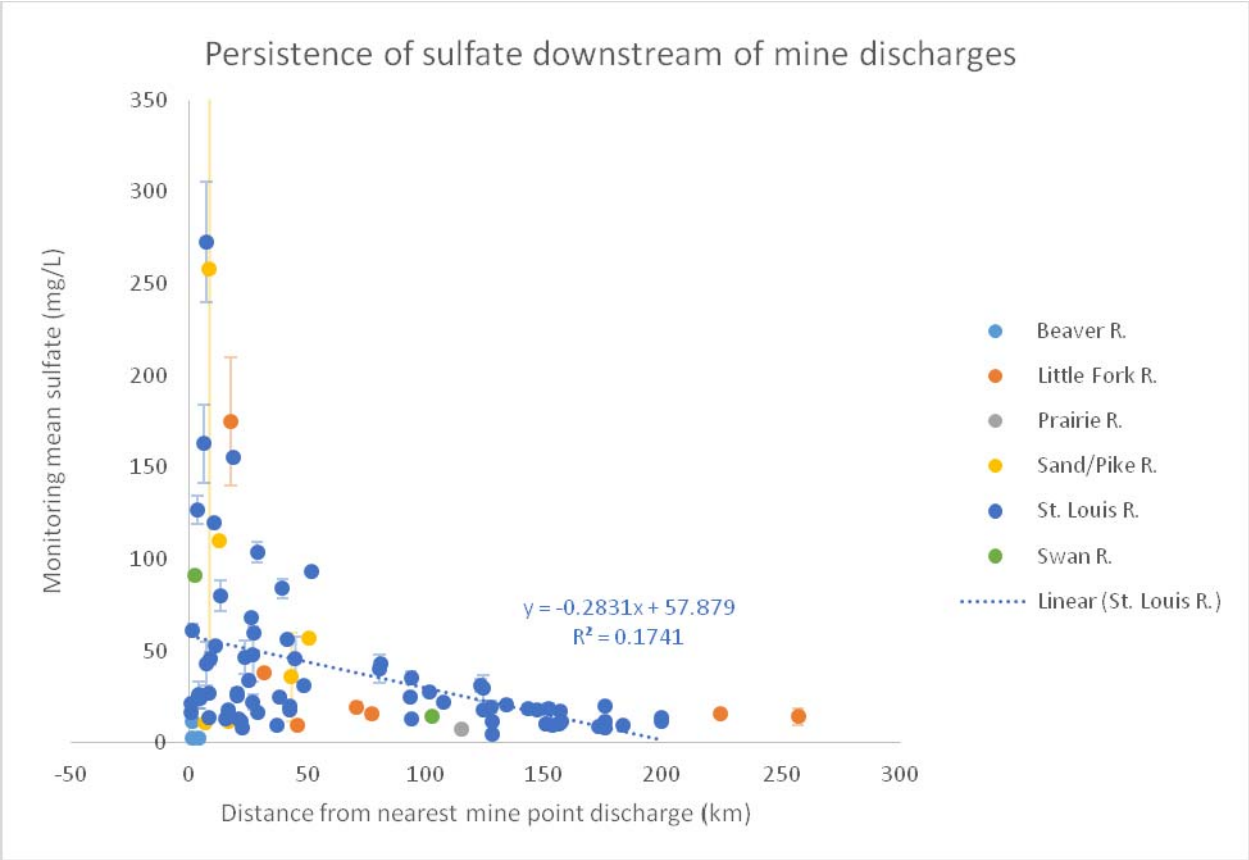

Figure 15. Linear regression indicated that mean sulfate (±1 SE) was significantly related to distance of the monitoring location downstream of the nearest mine discharge in the St. Louis River with highest sulfate concentrations nearest to mine discharges and decreasing relatively gradually downstream ($P < 0.01$, $R^2 = 0.17$, $n = 73$).

Ground water quality

From the PSDEIS: "Neither the Scoping Decision Document nor the SDEIS identified potential cumulative effects on groundwater. Although the NorthMet Project Proposed Action would affect groundwater levels, this effect would be very limited geographically and temporally (e.g., groundwater levels would be restored once pit dewatering ceases) and not subject to any off-site cumulative effects. The effects of mine dewatering are considered in terms of effects on surface water flows."

The cumulative effect of blasting ore, or vibration, has not been mentioned in the SDEIS, or even considered. It is evident that effect of blasting ore will increase fractures in the Virginia Formation and the Duluth Complex in the vicinity of the Project[11]. And, that

[11] ISEE Presentation Wesley L. Bender, Understanding Blast Vibration and Airblast, their Causes, and their Damage Potential (updated 2009), available at http://www.iseegoldenwest.org/Blast%20Effects.pdf (last visited 9/5/13)

fractures have already hydrologically connected the Biwabik Iron Formation with the Virginia Formation and Duluth Complex, as a result of blasting in the Peter Mitchell Pit. The increase in fractures from blasting has likely hydrologically connected some of the known and inferred faults in the vicinity of the Peter Mitchell Pit, too. And, there will be a cumulative impact on water quality and water quantity resulting from blasting ore in the proposed PolyMet mine pit because the fractures from blasting in the Peter Mitchell Pit will overlap fracturing resulting from blasting in the PolyMet Pit. The area where most of the new fractures are likely to be created lie within the Virginia formation between the two pits. The Virginia Formation is known to have the highest sulfur content of the three bedrock formations found within the area between the proposed PolyMet mine pit and the Peter Mitchell mine pit, and the second highest transmissivity rate.

The PolyMet SDEIS section on vibration (Chapter 5.2.8) does not discuss impacts of blasting in creation of fractures. However, fractures created by blasting and shoveling ore would extend far beyond the pit walls. Section 5.2.8-9 **Vibration** of the preliminary SDEIS states: "permanent ground displacement occurs close to the blast. For heavily confined rocks, ground vibrations of 25.4 mm/sec will occur as far away as 1,581 meters. For free face average rock, ground vibrations of 25.4 mm/sec will occur as far away as 627 meters." "Permanent ground displacement" is a discreet way to refer to the creation of new fractures without having to discuss the resulting increase in groundwater flow and connectivity to surface waters. In fact, all of the PolyMet predictions regarding discharge from the mine pits and waste rock piles, including the more reactive waste rock piles and the ore surge pile as well as the unlined permanent Category 1 waste rock pile, are made without considering the effects of fractures on discharge to groundwater and surface water.

Excerpts from three reports produced for the PolyMet project regarding groundwater/surface water interactions include the following:

"Groundwater samples were collected from three of the deep borings at the site. Two of the samples were collected from 6-in diameter exploratory boreholes. The remaining sample was collected from the water supply well (Unique Well Number 717972). This well is open to both the Duluth Complex (20-150 feet below ground surface) and the Virginia Formation (150-200 feet below ground surface)….The water sample from well MW-05-02 exceeded criteria for ammonia (240 ug/l), pH (10),aluminum (322 ug/l), and copper (11.2 ug/l). The sample from MW-05-08 exceeded criteria for aluminum (1,040 ug/l), copper (10 ug/l), and mercury (0.0053 ug/L). The sample from MW-05-09 exceeded criteria for aluminum (4,640 ug/L), chromium (28.6 ug/l), cobalt (5.4 ug/l), copper (72.2 ug/l), lead (5.6 ug/l), and mercury (0.0181 ug/l)…. The presence of ammonia in the deep boreholes may indicate that the water in the borehole came from the shallow surficial deposits. Ammonia is not typically found in deep bedrock systems but is common in wetland environments."[12]

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[12] Hydrogeologic Investigation- PolyMet NorthMet Mine Site report RS-02. Barr Engineering. 2006

"The water samples from wells P-2 and P-4 exceeded the nitrogen (ammonia as N) criteria (270 ug/L and 110 ug/L respectively). The presence of ammonia nitrogen in the samples likely indicates that there is a hydraulic connection between the bedrock aquifer and the surficial aquifer; however, the nature of this connection cannot be determined at this time."[13]

"The samples from pumping well P-2 all contained measurable tritium, indicating that at least a portion of the source water is post-1952 water."[14]

The Peter Mitchell Pit lies approximately one mile north of the proposed PolyMet mine pit. Taconite production began in 1955 at the Peter Mitchell Pit. Based on the review of the Peter Mitchell NPDES permit MN0046981 at various discharge locations, unionized ammonia nitrogen has exceeded permit limits on numerous occasions[15]. Unionized ammonia nitrogen is used to blast rock. Though PolyMet did not determine what the source unionized ammonia or tritium found in the deep boreholes was, it seems likely that because of the Peter Mitchell Pit's close proximity to the proposed PolyMet mine site, the Peter Mitchell Pit is the source of contamination. The approximate fifty- year travel time of the pollutants found in the P-2 bore hole from the Peter Mitchell Pit were not used to estimate travel time for pollutants leaving the PolyMet mine pit and reaching the Partridge River, or even to calibrate the model.

In fact, bedrock groundwater flow paths have not been determined using standard methods for hydrogeologic investigations. Instead, a model has been developed that uses extremely low baseflows in the Partridge River in order to suggest that peak concentrations of contaminants will not reach surface water features for hundreds or even thousands of years. Even though data collected for PolyMet in the three hydrologic investigations between 2006 and 2007 demonstrate a strong connection between boreholes in the bedrock aquifer and the surficial aquifer and surface water (including wetlands). This information, and the results from winter flow monitoring have not been incorporated into the PolyMet project projections for surface and groundwater quality and quantity.

Groundwater contamination from the previous mining activities is still an issue near the LTV tailings basin and mine pits more than twenty years after operations have ceased. The above evidence suggests that, whatever the degree of fractures now existing in the rock, blasting at the levels proposed by PolyMet will create damage to rock masses and rock fractures over an extensive area, including the entire mine site and extensive adjacent wetlands areas (Figure 16). This evidence requires that the impacts of fractures on propagation of pollutants from all mine sources be analyzed in detail and calls into question PolyMet's claims that discharge of sulfates and toxic metals from the mine site will not impact wetlands and exceed water quality standards. The impacts of vibrations and airblast on slope stability of waste rock piles are not discussed in the SDEIS either.

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[13] Hydrogeologic Investigation – Phase II PolyMet NorthMet Mine Site RS-10. Barr Engineering. 2006

[14] RS10A –Hydrogeological – Drill Hole Monitoring and Data Collection – Phase 3. PolyMet Mining, Inc. March 2007.

[15] MPCA DMR data for MN0046981 from website "What's in My Neighborhood" (http://www.pca.state.mn.us/index.php/data/wimn-whats-in-my-neighborhood/whats-in-my-neighborhood-text-search.html) (last visited 9/4/13)

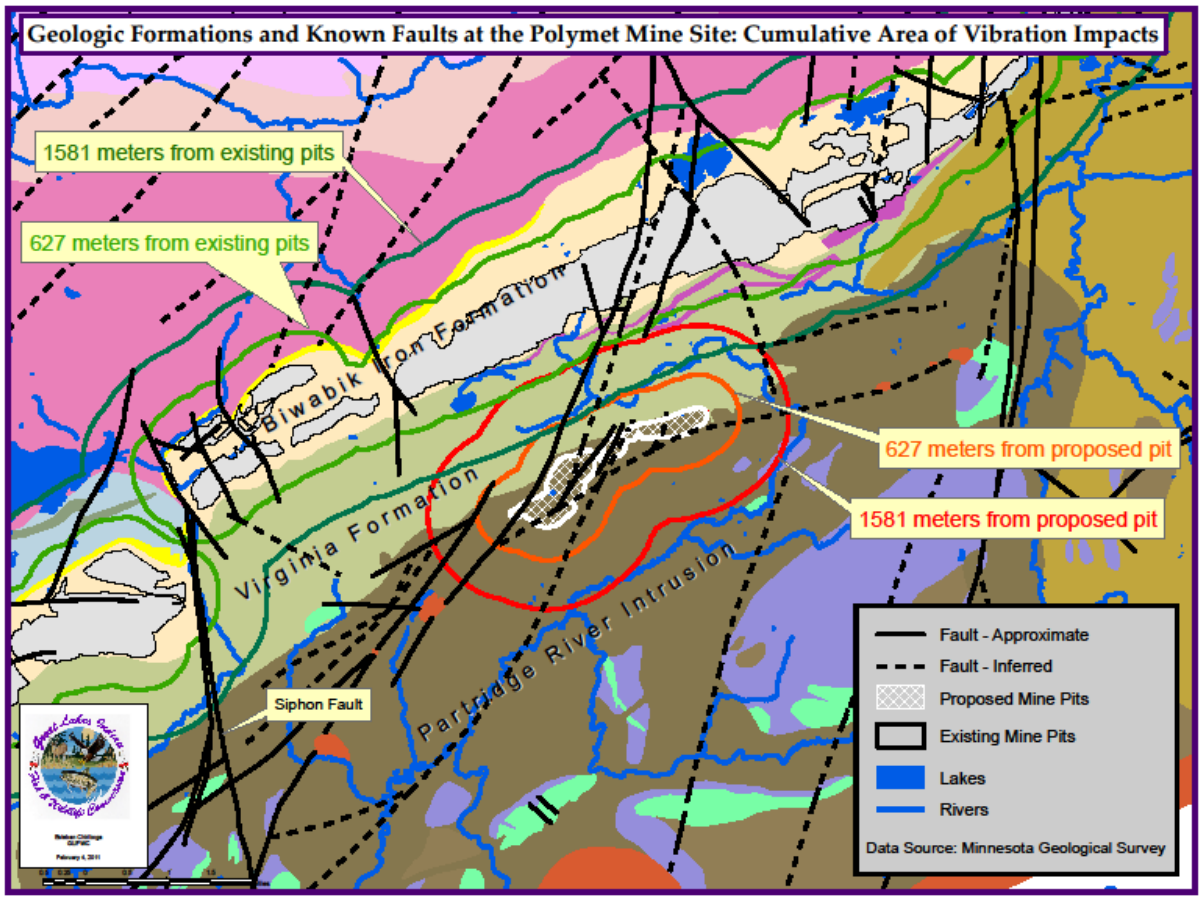

Figure 16. Cumulative Area of Vibration Impacts.

Impacts to water quality in the immediate vicinity of the project area from mining activities include:

<u>Peter Mitchell Pit:</u> Expansion of the Peter Mitchell Pit to the South towards the proposed PolyMet project and the in-pit disposal of Virginia Formation waste rock.

<u>Former LTV Site (Cliffs)</u>: Dunka Pit, Area Pit 5, Tailings Basin, Area Pit 2, Area Pit 3

<u>Mesabi Nugget:</u> Area Pit 1, Area Pit 9, Area Pit 9S, Area Pit 6, Area Pit 2WX, Stevens Pit

Considering there are domestic wells south of the property, and pit 2WX will likely overflow to surface water features when mining has ceased, contaminant transport models for surface and groundwater need to be developed if pit 2WX or pit 6 are mined due to the presence of the Virginia Formation and the Aurora Sill.

Wetlands

The co-lead agencies confined their cumulative effects analysis for wetlands to the Partridge and Embarrass River watersheds, simply quantifying the wetland acreage change from pre-settlement conditions to the present, then projecting the estimated acres in the future based upon impacts due to the NorthMet Proposed Project. The co-lead agencies, relying upon the XP-SWMM model developed for the Partridge River, conclude that "changes in annual flow (and therefore stage) in the Partridge River would be within the naturally occurring annual variation for the Partridge River. Therefore, no potential indirect cumulative wetland effects are identified for the wetlands abutting the Partridge River.

The PSDEIS states: "The St. Louis River is located downstream of the Partridge River. Effects on flows (and, by extension, water surface elevations) generated by the NorthMet Proposed Action are anticipated to be less than those estimated for the Partridge River and within the natural variation of flow within the St. Louis River. Therefore, no potential indirect cumulative wetland effects are identified for the wetlands within the St. Louis River below the ordinary high water mark from its confluence with Embarrass River to Lake Superior."

The tribal cooperating agencies take a different approach to quantifying cumulative wetland impacts for the NorthMet Proposed Action. Referencing the alternative indirect wetland impacts analysis provided by GLIFWC for the PolyMet mine site, tribal cooperating agencies believe that cumulative wetland impacts within the St. Louis River watershed should be the scale of the analysis, and that direct and indirect wetland impacts due to hydrologic modification (ditching) should be included (Figure 17). There are 1,387,630 acres of wetlands in the St. Louis River watershed, with 1732 individual wetlands impacted by ditching, totaling 198,989 acres. Ditching has occurred in 14.3% of the wetlands in the watershed. Approximately 50% of the subwatersheds have had some degree of impact from ditching, while some have experienced ditching in nearly 100% of their wetlands. Clearly, this has a profound impact to the connected surface waters, and impacts to specific stream reaches should be assessed.

There are direct impacts to wetlands that occurred when the ditches were constructed. Those impacts depend on the length and width of each ditch. The second, and larger, set of impacts is indirect. The ditches have converted some percentage of the wetlands to upland, and changed the functions and values of another percentage of wetlands.

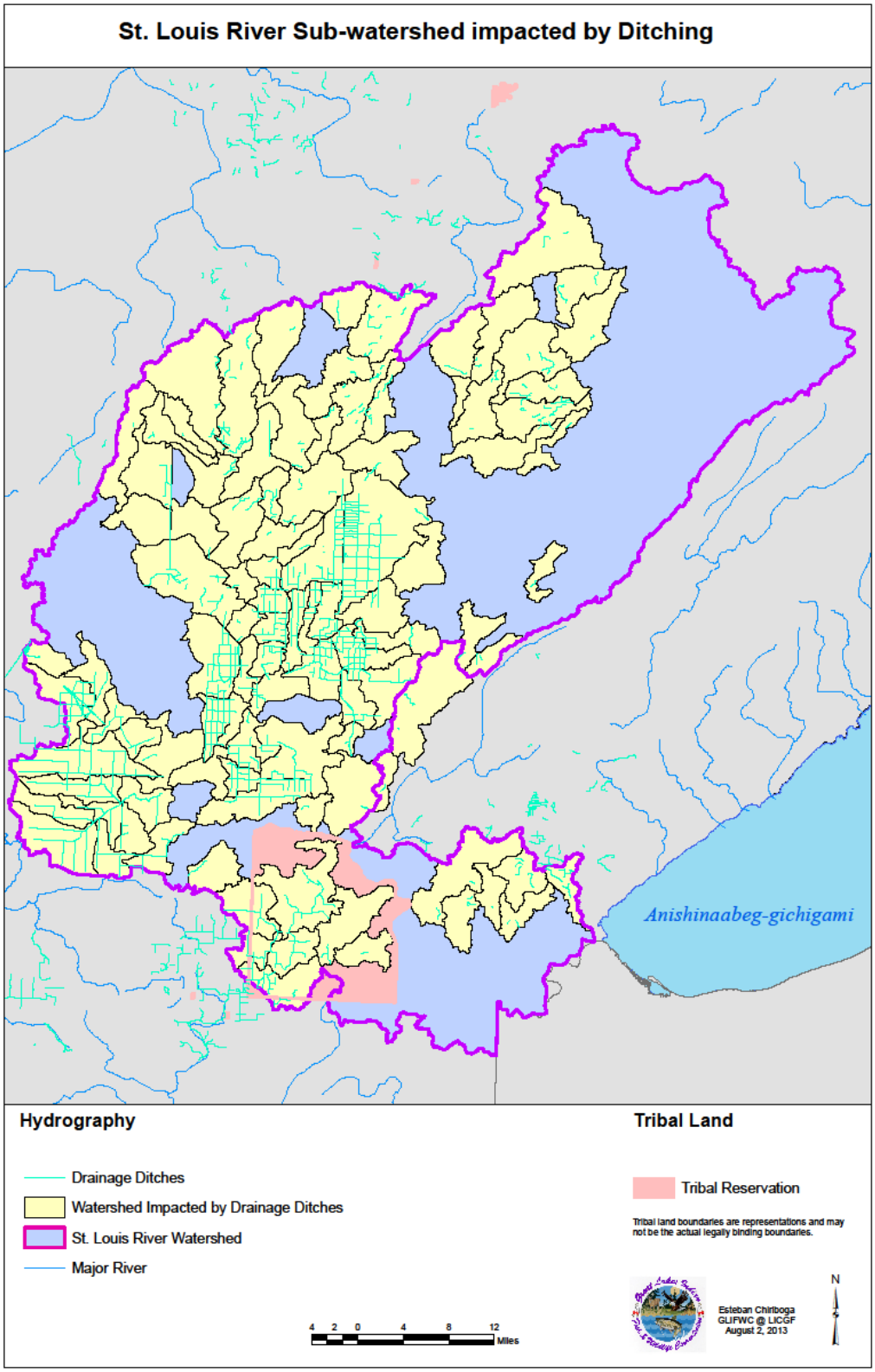
St. Louis River Sub-watershed impacted by Ditching
Anishinaabeg-gichigami
Hydrography
Drainage Ditches
Watershed Impacted by Drainage Ditches
St. Louis River Watershed
Major River
Tribal Land
Tribal Reservation
Tribal land boundaries are representations and may not be the actual legally binding boundaries.
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Esteban Chiriboga
GLIFWC @ LICGF
August 2, 2013
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Figure 17. St. Louis River Watershed Hydrologic Impacts from Ditching

Tens of thousands of acres of high quality wetlands within the St. Louis River watershed have been entirely and permanently lost to historic and current mining operations, prior to regulatory requirements for mitigation. Since the initiation of state and federal wetland mitigation requirements for permitting wetland dredge and fill activities, most mitigation has taken place outside the St. Louis River watershed and has not replaced the wetland types and functions that have been lost. Nearly 3000 additional wetland acres will be directly impacted under several reasonably foreseeable mining projects within the watershed (Figure 18).

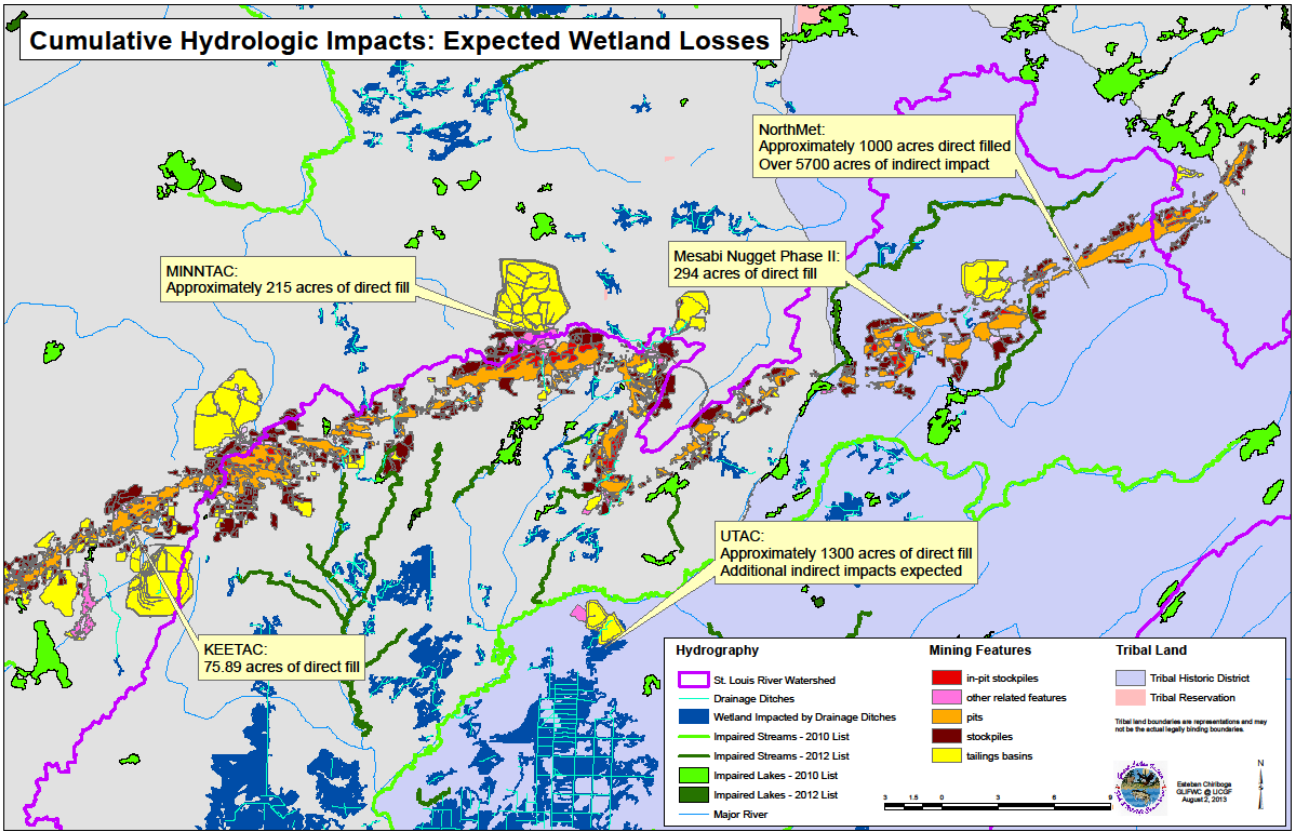

Figure 18. Cumulative Hydrologic Impacts: Expected Wetland Losses within the St. Louis River watershed

When all impacts to water quality, aquatic communities, wetlands, and hydrology are considered in a comprehensive manner, the cumulative effects on water resources are extensive (Figure 19).

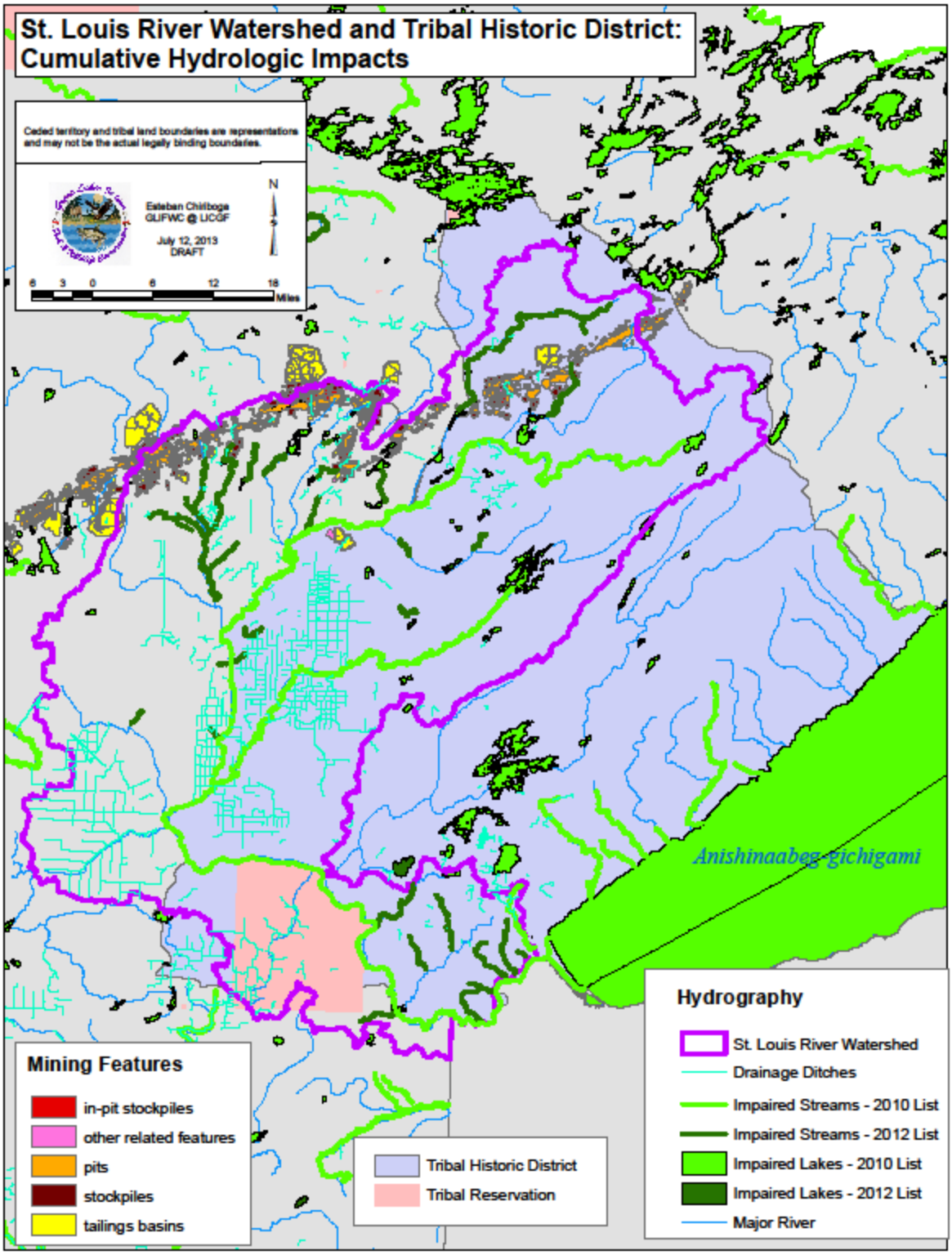

Figure 19. St. Louis River Watershed and Tribal Historic District: Cumulative Hydrologic Impacts.

Vegetation

The co-lead agencies evaluated cumulative effects on vegetation within the portion of the Mesabi Iron Range encompassed by the Nashwauk Uplands and Laurentian Uplands ecological subsections. From the preliminary SDEIS:

"Minnesota Biological Survey
The MDNR operates the MBS program, which includes spatial information from survey reports on native plant communities and rare species. Sites of Biodiversity Significance are designated and ranked by the MDNR based on the environmental conditions present, including native plant communities, rare species, and unique habitat. The MBS utilizes a four-tiered ranking system: Outstanding, High, Moderate, and Below (from highest to lowest). Sites of High Biodiversity Significance contain very good-quality occurrences of the rarest species, high-quality examples of rare native plant communities, and/or important functional landscapes (MDNR 2008a). The entire 3014.5-acre Mine Site has been characterized by the MBS as various Sites of High Biodiversity Significance due to the presence of the One Hundred Mile Swamp site, which covers 15 percent of the Mine Site, and the Upper Partridge River site, which is 85 percent of the Mine Site (MDNR 2008a)."

The tribal cooperating agencies believe a more relevant spatial reference for cumulative effects to vegetation would include the One Hundred Mile Swamp and the Headwaters Site. Additionally, the "Contributing Past, Present and Reasonably Foreseeable Actions should include the extensive mineral exploration taking place within the headwaters of the St. Louis River. The degradation and destruction of this landscape and the vegetation that provides forage and habitat for culturally important species, as well as sustenance and medicine for band members, has been a cumulative impact to cultural and natural resources since the signing of the treaty.

From Danielson and Gilbert (2002):
"The Ojibwe gather over 350 wild plant species for food, utilitarian, medicinal, ceremonial, and commercial purposes (Meeker, Elias and Heim 1993; Densmore 1928). Examples include sweet grass (*wiingashk*), white sage (*mashkiki*), basswood (*wiigob*), yellow birch (*wiinizik*), paper birch (*wiigwaas*), wintergreen (*wiinisiibag*) red-osier dogwood (*miskoobimizh*), bearberry (*miskwaabiimag*), wild sarsaparilla (*waaboozojiibik*), white water lily (*akandamoo*), bluebead lily (*odotaagaans*), Canada mayflower (*agongosimin*), swamp milkweed (*bagizowin*), wood lily (*mashkodepin*), rue anemone (*biimaakwad*), wild ginger (*namepin*), blue cohosh (*beshigojiibik*) bloodroot (*meskwiijiibikak*), black ash (*aagimaak*), yarrow (*ajidamoowaanow*), wild rose (*oginiiminagaawanzh*), Labrador tea (*waabashkikiibag*), sweet flag (*wiikenh*), wild black current (*amikomin*), wild blackberry (*odatagaagominagaawanzh*), blueberry (*miinagaawanzh*), nannyberry (*aditemin*), and highbush cranberry (*annibiminagaawashk*). Tribal members may gather wild plants, as guaranteed by their treaty rights, on all public lands within the ceded territories.

The Ojibwe have been "managing" (e.g., respecting, observing and utilizing) the land and its resources since time immemorial. However, tribal members seldom use the term "managing." Through the sharing of stories and spiritual beliefs, elders transfer a wide spectrum of skills and information to younger generations. Some scholars refer to this

information as traditional ecological knowledge and wisdom (TEKW). Berkes (1999) defines TEKW as "a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment. TEKW does not reflect a stagnant inventory of information but rather, without disregarding past wisdom, continues to transform through time.

TEKW and contemporary ecosystem management, though not identical, share common characteristics. A report published by the Ecological Society of America Committee on the Scientific Basis for Ecosystem Management states: "Ecosystem management is management driven by explicit goals, executed by policies, protocols, and practices, and made adaptable by monitoring and research base on our best understanding of the ecological interactions and processes necessary to sustain ecosystem composition, structure, and function. In additions, "ecosystem management assumes intergenerational sustainability as a preconditions for management rather than an afterthought" (Christensen et al. 1996). Clearly, shared principles include adaptive management through observation and monitoring and an intergenerational sustainability, including the relationship and dependence of humans and all life on each other.

The tribes remind (these) land managers that, as necessitated by trust responsibility and treaty law, they must ensure the availability and sustainability of wild plant harvest. Irrevocably, the Ojibwe worldview teaches values based on an understanding that humans depend on all other earth beings (Johnston 1976)."

Further documentation of the high quality and ecological function of this landscape is found in *An Evaluation of the Ecological Significance of the Headwaters Site, Northern Superior Uplands Ecological Land Classification System Section; Laurentian Uplands Subsection Lake and St. Louis Counties, Minnesota*, March 2007):

"The Headwaters Site straddles the continental divide, with water from the Site flowing both east through the Great Lakes to the Atlantic Ocean and north to the Arctic Ocean. Paradoxically, the divide runs through a peatland. Although the peatland appears flat, water flows out of it from all sides, forming the ultimate source of rivers that eventually reach two different oceans. The Site is the headwaters of four rivers: Stony River, Dunka River, South Branch Partridge River, and the St. Louis River, which is the second largest tributary to Lake Superior…

The Headwaters Site encompasses vast peatlands on its eastern side, unfragmented upland forests in the west, and broad transition zones between them. Within the Site are two distinct areas, referred to in the document as the "Extensive Peatlands" and the "Big Lake Area," which are linked hydrologically as part of the Upper St. Louis River watershed. The Extensive Peatlands area is a mosaic of open and forested wetland communities and includes forested upland islands and peninsulas. The Big Lake Area, in the southwestern quarter of the Site, includes Big Lake and surrounding unfragmented upland forest interspersed with small wetlands.

The Headwaters Site is unique in northeastern Minnesota in several ways. The size and complexity of the peatlands in the Extensive Peatlands are unmatched in the Northern Superior Uplands Ecological Land Classification System (ECS) Section. The Sand Lake Peatland Scientific and Natural Area (SNA), established by the Wetlands Conservation Act of 1991, protects one of the 15 most significant peatlands in the state, and it is by far the largest SNA in the Section (MNDNR 1984).

The Nature Conservancy's (TNC) Superior Mixed Forest (SMF) Ecoregion Plan identifies the Sand Lake/Seven Beavers (SL7B) conservation area, including the entire Headwaters Site, as one of 51 conservation areas in the Ecoregion that best represent the ecosystems and species of the Ecoregion, and serve as a blueprint for conservation action…According to the SMF Ecoregion Plan, these conservation areas are the best opportunities for conserving the full diversity of terrestrial and aquatic ecosystems and globally rare or declining species. The SMF Ecoregion Plan identifies these areas as critical places for conserving biodiversity…and outlines the threats to conservation and conservation targets for these areas…recognizing that more detailed site planning is needed to address how to implement conservation efforts…

The Minnesota Pollution Control Agency has ranked the Upper St. Louis River watershed in the second highest category in the Lake Superior Basin for watershed integrity (Minnesota Pollution Control Agency 2003). The Headwaters Site is among the highest quality areas within the watershed. The upland forest surrounding Big Lake is among the largest, if not the largest, unfragmented, predominantly upland forest in the North Shore Highlands, Toimi Uplands, and Laurentian Uplands (NTL) ECS Subsections. The upland forest area covers 7,920 acres (including 788-acre Big Lake). This high-quality, fire-dependent forest has not been logged in recent decades, except for two stands totaling 140 acres, along the northern edge of the Site.

Covering an area roughly 11 to 12 miles (from northeast to southwest) by 7 to 8 miles (from northwest to southeast), the Headwaters Site is a mosaic of high-quality native plant communities that have functioned under relatively undisturbed conditions since the nineteenth and early twentieth century, when parts of the Site were logged and then burned by wildfires. A corridor containing a railroad grade and power line crosses this vast area, representing the only major permanent conversion of the natural landscape. Minnesota County Biological Survey (MCBS) sites bordering about two-thirds of the Site's boundary have been assigned High or Moderate statewide Biodiversity Significance (Figure 4, page 85). The lack of roads, absence of recent large-scale logging, and large size of the Site allow for natural functioning of ecological processes. These processes include disturbances such as wind, fire, and flooding, as well as plant species competition, nutrient cycling, and hydrology. Natural landscape patterns, such as patch size of the various plant communities, have not been altered, in comparison with most other parts of northeastern Minnesota (White and Host 2003). Minimal recent human disturbance also results in a landscape with very few populations of exotic or invasive species.

The predominant upland forest native plant community in the Big Lake Area is Aspen – Birch Forest [FDn43b], with inclusions of Upland White Cedar Forest [FDn43c] and White Pine – Red Pine Forest [FDn43a] (Figure 5, page 87). Isolated wetlands within the Big Lake

Area's upland forest support a variety of native plant communities, including Northern Poor Conifer Swamp [APn81], Northern Rich Spruce Swamp (Basin) [FPn62], White Cedar Swamp (FPn63a), Northern Alder Swamp [FPn73a], and Black Ash - Conifer Swamp [WFn64a]…

The Extensive Peatlands are composed of a complex of native plant communities, including Northern Cedar Swamp [FPn63]; Northern Rich Spruce Swamp (Basin) [FPn62]; Northern Alder Swamp [FPn73]; Northern Rich Tamarack Swamp (Water Track) [FPn81]; Northern Rich Fen (Water Track) [OPn91]; Northern Rich Fen (Basin) [OPn92]; Northern Shrub Shore Fen [OPn81]; Northern Spruce Bog [APn80]; Northern Poor Conifer Swamp [APn81]; Northern Open Bog [APn90]; and Northern Poor Fen [APn91]. The many upland islands in this portion of the Site provide additional native plant community diversity, supporting community types in the Northern Dry-Mesic Mixed Woodland [FDn33] and White Pine-Red Pine Forest [FDn43] classes…

The Headwaters Site supports healthy known populations of eight state-listed plant species, all of which are listed as Special Concern (SPC) in Minnesota: coastal sedge *(Carex exilis)*, Michaux's sedge *(Carex michauxiana)*, English sundew *(Drosera anglica)*, bog rush *(Juncus stygius)*, small green wood orchid *(Platanthera clavellata)*, Lapland buttercup *(Ranunculus lapponicus)*, sooty-colored beak rush *(Rhynchospora fusca)*, pedicelled woolgrass *(Scirpus cyperinus/S. pedicellatus)*, and Torrey's mannagrass *(Puccinellia pallida)*...The unfragmented complex of high-quality native plant communities within and across the Site's landforms provide excellent habitat for a wide variety of animal species distinctive of the landscape, including moose, gray wolf, sandhill cranes, American bitterns, boreal and great gray owls, and numerous amphibians, butterflies, and small mammals.

In 2005 and 2006 the Minnesota County Biological Survey of the MN DNR conducted rare plant and native plant community fieldwork, mapped the native plant communities and completed this Ecological Evaluation of the Headwaters Site. Based on the natural features and conditions revealed through this recent work and that of others since the 1980s, MCBS recommends the primary management objective for the Headwaters Site be to protect, enhance, or restore ecological processes and native plant community composition and structure. In accordance with this objective, the site or portions of the site may be identified by landowners or land management agencies for conservation activities such as special vegetation management, including ecologically based silviculture and forest development activities, or for designation as a park (city, county, state, or private), research natural area, non-motorized recreation area, scientific and natural area, or other reserve. This Ecological Evaluation has been written to characterize the ecological significance of the MCBS Site as a whole and to serve as a guide for conservation action by the various landowners.

MANAGEMENT RECOMMENDATIONS

Overview

The Headwaters Site is a large, natural area with features of widely recognized statewide ecological and biological significance. These include:

- one of the 15 most significant peatlands in the state (MN DNR 1984, Wright et al. 1992);
- the largest SNA in the Northern Superior Uplands Section;

- one of the largest, unfragmented, predominantly upland forest patches in the Laurentian Uplands,
- Toimi Uplands, and North Shore Highlands subsections;
- an ecologically functional mosaic of high quality native plant and animal communities;
- a concentration of excellent occurrences of rare species populations;
- support of species with large home ranges;
- six state-designated old-growth stands;
- remote, undeveloped lakes.

The documented condition and quality of the aquatic and vegetation resources within this headwaters region of the St. Louis River watershed meet the resource-based threshold of an Aquatic Resource of National Importance, under the Memorandum of Agreement reached by the EPA and the US Army Corps of Engineers in 1992[16].

Wildlife

The word "moose" does not appear at all in the SDEIS cumulative effects analysis, despite consistent concerns raised by tribal cooperating agency staff to co-lead agency staff during the environmental review process. As of August 19, 2013, moose are now proposed to be listed as a MNDR species of concern.

The tribal profile for the Grand Portage Band, states the unique importance of this species:

"Moose are the primary subsistence species for the Grand Portage Band and define the subsistence culture."
http://www4.nau.edu/tribalclimatechange/tribes/greatlakes_lschippewa.asp

From the Fond du Lac Wildlife Biologist: "In my experience at FDL, moose have always had a loyal core of hunters who pursue moose every year. Primarily for meat, but some for hide, bone and antler related crafts. I think also for the camaraderie, family traditions, etc – same as the rest of us for deer or duck camp. For the last couple of years at least, FDL has been supplying other bands with moose hides for drums.

Until very recently, the demand for moose hunting opportunities at FDL has always been greater than the supply. It's unique among locally hunted or trapped wildlife species that way. As the moose population has rapidly dwindled in the last couple of years, I believe more and more potential moose hunters are deciding it's not worth the effort.

Of all wildlife species, moose has required the most back and forth discussions between staff, legal counsel and the DNR regarding co-management of resources within the 1854 Ceded Territory. This again is a supply and demand issue, and reflects the relatively low density at which moose populate the landscape – even when times were good. -My program invests more effort and money in annual population surveys of moose than any other wildlife species."

[16] Clean Water Act Section 404(q) Memorandum of Agreement, Part IV (August 11, 1992)

The rationale for a comprehensive cumulative impacts analysis for moose can be found in the MDNR SONAR proposing listing of moose as a species of special concern:
(p. 21) "Between 1990 and 2000, the northwestern Minnesota Moose population underwent a substantial decline, and a 2007 Minnesota DNR aerial survey determined that as of that date, fewer than 100 Moose comprised the northwestern population. Aerial surveys currently estimate the northeastern Minnesota population at roughly 4,230 individuals. The northwestern Minnesota Moose population decline occurred in less than a decade. Recent surveys document a slow decline in the northeastern Minnesota Moose population.

"Increased temperatures are likely to increase heat stress and lead to increased mortality within the state's remaining Moose populations. Changes in land ownership and changes in forest management practices within the state's Moose range may be having a significant adverse effect on the quantity and quality of the species' habitat within the state, and particularly on thermal refuges in warmer weather. The state's northeastern Moose population has not shown as rapid a decline, but is very likely to be dramatically impacted by rising temperatures resulting from climate change. This will likely lead to a marked decline in this population within the foreseeable future."

From the *Report to the Minnesota Department of Natural Resources(DNR) by the Moose Advisory Committee (18 August 2009)*:
"In MN, moose habitat can be characterized as young forest stands, older forest stands with gaps of regenerating forest, wetlands, muskeg, marsh, riparian areas and brushlands with abundant deciduous browse within reach of moose and adequate winter and summer thermal cover. Functionally, habitat provides forage and cover. Moose forage has a primarily deciduous browse component and a seasonal aquatic component. Cover has several potential components for moose: protection from heat, protection from deep snow, moderation of cold temperatures, predator avoidance and presence of calving locations. In addition to the functional aspects of habitat, spatial distribution of habitat must also be considered at a variety of scales (from subhome range to the landscape level).

"As moose are increasingly challenged by warmer temperatures and changing precipitation patterns due to climate change, changes in land ownership and changes in forest management practices that occur within MN moose range have the potential to significantly affect the quantity, quality, and distribution of moose habitat. Examples include but are not limited to: habitat fragmentation due to expected and occurring ownership changes and shifting landowner objectives, changes in the extent of forest management due to national and state economic effects on the primary wood- using industry in Minnesota, and increased harvesting of smaller diameter trees and brush used by moose for browse as the demand for woody biomass increases. Focused management to provide high quality habitat (forage and cover) may be necessary to slow population declines and maintain or recover moose in appreciable numbers in Minnesota."

A cumulative impacts analysis must be done for this species of concern that it is of particular cultural importance to the Bands.

Air

Fugitive dust:

The tribal cooperating agencies believe that wind-blown dust particles containing sulfate compounds that are emitted from mining and beneficiation activities could contaminate wetlands, lakes, and streams near the project site and could cause harm to the Species of Special Concern that have been found in this area and to the animals that depend on these plants for food. While the PSDEIS attempts to address this issue, this is the first time details of this analysis have been available for review, and the tribes have identified some areas that require more work. The tribes do not agree with the assumption that only those areas showing model-estimated deposition rates greater than 100% of background deposition will be impacted. The choice of the "100% of background" level of deposition appears to be arbitrary and is not supported by any documentation. Further, the modeled deposition rates do not include the effects of contamination to wetlands and water bodies that may occur through other mechanisms, such as pit leaks and seepage, nor how additional sulfate will impact waters that are already experiencing elevated sulfate levels, with regard to the growth of wild rice. The work that has been done so far in this section does not meet the definition of a cumulative review.

The text describing this analysis is also unclear in places, as described below. In addition, tribal cooperating agency air staff members were not consulted regarding the impact of fugitive dust on historic properties and the definition of intra-property APE, especially with regard to mercury or acid dust (See page 4.2.9-9 of the PSDEIS).

All figures and page numbers cited below refer to the PSDEIS.

Misleading Description

- While areas of fugitive dust deposition may not exceed the ambient air quality standard beyond the property boundary, as stated in the PSDEIS, this information is irrelevant with regard to the tribes' concerns regarding sulfide dust, because there is no ambient air quality standard that is applicable to sulfide dust. Therefore, statements of this nature should be removed.

Acid and Metallic Dust

- Figure 5.2.3-23 (PSDEIS) shows that there are indeed potential indirect impacts to wetlands outside of the ambient air boundary due to deposition of dust. Figure 4.2.9-3 corroborates this claim by showing that the Fugitive Dust Area of Potential Effects extends well beyond the plant site.

- Page 5.2.3-6 lists the fugitive sources that were modeled for deposition. Rail cars and tailings basins were not included. Section 5.2.3.2.2 (page 5.2.3-58) states that the air IAP group determined that emissions from railcars would be coarse in nature and would not be dispersed to any great extent; therefore these emissions were not modeled. The section also states that "Based on this conclusion, air modeling of potential release of dust from railcars will not be performed because the potential wetlands effects would not be significant". The analysis also assumes "that all spillage of the coarse material would occur in a 2-meter-wide strip on both sides of the center line of the railway over the entire haul distance." While the dust may settle near the tracks, there is no evidence that it will not subsequently disperse and cause impacts. The dust can easily be spread through run-off.

- Tailings basin emissions were not modeled. Pages 5.2.3-50 and 5.2.3-51 and page 5.2.3-74 discuss fugitive dust somewhat, but do not make it clear whether "dust" is meant to address the acidic composition of the dust, or some other component. There are also contradictory statements on page 5.2.3-51: "All of the receptor nodes with the highest model-estimated deposition rates were located within the ambient air boundary" versus "Of the 234 acres of wetlands, 228 acres (97%) would be located within the Mine Site ambient air boundary". "97%" does not equal "all"; apparently 6 acres of wetlands with the highest model-estimated deposition rates are outside of the ambient air boundary.

- Figure 5.2.3-17 indicates that the Partridge River could be impacted by fugitive dust, however this is not stated or addressed in the text.

- From page 5.2.3-51 "The potential release of dust from railcars transporting ore from the Mine Site to the Plant Site was addressed in an Air Quality IAP Workgroup that concluded potential wetland effects would not be significant and, therefore, air modeling was not performed (PolyMet 2013b). The tribal cooperating agencies have not been provided with any report that was generated by that workgroup, nor do they have any information about how that conclusion was reached. Also, "Of the 19,914 acres of wetlands identified within the Mine Site receptor grid, deposition modeling results indicated that 234 acres of wetlands could be potentially indirectly affected (modeled metal deposition rates greater than 100% of the background". It is unclear whether modeling was performed for both metals and sulfide dust, and whether the results discussed on page 5.2.3-74 are for metals or sulfide dust. While Figures 5.2.3-16, 5.2.3-17, 5.2.3-22, and 5.2.3-23 differentiate between metals or dust modeling results, the discussion needs to be clearer.

- There are a number of unclear or incorrect statements under the heading *Fugitive Dust/Metals and Sulfide Dust Emissions* on page 5.2.3-74. Initially, the section states that "all receptors have model-estimated dust deposition of 50% or less of the effects-level background of 365 $g/m^2/yr$" but the next sentence states that "at the Plant Site, there would be two locations showing model-estimated deposition rates greater than 100% of background deposition". These two statements are contradictory.

- It is not clear which metals were modeled and whether the background concentrations mentioned (365 $g/m^2/yr$) was for metals or sulfide dust. There is no explanation for the origin of this background concentration and how the metals concentrations in dust were obtained. There is also no explanation of why 100% of background deposition was chosen as an indicator of whether potential effects could occur. To our knowledge, no discussion of this modeling or the assumptions contained within it was conducted with tribes or the co-leads before the PSDEIS was released.

- This section also indicates that the "southern and western two-thirds of the basin" shows model-estimated deposition rates greater than 100% of background deposition (exactly what constituent is being discussed is not clear). However, this same paragraph goes on to state that only 193.9 acres of wetland out of 25,846 could be potentially indirectly affected. These two statements appear to contradict one another. Without knowing what constituent is being discussed, it is hard to know which figure (5.2.3-16, 5.2.3-17, 5.2.3-22 or 5.2.3-23) corresponds to the text. Also, the yellow highlighted area on Figure 5.2.3-23, which indicates the "extent of the highest estimated deposition receptors with deposition of 100% of background", appear to cover a much larger area than 193.9 acres out of 25,846 total acres.

- The paragraph also states that "approximately 90% of the receptor nodes with the highest model estimated deposition rates are located within the ambient air boundary". It is impossible to verify this statement, because a map showing the location of the receptor nodes does not seem to have been included. If this statement is true, it overlooks that fact that 90% of the ***area*** predicted to be impacted does not lie within the ambient air boundary - only about 60% does, judging from Figure 5.2.3-23.

- The tribal cooperating agencies do not agree with the statement that "no potential indirect wetland effects from fugitive dust to Second Creek would occur" (page 5.2.3-74). A portion of Second Creek appears within the area predicted to experience deposition of 100% of background.

- Chapter 5's discussion of fugitive sulfide dust calls for future wetlands monitoring where predicted deposition will exceed 100% of the background value (first full paragraph on page 5.2.3-51). This monitoring should look at water chemistry, hydrology, soil color, texture, and composition and should take place annually for the first three years of operation and then every five years afterward. Baseline numbers should be obtained before construction starts.

- Page 5.2.4-4, *Indirect Effects* calls for water spraying areas of fugitive dust release during dry periods. Page 5.2.7-8 also calls for watering haul roads and other unpaved roads. In the case of dust that may have high acidic content, this would be a poor option, as the addition of water to the dust could simply create problems with run-off. The fugitive dust control plan also lists several monitoring options that "could" be done. These are left as vague ideas, but are not required. These options should be made more concrete.

Fibers

The tribes believe that the cumulative impacts of mineral fibers are not adequately addressed in the PSDEIS. In fact, no cumulative impact analysis of mineral fibers was performed because the PSDEIS asserts that mineral fibers will not be contacted in this project. This is a reckless assumption to make, with little evidence provided for justification, and it leaves a potentially harmful situation completely unaddressed. For example, the distance of the PolyMet project to known deposits of mineral fibers should be given in the PSDEIS. Rates of mesothelioma on the Iron Range are already alarmingly high, making it irresponsible for potential cumulative impacts to remain unaddressed. Although preliminary results from the University of Minnesota indicate that exposure to dust from today's taconite operations is "generally within safe exposure limits", it is possible that exposure to additional dust could lead to more cases of mesothelioma 30-40 years in the future, after the mine has closed. This is an issue that should unquestionably have received a cumulative impacts analysis. While the mine is expected to close in 20 years, this is not a timeframe that is relevant to either tribal concerns or to the development of mesothelioma. Tribal members live and recreate in areas close enough to the mine for this to be a source of concern. The proximity of fish, game, and culturally significant plants to the project site cause this issue to be an item of concern.

Only one year of mineral fiber monitoring in Hoyt Lakes is proposed in the PSDEIS, which the tribes believe is insufficient for detecting the potential release of fibers from portions of the formation that will be encountered during later years of operation. It is also not clear why Hoyt Lakes was chosen as a monitoring site, or if this where air dispersion modeling predicts maximum impacts. The tribes would expect to see monitoring performed for the entire life of the mine, at the site of maximum predicted impact. Since no "safe" mineral fiber concentration level has yet been specified, the tribal cooperating agencies urge the State of Minnesota to move forward to set this limit as soon as possible.

Noise

The co-lead agencies simply state that there are no other past, present, or reasonably foreseeable actions that would interact in such a way as to have a cumulative effect on the receptors identified in Sections 4 and 5 and no further evaluation of cumulative noise effects has been conducted. The tribal cooperating agencies believe it is indefensible to conclude that, amidst a "mining district" with multiple active mine facilities operating in close proximity, that there is no cumulative effect of 24 hour/day, seven days/week of heavy industrial and blasting noise on sensitive wildlife and on traditional cultural practices.

Cumulative Impacts of Noise, Vibration and Airblast Overpressure

Tribal cooperating agencies note that the noise information presented in the PSDEIS will be replaced with new data in the SDEIS. We have not been afforded the opportunity to review this information and must withhold detailed comment on the noise analysis for a later date.

With respect to cumulative impact analysis, tribal cooperating agencies do not believe that an adequate analysis has been done. Meeting ambient noise standards is a different question than assessing impacts. Impacts should be fully characterized in this document and contour maps showing overlapping noise pollution from different projects provided. Without this information, it is not possible for the public to review the cumulative impacts of noise. In addition, the cumulative impacts of mine related vibration have not been assessed. As shown in Figure 20, the cumulative effects of vibration are spatially extensive.

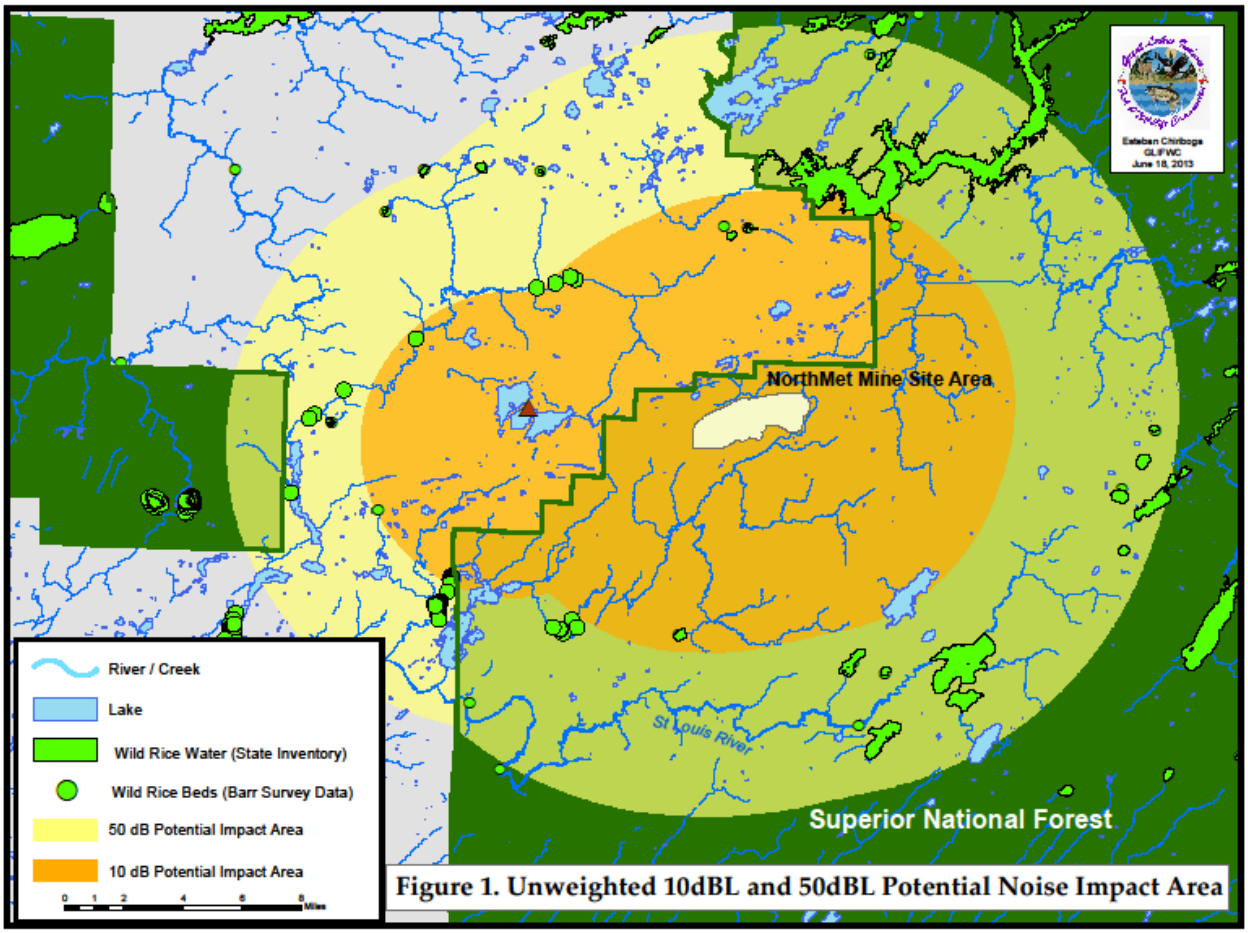

Figure 20. Unweighted 10 dBL and 50 dBL Potential Noise Impact Area

Tribal cooperating agencies also note that the noise, vibration, and airblast overpressure analysis confuses baseline noise levels with existing conditions and assumes they are the same thing. Baseline noise levels in the SDEIS should be natural noise levels that do not include existing mine operations such as Northshore. In other words, baseline is the pre-mining condition. Existing conditions are the noise levels currently recorded at the site of the proposed mine which include any contributions from the Northshore mine, the Dunka road, etc. The analysis would then use both of these pieces of information to assess the effects of the project as a single entity and in combination with other projects in the cumulative section. The lead agencies have indicated that they are using existing conditions (currently measured noise levels) as background. This is not appropriate and should be corrected.

The noise data presented in the SDEIS used A-weighted decibel data (dBA). This is appropriate when considering the effects of noise on humans because it focuses on the frequencies that the human ear can perceive. However, this weighting is not appropriate when assessing the effects on animals because they can perceive different, and often greater, ranges of frequencies than humans. The United States Department of Transportation (USDOT) has

developed a document[17] describing the effects of noise on animal populations. In general the document indicates that the sensitivities of various groups of wildlife can be summarized as:

- Mammals < 10 Hz to 150 kHz ; sensitivity to -20 dB
- Birds (more uniform than mammals) 100 Hz to 8-10 kHz; sensitivity at 0-10 dB
- Reptiles (poorer than birds) 50 Hz to 2 kHz; sensitivity at 40-50 dB
- Amphibians 100 Hz to 2 kHz; sensitivity from 10-60 dB

Figure 21 indicates the noise area of impact for wildlife. The noise contours are unweighted decibel values (dB). A more complete analysis of these impacts in the SDEIS document for the NorthMet project is needed. Known locations of wild rice are included in the map because it is an important source of food for waterfowl. We also note that the entire area of impact is important habitat for Canada Lynx.

As illustrated in Figures 21 and 22, the impacts of noise, airblast and ground vibration overlap in a large area surrounding the mine site. Figure 21 (Cumulative Impacts on Wildlife) also provides the location of the remaining wildlife corridors in the area. The wildlife corridor immediately northwest of the mine site would be cumulatively affected by noise (10dBL and 50 dBL) airblast overpressure and ground vibration. These impacts when thought of in the context of its proximity to the mine site, wetland destruction and fragmentation of the 100 mile swamp lead to a conclusion of a severe and significant impact to this corridor. Figure 22 (Cumulative Impacts on Humans) indicates areas of tribal significance that are affected.

[17] *Synthesis of Noise Effects on Wildlife Populations*, USDOT Publication No. FHWA-HEP-06-016, September 2004

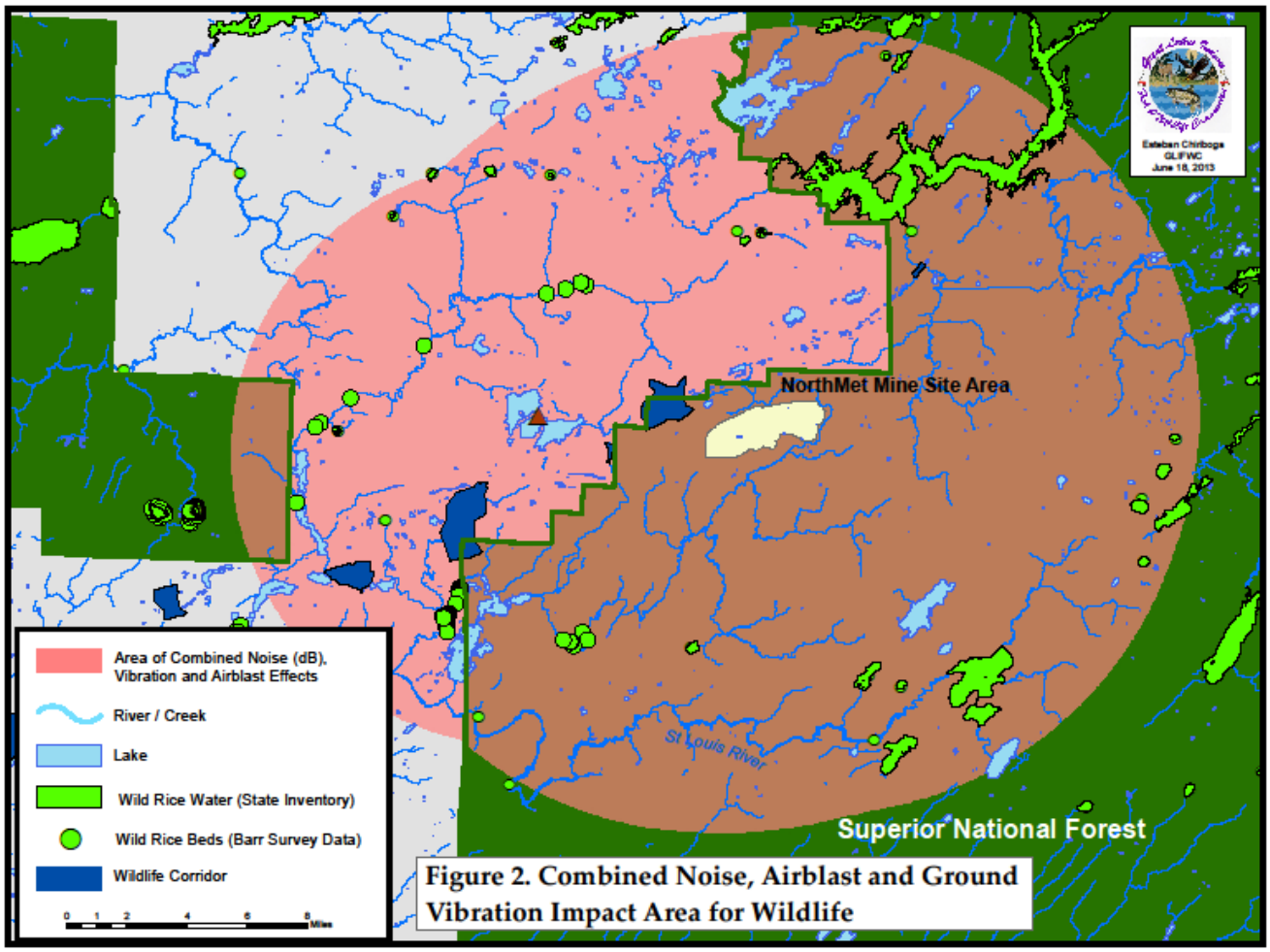

Figure 21. Combined Noise, Airblast and Ground Vibration Impact Area for Wildlife

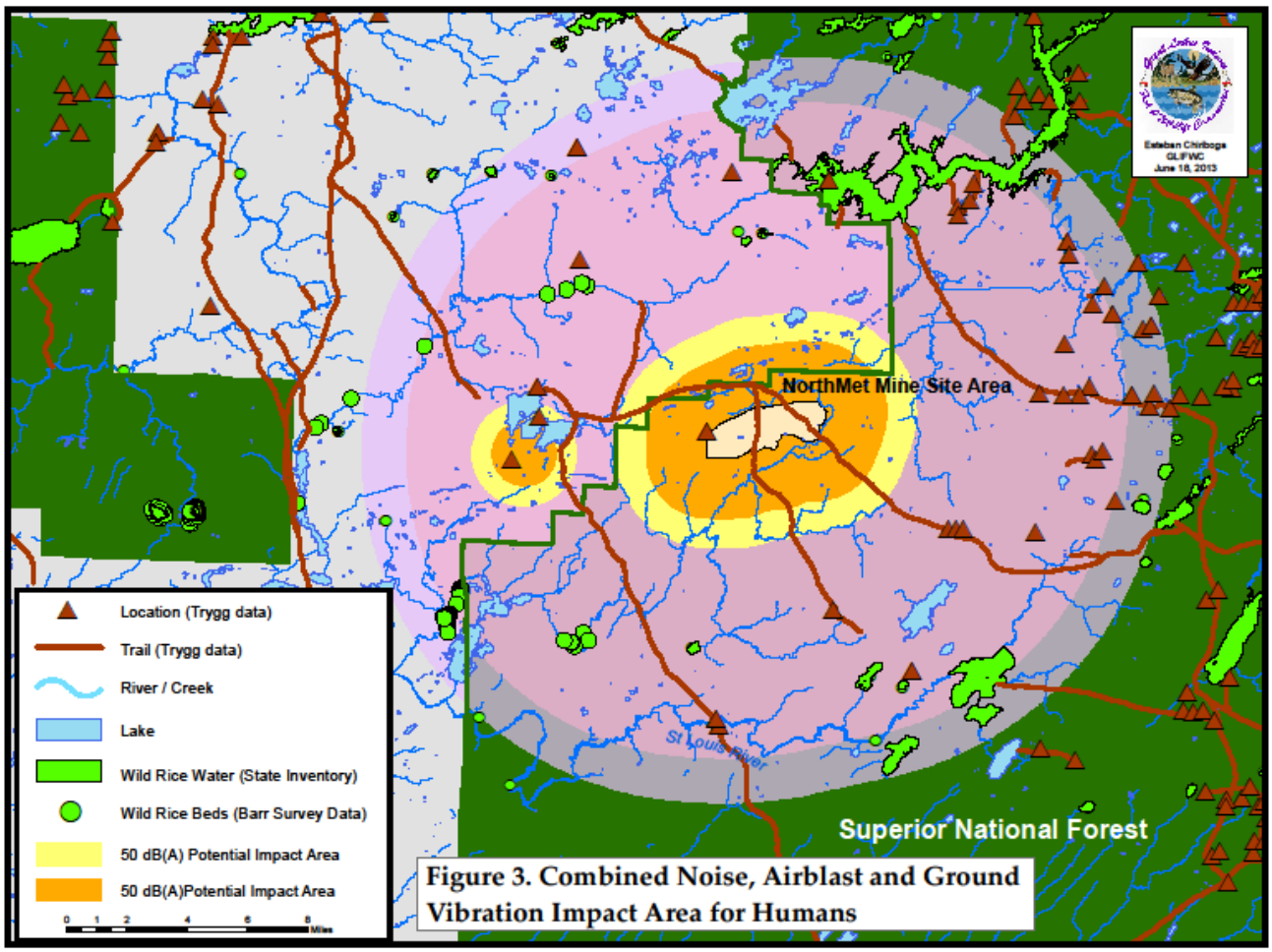

Figure 22. Combined Noise, Airblast and Ground Vibration Impact Area for Humans

No Action Alternative

A December 3, 2008 memo from NTS to the MPCA regarding the Area of Concern (AOC) Summary for the VIC Projects on the Cliffs Erie Property shows twenty-nine AOCs within the Project area. Only three AOCs have been remediated. Twenty of the remaining twenty-six sites' status is listed as "Area within property under Contract for Sale with PolyMet. No actions have been taken with regard to this site."

Some of those sites include: "Oily Waste Disposal Area, Private Landfill, Dunka WTP Sludge, Tailings Basin Reporting, Transformers, Emergency Basin, Cell 2W Salvage Area, Hornfels..." It also appears that there has not been a brownfield/superfund site investigation for the properties PolyMet intends to acquire for the Project area to assess existing contamination. Therefore, critical information to determine cumulative impacts at the site are not included in the SDEIS, and natural background water quality cannot be differentiated from existing contamination requiring remediation.

According to CEQ guidelines:

"No action" in such cases would mean the proposed activity would not take place, and the resulting environmental effects from taking no action would be compared with the effects of permitting the proposed activity or an alternative activity to go forward.

Where a choice of "no action" by the agency would result in predictable actions by others, this consequence of the "no action" alternative should be included in the analysis. For example, if denial of permission to build a railroad to a facility would lead to construction of a road and increased truck traffic, the EIS should analyze this consequence of the "no action" alternative."

Based on the above CEQ guidelines, it is clear that activities that will occur under the Cliffs Consent Decree should be included in modeling of a No Action alternative. Unfortunately not only are the consent decree activities not included, but the fact that it will be precipitating on the tailings basin for the foreseeable future has not been included in the No Action modeling. This is evident by the model results that show stable levels of chloride coming from the basin for the next 200 years (Figure 23) when there is no ongoing source for chloride. With no source for new chloride, rainwater will gradually dilute the residual chloride in the basin and levels will drop. The PSDEIS claims that the basin's water quality has stabilized and that the current conditions will not change over time. The claim of chemical stability is based on basin pond water sampling for only 4 years (2001 – 2004, PSDEIS Table 4.2.2-23).

Since there has been no water quality data collected in the basin pond for 9 years it is reasonable to assume that the past 9 years of precipitation has diluted the water chemistry in the basin pond, and that eventually the more dilute water will percolate through the basins and be discharged at the toe. If chemical stability is to be assumed, more recent data on basin pool water chemistry is needed. While the CEQ makes it clear that a blind "continuation of existing conditions" model is inappropriate as a No Action alternative, a "continuation of existing conditions" model that ignores simple environmental processes such as precipitation is even less appropriate.

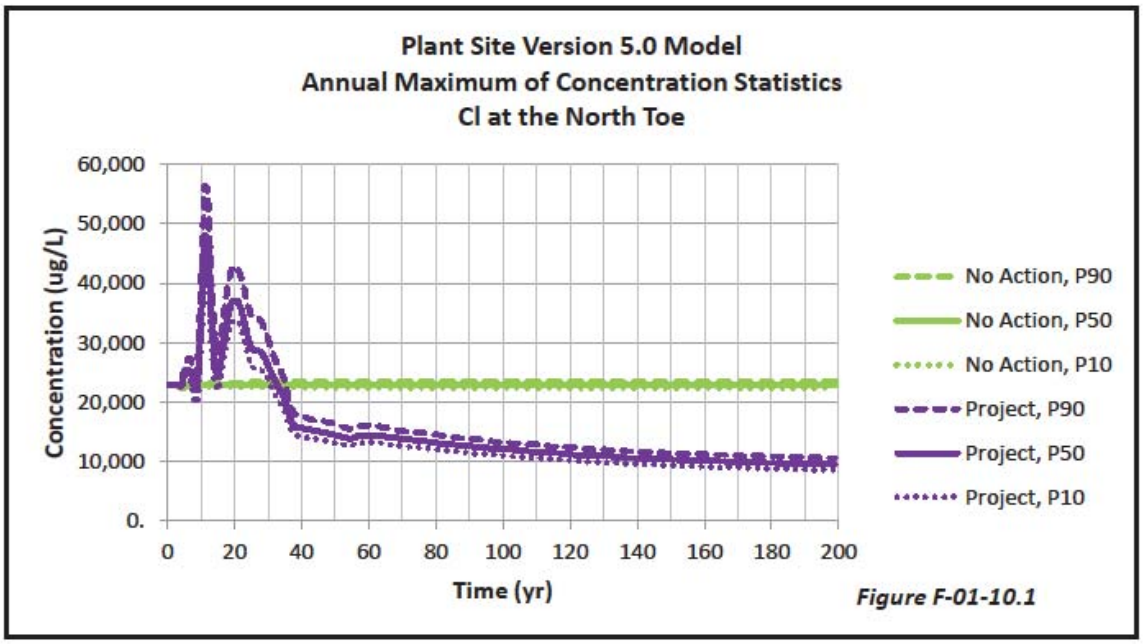

Figure 23. Annual Maximum of Concentration Statistics: Chloride at the North Toe.

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Proposed Transport of Ore

GLIFWC staff disagrees that the amount of ore that could escape from rail cars would be "small." Taconite pellets currently litter the railroad right-of-way between the plant site and the proposed mine site, confirming that spillage from rail cars does occur (attached Figure 1). Second, fugitive dust escaping through these gaps is also a concern. Given the duration of this proposed project and the large quantity of materials to be moved, approximately 228 million tons of ore and 394 million tons of waste rock, there will be tracking, dusting, and spillage of material that has been demonstrated to leach contaminants when exposed to air and water. Even a loss of only one thousandth of one percent (0.001%) of the extracted material to tracking, dusting or spillage would result in 6,220 tons of fine leachable material being released into the environment. Our experience with a much smaller, shorter duration, sulfide mine in Wisconsin (Flambeau Mine) indicates that tracking and dusting of ore and waste rock, even at a level that is unnoticed during operations, can result in soil and runoff contamination that exceeds standards.

Transport of ore between mine site and processing plant would be done by rail using the rail cars previously used by LTV. These cars are not sealed and will readily spill a fraction of the approximately 228 million tons of ore they are transporting. Attached are pictures of the cars proposed for transporting the sulfide ore (Figures 2 and 3). The rail line between the mine and the processing plant is approximately 8 miles long, 1 mile of which is over wetlands, and crosses over at least 3 creeks. The current proposal to use existing rail cars for ore haulage raises concerns about impacts to biotic endpoints along the rail corridor. Given the design and current condition of the rail cars proposed for transport an ecologically significant amount of spillage could occur into these streams, wetlands and their watersheds. Because transport will deposit some level of ore and ore dust along the rail line, methods for control of contaminated runoff from along the rail line must be developed and implemented in the mine plan.

The PSDEIS states that rail maintenance crews can collect spilled debris along the rail track. The material of significant concern would be too small to pick up. GLIFWC staff is unsure how ore debris can be visually distinguished by rail track maintenance crews from other rocks and ore that litter the embankments. In addition, spillage of fine ore pieces and dust (the most leachable sizes) into the wetlands and creeks that are located along the rail line could not be easily identified and recovered. It is reasonable to assume that some acid drainage and metal leaching would occur along the waterbodies located along the rail line.

GLIFWC staff does not believe that the method described in the PSDEIS to segregate fines in the center of the rail car is realistic. GLIFWC has suggested incorporating new rail cars with sealed compartments as a mitigation measure but that alternative has not been included in the PDEIS.

Finally, The PSDEIS states that monitoring of the creeks that could be affected by ore dust deposition will be done. We agree that this is important. However, monitoring would only detect impacts after that have already occurred. The example of the Flambeau mine illustrates that cleanup of ore dust contamination in an aquatic environment is a long and difficult process. A serious examination of the issue of fugitive dust from rail cars should be conducted and included in the DEIS and mitigation options that require the use of sealed rail cars to transport ore from the mine site to the plant site are needed.

Figure 1. Spilled taconite pellets on a bridge above the Partridge River.

Figure 2. Gap in the side hinge of the rail car.

Figure 3. Rail cars proposed for use at the NorthMet project.

Perpetual Maintenance and Water Treatment at the NorthMet Project

The lead agencies position on post closure maintenance and water treatment needs in the SDEIS states:

"Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum of 200 years at the mine site and 500 years at the plant site. While long term, these time frames for water treatment are not necessarily perpetual. The owning company would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions have been met"

GLIFWC staff disagrees with the characterization of long term maintenance for the NorthMet project. The notion of water treatment and maintenance for hundreds of years, supported by financial assurance instruments that must also be available for hundreds of years, is illogical. Specific flaws in the rationale presented by the lead agencies in the SDEIS follow.

The NorthMet Project is a Perpetual Water Treatment and Maintenance Project

In the statement above, the lead agencies attempt to say that the proposed project does not necessarily require perpetual treatment. That statement is only true if a narrow definition of "perpetual" is used. The term perpetual is used in several ways. These are:

per·pet·u·al
adj.
1. Lasting for eternity.
2. Continuing or lasting for an indefinitely long time.
3. Instituted to be in effect or have tenure for an unlimited duration: a treaty of perpetual friendship.
4. Continuing without interruption.
5. Flowering throughout the growing season.

In the SDEIS the lead agencies are strictly using the term as defined in #1 above. While it is true that it is not likely that water treatment and maintenance needs of the NorthMet project will last for eternity, we believe that definition #2 above is a more realistic use of the term. The project has predicted minimum water treatment timeframes (200 years at the mine site and 500 years at the plant site), but no modeling has been done that would give an indication of when water quality standards would be met without treatment. It could be hundreds of years or thousands. In fact, water treatment needs for the NorthMet project will be required for an indefinite period of time.

The lead agency rationale also ignores a part of the project that will require perpetual maintenance under definition #1 above. The hydrometallurgical residue facility is proposed to

contain tailings generated from the hydrometallurgical beneficiation process. These tailings are the most heavily contaminated materials that would be produced at the site and must be separated from the surrounding aquatic environment. This facility has a double liner and cover system that will likely be an effective containment system in the short term. But, given time, this containment system, like all human-made structures, will degrade and fail. No human-made structure has lasted forever, so it is illogical to assume that this facility will. Therefore, this facility will need maintenance, repair and monitoring in perpetuity.

There are many engineered features that will be needed to be maintained in perpetuity (as defined in #2 above). These include the water treatment plants at the mine and plant sites, the water capture and pumpback systems at the flotation tailings basin, the category 1 stockpile cover system, the hydrometallurgical tailings facility, the overflow control structure at the west pit lake, etc. The SDEIS also includes a goal to transition from mechanical water treatment (water treatment plant using reverse osmosis) to non-mechanical methods such as constructed wetlands, permeable reactive barriers, etc. The SDEIS does not provide detail on the passive systems, because it states that their effectiveness would have to be demonstrated at a later date. However, available literature indicates that non-mechanical systems require periodic maintenance as well. Therefore, the hypothetical transition to a non-mechanical treatment method does not eliminate the need for perpetual maintenance.

Minnesota Rule 6132.3200, regarding closures and postclosure maintenance of mines, states that the goal of closure and reclamation is that "[t]he mining area shall be closed so that it is stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." Because perpetual maintenance will be required at the hydrometallurgical residue facility, as well as at the numerous engineered features listed above, the position of GLIFWC staff is that this project does not meet this goal.

The Assumption that PolyMet Will Exist Decades or Centuries after Closure is Not Logical

The lead agency statement above assumes that the mining company will exist for decades or centuries after closure. This is not a realistic assumption. Historically, mining companies are temporary entities that disband soon after a mine project comes to an end. The most reasonable scenario for long term closure is that a state or federal agency will be responsible for monitoring, maintenance, and cleanup activities because a mining company cannot be held accountable if it no longer exists. Similarly, the assumption that financial assurance instruments can be developed to ensure that funds will be available centuries from now is not logical. The State of Minnesota has existed for 155 years. The United States of America has existed for 237 years. The notion that a mining company and financial assurance instruments will be available to work on a mine site 500 years from now is not believable.

The Assumption that Water Quality Standards will be met is Not Logical

Throughout the SDEIS, the Co-Lead agencies state that they expect the proposed project to meet all applicable water quality standards. This expectation is based on modeling and GLIFWC does not believe that the modeling is robust enough to support such a statement. However, even assuming that the modeling accurately represents the real future of the project, it is illogical to assume that standards will be met because the modeling assumes effective operation of water capture and treatment facilities. As stated above, the idea that water treatment plants will operate for hundreds of years is not believable. Therefore, the statement that water quality standards will be met is also not believable.

Executive Summary

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 1	GLIFWC	ES Executive Summary-NorthMet Project Proposed action	As with the first 2 bullets, the third bullet should indicate the length of time that post-closure maintenance and water treatment would last. Therefore, it should indicate that water treatment and maintenance of permanent facilities would be required in perpetuity.	Text edited to reflect that the closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual. The owning company would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions have been met.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 2	GLIFWC	ES Executive Summary	The description of the history of the 2009 DEIS and the need for the SDEIS is not accurate. The reason for the development of a supplemental document and the continuation of the NEPA process is the the EPA gave the 2009 DEIS the lowest possible rating. The EPA found the project to have unacceptable environmental consequences and found that the DEIS failed in its purpose of accurately describing the project and the potential environmental impacts.	The EU-3 rating is discussed in section 1.2.2. "This process culminated in October 2009, with the publication of the NorthMet Project Draft EIS (DEIS) that analyzed the project as it was then designed proposed by PolyMet. After issuing the DEIS, the Co-lead Agencies, responding to public, other federal (including US EPA) and state agency and tribal comments and concerns, analyzed an alternative design that sought to resolve several major environmental concerns and permitting barriers."	ok
GLIFWC 3	GLIFWC	ES Executive Summary	Map is misleading. The area labeled Mesabi Iron Range / Historic mining district encompases areas that have never been mined and are outside the geologic formations where iron mines have operated. It suggests that the NorthMet mine site is part of a mined area which is not correct. The GIS layer depicting all the mine features on the range (pits, tailings basins, etc) should be used instead.	Text editited. This is now called "General Mesabi Iron Range-Historic Mining".	GLIFWC staff disagree with the disposition. We maintain that the figure is misleading.
GLIFWC 4	GLIFWC	ES Executive Summary	Describes the NorthMet deposit as low-medium quality. We disagree with this characterization. The deposit had a low ore grade compared to most other ore bodies in the Great Lakes region. It should be characterized only as low quality.	It is ERM's professional judgment that the NorthMet Deposit should be classified as low-medium grade. Classification of the ore-body in simplified terms is relative and subjective and does not have any implications to the economic viability of the resource, nor does it influence the environmental evaluation presented in Chapter 5. Full description of the mineral resource may be found in PolyMet's 43-101 document. No text edit.	We disagree. In GLIFWC's professional judgement the deposit should only be described as low quality.

Executive Summary

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 5	GLIFWC	ES Executive Summary - Closure and Post-Closure Maintenance	Text should state that water treatment would be perpetual .	Text edited to reflect that the closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual. The owning company would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions have been met. Text clarified.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 6	GLIFWC	ES Executive Summary - Closure and Post-Closure Maintenance	Should state that because water treatment would be perpetual, maintenance and monitoring needs would also be perpetual.	Text edited to reflect that the closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual. The owning company would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions have been met. Text Clarified.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 7	GLIFWC	ES Executive Summary	What are environmental evaluation criteria? We assume that in many instances these criteria are also standards (eg. Water quality, noise, etc.) When legal standards are the same as environmental evaluation criteria, the term "standard" should be used throughout the document.	Environmental evaluation criteria is the framework selected for use in this NEPA EIS. Discussion of "standards" is a part of the regulatory/permitting process. No text edit.	GLIFWC disagrees with the disposition. We maintain that the language in the SDEIS should be clarified
GLIFWC 8	GLIFWC	ES Executive Summary - NorthMet project effects on water resources section	We disagree that current operating mines are subject to strict environmental rules. Historically, enforcement of water quality standards on these mines has been lax. Sentence should be removed.	Paragraph deleted. The stringency of environmental rules is open to interpretation. Edited as requested.	ok

Executive Summary

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 9	GLIFWC	ES Executive Summary - NorthMet project effects on water resources section	This discussion is misleading. Compliance with water quality standards for this project is only possible with successful operation of water capture and treatment facilities in perpetuity. The section should state that without perpetual treatment, water quality standards would be excceeded. In addition the decreases in concentrations for some solutes after the project is built may be artifacts of incorrect modeling assumptions. We will provide more detail in the water sections.	See response for GLIFWC 5 & 6. Will consider revisions to text accordingly.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 10	GLIFWC	ES Executive Summary	The PSDEIS discussion on mercury states that there is a great deal of uncertainty on these mercury issues. Therefore it is not appropriate for the executive summary to present these results as definitive. See GLIFWC mercury attachment for more information.	No text edit recommended because ES consistent with text in body of SDEIS.	GLIFWC disagrees with the disposition. Provide a link to the mercury section in the appendix.
GLIFWC 11	GLIFWC	ES Executive Summary - NorthMet project effects on water resources section	There are wetlands within the mine project area that will be severely impacted by several different types of mine related effects (fragmentation+drawdown+air deposition). While these wetlands will not be filled, the Corps should require up-front mitigation for them. More information is in GLIFWC wetland attachment.	A wetland monitoring plan would be developed and implemented if the NorthMet project is permitted. The plan would require wetland hydrology monitoring, vegetation monitoring, and wetland water quality monitoring to identify if indirect wetland impacts occur during implementation of the project. If indirect wetland impacts resulting from the project are determined by the monitoring program, compensatory wetland mitigation would be required for those indirect wetland impacts. Fragmented wetlands are classified as indirect impact; however, fragmented wetlands are included in upfront mitigation. Total upfront mitigation is for the 912.5 acres of direct effects and 26.4 acres of fragmented wetlands (indirect effect). Tables have been revised to reflect this. Text clairifed.	GLIFWC disagrees with the disposition. Provide a link to the wetland section of the appendix.
GLIFWC 12	GLIFWC	ES Executive Summary - NorthMet project effects on water resources section	Disagree with this paragaraph.The conclusions written here are based on fatally flawed modeling of surface and groundwater hydrology for the Partridge River watershed. The statements in the paragraph are unsupported.	No change to SDEIS text recommended because subject experts believe that the hydrology for the Partridge River watershed was properly characterized. No text edit.	GLIFWC disagrees with the disposition. Provide a link to the hydrology section of the appendix.
GLIFWC 13	GLIFWC	ES Executive Summary - NorthMet project effects on water resources section	We disagree with the assumption that constituents exceeding water quality standards in the Embarrass River area are natural in origin. It is an accepted fact that tailings basin seepage water has saturated the aquifer in the area. Therefore, the constituent loads exceeding standards are the result of historic mining operations and seepage from the LTV tailings basin.	There is no mention of constituents natural in origin, so no change warranted. No text edit.	ok

Executive Summary

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 14	GLIFWC	ES Executive Summary - NorthMet project effects on biological resources section	The discussion on restoration of Lynx habitat at the mine site is misleading. The open water feature at the mine site is the re-flooded west pit. The water in the pit is expected to be contaminated and in need of treatment for centuries. In addition, there will be fencing around the pit lake. The speculative language about restoring lynx habitat should be removed.	Edited as requested. "Restoration of disturbed areas as part of mine closure would potentially create lynx habitat, although this successional process could take decades."	ok
GLIFWC 15	GLIFWC	ES Executive Summary- NorthMet project effects on cultural and socioeconomic resources section	Just because a site is not eligible for listing does not mean that it will not be impacted. The conclusion of no impact should be removed or rewritten.	Deleted second half of the second sentence. Text clarified.	ok
GLIFWC 16	GLIFWC	ES Executive Summary- NorthMet project effects on cultural and socioeconomic resources section	A paragraph discussing natural resources as cultural resources from the tribal perspective is needed in this section. Impacts to natural resources are an impact to Ojibwe culture.	Added sentence where appropriate. "Natural resources and the lands on which they are gathered are important to the Bands for a number of reasons, including cultural, spiritual, and/or historic meanings, and will be considered under federal agency tribal trust responsibilities as outlined above and also as cultural resources under NEPA."	ok
GLIFWC 17	GLIFWC	ES Executive Summary- NorthMet project effects on cultural and socioeconomic resources section	Information on the negative socioeconimic effects of mining is conspicuously absent. Extensive information has been provided as part of the socioeconomic IAP. A fair representation of possible benefits AND possible negative effects of mining is expected in the executive summary.	See discussion in Section 5.2.10.14.	Additional detail is needed for section 5.2.10.14. Incorporation of the Freidenburg mining article is needed.
GLIFWC 18	GLIFWC	ES Executive Summary - Environmental Consequences of the Land Exchange section	Modeling in this PSDEIS assumes that the no action alternative is a continuation of existing consitions. Therefore, the statements in this paragraph are not carried forward into the modeling. This should be stated here.	Text to be clarified per response to GLIWFC comment 144.	The co-lead disposition does not provide enough information for us to remove our comment. Provide a link to hydrology section in the appendix.
GLIFWC 19	GLIFWC	ES Executive Summary - Environmental Consequences of the Land Exchange section	The phrase "smaller net gains in environmental resources" is not a supported assumption. The Superior N.F. has indicated that the land exchange is a real estate transaction only and that specific environmental resources are not necessarily a part of that transaction. The assumption of environmental gain should be removed.	Edited as requested. "In comparison to the combined Proposed Action, the combined Alternative B (NorthMet Project Proposed Action and Land Exchange Alternative B) would have the same direct impacts from the NorthMet Project Proposed Action, but would convey fewer lands through the land exchange. Removed "resulting in similar net gains in environmental resources"."	ok
GLIFWC 20	GLIFWC	ES Executive Summary - Table 1	99.9% water capture number is not supportable. Other areas of the document say 90% or 93% based on the location where water is captured. In all cases, there should be a range describing water capture ammounts. 99.9% is neither correct not plausible.	Edited as requested. "Greater than 90% of water would be captured and treated to meet effluent limits set to protect water quality standards."	ok
GLIFWC 21	GLIFWC	ES Executive Summary - Table 1	The conclusion that mercury loading will decrease is not supportable. See GLIFWC mercury attachment.	The aquatic species summary points in the SDEIS table have been revised and does no longer include the mercury loading conclusion commented on.	ok
GLIFWC 22	GLIFWC	ES Executive Summary - Table 1	Need aditional bullet stating: loss of carbon sink and release of stored carbon through wetland desctruction. For proposed action and alternative B.	Acknowledge partial loss of carbon sink and release of stored carbon from wetlands destruction. Suggested text change. "Wetland mitigation plan will be implemented to offset increased carbon dioxide emissions to extent practicable." Text clarified.	Disagree. Wetland mitigation will not offset the emission of carbon from the peat rich wetlands at the 100 mile swamp.

Executive Summary

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 23	GLIFWC	ES Executive Summary - Table 1	For noise and vibration bullet delete text describing effects to nearest receptors. Using receptors limits the impact analysis - see GLIFWC noise attachment.	Edited as requested. "Noise, ground vibration, and air blast impact area/zone would be limited to 11,456, 11,469, and 11,334 acres, respectively. The BWCAW, which is 20 miles away, is outside the maximum area of audibility (247,613 acres)."	GLIFWC has concerns about the analysis. Provide a link to the cumulative impact section in the appendix.
GLIFWC 24	GLIFWC	ES Executive Summary - Table 1	add: increase in cumulative destruction of trail network and Mesabe Widjiu	No text edit, The existing text address the Mesabe Widjiu	The comment applies to a cumulative effects analysis which is, in our opinion, inadequate in the PSDEIS. Provide a link to the cumulative effects section of the appendix
GLIFWC 25	GLIFWC	ES Executive Summary	The PSDEIS concludes that "Based on the results of the modeling and impacts analysis, the Northmet Project Proposed Action would not exceed applicable environmental evaluation criteria." Due to a general lack of understanding of mercury dynamics in the St. Louis River watershed, this conclusion is not defensible with regard to mercury. See the supplemental document "Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Comments Related to Mercury" [Comment 1] for additional rationale.	Text clarified in SDEIS. See response to GLIFWC 195	GLIFWC disagrees with the co-lead disposition. Provide a link to the mercury section in the appendix.
GLIFWC 26	GLIFWC	ES Executive Summary	The executive summary should clearly state that the proposed NorthMet project requires perpetual water treatment and perpetual maintenance. Therefore, the proposed project violates Minnesota Rule 6132.3200 regarding closure and postclosure maintenance of mines. This rule states that the goal of closure and reclamation is that "The mining area shall be closed so that it is stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." This language should be inserted into the executive summary. In addition Rule 6132.3200 states that "No release from the permit to mine under part 6132.4800 shall be granted for those portions of the mining area that require postclosure maintenance until the necessity for maintenance ceases." Since maintenance would never cease under the project, the executive summary should indicate that the applicant would never be released from the permit to mine.	Text edited to reflect that the closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual. The owning company would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions have been met.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 27	GLIFWC	ES Executive Summary- NorthMet project effects on cultural and socioeconomic resources section	The NorthMet Project Proposed Action would create up to an estimated 500 full-time direct jobs during peak construction and 360 full-time direct jobs during operations. Estimates for full-time employment were provided by NorthMet. **It is essential that throughout the SDEIS authors need to repeatly state that direct employment estimates for both construction and during operations were provided by NorthMet.	Text edited. It should be noted that these employment estimates were provided by PolyMet.	ok

Executive Summary

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 28	GLIFWC	ES Executive Summary- NorthMet project effects on cultural and socioeconomic resources section	"These direct jobs would generate additional indirect and induced employment, estimated to be 332 additional construction phase jobs and 631 additional operations phase jobs." Indirect and Induced Effect employment numbers are calculated by IMPLAN and may be temporary, part-time, full-time, long-term or short term jobs, as IMPLAN does not differentiate between these. **It is essential that throughout the SDEIS authors need to repeatly state that Indirect and Induced Effect employment numbers are calculated by IMPLAN and may be temporary, part-time, full-time, long-term or short term jobs. See GLIFWC socioeconomics attachment for additional information.	Text edited. It should be noted that indirect and induced effect employment numbers are calculated by IMPLAN and may be temporary, part-time, full-time, long-term or short term jobs.	ok
7/	GLIFWC	ES Executive Summary- NorthMet project effects on cultural and socioeconomic resources section	The Draft Environmental Impact Statement (DEIS) prepared in 2009 stated, "Due to the estimated 20-year operating life of the facility, it is estimated that approximately 55% of labor for the operations would be non-local and would relocated to the east range; 20% would commute daily or weekly from centeres such as Duluth; and the remaining labor would be local" DEIS (page 4.10-15). The Executive Summary needs to clearly identify the number of jobs projected to be filled by "local residents" in St. Louis County rather than the broad Arrowhead Region. See GLIFWC socioeconomics attachment for additional information.	The DEIS definition of "local" appears to be limited to the East Range, essentially the nearby towns and cities in St. Louis County alone. By comparison, the PSDEIS clearly states that "local" workers--those who would commute daily or weekly--would come from a very wide commute shed, given the willingness of workers in this region to commute relatively long distances. The definitions of "local" are very different; therefore, no change is needed.	ok

Chapter 1

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 30	GLIFWC	1.1.2 Land Exchange	Map is misleading. The area labeled Mesabi Iron Range / Historic mining district encompases areas that have never been mined and are outside the geologic formations where iron mines have operated. It suggests that the NorthMet mine site is part of a mined area which is not correct. The GIS layer depicting all the mine features on the range (pits, tailings basins, etc) should be used instead.	Map is intended to show general area of the Mesabi Iron Range. Figure Key edited to now read, "General Mesabi Iron Range - Historic Mining"	GLIFWC staff disagree with the disposition. We maintain that the figure is misleading.
GLIFWC 34	GLIFWC	1.2.2 Cooperating Agencies	Please insert the following text for GLIFWC participation: GLIFWC staff did not participate in the development of the language in the SDEIS or the referenced technical documents.	Text edit made. New text reads "The Great Lakes Indian Fish and Wildlife Commission (GLIFWC) and the 1854 Treaty Authority have assisted the Bands in their roles as Cooperating Agencies"	ok
GLIFWC 31	GLIFWC	1.3 Purpose And Need	The first 4 bullets are the mining companies' purpose and need and not the purpose and need of the agencies involved. A title is needed making this clear. Question: This is a document from the lead agencies. Does the applicants purpose belong here?	The Co-lead Agencies developed this language for insertion into the SDEIS. As such, it is appropriately placed.	ok
GLIFWC 32	GLIFWC	1.7 Pollutants Of Interest	There is absolutely no scientific doubt that GHG in the atmosphere have, and will continue to change climate conditions. Text should be corrected.	Text not edited, use of "may" and "can" is intended to be consistent with the rest of this section.	GLIFWC staff disagree with the disposition. The text may be consistent with the section but it is inconsistent with accepted scientific knowledge.
GLIFWC 33	GLIFWC	1.7 Pollutants Of Interest	There is absolutely no scientific doubt that sulfate has, and will continue to negatively impact wild rice. There is absolutely no scientific doubt that sulfate has, and will continue to contribute to mercury methylation. Correct the text.	Text not edited, use of "may" and "can" is intended to be consistent with the rest of this section.	GLIFWC staff disagree with the disposition. The text may be consistent with the section but it is inconsistent with accepted scientific knowledge.

Chapter 3

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 35	GLIFWC	3.1.1.3 Mine Operations Overview	Describes the NorthMet deposit as low-medium quality. We disagree with this characterization. The deposit had a low ore grade compared to most other ore bodies in the Great Lakes region. It should be characterized only as low quality.	It is ERM's professional judgment that the NorthMet Deposit should be classified as low-medium grade. Classification of the ore-body in simplified terms is relative and subjective and does not have any implications to the economic viability of the resource, nor does it influence the environmental evaluation presented in Chapter 5. Full description of the mineral resource may be found in PolyMet's 43-101 document. No changes to text.	We disagree. In GLIFWC's professional judgement the deposit should only be described as low quality.
GLIFWC 46	GLIFWC	3.2.2.4 Financial Assurance	EPA recommends that 10 to 25% of financial assurance be made available as cash. This should be added to the section. In addition, an explanation of how the state will financially assure a perpetual treatment project is required. Specifically, the state must financially assure in perpetuity: 2 RO water treatment plants, perpetual monitoring of water quality for the 2 tailings basins, west pit outflow, and groundwater points of compliance. Perpetual maintenance would be required at both tailings facilities for water quality, water capture, flow augmentation system, and geotechnical stability, the Cat 1 stockpile and the water level controls at the west pit.	Financial assurance costs, instruments, and duration will be determined in the MDNR Permit to Mine permitting process. Financial assurance can be required indefinitely and can include self-sustaining instruments such as trust funds.	The co-lead disposition is not realistic. Provide a link to the perpetual care language in the appendix.
GLIFWC 37	GLIFWC	3.1.2 Land Exchange Overview	Information in this paragraph is incorrect. As previously commented, federal lands are not within the historic mesabi range. Federal lands are not surrounded by private lands. Rather they are connected to other Superior National Forest lands on the south and east. Finally, the land exchange would unite surface and mineral rights for the mine site lands but not for the parcels that would enter the federal estate. Those surface and mineral ownerships would still be severed. The text should be clarified.	Edited sentences... "The federal lands are located adjacent to historic mining projects on the Mesabi Iron Range and are almost surrounded by privately held land used for mining and other industrial purposes; portions of the east and southwest areas of the federal lands are bordered by Superior National Forest lands." "in the area" to "on the federal lands"	ok
GLIFWC 40	GLIFWC	3.2.2.1.9 Water Management	Information on the length of time that the facility would need to operate should be included	This section is specific to the operational phase of mining. Long term management is discussed in section 3.2.2.1.10	ok

Chapter 3

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 38	GLIFWC	3.2.2.1.7 Overburden And Waste Rock Management	Should state that Cat 1 stockpile will require some maintenance in perpetuity.	Table 3.2-7 states that from Year 20+ there would be maintenance. Maintenance activities would continue throughout reclamation and post-reclamation, for as long as necessary to meet regulatory standards.	GLIFWC believes the disposition is incomplete. Provide a link to perpetual care section in the appendix.
GLIFWC 39	GLIFWC	3.2.2.1.8 Engineered Water Controls	Throughout the section, information on post closure maintenance needs and length of time operation is needed should be included for all engineering controls.	This section is specific to the operational phase of mining. Long term management is discussed in section 3.2.2.1.10	ok
GLIFWC 42	GLIFWC	3.2.2.1.10 Reclamation And Long-term Closure Management	Last paragraph should explicitly state that erosion repair, and removal of woody species from the stockpile cover system would need to be perpetual. This would also include monitoring and inspections of the facility.	Maintenance activities would continue throughout reclamation and post-reclamation, for as long as necessary to meet regulatory requirements.	GLIFWC believes the disposition is incomplete. Provide a link to perpetual care section in the appendix.
GLIFWC 50	GLIFWC	3.2.2.1.10 Reclamation And Long-term Closure Management	Insert text stating that water quality modeling suggests water treatment would need to occur for over 500 years in order to meet water quality standards.	The Closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory requirements at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site. While long-term, this time frame for water treatment is not necessarily perpetual. Added text to section 3.2.2.1.10 to this effect.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 51	GLIFWC	3.2.2.2.4 Use During Operations	We disagree with the characterization that ore dust releases from rail cars is not a significant issue. See GLIFWC rail car attachment.	Air quality for the NorthMet Project is evaluated in Section 5.2.7. Due to the size of the ore rock being transported, the design of the railcars, and the short distance of transport from the Mine Site to the Plant Site, the ore fines are expected to be coarse in nature. Thus, no significant reactive airborne fugitive dust from the rail transport is expected	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the rail car section in the appendix.

Chapter 3

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 36	GLIFWC	3.1.1.7 Project Closure Overview	This section states that post closure monitoring and maintenance would continue until features were "deemed environmentally acceptable in a self sustaining and stable condition" Water treatment and facility maintenance at the site are perpetual. Therefore this statement would never happen. It is misleading to suggest otherwise.	Text edited to reflect that the closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual. The owning company would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions have been met.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 53	GLIFWC	3.2.2.3.9 Transport Of Consumables And Products	There is no information provided on outgoing rail routes from the mine site. A map of these rail routes is requested.	The railway between the Mine Site and Plant Site is shown in Figure 3.2-4 and 3.2-20. Railway beyond the project area is outside of the scope of the SDEIS	GLIFWC disagrees. Regional transportation routes have been raised as issues in the past and there is the potential for environmental impacts along those routes based on impacts at other mine sites.
GLIFWC 54	GLIFWC	3.2.2.3.10 Engineered Water Controls	Section indicates that a water containment system exists on the south side. Please add that system to figure 3.2-27	Removed south side containment system from text.	ok
GLIFWC 55	GLIFWC	3.2.2.3.10 Engineered Water Controls - figure 3.2-28	Legend should be updated to describe the red and yellow lines on the outside of the berm.	The red and yellow lines do not add value to the figure and have been removed	ok

Chapter 3

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 44	GLIFWC	3.2.2.3.12 Reclamation And Long-term Closure Management	It should be clearly statated that inspection and periodic water collection at the hydrometallurgical residue facility would need to be perpetual.	The Closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual. Text has been added to section 3.2.2.3.12 to reflect this.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 45	GLIFWC	3.2.2.3.12 Reclamation And Long-term Closure Management - post-reclamation activities	A clear statement that perpetual water treatment, either active or passive, is required for the project to comply with water quality standards. In addition, the section should state that passive treatment is speculative.	The Closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual. Text has been added to section 3.2.2.3.12 to reflect this.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.

Chapter 3

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 56	GLIFWC	3.2.2.3.12 Reclamation And Long-term Closure Management	Include information about long term maintenance needs and lenghth of time that water treatment is needed.	The Closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual. Text has been added to section 3.2.2.3.12 to reflect this.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 47	GLIFWC	3.2.2.4.3 Cessation Of Financial Assurance	The NorthMet project is a perpetual maintenance and water treatment project. This should be clearly stated in this section. Therefore, there is a significant financial assurance component that the applicant will never be able to recover. Finally, a clear statement that the state of Minnesota will ultimately be responsible for conducting any long term maintenance and/or cleanup because it is not realistic to assume that this mining company will exist past closure.	The Closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual. Text has been added to section 3.2.2.3.12 to reflect this. Financial assurance can be required indefinitely and can include self-sustaining instruments such as trust funds.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 41	GLIFWC	3.2.2.1.10 Reclamation And Long-term Closure Management	Description of long term maintenance needs for the west pit lift station is needed.	The West Pit Lift station would be maintained as per needed in accordance with the reclamation plan, similarly as the WWTF would. Appropriate details would be provided for permitting	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.

Chapter 3

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 49	GLIFWC	3.2.2.1.10 Reclamation And Long-term Closure Management	Describe long term maintenance and monitoring needs for the stormwater ponds and outlet control structures next to the Dunka Rd.	The detailed maintenance and monitoring needs for outlet structures would be provided in the Reclamation Plan as required for permitting	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 52	GLIFWC	3.2.2.1.10 Reclamation And Long-term Closure Management	A table describing in detail the long term maintenance, monitoring, and treatment needs is requested.	The following section provide more detail that what could be portrayed in a table. Please refer to the text.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 43	GLIFWC	3.2.2.3.10 Engineered Water Controls	How long would the tailings basin water collection and treatment system operate in post closure?	The Closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual. Text has been added to section 3.2.2.3.12 to reflect this.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.

Chapter 3

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 48	GLIFWC	3.2.3.3 Development Of The Northmet Project Proposed Action - table 3.2-16	"capture and treatment of virtually all groundwater…" is not realistic or correct. Change to capture and treatment of "most" groundwater…	Groundwater containment with slurry walls and permeable trenches has been routinely performed at mine and industrial sites over the last 50 years. There are hundreds of currently operating systems. When geologic conditions are favorable (particularly the presence of a low permeability basal unit that can be keyed into), it is typical to achieve greater than 90 percent groundwater capture. At the Mine and Plant Sites, the geologic conditions are favorable due to the presence of low permeability bedrock. Performance modeling of the containment systems performed by PolyMet and reviewed by the Co-Leads provides strong evidence that the capture efficiency will be greater than 90 percent. the bullet point has been updated to reflect this.	ok
GLIFWC 59	GLIFWC	3.2.3.4.1 Underground Mining Alternative	GLIFWC staff disagree with the lead agency position paper on the underground alternative. See GLIFWC underground mining attachment for more information (will be provided by July 3rd)	The Co-leads have eliminated the Underground Mining Alternative based on the rational provided in section 3.2.3.4.1.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the underground mine alternative section in the appendix.
GLIFWC 60	GLIFWC	3.2.3.4.2 West Pit Backfill	GLIFWC staff disagree with the lead agency position paper on the west pit backfill alternative. See GLIFWC backfill attachment for more information (will be provided by July 3rd)	The Co-leads have eliminated the West Pit Backfill Alternative based on the rational provided in section 3.2.3.4.2.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the west pit backfill section in the appendix.

Chapter 3

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 57	GLIFWC	3.3.2.1 Federal Lands Proposed For Exchange	As previously commented, the mine site is not located within the historic mesabi iron range and the property is not surrounded by industrial lands. Correct the text.	Edited sentences... "The federal lands are located adjacent to historic mining projects on the Mesabi Iron Range and are almost surrounded by privately held land used for mining and other industrial purposes; portions of the east and southwest areas of the federal lands are bordered by Superior National Forest lands." "in the area" to "on the federal lands"	ok
GLIFWC 61	GLIFWC	3.3.2.1 Federal Lands Proposed For Exchange	As previously commented, the federal lands are not within the historic mining district and are not surrounded by private land used for mining	Edited sentences... "The federal lands are located adjacent to historic mining projects on the Mesabi Iron Range and are almost surrounded by privately held land used for mining and other industrial purposes; portions of the east and southwest areas of the federal lands are bordered by Superior National Forest lands." "in the area" to "on the federal lands"	ok
GLIFWC 58	GLIFWC	3.3.2.2 Non-federal Lands Proposed For Exchange	Section should indicate that all lands that would enter the federal estate have severed mineral and surface ownership.	Added sentence… "All of the non-federal lands except Tract 4 have severed mineral and surface ownership."	ok
GLIFWC 62	GLIFWC	3.3.2.2 Non-federal Lands Proposed For Exchange	Section should state that the lands entering the federal estate would still have severed surface and mineral ownership and therefore future mining cannot be ruled out.	Added sentence… "All of the non-federal lands except Tract 4 have severed mineral and surface ownership."	ok
GLIFWC 63	GLIFWC	3.3.3.3.6 Underground Mining Alternative	GLIFWC disagrees with the elimination of the underground alternative for further consideration in the SDEIS. The only reason for a land exchange is the fact that the applicant has chosen a surface mining operation. The development of an underground project that takes advantage of the entire mineraized zone should be analyzed. See GLUFWC underground mine attachment for more detail.	Feasibility analysis of an underground mining alternative was based on the mineralized zone as defined in accordance with National Instrument 43-101. The Underground Mining Alternative was eliminated from further analysis because it would not be economically viable and would not meet the purpose and need.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the underground mine alternative section in the appendix.

Chapter 4.2

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
4.2.2 Water Resources					
GLIFWC 104	GLIFWC	4.2.2 Water Resources - Table 4.2.2-29	The values in this table for PM-12 are different than the values used in "Calibration of the Existing Natural Watershed at the Plant Site v4 MAR2012", why? For example SO4 in Table 4.2.2-29 gives average So4 as 6.9 mg/L while "Calibration of the Existing Natural Watershed at the Plant Site v4 MAR2012" page 38 reports 4.34 mg/L. Manganese in Table 4.2.2-29 reports an average of 365 mg/L while "Calibration of the Existing Natural Watershed at the Plant Site v4 MAR2012" page 36 reports 158 mg/L. Why?	The values in Table 4.2.2-29 will be confirmed and updated as appropriate in the SDEIS.	Will the Goldsim model be recalibrated with the updated data in Table 4.2.2-29? If not, why?
GLIFWC 72	GLIFWC	4.2.2.3.2 Surface Water Resources - Embarras River WQ section	The first section is not correct. The river is on the draft 2012 303d list. See GLIFWC figure 3 in wild rice attachment. The section should also indicate that the wild rice standard is being exceeded in the Embarrass river because of effluent from the tailings basin and area 5 pits.	Text revised to clarify the current status of 303(d) listings.	ok
GLIFWC 68	GLIFWC	4.2.2.2.2 Surface Water	The XP-SWMM modeling is fatally flawed **because it is incapable of predicting even current baseflow conditions. If it is incapable of predicting current water quantity it will not accurately predict future water quantity conditions, a much more difficult task. It is therefore, not suitable for use in the SDEIS to predict future conditions**. See GLIFWC hydrology attachment.	We believe the XP-SWMM modeling is acceptable for use in the SDEIS. The 20 year old data is acceptable as there haven't been any significant changes within the watershed. We believe the assumptions used were reasonably conservative. Additional detail is provided in the water sections of the SDEIS, and further rationale is provided in the Water Data Packages.	GLIFWC disagrees with the co-lead disposition. The portion of the comment in bold has not been answered. Provide a link to the hydrology section in the appendix.
GLIFWC 69	GLIFWC	4.2.2.2.2 Surface Water	Section states that the old gauge represents current flows. We disagree. The hydrology of the Partridge river is incorrectly characterized because of the fatal flaws of XP-SWMM.	We believe the XP-SWMM modeling is acceptable for use in the SDEIS. The 20 year old data is acceptable as there haven't been any significant changes within the watershed. We believe the assumptions used were reasonably conservative. Additional detail is provided in the water sections of the SDEIS, and further rationale is provided in the Water Data Packages.	GLIFWC disagrees with the co-lead disposition. Provide a link to the hydrology section in the appendix.
GLIFWC 96	GLIFWC	4.2.2 Water Resources	Yes, as stated in the SDEIS text Northshore dewaters into partridge. So **simply subtracting the flow at the Northshore RR tracks from the flow measures further downstream will give the gain in groundwater between the RR tracks and downstream sites. Result at SW-003: 2.3 cfs, not the 0.51cfs predicted by XP-SWMM**. In additionaTable 4.2.2-9 values from XP-SWMM are obsolete values (see table 4.2.2-8).	We believe the XP-SWMM modeling is acceptable for use in the SDEIS. The 20 year old data is acceptable as there haven't been any significant changes within the watershed. We believe the assumptions used were reasonably conservative. Additional detail is provided in the water sections of the SDEIS, and further rationale is provided in the Water Data Packages. XP-SWMM values in Table 4.2.2-9 have been revised.	GLIFWC disagrees with the co-lead disposition. The portion of the comment in bold has not been answered. Provide a link to the hydrology section in the appendix.

Chapter 4.2

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 100	GLIFWC	4.2.2 Water Resources	high SO4 water of Wyman Cr. is entering the rice waters of the Partridge river. Given that the Partridge is already 9.1 mg/L at SW-005 the addition of high sulfate water by Wyman Cr. almost certainly causes the Partridge R. to exceed 10 mg/L. Does this exceedance influence the Polymet project in any way?	No. Under Minnesota Rules chapter 7050 discharges, either direct or indirect, must not cause violation of water quality standards in the immediate receiving waters, but also must not cause exceedances in downstream waters that have more stringent water quality standards. No discharges are planned from the Mine Site during operations and reclamation. During long-term closure, West Pit water will be pumped to the Mine Site WWTF, the effluent from which will require an NPDES/SDS permit to discharge to the Partridge River. The WWTF, when it starts discharging to the PR, will be designed to meet an effluent target of <10 mg/L SO4 (RC)	ok
GLIFWC 101	GLIFWC	4.2.2 Water Resources	Tailings pond water quality was measured in 2001-2004 and has not been measured since 2004. The claim, used in the No-Action or Current Condition models that water level and quality at the basins has stabilized, can not be confirmed or refuted with such a limited & old data set. **Current data on water quality in the tailings pond must be collected to verify if the tailings basins are currently hydrologically stable.** It seems unlikely that the pond water quality would stay the same over the last 9 years given that the only water input to the system has been rainwater.	Additional water quality samples will be taken from the LTV tailings pond to confirm its water quality and the results included in the EIS.	Is water quality sampling of the tailings ponds being conducted this summer. If not when will sampling be conducted?
GLIFWC 102	GLIFWC	4.2.2 Water Resources - Legacy Groundwater Quality Issues	the title of these two paragraphs suggest that it is a discussion of general contamination, yet the text only addresses organics. The text must be expanded to discuss groundwater contamination of all types.	The discussion under Legacy Groundwater Quality Issues will be expanded to include other constituents.	ok
GLIFWC 64	GLIFWC	4.2.2.1.3 Wild Rice	There is no question that wild rice is affected by sulfate. The text should state that healthy and natural stands of wild rice are found in waters of 10 ppm sulfate or less. See GLIFWC wild rice attachment.	The text already states that 'Some research has indicated that natural wild rice thrives better in low sulfate waters.'. No text edit.	The text in the co-lead disposition is misleading. It implies that there is doubt about the negative effects of sulfate on rice by using the word "some". Provide a link to the wild rice section in the appendix.
GLIFWC 65	GLIFWC	4.2.2.1.3 Wild Rice	States that "current scientific understanding of its habitat requirements is limited". This is not correct, the habitat requirements are well known. Correct your work.	Text clarified.	ok

Chapter 4.2

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 93	GLIFWC	4.2.2 Water Resources	"consequently, the 10 mg/L water quality standard for sulfate would not apply to this portion of the river (MPCA 2011b)." the "not" appears to be incorrect	Disagree. According to MPCA 2011a, the 10 mg/L water quality standard would not apply to this portion of the river.	GLIFWC does not agree with the MPCA determination for wild rice waters. Provide a link to the wild rice section of the appendix.
GLIFWC 94	GLIFWC	4.2.2 Water Resources	A 2010 field survey is mentioned. The pH and "salinity" data reported in Eggers 2011a, I believe to be data GLIFWC collected. No "salinity" measures were collected. The data appears to have been misunderstood. **Please contact GLIFWC concerning this data.**	Text revised to remove reference to salinity and be more consistent with Eggers 2011a.	GLIFWC collected the data. Please contact GLIFWC for proper interpretation of the data, as requested.
GLIFWC 98	GLIFWC	4.2.2 Water Resources - table 4.2.2-14	**SW-005 shows a mean value of 9.11 mg/l of SO4. an average of 9.11 indicates that at times the SO4 10mg/L standard is exceeded at SW-005.** The underlying data needs to be referenced and available.	The surface water quality data used to support the water quality modeling is in Barr 2013b (Technical Memorandum: Ongoing data collection for the NorthMet water quality modeling, aka Data Sufficiency Document, Version 3. February 25, 2013), as stated under the table.	ok
GLIFWC 99	GLIFWC	4.2.2 Water Resources - many data tables	Need sample size for the averages. otherwise the averages communicate very little information.	Tables 4.2.2-12, 4.2.2-14, 4.2.2-15, and 4.2.2-29 have been revised to include columns with detection and range data. The surface water quality data used to support the water quality modeling is in Barr 2013b (Technical Memorandum: Ongoing data collection for the NorthMet water quality modeling, aka Data Sufficiency Document, Version 3. February 25, 2013), as stated under the table.	ok
GLIFWC 103	GLIFWC	4.2.2 Water Resources - Table 4.2.2-29	Sulfate exceeds the 10mg/L standard for a substantial stretch of the Embarrass between Hwy 135 to Sabin Lake. Average SO4 at PM-13 is 31.8. Again sample size is needed in order to evaluate the information in the table. This reported average is very different than the modeled P50 (existing condition) value in figure 5.2.2-49, why?	Table 4.2.2-29 has been modified to include the number of samples for both locations. Original data is available in Barr 2013b. The calibrated water quality model PM-13 (Embarrass R. below all Mine Site loads) overestimates mean sulfate concentrations for existing conditions relative to measured values, apparently because the model does not incorporate removal of sulfate by chemical reduction processes (Barr 2012j, Section 2.2). The overall calibration of the No Action Model was approved by the Co-lead Agencies.	ok

Chapter 4.2

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 105	GLIFWC	4.2.2 Water Resources - table 4.2.2-29	The existing water quality at PM-13 reported in this table is substantially different than the P50 values reported as (continuation of existing conditions) in chapter 5 (e.g. fig. 5.2.2-49) and substantially different from the P50 values reported as No-Action model in the modeling data package (Water Modeling Data Package Vol 2-Plant Site v9 MAR2013.pdf). This suggests that **the model is poorly calibrated and unlikely to accurately predict project impacts.**	The surface water quality model was calibrated to conditions in the Embarrass River at a location above where mining had effected water quality (i.e., location PM-12), and conditions at down-stream locations were then estimated by adding known loads (for existing conditions model) and/or possible new loads (for Proposed Action model). The predicted model range for monthly concentrations over the 200-year simulation in the Embarrass R. below all Plant Site Area loads (i.e., minimum P10 to maximum P90 concentrations at location PM-13) brackets average measured concentrations for most constituents reported in Table 4.2.2-49. The model does overestimate mean sulfate concentrations for existing conditions at PM-13 relative to measured values, apparently because the model does not incorporate removal of sulfate by chemical reduction in the river and wetlands (Barr 2012j, Section 2.2). The accuracy of this Embarrass River water-quality model, as calibrated to existing conditions, was approved by the Co-lead Agencies as adequate to support the NorthMet SDEIS.	GLIFWC disagrees with the co-lead disposition. Provide a link to the hydrology section in the appendix.

Chapter 4.2

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 106	GLIFWC	4.2.2 Water Resources - table 4.2.2-1	The existing water quality in the Partridge reported in this table is substantially different than the P50 values reported as "continuation of existing conditions" in chapter 5 and substantially different from the P50 values reported as No-Action model in the modeling data package (e.g. Fig. K-06-24.2[SO4] and Fig. K-06-25.2 [Thallium], Water Modeling Data Package Vol 2-Plant Site v9 MAR2013.pdf . This suggests that **the model is poorly calibrated and unlikely to accurately predict project impacts.**	The surface water quality model was calibrated to conditions in the Embarrass River at a location above where mining had effected water quality (i.e., location PM-12), and conditions at down-stream locations were then estimated by adding known loads (for existing conditions model) and/or possible new loads (for Proposed Action model). The predicted model range for monthly concentrations over the 200-year simulation in the Embarrass R. below all Plant Site Area loads (i.e., minimum P10 to maximum P90 concentrations at location PM-13) brackets average measured concentrations for most constituents reported in Table 4.2.2-49. The model does overestimate mean sulfate concentrations for existing conditions at PM-13 relative to measured values, apparently because the model does not incorporate removal of sulfate by chemical reduction in the river and wetlands (Barr 2012j, Section 2.2). The accuracy of this Embarrass River water-quality model, as calibrated to existing conditions, was approved by the Co-lead Agencies as adequate to support the NorthMet SDEIS.	GLIFWC disagrees with the co-lead disposition. Provide a link to the hydrology section in the appendix.
GLIFWC 116	GLIFWC	4.2.2 Water Resources - Table 4.2.2-34	The means shown here for seeps at the toe of the basins are very different from the No-Action (continuation of existing conditions) values modeled in Water Modeling Data Package Vol 2-Plant Site v9 MAR2013.pdf. For example, Table 4.2.2-34 reports PM-10 (on the north toe) as having a mean Mn value of 100,192 mg/L, whereas Figure F-01-18.1 shows "continuation of existing conditions" as an annual maximum of 390 ug/L. at the north toe. **Aluminum is reported in Table 4.2.2-34 as a mean of 39.6 ug/L at PM-10 yet reported as a maximum for existing conditions at the north toe as 11 ug/L in Figure F-01-02.1.** These discrepancies between observed values at the north toe and the modeled existing conditions at the north toe suggests that the **Goldsim model is poorly calibrated and unlikely to accurately predict project impacts.**	The NorthMet Plant Site water-quality model used the composition of water in monitoring locations GW001, GW006, GW007, GW012, SD004, and SD026 as concentration targets for the GoldSim model (and PolyMet 2013L, Section 10.2.1 and Large Figure 5; see Figure 4.2.2-13 in this SDEIS). The overall calibration of the No Action Model was approved by the Co-lead Agencies.	GLIFWC disagrees with the co-lead disposition. Provide a link to the hydrology section in the appendix.
GLIFWC 66	GLIFWC	4.2.2.1.3 Wild Rice - Regulations section	we disagree with the MPCA's interpretation of the points of compliance. See GLIFWC wild rice attachment.	All information provided was considered when the MPCA made their recommendation.	GLIFWC does not agree with the MPCA determination for wild rice waters. Provide a link to the wild rice section of the appendix.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 67	GLIFWC	4.2.2.2.1 Groundwater Resources	The 2010 field survey of wetlands focused on vegetation and plant lists. This information does not yield conclusive information on the effects that groundwater drawdown would have on a wetland. See GLIFWC wetland attachment.	No change to SDEIS text.	GLIFWC does not agree with the co-lead disposition. Provide a link to the wetland section in the appendix.
GLIFWC 70	GLIFWC	4.2.2.2.2 Surface Water	The section should state that Wyman creek has elevated sulfate at PM-5 which is likely a direct result of past mine impact. What is the effect of Wyman creek water on the wild rice standard compliance?	The fact that Wyman Creek drains an area previously mined by LTVSMC is discussed in the text preceding Table 4.2.2-15.	ok
GLIFWC 71	GLIFWC	4.2.2.3.1 Groundwater Resources	There is no question that historic contamination from the LTV tailings basin has been the most important factor in water quality in the area. Discussing natural processes and ignoring the tailings basin effluent in the discussion of existing water quality values is not appropriate.	Water quality affected by the LTV tailings is listed in Table 4.2.2-3. The baseline water quality sought wells that displayed minimal effect of LTV tailings seepage so that effects of the proposed action could be most easily compared to pre-mining conditions.	ok
GLIFWC 73	GLIFWC	4.2.2.3.2 Surface Water Resources	Uses an outdated point of compliance for the wild rice sulfate standard. Correct the text	The text will be consistent with the most recent MPCA recommendation.	ok
GLIFWC 74	GLIFWC	4.2.2.3.2 Surface Water Resources	same comment as above.	The text will be consistent with the most recent MPCA recommendation.	ok
GLIFWC 90	GLIFWC	4.2.2 Water Resources	"the portion of Upper Partridge River from river mile approximately 22 just upstream of the railroad bridge near Allen Junction, " from where to where?	Text edited.	ok
GLIFWC 92	GLIFWC	4.2.2 Water Resources - Table 4.2.2-14	**The text states that** the values in Table 4.2.2-14 are referenced to (Barr 2008f) **i.e. "PolyMet averaged available ambient water quality data to document existing conditions (Barr 2008f) " Barr 2008f is** RS74A but in that document "Table 5-3: Average baseline concentrations observed in the Partridge River" in that document shows different values. RS63 (Draft PolyMet Mining Baseline Surface Water Quality Information Report) shows individual values from 2004 but these are yet different. Where did the values in Table 4.2.2-13 come from?	Table 4.2.2-14 references Barr 2013b (Technical Memorandum: Ongoing data collection for the NorthMet water quality modeling, aka Data Sufficiency Document, Version 3. February 25, 2013), which is the cumulative repository for surface and groundwater quality data measured for the NorthMet Project. Table 4.2.2-13 cites as its source" MPCA, 2013a," http://www.pca.state.mn.us/index.php/water/index.html, which is the MPCA's web site to access water quality data.	Please clean up the text to clarify which is the source for the existing conditions.
GLIFWC 91	GLIFWC	4.2.2 Water Resources - table 4.2.2-12	sulfate is nearly exceeded by the mean at station SW-005, some readings exceed the standard. The rice standard applies there but no numeric rice standard is shown in the table	Agree. Text is revised	ok

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 95	GLIFWC	4.2.2 Water Resources	Yes, there is inadequate flow data for the upper Partridge. however there has been a gage on the upper Partridge at the Dunka Rd. (http://www.dnr.state.mn.us/waters/csg/site_report.html?mode=get_site_report&site=03155002) for over 2 years now. The spot flow measurements and data from that gage help clarify flow in the Partridge. **Those measures show substantially more baseflow than that predicted by XP-SWIMM. The recent data needs to be used and the models (SP-SWIMM, Modflow & Goldsim) need to be calibrated** to the more accurate flow data now available. (see GLIFWC Hydrology attachment for more information)	The difference in the base flows are very small (indistinguishable from a stage standpoint). We believe the assumptions used were reasonably conservative in terms of water quantity.	GLIFWC believes that a difference in baseflow of 200% to 300% is not "small". Provide a link to the hydrology section in the appendix.
GLIFWC 97	GLIFWC	4.2.2 Water Resources	Yes, there is uncertainty in the Northshore discharges. The DNR must require better reporting or else install a gage near Northshore's discharge. **The lack of adequate reporting of discharges and flows in the upper Partridge prevents the adequate evaluation of upper Partridge hydrology.**	Northshore is meeting the statutory requirements.	Inadequate data for this project has been a chronic problem. In particular our, and others' repeated requests for flow measurement on the Partridge River has been ignored. Why is the EIS being written with no data collected by Polymet on flows on the upper portion of the river?
4.2.3 Wetlands					
GLIFWC 75	GLIFWC	4.2.3 Wetlands - table 4.2.3-1	Text discussing limitations of the classification system should be provided. In particular, the issue of "lumping" different bog wetland types together in the Eggers and Reed system overlooks the range of connectivity that bog wetlands have with the aquifer. This oversimplification leads to masking of the effects of drawdown on bog wetlands. See GLIFWC wetland attachment.	Footnote added: All wetland classification systems have some limitations; however, wetlands identified as open bogs or coniferous bogs under the Eggers and Reed (1997) classification system were further subcategorized as either ombrotrophic (hydrology and mineral inputs entirely from direct precipitation) or somewhat minerotrophic (some degree of mineral inputs from groundwater and/or surface water runoff) (Eggers 2011a; PolyMet 2013b). Please refer to Section 4.2.3.1.2 and Section 5.2.3 for more information.	The co-lead disposition is incomplete. Provide a link to the wetland section in the appendix.
GLIFWC 76	GLIFWC	4.2.3.1.2 Hydrology Wetland Vegetation And Community Types	We disagree with the first sentence. The effect of construction, operations, reflooding and subsequent dewatering of the Northshore pits have never been investigated. Therefore the conclusion in the first sentence is not supportable.	Vegetation types at the site are indicative of pre-settlement conditions and lack hydrologic disturbance, the wetlands at mine site are stable. Following sentence was added: The vegetation types located at the Mine Site are indicative of pre-settlement conditions and lack hydrologic disturbance.	GLIFWC disagrees with the co-lead disposition. Vegetation is not a robust indicator of groundwater hydrology.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 77	GLIFWC	4.2.3.1.2 Hydrology Wetland Vegetation And Community Types	There is no hydrologic data that shows that wetlands are perched. The lead agencies and the applicant have resisted suggestions by tribal agencies that the connectivity between wetland hydrology and surficial aquifer be assessed.	ERM, USACE, and Barr held a conference call to talk about the data. ERM also reviewed the source documents and added additional text on the connectivity question.	There is not enough information for us to remove our comment.
GLIFWC 78	GLIFWC	4.2.3.1.2 Hydrology Wetland Vegetation And Community Types	The "stability" of the wetlands not affected by the Northshore pits may be due to the factors listed. However the main reason for the stability is the absence of major hydrologic stressors - such as mine pits.	We disagree as groundwater would need to flow uphill for Northshore Pits to impact the surficial aquifer. Furthermore, this section is on existing conditions and the potential impact from NM project to wetlands is discuss in Chapter5.	Information developed by the MNDNR mining hydrologist show that impacts from mine pits affect can affect surficial aquifer by pirating water that would otherwise enter an unimpacted system and flow downgradient. Groundwater would not need to flow uphill for Northshore Pits to impact the surficial aquifer. Please consult a qualified hydrologist before providing further response.
GLIFWC 79	GLIFWC	4.2.3.1.2 Hydrology Wetland Vegetation And Community Types	The last sentence is not necessarily true and is an unsupported assumption. While groundwater may not be an important part of the hydrology at the surface of some wetlands at this time, that could change once stressors are introduced into the system.	Text added to refer reader to chapter 5.2.3	GLIFWC disagrees with the co-lead disposition. Provide a link to the wetland section in the appendix.
GLIFWC 80	GLIFWC	4.2.3.1.2 Hydrology Wetland Vegetation And Community Types	We disagree with the conclusion in the last sentence. There has been no data collected in these wetlands that looks at the connectivity of the surficial aquifer to the water at the surface. It is not defensible to assume that all ombotrophic wetlands at the site are perched and/or would remain perched under mine induced drawdown conditions.	See comment GLIFWC 77 According to Eggers 2011a memo, ombrotrphic peatlands (hydrology entirely from direct precipitation) would likely not be impacted by groundwater drawdown associated with mining operations. No text edit.	GLIFWC disagrees with the co-lead disposition. Provide a link to the wetland section in the appendix.

Chapter 4.2

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 81	GLIFWC	4.2.3.1.2 Hydrology Wetland Vegetation And Community Types	The first sentence is not supported. As indicated in the paragraph, the pump test did show some connectivity. Furthermore, a 30 day pump test does not produce the same degree of drawdown pressure as a 20 year mine project with 600 feet deep pits. Finally, the effects are likely to differ from one wetland to another. The sweeping conclusions in the bullet should be removed.	Edit bullet point… "• There is a general lack of connectivity between the shallow water table in the wetlands and the deeper bedrock aquifer. The depth of soil and till overlying the bedrock ranges up to 33 ft, with bedrock outcrops present that alter local groundwater flow paths. A pumping and isotope test conducted in 2006 indicated that the majority of the groundwater pumped during a 30-day pump test from a 610-ft-deep well drilled into the Virginia Formation was derived from aquifer recharge rather than surface water seepage from surface water features such as the Northshore Pit or wetlands. The variability of the bedrock and soil surface, along with the location of the surface water divide, creates localized, short, surficial groundwater flow paths within the watersheds on the Mine Site." Also see information provided in GLIFWC 77 that was added to beginning of section.	There is not enough information for us to remove our comment.
GLIFWC 82	GLIFWC	4.2.3.1.2 Hydrology Wetland Vegetation And Community Types	The discussion in these bullets represent observations of current conditions in wetlands that are not under hydrologic stress from mine induced drawdown.Once dewatering of the aquifer occurs, the situation is likely different. The text should be clarified.	This is existing conditions being discussed and not the potential effects of the project. No text edits.	ok
GLIFWC 83	GLIFWC	4.2.3.1.2 Hydrology Wetland Vegetation And Community Types	It should be noted in the text that according to scientific literature, ombotrophic wetlands can be affected by groundwater drawdown. See GLIFWC wetlands attachment.	Following sentence was added: Wetlands can be either groundwater or precipitation fed.	ok
4.2.6 Aquatic Species					
GLIFWC 84	GLIFWC	4.2.6.4 Mercury Concentrations In Fish	The discussion of 303d listing is not correct because the Embarrass River is on the 2012 303d list. See GLIFWC map of 303d waters in the wild rice attachment (fugure 3). Sulfate has a link to mercury methylation which is directly related to mercury contamination in fish. This should be noted here.	Text revised to clarify the current status of 303(d) listings. The Embarrass River is on the 303d list as impaired for Fishes Bioassessment, a category not related to mercury.	ok. However it should be noted that the Embarrass river is expected to be impaired for sulfate in the next draft list. Language regarding changes to 303d lists should be added.
4.2.8 Noise and Vibration					

Chapter 4.2

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 85	GLIFWC	4.2.8.2 Mine Site	As with the 2009 DEIS, this document relies on assessing noise impacts on a few receptors instread of discussing the overall area that would be affected. A discussion of noise impacts to all publicly accessible areas is the Superior National Forest is needed. See GLIFWC noise attachment.	A discussion of noise impacts to all publicly accessible areas in the Superior National Forest has been included. As indicated above, the USFS has provided shapefiles for all recreational sites within the project vicinity (family camp grounds, camp sites, boating, fishing, swimming, and family picnic areas). In addition to the residential areas, BWCAW, and wildlife corridors already discussed in the SDEIS, we have also included recreational sites, trails, and closest State wildlife waters (used by tribal members for harvesting purposes) in all the noise and vibration contour maps. A discussion of noise impacts to all publicly accessible areas in the SNF has been included in the text in Section 4.2.8.2. Though not depicted on the noise and vibration figures due to sensitivity regarding cultural resources and locations, a discussion of the nearest archaeological sites (e.g., Spring Lake Sugarbush and Mesabe Widjiu [Laurentian Divide]) within the Project vicinity has been included in the text.	GLIFWC has concerns about the analysis. Provide a link to the cumulative effect section in the appendix.
4.2.9 Cultural Resources					
GLIFWC 86	GLIFWC	4.2.9.2.3 Area Of Potential Effects	Text asserts that compliance with standards suggests there would be no impacts to vegetation or soils. This assumption is incorrect. Significant effects and changes fron unimpacted conditions can occur without violation of a standard.	No change. The assumption is based on meeting ambient air quality standards.	GLIFWC stands by the comment.
GLIFWC 87	GLIFWC	4.2.9.2.3 Area Of Potential Effects	The discussion on water quality standards is not complete. The project may not exceed any evaluation criteria but that assumes successful implementation of perpetual water treatment and perpetual maintenance of the features that are left behind (hydromet and flotation tailings basins, cat 1 stockpile). This information should be included anytime the SDEIS makes the claim that all evaluation criteria are met. In addition, evaluation criteria are different from water quality standards. The PSDEIS indicates that water quality standards will not be met for several constituents.	Refer to chapter 5.2 for the environmental analysis of effects of the NorthMet Project Proposed Action.	GLIFWC disagrees with the co-lead disposition. Provide a link to the perpetual maintenance section in the appendix.
GLIFWC 88	GLIFWC	4.2.9.2.3 Area Of Potential Effects	We disagree with the conclusion that there would be no impacts due to groundwater drawdowns. See GLIFWC wetland attachment.	Refer to chapter 5.2 for the environmental analysis of effects of the NorthMet Project Proposed Action.	GLIFWC disagrees with the co-lead disposition. Provide a link to the hydrology section in the appendix.
GLIFWC 89	GLIFWC	4.2.9.2.3 Area Of Potential Effects	The visual area of potential effect should be the viewshed of the existing tailings basin. See GLIFWC map.	Text has been revised for clarity.	There is not enough information for us to remove our comment.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
4.2.10 Socioeconomics					
GLIFWC 107	GLIFWC	4.2.10 Socioeconomics - "The study area for socioeconomics extends beyond the area of direct potential project effects to include all of Cook, Lake, and St. Louis counties (see Figure 4.2.10-1)."	IMPLAN modeling played a key role in the SDEIS's socio-economic accessment. IMPLAN modeling and the employment figures derived from the model (i.e. direct, indirect and induced) were for St. Louis County (i.e. NorthMet Economic Impact 2011 Update: Economic Impact of PolyMet's NorthMet Project on St. Louis County, Minnesota Revised April 2012 for PolMet Mining Inc.). The socio-economic study area (i.e. 3 counties) is not consistent with IMPLAN modeling (one county). See GLIFWC socioeconomics attachment for additional information.	Section 5.2.10.1.3 explains why the IMPLAN model focuses on St. Louis County, and how this is consistent with the remainder of the Socioeconomic section. No text edit.	We disagree. The comment stands.
GLIFWC 108	GLIFWC	4.2.10 Socioeconomics - Jobs Held by residents section, Table 4.2.10-9 Employment Status of Study Area Communities, 2009	This table illustrates unemployment rates in 2009 during the worste of the recession. Tables should be updated with unemployment figures for the Counties in 2010, 2011,and 2012 to ascertain impacts of business cycles on regional employment. See GLIFWC socioeconomics attachment for additional information.	No change. Will revisit updating all data (including IMPLAN) for the Final SEIS.	We disagree. The comment stands.
GLIFWC 109	GLIFWC	4.2.10 Socioeconomics - Education Section	A table is needed to provide number of graduates from Mesabi Range Community and Technical College (Virginia and Eveleth); Vermilion Community College (Ely); Hibbing Community College; Fond du Lac Tribal and Community College (Cloquet); and Lake Superior College (Duluth) for the following job categories: 1)Management, 2) Mine Operations - Contract supervision, operators, maintenance, 3) Mine Technical - Geology, grade control, planning, 4) Railroad Operations, 5) Plant Operations, 6) Sample Preparation and analytical laboratory, and 7) Finance, purhchasing, marketing, environmental, HR. See GLIFWC socioeconomics attachment for additional information.	Sufficient assumptions have been made about availability of the workforce. No change.	We disagree. The comment stands.

Chapter 4.2

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 110	GLIFWC	4.2.10.1.6 Subsistence	Subsistence section failed to acknowledge the large number of species that could be harvested off-reservation by tribes. RESOURCES USED - As of 1837 and 1842, the Chippewa exploited virtually every resource in the ceded territory. Among the mammals the Chippewa hunted at treaty time were white-tailed deer, black bear, muskrat, beaver, marten, mink, fisher, snowshoe hare, cottontail rabbit, badger, porcupine, moose, woodchuck, squirrel, raccoon, otter, lynx, fox, wolf, elk, and bison. Among the birds the Chippewa hunted were ducks, geese, songbirds, various types of grouse, turkeys, hawks, eagles, owls, and partridges. Among the fish the Chippewa harvested were, in Lake Superior, whitefish, herring, chubs, lake trout and turbot; and, in-shore, suckers, walleye, pike, sturgeon, muskie, and perch. LAC COURTE OREILLES CHIPPEWA IND. v. STATE OF WIS. NO. 74-C-313. 653 F.Supp. 1420 (1987). See GLIFWC socioeconomics attachment for additional information.	Species list added to Cultural Resources section (4.2.9), and referenced in Section 4.2.10.1.6. Reference to Section 4.2.9 added.	ok

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 111	GLIFWC	4.2.10.1.6 Subsistence	Subsistence section failed to acknowledge the large number of species that could be harvested off-reservation by tribes. RESOURCES USED - The Chippewa also harvested a large number of plants and plant materials, including: box elder, sugar maple, arum-leaved arrow-head, smooth sumac, stag-horn sumac, wild ginger, common milkweed, yellow birch, hazelnut, beaked hazelnut, nannyberry, climbing bitter-sweet, large-leaved aster, Philadelphia fleabane, dandelion, panicled dogwood, large toothwort, cucumber, Ojibwe squash, large pie pumpkin, gourds, field horsetail, bog rosemary, leather leaf, wintergreen, Labrador tea, cranberry, blueberry, beech, white oak, bur oak, red oak, black oak, corn, wild rice, Virginia waterleaf, shell bark hickory, butternut, wild mint, catnip, hog peanut, creamy vetchling, navy bean, lima bean, cranberry pole bean, lichens, wild onion, wild leek, false spikenard, sweet white water lily, yellow lotus, red ash, white pine, hemlock, brake, marsh marigold, smooth juneberry, red haw apple, wild strawberry, wild plum, pin cherry, sand cherry, wild cherry, choke cherry, highbush blackberry, red raspberry, large-toothed aspen, prickly gooseberry. LAC COURTE OREILLES CHIPPEWA IND. v. STATE OF WIS. NO. 74-C-313. 653 F.Supp. 1420 (1987). See GLIFWC socioeconomics attachment for additional information.	Species list added to Cultural Resources section (4.2.9), and referenced in Section 4.2.10.1.6. Reference to Section 4.2.9 added.	ok

Chapter 4.2

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 112	GLIFWC	4.2.10.1.6 Subsistence	Subsistence section failed to acknowledge the large number of species that could be harvested off-reservation by tribes. RESOURCES USED -wild black currant, wild red currant, smooth gooseberry, Ojibwe potato, hop, Virginia creeper, river-bank grape, red maple, mountain maple, spreading dog-bane, paper birch, low birch, downy arrowwood, woolly yarrow, white sage, alternate-leaved dogwood, wool grass, great bulrush, scouring rush, sweet grass, Dudley's rush, marsh vetchling, sweet fern, black ash, balsam fir, tamarack, black spruce, jack pine, Norway pine, arbor vitae (white cedar), hawthorn, shining willow, sphagnum moss, basswood, cat-tail, wood nettle, slippery elm, and Lyall's nettle, poison ivy, winterberry, mountain holly, sweet flag, Indian turnip, wild sarsaparilla, ginseng, spotted touch-me-not, blue cohosh, speckled elder, hound's tongue, marsh bellflower, harebell, bush honeysuckle, red elderberry, snowberry, highbush cranberry, white campion, yarrow, pearly everlasting. LAC COURTE OREILLES CHIPPEWA IND. v. STATE OF WIS. NO. 74-C-313. 653 F.Supp. 1420 (1987)	Species list added to Cultural Resources section (4.2.9), and referenced in Section 4.2.10.1.6. Reference to Section 4.2.9 added.	ok
GLIFWC 113	GLIFWC	4.2.10.1.6 Subsistence	Subsistence section failed to acknowledge the large number of species that could be harvested off-reservation by tribes. RESOURCES USED -lesser cat's foot, common burdock, ox-eye daisy, Canada thistle, common thistle, daisy fleabane, Joe-Pye weed, tall blue lettuce, white lettuce, black-eyed Susan, golden ragwort, entire-leaved groundsel, Indian cup plant, fragrant golden-rod, tansy, cocklebur, bunch berry, tower mustard, marsh cress, tansy-mustard, squash, wild balsam-apple, hare's tail, wood horsetail, prince's pine, flowering spurge, golden corydalis, giant puffball, wild geranium, rattlesnake grass, blue flag, wild bergamot, heal-all, marsh skullcap, white sweet clover, reindeer moss, northern clintonia, Canada mayflower. LAC COURTE OREILLES CHIPPEWA IND. v. STATE OF WIS. NO. 74-C-313. 653 F.Supp. 1420 (1987) See GLIFWC socioeconomics attachment for additional information.	Species list added to Cultural Resources section (4.2.9), and referenced in Section 4.2.10.1.6. Reference to Section 4.2.9 added.	ok

Chapter 4.2

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 114	GLIFWC	4.2.10.1.6 Subsistence	Subsistence section failed to acknowledge the large number of species that could be harvested off-reservation by tribes. RESOURCES USED -small Solomon's seal, star-flowered Solomon's seal, carrion flower, twisted stalk, large flowered bellwort, ground pine, Canada moonseed, heart-leaved umbrella-wort, yellow water lily, great willow-herb, evening primrose, Virginia grape fern, yellow ladies' slipper, rein orchis, adder's mouth, bloodroot, white spruce, common plantain, Carey's persicaria, swamp persicaria, curled dock, shield fern, female fern, sensitive fern, red baneberry, Canada anemone. LAC COURTE OREILLES CHIPPEWA IND. v. STATE OF WIS. NO. 74-C-313. 653 F.Supp. 1420 (1987). See GLIFWC socioeconomics attachment for additional information.	Species list added to Cultural Resources section (4.2.9), and referenced in Section 4.2.10.1.6	ok
GLIFWC 115	GLIFWC	4.2.10.1.6 Subsistence	Subsistence section failed to acknowledge the large number of species that could be harvested off-reservation by tribes. RESOURCES USED - thimble-weed, wild columbine, gold thread, bristly crowfoot, cursed crowfoot, purple meadow rue, agrimony, large-leaved aven, rough cinquefoil, marsh five-finger, smooth rose, high bush blackberry, meadow-sweet, steeple bush, goose grass, small cleaver, small bedstraw, prickly ash, balsam poplar, large toothed aspen, quaking aspen, crack willow, bog willow, pitcher-plant, butter and eggs, cow wheat, wood betony, mullein, moosewood, musquash root, cow parsnip, sweet cicely, wild parsnip, black snakeroot, Canada violet, American dog violet, speckled alder, sweet gale, goldthread, bluewood aster, horseweed, Canada hawkweed, fragrant goldenrod, shin leaf, sessile-leaved bellwort, slender ladies' tresses, and starflower. The Chippewa harvested other miscellaneous resources, such as turtles and turtle eggs.COURTE OREILLES CHIPPEWA IND. v. STATE OF WIS. NO. 74-C-313. 653 F.Supp. 1420 (1987). See GLIFWC socioeconomics attachment for additional information.	Species list added to Cultural Resources section (4.2.9), and referenced in Section 4.2.10.1.6. Reference to Section 4.2.9 added.	ok

Chapter 5.2

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
5.2.2 Water Resources					
GLIFWC 195	GLIFWC	5.2.2.3.4 Mercury	There is a general lack of understanding of mercury dynamics in the St. Louis River Watershed. See the supplemental document "Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Comments Related to Mercury" [Comment 1] for details.	The Co-leads agree that the mercury dynamics are complex; however, the analysis as presented indicated that there was minimal potential for a downstream increase in mercury loading.	GLIFWC disagrees with the co-lead disposition. Provide a link to the mercury section in the appendix.
GLIFWC 197	GLIFWC	5.2.2.3.4 Mercury - Throughout the section	The conclusion that mercury will not increase in the environment or exceed applicable environmental evaluation criteria is based on several assumptions. One such assumption is that mercury methylation will not increase because the amount of sulfate being released to the environment will actually be reduced by the project. This assumption is not justified. See the supplemental document "Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Comments Related to Mercury" [Comment 3] for details.	Text will be edited to remove this statement. Similar sentences will also be removed.	ok
GLIFWC 198	GLIFWC	5.2.2.3.4 Mercury	The conclusion that mercury will not increase in the environment or exceed applicable environmental evaluation criteria is based on several assumptions. One such assumption is that the Nothmet project would have minor effects on flows in the Partrige and Embarrass Rivers or their tributaries and is thus not expected to result in increases in flow fluctuations that promote mercury methylation. This assumption is not justified. See the supplemental document "Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Comments Related to Mercury" [Comment 4] for details.	The modeling does not suggest that flow fluctuations should be any greater than existing conditions.	GLIFWC disagrees with the co-lead disposition. Provide a link to the hydrology section in the appendix.
GLIFWC 200	GLIFWC	5.2.2.3.4 Mercury - Throughout the section	There is a potential for the overflow from the West Pit (after year 40) to exceed the Great Lakes Initiative (GLI) standard for mercury of 1.3 ng/L. This has not been considered when concluding the Proposed Action would not exceed applicable environmental evaluation criteria. See the supplemental document "Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Comments Related to Mercury" [Comment 6] for details.	Both an analog approach and a mass balance were conducted for evaluating the potential for the West Pit lake water quality to exceed the GLI standard for mercury of 1.3 ng/L. Both analyses concluded the potential for an exceedance was unlikely. Further, West Pit overflow water is first treated at the WWTF before discharge, which would further reduce mercury concentrations in the effluent.	Comment stands. Provide a link to the mercury section in the appendix.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
	GLIFWC	5.2.2	The GOLDSIM model is not able to reproduce the existing water quality conditions that are observed at the site. This indicates that the model is poorly calibrated to existing conditions. Therefore, it is doubtful that GOLDSIM will be able to accurately predict future water quality which is a much more difficult task. Provide a link to the hydrology section.		Provide a link to the hydrology section in the appendix
GLIFWC 173	GLIFWC	5.2.2.3.5 Proposed And Recommended Mitigation Measures	The section on proposed action design changes and fixed engineering controls are no longer mitigation measures as they are now part of the proposed project. These chages have already been described in other sections of the PSDEIS. It appears that the list of mitigations is being padded. These sections should be removed.	This section acknowledges measures taken to avoid, minimize, or mitigate impacts to water resources. Just because a measure is included as part of the proposed project does not mean it does not serve to mitigate impacts.	ok
GLIFWC 174	GLIFWC	5.2.2.3.5 Proposed And Recommended Mitigation Measures	The notion of fine material being segregated in the center of the rail cars is not credible. See GLIFWC rail car attachment.	Discussion of fine material being segregated in the center of rail cars has been removed.	While that language has been removed, the overall conclusion regarding rail cars remains. Provide a link to the rail car information in the appendix.
GLIFWC 175	GLIFWC	5.2.2.3.5 Proposed And Recommended Mitigation Measures	Because the hydrology of surface and groundwater for the Partridge River is poorly understood, this section should give information on the maximum capacity for the WWTF. GLIFWC staff believe that this facility will have to treat significantly greater ammounts of water than the applicant proposes based on field baseflow data.	As stated on page 5.2.2-109, "The WWTF equalization basins are designed for the spring snowmelt when the Mine Sit would be at its maximum area. In the event of an extreme event (e.g., 100-year storm), excess water would remain in the mine pits, which essentially have unlimited storage capacity, with mine operations in the pits temporarily shut down (see Mine Site Water Management Plan)." The WWTF is being designed such that additional capacity may be added if required as per the adaptive water management plan	ok

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 176	GLIFWC	5.2.2.3.5 Proposed And Recommended Mitigation Measures	Says that the Category 1 stockpile cover design could be updated but it does not say how. The rest of the text is simply a restatement of the proposed project.	Text added. Design options, which would need to be approved by the MPCA and MDNR, include: increased or decreased thickness of the geomembrane material to modify the potential for defects to be created during installation and to modify the life of the geomembrane; increased or decreased soil cover thickness above the geomembrane material to modify water storage capacity; increased or decreased soil hydraulic conductivity of the granular drainage layer above the geomembrane to modify lateral drainage capacity; increased or decreased uninterrupted slope length to modify lateral drainage capacity; modified soil type and/or thickness below the geomembrane to modify leakage rate through potential geomembrane defects; and/or including a geosynthetic clay liner below the geomembrane to modify leakage rate through potential geomembrane defects. After installation of the cover system, post-installation adjustments, such as modifying vegetation density and erosion of the cover system, could be made if approved by the MPCA and MDNR (PolyMet 2013g).	ok
GLIFWC 177	GLIFWC	5.2.2.3.5 Proposed And Recommended Mitigation Measures	This is a restatement of the bentonite cover that is part of the proposed project. This is not a mitigation measure. How exactly can the cover system be modified? What part of the cover design is adaptive?	Text added to clarify. Prior to installation, the design of the pond bottom cover system could be adjusted to modify performance. Design options include: increasing or decreasing the thickness of the bentonite amendment, and/or increasing the percent of bentonite, and/or a combination of increasing/decreasing the thickness and increasing/decreasing the percent bentonite. After installation, the design of the installed pond bottom cover system could also be adjusted to modify performance by these same methods. In addition, the bentonite amended layer could be excavated from portions of the pond bottom. Any design modifications would need to be approved by the MPCA and MDNR (PolyMet 2013g).	ok
GLIFWC 178	GLIFWC	5.2.2.3.5 Proposed And Recommended Mitigation Measures	Describe the long term maintenance needs for PRB's including replacement frequency (expected effective timeperiod)	The Proposed Action relies on mechanical treatment to achieve water quality objectives. Non-mechanical treatment (including PRBs) is described as a goal, but is not specifically part of the Proposed Action. It is beyond the scope of the SEIS to describe non-mechanical systems in detail. For interested readers, information on non-mechanical systems is referenced in the SDEIS (PolyMet, 2013g).	GLIFWC staff disagree with the co-lead disposition. Provide a link to the perpetual maintenance section in the appendix.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 179	GLIFWC	5.2.2.3.5 Proposed And Recommended Mitigation Measures	As previously commented, other sections of the PSDEIS state that the applicant is not seeking a seasonal application of the wild rice standard. Yet, the west pit overflow non mechanical treatment system relies on a seasonal discharge to comply with the standard. This non-mechanical treatment option should be eliminated from the project as it does not meet the stated goals of compliance with water quality standards.	The Proposed Action relies on mechanical treatment to achieve water quality objectives. Non-mechanical treatment (including PRBs) is described as a goal, but is not specifically part of the Proposed Action. It is beyond the scope of the SEIS to describe non-mechanical systems in detail. For interested readers, information on non-mechanical systems is referenced in the SDEIS (PolyMet, 2013g).	GLIFWC staff disagree with the co-lead disposition. Provide a link to the perpetual maintenance section in the appendix.
GLIFWC 202	GLIFWC	5.2.2.3.6 Monitoring - Throughout the section	It is not apparent whether mercury monitoring is included within the water quality monitoring of the Mine Site or Plant Site. If it is, this should be specified. If it is not, it should be added to the monitoring activities.	Water quality monitoring would be finalized during permitting, but in general, mercury monitoring would be included within the water quality monitoring.	ok
GLIFWC 180	GLIFWC	5.2.2.4 Northmet Project No Action Alternative	This section describes the flaw in the PSDEIS of assuming that the no action alternative is equivalent to existing conditions. We agree that they are not the same thing. A true no action alternative should be modeled as required by NEPA. See GLIFWC hydrology attachment for more information.	Description of the No Action Alternative will be clarified.	There is not enough information for us to remove the comment. Provide a link to the hydrology section of the appendix.
GLIFWC 117	GLIFWC	5.2.2 Water Resources	As previously commented, the mine site is not located within the historic iron/taconite mining district. It is in a separate geology alltogether in an mostly undisturbed area knows an the 100 mile swamp. Correct the text.	Text edited.	ok
GLIFWC 118	GLIFWC	5.2.2 Water Resources	The negative effects of sulfate on wild rice are well understood and scientifically documented. Edit the text as outlined in the GLIFWC wild rice attachment.	All information provided was considered when the MPCA made its recommendation. The text already states that 'Some research has indicated that natural wild rice thrives better in low sulfate waters.'. No text edit.	GLIFWC staff disagree with the co-lead disposition. Provide a link to the wild rice section in the appendix.
GLIFWC 119	GLIFWC	5.2.2 Water Resources	There is a discussion comparing the NorthMet project to other sulfide mines. The goal appears to be the minimization of impact discussion prior to any information presented on the impact analysis itself. If this type of information is to be presented, additional discussion about the water quality contamination that these other mines have caused, their location and ore grade is necessary.	No change to SDEIS text.	Comment stands.
GLIFWC 120	GLIFWC	5.2.2 Water Resources	why is the term wild rice bed in quotes? Remove the quotes.	Quotes removed.	ok

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 121	GLIFWC	5.2.2 Water Resources	The discussion on water treatment should state that both active and passive treatment systems would need to operate successfully in perpetuity.	Text edited to reflect that the Closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual. The owning company would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions have been met.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 122	GLIFWC	5.2.2 Water Resources	The discussion of model results and compliance with evaluation criteria assumes perpetual water treatment and perpetual maintenance of the facilities. This should be clearly stated. Also, evaluation criteria are different from standards. The PSDEIS does say that standards would be exceeded for several constituents.	Text edited. As described in the SDEIS, the evaluation criteria do use the standards, but interpret the standards from a probabilistic perspective. The P90 approach is a reasonable method for applying the results of probabilistic modeling for EIS impact assessment. In this context, it is not appropriate to say that "a constituent will exceed a water quality standard". It is more accurate to say that "there is at least a 90 percent probability that a constituent will not exceed a standard (or up to a 10 percent probability that it will)". These quoted statements are very different.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 196	GLIFWC	5.2.2 Water Resources	The conclusion that mercury will not increase in the environment or exceed applicable environmental evaluation criteria is based on several assumptions. One such assumption is that the tailings basin will function as a mercury sink. This assumption is not justified. See the supplemental document "Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Comments Related to Mercury" [Comment 2] for details.	Co-leads disagree. Tailings Basins in general are a sink for mercury.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the mercury section in the appendix.
GLIFWC 221	GLIFWC	5.2.2 Water Resources	The No-Action, P50 model (continuation of current conditions) for As shows annual maximum values (~0.5 ug/L), substantially less than those shown as mean existing water quality in Table 4.2.2-18 (mean As is 0.78 to 1.4 ug/L depending on the data set).	Baseline data is presented in Table 4.2.2-18 which is different to what was modeled for the Continuation of Existing Conditions Scenario.	“Continuation of Existing Conditions” is supposed to represent a model of existing conditions. If baseline for Colby Lake in Table 4.2.2-18 is not existing conditions then what is it?

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 222	GLIFWC	5.2.2 Water Resources	the travel times to the Partridge River depend on the basic hydrology of the mine site. As we comment elsewhere, the baseflow assumed for the Partridge is not supported by data from the Dunka Rd. gage. Incorporating the higher baseflow indicated by the gage data into modeling assumptions and calibration would result in a more conductive site and therefore, faster transport times.	Groundwater travel times are related to river baseflow estimates. We believe the baseflow estimates are reasonable. Higher baseflows would likely result in a more conductive site and faster transport times, but this would not necessarily result in higher solute concentrations in either groundwater or surface water; in fact we believe higher baseflows would result likely result in lower concentrations. The GoldSim model duration was 200 years, which was sufficient to capture the peak concentration of all solutes along all surficial groundwater flow paths; therefore, the GoldSim model does not need faster transport times to capture peak solute concentrations.	A more conductive site would, as you agree, result in faster transport times but would also result in great loss of groundwater to pit dewatering. The interaction between site conductivity and contaminate transport is not a simple relationship that can fully captures by a “belief” on your part.
GLIFWC 223	GLIFWC	5.2.2 Water Resources	The evaluation point at the toe of the basins is omitted from the table. Without that information it is impossible to evaluate the need for and the effectiveness of the seep capture system. Given that the seep capture system can not be operated indefinitely, it is important to report the character of the water that will be exiting the basins. A figure showing the water character at the toe of the basins should be added. Figures from Water Modeling Data Package Vol 2-Plant Site v9 MAR2013.pdf such as Figure F-01-04.1 or Figure F-01-18.1 or Figure F-01-24.1 would be suitable.	Although we agree that the evaluation locations at the toe of the tailings basin are valuable in terms of ongoing monitoring and early warning of potential water quality issues, we do not see any real benefit to including these additional evaluation locations in the SDEIS as the GoldSim model was run for sufficient durations that the peak of seepage from all contamination sources reaches the evaluation locations currently included in the SDEIS.	Given dilution of contamination between the basin and the reported evaluation points, the modeled peak is not the same as the concentration at the toe of the basin. Toe of basin concentrations should be reported.
GLIFWC 123	GLIFWC	5.2.2.1.1 Groundwater	The conclusion that there are no significant hydrologic affects of the project cannot be supported. It is based on fatally flawed modelling in XP-SWMM using antiquated data from far downstream. See GLIFWC hydrology attachment.	We believe the XP-SWMM modeling is acceptable for use in the SDEIS. The 20 year old data is acceptable as there haven't been any significant changes within the watershed. We believe the assumptions used were reasonably conservative. Additional detail is provided in the water sections of the SDEIS, and further rationale is provided in the Water Data Packages.	GLIFWC does not agree with the co-lead disposition. Provide a link to the hydrology section in the appendix.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 124	GLIFWC	5.2.2.1.1 Groundwater	The discussion of groundwater evaluation criteria is incomplete. The evaluation point at the Dunka road needs to be discussed and all results displayed in a table. This is because there are 2 alternatives for the land exchange and a preferred alternative is not yet chosen. This section, and all other sections of chapter 5 must not assume a property boundary in the text. Finally, figure 5.2.2-4 apprears to depict the Dunka Rd. evaluation point. the text should also.	Although we agree that the evaluation locations along Dunka Road are valuable in terms of ongoing monitoring and early warning of potential water quality issues, we do not see any real benefit to including these additional evaluation locations in the SDEIS as the GoldSim model was run for sufficient durations that it captures the peak solute concentrations along all flow paths at the evaluation locations currently included in the SDEIS.	The Dunka road should be included because Alternative B of the land exchange would use that evaluation point as the point of compliance should that alternative be chosen.
GLIFWC 125	GLIFWC	5.2.2.1.1 Groundwater- figure 5.2.2-4	The location of the groundwater evaluation point for the ore surge pile flowpath should be moved to the section of the property boundary closest to the pile itself. Does the modeling use this incorrect evaluation point?	The evaluation point for the OSP is the Partridge River because the river is located slightly further upgradient (northwest) than the mine property boundary. The distance from the OSP to the evaluation point is about 1100 meters which is consistent with Figure 5.2.2-4.	We suggest you look at the figure again. The river is not closer than the property boundary to the OSP source. NOTE - Map corrected in later version.
GLIFWC 126	GLIFWC	5.2.2.1.2 Surface Waters - Hydrologic Alterations	The evaluation criteria values for the project are taken from XP_SWMM modeling That model is fatally flawed and produces results that conflict with measured data. The results cannot be used. See GLIFWC hydrology attachment	We believe the XP-SWMM modeling is acceptable for use in the SDEIS. The 20 year old data is acceptable as there haven't been any significant changes within the watershed. We believe the assumptions used were reasonably conservative. Additional detail is provided in the water sections of the SDEIS, and further rationale is provided in the Water Data Packages.	GLIFWC does not agree with the co-lead disposition. Provide a link to the hydrology section in the appendix.
GLIFWC 127	GLIFWC	5.2.2.1.2 Surface Waters	GLIFWC disagrees with MPCA interpretation of areas of wild rice production. See GLIFWC wild rice attachment.	The SDEIS uses MPCA's draft determination regarding the locations of water used for the production of wild rice.	GLIFWC does not agree with the MPCA determination of points of compliance. Provide a link to the wild rice section in the appendix.
GLIFWC 128	GLIFWC	5.2.2.1.2 Surface Waters	GLIFWC disagrees with MPCA seasonal application of the wild rice standard. See GLIFWC wild rice attachment.	The SDEIS uses MPCA's draft determination regarding the seasonal application of the wild rice standard.	GLIFWC does not agree with the MPCA seasonal application of the wild rice sulfate standard. Provide a link to the wild rice section in the appendix.
GLIFWC 129	GLIFWC	5.2.2.1.2 Surface Waters	Section states that PolyMet is not seeking application of a seasonal wild rice standard. This is in conflict with other sections of the PSDEIS. See GLIFWC wild rice attachment.	All information provided was considered when the MPCA made their recommendation. Should the application of the standard change, it will be addressed at that time.	GLIFWC does not agree with the MPCA determination of points of compliance. Provide a link to the wild rice section in the appendix.
GLIFWC 194	GLIFWC	5.2.2.1.2 Surface Waters	There is a general lack of understanding of mercury dynamics in the St. Louis River Watershed. See the supplemental document "Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Comments Related to Mercury" [Comment 1] for details.	The Co-leads agree that the mercury dynamics are complex; however, the analysis as presented indicated that there was minimal potential for a downstream increase in mercury loading.	GLIFWC does not agree with the co-lead disposition. Provide a link to the mercury section in the appendix.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 130	GLIFWC	5.2.2.2.3 Water Quality Modeling (goldsim)	There is a comparison of sulfur content with other mines. Fundamentally, it does not matter if S levels are lower or higher compared to other mines. NorthMet would be located in a wet environment with complex hydrology where other mines are located in arid or arctic environments with little hydrologic connectivity. All mines are different and this language makes the attempt to minimize the risks of this particular mine. Remove the language.	Caveat added to discussion.	There is not enough information for us to remove the comment.
GLIFWC 131	GLIFWC	5.2.2.2.3 Water Quality Modeling (goldsim)	XP-SWMM model is fatally flawed and should not be used in impact assessment. See GLIFWC hydrology attachment	The difference in the baseflows are very small (indistinguishable from a stage standpoint). We believe the XP-SWMM modeling is acceptable for use in the SDEIS. The 20 year old data is acceptable as there haven't been any significant changes within the watershed. We believe the assumptions used were reasonably conservative. Additional detail is provided in the water sections of the SDEIS, and further rationale is provided in the Water Data Packages.	GLIFWC does not agree with the co-lead disposition. Provide a link to the hydrology section in the appendix.
GLIFWC 132	GLIFWC	5.2.2.2.3 Water Quality Modeling (goldsim)	There is a statement that the no action alternative is a continuation of existing conditions. GLIFWC staff fundamentally disagree with this approach. This flawed assumtion leads to errors in water quality model outputs. NEPA requires an analysis of the no action alternative so that the effects of the proposed action can be understood in a larger context. See GLIFWC hydrology attachment.	We believe the assumptions used were reasonably conservative. The description of the No Action Alternative and Continuation of Existing Conditions will be further clarified in the SDEIS.	GLIFWC does not agree with the co-lead disposition. Provide a link to the hydrology section in the appendix.
GLIFWC 133	GLIFWC	5.2.2.3.1 Northmet Project Proposed Action Water Budget Overview - figure 5.2.2-15	This map, or a new map are needed with the location of the west pit level control structure, the outfall location, and the potential location of facilities described in the AWMP.	Figure 5.2.2-15 will be edited to include the west pit level control structure & the outfall location.	ok
GLIFWC 134	GLIFWC	5.2.2.3.1 Northmet Project Proposed Action Water Budget Overview	Section states that figure 5.2.2-15 has the location of a wetland and outlet control structure OS-5. It does not. Figure should also include the tributary channel that would connect the outfall to the Partridge River.	Figure 5.2.2-15 will be edited to include the west pit level control structure & the outfall location.	ok

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 135	GLIFWC	5.2.2.3.1 Northmet Project Proposed Action Water Budget Overview	Discussion on the hydromet tailings facility should clearly state that the periodic pumping and water collection activities would be perpetual.	The Closure objective is to provide water management activities at the hydrometallurgical facility for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. While described as long-term, the time frame for these activities is not necessarily "perpetual". Chapter 3 describes closure of the Hydrometallurgical Residue Facility. Once the facility is drained and reclaimed (covered), no further pumping would be required. As such, there would not be periodic or perpetual pumping of water from the Hydrometallurgical Residue Facility post closure.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 136	GLIFWC	5.2.2.3.1 Northmet Project Proposed Action Water Budget Overview - Mine Site section	The section should clearly state for how long water collection and treatment of Category 1 stockpile seepage would be needed. It should also state that the length of time the WWTP would operate in order to comply with water quality standards is perpetual	Text edited to reflect that the Closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual. The owning company would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions have been met.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 137	GLIFWC	5.2.2.3.1 Northmet Project Proposed Action Water Budget Overview	States that the goal is to transition to non mechanical water treatment. The fact that all water treatment (mechanical and/or non mechanical) would need to occur in perpetuity. It should also clearly state that a transition to non mechanical treatment may not be possible.	Text edited (see GLIFWC 136: maintenance and monitoring long term required)	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 138	GLIFWC	5.2.2.3.1 Northmet Project Proposed Action Water Budget Overview	First paragraph should state that treatment and capture of water needs are perpetual.	Text edited (see GLIFWC 136: maintenance and monitoring long term required)	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 139	GLIFWC	5.2.2.3.1 Northmet Project Proposed Action Water Budget Overview	States that long term closure activities will continue until the various facility features are deemed environmentally acceptable, in a self sustaining and stable condition. This is a misleading statement because the maintenance and water treatment needs are perpetual. A stable and self sustaining site will never occur.	Text edited to reflect that the Closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual. The owning company would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions have been met.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 140	GLIFWC	5.2.2.3.1 Northmet Project Proposed Action Water Budget Overview	Non mechanical treatment options would still require maintenance and monitoring in perpetuity to ensure effectiveness.	Text edited to reflect that the Closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual. The owning company would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions have been met.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 199	GLIFWC	5.2.2.3.1 Northmet Project Proposed Action Water Budget Overview	There is no discussion of the impacts on mercury from the construction of wetlands over the East Pit and at the permiter of the tailings basin during reclamation. See the supplemental document "Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Comments Related to Mercury" [Comment 5] for details.	These wetlands are not expected to be sources of mercury nor have elevated mercury concentrations. The water used to augment flows north of the tailings storage facility would have significantly lower sulfate concentrations than current conditions. Therefore we do not expect these wetlands to function as any more of a source of methyl mercury than the current wetlands found in these locations.	The answer addresses only one part of the comment. There are other factors besides sulfate that generate methylmercury in a wetland. Wetlands in general, wether they are high in sulfate or not have the potential to generate methylmercury. Please add a link to the mercury section of the appendix.
GLIFWC 141	GLIFWC	5.2.2.3.2 Partridge River Watershed	The entire section is fatally flawed because it relies on the Canisteo Pit analog method. GLIFWC staff have objected to the use of this method since it was proposed (See GLIFWC wetland attachment).This analog approach is not scientifically defensible.	The analog approach is considered a reasonable method for evaluating the extent of pit drawdown considering the heterogeneous nature of glacial till and the underlying low-permeability bedrock. Even when the pit water level is well below the top of bedrock, the low-permeability bedrock limits the amount of surficial groundwater that can drain downward into the pit and there is sufficient recharge to the surficial unit to generally maintain water levels.	GLIFWC does not agree with the co-lead disposition. Provide a link to the wetland section in the appendix.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 142	GLIFWC	5.2.2.3.2 Partridge River Watershed - table 5.2.2-18	Chemical mechanisms column for the west pit should include water level fluctuations in the pit with wetting and drying of pit walls. This fluctuation is likely if a non-mechanical treatment option is used in order to meet the MPCA seasonal wild rice standard.	This factor will be addressed in future analysis of the passive system.	If the passive systems are not to be analized at all, they should be removed from the SDEIS.
GLIFWC 143	GLIFWC	5.2.2.3.2 Partridge River Watershed	Placing peat and unsaturated overburden in an unlined area would create a significant pulse of mercury. This mercury release does not seem to be accounted for in the mercury sections. The mercury, once released would travel the groundwater flow path and constitute an untreated discharge into the Partridge River. This is a particular concern because of the applicants failure to model mercury.	Surface runoff from the Overburden Storage and Laydown Area is considered “Process Water,” and would be captured in an unlined pond (Pond PW-OSLA) and monitored for quality, including mercury. If the Overburden Storage and Laydown Area water was of sufficient quality, it would be pumped to the CPS and discharged to the East Pit or the Tailings Basin. If water in Pond PW-OSLA required treatment, it would be pumped to the WWTF for treatment prior to delivery to the CPS. The potential release of mercury from the decomposition of overburden materials is included in the mercury mass balance (Section 5.2.2.3.4).	ok
GLIFWC 144	GLIFWC	5.2.2.3.2 Partridge River Watershed	The no action alternative is not the same as existing conditions. An accurate no action alternative needs to be modeled in order to compare impacts under NEPA.	The SDEIS text regarding the No Action Alternative and "Continuation of Existing Conditions" will be clarified.	GLIFWC does not agree with the co-lead disposition. Provide a link to the hydrology section in the appendix.
GLIFWC 145	GLIFWC	5.2.2.3.2 Partridge River Watershed	All statements indicating that evaluation criteria would be met must include the caveat that perpetual water capture and treatment must be done to make that happen. We disagree that all water quality standards would be met. Water quality will be exceeded for several constituents.	Text edited. As described in the SDEIS, the evaluation criteria do use the standards, but interpret the standards from a probabilistic perspective. The P90 approach is a reasonable method for applying the results of probabilistic modeling for EIS impact assessment. In this context, it is not appropriate to say that "a constituent will exceed a water quality standard". It is more accurate to say that "there is at least a 90 percent probability that a constituent will not exceed a standard (or up to a 10 percent probability that it will)". These quoted statements are very different.	GLIFWC does not agree with the language in the co-lead disposition. Provide a link to the Perpetual care language in the appendix.
GLIFWC 146	GLIFWC	5.2.2.3.2 Partridge River Watershed	Title is not correct because there is no property boundary yet. In addition, the table should provide the 90th percentile concentration values for both land exchange alternatives.	Table title will be revised. In this section. the SDEIS is evaluating the Proposed Action. See Section 5.3.2 for a discussion of the land exchange alternative.	ok

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 147	GLIFWC	5.2.2.3.2 Partridge River Watershed	The first paragraph is not correct. The Copper Nickel study from 1979 states "Highly saline groundwater has been encountered in some bedrock areas in the study area…The source and spatial distribution of this water in the Study Area is unknown. The Superior National Forest technical memorandum No. 4 Brackish Groundwater within the SNF states that In 1976, brackish waters were encountered at the AMAX site which is in the same geology as the NorthMet project. In 2012 elevated chloride levels were found at mineral exploration drill locations near the South Kawishiwi River. The text should be corrected in light of available data from the SNF.	We disagree - applicable data is discussed.	Comment stands.
GLIFWC 148	GLIFWC	5.2.2.3.2 Partridge River Watershed	XP-SWMM model is fatally flawed and should not be used in imoact assessment. See GLIFWC hydrology attachment.	We believe the XP-SWMM modeling is acceptable for use in the SDEIS. The 20 year old data is acceptable as there haven't been any significant changes within the watershed. We believe the assumptions used were reasonably conservative. Additional detail is provided in the water sections of the SDEIS, and further rationale is provided in the Water Data Packages.	GLIFWC does not agree with the co-lead disposition. Provide a link to the hydrology section in the appendix.
GLIFWC 149	GLIFWC	5.2.2.3.2 Partridge River Watershed	Pit seepage is a long term untreated discharge. The section should clearly state this.	The following edit has been made to the text: These untreated pit discharges to groundwater in the West Pit Surficial Flow Path and the East Pit Category 2/3 Surficial Flowpath would occur in perpetuity. Groundwater in these flowpaths would flow down gradient and eventually discharge to the Partridge River.	ok
GLIFWC 150	GLIFWC	5.2.2.3.2 Partridge River Watershed	The discussion in the fourth bullet states that sulfate exceedances would be "exclusively limited to the low flow winter months" This explanation is only relevant if the applicant is seeking a seasonal application of the sulfate standard. Other sections of the PSDEIS have stated that they are not. This conflict should be resolved.	PolyMet Is not seeking seasonal application for the Proposed Project. Any future request for a seasonal application would require MPCA approval.	GLIFWC does not agree with the co-lead disposition. Provide a link to the wild rice section in the appendix.
GLIFWC 151	GLIFWC	5.2.2.3.2 Partridge River Watershed	The entire discussion of sulfate being exceeded during low flows is colored by the fact that there is very little undferstanding of hydrology in the upper Partridge River. The XP-SWMM model used to interpolate flow data is fatally flawed and does not produce reliable data. The net effect is that the PSDEIS cannot reliably state wether the sulfate standard will be met or not.	We believe the XP-SWMM modeling is acceptable for use in the SDEIS. The 20 year old data is acceptable as there haven't been any significant changes within the watershed. We believe the assumptions used were reasonably conservative. Additional detail is provided in the water sections of the SDEIS, and further rationale is provided in the Water Data Packages.	GLIFWC does not agree with the co-lead disposition. Provide a link to the hydrology section in the appendix.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 152	GLIFWC	5.2.2.3.2 Partridge River Watershed	The last bullet states that the no action alternative is assumed to be the same as existing conditions. This is not correct as it ignores the intermittent dewatering of the Northshore pits. A realistic no action alternative needs to be modeled.	The description of the No Action Alternative and Continuation of Existing Conditions will be further clarified in the SDEIS.	GLIFWC does not agree with the co-lead disposition. Provide a link to the hydrology section in the appendix.
GLIFWC 153	GLIFWC	5.2.2.3.2 Partridge River Watershed	The conclusion that sulfate concentrations at 200 years would be less than 10 mg/l may not be supportable by modeling. It assumes that the no action alternative is the same as existing conditions and that is not the case.	The GoldSim model results do suggest that sulfate concentrations in the Partridge River at SW-005 would be less than 10 mg/L.	GLIFWC does not agree with the co-lead disposition. Provide a link to the hydrology section in the appendix.
GLIFWC 154	GLIFWC	5.2.2.3.2 Partridge River Watershed	The discussion relies on dilution to meet the sulfate standard. Because hydrology at the mine site is not understood, there is no basis to make this claim.	We believe the XP-SWMM modeling is acceptable for use in the SDEIS. The 20 year old data is acceptable as there haven't been any significant changes within the watershed. We believe the assumptions used were reasonably conservative. Additional detail is provided in the water sections of the SDEIS, and further rationale is provided in the Water Data Packages.	GLIFWC does not agree with the co-lead disposition. Provide a link to the hydrology section in the appendix.
GLIFWC 155	GLIFWC	5.2.2.3.2 Partridge River Watershed	The first paragraph describes a situation where the wild rice sulfate standard "would be exceeded anyway". This is an acknowledgement that the standard is, at least at some times, bein exceeded through cumulative impacts of other operations. If this is the case, the Clean Water Act does not allow Polymet to contribute any load to that exceedance regadless of dilution.	The Co-leads recognize this is a major difference of opinion.	Provide a link to the hydrology section in the appendix.
GLIFWC 156	GLIFWC	5.2.2.3.2 Partridge River Watershed	GLIFWC staff disagree that effective mitigation for sulfate exceedences are identified. There is conjecture about the dilutive effects of treated waste water but no modeling or analysis to demonstrate that effect.	The text has been edited to include possible contingency measures that could be implemented. Given that the identified contingency measures are based on engineered facilities that can be pilot tested, there is reasonable likelihood that contingency measures could be implemented (if needed) to prevent exceedance of the 10 mg/L sulfate standard in Partridge River surface water.	GLIFWC does not agree with the co-lead disposition. The purpose of the analysis was to demonstrate that the project would not exceed standards. The disposition is an assumption and not a demonstration.
GLIFWC 157	GLIFWC	5.2.2.3.2 Partridge River Watershed	GLIFWC staff disagree with the characterization of dust from the rail corridor as minor. See GLIWC rail car attachment.	This section acknowledges the dust issue and refers the reader to section 5.2.3.2.2. There is no other discussion or characterization of dust in this section. Discussion of fine material being segregated in the center of rail cars has been removed.	GLIFWC does not agree with the co-lead disposition. Provide a link to the rail car section in the appendix.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 158	GLIFWC	5.2.2.3.2 Partridge River Watershed	As previously stated, XP_SWMM is fatally flawed and therefore flow information cannot be used to show that standards are met through dilution. Therefore, the conclusions on arsenic in Colby lake cannot be supported.	We believe the XP-SWMM modeling is acceptable for use in the SDEIS. The 20 year old data is acceptable as there haven't been any significant changes within the watershed. We believe the assumptions used were reasonably conservative. Additional detail is provided in the water sections of the SDEIS, and further rationale is provided in the Water Data Packages.	GLIFWC does not agree with the co-lead disposition. Provide a link to the hydrology section in the appendix.
GLIFWC 159	GLIFWC	5.2.2.3.2 Partridge River Watershed	perpetual water treatment would be needed in to avoid violating standards in Colby Lake.	No change to SDEIS text.	GLIFWC does not agree with the co-lead disposition. Provide a link to the perpetual maintanance section in the appendix.
GLIFWC 160	GLIFWC	5.2.2.3.2 Partridge River Watershed	The last paragraph correctly discusses perpetual treatment needs. The improvements in water quality in the west pit are speculative and do not change the fact that perpetual treatment is necessary. Therefore the paragraph should indicate that while non-mechanical treatment options may be possible at some point in time, that non-mechanical treatment would also have to be perpetual for standards to be met.	Water quality changes in the pits are not speculative, but are predicted based on flow/chemical modeling with reasonable assumptions. Text clarified.	ok
GLIFWC 161	GLIFWC	5.2.2.3.2 Partridge River Watershed - Figures 5.2.2-37 through 5.2.2-39	Need to indicate the appropriate water quality standard	The West Pit is not considered an evaluation location so a water quality standard does not apply. Water quality standards would apply to the WWTF (which treats the West Pit overflow) discharge.	ok. We understand that there will be a polluted pit lake and water quality standards will not apply until water leaves the lake.
GLIFWC 162	GLIFWC	5.2.2.3.2 Partridge River Watershed	States that water quality in the permanent mine features left behind is expected to improve over time. This is misleading because the model was not run long enough to predict when that would be. It is clear that, using sulfate as an example, the west pit would be a perpetual source with the potential of contaminating downstream beds in perpetuity.	The flow/chemical modeling does predict that water quality will improve over the modeled time frame of 200 years. Text has been modified.	ok
GLIFWC 163	GLIFWC	5.2.2.3.2 Partridge River Watershed	Why was water quality modeling terminated after 200 years?	Before 200 years, the maximum chemical loading in affected groundwater is predicted to reach the Partridge River.	But the plume in bedrock is not.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 201	GLIFWC	5.2.2.3.2 Partridge River Watershed	There is no consideration of the likely mercury pulse to the Partridge River resulting from placement of the stripped peat and unsaturated overburden into the unlined Overburden Storage and Laydown Area. See the supplemental document "Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Comments Related to Mercury" [Comment 7] for details.	Surface runoff from the Overburden Storage and Laydown Area is considered "Process Water," and would be captured in an unlined pond (Pond PW-OSLA) and monitored for quality. If the Overburden Storage and Laydown Area water was of sufficient quality, it would be pumped to the CPS and discharged to the East Pit or the Tailings Basin. If water in Pond PW-OSLA required treatment, it would be pumped to the WWTF for treatment prior to delivery to the CPS.	ok
GLIFWC 164	GLIFWC	5.2.2.3.3 Embarrass River Watershed	States that the seepage capture system is not expected to have an effect on groundwater downgradient of wetlands because ponded water at the surface is expected to infiltrate and replace groundwater. This is a circular argument. The ponded water downgradient of the tailings basin is mostly tailings basin water that has been seeping over decades saturating the aquifer and flooding wetlands. The seepage capture system would reduce that water source and that capture system is likely perpetual. It is not reasonable to assume that the ponded water will be able to replace groundwater captured by the containment system in perpetuity because the tailings basin is the water source for both the ponds and the groundwater. What are the impacts to groundwater levels and wetlands outside the containment system once the pond water at the surface runs out?	The text has been changed to reflect the decrease in groundwater seepage would not be expected to have a significant effect on groundwater down gradient of the groundwater containment system because there would be sufficient natural recharge to maintain saturation in the surficial (unconsolidated) unit.	ok
GLIFWC 165	GLIFWC	5.2.2.3.3 Embarrass River Watershed	How long would the groundwater capture system need to operate? How long would the WWTP need to operate?	Modeling predicts that groundwater capture and mechanical (WWTP) or non-mechanical water treatment would need to occur for a minimum of 500 years. Capture and treatment would continue after that time until water quality monitoring at groundwater and surface water evaluation locations indicate that these measures are no longer needed.	GLIFWC does not agree with the co-lead disposition. Provide a link to the perpetual maintanance section in the appendix.
GLIFWC 166	GLIFWC	5.2.2.3.3 Embarrass River Watershed - Figure 5.2.2-40	Figure is misleading. Edit the figure to indicate that the long term does not end at year 45 but rather extends into perpetuity.	The figure will be edited.	There is not enough information for us to remove our comment.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 167	GLIFWC	5.2.2.3.3 Embarrass River Watershed	The no action alternative is not the same as existing conditions. This assumption ignores ongoing VIC work and the Cliffs Erie consent decree that would improve water quality over time. It also ignores the fact that rain will fall on the tailings basin, percolate through the tailings and flush constituents. Over time this effect will reduce the source term of the facility. An accurate no naction alternative needs to be modeled in order to compare impacts under NEPA. See GLIFWC attachment.	Description of the No Action Alternative will be clarified.	There is not enough information for us to remove our comment. Please add a link to the hydrology section in the appendix
GLIFWC 168	GLIFWC	5.2.2.3.3 Embarrass River Watershed	The discussion on TDS is not correct. The no action alternative is not the same as existing conditions. It does not matter that the exceedances from the tailings basin were caused by historic operations. PolyMet assumes responsibility for those exceedances if the project goes forward.	Description of the No Action Alternative will be clarified.	There is not enough information for us to remove our comment. Please add a link to the hydrology section in the appendix
GLIFWC 169	GLIFWC	5.2.2.3.3 Embarrass River Watershed	With respect to the TDS exceedances. How long before the model shows that groundwater criteria are met? And how does that differ from information in the consent decree?	The NorthMet Proposed Project water quality model indicates that the 90th percentile value for TDS in the Plant Site groundwater would drop below the 500-mg/l groundwater evaluation criteria at ~55 years after start of mining, as illustrated in Figure 5.2.2-44. Because the No Action condition for the LTVSMC Tailings Basin is represented in the GoldSim model without implementation of any mitigation measures, model predictions do not show a reduction in Plant Site groundwater TDS under the No Action conditions, also illustrated in Figure 5.2.2-44.	GLIFWC does not agree with the co-lead disposition. Provide a link to the hydrology section in the appendix.
GLIFWC 170	GLIFWC	5.2.2.3.3 Embarrass River Watershed	Flow in the tributary streams will change as effluent from the tailings basin changes over time under a no action scenario. The assumption that existing conditions is the same as the no action scenario is not supported. A no action alternative should be modeled.	The description of the No Action Alternative and Continuation of Existing Conditions will be further clarified in the SDEIS.	There is not enough information for us to remove our comment. Please add a link to the hydrology section in the appendix

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 171	GLIFWC	5.2.2.3.3 Embarrass River Watershed	The section should indicate that the assumption of meeting evaluation criteria depends on perpetual water capture, water treatment, and tailings facility maintenance. We disagree that water quality standards would be met. The PSDEIS states that standards would be exceeded for several constituents.	Text edited. As described in the SDEIS, the evaluation criteria do use the standards, but interpret the standards from a probabilistic perspective. The P90 approach is a reasonable method for applying the results of probabilistic modeling for EIS impact assessment. In this context, it is not appropriate to say that "a constituent will exceed a water quality standard". It is more accurate to say that "there is at least a 90 percent probability that a constituent will not exceed a standard (or up to a 10 percent probability that it will)". These quoted statements are very different.	GLIFWC does not agree with the co-lead disposition. Provide a link to the perpetual maintenance section in the appendix.
GLIFWC 172	GLIFWC	5.2.2.3.3 Embarrass River Watershed	As previously commented, the no action alternative is not the same as existing conditions.	The description of the No Action Alternative and Continuation of Existing Conditions will be further clarified in the SDEIS.	There is not enough information for us to remove our comment. Please add a link to the hydrology section in the appendix
5.2.3 Wetlands					
GLIFWC 182	GLIFWC	5.2.3.1.2 Potential Indirect Wetland Effects Methodology And Evaluation Criteria	The indirect impact analysis is fatally flawed. The analog approach is not scientifically defensible and further, it uses cherry picked data to reach conclusions. See GLIFWC wetland analysis attachment.	Per the Final Wetlands IAP Summary Memo, the Co-lead Agency position was that the assessment of potential indirect wetland impacts at the mine site should be conducted based upon an interpretation of the general analog guidelines regarding groundwater drawdown analog information provided by the Water Resources IAP Workgroup in accordance with the guidance provided in the attachment to this summary memo. The Co-lead Agencies believe that even with additional groundwater data collection and additional groundwater modeling, there would still be a high level of uncertainty regarding groundwater model outputs. Therefore, the Co-lead Agencies believe that the analog guideline method of estimating glacial aquifer groundwater drawdown near the proposed mine is reasonable and appropriate for this site and do not recommend that additional field data collection and groundwater modeling be conducted for the purpose of estimating glacial aquifer groundwater drawdown.	GLIFWC does not agree with the co-lead disposition. Provide a link to the wetland section in the appendix.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
				Some Wetland IAP Workgroup members disagree with the Co-lead Agency position. They believe that additional field data collection and additional groundwater modeling are necessary to provide groundwater drawdown cone of depression information near the open pit mine. That position was an earlier recommendation of the Wetland IAP Workgroup and was supported by Workgroup members from the Fond du Lac Band, Grand Portage Band, Great Lakes Indian Fish and Wildlife Service, U.S. Fish and Wildlife Service, 1854 Treaty Authority, Minnesota Pollution Control Agency and the U.S. Environmental Protection Agency. However; it was not supported by Workgroup members from the Co-lead Agencies, Environmental Resources Management, or Barr Engineering. In addition, some Workgroup members believe that the Co-lead Agency position is contrary to standard analysis that mining companies have to conduct as part of sulfide mine EIS processes across the country. In addition, the Grand Portage Band believes that the geology of the analog sites appear to be non-analogous with the geology of the proposed mine site.	We continue to believe that use of the all existing data is most appropriate.
GLIFWC 185	GLIFWC	5.2.3.1.2 Potential Indirect Wetland Effects Methodology And Evaluation Criteria	As commented previously, the modeling done to assess changes in Partridge River flow is fatally flawed and does not yield usable results.	The Co-lead Agencies have concluded that the use of lateral effect equations for ditches is not suitable for use in determining glacial aquifer drawdown near open pit mines, and that method should not be used to estimate groundwater drawdown near the NorthMet project open pits. There was no disagreement among any of the Workgroup members.	We agree with the statement regarding the lateral effects model. In fact we were convinced that it would not work when the Corps suggested using the model in the NorthMet SDEIS. However, The comment refers to the XP-SWMM modeling so the lead agency disposition is appropos of nothing. Add a link to the hydrology section in the appendix.
GLIFWC 188	GLIFWC	5.2.3.2.2 Mine Site And Transportation And Utility Corridor Indirect Wetland Effects	The section on changes in hydrology due to drawdown is scientifically indefensible and fatally flawed. See GLIFWC wetland attachment.	See GLIFWC 182	GLIFWC does not agree with the co-lead disposition. Provide a link to the wetland section in the appendix.
GLIFWC 189	GLIFWC	5.2.3.2.2 Mine Site And Transportation And Utility Corridor Indirect Wetland Effects	The XP-SWMM model used for assessing impacts t Partridge River flow is fatally flawed and should not be used in the PSDEIS. See GLIFWC hydrology attachment	We believe the XP-SWMM modeling is acceptable for use in the SDEIS. The 20 year old data is acceptable as there haven't been any significant changes within the watershed. We believe the assumptions used were reasonably conservative. Additional detail is provided in the water sections of the SDEIS, and further rationale is provided in the Water Data Packages.	GLIFWC does not agree with the co-lead disposition. Provide a link to the hydrology section in the appendix.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 190	GLIFWC	5.2.3.2.2 Mine Site And Transportation And Utility Corridor Indirect Wetland Effects	Presents an incorrect characterization of the impacts of dust emissions along the rail line. The section states that the air IAP did not identify any air quality effects. This issue was raised in the water quality IAP and the lead agencies moved it to air quality. We maintain that this is a water quality issue. The lead agencies have refused to fully address the issue and have chosed to simply monitor the waters near the rail line in order to detect impacts after they have already occured.	The Co-leads position on the potential for contamination along the rail line is discussed in 5.2.2 and 5.2.3.	GLIFWC does not agree with the co-lead disposition. Provide a link to the rail car section in the appendix.
GLIFWC 191	GLIFWC	5.2.3.2.2 Mine Site And Transportation And Utility Corridor Indirect Wetland Effects	Same comment a page 5.2.3-51. In addition the statement that deposition along the rail line would be minimal because of the coarse nature of the ore. This is incorrect. Relatively small ammounts of fine ore dust can create large water quality impacts as evidenced by the clean water act violations at the Flambeau mine in Wisconsin.	The Co-leads position on the potential for contamination along the rail line is discussed in 5.2.2 and 5.2.3.	GLIFWC does not agree with the co-lead disposition. Provide a link to the rail car section in the appendix.
GLIFWC 181	GLIFWC	5.2.3 Wetlands	Some wetlands in the indirect impact category are severely affected by drawdown, fragmentation, watershed destruction and dust deposition. These effects are well understood and so the Corps should require up front mitigation for these wetland impacts. See GLIFWC wetland attachment for additional analysis and information.	A wetland monitoring plan would be developed and implemented if the NorthMet project is permitted. The plan would require wetland hydrology monitoring, vegetation monitoring, and wetland water quality monitoring to identify if indirect wetland impacts occur during implementation of the project. If indirect wetland impacts resulting from the project are determined by the monitoring program, compensatory wetland mitigation would be required for those indirect wetland impacts. Text revised throughout the mitigation/monitoring discussions to address comment.	GLIFWC does not agree with the co-lead disposition. Provide a link to the wetland section in the appendix.
GLIFWC 193	GLIFWC	5.2.3.3.4 Monitoring	The section on monitoring for indirect effects, specifically the 4 goals, are exactly the type of analysis that is required for a federal EIS. This information should have been an integral part of the effects analysis for this project and GLIFWC staff have been advocating for this approach for years. This information, collected after the fact, cannot be used in impact assessment and thus cannot help mitigate the effects of the proposed project.	A wetland monitoring plan would be developed and implemented if the NorthMet project is permitted. The plan would require wetland hydrology monitoring, vegetation monitoring, and wetland water quality monitoring to identify if indirect wetland impacts occur during implementation of the project. If indirect wetland impacts resulting from the project are determined by the monitoring program, compensatory wetland mitigation would be required for those indirect wetland impacts.	GLIFWC does not agree with the co-lead disposition. Provide a link to the wetland section in the appendix.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 216	GLIFWC	5.2.3.3.2 Wetland Mitigation and Contingency Mitigation	In discussing Financial Assurances there is no mention of the perpetual pump and treatment costs or liabilities for the mine. In reviewing various sections discussing Financial Assurances in no portion of the PSDEIS did authors identify: 1) annual projected operating costs for pollution control once the mine is closed including operation of the reverse osmosis system; 2) capital replacement costs and life cycle for pollution control infrastructure including piping, pumps, etc (i.e. What would have to be replaced every 10, 25, 50, 75 years and what would be the costs?); 3) and Net Present Value of the Financial Assurances (i.e. comparing the value of a dollar today to the value of that same dollar in the future). See GLIFWC socioeconomics attachment for additional information.	This comment appears to be addressing financial assurance in general and not just wetlands. Section 3 has a discussion on the project financial assurance. The level of detail provided in the SDEIS has been agreed upon by Co-Leads and with EPA. The details of the assurance will be developed during permitting. Section 3.2.2.4 provides a discussion of the financial assurance for the NorthMet Project Proposed Action.	ok
GLIFWC 184	GLIFWC	5.2.3.1.2 Potential Indirect Wetland Effects Methodology And Evaluation Criteria	The wetland sensitivity tables developed for the Crandon project in Wisconsin relied on a detailed understanding of the relationship between the surficial aquifer and the bottom of the wetland. That basic hydrologic information was never collected for this project therefore the significance criteria table is not necessarily applicable to NorthMet wetlands and its use in this context is not appropriate. See GLIFWC wetland attachment for additional information.	The wetland sensitivity tables in the Crandon mine project were used, though the Crandon project has different soils and hydrology than NorthMet, since it was decided and agreed upon in the IAP workgroup meetings. There is a general understanding on the NorthMet Project Mine Site of the general lack of connectivity of the surficial and bedrock aquifers, the soils present, the hydraulic conductivities, and the bedrock types (Barr 2006c; Barr 2008h; Barr 2010d). No text edit.	GLIFWC does not agree with the co-lead disposition. Provide a link to the wetland section in the appendix.
GLIFWC 187	GLIFWC	5.2.3.2.2 Mine Site And Transportation And Utility Corridor Indirect Wetland Effects	Based on information in the wetlands data package, we disagree with the assumptions used in defining if a wetland is fragmented or not. The method used in the PSDEIS would allow wetlands that have over 50% of their area filled to be classified as unimpacted by assuming that all of their hydrology depends on rainfall. This is not acceptable because filling a large percentage of a wetland disrupts the internal hydrologic regime and fragments the vegetation community in the wetland.	Fragmented wetlands are classified as indirect impact; however, fragmented wetlands are included in upfront mitigation. Total upfront mitigation is for the 912.5 acres of direct effects and 26.4 acres of fragmented wetlands (indirect effect). Tables have been revised to reflect this.	GLIFWC does not agree with the co-lead disposition. Provide a link to the wetland section in the appendix.
GLIFWC 183	GLIFWC	5.2.3.1.2 Potential Indirect Wetland Effects Methodology And Evaluation Criteria	The heading "Potential Indirect Wetland Effects Resulting from Changes in Hydrology" appears in both pages. Edit the title to specify how the sections are different.	Edited as suggested.	ok

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 186	GLIFWC	5.2.3.2.1 Mine Site And Transportation And Utility Corridor Direct Wetland Effects	Backfill of category 3 and 4 waste rock does not minimize or avoid wetland fill. That waste rock will be on the site for over 10 years and the wetlands in the footprint of the stockpile would be destroyed. What backfill does accomplish is provide an opportunity to create new wetlands in those locations. However, the high quality character of the existing wetlands will likely not be replaced.	Sentence revised. PolyMet proposes to mitigate wetland effects by placing waste rock back into the East Pit and Central Pit after year 11, thereby reducing the need for additional surface stockpile areas that would otherwise affect wetlands.	ok
GLIFWC 204	GLIFWC	5.2.3.3.4 Monitoring	It appears that wetland monitoring following restoration is only vegetative and hydrologic in nature. Total and methyl mercury should be monitored pre-project through post-reclamation to collect information on mercury levels and methylation rates and identify any necessary remedial actions.	Wetland monitoring following restoration would be vegetative and hydrologic in nature. Reference to water monitoring discussed in Section 5.2.2.3.6 was added. Water quality will be monitored downstream and piezometers will be located in the wetlands.	ok
5.2.5 Wildlife					
GLIFWC 205	GLIFWC	5.2.5 Wildlife - Throughout the section	The Wildlife Section (5.2.5) does not discuss mercury contamination. Similarly the Aquatic Species Section (5.2.6) does not discuss direct health impacts to aquatic species due to mercury. These impacts must be considered. See the	The Open Water discussion in Section 5.2.5.2.3 has been expanded to include discussion of the potential for wildlife exposure to mercury.	There is not enough information for us to remove our comment. Please add a link to the mercury section in the appendix
GLIFWC 207	GLIFWC	5.2.5.2.3 Species Of Greatest Conservation Need	The PSDEIS dismisses the possibility of waterfowl and waterbirds utilizing the tailings basin despite the fact that common waterfowl and waterbirds have been observed at the LTVSMC tailings basin during migration. The wetlands to be constructed over the East Pit and at the perimeter of the tailings basin are also not considered as potential waterbird/fowl habitat. We believe that there is a significant potential pathway of mercury exposure to these species from utilizing these sites. See the supplemental document "Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Comments Related to Mercury" [Comment 12] for further discussion.	The Open Water discussion in Section 5.2.5.2.3 has been expanded to more accurately describe the potential wildlife use of the Tailings basin, as well as the potential for exposure to mercury.	There is not enough information for us to remove our comment. Please add a link to the mercury section in the appendix
5.2.6 Aquatic Species					

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 206	GLIFWC	5.2.6 Aquatic Species - Throughout the section	The Wildlife Section (5.2.5) does not discuss mercury contamination. Similarly the Aquatic Species Section (5.2.6) does not discuss direct health impacts to aquatic species due to mercury. These impacts must be considered. See the supplemental document "Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Comments Related to Mercury" [Comment 11] for further discussion.	Mercury effects are being considered by the Co-leads and the SDEIS will be revised.	There is not enough information for us to remove our comment. Please add a link to the mercury section in the appendix
GLIFWC 208	GLIFWC	5.2.6 Aquatic Species	PSDEIS states there will be effects on flow in the Partridge R. and Embarrass R. tributaries, but that they are not expected to influence habitat. We feel that the water level fluctuations may be sufficient to impact habitat which could lead to changes in species composition or relative abundance which could in turn impact mercury foodweb dynamics. See the supplemental document "Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Comments Related to Mercury" [Comment 13] for further discussion.	The text of Paragraph 2 on page 5.2.6-1 has been revised to clarify why the proposed projects flow reductions are not expected to lead to community alterations citing a 2013 USGS document that indicates that streamflow modifications below 25% are used as a baseline study and that affects on algae, fisheries, and macroinvertebrates would not be measurable at this flow reduction rate.	There is not enough information for us to remove our comment. Please add a link to the mercury section in the appendix
GLIFWC 209	GLIFWC	5.2.6.2.2 Embarrass River Watershed	Many lakes and rivers in the area are classified as “impaired waters” by the MPCA due to elevated fish mercury. All additional increases in mercury contributions to the environment therefore constitute a risk to human and ecosystem health. There are numerous aspects of the proposed action cited in the PSDEIS that will lead to increased mercury releases to the environment, increasing human and ecosystem risk. Further, the PSDEIS documents and increased risk (i.e., risk quotient) to human fish conmumers as a direct result of the project. See the supplemental document "Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Comments Related to Mercury" [Comment 14] for further discussion.	Mercury effects are being considered by the Co-leads and the SDEIS will be revised.	There is not enough information for us to remove our comment. Please add a link to the mercury section in the appendix
5.2.7 Air Quality					

Chapter 5.2

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 203	GLIFWC	5.2.7.2.5 Mercury Deposition Impact Analysis	The estimate of air emissions of mercury as a result of the project (4.6 lbs/yr) does not take into account emissions from electricity gereration for the site or from the burning of fuel by mining vehicles or other equipment. This should be quantified and included in the analysis.	Mercury emissions were calculated for mining vehicles and included in the emission inventory. In addition, emissions from electric generation have been incorporated within the TMDL development, by reference. Thus, these emissions have been taken into account for MPCA's evaluation and determination that the Project mercury emissions will not impede the reduction goals.	There is not enough information for us to remove our comment. Please add a link to the mercury section in the appendix
GLIFWC 210	GLIFWC	5.2.7.2.5 Mercury Deposition Impact Analysis	According the PSDEIS, "the MPCA has conducted a review of the NorthMet Project Proposed Action mercury emissions and has determined that it will not impede the reduction goals." The mercury TMDL for the St. Louis River has not yet been established due to insufficient understanding of mercury dynamics in the watershed. It is known that the statewide TMDL is insufficient for reducing mercury to acceptable levels in fish of the SLR. Since there is no SLR mercury TMDL available, the impact of the project's mercury emissions on reduction goals in the area cannot be adequately assessed.	It is agreed that there is no specific TMDL for the St. Louis River system, however, until a specific TMDL is developed for this body of water, the Statewide TMDL is the driving regulation for all other water bodies within the state, including the St. Louis River.	Comment stands.
5.2.8 Noise and Vibration					

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 214	GLIFWC	5.2.8 Noise And Vibration	There is no cumulative analysis for noise vibration and airblast in the PSDEIS. Activities at existing facilities (Mesabi Nugget, Northshore) should be looked at in conjunction with the proposed NorthMet project. See GLIFWC noise and vibration attachment for more information.	In the absence of measured ambient sound data for receptors in the immediate vicinity of the Mine Site and Plant Site (except BWCAW), literature values from the USEPA Levels guideline document (USEPA 1974) were used to represent baseline levels in the areas (measured data have been provided for the BWCAW). Since the Northshore Mine is an existing facility, the ambient Leq assumed for receptors outside the Mine Site area (Figure 4.2.8-1 and Table 4.2.8-3) account for existing noise from the Northshore Mine located approximately 2 miles north of the Mine Site (see Section 4.2.8-2). The vibration associated with blasting at the Northshore mine is also already accounted for under baseline conditions. Similarly, the baseline noise and vibration conditions of all identified receptors near the Plant Site already capture or account for noise and vibration from the Mesabi Phase I Plant, which is an existing facility. Noise and vibration diminish with distance i.e., the impacts are reduced as the receptor distance to the source increase. The Mesabi Nugget Plant is approximately 1 mile and 8 miles away from the Plant Site and Mine Site respectively. Similarly, the Northshore Mine is approximately 2 miles and 11 miles away from the Mine Site and Plant Site, respectively. Project related noise plus baseline levels (which accounts for noise from other nearby existing sources/facilities) are provided in Table 5.2.8-7.	GLIFWC does not agree with the co-lead disposition.Lack of site specific data has not stopped the lead agencies from developing and using analog information for other resource areas (e.g. wetlands) While the appropriateness of analog data can be debated, the excuse of doing nothing because of a lack of data is not credible. Provide a link to the cumulative impact section in the appendix.
GLIFWC 212	GLIFWC	5.2.8.1.1 Noise	The methods used in the PSDEIS limit the analysis to selected locations defined as sensitive to noise. While thise locations may in fact be sensitive, concentrating on those few places for the analysis inappropriately eliminates an impact assessment of other areas. See GLIFWC noise attachment for more information.	A discussion of noise impacts to all publicly accessible areas in the Superior National Forest has been included. The USFS has provided shapefiles for all recreational sites within the project vicinity (family camp grounds, camp sites, boating, fishing, swimming, and family picnic areas). In addition to the residential areas, BWCAW, and wildlife corridors already discussed in the SDEIS, we have also included recreational sites, trails, and closest State wildlife waters (used by tribal members for harvesting purposes) in all the noise and vibration contour maps. A discussion of noise impacts to all publicly accessible areas in the SNF (i.e., recreational sites) has been included in the text in Section 4.2.8.2. Though not depicted on the noise and vibration figures due to sensitivity regarding cultural resources and locations, a discussion of the nearest archaeological sites (e.g., Spring Lake Sugarbush and Mesabe Widjiu [Laurentian Divide]) within the Project vicinity has been included in the text.	ok

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 213	GLIFWC	5.2.8.2 Northmet Project Proposed Action	A discussion of applicable standards is appropriate. However, significant impacts from a project can occur without violating standards if the change from baseline condition is large enough. A discussion of this type of impact is needed.	A discussion of impacts based on change from baseline condition is discussed in Section 5.2.8.2.3, Total Noise Effects from NorthMet Project Proposed Action Operations. See sub sections titled "Daytime Operations (7 p.m. to 10 p.m.)" and "Nighttime Operations (10 p.m. to 7 a.m.). Text regarding noise change from baseline conditions in Section 5.2.8.2.3 have been revised to accommodate the new noise modeling results that accounts for reduced baseline noise levels at BWCAW and audibility limits for the BWCAW.	ok
5.2.9 Cultural Resources					
GLIFWC 211	GLIFWC	5.2.9 Cultural Resources - Throughout the section	Increased mercury, especially in fish, could negatively impact cultural resources, especially for local Native American tribes who rely on fish as a major source of subsistence food and who view fishing and fish consumption as vitally important cultural and spiritual activities. This is not acknowledge in the PSDEIS. Further, fish harvest is a treaty reserved right of these tribes. The presence of mercury in fish at levels that restrict consumption threaten the ability of the tribes to exercise this treaty right.	The Co-lead Agencies recognize that mercury accumulation in fish is an important issue to the Bands. The effects of mercury in fish are acknowledged in the SDEIS; please refer to the discussions in Sections 4.2.6, 4.2.10, 5.2.6, and 5.2.10. Additional text has been added to section 5.2.9.	There is not enough information available to remove the comment.
GLIFWC 220	GLIFWC	5.2.9.2.2 Treaty Resources - "There is little specific information concerning the use of natural resources by the Bands in the NorthMet Project area. This likely reflects limited subsistence gathering in the NorthMet Project area due to general inaccessibility. T"is lack of data also...	The authors make assumptions that because there is no written record of tribal use that no use takes place. To access potential socioeconomic impacts, all treaty resources [i.e. animals, fish and plants identified in LAC COURTE OREILLES CHIPPEWA IND. v. STATE OF WIS. NO. 74-C-313. 653 F.Supp. 1420 (1987)] need to be assessed on lands being transferred to the Forest Service and Forest Service lands being sold including: 1) presence and absence, 2) distribution, and 3) population density. See GLIFWC socioeconomics attachment for additional information.	The Co-lead Agencies disagree with the assertion that there was a focus only on the written record. Oral interviews, field surveys, consultation, and other sources were used when determining contemporary tribal use of the proposed NorthMet Project area.	Comment stands.
5.2.10 Socioeconomics					

Chapter 5.2

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 215	GLIFWC	5.2 - Entire section	**It is essential that throughout the SDEIS authors need to repeatly state that Indirect and Induced Effect employment numbers are calculated by IMPLAN and may be temporary, part-time, full-time, long-term or short term jobs. It is also crititical to acknowledge estimates for full-time employment were provided by NorthMet. See GLIFWC socioeconomics attachment for additional information.	Section 5.2.10.1.3 contains this statement about type of jobs. Added a statement regarding the source of direct employment.	ok
GLIFWC 217	GLIFWC	5.2 Northmet Project Proposed Action	The Draft Environmental Impact Statement (DEIS) prepared in 2009 stated, "Due to the estimated 20-year operating life of the facility, it is estimated that approximately 55% of labor for the operations would be non-local and would relocated to the east range; 20% would commute daily or weekly from centeres such as Duluth; and the remaining labor would be local" DEIS (page 4.10-15). These two statements related to the same project give readers entirely different perspecitives on this project. This confusion is caused by including 3 counties in the "study area". Since the most recent IMPLAN modeling done in April 2012 was restricted to a single county (Lake), this section should be re-written to reflect the estimated labor that would relocated to the east range and the estimated labor that would commute from Duluth as done in the earlier DEIS for the estimated 360 direct operations-phase positions. Again authors need to state that Indirect and Induced Effect employment numbers are calculated by IMPLAN may be temporary, part-time, full-time, long-term or short term jobs. See GLIFWC socioeconomics attachment for additional information.	The DEIS definition of "local" appears to be limited to the East Range, essentially the nearby towns and cities in St. Louis County alone. By comparison, the PSDEIS clearly states that "local" workers--those who would commute daily or weekly--would come from a very wide commute shed, given the willingness of workers in this region to commute relatively long distances. The definitions of "local" are very different; therefore, no change is needed.	ok

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 218	GLIFWC	5.2.10.2.1 Population And Population Trends - "For purposes of this analysis, the SDEIS assumes that approximately 75 percent of direct and indirect operations phase employees would be local residents who would not need to relocate as a result of employment."	IMPLAN Modeling estimated that 112 of the 330 indirect jobs (i.e. temporary, part-time, full-time, long-term or short-term) would be in custom computer programming services (i.e. page 13, April 2012 IMPLAN report). Is it realistic to project 75 percent of the direct and indirect operations phase employees would be local residents given 33.9% of indirect jobs are in custom computer programming services? The basis for these estimates need to be explained and references used to base these estimates cited. See GLIFWC socioeconomics attachment for additional information.	Recall that "local" in this case is the commute-shed for the Project, which covers a wide area and several cities (Duluth, Hibbing, Virginia, etc.). As a high-level estimate, this is not unreasonable. No text edit.	ok
GLIFWC 219	GLIFWC	5.2.10.2.1 Population And Population Trends - Operations	The PSDEIS fails to provide a table entitled Anticipated Steady State Operation Employment Levels as provided in the 2009 Draft Environmental Impact Statement (DEIS)) - see pages 4.10-17 and 4.10-18 Table 4.10-13. This table was provided for the 448 direct jobs originally projected and categorized employment by: 1)Management, 2) Mine Operations - Contract supervision, operators, maintenance, 3) Mine Technical - Geology, grade control, planning, 4) Railroad Operations, 5) Plant Operations, 6) Sample Preparation and analytical laboratory, and 7) Finance, purhchasing, marketing, environmental, HR. A similar table is needed that would detail PolyMet's projected 360 full time direct jobs in the categories above. Without this data, it is impossible to evaluate the accuracy of the PSDEIS projections on employment and local hiring. See GLIFWC socioeconomics attachment for additional information.	The referenced table was produced by BBER as part of the IMPLAN model exercise. While useful to help explain the assumptions of the IMPLAN model, the table detailing the distribution of jobs by type is not a key finding of the SDEIS itself. Indeed, inclusion of the referenced table in the body of the SDEIS is not appropriate because it would distract the reader from the document's key findings about overall employment and other socioeconomic impacts of the NorthMet Proposed Project. This information is included in the IMPLAN report. Reference to IMPLAN report included.	ok

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 224	GLIFWC	6.2.1 Cumulative Effects Analysis Approach	The post-closure period is not correctly described. Closure in other sections of the document occurs from year 20 to year 40. Post closure is an open ended period after year 40. Because water treatment and facility maintenance needs at this project are perpetual, post-closure should be clearly defined here as year 40 to perpetuity.	For all resources, future temporal boundaries are the expected service life of the mining activities, including closure (years 20 to 40) and post-closure restoration (year 40 and beyond.)	ok
GLIFWC 225	GLIFWC	6.2.2.1.18 United Taconite	United Taconite facility is undergoing additional permit review due to their plans to fill over 1000 acres of wetland to expand the tailings basin. This would also contribute high sulfate water to the St. Louis river. The Corps and MPCA are currently involved in this work. Therefore, all appropriate information on this facility should be included in the cumulative effect analysis.	The Co-lead agencies believe that the cumulative wetland impact assessment area as defined in the wetlands work plan is sufficient to meet the requirements of NEPA and is appropriate for the NorthMet project EIS because it includes the watersheds in which the proposed direct and indirect wetland impacts would occur. For the NorthMet project, that would be the Embarrass River watershed and the Partridge River watershed. In addition, the Co-lead agencies included direction in the Final Wetland Resources IAP Summary Memo on how to identify the amount of wetland acreage below the OHWM within this part of the St. Louis River and to evaluate the potential for cumulative indirect wetland impacts in those wetlands from changes in flow in the St. Louis River based on the qualitative water flow evaluation to be conducted. No other direct or indirect NorthMet project impacts would occur in the St. Louis River watershed, and the Co-Lead Agencies do not believe that a cumulative wetland impact assessment needs to be conducted for the entire St. Louis River watershed for the environmental review of the Proposed PolyMet NorthMet project. The Co-lead agencies believe that a qualitative evaluation of cumulative wetland impacts on water quality in the Partridge River watershed and the Embarrass River watershed, including impaired waterbodies, should be included in the cumulative water quality impacts section of the SDEIS.	GLIFWC disagrees with the co-lead disposition. Provide a link to the cumulative impact section of the appendix.
GLIFWC 226	GLIFWC	6.2.2.1.21 Speculative Actions	Provide a map of the speculative projects and indicate in the text the potentially affected watershed for each project.	The speculative projects are provided for disclosure purposes only, and the locations of several of these projects are not known. No text edit.	GLIFWC disagrees with the co-lead disposition. Provide a link to the cumulative impact section of the appendix.
GLIFWC 227	GLIFWC	6.2.3.3 Water Resources	Impacts to dewatered wetlands should be mentioned in this section.	Section 6.2.3.3.3 discusses cumulative effects on hydrology. Section 6.2.3.4 discussed cumulative effects on wetlands.	GLIFWC disagrees with the co-lead disposition. Provide a link to the cumulative impact section of the appendix.

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 228	GLIFWC	6.2.3.3.1 Cumulative Effects Assessment Areas	The section should state that water quality standards are met only with perpetual water treatment and maintenance.	The following paragraph has been added to Section 5.2.2 - Summary: The Closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual.	GLIFWC disagrees with the co-lead disposition. Provide a link to the perpetual maintenance section of the appendix.
GLIFWC 229	GLIFWC	6.2.3.3.1 Cumulative Effects Assessment Areas	The limited water quantity and quality data has been as issue for 7 years since the beginning of the project. The lead agencies and the applicant have been resistant to fill these data gaps. See GLIFWC hydrology attachment for further detail.	The 20 year old flow data is acceptable as there haven't been any significant changes within the watershed. Additional water quality sampling has been conducted and the results included in this PSDEIS (Section 4.2.2). No text edit.	GLIFWC disagrees with the co-lead disposition. Provide a link to the hydrology section of the appendix.
GLIFWC 230	GLIFWC	6.2.3.3.2 Cumulative Actions	Add United Taconite to the list.	Disagree. The analysis in Section 6.2.3.3 includes existing and potential future actions that have the potential, in combination with the NorthMet Project Proposed Action, to cumulatively affect surface water hydrology and quality within the Partridge River and Embarrass River watersheds. The United Taconite mine is outside the analysis area as the six permitted mine pit dewatering discharges all discharge to the St. Louis River Basin. No text edit.	GLIFWC disagrees with the co-lead disposition. Provide a link to the cumulative impact section of the appendix.
GLIFWC 231	GLIFWC	6.2.3.3.3 Cumulative Effects On Hydrology - Embarrass River	Should not assume that the passive treatment will prove effective. Change language to "...if passive treatment proves effective...	No text change needed. The NorthMet Project Proposed Action would rely upon mechanical treatment to achieve water resource objectives as long as needed; however, the goal would be to transition to non-mechanical treatment to ensure attainment of water resources objectives, including compliance with applicable groundwater and surface water standards, during the closure phase.	GLIFWC disagrees with the co-lead disposition. Provide a link to the perpetual maintenance section of the appendix.
GLIFWC 232	GLIFWC	6.2.3.3.4 Cumulative Effects On Surface Water Quality - Partridge River Section	The section states that all water quality evaluation criteria would be met. The section should clearly state that that assumption is based on the successful operation of water capture and water treatment systems in perpetuity. In addition, evaluation criteria are not the same as water quality standards. Water quality standards would be exceeded for several constituents. The same comment applies to the assumptions in the sulfate and mercury sections.	The SDEIS is comparing water quality predictions against water quality evaluation criteria. We acknowledge that the evaluation criteria could differ from water quality standards.	ok
GLIFWC 233	GLIFWC	6.2.3.3.4 Cumulative Effects On Surface Water Quality - Embarrass River	The river is on the draft 2012 303d list for sulfate. Correct the text.	Text revised to clarify the current status of 303(d) listings.	ok

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Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 234	GLIFWC	6.2.3.3.4 Cumulative Effects On Surface Water Quality	Reduction in sulfate loads depend on perpetual capture and treatment of water. Include this caveat.	The following paragraph has been added to Section 5.2.2 - Summary: The Closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual.	GLIFWC disagrees with the co-lead disposition. Provide a link to the perpetual maintenance section of the appendix.
GLIFWC 235	GLIFWC	6.2.3.4.4 Cumulative Effects Assessment - Partridge River watershed section	The section states that lake acreage has increased by 19% compared to pre settlement times. Are these lakes natural, impoundments/flowages, or flooded mine pits? Should specify in the text. If these new waters are mine pits, we disagree with their characterization as "resources" because of their contaminated nature. In addition, many of the impacted wetlands are part of the 100 mile swamp system A detailed discussion of the ecological significance of this wetland complex is needed as well as the overall effect of fragmenting the complex.	Pre-settlement conditions were identified using NWI and GLO survey maps, while existing conditions were determined using delineations, NWI maps, NHD shapefiles, and MDNR Mining features (2009 shapefile). The 19% increase in lakes between pre-settlement and existing conditions stems from the increase in size of White Water Reservoir (increase of 314 acres) and areas classified as lake in the NHD shapefile. When calculating pre-settlement, existing, and future lakes, no deepwater habitats/mine pits were included; these would fall under the deepwater category. The potential effects to the wetlands within the 100 mile swamp are discussed in Chapter 5.	ok
GLIFWC 236	GLIFWC	6.2.3.3.4 Cumulative Effects On Surface Water Quality - Embarrass river watershed section	Same comments an above for the Partridge River section. In addition, this section should provide a description of the wetlands impacted by seepage from the LTV tailings basin.	Section 6.2.3.3.3 discusses cumulative effects on hydrology. Section 6.2.3.4 discussed cumulative effects on wetlands.	The co-lead disposition does not answer the comment.
GLIFWC 237	GLIFWC	6.2.3.4.3 Cumulative Actions	The XP-SWMM model uses antiquated data collected from far downstream of the site. The model is fatally flawed and yields unreliable results. The conclusion that no effects would occur on riparian wetlands is not supportable. See GLIFWC hydrology attachment for more detail.	We believe the XP-SWMM modeling is acceptable for use in the SDEIS. The 20 year old data is acceptable as there haven't been any significant changes within the watershed. We believe the assumptions used were reasonably conservative. Additional detail is provided in the water sections of the SDEIS, and further rationale is provided in the Water Data Packages.	GLIFWC disagrees with the co-lead disposition. Provide a link to the hydrology section of the appendix.

Chapter 6

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 238	GLIFWC	6.2.3.6.4 Cumulative Effects Assessment - Wildlife travel corridors	The corridor southeast of the plant site is characterized as poor. Therefore the discussion in the section is misleading because this is not in fact a viable wildlife corridor. It should then be removed from the corridor list and removed from the map. In addition, cumulative effects from noise and vibration are not analyzed and would have a significant impact on wildlife corridors (See GLIFWC noise attachment for more detail) Finally, the conclusions should be revisited in light of fewer corridors along the range than originally identified.	The Emmons and Oliver report characterizes this corridor as small but important. The Barr Report on wildlife corridors states that the current LTVSMC Tailings Basin is located within the moderate quality habitat corridor. Neither of these studies classifies the corridor as poor quality, though Section 6.2.3.6.4 describes the Tailings Basin, which is within(but not occupying the entire width of the corridor, as being of poor quality for wildlife travel. The text will be edited for additional clarity.	ok
GLIFWC 239	GLIFWC	6.2.3.7.4 Cumulative Effects Assessment - Cumulative water quality effects	The conclusion of no cumulative effect depends on perpetual water capture and treatment as well as perpetual maintenance of the facilities that would remain after the end of mining. We believe that this is not a realistic assumption and that it short-circuits the evaluation of cumulative effects. In addition, evaluation criteria are not the same as water quality standards. Water quality standards would be exceeded for several constituents.	The Closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual. Co-leads agree that evaluation criteria are not the same as water quality standards (for some constituents). The SDEIS is comparing water quality predictions against water quality evaluation criteria. We acknowledge that the evaluation criteria could differ from water quality standards.	GLIFWC disagrees with the co-lead disposition. Provide a link to the perpetual maintenance section of the appendix.
GLIFWC 240	GLIFWC	6.2.3.7.4 Cumulative Effects Assessment - Physical habitat effects	As previously stated, the conclusion of no changes to flows in the Partridge River is based on fatally flawed XP-SWMM modeling. This conclusion is not supported.	We believe the XP-SWMM modeling is acceptable for use in the SDEIS. The 20 year old data is acceptable as there haven't been any significant changes within the watershed. We believe the assumptions used were reasonably conservative. Additional detail is provided in the water sections of the SDEIS, and further rationale is provided in the Water Data Packages.	GLIFWC disagrees with the co-lead disposition. Provide a link to the hydrology section of the appendix.
GLIFWC 241	GLIFWC	6.2.3.8.10 Climate Change	A discussion of the effects of wetland destruction is needed in this section. The discussion should include the release of carbon to the atmosphere from wetland and peat excavation as well as the loss of carbon sequestration capacity of the existing high quality wetlands.	Agreed. The direct GHG estimated emissions will be revised in the text and in Table 6.2-20 as discussed in Comment # FDL 77.	ok

Chapter 6

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 242	GLIFWC	6.2.3.8.11 Noise And Vibration	This section does not provide a cumulative assessment of noise impacts. For example the section should identify areas of national forest and forest service roads that would be subjected to noise plus airblast effects. Another example, what acreage of publicly accesible lands would be withing the noise and vibration / airblast zone. Reliance on an few receptors is not a proper way to conduct an analysis of noise impacts. See GLIFWC noise attachment for more detail.	The only reasonably foreseeable actions that could interact in such a way as to have a cumulative effect on the receptors identified in Sections 4.2.8 and 5.2.8 is the Mesabi Nugget Phase II Mine Project located approximately 2 miles west of the Plant Site and 10 miles west of the Mine Site. Other reasonable foreseeable projects in the region are 25 to 55 miles away from the NorthMet Project and as such, would have no cumulative effect on nearest receptors (see Figure 6.2.2-1 and Table 6.2-1). Noise from existing industries (logging, mining, etc.) have been accounted for in the baseline noise levels discussed in Section 4.2.8 and 5.2.8. Section 6.2.3.8.11 has been revised to assess the cumulative impact of the Mesabi Phase II Mine Project. The maximum impact area for noise (11,456 acres), ground vibration (11,469 acres), and airblast (11,334 acres) are discussed in Section 5.2.8.	GLIFWC disagrees with the co-lead disposition. Provide a link to the cumulative impact section of the appendix.
GLIFWC 243	GLIFWC	6.2.3.11.4 Cumulative Effects Assessment - Visual Resources	A calculation of the viewshed for the water vapor plumes and night visibility of tower lights should be developed and included. Are these features visible from public access points?	This comment belongs in Section 5.2.11, not here, since it is a primary impact of the operations themselves, and not cumulative with other resources. Please see response in Recreation/Visual spreadsheet. Response in this section to be developed based on language to be added to Section 5.2.11.	ok
GLIFWC 244	GLIFWC	6.2.3.3.4 Cumulative Effects On Surface Water Quality	There is a general lack of understanding of mercury dynamics in the St. Louis River Watershed. See the supplemental document "Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Comments Related to Mercury" [Comment 1] for details.	The Co-leads agree that the mercury dynamics are complex; however, the analysis as presented indicated that there was minimal potential for a downstream increase in mercury loading	GLIFWC disagrees with the co-lead disposition. Provide a link to the mercury section of the appendix.

Chapter 7

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 245	GLIFWC	7.2.4 Comparison Of Effects	As previously commented, the PSDEIS does not provide an adequate comparison of effects for water quality and water quantity. The assumption that the no action alternative is equivalent to a continuation of existing conditions leads to errors in water quality modeling. In addition, a lack of usable water quantity and flow data lead to conclusions that cannot be supported.	Refer to the water section and response to comments with respect to the suitability of the water quantity and flow data, and a discussion on the purpose and intent of the water modeling scenarios. Further clarity on these modeling scenarios is provided in Chapter 5.2.2	GLIFWC disagrees with the co-lead disposition. Provide a link to the hydrology section of the appendix.
GLIFWC 246	GLIFWC	7.2.4 Comparison Of Effects - water resources section	99.9% capture is not realistic and is not supported by text in other sections of the SDEIS.	Greater than 90% of water would be captured and treated to meet effluent limits set to meet water quality standards	ok
GLIFWC 247	GLIFWC	7.2.4 Comparison Of Effects - water resources section	GLIFWC staff disagree with second and third bullets of combined proposed action. Standard is exceeded for sulfate and there is not enough information in the document to reach a conclusion on mercury.	The GoldSim results do not indicate an exceedance of the waters supporting the production of wild rice sulfate standard pursuant to the MPCA staff recommendation. Mercury is addressed in the air and water sections (Section 5.2.2 and 5.2.7) as well as in aquatic resources (5.2.6)	Data collected at SW005 indicates that the standard is exceeded for some measurements. GOLDSIM is not properly calibrated and therefore is not able to reproduce existing conditions. Provide a link to the hydrology section in the appendix.
GLIFWC 248	GLIFWC	7.2.4 Comparison Of Effects - aquatic species section	The claim of a decrease in mercury loading is not suportable. See GLIFWC mercury attachment	The aquatic species summary points in the SDEIS table have been revised and does no longer include the mercury loading conclusion commented on.	ok
GLIFWC 249	GLIFWC	7.2.4 Comparison Of Effects - air quality and climate change	Combined proposed action would create a pulse of carbon through the exposure of peat. There would also be a loss of carbon sequestration potential due to the destruction of wetlands.	Acknowledge partial loss of carbon sink and release of stored carbon from wetlands destruction. The text has been updated to address carbon release in the wetland summary section of the table	ok pending review of the new language.
GLIFWC 250	GLIFWC	7.2.4 Comparison Of Effects - noise	Use of receptors to limit analysis is not appropriate. In addition no cumulative assessment is available. See GLIFWC noise attachment for more information.	A discussion of noise impacts to all publicly accessible areas in the Superior National Forest has been included in the noise section of Chapter 5 (Section 5.2.8).	ok
GLIFWC 251	GLIFWC	7.2.4 Comparison Of Effects - socioeconomics	biased information. There is no discussion of expected adverse effects.	See discussion in Section 5.2.10.14.	Information presented in the Freudenberg paper should be described here. The comment stands.

Chapter 7

Comment_No.	Agency	Section	Comment	Co-Lead Disposition	GLIFWC Response
GLIFWC 252	GLIFWC	7.3.1 Irreversible Or Irretrievable Commitment Of Resources	GLIFWC disagrees with the statement indicating no exceedance of water quality standards. The document indicates that standards would be exceeded.	As described in the SDEIS, the evaluation criteria do use the standards, but interpret the standards from a probabilistic perspective. The P90 approach for assessing compliance is a reasonable method for applying the results of probabilistic modeling to regulatory decision making. In this context, it is not appropriate to say that "a constituent will exceed a water quality standard". It is more accurate to say that "there is at least a 90 percent probability that a constituent will not exceed a standard (or up to a 10 percent probability that it will)". These quoted statements are very different.	GLIFWC disagrees with the co-lead disposition. Provide a link to the perpetual maintenance section of the appendix.
GLIFWC 253	GLIFWC	7.3.1 Irreversible Or Irretrievable Commitment Of Resources	Section should state that the NorthMet project would require maintenance and water treatment in perpetuity which constitutes and irreversible and irretrievable commitment of resources.	The Closure objective is to provide mechanical and non-mechanical treatment for as long as necessary to meet regulatory standards at evaluation locations in groundwater and surface water. Both mechanical and non-mechanical treatment will require periodic maintenance and monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames for water treatment are not necessarily perpetual.	GLIFWC disagrees with the co-lead disposition. Provide a link to the perpetual maintenance section of the appendix.
GLIFWC 254	GLIFWC	7.3.2 Short-term Uses Versus Long-term Productivity Of The Environment	section does not appear to have been updated from information presented in the 2009 DEIS. It still talks about categore 3 and 4 permanent stockpiles. Correct the text.	The section has been updated and does not talk about permanent category 3 and 4 stockpiles. Extra detail has been added to the section to help make it clear that the Category 2/3 and 4 Stockpiles will be removed and backfilled into the East Pit/	ok
GLIFWC 255	GLIFWC	7.3.2 Short-term Uses Versus Long-term Productivity Of The Environment	wetland impacts would not be short term. Restoration of wetlands is not likely to replace the high quality wetlands found at the site. In addition water quality impacts are long term because treatment would be needed in perpetuity.	The sentence commented on has been clarified. The Co-leads consider that the potential wetland impacts as described in the section would be short-term because impacts would be mitigated and monitored. Additional information on impacts, mitigation and monitoring of wetlands is provided in chapter 5.2.3.	GLIFWC disagrees with the disposition of the comment. It is not likely that mitigaion will be able to replace the functions of the high quality wetlands that would be destroyed at the mine site.
GLIFWC 256	GLIFWC	7.3.3 Unavoidable Adverse Effects	GLIFWC staff disagree with the claim that new exceedances of relevant standards would not occur. Water quality standards will be exceeded. Perpetual water treatment and perpetual maintenance needs are residual practical effects of the proposed project.	As described in the SDEIS, the evaluation criteria do use the standards, but interpret the standards from a probabilistic perspective. The P90 approach for assessing compliance is a reasonable method for applying the results of probabilistic modeling to regulatory decision making. In this context, it is not appropriate to say that "a constituent will exceed a water quality standard". It is more accurate to say that "there is at least a 90 percent probability that a constituent will not exceed a standard (or up to a 10 percent probability that it will)". These quoted statements are very different.	The response does not address the fact that if standards are met, it will require perpetual treatment. Provide a link to the perpetual maintenance section in the appendix.

Appendix D

Biological Assessment and Biological Evaluation

Biological Assessment

U.S. Army Corps of Engineers
St. Paul, Minnesota

U.S. Department of Agriculture Forest Service
Laurentian Ranger District
Superior National Forest
Aurora, Minnesota

Biological Assessment for the Proposed NorthMet Project and Land Exchange

April 2015

Biological Assessment

NorthMet Project and Land Exchange

U.S. Army Corps of Engineers
St. Paul, Minnesota

U.S. Department of Agriculture Forest Service
Laurentian Ranger District
Superior National Forest
Aurora, Minnesota

April 2015

Executive Summary

Poly Met Mining Inc. (PolyMet) proposes to construct an open pit mine in northern Minnesota to extract low- to medium-quality copper-nickel-PGE minerals with low sulfide content. . This project, called the NorthMet Project (Project), is located in St. Louis County on the eastern end of the Mesabi Iron Range, about 60 miles north of the City of Duluth, and 6 miles south of the City of Babbitt, Minnesota. The Project areas include the Mine Site (3,015 acres), Plant Site (4,515 acres), and Transportation and Utility Corridors (120 acres) that connects the Mine Site to the Plant Site.[1]

PolyMet plans to mine and process polymetallic ore from the northwestern portion of the Duluth Complex, a rock formation that forms much of the bedrock of northeastern Minnesota. The ore contains copper, nickel, gold, platinum, palladium, and cobalt. The Project would mine ore for approximately 20 years, using open pit mining methods similar to those currently in use at ferrous metallic mining operations on the Iron Range. The Plant Site was previously used as a taconite processing facility by the LTV Steel Mining Company (LTVSMC). PolyMet would upgrade existing facilities and construct new facilities to produce copper concentrates, nickel concentrates, and base and precious metal precipitates for off-site shipment and treatment. Tailings from ore processing would be placed in a tailings basin built atop the existing LTVSMC taconite tailings basin.

The Mine Site is used by wildlife, including Canada lynx (lynx), gray wolf (wolf), northern long-eared bat, and other species of concern to federal and state agencies. A 2014 Forest Service study also confirmed that northern long-eared bats utilize the Plant Site and Utility Corridor (USDA Forest Service 2014a). About 1,719 acres of the Mine Site would be directly disturbed by mining activities. Of these, 1,667 acres are administered by the Forest Service and 52 acres are privately owned. Habitats that would potentially be affected by the Project include coniferous forest (comprised primarily of black spruce[2], jack pine, tamarack, and balsam fir), deciduous forest (comprised primarily of trembling aspen and paper birch), mixed coniferous/deciduous forest, riparian (dominated by speckled alder, red-osier dogwood, and willow), and wetland (dominated by sedges, cattail, bog Labrador-tea, leatherleaf, and sphagnum moss).

Of the approximately 3,015 acres on the Mine Site, approximately 2,719 acres are owned by the United States (U.S.) Government (Government) and administered by the U.S. Department of Agriculture (USDA) Forest Service (Forest Service). In addition, about 3,776 acres adjacent to the Mine Site are owned by the Government and administered by the Forest Service.

The Forest Service is considering transferring approximately 6,495 acres (federal lands) to PolyMet in exchange for lands (non-federal lands) of similar value that have been offered for consideration by PolyMet. All lands potentially involved in the land exchange would be independently appraised according to the Uniform Appraisal Standards for Federal Land Acquisitions. The appraisals would determine the market value of the properties.

---

[1] Acreages given in this report are based on Geographic Information System (GIS) analysis. Acreages associated with the legal descriptions of the lands are based on original surveys performed by the Bureau of Land Management, Government Land Office (GLO) surveyors between 1858 and 1907. As such, GLO acreages are used as part of the project description for the Final Environmental Impact Statement (FEIS being prepared for the Project and would also be used to define the real estate transaction if the Land Exchange Proposed Action was approved. The analysis of effects presented in this Biological Assessment (BA) is based upon GIS data. GIS values indicate the actual size of the lands discussed in this BA, which may be different than the GLO legal acreage.

[2] Common and scientific names of plants and animals given in this report are provided in **Appendix A**.

Information collected during wildlife and wetland functions and values studies would be used by the Forest Service in the land exchange appraisal, and would be used to evaluate impacts to wetlands, and wildlife and their habitats, for a Final Environmental Impact Statement (FEIS) for the Project and land exchange.

Assuming a land exchange occurs, the portions of the Mine Site, Dunka Road and Utility Corridor, and lands adjacent to the Mine Site that are administered by the Forest Service would no longer be part of the National Forest and therefore would not be subject to Forest Service management plans and policies. A land exchange for land adjustment is consistent with the 2004 *Land and Resource Management Plan for the Superior National Forest*.

To fulfill land exchange requirements, PolyMet is proposing to purchase and transfer all or a portion of 7,075 acres of non-federal lands to the Forest Service. The non-federal lands consist of Hay Lake Lands (4,926 acres), Hunting Club Lands (160 acres), Lake County Lands (382 acres), McFarland Lake Lands (31 acres), and Wolf Lands (1,576 acres). All lands are dominated by second-growth deciduous and coniferous forest habitats and a variety of wildlife, including lynx, wolf, and other species of concern, have been observed on or near the non-federal lands.

Assuming a land exchange occurs, the non-federal lands would be administered by the Forest Service. The non-federal lands are associated with four Forest Plan Management Areas, as designated by the Forest Service, which include General Forest, General Forest – Longer Rotation, Riparian Emphasis Area, and Candidate Research Natural Areas. If all or portions of the non-federal lands are acquired by the Forest Service, they would be administered by the Forest Service to meet the goals of these management areas.

The Project would directly impact an estimated 913 acres of wetlands, including about 758 acres at the Mine Site, 147 acres at the Plant Site, and 7.5 acres within the transportation corridors. PolyMet is proposing to purchase 2,169 acres (Wetland Mitigation Sites) as mitigation for wetland impacts from the Project. On the Wetland Mitigation Sites, 1,603 acres would be restored or converted to wetlands and 197 acres would be used as upland buffer.

Section 7 of the federal Endangered Species Act (ESA) requires that federal agencies "insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat of such species." The U.S. Army Corps of Engineers (USACE), Minnesota Department of Natural Resources (MDNR) and Forest Service are co-lead agencies for an FEIS that is evaluating the impacts of the Project on federally listed species and other natural, cultural, and social resources. This Biological Assessment (BA) is prepared in accordance with the ESA and analyzes potential effects to federally listed threatened and endangered species, and species proposed for listing, and their designated critical habitats, as a result of the Project.

The lynx is a federally listed threatened species that has been sighted on and near the Project area. In the Great Lakes region, the lynx is found primarily in mixed forest habitats where snowshoe hare are common. On March 24, 2000, the lynx was federally listed as a threatened species in several states in the Northeast, Great Lakes Region (including Minnesota), and Southern Rockies. On November 9, 2006, the U.S. Department of the Interior (USDOI), U.S. Fish and Wildlife Service (USFWS), designated 319 square miles (mi^2) as critical habitat in Voyageurs National Park. On February 25, 2009, the USFWS re-designated lynx critical habitat to include portions of Cook, Koochiching, Lake, and St. Louis Counties, including most of the federal lands and all of the non-federal lands. A total of 8,065 mi^2 were designated as critical habitat in Minnesota in 2009. The Wetland

Mitigation Sites are not included within designated critical habitat. The federal and non-federal lands and Wetland Mitigation Sites are located near the western edge of the lynx's range in the Great Lakes region. Lynx and/or their sign have been observed on or near the federal and non-federal lands.

The northern long-eared bat is a federally listed threatened species. The listing of the northern long-eared bat as a threatened species was determined by the USFWS on April 2, 2015 (USFWS 2015) The USFWS also announced interim 4(d) rules concurrent with the listing determination. However, the USFWS has deferred designation of critical habitat for northern long-eared bat to a later date.

The wolf was federally listed as an endangered species under the ESA in 1974, and was reclassified as threatened in 1977. On December 28, 2011, the wolf was delisted by the USFWS. However, on December 19, 2014, a federal court reversed the USFWS decision to delist the gray wolf, restoring federal threatened status and critical habitat designation in Minnesota. Approximately 9,800 mi^2 were identified as critical habitat for wolves in Minnesota. The federal and non-federal lands are within, but the Wetland Mitigation Sites are outside, the designated critical habitat zone.

The USACE and Forest Service have initiated consultation with the USFWS seeking concurrence with the determination of effects in this BA. Based on the analysis in this BA, the Project would affect lynx, and those effects would not be insignificant or discountable. Thus, the Project **is likely to adversely affect** Canada lynx. The Project would also directly affect about 1,719 acres of lynx critical habitat within the Mine Site. While project lands are rarely used by lynx, the Project would affect only about 0.03% of lynx designated critical habitat in Minnesota, including Primary Constituent Elements (PCEs) of lynx critical habitat. Suitable lynx habitat could be restored on about 397 acres that would be reclaimed after mining, but due to the time inherent in the successional process, it could be 10 or more years after mining before revegetation results in much suitable habitat for lynx. Thus, the Project **is likely to adversely affect** Canada lynx critical habitat.

Based on analysis in this BA, the Project is **likely to adversely affect the northern long-eared bat.** This because of the potential loss of available summer roost habitat. . There is no effect determination on northern long-eared bat critical habitat, because the USFWS has not designated critical habitat for the species. .

Based on the analysis in this BA, the Project would affect gray wolves, and those effects would not be insignificant or discountable. Thus the Project **is likely to adversely affect gray wolves**. The Project would directly affect approximately 1,719 acres of gray wolf critical habitat. The 1,719 acres directly affected by the Project are about 0.03% of the over 6.3 million acres of wolf critical habitat in Minnesota, but include PCEs for wolf critical habitat. Approximately 397 acres of disturbed lands would be reclaimed after mining and could provide suitable gray wolf habitat 10 to 20 years after mining. Thus, the Project **is likely to adversely affect** gray wolf critical habitat.

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List of Acronyms

ANFO	Ammonium Nitrate and Fuel Oil
BA	Biological Assessment
Barr	Barr Engineering, Inc.
BO	Biological Opinion
BWCAW	Boundary Waters Canoe Area Wilderness
CESA	Cumulative Effects Study Area
C.F.R.	Code of Federal Regulations
dbA	A-weighted decibels
dbh	Diameter-at-breast-height
DPS	Distinct Population Segment
e.g.	Exempli gratia, meaning “for example”
EIS	Environmental Impact Statement
ESA	Endangered Species Act
EIS	Environmental Impact Statement
etc.	et cetera
FEIS	Final Environmental Impact Statement
Forest Service	U.S. Forest Service
FTB	Flotation Tailings Basin
GAP	Gap Analysis Program
GIS	Geographic Information System
GLO	Government Land Office
Government	U.S. Government
HRF	Hydrometallurgical Residue Facility
i.e.	in otherwords
km^2	square kilometers
kV	kilovolts
LAU	Lynx Analysis Unit
LTVSMC	LTV Steel Mining Company
mi^2	Square miles
MIH	Management Indicator Habitat
mg/l	milligrams per liter
MDNR	Minnesota Department of Natural Resources
MPCA	Minnesota Pollution Control Agency
n	number
NA	Not Applicable
NMFS	National Marine Fisheries Service
NRRI	Natural Resources Research Institute
OML	Objective Maintenance Level
PCE	Primary Constituent Elements
PolyMet	Poly Met Mining Incorporated
Project	NorthMet Project
ROW	Rights-of-Way
SNF	Superior National Forest

SEIS	Supplemental Environmental Impact Statement
SUV	Sports Utility Vehicle
SWPPP	Stormwater Pollution Prevention Plan
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDOI	U.S. Department of the Interior
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service

1.0 Introduction

1.1 Overview

Poly Met Mining Inc. (PolyMet) proposes to construct an open pit mine in northern Minnesota to extract low- to medium-quality copper-nickel-PGE minerals with low sulfide content. . This project, called the NorthMet Project (Project), is located in St. Louis County on the eastern end of the Mesabi Iron Range, about 60 miles north of the City of Duluth, and 6 miles south of the City of Babbitt, Minnesota. The Project areas include the Mine Site (3,015 acres), Plant Site (4,515 acres), and Transportation and Utility Corridors (120 acres) that connect the Mine Site to the Plant Site[3] (**Figure 1**).

PolyMet plans to mine and process polymetallic ore from the northwestern portion of the Duluth Complex. The Duluth Complex is an ore complex that forms much of the bedrock of northeastern Minnesota. The ore contains copper, nickel, gold, platinum, palladium, and cobalt. The Plant Site was previously used as a taconite processing facility by the LTV Steel Mining Company (LTVSMC). PolyMet would upgrade existing facilities and construct new facilities to produce copper concentrates, nickel concentrates, and base and precious metal precipitates for off-site shipment and treatment.

The Mine Site is used by wildlife, including Canada lynx (lynx), gray wolf (wolf), the northern long-eared bat, and other species of concern to federal and state agencies. About 1,719 acres of the Mine Site would be directly disturbed by mining activities. Of these, 1,667 acres are administered by the Forest Service and 52 acres are privately owned. Habitats that would potentially be affected by the Project include coniferous forest (comprised primarily of black spruce[4], jack pine, tamarack, and balsam fir), deciduous forest (comprised primarily of trembling aspen and paper birch), mixed deciduous/coniferous forest, riparian (dominated by speckled alder, red-osier dogwood, and willow), and wetland (dominated by sedges, cattail, bog Labrador-tea, leatherleaf, and sphagnum moss). The Transportation and Utility Corridors are mostly disturbed lands and is little used by wildlife. The Plant Site has been operated as an industrial facility for decades, and also has little value to wildlife.

Of the approximately 3,015 acres on the Mine Site, approximately 2,719 acres are owned by the United States (U.S.) Government (Government) and administered by the U.S. Department of Agriculture (USDA) Forest Service (Forest Service). In addition, about 3,776 acres adjacent to the Mine Site are owned by the Government and administered by the Forest Service.

---

[3] Acreages given in this report are based on Geographic Information System (GIS) analysis. Acreages associated with the legal descriptions of the lands are based on original surveys performed by the Bureau of Land Management, Government Land Office (GLO) surveyors between 1858 and 1907. As such, GLO acreages are used as part of the project description for the Final Environmental Impact Statement (FEIS) being prepared for the Project and would also be used to define the real estate transaction if the land exchange was approved. The analysis of effects presented in this Biological Assessment (BA) is based upon GIS data. The GIS values indicate the actual size of the lands discussed in this BA, which may be different than the GLO legal acreage.

[4] Common and scientific names of plants and animals given in this report are provided in **Appendix A**.

The Forest Service is considering transferring approximately 6,495 acres (federal lands) to PolyMet in exchange for lands (non-federal lands) of similar value that have been offered for consideration by PolyMet. Assuming a land exchange occurs, the portions of the Mine Site, Dunka Road and Utility Corridor, and

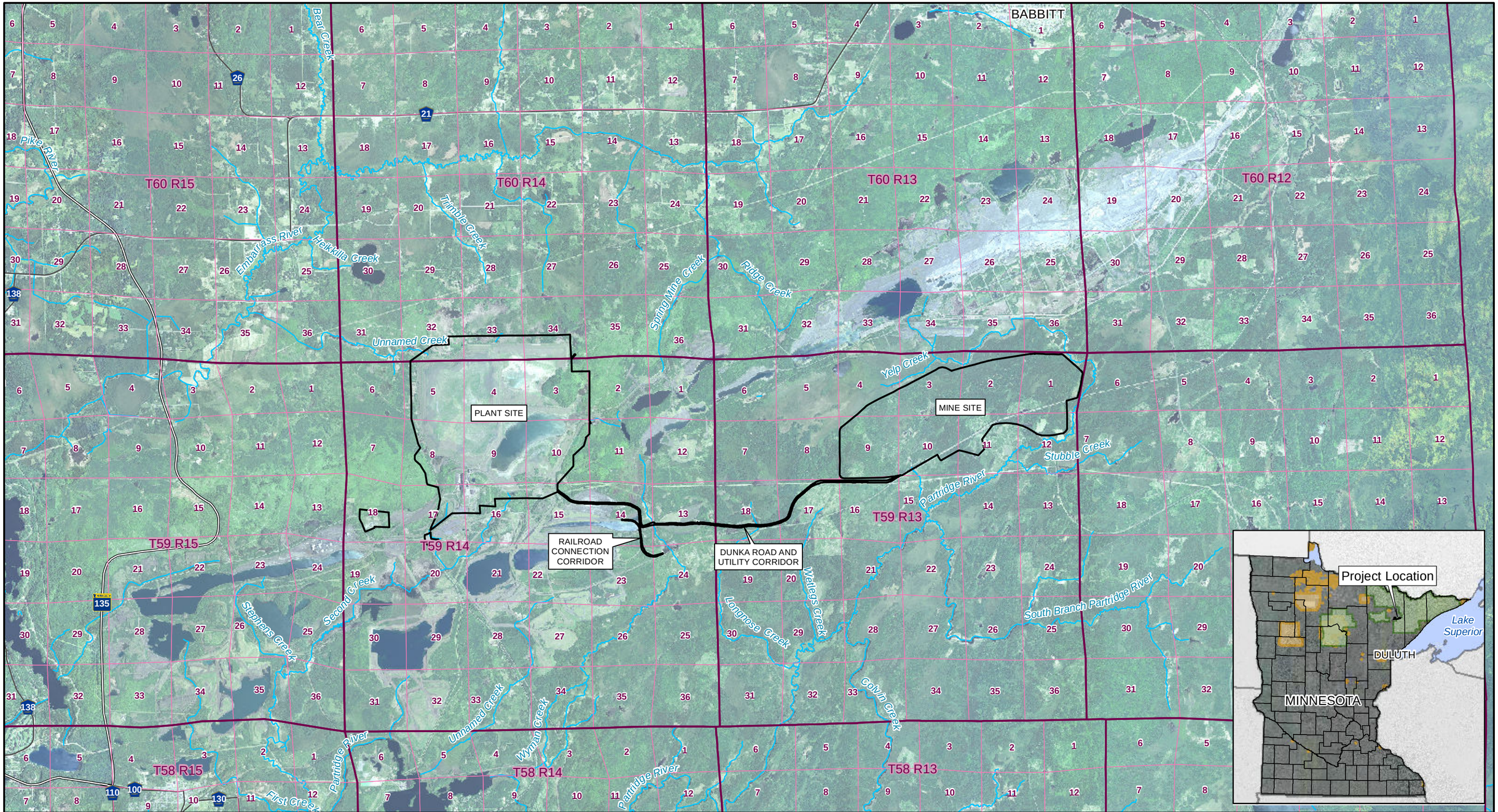

Project Areas
Township Lines
Section Lines
Rivers & Streams

US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.75 1.5 3 Miles

Figure 1
Project Location
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

lands adjacent to the Mine Site that are administered by the Forest Service would no longer be part of the National Forest and therefore would not be subject to Forest Service management plans and policies. A land exchange for land adjustment is consistent with the 2004 *Land and Resource Management Plan for the Superior National Forest* (2004 Forest Plan; USDA Forest Service 2004a).

To fulfill exchange requirements, PolyMet is proposing to purchase and transfer 7,075 acres of non-federal lands to the Forest Service. The non-federal lands consist of Hay Lake Lands (4,926 acres), McFarland Lake Lands (31 acres), Lake County Lands (382 acres), Hunting Club Lands (160 acres), and Wolf Lands (1,576 acres; **Figure 2**). All non-federal lands are dominated by second-growth deciduous and coniferous forest habitats and a variety of wildlife, including lynx, wolf, and other species of concern, have been observed on or near the non-federal lands.

Assuming a land exchange occurs, the non-federal lands would be administered by the Forest Service. The non-federal lands are associated with four Forest Plan Management Areas, as designated by the Forest Service, which include General Forest, General Forest – Longer Rotation, Riparian Emphasis Area, and Candidate Research Natural Areas. If all or a portion of the non-federal lands are acquired by the Forest Service, they would be administered by the Forest Service to meet the goals of these management areas.

The Regional Forester or other authorized officer must decide if the proposed land exchange complies with the Forest Plan, is a fair value exchange, and is in the public interest. All lands potentially involved in the land exchange would be independently appraised according to the Uniform Appraisal Standards for Federal Land Acquisitions. The appraisals would determine the market value of the properties. Information collected during wildlife and wetland functions and values studies would be used by the Forest Service in the land exchange appraisal, and would be used to evaluate impacts to wetlands, and wildlife and their habitats for a *NorthMet Mining Project and Land Exchange Supplemental Environmental Impact Statement* (SEIS) for the Project and land exchange (Minnesota Department of Natural Resources [MDNR] et al. 2015).

The Project would directly impact an estimated 914 acres of wetlands, mostly within the Mine Site. A U.S. Army Corps of Engineers (USACE) permit would be required under Section 404 of the Clean Water Act for impacts to wetlands and other waters of the U.S., PolyMet is proposing to purchase 2,169 acres (Wetland Mitigation Sites) as mitigation for wetland impacts from the Project. On the Wetland Mitigation Sites, 1,620 acres would be restored or converted to wetlands and 197 acres would be used for upland buffer.

The Project and land exchange constitute the proposed actions of the two federal agencies, USFS and USACE. For convenience in this BA, the Project is referenced as the proposed action. The proposed action is further defined in Section 3.0.

1.2 Purpose for the Biological Assessment

In accordance with Section 7 of the federal Endangered Species Act (ESA) of 1973, as amended (19 United States Code [U.S.C.] §1536 [c], 50 Code of Federal Regulations (C.F.R.) § 402.14[c]), federal agencies must "insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat of such species." The purpose of the ESA is to provide a means for conserving the ecosystems upon which endangered species and threatened species depend, and to provide a program for protecting these species.

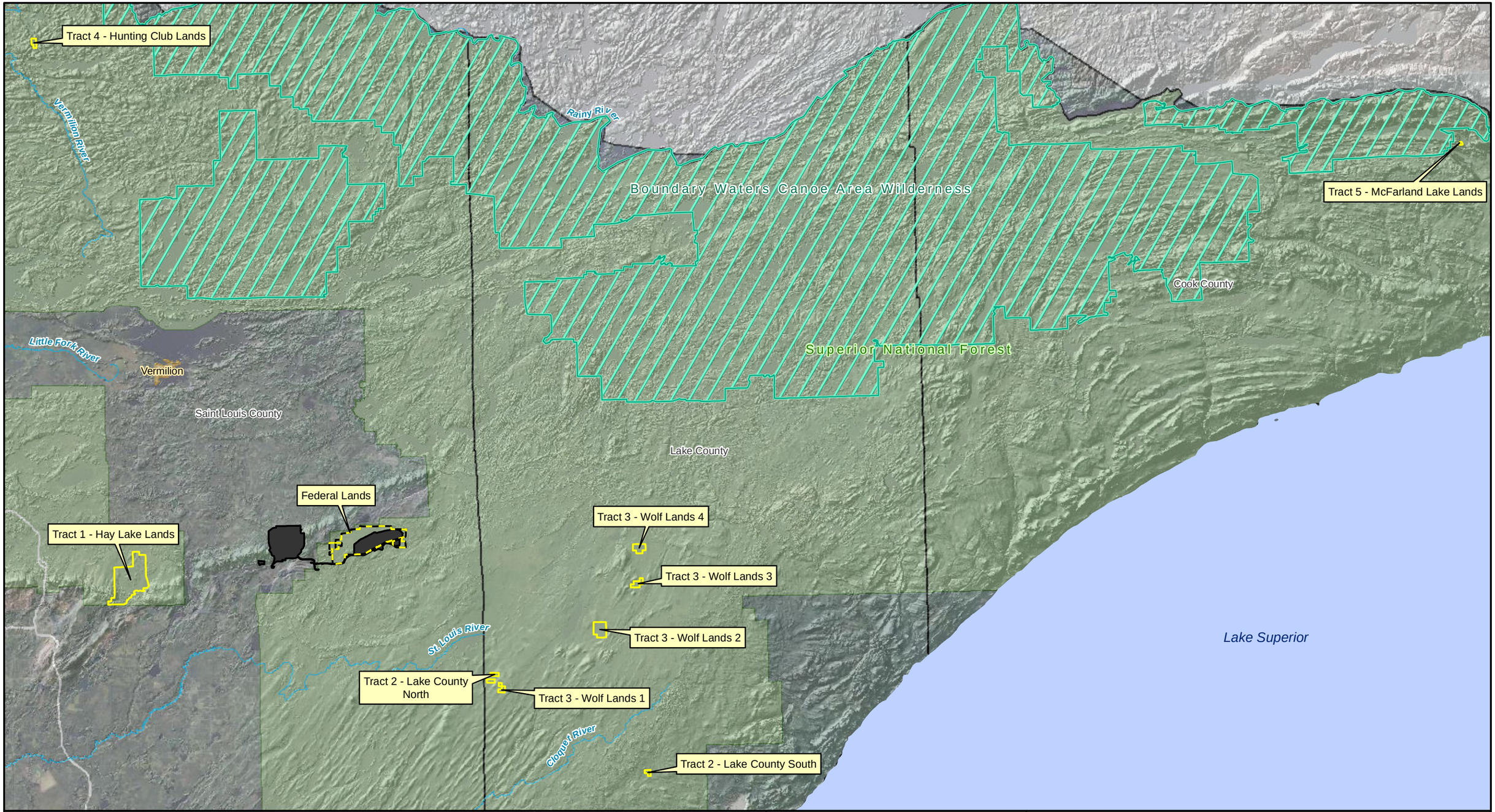

Project Areas
Federal Lands
Non-federal Lands
Boundary Waters Canoe Area Wilderness
National Forest Boundary
Native American Reservation
Major River

US Army Corps of Engineers
St. Paul District

N
W E
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0 3.75 7.5 15
Miles

Figure 2
Federal and Non-federal Lands
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

Under Section 7 of the ESA, federal agencies are required to consult with the U.S. Department of the Interior (USDOI) U.S. Fish and Wildlife Service (USFWS), and/or National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS; collectively the Services), to: 1) determine what species and critical habitats could be affected by the action; 2) determine what effect the action may have on these species or critical habitats; 3) explore ways to modify the action to reduce or remove adverse effects to the species or critical habitats; 4) determine the need to enter into formal consultation for listed species or designated critical habitats, or conference for species proposed for listing or proposed critical habitats; and 5) explore the design or modification of an action to benefit the species.

The USACE, MDNR, and Forest Service are co-lead agencies for the FEIS that is being prepared to evaluate the adverse and beneficial impacts from the Project, including the land exchange. As federal agencies that would authorize actions under the FEIS Record of Decision for the Project, the USACE and Forest Service must consult with the Services on their respective actions related to the Project and the land exchange.

The purpose of this Biological Assessment (BA) is to evaluate the effects of the Project and the land exchange on federally listed threatened and endangered species, species proposed for listing, and their critical habitats, as a result of the Project. The ESA defines an endangered species as a species that is in danger of extinction throughout all or a major portion of its range. A threatened species is defined as any species that is likely to become an endangered species within the foreseeable future throughout all or a major portion of its range. A species proposed for listing is a species for which the Services have sufficient information on its biological status and threats to propose it as endangered or threatened. Critical habitat is defined as "specific area within the geographical area occupied by the species…on which are found those physical and biological features (a) essential to the conservation of the species and (b) which may require special management considerations or protection" (USDOI USFWS and NMFS 1998).

The lynx is a federally listed threatened species that may use the Project area. The lynx is under the jurisdiction of the USFWS. In the Great Lakes region, the lynx is found primarily in mixed coniferous/deciduous forest habitat where snowshoe hare are common. The Project is located near the western edge of the lynx's range in the region. Lynx have been sighted on and near the Project area. In addition, most of the federal and all of the non-federal lands are part of designated critical habitat for the lynx in Minnesota. The Wetland Mitigation Sites are not included within designated critical habitat.

Because the Project has the potential to modify the physical environment, this BA was prepared to analyze the potential effects of Project activities on the lynx and its designated critical habitat. This BA will be used by the USFWS to facilitate compliance with the requirements of Section 7(c) of the ESA. In addition, the BA will outline conservation measures to minimize or eliminate effects to lynx associated with the proposed action.

The northern long-eared bat is found across much of the eastern and north central United States and all Canadian provinces from the Atlantic coast west to the southern Northwest Territories and eastern British Columbia (USDOI USFWS 2013a). White-nose syndrome, a fungal disease known to affect bats, is currently the predominant threat to the northern long-eared bat, especially throughout the Northeast where the species has declined by up to 99% from pre-white-nose syndrome levels at many hibernation sites. White-nose syndrome has spread rapidly throughout the East and is currently spreading through the Midwest. Although the disease has not yet spread throughout the northern long-eared bat's entire range (white-nose syndrome is currently found in at least 22 of 39 states where the northern long-eared bat occurs), it continues to spread. Other threats to the species include wind energy development, habitat destruction or disturbance (e.g.,

vandalism to hibernacula, roost tree removal), climate change, and contaminants. Although no significant population declines have been observed due to these threats, they may now be important factors affecting this bat's ability to persist while experiencing dramatic declines caused by white-nose syndrome.

The northern long-eared bat was listed as a federally threatened species on April 2, 2015. The listing determination included announcement of interim 4(d) rules, which will allow certain activities to be excepted from the ESA prohibition of take of northern long-eared bats, provided USFWS-proscribed conservation measures are followed. The April 2, 2015 listing decision deferred designation of critical habitat for northern long-eared bat to a later date.

The wolf is the largest wild member of the dog family (Canidae) and is common on and near the Project area. The wolf was determined to be endangered in 1967 under the Endangered Species Preservation Act of 1966, in response to their vastly declining numbers range-wide at that time. In 1974, the species was formally listed as endangered through the authority of the ESA, and the Minnesota population was reclassified to threatened in 1977. In April 2003, wolf populations in the United States were separated into three Distinct Population Segments (DPS) to more effectively manage the species. The Minnesota population was a designated portion of the Eastern DPS. In 1978, wolf critical habitat was designated for the Eastern DPS. That rule identified critical habitat in Isle Royale National Park, Michigan, and Minnesota wolf management zones 1, 2, and 3. In northeastern and northcentral Minnesota, wolf management zones 1, 2, and 3 comprised approximately 9,800 square miles (mi^2) and included all of the Superior National Forest and portions of the Chippewa National Forest. Hunting Club and McFarland Lake lands were in Zone 1, while the federal lands and other non-federal lands were in Zone 2. The Wetland Mitigation Sites were outside the critical habitat zones.

On December 28, 2011, the USFWS revised the 1978 listing of the Minnesota population of wolf to conform to statutory and policy requirements. The USFWS renamed what was previously listed as the Minnesota population of gray wolf in the Eastern DPS as the Western Great Lakes DPS, and delineated the boundaries of the expanded Minnesota population segment to include all of Minnesota, Wisconsin, and Michigan and portions of the adjacent states. The USFWS December 2011 decision removed the Western Great Lakes DPS from the list of endangered and threatened wildlife. This final rule also removed the designated critical habitat for the gray wolf in Minnesota and Michigan and the special regulations under Section 4(d) of the ESA for wolves in Minnesota.

However, on December 19, 2014, a federal court reversed the USFWS decision to delist the gray wolf, restoring federal threatened status and critical habitat designation in Minnesota. Approximately 9,800 mi^2 were identified as critical habitat for wolves in Minnesota. The federal and non-federal lands are within, but the Wetland Mitigation Sites are outside, the formerly designated critical habitat zone.

2.0 Consultation

The consultation process is designed to assist federal agencies in complying with the ESA. The USACE, Forest Service, and USFWS initiated informal consultation on February 26, 2010, when the agencies met on the Project area to discuss the Project. The USACE met with the USFWS on May 3, 2011. The agencies held a conference call to discuss the project on September 1, 2011. The USACE also met with the USFWS on February 28, 2013. The USACE, USFWS, and Forest Service met in summer 2014 to identify tasks to be accomplished in the development of the BA.

Consultation can either be informal or formal, depending on the determination of effects in the BA. In making the determinations in this BA the following conclusions were considered, based on guidance in the *Endangered Species Consultation Handbook* (USDOI USFWS and NMFS 1998).

No affect – the appropriate conclusion when the action agency determines its proposed action will not affect a listed species or its designated critical habitat.

May affect - the appropriate conclusion when a proposed action may pose any effects on listed species or designated critical habitat. When the Federal agency proposing the action determines that a "may affect" situation exists, then they must either initiate formal consultation or seek written concurrence from the USFWS that the action "is not likely to adversely affect" (see definition below) listed species.

Is not likely to adversely affect – the appropriate conclusion when effects on listed species, or their critical habitat, are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. Based on best professional judgment, a person would not: 1) be able to meaningfully measure, detect, or evaluate insignificant effects; or 2) expect discountable effects to occur.

Is not likely to jeopardize proposed species – the appropriate conclusion when the action agency or the USFWS determines that the proposed action is not likely to jeopardize the proposed species or adversely modify the proposed critical habitat.

Is likely to adversely affect – the appropriate finding in a BA (or conclusion during informal consultation) if any adverse effect to listed species, or their critical habitat, may occur as a direct or indirect result of the proposed action or its interrelated or independent actions, and the effect is not discountable, insignificant, or interdependent actions, or beneficial. In the event the overall effect of the proposed action is beneficial to the listed species, but is also likely to cause some adverse effects, then the proposed action "is likely to adversely affect" the listed species. If incidental take is anticipated to occur as a result of the proposed action, then an "is likely to adversely affect" determination should be made.

Is likely to jeopardize proposed species – the appropriate conclusion when the action agency or the USFWS determines that the proposed action is likely to jeopardize the proposed species or adversely modify the proposed critical habitat.

If the BA concludes that the project "is not likely to adversely affect" listed species or critical habitat, the lead federal agencies (USACE and Forest Service) have the discretion to choose either informal or formal consultation. If informal consultation is chosen, the agency asks for written concurrence by the USFWS for the

BA's conclusion. Informal consultation is complete if a concurrence letter is obtained from the USFWS. If the BA concludes that the project is "likely to adversely affect" listed species or critical habitat, the agency must request formal consultation. When formal consultation is requested by the agency, the USFWS prepares and issues a Biological Opinion (BO), which completes the consultation. For proposed species, if the BA determines that the project is "likely to jeopardize a proposed species," the agency must request a conference with the USFWS.

Using information obtained in the BA, the USFWS will provide an opinion in the BO on whether the Project is: 1) "likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat" (a "jeopardy" biological opinion), or 2) "not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat" (a "no jeopardy" biological opinion). If the USFWS issues a "jeopardy" opinion, it must include any "reasonable and prudent alternatives" to the project that would avoid jeopardy. If the USFWS issues a "no jeopardy" opinion, it may include discretionary "conservation recommendations," which are steps the USFWS believes could be taken to further minimize potential effects on listed species or critical habitat.

3.0 Description of the Proposed Action

3.1 Overview

The USACE and the USFS have separate proposed actions on which consultation is occurring. The USACE has an application under the Clean Water Act to impact wetlands and other waters of the U.S. associated with the construction and operation of the NorthMet mine. The USFS is evaluating a land exchange of federal and non-federal lands. For convenience, the impacts are described in terms of the Project and its associated activities.

PolyMet proposes to construct an open pit mine in northern Minnesota to extract low- to medium-quality copper-nickel-PGE minerals with low sulfide content. This Project is located in Sections 5, 6, 8, 9, 13, 14, 15, 16, 17, 23, and 24, Township 58 North, Range 14 West; Sections 1, 2, 3, 4, 9, 10, 11, 12, 15, 16, 17, and 18, Township 59 North, Range 13 West; Sections 3, 4, 5, 8, 9, 10, 11,13, 14, 15, 16, 17, 20, 23, 24, 29, and 32, Township 59 North, Range 14 West; and Sections 32, 33, and 34, Township 60 North, Range 14 West, in St. Louis County on the eastern end of the Mesabi Iron Range, about 60 miles north of the City of Duluth, and 6 miles south of the City of Babbitt, Minnesota (**Figure 3**).

This section describes specific Project features that could have effects on lynx, wolf, northern long-eared bat, and lynx and wolf critical habitat. Additional Project features that are not relevant to potential effects on lynx or wolf and their critical habitats are listed in this section, but are not described in detail. Full Project details are available in the FEIS (MDNR et al. 2013).

Ore would be excavated at the Mine Site and hauled by railroad approximately 8 miles west to the Plant Site for processing. Corridors for roads, railroad, utilities, and water pipelines would connect the Mine Site and the Plant Site. The four Project areas are shown on **Figure 3** and include:

- Mine Site
- Plant Site
- Dunka Road and Utility Corridor
- Railroad Connection Corridor

3.2 Mine Site

The Mine Site, approximately 3,015 acres, would be developed at a greenfield site that has previous disturbance from logging and mining exploration activities. The Project would develop open mine pits (up to 528 acres), stockpiles (up to 794 acres), and supporting infrastructure (up to 397 acres). The location and dimensions of Mine Site features are shown on **Figure 4**. The Project features at the Mine Site would include:

- mine pits;
- ore storage and handling facilities, including an Ore Surge Pile and a Rail Transfer Hopper;

- stockpiles for overburden and waste rock with engineered systems to manage potential water resource impacts (such as liners, covers, and the Category 1 Waste Rock Stockpile Groundwater Containment System);
- a Waste Water Treatment Facility and process water collection systems to collect and treat water from the mine pits, waste rock stockpiles, ore handling facilities, and haul roads,

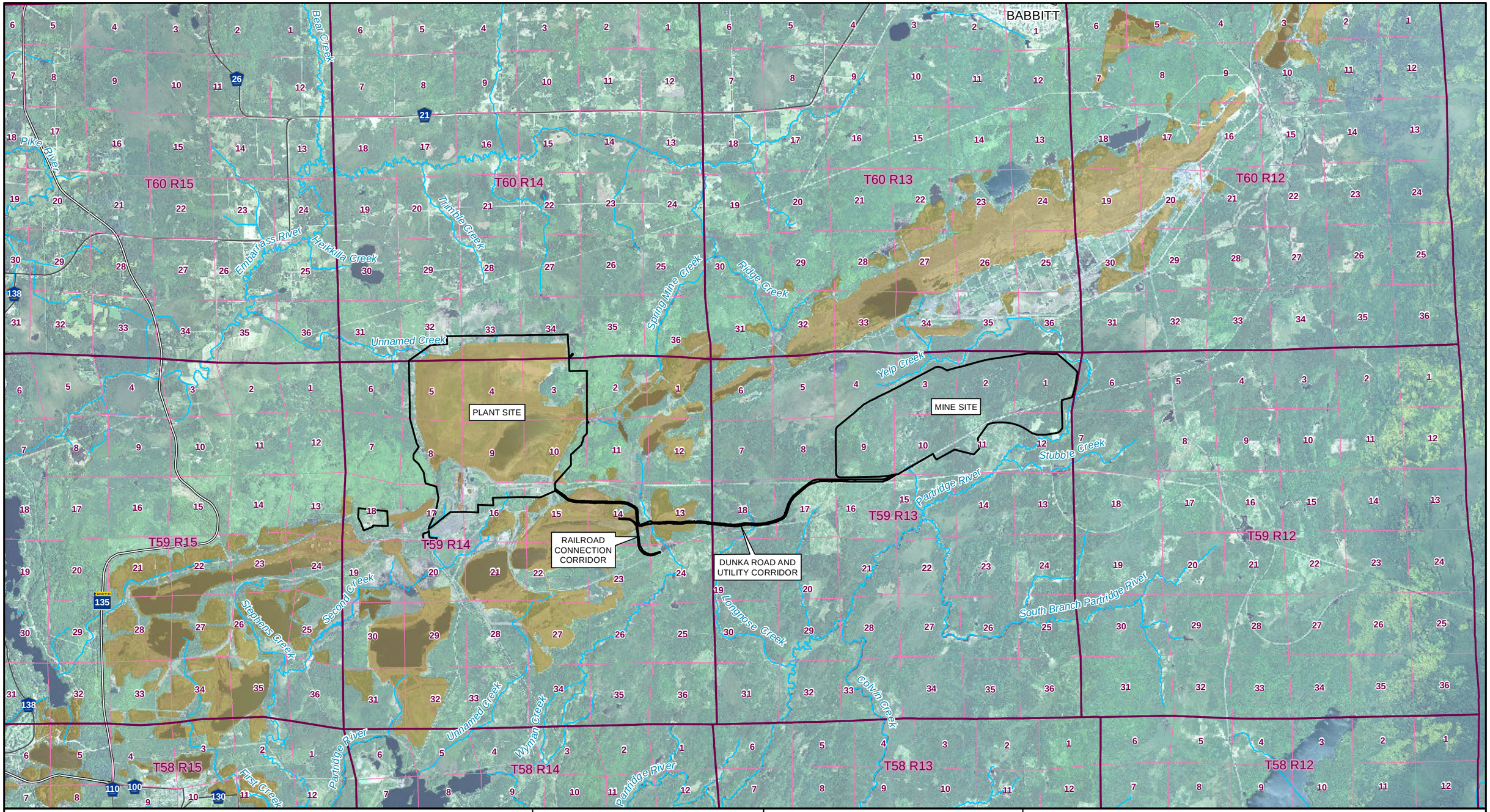

Project Areas
Township Lines
Section Lines
Mesabi Range (existing mine pits, tailings basins, stockpiles and other mine features)
Rivers & Streams

US Army Corps of Engineers
St. Paul District

N
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0 0.75 1.5 3 Miles

Figure 3
Iron Range and Project Site
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

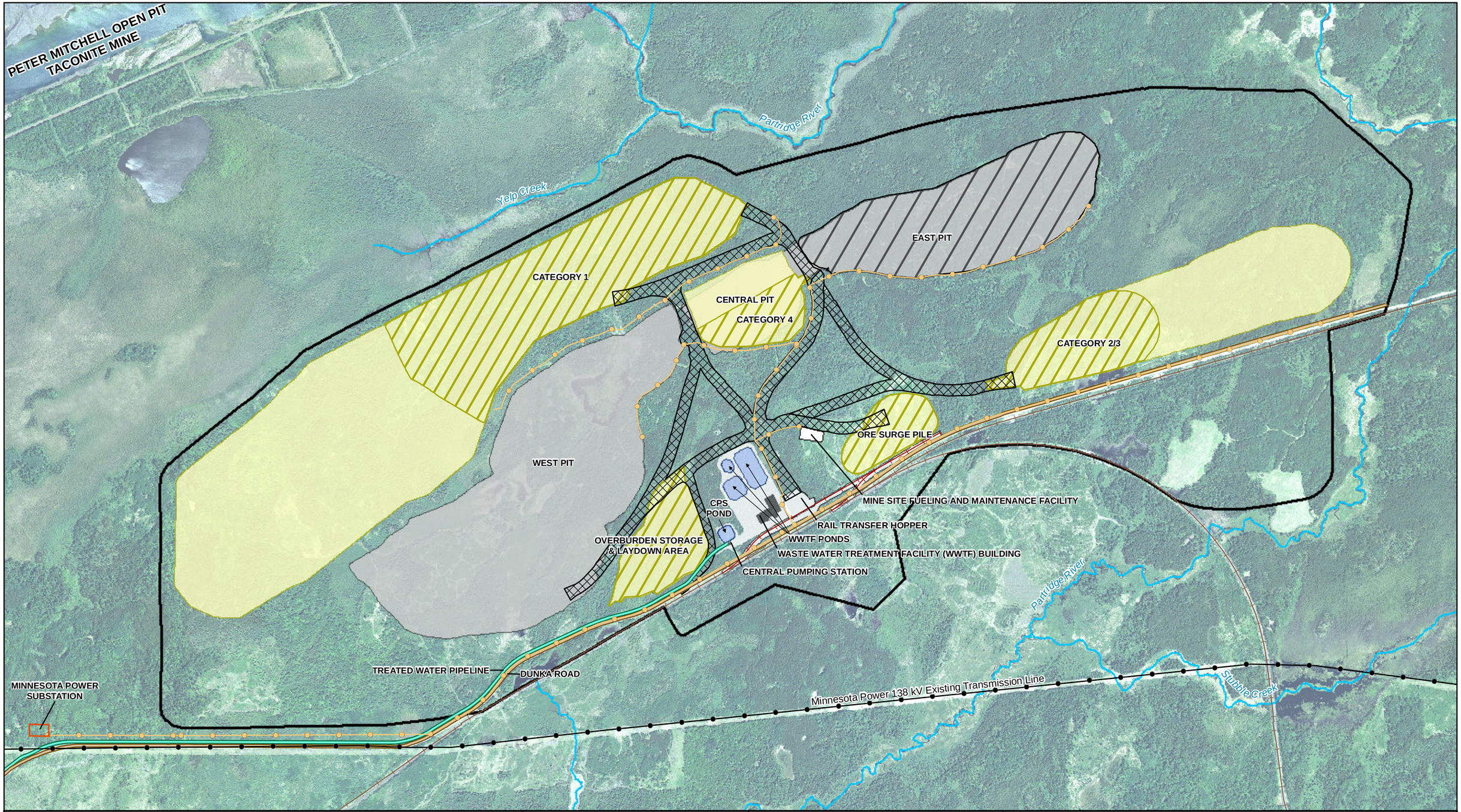

Mine Site
Year 1 Mine Pits
Year 11 Mine Pits
Year 1 Stockpiles
Year 11 Stockpiles
Haul Roads
Treated Water Pipeline
Dunka Road
Existing Private Railroad
Proposed Railroad Track

US Army Corps of Engineers
St. Paul District

N W E S

0 750 1,500 3,000 Feet

Figure 4
Mine Site Plan
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

- a Central Pumping Station and Treated Water Pipeline to transport water from the Mine Site to the Plant Site; and
- supporting infrastructure (such as roads, electrical supply, rail connections, and fueling and maintenance facilities).

3.2.1 Pre-production Mine Development

Mine Site infrastructure would be constructed during the estimated 12 to 18 months of pre-production mine development. Pre-production mine development would be followed by a gradual ramp-up of ore output over 6 to 12 months. The following Project features would be constructed during pre-production mine development:

- Roads - site access roads, haul roads, and Dunka Road upgrades.
- Railroad infrastructure - the Rail Transfer Hopper, the rail spur connecting the Rail Transfer Hopper with Cliffs Erie railroad track, and the rail spur between the Cliffs Erie railroad track and PolyMet railroad track that serves the Coarse Crusher Building.
- Surface water management features – dikes, ditches, water collection ponds, and sumps.
- Overburden Storage and Laydown Area.
- Stockpile liners and containment systems.
- Waste Water Treatment Facility, Treated Water Pipeline, and Central Pumping Station.
- Substation drop from the 138 kilovolt (kV) Minnesota Power transmission line and a 13.8 kV Mine Site power distribution system.
- Mine Site Fueling and Maintenance Facility.

3.2.2 Mining Activities

PolyMet expects to mine a total of 533 million tons of waste rock and ore over 20 years, which would include 225 million tons of ore and 308 million tons of waste rock. Mining activities include overburden removal, open pit mining, drilling and blasting, excavation and haulage, ore storage and loading for transport to the Process Plant, waste rock stockpiling, and mine site water management.

3.2.2.1 Overburden Removal

The marketable timber would be cleared and the overburden removed from the footprints of the mine pits, the Ore Surge Pile, and the waste rock stockpiles, as necessary. PolyMet would follow the USFWS northern long-eared bat interim guidance for tree removal (USFWS 2014).

Overburden, which has been defined for this Project as the material that lies on top of bedrock, would be stripped incrementally as needed for mine development in order to minimize the amount of bedrock exposed at any one time. After removal of overburden from the initial mining area, additional overburden stripping could take place concurrently with the mining of ore and waste rock. Approximately 32% of the required overburden

stripping for the pit development would be done in the first 2 years of mine operation. All of the overburden that needs to be stripped from the pits would be removed by the end of Mine Year 11.

3.2.2.2 Open Pit Mining

The Project would use open pit mining methods similar to those used at ferrous metallic mining operations on the Iron Range. The mine would consist of three separate open pits known as the East, Central, and West pits. For approximately the first 10 years of operations, mining would take place in the East and West pits simultaneously, with the East Pit mining ending in Mine Year 11. The Central Pit mining would occur between Mine Years 11 and 16. During Central Pit mining, the East and Central pits would converge into one pit which would then be referred to as the East Pit.

At its maximum size, each pit is projected to have the approximate maximum area and depth shown in **Table 1**.

Table 1
Maximum Pit Dimensions

Mine Pit	Area (acres)	Maximum Depth (feet below ground surface)
East	155	696
Central	52	356
West	321	630

Drilling and blasting would be conducted to remove waste rock and extract ore. Two conventional electric or diesel powered rotary drilling rigs would be used. Blasting of ore and waste rock is anticipated to take place approximately every 2 to 3 days.

After being drilled and blasted, the ore would be loaded by excavators into haul trucks that would haul the ore to the Rail Transfer Hopper or to the Ore Surge Pile for temporary storage and haul the waste rock to the stockpiles or the East Pit. Up to nine haul trucks would be in service with a maximum speed of 34 miles per hour loaded, however their speed would typically be lower.

Mining operations would be supported by mine auxiliary vehicles (for example [e.g.], water trucks, dozers, graders) traveling on access and haul roads within the Mine Site.

3.2.2.3 Ore Storage and Loading

Ore would be loaded for transport to the Plant Site at the Rail Transfer Hopper. The Rail Transfer Hopper would consist of a raised platform from which haul trucks dump into a hopper over a pan feeder into rail cars. The Rail Transfer Hopper would be located to the south of the mine pits and would be connected to the existing Cliffs Erie main line track by a new spur line (**Figure 4**).

An Ore Surge Pile would be constructed adjacent to the Rail Transfer Hopper to allow for temporary storage of ore until it could fit into the processing schedule or as required by operational delays. Drainage from the Ore Surge Pile would be collected on a liner and routed to a sump for pumping to the Waste Water Treatment Facility.

3.2.2.4 Stockpiling

Waste rock and overburden would be managed according to its geochemical properties as determined using a sampling and analysis program approved by the MDNR. PolyMet has categorized waste rock into four categories defined according to its sulfur content, in ascending order of reactivity. These waste rock categories are summarized in **Table 2**.

The Category 1 Waste Rock Stockpile would be the only permanent stockpile for the Project. During Mine Years 1 through 11, Category 2, 3 and 4 waste rock would be placed on the temporary Category 2/3 or Category 4 Waste Rock Stockpiles (**Figure 4**). When at its maximum size, each stockpile is projected to have the approximate area, height, and elevation shown in **Table 3**.

Table 2
Waste Rock Properties

Waste Rock Categorization	Sulfur Content (percent)[1]	Approximate Percent of Total Waste Rock Produced during Mining (percent)
Category 1	≤ 0.12	70
Category 2	> 0.12 to ≤ 0.31	24
Category 3	> 0.31 to ≤ 0.60	3
Category 4	> 0.6	3

[1]In general, the higher the rock's sulfur content, the higher it's potential for generating acid rock drainage or leaching heavy metals.

Table 3
Maximum Stockpile Dimensions - Approximate

Stockpile	Mine Year of Maximum Footprint	Maximum Footprint (acres)	Maximum Height (feet)	Maximum Elevation (feet above sea level)
Category 1 waste rock	6/21[1]	508/526[1]	280	1,880
Category 2/3 waste rock	6	180	200	1,770
Category 4 waste rock	3	57	180	1,790
Ore Surge Pile	NA[2]	31	120	1,690

[1]The Category 1 Waste Rock Stockpile has a maximum footprint of 508 acres while active. It would reach this size by Mine Year 6. The stockpile would be re-graded as part of reclamation with a final footprint of 526 acres.

[2]The Ore Surge Pile would have ore moving in and out as needed to meet mine and plant operations.

All waste rock stockpiles would be engineered to manage water resource impacts. The temporary Category 2/3 and Category 4 Waste Rock Stockpiles, which have the potential to generate acid rock drainage, would have liner systems to capture water passing through the stockpile. The permanent Category 1 Waste Rock Stockpile, which does not have the potential to generate acid rock drainage, would be constructed with a groundwater containment system to collect stockpile drainage from around the entire stockpile.

3.2.2.5 Progressive Reclamation

Reclamation of the East Pit and the temporary waste rock stockpiles would begin during operations. The temporary Category 2/3 and Category 4 Waste Rock Stockpiles would be relocated to the East Pit starting in

Mine Year 11. The infrastructure associated with the temporary stockpiles (pipes, pumps, liners, et cetera [etc.]) would be removed and the footprint of each area would be reclaimed.

After the temporary stockpiles are reclaimed, all future Category 2, 3, and 4 waste rock would be placed in the East Pit. Most of the Category 1 waste rock mined after Mine Year 12 would also be placed in the East Pit. Ultimately, approximately 45% of the total waste rock mined would be backfilled to the East Pit.

The East Pit would be flooded to keep the waste rock in a subaqueous environment to reduce the environmental impact associated with further oxidation and dissolution of sulfide minerals. If natural inflow of water into the East Pit is insufficient to keep the waste rock submerged, water could be pumped from the Waste Water Treatment Facility. During periods of high precipitation or during spring snowmelt, dewatering (to the Waste Water Treatment Facility and ultimately to the Flotation Tailings Basin) may be required to allow safe placement of the waste rock.

Reclamation of the Category 1 Waste Rock Stockpile would also begin during operations. A cover system would be added incrementally after Mine Year 13 to limit infiltration through the stockpile. The stockpile would be sloped and graded, an engineered geomembrane system would be installed, soil would be placed on top of the cover, and vegetation would be planted to meet the requirements of Minnesota Rules, part 6132.2200, subpart 2, item B. The cover system would be designed to promote runoff with minimal erosion.

3.2.2.6 Mine Site Water Management

This section summarizes information from the Water Management Plan - Mine, which would become part of the MDNR Permit to Mine and Water Appropriations permits and Minnesota Pollution Control Agency (MPCA) National Pollutant Discharge Elimination System/State Disposal System permit. These plans include water management system designs, operating and maintenance plans, water quality monitoring plans, reporting requirements, and adaptive management approach.

In addition to the stockpile liners, the stockpile cover, and the groundwater containment system, water management at the Mine Site would include pit dewatering, stormwater dikes and ditches, and the Waste Water Treatment Facility that would treat water that comes in contact with mining features. During operations, there would be no direct discharge of treated waste water to public waters.

It would be necessary to dewater the pits during mining to remove groundwater flow and precipitation runoff. These waters would be directed to low areas in the pits where it would be collected in sumps and pumped to the Waste Water Treatment Facility.

Non-contact stormwater, the result of precipitation that falls on natural or reclaimed vegetated surfaces, would be routed through sedimentation ponds prior to discharge to a small watercourse that flows to the Partridge River. A system of dikes and ditches constructed at the Mine Site perimeter would minimize the amount of surface water flowing onto the site and into the mine pits, manage the amount of water that comes into contact with mining features, and control non-contact stormwater flowing off the site.

During operations, the Waste Water Treatment Facility would treat water that comes into contact with the waste rock stockpiles, haul roads, Ore Surge Pile, and mine pits. For the first approximately 10 years, all Waste Water Treatment Facility effluent would be pumped to the Plant Site Flotation Tailings Basin Pond for reuse in the beneficiation process. Reuse of the Mine Site process water at the Plant Site would eliminate the

need to discharge any process water to surface waters during operations. Starting in Mine Year 11, some Waste Water Treatment Facility effluent would be sent to the East Pit to augment flooding as the pit is backfilled, with the remainder of the effluent continuing to go to the Flotation Tailings Basin. The purpose of the Waste Water Treatment Facility is to maintain water quality in the Flotation Tailings Basin pond at concentrations that do not have an adverse impact on Beneficiation Plant operations or future reclamation of the Flotation Tailings Basin.

Mine Site water would be managed in accordance with a future MPCA National Pollutant Discharge Elimination System/State Disposal System permit, which would include a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would identify and describe Best Management Practices for the Mine Site to minimize the discharge of potential pollutants in stormwater runoff.

3.2.3 Fueling and Maintenance Facilities

The Mine Site Fueling and Maintenance Facility would consist of two buildings, one for fueling mobile equipment, and one for minor service and repair of mobile equipment. Major scheduled maintenance and repair work lasting several days on most mobile equipment would be done in the refurbished and reactivated former LTVSMC Area 1 Shop. Stationary or slow-moving equipment such as excavators, dozers, drill rigs, and light plants would be fueled in the field using mobile fuel tankers.

The former LTVSMC Area 2 Shop, about 1 mile east of the Process Plant, would be reactivated to provide office space for mining and railroad operations supervision and management, as well as clothes changing facilities, toilets, lunch rooms, first aid facility, emergency response center, and training and meeting rooms for mining and railroad crews. The Area 2 Shop facilities would include a Locomotive Fueling Station, Locomotive Service Building, and Mine Reporting Building.

3.3 Plant Site

The Plant Site was previously used as a taconite processing facility by the LTVSMC. The location and dimensions of Plant Site features are shown on **Figure 5**.

At the Plant Site, the Project would upgrade existing facilities (Beneficiation Plant, Tailings Basin, Area 1 Shop, sewage collection system, rail connections, access roads) and construct new facilities (Hydrometallurgical Plant, Hydrometallurgical Residue Facility, Concentrate Dewatering/Storage Building, Sewage Treatment System Ponds, and Waste Water Treatment Plant) within a brownfield facility. The Flotation Tailings would be stored atop the existing LTVSMC Tailings Basin by staged construction of new dams. The Plant Site also includes supporting infrastructure (e.g., roads, electrical supply, rail connections, Area 1 Shop, and Area 2 Shop).

Plant Site environmental controls would include cover systems to limit infiltration of oxygen and water through the Flotation Tailings Basin dams, beaches, and pond bottom and seepage capture systems to collect seepage from the Flotation Tailings Basin. Most water used in processing would be recycled for use. A Waste Water Treatment Plant would be constructed, including reverse osmosis or similar membrane separation technology, to treat any water that could not be recycled prior to discharge to the environment. If makeup water is needed for processing, it may be provided via the Colby Lake Water Pipeline. No new construction is required for the Colby Lake Water Pipeline.

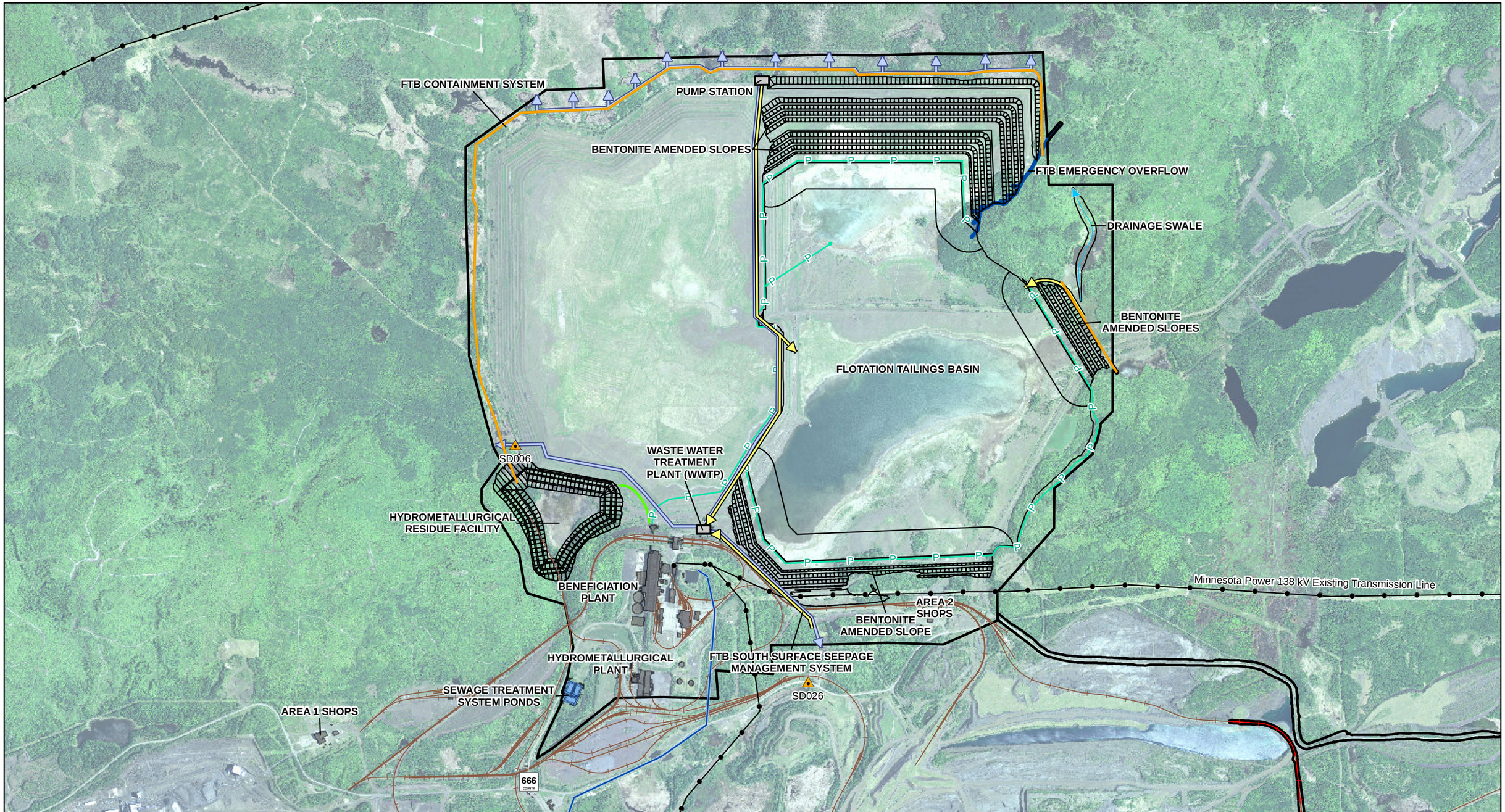

Existing NPDES Discharge Stations
Treated Water Discharge Pipe
Seepage Water Pipe
Flotation Tailings Pipeline
Hydrometallurgical Residue Pipeline
Electric Transmission Lines
Existing Private Railroad
Proposed Railroad Track
Project Areas

US Army Corps of Engineers
St. Paul District

N W E S

0 1,000 2,000 4,000 Feet

Figure 5
Plant Site Layout
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

3.3.1 Ore Processing

A Beneficiation Plant and Hydrometallurgical Plant would process the ore at the Plant Site to recover base metals, gold, and platinum group metals. The purpose of the beneficiation process would be to produce final separate concentrates. One of the separate concentrates would be a copper concentrate. The other separate concentrates would be differing grades of nickel concentrate. The concentrates could be shipped to customers, used as a feedstock to the hydrometallurgical process, or divided for both uses. PolyMet expects that the Beneficiation Plant would be operational several years before the Hydrometallurgical Plant and during that period all concentrates would be shipped to customers. Once the Hydrometallurgical Plant becomes operational, some or all of the nickel concentrates would be feedstock to the hydrometallurgical process. The decision to ship or process concentrates would be based on equipment maintenance schedules, customer requirements, and overall Project economics.

3.3.1.1 Beneficiation Plant

The Beneficiation Plant processes would include ore crushing, grinding, flotation, dewatering, storage, and shipping. Crushing and grinding would occur in the existing Coarse Crusher Building, Fine Crusher Building, and Concentrator Building. Flotation would occur in a new Flotation Building located on previously disturbed ground immediately to the west of the Concentrator Building. Dewatering, storage, and shipping would occur in a new Concentrate Dewatering/Storage Building located on previously disturbed ground.

3.3.1.2 Hydrometallurgical Plant

Hydrometallurgical processing technology would be used for the treatment of nickel concentrates. This process would involve high pressure and temperature autoclave leaching followed by solution purification steps to extract and isolate platinum group metals, precious metals, and base metals. All equipment used in the hydrometallurgical process would be located in a new Hydrometallurgical Plant Building. Should spillage of process fluids occur, it would remain within the Hydrometallurgical Plant Building and be returned to the appropriate process streams.

3.3.1.3 Plant Site Infrastructure

Plant Site infrastructure that exists at this site includes:

- County Road 666 ends at the Main Gate for the industrial area that includes the Process Plant, Area 1 Shop, and Area 2 Shop.
- The Canadian National Railroad serves the industrial area that would include the Process Plant. The PolyMet railroad would connect to the Area 1 Shop and the Area 2 Shop.
- Three Minnesota Power Company 138 kV transmission lines serve the Project substation.
- The existing mechanical Sewage Treatment Plant would be replaced with new Sewage Treatment System Ponds, and the existing sewage collection system would be upgraded to meet current construction and performance standards and sized as appropriate.

- The Process Plant potable water treatment plant located near the Plant Reservoir would be refurbished and reactivated. The potable water distribution system extends to the Area 1 Shop and Area 2 Shop. This water would be used for showers and sinks and would be treated (chlorinated) to be drinkable. However, bottled water would be brought in for drinking as well.

- Area 1 Shop and Area 2 Shop.

3.3.2 Flotation Tailings Basin

Flotation Tailings from the flotation process at the Beneficiation Plant would be pumped to the Flotation Tailings Basin, which would be constructed on top of cells 1E and 2E of the existing LTVSMC Tailings Basin. Treated water from the Waste Water Treatment Facility would also be pumped to the Flotation Tailings Basin, enabling it to serve as the primary collection and distribution point for water used in the beneficiation process.

The existing LTVSMC Tailings Basin is unlined and was constructed in stages beginning in the 1950s. It has been inactive since January 2001, except for reclamation activities consistent with a MDNR-approved Closure Plan currently managed by Cliffs Erie.

The future Flotation Tailings Basin perimeter dams would be raised using upstream construction methods. The dams would be constructed using compacted LTVSMC tailings borrowed from the existing Tailings Basin. Once the LTVSMC tailings supply has been completely used for dam construction, offsite borrow from MDNR-approved sources would be utilized. Material from LTVSMC Area 5 would be a likely source, but other sources could also be considered.

Emergency overflow channels would be provided to protect the dams in the unlikely event that freeboard within the Flotation Tailings Basin is not sufficient to contain all water from an extreme storm event. Even though there is a low likelihood of overflow, it is standard practice in dam design to accommodate overflows in a manner that protects the integrity of the dams.

Seepage from the Flotation Tailings Basin would be collected by the Flotation Tailings Basin Containment System located around the northern, western, and portions of the eastern sides of the Tailings Basin and the Flotation Tailings Basin South Surface Seepage Management System located south of Tailings Basin Cell 1E. These two systems are collectively referred to as the Flotation Tailings Basin seepage capture systems. The Flotation Tailings Basin Containment System would include a low permeability cutoff wall so that it can collect seepage (from up-gradient), but avoid drawing in water from down-gradient wetlands.

3.3.3 Hydrometallurgical Residue Facility

The Hydrometallurgical Residue Facility would be constructed to manage residues generated by the hydrometallurgical process. The Hydrometallurgical Residue Facility would consist of one-lined cell located adjacent to the southwest corner of Tailings Basin, on previously disturbed ground (**Figure 5**).

The Hydrometallurgical Residue Facility liner system would be a double liner system consisting of two barrier layers separated by a leakage collection layer. This system would substantially remove all hydraulic head from the lower liner, virtually eliminating leakage from the Hydrometallurgical Residue Facility.

Residue from the Hydrometallurgical Plant would be pumped to the Hydrometallurgical Residue Facility as slurry. A pond would be maintained within the Hydrometallurgical Residue Facility so that the solids in the slurry would settle out. Most of the liquid would be recovered by a pump system and returned to the plant for reuse.

3.3.4 Plant Site Water Management

This section summarizes information from the Water Management Plan - Plant, which is a support document for the MDNR Permit to Mine and Water Appropriations permits and MPCA National Pollutant Discharge Elimination System/State Disposal System permit. These plans include water management system designs, operating and maintenance plans, preliminary water quality monitoring plans, preliminary reporting requirements, and adaptive management approach. Final water quality monitoring and reporting requirements would be determined in the permits.

Water management features at the Plant Site would include the Flotation Tailings Basin and seepage capture systems, Hydrometallurgical Residue Facility, stormwater dikes and ditches, drainage swale, Waste Water Treatment Plant, and stream augmentation. With the exception of the Flotation Tailings Basin seepage containment system, all Plant Site water management features would be located on previously disturbed areas.

3.3.4.1 Waste Water Treatment Plant

The Waste Water Treatment Plant would treat any water collected by the Flotation Tailings Basin seepage capture systems that cannot be reused as process water. It would include a reverse osmosis unit, or similar membrane separation technology, designed to achieve an effluent sulfate concentration that meets the sulfate standard for waters used for the production of wild rice (10 milligrams per liter (mg/l)). Water would be treated to meet appropriate discharge limits, then discharged along the west, northwest, and north perimeter of the Flotation Tailings Basin, beyond the Flotation Tailings Basin Containment System, and to Second Creek at the south end of the Flotation Tailings Basin to replenish the flow to the surrounding wetlands and streams. This discharge strategy would limit the potential for indirect wetland impacts due to reduced seepage from the Tailings Basin to the wetlands.

3.3.4.2 Stream Augmentation

Construction of the Flotation Tailings Basin Containment System would reduce the amount of seepage that is currently leaving the existing Tailings Basin. Consequently, the stream flow in the four tributaries around the Tailings Basin (Unnamed Creek, Second Creek, Trimble Creek, and Mud Lake Creek) would be reduced from current levels. Flow to Unnamed Creek, Second Creek, and Trimble Creek would be augmented by treated water from the Waste Water Treatment Plant. Flow to Mud Lake Creek would be augmented by construction of a drainage swale east of the Flotation Tailings Basin.

3.4 Transportation and Utility Corridors

The remaining Project components are linear corridor features, including the following (**Figure 6**):

- Dunka Road and Utility Corridor
- Railroad Connection Corridor

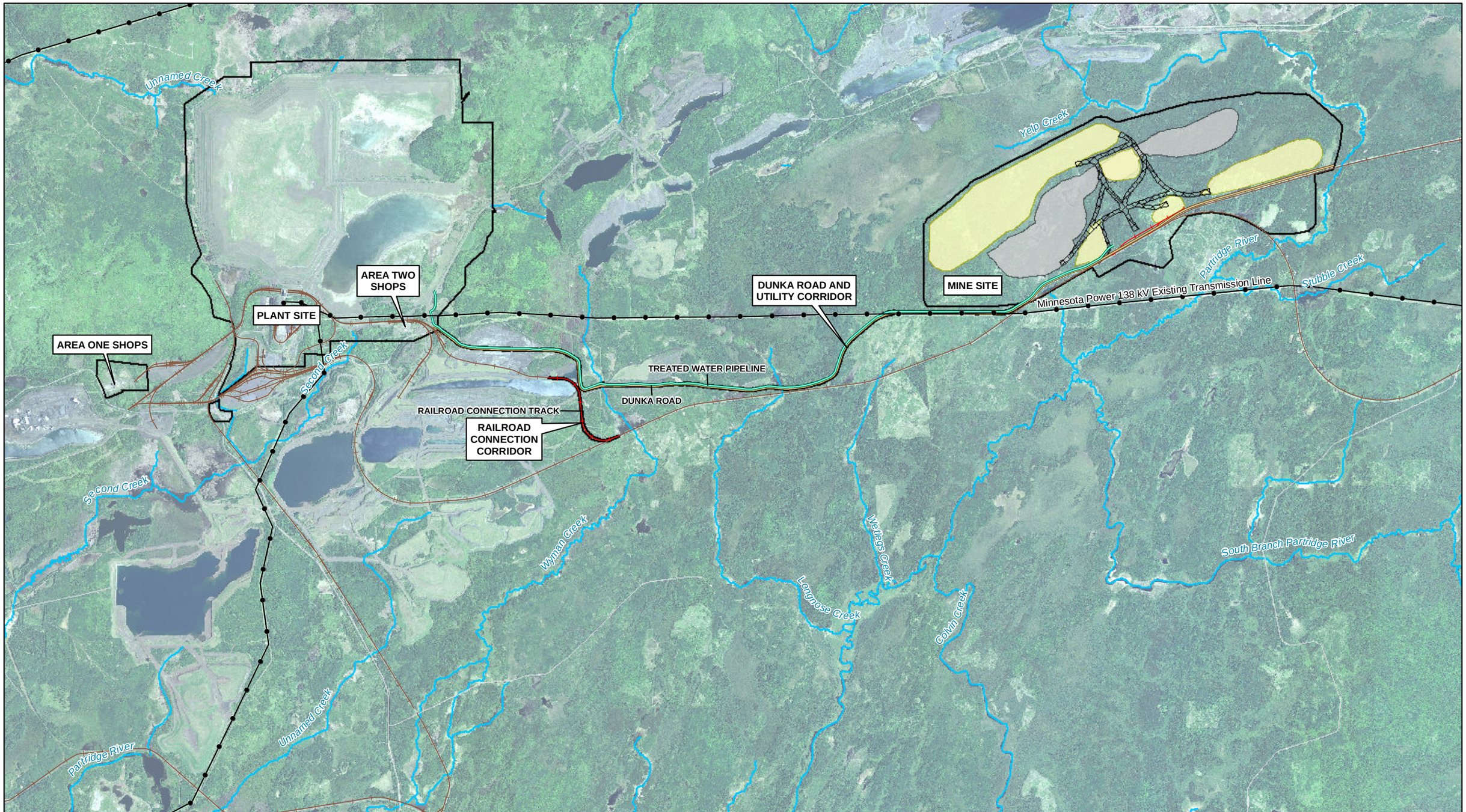

Treated Water Pipeline
Dunka Road
Existing Private Railroad
Proposed Railroad Track
Electric Transmission Lines
Project Areas
Stockpiles
Mine Pits
Haul Roads

US Army Corps of Engineers
St. Paul District

N W E S

0 2,250 4,500 9,000 Feet

Figure 6
Transportation and Utility Corridor
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

This section describes Project features in the Transportation and Utility Corridors and presents information on the types of traffic that would result from the Project.

3.4.1 Dunka Road and Utility Corridor

Dunka Road is an existing, compacted-gravel, private road that extends from near the LTVSMC Plant Site to the Mine Site, then continues roughly northeast toward Babbitt, Minnesota. The portion of Dunka Road that connects the Plant Site to the Mine Site would be widened. The Treated Water Pipeline would be constructed parallel and adjacent to the Dunka Road in the Utility Corridor to transport treated water from the Mine Site to the Plant Site. The distance along Dunka Road from the Plant Site gate to the Mine Site gate is approximately 6.4 miles. Including the road segments located within the Plant Site and the Mine Site, the total distance from the ore processing area at the Plant Site to the ore loading area at the Mine Site is approximately 8.5 miles.

Traffic on Dunka Road would include light trucks and automobiles, sport utility vehicles (SUVs), fuel trucks, supply and waste trucks, and haul trucks needing maintenance.

- Automobiles, light trucks, or SUVs transporting employees would travel between the Area 2 Shops and the Mine Site each day, at speeds of 30 to 45 miles per hour.
- Trucks carrying fuel and blasting agents would travel to the Mine Site every day, at speeds of 25 to 40 miles per hour. These trucks would travel from County Highway 666 to Dunka Road.
- Trucks transporting supplies and waste to and from the Waste Water Treatment Plant and the Waste Water Treatment facility would travel between the Plant Site and the Mine Site each day, at speeds of 25 to 40 miles per hour.
- Haul trucks would travel from the Mine Site to the Area 1 Shop for maintenance occasionally, at a maximum speed of 35 miles per hour.

3.4.2 Railroad Connection Corridor

The railroad route from the Mine Site to the Plant Site would be from a new spur at the Rail Transfer Hopper, to the existing track on the Cliffs Erie private railroad, to a new approximately 1.1 mile connecting railroad track between the Cliffs Erie railroad track and existing PolyMet track railroad that serves the Coarse Crusher Building at the Process Plant (**Figure 6**).

Each ore train would consist of 16 to 20 100-ton side dumping ore cars and one diesel-electric “Gen-Set” or “Multi-Engine” locomotive. Ore trains would make approximately 22 roundtrips per day delivering ore from the Mine Site to the Plant Site, traveling between 15 to 25 miles per hour.

To minimize the amount of ore that escapes from rail cars, ore would be loaded into the center of the car so that fines would be located at the center of the car and the larger ore pieces would be at the edge. The result would be that fines would be kept from reaching the edge of the car where they would be subject to spillage through the hinge gaps. Large pieces that extend over the edge of the rail car would be pushed into the center of the car using a rubber-tired dozer or a front-end loader. In the event that a large ore piece would fall over the top edge of the cars during transit, it would be recovered during routine track maintenance.

In order to guard against possible adverse impacts from spilled ore, monitoring and mitigation activities can be developed. It is expected that the surface water quality sampling in the two streams traversed by the rail line would be included in permit monitoring. Mitigation measures could include alterations to the stream crossings (bridges or culverts) to collect any spilled material or the physical collection of spilled ore from the top of the rail ballast.

3.5 Traffic

Transportation of Project consumables and products would result in traffic on public roads and commercial railroads. Public roads would also have additional traffic from employees and service providers.

3.5.1 Transport of Consumables and Products

Process consumables and products would be transported to and from the Plant Site by truck and rail. This section describes the traffic on public roads and commercial railroad lines that would result from the Project.

Trucks transporting raw materials needed for the beneficiation process and the hydrometallurgical process would make approximately 80 round trips per month, entering the Plant Site from Highway 135. Trucks transporting copper and nickel concentrates would make up to approximately four round trips per day, also entering the Plant Site from Highway 135.

A locomotive, similar to the locomotives that would be hauling ore from the Mine Site to the Plant Site, would transfer loaded and empty cars carrying process consumables and concentrates to and from the interchange location with the Canadian National Railroad. Cars carrying process consumables and concentrate would meet railroad common carrier requirements.

Product shipment would require an approximately 100-car train once per month and a 30-car train 4 times per month, year-round. Process consumables would require an approximately 100-car train once per week, April through October. It is expected that outgoing PolyMet products would go by rail from the Plant Site to Virginia, Minnesota, with about half going south to Duluth, Minnesota, and the other half going north to International Falls, Minnesota. Product transport beyond Virginia is likely to be a part of the existing commercial rail traffic, with limited potential to generate additional commercial train trips. Process consumables would arrive at the Plant Site from the south from Duluth through Virginia. This movement is likely to be a part of the existing commercial rail traffic, with limited potential to generate additional commercial train trips.

3.5.2 Traffic from Employees and Service Providers

The Project would employee as many as 500 full-time workers over an 18-month period during peak construction period, and about 360 full-time workers during operation. There would be approximately 38 employee vehicles per day and 4 service vehicles per day entering the Main Gate (from County Road 666). In addition, there would be approximately 113 employee vehicles per day and 36 service vehicles per day entering the North Gate (from Highway 135).

3.6 Project Reclamation

Mining is expected to be completed approximately 20 years after operations begin. This section summarizes information from the Reclamation Plan, which is a support document for the MDNR Permit to Mine, and focuses on those aspects of Project Reclamation that have potential effects on lynx, northern long-eared bat, and wolf. Additional information on Project reclamation is available in the FEIS (MDNR et al. 2015).

In general, Project facilities have been designed and would be operated to allow for progressive reclamation, or "mining in a manner that creates areas that can be reclaimed as soon after initiation of the operation as practical and as continuously as practical throughout the life of operation" (Minnesota Rules, part 6132.0100). This would leave a smaller portion of the Project area needing to be reclaimed after closure. Project features that would be progressively reclaimed include the Waste Rock Stockpiles, the East Pit, the exterior slopes of the Flotation Tailings Basin, and the Hydrometallurgical Residue Facility. The Waste Water Treatment Facility and the Waste Water Treatment Plant would remain operative during reclamation and long-term closure[5].

3.6.1 Building and Structure Demolition and Equipment Removal

The buildings and structures would be removed and foundations razed. All mining, dewatering, and electrical equipment would be removed from the mine pit and scrapped, decommissioned, or sold. Debris and equipment would be removed from the Mine Site and Plant Site. Most roads, parking areas, or storage pads built to access these facilities would be demolished. Utility tunnels would be sealed and reclaimed in place. After demolition, these areas would be reclaimed and vegetated according to Minnesota Rules, part 6132.2700. All areas would be stabilized as required for stormwater management.

Demolition waste from structure removal would be disposed of in the existing on-site demolition landfill located northwest of the Area 1 Shop. Most concrete from demolition would be crushed and used for structural fill, placed in the basements of the Plant Site buildings, or placed in the existing on-site industrial landfill. Asphalt from paved surfaces would be removed and recycled or properly disposed of. Railroad track and ties that were not used by common carriers would be removed and recycled. All disturbed areas would be reclaimed and vegetated.

Any roads, including Mine Site access roads that may develop into unofficial off-road vehicle trails, would require a variance from MDNR reclamation rules to allow a 15-foot-wide unpaved, unvegetated track down the centerline of the road. Such approvals would also be coordinated with the St. Louis County Mine Inspector's Office.

Special materials would be disposed of appropriately during reclamation:

- Any ore remaining in the Rail Transfer Hopper, the Ore Surge Pile, or anywhere else in the vicinity of the Rail Transfer Hopper, as well as sediment removed from ditches and process

[5] "Long-term closure" is defined as being the time period when the West Pit has filled with water and the Waste Water Treatment Facility is discharging water to the outlet channel to the Upper Partridge River. This will likely occur during the post-closure maintenance period of reclamation.

water ponds, would be placed in the East Pit.

- Asbestos-containing materials would be removed intact, properly packaged, and disposed of in the on-site demolition landfill. The locations of asbestos-containing materials in the landfill would be noted on the property deed. Any asbestos-containing materials found in utility tunnels would be sealed before the utility tunnel is sealed.

- Fluorescent and sodium halide bulbs, nuclear sources, oil-stained concrete, and partially used paint, chemical, and petroleum products would be removed and recycled or properly disposed of.

- Any materials remaining in storage tanks would be sent to appropriate recycling or waste disposal facility. All storage tanks would be cleaned, disassembled, and recycled or disposed of appropriately. Tank foundations would be removed and all disturbed areas would be vegetated.

- Material remaining in the equipment and process piping would be properly disposed of in the Hydrometallurgical Residue Facility or other MPCA-approved locations.

- On-site sewer and water systems, powerlines, pipelines, and culverts would be closed according to regulatory requirements.

3.6.2 Reclamation of Mine Site

Mine Site reclamation would include building and structure demolition and equipment removal, mine pit reclamation, stockpile reclamation and watershed restoration. Mine Site reclamation would begin as soon as practical throughout mining operations, with reclamation of the East Pit and Waste Rock Stockpiles commencing before mining activities cease.

3.6.2.1 Mine Pit Reclamation

Mine pit reclamation would include pit flooding, construction of overflows and outlet control structures, sloping and vegetation of pit walls, and fencing to control access to the pits. East Pit reclamation would begin during operations, while West Pit reclamation would commence when mining activity ceases.

Mine pit dewatering systems would be removed from the pits and the pits would be allowed to flood with water. All areas disturbed during pipe removal would be graded and revegetated. Some temporary pumps may remain in the pits for dewatering that would be performed during pit flooding.

East Pit flooding would start in Mine Year 11 and be completed by Mine Year 20. Overflow from the East Pit would flow to the West Pit through a new ditch. An East Pit outlet structure would be built, which would establish the steady-state water level in the East Pit. The East Pit would be revegetated with wetland vegetation, resulting in approximately 207 acres of wetland (**Figure 7**).

Upon completion of mining operations, the West Pit would begin to flood naturally with groundwater, precipitation, and surface runoff from the tributary watershed. West Pit flooding would be accelerated with treated water from the Plant Site. With the addition of water pumped from the Plant Site to the West Pit,

West Pit flooding is projected to be completed between Mine Years 40 and 45. The West Pit would remain an open pit lake (MDNR et al. 2013).

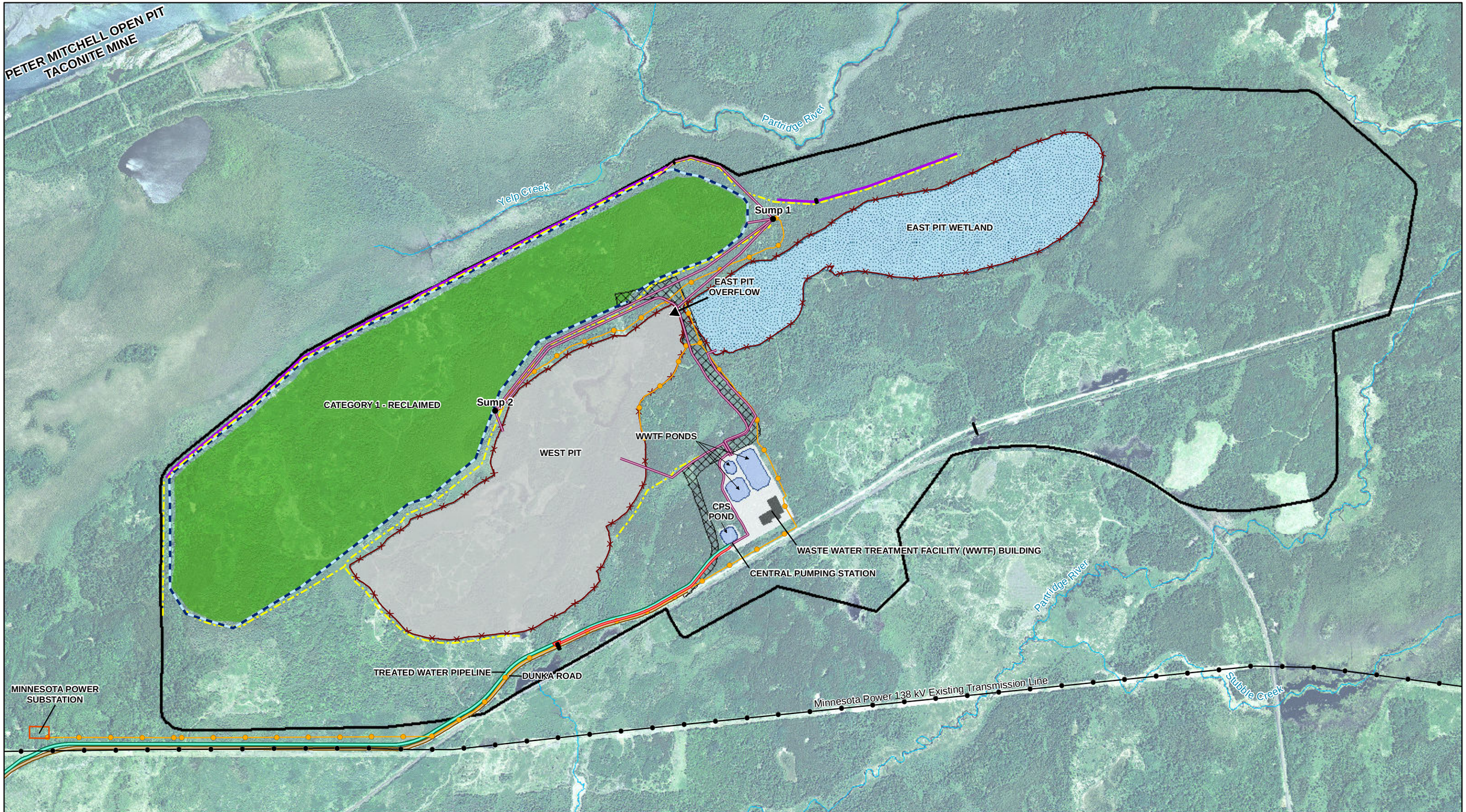

Mine Site
Covered Stockpile
West Pit
East Pit Wetland
Haul Roads
Groundwater Containment System
Process Water Pipe
Stormwater Collection Ditch
Perimeter Dike
Discharge Pipe
Culverts
Fence

US Army Corps of Engineers
St. Paul District

N
W E
S

0 750 1,500 3,000
Feet

Figure 7
Mine Site Plan Long-term Closure
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

When the West Pit is full, discharge would be prevented by pumping West Pit water to the Waste Water Treatment Facility for treatment. The Waste Water Treatment Facility would be upgraded to include reverse osmosis or similar membrane separation technology to achieve an effluent concentration that meets the sulfate standard for waters used for the production of wild rice (10 mg/l). After the upgrade, effluent would be discharged through Dunka Road into an existing wetland, and eventually into the Partridge River through an existing tributary channel.

The overburden portions of the pit walls would be sloped, graded, and vegetated in accordance with Minnesota Rules, part 6132.2300. Lift heights would be selected based on the need to protect public safety, the location of the pit wall in relation to the surrounding land uses, the soil types and their erosion characteristics, the variability of overburden thickness, and the potential use of the pit following mining.

A pit perimeter fencing system would be installed consisting of fences, rock barricades, ditches, stockpiles, and berms. The barrier system plan would be submitted to the St. Louis County mine inspector for review and approval before installation. Safe access would be provided to the bottom of each mine pit via selected haul roads built during pit development. The access road would be selected such that, as pit water level rises, there would always be a clear path to the water surface. A gated entrance would be placed at each pit access location.

3.6.2.2 Stockpile Reclamation

Stockpile reclamation would begin during operations. Upon full reclamation of the Category 1 Waste Rock Stockpile, runoff from the top and sides of the stockpile would be classified as non-contact stormwater and discharged into the natural drainage system. The Category 1 Waste Rock Stockpile Groundwater Containment System would continue to collect drainage from the stockpile during reclamation, with drainage treated at the Waste Water Treatment Facility. The Category 1 Waste Rock Stockpile would be reclaimed as a grass/forb community and shrubs and trees would be removed to prevent damaging the liner system. The other stockpiles (Category 2/3 and Lean Ore) would be removed, the areas would be initially planted with grasses, with a successional trajectory towards forest.

3.6.2.3 Watershed Restoration

During mining operations, stormwater runoff from reclaimed stockpile areas and natural (undisturbed) areas would be routed via dikes and ditches to stormwater sedimentation ponds. During reclamation, dikes and ditches that were no longer needed would be removed or filled and ponds would be filled. The reclaimed surfaces would then be scarified, topsoil placed on the surface, and the area revegetated with native species.

Surface runoff inflows would be routed to the mine pits using a combination of existing and new ditches. Some portions of the pit rim dikes may be left in place, if needed, to prevent an uncontrolled flow to or from the pits and potential erosion (head cutting) of the pits walls.

All stormwater ponds, the Overburden Storage and Laydown Area process water pond, haul road process water ponds, and all stockpile sumps and overflow ponds would be filled with overburden and peat (that was removed from the site during construction and stored in the Overburden Storage Area), and covered with topsoil and revegetated, or converted into wetlands. If the process water ponds were converted into wetlands, any sedimentation that occurred within the pond would be evaluated to determine if removal of sediment or

covering of the pond would be necessary prior to restoration. Stormwater pond outlet control structures would remain in place as necessary to manage water flows.

3.6.3 Reclamation of Plant Site

Plant Site reclamation would include building and structure demolition and equipment removal, Flotation Tailings Basin reclamation, and Hydrometallurgical Residue Facility reclamation. Similar to the Mine Site,

Plant Site facilities have been designed and would be operated to allow for progressive reclamation. Features that would remain at the Plant Site are shown on **Figure 8**.

The Waste Water Treatment Plant, Flotation Tailings Basin Seepage Management Systems, and Hydrometallurgical Residue Facility Leakage Collection System would continue to operate during reclamation, although seepage and leakage rates would be progressively reduced. Seepage and leakage would be recycled back into the Flotation Tailings Basin Pond or treated at the Waste Water Treatment Plant and pumped to the Mine Site to aid in West Pit flooding, or discharged.

3.6.3.1 Flotation Tailings Basin Reclamation

Permanent vegetation would be established on the Flotation Tailings Basin to control fugitive dust. Flotation Tailings Basin exterior dam surfaces would be reclaimed progressively, while interior areas would be seeded and mulched after closure.

Infiltration would be reduced through the dam faces, beaches, and pond bottom of the Flotation Tailings Basin by bentonite amendment. The exterior face of the dams would be reclaimed progressively, with a bentonite layer added as they are constructed to limit oxygen diffusion. The exposed beaches and dam tops would be amended with a bentonite layer to limit oxygen diffusion. The pond bottom would be covered with a bentonite layer to maintain a permanent pond that would limit oxygen diffusion.

During reclamation, several sources of water from the Flotation Tailings Basin would require management. The sources and a summary of the type of management needed are described as follows:

- Ponded water within the Flotation Tailings Basin – a pond and wetland would remain in the Flotation Tailings Basin. The pond and wetland would receive surface water runoff from the crest and beaches of the basin and natural terrain adjacent to the Flotation Tailings Basin. The pond and wetland would continue to lose water via seepage, but at a reduced rate as compared to during operations as a result of the bentonite augmentation of the Flotation Tailings Basin pond bottom. Excess water would be pumped from the Flotation Tailings Basin pond to the Waste Water Treatment Plant for treatment prior to discharge.

- Stormwater management would include grading to provide a gently sloping surface that effectively routes surface water runoff to the interior of the Flotation Tailings Basin, and to accommodate future differential settlement of the underlying Flotation Tailings.

- An emergency overflow channel would be constructed to carry stormwater from the pond to the adjacent wetland in case of an extreme storm or snowmelt event after reclamation. The conceptual location of the emergency overflow channel is from the combined Cell 1/2E to the adjoining land.

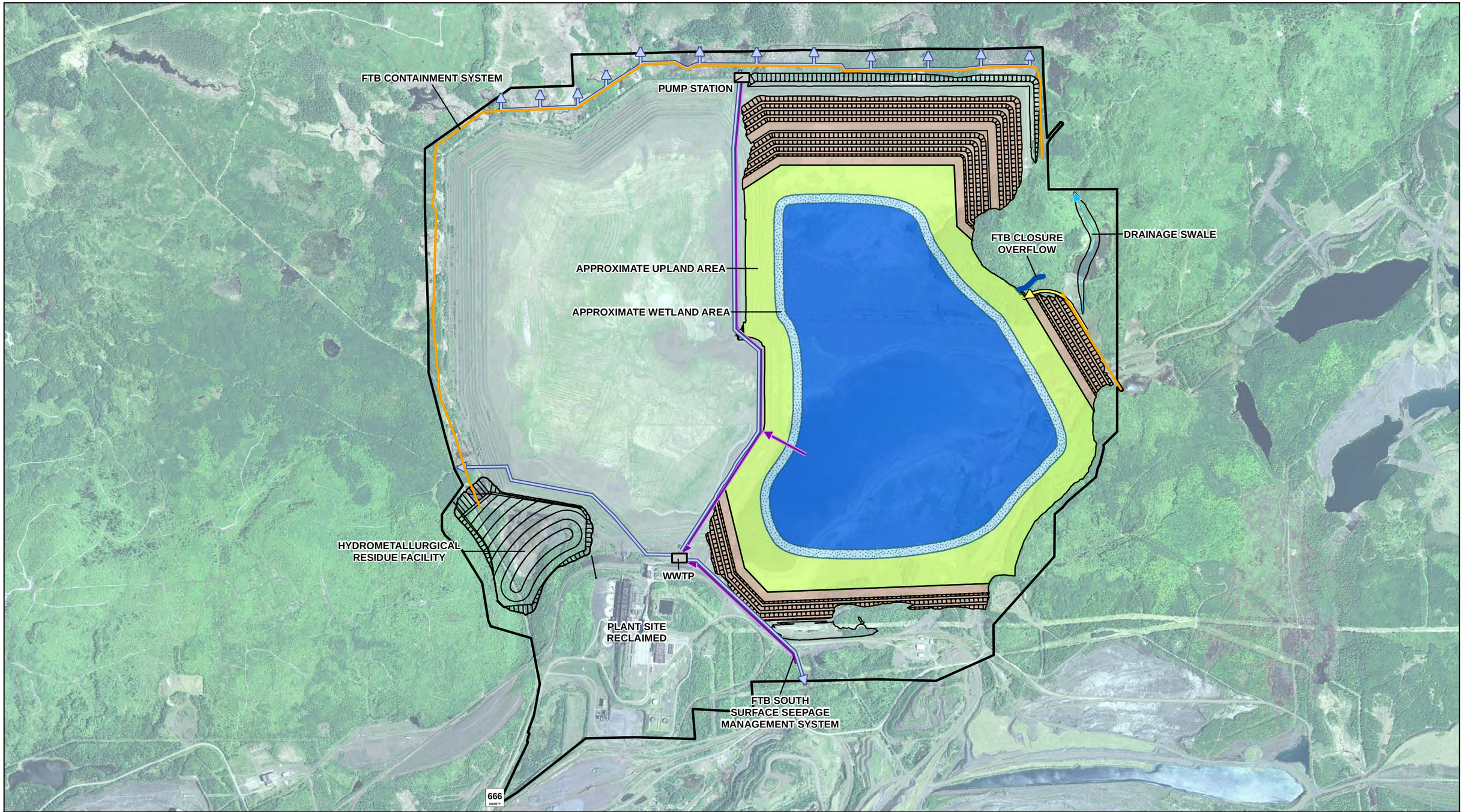

Figure 8
Plant Site Layout Long-term Closure
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

3.6.3.2 Hydrometallurgical Residue Facility Reclamation

Reclamation of the Hydrometallurgical Residue Facility cell would include removal of ponded water from the cell surface, removal of pore water from the residue, construction of the cell cover system, establishment of vegetation, and surface water runoff control.

Ponded water remaining in the cell would be removed and treated at the Waste Water Treatment Plant. Drainage would be collected from the base of the cell at the geocomposite drainage system and managed as described for ponded water. The rate of drainage would decrease over time as the pore water within the Hydrometallurgical Residue Facility was collected and removed.

The Hydrometallurgical Residue Facility cell area would be graded into a gently sloping surface, and an engineered cover system would be installed to limit infiltration. Permanent vegetation would be established over the cover system. The turf and final cover would be inspected, mowed once per year or as needed, fertilized if vegetation growth is poor, and repaired as needed.

The cover would slope gently toward the site perimeter to accommodate natural drainage of the runoff. Final cover slopes on the cell interior would be relatively shallow to minimize surface water runoff flow velocity and the associated erosion. Runoff channeled along the cell perimeter would be routed downslope via rip-rapped drainage swales or plug-resistant inlet structures and piping systems. Once runoff was conveyed down the cell exterior dam slope, it would be routed to the surrounding natural drainage system. All runoff would be from reclaimed cover or dam exterior slopes, which would constructed of MDNR-approved material.

3.6.4 Long-Term Closure Activities

Mechanical water treatment systems (the Waste Water Treatment Facility and the Waste Water Treatment Plant) would continue to operate during long-term closure. The water collected by the Category 1 Waste Rock Stockpile Groundwater Containment System and the West Pit water would be treated using the Waste Water Treatment Facility (upgraded to reverse osmosis or similar membrane separation technology) to ensure that the discharge meets applicable water quality discharge limits. The Waste Water Treatment Plant would treat water collected by the Flotation Tailings Basin seepage capture systems, Hydrometallurgical Residue Facility Leakage Collection System, and excess Flotation Tailings Basin pond water, to meet applicable water quality discharge limits. Inspection, water treatment maintenance, and reporting activities would continue while the mechanical treatment systems operated during long-term closure.

Surface water and groundwater quality would be monitored. These long-term closure activities would be expected to be ongoing until such time as the various facility features are deemed environmentally acceptable, in a self-sustaining and stable condition.

Other long-term closure activities would include repair of stockpile and Flotation Tailings Basin dam slope erosion, up-keep of constructed wetlands and outflow structures, removal of shrubs and trees from the Hydrometallurgical Residue Facility and Category 1 Waste Rock Stockpile cover systems, and on-going operation/maintenance and inspection of the seepage capture systems at the Category 1 Waste Rock Stockpile and Flotation Tailings Basin.

When PolyMet has completed all reclamation and long-term closure activities required under the Permit to Mine, a Request for Release per Minnesota Rules, part 6132.1400 would be submitted to the MDNR. This

request would provide the Commissioner of the MDNR with detailed information on the final closure status of the Project.

3.7 Federal and Non-federal Lands

3.7.1 Land Exchange Process

The federal lands are in St. Louis County, approximately 70 miles north of the City of Duluth, 20 miles south of the Boundary Waters Canoe Area Wilderness (BWCAW), and 6 miles south of the City of Babbitt. The federal lands are bounded on the north by the Northshore taconite mine and on the south by the Dunka Road and Utility Corridor. The federal lands include a portion of the Mine Site and Dunka Road and Utility Corridor.

The proposed land exchange between the Government, acting through the Forest Service, and PolyMet is an assembled land exchange. The exchange is proposed under the authority of the Weeks Act of March 1, 1911 as amended; General Exchange Act of March 20, 1922; Federal Land Exchange Facilitation Act of 1988; and the Federal Land, Policy and Management Act of October 21, 1976.

The federal lands are located within the General Forest and General Forest - Longer Rotation Management Area. The theme of the General Forest – Longer Rotation Management Area emphasizes land and resource conditions that provide a wide variety of goods, uses, and services. The characteristics and use of the General Forest Management Area are similar to the General Forest – Longer Rotation Management Area, except that harvests are more frequent, more uniform in age, and more extensive. The General Forest Management Area has the highest amount of young forest and the largest-sized timber harvest units.

Land ownership adjustment direction for these Management Areas allows the exchange of federal lands, with the desired condition described as “Land ownership patterns (federal, state, county, corporation and private) are consolidated, promote efficient administration and reduce the costs of managing resources.” A detailed discussion of the Land Exchange Process is provided in Chapter 3.3 of the SDEIS.

3.7.2 Federal Lands

The federal lands include approximately 2,719 acres of the 3,015-acre Mine Site and 3,776 acres of lands surrounding the Mine Site that are owned by the Government and administered by the Forest Service. The federal lands are located in Sections 6 and 7, Township 59 North, Range 12 West; Sections 1 to 12 and 16 to 18, Township 59 North, Range 13 West; Sections 1, 12, and 13, Township 59 North, Range 14 West; Section 31, Township 60 North, Range 12 West; and Sections 32 to 36, Township 60 North, Range 13 West. Most of the federal lands are part of the General Forest – Longer Rotation Management Area, while the remainder is within the General Forest Management Area.

The federal lands include a portion of One Hundred Mile Swamp, a large black spruce, tamarack, and northern white cedar wetland, and Mud Lake. Most of One Hundred Mile Swamp will not be affected by the Project. Refer to Figure 4 to see the limits of active mining at the Mine Site. Federal lands, including most of One Hundred Mile Swamp, outside of the active mining areas will not be affected by the Project.Yelp Creek and the Partridge River flow through the federal lands on the north, east, and southeast. Management of the 3,776 acres surrounding the Mine Site may include some upland timber management that could enhance wildlife habitat.

3.7.3 Non-federal Lands

PolyMet has acquired non-federal lands for transfer to the Government that encourage efficient land ownership patterns, with the desired condition of consolidating federal, state, county, corporate and private ownership to promote efficient administration and reduce the cost of managing resources to the Forest Service. The non-federal lands would be incorporated with adjacent federal ownership and managed in accordance with Forest Service's Forest Plan direction for that particular area. Lands with obvious recreational values would be managed to enhance those public recreation opportunities. The non-federal lands are assembled in five different tracts totaling approximately 7,075 acres that consist primarily of forest and wetland habitat (**Figure 2**).

3.7.3.1 Hay Lake Lands

Hay Lake Lands are in central St. Louis County, Minnesota, and are approximately 3 miles west of Biwabik, Minnesota. The lands, located at the eastern end of the Mesabi Iron Range, include approximately 4,926 acres in all or portions of Sections 9, 16, 19, 20, 21, 27, 28, 29, 30, 31, and 32 in Township 59 North, Range 16 West. The lands are moderately hilly and consist predominantly of second- or third-growth deciduous and coniferous forest uplands and emergent, shrub swamp, and forested wetlands. Approximately 59% (2,931 acres) of Hay Lake Lands consists of wetlands. The lands include Hay Lake, identified as a Wild Rice Water by the MDNR, and Little Rice Lake, and are bordered on the east by the Pike River. Forest Service lands border the lands to the north, east, and west. Forest Service lands adjacent to the lands are managed as General Forest and Candidate Research Natural Areas. Research Natural Areas are areas that the Forest Service has designated to be permanently protected and maintained in natural condition. These protected natural areas include unique ecosystems or ecological features; rare or sensitive species of plants and animals and their habitat; and/or high-quality examples of widespread ecosystems. Candidate Research Natural Areas are those areas which are in various stages of review for possible establishment as a Research Natural Area.

3.7.3.2 Hunting Club Lands

Hunting Club Lands are in northern St. Louis County, Minnesota, and includes approximately 160 acres in Section 17, Township 66 North, Range 17 West. The lands are nearly level and consist predominantly of second- or third-growth deciduous and mixed deciduous and coniferous forest uplands and emergent, shrub swamp, and forested wetlands. Approximately 40% (64 acres) of Hunting Club Lands consists of wetlands. The lands are bordered by Forest Service and county lands. Nearby Forest Service lands are managed as General Forest – Longer Rotation.

3.7.3.3 Lake County Lands

Lake County Lands consist of approximately 382 acres, with 265 acres in Sections 5 and 6, Township 57 North, Range 11 West (Lake County Lands North), and 117 acres in Section 17, Township 56 North, Range 9 West (Lake County Lands South) in Lake County, Minnesota. The lands are administered by Lake County. The lands are nearly level and consist predominantly of second- or third-growth mixed coniferous/deciduous forest uplands and bog, emergent, shrub swamp, and forested wetlands. Much of Lake County Lands South was recently logged. Approximately 74% (283 acres) of Lake County Lands consists of wetlands. The lands are bordered by the Superior National Forest. Forest Service lands near Lake County Lands North are managed as Riparian Emphasis Area and General Forest – Longer Rotation. Forest Service lands near Lake County Lands South are managed as General Forest – Longer Rotation. In Riparian Emphasis Areas, riparian

ecological functions are actively restored, protected, and enhanced in areas where ecosystem processes are sensitive to degradation. This includes maintaining and restoring native vegetation communities; maintaining and restoring riparian/hydrologic functions such as shoreline stability, wildlife habitat, coarse woody debris recruitment to aquatic and riparian ecosystems, and temperature regulation; and controlling non-native invasive species. Restoration focuses on components of the ecosystem that are not functioning at or within the range of desired conditions. Those components that are functioning properly are protected. These areas are also managed for recreational opportunities and visual quality adjacent to bodies of water.

3.7.3.4 McFarland Lake Lands

McFarland Lake Lands are approximately 31 acres in Section 9, Township 64 North, Range 3 East, in Cook County, Minnesota. These lands are approximately 3 miles west of the U.S. - Canada border and 10 miles north of Hovland, Minnesota. The lands are mostly on a hillslope and consist of second- or third-growth deciduous and coniferous upland forest. McFarland Lake is an entry point to the BWCAW. There are no wetlands on the lands. The lands are bordered by Forest Service land. Forest Service lands near McFarland Lake Lands are managed as General Forest – Longer Rotation.

3.7.3.5 Wolf Lands

Wolf Lands total 1,576 acres and are comprised of 126 acres in Section 8, Township 57 North, Range 11 West (Wolf Lands 1); 769 acres in Sections 15 and 22, Township 58 North, Range 10 West (Wolf Lands 2); 277 acres in Sections 30 and 31, Township 59 North, Range 9 West (Wolf Lands 3); and 405 acres in Sections 7, 8, 15, 17, and 18, Township 59 North, Range 9 West (Wolf Lands 4) in Lake County, Minnesota. The lands are nearly level and consist predominantly of second- or third-growth mixed deciduous and coniferous forest uplands and bog, emergent, shrub swamp, and forested wetlands. Much of Wolf Lands 3 has been recently logged. Approximately 88% (1,392 acres) of Wolf Lands consists of wetlands. Forest Service lands border portions of all of Wolf Lands and are managed as General Forest (Wolf Lands 2, 3, and 4) and General Forest – Longer Rotation (Wolf Lands 1). These lands would supplement National Forest ownership by reducing federal exterior boundaries and would eliminate several private in-holdings.

3.8 Wetland Mitigation Sites

The Project would directly impact an estimated 914 acres of wetlands, mostly within the Mine Site. A USACE permit would be required under Section 404 of the Clean Water Act for impacts to wetlands and other waters of the U.S. The majority of the direct wetland impacts would occur at the Mine Site (about 758 acres) and the Flotation Tailings Basin (141 Acres), with an additional 7 acres associated with Dunka Road and Railroad construction and 7.5 acres at the proposed Hydrometallurgical Facility.

PolyMet is proposing to purchase 2,169 acres (Wetland Mitigation Sites) as mitigation for wetland impacts from the Project. On the Wetland Mitigation Sites, 1,603 acres would be restored or converted to wetlands and 197 acres would be used for upland buffer. Wetland monitoring would be conducted to identify potential indirect impacts to wetlands caused by mining activities. PolyMet would work with USACE and MDNR to mitigate indirect impacts as appropriate.

Compensation for wetland impacts is required under Section 404 of the federal Clean Water Act and the Minnesota Wetland Conservation Act (Minnesota Rules part 8420.0100). The wetland mitigation planning process for the Project relied on the Wetland Conservation Act wetland replacement siting rules (Minnesota

Rules part 8420.0522), state compensatory mitigation requirements under state water quality standards (Minnesota Rules part 7050.0186), and the USACE St. Paul District Policy for Wetland Compensatory Mitigation in Minnesota (USACE 2009), which prioritizes the location of project-specific compensation to first replace lost wetlands on-site, then within the same watershed or county, and finally within adjacent watersheds.

3.8.1 On-site Restoration

In accordance with the USACE St. Paul District Policy for Wetland Compensatory Mitigation in Minnesota and state guidelines, the potential for creating wetlands on-site was considered first. Approximately 102 acres of onsite wetland creation opportunities were identified, which may occur at Project closure (Barr Engineering [Barr] 2012).

3.8.2 Off-site Mitigation

It was not possible to identify sufficient acreage on-site to mitigate for wetland impacts from the Project. Thus, potential wetland mitigation sites were identified and evaluated to determine their relative potential for mitigation, the level of risk and uncertainty, and the likely costs.

Sites were initially eliminated from further consideration due to issues that included unwilling landowners, significant private properties that would be hydrologically impacted by wetland restoration, insufficient agricultural history, insufficient wetland drainage to qualify for restoration credit, considerable existing upstream drainage through the site, or active pursuit of the properties by others. Three sites were identified that had the potential to accomplish compensatory wetland mitigation for the Project. These are the 1,070 acre Aitkin Site, 530 acre Hinckley Site, and the 569 acre Zim Site, which includes Zim North (481 acres) and Zim South (88 acres) (Figure 2; Barr 2007, 2014a, 2014b, 2014c, 2014d). Of these 2,169 acres, about 1,603 acres would be restored to wetland habitat.

3.8.2.1 Aitkin Site

The Aitkin Site is 1,070 acres in Section 6, Township 47 North, Range 26 West, and Section 1, Township 47 North, Range 27 West in Aitkin County, near Aitkin, Minnesota, and within the Mississippi River-Brainerd watershed. The site is a sod farm. PolyMet proposes to restore 808 acres of wetland and preserve 83 acres of upland buffer at the site (Barr 2007, 2014a, 2014d).

Initially, the internal drainage system at the site would be removed and outlets would be constructed to maintain desired hydrological conditions (Barr 2012, 2014a). Once desired hydrological conditions have been achieved, wetland vegetation would be promoted on the site by allowing native species that are present in the seed bank or that may be transported to the area from adjacent wetlands to develop on the site. Diverse, native wetland vegetation is expected to develop in the wetland. Wetland habitats likely to develop on the site include shallow marsh, shrub-carr, hardwood swamp, and coniferous swamp. Non-native and other invasive vegetation on the site would be removed through mechanical means or herbicide application. If vegetation development is not adequate to meet the success criteria, seed may be installed after the first or second growing season.

Hardwood and coniferous swamp would require herbaceous and woody species seedings and plantings.

Vegetation in the upland areas would be managed to promote natural succession of the existing plant communities. The primary maintenance activity would be control of non-native and other invasive species.

At completion of the monitoring period required to establish the wetland credits, the land would be conveyed to the third party that performs the construction to create the wetland mitigation credits. That ownership would also be subject to conservation easements (Pylka 2013a).

3.8.2.2 Hinckley Site

The Hinckley Site is 530 acres in Section 5, Township 39 North, Range 22 West, in Pine County, near Hinckley, Minnesota, and within the Snake River watershed. PolyMet proposes to restore 286 acres of wetlands and preserve 91 acres of upland buffer. The overall objective of the Hinckley restoration plan is to restore the hydrologic connection between upstream watersheds and the restoration site and to disable the internal drainage system on the site (Barr 2007a, 2014b, 2014d).

Initial activities would be focused on developing desired hydrological conditions (Barr 2014b). Restoration of wetlands would follow a similar process as that described for the Aitkin Site and would include the use of native seedbank and seed dispersal mechanisms to establish wetland vegetation on the site. Wetland habitats likely to develop on the site include sedge/wet meadow, shrub-carr, alder thicket, and hardwood swamp. Site management would include control of non-native and other invasive vegetation, and seeding and plantings of coniferous trees.

PolyMet would continue to own the land after the credits are created. At the time the credits were accepted it could be determined that PolyMet keeps the lands or transfers the lands to another third party subject to the conservation easement placed upon the lands for the creation of the credits (Pylka 2013a).

3.8.2.3 Zim North

The Zim North Site is 481 acres in Sections 2, 3, 10, 11, 14, and 15, Township 55 North, Range 18 West, in St. Louis County, approximately 12 miles southwest of Eveleth, and within the St. Louis River watershed. PolyMet proposes to restore the site to coniferous bog and shallow, open water wetland. Approximately 352 acres of coniferous bog and 7 acres of shallow, open water would be created on the Zim North site. In addition, 18 acres of ditches would be filled, 44 acres of partially drained wooded areas would be restored, and 12 acres of forested woodland and 12 acres upland buffer would be preserved. Approximately 36 acres of roads and other lands would not be restored. The overall objectives of the Zim North restoration plan would be to restore the native coniferous bog wetland community, restore the hydrologic connection between upstream watersheds and the restoration site, and disable the internal drainage system on site. Developing a bog community is highly dependent on soil and groundwater parameters that may be difficult to control. Therefore, a coniferous swamp community would be the contingent community if the soil and groundwater conditions are not adequate for bog regeneration. Coniferous bog or swamp is the target for the whole site, however, where trees do not successfully establish, the target community would be a shallow, open water wetland.

3.8.2.4 Zim South

The Zim South Site is 88 acres in Sections 26, 27, 34, and 35, Township 55 North, Range 18 West, in St. Louis County, approximately 16 miles southwest of Eveleth, and within the St. Louis River watershed. PolyMet proposes to restore the site to coniferous bog and shallow, open water wetland. Approximately 50

acres of coniferous bog and 1 acre of shallow, open water would be created on the Zim South site. In addition, 3 acres of ditches would be filled, 5 acres of partially drained wooded areas would be restored, and 17 acres of forested woodland and 10 acres upland buffer would be preserved. Approximately 2 acres of roads and open ditches would not be restored. The overall objectives of the Zim North restoration plan would be to restore the native coniferous bog wetland community, restore the hydrologic connection between upstream watersheds and the restoration site, and disable the internal drainage system on site. As mentioned above, developing a bog community is highly dependent on soil and groundwater parameters that may be difficult to control. Therefore, a coniferous swamp community would be the contingent community if the soil and groundwater conditions are not adequate for bog regeneration. Coniferous bog or swamp is the target for the whole site, however, where trees do not successfully establish, the target community would be a shallow, open water wetland.

Initial activities at both sites would be focused on developing desired hydrological conditions through site grading to fill ditches and break drain tiles (Barr 2014c, 2014d). Restoration of wetlands include finding suitable donor bog materials, transporting materials to the site, spreading bog materials over areas to be restored, spreading fresh straw mulch over bog plant fragments, and applying slow-release fertilizer. Trees and shrubs would be planted 1 to 3 years after spreading of bog materials. In addition, several ponds would be excavated to a depth no greater than 6 feet to allow for development of shallow, open water wetland communities. Site management would include control of non-native and other invasive vegetation.

PolyMet would convey the land to the third party that performs the construction to create the wetland credits upon acceptance of the credits. This ownership is also subject to conservation easements that would be placed upon it during the mitigation period (Pylka 2013a).

4.0 Description of the Lands Affected by the Project

4.1 Federal Lands

The federal lands include approximately 2,719 acres at the 3,015-acre Mine Site and 3,776 acres bordering the Mine Site that are owned by the Government and administered by the Forest Service.

4.1.1 Mine Site

The Mine Site encompasses 3,015 acres; 2,719 acres are Government owned while 296 acres are privately owned. The Mine Site has little topographic relief. It consists of a mosaic of slightly elevated upland areas surrounded by wetlands, and slopes toward the east-northeast, in the direction of the Partridge River. About 57% of the Mine Site is upland habitat, and 43% is wetland habitat. Most upland habitat is associated with the central portion of the Mine Site. One Hundred Mile Swamp, northwest of the Mine Site, is the dominant feature on the landscape. The Partridge River drains this swamp and flows along and outside the northeastern and eastern boundary of the Mine Site (ENSR 2000, 2005).

Habitat observed on the Mine Site is typical of habitats associated with much of the Iron Range. Forest vegetation dominates the Mine Site (**Figure 9**; **Table 4**). Most forest stands contain trees that are 12 inches diameter-at-breast-height (dbh) or less.

The site can be divided into three general areas. The northwest area is dominated by lowland black spruce, with scattered stands of trembling aspen and balsam fir/trembling aspen; tamarack is also scattered throughout these stands. Most trees are estimated to be 60 years or older (USDA Forest Service 2000). Interspersed within forest stands are brush/young tree stands that were recently logged and provide habitat for white-tailed deer and moose. Young trees are generally up to 4 inches dbh and 10 years of age.

The northeastern area is dominated by nearly equal amounts of jack pine and black spruce, with scattered trembling aspen stands and speckled alder swamps (ENSR 2000, 2005). Although there are scattered black spruce stands containing trees greater than 60 years in age, most trees, especially jack pine, are 30 to 70 years in age (USDA Forest Service 2000a). There are a few recently logged areas within this area. Several large wetlands are found in this area. Most shrub/young tree habitat is associated with these wetlands and drainages.

The southern area contains a nearly equal mix of lowland and upland black spruce, jack pine, and trembling aspen, with some balsam fir and paper birch (ENSR 2000, 2005). Most tree stands are from 40 to 80+ years of age, although jack pine tree stands along Dunka Road are from 20 to 40 years of age.

Vegetation in the recently logged areas consists of grasses and ferns with trembling aspen saplings and speckled alder (ENSR 2000, 2005). The areas of more mature upland forests consist of jack pine, balsam fir, and trembling aspen, with lesser amounts of paper birch, red pine, and white pine. The mature lowland areas consist mainly of black spruce and tamarack growing on a bed of sphagnum moss and club moss with speckled alder, bog Labrador-tea, and leatherleaf. The open wetland areas consist of grasses, sedges, cattails, speckled alder, and pussywillow.

Approximately 1,719 acres of the Mine Site would be affected by the Project. **Table 4** shows the cover types that would be affected by the Project, using the MDNR Gap Analysis Program (GAP) land cover types

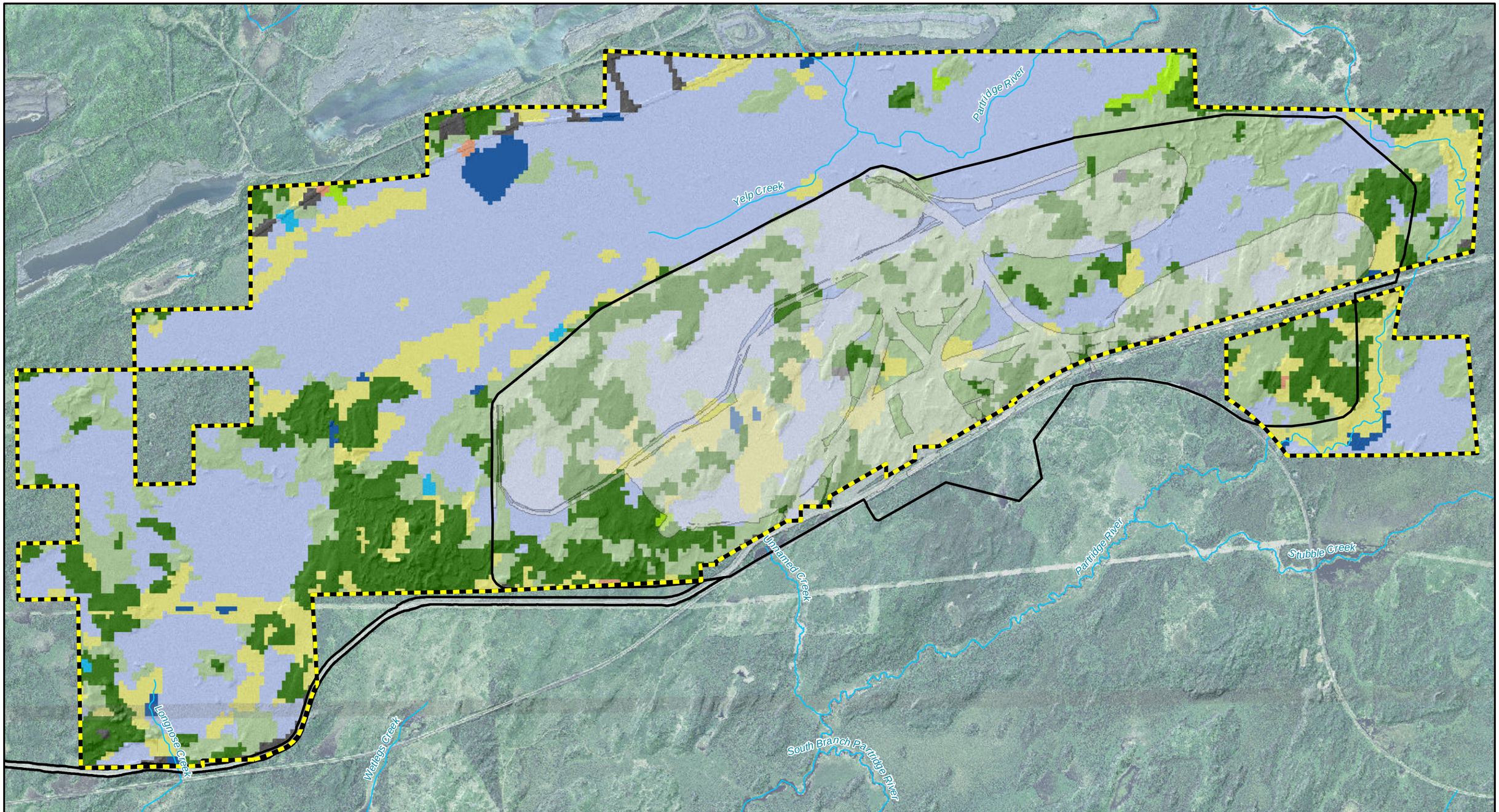

Federal Lands
Project Areas
Areas Affected by Project Features

GAP Land Cover
Aquatic Environments
Crop/Grass
Lowland Conifer Forest
Lowland Deciduous Forest
Non-vegetated
Shrubland
Upland Conifer Forest
Upland Conifer-Deciduous mix
Upland Deciduous Forest

US Army Corps of Engineers
St. Paul District

N W E S

0 1,000 2,000 4,000 Feet

Figure 9
GAP Land Cover/Habitat Types - Federal Lands
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

(MDNR et al. 2013). The GAP land cover system is a hierarchical land classification system that organizes vegetation communities into 1-acre blocks and was developed by the MDNR.

4.1.2 Federal Lands Surrounding the Mine Site

Federal lands surrounding the Mine Site encompass about 3,776 acres and border the Mine Site to the west, north, and east. This area has little topographic relief. The lands consist of a mosaic of slightly elevated upland areas surrounded by wetlands, and slope toward the east-northeast in the direction of the Partridge River. Most (76%) of the area is wetland habitat, including a portion of One Hundred Mile Swamp, although upland habitat (24%) is an important component in the western portions of the area (**Figure 9**). Yelp Creek flows from One Hundred Mile Swamp to the Partridge River, which flows around the northern, eastern, and southeastern edges of the federal lands, outside of the Mine Site (AECOM 2011a). Under the Proposed Action, the areas not disturbed by the Project on the lands adjacent to the Mine Site would be managed for wildlife habitat, including timber management.

Forest vegetation dominates the federal lands. Most forest stands contain trees that are 12 inches dbh or less. The area can be divided into three general parts (AECOM 2011a). The eastern portion is dominated by the Partridge River. Large stands of lowland black spruce with scattered northern white cedar and tamarack are found in low areas associated with the river. Emergent and shrub swamp speckled alder wetland is adjacent to most of the river. Stands of immature (trees from 5 to 11 inches dbh, and from about 10 to 80 years of age) and mature (trees greater than 11 inches dbh and over 80 years of age) mixed coniferous/deciduous forest, coniferous forest dominated by jack pine, and smaller patches of immature deciduous forest, are found at higher elevations (USDA Forest Service 2000a).

Table 4
GAP Cover Types Affected by the Project at the Mine Site

Cover Type	Affected Acres	Non-affected Acres	Total Cover Type Acres	Percent of Cover Type Affected
Upland coniferous forest	742	454	1,196	62
Lowland coniferous forest	437	344	781	56
Upland deciduous forest	355	293	648	55
Shrubland	133	109	242	55
Disturbed	44	84	128	34
Aquatic environments	6	7	13	47
Upland coniferous-deciduous forest	2	1	2	63
Cropland/grassland	<1	5	5	4
Lowland deciduous forest	0	<1	<1	0
Total	**1,719**	**1,296**	**3,015**	**57**

Source: MDNR et al. (2013).

The northern portion of the federal lands surrounding the Mine Site includes a portion of One Hundred Mile Swamp. The swamp is comprised of some young (trees less than 5 inches dbh and 10 years of age), but mostly immature and mature black spruce, northern white cedar, and tamarack forests. Northern white cedar is prevalent in the northcentral portion of the northern area, while black spruce and tamarack are more common

in the remaining areas. Scattered stands of speckled alder are associated with the swamp, as are bog and emergent wetlands, especially along the Partridge River.

There are scattered "islands" of mature deciduous and mixed coniferous/deciduous forest. Most of the forest stands are 90 years or older, with many of the remaining stands 70 to 90 years of age (USDA Forest Service 2000a).

The western portion of the federal lands surrounding the Mine Site is dominated by lowland immature black spruce forest in its center, bordered by bog wetlands and wetlands dominated by speckled alder and red-osier dogwood. A large area dominated by cattail is associated with the transmission line rights-of-way (ROW). Upland immature and mature deciduous and mixed coniferous/deciduous forest, with scattered stands of coniferous forest, surround the centrally located black spruce forest. Clearings comprised of grasses, forbs, and shrubs are associated with the transmission line ROW, while scattered low areas, dominated by emergent and shrub swamp wetland vegetation, are interspersed within upland forest habitats.

4.2 Plant Site and Transportation and Utility Corridors

The Plant Site encompasses about 4,515 acres, which includes the former LTVSMC processing plant, existing LTVSMC Tailings Basin, Area 1 Shop, Hydrometallurgical Residue Facility, and administration buildings.

The southwestern corner of the Plant Site, the former LTVSMC processing plant, has almost entirely been disturbed by past mining activities. No wetlands are present within this portion of the Plant Site, although there is a plant reservoir located east of the concentrator that is not regulated as a wetland (Poly Met 2014a). The regulated wetlands within the Plant Site include a total of 52 wetlands covering approximately 245 acres. About 147 acres would be directly impacted by filling or excavation. Approximately 61% (2,756 acres) of the Plant Site is disturbed and supports little vegetation. The remaining areas consist of trembling aspen and trembling aspen-paper birch forest (14%), aquatic habitat (14%), grass/shrubland (7%), upland coniferous forest (2%), and lowland coniferous forest (1%; **Figure 10**; MDNR et al. 2013).

The Dunka Road and Utility Corridor is approximately 108 acres and the Railroad Connection Corridor is approximately 12 acres. Because of prior use during the former LTVSMC taconite mining operation, the Dunka Road and Utility Corridor is now defined as having a "disturbed" cover type. The remaining MDNR GAP land cover types that are not disturbed include cropland/grassland (8%), shrubland (6%), and smaller acreages of the remaining types. A total of 25 wetlands, encompassing approximately 7 acres, have been identified within the Dunka Road and Utility Corridor (MDNR et al. 2013). Approximately 7 acres of wetlands would be directly affected.

4.3 Non-federal Lands

4.3.1 Hay Lake Lands

Hay Lake Lands are approximately 4,926 acres and have moderate topographic relief. The lands consists of a mosaic of slightly elevated upland areas surrounded by wetlands, and slope toward the east-northeast, in the direction of the Pike River (AECOM 2011b).

Most (59%) of Hay Lake Lands is wetland habitat, although upland habitat (41%) is an important component in the central and western portions of the lands (**Figure 11**). The Pike River, Hay Lake, and Little Rice Lake are dominant features of the landscape. The Pike River flows along the eastern boundary of the lands.

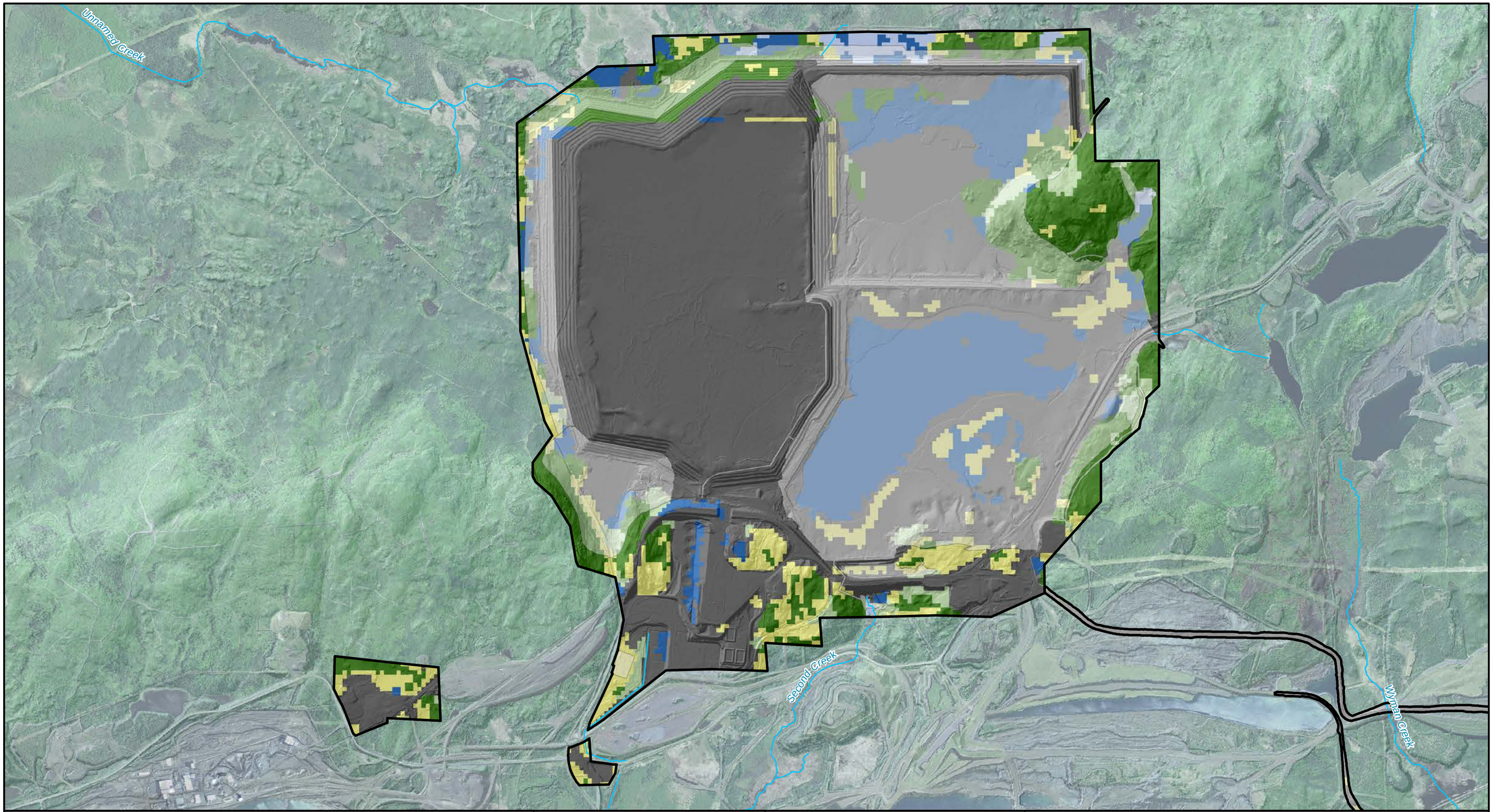

Project Areas
Areas Affected by Project Features
GAP Land Cover
Aquatic Environments
Crop/Grass
Lowland Conifer Forest
Lowland Deciduous Forest
Non-vegetated
Shrubland
Upland Conifer Forest
Upland Conifer-Deciduous mix
Upland Deciduous Forest

US Army Corps of Engineers
St. Paul District

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Figure 10
GAP Land Cover/Habitat Types - Plant Site
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

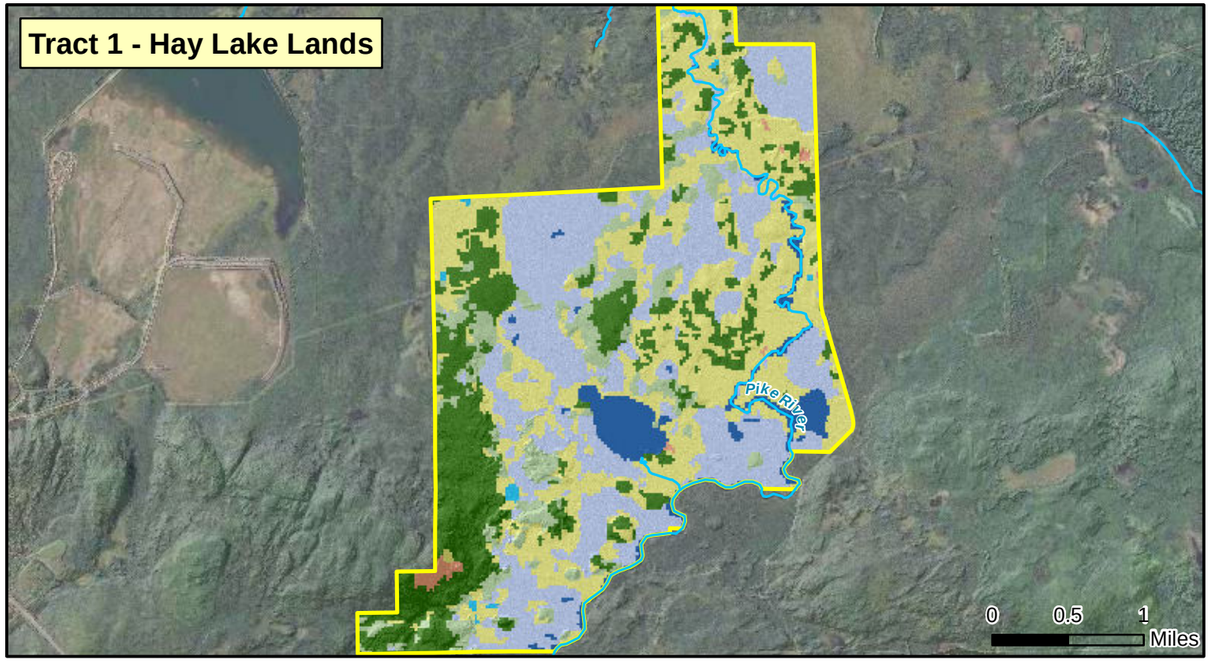

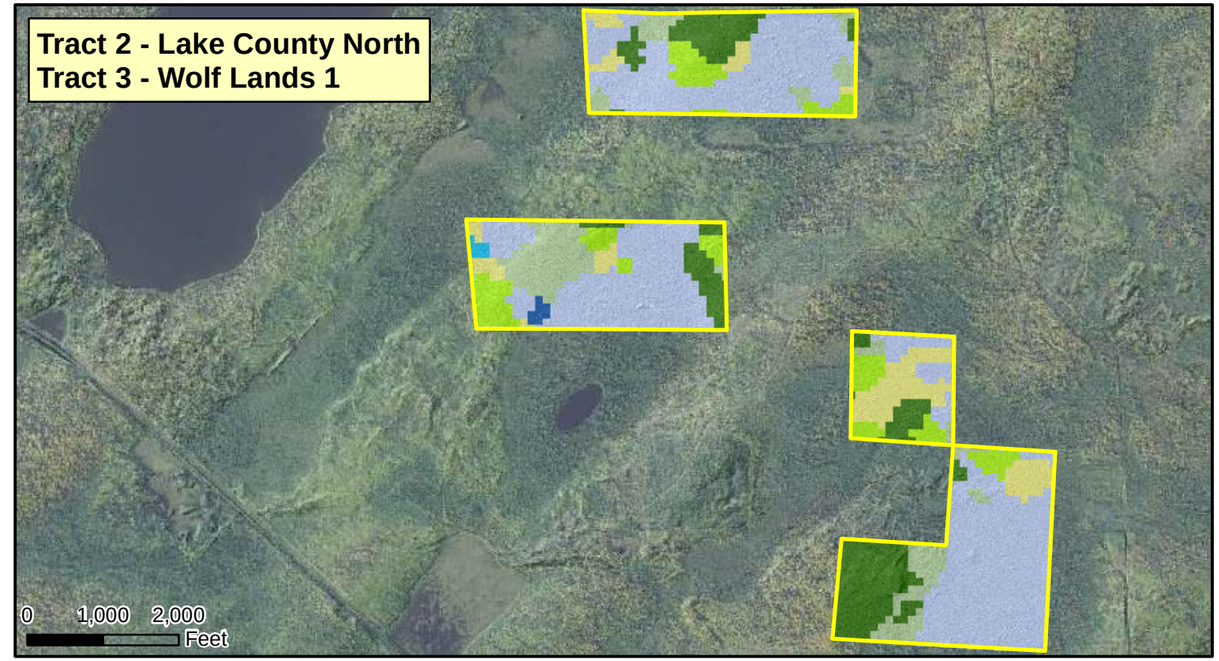

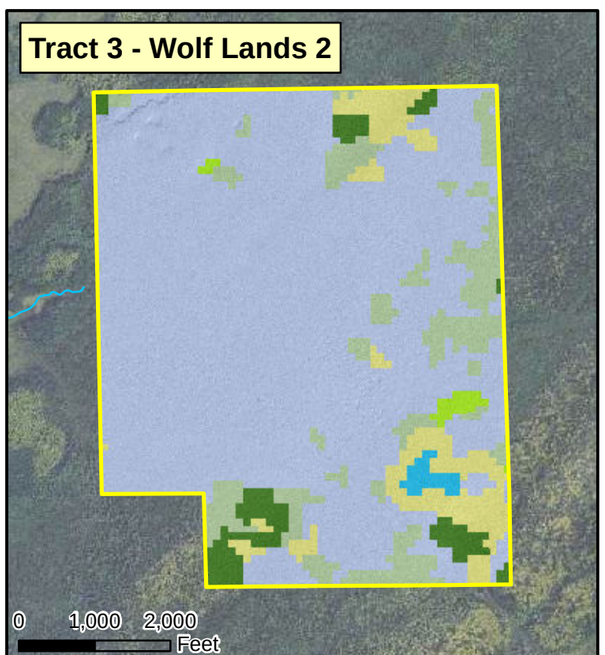

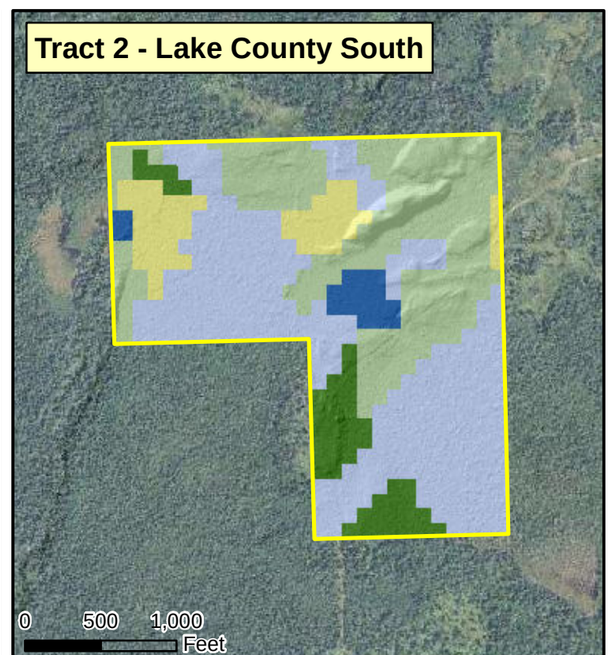

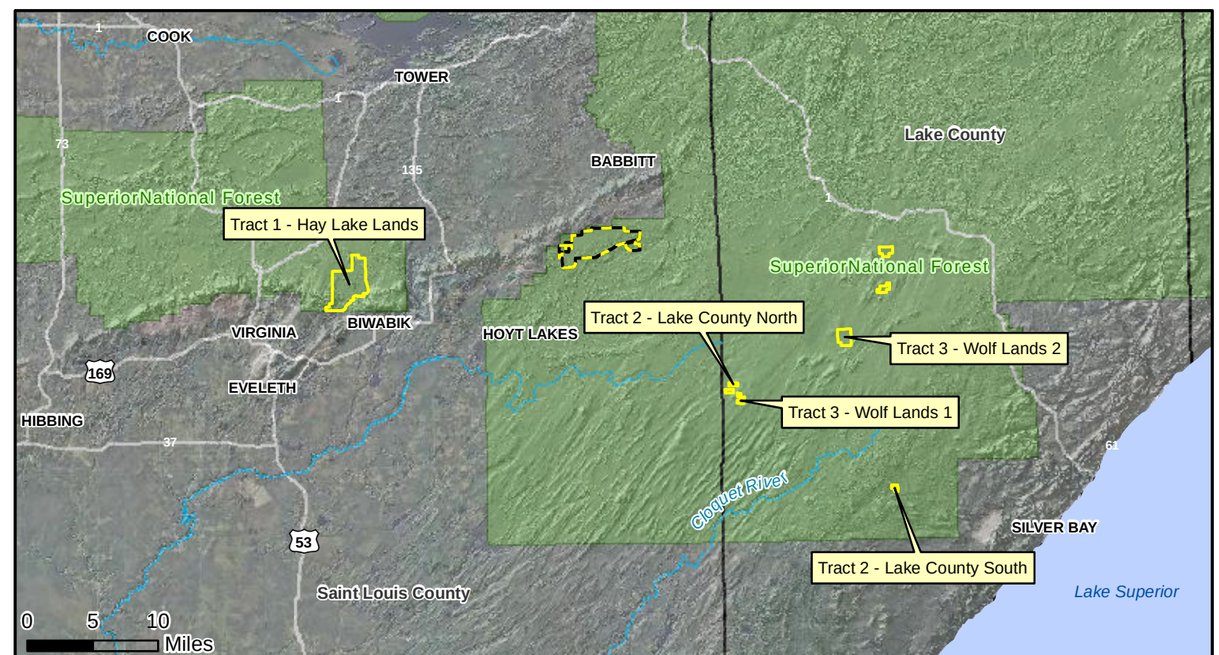

Non-federal Lands
Federal Lands
GAP Land Cover
Aquatic Environments
Crop/Grass
Lowland Conifer Forest
Lowland Deciduous Forest
Non-vegetated
Shrubland
Upland Conifer Forest
Upland Conifer-Deciduous mix
Upland Deciduous Forest

US Army Corps of Engineers
St. Paul District

N W E S

Figure 11
GAP Land Cover/Habitat Types -
Hay Lake Lands, Lake County Lands, and Wolf Lands 1 and 2
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

Forest vegetation dominates Hay Lake Lands. Nearly all forest stands contain trees that are 12 inches dbh or less, and most of the upland trees are 8 inches dbh or less. The lands can be divided into four general habitats. The eastern portion is dominated by the Pike River. Floodplain associated with river is dominated by emergent wetland with sedge and grass habitat, and shrub swamp wetland with speckled alder habitat. Wetland areas to the west of the river are dominated by lowland black spruce forest, with scattered northern white cedar and tamarack, and shrub swamp wetlands, especially in areas with evidence of past disturbance by logging activities.

Higher elevations in the northern, central, and western portions of the lands are dominated by upland deciduous and mixed coniferous/deciduous forest. Upland forest stands in the northern, central, and southwestern portions of the lands are immature to mature in size and age, while stands in the western portion of the lands are young to immature in size and age, having been harvested in recent years. Most trees are estimated to be 60 years or younger. Two transmission line ROWs are found on the lands. Emergent wetland and upland grassland/shrubland vegetation dominates the ROWs. Abandoned logging roads are also found on the lands. Low areas along roads are dominated by emergent wetland vegetation consisting of sedges and grasses, while upland portions of roads are dominated by grasses and forbs.

4.3.2 Hunting Club Lands

Hunting Club Lands are approximately 160 acres, of which about 64 acres are wetland (**Figure 12**). The lands drain to the north and then northeast via an unnamed creek. Several beaver dams are found along the creek. From this low area, the lands slope upward to the east and west. The lands consist primarily of shrub swamp wetland, with lesser amounts of emergent wetland, and upland immature and mature deciduous forests (AECOM 2011c).

Beaver ponds and dams are the dominant wetland features on the lands. Open water habitat is typical near the dams. Emergent vegetation, consisting of Canada bluejoint, narrow-leaved cattail, and sedges, is found in water from 12 to 24 inches deep, while speckled alder shrub swamp wetlands are found near ponds at water depths from 6 to 18 inches. Speckled alder makes up to 80% of the cover in the shrub swamp wetlands. A large immature black spruce forest is found in the middle of Hunting Club Lands. The midstory consists of speckled alder, while leatherleaf, bog Labrador-tea, and sphagnum moss are found below the speckled alder. Immature black ash is found in a drainage leading to wetlands on the lands.

Habitat in the northwestern and northeastern portions and near the southern boundary of the lands are comprised of upland mature mixed coniferous/deciduous forest, dominated by eastern white pine to 24 inches dbh, and paper birch and trembling aspen to 12 inches dbh. The midstory consists primarily of balsam fir, while beaked hazel is found in the shrub layer.

The eastern and southern portions of the lands consist of patches of upland young and immature trembling aspen. The midstory consists of beaked hazel, with scattered black spruce and balsam fir. There is little ground cover.

An “island” of trembling aspen-eastern white pine forest is found within the young/immature trembling aspen forest. It is mature forest comprised of trembling aspen and eastern white pine to 16 inches dbh and black spruce to 12 inches dbh. There are many downed trees and much woody debris on the ground.

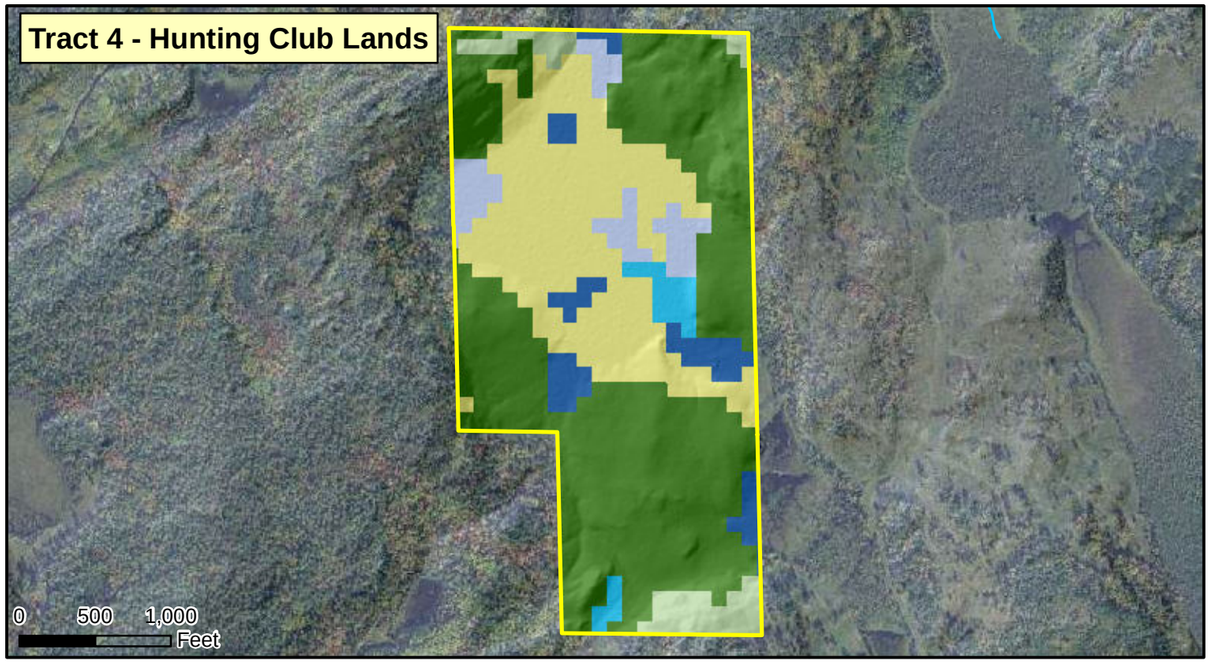

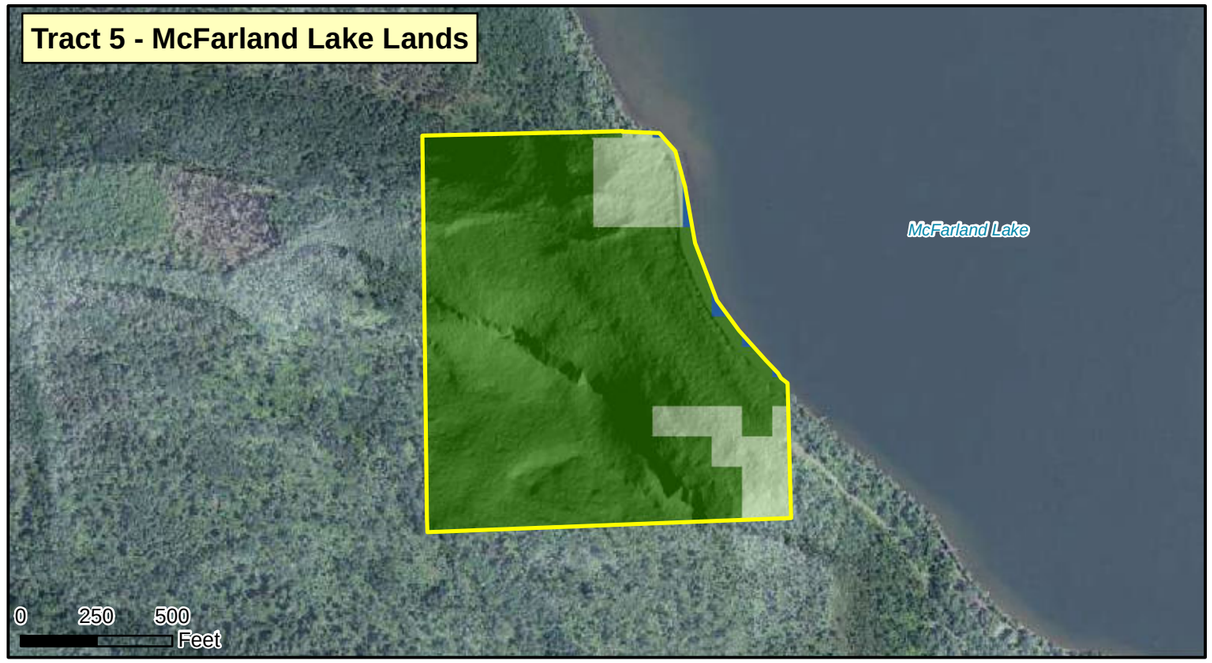

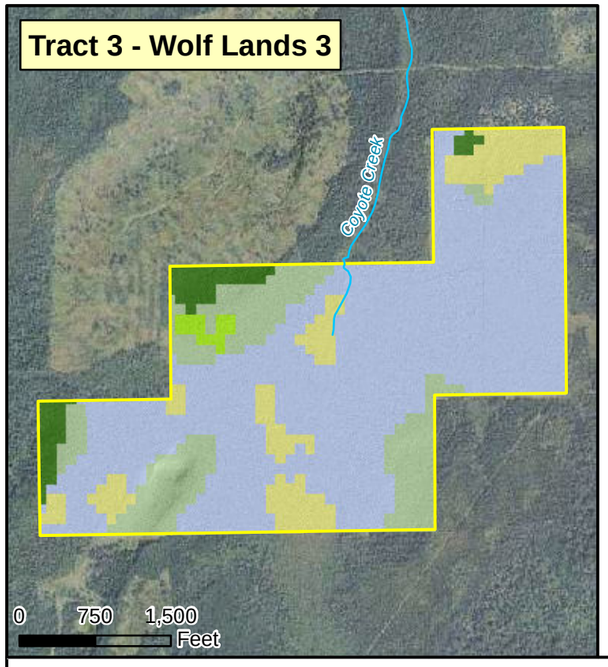

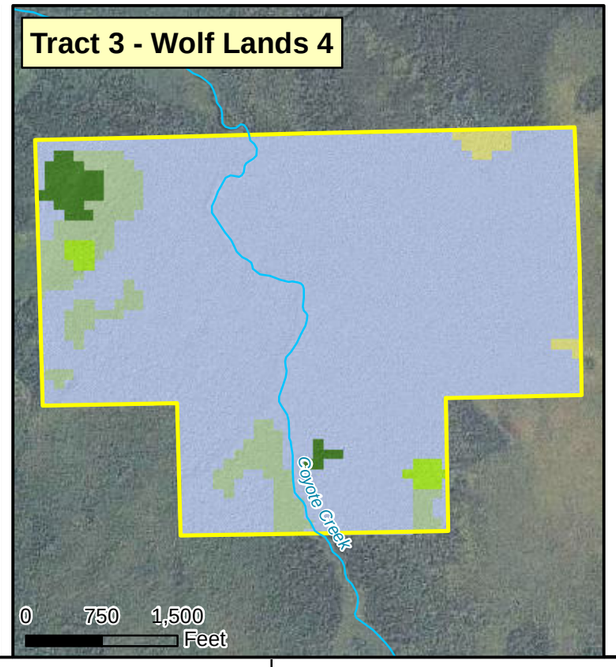

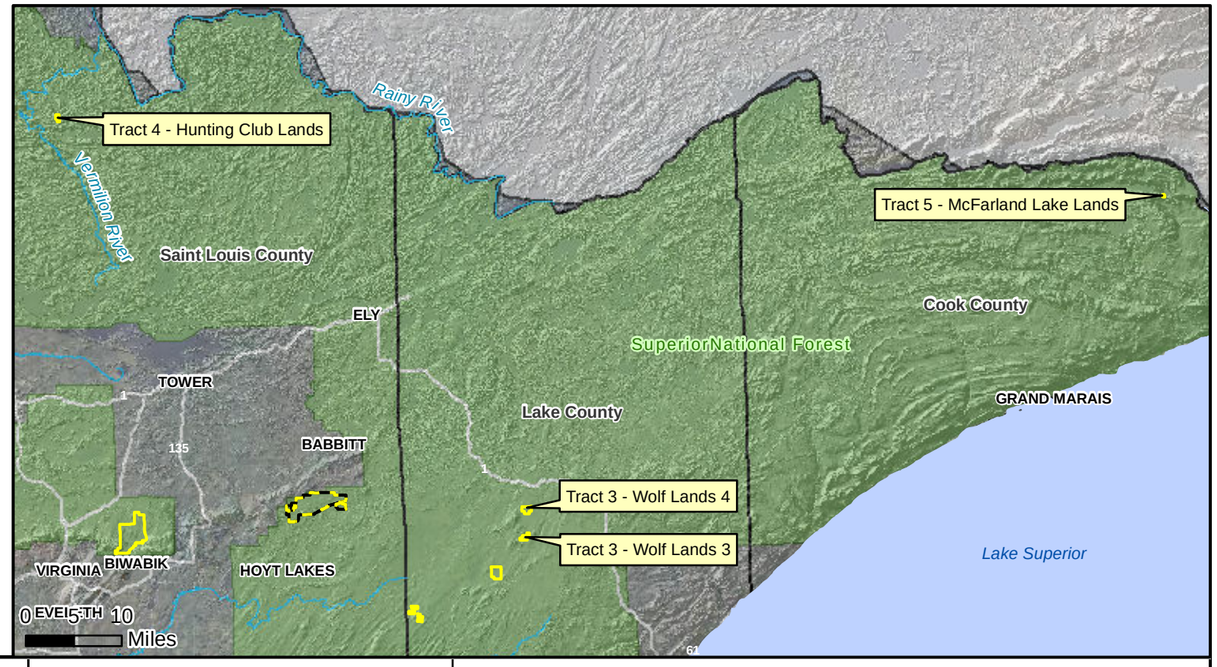

Non-federal Lands
Federal Lands
GAP Land Cover
Aquatic Environments
Crop/Grass
Lowland Conifer Forest
Lowland Deciduous Forest
Non-vegetated
Shrubland
Upland Conifer Forest
Upland Conifer-Deciduous mix
Upland Deciduous Forest

US Army Corps of Engineers
St. Paul District

N W E S

Figure 12
GAP Land Cover/Habitat Types - Hunting Club Lands, McFarland Lake Lands, and Wolf Lands 3 and 4
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

4.3.3 Lake County Lands

Lake County Lands consist of Lake County Lands North and Lake County Lands South.

4.3.3.1 Lake County Lands North

Lake County Lands North is approximately 265 acres, of which about 209 acres are wetland (**Figure 11**). The lands have moderate topography, with the terrain generally sloping toward the southwest and Pine Lake. Lake County Lands North consists of two small areas to the north, and a single, small area to the south that is adjacent to Wolf Lands 1. The lands are comprised of mostly wetland habitat, except for areas of upland habitat on the northern portion of the northern area and on portions of the southern area. Portions of the lands have recently been logged. Wetland habitat consists mostly of immature coniferous forest, with lesser amounts of mature mixed coniferous/deciduous forest and shrubland. Upland habitat is dominated by mature deciduous and immature deciduous forests (AECOM 2011c).

Wetlands are comprised primarily of immature northern white cedar and black spruce with lesser amounts of tamarack, although several drainages also contain black ash. The midstory consists of balsam fir and black spruce, while speckled alder, leatherleaf, and bog Labrador-tea are found in the shrub layer. Club moss and sphagnum moss cover most of the ground.

Shrub swamp and emergent wetland habitats are also found on the lands. Shrub swamp habitat is associated with several drainages, a beaver pond, a bog area, and recently logged areas, while emergent wetland habitat was found near the beaver pond and on recently logged areas. Shrub swamp wetlands are dominated by speckled alder. Vegetation in the emergent wetlands consists of sedges and Canada bluejoint, with scattered black spruce, northern white cedar, tamarack, and speckled alder.

Upland habitats are comprised of immature and mature paper birch and black spruce, while recently logged areas supported young paper birch stands or shrub habitat. The midstory cover is comprised of balsam fir, black spruce, and beaked hazel. Young paper birch with scattered young trembling aspen and scattered immature paper birch are in areas that had been recently logged.

Older forests contain large amounts of downed woody material; this material is mostly absent in logged areas. Tree wind-throw is common in forest stands adjacent to the clearcuts, and walking in these forests is difficult due to downed trees and woody debris, and the dense stand of balsam fir, black spruce, and northern white cedar in the midstory.

4.3.3.2 Lake County Lands South

Lake County Lands South is approximately 117 acres, of which about 74 acres are wetland (**Figure 11**). The lands are relatively flat in the northwestern section, rise in elevation to the northeast, and fall in elevation to the southeast. Water flows from west to east. A series of beaver dams and ponds dominate the landscape. Several areas have been recently logged and shrubland is the dominant upland habitat (AECOM 2011c).

Forested wetlands dominate the western and southeastern portions of the lands and are comprised of immature and mature black spruce and northern white cedar, although immature tamarack is found in some forest stands and immature black ash is an important component of several drainages. The midstory consists of balsam fir and black spruce. Speckled alder, leatherleaf, bog Labrador-tea, and red-osier dogwood are common shrubs,

while sphagnum moss covers most of the ground. Forests in the northwestern section contain a dense mix of northern white cedar and black spruce with scattered black ash in the drainages. The northwestern portion of this section is dominated by mature northern white cedar.

Five beaver ponds were found on the lands. These ponds are comprised of open water with scattered dead spruce surrounded by emergent wetland dominated by sedges, narrow-leaved cattail, woolgrass, and Canada bluejoint, or by dense stands of speckled alder in more shallow areas. Shallower drainages, especially in areas that have been logged, are covered by speckled alder, sedges, and narrow-leaved cattail.

Most upland areas have been recently clearcut, with the exception of the southwestern portion of the lands. This area has been partially thinned, leaving areas where mature paper birch, black spruce, jack pine, eastern white pine, and northern white cedar trees remain, ranging from 12 to 24 inches dbh. Balsam fir and beaked hazel are found in the midstory, while forbs and grasses cover the ground layer. Because of recent logging activity, woody debris and large downed trees are abundant.

4.3.4 McFarland Lake Lands

McFarland Lake Lands are about 31 acres on a hillslope that rises from 1,483 feet above mean seal level at McFarland Lake to 1,778 feet above mean seal level on the western boundary of the lands. Rocky cliffs, about 150 feet in height, are found at the top of the hillslope and large boulders are found on the hillslope (AECOM 2011b).

McFarland Lake Lands are dominated by deciduous and mixed coniferous/deciduous forest habitats (**Figure 12**). Tree sizes and ages range from immature to mature. Some logging has occurred at the top of the hillslope along the western boundary of the lands.

4.3.5 Wolf Lands

Wolf Lands total 1,576 acres and consist of four parcels, Wolf Lands 1, 2, 3, and 4.

4.3.5.1 Wolf Lands 1

Wolf Lands 1 is approximately 126 acres, of which about 90 acres are wetland (**Figure 11**). Most upland habitat consists of mature coniferous and deciduous forest, while most wetland habitat consists of immature coniferous forest. The lands are relatively flat but slope gently downward toward the southwest. The lands are adjacent to Lake County Lands North (AECOM 2011c).

Wetland communities are comprised primarily of young and immature forests in nearly equal amounts. Young forests are comprised of black spruce, with scattered northern white cedar and tamarack. Young forests have characteristics of more open bogs, as tree cover is sparse, trees are short, and most of the ground is covered by bog Labrador-tea and leatherleaf, and sphagnum moss. In immature forests, the canopy is dominated by 6 to 10 inches dbh black spruce, with tamarack and northern white cedar also present. The midstory consists of balsam fir and black spruce, while speckled alder, leatherleaf, bog Labrador-tea, and red-osier dogwood dominate the shrub layer. Club moss and sphagnum moss cover most of the ground (AECOM 2011c).

Upland mixed coniferous/deciduous immature and mature forest is found in the southwestern portion of the lands. Paper birch and trembling aspen cover about half of the area, and the midstory consists of mostly balsam fir; beaked hazel, and red-osier dogwood.

4.3.5.2 Wolf Lands 2

Wolf Lands 2 is approximately 769 acres, of which about 706 acres are wetland (**Figure 11**). The lands consist of gently undulating terrain and slope toward the southwest. Water generally flows to the southwest and to Mary Ann Creek, Wenho Creek, and Greenwood Lake. The lands consist primarily of wetlands comprised of immature black spruce and northern white cedar forest, while shrub swamp comprised of speckled alder also is common. Black spruce is the dominant tree in wetlands in the northern and eastern portions of the lands, while northern white cedar is more prevalent in other portions of the lands (AECOM 2011c). Several drainages are dominated by speckled alder or have a black ash component, while emergent wetland habitat is associated with beaver ponds. Most upland habitat consists of immature mixed coniferous/deciduous forest.

Wetland immature forests are of three types: black spruce dominant, a mix of black spruce and northern white cedar, or northern white cedar dominant. Canopy trees range from 4 to 8 inches dbh. The midstory consists of young black spruce, northern white cedar, and balsam fir. Bog Labrador-tea comprises 10 to 30% of the low shrub cover, while sphagnum moss often covers more than 80% of the ground.

Several drainages are dominated by shrub swamp vegetation. These drainages generally have a sparse overstory of black spruce, northern white cedar, and tamarack. Speckled alder and young trees are in the midstory while low shrub cover consists of bog Labrador-tea.

Beaver dams and ponds are found in the southeastern portion of the lands. Typically, open water is adjacent to the dams, with emergent wetland surrounding the open water and shrub swamp wetland upstream of the dams.

Upland habitat in the northern portion of the lands consists of an overstory of young and immature mixed coniferous/deciduous forest over a shrub layer of beaked hazel. Some of the upland area on the northern portion of the lands has been logged. Upland habitat is also found in the southern portion of the lands and is comprised of paper birch, trembling aspen, and black spruce, over a midstory of balsam fir and shrub layer of beaked hazel.

4.3.5.3 Wolf Lands 3

Wolf Lands 3 is approximately 277 acres, of which about 233 acres are wetland (**Figure 12**). The lands are relatively flat and Coyote Creek begins its northward flow within the lands. Wetlands are dominated by shrub swamp and immature coniferous forest habitat, while uplands consist of mostly shrubland and immature deciduous forest (AECOM 2011c).

About half of the lands have been recently logged. Logged wetlands are dominated by grasses, forbs, and low growing shrubs, including red-osier dogwood and speckled alder. In shrub swamp wetlands, speckled alder dominates. Bog Labrador-tea is often thick in areas where there is a dense cover of speckled alder. Vegetation on logged uplands includes grasses, forbs, and beaked hazel.

In the unlogged areas, wetland forests are comprised of immature black spruce. In the northern portion of the lands, black spruce is co-dominant with tamarack; in the rest of the lands, tamarack is present in the canopy

but in much lower amounts. The midstory consists of balsam fir and black spruce, while the shrub layer is dominated by bog Labrador-tea, over a ground layer of nearly continuous sphagnum moss with scattered grasses and forbs. There are numerous downed trees and much woody debris associated with tree wind-throw in areas adjacent to the clearings.

Coyote Creek is bordered by emergent sedge meadow wetland comprised of sedges, narrow-leaved cattail, and Canada bluejoint. There are also scattered young tamarack and northern white cedar, as well as scattered patches of speckled alder and bog Labrador-tea. The emergent wetland is bordered by dense speckled alder. Water depth in the emergent and shrub swamp wetlands is about 18 to 24 inches.

Upland areas within the lands have been logged recently. Most of these areas have few trees remaining, though some areas still support paper birch up to 16 inches dbh and scattered balsam fir. The upland habitat along the boundary of the lands consists of both young and mature paper birch with scattered black spruce and northern white cedar, over an understory comprised of balsam fir.

4.3.5.4 Wolf Lands 4

Wolf Lands 4 is approximately 405 acres, of which about 363 acres are wetland (**Figure 12**). Coyote Creek bisects the lands, while the Stony River is found about 2,000 feet northwest of the lands. Timber harvests have recently occurred along the western border of the lands. Wetland habitats are dominated by immature coniferous forest and shrub swamp, while upland habitat consists primarily of mature deciduous forest (AECOM 2011c).

Coniferous forest dominates the wetland habitat. Black spruce forest dominates in the northern half of the lands, while northern white cedar is more prevalent in the southern half of the lands. Immature-size trees prevail over most of the lands, but patches of young black spruce are more common in the northeastern portion of the lands, and young northern white cedar and black spruce are more common in the southwestern portion of the lands. Emergent communities comprised of sedges and Canada bluejoint, and shrub swamp communities comprised primarily of speckled alder, are found in floodplains that border Coyote Creek.

Immature black spruce and black spruce/northern white cedar wetlands are dominated by trees ranging from 4 to 8 inches dbh. Scattered young and immature tamarack is also found in these wetlands. The low shrub layer is nearly continuous, and is comprised of leatherleaf, bog Labrador-tea, and other vegetation. Sphagnum and club mosses cover most of the ground.

Shrub swamp is dominated by speckled alder, with scattered black spruce, tamarack, and northern white cedar in the overstory. Leatherleaf and bog Labrador-tea cover comprise about 40 to 50% of the shrub layer.

Upland habitat consists of immature and mature paper birch and some black spruce. Trees are up to 18 inches dbh, although a 30 inches dbh jack pine and several large red pines to 24 inches dbh are found on the lands. Balsam fir is common in the midstory, while beaked hazel and raspberry are dominant in the shrub layer. In areas that have been logged recently, young paper birch is common over a shrub layer of beaked hazel, raspberry, and bog Labrador-tea.

4.4 Wetland Mitigation Lands

4.4.1 On-site Restoration

In accordance with the USACE *St. Paul District Policy for Wetland Compensatory Mitigation in Minnesota* and state guidelines, the potential for creating wetlands on-site was considered first. Approximately 102 acres of onsite wetland creation opportunities were identified that may occur at Project closure (Barr 2012, 2014d).

4.4.2 Off-site Mitigation

Three sites were identified to develop compensatory wetland mitigation for the Project. These are the 1,070-acre Aitkin Site, the 530-acre Hinckley Site, and the 569-acre Zim Site, which includes 481-acre Zim North (481 acres) and Zim South (88 acres) (**Figure 2**; Barr 2014a, 2014b, 2014c, 2014d). Of these 2,169 acres, about 1,603acres would be restored to wetland habitat.

4.4.2.1 Aitkin Site

The Aitkin Site is a 1,070-acre planned mitigation area with about 876 acres of agricultural production, 46 acres of roads, buildings, and ditches, 48 acres are grassland, and 13 acres of forest (**Figure 13**). The types of habitats that would be restored on the site are discussed in Section 3.8.2.

4.4.2.2 Hinckley Site

The Hinckley Site is a 530-acre planned mitigation area. About 357 acres are in agricultural (sod) production; 95 acres are forestland, shrubland, and wet meadow/sedge wetland; 42 acres are upland forestland; 28 acres are comprised of roads, railroad tracks, buildings, and ditches; and 8 acres are grassland (**Figure 13**). The types of habitats that would be restored on the site are discussed in Section 3.8.2.

4.4.2.3 Zim North

The Zim North Site is approximately 481 acres, including about 393 acres of fields and open areas, 79 acres of woodlands, and 8 acres of buildings, roads, and borrow areas (**Figure 13**). This site primarily is used for sod production (Barr 2014c, 2014d). The types of habitats that would be restored on the site are discussed in Section 3.8.2.

4.4.2.4 Zim South

The Zim South Site is approximately 88 acres, including about 79 acres of fields and open areas, 8 acres of woodlands, and 2 acres of buildings, roads, and borrow areas (**Figure 13**). This site primarily is used for sod production (Barr 2014c, 2014d). The types of habitats that would be restored on the site are discussed in Section 3.8.2.

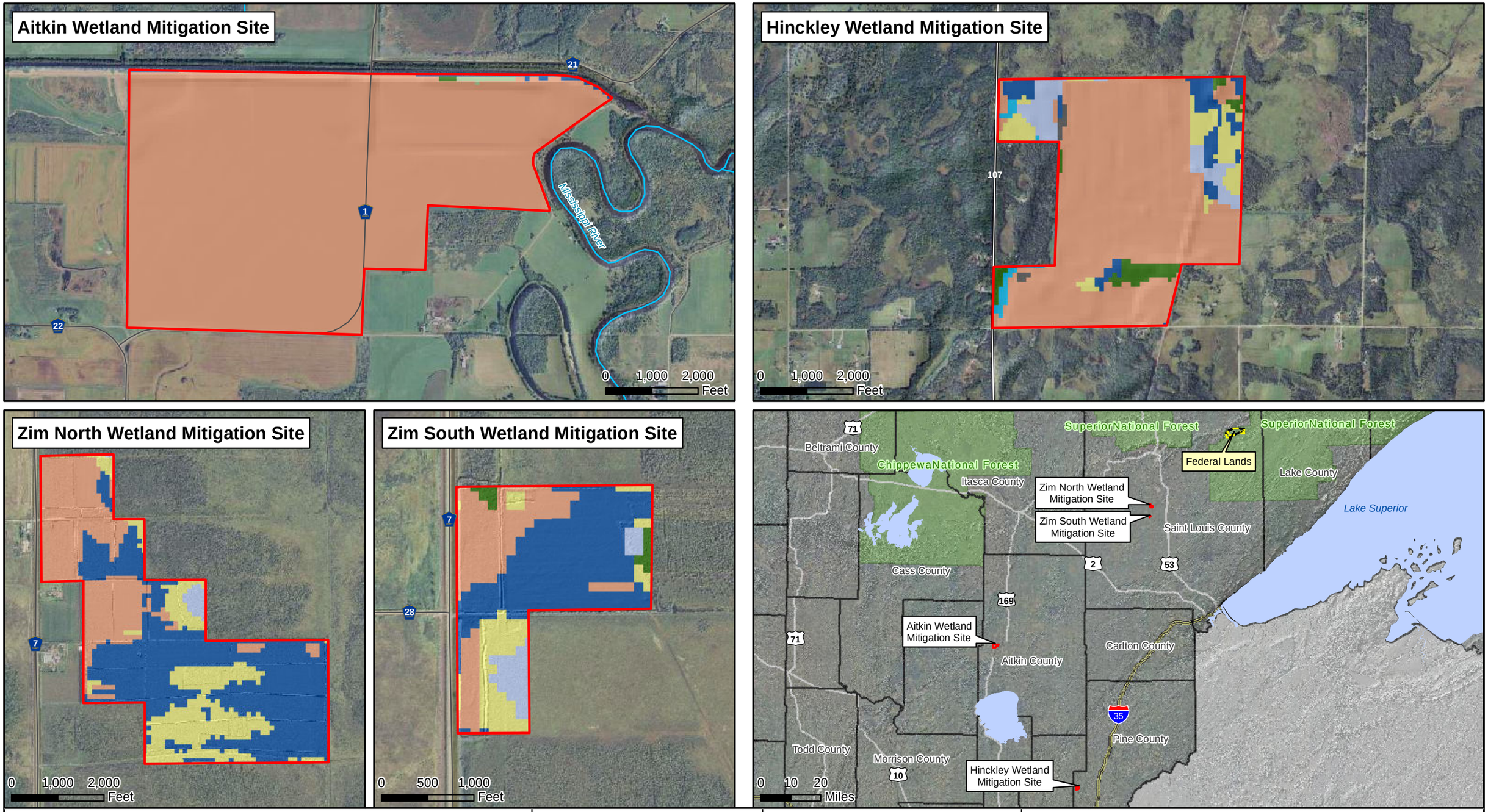

Wetland Mitigation Site
Federal Lands
GAP Land Cover
Aquatic Environments
Crop/Grass
Lowland Conifer Forest
Lowland Deciduous Forest
Non-vegetated
Shrubland
Upland Conifer Forest
Upland Conifer-Deciduous mix
Upland Deciduous Forest

US Army Corps of Engineers
St. Paul District

N W E S

Figure 13
GAP Land Cover/Habitat Types - Wetland Mitigation Sites
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

5.0 Biological Assessment Methodology

5.1 Literature Review

5.1.1 Biological Assessments and Biological Opinions

Several recent BAs and BOs have been prepared for proposed actions on or near the federal and non-federal lands and provided information that is used in this BA. These are:

- *Federally Listed Threatened and Endangered Species Programmatic Biological Assessment for the Revised Forest Plan Chippewa and Superior National Forests* (2004 Forest Plan BA; USDA Forest Service 2004b) – evaluated potential impacts to lynx and wolf and their critical habitats from proposed vegetation management activities in the Chippewa and Superior National Forests, including federal lands.

- *Biological Opinion for the Revised Land and Resource Management Plans (Forest Plans) for the Chippewa and Superior National Forests* (USDOI USFWS 2004) – provided the USFWS evaluation of the potential effects to lynx and wolf and their critical habitats from proposed vegetation management activities in the Chippewa and Superior National Forests, including Project lands.

- *Whyte Project Biological Assessment* (USDA Forest Service 2006) – evaluated potential impacts to lynx and wolf and their critical habitats from proposed vegetation management activities in areas that include Wolf Lands 2, 3, and 4.

- *Final Biological Assessment for the Proposed Mesaba Energy Project* (AECOM 2009a) – evaluated potential impacts to lynx and wolf and their critical habitats for a proposed electric generating facility about 3 miles southwest of the Plant Site.

- *Tracks Forest Management Project Laurentian Ranger District, Superior National Forest, Biological Assessment* (Tracks Project BA; USDA Forest Service 2010) – evaluated potential effects to special status plants and animals from proposed forest management activities on the Tracks Forest Management Project (Tracks Project) area east of Hoyt Lakes and north of Brimson, Minnesota, in Lake and St. Louis Counties. The Track Project area encompasses about 152,000 acres of land of which approximately 78,000 acres are in the Superior National Forest.

- *Draft Biological Assessment for the Federal Hardrock Mineral Prospecting Permits Draft EIS* (2011 Hardrock Mining BA; USDA Forest Service 2011a) – evaluated potential impacts to lynx and wolf and their critical habitats from proposed hardrock mineral prospecting activities in the Superior National Forest, including the federal land.

- *Programmatic Biological Assessment for Federally-listed Species: Gray Wolf, Canada Lynx, and Their Critical Habitats for the Superior National Forest* (USDA Forest Service 2011b) – evaluated potential impacts to lynx and wolf and their critical habitats from proposed implementation of management direction for the Superior National Forest Plan, including the federal land.

- *Biological Opinion Mesabi Nugget Prevention of Significant Deterioration Permit* (USDOI USWFS 2009a) – evaluated potential impacts to lynx and wolf and their critical habitats from actions at the Mesabi Nugget facility immediately west of the Plant Site.

- *Biological Opinion Northshore Mine Eastern Progressions and CSAH 70 Relocation St. Louis County, Minnesota* (USDOI USFWS 2011a) – evaluated potential impacts to lynx and wolf and their critical habitats from actions east of the Northshore Mine and about 5 miles northeast of the Mine Site.

5.1.2 Other Sources of Information

This section is based on information (and references cited therein) in the following documents:

5.1.2.1 General

- *Consultation Handbook: Procedures for Conducting Consultation and Conference Activities under Section 7 of the Endangered Species Act* (USDOI USFWS and NMFS 1998).

- *Winter 2000 Wildlife Survey for the Proposed NorthMet Mine Site, St. Louis County, Minnesota* (ENSR 2000).

- *Land and Resource Management Plan for the Superior National Forest* (USDA Forest Service 2004a).

- *NorthMet Mine Summer Fish and Wildlife Study* (ENSR 2005).

- *2009 NorthMet Mine/Forest Additional Parcel Northern Goshawk and Owl Survey – Final Report* (AECOM 2009b).

- *2008 NorthMet Mine/Forest Service Additional Parcel Summer Wildlife and Wetland Assessment – Final Report* (AECOM 2011a).

- *2009 Hay Lakes Parcel and McFarland Lake Parcel Summer Wildlife and Wetland Assessment Final Report* (AECOM 2011b).

- *Hunting Club, Lake County, and Wolf Land Parcels Fall 2010 Wildlife and Wetland Assessment Final Report* (AECOM 2011c).

5.1.2.2 Canada Lynx

- *The Scientific Basis for Lynx Conservation* (Ruggiero et al. 2000a).

- *Canada Lynx Conservation Assessment and Strategy* (Ruediger et al. 2000).

- *Ecology and Conservation of Lynx in the United States* (Ruggiero et al. 2000b).

- *Canada Lynx Conservation Agreement* (USDA Forest Service and USDOI USFWS 2000).

- *Endangered and Threatened Wildlife and Plants: Determination of Threatened Status for the Contiguous U.S. Distinct Population Segment of the Canada Lynx and Related Rule; Final Rule* (USDOI USFWS 2000a).

- *Biological Opinion on the Effects of National Forest Land and Resource Management Plans and Bureau of Land Management Land Use Plans on Canada Lynx (Lynx canadensis) in the Contiguous United States* (USDOI USFWS 2000b).

- *Endangered and Threatened Wildlife and Plants: Notice of Remanded Determination of Status for the Contiguous U.S. Distinct Population Segment of the Canada Lynx; Clarification of Findings; Final Rule* (USDOI USFWS 2003a).

- *Endangered and Threatened Wildlife and Plants: Designation of Critical Habitat for the Contiguous United States Distinct Population Segment of the Canada Lynx* (USDOI USFWS 2006a).

- *Canada Lynx Assessment for the Proposed NorthMet Mine Project* (ENSR 2006).

- *Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Contiguous United States Distinct Population Segment of the Canada Lynx (Lynx canadensis*; USDOI USFWS 2008a).

- *Canada Lynx in the Great Lakes Region Final Report to USDA Forest Service and U.S. Geological Survey and Minnesota Department of Natural Resources* (Moen et al. 2008).

- *Canada Lynx in the Great Lakes Region 2008 and 2009 Annual Reports* (Moen 2008, 2009).

- *Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Contiguous United States Distinct Population Segment of the Canada Lynx (Lynx canadensis); Final Rule* (USDOI USFWS 2009a).

5.1.2.3 Northern Long-eared Bat

- *Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To List the Eastern Small-Footed Bat and the Northern Long-Eared Bat as Endangered or Threatened Species; Listing the Northern Long-Eared Bat as an Endangered Species; Proposed Rule* (USDOI USFWS 2013b).

- *Northern long-eared bat interim conference and planning guidance. January, 2014. USFWS Regions 2, 3, 4, 5, & 6* (USFWS 2014).*Summary of Acoustic and Emergence Surveys for Bats in the NorthMet Project Area* (USDA Forest Service 2014a).

- *Summary of the 2014 Minnesota Northern Long-eared Bat Summer Habitat Use in Minnesota Project (Preliminary Report)* (USDA Forest Service 2014b).

- *Endangered and Threatened Wildlife and Plants; Threatened Species Status for Northern Long-Eared Bat with 4(d) Rule; Interim and Final Rule* (USDOI USFWS 2015)

5.1.2.4 Gray Wolf

- *Recovery Plan for the Eastern Timber Wolf* (Wolf Recovery Plan; USDOI USFWS 1992).
- *Minnesota Wolf Management Plan* (MDNR 2001).
- *Wolves: Behavior, Ecology, and Conservation* (Mech and Boitani 2003).
- *Endangered and Threatened Wildlife and Plants; Designating the Western Great Lakes Population of Gray Wolves as a Distinct Population Segment; Removing the Western Great Lakes Distinct Population Segment of the Gray Wolf From the List of Endangered and Threatened Wildlife* (USDOI USFWS 2006b).
- *Final Rule Designating the Western Great Lakes Populations of Gray Wolves as a Distinct Population Segment; Removing the Western Great Lakes Distinct Population Segment of the Gray Wolf From the List of Endangered and Threatened Wildlife* (USDOI USFWS 2007).
- *Endangered and Threatened Wildlife and Plants: Reinstatement of Protections for the Gray Wolf in the Western Great Lakes and Northern Rocky Mountains in Compliance with Court Orders* (USDOI USFWS 2008b).
- *Endangered and Threatened Wildlife and Plants; Final Rule To Identify the Western Great Lakes Populations of Gray Wolves as a Distinct Population Segment and To Revise the List of Endangered and Threatened Wildlife* (USDOI USFWS 2009b).
- *Endangered and Threatened Wildlife and Plants; Reinstatement of Protections for the Gray Wolf in the Western Great Lakes in Compliance With Settlement Agreement and Court Order* (USDOI USFWS 2009c).
- *Endangered and Threatened Wildlife and Plants; Proposed Rule To Revise the List of Endangered and Threatened Wildlife for the Gray Wolf (Canis lupus) in the Eastern United States, Initiation of Status Reviews for the Gray Wolf and for the Eastern Wolf* (*Canis lycaon*; USDOI USFWS 2011b).

5.2 Database Inquiries

The MDNR Natural Heritage Information System Rare Features Database was queried for federally protected species documented within 1 mile of the federal and non-federal lands and Wetland Mitigation Sites (MDNR 2014a). The MDNR lynx database was also reviewed for lynx sightings that have occurred in the vicinity of these areas between 2000 and 2006 (MDNR 2007). The Natural Resources Research Institute (NRRI) lynx website was reviewed for records of radiomarked lynx within the study area (NRRI 2012). The Superior National Forest's lynx genetic reference database was also reviewed for records of lynx occurrence on or near the federal and non-federal lands and Wetland Mitigation sites.

5.3 Consultation with Biologists with Local Knowledge of the Species

Telephone and in-person interviews were conducted with agency and other personnel with knowledge of lynx in the region, including staff with the MDNR, Forest Service, USFWS, and University of Minnesota. The

information received from these contacts was used to gain information on lynx and wolf likely to be found in the areas of interest.

5.4 Field Studies

Canada lynx winter tracking surveys have been conducted in the vicinity of the Mine Site, including a 2006 survey at the Mine Site (ENSR 2006) and at sites about 6 miles east of the Mine Site (Barr 2011).

5.4.1 Project Lynx Survey

A survey was conducted for lynx within a radius of 6 miles of the Project during January through March of 2006. This area was identified by the USFWS as the minimum area that needed to be assessed to identify lynx that could be impacted by the Project (Burke 2006). The USFWS felt that lynx having territories further than 6 miles from the mine project would likely not be directly affected by the Project.

Six hundred sixteen miles of transect were surveyed in seven townships in and around the Project. Tracks and scat of four female lynx were identified during the survey, concentrated in areas approximately 5 miles south and east of the Mine Site. Lynx sign was most common in dense coniferous forests of balsam fir and jack pine. ENSR (2006) concluded that at least three lynx resided near the Mine Site.

5.4.2 Other Lynx Surveys near Project Area

A lynx survey was conducted for the Birch Lake Project and Maturi Project for Franconia Minerals Corporation, which is about 12 miles northeast of the Mine Site. Several lynx were found during the study, based on DNA analysis of scat samples and track locations. Open bog and stunted black spruce forest and jack pine and eastern white cedar cover provided habitat for snowshoe hare and lynx (Barr 2011).

5.4.3 Other Field Surveys

The Forest Service and other biologists with an interest in lynx and wolf have conducted informal track and scat surveys on or near the federal and non-federal lands and Wetland Mitigation Sites, and their data are included in this BA. These included radiotelemetry surveys of lynx conducted by the NRRI (2012) and surveys of wolf conducted by the International Wolf Center (2012).

General wildlife surveys were conducted for the federal lands in 2000, 2004 2008, and 2009 (ENSR 2000, 2005; AECOM 2009, 2011a); and for the non-federal lands in 2009 and 2010 (AECOM 2011b, c). These surveys included track surveys for Canada lynx and the results of these surveys are included in the BA.

Wildlife habitat features on the federal and non-federal lands, including plant species composition and structure and special features (snags, downed woody debris, rock outcrops, wetlands, and deer snow-intercept thermal cover) were recorded during field surveys. In particular, species composition, density, and size (dbh) of trees and shrubs near survey areas were noted, and the use of snags and other special habitat features by wildlife. The location of special features was recorded using Global Positioning System units. This information was recorded on aerial photographs, and, in conjunction with information on shrubs and herbaceous vegetation collected during surveys, was used to prepare habitat maps of the project lands.

The USFS Superior National Forest staff conducted surveys for the northern long-eared bat at three general locations in the Project area in July and August 2014 (USDA Forest Service 2014a). The three Project areas included the Mine Site, the Plant Site, and the Dunka Road and Utility Corridor. Survey methods utilized passive sonic (Anabat) detectors on the Mine Site and Dunka Road and Utility Corridor. At the Plant Site, the methods were primarily direct observation of bat species, supplemented by passive sonic detectors when feasible. The surveys found northern long-eared bats present at the Mine Site, Plant Site, and the Dunka Road and Utility Corridor.

Survey data confirmed that northern long-eared bats utilize the Mine Site and the Dunka Road and Utility Corridor for foraging and travel to and from foraging and roost sites. The Mine Site may also contain roost sites; however, the 2014 Forest Service surveys found no conclusive evidence of roost sites. The direct observations and passive sonic survey data suggested that northern long-eared bats used the Plant Site buildings for foraging, and that the Coarse Crusher and Concentrator Buildings "have potential for limited roost sites" (USDA Forest Service 2014a). No conclusive evidence of roost sites was found in the Plant Site buildings.

In addition, the 2014 USFS surveys and examination of the Mine Site, Plant Site buildings, and the Dunka Road and Utility Corridor found no evidence of northern long-eared bat hibernacula, or conditions suitable for hibernacula (USDA Forest Service 2014a).

In the spring of 2014, the Forest Service Superior National Forest staff and MDNR staff, with additional funding from USFWS, conducted a pilot project to describe summer habitat use by northern long-eared bats in Minnesota. Surveys were conducted at 12 sites, five of which were on the Superior National Forest. The survey captured six of the seven species of bats known to occur in Minnesota; tri-colored bat was the only species not captured. The most frequently captured bats were little brown bats (45%), and northern long-eared bats (22%) (Forest Service 2014b).

Acoustic surveys for bats were conducted as part of wildlife surveys for the federal and non-federal lands (AECOM 2011a, b, c). No effort was made to determine the species of bat making the echolocation. Seven bat species could occur in the Project area—northern long-eared bat, little brown myotis, big brown bat, tri-colored bat, silver-haired bat, eastern red bat, and hoary bat. Echolocations recorded during the surveys could have come from any of these seven bat species.

Echolocation surveys were conducted at five stations on the federal lands, although only four stations gave usable information due to rainfall during the survey at one station. Recordings indicated the presence of bats at all sites, with the greatest number of echolocations occurring at open water sites associated with the Partridge River and an unnamed creek, and the fewest echolocations at emergent wetlands covered with water and some aquatic vegetation.

Recordings on Hay Lake Lands showed that most echolocations occurred at an emergent wetland with open water (814 echolocations, mostly feeding activity). Moderate numbers of echolocations were recorded at the two sites along the Pike River (164 echolocations at the north Pike River site, 230 echolocations at the middle Pike River site; feeding activity was moderate), and at two small emergent wetland ponds with limited open water (64 and 181 echolocations; AECOM 2011b). An echolocation site to the south of Hay Lake Lands was located at a small patch of open water associated with an old beaver pond; 72 echolocations were recorded at this site. No echolocation surveys were made on Hunting Club Lands, Lake County Lands, and Wolf Lands as

surveys were conducted in November and bats would have already migrated from the area. Surveys were also not conducted at McFarland Lake Lands, although bats likely forage over McFarland Lake.

Acoustic surveys for bats have also recently been conducted on the federal lands by the Superior National Forest and the NRRI, but analysis has not been completed to determine the species making the calls.

Project effects on lynx, northern long-eared bat, and wolf habitat use were based on habitat classification systems developed by the MDNR and Forest Service. The primary GAP land cover types on the federal lands are lowland coniferous forest (46%), upland coniferous forest (25%), and upland deciduous forest (17%). On the non-federal lands, GAP land cover types include lowland coniferous forest (41%), shrubland (26%), and upland deciduous forest (17%).

The Forest Service designates and maintains data about Management Indicator Habitat (MIH) types on federal lands. The MIHs are based on forest type, including dominant species, stand age class, and stand condition. There are 14 MIHs, of which 13 MIHs pertain to forest habitats and 1MIH pertains to aquatic habitats. A subset of these MIH types was used for the analysis of effects in the BE, including upland forest types (MIH 1; jack pine, red pine, white pine, balsam fir/trembling aspen-paper birch, black spruce-balsam fir, black spruce-jack pine, northern hardwoods, including oak and maple, trembling aspen, paper birch, and trembling aspen-black spruce-balsam fir); upland coniferous forest (MIH 5; all upland conifer and conifer-dominated mixed forest types); lowland black spruce-tamarack forest (MIH 9; all lowland conifer and lowland mixed conifer types dominated by black spruce or tamarack); and aquatic habitats (MIH 14; lakes, rivers, streams, pond, marshes or pools [permanent, intermittent, or seasonal]). A smaller subset of all MIH types were used for this analysis of effects to lynx, northern long-eared bat, and wolf, including upland forest (MIH 1), upland coniferous forest (MIH 5), lowland black spruce-tamarack forest (MIH 9), and aquatic habitats (MIH 14).

6.0 Baseline Analysis and Assessment of Effects

Section 6 includes background information and an analysis of the effects of the Project on lynx, northern long-eared bat, and wolf. The first part of each section provides background information on lynx and wolf abundance and distribution, habitat requirements, reproductive biology and life history, and current status and presence/absence of designated critical habitat. This is followed by a discussion of potential beneficial, direct, indirect, interdependent, and interrelated threats to lynx, northern long-eared bat, and wolf. Effects that are unrelated to the Project and that may result in cumulative effect as a result of the Project, are presented in Sections 6.1.4, 6.2.4, and 6.3.4, Analysis of Cumulative Effects. These effects are defined as follows:

- Beneficial – Effects of an action that are wholly positive, without any adverse effects, on a listed species or designated critical habitat. Determination that an action will have beneficial effects is a "may effect" situation.
- Direct – The direct or immediate effects of the project on the species or its habitat. Direct effects result from the proposed action including the effects of interrelated actions and interdependent actions.
- Indirect – Effects caused by or resulting from the proposed action that are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the action.
- Interdependent – Effects that result from an activity that has no independent utility apart from the action under consideration.
- Interrelated – Effects that result from an activity that is part of the proposed action and depends on the proposed action for its justification.
- Cumulative – Include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this BA. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA. Cumulative effects are discussed in Sections 6.1.4, 6.2.4, and 6.3.4.

For a more detailed discussion of types of effects, see USDOI USFWS and NMFS (1998).

The effects assessment is based on the following factors:

- dependency of the species on specific habitat components,
- habitat abundance,
- population levels of the species,
- degree of habitat impact, and
- potential to mitigate for an adverse effect.

For the purposes of this assessment, the action area for direct and indirect effects includes those areas within 6 miles of Project, or approximately 250 mi^2. This area was identified by the USFWS as the minimum area that

needed to be assessed to identify lynx that could be impacted by the Project (Burke 2006). In addition, we have provided information on lynx and wolf found within about 6 miles of the federal lands, non-federal lands, and Wetland Mitigation Sites.

6.1 Canada Lynx

6.1.1 Environmental Baseline

6.1.1.1 Species Description and Status and Critical Habitat Status

The lynx is a medium-sized cat with long legs. Adult males average 22 pounds in weight and 33.5 inches in length (head to tail), and females average 19 pounds and 32 inches (Quinn and Parker 1987). The lynx's long legs and large feet make it highly adapted for hunting in deep snow.

The bobcat is a North American relative of the lynx. Compared to the lynx, the bobcat has smaller paws, shorter ear tufts, and a more spotted pelage (coat), and only the top of the tip of the tail is black. The paws of the lynx have twice the surface area as those of the bobcat. The lynx also differs from the bobcat in its body proportions; lynx have longer legs, with hind legs that are longer than the front legs, giving the lynx a ''stooped'' appearance (Quinn and Parker 1987). Bobcats are largely restricted to habitats where deep snows do not accumulate (Koehler and Hornocker 1991). Hybridization (breeding) between lynx and bobcat was first documented in 2002 in Minnesota (Schwartz et al. 2004).

Classification of the lynx has been subject to revision. In accordance with Wilson and Reeder (1993), the USFWS currently recognizes the lynx in North America as *Lynx canadensis*. The USFWS previously used the scientific name *L. lynx canadensis* for the lynx (Jones et al. 1992). Other scientific names still in use include *Felis lynx* or *F. lynx canadensis* (Jones et al. 1986, Tumlison 1987).

On March 24, 2000, the lynx was federally listed as a threatened species in several states in the Northeast, Great Lakes Region (including Minnesota), and Southern Rockies (USDOI USFWS 2000a). On November 9, 2006, the USFWS designated 317 mi^2 as critical habitat in Voyageurs National Park (USDOI USFWS 2006a). On February 25, 2009, the USFWS re-designated lynx critical habitat to include portions of Cook, Koochiching, Lake, and St. Louis Counties, including portions of the federal lands, and all of the non-federal lands. A total of 8,065 mi^2 were designated as critical habitat in 2009 (USDOI USFWS 2009a). However, the designated critical habitat does not include lands immediately north of the Project which are part of the Iron Range and have been disturbed by past and ongoing mining activities (**Figure 14)**. The Wetland Mitigation Sites also are not included within designated critical habitat. Lynx and/or their sign (scat, tracks) have been observed on or near the federal and non-federal lands, but not near the Wetland Mitigation Sites.

6.1.1.2 Distribution

The historical and present range of the lynx, north of the contiguous U.S., includes Alaska and the portion of Canada extending from the Yukon and Northwest Territories south to the U.S. border and east to New Brunswick and Nova Scotia. In the contiguous U.S., lynx historically occurred in the Cascades Range of Washington and Oregon; the Rocky Mountain Range in Montana, Wyoming, Idaho, eastern Washington,

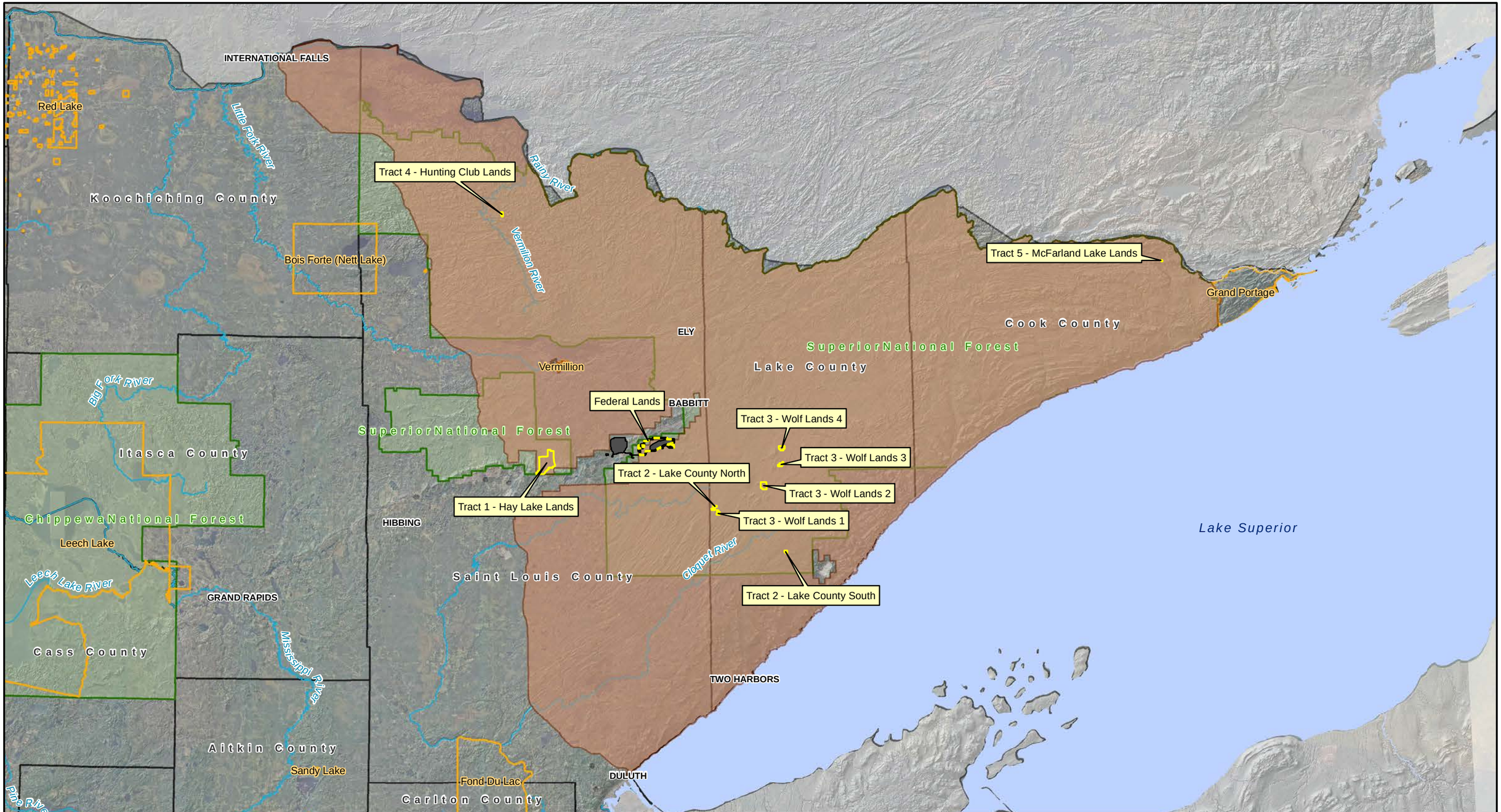

Critical Habitat - Lynx
Federal Lands
Non-federal Lands
Project Areas
National Forest Boundary
Native American Reservation
County Boundary
Major River

US Army Corps of Engineers
St. Paul District

0 5 10 20 Miles

Figure 14
Canada Lynx Critical Habitat
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

eastern Oregon, northern Utah, and Colorado; the western Great Lakes Region; and the northeastern U.S. region from Maine southwest to New York (**Figure 15**; McCord and Cardoza 1982, Quinn and Parker 1987).

In the contiguous U.S., the distribution of the lynx is associated with the southern boreal forest, comprised primarily of subalpine coniferous forest in the West and mixed coniferous/deciduous forest in the East (Aubry et al. 2000). In Canada and Alaska, lynx inhabit the classic boreal forest ecosystem known as the taiga (McCord and Cardoza 1982, Quinn and Parker 1987, Agee 2000, McKelvey et al. 2000a). Within these general forest types, lynx are most likely to persist in areas that receive deep snow, for which the lynx is highly adapted (Ruggiero et al. 2000).

Lynx in the contiguous U.S. are part of a larger metapopulation whose core is located in the northern boreal forest of central Canada; lynx populations emanate from this area (Buskirk et al. 2000a, McKelvey et al. 2000a, b). The boreal forest extends south into the contiguous U.S. along the Cascade and Rocky Mountain Ranges in the West, the western Great Lakes Region, and the Appalachian Mountain Range of the northeastern U.S. At its southern margins, the boreal forest becomes naturally fragmented into patches of varying size as it transitions into other vegetation types. These southern boreal forest habitat patches are small relative to the extensive northern boreal forest of Canada and Alaska, which constitutes the majority of the lynx range. Lynx are considered "not at risk" in Canada (Committee on the Status of Endangered Wildlife in Canada 2006).

Many of these southern boreal forest habitat patches within the contiguous U.S. are able to support resident populations of lynx and their primary prey species. It is likely that some of the habitat patches act as sources of lynx (recruitment is greater than mortality) that are able to disperse and potentially colonize other patches (McKelvey et al. 2000b). Other habitat patches act as ''sinks'' in which lynx mortality is greater than recruitment and lynx are lost from the overall population. The ability of naturally dynamic habitat to support lynx populations may change as the habitat undergoes natural succession following natural or man-made disturbances (i.e., fire, clearcutting). In addition, fluctuations in the prey populations may cause some habitat patches to change from being sinks to sources and vice versa. The term ''resident population'' refers to a group of lynx that has exhibited long-term persistence in an area based on a variety of factors, such as evidence of reproduction, successful recruitment into the breeding cohort, and maintenance of home ranges. The word ''transient'' refers to a lynx moving from one place to another within suitable habitat. The word "dispersing'' refers to lynx that have left suitable habitat for various reasons, such as competition or lack of food. When dispersing lynx leave suitable habitat and enter habitats that are unlikely to sustain them, these individuals are considered lost from the metapopulations unless they return to boreal forest.

6.1.1.3 Population Dynamics

Lynx numbers and snowshoe hare densities in the contiguous U.S. generally do not get as high as those in the center of their range in Canada, and there is no evidence they ever did so in the past (Hodges 2000a, b, McKelvey et al. 2000a). It appears that northern and southern snowshoe hare populations have similar cyclic dynamics, but that in southern areas both peak and low densities are lower than in the north (Hodges 2000b). However, it is unclear whether hare populations cycle everywhere in the contiguous U.S. Relatively low snowshoe hare densities at southern latitudes are likely a result of the naturally patchy, transitional boreal habitat at southern latitudes that prevents hare populations from achieving densities similar to those of the expansive northern boreal forest (Wolff 1980, Buehler and Keith 1982, Koehler 1990, Koehler and Aubry 1994). Additionally, the presence of more predators and competitors of hares at southern latitudes may inhibit the potential for high-density snowshoe hare populations with extreme cyclic fluctuations (Wolff 1980). As a result

Resident Population
Dispensers
Resident/Dispensers

US Army Corps of Engineers
St. Paul District

0 100 200 400 Miles

Figure 15
Contiguous United States Range of the Canada Lynx
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

of naturally lower snowshoe hare densities, lynx densities at the southern part of the range rarely achieve the high densities that occur in the northern boreal forest (Aubry et al. 2000).

The density of lynx near the Project area was estimated to range from one lynx per 72 to 86 mi^2 based on lynx surveys conducted on or near the Project (ENSR 2006, Barr 2011). However, Moen (2009) noted that given the low densities of Canada lynx in Minnesota, it may be impossible to provide an accurate population estimate.

6.1.1.4 Lynx and Snowshoe Hare Relationships

The association between lynx and snowshoe hare is considered a classic predator-prey relationship (Saunders 1963, van Zyll de Jong 1966, Quinn and Parker 1987). In northern Canada and Alaska, lynx populations fluctuate on approximately 10-year cycles that follow the cycles of snowshoe hare populations (Elton and Nicholson 1942, Hodges 2000a, b, McKelvey et al. 2000a). Generally, researchers believe that when snowshoe hare populations are at their cyclic high, the interaction of predation and food supply causes the populations to decline drastically (Buehler and Keith 1982, Krebs et al. 1995, O'Donoghue et al. 1997). There is little evidence of regular snowshoe hare cycles in the Northeast, southern Quebec, and Minnesota (Hoving 2001, McCann 2006), but snowshoe hare populations can fluctuate widely in this region. Snowshoe hare fluctuations in this region may be more influenced by forest practices, weather, and other ecological factors.

Snowshoe hare provide the quality prey necessary to support high-density lynx populations (Brand and Keith 1979). Lynx also prey opportunistically on other small mammals and birds, particularly when hare populations decline (Nellis et al. 1972, Brand et al. 1976, McCord and Cardoza 1982, O'Donoghue et al. 1997, 1998a). Red squirrels are an important alternate prey (O'Donoghue et al. 1997, 1998a, Apps 2000, Aubry et al. 2000). However, a shift to alternate food sources may not sufficiently compensate for the decrease in snowshoe hares consumed to be adequate for lynx reproduction and kitten survival (Brand and Keith 1979, Koehler 1990, Koehler and Aubry 1994). When snowshoe hare densities decline, the lower quality diet causes sudden decreases in the productivity of adult female lynx and decreased survival of kittens, if any are born during this time. As a result, recruitment of young into the population nearly ceases during cyclic lows of snowshoe hare populations (Nellis et al. 1972, Brand et al. 1976, Brand and Keith 1979, Poole 1994, Slough and Mowat 1996, O'Donoghue et al. 1997, Mowat et al. 2000).

6.1.1.5 Home Range and Dispersal

Lynx require very large areas containing boreal forest habitat. The size of lynx home ranges varies by the animal's gender and age, abundance of prey, season, and the density of lynx populations (Hatler 1988, Koehler 1990, Poole 1994, Slough and Mowat 1996, Aubry et al. 2000, Mowat et al. 2000). Based on a limited number of studies in northeastern Minnesota, the average home range varied between 11 and 201 mi^2 for males, and 2 and 37 mi^2 for females (Burdett 2007). Male home ranges expanded during the breeding season, perhaps due to males searching for females, while female home ranges contracted (Moen et al. 2008).

Lynx are highly mobile and have a propensity to disperse. Long-distance movements (greater than 60 miles) are characteristic, and are more common among males (Mowat et al. 2000, Burdett 2007). Lynx disperse primarily when snowshoe hare populations decline (Ward and Krebs 1985, Koehler and Aubry 1994, O'Donoghue et al. 1997, Poole 1997). Subadult lynx also disperse even when prey is abundant (Poole 1997), presumably as an innate response to establish home ranges. Lynx also make exploratory movements outside their home ranges. Lynx are capable of moving extremely long distances (greater than 300 miles; Brainerd 1985, Washington Department of Wildlife 1993, Poole 1997, Mowat et al. 2000). While it is assumed lynx would prefer to travel

where there is forested cover, the literature contains many examples of lynx crossing large, unforested openings. The ability of both male and female lynx to disperse long distances, crossing unsuitable habitats, indicates they are capable of colonizing suitable habitats and finding potential mates in areas that are isolated from source lynx populations.

Moen et al. (2010) found that lynx in Minnesota disperse outside their home range and travel between Ontario, Canada, and Minnesota. About 40% of radiocollared male and female lynx made long-distance movements outside of their home range. Of those making long distance movements, females tended to move 62 to 124 miles and not return to their original home range, while males moved 31 to 49 miles and went back and forth between Ontario and Minnesota. Travel was generally linear, water was not avoided, and lynx walked around lakes while on long-distance movements. Movements were made across roaded areas, and also across the BWCAW, which has few linear features such as roads, trails, and logging roads that could guide movement by lynx. Observations suggested that geographically or topographically definable movement corridors do not exist for lynx in northeastern Minnesota, or between Minnesota and Ontario (Moen et al.2010).

6.1.1.6 Mortality

Common causes of mortality for lynx include starvation of kittens (Quinn and Parker 1987, Koehler 1990), and trapping (Ward and Krebs 1985, Bailey et al. 1986). Lynx mortality due to starvation has been shown in cyclic populations of the northern taiga, during the first 2 years of snowshoe hare scarcity (Pool 1994, Slough and Mowat 1996). During periods of low snowshoe hare numbers, starvation can account for up to two-thirds of all natural lynx deaths. Trapping mortality may be additive rather than compensatory during the low period of the snowshoe hare cycle (Brand and Keith 1979). Hunger-related stress, which induces dispersal, may increase exposure of lynx to other forms of mortality such as trapping and vehicle collisions (Brand and Keith 1979, Carbyn and Patriquin 1983, Ward and Krebs 1985, Bailey et al. 1986).

Predation on lynx by mountain lion, coyote, wolverine, wolf, and other lynx has been observed (Berrie 1974, Koehler et al. 1979, Poole 1994, Slough and Mowat 1996, O'Donoghue et al. 1997, Apps 2000, Squires and Laurion 2000). Squires and Laurion (2000) reported two of six mortalities of radiocollared lynx in Montana were due to mountain lion predation.

An indirect effect of long-distance movements can be that some lynx are legally harvested in Ontario (USDA Forest Service 2011b). Although this harvest has little effect on the population of lynx in Ontario, it can affect the relatively small Minnesota population of lynx (Moen 2009, Moen et al. 2010).

There are few records of lynx being killed on highways, but direct mortality from vehicular collisions may be detrimental to small lynx populations in the lower 48 states. The MDNR lynx sighting records indicate that six lynx were killed by vehicle collisions in Minnesota between 2000 and 2006, and one lynx was killed by a train (MDNR 2007). Of those killed by vehicles, two occurred on Interstate 35, two on Highway 61, one on a county road, and one on the Gunflint Trail. No lynx-vehicle collisions have been reported on roads associated with mining projects, even though lynx have been observed using mine roads at the Northshore Mine and former Cliffs Erie mine site near the Project (ENSR 2006).

The USFWS Twin Cities Field Office has maintained an incidental take database since 2000. From 2000 to 2012, of 43 animals killed, 15 were from unknown causes, 13 were from trapping (4 due to legal trapping in Ontario, Canada), 7 were killed by vehicles, 6 were shot, and 2 were killed by trains (Rowse 2012). Between

2003 and 2009, the NRRI found that 15 of 19 radiocollared lynx deaths were directly or indirectly associated with human activities (Moen 2009, USDA Forest Service 2011b).

Many resident lynx that make movements into Ontario are harvested, particularly those that go long distances. Three radiocollared animals made 300 to 400 road mile movements to the same area in Ontario (USDA Forest Service 2011b). Lynx that conduct long-distance movements from Minnesota to Ontario are vulnerable to legal harvest in Canada whereas trapping mortality in Minnesota is incidental to trapping for other species because there is no legal trapping of lynx in the U.S. (Moen 2009). Moen et al. (2010) suggested that linear features such as roads benefit lynx from an energetic perspective, but may also be negative if they increase the chance of incidental mortality because of exposure to humans.

6.1.1.7 Recruitment

Lynx reproduction occurs in Minnesota. Based on 6 years of telemetry studies, an estimated 40 to 50 kittens were born to 33 radiocollared females. Only a few kittens survived past 2 years of age. Human factors have led to nearly all deaths, while starvation has been less important. These data suggest that lynx populations in Minnesota are influenced by lynx population dynamics in Ontario, Canada (Moen 2009).

6.1.1.8 Interspecific Relationships with other Carnivores

Buskirk et al. (2000b) described the two major competition impacts to lynx as exploitation (competition for food) and interference (avoidance). Of several predators examined (birds of prey, coyote, gray wolf, mountain lion, bobcat, and wolverine), it was deemed that coyotes were the most likely to pose local or regionally important exploitation impacts to lynx, and coyotes and bobcats were deemed to possibly impart important interference competition effects on lynx. Mountain lions were described as interference competitors, possibly impacting lynx during summer and in areas lacking deep snow in winter, or when high elevation snow packs develop crust in the spring.

In southern portions of snowshoe hare range, predators may limit snowshoe hare populations to lower densities than in the taiga (Dolbeer and Clark 1975, Wolff 1980, Koehler and Aubry 1994). Exploitation competition may contribute to lynx starvation and reduced recruitment. During periods of low snowshoe hare numbers, starvation accounted for up to two-thirds of all natural lynx deaths in the Northwest Territories of Canada (Poole 1994).

Parker et al. (1983) discussed anecdotal evidence of competition between bobcats and lynx. On Cape Breton Island, Nova Scotia, lynx were found to be common over much of the island prior to bobcat colonization. Concurrent with the colonization of the island by bobcats, lynx densities declined and their presence on the island became restricted to the highlands, the one area where bobcats did not become established.

Predation on adult lynx has rarely been observed and recorded in the literature. Predators of lynx include mountain lion, coyote, wolverine, wolf, and other lynx. The magnitude or importance of predation on lynx is unknown.

6.1.1.9 Behavioral Response to Humans

Staples (1995) described lynx as being generally tolerant of humans. Other anecdotal reports also suggest that lynx are not displaced by human presence, including moderate levels of snowmobile traffic (Mowat et al. 2000) and ski area activities (Roe et al. 1999).

In a lightly roaded study area in northcentral Washington, logging roads did not appear to affect habitat use by lynx (McKelvey et al. 2000c). In contrast, six lynx in the southern Canadian Rocky Mountains crossed highways within their home ranges less than would be expected (Apps 2000). The latter study area contained industrial road networks, twin-tracked railway, and 2 to 4-lane highways with average daily traffic volumes of about 1,000 to 8,000 vehicles per day.

6.1.1.10 Habitat Requirements

To understand habitat relationships of lynx one must first understand the habitat relationships of snowshoe hares. Generally, lynx hunt within habitats where snowshoe hare are common or abundant. An essential aspect of habitat is dense coniferous or mixed coniferous/deciduous forest cover that provides security for snowshoe hares. Snowshoe hares have evolved to survive in areas that have deep snow and use black spruce and balsam fir forests with dense understory vegetation that provide forage, cover to escape from predators, and protection during extreme weather (Wolfe et al. 1982, Monthey 1986, Hodges 2000a, b). Generally, earlier succession (younger) forest stages have greater understory structure than do mature forests and, therefore, support higher snowshoe hare densities (Fuller 1999, Hodges 2000a, b). The branches of trees in mature forests also capture more snow than younger forests, resulting in shallower snow in mature and younger forests (ENSR 2005).

Most lynx snowshoe hare kills occur in habitat where young or immature timber is prevalent and where a significant acreage of this habitat type is available. Lynx also hunt snowshoe hares in high stem density deciduous cover, such as speckled alder in riparian areas, and Canada bluejoint, willow, and bog birch in creek bottoms.

Communities used most often by lynx are young jack pine/balsam fir forests. Balsam fir often occurs as inclusions or “pockets” of regenerating trees within other cover types (e.g., in mature jack pine stands or in maturing black spruce/trembling aspen stands), and along forest edges. Lynx also use coniferous or mixed coniferous/deciduous forest patches in regenerating logged areas, including 10- to 25-year-old stands of jack pine or balsam fir/trembling aspen mixed coniferous/deciduous forest. Other important habitat types include black spruce/balsam fir and black spruce/tamarack forests.

Communities used by lynx often originate as a result of natural or “facilitated” regeneration after logging. However, fire and spruce budworm outbreaks also play a role in influencing forest stand composition and age in sites used by lynx. It generally takes 12 to 30 years after a forest thinning or fire before conditions become suitable for snowshoe hare, as forests mature from the young to the immature stage.

Lynx use coniferous forest plantations, especially where large stands of plantation forest occur in proximity to each other. Lynx use white spruce, jack pine, eastern white pine, red pine, and mixed coniferous/deciduous plantations, especially forests ranging from 10 to 30 years in age. Recent studies of snowshoe hare and red squirrel pellet density suggest that snowshoe hare and squirrel numbers are greatest in jack pine, red pine, black spruce, and mixed immature/mature and mature coniferous/deciduous forests; presumably, lynx would be more common in these habitats (Moen et al. 2004). Lynx in Minnesota have been observed hunting snowshoe hare in dense stands of young and mid-sized immature forest, especially balsam fir, black spruce, and jack pine forests. They have been reported avoiding lowland coniferous habitats, while favoring forest edges (Burdett 2007).

6.1.1.11 Diet

Snowshoe hares are the primary prey to lynx, comprising 35 to 97% of the diet throughout the range of the lynx (Koehler and Aubry 1994). Other prey species include red squirrel, several species of grouse, northern flying squirrel, ground squirrel, porcupine, beaver, mice, voles, shrews, fish, and ungulates as carrion or occasionally as prey (Saunders 1963, van Zyll de Jong 1966, Nellis et al. 1972, Brand et al. 1976, Brand and Keith 1979, Koehler 1990, Staples 1995, O'Donoghue et al. 1998b).

Several studies have shown that the importance of other prey species, especially red squirrel, increases in the diet during periods when snowshoe hares become scarce (Brand et al. 1976, O'Donoghue et al. 1998b, Apps 2000, Mowat et al. 2000). Recent research in northeastern Minnesota and northwestern Montana (Burdett 2007, Hanson and Moen 2008, Squires and Ruggerio 2007), however, concluded that red squirrel contributed little to the lynx diet and that lynx made little use of alternative prey species.

Hanson and Moen (2008) investigated the winter diet of lynx in northern Minnesota based on prey remains in lynx scat. Snowshoe hare remains were present in 76% of scats. Hair of white-tailed deer was found in scat, but white-tailed deer remains were used as bait to lure lynx to traps for a radiotelemetry study, and the authors felt that if scat with white-tailed deer hair were eliminated, snowshoe hare remains were found in 97% of scats. The study indicated that alternative prey are an insignificant component of Minnesota lynx diets in winter. No red squirrel remains were found in the analysis.

Most research has focused on the winter diet. Summer diets are poorly understood throughout the range of lynx. Mowat et al. (2000) reported that summer diets consist of less snowshoe hare and more alternate prey species than winter diets.

6.1.1.12 Den Site Selection

Lynx den sites are found where coarse woody debris, such as downed logs and wind-throw, provides denning sites with security and thermal cover for lynx kittens (McCord and Cardoza 1982, Koehler 1990, Koehler and Brittell 1990, Slough 1999, Squires and Laurion 2000). The integral component for all lynx den sites appears to be the amount of downed woody debris present rather than the age of the forest stand (Mowat et al. 2000, Moen and Burdett 2009). In Washington, lynx denned in immature lodgepole pine, black spruce, and subalpine fir forests older than 200 years with an abundance of downed woody debris (Koehler 1990). A den site in Wyoming was located in a mature subalpine fir/immature lodgepole pine forest with abundant downed logs and dense understory (Squires and Laurion 2000).

Based on radiotelemetry studies in Minnesota, most lynx dens are found in tree wind-throw areas with dense vertical and horizontal cover. Dens were often located in an area with foraging habitat and denning cover, and often in small patches of upland within a larger wetland. These are often areas where wind-throw occurs (Moen and Burdett 2009).

Female lynx appear to use a habitat mosaic that includes both foraging habitat and cover for denning. Den sites were often associated with wetland areas where dens were on small patches of upland surrounded by wetter low-lying areas (Moen et al. 2008). Moen and Burdett (2009) speculated that shallow soils in the low-lying areas may increase the chance that wind-throw would occur and provide suitable denning cover. Lynx appear to be adaptable in the selection of habitats to den in, but select specific types of areas based on the prevalence of wind-throw.

Moen et al. (2008) found that all den sites were associated with a downed tree, with disturbance area varying from about 50 square feet to greater than 2.5 acres. They also found that lynx den sites consistently had lower tree stem density than the surrounding area, with greater than 80% of tree stems being coniferous species. Lowland and upland coniferous forest cover types made up greater than 70% of the area within 330 feet of den sites and the percentage of those cover types decreased with greater distance from the den sites. These findings suggest that suitable denning habitat includes both upland and lowland forest 60 to 80 years old or greater depending on forest type (USDA Forest Service 2011b).

Moen et al. (2008), using denning habitat data, developed a model to estimate the spatial distribution of suitable denning habitat in northeastern Minnesota. This model has estimated that about 25% of the landscape in northeastern Minnesota consists of suitable lynx denning habitat. This suggests that lynx denning habitat is abundant and well-distributed in northeastern Minnesota and on the Superior National Forest.

6.1.1.13 Range of Lynx within the Contiguous United States

Within the contiguous U.S., the lynx's range coincides with that of the southern margins of the boreal forest along the Appalachian Mountains in the Northeast, the western Great Lakes, and the Rocky Mountains and Cascade Mountains in the West (**Figure 15**). In these areas, the boreal forest is at its southern limits, becoming naturally fragmented into patches of varying size as it transitions into subalpine forest in the West and deciduous temperate forest in the East (Agee 2000). Because the boreal forest transitions into other forest types to the south, scientists have difficulty mapping its exact boundaries (Elliot-Fisk 1988). Precisely identifying and describing the distribution of lynx habitat also is difficult because there are several vegetation and landform classifications and descriptions that have been published for various parts of North America (USDA Forest Service and Bureau of Land Management 1999). However, the term ''boreal forest'' broadly encompasses most of the vegetative descriptions of this transitional forest type that makes up lynx habitat in the contiguous U.S. (Agee 2000).

In addition to appropriate vegetation type, delineation of the range of the lynx within the contiguous U.S. must consider snow conditions. Lynx are at a competitive advantage over other carnivores (e.g., bobcats or coyote) in areas that have cold winters with deep snow because of their morphological adaptations for hunting and surviving in such environments. Therefore, lynx populations may not be able to successfully compete and persist in areas with insufficient snow even if suitable forest conditions otherwise appear to be present (Ruediger et al. 2000, Ruggiero et al. 2000b, Hoving 2001). A consistent winter presence of bobcats indicates an area that is not of high quality for lynx.

Lynx in the contiguous U.S. are part of a larger metapopulation whose center is located in the northern boreal forest of central Canada; lynx populations emanate from this area (Buskirk et al. 2000, McKelvey 2000a, b). When there is a high in the lynx population in central Canada, it acts like a wave radiating out to the margins of the lynx range. The magnitude of the lynx population high emanating from the central Canadian boreal forest varies for each cycle. This wave can be produced by local populations reacting to environmental conditions, dispersers, or a combination of these (McKelvey et al. 2000a, b).

An example of the cyclic population ''wave'' occurred in the 1960s and 1970s, when numerous lynx were reported in the contiguous U.S. far from source populations. These records of dispersing lynx correlate to unprecedented cyclic lynx highs in Canada (Adams 1963, Mech 1973, Gunderson 1978, Thiel 1987, McKelvey et al. 2000a, Mowat et al. 2000). These dispersers frequently were documented in areas, such as Wisconsin, that

are close to source populations of lynx in Canada or possibly northeastern Minnesota and that contain some boreal forest. But there also have been a number of occurrences of dispersers in unsuitable habitats far from source populations, such as the North Dakota prairie (Adams 1963, Gunderson 1978, Thiel 1987, McKelvey et al. 2000a).

Lynx populations in the northeastern U.S. and southeastern Canada are separated from those in northcentral Canada by the St. Lawrence River. There is little evidence of regular snowshoe hare or lynx population cycles in this area (Hoving 2001), but wide fluctuations in lynx and snowshoe hare populations do occur. On a smaller scale, fluctuating populations in the core of this area (Quebec's Gaspé Peninsula, western New Brunswick, and northern Maine) can potentially influence lynx distribution up to several hundred miles distant.

Lynx dispersing during periods of population highs will occupy many patches of boreal habitat at the periphery of their range. Some patches will be suitable to maintain a long-term population and some will not. Where the boreal forest habitat patches within the contiguous U.S. are large, with suitable habitat, prey, and snow conditions, resident populations of lynx are able to survive throughout the low period of the approximately 10-year cycle. Most likely the influx of lynx from populations in Canada at the high point of the cycle augments these resident populations. It is likely that some of these habitat patches within the contiguous U.S. are able to act as sources of lynx (where recruitment is greater than mortality) that are able to disperse and potentially colonize other patches (McKelvey et al. 2000b).

In other areas, few lynx may remain after a cyclic population high, or the habitat may be naturally marginal, so they are not able to persist or establish local populations, although some reproduction may occur. Such areas naturally act as population sinks (McKelvey et al. 2000b). Sink habitats are most likely those places on the periphery of the southern boreal forest where habitat naturally becomes patchier and more distant from larger lynx populations. Lynx found in these sink habitats are considered dispersers, but are usually included within the species range. Changes in the habitat conditions or cyclic fluctuations in the prey populations may cause some habitat patches to change from being sinks to sources and vice versa. Through this natural process, local lynx populations in the contiguous U.S. may ''blink'' in and out as the metapopulation goes through the 10-year cycle. Where habitat is of high enough quality and quantity, resident lynx populations are able to become established or existing populations are augmented, aiding in their long-term persistence.

Some maps (e.g., Hall and Kelson 1959) incorrectly portray the range of the lynx by encompassing peripheral records from areas that are not within boreal forest or do not have cold winters with deep snow, such as prairie or deciduous forest. Such maps have led to a misperception that the historic range of the lynx in the contiguous U.S. was once much more extensive than ecologically possible. Records of lynx outside of the southern boreal forest in peripheral habitats that are unable to support lynx represent long-distance dispersers that are lost from the metapopulation unless they return to the boreal forest and contribute to the persistence of a population. These unpredictable and temporary occurrences are not included within either the historic or current range of lynx because they are well outside of lynx habitat. This includes records from Connecticut, Indiana, Iowa, Massachusetts, Nebraska, Nevada, North Dakota, Ohio, Pennsylvania, South Dakota, and Virginia (Hall and Kelson 1959, Burt 1954 *as cited in* Brocke 1982, Gunderson 1978, McKelvey et al. 2000a). States that support some boreal forest and have frequent records of lynx are assumed to be the historic and current species range; these states include Colorado, Idaho, Maine, Michigan, Minnesota, Montana, New Hampshire, New York, Oregon, Utah, Vermont, Washington, Wisconsin, and Wyoming.

6.1.1.14 Range of Lynx within Great Lakes Geographic Region

Lynx are found within several geographic areas within the U.S.—the Cascade Mountains Geographic Area, Northern Rocky Mountains Geographic Area, Southern Rocky Mountains Geographic Area, Great Lakes Geographic Area, and Northeast Geographic Area. These geographic areas are separated from each other by expanses of unsuitable habitats that limit or preclude lynx movement, except the Northern Rockies and Cascades (USDOI USFWS 2000a).

Canada lynx in northern Minnesota are found within the Great Lakes Geographic Area. The Great Lakes Geographic Area encompasses northeastern and northcentral Minnesota, northern Wisconsin, Michigan's Upper Peninsula, and northern portions of Michigan. The majority of lynx occurrence records in the Great Lakes Geographic Area are associated with the mixed coniferous/deciduous habitat type (McKelvey et al. 2000a). Within this general forest type, the highest frequency of lynx occurrences have been in white spruce, balsam fir, jack pine, white pine, red pine, black spruce, and mixed black spruce/tamarack forest types. These forest types are found primarily in northern Minnesota, northern Wisconsin, and Michigan's Upper Peninsula.

About 4.5 million of the 6 million acres of Forest Service-administered lands in the Great Lakes Geographic Area are mapped as primary lynx habitat. These lands comprise about 19% of all lynx habitat within the Great Lakes Geographic Area. About 2 million acres are included within non-developmental land allocations where natural processes are expected to predominate. Private lands account for about 81% of the lynx habitat within the Great Lakes Geographic Area.

Although the mixed coniferous/deciduous forest covers an extensive area in the Great Lakes Region, much of this area may be marginal habitat for lynx because it is a transitional forest type at the edge of the snowshoe hare range. Habitat at the edge of hare range supports lower hare densities that may not be sufficient to support lynx reproduction (Buehler and Keith 1982). Furthermore, appropriate habitat with snow depths that allow lynx a competitive advantage over other carnivores (e.g., coyotes) occur only in limited areas in northeastern Minnesota, extreme northern Wisconsin, and Michigan's Upper Peninsula.

The historic status of lynx in the Great Lakes Region is uncertain. Minnesota has a substantial number of lynx reports (McKelvey et al. 2000a), which is expected because of the connectivity of the boreal forest with that of Ontario, Canada, where lynx occur. As noted earlier, lynx regularly travel between Minnesota and Ontario, Canada (Moen 2009, Moen et al. 2010). Wisconsin and Michigan have substantially fewer records of lynx. Researchers have debated whether lynx in this region are simply dispersing individuals emigrating from Canada, are members of a resident population, or are a combination of a resident population and dispersing individuals. Recent research efforts in Minnesota have confirmed a reproducing population of lynx. Reproduction has been documented in all years since 2001. However, there are a few records of lynx occurrence in Michigan and Wisconsin during this same period.

6.1.1.15 Range of Lynx in Minnesota

The majority of lynx occurrence records are from the northeastern portion of Minnesota; however, dispersing lynx have been found throughout Minnesota outside of typical lynx habitat (Gunderson 1978, Mech 1980, McKelvey et al. 2000a). In northeastern Minnesota, where deep snow accumulates, suitable lynx and snowshoe hare habitat is present. Much of this area is protected as designated wilderness, including the BWCAW. Furthermore, these habitats are contiguous with the boreal forest in southern Ontario. Until 1965, lynx had a bounty placed on them in Minnesota. In 1976, the lynx was classified as a game species, and harvest seasons

were established (DonCarlos 1994). Harvest and bounty records for Minnesota are available for 1930 to 1984. Approximate 10-year cycles are apparent in the data, with highs in the lynx cycle in 1940, 1952, 1962, and 1973 (Henderson 1978, McKelvey et al. 2000a). During a 47-year period (1930–1976), the Minnesota lynx harvest was substantial, up to 400 lynx in a year (Henderson 1978). These harvest returns for Minnesota are believed to be influenced by influxes of lynx from Canada, particularly in the 1960s and 1970s (Henderson 1978, Mech 1980, DonCarlos 1994, McKelvey et al. 2000a). When an anticipated lynx cyclic high for the early 1980s did not occur, the harvest season was closed in 1984 (DonCarlos 1994) and remains closed today.

Reproduction and maintenance of home ranges by lynx in Minnesota were documented in the early 1970s (Mech 1973, 1980), which may be evidence of a resident population (but see Section 6.1.1.7; Recruitment). The early 1970s were a period when the second highest lynx harvest returns in the 20th century occurred throughout Canada. The high numbers of lynx trapped in Minnesota during this period likely included immigrants from Canada (McKelvey et al. 2000b). Lynx were consistently trapped over 40 years during cyclic lows, which may indicate that a small resident population occurred historically.

Lynx Analysis Units

The Superior National Forest first established Lynx Analysis Units (LAUs) in 2000 to map lynx habitats in the Superior National Forest using the criteria and procedures developed by the Lynx Science Team and Steering Committee (USDA Forest Service 2000b). Lynx Analysis Units are described in the Lynx Conservation Strategy and Assessment (Ruediger et al. 2000) as the smallest landscape-scale analysis units used to determine direct, indirect, and cumulative effects for lynx. Lynx Analysis Units may contain habitat that may or may not provide habitat or environmental conditions necessary to support lynx reproduction and survival. Lynx habitat outside LAUs exists because those areas did not contain sufficient habitat conditions to be viable LAUs (USDA Forest Service 2000b, 2004b).

In 2004, the LAUs were revised (USDA Forest Service 2004b, c, d) to add new LAUs, refine boundaries of some LAUs, and designate the BWCAW as a refugium for lynx.

The federal lands are in LAU Superior National Forest (SNF) 12. This LAU is 70,980 acres, of which 49,409 acres are on Forest Service-administered lands (Ryan 2013a). Under the proposed land exchange, there would be a loss of 6,495 acres under Forest Service administration within this LAU after transfer of the federal lands from the Forest Service to PolyMet, a 13% reduction in acreage administered by the Forest Service within LAU SNF 12. Under the land exchange, the non-federal lands, except Hay Lake Lands, would be incorporated into LAUs SNF 4, 16, 21, and 42, increasing the acreage of these LAUs administered by the Forest Service by approximately 2,149 acres (**Figure 16**). There is no LAU associated with Hay Lake Lands.

Table 5 shows the total acres of suitable and unsuitable lynx habitat in each LAU. After the land exchange, there would be a net decrease of about 1,719 acres of suitable lynx habitat within LAU SNF 12 due to the effects of the Project, or about a 2% decrease of suitable lynx habitat within the LAU. After reclamation, about 397 acres could provide suitable habitat for lynx in the future; however, due to the successional process, it could be 10 or more years after mining before revegetation results in much suitable habitat for lynx. Under the land exchange, there would be a loss of about 6,495 acres of suitable lynx habitat under Forest Service administration within LAU SNF 12, but a gain of 2,134 acres on other LAUs, for an overall loss of 4,361 acres under Forest Service administration within LAUs (MDNR et al. 2013, Ryan 2013a). However, the Forest Service would gain about 4,675 acres of suitable lynx habitat on Hay Lake Lands, although this acreage is not associated with an

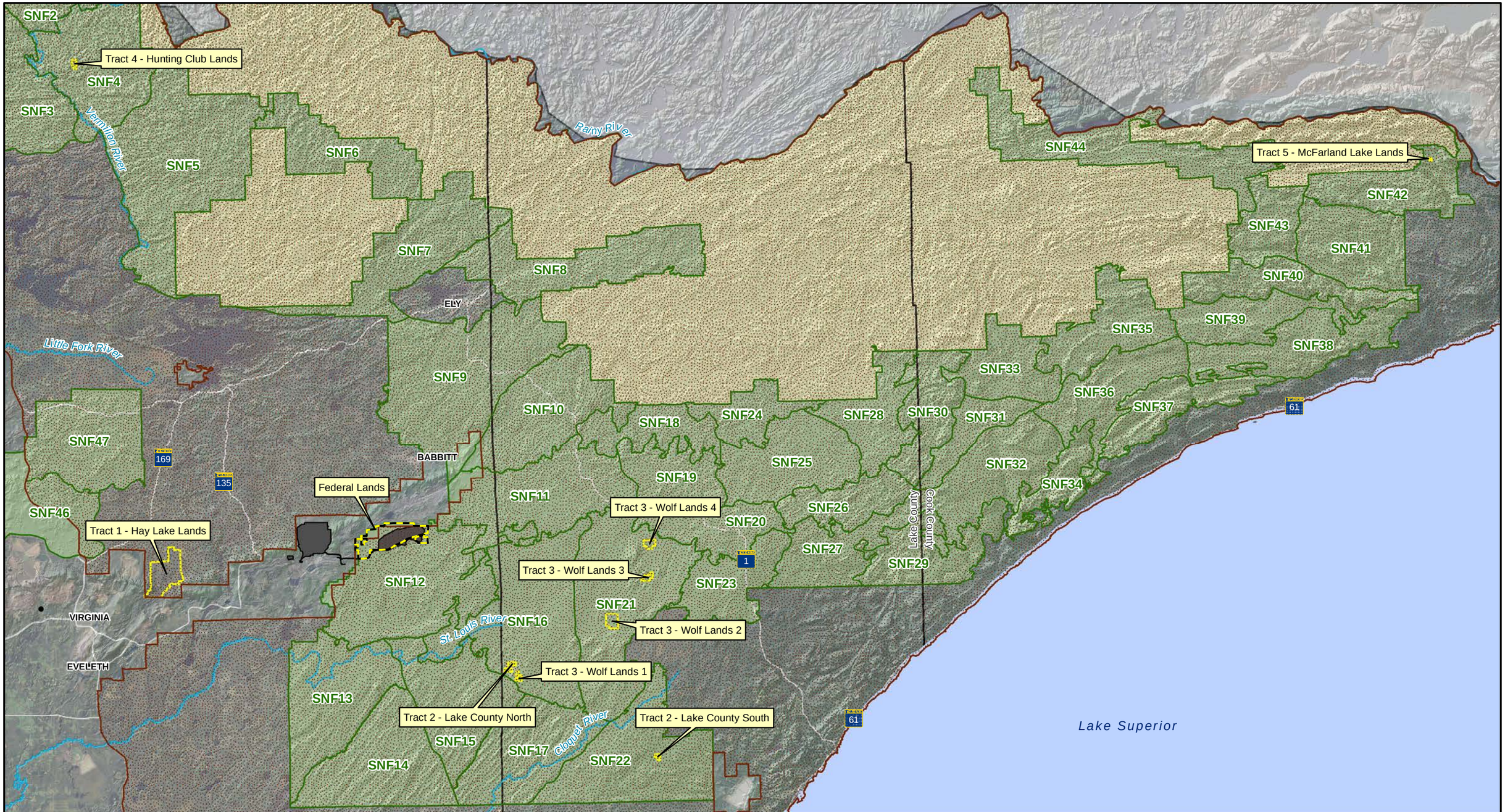

Federal Lands
Non-federal Lands
Project Areas
Lynx Analysis Unit (LAU)
Superior National Forest LAUs
Boundary Waters LAUs
Critical Habitat - Lynx
Major River

US Army Corps of Engineers
St. Paul District

N
W E
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0 2.5 5 10
Miles

Figure 16
Lynx Analysis Units
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

Table 5
Suitable and Unsuitable Lynx Habitat within Lynx Analysis Units (for acreage under all ownerships within the LAU/for acreage administered by the Forest Service within the LAU) before and after the Project for the Federal and Non-federal Lands

Lynx Analysis Unit	Lands	Suitable Lynx Habitat before Land Exchange/Project	Unsuitable Lynx Habitat before Land Exchange/Project	Total Suitable Lynx Habitat after Land Exchange/Project[1]
SNF 12	Federal Lands	69,131/47,908	2,737/31	67,412/41,413
SNF 4	Hunting Club	49,994/28,903	2,470/1,289	49,994/29,054
SNF 16	Lake County North and Wolf Lands 1	70,743/29,316	3,127/350	70,743/29,705
SNF 21	Wolf Lands 2, 3, and 4	69,632/32,984	2,931/272	69,632/34,434
SNF 22	Lake County South	57,107/40,217	913/344	57,107/40,330
SNF 42	McFarland Lake	27,775/19,609	534/13	27,775/19,640
NA	Hay Lake	NA	NA	4,675[2]
Net Gain (Loss) to Federal Estate within LAUs				(4,361)[3]
Net Gain (Loss) to Federal Estate for all exchange lands				314

[1]Acreage may differ slightly from acreage given in FEIS due to rounding.
[2]Gain in acreage in LAUs to Forest Service from land exchange; Hay Lake Lands are not within an LAU.
[3]Value differs from sum of acres due to rounding.
NA = Hay Lake Lands not within an LAU.
Total acreage within the LAU for all land ownerships —LAU SNF 4 = 55,071 acres, SNF 12 = 70,980 acres, SNF 16 = 76,108 acres, SNF 21 = 73,266 acres, SNF 22 = 58,154 acres, and SNF 42 = 32,305 acres; total acreage for lands administered by the Superior National Forest —LAU SNF 4 = 33,321 acres, SNF 12 = 49,409 acres, SNF 16 = 33,679 acres, SNF 21 = 36,082 acres, SNF 22 = 41,210 acres, and SNF 42 = 24,687 acres.
Sources: MDNR et al. (2013), Ryan (2013a).

LAU, resulting in an overall gain of 314 acres of suitable lynx habitat under Forest Service Administration after the land exchange.

Boundary Water Canoe Area Wilderness

The BWCAW serves as an important habitat refugium in northeastern Minnesota that connects with lynx habitat in Ontario, Canada. Moen et al. (2010) found that many lynx in the Superior National Forest portion of northern Minnesota travel through the BWCAW to and from Ontario, Canada. The quality, quantity, and distribution of lynx habitat in the BWCAW is primarily influenced by natural disturbance events and natural succession, although some prescribed fire management activities have occurred within the BWCAW (USDA Forest Service 2004b).

The BWCAW provides large amounts of lynx habitat, including about 755,000 acres of suitable lynx habitat, 667,000 acres of snowshoe hare habitat, and 481,000 acres of lynx denning habitat (USDA Forest Service 2011b:Table 15). The BWCAW is not managed using the LAU approach, and LAU management direction does not apply to the BWCAW. The 2004 Forest Plan BA concluded that the BWCAW refugium met the direction for minimum habitat conditions established for LAUs (USDA Forest Service 200b).

6.1.1.16 Observations of Lynx in the Vicinity of the Project

Minnesota Department of Natural Resources Lynx Database

Of 426 reports from March 2000 to November 2006 in the MDNR lynx sightings database, 323 (76%) of lynx sightings occurred in St. Louis (113 sightings), Cook (109 sightings), and Lake (101 sightings) Counties (**Figure 17**; MDNR 2007). Most sightings are incidental encounters, and as such, tend to be clustered along roads and other places frequented by observant and interested people. Thus, while these reports tell us something about where lynx are, they provide no information about where lynx do not occur. Similarly, we cannot know the relationship between the number of reports and the number of lynx in Minnesota at the time of the reports.

A review of the database revealed that a probable lynx sighting was made by a trained biologist in Section 13 of Township 59 North, Range 16 West, east of Hay Lake Lands, in October 2003. Another lynx sighting was made 1 mile to the west of Hay Lake Lands the same year. Unverified lynx sightings were made in December 2002 and January 2003 in Sections 22 and 27 of Township 64 North, Range 3 West, south of McFarland Lake Lands. There were no records of lynx within 6 miles of the other federal and non-federal lands or Wetland Mitigation Sites.

The relatively high proportion of lynx detected in northeastern Minnesota reflects, in part, the disproportionate survey effort that has occurred within this region as compared to other regions of the state that likely harbor lynx, and the number of lynx sightings may not be representative of the availability of suitable habitat or relative numbers of lynx.

Superior National Forest Genetic Reference Collection

The Superior National Forest's genetic reference collection has 128 DNA sample collection points that have occurred within 6 miles of the Project since February 2004 (**Table 6**; Ryan 2013b). Lynx DNA have also been collected within 6 miles of the federal lands and all of the non-federal lands, except Hunting Club and McFarland Lake Lands; lynx DNA has been found within 10 miles of Hunting Club Lands and McFarland Lake Lands. Lynx DNA has been collected within 10 miles of the Hinckley Wetland Mitigation Site, but not within 10 miles of the other Wetland Mitigation Sites.

Natural Resources Research Institute Radio Telemetry Studies

Since 2003, the NRRI (2012) has captured and radiocollared and tracked 36 lynx in northeastern Minnesota. Four NRRI radiocollared study animals that were not identified in Superior National Forest's reference collection have been recorded within 6 miles of the Project.

Field Surveys

Several surveys have been conducted on and near the Project to determine lynx use based on tracks and scat. The Project lynx survey was conducted during January through March 2006 (ENSR 2006). Tracks and scat of three female lynx were identified during the survey within the study area, concentrated in areas approximately 5 miles east and south of the Mine Site; a fourth female was found adjacent to the study area (**Figure 18**). Lynx sign was most common in dense coniferous forests of balsam fir and jack pine. No evidence of lynx was found on the federal lands or Project areas.

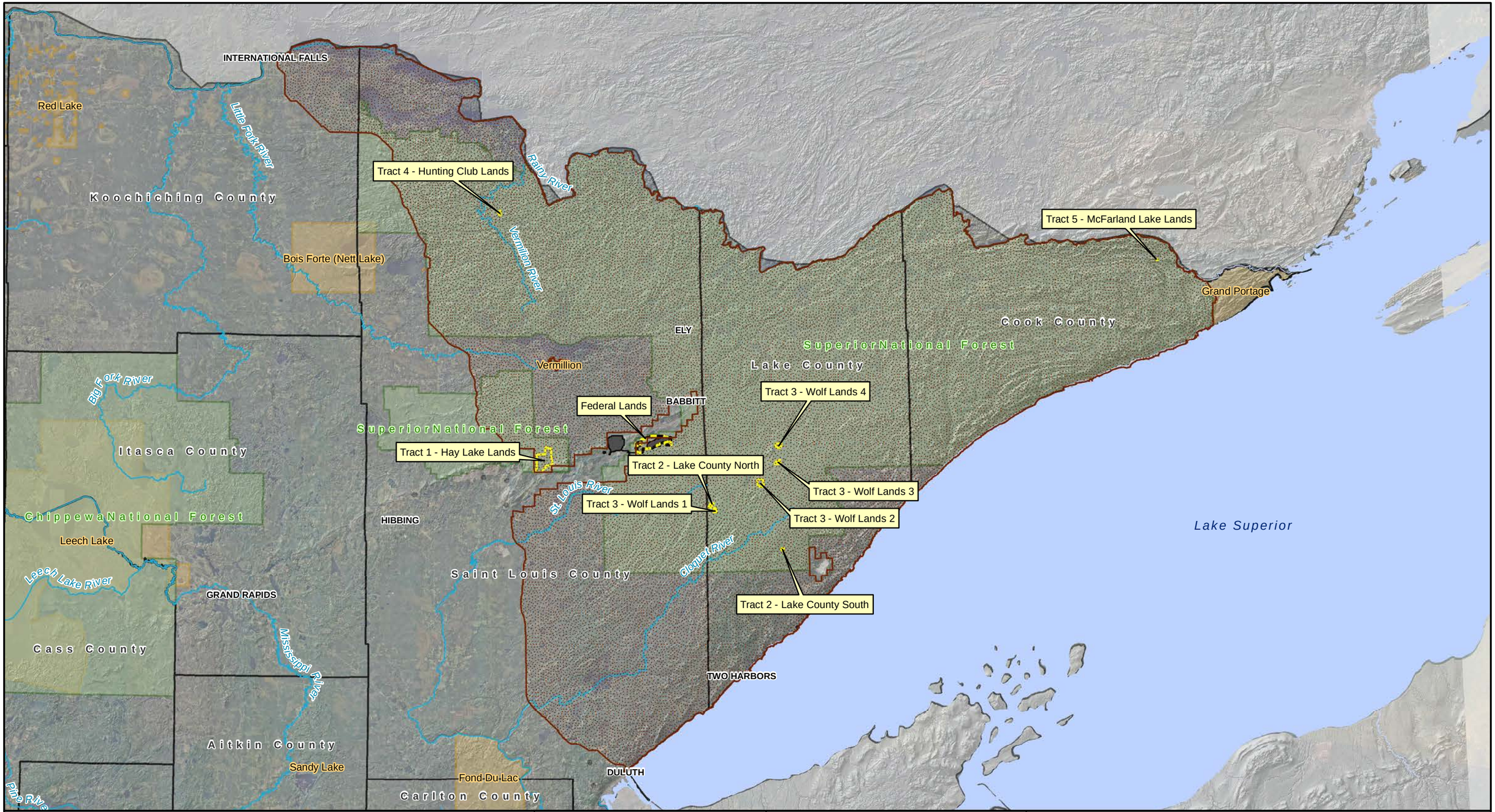

Lynx Sightings from Minnesota Lynx Database
- Verified
- Probable
- Unverified
- Evidence of Lynx Reproduction
- Critical Habitat - Lynx

- Federal Lands
- Non-federal Lands
- Project Areas
- National Forest Boundary
- Native American Reservation
- Major River

US Army Corps of Engineers
St. Paul District

0 5 10 20 Miles

N W E S

Figure 17
Canada Lynx Sightings in Northeastern Minnesota 2000 - 2006
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

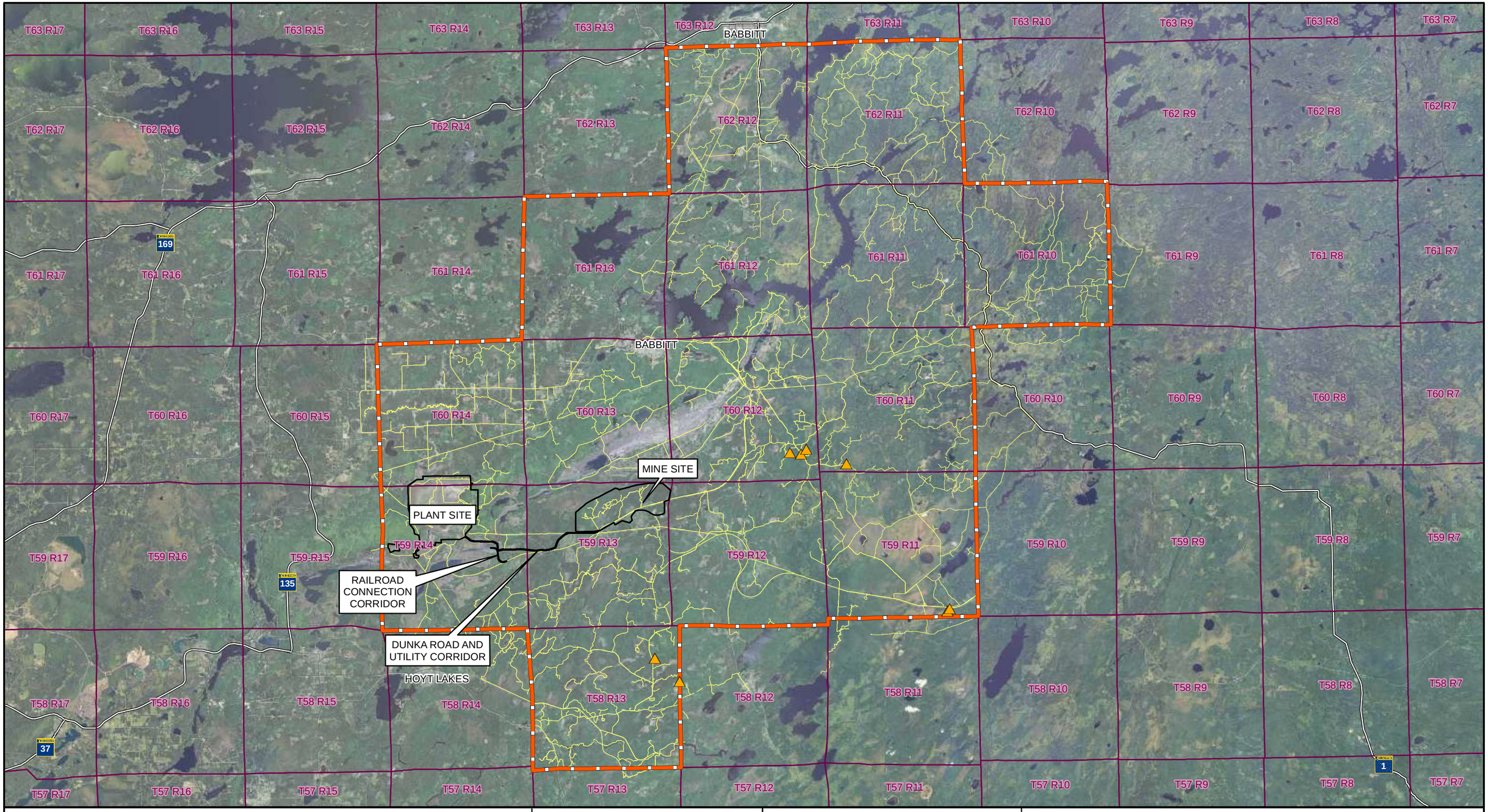

Unique Individual Lynx
Lynx Survey Routes
Townships Surveyed For Lynx 2005-2008
Project Areas
Township Lines

US Army Corps of Engineers
St. Paul District

0 1 2 4 Miles

N W E S

Figure 18
Lynx Survey Routes and Lynx Observations Near Project Areas
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

No lynx or their sign were seen on the federal and non-federal lands during wildlife surveys in 2000, 2004, 2008, 2009, and 2010 (ENSR 2000, 2005, AECOM 2009b, 2011a, b, c). However, Forest Service biologists did observe lynx tracks at the proposed Mine Site during a site visit in February 2010 (Ryan 2013c).

Table 6
Superior National Forest Genetic Reference Collection Records

Lands	Lynx DNA Occurrences Distance from Site	
	6 Miles	10 Miles
Project Areas[1]	128	144
Federal Lands	130	142
Non-federal Lands		
Hay Lake	9	27
Lake County	83	673
Wolf Lands	523	852
Hunting Club	0	2
McFarland Lake	0	1
Wetland Mitigation Sites		
Aitkin	0	0
Hinckley	0	1
Zim	0	0

[1]Some of the Project areas are within the federal lands.
Source: Ryan (2013b).

Tracking surveys for lynx were also conducted east of the federal lands. Several lynx were found during the study, based on DNA analysis of scat samples and track locations (Barr 2011). Open bog and stunted black spruce forest and jack pine and eastern white cedar cover provided habitat for snowshoe hare and lynx.

Habitat suitability for lynx and snowshoe hare was determined by the Forest Service for Superior National Forest lands within LAUs. This information is used in this BA to evaluate habitat suitability and impacts to lynx and snowshoe hare habitats from activities on the federal lands.

6.1.2 Analysis of Direct and Indirect Effects to Lynx and Its Critical Habitat

6.1.2.1 Effects to Canada Lynx within the Action Area

The USFWS concluded in the *Endangered and Threatened Wildlife and Plants: Determination of Threatened Status for the Contiguous U.S. Distinct Population Segment of the Canada Lynx and Related Rule; Final Rule* (USDOI USFWS 2000a) that the single biggest factor threatening the lynx in the contiguous U.S. is the inadequacy of existing regulatory mechanisms, specifically the lack of guidance for conservation of the lynx in National Forest and other resource management plans. In addition, the USFWS noted that timber harvest and fire suppression impact lynx in the Great Lakes Geographic Area.

Lands under federal management are necessary to lynx conservation regionally and nationally, as federal lands often provide large amounts of forested habitat needed by lynx and snowshoe hare. Large tracts of National Forest lands are found to the east of the Project. Most of the lands not associated with Mesabi Iron Range mining and related activities are forests. These forestlands could provide important habitat for lynx that use the Project area, and for movement of lynx between the Project area and areas with higher densities of lynx to the northeast.

The Project is within the Superior National Forest and the lynx critical habitat includes the Project area. These forestlands, as well as nearby private forestlands, provide important habitat for lynx that use the Project area, and for movement of lynx between the Project area and areas with higher lynx densities to the northeast of the Project area.

Other Lynx Risk Factors

The *Lynx Conservation Assessment and Strategy* (Ruediger et al. 2000) identified several other risk factors for lynx in the contiguous U.S., which could also apply to lynx in or near the Project area. These factors are considered in the following section on the effects of the Project, and the cumulative effects of the Project and other projects within or near the study area, on lynx. These include (**bolded items** considered important in the Project area).

1. Factors Affecting Lynx Productivity
   - **a. Timber management**
   - **b. Wildland fire management**
   - **c. Recreation**
   - **d. Forest/backcountry roads and trails**
   - e. Livestock grazing
   - **f. Other human developments (mining, power generation, etc.)**

2. Factors Affecting Lynx Mortality
   - **a. Trapping**
   - b. Predator control
   - **c. Incidental or illegal shooting**
   - **d. Competition and predation as influenced by human activities**
   - **e. Highways (vehicular collisions)**

3. Factors Affecting Lynx Movements
   - **a. Highways, roads, and rights-of-ways**
   - **b. Land ownership patterns**
   - c. Ski areas and large resorts

4. Other Large-scale Risk Factors
   - **a. Fragmentation and degradation of lynx refugia**
   - b. Lynx movement and dispersal across shrub-steppe habitats
   - c. Habitat degradation by non-native invasive plant species

The Project would result in both beneficial and adverse direct and indirect impacts to factors of importance to lynx. This section summarizes effects associated with the lynx risk factors 1 to 3 affected by the Project. The effects of past, present, and future activities on risks to lynx, and issues associated with lynx risk factor 4, are discussed in Section 6.1.4.

Factors Affecting Lynx Productivity

Timber, Wildland Fire, and other Habitat Management

Direct and Indirect Effects

Direct and indirect effects to lynx from timber and other habitat management, and wildland fire, were assessed based on information collected during lynx tracking and radiocollar studies and wildlife habitat surveys on and near the federal and non-federal lands, and from lynx and snowshoe hare habitat assessments conducted on LAUs.

Timber and other Habitat Management

Mine Site

The Forest Service manages the federal lands as a General Forest and General Forest – Longer Rotation Management Area. The General Forest - Longer Rotation Management Area emphasizes land and resource conditions that provide a wide variety of goods, uses, and services. These include wood products, other commercial products, scenic quality, developed and dispersed recreation opportunities, and habitat for a diversity of terrestrial and aquatic wildlife and fish species (USDA Forest Service 2004a). The characteristics and use of the General Forest Management Area are similar to the General Forest – Longer Rotation Management Area, except that harvests are more frequent, more uniform in age, and more extensive. The General Forest Management Area has the highest amount of young forest and the largest sized timber harvest units.

The Forest Service identified vegetative cover, denning habitat, and prey habitat as important habitat elements for lynx (USDA Forest Service 2004b). Open water, highly disturbed, and forested areas less than 4 years (upland) or 9 years (lowland) old were considered unsuitable habitat for lynx. These are general guidelines, as lynx have been seen crossing frozen lakes and highly disturbed areas. For example, a lynx tracked about 5 miles northeast of the Mine Site used mine disturbance areas where shrubs, jack pine, trembling aspen, and paper birch had partially revegetated the landscape, providing habitat for snowshoe hare and ruffed grouse, especially where waste rock talus provided escape cover for snowshoe hares.

Based on Forest Service criteria and wildlife assessments done at the Mine Site, all of the Mine Site could provide suitable habitat for lynx. Most forests consisted of immature/mature-size trees, with tree cover near 80% in younger forests, and 40 to 50% in immature and mature forests. These stands would be favored by lynx for foraging, bedding, and traveling. Small patches of mature forest are found in the central and western portions of the Mine Site that could provide foraging, bedding, traveling, and denning habitat.

Habitat of lesser suitability is primarily limited to roads, railways, clearings, and recent clearcuts near the Dunka Road, and at other scattered locations on the Mine Site. Shrublands and young forests are associated with areas that had been recently logged. Scattered trees (trembling aspen, paper birch, jack pine, and black spruce) are

occasionally found in these areas, but shrubs, including speckled alder, beaked hazel, blueberry, and raspberry may cover up to 80% or more of the landscape; percent vegetative cover is much less in more recently logged areas.

Denning habitat typically occurs in more mature forest stands, especially in areas with tree wind-throw, although lynx have been seen denning in immature forests (Moen et al. 2004, 2008, Moen et al. 2008)). There are about 5,393 acres of denning habitat on the federal lands; approximately 1,333 acres of denning habitat are found within the area that would be impacted by mining (MDNR et al. 2013). Most mature forest habitat was in the central and western portions of the Mine Site. The largest trees are up to about 16 inches dbh for both coniferous and deciduous trees. There is little wind-throw in these forests, but large snags (up to 16 inches dbh), stumps, and woody debris are common in mature forest stands and could provide denning habitat for lynx (ENSR 2000, 2005, AECOM 2011a).

About 397 acres of habitat lost to mining would be reclaimed after mine closure, but due to the successional process, it could be 10 or more years after mining before revegetation results in much suitable habitat for lynx. Based on the mine closure plan, most of the 397 acres of the habitat lost to mining that would be reclaimed would be reclaimed as grassland/herbaceous (54%), wetland and/or grassland/herbaceous (27%), and wetland (18%). The West Pit would not be reclaimed, but would remain as a 320-acre open pit lake (MDNR et al. 2013).

Studies of snowshoe hare and red squirrel pellet density suggest that snowshoe hare and red squirrel numbers are greatest in jack pine, red pine, black spruce, and mixed immature/mature forests; presumably, lynx would be more common in these habitats (Moen et al. 2004). Snowshoe hare were seen throughout the Mine Site, but were most common in young and immature coniferous forest dominated by jack pine. Although upland coniferous forests are dominated by jack pine, jack pine is especially abundant in the eastern portion of the Mine Site, as were snowshoe hare.

Three lynx were found within 6 miles of the Mine Site during lynx tracking surveys (ENSR 2006). Important habitat features used by lynx were identified during snow tracking. One lynx hunted snowshoe hares in mature jack pine where balsam fir inclusions in the understory were prevalent and provided dense cover, and in immature jack pine forest, often near lowland edges where balsam fir and other young and immature conifers provided relatively dense cover. This lynx also used lowland coniferous habitats. This lynx stalked three locations where white-tailed deer had bedded and investigated one site where grouse activity had occurred. It used an area where white-tailed deer activity was high, and also followed white-tailed deer trails and hunted snowshoe hare at this location. Two resting beds used by this lynx were found, one in mature jack pine and the other in a recent clearcut near a timbered edge.

A second lynx used mature black spruce swamp and hunted primarily in young and immature jack pine forest regenerating on sites that had been clearcut within 25 years. Snowshoe hare densities were abundant in a small stand of jack pine/balsam fir where the lynx hunted. Two resting beds, within 325 feet of each other, were found in this stand. The lynx pursued a white-tailed deer for a short distance and visited a site where humans had deposited venison trimmings. The lynx also investigated the empty snow roost of a grouse.

Federal Lands Surrounding the Mine Site

The federal lands surrounding the Mine Site would also be transferred to PolyMet under the Proposed Action. PolyMet could include some upland timber management that could enhance wildlife habitat.

Based on Forest Service criteria and wildlife assessments done for the federal lands, nearly all of this area could provide habitat for lynx and snowshoe hare. Forest vegetation dominates the federal lands (88%; **Figure 9; Table 7**). Most forest stands contain trees that are 12 inches dbh or less. Large stands of lowland black spruce with scattered northern white cedar and tamarack are found in low areas, while stands of immature and mature forest dominated by jack pine, and smaller patches of immature deciduous forest are found in upland areas.

The northern area of the federal lands includes a portion of One Hundred Mile Swamp. The swamp is comprised of some young, but mostly immature and mature black spruce, northern white cedar, and tamarack forests. Northern white cedar is prevalent in the northcentral portions of the northern area of the swamp, while black spruce and tamarack are more common in the remaining areas. Most of the forest stands are 90 years or older, with much of the remaining stands 70 to 90 years of age (USDA Forest Service 2000a). Because this area is very wet, it would probably provide little habitat for lynx and snowshoe hare, except perhaps during winter.

Approximately 3,161acres of immature and mature forest habitat are found on the federal lands surrounding the Mine Site. Large downed woody material was seen in these areas that could provide denning habitat for lynx, but there was little tree wind-throw observed on these lands, except along old logging roads in mature white cedar forests.

Transportation and Utility Corridors

Because of prior use during the former LTVSMC taconite mining operation, the Transportation and Utility Corridors are now defined as having a “disturbed” cover type. The remaining MDNR GAP land cover types that are not disturbed include cropland/grassland (8%), shrubland (6%), and smaller acreages of the remaining types. The corridors could be used by lynx for travel between more suitable habitat types.

Plant Site

Of the 2,189 acres that would be disturbed at the Plant Site, approximately 50% (1,103 acres) of the Plant Site is disturbed and supports little vegetation. The remaining areas consist of aquatic environments (26%), upland deciduous forest (13%), shrubland (7%), upland coniferous forest (2%), and lowland coniferous forest (1%; **Figure 10;** MDNR et al. 2013). Development of the Plant Site would have little impact on lynx habitat, as about 75% of the site has been disturbed by LTVSMC taconite mining operations or is aquatic habitat. The remaining habitat may be used by snowshoe hare and provide foraging habitat for lynx. Lynx could also use portions of the site for travel and bedding. Given the amount of existing land disturbance, and noise and other human disturbance that would be associated with Plant Site activities, it is unlikely that the Plant Site would be used by lynx during Plant operations, although the Plant Site could be used by lynx after reclamation.

Non-federal Lands

Under the Proposed Action, approximately 7,075 acres of non-federal lands would be transferred to the Forest Service. The Forest Service and MDNR cover type mapping and field and wildlife habitat surveys were conducted for these lands and give an indication of the suitability of these lands for lynx. Portions of the non-federal lands have been harvested during the past 20 years, with much of the harvest occurring on Lake County Lands North, Lake County Lands South, and Wolf Lands 2 and 3, as indicated by acres of grassland and shrubland habitats shown in **Table 7.** Snowshoe hare and lynx could use these areas, especially if these areas are in proximity to coniferous stands. About 267 acres consists of aquatic habitat, which would not be used by snowshoe hare, red squirrel, or lynx, except perhaps during winter.

Table 7
GAP Cover Type and MIH Habitat (acres) on Federal and Non-federal Lands[1]

Cover Type	Federal Lands	Non-federal Lands									Net Gain (Loss) to Forest Service after Land Exchange[1]
		Hay Lake	Hunting Club	Lake North	Lake South	McFarland Lake	Wolf Lands 1	Wolf Lands 2	Wolf Lands 3	Wolf Lands 4	
MDNR GAP Types											
Aquatic	60	251	10	2	4	0	0	0	0	0	207
Disturbed	64	0	0	0	0	0	0	0	0	0	(64)
Cropland/grassland	6	32	0	0	0	0	0	0	0	0	26
Shrubland	646	1,665	45	28	11	0	7	54	32	4	1,200
Lowland coniferous forest	2,979	1,524	9	133	53	0	75	586	184	357	(58)
Lowland deciduous forest	10	17	4	1	0	0	0	6	0	0	18
Upland coniferous forest	1,619	437	8	33	39	4	13	87	46	32	(920)
Upland deciduous forest	1,092	1,000	85	34	10	27	27	30	12	8	141
Upland mixed coniferous/deciduous forest	21	0	0	34	0	0	4	6	3	4	30
Management Indicator Habitat (MIH) and other Forest Service Habitat Types											
MIH 1	1,330	2,366	89	49	2	26	44	57	41	20	1,364
MIH 5	1,252	54	13	1	0	4	0	8	0	0	(1,172)
MIH 9	3,060	1,818	17	194	46	0	72	627	186	349	249
MIH 14	0	206	10	1	3	1	0	1	1	4	227
Lowland Shrub	492	113	27	21	6	0	10	76	49	31	(159)
Lowland Emergent	186	365	4	0	16	0	0	0	1	0	200
Upland Grass	0	0	0	0	43	0	0	0	0	0	43
MIH Age Class											
Young	271	534	27	24	43	0	2	8	130	10	507
Immature	1,539	3,260	33	75	1	0	76	69	22	5	2,001
Mature	3,854	460	60	145	48	30	38	615	75	354	(2,029)

[1]Acreages may differ slightly from acreages given in FEIS due to rounding.

The majority of habitat on the non-federal lands consists of immature and mature (age class) upland and lowland coniferous and deciduous forest totaling 5,365 acres (76%) that could be used by lynx and snowshoe hare (**Table 7**; MDNR et al. 2013). Mixed coniferous/deciduous forest and lowland shrub swamp and upland shrubland are also important habitat components that could be used by both snowshoe hare and lynx.

Wetland Mitigation Sites

Under the Proposed Action, approximately 2,169 acres of Wetland Mitigation Site lands would be purchased by PolyMet as compensatory mitigation for impacts to wetlands and other waters of the U.S. These lands are used for sod production, but under the Proposed Action would be restored to native wetland and upland vegetation. According to the Wetland Management Plan (Barr 2014d), approximately 1,603acres (this includes the preservation of 29 acres of coniferous bog) of wetland and 197 acres of upland would be restored/created at the off-site Wetland Mitigation Sites. These sites could provide habitat for lynx and snowshoe hare, but there have been no recent records of lynx in the immediate vicinity of these lands.

Wildland Fire Management

Fire, wind, insects, and disease historically played an important role in maintaining the mosaic of forest successional stages that provide habitat for both snowshoe hare and lynx (Bailey et al. 1986, Quinn and Thompson 1987, Koehler and Brittell 1990, Slough and Mowat 1996, Ruediger et al. 2000). For the first few years after a burn, there appears to be a negative correlation between lynx use and the amount of area burned. This short-term effect is likely due to the reduction of snowshoe hare populations, removal of cover, and possibly also to increased competition from coyotes in open habitats (Koehler and Brittell 1990). The lag time until the peak of snowshoe hare population increase is generally about 15 to 30 years (this varies depending on tree species, habitat type, and severity of disturbance). Re-sprouting of deciduous trees occurs more quickly, in 3 to 12 years. Snowshoe hare populations again decrease as the forest canopy develops and shades out the understory. Forest gaps processes, such as large wind-throws, insect infestations, and outbreaks of disease, produce similar effects (Agee 2000).

The Superior National Forest lies within a boreal forest system where natural fire occurrence is common. The Forest also provides for a variety of recreational and management activities which sometimes result in unwanted human-caused fires.

Fire management is an integral part of land and resource management on the Superior National Forest. Fire plays a natural role in achieving long-term goals of ecosystem health. Wildland fire management decisions and resource management decisions go hand-in-hand and are based on approved Fire Management and Land and Resource Management Plans. Wildland fire, as a critical natural process, may be re-introduced into the ecosystem where human life, property, or resource values are not at risk.

In all cases, protection of human life is the first priority in wildland fire management. Property and resource values are the second priority, with management decisions based on values to be protected. Structural fire protection in the wildland/urban interface is the responsibility of tribal, state, and local governments.

Lynx and snowshoe hare favor early successional habitats that occur in the boreal forest about 10 or more years after disturbance. Thus, wildland fire can initiate plant succession to the benefit of lynx and snowshoe hare. Lynx denning habitat would not be available until at least 60 or more years after a wildland fire event (see Sections 6.1.1.10 and 6.1.1.12).

Under the Proposed Action, fire prevention would be a high priority at the Plant Site and on federal lands to protect human life and mine and plant infrastructure. After mine closure, wildland fire may again become part of the natural ecosystem on the federal lands, but would likely not be allowed at the Plant Site due to its close proximity to other mine infrastructure and other private properties.

Wildland fire could occur on the non-federal lands, but would likely be actively controlled to minimize loss of timber on the lands and to minimize the risk to nearby properties. Most habitat management on these lands would primarily be associated with timber management and harvests, and for Wetland Mitigation Sites, wetland and upland restoration under the Proposed Action.

Summary of Impacts to Lynx Habitat

Numerous habitat and human-disturbance factors influence lynx use of an area. Factors most important in the study area include timber management, mining activity, and habitat fragmentation. The mine project would remove forestlands, reduce the amount of available habitat for lynx, and increase habitat fragmentation; much of this habitat would be reclaimed after mine closure. However, large tracts of land associated with the Superior National Forest and adjacent to the Mine Site would be managed for lynx and other wildlife habitat. These lands have the potential to reduce the amount of habitat fragmentation within the region and help to maintain travel corridors between areas of suitable habitat.

Despite the presence of suitable habitat over most of the federal lands, sightings of lynx on the federal lands have been few. Based on tracking surveys on and near the federal lands, lynx density appears to be relatively low near the federal lands (approximately one lynx per 83 square miles) compared to other portions of northeastern Minnesota (ENSR 2006). Lynx sightings were more common a few miles east of the federal lands (Barr 2011). Thus, the loss of habitat due to the mining may have little impact on lynx.

None of the federal lands surrounding the Mine Site would be directly impacted by the Proposed Action. However, noise, light, and other disturbances at the mine site could limit use of the area by lynx, and perhaps to a lesser extent by snowshoe hare.

Lynx have not been recorded on the federal lands associated with the Mine Site, based on tracking surveys, NRRI field studies, Forest Service DNA data (collected from lynx scat), and MDNR lynx records databases. However, lynx tracks were seen on the Mine Site by a Forest Service biologist during February 2010 (Ryan 2013c). Although the lands contain much potential habitat for lynx, they also consist of much wetland habitat that is little used by snowshoe hare and could make lynx travel difficult outside of winter. Thus, the Project may have little direct impact on lynx use of these lands.

Lynx were not observed on the non-federal lands during wildlife studies, but lynx scat has been collected within 6 miles of all of the non-federal lands, except Hunting Club Lands and McFarland Lake Lands; lynx DNA has been found within 10 miles of Hunting Club Lands. The MDNR lynx database showed that lynx have been recorded within a mile of Hay Lake Lands and McFarland Lake Lands, but there were no records of lynx within 6 miles of the other non-federal lands.

The Forest Service would gain additional lands that would provide habitat for lynx and snowshoe hare under the Proposed Action. However, given that these lands would not be directly or indirectly impacted by the Project, would likely not be developed in the near future, and would remain mostly in timber production with

limited recreational use, there would likely be little or no adverse or beneficial effects to lynx using the non-federal lands with or without the proposed land exchange.

Although the Forest Service would administer additional habitat for lynx under the land exchange, there would still be a net loss of habitat to lynx and snowshoe hare due to habitat loss at the Mine Site. If the land exchange does not take place, and non-federal lands are not acquired by PolyMet and remain privately owned, non-federal lands would likely be managed primarily for timber production and some recreational use (hunting, fishing, and cabins). Most of the non-federal lands are wetland and lowland coniferous forest and not suitable for most types of recreational development. At this time, there also appears to be little interest in mining these lands or conducting other large scale surface disturbance. Thus, these lands would continue to provide similar acres of habitat for lynx and snowshoe hare with or without the land exchange.

No lynx tracking surveys have been conducted on or near the Wetland Mitigation Sites. Only one lynx scat has been collected within 10 miles of the Wetland Mitigation Sites, and there are no records in the MDNR lynx database of lynx within 6 miles of the Wetland Mitigation Sites. These sites are sod farms that would be restored to wetland and upland habitat. They could provide habitat for lynx in the future, but the beneficial effects to lynx from acquisition of these lands would be minor, if any, as there appears to be little or no use of these sites by lynx.

Recreation

Recreational activities are becoming increasingly widespread across the landscape, but their effects on lynx are little known. Very few studies have investigated the complex interactions between humans and wildlife. Some anecdotal information suggests that lynx are quite tolerant of humans (USDOI USFWS 1992, Staples 1995, Roe et al. 1999, Mowat et al. 2000).

Non-consumptive recreational activities are growing in popularity over the more traditional consumptive recreation uses of hunting and fishing (Duffus and Dearden 1990). Trends indicate that land-based activities occurring within developed recreation sites or near roads involve the greatest number of people.

Roads and trails used for recreation may present several risks to lynx, depending on their distribution over the landscape, their accessibility, the season of use, and the intensity and frequency of use. Management concerns include the potential for increased human use associated with roads and trails, which could increase disturbance at den sites, shooting or trapping of lynx, lynx-vehicle collisions, and compaction of snow that may increase inter-species competition. Dispersed recreation activities seldom result in a direct loss of habitat, but are more likely to impart indirect effects, such as increased competition resulting from snow compaction.

Recreational snowmobile use has expanded dramatically over the past 25 years, and is a common recreational activity in northern Minnesota. The growth of snowmobile use and an expanded trail system over the past 2 to 3 decades has increased human presence in lynx habitat in northern Minnesota and elsewhere in the U.S.

Direct and Indirect Effects

Federal Lands and Plant Site

Access to the Project and federal lands is controlled by a security gate near the Plant Site, and a locked gate prevents vehicle access to the Dunka Road at the Northshore Mine. The Dunka Road is a private road,

however, recreationalists could access the Mine Site by using all-terrain vehicles or snowmobiles, or on foot, from the east by traveling along the Dunka Road, and from the south on Forest Service Road 113. The Northshore Mine is north of the federal lands and recreationalists are not allowed to access the Northshore Mine property.

Recreational hunting and all-terrain vehicle/snowmobile use have been observed on or near the federal lands, but use of the site by recreationalists is limited as there is not easy access to the site. During mine operations, access to the Project area would be strictly controlled and recreational activities would not be allowed on the Project area.

Natural population growth, along with an influx of workers to support the Project, would further increase the growth of recreational activity in the Project area and could possibly impact lynx activities. Causes of lynx mortality varies, but Moen (2009) found that most known deaths of lynx were directly or indirectly associated with human activities, both in Minnesota and Ontario, Canada. Dispersed recreation activities seldom result in a direct loss of habitat. However, the road and trail network that is used by dispersed recreation has resulted in a loss of lynx habitat by displacing native vegetation.

Risks to lynx from recreationalists from the Project could increase during mine operations from current levels, as lynx that use the federal lands would be forced into areas surrounding these sites where hunting and other recreational activities are allowed. However, studies have shown that lynx use of the federal lands is uncommon, and thus this risk to lynx would be low. After mine closure, the Project area would remain privately owned and access to the Project area by the public would be prohibited.

If public access to the Project areas and federal lands was no longer restricted, it is likely that recreational use of these lands would increase, to the potential detriment of lynx. However, there is little evidence of lynx use of the Mine Site and Plant Site, with most lynx observations occurring east of the Mine Site. Thus, there should be little impact to lynx if the land exchange does not occur.

Non-federal Lands and Wetland Mitigation Sites

The non-federal lands are privately owned, but some hunting and off-road vehicle use occurs on these lands, except McFarland Lake Lands. Under the Proposed Action, the non-federal lands would be administered by the Forest Service and would be open to public recreation, including hunting and off-road travel. The Wetland Mitigation Sites would be privately owned and hunting and off-road vehicle would not be allowed. It is unlikely that new roads would be constructed to improve access to the non-federal lands and Wetland Mitigation Sites. Thus, risks to lynx from recreational activity would likely not change substantially under the Proposed Action.

If the land exchange does not occur and if the Project is not permitted, non-federal lands and Wetland Mitigation Sites would remain privately owned. Non-federal lands would likely be managed primarily for timber production, and some recreational use (hunting, fishing, and cabins), while the Wetland Mitigation Sites would be managed for agriculture. The level of recreation use and risks to lynx on these areas would not change substantially from current levels.

Forest and Backcountry Roads and Trails

There is a well-established forest and backcountry road and trail system along the Mesabi Iron Range, associated with mining activity, accessing federal, state, county, and privately owned forestlands, and serving recreational areas, private residences, and pasturelands. Roads and trails may present several risks to lynx based on the potential for increased human use in lynx habitat.

Construction of roads may reduce lynx habitat by removing forest cover and increasing the threat of illegal hunting and trapping. On the other hand, in some instances, along less-traveled roads where vegetation provides good snowshoe hare and white-tailed deer habitat, lynx may use the roadbed for travel and foraging (Koehler and Brittell 1990).

Forest backcountry roads and trails may facilitate snowmobile, cross-country skiing, and other human uses in the winter. As described later, snow compaction on roads or trails may allow competing carnivores, such as coyotes and mountain lions, access into lynx habitat (Buskirk et al. 2000). In the absence of roads and trails, snow depths and snow conditions normally limit the mobility of these other predators during midwinter.

Squires et al (2010) found no evidence that lynx are sensitive to forest roads, including roads used by snowmobiles in the winter. This study concluded that seasonal resource-selection patterns of lynx were little affected by forest roads with low vehicular or snowmobile traffic. In densely forested areas, vehicle use was concentrated on roads and trails and lynx were disturbed less than in other more open areas. Lynx were often seen crossing roads near the Mine Site and Northshore Mine during winter lynx surveys in 2006 and 2008 (ENSR 2006, Barr 2011).

Moen et al. (2010) showed that lynx will take advantage of roads when present and that a road and trail network increases habitat connectivity for lynx. In northeastern Minnesota, lynx on long-distance movements traveled within an average distance of less than 656 feet to a road. Lynx use of roads and other linear features is probably based on the energetic efficiency of moving along a road compared to moving through a forest. The northeastern Minnesota landscape is characterized by dense forests, bogs, and lakes of various sizes. Lynx may find that it is more energetically efficient to walk on or alongside of a road, whether within the home range or while on a long-distance movement.

Snowshoe hare densities may be higher along roads and trails due to the juxtaposition of land cover types and ages along these linear routes. The forest edges along forest roads provide preferred habitat for snowshoe hare. Regenerating and young forest is the cover type that has the highest density of snowshoe hares in Minnesota. Therefore, road and trails appear to provide productive snowshoe hare edge habitat that lynx opportunistically utilize (Moen et al. 2008).

Moen et al. (2010) indicated that the road and trail network may increase the connectivity of different parts of the Superior National Forest, and may enable lynx to move further than they would in the absence of a road and trail network. It is also possible that the existing road and trail network would make it easier for immigrating Canada lynx to find parts of the Superior National Forest with adequate snowshoe hare densities.

While linear features such as roads may benefit lynx from an energetic perspective, they may also be negative if they increase the chance of incidental mortality because of exposure to humans. It is unlikely that lynx behavior could be modified to prevent lynx from using linear features such as roads and trails (Moen et

al. 2010). Managing the road and trail network can minimize the potential for conflicts. But whether roads and trails are closed to motorized vehicle use or not, it may be impossible to totally eliminate human-lynx conflicts because human use would continue on non-motorized routes. The benefit of reducing mortality risk by managing road networks and densities has to be balanced against the cost of not being able to use linear features on long-distance movements.

Direct and Indirect Effects

Federal Lands, Transportation and Utility Corridors, and Plant Site

Impacts to lynx in and surrounding the Project area may include mortality from collisions with vehicles and trains. Construction and operation of the project, and the influx of workers to the area, would mean an increase in vehicular and rail traffic. The FEIS estimates that the Project would generate up to 1,316 miles per day of vehicle traffic near the Project site, including trips between the Mine Site and the Plant Site, and trips between the Plant Site and the Area 1 Shop. Vehicle traffic would consist primarily of light trucks and maintenance vehicles traveling between 30 and 45 miles per hour (mph), and a few large fuel, waste/supply, and haul trucks traveling between 25 and 40 mph. The Project would also generate 418 total miles per day of rail traffic between the Mine and Plant sites during mine operations. Trains would operate at 15 to 25 miles per hour (MDNR et al. 2013).

Harm or loss of lynx from collisions with vehicles or trains traveling within the Project boundaries cannot be discounted, but the risk would be very small as there is currently little use of the Project area by lynx, and use of the area by lynx would decrease substantially during project operations due to loss of habitat and noise and disturbance associated with Project activities.

In previous BOs for federal actions that are ongoing in Minnesota, including the *Mesaba Nugget Prevention of Significant Deterioration Permit U.S. Environmental Protection Agency* (USDOI USFWS 2009d), and *Northshore Mine Eastern Progression and CSAH 70 Relocation St. Louis County, Minnesota* (USDOI USFWS 2011a), the USFWS anticipated various levels of take, or loss of lynx to collisions with vehicles or other factors. Based on these opinions, the USFWS estimated that several lynx could be killed annually by current ongoing project-related activities in northern Minnesota, although actual take has been substantially less.

A Wisconsin study (Kohn et al. 2000 *cited in* USDOI USFWS 2009d) of wolf deaths by vehicles was used to estimate the number of lynx and wolf that could be killed by collisions with vehicles along the Dunka Road and Utility Corridor. In that study, an estimated 0.01 wolf were killed per mile of road for a traffic volume of 4,700 vehicles per day and a wolf density of 0.006 wolf per square kilometer. For the previous BOs, and this BA, it was assumed that the likelihood of a collision is the same for lynx and wolves, that trains and vehicles are equally likely to hit a lynx or a wolf, and that the collision frequency is related to the density of the species in the Project area and the vehicle/rail miles traveled per year. The USFWS noted that even intensive studies, such as the wolf mortality study in Wisconsin, may not document all road-related mortality within the study area (USDOI USFWS 2009d). Thus, the USFWS assumed that lynx and wolf mortalities due to automobile collision were actually twice the levels reported from the Wisconsin study (0.02 wolf killed per mile of road).

Based on the assumption that there is about 0.0048 lynx/square kilometer (km^2; 1 lynx per 80 mi^2; 1 lynx per 207 km^2; see Section 6.1.1.3); that there would be about 1,316 vehicle and 418 rail miles traveled each day; that vehicle/rail collisions with lynx could occur during the Project ; and that vehicles and trains are equally likely to collide with lynx, it was estimated that approximately 0.006 lynx would be killed annually by vehicle/rail

traffic on the road/rail line between the Mine Site and Plant Site, or less than one (0.12) lynx during the estimated 20-year life of the Project (assuming that mortalities due to collisions with vehicles and trains were twice the estimated level). Thus, although risk of loss of lynx due to a collision with a vehicle or train is very small, it could occur during the life of the Project.

After mine operations cease, temporary roads would be closed and reclaimed except for a short road from the Dunka Road to the Waste Water Treatment Facility. The Dunka Road would be retained and would provide access to the Mine Site area after mine closure, but would be a private road and closed to public use. Although roads would be constructed to support mine and plant operations, it is expected that the miles of roads on the Mine and Plant sites would decrease from current levels after Mine Site and Plant Site reclamation, thus benefiting lynx (Pylka 2013b).

Temporary roads have been constructed on the federal lands to support timber harvest activities and within a ROW to support powerline maintenance. Except for recently constructed gravel roads to access timber harvest areas, temporary roads are now overgrown in places with vegetation and are generally only suitable for foot, all-terrain vehicle, and snowmobile travel. Vegetation within the ROW is maintained at a low height for safety purposes, and the ROW is accessible to all-terrain vehicles and snowmobiles. Temporary roads may be constructed to support future management, but roads would be likely closed after their intended use and allowed to revegetate; it is unlikely that permanent roads would be constructed. The miles of temporary roads would likely remain at or below current levels, to the benefit of lynx, and roads would be closed to the public (Pylka 2013b).

Non-federal Lands and Wetland Mitigation Sites

Access onto most of the non-federal lands is by secondary roads that branch off of Forest Service or county roads. Most secondary roads were constructed to support timber harvest activities. There is no road access onto Hunting Club Lands and Wolf Lands 4. Access to McFarland Lake Lands is controlled by a locked gate. If acquired by the Forest Service, the non-federal lands would be managed for General Forest, General Forest-Longer Rotation, Riparian Areas, and Candidate Research Natural Areas (MDNR et al. 2013). If new roads are constructed on the non-federal lands, they would likely be temporary and used to support timber management. There would likely be little change in the number of miles of backcountry roads and trails on the non-federal lands, and the number of miles may decrease if existing roads are closed and revegetated or allowed to revegetate naturally, benefitting lynx.

The Aitkin Wetland Mitigation Site is bisected by County Road 1. The Hinckley Wetland Mitigation Site is bordered on the south by Township Road 56, while the Zim Wetland Mitigation Sites are bordered on the west by County Road 7. Secondary access roads are also associated with the sites, but the sites are in rural areas. It is unlikely that new roads would be constructed within the sites, and some roads may be reclaimed in the future, to the benefit of lynx.

Other Human Developments (mining, power generation, etc.)

Other human developments that may alter lynx habitat near the federal and non-federal lands and Wetland Mitigation Sites include rural development, forestry, agriculture, and mine exploration, development, and operation. These activities affect lynx habitat by changing or eliminating vegetation, and may also contribute to habitat fragmentation. There may be an increased potential for human-caused mortality associated with the developments (Ruediger et al. 2000).

Direct and Indirect Effects

Federal Lands and Plant Site

The Northshore Mine is immediately north of the Mine Site and the Mesaba Nugget Mine Project is immediately west of the Plant Site. Sources of noise at these sites include trucks, bulldozers, rock drills, jack hammers, graders, backhoes, air compressors, and cranes. Noise from these facilities could impact lynx residing in or traveling through the Project area. The impacts of noise on lynx and other wildlife are largely unknown and the assessment of impacts remains subjective. Wildlife are receptive to different sound frequency spectrums, many of which may be inaudible to humans. Wildlife are also known to habituate to noise, especially noises that are steady or continuous, such as noises that would occur near the Project. For example, lynx have been seen within about a quarter mile of loud noise sources and other human disturbance at Northshore Mine facilities, and have been seen by drillers within a few hundred feet of operating exploration drill rigs to the east of the Project.

Disturbance associated with these facilities and associated transportation infrastructure includes lights, glare, and noise. Lynx traveling through the Project area may avoid areas that are active and well lit.

Non-federal Lands and Wetland Mitigation Sites

There are no large developments near the non-federal lands or Wetland Mitigation Sites. The non-federal lands are currently managed primarily for timber and recreation, similar to how these lands would be managed by the Forest Service. The Wetland Mitigation Sites would be restored to wetland and upland wildlife habitat. Lynx observations are rare near the Wetland Mitigation Sites and lynx use of the sites after restoration would be infrequent.

Factors Affecting Lynx Mortality

Trapping and Incidental or Illegal Shooting

Lynx mortality has been monitored in northeastern Minnesota since 2000. From 2000 to 2012, 43 incidents of lynx mortality occurred (Rowse 2012). Nineteen of 28 mortalities in which the cause of death was determined were due to illegal trapping or shooting. The 2004 Forest Plan BA reiterated findings from Ruediger et al. (2000) that incidental or illegal mortality may occur from trapping and hunting/poaching activities. The 2004 Forest Plan BA assumed and reported that mortality from trapping and shooting could and has occurred on lands managed by the Forest Service. Lynx mortality could indirectly or cumulatively occur on National Forest lands based on incidental trapping for other species such as fox, fisher, and gray wolf. This cause and effect relationship has not changed since 2004 (USDA Forest Service 2004b).

Since 2004, two lynx within the Superior National Forest, and four lynx outside the Superior National Forest, were killed due to incidental trapping or shooting. Three lynx were killed due to legal trapping in Canada. Five trapped lynx were released alive from traps during that same period in Minnesota (USDA Forest Service 2011b).

Access to the Project area would be carefully controlled and use of the site by workers would be monitored by security personnel. Workers would also be given training in how to avoid harming or killing lynx while working on the site.

Direct and Indirect Effects

Federal Lands and Plant Site

Hunting and trapping of lynx is illegal in Minnesota and would not be allowed on all lands affected by the Project. The Project area would be closed to all types of hunting and trapping during construction and operations. Project personnel would be trained to not harass lynx in the Project area, and to report dead or injured lynx seen on the property. The Project area would be privately owned and closed to the public after mine closure (Pylka 2013b).

Non-federal Lands and Wetland Mitigation Sites

Hunting and trapping are allowed on the non-federal lands and on nearby Forest Service lands. It is assumed that hunting and trapping would be allowed on the non-federal lands if acquired by the Forest Service. As noted above, two lynx have been illegally trapped or shot within Superior National Forest boundaries since 2004, and lynx could be illegally shot or trapped on the non-federal lands after transfer to the Forest Service. However, the risk of loss of lynx from hunting and trapping would be similar to these risks that now occur on the non-federal lands under private ownership.

Competition and Predation as Influenced by Human Activities

New roads and trails associated with Project activities and the influx of workers may facilitate snowmobile, cross-country skiing, and other human uses in the winter. Snow compaction on roads or trails may allow competing carnivores, such as coyotes and mountain lions, access into lynx habitat. In the absence of roads and trails, snow depths and snow conditions normally limit the mobility of these other predators during mid-winter. It is likely that lynx near the Project area would compete with these competitors and predators for primary lynx prey (Buskirk et al. 2000b).

Lynx and carnivore biologists (Bider 1962, Ozoga and Harger 1966, Murray and Boutin 1991, Koehler and Aubry 1994, Murray et al. 1995, Lewis and Wenger 1998, Buskirk et al. 2000b) have suggested that packed trails created by snowmobiles, all-terrain vehicles, and cross-country skiers may serve as travel routes for potential competitors and predators of lynx, especially coyotes. Buskirk et al. (2000b) hypothesized that the usual spatial segregation of lynx and coyotes may break down where human modifications to the environment increase access by coyotes to deep snow areas. Such modifications include expanded forest openings throughout the range of the lynx.

Fuller and Kittredge (1996) noted that the distribution and numbers of coyotes have dramatically expanded in recent decades. Geir (1975) and Nowak (1979) suggested that coyotes are thought to have originated in areas where snow cover was minimal, and it is only within the last century that they have colonized the boreal forests.

Buskirk et al. (2000b) hypothesized that coyotes may be locally or regionally important competitors for lynx food resources, possibly exerting interference competition pressures on lynx as well. O'Donoghue et al. (1998b) also suggested coyotes exert potentially important exploitation competition pressures on lynx. Predation rates by coyotes on snowshoe hares exceeded those of lynx in the Yukon Territories during periods when snowshoe hare population levels are high. Coyotes then shifted their prey preference from snowshoe hares to carrion because of intolerance to deep snow conditions (Todd et al. 1981). Coyotes have been shown to increase their use of open habitats between November and March due to the increase in packed snow conditions and the load-bearing

strength of snow in openings. It is this strong prey- and habitat-switching ability of the coyote that may contribute to its success as a competitor with lynx (Buskirk et al. 2000b).

Murray and Boutin (1991) reported that both lynx and coyotes used travel routes with shallow snow, but that coyotes traveled on harder snow more frequently. They also reported that the use of trails in the snow not only reduced the depth to which an animal sinks into the snow, but aided coyotes and lynx in obtaining additional food. Keith et al. (1977) suggested that during population peaks of snowshoe hares, the density of trails in snow facilitates coyote movement. Murray and Boutin (1991) reported similar results with their study where hare densities were high.

Dispersed recreation activities seldom result in a direct loss of habitat. However, the road and trail network that is used by dispersed recreation has resulted in a loss of lynx habitat by displacing native vegetation on the landscape. Snow compaction can result in increased access by competitors, and increased access for bobcat, thereby increasing the potential for hybridization.

Direct and Indirect Effects

Federal Lands and Plant Site

New roads would be constructed on the Project area. However, these roads would be well traveled and there would be much noise and activity associated with Mine Site and Plant Site activities. In addition, most of the vegetation within the disturbed areas of the Mine Site would be removed, and it may be 10 or more years after mine closure before the Mine Site is reclaimed to wetland, grassland, and shrubland habitat. Coyotes have been seen near the Plant Site, but would be unlikely to use the Project area during operation until after mine reclamation. There could be competition between lynx and coyotes for food resources and other habitat components, but given the low numbers of lynx and coyotes found near the Project area, these effects should be negligible. After mine closure, most roads would be reclaimed; only the Dunka Road and a short road from the Dunka Road to the Waste Water Treatment Facility would remain. These roads would be privately owned and closed to the public (Pylka 2013b).

Non-federal Lands and Wetland Mitigation Sites

As discussed earlier, the non-federal lands and Wetland Mitigation Sites would likely be managed for fish and wildlife habitat, forestry, and recreation with or without the Project. Road densities would remain near current levels. Thus, competition between lynx and coyotes associated with road density should remain near current levels.

Highways (vehicular collisions)

Direct and Indirect Effects

Federal Lands and Plant Site

Direct mortality from vehicular collisions may be detrimental to lynx populations in the lower 48 states (Ruediger et al. 2000). In their 2004 Forest Plan BA, the Forest Service assumed that mortality between high and low standard roads could differ, with potential mortality likely being higher on high standard (high-speed)

paved roads that are typically federally, state or county managed highways and lower on low standard (low-speed) non-paved roads that are typically managed by the Forest Service (USDA Forest Service 2004b).

An estimated 42 worker/supply vehicle round trips would be made daily between the Plant Site and Hoyt Lakes, Minnesota, and 156 worker/supply vehicle round trips would be made daily between U.S. Highway 135 and the Plant Site (Barr 2013a). For purposes of analysis, it was assumed that the average distance between Hoyt Lakes and the Plant Site main security gate is 6 miles, and that traffic accessing the Plant from Highway 135 comes from Babbitt to the Plant Site north gate, or about 33 miles on average. Average speed would be about 50 mph between the Plant Site and Hoyt Lakes, and Plant Site and Highway 135. In addition, about seven trains per month would carry supplies and materials to and from the Plant Site and Virginia, Minnesota, a distance of about 30 miles. These trains would continue on to Duluth or International Falls, Minnesota, but would likely be included with other rail traffic and thus not add to the potential for risk of collision with lynx (Barr 2013b).

The USFWS did not assess risks to lynx from off-site vehicle and train collisions for worker and mine/plant supply delivery traffic associated with other projects in northern Minnesota as discussed in earlier BOs (USDOI USFWS 2009d, 2011a); the USFWS requested that these risks be estimated for the Project.

Using the same assumptions and methodology used earlier to estimate lynx mortality on Project roads and railroads (see Forest and Backcountry Roads and Trails), approximately 0.037 lynx would be killed annually by vehicle/rail traffic on off-Project access roads/rail lines to the Plant Site, or about two (0.74) lynx during the estimated 20-year life of the Project (assuming that mortalities due to collisions with vehicles and trains were twice the estimated level).

Increased traffic to and from the Project area would increase the threat of lynx mortality from vehicle collisions in the vicinity of the Project. Harm or loss of lynx from collisions with vehicles within the vicinity of the Project cannot be discounted, but the risk would be very small as MDNR lynx observation records suggest there is little lynx use of areas associated with project access roads, and use of these road corridors would decrease substantially during project operations due to noise and disturbance associated with Project and other nearby mining activities, and activities in Hoyt Lakes. In addition, studies by the USFWS found that the estimated loss of lynx to vehicle traffic, based on the methodology used in this study, was substantially greater (3-fold) than the actual loss of lynx (USDOI USFWS 2009d).

After mine closure, nearly all access roads would be closed. The Dunka Road would remain privately owned and closed to the public. There would be little, if any, rail traffic between the Plant Site and Virginia, Minnesota.

Non-federal Lands and Wetland Mitigation Sites

Lynx have been observed on or near most of the non-federal lands. There are no rail lines on or adjacent to these lands, and limited vehicle access. The lands are primarily used for timber and recreation, and except for Hay Lake Lands, where vehicles travel along the Pike River Road on the eastern boundary of the lands, access to the lands is on logging roads that are primarily used during the hunting season. Access to the lands by vehicles is expected to remain near current levels, with or without the land exchange. No lynx deaths from vehicular collision have been reported on or near the non-federal lands (MDNR 2007). Thus, risks to lynx from vehicular collisions should be negligible.

Some of the Wetland Mitigation Sites are used for sod production. Trucks and other vehicles access the sites for sod production and removal. Under the Proposed Action, these sites would be restored to wetland and upland habitat and except during restoration and monitoring activities, few vehicles would be expected to access the sites. Thus, risks to lynx from vehicular collisions on the Wetland Mitigation Sites may be less under the Proposed Action than under current conditions. Given that lynx have not been reported within 6 miles of these sites, risk to lynx under both use scenarios is negligible.

Other

Hazardous Materials

The Project would use, or generate as waste, the following hazardous materials:

- Fuels, equipment maintenance products, and solvents – diesel fuel, gasoline, oils, grease, lubricants, anti-freeze, solvents, and lead-acid batteries used for equipment operation and maintenance.
- Plant reagents – sodium hydrosulfide, sodium hydroxide, acids, flocculants, and antiscalants used in processing plant applications.
- Mine Site Waste Water Treatment Facility chemicals – calcium hydroxide (hydrated lime), sodium metasilicate, ferric chloride, sodium hydroxide, polymer flocculent, carbon dioxide liquid, citric acid, and sodium hypochlorite.
- Plant Site Waste Water Treatment Plant chemicals – potassium permanganate, antiscalant, carbon dioxide liquid, and calcium hydroxide (hydrated lime).
- Blasting agents – ammonium nitrate/fuel oil (ANFO), emulsions, emulsion blends (a blend of ANFO and emulsion), blasting caps, initiators and fuses, and other high explosives used in blasting.
- Other materials – assay chemicals, and other by-products characterized as hazardous waste.

Mishandling of these materials or wastes could result in spills, accidental release, or discharge into the environment, which could pose risks to lynx. Sections 5.2.13 and 5.3.13 of the FEIS discuss the risks posed to the public and the environment from the transport, handing, storage, and use of hazardous materials. Mitigation measures to prevent releases in transportation, storage, and handling or use of these materials are described in several hazardous material management plans necessary to comply with various regulatory requirements for the Project and in the FEIS. Based on the FEIS analysis, and scarcity of lynx on the areas where there materials would be used, risks to lynx would be negligible and should not result in harm or death to lynx (MDNR et al. 2013).

Factors Affecting Lynx Movements

Highways, Roads, and Rights-of-ways

Moen et al. (2010) observed that lynx movements were made across roaded areas, and also across the BWCAW, which has few linear features such as roads, trails, and logging roads that could guide movement by

lynx, in northeastern Minnesota. Observations suggested that geographically or topographically definable movement corridors do not exist for lynx in northeastern Minnesota, nor between Minnesota and Ontario. Moen et al. (2010) suggested that linear features such as roads benefit lynx from an energetic perspective, but may also be negative if they increase the chance of incidental mortality because of exposure to humans.

Direct and Indirect Effects

Federal Lands and Plant Site

As discussed earlier, traffic associated with the Project would be on access roads leading to and from the Project area, along the Dunka Road and Utility Corridor, and on access roads to the Mine Site. Most traffic would travel on existing roads; new roads would be primarily limited to the Mine Site. After mine closure, many of the access roads would be closed to traffic and reclaimed. Traffic on the Dunka Road between the Mine Site and Plant Site during mine construction and operation should discourage use by lynx. However, most traffic within the corridor would likely occur during shift changes. Because lynx rarely use the Mine Site, Plant Site, or Transportation and Utility Corridors, and noise and disturbance associated with the Mine Site and Plant Site would discourage use of these areas by lynx, it would be unlikely that lynx would use these areas during mine construction and operations and effects of traffic on lynx movements would be negligible.

Non-federal Lands and Wetland Mitigation Sites

If lands are exchanged to the Forest Service, it is unlikely that the Forest Service would build new access roads to the lands. It is also unlikely that state or federal agencies would construct new roads near the lands, as these lands are in remote locations and little used by the public. Thus, activities on highways, roads, and ROWs near the non-federal lands, and their effects on lynx movements, would be little changed with or without the land exchange.

Access onto most of the non-federal lands is by secondary roads that branch off Forest Service or county roads. Most secondary roads were constructed to support timber harvest activities. There is no road access onto Hunting Club Lands and Wolf Lands 4. Access to McFarland Lake Lands is controlled by a locked gate. These roads are little used and traffic levels should change little under the land exchange. There would likely be little change in the number of miles of backcountry roads and trails on the non-federal lands, and the number of miles may decrease if existing roads are closed and revegetated or allowed to revegetate naturally, benefitting lynx.

The Aitkin Wetland Mitigation Site bisected by County Road 1. The Hinckley Wetland Mitigation Site is bordered along the south by Township Road 56, while the Zim Wetland Mitigation Sites are bordered on the west by County Highway 7. Because lynx are rarely observed near the wetland mitigation sites, highway and local traffic should have little effect on lynx.

Land Ownership Patterns

Lynx exemplify the need for landscape-level ecosystem management. Land and population management must cross international, federal, state, county, and private land boundaries. Coordination within and between agencies and other landowners has often been difficult. In situations where habitat connectivity is needed to maintain adequate populations, private land development may preclude use by lynx, and may interrupt the

connectivity of habitat and populations. In these situations, it will be important to provide conservation easements, land exchanges, or purchases to maintain adequate lynx habitat and populations.
Habitat fragmentation also may impede lynx movements. This could have negative effects by isolating lynx and/or prey populations, or by retarding movements to other areas (Ruediger 2000).

Contiguous tracts of land in public ownership (national and state forests, wilderness areas) provide an opportunity for management that can maintain lynx habitat connectivity. Throughout most of the lynx range in the lower 48 states, connectivity with habitats and source populations in Canada is critical to conservation of populations in the U.S. The size, amount, and spatial distribution of federal land vary considerably from west to east across the U.S.

The ability to provide connectivity between the two northern Minnesota National Forests is complicated by the lack of contiguous National Forest ownership and varied land use patterns. However, the eastern two thirds of the Superior National Forest is largely federally owned, and the BWCAW refugium remains intact and contiguous with Canada.

Ownership adjustments have occurred on the Superior National Forest since 2004. The largest land exchange, the South Kawishiwi Cabin Group, occurred in 2010. In that land exchange approximately 1,213 acres were acquired by the Forest Service and approximately 425 acres were disposed of, resulting in a net acquisition of 788 acres. All other individual land purchases, donations, and exchanges were less than 100 acres (USDA Forest Service 2011b). The land ownership changes contribute towards Forest-wide lynx habitat but the amounts that have occurred since 2004 have been relatively insignificant compared to the large area of the Superior National Forest (2,125,931 acres).

Direct and Indirect Effects

Federal Lands and Plant Site

The Project would involve the transfer of approximately 6,495 acres of Forest Service-administered lands to PolyMet, in exchange for 7,075 acres of privately owned lands. This land exchange would be the largest land exchange conducted by the Forest Service, and would result in a net acquisition of 580 acres by the Forest Service. The land exchange would help the Forest Service to consolidate ownerships by obtaining non-federal lands that are adjacent to Forest Service lands. However, the exchange would also increase the amount of land converted to mining and unavailable to lynx, at least until the Mine Site is reclaimed. Land reclaimed after mining could provide suitable lynx habitat, but it could be 10 or more years before revegetation, due to the successional process, results in much suitable habitat for lynx.

Although there is little documented use of the Mine Site by lynx, loss of habitat and noise and disturbance from the Project, could influence lynx movements on or near the Mine Site. It is possible that lynx could travel between forestlands to the south of the Mine Site and the Northshore Mine by traveling through the federal lands surrounding the Mine Site, or through forestlands further east of the Mine Site. Given the loss of habitat and increase in disturbance that would be associated with the Mine Site, it seems more likely that lynx would primarily use forestlands to the south and east of the Mine Site and Northshore Mine, and avoid the Mine Site and lands between the Mine Site and Plant Site. That said, lynx, including adults with kittens, have been seen using portions of the Northshore Mine, and could use the federal lands, even during mine construction and operations.

Non-federal Lands and Wetland Mitigation Sites

The transfer of the non-federal lands to the Forest Service should have negligible, if any, effect on lynx movements. Management of these lands would remain relatively unchanged, and lands would primarily be used for timber production and recreation.

Wetland Mitigation Sites would be converted from agricultural uses to wildlife habitat. Although lynx have not been reported on or near these sites, their value to lynx would increase once taken out of agricultural production, and lynx may move onto these sites in the future.

6.1.2.2 Effects to Lynx Critical Habitat

Overview

Primary Constituent Elements of Lynx Critical Habitat

Critical habitat is defined as "specific area within the geographical area occupied by the species…on which are found those physical and biological features (a) essential to the conservation of the species and (b) which may require special management considerations or protection" (USDOI USFWS and NMFS 1998).

On November 9, 2006, the USFWS designated 319 mi^2 as critical habitat in Voyageurs National Park, Minnesota. On February 25, 2009, the USFWS re-designated lynx critical habitat to include portions of Cook, Koochiching, Lake, and St. Louis Counties, Minnesota, including a portion of the federal lands, and all of the non-federal lands. A total of 8,065 mi^2 were designated as critical habitat in 2009 (USDOI USFWS 2009a). The Wetland Mitigation Sites are not included in the designated critical habitat area.

In its 2009 designation of critical habitat for lynx in northeastern Minnesota, including the Project area, the USFWS identified physical and biological features that are essential to the conservation of the species and that may require special management considerations or protections. The physical and biological features are primary constituent elements (PCEs) laid out in a specific quantity and spatial arrangement to be essential to the conservation of the species. The PCEs of critical habitat for lynx are found in boreal forest landscapes supporting a mosaic of differing successional forest stages and containing:

a. Presence of snowshoe hares and their preferred habitat conditions, which include dense understories of young trees, shrubs, or overhanging boughs that protrude above the snow, and mature multistoried stands with coniferous boughs touching the snow surface.

b. Winter snow conditions that are generally deep and fluffy for extended periods of time.

c. Sites for denning that have abundant coarse woody debris, such as downed trees and root wads.

d. Matrix habitat (e.g., hardwood forest, dry forest, non-forest, or other habitat types that do not support snowshoe hares) that occurs between patches of boreal forest in close juxtaposition (at the scale of a lynx home range) such that lynx are likely to travel through such habitat while accessing patches of boreal forest within a home range.

The Forest Service identified quantitative indicators in the 2004 Forest Plan BA to analyze the impacts of those risk factors that have the most substantive impacts on lynx habitat (USDA Forest Service 2004b). These indicators have been used to assess impacts to lynx critical habitat in this BA. These analysis indicators also serve as appropriate indicators for analysis of effects to critical habitat and its constituent elements. This is because the indicators address relevant PCEs of lynx critical habitat—those physical and biological features that are essential to the conservation of the species.

Table 8 compares the lynx risk analysis indicators to the PCEs and identifies the risk analysis indicators evaluated in this BA. For this analysis, risk analysis indicators are grouped as follows—habitat management, human activity (recreation and roads and trails), and cumulative. The cumulative effects risk analysis indicators are addressed in Section 6.1.4.

The following discussion provides an overview of the direct and potential indirect impacts to PCEs from the Project. It is followed by an analysis of impacts to PCEs based on lynx analysis indicators developed by the Forest Service.

Effects of NorthMet Project on Primary Constituent Elements

Presence of snowshoe hares and their preferred habitat conditions, which include dense understories of young trees, shrubs, or overhanging boughs that protrude above the snow, and mature multistoried stands with conifer boughs touching the snow surface.

The Forest Service has determined that there are about 6,365 acres of foraging habitat for snowshoe hare on the federal lands, or about 98% of the federal lands. Although snowshoe hare were seen throughout the federal lands, the largest concentrations of snowshoe hares were seen in the eastern portion of the federal lands in areas dominated by jack pine (ENSR 2000). Based on an assessment of existing conditions and conditions at the closure of the mine, there would be a loss of approximately 1,669 acres of snowshoe foraging habitat due to mining, or about 26% of the federal lands. Approximately 4,696 acres of federal lands owned by PolyMet adjacent to the Mine Site would still provide habitat for snowshoe hare.

In addition, basic foraging habitat, including forbs, grasses and small shrubs could be available to snowshoe hare about 10 years after mine closure due to succession within the disturbed areas, although it is uncertain if snowshoe hare would move from areas outside of the Mine Site to suitable habitat on the Mine Site. More mature snowshoe hare habitat, including young trees and boughs overhanging snow, could be available about 25-30 years after mine closure. Therefore, while about 397 acres of habitat lost to mining would be reclaimed after mine closure, it could be a minimum of 10 years before revegetation results in much suitable habitat for lynx. This is because of the estimated minimum 10-year period for basic snowshoe hare forage habitat (forbs, shrubs) to develop. Based on the mine closure plan, most of the 397 acres of the habitat lost to mining that would be reclaimed would be reclaimed as grassland/herbaceous (54%), wetland and/or grassland/herbaceous (27%), and wetland (18%). Areas reclaimed as wetland would not be suitable habitat for lynx. Snowshoe hare and lynx tracks were seen at the base of waste rock piles with scattered stands of young forest near the Dunka Pit. These rock piles are about 5 miles from undisturbed habitat used by snowshoe hares. Thus, snowshoe hare have shown the ability to re-colonize areas associated with mine development. The West Pit would not be reclaimed to the surface for revegetation, but would remain as a 320-acre open pit lake (MDNR et al. 2013).

Winter snow conditions that are generally deep and fluffy for extended periods of time.

Northeastern Minnesota generally receives approximately 70 inches of snow per year. Snow cover at least 1 inch deep is present between 85 days per year and 140 days per year depending on the part of the state. In general, snow can be found on the federal lands between October and April. Studies of lynx and other wildlife on the federal lands found that the snow is relatively dry, fluffy, and several feet deep during much of the winter (ENSR 2000, 2006). As discussed in Section 6.1.1.10, snowshoe hare favor areas that have deep snow and use black spruce and balsam fir forests with dense understory vegetation that provide forage, cover to escape from predators, and protection during extreme weather (Wolfe et al. 1982, Monthey 1986, Hodges 2000a, b). Generally, earlier succession (younger) forest stages have greater understory structure than do mature forests and, therefore, support higher snowshoe hare densities (Fuller 1999, Hodges 2000a, b). Generally, open areas and areas with earlier succession forest stages have deeper snow depths than areas with more mature forest, as the branches of trees in mature forests capture more snow than younger forests, resulting in shallower snow in mature than younger forests (ENSR 2005).

There are approximately 271 acres of young and 1,539 acres of immature forest on the federal lands. Of these, approximately 1,333 acres (73.6%) would be directly impacted by the mine project and lost to snowshoe hare and lynx during mine operation and closure. As discussed above, approximately 397 acres would be reclaimed, and as these lands change from grassland to shrubland and young/immature forestland, their value to snowshoe hare and lynx would increase.

Sites for denning that have abundant coarse woody debris, such as downed trees and root wads.

Based on radiotelemetry studies in Minnesota, most lynx dens are found in tree wind-throw areas with dense vertical and horizontal cover. Dens were often located in an area with foraging habitat and denning cover, and often in small patches of upland within a larger wetland. These are often areas where wind-throw occurs (Moen and Burdett 2009). Tree age is generally greater than 60 years.

About 5,393 acres of lynx suitable denning habitat are found on the federal lands, or 83% of federal lands. Snags and large woody debris were uncommon in disturbed areas, shrublands, and young and immature forests. Large snags (up to 16 inches dbh), stumps, and woody debris were common in more mature forest stands (ENSR 2005). Little blowdown was observed on the federal lands and generally occurred adjacent to recent forest harvest areas and near roads and transmission lines. Based on an assessment of existing conditions and conditions at closure of the mine, there would be a loss of approximately 1,333 acres of denning habitat due to mining. Thus, there would be a 20% reduction of denning habitat on the federal lands.

Matrix habitat (e.g., hardwood forest, dry forest, non-forest, or other habitat types that do not support snowshoe hares) that occurs between patches of boreal forest in close juxtaposition (at the scale of a lynx home range) such that lynx are likely to travel through such habitat while accessing patches of boreal forest within a home range.

Communities used most often by lynx are young jack pine/balsam fir forests. Balsam fir often occurs as inclusions or “pockets” of regenerating trees within other cover types (e.g., in mature jack pine stands or in maturing black spruce/trembling aspen stands), and along forest edges. Lynx also use coniferous or mixed coniferous/deciduous forest patches in regenerating logged areas, including 10- to 25-year-old stands of jack pine or balsam fir/trembling aspen mixed coniferous/deciduous forest. Other important habitat types include black spruce/balsam fir and black spruce/tamarack forests.

Communities used by lynx often originate as a result of natural or "facilitated" regeneration after logging. However, fire and spruce budworm outbreaks also play a role in influencing forest stand composition and age in sites used by lynx. It generally takes 12 to 30 years after a forest thinning or fire before conditions become suitable for snowshoe hare, as forests mature from the young to the immature stage.

Upland forest greater than 4 years of age, and lowland stands with forest greater than 9 years of age, provide suitable lynx cover to support habitat connectivity (USDA Forest Service 2004b). As shown on **Figure 9** and **Table 9**, the Mine Site consists of a mix of lowland and upland conifer and deciduous forest of various ages. Conifer forest habitat dominates the mine site, but other habitat types, including open grasslands and wetlands, deciduous forest, frozen lakes, roads, and utility corridors are found in close proximity to conifer forests and have been used by lynx on or near the Mine Site.

There are about 6,372 acres (98% of federal lands) of lynx habitat with adequate canopy cover on the federal lands. Based on an assessment of existing conditions and conditions at closure of the mine, there would be a loss of approximately 1,669 acres of lynx habitat with adequate canopy cover due to mining, or about 26% of lynx habitat with adequate canopy cover within the federal lands (MDNR et al. 2013).

Risk Analysis Indicators

Habitat Management

Direct and Indirect Effects

The Forest Service has identified five risk analysis indicators to measure loss of habitat that would apply to the Project (Ryan 2011). Parameters used by the Forest Service to identify suitable lynx habitat, and foraging habitat for snowshoe hare, were given in the Forest Plan BA (USDA Forest Service 2004b). In general, snowshoe hare foraging habitat was found in upland forest stands that were 3 to 15 years of age, or older than 60 years of age, while lowland stands are generally 10 years or older. Lynx denning habitat is typically found in forest stands that are 80 years or older and have large down woody material or areas of tree wind-throw. The existing condition of habitat-related indicators and impacts to lynx habitat from actions at the Mine Site and Plant Site for LAUs are provided in **Table 9.** All non-federal lands, except Hay Lake Lands, are within LAUs. Although the land exchange would not increase or decrease the amount of lynx habitat within these LAUs, it would contribute to the amount of lynx habitat administered by the Forest Service. Habitat gains and losses by LAU for lands under Forest Service administration for risk analysis indicators are summarized in **Table 9**.

Indicator 1a – Snowshoe Hare Foraging Habitat

The Mine Site is in LAU SNF 12. The Forest Service determined that there are about 6,365 acres of foraging habitat for snowshoe hare on the federal lands (**Figure 19**). Based on an assessment of existing conditions and conditions at closure of the mine, there would be a loss of approximately 1,669 acres of snowshoe hare foraging habitat due to mining, or about 6% of the snowshoe hare foraging habitat within LAU SNF 12 that is administered by the Forest Service (the Forest Service has not identified snowshoe foraging habitat on those portions of the LAU that are not administered by the Forest Service (MDNR et al. 2013).

The lands adjacent to the Mine Site would still provide habitat for snowshoe hare even though lands would be owned by PolyMet. In addition, foraging habitat could be available to snowshoe hare about 20 years after mine

closure due to restoration of disturbed areas, although it is uncertain if snowshoe hare would move from areas outside of the Mine Site to suitable habitat on the Mine Site. Snowshoe hare and lynx tracks were seen at the

Table 8
Lynx Analysis Indicators and Primary Constituent Elements

Lynx Analysis Indicator	Primary Constituent Element
Direct and Indirect Effects	
1a – Snowshoe Hare Foraging Habitat	• Presence of snowshoe hare and hare habitat.
1b – Unsuitable Habitat for Snowshoe Hare	• Presence of snowshoe hare and hare habitat. • Winter snow conditions deep and fluffy. • Sites for denning. • Matrix habitat and habitat connectivity.
2 – Red Squirrel Habitat	• Not analyzed; studies have shown that red squirrel are not important prey for lynx in Minnesota.
3 – Denning Habitat	• Sites for denning.
4 – Lynx Habitat with Adequate Canopy Cover	• Presence of snowshoe hare and hare habitat. • Sites for denning. • Matrix habitat and habitat connectivity.
5 – Miles of Designated All-terrain Vehicle Trails	• Not analyzed. There would be little change in miles of designated all-terrain vehicle trails under the Proposed Action.
6 – Miles of Designated Snowmobile Trails	• Not analyzed. There would be little change in miles of designated snowmobile trails under the Proposed Action.
7 – Miles of Temporary and Objective Maintenance Level (OML) 1 and 2 Roads	• Not analyzed. There would be little change in temporary and OML 1 and 2 roads under the Proposed Action.
8 – Policy of Cross-country Use of All-terrain Vehicles and Snowmobiles	• Not analyzed. There would be no change in policy under the Proposed Action.
9 – Policy on Cross-country Use of All-terrain Vehicles and Snowmobiles on OML 1 and 2 Roads	• Winter snow conditions deep and fluffy.
Cumulative Effects	
10 – Acres and Percent of Lynx Habitat Unsuitable on All Ownerships	• Presence of snowshoe hare and hare habitat. • Sites for denning. • Matrix habitat and habitat connectivity.
11 – Road and Compacted Trail Density	• Winter snow conditions deep and fluffy.

Table 9
Lynx Analysis Indicators for Lands Administered by the Forest Service within the Lynx Analysis Units for Federal and Non-federal Lands for Existing Conditions and under the Proposed Action

Lynx Analysis Indicator	Lands	LAU	Existing Condition	Proposed Action	
			Acres	Acres	Net Gain (Loss) to Forest Service[1]
1a. Snowshoe hare foraging habitat	Federal Lands	SNF 12	30,133	23,768	(6,365)
	Non-federal Lands				
	Hunting Club	SNF 4	20,148	20,299	151
	Lake County North and Wolf Lands 1	SNF 16	19,080	19,469	389
	Wolf Lands 2, 3, and 4	SNF 21	21,968	23,418	1,450
	Lake County South	SNF 22	24,245	24,358	113
	McFarland Lake	SNF 42	12,983	13,014	31
	Hay Lake	NA	NA	4,643	4,643
				Net Gain/(Loss)	**412**
1b. Unsuitable habitat for snowshoe hare	Federal Lands	SNF 12	130	0	(130)
	Non-federal Lands				
	Hunting Club	SNF 4	1,289	1,299	10
	Lake County North and Wolf Lands 1	SNF 16	350	352	2
	Wolf Lands 2, 3, and 4	SNF 21	272	272	0
	Lake County South	SNF 22	344	348	4
	McFarland Lake	SNF 42	13	13	0
	Hay Lake	NA	NA	251	251
Net Gain/(Loss)					**137**

Table 9 (Cont.)
Lynx Analysis Indicators for Lands Administered by the Forest Service within the Lynx Analysis Units for Federal and Non-federal Lands for Existing Conditions and under the Proposed Action

Lynx Analysis Indicator	Lands	LAU	Existing Condition	Proposed Action	
			Acres	Acres	Net Gain (Loss) to Forest Service[1]
3. Denning habitat for lynx in 5 acre or larger blocks of habitat	Federal Lands	SNF 12	20,343	14,930	(5,393)
	Non-federal Lands				
	Hunting Club	SNF 4	13,994	14,986	92
	Lake County North and Wolf Lands 1	SNF 16	11,650	11,984	333
	Wolf Lands 2, 3, and 4	SNF 21	15,219	16,359	1,140
	Lake County South	SNF 22	18,773	18,821	48
	McFarland Lake	SNF 42	9,884	9,914	30
	Hay Lake	NA	NA	3,720	3,720
Net Gain/(Loss)					**(30)**
4. Lynx habitat with adequate canopy cover (suitable habitat)	Federal Lands	SNF 12	69,131/47,908[2]	62,758/41,537[2]	(6,372)
	Non-federal Lands				
	Hunting Club	SNF 4	49,994/28,903[2]	49,994/29,054[2]	151
	Lake County North and Wolf Lands 1	SNF 16	70,743/29,316[2]	70,743/29,705[2]	389
	Wolf Lands 2, 3, and 4	SNF 21	69,632/32,984[2]	69,632/34,434[2]	1,450
	Lake County South	SNF 22	57,107/40,217[2]	57,107/40,330[2]	113
	McFarland Lake	SNF 42	27,774/19,609[2]	27,774/19,640[2]	31
	Hay Lake	NA	NA	4,675	4,675
Net Gain/(Loss)					**437**

[1] Acreages may differ slightly from acreage given in FEIS due to rounding.
[2] Acres under all ownerships within the LAU/acres administered by the Forest Service within the LAU; acreage under all ownerships not available for indicators 1-3.
NA = Acreages do not include Hay Lake Lands, which is not within an LAU.
Total acreage within the LAU for all land ownerships —LAU SNF 4 = 55,071 acres, SNF 12 = 70,980 acres, SNF 16 = 76,108 acres, SNF 21 = 73,266 acres, SNF 22 = 58,154 acres, and SNF 42 = 32,305 acres; total acreage for lands administered by the Superior National Forest —LAU SNF 4 = 33,321 acres, SNF 12 = 49,409 acres, SNF 16 = 33,679 acres, SNF 21 = 36,082 acres, SNF 22 = 41,210 acres, and SNF 42 = 24,687 acres.
Sources: MDNR et al. (2013), Ryan (2013a).

base of waste rock piles with scattered stands of young forest near the Dunka Pit. These rock piles are about 5 miles from undisturbed habitat used by snowshoe hares. Thus, snowshoe hare have shown the ability to re-colonize areas associated with mine development.

Collectively, there about 6,777 acres (96% of available habitat) of snowshoe hare foraging habitat on the non-federal lands (**Figures 20 and 21**). This habitat, which is associated with several different LAUs, and Hay Lake Lands, would be administered by the Forest Service under the Proposed Action (**Table 9**). Based on habitat losses on the federal lands, and gains from the non-federal lands, there would be a net gain of 412 acres of snowshoe hare foraging habitat under Forest Service administration under the Proposed Action (MDNR et al. 2013).

Indicator 1b – Unsuitable Habitat

There are about 130 acres of unsuitable habitat for snowshoe hare on the federal lands (MDNR et al. 2013). Unsuitable habitat is defined as areas that are in the initial stages of forest growth where vegetation has not developed sufficiently to support snowshoe hare populations during all seasons (USDA Forest Service 2004b). For purposes of this BA, these are disturbed, cropland/grassland, and aquatic environments based on MDNR cover types (MDNR et al. 2013). Based on an assessment of existing conditions and conditions at mine closure, there would be a gain of approximately 1,669 acres of unsuitable habitat for snowshoe hare due to the Proposed Action**,** as about 50 acres of the disturbance area is already unsuitable for snowshoe hare. Some of this habitat may become suitable for snowshoe hare over time, as discussed above. There would be no change in the amount of unsuitable habitat on the federal lands surrounding the Mine Site due to the Project. However, because unsuitable habitat associated with the federal lands would be transferred from the Forest Service to PolyMet, there were be a reduction in unsuitable habitat for snowshoe hare administered by the Forest Service in LAU SNF 12 from current levels under the Proposed Action.

Collectively, there are about 267 acres of unsuitable habitat for snowshoe hare on the non-federal lands. This habitat, which is associated with several different LAUs and Hay Lake Lands, would be administered by the Forest Service under the Proposed Action (**Table 9**). There would be a gain of 137 acres of unsuitable habitat for snowshoe hare under Forest Service administration under the Proposed Action.

Indicator 3 – Denning Habitat

Based on an assessment of existing conditions and conditions at closure of the mine, there would be a loss of approximately 1,333 acres of denning habitat due to mining. There are about 5,393 acres of lynx suitable denning habitat on the federal lands. Thus, there would be a 7% reduction of denning habitat under in LAU SNF 12 from current levels (MDNR et al. 2013).

Collectively, the non-federal lands would provide about 5,363 acres of denning habitat (76% of all habitats within the non-federal lands). This habitat, which is associated with several LAUs and Hay Lake Lands, would be administered by the Forest Service under the Proposed Action (**Table 9**). Based on habitat losses on the federal lands, and gains from the non-federal lands, there would be a net loss of 30 acres of denning habitat under Forest Service administration under the Proposed Action.

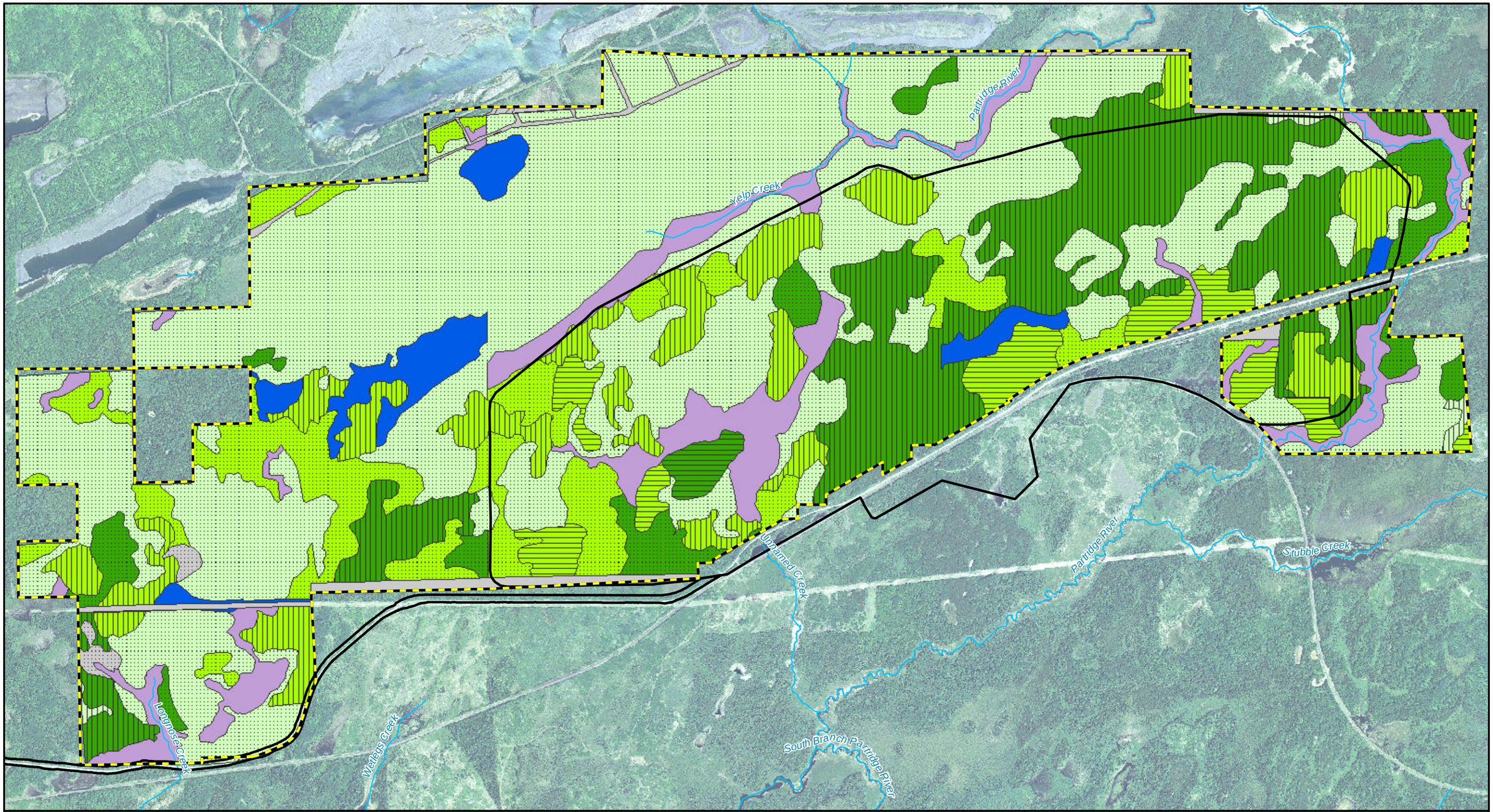

Federal Lands
Project Areas

Management Indicator Habitat
- Upland Forest
- Upland Coniferous Forest
- Lowland Black Spruce
- Open Water
- Other Lowland Emergent
- Other Lowland Shrub
- Other Upland Grass
- N/A

Age Class
- Mature
- Immature
- Young
- N/A

US Army Corps of Engineers
St. Paul District

N W E S

0 1,000 2,000 4,000 Feet

Figure 19
Management Indicator Habitat Types and Age Classes - Federal Lands
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

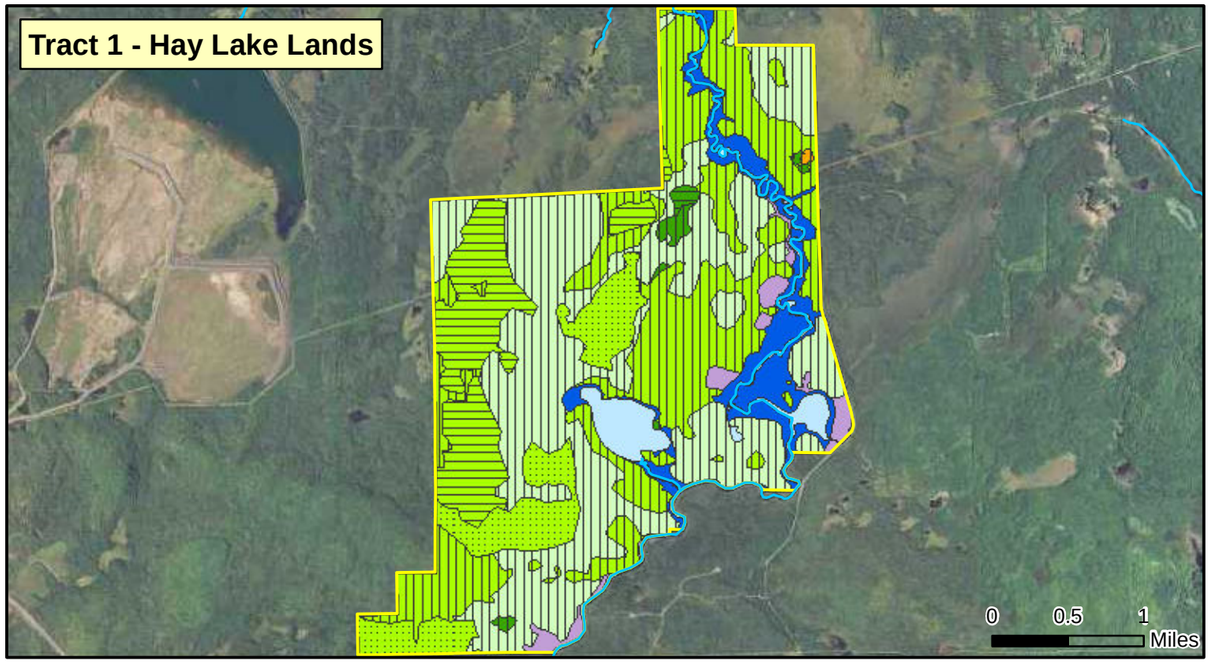

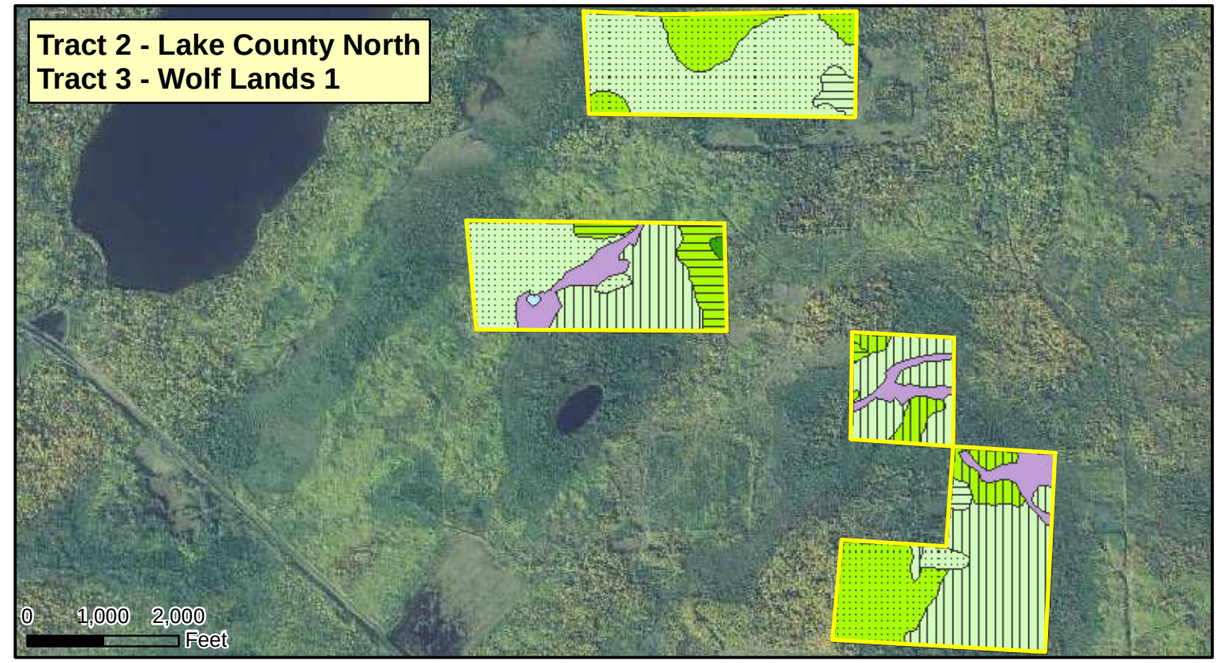

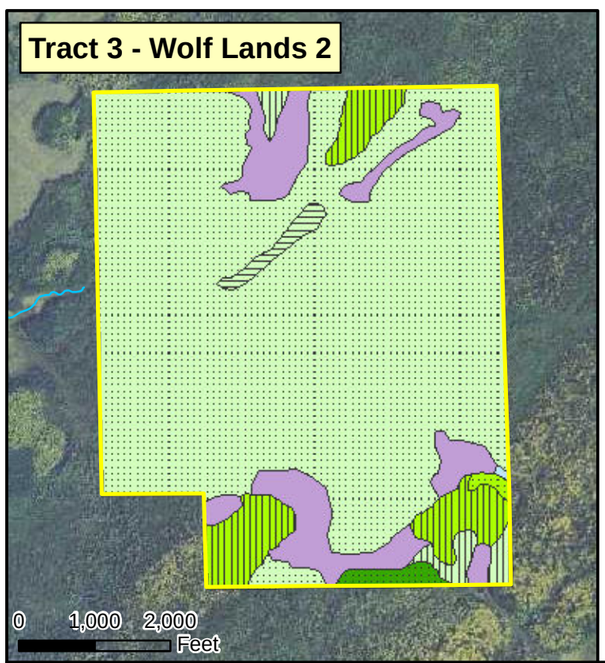

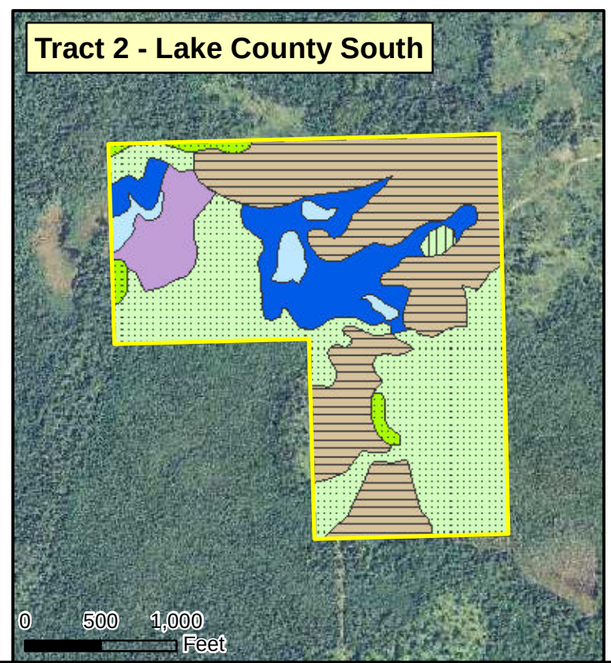

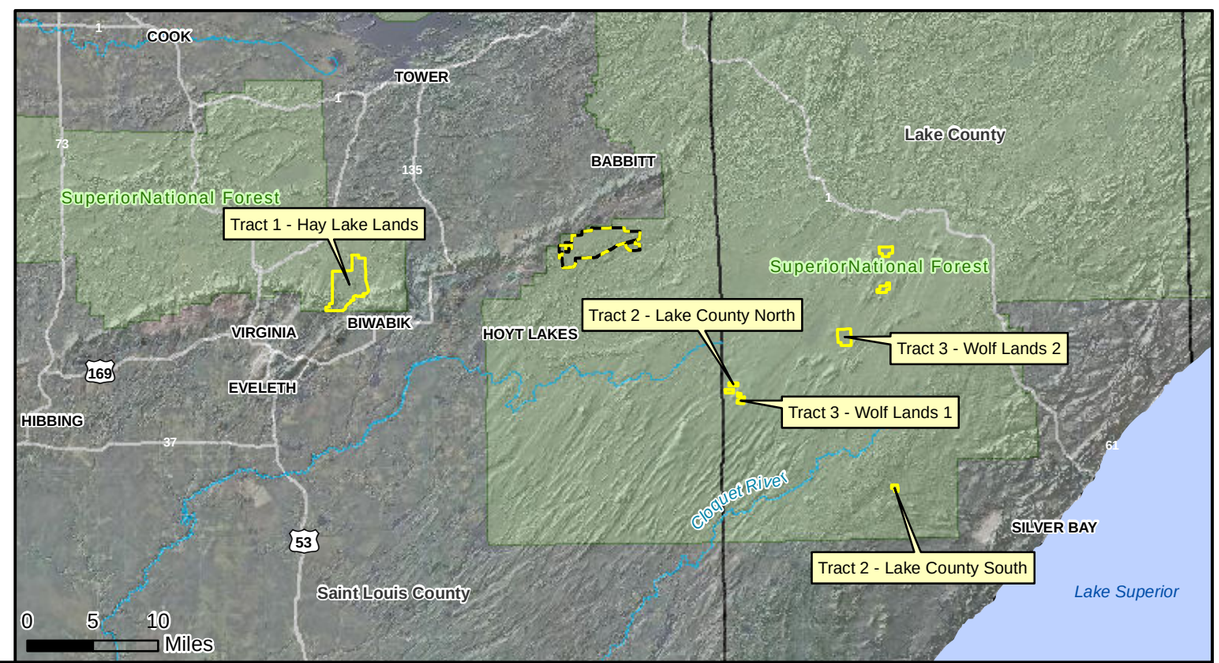

Federal Lands
Non-federal Lands

Management Indicator Habitat
- Upland Forest
- Upland Coniferous Forest
- Lowland Black Spruce
- Open Water
- Other Lowland Emergent
- Other Lowland Shrub
- Other Upland Grass
- N/A

Age Class
- Mature
- Immature
- Young
- N/A

US Army Corps of Engineers
St. Paul District

N W E S

Figure 20
Management Indicator Habitat Types and Age Classes - Hay Lake Lands, Lake County Lands, and Wolf Lands 1 and 2
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

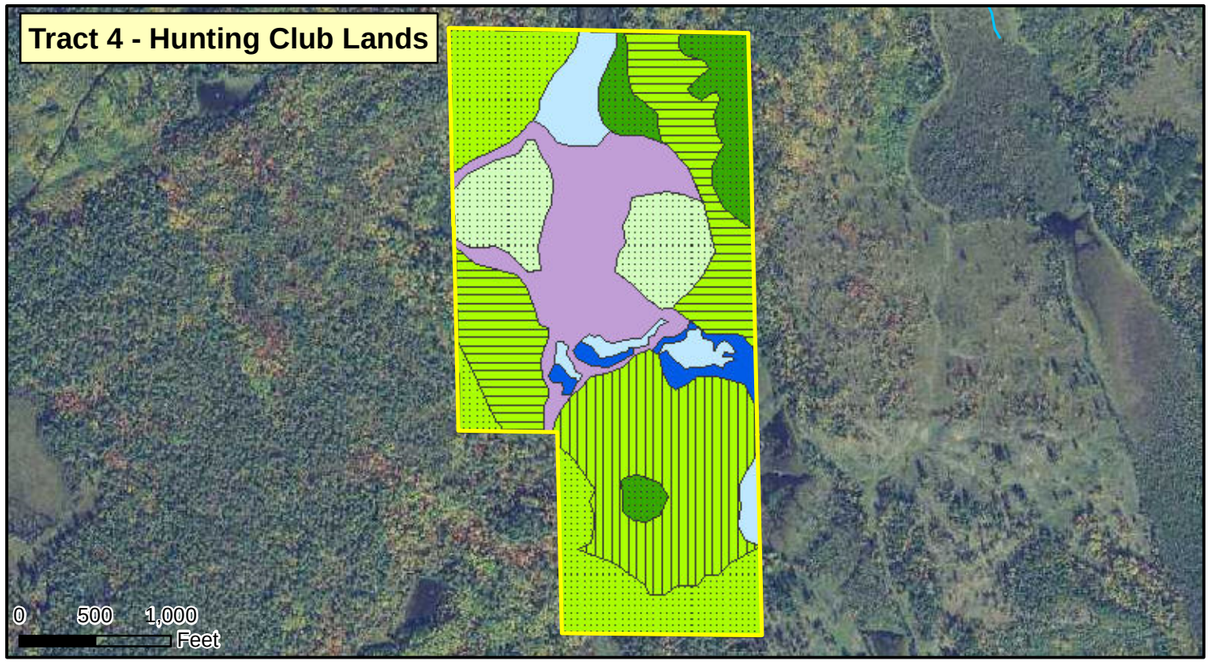

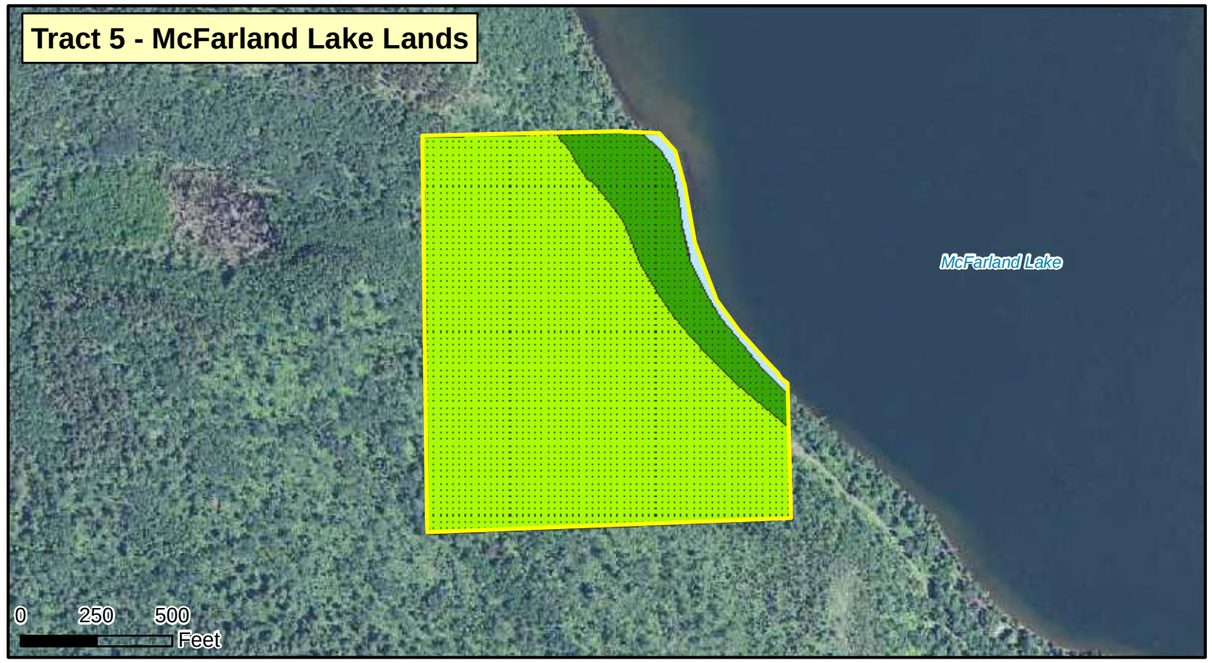

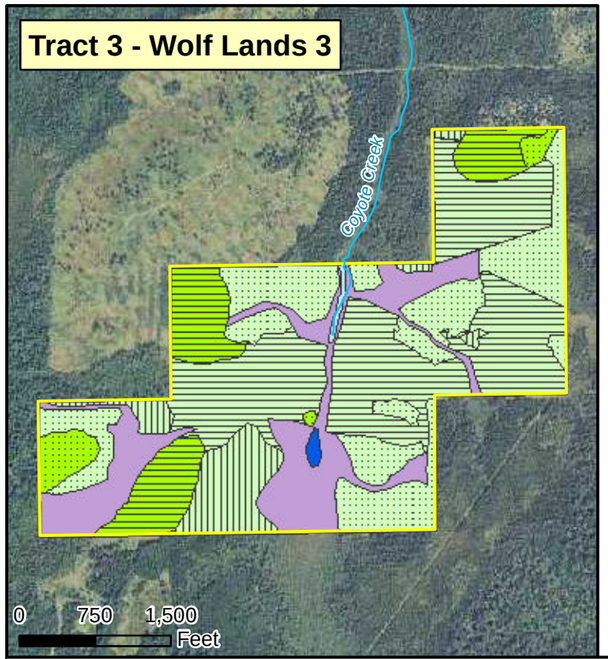

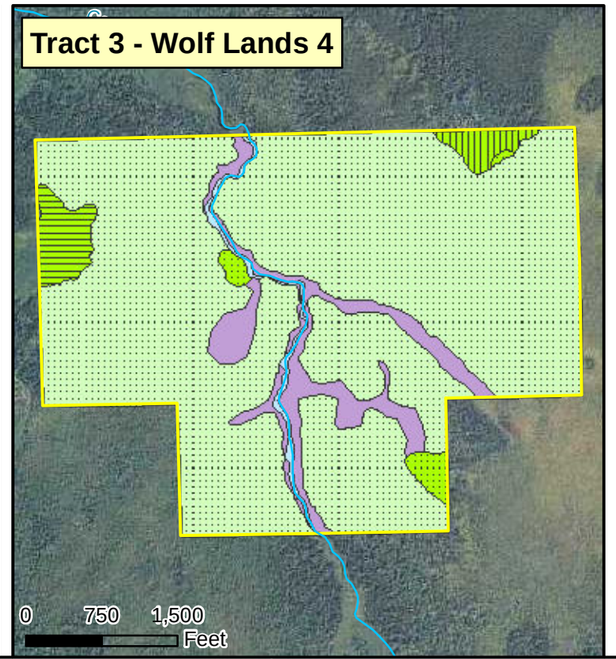

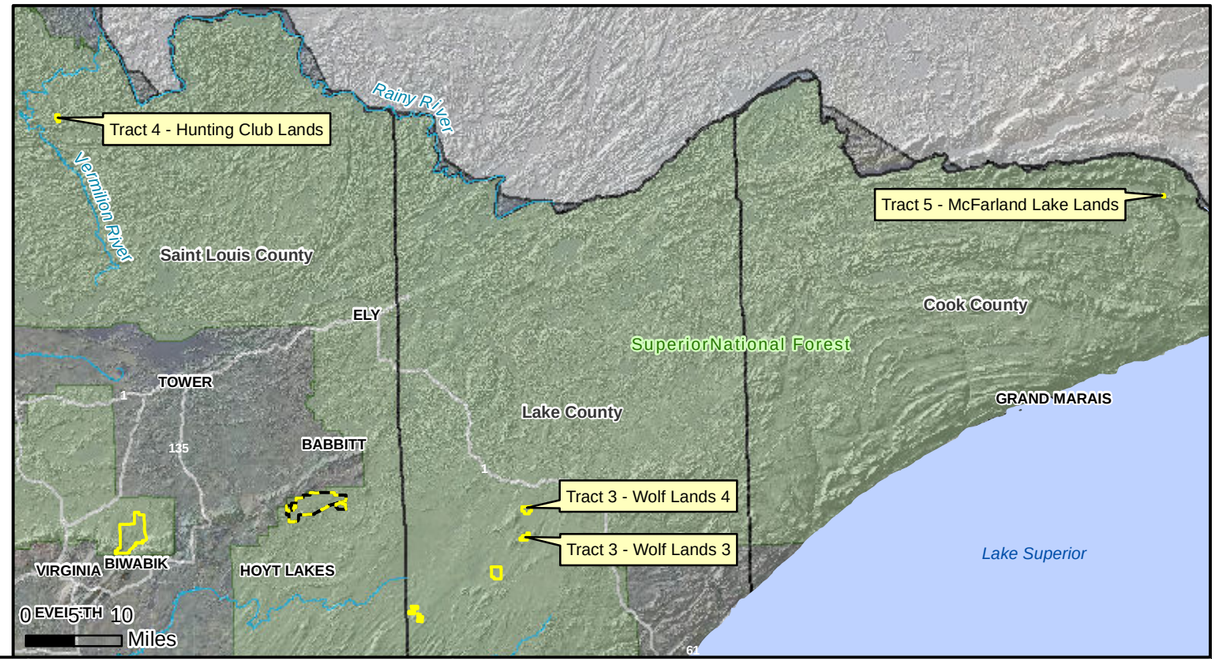

Federal Lands
Non-federal Lands

Management Indicator Habitat
- Upland Forest
- Upland Coniferous Forest
- Lowland Black Spruce
- Open Water
- Other Lowland Emergent
- Other Lowland Shrub
- Other Upland Grass

Age Class
- Mature
- Immature
- Young
- N/A

US Army Corps of Engineers
St. Paul District

N W E S

Figure 21
Management Indicator Habitat Types and Age Classes - Hunting Club Lands, Mc Farland Lake Lands, and Wolf Lands 3 and 4
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

Indicator 4 – Lynx Habitat with Adequate Canopy Cover

Upland forest greater than 4 years of age, and lowland stands with forest greater than 9 years of age, provide suitable lynx cover to support habitat connectivity (USDA Forest Service 2004b).

There are about 6,372 acres of lynx habitat with adequate canopy cover on the federal lands. Based on an assessment of existing conditions and conditions at closure of the mine, there would be a loss of approximately 1,669 acres of lynx habitat with adequate canopy cover due to mining, or about 2% of lynx habitat with adequate canopy cover within LAU SNF 12 (MDNR et al. 2013). Under the land exchange, the Forest Service would no longer administer 6,372 acres of lynx habitat with adequate canopy within LAU SNF 12 (13% loss of suitable habitat administered by the Forest Service in LAU SNF 12), but would gain 2,134 acres of suitable habitat in other LAUs. The Forest Service would also gain an additional 4,675 acres of suitable habitat on Hay Lake Lands, or 6,809 acres in total, for a net gain of 437 acres of lynx habitat with adequate canopy cover under Forest Service administration (MDNR et al. 2013).

Human Disturbance

Recreation

Risk Analysis Indicators

The Forest Service identified four risk analysis indicators to measure risks to lynx from recreational activities.

Indicator 5 – Miles of Designated All-terrain Vehicle Trails

Indicator 6 – Miles of Designated Snowmobile Trails

As discussed in the 2004 Forest Plan BA, one of the key concerns associated with all-terrain vehicles and snowmobile trails is the potential for increased and deeper access for humans into lynx habitat (USDA Forest Service 2004b). Snowmobile and all-terrain vehicle use (or, on some trails, other means of access such as walking or driving other types of vehicles) for trapping, hunting, or other recreational activities may increase the chance for lynx disturbance, harm, or mortality throughout wider areas of the Superior National Forest and on privately owned lands. Because of the lynx's vulnerability to trapping, this potential impact is difficult, if not impossible, to avoid. Because Forest Service plans foster recreation and encourage recreational uses of the Forest, there is an increased potential for negative impacts to lynx on lands administered by the Forest Service.

The 2004 Forest Plan (USDA Forest Service 2004a) provides overall direction for road and trail density in lynx habitat, recommending upper limits for road and trail density of 2 miles/mi^2 and guidance to seek opportunities to reduce density. Direction for designated snow-compacted trails, on the other hand, guides the Forest Service to generally allow for no net increase of winter trails unless they serve to consolidate use.

Another concern with new construction of designated all-terrain vehicle trails and snowmobile trails is the potential for increased snow compaction and access for competitors to lynx habitat. This is not a major issue on Forest Service-administered lands as the 2004 Forest Plan allows no net increase in designated snow-compacting trails unless they effectively consolidate use. However, there may be a concern with new all-terrain vehicle trails because in most locations it is likely that these routes could appear inviting to snowmobiling, and thus may have an unintended result of increasing snow compaction where trails coincide with lynx habitat.

These two indicators were not analyzed in this BA. There are no designated all-terrain vehicle or snowmobile trails on the federal and non-federal lands and Wetland Mitigation sites, except for 0.03 miles of designated trail on Wolf Lands 3. The Forest Service would promote recreational use of the lands it acquires in the land exchange, but is not expected to develop new all-terrain vehicle or snowmobile trails, or improve existing non-designated trails. Thus, all-terrain vehicle and snowmobile use of the non-federal lands is expected to remain near current levels, without or without the land exchange.

Under the Proposed Action, PolyMet would gain control of the federal lands and Wetland Mitigation Sites. Access to the Project area would be strictly controlled during mine operations and PolyMet has no plans to construct designated all-terrain vehicle or snowmobile trails on the federal lands or Wetland Mitigation Sites. Thus, there would be no change in designated trails on federal and non-federal lands with or without the proposed land exchange.

Indicator 8 – Policy of Cross-country Use of All-terrain Vehicles and Snowmobiles

This indicator applies to lands administered by the Forest Service. Cross-country use by all-terrain vehicles and snowmobiles is allowed now and would also be allowed in the future in most management areas on the Superior National Forest. It is difficult to estimate the consequences of this policy. Ruediger et al. (2000) suggested that recent advances in snowmobile technology may allow snowmobiles to travel in deeper snow and to areas that were not accessible with older machines. However, most snowmobiles used on the Superior National Forest are getting larger and are designed for use on maintained system trails, and machines are difficult to take off trails or open areas because of the density of the forest. Places that can currently be traversed cross-country frequently are already used from year to year. For example, rivers or open non-forest lands that provide a long enough travel way can become *de facto* trails, because they are used in most winters and during most of the winter.

Under the Proposed Action, Superior National Forest policies would not apply on the federal lands. As noted above, public access to these areas would be restricted during and after mine operations.

Forest Service policies would apply to the non-federal lands under the Proposed Action. Some cross-country use of these lands occurs now, and would be expected to continue if these lands are administered by the Forest Service. Because there would be few changes under the Proposed Action, and because snowmobilers typically prefer established trails to cross-country travel through forested habitat, there should be little change in impacts to lynx with or without the land exchange. This indicator is not analyzed in this BA.

Indicator 9 – Policy on Cross-country Use of All-terrain Vehicles and Snowmobiles on OML 1 and 2 Roads

The Forest Service generally allows all-terrain vehicles and snowmobile use on all existing Objective Maintenance Level (OML) 1 and 2 roads and on unclassified roads (generally these are former temporary or low standard roads).

Objective Maintenance Level 1 designation is assigned to intermittent service roads when they are closed to street legal motorized vehicular traffic. The closure period must exceed 1 year. Roads receiving OML 1 maintenance would generally be managed at OML 2 during the time they are open for traffic. Basic custodial maintenance is performed to keep damage to adjacent resources to an acceptable level and to perpetuate the road to facilitate future management activities. Emphasis is normally given to maintaining drainage facilities and runoff patterns.

Objective Maintenance Level 2 designation is assigned to roads operated for use by high clearance vehicles. Passenger car traffic is not a consideration. Traffic is normally minor, usually consisting of one or a combination of administrative, permitted (such as log haul), dispersed recreation, or other specialized uses. Log haul may occur at this level. Temporary and newly constructed OML 1 and 2 roads would be effectively closed following their intended management use.

County and temporary or low standard roads are found on the non-federal lands and were constructed to facilitate timber management and recreational access. The effects of the Proposed Action on all-terrain vehicle and snowmobile use of temporary or low standard roads associated with the federal and non-federal lands would be similar to those described for Indicator 8. Thus, this indicator is not analyzed in this BA.

Roads and Trails

Risk Analysis Indicators

The Forest Service has identified one risk analysis indicator to measure impacts from forest and backcountry roads and trails.

Indicator 7 – Miles of Temporary and OML 1 and 2 Roads

Temporary roads are authorized by contract, permit, lease, other written authorization, or emergency operation. They are not intended to be a part of the forest transportation system, and are not necessary for long-term resource management. These roads are not included on the National Forest System road inventory and are decommissioned after use (USDA Forest Service 2004b). Objective Maintenance Level 1 and 2 roads are discussed above under Indicator 9. This indicator is not analyzed in this BA because there would be little or no change in the miles of temporary and OML 1 and 2 roads on federal and non-federal lands under the Proposed Action (Ryan 2013a).

Under the Proposed Action, PolyMet would gain control of the federal lands. There are approximately 5.9 miles of temporary and OML 1 and 2 roads on the federal lands. Temporary roads built to support historic timber management and mine exploration on the proposed Mine Site would be lost to mine development. Access to the Project area would be strictly controlled during mine operations.

These roads would likely have little impact on lynx, as lynx would be discouraged from using the roads due to noise and other disturbances. After mine closure, most access roads would be closed and the property would remain privately owned and closed to public access. Temporary roads may be constructed on the federal lands associated with the Mine Site to support forest management activities, but the number of miles of temporary backcountry roads and trails on the Project area should be similar to, or less than, existing miles of backcountry roads and trails on the federal lands. Roads would be privately owned and closed to public access. (Pylka 2013b).

The Forest Service would primarily manage the non-federal lands for timber production and recreation. If new roads are constructed on the lands, they would likely be temporary and used to support timber management. There would likely be little or no change in the number of miles of backcountry roads and trails on the non-federal lands, and the number of miles may decrease if existing roads are closed and revegetated or allowed to revegetate naturally, benefitting lynx.

6.1.3 Interrelated and Interdependent Effects

No known activities are interrelated or interdependent to the Project that would have the potential to affect Canada lynx. It is possible that future specific programs or projects may have relevant interrelated and interdependent actions (e.g., expansion of the Mine Site due to discovery of new ore bodies) and they would be considered in the context of consultations for those actions.

6.1.4 Cumulative Effects

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the cumulative effects study area (CESA) considered in this BA. Future federal actions that are unrelated to the Proposed Action are not considered in this BA because they require separate consultation pursuant to Section 7 of the ESA.

The CESA includes the Nashwauk and Laurentian Uplands ecological subregions within the Arrowhead Region of Minnesota. This area totals approximately 1.38 million acres in the northeast corner of Minnesota (**Figure 22**; Emmons and Olivier Resources, Inc. 2006). The period for analysis of cumulative effects in this BA was from pre-settlement (approximately 1890) through closure and reclamation of Project facilities (approximately 40 years).

Cumulative effects to plants and animals are discussed in Chapter 6 of the FEIS (MDNR et al. 2013). The impacts discussed in that section were based on an analysis conducted for a 2006 MDNR report titled *Cumulative Effects Analysis on Wildlife Habitat and Travel Corridors in the Mesabi Iron Range and Arrowhead Regions of Minnesota* (Emmons and Olivier Resources, Inc. 2006), and a report titled *Cumulative Effects Analysis of Wildlife Habitat and Threatened and Endangered Wildlife Species* (Barr 2009).

In accordance with Council on Environmental Quality guidance on June 24, 2005 (Council on Environmental Quality 2005), past actions associated with the Project are addressed through their current aggregate effects and have not been provided as a list of individual projects in this BA. The FEIS identifies a number of projects that should be considered reasonably foreseeable future actions and that may contribute to cumulative effects to plants and animals. These include mining and other land development activities, and land management activities such as timber harvest, prescribed fire, and road construction that may be authorized or carried out on nearby federal, state, and private lands and that are likely to have both positive and negative effects to plants and animals.

Based on analysis conducted by Emmons and Olivier Resources, Inc. (2006), approximately 1,700 acres of wildlife habitat were lost from the Arrowhead Region between 1890 and the 1990s, with loss due to forestry and mining accounting for 88% of the loss. In much of the region, forest communities have transitioned from predominately pine- and tamarack-dominated forests to trembling aspen and other non-pine community-dominated forest species. Forest composition has changed, and the Minnesota Forest Resource Council (2003) concluded that forest fragmentation has increased, with decreased forest stand sizes and more miles of forest edge.

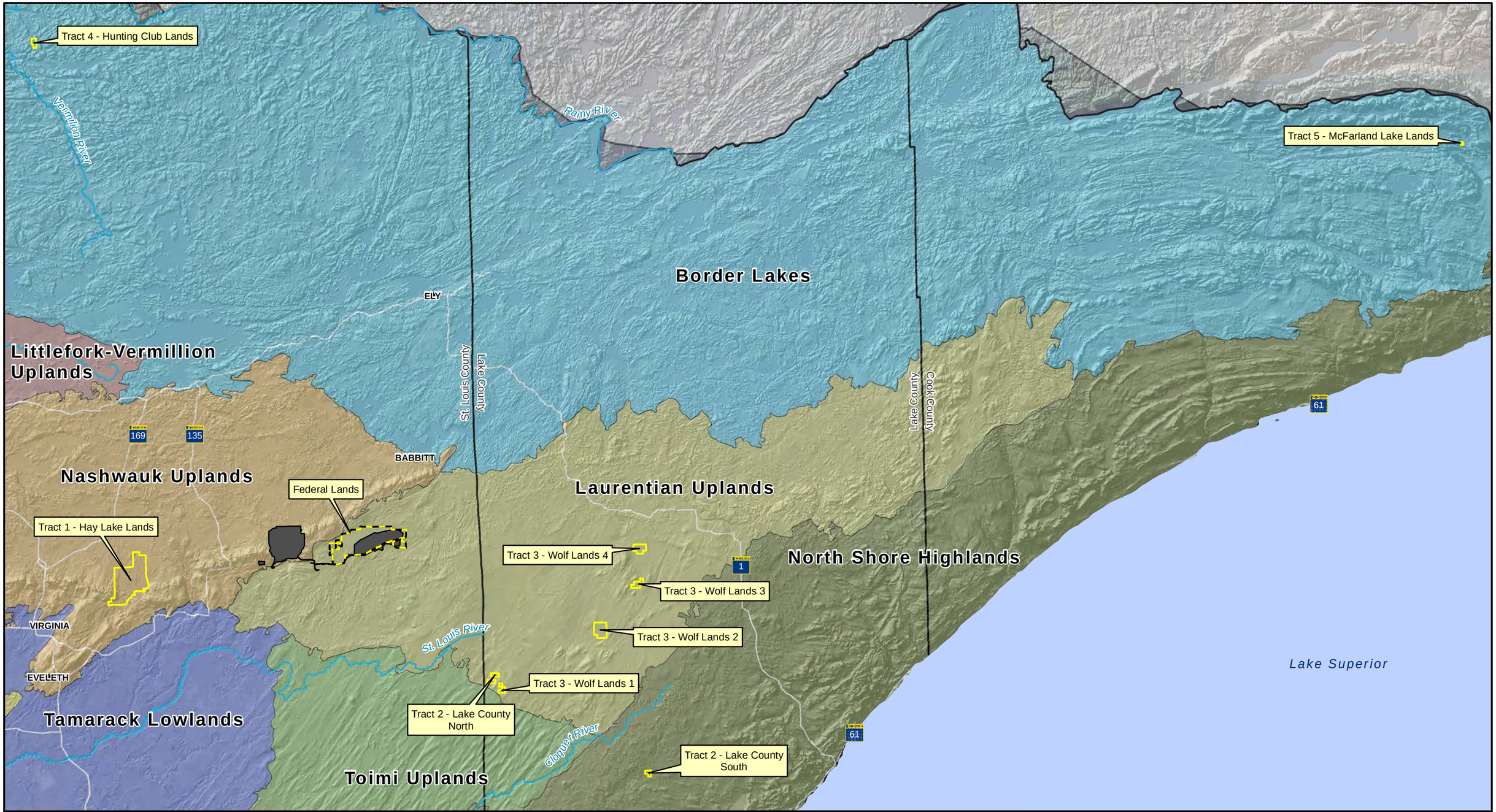

Federal Lands
Non-federal Lands
Project Areas
Major River

Ecological Subsections
Border Lakes
Laurentian Uplands
Littlefork-Vermillion Uplands
Nashwauk Uplands
North Shore Highlands
St. Louis Moraines
Tamarack Lowlands
Toimi Uplands

US Army Corps of Engineers
St. Paul District

N W E S

0 3.75 7.5 15 Miles

Figure 22
Arrowhead Region of Minnesota and Ecological Subsections
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

Barr (2009) estimated habitat loss due to mining at about 17,000 acres over the next 25 to 30 years. In the future, the rate of habitat losses due to mining would decrease as vegetation establishes on disturbed lands. Potential disturbances to habitat within the Laurentian Uplands ecological subsection would be primarily due to timber harvest and mining, and habitat types most likely to be affected include upland and lowland coniferous forest, upland deciduous forest, and upland shrub/woodland. Within the Nashwauk Uplands ecological subsection, mining activities and urban development would be more likely to affect habitat, with upland deciduous forests and upland shrub/woodland habitats most affected (Emmons and Olivier, Inc. 2006).

Although more land would be impacted by timber management than mining in the future, forestry management offers a greater range of options for lynx, northern long-eared bat, and wolf to co-exist with the practice, as it can mimic natural disturbances, whereas mining represents a complete land conversion that could affect long-term lynx habitat availability. Between 2005 and 2014 within the Laurentian Uplands ecological subregion, an average of approximately 1,034 forest acres were (or would be) harvested annually on state lands (0.2% of the subsection). Between 2010 and 2019 within the Nashwauk ecological subregion, an average of approximately 1,189 forest acres were (or would be) harvested annually on state lands (0.1% of the subsection). On average, 1% of timberland in the Superior National Forest is harvested annually (MDNR et al. 2013). Private timber harvest data are generally not available.

6.1.4.1 Factors Considered in the Cumulative Effects Analysis

The 2004 Forest Plan BA and 2011 Hardrock Mining BA identified several factors to consider when evaluating impacts to lynx in northeastern Minnesota at a landscape level of analysis. These are 1) habitat loss and fragmentation, including loss and fragmentation of lynx critical habitat, 2) human disturbance and access, and 3) habitat connectivity.

6.1.4.2 Cumulative Effects Assessment

Habitat Loss and Fragmentation, including Prey Habitat

The Project and other nearby proposed mine projects would increase the amount of habitat fragmentation in the area, changing wooded/forested and other vegetated habitats to disturbed/developed areas with limited habitat value. Development of iron mines along the Iron Range has made much of this area of limited value to lynx, especially areas with pits, tailings, and waste rock piles. Historic waste rock piles and tailings have begun to revegetate and provide some habitat for lynx and their prey, but their value is greatly reduced compared to habitat that existed in the area prior to mining.

Development of the Plant Site would have little impact on habitat fragmentation, as 61% of the site (2,756 of 4,515 acres) has been disturbed by LTVSMC taconite mining operations and the remaining habitat occurs in scattered tracts on the Plant Site. In addition, most of the land within several miles of the Plant Site have been disturbed by past and ongoing taconite operations, including lands within the Transportation and Utility Corridors.

Activities at the Plant Site would have little impact on lynx, as surveys suggest the Plant Site and nearby areas are avoided or rarely used by lynx, probably due to poor quality habitat and moderate level of human disturbance at or near the Plant Site. Development of the Mine Site would add to habitat fragmentation by converting much of the habitat on the Mine Site to an open water pit lake and waste rock stockpiles of limited value to lynx. Most lynx sightings on or near the Project area have been to the east of the Mine Site, but lynx

tracks have been seen on the Mine Site and it is likely that lynx move in an east-west direction between Forest Service and private forestlands in the vicinity of the Mine Site. Development of the Mine Site would force lynx to move further south to travel in an east-west direction to access these forests, and would also force lynx to travel south of the Mine Site, or north of the Mine Site through the federal lands surrounding the Mine Site. Use of the lands adjacent to the Mine Site by lynx may be limited during mine operations due to disturbance associated with the Mine Site and the Northshore Mine to the north. Impacts to lynx from habitat loss and fragmentation may not be great, however, as lynx studies in the area suggest that lynx primarily reside in an area east and southeast of the Mine Site on Superior National Forest lands and the BWCAW, and only occasionally use the Mine Site.

The Mine Site would account for about 1,719 acres, or 10% of the estimated 17,000 acres of habitat impacted by future mining activity within the next 25 to 30 years. It should be noted that while losses to forestry represent the bulk of habitat loss in the region, they are not as permanent or destructive as mining or economic development losses from the perspective of lynx and their prey. Forestry practices remove some or all trees from an area, reducing the value of that area as lynx habitat, but the natural process of succession ensures the regeneration of forest stands that can once again serve as high-quality habitat. Occasional timber harvest may actually promote the growth of dense coniferous stands that are favored by snowshoe hare, the primary prey species of the lynx.

Areas of mine disturbance would be reclaimed and available to lynx about 10 or more years after reclamation. Thus, habitat lost for use by lynx on the Mine Site would be only a small portion of the amount of habitat impacted by forestry and other mining activities. Although impacts to lynx would be expected at the individual level, they would not be expected at the population or species level.

Risk Analysis Indicators

The Forest Service has identified two risk analysis indicators to measure impacts to lynx from cumulative effects associated with habitat loss and fragmentation (**Table 10**).

Indicator 10 – Lynx Habitat Unsuitable on All Ownerships

Indicator 10 was developed by the Forest Service to identify the amount of habitat within a LAU that is unsuitable to lynx. If more than 30% of all lynx habitat within an LAU (all ownerships) is unsuitable,

Table 10
Unsuitable Habitat and Road/Trail Density within the Lynx Analysis Units Affected by the Project

Lynx Analysis Indicator	Lands	LAU	Existing Condition		Proposed Action[1]	
			Acres	Percent[2]	Acres	Percent[2]
10. Lynx Habitat Unsuitable on All Ownerships	Federal Lands	SNF 12	2,737	4.0	4,456	6.4
	Non-federal Lands					
	Hunting Club	SNF 4	2,470	4.9	2,470	4.9
	Lake County North and Wolf Lands 1	SNF 16	3,127	4.4	3,127	4.4
	Wolf Lands 2, 3, and 4	SNF 21	2,931	4.2	2,931	4.2
	Lake County South	SNF 22	913	1.6	913	1.6
	McFarland Lake	SNF 42	534	1.9	534	1.9

	Hay Lake	NA			NA	
Lynx Analysis Indicator	**Lands/Parcels**	**LAU**	**Existing Condition**		**Proposed Action[3]**	
			Miles within LAU[4]	**Density within LAU[3]**	**Miles within LAU**	**Density within LAU[5]**
11. Road and Snow-Compacted Trail Density	Federal Lands	SNF 12	99	0.9	93	0.8
	Non-federal Lands					
	Hunting Club	SNF 4	185	2.2	185	2.2
	Lake County North and Wolf Lands 1	SNF 16	98	0.9	98	0.9
	Wolf Lands 2, 3, and 4	SNF 21	93	0.8	93	0.8
	Lake County South	SNF 22	105	1.2	105	1.2
	McFarland Lake	SNF 42	70	1.7	70	1.7
	Hay Lake	NA			NA	

[1] After Project closure. Some unsuitable habitat on the Mine Site would become suitable for lynx 10 or more years after reclamation of the Mine Site.

[2] Acres and percent of unsuitable habitat provided by USDA Forest Service (Ryan 2013a). Acres of suitable habitat are: SNF 4 – 49,994; SNF 12 – 69,131; SNF 16 – 70,743; SNF 21 – 69,632; SNF 22 – 57,107; and SNF 42 – 27,775.

[3] After Project closure and reclamation.

[4] Miles of roads and snow-compacted trail density provided by USDA Forest Service (Ryan 2013a).

[5] Density = Miles of road per square mile.

Total acreage within the LAU for all land ownerships —LAU SNF 4 = 55,071 acres, SNF 12 = 70,980 acres, SNF 16 = 76,108 acres, SNF 21 = 73,266 acres, SNF 22 = 58,154 acres, and SNF 42 = 32,305 acres; total acreage for lands administered by the Superior National Forest —LAU SNF 4 = 33,321 acres, SNF 12 = 49,409 acres, SNF 16 = 33,679 acres, SNF 21 = 36,082 acres, SNF 22 = 41,210 acres, and SNF 42 = 24,687 acres.

then no further reduction in suitable condition should occur as a result of vegetation management activities by the Forest Service. **Table 10** shows the amount of unsuitable habitat within LAUs that would be affected by the Project. The amount of unsuitable habitat would increase in LAU SNF 12 to 6.4% from 4.0% due to Mine Site development, but would not exceed 30%. Because habitat management would be little changed due to the proposed transfer of the non-federal lands, the amount of area with unsuitable habitat within the other LAUs should not change with or without the proposed land exchange.

Indicator 11 – Road and Snow-compacted Trail Density

Indicator 11 provides a measure of the Forest Service goal to maintain road and snow-compacting trail densities below 2 miles/mi^2 within LAUs to maintain the natural competitive advantage of lynx in deep snow (**Table 10**). Where total road and regularly-used snow-compacting trail densities are greater than 2 miles/mi^2 and coincide with lynx habitat, effort should be made to prioritize roads for seasonal restrictions or reclamation in those areas, where practical or feasible. “Roads” include all ownerships of classified and unclassified roads and “regularly-used trails” are those that are used most years for most of the snow season. The 2004 Forest Plan allows no net increase in designated snow-compacting trails unless they effectively consolidate use (USDA Forest Service 2004a). However, there may be a concern with new all-terrain vehicle trails because in most locations it is likely that these routes could appear inviting to snowmobiling, and thus may have an unintended result of increasing snow compaction where trails coincide with lynx habitat.

Approximately 5.9 miles of OML 1 roads are on the federal lands, or about 0.6 miles/mi^2. After mine closure, these roads would be reclaimed, except for a short access road from the Dunka Road to the Waste Water Treatment Facility. Public access to the Mine and Plant sites is currently prohibited, and access to the Plant Site

and lands adjacent to the Mine Site would be strictly controlled during mine operations. The Project area would remain privately owned after mine closure and public access would be restricted (Pylka 2013b).

There are no designated all-terrain vehicle or snowmobile trails on the federal lands. It is unlikely that new designated trails would be constructed on the federal lands after mine closure.

There are designated and undesignated roads and trails on or bordering the non-federal lands, and recreational use of these roads and trails was evident on these sites. Road density exceeds 2.2 miles/mi^2 in LAU SNF 4. There are historic logging roads on Hunting Club Lands, and it is possible that new logging roads could be constructed in the future, but these would not be regularly used roads. Thus, regular use road density should not increase in LAU SNF 4 due to the land exchange. Road densities are below 2 miles/ mi^2 for the other lands. As noted for Indicator 7, there would be no immediate change in miles of designated and undesignated roads and designated all-terrain vehicle or snowmobile trails within the LAUs with or without the land exchange.

Human Access and Disturbance

Human Access and Traffic

The Project and other nearby proposed projects would increase the amount of human access and disturbance in the area. Increased human populations in the Project area may also lead to increased risk to lynx from collisions with vehicles and trains, increased levels of recreation activities and use of backcountry roads and trails, and increased mortality from illegal hunting and trapping.

There is a well-established road system along the Mesabi Iron Range, associated with mining activity, and to serve nearby towns, recreational areas, private residences, pasturelands, and forestlands. It is expected that the number of miles of roads within the Project area would show little increase during the life of the Project, and some roads could be taken out of service or reclaimed during the life of the Project. The Forest Service estimated that up to 157 miles of temporary roads could be constructed annually within the Superior National Forest from hardrock mining activities and that up to 761 miles could exist at any one time during the period of hardrock mining within the Superior National Forest (USDA Forest Service 2011a). Still, this would be less than the mileage gain estimated to occur under the 2004 Forest Plan, which was based on mileage limits to protect lynx (USDA Forest Service 2004a). Given that the number of miles of roads associated with the Mine Site, Dunka Road and Utility Corridor, Plant Site, and non-federal lands after mining is expected to be similar to or less than current levels, impacts associated with road mileage are not expected to accumulate from the Project.

Human activity associated with the Project, and other ongoing and proposed projects near the Project area, would increase the amount of vehicle and rail traffic in the region and the potential for collisions between lynx and vehicles and trains. Vehicle and rail traffic within and to/from the Project area could result in the loss of a lynx during the 20-year mine operation period, and accumulate with losses of lynx from collisions with trains and vehicles elsewhere in the CESA.

Trapping and Incidental or Illegal Shooting

There is evidence that lynx may be accidentally trapped during furbearer, including bobcat, fisher, gray wolf, and pine marten trapping seasons. Of the 435 records in the MDNR (2007) lynx database for 2000 to 2006, ten records list that the animal was caught in a trap, and of these, three were killed, six were released unharmed, and the

status of one is unknown. Based on records kept by the USFWS since from 2000 to 2012, 13 lynx died from trapping incidents (4 were legally trapped in Canada), and another 10 were trapped and released alive (Rowse 2012). It is likely that other lynx have been trapped, but not reported. The magnitude of accidental lynx trapping in the project area and in northern Minnesota is unknown.

Lynx could be shot mistakenly or intentionally by hunters or by poachers. Lynx and wolves may be shot by hunters during deer and other hunting seasons for fun, or lynx may be mistakenly identified as bobcat and shot during the bobcat season. The actual magnitude of lynx shooting in northern Minnesota is unknown. Of the 435 records in the MDNR (2007) lynx database for 2000 through 2006, only 1 record lists that the animal was intentionally shot, while another lynx was accidentally shot; the USFWS database lists six lynx shot since 2000 (Rowse 2012). However, it is likely that lynx shootings are generally not reported. It is unlikely that many lynx would be shot within the Project area due to limited numbers of lynx in the general vicinity of the Project, and because hunting would not be allowed on the Project area during mining, and most likely after mine closure.

The number of people, and potential for trapping and incidental or illegal shooting, would increase in the region due to the Project. Education of the public as to the importance of protecting lynx and other wildlife, however, has helped to reduce the accidental or intentional loss of lynx in recent years. Trapping and illegal or accidental shooting of lynx would be unlikely on the federal lands during mine construction and operation if conservation measures given in Chapter 7 of this BA are followed. Although the Project would cause an increase in the number of people in the region, the cumulative effects of the Project on trapping and illegal or accidental shooting of lynx on the non-federal lands and Wetland Mitigation Sites would be negligible.

Competition and Predation as Influenced by Human Activities

Lynx interact with other carnivores throughout their range. Competition with or predation by coyotes, gray wolves, mountain lions, bobcats, and birds of prey have been inferred or documented throughout the range of the lynx. Some human activities, particularly those related to timber harvest and over-the-snow access routes, have the potential to alter natural relationships between lynx and other predators.

Certain timber harvest practices increase edges and openings within forest stands, which may improve foraging conditions for generalist predators such as coyotes, bobcats, and great horned owls. This in turn increases the potential for both exploitation and interference competition with lynx to occur.

Snow compaction due to resource management or recreation activities may facilitate movement of coyotes and other potential competitors and predators into lynx habitat, making it likely that lynx in the study area would compete with these competitors and predators for primary lynx prey (Buskirk et al. 2000b).

The Forest Service recommends that road and snow-compacting trail densities be kept below 2 miles/mi^2. Where road and snow-compacting trail densities exceed 2 miles/mi^2, the Forest Service would prioritize roads for season restrictions or reclaim some roads. Of the 47 LAUs in northeastern Minnesota, 15 have road and snow-compacting trail densities exceeding 2 miles/mi^2, including LAU SNF 4. Based on road building activities between 2004 and 2010, the Forest Service estimates that about 77 miles of OML 1 and 123 miles of OML 2 roads would be constructed in the Superior National Forest each year. Another 532 to 860 miles of temporary roads could be constructed to support hardrock mining activities (USDA Forest Service 2011a). As noted earlier, however, most, if not all new roads constructed on the Mine Site and Plant Site would be removed or reclaimed after mining ceases, and there would be little or no new road construction on the lands adjacent to the Mine Site and non-federal lands. Thus, competition between lynx

and its predators due to an increase in road and snow-compacting trail densities would not accumulate due to the Project long term.

Habitat Connectivity

Much of the habitat for lynx along the Iron Range has been eliminated by mining, other industrial activities, and residential development, and remaining habitat is heavily fragmented. However, large patches of suitable lynx habitat exist on either side of the range, primarily within the Superior National Forest, Chippewa National Forest, and various state forests. To travel between habitat patches on either side of the Iron Range, lynx must find suitable corridors of habitat that traverse the range and allow safe movement. Emmons and Olivier Inc. (2006) identified 13 wildlife travel corridors, while Barr (2009) identified 18 travel corridors, which facilitate movement of wildlife across the Iron Range. Three wildlife travel corridors exist in the vicinity of the Project that could be impacted by the project and other projects in the area (**Figure 23**).

Corridor 16 is a small but important corridor, approximately 0.6 mile wide, which connects large habitat blocks to the east-southeast and north-northwest. The corridor is unlikely to be impacted by the Project because the Plant Site Tailings Basin area would be sited approximately 1 mile to the northwest on the existing LTVSMC Tailings Basin. The Emmons and Olivier, Inc. (2006) report also noted that an area to the southwest has high potential for future growth, which could impact the corridor, but estimated that the corridor would continue to serve as an important connection for wildlife in the future. Lynx have not been reported using this corridor.

Corridor 17 is a 1,200-feet wide strip that is between two open pits operated by the Northshore Mine and is approximately 0.5 mile northwest of the Mine Site. Operations at the Mine Site would indirectly impact the corridor by reducing the size of the large habitat block southeast of the corridor. Noise and mining activity could also discourage lynx use of this corridor. The corridor could be accessed from north of the Mine Site, and from the south and southwest of the corridor. Lynx have been observed using this corridor.

Corridor 18 is about 2,800 feet wide, located at the eastern boundary of the Northshore Mine, about 7 miles northwest of the Mine Site. The corridor follows a river, and several small roads cross this corridor. Recent expansion of the Northshore Mine easterly pit, and a relocation of County State Aid Highway 70 that is east of the pit, has reduced the width of the corridor to about 2,200 feet (USDOI USFWS 2011a). Lynx have been observed using this corridor.

Research conducted by the NRRI indicates that lynx have varied home ranges, and disperse from them within the Superior National Forest, and to and from Canada (Burdett 2007, Moen et al. 2010). Movements were made across roaded areas, and also across the BWCAW, which has few or no linear features such as roads, trails, and logging roads that could guide movement by lynx. When lynx made long distance movements, they often crossed several LAU boundaries without changes in direction.

Moen et al. (2010) suggested that habitat connectivity does not appear to be a limiting factor for lynx in northeastern Minnesota. The combination of low topographic relief, the linear nature of movement paths, and the relative lack of differences in cover conditions indicate that geographically or topographically definable movement corridors do not exist for lynx either within in northeastern Minnesota, or between Minnesota and Ontario, Canada. Because northeastern Minnesota is the southern limit of boreal forest, no connectivity or linkage areas could be managed for lynx movement to the south and west because of unsuitable habitat in those directions.

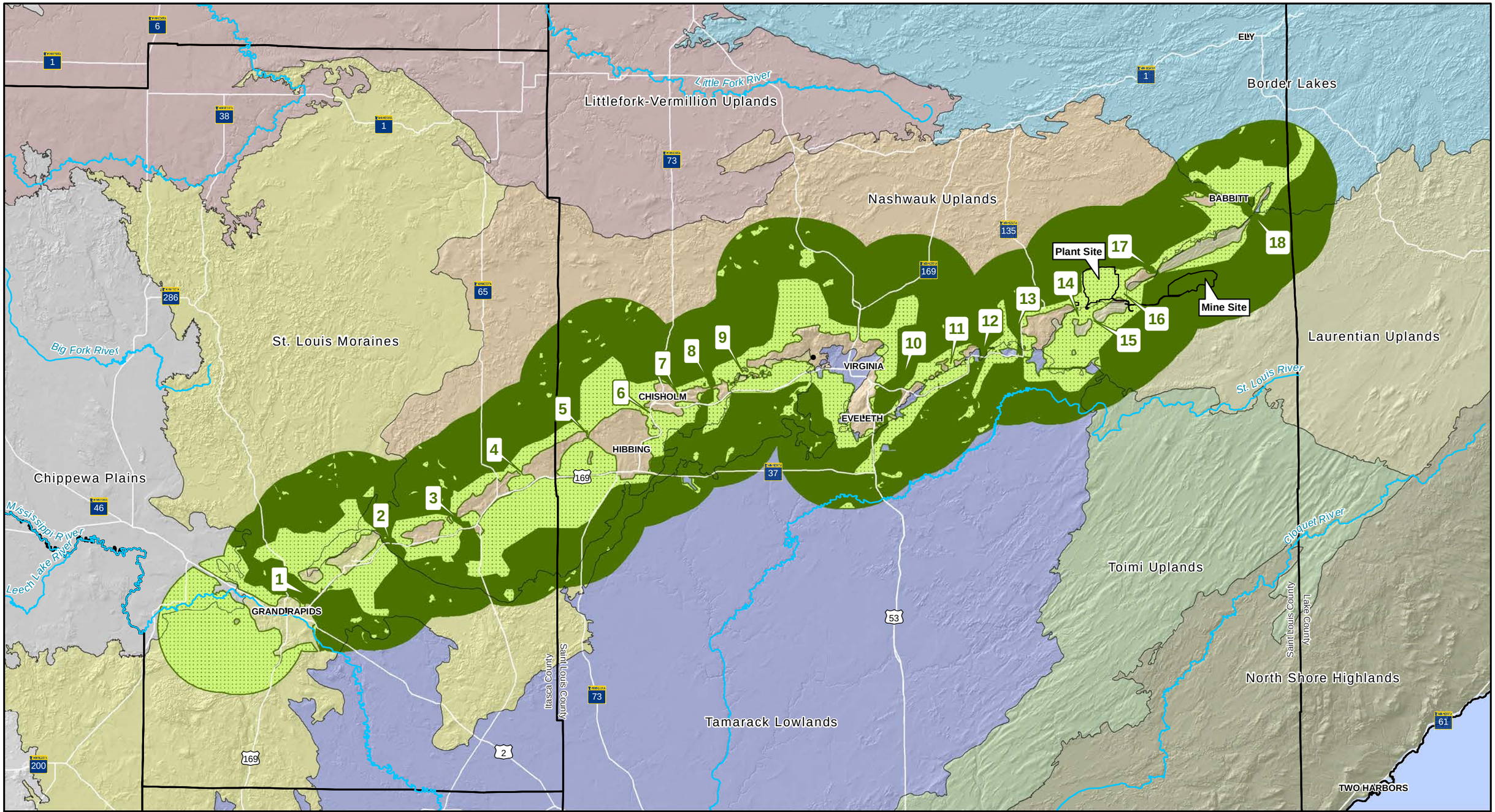

Wildlife Travel Corridors
- High Quality
- Moderate Quality
- 1 Wildlife Travel Corridor Number

- Project Areas
- Major River

Ecological Subsections
- Border Lakes
- Chippewa Plains
- Laurentian Uplands
- Littlefork-Vermillion Uplands
- Nashwauk Uplands
- North Shore Highlands
- St. Louis Moraines
- Tamarack Lowlands
- Toimi Uplands

US Army Corps of Engineers
St. Paul District

N W E S

0 3.75 7.5 15 Miles

Figure 23
Wildlife Travel Corridors
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

Dense forests occur in northeastern Minnesota, and while forest management activities alter patterns of vegetation community composition and structure at landscape and smaller scales, Ravenscroft et al. (2010) considered northeastern Minnesota forest landscape as largely unfragmented. In addition, Galatowitsch et al. (2009) stated that the BWCWA and the North Shore portion of the Superior National Forest are high quality protection areas.

Therefore, large portions of northeastern Minnesota provide excellent connectivity habitat. There is no indication that lynx use defined linkage areas, and they appear to move freely across the landscape throughout the Superior National Forest, and north into Canada. Although actions associated with the Project could impact Corridors 16 and 17, and these impacts would accumulate with impacts to nearby corridors from other projects in the region, there is good habitat connectivity within designated critical habitat and the Project area.

6.2 Northern Long-eared Bat

6.2.1 Environmental Baseline

The following baseline information is from *Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To List the Eastern Small-Footed Bat and the Northern Long-Eared Bat as Endangered or Threatened Species; Listing the Northern Long-Eared Bat as an Endangered Species; Proposed Rule* (USDOI USFWS 2013b) and references cited therein. A full description of references cited in this rule is available at URL: http://www.regulations.gov/#!documentDetail;D=FWS-R5-ES-2011-0024-0002. Any additional information that is not from one of these sources is cited in the text.

6.2.1.1 Species Description and Status and Critical Habitat Status

The northern long-eared bat belongs to the order Chiroptera, suborder Microchiroptera, family Vespertilionidae, subfamily Vesperitilionae, genus Myotis, subgenus Myotis. The northern long-eared bat was considered a subspecies of Keen's long-eared myotis (*Myotis keenii*), but was recognized as a distinct species by van Zyll de Jong (1979).

A medium-sized bat species, the northern long-eared bat adult body weight averages 0.2 to 0.3 ounces, with females tending to be slightly larger than males. Average body length ranges from 3.0 to 3.7 inches. Fur colors include medium to dark brown on its back, dark brown, but not black, ears and wing membranes, and tawny to pale-brown fur on the ventral side. The northern long-eared bat is distinguished from other *Myotis* species by its long ears (average 0.7 inches), that, when laid forward, extend beyond the nose. Within its range, the northern long-eared bat can be confused with the little brown myotis or the western long-eared myotis. The northern long-eared bat can be distinguished from the little brown myotis by its longer ears, tragus, slightly longer tail, and less glossy pelage. The northern long-eared bat can be distinguished from the western long-eared myotis by its darker pelage and paler membranes (Caceres and Barclay 2000:1).

White-nose syndrome, a fungal disease known to affect bats, is currently the predominant threat to the northern long-eared bat, especially throughout the Northeast where the species has declined by up to 99% from pre-white-nose syndrome levels at many hibernation sites (hibernacula; USDOI USFWS 2013a). White-nose syndrome has spread rapidly throughout the East and is currently spreading through the Midwest. Although the disease, caused by the fungal species *Pseudogymnoascus destructans*, has not yet spread throughout the northern long-eared bat's entire range (white-nose syndrome is currently found in at least 22 of 39 states where the northern long-eared bat occurs), it continues to spread. Other threats to the species include wind energy

development, habitat destruction or disturbance (e.g., vandalism to hibernacula, roost tree removal), climate change, and contaminants. Although no significant population declines have been observed due to these threats, they may now be important factors affecting this bat's ability to persist while experiencing dramatic declines caused by white-nose syndrome.

The northern long-eared bat was proposed for listing as an endangered species by the USFWS on October 2, 2013. The USFWS also determined that critical habitat for the northern long-eared bat is not determinable at this time.

6.2.1.2 Distribution

The northern long-eared bat is found across much of the eastern and northcentral United States and all Canadian provinces from the Atlantic coast west to the southern Northwest Territories and eastern British Columbia (USDOI USFWS 2013a).

Historically, the species has been most frequently observed in the northeastern United States and in Canadian Provinces, Quebec and Ontario, with sightings increasing during swarming and hibernation. However, throughout the majority of the species' range it is patchily distributed, and historically was less common in the southern and western portions of the range than in the northern portion of the range.

Although they are typically found in low numbers in inconspicuous roosts, most records of northern long-eared bats are from winter hibernacula surveys. More than 780 hibernacula have been identified throughout the species' range in the United States, although many hibernacula contain only a few (1 to 3) individuals. Eleven hibernacula sites with one or more winter records are known from Minnesota.

The northern long-eared bat is commonly encountered in summer mist-net surveys throughout the majority of the Midwest and is considered fairly common throughout much of the region. However, the species is often found infrequently and in small numbers in hibernacula surveys throughout most of the Midwest. In northeastern Minnesota, this species has been detected in St. Louis, Lake, and Cook Counties based on records in the MDNR Natural Heritage Information System database of element occurrences (MDNR 2014a). In Minnesota, the Tower/Soudan Underground Mine State Park in St. Louis County contains a large number of individuals, possibly over 3,000; however, this is a very rough estimate because the majority of the mine cannot be safely accessed for surveys (Nordquist et al. 2006, USDOI USFWS 2013b). The mine is about 15 miles northwest of the Project area.

Additionally, northern long-eared bats have been detected in six caves along the North Shore of Lake Superior. These caves are within the Superior National Forest proclamation boundary but outside of federal surface ownership. Mist-net surveys conducted by Superior National Forest biologists confirmed the presence of northern long-eared bats at five of the eight sites surveyed in St. Louis and Lake Counties during the summer of 2013 (Grandmaison et al. 2013). While these data are far from providing an estimate of abundance on the Superior National Forest, they do suggest that northern long-eared bats can be detected, albeit at low numbers, across much of the forest where surveys are conducted.

6.2.1.3 Life History

Hibernation

The northern long-eared bat hibernates during the winter months to conserve energy from increased thermoregulatory demands and reduced food resources. In general, northern long-eared bats arrive at hibernacula in August or September, enter hibernation in October and November, and leave the hibernacula in March or April. Northern long-eared bats have shown a high degree of philopatry (using the same site multiple years) for a hibernaculum, although they may not return to the same hibernaculum in successive seasons.

Typically, northern long-eared bats are not abundant and compose a small proportion of the total number of bats hibernating in a hibernaculum. Although usually found in small numbers, the species typically inhabits the same hibernacula with large numbers of other bat species, and occasionally are found in clusters with these other bat species. Other species that commonly occupy the same habitat include little brown myotis, big brown bat, eastern small-footed bat, tri-colored bat, and Indiana bat.

Northern long-eared bats often move between hibernacula throughout the winter, which may further decrease population estimates. Though northern long-eared bats fly outside of the hibernacula during the winter, they do not feed; hence the function of this behavior is not well understood. However, it has been suggested that bat activity during winter could be due in part to disturbance by researchers. Northern long-eared bats exhibited significant weight loss during hibernation. Whitaker and Hamilton (1998:101) reported a weight loss of 41 to 43% over the hibernation period for northern long-eared bats in Indiana.

Migration and Homing

While the northern long-eared bat is not considered a long-distance migratory species, short migratory movements between summer roost and winter hibernacula between 35 to 55 miles have been documented Several studies show a strong homing ability of northern long-eared bats in terms of return rates to a specific hibernaculum, although bats may not return to the same hibernaculum in successive winters.

Summer Roosts

During the summer, northern long-eared bats typically roost singly or in colonies underneath bark or in cavities or crevices of both live trees and snags. Northern long-eared bats switch roosts often. In Missouri, the longest time spent roosting in one tree was 3 nights; however, up to 11 nights spent roosting in a man-made structure has been documented. Bats switch roosts for a variety of reasons, including, temperature, precipitation, predation, parasitism, and ephemeral roost sites, Timpone et al. (2010:118) radiotracked 13 northern long-eared bats to 39 roosts and found the mean distance between the location where captured and roost tree was 1.1 miles.

Some studies have found tree roost selection to differ slightly between male and female northern long-eared bats. Male northern long-eared bats have been found to more readily use smaller diameter trees for roosting than females, suggesting males are more flexible in roost selection than females. In New Brunswick, Canada, Broder and Forbes (2004:606-607) found that there was spatial segregation between male and female roosts, with female maternity colonies typically occupying more mature, shade-tolerant deciduous tree stands and males occupying more conifer-dominated stands. In northeastern Kentucky, males do not use colony roosting

sites and are typically found occupying cavities in live hardwood trees, while females form colonies more often in both hardwood and softwood snags.

Reproduction

Breeding occurs from late July in northern regions to early October in southern regions and commences when males begin to swarm hibernacula and initiate copulation activity. Copulation occasionally occurs again in the spring. Hibernating females store sperm until spring, exhibiting a delayed fertilization strategy. Ovulation takes place at the time of emergence from the hibernaculum, followed by fertilization of a single egg, resulting in a single embryo. Gestation is approximately 60 days.

Maternity colonies, consisting of females and young, are generally small, numbering from about 30 to 60 individuals, although one group of 100 adult females was observed in Vermilion County, Indiana. Adult females give birth to a single pup. Birthing within the colony tends to be synchronous, with the majority of births occurring around the same time. Female roost site selection, in terms of canopy cover and tree height, changes depending on reproductive stage. Relative to pre- and post-lactation periods, lactating northern long-eared bats have been shown to roost higher in tall trees situated in areas of relatively less canopy cover and tree density.

Adult longevity is estimated to be up to 18.5 years, with the greatest recorded age of 19 years. Most mortality for northern long-eared and many other species of bats occurs during the juvenile stage.

Foraging Behavior and Home Range

The northern long-eared bat has a diverse diet including moths, flies, leafhoppers, caddisflies, and beetles. The most common insects found in the diets of northern long-eared bats are lepidopterans (moths) and coleopterans (beetles), with arachnids (spiders) also being a common prey item.

Foraging techniques include hawking (catching insects in flight) and gleaning in conjunction with passive acoustic cues. Northern long-eared bats have the highest frequency call of any bat species in the Great Lakes area. Gleaning allows this species to gain a foraging advantage for preying upon moths because moths are less able to detect these high frequency echolocation calls. Emerging at dusk, most hunting occurs above the understory, 3 to 10 feet above the ground, but under the canopy. This coincides with data indicating that mature forests are an important habitat type for foraging northern long-eared bats. Occasional foraging also takes place over forest clearings and water, and along roads. Foraging patterns indicate a peak activity period within 5 hours after sunset followed by a secondary peak within 8 hours after sunset.

Female home range size may range from 47 to 425 acres. Owen et al. (2003:353) estimated average maternal home range size to be 161 acres. Home range size of northern long-eared bats in this study site was small relative to other bat species, but this may be due to the study's timing (during the maternity period) and the small body size of northern long-eared bat.

6.2.1.4 Habitat

Winter Habitat

Northern long-eared bats predominantly overwinter in hibernacula that include caves and abandoned mines. Hibernacula used by northern long-eared bats are typically large, with large passages and entrances, relatively constant, cooler temperatures (32 to 48 degrees Fahrenheit), and with high humidity and no air currents. The sites favored by northern long-eared bats are often in very high humidity areas, to such a large degree that droplets of water are often observed on their fur. Caire et al. (1979:405) and Whitaker and Mumford (2009:208) commonly observed individuals exiting caves with mud and clay on their fur, also suggesting the bats were roosting in tighter recesses of hibernacula. They are also found hanging in the open, although not as frequently as in cracks and crevices.

To a lesser extent, northern long-eared bats have been found overwintering in other types of habitat that resemble cave or mine hibernacula, including abandoned railroad tunnels, more frequently in the northeast portion of the range. In 1952, three northern long-eared bats were found hibernating near the entrance of a storm sewer in central Minnesota (Goehring 1954:435).

Summer Habitat

During the summer, northern long-eared bats typically roost singly or in colonies underneath bark or in cavities or crevices of both live trees and snags. Males and non-reproductive females' summer roost sites may include cooler locations, including caves and mines. Northern long-eared bats have also been observed roosting in colonies in man-made structures, such as buildings, barns, a park pavilion, sheds, cabins, under eaves, behind window shutters, and in bat houses.

The northern long-eared bat appears to be somewhat opportunistic in tree roost selection, selecting varying roost tree species and types of roosts throughout its range, including tree species such as black oak, northern red oak, silver maple, black locust, American beech, sugar maple, sourwood, and shortleaf pine. Northern long-eared bats most likely are not dependent on a certain species of trees for roosts throughout their range; rather, certain tree species will form suitable cavities or retain bark and the bats will use them opportunistically.

Many studies have documented the northern long-eared bat's selection of live trees and snags, with a range of 10 to 53% selection of live roosts found. In tree roosts, northern long-eared bats are typically found beneath loose bark or within cavities and have been found to use both exfoliating bark and crevices to a similar degree for summer roosting habitat.

Canopy coverage at northern long-eared bat roosts has ranged from 56% in Missouri to greater than 84% in Kentucky. Studies in New Hampshire and British Columbia have found that canopy coverage around roosts is lower than in available stands. Females tend to roost in more open areas than males, likely due to the increased solar radiation, which aids pup development. Fewer trees surrounding maternity roosts may also benefit juvenile bats that are starting to learn to fly. However, in southern Illinois, northern long-eared bats were observed roosting in areas with greater canopy cover than in random plots. Roosts are also largely selected below the canopy, which could be due to the species' ability to exploit roosts in cluttered environments; their gleaning behavior suggests an ability to easily maneuver around obstacles.

Female northern long-eared bats typically roost in tall, large-diameter trees. Studies have found that the dbh and height of northern long-eared bat roost trees was greater than random trees. Lacki and Schwierjohann (2001:486) have also found that northern long-eared bats roost more often on upper and middle slopes than lower slopes, which suggests a preference for higher elevations due to increased solar heating.

6.2.1.5 Factors Affecting the Welfare of Northern Long-eared Bat

Several factors affect northern long-eared bats. These include: 1) modification to hibernacula, human disturbance during hibernation, loss of summer roosting habitat, and loss of habitat from other disturbance factors, including mining projects and prescribed burning; 2) loss of bats due to diseases such as rabies and encephalitis, and from contaminants; 3) predation from hawks, raccoons, skunks, and snakes; 4) lack of federal, state, and local regulations to address threats to northern long-eared bats, although the northern long-eared bat is a species of special concern in Minnesota; 5) wind energy development; and 6) climate change. However, these activities alone are not likely to have significant population-level effects (USDOI USFWS 2013b). PolyMet would follow the USFWS northern long-eared bat interim guidance for removal of marketable timber across the Project (USFWS 2014). Disturbance from noise and vibration is discussed in Section 6.2.2.1.

The most severe and immediate threat to the long-term persistence of this species is the infectious disease known as white-nose syndrome. White-nose syndrome is responsible for unprecedented mortality rates observed in the northeastern United States and poses an increasing threat to bat populations throughout North America. White-nose syndrome has spread rapidly throughout the northeast where an estimated 5.7 to 6.7 million bats have died, and is currently spreading through the Midwest. The causative fungal species for white-nose syndrome, *Pseudogymnoascus destructans*, is known to occur in Minnesota, including the Tower/Soudan Underground Mine State Park, which is 15 miles northwest of the Project area and serves as the largest known hibernaculum for Myotine bats in Minnesota.

<u>White-Nose Syndrome</u>

Since its first documented appearance in New York in 2006, white-nose syndrome has spread rapidly throughout the Northeast and is expanding through the Midwest. As of August 2013, white-nose syndrome has been confirmed in 22 States (Alabama, Connecticut, Delaware, Georgia, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Vermont, Virginia, and West Virginia) and 5 Canadian provinces (New Brunswick, Nova Scotia, Ontario, Prince Edward Island, and Quebec). Four additional States (Arkansas, Iowa, Minnesota, and Oklahoma) are considered suspect for white-nose syndrome based on the detection of the causative fungus on bats within those States, but with no associated disease to date. U.S. Fish and Wildlife Service biologists and partners estimate that at least 5.7 million to 6.7 million bats of several species have now died from white-nose syndrome.

The pattern of spread has generally followed predictable trajectories along recognized migratory pathways and overlapping summer ranges of hibernating bat species. Therefore, Kunz and Reichard (2010:12) assert that white-nose syndrome is spread mainly through bat-to-bat contact; however, evidence suggests that fungal spores can be transmitted by humans, and bats can also become infected by coming into contact with contaminated cave substrate. Six North American hibernating bat species (little brown myotis, Indiana bat, northern long-eared bat, eastern small-footed bat, big brown bat, and tri-colored bat), are known to be affected by white-nose syndrome.

White-nose syndrome is caused by the recently described psychrophilic (cold-loving) fungus, currently known as *Pseudogymnoascus destructans. Pseudogymnoascus destructans* may be non-native to North America, and only recently arrived on the continent. The fungus grows on and within exposed tissues of hibernating bats, and the diagnostic feature is the white fungal growth on muzzles, ears, or wing membranes of affected bats, along with epidermal (skin) erosions that are filled with fungal hyphae (branching, filamentous structures of fungi). Bats that are found in more humid regions of hibernacula may be more susceptible to white-nose syndrome.

In addition to the presence of the white fungus, initial observations showed that bats affected by white-nose syndrome were characterized by some or all of the following: 1) Depleted fat reserves by mid-winter; 2) a general unresponsiveness to human disturbance; 3) an apparent lack of immune response during hibernation; 4) ulcerated, necrotic, and scarred wing membranes; and 5) aberrant behaviors, including shifts of large numbers of bats in hibernacula to roosts near the entrances or unusually cold areas, large numbers of bats dispersing during the day from hibernacula during mid-winter, and large numbers of fatalities, either inside the hibernacula, near the entrance, or in the immediate vicinity of the entrance.

Although the exact process by which white-nose syndrome leads to death remains undetermined, it is likely that the immune function during torpor compromises the ability of hibernating bats to combat the infection. Other factors that could cause death include loss of fat stores during winter, alternation of normal arousal cycles in hibernating bats, and loss of wing-dependent physiological functions.

Due to white-nose syndrome, the northern long-eared bat has experienced a sharp decline in the northeastern part of its range, as evidenced in hibernacula surveys. The northeastern United States is very close to saturation (white-nose syndrome found in majority of hibernacula) for the disease, with the northern long-eared bat being one of the species most severely affected by the disease. In hibernacula surveys in New York, Vermont, Connecticut, and Massachusetts, hibernacula with larger populations of northern long-eared bats experienced greater declines, suggesting a density-dependent decline due to white-nose syndrome.

Long-term (including pre- and post- white-nose syndrome) summer data for the northern long-eared bat are somewhat limited; however, the available data parallel the population decline exhibited in hibernacula surveys. Summer data can corroborate and confirm the decline to the species seen in hibernacula data. Summer surveys from 2005 to 2011 near Surry Mountain Lake in New Hampshire showed a 99% decline in capture success of northern long-eared bats post- white-nose syndrome, which is similar to the hibernacula data for the State (a 95% decline).

Because white-nose syndrome has already had a substantial effect on northern long-eared bats in the core of its range and is likely to spread throughout the species' entire range within a short time, the USFWS considers white-nose syndrome to be the predominant threat to the species rangewide.

6.2.2 Analysis of Direct and Indirect Effects to Northern Long-eared Bat

6.2.2.1 Effects to Northern Long-eared Bat within the Action Area

As discussed in Section 6.2.1.5, the USFWS identified several factors affecting the welfare of northern long-eared bat. Of these, loss of habitat from the Project could be a direct effect to northern long-eared bats. Forest management activities, including timber harvest and prescribed burning, could occur on federal and non-federal lands in the reasonably foreseeable future under the Proposed Action and could result in cumulative effects to northern long-eared bats due to habitat modification.

In addition, the Forest Service (USDA Forest Service 2013b) has identified three analysis indicators for northern long-eared bat:

1. acres of upland forest (MIH 1),
2. presence of known hibernacula, and
3. presence of known summer roost sites.

Analysis indicators 2 and 3 are not evaluated in this BA because there are no known hibernacula or summer roost sites on the federal or non-federal lands. The 2014 Forest Service surveys indicated that summer roost sites may be present on the Mine Site; however, there have been no field surveys to identify roost trees in the Project area.

Federal Lands

Northern long-eared bats have been found in the winter in Minnesota in natural caves, sand mines, and deep iron mines, but these habitats are not found on the federal or non-federal lands. During warmer months of the year, northern long-eared bats primarily roost and forage in forests, especially more mature forests and forests near wetlands. There are approximately 233 acres of young, 540 acres of immature, and 557 acres of mature upland forest habitat (MIH 1), and 3,737 acres of wetlands, within the federal lands that could provide roosting, foraging, and drinking habitat for northern long-eared bat.

The 2014 Forest Service surveys confirmed that northern long-eared bats utilize the Mine Site for foraging and travel to and from foraging and roost sites. The 2014 Forest Service surveys also suggested that the Mine Site may contain roost sites; however, there have been no surveys specifically conducted for the identification of roost sites. Bats were also observed using wetlands in the vicinity of the Mine Site, although they were not identified to species (AECOM 2011a). The Project would result in the loss of about 532 acres of upland forest habitat (MIH 1) and 634 acres of wetlands due to mining. Based on the mine closure plan, about 397 acres of the habitat lost to mining would be reclaimed as grassland/herbaceous (54%), wetland and/or grassland/herbaceous (27%), and wetland (18%). Wetland habitat created would have lesser habitat value for northern long-eared bat. The West Pit would not be reclaimed, but would remain as a 321-acre open pit lake (MDNR et al. 2013). Young upland forest habitat could occur on reclaimed lands about 10 years after mine reclamation. As this forest habitat matures, it could be used by northern long-eared bats. Because northern long-eared bats can utilize trees with a minimum diameter of 3”, the time to maturation of basic usable forest habitat would be approximately 10-15 years. Wetland and open water habitat on reclaimed lands could be used for foraging and drinking by northern long-eared bats; however, in general wetland habitats are less utilized be northern long-eared bats.

Transportation and Utility Corridors

The Dunka Road and Utility Corridor is approximately 108 acres and the Railroad Connection Corridor is approximately 12 acres. Because of prior use during the former LTVSMC taconite mining operation, the Dunka Road and Utility Corridor is now defined as having a “disturbed” cover type (94 acres). The remaining MDNR GAP land cover types that are not disturbed include cropland/grassland (10 acres), shrubland (8 acres), and smaller acreages of the remaining types, including 5 acres of upland forest and 3 acres of aquatic habitat

(MDNR et al. 2013). The 2014 Forest Service surveys confirmed that northern long-eared bats utilize the upland forest habitats for foraging.

Plant Site

Of the 4,515 acres at the Plant Site Area, 2,756 acres have been disturbed by LTVSMC taconite mining operations. Of the remaining 1,760 acres, approximately 648 acres are upland deciduous forest, 637 acres are aquatic habitat, 334 acres are shrubland, 100 acres are upland coniferous forest, and 42 acres are lowland coniferous forest (totals don't add because acreages are rounded). About 48% of the Plant Site would be impacted by plant construction and operations, with only about 422 acres of forest habitat remaining after construction. It is assumed that the majority of this forested habitat meets the minimum criteria for roosting and/or foraging value for northern long-eared bat. Construction of the processing facilities would have little impact on bat habitat, as over half of the site has been previously disturbed by LTVSMC taconite mining operations (MDNR et al. 2013). The 2014 Forest Service surveys confirmed that northern long-eared bats utilize the Plant Site for foraging. Driving transects identified the northern long-eared bat being present near the forest/open edge to the east of the Tailings Basin and southwest of the former LTVSMC processing buildings, but this species was not identified to be present within the Tailings Basin itself (Forest Service 2014a, Figure 4). The surveys found no evidence of roost sites at the Plant Site.

Non-federal Lands

Under the Proposed Action, approximately 7,075 acres of non-federal lands would be transferred to the Forest Service. The Forest Service has not determined the suitability of these lands to provide habitat for northern long-eared bat. However, wildlife habitat surveys conducted on these lands have shown that bats forage and drink on the non-federal lands, although bats were not identified to species during the surveys (AECOM 2011b, c). There are 591 acres of mature and 2,104 acres of young and immature upland forest habitat (MIH 1) on the non-federal lands that could provide habitat for northern long-eared bats. The non-federal lands would not be affected by the Project, but should benefit from Forest Service management that favors longer harvest rotations than typically occurs on private forestlands and from activities that promote development of snags. There are approximately 4,254 acres of wetlands on the non-federal lands that could provide habitat for northern long-eared bats.

Wetland Mitigation Sites

Under the Proposed Action approximately 2,169 acres of Wetland Mitigation Site lands would be purchased by PolyMet as compensatory mitigation for impacts to wetlands and other waters of the U.S.. These lands are used for sod production, but under the Proposed Action would be restored to native wetland and upland vegetation. After restoration, the combined total of wetland and upland acreage for these sites would be about 1,603 acres and 197 acres, respectively. These sites could provide habitat for northern long-eared bats and would be privately owned (Pylka 2013b).

Other

Noise and Vibration

Existing ambient steady equivalent noise levels for most of the Mine Site are in the range of 35 to 45 decibels (dBA), which is a range comparable to secluded woods or a quiet bedroom (MPCA 1999). The Peter Mitchell

Mine, north of the Mine Site, and traffic along Dunka Road and the existing railway, along the south edge of the Mine Site, also contribute brief, episodic noise impacts.

The primary sources of Project noise from the Mine Site would be blasting, haul trucks, and train horns, with noise levels ranging from 89-115 dBA. Equipment such as graders, bull dozers, and support trucks would be less dominant sources of noise, ranging from 75-95 dBA (Environmental Protection Agency 1971). Blasting at the Mine Site is expected to occur once every two to three days. Typically, rock blasting generates a single event noise level ranging from 111- 115 dBA at 50 feet from the blasting site (Table 5.5-7 of Madera County 2005). Within most of the Mine Site, the sound from the blast would be similar to a loud clap of thunder.

Noise associated with mining activities, including noise from vehicle and rail traffic, would likely have some effect on the behavior of northern long-eared bats. These effects would vary depending on the distance between the noise source and any roost trees in use at the time. Construction and routine operational noise would have a lesser impact on northern long-eared bats, because these noise sources would be more continuous and lower volume. Effects due to acute noise (such as blasting) are not well studied, but may cause northern long-eared bats to startle and may interrupt roosting activities; however, blasting would be more episodic and less continuous than other noise sources, and would therefore be a less-frequent impact. Noise and blasting effects may extend beyond the proposed Mine Site to nearby northern long-eared bat roost sites. However, noise and blasting effects on roosting would be ameliorated by the fact that northern long-eared bats typically utilize several spatially-distinct roosting tree areas (Kunz and Lumsden 2003). As a result, bats startled by noise from one roost area would likely move to another nearby known roost area (Kunz and Lumsden 2003). Section 6.3.2.1 provides further discussion on the noise levels for the NorthMet Project area. Though northern long-eared bats are likely to be sensitive to changes in noise levels, there are no local, national, or international standards or limits that are applicable to the NorthMet Project Proposed Action.

Hazardous Materials

Mishandling of hazardous materials or wastes could result in spills, accidental release, or discharge into the environment, which could pose risks to northern long-eared bats. Sections 5.2.13 and 5.3.13 of the FEIS discuss the risks posed to the public and the environment from the transport, handing, storage, and use of hazardous materials. Mitigation measures to prevent releases in transportation, storage, and handling or use of these materials are described in several hazardous material management plans necessary to comply with various regulatory requirements for the Project and in the FEIS. Based on this analysis, and limited use by northern long-eared bats of the areas where there materials would be used, risks to northern long-eared bats would be negligible and should not result in harm or death to northern long-eared bats (MDNR et al. 2013).

Potential Indirect Effects from Project Stormwater and Process Water Ponds

As previously mentioned, the northern long-eared bat primarily forages in forested areas on moths, flies, leafhoppers, caddisflies, and beetles. Occasional foraging in small forest canopy gaps, over forest clearings, riparian areas of waterways (with preference for streams protected by canopy closure), and along roads has also been observed. In a forest-agriculture landscape it was found that northern long-eared bats avoided the large agricultural openings (fields) and had preferential travel patterns that followed wooded streams and wooded edges including hedgerows (Henderson and Broders 2008). The same researchers found that foraging areas for the northern long-eared bat were typically within the forested parcels along creeks, providing a higher concentration of prey species and drinking areas than in upland open areas such as agricultural fields (Henderson and Broders 2008). Sources of drinking water for northern long-eared bat include open water areas

within forested areas such as woodland vernal pools (Francl 2005, 2008) and open water areas in wetlands (e.g., beaver ponds) (Taylor 2006).

A portion of the Mine Site would be cleared of vegetation to accommodate the mine pits and associated infrastructure (e.g., haul roads, stockpile, stormwater ponds, waste water ponds) and would become a large open area during operations. The existing Plant Site is primarily an open area dominated by the LTVSMC Tailings Basin and would continue as an open area during Project operations. As a forest specialist, the northern long-eared bat is unlikely to use large upland open areas (Henderson and Broders 2008; Jantzen 2012). Chapman et al. (2014) identify that the northern long-eared bat seldom forages outside the forest or over water bodies and Jantzen (2012) identified that most bat activity occurs within 40 meters of the forest edge, with a maximum distance from the forest edge of about 120 meters. Francl (2005, 2008) identifies the importance of palustrine habitats (bogs, fens, beaver ponds) for bat species usage and that woodland vernal pools are an important drinking water source for several species including the northern long-eared bat. Overall, the peer-reviewed literature identifies the northern long-eared as an obligate forest species (Ford et al. 2005; Buckman-Sewald et al. 2014) that has a strong preference to forage and roost and drink within the forest area (Henderson and Broders 2008; Francl 2008; Chapman et al. 2014) and that it is rare for this species to roost in man-made structures (Henderson and Broder 2008).

The 2014 Forest Service bat surveys indicated that northern long-eared bats were present and foraging at the Plant Site, with driving transect data identifying this species as being present at the forest/open edge area to the east of the Tailings Basin (within 50 meters of the road) and near the LTVSMC process buildings, but not within the Tailings Basin itself (USDA Forest Service 2014a, Figure 4). Currently, forest vegetation at the east side of the Tailings Basin is more than 300 meters from the existing pond. Emergence surveys indicated the northern long-eared bat was also present in areas adjacent to the existing LTVSMC process buildings, with forest vegetation being within about 140 to 150 meters on the west side of the concentrator building and within 30 to 50 meters southeast of the coarse crusher building (USDA Forest Service 2014a, Figure 5).

While other bat species may use open upland areas for foraging and ponds in open terrain for drinking (e.g., little brown bat), it seems unlikely for the northern long-eared bat to use these areas (Jantzen 2012; Chapman et al. 2014). Based on the 2014 Forest Service bat survey data (e.g., driving transects) and the weight of evidence in the peer-reviewed literature, it seems unlikely for the northern long-eared bat to use the open areas at the Tailings Basin or the cleared Mine Site, or the ponds within those open araeas, to any great extent because they do not meet its habitat and foraging requirements. Therefore, the northern long-eared bat is likely to have a low potential exposure to water in mining-related ponds and minimal consumption of aquatic insects that may use the stormwater or process water ponds at the Mine Site or the Plant Site during operations, and no significant indirect effects to this species from the Project are likely to occur.

The Project's water management further limits the potential exposure of the northern long-eared bat to indirect effects from the various water features at the Plant Site or Mine Site and consumption of insects that may use these water features. Project water features include stormwater ponds, process water ponds, water in active mine pits, constructed wetlands, the Hydrometallurgical Facility pond (operations), the Flotation Tailings Basin Pond and wetland (reclamation and long-term closure), and the West Pit lake (long-term closure). Each water feature is qualitatively evaluated for potential indirect effects to northern long-eared bats.

1. Stormwater from precipitation and runoff would be directed to sedimentation ponds to remove total suspended solids (TSS) prior to being discharged off-site. Water in the ponds prior to

discharge is expected to reflect background concentrations of water quality parameters (including metals and mercury) and any aquatic insects inhabiting stormwater ponds should have metal and mercury concentrations that reflect background conditions, and therefore, similar to existing conditions. Therefore, any consumers of aquatic insects (including the northern long-eared bat) from Project stormwater ponds should not be exposed to metal or mercury concentrations in those insects above background levels.

2. Process water would be collected and stored in a number of ponds at the Mine Site (e.g., Overburden Storage and Laydown Area Pond) and the Flotation Tailings Basin Pond and Hydrometallurgical Residue Facility Pond at the Plant Site and be actively managed for re-use. The probability of insects inhabiting or using a process water pond as a source of drinking water is expected to be low because: 1) these ponds would tend to be turbid and limit the establishment and growth of plants and in turn limit organic materials and the establishment of macroinvertebrates (Nelms et al. 2012); 2) mining-related water is low in organic carbon (Berndt and Bavin 2012) and nutrients and would limit growth and reproduction of algae, macroinvertebrates, and other biota (Nelms et al. 2012; Seger et al. 2012) ; 3) the use of liners and/or compacted bottoms to maximize water retention would not likely provide a suitable substrate for the larval stages of most aquatic insects (Flake and Cieminski 1996); and 4) fine mineral sediments that have little silt or clay are poor media for plant establishment and growth (Nelms et al. 2012) and further limits the presence of aquatic insects that require organic materials for food (Seger et al. 2012). The above listed factors likely limit the aquatic life in process water ponds and insects from Project process water ponds would likely represent a very small percent of the diet of consumers of aquatic insects. Limited pond productivity and the preference of the northern long-eared bat for forest areas further reduces the potential effect of process water ponds on this bat species.

   Similar to taconite processing, mercury in process water sent to the Flotation Tailings Basin Pond and the Hydrometallurgical Residue Facility Pond is expected to be associated with the solids and sequestered with those solids in the respective ponds and result in relatively low concentrations of mercury in the water column (Barr Eng. 2007b; PolyMet 2015). Mercury associated with solids such as tailings is sequestered within the basin and is typically not released from the basin (Berndt 2003) and not readily bioavailable. The continual deposition of solids in these ponds is likely to limit sediment-dwelling organisms (Nelms et al. 2012), as would the lack of organic material for food (Flake and Cieminski 1996; Nelms et al. 2012). Limited pond productivity, sequestration of mercury with solids, and the preference of the northern long-eared bat for forest areas also reduces the potential effect of process water ponds on this species.

3. Mine pit dewatering would occur during Mine Years 1 through 20 and this water would be routed to the Waste Water Treatment Facility for initial treatment and then pumped to the Flotation Tailing Basin Pond for use in ore processing (Poly Met 2014c). A minimal amount of water is expected to be present in an active mine pit, therefore the probability of aquatic insects inhabiting or using a sump area is low. The continual removal of water is likely to limit the presence of aquatic organisms (Nelms et al. 2012), as would the lack of organic material for food (Flake and Cieminski 1996; Nelms et al. 2012). Limited productivity and the preference of the northern long-eared bat for forest areas reduces the potential effect of mine pit watering on

this species.

4. As part of reclamation, some stormwater ponds and process water ponds would be filled and converted to terrestrial habitat (.e.g., Hydrometallurgical Residue Facility Pond) (Poly Met 2014b; 2014e; 2014f). Ponds filled and reclaimed to terrestrial vegetation would have the potential to produce runoff water that would be expected to reflect background conditions. Reclaiming ponds to terrestrial vegetation is not expected to produce runoff that would adversely affect aquatic insects.

   A part of the East Pit (after backfilling is completed) and some stormwater and process water ponds would be converted to wetlands (Poly Met 2014b, 2014c, 2014d). These constructed wetlands are expected to receive precipitation and stormwater runoff. The accumulating water should reflect background concentrations for various parameters (including mercury). Any aquatic insects inhabiting a constructed wetland or using it as a source of drinking water should have metal or mercury concentrations that reflect background conditions. Therefore, any consumers of these aquatic insects (including the northern long-eared bat) should not be exposed to metal or mercury concentrations in those insects above background levels.

   In regard to the backfilling of the East Pit, the water level would be maintained below the level of the fill material to facilitate truck hauling (Poly Met 2014b). No visible ponding of water is expected during backfilling. Therefore, backfilling of the East Pit would have no potential to affect aquatic organisms.

   The Flotation Tailings Basin Pond would be present after Mine Year 20 and a wetland would be constructed around the perimeter of the pond. The pond and wetland are expected to be present into long-term closure. After Mine Year 20, the Beneficiation Plant and Mine Site would no longer contribute water and the largest source of water to the pond would be precipitation and runoff (PolyMet 2015). In long-term closure, the water in the pond would be primarily from precipitation and runoff (PolyMet 2015) and would be expected to reflect background conditions and parameter concentrations (including mercury). Any aquatic insects inhabiting the Flotation Tailings Basin Pond or using it as a source of drinking water during long-term closure should have metal or mercury concentrations that reflect background conditions. Therefore, any consumers of these aquatic insects (including the northern long-eared bat) should not be exposed to metal or mercury concentrations in those insects above background levels.

5. The depth of the West Pit at the end of mining will be more than 600 feet. Flooding of the pit would result in rapid water level increases that are predicted to average about 17 feet per year (PolyMet 2014g). Rapidly rising water levels likely limits the aquatic life that would inhabit the lake during the years of pit flooding (Nelms et al. 2007). In addition, the probability of the northern long-eared bat, an obligate forest species (Jantzen 2012; Chapman et al. 2014), to use a body of water more within a large open area is very low. Therefore, the potential exposure of the northern long-eared bat to any insects that might inhabit or use the West Pit lake during the early years of flooding is likely very low.

   The majority of water used to flood the West Pit would be primarily from precipitation and stormwater runoff (Poly Met 2014g) and as the pit fills the parameter concentrations in the

upper portion of the water column (i.e., the epilimnion) should reflect background (including mercury). Flooding of the West Pit would produce a pit lake that is approximately 320 acres in size with a maximum depth of 630 feet (Poly Met 2014b). As an oligotrophic system with a small littoral area, aquatic insects diversity and numbers in the West Pit lake would be limited (Nelms et al. 2012; Gray et al. 2012). Data for pit lakes identifies they have low densities and diversity of invertebrates (MDNR 1989). In addition, pit lake waters are typically low in phosphorus, limiting primary production (MDNR 1989). For the above reasons, overall, the potential population of aquatic insects in the West Pit lake is expected to be small. In addition, these insects would likely represent only a small portion of the diet of consumers of aquatic insects. Therefore aquatic insects inhabiting the West Pit lake or using it as a source of drinking water would likely have no significant effect on insect consumers such as the northern long-eared bat.

With regard to mercury, the West Pit lake is estimated to have a total mercury concentration of 0.3 to 0.9 ng/L during flooding and in long-term closure (Poly Met, 2014g). Because precipitation would be the main input of water to the West Pit lake, metal concentrations in long-term closure would likely reflect background conditions. Therefore, any aquatic insects inhabiting the West Pit lake or drinking from the West Pit lake would be exposed to background concentrations. Any consumers of these aquatic insects (including the northern long-eared bat) should not be exposed to metal or mercury concentrations in those insects above background levels.

Because existing wetlands at the Plant Site (e.g., north of the tailings basin) and the Mine Site (e.g., 100 Mile Swamp) would be providing an abundant supply of insects, the northern long-eared bat and other consumers of insects would likely be focused in these areas and would not likely be relying on the Project water features for any significant portion of their food supply. Therefore, any insects inhabiting Project water features or using them as sources of drinking water are not expected to have a significant effect on the consumers of insects. Overall, no adverse indirect effects on the northern long-eared bat from the Project's water features are anticipated.

6.2.3 Effects of Interrelated and Interdependent Actions

No known activities are interrelated or interdependent to the Project that would have the potential to affect northern long-eared bat. It is possible that future specific programs or projects may have relevant interrelated and interdependent actions (e.g., expansion of the Mine Site due to discovery of new ore bodies) and they would be considered in the context of consultations for those actions.

6.2.4 Cumulative Effects

The methods used to analyze cumulative effects, and the temporal and spatial domains, are the same for northern long-eared bat as for lynx, as discussed in Section 6.1.4. Forest management and habitat fragmentation are reasonably foreseeable future actions that could affect northern long-eared bat.

6.2.4.1 Habitat Management and Fragmentation

Forest Management and Habitat Fragmentation

Forest management activities, such as timber harvest and road building, could occur on the federal and non-federal lands in the reasonably foreseeable future and these activities could result in habitat modification and fragmentation.

Northern long-eared bats roost predominantly in trees and to a lesser extent in man-made structures. Although there is still much to learn about the effects of forest removal on northern long-eared bats and their associated summer habitat, studies to date have found that the northern long-eared bat shows a varied degree of sensitivity to forest management practices. Several studies have found that the species uses a wide range of tree species for roosting, suggesting that forest succession may play a larger role in roost selection (than tree species). Studies have found that female bat roosts are more often located in areas with partial harvesting, which may be due to trees located in more open habitat receiving greater solar radiation and therefore speeding development of young. In the Appalachians of West Virginia, diameter-limit harvests (70 to 90 year-old stands, with 30 to 40% of the basal area removed in the past 10 years) rather than intact forest was the habitat type most selected by northern long-eared bats. Cryan et al. (2001:49) found several northern long-eared bat roost areas in recently harvested (less than 5 years) stands in the Black Hills of South Dakota, although the largest colony (n=41) was found in a mature forest stand that had not been harvested in over 50 years.

It is possible that this flexibility in roosting habits allows northern long-eared bats to be adaptable in managed forests. However, the northern long-eared bat has shown a preference for contiguous tracts of forest cover for foraging. Jung et al. (2004:333) found that it is important to retain snags and provide for recruitment of roost trees during selective harvesting in forest stands that harbor bats. If roost networks are disturbed through timber harvesting, there may be more dispersal and fewer shared roost trees, which may lead to less communication between bats in addition to less disease transmission. In the Appalachians, Ford et al. (2006:20) assessed that northern long-eared bats may be a suitable management indicator species for assessing mature forest ecosystem integrity, because they found male bats using roosts in mature forest stands of mostly second growth or regenerated forests.

Perry and Thill (2007:225) found that male northern long-eared bats seem to prefer more dense stands for summer roosting, with 67% of male roosts occurring in unharvested sites versus 45% of female roosts. The greater tendency of females to roost in more open forested areas than males may be due to greater solar radiation experienced in these openings, which could speed growth of young in maternity colonies. Lacki and Schwierjohann (2001:487) stated that silvicultural practices could meet both male and female roosting requirements by maintaining large-diameter snags, while allowing for regeneration of forests. However, Broders and Forbes (2004:608) found that timber harvest may have negative effects on female bats because they use forest interiors at small scales (less than 1.2 miles from roost sites). They also found that males are not as limited in roost selection and they do not have the energetic cost of raising young; therefore males may be less affected than females. Henderson et al. (2008:1,825) also found that forest fragmentation effects northern long-eared bats at different scales based on sex; females require a larger unfragmented area with a large number of suitable roost trees to support a colony, whereas males are able to use smaller areas (more fragmented).

The Project would result in habitat loss and fragmentation on about 1,166 acres at the Mine Site for about 20 years (until the Project is reclaimed). Impacts from habitat and fragmentation may continue beyond the onset of

reclamation, but these impacts would be expected to diminish as the target reclamation habitats develop along the expected successional trajectories. High-quality forested vegetation would begin to return to the site over the long-term successional trajectory (approximately 30 years), except in areas where trees and other deep-rooted vegetation would be excluded to protect stockpile liners.

Under the Proposed Action, PolyMet would acquire the federal lands from the Forest Service and would manage lands outside of the Mine Site for wildlife habitat, including some timber management. The non-federal lands would be managed for General Forest, General Forest-Longer Rotation, Riparian Areas, and Candidate Research Natural Areas (MDNR et al. 2013). If new roads are constructed on the federal or non-federal lands, they would likely be temporary and used to support timber management. Although these actions would result in some short-term loss of habitat for northern long-eared bats, long-term protection and management of forests would retain and promote high-quality forest habitat for northern long-eared bats that should result in a long-term cumulative benefit.

Prescribed Fire

Prescribed fire could be used on federal and non-federal lands to reduce hazardous fuels in the reasonably foreseeable future. Eastern forest-dwelling bat species, such as the northern long-eared bats, likely evolved with fire management of mixed-oak ecosystems. A recent review of prescribed fire and its effects on bats (U.S. Forest Service 2012:182) generally found that fire had beneficial effects on bat habitat. Fire may create snags for roosting and creates more open forests conducive to foraging on flying insects, although gleaners such as northern long-eared bats may readily use cluttered understories for foraging. Cavity and bark roosting bats, such as northern long-eared bat, use previously burned areas for both foraging and roosting. In Kentucky, the abundance of prey items for northern long-eared bats increased after burning, and more roosts were found in post-burn areas. Burning may create more suitable snags for roosting through exfoliation of bark, mimicking trees in the appropriate decay stage for roosting bats. Low-intensity burns may not kill taller trees directly but may create snags of smaller trees and larger trees may be injured, resulting in vulnerability of the tree to pathogens that cause hollowing of the trunk, which provides roosting habitat. Prescribed burning also opens the tree canopy, providing more canopy light penetration, which may facilitate faster development of juvenile bats.

Under the Proposed Action, prescribed fire would be used on a limited basis, primarily on non-federal lands administered by the Forest Service, and should have long-term benefit on forest health and habitat availability for northern long-eared bat.

6.3 Gray Wolf

6.3.1 Environmental Baseline

6.3.1.1 Species Description and Status and Critical Habitat Status

Gray wolves are the largest wild members of the dog family (Canidae) with adults ranging from 40 to 175 pounds, depending on sex and subspecies (Mech 1974). Wolves have a gray fur coat that can vary from pure white to coal black. Wolves may look similar to coyotes and some domestic dogs, such as the Siberian husky (*C. familiaris*; USDOI USFWS 2003b). Currently, three wolf species are recognized with ranges in the conterminous U.S.—*Canis lupus, Canis lycaon,* and *Canis rufus. Canis lycaon* is primarily found in Canada and the western Great Lakes, and *C. rufus* in the southeastern U.S. *Canis lupus* is found in the western Great Lakes and western U.S. The ranges of *C. lupus* and *C. lycaon* overlap in the western Great Lakes region.

In response to their vastly declining numbers, the gray wolf was determined to be endangered in 1967 (USDOI USFWS 1967) under the Endangered Species Preservation Act of 1966. In 1974, the species was formally listed as endangered through the authority of the ESA (USDOI USFWS 1974), and the Minnesota population was reclassified to threatened in 1977 (USDOI USFWS 1977). In 1978, critical habitat was designated for the Eastern DPS of gray wolf (USDOI USFWS 1978). That rule (50 C.F.R. § 17.95[a]) identified critical habitat at Isle Royale National Park, Michigan, and Minnesota wolf management zones 1, 2, and 3, as delineated in 50 C.F.R. § 17.40(d)(1). Wolf management zones 1, 2, and 3 comprise approximately 9,800 mi^2 in northeastern and northcentral Minnesota and include all of the Superior National Forest and portions of the Chippewa National Forest. Hunting Club Lands and McFarland Lake Lands are in Zone 1, while the federal lands, and other non-federal lands are in Zone 2. The Wetland Mitigation Sites are outside the wolf zones (**Figure 24**).

In April 2003, gray wolf populations in the U.S. were separated into three DPS' (USDOI USFWS 2003b) to more effectively manage the species; the Minnesota population was a designated portion of the Eastern DPS. In March 2006, the USFWS proposed to designate gray wolves in the Western Great Lakes region as a DPS under the ESA and to remove wolves in Minnesota, Wisconsin, and Michigan from listing under the ESA. The Western Great Lakes DPS included Minnesota, Wisconsin, and Michigan as well as parts of North Dakota, South Dakota, Iowa, Illinois, Indiana, and Ohio (USDOI USFWS 2006b). In March 2007, the USFWS removed the gray wolf from the endangered species list (USDOI USFWS 2007).

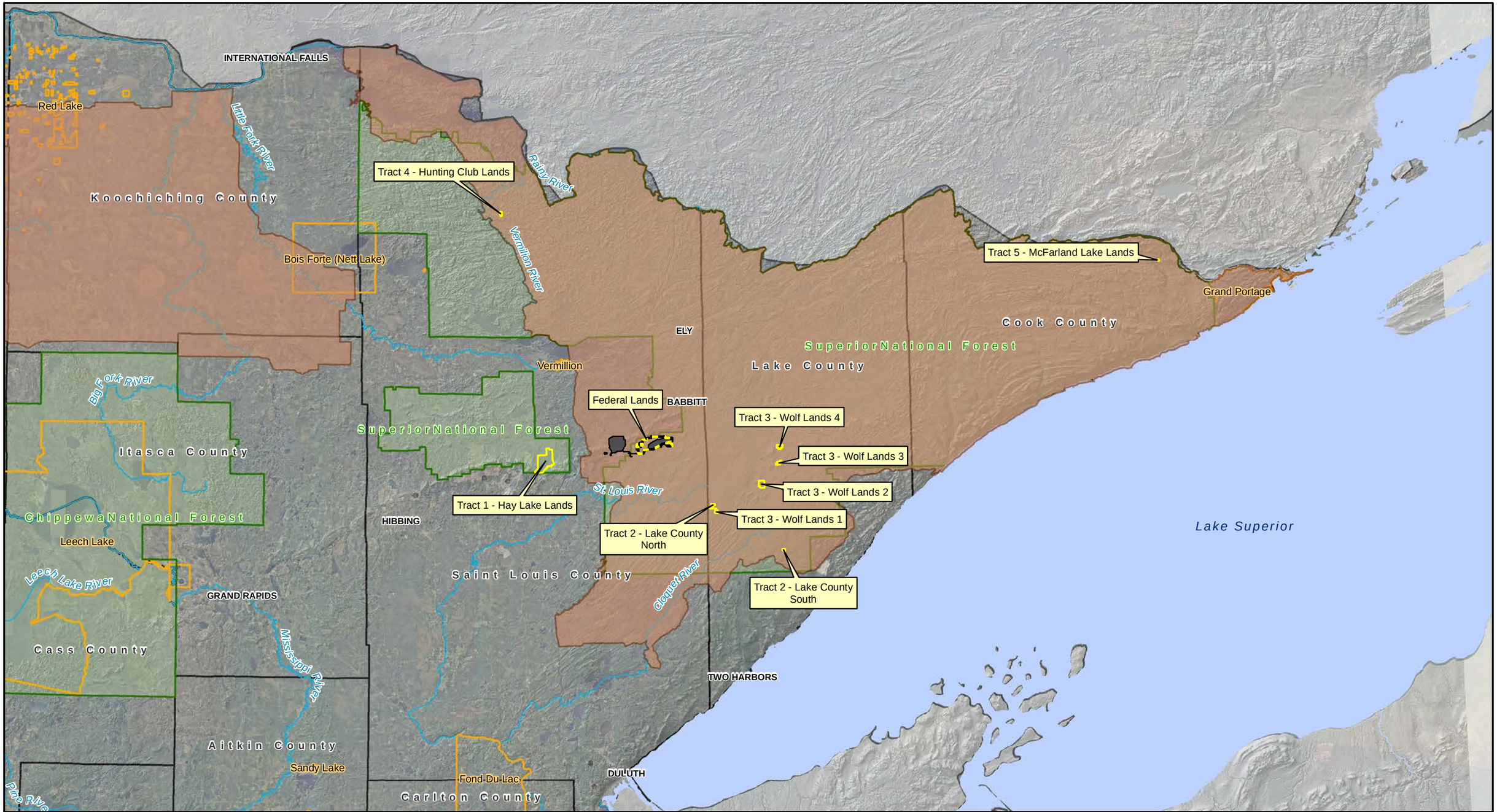

Figure 24
Wolf Critical Habitat
Biological Assessment for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

In September 2008, the U.S. District Court for the District of Columbia overturned the USDOI's decision to remove the Great Lakes DPS of the gray wolf from federal ESA protection; the USFWS issued a rule in December 2008 to comply with court orders reinstating regulatory protections for the gray wolf in the western Great Lakes and northern Rocky Mountains (USDOI USFWS 2008b). In April 2009, the USFWS issued a rule to identify the Western Great Lakes DPS of the gray wolf, and to remove this DPS from the list of threatened and endangered species (USDOI USFWS 2009b). In July 2009, the USFWS withdrew its request to delist the Western Great Lakes DPS and in September 2009 the USFWS reinstated protections for the Western Great Lakes DPS (United States District Court for the District of Columbia 2009, USDOI USFWS 2009c). In May 2011, the USFWS again proposed to identify and remove the Western Great Lakes DPS of gray wolf from federal ESA protection. The USFWS also proposed to remove federal designation of critical habitat for the species in Minnesota and Michigan, and to remove the gray wolf special rule in Minnesota, which defined the circumstances when gray wolves can be taken in Minnesota (USDOI USFWS 2011b).

On December 28, 2011, the USFWS revised the 1978 listing of the Minnesota population of gray wolf to conform to statutory and policy requirements. The USFWS renamed what was previously listed as the Minnesota population of the gray wolf as the Western Great Lakes DPS, and delineated the boundaries of the expanded Minnesota population segment to include all of Minnesota, Wisconsin, and Michigan and portions of the adjacent states. The USFWS removed the Western Great Lakes DPS from the list of endangered and threatened wildlife. The USFWS took this action because the best available scientific and commercial information indicated that the Western Great Lakes DPS does not meet the definitions of threatened or endangered under the ESA. This final rule also removed the designated critical habitat for the wolf in Minnesota and Michigan and the special regulations under Section 4(d) of the ESA for wolves in Minnesota. On December 19, 2014, a federal court reversed the USFWS decision to delist the gray wolf, restoring federal threatened status and critical habitat designation in Minnesota.

6.3.1.2 Distribution

The gray wolf historically occurred across most of North America, Europe, and Asia. The only areas of the conterminous U.S. that apparently lacked gray wolf populations since the last ice age are parts of California and portions of the eastern and southeastern U.S. (an area occupied by the red wolf; *Canis lupus rufus*). Wolf research and the expansion of wolf range over the last 3 decades have shown that wolves can successfully occupy a wide range of habitats, and they are not dependent on wilderness areas for their survival. In the past, for instance, wolf populations occupied nearly every type of habitat north of mid-Mexico that contained large ungulate prey species, including bison, elk, white-tailed deer, mule deer, moose, and woodland caribou. Inadequate prey density or high levels of human-caused mortality appear to be the only factors that limit wolf distribution (USDOI USFWS 2011b).

Widespread persecution of wolves began following European settlement of North America (Boitani 1995). Poisons, trapping, and shooting spurred by federal, state, and local government bounties extirpated this once widespread species from more than 95% of its historic range. In the late 1960s, a diminished population (several hundred) of wolves was known to occur in northeastern Minnesota and on Isle Royale, Michigan; a few scattered wolves also may have occurred in Michigan's Upper Peninsula, Montana, and the southwest U.S. Today, wolves have expanded their range to include much of the U.S, including the Pacific Northwest, Northern Rockies, Upper Midwest, and eastern U.S. Wolves that comprised the Western Great Lakes DPS are found in Minnesota, Wisconsin, and Michigan.

6.3.1.3 Population Status in North America

Wolves once occupied all of North America, and today occupy only between 5 and 10% of this historic range. The wolves occupying Minnesota are part of a meta-population of 60,000 to 80,000 covering most of Canada, the Lake States of Minnesota, Wisconsin, and Michigan, portions of the northern Rocky Mountains, with smaller reintroduced populations in Wyoming (Yellowstone National Park), central Idaho, and Arizona/New Mexico (USDA Forest Service 2011b).

6.3.1.4 Life History

Wolves are carnivorous predators that prefer a diet of medium and large mammals. Wild prey species in Minnesota include white-tailed deer, moose, beaver, and snowshoe hare, with small mammals, birds, and large invertebrates sometimes being taken (Mech 1974, Wisconsin DNR 1999). Wolves are habitat generalists that do not depend on the type, age, or structure of vegetation, instead, they are indirectly influenced by vegetative condition through the distribution of their primary prey species.

Wolves are social animals, normally living in packs of 2 to 30 wolves, although about 15% of the population may be composed of loners and dispersers (Fuller 1989). In Minnesota, packs range in size from 4.9 to 5.6 (Erb and Benson 2004, Erb 2008). Packs are primarily family groups consisting of a breeding pair, their pups from the current year, offspring from the previous year, and occasionally an unrelated wolf. Packs typically occupy, and defend from other packs and individual wolves, territories of 42 to 100 mi^2 in the Great Lakes region and about 40 mi^2 in Minnesota (Fuller 1989, Erb and Benson 2004, Erb 2008).

Normally, only the top-ranking (alpha) male and female in each pack breed and produce pups. Litters are born from early April to May and range from 1 to 11 pups, but generally include 4 to 8 pups (Fuller 1989, Michigan DNR 1997, USDOI USFWS 1992). Normally a pack has a single litter annually, but the production of two or three litters in 1 year has been documented in Yellowstone National Park (USDOI USFWS et al. 2002). Yearling wolves frequently disperse from their natal packs, although some remain with their natal pack. Yearlings may range over large areas as lone animals after leaving their natal pack or they may locate suitable unoccupied habitat, pair with a member of the opposite sex, and begin their own pack. Dispersal distances of over 500 miles have been documented (Fritts 1983); individual wolves have recently traveled from central Wisconsin to east-central Indiana (400 miles) and northern Illinois, from the Upper Peninsula of Michigan to northern Missouri (600 miles), and from the Minnesota-Wisconsin-Michigan population to east central Nebraska.

6.3.1.5 Wolf Habitat, including Prey Habitat

Potential and favorable wolf habitat is defined by several elements such as human population density, sufficient prey density, road density, vegetation cover, and special landscape patterns (Mladenoff et al. 1995). Gray wolves are generalists that can live in most any habitat that supports ungulate prey. Wolf densities are directly related to the densities of their primary ungulate prey (Fuller 1989), thus forested areas occupied by white-tailed deer and moose are critical. Additionally, the habitat should be suitable for smaller prey such as beaver and snowshoe hare which may be seasonally important (Mech 1970). Moose, deer, and snowshoe hare tend to forage in areas of regenerating upland forest, and coniferous forest is an important component of thermal cover for all. Riparian trembling aspen forest is important for beavers. Patch structure is only important in that it may alter prey densities or include areas of high road and human densities thereby indirectly altering wolf distribution (Fuller 1997).

Wolf density is heavily dependent on prey availability (Fuller 1989). Conservation of primary wolf prey, such as white-tailed deer, is clearly a high priority for the MDNR, which typically manages ungulates to ensure a harvestable surplus for hunters and non-consumptive users, and to minimize conflicts with humans. To ensure a harvestable surplus for hunters, the agency must account for all sources of natural mortality, including loss to wolves, and adjust hunter harvest levels when necessary.

White-tailed deer, moose, and beaver, the primary prey species for wolf, are closely associated with forage from young upland forest less than 10 years old. White-tailed deer and moose rely on upland immature (10 to 80 years old) and mature (80+ years old) conifer for thermal and hiding cover.

Moose Populations

Population estimates from aerial surveys in northeastern Minnesota, conducted since 1959, suggest that the moose population gradually began to increase in the 1970s and 1980s to a peak of 6,900 in 1988, then dropped to 3,700 by 1990, and then stabilized between 3,500 and 4,000 animals, or approximately 0.7 moose/mi^2, between 1996 and 2001. Due to a change in MDNR survey methods in 2004, population estimates from surveys conducted in 2005 and afterwards are not directly comparable to prior surveys. An estimated 8,106 moose occurred in northeastern Minnesota in 2005, 7,890 in 2008, 5,700 in 2010, but only 2,760 moose occurred in January 2013, a 52% decline between 2010 and 2013. Both the cow to calf ratio and the percent calves has exhibited a steady decline over the past 9 years (DelGiudice 2013). There is currently a moratorium on moose hunting in Minnesota due to low population numbers (MDNR 2013a).

There is no documentation expressing a correlation between the wolf and moose population fluctuations on the Superior National Forest, although as discussed below for white-tailed deer, there has been a decline in wolf populations concurrent with declines in white-tailed deer and moose populations in recent years.

White-tailed Deer Populations

Land management carried out by other public agencies and by private landowners in Minnesota's wolf range, including timber harvest and prescribed fire, improves habitat for white-tailed deer, the primary prey for wolves in the State. The success of these measures is apparent from the continuing high white-tailed deer densities in the Forest Zone of Minnesota, and with a white-tailed deer harvest averaging about 215,000 deer over the last 5 years. However, numbers of white-tailed deer harvested has declined slowly since a peak harvest of 290,000 deer in 2003 (MDNR 2012). Approximately one-half of the Minnesota deer harvest is in the Forest Zone, which encompasses most of the occupied wolf range in the State. The decline in white-tailed deer numbers may be depressing wolf abundance in Minnesota's core wolf range, as wolf numbers have declined statewide from 2,900 in 2009 to about 2,200 in 2012 (Erb and Samson 2013). Since 2007, Minnesota's Forest Zone white-tailed deer population is estimated to have declined by 25% (Grund and Walberg 2012). Erb and Samson (2013) believe that reduced prey density largely explains the 13% increase in wolf pack territory size they observed during the 2012-13 wolf survey, the first such increase in territory size since surveys began, and the decline in wolf populations in Minnesota. The harvest of wolves in Minnesota may also explain some of the decline in wolf populations. Nevertheless, current estimated density remains near the upper end of densities reported from other regions of North America where density of self-sustaining wolf populations has been estimated over a large area.

6.3.1.6 Human Access and Disturbance and Wolf Mortality

Human settlement and roads are considered to be major determinants in gray wolf distribution. These activities have multiple effects, including increased human presence causing an increase in illegal poaching and legal predator control, increased chance of introduced diseases and parasites via pets (e.g., canine parvovirus), and potential deterrence to colonization of otherwise suitable habitat (Mech 1995, Gogan et al. 1997).

Road Density

To a large extent, road density has been adopted as the best predictor of habitat suitability for wolves in the Midwest due to the connection between roads and human-related wolf mortality. Recent studies have used road density to predict probabilities of persistent wolf pack presence in an area. Areas with road densities less than 0.7 miles/mi^2 are estimated to have a greater than 50% probability of wolf pack colonization and persistent presence, and areas where road density exceeds 1 mile/mi^2 have less than a 10% probability of occupancy (Mladenoff et al. 1995, 1999).

Studies of wolf populations in Minnesota, Michigan, and Wisconsin indicate that wolf populations usually fail to sustain themselves in areas where rural roads open to the public have densities exceeding 0.93 linear miles of road/mi^2. The Wolf Recovery Plan recommends that density of higher standard roads remain below 1 mile/mi^2 in critical habitat to limit the extent of associated effects to wolves (USDOI USFWS 1992).

Roads lead to wolf-vehicle collisions and an increase in access by hunters and trappers, and can be barriers to movement (USDOI USFWS 1992). However, wolves may tolerate road densities as high as 1.2 miles/mi^2 if roaded areas are adjacent to large roadless areas, such as the Superior National Forest.

The Wolf Recovery Plan addresses the impact of low standard roads, but does not recommend a density threshold for such roads. Low standard roads may have a greater potential for human impact on wolves than high standard roads due to the potential for human access for trapping and shooting. These roads typically are accessed by recreational motor vehicles or on foot. Illegal killing of wolves may result from a variety of reasons. Some of these killings are accidental (e.g., wolves are hit by vehicles, mistaken for coyotes and shot, or caught in traps set for other animals) and may be reported to state, tribal, and federal authorities. Most illegal killings, however, likely are intentional and are never reported to authorities (Mech 1995). The MDNR receives approximately two to six reports of wolves killed by vehicle collision annually. While human habitation and the associated network of roads and vehicle traffic increase, wolf mortality from vehicle collisions is expected to continue both in actual numbers and as a percent of total diagnosed mortality in Minnesota.

As wolf populations have continued to expand, however, the road density threshold has been questioned. Wolves can be expected to expand their range into areas with more roads and humans, “as more tolerant attitudes toward wolves increase and depredations by wolves are controlled.” “Given the current status of wolves, reducing current levels of high standard road access is not necessary to increase either wolf density or distribution. However, in areas of sufficient size to sustain one or more wolf packs, land managers should be cautious about adding new road access that could exceed a density of 1 mile/mi^2 without considering the potential effect on wolves” (MDNR 2001 *in* USDA Forest Service 2011b). Thus, the focus of wolf protection is now on maintaining large blocks of habitat relatively free of human access even in areas where the road density exceeds 1 mile/mi^2.

Human-caused Mortality Factors

A study conducted in between 1980 to1986 within northcentral Minnesota found human-caused mortality occurred at a rate of 29%, a figure which includes 2% mortality from legal depredation control actions (Fuller 1989). The MDNR conducted a radiotelemetry study of wolves and white-tailed deer, and of 32 wolves fitted with radio collars between 1993 and 2005, 11 of 16 documented mortalities were attributed to humans (USDA Forest Service 2011b). This includes one wolf accidentally snared, two vehicle collisions, and eight that were shot.

A smaller mortality dataset is available from a 1987 to 1991 study of wolves in and adjacent to Minnesota's Voyageurs National Park. Natural causes of mortality among radiomarked wolves included intraspecific strife (n = 4) and starvation (2). Confirmed human-induced causes of mortality among radiomarked wolves included shooting (2), trapping or snaring (2), and unknown method (2). Natural causes of mortality among non-radiomarked wolves included intraspecific strife (1) and starvation (1). Confirmed human-induced causes of mortality among non-radiomarked wolves included automobile collisions (3), shooting (3), and trapping or snaring (2). All mortalities within the boundaries of Voyageurs National Park were attributed to natural causes. Six of eight confirmed mortalities among instrumented wolves and eight deaths of non-instrumented wolves beyond the boundaries of Voyageurs National Park were human caused (Gogan et al. 2004).

The USDA Animal and Plant Health Inspection Service Wildlife Services found that from 1996 to 2009, an average of 146 wolves were taken annually for depredation control in Minnesota (USDA Forest Service 2011a).

Illegal mortality can often be estimated through radiotelemetry studies (Fuller 1989), however only a few radiotelemetry studies have taken place in Minnesota. Northcentral Minnesota data from 16 diagnosed mortalities of radiocollared wolves over a 12-year period (1994 to 2005) show that human-causes resulted in 69% of the diagnosed mortalities (USDA Forest Service 2011b).

Minnesota's wolves transitioned from federal protection under the ESA to state management by the Minnesota Department of Natural Resources on January 27, 2012. Minnesota's Wolf Management Plan will ensure the wolf's long-term survival. The plan gives owners of livestock and domestic pets more protection from wolf depredation. It splits the state into two management zones with more protective regulations in the northern third, considered the wolf's core range. The MDNR has not established a maximum population goal and wolves are allowed to naturally expand their range. A statewide winter population of 1,600 wolves is the minimum goal. If Minnesota's wolf population falls below this minimum, the MDNR will take immediate and appropriate management actions to reverse the decline and restore the population to its minimum level in the shortest possible time. The MDNR implemented a conservative and regulated hunting and trapping season in fall 2012. Hunters and trappers harvested 413 wolves in 2012 (MDNR 2013b). The MDNR expects the 2013 season to follow a similar framework with a harvest goal of 220 wolves (MDNR 2013c).

The MDNR (2001) and the Forest Service (2004b) use a variety of methods to encourage and support education of the public about the history and ecology of wolves in the state and the effects wolves on livestock, wild ungulate populations, and human activities. Public outreach efforts have been in effect for years in Minnesota, and while these efforts may not further reduce illegal take of wolves from existing levels, these measures may be crucial in ensuring that illegal mortality does not increase. Illegal take of wolves is likely

related to road and human population densities, but changing attitudes towards wolves may provide for their survival in areas where road and human densities were previously thought to be too high (Fuller et al. 2003). It is important to note that despite the difficulty in measuring the extent of illegal killing of wolves, all sources of wolf mortality, including legal (e.g., depredation control, hunting, trapping) and illegal human-caused mortality, have not been of sufficient magnitude to stop the growth of the wolf population in Minnesota, or for Minnesota to have a hunting season for wolves.

6.3.1.7 Disease

Disease such as canine distemper, canine parvovirus, Lyme's disease, mange, and blastomycosis have been observed in Minnesota wolves. However, the usual high annual replacement of dying wolves by a high number of pups produced (Mech 1977 *in* Mech 2002) may be attenuated by canine parvovirus mortality of young pups (Mech and Goyal 1995 i*n* Mech 2002). On the Superior National Forest, wolf population density has been stable or increasing for many years probably indicating that the main effect of canine parvovirus is to reduce the number of dispersing wolves (Mech 2002).

Wolves in Minnesota may have been exposed to canine parvovirus as early as 1973 (Mech and Goyal 1993, 1995). The population impacts of canine parvovirus are believed to be via diarrhea-induced dehydration leading to abnormally high pup mortality (Wisconsin DNR 1999). Despite the presence of canine parvovirus, wolf abundance and range in Minnesota have stabilized above recovery goal levels and there is no evidence that canine parvovirus has caused a population decline in the Minnesota wolf population. In the Superior National Forest, Mech and Goyal (1995) found high canine parvovirus prevalence during the same years in which wolf pup numbers were low, however they concluded that these pup mortalities only replaced deaths that would have occurred from other causes, particularly starvation. They theorized that canine parvovirus prevalence would cause a wolf population decline when 76% of the adult wolves consistently test positive for canine parvovirus exposure. Their data indicate that canine parvovirus prevalence in adult wolves in their study area increased by an annual average of 4% during 1979 to 1993 and was at least 80% during the last 5 years of their study.

6.3.1.8 Population Numbers and Dynamics in Minnesota and Great Lakes Distinct Population Segment

In the western Great Lakes region, wolves in the densely forested northeastern corner of Minnesota have expanded into the more agricultural portions of central and northwestern Minnesota, northern and central Wisconsin, and the entire Upper Peninsula of Michigan. Habitats currently being used by wolves span the broad range from the mixed coniferous/deciduous forest wilderness area of northern Minnesota, through sparsely settled, but similar habitats in Michigan's Upper Peninsula and northern Wisconsin, and into more intensively cultivated and livestock-producing portions of central and northwestern Minnesota and central Wisconsin.

Five comparable surveys of wolf numbers and range in Minnesota have been carried out since 1979. These surveys estimated that in Minnesota there were 1,235 wolves in 1979; 1,500 to 1,750 in 1989; 2,440 in 1998; 3,020 in 2004; and 2,920 in 2008 (Berg and Kuehn 1982, Fuller et al. 1992, Erb 2008). The 1998 and later surveys revealed that the number of wolves in Minnesota was 2 times greater than the planning goal (1,400 wolves) as specified in the Recovery Plan for Minnesota. However, the 2012 survey showed that wolf numbers have declined statewide from 2,900 in 2008 to about 2,200 in 2012 (Erb and Samson 2013).

Based on analysis of 34 radiomarked wolves, average territory size was about 62 mi^2 in 2012, an increase from 54 mi^2 during the previous two surveys. Wolf observations were greatest in the vicinity of the Chippewa National Forest, in the Superior National Forest near Virginia, Minnesota, and in Voyageurs National Park (Erb 2008, Erb and Sampson 2013). The Superior National Forest's wolf population was estimated to be about 484 wolves, or about one wolf per 10 mi^2 (one wolf per 25.9 km^2; 0.04 wolf per km^2), based on radiotelemetry studies during 2003 to 2008 (Mech 2004, 2008, USDA Forest Service 2004b, 2011b). Both Forests are operated and managed through the 2004 Forest Plan in conformance with standards and guidelines that follow the 1992 Wolf Recovery Plan's recommendations for the wolf.

As wolves increased in numbers, they also expanded their range. In the early 1950s, the wolf range was approximately 12,000 mi^2, or 14% of the state. By the late 1990s, it was estimated at 34,000 mi^2, or about 40% of the state, with an occupied range of about 27,612 mi^2, but since then has shown little expansion (Erb 2008, Erb and Sampson 2013).

Wolves were considered to have been extirpated from Wisconsin by 1960, and no formal attempts were made to monitor that state's wolf population from 1960 until 1979. During that time, individual wolves and an occasional wolf pair were reported. There is no documentation, however, of any wolf reproduction occurring in Wisconsin, and the wolves that were reported may have been animals dispersing from Minnesota. Wolf population monitoring by the Wisconsin DNR began in 1979 and a statewide population of 25 wolves was estimated at that time. This population remained relatively stable for several years, and then declined to approximately 15 to 19 wolves in the mid-1980s. In the late 1980s, the Wisconsin wolf population began an increase that has continued to date. In 2002, wolf numbers in Wisconsin alone surpassed the planning goal as specified in the Wolf Recovery Plan for a second population near Minnesota (100 wolves for a minimum of 5 consecutive years; geographically isolated populations should have 200 wolves for a minimum of 5 years). Approximately 540 wolves were in Wisconsin in 2008 and 815 in 2012 (Wydeven and Wiedenhoeft 2008, Wisconsin DNR 2012).

Michigan wolves were extirpated as a reproducing population long before they were listed as endangered in 1974. Before 1991, and excluding Isle Royale, the last known breeding population of wild Michigan wolves occurred in the mid-1950s. As wolves began to reoccupy northern Wisconsin, the Michigan DNR began noting single wolves at various locations in the Upper Peninsula of Michigan. In the late 1980s, a wolf pair was verified in the central Upper Peninsula and was known to have produced pups in 1991. Since that time, wolf packs have spread throughout the Upper Peninsula, with immigration occurring from both Wisconsin to the west and Ontario to the east. They now are found in every county of the Upper Peninsula. When the wolf population estimates of Wisconsin and Michigan are combined, the total population has exceeded the second population recovery goal, as specified in the Wolf Recovery Plan, of 200 wolves for 5 consecutive years for a geographically isolated wolf population. The two state wolf population, excluding Isle Royale wolves, has exceeded 200 wolves since late winter 1995-1996. An estimated 510 wolves were in Michigan in 2007 and 687 in 2010 (Michigan Department of Natural Resources 2008, USDOI USFWS 2013c).

6.3.1.9 Observations of Gray Wolf in the Vicinity of the Project

Gray wolf tracks, scat, and signs of wolf kills were seen during wildlife studies on the federal lands, Transportation and Utility Corridors, and Plant Site during 2000, 2004, 2008, and 2009 (ENSR 2000, 2005, AECOM 2009b, 2011a). Tracks were commonly seen on the Dunka Road, on mine exploration roads, along railroad grades and utility rights-of-ways, and north of the Mine Site on Northshore Mine roads

during all seasons. In addition, several wolves responded to calls from the Mine Site during 2004. The wolves were located to the south of the calling station, and likely south of the property boundary based on call intensity and direction.

Gray wolf tracks and scat were recorded on Hay Lake Lands, Wolf Lands 3 and 4, and Lake County Lands North during the surveys. Wolf scat was seen on several abandoned logging roads. No wolves or their sign were seen on the other non-federal lands, although conditions for surveys were not favorable for detecting tracks and scat at Hunting Club Lands.

Until 2012, International Wolf Center posted on their website a database summary of wolf radiotelemetry observations in northeastern Minnesota. Of the over 11,000 records in the monitoring database between 1994 and 2010, 10 records were for wolves recorded on the federal lands; however, there were no records for the Plant Site or Transportation and Utility Corridors (International Wolf Center 2012). Radiocollared wolves have been recorded on the townships of Hay Lake Lands. A wolf was observed in Section 6 of Township 58 North, Range 16 West in September 1994, just south of Hay Lake. Wolves were observed in Sections 1, 19, 22, and 23 of Township 59 North, Range 16 West, in and around Hay Lake Lands, between 1994 and 1997. Radiocollared wolves have been recorded in the vicinity of Wolf Lands 2 and 3. There are no recorded observations of wolves in the township of McFarland Lake Lands, although McFarland Lake Lands and other non-federal lands that would be involved in the land exchange or Wetland Mitigation Sites are within the current range of the wolf (Erb and Sampson 2013).

6.3.2 Analysis of Direct and Indirect Effects to Gray Wolf

6.3.2.1 Effects to Gray Wolf within the Action Area

The Wolf Recovery Plan (USDOI USFWS 1992) and the *Minnesota Wolf Management Plan* (MDNR 2001) identify habitat factors considered as essential for a recovering and recovered wolf population (including maintenance or improvement of critical habitat). Those that may be affected by the Project are prey habitat and human access and disturbance. In addition, disease can impact wolf populations. The Project would result in both beneficial and adverse direct and indirect impacts to factors of importance to wolves.

<u>Factors Affecting Prey Habitat</u>

Federal Lands

The primary impacts to gray wolf prey habitat from the Project would result from habitat loss and disturbance. The Forest Service manages the Mine Site as a General Forest and General Forest – Longer Rotation Management Area. The General Forest – Longer Rotation Management Area emphasizes land and resource conditions that provide a wide variety of goods, uses, and services. These include wood products, other commercial products, scenic quality, developed and dispersed recreation opportunities, and habitat for a diversity of terrestrial and aquatic wildlife and fish species (USDA Forest Service 2004a). The characteristics and use of the General Forest Management Area are similar to the General Forest – Longer Rotation Management Area, except that harvests are more frequent, more uniform in age, and more extensive. The General Forest Management Area has the highest amount of young forest and the largest sized timber harvest units.

The Forest Service identified young upland forest that is less than 10 years old as providing important foraging habitat for wolves (USDA Forest Service 2004b). Based on Forest Service and MDNR cover type mapping criteria and wildlife assessments done on the federal lands, only about 271 acres on the federal lands provide these habitats, although some suitable coniferous stands are found in mixed coniferous/deciduous forest habitats (**Table 11**; MDNR et al. 2013). Immature and mature coniferous forest habitat provides important cover habitat for wolves. There are about 5,393 acres of cover habitat on the federal lands (MDNR et al. 2013). The typical home range for gray wolf is approximately 161 square kilometers, or just under 40,000 acres (MDNR 2014b). The area of disturbance at the Mine Site is 1,719 acres, which is less than 10% of a gray wolf's home range. There is also abundant suitable habitat adjacent to the Mine Site.

Wolves used the federal lands, and wolf calls were heard to the south of the Mine Site during 2004 surveys (ENSR 2000, 2005). Wolf packs with radiocollared individuals have been observed several miles to the north and northeast of the Mine Site. It is likely that the federal lands include much of the territory of a wolf pack comprised of three or more individuals. Wolf tracks were seen along Dunka Road. Interestingly, wolf tracks were not observed on the study area during January 2000, when a drill rig was operating, but only during March 2000 and June 2004, when the rig was not in operation. Thus, noise and activity associated with drilling activities may have discouraged wolves from using the area in the immediate vicinity of the exploration area. Wolf tracks were seen along trails in the federal lands surrounding the Mine Site, and carcasses of two deer were found on these lands that appeared to be wolf kills (AECOM 2009b, 2011a).

White-tailed deer are common on the Mine Site. White-tailed deer tracks were primarily observed in the western and southern portions of the Mine Site during field studies in 2000 and 2004, especially in recently logged areas and shrublands near mixed coniferous/deciduous and coniferous immature/mature and mature forest habitats. White-tailed deer were common on the federal lands surrounding the Mine Site. White-tailed deer tracks and droppings were commonly found on the Project area in virtually all habitat types, and several white-tailed deer were seen along roads within the land. White-tailed deer tracks were primarily observed in the western portion of the federal lands surrounding the Mine Site during 2008 surveys.

Moose sightings were common in logged areas with abundant shrubs and near mature forest habitat, and in sedge and willow wetlands. Moose primarily used the western half of the federal lands (ENSR 2005, AECOM 2011a). Moose populations in the Superior National Forest have fluctuated considerably since the early 1900s and have shown their greatest increases during periods of intense timber harvest (Huempfner 1978). As noted above, however moose populations have declined by about 52% in Minnesota since 2010.

Beaver are common residents on the federal lands. Many large open water and emergent wetlands on the federal lands are the result of beavers damming streams on the site. Beavers also block culverts under road and railroad grades to create lake habitat. Beaver lodges and tree cuttings are common in areas used by beavers.

Based on a cover type mapping of the Mine Site, about 181 acres of wolf foraging habitat and 1,333 acres of wolf cover habitat would be lost on the Mine Site. Loss of this habitat would reduce the amount of prey and cover available to gray wolf traveling through the Project area. Loss of habitat would also make it less likely that a gray wolf pack would establish a territory within the Project area, especially areas directly impacted by the Project.

About 397 acres would be reclaimed after mine closure, but it would be 10 or more years before re-vegetation resulted in much suitable habitat for wolves.

Table 11
Gray Wolf Habitat on the Federal and Non-federal Lands

Lands	Foraging Habitat	Cover Habitat
Federal Lands	271	5,393
Non-federal Lands		
Hay Lake	534	3,720
Hunting Club	27	93
Lake County Lands North	24	220
Lake County Lands South	43	49
McFarland Lake	0	30
Wolf Lands 1	2	114
Wolf Lands 2	8	684
Wolf Lands 3	130	97
Wolf Lands 4	10	360
Net Gain (Loss) to Forest Service after Land Exchange	507	(26)

Source: MDNR et al. (2013).

Transportation and Utility Corridors

The Dunka Road and Utility Corridor is approximately 108 acres and the Railroad Connection Corridor is approximately 12 acres. Because of prior use during the former LTVSMC taconite mining operation, the Dunka Road and Utility Corridor is now defined as having a "disturbed" cover type (94 acres). The remaining MDNR GAP land cover types that are not disturbed include cropland/grassland (10 acres), shrubland (8 acres), and smaller acreages of the remaining types, including 5 acres of upland forest and 3 acres of aquatic habitat (MDNR et al. 2013).

Plant Site

Of the 4,515 acres at the Plant Site Area, 2,756 acres have been disturbed by LTVSMC taconite mining operations. Of the remaining 1,760 acres, approximately 648 acres are upland deciduous forest, 637 acres are aquatic habitat, 334 acres are shrubland, 100 acres are upland coniferous forest, and 42 acres are lowland coniferous forest (totals do not add because acreages are rounded). About 48% of the Plant Site would be impacted by plant construction and operations, with only about 422 acres of forest habitat remaining after construction. Construction of the processing facilities would have little impact on wolf habitat, as over half of the site has been previously disturbed by LTVSMC taconite mining operations (MDNR et al. 2013).

Non-federal Lands

Under the Proposed Action, approximately 7,075 acres of non-federal lands would be transferred to the Forest Service. The Forest Service has not determined the suitability of these lands to provide habitat for wolves or their prey. However, wildlife habitat surveys conducted on these lands give an indication of the suitability of these lands for wolves. Portions of the non-federal lands have been harvested for timber during the past 20 years, with much of the harvest occurring on Lake County Lands North, Lake County Lands South, and Wolf Lands 2 and 3; there are about 778 acres of wolf foraging habitat on the non-federal lands. In addition, the non-federal lands contain about 5,366 acres of upland immature and mature forest greater than 9 years old that can provide cover for wolf prey (**Table 7**; MDNR et al. 2013).

Wolf howling surveys were conducted at night on Hay Lake Lands and McFarland Lake Lands. No gray wolves were heard during howling surveys, but sign of gray wolf was seen on Hay Lake Lands. Wolf scat was seen on several abandoned logging roads. Radiocollared wolves have been recorded on Hay Lake Lands (AECOM 2011b).

Gray wolf tracks were seen on Wolf Lands 3 and 4 and Lake County Lands North during the surveys. A review of the International Wolf Center (2012) Minnesota Wolf Telemetry Database revealed that radiocollared wolves have been recorded in the vicinity of Wolf Lands 2 and 3 (AECOM 2011c).

Beaver dams or sign of beaver were found on or near all the lands. Several beaver dams were observed on Hunting Club Lands and Lake County Lands South. Open water bodies on the lands were created by beaver dams, and beaver lodges were also seen on large water bodies (AECOM 2011c).

Beaver dams were found in several ponds and wetlands, and along the Pike River, on Hay Lake Lands, with recent cuttings found at several locations. Several large open water bodies on the site were created by beaver dams, and beaver lodges were seen on large water bodies. Beaver cuttings were also seen on McFarland Lake Lands near McFarland Lake (AECOM 2011b).

White-tailed deer are common on the non-federal lands. White-tailed deer tracks and droppings were commonly found in the study areas in virtually all habitat types, and several white-tailed deer were seen along roads, in shrublands, and bedding along the Pike River on Hay Lake Lands. Deer were especially common in recently logged areas and shrublands near mixed coniferous/deciduous and coniferous immature and mature forest habitats (AECOM 2011b).

Moose sign (droppings, tracks, and evidence of browsing) were observed on Hay Lake Lands in areas with abundant shrubs and in shrub swamp speckled alder wetlands. Moose sign were also observed on Wolf Lands 3 and 4 and Lake County Lands South in areas with abundant upland shrubs and in shrub swamp speckled alder wetlands (AECOM 2011c).

Wetland Mitigation Sites

Under the Proposed Action approximately 2,169 acres of Wetland Mitigation Site lands would be purchased by PolyMet as compensatory mitigation for impacts to wetlands and other waters of the U.S. These lands are used for sod production, but under the Proposed Action would be restored to native wetland and upland vegetation. After restoration, the combined total of wetland and upland acreage for these sites would be about 1,603 acres and 197 acres, respectively. These sites could provide habitat for wolves and would be privately owned (Pylka 2013b).

Summary of Prey Habitat Impacts to Wolves

Numerous habitat and human-disturbance factors influence wolf and wolf prey use of an area. Factors most important in the study area include timber management, mining activity, and habitat fragmentation. The mine project would remove forestlands, reduce the amount of available habitat for wolves and their prey, and increase habitat fragmentation; some of this habitat would be reclaimed after mine closure. However, large tracts of land associated with the Superior National Forest and adjacent to the mine project would be managed to provide wolf habitat. These lands would also help to maintain wolf travel corridors between areas of suitable habitat.

Despite the presence of wolf tracks on the Mine Site, there is little suitable foraging habitat for wolves, and it appears that only a few wolves use the Mine Site at any one time. Thus, the loss of habitat on the Mine Site may have little impact on wolves. To conserve wolves in the area, PolyMet would reclaim the Mine Site, maintain vegetated buffers around the Project area, close the Project area to public access, minimize the number of roads constructed in the Project area and reclaim roads after mine closure, and educate workers on the need to observe speed limits and take measures to protect wolves and other wildlife.

The land adjacent to the Mine Site would not be directly impacted by the Proposed Action. However, noise, light, and other disturbances at the Mine Site could limit use of the area by wolves and their prey. Wolves have been recorded using this area, and appeared to have preyed upon white-tailed deer in the western portion of the federal lands. Still, based on number of tracks observed during field studies, few wolves appear to use the land at any one time (AECOM 2009b, 2011a). Thus, the Project may have little direct impact on wolf use of this area.

Wolves have been recorded on most of the non-federal lands based on radiotelemetry and wildlife studies. The Forest Service would gain additional lands that would provide habitat for wolves under the Proposed Action. However, given that these lands would not be directly or indirectly impacted by the Project, would likely not be developed, and would remain mostly in timber production with limited recreational use, there would likely be little or no adverse or beneficial effects to wolves using the non-federal lands with or without the Proposed Action.

Although the Forest Service would administer additional habitat for wolves under the Proposed Action, there would still be a net loss of habitat to wolves and their prey from the Project. If the land exchange does not take place, and non-federal lands are not acquired by PolyMet and remain privately owned, non-federal lands would likely be managed primarily for timber production, and some recreational use (hunting, fishing, and cabins). Much of the habitat on the non-federal lands is wetland and is not suitable for most types of development. At this time, there also appears to be little interest in mining these lands or conducting other large scale surface disturbance. Thus, these lands would continue to provide similar acres of habitat for wolves and their prey with or without the land exchange.

No wolf surveys were conducted on or near the Wetland Mitigation Sites. These sites are agricultural farms that would be restored to wetland and upland habitat. They could provide habitat for wolves in the future, but the beneficial effects to wolves from acquisition of these lands would be minor.

Human Access and Disturbance

Federal Lands and Plant Site

Human-related Disturbance

The Project would generate as many as 500 full-time workers over an 18-month during peak construction period, and about 360 full-time workers during operation. It is estimated that about 80% of construction workers, but only about 25% of operations workers, would commute from population centers such as Duluth, Hibbing, and Virginia to the Project area on a daily or weekly basis, while remaining workers would be local hires. The Project would employ about 360 full-time workers during operation. When accounting for family members, the total population influx from direct, indirect, and induced employment would be about 400 people. A small number of workers would be needed during mine closure (MDNR et al. 2013). New housing

and other infrastructure would be required to support many of these new workers and could indirectly affect wolves through loss of habitat and human disturbance. However, new housing for workers may be constructed in nearby municipalities, such as Hoyt Lakes, Aurora, and Babbitt. It is not anticipated that new housing centers would be constructed that would result in additional townships exceeding a human density of more than four humans per square kilometer (2.5 humans per square mile). The MDNR criteria for a wolf-occupied township is a human density of fewer than four humans per square kilometer and a road density of fewer than 0.7 kilometers per square kilometer (0.4 miles per square mile). The Mine Site and Federal Lands are located within Township 59 North (35 square miles) and there are 3.3 miles of Forest Road 113 and 77.5 miles of other Forest Service roads and trails within the township. The road density for Township 59 North is 0.1 mile per square mile, considering only Forest Road 113, and 2.2 miles per square mile considering all roads and trails.

Disturbance associated with the facility and associated transportation corridors would include lights, glare, and noise. The Project is expected to operate 24 hours a day, 365 days a year, for a minimum of 20 years. Lights and glare would primarily be associated with the Mine Site, Plant Site, and Transportation and Utility Corridors. Wolves traveling through the study area would likely avoid areas that are active and well lit.

Noise

Sources of noise during the construction phase include trucks, bulldozers, rock drills, jack hammers, graders, backhoes, air compressors, and cranes. The loudest noise sources during the operational phase of the project include blasting, haul trucks, and train horns at the Mine Site, and crushers at the Plant Site. Estimated noise levels from blasting at receptors located 50 feet from the noise source are estimated to range from 111 to 115 a-weighted decibels (dBA; MDNR et al. 2013), while noise levels for drill rigs, excavators, and crushers range from 109 to 121 dBA near the noise source. Noise from the Mine Site and Plant Site could impact wolves residing in or traveling through the Project area. The impacts of noise on wolves and other wildlife are largely unknown and the assessment of impacts remains subjective. Wildlife are receptive to different sound frequency spectrums, many of which may be inaudible to humans. Wildlife are also known to habituate to noise, especially noises that are steady or continuous, such as noises that would occur at the Project. For example, wolves have been seen within about a quarter mile of loud noise sources and other human disturbance at Northshore Mine facilities north of the Mine Site.

Under the Proposed Action, the areas not disturbed by the Project on the lands adjacent to the Mine Site would be managed for wildlife habitat, including timber management. During mine operations, few, if any wolves would use this area due to noise and other disturbance associated with the adjacent Mine Site. After mine closure, wolf use of this area could return to the current level of use. But with a large area of new mine disturbance between much of this area and areas to the east where wolves are more common, it is unlikely that wolf use of this area would increase from current levels.

Roads

Impacts to wolves on and surrounding the Project may include mortality from vehicle collisions and trains. Construction and operation of the project, and the influx of workers to the area, would mean an increase in the number of roads and rail lines, as well as an increase in vehicular traffic volume along transportation corridors. The FEIS estimates that the Project would generate a total of up to 1,316 miles per day of vehicle traffic near the Project site, including trips between the Mine Site and the Plant Site, and trips between the Plant Site and the Area 1 Shop. Vehicle traffic would consist primarily of light trucks and maintenance vehicles traveling

between 30 and 45 miles per hour (mph), and a few large fuel, waste/supply, and haul trucks traveling between 25 and 40 mph. The Project would also generate 418 total miles of train traffic each day during mine operations. Trains would operate at 15 to 25 mph (MDNR et al. 2013).

Harm or loss of wolves from collisions with vehicles or trains traveling within the Project boundaries cannot be discounted, but the risk would be very small as there is currently little use of the Project area by wolves, and use of the site by wolves would decrease substantially during project operations due to loss of habitat and noise and disturbance associated with Project activities.

The potential for wolves to be killed from vehicle/rail collisions was estimated using the methodology described in Section 6.1.2.1 for lynx. Assuming that there is about 0.04 wolf/km^2 (see Section 6.2.1.8), that vehicle/rail collisions could occur along the 8-mile Transportation and Utility Corridors and railroad, and that vehicles and rail traffic have equal potential for collisions with wolves, it was estimated that approximately 0.05 wolf could be killed annually by vehicle/train traffic between the Mine Site and Plant Site, or about one wolf during the estimated 20-year life of the Project (assuming that mortalities due to collisions with vehicles and trains were twice the estimated level).

Using the same assumptions and methodology used to estimate wolf mortality on Project roads and railroads, approximately 0.3 wolf could be killed annually by vehicle/train traffic on off-Project access roads/rail lines to the Plant Site, or about six wolves during the estimated 20-year life of the Project (assuming that mortalities due to collisions with vehicles and trains were twice the estimated level).

These losses are probably overestimated, however, based on wolf mortality estimates done for other projects in northern Minnesota by the USFWS. Thus, although risk of loss of wolves due to a collision with a Project-related vehicle or train traffic is very small, it could occur during the life of the Project.

In addition to potential harm from vehicle/train/wolf collisions, road density influences wolf use of habitat. The Wolf Recovery Plan recommends that density of higher standard roads remain below 1 mile/mi^2 in critical habitat to limit the extent of associated effects to gray wolves (USDOI USFWS 1992, 2011a). However, wolves may tolerate road densities as high as 1.2 miles/mi^2 if roaded areas are adjacent to large roadless areas, such as the Superior National Forest. Current road density is 0.5 miles of road/mi^2 for the Mine Site. After mine operations cease, temporary roads would be closed and reclaimed and would remain closed to the public.

Temporary roads have been constructed on the federal lands to support timber harvest activities and within a ROW to support powerline maintenance. Except for recently constructed roads, temporary roads are now overgrown in places with vegetation and are generally only suitable for foot, all-terrain vehicle, and snowmobile travel. Vegetation within the ROW is maintained at a low height for safety purposes, and the ROW is accessible to all-terrain vehicles and snowmobiles. Temporary roads may be constructed to support future management, but roads would be likely closed after their intended use and allowed to revegetate; it is unlikely that permanent roads would be constructed. The number of miles of temporary roads would likely remain at or below current levels, to the benefit of wolves. These roads would be privately owned and closed to the public after mine closure.

Non-federal Lands and Wetland Mitigation Sites

The non-federal lands would be transferred to the Forest Service. The non-federal lands are currently managed primarily for timber and recreation, similar to how these lands would be managed by the Forest Service. The

Wetland Mitigation Sites would be restored to wetland and upland wildlife habitat. Wolf observations are rare near the Wetland Mitigation Sites and wolf use of the sites after restoration would be infrequent. Thus, there would be few beneficial effects to wolves from the land exchange and wetland mitigation.

Access onto most of the non-federal lands is by secondary roads that branch off Forest Service or county roads. Most secondary roads were constructed to support timber harvest activities, and wolves were observed using these roads on several lands. There is no road access onto Hunting Club Lands and Wolf Lands 4. Access to McFarland Lake Lands is controlled by a locked gate. If acquired by the Forest Service, the lands would be managed for General Forest, General Forest-Longer Rotation, Riparian Areas, and Candidate Research Natural Areas. If new roads are constructed on the lands, they would likely be temporary and used to support timber management. There would likely be little change in the number of miles of backcountry roads and trails on the non-federal lands, and the number of miles may decrease if existing roads are closed and re-vegetated or allowed to re-vegetate naturally, benefitting wolves.

Other

Hazardous Materials

Mishandling of hazardous materials or wastes could result in spills, accidental release, or discharge into the environment, which could pose risks to wolves. Sections 5.2.13 and 5.3.13 of the FEIS discuss the risks posed to the public and the environment from the transport, handing, storage, and use of hazardous materials. Mitigation measures to prevent releases in transportation, storage, and handling or use of these materials are described in several hazardous material management plans necessary to comply with various regulatory requirements for the Project and in the FEIS. Based on this analysis, and limited use by wolves of the areas where there materials would be used, risks to wolves would be negligible and should not result in harm or death to wolves (MDNR et al. 2013).

6.3.2.2 Effects to Wolf Critical Habitat

Overview

Primary Constituent Elements of Wolf Critical Habitat

No specific primary constituent elements (PCE) have been formalized for the gray wolf. However, in general, primary constituent elements for gray wolf may include the following:

1. space for population growth;
2. normal behavior, nutritional or physiological requirements;
3. shelter and breeding habitats, and
4. habitats representing appropriate species distribution.

In addition, the USFWS (1992) has identified five main factors critical to the long-term survival of gray wolf:

1. large tracts of wild land with low human densities and minimal accessibility by humans
2. ecologically sound management
3. availability of adequate wild prey;
4. adequate understanding of wolf ecology and management, and
5. maintenance of populations that are either free of, or resistant to, parasites and diseases new to wolves or are large enough to successfully contend with their adverse effects.

Additional detail on the presence of general PCEs and factors critical to the long-term survival of gray wolf is provided in Section 6.3.1, Gray Wolf Environmental Baseline. Potential impacts to the general PCEs and to factors critical to the long-term survival of gray wolf are described in Section 6.3.2, Analysis of Direct and Indirect Effects to Gray Wolf. Further detail on impacts to gray wolf prey habitat is provided below.

The Forest Service identified quantitative indicators in the 2004 Forest Plan BA, and in the *Programmatic Biological Assessment: Gray Wolf, Canada Lynx, and Their Critical Habitats for the Superior National Forest* (USDA Forest Service 2011b), to analyze the impacts of those risk factors that have the most substantive impacts on wolf habitat. These indicators have been used to assess impacts to wolf critical habitat, if it was implemented in Minnesota in the future, in this BA. **Table 12** lists risk indicators and identifies those that apply to the Project.

Risk Analysis Indicators

Prey Habitat

The Forest Service has identified two risk analysis indicators to measure the effects to prey habitat that would apply to the Project. Parameters used by the Forest Service to identify suitable wolf prey habitat were given in the *Federally Listed Threatened and Endangered Species for the Revised Forest Plans: Chippewa and Superior National* Forests (USDA Forest Service 2004b) and *Programmatic Biological Assessment: Gray Wolf, Canada Lynx, and Their Critical Habitats for the Superior National Forest* (USDA Forest Service 2011a).

Indicator 1 – Acres and Percent of Young Upland Forest < 10 Years Old

This indicator represents potential habitat for moose, white-tailed deer, and beaver, important prey items for wolves, by acres of young upland forest. Acreage dedicated to coniferous plantations, clearcuts, areas of prescribed burns, and shelterwood harvests all provide significant forage biomass. Lowland conifer is not included. Even though the correlation between habitat and populations appears to be weak, this indicator provides an overall analysis of potential prey forage habitat.

There are about 271 acres of young upland forest on the federal lands (**Figure 9**, **Table 7**). Based on Management Indicator Habitat mapping done by the Forest Service, about 181 acres of young upland forest would be lost to mining. Although young upland forest vegetation would be lost on the Mine Site, the lands adjacent to the Mine Site would still provide young upland forest for wolf prey even though lands would be owned by PolyMet, as these lands would be managed to provide wildlife habitat and would not be developed. About 10 or more years after mine reclamation, approximately 397 acres of young upland forest could be available to wolf prey, although it is uncertain if wolf prey would move from areas outside of the Mine Site to suitable habitat on the Mine Site.

Collectively, the non-federal lands have about 778 acres (11% of available habitat) of young upland forest. Under the Proposed Action, this habitat would be administered by the Forest Service. Wetland Mitigation Sites would provide additional young upland forest. Based on young upland forest losses at the federal lands, and gains from the non-federal lands, there would be a net gain of 507 acres of young upland forest under Forest Service administration under the Proposed Action (MDNR et al. 2013).

Table 12
Wolf Risk Analysis Indicators

Risk Analysis Indicators[1]	Analyzed	Rationale for Exclusion
1. Acres and Percent of Young Upland Forest <10 years Old (MIH 1, Young)	Yes	
2. Acres and Percent of Upland Conifer (Spruce and Pine) > 9 years Old on All Uplands (MIH 5, All but Young)	Yes	
3. Miles of High Standard Roads (OML 3, 4, and 5)	No	Miles of high standard roads would not change under the Proposed Action.
4. Cross-country Use Policy for Designated All-terrain Vehicle and Snowmobile Trails	No	Policy would not change under the Proposed Action. There are 0 miles of designated trails on the federal lands, and 0.3 miles on the non-federal lands.
5. Miles of Temporary and OML 1 and 2 Roads	No	There would be little or no change in the miles of Temporary and OML 1 and 2 roads on federal and non-federal lands under the Proposed Action (Ryan 2013a).

Source: USDA Forest Service (2004b).

Indicator 2 – Acres and Percent of Upland Forest > 9 Years Old on all Uplands

This indicator represents potential winter thermal and hiding cover for white-tailed deer and moose provided by relatively dense occurrence of immature and mature coniferous forest in planted/seeded stands. Coniferous forest also provides important summer thermal cover (from heat) for moose.

There are about 5,393 acres of immature and mature upland coniferous forest on the federal lands (**Figure 19**, **Table 7**). About 1,333 acres of immature and mature upland coniferous forest would be lost to mining based on Management Indicator Habitat mapping done by the Forest Service. Although forest vegetation would be lost on the Mine Site, the federal lands would still provide immature and mature upland coniferous forest for wolf prey even though lands would be owned by PolyMet, as these lands would be managed to provide wildlife habitat and would not be developed. About 20 or more years after mine reclamation, approximately 397 acres of immature and mature upland coniferous forest could be available to wolf prey for cover, although it is uncertain if wolf prey would move from areas outside of the Mine Site to suitable habitat on the Mine Site.

Collectively, the non-federal lands have about 5,366 acres (76% of available habitat) of immature and mature upland coniferous forest. Under the Proposed Action, this habitat would be administered by the Forest Service. Wetland Mitigation Sites would provide additional immature and mature upland coniferous forest. Based on immature and mature upland coniferous forest losses at the federal lands, and gains from the non-federal lands, there would be a net loss of 26 acres of immature and mature upland coniferous forest under Forest Service administration under the Proposed Action.

Human Access and Disturbance

The Forest Service identified three indicators that apply to human access and disturbance. These are:

Indicator 3 – Miles of High Standard Roads (OML 3, 4, and 5)

Indicator 4 – Cross-country Use Policy for Designated All-terrain Vehicle and Snowmobile Trails

Indicator 5 – Miles of Temporary and OML 1 and 2 Roads

Indicators 4 and 5 were not analyzed for reasons given for Indicators 7 and 9 for lynx. Indicator 3 was not analyzed because there are no High Standard Roads (OML 3, 4, and 5) on the federal and non-federal lands, and none are proposed to be built under the Proposed Action. Objective Maintenance Level 3 roads are those roads open and maintained for travel by a prudent driver in a passenger car. User comfort and convenience are not considered priorities. Roads are typically low speed, single lane with turnouts and have only spot surfacing. Objective Maintenance Level 4 roads provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double lane and aggregate surfaced. Objective Maintenance Level 5 roads provide a high degree of user comfort and convenience. The roads are normally double lane, paved facilities (USDA Forest Service 2004a).

Under the Proposed Action, PolyMet would gain control of the federal lands. There are approximately 5.9 miles of temporary and OML 1 and 2 roads on the federal lands. Most temporary roads were built to support historic timber management and mine exploration on the proposed Mine Site and would be lost to mine development. Access to the federal lands would be strictly controlled during mine operations.

These roads would likely have little impact on wolves as wolves would not likely use the federal lands during mining due to noise and other disturbances. After mine closure, roads would be reclaimed (except for a short road from the Dunka Road to the Waste Water Treatment Facility; Pylka 2013b) and closed to vehicle access. Temporary roads may be constructed on the lands adjacent to the Mine Site to support forest management activities, but number of miles of temporary backcountry roads and trails on the lands should be similar to, or less than, existing miles of backcountry roads and trail on the lands. After mine closure, the federal lands would remain in private ownership and the public would not be allowed to use the roads to access the lands (Pylka 2013b).

The Forest Service would manage the non-federal lands for timber production and recreation. If new roads are constructed on the lands, they would likely be temporary and used to support timber management. There would likely be little or no change in the number of miles of backcountry roads and trails on the non-federal lands, and the number of miles may decrease if existing roads are closed and re-vegetated or allowed to re-vegetate naturally, benefitting wolves.

6.3.3 Effects of Interrelated and Interdependent Actions

No known activities are interrelated or interdependent to the Project that would have the potential to affect gray wolves. It is possible that future specific programs or projects may have relevant interrelated and interdependent actions (e.g., expansion of the Mine Site due to discovery of new ore bodies) and they would be considered in the context of consultations for those actions.

6.3.4 Cumulative Effects

The methods used to analyze cumulative effects, and the temporal and spatial domains, are the same for wolves as for lynx, as discussed in Section 6.1.4.

6.3.4.1 Prey Habitat

The types of cumulative effects to wolf prey habitat and habitat fragmentation, and to wolf travel corridors, would be similar to those effects to lynx as discussed in Section 6.1.4. However, given that more wolves are found in the CESA, more wolves could be impacted than lynx. Although the Project would result in habitat loss and fragmentation on about 1,719 acres at the Mine Site for about 20 years (until the Project is reclaimed), in the context of available habitat, and habitat that would be available to wolves in the reasonably foreseeable future, cumulative effects of the Project on habitat loss and fragmentation would be minor.

6.3.4.2 Human Access and Disturbance

Human Access and Traffic

The Project and other nearby proposed projects would increase the amount of human access and disturbance in the area. Effects from loss of habitat and disturbance associated with human activities from the Project are discussed above. However, increased human populations in the Project area may also lead to increased risk to wolves from collisions with vehicles and trains, increased levels of recreation activities and use of backcountry roads and trails, and increased mortality from illegal hunting and trapping.

See Section 6.1.4.2, Human Access and Traffic, for a discussion of the road system in the area. Given that the number of miles of roads associated with the federal and non-federal lands after mining is expected to be similar to or less than current levels, impacts associated with road mileage are not expected to accumulate from the Project.

Trapping and Legal and Illegal Taking

An influx of worker and their families into the region to support the Project and other development would increase the potential for illegal harvest of wolves. The USDA Animal and Plant Health Inspection Service Wildlife Services maintains records on the legal taking of wolves in Minnesota. From 1996 to 2009, an average of 146 wolves was taken annually as a result of depredation control in Minnesota (USDA Forest Service 2011b).

Hunting and trapping of wolves would not be allowed on lands administered by PolyMet. Thus, there should be no illegal or accidental take due to the Project. Loss of wolves to illegal trapping and hunting should remain near current levels on the non-federal lands, while the number of wolves harvested on non-federal lands during legal hunting and trapping seasons will vary based on wolf population levels. Thus, there should be negligible or no cumulative effect to legal, illegal, and accidental take of wolves from the Project and land exchange.

7.0 Conservation Measures

Seven conservation measures are recommended to reduce potential impacts to lynx, northern long-eared bat, and wolf from the Project. These measures are based, in part, on conservation measures identified by the Forest Service during its review of the Project, measures in the *Lynx Conservation Assessment and Strategy* (Ruediger et al. 2000) that are applicable to lynx populations throughout the contiguous U.S. and could therefore apply to lynx in and around the Project area; measures identified in the *Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To List the Eastern Small-Footed Bat and the Northern Long-Eared Bat as Endangered or Threatened Species; Listing the Northern Long-Eared Bat as an Endangered Species; Proposed Rule* (USDOI USFWS 2013b); and measures identified in the *Minnesota Wolf Management Plan* (MDNR 2001) that can benefit wolves in Minnesota.

7.1 Reclaim Project Area

PolyMet would reclaim about 397 acres to wetland and upland habitat at the Mine Site, including the Waste Rock Stockpiles, the Overburden Storage and Laydown Area, and the Ore Surge Pile. The stockpiles would be revegetated using a mixture of native grasses and forbs. Areas revegetated with grasses and forbs would initially provide little habitat value for lynx, northern long-eared bat, and wolf and their prey, primarily due to lack of hiding cover. Over time, reclaimed areas may be used by lynx, northern long-eared bats, and wolves and their prey as coniferous and deciduous forests establish on the sites through plant succession. Lynx tracking surveys at waste rock stockpiles east of the Project found that lynx hunt for snowshoe hare that reside in early successional shrubland and forestland habitats that have established on waste rock stockpiles. As disturbed areas are reclaimed, they would also improve habitat connectivity with forestlands in the vicinity of the Project.

When feasible, PolyMet should progressively reclaim disturbance areas to allow reclaimed areas to revegetate sooner than if the areas were not reclaimed until after mine operations cease.

7.2 Maintain Vegetated Buffers

The facility should be designed to reduce impacts to lynx, northern long-eared bats, and wolves by minimizing the disturbance area and new road construction, and reclaiming any areas where Project activities cease. Where feasible, a vegetative buffer should be retained around the perimeter of the facility to reduce light and noise effects on lynx, northern long-eared bat, and wolf. In addition, existing and newly constructed roads (built to access the Project area) should be reclaimed or obliterated after facility closure, where feasible.

7.3 Limit Public Access to Project Area

Public access to the Project area should be limited to the extent possible during development, operation, and reclamation. Users of any snowmobile or all-terrain vehicle trails on public lands near the Project area should be encouraged to stay on the trail and avoid travel into other areas. After closure and reclamation, activities that compact snow should be minimized.

7.4 Minimize Road Construction and Reclaim Unused Roads

Where feasible and appropriate, dirt and gravel roads traversing lynx and wolf habitat within the Project area should not be paved or otherwise upgraded (e.g., straightening of curves, widening of roadway, etc.) in a

manner that is likely to lead to significant increases in traffic speeds or increased width of the cleared ROW, or would foreseeably contribute to development or increases in human activity in lynx and wolf habitat within the Project area.

Plowed roads and groomed over-the-snow routes may allow competing carnivores such as coyotes to access lynx and wolf habitat in the winter, increasing competition for prey (Buskirk et al. 2000). However, plowed or created snow roads would be necessary to access the facility during construction and operation, and are necessary to access other lands within the vicinity of the Project.

Several studies suggest that lynx may not avoid roads, except at high traffic volumes. Therefore, at this time, there is no compelling evidence to recommend management of road density to conserve lynx. There is evidence, however, that road density can impact wolf use of an area. Thus, the number of new roads constructed in support of the Project should be minimized and roads reclaimed/obliterated where feasible and appropriate.

7.5 Educate Workers and Public

Direct mortality from vehicular collisions has been detrimental to lynx and wolf in northern Minnesota. It is unlikely that lynx and wolves would travel close to the Project area due to disturbance and lack of habitat. Still, to benefit lynx, wolf, and other wildlife, speed limits should be enforced along access roads to reduce the risk of wildlife-vehicle collisions. Workers should be given training to make them aware of the importance of the area to wildlife, to request that employees report sick or dying wildlife along roads or at facilities, to ensure that employees do not dump wastes or other harmful materials off the site, and to make employees aware of other actions that could be harmful to wildlife or their habitats.

Lynx and wolf may be mistakenly trapped or shot outside the legal wolf hunting season by legal predator hunters seeking bobcats or other furbearers. Prey species, such as snowshoe hares, may also be affected by legal and illegal trapping and shooting. To reduce or eliminate the incidence of illegal trapping and shooting of lynx and wolf, PolyMet could work with the MDNR and local conservation groups to initiate information and education efforts to protect the lynx and wolf and to ensure that trappers check their traps at frequent intervals and release lynx and wolf that are still alive. Trailhead posters, magazine articles, and news releases could be used to inform the public of the possible presence of lynx and wolf within or near the Project area.

7.6 Lynx Monitoring

Because limited research has been conducted on lynx in the contiguous U.S., PolyMet would continue to follow studies of lynx conducted by the Forest Service, NRRI, MDNR, and other conservation agencies and groups to better understand lynx use of the study area during the Project's construction and operation, and to identify specific reclamation measures that could be implemented to restore lynx habitat to the area after facility closure.

7.7 Preserve and Protect Habitat

Lynx, northern long-eared bat, and wolf would benefit from habitat protection on lands adjacent to the Mine Site. These lands would be managed by PolyMet and provide habitat for use by lynx, northern long-eared bat, wolf, and other wildlife.

Forestlands in this area would likely be harvested periodically, but could be managed to provide early successional habitat favored by snowshoe hare, while wetlands could be left relatively untouched. Wetlands and forestlands could be used by lynx and wolf as a travel corridor between lands to the east and west of the Mine Site, and for foraging and roosting habitat by northern long-eared bat. Based on observations of lynx and wolf on and near disturbance areas at the Northshore Mine, lynx and wolf could use this area as a travel corridor during mine operations, and would likely use this area as a travel corridor after mine operations cease.

8.0 Determination of Effects

Lynx and wolf have been observed on and near the federal lands, and at several of the non-federal lands. The northern long-eared bat has been observed on the federal lands. Bats have been observed on the non-federal lands, although they were not identified to species. The primary effects to lynx and their critical habitat, and to wolf, would be from loss and fragmentation of habitat, to habitat connectivity, and from fatalities associated with vehicle and rail traffic on the Mine Site, Transportation and Utility Corridors, Plant Site, and access roads and railroads to the Project area. The primary effect to northern long-eared bat would be loss of habitat.

Collision with vehicles and trains is a documented cause of lynx and wolf mortality in Minnesota. Vehicle and rail traffic would include road and rail access to and within the Project area. Increased traffic is expected in the vicinity of the Project area. Although there is little likelihood that lynx or wolf would be killed by vehicle and rail traffic associated with the Project, based on studies at several other mine sites, this risk of the loss of lynx and wolf cannot be discounted.

Critical habitat for the lynx has been designated in the Project area. The Mine Site and a portion of the Dunka Road and Utility Corridor are within lynx critical habitat. Not all areas within the mapped boundaries of designated habitat are considered critical habitat. Only areas that contain the primary constituent elements required by the species are considered critical habitat. Primary constituent elements are the physical and biological features of a landscape that a species needs to survive and reproduce (USDOI USFWS and NMFS 1998). The Mine Site contains habitat elements that facilitate lynx survival and reproduction.

Habitat loss and fragmentation would be unavoidable effects to lynx, northern long-eared bat, and wolf from the Project, and additional impacts from other proposed projects in the area are expected. In addition, Project noise and other disturbances could disrupt lynx and wolf use of travel corridors near the Project area. The types of habitat that provide suitable habitat for lynx and their prey and would be lost to the Project are common in northeastern Minnesota, however, and lands along the Iron Range are already highly fragmented.

The Project would affect about 0.03% of lynx critical habitat in Minnesota, including Primary Constituent Elements (PCEs) of lynx critical habitat. Less than 0.03% of wolf critical habitat, including PCEs for wolf, would be directly affected by mining. In addition, of the 1,719 acres that would be directly affected by mining, about 397 acres (23%) would be reclaimed to habitats that could be used by lynx and wolf about 10 or more years after reclamation. It is unlikely that habitat loss and fragmentation resulting from the Project would represent a significant impact to lynx and wolf habitat from a regional perspective.

Based on the analysis in this BA, the Project would affect lynx, and those effects would not be insignificant or discountable. Thus, the Project **is likely to adversely affect** Canada lynx. As noted above, the Project would directly impact only about 0.03% of lynx critical habitat, including PCEs of lynx habitat. Some of this habitat would be reclaimed and available for use by lynx and their prey about 10 or more years after reclamation. However, not all of the reclaimed areas would restore the lost PCEs nor would they likely return to the quality of the habitat removed from the site. Thus, the Project **is likely to adversely affect** Canada lynx critical habitat.

Based on analysis in this BA, the Project is **likely to adversely affect** the continued existence of northern long-eared bat. This is because of the loss of available summer roost habitat. Impacts on northern long-eared bats from the Project would not preclude both the survival and recovery of the population as a whole.

Based on the analysis in the BA, the Project would affect gray wolves, and those effects would not be insignificant or discountable. Thus the Project **is likely to adversely affect gray wolves**. The Project would directly impact only 0.03% of wolf critical habitat, including PCEs, in Minnesota. Some of this habitat would be reclaimed and available for use by gray wolves and their prey about 10 or more years after reclamation. Thus, the Project **is likely to adversely affect** gray wolf critical habitat.

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APPENDIX A

Common and Scientific Names of Plants and Animals Given in this Biological Assessment

Common Name	Scientific Name
Plants	
American Beech	*Fagus grandifolia*
Balsam Fir	*Abies balsamea*
Beaked Hazel	*Corylus cornuta*
Black Ash	*Fraxinus nigra*
Black Locust	*Robinia pseudoacacia*
Black Oak	*Quercus velutina*
Black Spruce	*Picea mariana*
Blueberry	*Vaccinium angustifolium*
Bog Birch	*Betula pumila*
Bog Labrador-tea	*Ledum groenlandicum*
Canada Bluejoint	*Calamagrostis canadensis*
Cattail	*Typha* spp.
Club Moss	*Lycopodium* spp.
Eastern White Pine	*Pinus strobus*
Jack Pine	*Pinus banksiana*
Leatherleaf	*Chamaedaphne calyculata*
Lodgepole Pine	*Pinus contorta*
Narrow-leaved Cattail	*Typha latifolia*
Northern Red Oak	*Quercus rubra*
Northern White Cedar	*Thuja occidentalis*
Paper Birch	*Betula papyrifera*
Pussywillow	*Salix discolor*
Raspberry	*Rubus* spp.
Red-osier Dogwood	*Cornus stolinifera*
Red Pine	*Pinus resinosa*
Sedge	*Carex* spp.
Shining Club Moss	*Lycopodium lucidulum*
Shortleaf Pine	*Pinus echinata*
Silver Maple	*Acer Saccharinum*
Small-fruited Bog Cranberry	*Vaccinium oxycoccus*
Sourwood	*Oxydendrum arboreum*
Speckled Alder	*Alnus rugosa*
Sphagnum Moss	*Sphagnum* spp.
Subalpine Fir	*Abies lasiocarpa*
Sugar Maple	*Acer saccharum*
Tamarack	*Larix laricina*

APPENDIX A (Cont.)

Common and Scientific Names of Plants and Animals Given in the Report

Common Name	Scientific Name
Plants (Cont.)	
Trembling Aspen	*Populus tremuloides*
White Pine	*Pinus strobus*
White Spruce	*Picea glauca*
Willow	*Salix* spp.
Woolgrass	*Scirpus cyperinus*
Animals	
Beaver	*Castor canadensis*
Big Brown Bat	*Eptesicus fuscus*
Bison	*Bison bison*
Bobcat	*Lynx rufus*
Canada Lynx	*Lynx canadensis*
Coyote	*Canis latrans*
Eastern Red Bat	*Lasiurus borealis*
Eastern Small-footed Myotis	*Myotis leibii*
Elk	*Cervus candensis*
Fisher	*Martes pennanti*
Gray Wolf	*Canis lupus*
Hoary Bat	*Lasiurus cinereus*
Indiana Bat	*Myotis sodalis*
Keen's Long-eared Myotis	*Myotis keenii*
Little Brown Myotis	*Myotis lucifugus*
Moose	*Alces alces*
Mountain Lion	*Puma concolor*
Mule Deer	*Odocoileus hemionus*
Northern Flying Squirrel	*Glaucomys sabrinus*
Northern Long-Eared Bat	*Myotis septentrionalis*
Pine Marten	*Martes americana*
Porcupine	*Erethizon dorsatum*
Red Squirrel	*Tamiasciurus hudsonicus*
Ruffed Grouse	*Bonasa umbellus*
Siberian Husky	*Canis familiaris*
Silver-haired Bat	*Lasionycteris noctivagans*
Snowshoe Hare	*Lepus canadensis*
Spruce Budworm	*Choristoneura fumiferana*
Tri-colored Bat	*Perimyotis subflavus*
Western Long-eared Myotis	*Myotis evotis*

APPENDIX A (Cont.)

Common and Scientific Names of Plants and Animals Given in the Report

Common Name	Scientific Name
Animals (Cont.)	
White-tailed Deer	*Odocoileus virginianus*
Wolverine	*Gulo gulo*
Woodland Caribou	*Rangifer tarandus*

Biological Evaluation

U.S. Department of Agriculture Forest Service

Laurentian Ranger District
Superior National Forest
Aurora, Minnesota

Biological Evaluation for the Proposed NorthMet Project and Land Exchange

April 2015

Biological Evaluation

NorthMet Project and Land Exchange

U.S. Department of Agriculture Forest Service

Laurentian Ranger District
Superior National Forest
Aurora, Minnesota

April 2015

NorthMet Project and Land Exchange

Biological Evaluation

U.S. Department of Agriculture Forest Service
Laurentian Ranger District
Superior National Forest
Aurora, Minnesota

April 2015

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Executive Summary

Poly Met Mining Inc. (PolyMet) proposes to construct an open pit mine in northern Minnesota to extract low- to medium-quality copper-nickel-PGE minerals with low sulfide content. This project, called the NorthMet Project (Project), is located in St. Louis County on the eastern end of the Mesabi Iron Range, about 60 miles north of the City of Duluth, and 6 miles south of the City of Babbitt, Minnesota. The Project areas include the Mine Site (3,015 acres), Plant Site (4,515 acres), and Transportation and Utility Corridors (120 acres) that connect the Mine Site to the Plant Site.[1]

PolyMet plans to mine and process polymetallic ore from the northwestern portion of the Duluth Complex, a rock formation that forms much of the bedrock of northeastern Minnesota. The ore contains copper, nickel, gold, platinum, palladium, and cobalt. The Project would mine ore for approximately 20 years, using open pit mining methods similar to those currently in use at ferrous metallic mining operations on the Iron Range. The Plant Site was previously used as a taconite processing facility by the LTV Steel Mining Company (LTVSMC). PolyMet would upgrade existing facilities and construct new facilities to produce copper concentrates, nickel concentrates, and base and precious metal precipitates for off-site shipment and treatment. Tailings from ore processing would be placed in a tailings basin built atop the existing LTVSMC taconite tailings basin.

About 1,719 acres of the Mine Site would be directly disturbed by mining activities. Of these, 1,667 acres are administered by the Forest Service and 52 acres are privately owned. Habitats on the federally administered lands that would potentially be affected by the project include upland coniferous forest (including black spruce[2], jack pine, and balsam fir), upland deciduous forest (including trembling aspen and paper birch), upland mixed coniferous/deciduous forest, coniferous bogs (including black spruce and tamarack), open bogs (including leatherleaf and Labrador tea), coniferous swamps (including black spruce, tamarack, and northern white cedar), hardwood swamps (including black ash), shrub swamps (including speckled alder, willows, and dogwoods), marshes (including cattails), and sedge and wet meadows (including sedges and grasses). A variety of plants and animals, including several species of concern, have been observed on or near the Mine Site. A 2014 Forest Service study confirmed that northern long-eared bats and little brown bats utilize the Mine Site and adjacent Project areas (USDA Forest Service 2014a).

Of the approximately 3,015 acres on the Mine Site, approximately 2,719 acres are owned by the United States (U.S.) Government (Government) and administered by the U.S. Department of Agriculture (USDA) Forest Service (Forest Service). In addition, about 3,776 acres adjacent to the Mine Site are owned by the Government and administered by the Forest Service.

The Forest Service is considering transferring these approximately 6,495 acres (federal lands) to PolyMet in exchange for lands (non-federal lands) of similar value that have been offered for consideration by PolyMet. All

[1] Acreages given in this report are based on Geographic Information System (GIS) analysis. Acreages associated with the legal descriptions of the lands are based on original surveys performed by the Bureau of Land Management, Government Land Office (GLO) surveyors between 1858 and 1907. As such, GLO acreages are used as part of the project description for the Final Environmental Impact Statement (FEIS) being prepared for the Project and would also be used to define the real estate transaction if the Land Exchange Proposed Action was approved. The analysis of effects presented in this Biological Evaluation (BE) is based upon GIS data. GIS values indicate the actual size of the parcels discussed in this BE, which may be different than the GLO legal acreage.

[2] Common and scientific names of plants and animals given in this report are provided in **Appendix A**.

lands potentially involved in the land exchange would be independently appraised according to the Uniform Appraisal Standards for Federal Land Acquisitions. The appraisals would determine the market value of the properties. Information collected during wildlife and wetland functions and values studies would be used by the Forest Service in the land exchange appraisal, and would be used to evaluate impacts to wetlands, and wildlife and their habitats, for a Final Environmental Impact Statement (FEIS) for the Project and land exchange.

Assuming a land exchange occurs, the portions of the Mine Site, Dunka Road and Utility Corridor, and lands adjacent to the Mine Site that are administered by the Forest Service would no longer be part of the National Forest and therefore would not be subject to Forest Service management plans and policies. A land exchange for land adjustment is consistent with the 2004 *Land and Resource Management Plan for the Superior National Forest* (2004 Forest Plan).

To fulfill land exchange requirements, PolyMet is proposing to purchase and transfer all or a portion of 7,075 acres of non-federal lands to the Forest Service. The non-federal lands consist of the Hay Lake Lands (4,926 acres), Hunting Club Lands (160 acres), Lake County Lands (382 acres), McFarland Lake Lands (31 acres), and Wolf Lands (1,576 acres). All lands are dominated by second-growth deciduous and coniferous forest habitats and a variety of plants and animals, including several species of concern, have been observed on or near the non-federal lands.

Assuming a land exchange occurs, the non-federal lands would be administered by the Forest Service. The non-federal lands are associated with four Forest Plan Management Areas, as designated by the Forest Service, which include General Forest, General Forest – Longer Rotation, Riparian Emphasis Area, and Candidate Research Natural Areas. If all or portions of the non-federal lands are acquired by the Forest Service, they would be administered by the Forest Service to meet the goals of these management areas.

The Project could adversely impact plant and animal species of concern found on or near the federal lands. The *2004 Forest Plan Revision Final Environmental Impact Statement for Chippewa and Superior National Forests* (2004 Forest Plan EIS) assessed plant and animal species identified by the Regional Forester for which population viability was a concern as evidenced by:

- Significant current or predicted downward trends in population numbers or density.
- Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution (Forest Service Manual 2670.5).

Based on the 2004 Forest Plan EIS and subsequent updates, the Regional Forester identified 12 non-vascular plants, 46 vascular plants, 2 aquatic invertebrates, 6 insects, 4 fish, 1 reptile, 8 birds, and 5 mammals as Regional Forester Sensitive Species (RFSS). Of these, eight vascular plants, and six (and possibly nine as unidentified bat species have been reported on the federal lands) animals have been reported on the federal exchange lands, while two vascular plants and two (and possibly up to five as unidentified bat species have been found on the non-federal exchange lands) animals have been reported on the non-federal lands.

This Biological Evaluation (BE) was prepared to document RFSS populations and habitat use on or near the federal and non-federal lands, and potential direct, indirect, and cumulative impacts to these species from the Project. This BE complies with Forest Service Manual Directives 2671.1 through 2672.43 and the National

Forest Management Act of 1976. The Forest Service Manual Directive 2672.42 objectives for completing BEs for proposed Forest Service programs and activities are to:

- ensure that Forest Service actions do not contribute to loss of viability of any native or desired non-native plant or animal species,
- ensure that Forest Service activities do not cause any species to move toward federal listing, and
- incorporate concerns for sensitive species throughout the planning process, reducing negative impacts to species and enhancing opportunities for mitigation.

In addition to addressing impacts to RFSS from the Proposed Action, which includes the Project and land exchange, this BE also addresses impacts to RFSS from two alternatives also considered in the FEIS:

- Land Exchange Alternative B (Alternative B) - under Alternative B, the Forest Service would transfer 4,753 acres of federal lands, which comprise 2,719 acres at the Mine Site and a smaller amount of federal land surrounding the Mine Site, to PolyMet in exchange for the 4,926-acre Hay Lake Lands. This land exchange would involve the transfer of a similar acreage, would provide wetlands to the Forest Service, and Hay Lake Lands would have a higher-per-acre value than the federal lands.

- Land Exchange No Action Alternative (No Action Alternative) - under the No Action Alternative, mine construction, development, and operation would not occur and no lands would be exchanged. The Government would not convey federal lands to PolyMet, and the Forest Service would continue managing these federal lands.

Based on the analyses for this BE, the Forest Service has determined that the Proposed Action and Alternative B would have **no impact** to the following RFSS:

Plants

Alpine milkvetch	Lanceleaf grapefern	Scotch false asphodel
Arctoparmelia centrifuga	Largeleaf sandwort	Short sedge
Arctoparmelia subcentrifuga	Little goblin moonwort	Smooth woodsia
Braun's holly fern	Long-leaved arnica	Sticky locoweed
Creeping rush	Maidenhair spleenwort	Triangle grapefern
Chilean sweet-cicely	Moschatel	Wain's cup lichen
Douglas' hawthorn	Nodding saxifrage	
Encrusted saxifrage	Oakes' pondweed	

Animals

Lake sturgeon	Nipigon cisco	Shortjaw cisco

The Forest Service determined that the Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for the following RFSS:

Plants

American shoreweed

American waterawlwort

Appalachian clubmoss

Auricled twayblade

Barren strawberry

Beard lichen

Bog muhly

Bog white violet

Caloplaca parvula

Canada ricegrass

Canada yew

Cartilage lichen

Cetraria aurescens

Cloudberry

Common moonwort

Fairy slipper

Fan lichen

Floating marsh marigold

Honeycombed lichen

Least moonwort

Leiberg's waterlily

Linear-leaved sundew

Michigan moonwort

Moor rush

New England sedge

Pale moonwort

Peppered moon lichen

Quill spikerush

Ram's head lady slipper

Roughfruit fairybells

Selwyn's scalewort

Small beggerticks

Snowline wintergreen

Ternate grapefern

Western Jacob's-ladder

Yellow specklebelly

Animals

Bald eagle

Bay-breasted warbler

Black sandshell

Boreal owl

Connecticut warbler

Creek heelsplitter

Eastern heather vole

Ebony boghaunter

Freija's grizzled skipper

Gray wolf

Great gray owl

Headwaters chilostigman caddisfly

Little brown myotis

Northern brook lamprey

Northern goshawk

Northern long-eared bat

Olive-sided flycatcher

Quebec emerald dragonfly

Taiga alpine

Three-toed woodpecker

Tri-colored bat

Wood turtle

The Forest Service determined that the Proposed Action and Alternative B would have **no beneficial impact**, and **would not likely impact individuals or result in a trend to federal listing or loss of viability**, for any RFSS discussed in this BE.

Finally, the Forest Service determined that the No Action Alternative would have **no impact** on RFSS discussed in this BE.

A separate Biological Assessment (BA) was prepared to evaluate project effects to Canada lynx, a federally listed threatened species, and its critical habitat; northern long-eared bat, a RFSS species that was recently federally listed as threatened; and gray wolf, a RFSS species that was previously federally listed as threatened in 1977, delisted in 2011, and relisted December 19, 2014, following a federal court reversal of the USFWS decision to delist the gray wolf.

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List of Acronyms

BA	Biological Assessment
Barr	Barr Engineering, Incorporated
BE	Biological Evaluation
BWCAW	Boundary Waters Canoe Area Wilderness
CESA	Cumulative Effects Study Area
dbh	Diameter-at-breast-height
DDT	Dichlorodiphenyltrichloroethane
DPS	Distinct Population Segment
e.g.	For example
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
Forest Service	U.S. Forest Service
GAP	Gap Analysis Program
GIS	Geographic Information System
GLO	Government Land Office
Government	United States Government
GPS	Global Positioning System
i.e.	In otherwords
kV	kilovolts
LTVSMC	LTV Steel Mining Company
MDNR	Minnesota Department of Natural Resources
mg/L	milligrams per liter
mi^2	square miles
MIH	Management Indicator Habitat
MPCA	Minnesota Pollution Control Agency
N/A	Not Applicable
NHIS	Natural Heritage Information System
NRRI	Natural Resources Research Institute
PolyMet	Poly Met Mining Inc.
Project	NorthMet Project
RFSS	Regional Forester Sensitive Species
ROW	Rights-of-way
SCUBA	Self-contained Underwater Breathing Apparatus
SEIS	Supplemental Environmental Impact Statement
SUV	Sport Utility Vehicle
Tracks Project	Tracks Forest Management Project
USDOI	U.S. Department of the Interior
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

1.0 Introduction

1.1 Overview

Poly Met Mining Inc. (PolyMet) proposes to construct an open pit mine in northern Minnesota to extract low- to medium-quality copper-nickel-PGE minerals with low sulfide content. This project, called the NorthMet Mining Project (Project), is located in St. Louis County on the eastern end of the Mesabi Iron Range, about 60 miles north of the City of Duluth, and 6 miles south of the City of Babbitt, Minnesota. The Project areas include the Mine Site (3,015 acres), Plant Site (4,515 acres), and Transportation and Utility Corridors (120 acres) that connect the Mine Site to the Plant Site[3] (**Figure 1**).

PolyMet plans to mine and process polymetallic ore from the northwestern portion of the Duluth Complex. The Duluth Complex is an ore complex that forms much of the bedrock of northeastern Minnesota. The ore contains copper, nickel, gold, platinum, palladium, and cobalt. The Plant Site was previously used as a taconite processing facility by the LTV Steel Mining Company (LTVSMC). PolyMet would upgrade existing facilities and construct new facilities to produce copper concentrates, nickel concentrates, and base and precious metal precipitates for off-site shipment and treatment. Because the Plant Site has been operated as an industrial facility for decades, the Project would not have significant new effects on wildlife habitat at the Plant Site.

About 1,719 acres of the Mine Site would be directly disturbed by mining activities. Of these, 1,667 acres are administered by the Forest Service and 52 acres are privately owned. Habitats on the federally administered lands that would potentially be affected by the project include upland coniferous forest (including black spruce[4], jack pine, and balsam fir), upland deciduous forest (including trembling aspen and paper birch), upland mixed coniferous/deciduous forest, coniferous bogs (including black spruce and tamarack), open bogs (including leatherleaf and Labrador tea), coniferous swamps (including black spruce, tamarack, and northern white cedar), hardwood swamps (including black ash), shrub swamps (including speckled alder, willows, and dogwoods), marshes (including cattails), and sedge and wet meadows (including sedges and grasses). A variety of plants and animals, including several species of concern, have been observed on or near the Mine Site.

Of the approximately 3,015 acres on the Mine Site, approximately 2,719 acres are owned by the United States (U.S.) Government (Government) and administered by the U.S. Department of Agriculture (USDA) Forest Service (Forest Service). In addition, about 3,776 acres adjacent to the Mine Site are owned by the Government and administered by the Forest Service.

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[3] Acreages given in this report are based on Geographic Information System (GIS) analysis. Acreages associated with the legal descriptions of the Lands are based on original surveys performed by the Bureau of Land Management, Government Land Office (GLO) surveyors between 1858 and 1907. As such, GLO acreages are used as part of the project description for the Final Environmental Impact Statement (FEIS) being prepared for the Project and would also be used to define the real estate transaction if the land exchange was approved. The analysis of effects presented in this Biological Evaluation (BE) is based upon GIS data. The GIS values indicate the actual size of the Lands discussed in this BE, which may be different than the GLO legal acreage.

[4] Common and scientific names of plants and animals given in this report are provided in **Appendix A**.

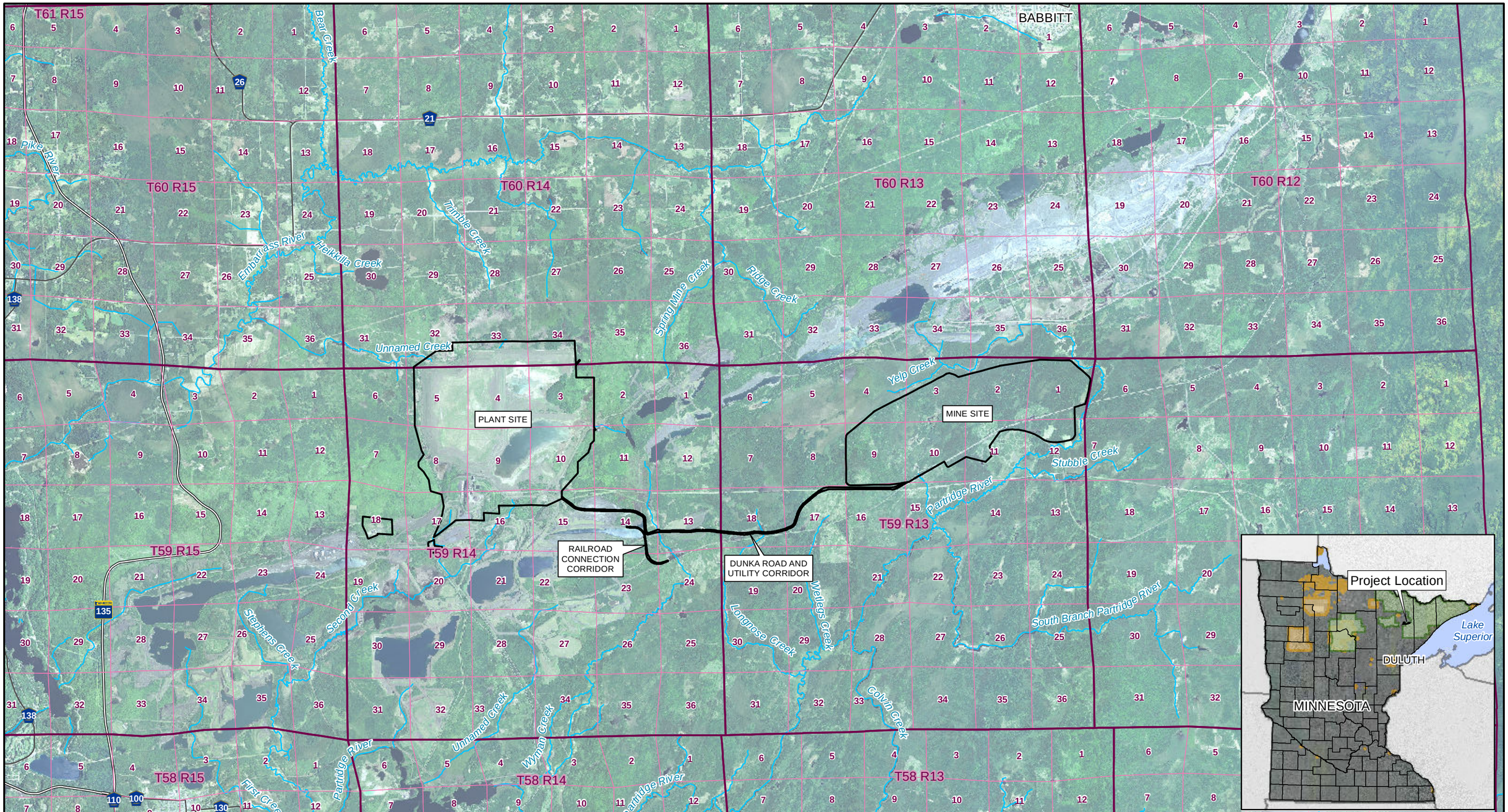

Project Areas
Township Lines
Section Lines
Rivers & Streams

US Army Corps of Engineers
St. Paul District

N
W E
S

0 0.5 1 2
Miles

Figure 1
Project Location
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

The Forest Service is considering transferring these approximately 6,495 acres (federal lands) to PolyMet in exchange for lands (non-federal lands) of similar value that have been offered for consideration by PolyMet (**Figures 2** and **3)**. Assuming a land exchange occurs, the portions of the Mine Site, Dunka Road and Utility Corridor, and lands adjacent to the Mine Site that are administered by the Forest Service would no longer be part of the National Forest and therefore would not be subject to Forest Service management plans and policies. A land exchange for land adjustment is consistent with the 2004 *Land and Resource Management Plan for the Superior National Forest* (2004 Forest Plan; USDA Forest Service 2004a).

To fulfill land exchange requirements, PolyMet is proposing to purchase and transfer all or a portion of 7,075 acres of non-federal lands to the Forest Service under the Proposed Action (**Figure 2**). The non-federal lands consist of the Hay Lake Lands (4,926 acres), Hunting Club Lands (160 acres), Lake County Lands (382 acres), McFarland Lake Lands (31 acres), and Wolf Lands (1,576 acres). All lands are dominated by second-growth deciduous and coniferous forest habitats and a variety of plants and animals, including species of concern, have been observed on or near the non-federal lands.

Assuming a land exchange occurs, the non-federal lands would be administered by the Forest Service. The non-federal lands are associated with four Forest Plan Management Areas, as designated by the Forest Service, which include: General Forest, General Forest – Longer Rotation, Riparian Emphasis Area, and Candidate Research Natural Areas. If all or a portion of the non-federal lands are acquired by the Forest Service, they would be administered by the Forest Service to meet the goals of these management areas (USDA Forest Service 2004a).

The Regional Forester or other authorized officer must decide if the proposed land exchange complies with the 2004 Forest Plan (USDA Forest Service 2004a), is a fair value exchange, and is in the public interest. All lands potentially involved in the land exchange would be independently appraised according to the Uniform Appraisal Standards for Federal Land Acquisitions. The appraisals would determine the market value of the properties. Information collected during wildlife and wetland functions and values studies would be used by the Forest Service in the land exchange appraisal, and would be used to evaluate impacts to wetlands, and wildlife and their habitats, for a *NorthMet Mining Project and Land Exchange Final Environmental Impact Statement* (FEIS) for the Project and land exchange (Minnesota Department of Natural Resources [MDNR] et al. 2015).

The Project could adversely impact plant and animal species of concern found on or near the federal lands. The *2004 Forest Plan Revision Final Environmental Impact Statement for Chippewa and Superior National Forests* (2004 Forest Plan EIS; USDA Forest Service 2004b) assessed plant and animal species identified by the Regional Forester for which population viability was a concern as evidenced by:

- Significant current or predicted downward trends in population numbers or density.
- Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution (Forest Service Manual Directive 2670.5; USDA Forest Service 2000a).

Table 1 provides information on species occurrence and habitat availability for the Regional Forester Sensitive Species (RFSS) on the federal and non-federal lands. Based on the 2004 Forest Plan EIS and

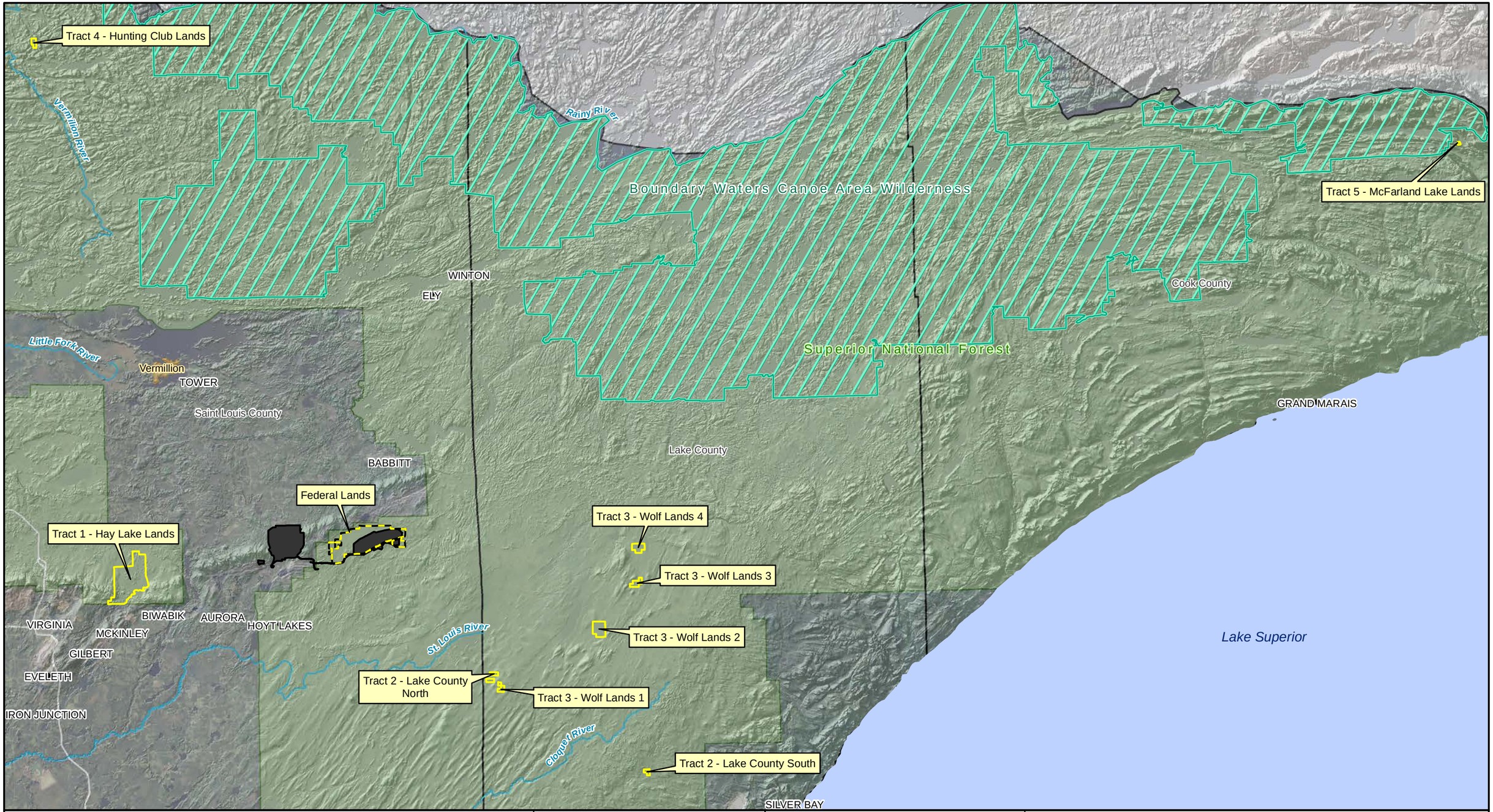

Project Areas
Federal Lands
Non-federal Lands
Boundary Waters Canoe Area Wilderness
National Forest Boundary
Native American Reservation
Major River

US Army Corps of Engineers
St. Paul District

N W E S

0 3.75 7.5 15 Miles

Figure 2
Federal and Non-federal Lands
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

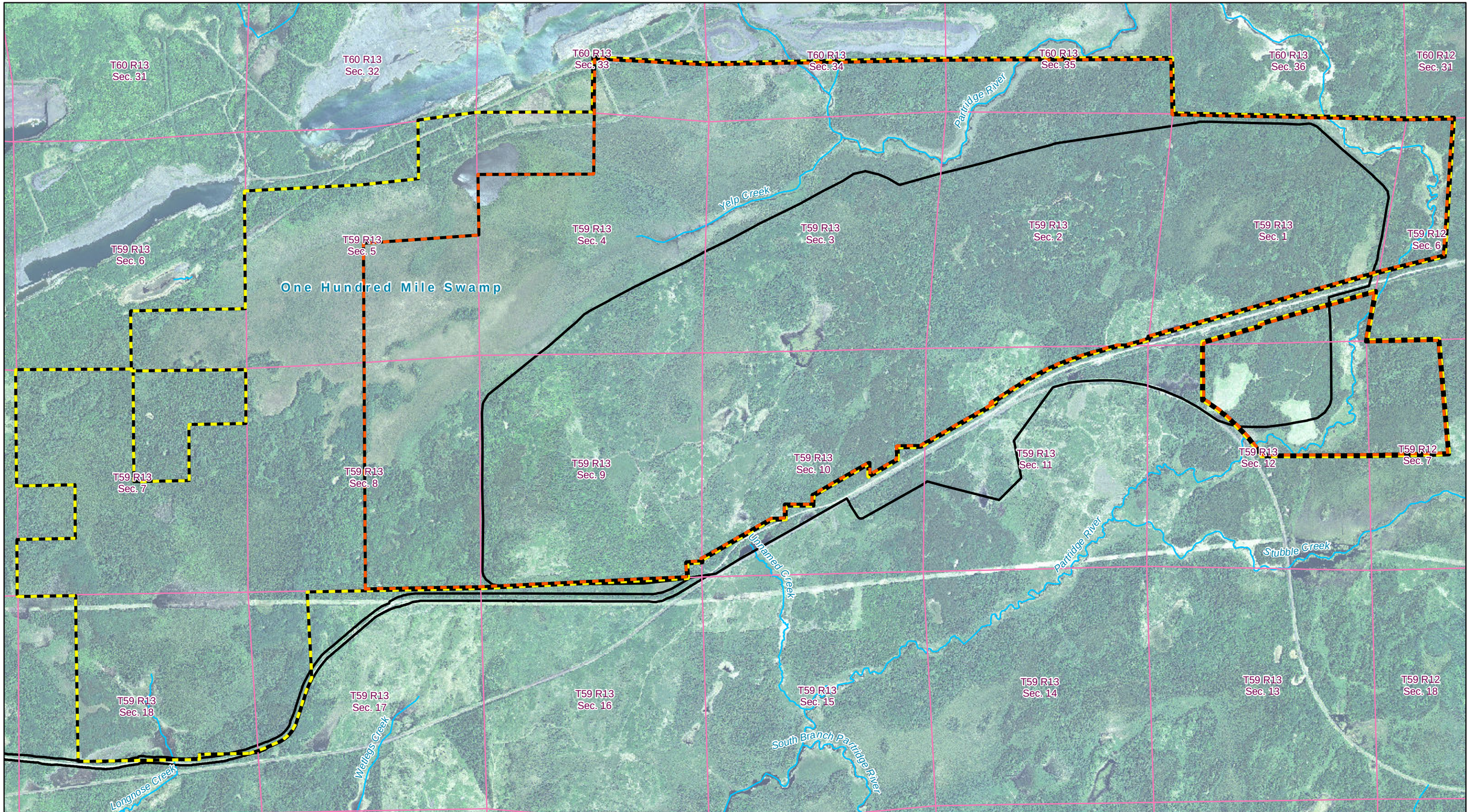

Project Areas

Federal Lands - Proposed Action

Federal Lands - Alternative B

Section Lines

US Army Corps of Engineers
St. Paul District

N
W E
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0 1,000 2,000 4,000 Feet

Figure 3

Land Exchange - Proposed Action and Alternative B

Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

subsequent updates, the Regional Forester identified 12 non-vascular plants, 46 vascular plants, 2 aquatic invertebrates, 6 insects, 4 fish, 1 reptile, 8 birds, and 5 mammals as RFSS (Ryan 2011). Of these, eight vascular plants, and six (and possibly nine as unidentified bat species have been found on the federal exchange lands) animals have been reported on the federal lands, while two vascular plants and two (and possibly up to five as unidentified bat species have been found on the non-federal lands) animals have been reported on the non-federal exchange lands (**Table 1**). If the known and potential habitat and species occurrences are listed as "No" for a RFSS in **Table 1**, the RFSS was not analyzed in this Biological Evaluation (BE).

In accordance with Forest Service Manual Directives 2671.1 through 2672.43 (USDA Forest Service 2000a) and the National Forest Management Act of 1976, the Forest Service is required to prepare a BE to:

- ensure that Forest Service actions do not contribute to loss of viability of any native or desired non-native plant or animal species,
- ensure that Forest Service activities do not cause any species to move toward federal listing, and
- incorporate concerns for RFSS throughout the planning process, reducing negative impacts to species and enhancing opportunities for mitigation.

In addition to addressing impacts to RFSS from the Proposed Action, which includes the Project and land exchange, this BE also addresses impacts to RFSS from two alternatives also considered in the FEIS:

- Land Exchange Alternative B (Alternative B) - under Alternative B, the Forest Service would transfer 4,753 acres of federal lands, which comprise 2,719 acres at the Mine Site and a smaller amount of federal land surrounding the Mine Site, to PolyMet in exchange for the 4,926-acre Hay Lake Lands (**Figure 3**). This land exchange would involve the transfer of a similar acreage, would provide wetlands to the Forest Service, and Hay Lake Lands would have a higher-per-acre value than the federal lands.

- Land Exchange No Action Alternative (No Action Alternative) - under the No Action Alternative, mine construction, development, and operation would not occur and no lands would be exchanged. The Government would not convey federal lands to PolyMet, and the Forest Service would continue managing these federal lands.

This BE was prepared to document RFSS populations and habitats on or near the federal and non-federal lands, and likely direct, indirect, and cumulative impacts to these species from the Project. A separate Biological Assessment (BA) was prepared to evaluate project effects to Canada lynx, a federally listed threatened species, and its critical habitat; northern long-eared bat, a RFSS species that was recently federally listed as threatened; and gray wolf, a RFSS species that was recently re-listed as federally threatened, and its critical habitat (U.S. Army Corps of Engineers [USACE] and USDA Forest Service 2013). While the Canada lynx, northern long-eared bat, and gray wolf are discussed in this BE, the *NorthMet Mining Project and Land Exchange Biological Assessment Draft* provides additional details on these species (USACE and USDA Forest Service 2013).

Table 1
Regional Forester Sensitive Species Occurrence and Habitat Availability on the Federal and Non-Federal Lands

RFSS Species		Species and Habitat Occurrence				Habitat Characteristics
Scientific Name	**Common Name**	**Known Species Occurrence on/near Federal Lands**	**Potential Habitat Present on/near Federal Lands**	**Known Species Occurrence on/near Non-federal Lands**	**Potential Habitat Present on/near Non-federal Lands**	
Non-vascular Plants						
Arctoparmelia centrifuga	Arctoparmelia Lichen	No	No	No	No	Sunny rocks and open talus slopes.
Arctoparmelia subcentrifuga	Arctoparmelia Lichen	No	No	No	No	Sunny rocks and open talus slopes.
Caloplaca parvula	Unnamed Lichen	No	No	No	Yes	Smooth bark of young black ash in moist, humid old-growth black ash stands.
Cetraria (=Ahtiana) aurescens	Unnamed Lichen	No	Yes	No	Yes	Conifer bark in lowland conifer swamps (old cedar/black spruce).
Cladonia wainioi	Wain's Cup Lichen	No	No	No	No	On rock outcrops and thin soil and exposed sites with lots of light.
Frullania selwyniana	Selwyn's Scalewort	No	Yes	No	Yes	Lowland cedar swamps on bark of northern white cedar.
Menegazzia terebrata	Honeycombed Lichen	No	Yes	No	Yes	Cedar swamps, especially old growth, often at base of cedar trees.
Peltigera venosa	Fan Lichen	No	Yes	No	Yes	Soil and moist cliffs and on exposed root wads.
Pseudocyphellaria crocata	Yellow Specklebelly	No	Yes	No	Yes	Mossy rocks and trees in partially shaded, moist, frequently foggy habitats.
Ramalina thrausta	Cartilage Lichen	No	Yes	No	Yes	Cedar swamps, and especially old growth forest.
Sticta fuliginosa	Peppered Moon Lichen	No	Yes	No	Yes	On hardwoods in humid, old growth cedar or ash bogs.
Usnea longissima	Beard Lichen	No	Yes	No	Yes	On old conifers in moist situations, often in or near a conifer or hardwood swamps.

Table 1 (Cont.)
Regional Forester Sensitive Species Occurrence and Habitat Availability on the Federal and Non-Federal Lands

RFSS Species		Species and Habitat Occurrence				Habitat Characteristics
Scientific Name	**Common Name**	**Known Species Occurrence on/near Federal Lands**	**Potential Habitat Present on/near Federal Lands**	**Known Species Occurrence on/near Non-federal Lands**	**Potential Habitat Present on/near Non-federal Lands**	
Vascular Plants						
Adoxa moschatellina	Moschatel	No	No	No	Yes	Shaded damp cliffs and slopes in upland mature northern hardwood forests on North Shore of Lake Superior.
Arnica lonchophylla	Long-leaved Arnica	No	No	No	No	Cool and moist cliffs and ledges along North Shore of Lake Superior.
Asplenium trichomanes	Maidenhair Spleenwort	No	No	No	Yes	In crevices of moist, mostly east-facing cliffs, ledges, and talus; Rove formation.
Astragalus alpinus	Alpine Milkvetch	No	No	No	No	Found on rocky, gravelly margins of shallow groundwater-fed ponds; herbaceous cover is typically sparse.
Bidens discoidea	Small Beggarticks	No	Yes	No	Yes	Wet habitats. Silty shores and hummocks in floating mats and swamps; also partly submerged logs.
Botrychium lanceolatum	Triangle Grapefern	No	Yes	Yes	Yes	Northern hardwood forest, old fields, old logging roads, and trails.
Botrychium lanceolatum var. *angustisegmentum*	Lanceleaf Grapefern	No	Yes	No	Yes	Prefers moist, shady, mature northern hardwood forests, particularly in low areas.

Table 1 (Cont.)
Regional Forester Sensitive Species Occurrence and Habitat Availability on the Federal and Non-Federal Lands

RFSS Species		Species and Habitat Occurrence				Habitat Characteristics
Scientific Name	**Common Name**	**Known Species Occurrence on/near Federal Lands**	**Potential Habitat Present on/near Federal Lands**	**Known Species Occurrence on/near Non-federal Lands**	**Potential Habitat Present on/near Non-federal Lands**	
Botrychium lunaria	Common Moonwort	No	Yes	No	Yes	Prefers open habitats such as gravelly banks, rocky ledges, and talus. It has also been found in open, sparsely vegetated habitats with grasses and scattered shrubs, and open habitats such as old log landings, sawmill sites, and building sites.
Botrychium michiganense (hesperium)	Michigan Moonwort	Yes	Yes	No	Yes	Open habitats such as old log landings, old dirt roads, gravel pits, powerline corridors, borrow pits, beach ridges, old fields, trails, and dredge spoil dumps.
Botrychium mormo	Little Goblin Moonwort	No	No	No	No	Occurs in mature mesic hardwood forests where the dominant trees are sugar maple with lesser amounts of northern white cedar; canopy must be intact to maintain shaded and moist conditions.
Botrychium pallidum	Pale Moonwort	Yes	Yes	No	Yes	Full to shady exposure and edge of alder thickets.
Botrychium rugulosum	Ternate (St. Lawrence) Grapefern	Yes	Yes	No	Yes	Disturbed habitats, fields, open woods, and forests.
Botrychium simplex	Least Moonwort	Yes	Yes	No	Yes	Full to shady exposure at edge of alder thickets and along forest roads.
Caltha natans	Floating Marsh Marigold	Yes	Yes	No	Yes	Shallow water in ditches and streams, alder swamps, shallow marshes, and beaver ponds

Table 1 (Cont.)
Regional Forester Sensitive Species Occurrence and Habitat Availability on the Federal and Non-Federal Lands

RFSS Species		Species and Habitat Occurrence				Habitat Characteristics
Scientific Name	**Common Name**	**Known Species Occurrence on/near Federal Lands**	**Potential Habitat Present on/near Federal Lands**	**Known Species Occurrence on/near Non-federal Lands**	**Potential Habitat Present on/near Non-federal Lands**	
Calypso bulbosa	Fairy Slipper	No	Yes	No	Yes	Hummocks in northern white cedar swamps, moist to wet lowland coniferous swamps, and to lesser extent in upland coniferous forests.
Carex novae-angliae	New England Sedge	No	Yes	No	Yes	Moist woods with sugar maple, also with yellow birch, trembling aspen, white spruce dominated forest, and tall shrubs.
Carex rossii	Short Sedge	No	No	No	No	Rocky summits, dry exposed cliff faces, and rocky slopes, in east Border Lakes subsection.
Crataegus douglasii	Douglas' Hawthorn	No	No	No	No	North Shore of Lake Superior rocky and gravelly streambeds/banks and open areas, and rocky borders of woods.
Cypripedium arietinum	Ram's head Lady Slipper	No	Yes	No	Yes	Wide variety of forests, both upland and lowland, but in Minnesota predominantly in northern white cedar swamps; also in forests dominated by jack pine, red pine, or white pine.
Drosera linearis	Linear-leaved Sundew	No	Yes	No	Yes	One of a small group of rare plant species that are restricted to high-quality, undisturbed examples of a peatland type called patterned fens.
Eleocharis nitida	Quill Spikerush	Yes	Yes	No	Yes	Full exposure and moist ditches.
Huperzia appalachiana	Appalachian Clubmoss	No	No	No	Yes	Shelves and crevices on cliff/talus/rock outcrops, and shrub-dominated talus piles.

Table 1 (Cont.)
Regional Forester Sensitive Species Occurrence and Habitat Availability on the Federal and Non-Federal Lands

RFSS Species		Species and Habitat Occurrence				Habitat Characteristics
Scientific Name	**Common Name**	**Known Species Occurrence on/near Federal Lands**	**Potential Habitat Present on/near Federal Lands**	**Known Species Occurrence on/near Non-federal Lands**	**Potential Habitat Present on/near Non-federal Lands**	
Juncus stygius	Moor Rush	Yes	Yes	No	Yes	Open-patterned peatlands, rich and poor fens, and northern black spruce bogs.
Juncus subtilis	Creeping Rush	No	No	No	No	Sandy lakeshore; only known occurrence is in the Boundary Waters Canoe Area Wilderness (BWCAW).
Listera auriculata	Auricled Twayblade	No	Yes	No	Yes	On alluvial or lake-deposited sands or gravels, with occasional seasonal flooding; associated with riparian alder or black spruce/balsam fir forest.
Littorella uniflora (=L. americana)	American Shoreweed	No	Yes	No	Yes	Shallow margins of nutrient-poor lakes and seepage lakes; sandy substrates and may have fine gravel/organic soil; fluctuating water level up to about 3 feet.
Moehringia macrophylla	Largeleaf Sandwort	No	No	No	Yes	Cliffs/rock outcrops, talus, and conifer sites on shallow soils; pine plantation with rocky outcrops; usually semi-open shrub or tree canopy.
Muhlenbergia uniflora	Bog Muhly	No	Yes	No	Yes	Wet sandy beaches and floating peat mats.
Nymphaea leibergii	Leiberg's Water-lily	No	Yes	No	Yes	Slow moving streams, rivers, and beaver impoundments 3 to 6 feet deep; occurs at outer margin of emergent vegetation.
Osmorhiza berteroi	Chilean Sweet-cicely	No	No	No	No	Northern hardwood forest dominated by sugar maple on North Shore of Lake Superior.

Table 1 (Cont.)
Regional Forester Sensitive Species Occurrence and Habitat Availability on the Federal and Non-Federal Lands

RFSS Species		Species and Habitat Occurrence				Habitat Characteristics
Scientific Name	**Common Name**	**Known Species Occurrence on/near Federal Lands**	**Potential Habitat Present on/near Federal Lands**	**Known Species Occurrence on/near Non-federal Lands**	**Potential Habitat Present on/near Non-federal Lands**	
Oxytropis borealis var. viscida	Sticky Locoweed	No	No	No	Yes	Slate cliffs and talus slopes in east Border Lakes subsection; arctic/alpine disjunct.
Piptatherum (=Oryzopsis) canadense	Canada Ricegrass	No	Yes	No	Yes	Sandy/gravelly soil; red pine and jack pine plantations; borders, edges, trailsides, and openings.
Polemonium occidentale ssp. lacustre	Western Jacob's-ladder	No	Yes	No	Yes	Primarily northern white cedar swamps, but also mixed conifer swamps; thrives in openings.
Polystichum braunii	Braun's Holly Fern	No	No	No	Yes	Cool, shady cliffs and slopes in northern hardwoods in North Shore Highlands subsection.
Potamogeton oakesianus	Oakes' Pondweed	No	No	No	No	Quiet, acidic waters of bogs, ponds, and lakes.
Prosartes trachycarpa (synonym =Disporum trachycarpum)	Roughfruit Fairybells	No	No	No	Yes	Semi-open jack pine forest with trembling aspen, paper birch, and shallow rocky soils in east Border Lakes subsection.
Pyrola minor	Snowline Wintergreen	Yes	Yes	No	Yes	Black spruce swamps and ecotone between uplands and lowland speckled alder/coniferous swamp; prefers closed canopy.
Rubus chamaemorus	Cloudberry	No	Yes	No	Yes	Black spruce/sphagnum forest with acidic water; Superior National Forest at southern edge of species range.
Saxifraga cernua	Nodding Saxifrage	No	No	No	No	Cliffs, ledges, and diabase cliffs (calcium based feldspars); arctic/alpine disjunct.

Table 1 (Cont.)
Regional Forester Sensitive Species Occurrence and Habitat Availability on the Federal and Non-Federal Lands

RFSS Species		Species and Habitat Occurrence				Habitat Characteristics
Scientific Name	**Common Name**	**Known Species Occurrence on/near Federal Lands**	**Potential Habitat Present on/near Federal Lands**	**Known Species Occurrence on/near Non-federal Lands**	**Potential Habitat Present on/near Non-federal Lands**	
Saxifraga paniculata	Encrusted Saxifrage	No	No	Yes	Yes	Cliffs, sheltered crevices, and ledges of north-facing cliffs; arctic/alpine disjunct.
Subularia aquatica	American Waterawlwort	No	Yes	No	Yes	Beach zone of sandy nutrient-poor lakes and shallow lake margins; submerged, emerged, or stranded; water depth of 6 to 24 inches, but can occur in deeper water.
Taxus canadensis	Canada Yew	No	Yes	No	Yes	Wide variety of uplands and lowlands, including northern white cedar/black ash swamps, talus and cliffs, northern hardwoods, and trembling aspen/paper birch forest.
Tofieldia pusilla	Scotch False Asphodel	No	No	No	No	Sedge mats at edges of shoreline rock pools along Lake Superior; arctic disjunct.
Viola lanceolata	Bog White Violet	No	Yes	No	Yes	Sandy to peaty lakeshores; borders of marshes and bogs and damp sand ditches.
Waldsteinia fragarioides	Barren Strawberry	No	Yes	No	Yes	Upland coniferous and deciduous forests, in recently harvested areas, established plantations, and areas with no recent harvest.
Woodsia glabella	Smooth Woodsia	No	No	No	No	Moist, north-facing cliffs along Lake Superior; arctic disjunct.

Table 1 (Cont.)
Regional Forester Sensitive Species Occurrence and Habitat Availability on the Federal and Non-Federal Lands

RFSS Species		Species and Habitat Occurrence				Habitat Characteristics
Scientific Name	**Common Name**	**Known Species Occurrence on/near Federal Lands**	**Potential Habitat Present on/near Federal Lands**	**Known Species Occurrence on/near Non-federal Lands**	**Potential Habitat Present on/near Non-federal Lands**	
Invertebrates – Bivalves						
Lasmigona compressa	Creek Heelsplitter	No	Yes	No	Yes	Headwaters of larger rivers. St. Louis river and tributaries and Lake of the Woods tributaries.
Ligumia recta	Black Sandshell	No	Yes	No	Yes	Medium to large rivers.
Invertebrates - Insects						
Chilostigma itascae	Headwaters Chilostigman Caddisfly	No	Yes	No	Yes	Predominantly bogs, fens, and heaths.
Erebia mancinus	Taiga Alpine	No	Yes	No	Yes	Shady black spruce swamp.
Plebejus idas nabokovi	Nabokov's Blue	No	Yes	No	Yes	Dwarf bilberry host in open sandy jack pine areas.
Pyrgus centaureae freija	Freija's Grizzled Skipper	No	Yes	No	Yes	Upland acidic meadow.
Somatochlora brevicincta	Quebec Emerald Dragonfly	No	Yes	No	Yes	Predominantly bogs, fens, and heaths.
Williamsonia fletcheri	Ebony Boghaunter	No	Yes	No	Yes	Predominantly bogs, fens, and heaths.
Fish						
Acipenser fulvescens	Lake Sturgeon	No	No	No	No	Large lakes and rivers in the Hudson Bay drainage of Superior National Forest.
Coregonus nipigon	Nipigon Cisco	No	No	No	No	Known distribution restricted to Saganaga Lake in northeastern Minnesota and southern Ontario.
Coregonus zenithicus	Shortjaw Cisco	No	No	No	No	Lake Superior, Saganaga, and Gunflint Lakes, possibly others.

Table 1 (Cont.)
Regional Forester Sensitive Species Occurrence and Habitat Availability on the Federal and Non-Federal Lands

RFSS Species		Species and Habitat Occurrence				Habitat Characteristics
Scientific Name	**Common Name**	**Known Species Occurrence on/near Federal Lands**	**Potential Habitat Present on/near Federal Lands**	**Known Species Occurrence on/near Non-federal Lands**	**Potential Habitat Present on/near Non-federal Lands**	
Ichthyomyzon fossor	Northern Brook Lamprey	No	Yes	No	Yes	Warm, medium-sized, low-gradient streams with sections of higher gradient reaches suitable for spawning; requires organically enriched and sandy substrate until metamorphosis.
Reptiles						
Glyptemys insculpta	Wood Turtle	No	Yes	No	Yes	Upland and lowland habitats with suitable shade and insects for forage; riparian habitats with open sandy areas for nesting.
Birds						
Accipiter gentilis	Northern Goshawk	Yes	Yes	Yes	Yes	Large patch of older trees with closed canopy and open understory.
Aegolius funereus	Boreal Owl	Yes	Yes	No	Yes	Secondary cavity nester; old boreal forest (including trembling aspen) next to lowland conifer foraging areas.
Contopus cooperi	Olive-sided Flycatcher	No	Yes	No	Yes	Snags, low density conifer lowlands, and riverine/riparian areas.
Dendroica castanea	Bay-breasted Warbler	No	Yes	No	Yes	Mature upland and lowland black spruce and balsam fir forests.
Haliaeetus leucocephalus	Bald Eagle	Yes	Yes	No	Yes	Large lakes and rivers with large trees for nesting and roosting.
Oporornis agilis	Connecticut Warbler	No	Yes	No	Yes	Jack pine or lowland conifer with a thick ericaceous understory.
Picoides tridactylus	Three-toed Woodpecker	Yes	Yes	No	Yes	Coniferous forests with snags.

Table 1 (Cont.)
Regional Forester Sensitive Species Occurrence and Habitat Availability on the Federal and Non-Federal Lands

RFSS Species		Species and Habitat Occurrence				Habitat Characteristics
Scientific Name	**Common Name**	**Known Species Occurrence on/near Federal Lands**	**Potential Habitat Present on/near Federal Lands**	**Known Species Occurrence on/near Non-federal Lands**	**Potential Habitat Present on/near Non-federal Lands**	
Strix nebulosa	Great Gray Owl	Yes	Yes	No	Yes	Nesting habitat of mature trees on wet soil with greater than 60% canopy cover near open foraging areas.
Mammals						
Canis lupus	Gray Wolf	Yes	Yes	Yes	Yes	Variety of open and wooded habitats.
Myotis lucifugus	Little Brown Myotis	Yes	Yes	Potential	Yes	Forest habitats and buildings, attics, and other man-made structures.
Myotis septentrionalis	Northern long-eared Bat	Yes	Yes	Potential	Yes	Found in most caves and mines surveyed in Minnesota, although typically in low numbers.
Perimyotis subflavus	Tri-colored Bat	No	Yes	Potential	Yes`	Hibernate in caves, mines, and tunnels during winter, roost in trees during summer. Maternity colonies found in trees, rock crevices, and barns or other buildings.
Phenacomys ungava	Eastern Heather Vole	No	Yes	No	Yes	Forest, brushland, or clearcuts with bilberry and rocks.

2.0 Description of the Proposed Action and Alternatives

2.1 Proposed Action (Alternative A)

2.1.1 Overview

The USACE and the USFS have separate proposed actions on which consultation is occurring. The USACE has an application under the Clean Water Act to impact wetlands and other waters of the U.S. associated with the construction and operation of the NorthMet mine. The USFS is evaluating a land exchange of federal and non-federal lands. For convenience, the impacts are described in terms of the Project and its associated activities.

PolyMet proposes to construct an open pit mine in northern Minnesota to extract low- to medium-quality copper-nickel-PGE minerals with low sulfide content. This Project is located in Sections 5, 6, 8, 9, 13, 14, 15, 16, 17, 23, and 24, Township 58 North, Range 14 West; Sections 1, 2, 3, 4, 9, 10, 11, 12, 15, 16, 17, and 18, Township 59 North, Range 13 West; Sections 3, 4, 5, 8, 9, 10, 11, 13, 14, 15, 16, 17, 20, 23, 24, 29, and 32, Township 59 North, Range 14 West; and Sections 32, 33, and 34, Township 60 North, Range 14 West, in St. Louis County on the eastern end of the Mesabi Iron Range, about 60 miles north of the City of Duluth, and 6 miles south of the City of Babbitt, Minnesota (**Figure 1**).

This section describes specific Project features that could have potential effects on RFSS and their habitats. Additional Project features that are not relevant to potential effects on RFSS and their habitats are listed in this section, but are not described in detail. Full Project details are available in the FEIS (MDNR et. al. 2015).

Ore would be excavated at the Mine Site and hauled by railroad approximately 8 miles west to the Plant Site for processing. Corridors for roads, railroad, utilities, and water pipelines would connect the Mine Site and the Plant Site. The four Project areas are shown on **Figure 1** and include:

- Mine Site
- Plant Site
- Dunka Road and Utility Corridor
- Railroad Connection Corridor

2.1.2 Mine Site

The Mine Site, approximately 3,015 acres, would be developed at a greenfield site that has previous disturbance from logging and mining exploration activities. The Project would develop open mine pits (up to 528 acres), stockpiles (up to 794 acres), and supporting infrastructure (up to 397 acres). The location and dimensions of Mine Site features are shown on **Figure 4**. The Project features at the Mine Site would include:

- mine pits;
- ore storage and handling facilities, including an Ore Surge Pile and a Rail Transfer Hopper;

- stockpiles for overburden and waste rock with engineered systems to manage potential water resource impacts (such as liners, covers, and the Category 1 Waste Rock Stockpile Groundwater Containment System);

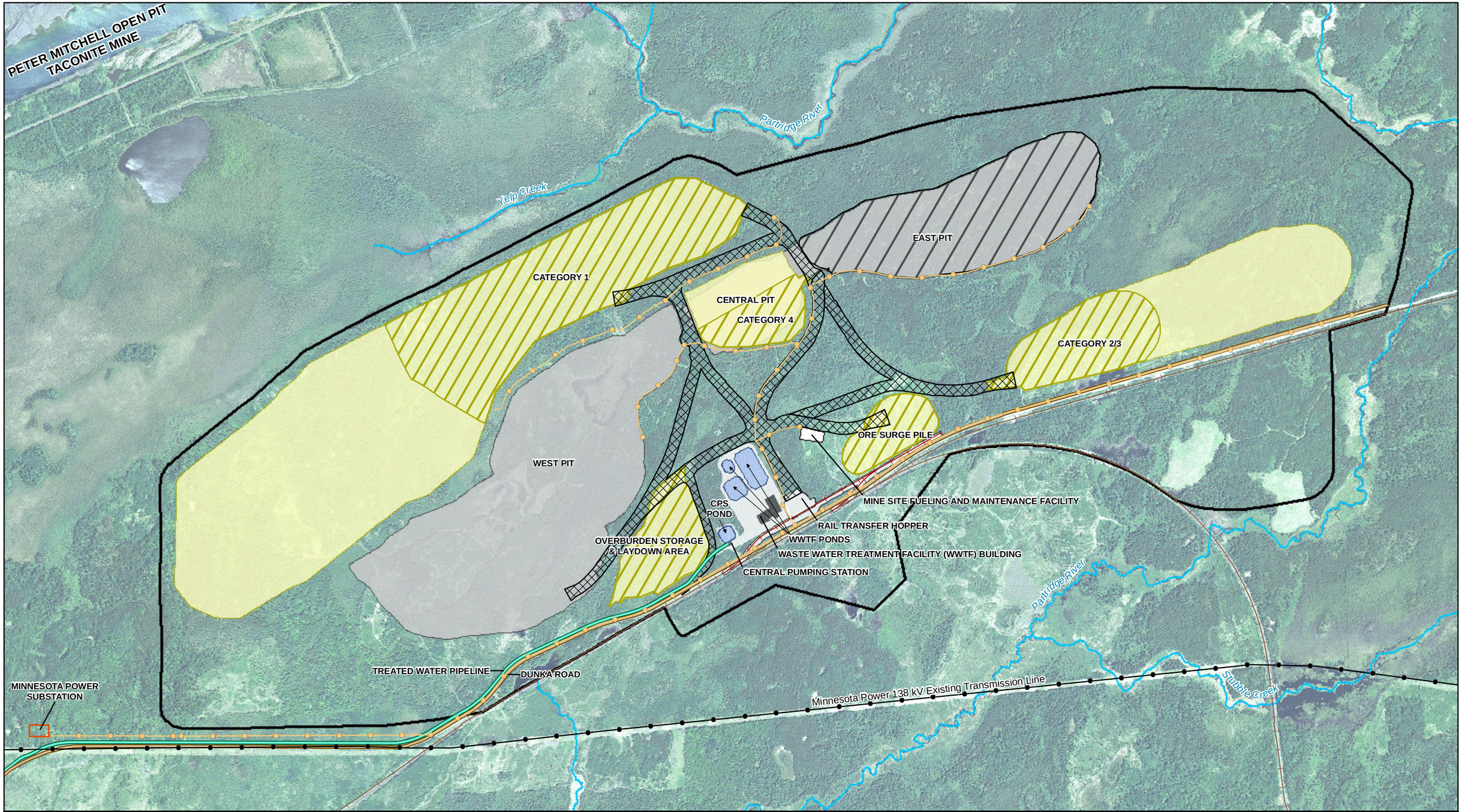

Mine Site
Year 1 Mine Pits
Year 11 Mine Pits
Year 1 Stockpiles
Year 11 Stockpiles
Haul Roads
Treated Water Pipeline
Dunka Road
Existing Private Railroad
Proposed Railroad Track

US Army Corps of Engineers
St. Paul District

N
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0 750 1,500 3,000
Feet

Figure 4
Mine Site Plan
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

- a Waste Water Treatment Facility and process water collection systems to collect and treat water from the mine pits, waste rock stockpiles, ore handling facilities, and haul roads;
- a Central Pumping Station and Treated Water Pipeline to transport water from the Mine Site to the Plant Site; and
- supporting infrastructure (such as roads, electrical supply, rail connections, and fueling and maintenance facilities).

2.1.2.1 Pre-production Mine Development

Mine Site infrastructure would be constructed during the estimated 12 to 18 months of pre-production mine development. Pre-production mine development would be followed by a gradual ramp-up of ore output over 6 to 12 months. The following Project features would be constructed during pre-production mine development:

- Roads - site access roads, haul roads, and Dunka Road upgrades.
- Railroad infrastructure - the Rail Transfer Hopper, the rail spur connecting the Rail Transfer Hopper with Cliffs Erie railroad track, and the rail spur between the Cliffs Erie railroad track and PolyMet railroad track that serves the Coarse Crusher Building.
- Surface water management features - dikes ditches, water collection ponds, and sumps.
- Overburden Storage and Laydown Area.
- Stockpile liners and containment systems.
- Waste Water Treatment Facility, Treated Water Pipeline, and Central Pumping Station.
- Substation drop from the 138 kilovolt (kV) Minnesota Power transmission line and a 13.8 kV Mine Site power distribution system.
- Mine Site Fueling and Maintenance Facility.

2.1.2.2 Mining Activities

PolyMet expects to mine a total of 533 million tons of waste rock and ore over 20 years, which would include 225 million tons of ore and 308 million tons of waste rock. Mining activities include overburden removal, open pit mining, drilling and blasting, excavation and haulage, ore storage and loading for transport to the Process Plant, waste rock stockpiling, and mine site water management.

<u>Overburden Removal</u>

The marketable timber would be cleared and the overburden removed from the footprints of the mine pits, the Ore Surge Pile, and the waste rock stockpiles, as necessary. Overburden has been defined for this Project as the material that lies on top of the underlying bedrock.

Overburden would be stripped incrementally as needed for mine development in order to minimize the amount of bedrock exposed at any one time. After removal of overburden from the initial mining area, additional overburden stripping could take place concurrently with the mining of ore and waste rock. Approximately 32% of the required overburden stripping for the pit development would be done in the first 2 years of mine operation. All of the overburden that needs to be stripped from the pits would be removed by the end of Mine Year 11.

Open Pit Mining

The Project would use open pit mining methods similar to those used at ferrous metallic mining operations on the Iron Range. The mine would consist of three separate open pits known as the East, Central, and West pits. For approximately the first 10 years of operations, mining would take place in the East and West pits simultaneously, with the East Pit mining ending in Mine Year 11. The Central Pit mining would occur between Mine Years 11 and 16. During Central Pit mining, the East and Central pits would converge into one pit which would then be referred to as the East Pit.

At its maximum size, each pit is projected to have the approximate maximum area and depth shown in **Table 2**.

Table 2
Maximum Pit Dimensions

Mine Pit	Area (acres)	Maximum Depth (feet below ground surface)
East	155	696
Central	52	356
West	321	630

Drilling and blasting would be conducted to remove waste rock and extract ore. Two conventional electric or diesel powered rotary drilling rigs would be used. Blasting of ore and waste rock is anticipated to take place approximately every 2 to 3 days.

After being drilled and blasted, the ore would be loaded by excavators into haul trucks that would haul the ore to the Rail Transfer Hopper or to the Ore Surge Pile for temporary storage, and haul the waste rock to the stockpiles or the East Pit. Up to nine haul trucks would be in service with a maximum speed of 34 miles per hour loaded, however their speed would typically be lower.

Mining operations would be supported by mine auxiliary vehicles (in other words [e.g.], water trucks, dozers, graders) traveling on access and haul roads within the Mine Site.

Ore Storage and Loading

Ore would be loaded for transport to the Plant Site at the Rail Transfer Hopper. The Rail Transfer Hopper would consist of a raised platform from which haul trucks dump into a hopper over a pan feeder into rail cars. The Rail Transfer Hopper would be located to the south of the mine pits and would be connected to the existing Cliffs Erie main line track by a new spur line (**Figure 4**).

An Ore Surge Pile would be constructed adjacent to the Rail Transfer Hopper to allow for temporary storage of ore until it could fit into the processing schedule or as required by operational delays. Drainage from the Ore

Surge Pile would be collected on a liner and routed to a sump for pumping to the Waste Water Treatment Facility.

Stockpiling

Waste rock and overburden would be managed according to its geochemical properties as determined using a sampling and analysis program approved by the MDNR. PolyMet has categorized waste rock into four categories defined according to its sulfur content, in ascending order of reactivity. These waste rock categories are summarized in **Table 3**.

The Category 1 Waste Rock Stockpile would be the only permanent stockpile for the Project. During Mine Years 1 through 11, Category 2, 3 and 4 waste rock would be placed on the temporary Category 2/3 or Category 4 Waste Rock Stockpiles (**Figure 4**). When at its maximum size, each stockpile is projected to have the approximate area, height, and elevation shown in **Table 4**.

Table 3
Waste Rock Properties

Waste Rock Categorization	Sulfur Content (percent)[1]	Approximate Percent of Total Waste Rock Produced during Mining (percent)
Category 1	≤ 0.12	70
Category 2	> 0.12 to ≤ 0.31	24
Category 3	> 0.31 to ≤ 0.60	3
Category 4	> 0.6	3

[1]In general, the higher the rock's sulfur content, the higher it's potential for generating acid rock drainage or leaching heavy metals.

Table 4
Maximum Stockpile Dimensions - Approximate

Stockpile	Mine Year of Maximum Footprint	Maximum Footprint (acres)	Maximum Height (feet)	Maximum Elevation (feet above sea level)
Category 1 waste rock	6/21[1]	508/526[1]	280	1,880
Category 2/3 waste rock	6	180	200	1,770
Category 4 waste rock	3	57	180	1,790
Ore Surge Pile	NA[2]	31	120	1,690

[1]The Category 1 Waste Rock Stockpile has a maximum footprint of 508 acres while active. It would reach this size by Mine Year 6. The stockpile would be re-graded as part of the reclamation with a final footprint of 526 acres.

[2]The Ore Surge Pile would have ore moving in and out as needed to meet mine and plant operations.

All waste rock stockpiles would be engineered to manage water resource impacts. The temporary Category 2/3 and Category 4 Waste Rock Stockpiles, which have the potential to generate acid rock drainage, would have liner systems to capture water passing through the stockpile. The permanent Category 1 Waste Rock Stockpile, which does not have the potential to generate acid rock drainage, would be constructed with a groundwater containment system to collect stockpile drainage from around the entire stockpile.

Progressive Reclamation

Reclamation of the East Pit and the temporary waste rock stockpiles would begin during operations. The temporary Category 2/3 and Category 4 Waste Rock Stockpiles would be relocated to the East Pit starting in Mine Year 11. The infrastructure associated with the temporary stockpiles (pipes, pumps, liners, etc.) would be removed and the footprint of each area would be reclaimed.

After the temporary stockpiles are reclaimed, all future Category 2, 3, and 4 waste rock would be placed in the East Pit. Most of the Category 1 waste rock mined after Mine Year 12 would also be placed in the East Pit. Ultimately, approximately 45% of the total waste rock mined would be backfilled to the East Pit.

The East Pit would be flooded to keep the waste rock in a subaqueous environment to reduce the environmental impact associated with further oxidation and dissolution of sulfide minerals. If natural inflow of water into the East Pit is insufficient to keep the waste rock submerged, water could be pumped from the Waste Water Treatment Facility. During periods of high precipitation or during spring snowmelt, dewatering (to the Waste Water Treatment Facility and ultimately to the Flotation Tailings Basin) may be required to allow safe placement of the waste rock.

Reclamation of the Category 1 Waste Rock Stockpile would also begin during operations. A cover system would be added incrementally after Mine Year 13 to limit infiltration through the stockpile. The stockpile would be sloped and graded, an engineered geomembrane system would be installed, soil would be placed on top of the cover, and vegetation would be planted to meet the requirements of Minnesota Rules, part 6132.2200, subpart 2, item B. The cover system would be designed to promote runoff with minimal erosion.

Mine Site Water Management

This section summarizes information from the Water Management Plan - Mine, which would become part of the MDNR Permit to Mine and Water Appropriations permits and Minnesota Pollution Control Agency (MPCA) National Pollutant Discharge Elimination System/State Disposal System permit. These plans include water management system designs, operating and maintenance plans, water quality monitoring plans, reporting requirements, and adaptive management approach.

In addition to the stockpile liners, the stockpile cover, and the groundwater containment system, water management at the Mine Site would include pit dewatering, stormwater dikes and ditches, and the Waste Water Treatment Facility that would treat water that comes in contact with mining features. During operations, there would be no direct discharge of treated waste water to public waters.

It would be necessary to dewater the pits during mining to remove groundwater flow and precipitation runoff. These waters would be directed to low areas in the pits where it would be collected in sumps and pumped to the Waste Water Treatment Facility.

Non-contact stormwater, the result of precipitation that falls on natural or reclaimed vegetated surfaces, would be routed through sedimentation ponds prior to discharge to a small watercourse that flows to the Partridge River. A system of dikes and ditches constructed at the Mine Site perimeter would minimize the amount of surface water flowing onto the site and into the mine pits, manage the amount of water that comes into contact with mining features, and control non-contact stormwater flowing off the site.

During operations, the Waste Water Treatment Facility would treat water that comes into contact with the waste rock stockpiles, haul roads, Ore Surge Pile, and mine pits. For the first approximately 10 years, all Waste Water Treatment Facility effluent would be pumped to the Plant Site Flotation Tailings Basin Pond for reuse in the beneficiation process. Reuse of the Mine Site process water at the Plant Site would eliminate the need to discharge any process water to surface waters during operations. Starting in Mine Year 11, some Waste Water Treatment Facility effluent would be sent to the East Pit to augment flooding as the pit is backfilled, with the remainder of the effluent continuing to go to the Flotation Tailings Basin. The purpose of the Waste Water Treatment Facility is to maintain water quality in the Flotation Tailings Basin pond at concentrations that do not have an adverse impact on Beneficiation Plant operations or future reclamation of the Flotation Tailings Basin.

Mine Site water would be managed in accordance with a future MPCA National Pollutant Discharge Elimination System/State Disposal System permit, which would include a Stormwater Pollution Prevention Plan. The Stormwater Pollution Prevention Plan would identify and describe Best Management Practices for the Mine Site to minimize the discharge of potential pollutants in stormwater runoff.

2.1.2.3 Fueling and Maintenance Facilities

The Mine Site Fueling and Maintenance Facility would consist of two buildings, one for fueling mobile equipment, and one for minor service and repair of mobile equipment. Major scheduled maintenance and repair work lasting several days on most mobile equipment would be done in the refurbished and reactivated former LTVSMC Area 1 Shop. Stationary or slow-moving equipment such as excavators, dozers, drill rigs, and light plants would be fueled in the field using mobile fuel tankers.

The former LTVSMC Area 2 Shop, about 1 mile east of the Process Plant, would be reactivated to provide office space for mining and railroad operations supervision and management, as well as clothes changing facilities, toilets, lunch rooms, first aid facility, emergency response center, and training and meeting rooms for mining and railroad crews. The Area 2 Shop facilities would include a Locomotive Fueling Station, Locomotive Service Building, and Mine Reporting Building.

2.1.3 Plant Site

The Plant Site was previously used as a taconite processing facility by the LTVSMC. The location and dimensions of Plant Site features are shown on **Figure 5**.

At the Plant Site, the Project would upgrade existing facilities (Beneficiation Plant, Tailings Basin, Area 1 Shop, sewage collection system, rail connections, access roads) and construct new facilities (Hydrometallurgical Plant, Hydrometallurgical Residue Facility, Concentrate Dewatering/Storage Building, Sewage Treatment System Ponds, and Waste Water Treatment Plant) within an existing brownfield facility. The Flotation Tailings would be stored atop the existing LTVSMC Tailings Basin by staged construction of new dams. The Plant Site also includes supporting infrastructure (e.g., roads, electrical supply, rail connections, Area 1 Shop, and Area 2 Shop).

Plant Site environmental controls would include: cover systems to limit infiltration of oxygen and water through the Flotation Tailings Basin dams, beaches, and pond bottom, and seepage capture systems to collect seepage from the Flotation Tailings Basin. Most water used in processing would be recycled for use. A Waste Water Treatment Plant would be constructed, including reverse osmosis or similar membrane separation technology, to treat any water that could not be recycled prior to discharge to the environment. If makeup water is needed for

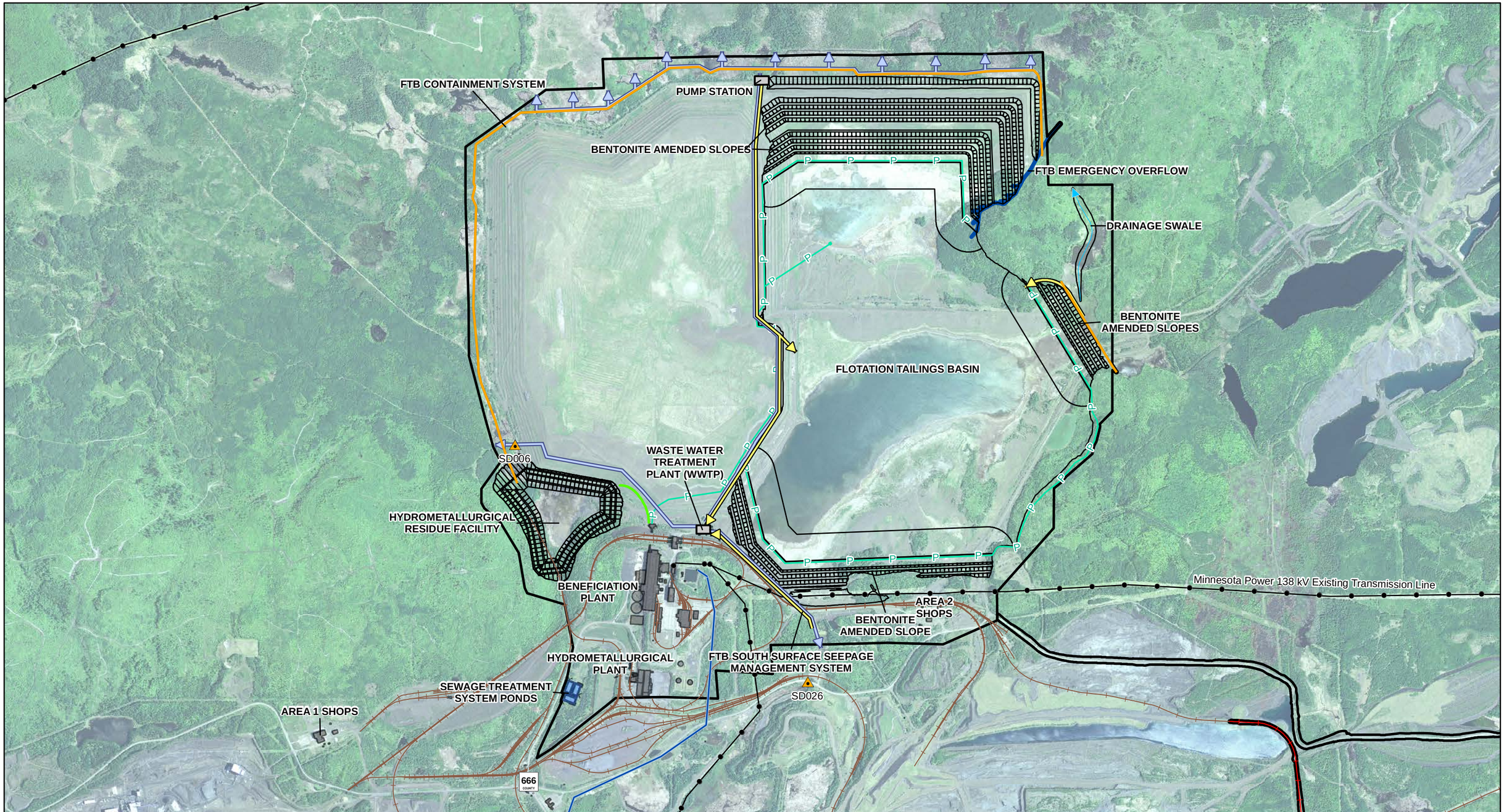

Existing NPDES Discharge Stations
Hydrometallurgical Residue Pipeline
Treated Water Discharge Pipe
Seepage Water Pipe
Flotation Tailings Pipeline
Electric Transmission Lines
FTB Containment System
Existing Private Railroad
Proposed Railroad Track
Project Areas

US Army Corps of Engineers
St. Paul District

N W E S

0 1,000 2,000 4,000 Feet

Figure 5
Plant Site Layout
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

processing, it may be provided via the Colby Lake Water Pipeline. No new construction is required for the Colby Lake Water Pipeline.

2.1.3.1 Ore Processing

A Beneficiation Plant and Hydrometallurgical Plant would process the ore at the Plant Site to recover base metals, gold, and platinum group metals. The purpose of the beneficiation process would be to produce final separate concentrates. One of the separate concentrates would be a copper concentrate. The other separate concentrates would be differing grades of nickel concentrate. The concentrates could be shipped to customers, used as a feedstock to the hydrometallurgical process, or divided for both uses. PolyMet expects that the Beneficiation Plant would be operational several years before the Hydrometallurgical Plant and during that period all concentrates would be shipped to customers. Once the Hydrometallurgical Plant becomes operational, some or all of the nickel concentrates would be feedstock to the hydrometallurgical process. The decision to ship or process concentrates would be based on equipment maintenance schedules, customer requirements, and overall Project economics.

Beneficiation Plant

The Beneficiation Plant processes would include ore crushing, grinding, flotation, dewatering, storage, and shipping. Crushing and grinding would occur in the existing Coarse Crusher Building, Fine Crusher Building, and Concentrator Building. Flotation would occur in a new Flotation Building located on previously disturbed ground immediately to the west of the Concentrator Building. Dewatering, storage, and shipping would occur in a new Concentrate Dewatering/Storage Building located on previously disturbed ground.

Hydrometallurgical Plant

Hydrometallurgical processing technology would be used for the treatment of nickel concentrates. This process would involve high pressure and temperature autoclave leaching followed by solution purification steps to extract and isolate platinum group metals, precious metals, and base metals. All equipment used in the hydrometallurgical process would be located in a new Hydrometallurgical Plant Building. Should spillage of process fluids occur, it would remain within the Hydrometallurgical Plant Building and be returned to the appropriate process streams.

Plant Site Infrastructure

Plant Site infrastructure that exists at this site includes:

- County Road 666 ends at the Main Gate for the industrial area that includes the Process Plant, Area 1 Shop, and Area 2 Shop.
- The Canadian National Railroad serves the industrial area that would include the Process Plant. The PolyMet railroad would connect to the Area 1 Shop and the Area 2 Shop.
- Three Minnesota Power Company 138 kV transmission lines serve the Project substation.

- The existing mechanical Sewage Treatment Plant would be replaced with new Sewage Treatment System Ponds, and the existing sewage collection system would be upgraded to meet current construction and performance standards and sized as appropriate.

- The Process Plant potable water treatment plant located near the Plant Reservoir would be refurbished and reactivated. The potable water distribution system extends to the Area 1 Shop and Area 2 Shop. This water would be used for showers and sinks and would be treated (chlorinated) to be drinkable. However, bottled water would be brought in for drinking as well.

- Area 1 Shop and Area 2 Shop.

2.1.3.2 Flotation Tailings Basin

Flotation Tailings from the flotation process at the Beneficiation Plant would be pumped to the Flotation Tailings Basin, which would be constructed on top of cells 1E and 2E of the existing LTVSMC Tailings Basin. Treated water from the Waste Water Treatment Facility would also be pumped to the Flotation Tailings Basin, enabling it to serve as the primary collection and distribution point for water used in the beneficiation process.

The existing LTVSMC Tailings Basin is unlined and was constructed in stages beginning in the 1950s. It has been inactive since January 2001, except for reclamation activities consistent with a MDNR-approved Closure Plan currently managed by Cliffs Erie.

The future Flotation Tailings Basin perimeter dams would be raised using upstream construction methods. The dams would be constructed using compacted LTVSMC tailings borrowed from the existing Tailings Basin. Once the LTVSMC tailings supply has been completely used for dam construction, offsite borrow from MDNR-approved sources would be utilized. Material from LTVSMC Area 5 would be a likely source, but other sources could also be considered.

Emergency overflow channels would be provided to protect the dams in the unlikely event that freeboard within the Flotation Tailings Basin is not sufficient to contain all water from an extreme storm event. Even though there is a low likelihood of overflow, it is standard practice in dam design to accommodate overflows in a manner that protects the integrity of the dams.

Seepage from the Flotation Tailings Basin would be collected by the Flotation Tailings Basin Containment System located around the northern, western, and portions of the eastern sides of the Tailings Basin and the Flotation Tailings Basin South Surface Seepage Management System located south of Tailings Basin Cell 1E. These two systems are collectively referred to as the Flotation Tailings Basin Seepage Capture Systems. The Flotation Tailings Basin Containment System would include a low permeability cutoff wall so that it can collect seepage (from up-gradient), but avoid drawing in water from down-gradient wetlands.

2.1.3.3 Hydrometallurgical Residue Facility

The Hydrometallurgical Residue Facility would be constructed to manage residues generated by the hydrometallurgical process. The Hydrometallurgical Residue Facility would consist of a one-lined cell located adjacent to the southwest corner of Tailings Basin, on previously disturbed ground (**Figure 5**).

The Hydrometallurgical Residue Facility liner system would be a double liner system consisting of two barrier layers separated by a leakage collection layer. This system would substantially remove all hydraulic head from the lower liner, virtually eliminating leakage from the Hydrometallurgical Residue Facility.

Residue from the Hydrometallurgical Plant would be pumped to the Hydrometallurgical Residue Facility as slurry. A pond would be maintained within the Hydrometallurgical Residue Facility so that the solids in the slurry would settle out. Most of the liquid would be recovered by a pump system and returned to the plant for reuse.

2.1.3.4 Plant Site Water Management

This section summarizes information from the Water Management Plan - Plant, which is a support document for the MDNR Permit to Mine and Water Appropriations permits and MPCA National Pollutant Discharge Elimination System/State Disposal System permit. These plans include water management system designs, operating and maintenance plans, preliminary water quality monitoring plans, preliminary reporting requirements, and adaptive management approach. Final water quality monitoring and reporting requirements would be determined in the permits.

Water management features at the Plant Site would include the Flotation Tailings Basin and seepage capture systems, Hydrometallurgical Residue Facility, stormwater dikes and ditches, drainage swale, Waste Water Treatment Plant, and stream augmentation. With the exception of the Flotation Tailings Basin seepage containment system, all Plant Site water management features would be located on previously disturbed areas.

Waste Water Treatment Plant

The Waste Water Treatment Plant would treat any water collected by the Flotation Tailings Basin seepage capture systems that cannot be reused as process water. It would include a reverse osmosis unit or similar membrane separation technology designed to achieve an effluent sulfate concentration that meets the sulfate standard for waters used for the production of wild rice (10 milligrams per liter (mg/L)). Water would be treated to meet appropriate discharge limits, then discharged along the west, northwest, and north perimeter of the Flotation Tailings Basin, beyond the Flotation Tailings Basin Containment System, and to Second Creek at the south end of the Flotation Tailings Basin to replenish the flow to the surrounding wetlands and streams. This discharge strategy would limit the potential for indirect wetland impacts due to reduced seepage from the Tailings Basin to the wetlands.

Stream Augmentation

Construction of the Flotation Tailings Basin Containment System would reduce the amount of seepage that is currently leaving the existing Tailings Basin. Consequently, the stream flow in the four tributaries around the Tailings Basin (Unnamed Creek, Second Creek, Trimble Creek, and Mud Lake Creek) would be reduced from current levels. Flow to Unnamed Creek, Second Creek, and Trimble Creek would be augmented by treated water from the Waste Water Treatment Plant. Flow to Mud Lake Creek would be augmented by construction of a drainage swale east of the Flotation Tailings Basin.

2.1.4 Transportation and Utility Corridors

The remaining Project components are linear corridor features, including the following:

- Dunka Road and Utility Corridor
- Railroad Connection Corridor
-

This section describes Project features in the Transportation and Utility Corridors and presents information on the types of traffic that would result from the Project.

2.1.4.1 Dunka Road and Utility Corridor

Dunka Road is an existing, compacted-gravel, private road that extends from near the LTVSMC Plant Site to the Mine Site, then continues roughly northeast toward Babbitt, Minnesota (**Figure 6**). The portion of Dunka Road that connects the Plant Site to the Mine Site would be widened. The Treated Water Pipeline would be constructed parallel and adjacent to the Dunka Road in the Utility Corridor to transport treated water from the Mine Site to the Plant Site. The distance along Dunka Road from the Plant Site gate to the Mine Site gate is approximately 6.4 miles. Including the road segments located within the Plant Site and the Mine Site, the total distance from the ore processing area at the Plant Site to the ore loading area at the Mine Site is approximately 8.5 miles.

Traffic on Dunka Road would include light trucks and automobiles, sport utility vehicles (SUVs), fuel trucks, supply and waste trucks, and haul trucks needing maintenance.

- Automobiles, light trucks, or SUVs transporting employees would travel between the Area Two Shops and the Mine Site each day, at speeds of 30 to 45 miles per hour.
- Trucks carrying fuel and blasting agents would travel to the Mine Site every day, at speeds of 25 to 40 miles per hour. These trucks would travel from County Highway 666 to Dunka Road.
- Trucks transporting supplies and waste to and from the Waste Water Treatment Plant and the Waste Water Treatment facility would travel between the Plant Site and the Mine Site each day, at speeds of 25 to 40 miles per hour.
- Haul trucks would travel from the Mine Site to the Area 1 Shop for maintenance occasionally, at a maximum speed of 35 miles per hour.

2.1.4.2 Railroad Connection Corridor

The railroad route from the Mine Site to the Plant Site would be from a new spur at the Rail Transfer Hopper, to the existing track on the Cliffs Erie private railroad, to a new approximately 1.1 mile connecting railroad track between the Cliffs Erie railroad track and existing PolyMet track railroad that serves the Coarse Crusher Building at the Process Plant (**Figure 6**).

Each ore train would consist of 16 to 20 100-ton side dumping ore cars and one diesel-electric “Gen-Set” or “Multi-Engine” locomotive. Ore trains would make approximately 22 roundtrips per day delivering ore from the Mine Site to the Plant Site, traveling between 15 to 25 miles per hour.

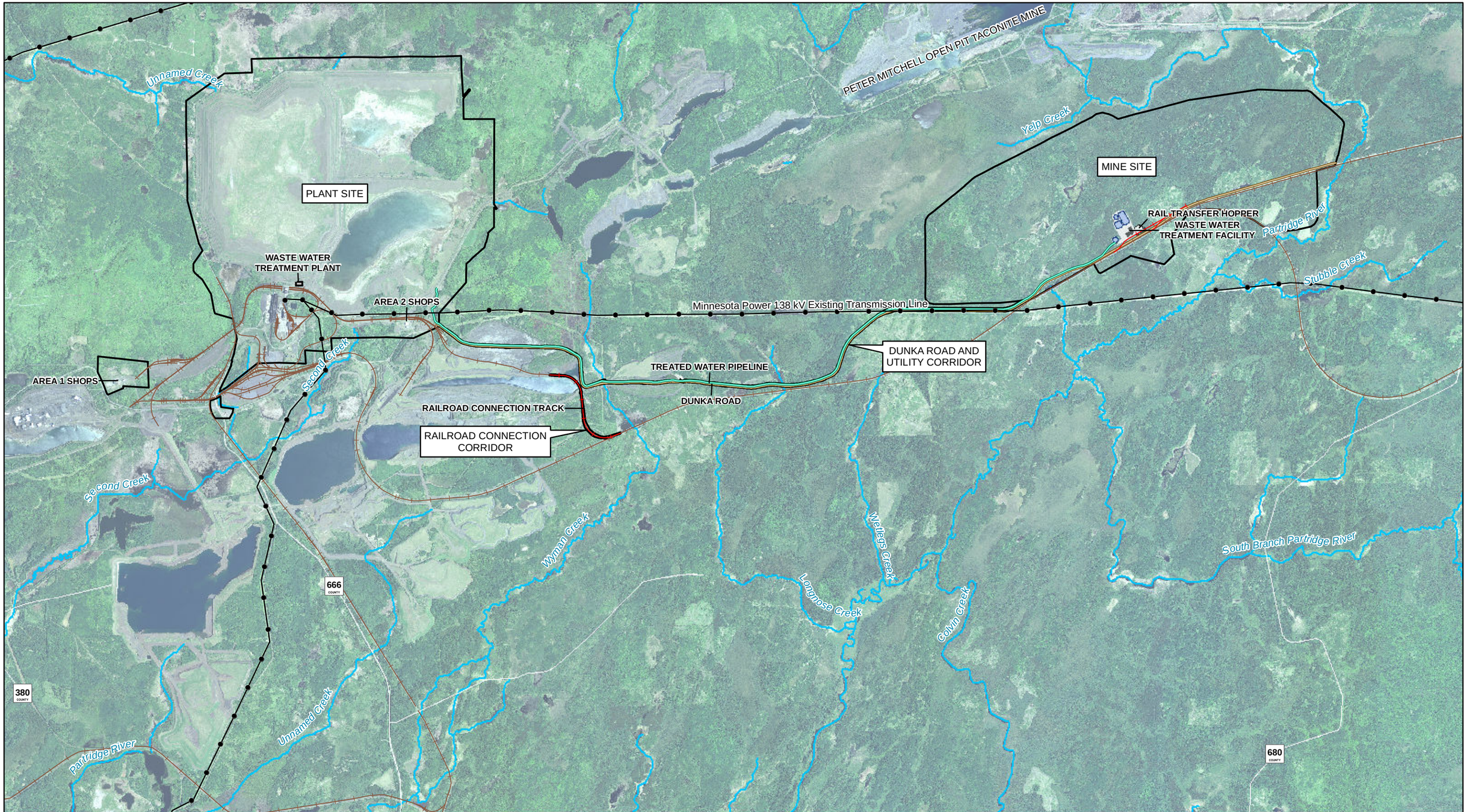

Dunka Road
Existing Private Railroad
Proposed Railroad Track
Treated Water Pipeline
Electric Transmission Lines
Project Areas

US Army Corps of Engineers
St. Paul District

N
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0 2,250 4,500 9,000
Feet

Figure 6
Transportation and Utility Corridor
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

To minimize the amount of ore that escapes from rail cars, ore would be loaded into the center of the car so that fines would be located at the center of the car and the larger ore pieces would be at the edge. The result would be that fines would be kept from reaching the edge of the car where they would be subject to spillage through the hinge gaps. Large pieces that extend over the edge of the rail car would be pushed into the center of the car using a rubber-tired dozer or a front-end loader. In the event that a large ore piece would fall over the top edge of the cars during transit, it would be recovered during routine track maintenance.

In order to guard against possible adverse impacts from spilled ore, monitoring and mitigation activities can be developed. It is expected that the surface water quality sampling in the two streams traversed by the rail line would be included in permit monitoring. Mitigation measures could include alterations to the stream crossings (bridges or culverts) to collect any spilled material or the physical collection of spilled ore from the top of the rail ballast.

2.1.5 Traffic

Transportation of Project consumables and products would result in traffic on public roads and commercial railroads. Public roads would also have additional traffic from employees and service providers.

2.1.5.1 Transport of Consumables and Products

Process consumables and products would be transported to and from the Plant Site by truck and by rail. This section describes the traffic on public roads and commercial railroad lines that would result from the Project.

Trucks transporting raw materials needed for the beneficiation process and the hydrometallurgical process would make approximately 80 round trips per month, entering the Plant Site from Highway 135. Trucks transporting copper and nickel concentrates would make up to approximately four round trips per day, also entering the Plant Site from Highway 135.

A locomotive, similar to the locomotives that would be hauling ore from the Mine Site to the Plant Site, would transfer loaded and empty cars carrying process consumables and concentrates to and from the interchange location with the Canadian National Railroad. Cars carrying process consumables and concentrate would meet railroad common carrier requirements.

Product shipment would require an approximately 100-car train once per month and a 30-car train 4 times per month, year-round. Process consumables would require an approximately 100-car train once per week, April through October. It is expected that outgoing PolyMet products would go by rail from the Plant Site to Virginia, Minnesota, with about half going south to Duluth, Minnesota, and the other half going north to International Falls, Minnesota. Product transport beyond Virginia is likely to be a part of the existing commercial rail traffic, with limited potential to generate additional commercial train trips. Process consumables would arrive at the Plant Site from the south from Duluth through Virginia. This movement is likely to be a part of the existing commercial rail traffic, with limited potential to generate additional commercial train trips.

2.1.5.2 Traffic from Employees and Service Providers

The Project would employee as many as 500 full-time workers over an 18-month period during peak construction period, and about 360 full-time workers during operation. There would be approximately 38 employee vehicles per day and 4 service vehicles per day entering the Main Gate (from County Road 666). In

addition, there would be approximately 113 employee vehicles per day and 36 service vehicles per day entering the North Gate (from Highway 135).

2.1.6 Project Reclamation

Mining is expected to be completed approximately 20 years after operations begin. This section summarizes information from the Reclamation Plan, which is a support document for the MDNR Permit to Mine, and focuses on those aspects of Project Reclamation that have potential effects on RFSS. Additional information on Project reclamation is available in the FEIS (MDNR et al. 2015).

In general, Project facilities have been designed and would be operated to allow for progressive reclamation, or "mining in a manner that creates areas that can be reclaimed as soon after initiation of the operation as practical and as continuously as practical throughout the life of operation" (Minnesota Rules, part 6132.0100). This would leave a smaller portion of the Project area needing to be reclaimed after closure. Project features that would be progressively reclaimed include the Waste Rock Stockpiles, the East Pit, exterior slopes of the Flotation Tailings Basin, and the Hydrometallurgical Residue Facility. The Waste Water Treatment Facility and the Waste Water Treatment Plant would remain operative during reclamation and long-term closure[5].

2.1.6.1 Building and Structure Demolition and Equipment Removal

The buildings and structures would be removed and foundations razed. All mining, dewatering, and electrical equipment would be removed from the mine pit and scrapped, decommissioned, or sold. Debris and equipment would be removed from the Mine Site and Plant Site. Most roads, parking areas, or storage pads built to access these facilities would be demolished. Utility tunnels would be sealed and reclaimed in place. After demolition, these areas would be reclaimed and vegetated according to Minnesota Rules, part 6132.2700. All areas would be stabilized as required for stormwater management.

Demolition waste from structure removal would be disposed of in the existing on-site demolition landfill located northwest of the Area 1 Shop. Most concrete from demolition would be crushed and used for structural fill, placed in the basements of the Plant Site buildings, or placed in the existing on-site industrial landfill. Asphalt from paved surfaces would be removed and recycled or properly disposed of. Railroad track and ties that were not used by common carriers would be removed and recycled. All disturbed areas would be reclaimed and vegetated.

Any roads, including Mine Site access roads that may develop into unofficial off-road vehicle trails, would require a variance from MDNR reclamation rules to allow a 15-foot-wide unpaved, unvegetated track down the centerline of the road. Such approvals would also be coordinated with the St. Louis County Mine Inspector's Office.

Special materials would be disposed of appropriately during reclamation:

- Any ore remaining in the Rail Transfer Hopper, the Ore Surge Pile, or anywhere else in the

[5] "Long-term closure" is defined as being the time period when the West Pit has filled with water and the Waste Water Treatment Facility is discharging water to the outlet channel to the Upper Partridge River. This will likely occur during the post-closure maintenance period of reclamation.

vicinity of the Rail Transfer Hopper, as well as sediment removed from ditches and process water ponds, would be placed in the East Pit.

- Asbestos-containing materials would be removed intact, properly packaged, and disposed of in the on-site demolition landfill. The locations of asbestos-containing materials in the landfill would be noted on the property deed. Any asbestos-containing materials found in utility tunnels would be sealed before the utility tunnel is sealed.
- Fluorescent and sodium halide bulbs, nuclear sources, oil-stained concrete, and partially used paint, chemical, and petroleum products would be removed and recycled or properly disposed of.
- Any materials remaining in storage tanks would be sent to appropriate recycling or waste disposal facility. All storage tanks would be cleaned, disassembled, and recycled or disposed of appropriately. Tank foundations would be removed and all disturbed areas would be vegetated.
- Material remaining in the equipment and process piping would be properly disposed of in the Hydrometallurgical Residue Facility or other MPCA-approved locations.
- On-site sewer and water systems, powerlines, pipelines, and culverts would be closed according to regulatory requirements.

2.1.6.2 Reclamation of Mine Site

Mine Site reclamation would include building and structure demolition and equipment removal, mine pit reclamation, stockpile reclamation and watershed restoration. Mine Site reclamation would begin as soon as practical throughout operations, with reclamation of the East Pit and Waste Rock Stockpiles commencing before mining activities cease.

Mine Pit Reclamation

Mine pit reclamation would include pit flooding, construction of overflows and outlet control structures, sloping and vegetation of pit walls, and fencing to control access to the pits. East Pit reclamation would begin during operations, while West Pit reclamation would commence when mining activity ceases.

Mine pit dewatering systems would be removed from the pits and the pits would be allowed to flood with water. All areas disturbed during pipe removal would be graded and revegetated. Some temporary pumps may remain in the pits for dewatering that would be performed during pit flooding.

East Pit flooding would start in Mine Year 11 and be completed by Mine Year 20. Overflow from the East Pit would flow to the West Pit through a new ditch. An East Pit outlet structure would be built, which would establish the steady-state water level in the East Pit. The East Pit would be revegetated with wetland vegetation, resulting in approximately 207 acres of wetland (**Figure 7**).

Upon completion of mining operations, the West Pit would begin to flood naturally with groundwater, precipitation, and surface runoff from the tributary watershed. West Pit flooding would be accelerated with treated and untreated water from the Plant Site. With the addition of water pumped from the Plant Site to the

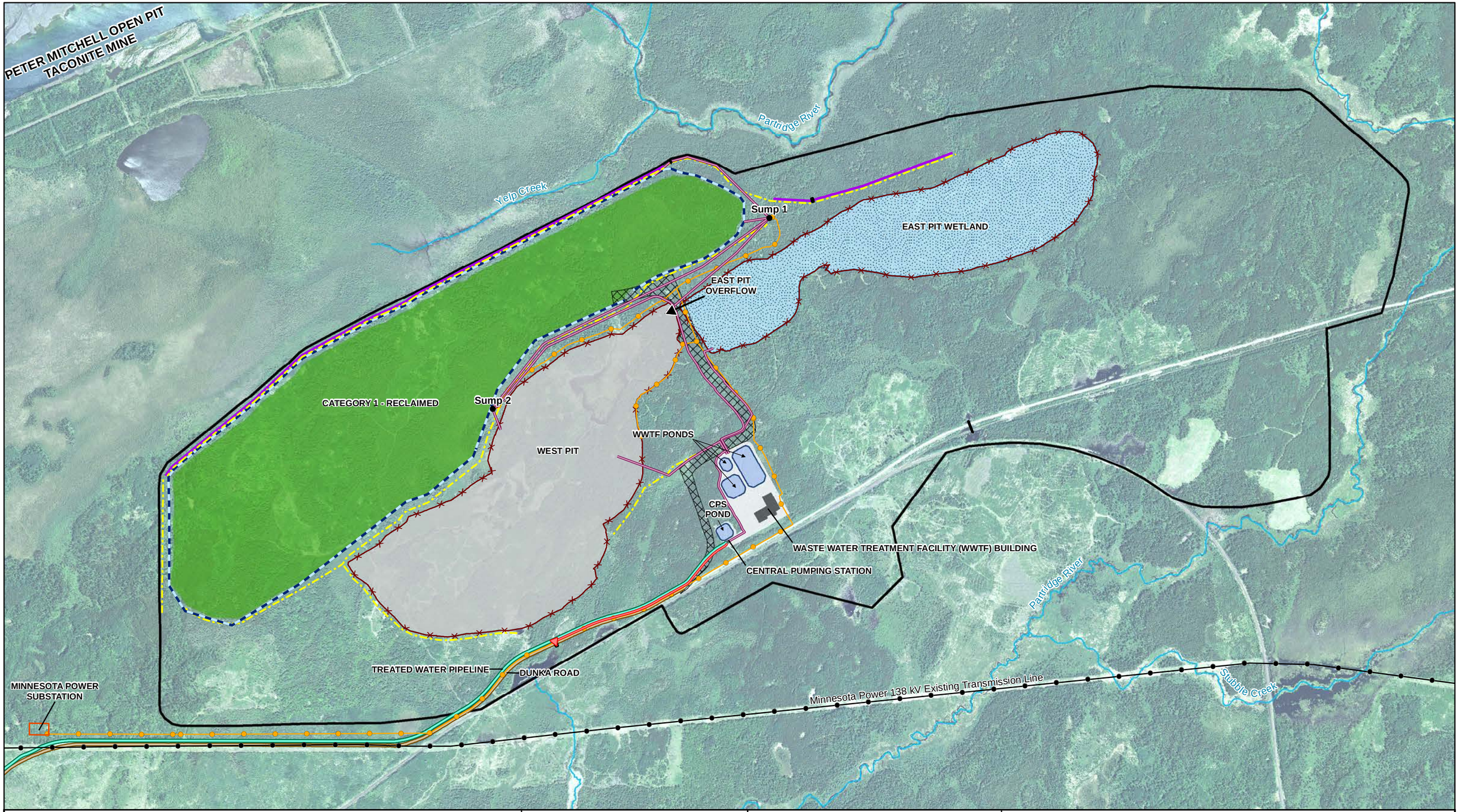

Mine Site
Covered Stockpile
West Pit
East Pit Wetland
Haul Roads
Groundwater Containment System
Process Water Pipe
Stormwater Collection Ditch
Perimeter Dike
Discharge Pipe
Culverts
Fence

US Army Corps of Engineers
St. Paul District

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Feet

Figure 7
Mine Site Plan Long-term Closure
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

West Pit, West Pit flooding is projected to be completed between Mine Years 40 and 45. The West Pit would remain an open pit lake (MDNR et al. 2013).

When the West Pit is full, discharge would be prevented by pumping West Pit water to the Waste Water Treatment Facility for treatment. The Waste Water Treatment Facility would be upgraded to include reverse osmosis or similar membrane separation technology to achieve an effluent concentration that meets the sulfate standard for waters used for the production of wild rice (10 mg/l), After the upgrade, effluent would be discharged through Dunka Road into an existing wetland and eventually into the Partridge River through an existing tributary channel.

The overburden portions of the pit walls would be sloped, graded, and vegetated in accordance with Minnesota Rules, part 6132.2300. Lift heights would be selected based on the need to protect public safety, the location of the pit wall in relation to the surrounding land uses, the soil types and their erosion characteristics, the variability of overburden thickness, and the potential use of the pit following mining.

A pit perimeter fencing system would be installed consisting of fences, rock barricades, ditches, stockpiles, and berms. The barrier system plan would be submitted to the St. Louis County mine inspector for review and approval before installation. Safe access would be provided to the bottom of each mine pit via selected haul roads built during pit development. The access road would be selected such that, as pit water level rises, there would always be a clear path to the water surface. A gated entrance would be placed at each pit access location.

Stockpile Reclamation

Stockpile reclamation would begin during operations. Upon full reclamation of the Category 1 Waste Rock Stockpile, runoff from the top and sides of the stockpile would be classified as non-contact stormwater and discharged into the natural drainage system. The Category 1 Waste Rock Stockpile Groundwater Containment System would continue to collect drainage from the stockpile during reclamation, with drainage treated at the Waste Water Treatment Facility.

Watershed Restoration

During mining operations, stormwater runoff from reclaimed stockpile areas and natural (undisturbed) areas would be routed via dikes and ditches to stormwater sedimentation ponds. During reclamation, dikes and ditches that were no longer needed would be removed or filled and ponds would be filled. The reclaimed surfaces would then be scarified, topsoil placed on the surface, and the area revegetated with native species.

Surface runoff inflows would be routed to the mine pits using a combination of existing and new ditches. Some portions of the pit rim dikes may be left in place, if needed, to prevent an uncontrolled flow to or from the pits and potential erosion (head cutting) of the pits walls.

All stormwater ponds, the Overburden Storage and Laydown Area process water pond, haul road process water ponds, and all stockpile sumps and overflow ponds would be filled with overburden and peat (that was removed from the site during construction and stored in the Overburden Storage Area), and covered with topsoil and revegetated or converted into wetlands. If the process water ponds were converted into wetlands, any sedimentation that occurred within the pond would be evaluated to determine if removal of sediment or covering of the pond would be necessary prior to restoration. Stormwater pond outlet control structures would remain in place as necessary to manage water flows.

2.1.6.3 Reclamation of Plant Site

Plant Site reclamation would include building and structure demolition and equipment removal, Flotation Tailings Basin reclamation, and Hydrometallurgical Residue Facility reclamation. Similar to the Mine Site,

Plant Site facilities have been designed and would be operated to allow for progressive reclamation. Features that would remain at the Plant Site are shown on **Figure 8**.

The Waste Water Treatment Plant, Flotation Tailings Basin Seepage Management Systems, and Hydrometallurgical Residue Facility Leakage Collection System would continue to operate during reclamation, although seepage rates would be progressively reduced. Seepage would be recycled back into the Flotation Tailings Basin Pond or treated at the Waste Water Treatment Plant and pumped to the Mine Site to aid in West Pit flooding, or discharged.

Flotation Tailings Basin Reclamation

Permanent vegetation would be established on the Flotation Tailings Basin to control fugitive dust. Flotation Tailings Basin exterior dam surfaces would be reclaimed progressively, while interior areas would be seeded and mulched after closure.

Infiltration would be reduced through the dam faces, beaches, and pond bottom of the Flotation Tailings Basin by bentonite amendment. The exterior faces of the dams would be reclaimed progressively, with a bentonite layer added as they are constructed to limit oxygen diffusion. The exposed beaches and dam tops would be amended with a bentonite layer to limit oxygen diffusion. The pond bottom would be covered with a bentonite layer to maintain a permanent pond that would limit oxygen diffusion.

During reclamation, several sources of water from the Flotation Tailings Basin would require management. The sources and a summary of the type of management needed are described as follows:

- Ponded water within the Flotation Tailings Basin – a pond and wetland would remain in the Flotation Tailings Basin. The pond and wetland would receive surface water runoff from the crest and beaches of the basin and natural terrain adjacent to the Flotation Tailings Basin. The pond and wetland would continue to lose water via seepage, but at a reduced rate as compared to during operations as a result of the bentonite augmentation of the Flotation Tailings Basin pond bottom. Excess water would be pumped from the Flotation Tailings Basin pond to the Waste Water Treatment Plant for treatment prior to discharge.

- Stormwater management would include grading to provide a gently sloping surface that effectively routes surface water runoff to the interior of the Flotation Tailings Basin, and to accommodate future differential settlement of the underlying Flotation Tailings.

- An emergency overflow channel would be constructed to carry stormwater from the pond to the adjacent wetland in case of an extreme storm or snowmelt event after reclamation. The conceptual location of the emergency overflow channel is from the combined Cell 1/2E to the adjoining land.

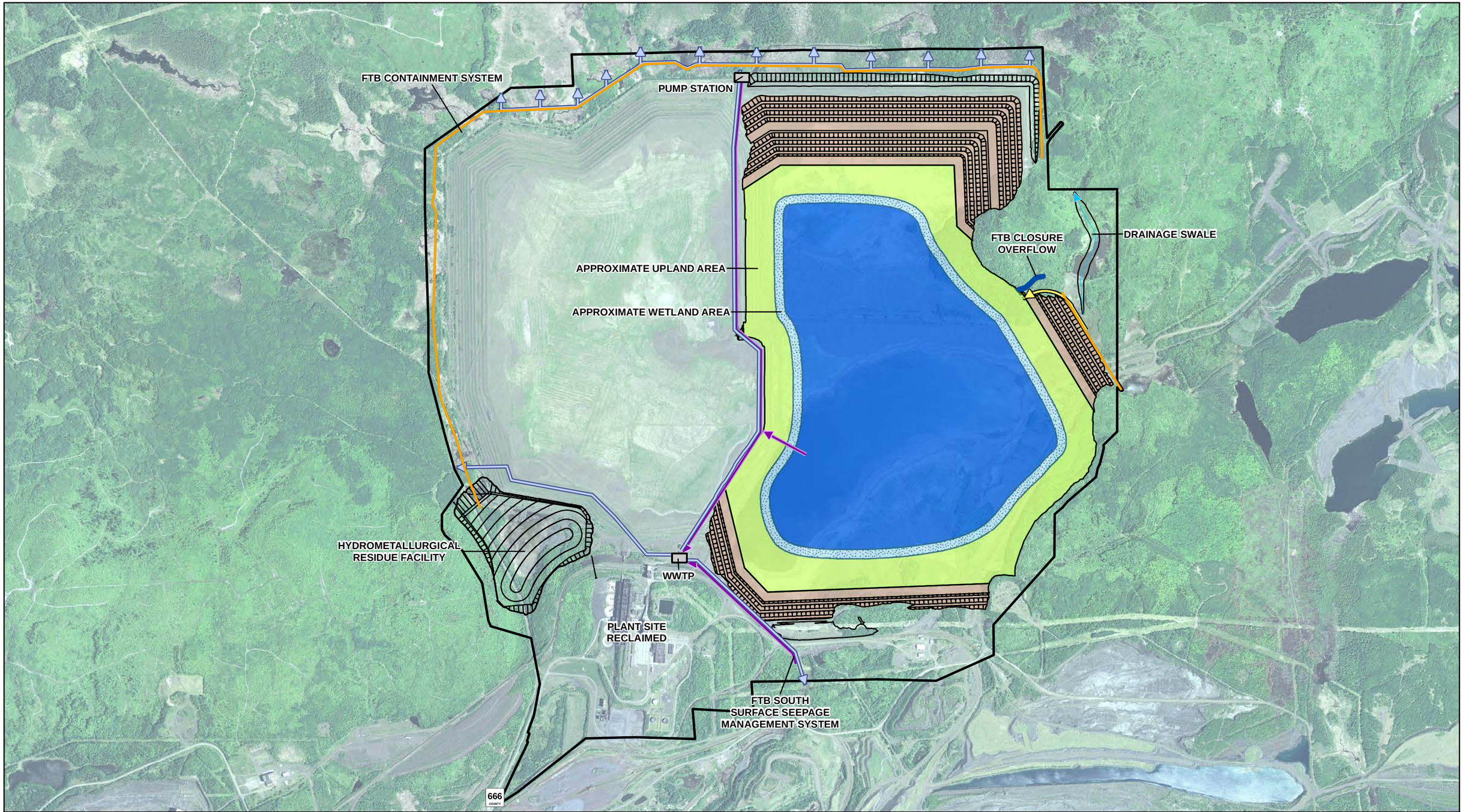

Figure 8
Plant Site Layout Long-term Closure
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

Hydrometallurgical Residue Facility Reclamation

Hydrometallurgical Residue Facility reclamation would include removal of ponded water from the Hydrometallurgical Residue Facility cell surface, removal of pore water from the residue, construction of the cell cover system, establishment of vegetation, and surface water runoff controls.

Ponded water remaining in the cell would be removed and treated at the Waste Water Treatment Plant. Drainage would be collected from the base of the cell at the geocomposite drainage system and managed as described for ponded water. The rate of drainage would decrease over time as the pore water within the Hydrometallurgical Residue Facility was collected and removed.

The hydrometallurgical cell area would be graded into a gently sloping surface, and an engineered cover system would be installed to limit infiltration. Permanent vegetation would be established over the cover system. The turf and final cover would be inspected, mowed once per year or as needed, fertilized if vegetation growth is poor, and repaired as needed.

The cover would slope gently toward the site perimeter to accommodate natural drainage of the runoff. Final cover slopes on the cell interior would be relatively shallow to minimize surface water runoff flow velocity and the associated erosion. Runoff channeled along the cell perimeter would be routed downslope via rip-rapped drainage swales or plug-resistant inlet structures and piping systems. Once runoff was conveyed down the cell exterior dam slope, it would be routed to the surrounding natural drainage system. All runoff would be from reclaimed cover or dam exterior slopes, which would constructed of MDNR-approved material.

2.1.6.4 Long-Term Closure Activities

Mechanical water treatment systems (the Waste Water Treatment Facility and the Waste Water Treatment Plant) would continue to operate during long-term closure. The water collected by the Category 1 Waste Rock Stockpile Groundwater Containment System and the West Pit water would be treated using the Waste Water Treatment Facility (upgraded to reverse osmosis or similar membrane separation technology) to ensure that the discharge meets applicable water quality discharge limits. The Waste Water Treatment Plant would treat water collected by the Flotation Tailings Basin seepage capture systems, Hydrometallurgical Residue Facility Leakage Collection System, and excess Flotation Tailings Basin pond water, to meet applicable water quality discharge limits. Inspection, water treatment maintenance, and reporting activities would continue while the mechanical treatment systems operated during long-term closure.

Surface water and groundwater quality would be monitored. These long-term closure activities would be expected to be ongoing until such time as the various facility features are deemed environmentally acceptable, in a self-sustaining and stable condition.

Other long-term closure activities would include repair of stockpile and Flotation Tailings Basin dam slope erosion, up-keep of constructed wetlands and outflow structures, removal of shrubs and trees from the Hydrometallurgical Residue Facility and Category 1 Waste Rock Stockpile cover systems, and on-going operation/maintenance and inspection of the seepage capture systems at the Category 1 Waste Rock Stockpile and Flotation Tailings Basin.

When PolyMet has completed all reclamation and long-term closure activities required under the Permit to Mine, a Request for Release per Minnesota Rules, part 6132.1400 would be submitted to the MDNR. This

request would provide the Commissioner of the MDNR with detailed information on the final closure status of the Project.

2.1.7 Federal and Non-federal Lands

2.1.7.1 Land Exchange Process

As part of the Project, the Forest Service is considering transferring approximately 6,495 acres of federal lands to PolyMet in exchange for non-federal lands of similar value that have been offered for consideration by PolyMet (**Figures 2** and **3**).

The federal lands are in St. Louis County, approximately 60 miles north of the City of Duluth, 20 miles south of the Boundary Waters Canoe Area Wilderness (BWCAW), and 6 miles south of the City of Babbitt, Minnesota. The federal lands are bounded on the north by the Northshore taconite mine and on the south by the Dunka Road and Utility Corridor.

The proposed land exchange between the Government, acting through the Forest Service, and PolyMet is an assembled land exchange. The land exchange is proposed under the authority of the Weeks Act of March 1, 1911 as amended; General Exchange Act of March 20, 1922; Federal Land Exchange Facilitation Act of 1988; and the Federal Land, Policy and Management Act of October 21, 1976.

The proposed land exchange complies with the 2004 Forest Plan (USDA Forest Service 2004a). The federal lands are located within the General Forest and General Forest - Longer Rotation Management Area. The theme of the General Forest – Longer Rotation Management Area emphasizes land and resource conditions that provide a wide variety of goods, uses and services. The characteristics and use of the General Forest Management Area are similar to the General Forest – Longer Rotation Management Area, except that harvests are more frequent, more uniform in age, and more extensive. The General Forest Management Area has the highest amount of young forest and the largest-sized timber harvest units. Forested habitats on the federal lands can be categorized using the Forest Service's Management Indicator Habitat (MIH), which describes dominant species, stand age class (young, immature, and mature), and stand condition (USDA Forest Service 2010a).

Land ownership adjustment direction for the General Forest and General Forest - Longer Rotation Management Area allows for the exchange of federal lands, with the desired condition described as "Land ownership patterns (federal, state, county, corporation and private) are consolidated, promote efficient administration and reduce the costs of managing resources."

2.1.7.2 Federal Lands

The federal lands include approximately 2,719 acres of the 3,015-acre Mine Site and 3,776 acres of lands surrounding the Mine Site that are owned by the Government and administered by the Forest Service (**Figure 3**). The federal lands are located in Township 59 North, Range 12 West, Sections 6 and 7; Township 59 North, Range 13 West, Sections 1-12, 17, and 18; and Township 60 North, Range 13 West, Sections 33, 34, and 35 (**Figure 1**). Most of the federal lands are part of the General Forest – Longer Rotation Management Area, while the remainder is within the General Forest Management Area.

The federal lands include a portion of One Hundred Mile Swamp, a large black spruce, tamarack, and northern white cedar wetland, and Mud Lake. Yelp Creek and the Partridge River flow through the federal lands on the north, east, and southeast. Management of the 3,776 acres of federal lands surrounding the Mine Site may include some upland timber management to enhance wildlife habitat, however, wetland areas would be maintained in their natural state for the foreseeable future.

2.1.7.3 Non-federal Lands

PolyMet has acquired non-federal lands for transfer to the Government that encourage efficient land ownership patterns, with the desired condition of consolidating federal, state, county, corporate and private ownership to promote efficient administration and reduce the cost of managing resources to the Forest Service. The non-federal lands would be incorporated with adjacent federal ownership and managed in accordance with 2004 Forest Plan direction for that particular area (USDA Forest Service 2004a). Lands with obvious recreational values would be managed to enhance those public recreation opportunities. The non-federal lands assembled include five different lands totaling approximately 7,075 acres that are comprised primarily of forest and wetland habitat (**Figure 2**).

Hay Lake Lands

Hay Lake Lands are in central St. Louis County, Minnesota, and are approximately 3 miles west of Biwabik, Minnesota. The lands, located at the eastern end of the Mesabi Iron Range, include approximately 4,926 acres in all or portions of Sections 9, 16, 19, 20, 21, 27, 28, 29, 30, 31, and 32 in Township 59 North, Range 16 West. The lands are moderately hilly and consist predominantly of second- or third-growth deciduous and coniferous forest uplands and emergent, shrub swamp, and forested wetlands. Approximately 59% (2,931 acres) of the Hay Lake Lands consists of wetlands. The lands include Hay Lake, identified as a Wild Rice Water by the MDNR, and Little Rice Lake, and are bordered on the east by the Pike River. The Superior National Forest borders the lands to the north, east, and west. Forest Service lands adjacent to Hay Lake Lands are managed as General Forest and Candidate Research Natural Areas. Research Natural Areas are areas that the Forest Service has designated to be permanently protected and maintained in natural condition. These protected natural areas include unique ecosystems or ecological features; rare or sensitive species of plants and animals and their habitat; and/or high-quality examples of widespread ecosystems. Candidate Research Natural Areas are those areas which are in various stages of review for possible establishment as a Research Natural Area.

Hunting Club Lands

Hunting Club Lands are in northern St. Louis County, Minnesota, and include approximately 160 acres in Section 17, Township 66 North, Range 17 West. The lands are nearly level and consist predominantly of second- or third-growth deciduous and mixed coniferous/deciduous forest uplands and emergent, shrub swamp, and forested wetlands. Approximately 40% (64 acres) of Hunting Club Lands consists of wetlands. The lands are bordered by Forest Service and county lands. Nearby Forest Service lands are managed as General Forest – Longer Rotation.

Lake County Lands

Lake County Lands consist of approximately 382 acres, with 265 acres in Sections 5 and 6, Township 57 North, Range 11 West (Lake County Lands North), and 117 acres in Section 17, Township 56 North, Range 9 West (Lake County Lands South) in Lake County, Minnesota. The lands are administered by Lake County. The lands

are nearly level and consist predominantly of second- or third-growth mixed coniferous/deciduous forest uplands and bog, emergent, shrub swamp, and forested wetlands. Much of Lake County Lands South was recently logged. Approximately 74% (283 acres) of Lake County Lands consists of wetlands. The lands are bordered by the Superior National Forest. Forest Service lands near Lake County Lands North are managed as Riparian Emphasis Area and General Forest – Longer Rotation. Forest Service lands near Lake County Lands South are managed as General Forest – Longer Rotation. In Riparian Emphasis Areas, riparian ecological functions are actively restored, protected, and enhanced in areas where ecosystem processes are sensitive to degradation. This includes maintaining and restoring native vegetation communities; maintaining and restoring riparian/hydrologic functions such as shoreline stability, wildlife habitat, coarse woody debris recruitment to aquatic and riparian ecosystems, and temperature regulation; and controlling non-native invasive species. Restoration focuses on components of the ecosystem that are not functioning at or within the range of desired conditions. Those components that are functioning properly are protected. These areas are also managed for recreational opportunities and visual quality adjacent to bodies of water.

McFarland Lake Lands

McFarland Lake Lands are approximately 31 acres in Section 9, Township 64 North, Range 3 East, in Cook County, Minnesota. The lands are approximately 3 miles west of the U.S. - Canada border and 10 miles north of Hovland, Minnesota. The lands are mostly on a hillslope and consist of second- or third-growth deciduous and coniferous upland forest. McFarland Lake is an entry point to the BWCAW. There are no wetlands on the lands. The lands are bordered by Forest Service lands, which are managed as General Forest – Longer Rotation.

Wolf Lands

Wolf Lands total 1,576 acres and are comprised of 126 acres in Section 8, Township 57 North, Range 11 West (Wolf Lands 1); 769 acres in Sections 15 and 22, Township 58 North, Range 10 West (Wolf Lands 2); 277 acres in Sections 30 and 31, Township 59 North, Range 9 West (Wolf Lands 3); and 405 acres in Sections 7, 8, 15, 17, and 18, Township 59 North, Range 9 West (Wolf Lands 4) in Lake County, Minnesota. The lands are nearly level and consist predominantly of second- or third-growth mixed coniferous/deciduous forest uplands and bog, emergent, shrub swamp, and forested wetlands. Much of Wolf Lands 3 has been recently logged. Approximately 88% (1,393 acres) of Wolf Lands consists of wetlands. Forest Service lands border portions of all of Wolf Lands and are managed as General Forest (Wolf Lands 2, 3, and 4) and General Forest – Longer Rotation (Wolf Lands 1). Wolf Lands would supplement National Forest ownership by reducing federal exterior boundaries and would eliminate several private in-holdings.

2.2 Land Exchange Alternative B (Alternative B)

Alternative B was derived from the Mine Site Exchange-Only Alternative Proposed Action (refer to Sections 3.3.3.2 and 3.3.3.3.4 of the FEIS) that was developed to address concerns raised during scoping. This alternative would convey fewer acres of federal lands to the Government for fewer acres of non-federal land from PolyMet.

Land exchanges are based on equal value. Because there would be fewer federal acres available to be conveyed by the Government, there would be fewer acres of private land that would be acquired by the Government. The Government would convey approximately 4,753 acres of federal lands to PolyMet, and the Forest Service would no longer administer these lands. The Government would acquire approximately 4,926 acres of Hay Lake Lands (identified as Tract 1 – Hay Lake Lands in the FEIS). Hay Lake Lands were selected for this alternative for the following reasons:

- they would be almost equal in size to the smaller federal lands,
- they would provide wetlands, and
- it is likely that Hay Lake Lands would have a higher per-acre value than the federal lands because of their access to a county road and its potential for riparian lots.

The configuration of the smaller federal lands is the smallest acreage that would meet the Purpose and Need for the Land Exchange (**Figure 2**). Under Alternative B, approximately 1,742 acres to the west of the Mine Site would remain under federal ownership. These remaining federal lands would become an isolated piece of federal land with limited or difficult access through private property. As with the Land Exchange Proposed Action, the Forest Service would reserve ownership of 181 acres of mineral rights scattered across the federal lands. These minerals are located outside of the mine pits.

2.3 Land Exchange No Action Alternative (No Action Alternative)

Under the No Action Alternative, the Project would not occur and no lands would be exchanged. The Government would not convey federal lands to PolyMet and the Forest Service would continue administering these lands as has been done in the past. The level of development and acceptable activities would continue to be regulated by Forest Service and Superior National Forest policies. Management would include vegetation management, mineral exploration, recreation, wildlife, watershed, and other uses identified in the 2004 Forest Plan. These lands are in General Forest – Longer Rotation and the General Forest Management Areas. Furthermore, under the No Action Alternative, the Government would not acquire the five tracts of non-federal lands and the non-federal lands would remain as private lands.

At the Mine Site, PolyMet would be required under exploration approvals to reclaim surface disturbance associated with exploratory and development drilling activities. Other existing surface uses would be allowed to continue consistent with 2004 Forest Plan.

No further upgrades or new segments would be constructed along the existing power transmission line, railroad, or Dunka Road, which would continue to be used by their private owners.

At the brownfield Plant Site, Cliffs Erie would be required to complete closure and reclamation activities required under an existing MDNR- and MPCA-approved reclamation program. This would include completing activities for the localized affected areas under the Minnesota Voluntary Investigation and Cleanup Program, removal of the former Plant Site building, and management of seepage at the Flotation Tailings Basin embankment.

3.0 Description of the Lands Affected by the Project

3.1 Federal Lands

Federal lands under the Proposed Action include approximately 2,719 acres at the 3,015-acre Mine Site and 3,776 acres surrounding the Mine Site that are owned by the Government and administered by the Forest Service (**Figure 3**). For Alternative B, the federal lands would include the 2,719 acres at the Mine Site and 2,034 acres surrounding the Mine Site.

The Forest Service designates and maintains data regarding MIH types on federal lands (USDA Forest Service 2004a: Appendix C, 2010a). The MIHs are based on forest type, including dominant species, stand age class, and stand condition. There are 14 MIHs, of which 13 MIHs pertain to forest habitats and 1MIH pertains to aquatic habitats. A subset of these MIH types was used for the analysis of effects in the BE, including upland forest types (MIH 1; jack pine, red pine, white pine, balsam fir/trembling aspen-paper birch, black spruce-balsam fir, black spruce-jack pine, northern hardwoods, including oak and maple, trembling aspen, paper birch, and trembling aspen-black spruce-balsam fir); upland coniferous forest (MIH 5; all upland conifer and conifer-dominated mixed forest types); lowland black spruce-tamarack forest (MIH 9; all lowland conifer and lowland mixed conifer types dominated by black spruce or tamarack); and aquatic habitats (MIH 14; lakes, rivers, streams, pond, marshes or pools [permanent, intermittent, or seasonal]). The MIH types for the federal lands are shown on **Figure 9**, and for the non-federal lands are shown on **Figures 10** and **11**. **Tables 5** and **6** provide a summary of MIH type acreage on the federal and non-federal lands and gains and losses of MIH type acreage that would be administered by the Forest Service under the Proposed Action and Alternative B.

The MDNR developed the Gap Analysis Program (GAP) to identify land cover types (MDNR et al. 2013). The GAP land cover system is a hierarchical land classification system that organizes vegetation communities into 1-acre blocks. The GAP land cover types for the federal lands are shown on **Figure 12**, and for the non-federal lands on **Figures 13** and **14**. **Tables 5** and **7** provide a summary of GAP cover type acreage on the federal and non-federal lands and gains and losses of GAP cover type acreage that would be administered by the Forest Service under the Proposed Action and Alternative B.

Wetlands on the federal and non-federal lands were identified using the Eggers and Reed (1997) community types. Forest wetland types include coniferous bog, coniferous swamp, and hardwood swamp. Non-forested wetlands types include deep marsh, open bog, open water (includes shallow, open water and lakes), sedge/wet meadow, shallow marsh, and speckled alder thicket and shrub-carr. Wetland community types for the federal lands are shown on **Figure 15**, and for the non-federal lands on **Figures 16** and **17**. **Table 8** provides a summary of wetland community type acreage on the federal and non-federal lands and gains and losses of wetland cover type acreage that would be administered by the Forest Service under the Proposed Action and Alternative B.

3.1.1 Mine Site

The Mine Site encompasses 3,015 acres; 2,719 acres are Government owned while 296 acres are privately owned (**Figure 3**). The Mine Site has little topographic relief. The site consists of a mosaic of slightly elevated upland areas surrounded by wetlands, with the northern portion of the site sloping toward the east-northeast and the remainder of the site sloping to the south-southwest, in the direction of the Partridge River. About 57% of the Mine Site is upland habitat, and 43% is wetland habitat (PolyMet 2014a**)**.

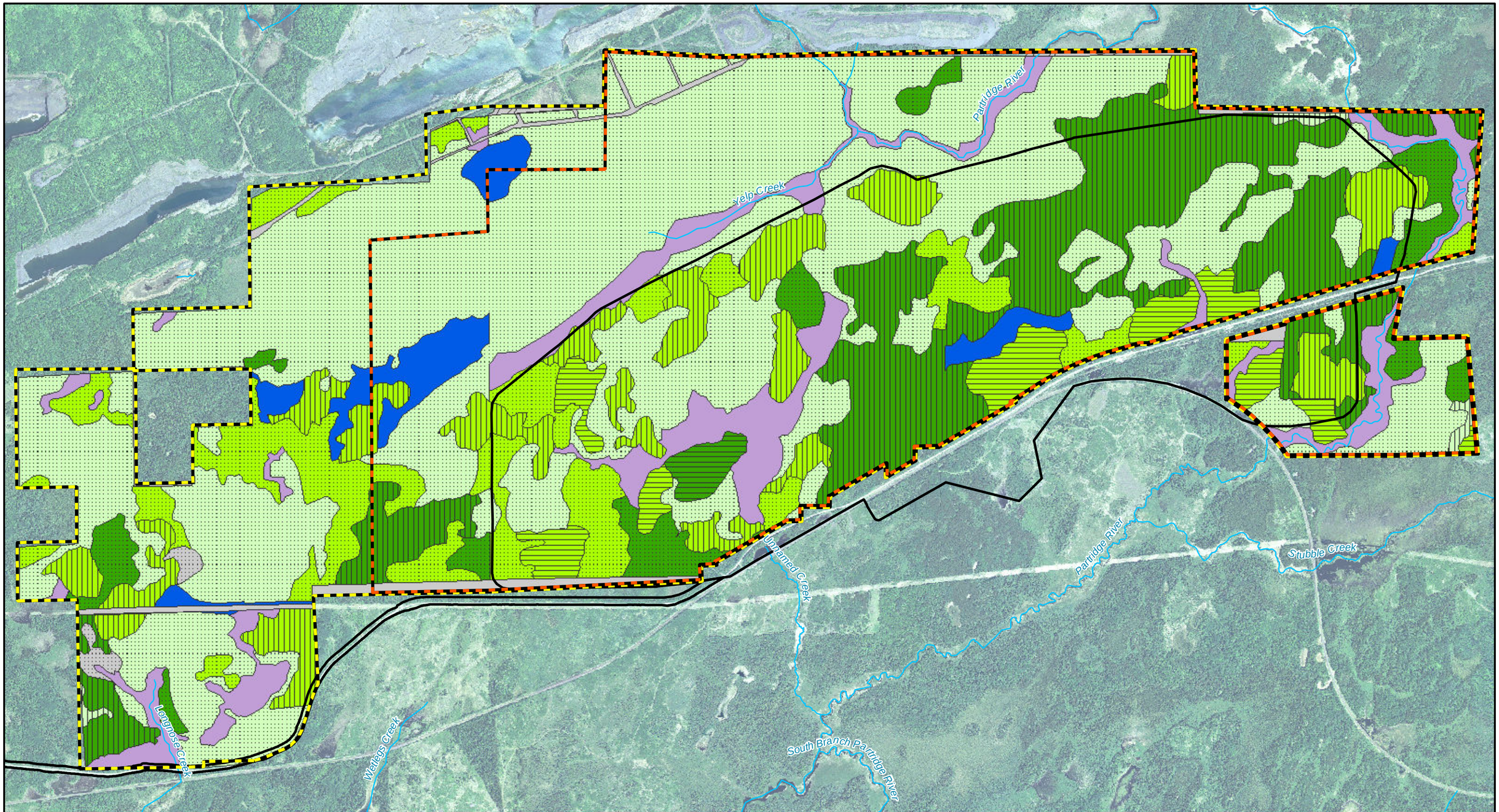

Federal Lands - Proposed Action
Federal Lands - Alternative B
Project Areas

Management Indicator Habitat
Upland Forest
Upland Coniferous Forest
Lowland Black Spruce
Open Water
Other Lowland Emergent
Other Lowland Shrub
Other Upland Grass
N/A

Stand Age Class
Mature
Immature
Young
N/A

US Army Corps of Engineers
St. Paul District

N
W E
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Feet

Figure 9
Management Indicator Habitat Types and Age Classes - Federal Lands
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

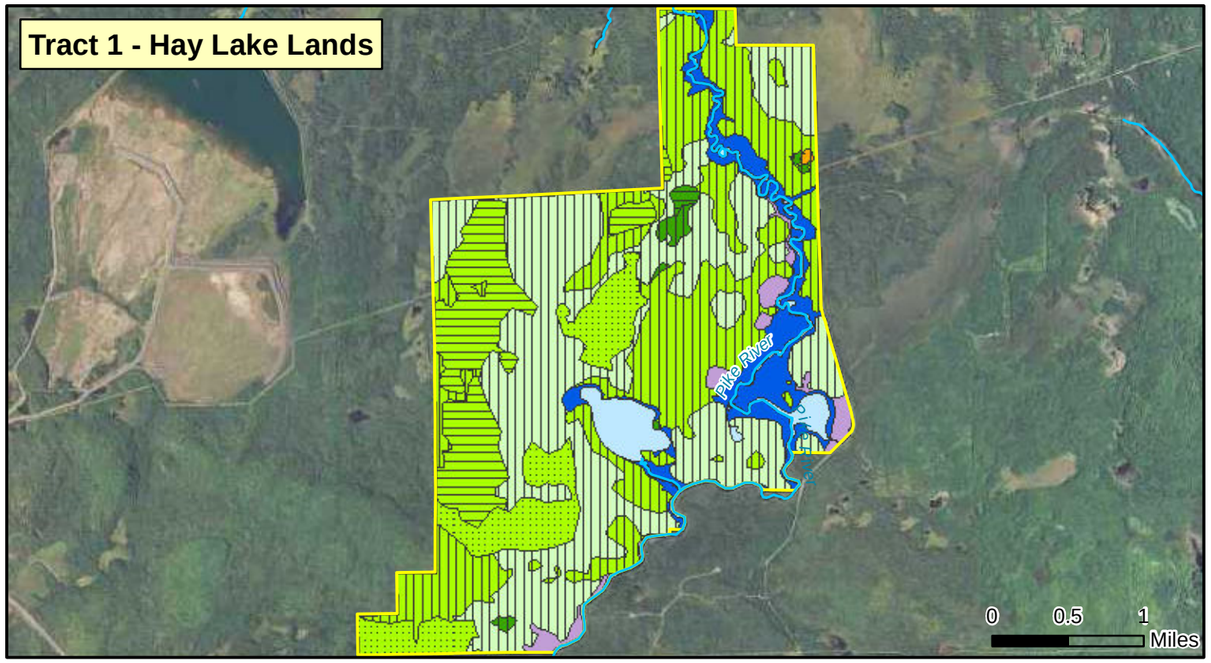

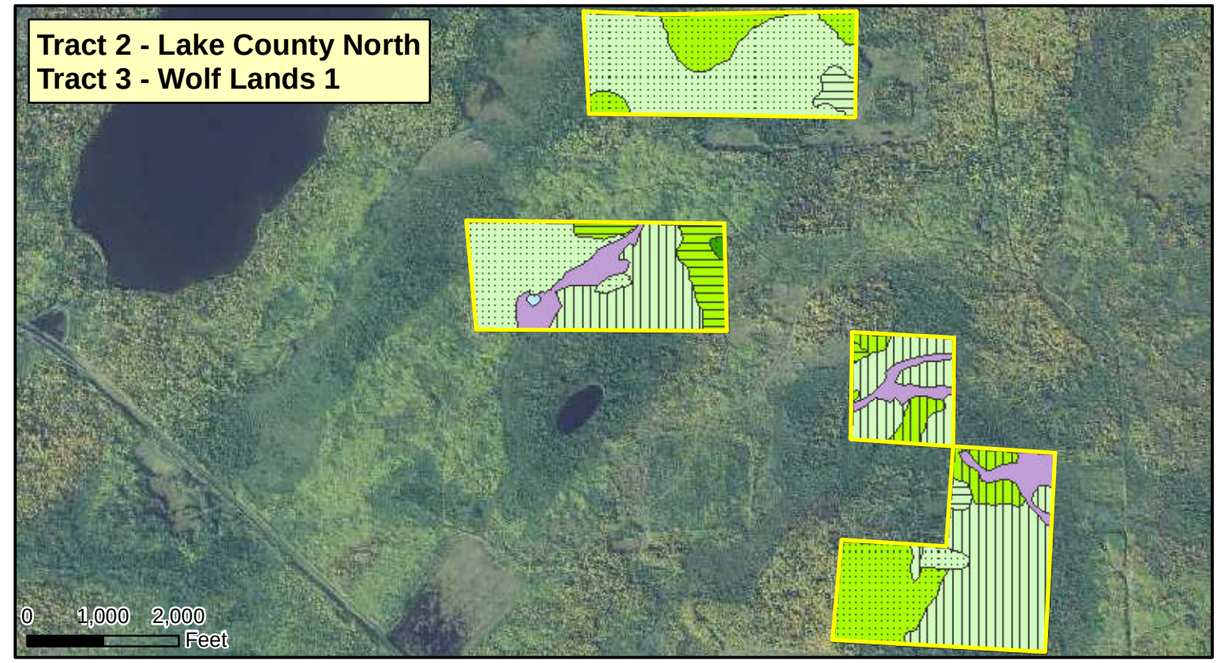

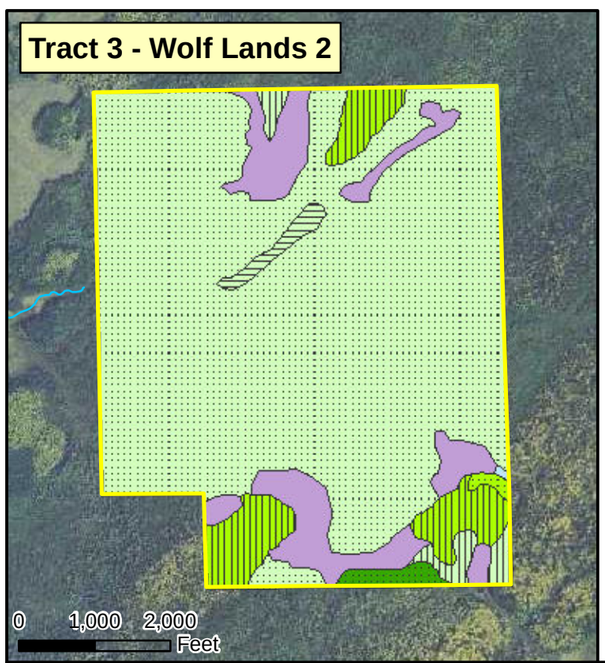

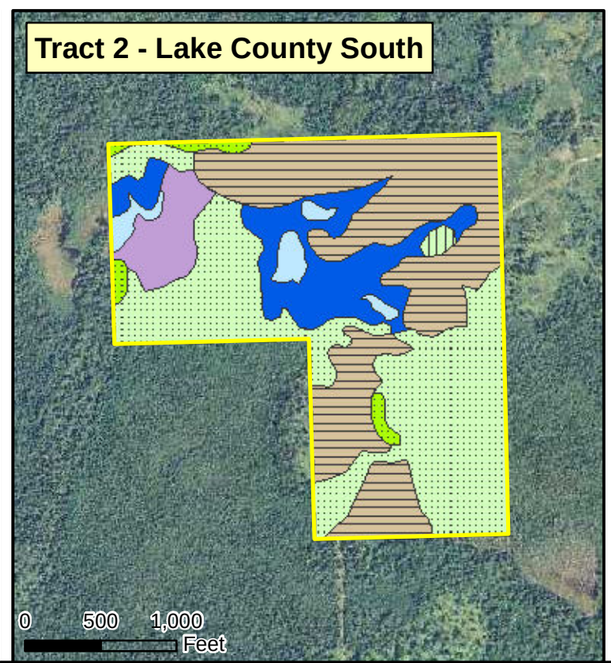

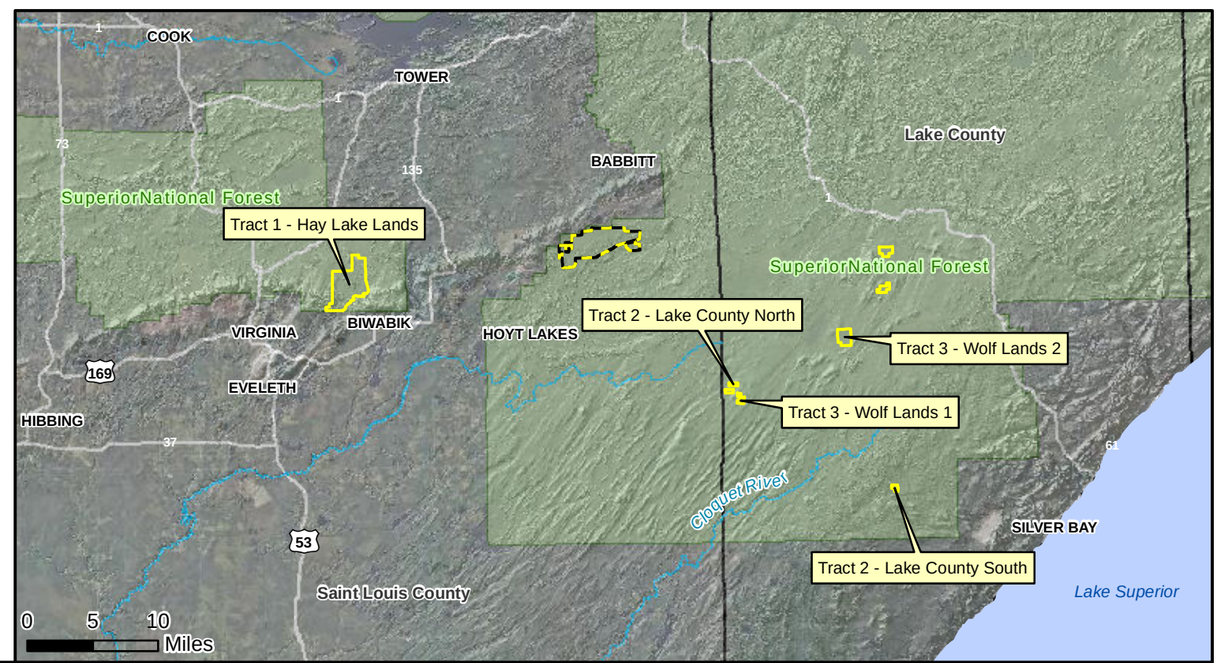

Federal Lands
Non-federal Lands

Management Indicator Habitat
- Upland Forest
- Upland Coniferous Forest
- Lowland Black Spruce
- Open Water
- Other Lowland Emergent
- Other Lowland Shrub
- Other Upland Grass
- N/A

Stand Age Class
- Mature
- Immature
- Young
- N/A

US Army Corps of Engineers
St. Paul District

N W E S

Figure 10
Management Indicator Habitat Types and Age Classes - Hay Lake Lands, Lake County Lands, and Wolf Lands 1 and 2
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

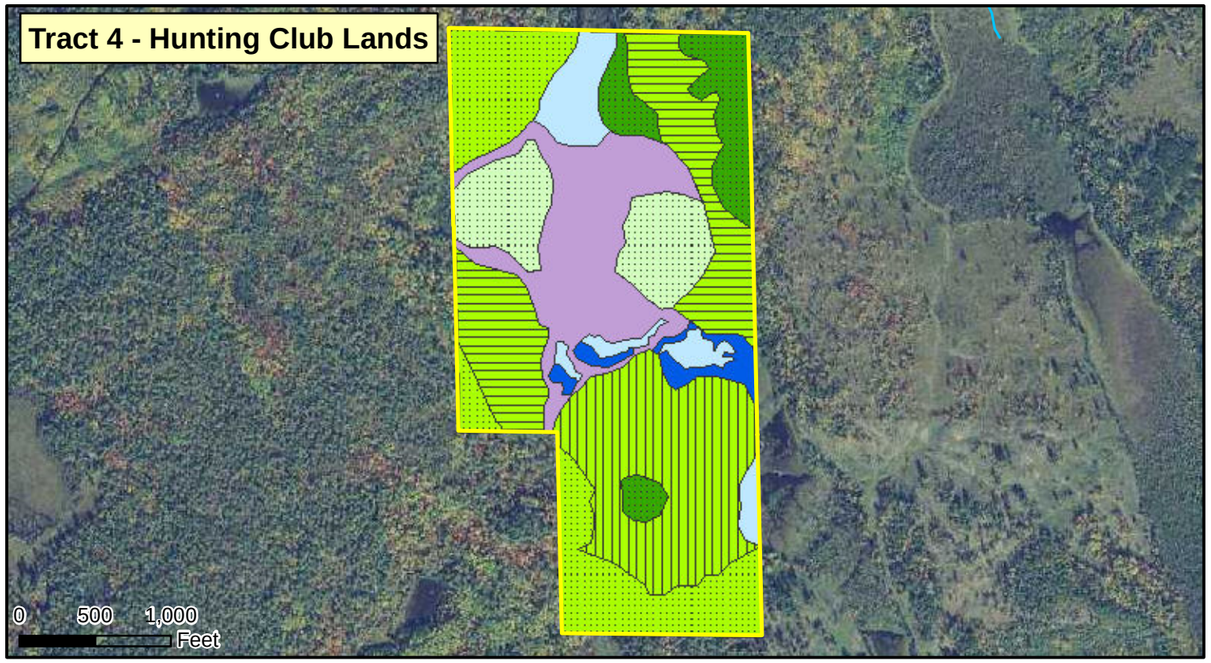

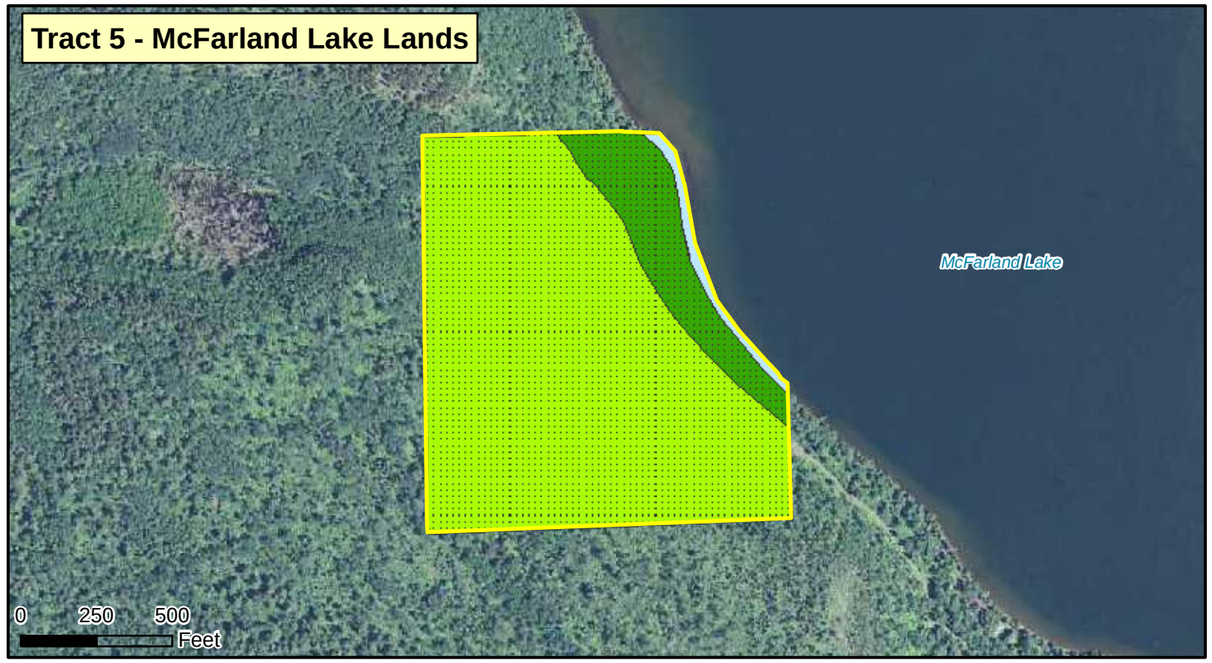

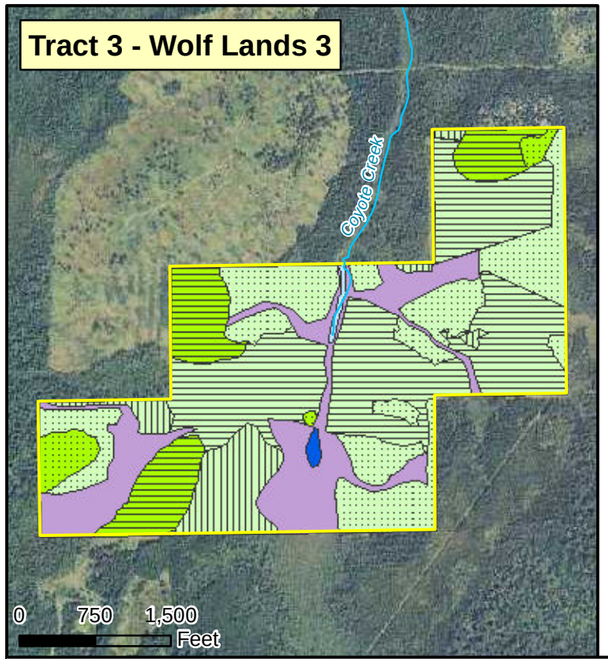

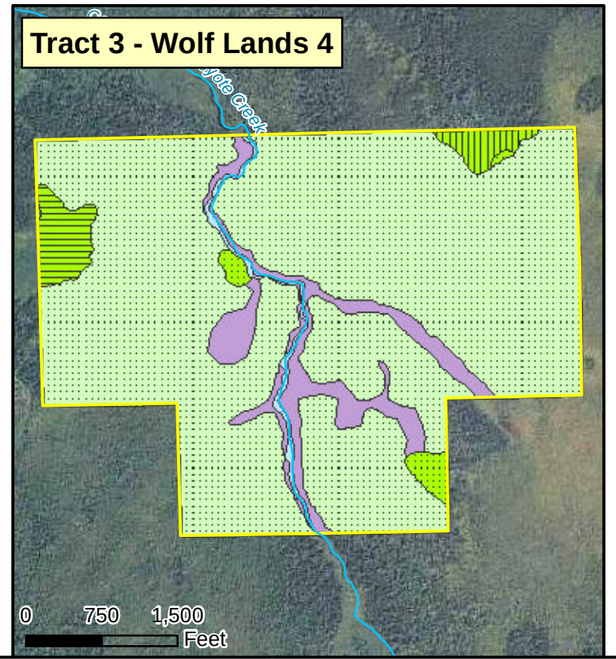

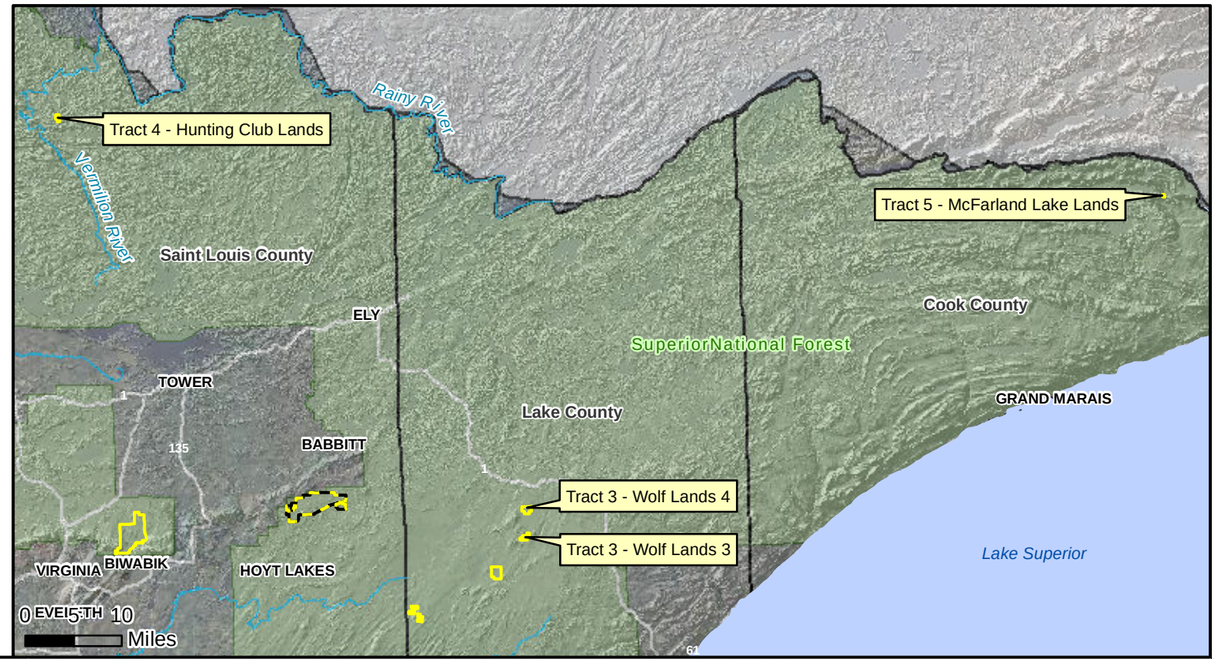

Federal Lands
Non-federal Lands

Management Indicator Habitat
- Upland Forest
- Upland Coniferous Forest
- Lowland Black Spruce
- Open Water
- Other Lowland Emergent
- Other Lowland Shrub
- Other Upland Grass

Stand Age Class
- Mature
- Immature
- Young
- N/A

US Army Corps of Engineers
St. Paul District

N W E S

Figure 11
Management Indicator Habitat Types and Age Classes - Hunting Club Lands, Mc Farland Lake Lands, and Wolf Lands 3 and 4
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

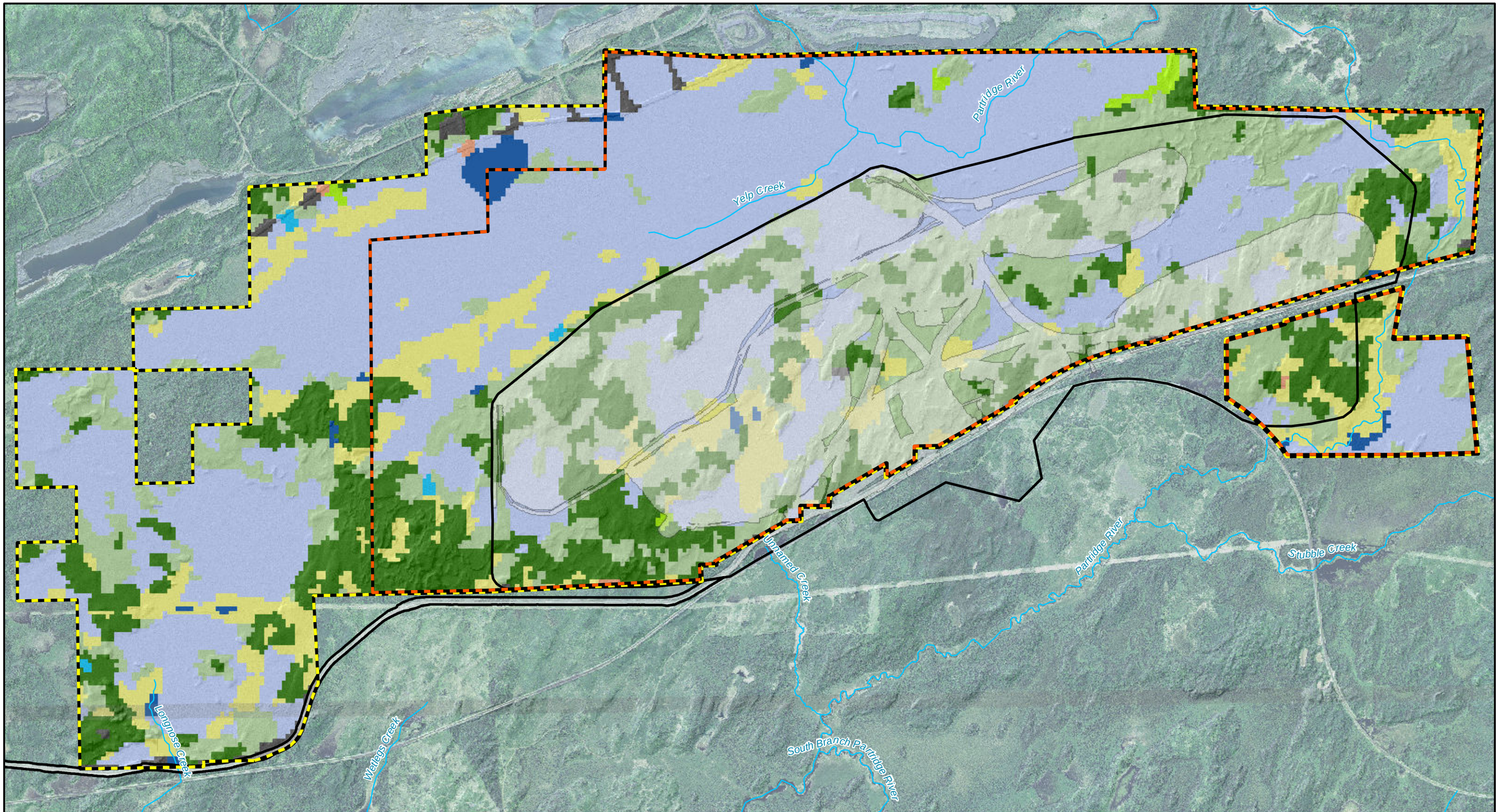

Federal Lands - Proposed Action
Federal Lands - Alternative B
Project Areas
Areas Affected by Project Features

GAP Land Cover
Aquatic Environments
Crop/Grass
Lowland Conifer Forest
Lowland Deciduous Forest
Non-vegetated
Shrubland
Upland Conifer Forest
Upland Conifer-Deciduous mix
Upland Deciduous Forest

US Army Corps of Engineers
St. Paul District

N W E S

0 1,000 2,000 4,000 Feet

Figure 12
GAP Land Cover/Habitat Types - Federal Lands
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

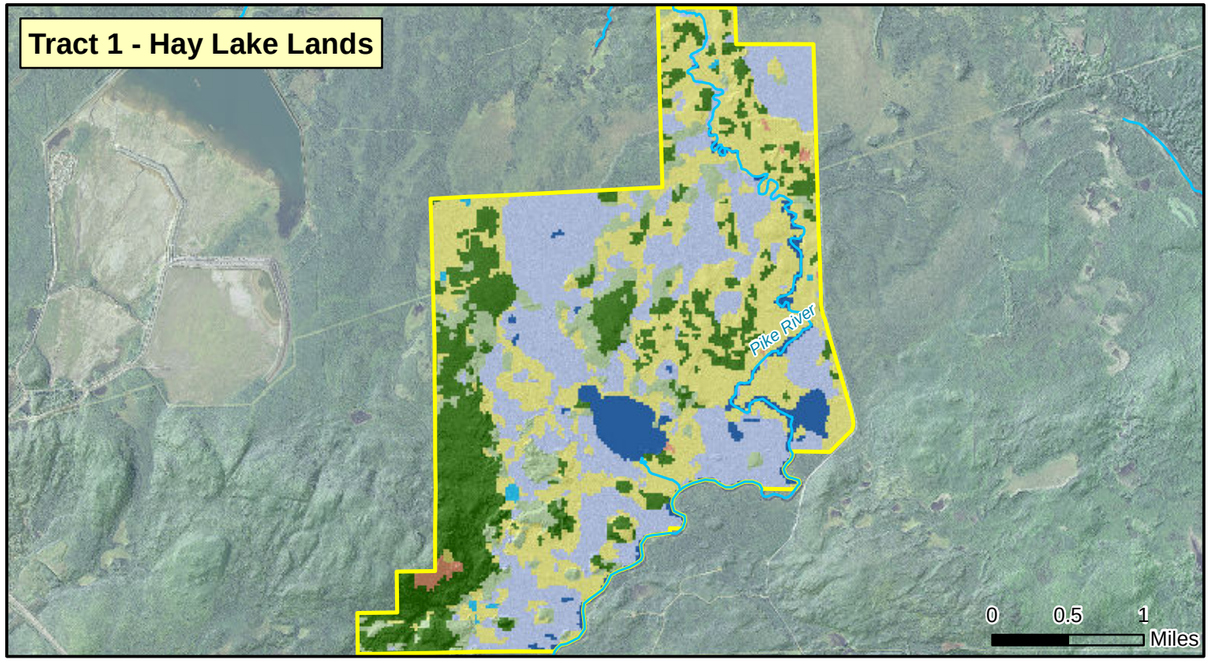

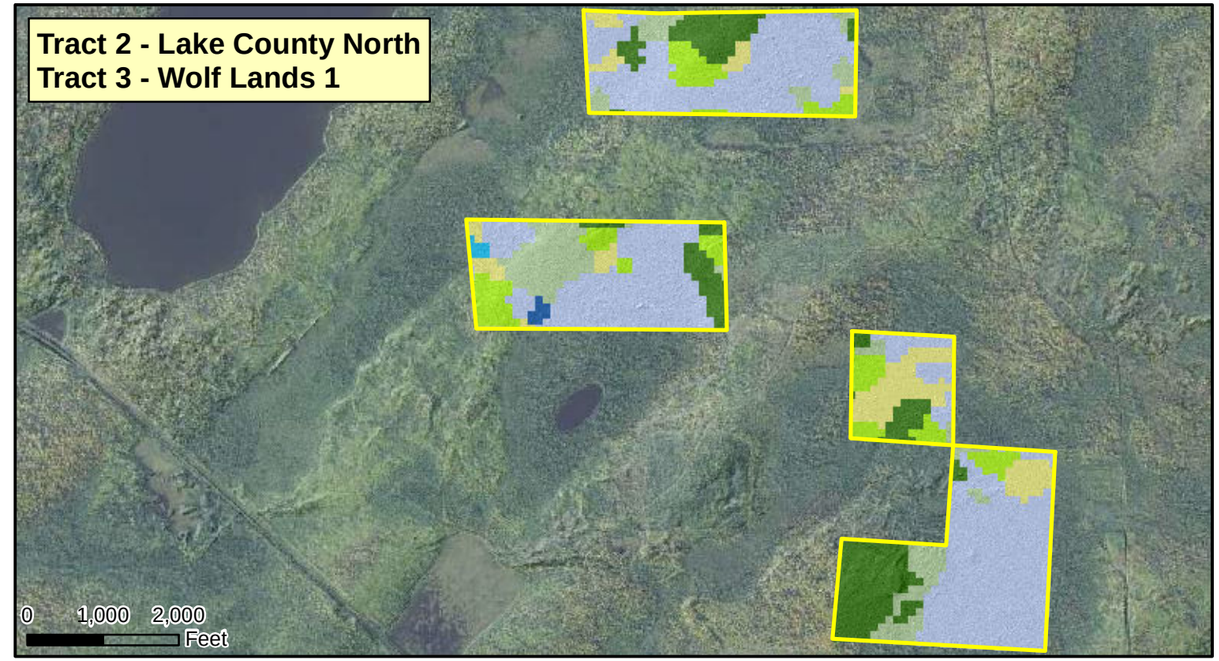

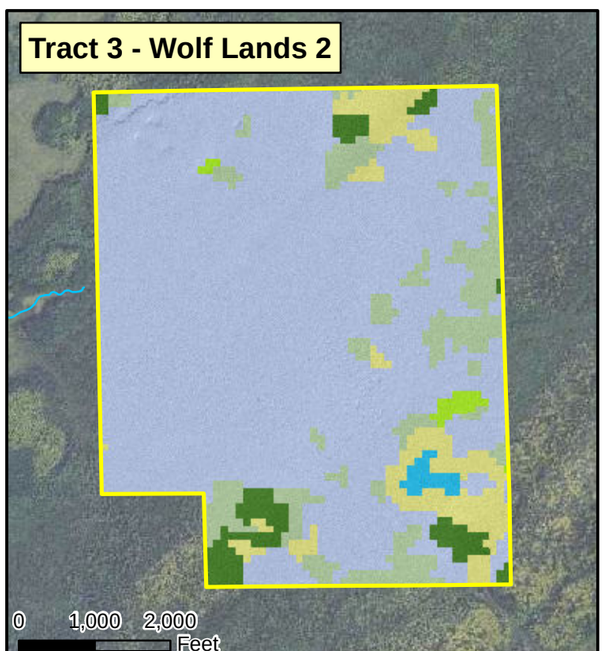

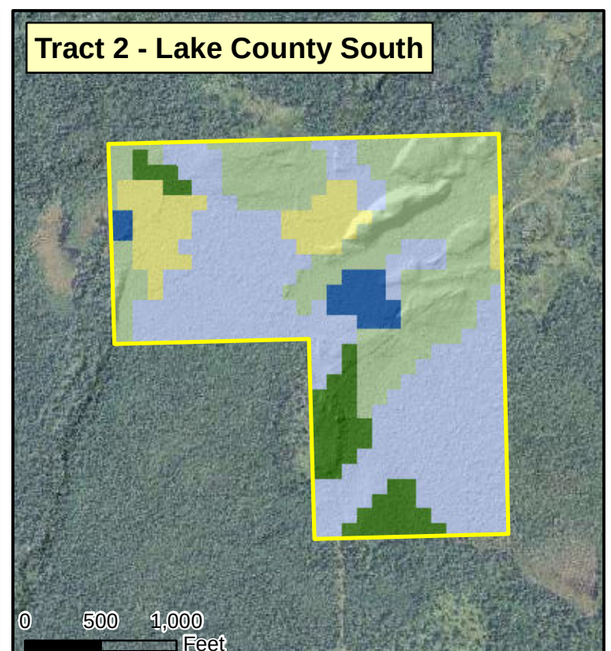

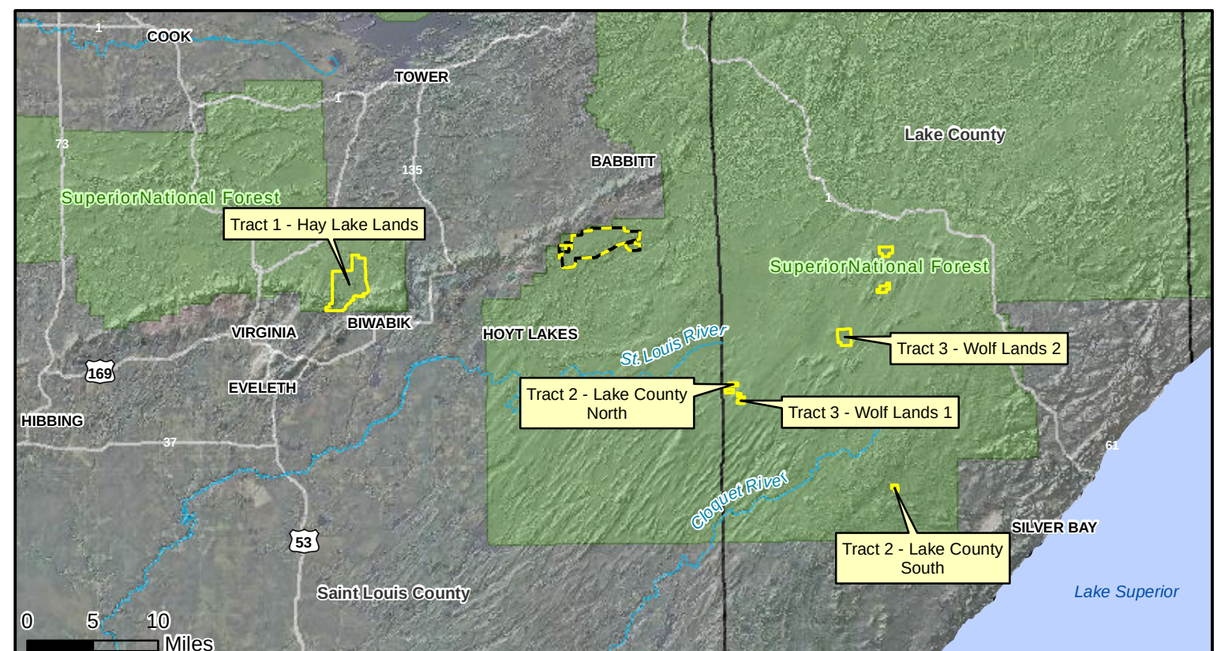

Non-federal Lands
Federal Lands
GAP Land Cover
Aquatic Environments
Crop/Grass
Lowland Conifer Forest
Lowland Deciduous Forest
Non-vegetated
Shrubland
Upland Conifer Forest
Upland Conifer-Deciduous mix
Upland Deciduous Forest

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St. Paul District

N W E S

Figure 13
GAP Land Cover/Habitat Types -
Hay Lake Lands, Lake County Lands, and Wolf Lands 1 and 2
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

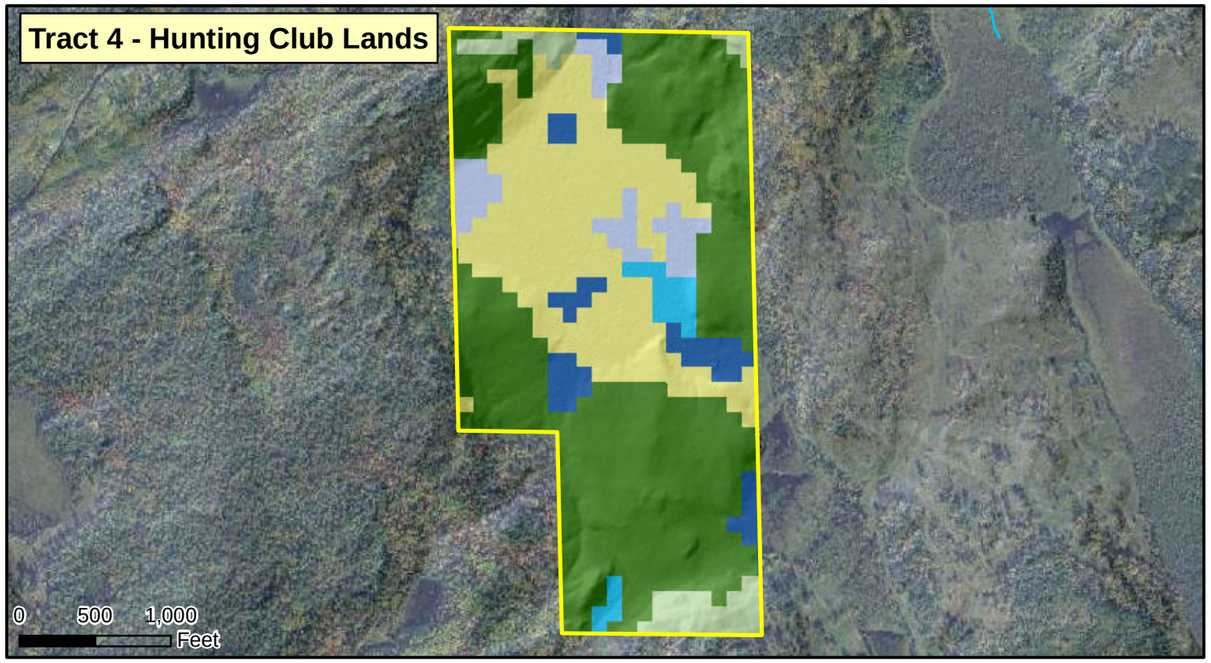

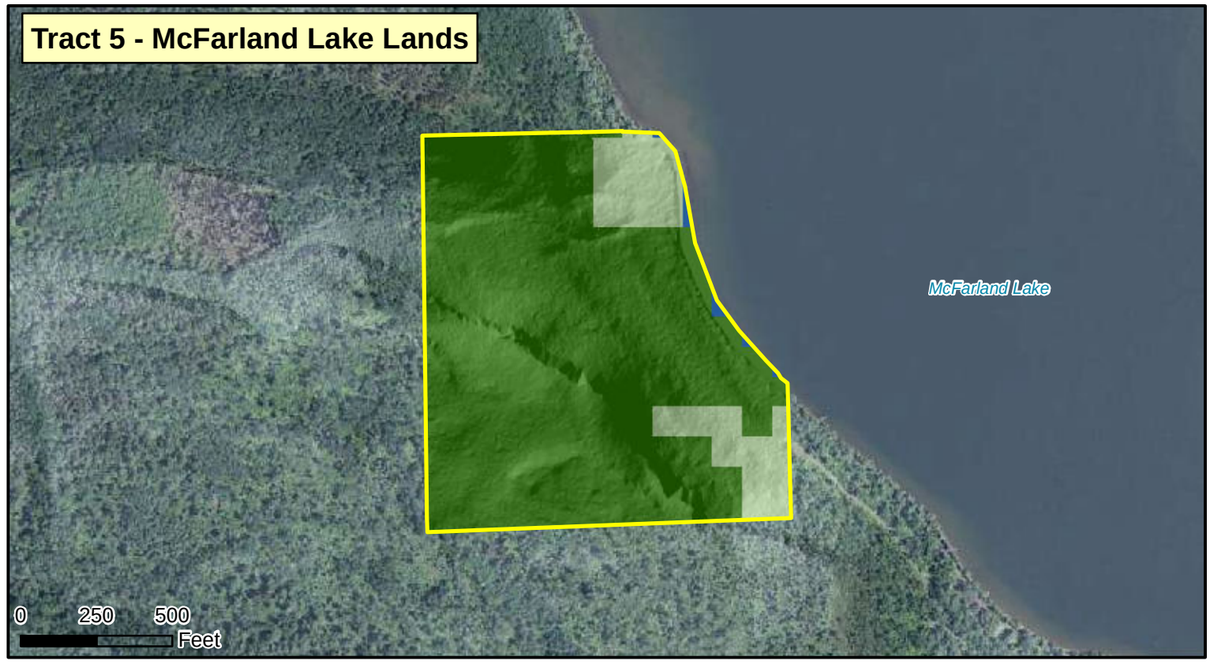

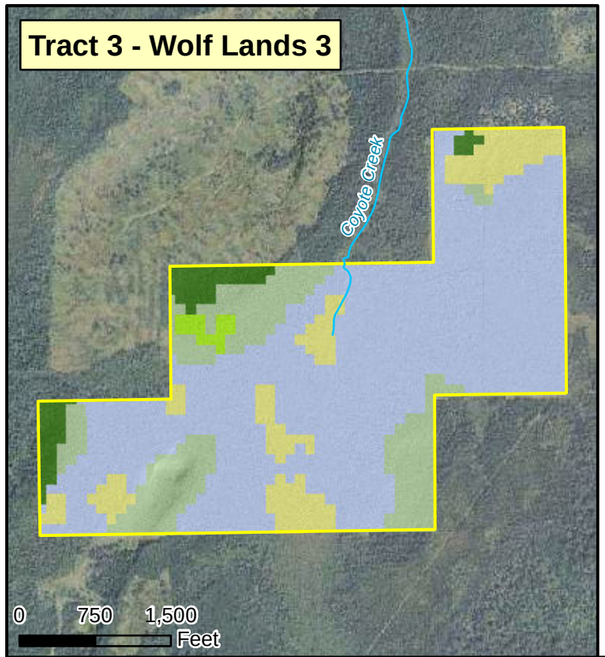

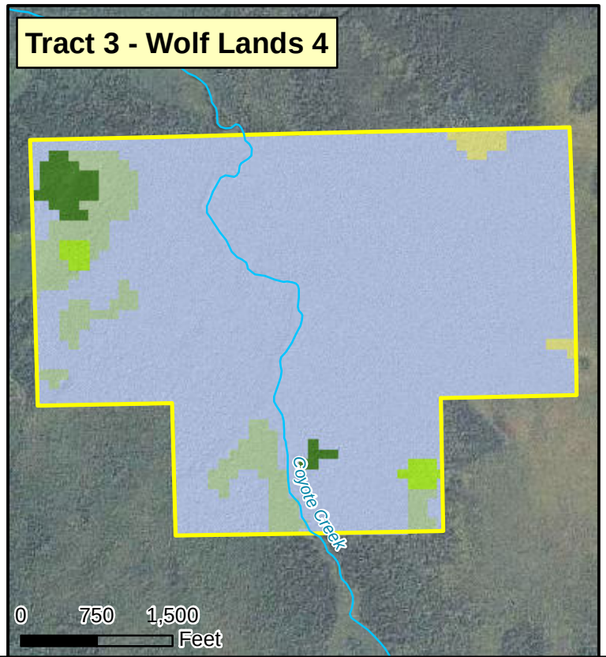

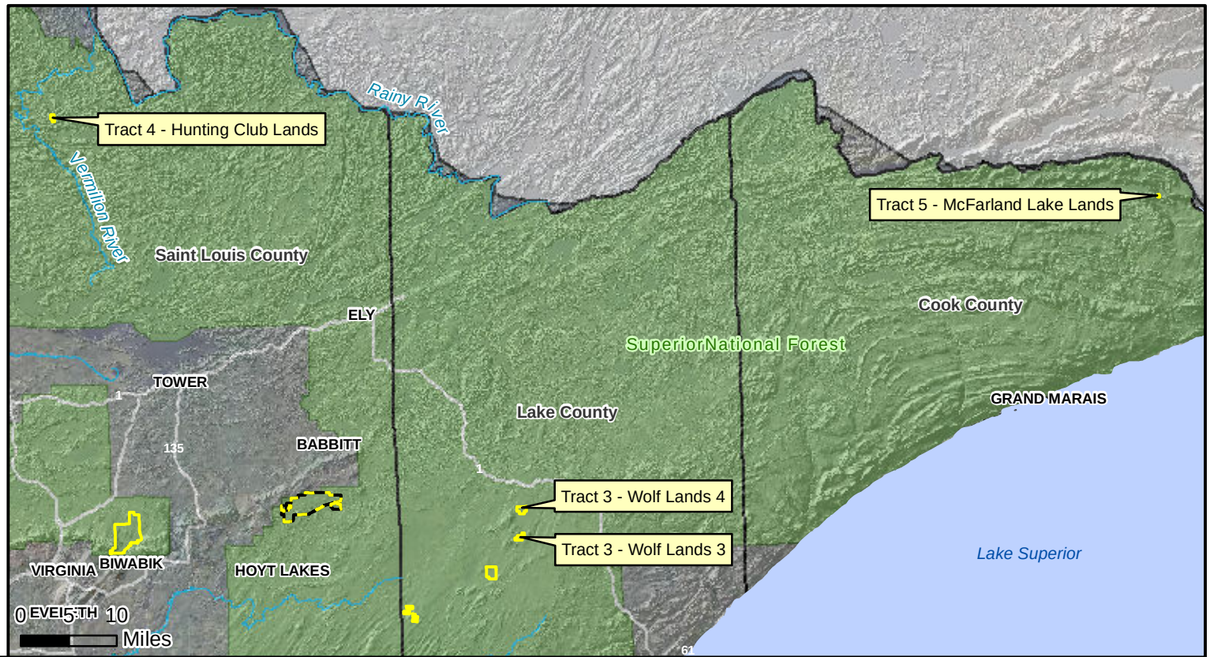

Non-federal Lands
Federal Lands
GAP Land Cover
Aquatic Environments
Crop/Grass
Lowland Conifer Forest
Lowland Deciduous Forest
Non-vegetated
Shrubland
Upland Conifer Forest
Upland Conifer-Deciduous mix
Upland Deciduous Forest

US Army Corps of Engineers
St. Paul District

N W E S

Figure 14
GAP Land Cover/Habitat Types - Hunting Club Lands, McFarland Lake Lands, and Wolf Lands 3 and 4
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

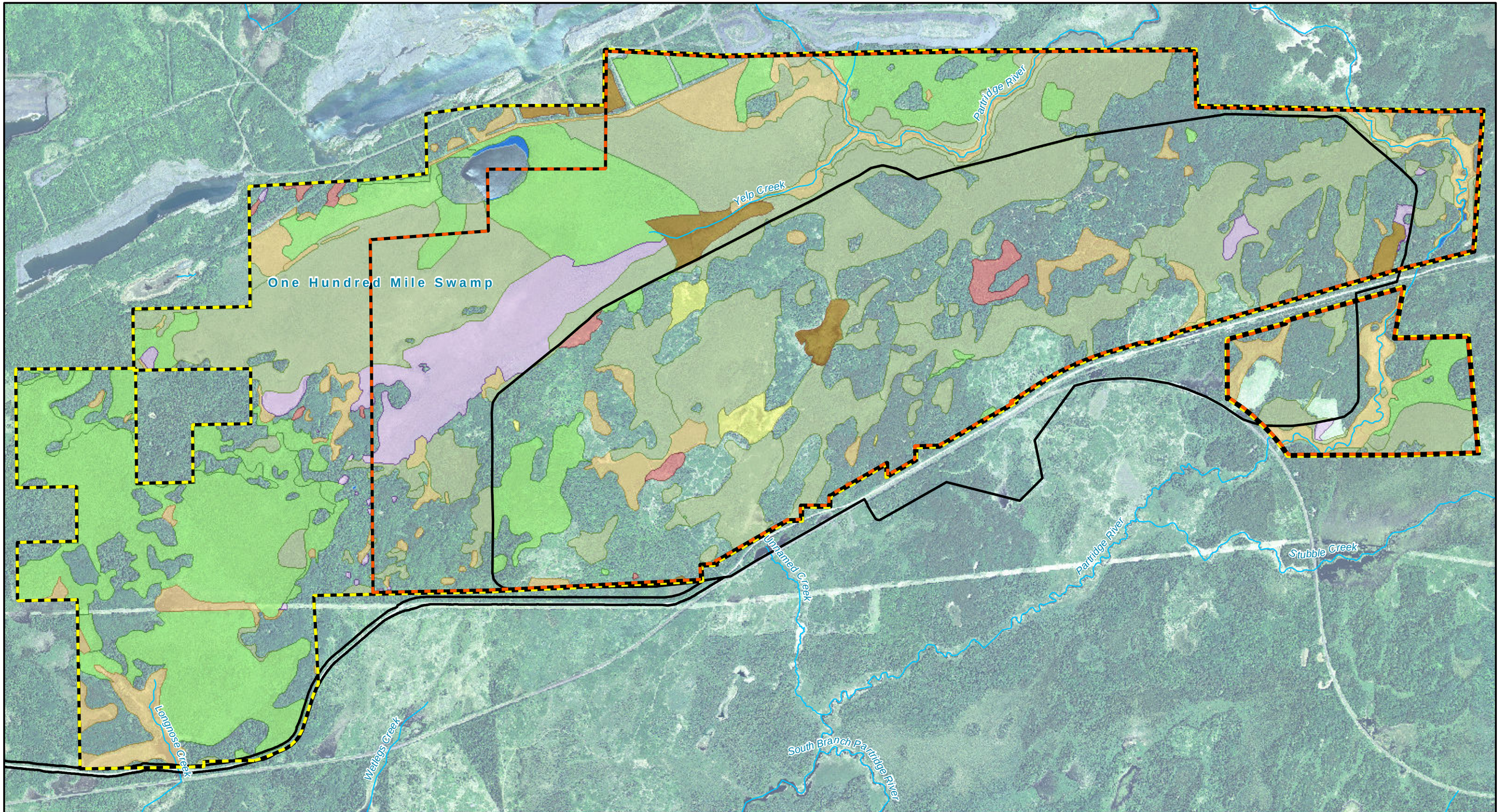

Federal Lands - Proposed Action
Federal Lands - Alternative B
Project Areas
Eggers & Reed Wetland Types
Shrub Swamps (Alder thickets & Shrub-carrs)
Coniferous bog
Coniferous swamp
Deep marsh; Shallow marsh
Hardwood swamp
Open water (Shallow, open water & lakes)
Open bog
Sedge meadow; Wet meadow

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St. Paul District

N W E S

0 1,000 2,000 4,000 Feet

Figure 15
Wetlands - Federal Lands
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

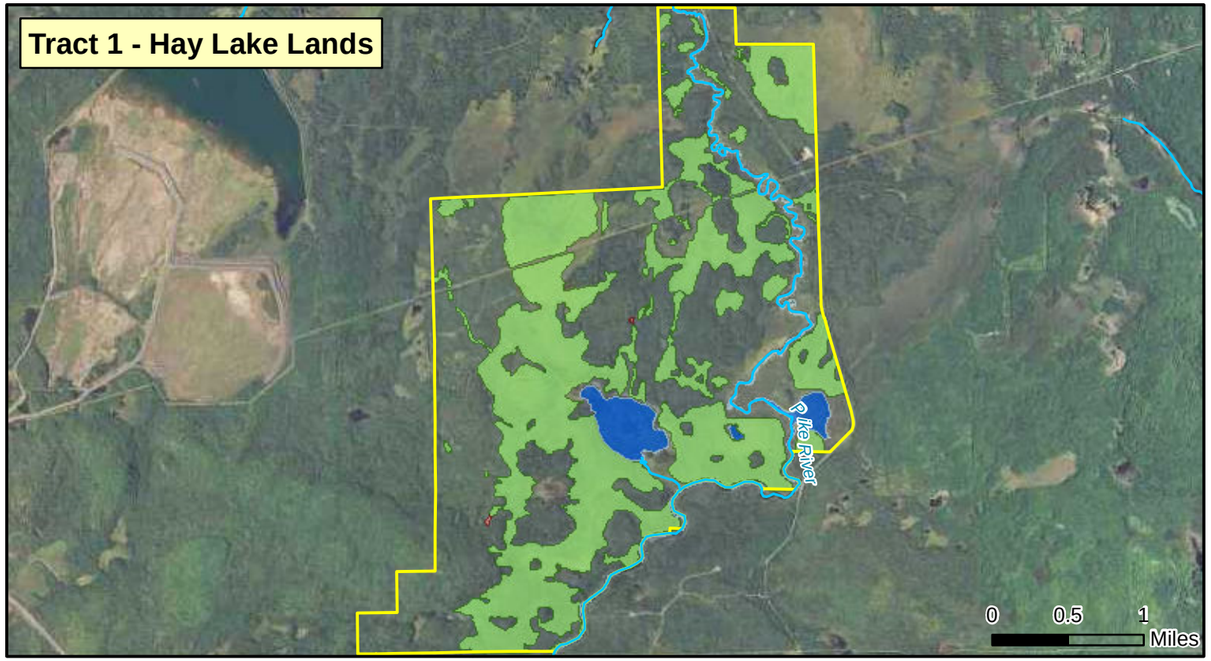

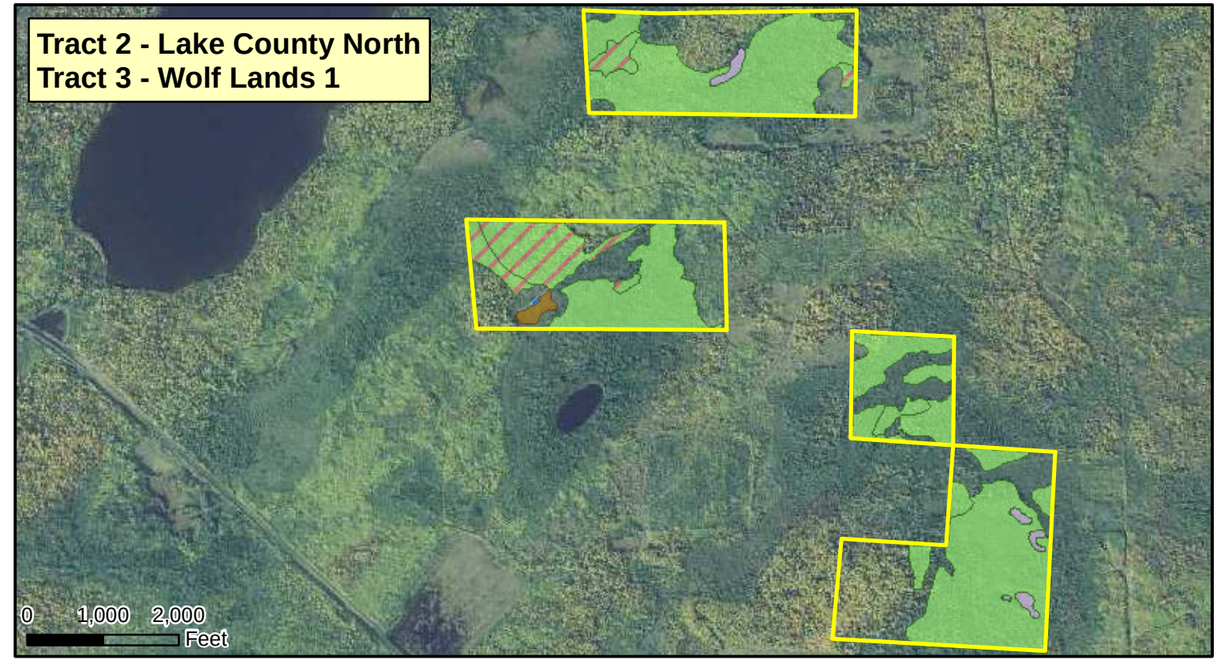

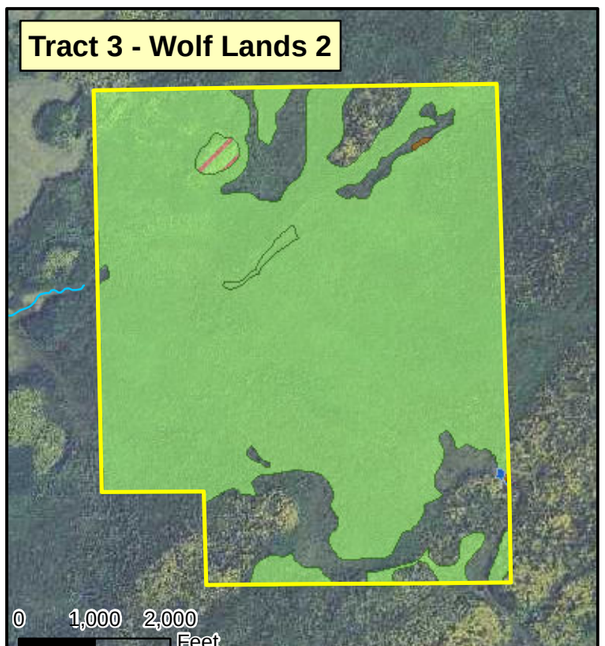

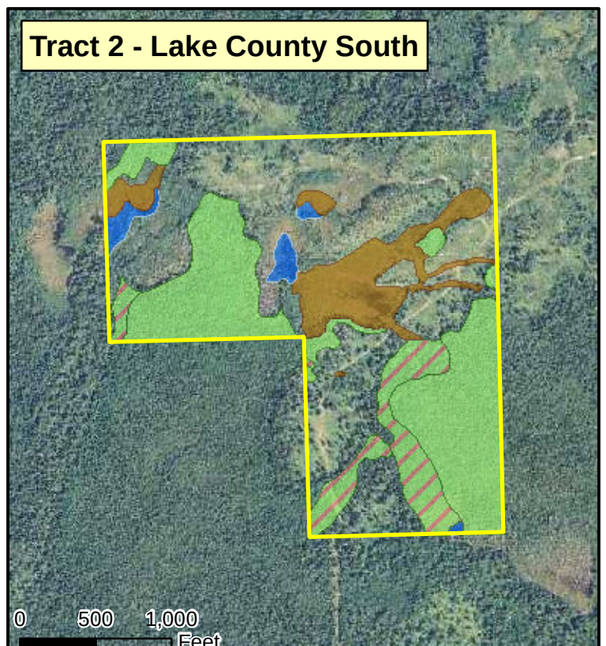

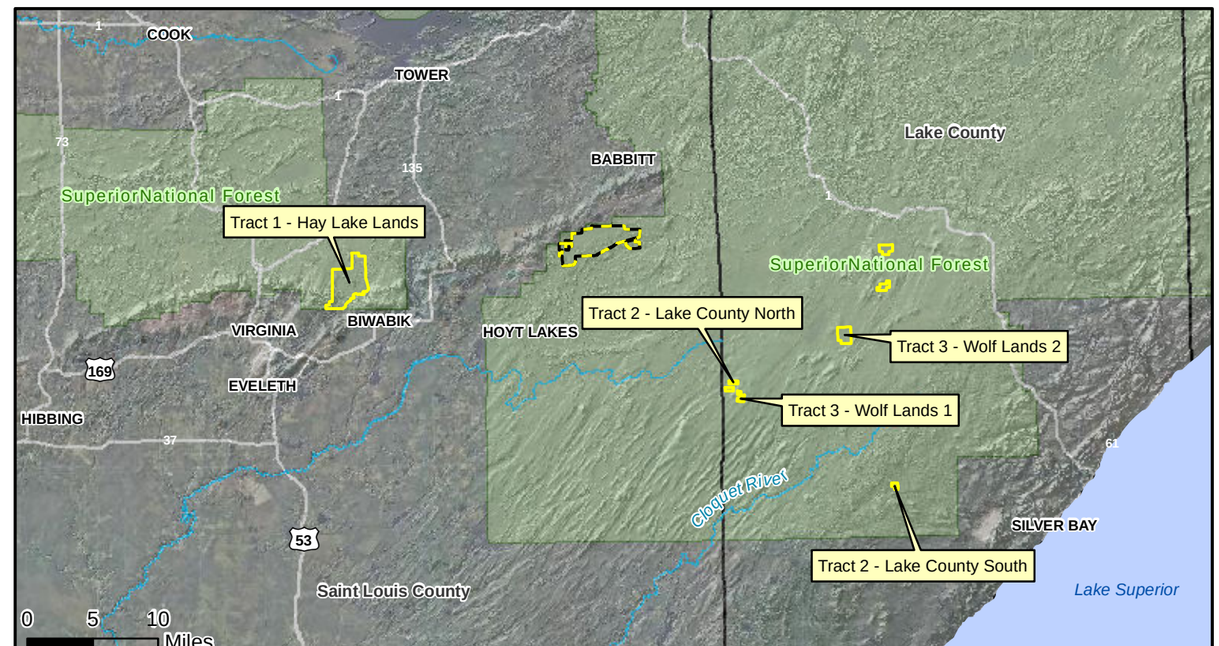

Federal Lands
Non-federal Lands
Eggers & Reed Wetland Types
Shrub Swamps (Alder thickets & Shrub-carrs)
Coniferous bog
Coniferous swamp
Deep marsh; Shallow marsh
Hardwood swamp
Hardwood/ Coniferous swamp
Open water (Shallow, open water & lakes)
Open bog
Sedge meadow; Wet meadow

US Army Corps of Engineers
St. Paul District

N W E S

Figure 16
Wetlands - Hay Lake Lands, Lake County Lands, and Wolf Lands 1 and 2
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

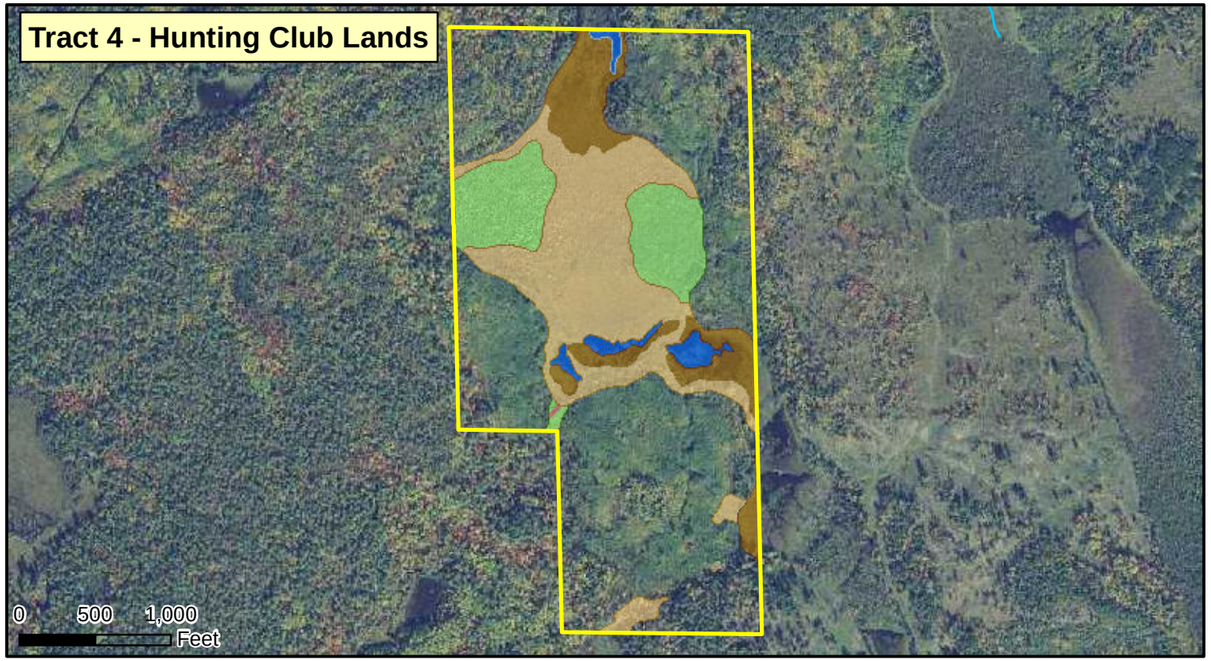

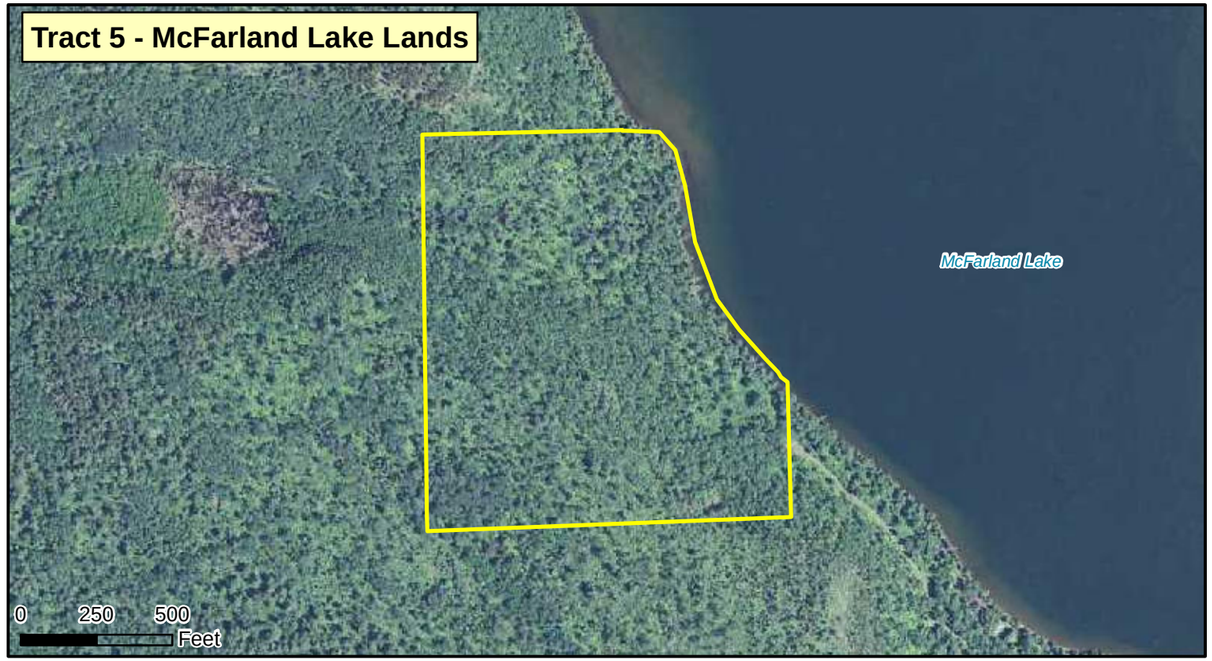

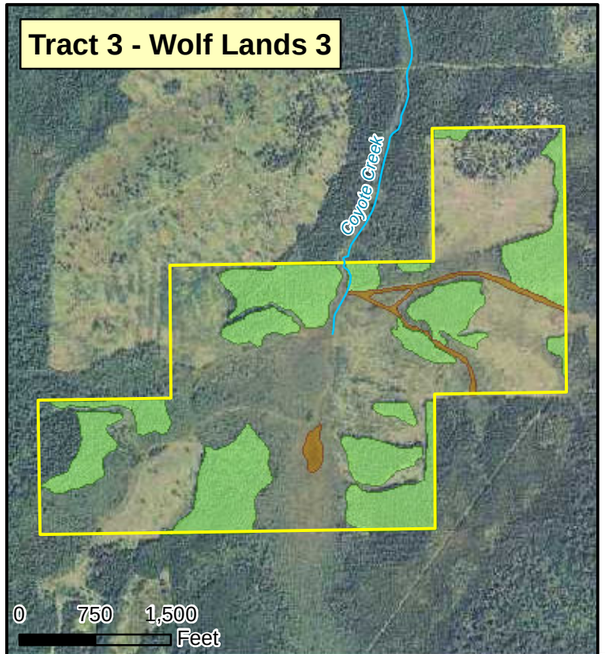

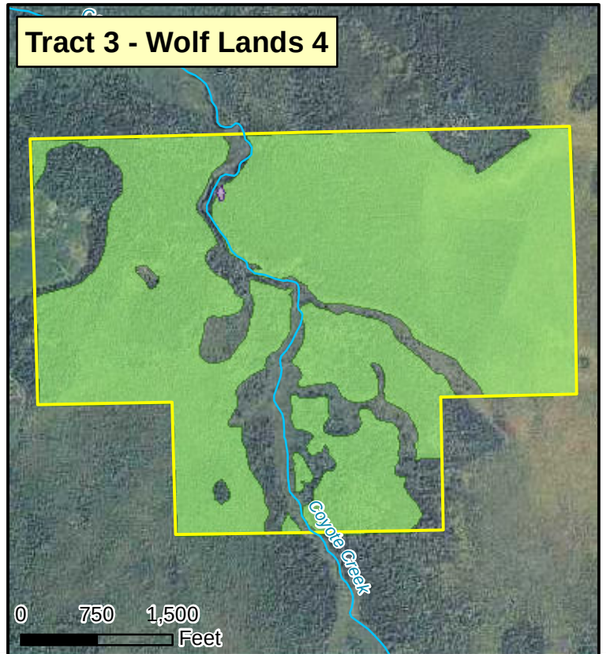

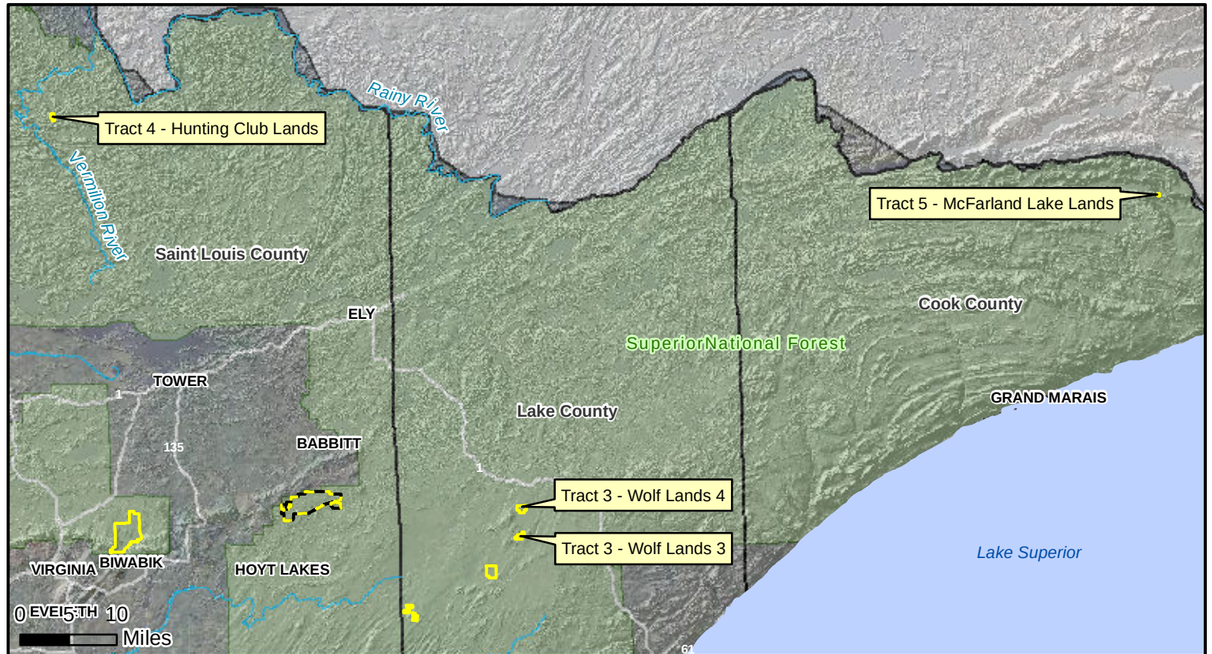

Federal Lands
Non-federal Lands
Eggers & Reed Wetland Types
Shrub Swamps (Alder thickets & Shrub-carrs)
Coniferous bog
Coniferous swamp
Deep marsh; Shallow marsh
Hardwood swamp
Hardwood/ Coniferous swamp
Open water (Shallow, open water & lakes)
Open bog
Sedge meadow; Wet meadow

US Army Corps of Engineers
St. Paul District

N W E S

Figure 17
Wetlands - Hunting Club Lands, McFarland Lake Lands, and Wolf Lands 3 and 4
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

Table 5
GAP Cover Type and Management Indicator Habitat on Federal and Non-federal Lands

Cover Type	Federal Lands	Non-federal Lands									Net Gain (Loss) to Forest Service after Land Exchange[1]
		Hay Lake	Hunting Club	Lake North	Lake South	McFarland Lake	Wolf Lands 1	Wolf Lands 2	Wolf Lands 3	Wolf Lands 4	
MDNR GAP Types											
Aquatic	60	251	10	2	4	0	0	0	0	0	207
Disturbed	64	0	0	0	0	0	0	0	0	0	(64)
Cropland/grassland	6	32	0	0	0	0	0	0	0	0	26
Shrubland	646	1,665	45	28	11	0	7	54	32	4	1,200
Lowland coniferous forest	2,979	1,524	9	133	53	0	75	586	184	357	(57)
Lowland deciduous forest	10	17	4	1	0	0	0	6	0	0	18
Upland coniferous forest	1,619	437	8	33	39	4	13	87	46	32	(920)
Upland deciduous forest	1,092	1,000	85	34	10	27	27	30	12	8	141
Upland mixed coniferous/deciduous forest	21	0	0	34	0	0	4	6	3	4	31
Management Indicator Habitat and other Forest Service Habitat Types											
MIH 1	1,330	2,366	89	49	2	26	44	57	41	20	1,364
MIH 5	1,252	54	13	1	0	4	0	8	0	0	(1,172)
MIH 9	3,060	1,818	17	194	46	0	72	627	186	349	249
MIH 14	0	206	10	1	3	1	0	1	1	4	227
Lowland Shrub	492	113	27	21	6	0	10	76	49	31	(160)
Lowland Emergent	186	365	4	0	16	0	0	0	1	0	201
Upland Grass	0	0	0	0	43	0	0	0	0	0	43
Management Indicator Habitat Age Class											
Young	271	534	27	24	43	0	2	8	130	10	507
Immature	1,539	3,260	33	75	1	0	76	69	22	5	2,001
Mature	3,854	460	60	145	48	30	38	615	75	354	(2,029)

[1] Totals may differ from actual sums due to rounding.
Sources: MDNR (2006), USDA Forest Service (2010a).

Table 6
Management Indicator Habitat and Age Classes on Federal and Non-federal Lands

Management Indicator Habitat and Age Class	Federal Lands - Existing Conditions (acres)		Direct Project Impacts – Federal Lands (acres)[1]	Non-federal Lands - Existing Conditions (acres)		Net Gain (Loss) to Forest Service after Land Exchange	
	Proposed Action	Alternative B		Proposed Action (All Lands)	Alternative B (Hay Lake Lands only)	Proposed Action[2]	Alternative B[3]
MIH 1	1,330	954	532	2,695	2,366	1,365	1,412
Young	233	233	144	607	519	374	286
Immature	540	395	231	1,497	1,387	957	992
Mature	557	326	158	591	460	34	134
MIH 5	1,252	1,139	505	80	54	(1,173)	(1,085)
Young	38	38	38	15	15	(23)	(23)
Immature	979	915	443	40	40	(940)	(876)
Mature	235	186	24	26	0	(210)	(186)
MIH 9	3,060	2,079	482	3,309	1,818	249	(261)
Young	0	0	0	113	0	113	0
Immature	20	16	0	1,988	1,818	1,968	1,802
Mature	3,040	2,063	482	1,208	0	(1,832)	(2,063)
MIH 14	0	0	0	227	206	227	206
N/A[4]	175	80	2	4	4	(171)	(76)
Other Lowland Emergent[4]	185	115	11	386	365	200	250
Other Lowland Shrub[4]	492	385	141	332	113	(160)	(272)
Other Upland Grass[4]	0	0	0	43	0	43	0
Totals[5]	**6,495**	**4,753**	**1,673**	**7,075**	**4,926**	**580**	**173**
MIH by age class						0	0
Young	271	271	181	778	534	507	263
Immature	1,539	1,326	673	3,540	3,260	2,001	1,934
Mature	3,854	2,575	665	1,825	460	(2,029)	(2,115)

[1] Acres of direct impacts from the Project are the same for the Proposed Action and Alternative B. The area of direct impacts on the federal lands includes portions of the Mine Site and the Dunka Road and Utility Corridor.
[2] The Proposed Action includes a land exchange of federal lands (6,495 acres) and non-federal lands (7,705 acres).
[3] Alternative B includes a land exchange of federal lands (4,753 acres) and non-federal lands (Hay Lake Lands; 4,926 acres).
[4] MIH type was not provided (N/A) or age class was not defined.
[5] Totals may differ from actual sums due to rounding.
Source: USDA Forest Service (2010a).

Table 7
GAP Cover Types on Federal and Non-federal Lands

GAP Cover Types	Federal Lands - Existing Conditions (acres)		Direct Project Impacts – Federal Lands (acres)[1]	Non-federal Lands - Existing Conditions (acres)		Net Gain (Loss) to Forest Service after Land Exchange	
	Proposed Action	Alternative B		Proposed Action (All Lands)	Alternative B (Hay Lake Lands only)	Proposed Action[2]	Alternative B[3]
Aquatic	60	26	4	267	251	207	225
Disturbed	64	29	16	0	0	(64)	(29)
Cropland/grassland	6	2	0	32	32	26	30
Shrubland	646	437	127	1,846	1,665	1,200	1,228
Lowland coniferous forest	2,979	2,065	437	2,921	1,524	(58)	(541)
Lowland deciduous forest	10	5	0	28	17	18	12
Upland coniferous forest	1,619	1,366	738	699	437	(920)	(929)
Upland deciduous forest	1,092	805	349	1,233	1,000	141	195
Upland mixed coniferous/deciduous forest	21	18	2	51	0	30	(18)
Totals[4]	**6,495**	**4,753**	**1,673**	**7,075**	**4,926**	**580**	**173**

[1,2,3] See Table 6.
[4] Totals may differ from actual sums due to rounding.
Source: MDNR (2006).

Table 8
Wetland Types on Federal and Non-federal Lands

Wetland Types[1]	Federal Lands - Existing Conditions (acres)		Direct Project Impacts – Federal Lands (acres)[2]	Non-federal Lands - Existing Conditions (acres)		Net Gain (Loss) to Forest Service after Land Exchange (acres)	
	Proposed Action	Alternative B		Proposed Action (All Lands)	Alternative B (Hay Lake Lands only)	Proposed Action[3]	Alternative B[4]
Total Land Acres	**6,495**	**4,753**	**1,673**	**7,075**	**4,926**	**580**	**173**
Coniferous bog	1,961	1,677	505	0	0	(1,961)	(1,677)
Coniferous swamp	1,288	476	71	3,242	1,954	1,955	1,478
Hardwood swamp	21	14	13	58	8	37	(6)
Open bog	210	175	7	7	2	(202)	(173)
Deep marsh	0	0	0	0	0	0	0
Shallow marsh	97	81	23	117	84	20	3
Open water (includes shallow, open water, and lakes)	31	9	0	183	177	152	168
Shrub swamp (includes alder thicket and shrub-carr)	521	395	94	1,062	706	541	311
Sedge/wet meadow	36	35	35	0	0	(36)	(35)
Total Wetlands[5]	**4,164**	**2,861**	**747**	**4,670**	**2,931**	**505**	**70**

[1] Wetland classification system based on Eggers and Reed (1997).
[2] Acres of direct impacts from the Project are the same for the Proposed Action and Alternative B. The area of direct impacts on the federal lands includes portions of the Mine Site and the Dunka Road and Utility Corridor.
[3] The Proposed Action includes a land exchange of federal lands (6,495 acres) and non-federal lands (7,705 acres).
[4] Alternative B includes a land exchange of federal lands (4,753 acres) and non-federal lands (Hay Lake Lands; 4,926 acres).
[5] Totals may differ from actual sums due to rounding.
Sources: MDNR et al. (2013), PolyMet (2013, 2014).

Most upland habitat is associated with the central portion of the Mine Site. One Hundred Mile Swamp, which borders much of the Mine Site, is the dominant feature on the landscape. The Partridge River flows along and outside the northeastern and eastern boundary of the Mine Site (**Figure 3**).

Habitat observed on the Mine Site is typical of habitats associated with much of the Iron Range. Forest vegetation dominates the Mine Site (**Figures 9** and **12**). Most forest stands contain trees that are 12 inch diameter-at-breast-height (dbh) or less.

The site can be divided into three general areas. The northwestern area is dominated by lowland black spruce, with scattered stands of trembling aspen and balsam fir/trembling aspen; tamarack is also scattered throughout these stands (ENSR 2000, 2005). Most trees are estimated to be 60 years or older (USDA Forest Service 2000b). Interspersed within forest stands are brush/young tree stands in areas that were recently logged and that provide habitat for deer and moose. Several wetlands are found in the northwest area, with One Hundred Mile Swamp comprising most of the western and northern portions of this area, including the federal lands surrounding the Mine Site.

The northeastern area is dominated by nearly equal amounts of jack pine and black spruce, with scattered trembling aspen stands and speckled alder swamps (ENSR 2000, 2005). Although there are scattered black spruce stands containing trees greater than 60 years in age, most trees, especially jack pine, are 30 to 70 years in age (USDA Forest Service 2000b). There are a few recently logged areas within this area. Several large wetlands are found in this area. Most shrub/young tree habitat is associated with these wetlands and drainages.

The southern area contains a nearly equal mix of lowland and upland black spruce, jack pine, and trembling aspen, with some balsam fir and paper birch (ENSR 2000, 2005). Most tree stands are from 40 to 80+ years of age, although jack pine tree stands along Dunka Road are from 20 to 40 years of age.

Vegetation in the recently logged areas consists of grasses and ferns with trembling aspen saplings and speckled alder (ENSR 2000, 2005). The areas of more mature upland forests consist of jack pine, balsam fir, and trembling aspen, with lesser amounts of paper birch, red pine, and white pine. The mature lowland areas consist mainly of black spruce and tamarack growing on a bed of sphagnum moss and club moss with speckled alder, bog Labrador-tea, and leatherleaf. The open wetland areas consist of grasses, sedges, cattails, speckled alder, and pussywillow.

Approximately 1,719 acres of the Mine Site would be affected by the Project. **Table 9** shows the cover types that would be affected by the Project.

3.1.2 Federal Lands Surrounding the Mine Site

Federal lands surrounding the Mine Site encompass about 3,776 acres surrounding the Mine Site to the west, north, and east. This area has little topographic relief. The lands consist of a mosaic of slightly elevated upland areas surrounded by wetlands, and slope toward the east-northeast, in the direction of the Partridge River. Most (76%) of the area is wetland habitat, including a portion of One Hundred Mile Swamp, although upland habitat (24%) is an important component in the western portions of the area (**Figures 12** and **15**, **Table 6**). Yelp Creek flows from One Hundred Mile Swamp, joining the Partridge River, which flows around the northern, eastern, and southeastern edges of the federal lands, outside of the Mine Site (AECOM 2011a).

Forest vegetation dominates the federal lands. Most forest stands contain trees that are 12 inches dbh or less. The area can be divided into three general parts (AECOM 2011a). The eastern portion is dominated by the Partridge River. Large stands of lowland black spruce with scattered northern white cedar and tamarack are found in low areas associated with the river. Emergent and speckled alder wetland is adjacent to most of the river. Stands of immature (trees from 5 to 11 inches dbh, and from about 10 to 80 years of age) and mature (trees greater than 11 inches dbh and over 80 years of age) mixed coniferous/deciduous forest, coniferous forest dominated by jack pine, and smaller patches of immature deciduous forest, are found at higher elevations (USDA Forest Service 2000b).

The northern portion of the federal lands surrounding the Mine Site includes a portion of One Hundred Mile Swamp. The swamp is comprised of some young (trees less than 5 inches dbh and less than 10 years of age), but mostly immature and mature black spruce, northern white cedar, and tamarack forests (AECOM 2011a). Northern white cedar is prevalent in the northcentral portion of the northern area, while black spruce and tamarack are more common in the remaining areas. Scattered stands of speckled alder are associated with the swamp, as are bog and emergent wetlands, especially along the Partridge River. There are scattered "islands" of mature deciduous and mixed coniferous/deciduous forest. Most of the forest stands are 90 years or older, with many of the remaining stands 70 to 90 years of age (USDA Forest Service 2000b).

The western portion of the federal lands surrounding the Mine Site are dominated by lowland immature black spruce forest in its center, bordered by bog wetlands and wetlands dominated by speckled alder and red-osier dogwood (AECOM 2011a). A large area dominated by cattail is associated with the transmission line rights-of-way (ROW). Upland immature and mature deciduous and mixed coniferous/deciduous forest, with scattered stands of coniferous forest, surrounds the centrally located black spruce forest. Clearings comprised of grasses, forbs, and shrubs are associated with the transmission line ROW, while scattered low areas, dominated by emergent and shrub swamp wetland vegetation, are interspersed within upland forest habitats.

Table 9
GAP Cover Types Affected by the Project at the Mine Site

Cover Type	Affected Acres	Non-affected Acres	Total Cover Type Acres	Percent of Cover Type Affected
Upland coniferous forest	742	454	1,196	62
Lowland coniferous forest	437	344	781	56
Upland deciduous forest	355	293	648	55
Shrubland	133	109	242	55
Disturbed	44	84	128	34
Aquatic environments	6	7	12	50
Upland coniferous-deciduous forest	2	1	3	67
Cropland/grassland	<1	5	5	4
Lowland deciduous forest	0	<1	<1	0
Total	**1,719**	**1,296**	**3,015**	**57**

Source: MDNR et al. (2013).

3.2 Plant Site and Transportation and Utility Corridors

The Plant Site encompasses about 4,515acres, which include the former LTVSMC processing plant, existing LTVSMC Tailings Basin, Area 1 Shop, Hydrometallurgical Residue Facility, and administration buildings. There is no federal land at the Plant Site.

The southwestern corner of the Plant Site, the former LTVSMC processing plant, has almost entirely been disturbed by past mining activities. No wetlands are present within this portion of the Plant Site, although there is a plant reservoir east of the concentrator that is not regulated as a wetland (PolyMet 2014a). The regulated wetlands within the Plant Site include a total of 52 wetlands covering approximately 245 acres. Using the MDNR GAP land cover types, approximately 61% (2,756 acres) of the Plant Site is disturbed and supports little vegetation. The remaining areas consist of trembling aspen and trembling aspen-paper birch forest (14%), aquatic habitat (14%), grass/brushland (7%), upland coniferous forest (2%), and lowland coniferous forest (1%; MDNR et al. 2013).

The Dunka Road and Utility Corridor is approximately 108 acres and the Railroad Connection Corridor is approximately 12 acres. There is no federal land in the Railroad Connection Corridor; however there is some federal land in the Dunka Road and Utility Corridor (**Figure 3**). Because of prior use during the former LTVSMC taconite mining operation, the Dunka Road and Utility Corridor is now defined as having a "disturbed" cover type. The remaining MDNR GAP land cover types that are not disturbed include cropland/grassland (8%), shrubland (6%), and smaller acreages of the remaining types. A total of 25 wetlands, encompassing approximately 7 acres, have been identified within the Dunka Road and Utility Corridor (MDNR et al. 2013).

3.3 Non-federal Lands

3.3.1 Hay Lake Lands

Hay Lake Lands are approximately 4,926 acres and have moderate topographic relief. The lands consist of a mosaic of slightly elevated upland areas surrounded by wetlands, and slope toward the east-northeast, in the direction of the Pike River (AECOM 2011b).

Most (59%) of Hay Lake Lands is wetland habitat, although upland habitat (41%) is an important component in the central and western portions of the lands (**Figure 16**). The Pike River, Hay Lake, and Little Rice Lake are dominant features of the landscape. The Pike River flows along the eastern boundary of the lands.

Forest vegetation dominates Hay Lake Lands. Nearly all forest stands contain trees that are 12 inches dbh or less, and most of the upland trees are 8 inches dbh or less. The lands can be divided into four general habitats. The eastern portion is dominated by the Pike River. Floodplain associated with river is dominated by emergent wetland with sedge and grass habitat, and shrub swamp wetland with speckled alder habitat. Wetland areas to the west of the river are dominated by lowland black spruce forest, with scattered northern white cedar and tamarack, and shrub swamp wetlands, especially in areas with evidence of past disturbance by logging activities.

Higher elevations in the northern, central, and western portions of the lands are dominated by upland deciduous and mixed coniferous/deciduous forest. Upland forest stands in the northern, central, and southwestern portions of the lands are immature to mature in size and age, while stands in the western portion of the lands are young to immature in size and age, having been harvested in recent years. Most trees are estimated to be 60 years or

younger. Two transmission line ROWs are found on the lands. Emergent wetland and upland grassland/shrubland vegetation dominates the ROWs. Abandoned logging roads are also found on the lands. Low areas along roads are dominated by emergent wetland vegetation consisting of sedges and grasses, while upland portions of roads are dominated by grasses and forbs.

3.3.2 Hunting Club Lands

Hunting Club Lands are approximately 160 acres, of which about 64 acres are wetland (**Figure 17**, **Table 5**). The lands drain to the north and then northeast via an unnamed creek. Several beaver dams are found along the creek. From this low area, the lands slope upward to the east and west. The lands consist primarily of shrub swamp wetland, with lesser amounts of emergent wetland, and upland immature and mature deciduous forests (AECOM 2011c).

Beaver ponds and dams are the dominant wetland features on the lands. Open water habitat is typical near the dams. Emergent vegetation, consisting of Canada bluejoint, narrow-leaved cattail, and sedges, is found in water from 12 to 24 inches deep, while shrub swamp is found near ponds at water depths from 6 to 18 inches. Speckled alder makes up to 80% of the cover in the shrub swamp wetlands. A large immature black spruce forest is found in the middle of Hunting Club Lands. The midstory consists of speckled alder, while leatherleaf, bog Labrador-tea, and sphagnum moss are found below the speckled alder. Immature black ash is found in a drainage leading to wetlands on the lands.

Habitat in the northwestern and northeastern portions and near the southern boundary of the lands is comprised of upland mature mixed coniferous/deciduous forest, dominated by eastern white pine to 24 inches dbh, and paper birch and trembling aspen to 12 inches dbh. The midstory consists primarily of balsam fir, while beaked hazel is found in the shrub layer.

The eastern and southern portions of the lands consist of patches of upland young and immature trembling aspen. The midstory consists of beaked hazel, with scattered black spruce and balsam fir. There is little ground cover. An “island” of trembling aspen-eastern white pine forest is found within the young and immature trembling aspen forest. It consists of young mature forest comprised of trembling aspen and eastern white pine to 16 inches dbh and black spruce to 12 inches dbh. There are many downed trees and much woody debris on the ground.

3.3.3 Lake County Lands

Lake County Lands consist of Lake County Lands North and Lake County Lands South.

3.3.3.1 Lake County Lands North

Lake County Lands North is approximately 265 acres, of which about 209 acres are wetland (**Figure 16**, **Table 5**). The lands have moderate topography, with the terrain generally sloping toward the southwest and Pine Lake. Lake County Lands North consists of two small areas to the north, and a single, small area to the south that is adjacent to Wolf Lands 1. The lands are comprised of mostly wetland habitat, except for areas of upland habitat on the northern portion of the northern area and on portions of the southern area. Portions of the lands have recently been logged. Wetland habitat consists mostly of immature coniferous forest, with lesser amounts of mature mixed coniferous/deciduous forest and shrubland. Upland habitat is dominated by mature deciduous and immature deciduous forests (AECOM 2011c).

Wetlands are comprised primarily of immature northern white cedar and black spruce with lesser amounts of tamarack, although several drainages also contain black ash. The midstory consists of balsam fir and black spruce, while speckled alder, leatherleaf, and bog Labrador-tea are found in the shrub layer. Club moss and sphagnum moss cover most of the ground.

Shrub swamp and emergent wetland habitats are also found on the lands. Shrub swamp habitat is associated with several drainages, a beaver pond, a bog area, and recently logged areas, while emergent wetland habitat was found near the beaver pond and on recently logged areas. Shrub swamp wetlands are dominated by speckled alder. Vegetation in the emergent wetlands consists of sedges and Canada bluejoint, with scattered black spruce, northern white cedar, tamarack, and speckled alder.

Upland habitats are comprised of immature and mature paper birch and black spruce, while recently logged areas supported young paper birch stands or shrub habitat. The midstory cover is comprised of balsam fir, black spruce, and beaked hazel. Young paper birch with scattered young trembling aspen and scattered immature paper birch are in areas that had been recently logged.

Older forests contain large amounts of downed woody material; this material is mostly absent in logged areas. Tree wind-throw is common in forest stands adjacent to the clearcuts, and walking in these forests is difficult due to downed trees and woody debris, and the dense stand of balsam fir, black spruce, and northern white cedar in the midstory.

3.3.3.2 Lake County Lands South

Lake County Lands South is approximately 117 acres, of which about 74 acres are wetland (**Figure 16**, **Table 5**). The lands are relatively flat in the northwest, rise in elevation to the northeast, and fall in elevation to the southeast. Water flows from west to east. A series of beaver dams and ponds dominate the landscape. Several areas have been recently logged and the dominant upland habitat is shrubland (AECOM 2011c).

Forested wetlands dominate the western and southeastern portions of the lands and are comprised of immature and mature black spruce and northern white cedar, although immature tamarack is found in some forest stands and immature black ash is an important component of several drainages. The midstory consists of balsam fir and black spruce. Speckled alder, leatherleaf, bog Labrador-tea, and red-osier dogwood are common shrubs, while sphagnum moss covered most of the ground. Forests in the northwestern portion contain a dense mix of northern white cedar and black spruce with scattered black ash in the drainages. The northwestern area of the northwestern portion is dominated by immature and mature northern white cedar.

Five beaver ponds were found on the lands. These ponds are comprised of open water with scattered dead spruce surrounded by emergent wetland dominated by sedges, narrow-leaved cattail, woolgrass, and Canada bluejoint, or by dense stands of speckled alder in shallow-water areas. Shallower-water drainages, especially in areas that have been logged, are covered by speckled alder, sedges, and narrow-leaved cattail.

Most upland areas have been recently clear-cut, with the exception of the southwestern section of the lands. This area has been partially thinned, leaving areas where mature paper birch, black spruce, jack pine, eastern white pine, and northern white cedar trees remain, ranging from 12 to 24 inches dbh. Balsam fir and beaked hazel are found in the midstory, while forbs and grasses cover the ground layer. Because of recent logging activity, woody debris and large downed trees are abundant.

3.3.4 McFarland Lake Lands

McFarland Lake Lands are about 31 acres on a hillslope that rises from 1,483 feet above mean sea level at McFarland Lake to 1,778 feet above mean sea level on the western boundary of the lands. Rocky cliffs, about 150 feet in height, are found at the top of the hillslope and large boulders are found on the hillslope (AECOM 2011c).

McFarland Lake Lands are dominated by deciduous and mixed coniferous/deciduous forest habitats (**Figure 17**, **Table 5**). Tree sizes and ages range from immature to mature. Some logging has occurred at the top of the hillslope along the western boundary of the lands.

3.3.5 Wolf Lands

Wolf Lands total 1,576 acres and consist of four parcels, Wolf Lands 1, 2, 3, and 4.

3.3.5.1 Wolf Lands 1

Wolf Lands 1 is approximately 126 acres, of which about 90 acres are wetland (**Figure 16**, **Table 5**). Most upland habitat consists of mature coniferous and deciduous forest, while most wetland habitat consists of immature coniferous forest. The lands are relatively flat but slope gently downward toward the southwest. The lands are adjacent to Lake County Lands North (AECOM 2011c).

Wetland communities are comprised primarily of young and immature forests in nearly equal amounts. Young forests are comprised of black spruce, with scattered northern white cedar and tamarack. Young forests have characteristics of more open bogs, as tree cover is sparse, trees are short, and most of the ground is covered by bog Labrador-tea and leatherleaf, and sphagnum moss. In immature forests, the canopy is dominated by 6 to 10 inches dbh black spruce, with tamarack and northern white cedar also present. The midstory consists of balsam fir and black spruce, while speckled alder, leatherleaf, bog Labrador-tea, and red-osier dogwood dominate the shrub layer. Club moss and sphagnum moss cover most of the ground (AECOM 2011c).

Upland mixed coniferous/deciduous immature and mature forest is found in the southwestern portion of the lands. Paper birch and trembling aspen cover about half of the area, and the midstory consists of mostly balsam fir; beaked hazel, and red-osier dogwood.

3.3.5.2 Wolf Lands 2

Wolf Lands 2 is approximately 769 acres, of which about 706 acres are wetland (**Figure 16**, **Table 5**). The lands consist of gently undulating terrain and slope toward the southwest. Water generally flows to the southwest and to Mary Ann Creek, Wenho Creek, and Greenwood Lake. The lands consist primarily of wetlands comprised of immature black spruce and northern white cedar forest, while shrub swamp comprised of speckled alder also is common. Black spruce is the dominant tree in wetlands in the northern and eastern portions of the lands, while northern white cedar is more prevalent in other portions of the lands (AECOM 2011c). Several drainages are dominated by speckled alder or have a black ash component, while emergent wetland habitat is associated with beaver ponds. Most upland habitat consists of immature mixed coniferous/deciduous forest.

Wetland immature forests are of three types: black spruce dominant, a mix of black spruce and northern white cedar, or northern white cedar dominant. Canopy trees range from 4 to 8 inches dbh. The midstory consists of

young black spruce, northern white cedar, and balsam fir. Bog Labrador-tea comprises 10 to 30% of the low shrub cover, while sphagnum moss often covers more than 80% of the ground.

Several drainages are dominated by shrub swamp vegetation. These drainages generally have a sparse overstory of black spruce, northern white cedar, and tamarack. Speckled alder and young trees are in the midstory while low shrub cover consists of bog Labrador-tea.

Beaver dams and ponds are found in the southeastern portion of the lands. Typically, open water is adjacent to the dams, with emergent wetland surrounding the open water and shrub swamp wetland upstream of the dams.

Upland habitat in the northern portion of the lands consists of an overstory of young and immature mixed coniferous/deciduous forest over a shrub layer of beaked hazel. Some of the upland area on the northern portion of the lands has been logged. Upland habitat is also found in the southern portion of the lands and is comprised of paper birch, trembling aspen, and black spruce, over a midstory of balsam fir and shrub layer of beaked hazel.

3.3.5.3 Wolf Lands 3

Wolf Lands 3 is approximately 277 acres, of which about 233 acres are wetland (**Figure 17**, **Table 5**). The lands are relatively flat and Coyote Creek begins its northward flow within the lands. Wetlands are dominated by shrub swamp and immature coniferous forest habitat, while uplands consist of mostly shrubland and immature deciduous forest (AECOM 2011c).

About half of the lands have been recently logged. Logged wetlands are dominated by grasses, forbs, and low growing shrubs, including red-osier dogwood and speckled alder. In shrub swamp wetlands, speckled alder dominates. Bog Labrador-tea is often thick in areas where there is a dense cover of speckled alder. Vegetation on logged uplands includes grasses, forbs, and beaked hazel.

In the unlogged areas, wetland forests are comprised of immature black spruce. In the northern portion of the lands, black spruce is co-dominant with tamarack; in the rest of the lands, tamarack is present in the canopy but in much lower amounts. The midstory consists of balsam fir and black spruce, while the shrub layer is dominated by bog Labrador-tea, over a ground layer of nearly continuous sphagnum moss with scattered grasses and forbs. There are numerous downed trees and much woody debris associated with tree wind-throw in areas adjacent to the clearings.

Coyote Creek is bordered by emergent sedge meadow wetland comprised of sedges, narrow-leaved cattail, and Canada bluejoint. There are also scattered young tamarack and northern white cedar, as well as scattered patches of speckled alder and bog Labrador-tea. The emergent wetland is bordered by dense speckled alder. Water depth in the emergent and shrub swamp wetlands is about 18 to 24 inches.

Upland areas within the lands have been logged recently. Most of these areas have few trees remaining, though some areas still support paper birch up to 16 inches dbh and scattered balsam fir. The upland habitat along the boundary of the lands consists of both young and mature paper birch with scattered black spruce and northern white cedar, over an understory comprised of balsam fir.

3.3.5.4 Wolf Lands 4

Wolf Lands 4 is approximately 405 acres, of which about 363 acres are wetland (**Figure 17**, **Table 5**). Coyote Creek bisects the lands, while the Stony River is found about 2,000 feet northwest of the lands. Timber harvests have recently occurred along the western border of the lands. Wetland habitats are dominated by immature coniferous forest and shrub swamp, while upland habitat consists primarily of mature deciduous forest (AECOM 2011c).

Coniferous forest dominates the wetland habitat. Black spruce forest dominates in the northern half of the lands, while northern white cedar is more prevalent in the southern half of the lands. Immature-size trees prevail over most of the lands, but patches of young black spruce are more common in the northeastern portion of the lands, and young northern white cedar and black spruce are more common in the southwestern portion of the lands. Emergent communities comprised of sedges and Canada bluejoint, and shrub swamp communities comprised primarily of speckled alder, are found in floodplains that border Coyote Creek.

Immature black spruce and black spruce/northern white cedar wetlands are dominated by trees ranging from 4 to 8 inches dbh. Scattered young and immature tamarack is also found in these wetlands. The low shrub layer is nearly continuous, and is comprised of leatherleaf, bog Labrador-tea, and other vegetation. Sphagnum and club mosses cover most of the ground.

Shrub swamp is dominated by speckled alder, with scattered black spruce, tamarack, and northern white cedar in the overstory. Leatherleaf and bog Labrador-tea cover comprise about 40 to 50% of the shrub layer.

Upland habitat consists of immature and mature paper birch and some black spruce. Trees are up to 18 inches dbh, although a 30 inches dbh jack pine and several large red pines to 24 inches dbh are found on the lands. Balsam fir is common in the midstory, while beaked hazel and raspberry are dominant in the shrub layer. In areas that have been logged recently, young paper birch is common over a shrub layer of beaked hazel, raspberry, and bog Labrador-tea.

4.0 Biological Evaluation Methodology

This section discusses the methods and references used for the literature review, database inquiries, consultations, field studies, and effects determination for the BE. This information is used in Section 5.0 for the analysis and determination of effects for all RFSS plants and animals.

4.1 Literature Review

4.1.1 Biological Evaluations

Several recent BEs have been prepared for proposed actions on or near the federal and non-federal lands and provided information that is used in this BE and include:

- *Forest Plan Revision Chippewa and Superior National Forests Regional Forester Sensitive Plants Biological Evaluation* (USDA Forest Service 2004c) and *Forest Plan Revision Chippewa and Superior National Forests Regional Forester Sensitive Animals Biological Evaluation* (USDA Forest Service 2004d; collectively 2004 Forest Service BEs) – evaluated potential effects to RFSS plants and animals from proposed vegetation management activities in the Chippewa and Superior National Forests, including federal lands.

- *Whyte Forest Management Project Laurentian Ranger District, Superior National Forest Biological Evaluation Region 9 Regional Forester Sensitive Species* (USDA Forest Service 2006) – evaluated potential effects to RFSS plants and animals from proposed forest management activities in Lake County.

- *Tracks Forest Management Project Laurentian Ranger District, Superior National Forest Biological Evaluation Region 9 Regional Forester Sensitive Species* (Tracks Project BE; USDA Forest Service 2010b) – evaluated potential effects to RFSS plants and animals from proposed forest management activities on the Tracks Forest Management Project (Tracks Project) area east of Hoyt Lakes and north of Brimson, Minnesota, in Lake and St. Louis Counties, and near the Project area. The Track Project area encompasses about 152,000 acres of land of which approximately 78,000 acres are in the Superior National Forest.

- *Regional Forester Sensitive Species Biological Evaluation for the Federal Hardrock Mineral Prospecting Permits Final EIS Appendix I Superior National Forest* (USDA Forest Service 2012) – evaluated potential effects to RFSS plants and animals from proposed hardrock mineral prospecting activities in the Superior National Forest, including the federal lands.

4.1.2 Other Sources of Information

- *Winter 2000 Wildlife Survey for the Proposed NorthMet Mine Site, St. Louis County, Minnesota* (ENSR 2000).

- *Land and Resource Management Plan for the Superior National Forest* (USDA Forest Service 2004a).

- *NorthMet Mine Summer Fish and Wildlife Study* (ENSR 2005).

- *2009 NorthMet Mine/Forest Additional Parcel Northern Goshawk and Owl Survey – Final Report* (AECOM 2009).

- *2008 NorthMet Mine/Forest Service Additional Parcel Summer Wildlife and Wetland Assessment – Final Report* (AECOM 2011a).
- *2009 Hay Lakes Parcel and McFarland Lake Parcel Summer Wildlife and Wetland Assessment Final Report* (AECOM 2011b).
- *Hunting Club, Lake County, and Wolf Land Parcels Fall 2010 Wildlife and Wetland Assessment Final Report* (AECOM 2011c).
- *NorthMet Mining Project and Land Exchange Draft Supplemental EIS* (MDNR et al. 2013).
- *Superior National Forest Bat Monitoring: Summary of 2013 Survey Effort (*Grandmaison et al. 2013).
- *Summary of Acoustic and Emergence Surveys for Bats in the NorthMet Project Area* (USDA Forest Service 2014a).
- *Summary of the 2014 Minnesota Northern Long-eared Bat Summer Habitat Use in Minnesota Project (Preliminary Report)* (USDA Forest Service 2014b).

4.2 Database Inquiries

The MDNR Natural Heritage Information System (NHIS) Rare Features database was queried for sightings of RFSS within the federal and non-federal lands (MDNR 2014a).

4.3 Consultation with Biologists with Local Knowledge of the Species

Telephone and in-person interviews were conducted with agency and other personnel with knowledge of RFSS in the region, including staff with the MDNR, Forest Service, and University of Minnesota.

4.4 Field Studies

4.4.1 Federal Lands

Several studies have been conducted for RFSS plants and animals on the federal lands. Three rare plant surveys were conducted on the proposed Mine Site during July 2004 (Johnson-Groh 2004, Pomroy and Barnes 2004, Walton 2004). A variety of habitats were surveyed and Global Positioning System (GPS) was used to record the locations of rare plant occurrences. Photographs were taken of specimens in their habitats, and representative specimens were collected, pressed, dried, and analyzed in the laboratory. Characteristics of the habitat were recorded at each location where RFSS plants were observed.

Surveys for moonworts, which are rare ferns, were conducted in July 2004 on the Mine Site using protocol developed by Johnson-Groh (2004) for the Forest Service. Areas with high potential for having moonworts were searched on hands and knees using the timed meander search approach.

Barr Engineering Company (Barr; 2007a) conducted surveys for ternate grapefern in late August and early September 2007. Surveys were conducted along the Dunka Road and other roads for the Project. The majority

of vegetation cover types on the Project area do not provide suitable habitat for St. Lawrence grapefern. Characteristics of the habitat were recorded at each location where RFSS plants were observed.

ENSR conducted studies of wildlife use of the proposed Mine Site in 2000 (winter study) and 2004 (summer study; ENSR 2000, 2005). In addition to determining general wildlife use of the area during January and March 2000 and June 2004, the study also determined the presence of RFSS wildlife species and important habitats used by RFSS and other wildlife species. These studies involved: 1) reviewing federal and state agency and conservation group databases for known and historic occurrences of RFSS species in the proposed Mine Site area; 2) reviewing previous plant and animal surveys conducted on or near the proposed Mine Site; 3) consultation with agency and conservation group biologists; 4) field surveys to record wildlife and their habitats on the site; and 5) calling surveys for wolf, raptors, and several species of woodpeckers, including RFSS species. In addition, a vegetation cover type map was prepared showing the habitat types on the site, including disturbed, wetland, and upland habitats. Within the wetland and upland habitat types, open water, emergent and bog wetland, grassland, shrubland, and deciduous, mixed deciduous/coniferous, and coniferous forest habitat types were recorded.

In October 2004, David Heath conducted studies of the freshwater mussel fauna in two reaches of the Partridge River, one reach of the Embarrass River, and one reach of Trimble Creek (Heath 2004). Mussels were collected by hand using Self-contained Underwater Breathing Apparatus (SCUBA) and snorkeling equipment.

In February 2005, Dan Breneman conducted a stream and wetland biological survey in the Project area (Breneman 2005). The survey was conducted on four stream sites and two wetland sites. Fish and macroinvertebrate community composition, habitat characteristics, and water chemistry parameters were examined to establish biological condition at these sites. Fish were sampled by electrofishing in streams, and with 24-hour trap net sets in wetlands. Macroinvertebrates were collected with D-frame kick nets and Hess, Ekman, or Petite Ponar dredge sampling gear. Total number of fish and total length per species were determined within each stream reach to estimate catch-per-unit effort. Macroinvertebrates were identified and enumerated, and the relative abundance and taxa richness per site were determined. Stream habitat characteristics and water quality parameters at each site were summarized by point estimates along randomly spaced transects.

Wetlands on the Mine Site were initially mapped in June 2004 by ENSR based on a general field survey of the area for wetland and upland habitats (ENSR 2005). The location and boundaries of wetlands were determined based primarily on vegetative and hydrologic characteristics of the sites (wetland boundaries were not mapped using GPS).

Between 2004 and 2012, Barr evaluated wetlands across the federal lands, including the Mine Site. Barr conducted wetland delineations across several Project areas between 2004 and 2006 (PolyMet 2013, 2014). In 2007, Barr evaluated wetlands on approximately 2,420 acres of the federal lands surrounding the Mine Site that were not evaluated as part of the 2004 to 2006 studies (Barr 2007b). Wetlands in this area were identified from field studies and aerial interpretation. Along the Dunka Road and other possible transportation routes, Barr conducted field studies to determine wetland boundaries, vegetation cover types, and plant species composition of wetlands identified in this area. For areas outside of the Dunka Road and possible transportation routes, wetlands were mapped primarily based on the presence of photographic signatures with limited field-truthing and GPS-locating. Barr also assessed wetland functions and values for these wetlands.

In September 2007 and August 2008, Barr assessed plant species of concern on portions of the federal lands surrounding the Mine Site (Barr 2007a, 2009a, 2011).

In August 2008, AECOM conducted studies of wildlife use of lands surrounding the Mine Site (AECOM 2011a). The study also determined the presence of RFSS wildlife species and important habitats used by RFSS and other wildlife species, and followed protocols used during 2000 and 2004 surveys of the Mine Site. In April 2009, AECOM conducted calling surveys for northern goshawk and owls, and made observations of other wildlife, on the federal lands surrounding the Mine Site (AECOM 2009).

The USFS Superior National Forest staff conducted surveys for the northern long-eared bat and little brown bat at three general locations in the Project area in July and August 2014 (Smith et al. 2014). The three Project locations included the Mine Site, the Plant Site, and the Dunka Road and Utility Corridor. Survey methods utilized passive sonic (Anabat) detectors on the Mine Site and Dunka Road and Utility Corridor. At the Plant Site, the methods were primarily direct observation of bat species, supplemented by passive sonic detectors when feasible.

4.4.2 Non-federal Lands

In June 2009, AECOM evaluated wildlife and their habitats and conducted northern goshawk, owl, bat, and gray wolf surveys on about 4,760 acres of non-federal lands on Hay Lake Lands and McFarland Lake Lands (AECOM 2011b). In November 2010, wildlife and their habitats, and wetland functions and values, were evaluated on the Lake County Lands, Hunting Club Lands, and Wolf Lands (AECOM 2011c). During both wildlife surveys, AECOM also mapped upland and wetland habitats on the lands and evaluated wetlands for their functions and values. Survey protocols were similar to those used by ENSR and AECOM for the federal lands.

An assessment of RFSS plant species was not conducted for the non-federal lands as these lands would not be disturbed by the Project. Information on RFSS occurrence on or near the lands was obtained from the MDNR (2014) NHIS database and from Forest Service observations on and near the lands. However, these sources do not provide the same level of detail as the plant surveys conducted on the federal lands, so lack of occurrence data does not conclusively indicate that an RFSS plant species is not present on the non-federal lands. Should these lands be acquired by the Forest Service under the land exchange, the Forest Service would conduct RFSS surveys prior to conducting ground-disturbing activities, such as road building and timber harvesting.

4.5 Determination of Effects

4.5.1 Types of Effects and Assessment Factors

Section 5.0 includes background information and an analysis of the effects of the Project on the RFSS listed in **Table 1,** which are species that have occurred or are likely to occur, and/or have habitat or are likely to have potential habitat, on the federal and/or non-federal lands. For each RFSS, background information on species abundance and distribution and habitat requirements is presented. Potential beneficial and adverse direct and indirect effects to the species that are related to the proposed action and alternatives, and that may result from the Proposed Action or alternatives, are presented. Effects of future actions on RFSS, and that are reasonably likely to occur in the areas considered in this BE, or cumulative effects, are also discussed. These effects are defined as follows:

- Beneficial – Effects of an action that are wholly positive, without any adverse effects, on a RFSS or designated habitat. Determination that an action will have beneficial effects is a "may impact" situation.
- Direct – The direct or immediate effects of the Project on a RFSS or its habitat. Direct effects result from the proposed action including the effects of interrelated actions and interdependent actions.
- Indirect – Effects caused by or resulting from the proposed action, which are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the action.
- Cumulative – Include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the cumulative effects study area (CESA) and are considered in this BE.

The effects assessment is based on the following factors:

- the dependency of the species on specific habitat components,
- habitat abundance,
- population levels of the species,
- the degree of habitat impact, and
- the potential to mitigate for an adverse effect.

4.5.2 Cumulative Effects

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the CESA considered in this BE.

The CESA includes the Nashwauk and Laurentian Uplands ecological subregions within the Arrowhead Region of Minnesota. This area totals approximately 1.38 million acres in the northeast corner of Minnesota (**Figure 18**; Emmons and Olivier Resources, Inc. 2006). The period for analysis of cumulative effects in this BE was from pre-settlement (approximately 1890) through closure and reclamation of Project facilities (approximately 40 years).

Cumulative effects to plants and animals are discussed in Chapter 6 of the FEIS (MDNR et al. 2015). The effects discussed in that section were based on an analysis conducted for a 2006 MDNR report titled *Cumulative Effects Analysis on Wildlife Habitat and Travel Corridors in the Mesabi Iron Range and Arrowhead Regions of Minnesota* (Emmons and Olivier Resources, Inc. 2006), and a report titled *Cumulative Effects Analysis of Wildlife Habitat and Threatened and Endangered Wildlife Species* (Barr 2009b).

In accordance with Council on Environmental Quality guidance on June 24, 2005 (Council on Environmental Quality 2005), past actions associated with the Project are addressed through their current aggregate effects and have not been provided as a list of individual projects in this BE. The FEIS identifies a number of proposed projects that should be considered reasonably foreseeable future actions and that may contribute to cumulative effects to plants and animals. These include mining and other land development activities, and land management activities such as timber harvest, prescribed fire, and road construction that may be authorized or carried out on nearby federal, state, and private lands and that are likely to have both positive and negative effects to RFSS.

Based on analysis conducted by Emmons and Olivier Resources, Inc. (2006:30, 38), approximately 1,700 acres of wildlife habitat were lost from the Nashwauk and Laurentian Uplands ecological subregions between 1890 and the 1990s, with loss due to forestry and mining accounting for 89% of the loss. In most of the region, forest communities have transitioned from predominately pine- and tamarack-dominated forests to trembling aspen and other non-pine community-dominated forest species. Forest composition has changed, and the Minnesota Forest Resource Council (2003) concluded that forest fragmentation has increased, with decreased forest stand sizes and more miles of forest edge.

Barr (2009b) estimated habitat loss due to mining at about 17,000 acres over the next 25 to 30 years. In the future, the rate of habitat loss due to mining would decrease as vegetation establishes on disturbed lands. Potential disturbances to habitat within the Laurentian Uplands ecological subsection would be primarily due to timber harvest and mining, and habitat types most likely to be affected include upland and lowland coniferous forest, upland deciduous forest, and upland shrub/woodland. Within the Nashwauk Uplands ecological subsection, mining activities and urban development would be more likely to affect habitat, with upland deciduous forests and upland shrub/woodland habitats most affected (Emmons and Olivier, Inc. 2006).

Although more land would be impacted by timber management than mining in the future, forestry management offers a greater range of options for RFSS to co-exist with the practice, as it can mimic natural disturbances, whereas mining represents a complete land conversion that could affect long-term RFSS habitat availability. Between 2005 and 2014, within the Laurentian Uplands ecological subregion, an average of approximately 1,034 forest acres were (or would be) harvested annually on state lands (0.2% of the subregion). Between 2010 and 2019 within the Nashwauk Uplands ecological subregion, an average of approximately 1,189 forest acres were (or would be) harvested annually on state lands (0.1% of the subregion). On average, 1% of timber land in the Superior National Forest is harvested annually (MDNR et al. 2013). Private timber harvest data are generally not available.

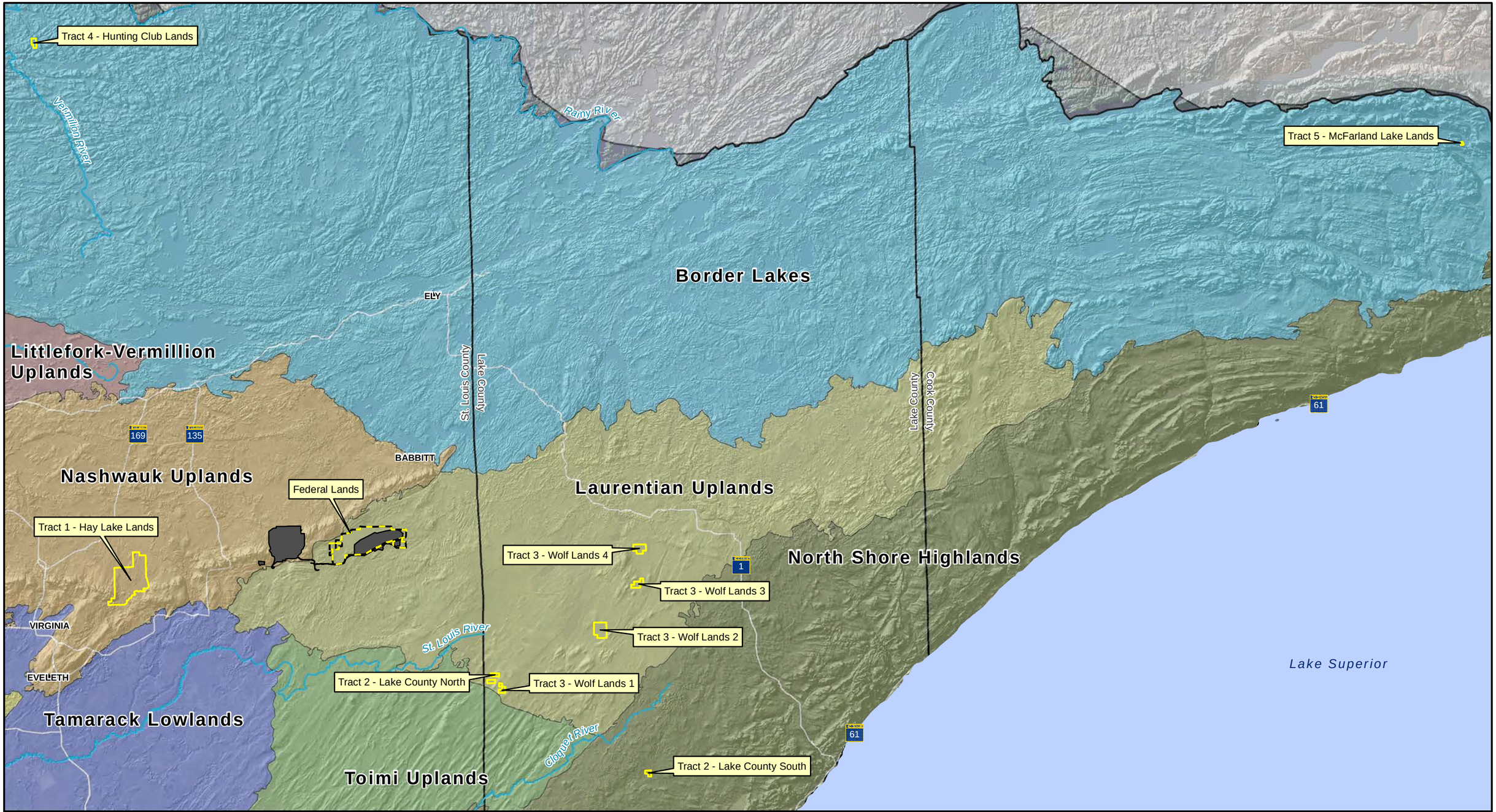

Federal Lands
Non-federal Lands
Project Areas
Major River

Ecological Subsections
Border Lakes
Laurentian Uplands
Littlefork-Vermillion Uplands
Nashwauk Uplands
North Shore Highlands
St. Louis Moraines
Tamarack Lowlands
Toimi Uplands

US Army Corps of Engineers
St. Paul District

N W E S

0 3.75 7.5 15 Miles

Figure 18
Arrowhead Region of Minnesota and Ecological Subsections
Biological Evaluation for the NorthMet Project and Land Exchange
St. Louis County, Minnesota

5.0 Analysis and Determination of Effects

This section discusses all RFSS plants and animals that are known or suspected to occur on the federal and/or non-federal lands, or that may have habitat on the lands, as identified in **Table 1**. Primary sources of information used to describe the environmental baseline condition are the *NorthMet Mining Project and Land Exchange Draft SEIS* (MDNR et al. 2013 and references cited therein), *Tracks Project BE* (USDA Forest Service 2010b and references cited therein), MDNR Rare Species Guide (MDNR 2008 and references cited therein), MDNR NHIS Rare Features Database (MDNR 2014a), and Bell Museum of Natural History (2013) Scientific Collections database.

Plant habitat cover types and acreages used in the description of habitat conditions and for Project effects analysis are based on MDNR (2006) for GAP cover types, USDA Forest Service (2010a) for MIH cover types, and MDNR et al. (2013) and PolyMet (2013,2014) for wetland habitat cover types.

Plant population numbers correspond to the MDNR Element Occurrence within the NHIS database (MDNR 2014a). According to the 2014 MDNR NHIS training notes, Element Occurrences may have multiple observations in a given area, but are considered one population if they are "within close enough proximity to one another to allow for gene flow and there are no known barriers to movement." These clusters of observations are described here as colonies for given populations. An individual is defined as a single plant of a species. A colony is a group of individual plants of one species in a distinct geographic location. A population is a group of individuals or colonies of one species that may be separated geographically, but are close enough to interbreed and persist over time.

Other sources of information for the BE are provided in Section 4.0. Information in Section 5.0 may be assumed to be from one of these sources. Any additional information that is not from one of these sources is cited in the text.

5.1 Vascular and Non-vascular Plants

5.1.1 Plants Not Evaluated in the Biological Evaluation

As shown in **Table 1**, there is no suitable habitat on the federal or non-federal lands for alpine milkvetch, *Arctoparmelia centrifuga, Arctoparmelia subcentrifuga,* creeping rush, Chilean sweet-cicely, Douglas' hawthorn, little goblin moonwort, long-leaved arnica, nodding saxifrage, Oakes' pondweed, Scotch false asphodel, short sedge, smooth woodsia, and Wain's cup lichen. The Proposed Action, Alternative B, and No Action Alternative would have **no impact** to individuals of these species, and they will not be addressed further in this BE.

5.1.2 Plants of Non-forested Wetlands, Shallow Water, and Riparian Areas (Habitat Group 1)

5.1.2.1 Environmental Baseline

Habitat Group 1 RFSS favor non-forested wetland habitat, shallow water, and riparian areas. The following Habitat Group 1 RFSS either occur on, and/or have suitable habitat on, the federal and/or non-federal lands—small beggarticks, floating marsh marigold, linear-leaved sundew, quill spikerush, moor rush, auricled twayblade, American shoreweed, bog muhly, Leiberg's waterlily, American waterawlwort, and bog white violet.

Of these species, floating marsh marigold, quill spikerush, and moor rush are found on the federal lands. No Habitat Group 1 RFSS have been reported on the non-federal lands.

Species Conditions

Small Beggarticks *(Bidens discoidea)*

In Minnesota, small beggarticks is restricted to a relatively few lakes in the northeast counties, including St. Louis and Cook Counties, where it is found along boggy shorelines and floating mats in partial to full sunlight (Minnesota Wildflowers 2013).

Small beggarticks has not been reported on the federal or non-federal lands, or on the Tracks Project area. As discussed in Section 4.1.1, the Tracks Project area is east of Hoyt Lakes and north of Brimson, Minnesota, in Lake and St. Louis Counties, and near the Project area. The Tracks Project area encompasses about 152,000 acres of land of which approximately 78,000 acres are administered by the Forest Service.

Floating Marsh Marigold *(Caltha natans)*

Floating marsh marigold was first collected in Minnesota in 1889 from Vermilion Lake in St. Louis County. All subsequent collections have been from St. Louis County, including the federal lands and Tracks Project area. Very few populations are known in Minnesota. Habitat loss is the primary reason behind recent local extirpations of this species in Minnesota.

Floating marsh marigold is a perennial aquatic forb and occurs within shallow open water or on moist mud within northern ponds, lakes, slow-moving rivers, streams, ditches, and wet meadows. Floating marsh marigold is found in relatively stable aquatic systems and may be sensitive to disturbances, including alteration of hydrology or hydro-period, water quality, water chemistry, and non-native species invasion, although a few populations are found on disturbed habitats.

Of the 12 known populations statewide, 3 populations, totaling 22 individuals, occur on the federal lands north of the Mine Site along the Partridge River. The populations would not be disturbed by mining. Nine additional populations of floating marsh marigold occur on privately owned lands south of the Mine Site, and along Dunka Road. One of these populations would be directly affected by a Waste Rock Stockpile.

Floating marsh marigold has not been reported on the non-federal lands.

Linear-leaved Sundew *(Drosera linearis)*

In Minnesota, linear-leaved sundew has been found in Lake County, but not in St. Louis or Cook Counties. It is one of a small group of rare plant species that are restricted to a high-quality, undisturbed, type of peatland called patterned fens. These fens tend to develop at the core of large peatland complexes in northern Minnesota. Like all sundews, linear-leaved sundew is a small, inconspicuous plant with one outstanding feature; the leaves are covered with mucilage-tipped tentacle-hairs that are adapted to trap insects. Protection of fen habitat is essential to the survival of this species.

Linear-leaved sundew has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Quill Spikerush *(Eleocharis nitida)*

Quill spikerush distribution in Minnesota is limited to the northeastern counties of the Arrowhead region and west to Itasca County. Quill spikerush was first collected in Minnesota in 1946 from various wetland habitats in Cook and St. Louis Counties. Despite the long collection record for this species in Minnesota, relatively few populations have been documented and little is known about the overall distribution of the species throughout the state.

Quill spikerush occurs within various wetland habitats of northern Minnesota, including acid bog pools, small streams, areas of seasonal water drawdown (mucky/peaty flats), disturbed wetland edges, and along roads and trails. This rooted perennial species may be intolerant of hydrologic fluctuations and alterations to water quality and chemistry associated with landscape and wetland alteration and development. However, roadside distributions suggest the species may be semi-tolerant to disturbance and at least mild alterations in water quality in the short term.

Of the 49 known populations in the state, 1 population occurs within the federal lands, on the Mine Site, and would be affected by the Project. There are an additional 13 locations of this species on private lands located along Dunka Road and the railroad tracks south of the Mine Site. Project activities would directly affect four of these populations.

Quill spikerush has not been reported on the non-federal lands. It has been reported on the Tracks Project area.

Moor Rush *(Juncus stygius* var*. americanus)*

Moor rush is distributed across the northern and northeastern Arrowhead counties in large patterned peatlands and calcareous fens. It was first documented in St. Louis County in 1886. In 2003, it was reported in Carlton County (one occurrence), Koochiching County (five occurrences), and Lake County (four occurrences; USDA Forest Service 2004e). It is generally not a dominant species. Even in ideal, large-patterned peatland settings, it occurs in isolated colonies with scattered individuals.

Moor rush is a perennial graminoid species that occurs in full sun, and generally, it is restricted to narrow wet zones of the margin of a bog pond. Moor rush has very specific hydrology requirements and the principal threats are large-scale disturbances to its peatland habitat and surrounding watersheds. These threats include mineral exploration, peat mining, pollution of watershed waters, alterations of hydrologic regime, and acid rain (USDA Forest Service 2004e and references cited therein).

Of the 30 known populations in Minnesota, 1 population consisting of 67 individuals scattered within a 450-feet radius was found on the federal lands within One Hundred Mile Swamp in bog habitat with scattered black spruce (PolyMet 2013).

Moor rush has not been reported on the non-federal lands. It has been reported on the Tracks Project area.

Auricled Twayblade *(Listera auriculata)*

Auricled twayblade ecology is poorly understood and the species has a very limited distribution. It is found in St. Louis, Lake, and Cook Counties, including along the North Shore of Lake Superior, and at Isle Royale National Park. It is rarely encountered and, until recently, little was known about its distribution and habitat

requirements. The species is very rare in Minnesota, prompting its listing as a state endangered species in 1996. Its persistence is precarious because there are so few populations and most populations have few individuals.

In Minnesota, it is characteristically found along streams or pond margins in low, moist hardwood forests, mixed coniferous/deciduous forest, and shrub swamps (Hoy 2001). Habitat destruction related to high water levels and vegetation succession, either by human alteration or by natural processes is a potential threat.

Auricled twayblade has not been reported on the federal or non-federal lands, or on the Tracks Project area.

American Shoreweed *(Littorella americana)*

American shoreweed occurs in the northeastern U.S. and adjacent Canada, and is considered vulnerable or imperiled across much of its range due to its rarity and threats to its habitat. It currently reaches the westernmost extent of its distribution in the Laurentian Uplands ecological subregion of northeastern Minnesota. The species was first collected in1886 from Basswood Lake in Lake County. Since that time, 60 additional occurrences have been documented in the state, including in St. Louis, Lake, and Cook Counties, primarily in the BWCAW.

American shoreweed is an aquatic plant primarily occurring in lakes having a sandy, gravel/cobble substrate. In some lakes, plants may become partially or wholly buried in fine organics or silts. Plants are most often observed when they become stranded along the lakeshore.

American shoreweed has not been reported on the federal or non-federal lands. It has been reported on the Tracks Project area.

Bog Muhly *(Muhlenbergia uniflora)*

Bog muhly is a small, fine grass primarily distributed in northeastern North America and ranging as far west as Minnesota. It is found in Lake and Cook Counties, primarily in the BWCAW. The species was first reported in Minnesota from St. Louis County in 1956 and from Lake County the following year. The St. Louis County occurrence near Gilbert has never been located again. It is also questionable whether Lake County location has been located again, in part due to a disputed herbarium label data. Bog muhly subsequently went undocumented in the state until 1987, when it was discovered on the sandy beaches of a lake in the BWCAW. As of 2009, approximately 25 occurrences have been reported, many of which are within 5 miles of each other.

In Minnesota, bog muhly occurs in wetlands and is considered to be a wetland obligate species. It occurs along sandy-gravel shores or cobbly organic shores, in seasonal basins, in peaty depressions, and on low hummocks in rich sedge fens. It is also known to occur in bogs, wet meadows, and lake shores in sandy or peaty, often acidic, soils.

Bog muhly has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Leiberg's waterlily *(Nymphaea leibergii)*

Leiberg's waterlily has a rather limited geographic range and is rare within its geographic range. It has been reported in Cook and Lake Counties and the BWCAW. This aquatic species was first discovered in Minnesota at Bald Eagle Lake (Lake County) in 1914. It was subsequently found at Mulligan Lake (Beltrami County) in 1949, Botany Bog (Itasca County) in 1977, and Stony Creek (Lake of the Woods County) in 1980. The species

was ultimately found in several rivers and streams in two major drainages within the sandy region of the Glacial Lake Agassiz basin, including the western branches of the Rapid River, which drains the Red Lake peatland.

The documented occurrences of Leiberg's waterlily in Minnesota are in shallow, protected bays in lakes and in slow-moving streams, especially streams impounded by beaver dams. One site is in a narrow outlet of a small pond surrounded by a graminoid poor fen. The plants are usually rooted in soft sediments beneath 3 to 7 feet of water, although the water is sometimes deeper. They prefer the outer margin of emergent vegetation, which typically consists of wild rice, arrowhead, bulrush, and cattail. The species frequently occurs with yellow pond-lily.

Leiberg's waterlily has not been reported on the federal or non-federal lands, or on the Tracks Project area.

American Waterawlwort *(Subularia aquatica* spp. *americana)*

American waterawlwort is a small, aquatic species that inhabits shallow water margins (typically 6 to 18 inches, sometimes as deep as 35 inches). It has a wide distribution in North America, although it is uncommon over most of its range. In Minnesota, it has been found primarily in the littoral zone of large, sandy, oligotrophic lakes in the northeast; there are a few occurrences from silty substrata in non-oligotrophic lakes in north-central Minnesota. When originally listed as state endangered in 1984, American waterawlwort was known from only six sites. Between 1984 and 2008, 11 additional populations were discovered. The majority of sites are in the Superior National Forest and the BWCAW, including in St. Louis, Lake, and Cook Counties.

American waterawlwort has not been reported on the federal or non-federal lands, or the Tracks Project area.

Bog White Violet *(Viola lanceolata* var. *lanceolata)*

Bog white violet (synonym: lance-leaved violet) occurs in low, moist meadows with a sandy substrate, moist swales in sand dunes and savannas, and occasionally on sandy lakeshores. One recent population was found on dry mud in an old beaver lodge. The majority of the original Minnesota populations probably occurred on the Anoka Sandplain in Sherburne, Isanti, and Anoka Counties. Recently, there have been discoveries of bog white violet in northeastern Minnesota in St. Louis and Lake Counties, including the BWCAW, where it appears to occur sporadically over a relatively large area (Milburn and Husveth 2004).

Bog white violet is typically found in habitats that have experienced some sort of disturbance event, which benefits this species due to its inability to compete with larger species. As competition for light and nutrients increases within the community, the size of the population decreases, and the population waits for the next disturbance event. Following a disturbance event, the species is adapted to quickly germinate from the seed bank or colonize an open area. The greatest threat to bog white violet is loss of habitat due to development, but fire suppression, altered hydrology, and invasive species can also negatively affect this species.

Bog white violet has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Habitat Conditions

There are approximately 4,164 acres of wetlands on the federal lands (**Table 8**). Although coniferous bog and coniferous swamp are the dominant wetland types, there are about 343 acres of non-forested wetland habitat (open bog, sedge/wet meadow, and shallow marsh) and 31 acres of open water associated with the federal lands,

or 6% of the federal lands, that could provide habitat for Habitat Group 1 RFSS. Nearly all of these wetlands are rated high for wetland quality (MDNR et al. 2013).

Mud Lake, the dominant open water feature on the federal lands, is within the One Hundred Mile Swamp. It is approximately 30.5 acres and has approximately 4,550 feet of shoreline. Yelp Creek flows out of One Hundred Mile Swamp to the Partridge River. The Partridge River flows through the northern, eastern, and southeastern portions of the federal lands. Collectively, Yelp Creek and the Partridge River are approximately 5.3 miles in length on the federal lands.

There are approximately 4,670 acres of wetlands on the non-federal lands (**Table 8**). Coniferous swamp and alder thicket or shrub-carr are the dominant wetland types, but there are also 124 acres of non-forested wetland habitat (open bog, sedge/wet meadow, and shallow marsh) and 182 acres of shallow, open water habitat on the non-federal lands, or 4% of the non-federal lands, that could provide habitat for Habitat Group 1 plant species. All wetlands on the non-federal lands are rated high for most wetland functions and values and wetlands on the non-federal lands share similar characteristics to those on the federal lands.

Several lakes and streams with associated riparian zone habitat are found on the non-federal lands. Hay Lake is on Hay Lake Lands and is approximately 96 acres with approximately 9,894 feet of shoreline. Little Rice Lake is also on Hay Lake Lands and is approximately 29 acres with approximately 4,830 feet of shoreline. An unnamed lake between Hay Lake and Little Rice Lake is approximately 4 acres with approximately 1,700 feet of shoreline. McFarland Lake Lands border McFarland Lake, with approximately 990 feet of shoreline along McFarland Lake. There are no other major lakes on the other non-federal lands.

Within Hay Lake Lands, the Pike River flows approximately 8 miles from the southern boundary to the northern boundary of the lands. Riparian habitat is found on both sides of the river for 5.7 miles and is found along one side of the river for 2.4 miles where the Pike River forms the boundary of Hay Lake Lands.

Coyote Creek begins on Wolf Lands 3, then flows north onto Wolf Lands 4 and beyond. The creek is approximately 0.1 mile long on Wolf Lands 3, and 0.9 mile long on Wolf Lands 4. Riparian habitat is found on both sides of the creek.

5.1.2.2 Direct and Indirect Effects

Proposed Action

Species Conditions

Federal Lands

Based on plant surveys of the federal lands, floating marsh marigold and quill spikerush would be directly affected by the Project. Moor rush has been found on the federal lands, but would not be affected by the Project. The remainder of Habitat Group 1 RFSS has not been reported on the federal lands.

Nine floating marsh marigold populations are near, but outside, the Mine Site and federal lands; five of these populations are found along the Partridge River. One population of floating marsh marigold would be directly affected by a Waste Rock Stockpile. The known statewide population for this species is rather small, the Project would affect about 8% of the known population in Minnesota.

Quill spikerush is primarily found in ditches along Dunka Road with gravel or sandy substrates. Of the 49 known populations in the state, 1 population would be affected by the Project (2% affected). An additional 13 populations are found along Dunka Road and the railroad tracks, but they are not on federal lands. The Project would have a direct effect on four of these populations. This species seems to be semi-tolerant of disturbance because it inhabits roadside ditches.

Moor rush has 30 known populations in the state, none of which occur on the Project area. One population, however, is found on the federal lands north of the Mine Site and within One Hundred Mile Swamp. This population would not be affected by the Project.

Non-federal Lands

No Habitat Group 1 RFSS have been reported on the non-federal lands. Under the Proposed Action, the non-federal lands would be transferred to the Forest Service, who would manage the lands for timber production, recreation, nature study, and other values. There would be no direct or indirect effects to Habitat Group 1 RFSS on the non-federal lands from the Project.

Habitat Conditions

Federal Lands

Direct effects to habitat for Habitat Group 1 RFSS on the federal lands would occur from habitat removal or destruction primarily from mining-related activities, including construction of the mine pits, Waste Rock Stockpiles, access roads, and mine facilities.

There are about 343 acres of non-forested wetland and 31 acres of open water within the federal lands that could provide habitat for Habitat Group 1 RFSS (**Table 8**). The Project would affect about 65 acres of non-forested wetland, but 0 acres of open water, or about 17% of the available habitat. The Project would not affect Mud Lake, the large open water area found within One Hundred Mile Swamp, or riparian zone habitat associated with Yelp Creek and the Partridge River.

Habitat for these species could be indirectly affected by dust from mining activities and vehicles, ore spillage, changes in surface and groundwater hydrology from groundwater drawdown, and from changes in water quality related to leakage from stockpiles/mine features and seepage from mine pits. These risks to Habitat Group 1 RFSS, however, should be negligible.

Non-federal Lands

There are about 124 acres of non-forested wetland (open bog, sedge/wet meadow, and shallow marsh) and 183 acres of open water within non-federal lands that could provide habitat for Habitat Group 1 RFSS (**Table 8**). Most of these habitats are found on Hay Lake Lands (263 acres; 86%). Smaller acreages of these habitats are found on Hunting Club Lands (16 acres) and Lake County Lands South (15 acres), with the remainder as scattered, small acreages on the other non-federal lands (**Table 8**). Under the Proposed Action, the Forest Service would survey for Habitat Group 1 RFSS prior to conducting land-disturbing activities and areas of known or potential habitat would be avoided when feasible.

Alternative B

Federal Lands

Effects to Habitat Group 1 RFSS and their habitats under Alternative B would be similar to those under the Proposed Action. Under Alternative B, there are about 291 acres of non-forested wetland (open bog, open water, sedge/wet meadow, and shallow marsh) and 9 acres of open water on the federal lands that could provide habitat for Habitat Group 1 RFSS (**Table 8**). About 74 fewer acres of open bog, open water, sedge/wet meadow, and shallow marsh habitats would be transferred to PolyMet under this alternative than under the Proposed Action, but direct and indirect effects to Habitat Group 1 RFSS species and habitats from the Project activities would remain the same as under the Proposed Action.

Non-federal Lands

Under Alternative B, only Hay Lake Lands would be transferred to the Forest Service. As discussed under the Proposed Action, no Habitat Group 1 RFSS have been reported on Hay Lake Lands. The Forest Service would acquire about 86 acres of non-forested wetland (open bog, open water, sedge/wet meadow, and shallow marsh) and 177 acres of open water habitats that are favored by Habitat Group 1 RFSS, or about 86% of the acreage the Forest Service would have obtained under the Proposed Action (**Table 8**). Effects on these species and their habitats from Forest Service and public use of Hay Lake Lands would be similar to those under the Proposed Action.

No Action Alternative

There would be no direct or indirect effects to Habitat Group 1 RFSS under the No Action Alternative.

5.1.2.3 Cumulative Effects

Timber harvesting, road building, and recreational activities are reasonably foreseeable future actions that could continue to occur on the federal lands and non-federal lands. In addition, there is the potential for homes and cabins to be built on the non-federal lands, including on small portions of wetlands, should the FEIS Record of Decision select the No Action Alternative and the non-federal lands remain under private ownership. These activities could affect the Habitat Group 1 RFSS within the CESA.

Forest management activities could result in Habitat Group 1 RFSS and their habitats being driven over and crushed by timber harvest and road construction/maintenance equipment, and harmed from sedimentation of streams and lakes due to ground disturbance. Timber harvest activities would be conducted during winter in wetlands, however, to reduce the risks of ground disturbance and sedimentation. Prior to implementing ground-disturbing activities, the Forest Service would conduct RFSS surveys to determine if RFSS would be affected by proposed activities. These surveys should help to ensure that RFSS species on non-federal lands are avoided, where feasible.

Lowland road construction and use and wetland draining are the two actions that probably have the largest effect on Habitat Group 1 RFSS within the CESA. Construction and use of roads in lowlands in the CESA, including construction of lowland roads for county, state, and private timber harvest, and for access to mineral exploration and production sites, recreation sites, and homesites, would continue to affect Habitat Group 1 RFSS habitat. However, the amount of suitable habitat affected by these activities should be small. In addition, timber harvest

on Forest Service and other ownerships would not affect this habitat appreciably because it is typically not forested with merchantable trees. The Forest Service would survey proposed timber harvest treatment areas for RFSS and would avoid areas with known or potential habitat for RFSS, where feasible.

Project activities on the federal lands would affect one population of quill spikerush. Project activities on adjacent private lands on the Mine Site would affect an additional four populations of quill spikerush and one population of floating marsh marigold. Approximately 65 acres of habitat could be directly affected on the federal lands that could be used by Habitat Group 1 RFSS. Despite the cumulative effects of the Project, habitat used by Habitat Group 1 RFSS that would be affected by the Project occurs elsewhere in the Superior National Forest, including the Tracks Project area, and would not be affected by the Project or other reasonably foreseeable future activities in the CESA. In addition, there are approximately 67,000 acres of open wetland and water habitat that could be used by Habitat Group 1 RFSS elsewhere in the CESA (Emmons and Olivier Resources, Inc. 2006:30, 38).

5.1.2.4 Summary

Project activities associated with the Proposed Action or Alternative B would have direct, indirect, and cumulative adverse effects on Habitat Group 1 RFSS and their habitat. Other activities in the CESA would contribute to cumulative effects for Habitat Group 1 RFSS. The Proposed Action and Alternative B would have similar effects on Habitat Group 1 RFSS, while there would be no effects to Habitat Group 1 RFSS from the No Action Alternative.

5.1.2.5 Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for floating marsh marigold, quill spikerush, moor rush, small beggarticks, linear-leaved sundew, auricled twayblade, bog muhly, American shoreweed, Leiberg's waterlily, American waterawlwort, or bog white violet. The No Action Alternative would have **no impact** on individuals of Habitat Group 1 RFSS.

5.1.2.6 Mitigation and Recommendations

Mitigation measures for Habitat Group 1 RFSS could include the following:

- Reseed Mine Site and Plant Site impact areas with native species, provided they can perform as effectively as the non-native species. In some areas where erosion control would be critical to prevent slope failures, non-native species may be needed. Temporary stabilization efforts using non-native species should use non-invasive plant species to minimize the long-term risk to surrounding plant communities.

- In the event invasive non-native species are introduced, an additional mitigation measure would be to implement a monitoring and control program for invasive species (including noxious weeds) to ensure these species do not overtake surrounding native communities.

- Additionally, the purchase of an unprotected site with a population of the RFSS species *Caltha natans* should be assessed as mitigation.

5.1.3 Cliff, Talus Slope, and Exposed Rock Habitat (Habitat Group 2)

5.1.3.1 Environmental Baseline

Habitat Group 2 RFSS favor cliffs, talus slopes, and exposed rock habitat. The following Habitat Group 2 RFSS either occur on, and/or have suitable habitat on, the federal and/or non-federal lands —maidenhair spleenwort, largeleaf sandwort, sticky locoweed, and encrusted saxifrage. Habitat Group RFSS 2 habitats are very rare on the federal and non-federal lands. No Habitat Group 2 RFSS have been reported on the federal lands. Encrusted saxifrage has been found on McFarland Lake Lands.

Species Conditions

Maidenhair Spleenwort *(Asplenium trichomanes)*

Maidenhair spleenwort has been found in Cook and Lake Counties, primarily near the North Shore of Lake Superior, and on the BWCAW. Most populations of maidenhair spleenwort occur on moist, north- to east-facing cliffs, particularly on ledges and in crevices. It also occurs in talus at the base of cliffs. Some of the cliffs are associated with large lakes that may provide a needed, climate-modifying effect. At least two populations are known to occur in association with open, exposed southeast-facing cliffs where conditions are warmer, drier, and sunnier. Populations in these more exposed habitats grow in sheltered crannies of cobbly talus.

Maidenhair spleenwort has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Appalachian Clubmoss (*Huperzia appalachiana*)

Appalachian clubmoss may be locally common in moist, sheltered habitats on sandstone ledges. However, the species seems to be rare even where suitable habitat exists. Historic populations documented by herbarium specimens collected in Blue Earth County (1883), in Hennepin County (1902), in Lake County (1943), and in St. Louis County (1949) have presumably been destroyed by human activities. There are very few populations known to currently exist in Minnesota.

Prior to 2000, all Minnesota specimens had been collected from sandstone bluffs and ledges in southeastern Minnesota. Beginning in 2000, the species was found at a number of sites in northeastern Minnesota on diabase cliffs. Sites in the northeast are typically northerly facing, wooded habitats that are moist and well-shaded. Appalachian clubmoss has been found in St. Louis, Lake, and Cook Counties, primarily along the North Shore of Lake Superior, and on the BWCAW. Appalachian clubmoss is found on shelves and crevices on cliff/talus/rock outcrops, and shrub dominated talus piles.

Appalachian clubmoss has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Largeleaf Sandwort *(Moehringia macrophylla)*

In Minnesota, populations of largeleaf sandwort are found in Cook and Lake Counties. Only a few of the historic populations have been relocated, despite considerable effort. All evidence indicates that this is a very rare species with limited distribution and restrictive environmental needs. Furthermore, all known populations are small and occur in fragile habitats. Most of the documented sites of largeleaf sandwort in Minnesota occur on sheltered cliffs of slate and diabase in the Rove Formation. In these habitats, the plants grow in small rock

crevices where organic debris accumulates or where moss mats provide a suitable substrate. Populations are typically associated with cliffs having a northerly aspect, where they are often found near the cliff base on small shelves, cracks, and chutes.

Largeleaf sandwort has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Sticky Locoweed *(Oxytropis borealis* var. *viscida*)

In Minnesota, sticky locoweed (synonym: viscid locoweed) is restricted to a single cliff in Cook County. The population was originally discovered in 1938 and still persists. Such a small, isolated population is vulnerable to a variety of stochastic processes attributable to natural events and human-caused effects. For this reason, sticky locoweed was listed as an endangered species in Minnesota in 1996.

The Minnesota sticky locoweed population occurs on a single, north- to northwest-facing cliff face and at the top of the associated talus slope. Plants occur in both sunny and partially shaded conditions where there is little competition from typical forest species; this is similar to the habitat occupied by the species in the Rocky Mountains. This population is apparently a relic of a wider, preglacial distribution.

Sticky locoweed has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Encrusted Saxifrage *(Saxifraga paniculata)*

Encrusted saxifrage was first documented in Cook County, Minnesota in 1932, and has since only been reported in Cook County, including on the McFarland Lake Lands. Encrusted saxifrage is an arctic-alpine species that reaches the southern end of its range in Minnesota. It typically occurs in rock crevices and on ledges of shaded north-facing cliffs with bedrock of diabase, gabbro/diorite, basalt, or Rove Formation rocks. There is very little suitable cliff habitat for encrusted saxifrage in Minnesota, and threats to the species could include climate change, changes in the biotic community, and recreational exploration of vulnerable cliff faces.

Encrusted saxifrage was found on McFarland Lake Lands, presumably associated with rock outcrops along the western edge of the lands. It has not been reported on the federal lands, other non-federal lands, or the Tracks Project area.

Habitat Conditions

There is very little suitable habitat for Habitat Group 2 RFSS on most of the federal and non-federal lands. There are scattered rock outcrops on the federal lands, and on Hay Lake Lands, Hunting Club Lands, Lake County Lands North, and Lake County Lands South, but no cliffs or talus slopes. Thus, it is unlikely that Habitat Group 2 RFSS would be found on these lands. Cliffs with exposed rock that are about 100 feet high are found in the central portion of McFarland Lake Lands and encrusted saxifrage was reported to occur on the McFarland Lake Lands (MDNR 2006).

5.1.3.2 Direct and Indirect Effects

Proposed Action

Species Conditions

Federal Lands

No Habitat Group 2 RFSS have been reported on the federal lands, and there is very little suitable habitat on the federal lands. Thus, it is unlikely that Habitat Group 2 RFSS would be affected by the Project.

Non-federal Lands

The Forest Service would monitor encrusted saxifrage on McFarland Lake Lands, and seek to protect high quality habitat for this plant species. Under the Proposed Action, the non-federal lands would be transferred to the Forest Service, who would manage the lands for timber production, recreation, nature study, and other values. The Forest Service would monitor Habitat Group 2 RFSS use of these lands, and seek to protect high quality habitat for these species.

Habitat Conditions

Federal Lands

There are no cliffs or talus slopes, and only a few areas with exposed rock, on the federal lands (ENSR 2005, AECOM 2011a). At most, only a few acres of exposed rock would be affected by the Project on the federal lands. Suitable habitat for maidenhair spleenwort, largeleaf sandwort, and encrusted saxifrage could occur on exposed rock outcrops, but it is unlikely that these species would be found on the exposed outcrops. Mining would result in development of a mine pit and associated rock walls and overburden storage piles that would have some exposed rock. These areas could provide habitat for Habitat Group 2 RFSS in the future.

Non-federal Lands

There are scattered rock outcrops on Hay Lake Lands, Hunting Club Lands, Lake County Lands North, and Lake County Lands South, but no cliffs or talus slopes (AECOM 2011b, c). Cliffs with rock outcrops are found on McFarland Lake Lands and total about an acre. Encrusted saxifrage is found on McFarland Lake Lands. Under the Proposed Action, the Forest Service would survey for Habitat Group 2 RFSS and associated habitat prior to conducting land-disturbing activities and areas of known or potential habitat would be avoided when feasible.

Alternative B

Federal Lands

Direct effects to Habitat Group 2 RFSS and their habitats under Alternative B would be similar to those under the Proposed Action. Although exposed rock habitat has not been specifically identified on the federal lands, it likely comprises only a few acres, and is more common in the upland areas on the eastern portion of the federal lands surrounding with the Mine Site (AECOM 2011a).

Non-federal Lands

As discussed under the Proposed Action, no Habitat Group 2 RFSS have been reported on Hay Lake Lands. There are scattered rock outcrops on the lands that could be used by Habitat Group 2 RFSS, but no cliffs or talus slopes (AECOM 2011b). Effects on Habitat Group 2 RFSS and their habitats from Forest Service and public use of Hay Lake Lands would be similar to those under the Proposed Action.

No Action Alternative

There would be no direct or indirect effects to Habitat Group 2 RFSS under the No Action Alternative.

5.1.3.3 Cumulative Effects

As discussed in Section 4.5.2, there has been a cumulative loss of habitat for RFSS from mining, road construction, housing and commercial development, and other land development activities, and from forestry and other land management activities. It is possible that Habitat Group 2 RFSS and/or their habitat have been lost from past and ongoing activities in the CESA, and would be lost in the future from similar reasonably foreseeable future activities.

Although Habitat Group 2 RFSS are rare in Minnesota, populations have been found elsewhere in the Superior National Forest, and on McFarland Lake Lands, and typically occupy areas that are not susceptible to timber harvesting or road building or other development. Given that Habitat Group 2 RFSS have not been reported on the federal lands, and potential habitat for these species on the federal lands is limited to only a few acres, adverse cumulative effects associated with Project actions on federal lands should be negligible.

Under the Proposed Action, the non-federal lands would be transferred to the Forest Service, who would manage the lands for timber production, recreation, nature study, and other values. Prior to implementing ground-disturbing activities, the Forest Service would conduct RFSS surveys to determine if RFSS would be affected by proposed activities. These surveys should help to ensure that RFSS species found on non-federal lands are avoided, where feasible. Due to its proximity to McFarland Lake and several cabins, it is unlikely that the Forest Service would harvest timber or construct roads on McFarland Lake Lands. The steep terrain also makes the lands unsuitable for snowmobile and most recreational uses. Thus, risks to encrusted saxifrage from Forest Service and recreational uses would be negligible, although the plant could be harmed by plant collectors.

5.1.3.4 Summary

Project activities associated with the Proposed Action, Alternative B, or the No Action Alternative should have no direct and indirect adverse effects on individuals of Habitat Group 2 RFSS, and any adverse effects to potential habitat for these species would be limited to a few acres. Other activities in the CESA would also contribute to cumulative effects toward the RFSS plants of this habitat group. The Proposed Action and Alternative B would have similar effects on Habitat Group 2 RFSS, while there would be no effects on Habitat Group 2 RFSS from the No Action Alternative.

5.1.3.5 Determination

The Proposed Action, Alternative B, and the No Action Alternative would have **no impact** to individuals of maidenhair spleenwort, largeleaf sandwort, sticky locoweed, and encrusted saxifrage.

5.1.3.6 Mitigation and Recommendations

No mitigation measures are proposed for Habitat Group 2 RFSS.

5.1.4 Upland Disturbed, Barrens, or Early Successional Forest Habitat (Habitat Group 3)

5.1.4.1 Environmental Baseline

Habitat Group 3 RFSS favor upland disturbed, barrens, or early successional forest habitat. The following Habitat Group 3 RFSS either occur on, and/or have suitable habitat on, the federal and/or non-federal lands—common moonwort, Michigan moonwort, pale moonwort, ternate grapefern, least moonwort, Appalachian clubmoss, and roughfruit fairybells. Michigan moonwort, pale moonwort, ternate grapefern, and least moonwort have been found on the federal lands, and pale moonwort, ternate grapefern, and least moonwort would be directly affected by mining activities. No Habitat Group 3 RFSS have been reported on the non-federal lands.

Species Conditions

Common Moonwort *(Botrychium lunaria)*

Common moonwort is the most widespread of the moonworts and has been found in St. Louis and Cook Counties and several other counties in northern Minnesota, including on the Tracks Project area. Common moonwort appears to prefer open habitats such as gravelly banks, rocky ledges, and talus. It has also been found on open, sparsely vegetated habitats with grasses and scattered shrubs. Along the shore of Lake Superior, common moonwort has been found in fire-dependent forests among mosses and lichens. A Forest Service database reported the habitat for common moonwort as cool/moist conditions, along forest roads and trails, in open areas, lakeshores (sand dunes), and occasionally in forests. Common moonwort has also been reported on sandy soils of old log landings in jack and red pine woods (Chadde and Kudray 2001a and references cited therein).

Common moonwort has not been reported on the federal or non-federal lands.

Michigan Moonwort *(Botrychium michiganense [hesperium])*

Across its range, Michigan moonwort (synonym: western moonwort) generally prefers an open habitat and often is found on open early successional habitats that have been disturbed in the past, such as roadside ditches, tailings ponds, gravel pits, log landings, sandy gravel pits, and mine tailings within the Mesabi Iron Range of northeastern Minnesota, including on the federal lands and on the Tracks Project area. Plants have also been found on sand dunes. Soils are often sandy or gravelly. In Minnesota, Michigan moonwort appears to prefer open disturbed habitats. Element occurrence records in St. Louis, Lake, and Cook Counties list habitats as tailings ponds, gravel pits, ditches, an old log landing, and along a weedy roadside (Chadde and Kudray 2001b and references cited therein).

Plant surveys conducted in 2004 identified nine locations of Michigan moonwort within the federal lands. Three of the locations were found on the federal lands within the Mine Site, all of which would be affected by the Project. Six locations of Michigan moonwort were found on private lands within or near the Dunka Road and Utility Corridor (Johnson-Groh 2004); one of these populations would be affected by Project activities.

Michigan moonwort has also been found on the Tracks Project area. Michigan moonwort is sometimes found with other *Botrychium* species in Minnesota including matricary grapefern and pale moonwort.

Michigan moonwort has not been reported on the non-federal lands.

Pale Moonwort *(Botrychium pallidum)*

Pale moonwort (synonym: pale botrychium) was first identified in Minnesota in 1992 and new populations are documented each year in a variety of habitats across northern Minnesota. It occurs in open early successional habitats, log landings, roadsides, sandy gravel pits, and mine tailings within the Mesabi Iron Range of northeastern Minnesota, including on the federal lands and on the Tracks Project area.

This diminutive perennial fern emerges in the late spring, produces spores, and matures within 3 to 4 weeks. Like many of the moonworts, pale moonwort may be sensitive to changes in soil mycorrhizae, herbivory from introduced earthworms, vegetative cover (in other words [i.e.], increased vegetative competition and shading), soil moisture, or other environmental factors affecting suitable microhabitats (Chadde and Kudray 2013a and references cited therein).

Of the 101 known populations statewide, 5 populations totaling 12 individuals were found on the federal lands surrounding the Mine Site; all of these populations would be directly affected by the Project. One of these populations is located south of the West Pit, along the Dunka Road and Utility Corridor. The other four populations are located adjacent to Dunka Road. An additional six locations of pale moonwort were found on private lands immediately adjacent to the federal lands; three of these populations would be affected by Project activities.

Pale moonwort has not been reported on the non-federal lands.

Ternate Grapefern *(Botrychium rugulosum)*

Ternate grapefern (synonym: St. Lawrence grapefern) is a perennial semi-evergreen fern that occurs in the northern and southcentral portions of Minnesota. Relatively little is known about the overall distribution, genetics, and life history requirements of ternate grapefern. In northern Minnesota, ternate grapefern prefers partially shaded mine tailings, sandy coniferous forests and plantations, and shaded vernal pool margins in rich deciduous hardwood forests. It also occurs in wetland areas within habitats subject to past clearing or cultivation. Ternate grapefern is often found in small stands of five to ten individuals, though larger populations can also occur. Disturbance also likely plays an important long-term role in the proliferation of this species (Chadde and Kudray 2013b and references cited therein).

Of the 72 known extant populations in Minnesota, 7 populations totaling 39 individuals occur on the federal lands. One of the seven populations occurring on federal lands would be directly affected by the Project (1% affected). Two additional populations occur on private lands immediately adjacent to the federal lands, neither of which would be affected by Project activities.

Ternate grapefern has not been reported on the non-federal lands, but has been reported on the Tracks Project area.

Least Moonwort *(Botrychium simplex)*

Least moonwort (synonym: little grapefern) occurs throughout northern and central Minnesota. Least moonwort occurs in a variety of natural and disturbed habitats, including brushy fields (often with other species of *Botrychium*), moist or dry woods, edges of forested vernal pools and swamps, mine tailings, and edges of sand/gravel/exposed forest roads. Like the other *Botrychium* species, disturbance likely plays an important role in the proliferation of this species (Chadde and Kudray 2013c and references cited therein).

Of the 213 known populations statewide, 16 populations consisting of at least 354 individuals occur on federal lands within the Mine Site; all but one of these populations would be affected by the Project. There are an additional 19 populations on private lands along the Dunka Road, the railroad, and the transmission line ROW near the Mine Site; 7 of these populations would be affected by Project activities.

Least moonwort has not been reported on the non-federal lands, but has been reported on the Tracks Project area.

Roughfruit Fairybells *(Prosartes trachycarpa (*synonym = *Disporum trachycarpum)*

Roughfruit fairybells has been found near Pigeon River Cliffs in Cook County. The species favors semi-open jack pine forest with aspen, birch, and shallow rocky soils.

Roughfruit fairybells has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Habitat Conditions

Habitat Group 3 RFSS favor upland disturbed, barrens, or early successional ('young' in MIH) forest habitat. There are approximately 64 acres of disturbed habitat and 652 acres of grassland/shrubland on the federal lands, primarily associated with roads and mine exploration sites (**Table 7**). In addition, there are about 271 acres of early successional (young) upland forest habitat (MIH 1 and 5) on the federal lands (**Table 6**).

There are no disturbed areas and approximately 1,878 acres of grassland/shrubland on the non-federal lands (**Table 7**). In addition, there are about 622 acres of early successional upland forest (**Table 6**) that could provide habitat for Habitat Group 3 RFSS on the non-federal lands. Grassland/shrubland habitat is primarily found on Hay Lake Lands and Lake County Lands South, while early successional upland forest is found on Hay Lake Lands, Hunting Club Lands, Lake County Lands North, and Wolf Lands 3.

5.1.4.2 Direct and Indirect Effects

Proposed Action

Species Conditions

Federal Lands

Based on plant surveys of the federal lands, four Habitat Group 3 RFSS would be directly affected by the Project: Michigan moonwort, pale moonwort, ternate grapefern, and least moonwort. All four species have also been found on adjacent private lands along the Dunka Road and Utility Corridor.

Of the 35 populations of Michigan moonwort documented in Minnesota, 3 populations totaling 11 individuals have been found on the federal lands within the Mine Site. Six additional populations totaling 255 individuals have been found on adjacent private lands along the Dunka Road and/or near the railroad tracks. The three populations on federal lands would all be directly affected (9% of statewide populations affected), with one population each being removed by pit excavation, haul road construction, and water pipeline construction. One of the six populations on private lands would be directly affected by Project activities.

Of the 101 known populations of pale moonwort in Minnesota, 5 populations totaling 12 individuals were found on federal lands surrounding the Mine Site. All five populations would be directly affected by the Project, including four locations along Dunka Road (5% of statewide populations affected). Six additional populations totaling 88 individuals were found on adjacent private lands along Dunka Road. Project activities would directly affect three of the six populations. This species, however, appears to be semi-tolerant of disturbance. Therefore, colonies may actually expand into newly disturbed areas along Dunka Road and at the Mine Site (MDNR et al. 2013).

Of the 72 known extant populations of ternate grapefern in Minnesota, 1 population with 19 individuals would be directly affected by construction of the East Pit (1% of statewide populations affected). Six additional populations of ternate grapefern were found within the federal lands, but would not be affected by the Project. Two populations of ternate grapefern, totaling six individuals, were found on private lands along Dunka Road south of the Ore Surge Stockpile and Category 2/3 Stockpile. The Project would have no effect on these two populations.

Of the 213 known populations of least moonwort in Minnesota, 16 populations with at least 356 individuals occur on the Mine site and all but one would be directly affected by mining activities. These include seven populations from stockpiles and mine pits, five populations from haul roads, two populations from water pipelines, and one population from other Project features (7% of statewide population affected). The populations affected by stockpiles, mine pits, and haul roads would be removed, while the populations affected by construction of pipelines or ditches may be reduced in numbers in the short term. Another 19 populations of least moonwort, totaling at least 1,424 individuals, are on adjacent private lands along Dunka Road and the railroad tracks in the vicinity of the Mine Site. The Project would have a direct effect on 7 of the 19 populations on adjacent private lands. Depending on proximity to construction activities, most of these populations of least moonwort would likely recover by growing along the Dunka Road and at the Mine Site post-closure, as this species appears to be semi-tolerant of disturbance (MDNR et al. 2013).

Non-federal Lands

No Habitat Group 3 RFSS have been reported on the non-federal lands, although many of these species were found on the Tracks Project area, which is near Lake County Lands and Wolf Lands. Under the Proposed Action, the non-federal lands would be transferred to the Forest Service, who would manage the lands for timber production, recreation, nature study, and other values. The Forest Service would monitor Habitat Group 3 RFSS use of these lands, and seek to protect high quality habitat for these species.

Habitat Conditions

Federal Lands

Direct effects to Habitat Group 3 RFSS habitat on the federal lands would occur from habitat removal or destruction primarily from mining-related activities, including construction of the mine pits, Waste Rock Stockpiles, access roads, or other mine facilities.

There are 64 acres of disturbed areas and 652 acres of grasslands and shrublands on the federal lands that could provide habitat for Habitat Group 3 RFSS (**Table 7**). The Project would affect about 14 acres of disturbed areas and 204 acres of grasslands and shrublands. In addition, about 260 acres of young upland forest habitat (MIH 1 and 5) would also be lost to mining (**Table 6**).

Habitat for these species could be indirectly affected by dust from mining activities and vehicles, ore spillage, changes in surface and groundwater hydrology from groundwater drawdown, and from changes in water quality related to leakage from stockpiles/mine features and seepage from the mine pits. These risks to Habitat Group 3 RFSS, however, should be negligible.

About 614 acres of grassland/shrubland habitat would be restored during mine reclamation (MDNR et al. 2013). Any remaining individuals in affected portions of the Project area could colonize this habitat. Although the biology of these *Botrychium* species is poorly understood, past mine development activities similar to those proposed by the Project have resulted in creation of habitat conditions favorable to the establishment of several *Botrychium* species, including several RFSS *Botrychium* species. These favorable habitat conditions may perpetuate any populations of these species that may have been missed during Project inventories (USDA Forest Service 2010b).

Non-federal Lands

There are no acres of disturbed habitat and about 1,878 acres of grassland/shrubland that that could provide habitat for Habitat Group 3 RFSS on the non-federal lands (**Table 7**). In addition, there are about 622 acres of early successional upland forest (MIH 1 and 5) that could provide habitat for Habitat Group 3 RFSS on the non-federal lands (**Table 6**). Much of this Habitat Group 3 RFSS habitat is found on Hay Lake Lands. There is no suitable Habitat Group 3 RFSS habitat on the other non-federal lands, although Appalachian clubmoss is found on shelves and crevices on cliff/talus/rock outcrops, which occurs on McFarland Lake Lands. Under the Proposed Action, the Forest Service would survey for Habitat Group 3 RFSS and associated habitat prior to conducting land-disturbing activities and areas of known or potential habitat would be avoided when feasible. Most recreational activity would be confined to trails and roads and could affect Habitat Group 3 RFSS that favor open, disturbed habitats.

Alternative B

Federal Lands

Direct effects to Habitat Group 3 RFSS under Alternative B would be similar to those under the Proposed Action. Based on plant surveys of the federal lands, the four Habitat Group 3 RFSS that could be directly affected by the Project under Alternative B are Michigan moonwort, pale moonwort, ternate grapefern, and least moonwort.

Direct effects to upland disturbed, barrens, or early successional forest habitat from mining and related activities would be similar for the Proposed Action and Alternative B. Under Alternative B, there are 29 acres of disturbed habitat and 439 acres of grassland/shrubland that could provide habitat for Habitat Group 3 RFSS (**Table 7**). In addition, there are about 271 acres of early successional upland forest (MIH 1 and 5) that could provide habitat for Habitat Group 3 RFSS on the non-federal lands (**Table 6**). About 35 fewer acres of disturbed habitat, 213 fewer acres of grassland/shrubland habitat, and the same number of acres of early successional upland forest habitat would be transferred to PolyMet from the Forest Service under Alternative B than under the Proposed Action.

Non-federal Lands

No Habitat Group 3 RFSS have been reported on Hay Lake Lands. There are no acres of disturbed habitat and 1,697 acres of grassland/shrubland that could provide habitat for Habitat Group 3 RFSS on Hay Lake Lands (**Table 7**). In addition, there are about 534 acres of early successional upland forest (MIH 1 and 5) that could provide habitat for Habitat Group 3 RFSS on Hay Lake Lands (**Table 6**). About 86% of early successional upland forest habitat that occurs on the non-federal lands is found on Hay Lake Lands. Thus, the Forest Service would receive much of the land that could provide habitat for Habitat Group 3 RFSS on the non-federal lands under both the Proposed Action and Alternative B.

No Action Alternative

There would be no direct or indirect effects to Habitat Group 3 RFSS under the No Action Alternative.

5.1.4.3 Cumulative Effects

As discussed in Section 4.5.2, it is possible that Habitat Group 3 RFSS and/or their habitat have been lost from past and ongoing activities in the CESA, and would be lost in the future from similar reasonably foreseeable future activities.

The Project could directly affect 35 Habitat Group 3 RFSS populations and about 478 acres of habitat used by Habitat Group 3 RFSS, on the federal lands. Despite the cumulative effects of the Mine Site, Habitat Group 3 RFSS species that would be affected by the Project occur elsewhere in the Superior National Forest, including the Tracks Project area, and in Minnesota, and would not be affected by the Project or other ground-disturbing activities in the CESA. In addition, there are about 33,000 acres of grassland habitat in the CESA (Emmons and Oliver Resources, Inc. 2006:30, 38). About 7% of Forest Service-administered lands are young forest (USDA Forest Service 2011:42), while the percentage of forestlands that are young forest is likely greater for privately owned lands. However, based on a conservative assumption that about 5% of upland forest is the CESA is young forest, about 31,000 acres of early successional upland forest would be available Habitat Group 3 RFSS. In addition, there are about 100,000 acres of disturbed mining areas, some of which could provide habitat for Habitat Group 3 RFSS in the CESA (Emmons and Olivier Resources, Inc. 2006:30, 38).

After mining, about 397 acres would be reclaimed and the federal lands would be privately owned and closed to public access (MDNR et al. 2013). Habitat Group 3 RFSS favor disturbed areas and early successional habitats, the types of habitat associated with recent logging and road-building activity. There is potential for mining activities and mine reclamation to create disturbed areas and early successional habitats that could be colonized by Habitat Group 3 RFSS in the future.

Timber harvesting, road building, and recreational activities could occur on the federal and non-federal lands. Forest management activities could result in Habitat Group 3 RFSS and their habitats being driven over and crushed by timber harvest and road construction/maintenance equipment. No Habitat Group 3 RFSS have been reported on the non-federal lands, but there are about 622 acres of suitable habitat (young age class; **Table 6**) on the lands. The Forest Service would survey for RFSS prior to conducting land-disturbing activities, and would avoid areas with known or potential habitat for RFSS when feasible. Should disturbance activities occur on the non-federal lands, it would result in soil disturbance and creation of early successional habitat that could be colonized by Habitat Group 3 RFSS.

5.1.4.4 Summary

Project activities associated with the Proposed Action and Alternative B would have direct, indirect, and cumulative effects on Habitat Group 3 RFSS, and cause adverse effects on up to 478 acres of known or potential habitat for Habitat Group 3 RFSS on the federal lands. Other activities in the CESA would also contribute to cumulative effects toward the RFSS plants of this habitat group. The Proposed Action and Alternative B would have similar effects on Habitat Group 3 RFSS, while there would be no effects to Habitat Group 3 RFSS from the No Action Alternative.

5.1.4.5 Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for Michigan moonwort, pale moonwort, ternate grapefern, least moonwort, common moonwort, Appalachian clubmoss, and roughfruit fairybells. The No Action Alternative would have **no impact** to individuals of Habitat Group 3 RFSS.

5.1.4.6 Mitigation and Recommendations

No mitigation measures are proposed for Habitat Group 3 RFSS.

5.1.5 Forested Wetland – Black Spruce, Tamarack, and Mixed Conifer Forest Habitat (Habitat Group 4)

5.1.5.1 Environmental Baseline

Habitat Group 4 RFSS favor forested wetlands comprised of coniferous trees such as black spruce, tamarack, and northern white cedar, and deciduous trees such as black ash and yellow birch. The following Habitat Group 4 RFSS either occur on, and/or have suitable habitat on, the federal and/or non-federal lands—fairy slipper, ram's head lady slipper, Selwyn's scalewort, yellow specklebelly, cartilage lichen, cloudberry, peppered moon lichen, honeycombed lichen, western Jacob's-ladder, snowline wintergreen, beard lichen, and two unnamed lichens, *Caloplaca parvula*, and *Cetraria aurescens*. Snowline wintergreen has been found on the federal lands. No Habitat Group 4 RFSS have been reported on the non-federal lands.

Species Conditions

Fairy Slipper *(Calypso bulbosa* var*. occidentalis)*

Fairy slipper is palearctic in distribution, and occurs in 20 of the 48 contiguous states and all of the Canadian provinces. It occurs across the northern third of Minnesota, including St. Louis, Lake, and Cook Counties. It is principally associated with northern white cedar, growing in the shaded duff with little or no herbaceous competition over a metamorphic and igneous bedrock parent material, with calcium accumulated from ground springs (Schmidt 2003a and references cited therein). In bogs, it can occur on stumps, logs, hummocks of drier soil, or slopes, but does not occur in soggy soils. Fairy slipper is also found in closed canopy forest with at least 60% cover and cool soils, and is intolerant of soil temperatures higher than 60 degrees Fahrenheit.

Fairy slipper requires older, closed-canopy cedar stands, so any loss of a viable cedar type affects this species. Limited regeneration due to high deer populations is the primary threat to the cedar community and associated species. Other threats to the community include beaver activity and forest harvesting.

Fairy slipper has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Ram's head Lady Slipper *(Cypripedium arietinum)*

Ram's head lady slipper ranges from Quebec and Saskatchewan south to Maine, New Hampshire, Vermont, Connecticut, and New York, and west to Michigan, Wisconsin, and Minnesota. Ram's head lady slipper has always been considered biologically rare in Minnesota, and the reasons for its rarity are not entirely known. It is known from St. Louis, Lake, and Cook Counties, and elsewhere in central and northern Minnesota. Recently, however, it has suffered a general decline in Minnesota largely as a result of habitat loss from changes in land use, including clear-cutting of jack pine forests.

In Minnesota, populations of Ram's head lady slipper occur in a variety of coniferous forest habitats. Several populations occur in swamps, bogs, or lowland forests dominated by northern white cedar, tamarack, balsam fir, or black spruce. Cool soils seem to define its range; in its southernmost reaches the orchid is found in cold bogs or north-facing cool bluffs near the Great Lakes where cool air drains down ravines. The species also occurs in the drier upland coniferous forests that may be dominated by white pine, red pine, or jack pine (Brzeskiewicz 2000 and references cited therein).

Ram's head lady slipper has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Selwyn's Scalewort *(Frullania selwyniana)*

Selwyn's scalewort is found on lowland northern white cedar swamps on the bark of northern white cedar.

Selwyn's scalewort has not been reported on the federal or non-federal lands, but has been found on the Tracks Project area.

Honeycombed Lichen *(Menegazzia terebrata)*

In the Great Lakes Region, honeycombed lichen has a scattered distribution, mainly associated with bog and cedar swamps, perhaps revealing its oceanic (moist oceanic forests) origin (USDA Forest Service 2002 and references cited therein). In the Great Lakes Region, honeycombed lichen survives in the oldest and wettest

northern white cedar bogs as a few scattered individuals on cedar trunks (estimated 200+ years) in relatively open areas with 50 to 60% canopy cover. In Minnesota, five sites were found on the Superior National Forest within interior portions of old growth northern white cedar bogs. The main short term threat in northern white cedar bogs/swamps is hydrological change from road building and logging.

Honey-combed lichen has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Western Jacob's-ladder *(Polemonium occidentale* spp. *lacustre*)

Western Jacob's-ladder was first documented in St. Louis County, Minnesota in 1944. Prior to that discovery, this subspecies was unknown to science. A total of only five sites in Itasca and St. Louis Counties, Minnesota, have been located since 1944, even after extensive survey efforts.

Habitat requirements for western Jacob's-ladder include open forested wetland communities with associated northern white cedar, tamarack, black spruce, and generally a ground cover of sphagnum moss. Common associated shrub species include speckled alder and bog birch. Within suitable forests, western Jacob's-ladder is found on open and sparsely forested portions of the swamps, as well as in moderately deep shade, usually on hummocks of sphagnum moss. The saturated conditions usually originate from groundwater seepage.

Likely threats would include increased canopy closure, any activity that directly alters the habitat and destroys plants (e.g. slash piles, peat mining, and flooding by beaver dams), or anything that alters groundwater flow. All known locations of this species have a history of logging, ranging from disturbance in the early 1900s to as recent as the 1990s. In all five known populations, western Jacob's ladder blooms most in natural or logging-related openings. In contrast to other species associated with northern white cedar communities, logging appears to be less of a threat (Schmidt 2003b and references cited therein).

Western Jacob's ladder has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Snowline Wintergreen *(Pyrola minor)*

Snowline wintergreen (synonym: small shinleaf) is listed as a species of special concern in Minnesota. The species was first reported in Lake County in 1914 near the North Kawishiwi River. It has since only been documented in Cook, St. Louis, Lake, and Carlton Counties.

Snowline wintergreen is a circumpolar species occurring across Canada and the western U.S. in boreal and alpine habitats. It usually occurs in conifer swamps, including black spruce and northern white cedar swamps, and black spruce-balsam fir forests. Snowline wintergreen can also be found along moist ecotones between wetlands and uplands or between streams and slopes. It may be semi-tolerant of disturbance, because healthy populations exist along well-traveled portage routes and at sites that have experienced timber harvesting around 20 years prior.

Snowline wintergreen has been reported southwest of Mud Lake on the federal lands, within One Hundred Mile Swamp, and approximately 0.7 mile northwest of the Mine Site. Snowline wintergreen has also been found on the Tracks Project area.

Snowline wintergreen has not been reported on the non-federal lands.

Yellow Specklebelly *(Pseudocyphellaria crocata)*

Yellow specklebelly has always been rare in northern Minnesota. It was collected between 1897 and 1902 in St. Louis, Koochiching, Lake, and Cook Counties. In the last 34 years, it has been found only once in St. Louis County, approximately 65 miles northwest of the federal lands. The extensive removal of mature, moist forests across Minnesota's forested landscape has seriously reduced the occurrence of this lichen in the state.

Yellow specklebelly is found in habitats that are moist, shady, and often foggy. Substrates for this lichen are varied, including mossy rocks and a variety of trees, especially northern white cedar in mature hardwood and coniferous forests. When found on trees, this lichen usually occurs 3 to 4 feet above the ground and is at least partially shaded by the tree on which it is growing. All known Minnesota populations of this lichen are near water, and many are on offshore islands.

Yellow specklebelly has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Cartilage Lichen *(Ramalina thrausta)*

Cartilage lichen is found in old growth and other northern white cedar swamps.

Cartilage lichen has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Cloudberry *(Rubus chamaemorus)*

Cloudberry is an arctic and boreal species that is typical of circumpolar bog habitats in North America, Europe, and Asia. The southern limit of its range in North America is poorly defined and is represented by local and discontinuous populations in northern New England and disjunctive sites at Montauk Point, Long Island, and northeastern Minnesota. This species was unknown in Minnesota until 1954 when it was discovered near a research facility on Basswood Lake in the Superior National Forest in Lake County. Since that time, only a few colonies have been located despite targeted surveys. It has been found in St. Louis, Lake, and Cook Counties.

In Minnesota, cloudberry has been found in sphagnum bogs dominated by black spruce or mixed forests of black spruce speckled alder, bog birch, and sometimes northern white cedar. It is often found on deep sphagnum moss hummocks associated with bluejoint, three-seeded bog sedge, creeping snowberry, Labrador tea, and three-leaved false Solomon's seal.

Cloudberry has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Peppered Moon Lichen *(Sticta fuliginosa)*

Peppered moon lichen (synonym: spotted felt lichen) was formerly quite common in Minnesota along the Lake Superior shoreline and around inland lakes and bogs. Today, there are only a few extant populations known in Cook, Lake, and St. Louis Counties; none of these sites are near the federal or non-federal lands. Where it exists, it is found on conifer and hardwood trees in mature, moist forests and bogs. Yellow birch and northern white cedar are preferred substrates. This lichen prefers partial shade in areas that tend to retain moisture, such as northern white cedar swamps, and is often growing on the lower trunks of trees, 3 to 5 feet above the ground (Whitmore 2002a and references cited therein).

Peppered moon lichen has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Beard Lichen *(Usnea longissima)*

Beard lichen is known in Michigan, Wisconsin, and Minnesota. In Minnesota, it has been found in St. Louis, Lake, and Cook Counties, primarily near Lake Superior and in the BWCAW.

Beard lichen is usually found in forests near streams, lakes, or in bogs. The forests are balsam fir, black spruce, or northern white cedar over 100 years old that may be open or quite shady. High humidity and habitat continuity are important for growth, but this species grows better on the upper branches of trees where there is more available light. The recent localities in Superior National Forest are undisturbed balsam fir or northern white cedar stands near water. In one locality (Mark Creek), it apparently began growth in a mature balsam fir forest that has since been killed by insects but the thallus persisted on a dead balsam fir. The extensive logging in the past has eliminated many potential habitats (Wetmore 2002b and references cited therein).

Beard lichen has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Lichen spp. *(Caloplaca parvula)*

Caloplaca parvula was unknown to science when this species was first collected in Minnesota in 1978 near Kettle Falls in St. Louis County. Only two additional specimens have been found in the state since then, both in St. Louis County on Little Long Lake and Echo Lake on the Superior National Forest (Wetmore 2002c and references cited therein). This lichen species occurs in old-age, deciduous-tree swamps, specifically black ash bogs, near open water. In Minnesota, all sites were open black ash bogs with some standing water and without tall grasses, sedges, or brush. These swamps typically have 12 to 14 inches dbh trees, but this lichen species is not found on these trees. Instead, the preferred substrate is 3 to 4 inches dbh young re-growth, near the tree base, within 1 foot of the ground. The forest canopy is fairly open, allowing for lots of sunlight. Humidity in these habitats is high. Groundcover is minimal, typically comprised of just a few sedges.

Caloplaca parvula does not occur on sites with abundant shrubs and groundcover. It is found on sites with some amount of standing water, but has never been found other on a site without standing water. Water is in depressions in the swamp. The young trees or regrowth on which this species is found may themselves be in standing water. All Minnesota sites could be potentially threatened by permanent lake level changes caused by addition or removal of dams (Wetmore 2002c and references cited therein).

Caloplaca parvula has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Lichen spp. *(Cetraria aurescens)*

Cetraria aurescens occurs in old-growth temperate forests and usually grows on pine, on cedar, and occasionally on hardwoods in the southern Appalachians. It has been found in St. Louis, Lake, and Cook Counties, including about 6 miles south of Hoyt Lakes and 5 miles east of Babbitt, Minnesota.

In northern Minnesota, it is restricted to moist habitats near bogs or water in areas of old-growth forest without disturbance, especially within northern white cedar swamps over 100 years old. In the Great Lakes Region, this species seems to require old-growth, moist habitats. In a habitat study in Superior National Forest, this species was found in forest stands with an overstory ranging from 10 to 80% and on trees ranging in age from 118 to

266 years. These localities were usually northern white cedar swamps or black spruce bogs (Wetmore 2002d and references cited therein).

Cetraria aurescens has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Habitat Conditions

Habitat Group 4 RFSS favor forested wetlands comprised of coniferous trees such as black spruce, tamarack, northern white cedar, and deciduous trees such as black ash and yellow birch. Several species, including bearded lichen, fairy slipper, and *Cetraria aurescens* prefer mature wetland forest habitat. Although forested wetland habitat is the most common habitat on the federal and non-federal lands, only one species, snowline wintergreen, was found on the federal lands, and only two species, snowline wintergreen and Selvyn's scalewort, were found on the Tracks Project area; none of the Habitat Group 4 RFSS were reported on the non-federal lands.

There are about 3,270 acres of forested wetland on the federal lands, which represents 79% of all wetland habitat and 50% of all habitat on these lands (**Table 8**). Snowline wintergreen was found within One Hundred Mile Swamp, which is dominated by black spruce, northern white cedar, and tamarack forest, with small patches of open bogs and shrublands. Sphagnum and club mosses cover nearly 100% of the ground, while forest and shrub cover is about 40 to 70%. ENSR (2005) found that about 1% of wetland forest is comprised of young trees, 93% is comprised of immature trees, while about 5% is comprised of mature trees. Of this acreage, only 1% is comprised of deciduous or mixed coniferous-deciduous forest, the remainder was black spruce, northern white cedar, or tamarack forest.

There are about 3,300 acres of forested wetland on the non-federal lands, which represents 71% of all wetland habitat and 47% of all habitat on these lands (**Table 8**). Wetland forest is dominated by black spruce and tamarack, with scattered northern white cedar. Forest and shrub cover ranges from 30 to 60%, while ground cover is 50 to 90% (AECOM 2011b, c). AECOM (2011b, c) found that less than 1% of wetland forest is comprised of mature trees, 4% is comprised of young trees, while 95% is comprised of immature trees. Of this acreage, only 3% is comprised of deciduous or mixed coniferous-deciduous forest, the remainder was black spruce, northern white cedar, and tamarack forest. Black ash is found in small patches on Lake County Lands South, Hunting Club Lands, and Wolf Lands 2, while northern white cedar is most common on Lake County Lands North, Lake County Lands South, Wolf Lands 2, and Wolf Lands 4.

5.1.5.2 Direct and Indirect Effects

Proposed Action

Species Conditions

Federal Lands

Based on plant surveys of the federal lands, one population of snowline wintergreen, consisting of ten individuals, was found northwest of the Mine Site within One Hundred Mile Swamp. The remainder of Habitat Group 4 RFSS have not been reported on the federal lands. The Project would have no direct or indirect effect on the snowline wintergreen population in One Hundred Mile Swamp.

Non-federal Lands

No Habitat Group 4 RFSS have been reported on the non-federal lands. Under the Proposed Action, the non-federal lands would be transferred to the Forest Service, who would manage the lands for timber production, recreation, nature study, and other values. The Forest Service would monitor Habitat Group 4 RFSS use of these lands, and seek to protect high quality habitat for these species.

Habitat Conditions

Federal Lands

Direct effects to Habitat Group 4 RFSS on the federal lands could occur from mining-related activities, including construction of the mine pits, Waste Rock Stockpiles, access roads, and mine facilities. Although no Habitat Group 4 RFSS were found during plant surveys for the federal lands, about 589 acres of forested wetland would be directly affected by mining on the federal lands (**Table 8**).

Habitat for snowline wintergreen, which is found northwest of the Mine Site, and other Habitat Group 4 RFSS, could potentially be indirectly affected by dust from mining activities and vehicles, changes in surface and groundwater hydrology from groundwater drawdown, and from changes in water quality related to leakage from stockpiles/mine features and seepage from mine pits (MDNR et al. 2013). These risks, however, should be negligible.

About 516 acres of wetland habitat would be restored during mine reclamation (MDNR et al. 2013). However, it is unlikely that any Habitat Group 4 RFSS would colonize these areas because nearly all Habitat Group 4 RFSS prefer immature and mature forests and it would likely be 20 or more years before the restored habitat would reach this stage of maturity.

Non-federal Lands

There are about 3,300 acres of forested wetland, or 71% of all wetland habitat and 47% of all habitat, on the non-federal lands (**Table 8**). Under the Proposed Action, the Forest Service would survey for Habitat Group 4 RFSS and associated habitat prior to conducting land-disturbing activities; areas of known or potential habitat would be avoided when feasible. Most recreational activity would be confined to trails and roads and could affect Habitat Group 4 RFSS that favor open, disturbed habitats.

Alternative B

Federal Lands

Direct and indirect effects to Habitat Group 4 RFSS under Alternative B would be similar to those under the Proposed Action. Based on plant surveys for the federal lands, no Habitat Group 4 RFSS would be directly affected by the Project under Alternative B.

Direct and indirect effects to forested wetlands from mining and related activities would be similar for the Proposed Action and Alternative B. Under Alternative B, there are about 2,167 acres of forested wetland (**Table 8**). About 1,103 fewer acres (34%) of forested wetland would be transferred to PolyMet from the Forest Service than under the Proposed Action.

Non-federal Lands

No Habitat Group 4 RFSS have been reported on Hay Lake Lands. There are about 1,962 acres of forested wetland on Hay Lake Lands, which is about 59% of the forested wetland habitat that occurs on the non-federal lands (**Table 8**). Thus, the Forest Service would receive lands that could provide habitat for Habitat Group 4 RFSS on the non-federal lands under Alternative B.

No Action Alternative

There would be no direct or indirect effects to Habitat Group 4 RFSS under the No Action Alternative.

5.1.5.3 Cumulative Effects

As discussed in Section 4.5.2, it is possible that Habitat Group 4 RFSS and/or their habitat have been lost from past and ongoing activities in the CESA, and would be lost in the future from similar reasonably foreseeable future activities.

Because European settlement, timber harvest, wetland drainage, and road construction have affected forested wetlands and reduced the amount and distribution of this habitat within the CESA. More recently, timber sales on federal, state, county, and private lands have changed the age class distribution of lowland black spruce habitats, but have not altered the overall suitability of the habitat for species in this habitat group.

Forest management activities could result in Habitat Group 4 RFSS and their habitats being driven over and crushed by timber harvest and road construction/maintenance equipment, and harmed from sedimentation of streams and lakes due to ground disturbance. Timber harvest activities would be conducted during winter in wetlands, however, to reduce the risks of ground disturbance and sedimentation.

Construction and use of roads in lowlands under the Proposed Action, Alternative B, and No Action Alternative and elsewhere in the CESA would continue to affect suitable habitat. However, the proportion of total suitable habitat affected by these activities would be very small. Timber sales affecting lowlands on state or county lands could change the age class of lowland black spruce forests in the Project area, temporarily making some stands less suitable for Habitat Group 4 RFSS. However, the proportion of total suitable habitat affected by these activities would be very small.

The Project could potentially indirectly affect the habitat of one Habitat Group 4 RFSS population, and directly affect about 589 acres of potential habitat on the federal lands for Habitat Group 4 RFSS (**Table 7**). Despite the potential cumulative effects, RFSS that could be affected by the Project also occur elsewhere in the Superior National Forest, including the Tracks Project area, and elsewhere in Minnesota, which would not be affected by the Project or other ground-disturbing activities in the CESA. In addition, there about 370,000 acres of habitat for Habitat Group 4 RFSS remaining in the CESA (Emmons and Olivier Resources, Inc. 2006:30, 38).

PolyMet would acquire about 2,266 acres of forested wetland on the federal lands surrounding the Mine Site under the proposed land exchange (**Table 8**). Although these lands would remain privately owned, it is likely that some or all of these lands would be managed for timber production and harvested in the reasonably foreseeable future. Timber harvest and associated road construction could directly or indirectly affect Habitat Group 4 RFSS, including snowline wintergreen, unless efforts are taken to avoid Habitat Group 4 RFSS. Effects

from timber management would be mitigated by voluntary adherence to Minnesota Forest Resources Council best management practices (Minnesota Forest Resources Council 1999).

Timber harvesting, road building, and recreational activities could occur on non-federal lands. No Habitat Group 4 RFSS have been reported on the non-federal lands, but there are about 3,300 acres of suitable habitat on the non-federal lands (**Table 8**). The Forest Service would survey for RFSS prior to conducting land-disturbing activities, and would avoid areas with known or potential habitat for RFSS when feasible. Should disturbance activities occur on the non-federal lands, it would take 20 or more years before disturbed lands would be suitable for Habitat Group 4 RFSS.

5.1.5.4 Summary

Project activities associated with the Proposed Action and Alternative B could have indirect effects on individual Habitat Group 4 RFSS, and indirect and cumulative effects on their habitat. Other activities in the CESA would also contribute to cumulative effects toward the RFSS plants of this habitat group. The Proposed Action and Alternative B would have similar effects on Habitat Group 4 RFSS, while there would be no effects to Habitat Group 4 RFSS from the No Action Alternative.

5.1.5.5 Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for snowline wintergreen, fairy slipper, ram's head lady slipper, Selwyn's scalewort, yellow specklebelly, cartilage lichen, cloudberry, peppered moon lichen, honeycombed lichen, western Jacob's-ladder, beard lichen, and two unnamed lichens, *Caloplaca parvula*, and *Cetraria aurescens*. The No Action Alternative would have **no impact** to individuals of Habitat Group 4 RFSS.

5.1.5.6 Mitigation and Recommendations

No mitigation measures are proposed for Habitat Group 4 RFSS.

5.1.6 Mesic Hardwood Forest Dominated Habitat (Habitat Group 5)

5.1.6.1 Environmental Baseline

Habitat Group 5 RFSS favor upland mesic (moderately moist) deciduous forests comprised of sugar maple, basswood, paper birch, and yellow birch. The following Habitat Group 5 RFSS either occur on, and/or have suitable habitat on, the federal and/or non-federal lands—moshatel, Braun's holly fern, triangle grapefern, and lanceleaf grapefern. Triangle grapefern has been found on Hay Lake Lands, but not on the other non-federal lands or federal lands. Moshatel, Braun's holly-fern, and lanceleaf grapefern have not been found on the federal or non-federal lands.

<u>Species Conditions</u>

Moshatel *(Adoxa moschatellina)*

The number of known occurrences of moshatel in Minnesota exceeds 120 populations, including records from St. Louis, Lake, and Cook Counties. The habitat of moshatel in Minnesota is primarily mesic hardwood forests. These are typically mature or old growth communities dominated by sugar maple and basswood. There may also

be significant amounts of paper birch and yellow birch. In the northern part of the state there may be conifers present, particularly northern white cedar and balsam fir.

The narrow geographical and ecological range of those occurrences may be a cause for concern. It appears that the mature mesic hardwood forests where this species occurs are often selectively targeted for intensive forest management in northern Minnesota. In addition to the pressures of the timber industry, mesic forests in southeastern Minnesota tend to be more vulnerable to invasion by non-native species.

Moshatel not been reported on the federal or non-federal lands, or on the Tracks Project area.

Triangle Grapefern *(Botrychium lanceolatum)* and Lanceleaf Grapefern *(Botrychium lanceolatum* var. *angustisegmentum*

Lanceleaf grapefern is a variety of triangle grapefern and the two are analyzed together in this section. These are small ferns that range across much of the northeastern U.S. and Canada. They are uncommon in Minnesota, but more common in Wisconsin and Michigan, and especially common on the Ottawa National Forest in Michigan's western Upper Peninsula. They are found in St. Louis, Lake, and Cook Counties and several other counties in Minnesota, including on the Tracks Project area. They prefer moist, shady, mature northern hardwood forests, particularly in low areas. They usually occur with sugar maple, yellow birch, green ash, black ash, red oak, basswood, and sometimes northern white cedar. The understory can be rather open.

These ferns probably appear or disappear in accordance with mycorrhizal health due to their obligate relationship with the fungi. Environmental factors that may affect mycorrhizae, like reduction in water availability, are likely to have effects on these ferns, whereas the repeated removal of leaf tissue may have little effect (Chadde and Kudray 2001c and references cited therein).

Triangle grapefern not been reported on the federal lands, but one population was been found near the southwestern portion of Hay Lake Lands (MDNR 2014a). It was not reported on the Tracks Project area.

Lanceleaf grapefern has not been reported on the federal or non-federal lands, but was found on the Tracks Project area.

Goblin Fern (*Botrychium mormo*)

The geographic range of *Botrychium mormo* is confined to forests in portions of three contiguous states: Minnesota, Wisconsin, and Michigan. Most of the records are from north-central Minnesota, particularly Cass County. However, the species is scarce even within its stronghold, and it is becoming increasingly rare. The species requires an intact tree canopy in order to have consistently shaded, moist conditions and the accelerating rate of habitat degradation is the reason for its decline. Concerns over habitat loss and degradation from timber management activities and land clearing prompted the listing of *B. mormo* as a Minnesota special concern species in 1984.

B. mormo occurs in mature mesic hardwood forests where the dominant trees are *Acer saccharum* (sugar maple) with lesser amounts of *Thuja occidentalis* (northern white cedar). The canopy must be intact to maintain shaded, moist conditions. The soils are loamy with large amounts of humus, or organic matter, on the surface.

There is a documented occurrence of goblin fern within a mile of the Hay Lake parcel, where suitable habitat for goblin fern may be present.

Braun's Holly Fern (*Polystichum braunii*)

The geographic range of Braun's holly fern is quite limited and it is generally considered to be rare or local wherever it occurs. It was first found in Minnesota in 1966 during a geological survey of Cook County, and it has since been discovered in adjacent Lake County. Surveys of suitable habitats in northeastern Minnesota have located this species in only a few locations, and it typically occurs in rather localized, small populations.

Most occurrence records place the species in rocky environments, including in soil pockets and fissures in rock outcrops, at the bases of cliffs, among talus, along boulder-strewn water courses, or in rocky woods. But others have found it in environments that may be relatively rock-free, such as floodplain forests and woods with deep loamy soil. Microhabitat seems to be crucial in providing the cooler temperatures needed by this northern species. It is often found in erosion channels where the banks are steeply cut and cool air drains and settles, providing cool and moist conditions throughout the day. Shade, either of steep-sided ravines and gorges, north-facing slopes, or provided by a mature forest canopy or at least a shrub thicket, seems to be a constant. (Brzeskiewicz and Fields 2003 and references cited therein). In Minnesota, Braun's holly fern has been found on small ledges and cracks on the steep walls of river gorges, at the base of cliffs, on shaded rockslides, and in a cobbly, seepy drainage of lowland black ash and northern white cedar. However, most of the populations occur along moist, often rocky draws and ephemeral rocky streams in rich hardwood forests dominated by sugar maple and yellow birch.

Braun's holly fern has not been reported on the federal or non-federal lands, or the Tracks Project area.

5.1.6.2 Habitat Conditions

Habitat Group 5 RFSS favor upland mesic (moderately moist) deciduous forests comprised of sugar maple, basswood, paper birch, and yellow birch. Upland mesic deciduous forest is a component of MIH 1. However, the Forest Service MIH mapping system is too broad to accurately identify acres of this particular forest type. There are about 1,330 acres of upland forest (MIH 1), which includes aspen/aspen-white birch, maple/basswood, and oak forest cover types, on the federal lands and 2,695 acres of upland forest on the non-federal lands (**Table 6**). However, based on plant habitat surveys for the federal lands, mesic deciduous forest comprises only a small portion of upland deciduous forest on the federal and non-federal lands (MDNR et al. 2013).

5.1.6.3 Direct and Indirect Effects

Proposed Action

Species Conditions

Federal Lands

There should be no direct or indirect effects to moshatel, Braun's holly fern, triangle grapefern, or lanceleaf grapefern on federal lands from the Project as they have not been found on the federal lands and there is very little suitable habitat for these species on the federal lands.

Non-federal Lands

The Forest Service would monitor for triangle grapefern near Hay Lake Lands, and seek to protect high quality habitat for this plant species. Under the Proposed Action, the non-federal lands would be transferred to the Forest Service, who would manage the lands for timber production, recreation, nature study, and other values. The Forest Service would monitor Habitat Group 5 RFSS use of these lands, and seek to protect high quality habitat for these species.

Habitat Conditions

Federal Lands

There is very little suitable mesic upland forest habitat for Habitat Group 5 RFSS on the federal lands.

Non-federal Lands

Very little upland mesic upland forest habitat is found on the non-federal lands. Under the Proposed Action, the Forest Service would survey for Habitat Group 5 RFSS and associated habitat prior to conducting land-disturbing activities; areas of known or potential habitat would be avoided when feasible. Most recreational activity would be confined to existing trails and roads and would not likely affect Habitat Group 5 RFSS that favor upland mesic deciduous forests.

Alternative B

Federal Lands

There should be no direct or indirect effects to moshatel, Braun's holly fern, triangle grapefern, or lanceleaf grapefern on federal lands from the Project under Alternative B as these species have not been reported on the federal lands and there is little suitable mesic upland forest habitat for these species on the federal lands.

Non-federal Lands

Triangle grapefern has been found near Hay Lake Lands. Risks to this population and other Habitat Group 5 RFSS populations that could be found on the non-federal lands, and their habitat, would be similar to those under the Proposed Action.

No Action Alternative

There would be no direct or indirect effects to Habitat Group 5 RFSS under the No Action Alternative.

5.1.6.4 Cumulative Effects

As discussed in Section 4.5.2, it is possible that Habitat Group 5 RFSS and/or their habitat have been lost from past and ongoing activities in the CESA, and would be lost in the future from similar reasonably foreseeable future activities.

Forest management activities could result in Habitat Group 5 RFSS and their habitats being driven over and crushed by timber harvest and road construction/maintenance equipment, and from ground disturbance

associated with these activities. Timber harvest and road construction have affected upland forests and reduced the amount and distribution of this habitat within the CESA. Construction and use of roads under the Proposed Action, Alternative B, and the No Action Alternative, and elsewhere in the CESA, would continue to affect suitable habitat. There are about 460,000 acres of upland deciduous forest in the CESA (Emmons and Olivier Resources, Inc. 2006:30, 38), and a portion of this habitat would be mesic hardwood forest and would be available to Habitat Group 5 RFSS.

There should be no effects to Habitat Group 5 RFSS or their habitat from mining, and little upland mesic hardwood forest would be transferred to PolyMet under the land exchange (MDNR et al. 2013). Timber harvesting, road building, and recreational activities could occur on the federal and non-federal lands, depending upon whether the Proposed Action, Alternative B, or No Action Alternative is selected in the Record of Decision. In addition, there is the potential for homes and cabins to be built on the non-federal lands should the FEIS Record of Decision select the No Action Alternative and non-federal lands remain under private ownership. Only one population of triangle grapefern has been found on or near the non-federal lands (Hay Lake Lands) and little suitable habitat is found on the non-federal lands for Habitat Group 5 RFSS. The Forest Service would survey for RFSS prior to conducting land-disturbing activities, and would avoid areas with known or potential habitat for RFSS when feasible.

5.1.6.5 Summary

Project activities associated with the Proposed Action and Alternative B should have no direct or indirect adverse effects on Habitat Group 5 RFSS or their habitat, and would have a negligible contribution toward cumulative effects for Habitat Group 5 RFSS. Other activities in the CESA could also contribute to cumulative effects toward the RFSS plants of this habitat group. The Proposed Action and Alternative B would have similar effects on Habitat Group 5 RFSS, while there should be no effects to Habitat Group 5 RFSS from the No Action Alternative.

5.1.6.6 Determination

There would be **no impacts** to individuals of moshatel, Braun's holly fern, triangle grapefern, or lanceleaf grapefern under the Proposed Action, Alternative B, or No Action Alternative.

5.1.6.7 Mitigation and Recommendations

No mitigation measures are proposed for Habitat Group 5 RFSS.

5.1.7 Dry-mesic Upland Forest: Deciduous, Coniferous, or Mixed Forest Habitat (Habitat Group 6)

5.1.7.1 Environmental Baseline

Habitat Group 6 RFSS favor dry to mesic upland forests. The following Habitat Group 6 RFSS either occur on and/or have suitable habitat on, the federal and/or non-federal lands—New England sedge, fan lichen, Canada yew, Canada ricegrass, and barren strawberry. Fan lichen, although not included as part of any habitat group in the Forest Plan BE, is analyzed with this habitat group in this BE because of its affinity for bare soil habitats such as root wads (USDA Forest Service 2004c). None of these species have been reported on the federal or non-federal lands.

Species Conditions

New England Sedge *(Carex novae-angliae)*

New England sedge has been found at several locations in the Superior National Forest in St. Louis, Lake, and Cook Counties, including on the Tracks Project area. It is found in moist woods with sugar maple, paper birch, trembling aspen, yellow birch, and white spruce dominated forest (Shackleford 2004).

New England sedge has not been reported on the federal or non-federal lands. It has been found on the Tracks Project area.

Fan Lichen *(Peltigera venosa)*

In Minnesota, fan lichen has only been found in Cook County, where it grows on soil and on moist cliffs at a few locations near Lake Superior (Wetmore 2002e and references cited therein). In 1897, Bruce Fink found the species at two localities, while the most recent collections are from 2010. Thorough searches at many localities have yielded no additional records, but some potential habitat remains to be searched. The preferred substrate for fan lichen is rich, not-recently-disturbed soil and mossy rocks. It prefers cool, shady, moist locations, but only where there is little competition from other plants.

Fan lichen has not been reported on the federal or non-federal lands, or on the Tracks Project area.

Canadian Ricegrass *(Piptatherum [=Oryzopsis] canadense)*

Canadian ricegrass is found in St. Louis, Lake, and Cook Counties. This species is known from only eight documented locations in Minnesota. It prefers gravelly/sandy soil associated with red and jack pine plantations.

Canada ricegrass has not been reported on the federal or non-federal lands, but has been found on the Tracks Project area.

Canada Yew *(Taxus canadensis)*

Canada yew is found in northern Minnesota, including St. Louis, Lake, and Cook Counties. Canada yew is a shrub found as an understory species in a wide variety of uplands and lowlands, including northern white cedar/black ash swamps, talus and cliffs, northern hardwoods, and trembling aspen/paper birch forest.

Canada yew has not been reported on the federal or non-federal lands, but has been found on the Tracks Project area.

Barren Strawberry *(Waldsteinia fragarioides)*

In Minnesota, barren strawberry is restricted to forested sites in the northeastern part of the state. The earliest collection of the species is from 1893 in Lake County. It was later collected by Olga Lake at several locations in St. Louis and Lake Counties between 1938 and 1956. Relatively few records were reported in the 1980s but since that time, over 30 observations have been documented, including on the Tracks Project area. Some of these observations are clustered, with sites within a few miles of each other. Separate observations may actually be part of one larger population. Taking this into consideration, there are probably just over 20 populations that have been observed in the state since 1990.

In Minnesota, barren strawberry grows both in fire-dependent forests and in dry mesic hardwood forests. It is often found in forests dominated by pine, including red pine, white pine, and jack pine. It is also found in mixed pine and hardwood forests, often with trembling aspen, as well as in hardwood forests dominated by sugar maple. It is sometimes observed growing in deep shade, but perhaps most often in woodlands with small openings or relatively open tree or shrub canopies. It is also found growing in full sun along roadsides (Hill 2003 and references cited therein).

Barren strawberry has not been reported on the federal or non-federal lands.

Habitat Conditions

Upland forest (MIH 1 and 5) is common on the federal and non-federal lands. There are about 2,582 acres of upland forest on the federal lands, and 2,774 acres of upland forest on the non-federal lands, that could provide habitat for Habitat Group 6 RFSS (**Table 6**). Coniferous forest (MIH 5) makes up about 49% of the upland forest habitat on the federal lands, but only 3% of upland forest on the non-federal lands (**Table 6**). Jack pine, trembling aspen, paper birch, black spruce, and balsam fir are the dominant upland forest species on the federal lands; there are also scattered stands of red and white pine (ENSR 2005, AECOM 2011a). These species are also common on the non-federal lands, although there is less jack pine and more eastern white pine on the non-federal lands than on the federal lands (AECOM 2011b, c). This may be due to higher levels of timber harvesting on non-federal than federal lands, specifically harvesting of coniferous species. Portions of several non-federal lands have been recently logged (Lake County Lands South and Wolf Lands 3, in particular).

5.1.7.2 Direct and Indirect Effects

Proposed Action

Species Conditions

Federal Lands

No Habitat Group 6 RFSS were found during plant surveys on the federal lands, despite the fact that upland forest habitat comprised almost 40% of the federal lands (**Table 6**). Thus, there should be no direct or indirect effects to Habitat Group 6 RFSS from the Project on federal lands.

Non-federal Lands

No Habitat Group 6 RFSS were found during plant surveys on the non-federal lands, despite the fact that upland forest habitat comprised about 39% of the habitat on non-federal lands (**Table 6**). Under the land exchange, the Forest Service would administer the non-federal lands. The Forest Service would monitor Habitat Group 6 RFSS use of these lands, and seek to protect high quality habitat for these species. Some species, such as barren strawberry and Canada ricegrass, seem to tolerate disturbance on opening-up of timber stands.

Habitat Conditions

Federal Lands

There are 2,582 acres of upland forest on the federal lands that can provide habitat for these RFSS (**Table 6**). Upland forest is more prevalent on the portion of the federal lands within the Mine Site, making up 62% (1,694 acres) of the habitat. About 30% of the upland forest on the federal lands is immature or mature forest. The Project would affect about 1,037 acres of upland forest habitat and affected areas would not provide habitat for Habitat Group 6 RFSS for at least 20 years after mining and reclamation, and much longer for Habitat Group 6 RFSS that favor more mature forest habitat.

Non-federal Lands

There are 2,774 acres of upland forest habitat that could be used by Habitat Group 6 RFSS on the non-federal lands (**Table 6**). There is less upland forest habitat (39%), on a percentage basis, on the non-federal lands than on the federal lands. Timber harvest, and road building and recreational activities, could alter or destroy habitat for these species if these lands are transferred to the Forest Service. Under the Proposed Action, the Forest Service would survey for Habitat Group 6 RFSS and associated habitat prior to conducting land-disturbing activities; areas of known or potential habitat would be avoided when feasible. Most recreational activity would be confined to existing trails and roads and would not likely affect Habitat Group 6 RFSS that favor upland forests.

Alternative B

Federal Lands

There should be no direct effects to New England sedge, fan lichen, Canada yew, Canada ricegrass, and barren strawberry on federal lands from the Project as these species have not been reported on the federal lands. Under Alternative B, there are 2,093 acres of upland forest on the federal lands (**Table 6**). About 489 fewer acres of upland forest habitat would be transferred to PolyMet from the Forest Service than would occur under the Proposed Action, but direct and indirect effects to Habitat Group 6 RFSS species and their habitats from the Project activities would remain the same.

Non-federal Lands

There would be no direct effects to New England sedge, fan lichen, Canada yew, Canada ricegrass, and barren strawberry under Alternative B. There are about 2,420 acres of suitable habitat (MIH 1 and 5) on Hay Lake Lands, which is about 87% of the upland forest found on the non-federal lands (**Table 6**). Prior to implementing ground-disturbing activities, the Forest Service would conduct RFSS surveys of Hay Lake Lands to determine if RFSS would be affected by proposed activities. These surveys should help to ensure that RFSS found on the lands are avoided, where feasible. Under Alternative B, however, about 354 acres of upland forest habitat that is found on the other non-federal lands would remain under private ownership (**Table 6**).

No Action Alternative

There would be no direct or indirect effects to Habitat Group 6 RFSS under the No Action Alternative.

5.1.7.3 Cumulative Effects

As discussed in Section 4.5.2, it is possible that Habitat Group 6 RFSS and/or their habitat have been lost from past and ongoing activities in the CESA, and would be lost in the future from similar reasonably foreseeable future activities.

Timber harvest and road construction have affected upland forests and reduced the amount and distribution of this habitat within the CESA. Construction and use of roads in upland forests under the Proposed Action, Alternative B, and No Action Alternative and elsewhere in the CESA would continue to affect suitable habitat. For Canada ricegrass and barren strawberry, however, timber harvest should not have any long-term cumulative effects to habitat for these species because they appear to be able to tolerate some levels of disturbance. Suitable habitat for fan lichen (in the form of tip-ups) would continue to be created by future timber harvests.

There should be no direct or indirect effects to individuals of Habitat Group 6 RFSS from mining. About 1,037 acres of upland forest on the federal lands would be lost to mining and would be an adverse cumulative effect (**Table 6**).

Timber harvesting, road building, and recreational activities could occur in the future on the federal and non-federal lands, depending upon the whether the Proposed Action, Alternative B, or the No Action Alternative is selected in the Record of Decision. In addition, there is the potential for homes and cabins to be built on the non-federal lands, should the FEIS Record of Decision select the No Action Alternative and non-federal lands remain under private ownership. These activities could harm Habitat Group 6 RFSS and their habitats. There are about 31,000 acres of upland deciduous hardwood forest, and about 161,000 acres of upland conifer forest, in the CESA (Emmons and Olivier, Inc. 2006:30, 38), and Habitat Group 6 RFSS are found throughout the Superior National Forest, including on the Tracks Project area. The Forest Service would survey for RFSS prior to conducting land-disturbing activities, and would avoid areas with known or potential habitat for RFSS when feasible on lands they administer.

5.1.7.4 Summary

Project activities associated with the Proposed Action and Alternative B should have no direct or indirect adverse effects on individual Habitat Group 6 RFSS or their habitats because these species have not been found on the Mine Site. The Project would result in the cumulative loss of about 1,037 acres of potential habitat for these species on the federal lands (**Table 6**). Other activities in the CESA would also contribute to cumulative effects toward the RFSS plants of this habitat group. The Proposed Action and Alternative B would have similar effects on Habitat Group 6 RFSS. There should be no effects to Habitat Group 6 RFSS or their habitats from the No Action Alternative.

5.1.7.5 Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for New England sedge, fan lichen, Canada yew, Canada ricegrass, and barren strawberry. The No Action Alternative would have **no impact** to individuals of Habitat Group 6 RFSS.

5.1.7.6 Mitigation and Recommendations

No mitigation measures are recommended for Habitat Group 6 RFSS.

5.2 Animals

5.2.1 Animals Not Evaluated in the Biological Evaluation

As shown in **Table 1**, there is no suitable habitat on the federal and non-federal lands for lake sturgeon, Nipigon cisco, and Shortjaw cisco. The Proposed Action, Alternative B, and No Action Alternative would have **no impact** to individuals of these species, and they will not be addressed further in this BE.

5.2.2 Mussels

Unionid mussels (*Unionidae*) constitute one of the most imperiled major taxa in the U.S. (Master et al. 2000), and 33 unionid species within Minnesota are state-endangered (13 species), threatened (11 species), or species of special concern (9 species). Two of these species, creek heelsplitter and black sandshell, both RFSS, are known to occur in the St. Louis River Watershed. No listed freshwater mussel species were observed on federal during mussel surveys for the Project (Heath 2004, 2011). No listed freshwater mussel species are known to occur on the non-federal lands.

5.2.2.1 Environmental Baseline

Creek Heelsplitter (*Lasmigona compresssa*)

The creek heelsplitter typically occurs in small headwater streams and requires riverine habitat conditions to survive and proliferate. It has also been documented at or near river inlets on lakes on the Superior National Forest. Although the creek heelsplitter is capable of self-fertilization, it relies extensively on host fish species for its parasite life stage (glochidia larvae) and dispersal. Because of its habitat and host fish requirements, the creek heelsplitter may be affected by vegetative management and road construction activities that could potentially increase sedimentation and streamflow, as well as create potential host fish migration barriers at road crossings.

The creek heelsplitter has not been reported on the federal or non-federals lands. It is not known to occur on the Partridge River in the vicinity of the Project area. On Hunting Club Lands, the creek heelsplitter is unlikely to be found as the creek that flows through the lands because the creek does not have a sandy substrate. There are no streams or rivers associated with Wolf Lands 1 and 2, Lake County Lands, or McFarland Lake Lands (AECOM 2011a, b).

There is potential habitat for the species on Hay Lake Lands and Wolf Lands 3 and 4. It has not been reported on Hay Lake Lands, but suitable habitat may exist in the Pike River. This species has been documented 2.3 miles downstream of the Hay Lake Lands at the Sand and Pike Rivers confluence, where the Pike River becomes a fourth-order stream. On the Hay Lake Lands, third-order segments of the Pike River may offer adequate sand substrate and flow to provide habitat for this species.

While the creek heelsplitter is not known to occur within or in the immediate vicinity of Wolf Lands 3 or 4, it has been documented near the eastern and western confluence of the northernmost lake in the chain of McDougal Lakes and in the third-order stretch of the Stony River. Therefore, it could occur in Coyote Creek, which flows from Wolf Lands 3 and 4 into McDougal Lakes, and is near the Stony River. The habitat in Coyote Creek within Wolf Lands 3 and 4 is unknown, but it could display first-order headwater stream characteristics.

The creek heelsplitter is known to occur on the Track Project area in the Cloquet River, and may occur in larger tributaries of the Cloquet River.

Black Sandshell Mussel (*Ligumia recta)*

The black sandshell mussel is primarily a riverine species that requires deep run or glide habitat in wide rivers with moderate current.

The black sandshell mussel is known to occur on the Superior National Forest, although near the edge of this species range. It has been documented in several locations in the St. Louis River system. The black sandshell mussel is not known to occur on the federal or non-federal lands, or within the Tracks Project area. The nearest documented occurrences of this species to the Project area are four locations in the St. Louis River, approximately 9 to 11 miles south to southwest of the federal lands. There is suitable habitat in the Pike River (Hay Lake Lands) and possibly Coyote Creek (Wolf Lands 3 and 4) for the black sandshell mussel. The Langley or Cloquet Rivers (Tracks Project area) may also support individuals or populations and provide habitat for the black sandshell mussel.

5.2.2.2 Direct and Indirect Effects

Proposed Action

There should be no direct effects to creek heelsplitter and black sandshell mussels from the Project as they have not been reported on the federal lands. Because the Project should not result in any measurable changes in habitat quality and flow regimes in the Partridge River, and no change in water quality (for any of the Class B water quality standards), no effects to the habitat for these species are expected within the Partridge River Watershed. Section 5.2.6 of the FEIS provides additional information on anticipated changes to flow regimes.

No creek heelsplitter or black sandshell mussels have been reported on the non-federal lands, although the creek heelsplitter has been documented in the Pike River, about 2.3 miles downstream of Hay Lake Lands, and in the Stony River near Wolf Lands 3 and 4. Under the Proposed Action, the Forest Service would survey for creek heelsplitter and black sandshell mussels and associated habitat prior to conducting land-disturbing activities; areas of known or potential habitat would be avoided when feasible.

Alternative B

Potential effects to creek heelsplitter and black sandshell mussel from Project activities would be similar to those under the Proposed Action. Under Alternative B, PolyMet would administer lands on which the Partridge River flows.

The Forest Service would acquire Hay Lake Lands under Alternative B. The Pike River flows along the eastern boundary of these lands. As noted above, suitable habitat for the creek heelsplitter could be found in the third-order segments of the Pike River, and this species has been found about 2.3 miles downstream of Hay Lake Lands. Creek heelsplitter habitat may occur on Coyote Creek within Wolf Lands 3 and 4 that would remain privately owned.

No Action Alternative

There would be no direct or indirect effects to creek heelsplitter or black sandshell mussel under the No Action Alternative.

5.2.2.3 Cumulative Effects

Substrate quality, channel stability, and host fish migration opportunities are key habitat components for maintaining individuals, populations, and habitat of creek heelsplitter and black sandshell mussel. It is likely that timber harvest, road and trail construction, and poorly designed stream crossings may have affected RFSS mussels and their habitat by altering stream channels and flow, contributing sediment into local streams, increasing stream temperatures, and restricting host fish migration within the CESA (USDA Forest Service 2004a).

Undeveloped federal and non-federal lands could be managed for timber production, and the developed portions of the Mine Site could be managed for timber after reclamation. Use of unclassified roads on federal and non-federal lands may contribute sediment into local streams and potentially threaten RFSS mussels and their habitat, although this input should be minimal if existing roads are used or reclaimed and no new roads are constructed near streams. Road construction and timber management activities could affect individuals, populations, and/or habitat of creek heelsplitter and black sandshell mussel on the Partridge River, Pike River, and Coyote Creek. These activities could potentially increase the inputs of fine sediment into local streams, increase or reroute stream flows, increase stream temperatures, and disrupt existing and/or future habitat unless properly mitigated. These effects could be mitigated by following design criteria to minimize effects to riparian zone habitat, including prohibiting the harvest of trees would occur within certain distances of different types of streams except for the purpose of maintaining or restoring riparian ecological function.

Standards and guidelines in the Forest Plan and best management practices would help to ensure that land management activities would not contribute to cumulative effects (USDA Forest Service 2004a). Provided that best management practices are implemented by landowners and managers, there should be no long-term cumulative effects to creek heelsplitter and black sandshell mussels and habitat from reasonably foreseeable future activities.

There should be no cumulative effects to creek heelsplitter and black sandshell mussel or their habitats from the Project as they have not been reported on or near the federal lands and the Project is not predicted to result in any measurable changes in water flows or water quality within the Partridge River Watershed. Creek heelsplitter has been found near Hay Lake Lands, and would be afforded protection by the Forest Service under both the Proposed Action and Alternative B.

5.2.2.4 Summary

The Proposed Action, Alternative B, and No Action Alternative should have no direct, indirect, or cumulative effects to individuals or habitat of creek heelsplitter or black sandshell mussel.

5.2.2.5 Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** creek heelsplitter or black sandshell mussels. The No Action Alternative would have **no impact** to creek heelsplitter or black sandshell mussel individuals.

5.2.2.6 Mitigation and Recommendations

No mitigation measures are recommended for creek heelsplitter or black sandshell mussel.

5.2.3 Insects

Although no RFFS insects have been reported on the federal or non-federal lands, there are six RFSS insects that could have suitable habitat on the federal and/or non-federal lands—headwaters chilostigman caddisfly, ebony boghaunter, Quebec emerald dragonfly, taiga alpine, Nabokov's blue butterfly, and Freija's grizzled skipper.

5.2.3.1 Headwaters Chilostigman Caddisfly (*Chilostigma itascae*), Ebony Boghaunter (*Williamsonia fletcheri*)), and Quebec Emerald Dragonfly (*Somatochlora brevicincta*)

Environmental Baseline

Headwaters Chilostigman Caddisfly *(Chilostigma itascae)*

Little is known about the headwaters chilostigman caddisfly. It has only been discovered in two locations within Minnesota. In 1994, it was documented in a slow-moving, silt-dominated headwater stream in Itasca State Park and in 2005, in a rich swamp to poor fen habitat at Finland State Forest, which is about 4 miles north of Lake County Lands South.

Observations at Finland State Forest were within a large, acid to minerotrophic peatland complex. These peatlands have a loose to moderately dense canopy of black spruce and tamarack, with some northern white cedar, and a shrub layer of speckled alder and bog birch. Sphagnum mosses, sedges, and several heath species dominate the ground layer. Shallow pools among the hummocks and narrow streamlets are a characteristic feature where adults were observed crawling around on the snow. Adults were also observed in an aspen-mixed coniferous forest on a ridge adjacent to this peatland complex. Presumably these adults wandered from the peatland where larval development took place.

Habitats similar to those at Finland State Forest occur within the One Hundred Mile Swamp on the federal lands. However, because the distribution of this caddisfly appears to be very limited, it is unlikely that this species occurs on the federal or non-federal lands.

Headwaters chilostigman caddisfly has not been reported on the federal or non-federal lands, or the Tracks Project area.

Ebony Boghaunter *(Williamsonia fletcheri)*

The ebony boghaunter uses low elevation sphagnum bogs adjacent to coniferous or mixed coniferous/deciduous forest. It is usually absent from bogs that lack sphagnum. Larvae may develop in shallow pools (6 to 12 inches) in sedge fens or among sphagnum mats that have open pools and are not choked with

heaths. The adult male territorial arenas and adult perching sites are often in small, sun-lit clearings in the forest surrounding the laying habitat, not in completely open upland habitat. The ebony boghaunter has not been identified from benthic macroinvertebrate surveys conducted on and near the federal lands, and it has not been reported on the non-federal lands or Tracks Project area. Habitat likely exists for the ebony boghaunter on the federal and non-federal lands in bogs.

Quebec Emerald Dragonfly *(Somatochlora brevicincta),*

The Quebec emerald dragonfly occurs in lentic habitats typically associated with bogs, fens, and heaths near water-saturated or water-suspended sphagnum moss. The microhabitat is water-suspended or water-saturated sphagnum moss, whether or not associated with open water, and typically having grass-like emergent plants indicating weak minerotrophism. Eggs are laid outside plant tissues on the moss or adjacent water surface, with the larvae likely living within the saturated moss rather than on the water interface. The species has not been observed on open-water peatland ponds. Landforms in which the habitat can develop will generally consist of bedrock or surficial deposits with little mineralizing potential. Habitat may also form adjacent to or within peat bogs or heaths in low relief areas.

The Minnesota Odonata Survey Project found an individual in northern Lake County approximately 30 miles northeast of the Project area in 2006. This RFSS' habitat requirements are not well-understood in Minnesota. Suitable habitat could be present within the federal lands near the bogs associated with the headwater stream, Yelp Creek. It could inhabit poor fens and wet meadow/sedge meadow habitat found on the federal and non-federal lands. However, the likelihood of observing Quebec emerald dragonfly individuals or populations in the vicinity of the federal or non-federal lands is low.

Quebec emerald dragonfly was not found during benthic macroinvertebrate surveys of the federal lands (Breneman 2005, Barr 2011), and has not been reported on the non-federal lands, or the Tracks Project area.

Direct and Indirect Effects

Proposed Action

There should be no direct or indirect effects to headwaters chilostigman caddisfly, ebony boghaunter, or Quebec emerald dragonfly as they have not been reported on the federal lands and sightings have been 30 miles or more from the federal lands. These species favor slow-moving streams, bogs, and fens, which are similar to sedge/wet meadow habitat. There are 2,207 acres of habitat that could be used by these RFSS insects on the federal lands (210 acres of open bog, 1,961 acres of coniferous bog, and 36 acres of sedge/wet meadow; **Table 8**). A total of 547 acres of these habitats (512 acres of open and coniferous bog and 35 acres of sedge/wet meadow) would be disrupted by mining activities.

Because the Proposed Action should not result in any measurable changes in flows or water quality (for any of the Class B water quality standards) in the Partridge River, negligible effects to the headwaters chilostigman caddisfly, ebony boghaunter, or Quebec emerald dragonfly are expected within the Partridge River Watershed from the Project.

The headwaters chilostigman caddisfly, ebony boghaunter, and Quebec emerald dragonfly have not been reported on the non-federal lands, although the headwaters chilostigman caddisfly has been found at Finland State Forest, which is about 4 miles north of Lake County Lands South. There are 7 acres of open bog habitat

that could be used by these RFSS insects on the non-federal lands (**Table 8**). Under the Proposed Action, the Forest Service would survey for chilostigman caddisfly, ebony boghaunter, and Quebec emerald dragonfly and associated habitat prior to conducting land-disturbing activities; areas of known or potential habitat would be avoided when feasible.

Alternative B

Potential effects to headwaters chilostigman caddisfly, ebony boghaunter, or Quebec emerald dragonfly from Project activities would be the same as under the Proposed Action. Under Alternative B, there would be 1,887 acres of habitat that could be used by these RFSS insects on the federal lands (175 acres of open bog, 1,677 acres of coniferous bog, and 35 acres of sedge/wet meadow; **Table 8**). About 320 fewer acres of habitat would be transferred to PolyMet from the Forest Service than under the Proposed Action. Habitat loss to mining activities would be the same under Alternative B as under the Proposed Action.

Under Alternative B, the Forest Service would acquire Hay Lake Lands. No headwaters chilostigman caddisfly, ebony boghaunter, or Quebec emerald dragonfly have been reported on or near Hay Lake Lands. Based on a habitat assessment, there are only 2 acres of open bog habitat on Hay Lake Lands that could provide habitat for these species. About 30% of the available habitat that occurs on the non-federal lands is found on Hay Lake Lands (AECOM 2011b).

No Action Alternative

There would be no direct or indirect effects to headwaters chilostigman caddisfly, ebony boghaunter, or Quebec emerald dragonfly under the No Action Alternative.

Cumulative Effects

Past, present, and reasonably foreseeable future actions from land management and development include federal, state, county, and private road construction and timber management projects, private development, and routine road maintenance and transportation activities. The CESA has mixed ownership with roads crossing from one landowner to the next, and includes multiple jurisdictions. Standards and guidelines in the 2004 Forest Plan help to ensure that Forest Service activities do not contribute to cumulative effects (USDA Forest Service 2004a). In addition to federal standards and guidelines, state, private and local land owners and managers follow established best management practices that should help to minimize cumulative effects.

There should be no cumulative effects to headwaters chilostigman caddisfly, ebony boghaunter, or Quebec emerald dragonfly from the Project as they have not been reported on or near the federal lands. About 547 acres of habitat that could be used by these species on the federal lands would be directly affected by the Project, but given that there are about 368,000 acres of bog, sedge/wet meadow, and lowland conifer habitat within the CESA, habitat loss from the Project would have a negligible cumulative effect (Emmons and Olivier Resources, Inc. 2006:30, 38).

Summary

Project activities associated with the Proposed Action and Alternative B should have no adverse direct or indirect effects on individual headwaters chilostigman caddisfly, ebony boghaunter, or Quebec emerald dragonfly or their habitats, but the Project could cause cumulative effects to these species through loss of

potential habitat for these species on the federal lands. Other activities in the CESA would also contribute to cumulative effects toward this species. There would be no effects to headwaters chilostigman caddisfly, ebony boghaunter, or Quebec emerald dragonfly or their habitats from the No Action Alternative.

Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for headwaters chilostigman caddisfly, ebony boghaunter, or Quebec emerald dragonfly. The No Action Alternative would have **no impact** on individuals of these species.

Mitigation and Recommendations

No mitigation measures are recommended for headwaters chilostigman caddisfly, ebony boghaunter, or Quebec emerald.

5.2.3.2 Taiga Alpine (Erebia disa mancinus)

Environmental Baseline

The taiga alpine occurs across northern North America. The taiga alpine's only occurrence in the contiguous U.S. is in Minnesota, where it is known from only a handful of localities in a small area in the northeast part of the state. These locations include the Sand Lake Peatland Scientific and Natural Area, which is about 8 miles north of Lake County Lands North and Wolf Lands 1, 5 miles west of Wolf Lands 2, and 8 miles west of Wolf Lands 3; and the McNair Management Area near Lake County Lands South. Recent surveys in the Glacial Lake Agassiz peatlands have not discovered any occurrences there, suggesting that taiga alpine has highly specialized habitat requirements. Because of the small number of known locations, the taiga alpine is likely vulnerable to habitat destruction and catastrophic events.

In Minnesota, the taiga alpine appears to favor black spruce bogs and swamps where immature black spruce trees form a park-like environment, with small bushy trees dotting the understory. This type of habitat is abundant in northern Minnesota, making the very restricted distribution of the butterfly an enigma. In Canada, where it is more common and widespread, it occurs in a broader range of habitats, most commonly in open black spruce-sphagnum bogs.

The taiga alpine was not searched for during field surveys for the Project and the MDNR NHIS database has no records of taiga alpine occurring on or in the vicinity of the federal or non-federal lands. Taiga alpine was found during surveys of the Tracks Project area.

Direct and Indirect Effects

Proposed Action

Taiga alpine has not been observed on or near the federal lands. There are 3,060 acres of lowland coniferous forest (MIH 9) within the federal lands that could provide habitat for this butterfly (**Table 6**). The Project would affect about 482 acres of lowland coniferous forest.

Taiga alpine has not been reported on the non-federal lands, although it has been found within 8 miles of Lake County Lands North, and Wolf Lands 2 and 3. There are about 3,309 acres of lowland coniferous forest habitat

on the non-federal lands that could provide habitat for taiga alpine (**Table 6**). Under the Proposed Action, the Forest Service would survey for taiga alpine and associated habitat prior to conducting land-disturbing activities; areas of known or potential habitat would be avoided when feasible.

Alternative B

Potential direct and indirect effects to taiga alpine and its habitat from Project activities would be similar to those under the Proposed Action. Under Alternative B, there would be about 2,079 acres of lowland coniferous forest on the federal lands that would be transferred to PolyMet (**Table 6**), or about 982 fewer acres of lowland coniferous forest that be transferred to PolyMet from the Forest Service than under the Proposed Action. In particular, portions of One Hundred Mile Swamp would remain under Forest Service management. Habitat loss due to mining activities would be the same under Alternative B as under the Proposed Action.

Under Alternative B, the Forest Service would acquire Hay Lake Lands. There are about 1,818 acres of lowland coniferous forest on Hay Lake Lands (**Table 6**). About 55% of lowland coniferous forest that occurs on the non-federal lands is found on Hay Lake Lands.

No Action Alternative

There would be no direct or indirect effects to taiga alpine under the No Action Alternative.

Cumulative Effects

As discussed in Section 4.5.2, mature black spruce and tamarack lowland forest has been lost from past and ongoing activities in the CESA, and would be lost in the future from similar reasonably foreseeable future activities.

Because European settlement, timber harvest, mining, wetland drainage, and road construction have affected forested wetlands and reduced the amount and distribution of this habitat within the CESA. More recently, timber sales on federal, state, county, and private lands have changed the age class distribution of lowland black spruce habitats, but have not altered the overall suitability of the habitat for taiga alpine.

Construction and use of roads in lowland forests under the Proposed Action, Alternative B, and No Action Alternative, and elsewhere in the CESA would continue to affect suitable habitat. Timber sales affecting lowland forests on state or county lands could change the age class of lowland black spruce forests in the Project area, temporarily making some stands less suitable for taiga alpine. However, the proportion of total suitable habitat affected by these activities would be very small in relation to habitat availability within the CESA.

The Project should not directly affect taiga alpine. About 482 acres of lowland coniferous forest habitat that could be used by this species on the federal lands would be directly affected by the Project (**Table 6**). Despite the potential cumulative effects of the Project, taiga alpine habitat is common in the CESA and about 356,000 acres of lowland coniferous forest/shrubland would remain in the CESA after the Project (Emmons and Olivier Resources, Inc. 2006:30, 38).

PolyMet would acquire lowland coniferous forest on the federal lands surrounding the Mine Site under the proposed land exchange. Although these lands would remain privately owned, it is likely that some or all of these lands would be managed for timber production and harvested in the reasonably foreseeable future. Timber

harvest and associated road construction could directly or indirectly affect taiga alpine habitat. Effects from timber management would be mitigated by voluntary adherence to best management practices (Minnesota Forest Resources Council 1999).

Under the Proposed Action and Alternative B, all or portions of the non-federal lands would be transferred to the Forest Service, who would manage the lands for timber production, recreation, nature study, and other values. Taiga alpine has not been reported on the non-federal lands, but has been observed within 8 miles of several non-federal lands, and there are about 3,309 acres of lowland coniferous forest on the non-federal lands.

Forest management activities could result in ground disturbance that adversely affects taiga alpine habitat, and possibly even individual butterflies. However, timber harvest activities would be conducted during winter in lowland coniferous forest to reduce the risks of ground disturbance and sedimentation. Should disturbance activities occur on the non-federal lands, it could take 80 or more years before disturbed lands would be suitable for taiga alpine. Prior to implementing ground-disturbing activities, the Forest Service would conduct RFSS surveys to determine if RFSS would be affected by proposed activities. These surveys should help to ensure that RFSS species found on non-federal lands are avoided, where feasible.

Summary

Project activities associated with the Proposed Action and Alternative B should have no adverse direct or indirect effects on individual taiga alpine or their habitat, but the Project could cause cumulative effects to potential habitat for taiga alpine on the federal lands. Other activities in the CESA would also contribute to cumulative effects toward this species. The Proposed Action and Alternative B would have similar effects on taiga alpine, while there would be no effects to this species from the No Action Alternative.

Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for taiga alpine. The No Action Alternative would have **no impact** on individuals of this species.

Mitigation and Recommendations

No mitigation measures are recommended for taiga alpine.

5.2.3.3 Nabokov's Blue (*Lycaeides idas nabokovi*) and Freija's Grizzled Skipper (*Pyrgus centaureae freija*)

Environmental Baseline

Nabokov's Blue (*Plebejus idas nabokovi*)

Populations of Nabokov's blue tend to occur in geographic clusters, or metapopulations, linked by distances of 1 to 2 miles. Fewer than five metapopulations are known to occur in each of the Great Lake States (Michigan, Minnesota, and Wisconsin); several of the most important sites occur on U.S. Forest Service lands (Wolf 2002 and references cited therein). Recent Minnesota records for Nabokov's blue are confined to the three northeastern most counties (St. Louis, Lake, and Cook), including the McNair Butterfly Management Area, which is approximately 23 miles southeast of the federal lands and 9 to 13 miles from Wolf Lands 1 and 2,

respectively (BAMONA 2013**)**. Focused searches in the past few years have discovered several new occurrences of Nabokov's blue, although most appear to be small colonies.

In Minnesota, all known colonies of this butterfly occur at sandy sites, including those with jack pine, but it is recorded on rock outcrops in Michigan. Because the species' preferred habitat is open woodland where the larval host plant, dwarf bilberry, is abundant, forest fires were probably important in creating and maintaining habitat for the species.

Active forest management can play a major role in conservation of these rare species. Encroachment of dense vegetation and woody plants is a major threat to existing populations, especially in the southern part of their geographic range. Fire suppression has likely been responsible for loss of habitat for dwarf bilberry during the past 50 years or longer (Wolf 2002).

Freija's Grizzled Skipper (*Pyrgus centaureae freija*)

The Freija's grizzled skipper has only been observed at a single locality in Minnesota, on the McNair Butterfly Management Area. It could occur at other locations in Minnesota, and the absence of additional records may be explained by its spring flight period, when weather is often unsuitable for butterfly activity, and by the poor understanding of its habitat preferences. At the one known location on the McNair Butterfly Management Area, Freija's grizzled skipper occurs in a large, old clearing on sandy soils dominated by grasses, with some willow, speckled alder, dwarf bilberry, and blueberries. Black spruce and tamarack swamps border the clearing in places.

Direct and Indirect Effects

Proposed Action

No butterfly surveys were conducted on the federal and non-federal lands. Based on observations of Nabokov's blue and Freija's grizzled skipper in Minnesota, however, it is unlikely that they are found on or near the federal lands, and thus there should be no direct or indirect adverse effects to these species from the Proposed Action. These butterflies favor sandy and rocky sites associated with jack pine and other upland coniferous forest, which are rare on the federal lands.

There are 1,252 acres of upland coniferous forest habitat (MIH 5) on the federal lands that could provide habitat for Nabokov's blue and Freija's grizzled skipper (**Table 6**). The Project would affect about 505 acres of upland coniferous forest habitat.

Nabokov's blue and Freija's grizzled skipper have not been reported on the non-federal lands, although they have been found within 23 miles of the federal lands and 9 miles of the non-federal lands. There are about 80 acres of upland coniferous forest on the non-federal lands that could provide habitat for Nabokov's blue and Freija's grizzled skipper (**Table 6**). These lands would not be affected by the Project. Under the Proposed Action, the Forest Service would survey for Nabokov's blue and Freija's grizzled skipper and associated habitat prior to conducting land-disturbing activities; areas of known or potential habitat would be avoided when feasible.

Alternative B

Potential direct and indirect effects to Nabokov's blue and Freija's grizzled skipper and their habitat from Project activities would be similar to those under the Proposed Action. Direct effects to upland coniferous forests from the Project would be similar for both the Proposed Action and Alternative B. Under Alternative B, there are 1,139 acres of upland coniferous forest habitat on the federal lands (**Table 6**). About 114 fewer acres of upland coniferous forest would be transferred to PolyMet from the Forest Service than under the Proposed Action. Habitat loss to mining activities would be the same under Alternative B as under the Proposed Action.

Under Alternative B, the Forest Service would acquire Hay Lake Lands. There are 55 acres of upland coniferous forest habitat on Hay Lake Lands (**Table 6**). About 68% of the upland coniferous forest on the non-federal lands is found on Hay Lake Lands.

No Action Alternative

There would be no direct or indirect effects to Nabokov's blue and Freija's grizzled skipper under the No Action Alternative.

Cumulative Effects

As discussed in Section 4.5.2, upland coniferous forest has been lost from past and ongoing activities in the CESA, and would be lost in the future from reasonably foreseeable future activities. Timber management activities have led to the creation of young upland forest habitat in areas that are suitable habitat for Nabokov's blue and Freija's grizzled skipper over much of the Arrowhead region, especially on private lands that tend to have shorter harvest rotations than federal lands. On the Superior National Forest, projections show decreasing young forest habitat (upland forest younger than 9 years) and greatly increasing immature and mature (upland conifer older than 10 years) forest habitat (USDA Forest Service 2010b). Timber harvest and associated road construction could help to promote habitat for Nabokov's blue and Freija's grizzled skipper.

The Project should not directly affect individual Nabokov's blue and Freija's grizzled skipper or their habitat, but could cumulatively affect these species through loss of potential habitat. About 505 acres of upland coniferous forest habitat that could be used by these species on the federal lands would be directly affected by the Project. Although there are few populations of Nabokov's blue and Freija's grizzled skipper in Minnesota, they are more common outside of Minnesota. There are also about 161,000 acres of upland coniferous forest within the CESA that could provide habitat for Nabokov's blue and Freija's grizzled skipper (Emmons and Olivier Resources, Inc. 2006:30, 38).

Under the Proposed Action and Alternative B, all or portions of the non-federal lands would be transferred to the Forest Service, who would manage the lands for timber production, recreation, and other activities. Forest management activities could result in ground disturbances that adversely affect Nabokov's blue and Freija's grizzled skipper and their habitat. The Forest Service would survey for Nabokov's blue and Freija's grizzled skipper prior to conducting land-disturbing activities, and would avoid areas with known or potential habitat for Nabokov's blue and Freija's grizzled skipper when feasible. Should disturbance activities occur on the non-federal lands, it would take 10 or more years before disturbed lands would be suitable for Nabokov's blue and Freija's grizzled skipper. The Forest Service would conduct RFSS surveys to determine if Nabokov's blue and Freija's grizzled skipper would be affected by any proposed land-disturbance activities. These surveys should help to ensure that these RFSS, if found on Hay Lake Lands, are avoided, where feasible.

Summary

Project activities associated with the Proposed Action and Alternative B should have no adverse direct or indirect effects on Nabokov's blue and Freija's grizzled skipper, but the Project could cause cumulative adverse effects to these species through loss of potential habitat. Other activities in the CESA would also contribute to cumulative effects toward these species. The Proposed Action and Alternative B would have similar effects on Nabokov's blue and Freija's grizzled skipper, while there would be no effects to these species from the No Action Alternative.

Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for Nabokov's blue and Freija's grizzled skipper. The No Action Alternative would have **no impact** to individuals of these species.

Mitigation and Recommendations

No mitigation measures are recommended for Nabokov's blue and Freija's grizzled skipper.

5.2.4 Fish

The only RFSS fish for which there is habitat near the Project area is northern brook lamprey, although they have not been reported on or near the federal lands or non-federal lands. There could be potential habitat for northern brook lamprey within the Partridge River, and within several streams on the non-federal lands.

5.2.4.1 Northern Brook Lamprey (*Ichthyomyzon fossor)*

Environmental Baseline

The northern brook lamprey is a non-parasitic lamprey that is uncommon and has relatively restricted range in Minnesota. They require moderately warm, low-gradient streams with sections of higher gradient (riffle) reaches suitable for spawning. They are most common in streams of medium size, averaging 60-feet wide and 3-feet deep; but can occur in smaller (3- to 10-feet wide) and larger rivers (100- to 325-feet wide). Spawning occurs in May to June in gravel areas near riffles with water depths of about 1 foot. Larval forms (ammocoetes) require soft substrate (approximately 80% sand and silt) for burrowing, often among vegetation at depths of 6 to 20 inches. The diet of ammocoetes consists of diatoms and unicellular algae. Growth is rapid and larvae require organically enriched, sandy substrate until metamorphosis. After a 3- to 6-year growth period, metamorphosis occurs and adults spawn about 3 to 4 months afterwards. As adults, they do not feed and are believed to die a few days after spawning. Northern brook lamprey occurs in medium-size streams in several watersheds on the Superior National Forest.

There are no known occurrences of this species on or near the federal lands. Northern brook lampreys were found at a site south of Cloquet, Minnesota, approximately 75 miles south of the Project area. Since 1986, it has been collected from six other sites in the Lake Superior drainage. Potential habitat near the Project area includes sections of the St. Louis, Cloquet, and Partridge Rivers.

Northern brook lamprey has not been reported on or near non-federal lands, although suitable habitat for the species likely occurs on Hay Lake Lands and Wolf Lands. This species has not been documented on the Tracks Project area.

Direct and Indirect Effects

Proposed Action

There would be no direct or indirect effects to northern brook lamprey from the Project as this species has not been observed on or near the Project area, although suitable habitat for the species could occur in the Partridge River. Because the Project should not contribute sediment, increase stream temperatures, or substantially alter stream flow in the Partridge River, no effects to habitat for this species are expected.

Northern brook lampreys have not been reported on or near non-federal lands, although suitable habitat for the species could occur in the Pike River on Hay Lake Lands and in Coyote Creek on Wolf Lands 4. Under the Proposed Action, the Forest Service would survey for northern brook lamprey and associated habitat prior to conducting land-disturbing activities; areas of known or potential habitat would be avoided when feasible.

Alternative B

There would be no direct or indirect effects to northern brook lamprey from the Project under Alternative B. Under Alternative B, the Forest Service would acquire Hay Lake Lands. The Pike River flows along the eastern boundary of the lands and could provide habitat for northern brook lamprey.

No Action Alternative

There would be no direct or indirect effects to northern brook lamprey under the No Action Alternative.

Cumulative Effects

Historical events, including overfishing, construction of dams, and resource management activities have affected individuals and populations of northern brook lamprey within the CESA. It is possible that historic timber harvest, road and trail construction, and poorly designed stream crossings may have affected northern brook lamprey habitat and ammocoete survival by contributing sediment, increasing stream temperatures, and altering stream flow (USDA Forest Service 2004b).

Use of unclassified roads on federal and non-federal lands may contribute sediment into local streams and potentially threaten RFSS fish and their habitat, although this input should be minimal if existing roads are used and no new roads are constructed near streams. Standards and guidelines in the Forest Plan would help to ensure that Forest Service activities would not contribute to cumulative effects (USDA Forest Service 2004a). In addition to federal standards and guidelines, state, private, and local land owners and managers follow established best management practices that should also contribute to reducing cumulative effects.

There should be no cumulative effects to northern brook lamprey and their habitat from the Project as northern brook lamprey have not been reported on or near the federal lands. The small decrease in the Partridge River flow that is predicted to occur during the Project is not likely to adversely affect the northern brook lamprey.

Under the Proposed Action and Alternative B, most Project roads would be reclaimed after mining. There could be timber management and road construction on the undeveloped portions of the federal and non-federal lands. Because Hay Lake Lands and Wolf Lands 4 could have northern brook lamprey habitat, there could be cumulative effects to potential habitat for northern brook lamprey.

Summary

Project activities associated with the Proposed Action and Alternative B should have no adverse direct, indirect, or cumulative effects on northern brook lamprey or their habitat. The Proposed Action and Alternative B would have similar effects on this species. Under the Proposed Action and Alternative B, the Partridge River (federal lands) and Pike River (non-federal lands) would be exchanged, but Coyote Creek, another stream that could have northern brook lamprey habitat, would not be exchanged under Alternative B. There would be no effects to northern brook lamprey or their habitats from the No Action Alternative.

Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for northern brook lamprey. The No Action Alternative would have **no impact** to individuals of northern brook lamprey.

5.2.4.2 Mitigation and Recommendations

No mitigation measures are recommended for northern brook lamprey.

5.2.5 Reptiles

One RFSS reptile, the wood turtle, has been observed near the federal lands and there could be potential habitat for wood turtles along the Partridge River within the federal lands, and along several streams on the non-federal lands.

5.2.5.1 Wood Turtle (Glyptemys insculpta)

Environmental Baseline

The wood turtle's range extends from Virginia to Nova Scotia and westward to Minnesota and northeast Iowa. The Project area is at the western edge of its range in Minnesota. The wood turtle is largely aquatic, preferring small- to medium-sized, fast-moving rivers and streams with adjacent deciduous and coniferous forests. The substrates of wood turtle streams typically consist of sand or gravel. Wood turtles will occupy adjacent alder thickets, forest, and grassland habitat for basking and foraging, typically staying within ¼ mile of the river or stream. Sandy, sparsely vegetated areas that are not prone to flooding and have ample exposure to direct sunlight provide important nesting sites.

The wood turtle occurs just south and west of the Superior National Forest along the St. Louis River and in the south end of the Superior National Forest along the Cloquet River; wood turtles were also found on the Tracks Project area. In the Cloquet River, all known populations use artificial sites such as gravel pits, road shoulders, and a turtle nesting island created in the late 1990s. Populations are isolated and the wood turtles may travel 3 miles along a stream to find nesting sites.

The MDNR NHIS database records indicate the northernmost population of wood turtles in the state occurs immediately south of the federal lands on the Partridge River. However, wood turtles are unlikely to be found on the federal lands because that the portion of the Partridge River within the federal lands does not have the sandy-gravelly morphology and sand bars that wood turtles prefer for hibernating, mating, and nesting.

The MDNR NHIS database did not identify sightings of wood turtles on or within a mile of the non-federal lands. There may be suitable habitat along the Pike River on Hay Lake Lands.

Direct and Indirect Effects

Proposed Action

There would be no direct effects to wood turtles from the Project as this species has not been observed on the federal lands. The small decrease in the Partridge River flow that is predicted to occur during the Project is not likely to affect the river morphology and should not adversely indirectly affect wood turtle habitat.

Should wood turtles occur in the vicinity of the Project area, the potential for indirect effects from contaminants, such as mercury, in ponds or discharge water, is not likely. Because the wood turtle inhabits woodland streams and adjacent habitat (alder thickets, forest, and grassland habitat) within about one-quarter mile of a stream, it is not likely to be found within the large open areas of the Plant Site or Mine Site during operations or near mining-related features such as stormwater and process water ponds associated with the Project. For example, the Tailings Basin Pond and Hydrometallurgical Residue Facility Pond would not have outlets and would be more than a quarter mile from a woodland stream. Similarly, process water ponds at the Mine Site (e.g., Overburden and Storage Laydown Area Pond) would not have outlets and would be more than one-quarter mile from a woodland stream.

The Plant Site and immediately adjacent lands provide no habitat or poor quality habitat for a wood turtle (e.g., lack of forest canopy over streams; slower flow in streams with numerous beaver ponds). During operations, water released from the Plant Site would include stormwater and treated waste water. Stormwater is expected to meet water quality standards after sedimentation ponds remove total suspended solids prior to being released off-site. Water discharged from the Waste Water Treatment Plant would be directed to Unnamed Creek (PM11), Trimble Creek, and Second Creek (at SD026) and would be required to meet water quality standards, including the mercury water quality standard of 1.3 ng/L. During reclamation, some ponds may be converted to wetlands that would receive precipitation and runoff water and this water would meet water quality standards. Other ponds, including the Hydrometallurgical Residue Facility Pond, would be filled and converted to terrestrial vegetation during reclamation and would have no potential to affect the wood turtle.

There could be potential wood turtle habitat along the Partridge River. During operations (Mine Years 1 through 20), there would be no permitted discharges of water from the Mine Site as process water and water accumulating in the mine pits would be pumped to the Plant Site. Stormwater released from the Mine Site is expected to meet water quality standards after sedimentation ponds remove total suspended solids prior to being released off-site. During reclamation, some ponds may be converted to wetlands that would receive precipitation and runoff water and would meet water quality standards. Other ponds, including the Overburden Storage and Laydown Area Pond, would be filled and converted to terrestrial vegetation during reclamation and would have no effect on the wood turtle. In long-term closure the West Pit Lake discharge would be treated at the Waste Water Treatment Facility (or by non-mechanical treatment after it is proven to meet water quality objectives), then discharged to the Upper Partridge River. This discharge channel would provide a riparian habitat that could

be occupied by a wood turtle. Treated water discharged from the West Pit lake would comply with water quality standards, including mercury.

Overall, the potential for indirect effects to a wood turtle inhabiting a woodland stream near the Plant Site or Mine Site would be low and no adverse effects would be expected to occur to a wood turtle inhabiting a stream reach that receives stormwater or treated waste water.

Wood turtles have not been reported on or near the non-federal lands, although suitable habitat for the species could occur in the Pike River on Hay Lake Lands or in Coyote Creek on Wolf Lands 4. Under the Proposed Action, the Forest Service would survey for wood turtles and associated habitat prior to conducting land-disturbing activities and areas of known or potential habitat would be avoided when feasible.

Alternative B

Potential direct and indirect effects to wood turtles from the Project would be similar to those under the Proposed Action. Under Alternative B, the Forest Service would acquire Hay Lake Lands. The Pike River flows along the eastern boundary of the lands and could provide habitat for wood turtles.

No Action Alternative

There should be no direct or indirect effects to wood turtle under the No Action Alternative.

Cumulative Effects

Because of its dependence on forested riverine systems and well-drained soils, the wood turtle was probably never been uniformly distributed in the Upper Great Lakes Region, but was locally abundant in areas with optimal habitat. Throughout its range, many populations have become affected or extirpated by human activities. In Minnesota, factors contributing to its decline include the loss or fragmentation of riverine forests related to agriculture, timber harvest, road construction, and development; siltation of streams caused by excessive runoff; and flooding of nesting areas. Prime wood turtle habitat is attractive to recreationists, leading to increased collection and road kills. In addition, human activity attracts predators into areas because of trash left behind. An increase in predators can in turn affect wood turtle populations, with predators digging up nests or eating young turtles. All of these problems are compounded by the wood turtle's low reproductive potential, resulting in few juveniles recruited into the population (Bowen and Gillingham 2004, MDNR 2008).

Preservation of high-quality wood turtle habitat is dependent upon reasonable floodplain conservation techniques and zoning restrictions, including: maintaining water quality; controlling sedimentation; restricting pesticide use near waterways; enforcing minimum set-back requirements and stream-side buffer zones; and use of best management practices for timber harvest, livestock grazing, and agriculture. Limiting recreational use of streams in prime wood turtle habitat may be necessary to protect the habitat.

There should be no cumulative effects to wood turtles and their habitat from the Project as they have not been reported on the federal lands and mining activities would have no direct effects on the Partridge River, and indirect effects, such as changes in water flow and quality due to mining, should be negligible.

Both PolyMet and the Forest Service could conduct timber management activities on acquired lands. Cumulative effects from timber management should also be minor if the Forest Service follows guidance in its

2004 Forest Management Plan, and PolyMet and/or private landowners follow Minnesota Forest Resource Council (2003) forest management guidelines to protect riparian zones and streambanks.

Summary

Project activities associated with the Proposed Action and Alternative B should have no adverse direct or indirect effects on wood turtles. PolyMet, the Forest Service, and other landowners in the CESA could conduct timber management and other land-use activities in the reasonably foreseeable future that could have adverse cumulative effects on wood turtle habitat within the CESA, but this risk should be negligible if best management practices are followed to protect wood turtle habitat. There would be no direct or indirect effects to wood turtles or their habitats under the No Action Alternative.

5.2.5.2 Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for wood turtle. The No Action Alternative would have **no impact** to individuals of wood turtle.

5.2.5.3 Mitigation and Recommendations

No mitigation measures are recommended for the wood turtle.

5.2.6 Birds

Five RFSS birds have been observed on or near federal and/or non-federal lands and have suitable habitat on or near these lands —bald eagle, northern goshawk, boreal owl, great gray owl and three-toed woodpecker. In addition, these birds have not been observed, but there is suitable habitat for the following three RFSS birds on the federal and/or non-federal lands—olive-sided flycatcher, bay-breasted warbler, and Connecticut warbler.

5.2.6.1 Bald Eagle (Haliaeetus leucocephalus)

Environmental Baseline

The bald eagle was removed from the federal threatened species Endangered Species Act (ESA) list on June 28, 2007. After a period of decline due to hunting and widespread use of dichlorodiphenyltrichloroethane (DDT), bald eagle populations in the lower 48 states rose dramatically beginning in 1972. The bald eagle is federally protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

Forest stands used for nesting (and perching) are typically mature trees within stands with uneven age structure. Second growth forest with 5% to 10% remnant old growth component provides breeding habitat in Minnesota. Nest trees are almost always taller than the surrounding vegetation, probably because it is difficult for such a large bird (especially inexperienced fledglings) to maneuver and take off in dense understories. However, nests are often built below the topmost branches, probably for protection from rain and sun. Bald eagles prefer old growth pine taller than the surrounding forest canopy, and on the Superior National Forest, nearly all nests are in eastern white pine or red pine.

Bald eagles typically use large trees within 500 feet of rivers or large lakes as nest sites and perches to search for fish and other prey. The MDNR NHIS database contains records of 18 nesting areas, some with multiple nests,

within 12 miles of the Project area. Some of these nests were in close proximity and were assumed to be used by a single pair. The five closest bald eagle nesting territories were 6 to 7.5 miles from the Project area and averaged 6 miles apart. No large lakes or large nesting trees are found on or near the Mine Site and it is unlikely that bald eagles would use the Mine Site.

The primary foraging habitats of bald eagles are the shorelines of lakes and rivers. The smallest body of water on which bald eagles were reported to nest was 20 acres on the Chippewa National Forest in Minnesota. Bald eagles nesting on smaller bodies of water may require additional foraging areas nearby. Nesting near small lakes usually means there is a larger lake or several smaller lakes nearby.

Bald eagles generally winter near open water where prey or carrion are available. There are no large open-water lakes on the federal lands. Mud Lake (30.5 acres) is the only open-water area on the federal lands, but it is shallow lake and freezes over during winter. Animal-vehicle collisions on Dunka Road and/or natural white-tailed deer or other wildlife mortality do not appear to produce sufficient carrion to sustain bald eagles on the federal lands (ENSR 2005), although the amount of carrion available to bald eagles during mine operations could increase due to increased levels of vehicle and rail traffic.

Wildlife surveys were conducted during the spring and summer on the federal lands in 2004, 2008, and 2009 (ENSR 2005, AECOM 2009, 2011a). No bald eagle nests were found on the federal lands, although a bald eagle was seen flying over the federal lands. Bald eagles or their nests were not observed on the non-federal lands (AECOM 2011b, c).

Direct and Indirect Effects

Proposed Action

There should be no direct or indirect effects to bald eagles from the Project on the federal lands. There are no large lakes or rivers on the Mine Site that would provide optimal nesting/foraging habitat, although the Partridge River (approximately 0.5 mile south of the federal lands), Mud Lake, and the ponds at the Tailings Basin associated with the Plant Site could provide some, though less-than-optimal, habitat.

The nearest known bald eagle nests to the federal lands are approximately 6 miles from the Project area. The U.S. Department of the Interior (USDOI) U.S. Fish and Wildlife Service (USFWS) *National Bald Eagle Management Guidelines* (USDOI USFWS 2007) suggest that human activity within 2 miles can be seen or heard by eagles and, depending on the level of screening and habituation of individual eagles, may cause them to abandon a nest.

Project noise would potentially have an impact on eagle utilization of habitat in the vicinity of the Mine Site. Existing ambient steady equivalent noise levels for most of the Mine Site are in the range of 35 to 45 decibels (dBA), which is a range comparable to secluded woods or a quiet bedroom (MPCA 1999). The Peter Mitchell Mine, north of the Mine Site, and traffic along Dunka Road and the existing railway, along the south edge of the Mine Site, also contribute brief, episodic noise impacts.

The primary sources of Project noise from the Mine Site would be blasting, haul trucks, and train horns, with noise levels ranging from 89-115 dBA. Equipment such as graders, bull dozers, and support trucks would be less dominant sources of noise, ranging from 75-95 dBA (Environmental Protection Agency 1971). Blasting at the Mine Site is expected to occur once every two to three days. Typically, rock blasting generates a single event

noise level ranging from 111- 115 dBA at 50 feet from the blasting site (Table 5.5-7 of Madera County 2005). Within most of the Mine Site, the sound from the blast would be similar to a loud clap of thunder.

The impacts of noise on bald eagle utilization of habitat near the Mine Site are largely unknown and the assessment of impacts remains subjective. Impacts may also vary between individual eagles. Some eagles may adapt to predictable human activities, so if the activity generally occurs at predictable time periods at the same places or along the same routes, animals may become habituated to the activity (ENSR/AECOM 2006).

Bald eagle nesting territories in Minnesota are, on average, about 10 miles apart. Bald eagle nests near the Project area average about 6 miles apart. This suggests that the area near the Project provides high quality habitat for bald eagles, but there is low likelihood that the area would support many more territories. As eagles become more numerous, any eagles seeking to establish new territories in the area would need to select lower quality habitat and/or move into closer proximity to human activity.

The Forest Service considers MIH 7, which is primarily red and white pine forest, indicative of bald eagle habitat. No stands of MIH 7 were observed on the federal lands or proposed Mine Site, although there are scattered pines on the federal lands.

Surface water contaminants (e.g., mercury) that are absorbed by prey species such as waterfowl could lead to ingestion of contamination by eagles (Marr 2008). However, bald eagles are relatively insensitive to the toxic effect of mercury exposure through their food (Judd 2013). In addition, the potential incremental change in fish mercury concentrations in lakes (e.g., Heikkilla, Colby, Sabin, Whitewater, Wynne) potentially associated with the Project's air emissions is estimated to be small (ranges from 0.0006 to about 0.016 parts per million, about 0.2% to 1.6% of background; Barr 2013; Section 10). This potential change in fish mercury concentration would be within the variability of background fish mercury concentrations for the Hoyt Lakes area (Barr 2013: Section 10 and Attachment F). Because the potential change in fish mercury concentrations is estimated to be small and not likely statistically measurable (i.e., no measurable change from existing background conditions), the potential effect of Project-related mercury on the bald eagle would not likely be measurable. Overall, no adverse indirect effects to the bald eagle would be expected from the Project.

Under the land exchange, the Forest Service would acquire potential bald eagle habitat, but no areas with known bald eagle nests. The nearest bald eagle nest to Hay Lake Lands is about 4 miles to the southeast on Cedar Island Lake. Eagle nests have been observed at John Lake and at North Fowl Lake (two nests), about 2 to 3 miles from McFarland Lake Lands. It is likely that eagles use habitat associated with Pine Lake, which is near Wolf Lands 1 and Lake County Lands North; Greenwood Lake, which is near Wolf Lands 2; and the Stony River, which is near Wolf Lands 3 and 4.

Lakes and rivers that could be associated with eagle habitat are present on or near several of the non-federal lands. Hay Lake Lands include the Pike River, Hay Lake (96 acres), and Little Rice Lake (29 acres). Lake County Lands and Wolf Lands are near large lakes such as Pine and Greenwood. McFarland Lake Lands border McFarland Lake, which is connected to other lakes within the BWCAW, and bald eagles have been seen foraging on McFarland Lake (Russ 2010).

There are 2,582 acres of upland forest (MIH 1 and 5), which comprises about 40% of all habitat on the federal lands; 792 acres are mature forest habitat (**Table 6**). There are 2,775 acres of upland forest, which comprises about 39% of all habitat on the non-federal lands; 617 acres are mature forest habitat (**Table 6**). Jack pine, trembling aspen, paper birch, black spruce, and balsam fir are the dominant upland forest species on the federal

lands. These species are also common on the non-federal lands, although there was less jack pine and more eastern white pine on the non-federal lands than on the federal lands.

The Project would affect about 1,037 acres of upland coniferous forest habitat, of which about 182 acres are mature upland forest habitat (**Table 6**). Only about 20% of upland forest stands on the non-federal lands consist of mature forest, which might include trees that could support bald eagle nests. Under the Proposed Action, the Forest Service would survey for bald eagles and associated habitat prior to conducting land-disturbing activities; areas of known or potential habitat would be avoided when feasible.

Alternative B

Potential direct and indirect effects to bald eagles from the Project would be similar to those under the Proposed Action. Under Alternative B, there are 2,093 acres of upland forest on the federal lands (**Table 6**). About 490 fewer acres of upland forest habitat would be transferred to PolyMet from the Forest Service under Alternative B than under the Proposed Action. Habitat loss from mining activities would be the same under Alternative B as under the Proposed Action.

The Forest Service would acquire Hay Lake Lands under Alternative B. There are no bald eagle nests and no known mature coniferous forest habitat on the lands. There are about 2,420 acres of upland forest habitat on Hay Lake Lands, however, only about 2% of this habitat is coniferous (MIH 5) and none of it is mature forest (**Table 6**). About 87% of the upland forest habitat that occurs on the non-federal lands is found on Hay Lake Lands. Thus, the Forest Service would receive most of the land that could provide habitat for bald eagles on the non-federal lands under the Proposed Action and Alternative B. Hay Lake, Little Rice Lake, and the Pike River are on Hay Lake Lands and may provide foraging habitat for bald eagles.

No Action Alternative

There should be no direct or indirect effects to bald eagle under the No Action Alternative.

Cumulative Effects

Human activity is the biggest threat to the bald eagle. Although DDT is no longer a risk factor in the U.S., organophosphates, heavy metals, and other pollutants continue to cause sickness or death in bald eagles. Lead poisoning is also a significant cause of mortality, and oil spills threaten eagles in coastal areas. Bald eagles are occasionally still shot or intentionally poisoned. Additionally, collisions with vehicles and power lines are a growing threat as more land is developed. Vehicle collisions have become more frequent as the bald eagle population has increased in Minnesota, due to the bald eagles habit of feeding on deer carcasses along roads. Land development in wilderness areas and along shorelines destroys breeding habitat and winter roost sites, and increased human activity may cause bald eagles to abandon nesting or winter roosting sites. However, the fact that bald eagles are now successfully nesting in proximity to humans, even in the Twin Cities metropolitan area, indicates that some bald eagles may become habituated to humans if they are not persecuted (USDA Forest Service 2004b).

Modeling to predict future vegetation management activities in Minnesota projected, under all scenarios modeled, that bald eagle nesting, roosting, and perching habitat will increase statewide. Red and eastern white pine forest acres, and the amount of old forests in both these forest types, are expected to increase. Cumulative

effects of forest management on all ownerships should benefit eagles by increasing preferred nesting, roosting, and perching habitat over the next several decades on both public and private lands (Jaakko Poyry 1994).

Adverse effects to bald eagles could occur on lands outside of Forest Service administration. Increases in the potential for human access near bald eagle territories would occur as people buy, subdivide, and develop private lands. New road construction would be needed to access this property. Some of these roads may be developed near to current or future nesting habitat. Development of cabins and second homes next to lakeshores could also decrease high quality eagle habitat through destruction of potential nesting habitat or indirectly through increases in disturbance associated with motorized recreation such as all-terrain vehicles and motorboats. Populations of fish, one of the primary types of prey species for eagle, may decrease on lakes with increased fishing pressure. Increasing fish populations through MDNR stocking would mitigate fish declines in some lakes (USDA Forest Service 2004b).

Relatively high deer populations across the landscape also are likely to pose potential adverse indirect cumulative effect on eagle. High deer populations are a result of factors (warm winters that increase survival, MDNR population management through hunting permits) that are outside the control of the Forest Service, and are the result of factors over which Forest Service has control (forest vegetation management for suitable deer habitat). With increasing deer populations and increasing numbers of road-killed deer, and forest management that promotes increasing deer habitat, this could result in greater potential for eagles to be killed or harmed along highways.

The Project could have minor cumulative effects, as there is mature forest habitat on the Mine Site that could be used by bald eagles. Bald eagles, however, were not observed using this habitat during wildlife surveys on the Mine Site. Both PolyMet and the Forest Service could conduct timber and other land management activities on their acquired lands. Cumulative effects from timber and other land management should be negligible if the Forest Service follows guidance in its 2004 Forest Plan (USDA Forest Service 2004a), and PolyMet and/or private landowners follow national bald eagle management guidelines developed by the USDOI USFWS (2007).

Summary

Project activities associated with the Proposed Action and Alternative B should have no adverse direct or indirect effects on individual bald eagles or their habitat. There could be minor cumulative effects to bald eagle habitat, primarily from loss of mature forest habitat due to mining, but it is unlikely that these trees would be used by eagles in the near future. There would also be a cumulative loss of bald eagle habitat elsewhere in the CESA due to timber management, lakeside and other development, and other land use activities. Timber management and road construction could occur on the federal and non-federal lands in the reasonably foreseeable future, but only a small acreage of federal and non-federal lands would be affected.

Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for bald eagle. The No Action Alternative would have **no impact** to individuals of bald eagle.

Mitigation and Recommendations

No mitigation measures are recommended for the bald eagle.

5.2.6.2 Northern Goshawk (*Accipter gentilis*)

Environmental Baseline

Northern goshawk is a large forest raptor that is found on boreal and temperate forests throughout the holarctic. Squires and Reynolds (1997) state that *Accipter gentilis atricapillus*, the subspecies occurring in Minnesota, is widely distributed across the northern half of eastern North America and in many parts of western North America. Northern goshawks are generally uncommon throughout their range. Population productivity and nesting densities coincide with populations of snowshoe hare and grouse. Populations in the Great Lakes Region may have declined in the past due to early logging and settlement and extermination of passenger pigeons, a prey species for northern goshawk. In Wisconsin, the reintroduced fisher is blamed for increased nest failure and adult female mortality. Northern goshawk populations may be increasing with the recovery and maturing of forests in recent times in some parts of the U.S.

Northern goshawk is a forest dwelling raptor whose habitat preferences are mature deciduous or mixed coniferous/deciduous forest in fairly contiguous blocks intermixed with younger forests and openings for prey species habitat. Goshawks are adapted to flying beneath the forest canopy and use primarily mature forest with sufficient open space between the bottom live tree branches and understory for the birds to fly easily. Some understory (e.g., forbs) and downed logs are needed for prey species habitat. Adults and fledglings use large downed logs as feeding and plucking perches. Goshawks may use forest edge if large-bodied prey is more common there.

Boal et al. (2001 *in* USDA Forest Service 2010b) studied habitat use by nesting goshawks in northern Minnesota. Eighty-one percent of 46 nests were built in aspen trees, 11% in paper birch trees, 4% in white pine trees, and 2% each in red oak and red pine trees. On the Laurentian District, red pine plantations were the most common nest stands (four nests), followed by trembling aspen-black spruce-balsam fir (two nests), trembling aspen (one nest), jack pine (one nest), paper birch (one nest), and maple (one nest).

While goshawks do not always use the same nest for more than a year, they typically have two and up to nine alternate nest sites that are usually within a mile of the present nest. It is important to also protect these alternate nest sites that may be used in subsequent years.

Boal et al. (2001 *in* USDA Forest Service 2010b) found that foraging stands, regardless of stand type, were consistent in having high stand densities of tall, large canopy trees, with horizontal open spaces of 3 to 12 feet between the bottom of the overstory and top of the understory trees, and up to 3 feet between the bottom of the understory canopy and top of the shrub layer. They suggested that these relatively unobstructed spaces between vegetation layers may serve as important flight paths through forest stands, and the heights in which they occurred was consistent among stand types.

Calling surveys were conducted for northern goshawks on the federal lands (ENSR 2000, 2005, AECOM 2009, 2011a) and on Hay Lake Lands and McFarland Lake Lands (AECOM 2010b). One nest was found within the federal lands within the Mine Site in March 2000 (One Hundred Mile Swamp Territory; Ryan 2013a). The northern goshawk pair observed on the Mine Site used a large, 14 inches dbh trembling aspen tree as a nest, and

the midstory was mostly open in the vicinity of the nest. The surrounding forest stand was a mixture of deciduous and coniferous trees, and was near a recent clear-cut stand and a shrub swamp wetland. No goshawks were detected at the site during a 2004 survey (ENSR 2005). The territory was actively used by northern goshawks in 2005, but they did not nest. In 2006, the site was occupied by a great gray owl and there was a possible nest attempt by great gray owls in 2010 (Ryan 2013b).

In April 2009, a goshawk nest with a pair of goshawks at the nest was found near the boundary of the Mine Site (Wetlegs Creek Territory; AECOM 2009, Ryan 2013b). The occupied nest was located in the fork of a 12 inches dbh trembling aspen tree. The nest site area was characterized as a mixed coniferous/deciduous forest habitat, with numerous mature trembling aspen trees found in the forest stand. The nest site was in close proximity to a large bog wetland. In 2010, a barred owl used the nest at this location. In 2011, the nest was again used by northern goshawks. The nest was not occupied by goshawks during 2012, but in 2013 was again used by northern goshawks, although the nest attempt failed. A second nest was also found near the boundary of the Mine Site in 2009, but the nest was unoccupied and may have been an alternate goshawk nest or nest of another raptor or common raven.

A northern goshawk territory (Pike Mountain 2 Territory) is found near the southwestern boundary of Hay Lake Lands, and are probably used by the same pair (Ryan 2013b). The pair produced young in 2010, 2011, and 2013. No other northern goshawk nests have been found on or within a mile of the other non-federal lands, although northern goshawks have been seen within 3 miles of Lake County Lands South.

Direct and Indirect Effects

Proposed Action

There could be direct and indirect effects to northern goshawk from the Project. Two northern goshawk territories have been found on the federal lands, and northern goshawks nested on the federal lands in 2000, 2009, 2011, and 2013. Under the Proposed Action, the northern goshawk nest tree within the One Hundred Mile Swamp Territory on the Mine Site would no longer be available to northern goshawks, although the tree has not been used by northern goshawks since at least 2005.

Project noise would potentially have an impact on northern goshawk utilization of habitat in the vicinity of the Mine Site. Existing ambient steady equivalent noise levels for most of the Mine Site are in the range of 35 to 45 decibels (dBA), which is a range comparable to secluded woods or a quiet bedroom (MPCA 1999). The Peter Mitchell Mine, north of the Mine Site, and traffic along Dunka Road and the existing railway, along the south edge of the Mine Site, also contribute brief, episodic noise impacts.

The primary sources of Project noise from the Mine Site would be blasting, haul trucks, and train horns, with noise levels ranging from 89-115 dBA. Equipment such as graders, bull dozers, and support trucks would be less dominant sources of noise, ranging from 75-95 dBA (EPA 1971). Blasting at the Mine Site is expected to occur once every two to three days. Typically, rock blasting generates a single event noise level ranging from 111- 115 dBA at 50 feet from the blasting site (Table 5.5-7 of Madera County 2005). Within most of the Mine Site, the sound from the blast would be similar to a loud clap of thunder.

Noise and other disturbances on the Mine Site and Dunka Road and Utility Corridor could disturb northern goshawks nesting just off the Mine Site and on federal lands (Wetlegs Creek Territory), and possible cause them to abandon the territory. The Wetlegs Creek Territory nest site is about 0.75 miles from the Mine Site and

Dunka Road, and is buffered by forestland, which should help to minimize disturbance to the pair. Both territories are about 0.75 miles from the Northshore Mine property, where there is active mining, suggesting that northern goshawks nesting on the federal lands have habituated to disturbance from that mining operation.

Northern goshawks favor mature upland forest habitat (MIH 1). There are 557 acres of mature upland forest habitat within the federal lands that could provide habitat for the northern goshawks (**Table 6**). In addition, there are about 773 acres of young and immature upland forest habitat that could be used by northern goshawks in the future. The Project would affect about 158 acres of mature upland forest habitat, including mature trembling aspen habitat used by northern goshawks. In addition, about 375 acres of young and immature upland forest habitat would be lost to mining.

There are 591 acres of mature and 2,104 acres of young and immature upland forest habitat on the non-federal lands (**Table 6**). The non-federal lands would not be directly affected by the Project, but should benefit from Forest Service management that favors longer harvest rotations than typically occurs on private forestlands. Under the Proposed Action, the Forest Service would survey for northern goshawks and associated habitat prior to conducting land-disturbing activities; areas of known or potential habitat would be avoided when feasible.

Alternative B

Potential direct and indirect effects to northern goshawk from the Project under Alternative B would be similar to those under the Proposed Action. Under Alternative B, there are about 326 acres of mature and 628 acres of young and immature upland forest habitat on the federal lands (**Table 6**). About 230 fewer acres of mature and 145 acres of young and immature upland forest habitat on the federal lands would be transferred to PolyMet from the Forest Service under Alternative B than under the Proposed Action. Habitat loss to mining activities under Alternative B would be the same as under the Proposed Action.

The Forest Service would acquire Hay Lake Lands under Alternative B. There is a northern goshawk territory on Hay Lake Lands (Ryan 2013a). There are about 460 acres of mature and 1,906 acres of young and immature upland forest on Hay Lake Lands that could provide habitat for northern goshawk (**Table 6**). About 78% of mature, and 91% of young and immature, upland forest habitat that occurs on the non-federal lands is found on Hay Lake Lands. Thus, the Forest Service would receive most of the land that could provide habitat for northern goshawk on the non-federal lands under both the Proposed Action and Alternative B.

No Action Alternative

There would be no direct or indirect effects to northern goshawk under the No Action Alternative.

Cumulative Effects

Destruction or modification of habitat, habitat fragmentation, changes in vegetative structure and composition, and effects of activities associated with habitat modification are considered the primary threats to breeding northern goshawks (USDA Forest Service 2010b). Niemi and Hanowski (1992 *in* Jaakko Poyry Consulting, Inc. 1994)) suggested that northern goshawk prefer larger tracts of forest for foraging and are affected by fragmentation of forested areas. The species seldom uses recently cut areas for foraging, presumably because prey is hard to detect and capture in the dense understory. Another threat to northern goshawk is creation of landscape patterns (e.g., large openings from clear-cutting or increased edge habitat) that favor predators such as

red-tailed hawk, great-horned owl, fisher, or raccoon. In one study, stands larger than 50 acres were used more consistently by northern goshawk rather than stands smaller than 25 acres (Estabrook 2000).

State, county, and private forest management will likely reduce the present level of large blocks of mature upland forest found in the CESA. A 2008 Geographic Information System analysis shows a slight increase in mature upland forest on the Superior National Forest in recent decades, but the amount of mature/old upland forest is expected to decrease over the next several decades (USDA Forest Service 2010b). Fragmentation of larger blocks of habitat would make northern goshawks more vulnerable to predators and affect species distribution. Boal et al. (2001 *cited in* USDA Forest Service 2010b) documented up to 30% nest predation in northern Minnesota. Wide ranging pairs of northern goshawks may not successfully breed if they are forced to expand their home ranges to compensate for further loss of high quality foraging habitat.

There would be cumulative effects to northern goshawk habitat from the Project. About 158 acres of mature upland forest habitat that could be used by northern goshawk on the federal lands would be directly affected by the Project, including mature and other upland forest associated with the One Hundred Mile Swamp Territory, which was last used by northern goshawks in 2005 (**Table 6**). However, there are about 625,000 acres of upland forest within the CESA that could now, or in the reasonably foreseeable future, provide habitat for northern goshawk (Emmons and Olivier, Inc. 2006:30, 38). Thus, habitat loss from the Project would have a negligible cumulative effect on northern goshawks in the CESA.

Summary

Project activities associated with the Proposed Action and Alternative B would have no direct effects, but could have adverse indirect and cumulative effects to individual northern goshawks and their habitat. In particular, mining activities could disturb northern goshawks nesting on the Wetlegs Creek Territory, and remove habitat and prey and cause disturbance in areas where these birds may forage. Upland forest habitat used by northern goshawks is abundant in the CESA, and northern goshawks, although uncommon in the region, seem to have increased in numbers over the past several decades.

Timber management and road construction could occur on the federal and non-federal lands in the reasonably foreseeable future, but only a small acreage of federal and non-federal lands would be affected. It is more likely that production of mature upland forest habitat on the non-federal lands would occur if these lands are federally administered rather than under private ownership.

Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for northern goshawk. The No Action Alternative would have **no impact** to individuals of northern goshawk.

Mitigation and Recommendations

No mitigation measures are recommended for the northern goshawk.

5.2.6.3 Boreal Owl (Aegolius funereus)

Environmental Baseline

Hayward (1994) states that boreal owls occupy boreal forests throughout the northern hemisphere. East of the Rocky Mountains, breeding by boreal owls has only been confirmed in Minnesota and primarily in northeastern Minnesota. Nesting boreal owls are uncommon west of Highway 53 or the Vermillion River, or within 8 miles of Lake Superior. The prime area for boreal owls appears to be the eastern portion of the Forest Service Laurentian Ranger District, southern portion of the Kawishiwi Ranger District, and the middle portion of the Tofte Ranger District.

Boreal owls are rarely seen in Minnesota. The first one reported nesting in Minnesota was in 1978. Boreal owls have been documented as breeding in the Superior National Forest (USDA Forest Service 1999, Green 2003, Catton 2007), including a failed boreal owl nest in 2013 that was about 8 miles east/southeast of Wolf Lands 2 and 3 in Township 58 North, Range 9 West, Lake County, Minnesota (Ryan 2013c).

While attempts have been made to monitor boreal owl populations, present survey techniques are not sufficiently precise to detect population trends for northern Minnesota. Boreal owl populations fluctuate with winter snow depth and prey availability, and winter population irruptions occur periodically. There appears to be an influx of boreal owls into northern Minnesota every 4 years, perhaps due to a decline in their prey (vole) populations further north in Canada. The latest influx was in winter 2013, with several boreal owls sighted near Duluth. The population on the Superior National Forest is part of a larger Canadian population and may not be viable by itself at present.

Boreal owls prefer forests dominated by black spruce, white spruce, balsam fir, balsam poplar, trembling aspen, and paper birch. They favor mature forest during winter because snow conditions (un-crusted snow) facilitate access to prey. In summer, mature forest sites have less herbaceous cover than open sites, allowing greater access to prey. Following spring thaw, before herbaceous vegetation becomes dense, owls shift to openings where densities of voles exceed densities in forested stands.

Nesting habitat is mixed coniferous/deciduous upland forest usually older than 70 years. Nest trees are typically trembling aspen and paper birch with an average 16 to 18 inches dbh. Cavities excavated by pileated woodpeckers are often used for nesting by the boreal owl. Within 8 acres centered on each nest site, another important habitat component is six or more dominant or co-dominant conifers that are used as calling perches. Nest sites are usually within 200 yards of large areas of productive mature lowland conifers, primarily black spruce, which are preferred for foraging and roosting. Nests that are further than 200 yards from lowland conifer forest typically have a mature forest corridor to that lowland coniferous forest. Populations are limited by availability of cavities for nesting and food supply. Limiting factors may be the right combination of nesting and foraging/roosting habitat, and possibly the distribution of these habitats and cavity trees. Fragmentation has been a primary factor causing the isolation of lowland coniferous forests. Other limiting factors include automobile collisions and low prey density.

Night calling surveys for boreal owls were conducted on the federal lands during winter and early spring 2000, summer 2004, summer 2008, and spring 2009 by broadcasting pre-recorded boreal owl calls; no boreal owls were heard during the surveys (ENSR 2000, 2005, AECOM 2009, 2011a). A boreal owl was heard along the Dunka Road during surveys in 1988 to 1989 (ENSR 2000). Surveys were also conducted on the non-federal

lands, but no boreal owls were heard (AECOM 2011b, c), although a boreal owl nest was found by the Forest Service in 2013 about 8 miles east/southeast of Wolf Lands 2 and 3 (Ryan 2013c).

Direct and Indirect Effects

Proposed Action

There should be no direct effects to boreal owls on the federal lands from the Project as no boreal owls are known to use the federal lands. Boreal owls could use the federal lands, however, and mining activities could disturb boreal owls on or near the Mine Site and Dunka Road and Utility Corridor and indirectly affect their habitat use.

The Project would cause the loss of potential boreal owl foraging habitat (lowland black spruce and mixed swamp coniferous stands greater than 50 years old) and nesting habitat (upland deciduous forest habitat greater than 70 years old; USDA Forest Service 2010b). There are about 3,040 acres of mature lowland coniferous forest (MIH 9) and about 557 acres of mature upland forest habitat (MIH 1) on the federal lands that could provide habitat for boreal owls (**Table 6**). In addition, there are about 773 acres of young and immature upland forest habitat that could be used by boreal owls in the future. The Project would affect about 482 acres of mature lowland coniferous forest, 158 acres of mature upland forest, and 375 acres of young and immature upland forest habitat (**Table 6**). No young or immature lowland coniferous forest habitat would be affected by the Project.

Boreal owls have not been recorded on the non-federal lands in recent years, but a boreal owl nest was found by the Forest Service in 2013 about 8 miles east/southeast of Wolf Lands 2 and 3 (Ryan 2013c). There are about 1,208 acres of mature and 2,101 acres of young and immature lowland coniferous forest habitat, and about 591 acres of mature and 2,104 acres of young and immature upland forest habitat, on the non-federal lands (**Table 6**). Thus, there could be suitable boreal owl foraging habitat (mature lowland coniferous forest) and nesting habitat (mature upland forest) on the non-federal lands. These lands would not be directly affected by the Project. This habitat could be maintained through the retention of mature patches greater than 300 acres, limited black spruce harvest, riparian management, and by leaving large trembling aspen/paper birch as reserve trees and positioning reserve areas along the wetland/upland interface. Under the Proposed Action, the Forest Service would survey for boreal owls and associated habitat prior to conducting land-disturbing activities and areas of known or potential habitat would be avoided when feasible. The Forest Service would also monitor boreal owl use of these lands and seek to protect larger patches of high quality habitat for boreal owls.

Alternative B

Effects to boreal owl under Alternative B should be similar to those under the Proposed Action. Under Alternative B, there are about 2,063 acres of mature and 16 acres of young and immature lowland coniferous forest habitat and 326 acres of mature and 628 acres of young and immature upland forest on the federal lands (**Table 6**). About 977 fewer acres of mature lowland coniferous forest and 231 fewer acres of mature upland forest would be transferred to PolyMet from the Forest Service than under the Proposed Action. Habitat loss to mining activities would be the same under Alternative B as under the Proposed Action.

The Forest Service would acquire Hay Lake Lands under Alternative B. No boreal owls have been observed in recent years on these lands. There are 0 acres of mature and 1,818 acres of young and immature lowland coniferous forest habitat, and 460 acres of mature and 1,906 acres of young and immature upland deciduous

forest habitat on Hay Lake Lands. About 87% of the lowland coniferous forest habitat and 78% of the mature upland forest habitat that occurs on the non-federal lands are found on Hay Lake Lands.

No Action Alternative

There would be no direct or indirect effects to boreal owl under the No Action Alternative.

Cumulative Effects

The Final Generic Environmental Impact Statement Study on Timber Harvesting and Forest Management in Minnesota (Jaakko Poyry Consulting Inc. 1994) projected a decrease in the Minnesota boreal owl population if statewide timber harvest increased over 1 million cords overall or about 25% higher than at present. On federal lands, there is anticipated to be a reduction in mature upland patches (less than 300 acres) and a reduction in interior forest, but also an increase in mature lowland patches greater than 300 acres. Harvest by other landowners has the potential to further reduce boreal owl nesting, and to a lesser extent, foraging habitat.

The 2008 Superior National Forest-wide monitoring showed a slight increase in mature upland deciduous and coniferous habitat, and a slight decrease in mature lowland coniferous forest for the Superior National Forest (USDA Forest Service 2010b). Monitoring also showed a slight increase in mature upland forest on the Superior National Forest in recent decades, but the amount of mature upland forest is expected to decrease over the next several decades. State, county, and private forest management will probably reduce the present level of large blocks of mature upland forest found on the CESA.

There should be no cumulative effects to individual boreal owls from the Project, but there would be a cumulative loss of potential boreal owl habitat. About 640 acres of mature lowland coniferous forest and upland deciduous forest habitat that could be used by this species on the federal lands would be directly affected by the Project. However, there are about 820,000 acres of upland deciduous and lowland coniferous forest within the CESA that could now, or in the reasonably foreseeable future, provide habitat for boreal owls (Emmons and Olivier, Inc. 2006; 30, 38). Thus, habitat loss from the Project would have a negligible cumulative effect on boreal owls in the CESA.

Summary

Project activities associated with the Proposed Action and Alternative B should have no adverse direct or cumulative effects on individual boreal owls, but could have direct, indirect, or cumulative effects on their habitat. Mining activities could disturb boreal owls on or near the Mine Site and Dunka Road and Utility Corridor and indirectly affect their habitat use. Timber management and road construction could occur on lands within the CESA in the reasonably foreseeable future, but only a small acreage of federal and non-federal lands would be affected. It is more likely that production of mature lowland and upland forest habitat on the non-federal lands would occur if these lands are federally administered rather than under private ownership.

Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for boreal owl. The No Action Alternative would have **no impact** to individuals of boreal owl.

Mitigation and Recommendations

No mitigation measures are recommended for boreal owl.

5.2.6.4 Great Gray Owl (*Strix nebulosa*)

Environmental Baseline

The great gray owl has a holarctic distribution and breeds in the western U.S. and in the northern Great Lakes Region. Great gray owls forage anywhere meadow voles are abundant and available. Meadow vole abundance is influenced by season (more numerous in late summer and fall), a 3- to 5-year cycle in Minnesota, and habitat capacity. The great gray owl prefers moist soils and relatively open areas with high primary production of prey. Nesting commonly occurs in mature trembling aspen adjacent to muskegs. Minimum nest stand size was 10 acres in Manitoba and 27 acres in Alberta. Foraging occurs in open habitat, including bogs, selective and clear-cut logged areas with residual perches, natural meadows, and open forests within 1.5 miles of the nest. Perches need not be tall and can be high stumps, broken-off trees, and the short black spruce found in peatland bogs. Meadow voles that are 50 feet or more from a perch or forest edge are usually not available to great gray owls. Great gray owls avoid jack pine, taller black spruce, dense forest cover, large open treeless areas without perches, and habitats with a dense shrub layer. They also avoid concentrations of predators such as great horned owls. Average home range size for breeding adults was 1.7 square miles (mi^2) in Oregon. A Minnesota study found eight nests in 20 mi^2.

Kozie (1999) recommended the following forestry practices to maintain or enhance great gray owl habitat: 1) restriction of harvest unit size to less than 25 acres with a mosaic of multi-sized units, 2) retention of forest stands within 900 feet of known or potential nest trees or sites, 3) provision of hunting perches in clearcuts, 4) ensuring irregularly shaped harvest units with a maximum distance across the cut of less than 300 feet, and 5) maintenance of forested travel corridors, 150 to 300 feet wide, between cut areas. In the Pacific Northwest, the Forest Service recommended providing a no-harvest buffer of about 300 feet around meadows and natural openings and establishment of a 1,320-foot protection zone (125 acres) around nest trees. Kozie (1999) also recommended placing priority on maintaining nesting habitat within 0.5 to 1.5 miles of natural openings rather than clear-cuts.

Night calling surveys did not identify great gray owls on the federal lands (ENSR 2000, 2005, AECOM 2009, 2011a). During 2009 surveys, however, a great gray owl was observed hunting along Dunka Road south of the Mine Site. Based on Forest Service observations, a great gray owl pair was seen using a nest site on the Mine Site in 2006, and possibly in 2010. The nesting effort(s) were unsuccessful. This was the same nest site used by northern goshawks in 2000 (ENSR 2000; Ryan 2013b). In 2011, a great gray owl was seen using a nest site on the federal lands surrounding the Mine Site and near a nest used by northern goshawks (Wetlegs Creek Territory).

Calling surveys did not identify great gray owls on the non-federal lands (AECOM 2011b, c). Great gray owls were surveyed on the Tracks Project area in 2007 and 2008 using both call playback and listening stops. Five survey routes were run and consisted of 50 survey points along roads. These routes were run two to four times in the spring both years. No great gray owls were detected within the Tracks Project area.

Direct and Indirect Effects

Proposed Action

Great gray owls were seen nesting on the Mine Site in 2006, and foraging along the Dunka Road in 2009. If the Mine Site is part of the territory of a great gray owl, mining activities could directly affect great gray owls by disrupting their use of this area, and indirectly affect owls through removal of a tree that has provided a nest site for great gray owls in the past, removal of foraging habitat and prey, and from Mine Site and Dunka Road and Utility Corridor disturbances. Great gray owls have been seen perching near the Plant Site entrance on light poles, and foraging and perching on trees within 100 feet of the Dunka Road. Thus, great gray owls seem tolerant of some human disturbance (AECOM 2009).

Project noise would potentially have an impact on eagle utilization of habitat in the vicinity of the Mine Site. Existing ambient steady equivalent noise levels for most of the Mine Site are in the range of 35 to 45 decibels (dBA), which is a range comparable to secluded woods or a quiet bedroom (MPCA 1999). The Peter Mitchell Mine, north of the Mine Site, and traffic along Dunka Road and the existing railway, along the south edge of the Mine Site, also contribute brief, episodic noise impacts.

The primary sources of Project noise from the Mine Site would be blasting, haul trucks, and train horns, with noise levels ranging from 89-115 dBA. Equipment such as graders, bull dozers, and support trucks would be less dominant sources of noise, ranging from 75-95 dBA (EPA 1971). Blasting at the Mine Site is expected to occur once every two to three days. Typically, rock blasting generates a single event noise level ranging from 111- 115 dBA at 50 feet from the blasting site (Table 5.5-7 of Madera County 2005). Within most of the Mine Site, the sound from the blast would be similar to a loud clap of thunder.

The impacts of noise on great gray owl utilization of habitat near the Mine Site are largely unknown and the assessment of impacts remains subjective, although as noted above, great gray owls appear to be tolerant of human disturbance. Impacts may also vary between individual owls. Some may adapt to predictable human activities, so if the activity generally occurs at predictable time periods at the same places or along the same routes, individual great gray owls may become habituated to the activity (ENSR/AECOM 2006).

Mature upland forest (MIH 1) is indicative of nesting habitat, while foraging habitat consists of young upland forest and lowland coniferous forest (MIH 9). Non-forest (upland and lowland) also provides foraging habitat. There are about 233 acres of young and 557 acres of mature upland forest habitat, 3,060 acres of lowland coniferous habitat, and 492 acres of lowland shrubland (MIH – other lowland shrub) on the federal lands that could provide habitat for great gray owls (**Table 6**). The Project would affect about 144 acres of young and 158 acres of mature upland forest habitat. In addition, about 482 acres of lowland coniferous forest habitat and 141 acres of shrubland would be lost to mining (**Table 6**).

There are about 607 acres of young and 591 acres of mature upland forest habitat, 3,309 acres of lowland coniferous forest habitat, and 332 acres of lowland shrubland habitat on the non-federal lands (**Table 6**).

There is abundant great gray owl foraging habitat and nesting habitat on the non-federal lands. These lands would not be directly affected by the Project. This habitat would be maintained through the retention of mature patches greater than 300 acres, limited black spruce harvest, riparian management, and in harvest units by leaving large trembling aspen/paper birch as reserve trees and positioning reserve areas along the wetland/upland interface. Under the Proposed Action, the Forest Service would survey for great gray owls and

associated habitat prior to conducting land-disturbing activities and areas of known or potential habitat would be avoided when feasible.

Alternative B

Potential direct and indirect effects to great gray owl from the Project would be similar to those under the Proposed Action. Under Alternative B, there are about 233 acres of young and 326 acres of mature upland forest, 2,079 acres of lowland coniferous forest, and 385 acres of lowland shrubland on the federal lands (**Table 6**). About 230 fewer acres of upland forest, 982 fewer acres of lowland coniferous forest, and 107 fewer acres of lowland shrubland would be transferred to PolyMet from the Forest Service under Alternative B than under the Proposed Action. This area would provide habitat for great gray owls, although noise and other disturbance associated with mining may discourage use of the area by great gray owls.

The Forest Service would acquire Hay Lake Lands under Alternative B. No great gray owls have been reported on these lands. There are about 519 acres of young and 460 acres of mature upland forest, 1,818 acres of lowland coniferous forest, and 113 acres of lowland shrubland habitat on Hay Lake Lands (**Table 6**). About 85% of young and 78% of mature upland forest, 55% of lowland coniferous forest habitat, and 34% of lowland shrubland habitat that occurs on the non-federal lands are found on Hay Lake Lands. A portion of Hay Lake Lands could be administered as a Candidate Research Natural Area, to the potential benefit of great gray owls. As noted in Section 5.2.6.2, a northern goshawk territory is found in the southwestern portion of Hay Lake Lands. Great gray owls show a propensity to use northern goshawk nests, and could use the nest sites on Hay Lake Lands in the future

No Action Alternative

There would be no direct or indirect effects to great gray owl under the No Action Alternative.

Cumulative Effects

As discussed for boreal owls, reasonably foreseeable future land and timber management activities in the CESA could result in a loss of some habitat for owls in Minnesota. Logging in nesting habitat could affect the great gray owl under the Proposed Action, Alternative B, and No Action Alternative by removing suitable nesting structure. Despite the fact that timber harvest can remove nesting habitat, harvest can create more temporary foraging habitat in some coniferous forest types. Maintaining large mature patches of upland forest would help to ensure suitable interior nesting habitat would be available across the landscape. Implementation of Minnesota Forest Resources Council's (1999) Voluntary Site-Level Forest Management Guidelines would help to ensure that snags, reserve trees, and downed wood are provided in all harvested stands.

Roads and recreation projects should have a minimal effect on great gray owls. Owls readily forage along roadsides. Many of the proposed roads use existing road corridors which are not owl nesting habitat. Wetlands would be avoided whenever possible. Prescribed burning should not have an effect on great gray owls unless there was a nest present in the stand.

About 925 acres of young and mature upland forest, lowland coniferous forest, and shrubland that could be used as nesting and foraging habitat for this species on the federal lands would be directly affected by the Project (**Table 6**). However, there are about 980,000 acres of upland forest, and lowland coniferous forest and shrubland, within the CESA that could now, or in the reasonably foreseeable future, provide habitat for great

gray owls (Emmons and Olivier, Inc. 2006:30, 38). Thus, habitat loss from the Project would have a negligible cumulative effect on great gray owls in the CESA.

Summary

Project activities associated with the Proposed Action and Alternative B should have no adverse direct, indirect, or cumulative effects on individual great gray owls, but could have direct, indirect, or cumulative effects on their habitat. Timber management and road construction could occur on the lands within the CESA in the reasonably foreseeable future, but only a small acreage of federal and non-federal lands would be affected. It is more likely that production of mature lowland and upland forest habitat on the non-federal lands would occur if these lands are federally administered rather than under private ownership.

Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for great gray owl. The No Action Alternative would have **no impact** to individuals of great gray owl.

Mitigation and Recommendations

No mitigation measures are recommended for great gray owl.

5.2.6.5 Three-toed Woodpecker (*Picoides tridactylus*)

Environmental Baseline

Three-toed woodpecker is a species of boreal and montane coniferous forests and is primarily a resident species throughout its range (Burdett 2002 and references cited therein). It usually inhabits mature or old-growth lowland coniferous stands with abundant insect-infected dead and dying trees. Even in predominately living forests, three-toed woodpeckers forage mainly on dead and dying timber. Three-toed woodpeckers breed throughout lowland coniferous forests in Canada and the western U.S., and in northern Minnesota and Wisconsin. Population trends are unknown. In the Superior National Forest, they seem to nest mainly in black spruce and balsam fir snags and mature trees. This dependence on insect-infected dead and dying timber frequently results in populations showing an association with forest disturbances such as fire, wind-throw, floods, insect outbreaks, and disease. In particular, three-toed woodpecker populations often show an increased abundance in early post-fire successional areas (Burdett 2002). Black spruce and tamarack stands are the vegetation community most likely to contain three-toed woodpeckers in Minnesota.

Habitat for the three-toed woodpecker is conifers killed by fire, beetles, partial wind-throw, or flooding. The bird keys in on beetles that feed on dead trees 1 to 5 years after trees are killed. A limiting factor for the three-toed woodpecker is foraging habitat where sufficient insects can be found to feed its young during the breeding season. This species can be nomadic and shift over large portions of the landscape depending on habitat conditions. Promotion of conifers and retaining residual trees (preferably long-lived, wind-firm conifers) in large openings may maintain or enhance habitat conditions for three-toed woodpeckers. Studies have also found that they are more likely to occur in larger areas of virgin forest versus smaller patches, suggesting forest fragmentation may adversely affect the three-toed woodpecker population.

ENSR (2000, 2005) and AECOM (2011a) conducted visual and calling surveys for woodpeckers on the federal lands. One three-toed woodpecker was observed foraging on black spruce snags during winter field surveys on the Mine Site in 2000 (ENSR 2000). A three-toed woodpecker was also seen on the Mine Site by Forest Service personnel in 2007. AECOM (2011b, c) conducted calling and visual surveys for three-toed woodpeckers on the non-federal lands, but no three-toed woodpeckers were seen or heard.

The Natural Resources Research Institute's (NRRI) Breeding Bird Monitoring effort surveys 169 forest stands on the Superior National Forest. The Institute did not detect three-toed woodpeckers on the Superior National Forest; however, timing and location of survey routes are such that this species is not adequately surveyed (USDA Forest Service 2010b). No three-toed woodpeckers were observed on the Tracks Project area.

Direct and Indirect Effects

Proposed Action

A three-toed woodpecker was identified on the federal lands during surveys in 2000 and was observed on the lands again in 2007. Though not surveyed, the Transportation and Utility Corridors and Plant Site lack the old-growth forest or recent burn habitat preferred by the three-toed woodpecker. This species is sensitive to disturbance and would not be expected to use the Mine Site, Transportation and Utility Corridors, or the Plant Site, although observations of three-toed woodpecker in 2000 were made within one-half mile of an active exploration drill rig (ENSR 2005).

Project noise would potentially have an impact on eagle utilization of habitat in the vicinity of the Mine Site. Existing ambient steady equivalent noise levels for most of the Mine Site are in the range of 35 to 45 decibels (dBA), which is a range comparable to secluded woods or a quiet bedroom (MPCA 1999). The Peter Mitchell Mine, north of the Mine Site, and traffic along Dunka Road and the existing railway, along the south edge of the Mine Site, also contribute brief, episodic noise impacts.

The primary sources of Project noise from the Mine Site would be blasting, haul trucks, and train horns, with noise levels ranging from 89-115 dBA. Equipment such as graders, bull dozers, and support trucks would be less dominant sources of noise, ranging from 75-95 dBA (EPA 1971). Blasting at the Mine Site is expected to occur once every two to three days. Typically, rock blasting generates a single event noise level ranging from 111- 115 dBA at 50 feet from the blasting site (Table 5.5-7 of Madera County 2005). Within most of the Mine Site, the sound from the blast would be similar to a loud clap of thunder.

The impacts of noise on three-toed woodpecker utilization of habitat near the Mine Site are largely unknown and the assessment of impacts remains subjective, although as noted above, three-toed woodpeckers appear to be sensitive to human disturbance. Impacts may also vary between individual three-toed woodpeckers.

Three-toed woodpeckers favor lowland black spruce forest and areas with snags. There are about 3,040 acres of mature lowland coniferous habitat (MIH 9) on the federal lands that could provide habitat for three-toed woodpeckers (**Table 6**). AECOM (2005) found about 80 acres associated with the Partridge River that had been flooded, killing spruce trees and creating snag habitat. The Project would affect about 482 acres of mature lowland coniferous habitat. This includes pockets of snag habitat within wetlands.

There are about 1,208 acres of mature lowland coniferous forest habitat on the non-federal lands (**Table 6**). AECOM found about 45 acres of black spruce snags associated with forests that had been flooded by beavers,

which kills trees (AECOM 2011b, c). These lands would not be directly affected by the Project. Under the Proposed Action, the Forest Service would survey for three-toed woodpeckers and associated habitat prior to conducting land-disturbing activities and areas of known or potential habitat would be avoided when feasible.

Alternative B

Potential direct and indirect effects to three-toed woodpeckers from the Project would be similar to those under the Proposed Action. Under Alternative B, there are about 2,063 acres of mature lowland forest on the federal lands (**Table 6**). About 977 fewer acres of mature lowland coniferous forest would be transferred to PolyMet from the Forest Service under Alternative B than under the Proposed Action. This area could provide habitat for three-toed woodpeckers, although noise and other disturbance associated with mining could discourage use of the area by three-toed woodpeckers.

The Forest Service would acquire Hay Lake Lands under Alternative B. No three-toed woodpeckers were seen on these lands during wildlife surveys. There are about 1,818 acres of lowland coniferous forest habitat on Hay Lake Lands, although none of this habitat contains mature forest (**Table 6**). About 55% of the lowland coniferous forest that occurs on the non-federal lands is found on Hay Lake Lands. There are about 45 acres of black spruce snag habitat on Hay Lake Lands (AECOM 2011b). Thus, there would be limited foraging and nesting habitat for three-toed woodpeckers on Hay Lake Lands.

No Action Alternative

There would be no direct or indirect effects to three-toed woodpecker under the No Action Alternative.

Cumulative Effects

Threats facing the three-toed woodpecker include habitat loss and fragmentation, fire suppression, salvage logging, conifer conversion to aspen, beaver control, and poor snag retention policies. Historically, natural fire regimes in mature conifer and large amounts of old-growth forest would have created abundant foraging habitat for three-toed woodpeckers prior to European settlement. Clearing of the forests and fire suppression after settlement would have started to reduce habitat for this species.

Forest management that removes conifers that have the potential to have high populations of insects, especially wood-boring beetles, is detrimental to the three-toed woodpecker. Practices that increase the amount of mature lowland coniferous forest would benefit this species.

Other ownerships (especially the State of Minnesota) have started converting some trembling aspen stands to coniferous stands, which should help increase habitat. Beaver populations may increase and thereby increase three-toed woodpecker habitat (flood-killed trees). Recent large fires on the Superior National Forest in the past few years have produced good habitat. Prescribed burning may be beneficial to this species if it leads to some mortality of overstory trees.

About 482 acres of mature lowland coniferous forest that could be used by this species on the federal lands would be directly affected by the Project (**Table 6**). However, there are about 356,000 acres of lowland coniferous forest/shrubland within the CESA that could now, or in the reasonably foreseeable future, provide habitat for three-toed woodpeckers (Emmons and Olivier, Inc. 2006:30, 38). Thus, habitat loss from the Project would have a negligible cumulative effect on three-toed woodpeckers in the CESA.

Summary

Project activities associated with the Proposed Action and Alternative B could have adverse direct, indirect, or cumulative effects on three-toed woodpeckers and their habitat. Few three-toed woodpeckers use the federal lands. Timber management and road construction could occur on the lands in the reasonably foreseeable future, but only a small acreage of federal and non-federal lands would be affected. It is more likely that production of mature lowland habitat on the non-federal lands would occur if these lands are federally administered rather than under private ownership.

Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for three-toed woodpecker. The No Action Alternative would have **no impact** to individuals of three-toed woodpecker.

Mitigation and Recommendations

No mitigation measures are recommended for three-toed woodpecker.

5.2.6.6 Olive-sided flycatcher (*Contopus cooperi*)

Environmental Baseline

The olive-sided flycatcher has a large breeding range that includes the wooded areas of Canada, Alaska, and the western and northeastern U.S. While secure in some places, the Breeding Bird Survey data for North America shows the species declined 5% per year between 1986 and 1998 nationally, and more than 1.5% per year in northern Minnesota between 1966 and 1996 (USDA Forest Service 2010b, Sauer et al. 2012).

No olive-sided flycatchers were seen during surveys of the federal and non-federal lands, although surveys were conducted on the Hunting Club, Lake County, and Wolf Lands during late fall after flycatchers had migrated south for the winter (ENSR 2000, 2005, AECOM 2011a, b, c). A few individuals are detected each year on songbird monitoring plots in the Superior National Forest, but numbers are not large enough to estimate population trends. An average of 1.7 and 0.2 olive-sided flycatchers have been recorded on the Jordan and Hart Lake Breeding Bird Survey routes, respectively, each year since 1966. The Jordan route is about 20 miles southeast of the federal lands and the Hart Lake route is about 20 miles south of the federal lands; these routes are the closest survey routes to the federal lands. Two olive-sided flycatchers were recorded during the Tracks Project area Breeding Bird Surveys in 2008.

The NRRI's Breeding Bird Monitoring effort surveys 169 forest stands on the Superior National Forest. Olive-sided flycatchers have been detected in 37 forest stands on the Superior National Forest. However, detections are rare and irregular, with only 1 detection in 20 forest stands during the period between 1991 and 2005. A nesting olive-sided flycatcher was reported on the Gunflint Ranger District in 2005.

Olive-sided flycatchers nest most frequently in larger black spruce-tamarack bogs or in large openings with scattered trees. MacLean (1999) found olive-sided flycatchers using burned or cleared areas with standing trees, primarily conifers. Beaver ponds provide important habitat with flood-killed trees. Timber harvest does not provide habitat if it results in an even-aged stand with little variation in canopy height, or few dead standing

trees. At least 50 acres of habitat may be needed to support a single territorial pair of olive-sided flycatchers. The primary threat to the species, however, appears to be destruction of wintering habitats in the Andes of South America.

Direct and Indirect Effects

Proposed Action

Olive-sided flycatchers favor lowland black spruce/tamarack bogs, but also use upland coniferous forest. There are 3,060 acres of lowland coniferous forest (MIH 9) and 1,252 acres of upland coniferous habitat (MIH 5) on the federal lands that could provide habitat for the olive-sided flycatchers (**Table 6**). The Project would affect about 482 acres of lowland coniferous and 505 acres of upland coniferous habitat. After mining, about 397 acres would be reclaimed to wetland/grassland/shrubland habitat that, over time, would become upland and lowland coniferous and deciduous habitat that could be used by olive-sided flycatchers (MDNR et al. 2013).

There are about 3,309 acres of lowland coniferous forest, but only 80 acres of upland coniferous forest habitat on the non-federal lands (**Table 6**). These lands would not be directly affected by the Project. Under the Proposed Action, the Forest Service would survey for olive-sided flycatchers and associated habitat prior to conducting land-disturbing activities and areas of known or potential habitat would be avoided when feasible.

Alternative B

Potential direct and indirect effects to olive-sided flycatchers from the Project would be similar to those under the Proposed Action. Under Alternative B, there are 2,079 acres of lowland coniferous forest and 1,139 acres of upland coniferous habitat on the federal lands (**Table 6**). About 981 fewer acres of lowland coniferous forest and 113 fewer acres of upland coniferous forest on the federal lands would be transferred to PolyMet under Alternative B. This area could provide habitat for olive-sided flycatchers, although noise and other disturbance associated with mining may discourage use of the area by olive-sided flycatchers.

The Forest Service would acquire Hay Lake Lands under Alternative B. There are about 1,818 acres of lowland coniferous forest and 54 acres of upland coniferous forest habitat on Hay Lake Lands (**Table 6**). About 55% of the lowland coniferous forest and 68% of the upland coniferous forest that occurs on the non-federal lands is found on Hay Lake Lands. No olive-sided flycatchers were seen on these lands during wildlife surveys, although olive-sided flycatchers were seen on the nearby Tracks Project area and Breeding Bird Survey routes.

No Action Alternative

There would be no direct or indirect effects to olive-sided flycatcher under the No Action Alternative.

Cumulative Effects

Threats facing this species are similar to those for species, such as the three-toed woodpecker and boreal owl, that use lowland black spruce/tamarack bog habitat, including habitat loss and fragmentation, fire suppression, salvage logging of fire-killed trees, conifer conversion to aspen, beaver control, and clear-cutting that leaves few residual trees or little variety in canopy structure. Historically, natural fire regimes in mature coniferous forest and large amounts of old-growth forest would have created abundant foraging habitat for olive-sided

flycatchers prior to European settlement. Clearing of the forests and fire suppression after settlement would have started to reduce habitat for this species.

Other ownerships (especially the State) have started converting some trembling aspen stands to coniferous stands, which should help increase habitat. Beaver populations may increase and thereby increase olive-sided flycatchers' habitat (flood-killed trees). Recent large fires on the Superior National Forest in the past few years have produced good habitat. Prescribed burning may be beneficial to this species if it leads to some mortality of overstory trees.

About 482 acres of lowland coniferous forest (MIH 9) and 505 acres of upland coniferous forest habitat (MIH 5) that could be used by this species on the federal lands would be lost due to the Project (**Table 6**). However, there are about 356,000 acres of lowland coniferous forest and about 161,000 acres of upland coniferous forest within the CESA that could now, or in the reasonably foreseeable future, provide habitat for olive-sided flycatchers (Emmons and Olivier, Inc. 2006:30, 38). Thus, habitat loss from the Project would have a negligible cumulative effect on olive-sided flycatchers in the CESA.

Summary

Project activities associated with the Proposed Action and Alternative B should have no adverse direct, indirect, or cumulative effects on individual olive-sided flycatchers, but could have direct, indirect, or cumulative effects on their habitat. Timber management and road construction could occur on the lands in the reasonably foreseeable future, but only a small acreage of federal and non-federal lands would be affected. It is more likely that production of immature and mature lowland habitat, prescribed burnings that leave standing dead trees, and partial cuts, on the non-federal lands could occur if these lands are federally administered rather than under private ownership.

Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for olive-sided flycatcher. The No Action Alternative would have **no impact** to individuals of olive-sided flycatcher.

Mitigation and Recommendations

No mitigation measures are recommended for olive-sided flycatcher.

5.2.6.7 Bay-breasted Warbler (*Dendroica castanea*)

Environmental Baseline

Bay-breasted warbler is a neotropical migrant that breeds throughout the black spruce-balsam fir forest of Canada and the northernmost parts of the U.S., following the range of spruce budworm (*Choristoneura fumiferana*). The Project area is at the very edge of its range in Minnesota, although vegetation data from the time of European settlement shows that most of the area was black spruce/balsam fir forest. Bay-breasted warbler populations are closely tied to outbreaks and declines in spruce budworm (Mayasich and Niemie 2002 and references cited therein), and have been decreasing range-wide (4.5% per year in North America between 1986 and 1998). An average of 0.2 bay-breasted warblers have been recorded on the Hart Lake Breeding Bird

Survey route each year since 1966, but none have been recorded on the Jordan Breeding Bird Survey route (Sauer et al. 2012). No bay-breasted warblers were observed on the nearby Tracks Project area. The NRRI's Breeding Bird Monitoring effort has detected bay-breasted warblers in 21 of 169 forest stands, but sightings have been rare. Loss of habitat, change in vegetation composition, management to control spruce budworm, fire suppression, and deforestation in wintering habitat all contribute to the population decline of the bay-breasted warbler.

Bay-breasted warbler breeds primarily in old spruce-fir forests, sometimes pine, and also in spruce bogs and coniferous riparian areas (Maxson 1999). They breed in forests where the conifers are dominant or co-dominant trees. There is little information about their use of black spruce lowlands in Minnesota. They need patches of spruce budworm outbreak over a large area. Birds often move to such an area in large groups. It is possible that maintenance of a viable and well-distributed population may require patches of relatively un-fragmented old spruce-fir forest of more than 3,000 acres capable of hosting a large enough spruce budworm outbreak. Robbins et al. (1989) suggested that some warblers may require extensive areas of interior forest habitat, but research has not been done to find out to determine its applicability to bay-breasted warbler in northeastern Minnesota.

No bay-breasted warblers were seen during wildlife surveys on the federal and non-federal lands, although surveys on Hunting Club Lands, Lake County Lands, and Wolf Lands occurred during late fall after bay-breasted warblers had migrated south for the winter (ENSR 2000, 2005, AECOM 2011a, b, c).

Direct and Indirect Effects

Proposed Action

Bay-breasted warblers favor lowland and upland mature spruce forest. There are about 3,040 acres of mature lowland (MIH 9) and 235 acres of mature upland coniferous forest habitat (MIH 5) on the federal lands that could provide habitat for the bay-breasted warblers. The Project would affect about 482 acres of mature lowland and 24 acres of mature upland coniferous forest habitat (**Table 6**).

There are 1,208 acres of mature lowland coniferous forest and 26 acres of mature upland coniferous forest habitat on the non-federal lands (**Table 6**). These lands would not be directly affected by the Project. Under the Proposed Action, the Forest Service would survey for bay-breasted warblers and associated habitat prior to conducting land-disturbing activities and areas of known or potential habitat would be avoided when feasible.

Alternative B

Potential direct and indirect effects to bay-breasted warblers from the Project under Alternative B would be similar to those under the Proposed Action. Under Alternative B, there are about 2,063 acres of mature lowland and 186 acres of mature upland coniferous forest habitat on the federal lands (**Table 6**). About 977 fewer acres of mature lowland coniferous forest and 49 fewer acres of mature upland coniferous forest on the federal lands would be transferred to PolyMet from the Forest Service under Alternative B than under the Proposed Action. This area could provide habitat for bay-breasted warblers, although noise and other disturbance associated with mining and use of the Dunka Road and Utility Corridor may discourage use of the area by bay-breasted warblers.

The Forest Service would acquire Hay Lake Lands under Alternative B. No bay-breasted warblers were seen on these lands during wildlife surveys, and observations of bay-breasted warblers are extremely rare in the vicinity

of Hay Lake Lands. There is no mature lowland or upland coniferous forest habitat on Hay Lake Lands (**Table 6**). Thus, there would be limited foraging and nesting habitat for bay-breasted warblers on Hay Lake Lands.

No Action Alternative

There would be no direct or indirect effects to bay-breasted warbler under the No Action Alternative.

Cumulative Effects

The greatest threat to the breeding range of the bay-breasted warbler is the reduction in the area of old-growth black spruce and balsam fir of the boreal forest. Both nesting habitat and food supply (spruce budworm) are at risk when reductions or alterations of these forest types occur. Spraying insecticides to control spruce budworm can have direct toxic effect on this warbler (inhibition of brain acetylcholinesterase activity). Winter habitat degradation and loss is also a threat, as commercial and residential development activity continues to reduce the forested habitats in the tropics (Mayasich and Niemie 2002). Green (1995) stated that coniferous forest-dominated stands have decreased and been replaced by trembling aspen over the past 100 years, indicating that less habitat is available at present compared to 100 years ago. Black spruce-balsam fir forest is currently below 2004 Forest Plan objectives and the Minnesota Forest Resources Council Landscape Committee set a goal to increase black spruce-balsam fir forest in Minnesota (USDA Forest Service 2004a). Forest Service data show that spruce budworm defoliation in the eastern U.S. dropped substantially in 1986 from 5 to 8 million acres per year prior to that to less than 1 million acres per year after 1985. In Minnesota, there were about 70,000 of spruce-budworm defoliation in 1999 compared to a million acres in 1958.

About 482 acres of mature lowland coniferous forest and 24 acres of mature upland coniferous forest habitat that could be used by this species on the federal lands would be directly affected by the Project (**Table 6**). However, there are about 356,000 acres of lowland coniferous forest and about 161,000 acres of upland coniferous forest within the CESA that could now, or in the reasonably foreseeable future, provide habitat for bay-breasted warblers (Emmons and Olivier, Inc. 2006:30, 38). Thus, habitat loss from the Project would have a negligible cumulative effect on bay-breasted warblers in the CESA.

Summary

Project activities associated with the Proposed Action and Alternative B should have no adverse direct, indirect, or cumulative effects on individual bay-breasted warblers, but could have direct, indirect, or cumulative effects on their habitat. Bay-breasted warblers were not seen on the federal lands during wildlife surveys for the FEIS, and are rare in the Superior National Forest, although habitat is present. Timber management and road construction could occur on the federal and non-federal lands in the reasonably foreseeable future, but only a small acreage of federal and non-federal lands would be affected. It is more likely that production of immature and mature lowland habitat, prescribed burnings that leave standing dead trees, and partial cuts on the non-federal lands could occur if these lands are federally administered rather than under private ownership.

Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for bay-breasted warbler. The No Action Alternative would have **no impact** to individuals of bay-breasted warbler.

Mitigation and Recommendations

No mitigation measures are recommended for bay-breasted warbler.

5.2.6.8 Connecticut Warbler (*Oporornis agilis)*

Environmental Baseline

The Connecticut warbler has the most restricted breeding distribution of any northern warbler, aside from the Kirtland's warbler, ranging from eastern British Columbia east across south-central Canada to Quebec and south to northern Minnesota, Wisconsin, and the Upper Peninsula and northern Lower Peninsula of Michigan. Eighty-five percent of the North American breeding range of the Connecticut warbler is in Canada (Kudell-Ekstrum 2002 and references cited therein).

The bird is very secretive and difficult to detect. Breeding Bird Survey data showed a 5% per year population decline between 1986 and 1998 in North America. The NRRI's Breeding Bird Monitoring effort detected Connecticut warblers in 41 of 169 forest stands on the Superior National Forest during 1991 through 2005. An average of 0.3 Connecticut warbler have been recorded on the Hart Lake, and two Connecticut warblers on the Jordan Breeding Bird Survey routes each year since 1966 (Sauer et al. 2012). Two Connecticut warblers were seen on the nearby Tracks Project area.

Typical habitat consists of wet areas with black spruce, tamarack, mosses, speckled alder, dogwood, Labrador tea, bog rosemary, bog laurel, and leatherleaf. Breeding habitat consists of black spruce-tamarack bogs, muskeg, poplar woodlands and moist deciduous forests, and jack pine. The Connecticut warbler has been found in 15 forest types in the U.S. consisting of jack pine, red pine, black spruce, mixed swamp conifer, northern white cedar, sugar maple/basswood, tamarack, paper birch, and trembling aspen, and wetland bog and wetland sedge meadow. They may also be found in jack pine with a dense blueberry understory. They forage on the ground and in low shrubs. Boreal bogs that are 100 acres of larger are typical habitat in northeastern Minnesota. Territories of a breeding pair of birds are about 1.2 acres. Connecticut warblers nest on the ground in a small hollow, on moss mound in a bog, or in grasses or weeds, or at the base of a shrub and sometimes forming loose "colonies."

No Connecticut warblers were seen during wildlife surveys of the federal and non-federal lands, although surveys on the Hunting Club, Lake County, and Wolf Lands occurred during late fall after Connecticut warblers had migrated south for the winter (ENSR 2000, 2005, AECOM 2011a, b, c).

Direct and Indirect Effects

Proposed Action

Connecticut warblers favor lowland spruce forest and upland jack pine forest. There are about 3,060 acres of lowland (MIH 9) and 1,252 acres of upland coniferous (MIH 5) forest on the federal lands that could provide habitat for the Connecticut warbler. Approximately 482 acres of lowland coniferous forest and 505 acres of upland coniferous forest habitat would be lost due to mining (**Table 6**). Forest Service MIH mapping did not specifically identify jack pine forest (MIH 8) on the Mine Site, but it is present on the eastern portion of the Mine Site in association with black spruce and trembling aspen.

There are about 3,309 acres of lowland coniferous and 80 acres of upland coniferous forest habitat on the non-federal lands (**Table 6**). These lands would not be directly affected by the Project. Under the Proposed Action, the Forest Service would survey for Connecticut and associated habitat prior to conducting land-disturbing activities and areas of known or potential habitat would be avoided when feasible.

Alternative B

Potential direct and indirect effects to Connecticut warblers from the Project would be similar to those under the Proposed Action. Under Alternative B, there are about 2,079 acres of lowland and 1,139 acres of upland coniferous forest on the federal lands (**Table 6)**. About 981 fewer acres of lowland coniferous forest and 113 fewer acres of upland coniferous forest would be transferred to PolyMet from the Forest Service than under the Proposed Action. This area could provide habitat for Connecticut warblers, although noise and other disturbance associated with mining may discourage use of the area by Connecticut warblers.

The Forest Service would acquire Hay Lake Lands under Alternative B. No Connecticut warblers were seen on these lands during wildlife surveys (AECOM 2011b, c), although two Connecticut warblers were observed on the nearby Tracks Project area. There are about 1,818 acres of lowland and 54 acres of upland coniferous forest habitat on Hay Lake Lands (**Table 6**). About 55% of the lowland coniferous forest and 68% of upland coniferous forest that occurs on the non-federal is found on Hay Lake Lands. There would be suitable foraging and nesting habitat for Connecticut warblers on Hay Lake Lands. This habitat should benefit from Forest Service management that favors longer harvest rotations than typically occurs on private forestlands.

No Action Alternative

There would be no direct or indirect effects to Connecticut warbler under the No Action Alternative.

Cumulative Effects

The Connecticut warbler may be sensitive to habitat fragmentation due to increases in nest predation and parasitism that may accompany decreases in forest interior habitat. Loss and fragmentation of jack pine forests was identified as the biggest threat to Connecticut warbler. However Connecticut warblers have been found in association with open forest habitats. Cowbird parasitism may also be a threat.

Peat mining may pose a threat to Connecticut warbler habitat. Peat mining is a large industry in Canada and has started in the U.S. at Pine Island in Koochiching County, Minnesota. Towers and structures have been reported as specific threats. Three hundred Connecticut warblers were killed in one season from collision with towers in Eau Claire, Wisconsin (Kudell-Ekstrum 2002 and references cited therein). Rieck (1999) stated that wintering habitat in northern South America is declining and breeding habitat may also be in decline range-wide.

About 482 acres of lowland coniferous forest and 505 acres of upland coniferous forest habitat that could be used by this species on the federal lands would be directly affected by the Project (**Table 6**). However, there are about 356,000 acres of lowland coniferous forest and 161,000 acres of upland coniferous forest within the CESA that could now, or in the reasonably foreseeable future, provide habitat for Connecticut warblers (Emmons and Olivier, Inc. 2006:30, 38). Thus, habitat loss from the Project would have a negligible cumulative effect on Connecticut warblers in the CESA. Noise and other disturbance from the Project could also cumulatively affect Connecticut warblers, although Connecticut warbler use of the Project area is likely very rare.

Summary

Project activities associated with the Proposed Action and Alternative B should have no adverse direct, indirect, or cumulative effects on individual Connecticut warblers, but could have direct, indirect, or cumulative effects on their habitat. Connecticut warblers have not been seen on the federal lands, and are rare in the Superior National Forest. Timber management and road construction could occur on the federal and non-federal lands in the reasonably foreseeable future, but only a small acreage of federal and non-federal lands would be affected. It is more likely that production of immature and mature lowland habitat and partial cuts that benefit Connecticut warbler would occur on the non-federal lands if these lands are federally administered rather than under private ownership.

Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for Connecticut warbler. The No Action Alternative would have **no impact** to individuals of Connecticut warbler.

Mitigation and Recommendations

No mitigation measures are recommended for Connecticut warbler.

5.2.7 Mammals

5.2.7.1 Eastern Heather Vole (*Phenacomys ungava*)

Environmental Baseline

In eastern North America, the range of the eastern heather vole reaches its southernmost point in the Upper Midwest on the Superior National Forest. A long-term (1995-2006) study of small mammal populations documented 64 eastern heather voles on the Superior National Forest (Jannett 2006 *cited* in USDA Forest Service 2010b).

Eastern heather voles are found in a wide variety of habitats, including coniferous forests and forest borders, heath shrublands, willow thickets, rocky hillsides, and moist meadows (Coffin and Pfannmuller 1988, McAllister and Hofmann 1988). *Vaccinium* species (ericaceous shrubs) are often present where eastern heather voles are found. Naylor et al. (1985) found high densities of eastern heather voles in Ontario in jack pine monocultures with a dense, relatively continuous understory of ericaceous shrubs. Eastern heather voles' preferred habitat appears to be upland forests and openings with ericaceous ground cover not far from water. Anything that encourages grasses encourages meadow voles, which are detrimental to the eastern heather vole.

No eastern heather voles were seen during wildlife surveys of the federal and non-federal lands (ENSR 2000, 2005, AECOM 2011a, b, c). The MDNR NHIS database documents the nearest known eastern heather vole location as 24 miles north of the Project area off of the Tomahawk Road. No eastern heather voles were found on the nearby Tracks Project area.

Direct and Indirect Effects

Proposed Action

Forest Service MIH 8, which is primarily mature jack pine forest, is considered indicative of eastern heather vole habitat. Forest Service MIH mapping did not specifically identify jack pine forest on the federal lands, but jack pine forest is on present across the Mine Site, especially on the eastern portions of the site, and often in association with black spruce and trembling aspen (ENSR 2000, 2005, AECOM 2011a). However, there is no mature jack pine habitat on the Mine Site. There are about 1,252 acres of upland coniferous forest (MIH 5) on the federal lands, including about 235 acres of mature upland coniferous forest that could be used as habitat by the eastern heather vole (**Table 6**). The Project would affect about 505 acres of upland coniferous forest habitat.

The eastern heather vole was not identified on the non-federal lands during wildlife surveys or in the MDNR NHIS database (MDNR 2006, AECOM 2011b, c). There are about 80 acres of upland coniferous forest habitat on the non-federal lands, and jack pine is a component in these forests (**Table 6**). There are only 26 acres of mature coniferous forest habitat found on the non-federal lands. The majority of mature coniferous forest habitat, which consists primarily of eastern white pine, is found on Hunting Club Lands. These lands would not be directly affected by the Project. Under the Proposed Action, the Forest Service would survey for eastern heather vole and associated habitat prior to conducting land-disturbing activities and areas of known or potential habitat would be avoided when feasible.

Alternative B

Potential direct and indirect effects to eastern heather voles from the Project would be similar to those under the Proposed Action. Under Alternative B, there are about 1,252 acres of upland coniferous forest on the federal lands (**Table 6**). About 113 fewer acres of upland coniferous forest on the federal lands would be transferred to PolyMet from the Forest Service under Alternative B than under the Proposed Action. This area could provide habitat for eastern heather vole.

The Forest Service would acquire Hay Lake Lands under Alternative B. No eastern heather voles were seen on these lands during wildlife surveys (AECOM 2011b). Coniferous forest is rare on Hay Lake Lands. There are about 54 acres of upland coniferous forest habitat on Hay Lake Lands, although none of this habitat contains mature forest (**Table 6**). About 68% of the upland coniferous forest that occurs on the non-federal lands is found on Hay Lake Lands. Forest cover was 60 to 70% and was comprised of red pine and jack pine (AECOM 2011b). There would be little suitable habitat for eastern heather vole on Hay Lake Lands, but upland coniferous forest habitat should benefit from Forest Service management that favors longer harvest rotations than typically occurs on private forestlands.

No Action Alternative

There would be no direct or indirect effects to eastern heather vole under the No Action Alternative.

Cumulative Effects

The biggest negative effect to eastern heather vole habitat has likely come from fire suppression. Timber harvest potentially perpetuates habitat for this species, however, an increase of trembling aspen and a decrease of jack pine has likely reduced the amount of suitable habitat for the species. Based on analysis done for the Tracks

Project, the amount of mature jack pine forest should increase in the Superior National Forest during the next 10 years and would benefit eastern heather vole. The Superior National Forest goals are to increase the amount of jack pine forest over time. The cumulative effects analysis for the 2004 Forest Plan BE concluded that habitat conditions in the future are predicted to continue to provide a patchy distribution for eastern heather vole (USDA Forest Service 2004d).

About 505 acres of upland coniferous forest habitat that could be used by this species on the federal lands would be directly affected by the Project, but none of this habitat consists of mature coniferous trees (**Table 6**). There are about 161,000 acres of upland coniferous forest within the CESA that could now, or in the reasonably foreseeable future, provide habitat for eastern heather vole (Emmons and Olivier, Inc. 2006:30, 38). Thus, habitat loss from the Project would have a negligible cumulative effect on eastern heather vole in the CESA. In addition, about 397 acres of the 1,719-acre mine disturbance area would be reclaimed and could become upland coniferous forest habitat 20 years or more after reclamation (MDNR et al. 2013).

Summary

Project activities associated with the Proposed Action and Alternative B should have no adverse direct, indirect, or cumulative effects on individual eastern heather vole, but could have cumulative effects on their habitat. Eastern heather vole has not been seen on the federal lands, and is rare in the Superior National Forest, although habitat is present. Timber management and road construction could occur on the lands in the reasonably foreseeable future, but only a small acreage of federal and non-federal lands would be affected.

Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for eastern heather vole. The No Action Alternative would have **no impact** to individuals of eastern heather vole.

Mitigation and Recommendations

No mitigation measures are recommended for eastern heather vole.

5.2.7.2 Northern Long-eared Bat (*Myotis septentrionalis*), Tri-colored Bat (*Perimyotis subflavus*), and Little Brown Myotis (*Myotis lucifugus*)

Environmental Baseline

The northern long-eared bat, tri-colored bat (synonym: eastern pipistrelle), and little brown myotis bat species were added to the 2011 RFSS list due to the spread of white-nose syndrome, which is a fungal disease affecting bats. In addition, the northern long-eared bat was recently listed by the USFWS as threatened species under the ESA (USDOI USFWS 2013, USACE, and USDA Forest Service 2013).The disease carries a high mortality rate for all bat species, and the Superior National Forest is closely watching the RFSS bat species to identify signs of white-nose syndrome. White-nosed syndrome has been reported at the Tower/Soudan Underground Mine State Park in St. Louis County, 15 miles northwest of the Project area, and in Fillmore County in southeastern Minnesota (USDOI USFWS 2013, U.S. Geological Survey National Wildlife Health Center 2013).

The northern long-eared bat prefers forests and riparian areas. It may hibernate in caves, mines, overhangs, crevices, drill holes, and similar sites. As noted in Section 1.1, the *NorthMet Mining Project and Land Exchange Biological Assessment Draft* was prepared to evaluate project effects to northern long-eared bat, a RFSS species that was recently listed as a federally threatened species (USACE and USDA Forest Service 2013). Additional information on the northern long-eared bat is available in the BA.

The tri-colored bat prefers open areas with large trees and woodland edges. It avoids open fields and deep woods. It may hibernate in caves and mines and roosts in trees and man-made structures. The little brown myotis is the most abundant bat in Minnesota. It is a habitat generalist and its preferred habitat includes boreal forests, bogs and fens, open fields, shrublands, and urban areas. It may hibernate in caves, tunnels, and abandoned mines and roosts in trees and man-made structures. Both the tri-colored bat and the little brown bat generally avoid large open areas, but do forage over or near water and prefer aquatic, soft-bodied insects (e.g., moths, flies, beetles, gnats, mosquitos).

Between 2008 and 2010, acoustic surveys for bats were conducted as part of wildlife surveys for the federal and non-federal lands (AECOM 2011a, b, c). No effort was made to determine the species of bat making the echolocation. Along with the three RFSS bats, four other bat species could occur in the Project area: the big brown bat, the silver-haired bat, the eastern red bat, and the hoary bat. Echolocations recorded during the surveys could have come from any of these seven bat species.

Echolocation surveys were conducted at five stations on the federal lands, although only four stations gave usable information due to rainfall during the survey at one station. Recordings indicated the presence of bats at all sites, with the greatest number of echolocations occurring at open water sites associated with the Partridge River and an unnamed creek, and the fewest echolocations at emergent wetlands covered with water and some aquatic vegetation.

Recordings on Hay Lake Lands showed that most echolocations occurred at an emergent wetland with open water (814 echolocations, mostly feeding activity). Moderate numbers of echolocations were recorded at the two sites along the Pike River (164 echolocations at the north Pike River site, 230 echolocations at the middle Pike River site; feeding activity was moderate), and at two small emergent wetland ponds with limited open water (64 and 181 echolocations; AECOM 2011b). An echolocation site to the south of Hay Lake Lands was located at a small patch of open water associated with an old beaver pond; 72 echolocations were recorded at this site. No echolocation surveys were made on Hunting Club Lands, Lake County Lands, and Wolf Lands as surveys were conducted in November and bats would have already migrated from the area. Surveys were also not conducted at McFarland Lake Lands, although bats likely forage over McFarland Lake.

In the summer of 2013, Superior National Forest staff initiated a pilot project to document forest bat occupancy and collect demographic and habitat data (Grandmaison et al. 2013). Across eight locations on the Kawishiwi District, 34 bats were collected over nine nights. Northern long-eared bats comprised 38% of the captured bats, while little brown bats comprised 62% of the captured bats. No tri-colored bats were documented in the survey (Grandmaison et al. 2013).

In the spring of 2014, the Superior National Forest staff and MDNR staff, with additional funding from USFWS, conducted a pilot project to describe summer habitat use by northern long-eared bats in Minnesota. Surveys were conducted at 12 sites, five of which were on the Superior National Forest. The survey captured six of the seven species of bats known to occur in Minnesota; tri-colored bat was the only species not captured. The most

frequently captured bats were little brown bats (45%) and northern long-eared bats (22%) (USDA Forest Service 2014b).

Superior National Forest staff conducted surveys for the northern long-eared bat and the little brown bat at three general locations in the Project area in July and August 2014 (USDA Forest Service 2014a; Personal Communication, Dan Ryan, USDA Forest Service, January 9, 2015). The three Project locations included the Mine Site, the Plant Site, and the Dunka Road and Utility Corridor. Survey methods utilized passive sonic (Anabat) detectors on the Mine Site and transportation corridor. At the Plant Site, the methods were primarily direct observation of bat species, supplemented by passive sonic detectors when feasible. The surveys found northern long-eared bats, little brown bats, silver-haired bats, big frown bats, hoary bats and eastern red bats present at the Mine Site with little brown bat accounting for 78% of all calls and northern long-eared bat accounting for 14% of all calls (USDA Forest Service 2014a). The eastern red bat was the only species whose calls were not identified during the driving surveys. Emergence surveys at the Plant Site in conjunction with the sonic detectors identified the presence of little brown bat, northern long-eared bat, silver-haired bat and big brown bat. The tri-color bat was not detected in any of the surveys (USDA Forest Service 2014a). The 2014 surveys suggested that the Mine Site may contain roost sites, however, there have been no surveys specifically targeted for identification of roost sites.

Bats were seen during wildlife surveys of the federal and non-federal lands, but were not identified to species. As noted above, bats foraged and drank water on wetlands and other aquatic habitats with some open water. There are no caves or mine shafts that could be used for hibernation on the federal lands, but bats could also roost in tree hollows and under tree bark, or under railroad trestles near the Mine Site. Bats have occasionally been observed in Plant Site buildings, but do not hibernate or roost in great numbers at the Plant Site.

Direct and Indirect Effects

Proposed Action

There are about 210 acres of open bog, 31 acres of open water, 36 acres of sedge/wet meadow, and 97 acres of shallow marsh habitat that could be used by bats for feeding and drinking on the federal lands (**Table 8**). There are about 4,312 acres of lowland and upland coniferous forest habitat (MIH 5 and 9) that could be used by bats for roosting on the federal lands (**Table 6**). The Project would directly affect 65 acres of open bog, open water, sedge/wet meadow, and shallow marsh habitat and 987 acres of lowland and upland coniferous forest habitat (**Tables 6** and **8**).

Potential indirect affects to the tri-color and little brown bat from drinking water from Project ponds and from the consumption of insects that may inhabit or drink from the ponds is qualitatively assessed. MnDNR (2015) identifies that the tri-color bat is typically found in the southeast corner of the state and the occurrence in the northeast portion of the state is considered rare. Even though the tri-color bat was not detected in the 2014 Forest Service surveys, it is assumed to have the potential to be present in the Project area. A qualitative assessment of potential affects to the northern long-eared bat is provided in the Biological Assessment Report.

The tri-color bat and the little brown bat are considered habitat generalists by some researchers (Ford et al. 2005). Studies have identified the little brown bat to have a preference for foraging along the forest edge (Broders et al. 2006; Jantzen 2012). Both the tri-color and little brown bat have an affinity for water and feed above open water (Fenton and Barclay 1980; Broders et al. 2006; Lookingbill et al. 2010), and using water sources within the forest for drinking (woodland seasonal pools and beaver ponds) (Francl 2008). Other studies identify that the little brown bat has some affinity for open upland areas (meadow, prairie, and savanna) (Buckman-Sewald et al. 2014). Jantzen (2012) found bat activity (little brown bat, northern long-eared bat) to be concentrated within about 40 meters of the forest/open edge and Fulton et al. (2014) found that bats were more active in hydric habitats (riparian areas and wetlands) than in the surrounding forest. Lookingbill et al. (2010) identified a foraging radius of 500 meters for the little brown bat and 100 meters for the tri-color bat. Tri-colored bats tend to avoid deep woods or open fields (Ford et al. 2005). The Wisconsin DNR (2013) identified that little brown bats would preferentially follow a forest edge rather than fly across a large open area such as a field. Common summer roosting habitat is in older forest stands that provide more opportunities for roosting in cavities, but because they are common to a wide range of areas they also roost in human-made structures (Wisconsin DNR 2013).

In comparison, the northern long-eared bat is a forest specialist (Henderson and Broders 2008; Chapman et al. 2014). As a forest specialist, the weight of evidence in the literature (Henderson and Broders 2008; Jantzen 2012; Chapman et al. 2014) indicates it would be highly unlikely for the northern long-eared bat to be present in the large open area at the future Mine Site or near the ponds within the Plant Site.

About 57% of the 3,015 acre Mine Site would be affected be affected by the Project. Much of this affected area would be cleared of vegetation to accommodate the mine pits and associated infrastructure (e.g., haul roads, stockpile, stormwater ponds, waste water ponds) and would become a large open area during operations. The existing Plant Site is primarily an open area dominated by the LTVSMC Tailings Basin and would continue as an open area during Project operations. Overall, the peer-reviewed literature identifies that bats will forage at those locations where insect density is highest (Jantzen 2012; Lookingbill et al. 2010) and the large area of existing wetlands around the Tailings Basin and the future Mine Site would likely attract a large portion of the

local population of bats. Further, Francl (2008) has identified the little brown bat's predominance at woodland seasonal pools. Based on the peer-reviewed literature and the existing wetland and riparian areas immediately adjacent to the Mine Site, there is a low probability that either species would use the operational Mine Site to any great extent. However, because both species of bat are known to feed over open water and because the 2014 Forest Service bat surveys identified the little brown bat presence within the existing Tailings Basin (Forest Service 2014a: Figure 4), it is possible that some number of bats may be present within the active Flotation Tailings Basin during mining operations although it is uncertain if bats would use an active tailings basin in the same manner or frequency that they currently use the reclaimed LTVSMC Tailings Basin.

The Project's water management is expected to limit the potential exposure of bats to indirect effects from the various water features at the Plant Site or Mine Site and consumption of insects that may use these water features. Project water features include stormwater ponds, process water ponds, water in active mine pits, constructed wetlands, the Hydrometallurgical Facility pond (operations), the Flotation Tailings Basin Pond and wetland (reclamation and long-term closure), and the West Pit lake (long-term closure). Each water feature is qualitatively evaluated for potential indirect effects to bats.

1. Stormwater from precipitation and runoff would be directed to sedimentation ponds to remove total suspended solids prior to being discharged off-site. Water in the ponds prior to discharge is expected to reflect background concentrations of water quality parameters (including metals and mercury) and any aquatic insects inhabiting stormwater ponds should have metal and mercury concentrations that reflect background conditions, and therefore, similar to existing conditions. Therefore, any consumers of aquatic insects (including bats) from Project stormwater ponds should not be exposed to metal or mercury concentrations in those insects above background levels.

2. Process water would be collected and stored in a number of ponds at the Mine Site (e.g., Overburden Storage and Laydown Area Pond) and the Flotation Tailings Basin Pond and Hydrometallurgical Residue Facility Pond at the Plant Site and be actively managed for re-use. The probability of insects inhabiting or using a process water pond as a source of drinking water is expected to be low because: 1) these ponds would tend to be turbid and limit the establishment and growth of plants and in turn limit organic materials and the establishment of macroinvertebrates (Nelms et al. 2012); 2) mining-related water is low in organic carbon (Berndt and Bavin 2012) and nutrients and would limit growth and reproduction of algae, macroinvertebrates, and other biota (Nelms et al. 2012; Seger et al. 2012) ; 3) the use of liners and/or compacted bottoms to maximize water retention would not likely provide a suitable substrate for the larval stages of most aquatic insects (Flake and Cieminski 1996); and 4) fine mineral sediments that have little silt or clay are poor media for plant establishment and growth (Nelms et al. 2012) and further limits the presence of aquatic insects that require organic materials for food (Seger et al. 2012). The above listed factors likely limit the aquatic life in process water ponds. Insects from Project process water ponds would likely represent a very small percent of the diet of consumers of aquatic insects when compared to the large acreage of existing wetlands around the Plant Site and Mine Site that currently provide the forage base for bats and other consumers. Overall, limited pond productivity likely reduces the potential effect of process water ponds on insects and consumers of those insects such as bat species.

   Similar to taconite processing, mercury in process water sent to the Flotation Tailings Basin Pond

and the Hydrometallurgical Residue Facility Pond is expected to be associated with the solids and sequestered with those solids in the respective ponds and result in relatively low concentrations of mercury in the water column (Barr 2007b; PolyMet 2015). Mercury associated with solids such as tailings is sequestered within the basin and is typically not released from the basin (Berndt 2003) and not readily bioavailable. The continual deposition of solids in these ponds is likely to limit sediment- dwelling organisms (Nelms et al. 2012), as would the lack of organic material for food (Flake and Cieminski 1996; Nelms et al. 2012). Limited pond productivity and sequestration of mercury with solids likely reduces the potential effect of process water ponds on bat species.

3. Mine pit dewatering would occur during Mine Years 1 through 20 and this process water would be routed to the Waste Water Treatment Facility for initial treatment and then pumped to the Flotation Tailing Basin Pond for use in ore processing (Poly Met 2014c). A minimal amount of water is expected to be present in an active mine pit, therefore the probability of aquatic insects inhabiting or using a sump area is low. The continual removal of water is likely to limit the presence of aquatic organisms (Nelms et al. 2012), as would the lack of organic material for food (Flake and Cieminski 1996; Nelms et al. 2012). Limited productivity reduces the potential effect of mine pit watering on bat species, including the northern long-eared bat which is a forest specialist (Henderson and Broders 2008; Jantzen 2012; Chapman et al. 2014) and not expected to be present within the mine pits.

4. As part of reclamation, some stormwater ponds and process water ponds would be filled and converted to terrestrial habitat (.e.g., Hydrometallurgical Residue Facility Pond) (Poly Met 2014b; 2014e; 2014f). Ponds filled and reclaimed to terrestrial vegetation would have the potential to produce runoff water that would be expected to reflect background conditions. Reclaiming ponds to terrestrial vegetation is not expected to produce runoff that would adversely affect aquatic insects.

   A part of the East Pit (after backfilling is completed) and some stormwater and process water ponds would be converted to wetlands (Poly Met 2014b, 2014c, 2014d). These constructed wetlands are expected to receive precipitation and stormwater runoff. The accumulating water should reflect background concentrations for various parameters (including mercury). Any aquatic insects inhabiting a constructed wetland or using it as a source of drinking water should have metal or mercury concentrations that reflect background conditions. Therefore, any consumers of these aquatic insects (including bats) should not be exposed to metal or mercury concentrations in those insects above background levels.

   In regard to the backfilling of the East Pit, the water level would be maintained below the level of the fill material to facilitate truck hauling (Poly Met 2014b). No visible ponding of water is expected during backfilling. Therefore, backfilling of the East Pit would have no potential to affect aquatic organisms.

5. The Flotation Tailings Basin Pond would be present after Mine Year 20 and a wetland would be constructed around the perimeter of the pond. The pond and wetland are expected to be present into long-term closure. After Mine Year 20, the Beneficiation Plant and Mine Site would no longer contribute water and the largest source of water to the pond would be precipitation and

runoff (Poly Met 2015). In long-term closure, the water in the pond would be primarily from precipitation and runoff (Poly Met 2015) and would be expected to reflect background conditions and parameter concentrations (including mercury). Any aquatic insects inhabiting the Flotation Tailings Basin Pond or using it as a source of drinking water during long-term closure should have metal or mercury concentrations that reflect background conditions. Therefore, any consumers of these aquatic insects (including bats) should not be exposed to metal or mercury concentrations in those insects above background levels.

6. The depth of the West Pit at the end of mining will be more than 600 feet. Flooding of the pit would result in rapid water level increases that are predicted to average about 17 feet per year (Poly Met 2014g). Rapidly rising water levels likely limits the aquatic life that would inhabit the lake during the years of pit flooding (Nelms et al. 2007). Therefore, the potential exposure of bats to any insects that might inhabit or use the West Pit lake during the early years of flooding is likely low.

   The majority of water used to flood the West Pit would be primarily from precipitation and stormwater runoff (Poly Met 2014g) and as the pit fills the parameter concentrations in the upper portion of the water column (i.e., the epilimnion) should reflect background (including mercury). Flooding of the West Pit would produce a pit lake that is approximately 320 acres in size with a maximum depth of 630 feet (Poly Met 2014b). As an oligotrophic system with a small littoral area, aquatic insect diversity and numbers in the West Pit lake would be limited (Nelms et al. 2012; Gray et al. 2012). Data for pit lakes identifies they have low densities and diversity of invertebrates (MDNR 1989). In addition, pit lake waters are typically low in phosphorus, limiting primary production (MDNR 1989). For the above reasons, overall, the potential population of aquatic insects in the West Pit lake is expected to be small. In addition, these insects would likely represent only a small portion of the diet of consumers of aquatic insects. Therefore aquatic insects inhabiting the West Pit lake or using it as a source of drinking water would likely have no significant effect on insect consumers such as bats.

   With regard to mercury, the West Pit lake is estimated to have a total mercury concentration of 0.3 to 0.9 ng/L during flooding and in long-term closure (Poly Met, 2014g). Because precipitation would be the main input of water to the West Pit lake, metal concentrations in long-term closure would likely reflect background conditions. Therefore, any aquatic insects inhabiting the West Pit lake or drinking from the West Pit lake would be exposed to background concentrations. Any consumers of these aquatic insects (including bats) should not be exposed to mercury concentrations in those insects above background levels.

Because existing wetlands at the Plant Site (e.g., north of the tailings basin) and the Mine Site (e.g., 100 Mile Swamp) would be providing an abundant supply of insects, the majority of bats and other consumers of insects would likely be focused in these areas and would not likely be relying solely on the Project water features for their food supply. Therefore, any insects inhabiting Project water features or using them as sources of drinking water are not expected to have a significant effect on the consumers of insects. Overall, the Project's water features are not expected to have adverse indirect effects on bats. Project noise would potentially have an impact on bat utilization of maternity and roosting habitat in the vicinity of the Mine Site. Existing ambient steady equivalent noise levels for most of the Mine Site are in the range of 35 to 45 decibels (dBA), which is a range comparable to secluded woods or a quiet bedroom (MPCA 1999). The Peter Mitchell Mine, north of the Mine

Site, and traffic along Dunka Road and the existing railway, along the south edge of the Mine Site, also contribute brief, episodic noise impacts.

The primary sources of Project noise from the Mine Site would be blasting, haul trucks, and train horns, with noise levels ranging from 89-115 dBA. Equipment such as graders, bull dozers, and support trucks would be less dominant sources of noise, ranging from 75-95 dBA (EPA 1971). Blasting at the Mine Site is expected to occur once every two to three days. Typically, rock blasting generates a single event noise level ranging from 111- 115 dBA at 50 feet from the blasting site (Table 5.5-7 of Madera County 2005). Within most of the Mine Site, the sound from the blast would be similar to a loud clap of thunder.

Bats were seen on the non-federal lands during wildlife surveys (AECOM 2011b, c). There are about 7 acres of open bog, 183 acres of open water, 0 acres of sedge/wet meadow, and 117 acres of shallow marsh on the non-federal lands (**Table 8**). There are about 3,389 acres of lowland and upland coniferous forest habitat (MIH 5 and 9) that could be used by bats for roosting on the non-federal lands (**Table 6**). These lands would not be directly affected by the Project. Under the Proposed Action, the Forest Service would survey for bats and associated habitat prior to conducting land-disturbing activities and areas of known or potential habitat would be avoided when feasible.

Alternative B

Potential direct and indirect effects to bats from the Project would be similar to those under the Proposed Action. Under Alternative B, there are 175 acres of open bog, 9 acres of open water, 35 acres of sedge/wet meadow, 81 acres of shallow marsh, and 3,218 acres of lowland and upland coniferous forest on the federal lands (**Tables 6** and **8**). About 74 fewer acres of open bog, open water, sedge/wet meadow, and shallow marsh habitat and 1,094 fewer acres of lowland and upland coniferous forest habitat on the federal lands would be transferred to PolyMet from the Forest Service under Alternative B than under the Proposed Action. This habitat could be used by bats. Habitat loss to mining activities would be the same as under the Proposed Action.

The Forest Service would acquire Hay Lake Lands under Alternative B. Bats were seen at several locations on the lands during wildlife surveys (AECOM 2011b). There are 2 acres of open bog, 177 acres of open water, 0 acres of sedge/wet meadow, 84 acres of shallow marsh, and 1,872 acres of lowland and upland coniferous forest (MIH 5 and 9) on Hay Lake Lands (AECOM 2011b). About 86% of the open bog, open water, sedge/wet meadow, and shallow marsh and 55% of the lowland and upland coniferous forest (MIH 5 and 9) that occurs on the non-federal lands is found on Hay Lake Lands (**Tables 6** and **8**). This habitat would benefit from Forest Service management that favors longer protection of wetlands and other aquatic resources.

No Action Alternative

There would be no direct or indirect effects to northern long-eared bat, tri-colored bat, or little brown myotis bat under the No Action Alternative.

Cumulative Effects

Bats are facing loss of habitat from fewer old houses, buildings, old open mines, and snags (dead and decaying trees). Loggers cut down snags because they can be a danger, and people target snags for firewood. However, protecting old open mines that provide habitat for bats, limiting human intrusion into these mines with bat gates,

and managing forests to protect snags has helped to slow the loss of bat hibernacula (hibernation) and roosting habitat.

As noted above, the Forest Service has added the northern long-eared bat, tri-colored bat, and little brown myotis to the RFSS list due to concerns about white-nosed syndrome. White-nose syndrome has killed more than a million bats in the northeastern U.S. A fungus that thrives in the same cold temperature range as hibernating bats causes a white fuzzy growth on their noses and wings. Scientists speculate the fungus interrupts sleep patterns and causes the hibernating bats to awaken, depleting their fat reserves and causing starvation.

Bats also have been found dead near wind energy towers. Most collision mortality involves migrating or dispersing bats, not resident, breeding bats (MDNR 2008). Future research should concentrate on determining the cause of bat collisions with wind turbines and methods to reduce and mitigate the mortality.

About 65 acres of wetland/aquatic habitat and 987 acres of lowland and upland coniferous habitat that could be used by bats on the federal lands would be directly affected by the Project (**Tables 6** and **8**). However, there are about 67,000 acres of open wetland and open wetland, and about 517,000 acres of lowland and upland coniferous forest habitat within the CESA that could now, or in the reasonably foreseeable future, provide habitat for northern long-eared bat, tri-colored bat, and little brown myotis (Emmons and Olivier, Inc. 2006:30, 38). Thus, habitat loss from the Project would have a negligible cumulative effect on northern long-eared bat, tri-colored bat, and little brown myotis in the CESA. In addition, about 516 acres that would be affected by mining would be reclaimed to wetland and open water habitat (MDNR et al. 2013). Reclaimed areas would likely provide feeding and drinking habitat for bats soon after reclamation, and could provide roosting habitat about 80 or more years after trees establish on the reclamation areas (USDA Forest Service 2004a). In addition, about 614 acres of mining disturbance would be reclaimed to grassland/herbaceous habitat and could provide roosting habitat about 80 or more years after trees establish on these reclamation sites (MDNR et al. 2013).

Summary

Project activities associated with the Proposed Action and Alternative B could have adverse direct, indirect, or cumulative effects on individual northern long-eared bat, tri-colored bat, and little brown myotis and their habitats. Bats are common on the federal and non-federal lands. About 65 acres of open bog, open water, sedge/wet meadow, and shallow marsh habitat that could be used by bats for foraging and drinking would be lost due to mining (**Table 8**). In addition, about 987 acres of lowland and upland coniferous forest habitat that could be used by bats for roosting would be lost due to mining (**Table 6**).

Timber management and road construction could occur on the federal and non-federal lands in the reasonably foreseeable future and could destroy bat habitat, but only a small acreage of federal and non-federal lands would be affected. It is more likely that production of immature and mature upland coniferous habitat that benefits roosting bats would occur on the non-federal lands if these lands are federally administered rather than under private ownership. PolyMet would follow the April 2015 interim 4(d) rules for the federally-threatened northern long-eared bat regarding tree removal (USFWS 2015), or would consult with the USFWS if tree removal activities do not meet the criteria of the exempted activities presented in the interim 4(d) rules. Wetland and other aquatic habitat would be about equally protected under Forest Service or private ownership because of federal and state laws.

Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for northern long-eared bat, tri-colored bat, and little brown myotis. The No Action Alternative would have **no impact** to individuals of northern long-eared bat, tri-colored bat, and little brown myotis.

Mitigation and Recommendations

No mitigation measures are recommended for northern long-eared bat, tri-colored bat, and little brown myotis.

5.2.7.3 Gray Wolf

As noted in Section 1.1, the *NorthMet Mining Project and Land Exchange Biological Assessment Draft* was prepared to evaluate project effects to gray wolf, a RFSS species that has been federally listed as threatened in the past, delisted in 2011, and relisted December 19, 2014, following a federal court reversal of the USFWS decision to delist the gray wolf. The following summarizes the results of the BA.

Environmental Baseline

The gray wolf is the largest wild member of the dog family (*Canidae*) and is common on and near the federal and non-federal lands. In 1967, the gray wolf was determined to be endangered under the Endangered Species Preservation Act of 1966, in response to their vastly declining numbers range wide. In 1974, the species was formally listed as endangered through the authority of the ESA, and the Minnesota population was reclassified to threatened in 1977. In April 2003, gray wolf populations in the U.S. were separated into three Distinct Population Segments (DPS) to more effectively manage the species; the Minnesota population was a designated portion of the Eastern DPS. In 1978, critical habitat was designated for the Eastern DPS of gray wolf. That rule identified critical habitat at Isle Royale National Park, Michigan, and Minnesota wolf management zones 1, 2, and 3. Wolf management zones 1, 2, and 3 comprised approximately 9,800 mi^2 in northeastern and north central Minnesota and included all of the Superior National Forest and portions of the Chippewa National Forest. Hunting Club Lands and McFarland Lake Lands were in Zone 1, while the federal lands, and other non-federal lands were in Zone 2.

On December 28, 2011, the USFWS revised the 1978 listing of the Minnesota population of gray wolf to conform to statutory and policy requirements. The USFWS renamed what was previously listed as the Minnesota population of the gray wolf as the Western Great Lakes DPS, and delineated the boundaries of the expanded Minnesota population segment to include all of Minnesota, Wisconsin, and Michigan and portions of the adjacent states. The USFWS removed the Western Great Lakes DPS from the list of endangered and threatened wildlife. The USFWS took this action because the best available scientific and commercial information indicated that the Western Great Lakes DPS does not meet the definitions of threatened or endangered under the ESA. This final rule also removed the designated critical habitat for the gray wolf in Minnesota and Michigan and the special regulations under Section 4(d) of the ESA for gray wolves in Minnesota. In 2012, the MDNR established a regulated hunting and trapping season for wolves in Minnesota. On December 19, 2014, a federal court reversed the USFWS decision to delist the gray wolf, restoring federal threatened status and critical habitat designation in Minnesota.

Six comparable surveys of gray wolf numbers and range in Minnesota have been carried out since 1979. Gray wolf populations in Minnesota were estimated at 1,235 in 1979; 1,500 to 1,750 in 1989; 2,440 in 1998; 3,020 in 2004, and 2,920 in 2008 (Berg and Kuehn 1982, Fuller et al. 1992, Berg and Benson 1999, Erb 2008). The 1998 and later surveys revealed that the number of gray wolves in Minnesota was two times greater than the planning goal (1,400 gray wolves) as specified in the Recovery Plan for Minnesota. However, the 2012 survey showed that gray wolf numbers have declined statewide from 2,920 in 2008 to about 2,200 in 2012 (Erb and Samson 2013).

Gray wolves are carnivorous predators that prefer a diet of medium and large mammals. Prey species in Minnesota include white-tailed deer, moose, beaver, and snowshoe hare, with small mammals, birds, and large invertebrates sometimes being taken (Mech 1974, Wisconsin DNR 1999). Gray wolves are habitat generalists that do not depend on the type, age, or structure of vegetation. Instead, they are indirectly influenced by vegetative condition through the distribution of their primary prey species.

Potential and favorable gray wolf habitat is defined by several elements such as low human population density, sufficient prey density, low road density, vegetation cover, and special landscape patterns (Mladenoff et al. 1995). Gray wolves can live in most any habitat that supports ungulate prey. Gray wolf densities are directly related to the densities of their primary ungulate prey (Fuller 1989). Thus, forested areas occupied by white-tailed deer and moose are important habitat. Additionally, the habitat should be suitable for smaller prey such as beaver and snowshoe hare that may be seasonally important (Mech 1970). Moose, deer, and snowshoe hare tend to forage in areas of regenerating upland forest, and coniferous forest is an important component of thermal cover for all. Riparian trembling aspen forest is important for beavers. Patch structure is only important in that it may alter prey densities or include areas of high road and human densities thereby indirectly altering gray wolf distribution (Fuller 1997).

The Forest Service identified young forest (MIH by age class - young) that is less than 10 years old as providing important foraging habitat for wolves (USDA Forest Service 2004b). Immature and mature forest habitat provides important cover habitat for wolves (MIH by age class - immature and mature).

Gray wolf tracks, scat, and signs of gray wolf kills were seen during wildlife studies on the federal lands, Dunka Road and Utility Corridor, and Plant Site during 2000, 2004, 2008, and 2009 (ENSR 2000, 2005, AECOM 2009, 2011a). Tracks were commonly seen on the Dunka Road, on mine exploration roads, along railroad grades and utility ROW, and north of the Mine Site on Northshore Mine roads during all seasons. In addition, several wolves responded to calls from the Mine Site during 2004. The wolves were located to the south of the calling station, and likely south of the property boundary based on call intensity and direction.

Gray wolf tracks and scat were recorded on the Hay Lake Lands, Wolf Lands 3 and 4, and Lake County Lands North during the survey. Gray wolf scat was seen on several abandoned logging roads. No wolves or their sign were seen on the other non-federal lands, although conditions for surveys were not favorable for detecting tracks and scat at the Hunting Club Lands.

Until 2012, International Wolf Center posted on their website a database summary of gray wolf radiotelemetry observations in northeastern Minnesota. Of the over 11,000 records in the monitoring database between 1994 and 2010, 10 records were for wolves recorded on the federal lands; however, there were no records for the Plant Site or Transportation and Utility Corridors (International Wolf Center 2012). Radiocollared wolves have been recorded on the townships of the Hay Lake Lands. A gray wolf was observed in Section 6 of Township 58

North, Range 16 West in September 1994, just south of Hay Lake. Wolves were observed in Sections 1, 19, 22, and 23 of Township 59 North, Range 16 West, in and around the Hay Lake Lands, between 1994 and 1997. Radiocollared wolves have been recorded in the vicinity of Wolf Lands 2 and 3. There are no recorded observations of wolves in the township of the McFarland Lake Lands, although the McFarland Lake Lands and other non-federal lands that would be involved in the land exchange are within the current range of the gray wolf (Erb and Sampson 2013).

Direct and Indirect Effects

Proposed Action

There are 271 acres of gray wolf foraging habitat and 5,393 acres of gray wolf cover habitat on the federal lands that could be used as habitat by the gray wolf (**Table 6**). The Project would affect about 181 acres of gray wolf foraging habitat and 1,333 acres of gray wolf cover habitat (**Table 6**). Loss of this habitat would reduce the availability of prey and cover for gray wolf traveling through the Project area. Loss of habitat would also make it less likely that a gray wolf pack would establish a territory within the Project area, especially areas directly affected by the Project. The primary effects to gray wolf prey habitat from the Project would result from habitat loss and disturbance.

Project noise would potentially have an impact on gray wolf utilization of habitat in the vicinity of the Mine Site. Existing ambient steady equivalent noise levels for most of the Mine Site are in the range of 35 to 45 decibels (dBA), which is a range comparable to secluded woods or a quiet bedroom (MPCA 1999). The Peter Mitchell Mine, north of the Mine Site, and traffic along Dunka Road and the existing railway, along the south edge of the Mine Site, also contribute brief, episodic noise impacts.

The primary sources of Project noise from the Mine Site would be blasting, haul trucks, and train horns, with noise levels ranging from 89-115 dBA. Equipment such as graders, bull dozers, and support trucks would be less dominant sources of noise, ranging from 75-95 dBA (EPA 1971). Blasting at the Mine Site is expected to occur once every two to three days. Typically, rock blasting generates a single event noise level ranging from 111- 115 dBA at 50 feet from the blasting site (Table 5.5-7 of Madera County 2005). Within most of the Mine Site, the sound from the blast would be similar to a loud clap of thunder.

The impacts of noise on gray wolf utilization of habitat near the Mine Site are largely unknown and the assessment of impacts remains subjective. Impacts may also vary between individual gray wolves. Some may adapt to predictable human activities, so if the activity generally occurs at predictable time periods at the same places or along the same routes, individual gray wolves may become habituated to the activity (ENSR/AECOM 2006).

There are 778 acres of gray wolf foraging habitat and 5,365 acres of gray wolf cover habitat on the non-federal lands (**Table 6**). The Forest Service has not determined the suitability of these lands to provide habitat for wolves or their prey. However, wildlife habitat surveys conducted on these lands give an indication of the suitability of these lands for these species. Portions of the non-federal lands have been harvested for timber during the past 20 years, with much of the harvest occurring on Lake County Lands and Wolf Lands 2 and 3. Under the Proposed Action, the Forest Service would survey for gray wolves and associated habitat prior to conducting land-disturbing activities and areas of known or potential habitat would be avoided when feasible.

Alternative B

Potential direct and indirect effects to wolves from the Project would be similar to those under the Proposed Action. Under Alternative B, there are 271 acres of gray wolf foraging habitat and 3,901 acres of gray wolf cover habitat on the federal lands. The same acreage of gray wolf foraging habitat and 1,492 fewer acres of gray wolf cover habitat would be transferred to PolyMet from the Forest Service under Alternative B than under the Proposed Action.

The Forest Service would acquire Hay Lake Lands under Alternative B. Gray wolf howling surveys were conducted at night on Hay Lake Lands. No gray wolves were heard during howling surveys, but sign of gray wolf was seen on Hay Lake Lands. Gray wolf scat was seen on several abandoned logging roads (AECOM 2011b). There are about 534 acres of gray wolf foraging habitat and 3,720 acres of gray wolf cover habitat on Hay Lake Lands (**Table 6**). About 69% of the gray wolf forage habitat and 69% of the gray wolf cover habitat that occurs on the non-federal lands is found on Hay Lake Lands. Lowland and upland coniferous forest habitat would benefit from Forest Service management that favors longer harvest rotations than typically occurs on private forestlands.

No Action Alternative

There should be no direct or indirect effects to gray wolf under the No Action Alternative.

Cumulative Effects

The Project and other nearby proposed mine projects would increase the amount of habitat fragmentation in the area, changing wooded/forested and other vegetated habitats to disturbed/developed areas with limited habitat value. Development of iron mines along the Iron Range has made portions of this area of limited value to the gray wolf, especially areas with pits, tailings, and waste rock piles. Historic waste rock piles and tailings have begun to revegetate and provide some habitat for gray wolf and their prey.

The Project would increase the amount of human access and disturbance in the area. Increased human populations in the Project area may also lead to increased risk to wolves from collisions with vehicles and trains, increased levels of recreation activities and use of backcountry roads and trails, and increased mortality from illegal hunting and trapping.

Minnesota's Wolf Management Plan will ensure the gray wolf's long-term survival. The plan gives owners of livestock and domestic pets more protection from gray wolf depredation. It splits the state into two management zones with more protective regulations in the northern third, considered the gray wolf's core range. The MDNR has not established a maximum population goal and wolves are allowed to naturally expand their range. A statewide winter population of 1,600 wolves is the minimum goal. If Minnesota's gray wolf population falls below this minimum, the MDNR will take immediate and appropriate management actions to reverse the decline and restore the population to its minimum level in the shortest possible time. The MDNR implemented a conservative and regulated hunting and trapping season in fall 2012. Hunters and trappers harvested 413 wolves in 2012 (MDNR 2013a). The MDNR expects the 2013 season to follow a similar framework with a harvest goal of 220 wolves (MDNR 2013b).

Given that the number of miles of roads associated with the federal and non-federal lands after mining is expected to be similar to or less than current levels, effects associated with road mileage are not expected to accumulate from the Project. The potential for wolves to be killed from vehicle/rail collisions was estimated using the methodology described in Section 6.1.2.1 of the BA (USACE and USDA Forest Service 2013). Assuming that there is about 0.04 gray wolf/km^2, that vehicle/rail collisions could occur along the 8-mile Transportation and Utility Corridors and railroad, and that vehicles and rail traffic have equal potential for collisions with wolves, it was estimated that approximately 0.05 gray wolf could be killed annually by vehicle/train traffic between the Mine Site and Plant Site, or about one gray wolf during the estimated 20-year life of the Project (assuming that mortalities due to collisions with vehicles and trains were twice the estimated level).

Using the same assumptions and methodology used to estimate gray wolf mortality on Project roads and railroads (see Section 6.1.2.1 of the BA), approximately 0.3 gray wolf could be killed annually by vehicle/train traffic on off-Project access roads/rail lines to the Plant Site, or about six wolves during the estimated 20-year life of the Project (assuming that mortalities due to collisions with vehicles and trains were twice the estimated level).

Hunting and trapping of wolves would not be allowed on lands administered by PolyMet. Thus, there should be no illegal or accidental take due to the Project. Loss of wolves to illegal trapping and hunting should remain near current levels on the non-federal lands, while the number of wolves harvested on non-federal lands during legal hunting seasons will vary based on gray wolf population levels. Thus, there should be negligible or no cumulative effect to legal, illegal, and accidental take of wolves from the Project and land exchange.

About 181 acres of gray wolf foraging habitat and 1,333 acres of gray wolf cover habitat would be lost due to mining (**Table 6**). Development of the Mine Site would add to habitat fragmentation by eventually converting habitat on the Mine Site to an open water pit lake (321 acres) and waste rock stockpiles (526 acres) of limited value to wolves. The Mine Site would account for about 0.4% of habitat affected by future mining activity within the next 30 years (Barr 2009b).

Although the Project would result in habitat loss and fragmentation on about 1,719 acres for about 20 years (until the Project is reclaimed), in the context of available habitat, and habitat that would be available to wolves in the reasonably foreseeable future, cumulative effects of the Project on habitat loss and fragmentation would be minor.

Summary

Project activities associated with the Proposed Action and Alternative B would have adverse direct, indirect, and cumulative effects on wolves and their habitat. Wolves have been seen on or near the federal and non-federal lands. Timber management and road construction could occur on the federal and non-federal lands in the reasonably foreseeable future and could destroy gray wolf habitat, but only a small acreage of federal and non-federal lands would be affected. It is more likely that production of immature and mature lowland and upland coniferous habitat that benefits gray wolf cover would occur on the non-federal lands if these lands are federally administered rather than under private ownership, although more gray wolf foraging habitat could be created on the non-federal lands under private ownership.

Determination

The Proposed Action and Alternative B **may impact individuals but are not likely to cause a trend to federal listing or loss of viability** for gray wolves. The No Action Alternative would have **no impact** to individual gray wolves.

Mitigation and Recommendations

Mitigation measures recommended for gray wolf would be primarily designed to reduce the likelihood of vehicle collisions with wolves by increasing visibility and improving wolf identification by employees. These include:

1. Reduce speed limits on Dunka Road and on haul roads.

2. Clear trees and shrubs along the inside of curves in Dunka Road to increase sight distance.

3. Promptly remove (within 48 hours of their discovery) any deer or moose killed by vehicles on Dunka Road and the haul roads to limit the likelihood of wolves feeding on carrion on or near the road. Carcasses should be taken at least one-quarter mile away from Dunka Road or the haul roads.

4. Provide site safety training on identification of gray wolves to contractors and employee who would drive on the haul road.

5. Report any vehicle collisions with gray wolves to the local Superior National Forest office. These reports shall include all known information regarding the incident, including the species involved, date of incident, fate of the animal (e.g., dead, injured), location of the carcass, geographic coordinates of the accident location, sex of the animal, and approximate age (i.e., adult, juvenile).

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APPENDIX A

Common and Scientific Names of Plants and Animals Given in this Biological Evaluation

Common Name	Scientific Name
Plants	
A Lichen	*Caloplaca parvula*
A Lichen	*Cetraria aurescens*
American Shoreweed	*Littorella uniflora*
American Waterawlwort	*Subularia aquatica*
Alpine Milkvetch	*Astragalus alpinus*
Appalachian Clubmoss	*Huperzia appalachiana*
Arctoparmelia Lichen	*Arctoparmelia centrifuga*
Arctoparmelia Lichen	*Arctoparmelia subcentrifuga*
Arrowhead	*Sagittaria latifolia*
Auricled Twayblade	*Listera auriculata*
Balsam Fir	*Abies balsamea*
Barren Strawberry	*Waldsteinia fragariodes*
Basswood	*Tilia americana*
Beaked Hazel	*Corylus cornuta*
Beard Lichen	*Usnea longissima*
Black Ash	*Fraxinus nigra*
Black Spruce	*Picea mariana*
Blueberry	*Vaccinium angustifolium*
Bog Birch	*Betula pumila*
Bog Labrador-tea	*Ledum groenlandicum*
Bog Muhly	*Muhlenberia uniflora*
Bog Rosemary	*Andromedia polifolia*
Bog White Violet	*Viola lanceolata*
Braun's Holly Fern	*Polystichum braunii*
Bullrush	*Scirpus* sp.
Canada Bluejoint	*Calamagrostis canadensis*
Canada Ricegrass	*Piptatherum candadense*
Canada Yew	*Taxus canadensis*
Cartilage Lichen	*Ramalina thrausta*
Cattail	*Typha* spp.
Chilean Sweet-cicely	*Osmorhiza berteroi*
Cloudberry	*Rubus chamaemorus*
Clubmoss	*Lycopodium* spp.
Common Moonwort	*Botrychium lunaria*
Creeping Rush	*Juncus subtilis*
Creeping Snowberry	*Gaultheria hispidula*
Douglas' Hawthorn	*Crataegus douglasii*

APPENDIX A (Cont.)

Common and Scientific Names of Plants and Animals Given in the Report

Common Name	Scientific Name
Plants (Cont.)	
Dwarf Bilberry	*Vaccinium cespitosum*
Eastern White Pine	*Pinus strobus*
Encrusted Saxifrage	*Saxifraga paniculata*
Fairy Slipper	*Calypso bulbosa*
Fan Lichen	*Peltigera venosa*
Floating Marsh Marigold	*Caltha natans*
Honeycombed Lichen	*Menegazzia terebrata*
Jack Pine	*Pinus banksiana*
Lanceleaf Grapefern	*Botrychium lanceolatum* var. *angustisegmentum*
Largeleaf Sandwort	*Moehringia macrophylla*
Least Moonwort	*Botrychium simplex*
Leatherleaf	*Chamaedaphne calyculata*
Leiberg's Waterlily	*Nymphaea leibergii*
Linear-leaved Sundew	*Drosera linearis*
Little Goblin Moonwort	*Botrychium mormo*
Long-leaved Arnica	*Arnica lonchophylla*
Maidenhair Spleenwort	*Asplenium trichomanes*
Michigan Moonwort	*Botrychium michiganense*
Moor Rush	*Juncus stygius*
Moschatel	*Adoxa moschatellina*
Narrow-leaved Cattail	*Typha latifolia*
New England Sedge	*Carex novae-angliae*
Nodding Saxifrage	*Saxifraga cernua*
Northern White Cedar	*Thuja occidentalis*
Oakes' Pondweed	*Potamogeton oakesianus*
Pale Moonwort	*Botrychium pallidum*
Paper Birch	*Betula papyrifera*
Peppered Moon Lichen	*Sticta fuliginosa*
Pussywillow	*Salix discolor*
Quill Spikerush	*Eleocharis nitida*
Ram's Head Lady Slipper	*Cypripedium arietinum*
Raspberry	*Rubus* spp.
Red Oak	*Quercus rubra*
Red-osier Dogwood	*Cornus stolinifera*
Red Pine	*Pinus resinosa*
Roughfruit Fairybells	*Prosartes trachycarpa*
Scotch False Asphodel	*Tofieldia pusilla*

APPENDIX A (Cont.)

Common and Scientific Names of Plants and Animals Given in the Report

Common Name	Scientific Name
Plants (Cont.)	
Sedge	*Carex* spp.
Selwyn's Scalewort	*Frullania selwyniana*
Shining Clubmoss	*Lycopodium lucidulum*
Short Sedge	*Carex rossii*
Small Beggerticks	*Bidens discoidea*
Small-fruited Bog Cranberry	*Vaccinium oxycoccus*
Smooth Woodsia	*Woodsia glabella*
Snowline Wintergreen	*Pyrola minor*
Sphagnum Moss	*Sphagnum* spp.
Speckled Alder	*Alnus rugosa*
Sticky Locoweed	*Oxytropis borealis* var. *viscida*
Sugar Maple	*Acer saccharum*
Tamarack	*Larix laricina*
Ternate Grapefern	*Botrychium rugulosum*
Three-seeded Bog Sedge	*Carex trisperma*
Three-leaved False Solomon's Seal	*Smilacia trifolia*
Trembling Aspen	*Populus tremuloides*
Triangle Grapefern	*Botrychium lanceolatum*
Wain's Cup Lichen	*Cladonia wainioi*
Western Jacob's-ladder	*Polemonium occidentale* ssp. *lacustre*
White Pine	*Pinus strobus*
White Spruce	*Picea glauca*
Wild Rice	*Zizania* spp.
Willow	*Salix* spp.
Woolgrass	*Scirpus cyperinus*
Yellow Specklebelly	*Pseudocyphellaria crocata*
Animals	
Bald Eagle	*Haliaeetus leucocephalus*
Bay-breasted Warbler	*Dendroica castanea*
Beaver	*Castor canadensis*
Big Brown Bat	*Eptesicus fuscus*
Black Sandshell	*Ligumia recta*
Boreal Owl	*Aegolius funereus*
Brown-headed Cowbird	*Molothrus ater*
Canada Lynx	*Lynx canadensis*
Common Raven	*Corvus corax*
Connecticut Warbler	*Oporornis agilis*

APPENDIX A (Cont.)

Common and Scientific Names of Plants and Animals Given in the Report

Common Name	Scientific Name
Animals (Cont.)	
Creek Heelsplitter	*Lasmigona compressa*
Eastern Heather Vole	*Phenacomys ungava*
Eastern Red Bat	*Lasiurus borealis*
Ebony Boghaunter	*Williamsonia fletcheri*
Fisher	*Martes pennanti*
Freija' Grizzled Skipper	*Pyrgus centaureae freija*
Gray Wolf	*Canis lupus*
Great Gray Owl	*Strix nebulosa*
Great Horned Owl	*Bubo virginianus*
Headwaters Chilostigman Caddisfly	*Chilostigma itascae*
Hoary Bat	*Lasiurus cinereus*
Moose	*Alces alces*
Lake Sturgeon	*Acipenser fulvescens*
Little Brown Myotis	*Myotis lucifugus*
Nabokov's Blue	*Plebejus idas nabokovi*
Nipigon Cisco	*Coregonus nipigon*
Northern Brook Lamprey	*Ichthyomyzon fossor*
Northern Goshawk	*Accipiter gentilis*
Northern Long-eared Bat	*Myotis septentrionalis*
Olive-sided Flycatcher	*Contopus cooperi*
Passenger Pigeon	*Ectopistes migratorius*
Quebec Emerald	*Somatochlora brevicinicta*
Raccoon	*Procyon lotor*
Red-tailed Hawk	*Buteo jamaicensis*
Ruffed Grouse	*Bonasa umbellus*
Shortjaw Cisco	*Coregonus zenithicus*
Silver-haired Bat	*Lasionycteris noctivagans*
Snowshoe Hare	*Lepus canadensis*
Spruce Budworm	*Choristoneura fumiferana*
Taiga Alpine	*Erebia mancinus*
Three-toed Woodpecker	*Picoides tridactylus*
Tri-colored Bat	*Perimyotis subflavus*
White-tailed Deer	*Odocoileus virginianus*
Wood Turtle	*Glyptemys insculpta*

All DEIS Public Comments and Corresponding Theme Assignments

Individual Comments and Theme Responses

Alphabetical by sender's first name

Final Environmental Impact Statement (FEIS)
NorthMet Mining Project and Land Exchange

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	no name **Submission ID:** 3322	
3615	One thing that I have been taught is think before you act. It is the same thing with these mines in that we need to take a step back and measure up the pros and cons to see which way to go. I can see why mining companies are really intrigued especially in this economy to mine these parts of Minnesota.	G10
Sender Last Name:	A.P. (illegible) **Submission ID:** 3302	
3596	To Whom It May Concern: I just moved to this state 2 years ago, and am a voter here. I have visited the Boundary Waters several times, and they are beautiful. The idea that the state could allow short term profits to ruin the most beautiful area of the state disgusts me. This mining project would be a travesty. Please consider future generations and do not approve this project.	EOO
Sender Last Name:	Abernathy **Submission ID:** 217	
219	I definitely support the Polymet Mining Northmet Project. This project is needed and is necessary to the Iron Range area. The taconite mining industry has drastic up and down cycles. We currently are in a severe down cycle with two mines currently closed. The Northmet project would help the local economies deal with the ups and downs of the taconite industry. We could also keep more of our educated young people in the area instead of watching them leave and never return. My other reasons for supporting this project are as follows: - There are going to be approximately 400 jobs created at the mine sight. - There are going to be hundreds of spine off jobs created. - Polymet has the latest technology to help control any air and water pollution. - Polymet will contribute millions of needed tax dollars to the local and state governments.	EOO
Sender Last Name:	Acton **Submission ID:** 1348	
1575	I attended the showing of "Precious Water" at the REI in Roseville this week and am disturbed to see that the mining process has already started. I recently read some thing about it, and then the Nick Coleman column caught my eye. How can the government approve such activity where there could be such a risk to our protected waters? The PolyMet people were there to talk against the discussion following the Precious Waters video. I would like to see more public hearings on this subject. and more literature.	EOO,G7B,G10
Sender Last Name:	Adair **Submission ID:** 1975	
424	Further, wetlands are a major sink for carbon. Almost every scientist today understands the need to keep carbon out of the atmosphere and sequestered in the ground.	AQ3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1540	Know that I understand that the importance of using mining prodcuts. Any real wealth created comes from what the earth provides us. But wealth and jobs cannot be allowed to pollute our water with methylmercury and related compounds. You need go no farther than the Duluth harbor to see the effects of unmitigated and sloppy handling of mined products. It is absolutely critical that the long term costs of this operation are factored into any current equation. 'Superfunds' should not have to exist. Please look to northern Europe and other wealthy countries for models on how to properly assess life cycle costs.	PD4
Sender Last Name:	Adams **Submission ID:** 3358	
3649	I liked the video and I want to help. Tell me how sabybaby99@hotmail.com.	RFI
Sender Last Name:	Aeschlimann **Submission ID:** 3303	
3597	Mining always has negative unforeseeable impacts on the environment, on water, on the economy, and on people. Open pit mining is a destructive technique that impacts systems – especially of water – in uncontrollable, uncontainable ways. The Boundary Waters, the lakes, and water system of the Arrowhead region and its people are unique vital, and irreplaceable. Allowing sulfer mining in this area would be a great crime.	EOO,G2,G7A
Sender Last Name:	Alexander **Submission ID:** 3268	
3578	I'm writing because scientific studies have revealed that the potential negative effects of such mines were underestimated in a number of cases. In others, capitalization was not enough to pay for reclamation in case the company went belly up. I am sad to learn of potential loss of wetlands and wildlife habitat in our beautiful BWCA region, but the thing that most concerns me is this: It's not just Polymet we're talking about now. I read that Antofagasta of Chile is involved, and (from a Reuters report last year) that they are not only involved in Bolivia/Chile water wars but that they're tapping water sources there and selling the water. Do we have guarantees that this won't happen here? See http://www.minesandcommunities.org/article.php?a=9525 Thanks for letting me comment. Please take time to look at these issues carefully before moving ahead.	G4A,G7C,G8C
Sender Last Name:	Allen **Submission ID:** 133	
1	I also think there has been inadequate risk assessment from noise and light pollution. I have land that's about ten miles away from the Ely Airport, and there is a light tower that rotates at Ely Airport.	WI2,VI3,N1
2	Ten miles away, in the wintertime, when we are looking at Aurora Borealis, that light is pollution that interferes with our enjoyment, ten miles away. That light is frequently a problem.	VI3
3	I also think that they haven't taken into account the advances of technology, which are going to have an impact on needing fewer people because they will have bigger machines or more efficient machines, more automation, to get work done. So I think the benefits are exaggerated.	SE3
10	The costs are being underestimated. According to the study, some of the waste1 from this mine will be around for 2,000 years. And I can see nothing in the project that takes into account climate change, the impact on -- the economics that are going to pay for maintaining this site for the next 2,000 years after the project is closed down.	WR2A,WR2B,PD3,PD4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
122	I am very concerned about this project. I think the benefits have been exaggerated and the risks are being underestimated. On the benefit side, I understand that the project has, basically, taken the word of PolyMet regarding the number of jobs that are going to be created. My understanding, talking to PolyMet, is that jobs are going to be created over time, as different aspects of this project go online. So I think there is an exaggeration, the number of jobs being created.	G1
715	Please extend the comment period for to 180 days for the public to comment on the Draft Environmental Impact Statement for the proposed PolyMet NorthMet open pit sulfide mine project. This is an important proposal that is worth taking extra time for the public to review and consider	PRO6
2853	The State of MN will stoop to the lowest of the low if they allow the sulfide mining in the pristine area of the Boundary Waters! How dare your state even consider this. I am not a citizen of MN, but this is a matter of a national treasure ! Please take all actions against this outrageous plan and STOP THE GREED!	EOO

Sender Last Name: Allison **Submission ID:** 209

209	I am writing this letter to voice my support for the NorthMet PolyMet Project in Hoyt Lakes, Minnesota. I am a life long resident of NE MN and have traveled and lived in others areas of the country. After ten years living in other areas of the country, fifteen years ago I decided to return to NE MN to start and raise a family. The decision to move back to the area I grew up was a very simple decision. I went to school, played, hunted, fished… in just the area where PolyMet resides. I have many great memories of my younger years hunting, fishing, and camping in this area as I have done in recent years with my family. I understand there needs to be a balance in the uses of the minerals & resources we are so fortunate to have. I have also lived a large part of my life in the heart of the mining, power generation, pulp & paper industries and feel strongly that the MN Department of Natural Resources has done an outstanding job monitoring and managing the minerals and resources in NE MN. The energy, resources and research that has gone into this project is exactly what I would have expected from the MN DNR and that is part of why I believe this is as sound of a project as one could find in the manufacturing world. The minimal environmental impacts that this project would create I believe are a very safe tradeoff for the long term gains NE MN will see from this project. So if we truly are concerned about the future of NE MN and its ability to remain a strong manufacturing hub not only the USA, but for the entire global economy, then the answer is clear…Support the NorthMet/PolyMet Project. Now if we want to listen to a small minority of people of which are the same people that would like to see NO manufacturing, then we have all really missed the boat. This is a sound project, not only by its economic return, but by its minimal environmental impact to the lands and air that I too love and share everyday of my life.	EOO

Sender Last Name: Ament **Submission ID:** 1147

1260	Please take this into consideration. It is important to many people in this area. Thanks!	EOO

Sender Last Name: Amis **Submission ID:** 3196

737	I am concerned about the possible environmental impact of the PolyMet Project and believe, strongly, that a careful, inclusive, public process should be followed. For that reason, I respectfully request that you extend the time allowed for review of the EIS by an additional 30 to 45 days, include more public hearings in more locations than you currently have planned, and allow for public statements and discussion at the public meetings. Thank you for considering my request. Sincerely, Bob Amis	PRO6

Sender Last Name: Amo **Submission ID:** 2262

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
23	-Economically this is not sustainable for the community or state of MN. Boom and Bust is mining history, and has not historically built strong sustainable economies. Economic prosperity is short lived with 20 years maximum for this mine. What about the strong outdoor and ecotourism economy this region depends on that could be affected forever. The risks could have perpetual costs, many others have! Strong sustainable economy is what MN needs. Here is a great MN mining economic report that puts benefits into perspective: http://www.mncenter.org/LinkClick.aspx?fileticket=6MOOTaRssSY%3d&tabid=60	SE3,SE4
601	-Destruction of 1500 acres of valuable wetlands cannot be mitigated without having very substantial affects. This is destruction of an enormous healthy ecosystem.	WE3
901	-Polymet has proposed using a tailings basin that already has stability problems and has also predicted contamination at year 65 and other flaws in the containment of toxins.	GT2
1851	-This type of mining has never been done without causing pollution, which would pollute waters that we depend on with toxic heavy metals released by even very small quantities of sulfuric acid.	WR1E
1852	-The geology and hydrology of the area make it highly prone to spreading water contamination. Water is interconnected all over this region. Being a low grade ore body with substantial sulfide concentrations and being low in acid-neutralizing carbonates. Sulfide mining operations have polluted even very arid landscapes where this mining is more common.	WR1E
2046	-The original land agreement stated this land could not be used for mining, right? Also this is public land being used to benefit a private company, with potential to cause harm to private and pubic lands, as well as public health	PD1
2047	With this in mind: 100% of mines surveyed in one study said they wouldn't pollute .... 76% did. Also financial assurances for the worst case scenario should be in place ... could the company even pay these, forever?	PD3,PD4
2136	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on the natural environment, the local economy, and the state of MN as a whole.	EOO
2137	Extensive environmental testing to insure that impacts are within acceptable limits, can be predicted, and can be controled without a doubt. The DEIS does not show this!	G8C,G10
2138	Mining plan should be worked out to NOT produce ANY toxic runoff or leaching...if this can be done then it is an option to consider. If not...WE are opening the door to pollution and impacts that will forever diminish what this area of Minnesota is, pristine unpolluted beauty. The DEIS does not show this either!	G7A,G8B,G10
2139	Finantial assurances that make the company front the money for any possible mitigation that could possibly be nessecary. This means they pay to have this assessed and then are held accountable for the damages they could create, before they ever begin work. The DEIS does not show this either!	G4A
2140	The public should be informed on this and get to vote on it...This affects Minnesota as a whole, and most people don't even know about it. This should be brought to public attention.	G10
2141	It is in the DNR mission statement "to provide for commercial uses of natural resources in a way that creates a sustainable quality of life". According to the facts about this type of mining, and Polymet's own statements in the DEIS; allowing this type of mining in MN would NOT create a sustainable quality of life. Until we have assurance that it will this proposal should not even be considered.	G8C

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2672	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about human health, area economic prosperitv. ecosystem health, biotic organism' s health. "Our mission is to work with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life." -This is the MN DNR mission statement which I thought was notable to keep in mind while contemplating the new venture of sulfide mining in Minnesota. Based on facts I wouldn't say sulfide mining "creates a sustainable quality of life".	G2
2673	Technology is only as strong as its weakest link and this involves permanent storage of toxic materials on liners which have historically failed.	EOO
2674	This mine is not a solution for a stable sustainable economy. It threatens beautiful and useful ecosystems MN citizens depend on and cherish systems the DNR is responsible to protect. Minnesotans and people from elsewhere associate our state with clean vast waters and pristine landscape. This drives a great deal of MN tourism and is something Minnesotans want to hold on to! Minnesotans just made it very clear how important clean water and the environment is to them by saying YES I will pay more sales tax to support the environment by voting in the Clean Water, Land, and Legacy amendment. How much is this mine going to do for Minnesota .... and is that worth more than our environment?	G1,G11

Sender Last Name: Andersen **Submission ID:** 1875

2465	PROTECT MINNESOTA NATURE FOR THE PRESENT AND FUTURE!!!	EOO

Sender Last Name: Anderson **Submission ID:** 3747

1	3.) The DEIS acknowledges that overflow from the West Pit is predicted to exceed surface water quality standards at least initially. The DEIS does not explain what time frame is meant by “initially” nor any reason why the exceedances are expected to be finite. At closure, potentially contaminated hydrometallurgical drainage as well as waste rock stockpile drainage will be routed to the East Pit, which eventually will flow to the West Pit, which will overflow into the Partridge River. MODFLOW modeling in the DEIS predicts hydrometallurgical drainage to gradually decrease to zero by Year 34. “Waste rock stockpile drainage would continue to receive chemical treatment at least until the West Pit fill around Year 65. At that time, water quality monitoring of the West Pit overflow would determine whether continued treatment would be necessary” (DEIS pg. 4.1-67). But Dr. Chambers believes the conclusion that water treatment will be unnecessary after 65 years is not a reasonable one. “…the assumptions used in determining the scaling factors…for the release of contaminants from the waste rock piles could easily contain inadvertent errors (for example in the choice of particle size, temperature, fraction of rock flushed by infiltrating water and the upper limit of contaminant concentrations) that could cause a significant departure from the predicted contaminant loads assumed in the EIS” (Chambers 2010). The scenario that water treatment of West Pit drainage will be necessary beyond 65 years is strongly possible. In fact, analyses of mines over the past two decades have shown poor abilities in accurately predicting post-mining water quality and quantity. In a review of 25 EISs for hardrock mining, 89 percent of those that experienced AMD had predicted low AMD potential in their EISs. “Therefore, nearly all the mines that developed acid drainage either underestimated or ignored the potential for acid drainage in their EISs” (Kuipers et. al. 2006). Recommendation: The duration of “initial” exceedances for West Pit drainage of surface water quality standards must be defined in the EIS. Contingencies should be put in place to fund long-term water treatment beyond the assumed 65 year limit. Given the poor record of predicting water quality post-mine operations, financial assurance calculations should be made conservatively for water treatment.	WR3C

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	2.) Another concern for West Pit overflow comes from oxidation of West Pit rock wall that is predicted to be a significant source of contaminants in the pit lake (see Comments II.C.). As the pit gradually fills with water after closure, the exposed rock wall may oxidize and release metal contaminants into the filling lake. One mitigation measure explored is to more rapidly flood the West Pit. "The likely source of water to expedite flooding of the West Pit would be Colby Lake" (DEIS pg. 4.1-166). But, as the DEIS notes, Colby Lake already has elevated concentrations of mercury. If this method were used, mercury contamination in the West Pit overflow "could make it more difficult for the West Pit overflow to meet the Lake Superior surface water standard for mercury. This potential mitigation warrants further consideration" (DEIS pg. 4.1-166). Recommendation: The EIS should study this approach further and provide information describing its findings. Measures that involve elevated mercury levels being discharged from the West Pit should be rejected. The EIS should present other methods to achieve West Pit filling without mercury contamination.	PD4,WR2F,WR2A
1	C. East Pit Category 4 Exposed Rock Wall When mining the East Pit is complete, approximately 5,000 linear feet of the north wall of the East Pit will consist of "Virginia Formation or other Category 4 rock material" (DEIS pg. 3-40). The DEIS notes, "If left exposed to the air, oxidation of this surface would occur, resulting in elevated concentrations of dissolved salts (sulfates) and metals entering the East Pit surface water" (DEIS pg. 3-40). The Proposed Action calls for applying a layer of limestone against the rock face to neutralize the acidity, and installing a geosynthetic membrane cover system over the rock surfaces. The DEIS, however, acknowledges that "successful application of this measure has not been demonstrated. The groundwater quality modeling discussed below assumes these mitigation measures are successfully implemented" (DEIS pg. 4.1-66). Recommendation: Relying on an untested method to contain significant pollution is not acceptable. The EIS must contain analysis of field and laboratory tests of this technique. It must also model impacts to groundwater quality should this technique fail.	WR2E
1	4.) The DEIS lays out several potential corrective actions should water quality of the West Pit drainage exceed standards. It does not, however, indicate which actions would be required and which are simply recommendations. It does not indicate what conditions would trigger specific corrective actions. The DEIS notes that if actions failed to improve water quality in the overflow, that "…the West Pit overflow structure could be altered to route flows to the WWTF for treatment before discharge…" and that "…it is recommended that the water quality of the West Pit be monitored regularly after Closure…" (DEIS pg. 4.1-167). Recommendation: The EIS must make it clear which corrective actions are required. Triggers for mitigation actions must be clear and outlined. Routing contaminated overflow to the WWTF must be a requirement rather than a recommendation. Monitoring overflow water quality post-closure must be a requirement rather than a recommendation. The duration of "initial" exceedances of surface water quality standards must be defined.	WR1A,WR3C

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2	N. Sulfate and Mercury in Water Both the mine site and the tailings basin will discharge high sulfate concentrations in seepage and overflow that could lead to the methylation of mercury. This is a process in which the biologically active form of mercury is mobilized from stored mercury in rocks, soil, peat and vegetation. This form of mercury can accumulate in fish and is toxic to humans and wildlife. "Relatively high sulfate concentrations in seepage from the Tailings Basin would be released to wetlands north of the Tailings Basin and lakes downstream on the Embarrass River that represent 'high risk situations' for mercury methylation. There is some uncertainty as to whether the West Pit overflow would meet the Lake Superior mercury standard" (DEIS pg. S-9). In addition to methylating mercury from high sulfate discharges, mercury can be released to water bodies by exposing rocks that contain mercury and by clearing vegetation, especially peat. "Disruption of peat deposits, such as proposed excavating and stockpiling of peat at the Mine Site…may increase the mobility of the stored mercury" (DEIS pg. 4.1-123). The DEIS notes, "The Proposed Action would result in increased sulfate loadings via groundwater to both the Partridge and Embarrass Rivers" (DEIS pg. 4.1-125). At the tailings basin, much of the groundwater seepage is expected to upwell into the wetlands complex north of it. "The sulfate transported by this seepage would have a long contact period with wetlands before actually reaching the Embarrass River. All of these factors may create favorable conditions for mercury methylation" (DEIS pg. 4.1-126.) Liner leakage from the hydrometallurgical cells "is predicted to have a very high sulfate concentration" (DEIS pg. 4.1-118). "Increasing the sulfate load from the Tailings Basin could increase the potential for mercury methylation both in the wetlands north of the Tailings Basin and at the downstream lakes" (DEIS pg. 4.1-126). Dr. Engstrom notes, "This tailings-basin leakage poses the project's greatest risk of increasing mercury methylation and methylmercury export to downstream aquatic environments…The configuration of the Embarrass River wetland complex make it especially susceptible to sulfate-enhanced mercury methylation. Not only would these bogs/poor fens be sulfate limited (and hence sensitive to additional sulfate), but the anticipated discharge would upwell thorugh a mercury and carbon-rich anoxic environment ideal for SRB. Such groundwater discharge at the upland-wetland margin has been identified as creating sites of intense mercury methylation…The increased ground-water and surface discharge toward the Embarrass River would also increase mercury transport from sites of methylation to the river itself where the methylmercury load could then impact downstream aquatic systems" (Engstrom 2010). Some of the tailings basin leakage is also predicted to occur toward the Partridge River. Dr. Engstrom notes that the DEIS downplays the risk of sulfate-enhanced mercury methylation to the Partridge River, but he states that the risk may be higher than portrayed in the DEIS. "…the Partridge River is described as having 'a very well-developed floodplain along most of its reaches' with 'many beaver dams along the entire length…which create wide pools.' Recent studies have shown that beaver impoundments provide conditions suitable for active mercury methylation and represent net sources for methylmercury in riverine systems…It thus seems likely that the risk of enhanced methylation from sulfate discharge into the Partridge River may be greater than is concluded in the DEIS" (Engstrom 2010). The Proposed Action calls for routing mine leachate through the artificial East Pit wetland, which may also lead to additional methylation of mercury. "…Constructed wetlands…could function as a source for methylmercury production" (DEIS pg. 4.1-123). Dr. Engstrom's comments note that a lack of information about the proposed constructed wetl	WR1E,WR3I,WR4A,WR4B

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2	6.) Another concern highlighted by Dr. Siegel is that the modeling of subsurface flow assumes a flow to the Partridge River, which may be inaccurate. Unknown, for example, is if groundwater flow actually might pass below the river in bedrock. This scenario is not modeled at all, and the lack of real field data fails to provide helpful information. Dr. Siegel states, “For example, if subsurface contaminated water by passes the Partridge River, it could move north towards the larger regional lake hydrologic discharge zones within the Boundary Waters Wilderness” (Siegel 2010). Subsurface flows that might enter the federally protected wilderness would pose significant impacts that have not been modeled or analyzed. Recommendation: The EIS should include: 1. Modeling and field data to assess the risk of subsurface flows into the Boundary Waters Canoe Area Wilderness. 2. Direct measurements of head and water chemistry to provide ground truth with respect to the degree of leakage and solid transport that might occur. This should include likely retardation rates for metals. 3. Direct measurements of recharge rates through till by hydrograph separation methods to understand the potential for contaminants to enter the Partridge River through groundwater flow. 4. Direct measurements of potentiometric surfaces of the bedrock aquifer, and characterization of the degree to which groundwater moves vertically naturally. 5. Additional modeling that includes the list in Dr. Siegel’s report (pg. 23) for items to include in a groundwater or solute transport model.	WR2A
3	These and other concerns outlined in detail in our comments below are not minor. The flaws of this project pose unacceptable risks to human health and the environmental well-being of a potentially large area of northeastern Minnesota. Given this level of risk, the Friends cannot support the PolyMet project as it is currently proposed. We recommend the “No Action” alternative be the selected outcome for this project. We urge the agencies to consider the detailed recommendations provided here, which we believe would greatly improve this proposed project.	EOO,G2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3	D. Wildlife Impacts 1.) Canada lynx are a federally-listed threatened species. The DEIS acknowledges that portions of the mine site lie within the recently revised boundaries of federally designated critical habitat for lynx. It also acknowledges that "the Project would result in the loss of…1,454 acres of lynx habitat" (DEIS pg. 4.4-10). The DEIS also says, "Habitat loss at the Mine Site, however, would result in fragmentation of lynx habitat in a portion of its current range" (DEIS pg. 4.4-10). At least 20 individual lynx have been identified within 18 miles of the mine site. The U.S. Forest Service has designated Lynx Analysis Units (LAUs) within the Superior National Forest "that comprise landscape-scale analysis areas for lynx management" (DEIS pg. 4.4-3). The mine site is in LAU 12. About 94% of LAU 12 provides suitable lynx habitat. Critical habitat was designated for the lynx as part of a process to reverse this species population decline. The Endangered Species Act defines critical habitat for endangered or threatened species as: "(i) the specific areas within the geographical area occupied by the species, at the time it is listed…or on which are found those physical or biological features (I) essential to conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed and that are essential for the conservation of the species" (Endangered Species Act 1973 Section 3(5)(A)). The loss of critical habitat from this project's activities is detrimental to the recovery of this species and violates the provisions of the Endangered Species Act. Maps created by the Minnesota Center for Environmental Advocacy (Maas 2010) using data published in the Journal of Wildlife Management (Moen 2008), indicate that the PolyMet mine site contains large amounts of suitable lynx denning sites (see attached maps prepared by the Minnesota Center for Environmental Advocacy). The tribal cooperating agencies note, "the tribal cooperating agencies disagree with the conclusion that the effects on statewide lynx populations would be insignificant; this analysis does not consider the possibility that the Mine Site might include critical components of lynx habitat present such as den sites" (Tribal Cooperating Agencies, DEIS pg. 4.4-10). Reclamation work at the mine site may also make this critical lynx habitat more suitable as bobcat habitat than as lynx habitat. "It is the tribal cooperating agencies' note that this restoration of 'lynx habitat' initially creates good bobcat habitat. Bobcats are superior competitors to lynx and thus may prevent lynx from returning to the site" (Tribal Cooperating Agencies, DEIS pg. 4.4-11). The proposed project may therefore diminish critical lynx habitat long into the future. The DEIS also notes the increased risk of the project resulting in lynx-vehicle collisions. Nevertheless, the DEIS states that, "Although the Proposed Acton would result in a loss and fragmentation of lynx habitat at the Mine Site, the effect on statewide lynx populations would be insignificant since no individual lynx or pair of lynx would be significantly affected by the habitat loss" (DEIS pg. 4.4-10). It is not clear what data support this conclusion in the DEIS. The DEIS contains no biological assessment or completed consultation with the U.S. Fish and Wildlife Service (USFWS). It does not analyze the cumulative impacts on the species. The DEIS notes that on-going consultations with the USFWS are taking place, but states that USFWS comments have not been received (DEIS pg. 4.4-9). Recommendation: The EIS must present the results of a biological assessment, consultation with the USFWS, and an evaluation of the cumulative impacts on the lynx's survival and recovery as required by law. It is not sufficient for the DEIS to provide conjecture that the project presents no risk to the lynx's population;	WI1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3	C. Mitigation of Wetland Losses and Greenhouse Gas Emissions The DEIS describes plans to mitigate wetland losses and greenhouse gas impacts associated with the wetlands destruction by “restoring high quality wetland communities of the same type, quality, function and value as those impacted by the Project” (DEIS pg. 4.6-33). And yet, the mitigation plan described fails to achieve that goal. The DEIS notes that, “Given site limitations and technical feasibility, it is impractical to replace all impacted wetland types with an equivalent area of in-kind wetlands” (DEIS pg. 4.6-33). Despite the fact that most of the wetlands to be destroyed are open bogs and coniferous bogs (peatlands) the off-site mitigation acreage is “expected to exceed impacted acreage for all wetland types except for Type 8 (open bog and coniferous bog)” (DEIS pg. 4.6-33). So the type of wetland most impacted and most important for carbon sequestration, will be the least mitigated type of all. This is a significant flaw in the wetland mitigation plan. The off-site wetlands selected for mitigating the NorthMet project’s wetlands are at two distant sites near Aitken and Hinckley, Minnesota. These wetlands Dr. Glaser feels contain very different characteristics than the wetlands to be destroyed by the project. He cites five concerns about the mitigation sites selected and described in the DEIS: 1. The two sites selected for mitigation efforts have “different environmental settings with respect to climate, depth to bedrock, and glacial deposit than those at the PolyMet project site” (Glaser 2010). 2. The selected wetlands are probably significantly different from the PolyMet wetlands because the Aitken and Hinckley sites “are located at the extreme southern fringe of the boreal and mixed-conifer hardwood peatlands of the northern portions of Minnesota” (Glaser 2010). 3. The DEIS did not provide geographic coordinates for all the sites evaluated for mitigation, so they could not be located and evaluated. 4.Replacement of the mine site peatlands cannot be achieved. “It is impossible to replace a peatland ecosystem within the lifetime of human beings since it takes centennial to millennial time scales for peatlands to form and develop into raised bogs” (Glaser 2010). 5. The DEIS failed to consider restoring and protecting “an exceptional complex of wetlands north of the town of Alborn in the Saint Louis River watershed that contains peatlands and wetlands very similar to those found in the PolyMet site” (Glaser 2010). Dr. Glaser also notes that the DEIS did not provide adequate documentation of all the sites evaluated for mitigation, making it impossible to determine why so many sites within the St. Louis River watershed were rejected. The U.S. Army Corp of Engineers St. Paul District requires a wetland compensation ratio of 1.5:1. In other words, for every acre of wetland lost, 1.5 acres of wetlands must be replaced. The tribal cooperating agencies note that “the large acreage of wetlands to be directly impacted and the high quality of the wetlands warrant a mitigation ratio of greater than 1.5:1” (Tribal Cooperating Agencies, DEIS pg. 4.2-29). Recommendation: The EIS should include a table containing the geographic coordinates of all the wetlands considered for mitigation and the rationale for rejecting each of these sites. The wetland complex north of Alborn described by Dr. Glaser should be given serious consideration and analysis. Mitigation sites should be selected that are as close to the PolyMet project wetlands as possible, “because the closer sites have the highest probability of containing wetlands that are similar to those that will be directly impacted by the PolyMet mine” (Glaser 2010). Wetland mitigation should replace Type 8 (peatlands) wetlands in excess of the peatland acres to be destroyed. The EIS should consider a replacement ratio greater than 1.5:1. The EIS should include an evaluation of how the wetland mitigation plan will affect statewide g	WR2C,WR3I,WR4C

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Comment ID	Comment Text	Theme Codes
4	3.) Other wildlife species are potentially at risk from the project. Bald eagle, wood turtle, heather vole, yellow rail, and tiger beetle are some mentioned in the DEIS. But the DEIS predicts no adverse effects to these species. The DEIS fails to assess impacts to many of these species from the predicted water contamination that is likely to spread from the site. For example, mercury contamination has been identified as a high risk for occurring, but no method for preventing or containing mercury pollution has been described in the DEIS. And the DEIS fails to analyze the risk of wildlife exposure to mercury. As the tribal cooperating agencies note, "impacts to bald eagles could result from eagle feeding sites within or adjacent to the project area. Contaminants from the mine site, specifically mercury and heavy metals, could affect prey species thus having secondary impacts on eagle reproduction" (Tribal Cooperating Agencies, DEIS pg. 4.4-13). When discussing the known wood turtle population downstream from the mine site, the DEIS says, "the Project would not result in exceedances of surface water quality standards in the Upper Partridge River; therefore, there would be no significant project-related changes to water quality and no indirect effects on downstream habitat where wood turtles are located…"(DEIS pg. 4.4-13). It is hard to understand how the DEIS can draw this unequivocal conclusion. The DEIS has acknowledged predicted water quality exceedances, the un-tested effectiveness of the East Pit wetland treatment system, and that untreated seepage will be released into a tributary of the Partridge River. The DEIS has failed to properly analyze groundwater flow, and has likely mischaracterized the hydrologic connectivity of the adjacent wetlands with groundwater. With these inadequacies in data, it cannot be stated that there will be no significant project-related changes to water quality. Therefore, the full impact to wood turtles and other wildlife has not been evaluated by this DEIS. Recommendation: The EIS must provide the required full assessment of impacts to wildlife from this project, including all Regional Forester's Sensitive Species. This must consider scenarios for water quality exceedances, situations which are probable. This assessment should more fully examine impacts to more common species, such as moose, which are experiencing a statewide population decline and for which preserving wetlands may be important.	WI1,WI2
4	2.) The gray wolf is a federally-listed threatened species and a Minnesota species of special concern that has also been identified as potentially occurring within the project area. The project is located within Zone 2 of the gray wolf's federally-listed critical habitat. "Radio-collared wolves were documented to the north and northeast of the Mine Site in 200, 2005 and 2008; and calling surveys located wolves south of the Mine Site in 2004…"(DEIS pg. 4.4-4). The DEIS notes, "Observations indicate the likelihood of a single wolf pack whose territory includes the Mine and Plant Sites" (DEIS pg. 4.4-12). The development of the mine site by the Proposed Action would remove 1,454 acres of wolf habitat, about 1-10% of a single wolf pack territory. Without providing supporting data or a biological assessment, or a completed USFW consultation, the DEIS arrives and this unsupported claim: "This reduction in available habitat is relatively small and is not expected to significantly affect the wolf population in the region…" (DEIS pg. 4.4-12). As with the lynx, vehicle collisions with wolves are noted as a potential risk from project activities. Recommendations: The EIS must present the results of a biological assessment, consultation with the USFWS, and an evaluation of the cumulative impacts on wolf survival and recovery as required by law. It is not sufficient for the DEIS to provide conjecture that the project presents no risk to the wolf population; conclusions about potential impacts must be based on scientific assessments and the appropriately completed consultations with the USFWS.	WI1
5	E. Inadequate Sampling of Fish and Macroinvertebrates The impacts of the project on fish and macroinvertebrates cannot be fully understood due to an inadequate sampling effort. The DEIS notes that the nearest known occurrence of northern brook lamprey is far from the project area. And yet, the tribal cooperating agencies note, "…no conclusion about the presence of northern brook lamprey can be made in this analysis without specific surveys in the Project Area. Tribal fisheries biologist have definitively identified this species in the Dark River, just a few miles to the west of the St. Louis River watershed" (Tribal Cooperating Agencies, DEIS 4.5-2). The creek heelsplitter, a state mussel species of special concern, was also not adequately sampled to determine its presence. "The tribal cooperating agencies position is that thee was not adequate sampling effort to determine the presence of the creek heelsplitter in the Project Area, particularly for a species that is already known to be limited in numbers or distribution. While the detection probability is low for each site, tribal fisheries biologists have sampled this species in the headwaters region of the St. Louis River, approximately a mile downstram of Seven Beavers Lake…in 2008" (Tribal Cooperating Agencies, DEIS pg. 4.5-5). Recommendation: The EIS should present the results of a more thorough sampling effort for fish and macroinvertebrates.	FM2

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Comment ID	Comment Text	Theme Codes
5	A. Mercury Emissions 1.) Dr. Chambers notes the potential exists for mercury emissions to occur from the project's air exhaust of the autoclaves. He cites mines in Nevada where this has been a significant problem. While these mines have higher mercury content than the mercury content of ore in the NorthMet project, the risk for this project still must be acknowledged and addressed. "…the concern is that high temperature processes like the autoclaves can volatilize mercury…" (Chambers 2010). Dr. Chambers notes that mercury must be captured through appropriate equipment on the autoclave exhaust. "One of the major concerns with these capture systems is ensuring that they are performing as planned" (Chambers 2010). He points out that only Nevada has air emission standards for mercury, and that the US EPA is still developing mercury air emission standards. Dr. Chambers highlights a need for mercury emissions monitoring to occur with enough frequency to effectively evaluate problem emissions: "Under Nevada's standards mercury emissions from autoclaves are mostly monitored only once a year, and are sometimes based on manufacturer's specifications with no monitoring. Once a year measurements will not provide enough data to ensure statistically reliable measurements of the efficiency of mercury capture systems" (Chambers 2010). Recommendation: Dr. Chambers recommends: "In order to ensure that the mercury capture systems on the autoclaves are functioning as designed, a monitoring scheme should be required that will provide statistically reliable data on the autoclave mercury emissions" (Chambers 2010). He notes that the technology for measuring mercury frequently is available and is economically practical.	AQ5

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Comment ID	Comment Text	Theme Codes
5	B. Class I Airsheds The Project is located within 300 km of four Class I regions. Under the Clean Air Act, Class I airsheds were established as areas where emissions of particulate matter and sulfur dioxide are to be restricted. Class I areas include federal wilderness areas exceeding 500 acres and national parks. These are places that are allowed only the smallest incremental pollution levels above baseline conditions. The four Class I areas within the vicinity of this project are the Boundary Waters Canoe Area Wilderness, Rainbow Lakes Wilderness, Voyageurs National Park, and Isle Royale National Park. The emissions modeling described in the DEIS for the NorthMet project, shows this project contributing 30 tons per year (tpy) of SO2, 159 tpy of NOx and 1,175 tpy of PM10. These emissions would come primarily from crushing and grinding ore, handling reagents and materials and the flotation and hydrometallurgical processing (DEIS pg. 4.6-53 and 54). The DEIS acknowledges that these emissions will cause visibility impairment for as much as 23 days a year in the Boundary Waters Canoe Area Wilderness. The NorthMet project may result in a 5% visibility impact in the BWCAW for 23 days a year, and as much as a 10% impact for one day a year (DEIS pg. 4.6-37). This is not an insignificant level of impairment from a single project. The Minnesota Regional Haze State Implementation Plan (SIP) is a plan developed by the Minnesota Pollution Control Agency as required by the Regional Haze Rule of 1999. The goal of the SIP is to reduce haze in Class I areas affected by Minnesota emissions, and to reach natural visibility conditions by 2064. The SIP was submitted to the EPA for review on December 30, 2009. The Haze SIP notes that a 5% or more contribution to visibility impairment from an entire state would be considered significant. The NorthMet project, as described in the DEIS, would contribute a 5% visibility impairment for as many as 23 days, and a 10% impairment for one day per year. Emissions contributions of this level are keeping Minnesota from making progress toward the goals outlined in the SIP. Even the DEIS concedes that the state is not likely to reach the visibility goals. “Current MPCA estimates indicate that emission reductions at power generation facilities and additional reasonably foreseeable projects in northeastern Minnesota are not enough to meet the current Regional Haze SIP goals” (DEIS pg. 4.6-54). The air visibility quality in the BWCAW shows a trend of becoming worse, not better. Between 1992 and 2006, visibility in the wilderness on the 20% worst days showed a worsening trend. The NorthMet project will add to the downward trend for air visibility quality over Minnesota’s Class I Areas and impede reaching the goal of natural visibility conditions by 2064 as the Regional Haze Rule requires. Within the DEIS, mitigation measures are discussed, but many eliminated from further discussion without explanation. The DEIS mentions the use of low-NOx burners in the heaters, the conversion to electric heating, and the use of waste heat for work space heating requirements. But each of these was eliminated and excluded from modeling. Missing are explanations for why these measures were found to be “infeasible or non-viable” for the project. While PolyMet, MPCA and the Federal Land Managers continue to “evaluate additional potential control measures that may be applicable to the Project” (DEIS pg. 4.6-37), this analysis should be available within the EIS for full disclosure and public review. The DEIS also fails to adequately evaluate the cumulative effects on air quality of the NorthMet project when combined with foreseeable projects. Not included in the analysis are the impacts from on-going and future hardrock mineral exploration in and near the Superior National Forest. Nonferrous mines in advanced stages of exploration and development (including projects by Duluth Metals and Franconia Minerals) were not evaluated for their im	AQ5,AQ9
5	4.) The DEIS acknowledges that the NorthMet project will impact identified wildlife travel corridors. The DEIS cites a study by Emmons and Olivier Resources Inc. (2006) that identifies 13 major wildlife travel corridors connecting large roadless blocks along the Iron Range. The study considered the loss of any one of these wildlife corridors “significant” (DEIS pg. 4.4-30). The NorthMet project area includes Corridors 11 and 12. The DEIS acknowledges that Corridor 11 is already obstructed and “not likely to be heavily used by wildlife” (DEIS 4.4-31). This would increase the significance of the remaining corridors for wildlife travel. But Corridor 12 is likely to be heavily impacted by the project. “Operations at the Mine Site would indirectly impact the corridor by reducing the size of, and acting as a source of noise and activity near, the large habitat block southeast of the corridor” (DEIS pg. 4.4-31). As the tribal cooperating agencies note, “#12 will likely be degraded as a corridor by the Project; these impacts should be considered significant” (Tribal Cooperating Agencies, DEIS pg. 4.4-32). Recommendation: A biological assessment and consultation with the USFWS must be conducted to assess impacts to wildlife travel corridors. The EIS must analyze the loss of Corridors 11 and 12 under the scenario that these are long-term or permanent losses.	WI1,WI5

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Comment ID	Comment Text	Theme Codes
6	Please take time to research other Gold and Copper mining. Living/working on a homestead the water would be contaminated by sulfur for me, my boss and the 45 dogs that are supplied by it. Please make a responsible decision for the people it will affect.	EOO
6	C. Noise Impacts The proposed mine is on public land in the Superior National Forest, and may generate noise that could be heard beyond the project area. While the DEIS describes “noise sensitive areas or receptors” (e.g. campgrounds, wilderness areas) in the vicinity of the project, no noise contour maps were prepared for the document. “Noise contour mapping would allow reviewers to assess the impacts of noise to all publicly accessible lands in the vicinity of the project which include large sections of the Superior National Forest immediately adjacent to the mine site” (Tribal Cooperating Agencies, DEIS pg. 4.7-2). Recommendation: The EIS should include an analysis of noise impacts that uses noise contour mapping for a more thorough assessment.	N1
7	I have a business in NE MN, Very close to Aurora that is dependent on preserving our natural resources and clean water. I am very concerned that environmental protection has not been adequately addressed. Everyone talks about Jobs! What about those of us who already live here, have jobs and pay taxes?	EOO,G2
8	The PolyMet project would use unproven technology, starting in a watershed with waters that already have too much sulfate, mercury, and other metals. It would destroy thousands of acres of wetlands and forests, put endangered species at risk and place the burdens of environmental harm disproportionately on Indian tribes who have rights to the land that would be most impacted. It is likely that the PolyMet project would increase mercury levels in fish and adversely affect wild rice growing downstream.	EOO,WR4A,WR4B,WR4F,
8	The DEIS is inadequate in many ways. The information on current water quality problems and the polluted site that will be used for dumping wastes from the processing plant is inadequate. The DEIS ignores real historical impacts of local mines, rather than admitting the risks of the project, and contains no proof that either the public interest in SuperiocNational Forest land or tribal interests in treaty lands will not be irreparably harmed.	WR1E,PD2,G3,CR1,CR4
8	I incorporate by reference WaterLegacy comments: "The EIS Must Analyze the Cumulative Impacts of the PolyMet Project on the Functionality of Wetlands throughout the St. Louis River Watershed." As a resident of Rice Lake Township in rural Duluth, I treasure the wetlands on my own land. My understanding is that the DEIS pertaining to the PolyMet proposed mine does not adequately protect the wetlands that will be impacted if PolyMet is allowed to proceed. For one thing, the DEIS comments regarding wetlands are focussed almost entirely on areas at the mine and plant sites and wetlands immediately adjacent to these sites which make up approximately 1,522 acres. From PolyMet's viewpoint, the water in the area already violates state standards due to the LTV legacy. However, as I understand it, no modelling has been conducted for the area downstream from Cloquet, which includes Thomson Dam and the St. Louis River Estuary. Thomson Dam is a prime candidate for methylation of mercury. An even greater victim, if this PolyMet project were to go through, would be the St. Louis River Estuary because the estuary presently contains all of the nutrients needed to methylate mercury, except that sometimes sulfate is a limiting factor on methylation of mercury. (Less than 8 mg./liter is limiting for methylation.) However, the PolyMet proposal would add MILLIONS of POUNDS of sulfate to the St. Louis River watershed. Our lonely planet, our beloved Mother Earth, is under attack already from threats from every corner. How can we contemplate exacerbating planetary degradation by allowing such a destructive plan to proceed? Do future generations have no rights to a clean and livable planet?	WE5,WE8
8	I oppose the PolyMet project because it is likely that the mine and processing plant will pollute Minnesota's precious waters for hundreds or thousands of years to come and have serious impacts on the environment, human health and tribal rights. I agree with the tribal cooperating agencies and the U.S. EPA that the DEIS is incomplete and does not demonstrate that the proposed mining and processing operations could be done without harming the environment and tribal resources and without putting taxpayers at risk for substantial ongoing cleanup efforts that would be needed at such a massive disturbance of sulfide rock. The tribes and the EPA have pointed out many inadequacies of the PolyMet DEIS. Before this sulfide-mining project is even considered for permits, these gaps must be completely filled.	EOO,G3A,G4A,G7,G8

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Comment ID	Comment Text	Theme Codes
8	I am writing to you as a citizen of Minnesota concerned about the damage to northern Minnesota's environment and communities by the PolyMet sulfide mining project and the impact of not just this one, but multiple sulfide mining and taconite expansion projects being operated or planned in the region.	EOO,G8C
8	Sulfide mining would be new to Minnesota. In other locations, sulfide mining has resulted in acid mine drainage, causing extensive and expensive damage to water quality and the environment. Often, taxpayers have been stuck with the costs. The PolyMet DEIS provides no financial assurance to protect taxpayers from potentially hundreds of millions of dollars in costs to clean up pollution if the Poly Met company goes out of business, leaving seeps and wastes behind.	PD4
9	I am writing to you as a citizen of Minnesota concerned about the damage to northern Minnesota;s. environment and communities by the PolyMet sulfide mining project and the impact of not just this one, but multiple sulfide mining and taconite expansion projects being operated or planned in the region.	EOO,G8C
9	Sulfide mining would be new to Minnesota. In other locations, sulfide mining has resulted in acid mine drainage causing extensive and expensive damage to water quality and the environment. Often, taxpayers have been stuck with the costs. The PolyMet project would use unproven technology, starting in a watershed with already-polluted waters. The DEIS is inadequate because cumulative impact of proposed PolyMet activities can be accurately assessed only when the baseline pollution has been adequately characterized and the data collection done to ensure robust estimates of water-quality parameters, and when ALL of the other factors are included.	WR1E
9	I simply oppose the PolyMet project because it has not been demonstrated with certainty that the project will not pollute Minnesota's precious waters for hundreds or thousands of years to corne. By the DEIS' own admission, it is highly likely that this first sulfide-mining project in Minnesota could degrade water quality, increase mercury in fish, destroy wetlands and peat bogs, fragment the habitat of endangered species, interfere with tribal rights guaranteed by Treaty and with tribal resources, like wild rice, increase air pollution that results in regional haze and create a risk of perpetual pollution without adequate financial assurance that the public won't end up paying the costs.	PD2,PD4
10	2.) Related to the inaccurate characterization of the project's wetlands, the DEIS also assumes that these wetlands have "perched" water tables that are isolated from groundwater flow systems. Dr. Glaser notes, "The basis for this assumption is not clear since the local hydrogeologic setting seems unfavorable for perched water tables to develop" (Glaser 2010). As he describes, perched water tables are more common within deep glacial deposits, such as terminal moraines and till plains. The DEIS indicates that the project area is comprised of a shallow layer of impermeable glacial deposits. The hydrologic connectivity of wetlands to groundwater has implications for the production of methylmercury. "…[T]he assumption of perching should have been based on actual field data or explained more fully" (Glaser 2010). Recommendation: The EIS should provide data to support a claim of a perched water table or eliminate references to this in the document. "Erroneous explanations for perching contained in this report (e.g. 4.2-2 'slow movement through soils causing the perched wetland water tables') should be deleted" (Glaser 2010). The EIS must include additional field tests to determine the hydrology of these wetlands, such as monitoring nests of piezometers to determine hydraulic head gradients and pore-water chemistry in response to snowmelt and precipitation. Dr. Glaser recommends a long-term monitoring plan to detect unexpected changes in the pore-water chemistry that can be related to Acid Mine Drainage and the transport of contaminants from the mine pits, waste rock stockpiles, and the tailings basin.	WE5,PD1,GT2

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Comment ID	Comment Text	Theme Codes
10	D. Inaccurate Characterization of Wetlands and Water Table 1.) The DEIS characterizes the wetlands at the mine site as bogs that are "isolated from underlying groundwater, receiving virtually all of their water and nutrient input from precipitation. They receive essentially no groundwater inflow and have extremely low seepage rates to the underlying surficial aquifer" (DEIS pg. 4.1-4). Dr. Glaser disagrees with this characterization of the wetlands as "perched" or "raised" bogs. His assessment is based on using a standard, accepted definition of raised bog which would indicate the project's wetlands are not, in fact, raised bogs. His analysis of the species composition at the mine site shows these wetlands to be comprised of fen indicators. The DEIS describes the wetlands as dominated by spruce, tamarack and balsam fir, with occasional occurrences of white cedar and deciduous swamp birch. It also describes the presence of speckled alder, raspberry and blue bead lily. "However, balsam fir, white cedar, swamp birch, speckled alder, raspberry, bead lily and all the grasses in Minnesota are reliable fen indicator species that are never found on true raised bogs" (Glaser 2010). Finally, Dr. Glaser's own visits to the PolyMet site leads him to characterize the wetlands as fens. "I have made 2 trips to the PolyMet site in 2006 and 2009 to see the existing facilities, vegetation, and general environmental setting of the project areas" (Glaser 2010). Tribal cooperating agencies also disagree with the wetland characterization in the DEIS, and argue that no data support this conclusion. Correct wetland characterization is important because wetland type conveys information about the degree of hydrologic connectivity. The DEIS asserts that as perched bogs the wetlands have little to no connection with underlying groundwater. This would mean potential contamination might be less likely to spread through groundwater flow and that there would be less risk of the methylation of mercury. However, as fens, the wetlands may likely be influenced by groundwater transporting dissolved sulfate from the waste rock or tailings basin. And this additional supply of sulfate could increase the production of methylmercury. Dr. Glaser notes: "Since the species composition provided for the bog vegetation types within this Draft EIS includes species that are clearly fen indicators, it is impossible to say that these wetlands are disconnected from groundwater flow systems as stated in this report. It is also illogical to conclude that these wetlands are 'perched' since many of the wetlands in the PolyMet site are probably forested or non forested fens poor fens that are supplied at least partly by surface or ground waters that has percolated through mineral soil" (Glaser 2010). Recommendation: The EIS should use more generally accepted definitions for bogs, fens, marshes, peatlands and other types of wetlands "so they conform to international scientific literature and also the scheme adopted by the Minnesota DNR's County Biological Survey's treatise on the native plant communities of Minnesota" (Glaser 2010). Dr. Glaser's report highlights four criteria that help define raised bogs that the EIS should use. The EIS should properly characterize these wetlands and fens. The EIS must provide supporting data for any further claims that little to no groundwater inflow and seepage rates occur in the wetlands at the mine site. Samples of surface waters in the wetlands of the proposed project should be collected and analyzed for pH, alkalinity, and dissolved solutes (particularly calcium) to help distinguish bogs from fens and to determine the ability of these wetlands to neutralize acid. Further analysis and field tests should be conducted to examine the hydrologic connectivity of the mine site wetlands.	WR1E,G8,WR5A
11	Warren Anderson, Hibbing, Minnesota. I'm definitely in favor of this project. It's on a brown-field site. The environmental impact can only be positive. Down the road, turn this around to a very nice facility, provide a lot of jobs for the area. Thank you very much.	EOO
11	-Unspecified required mitigation actions for the mine operator.	PD3

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Comment ID	Comment Text	Theme Codes
12	E. Poorly Defined Wetland Treatment System 1.) At closure, the Proposed Action calls for allowing the water level in the East and Central Pits to fill above the level of the waste rock that will have been backfilled into the pits. When the filling is complete, approximately one year after closure, "the top of the backfilled pit would be designed to function as a treatment wetland" (DEIS pg. 3-12). This created wetland is expected to passively treat stockpile drainage. It is unclear from the DEIS, if stockpile drainage would first be treated at the WWTF and then sent to the East Pit wetlands, or first discharged into the wetland and sent to the WWTF only if the discharge still exceeds limits. Two apparently contradictory statements are provided in the DEIS: Pg. 3-41: "If stockpile drainage ceases or meets water quality discharge limits via treatment through the East Pit wetland treatment system, the drainage would not be collected for treatment at the WWTF. However, as long as there is drainage that does not meet discharge limits after wetland treatment, that drainage would be conveyed to the WWTF. Effluent from the WWTF would then be pumped for final polishing to the East Pit wetland treatment system." Pg. 3-42: "Water draining from the stockpile liners and water collected in the stockpile foundation underdrains after Closure would be monitored and returned to the WWTF for treatment if necessary, and ultimately discharged to the East Pit treatment wetlands." The statement on page 3-42 does not mention the initial discharge to the wetland before going to the WWTF. Recommendation: The EIS must clarify if stockpile drainage after closure will first go to the wetland or first to the WWTF. Where this water goes first is important, given the lack of supporting information for the effectiveness of the wetland system (examined in sub-section 3 below). The EIS must also explain what "final polishing" of effluent means. If this means the water leaving the WWTF still needs additional treatment, then it must explain what contaminants remain post-WWTF treatment. The EIS should provide information and field tests to support the belief that the wetland treatment system is capable of removing contaminants.	ALT8,PD10
13	2.) The East Pit wetland system is planned to receive pore water from the Hydrometallurgical Residue Facility at the Plant Site, but does not describe the potential impacts for water quality. Recommendation: The EIS should describe what the composition of the pore water is expected to be and show supporting data for the ability of the WWTF and the East Pit wetland to adequately treat this.	WR1A
13	F. Waste Rock Liner and Cover Systems The permanent waste rock stockpiles will have engineered liners to prevent acid mine drainage and metal leaching. The DEIS acknowledges concerns about the ability of the liners to perform their functions long-term: "However, concerns remain regarding the ability of this liner system to permanently maintain these design criteria…, the potential for the geomembrane lliner to degrade over long periods of time, and the adequacy of the proposed overliner buffer thickness…to protect the liner from accidental tears or rips during waste rock placement. These concerns suggest that the use of the low and average liner leakage rates for purposes of groundwater modeling could underestimate the rate of liner leakage and result in underestimates of the solute loading to groundwater" (DEIS pg. 4.1-75). The DEIS describes these liner characteristics in Table 3.1-9 as ranging in permeability from 5x10-7 to 1x10-5 cm/sec. Dr. Chambers raises questions about how this permeability will be achieved. "How will this specification be tested during construction? What methods will be employed if testing indicates that the target permeability is not being attained?" (Chambers 2010). He notes that achieving this permeability, especially the lower values, may be difficult unless the subgrade material consists of significant clay content. Recommendation: Maintenance of these liners must be perpetual to prevent the establishment of woody plants and rips and tears. Even with this maintenance, WWTF will likely need to be permanently functional to handle what will be on-going water contamination problems. Analyses should be based on high liner leakage rates. A thorough testing program for verifying the target permeability of the various subgrade barriers should be required. The EIS needs to outline a plan for initiating corrective measures if testing shows the specified permeability is not being achieved.	WR3C,WR2E,WR2A

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Comment ID	Comment Text	Theme Codes
13	3.) PolyMet has not demonstrated that a created wetland system can effectively function as a water treatment system. Despite this lack of supporting data, the Proposed Action relies heavily on the assumption that it will work. The DEIS states: "PolyMet assumed wetland removal efficiencies in the East Pit passive wetland system would range from 50 to 80-90% for six parameters (DEIS Table 4.1-63). Constructed wetlands have proven effective at removing various pollutants, but the results have been variable" (DEIS pg. 4.1-112). Results at the nearby Dunka Mine, where constructed wetlands were used to remove certain metals, show that concentrations of zinc and nickel actually increased. The DEIS states, "Metal removal effectiveness of these wetlands also had strong seasonal variability. Sulfate removal was highly variable" (DEIS pg. 4.1-112). And the DEIS acknowledges that a literature review "also reveals a wide range of variability in the pollutant removal effectiveness of constructed wetlands treating mine drainage and other pollutant sources" (DEIS pg. 4.1-112). The DEIS also notes, "Constructed wetlands performance, however, is not sufficiently reliable to function as the primary treatment measure for assuring consistent year-round compliance with water quality standards" (DEIS pg. 4.1-113). Dr. Glaser notes: "The Draft EIS proposes that wetlands could be used to treat acid mine drainage that leaks from the tailings basin and/or other sources. Although wetlands are often used to consume the acidity and immobilize metals arising from AMD they are not always effective in this capacity" (Glaser 2010). Dr. Glaser's report provides examples of mines discharging into wetlands with little effectiveness. "The term wetland covers a very wide range of ecosystems that are characterized by very different sets of physical, chemical, and biotic properties. It should therefore not be surprising that their capacity to neutralize the acidity and remove contaminants from different types of pollution sources varies depending on the type of wetland considered and its hydrologic setting" (Glaser 2010). Dr. Glaser further notes that the PolyMet proposed mine site has glacial deposits with low carbonate content, which may limit the capacity of the wetlands to neutralize acid drainage. Recommendation: Given the lack of supporting data for the effectiveness of created wetland treatment systems at removing contamination in mine drainage, it is irresponsible and unwise for this project to rely so heavily on this method as an integral component of its water treatment. The EIS must present new data to show that this method can work, or it must eliminate this method as a significant component of this project's water treatment. Other more reliable designs or techniques should replace this method. One option is that the WWTF would remain functional in perpetuity. Given the DEIS' conclusion that wetland systems can never be counted on as the primary treatment method of water, then de-commissioning the WWTF will be impossible as long as contamination remains in waters emanating from the mine and tailings basin. And as the DEIS notes this contamination may continue for 2,000 years, then the WWTF should be functional for this same time period. The EIS should incorporate the cost of running the WWTF in perpetuity into its reclamation plan and cost estimates. If the wetland system is used, a long-term monitoring plan should be outlined in the EIS that includes testing the system's effectiveness at remediation of Acid Mine Drainage. The EIS should also include a contingency plan should the wetlands be ineffective at treating the drainage.	WR3I,WR3L
13	G. Non-Contact Stormwater Runoff At the mine site, any stormwater runoff that has not come in contact with sites having mining activity (undisturbed and reclaimed vegetated areas) would be routed to the Partridge River. At the processing plant (except the tailings basin), stormwater runoff would be routed to Second Creek, a tributary of the Partridge River. The DEIS acknowledges that stormwater management facilities might be needed to handle the predicted sediment that will be associated with this runoff. It does not, however, propose such a facility at this time. The lack of managing this sediment, the DEIS concedes, could lead to "increased pollutant loadings to the Partridge River" (DEIS pg. 4.1-110). The DEIS recommends, but does not require, that stormwater management controls be installed. Recommendation: The EIS should require stormwater runoff management controls. As Dr. Chambers notes, "This is good pollution prevention practice" (Chambers 2010).	EOO

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Comment ID	Comment Text	Theme Codes
14	I. Problematic Transportation of Ore PolyMet plans to transport ore from the mine site to the Processing Plant by rail, using three trains consisting of rail cars with hinged sides and open tops. The DIES acknowledges the risk of fine ore particles escaping through the hinges of the cars, and larger ore pieces falling over the tops of the cars into the environment surrounding the rail line. The tribal cooperating agencies contend that "the amount of ore that could escape from the rail cars would not be small" (DEIS pg. 3-18). Fallen ore and fugitive dust have the potential to contaminate wetlands and soils along the rail line, leading to acid drainage and metal leaching in nearby water bodies. The DEIS suggests loading finer sized ore at the center of the car, with larger pieces on the outside to inhibit the release of spillage through the hinges. It also states that track maintenance efforts would include searching for spilled ore pieces along the tracks. But the DEIS offers no supporting data to show the centerline loading method will adequately contain spillage. And identifying and recovering spilled ore pieces along the rail line will not likely be easily accomplished. Dr. Chambers also highlights concerns about the likely risk of this uncontained spillage. He finds the effectiveness of the centerline loading method "quite frankly, not good" at containing spillage. "Unless rail cars are designed to be completely enclosed, there will be spillage and most probably metals contamination along the rail haulage-line. Given time, spillage from the rail cars could be spread from the rail line across a wide area by wind" (Chambers 2010). Recommendation: The risk of widespread contamination from ore spillage during uncontained rail transport, is alarming and unacceptable. The risk of localized contamination along the line must also be prevented. The EIS must require the use of completely enclosed rail cars. This is an easily solved contamination risk through the use of properly designed rail cars. Soil monitoring along the rail line should also be required. Mine closure may need to include the removal of the top one foot of soil as part of reclamation actions.	PD5
14	H. Geotechnical Stability of Waste Rock Stockpiles The DEIS raises the concern about the stability of the waste rock stockpiles. "Proposed heights and slope angles in the preliminary waste rock stockpile designs are within typical mine engineering practice, however a slope stability assessment has not been completed. Further design and analysis would occur during permitting to ensure that the proposed construction meets acceptable design standards" (DEIS pg. 4.13-2). Dr. Chambers notes: "As implied in the quote…analysis of these critical questions is not being conducted as part of the EIS" (Chambers 2010). Instead the DEIS indicates that geotechnical stability will be analyzed first in permitting. A failure in stability for these enormous reactive stockpile could result in significant water contamination problems. Recommendation: Analysis of the geotechnical stability of the waste rock stockpiles is too critical to leave to permitting, and is essential in understanding the environmental impacts of the project. This is evaluation that must be conducted and the issues resolved as part of the EIS process. The tribal cooperating agencies concur with this recommendation. "The lack of a stability analysis for the stockpiles is a serious gap given the serious environmental consequences of a structural failure of a stockpile" (DEIS pg. 4.13-2).	GT1
15	J. Concentrate Shipping Dr. Chambers notes that the concentrate that will be produced by the processing plant and will be loaded for transport, "poses significant risk for contamination because of its high metal content and the small particle size of the concentrate material" (Chambers 2010). He notes that the pneumatically sealed rail cars or rail cars with rigid covers that are proposed are appropriate methods for transporting this material. Recommendation: Soil monitoring at the concentrate loading facility and along the rail line should be a requirement outlined in the EIS to detect any soil contamination that may occur.	PD2

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Comment ID	Comment Text	Theme Codes
16	K. Stability of the Tailings Basin 1.) The DEIS admits that "the NorthMet Tailings Basin and hydrometallurgical residue facility embankments would have a low margin of safety due to fines and underlying soils in the existing LTVSMC Tailings Basin" (DEIS pg. S-10). Despite this alarming and dangerous condition, the Proposed Action intends to use the existing tailings basin for the mine project's own tailings wastes. Studies of the existing basin show the peat and clay soils under the dam have the potential to become unstable under certain conditions. "There are also layers of loose saturated slimes (fine silty tailings)…which are subject to liquefaction under certain conditions and therefore may create instability of the perimeter dam" (DEIS pg. 4.13-1). There is an especially low margin of safety for Cell 2E, the area where the NorthMet tailings would be deposited, due to extensive peat in the foundation and weak slimes close to the dam face. Also concerning is that it is not known if the weak, unstable slimes layer occurs under the Hydrometallurgical Residue Facility, the part of the tailings basin that would hold the most toxic waste products of the project. Should the tailings basin dams fail, significant and potentially long-lasting pollution would be released, entering surface and groundwater, and spreading possibly within the watershed. Dr. Chambers also raises concerns about the tailings basin construction design. "Upstream-type tailings dam construction, which was used for the existing taconite tailings, poses a long-term stability risk to the proposed hydrometallurgical residue cells. Upstream-type construction will also be utilized to contain the project's flotation tailings, and again poses a long-term risk…." (Chambers 2010). Dr. Chambers notes that most tailings dam failures have been associated with upstream dam construction. Dams using two other methods, known as "downstream" and "centerline" methods, are much safer. Upstream construction is at high risk for "seismic and static failure of tailings dams" (Chambers 2010). Recommendation: Regarding the geotechnical stability of the tailings basin, the DEIS says further design and analysis would occur during permitting to ensure that construction would meet acceptable design standards. The MN DNR recommends that a dam break analysis and risk assessment be conducted at permitting. It is incomprehensible why the MN DNR would not insist on this analysis and risk assessment in the EIS. This is an unacceptable delay in analysis of a design already deemed dangerously flawed. The function of the DEIS is to outline potentially significant environmental impacts. The DEIS appropriately identifies an environmental risk from the failure of the tailings dam, but then does not provide information about what the environmental impacts of this would be. The EIS must include this information. Dr. Chambers notes, "a thorough analysis of the risk associated with tailings dam construction has not been done, and needs to be conducted as a part of the EIS" (Chambers 2010). The EIS needs to include analysis for a centerline design for the tailings basin, as this has been identified as a more stable design. The hydrometallurgical residue cells will contain the project's most hazardous waste products. A failure of the dam for these cells would subject humans and wildlife to unacceptable toxic pollution. "Given the nature of the material to be stored in the hydrometallurgical residue cells, these cells should be designed to withstand the maximum credible earthquake" (Chambers 2010).	GT1,GT2
16	-High risk of mercury and sulfate contamination to Minnesota water bodies, with the risk of the bioaccumulation of mercury in fish, and human health implications; no identified method for preventing this contamination.	WR4B,WR4C,FM1,FM4
16	2.) The Tailings Basin Alternative presents an approach that incorporates certain mitigation measures. The Alternative calls for increased rock buttressing for the northern outer embankment side slope for Cell 2E to increase its stability. "Further investigations, design and analysis would occur during permitting…" (DEIS pg. 4.13-3). Recommendation: Any effort to increase the stability of the tailings dam is desirable. However, this design and analysis should be done prior to permitting. Supporting data should be presented in the EIS providing for a design in which the public can have confidence. Contingency plans should be described in the EIS for tailings dam failures.	GT1

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Comment ID	Comment Text	Theme Codes
17	M. Existing and Future Seepage of Contaminants at the Tailings Basin 1.) The existing LTVSMC tailings basin releases contaminated seepage into groundwater and surface waters that ultimately reaches the Embarrass River. Sulfate concentrations are high for this seepage. Monitoring data indicate that mercury levels and possibly aluminum concentrations do not meet surface water quality standards at several monitoring stations (DEIS pg. 4.1-41; Table 4.1-29). Concentrations of calcium, manganese, nickel and total dissolved solids increase as they seep from the tailings basin pond to the toe of the tailings basin. Groundwater quality monitoring at wells at or near the toe of the tailings basin show elevated aluminum, iron and manganese concentrations, as well as elevated sulfate, fluoride, molybdenum and total dissolved solids. “Based on these results, NTS (2009) concluded that groundwater has been impacted by the Tailings Basin” (DEIS pg. 4.1-14). The tribal cooperating agencies note that only limited groundwater monitoring has actually occurred, and that the full extent of existing contamination is not yet known. PolyMet would assume responsibility for 29 of the 62 identified “Areas of Concern” and “will investigate and remediate as necessary these AOCs on a schedule approved by the MPCA” (DEIS pg. 4.1-16). The MN DNR has indicated that “any associated clean up costs for the legacy AOCs would be included in the financial assurance requirements for any Permit to Mine issued to PolyMet…” (DEIS pg. 4.1-16). Recommendation: The EIS must include a remediation plan and schedule to address the existing pollution problems at the tailings basin. The EIS should include a full analysis of existing groundwater contamination that includes the results of additional groundwater monitoring. Financial assurance calculations must include clean up costs for current pollution from the tailings basin and must be fully delineated in the EIS.	WR1A,WR1E
17	L. Hydrometallurgical Cell Liners The hydrometallurgical residue cells at the tailings basin would be lined to minimize leaching from these cells containing highly hazardous wastes. But as Dr. Chambers notes in his comments, “There is no drawing of the ‘composite liner’ so it is assumed that this is not a double liner with leak detection, but merely a synthetic liner placed directly on top of a GCL liner. A double liner with leak detection would be the most protective liner design approach” (Chambers 2010). Recommendation: Dr. Chambers offers this excellent recommendation: “A better description of the composite liner for the hydrometallurgical residue cells should be included in the EIS. The additional cost associated with a double liner with leak detection for the hydrometallurgical residue cells is not cost prohibitive. A double liner with leak detection would provide maximum protection for the residue material, and should be required” (Chambers 2010).	PD7

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Comment ID	Comment Text	Theme Codes
18	4.) Groundwater seepage from the tailings basin will not be collected in the Proposed Action. Nevertheless, DEIS modeling shows groundwater seepage is expected to exceed groundwater evaluation criteria for aluminum, antimony, arsenic, fluoride, iron, manganese and sulfate, and possibly beryllium and thallium. A second model predicted aluminum exceedances for as much as 500 years. The hydrometallurgical cell liners are expected to leak, resulting in seepage from Cell 2W that is predicted to be high in sulfate concentration. "Groundwater seepage from Cells 1E and 2E would be the primary input of sulfate into the Embarrass River during low flows in all mine years" (DEIS pg. 4.1-120). The DEIS states, "the unrecovered seepage rate is predicted to increase to a maximum of approximately 3,800 gallons per minute in Year 20…" (DEIS pg. 4.1-65). The DEIS also states that, "because of the generally flat topography and extensive wetlands, much of this water would be expected to form ponds and inundate wetlands" (DEIS pg. 4.1-65). Dr. Siegel notes significant deficiencies in the DEIS' groundwater modeling that call this expectation of ponding and inundation of wetlands into question: 1. The degree to which groundwater and possible contaminants might leak from the tailings basin was not appropriately characterized by modeling due to assumptions used and "uncertainties in material properties of the porous media along the flow path" (Siegel 2010). 2. The degree to which possible contaminants from the closed mine may get into the Partridge River through groundwater flow was inadequately documented. "There was no consideration of possible migration of contaminants in bedrock under the Partridge River…" (Siegel 2010). 3. Groundwater flow is not likely to be only horizontally dispersed "given the probable subvertical and acute fracture fields which likely evolved in the tectonic setting of the emplacements" (Siegel 2010) 4. The model used in the DEIS to predict how groundwater will flow, MODFLOW, is widely recognized as "very limited in what it can do to determine how water moves in a fractured media at the scale of this investigation" (Siegel 2010). The DEIS predicted rates for seepage from the tailings basin into groundwater is high. The potential for this large quantity of unrecovered groundwater seepage to spread contamination is troubling. Recommendation: Further analysis of likely seepage rates, flow, spread and level of potential contamination should be conducted prior to permitting. More detailed field examinations of existing seepage characteristics are needed to in order to predict what new seepage from the Project might do. Dr. Siegel's evaluation of the DEIS cites the need for conducting more field tests to better understand potential environmental impacts. He notes that a major flaw in the DEIS is its the reliance on models based on likely inaccurate assumptions. "…The opportunity was there to actually calibrate such a model against real field data…I have the same concerns with the modeling PolyMet did from the tailings basin as with the other groundwater models done by PolyMet: poor documentation of results, assumptions that cannot be tested very well because of insufficient instrumentation, and inarticulated logic behind the work. This is a missed opportunity if I have ever seen one" (Siegel 2010).	WR2A
18	3.) At closure, seepage to Second Creek, which flows into the Partridge River, would no longer be collected, and would be permitted to drain to the River. Recommendation: The EIS must provide an analysis of the water quality of this seepage that will be permitted to flow into Second Creek at closure. It must examine the downstream impacts of potential contamination in that water.	WR1E
18	2.) The DEIS acknowledges that when PolyMet begins adding its own tailings to the tailings basin, seepage will continue to occur. This seepage will move into the Embarrass River and also into Second Creek which flows into the Partridge River watershed. During the life of the mine, the surface water seepage will be collected and returned to the tailings basin. Groundwater seepage would not be collected. The DEIS states that at closure, surface seepage would continue at first but "seepage collection would be occurring at progressively reduced rates" (DEIS pg. 3-44). The DEIS notes it expects either the seeps to dry out, or that seepage will meet water quality limits and that drainage from the hydrometallurgical residue cells to eventually end. But the DEIS does not provide a rationale for these expectations. Cap and liner systems leak, and over time develop additional leaks. There are no data given to support the assertion that seeps will dry out or somehow meet water quality standards. Recommendation: The EIS should include an explanation for the assumptions that tailings basin seepage collection will gradually become unnecessary. It must also provide a plan for the scenario that the assumptions are wrong. And it must include calculations for financial assurance to deal with long-term contaminated seepage.	WR1A,WR1A

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19	5.) The DEIS assumes the average tailings sulfur content will be 0.13%. But the DEIS acknowledges the potential for this rate to be higher, with pollution consequences. “Predictions made from kinetic testing suggest that water reacting with NorthMet tailings could become acidic when sulfur content is between 0.14 to 0.17% (Day 2008). During the small scale plant testing, some of the tailings exceeded 0.13% sulfur and were within the critical sulfur range. As a result, these tailings could produce lower pH, which would increase metal mobility. Test work by both the MN DNR and PolyMet have shown increased release of nickel and cobalt as pH begins to decrease” (DEIS pg. 4.1-95). Dr. Chambers notes that it is commonly understood that even neutral or basic pH conditions can produce metal leaching contamination. The risk of Acid Mine Drainage and metal leaching from the tailings basin is not fully explored and analyzed in the DEIS. Recommendation: “More discussion and verification should be given to the findings that the sulfide sulfur content of the tailings is and will remain under 0.13% and non-acid producing” (Chambers 2010). The EIS must include scenarios for AMD and metal leaching from the tailings basin.	WR2E
20	-Lack of useful data on which to base predictions of methylation risk. Sampling of lakes, wetlands, and streams was inadequate.	WR1E
21	-Predicted water pollution lasting possibly 2,000 years.	WR1E
21	-Inadequate sampling done of the water chemistry of area lakes to assess existing sulfate leaking; an adequate sampling effort is needed to use as a comparison and predictive tool for the NorthMet project. Dr. Engstrom notes about Barr Engineering’s sampling methods, “It is one of the unfortunate outcomes of Barr’s stream sampling scheme that no water samples were apparently collected within the wetland complex north of the tailings basin (except at its toe). Such sampling would have provided a picture of current (legacy) groundwater discharge and associated sulfate and mercury levels by which a better understanding of the effects of increased groundwater discharge might be derived” (Engstrom 2010).	WR1E
22	-The assessments of mercury methylation risks by PolyMet’s consultant, Barr Engineering, are scientifically biased and use inappropriate models and incorrect assumptions.	WR4A
22	-The DEIS fails to examine the methylation risk from sulfate discharges to key locations in the watershed, including the St. Louis River estuary, the wetland complex north of the tailings basin, the bottom waters of the Embarrass River chain of lakes, and beaver impoundments along the Upper Partridge River.	WE8
23	-The DEIS lacks a contingency plan for effective monitoring and adaptive management.	WR1E
23	-The DEIS provides little in the way of mitigating sulfate discharges and the mercury methylation potential. No consideration is given to alternatives that might sequester sulfate.	WR3I,WR4C
24	-The plan for monitoring focuses on water samples, without including sampling biotic communities such as fish as indicators of mercury in the system.	WR4C,FM4

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25	O. Tailings Basin Alternative 1.) The DEIS provides a Tailings Basin Alternative as a modification to the Proposed Action. The main focus of the Tailings Basin Alternative is that, unlike the Proposed Action, it would attempt to capture groundwater seepage and improve surface water collection. It proposes to capture 95% of the seepage from the tailings basin by installing a series of vertical wells on the lower-most bench of the tailings facility. But captured seepage would not be treated at the WWTF, but instead discharged directly to the Partridge River. The DEIS states that "Based on current water quality modeling, the discharge of seepage would meet all surface water quality standards and no treatment would be needed" (DEIS pg. 3-13). But apparently contradicting this conclusion that no water treatment would be needed, the DEIS describes modeling that identifies 9 parameters as having the potential to exceed groundwater evaluation criteria: aluminum, antimony, arsenic, beryllium, fluoride, iron, manganese, sulfate and thallium (DEIS pg. 4.1-152). Additional modeling showed aluminum exceeding groundwater evaluation criteria. And the wild rice standard for sulfate is predicted to be exceeded. Discharging untreated tailings basin seepage to the Partridge River when this discharge has been modeled to contain contaminants exceeding water quality standards, is not acceptable. The tribal cooperating agencies agree, noting "…discharging untreated tailings basin water to the Partridge River will have significant adverse impacts" (Tribal Cooperating Agencies, DEIS pg. 4.1-153). They note the presence of several wild rice beds immediately downstream of the proposed discharge point. Sulfate concentrations above 10 mg/L can adversely impact wild rice (see Comments II.N.). The DEIS contends that, "if it were determined upon further analysis during permitting, or during operational monitoring, that pre-treatment were necessary prior to discharge, a treatment facility would be installed" (DEIS pg. 3.52). But it does not state what conditions would trigger the requirement for pre-treatment or what water quality standards the discharge would need to meet. The U.S. EPA in an August 2009 letter also indicated its concern about discharging tailings basin water into the Partridge River. "…The effects of these discharges to the Partridge River are not clear. We recommend the DEIS describe impacts to the Partridge River from this discharge…We have several concerns about the discharge of this water to the Partridge River or to the unnamed creek also mentioned. We recommend that impacts from discharges and mitigation discussions be evaluated as part of this decision-making phase and not deferred to some later discussion outside the NEPA process" (U.S. EPA August 2009). Recommendation: The Tailings Basin Alternative is an improvement from the Proposed Action in that attempts to collect groundwater seepage are made. But discharging this untreated seepage directly to the Partridge River should not be permitted. The EIS must present an alternative that both captures and treats this discharge. The EIS should clearly state what levels of contamination would trigger discharge treatment and what standards the treated water would need to meet prior to final discharge into the Partridge River. Sulfate discharges resulting in concentrations exceeding the wild rice standard should not be permitted.	WR2C,WR3I,WR4C,WR4F
25	Recommendations: The EIS must provide a better approach to address issues of mercury and sulfates that may enhance the production of methylmercury. It is clear from Dr. Engstrom's report that a much more thorough sampling program must be enacted to fully understand existing and future discharges. The full geographic extent of potential impacts – all the way down to the St. Louis estuary – must be examined. Alternative approaches should be explored to deal with potentially dangerous mercury and sulfate discharges. Dr. Engstrom in his report suggests exploring the potential for using the mined-out pits as sinks for mercury and potentially in removing methylmercury. Sampling of fish and other biotic indicators of mercury should be included in any monitoring program. Wild rice mercury standards should be adhered to in developing this project, and wild rice waters protected from increased levels of sulfates. Contingency plans should be included in the EIS for situations when mercury and/or sulfate concentrations exceed what is expected. A rigorous monitoring plan should be outlined in the EIS.	WR1E,WR3I,WR4C,WR4F
25	Dr. Engstrom believes the discharge of sulfate-laden waters from the PolyMet project is "among the most serious environmental risks posed…Based on a large body of experimental and observational evidence, it is my view that these discharges are likely to increase the microbial methylation of mercury somewhere in the watershed of the St. Louis River, either in wetlands or lakes proximal to the mining/processing operations or possibly downstream in its estuary with Lake Superior. This increase in methylmercury production will be transferred up the food chain to increased levels of mercury in game fish, with the attendant increase in human and wildlife exposure" (Engstrom 2010).	WR4B,WR4B
26	P. Omissions in Data Collection and Disclosure Please see Comments I.F. for our concerns about the water pollution risks from gaps in data collection and disclosure.	WR1E

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26	Q. Hydrologic and Geochemical Issues Dr. Siegel's report on the hydrologic and geochemical issues in the DEIS should be read in its entirety for a full description of these issues. Several of these have been noted in Comments I.F. in Omissions in Data Collection and Disclosure. Others of Dr. Siegel's observations are highlighted below: 1.) The DEIS describes recharge rates of precipitation and snowmelt through till using calibration of mathematical models. But Dr. Siegel contends that these values for recharge "seem many factors less than probable as determined by the USGS…The amount of water calculated to potentially discharge to the mine may be factors too low, which could lead to unanticipated mine discharges to streams" (Siegel 2010). Dr. Siegel laments the missed opportunity for PolyMet to have "directly determined the order of magnitude of the amount of recharge to both bedrock and surficial groundwater systems from changes in the water levels in their observation monitoring wells, coupled to appropriate specific yields of the materials" (Siegel 2010). Recommendation: Recharge rates should be directly determined from hydrograph analysis in monitoring wells installed in glacial till at the mine site.	WR2F
26	-Repeated omissions in data collection and disclosure that prevent a full understanding of the risks of the project.	G8
26	2.) The DEIS notes that under the Tailings Basin Alternative, a demonstration test will be conducted of a "Passive Reactive Barrier" (PRB). During mine operations at a location north of the tailings basin, the PRB would be installed to determine its effectiveness in reducing constituents of concern such as sulfate, antimony and arsenic, from the tailings basin seepage. If effective, "a PRB could be built as a vertical unit and/or horizontal surface (i.e. constructed wetland) through the flow path of the seepage from the Tailings Basin" (DEIS pg. S-13). The DEIS states this PRB would be installed to provide final treatment of the groundwater seepage, if needed…" (DEIS pg. 4.1-148). The PRB is an untested water treatment system. While the demonstration test will be important in determining the effectiveness of the PRB, the EIS provides no contingency plan for if it is not. If unsuccessful in the demonstration test, it will clearly no longer be an option for large-scale, long-term treatment of the tailings basin seepage. And if the PRB tests succeed, the PRB itself would need to be replaced and maintained at regular intervals for as long as water treatment is needed, possibly hundreds or thousands of years. This is long-term maintenance that does not comply with Minnesota's goal of a maintenance-free closure.	WR1A
27	2.) PolyMet failed to collect important hydrologic information needed to characterize the mine site. "Without this data, no direct means can be used to characterize groundwater flow in the vertical direction, up or down, from the water table or surface waters under natural or perturbed conditions. As a result, there is no means to determine the accuracy of the broad results of PolyMet's groundwater modeling efforts" (Siegel 2010). Recommendation: Additional piezometers should be installed in "clearly isolated within presumed hydrostratigraphic units in bedrock" (Siegel 2010). The results of this additional data gathering should be presented in the EIS.	WR1E

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Comment ID	Comment Text	Theme Codes
27	A. Indirect Wetland Impacts The DEIS concedes that the NorthMet Project would result in the direct destruction of 854.2 acres of wetlands and 667.9 acres of indirect impacts to wetlands. Indirect impacts are likely to result from hydrologic changes in the project area from activities such as pit excavation, pit dewatering, and the development of dikes and ditches. As described in Comments II.D., there is strong evidence to suggest that the DEIS has mischaracterized the wetlands in the project area. If the wetlands are not perched bogs but rather fens with connectivity to groundwater, there is a great likelihood that indirect impacts to wetlands could be greater than described in the DEIS. In addition, the tribal cooperating agencies point out that no reliable groundwater model for groundwater drawdown impacts of the project have been provided. "The estimates of groundwater drawdown are currently based on anecdotal observations and analysis of historical aerial photography. Therefore, there is not quantitative assessment of mine related drawdown of the regional water table. This serious data gap has prevented an adequate indirect impact assessment for wetlands from being conducted" (Tribal Cooperating Agencies, DEIS pg. 4.2-18). Dr. Siegel also found groundwater modeling and data collection that was insufficient to properly analyze groundwater flow. "I found that PolyMet installed insufficient ground water monitoring wells and piezometers in bedrock to either characterize where and how ground water moves across the mine site, or how it interacts with the Partridge River" (Siegel 2010). Dr. Glaser disagrees with the assumption in the DEIS that the wetlands within the project area have perched water tables and are isolated from the groundwater flow system. "The hydrology of representative wetlands should be determined by monitoring nests of piezometers…It should not be assumed that the wetlands within the entire project area are isolated…" (Glaser 2010). The lack of collected field data to measure hydrologic connectivity of the wetlands and groundwater and the mischaracterization of the mine site wetlands are serious flaws that could lead to a much greater impact on the hydrology of nearby wetlands than has been projected in the DEIS. Recommendation: The indirect impacts to wetlands from the project are likely to be much greater than portrayed in the DEIS. The EIS must re-characterize the project's wetlands as fens, and then re-evaluate the indirect impacts to wetlands. Included in this analysis should be reliable groundwater modeling and filed data collection.	WE1,WE2
27	4.) The DEIS models force all subsurface flows to the Partridge River, an assumption Dr. Siegel finds unsupported by data. A lack of supporting data means the potential remains for this flow to pass below the river in bedrock. Dr. Siegel notes, "…knowing the true flow path directions and if groundwater in bedrock flows under the river may be important. For example, if subsurface contaminated water bypasses the Partridge River, it could move north towards the larger regional lake hydrologic discharge zones within the Boundary Waters Wilderness" (Siegel 2010). While Dr. Siegel states that the volume of water in this scenario would likely be slight, the possibility of this occurrence should still be analyzed and addressed. Recommendaton: Knowing subsurface flow from this proposed project is critical. The EIS must include an appropriate level of collected field data, analysis, and consideration of all possible flow paths. Contingency plans should be included for if there are deviations from expected flow paths.	WR2A
27	3.) When modeling aspects of groundwater flow, PolyMet failed to provide important information to provide a proper analysis. "PolyMet produced no water table maps or potentiomeric surface maps during the mining operations, no MODPATH simulations to show groundwater velocities and flow paths before or during mining, and no hydrogeologic cross sections showing vertical flow directional and velocities" (Siegel 2010). Dr. Siegel notes, "Given these modeling uncertainties in recharge rates, flow rates, flow velocities, effective porosity, dispersivity, and calibration points…the modeling does not provide certainty in forecasting. In the absence of proper and multidisciplinary field calibration using chemistry and water levels, there can be no assurance the models, in fact, worked" (Siegel 2010). Recommendation: The EIS must include the results of additional data collection. The models in the EIS should be supported with enough information for the public to do a proper analysis. The models should be calibrated to field data.	WR2A

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Comment ID	Comment Text	Theme Codes
28	B. Loss of Peatlands and Global Warming 1.) Over 900 acres of the wetlands at the mine site are coniferous bog and open bog peatland communities. If the project projections are correct, about 586 acres of peatlands will be directly impacted (destroyed) at the mine site by operations. Another 266 acres of peatlands are projected in the DEIS to be indirectly impacted, although as described in Comments III.A. above, the indirect impacts are likely to be higher than this figure. Combined, at least 852 acres of peatlands will be destroyed by the mine's operations. Peatlands are wetlands that form over hundreds and thousands of years. They consist of the decayed remains of plants, accumulating in stagnant, low-oxygen conditions that prevent the normal decomposition of vegetation. Peat bogs function as a natural water filter, preventing flooding. Many support rare plants and animals. Peatlands are important terrestrial environments in the sequestration of carbon that would otherwise contribute to climate change. These are wetland systems that take millennia to form. And the peatlands at the mine site have already been identified as part of the "100 Mile Swamp," an important natural area within its landscape. There can be no mitigation of the loss of these peatlands. Recommendation: The EIS should highlight that these are wetland systems that can never be replaced by mitigation actions. Their value and loss should be placed in a statewide and regional context within the EIS.	WE2,WE3,WE5,AQ5
29	2.) As noted above, peatlands have been identified as crucial ecosystems in storing carbon that would otherwise contribute to global warming. The destruction of peatlands can release large quantities of previously sequestered CO2 into the atmosphere. The PolyMet project's peatland impacts would be at a minimum nearly 900 acres, and likely much higher (see Comments III.A.). Scientists have calculated that the loss of 1,000 acres of Minnesota peatlands translates to a release of approximately 2.7 million metric tons of CO2 to the atmosphere. This is an increase in Minnesota's total annual emissions of CO2 by approximately two percent (above 2005 levels) (Anderson et al., 2008). PolyMet's impacts on Minnesota's carbon emissions are likely to be close to this level, given their peatland impacts are nearly 900 acres and perhaps higher. In 2007, the Minnesota State Legislature requested that the University of Minnesota produce an assessment of the potential capacity for carbon sequestration in Minnesota's terrestrial ecosystems. The Minnesota Terrestrial Carbon Sequestration Project, an interdisciplinary research group, was organized to produce that assessment. The team analyzed existing scientific literature, land existing in broad land use categories, and the role of current state policies and programs on carbon sequestration potentials. In February 2008, the Project produced a report titled, "The Potential for Terrestrial Carbon Sequestration in Minnesota." Some of the key findings and recommendations of that team of researchers are: - Peatlands in Minnesota contain the largest carbon stocks in the state, in excess of 4 billion metric tons - Release of this carbon to the atmosphere as CO2 can result from peatland drainage and conversion - Release of this carbon to the atmosphere would accelerate global warming and require greater reductions in CO2emissions elsewhere - Destruction of 1,000 acres of peatland in Minnesota from mining or other activities would increase the state's total CO2 emissions by 2% over 2005 levels The top recommendation of this research group: "Preserve the existing large carbon stocks in peatlands and forests by identifying and protecting peatlands and forests vulnerable to conversion, fire, and other preventable threats" (Anderson et. al 2008). In December 2006, Governor Tim Pawlenty announced the state's "Next Generation Energy Initiative," including the development of a comprehensive plan to reduce Minnesota's emissions of greenhouse gases. The Minnesota Climate Change Advisory Group, a broad-based group of Minnesota citizens and leaders, was created to develop state-level policy recommendations to the Governor. In April 2008, the Advisory Group released its report titled, "Minnesota Climate Change Advisory Group Final Report: A Report to the Minnesota Legislature." Some of its key findings and recommendations include: - "Wetlands have among the highest potential carbon-sequestration capacities for any type of land cover in Minnesota. Peatlands are likely Minnesota's largest single carbon sink, containing 37% of all carbon stored in the state…" (Minnesota Climate Change Advisory Group 2008). - Recommendation: "Protecting these enormous carbon reservoirs (peatlands)…is critical" (Minnesota Climate Change Advisory Group 2008). The policy goals from the Advisory Group included: - Protect and restore northern peatlands. - By 2015, identify peatlands at risk of releasing greenhouse gases because of lowered water table or industrial uses such as mining. - Design policies to protect peatlands and wetlands from drainage and other carbon-releasing land uses. The destruction of the peatlands at the PolyMet mine site runs counter to the recommendations of both of these government-initiated studies. The DEIS acknowledges the impacts in CO2 emissions from wetland losses and other destruction of vegetation. "In addition, secondary emissions from the change in the existing land cover are projected. CO2 emissions fr	AQ3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
38	why would the state risk the huge losses? And why does a large company get to come in and kill our renewable economy(tourism)? We know the waters(surface and groundwater) will be polluted, and we know we will lose far more jobs and money than this mine will ever produce. Please oppose this mine so we can still find life in our waters, and drink the water without heavy metals. Please listen to real Minnesotans and the facts, not companies and	EOO,SE4
273	How can you guarantee the tailings basin will not leak given the “liner” may fail or tear – even from the unstable existing tailings present.	GT1
292	We are writing, as Iron Range business owners, to support PolyMet's mining and production efforts. The lengthily environmental review process that PolyMet has gone through, with both the Federal and State regulatory agencies has not only been thorough but offers the potential environmental impact and how to mitigate it. PolyMet has proved that they will mine and produce copper, nickel, platinum, palladium, gold and cobalt in an environmentally sound way. Income generation to the potential 400 employees plus hundreds of spinoff jobs will not only lift up the depressed state of the Iron Range but it will provide millions of dollars in local and state taxes. All the affected areas need this type of financial boost in order to support the communities and educations systems. It is very clear that the people of PolyMet are Minnesotans committed to living, playing and protecting our state's environment. We cannot ask for a better business model in our state, at this time, at this place and in our state's future.	EOO
315	Recently is has come to my attention that the Polymet Northmet permitting process is in review. I wanted to make sure you understand that I support this project moving forward. I believe Polymet is taking the required steps to protect the environment while creating more than 300 jobs and $15 million in state tax revenues per year.	EOO
357	Another health issue that has not been adequately addressed is air quality. Some of our family members, who live on the Iron Range, have had life-threatening asthma attacks. This project would add to the particulate and nitrogen oxide load and further degrade their air quality and quality of life. As a nurse in this area, I am all too familiar with the horrible damage of mesothelioma. The EIS cannot adequately address the project's contribution to this epidemiologic nightmare until the study of the topic is completed by the on going study at the University of Minnesota.	AQ4C,AQ6
546	What happens when these “pit” (they are ugly!) fill (To overflow) with groundwater like the canister pit in Bosey-Coleraine? Overflow or seep into the Partridge or Embarrass River would be devastating.	WR2C
556	9. What is the impact of the increased methyl mercury in the St. Louis River (resultant from both the new mercury released into the air and water by the mine and the increased sulfates released by the mine into the river) on fish throughout the watershed, specifically catfish in the Brevator area of the St. Louis River between Brookston and Cloquet? As the fish and waters in this area are already impaired with excessive mercury levels why is the release of additional mercury into this watershed legal under environmental law? Why is there no analysis of the effects of this increased mercury in the St. Louis River on fish found in all the communities downstream of the proposed project (Forbes, Floodwood, Brookston, Brevator, Cloquet, Thompson, Gary, Duluth)?	RFI,WR1E,WR4B,FM1,FM
617	Next, I want you to consider the duck hunting family I have on the Iron Range. They love duck hunting and eat everything they shoot. Some of the best hunting on the Range is the wild rice stands at Norway Point on the St. Louis River. Norway Point is just a few miles, as a duck flies, from the lake which will be perched on top of the tailings basin. Because of the toxic combination of heavy metals in that lake and the chain link fence around the whole area to keep people out of it, local people have already named it the "Embarrass River Toxic Wildlife Refuge". During the heavy hunting pressure of fall season, (duck season starts for these kids in the middle of September and ends in the middle of November), the resting areas for waterfowl will be the "Refuge" of this toxic lake. The feeding areas will be the wild rice stands where the hunters gather to unknowingly reap a toxic harvest. I can't imagine that this issue was not even important enough to be given one paragraph in this EIS. How can we mitigate this potential public health problem?	WI2,WI3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1162	The impact of this mining project on migratory waterfowl must be addressed in this environmental impact statement. A particular concern is the impact of this project on the black duck. The impacted lands associated with this mine reside within the black duck migratory and nesting range within the state of Minnesota. The Minnesota DNR has recently published an article in the conservation Volunteer detailing the special concern for the northern boreal forest and associated animal and plant species residing in this habitat. This forest type is at risk for fragmentation, degradation and elimination under certain long-term climate change predictions. The Northeastern Minnesota boreal forest provides some of the only nesting habitat for the black duck in the state of Minnesota. Therefore, the degradation, fragmentation and elimination of this habitat is of special concern for this species.	WI2
1163	Specifically, the EIS should include an assessment of the following potential impacts on the local and migratory black duck populations. 1. What is the toxicologic and pathophysiologic effect on black ducks landing on, and ingesting, the surface water encompassing the proposed mine pit lake and tailings pond? 2. What is the toxicologic and pathophysiologic effect on humans handling and ingesting the meat of legally harvested (hunted) black ducks that have resided on and ingested the water of the proposed mine pit lake and tailings pond? 3. If this water is unsuitable for black duck habitation and contact what strategies will be employed to keep these ducks from directly contacting this water? If deterrent strategies will be employed what will be the impact of these strategies on other animal species and humans that reside in the vicinity of this site? 4. What is the long-term impact of carbon generated by the mining process released into the atmosphere, on the habitat of the black duck? 5. What is the long-term impact of the loss of carbon sequestering peat bogs on atmospheric carbon dioxide and the subsequent effects on the habitat of the black duck? This extent of this specific habitat is not going to be replaced in the proposed project. 6. What is the effect of this mining project on the migratory routes taken by the black duck?	WI2,WI3
1164	My entire family fishes and hunts in parts of the entire St. Louis River watershed. There is nothing we like better than the traditional "shore lunch" of catfish fillets. With the mercury in the fish presently so high, this project must not be approved if it raises the mercury level in the fish of the St. Louis River or it is tributaries. My sons and husband are of the age where increased mercury in their system raises the risk of heart disease, which is a problem in our family. (Salonen et al. 1995, as cited in USEPA 2001a).	WR4B,FM1
1164	7. In addition, what is the effect of this mining project on wading shore birds? Will variations in the water levels in the proposed tailings pond result in the generation of mud flats attractive to wading birds? What will be the impact of contacting contaminated water in the mud flats/shore or eating food living in the contaminated water have on these birds?	WI3
1165	8. What are the toxicologic and pathophysiologic effects on blue herons, bitterns, osprey, kingfishers, Canada geese, hooded mergansers, wood ducks, ring neck ducks and other birds landing on, and ingesting, the surface water encompassing the proposed mine pit lake and tailings pond?	WI2
1166	10. On page 4.4-1 second paragraph second sentence reads “Most of these species are relatively common in Northern Minnesota and would likely relocate to other, nearby habitat; therefore, loss of tribal access to Project lands would not affect use of these species.” This sentence is without factual basis and is an embarrassment to the Department of Natural Resources wildlife personnel who supposedly read and approved this document. Unless proven otherwise the surrounding lands are already at carrying capacity for the animal species that will be displaced by the mine site. Therefore, while the animals will certainly move off the site once the land is destroyed, the overall numbers of these animals in Northern Minnesota will not stay the same, rather they will be reduced, as the carrying capacity of the surrounding lands will be exceeded once the displaced animals move in. Please correct this significant inaccuracy in the EIS and revise any predictions concerning impact of the mine on wildlife that were dependent on this incorrect assumption. Do the applicants know what the carrying capacity of the surrounding lands are for each species of wildlife that will be displaced by this project? If not, the cited statement must be amended and the analysis of carrying capacity performed.	WI5
1272	How many jobs will be taken by Canadians?	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1858	Finally, as a consumer of ground water by way of our drilled well, it seems to me an inherent right to expect clean water from our water well. This is not the case for many homeowners caught in the poisonous plume of ground water emanating from the old LTV tailings basin. In December of 2008, Barr Engineering sampled residential wells north of the old LTV tailings basin. (Technical memorandum to Stuart Arkley, January 27,2009). Granted, this is an inherited ground water problem from the previous owners, but the Polymet plan is to pile further waste on top of this basin. In these well tests, manganese concentrations were high and exceeded evaluation criteria at eight of the sampled wells and I quote, "Manganese concentrations ranged from 0.66 ug/L in sample 4488 to 4,710 ug/L in sample 4400 and exceeded NorthMet DEIS evaluation criteria at eight of the sampled wells. The current MDH HRL for manganese is 100 ug/L and the EPA sMCL is 50 ug/L". A further confirmation of the 50 ug/L standard is found in the journal article by Xenophon G. Kondakis, M.D. et al. "Possible Health Effects of High Manganese Concentration in Drinking Water", (Archives of Environmental Health, May/June 1989 vol. 44, No.3, page 178). They say, "Manganese concentration in drinking water may be harmful to health. Given the information to date, the limit of 50 ug/L established by EEC seems to be correct." Manganese has been associated with neurological symptoms and schizophrenia.	WR2C
1859	I also noted a troubling quote from the RS31- Pit Water Quality Model, Executive Summary in paragraph 5. It says, "Virginia Formation exposures along the north wall would have a significant effect on water quality. Therefore, these walls will be treated with lime during the flooding phase". The Virginia Formation contains arsenic sulfide. In the journal article in Geochimica et Cosmochimica Acta, Vol. 69, "Geochemicial modeling of arsenic sulfide oxidation kinetics in a mining environment", 2004, Lengke and Temple say this in conclusion: 4. "Prevention of AMD by mining arsenic sulfide-containing rocks with limestone may not be an effective method of limiting the release of As from arsenic sulfide because the presence of limestone increases solution pH. At higher pH values, As release rates from arsenic sulfide solids are higher". Please address the relationship between arsenic solubility and limestone. The US Agency for Toxic Substances and Disease Registry has listed arsenic as a chemical of concern.	WR3G
2100	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. I would also like to add that I have been enjoying the Northern Minnesota area for over a decade now and it is very important for me to be able to continue vacationing/exploring in the Northwoods and to share this wonderful area of Minnesota with my children and in the future with my grandchildren. I believe we need to weigh both the pros and cons of the new mine proposal, but we also need to realize that any project of this size will absolutely cause a serious negative impact to all areas whether it be water/air quality, polution, wildlife, tourism, or whatever. I do realize that a project of this magnitude would generate great revenue for the area and create many jobs, this is really the only good thing I can see coming out of this. We need to take care of our people and economy, but we also need to take care of the environment.	EOO,G8C,G11
2617	MR. ANDERSON: I am a business representative for Roofers Local 96. The reason I support the PolyMet project is because of all of the stuff that they have looked into as far as reducing the air pollutionand groundwater pollution and I like the way they are going to take care of the property after they use the minerals, I mean filling it back in and replanting and that type of stuff. I am also for it because of the economic impact it is going to have in the northern area; 400 jobs. The construction jobs, that there will be close to 1500 construction jobs that year. The spin-offs, close to 500 other people getting hired as spin-off jobs. Let's see. I like the fact that the tax base will be improved in the area, more money for schools, for the townships, cities in the Iron Range area. (Continued on next page...) Let's see. I like the fact that they are using a plant that was shut down 10, 12 years ago; the LTV plant. It used to be an LTV plant is where it is at. And using the railroad line system that was in place at that time when that business was running. They will actually be probably cleaning up some of the water in that area. There is a high mercury content in a lot of our lakes up there already and they wil be reusing a lot of this water and doing a lot less in the lines of pollution compared to the stuff that is done in Russia or some of the other countries that pollute so heavily right now, which probably causes a lot of our mercury -- I mean our mercury related air up there right now. I guess that's about all I have got right now.	EOO,G2,G6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3128	I am a 45 yr old nurse from Glenwood,MN who has been going to the BWCA for 15 yrs. My kids are 10 and 13 yrs old. They are old enough to enjoy and learn how to perserve this great resource of ours. I have pounded in the statemnet, "cleaner than when we arrived", for years. I don't see any of this attitude in reguards our northern Minnesota land. Please reconsider and have more study of the 'long term effects" mining near this area we love. Thanx for your time and consideration on this matter.	G6
3181	I have a deep admiration and love for the state of Minnesota as it has been my home all of my life. I especially have respect and love for the North Shore-Duluth area and I think the proposed mine by PolyMet Mining Corp. would greatly harm the beautiful wilderness areas of Northern Minnesota. Our neighbor Wisconsin has already banned such mining practices in which this corporation wishes to conduct and I think that we shouldn't allow this type in Minnesota as well. Minnesota is known for our beautiful lakes, wetlands, and forests and to ensure their survival a mine would not be in the best interest for our state's natural resources and especially the Northern Minnesota area in St.Louis County. Keep Minnesota beautiful by not allowing such mining practices here, The PolyMet DEIS describes serious environmental issues associated with this proposed mine. These issues should be addressed and resolved before this mine is approved by the U.S. Army Corps of Engineers and the Minnesota Department of Natural Resources.	EOO,G2C,G7,G12
3213	Page 4.1-24 Comment: Draft EIS indicates evaporative loss via cooling towers at Laskin. Minnesota Power operates once-through cooling only at Laskin Energy Center. The only evaporative loss driven by plant processes would be those water volumes exiting via the stack. Page 4.1-37 Comment: Draft EIS states exceedances observed for copper and arsenic at Laskin. Minnesota Power monitors Lamella clarifier discharge water for both parameters as part of our NPDES permit; however, our records show no permit limit exceedences for either copper or arsenic.	COR
3771	To Whom IT May Concern, I am a retiree who lives, camps, canoes, fishes, breaths, drinks tap water, [and tap beer for that matter] in and from northern MN! I worked in the late 60's at the US Steel mill in Duluth as a lab tech. in the chemistry lab.[another long gone boom bust job.] I am totally against this "experiment" with sulfide mining in a region that is the source of so much of the midwest's UNPOLUTED !!!!!!,FRESH!!!!!!, Di-hydrogen oxide!!!!! Please include a copy of the letters on page3 of LABOR WORLD WEDNESDAY JAN 6 2010 as exibit A and B. THANK YOU, Wm J Andersen	EOO,RFI

Sender Last Name: Anderson and Pastika **Submission ID:** 1317

1357	As stated in the attached Resolution from the Babbitt City Council, the City of Babbitt supports the proposed PolyMet Mining Project and Draft EIS. The proposed PolyMet Open Pit Mine will be located in Township 59N, Range 13W, within the Babbitt Corporate City Limits and will directly affect the City. The proposed project will bring several hundred construction jobs and 400 foll time, high paying jobs to Babbitt and the surrounding communities. The City of Babbitt will receive direct tax revenues from the operation in the form of a percentage of the net revenue tax to be imposed on the operation. In addition Babbitt will receive propoerty tax revenues from PolyMet for lands that are currently tax exempt. The Draft EIS is adequate in scope and detail and sufficiently demonstrates that the proposed PolyMet operations at the Mine, Plant and Tailings Basin can be done in an environmentally safe manner. The City urges the respective agencies to issue a determination of adequacy for the PolyMet Draft EIS.	EOO

Sender Last Name: Anderson Brown Dusher Penrod **Submission ID:** 3638

1	Some paint and chemicals have the potential to be recycled, and usually for cheap or free. Is PolyMet considering this as an option?	HM1
1090	2). PolyMet also needs to especially watch wetlands that are near the mine and plant, not just the ones within their site perimeters	WE1,WE2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1091	The DEIS states that review of historic aerial photos and visual observation have proven that the dewatering of the nearby Peter Mitchell pit has had little, if any, impacts on the nearby wetlands and Mud Lake. Visual observation is not sufficient to see the actual impacts such as water quality and soil quality. Also, how long ago was the Peter Mitchell pit dewatered? If it was five years ago, it might not have been sufficient time to see the potential effects that the dewatering can have on the surrounding water and environment (4.1-62).	WE2,WE5
1092	LTV waste rock seepage is already affecting the groundwater in the area and is draining into the wetlands. Has there been any impact from these tailingsseepages on the surrounding wetlands? Any significant changes that impact wildlife, aquatic life, or water quality?	WE2,WE5
1093	Have results from these tests been reported and do these results conclude that these technologies do indeed decrease leaching of metals and AMD?	WE2,WE5
2000	LTV waste rock seepage is already affecting the groundwater in the area and is draining into the wetlands. Has there been any impact from these tailingsseepages on the surrounding wetlands? Any significant changes that impact wildlife, aquatic life, or water quality?	FM1
3341	The EIS needs to address the aquifer and bedrock more because of the high potential of acid mine drainage (AMD) and metal leaching. When referring to the groundwater transport model, the DEIS used three evaluation points along one flow path north from the tailings basin (4.1-91). This is only one direct flow path of groundwater that was evaluated. If there is a steadier, faster groundwater flow path from the tailings basin, this flow path should be evaluated as well. If a higher concentrated flow path is examined, high concentrations of leakage would be found and seen, and the issue can be dealt with in a timelier manner. From examining Figure 4.1-4 and Figure 4.1-26, the areas of concentrated flow seem to be to the west of the tailings basin as well as to the south. Also, looking at Figure 4.1-13, the past and current seepage from the tailings basin is shown to be concentrated directly to the west of the tailings basin and to the southwest. If current and past seepage from the tailings basin (Cell 2W especially) is concentrated in these areas, then a groundwater flow path to the west and to the southwest should also be included in the groundwater transport model when examining dissolved constitutes. PolyMet can then watch for plumes of seepage (if they do occur) and neutralize them before they do any irreparable damage (4.1-	WR1E,WR2A
3342	The DEIS states that from “reports” the contours do not show any high permeable outwashes that could serve as groundwater conduits (4.1-4). What reports and who is reporting? If there are groundwater conduits in the area,	WR2A
3343	The DEIS states that seepage from Pit 6 has very high sulfate concentrations and that Pit 6 will be dewatering into First Creek, Second Creek and then joins with the Partridge River to increase the sulfate concentration. The DEIS states that sulfate concentrations at Partridge River start at 30.4 mg/L, flows through Colby Lake, and downstream to the confluence of First and Second Creek where the sulfate concentration is 475 mg/L (4.1-39). Increased concentrations of sulfate in the Partridge River could influence wild rice and promote AMD. Mitigations should be taken for the increase of sulfate concentrations	WR4F
3344	The DEIS does not have firm conclusions based on the results of the deterministic modeling and the conflicting Uncertainty Analysis. Modeling of the solute loading estimates from stockpiles and mine pits does not carry forward certain contaminants because their exceedance of groundwater evaluation criteria is attributable to high baseline concentrations (Table 4.1-44). The DEIS does know for sure that several solutes (antimony, manganese, nickel, and sulfate) will exceed groundwater evaluation criteria (4.1-84). These solutes should still be carried through detailed transient flow modeling as to not overlook potential	WR2E
3345	Colby Lake experienced large fluctuations during the LTVSMC mining operations. More explanation should be noted as to how the NorthMet project will affect Colby Lake water level fluctuations and the amount of water that the project would require from this reservoir with regard to inhabitants on the lake and the ecology of the lake (4.1-26).	WR3F

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Comment ID	Comment Text	Theme Codes
3346	Under the tailings basin alternative what would be used for the criteria to decide if water is sent back to the tailings basin for reuse or if it is discharged into the Partridge River with regard to all possible impacts on the river system and wild rice (4.1-148)? The recycling of this water for use in processing plant operations would have a large impact on the amount of water needed from Colby Lake over the lifetime of the mine. What would make this water unsuitable for make up water in the processing plant but would also allow for the safe discharge of this water into the Partridge River?	WR3F
3347	There has been no testing of the bedrock in the tailings basin area. If there are fractures and connections of aquifers, leakage of solutes and water from the tailings basin could increase.	WR2A
3348	The DEIS states that LTV tailings will be dug up and compacted as to create a dike around the proposed tailings basin for the NorthMet project. When digging up and moving the LTV tailings, the rock will be introduced to higher	WR2D
3349	The DEIS indicates under the proposed action that tailings would be deposited to tailings basin cells in slurry form by gravity flow over discharge beaches when necessary and subaqueously via diffusers throughout the pond (3.1.5.3). Deposition of the tailings slurry onto a discharge beach creates a significant opportunity for the sulfide-containing tailings to contact air and oxidize. The deposition of the slurry into the tailings ponds also provides significant opportunity for the slurry to cause turbulence and upwelling of the subaqueous material. This could possibly increase oxidation of the tailings and surrounding rock.	WR3A
3350	The DEIS states that review of historic aerial photos and visual observation have proven that the dewatering of the nearby Peter Mitchell pit has had little, if any, impacts on the nearby wetlands and Mud Lake. Visual observation is not sufficient to see the actual impacts such as water quality and soil quality. Also, how long ago was the Peter Mitchell pit dewatered? If it was five years ago, it might not have been sufficient time to see the potential effects that the dewatering can have on the surrounding water and environment (4.1-62).	WR2I
3351	The DEIS states that seepage from the proposed tailings will go through the LTV tailings and that water quality will improve, but there is no presented evidence that this will happen. There is potential that the water quality will get worse. There is no evidence or tests cited to support this conclusion. The DEIS	WR1E
3352	What interactions within the tailings basin will cause the addition of NorthMet tailings to LTVSMC tailings to have improved water seepage quality? The accuracy of the modeling used to reach this point is not discussed so the actual water quality of the seepage will not be known until NorthMet tailings are added to the existing tailings basin. The potential for the seepage to have lower quality than predicted should be accounted for so that the seepage can be treated accordingly and prevented from entering surface or groundwater systems (4.1-54).	WR2D,WR3A
3353	LTV waste rock seepage is already affecting the groundwater in the area and is draining into the wetlands. Has there been any impact from these tailingsseepages on the surrounding wetlands? Any significant changes that impact wildlife, aquatic life, or water quality?	WR5A
3354	With the reuse of LTVSMC tailings basins, how much will surface seepage and groundwater seepage increase and will this seepage be harmful to the	WR2D,WR3A
3355	The DEIS does not clearly state the quantity of untreated groundwater that will be seeping from the tailings basin. Figures 4.1-18 and 4.1-19 only indicate that the amount will be greater than 1000 gpm.	WR2E
3356	The DEIS does not address the potential effects of floatation frother and collector chemicals on groundwater due to untreated seepage from the tailings basin.	WR2E
3357	The DEIS has limited data that says little degradation has occurred to residential well groundwater quality from 50 years of LTV tailings disposal. The DEIS states that limited data was obtained. The DEIS does show some increases of concentrations and exceeds concentrations of aluminum, beryllium, iron, mercury, and manganese (4.1-15).	EOO
3358	What chemicals are entering the groundwater system by this seepage and what are the potential impacts? How will the seepage and impacts be monitored both during and after mining operations?	WR1B,WR2E

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3359	If this water loss from the mine is found to have a harmful impact on the environment what will be done to mitigate the effects and stop further seepage (4.1-147)?	WR1A
3360	During small scale plant testing, the DEIS states that some of the tailings exceeded the critical sulfur range, which in turn can produce a lower pH and increase metal mobility (4.1-95). This is also seen in the waste rock seepage from the LTV waste rock piles, which are composed of the same rock proposed to be mined. Other mines with similar sulfide content and less sulfide content were also found to produce sulfuric acid and acid mine drainage. What will PolyMet do to counteract this? What mitigations, if any, will be used?	RFI
3361	Have results from these tests been reported and do these results conclude that these technologies do indeed decrease leaching of metals and AMD?	RFI
3362	Water that has come in contact with disturbed surfaces will be treated using membrane separation and chemical precipitation technologies. What exactly will PolyMet do? The DEIS is unclear about the amount of residue being chemically precipitated from this process	WR2G
3363	The DEIS is not clear on the effectiveness of the wastewater treatment process. Has this technology been used in other mining operations and how successful was it at reducing environmental impacts?	WR2G
3364	What will be done with the water that washes the electrolyte cathodes?	RFI
3365	Are there any contaminants that the WWTF will need to take into special consideration?	RFI
3366	For how long will the water level of the tailings basin be monitored after closure to reduce oxidation of sulfates?	WR1A
3367	If water quality standards are still not met by the time PolyMet closes down operations at the WWTF, will PolyMet continue to process water? Will PolyMet have adequate money allocated to continue processing wastewater?	WR3I
3368	How long after mining ceases will water levels be maintained and monitored? This includes water levels in nearby rivers and streams, the tailings basin, and groundwater on and around the site after the West pit overflows (3-47).	WR1A
3765	The DEIS indicates under the proposed action that tailings would be deposited to tailings basin cells in slurry form by gravity flow over discharge beaches when necessary and subaqueously via diffusers throughout the pond (3.1.5.3). Deposition of the tailings slurry onto a discharge beach creates a significant opportunity for the sulfide-containing tailings to contact air and oxidize. The deposition of the slurry into the tailings ponds also provides significant opportunity for the slurry to cause turbulence and upwelling of the subaqueous material. This could possibly increase oxidation of the tailings and surrounding rock.	PD2
3766	Why was the lined tailings basin removed in the January 2007 revised project description? Since little data is available on the reactivity and potential environmental damage that tailings from the NorthMet project could produce, it seems reasonable that a liner would be used initially on the tailings basin until more data can be collected (2-4).	PD5,PD11
3767	Category 1 waste rock should be treated as having potential to producing ARD.	PD2
3919	All areas of the mine site will be subject to a Fugitive Dust Control Plan, for managing dust generated at rock dumping and loading locations. How will PolyMet be implementing this plan, and what does PolyMet exactly propose to do?	G2B

Sender Last Name: Anderson.pdf **Submission ID:** 3442

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3664	Summary of my comments on the poly met project. It appears that significant disagreement exists based upon the hydrologic and hydrogeologic modeling. Assumptions of hrdrogeologic parameters can have large impacts on the modeling results, therefore, it does not appear that the confidence exists for permitting such a large facility. For example, if the vertical hydraulic conductivity is much greater in actuality than what is modeled many more wetlands will be affected than is shown and reported. Impacts to the Partridge river are significant especially during low flows which may only be exacerbated with Climate Change. The huge impact to wetlands will have a profound impact in the area. Due to this impact the underground alternative should have explored farther than it was and not dismissed due to cost without additional analysis. Long term and short term assurance and monitoring is unclear as to how the water treatment and environmental performance of mitigation and treatment technologies will be handled. This has potential to create a long term public liability that may greatly exceed the short term benefits. It appears that during the operation that the staff allocation is very minimal for environmental performance inspection and monitoring.	ALT3,ALT8,WR1A,WR1E,

Sender Last Name: Andresen **Submission ID:** 3639

18169	Save Our Sky Blue Waters introduces our comments on the PolyMet DEIS with reference to the above law. The DEIS unequivocally shows that the former LTVSMC mine site being purchased by PolyMet is already leaching contaminants into the watershed, and that PolyMet's operations will add to the load of contaminants. (Tables spread throughout Chapter 4.1) The DEIS, however, has no plan in place to prevent this pollution. The regulatory agency responsibility as set forth in the DEIS is to monitor mining operations. There are no alternative treatment or mitigation plans, and no means of enforcing what is laid out in the DEIS.	EOO,WR1A,G9
18171	The DEIS does not adequately address public health concerns regarding mercury in the St. Louis River watershed, the cumulative health impacts of metal and other contamination due to mining (past, present, and the future opening of a sulfide mining district) in both the water and the air, and potential health impacts of asbestiform fibers.	WR5A,FM3,AQ4C,AQ6
18174	The DEIS does not address a land exchange with the USFS that would be required for PolyMet's proposed open pit strip mines. Any possible Federal land exchange with PolyMet should be part of PolyMet's EIS. NEPA and MEPA require that all potentially significant impacts be addressed in the EIS (National and Minnesota Environmental Policy Acts).	PD1
18175	The DEIS does not adequately address the instability of the LTVSMC tailings basin, especially considering the large amount of tailings that would be added from mining a less than 1% ore body, The DEIS does not adequately address the instability of waste rock pile slopes, especially considering the size due to mining less than 1% ores.	GT1,GT2
18176	The DEIS does not include the Hoyt Lakes – Babbitt Connection Project roadway. This project is currently on hold while waiting further funding. The impacts of this roadway on wildlife habitat and environmental quality need to be addressed as part of the impact of the PolyMet proposed mining project.	G9
18177	Arsenic, cobalt, selenium, copper, nickel, aluminum, beryllium, iron, manganese, and thallium from PolyMet's operations may exceed water quality standards. The DEIS would allow this to happen. The DEIS does not address the cumulative or synergistic impacts upon fish, wildlife, or humans as we ingest water containing all of these pollutants. The DEIS does not address possible hormone disrupters that reach the water supply from plant process chemicals.	WR3I,WR5A
18179	The St. Louis River watershed is already contaminated with sulfates, and the watershed is impaired for mercury. Leaching from PolyMet's tailings would increase the sulfate load within the watershed, resulting in further fish consumption adversaries. The DEIS does not address how the St. Louis River watershed will be able to attain TDML (Total Daily Maximum Load) standards, as required by law.	WR4B,FM1

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Comment ID	Comment Text	Theme Codes
18180	Plant closure plans do not account for acid mine drainage and heavy metal leaching that can last for hundreds to thousands of years, requiring "perpetual" treatment. Experience with the Dunka mine site, where LTVSMC stockpiled sulfide bearing rock that it extracted in order to mine taconite underneath, proves that this mineralized complex of rock will leach into the watershed, and that the mining companies and state agencies have not found an efficient or cost effective way to prevent water contamination. The Dunka site has been leaching toxic heavy metals into the watershed for the past 30 years, and has been granted a variance, allowing pollution to continue. Acid mine drainage is the greatest liability, nationwide, when mining sulfide ores. The PolyMet DEIS has ignored mention of this legacy, misleading the public as to the true liabilities of not just PolyMet, but of opening a sulfide mining district in the Duluth Complex of mineralization.	WR1E,WR3I
18181	Determination of the amount of financial assurance that will be required for closure and perpetual water treatment should be included in the DEIS. Bonding is one of the most critical aspects of mine permitting, and one that is least understood and examined by the public. Many of the measures that will be taken to avoid environmental impacts depend on adequate bonding. For instance, the DNR will not be able to assert that a particular remediation plan will be instituted when the mine closes unless bonding is sufficient to ensure the remediation. Bonding is crucial to any determination that potential environmental effects will be avoided. This DEIS is inadequate by its omissions.	PD4
18182	The DEIS allows for loss of open and coniferous bogs within the state, contrary to law. The DEIS allows wetland mitigation to occur out of county and out of watershed. The wetland mitigation plan allows for total loss of wetlands, as wetlands in Aitkin County would be preserved while wetlands in St. Louis County would be destroyed.	WE2,WE3
18183	The most significant lack within the DEIS is neglecting the cumulative loss of wetlands due to taconite mining expansion that is permitted (Mesabi Nugget, Essar Steel), or proposed (Minntac, Keetac, HibTac United Tac, Northshore, and Minorca).	WE5
18184	The DEIS does not adequately evaluate the loss of carbon sequestration by the destruction of over 1000 acres of wetlands. At the same time, mining operations would spew out 767,648 metric tons of CO2 per year (Table 4.6-18).	AQ3
18185	The wetlands at PolyMet's proposed mine site have been identified as worthy of protection by the USFS and the DNR. This is not addressed in the wetlands mitigation plan. Because PolyMet's required land exchange with the USFS is not addressed in this DEIS, nor in a separate USFS EIS, the value of these wetlands are not adequately addressed anywhere.	WE1,WE3,WE7
18186	First of all, PolyMet would be mining 99% waste rock. So all of the greenhouse gas emissions from energy sources, vehicles, and plant processes would be attributed to producing 99% waste. If governmental agencies are seeking to reduce CO2 and other greenhouse gas emissions, the DEIS needs to explain how the mining of 99% waste rock can be justified.	AQ3
18187	PolyMet also has a much larger footprint than energy, vehicle emissions, and plant processes. The production of mining equipment has a huge greenhouse track of its own. Truck tires that need to be replaced regularly have their own carbon trail. PolyMet plans to import 200,000 tons of limestone a year. Both limestone and the bentonite clay used in liners have their own mining history, leaving behind their own greenhouse gas trail.	AQ3
18188	In addition, PolyMet's hydromet produces a semi-finished product which will require further processing at a third party site. There will be an additional greenhouse gas trail left behind as these semi-processed metals are railed to Lake Superior and then shipped to some unknown destination for final processing. The metals must then be shipped somewhere for manufacturing, and shipped again for sale as part of a product.	AQ3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
18189	An additional greenhouse factor in regard to PolyMet is the destruction of approximately 1200 acres of wetlands. The DEIS presented a figure of 23,000 tons per year of CO2 equivalent emissions due to sequestration loss. However, the DEIS does not explain how Barr Engineering reached this figure. The DEIS instead claims that its wetland mitigation plan will mitigate these impacts. There does not seem to be a basis for this claim, given that the wetland mitigation plan would preserve existing wetlands in Aitkin County while destroying wetlands in St. Louis County. The Aitkin County wetlands would be in an entirely different watershed and would be of a different type. The bottom line is that the total amount of wetlands in the area/state would be destroyed, which goes against the Wetlands Conservation Act. European studies claim that the retention of wetlands helps to reduce climate change impacts on a local level by sequestering CO2, helping to moderate warming and giving plant and animal species more time to adapt. Based upon this, the destruction of wetlands in what is now Superior National Forest would have considerable impact because it is an area that has been preserved for its ecological resources.	WE2,WE3,WE7,AQ3
18191	The public expects that our regulatory agencies, such as the DNR and the USFS, are documenting and studying climate change effects in our regions. Such studies need to be included in this DEIS, rather than figures produced by Barr Engineering for PolyMet. The ecological division of the DNR is not holding its own against the DNR Lands and Minerals Division. While Lands and Minerals have spent 30 years studying the local geology and promoting mining, the ecological division does not have an equal amount of information documenting changes or threats to the biodiversity of our forests, wetlands, and watersheds.	AQ3
18217	I wish to also incorporates by reference the Draft EIS comments submitted by Minnesota Center for Environmental Advocacy, Friends of the Boundary Waters Wilderness, Save Lake Superior Association, the Indigenous Environmental Network, the Sierra Club, and Wetland Action Group.	G15
18219	The DEIS is inadequate in many ways. The "No Action Alternative" is the only legal alternative. This EIS is perhaps one of Minnesota's most important ever and the DEIS is filled with speculation and assumptions, many not based on science or past history. The LTV site is	ALT8
18220	currently in violation of federal and state water quality laws. How can putting metallic copper waste on top of leaking iron/taconite tailings basins, clean the site up? It is bad public policy to permit new pollution on top of old. Legacy contamination at the site must be cleaned up before	EOO,WR5A,PD2,G9
18222	We need another regional copper-nickel study to address new and emerging issues related to methyl mercury, wetlands, global warming, etc. The cumulative analysis of the PolyMet project is deficient and fails to address past, present and future issues related to PolyMet and the ecosystem where it is proposed.	PD3
18223	We cannot simply allow a company to do what they wish with Minnesota resources because they have paid money for an environmental review. The NorthMet deposit has been mapped and explored for many years. United States Steel originally planned for an underground mining operation at the NorthMet site. More recently PolyMet plans to mine the deposit in the cheapest way possible, which is to strip mine. The underground option has been eliminated from the DEIS purely because of economic reasons. A DEIS is required to address all reasonable alternatives. Because the company does not wish to spend the added money to have an underground mining operation, is not sufficient reason to exclude other alternatives that would be far less damaging to the environment. The DEIS is inadequate because the underground mining option has been left out of the alternatives, contrary to NEPA.	ALT8
18224	The DEIS is also inadequate because our federal land managers, the USFS, have not fulfilled their statutory responsibility to do an environmental review of the project, which is located mostly on USFS lands. The NorthMet site currently has Weeks Act protections against destroying the surface by strip mining. The USFS has stated that, as their official position in the DEIS, it is postulated that a land exchange will occur sometime in the future which would give PolyMet the surface rights to strip mine. The land exchange is a connected action and the DEIS should include the environmental impacts from such an exchange taking place. The EPA's position is that the land exchange should be addressed in PolyMet's DEIS. The severed estate of the land, with its accompanying environmental restrictions, should have defined the project as an underground mine. Instead we have politicians and federal land managers pretending that this is not the case. The public, as well as PolyMet stock holders, deserve to know that current environmental laws protect this land from strip mining.	PD1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
18225	Impacts to endangered and threatened species are not adequately addressed in the DEIS. The project's potential harm to Lynx, Wolf and Moose are inadequately addressed. This is critical Lynx habitat, yet there seems to be no real plan to protect the Lynx and their habitat. Moose have had catastrophic population declines. One of their main habitats is wetlands and bogs. The Minnesota DNR should have, as their priority, saving Minnesota's moose instead of permitting the destruction of their habitats. The effects on the plant species, such as the Botrichium, are inadequately addressed in the DEIS. It is assumed that there will always be another colony of plants, or that the Lynx can go around a mine pit. At what point can the wildlife no longer adjust to the monumental changes to their surroundings with one project after	WI1,WI2
18227	This would be the single largest destruction of wetlands ever permitted by the ACOE in Minnesota. Wetlands (especially peat) sequester CO2 and their destruction has not been adequately addressed in the DEIS. When Marty Vadnis was questioned at the 2008 MN sulfide mining legislative hearings , he was asked why this fact was not addressed in PolyMet's scoping documents. He replied "because no one brought it up during the comment period". The use of wetlands as treatment of metals and sulfates sequestering, is speculative and not supported by the science or past history at the Dunka Mine site. The peat contained in the wetlands will require periodic "recharging". This would involve mining peat and replacing the contaminated peat with fresh peat, and it would need to be done virtually forever. What is the carbon footprint of the destruction and use of wetlands (and peat in particular) in the manner PolyMet proposes? Other treatments proposed to control for Acid Mine Drainage and heavy metal leachate, such as adding limestone as a buffering agent, is also speculative and their lasting efficacy is unproven.	WE2,WE6,AQ3
18229	Using wetlands to sequester metals is an economic and political "solution" to metals pollution from mining. When the MDNR and MPCA first started studying using wetlands as metal sinks, as well as constructing wetlands for treating mine waste effluent, there was dialogue in the agencies as to whether it should be allowed (such as at the Dunka Pit sulfide overburden).It was looked at as mitigation at sites that had legacy pollution. Now the agencies are permitting mines and using wetlands as metal "mops". Should we be allowing this, is this acceptable as a precedent for the permitting of a new sulfide mining district? Also, these wetlands need to be maintained and charged, for a very long time. It is sort of a cheap perpetual treatment option, which is heavily supported by the MDNR. The state agencies do not want active treatment because they realize that ultimately, it is the state that will be responsible for these sites. To be able to use wetlands on the cheap, makes it more palatable to permit these mines which will require near perpetual treatment.	WE2
18230	Groundwater and surface modeling, done by PolyMet, is illogical and incomplete. The Tribes have made important comments on the inadequacy of the DEIS on water modeling and predictions. It seems that PolyMet got the answers that it was looking for in its modeling. The effects to groundwater (and eventually surface water) are perhaps the most troublesome of the project. Hydrological connections and the effects that PolyMet would have on the water resources is not adequately understood, studied, or addressed in the PolyMet DEIS. Heavy metal pollution in violation of federal laws and compacts is predicted to occur as a result of the project. Tribal comments suggest that the heavy metal and sulfate pollution will be much more extensive and persistent than is admitted in the DEIS. The potential for Acid Mine Drainage is virtually ignored in the DEIS. Rock characterization predictions (guesses), are replacing any evidence that would show the project will do irreparable harm to the State's resources. To the	WR1E,WR2A,WR2E,WR2F
18231	Metal, Fiber, and Mineral dispersion into the ecosystem is not adequately addressed in the DEIS. Areas such as Libby, Montana have seen toxic dispersions of asbestos for 20-30 miles beyond the original contamination source. Possible effects to humans, wildlife, fauna, as well as aquatic life, have not been adequately addressed in the DEIS. The probability that various toxic materials, including Amphibole Fibers/Particles or asbestiform fibers, will be dispersed into the surrounding environment and possible negative consequences is not being adequately addressed. It appears that it is the position of the permitting agencies that monitoring for, in lieu of actual protections from, harmful occurrences will be allowed to suffice in the project.	AQ4C

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
18232	Mercury and methyl mercury. The DEIS does not adequately address mercury release from the project, both from the tailings piles and mine pits. Not only is the St .Louis River watershed already impaired from mercury, the sulfates from the project will greatly exacerbate the methylation of past, present and future mercury. Exceedances of aluminum and mercury already exist in the Embarrass River. PolyMet will add to this, contrary to EPA rule (40 C.F.R. § 122.4(i).	WR4B,WR5A,FM1,FM3,A
18235	The permitting of PolyMet would be a violation of the Great Lakes Compact of zero discharge of Mercury to the basin. The claim that the project will not contribute mercury to the Lake Superior basin is unfounded and not supported in the DEIS.	EOO,WR4D
18236	Sulfates released into the ecosystem are inadequately addressed in the DEIS. the effects to the areas below and downstream from the project assume there will be little effect from mercury, other pollutants and sulfates. This assumption is speculative and is not supported in the DEIS. Recently the Duluth-Superior harbor has had its steel infrastructures eaten away at the water level It has been speculated that it is from sulfate reducing bacteria from an industrial source of sulfate. It would seem reasonable to assume that legacy taconite mining, with its documented release of sulfates, has contributed to this unexpected and unintended consequence. Who will be responsible for the unintended consequences from permitting a new highly toxic industry in the already impaired system?	PD3,PD4
18237	The Economic model in PolyMet's DEIS is inadequate. It appears to have just addressed any possible benefits without any of the true costs to the region and the state. Mining is historically a boom and bust industry, that is the best you can say about mining economies.	SE3
18238	the Range was booming. Planning for more workers to come into communities and destabilize the existing communities, just makes the bust even more traumatic. The DEIS does not adequately address the potential for the negative social or economic impacts to the area.	SE3
18239	The opening of a new industry, such as copper sulfide mining, in areas that depend on tourism and the natural resources of the area, communities such as Ely, will have a devastating and long lasting effect upon their economic base. In areas that have seen mineral exploration, the real estate market has been destabilized. People do not want to live near a copper mine. North eastern Minnesota is believed to be highly mineralized, much of it by low grade sulfide ores. Most of the ores found here are fairly common. What the mining companies like, is the mining friendly regulators charged with permitting their projects. Although many of the metals are quite common, there are only so many places where you are allowed to so utterly destroy the land and alter the hydrology of an ecosystem. The value of Sudbury, Ontario and Appalachia, to mining interests, is that there are only so many places where you are allowed to forever alter the land and in the process impoverish successive generations.	SE4
18240	Dr. Tom Powers compiled a report on Minnesota's mining economy. Those findings should be included in the DEIS. It is a simple observation that mining communities tend not to be prosperous.	EOO,SE3
18241	Other sulfide mining projects and the planned sulfide mining district is not addressed in the DEIS. The USFS is currently doing an EIS for hardrock mineral prospecting in the Superior National Forest. While the USFS has been slow to address hardrock mining in the SNF, it has begun the environmental review process. The state of Minnesota (MDNR lands and Minerals, NRRI, IRR) is promoting metallic sulfide mining in the state through technical assistance, grants, leasing, etc. The MDNR is the lead permitting agency for the PolyMet NortMet Project, yet they are also the lead promoter of metallic mining in the state. This presents a conflict to those charged with fulfilling the environmental review, this dual mandate to protect and develop the resources should be addressed in the DEIS.	G9
18242	Companies are exploring across NE Minnesota. Those in the advanced stage of exploration and mining near the PolyMet Project should be addressed in the DEIS. That would include Teck Cominco, which just conducted an EAW for a large scale sample project next to the NorthMet site. Franconia Minerals, Duluth Metals, Encampment Resources and Kennecott all are leasing and exploring for mineral targets that the state of Minnesota has spent years geologically defining. The DEIS is inadequate in not addressing the State's own plans for a sulfide mining district.	G9
18243	If Duluth Metals is not a "real" project, why is the responsible party status at the Dunka being transferred to them?	G9

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
18244	PolyMet is proposing to permit for a third (32,000 tpd) of the plant's 100,000 tpd processing capacity. PolyMet has been touting, in their corporate presentations, the potential for processing adjoining ore bodies in their excess capacity. The planned future use of PolyMet's excess capacity must be addressed in the DEIS. To allow the project to be misrepresented in the environmental review in order to under evaluate the potential for harm, is unacceptable.	G9
18245	Accurate descriptions and predictions of mine closure timelines are not adequately addressed in the DEIS. How long is treatment expected to be required? In the CPDEIS there were numerous references to perpetual treatment. It appears those unpopular references have been removed from the DEIS. In reality the PolyMet Project, if permitted as proposed, is expected to require perpetual treatment. The DEIS must state that fact in order for the public to get an accurate description of what will be required. PolyMet is not expected to be in existence beyond the project's permitted life. That means the burden of perpetual maintenance will fall upon Minnesota taxpayers. If PolyMet follows the path of many metallic sulfide mines, there will be no responsible party and Superfund status will fall on the site with the accompanying public liability for clean up and treatment. Nowhere in the DEIS are the potential financial liabilities discussed. The possible catastrophic economic scenarios are being left out of the DEIS. The DEIS is inadequate by failing to address financial assurance and liabilities for the project.	PD3
18246	It is stated, in the DEIS, that the project will provide the USA with needed supplies of metals. This is not correct and is not supported by the DEIS or PolyMet's own claims to the contrary. PolyMet has joint ventured with and has off take arrangements with international mining giant Glencore to send 100% of the metals from the project out of the country. If the metals at PolyMet's NorthMet site are strategic to our national interest, then they should remain at the site for our own national security and emergency needs. It is disingenuous to argue that the metals are strategic to our national interests and then allow them to be sent out of the country for speculative gain to international commodities traders. The claim that we need these metals is also untrue. The project degrades the very things that we do need, air, water and sustenance. It has been postulated that there are not enough metals in the world to satisfy our perceived "needs". The DEIS is woefully inadequate in its analysis of our needs vs. wants.	G1
18247	There are several key assumptions in the deterministic modeling and Uncertainty Analysis for the Mine Site that warrant further evaluation, including: 4.1-85 "Humidity cell testing is continuing and changes in dissolution rates that may occur over time could affect the accuracy of the groundwater quality predictions." "...the amount of mineral surface area contacted by water passing through the full height of a waste rock stockpile is much greater than the surface area contacted by water passing through a humidity cell." "Clarification is required regarding the methods and data used by PolyMet in determining the acidification factor." p. 4.1-123 "PolyMet proposes to construct an approximately 160 acres wetland at the East Pit once filling is completed, which would receive and further treat effluent from the WWTF (further reduce concentrations of metals). There is very limited data regarding the effectiveness of constructed wetlands in removing mercury. ...Based on the scientific literature, the constructed wetlands would be expected to be variably effective in removing total mercury, and could function as a source of methyl mercury production. From p. 4.1-107 The Proposed Action may affect the water quality of the Partridge and Embarrass rivers and their tributaries that drain the Mine Site and Tailings Basin....several potential pathways for surface water quality impacts remain, including non-contact stormwater runoff, seepage from rock stockpile liners, the hydrometallurgical residue storage area, the Tailings Basin, and pit lake overflows.	WR2E,WR3L,WR4A,WR4
18248	There is an unacceptable level of uncertainty in the project, including but not limited to: rock characterization, hydrology, impoundments, efficacy of long term treatment options, effects upon endangered species, heavy metal dispersion into the environmental, persistent pollution and Acid Mine Drainage, long term ground and surface water quality degradation.	PD2,PD3,PD8,PD10,CR1
18249	In the CPDEIS and the DEIS, there are unanswered questions pertaining to the stability of the LTV tailings basin, this has not been adequately addressed. Tribal and agency comments voice their concerns over the tailings basins, why has the DEIS been released when questions remain as to the safety of the tailings basins? In 1991 the MPCA approved a compliance plan for coal ash disposal site that failed and spilled coal ash over Highway 61 and into Lake Superior.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
18250	The Hoyt Lakes-Babbitt Connection Project has not been cancelled and must be included and assessed in the DEIS, as part of PolyMet's Cumulative Impacts. Millions of dollars have been spent on the design of the project and environmental review has begun, it has been temporarily placed on hold while further funding is sought (according to St.Louis County). During scoping there was a lot of public attention drawn to the project because of the connection to the PolyMet NorthMet project. While funding may be an issue, undoubtedly public scrutiny played a part in the decision to place the Hoyt Lakes-Babbitt Connection Project on hold, at least until the expected permitting of the PolyMet NorthMet project. The PolyMet DEIS does not adequately address the Cumulative Impacts from the Hoyt Lakes-Babbitt Connection Project.	G9
18251	PolyMet's DEIS should get a determination of inadequate and the no action alternative is the only legal option for the NorthMet Project. It would be a violation of state and federal laws, including the Clean Air Act, the Clean Water Act, NEPA, and MEPA if the PolyMet project were allowed to proceed.	PRO7
Sender Last Name:	Andrews **Submission ID:** 147	
138	Basically, I support the mine for a lot of economic reasons, but also, I believe that we need the products, we can produce them here, and we can produce them here with environmental controls. If we don't produce them here, they'll produce them in a third world country, no guarantees on environmental controls. The product'a here, produce it here, keep the jobs here.	EOO,G5
Sender Last Name:	Androff **Submission ID:** 2056	
2491	We already live in a cess pool of toxins and should not be asked by yet another corporation to add to their cummulative effect. Clean water is becoming so scarce that we cannot in clear conscience add to its pollution.	G7
Sender Last Name:	Anonymous **Submission ID:** 3625	
3907	I hope the DNR issuance of PolyMet permits will not reflect an acrobalic accounting of costs and benefits but will include the value of the stream of environmental services currently provided by the 6700 acres of land in question. Some of those [illegible] priced (extractables) and others non-priced (carbon sequestration in living and nonliving biomas, water retention and cleansing, atmospheric gascycling, nutrient cycling, photosynthetic energy [illegible] to the atmosphere ect.) These services yield essential value that is lost in perpetuity. To contrast the benefits of this mine are fintite and of short duration while the external costs of sufide mining are potentially also in perpetuty. I fully expect that the permits will be issued, reflecting the myopic social choice of sacrificing our sustainable resources for non-renewables in order to power our current demographic/economic binge.	EOO
Sender Last Name:	Apter **Submission ID:** 3013	
3425	Please move forward with this mining project. These resources are critical to the region and the nations future. It would be improper to delay these efforts because of people who have no interest in economic development. I would hope you would see that this is a sound proposal that will help our area. Thank you for your consideration of this project.	EOO,G1
Sender Last Name:	Armstrong **Submission ID:** 222	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
225	I would like to express my support for the North Met project. With 35 years of mining experience at Minntac I saw firsthand how our state and federal agencies were able to effectively regulate mining in Northern Minnesota. I know some of the management at Poly Met and I find these people to be very responsible. I feel that with government oversight and with responsible people at the helm this project can be environmentally responsible and economically rewarding.	EOO

Sender Last Name: Arneson **Submission ID:** 3748

1	I object to the inadequacy of the DEIS to demonstrate that the proposed mining and processing operations could be done without polluting and without putting taxpayers at risk for extensive and expensive cleanup efforts that would be needed at such a massive disturbance of sulfide rock.	PD2,PD4
2	I live on the Iron Range of Northern Minnesota and have been following the PolyMet project. I am in support of this project.	EOO
2	I also believe that we need 120 days for a comment period, and we need to have more open meetings where we are able to speak our concerns for the rest of the -- I'm trying to think of the right word. Do -- do you have to put that in too? THE REPORTER: Sure. I write everything down. MS. CARLA ARNESON: Oh, funny. I think it's important to have open meetings where people are allowed to say what their concerns are so the rest of the audience is aware that there are other concerns out there and what they are. And it helps when you write the EIS comments to bring up new information, so I -- I really don't think this was a good idea to have closed comments. As I said, I'd like to have more meetings. I'd like to have 120 days so we have time to really look at this. As I said, I've researched it, and it's still daunting. I intend to read the EIS from cover to cover, and it's going to take quite a while, especially for people who have day jobs. You know, I have a little more leeway because I am retired. I have a little more time to be able to read it during the day, but most people are working, and for them to try and do this in 120 days with all the scientific information is literally impossible. So thank you.	PRO6
3	For several reasons, the DEIS Northmet 2009 is arguably the most important mining project to be considered for north eastern Minnesota. The Project reflects a major departure for Minnesota, from traditional iron ore and taconite mining to hard-rock (Sulfide) mining: "..the first large-scale non-ferrous metallic mineral mine in the State of Minnesota." (DEIS Northmet: Chapter 3.1, Proposed Action) The DEIS Northmet proposes a form of mining that is highly controversial in Minnesota, the U.S. and globally. (Precious Waters. http://www.preciouswaters.org/resources/polymet-mining-activity-minnesota/ ; Sulfide Mining: http://bwcaboard.com/board/viewtopic.php?f=88&t=1698 ; OK Tedi Mine: http://archive.wri.org/biodiv/pubs_content_text.cfm?cid=1860; Environmental Impact of Mining: http://rainforests.mongabay.com/0808.htm.) This controversy is fueled in part by a consistent pattern over decades of hard-rock mining companies overstating the benefits of hard-rock mining while understating the true aggregate costs and adverse impacts on the environment and health. (Power TM. Economic Role of Metal Mining in MN, 2007: http://www.cas.umt.edu/econ/documents/faculty/power_econRoleMetalMining.pdf; Boulanger A, Gorman A.Hardrock Mining: Risks to the Community, 2004: http://www.womenandenvironment.org/newsreports/issuereports/Mining_Health_Report_final_lo%230.pdf. For these reasons, the DEIS Northmet should provide clear and convincing evidence that the proposed Project will provide citizens of MN with benefits that exceed the risks. In light of the well-documented deleterious impacts on the environment of hard-rock mining in the U.S., the Project proposers should offer detailed evidence as to why the predictable and often devastating effects of hard-rock mining witnessed at mining sites over the decades will not occur with the Northmet Project. To achieve this goal, the DEIS Northmet should be a transparent and clearly science-based project proposal. The goal of transparency should be advanced by providing detailed information regarding the respective roles of the lead federal and state agencies. The unique, separate and at times, conflicting roles of the Forest Service and Bureau of Land Management regarding oversight and management of the Superior National Forest and mineral resources should be elucidated. The focus, mission and legal underpinnings of these entities are different and goals, objectives, and expected outcomes related to this Project and related projects should be provided.	PD3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
4	While much effort has gone into the preparation of this DEIS Northmet, there are major deficiencies: The DEIS does not clearly demonstrate that Project benefits outweigh the risks; there are major gaps in transparency of the Proposal, with no information provided on disclosures or potential conflicts of interest; and finally, each section of the Draft EIS Northmet contains statements and conclusions that lack supporting documentation of the assumptions upon which these statements and conclusions are based. Profuse generalizations often mask the lack of specific evidence-based answers to critical questions. Much data in this DEIS was provided by consulting organizations, whose science expertise, and relationship with the lead agencies and mining company are not included.	G8
5	4.4.3.1 Proposed Action (Environmental Consequences): It is stated that the Final EIS will include results of consultation between USACE and USFWS regarding potential effects on Canadian Lynx and other federally listed species. I suggest that this consultation summary as well as the "process" be included with specific findings from research, assumptions and methodologies used. What specific efforts have been made at the Project site to identify Lynx? Have trail cameras been deployed? Have there been searches of the site for Lynx den sites. Or are statistical data being used to describe the potential impacts of mining on these species?	RFI,WI1
6	4.4.5 Approach (Wildlife Travel Corridors): The list of projects identified as potentially impacting wildlife corridors does not include the Franconia; Duluth Metals; Encampment and Tech Cominco projects in the nearby Ely area. Please include these projects in your analyses. It is inconceivable that further development of mining in these areas is not relevant to the cumulative impact of the Northmet Project and other human activities in animal corridors in northeastern MN. Will Table 4.4-9 be revised to reflect these projects?	WI5
7	Finally, the cumulative effects analyses are few and incomplete with little information provided about the broader implications of this Project and other hard-rock mining activities in various phases of development and in the queue in the Arrowhead. It is vital that Minnesota take both a focused view of the impact of such projects but also a broader view of the context in which these projects are taking place in northeastern MN. The aggregate effects must be critically examined since science tells us that our current rate of human activities affecting land use are unsustainable. (Foley et al. Our share of the pie. Science, 2005: http://www.pnas.org/content/104/31/12585.full; Boakes et al. Extreme contagion…Proc R Soc B, 2009: http://rspb.royalsocietypublishing.org/content/early/2009/11/25/rspb.2009.1771.abstract ; Foley et al Global Consequences..Science, 2005: http://www.sciencemag.org/cgi/content/abstract/309/5734/570; Haberl et al. PNAS 2007: http://www.pnas.org/content/104/31/12942.full.pdf+html)	CR1
8	4.5.4: Mercury and bioaccumulation in Fish: The DEIS does not include important science regarding metal contamination from hard rock mining and toxicity in fish and macroinvertebrates other than mercury. Cadmium (Cd), lead (Pb) and zinc (Zn) in water and streambed sediment have been found to exceed Ambient Water Quality Criteria (AWQC). This deficiency should be corrected. (Maret TR et al. Fish Assemblages and Environmental Variables…Trans Am Fisheries Soc 2002;131:865-84. http://afsjournals.org/doi/abs/10.1577/1548-8659(2002)131%3C0865:FAAEVA%3E2.0.CO%3B2)	FM1
8	4.5.3.1 Proposed Action (Environmental Consequences: Fish): Water Quality Effects p4.5-15: Was the conclusion reached in this paragraph informed by the most recent Climate Change data regarding disruptions in normal cycles of extreme weather events? (WHO; UNEP Intergovernmental Government Panel on Climate Change: http://www.ipcc.ch/) Do the assumptions regarding lack of impact even under extreme low flow conditions include changes predicted by Climate Change forecasts? This question applies to all other sections that have reached similar conclusions.	G14,WE1,WE2
9	Even in MN's two Class I areas (BWCAW and Voyageurs NP), visibility impairment is being quantified. New construction and development, including mining companies on the Iron Range, threaten to add to the problem. Global sources of air pollutants are increasing. The projected added air pollution from the proposed activities in this DEIS and subsequent proposed sulfide mining must be evaluated in the context of such changes. Fine particles (which have serious human and environmental adverse effects) will clearly be generated from multiple sources associated with this Project including forest disruption, soil erosion, road building, mining, vehicular traffic, etc.	AQ4B,AQ9

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Comment ID	Comment Text	Theme Codes
9	4.6.1.1 Existing Conditions: Regional Climate and Meteorology: Surface data are reported from the Hibbing Monitoring Station with estimates of the wind direction, etc. Why aren't other closer monitoring data provided. For example, wind roses for MN and surrounding cities (http://climate.umn.edu/wind/windRoseClimatology.htm) provide data from Ely, MN Municipal Airport.	AQ4,AQ5
10	The Indian tribes working on the EIS and the United States Environmental Protection Agency have provided helpful information on the inadequacy of the PolyMet draft EIS. Before this sulfide-mining project is even considered for permits, these gaps must be completely filled. Please take the time and do the scientific research to add supplements to the draft EIS and give people in Minnesota a fair chance to know what impact the PolyMet project actually would have on our State.	EOO,G8
11	According to the DNR's Mission statement, if you are to allow this mining, by this or any other company or agency, and the like, you do not believe in your own mission statement, and what the DNR was created to do. If this is so, being as my tax dollars help pay for the DNR's services, please quit so people who do believe in the sustainability and the preservation of our natural resources can do the job and represent us properly.	EOO
11	I am in support of the Polymet mining Project. I think that the DNR has done a through job on insisting that the project be done in an enviromentally sound method. I believe that the people in the DNR are very qualifed. I have read quite a few anti-letters to the editors of papers and I don't believe they have done any studying as to how the project will be done and what regulations are being installed to see that the project will be done environmentally sound. Mining is the life blood of Northeastern Mimmesota. Our people and our schools are suffering. We can also provide minerals that currently must obtained from other countries. We are sending our money overseas. From the DNR studies we can do this mining environmentally sound, so lets get at it!	EOO
12	I worked as a guide in the BWCAW for 4 summers and strongly oppose this mine!	EOO
12	• I support the PlyMet Mining's NorthMet Project, and the adequacy of the draft EIS. • I am employed in the construction industry - the project would bring good construction jobs to the area. • Polymet has demonstrated it's ability to comply with Environmental requirements. • The positive economic impact is of significant benefit.	EOO
13	Mining has a tremendous public health and environmental impact.	EOO
13	We support the new project (Polymet Mining's NorthMet Project). It will be nice to see the old LTV site used and to keep the Iron Range productive and benefiting the state of Minnesota's employment and economy. The DEIS has been a long time coming and at a very high price. It is a very long and comprehensive document and we can only scratch the surface but, it seems to cover all the environmental items we can think of. So let's start construction in 2010 and not wait another 10 years.	EOO
14	It is feared, and has been noted in the DEIS, that there will at some point be problems with the release of toxic materials at some level at this project. To me it seems that the risk dwarfs the rewards. There is nothing there, no mineral or metal, that cannot be gotten elsewhere. As a matter of fact, the only reason this project was even proposed by PolyMet was because the price of the metals had gotten high enough to warrant the project. There are many mines around the world that can produce the same metals with much less environmental risk. Nothing there will change the world because we have more of it. Therefore, why take the risk on something where there is such a great chance of failure? Not only PolyMet, but the other companies who are just waiting to see how this comes out so that they, too, may jump in and proceed with their own projects--each with their own unique risks. My worry is that this project is going forth not on the basis of what is right, what is best for Minnesota, what is best for the conservation of the precious wilderness, but simply because permits have been applied for, draft environmental impact reports have been filed and reviews are in progress. It seems from the PolyMet press releases that this is all a done deal and it is just going through the motions to begin their project. Where is the hard look at this project that should be taking place, where is the real concern about the consequences should this project go bad?	G8,WE5,WE8

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Comment ID	Comment Text	Theme Codes
15	I understand that the water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. That alone should worry everyone involved with this project, should raise a red flag that makes every last person in this chain of decision making stand up. The fact that there must be huge sums of money up front to take care of what has already been deemed the inevitable clean up should alone disqualify this project from going forward. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes.	EOO,G8C,WR1E
15	I support Polymet's NorthMet project. It is good for all of Minnesota.	EOO
16	I believe that our natural resources have far greater economic value if preserved than the return from this form of mining. I think the DNR must be pro-active in preventing the environmental impacts that have been experienced in almost all locations of sulfide mining and are especially risky in the water sheds and geological nature of this area.	EOO
16	I want to continue to enjoy the clean water, the quiet and the natural beauty of this area during my lifetime. More importantly, I want future generations to be able to enjoy these natural resources and for the State of MN and local communities to share in the economic benefits that derive from preserving these resources.	G11
17	My main concerns are for water quality both in near term and for decades to come, for destruction of vital wetlands, fish, and other wildlife, for the disruption to the BWCAW and State Forests as key recreational areas, and to the negative economic impacts to local areas as well as the Minnesota taxpayers.	PD10,G1
17	I whole heartedly support the PolyMet Mining NorthMet project!	EOO
18	I am a former long-time resident of the state of Minnesota and an ex-employee of a mining company on the Iron Range which was shut down by one of the typical Minnesota economic maladies. I have worked in the mining industry most of my life and have closely followed the progress made by PolyMet over the past eight years. It is enlightening to see a spark of life showing up again in the North, especially after seeing other areas in the state reap most of the benefit of good years past. The current worldwide economic situation makes it look quite bleak for the area I used to call home. Housing slumps which have always seemed to hit the Range area hard seem to be gearing up again, and PolyMet has the means and momentum to significantly support the area with jobs, tax revenues and business opportunities. This project needs to get as much support as can be provided. The potential sources of commodities produced in the state of Minnesota, and especially in the North, are not particularly numerous anymore, and the continuing worldwide need of the specialty metals produced by PolyMet will provide a state revenue stream for many future years. I would like to see my friends and relatives share in the good times to return to the Range. Allowing Canada, Russia and China to control the world supply of these metals, when you have them sitting untouched in your back yard, is not an option. You have the good fortune to have a responsible company who has shown the best integrity in identifying and addressing the methods for keeping Minnesota's resource development and production in harmony with the environment. After recently reading about how some of Northern Minnesota schools face extinction due to lack of revenues, I would suggest favorable and timely action to avoid start-up delays at North Met. The solid, dependable work force of the mining areas of the state need to be granted more jobs and the opportunity to assist in the coming economic recovery. Let's help the North get back on track!	EOO
19	I SUPPORT THE POLYMET MINING NORTHMET PROJECT	EOO

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Comment ID	Comment Text	Theme Codes
20	"One of the biggest factors in the dark history of sulfide mining is how frequently mining companies are wrong about what their impacts on water quality will be. One peer-reviewed study found that, while all projects that were reviewed predicted they would not pollute, at least 76 percent of the time they still did. The same study found that 89 percent of mines that have polluted said they would not. "The industry's track record of not paying to clean up its messes is long and shameful. A few examples include: □ Zortman-Landusky Mine, Montana – $33 million and counting □ Summitville Mine, Colorada – $185 million and $1.5 million/year □ Grouse Creek Mine, Idaho – $53 million" (-- from Friends of the Boundary Waters' Sulfide Mining page) These and other factual horror stories on the damage already being done by acid mine drainage are welldocumented. For one national source, see EARTHWORKS website search on 'acid mine drainage'. Policymakers should be very careful to guard against repeating these mistakes. In our region, there are few if any examples of successful pollution prevention, especially long-term. □ On Michigan's Keweenaw Peninsula, copper mills discharged an estimated 200 million tons of coppercontaminated waste directly into Torch Lake, reducing its volume by 20 percent and leaving a toxic threat to fish and anyone who eats the fish. Information can be found in the Mining Waste National Priorities List Summary Report, Torch Lake, Houghton County, Michigan. □ In Ontario, the Geco and Willroy mines, owned by Noranda Minerals Inc., near Manitouwadge generate acidic runoff laced with heavy metals that must be treated in perpetuity. Metal loadings will steadily increase downstream over time. Geco operated from 1957-1995 and Willroy from 1955- 1977. According to reports in 1995, Inco's Shebandowan Mine west of Thunder Bay contributes nickel loadings from the minesite (including mine drainage to creeks on site) that are ten times higher than background inputs. From: "under Mining Superior: A Report on Mining Activities and Impacts in the Lake Superior Basin," by Northwatch (Summer 2001). northwatch@onlink.net Flambeau Mine In Wisconsin, the Flambeau Mine has been held up as an example of a clean sulfide operation, but after partial closure, it is sitll polluting the Flambeau River. In July, Wisconsin Resources Protection Council filed a lawsuit to force the Wisconsin DNR to enforce water quality regulations and monitoring requirements. The lawsuit holds the agency and company accountable for ongoing pollution at Kennecott's Flambeau Mine in violation of Wisconsin law as well as the federal Clean Water Act. (Note: Kennecot is exploring heavily in Aitkin County, Minnesota.) Press Release June 18, 2009 Flambeau Mine Causing Illegal Water Pollution Conservationists announce intent to file lawsuit over water pollution from Flambeau Mine	WR5A
20	And relating to air -- air quality, they were talking about the -- the dust generated within the mining operation is going to be pretty much confined to an impact zone. When that dust settles in that impact zone and we have a lot of wind and everything up here, that dust does carry with it a mercury component, so when the wind carries that to another watershed, what is -- what is being done to address that impact of -- of airborne particles outside of the actual mining operation? We have a lot of times when the Boundary Waters, you know, the fires and everything else there, we get a lot of fallout ash and dust and whatever from that, so -- and that's miles and miles away, so it's -- it's a concern that I have in terms of mercury that could be airborne, you know, from the mining operation, what -- what's being done.	AQ4,AQ6A
20	Even though there are no metallic (copper or nickel) sulfide mines in Minnesota, we have our own acid mine drainage (AMD) or acid rock drainage (ARD) hot spot near Babbitt. At the Dunka open-pit taconite mine, LTV Steel removed some sulfide overburden to get to the orebody of interest. The sulfur-bearing waste rock was piled up and ignored at first. For decades, known AMD has been produced by the waste pile and pit walls, polluting Unnamed Creek, which flows into Bob Bay of Birch Lake, which flows into the Boundary Waters Canoe area. Despite mitigation efforts of the company and Minnesota DNR "studying" the site, it is now under an expired Minnesota Pollution Control Agency (MPCA) permit and water quality variance for some of the known seeps. These seeps release lethal concentrations for certain aquatic species, which exceed water quality standards. Yet, for several years, the Commissioner has not required the existing water treatment plant to operate, even during the warm months, citing cost considerations. The U.S. EPA has emphasized that contamination levels at the Dunka Pit are due to Duluth sulfide rock formation, like that in a copper or nickel mine. "The mine waste rock may be, therefore, more analogous to a copper-nickel mine, rather than an iron ore mine." (Tech Res. Doc. Extraction and Beneficiation of Ores & Minerals, Vol. 3 1994). WaterLegacy members are concerned that if companies are allowed to operate under such variances, there is little point in establishing permit conditions to protect the water quality. WaterLegacy has requested of the MPCA historical and background information on the Dunka pit.	WR1E

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Comment ID	Comment Text	Theme Codes
21	I am a mother who is very concerned about the proposed PolyMet sulfide mine on public land in the Superior National Forest. As well as being a mother, I have been living long enough to know that corporate interest in extracting the minerals is based solely on the bottom line. The corporation is only interested in what their actions do or leave behind in so much as they are required to be for gaining the permission to mine. I have no say in the corporation's business, but I would like to share my opinions and concerns with you, who will have a say in whether this company is given special permission to extract from and pollute our environment. If you say, "They will not pollute," maybe you should spot yourself in a passing glass window or bathroom mirror to see if you believe yourself or not.	EOO
22	If history and reality speak the truth, the proposed mine will significantly raise methylmercury levels in the Partridge and Embarrass Rivers, due to leaching of sulfates which will increase mercury methylation. It may pollute immediately, or 20, 30, 50, 100 years from now, but it will undoubtedly pollute someday. Raising the levels of methylmercury in the Partridge River and the downstream St. Louis River, which are already impaired by the unsafe levels of mercury, is contrary to Minnesota State Law. The idea of allowing additional water quality challenges to this river system is confusing to me. The impact of sulfate pollution will be on wild rice, the Fond du Lac Band that lives downstream, healthy fish habitat, and ultimately the ground water. I have entrusted you, through our government, to protect our waters. This is your unique role and one that can hold the muster of time, since you should not be tempted with concerns for jobs, profits, "progress" or other short-term potential results from this mine at the expense of the priceless value of clean water. I do believe that the test of time will determine that water is more important than copper.	WR4B,WR4F,WR5A,WR5
23	I ask you to deny the PolyMet mine until a truly pollution free mining option is proven. Minnesota, with its water rich environment, should not be the state to experiment with new untested mining systems. Please consider my plea.	EOO
24	I am extremely concerned about mercury and sulfate pollution associated with the proposed PolyMet mine, which will compromise the wild rice beds, the Partridge and St. Louis Rivers, fish habitat, and eventually the ground water. The St. Louis River is already considered impaired by unsafe levels of mercury. Yet the DEIS does not adequately address this impact, even though Tribal Agencies have raised serious concerns about it.	WR4B,WR4F,FM1
25	There are a lot of environmental concerns for the PolyMet mine, but my concern I would like to bring to you today is about the electrical load. Yes, it will be less than the site used many years ago. And yes, all the wires and equipment are in place, but in 2007, the state of MN passed several energy laws to produce 25% of its power from renewable energy, and to also reduce the electrical load of MN over time. Reduce! My understanding of this legislation is that if we are going to add any electrical service/loads to the grid that a greater level of energy consumption needs to be reduced to allow that load to be added. I am strongly opposed to any additional loads, especially a load of this magnitude. We will never get to a sustainable level of electrical consumption/production if we blindly move forward with projects, not even thinking about the other legislation that has been passed before. Have you considered this in your deliberation? I am asking you to put a moratorium on any new electrical hook ups of this scale until greater clarity can be agreed upon with the legislation because, where I am sitting, this hookup would be a violation of MN state law.	PD8

Alphabetical by sender's first name

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26	Dear Mr. Arkley and Mr. Ahlness: I am extremely concerned about mercury and sulfate pollution associated with the proposed PolyMet mine, which will compromise the wild rice beds, the Partridge and St. Louis Rivers, fish habitat, and eventually the ground water. The St. Louis River is already considered impaired by unsafe levels of mercury. Yet the DEIS does not adequately address this impact, even though Tribal Agencies have raised serious concerns about it. There are a lot of environmental concerns for the PolyMet mine, but my concern I would like to bring to you today is about the electrical load. Yes, it will be less than the site used many years ago. And yes, all the wires and equipment are in place, but in 2007, the state of MN passed several energy laws to produce 25% of its power from renewable energy, and to also reduce the electrical load of MN over time. Reduce! My understanding of this legislation is that if we are going to add any electrical service/loads to the grid that a greater level of energy consumption needs to be reduced to allow that load to be added. I am strongly opposed to any additional loads, especially a load of this magnitude. We will never get to a sustainable level of electrical consumption/production if we blindly move forward with projects, not even thinking about the other legislation that has been passed before. Have you considered this in your deliberation? I am asking you to put a moratorium on any new electrical hook ups of this scale until greater clarity can be agreed upon with the legislation because, where I am sitting, this hookup would be a violation of MN state law. Before PolyMet can be considered for permits, along with the serious problems in the DEIS, please deny the permit until they can fully meet the environmental standards of MN and the clean water act AND establish that adding this new electrical load will not increase the electrical demand, adjusted for conservation goals established in the 2007 legislation.	EOO,WR1E,WR5A
26	The Polymet issue is not really about jobs or money. It is about survival. Prince Phillip, a person apart from politics, gave a 13 minute speech at the Copenhagen Climate Change Conference (may be seen on Utube) in which he points out that "as our planets life support system begins to fail, our survival as a species comes into question". You can help. Copper-nickel mining is a disaster in the making. Please use your influence to stop its development.	EOO
27	Please help stop the Polymet project. Copper-nickel mining is always a disaster. We are no longer in the 19th Century. We know better now.	EOO
27	We are asking that you make something our state has been doing well even better. A new kind of mining is being discussed in Minnesota. But are current regulations strong enough to protect our taxpayers and our lakes, rivers and streams?	EOO
28	Minnesota needs stronger financial assurance rules for non-ferrious mining, not only to protect taxpayers from being forced to pay for polluters' messes, but to ensure the state can respond to threats to our clean water. Needed improvements to financial assurance requirements include: * Financial assurance should be in cash or cash-equivalent forms and deposited in the state treasure - to be beyond the reach of bankruptcy courts. * Determination of the form and amount of financial assurance should involve not only the Minnesota Department of Resources, but also the Minnesota Pollution Control Agency and the Department of Management and Budget.. * Parent or affiliate mining corporations should be held accountable for clean-up costs. * The public should have a chance to review how financial assurance figures are obtained and adjusted as a necessary protective measure for an industry with high pollution risks.	PD4
29	Please do everything you can to stop the Polymet mining proposed to mine sulfide ore minerals that include copper and nickel found in the Duluth gabbro complex formation. This would be an environmental disaster for this important natural area. This area provides for programs which have affected hundreds of thousands of youth with the opportunity to experience a wilderness where there is clean air and water pure enough to drink. To allow this development in any form would be a mistake that would affect the very soul of our nation!	EOO
29	We believe in paying taxes, but NOT FOR THE YEARS it would take to clean up the irreparable damage that will occur after the mining interests have taken what they can and then leave. What remains is the run off of waste which creates sulfuric acid. That in turn leaches out toxic metals and will pollute nearby lakes and streams.	G7A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
30	2.3.1: Potentially significant Issues: It is noted that the "Final SDD determined that the EIS would also address the potential cumulative impacts associated with the combined environmental effects of the Project and of past, present, and reasonably foreseeable future actions relative to: Air Quality; Biological Resources; Water Quality; Economic Impacts and Social Impacts. Nowhere in the DEIS, including Chapter 4.0: summary of the cumulative effects (Section 4.14) are the nearby proposed hard-rock mining operations of Franconia; Duluth Metals; Encampment; and Tech Cominco referred to, yet each of these proposed projects—within <25 miles of the Northmet Project site—are expected to have potentially major impacts in the region. To the extent that all these areas are bound together in regional linked ecosystems, the failure to include reference to these projects as noted in the Final SDD is surprising and suggests that Project proposers do not accept the premises embodied in NEPA and/or the heightened legal protections of BWCA and Voyageurs National Park which will clearly be impacted by hard-rock mining.	G9
30	2.3.4: Issues Incorporated into EIS after Scoping: It is noted that the DEIS will have "greater emphasis" on several areas not anticipated at the time of the Final SDD: these include methylation of mercury; fine particulate emissions and greenhouse gas emissions and climate change, among others. The current DEIS provides inadequate information for judging the validity of assumptions and conclusions regarding these critically important issues. (see below)	PRO3
31	3.2: Project Alternatives: Paragraph 3, p 3-50 states that "NEPA requires that a "range of alternatives" must be discussed….This includes all reasonable alternatives which must be rigorously explored and objectively evaluated…" It is questionable whether either the rigor or objectivity of the project alternative analyses meets the intent of NEPA. For example, failure to include in any analyses in this DEIS Northmet data/information regarding Franconia; Duluth Metals; Encampment and Tech Cominco is problematic.	ALT8
32	3.2.1: No Action Alternative: It is stated that: "This alternative would avoid the environmental impacts associated with the proposed Action; however, the social and economic benefits from the Project would not occur." Extensive data accumulated over decades indicates that this statement should be modified to include that fact that the highly predictable "bust" cycle that is part of "boom" and "bust" mining cycles would cause "social and economic" hazards as result of this Project.	ALT8
33	4.1.1.2 Groundwater Resources (see 1.6.1 above): The lack of hydrologic data for the Northmet Project that would allow clear characterization of current bedrock groundwater, flow directions at the mine site and tailing basins is outlined. My review of the supporting data does not provide such detail. Question: Do the DEIS Lead Agencies have a disagreement regarding the facts of available data upon which key hydrological estimates can be made? The data is either available for such analyses or it is not available. There should be no "difference of opinion". Also, on p4.1.5 footnote a similar "difference of opinion" is noted regarding the "underlying surficial aquifer." If it is the tribal cooperating agencies' position that any conclusions "..based on this aquifer test data have a great deal of uncertainty given the variability in the results" do the DEIS lead agencies have data that refute the "uncertainty given the variability in the results?" It would seem that variability can be quantified and the degree of uncertainty ascertained. Isn't it the responsibility of the DEIS and lead agencies to clarify this?	WR1E
33	3.2.3: Tailings Basin Alternative: (1) Vertical wells (to capture and pump Tailings Basin seepage): in this and other sections the term "seepage" is used but not defined (under Definitions iv). The term "surface seepage" is used. It would seem that "seepage" could occur at the "surface" or below the surface from hard rock fractures resulting from drilling, blasting, and other mining operations. While surface seepage could be recognized and recovered, how does this Draft EIS Northmet propose to 1. Detect subsurface "seepage" and 2. Determine the rates, location, directional flow; and ultimate destination of groundwater in aquifers; bogs; streams; rivers; lakes?	WR2A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
34	On p 4.1-8: Groundwater Quality: a quote from MN Rules, pt. 7060.0600 states: “The groundwater may in its natural state have some characteristics or properties exceeding the standards for potable water supplies. Where the background level of natural origin is reasonably definable and is higher than the accepted standard potable water and the hydrology and extent of the aquifer are known, the natural level may be used as the standard.” It is not clear in the accompanying tables and text how this applies to the current DEIS data. How frequently has this been observed in data collected for this DEIS? The definition of “natural state” would be critical since polluted water left to resume a “natural state” could still be polluted and thus require remediation. This raises the question: What is the position of the proposers and lead agencies for managing water quality not in conformance with state quality standards and prior to approving a new mining operation. Shouldn’t the existing water quality variances from standards be corrected before approvals are given for new mining projects?	WR4C
34	On p 4.1-3 note is made of fractures and joints in the bedrock and groundwater flow through fractures. If fractures occur at deep water levels, one could expect potentially contaminated mine waste chemicals to reach areas other than the Partridge and Embarrass River watersheds and perhaps distant sites such as Birch Lake. The geology of this region could allow this scenario. Have analyses been done to explore such possibilities? Contaminated pits will be present for many years during which time extremes in weather will occur; thus a plausible scenario would involve entry of mine contaminants into adjacent watersheds (see Fig 4.2-9). Please clarify this question.	WR2A
35	The goal of transparency should be advanced by providing detailed information for public review of Project principals: the corporation; staff, collaborators; consultants; affiliated organizations, agencies, and universities who participated in all phases of the Project proposal. There should be public review of potential conflicts of interest and/or disclosures of interest. The relationship between Project funding entities and researchers should be known in full. The DEIS Northmet should provide evidence that science-based data and information from independent research institutions were used in preparing the Project proposal. And the project should provide data regarding the extent to which this Project will impact the growing, collective adverse impacts of human activities in the Arrowhead of MN.	PRO3
35	4.1.2.4 Mercury Impact Criteria: Note is made of the relationship between sulfate and production of methyl mercury. MPCA (2006) policies relevant to this issue are outlined and recommendations are to “avoid or minimize the discharge of water with elevated sulfate concentrations to methylmercury “high risk” situations.” It is not clear, however, to what extent the Northmet Project incorporates these recommendations into their operating plans. No details are provided and “high risk” is not defined. This should be clarified.	WR1E,WR4B

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
35	4.1.1.3: Surface Water Resources: Mercury in Water: (p 4.1-48). It is noted that "PolyMet is conducting additional sampling in wetlands, streams, and downstream lakes in the Embarrass River watershed under an MPCA approved plan to help better understand mercury dynamics." It should be noted that mercury is an important water hazard but the MPCA should broaden its project to include detailed quantification of acid mine drainage; sulfates; and other heavy metals. Focusing only on mercury provides an incomplete assessment of impacts of hard-rock mining. Since baseline and current mercury and methyl mercury concentrations in watersheds of this Project are critical to assessing virtually all priority categories of this EIS (Water; Fish; Humans; etc) it is surprising that such data are not available to better inform the water assessments and resulting conclusions. The MN Regional Copper-Nickel Study prepared by the MN Environmental Quality Board (EQB) addressed water quality from mineral mining as a concern in 1979 study of Filson Creek, S Kawishiwi River and environs. Increased metals levels of Nikel, Copper and Zinc were found. Related studies of Unnamed Creek and Birch Lake at Bob Bay related to taconite mining (Erie Mining Company's Dunka Pit) documented increased concentrations of sulfates and nickel. Specific information should be included in the final EIS regarding: who is doing the sampling, who will do the measurements and what will be the timetable for accomplishing the assessments. The details of this MPCA plan should be appended to the DEIS. Such attention is needed for this matter given the hazards of mercury, particularly methyl mercury on fragile ecosystems and also the consequences for bioaccumulation of mercury and implications for human consumption of fish. MN has a growing problem with mercury in water and has existing statewide mercury fish advisories that limit human consumption of fish: see http://www.health.state.mn.us/divs/eh/fish/index.html. Seemingly "low" concentrations of mercury in water do not necessarily reflect mercury in the biota and fish tissue concentrations which may be logs higher and directly toxic to humans and on wildlife who feed on fish. The critical importance of these issues has led to creation of proposed national mercury monitoring network: see: http://toxics.usgs.gov/highlights/mercnet.html. Tables such as 4.1-97 (p 4.1-190) and text (eg, p 4.1-189 and 4.1-193), throughout the Draft EIS Northmet, contain measures of mercury and methyl mercury concentrations. Since there are significant methodological issues involving such measurements of mercury, the question is whether the analyses reported reflect recognized causes of and degrees of variation in mercury concentrations. For example, significant daily variations have been noted by researchers: http://toxics.usgs.gov/highlights/mercury_streams.html and http://toxics.usgs.gov/highlights/metals_variation.html . Have models used to project methylmercury concentrations included estimates of expected variation in measures under varied conditions? Please clarify.	WR1E,WR4B,FM1,FM2
36	4.1.3.5 Mitigation and Monitoring Measures. On p 4.1-172, Mercury monitoring is noted the MPCA Mercury Strategy (2006) that recommends water monitoring for sulfate releases and effects on methylmercury production and establishment of five monitoring sites on streams draining wetlands…" The language in this paragraph and the next paragraph where it states: "PolyMet should develop a similar mercury monitoring plan for the Mine Site.." are ambiguous. What specifically is the responsibility of PolyMet for achieving the MPCA 2006 recommendations and what does the word "should" mean? Please clarify.	WR1E,WR4C
36	4.1.3 Environmental Consequences: Note is made of Uncertainty re key assumptions and the use of "Uncertainty Analysis" for selected contaminants. Since uncertainty analysis requires a variety of objective and subjective data inputs, such simulations may produce highly variable outputs. It is stated that the analyses were approved by the resource agencies? Could the methodology, data input and analyses be appended to this EIS?	WR1E
36	4.1.3 Environmental Consequences: It is stated: "The mining, ore processing, and tailings disposal operations associated with the Project may cause changes to the quantity and quality of ground and surface water in the Project area." The word "may" should be changed to "will". Has there ever been a circumstance reported in the peer-reviewed literature when such mining operations have not caused such changes? Hard-rock mining causes clear predictable and adverse acid and metal-rich drainage. This DEIS focuses primarily on mercury but as noted above numerous metals leach from mining sites with toxic consequences for the biota. (Kimball BA. Assessment of metal loads in watersheds affected by acid mine drainage..Applied Geochemistry; 17; 2002:1183-1207)	WR1E

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
37	4.1.4.2 Water Quality: Northern MN, including the area of Northmet Project, has significant existing mercury impaired waters. (Fig4.5-4 and p 4.1-189 re Colby Lake) Almost 1,500 waterbodies in MN require Total Maximum Daily Load (TMDL) list. Remarkably a TMDL pollution reduction study has not been performed for Colby Lake to address this impairment. It would seem reasonable that this Draft EIS Northmet address when this will be accomplished and by whom. Is this planned prior to the projected operation of the Northmet Project?	WR4B
37	4.1.4 Cumulative Effects on Water Resources: It is most disconcerting that there is "..existing seepage from the LTVSMC Tailings Basin" and that the Draft EIS suggests that the duration of these impacts would be extended. Why have the seepage problems not been corrected? The law requires polluting offenders to comply with remediation plans. The current problems should be corrected before any new mining operations are approved. As noted earlier, shouldn't the Cumulative Effects summaries in this and other Chapters include major projected mining activities of Franconia; Duluth Metals; Encampment; and Tech Caminco? If not, please provide rationale.	WR5A
38	Note: Please clarify: Throughout the DEIS statements are made that recommendations have been made after study (such as the above by MPCA.) I am unclear as to what the disposition is on such statements. Are these all included in the final EIS? Are these negotiated with Polymet? Who makes the decision and what is the process? The current DEIS does not provide information to answer this question.	WR4C,WR1E
38	On p 4.1-196 it is noted that MPCA (2006) "recommends avoiding "discharges" of sulfate to "high risk" situations, which include wetlands, low-sulfate water…where sulfate may be a limiting factor in the activity of sulfate-reducing bacteria…re the potential for methylmercury production." Has Northmet Project accepted this recommendation? Who will be responsible for ensuring that the recommendation is followed?	WR1E
38	4.2 Wetlands: It would seem reasonable that "non-field" and field analyses be used to determine wetland locations unless there are scientific data that confirm that "non-field" analyses provide as much information as "non-field" plus "field" review. This DEIS states that only "non-field" analyses were used. Why?	WE1,WE2
39	4.2.1.3 ; 4.2.1.4; Wetland Classification System: The question is whether the Wetland Classification System Descriptors (see Table 4.2.1 and 4.2-2) may be ascertained by only "non-field" analyses or whether a more accurate description would result from both non-field and field assessments as noted above.	WE1
39	4.2.1.2 Wetland Delineation: Since wetlands in MN are protected by both federal and state laws, it would seem critical that precise definitions of wetlands, including their characteristics be included in the Draft EIS. This is especially true in light of the fact that 70% of the wetlands are "high quality." (p4.2-25)	WE1
40	Potential Indirect Wetland Impacts: It is not clear in the DEIS that robust methodology exist to quantify the changes in surface or groundwater flow rates and patterns needed to project wetland impacts from the Project. What specific methodologies have been used and have they been validated?	WE2
41	4.2.4.3: Monitoring: A wetland monitoring plan is not included in the DEIS. But such a plan "should" be implemented. Such a plan has apparently been initiated by Barr 2005 and "may need to be expanded." Several features of this plan are suggested (p4.2-37). Since wetland monitoring is arguably the most important element of the Project's role in ensuring minimum harm to wetlands, it would seem critical that this plan be included in the EIS. This deficiency should be corrected.	WE3
41	Note: Dynamical systems analyses have apparently not been used in preparation of this and other Chapters and Sections of the DEIS. As complex systems, ecosystems lend themselves to such modeling and simulation. The ACE and DNR should incorporate such tools into the EA/EIS process and make the findings public.	G8,G14

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
42	4.4 Wildlife; The fact that numerous species are deemed fragile in MN: federally and state listed endangered, threatened, and species of special concern (ETSC—7species); MN Species of Greatest Conservation Need (SGCN-58 species); the USFS Regional Foresters Sensitive Species (RFSS—23 species), indicates that, while conservation and environmental policies in northern MN have merit, there are major threats to this region from human activities, including mining, proposed sulfide mining and logging and industrial development. It is in this context that this DEIS must be viewed with the plausible likelihood that the Northmet Project will only add to these environmental burdens and threats to wildlife. I found no evidence in the DEIS that the proposed Northmet Site was monitored over time for evidence of the species noted above. This deficiency should be corrected.	WI2
43	Under NEPA and CEQ regulations, cumulative effects must be evaluated for project proposals, including alternative proposals, along with direct effects and indirect effects. It is therefore critical that a comprehensive assessment of the current and proposed mineral mining impacts on Lynx and snowshoe hare populations be conducted for the areas under consideration for mining and adjacent areas of Lynx habitat. Snow compacting from current and proposed activities and temporary roads and human activities are now and will continue to impact the lives of these creatures. The question is: How and to what extent will proposed Project activities affect these species and other species, in the context of all changes in human development in northeastern MN that may compound the adverse effects of mining?	WI5
43	Canada Lynx: on p4.4-3 it is stated that "..portions of the Mine site lie within the revised boundaries of federally designated lynx critical habitat. A recovery plan has not yet been issued for the Canada Lynx." Will specific responsibilities for the Northmet Project regarding protecting Lynx habitat be included in the final EIS? Has PolyMet physically inspected the proposed Project site for lynx dens?	WI1
44	Road density has been found to directly affect predators high in the food chain: elk, wolves, wolverines, bears and lynx. (Switalski TA. How many is too many: A review of road density thresholds for wildlife. Wildlands CPR Newsletter, RoadRIPorter, 2006). Although the extent of proposed road development in this DEIS NorthMet may not suggest a deleterious effect on Lynx, it is the combination of multiple seemingly small changes across Lynx range and habitat that must be assessed, since seemingly minor effects in a complex system may in aggregate cause profound and deleterious, often unforeseen, adverse impacts. (Emmons & Olivier Resources. Cumulative effects analysis on wildlife habitat loss/fragmentation….Prepared for MN DNS, May 15, 2006; Fed Reg 2003 vol 68, No. 128. Part III. Dept of Interior: Fish and Wildlife Service. 50CFR Pt 17: Endangered and Threatened Wildlife and Plants; Notice..re Canada Lynx. Final rule. Pp 40076-40101; Hickenbottom JR et al USDA Forest Service Biological Assessment (Canada Lynx) Lynx biological Assessment, Dec. 1999). The current DEIS Northmet does not provide sufficient information to clarify this issue?	WI5

Sender Last Name: Arpi **Submission ID:** 3719

20627	Resources are available to the DNR and ACE to assist them in determining financial assurance requirements for the NorthMet Project as part of the environmental review process.11 By failing to include a comprehensive description and analysis of closure and reclamation activities and the associated amount and viability of financial assurance required for the NorthMet Project, the NorthMet DEIS fails to provide the public with essential information to determine the environmental impacts associated with the NorthMet Project. Without this critical information, the NorthMet DEIS fails to follow established practice as part of the environmental review process for hard rock mines or meet the requirements of NEPA.	PD3
20628	In addition, the DEIS must also provide an analysis of the potential negative impacts from the Project on the tourist industry and sustainable economies in Northeastern Minnesota and include a discussion of mitigation measures which would be available to address the negative socioeconomic impacts from the Project.	SE4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
20628	As noted by Dr. Chambers, the type of dam construction used for both the existing taconite tailings and proposed flotation tailings impoundments is upstream-type construction, which is the most unstable of the dam construction types.94 The instability of the tailings dam is of particular concern in light of the fact that the waste with the most potential to impact water quality is the hydrometallurgical waste, which will be stored in lined cells built on top of existing taconite tailings in cell 2W. However, it appears that the potential stability of the tailings in cell 2W is not known.95 As noted by Dr. Chambers, the long-term integrity of both the flotation and hydrometallurgical tailings storage facilities is necessary to protect water quality.	GT1
20628	In addition, the NorthMet DEIS fails to recognize the socioeconomic benefit associated with tourism from maintaining wildlife habitat and wildlife corridors which ensure that populations of endangered species are maintained or increased. For a specific example, reintroduction programs indicate that the return of the wolf will benefit the local economy by bringing in more tourist dollars. For instance, in northern Minnesota, the town of Ely (population 5,000) has seen nearly $3 million in new annual economic activity and as many as 66 new jobs result since the launching there, in 1993, of a wolf educational facility.92 Wolf reintroduction has also improved the economy of Cooke City, the small town just outside Yellowstone Park's northeast gate. Id. Cooke City's traditionally slow season, the month of June, became a peak season because "it is a good month for sighting a wolf." These reports are consistent with other endangered species restoration efforts around the country. For example, in Nebraska, the annual migration of the sandhill crane and whooping crane brings 80,000 tourists and $15 million to the State's Platte River region each year.93 Likewise, at Tennessee's Reelfoot Lake, bald eagle tours alone generate more than $2 million annually. Id. For the residents of these areas, the existence of endangered species provides more than just attractive scenery, it is a vital economic resource that must be protected. Id.	SE4
20630	The NorthMet DEIS discussion on this subject must include an analysis of “direct effects,” which are “caused by the action and occur at the same time and place,” as well as “indirect effects which . . . are later in time or farther removed in distance, but are still reasonably foreseeable.” 40 C.F.R. § 1508.8.	G10
20630	The NorthMet DEIS indicates that “[f]urther design and analysis would occur during permitting to ensure that the proposed construction meets acceptable design standards."96 In light of the potential significant environmental impacts associated with instability of the tailings facility and waste rock piles, the DNR and ACOE must provide an analysis of geotechnical stability of the tailings facility and waste rock piles as part of the environmental review. Delaying the stability analysis until permitting is not acceptable because it would prejudice one possible outcome, i.e., the possibility that safely depositing the hydrometallurgical waste on top of the existing tailings basin is not feasible. If, in fact, other tailings alternatives need to be considered because of stability problems, they must be disclosed and analyzed during environmental review. Moreover, the public needs to have an opportunity to understand the potential environmental implications of the proposed designs and weigh the environmental risks and any potential alternatives or mitigation measures to these designs which could minimize environmental impacts as part of the environmental review process. Geotechnical stability is an issue that must be addressed in the DEIS, and is a major flaw of the DEIS.	GT1
20630	However, significant questions still remain to be addressed regarding the long-term vulnerability of the waste storage facilities to seismic events. Dr. Chambers also notes that similar concern for the waste rock piles also exist.	GT1,GT2
20631	MCEA appreciates that the issues of greenhouse gas (GHG) emissions and climate change were incorporated into the DEIS after scoping, and notes that the DEIS may do a better job than many of its predecessors at identifying channels of GHG emissions resulting directly or indirectly from the Project and describing recent significant developments concerning climate change policy. Given the widely acknowledged scale of the threat posed by anthropogenic climate change and its direct link to GHG emissions, the preparing agencies have a duty under the National Environmental Policy Act (NEPA) to address the Project’s GHG emissions more thoroughly than the DEIS currently does.97	AQ3

Sender Last Name: Asmussen **Submission ID:** 1191

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1306	Dear Mr. Arkley: As a environmental steward and public servant, I implore you to take steps necessary to protect watersheds adjoining and comprising the BWCAW. Please do what you can to prevent sulfide mining operations in areas even remotely adjacent to this inestimable natural resource.	G7A
Sender Last Name:	Ault **Submission ID:** 1164	
1279	We pride ourselves as Minnesotans that we maintain integrity of our peoples land and have it cared for! This is an honest test of our land stewardship!! We must have hearings!! And we must insist on protection for pristine areas. The people must be listened to!!	EOO
Sender Last Name:	Avaloz **Submission ID:** 3087	
3472	THERE IS NO PROJECT WORTH MORE THAN THE SUPERIOR NATIONAL FOREST. PRESERVATION HAS A MORE LASTING AND IMPORTANT IMPACT ON THE FUTURE THAN ANY SMALL, SHORT TERM PRODUCT FROM THE POLYMET PROJECT. THEY SHOULD BE DENIED PERMISSION TO MAKE MONEY AND DESTROY THE PEOPLE'S LAND. A citizen	EOO
Sender Last Name:	Bach **Submission ID:** 319	
335	Think of our childresn, children! I invested my life savings into this cabin we build in 06 for the future. Sulfide mining is BAD! It's just so WRONG! Poly Met will put and end to Gods Country - and please stop them!	EOO
Sender Last Name:	Backstrom **Submission ID:** 210	
210	I strongly support PolyMet’s NorthMet project. The EIS has covered the factors which I consider necessary to preserve our water and air quality. That is why we live and work here in Northern Minnesota. PolyMet plans to reuse a brownfield site and reuse an existing plant, thus minimizing the impact on wetlands. It is not in the BWCA nor does it border that wilderness area. The PolyMet project will provide a domestic source for some critical metals. Rather than mining these metals in another country and transporting them to the US for use in products such as cell phones and computers and catalytic converters, we will be able to produce them here for use here. The business and job situation in our communities is not good at this time, and we need the new construction jobs and the permanent jobs which will come as the mine is developed. The mine will have the effect of many spin-off jobs in our region. As a small business person, our business will improve if the NorthMet mine is built. I cannot emphasize enough what the positive impact it will have on the suppliers and small businesses in this area. As a positive factor for the State of Minnesota, we will see PolyMet tax dollars contributing to the state and local governments’ budgets. We need this mine to be developed in accordance with the EIS. It is a great project. Let’s go forward!	EOO
310	I am very pleased to support and endorse PolyMet Mining's NorthMet Project. The mining of Copper and Nickel as well as the precious metals from this project is vital to the economic growth and stability in northeastern Minnesota. The safeguards for the environment, which the state has in place, will make our state mining industry safe and exemplary. This opening project will give Minnesota the chance to compete, on the world market, with other follow on industries utilizing the raw materials that will be generated from this project. It will also increase the tax base as well as increase the employment opportunities that northeast Minnesota so badly needs. As a manager for over 40 years in the mineral exploration industry I have seen many projects in many countries and this PolyMet project certainly stands at the top of the list for projects that have been correctly done. The time and energy spent in planning and engineering with all the state and federal agencies has been a model effort. Our company has been working with PolyMet and the Minnesota DNR in the exploration phase and it has been a pleasure to work with both groups where the focus is on how to do it right.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Bailey **Submission ID:** 1625	
2038	I am concerned for the protection of the boundary waters, one of the few truly wild places left in the Midwest. What are the sustainable measures that protect ALL life? Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	EOO,G7B
Sender Last Name:	Bailey-Johnson **Submission ID:** 3379	
3669	There is nothing sustainable about the PolyMet mining proposal except the pollution that will undoubtedly be created. I highly support and encourage the preservation of environmental quality for future generations, Short-term profits should not trump long-term degradation.	G2
Sender Last Name:	Baland **Submission ID:** 6	
6	I'm here to support PolyMet and am really upset with how long it's taking them to get their permits; and other companies, new companies are getting them in a short period of time. They've done their homework to really cover the environmental side of this project, and I truly believe that this should be pushed through. It would help our whole area and our state.	EOO
7	I'm a retired miner. I worked in the mining industry for 30 years, and was very fortunate to have a quality job with quality schools and a church of our choice here, living in Aurora, Minnesota, where we're located right now. And I would like that this could continue for other generations, for younger people, our children of my generation and our grandchildren. And it seems that obstacles are being put consistently in the way of PolyMet to make progress and put people back to work, and this is disappointing for a lot of us, that the length of time to get these permits seems unreasonable. And instead of trying to put restrictions on them and delay this, you should encourage them and help them to get started, the sooner, the quicker, the better; and not only does that help jobs for people in this area, the State of Minnesota has a huge deficit; this will help pay taxes in Minnesota and benefit all Minnesotans with additional monies going into the tax coffers for the State of Minnesota. Let's get the ball rolling, let's get this thing behind us, let's put people to work.	EOO,G10
Sender Last Name:	Balanoff **Submission ID:** 2583	
451	What will be the cumulative effect of mining in this region on air quality?	AQ4B
718	How will the loss of habitat for species including the Canada lynx be mitigated?	RFI
2225	Field sampling has not been done to show movement of ground water through the bedrock.	WR2A
2422	What is the reclamation plan after the site is closed? How much cash will be held in escrow as a damage deposit?	PD3
2423	How will the DNR monitor the mining operation?	PD8
Sender Last Name:	Baldwin **Submission ID:** 158	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
149	I support this PolyMet thing that they are doing. I'm a Boilermaker on Local 647 in Ramsey. You know our economy is slowing down and with the way things are going right now, it opens 400 jobs in that area after the plant is built and while the plant is being built, you know. It's great for our local and it opens a lot of jobs up for guys in our Local and our career line of work. And that's about it. I think it's good for everybody all the way around. The economy is safe. And we do a lot of work with pollution control and stuff like that and we do the best we can to eliminate the pollution -- as much pollution as we can. With the technology that we have come up with now a days, it's very sufficient. So that's about it.	EOO
3562	Having grown up in Babbitt, I have been the beneficiary of generous mining operations who supported the town of Babbitt. That said, I have been following the PolyMet situation, and want to point out some facts: PolyMet has done it's homework and knows how to run a clean and environmental operation. There would be no run-off into Boundry waters as all operations would be on the south side of the divide, therefore, waters south would be affected-if at all since there are plans to put cleaner water back into the ground than what exists now. Copper and nickel are now currently being imported from foreign countries when we need to be looking at our own resources. Undeniably, jobs are needed to secure the northern Minnesota economy, and the timing is critical to our nation. The land in question has already been ravished by former mining, and PolyMet would only improve that situation as demonstrated in their environmental plans.	EOO,G2
3565	We vacation in the NE MN area and enjoy seeing industry grow in that area. It would be foolish to turn this project away because of any remaining environmental concerns when jobs are needed, as well as the copper and nickel minerals extracted for income for the US for helping the green industries. It seems that way too many envirnomental concerns have risen and voiced by outside groups that don't even know the area. Seems strange that they are so worried about a small operation starting up verse a large mining operations that already in place in Babbitt and Aurora. The impact statements address and answer all of the concerns, so just get with it and let operations begin. John Baldwin, retired college instructor	EOO

Sender Last Name: Baratto **Submission ID:** 127

116	Basically,this -- the comment that I wanted to make is that I don't feel that there is a problem with any of the exploration. I mean, it's not going to hurt us any more than what we have already been hurt in the past. And I believe that they are probably going to have -- well, they have to comply to the EPA standards, which are stricter now than they have ever been, so I want to support them in any way I can.	EOO,G5

Sender Last Name: Barker **Submission ID:** 165

155	I support the PolyMet NorthMet project and draft EIS. I am comfortable with the thorough evaluation that has taken place and with the proposed utilization of advanced technologies. PolyMet will produce much needed metals in an environmentally sound manner and generate additional economic activity in a depressed portion of our state benefiting our nation as a whole.	EOO

Sender Last Name: Barnacle **Submission ID:** 1030

1130	This letter is to express my support of the proposed Polymet NorthMet Project. Polymet can operate under Minnesota's Strict environmental regulations. I would be proud to have this plant in my state knowing it would be held to the standards that Minnesota is known for. Furthermore, with the unemployment rate in Northern Minnesota so high, 10 - 18%, the Polymet NorthMet Project would help a huge number of families. Thank you for the work that you do, and I hope you are able to support the Polymet NorthMet Project by granting Polymet the permits required to move forward.	EOO

Sender Last Name: Barnett **Submission ID:** 2138

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1751	After reviewing sections of the DEIS for this project, I am still heavily concerned with the river water quality in the surrounding area. The pristine quality of water in that area attracts hikers and campers from the entire Midwest and beyond. Increasing sulfate levels and potentially mercury/manganese/nickel in surface water will terribly affect wildlife and fishing in the area. The proposed action is simply too reckless and would be a major mistake to allow. Acidification of the St. Louis watershed or any of the BWCA is not an option and would terribly effect the local tourism economy.	EOO
1952	Focusing on long term, is there any way to require something similar to a damage deposit that will guarantee funding for future remediation as well as fund continuing 3rd party monitoring???	PD3,PD4
2530	With regard to the alternative actions, the max recycle option seems most beneficial but the retainment of this water must be made a principle priority to ensure groundwater quality. Yet I'm not convinced the 70% reduction in sulfate loading will be good enough.	G7

Sender Last Name: Barsel **Submission ID:** 3238

743	I am concerned about the paucity of public meetings on the DEIS, the timing of the public meetings, the location of the public meetings and the format of the public meetings. My detailed concerns include: • the paucity of public meetings (2) to provide members of the community an opportunity to learn about this precedent-setting project and express their opinions; • the timing of the public meetings is too soon after the release of the massive and complicated draft EIS, making it difficult / impossible for most individuals to familiarize themselves with the details of the DEIS; • the difficulties some citizens have experienced in submitting their public comments (i.e. bounce back and institution of a new Survey Monkey-based form); • there is no information on where citizen participants can obtain written records of submitted comments and answers. Proposed solutions: • schedule more public meetings in early January, 2010, permitting individuals to read the DEIS, submit informed public comments, and participate in holiday events; • locate additional public meetings in accessible sites: Duluth, St. Paul, and Rochester; • extend the deadline for public comments a minimum of 30 days beyond the current Feb. 3, 2010 deadline o publicly acknowledge difficulty in submission of comments and repair by institution of the Survey Monkey site; o monitor the site(s) to insure that additional shut downs do not occur; o insure that multiple hard copies of the DEIS are available at all sites listed by MDNR; o extend the deadline in acknowledgement of all the issues listed above; • provide clear information detailing where citizens may obtain a written (or web-based) record of submitted comments and answers, preferably as a daily-updated link to the DNR site detailing this proposal. I appreciate your consideration of ways to make public participation in the PolyMet EIS process more effective. I look forward to seeing these suggestions implemented, and/or receiving a detailed response explaining why these are not possible.	PRO6
3579	Minnesota is politically poised to permit sulfide mining. This is despite the disastrous environmental track record of sulfide mining, including designation of some sulfide mining sites as Superfund sites in the U.S. I read large portions of the PolyMet DEIS and attended the hearing in Blaine, MN. I found both the hearing and the DEIS document deficient in numerous areas, several of these deficiencies are detailed below.	G2,G8

Sender Last Name: Barstad **Submission ID:** 3636

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3918	Having attended the Polymet's Northmet Projects Draft EIS meetings and reading other information, I have the following observations. Economic Impact: There is no question of the need for jobs on the Iron Range, in Minnesota or the nation. The direct and indirect employment will be beneficial to all. The products of the operation are used world wide in many of the items we use on a daily basis. The taxes to be generated are needed to support the governmental services. Environmental Impact: The reuse of an existing site and equipment for part of the production process benefits in a number of ways - energy and materials not needed for new , continued use of structures rather than deterioration etc. The reuse of the tailings basin is a plus. Not only is the water recycled, but the basin will be improved and monitored. This is a benefit compared to sitting idle. Mining proposals for backfill and locations are a positive factor. Placement and burial of low grade ore will control run off and leaching. Site restoration upon closure will insure acceptable reclamation of the affected site. In viewing the Iron Range now, it is evident that "Mother Nature" will be a great partner in returning the land to other uses - forest, wildlife and recreation. The Draft EIS is extensive and complete after four year's of input. The meetings and comment procedure are adequate. The presentations to the public and approving agencies are not "Sales Jobs", but a study of the facts and an educational process. I look forward with anticipation to the approval and permitting of this project.	EOO
Sender Last Name:	Bartholomew	**Submission ID:** 254
267	The Hoyt Lakes Chamber of Commerce has always supported new enterprises in our area. In this case this adventure is critical to our survivai . Our area has been devastated by the closure of LTV, not only did we lose jobs at the mine but our peripheral services also suffered enormous losses. The studies that have been done by the state have set aside all worries about environmental issues. For years this area has been responsible to the environment and has strived to preserve our pristine area. There comes a time in most lives where we realize that the world is changing, we need to expand our essential needs to meet the needs of the world and do our part in securing a future for our children and their families. We do not want to sacrifice our way of life just to have jobs. This company has shown through studies by everyone even remotely involved that they are a responsible and conscientious company who care about our environment and the needs of the world to do things right. It has taken an enormous amount oftime for this to happen, but as we can see and believe that they have taken all necessary and reasonable efforts to secure the proper permits to begin operation in a safe and responsible manner. Not only will Poly Met do this in a safe and responsible manner, they may be able to absorb enough of the foreign market who do not show responsibility to the worlds environment, to make a difference. They have stepped up to the plate and opened every facet of their operation to be scrutinized by the group responsible to protect our rights and country and have met the requirements in every aspect. Now it is time for our state to step up to the plate and take that swing that will mean a home run for our area and the state of Minnesota. So in speaking for the Hoyt Lakes Chamber of Commerce as it's President and more importantly, a member of this proud community, I and the Chamber support this permit for Poly Met 100%. Please consider the needs of this country and this community and the surrounding area's that depend on jobs of quality and safe use of our resources.	EOO
Sender Last Name:	Bartlett	**Submission ID:** 1850
18	We must be absolutely certain that the mining will not endanger this one of a kind precious resource. The BWCA is truly one of our state's, as well as the world's, greatest resource. The money made of off tourism in this area will far exceed the profit made from mining in the long term. The University of Minnesota study bore this out back in the 70's when nickel minig was proposed.	SE4
Sender Last Name:	Barton	**Submission ID:** 3749

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Comment ID	Comment Text	Theme Codes
1	Since one of the major wilderness areas in the U.S. and MN is near Ely (BWCA) it would be imperative to know what impact Northmet Project will have on air quality of the BWCA, which is already suffering from degradation of ambient air quality from power plant and other point sources.	AQ4,AQ4B
1	The DEIS predicts that the total direct and indirect annual GHG emissions from the Project will be more than 744,000 metric tons of CO2-equivalent (m.t.CO2 e) emissions.101 That volume of annual GHG emissions represents a measurable and very significant fraction of total statewide emissions. Specifically, according to data in the DEIS, the proposed Project would cause statewide annual emissions to jump by 2/3 of 1% (+0.62%),102 which is an enormous impact for a single project to have.103	EOO,AQ5
1	Accordingly, the DEIS for the Project cannot rely upon the operation of the RES to accomplish state policy on GHG emissions. Rather, reductions in total new energy demand must occur, and the new energy demand that does arise must be met with new low- or no-carbon supplies.	EOO,AQ5
2	4.10 Socioeconomics: The major and growing contribution to the Arrowhead region in MN of tourism is not presented in this section and should be so that a more complete view of the economy of this region may be understood. Tourism contributes $11 billion to MN economy, with >41 million visitors annually. These numbers have increased steadily in recent years. The Northeastern region has 16% of the >41 million visitors or about 6.56 million visitors with generation of >$719 million in Gross Sales. This activity contributes 17,932 private sector jobs. (Explore Tourism 2008: http://www.tourismroi.com/Content_Attachments/26124/File_633480214451131154.pdf. A critical question not addressed in the DEIS is the extent to which current and proposed major increase in mining in the region will increase, have no effect or decrease tourism to the Arrowhead of MN.	SE4
2	Moreover, this increase would come just as Minnesota is seeking to achieve substantial reductions in total statewide emissions. Indeed, three years have passed since the GHG emissions reduction law was passed, and with just five years remaining until 2015, the Project would push statewide emissions in the wrong direction, frustrate the State's important public policy and public health interests, and have a deleterious effect on the State's involvement and compliance with the Midwestern Greenhouse Gas Reduction Accord.104	EOO,AQ5
3	NEPA requires agencies to identify a preferred alternative or alternatives in the draft environmental impact statement. 40 CFR §1502.14(e). The NorthMet DEIS does not clearly identify the preferred alternative for the project. A brief indication is made that the mine site alternative is preferred, however, this is not explained in detail.12 MCEA supports the mine site alternative as the preferred alternative to the extent that subaqueous disposal of the more highly reactive waste rock will minimize the potential for acid mine drainage and other water quality issues associated with storage of the waste rock in stockpiles on the surface. In addition, the DEIS does not identify a preference between the proposed action or the tailings basin alternative. NEPA requires that preferred alternatives be identified in the DEIS. The failure of the NorthMet DEIS to indicate a clear preferred alternative for both the mine site and tailings facility is a fundamental inadequacy of the DEIS.	ALT7
3	I am a chemist in the composite industry, a frequent traveler to the MN northwoods area and a resident of Minnesota. I make several trips to the Boundary Waters Wilderness and the surrounding area each year and would like to ask that you accept the following comments regarding the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. As a citizen of Minnesota, a place where often low-skilled jobs are not sustainable, I am glad that a private mining company has decided to pursue the mineral deposits in the northern part of the state. The economic conditions in the northern MN region have deteriorated substantially since the days of the large mining operations and in the economic conditions at present we should not be quick to dismiss real development for the sake of outdated environmental concerns. I am also a professional in an industry which, like the mining industry, is often vilified by environmental-types such as the members of the Friends of the BWCAW. I am quite comfortable with the concept that with proper planning a profitable mining operation can be performed with minimal environmental impact (I am not intimately familiar with the geology and chemistry related specifically to sulfide mining, but it seems that acidic runoff should be able to be treated adequately using basic minerals including carbonates or bicarbonates that could possibly be retrieved from mines in other parts of the state).	G1,G7

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Comment ID	Comment Text	Theme Codes
4	Most (68.4%)105 of the Project's GHG emissions predicted in the DEIS are attributed to off-site production of roughly 59.3 megawatts (MW) of electrical power.106 It would come from one of Minnesota Power's coal-fired power plants.107	EOO
4	Despite the significance of climate change and the State's GHG reduction timeline, and despite the Minnesota Pollution Control Agency's urging,108 the DEIS fails to analyze a green power alternative under which the Project would run on low- or no-carbon electricity, thereby minimizing the Project's biggest single source of emissions. The DEIS does discuss methods of increasing efficiency of vehicles and equipment on site,109 but none that address switching from coal to green power. Coal-fired electricity is the only form of generation that is mentioned. Consequently, the DEIS ignores an opportunity to use widely available, existing technology to reduce or eliminate the biggest source of GHG emissions, simply by changing the way the power used by the Project is produced. The DEIS does not discuss alternative types of power; it only explains it will purchase coal-derived electricity from Minnesota Power.110 The option of buying different types of electricity (green power) from Minnesota Power is never discussed. The option of building its own power source is summarily dismissed without justification. The option of purchasing from a different provider not fully explored.	AQ5
4	The state of Wisconsin has basically banned such mining. The other issue is that not only will our economy be harmed because of lost tourism revenues, it will also be harmed because we will have to pay for the clean up of the mess that the mines will create. And that clean up will be forever, perpetual, continual. The leaching will never stop. There's a risk that in this type of economy that no clean would even be done. But, again, I stress that any clean up would only potentially be effective if it continues to happen forever. So, that's an unending stream of lost revenue devoted to cleaning up the mess made by a mining company that will have long since skipped town with the precious metals that they took from our lands.	PD3,PD4
5	Have arrangements been made (not just talked about) to provide for perpetual monitoring of the mining facility, and surrounding area (whatever that is deemed to be) if approval is given?	G10
5	The State doesn't have such a great record monitoring where and when it should. I can think of a few examples off the top of my head: the taconite mines, 3M, the Arden Hills arsenal, and the 35W bridge. Doesn't make me sleep all that well at night, you?	G10
5	Who's in charge of pulling permits back if things go south? And WILL they be pulled if things go south?	G10
6	"There would be a low margin of safety with the tailings embankments." Read this: http://www.crismart.org/upload/Case%20bank/BOLIDEN_.PDF	G8
6	will it come from? Shipping in the needed fill isn't very green, is it? What are the sulfur %'s of low and high waste rock? Will it be exposed to air? For how long? Please read this!!! http://diss-epsilon.slu.se:8080/archive/00001874/01/Kappan_Avhandling_nr_08.88.pdf	EOO
7	(According to Wikipedia; In 2007 the United States produced 1.19 million metric tonnes of copper, worth $8.8 billion, making it the world's third largest copper producer. The nation produces 63% of the copper it uses. Top copper producing states in 2007 were (in order) Arizona, Utah, New Mexico, Nevada, and Montana.) We import them from countries that don't follow our stringent environmental laws, that subject miners to unsafe working conditions, and that contribute to the global pool of pollution circulating in our atmosphere. Then, we contribute to greenhouse gas emissions by shipping them to another country for processing before we ship them to the U.S. See above comment. Explain the PolyMet/Glencore plan please? What about the energy consumption required to mine 99% waste?…nice try though…	G1,G2
8	And PolyMet wins by demonstrating environmental safety — not only because it is more environmentally sound than importing metals, but also because PolyMet has shown that it will operate in a way that protects our air, our water, and our land. Ahh, little FYI here - PolyMet has never demonstrated or shown anything. They've never mined anything before, correct? They paid people to put together numbers and such in their favor, so the investors (and State) can make a bunch of money.	G10

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Comment ID	Comment Text	Theme Codes
9	As elected officials representing the Iron Range, we are confident that after more than four years of PolyMet working with scientists and biologists and spending upwards of $20 million, that the DEIS is covering all the bases. The products that will be mined are extensively used in our society. The data shows a safe mining operation, one that has the controls to address the environmental concerns. Again, please read this research…	G6
10	While wind roses for Hibbing show a north north west through west-northwest direction 25% of the year and south-0southeast through southeast 15% of the year, Ely shows a pattern of west westsouth for the months of April through September. (University of Minnesota: http://climate.umn.edu/wind/windRoseClimatology.htm.)Thus, the BWCA which is only 34km or 21 mi from the Project Site would receive winds from the Polymet Project Site for several months of the year. To what extent will this add to the worrisome burden currently being experienced by Class 1 areas BWCA and Voyageurs NP? At BWCA, visibility impairments have been documented for 200 days in a recent year. Has the potential impact of the Northmet Project on BWCA been quantified as part of this DEIS? Has the potential impacts of other mining activities between the Northmet Project Site and the Franconia; Duluth Metals; Encampment and Tech Cominco projected mining sites been quantified as part of this DEIS? These are critical data that must be included in the Final EIS.	AQ4,AQ4B
11	4.6.1.2 Local and Regional Air Quality: On p 4.6-2 it is noted that “ambient monitoring data from the closest monitoring stations to the Project are provided in Table 4.6.2.” It is not clear where the “nearest monitor” to the Northmet Project Site was; the data are from MPCA 2008 but the monitor source is not listed. If the data in Table 4.6-2 are from a remote monitoring site, the Northmet Project should request relevant data from MPCA for the Site environs. Also, note is made that the MPCA data was for 2004-06. These data are out of date and should be updated to ensure reliable baseline data are available from the Site.	AQ4,AQ5
12	4.6.3.1 Proposed Action (Criteria Pollutants): The assessments of human toxicity from exposure to chemicals used at the Mine Site (Table 4.6-17) need to consider the lung health of workers at the time of their employment. Preexisting respiratory diseases may be exacerbated by exposure to chemicals included in this table. Of great importance is the documentation of cigarette smoking status of workers since some chemicals on this list are mutagens or carcinogens. In general, combined exposure to inhaled chemicals and cigarette smoke may increase the likelihood of development of lung cancer. The Northmet Project should have ready access to state- of- the -art smoking cessation program, including a Quit Line to support workers’ smoking cessation. (these resources may be obtained from the MN Department of Health) In addition to the above threats to human health, the mining activities, miners but protect from inhaling fine particles of hard rock dust. Lung neoplasms have been associated with mining and are markedly increased in tobacco smokers. There are concerns about the risk of mesothelioma among hard rock miners: (Univ. MN: http://taconiteworkers.umn.edu/about/study_goals.html. Lemen RA, et al. Epidemiology of Asbestosis-Related diseases. Envir Health Persp., 1980: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1568524/pdf/envhper00470-0008.pdf)	AQ4C,AQ6
12	4.6.1.4 Minnesota Standards of Performance: on p 4.6-6 the first point, the statement “that facilities are required to take reasonable precautions to prevent the discharge of visible fugitive emissions beyond the property line” raises serious concern for the following reasons: Particulate Matter (PM) especially, PM 2.5 micrometers is invisible so one would not expect to see it. Yet these fine particles pose threats, not only to the environment, but to human health. Fine particles are a known cause of cardiovascular disease (heart attacks; strokes); respiratory disease (asthma, COPD) and cancer, particularly, lung cancer. (Department of Health and Human Services: http://www.atsdr.cdc.gov/general/theair.html. The language in this DEIS should be revised to reflect the above. Finally, vehicular traffic and exhaust adds fine particles and other air toxicants to ambient air. Have estimates been made of the contributions to fine particle pollution over the life of the proposed Project?	AQ1,AQ6
13	4.6.4.5 Cumulative Mercury Emissions. As noted above, the projected hard-rock mining operations of Franconia; Duluth Metals; Encampment and Tech Cominco must be included in this analysis and Table 4.6-22.	AQ4B

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14	In addition, the DEIS Northmet and other mining activities in this region appear to conflict with the Forest Service Mission and Goals (USDA Forest Service Strategic Plan FY 2007-2012, USDA, FS-880, July 2007; USDA FS Land and Resource Management Plan, Superior National Forest, July 2004) which state: "Forest Service Mission (is to) sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations;" and a primary goal: "Promote ecosystem health and conservation using a collaborative approach to sustain the nation's forests and watersheds." Hard-rock mining is in direct conflict with the purpose for which the SNF was created. The aim must be to reconcile the strikingly differing legal mandates and missions of lead agencies with to stated aims, goals and objectives of PolyMet Northmet Project and related mining and human development activities in the area.	PD1
15	4.6.4.7 Summary of 2006 Visibility Class I Study Scope (Updated 2009): Regional Haze and Visibility Impairment. : On p 4.6-50 a table of projects and actions are presented. Again, this table needs to include all "foreseeable" projects that will adversely impact the air quality of northeastern MN, including Franconia; Duluth Metals; Encampment; and Tech Cominco projects.	AQ4B
16	4.7 Noise: It is stated that the effect of noise on wildlife is reviewed in section 4.4. However, a review of 4.4 reveals a dearth of references to the wealth of science regarding the compelling adverse impact of noise on wildlife and human health. A separate section devoted to this topic should be written and included in the DEIS. The cumulative effects of noise as animals move along corridors over ranges of a few meters to > 100 miles must be considered. (Radle AL. Effect of Noise on Wildlife: A Literature Review. http://interact.uoregon.edu/MediaLit/wfae/library/articles/radle_effect_noise_wildlife.pdf.	WI2,N4
17	The DEIS fails to provide evidence regarding the serious and growing human health effects of noise. Former U.S. Surgeon General William H. Stewart said in 1978: "Noise must be considered a hazard to the health of people everywhere." (Goins L, Hagler L. Noise Pollution: A Modern Plague. S Med J 2007: http://web.ebscohost.com/ehost/pdf?vid=2&hid=102&sid=72c7f778-d60d-4a16-9a7f-010ec30d90a7%40sessionmgr104)	N5
18	Summary: p4.7-9. The use of the word "continuous" is confusing. Does not "discontinuous" noise matter, eg, blasting; 100 ton mine truck traffic; etc? For those people who frequent the environs of the proposed Project for recreation, fishing, hunting, and such activities, the data presented in 4.7 would likely adversely affect their experiences.	N6
19	4.8 Cultural Resources: Regulatory Framework: It is stated that Cultural Resources management within Federal and State agencies seeks identify cultural resources and balance the need for development with protection. Not included here is an analysis of public opinion in the Arrowhead as to whether the regulatory process is fairly achieving this balance. Development is driven by economic considerations that would likely overshadow the power of those whose goal is to protect Cultural Resources. This DEIS should provide evidence to support conclusions that suggest there are no cumulative effects associated with cultural resources.	G3,CR1,CR2,CR3,CR4
19	4.9.1.1 Federal Land Management: A discussion regarding the feasibility for a land exchange between USFS and PolyMet is discussed. This DEIS should not be approved or move forward until such time as the feasibility and legality of this idea be decided. The statement: "This analysis is based on a successful completion of the land exchange and elimination of National Forest lands from the Project" suggests the authors of this DEIS can predict the future. It is impossible for the public to fairly evaluate this DEIS with such speculation.	PD1

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20	This DEIS needs to address this critical question with data. To focus on short-term financial gain from sulfide mining and not incorporate long-term consequences, including the predictable "boom" and "bust" mining cycles, in the DEIS analyses is a major deficiency of this DEIS. Potential depression of the tourism industry and land values in the Arrowhead, would have a devastating adverse effect on the entire region for decades to come. (Thomas M. Power (Economics Dept., University of Montana: "The Economic Role of Metal Mining in MN: Past, Present, and Future" prepared for MN Center for Environmental Advocacy and the Sierra Club, 2007.; http://www.sosbluewaters.org/mn_mining_economics_power.pdf.) Unfortunately, a study funded by industry (Labovitz School of Business, Duluth) failed to incorporate destabilizing boom and bust cycles and adverse impacts on the growing tourism industry in their narrowly focused analysis. (http://www.ironrangeresources.org/_site_components/documents/user/aboutreports-publications230.pdf.) 4.10.2: Impact Criteria: This sections fails to include explicit review of the "boom" and "bust" cycles of mining (as noted above) that are extensively documented in the literature and relevant to the DEIS Northmet. 4.10.3: Socioeconomic Consequences: Impact Analysis for Planning (IMPLAN) was based on old data that does not reflect the current fiscal crisis. What impact will this have on estimating the "boom" and "bust" predictable cycles of the proposed mining?	SE3
21	4.10.3.1: Proposed Action: Environmental Justice: What assumptions are being made to support the statement that: "Therefore the Proposed Action would not have disproportionately high or adverse effects on minority populations?" While it is suggested that the proposed "boom" resulting from the proposed mining would benefit low income persons, isn't it logical to assume that the "bust" that could occur at any time during the proposed 20 year operation of the mine would have a deleterious impact on low income families—potentially a devastating impact on persons who lack safety nets of community support?	SE2
22	4.10.4: Cumulative Effects: Note is made that the data in Tables 4.10-15-16 do not appear to be based on the recent, unique fiscal situation in the U.S. and MN. Also note that neither this section nor the section "Socioeconomics" p S14 (Summary) reflect on compelling data regarding the "Boom" and "Bust Cycles", an issue of critical importance to the integrity of the Draft EIS Northmet as reflected by Thomas M. Power (Economics Dept., University of Montana: "The Economic Role of Metal Mining in MN: Past, Present, and Future" prepared for MN Center for Environmental Advocacy and the Sierra Club, 2007.; http://www.sosbluewaters.org/mn_mining_economics_power.pdf)	SE3
23	The accomplishment of these aims requires a systems approach to research, planning, management and evaluation. There is consensus among researchers and scholars that natural environments are complex dynamic systems. (Aber JD, et al. Synthesis and Extrapolation. Yale Univ. Press, 2004: http://harvardforest.fas.harvard.edu/research/newengland.html ; Foley J. Studying Complex Systems: 2002: http://www.jsmf.org/grants/cs/essays/2002/foley.htm ; Institute for the Study of Earth, Oceans, and Space. Complex Systems Research Center. University of New Hampshire. http://www.eos.sr.unh.edu/resproj/resproj.shtml; Ostrom E. A diagnostic approach for going beyond panaceas. PNAS. 2007; 104:15181-15187: www.pnas.org/cgi/doi/10.1073/pnas.0702288104; Yale School of Forestry and Environmental Studies: http://environment.yale.edu/centers/). To understand the potential impact of the proposed Project and related projects, systems analyses are required. The DEIS is narrow in scope and fails to address important questions regarding the impact of proposed hard-rock mining on the forest and related natural systems. The conclusions do not follow a principle of the USDA U.S. Forest Service: "We use the best scientific knowledge in making decisions and select the most appropriate technologies in the management of resources." (http://www.fs.fed.us/aboutus/mission.shtml) With science-based and unequivocal dynamic changes in global climate (WHO; UNEP Intergovernmental Government Panel on Climate Change: http://www.ipcc.ch/ (reflected in Ely environs weather in recent years), coupled with multiple recent and pending major human developments in northern MN (mining; new roads; new building; new power sources; and the like) the failure to use the best science, including dynamic systems methodologies, will have grave implications on the future sustainability of these treasured forest and wilderness areas. The data and information provided in this DEIS is inadequate for formulating conclusions let alone formulating the critical questions regarding effects of sulfide mining in SNF, adjacent ecosystems and in the critically protected areas such as BWCA and Voyageurs National Park.	AQ6,AQ4B,PD1

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Comment ID	Comment Text	Theme Codes
24	4.14 Cumulative Effects: The USFS must ensure that a full range of cumulative impacts, past, present and foreseeable future, from mining in this area and adjacent areas or regions are included in the analyses. The DEIS Northmet 2009 is narrowly focused and it appears to this reader not meet the CEQ definition and intent of the National Environmental Policy Act. The cumulative and related effects of mining exploration and hard rock mining in this area and the impacts of extending the 100 mile plus Iron Range corridor deep into northeastern Minnesota's SNF and BWCA wilderness areas, have not been addressed adequately as required by National Environmental Policy Act (NEPA) of 1969 (29) (CEQ Sec. 1508.7: Cumulative Impact). Cumulative Effects analyses on wildlife habitats in this region have demonstrated the need for such information. (Emmons & Olivier Resources, Inc. Cumulative effects analysis on wildlife habitat loss/fragmentation and wildlife travel corridor obstruction/landscape barriers in the Mesabi Iron Range and Arrowhead regions of MN. MN DNS, May 15, 2006).	CR1
25	It is noted (4.14-4) that there is major disagreement with the conclusions of DEIS authors regarding the significance of the above findings. In addition, the legitimacy of the analytical approach to the Cumulative Effects approach is problematic for several reasons: 1. Major data elements are missing e.g. baseline data for the Partridge and Embarrass Rivers. 2. In the watersheds, concentrations of aluminum, iron, copper and mercury exceed MN Water Quality Standards; 3. Analytic methods were not robust, e.g., no dynamical systems analysis of these complex environments. 4. No inclusion of data regarding Climate Change impacts on the ecosystems.	G8C,AQ3
26	Finally, one must ask the question: What are the trends in the Arrowhead of MN for the quality of air; water; loss of habitat; threatened species; forest fragmentation. For these data categories, the trends over the past 20 years are as follows: overall worsening air quality; worsening water quality; increase loss of habitat; increase threats to the biota; increased forest fragmentation. These trends suggest that the process for approving projects in MN (whether power plants; mining operations; industrial development; other human developments) is failing to protect the health of the biota. The trends are not sustainable or consistent with a goal of ensuring highly valued public natural and recreational environments for future generations. The trends, if sustained, will have adverse impacts on human health and the economies of health.	G9
26	Thus, the stated goal of 4.14 Cumulative Effects to "summarize the resource-specific cumulative effects analyses and provide an overall, synergistic analysis of the system-level cumulative effects resulting from the combined influence of the resource-specific effects to the regional airshed, watershed, and ecoregion surrounding the Project" has not been accomplished.	CR1
27	1.1: Background… The project is stated to consist of three components: Mine Site; Plant Site; Transportation Corridor. A fourth Project component should be considered: a Regional Site. Both NEPA and the MN Environmental Policy Act require that proposed projects include review of project impacts at the mine and plant sites, transportation corridors, and on regional environments. The scope of this DEIS is inappropriately narrow. Incorporation the fourth component would provide focus for filling in the gaps in data and information regarding direct, indirect, cumulative effects as required by NEPA.	G9
28	1.5: Agency Roles and Responsibilities….This would be a convenient place to include all governmental and non-governmental organizations; corporations, consultants, etc. who worked under the direction of "Lead Agencies; Cooperating Agencies, Others". Transparency of the process is critical to serve the public's interest and such information would benefit that interest.	PD9
29	1.6.1: Tribal Cooperating Agency Positions Included in the DEIS: In paragraph 2 last sentence (P1-8) it states "…differences of opinion remain between the lead agencies and the tribal cooperating agencies." Question: Are the differences noted between the DEIS lead agencies and the tribal cooperating agencies differences of opinion or differences in agreement as to facts or both? See 4.1.1.2 below.	G14
30	Emphasis should be placed on the "proper planning" portion of my statement above. I would like to ask that the MN DNR please consider the impact of any visual and noise polution that may impact the BWCAW itself or the surrounding eco-tourism industry. That is in addition to the very real potential for massive polution in the runnoff from the project sites about which I'm sure you are well aware. The MN DNR has a rather good reputation for regulating land use in a way that allows the land to be used but not destroyed. I only ask that this reputation be upheld during the discussions and decisions regarding the PolyMet Mining Corp. NorthMet mining project.	G11

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31	St. Mary's Duluth Clinic Health System is very interested in supporting Polymet Mining Company's economic development in the Aurora/Hoyt Lakes area of Northern Minnesota. SMDC has operated a primary care clinic in Aurora since 1998 and has witnessed, first hand, the economic depression caused by the LTV mine closure earlier this decade. This summer, SMDC hopes to integrate with White Community Hospital in Aurora to improve the sustainability of healthcare in the region for citizens of the area and employees/vendors associated with Polymet. We plan on constructing a new primary clinic facility on the hospital campus, integrating care delivery across the clinic, hospital and nursing home settings and ensuring the continuation of local health care for future generations. SMDC, through it's affiliation with WCH and our proposed expansion of Occupational Medicine services will be ready to serve the 400 employees of Polymet along with the hundreds of construction workers and vendors who will be working in the area – we will be prepared to provide preventive services along with acute injury services in the nearby hospital/clinic facility. Personally, I'm concerned about sulfur leaching associated with copper mining as witnessed by other mining operations in nearby Midwest states and around the world over the past several decades. I attended Polymet's open house in Hoyt Lakes this past fall to better understand the impacts of heavy metal mining and what Polymet is doing to ensure our environment stays healthy for our children, grandchildren and future generations. As someone who lives and plays in NE MN, the environment is of utmost importance for me; a healthy environment is more important to me than economic development. Based on what I've read and learned about the precautions Polymet is and has taken, I believe our environment will remain intact and healthy during and after the development and operation of this mine. The reuse of the LTV faclities, use of the brown field site, sealing of extracted waste materials, capturing of run-off with separation from wetlands and groundwater are but a few of the multiple safeguards used by Polymet to protect the environment. Once operational, I expect the State of MN to carefully monitor runoff and leaching levels and work with Polymet to make any needed adjustments to maintain our healthy environment; my understanding is that Polymet is setting aside financial resources now and during operation to cover expenses associated with protecting the environment and returning it to the natural state after the mine has run its course. With these safeguards in place, I am confident my "playground of the North" will remain safe and beautiful for our future generations. I'm glad Polymet has been subject to the level of environmental scrutiny it's received over the past several years. This, along with the substantial economic stability Polymet will bring to the local area makes this a win/win scenario. Both personally and as a representative of SMDC am proud to support this project and am hopeful that the EIS will result in the release of permits so Polymet can proceed with their plans.	EOO,G2A
32	There seems to be enormous risk in releasing high sulfate concentrations from the tailings basin into wetlands north of the basin. Isn't it possible or even likely that mercury contamination will occur.	WR4B,WE8
32	I do not believe the technology being proposed is proven to work in a wetlands environment such as ours. We need to see specific examples that proves it works for many years. There is no margin for error. Once our water quality is gone, it's gone!	WE6
33	This EIS is unacceptable. We are dealing with a critical resource which must be protected! Future generations depend on us to do the right thing.	EOO
34	I want to express several concerns regarding the Polymet Mining draft EIS. It seems to me to be wholly inadequate. We need much stronger protection for the future. If the company leaves or goes bankrupt what financial recourse do we have to mitigate the potentially disastrous problems that could occur many years in the future?	PD3
35	The technology apparently is very new, very expensive, and unproven on the scale proposed here. How can we make Polymet responsible now and for many years in the future? Can they bond against the enormous potential cost? The bond would have to be mind-boggling large.	PD4
36	Over $9 billion is spent by tourists and outdoor enthusiasts on lake-based tourism in MN annually. That is in jeopardy due to this project because heavy metals and other toxins as well as highly acidic water ALWAYS leach into the surrounding watershed for hundreds of miles on these types of mining projects, in this case all the way to Lake Superior. I said ALWAYS because every case of this type of mining in history has resulted in this kind of damage that kills fish and entire ecosystems, and thus kills eco-tourism which depends on fish and clean water, but also which depends on the perception of the public that the areas toured are "pristine" "untouched" and certainly unpolluted. This mining project puts billions of tourism dollars in jeopardy every year. So how can it be good economically?	SE4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
37	I would like to comment on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. This type of mining will forever alter and harm Minnesota's crown jewel of natural beauty, a place unlike anywhere else in the world that attracts people from all over the world to visit. I am talking about the adverse affects that sulfide mining will have on the Boundary Waters Canoe Area Wilderness.	G11
38	All of this is not to mention that the environment being horribly ruined is in itself unacceptable because it cannot be fixed again. It will never be pristene again once the leaching starts and fish and other animals die. This will affect people's health too. Its not just a spoiled postcard, its people dying or getting sick due to bad water. Nothing is more Minnesotan that clean lakes and fishing. And this project jeopardizes both. Lets keep mining taconite, but lets not ever start mining using sulfide mining practices. Please stand up for Minnesotan values and the people and the economy and the environment and natural beauty of the state.	G2C
39	The idea that jobs that will be gained will make the project worth it is ludicrous, because again the lost money due to pollution clean up and lowered amounts of tourism will far exceed the value gained from any jobs?	SE4
40	This letter is in response to the North Met draft EIS. `I represent the International Union of Operating Engineers Local 49 and the Iron Range Building Trades Counsel. Combined we represent 20,000 tradesman in the State of Minnesota. We have reviewed the EIS Draft as proposed and support it as is without any amendments. We believe it's in our best interest to build this facility in this area where we will have some control over environmental or other controls. If any issues become apparent after they are in operation we would have the ability to correct the situation. If this plant was build elsewhere in the Country or the World we would not have any control over these issues. I've attached several petitions that I've collected from workers on projects throughout Northem Minnesota. I have not encountered any opposition to this project or EIS in this process. We urge your department to approve the EIS and allow Polymet to start this project and help get the economy in Northern Minnesota headed in the right direction.	EOO
41	“An increase in regional air emissions.” What will it contain? And how much?	RFI
42	PolyMet is required to replace any wetlands they destroy…What’s their restoration process? Is that regulated by the State?	WE3
43	impact be? 1200 acres of wetlands would be impacted.” Impacted how? And for how long?	WE2
44	How much energy will be consumed for all this – for nothing more than investor profits?	G1,G2
45	The politicians talk about how green we need to be. How many green technologies will be used in the operation (solar panels/wind/etc)? I’d be willing to bet, NONE.	G2
45	http://en.wikipedia.org/wiki/Mining Certification of mines with good practices occurs through the International Organization for Standardization (ISO) such as ISO 9000 and ISO 14001, which certifies an 'auditable environmental management system'; this certification involves short inspections, although it has been accused of lacking rigor.	G2D

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
45	Subaqueous tailings… Subaqueous deposition is particularly suited to tailings that contain sulphides that are likely to oxidise, mobilise metals and produce acid (Tremblay 1998). Restricting oxygen to the tailings by permanently placing them underwater will prevent oxidation and minimise the environmental problems associated with AMD (figure 2). With this in mind, the offshore disposal of tailings to natural water bodies is appealing but the actual overall environmental consequences of this technique are not fully understood. However, subaqueous deposition can be practiced in conventional impoundments. Discharging of tailings below water can create significantly steeper slopes than that of subaerial deposition (Robertson and Wels 1999). Dillon et al. (2004) report that for Lisheen the underwater tailings slope could be in excess of 10%. This means that if the distribution head or spigot is not regularly moved then differential settlement, slumping and squeezing can occur. This can damage synthetic liners particularly if the underlying material is likely to compress. It is essential for a lined impoundment using subaqueous deposition that the tailings are evenly distributed and that depth measurements are recorded at regular time intervals to establish dramatic elevation changes. From the Neves-Corvo mine in southern Portugal… http://www.imwa.info/bibliographie/09_14_209-221.pdf Discharging of tailings below water can create significantly steeper slopes than that of subaerial deposition (Robertson and Wels 1999). Dillon et al. (2004) report that for Lisheen the underwater tailings slope could be in excess of 10%. This means that if the distribution head or spigot is not regularly moved then differential settlement, slumping and squeezing can occur. This can damage synthetic liners particularly if the underlying material is likely to compress. It is essential for a lined impoundment using subaqueous deposition that the tailings are evenly distributed and that depth measurements are recorded at regular time intervals to establish dramatic elevation changes. http://openlibrary.org/b/OL20588582M/preliminary_assessment_of_subaqueous_tailings_disposal_in_Benson_Lake_British_Columbia http://openlibrary.org/b/OL21023877M/Geochemical_assessment_of_subaqueous_tailings_disposal_in_Buttle_Lake_British_Columbia http://www.miningwatch.ca/en/watchdogs-call-immediate-ban-mine-waste-dumping Australian, Canadian, and US mining companies that persist in dumping billions of tonnes of toxic heavy metals such as mercury and lead into the rivers and oceans of some of the world's poorest countries are causing irreversible environmental damage as well as driving human poverty. Back home, though, the multinational mining companies of Australia, Canada and the United States are not permitted to dump waste into rivers and oceans as their respective governments have effectively outlawed the practice -- a point not lost on the coalition, which argues a good corporate citizen should use the most protective environmental practices at home as well as overseas. “The use of natural surround technology would avoid the use of engineered barriers, such as dams or liners, which might fail in the long term.” http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=29CBBFF8-1&offset=8&toc=show On the other hand, an engineering firm reviewed published data and experimental results from existing tailings facilities which indicated that arsenic concentrations in the porewater, instead of decreasing with time, have actually increased at a rate of about 500 per cent per year. [R.C. Swider, The Cigar Lake and Midwest Projects Tailings Disposal, Richard C. Swider Consulting Engineers Limited, Toronto, Ontario, August 21, 1997, p. 23.] When the hearings closed on August 28, 1997, the issue of the value to be assigned to the arsenic source term remained unresolved. It is clear, however, that a license should not be given to use the JEB pit as a TMF until it has been demonstrated that	G10
46	Theoretical solutions should not be accepted in lieu of experimental data…The chemistry of tailings depositories is so complex that theories can be used only as a rough guide for the design of processes.	G7A
47	I spoke with a few people from the DNR and PolyMet at the Blaine discussion and have some real concerns that the tailings will not be handled correctly.	G2D
48	The politician’s quote went something like this: “Minnesota has strict environmental regulations to protect our land.” I would like to hear those at the State, who will be responsible for the monitoring, describe the monitoring process? I’d be willing to bet they couldn’t. How in-depth will the monitoring process be? How often will it take place? Who actually does it? Does the State know their role? Will they not just take PolyMet’s word on things? And will they do what’s necessary to enforce? With all the proposed cuts at the State level, I have real concerns.	G2D
49	If the State is going to allow this, will there be a monitoring board – with citizens as members established? There should be – and it needs to be absolutely transparent.	G10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
50	Are levels of everything being measured in a huge surrounding area prior to anything happening – so the mining company can't say "it wasn't us" when something does happen?	G10
51	The regulators need to make a careful assessment of PolyMet's ability to manage the entire facility. PolyMet has never done this before, nor has the State of Mn.	G10
52	Are the DNR and PolyMet showing a genuine caring attitude towards the public's concerns? Are the public comments going to be taken with a grain of salt? Who is in charge of reading, understanding, and bringing forth pertinent public comments?	G10
52	Will the procedures for mitigating all potential unacceptable impacts be identified before permitting begins?	G2,G10
53	PolyMet should demonstrate that it is capable of, and intent upon, giving thoughtful, sincere and professional attention to the concerns of the regulators, and the public. I have yet to see it in earnest…	G10
53	PolyMet should be required to demonstrate that it possesses adequate managerial and scientific competence before approval is given to construct and operate this highly dangerous facility.	G10
54	Who is in charge of critiquing Barr Engineering?	G10
54	Concerning a copper mine in Quebec… http://www.minem.gob.pe/minem/archivos/file/dgaam/publicaciones/curso_cierreminas/02_T%C3%A9cnico/06_Coberturas/TecCover-L06_Water%20cover-Louvicourt.pdf	EOO
55	They (Sen. Bakk in particular) also mentioned how great it will be to have copper wire, tubing, and all the good stuff made right here. Does not Polymet's agreement with Glencore mean that metals will be sold on the world market? I believe it does…	G1
55	The politicians talk about all of the spin off jobs that will be created – 500 give or take. Have them tell the people what those jobs are. Not just 500 jobs – name the jobs and what they pay.	G1
56	It was especially nice to see that the mining company shipped their people in from around the country. And they did, I met some of them. I guess since the cameras were rolling, they needed to make a good pro-mining showing?	EOO
56	http://www.mbendi.com/indy/ming/cppr/am/cn/p0005.htm Canada is arguably the third largest copper producer in the world, after Chile and the USA. It is also the world's largest zinc and second largest nickel and lead producer. Then, there's this… http://www.nationsencyclopedia.com/Americas/Canada-MINING.html Australia is the 4th largest producer… What about Sweden? Aitik Sweden Annual Production 240,000T copper concentrate This concentrate contains 66,100t of copper, 35,700kg of silver and 2,340kg of gold. Mining started on the basis of a 50Mt reserve, but by 1998 Aitik had yielded 300Mt of ore. As of November 2006, total proven reserves were 520Mt grading 0.31% copper, 0.2g/t gold and 2.0g/t silver, while 110Mt of probable reserves have similar precious metals grades and 0.28% copper. Measured resources at January 2006 were 635Mt grading 0.30% copper, 0.2g/t gold and 2g/t silver. Indicated plus inferred resources totaled 350Mt at similar grades. So, I have a very hard time buying into the politicians theory that we can no longer accept having to get our metals, etc from the dictatorships around the world – nice try though. I believe the actual quote went something like this: "We can't rely on unstable governments/dictators in other countries to supply our metals." Little advice for the prominers…lose the politicians, they're full of shi%…	G1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
57	Politician quotes from the hearings and newspaper articles… ”When the LTV taconite plant shut down a decade ago, the people rolled up their sleeves.” To figure why LTV went bankrupt? We all know why LTV went bankrupt…Or was it to determine how the land could be raped even more? “There have been 6 generations of mining wealth on the Range.” Yep, 6 dead cancer riddled generations…awesome!!! “We've provided iron for 2 world wars, built the state capitol building, and the U of M. There are educational endowments of $1 billion. $600,000 a year that goes toward research and scholarships.” What does this have to do with the copper mine? They gonna build a big copper something we haven't heard of yet? A huge reason this will go through is so the State can collect monies to pay for their overspending. Maybe, just maybe, our politicians could do their jobs correctly so we don't find ourselves in these types of predicaments? “Mining is our culture. That's why our families came here. We continue to produce wealth.” Compare the mining dollars to the tourism/hunting/fishing/etc industry in northern Mn. How is this going to effect those consistent money makers? “Cell phones need 26 different metals.” They USE 26 metals – do they NEED 26 metals? Are there alternatives to the 26 metals? Last time I looked – there was not a shortage of cell phones… “A green economy is what environmentalists want.” And this sure ain't it… “We all want and need devices.” We all want and need politicians to smarten up – what's your point? The “devices” you mention aren't made here, and won't be made here… “It's fundamentally wrong to export our pollution to other countries by our demands.” What an outright crock of shi*…What's fundamentally wrong is our State's politicians to lying to us.	G2D,G10
58	“Sulfur in the ores have potential for acid mine drainage.” Not just potential – it will happen.	G2
59	“The plan is to backfill the east pit with low sulfur waste rock, and to line and cap the high sulfur waste rock concurrently with the mining. Backfill with what? Where	EOO
60	From newspaper article: “State lawmakers write letter of support for PolyMet” Published: Saturday, December 5, 2009 10:30 PM CST Mesabi Daily News PolyMet is a strategic win. The copper, nickel, platinum, palladium, gold, and cobalt that PolyMet will produce are essential to our way of life. They are found in electrical wiring, hybrid cars, wind turbines, stainless steel, jet engines, cell phones, computers, blood sugar test strips, artificial joints, catalytic converters, and a myriad of other products, but the United States imports from 40 percent to 90 percent of these metals. As well as most of the products you mention above. So, how green is it to ship the raw materials around the globe (China) and then ship the finished goods back to the US? It isn't…	G1,G2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3840	The Minnesota DNR and the Army Corps. of Engineers are creating an Environmental Impact Statement on a new type of mine being proposed for Northern Minnesota near the Boundary Waters Canoe Area Wilderness, and 50 miles from Voyager National Park . This mine isdifferent from long established iron ore mines that Minnesota has had over the years. These proposed mines, contain among the copper, nickel, platinum, and silver, significant deposits of sulfide . The sulfur in the resultant mine tailings could leach off into the surface and ground water, creating yellow and red streams and creeks with toxic heavy metals and sulfur. Water that contains heavy metals and sulfuric acid kills fish, birds and other aquatic life . The watershed for these proposed sulfide mines includes the Kawishiwi River which flows into the Boundary Waters Wilderness, and includes the St. Louis River which flows into Lake Superior. Contaminated water flowing from abandoned mines is one of the most significant contributors to water pollution in the United States . A toxic form of pollution caused by sulfide mines is called Acid Mine Drainage (AMD) . AMD can have severe impacts on aquatic resources, killing micro -organisms, insects, fish and other aquatic life . It stunts terrestrial plant growth, harms wetlands, contaminates groundwater, raises water treatment costs, and damages concrete and metal structures . There are several thousands miles of streams impacted by AMD within the United States. The economic losses on fisheries and recreational use mounts to hundreds of millions ofdollars' annually. See appendices C and D. AMD causes elevated levels of dissolved metals and sulfates, which render the stream unsuitable as a source of drinking water for humans, livestock or for use as aquatic habitat for wildlife. Because of the potential for Acid Mine Drainage, sulfide mines require treatment systems to ensure that acidic water is not discharged . These systems must be in place for the life of the mine, and continue in perpetuity to treat acidic waters after the mine is closed . Due to the ongoing treatment process, the risk of discharging acidic water increases over time . Water treatment systems at reclaimed mining sites is complicated by changing levels of ground water and fluctuating rain fall levels over decades and centuries. If movement of the acidic water is not contained within an impermeable barrier (e .g. pipe, plastic, glass, etc .) the acidic water flows into the underlying groundwater system . Once the acidic water enters the groundwater system, the detrimental affects on flora and fauna becomes widespread. Containment and treatment of the affected groundwater system is difficult, if not impossible. Generation of acidic waters is a long-term situation that requires perpetual chemical treatment. Therefore, funding for long-term treatment of acidic waters and long-term responsibility and liability for environmental protection is on going . Mining companies and sulfide handling operators may not be perpetual and often go bankrupt . As a result, there are many examples of operators abandoning properties that discharge acidic water and requiring public money to clean up the site . See Appendix B. Unlike many dry Western states, Minnesota is rich in water resources that are especially vulnerable and are a great part of Minnesota's outdoor heritage for anglers, canoeists, duck hunters and of course wildlife . Our neighbors in Wisconsin have a moratorium on mining metallic sulfide ores written into law . In effect, the Wisconsin law says : "Industry can mine metallic sulfide ores in Wisconsin when it can show one mine in the United States or Canada that has operated and been closed for ten years without significant damage to its watershed." See Appendix A. The Izaak Walton League of America and the Minnesota Ike's in particular, have a long history of fighting for, protecting, and preserving Minnesota's North Woods and the wildlife it contains. It was	G2C,G7A,G11,G12

Sender Last Name: Bartosh **Submission ID:** 186

178	Hello. I'm writing to express my opinion on the PolyMet copper mine. I seriously think Minnesota needs to add a mining moratorium like Wisconsin has. Wisconsin learned it's lesson! This type of mining does not belong in Minnesota. The few years of jobs and minerals it will produce will not outweigh the pollution and environmental wreckage. Our world is so full of cancer, so full of toxins, so full of 'industrial' growth, that we are killing ourselves and our world. Everyday I wonder why we continue on our destructive path. Destroying northern Minnesota's natural beauty so someone can make a buck is just wrong. I hope you consider my comments, and truly look inside your heart to see what's worth saving.	EOO,G2,G12

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
336	I'm writing to voice my opinion on the PolyMet project. I'm sure you are getting lots of emails and are a little overwhelmed, but I really wanted to write with my thoughts. I'm very afraid of this PolyMet project. I don't believe they have 'new' technology. I don't think they wish to do harm or intend to, but who does? Oil companies don't wish to have oil spills, but they still happen. It's human error. Even if PolyMet follows strict environmental regulations and does it all by the books, errors can happen. And such errors can be so deadly and disasterous. The Boundary Waters, the St. Louis, and even Lake Superior are all too precious to even risk. Even if I had a great baseball player. He's got the best throw of them all. I still wouldn't want to put him next to a glass house. But I also learned the other day that PolyMet had been taken to court back in 2007 regarding the mess they were making in Floodwood, MN. If they have no problem skirting the laws in Floodwood, they won't think twice about skirting other laws. In my opinion, if you break an environmental law once, you shouldn't be allowed to get a permit for anything! So, I'm very upset that this EIS is still continuing. Not only do we have a great baseball player next to a glass house, but this player is known for liking to break glass.	EOO,G5
2852	I believe that PolyMet's sulfide/copper mine is not an acceptable option due to the damages it will cause to northeastern Minnesota. The long term repercussions of such a project certainly warrant great concern and I, for one, say "NO" to the PolyMet project. I hope you will consider my objection earnestly and with diligence.	EOO,G2
3841	I'm writing in opposition to the proposed PolyMet project or any other sulfide/copper mining project. I feel anyone who believes they won't do damage is a fool. Their PR spin doesn't fool me. No mine of this type is safe in wet environments such as NE Minnesota. They don't care about MN, they only care about the profits they'll make exploiting Minnesota's greatest treasure the BWCA. We hold a vast amount of precious, clean water. Water is worth protecting! Plus, if PolyMet and society wants copper so bad, we've got 60 years of copper buildup in our landfills. Everything from computers, electronics, appliances, old vacuum cleaners, etc. Let them go into the recycling business.	EOO
Sender Last Name:	Bartosh,Toupal **Submission ID:** 3700	
1	If PolyMet is going to be as beneficial to our economy as is being claimed by its proponents, it should lead to rate decreases and not rate increases. The project should be advanced transparently, and legally. An increase in rates for small businesses is not good for the diversification of the regional economy and makes it more dependent on the big business of mining. Realtors in regions where mining is being advanced notice depreciations in property values generally. Much can be said about this economic harm.	G1
Sender Last Name:	Baumgartner **Submission ID:** 2018	
2486	Because of the problems detailed below, and because this type of toxic mining has never before been done in Minnesota, I would respectfully point to the decision of our neighbor state Wisconsin, to ban this type of mining unless and until it can be proven safe.	G14
Sender Last Name:	Baurle **Submission ID:** 3526	
3790	I am a college student in the Twin Cities area. One of the features that attracted me to Minnesota was the environmental consciousness of this state's citizens and government officials-- a welcome change from my Chicago-area hometown, eager simply to make a buck. In fact, I am pretty confident Minnesota will be my new home. Friends, I urge this state to reconsider the permanent impact this decision will have on the environment and future generations. Minnesota is a beautiful, picturesque state-- please do not throw all that inherent charm away for a get-rich-quick-scheme. It will only leave the state morally and environmentally bankrupt in the end.	EOO,G2
Sender Last Name:	Beane **Submission ID:** 2738	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3183	My husband and I are ardent supporters of the quality of all of Minnesota's natural resources, particularly the Boundary Waters Canpoe Area. To hear that the health of this area is at great risk is of great concern not only to the land and water, but to the people and wildlife.	EOO

Sender Last Name: Beaver **Submission ID:** 1188

1303	Minnesota waters should not be polluted with heavy metals and sulfates, which contributes to mercury contamination of fish. Any short-term process, that leave behind a pollution problem that needs treatment in perpetuity, should be avoided.	G2C,G7B

Sender Last Name: Bechtold **Submission ID:** 3518

3785	I can't believe a project such as this is even being considered in such an enviromentally important area. These enviroments need to be protected. We need to be making changes in our life styles and our use of recycling. If all the time money and energy that went into trying to pull this off was directed to the recycling effort we would be a world ahead. How can anyone working to push this mining effort forward sleep at night knowing the kind of risk they are putting on the enviroment and future generations health. Are their paychecks really more important than the health of their grandchildren. Why would we allow big business to use us for short term benefits and ruin our own long term benefits of keeping the enviroment pure. Northern minnesota is knowen as pure natural area, to explore and learn, to get back to nature. No one wants to fish next to a exploration rig. With the economy suffering people may not have the funds or spending cash to travel as much as before but this is not the answer. Selling our souls to the devil is not the answer to our state economic issues. We should be investing in substainable methods. Thank you for this oppportunity to express my opionion on this matter, I hope and pray that the devil doesn't beat mother nature out on this one.	EOO,G2

Sender Last Name: Beck **Submission ID:** 3480

1115	loss of 1,454 acres of federally designated critical habitat for two endangered species known to be in the vicinity of the mine site – the Canada lynx and the gray wolf. Finally, cumulative impacts must address the loss of revenue to the Boundary Waters Canoe Area	WI1
1321	basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project. Further, the PolyMet NorthMet project will result in total	GT2
3234	In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes. Wisconsin has already banned sulfide mining due to the unacceptable environmental risk it presents. It is also my understanding that PolyMet proposes to use an existing mine tailings	EOO,WR4B,FM1
3683	Water quality impacts remain a top concern. How is it acceptable to allow for up to 2,000 years of environmental impact for the short term gain of one company? Who will pay for the long term treatment required? PolyMet has few assets and little financial history. The DEIS fails to address where the funding will come from to pay for post-closure treatment, monitoring and maintenance. As a result, it seems likely that Minnesota taxpayers may have to pay millions of dollars to clean up after PolyMet has gone.	PD2,PD4
3754	Wilderness and Superior National Forest tourist industry as part of a sulfide mining district. While I fully understand the economic necessity of mining, and need for natural resources in our society, we need to be responsible in our decisions. Certain types of mines should simply not be permitted in places where the risk to the environment is too great. This appears to be the case for sulfide mining in northern Minnesota. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers.	G2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Beckel **Submission ID:** 1834	
2444	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Having spent many of my most precious developmental years paddling and guiding the waters of the BWCAW, eating fish and drinking the clean clear waters, I urge you to protect this national treasure for yourself, your children and the generations to come.	G7
Sender Last Name:	Beckman **Submission ID:** 2707	
3174	Gentlemen, I grew up in the Boundary Waters and learned about land and water conservation, to have fun as well and to "leave where ever you camped cleaner and better than you found it." Interestingly enough that last quote happened to stay with me for life for it has so many other applications! How can you in good conscience slowly contaminate, kill waterlife, and slowly kill the BWCA? The fire a few years ago wiped out an large part of the area but, that is Mother Nature and the BWCA thrived after it! It took years, but it thrived non the less. Gentlemen, as I'm pretty sure no woman in good conscience would be apart of this committee; You are Not Mother Nature, and you have no right to do what you are doing. I've taken nieces and nephew's, under-priveledged kids from the inner city, and I plan on taking my grand nieces and nephews and other mother's, father's, Kids. How dare you take that right away from me and anyone. Ther is no greater lesson in life then a trip to the Boundary Waters! Stop everything you are doing in the Boundary waters!	EOO,G7
Sender Last Name:	Beddow **Submission ID:** 1726	
2239	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources. One of the best things about living in Minnesota is the wilderness. I grew up here, my parents grew up here, all the way back to my great grandmother who was born in Minnesota. I like being able to see lake Superior and Northern Minnesota the way she did, and I very much want my great grandchildren to have the same opportunity. Please do not disturb the beauty by allowing sulfide mining.	G11
Sender Last Name:	Behrends **Submission ID:** 3203	
3539	Please consider our environment to be more than a harvestable crop. We have generations to come that have the right to the beauty we have now. As a nation, we should be reversing our destruction of the environment. Its obvious through scientific facts that many of our actions have an adverse effect on the environment. Politicians that can fly on tax payer dollars to remote locations to "experience" nature do not relate, appreciate, or understand the "common" man and their ways. Please consider what we all know in our "gut" and that acid mining isnt what is best for Minnesota. Thank you. Kyle B.	EOO,G2
Sender Last Name:	Beito **Submission ID:** 3371	
3661	I really enjoyed the video- I think more people should have to watch the video just so they are aware of everything. It is important for some land to be saved and protected like the Boundary Waters- I am glad that was done.	EOO
Sender Last Name:	Bell **Submission ID:** 1844	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
300	Loss Of Wetlands - The project allows the loss of 1200 acres of wetlands in St. Louis County and the St. Louis River watershed, with an inadequate mitigation plan. The loss of these wetlands will result in a net loss in carbon sequestration provided by these wetlands (peatlands).	WE3
306	Harmful To Wildlife - The DEIS does not adequately address the mining project's impact on Canada Lynx and Grey Wolf Habitats. It also does not address the destruction of existing wildlife corridors. The project is located on land the USFWS designated less than one year ago as critical habitat for the Canada Lynx.	WI1,WI5
839	The mine's tailings basin will also produce discharges high in sulfate concentrations, which will turn mercury into methlmercury, making fish dangerous to consume.	WR4B,FM1
1168	Cumulative Impacts Not Analyzed - The DEIS should expand its analysis of the Cumulative Impacts of the PolyMet project to include a review of past, present and foreseeable future actions within the project vicinity.	PD8,G9
1169	Financial Assurance Information Missing - As recommended by the EPA, the DEIS must include an evaluation of the financial assurance that would be provided to ensure post-closure reclamation of the PolyMet NorthMet mine and plant. Sulfide mining places huge burdens on taxpayers. These mines often require long-term or perpetual pollution and treatment. PolyMet has few assets or financial history. The question of where the funding will come from for post-closure treatment, monitoring and maintenance has not not been adequately addressed, and Minnesota taxpayers may have to pay millions of dollars for clean up after PolyMet has gone.	PD4
1170	Land Exchange Analysis Missing - The PolyMet project proposes a land exchange of 6,700 of federal land within the Superior National Forest. This "connected action" is required to be part of the EIS under federal law. Knowing which what lands will be exchanged is important in evaluating the environmental and cultural impacts of the PolyMet NorthMet Project.	PRO4,PD1
1209	Water Quality At Risk - Water quality concerns have not been adequately addressed in the PolyMet project's DEIS. Water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years.	EOO

Sender Last Name: Bellerud **Submission ID:** 316

330	Please accept these comments in support of the Draft Environmental Impact Statement (DEIS) for PolyMet Mining Company and its proposed NorthMet project. I write this letter wearing many hats. First, I am an Iron Ranger who loves this area and wants to see it be sustainable - economically ana environmentally. Second, I have had a long career in iron mining, having retired after a long career at U.S. Steel's Minntac operation; I know mining! Third, I am the mayor of a small town west of the proposed project, Gilbert, which stands to benefit from the economic development that PolyMet will create and also would stand to lose if the project isn't environmentally sound. In my career in mining, I have witnessed great improvements in the environmental stewardship practiced by iron mining companies on the Range. What's exciting to me is that PolyMet will take advantage of all of these stewardship practices - and introduce new ones based on the unique challenges of nonferrous mining. They have done their homework on this huge project. The DEIS demonstrates this environmental stewardship. From the mine, where PolyMet will develop and implement a comprehensive waste rock management program, to the processing plant, where sulfur from the ore will serve as fuel, PolyMet will be a shining example of sound environmental practices. Their reclamation will be like done other. PolyMet also will be a major economic driver for the entire Iron Range, creating construction jobs and providing good jobs for 400 people - jobs that can support families. We will see our young people coming back to the Iron Range to work and live. Mining is exciting, challenging and constantly improving. When producing metals that all Minnesotans demand and that are used in daily life - whether it's the iron ore currently mined to produce steel or nonferrous minerals that are used in everything for cell phones to jet engines to medicine - mining professionals have an obligation to nunimize the impact on the environment and natural resources. PolyMet has accepted that obligation. The DEIS-a detailed, comprehensive review of the impacts-should be approved.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Bellville **Submission ID:** 3213	
3545	My opinion is approval for this project	EOO
Sender Last Name:	Bendas **Submission ID:** 266	
279	The Area Partnership for Economic Expansion (APEX) is an entrepreneurial business development organization led by top executives and senior managers from Northeastern Minnesota and Northwestern Wisconsin's largest, most successful companies. Our goal is to strengthen the regional economy by creating sustainable economic development. The project being proposed by PolyMet Mining Company not only would create sustainable economic development, it also would produce metals used by my members every day and, moreover, do so in an environmentally sustainable manner. The 400 jobs that PolyMet will create will lead to the creation of hundreds of other jobs throughout the region; the tax base will benefit not only from the company's contributions but also from the taxes paid by these employees. Perhaps most importantly, these economic benefits will not accrue at the expense of environmental protection. As the comprehensive, detailed draft environmental impact statement demonstrates, PolyMet will generate this economic activity while it is protecting our air, water and land. The environmental impact statement outlines the many choices PolyMet has made to protect our environment, including but not limited to: • Using a brownfield site, minimizing further disruption to the environment and taking advantage of existing processing and transportation facilities. • Designing the mine and plant footprint to minimize the impact to wetlands. • Using the sulfur in the ore as a fuel for processing instead of greenhouse gascreating fossil fuels. • Emitting very few air pollutants. • Ensuring proper treatment and disposal of waste streams from processing. • Managing waste rock, including liners, collection drains and covers. • Assuring that closure costs will be covered by setting aside financial resources now to pay for these future costs. • Friends, Neighbors, and Relatives in this area have been hit by the economic downturn. This project will provide opportunities for families in Northern Minnesota and Wisconsin to have good paying jobs. The draft environmental impact statement has proven that PolyMet can mine these critical metals, create these jobs and contribute to our regional, state and national economy at the same time it is protecting our environment. In fact, the PolyMet project has been subjected to extraordinary scrutiny over more than four years of environmental review, and PolyMet has demonstrated the economic and environmental viability of its project. PolyMet has played by the rules. It has invested more than $20 million to support this exhaustive environmental review. The draft environmental impact statement should be deemed adequate. Permits should be issued. PolyMet should be given the green light to start developing these green jobs.	EOO
Sender Last Name:	Bennett **Submission ID:** 3218	
3548	hi I live nerby and we need the work here in northern mn. I think the draft should remain as is .thank you bob.	EOO
Sender Last Name:	Berg **Submission ID:** 19	
17	Kim Berg, Biwabik, Minnesota. I just want to say I'm very much in support of PolyMet. My husband already works there, so I'm hoping we can continue our job and have a very awesome growth of the Iron Range. We need it. That's my statement.	EOO
18272	In regards to the PolyMet Mining’s proposed NorthMet Project, I am deeply concerned about the environmental impact and degradation anticipated from this project. The proposed mine sits on land which belongs to the public, and as a part-owner of this property I reject the proposal.	G2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
18273	(4.1-112) PolyMet's proposal to construct a wetland for the purpose of treating contaminated water is – at this point – merely an idea. It would be prudent to require full-scale testing of this key component before relying on it to protect such high quality watersheds and important wilderness areas as the nearby BWCAW. From my understanding, a treatment wetland of this scale has never been tried. Previous tests of small-scale treatment wetlands have shown wide seasonal variations in effectiveness. Moreover, no-one knows if these wetlands can continue to uptake pollutants over the hundreds or even thousands of years that they will remain necessary. Failure of this system would require very long-term and costly treatment by alternate means – most likely paid for by Minnesota's taxpayers.	WR3L
18274	(4.13-2) The stability of the existing LTVSMC tailings basin that PolyMet plans to use for their disposal is a well-recognized concern. The existing basin has been documented to contain fines and underlying soils that create a "low margin of safety" for its long-term stability. Rather than generating a plan that satisfactorily increases the safety margin of the basin, PolyMet concedes that "further design and analysis is needed."	GT1
18275	To date, PolyMet has done nothing concrete to demonstrate their promise to mine safely with minimal environmental damage and risk. On the contrary, PolyMet's rush to begin the EIS process before adequate plans and testing (as described above) is complete does not bode well for the future. As an indication of their commitment to protecting Minnesota's environment and future citizens, PolyMet\ should – at a minimum – complete two tasks. 1) Develop and test a plan that generously increases the safety margin of its planned use of unstable, old tailings basins. 2) Develop a full-scale wetland treatment system and demonstrate its effectiveness over all seasons and for a projected term of years equal to the expected discharge of polluted water from the mine.	WE6,GT1
18277	My second concern with the NorthMet DEIS is in regards to the probable negative impacts the project will have on the area's water quality. The DEIS states that water from waste rock piles will likely remain contaminated with heavy metals - including mercury - and sulfates for up to 2,000 years. After only 65 years, this contaminated water is expected to overflow from the west pit, contaminating nearby water bodies for up to the following 1,945 years. In addition, seepage from the tailings pit is expected to create "high risk situations" for mercury methylation in wetlands and lakes downstream on the Embarrass River. As climate change continues to threaten the water supplies of many western states, and Minnesota's own population continues to grow, I have no doubt that high-quality water will be in short supply. According to the U.S. Government Accountability Office, at least 36 states will face catastrophic water shortages within five years due to a combination of drought, rising temperatures, pollution, urban sprawl, and population growth. In light of these circumstances, it is easy to see that Minnesota's access to abundant, clean water is precious and unique. In fact, it is, or soon will be, much more precious - and essential – than the metals contained at the PolyMet mine site. Water also happens to be a renewable resource able to sustain Minnesotans for generations - if protected. In contrast, the metal contained at the NorthMet site is expected to be gone in one generation. Trading away generations of valuable, clean water for a quick profit is not a tradeoff that is in the best long or short-term interests of Minnesotans.	EOO,WR3I,WR5A

Sender Last Name: Bergan **Submission ID:** 1847

2463	I am also a teacher who wants a great future for all Minnesota families to explore the boundary waters and find it still clean and revitalizing to our health.	EOO

Sender Last Name: Berglund **Submission ID:** 1186

157	Extend the 90 day comment period so that other people can learn about this issue & express their concerns.	PRO6
1301	This mining should not take place anywhere in the BWCAW watershed or the lake Superior watershed.	EOO

Sender Last Name: Bergman **Submission ID:** 1038

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1139	Thank you for your efforts to collect and review public comments on PolyMet Mining's proposed copper-nickel-precious metal mine. The Lake County Board of Commissioners is pleased to write in support of this project, which will provide critical metals that I and my constituents use every single day. The Lake County Board of Commissioners is well aware of the importance of mining to the economy of Northeastern Minnesota and equally well aware of the need for mining to be done in an environmentally sound manner. We are pleased to see that the environmental impact statement developed for the project clearly reflects the fact that PolyMet can do both. The proposed mine is in neighboring St. Louis County in an area that already is widely used for mining and has been logged extensively. It is surrounded by existing mine pits, high-transmission power lines and transportation infrastructure that includes roads and rail. This is an appropriate area for this type of industrial development. PolyMet proposes to take advantage of this impressive infrastructure, re-using the Brownfield site left by the bankruptcy of LTVSMC and much of the existing road and rail service. Not only will this minimize further disruption, it also will recycle these facilities. The environmental impact statement also shows that PolyMet processes will be environmentally superior to more traditional processing methods, using constituents in the ore to fuel processing, generating very low rates of air pollution and minimizing the use of greenhouse gas generating fuels. PolyMet won't discharge process water to the environment and will manage waste rock to avoid generation of acid rock drainage. I'd like to expand on the socio-economic impacts of PolyMet's proposed project. Construction of the facility will provide 1.5 million man hours of construction employment. PolyMet will create 400 full time jobs at wages that can support a family, and at least 500 spinoff jobs are expected. The company will also pay millions annually in local, state and federal taxes. This economic benefit will help much of Northeastern Minnesota. Lake County specifically is struggling with rising costs, increased demand for services and a shrinking tax bases. In Lake County we currently have an unemployment rate of eight percent because of the economic recession. Construction of the mine as well as its operations will provide much needed high paying and stable jobs to Lake County residents and will help improve the county's bottom line. We need sound, long-term, sustainable economic development to help ensure a steady stream of local revenues. PolyMet would contribute to that revenue stream. Please work quickly to answer public comments and to issue a determination that the environmental impact statement as adequately addressed the issues associated with the project so permitting can begin.	EOO
Sender Last Name:	Bergstrom **Submission ID:** 1829	
115	Water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. This is unacceptable to me. We have saddled our children and grandchildren with so many future problems, especially environmental, that the time has come to stop all projects with such far reaching consequences.	PD2
2434	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. Please follow Wisconsin's lead and encourage the legislature to ban this type of mining until it is proven safe. This area of Minnesota is my favorite vacation destination. I have observed increased degradation in years gone by. Many changes have occurred over the 35 years I have been visiting it. If much more occurs, I will spend my vacation dollars elsewhere.	EOO,G11
Sender Last Name:	Berkopec **Submission ID:** 1637	
2060	If this open pit mine occurs, it will pollute the beautiful and natural wildlife of Minnesota for over 2000 years. This is completely unnecessary and should not occur. I grew up in Minnesota and going to the BWCA was one of my most fond memories. It will not be the same for myself and thousands of others if this sulfur is mined. Plus Minnesota will have less visitors for people will not want to visit a polluted area. Please consider the beautiful wildlife, waters, and rare beauty that is found in the BWCA. It is truly something I am passionate about and would be devastated to see destroyed.	EOO,G2C,G7B,G11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Bertelson **Submission ID:** 3478	
3681	so it can avoid this kind of expenditure, expecting that the people of this state will pay for the cleanup just as states elsewhere have. In doing so, PolyMet fails to act responsibly in its application, shows it is not acting in good faith with the people of Minnesota. We cannot accept this kind of irresponsibility. If this project is approved by the state, it must do so only if PolyMet agrees to post a significant bond to pay for the ongoing cleanup which will be required. If the state does not require this, then the state will be acting irresponsibly on behalf of the people of the state. Glenn Bertelson	PD4
3752	Dear Sirs: Thank you for this opportunity to comment. I would like to see this mining operation go forward for the jobs and revenue it would create for the state. But wherever this kind of mining has occurred in the country, there has been significant pollution of the environment. The environment of this area of Minnesota is its most profound contribution to the quality of life here. People visit and live in this area mostly for the quality of the environment. Resorts and outfitters benefit only because of the quality of the environment. The Boundary Waters Canoe Area Wilderness is unique in the world, and its appeal is due solely to its pristine environmental qualities. Should the quality of the environment be degraded in any way, this area will suffer enormously far into the future. There has not been one instance in the country where this kind of mining has not created significant environmental degradation. When the mining companies have left, the public has been left to pay for the ongoing cleanup into perpetuity. PolyMet knows this, but instead of making the pledge to pay for the cleanup which will be required, it has declined to post a bond for the purpose, claiming that the sulphur content is significantly less than elsewhere. It is relying on the demand of the people for jobs and revenue, and the complicity of the state, to support its application	EOO,G4A,G11
Sender Last Name:	Bertossi **Submission ID:** 3643	
18278	As a citizen organization whose home-base is Michigan our first and foremost concerns are the destruction and potential trading of very unique federal lands that we all share, and the contamination that is likely to occur to our water resources, given that massive piles of toxic waste rock (with low levels of acid-neutralizing minerals) will be stored in a very water-rich environment.	G2A,G7A
18279	First of all, PolyMet proposes to clear, mine, develop, store tailings on, and frankly destroy approximately 1,200 acres of wetlands and 1,000 acres of forest on public land in the Superior National Forest and within the 1854 Treaty Ceded Territory where the Bois Forte Band of Chippewa, Fond du Lac Band of Lake Superior Chippewa, and Grand Portage Band of Chippewa retain hunting, fishing, and gathering rights. The land that would be destroyed by the proposed mine has been identified by Forest Service and DNR scientists, in several assessments, as having high quality and unique natural features and for providing habitat for threatened, endangered and/or sensitive species—also referred to as an “under-represented habitat”. The area’s special features include high watershed integrity, large areas of wetlands, the presence of riverine ecosystems, and a large amount of interior forest. This Northwoods area and its surrounding ecosystem are rare and getting rarer with increasing development.	EOO,G2A
18281	The DEIS is not adequate in addressing the loss of this special place. The DEIS only mentions that PolyMet is considering trading land but does not describe the supposedly “more useful” land that is to be traded. We are also concerned that this land trade would set a detrimental precedent for federal lands in our own State of Michigan and throughout the country. This proposed land trade is hardly a solution to destruction that would forever erase an already dwindling resource. Allowing PolyMet to operate its Northmet Mine would shift the balance away from sustainable use levels to an industrial level of development that would permanently alter the social, ecological and economic characteristics.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
18282	And, whatever we do to the land eventually finds its way to the water. In fact, according to the Forest Service's Wildland Waters Newsletter (Issue 4, winter 2005), "Water has been called mining's "most common casualty" (Environmental Mining Council of British Columbia [EMCBC])". The DEIS mentions but does not fully address the potential to create mercury, methyl mercury and sulfate pollution in the nearby watersheds, especially from the tailings basin (where we can expect at least minimal leakage because it is a well known fact that all liners leak). For example, according to the DEIS, "there is some uncertainty as to whether the West Pit overflow would meet the Lake Superior mercury standard" and it goes on to read that, "this impact could be mitigated if it would occur." How does PolyMet propose to mitigate this potential impact? Operations will not always go as planned, modeling and predictions are not always accurate (garbage in garbage out). Can the responsible agencies and PolyMet show the concerned citizens that we will not be stuck with the bill to clean up another mine site?	WR1E,WR3I,WR5A,AQ4,A
18284	The DEIS also does not adequately address potential hydrologic impacts, including surface water drawdown, water flow impacts in the St. Louis River Basin (including the potential impacts to wild rice), the leaching of metals to surface water, and the ability of the Project to meet long-term closure requirements relative to surface water quantity and quality.	WR1A,WR1C
18285	The DEIS mentions potential long term arsenic, cobalt, selenium, copper, nickel, aluminum, beryllium, iron, manganese, thallium, sulfate, antimony, manganese, and nickel exceedances at the mine site, but it does not address the cumulative or synergistic impacts upon fish, wildlife or humans.	WI5,G9,FM3
18288	Moreover, the DEIS does not adequately address cumulative impacts of a proposed new mining region. As you may know exploration for minerals has accelerated throughout the upper Midwest with active exploration and proposals in northern Minnesota, Ontario, Wisconsin and Michigan. What might this mean for our shared waters, especially Lake Superior?	G1
18289	A mining district is a likely foreseen outcome, as agencies continue to sell exploratory leases to companies throughout the Northwoods. The PolyMet DEIS is inadequate as it addresses the Northmet project as an isolated copper-nickel mining project in the Great Lakes region.	CR1
18290	Finally, the DEIS states that PolyMet would have no significant effect on regional air quality. Cumulative effects of other proposed mining must be included in order to make the DEIS adequate.	AQ4B
18291	Although there is rich body of research that describes the "Boom and Bust" nature of mining, the DEIS only addresses the socioeconomic benefits of the proposed Northmet Mine. It does not mention the economic effects mining could have on the local tourism industry. We would like to see this issue addressed and presented to concerned citizens before any decision is made on the proposed mine.	SE4
18292	We understand that the Bois Forte Band of Chippewa, Fond du Lac Band of Lake Superior Chippewa, and Grand Portage Band of Chippewa participated as cooperating agencies, we hope that their concerns will be addressed in the FEIS, including the implications of the potential loss of access to public lands for hunting, fishing, and gathering and other tribal uses due to the potential land exchange.	G3,CR2,CR4
18293	Despite a land exchange, the DEIS does not address loss of wild rice and berries as food crops, or the accumulation of toxic metals in plants, wildlife, and fish species used as game. Even if land is exchanged, the proposed mine would also effect wildlife movement patterns, including those of moose, wolf, Canada lynx, American marten and others. Both moose and wolf are having difficulties reproducing in many areas in the western Great Lakes ecoregion, adding to the cumulative adverse impact these and other species are faced with would constitute a significant effect with lasting and unpredictable outcomes, not only to the wildlife but to the hunting, fishing, and gathering rights of indigenous peoples.	WI3,G9,CR1,CR4

Sender Last Name: Besonen **Submission ID:** 315

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
329	I'm writing to indicate my support of the PolyMet Mining NorthMet Project. Because of the number of jobs it will create, this project will contribute greatly to the economy of northern Minnesota and beyond. It's my belief that PolyMet can produce precious metals in an environmentally sound manner and follow Minnesota's strict requirements to protect our air, water, and land resources. It makes more economic and environmental sense to mine and process these metals in one location - keeping jobs and the metals here in the United States where they're needed.	EOO

Sender Last Name: Bethke **Submission ID:** 321

339	Once again greed & ignorance seem to go hand in hand. Not that many years ago there were laws written to protect these sacred waters. Get off & away from the BWCA know.	EOO

Sender Last Name: Bevis **Submission ID:** 1352

1579	I trust you are carefully considering the permitting process for this project. I urge you to keep our water quality at the top of your list. I am concerned with the high potential for acid drainage and the cost of cleaning. I value the ecology and natural history of the Boundary Waters and northern Minnestoa. Please keep our distinctive natural resources and history in mind.	EOO,G4A,G7A
1580	I'm writing to encourage you to do everything you can to make sure sulfide mining does not occur in northern MN. The BWCA & Superior National Forest are full of plants and animals that would greatly suffer if open pit mines were to move into the area. The potential economic gains are greatly overshadowed by the long-term damages to the environment. I trust you and your colleagues will do the right thing for the future of our state.	EOO,G2C
1581	I am writing to express my concerns about proposed hard rock mining in the Superior National Forest in Northeastern Minnesota. The BWCA's proximity to these projects alarms me especially, as this region has been a treasured part of my summers for almost all of my life. An open pit sulfide mine's potential environmental impact for decades to come is not worth the short-term economic benefits. I am eager to hear your perspective on this critical issue.	EOO,G11

Sender Last Name: Bhaguan **Submission ID:** 322

340	i am a concerned citizen and tax payer of Duluth MN 55806. i request that you please make every available effort to stop all new mining activities in the state of MN. this is my objective assessment of northmet proposal. * mining does not impact the environment; it REMOVES the environment. * any short term gain will NEVER replace the long term remediation. * a statewide ban shall be maintained until any mining operation can provide impartial scientific data and substantiated quantitative documentation showing that permanent containment can be demonstrated as proof beyond all reasonable doubt. please reconsider and ban all future mining development in the state of MN. please protect the waters of the great lakes and missippi watershed region. thank you for your time and considerations.	EOO,G2
1145	i am a concerned citizen and tax payer of Duluth MN 55806. i request that you please make every available effort to stop all new mining activities in the state of MN. this is my objective assessment of north met proposal. a . mining does not impact the environment; it REMOVES the environment. b . any short gain will NEVER replace the long term remediation.	EOO,G2,G7,G8

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3135	To whom this may concern, i am a concerned citizen and tax payer of Duluth MN 55806. i request that you please make every available effort to stop all new mining activities in the state of MN. this is my objective assessment of northmet proposal. mining does not impact the environment; it REMOVES the environment. any short term gain will NEVER replace the long term remediation. a statewide ban shall be maintained until any mining operation can provide impartial scientific data and substantiated quantitative documentation showing that permanent containment can be demonstrated as proof beyond all reasonable doubt. please reconsider and ban all future mining development in the state of MN. please protect the waters of the great lakes and missippi watershed region. thank you for your time and considerations. Ozone Bhaguan 218-260-2612	EOO
Sender Last Name: Bhimani	**Submission ID:** 211	
212	Please abide by the precautionary principle and require PolyMet to prove without doubt that the available technology will not lead to pollution. They claim it won't, but as noted in the DEIS, pollution will eventually happen. Please do not sacrifice the health of a federally protected wilderness.	G2
Sender Last Name: Binnell	**Submission ID:** 3368	
3658	As a born and raised Minnesotan I am lucky enough to say that I had the opportunity to visit the boundary waters many times in my short life. The thought of someone risking what we have for 20 years of mining makes me furious. It’s irresponsible and down right stupid. I want to be able to take my grand children to the boundary waters and fish and drink out of the lake just like I got to do. If we allow the mining companies to mine the boundary waters I might not be able to do that.	G11
Sender Last Name: Biondich	**Submission ID:** 203	
201	I would like to express my support for the NorthMet Project being developed near Hoyt Lakes. This project will give a needed boost to the economy of not only northeastern Minnesota, but will also contribute to the economy of the whole state. Hundreds of jobs will be created for the mine itself and even more spinoff jobs. This will add to the tax base to support our schools and communities. PolyMet has met all of the environmental requirements of the state of Minnesota. Furthermore, many of the metals produced by this mine are needed in the manufacture of green technology products such as catalytic converters and hybrid cars. I have lived in this area for over fifty years and have enjoyed the lakes and forests my whole life. I can assure you if there were a real threat to the environment neither myself nor many of my neighbors would support this project. That has been proven in the EIS not to be the case, so I am in full support of the NorthMet Project. I also feel that using the old Erie/LTV Minesite is a smart move. Reusing existing facilities and being in the footprint of a former mining operation minimizes disturbance of any other wetlands or forests. I also feel that we have become too dependent on other countries to provide metals that we use every day. Foreign producers of these metals don't always have to follow the strict environmental guidelines we do in this country. This creates a larger global impact on the environment. I think PolyMet has shown it is a good corporate citizen and has been very open with the public on all their plans for this project.	EOO
Sender Last Name: Birk	**Submission ID:** 9	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	I've read the draft impact statement summary, and they talk about not mining and say that if they don't mine, that doesn't create any pollution, except for reclaiming the mine holes and some other things like that. And that is not correct, and it should be changed. The reason is someone else will mine if we don't mine, and pollution will result from that mine; it just won't be here. You could say that that pollution is outside the scope of the study, but to say that it won't happen would be an error. The only way to keep that from happening, it's a supply and demand thing. If the demand for copper were reduced, then other people wouldn't mine. But as long as the demand for copper stays strong and we don't mine, then someone somewhere else in the world will mine, and the chances that they will mine in a more environmentally friendly way than we do are small. So the most likely thing is that if we don't have the mine here, it will increase the pollution in the world from copper mining because wherever else it gets mined probably won't be done as well as it would be done here. And I just think that should be corrected. That's it.	ALT1
259	This is my comment concerning the PolyMet Draft Environmental Impact Statement. My position is that not mining copper in Minnesota will raise the level of pollution in the world. Those who think that preventing mining in Minnesota will lower pollution are basing their analysis on too local a view. They assume that if one mine is not allowed to operate there will be a reduction in pollution. That would only be true if no other place in the world would increase their mining activities to make up for the lack of production taking place in Minnesota. That simply will not happen. Any economist who believes in the law of supply and demand will say that the supply of a product will rise to meet the demand for that product. That means that if the demand for copper is strong and we are not mining copper in Minnesota, someone else somewhere in the world will be mining copper to meet that demand. We have no control over who that will be, how their mine will be operated, or how they will process their ore. The US Geological Survey estimated that Chile mined 3,735,900 metric tons of copper in 2005. They were the top copper mining nation that year. They were followed by Indonesia, Australia, Peru, China, and the Russian Federation in that order. The United States was next on the list producing 586,000 metric tons that year. I suspect that if we do not mine copper in Minnesota, and the demand for copper remains, Chile could take up the slack. If not Chile, then perhaps it would be Indonesia or one of the other top producers. Look at those possibilities. What nation among them would insist on the water quality standards that the Minnesota Pollution Control Agency and the Minnesota Department of Natural Resources will hold PolyMet to? Which nation among them would insist on an autoclave process and not allow a smelter? I believe the world will take up the slack for any mining that we don't do in Minnesota. I believe that the level of pollution associated with the mining done elsewhere in the world will most likely be dramatically higher than the level of pollution from the mine at the PolyMet project. I believe that PolyMet and the agencies that regulate pollution in Minnesota have come up with a plan that will keep the pollution from this mine at a very low level. I believe the operating permit ought to be issued. Although the pollution that would result from not operating this mine will not originate in Minnesota, it will take place somewhere on this earth. The air and the water will be polluted. The people, the animals and the plants from somewhere else will be damaged because we are not mining copper in Minnesota. I believe that limiting pollution in other places is just as important as limiting pollution in Minnesota. Issuing this permit to mine copper in Minnesota will reduce the level of pollution from copper mining in the world.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
342	This is my comment concerning the PolyMet Draft Environmental Impact Statement. My position is that not mining copper in Minnesota will raise the level of pollution in the world. Those who think that preventing mining in Minnesota will lower pollution are basing their analysis on too local a view. They assume that if one mine is not allowed to operate there will be a reduction in pollution. That would only be true if no other place in the world would increase their mining activities to make up for the lack of production taking place in Minnesota. That simply will not happen. Any economist who believes in the law of supply and demand will say that the supply of a product will rise to meet the demand for that product. That means that if the demand for copper is strong and we are not mining copper in Minnesota, someone else somewhere in the world will be mining copper to meet that demand. We have no control over who that will be, how their mine will be operated, or how they will process their ore. The US Geological Survey estimated that Chile mined 3,735,900 metric tons of copper in 2005. They were the top copper mining nation that year. They were followed by Indonesia, Australia, Peru, China, and the Russian Federation in that order. The United States was next on the list producing 586,000 metric tons that year. I suspect that if we do not mine copper in Minnesota, and the demand for copper remains, Chile could take up the slack. If not Chile, then perhaps it would be Indonesia or one of the other top producers. Look at those possibilities. What nation among them would insist on the water quality standards that the Minnesota Pollution Control Agency and the Minnesota Department of Natural Resources will hold Poly Met to? Which nation among them would insist on an autoclave process and not allow a smelter? I believe the world will take up the slack for any mining that we don't do in Minnesota. I believe that the level of pollution associated with the mining done elsewhere in the world will most likely be dramatically higher than the level of pollution from the mine at the PolyMet project. I believe that PolyMet and the agencies that regulate pollution in Minnesota have come up with a plan that will keep the pollution from this mine at a very low level. I believe the operating permit ought to be issued. Although the pollution that would result from not operating this mine will not originate in Minnesota, it will take place somewhere on this earth. The air and the water will be polluted. The people, the animals and the plants from somewhere else will be damaged because we are not mining copper in Minnesota. --- - ------- I believe that limiting pollution in other places is just as important as limiting pollution in Minnesota. Issuing this permit to mine copper in Minnesota will reduce the level of pollution from copper mining in the world.	EOO,G1
Sender Last Name:	Birnstengel	**Submission ID:** 2105
2494	I wish to go on record as opposing the proposed sulfide mining project in the Arrowhead region. I believe that our waters are too important to pollute no matter how many jobs the project might create. Clean, healthy water is critical for both human consumption and for the existence of wildlife. The DEIS identifies the following: Water from waste rock piles will be polluted for up to 2,000 years. For 40 years after mine closure, the West Pit will overflow and begin discharging polluted water into the adjacent Partridge River which flows into the St. Louis River and then into Lake Superior. Groundwater at the mine site will be contaminated with heavy metals. Enormous sulfate releases will exceed the state standard for wild rice and will likely eliminate wild rice in the Partridge and Embarrass Rivers and the St. Louis River estuary near Duluth. There may well be additional damage not disclosed by the DEIS. The identified damage and pollution is totally unacceptable. The project should be abandoned. The project should not go forward even if the mining company pays for all the damage and water pollution prior to beginning the project.	EOO,G7A,G7B
Sender Last Name:	Bissonett	**Submission ID:** 2549

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3117	The DEIS identifies many significant, irreversible detrimental impacts to wetlands, groundwater, streams, and wildlife. The DEIS further admits substantial uncertainty with respect to the actual degree of pollution and damage that will result from the Project. The DEIS appears to propose that replacement wetlands would be at locations so far removed from the Project site that they cannot possibly offset the habitat fragmentation that the Project will cause in the 100 Mile Swamp. Further, the DEIS improperly proposes leaving to the permitting stage the vital issue of financial assurance for cleanup and restoration. Many of these problems, and others, are identified in the comments of the Bois Forte Band and Fond du Lac Band; because of the treaty rights of those tribal cooperating agencies, their comments deserve great weight. The Proposed Action as described in the DEIS contemplates a project massively-destructive in its scope; the relatively few short-term jobs that will allegedly be created are virtually insignificant in comparison to the damage that will be done to the landscape and to sustainable economic endeavors in Northeastern Minnesota.	EOO,G2C,G4,G7C,G15
18296	I am for clean water. I am against this proposed nonferrous mining in Minnesota because neither PolyMet, nor anyone quantifiably knows the extent to which these dangerous mining processes will pollute our waters, land, and fauna, only that they will. The draft EIS admits this. The risk is unacceptable, because at stake is something far greater than the minerals. Minnesota contains almost one tenth of the total inland water area of the nation. At risk is the last large remaining resource of clean water for the continent. Our clean water is invaluable to the people of Minnesota, the United States, and Canada.	G7
18297	It would be disastrous for Minnesota to gamble away its diverse ecosystem to nonferrous mining. Degradation of our clean water resource would have far and deep reaching consequences.	G7
18298	violation of the Federal Clean Water Act for over 15 years. PolyMet nonferrous mining should have no business establishing itself in Northeastern Minnesota with a risk magnitude of its proposed size, after even a small test-run for copper nickel mining, as demonstrated with Dunka, proved unsuccessful.	G7
18299	We may live in a world where so often money and business control and destroy the natural order of things, but all people share stock in the natural order. It is the responsibility of our MEPA and USEPA to hold as priority the full value of the environment around and under us, to safeguard it, and not to permit it to be sold and poisoned.	G10
18300	1. The dEIS does not address the financial assurances that would adequately protect taxpayers against clean-up costs. The latency of acid mine waste migrates and intensifies years or decades after closure, warranting serious attention. An example of concern is again, from the Dunka aquifers, which have buried down deep the Big Plume, which will eventually surface in the Dunka River.	G9
18301	2. If PolyMet is using new technology, what is it? I was unable to locate the description of the new technology in the dEIS, other than Platsol. Based on the evaluation by the dEIS, the technology may be new, but with old results that fail to safeguard 100%. Nothing less than 100% is acceptable when it comes to clean water. Monitors are unreliable, and/or reckless.	PD8
18302	3. The dEIS would serve itself well to address the issue of the contaminants that will be unearthed and dispersed with mining at the site and plant. a. What are all of the anticipated waste products? Is uranium or hot water an issue? According to the federal EPA, Northeastern Minnesota is a target area for uranium, as demonstrated by intent to mine uranium in the past. It would seem prudent that up-front data be in place prior to any activity (leasing, exploration, or mining) to prevent uranium exposure, that is not of natural occurrence. b. What do we do with these contaminants? There were zero documents in the dEIS regarding adequate, long-term treatment for waste rock, land, and water reclamation.	WR1E,PD2
18304	4. Groundwater seepage exceeding aquifer flux capacity resulting in significant seepage upwelling and wetland impacts is a horrifying situation which can never be mitigated.	EOO,WE2
18306	5. Degradation of aquatic habitat directly affects the natural chemistry of watersheds and beyond, as all life forms in the environment are related.	WR5A
18307	6. Contamination resulting in cumulative loss of wildlife habitat and migration routes throughout the Iron Range, is a troubling thought, radical in the breakdown of the balance and beauty of a natural community.	WI2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
18308	7. No data as to how much leakage from the mine site and plant that will flow into the Partridge, Embarrass, St. Louis Rivers, and surrounding wetlands is frightening. The dEIS needs to speak directly and clearly to the contingency plan with specific criteria as to limits that would trigger shutdown. Once again, what about the monitoring of all operations? Will there be on site monitors, who will monitor (the MPCA?) and how frequent will the monitoring take place? Is there money for all this critical environmental protection?	WR1E,WR3I,WE2,WE3,PD
18311	8. The overall tribal loss of access to lands and natural resources within the 1854 Ceded Territory, despite the land exchange, speaks of cultural disrespect.	G3,CR4
18312	9. Two public hearings for PolyMet's nonferrous mining proposal and it's dEIS were held by the DNR in December 2009 in Aurora and Blaine. There, the DNR, mining representatives, government officials, and union leaders were allowed to voice their support of a $600 million copper-nickel mining operation. The citizens representing their concerns, however, were not allowed to speak out. Instead, they were directed to give their comments to stenographers. Even though an attachment in the dEIS stated citizen commentary at the hearings may be in written or vocal format, the representation of opinions was muffled. The scene was disgraceful and unfair.	PRO6
18313	In conclusion, nonferrous mining is not in the best interest for our state. To no longer have Northern Minnesota with its forests, waterways, and wetlands as they are today, to no longer trust that water will be clean in our nations most valuable wilderness area, would be a fatal blow to the growing, sustainable tourism-economic base, which residents and business owners have worked hard in developing and maintaining. Furthermore, the BWCAW cannot exist with these mines. Nonferrous mining would be a huge waste producer. Nonferrous mining should be banned from Minnesota as it is in Montana and Wisconsin, until 100% safe methods are PROVEN. Our ecosystem is too fragile and valuable to be tampered with by the nonferrous mining industry. WE WANT TO SAVE THE BOUNDARY WATERS! I believe the risk of irreversible contamination to areas in and surrounding the BWCAW should not be foisted on the coming generations. I empathize with the pressures of your decisions on this issue, but with all my heart, hope you will not permit nonferrous mining to develop in Minnesota.	EOO,G2,G11

Sender Last Name: Bitker- **Submission ID:** 3380

3670	Some of my fondest childhood memories occurred while on family trips to the BWCA. I would hate to see this peaceful sanctuary destroyed by the sounds of drilling and sulphuric acid pollution. Destruction of the area rivers and fish populations would have a devastating effect on the areas economy. My father, all my aunts and uncles, are forever going "up North" on exciting fishing trips. They're not going to go where there's no fish. Don't let mining and supposed resource gain destroy our most precious of resources, the water and wilderness of Northern MN.	G2C,G7A,G11

Sender Last Name: Bjerke **Submission ID:** 132

121	My biggest points are that if the standards aren't high enough, we are still going to pollute the area. The water is not clean enough. Eighty percent of our kids are sick by the time they are two or five; it's just horrible. And so it shouldn't be done without stricter guidelines, not just meeting them, but what is really good for us, what's good for seven years from now. The Indians had a better idea of how to take care of land and their people than what we do. At times I think we should be on the reservation and they should be making decisions. The company is not an American company. Make it a Minnesota company. We need the jobs. One, we need the jobs. Two, recycle it first. We are throwing stuff away that they are going to mine out of there. Recycle what we are throwing into the landfills. Then you can dig up and rape the land if you need it to survive. That's it.	EOO,G5
714	I AM ASKING; for an extension of the comment time for at least thirty (30) additional days to March 8. A project of this scope demands time for careful consideration. ABSOLUTELY! Here is why. I went to the Blaine Sports Center looking for information I have only now found on the Sierra web site.	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2597	SHAR BJERKE: This is in addition to my other comments. After listening, it sounds like they are being very environmentally wise about this. The jobs are important, but I want them to step back ten more steps and look at the whole thing. I want the sulfate taken care of. It appears that there are existing and new ways to take care of the sulfate so that it doesn't end up in the organic matter and making mercury for our water and for our fish. And I think they are going to have to take care of that right away. There are possibilities of making product or neutralizing it, wrapping it up. It just doesn't go away. Once you create something, it's there. So the sulfate is there and you have to put it into something. If it's Sheetrock, then fine. That works. If it's something else -- it should be done right away so that it doesn't go into the environment. Best case scenario is making it into another product that we make right there, then all that property is worthwhile as long as everything is self-contained and environmentally3 taken care of, and jobs are created in the process of doing it. The other part of what we discussed is if we are going to be mining out something, metals and raw materials, we should be required, at least in our state, to recycle all of them and have plans in place so that it can't be such that your city doesn't do that. All of those things should be recycled before we dig up more, because anytime we separate out elemental things that nature didn't want or didn't have naturally separated out into those elements, there is a way of a problem for causing blood-brain barriers and making people ill and pollution that's really damaging. So cell phones, there was talk out there that cell phones are being recycled, melted down, and being recycled for their raw materials. We should be doing that instead of creating more. Computers and whatever else, and I'm not enlightened as to what other things should be, but we shouldn't be allowed to throw away or put in a landfill or have recycling centers that have you separate out everything and then they put it in a landfill and don't recycle it. Those things should not be happening if we are mining out new raw materials. All the existing and discarded items should be required to be recycled, and we should be making business out of it. If somebody else can make a profitable business out of it, we shouldn't be shipping it anywhere. We should be separating it out here. And they are more than welcome to set those operations up, up there.	G1,G2C,G9,G14

Sender Last Name: Bjoraker **Submission ID:** 324

343	Dear Mr Ahlness Regarding the public comments on the Polymet Copper mine, where are they posted? I am going to need to read all of them. thank you,	RFI
445	Include cumulative air and water quality effects on lakes, rivers and wells from all sources including other mines. This EIS may set the standard for all water quality impacts analysis, and good cumulative impacts analysis is critical to protect water quality throughout the region.	AQ4B
446	Require detailed and cumulative impacts of potential mercury increases in fish due to the Polymet project, including mercury methylation as well as discharge and emissions.	AQ6A
1144	Require resolution of tailings basin geotechnical stability and seepage issues identified by the tribes and the U.S. EPA.	GT2
1411	Require detailed and cumulative impacts of potential mercury increases in fish due to the Polymet project, including mercury methylation as well as discharge and emissions.	FM1,FM3
2207	Include cumulative air and water quality effects on lakes, rivers and wells from all sources including other mines. This EIS may set the standard for all water quality impacts analysis, and good cumulative impacts analysis is critical to protect water quality throughout the region.	WR5A
2208	Require detailed and cumulative impacts of potential mercury increases in fish due to the Polymet project, including mercury methylation as well as discharge and emissions.	WR5C
2408	Include future development of other proposed sulfide mines. The predicted twenty year mine life of the Polymet proposal isn't even half a career for someone so other copper mines in the area must be counted on happening for this to make any kind of sense. Therefore, a comprehensive environmental review of all mines need to be done.	G9

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2409	Require financial assurances in the EIS before the permitting process gets underway. Money needs to be set aside for perpetual(hundreds of years) treatment of water discharges and tailing basin maintenance. Financial assurance also need to be put in place to reimburse property owners in case of a drop in property values due to toxic pollution. The property value of my lake home on Birch Lake will be directly affected, if not by the Polymet mine, then by the Franconia mine. Financial assurances should also be in place to make the community whole again after the mine closes. Unemployment payments, worker retraining, food stamps, welfare, etc.. should come out of mine profits, not the rest of the state's citizens' pockets.	PD4
3559	Please direct me to where I can read all of the public comments.	RFI

Sender Last Name: Blake **Submission ID:** 3538

3801	I am very concerned about the proposed mining plans that seems to be moving ahead? If you take a look at the past practices that this minig firm has done I can't believe there would even be any thought of moving forward? I know folks up there really needs jobs but this would only be short term till the mining company has taken all the can get. Then they will leave us with a huge mess that may not even be possible to clean up. They can make all the assurances they want about how they can contain the pollution. Check out what happened in Michigan with similar techniques. I believe they now need the Super Fund to help them clean up the mess. I hope whoever is reading this will take a hard look at long term affects on our enviornment rather then shortr term jobs and money for the state. It just doesn't add up.	G2,G4A

Sender Last Name: Blesi **Submission ID:** 1835

2445	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources. The proposed mining project is stupid and outrageous. If allowed to happen, it proves we don't deserve to be here and we won't be here.	EOO,G2

Sender Last Name: Blomstrom **Submission ID:** 2711

3175	Make sure you have enough rersources to clean up any problem you create. We do not want a similar situation as in The Exxon Valdez oil spill in Prince William Sound. The cost of this project should include making sure the environment stays the way it is now.	G4A,G6

Sender Last Name: Bloomquist **Submission ID:** 2330

2790	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. I do not want the most beautiful part of Minnesota to become another Sudbury, Ontario or Butte, MT. The chemicals released into the waters from the metals processing will eventually destroy the area for generations to come.	G7A

Sender Last Name: Bluhm **Submission ID:** 1154

1270	Please help support innovation and diversification in the Iron RAnge Economy – to build jobs for future generations!	EOO

Sender Last Name: Blume **Submission ID:** 1053

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1157	I support the Nortmet development project. This will be great for the local economy with minimal impact on the environment. I have been following the progress of this project for aver ten years from my home in Connecticut. Thanks for doing a great job.	EOO

Sender Last Name: Boerst **Submission ID:** 351

70	Some resentment has been expressed on the means by which the public comment sessions were held. I believe they were very well-planned. They were instructive and allowed people to voice their opinions to the agencies involved. The public comment period has already been extended over what is put forth in the guidelines. We need no longer. If people want a soapbox to speak from to publicly address the people themselves, they have had more than enough chances. Many public forums were held by those opposing the project, websites are available, organizations can be joined, newspapers have printed countless opinion articles, and news stations have broadcasted opinions both on TV and the radio. There has been no lack of public input and education. The time to finish this is now.	PRO6
388	I appreciate being given the opportunity to participate in the public comment process on the Draft Environmental Impact Statement (DEIS) for PolyMet Mining Company and to add my voice to the thousands of Minnesotans who want to create jobs and to produce metals in our local economy in an environmentally friendly way. I commend the involved agencies on the amount of effort that was put in to this project in a way to appease all concerned parties and yet protect our environment. In brief, I believe that the MN-DNR should deem the draft EIS for Polymet as more than adequate and issue a final EIS, leading to the mining permit. This proposed polymetallic mine is necessary for Minnesota, its citizens, and the entire nation. Firstly, as I live in the area near the proposed project, I see a growing tide of economic depression. Many people I personally know hold down multiple poor-paying jobs that do not provide necessary benefits such as health care just to make ends meet and to feed their families. The means of survival in this region and current economy are daunting. How can we put the opinions of a few over the physical, mental, and economic well-being of the many? The Northmet project would provide direct employment to over 400 Minnesotans eager to be put to work for many years. Besides the direct employment, this venture will produce countless spin-off jobs. What many laymen fail to include in their economic impacts is apart from the direct creation of new jobs. The real impact is the sound of copper ingots trickling into the pockets of every man, woman, and child in the region and spreading out across our hungry nation. As a few hundred people will be given well-paying jobs, they will now have disposable income to spend. This money will primarily be spent in the small businesses of local entrepreneurs, but will extend its reach. As these businesses conduct more business, the money is spread farther, helping us all. Secondly, our education system in Minnesota has and will be served leaner servings of a budget every year. With the Minnesota state budget now in gross deficit, the proposed mine will provide a necessary bolster to our schools. Years past, Minnesota's education system shined brightly among national standards due to the taconite mines now in operation for over a century. This base metal project is simply a new generation of benefactors for the next century. What is on the minds of many of this project's opponents is the potential environmental impact. I will be the first to admit that, yes, it will have an impact, but albeit negligible. Any action pursued by humankind, including brushing your teeth, checking your email, taking medications, or waving an antianything flag has an environmental impact. The question is: What is acceptable, and what is not? Since the initial moratorium on sulfide mining in Minnesota decades ago, the state along with other agencies and entities have agreed upon what is acceptable as an environmental impact from such a project. The plans put forth by Polymet and the government agencies for the operation of this project meet or exceed these restrictions, thus the DEIS should be deemed adequate. Minnesota has some of the most stringent regulations in the world on sulfide mining. As we still need to consume these metals, where then should we mine? "Not in my back yard" mentality has taken a strong footing. Maybe we should let them open a copper mine in China. Let the pollution be made over there. The problem is that we not only live in a global economy, but more importantly a global environment. We in Minnesota get rained upon by clouds containing well above acceptable amounts of mercury. The source of most of this contaminant is not local, or even from our continent, but its documented source is mainly Asia where environmental regulations are weak. I can then see that there is no better place to mine these metals than right here in Minnesota where, besides keeping the environmental impact in che	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
389	In conclusion, I trust in the process and the system. By independent party review, I believe that an possibilities have been covered, alternatives have been presented where appropriate, and the proper mitigation procedures will be implemented to protect our precious environment. Many years and over twenty million dollars have been expended on this project. That said, I believe the DEIS is more than adequate, and the DNR needs to deem it so as well and finally finish this project. Permitting based upon the information put forth in the DEIS should begin immediately. Any further delay is a moot effort.	EOO,G10
Sender Last Name: Boggie	**Submission ID:** 3721	
3912	The failure to analyze and discuss a wind energy option is unfortunate, because that the option exists. Minnesota Power has been expanding its presence in the wind power market, and has just purchased a 465-mile direct current (DC) powerline. As soon as 2011, that powerline will carry 75MW of windpower from the “Bison 1” turbines in windy North Dakota, to the electrical grid in Duluth. Minnesota Power plans additional phases of wind energy development, in North Dakota, as well.	AQ5
Sender Last Name: Boos	**Submission ID:** 2178	
2584	I am writing in support of the Polymet Northmet project.I am president of APi Electric with headquarters in Duluth and branch offices in Hibbing and Mpls Mn. The construction jobs,and more importantly the ongoing in plant ,and maintenance jobs are sorely needed in northeast Minnesota.The millions of tax dollars will have a positive impact on our state budget deficit. I live and work in this area, I am an avid outdoorsman,I believe the state process and environmental studies provide the protection required for this type of process. I would much rather have these metals mined under our watchful eyes , for our use, than to go overseas to purchase these same metals with little or no concern for the environment.	G1,G2
Sender Last Name: Borchardt	**Submission ID:** 1080	
1184	I am writing in support of PolyMet Mining's NorthMet project, My wife and I live on Lake Vermilion and are frequent visitors to the BWCA. We do not have a well, we have a pump in lake Vermilion and use it for all of our water needs including drinking water. We believe PolyMet can operate this mine while follpwing Minnesota's strict environmental requirements. We understand the need to balance the use, of resources like minerals and preservation of resources such as' water and air. We feel this E.IS lays the proper groundwork for developing an environmentally and economically sustainable project.	EOO
Sender Last Name: Borkenhagen	**Submission ID:** 2377	
2866	PolyMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forest. There's something wrong with this sentence. It doesn't belong in Minnesota. It doesn't belong on public lands. Minnesotans - and actually most people - view this state as a gem of natural beauty. Why would we take the chance of spoiling the one thing we have going for us? I beg for some serious thinking about letting this "genie" out of the bottle. There are literally millions of other places around the globe that offer good access to this mineral with far less potential degradation to the environment. To patently allow someone else to make profits off of public land like this is a sad state of affairs for the DNR and ACE Thanks for thinking this through to doing the right thing.	EOO
Sender Last Name: Bosacker	**Submission ID:** 3474	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3749	I like to canoe and kayak in the Boundary Waters and St Louis River. I don't want them to be contaminated by Sulfide Mining. I have little confidence in the assurances from the mining companies. Their history is not good. One hundred percent of them have said they would not do any environmental damage, yet seventy six percent have them have been wrong. Why risk such serious long term damage, that will affect so many people, just to give a short term financial benefit to so few?	G7A
Sender Last Name:	Boucher **Submission ID:** 223	
226	Mr.Stuart Arkley, I hope you and the state of MN.allow the company of Polymet to precede in their application of the environmental study to be completed.I have been to all there functions they put on here in Hoyt Lakes and they were very through in showing there process and caring for the environment and caring of the people of MN.I'm 75 and have a great love and respect for the environment,and wild creatures that live in it,and would raise all kinds of hell if I thought they were going to ruin any of it..I hope The state of MN will complete this process and let Polymet get on with there process..Thank you,Roy Boucher,108 Wyandotte Rd ,Hoyt Lakes Minnesota..	EOO
Sender Last Name:	Bour-Schilla **Submission ID:** 2958	
3318	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues will never be satisfactorily resolved. This mine should not be approved by the Minnesota Department of Natural Resources or the U.S. Army Corps of Engineers.	EOO
Sender Last Name:	Bowman **Submission ID:** 247	
260	I am the President of the Aurora Chamber of Commerce, and I am writing to express the Aurora Chamber of Commerce's full support for PolyMet Mining Co. As Chamber members, we understand the economical impact Polymet will bring to our City and businesses. Polymet's 400 employees and the hundreds of spinoff jobs will provide a huge economic benefit to our local business. Polymet has gone to great lengths to inform both the business and citizens of the sound environmental practices. We believe these fellow Minnesotans, are committed not only to protecting the environment we live and play in, but also the mine will provide a safe and sustainable way for Minnesotans to make a living and provide for the future of the Iron Range. We the Chamber are impressed by the extraordinary precautions proposed by PolyMet and we are proud to have them as a fellow Chamber member.	EOO
Sender Last Name:	Bowron **Submission ID:** 3122	
3070	We believe that the Polymet DEIS in its current form fails to address important short term and long term consequences, particularly the groundwater flow of sulfites (with particular attention to the Boundary Waters) and the amount of escrow to be left when the mine closes. In addition, too much of the monitoring seems to be left to Polymet, and self-regulation typically is poor regulation.	WR1B,WR2C,PD8
Sender Last Name:	Boyle **Submission ID:** 1488	
1778	I love the Boundary Waters and no amount of money should jeopardize it's beauty and perfection.	G11
Sender Last Name:	Bozicevich **Submission ID:** 212	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
213	I am in full support for this project to get started immediately. I find it very difficult to understand why it has taken 7 years for this project to NOT get off the ground! I can not imagine why anyone would want to impede world progress by opposing this project. The world needs these commodities! This mining process would use a hyro process not the the pyro process that our grandfathers used! Are we to purchase these commodities from foreign countries, many of them third world countries, with no care for the environment whatsoever? Polymet will be scrutinized every step of the way. They will use state-of-the-art technology. I can only imagine what the economic impact will be to our now economically depressed area. The Iron Range is, was and always will be MINING COUNTRY! Please, please help get this much needed project started!	EOO

Sender Last Name: Bozich **Submission ID:** 262

275	Malton Electric Company's management and its employees would like to express their support for the PolyMet NorthMet Project. Malton has been a provider of electrical equipment and services to the mining, electric power and wood industries for more than sixty years. The PolyMet NorthMet Project would require electrical equipment and services of the type we typically offer to our other area industries, thereby providing growth and additional employment for our company. PolyMet would be a leading innovator of the production process that will protect the environment while providing domestic sources for critical materials required for new energy efficient vehicles and other technologies. Malton employees live in Northern Minnesota because they enjoy the many benefits of the recreational areas and lakes and the many opportunities they provide for outdoor activity. Our sportsmen and women are very aware of preserving the environment and feel that PolyMet has done their homework to ensure an environmentally protective process. Malton suffered employee layoffs with the closure of LTV Mining Company's facility in Hoyt Lakes which PolyMet intends to utilize for part of the production process and we look forward to participating in the revitalization of the facility.	EOO

Sender Last Name: Bradford **Submission ID:** 179

170	It is difficult to imagine that after five years of review in one manner or another that every conceivable question about Polymet Mining's Northmet Project has not been asked and answered. I believe we are well past this point and are now asking nonrelevant questions or are just asking the same questions over and over again in different form. This has to end. So many resources on all sides are being wasted covering the same ground. Many other worthwhile concerns are being ignored with all the effort that is going into trying to find fault with Northmet. No state has the resources to continue such a pointless effort when there is so much need elsewhere. Northmet is a good project with good people at the helm. We are taking an already existing industrial site, recycling the infrastructure that is already there for a new and valuable use, and doing it in a way that could not be positively environmentally matched if done anywhere else in the world. There is so much on the plus side environmentally that it has to outweigh the lack of the existence of an unrealistic one hundred per cent guarantee of no even unappreciable harm on all issues. Northmet is a good project that deserves to move forward now.	EOO

Sender Last Name: Bradoch **Submission ID:** 3722

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	Moreover, even the assertion that the Project must use Minnesota Power is not entirely correct. The DEIS and the Barr report to which it refers argue that the Project would have to be powered by Minnesota Power, pointing to a state law on exclusive service territories for energy companies, Minn. Stat. § 216B.37, and to an exception, Minn. Stat. § 216B.42, Subd. 1, that apparently would not apply to the Project. The DEIS and the Barr report gloss over other options, including the one presented in Minn. Stat. §§ 216B.40, which allows use of a different power company if the usual company agrees in writing; and the self-generation exception, Minn. Stat. § 216B.1621. As to the first option, the DEIS documents simply assert, without further explanation that it is "not likely applicable to PolyMet."111 As to the second, the company suggests that because it is a mining company, it lacks the technical and business savvy to operate a power plant – a proposition with which several mining companies in Minnesota, including Cleveland Cliffs (Silver Bay) and the old LTV Steel (Taconite Harbor) would certainly disagree. The DEIS asserts arbitrarily that self-generation, "is outside the scope of reasonable alternatives to reducing carbon emissions at this time."112 The treatment that the DEIS gives to the available alternatives for power production and power selection by the Project does not satisfy the requirements of 40 C.F.R. §1502.16.113	AQ5
2	The DEIS and supporting documents take pains to assume that the bulk of stable carbon currently stored in peatlands, but slated for excavation, will remain in solid form and not be released into the atmosphere through oxidation. Specifically, the DEIS estimates that the peat slated for excavation and stockpiling is equivalent to 1,780,000 tons of CO2. 114 The DEIS estimates that only 23,000 metric tons of CO2 equivalent per year (m.t.CO2-e/yr) would be emitted from the oxidation of peat held in stockpiles over the 20-year life of the mine. This conclusion should be better explained, and work that went into the calculations should be shown.	AQ3
4	The DEIS's estimate may be contradicted by comments of the MPCA, which suggests that land use emissions should be evaluated as a pulse emission in the initial year, rather than distributed over some longer time period. MCEA notes that land use emissions must include not just the conversion of above-ground carbon into gas, but also the conversion of all below-ground carbon in upland and wetland soils that will likely occur sooner and more rapidly than would be the case if the peatlands were left undisturbed (i.e., under the no-build alternative).	AQ3
4	Also, in addition to the carbon emissions from peat stockpiled over a 20-year period – which the DEIS and its supporting document (AQ05) discuss and attempt to quantify – will account for only a portion of the peat's carbon emissions. An emissions spike will occur when peat used for mine site and tailings basin reclamation.115 As peat is spread thinly over a large area during reclamation of the mine site and tailings basins, the ratio of surface area to volume will increase, and with it the peat's exposure to the effects of heat, oxygenation, and dessication. These are the main factors that will drive the spike in reclamation-timed carbon emissions from once-stockpiled peat. This spike is a land use emission, and must be evaluated as the MPCA suggests: as a pulse emission in the initial year of the Project.	AQ3
Sender Last Name:	Brand **Submission ID:** 3485	
1118	PolyMet NorthMet project will result in total loss of 1,454 acres of federally designated critical habitat for two endangered species known to be in the vicinity of the mine site – the Canada lynx and the gray wolf. Finally, cumulative impacts must address the loss of revenue	WI1
1323	to use an existing mine tailings basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project.	GT2
3237	In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes. Wisconsin has already banned sulfide mining due to the unacceptable environmental risk it presents. It is also my understanding that PolyMet proposes	EOO,WR4B,FM1

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Comment ID	Comment Text	Theme Codes
3685	fortunate to have in Northern Minnesota. If this region is going to continue to serve all of our needs, insurance policies, such as adequate funding, must be built into our decisions. It is not too much to ask. The remainder of this letter is a form that you've probably seen	PD4
3686	natural resources and public health. Water quality impacts remains a top concern. How is it acceptable to allow for up to 2,000 years of environmental impact for the short term gain of one company? Who will pay for the long term treatment required? PolyMet has few assets and little financial history. The DEIS fails to address where the funding will come from to pay for post-closure treatment, monitoring and maintenance. As a result, it seems likely that Minnesota taxpayers may have to pay millions of dollars to clean up after PolyMet has	PD2,PD4
3759	to the Boundary Waters Canoe Area Wilderness and Superior National Forest tourist industry as part of a sulfide mining district. While I fully understand the economic necessity of mining, and need for natural resources in our society, we need to be responsible in our decisions. Certain types of mines should simply not be permitted in certain places where the risk to the environment is too great. This appears to be the case for sulfide mining in northern Minnesota. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural	G2

Sender Last Name: Brandenburg **Submission ID:** 3723

1	Rather than make a proper accounting of peat-carbon volatilized during and following reclamation, the DEIS and its supporting documents suggest, speciously, that all peat used as mulch in reclamation should be considered a mitigation or carbon offset.116 The fallacy of this suggestion should be apparent, since if the Project were not constructed and excavated, there would be no need to use on-site peat reclamation; there would be no “site” to reclaim, and thus essentially all of the carbon now stored in the peat would remain locked up. The necessity of addressing these problems with the carbon emission calculations for the Project cannot be over-emphasized. To demonstrate the significance of peatland carbon’s fate, consider the effects on Project total emissions if all the excavated peat were to be volatilized: the Project’s estimated carbon footprint (as measured in m.t.CO2-e) would jump from 744,000 to more than three times that much, or 2,524,000. Instead of bumping statewide CO2 emissions by 0.62%, the bump would be more than 2%.	AQ3
2	The NorthMet DEIS should include mitigation options that can be imposed in the permit with regard to GHG emissions. These mitigation measures need to show that the project can be consistent with Minnesota’s GHG reduction goals.	AQ5
3	Of principal concern in this review of the NorthMet project is the possible enhancement of methylmercury production and the potential for significant mercury releases to air and water. Regarding mercury methylation, the relevant factors are the amount and location of predicted sulfate discharges, whether there are methylating environments along the flow path, ambient levels of sulfate in the receiving waters, and seasonal hydrologic fluctuations that could alter the redox (oxic vs. anoxic) conditions where SRB occur. The DEIS provides a reasonably balanced overview of the potential for sulfate to increase mercury methylation and concludes that seepage from the tailings basin and pit overflows, " ... would introduce elevated sulfate concentrations to a high risk situation for mercury methylation." (4.1-127, 4.5-21). However, it also tends to downplay this concern by suggesting that sulfate levels may not be limiting mercury methylation where legacy sulfate releases (from former LTV operations) have already raised sulfate concentrations to high levels (4.5-21). While this may be true in a limited senses (those locations and sampling dates), it ignores the complexity of the landscape and hydrologic variability which could produce a different outcome (increased methylation) in other locations or at other times. My overall assessment is that the NorthMet DEIS is deficient in its evaluation of the risks of increased mercury methylation and the development of contingency plans for adaptive management should unforeseen problems arise. The principal deficiencies are as follows:	WR4B,FM1,FM4,AQ6A

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Comment ID	Comment Text	Theme Codes
4	Four lakes located along the Embarrass River downstream of the NorthMet project (Sabin, Wynne, Embarrass, and Esquagama) are potential high-risk sites for sulfate-enhanced mercury methylation. The four lakes are also 303d-listed for mercury in fish tissue impairment (4.1-40). There are no water quality data for these lakes in the DEIS or supporting documents, but monitoring results from an upstream site on the Embarrass River (PM13) show elevated sulfate levels (mean = 36 mg/L), a consequence of legacy mine drainage from LTV Pit 5NW (4.1-41, 4.1-122). The fish mercury levels in these lakes are in the high range for northeastern Minnesota, though a comparison with other regional (non mine-impacted) lakes in the Barr Technical Memo (HG02) was biased and not useful as an objective evaluation (see MPCA and DNR responses to HG02). Nonetheless, the question remains as to whether fish-mercury levels are currently elevated in the Embarrass lakes because of legacy sulfate discharge (sulfateenhanced methylation) or because of other factors known to contribute to high fish-mercury - in particular the presence of extensive contributing wetlands and high DOC (dissolved organic carbon) levels in the upper Embarrass River (4.1-125). The important point I wish to make here, and as noted in the DNR response to HG02, is the potential for enhanced mercury methylation in the hypolimnia of these lakes during summer stratification, should bottom waters become anoxic. The zone of active mercury methylation can move from bottom sediments into the water column as oxygen becomes depleted, and hypolimnetic methylation can be a very important in-lake source of methylmercury (Eckley et al. 2005; Munthe et al. 2007). Moreover, sulfate reduction, especially during periods of stratification, could consume much of the current sulfateJoad to the first lakes in the chain, thereby rendering lower lakes susceptible to increased sulfate inputs. My understanding is that PolyMet (Barr Engineering) is currently conducting water-chemistry sampling in the Embarrass chain of lakes (under advisement from MPCA and DNR staff) in order to assess the potential for in-lake methylmercury production.	WR1E,WR4B,FM1,FM2
5	The DEIS points out that there are few wetlands or lakes on the middle St. Louis River where sulfate-enhanced mercury methylation would be a problem. However, the document only briefly considers the potential for mercury methylation in the St. Louis River estuary (4.1-196). Sulfate concentrations in the lower St. Louis River are relatively low, as compared to upper reaches principally because of dilution from major (non-mining) tributaries such as the Cloquet (4.1- 195). At lower concentrations, sulfate tends to be a limiting factor for mercury methylation by sulfate reducing bacteria, and increased sulfate inputs are more likely to stimulate SRB activity. We currently have little information regarding the methylating potential of the estuary, but its shallow and relatively productive waters suggest that it could be high (Munthe et al. 2007). This section of the river is state listed for fish-mercury levels as well as for mercury in water (4.1- 194). Equally important, the estuary supports a rich recreational fishery and abundant wildlife, and is a critical cultural resource for the Fond du Lac Band of Lake Superior Chippewa. The failure of the DEIS to address mercury-exposure risks in the estuary associated with the NorthMet project is a serious oversight. Based on this near-complete lack of information it is difficult to see how the DEIS can conclude (4.1-196) that, "Overall, the Project is not expected to contribute significantly to cumulative effects on mercury or methylmercury in the St. Louis River."	WR4B, WR5A,WR5C,FM1
6	PolyMet proposes a wastewater treatment facility (WWTF) at the mine site which would treat process water and runoff from other site operations (4.1-67,68). The proposed treatment system would utilize chemical precipitation of drainage with elevated trace metals and/or low pH followed by nanofiltration to concentrate the circumneutral drainage with lower levels of trace metals. The nanofiltration would remove an unspecified amount of sulfate, yielding process water with a residual concentration of250 mg/L, which would then be pumped to the tailings basin for reuse or to expended mine pits for flooding. Under a proposed mitigation option, the WWTF could be fitted with nanofiltration units in series to improve the removal of sulfate and other solutes. (4.1-167). Other discharges, including leakage from the tailings basin, would not be treated for sulfate removal, and surface waters would be impacted accordingly. There is no discussion of the expected efficacy of the WWTF mitigation option nor is there any consideration of alternatives (e.g. sulfide precipitation in the mine pits) that might reduce sulfate concentrations in discharges closer to background (natural) levels. The DEIS appears to accept the inevitability of high sulfate loading from the NorthMet Project to area surface waters, even as it recognizes cumulative effects of high sulfate from legacy mining and other proposed operations (e.g. Mesabi Nugget) (4.1-189).	WR1E,WR2G

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Comment ID	Comment Text	Theme Codes
7	A constructed wetland in the filled East Pit of the NorthMet mine-site is proposed as a means of treating ("polishing") mine-site drainage following closure (4.1-112). Little information is provided regarding the nature of this wetland (water depth, vegetation, residence time, substrate), and it is very difficult to predict its efficacy in treating contaminated drainage waters (4.1-112, 4.1-123). However, another issue not addressed in the DElS is the potential for mercury methylation in the constructed wetland. While natural wetlands are important methylation sites, the constructed wetland may function very differently, depending on whether there is an organic rich substrate supporting redox conditions suitable for sulfate reducing bacteria. If sulfate inputs to the wetland are very high (as expected), methylation could be inhibited by high sulfide levels which favor charged mercury-sulfide species that are not readily methylated (Benoit et al. 1999). Again, it is very difficult to predict this outcome based on first principles. However, constructed wetlands at the nearby Dunka mine, which currently treat rock-stockpile seepage, would make a good a case study for evaluating mercury cycling and methylation under conditions at least approximate to those proposed for NorthMet.	WR4B,WE6
7	It is difficult to fully evaluate the potential for mercury releases to air and water from the proposed NorthMet project, but if DEIS estimates are even remotely correct, the numbers will be low relative to other mercury sources. Based on the observed performance of other tailings basins used for taconite processing (Berndt 2003), I would expect high retention of dissolved and particulate mercury and low concentrations in outflow waters - as documented in the DEIS (4.1- 124). A large area of wetland and forest soils will be cleared at the mine site, with the resulting stockpiles of peat representing a large potential source of mercury and methylmercury that could be mobilized with subsequent drying and oxidation (4.1-123). Drainage from these stockpiles would be captured and routed to the WWTF and from there to the tailings basin or later, the constructed wetland and flooded mine pits. Neither the WWTF nor the constructed wetland is expected to be effective at sequestering mercury. Thus mercury discharge from the Project will depend largely on the removal efficiency of the tailings basin or the mine pits. The mine pits are expected to be a fairly effective sink for mercury (through sedimentation), given their depth and hydraulic residence time. The DEIS does not consider the efficacy of the mine pits in removing methylmercury. Both methylmercury loss through photo-demethylation in surface waters and methylmercury production by SRB in anoxic bottom waters are likely to occur and should be evaluated in the DEIS. Air emissions are m'ore problematic, as autoclave and scrubber performance is not assured. Projected annual air emissions of 9 pounds is probably overly optimistic, and in any case would have to mitigated through emission trading in order to meet targets for the mining sector of the statewide mercury TMDL (4.6-35). A comprehensive monitoring program for mercury releases needs to be implemented for this project should it be approved (4.1-172). That said, it is my professional opinion that direct mercury releases from the NorthMet project represent a much smaller risk of biotic mercury exposure than that posed by sulfate discharges and a resulting increase in mercury methylation in receiving waters of the St. Louis River and tributaries.	EOO,WR4B,WR4C,WR4E,

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Comment ID	Comment Text	Theme Codes
8	The discharge of sulfate-laden waters from the mine site and tailings basins, either during operations or following closure is among the most serious environmental risks posed by the proposed NorthMet project. Based on a large body of experimental and observational evidence, it is my view that these discharges are likely to increase the microbial methylation of mercury somewhere in the watershed of the St. Louis River, either in wetlands or lakes proximal to the mining/processing operations or possibly downstream in its estuary with Lake Superior. This increase in methylmercury production will be transferred up the food chain to increased levels of mercury in game fish, with the attendant increase in human and wildlife exposure. Lakes along the Embarrass River as well as the St. Louis River itself are currently state-listed as impaired (303d) for high mercury levels in fish, which raises important regulatory questions for proposed activities that might further increase methylmercury exposure. To some extent, the DEIS downplays these risks by emphasizing legacy conditions of high sulfate levels from past mining activities in certain river sections and tributaries. While it is unlikely that additional sulfate inputs will stimulate methylation in some specific stream reaches (because sulfate may not limit SRB activity at high concentrations), it is probable that sulfate concentrations will fall into a more sensitive (lower) range further downstream as a result of dilution or sulfate uptake. The basic assumption here is that increased sulfate loads are likely to generate additional methylmercury somewhere along the flow path of the receiving waters. This point is briefly acknowledged in the DEIS (4.1-125). It is also my view that the DEIS underrates our current scientific understanding of mercury biogeochemistry and the environmental factors controlling methylation rates (4.5-19). That is, there is less uncertainty that mercury methylation will be enhanced by sulfate discharge, than the document acknowledges. While it is still difficult to accurately predict the degree by which methylation will be increased or exactly where in the landscape it will occur, we now possess a solid conceptual framework from which to identify conditions that pose substantial risk. In the final analysis it would be prudent for the state regulatory agencies to require additional on-site sampling and analysis of those sectors of the watershed that represent high-risk conditions for sulfate-induced mercury methylation. The DEIS is equivocal in its depiction of the risks of increased mercury methylation posed by theNorthMet project (4.5-21). Some of this uncertainty arises from the biogeochemical complexity of mercury cycling and methylation. However, firmer conclusions could have been reached had there been a better assessment of existing conditions, including the effects of legacy sulfate contamination from past mining activities. Such an assessment if properly structured could provide a more reliable picture of the project's likely effects on methylmercury levels in the St. Louis River and its headwaters.	EOO,WR1E,WR4B,FM1,F
9	The DEIS should provide a more realistic assessment of the mercury methylation risks posed by sulfate discharges to key sensitive areas (Embarrass River wetlands, Embarrass chain of lakes, Partridge River beaver impoundments, and the St. Louis River estuary).	WR4B
10	Finally, the DEIS wrongly attributes GHG emissions mitigation to the wetlands restoration that it proposes.117 The MPCA stated clearly, in its comments on the DEIS and supporting documents, that, “[s]ince the recovery times of the [natural lands to be cleared and excavated by the Project] are long in relation to the project lifetime, no offset from wetlands mitigation during the lifetime of the project need be considered.”118	AQ3,AQ5
3733	I am very against this project due to obvious environmental concerns. My husband is out of work and may have a chance at a job if this does pass but the environmental concerns far outweigh my financial concerns. Please do not allow this to happen. Thank you.	EOO,G1,G2

Sender Last Name: Bransford **Submission ID:** 3190

731	I am very concerned about the longer term impact of the PolyMet mining project. I think there should be a 30 to 45 day extension for review of the environmental impact study. I would also request more public meetings in more places to gather input on the proposal. I request that these public meetings include the option for citizen statements and discussion in the open meeting. Are there any more meetings planned in the twin cities? Thank you, Richard Bransford	PRO6

Sender Last Name: Brattebo **Submission ID:** 3285

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Comment ID	Comment Text	Theme Codes
1933	3) Analyze ALL of the CUMULATIVE impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources. Mercury in accumulates in fish and causes brain damage to children and to fetuses.	WR5A,FM3,AQ4B

Sender Last Name: Braun **Submission ID:** 1838

2451	As a transplant from Tennessee to Minnesota, I have grave concerns about sulfide mining anywhere in the world, but most especially on the edge of the BWCA, which I visit at least once a year and have come to love. You see, in the southeast corner of Tennessee, right at the border with Georgia and North Carolina, there is a 50 square mile area that was completely denuded by copper mining that started in the 1840s and continued until the early 1900s. In the summer of 1979 I was in the Youth Conservation Corps in the neighboring Cherokee National Forest. We took a field trip to Copperhill Tennessee. I remember seeing bare orange earth as far as the eye can see. Some parts of the basin appear still to be like that, in spite of years of efforts to remediate the area through tree planting. I suggest you google "copper mining Tennessee" to learn more. I know that the copper mining proposed for Minnesota would use much more advanced technology. However, the environmental damage at Copperhill Tennessee occured even though most of the mines were closed, and thus the rock was not as exposed to oxygen. There are some things that are extremely hard to control once you set up the conditions for them. Precaution suggests we shouldn't even try, especially not when they pose a threat to a jewel such as the BWCA. There is already concern that the forests of Northern Minnesota are going to be stressed due to climate change. To add another stress on top of that one would be devastating.	G8C,G14

Sender Last Name: Breeden **Submission ID:** 3645

18314	I am providing these comments to express my concerns with the proposals and conclusions that are stated in the October 2009 Draft EIS. I own property in Lake County, and as such am concerned as to the effects that the proposed mine will have on the environment, primarily the surface and ground water resources, not only during its active life, but also after closure. I am also a professional Geohydrologist and have personally written many sections of EISs for the U.S. Forest Service and the EPA. In that regard I would like to say that this DEIS is very well written and understandable. However, after reading the DEIS and all of the supporting information, many, if not most of my concerns have already been relayed to you by the Tribal Cooperating Agencies. Therefore, instead of restating and reiterating their previously-made comments, I would like to reinforce their opinion and comments as those of my own. So when you tally up the comments, please count the Tribal Cooperating Agencies comments as if they were my own. In addition, when you develop the formal “Response to Comments” I would like to receive the full packet of the Response to Comments as you provide to them.	G7A,G15
18315	1) The Financial Assurance that should be required for a project of this magnitude is not discussed and as such constitutes a major omission. As a consultant that has worked on mine cleanups at Superfund sites in the U.S. EPA Region 8 States, I can assure you that the closure and long term post closure costs of this site will be in the 10s of millions of dollars (in current dollars), if not more. Therefore, the EIS should include a very thorough discussion of the Financial Assurance of real post closure cost for the worst case scenario. In my opinion, the worst case	PD3,PD4
18316	2) The areas that have the greatest potential for causing ground water contamination (the costliest to cleanup) are the ore pads, the pits and the tailings basins. The EIS states that these areas will be unlined (with the exception some ore pads). I disagree that the tailings basin will not have an impact on the ground water. The preponderance of evidence from past sulfide ore mines is that the ground water always becomes contaminated with metals, although it may take many years or decades for it to occur. The fact is, that it does occur. Therefore, given that historical knowledge, the rationale provided in the DEIS for not requiring “state of science” containment systems for all ore pads, pits, and most importantly the tailings basin, is totally inadequate and can not be substantiated. Given that this mine will extract billions of dollars worth of minerals, there is no sound scientific or engineering reason for the MDNR not to require the installation of the best available liners for all of the pads, pits and tailings areas.	EOO

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Comment ID	Comment Text	Theme Codes
18317	3) In light of the comments that were provided to you by the Tribal Cooperating Agencies, and the two major comments above, I do not object to proposed mine if all of the comments are adequately addressed.	EOO

Sender Last Name: Breen **Submission ID:** 3463

1110	Further, the PolyMet NorthMet project will result in total loss of 1,454 acres of federally designated critical habitat for two endangered species known to be in the vicinity of the mine site – the Canada lynx and the gray wolf.	WI1
1316	Wisconsin has already banned sulfide mining due to the unacceptable environmental risk it presents. It is also my understanding that PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project.	GT2
1944	In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes.	EOO,WR4B,FM1
3671	Water quality impacts remains a top concern. How is it acceptable to allow for up to 2,000 years of environmental impact for the short term gain of one company? Who will pay for the long term treatment required? PolyMet has few assets and little financial history. The DEIS fails to address where the funding will come from to pay for post-closure treatment, monitoring and maintenance. As a result, it seems likely that Minnesota taxpayers may have to pay millions of dollars to clean up after PolyMet has gone.	PD2,PD4
3742	Finally, cumulative impacts must address the loss of revenue to the Boundary Waters Canoe Area Wilderness and Superior National Forest tourist industry as part of a sulfide mining district. While I fully understand the economic necessity of mining, and need for natural resources in our society, we need to be responsible in our decisions. Certain types of mines should simply not be permitted in certain places where the risk to the environment is too great. This appears to be the case for sulfide mining in northern Minnesota. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Sincerely,	EOO,G2

Sender Last Name: Breimeier **Submission ID:** 1628

2045	I live in Winton, MN which is 3 miles from Ely, MN. I grew up here, and recently moved back so that my children could grow up here. Don't ruin the beauty and peace of the area for other generations.	EOO,G11

Sender Last Name: Brekke **Submission ID:** 1887

2467	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. I believe that Polymet is doing it's best to keep our lakes and water clean. I approve them to get permits to carry on as long as they take due digilence in the safety of our waters. Go for it. The PolyMet DEIS describes serious environmental issues associated with this proposed mine. These issues should be addressed and resolved before this mine is approved by the U.S. Army Corps of Engineers and the Minnesota Department of Natural Resources.	G6

Sender Last Name: Brill **Submission ID:** 2852

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3144	-Deis does not outline any specific plan for reclamation after the mine site is closed. -little or no field sampling done on the movement of ground water through the bedrock. - The mine site disrupts natural corridors for the movement of wildlife. -According to the U.S. Forest Service, the Polymet project alone will cause significant haze impairments in the Boundary Waters 36 days each year! -Where is the plan for constant monitoring of the mining operation by the DNR? -Sulfates in surface water demonstrably impact aquatic vegetation, specifically wild rice. In addition sulfates react with elemental mercury in a process known as mercury methylation. Methylmercury is the form that bioaccumulates in fish and animals that eat fish, including humans. What process has been identified to detect and mitigate methyl mercury in the environment and how will community health be dealt with and paid for? Each one of these points is significant. Any one of these issues is enough to halt the conversation or idea of mining.	RFI,WR1E,WR3I,WR5A,W
Sender Last Name:	Brinkman **Submission ID:** 2676	
3161	This type of sulfide mining has a PROVEN TRACK RECORD OF TOXIC POLLUTION TO GROUND WATER !!!!!! wISCONSIN HAS BANNED THIS TYPE OF MINING!!!!	G8B
Sender Last Name:	Brittain **Submission ID:** 1564	
1923	No company can guarantee that its pollution will not be harmful in the future. With the collapse of General Motors, we learned how tenuous a strong company is. No bond could be posted that would cover the potential damage that this project could entail. From a business standpoint, the only way this project makes sense is if the costs shared with the public are discounted to nothing. We have already made this mistake dozens of times. Do not do it again. In addition, this would occur in one of the most pristine areas of the state. I do not want to see the economic disruption this project would create. Added population and the attendant pollution of all types would ruin the character of this region.	EOO,G2B
Sender Last Name:	Brockway **Submission ID:** 3724	
1	There needs to be an evaluation of the potential for mercury methylation in the constructed treatment wetland. The nearby Dunka mine-site, where constructed wetlands are used to treat rock-stockpile seepage, provides a good analog for the NorthMet project. It should be monitored for mercury methylation as part of this evaluation.	WR5A,WE6
2	There is a striking lack of useful data or supporting information on which to base predictions of methylation risk. As detailed below, mercury and methylmercury sampling of area streams, wetlands, and lakes are inadequate for assessment purposes. The samples are too few and data quality for total mercury is poor.	WR1E,WE8
Sender Last Name:	Brown **Submission ID:** 2251	
21	Many of the supporters of this proposed mine remember and hope for the economic impact of the old iron mining industry, which employed thousands of workers and supported an Iron Range boom (off and on) for generations. They fail to notice that new mines will employ a far smaller workforce, and that the productive life of the PolyMet operation is projected to be only 20 years or so. Meanwhile, it has become clear to many local residents and businesses that the economic future of the Ely/North Shore Arrowhead Region is increasingly dependent on tourism. People come from distant states to canoe, camp, and fish (and spend money!) here precisely because clean water, fresh air, good fishing, and undeveloped wilderness is now so rare. It seems very shortsighted to put our richest natural assets (rivers, lakes, air, edible fish) at risk for the sake of short-term heavy industry.	SE3,SE4
37	Regarding the PolyMet Project This project has great potential to harm the natural environment in this region. This environment is not only valuable inherently, it also a key draw for the recreation and tourist industry that is so important to this part of Minnesota.	SE4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
131	My name is Jeff Brown, I live in Lakeville, Minnesota, and I support the PolyMet NorthMet project. I believe there's minimal risk, I believe that they're taking necessary precautions with their processes and ensuring that there's going to be a proper closure to the mine in 20 years as well, and I believe the risk is minimal, given the economic situation we're in and the jobs it will create. Thank you.	EOO,G6
183	I am writing to comment on the Polymet Northmet EIS. First, I think Polymet has taken steps to ensure they do not release sulfuric acids, or air contaminants into the environment. I read the Hydromet process description. The Hydromet process using autoclave technology ensures the sulfur is added to lime which creates a gypsum by product. Furthermore, Polymet is investing in special lining and holding the Hydromet process water into a special basin. As well as ensuring containment drainage and pumping system for further redundancy. It would be a shame in this econmic environment and with all the steps that Polymet has taken to not go forward with their permit. They will be investing $600 million and creating over 400 jobs as well as generating $15 million in state and local tax revenue. I don't see how this project is any worse than many of the industrial projects I see in Minneapolis or greater Minnesota.	EOO
311	I am writing to provide comment and provide feedback on the Polymet Northmet project that is in review. This project would provide investment of $600 million into the state as well as create 400 jobs. I have reviewed the draft and believe Polymet is taking steps to contain the risk of containments such as the Hydromet process which converts sulfur into gypsum. As well as using a Hydromet tailings basin with special lining.	EOO
526	Such destructive enterprise should not be allowed. It would affect not only waters near the BWCA W but some waters within.	WR3B
735	I would hope that the DNR would: 1. Extend the EIS review period by 45 to 60 days, 2. Hold more public meetings in more places to gather community input, as the current schedule is too limited. 3. Include in the public meetings the opportunity for citizen statements and discussion in the open meeting.	PRO6
1218	While the majority of Minnesota residents strive through legislation and advocacy to clean up our lakes and rivers, and to preserve our remaining wetlands, guess what? Incongruously there are those who allow and even promote the construction of of sulfide mining in the great wild and scenic areas of Minnesota. Sulfide mining is known as one of the most destructive methods of mining to the ecology of streams, lakes, connected wetlands and wildlife.	G2C
1219	No amount of jobs are worth such devastating destructions as this kind of development.	EOO
1848	We are told that the sulfide waste product of this non-ferrous mining process will be safely capped so that water contamination will never be an issue. No copper/nickel mine has accomplished this goal, nor has this new process been tested on such a large scale. I understand that in a recent smaller scale test of the new techniques, they have proven fallible. It is the experience of many of us who live in NE Minnesota that water has a way of eventually getting any place that people try to keep it out!	EOO,WR1E
1849	I am an avid fisherman, hunter, and outdoor enthusiast. I also am a realist and I understand the need for resource extraction in the face of an ever-changing global marketplace. While it is important to keep Minnesota competitive with the rest of the nation I believe there are more sustainable and reasonable ways to achieve this. Mining is a dangerous practice. May it be known to all those associated with a project of such scope and potential interference with the BWCA, we will destroy one the last greatest places this nation has to offer should this initiative be allowed to proceed. I, as a Minnesotan and American citizen, beg of the people in power to do everything they can to stop resource extraction from entering into the BWCA arena. Please, make this choice based on principal, moral obligation, and the well-being of our future generations to enjoy this great vestige we call the Minnesota Wilderness. Thank you.	EOO,G7B,G11
2042	Just because precious metals lie beneath our surface does not mean that we have to allow a foreign company to make a lot of money at our long-term expense. Copper/nickel mines have a history of promising environmental protection, promises which invariably prove false in the long run, long after the company has moved on. If PolyMet is allowed to proceed, the company should at least be required to put in escrow enough money to mitigate any sulfuric acid leaks or mercury poisoning that may occur in perpetuity.	PD4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2659	I understand that a number of other mining companies are exploring opportunities and drilling test holes in the area between Babbitt and Ely (some just six miles SE of Ely). Approval of the PolyMet proposal will establish a precedent that will encourage a rapid expansion of non-ferrous mines with accompanying noise, emissions, waste products, industrial traffic, and the ever- increasing risk of human error. All of this is bound to have serious consequences for our pristine environment, which will then depress theeconomic benefits of tourism, fishing, camping, birding, paddling, backpacking, etc…	G8C,G11
3027	As recommended by the EPA, the DEIS must include an evaluation of the financial assurance that would be provided to ensure postclosure reclamation of the PolyMet NorthMet mine and plant. Sulfide mining places huge burdens on taxpayers. These mines often require long-term or perpetual pollution and treatment. PolyMet has few assets or financial history. The question of where the funding will come from for post-closure treatment, monitoring and maintenance has not not been adequately addressed, and Minnesota taxpayers may have to pay millions of dollars for clean up after PolyMet has gone.	PD4
3193	Minnesotans are concerned about water quality issues, having many of their lakes and other waters with serious pollution issues. This type of mining is know to add to those serious problems.	G7
3287	Environmental disasters can happen when huge mining projects take place. When I read that water from the waste rock piles will be polluted for up to 2,000 years, who will have the resources to monitor and maintain facilities to treat the water? Not the companies, they won't be around for 2,000 years. Should we pass this along to generations to come? Looking ahead, there is concern that after 65 years the West Pit will discharge polluted water with arsenic, cobalt, selenium, high sulfate concentrations and more. Minnesota has water. We are at the head of the water system and should not pollute. Fish will be affected.	EOO,WR3I,PD2,PD3,PD4
3353	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. In addition, Outward Bound has led leadership and character development programs in this spot since 1964, impacting thousands of people. Allowing this will destroy this legacy and this pristine place. Please do not allow this.	EOO,G11

Sender Last Name: Brummitt **Submission ID:** 1507

1815	Keep the Boundary Waters clean and pristine! The profits of your corporation, PolyMet Mining Corp. are NOT worth the damage that would be done to the beloved Boundary Waters Canoe Area Wilderness.	EOO

Sender Last Name: Brunfelt **Submission ID:** 1110

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1215	I wish to express my strong support for the PolyMet Mining project at Hoyt lakes, MN. As demonstrated in the draft EIS, I believe the company has taken the steps necessary to assure that the effect s to the environment would be minimal to nil. The company has already spent millions of dollars in engineering and research studies to insure that the impact would be minimal. Also, the entire area in question has already been mined for decades and PolyMet would be using existing infrastructure from prior taconite mining operations. Northern Minnesota and the Iron Range in particular, are in desperate need of the 400 plus jobs that would be created along with countless jobs created in the satellite industries. With the current state of the economy, Minnesota badly needs the millions of dollars in tax revenues that would be generated by the new mining operation. The favorable economic impact for both the state and for those employed would be tremendous. I was born and raised on the Iron Range and have witnessed firsthand the economic impact to families that have been affected by the volatility ofthe mining industry. Although I no longer reSide on the range, I have relatives and friends there who are in need of the jobs that would be created. Many folks that I know have been unemployed for quite some time and are about to lose their unemployment benefits. I strongly urge that for the sake of those living on the Iron Range and for the obvious economic reasons, all necessary permits required to allow operations to begin, be issued. The sooner the better. Thank you.	EOO
Sender Last Name:	bryson **Submission ID:** 3543	
3806	I believe that the state should NOT allow sulfide mining in Minnesota. I realize that the supporters are looking at this as jobs for Minnesotans. This is true, there will be jobs created if this goes through, but for how long? 20 or 30 years? Is the local environment really worth destroying for one generation of jobs? This area produces revenue for many from tourism generated specifically by our pristine wilderness. The draw to the National Forest, the BWCAW, and Lake Superior will drop off if we end up polluting this area both by water contaminants and from sound pollution. I know lots of promises are being made that steps will be taken to prevent any contamination of the surrounding wilderness. Unfortunately big companies like these have a track record of not following through with their promises. Many times its more cost effective for them to pollute and pay the fines instead of keeping things clean. Not to mention, even the best laid plan may fail 20 or 30 years from now. If we need examples, we don't need to look very far. Wisconsin, our neighbors to the east will not allow this type of mining to take place in their state period. Why can't we learn from them instead of destroying our land before we figure it out? I want my children and grandchildren to enjoy the Northwoods. I feel that by allowing this type of mining to happen it will cause detrimental damages to the area. This isn't the same type of mining people in Northern Minnesota are used to. Iron ore mining doesn't produce the levels of sulfuric acid that this type of mining is known to produce. Lets stop thinking about what may be a temporary benefit and start to think about what we'll be leaving for our future generations.	EOO,G2,G11
Sender Last Name:	Buckmaster **Submission ID:** 3131	
3500	As you consider the mining proposal for Northern Minnesota please take the time to investigate the insidious leachate that is seeping into Lake Michigan from the community of Bay Harbor in Michigan and what is "not" being done about it.	EOO
Sender Last Name:	Buell **Submission ID:** 1051	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1154	As a resident of Hoyt lakes for over 40 years, I have closely followed the development of the PolyMet NorhtMet Project. I have attended the EIS Seoping hearing, the DEIS meeting in Aurora and the DEIS meeting in Blaine. I have talked to people at the various tables (air, water, minewaste, wetlands, etc.) setup by the agencies and contractors at these sessions. I have talked to folks from PolyMet. I have read the DEIS summary and small parts of the full DEIS. (It is a awfully big document to digerst.) I worked for over 35 years in the iron mining industry as a mining engineer. Based on what I have been able to learn and based on my previous experience, it appears to me that the NorthMet Project will have no greater and probably less environmental effect on our area than the previously operated iron mines. The socal and economic effects will definately be a positive for the city of Hoyt Lakes, the entire NE Minnesota area and ultimately the State of Minnesota.	EOO
3819	Perhaps the biggest positive that will come of the PolyMet NorthMet Project is the well paying, year around jobs that will be created. Jobs not only at the actual site of the operation but also in the various support industries that will be created to supply materials and maintenance to PolyMet. Having lived in Hoyt Lakes for almost 44 years I have seen and lived through the ups and downs of the iron mining industry. As a "mining" town we expect and are prepared for the cyclical nature of the iron mining industry. The PolyMet facility will probably see a similar history of ups and downs. Hopefully their cycles will be a slightly different timing than those of the steel industry. Some people have advocated looking for other industries to bring in jobs for the citizens of the area. This has been tried for many years with little if any success. The relatively few industrial companies that have come, not failed and continued to opereate have brought relatively few jobs (dozens) compared to the several hundred jobs that this project will provide. Call centers have produced more jobs but for the most part these can not compete with the salaries that will come with the PolyMet project and related suppliers. "Tourism" jobs are few, low paying and for the most part seasonal in nature and do not pay to support a family or even individual year around. Allowing this project ot proceed will allow this area of Northeastern Minnesota to survive and grow with successful and happy citizens.	EOO

Sender Last Name: Burley **Submission ID:** 298

312	I am pleased to have the opportunity to provide comments regarding the draft EIS prepared for the NorthMet Project. Based on review of the DEIS the project has my support and I encourage the Minnesota DNR to support the recommendations provided in that document. As noted therein: • The project has the purpose of producing base and precious metal, precipitates and flotation concentrates needed by the domestic and global markets. • The project is subject to federal and state regulations to protect human health and the environment. • The DEIS/EIS process is a concerted, comprehensive effort to consider and evaluate potential environmental consequences of the proposed project, with input from local, state and federal agencies and private interests. Those activities are provided for the benefit ofthe public. • The proposed development and alternatives have been identified, and areas of major differences of opinion concerning significant impacts are outlined. The facility details and differences of opinion do not appear to pose irreparable, irreconcilable impacts that cannot be addressed via current technologies, and the ability to assess and mitigate accordingly. In the current and projected economic climate, development of the precious metals mining industry is vital to the economy of northern Minnesota. As a professional engineer and environmental scientist, I support the NorthMet Project, and I urge federal, state and local agencies to support the same, proceeding in accordance with appropriate policy and procedures in the public's best interest.	EOO

Sender Last Name: Burnete **Submission ID:** 3367

3657	The mining companies say that sulfide mining will boost the economy of Northern Minnesota. I can see how in this recession this makes mining look very attractive. I ask you to consider the externalities in terms of damage to the environment loss of ecotourism. Who will pay for those?	G2,G11

Sender Last Name: Butcher **Submission ID:** 349

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
38	To meet the standards of Enhanced, Sustainable, and Conserved, a permit must reflect exactly how the seeker will achieve these policy goals, and what clear assurances does the public have that there will be financial, and other needed resources to mitigate potential problems over the entire impact area throughout their operation? A lot of people have a stake in this project, not just a small spot on the map. This isn't holding industry to a different standard. It's holding it to the same policy standards as are all Minnesota citizens. Let me illustrate my point. There are policies and laws thankfully regulating lakeshore use in Minnesota. Yet there are those who see their property goals only in terms of their own benefits and costs, not the whole lake ecosystem. I'm thinking of a case where a property owner built a new cabin, and nearly defoliated the wooded area to make a lawn. It was clearly against the standard of conserve, enhance, sustain, and perhaps they were even fined for violating DNR regulations. The danger is, and I've heard it said, "To just pay the fine and have things the way you want." It's just a small cost of doing business the way "you want", rather than how "we want". Now, every boater, fisherman, or neighbor sees an urban lawn where ducks used to nest, and deer drank. The cost of that action is multiplied by countless consequences, and over time. In the case of Polymet the impact area is large, and we must be assured prior to permitting they have proven to us that the goals of the DNR will be met, using great caution instead of trust. The first line of action is to make sure clear, enforceable, rules are indeed established for sulfide mining practices: A model operation rather than just an operation. We must also have remedy for damages. Far too often the public as a whole is left paying the ultimate costs, because companies just close their doors, file bankruptcy, and walk away. Clearly, the best prevention is be sure at the start that this project is done so the DNR, and citizens of Minnesota can say this is being done right based on our state goals.	PD4
380	I am writing as a property owner in St. Louis County wanting to raise questions that I feel, based on the following Minnesota DNR policy statements, should be addressed before the Polymet sulfide mining project is legally entitled to move forward. We hear almost daily about situations where tragic consequences occur, or are only narrowly avoided because somebody didn't squarely look at the "red flags". This is too important to let that happen.	EOO
381	I shall make my statements working from three of the following policy goals of the Minnesota Department of Natural Resources effective in January of 2010, and taken from their website. I think it is an accurate assumption that state policy is, and should be, the foundation of law, regulation, and practices within our state. So I shall work from what they say, which I also feel sets an excellent standard for all of us to follow in this beautiful state. 1. Minnesota's natural lands and habitats will be conserved and enhanced … 2. Minnesota's water resources and watersheds will be conserved and enhanced ... 3. Minnesota will provide for the sustainable economic use of its abundant natural resources ... Three words stand out in these policy statements. Conserved, Enhanced, and Sustainable In further elaborating on these policy goals the DNR goes on to suggest that conserved doesn't mean never used, but rather utilized in ways measured against the standard of stewardship, and enduring benefit. The word enhanced, as making life better under varied criterion, and once again where the benefits outweigh the costs. Nothing less than good stewardship is the standard. The word sustainable again refers to a range of things impacted by an action. I will include below the Minnesota DNR's policy statement regarding their legal and ethical meaning of sustainable. Access to mineral resources is preserved. Sufficient supplies of sand and gravel are available with minimal harm to natural lands and waters. Deposits are assessed early in areas facing development. Mining and reclamation are planned to meet community needs, minimize conflicts, and ensure environmental integrity while producing important mineral products. Conserved, Enhanced, Sustainable .... The burden of clearly addressing the "red flags" is legally required of anyone seeking a permit. This is the same standard set for a person seeking to build a garage near a lakeshore, or a business developing a mining operation.	EOO
382	The Geographic Problem Often permit seekers see their project as a "local area" issue. The builder of a lake lot garage often sees the immediate benefit of boat storage, while not thinking about the other impacts on others, and an entire water system impacted by accelerated runoff. In terms of the Polymet sulfide mine, the issue of "local area" needs redefinition when determining if it meets the state policy goals for the entire impact area. Although it is a term often used to make the scope of problems appear limited, it isn't a useful term in reality. Workers commute, water flows, winds blow, chemicals mingle, businesses bloom, and others are diminished, property values change, and many other things can change over areas far larger than we are led to believe.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
383	The Economic Problem I've taught economics, and know all too well its complexity. Like all statistical studies, various points of view often pick their own data to build their case. For the sake of brevity, I'm not going to address specific claims in the EIS, but rather again turn to the DNR goals and how they relate to one important economic element of this project. 1. Cost/benefit There are endless elements in trying to apply this to mining. Some things are clear. We use minerals. People need jobs. And, the classic circular flow in the economy must operate. One can debate endlessly how much benefit there is, how it is distributed in society, and the impact of "boom" production in the long term. I think of most concern under the DNR goals, however, is addressing the costs of production that often are borne by citizens after the fact ... the so called externalities. By definition the costs of production then become society's problem. These costs have historically been given a blind eye by business, and tolerated by government that is often more influenced by elections than long term goals. We often read about China's booming economy. Trying to see where the DNR goals are being applied there would be laughable. The externalities of production are being allowed to just run amuck. If we are to meet the standards set by the DNR in Minnesota, we have to account for these externalities (the quality of our air, water, aesthetics, ecosystem health, human health and safety, etc.) as a true cost of production that must be dealt with in the permit. It must be insured that those costs are clearly mitigated in the production plan itself.	EOO,G1
384	In conclusion, I would hope to see in a final permit that the DNR policy goals are used in establishing a model plan that we all can be proud of. There is clearly a lot of supporting evidence for the fact that anything short of that will leave us with a terrible legacy. The "cowboy economy" practiced in our early history, and now thriving in the under developed world has no place here any longer. Public financing no longer has the ability to pick up the tab for the unmitigated damage of citizens or business. As a society we must ensure that conserve, enhance, and sustain aren't just esoteric concepts, but rather the building blocks of best practices, and model operations for now and our future.	EOO
Sender Last Name:	Butler **Submission ID:** 3372	
3662	I am not from Minnesota but recently moved here to Bemidji. Boundary Waters is a protected area and should not be altered in any way especially by government for those reasons. It is not acceptable to set up a mining area and pollute waters and wildlife in a protected area.	EOO,G2C,G7A
Sender Last Name:	Bymark **Submission ID:** 166	
156	I am writing to declare my support for the PolyMet Mining Co. mining and processing plant near Hoyt Lakes, Mn. I believe they have demonstrated in their EIS that PolyMet will operate a safe and environmentally sound mineral processing operation. The US is in need of an adequate reserve of these critical metals and we need a viable and safe processing operation to produce these metals. Also, this area is in need of a large scale business that will provide good and stable employment and help support a healthy business climate.	EOO,G6
Sender Last Name:	Cahoy **Submission ID:** 2284	
2710	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. As a avid and frequent user of the BWCA I am very concerned that we do everything in our power to preserve and protect the wilderness for our generation and generations to come. I raised my children with frequent trips to the BWCA for a experience not available anywhere else. Some day I hope to bring my grandchildren to the BWCA for similar trips. In the mean time we need to protected and cherish the wilderness so that will be possible.	G7A
Sender Last Name:	Canaday **Submission ID:** 2861	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3211	I have personally been to the Boundary Waters Canoe Area Wilderness about 2 dozen times. I have brought with me from Indiana an average of six people per trip. We drive fourteen hours each way. We have purchased gasoline, eaten food, paid outfitters, purchased Entry Permits, paid User Fees, and stayed in lodgings on each trip. Why would I want to return to canoe and fish in waters that are polluted by chemical runoff, unsightly tailings, polluted skies? Please DO NOT permit this mining operation to ruin your beautiful area.	G2,G7,G11
Sender Last Name:	Cannata **Submission ID:** 28	
26	I'm from Hibbing, Minnesota, representing a company called Industrial Door Company, and I just want to put my statement in of this project of my approval of this project because the -- the potential for employment, the potential for the future of the different trades involved with this type of mining, and the ability to expand the region up here in Northern Minnesota; so voicing my opinion for approval of this project for the -- for those reasons. That's it.	EOO
Sender Last Name:	Carey **Submission ID:** 1104	
1209	I am writing this letter in support of PolyMet Mining's NorthMet Project and here are my comments: 1. I think it is apparent that PolyMet will have 400 employees and hundreds ofspinoff jobs that will provide significant economic benefits to Minnesota and the Arrowhead Region. This, in turn, will result in providing millions of dollars in local and state taxes to support our communities and educational system. 2. From an environmental standpoint, PolyMet can and will produce these metals in an environmentally sound manner and create hundreds of stable jobs that can support familIes, as already noted. It has been demonstrated that PolyMet will produce these critical metals while following Minnesota's strict environmental requirements to protect air, water and land. Furthermore, these metals that will be mined by PolyMet are essential to green technology (e.g. wind turbines and hybrid cars) and are also necessary for pollution prevention devices such as catalytic converters. From a personal standpoint, my roots come from the Iron Range. By way of example, my mother was raised in Chisolm and returned there after graduating from college to teach kindergarten. My father was raised in Virginia and his work history over many years involved dealing with "big businesses" in the Iron Range area, including everyone from Bethlehem Steel to U.S. Steel, etc. I also had a grandfather that was a Judge in Virginia for 46 years and an uncle who practiced law in Virginia and was also a Judge. My twin brother, Tom, practiced law in Virginia and has since retired as a District Court Judge and lives with his wife in the Biwabik area. I mention this personal history so that you understand that my support of PolyMet is not just due to the fact that I am an investor. As the saying goes, "once a ranger, always a ranger" and having said that, my personal ties with Northern Minnesota is the primary purpose for sending this letter in support of PolyMet. One final comment. I just had a chance to read the letter addressed to you by Congressman Oberstar and for what it is worth, ditto.	EOO
Sender Last Name:	Carlson **Submission ID:** 3579	
36	HUNTING, FISHING AND GATHERING RIGHTS UNDER THE TREATY OF 1854: Archaeological evidence shows that native people gathered copper on Isle Royale and on other Lake Superior area lands for many centuries prior to the Treaty of 1854. Some archaeological evidence even points to the possibility that Viking explorers obtained Lake Superior area copper from native people a thousand years ago. Before the Polymet project proposal is approved, Federal courts should determine whether this archaeological precedent should be the basis for including the gathering or mining of copper in the rights of native populations on lands involved in the Treaty of 1854. Such a Federal legal opinion could be the basis for a congressional amendment to the wording of the Treaty of 1854, if necessary.	G3,CR1,CR4
117	My thoughts are that, as I talk to people out there, that PolyMet has taken the precautions needed to have a -- to make a -- to not impact the environment in a negative way, I guess. And my hope is the DNA follows through and ensures that it is -- that it is good for the environment and, hopefully, the jobs will be created that we need.	EOO,G5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
540	SECTION 3.1.3 Proposed transport of ore. The first paragraph of this section states that "three trains, each consisting of up to twenty 100-ton side dumping ore cars and one 2,100 hp diesel-electric "Gen-set" locomotive, would transport the ore from the Mine Site to the Processing Plant." Genset diesel-electric locomotives are fairly new forms of switcher locomotive technology. Instead of using a single large diesel engine to generate electricity to power the locomotive, genset locomotives use two or three generator sets which are each powered by low horsepower diesel engines. Several locomotive manufacturers now build genset switcher locomotives which contain three diesel engines of approximately 700 hp each. Computer controls turn the diesel engines on and off to match the electrical power required for the load being moved by the locomotive. When genset switchers are used in railroad switch yards, exhaust emissions are reduced by up to 80%, compared to the emissions from older switcher designs. Genset locomotives are a logical modern source of power for these ore trains. Polymet may have even found examples of mining operations which use 2,100 hp genset locomotives to pull twenty 100 ton ore cars. However, it does not appear to be realistic to have up to twenty 100 ton ore cars powered by a single 2,100 hp locomotive at the Polymet site. At the time LTV Mining ceased operation, it was using a fleet of 1950s vintage Alco RSll 1,800 hp locomotives, with one locomotive powering each train of nine 85 ton side dump ore cars between the mine site and the primary crusher. Although a change in track grade could improve energy requirements, there is a substantial difference in mass between a train consisting of twenty 100 ton ore cars and a train consisting of nine 85 ton ore cars! Most mining operations rely on negative (down hill) track grades for gravity assistance in moving ore. Unfortunately, it takes a large amount of generated electrical energy to provide braking power as a heavy ore train is inched along during loading operations and when ore dump cars are being aligned with the rotary dumper at the primary crusher. The emphasis in this section needs to be on the use of locomotives which meet or exceed EPA Tier 2 locomotive emissions regulations during the mine transport operation and not on the horsepower or type of locomotive. Although mining trains appear to be sitting at rest during loading and unloading, the locomotive needs to burn a significant amount of fossil fuel to keep the train from running away on a grade. A high efficiency state-of-the-art locomotive may not meet EPA Tier 2 emissions regulations during its mine transport operation, if excessive demands for maximum power are constantly placed on it. It is also worth noting that the Burlington Northern Santa Fe railroad has rebuilt an experimental prototype genset locomotive, with the standard diesel electric generator sets replaced by hydrogen fuel cells. Perhaps hydrogen fuel cell locomotives should be considered in newly proposed mining operations.	AQ3
772	At several points in this environmental im pact statement draft, the United States asserts that deeded mineral rights do not include the right to open pit mine the National Forest System lands. A federal court ruling on this U.S. government opinion has farther reaching impact than the Polymet proposal. The Polymet mining project would take place on a portion of lands once owned by LTV Mining. This author has learned from reliable government sources in Lake County, Minnesota that a significant portion of the land once owned by LTV Mining is now owned by a single individual with Saudi Arabian citizenship. It is further understood by this author that a significant portion of the U.S. Steel Corp. is now in Asian ownership. The question at hand is whether approval of the Polymet mining proposal would open a "Pandora's Box" and set a legal precedent for the pillage of American mineral resources by foreign investors and governments. Such an issue is especially significant if it weakens the economic and national security of the United States.	PRO4
2599	MR. CARLSON: My name is David Carlson, D-A-V-I-D, C-A-R-L-S-O-N. I just want to make a statement that I support the PolyMet project up in Northern Minnesota. We need to jump start this economy somehow, and this is a perfect way to get jobs in Northern Minnesota. PolyMet I was actually at a UMD conference and talking to the professors up there, they spelled out that is it is a very safe way of mining. I support it 100 percent.	EOO
3142	Virtually everyplace in the world that sulfide rock has been distrubed to extract metallic minerals, it has produced acid mine drainage and polluted the water. Please keep the Boundary Waters clean and do not allow sulfide mining. The time has come to find new ways to produce metals, start reusing the existing materials that are out there.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3721	SECTION 3.1.3 Proposed transport of ore. The first paragraph of this section states that "three trains, each consisting of up to twenty 100-ton side dumping ore cars and one 2,100 hp diesel-electric "Gen-set" locomotive, would transport the ore from the Mine Site to the Processing Plant." Genset diesel-electric locomotives are fairly new forms of switcher locomotive technology. Instead of using a single large diesel engine to generate electricity to power the locomotive, genset locomotives use two or three generator sets which are each powered by low horsepower diesel engines. Several locomotive manufacturers now build genset switcher locomotives which contain three diesel engines of approximately 700 hp each. Computer controls turn the diesel engines on and off to match the electrical power required for the load being moved by the locomotive. When genset switchers are used in railroad switch yards, exhaust emissions are reduced by up to 80%, compared to the emissions from older switcher designs. Genset locomotives are a logical modern source of power for these ore trains. Polymet may have even found examples of mining operations which use 2,100 hp genset locomotives to pull twenty 100 ton ore cars. However, it does not appear to be realistic to have up to twenty 100 ton ore cars powered by a single 2,100 hp locomotive at the Polymet site. At the time LTV Mining ceased operation, it was using a fleet of 1950s vintage Alco RSll 1,800 hp locomotives, with one locomotive powering each train of nine 85 ton side dump ore cars between the mine site and the primary crusher. Although a change in track grade could improve energy requirements, there is a substantial difference in mass between a train consisting of twenty 100 ton ore cars and a train consisting of nine 85 ton ore cars! Most mining operations rely on negative (down hill) track grades for gravity assistance in moving ore. Unfortunately, it takes a large amount of generated electrical energy to provide braking power as a heavy ore train is inched along during loading operations and when ore dump cars are being aligned with the rotary dumper at the primary crusher. The emphasis in this section needs to be on the use of locomotives which meet or exceed EPA Tier 2 locomotive emissions regulations during the mine transport operation and not on the horsepower or type of locomotive. Although mining trains appear to be sitting at rest during loading and unloading, the locomotive needs to burn a significant amount of fossil fuel to keep the train from running away on a grade. A high efficiency state-of-the-art locomotive may not meet EPA Tier 2 emissions regulations during its mine transport operation, if excessive demands for maximum power are constantly placed on it. It is also worth noting that the Burlington Northern Santa Fe railroad has rebuilt an experimental prototype genset locomotive, with the standard diesel electric generator sets replaced by hydrogen fuel cells. Perhaps hydrogen fuel cell locomotives should be considered in newly proposed mining operations.	PD7
3722	At several points in this environmental impact statement draft, the United States asserts that deeded mineral rights do not include the right to open pit mine the National Forest System lands. A federal court ruling on this U.S. government opinion has farther reaching impact than the Polymet proposal. The Polymet mining project would take place on a portion of lands once owned by LTV Mining. This author has learned from reliable government sources in Lake County, Minnesota that a significant portion of the land once owned by LTV Mining is now owned by a single individual with Saudi Arabian citizenship. It is further understood by this author that a significant portion of the U.S. Steel Corp. is now in Asian ownership. The question at hand is whether approval of the Polymet mining proposal would open a "Pandora's Box" and set a legal precedent for the pillage of American mineral resources by foreign investors and governments. Such an issue is especially significant if it weakens the economic and national security of the United States.	PD1
3723	During the Great Depression of the last century, the United States nationalized the ownership of gold. The ownership of mining rights to platinum in the United States needs to be addressed on the Federal level before any new copper/nickel mining operations are approved by the Minnesota Department of Natural Resources or the U.S. Army Corps of Engineers.	G1
3725	I think the risks far out way the reward. I think its ridiculous that we could even think about doing such a thing in of Minnesota’s most beautiful places. The very chance that sulfuric acid could get to the boundry waters is reason enough to say no.	EOO,G7

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3843	Several unique factors make my comments relevant in assessing the NORTHMET PROJECT ENVIRONMENTAL STATEMENT DRAFT. Being a retired Earth science teacher is probably the least siguificant of those factors. In addition to having a masters degree in physical science education and holding Minnesota teaching license certifications in every area of science licensed in Minnesota, I have also completed an unlicensed undergraduate major in political science. Prior to becoming a teacher, I was employed for nine and a half years by the State of Minnesota. The highest position I held with the State of Minnesota was Senior Management Analyst/Project Manager for a major federally funded computer system development project. During my time with the State of Minnesota, I received four suggestion system awards, including an award for an innovation which ended up saving Minnesota taxpayers more money than I received in salary and fringe benefits for the duration of my State of Minnesota employment. In recent years, I have been teaching in a federally funded graduate level summer school program which provides Earth and environmental science education methods training to inner city teachers. I have written the curriculum for two of the three graduate level summer school courses, which are offered through Hamline University. One of the courses I developed is an Advanced North Shore Field Study course, which covers the geology and the water issues in the geographic area included in the NORTHMET PROJECT draft. For several summers, I have also been a volunteer for the Minnesota Minerals Educators' Workshop (MMEW), which has been presented for teachers through the Division of Lands and Minerals, Minnesota Department of Natural Resources. I believe I have a good understanding of political, economic and scientific issues at stake in the expansion of mining in the State of Minnesota. Through the MMEW, I have become acquainted with MN DNR employees and with employees of the mining industry involved in the NORTHMET PROJECT draft. I have toured the Polymet Project site with the MMEW, and I have made several tours of the Northshore Mining taconite facility in Silver Bay. I personally own 83 acres of forested recreational land at 710 Wales Road, less than a mile from the Highland ore car scales, where the Canadian National Railroad weighs the taconite loads being transported to the Two Harbors ore docks. My property is about twenty miles south of the source of the St. Louis River. I am very familiar with wetlands in the area. Beginning in 2010, I will be conducting lake and stream testing in parts of Lake County as a volunteer for the Minnesota Pollution Control Agency. As an additional side note, I am a model railroader who owns a video tape of the former LTV Mining operation (Pentrex PEN-LTV, copyright 1992). This video tape shows highlights of the full LTV mining operation, beginning as the large mine trucks are loaded with ore. The video shows the initial railroad transport system, ore dump car unloading at the crusher house, taconite production, and the final ore train transport and unloading into the ships at the ore docks. This video tape shows some mining operations which were never a part of public tours. When I toured the Polymet property with the MMEW, I was surprised at my level of familiarity with our tour sites, based on my prior review of the LTV Mining video. I have viewed this video tape several times as I have reviewed the NORTHMET PROJECT draft. Amazingly, this video tape has made it very easy to visualize Polymet property locations on the draft proposal diagrams.	EOO
3844	GENERAL CONCERNS REGARDING MINERAL RIGHTS: Mineral rights in much of the western United States originated as incentives in land grants to railroads. The purpose of these land grants from the 1800s was to provide a mechanism for transport of settlers to new states and territories and to provide the incentives for developing the natural resources on wilderness land. Mineral rights were included with those land grants to assure that the United States moved forward with other large nations in the development of industrialization. At the time, it was in the interest of the economic growth and national security of the United States to put mineral rights in the hands of those who could develop the mining industry as rapidly as possible. Historians have fully documented the fact that a substantial number of these land grants and mineral rights were handed out through illegal acts of cronyism and profiteering among elected officials, whose first and foremost interest was personal gain. There is good reason to believe that federal courts might rule against the legality of those ancient mineral rights, should it become evident that they no longer serve the better interest of national security and economic growth. At the time these mineral rights were established, the full extent of types of minerals in the land was unknown. Also unknown were the new uses which would develop for some minerals and the role of those mineral uses in national security. Also unknown was the potential for environmental destruction by then unknown new mining techniques. It is unreasonable to assume that the federal government ever intended mineral rights over a parcel of land to extend in perpetuity for all possible minerals and all possible mining methods.	G13

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3845	In a worse-case scenario, no new mining jobs would be provided for Minnesotans by foreign investors. Instead, they could bring in their own citizens on short-term work visas, strip American land of its resources, and leave an environmental mess which could plague the United States for centuries. Unless written into prior international economic trade agreements, the chances of recovering the costs of dealing with poorly managed mine wastes is zero to none. The most that the United States might recover would be the title to mineral-depleted land. It would not be unreasonable for federal courts to rule that currently existing mineral rights only extend to the single primary mineral that a mining operation has been designed to extract. In such a case, mineral rights owned by iron mining entities would not include the mineral rights to trace elements which might be extracted as a byproduct from iron mining wastes.	G1
3846	PLATINUM: According to page 3-2 of the DEIS, Polymet expects to produce 22,184 ounces of platinum per year. Compared to the Polymet projections of 38,821 tons of copper and 9,037 tons of nickel, the expected production of platinum appears to be of minimal significance. However, Polymet's projected platinum production is roughly equal to one half of one percent of the entire world's current annual usage of platinum for automobile and truck catalytic converters! It is an unfortunate fact of geology, that very little pure platinum metal is found in nature. The vast majority of today's platinum is produced as a small quantity byproduct from sulfide bearing rock, during the mining of copper and nickel ore. Most of the world's currently known platinum is mined in Russia, South Africa, and Canada. A relatively small percentage of current world-wide platinum production comes from the State of Montana. As greater and greater efforts are made to control greenhouse gas production, it is reasonable to expect the industrial need for platinum catalytic converters to rise significantly beyond what is currently mined or recycled. New platinum catalytic converter technologies can be expected to include new factory combustion processes and a wider range of fuel burning forms of transportation. In the past, the price per ounce of platinum has been driven by industrial demand to a far greater extent than the price of other trace metals. World-wide platinum production can be most easily increased by increasing the production of copper and nickel. Consequently, there is a real possibility for copper and nickel to flood the market as platinum production is stepped up. Increased platinum prices might not compensate for a decrease in the prices of copper and nickel! Decreased market values for copper and nickel may, in fact, result in a decrease in overall profits during the projected life-span of the Polymet project. To compensate for its decrease in profits, Polymet (and other future copper/nickel mining projects in Minnesota) may be forced to take one ofthe following two actions: 1) Increase copper and nickel mining beyond what their mining operation was designed to handle, in order to increase revenue from the sale of platinum. 2) Petition for a decrease in expenditures for the environmental treatment andcontainment of sulfide mine wastes. Both of these actions may be necessary in order to keep an established copper/nickel mining operation running in the black. If the production of platinum becomes the driving force in successful copper and nickel mining, serious issues arise in cases of foreign-owned mining lands. Platinum is a low volume product with a very high value. Does the mined platinum stay in the United States, or will the foreign investors export it for their own needs? Platinum does not need to be processed into pure metallic form to be shipped out of the United States. Platinum slurry is a difficult material to identify and could be transported unobtrusively, before it can be accounted for in taxes paid to the United States government. In the past, mining has been performed on large tracts of northern Minnesota land. The burden of inspecting the new copper/nickel mines for environmental compliance would require a substantial staff of government inspectors. Foreign mining operations could easily step up platinum production and leave excessive quantities of sulfide bearing waste rock behind in a manner which would foul our ground waters and delicate wetland soils for indermite periods of time. Environmental damage and substantial restorative costs caused by excessive rates of copper/nickel mining could also prevent more desirable alternative uses of northern Minnesota land. It is consequently very important that the Polymet project and its review and approval process set appropriate legal precedents for future copper/nickel mining proposals in the same geographical setting. NATIONALIZATION OF PLATINUM PRODUCTION IN THE UNITED STATES: It	G1

Sender Last Name: Carney **Submission ID:** 1181

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1296	I saw the “Precious Waters” video tonight. I am opposed to the NorthMet project. the affect of this project will negatively affect out water in the area around Ely & the BWCA. Do not proceed with this project.	EOO,G7B

Sender Last Name: Caron **Submission ID:** 1115

1221	I attended the town-hall meeting in Hoyt Lakes last summer. At the meeting, the Poly-Met representatives there, had a very convincing proposal for constructing this project environmentally responsibly.	EOO
1222	I am personally convinced that they have done their research thoroughly. I also believe that all this research should be subject to audit, both privately and publically, as well.	EOO,G10
1223	I think a lot of issues are at stake in our state, both economically and environmentally. I believe that there should be an earnest effort to conclude this research, so that our state can begin to recover economically (like North Dakota already has) with the bag-houses, and sequestration projects underway for the coal fired power production units there. I know a lot of this technology is new, like the Nugget facility, (on a large-scale), but I don’t think some national attention to a forward-mined project would hurt us right now. Best wishes on your on-going research, and I do hope for the best for the PolyMet precious meter mining project proposal.	EOO
3186	I canno understand why anyone would so want to endanger our water or any natural resource as this project would do.	G7

Sender Last Name: Carron **Submission ID:** 3580

50	Further, negative socioeconomic impacts of the boom-and-bust mining economy will extend across Northeastern Miinnesota.	SE3
541	The addition of significant amounts of greenhouse gases from the destruction of wetlands literally will add to a global problem.	AQ3
1072	The addition of significant amounts of greenhouse gases from the destruction of wetlands literally will add to a global problem.	WE5
1073	Wetlands: The complete or partial destruction of over 1400 acres of wetlands is outrageous. The value of these lands for oxygen production, carbon storage, and habitat infinitely outweighs the value of the short-term employment opportunities offered by the Project.	WE2
1144	Part III.A.-Evaluating impacts within only a five-mile radius around the major components of the Project is misleading and inadequate. For example, the habitat destruction in the Project area will have significant impacts on wildlife now living outside the Project area because of, among other things, the displacement of members of species currently using the Project area and the concomitant increase in competition for space and food.	WI2
1145	Wildlife: The loss of critical habitat for Canada lynx and the gray wolf alone should be sufficient to compel implementation of the No Action Alternative. The DEIS's blithe reference to "increased risk of vehicle strikes to Canada lynx and gray wolf at the Mine Site" is frosting on the cake.	WI1
1332	Geotechnical Stability: The admission by the DEIS that Tailings Basin embankments "would have a low margin of safety" compels the adoption of the No-Action Alternative. If the Tailings Basin collapses, the resulting pollution and habitat destruction would vastly exceed any amount considered acceptable by even the most shameless mine booster. The intent to defer considering mitigation until the presumed permitting process is unacceptable.	GT1,GT2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1977	Part III.B.2.-Water Resources: The chemical and physical alteration of surface waters and groundwater predicted to result from the proposed Project by the DEIS is unacceptable. The DEIS admits that the Proposed Action will contaminate groundwater with antimony, manganese, and nickel. This pollution will exceed Primary Maximum Contaminant Levels and/or Health Risk Limits "potentially for the long term." What is the long term? The tribal cooperating agencies believe that it is potentially thousands of years. The DEIS is silent as to the likely extent of the dispersion of this poisoned groundwater; this silence suggests that the likely extent of the dispersion is either unknown or obviously unacceptable. The DEIS admits that significant (9%) reductions in flows would occur in the Partridge River, and that the frequency of low flows would increase. It further admits that groundwater seepage downgradient of the Tailings Basin would result in significant seepage upwelling and impacts on wetlands. "High risk situations" for mercury methylation would likely result from high sulfate concentrations in seepage from the Tailings Basin. In sum, it is clear that the pollution by metals and the changes in streamflows and wetland levels would seriously disrupt the stability of both aquatic and terrestrial habitats; the actual extent of the damage is uncertain because the DEIS admits to "a high degree of uncertainty regarding key input assumptions" to the models.	FM1
1978	Fish and Macroinvertebrates: The DEIS admits that the Proposed Action would create the possibility of (a) degradation of aquatic habitat in the Partridge River because of the duration and frequency of low flows and (b) increased methylmercury in wetlands and the Embarrass River because of the discharge of sulfates from the Tailings Basin; the poisonous impact of mercury in the environment, particularly with respect to consumers high in the food chain, such as fish and homo sapiens, is well-known. Maintenance of healthy aquatic ecosystems is crucial to the health of the earth and all its inhabitants. The Proposed Action should not be allowed to proceed given the possibility of the impacts described in the DEIS.	EOO
3290	Both surface and groundwater pollution by acid mine drainage and leached metals will certainly flow well beyond the five-mile radius imposed by the DEIS.	WR1E
3291	Part III.B.2.-Water Resources: The chemical and physical alteration of surface waters and groundwater predicted to result from the proposed Project by the DEIS is unacceptable. The DEIS admits that the Proposed Action will contaminate groundwater with antimony, manganese, and nickel. This pollution will exceed Primary Maximum Contaminant Levels and/or Health Risk Limits "potentially for the long term." What is the long term? The tribal cooperating agencies believe that it is potentially thousands of years. The DEIS is silent as to the likely extent of the dispersion of this poisoned groundwater; this silence suggests that the likely extent of the dispersion is either unknown or obviously unacceptable. The DEIS admits that significant (9%) reductions in flows would occur in the Partridge River, and that the frequency of low flows would increase. It further admits that groundwater seepage downgradient of the Tailings Basin would result in significant seepage upwelling and impacts on wetlands. "High risk situations" for mercury methylation would likely result from high sulfate concentrations in seepage from the Tailings Basin. In sum, it is clear that the pollution by metals and the changes in streamflows and wetland levels would seriously disrupt the stability of both aquatic and terrestrial habitats; the actual extent of the damage is uncertain because the DEIS admits to "a high degree of uncertainty regarding key input assumptions" to the models.	WR1E,WR3E,WR4B
3292	Fish and Macroinvertebrates: The DEIS admits that the Proposed Action would create the possibility of (a) degradation of aquatic habitat in the Partridge River because of the duration and frequency of low flows and (b) increased methylmercury in wetlands and the Embarrass River because of the discharge of sulfates from the Tailings Basin; the poisonous impact of mercury in the environment, particularly with respect to consumers high in the food chain, such as fish and homo sapiens, is well-known. Maintenance of healthy aquatic ecosystems is crucial to the health of the earth and all its inhabitants. The Proposed Action should not be allowed to proceed given the possibility of the impacts described in the DEIS.	EOO,WR4B

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3848	Parts III.C. and III.D.-The Mine Site and Tailings Basin Alternatives amount to an attempt to put lipstick on a pig. Nothing in the Alternatives alleviates the massive destruction of landscape and habitat, or the serious pollution threats, resulting from the Proposed Action. The Project runs counter to the values of clean water and intact habitat that are dear to most Minnesotans, as shown by the overwhelming approval of the Clean Water, Land, and Legacy Amendment adopted by the voters in the 2008 election. The No-Action Alternative is the only acceptable outcome for this Project.	EOO,G2
Sender Last Name:	Casillas **Submission ID:** 1167	
1282	I believe no mining should be done, no matter what the metal, if our wilderness is at risk. I support the project's effort to stop this and protect Earth's waters. Finally someone is taking action and opening people's eyes to the problems the environment is facing. Today, many animals are suffering because of human's mistakes and if one problem can be solved there will be hope for solutions else where.	EOO,G2C
Sender Last Name:	Cason **Submission ID:** 2195	
2601	MR. CASON: Hi there. My name is Joe Cason with the Labors 563, Minneapolis Local. I live in Columbia Heights, Minnesota. I strongly agree with this project that is going forward, the PolyMet project that is going up north. I think that with 10,000 construction workers out of work that this would be a great economic plus for the area, and I think that that is what we need is more economic development. I think that they have plenty of -- they have plenty of regulations in place so you won't have the pollution concerns that they are talking about, and I think jobs is what it's all about. That is my story, and I'm sticking to it. Thank you.	EOO
Sender Last Name:	Chaffin **Submission ID:** 2556	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3122	I will never forget the pollution I witnessed on a recent business trip to Shanghai, the epicenter of China's newfound affluence. My lungs burned as I simply walked the streets. And when I looked out my window on the 54th floor in a city dominated by skyscrapers, all I could see was smog. When I returned home I made a point of taking a deep, cleansing breath as I walked out of the airport. While I knew that the economic boom and resulting pollution I witnessed in China impacted my life in Minnesota to some extent, the problem still seemed a world away. Little did I know how directly it could impact the environmental health of my own backyard. One of the by-products of China's economic growth has been an exponential increase in their demand for precious metals like copper and nickel, key ingredients in the production of a wide range of products including cell phones and laptops. To answer this demand, mining companies around the world have stepped up their efforts to mine these metals. Among them is PolyMet Mining Inc. and their proposal to operate an open-pit sulfide mine and processing facility at the edge of the Boundary Waters Canoe Area Wilderness. As you know, the sulfide mining that PolyMet proposes is fundamentally different than the traditional iron mining that has come to define much of Northern Minnesota's cultural and economic identity. Sulfide mining involves the extraction of metals from sulfide-bearing ores, while traditional iron mining deals with oxide ores. The difference between the two comes into stark relief once you introduce water. When precipitation comes in contact with the waste rock from traditional iron mining, it creates rust. When precipitation comes in contact with the waste rock from sulfide mining, it creates sulfuric acid. The findings contained in the DEIS are too many to fully address in this short note. For the sake of brevity, I will summarize four key findings with regards to water resources given the critical role that water plays in sulfide mining. According to the DEIS: 1) water from waste rock piles will be polluted for up to 2,000 years, 2) at year 65, the West pit will begin to discharge polluted water into the surrounding wetlands, rivers and lakes, 3) the polluted water will contain high sulfate concentrations that represent "high risk" situations for mercury methylation, which can cause mercury to accumulate in fish, and 4) PolyMet has proposed the construction of a wetland to treat contaminated waters. However, "the effectiveness of constructed wetlands to remove metals has strong seasonal variability… also a limited literature review revealed a wide range of variability in the pollutant removal effectiveness of constructed wetlands." Based on the impact to water resources alone, the science seems to make a clear case against sulfide mining in Minnesota. However, as we have seen so often around the world, socioeconomic factors can cause people to disregard the science in an effort to address more immediate and personal concerns. Minnesota's taconite industry has been gutted by the current recession so it is no surprise that PolyMet's promise of 400 new jobs over the 20-year lifespan of the mine has Iron Range families and politicians alike speaking out in favor of the proposed mine. On December 10th, I attended a public meeting in Blaine hosted by the MnDNR and the USACE meant to inform the public on the scientific findings of the DEIS. However, the influence of socioeconomic and political issues on this process was obvious to me. The day before the meeting, Governor Tim Pawlenty announced that the public would not be allowed to speak at the public meeting. Instead, two Iron Range politicians were allowed to address the crowd withstump speeches about job creation before a single scientific word was spoken. I urge the MnDNR, the USACE and anyone else involved in making a decision on this matter to not allow China's copper rush and a Canadian company's business plans risk the long-	G1,G2,G7A,G9

Sender Last Name: Chambers **Submission ID:** 3701

1	The PolyMet demands on the public for rate increase is being done without public notice in the form of a blank check. The illegally executed contract between PolyMet and Minnesota Dower done in violation of environmental laws which require connected actions be administered as a part of an Environmental Impact Statement was violated. This is similar to the Wetland Mitigation agreement between St. Louis County and PolyMet, that was sued on and held to be illegal in District Court. Clean energy is being blamed for rate increase because to mention PolyMet would be an admission of a violation of the law so the PUC and Minnesota Power will do it secretly.	PRO7

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	The DNR has joined the PUC in hiding information from the public. In the EIS the tribal partners concerns have been placed in appendix 3 and many of the claims given little or no explanation. It is not the job of the PUC to aid corporations in hiding public information, it is not for Minnesota Power to do economic development, or expose the public to risky business ventures including losses on real estate in Florida. The power company is a regulated monopoly whose responsibility is solely to provide power to consumers. Minnesota Power will not spend money on improving our power system because they don't like the conservative lower rate of return this provides. The public has given and continues to give them our dammed rivers and a monopoly. They owe us more than the arrogant claim of trade secrets that they have made and we must put pressure on our politician's to force them to keep their side of the bargain. If PolyMet is going to provide Minnesota Power with an excuse to raise our power rates, we should oppose PolyMet.	PRO3
2	Note: At this years Consumer Electronics Show one of the main topics and displays was Wireless Television, no cables. They have had for some time wireless sound systems, but now the predictions are that in the next five years most of our electronics will be wireless. What will that do to the price of copper? If the world price of copper goes down will PolyMet abandon any mining begun here as has been done so many times in the past by other copper mining companies? My guess is they would, leaving us the cost of cleanup.	SE3,G1
3	The project's carbon footprint. What would be the true measure of greenhouse gas and particulate emissions? How will the destruction of extensive bog affect the area's value for carbon sequestration?	AQ3
4	(4.13-2) The stability of the existing LTVSMC tailings basin that PolyMet plans to use for their disposal is a well-recognized concern. The existing basin has been documented to contain fines and underlying soils that create a "low margin of safety" for its long-term stability. Rather than generating a plan that satisfactorily increases the safety margin of the basin, PolyMet concedes that "further design and analysis is needed."	GT2
5	The DEIS text has only five citations to the Regional Copper-Nickel Study. This is a glaring omission of important data that was prepared especially for this environmental impacts evaluation of copper-nickel mining. This environmental impact statement is for copper/nickel/metals mining in the very same area of the Study. The DEIS does have a few citations for the Study so its authors knew the Study existed, but the DEIS does not even discuss the fact that the Study exists, its purpose, and applicability. The DEIS cannot be adequate without acknowledging and utilizing the Study data and subsequent research.	WR1E,PD8
6	Require the PolyMet Company to show that their waste rock and tailings piles won't collapse and dump uncontrolled pollution into nearby waters and that they will not create water pollution that lasts for hundreds or thousands of years.	GT2
6	Analyze all of the impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources. Mercury in fish causes brain damage to children and to the fetus.	WR4B
7	4.6-32-However, while energy use is reduced by one-half, greenhouse gas emissions do not decline per unit of production from what would be expected ... principally because of the large load of non-energy process emissions associated with hydro processing." How could a cap and trade policy or carbon tax affect the economic viability of this plant?	PD4,AQ3
8	As the owner of both a resort facility and a Boundary Waters canoe outfitting business, I find it unbelievable that the DNR and the Corp of Engineers, have the sole power to determine if northeastern Minnesota will exchange its present sustainable tourism industry (a billion dollar industry- www.exploreminnesota.com) for a "non-sustainable" sulfide mine (and possible sulfide mining district) that will destroy our natural resources and forever more alter the incredible beauty of the lakes region of northeastern Minnesota for the sake of PolyMet's 400 short term jobs, and additional spin off jobs for a lifespan of just 20 years. The questions for you to evaluate are: Is this really what we want for this part of our state? Do we want to forever more change surrounding forests and wetlands as they are today? To no longer count on clean water? To deal a fatal blow to the sustainable tourism economic base of this area?	WR4C,G7B,G7C,G11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
9	I think mining and processing sulfide ore bodies would be a mistake because of possible toxin and most certainly long term pollution problems. If the mine went into production and there were immediate problems, would it be possible to even stop production to resolve problems with pollution, I don't think so. I think the mine would stay in production and the EPA would have them resolve them but centive production. Assuming the mine life we reached, I think the long term pollution risks are very high. Apparently the project will use an existing waste basin that has problems of its own now. I don't think that should be used. Even using the latest technology to use the pits it wouldn't be long enough to hold the pollution indefinitely. This is not acceptable. Minnesota tax payers will have to pay for maintenance of the waste rock.	EOO,G4A
10	younger workers as well as retirees and other populations in its midst." I'm for retiree's. This is age discrimination being promoted by PolyMet's business partner and is indicative of an illegal civil rights violation Don't count on Minnesota Power. Margaret and PolyMet are with corporate health care and they want to profit from their pollution making you and your grandchildren sick and disabled.	EOO
11	It is a resilient aspect of Anglo Property Law that the use of land should be privately withheld from use. This is the Rule of Perpetuities in estates that provide for the public policy in favor of the marketability of land. The Brownfield that will be created by PolyMet is against public policy and violates the Rule of Perpetuities. The Brownfield will result in unusable land for the foreseeable future. It is a violation of principles of morality and good public policy to spoil a valuable commodity such as land. The Ladysmith Mine in Wisconsin was set up as an industrial park. No private businesses have chosen to locate at the Ladysmith industrial park and none are expected.	EOO
12	1) Analyze the land that is going to be exchanged for Superior National Forest land to make this project possible. Make sure that the land swap would protect wetlands, endangered species, hydrology, tribal rights and taxpayers' interests.	PD1
13	4) Get better information on existing pollution, the nature of wetlands, endangered species, wild rice stands and other resources that would be affected by the project.	WR1E,WI5,WE2
14	5) Require the PolyMet Company to show that their waste rock and tailings piles won't collapse and dump uncontrolled pollution into nearby waters and that they will not create water pollution that lasts for hundreds or thousands of years.	GT2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
15	Mining in Minnesota has never been quite as magical as politicians and offspring of miners who have left the area and the mining work behind would make us believe. Although Amy Klobachur plays the "My Family were Miners Card" often in public, I would bet that her grandfather didn't sit her down and try to talk her into being a miner and not going to college. Do we think less of the unemployed in Northeastern Minnesota? Don't they deserve an education and training so they may be a part of the growing information, networking, knowledge communities that will continue to grow and expand for hundreds of years? Or do we need to consign them to another short cycle non-sustainable extractive industry. When iron mining started its economic decline here about 25 years ago, politicians made one of the biggest economic blunders in Minnesota history. They dictated that mining in Minnesota should increase and threw millions of taxpayer dollars into that very specific effort, which continues to the day. This is akin to dictating to state agencies, at the beginning of the oil crisis that we find ways to use up more oil. The DNR's Department of Minerals and the University of Minnesota have been "endowed" with the legislative edict to "increase mining in Minnesota" How much money has been spent in this endeavor will probably never be totally accounted for. But from the amount spent recently on the Polymet pep rally in Aurora, paid for by Minnesota taxpayers and meant to be a public meeting by the DNR for the exposure and discussion of the DEIS on the first project for Cu-Ni mining in Minnesota, it is more than apparent that mining is still a very narrowly defined expensive effort being severely and intently pushed on the Minnesota populace. (See Exhibit A , end of comment section) When iron mining started its decline would have been an opportune time for everyone in the state to re-evaluate the "all our eggs in one basket" economic approach of mining in Minnesota. Especially in light of the one of a kind boreal forest wetland resource beginning to be transformed into the Boundary Waters Canoe Area Wilderness. Someone realized the value of this land; unfortunately it was not the same group of people who controlled the funding for mining development in the state. To this day there are northern Minnesotans who are trying to "get over on the man" with their illegal excursions and activities in the BWCAW, with applause and support of a few others here. It is understandable that people would be upset with the loss of jobs, the decline of an industry and the replacement of a personal no-rules playground with a structured somewhat restricted public area with rules. So the initial reaction of let's find ways to bring mining back and the reaction to the forming of the BWCAW might be understood. But years later, some have not progressed beyond the knee jerk reactions formed over 25 years ago. Where might we be today if at least a part of the funding that has gone towards mining, a proven cyclical industry with a hard down side, had been put toward an effort for new sustainable truly long term jobs? We have a very specific state department for expanding mining, The Department of Minerals. We do not have a state department for the establishment of long term sustainable jobs that concentrate on the health of individuals and the planet. Nature has so many other uses besides extractive industries it is rather amazing to "an outsider," I've only lived here about 26 years. That Minnesota hasn't made a concerted effort to put at least some of their eggs into a healthier relationship with the value of Nature in this state is sad and amazing. The Trust for Public Lands has published an eye opening document entitled "Conservation: an Investment that Pays" that points out the economic value of Nature. The inspiring part of this document is that it is based on research. It is not an opinion piece; it offers many pages of references to the research upon which their con	G1
16	JOBS JOBS JOBS! Another of the mining companies Mantras. And, they are important, too important to leave to foreign extractive industries. How about repairing our bridges, roads, dams, pipes and the rest of our crumbling infrastructure? How about rebuilding the decimated American Forests, clean energy, information systems, computer and networking and telecommunications systems to make us again a leading nation rather then the laggard we've become. Building knowledge communities? Many other nations are doing just that. Many of our "leaders" haven't even heard of it. How about cleaning up our polluted planet? Why can't Minnesota be a leader in earth stewardship? We could be. Any of the above job ideas could be significantly more rewarding for workers than anything you can dream up with extractive industries, and better for the planet. It's past time for us to significantly alter our ways.	G1
16	Please pay close attention to the comments of the tribal communities and individuals, scientists, and ex-iron miners who have weighed in on this issue and disagree with proceeding with Copper Nickel Sulfide Rock Mining in Northeastern Minnesota. I agree with the There is currently no scientific justification for it. A moratorium is the only sensible approach, one comparable to Wisconsin's.	EOO,G12

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17	On a global scale how much fresh water do we have in Minnesota? What is its value? What is its value polluted with heavy metals and acid mine drainage? What is the value of an unpolluted 100 mile swamp for sequestering carbon?	AQ4
17	I searched and could not find any such Executive Order for the State of Minnesota relating to sustainable, healthy, environmental, eco-system improvement, re-forestation, protection of our states resources, or protection and expansion of our thriving nature based tourist industry. Unfortunately for all of us we have not progressed beyond the beliefs and directives of 1985. And, unfortunately no one, then or now has looked past these shackles to determine a better course of action. Fortunately there are MANY better courses of action for the state than Copper Nickel Sulfide Rock mining at this point in our nation's history.	EOO
18	"A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it intends otherwise" Aldo Leopold I started my search for information on Copper Nickel mining believing that I would find someone who could show us that a safe way to do so had been developed; and, that No pollution would be permitted by such mining since it would take place in one of the last major fresh water reservoirs in the world. (Watch the video "The Flow" to understand just how rare and valuable the fresh water of our region is globally http://www.flowthefilm.com/trailer.) But, all that we have been given are mining company propaganda and bullet points and political and governmental agencies who are trying harder to justify pollution, yes they are trying to minimize, but everyone admits many pollutants will be placed in our water supply by this mining and the cleanup will go on for centuries. This is totally unacceptable to me in this point in the history of our polluted planet. We personally believe that the way to true long term rewarding jobs is with Nature not against it. A recent MPR article probably represents best what our customers feel, or would feel if they knew about the threat of Copper Nickel Sulfide Rock mining here. Copper Nickel Sulfide Rock mining is probably the greatest threat to tourism and will severely affect all of our businesses if permitted to pollute the watershed here. http://minnesota.publicradio.org/display/web/2010/01/12/loch/ The first lumbermen to discover the vast stands of white pines in Minnesota probably didn't think they could ever cut them all. But, those hard working lumbermen left us only about 2% of the white pines and none of the yellow birch. Across this country 95% of the old growth trees are gone. The Texas oilmen at the turn of the century claimed they would be able to pump oil "forever" from the vast oil fields there. Today there is little oil left in Texas. No one ever imaged that we would be able to deplete the oceans seafood supply, but we are well on our way to doing so. 95% of all the big fish in the ocean are gone. And certainly no one would have thought we would have allowed over 300 water pollutants into our water supply, 80% of which are not removed by current municipal water treatment and go untested in over 98% of municipalities. We ignore the mistakes of our past at our own peril. We do not however have to participate in any further degradation of our water supply and water table here in northeastern Minnesota. We can stop and think and NOT act on permitting Copper Nickel mining here UNTIL we know for certain that NO DAMAGE to the environment will occur because of it. The copper here isn't going anyplace and will only increase in value over time, giving us time to require an absolutely safe non-polluting mining method that is fully real-life tested, elsewhere first. Copper Nickel mining has never been done without significant pollution and high costs of cleanup in the communities where it has been allowed. And, those mines have always been allowed with the grand expectation of jobs and wealth for those communities. But, the wealth goes to foreign corporations and the cleanup costs goes to the local community and the public. Study closely what has happened in Wisconsin and you can only come to the conclusion that since no mining companies have ever gone back to prove to Wisconsin that Copper Sulfide Rock mining can be done in an environmentally safe manner that it probably isn't possible. PolyMet has only "proven" their system on a very small scale pilot plant operation. I'm certain that in the laboratory or pilot scale this might be possible. But, we cannot afford any failure, the cost to our well and water system is just too great.	G7A
18	What could be the value of a re-constituted forest industry, not just Popular for pulp, but a sustainable, white pine, red pine, and hardwoods forest mixture designed for the long term health and wealth of Minnesota and Minnesotans.	EOO

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18	The remedial efforts described in the DEIS are so puny and inappropriate for the protection of that ecosystem that the whole process needs to be scrubbed and reworked. We the people of Minnesota, the drinkers of its waters, do not want any addition to the pollution already occurring from existing tailings ponds. Demand that the mining companies stop trying to "whitewash" their process with terms such as "mining sand" when in fact it is the same consistency as "mining slime" from the taconite industry but worse do to its acid nature and content of heavy metals.	WR1E
19	By the way, I didn't see any mention of the manner in which amphibole asbestos fibers will be handled or "remediated." Isn't that a significant oversight? Some mining company representatives have been upset with the non-scientific presentation of information against their proposals.	AQ4C
19	And, the manner in which Polymet attempts to circumvent the 100 mile swamp and "dilute" pollutants in the Partridge River is not acceptable. The effluent "into and out of the well" shell game is preposterous. Have none of these engineers looked at the history of Dow Chemical Companies' disastrous results in putting waste back into wells they had pumped out? Are they unaware of recent data showing that pollutants thought to be contained in deep wells were leaking into a multitude of levels. Some pollutants, thought contained, reappeared even at ground level because NO ONE knows where the faults and underground water passages are.	WR1E
19	Our present life style and lax regulation of industrial polluters is permitting pesticides, herbicides, pharmaceuticals, plastics and a myriad of chemicals to end up in our water supply. These are believed to be one of if not the cause of rapid increases in asthma, Alzheimer's, youth behavioral problems, cancer, autism, and Parkinson's diseases, and others. What more do we need to know about that connection? We cannot afford any further degradation of our water supply and should be doing all that we can to improve it, but we are not. Instead, our politicians have decided that we can tolerate a little more pollution of our waters, within regulations (regulations that equal a permit to pollute), for the politically expedient and popular JOBS they promise. Take a look at the pollution on. both coasts, The Chesapeake Bay and the Duwamish River in Seattle in "Poisoned Waters" http://www.pbs.org/wgbh/pages/frontline/poisonedwaters/view/ A Boei ng environmental engineering stated that he didn't think we should expect to ever again subsistence fish, as the Native Americans attempt to do, in the Duwamish River currently a Federal Mega Super Fund Site. It seems once we create pollution we cannot clean it up. How about, we just don't muck it up in the first place? We all need to live in a healthy environment and to be healthy. How can you live without health or without life giving clean water? Where ever you live you tap into the water supply, municipal, personal well, or purchased from some supplier. How much mercury, heavy metals, pharmaceuticals, acid or other pollutants would you allow in your well or source of water, none, just a little, or a lot? Few of us would allow any if we thought about it. But, it seems if the well is big enough and a few miles from our personal well, we somehow think that will not affect us if we allow or permit that pollution. It all adds up and ends up in OUR well. Let's not! Another very good video pointing out how serious pollution of the planet is can be seen in "11th hour" http://www.youtube.com/watch?v=71BG2V98IBY The water, the wetlands, the plants and myriad creatures from the microbes to the mega fauna, many of which we have yet to identify according to the Biologist E. O. Wilson, depend on uS not to destroy a balance we have little or no knowledge of.	G7B
20	I have been associated with mining all my life. My father worked for a mining –dependent industry—the railroad in Two Harbors. My father-in law was a miner in Bessemer, WI. My late husband was a metallurgical engineer, was Ass. Superintendent of the milling dept. at Tennessee Copper and Supt. of Pilotac, the experimental plant that preceded U.S.X's Minntac. The smelter emissions at Copper Hill, Tennessee killed vegetation within the 100 squa re mile Copper Basin. Fertilization brought some vegetation back.The ores have given out so the area is probably now green. A proposed autoclaving process that Polymet will use has not been tested in a full-scale operation, will emit 12 1/2 T/yr. of sulfuric acid mist, 68 T./yr of NOX + other pollutants. A Dr. Thomas Powers from Montana has testified that mining is not as big a part of our economy as most people think, maybe as low as 35%. Once mining is over, tourism will be the mainstay of our economy. Tourists will not come here is there are fish adviseries.	G11

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21	The metal content of Polymet's ores is low so 350' high piles of waste rock will be built. These piles will be lined, but the leakage from liners can be predicted. Sulfates will leak into the groundwater and triburtaries of the St. Louis River, interact with mercury and bacteria in the sediments to produce methyl mercury, the substance responsible for fish adviseries. Brain damage is the result if pregnant women and infants drink water contaminated with methyl mercury. The health of adults who eat a lot of fish will be adversely affected. Nickel is known carcinogen. If cobalt and nickel are together, the mix is toxic to fish. The platinum group of metals are toxic. The DNR and the PCA should check Nickel's operation at Sudbury, the Tennessee Dept of Health for similar affects due to Tennessee Copper's operations and the Montana dept of Health for numerous health and environmental effects caused by mining operations there. Dr. Samuel Blowes of the University of Waterloo has examined about 10,000 mine sites, found varying amounts of damage in all.	EOO,WR4B
22	In telecommunication, fiber optics are taking the place of the copper wire. Wetlands will be destroyed by mercury affected waters; migration patterns of wildlife will be disturbed. If Polymet is permitted five other companies will follow audit. Drainage from some of these will reach waters of the Boundary Waters Canoe Area Wilderness, eventually running into Canada. This could cause an international incident. We could end up with one or more Superfund sites. A South Dakota company went bankrupt, forfeiting a sizable bond that taxpayers had to pay for.	G2C,G7C,G9
23	A cost benefit analysis which weights the impact of jobs and tax revenue versus the cost of serious environmental and health effects plus the cost of rehabilitating Superfund sites should be done before a permit is granted. Short term benefits should not out weigh long term costs.	SE3
24	The Minnesota DNR and the Army Corps. of Engineers are creating an Environmental Impact Statement on a new type of mine being proposed for Northern Minnesota near the Boundary Waters Canoe Area Wilderness, and 50 miles from Voyager National Park. This mine is different from long established iron ore mines that Minnesota has had over the years. These proposed mines~ contain among the copper, nickel, platinum, and silver, significant deposits of sulfide. The sulfur in the resultant mine tailings could leach off into the surface and ground water, creating yellow and red streams and creeks with toxic heavy metals and sulfur. Water that contains heavy metals and sulfuric acid kills fish, birds and other aquatic life. The watershed for these proposed sulfide mines includes the Kawishiwi River which flows into the Boundary Waters Wilderness, and includes the St. Louis River which flows into Lake Superior. Contaminated water flowing from abandoned mines is one of the most significant contributors to water pollution in the United States. A toxic form of pollution caused by sulfide mines is called Acid Mine Drainage (AMD). AMD can have severe impacts on aquatic resources, killing microorganisms, insects, fish and other aquatic life. It stunts terrestrial plant growth, harms wetlands, contaminates groundwater, raises water treatment costs, and damages concrete and metal structures. There are several thousands miles of streams impacted by AMD within the United States. The economic losses on fisheries and recreational use mounts to hundreds of millions of dollars' annually. See appendices C and D. AMD causes elevated levels of dissolved metals and sulfates, which render the stream unsuitable as a source of drinking water for humans, livestock or for use as aquatic habitat for wildlife. Because of the potential for Acid Mine Drainage, sulfide mines require treatment systems to ensure that acidic water is not discharged. These systems must be in place for the life of the mine, and continue in perpetuity to treat acidic waters after the mine is closed. Due to the ongoing treatment process, the risk of discharging acidic water increases over time. Water treatment systems at reclaimed mining sites is complicated by changing levels of ground water and fluctuating rain fall levels over decades and centuries. If movement of the acidic water is not contained within an impermeable barrier (e.g. pipe, plastic, glass, etc.) the acidic water flows into the underlying groundwater system. Once the acidic water enters the groundwater system, the detrimental affects on flora and fauna becomes widespread. Containment and treatment of the affected groundwater system is difficult, if not impossible.	WR1E,WR3I
25	Unlike many dry Western states, Minnesota is rich in water resources that are especially vulnerable and are a great part of Minnesota's outdoor heritage for anglers, canoeists, duck hunters and of course wildlife. Our neighbors in Wisconsin have a moratorium on mining metallic sulfide ores written into law. In effect, the Wisconsin law says: "Industry can mine metallic sulfide ores in Wisconsin when it can show one mine in the United States or Canada that has operated and been closed for ten years without significant damage to its watershed." See Appendix A.	EOO

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25	Therefore, funding for long-term treatment of acidic waters and long-term responsibility and liability for environmental protection is on going. Mining companies and sulfide handling operators may not be perpetual and often go bankrupt. As a result, there are many examples of operators abandoning properties that discharge acidic water and requiring public money to clean up the site. See Appendix B.	PD4
26	Honestly how do you think this kind of mining can be safe as far as pollution is concerned when it's NEVER been non-polluting before?? NEVER! And NEVER has a mining company taken responsiblility for the clean up. NEVER! I live in the Superior National Forest. THis will affect me and I'm outraged that this project may proceed before you're sure its safe for the environment.	EOO
26	To ensure the protection of Minnesota's water resources which are critically important for anglers, canoeists, hunters, and the wildlife which depends upon these water resources, which include the Rainy River drainage which flows into the Boundary Waters Canoe Area Wilderness and Voyagers National Park, and the st. Louis drainage which flows into Lake Superior, the Walter J. Breckenridge Chapter of the Izaak Walton League of America supports legislation which bans the use of perpetual treatment systems for mine tailings and the discharged water that is produced by mines. The Walter J. Breckenridge Chapter of The Izaak Walton League of America further urges Minnesota to not permit any new mines that require ongoing water treatment after the mine was reclaimed.	G7A,G11
27	I live in Embarrass, Minnesota and I am concerned about the effects that copper nickel mining might have on my water supply. The DEIS seems to think that it's ok to have a lot of metals and chemicals in our water. I am concerned about the cumulative effects of these metals and chemicals on our health.	EOO
28	How will this mining affect the wildlife in my area? The people here enjoy living where we can see a lot of wildlife. How will water pollution affect the fish?	WI5
29	The PolyMet DEIS shows me that this mine will be very damaging to the environment, that there will be a lot of waste rock, and that our water will be filled with chemicals that we don't want to drink. What laws allow this to happen in one of the least contaminated parts of the state?	G2,G7B
30	We understand the struggle to find jobs and support families and local economies. However, the boom and bust cycle that mining brings is not the sort of sustainable economy we need. The new jobs projected for the project are speculative and short term. Many of them may well be contracted out to companies with no ties to the northland; locals may see few benefits. PolyMet's profits belong to a Canadian company and the minerals that would be mined will be sold on a world market; our state, even our nation, will see few if any benefits. Weigh this against our healthy tourism industry along with the invaluable ecosystem functions provided by healthy lands and waters, and the proposed action makes no	G1
31	Impacts of acid mine drainage. There bas never been a mine of the type proposed that has failed to pollute adjacent land and watersheds. The DEIS claim that PolyMet can avoid this seem to be based on new untested technologies. There must be detailed plans in place in case these new technologies fail. Similar operations in dryer environments bave been disastrous; here, in an area rich in surface and ground waters, all interconnected, the result could be catastrophic.	WR1E
31	The exchange of public land for a project that will destroy the natural values that current management (by the Forest Service) protects. The site of the proposed mine was singled out as being unique and significant by Forest Service and DNR scientists in the late 1990s. The proposed action would permanently erase a good part of an already dwindling resource.	PRO4
32	Disposal of waste. PolyMet plans to use tailings basins that are currently leaking and in violation of state law. State and federal regulatory agencies have failed to take action. How can we be assured that our health and natural resources will be protected from the more toxic waste that will be generated by the proposed action? The DEIS does not answer this question.	PD2
33	Very long term effects. Impacts to the environment that may occur after Poly Met is gone (which may be sooner than the projected 2 - 3 decades, due to market fluctuations, the company's solvency or adjusted priorities, etc) need to be scrutinized in detail. Exactly how will adequate water treatment be accomplished as the decades and centuries roll by?	RFI

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34	Risk to aquatic resources. There is a high potential for mercury methylation as a result of increased sulfate concentrations in seepage from the tailings basin to surrounding wetlands. Impacts to wild rice stands are just one of the many aquatic resources that the DEIS fails to address, or addresses inadequately.	WR4B,WR4F
34	Financial assurances. In light of the history of similar mining projects around the world, assurances that taxpayers won't be left with a colossal clean up bill must be iron-clad, and currently, they are not.	PD4
35	Loss of habitat for the Canadian Lynx. Can this loss, to an endangered species, of hundreds of acres of critical habitat be adequately rationalized or mitigated?	WI1
36	Damage to the wild character of the area. The impacts of the proposed project on the character of an area that millions from around the world visit for its beauty, peace, good fishing, spiritual renewal and all sorts of intangible values should be considered. Will people continue to flock here with this sort of mining going on?	EOO
37	Please postpone final approval of this mine until the company commits to additional environmental and economic protections. I believe it is important that waste pits should be leak-proof for hundreds of years, rather than the 65 years the company proposes. Additionally, we must have ironclad guarantees that the money for cleanup is in a fund that is secure against any changes in ownership. Otherwise, a future bankruptcy could dump massive cleanup costs on taxpayers.	G4A
37	In my role as CEO of a Minnesota-based company, I keep a close watch on significant potential developments that may affect the economy and, in turn, the market for my company's product. Although the recession has slowed momentum on some of the major industrial developments on the horizon for Minnesota's Iron Range, the growth prospects there remain critical to the future of our company and the job security of our employees. I believe that Polymet can run its operation in an environmentally sound manner and create hundreds of good jobs to help turn around a weak economy in our region. Perhaps, more importantly, if Minnesota can show the world we know how to strike a balance between jobs and legitimate environmental concerns, the NorthMet project can be just the beginning of an exciting new industry in our state. As an avid outdoorsman, I wholeheartedly support the diligence that's gone into making sure that Polymet's processes will be conducted in such a way that Minnesota's environment is protected and sustained for generations to come. As I understand it, this project has been designed to minimize environmental impacts; reusing a brown-field site, reusing existing infrastructure, minimizing disturbance of wetlands and utilizing multiple safeguards to protect the environment. I appreciate the thoroughness of the review process to date and I believe it's time to move forward. That's why I'm writing to urge approval of the EIS. Thank you for your consideration.	EOO,G6
38	WHEREAS, PolyMet Mining Co. proposes developing a copper, nickel, platinum, palladium, gold and cobalt mine and an ore processing plant at the former LTV Steel Mining Company plant near Hoyt Lakes; and, WHEREAS, It is projected that PolyMet will create 400 fulltime jobs with a payroll of $40 million and more than 500 spin-off jobs with a $242 million payroll in St. Louis County alone; and, WHEREAS, Construction of the $600 million NorthMet Project will require about 1.5 million construction hours over two years; and, WHEREAS, PolyMet worked wi th federal and state regulatory agencies in drafting an Environmental Impact Statement (EIS) exploring potential impacts and ways to address them; the draft EIS demonstrates PolyMet can mine these metals AND protect air, water and natural resources; and, WHEREAS, PolyMet will provide millions of dollars in local and state taxes to provide much needed support to our communities and educational system; and, WHEREAS, PolyMet will have a positive economic impact on the City of Hibbing just as LTV Steel Mining Company had when it was operating. NOW, THEREFORE, BE IT RESOLVED, That the City Council of the City of Hibbing hereby go on record in full support of the Poly Met Mining NorthMet Project. The motion to adopt the foregoing Resolution was duly supported by Councilor Jack Lund and upon being put to a vote, carried as follows:	EOO
38	I also ask that you continue the public comment period on this issue beyond February 3. Many of us only became aware in the past several weeks of the plan to mine copper in Northern Minnesota. We need time to research this issue and offer informed comments.	PRO6

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39	We the members of the East Range Sportsmen & Conservation Club appreciate the opportunity to express our support for the PolyMet Mining Co. project. We are all concerned about our environment. We want to protect it, so that our children will be able to use it Anne enjoy it as we have. From what we can see from the 700 plus review, PolyMet Mining Co. will do the utmost to preserve and protect the surrounding environment. PolyMet Mining Co. will go forward with the state of the art design to manage waste rock and protect the surrounding waters. We would like to thank you for your effort with this environment statement. We the members of the East Range Sportsmen & Conservation Club strongly urge you to approve the statement so that PolyMet Mining Co. can start forward with their operation and bring the long needed jobs to our communities.	EOO
39	(4.1-112) PolyMet's proposal to construct a wetland for the purpose of treating contaminated water is - at this point - merely an idea. It would be prudent to require full-scale testing of this key component before relying on it to protect such high quality watersheds and important wilderness areas as the nearby BWCAW. From my understanding, a treatment wetland of this scale has never been tried. Previous tests of small-scale treatment wetlands have shown wide seasonal variations in effectiveness. Moreover, no-one knows if these wetlands can continue to uptake pollutants over the hundreds or even thousands of years that they will remain necessary. Failure of this system would require very long-term and costly treatment by alternate means - most likely paid for by Minnesota's taxpayers.	WR3B,WR3L
40	As climate change continues to threaten the water supplies of many western states, and Minnesota's own population continues to grow, I have no doubt that high-quality water will be in short supply. According to the U.S. Government Accountability Office, at least 36 states will face catastrophic water shortages within five years due to a combination of drought, rising temperatures, pollution, urban sprawl, and population growth. In light of these circumstances, it is easy to see that Minnesota's access to abundant, clean water is precious and unique. In fact, it is, or soon will be, much more precious - and essential- than the metals contained at the PolyMet mine site. Water also happens to be a renewable resource able to sustain Minnesotans for generations - if protected. In contrast, the metal contained at the NorthMet site is expected to be gone in one generation. Trading away generations of valuable, clean water for a quick profit is not a tradeoff that is in the best long or short-term interests of Minnesotans.	G7B
40	My second concern with the NorthMet DEIS is in regards to the probable negative impacts the project will have on the area's water quality. The DEIS states that water from waste rock piles will likely remain contaminated with heavy metals - including mercury - and sulfates for up to 2,000 years. After only 65 years, this contaminated water is expected to overflow from the west pit, contaminating nearby water bodies for up to the following 1,945 years. In addition, seepage from the tailings pit is expected to create "high risk situations" for mercury methylation in wetlands and lakes downstream on the Embarrass River.	WR4B
41	We are writing to you to express our deep concern over the proposed PolyMet Mining Project near Hoyt Lakes, Minnesota. This non-ferrous mining project is fraught with serious environmental issues concerning water and air quality in the BWCAW and surrounding areas. We know you have reviewed the environmental lmpact Study that was recently released for the project. Therefore, you are aware of the significant threat this type of mining operation poses to our environment, including acid mine drainage, mercury methylization, and the use of the same LTV tailings basin that is already leaking. This new operation poses new threats for sulfuric acid runoff and higher levels of mercury contamination to our already polluted waters. The technology that PolyMet proposes to use to control these and many other pollution issues is untested and unproved. The State of Wisconsin has banned non-ferrous mining as a result of the environmental concerns with this type of mining and as a result of the past environmental disasters associated with it. The economic benefits of the proposed project and others like it are relatively short term and are not sustainable. The environmental costs, however, are long term and will impact our grandchildren and future generations for many, many years to come. The jewel we know as the BWCA Wand its surrounding areas are too delicate and too important for our culture and to our environment to trade for short term gain. We respectfully urge you to deny your support for non-ferrous mining in Minnesota, until the mining industry, and especially PolyMet in the short term, can demonstrate the "proven" technology needed to prevent serious environmental impact. Future generations are depending on you to do the right thing. So are we.	G2C,G7A,G12

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41	The voting members of the Community Economic Development Joint Powers (CEDJP) support the Polymet Mining Company NorthMet Project. The CEDJP was created under Minnesota Statute and our purpose is to create and support a sustainable economy for our area and to enhance the quality of life for our residents. The Community Economic Development Joint Powers recommends the decision of adequacy for the Environmental Impact Statement. We firmly desire that the project protects the environment. We live here and our community members care as much or more about protection of the environment. We believe the Draft Environmental Impact Statement supports an informed decision by the multiple agencies with responsibility to approve the project that meets the intent of the National Environmental Policy Act (NEPA) to fully and thoroughly disclose the potential environmental, social and economic impacts of the project. The draft EIS also includes numerous measures and proposed actions with recommended alterations and mitigations to assure that it meets the needs of the project proponent, the economic needs of the local communities and protects the environment. The economic benefits of the NorthMet Project are substantial and that is critical to the long term sustainability of our local area's economic well being. Clearly, local communities will be harmed if the project is not approved for anything but clearly legitimate reasons. The project will significantly contribute to the state and local economy with over 400 employees and hundreds of spinoff jobs. If the agencies do not approve the project, all local people and communities will be substantially harmed. The economic benefits of wages, services and taxes to support our communities and educational system are huge. The jobs created by the project are needed by our region and state. We believe in environmental responsibility. The draft EIS thoroughly discloses the impacts and how they can be minimized to acceptable levels to achieve the purpose and need of the NorthMet Project. Polymet Mining Corporation has demonstrated its commitment to environmental protection of this area that we as locals expect to be protected, with the years of exhaustive study that have been performed to fulfill the purpose of the NEPA and support an informed decision to approve the project. The EIS has been prepared with the full participation and oversight of several federal and state agencies with jurisdiction over the project and permits, including the Minnesota Department of Natural Resources, the Army Corps of Engineers, Minnesota Pollution Control Agency and other cooperating agencies. We as local communities must depend upon these agencies with the technical expertise to perform this analysis. Based upon our participation in the process and review of the EIS, we believe these agencies have fulfilled their obligations to the communities and citizens of the State of Minnesota to supervise and direct the preparation of the EIS. The environmental impact statement has been performed in consultation with the local communities. In addition to formal scoping directed under the direction of the agencies, Polymet has taken numerous and extraordinary measures to inform the public, including several open houses to inform the public of the proposed project. We note that in addition to supporting economic development and assuring environmental protection, the project can produce metals essential to our national security and to green technology such as wind turbines and hybrid cars and metals necessary for pollution prevention devices such as catalytic converters. The positive outcome of the project, in addition to the jobs created, will be a domestic supply of critical metals needed in medical applications and multiple technological products essential to the livelihood and security of our state, country and world. It has been a longstanding policy of the state to encourage the development of minerals. Northern Minnesota has a	EOO,G10
42	I grew up in Duluth, and I understand the desperate need for jobs in northern Minnesota. However, it is completely unsustainable to allow sulfide mining in Minnesota for a short-term gain in jobs at a very long-term loss in water quality. The clean-up costs associated with the sulfide mining contamination over the 2,000 years expected by PolyMet (DEIS, Table 4.1-45), will drain the Minnesota economy far greater than sulfide mining will contribute to the economy. New Mexico has required that some mining companies pay $400 million upfront in financial assurance for clean-up costs. Minnesota - at a minimum - should require the same from PolyMet.	PD2
43	(4.1-112) PolyMet's proposal to construct a wetland for the purpose of treating contatninated water is - at this point - merely an idea. It would be prudent to -require full-scale testing of this key component before relying on it to protect such high quality watersheds and itnpoliant wilderness areas as the nearby BWCAW. From my understanding, a treatment wetland of this scale has never been tried. Previous tests of small-scale treatment wetlands have shown wide seasonal variations in effectiveness. Moreover, no-one knows if these wetlands can continue to uptake pollutants over the hundreds or even thousands of years that they will remain necessary. Failure of this system would require very long-term and costly treatment by alternate means - Most likely paid for by Minnesota's taxpayers.	WR3B,WR3L

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44	(4.13-2) The stability of the existing LTVSMC tailings basin that PolyMet plans to use for their disposal is a well-recognized concern. The existing basin has been documented to contain fines and underlying soils that create a "low margin of safety" for its long-term stability. Rather than generating a plan that satisfactorily increases the safety margin of the basin, PolyMet concedes that "further design and analysis is needed."	GT2
45	What concerns me is the 1200 acres to be filled or drained at the headwaters and watershed at the Partridge River, by Polymet. The Partridge River feeds Colby Lake, where the city of Hoyt Lakes gets its drinking water! It appears to be the only source of water, as the city has drilled wells in earlier times without success. The feeder creeks are extremely low in the summer and some dry up, that feed the Partridge. Even that river gets very low at different times! Colby Lake needs a certain depth of water, as Minnesota Power has its generator plant located on the lake and uses the water for cooling. Further, a diversion plant was put in to feed Whitewater Lake (man made) next to Colby to divert water back to Colby during low water times of the year. Minnesota Power owns all the land around Whitewater Lake and is developing lots for sale and private holdings. If Polymet screws up the water levels or quality of the water from the Partridge it will cause major problems for Hoyt Lakes, Minnesota Power, Whitewater Lake and the St. Louis River!!!.	WR3F
46	This letter will serve as official notification that I support PolyMet Mining. Based on the extensive documentation as outlined in the DEIS, I am confident that impacts to the air, water or land will be minimal, if any. I believe that PolyMet will produce these metals in an environmentally sound way and generate significant economic activity in a depressed area. I have lived in this area most of my life and I am obviously concerned about our environment, not only for myself but for my family as well. My husband and I also own a couple of businesses in this community and therefore certainly invite an economic boost to the area. We also are outdoors people and are very interested in maintaining a healthy natural environment, not only for my own enjoyment but for the enjoyment of future generations. I also serve as the Mayor of the City of Aurora. As a local elected official, I have a responsibility to ensure the long-term health, sustainability and vitality of my community. As a person who lives, works and plays in the area, I understand the need to balance use of resources like minerals and preservation of resources such as water and air. I feel this EIS lays the proper groundwork for developing an environmentally and economically sustainable project.	EOO
47	The short-term economic gains of the PolyMet proposal NEED to be balanced against long-term risk and cost of clean-up. Additionally, Minnesota's natural water resources are priceless, and the key to its long-term image and sustainable economy. I know that may decision along with many of my friends, family, and colleagues choose to remain in or move to Minnesota because of the BWCA and other natural areas in Northern Minnesota. I was married on the shores of Lake Superior and thousands of others are each year. There are reasons to reject the PolyMet proposal beyond economics. The identity of Minnesota and Minnesotans is at stake. Even if the possibility of environmental disaster is minimal, the destruction would be infinitely catastrophic and a fraction of infinity is still infinity. Do not approve the PolyMet mining proposal.	EOO,G7
48	I believe that the PolyMet DEIS process is not following NEPA regulations. PolyMet is being treated as an isolated mining project, when in truth it is part of copper-nickel-precious mineralization that includes two separate watersheds.	WR3I,PRO4,G9

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Comment ID	Comment Text	Theme Codes
48	I would like to write in support of the Polymet Mining project that is being considered for implementation. To understand why I support the project, it is necessary to know some information about me. I have lived on the iron Range since the age of eight. From the age of twelve, I knew that I wanted to be an attorney. Seventeen years later, I have my own solo practice in Virginia, MN, but while in law school at the University of St. Thomas, I received my MBA as well. Prior to opening my practice, I looked at a number of factors in consideration of opening a firm. One primary reason that weighed in favor of making an affirmation decision to start my practice here was Polymet. People on the Iron Range have become accustomed to the boom and bust cycle of the mining industry and that will not change. Polymet raises the economic floor of the entire region so that the economic busts are not quite as bad. In addition, more people, like myself, will be more inclined to begin opening businesses and venture into the entrepreneurship waters. Mining is the way of life here and that will not change. Outdoor activities are also a way of life here, but that pales in comparison to the need for clean drinking water, fresh air, and uncontaminated soil. No one wants pollution; however we live in an area where some pollution is required in order to sustain the rest of the world. if people want pristine areas, such as the Boundary Water Canoe Area, then they must alternatively have places like the Iron Range. The goal, then, is to have the safest and cleanest form of mining possible. Polymet has achieved that standard by pursuing the policy of having the cleanest copper mine in the world. I know this because of the various statements made by its president and legal counsel, but also because of the EIS itself. The EIS is like a contract and Polymet is the bound party. That policy will be continued as the DNR, MPCA and other various governmental and private agencies monitor Polymet's continued activities, assuming the plan is adopted. Therefore, not only is Polyment starting at an extraordinary high standard but it is seeking to sustain that standard into the future. Therefore, the Iron Range achieves the best of both worlds: continued economic growth And development and doing so in a responsible and clean manner.	EOO
49	The premature PolyMet DEIS process denies the public scoping and analysis of the full extent of this mining district.	PRO4
50	My name is Maureen Johnson. Not far from Ely near the BWCA W, my family, my spouse and I have a place that my grandfather realized was very special and kept for his family to visit. I visit this place whenever I can in any season, to find peace, solitude, and quiet, but also health, hunting, hiking, and friends. I studied biology for my B.A. Several of my jobs were water research in the Ely area by USEPA and the USFS, including field sampling, lab work, and quality checking data. I have 21 years of Superfund work and project management at the Minnesota Pollution Control Agency. I have worked with and learned from scientists in all the fields that relate to environmental studies but especially those that deal with hazardous waste, acutely toxic chemicals, and waste with long-term effects on land, ground water, surface water, and air, and on people and biota. During my work in Ely in the 1970's, the Regional Copper-Nickel Study was gathering baseline environmental data and identifying potential problems, which would be researched subsequently, all for the time in the future when copper-nickel mining would be proposed. My spouse worked on the Study. The State of Minnesota and many government agencies spent a lot of taxpayer money for years of research on flora and fauna, climatology, ground and surface water quality, habitat, geology, minerals composition and developing an understanding of what might be affected and how. Why? The researchers and the funding legislators at the time understood that mining for metals across North America resulted in dead land and dead water. They knew the risks of toxic metals releases were not well understood, and wanted to create a record of the environmental background so that anyone looking at a mining proposal would have the necessary information to evaluate its impacts. A mining company would be able to point to it and say what mining would change and what the company would protect or affect. I understand that the resulting literature occupies four to five feet of a wall at the Legislative Library.	PRO4,PD4,G2
51	I also note that the DEIS generously uses terms to evaluate data including, but not limited to, slow, fast, low, little, high, elevated, significant, insignificant. These are editorial terms that do not belong in a scientific document such as the DEIS without actual data and a discussion about how it relates to other similar data and other numbers arising from the Copper-Nickel Study, toxicity studies, health concerns and risk, and regulatory standards. If other authors disagree about editorial terms, this should be included in,the text discussion. Footnoting disagreement is an insult and makes it appear that the DEIS authors think they know best. Good scientists know that they do not know everything and avoidance of the appearance of arrogance will be better evidence of non-bias.	EOO,PD8,G8

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52	As a former Superfund project manager, I spent years cleaning up industrial and agricultural contamination that was toxic and almost deadly to children and adults. These multi-thousands and multi-million dollar cleanups at taxpayer expense should serve as examples of what not to do. A new venture seldom understands its impacts until it is too late. It appears the pre parers of the DEIS have not even read much of the Study or the subsequent research. It would be easy then for them to say, "I didn't know" when uncontrolled pollution begins to occur. The DEIS basically says that they think bad contamination will not happen, in spite of metals releases in several places nearby which have not yet been controlled and continue to pollute. PolyMet must show that they have a reliable, appropriate capture/ treatment/ extraction/ disposal systems for any and all contamination that might be released, in addition to the financial assurance for performance. No matter who pays the bill, it is always cheaper to prevent contamination than to clean it up later.	G4A
53	I strongly support the proposed PolyMet operation at Hoyt Lakes. As a native of Silver Bay, former resident of the Gunflint Trail, current Babbitt-area wetland and timberland owner, and hardcore conservationist, I am, like all of my neighbors, enthusiastic about the prospect for this new generation of mining operation coming to the area. PolyMet will provide a domestic supply of metals that Americans use every day-nickel, copper, gold, platinum, and palladium-in cell phones, computers, catalytic converters, electric cars, wind turbines, and medical devices. The global environmental and domestic economic impact of producing these critical metals here, and having to impoli less from elsewhere, will be very positive. After all, avoiding mining in Minnesota won't reduce American demand. By mining in the U.S., and specifically here in Minnesota, we can ensure that we have control of the operations and can ensure the most responsible stewardship possible. We should take a holistic view of the global environment. PolyMet's operation in Minnesota will be so environmentally and technologically cutting-edge that it will be a model for the world. The state and federal government's environmental requirements for this mine will be unprecedented. In fact, this mine might even have a positive effect on the global environment. Indeed, the entire human race would benefit from PolyMet's operation being established instead of a mine in some other, less environmentally conscientious country. It would be the epitome of good stewardship envisioned by our nation's great progressive conservationist forebears, like Teddy Roosevelt, who fought for the establishment of the national forest system for just such wise-use applications as this.	EOO
53	This mine is in the Lake Superior watershed, an international water, and the mine is a short enough distance from the international boundary to consider international air quality issues. The DEIS should discuss what obligations the mining company has to the International Joint Commission serving both the United States and Canada ...the Commission rules upon applications for approval of projects affecting boundary or transboundary waters and may regulate the operation of these projects; it assists the two countries in the protection of the trans boundary environment, including the implementation of the Great Lakes Water Quality Agreement and the improvement of trans boundary air quality; and it alerts the governments to emerging issues along the boundary that may give rise to bilateral disputes. (www.ijc.org) Was public notice of this DEIS specifically served to the IJC, the Minister of Environment Canada, and affected provinces?	G2B
54	Native American land and the tribal nations will be affected. They have great concern regarding this project. The final EIS must have the support and fully consider these sovereign nations.	G3,CR2,CR4
55	I feel the Draft Environment Impact Statement (DEIS) is inadequate. It does not go far enough to protect the vital watershed that will be affected - nor does it address the other two major watersheds that could potentially be affected. These watersheds could easily be negatively impacted, or ruined, for thousands of years.	WR2E
56	More research into the potential immediate and long term risks to human health resulting from mercury and acid contamination of the Lake Superior watershed, the Embarrass River, its tributaries and lakes-as well as the long-term affects on the wetlands and wild rice needs to be done. The DEIS is not going far enough to assess the immediate and long-term affects these toxins will have on all of us who depend on the quality of water, which encompasses ALL living things in this region.	WR1E,WR5A,PRO4

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57	PolyMet needs to fully provide financial assurance to protect the taxpayers of Minnesota from the very real chance of long-term pollution. In other such arrangements, the assurance secured by the mining companies responsible for damage to the environment have been woefully inadequate. We need to protect the residents/taxpayers of Minnesota and the long-term viability of this region. It would be negligent not give this issue intensive scrutiny.	WR1E,PD4
58	Claims of "new technologies" by PolyMet have not been properly investigated or proven. Sulfide mining has been done in areas of the western USA and all over the planet Investigation of what the overall environmental effects have been from a random selection of current and completed projects is essential before proceeding .	PD8
59	Analyze all of the impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources. Mercury in fish causes brain damage to children and to the fetus.	WI5,WE2,FM1,AQ6A
60	I am writing to you as a citizen of Minnesota concerned about the PolyMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forest. Sulfide mining would be new to Minnesota. In other locations, sulfide mining has resulted in acid mine drainage causing extensive and expensive damage to water quality and the environment. Often, taxpayers have been stuck with the costs. The PolyMet project in Minnesota could degrade water quality, increase mercury in fish, destroy wetlands and peat bogs, fragment the habitat of endangered species, interfere with tribal rights guaranteed by Treaty and with tribal resources, like wild rice, increase air pollution that results in regional haze and create a risk of perpetual pollution without adequate financial assurance that the public won't end up paying the costs. The Indian tribes working on the EIS and the United States Enviromnental Protection Agency have provided helpful information on the inadequacy of the PolyMet draft EIS. Before this sulfide mining project is even considered for permits, please fill these gaps:	WR1E,PD1,G2B,G2C,G4A,
61	As the U.S. EPA suggested, make sure that financial assurances for the public are included in the EIS long before any permitting process gets underway.	PD4
62	The project could also increase air pollution that results in regional haze and create a risk of perpetual pollution. The PolyMet DEIS states that PolyMet would have no significant effect on regional air quality. This conclusion is taken in isolation. Cumulative effects of other proposed mining must be included in order to make the DEIS adequate.	AQ4,AQ4B
63	Furthermore, the most important fact is that PolyMet does not even own the 6700 acres yet. Explain to me how the state can even consider permitting this mining company without even following the proper protocol for a land exchange? Sounds like you are putting the cart before the horse:	PRO4
64	The PolyMet "NorthMet" copper-nickel strip mine project is proposed to be sited on approximately 6,700 acres of United States Forest Service lands in the Superior National Forest. Pursuant to law, the project depends on the completion of a successful land exchange of Superior National Forest lands for non-federal lands. (POE IS), p. 1-3. The proposed land exchange tracts and the characteristics of such land are not described in the DEIS and have not yet been publicly disclosed. Across Minnesota, there are dozens of applications for permits to prospect for nonferrous metals. Understanding land exchange and mineral rights is critical for the PolyMet Project and for future proposed strip mine development. The need for a land exchange prior to permitting of the PolyMet strip mine project must be transparent to the public and the DEIS, for the PolyMet project must include an analysis of the environmental impacts of the land transfer, including potential impacts on tribal rights. This precludes any possible permitting of the PolyMet DEIS as it stands now. Thus, before PolyMet can be permitted for the land that is to be exchanged for Superior National Forest land to make this project possible must be analyzed. Include impacts of the land swap on wetlands, endangered species, hydrology, tribal rights, and taxpayers' interests.	PRO4

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64	I believe that we as a state have to follow the environmental review law. No way are 400 short term mining jobs worth the risk to our environment, especially our precious water and air. We have to start to think about our future generations and not be so easily persuaded to exchange our natural resources for very few jobs now just because of the poor economic conditions. In better times I doubt we would even consider this drastic proposal. Why are we in Minnesota so gullible to let this happen? Our neighbors to the east have a moratorium on this type of mining … why don't we have this until PolyMet and other hard rock mining companies can prove that is a 100 percent clean project which would result in zero damage to the environment?	WR5A,G10,G12
65	Sulfide mining would be new to Minnesota. In other locations, sulfide mining has resulted in acid mine drainage causing extensive and expensive damage to water quality and the environment. The PolyMet project in Minnesota could degrade water quality, increase mercury in fish, destroy wetlands and peat bogs, fragment the habitat of endangered species, and interfere with tribal treaty rights and tribal resources, like wild rice. The state must analyze ALL of the CUMULATIVE impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources. Mercury in accumulates in fish and causes brain damage to children and to fetuses.	WR3I, PRO4,G7B,G7C,G8
66	I find it unbelievable that the DNR and the Corp of Engineers, have the sole power to determine if northeastern Minnesota will exchange its present sustainable tourism industry (a billion dollar industry-www.exploreminnesota.com) for a "non-sustainable" sulfide mine (and possible sulfide rnining district) that will destroy our natural resources and forever more alter the incredible beauty of the lakes region of northeastern Minnesota for the sake of PolyMet's 400 short term jobs, and additional spin off jobs for a lifespan of just 20 years. The tourism industry of Minnesota contributes substancially to the tax base-... "Unlike US Steel which paid precious little in property taxes on its 3,000 acres ... " Timberjay Newspaper, January, 21, 2010. The questions for you to evaluate are: Is this really what we want for this part of our state? Do we want to forever more change surrounding forests and wetlands as they are today? To no longer count on clean water? To deal a fatal blow to the sustainable economic base of this area?	G11
66	Please take the time to add supplements to the draft EIS and give people in Minnesota a fair chance to know what impact the PolyMet project would have on our State. The PolyMet DEIS describes significant environnlental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers	G10

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67	How can PolyMet be permitted without the land? How can PolyMet be permitting without completing a land exchange for the 6,700 acres needed? As an Industrial Engineer, every project I have ever developed begins with a solid foundation and from there the project proceeds. There are serious flaws in the PolyMet DEIS because the most important aspect of this project is the need for 6,700 acres of land---the foundation for the project, and the land has yet to be exchanged with the USFS. Both the Indian tribes and the United States Environmental Protection Agency have pointed out this very serious inadequacy in the PolyMet/NorthMet Draft environmental impact statement. Before PolyMet can even be considered for permits, the following gaps NEED to be filled: The PolyMet "NorthMet" copper-nickel strip mine project is proposed to be sited on approximately 6,700 acres of United States Forest Service lands in the Superior National Forest. Pursuant to law, the project depends on the completion of a successful land exchange of Superior National Forest lands for non-federal lands. (PDEIS), p. 1-3. The proposed land exchange tracts and the characteristics of such land are not described in the DEIS and have not yet been publicly disclosed. Across Minnesota, there are dozens of applications for permits to prospect for nonferrous metals. Understanding land exchange and mineral rights is critical for the PolyMet Project and for future proposed strip mine development. The need for a land exchange prior to permitting of the PolyMet strip mine project must be transparent to the public and the DEIS, for the PolyMet project must include an analysis of the environmental impacts of the land transfer, including potential impacts on tribal rights. This precludes any possible permitting of the PolyMet DEIS as it stands now. A. PolyMet reserved mineral rights do not support strip mining on Superior Forest Land. PolyMet proposes to develop a copper-sulfide strip mining operation located primarily on Superior National Forest Lands. Although PolyMet has claimed that the mineral rights "reserved" in its 1935 deed authorize mining in any form, the U.S. Forest Service has maintained that the deed does not permit strip mining, so PolyMet must buy land to exchange before obtaining permits for the NorthMet mining project. The analysis conducted by the U.S. Forest Service is consistent with prevailing law. Strip mining necessarily entails massive removal of soil and plant life to access underground minerals. This results in irretrievable loss to the environment as well as a fundamental change in forest land use. Prepared by Bride Seifert, William Mitchell Law School, Intern for WaterLegacy; Paula Maccabee, Counsel for WaterLegacy. Furthermore, why does PolyMet's DEIS not contain an alternative underground mine option? B. Land exchange process requires equal value and environmental review. In order for PolyMet to purchase Superior National Forest land, a land exchange needs to occur. PDEIS, p. 3-1. Under The Federal Land Policy and Management Act of 1976 § 206,43 U.S.C. §1716, lands exchanged must be of equal value, in the public interest and in line with the forest land and resource management plans. Public interest assessment examines the needs of State and local community, looking at the economy, recreation, fish and wildlife as well as food, fiber and minerals. 43 U.S.C. § 1716(a). Environmental concerns are clearly included. A critical first step in a public lands exchange is the public interest determination. No land exchange can take place unless it is in the public interest. The public interest determination considers the needs of State and local residents, fish and wildlife habitats, wilderness and recreation values, economic interests and cultural resources, and watershed issues. 36 C.F.R. § 254.3(1). C. Environmental Review - National Environmental Policy Act. The National Environmental Policy Act (NEPA) calls for the preparation of an Environmental Impact	SE3,N1,CPLU4
67	The advancement and possibility of PolyMet being permitted has destabilized the real estate market in areas of northeastern Minnesota where the MDNR has leased and offered for lease state mineral leases. People do not want to live near a sulfide mine and property values are already being affected by the possibility of PolyMet's approval.	RFI,WE3,WE4,SE4,N1
68	The economic analysis of the DEIS must be rewritten to address the above concerns	EOO,RFI,WI5,WE2,N3,AQ
69	Cumulative impacts must address the loss of revenue to the Boundary Waters Canoe Area Wilderness and Superior National Forest tourist industry as part of a sulfide mining district.	RFI,SE4,N1,AQ3
70	What is the economic liability of transporting crushed rock rather than semi-processed metals?	RFI

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71	How can PolyMet be permitted without the land? How can PolyMet be permitting without completing a land exchange for the 6,700 acres needed? As an Industrial Engineer, every project I have ever developed begins with a solid foundation and from there the project proceeds. There are serious flaws in the PolyMet DEIS because the most important aspect of this project is the need for 6,700 acres of land---the foundation for the project, and the land has yet to be exchanged with the USFS. Both the Indian tribes and the United States Environmental Protection Agency have pointed out this very serious inadequacy in the PolyMetiNorthMet Draft environmental impact statement. Before PolyMet can even be considered for permits, the following gaps NEED to be filled: The PolyMet "NorthMet" copper-nickel strip mine project is proposed to be sited on approximately 6,700 acres of United States Forest Service lands in the Superior National Forest. Pursuant to law, the project depends on the completion of a successful land exchange of Superior National Forest lands for non-federal lands. (PDEIS), p. 1-3. The proposed land exchange tracts and the characteristics of such land are not described in the DEIS and have not yet been publicly disclosed. Across Minnesota, there are dozens of applications for permits to prospect for nonferrous metals. Understanding land exchange and mineral rights is critical for the PolyMet Project and for future proposed strip mine development. The need for a land exchange prior to permitting of the PolyMet strip mine project must be transparent to the public and the DEIS, for the PolyMet project must include an analysis of the environmental impacts of the land transfer, including potential impacts on tribal rights. This precludes any possible permitting of the PolyMet DEIS as it stands now. A. PolyMet reserved mineral rights do not support strip mining on Superior Forest Land. PolyMet proposes to develop a copper-sulfide strip mining operation located primarily on Superior National Forest Lands. Although PolyMet has claimed that the mineral rights "reserved" in its 1935 deed authorize mining in any form, the U.S. Forest Service has maintained that the deed does not permit strip mining, so PolyMet must buy land to exchange before obtaining permits for the NorthMet mining project. The analysis conducted by the U.S. Forest Service is consistent with prevailing law. Strip mining necessarily entails massive removal of soil and plant life to access underground minerals. This results in irretrievable loss to the environment as well as a fundamental change in forest land use. Prepared by Bride Seifert, William Mitchell Law School, Intern for WaterLegacy; Paula Maccabee, Counsel for WaterLegacy. Furthermore, why does PolyMet's DEIS not contain an alternative underground mine option? B. Land exchange process requires equal value and environmental review. In order for PolyMet to purchase Superior National Forest land, a land exchange needs to occur. PDEIS, p. 3-1. Under The Federal Land Policy and Management Act of 1976 § 206,43 U.S.C. §1716, lands exchanged must be of equal value, in the public interest and in line with the forest land and resource management plans. Public interest assessment examines the needs of State and local community, looking at the economy, recreation, fish and wildlife as well as food, fiber and minerals. 43 U.S.C. § 1716(a). Environmental concerns are clearly included. A critical first step in a public lands exchange is the public interest determination. No land exchange can take place unless it is in the public interest. The public interest determination considers the needs of State and local residents, fish and wildlife habitats, wilderness and recreation values, economic interests and cultural resources, and watershed issues. 36 C.F.R. § 254.3(1). C. Environmental Review - National Environmental Policy Act. The National Environmental Policy Act (NEPA) calls for the preparation of an Environmental Impact	SE4,PRO2,PRO3,PRO4
71	PolyMet's DEIS is based upon PolyMet using 1/3 of its plant capacity, as purchased from LTVSMC/Cleveland Cliffs. Excess capacity is planned to be utilized by neighboring Teck Cominco, Franconia, Kennecott and Duluth Metals. The Excess Capacity of PolyMet's processing plant is not addressed in the DEIS. The PolyMet DEIS is inadequate in not allowing for public knowledge or participation in the discussion of the creation of a sulfide mining district in the Arrowhead Region of Minnesota.	SE4,PRO3,PRO4
72	Contaminated discharge from waste rock piles. Water from waste rock pile swill be polluted for up to 2,000 years (DEIS, Table 4.1-45) The St. Louis River watershed is already contaminated with sulfates, which become part of a biochemical process converting mercury into methylmercury. This methylated form of mercury accumulates in fish, resulting in fish consumption adversaries. Allowing PolyMet to store tailings on top of already leaching L TVSMC tailings would increase the amount of sulfates in the watershed. DEIS: "Relatively high sulfate concentrations in seepage from the Tailings Basin would be released to wetlands north of the Tailings Basin and lakes downstream on the Embarrass River that represent 'high risk situations' for mercury methylation" (S-9) When mercury is "methylated" it can bioaccumulate in fish, making them unsafe to eat. The DEIS is inadequate in not addressing state standards regarding sulfates and methylmercury.	WR3I,WR4B,PRO3,PD2,P

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72	The DNR's exploratory leasing is opening up the entire Arrowhead to become a sulfide mining district. An EIS needs to be completed on the mineralization of the entire Duluth Complex prior to the permitting of any one project.	PRO4
73	Plant closure plans extend to year 50 (30 years after closure) but do not account for acid mine drainage that can last for hundreds to thousands of years, requiring perpetual or near perpetual treatment. The DEIS does not provide adequate plans for monitoring or mitigation. There is no adequate means of enforcement for clean-up or for any financial assurances that the mining company will be responsible. Instead, the MN taxpayers will bear the burden of clean-up cost of toxic wastes for decades-and into perpetuity.	WR3I,PRO3,PD4,PD5
74	Please accept these comments that I am writing to you as a second generation resort owner and Boundary Waters Canoe Area outfitter on the South Kawishiwi River and Birch Lake in Ely, Minnesota. I am also a retired high school teacher with decades of experience and a Masters Degree in Industrial Engineering. Living on Birch Lake since 1946, I have seen the impact to the water quality and fisheries due to the rather benign pollution associated with taconite mining and ever present air and noise pollution due to the blasting from the mine. I know, first-hand, the effects of water and air pollution on the environment. Presently, a lawsuit is pending on Cliffs Erie, a subsidiary of Cliffs Natural Resources, for ongoing water pollution from previous taconite iron mining:	WR2E,PD4,G2
75	Explain the sense of moving forward with the approval of a permit for a much more dangerous mining operation-PolyMet sulfide mining- when other mining companies have yet to clean up previous pollutions from much more benign mining operations than sulfide mining? I have extreme concerns about the PolyMet NorthMet mining project Draft Environmental Impact Statement (DEIS) proposed on 6,700 acres of public land in the Superior National Forest, not only for the safety of the proposed project, but for its potential impact on Minnesota's natural resources, and the future of its present sustainable economy.	WR5A,PD3,PD4,G10
76	According to Tom Powers, economic rationality requires that mineral deposits be left in the ground undeveloped. Especially, since according to the Polymet data only 1 to 5 percent of the ore contains the non-ferrous metals, relegating the 95 to 99 percent not used to the tailings area. From my perspective, the environmental risk is one no rational person would take. Please review Comparison of Predicted and Actual Water Quality at Hardrock Mines: The reliability of predictions in Environmental Impact Statements and Predicting Water Quality at Hardrock Mines: Methods and Models, Uncertainties, and State-of-the-Art, Ann Maest and Jim Kuipers. The results of this study are: 100 percent of sulfide mines predicted compliance with water quality standards before operations began; 76 percent of mines, studied in detail, exceeded water quality standards due to mining activity; Mitigation measures predicted to prevent water quality exceedances failed at 64 percent of the mines studied in detail. Other environmentally conscious companies embarked upon "safe" sulfide mining projects with every intention of being environmentally friendly. However, the facts are that three out four ended up be polluters. Statistically, that means that the PolyMet project has a 75% chance of polluting! That risk is untenable and one that should not be taken.	ALT8,WR2D,G7B
77	We did not get any latitude to circumvent the law for our land exchange. Our economic contribution makes dollars that stay in the area, not like those of a Canadian mining company that extracts the natural resources, makes their money, layoff the workers, closes the plant, and leaves the polluted and toxic mess for the public to try to reclaim and clean up into perpetuity. This is the basis of the "Resource Curse" and the Iron Range is a perfect example of this "curse." If mining of any kind is so good, why then are present Iron Range communities struggling with loss of jobs, shrinking school enrollment, and blighted main streets---and the area is dotted with taconite and iron ore mines? Should not they be prospering? I think not, because an industry based on extraction can not survive.	RFI,WR2D,G1

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Comment ID	Comment Text	Theme Codes
78	However, I believe that a total moratorium on mining must occur in Minnesota, the same which presently exists in Wisconsin after their Flambeau sulfide mining disaster. This would allow for time to further evaluate sulfide mining in Minnesota and its expressed dangers with full and transparent disclosure to the public, since current MN laws have plenty of "gaps" in safeguards that expose the state and its citizens to significant risks. Some of these gaps are 1) Only the DNR can make decisions in calculating the amount of financial assurances and in determining the appropriate form of financial assurance. Presently, the Pollution Control Agency and the Dept. of Management and Budge are not involved in this process. 2) Mining could also be allowed up to the very borders of the Boundary Waters Canoe Area Wilderness and adjacent to (or under) water bodies that flow into the wilderness. 3) Mining companies are not required to discuss financial assurance or damage deposit, in the DEIS for their mine proposals, which is a key opportunity for public involvement in the process. These present "gaps" must be addressed and changed for the protection and safety of the state of Minnesota and its citizens. Representative Rukavina has referenced "tough US environmental laws" in Minnesota that would hold PolyMet accountable in recent newspaper articles. However, the reality is that the leaking tailings ponds in his district are polluting public waters right now from past "benign" mining procedures. These same waters will be more dangerously polluted from the acid mine drainage from the stripping piles and the leaking tailings pond of the proposed PolyMet project. How then can youeven consider permitting such a project?	RFI,WR3C,WR5C,G10,G12
79	Cumulative impacts must address the loss of revenue to the Boundary Waters Canoe Area Wilderness and Superior National Forest tourist industry as part of a sulfide mining district.	EOO,RFI,WR5A,G7A
79	Third, will we be trading a lakes district for a mining district in northern Minnesota?	RFI,WR5A,PD7
80	S-11- "If water quality monitoring demonstrated the need, treatment of the pumped seepage could be provided prior to discharge to the Partridge River." What would the treatment consist of and what impacts might the treatment have upon the water quality? Who does the monitoring, how often would the monitoring be done, and how would treatment be monitored?	WR1A,WR1B,G7A
81	4.1-135-"PolyMet proposes to mitigate the increased solute load expected in the East Pit from the disposal of the higher sulfide waste rock by pumping East Pit water to the WWTF for additional treatment for approximately 30 years (years 21-50)." What happens after 30 years? Does the pollution disappear?	WR3I
82	What role does the DNR have in monitoring the pollution and the treatment? Does the DNR have enough of a budget to maintain this?	WR1A
83	4.4-136-"Reservations existed about relying on just the low and average liner leakage rates for groundwater quality predictions, as it may not fully account for the essentially permanent use of the liner (e.g., liner degradation over time, differential settlement, and accidental tears during waste rock placement)." Exactly which liners would be able to be replaced in five years time, or as needed, according to statements made by Joe Scipioni and Frank Ongaro?	WR2D
84	4.1-137-"lt should be noted that aluminum, beryllium, iron, , manganese, and thallium exceeded the groundwater evaluation criteria in the model; however, this was due to high baseline concentrations that were not attributable to the Project and these solutes were not carried forward for detailed transient flow modeling." If the modeling was not attributable to the Project, what is the significance of the modeling?	WR2E
85	4.1-143-"The deterministic modeling results suggest that three parameters (i.e., arsenic, cobalt, and selenium) could exceed surface water standards, in addition to relatively high sulfate concentrations. The Uncertainty Analysis for the Proposed Action suggests that copper and nickel could be underestimated by the deterministic modeling." What are the cumulative effects of these water quality exceedances?	RFI
86	How would the resulting acid mine drainage trail, especially that of the rail line, be addressed?	WR1D

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Comment ID	Comment Text	Theme Codes
87	Please extend the comment period for public input about the EIS. Forums held to discuss this mine have been one-sided and tightly controlled. In at least one instance, only elected officials were able to speak to the audience, and all of them were advocates of rapid approval of mine permits. Media discussion of the proposed mine has been scarce and was all but absent prior to this winter. More time is needed for the public to study this issue and offer their views.	PRO1,PRO6
88	I also ask that the EIS not be approved until certain conditions are met. One, the current EIS anticipates leaks from waste storage areas within 65 years. That is not an acceptable protection for the surrounding ecosystem. Waste storage should be designed to be leak-proof for centuries, not decades. Two, the EIS plans for the necessity of treating waste water for 2,000 years. If that time frame cannot be reduced to several hundred years,I believe it is irresponsible to approve a mine permit.	WR2D,WR3I
89	I believe it is irresponsible to approve a mine permit. Third, it is essential that the fund for remediation of envirnomental damage be designed so that it will be truly "bankruptcy proof," and not subject to reduction or loss due to mergers, acquisitions, Chapter 11 actions, or other changes in corporate structure.	PD4
90	The liability of the mining company should be consequential. I feel there should be many hundreds of millions of dollars that’s available to solve the pollution problems. the money should be in place long before the mine company starts production, they must maintain the site forever. If PolyMet claims bankruptcy then the money is available to resolve problems	PD4
91	In Section I.A., it is stated that this DEIS is being prepared by the Minnesota Department of Natural Resources (MnDNR) and the Army Corps of Engineer (USACE). I did not see the Forest Service was involved other than very superficially. Since they are the surface land holders it seems peculiar that they are not fully involved. I further noted that there is disagreement between PolyMet and the Forest Service. "The Mine Site is located on National Forest System lands; however, the mineral rights are privately held and under lease to PolyMet. It is the position of the United States that the mineral rights leased by PolyMet do not include the right to open pit mine the National Forest System land. PolyMet disagrees with the U.S.Forest (USFS) interpretation of the deed language and argues that the mineral rights it seeks to utilize provide for access to the minerals by any mining method including open pit or surface mining." Obviously, this issue has not been settled and for this reason, I would assume that it would be prudent to hold all actions until this issue has been settled. I further noted that the USFS will be preparing their own EIS and action should be tabled until the Forest Service has their environmental impact statement prepared. I realize that there is the possibility of a land exchange but at present the land is still held by the Superior Forest Service. I find it strange that the USFS was not asked to join the preparation of this DEIS.	PRO1,PRO4
92	In the Mine Site portion of the document it is unclear who will oversee the reolamation of the grounds for this project. The second bullet point speaks of a wetlands creation. I cannot imagine a wetlands that is able to handle the amount of sulfuric acid that would have to be filtered. If this has been done previously it would be nice to see the research cited. Also the idea of sending the pit outflows to the Partridge River is not a good idea considering the watershed that could be contaminated. I understand from my investigation that despite monitoring by state entities, many of these mines have created so much contamination that they have ended up a superfund clean up sites.	WE3,WE6,PD3,PD4
93	In III.B.2 Impacts of the Proposed Action Water Resources In the first bullet point, there is talk of the year 65. This is very long term and will commit either the State or Federal Government to very long term monitoring for this site. If it has to overseen for 65 years, it is a good probability that all of us will be long gone and we are obligating the Federal or State Government to a very long term proposition. All the variables talk mostly about the rate of flow of water. The Partridge River could be more heavily impacted by lower rainfall totals as the whole of the Northeast Minnesota has been in a long term drought. The Whitewater Reservoir is mentioned and it is unknown if any towns use this for water in their community water supply. If the reservoir is used by towns, will the water be tested for contaminates on a regular basis and who would stand the cost of this monitoring?	WR1A,WR3C

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94	The Groundwater Levels Downgradient of the Tailings Basin sounds as if it will contaminate an aquifer. If so where does this aquifer flow and what water does it supply? In the 10th bullet point there are high levels of aluminum expected to be found. At one time, aluminum was implicated as a cause of brain damage. On the 14th bullet point, it is unclear who would perform the water tests. If it was the mining company, that would be like the fox guarding the henhouse. In the wetlands section they speak of the transportation corridors as passing through coniferous and open bogs.	RFI,WR1B
95	All the Alternatives have greater or lesser degrees of change to the surface and ground waters. Some have high mercury, aluminum or antimony levels. We all ready have many waters that have high levels of lead or other heavy metals that have limited the numbers and size of fish that can be eaten. Acid rain all ready comes from the states to our west. We have Asbestosis that was part of iron mining. It was not recognized until recently so why are the Minnesota EPA and Public Health findings not in the summary?	EOO
95	Again with all the dust generated, will the dust mix with the water and form sulfuric acid. On page S-14 in the Air Quality Section acid rain may be carried over the lakes and rivers to the east including Lake Superior. On the same page in socioeconomics the positive effects are listed; however, does the short term good they provide justify the leaving behind of rock wastes that will continue to pollute the area for many thousands of years? Under the Cumulative Effects what does the increase in "sulfates loading" mean? Does this refer to sulfuric acid? The only River that had been mentioned previously was the Partridge River. I take this to mean that one whole branch of the St. Louis River would suffer contamination and potentially Lake Superior as well. The water waste situation from Duluth has recently been remedied and the Lake is enjoying better water quality than it has in a number of years.	RFI
96	Northern Minnesota only has a couple of things going for it. One is the wilderness or near wilderness that generates a large number of tourists from many states. Tourism is all that the majority of businesses live off of in the Arrowhead of Minnesota. Second, we have our water and have tried to keep them as pure as possible because tourists do not want to come to where there are polluted waters and lands. The last thing that we have is our people. If the land is made unfit for habitation, then there are no people who can live on the land. The Range has had the benefit of the mining jobs through the years but they have paid heavily with their health as we are now finding out. The jobs last for 10-20 years and then disappear. They become highly automated so that in the last years of the mining, there are very few jobs providing salaries and the towns dry up once again. The waste from this type of mining uses a lot of water, leaves a lot of waste and is not easily cleaned up. We can see from looking at mining in the Western States that the land is permanently scarred and the waters will never be clean again. The mining companies take the metals from the land and then go out of business. They tell us that it is now clean and safe. They are drilling in the middle of Birch Lake. How will they keep from polluting the lake? What about the people that live on Birch Lake? What if their sources of water are polluted?	WR2E,WR3B
97	With the Iron Ore, the companies were longer term and they contributed to the fund to help the local communities continue after the mines were closed. I see nothing in the summary that indicates that the mining interests are taking a stake in the future of the people of the Range area. I see nothing indicating what they will spend or do with the inevitable pollution that will linger beyond year 65.	G1

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98	I know that the Mining Companies are buying up leases for other exploratory drilling sites and that those sites have a good potential for polluting aquifers, leaving mineral wastes on the ground, and being unsightly for tourists and locals to look and live with. This would have the potential to damage the land so that it is not fit for anything beyond mining. What we have to balance is the short term interest's of the mining companies to take the minerals from the land and then run or declare bankruptcy to get out of the cleanup. The cleanup will never be truly done and which will probably be handled as a Super Fund site. What we have is one of the least disturbed areas in the lower 48 states. I suppose it was inevitable that the mining companies would once again raise their heads but this time the waste is more dangerous than the waste from the Iron Ore. The mines in the West that harvest this type of resource have done heavy damage to the environment. They assure us that they will keep the pollution from happening. Wisconsin has declared a moratorium on mining permits until they can be better studied. I see no reason to rush to put in this mine. The copper will still be in the rock in a few years and if the rush passes us by, we will still have the environment that draws others to see the Boundary Waters. People have needs other than material. They need to be able to get away and have their mental batteries recharged. It will not happen if the land is destroyed.	G9,G12
99	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources. With the poor economy, more people are exploring close to home and discovering northern Minnesota for vacations. If mining were to take place, the long term economic impact on Northeast MN. tourism would be devastating. Minnesota values are embedded in its natural resources. We can't afford to loose what we stand for. I lived in MN for 20 years and our family values were rooted in the BWCA. I now live in Montana and am constantly drawn back to Minnesota because of its natural resources and the peoples values toward life. Many Montanans are intrigued with the BWCA and plan to visit Mn due to its pristine waters. The proposed mine would destroy not only the natural resources, but MN values, family values and tourism.	G11
100	The erosion of peat into the mine, and slumping will increase the sediment in the mine which will require another reactive soil pile not planned for and will increase sulfide run off.	PD2
100	The PolyMet mine site is located on an inside bend of the Partridge River. It is common for rivulets to form on the inside bends in rivers generally as the river seeks a shorter and more direct route. Inadequate testing has been done to evaluate for this contingency and a inflow to the mine that greatly surpasses the estimates made in the EIS. The EIS also vastly underestimate swamp inflow.	WR3J
101	With this inundation of water into the PolyMet mine pit will come a corresponding drawdown in the area water level. The drying out of the area swamp will result in the death of stands of forest in the 100 mile swamp by sulfide pollution and lack of a water rich environment that these trees depend on. Along with the death of large stands of trees will come a strain on wildlife that depends on them. The EIS inadequately has surveyed for the loss of wildlife.	WR1E,WI2
101	Furthermore, the peat soil base will not support the ditch and dike system planned to keep water out of the mine from the Partridge River. Estimates for the mine filling after closure are exaggerated and will overflow and result in pollution to the environment in a far shorter period of time. These will greatly add to and overwhelm the mining operation and/or the treatment system. Spring flooding along the St. Louis will be exacerbated.	WR3K
102	Furthermore, the weakening of the rock wall from water saturation will be unstable and catastrophically collapse. The berm to keep out water from the Partridge River and the weight of the water in the river and ditch will contribute to this collapse. Wet rock shears more easily as indicated by a mining engineer reporting on the eagle mine in Michigan. I agree with the comments made by the Tribes in the EIS with the exception of the shaft mine alternative. The rock in the area is to unstable because of water saturation to support a shaft mine and its crown pillar(s). Any diagonally shafted mine in this area would be unstable.	EOO

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103	Finally, it was related to me by an employee of the MPCA who was in one of the test shaft mines in the area that the test shaft mine was being pumped continuously, was filled with hip boot level water, and the walls glittered from iron pyrite. Iron pyrite contains large amounts of sulfides, mercury and fragile. The fragility encourages the spreading and lack of control of these substances. The condition of this mine shaft belies the EIS prediction on the water likely to inundate the PolyMet Mine.	WR2C
104	The announcement made by the News Release violates my and the public's civil constitutional due process rights in many respects. The authors of the News Release under color of law have created an atmosphere of fear to discourage attendance and the exercise of the civil rights of the public to be heard. The hearings were held despite advised travel restrictions affecting many interested persons. The management of the hearing is an indication of the administering agencies lack of concern for public safety and constitutional rights generally.	PRO6
105	The revelation to me by the forgoing PCA employee that the walls of the test shaft glittered from iron pyrite is an indication of high levels of sulfates and mercury. Iron pyrite is known to be composed of high levels of mercury and iron pyrite and is an indication of the release of illegal and unacceptable levels of pollution. These will be added to already high levels in the Rivers in the upper St. Louis and will increase over time. As taconite ore is depleted the amount of sulfides released from mining will only increase. It was related to our class at the College of St. Scholastica in the early '80's by adjunct professor Jack McGrath, Senior-Vice President at Minnesota Power, that the only taconite mine with an enduring supply of taconite reserves was Minntac. However, he indicated that at some point in the early 21st century this would encounter an overlay of sulfide bearing rock in the formation and that this would present pollution that would be intolerable to the public.	WR3E
106	As a resident of Duluth Minnesota for most of the 50 years of my life I have had opportunity to swim, fish, boat, and sail on the St. Louis River. I haven't engaged in recreation on the St. Louis River on more occasions because of my perception that it is a dirty river. I discourage out of town friends from doing the same. Even the threat of pollution from PolyMet will diminish recreation on the river. Less boating, canoeing, kayaking, fishing, hunting, swimming, sailing, bird watching, and other recreational activity will take place on this large river with fewer tourist tax dollars coming into the communities along its length.	EOO
107	Fish will not only be weakened and poisoned by pollution from sulfites, sulfates, sulfides, the process which turns these into sulfuric acid, sulfuric acid, arsenic, methyl mercury, lead, other heavy metals, and other toxic substances, the weakening of the fish when combined with water born viruses such as Viral Hemorrhagic Septicemia will result in large fish die-offs in the St. Louis River and Lake Superior.	FM1
108	Asbestiform particulates are worst in the east range and these will create a risk of a health hazard to the surrounding area as indicated by the litigation with Reserve Mining in the 1970's. The taconite mines through their stack emissions and dust from the exposed soil were rated 4 of the top 7 polluters in 2000. It is unlikely that PolyMet will be any better. This will create more of a health hazard and further diminish the air quality and the incidents of toxic regional hazing in the Superior National Forest and Voyageurs National Park.	AQ4C
109	Monarchs have a migration that takes them 900 miles into Mexico. The indigenous population of Mexico celebrate this migration as the Day of the Dead and regard the butterflies as manifestations of their ancestors. Northern Minnesota, Wisconsin, and Michigan where mining projects are predominant compose the majority of the northern habitat. Little study has been done on the northern habitat. In Mexico, forests where the butterflies congregate are protected by law. Their migration provide for a modest income for an indigenous population through tourism. Further study needs to be done in consultation with the U.S. Secretary of State to avoid a violation of treaty, international law, and a failure of diplomacy.	WI2
109	The hazing of the Superior National and surrounding forest is treated as simply a matter of aesthetics, but this form of air pollution caused by mining and power production in support of mining has been inadequately studied. As a child I observed large clusters of Monarch Butterflies during summer months. These numbers have diminished to the extent that I have observed a dramatic decline in their numbers. More study needs to be done on the effect of air pollution on these and other primary pollinators, including honey bees.	WI2,AQ4A

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110	PolyMet does not currently have a right to open pit mine at the deSignated location. It is attempting to make an exception under the Weeks Act through the action of its political allies in carving out an exception through special legislation or a land exchange. The Weeks Act in protecting watersheds and forest land for various purposes, has been public policy since its passage nearly one hundred years ago. Carving out exceptions to the Weeks Act without an outright repeal is illegal. Law is not law if it is not enforced equally. The environmental laws are failing when it comes to protecting local communities from the effects of sulfide mining as in dictated by the EPA.	PRO7
111	Time after time local officials turn their back on the community interest. We should have disclosed the real interest of these officials made available including their stock holdings in mining companies and campaign contributions. The corruption of neglect of community interest is itself a reason for not allowing this type of mining. Sulfide mining attracts public officials of weak character and weakens the community through a concentration and centralization of the wealth in one industry that is then allowed to control public policy, including pollution. Mining not only pollutes physically, it pollutes socially. 14	G1
111	The PolyMet project is a violation of water law, common law property rights, the Clean Water Act, the National Environmental Policy Act, the Migratory Bird Act, the Clean Air Act, the Great Lakes Compact and other laws. The PolyMet project will hurt the area and state economy for centuries to come. The MDNR must pick the "No Action Alternative" and deny a permit to PolyMet Mining Company. It is clear that this project was conceived of, promoted, and designed by politicians and not mining engineers, hydrologists, biologists, economists, or experts of any kind. If the MDNR is concerned about public opinion it will follow the lead of the State of Wisconsin where citizens successfully pressured their legislature into enacting a moratorium on any sulfide mining and Aitkin County which refused to consent to allow even any exploration in the county. PolyMet is not a garden variety sulfide mine, it is the worst of possible sulfide mines along with a processing center which invites more ill conceived mines.' The main reason proposed by advocates in favor of the proposed PolyMet project is jobs. The loss of jobs was the main reason used to oppose the abolition of the production of DDT. The claimed need for jobs is not of sufficient importance to disregard environmental harm.	G5A,G12
112	The process aside from the unnecessary risk of public harm presented is unfair in many respects. The open house planned is ill timed and should have been conducted outside of the present time that is the public comment and not the agency comment period. The open house will cast a shadow of intimidation over the process by the authors of the EIS heavy handed participation in the comment process, is unfair, and cast a chilling effect on the public oral comment process and the exercise of mine and the public's civil rights under color of law. Furthermore, any information given out ancillary to and outside of the EIS is a violation of principles of constitutional due process and illegal in that public notice is not provided and subject to comment.	PRO6
112	The failure of the agencies to schedule hearings in Duluth in a location central to the harm that is reasonably foreseeable to occur from the PolyMet project is unfair to the people likely to be effect, the public, and myself and is a violation of our civil rights under color of law. The harm likely to occur being the contamination of the drinking water for a community in excess of 150,000 people in further disregard for the public safety. Furthermore, Duluth is the place best suited to provide facilities in North East Minnesota to accommodate the large number of people interested in attending a hearing.	PRO6
113	Furthermore, expediency is not a legal basis for not conducting a public hearing and instead diverting speakers to private rooms where their testimony cannot be objectively witnessed and documented by the public. Everyone has a constitutional due process right to equal time in being heard. Again, expediency should not shortcut the public's constitutional rights. The hearing should take as long as necessary to provide a fair process. Contrary to the claim that the agencies are going to allow more people to speak as opposed to "selecting a small number of people to speak", they have in effect chosen one voice to speak.	PRO6

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114	By allowing PolyMet participation in the agency sponsored open house, under color of law, they are given an unfair voice in the hearing at the expense of other interested party resulting in a fundamentally unfair process and a violation of the public's and my right to constitutional due process. Furthermore, providing a seat at the open house for PolyMet clearly indicates a bias in the decision making process in conflict with the principle that the public is constitutional entitled to agency action that indicates a fair and impartial decision maker and that by a show of bias to this extent has tainted the process and should recuse themselves from and the process should be started de novo with decision makers capable of showing impartiality in the process as is guaranteed by the constitution in the 4th and 14th amendments.	PRO6
115	I am writing to you as a citizen of Minnesota concerned about the PolyMet sulfide mining project proposed on 6,700 acres of public land in the Supelior National Forest. Sulfide mining would be new to Minnesota. In other locations, sulfide mining has resulted in acid mine drainage causing extensive and expensive damage to water quality and the environment. Often, taxpayers have been stuck with the costs. The PolyMet project in Minnesota could degrade water quality, increase mercury in fish, destroy wetlands and peat bogs, fragment the habitat of endangered species, interfere with ttibal lights guaranteed by Treaty and with tribal resources, like wild rice, increase air pollution that results in regional haze, and create a lisk of perpetual pollution without adequate financial assurance that the public won't end up paying the costs. The Indian tribes working on the EIS and the United States Environmental Protection Agency have provided helpful information on the inadequacy of the PolyMet draft EIS. Before this sulfide mining project is even considered for permits, please fill these gaps:	G2A,G2C,G3,G7C
115	1) Analyze the land that is going to be exchanged for Superior National Forest land to make this project possible. Make sure that the land swap would protect wetlands, endangered species, hydrology, tlibal rights and taxpayers' interests.	PD1
115	The agencies surprise at the interest in the hearing is simply an issue of there lack of competence in dealing with the process and their disregard for the political process that took place in Wisconsin leading to a mining moratorium. Poor planning and judgment cannot release the agencies from their constitutional obligation to provide constitutionally fair due process. The forgoing along with the denial of more than a 90 day comment period on a lengthy and complex document, the denial of fair hearing in Duluth, the relegation of the tribal partners comments to an appendix, and other irregularities indicate a violation of due process, are unfair, biased, and arbitrary and capricious.	PRO6
116	2) As the U.S. EPA suggested, make sure that financial assurances for the public are included in the EIS long before any permitting process gets underway.	PD4
117	3) Analyze all of the impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources. Mercury in fish causes brain damage to children and to the fetus.	WR4B,FM1,AQ6A
118	4) Get better information on existing pollution, the nature of wetlands, endangered species, wild lice stands and other resources that would be affected by the project.	WR1E,WI5,WE2
118	5) Require the PolyMet Company to show that their waste rock and tailings piles won't collapse and dump uncontrolled pollution into nearby waters and that they will not create water pollution that lasts for hundreds or thousands of years.	GT2
118	I am writing to you as a citizen of Minnesota concerned about the PolyMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forest. .. , Sulfide mining would be new to Minnesota. In other locations, sulfide mining has resulted in acid mine drainage causing extensive and expensive damage to water quality and the environment. Often, taxpayers have been stuck with the costs. The PolyMet project in Minnesota could degrade water quality, increase mercury in fish, destroy wetlands and peat bogs, fragment the habitat of endangered species, interfere with tribal rights guaranteed by Treaty and with tribal resources, like wild rice, increase air pollution that results in regional haze, and create a risk of perpetual pollution without adequate financial assurance that the public won't end up paying the costs. The Indian tribes working on the EIS and the United States Environmental Protection Agency have provided helpful information on the inadequacy of the PolyMet draft EIS. Before this sulfide mining project is even considered for permits, please fill these gaps:	G2A,G2C,G3,G7C

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121	2) As the U.S. EPA suggested, make sure that financial assurances for the public are included in the EIS long before any permitting process gets underway.	PD4
122	3) Analyze all of the impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources. Mercury in fish causes brain damage to children and to the fetus.	WR4B,FM1,AQ6A
Sender Last Name:	Champlin **Submission ID:** 1172	
1287	I am voicing my opposition to any kind of mining especially Polymet on public land! I am literally horrified at the track record of Polymet from this type of mining in other states. I don't believe there can be any guarantee of $ monies to clean up the side effects of this mining. Why take this risk at any cost of destroying our natural resources and profitable ecotourism dollars. As a taxpayer and steward of the Earth I implore you to stop this mining with Polymet Franconia & Duluth Metals. No!	EOO,G4A
Sender Last Name:	Chandler **Submission ID:** 1641	
2067	We own property near Ely with the intention of moving there, starting a business, and contributing to the tax base. Short-sighted and damaging mining operations will result in terrible and irreversible water contamination. You know that already the fish are too contaminated to eat every day. Additional contamination from mining operations wiil result in a significant reduction in tourists, long term jobs, and ultimately a severe reduction in population. No one, including me, wants to live where the water is too contaminated to swim, fish, or ingest. Please choose a healthy future, not a polluted one.	EOO,G2B,G7B,G11
Sender Last Name:	Charwood **Submission ID:** 3376	
3666	Sulfide mining is not the answer to economic growth. The land of 10,000 lakes is a very precious environment that is necessary for freshwater invertebrates as well as domestic use in which we all depend on.	G2C,G7
Sender Last Name:	Chezik **Submission ID:** 1372	
6	No Action Alternative – The DEIS states that no social or economic benefits would result from the no action alternative and that local employment and economic revenue would not increase. No data or background information is provided to make this conclusion. The USFS is required to manage its lands, which does provide social and economic benefits to the local community. Timber production, hunting, fishing, camping, and other activities are all income producing benefits resulting from a healthy, undisturbed ecosystem. The proposed mine site is owned by the USFS and lies within 21 miles of the Boundary Waters Canoe Area Wilderness. Therefore, there are social and economic benefits from the no action alternative.	ALT1
7	Mine Site Alternative – Only minor alternatives were presented in the alternatives provided in this section related to the surface and ground water. No alternatives were presented in the DEIS that looked outside the proposed Mine Site. Additionally, the DEIS states that underground mining would not be economically viable. No economic analysis is provided to support this statement. We disagree that the DEIS explains why the use of underground mining would not meet the project's purpose and need.	ALT2,ALT3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
16	No Action Alternative – The DEIS states that no social or economic benefits would result from the no action alternative and that local employment and economic revenue would not increase. No data or background information is provided to make this conclusion. The USFS is required to manage its lands, which does provide social and economic benefits to the local community. Timber production, hunting, fishing, camping, and other activities are all income producing benefits resulting from a healthy, undisturbed ecosystem. The proposed mine site is owned by the USFS and lies within 21 miles of the Boundary Waters Canoe Area Wilderness. Therefore, there are social and economic benefits from the no action alternative.	SE1
240	Wetland Delineation – The wetlands of the proposed Mine Site were delineated for PolyMet by Barr Engineering using the Corps' 1987 Wetland Delineation Manual. However, we found wetland delineation errors in Figure 4.2-1. For example, Wetland #20, which was delineated as a sedge meadow, can clearly be identified, using 2008 color infrared FSA photography, as an impounded marsh surrounded by forested wetland. Another unfortunate delineation error is the upland forest between Wetland #103 and Wetland #18 that omitted a long, linear hardwood swamp. The Corps should re-check and verify the wetland delineation mapping for the entire proposed Mine Site.	WE1
241	Wetland Mitigation, Off-Site Mitigation – The DEIS states that total direct and indirect wetland impacts from the proposed project total 1,522 acres. PolyMet has proposed wetland mitigation among three sites – on-site mitigation, the Aitkin site mitigation, and the Hinckley site mitigation. The total for these mitigation sites only add up to 1,287, mostly at a 1:1 wetland mitigation ratio. Using the Corps' usual requirement of a 1.5:1 ratio, a total of 2,283 wetlands would need to be restored or created to meet the Corps mitigation rule. A significant amount of wetland mitigation is not specified in the DEIS, which states that compensatory mitigation for any remaining acres would need to be addressed through permit conditions following the Record of Decision in this EIS. We maintain that all wetland mitigation requirements should be completely identified in the DEIS.	WE3
246	The Corps of Engineers, as the lead federal action agency, needs to prepare a Biological Assessment to assess impacts to the Canada lynx and the gray wolf, both of which are federally listed under the Endangered Species Act (ESA) in Minnesota. Critical habitat has been designated under the ESA for both the Canada lynx and the gray wolf. The federally-threatened Canada lynx (Lynx canadensis) and federally-threatened gray wolf (Canis lupus) are found within the proposed project area. In accordance with Section 7(c) of the Endangered Species Act of 1973, as amended, it is the responsibility of the Corps to determine if its actions "may affect" listed species or critical habitat. The Corps is required to prepare a Biological Assessment (BA) for Federal actions that are ``major construction activities" [50CFR 402.12 (b)]. The BA should evaluate the potential effects of the proposed action on the Canada lynx and gray wolf and designated critical habitat and determine whether any such species or critical habitat is likely to be adversely affected by the action [50CFR 402.12 (a)]. If the proposed action is likely to adversely affect Canada lynx or gray wolves, or adversely modify their critical habitat, the FWS will prepare a Biological Opinion, which will use the Corps' BA and other scientific data to determine if the proposed project jeopardizes lynx or wolves or adversely modifies lynx critical habitat or jeopardizes gray wolf. Additionally, the BO will determine the amount of any incidental take for the proposed action and will then develop measures to reduce incidental take of Canada lynx and gray wolf.	WI1
247	Applicable Regulations – Under Table 1.1-1, the DEIS states that only an ESA consultation is needed from the FWS. On September 11, 2009, the FWS issued its Final Rule regarding permits for taking bald eagles. (http://www.fws.gov/migratorybirds/CurrentBirdIssues/BaldEagle/Final%20Disturbance%20Rule%209%20Sept%202009.pdf) Before any bald eagles or nests may be disturbed, project proponents must acquire a permit from the FWS. A permit may be needed if there are bald eagles nesting or using areas close to or within the project site. The last eagle nest survey within the project area was completed in 2005. The Partridge River, which flows around the east edge of the proposed Mine Site does provide nesting habitat for bald eagles based on the availability of nest trees and nearby water features including stream and lake habitats. Therefore, we recommend that an updated bald eagle survey be completed in advance of construction activities during the estimated 9 to 12 months of pre-production mine development. Results from this survey should be provided to the Minnesota Department of Natural Resources and to the Twin Cities Field Office of the FWS.	WI1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
248	Endangered, Threatened, and Special Concern Wildlife Species - The following sentence needs to be corrected, "Since 2000, the USFWS and USFS documented five road-killed lynx in Minnesota." There have been six lynx mortalities due to road kills since 2000, and an additional two lynx have been hit and killed by trains (USFWS, Twin Cities Field Office data).	WI1
666	The DEIS states that it was the position of the United States that the mineral rights leased by PolyMet do not include the right to open pit mine the National Forest System land. PolyMet disagrees with this interpretation. However, the DEIS also states that the U.S. Forest Service (USFS) and PolyMet are exploring the feasibility of a land exchange, which would consolidate surface ownership and mineral rights and that the USFS will be initiating its own environmental impact statement to evaluate this land exchange. The DEIS states unequivocally throughout the document that it assumes a land exchange would occur. A land exchange is a connected action under the National Environmental Policy Act (see CEQ's regulations for implementing NEPA, Section 1508.25) and, therefore, should be discussed in the same impact statement. Other than continuing to assume a land exchange, the DEIS offers no analysis of a land exchange between the USFS and PolyMet of a proposed 6,700 acres in the DEIS. Because of the interconnectedness, it appears that the scope of the DEIS should be expanded to include a discussion of the anticipated environmental impacts resulting from the land exchange.	PD1
667	Project Closure – The DEIS states that a closure plan would be finalized to provide details for the final closure of the actual as-built facilities during project operations. No additional details are provided about how to ensure that continuing runoff from the mine spoil is mitigated. The DEIS does not state who would be the responsible party should there be significant acid mine runoff event into surrounding wetlands and uplands, which drain into the Partridge River.	PD2
668	Reclamation of Plant Site – Closure Cost Estimate - The DEIS estimates that it would cost $44.6 million (in 2007 dollars) to complete a variety of closure tasks including reclamation, revegetation, remediation, removal of structures, monitoring and maintenance. It was stated these are very rough estimates. These figures need to be updated and refined based on actual surface mining reclamation data prior to the Final EIS in order for agencies to better understand the cost of reclaiming such a large area to a mix of forest land and wetland habitat.	PD3
669	Mine Site Alternative – Only minor alternatives were presented in the alternatives provided in this section related to the surface and ground water. No alternatives were presented in the DEIS that looked outside the proposed Mine Site. Additionally, the DEIS states that underground mining would not be economically viable. No economic analysis is provided to support this statement. We disagree that the DEIS explains why the use of underground mining would not meet the project's purpose and need.	ALT8
1604	The anticipated environmental impacts of the proposed action are not fully and fairly addressed in the DEIS. In particular, the DEIS does not fully address anticipated project effects from or to: an interconnected action, federally listed species, the bald eagle, wetlands and mine run-off. In addition, the DEIS does not appear to fully satisfy U.S. Fish and Wildlife Service (FWS) or Corps wetland mitigation requirements, leaving part of necessary compensation to be determined subsequent to the NEPA analysis. Since each issue falls with the Department's jurisdiction or special expertise, we urge the Corps to adequately describe anticipated environmental impacts, as further identified below, in the final environmental statement.	G8

Sender Last Name: Chilcote **Submission ID:** 1077

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1181	This letter is to note that all of us at Northern Mining Services Inc. support Polymet's mining project. The impact that Molymet will have on our local and state economy will be tremendous, in a time of economic down turn we need this jobs more than ever. This will turn the economy of Northern MN from one that is reliant on the ferrous mines to a much more diversified one, making our area a much more stable one to live in. On the environmental impact on our area, we are confident that the job Polymet has done is over and beyond what they had to do to protect the environment. If we didn't believe this we would not be for the project, this is our back yard and we are very protective of it. The best way I can describe the lengths that Polymet has gone to is to quote some of our friends from non-ferrous mines in Canada, who also go to great lengths to protect their back yard. They all ask us why Polymet has gone to such great lengths over and above what the have done to protect the environment, when what they have done is more than would ever have to be done to make sure that no ground and water is polluted. When we asked the gentlemen at Polymet this question their reply is that we want to make sure we're right and nothing is polluted. Our area is more important than the money we spend to protect it. And I'm sure we all know how important it is to have a domestic supplier of these metals. Some are not currently produced in the USA. Any time we don't have to rely on foreign suppliers helps out everyone.	EOO
Sender Last Name:	Chopp **Submission ID:** 3227	
3591	Isn't Minnesota Cold Enough . ? There was little information on the oxygen plant within the DEIS , as far as I could gather the chore was to be outsourced to another company. If a private company can raise funds to initiate such a project , why is it that the community leaders such as the DNR do not run a similar project to keep the precious metals here, rather than trade away our natural resources elsewhere for money ?	G1
Sender Last Name:	Church **Submission ID:** 1754	
2292	I live in a county whose most valuable resource is its lakes, including our greatest lake, Lake Superior. As a Cook County citizen and as a steward of resources we need to preserve for future generations, I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources.	G2
3447	I am deeply concerned about the longterm environmental impact of the PolyMet Mining Corp. NorthMet mining project It is unreasonable to expect that mining companies will be able to maintain water treatment facilities for 2,000 years and it is an unfair burden to pass on to future generations of Minnesotans who will inevitably be left to pay for these operations. I grew up in northern Minnesota, and continue to return in order to enjoy the wilderness lakes, clean air, and undisturbed environment. I can't begin to express how upsetting it is to contemplate the loss of that pristine place.	G2,G4A
Sender Last Name:	Clark **Submission ID:** 2218	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2625	Well, my comment would be in association with the socio-economic benefits of the project. We've indicated that there's going to be 400 jobs directly at the plant, another 500 jobs. We're going to need support industries that are around the project that support the project, service industries. But what we're not saying is how much of the value of the metals that we're extracting churns within the economy within the region, and an economist will tell you that that's about four to five times the value of the metals that are taken from the ground. So to sell a dollar's worth of copper to the end user, you get about $4 or $5 worth of the capital circulating: Employee gets paid a salary, goes to a restaurant; the restaurant employs a wash -- somebody in the kitchen and somebody to cook; they, in turn, have incremental employment, and they go out and get somebody to do their washing. So it really does cycle in the economy. I'm not sure if anybody's done that exercise for this project as part of the valuation of the socio-economic benefits to the region. Just declaring the number of jobs doesn't really tell the story. That's what I'd like to see. I'd like to see some comment or some evaluation of what the true socio-economic value of this project is in the region. Another interesting comparison would be in terms of job creation, in terms of the job stimulus that we're spending money on right now, how much does it cost with the stimulus money to create a single job? Multiply that by 1,000 directly for 20 years, and you've got a measure of what we're saving in the economy of this country. So I'd like to see something like that coming out of the evaluation of the project and we haven't seen it. That's my comment.	EOO,G14

Sender Last Name: Clegg **Submission ID:** 2776

3188	The risks to our state, its citizens, its wildlife and its waters in this proposal are enormous. Any benefit to be derived from the jobs it might create are transitory at best and vastly outweighed by the catastrophic possibilities inherent in the project.	G1,G2C,G7

Sender Last Name: Clements **Submission ID:** 326

2	Speaking of expensive, how can we possibly get a detailed financial assurance bond up front large enough to really lock in decades of future water treatment as these pits begin to overflow and seep and leak? And the water treatment may not even be the only cleanup task. I'm not sure I could find statements that talk about other pollution abatement possibilities in the EIS, if omething goes terribly wrong.	EOO,WE3
27	Specifically, it makes me very nervous to read in the EIS that there are concerns about the potential for structural failure in the existing Northmet tailings basin, which I understand is one area where residue from this mining is planned to be deposited. Until there is a complete and thorough understanding of how this basin could be used without any possible failure, I don't see how we could just go on hope.	GT2
33	Speaking of expensive, how can we possibly get a detailed financial assurance bond up front large enough to really lock in decades of future water treatment as these pits begin to overflow and seep and leak? And the water treatment may not even be the only cleanup task. I'm not sure I could find statements that talk about other pollution abatement possibilities in the EIS, if something goes terribly wrong.	PD4
38	I'm also troubled with what I can discern about the proposed technology to deal with overflow water from the pit in which the tailing will be deposited. I take that to be a different pit, to be filled after the ore is removed. But that pit will be mined for 20 years, according to what I read, and where will the sulfide residue be stored until then, that it won't be open to air and water? I talked with representatives of the MPCA at the public hearing in Blaine, and I was told that the technology being looked at for treating water that escapes the pit is quite new, and very expensive, and that there aren't examples of it elsewhere in a large multi-acre mining application that we can look at. This seems very weak to me, and I'm wondering how we can ever gamble on unproven technology used by an unproven company. Are we the guinea pigs here? If something goes awry, the consequences would be enormous.	WR3C
345	I am writing in regard to the NorthMet Draft Environmental Impact Statement, which speaks to the permit application by Polymet to mine sulfide ores near Aurora, Minnesota. I have been reading the Draft EIS, and I have several deep concerns about the scope of this project, both in physical size and in length of time, in regards to the protection of clean, life sustaining water, from near the mine site all the way to Lake Superior.	G7A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1812	My comment refers to Chapter 4.6.5.5 I think; it's the monitoring part of the report, and in that brief statement, it gives no -- it tells nothing about how this project will be monitored. It talks about some mitigation, but there is nothing laid out about monitoring the project, and I'm very concerned about the monitoring of the project. How will we know if there is any polluting things happening? That's my question, so please address that	WR1A
2614	I am concerned about how the process will be monitored of the mining. I believe in the purposes of the Army Corp of Engineers and the Department of Natural Resources, but I have seen budget cuts happen, so that things that have been promised to be overseen have not. So from that point of view and from my understanding that the Partridge River flowage has really not been monitored for a lot of years because there isn't money. The budget cuts have been such that there hasn't been money. I am really concerned about how they will keep on top of the pollution issues and that is not addressed to my satisfaction in the report.	G2
3177	Please stop this mining project or at least proceed very cautiously and slowly. We can't afford to make a mistake.	EOO
Sender Last Name:	Clock **Submission ID:** 359	
397	l am in support of the PolyMet project. PolyMet can produce these metals in an environmentally sound manner and create hundreds of stable jobs that can support families. Based on the documentation outlined in the DEIS, I am confident that impacts to the air and water will be minimal. As a person who lives, works and plays in Northern Minnesota, I understand the need to ensure a safe environment project. Let's get on with a project that will do nothing but enhance the Iron Range.	EOO
441	I would like to add my voice to those who have raised concern over the draft of the Polymet EIS. I encourage further study into the impact on air quality, the long-term potential for mine drainage leeching through bedrock, and the potential impact on wildlife habitat and movement. No doubt there will be other requests for mining in or near the BWCA. Therefore, it is critical that this first process be conducted carefully, with long-term impacts considered.	WR2A,WI2,AQ4A
Sender Last Name:	Clothier **Submission ID:** 1489	
1778	This imporant issue will define how Minnesota views the future of the earth we all share. It will also determine how history views Minnesota and its decision makers. Are we for money and destruction, or are we for preservation? As a Minnesota native who has experienced the beauty of this land, I must raise my voice with others in grave concern about the PolyMet mining project.	G10
1779	These pollutants will not only affect fish and wildlife, but humans as well. Is Minnesota willing to say that it finds this risk to today's and future generations acceptable? An entire ecosystem is threatened when one part of it is threatened. This proposed project promises to have devastating long-term impact Minnesota's water quality, affecting ecosystems in irrevocable ways. Let Minnesota stand up and say that it will not accept the devastation.	EOO,G2A,G7B
Sender Last Name:	Clower **Submission ID:** 3481	
47	and gray wolf -- I do not support this. Furthermore, I am concerned about long-term impacts to the Superior National Forest and the Boundary Waters Canoe Area Wilderness. These places are precious to me, both because they represent wilderness in our state and because they are an incredible cultural resource. In addition to environmental effects, I am concerned about impacts to tourism and	SE4
1116	habitat for native species. I understand that the mining project will cause the loss of over 1000 acres of critical habitat for Canada lynx	WI1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3235	strong concerns about the project's potential impacts on the environment and human health. My main concern is with water quality - particularly the increase in sulfates and methylmercury. This is an unacceptable environmental risk. I believe that Minnesota should follow Wisconsin's lead in banning sulfide mining because of its threat to wildlife and human health. I am also concerned about protecting	WR4B,FM1
3755	recreation in these areas. Finally, I disapprove of the fact that the project will reduce native people's access to public land in the area. Overall, I do not support a project that risks long-term negative impacts to the environment and human health for short-term profits to one company. While I understand the need to weigh the economic importance of mining in our state, I feel that the protection of health and natural resources is even more important. These issues need to be satisfactorily addressed before a permit is issued for mining. Thank you for your consideration, - Katie Clower	EOO,G3A,G3B

Sender Last Name: Cochrane **Submission ID:** 3024

3444	Along with all the vary serious environmental impacts, the fact that tribal governments are opposed to the mining is something that dominant culture needs to hear and adhere to. It's not just environmentalists, recreationalists but the people who have belonged to this land long before mining was a viable economic option for people that stand opposed to sulfide mining. While in the short term hard rock mining might provide some jobs for a few people, although how many of those jobs will actually go to local people is questionable, the destruction it will cause in the long term doesn't make it a sustainable or desirable option for the people living in the Iron Range as well as throughout the midwest.	EOO,G1,G2,G3

Sender Last Name: Coffman **Submission ID:** 2672

3160	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. We should not even think of allowing any industry to conduct business that risks doing harm to the environment. The PolyMet DEIS describes serious environmental issues associated with this proposed mine. These issues should be addressed and resolved before this mine is approved by the U.S. Army Corps of Engineers and the Minnesota Department of Natural Resources	G2

Sender Last Name: Colarich **Submission ID:** 3221

3551	There must be a balance between the economy and the ecology. The work that Poly Met has done strives to and has achieved the balance. This project will be operating under strict environmental standards. It must be viewed on a world wide environmental carbon footprint basis. If the minerals are mined somewhere else in the world the world environment will be damaged because of the lack of environmental standards and accountability. Common sense needs to prevail when the Mn. DNR makes a final decision on the EIS. I wholly support the project and I congratulate Poly Met on the work they've done to insure that the environment is protected. Thank you	EOO,G10

Sender Last Name: Cole **Submission ID:** 1966

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2475	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. Absolutely not! Not in my beautiful state - keep this filthy mining away from the Land of 10,000 Lakes. Our modern society has no need for this devastating activity. It's a no-brainer. just follow Wisconsin's lead. I don't need to highlight the problems with this abusive mining - the official agencies involved alredy know what horrible impact this would have. Every summer I go up to Sha Sha Resort on Rainy Lake and don't want to hear how the nearby land has been defiled by yet another greedy, self-centered industry. The PolyMet DEIS describes serious environmental issues associated with this proposed mine. These issues should be addressed and resolved before this mine is approved by the U.S. Army Corps of Engineers and the Minnesota Department of Natural Resources.	EOO,G6

Sender Last Name: Collins **Submission ID:** 275

289	As President of the Northeast Higher Education District, I highly value sustainability, sustainability of higher education design and delivery, of our regional economy and of employment opportunities that drive that economy. I work with five college Provosts in the District to ensure sustainability of educational services we provide to thousands of students. I also work with businesses in the region to ensure that we offer educational programs and customized training that help keep their employees on the cutting edge of technology and service, ensuring their long-term sustainability. And, I contribute countless hours to initiatives designed to ensure our region is sustainable - that our region will be able to provide jobs for the families that want to live in Northeastern Minnesota today and generations into the future. My commitment to sustainability is the foundation of my support for PolyMet Mining's NorthMet project, andI urge you to conclude that the draft Environmental Impact Statement for the project adequately identified and addressed potential environmental issues associated with the project and move forward with issuing permits for the project as soon as possible. PolyMet has invested more than four years and more than $20 million in the technical information and research that are represented in the draft; the draft clearly demonstrates the value of that research. PolyMet will be an environmental model for mining and processing copper, nickel, gold, cobalt, palladium and platinum. The designs for the mine and the plant maximize the use of existing infrastructure and minimize the disruption of wetlands. By using sulfur in the ore to help fuel the process, PolyMet maximizes the use of the material it mines and minimizes the use of fossil fuels that generate greenhouse gases. Despite mining tens of thousands of ore per day, PolyMet Mining will be a minor source of air emissions and also will not discharge any process water. Waste rock stockpiles will be managed by first laying down engineered liners with drains and collection systems to collect water for treatment and finally through special covers that will minimize any water seepage into the piles. The jobs PolyMet will create - both in direct employment and in spin-off jobs - will help provide viable, high-tech careers for graduates from the five colleges of the Northeast Higher Education District, and the resulting economic benefit will help ensure the sustainability of the entire region. Like you, I use these metals every day. As an educated consumer, I believe it's better that the metals are mined and produced under the strict laws that exist in Minnesota - laws that protect ourenvir:onmentandthat I knowPolyMet Mining will follow. Minerals produced in foreign countries that lack environmental controls and protections for workers are not an acceptable substitute; they are not produced in a sustainable fashion. PolyMet Mining will help our region, state and country become more sustainable on many fronts. Please move quickly to find that the EIS is adequate and begin developing permits so PolyMet Mining can fulfill its promise of sustainability as quickly as possible.	EOO
1111	Further, the PolyMet NorthMet project will result in total loss of 1,454 acres of federally designated critical habitat for two endangered species known to be in the vicinity of the mine site – the Canada lynx and the gray wolf.	WI1
1318	understanding that PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to	GT2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3230	up after PolyMet has gone. In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes. Wisconsin has already banned sulfide mining due to the unacceptable environmental risk it presents. It is also my	EOO,FM1
3677	Minnesota's natural resources and public health. Water quality impacts remains a top concern. How is it acceptable to allow for up to 2,000 years of environmental impact for the short term gain of one company? Who will pay for the long term treatment required? PolyMet has few assets and little financial history. The DEIS fails to address where the funding will come from to pay for post-closure treatment, monitoring and maintenance. As a result, it seems likely that Minnesota taxpayers may have to pay millions of dollars to clean	PD2,PD4
3748	cumulative impacts must address the loss of revenue to the Boundary Waters Canoe Area Wilderness and Superior National Forest tourist industry as part of a sulfide mining district. While I fully understand the economic necessity of mining, and need for natural resources in our society, we need to be responsible in our decisions. Certain types of mines should simply not be permitted in certain places where the risk to the environment is too great. This appears to be the case for sulfide mining in northern Minnesota. The PolyMet DEIS describes significant environmental issues associated with this proposed mine.	EOO,G8C,G11
Sender Last Name:	Condit **Submission ID:** 3727	
1	The DEIS needs to spell out a more comprehensive monitoring program to evaluate the effects of sulfate discharge from the NorthMet project. The program should include sampling of food-web organisms as well as surface waters and should be spatially and temporally intensive. Righ risk areas, as outlined in this review (and especially the Embarrass River wetlands), should be a priority for sampling. The program should be designed by mercury scientists with the MPCA and DNR and peer-reviewed by independent mercury experts to insure that results are meaningful.	WR4C,FM1,FM2
Sender Last Name:	Conklin **Submission ID:** 2874	
2749	The DEIS does not address adequately the danger of acid mine drainage leaching into the water and wetlands. Nor does it address adequately the impact upon Class 1 air quality of the BWCAW and Voyageurs National Park due to proximity. PolyMet would have an impact on increased mercury contamination of our lakes and wetlands. So many of our lakes are already at high levels of mercury contamination. Also, the DEIS does not adequately address the impact upon fish, wildlife, or humans. The risk of permitting PolyMet mining is too great.	EOO,WR1E,WR5A,WE2,W
Sender Last Name:	Connor **Submission ID:** 139	
130	Hello, my name is Gordon Connor, I'm from Chicago, Illinois, and I'd like to go on public record in support of this development in northern Minnesota. That's it.	EOO
Sender Last Name:	Conrad **Submission ID:** 2300	
24	Currently most of the economy of the Ely MN area is driven by outdoor recreation and tourism surrounding the BWCAW. The proposed mine has the potential to drastically alter the health and purity of the kawishiwi river watershed which flows directly into a significant portion of the BWCAW including Basswood lake which is the premier sport fishing location in Northeast Minnesota. The potential to dammage water quality in a wilderness area that is the source of livelyhood for most of the area residents is irresponsible. The gain of a few for a relativly short time (20 years) is not worth ruining an economy that has and will sustain many generations in Northeast MN.	SE4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
480	We value and respect our National Forests, especially Superior National, as our land borders it. We also appreciate the overall preservation efforts of our Federal Government for this valuable treasure we all get to enjoy. We strongly believe the U.S. Forest Service should not sell or trade public lands to any private company who will mine for a profit and not preserve all of its natural surroundinas as it currentlv exists.	PD1
501	We have been property owners in Lake County on North McDougal Lake near Isabella since 1999. We plan to retire and live in this pristine wilderness area in the future. We are very concerned about the environmental effects of an open pit copper mine in this northern MN region with our valuable water resources from Rainy Lake and River, to the Mississippi River and Lake Superior. Our concerns are based on what has happened to other copper mine sites in SO and Sudbury, Canada, where land has been totally transformed from its natural state.	WR3B,WR3D
1137	We are wondering why the DNR would ever risk its valuable natural resources that have been utilized by people all over the country. Will you be notifying all users of the BWCA to get their input on this project?	RFI
1138	We appreciate the fact that our neighboring state of WI has been a leader by passing legislation asking mining companies to show real proof ·over time how the environment would be impacted by copper/nickel/platinum mining. We would hope that the same principals are applied when reviewing this project.	G14
1457	I am totally frustrated and confused by our legislators, and those in control, willing to allow any public lands to be sold for an environmentally damaging long term outcome. In particular the sale of land for certain forms of mining that have proven to be detrimental in the past. In one breath we have the Government wanting us to pay attention to global warming and the impact of negative emission into the atmosphere. Because of this concern massive public funding subsidies have been provided to change how we produce electricity. Currently we have legislation in place to help reduce our carbon footprint, so we can protect this land from further destruction for future generations to come. Much effort and public money has been provided for seeking alternative electrical generation sources, such as wind and solar. Congratulations to our efforts, and good luck in our ability to actually succeed. Now the confusion I have is how are WE STILL willing to endorse certain mining efforts, which over time have proven to be detrimental to all users of this environment. Why are we so naïve to think we can control the outcome because we have laws and regulations in place. So we don’t want to damage the atmosphere and the air we breathe, but we are ok with damaging our lakes, and rivers, and surrounding habitat, for which we also need to live on. Where is the consistency in our leadership and decision making? Do we really have so called ambassadors who are genuinely interested in protecting our land for future generations to come? Should we really believe that our controlling environmental agencies, through their enforcement actions, are sufficient in protecting our environment? Do we really believe those in control of the mine can control the negative side effects of mining, even though they have not been successful in the past? Look around, visit those places that have been mined or visit with those who remain to tell their stories and observations,. You will find a significantly different story. ASK yourself, if this mining could be done close to your home, would you allow this type of mining in your neighborhoods, near your schools, near your fresh water resources, near where your family and future generations intend to live? If you SAY NO, than it’s not good in our forest, or rural areas either! PLEASE PLEASE, BE RESPONSIBLE and be good stewards of this land for all of us now and hereafter, and don’t allow a short term economic decision for the benefit of a few take precedence over the benefit of mankind.	EOO,G2B,G2C,G7B,G10

Sender Last Name: Conwell **Submission ID:** 3193

3587	I understand the economic need for metals and mining, but also see the many needs that are met by protecting the Boundary Waters in their current state. Natural areas, like farms, may not bring in large short term profits, but can provide long term economic returns far exceeding mining. I ask that the period for public comment and study be extended, and that the DNR please consider all views on this important matter.	ALT8,PRO6

Sender Last Name: Corbett **Submission ID:** 2229

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2637	I support PolyMet's instinction on this joint -- or mining venture. I've been a ranger all my life. I breathe the air; I drink the water, and I use the lands up there for basic entertainment, hunting, fishing, everything. I'm a miner currently and have been for 10 years, and the development they're doing in this and the time and effort they've put in this along with the money, it way, by far, outdoes any other place that's -- any of these other mining ventures right now, so -- the way they're categorizing the waste rock and everything like that and the mining process and, you know, try to eliminate as much of the flow-off into the rivers or anything like that as possible, and the manufacturing process too with the autoclave and everything like that, it's very minimal pollution, so I am in 100 percent support of this.	EOO,G6,G7
Sender Last Name:	Corliss **Submission ID:** 3273	
3581	This land is too beautiful to ruin. It is one of Minnesota's natural treasures and I do not believe the long term picture will be good if mining of this kind is allowed. I for one will stay clear of the natural beauty if this is allowed. How many places have been polluted and destroyed by this kind of activity? Below lists the reasons for concern.	G11
Sender Last Name:	Corradi **Submission ID:** 2173	
2579	This letter is in support of the PolyMet Draft EIS. I had an opportunity to hear from a representative from PolyMet speak at our Range Bar Meeting. I was not aware of the difficulties this mining project was facing in getting permitted. As being a native Iron Ranger, I fully support the PolyMet Mining project. PolyMet and its vendors will provide the Iron Range with multiple opportunities for challenging and exciting careers providing critical metals needed in medical applications, electric cars, catalytic converters, cell phones, computers and other essential products. PloyMet can produce these metals in an environmentally sound manner and create hundreds of stable jobs that can support families. The Iron Range relies on itsmining industries to generate economic activity and provide job security. The future of the Iron Range depends on companies like PloyMet to find new and innovative means of mining the resources in northern Minnesota.	EOO
Sender Last Name:	Cosgrove **Submission ID:** 3156	
35	Do we want the Boundary Waters, an international treasure, to be the guinea pig for attempting to demonstrate safe sulfide mining? I don't think so. Has anyone done a study quantifying the importance of the tourist trade in the area versus the importance of mining? Mining is a short term proposition, perhaps twenty years of recoverable ore. Tourism is a perpetual benefit to the economy of the area. To jeopardize this pristine area with sulfide mining runoff for short term gain and ruin the annuity of tourism is absurd. I am against sulfide mining until it can be proven somewhere else that current mining technology is safe for the environment.	SE4
Sender Last Name:	Coudron **Submission ID:** 1319	
1539	I would like to speak out in support of Polymet Mining's NorthMet project. Kraus-Anderson Construction Company has been based in Minnesota for 113 years and our continued success is dependent on the State continuing to expand and change. I believe it is far better to mine and process these minerals right here in Minnesota with sound environmental practices than rely on often-unregulated foreign sources. Minnesota can strike a balance of extracting these valuable resources while protecting the Northern Minnesota environment. This project will foster other economic development activity in the region and help strengthen Minnesota's long-term economy. The project will create good paying jobs and generate significant tax revenue to the state and local governments. I support moving forward with the permitting process for the NorthMet project.	EOO,G2B
Sender Last Name:	Coughlin **Submission ID:** 1092	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1196	I strongly support the PolyMet Mining North Met Project	EOO
Sender Last Name:	Cox **Submission ID:** 3455	
3221	Due to where Heikkala Lake is situated, it could potentially be directly affected along with neighboring waterways. We would like assurances that there will be proper equipment and safeguards in place to prevent any such pollution from occuring and if this does occur that the response will be immediate to take care of the problem. We thank you for the opportunity to comment on this project.	WR1A
Sender Last Name:	Coyne **Submission ID:** 3240	
3564	Thank you for pulling together this complex document.	EOO
Sender Last Name:	Cram **Submission ID:** 3113	
708	Based on my experience I find the Polymet EIS seriously lacking in several critical areas, to name just a couple; sulfates and reclamation. The problems with sulfates is well known based on experience all across our Nation. The problem will be seriously exacerbated because of the terrain and climate in Minnesota. Satisfactory reclamation of the proposed site will be very difficult to achieve if not impossible. Both of these issues are well known and need not be fully developed here, but they can be if the public is given adequate time to respond.	EOO,WR1E,PRO3,PD3
Sender Last Name:	Crimmins **Submission ID:** 286	
300	The state of Minnesota has the finest environmental regulations in the country in regards to the mining industry. There are over forty pages of Minnesota Rules on record that were formulated with input from Environmentalists, Area Citizens, Mine Owners, Labor and the Department of Natural Resources(DNR) in the 90's. These Rules are enforced today and with the cooperation of all parties the mines have operated while the environment has been protected. I was very pleased to see the amount of detail in the DEIS and that the Army Corp of Engineers, the Department of Natural Resources as well as the American Indian Tribes had input in the study. The Minnesota Pipe Trades believes that the Polymet Project will be operated in a professional manner in accordance with Minnesota's existing stringent environmental requirements and because of the following statements; The Minnesota Pipe Trades Association supports the Polymet Project.	EOO
Sender Last Name:	Crocker **Submission ID:** 3090	
3473	OMG! How broke must our state be to even consider this? Do you want to totally destroy the environment, the health of the people who live there, all tourism & the smell of northern Minn. Just to mention a few!!!

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2404	I am extremely invested in the preservation of the BWCAW. Since I was 13, the Boundary Waters has provided the experiences that have been most formative in my life. I am now a camp counselor up north, and each summer I see the BWCA continue to provide those experiences for hundreds of kids. The changes made in all of us by this unique wilderness area are truly invaluable. In a world that is increasingly in need of environmental awareness for the mere continuation of our species, I cannot stress enough how important wilderness experience is for young people. Please, please do not compromise this ethic for short-term, unsustainable economic gain. Furthermore, please accept these comments on potential environmental impacts of the PolyMet Mining Corp. NorthMet mining project. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	EOO,G2,G3

Sender Last Name: Cummins **Submission ID:** 11

10	Douglas Cummins from Hill City, Minnesota. I just -- I'm in favor of seeing this all going for the simple fact that I'm a boilermaker by trade. I'd like to see the new ones coming up in our trade as having a place to work for the future. We do a lot of repair work in the mine industry and stuff, a lot of local contractors in this area. I would like to see everything carry on and get a lot of people back to work in this area. I'm getting ready to retire. Being affiliated with a union, you think about your health and welfare and your retirement fund and everything and that keeps it going. It's a good plan to have in the making right now I think. I've been around these mines and I don't object to too much as long as it's kept up and they go along with the EPA rules and regulations. That's about all I've got to say.	EOO

Sender Last Name: Curphy **Submission ID:** 1338

6	From my understanding of the EIS statement I find gaps on key issues: Loss of the Cultural Resources in the Ceded Territory Act of 1854	G3,CR1,CR4
230	I'm concerned that the Polymet Corp. has not sufficiently explained how they will safely mine with no damage to our ground, water and air system. Thus, damaging our land to an un-repairable state. Contaminating our water so the fish will not survive and polluting our air making it difficult for us to breathe, trees to grow and animals to flourish.	AQ5
231	From my understanding of the EIS statement I find gaps on key issues: The following of the laws of Clean Air and Water as State and Federally regulated.	AQ6
232	My son has chronic asthma that is very sensitive to the quality of air he breathes. I am concerned that Polymet has not sufficiently explained how they will control the increase in air emissions of mercury and particulate dust in the surrounding area. I understand that 807 tons of particulate air borne pollutants will be admitted into the air. How and who will be monitoring the surrounding area for these problems that will occur?	AQ6,AQ6A
233	How far will the air admissions travel?	RFI
234	What is the distance that will be monitored from the site?	RFI
235	Who will be responsible for monitoring the area?	RFI
236	How often will the monitoring be done?	RFI
393	I'm concerned that the Polymet Corp. has not sufficiently explained how they will safely mine with no damage to our ground, water and air system. Thus, damaging our land to an un-repairable state. Contaminating our water so the fish will not survive and polluting our air making it difficult for us to breathe, trees to grow and animals to flourish.	FM1,FM4
646	From my understanding of the EIS statement I find gaps on key issues: Loss of the Cultural Resources in the Ceded Territory Act of 1854	CR1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
647	From my understanding of the EIS statement I find gaps on key issues: Understandable details of the Financial Assurance of the project as a whole.	PD4
648	From my understanding of the EIS statement I find gaps on key issues: Lack of land-exchange impacts in the DEIS.	PD1
690	I'm concerned that the Polymet Corp. has not sufficiently explained how they will safely mine with no damage to our ground, water and air system. Thus, damaging our land to an un-repairable state. Contaminating our water so the fish will not survive and polluting our air making it difficult for us to breathe, trees to grow and animals to flourish.	WR1E
691	From my understanding of the EIS statement I find gaps on key issues: The specific impacts of our native Wild Rice.	WR1E
1560	I am writing to you as a concerned property owner from Brimson, MN. My husband and I own a cabin in close proximity to the PolyMet sulfide mining site and we are opposed to the project as it is currently being proposed. I am a proud member of the Fond du Lac band of Lake Superior Chippewa. I am an active user of the Ceded territory land for Hunting, Fishing and Gathering. My concerns for the project are as follows:	EOO
1561	Our family has resided in the area of the proposed contamination for more then 40 years. We have a son who we have hoped to pass on the beauty and fulfillment of our Native Land. A place where our grandchildren will love as we do.	G11
1562	In closing, I am NOT in support of the Polymet Mining project and will not be until studies show a clean, safe, reliable mining process can be obtained.	EOO
1585	There has been no proven evidence that the contanment of sulfuric acid runoff can be accomplished. Why gamble in an environmentally sensitive are such as northern Minnesota. THe beginning as orgin of several watersheds like the Lake Superior-Mississippi [illegible]	EOO,G7A
1587	We can not believe that this pending damage will be done to any beautiful land- sulphuric mining is not safe. What does a [illegible] counting have to lose? mine, do damage, file bankruptcy and pull out and leave the taxpayers to "clean up"	EOO,G4A

Sender Last Name: Curran **Submission ID:** 3460

3739	Fellow Citizens, While I fully understand the economic necessity of mining, and need for natural resources in our society, we need to be responsible in our decisions. Certain types of mines should simply not be permitted in certain places where the risk to the environment is too great. This appears to be the case for sulfide mining in northern Minnesota. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. The bottom line is that this mining project cannot be approved. Sincerely, Merv Curran	EOO,G2

Sender Last Name: Cyrus **Submission ID:** 2358

2843	I have concerns about the PolyMet Mining Corp. NorthMet mining project, primarily in relation to tourism in the surrounding regions. I am not a native of Minnesota, however, I have considerable family in the area and was planning to take a camping/canoe trip this coming summer to the boundary waters. The impact of this mining operation draws into my head serious doubts on if I want to travel to northeastern Minnesota to hear and see the sounds of drilling or mining activities, when I go now or the in future. I feel that it is in the best interests of the peoples of the United States to not conduct this mining in this area. Considering it is planned to occur in superior national forest, I feel I have the right and the duty to let these concerns be know. I have a special place for Minnesota in my heart and have heard such outcry from my family that I feel moved to protest. Thank you for your time, I hope that further review will be given to the EIS on the project and that the watersheds affected remain healthy and clean.	G2A,G7

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3253	As a tourist to MN and a natural resource professional I am unsure that the provisions to protect watersheds impacted by the proposed sulfate mining will be as affective as is promised. I believe that the clean and wild characteristics that define this valuable resource are what people pursue when they visit northern MN as it is what I look for. Though I understand that there is already impact as there is in most places, the publicity received by these mining operations degrades the perceived wildness and cleanness just as much as if there was serious impacts. I urge more consideration to be placed on these plans before a weighty decision like this is made. Thank you for your time.	EOO

Sender Last Name: Dahlberg **Submission ID:** 325

21	I want to add one final comment which I aplogize if I end on somewhat negative note. I find myself feeling somewhat uneasy with the fact that an additional hearing ouside the project area was set in the Metro. I am unfamiliar with the precedence here and whether similar projects situated in the Metro require a second Out-State hearing.	PRO6
344	Thank you for the opportunity to comment on the draft Environmental Impact Statement (DEIS) for the PolyMet Mining project. As a St. Louis County Commissioner, an individual with deep family roots in the region affected, and perhaps most importantly the father of a 5-year old, I have the foremost oblicagation to assure that a sound, objective, technically-based analysis process of the project is followed to guard against degradation of the environment and health injury to the surrounding population. Once this first obligation is met, I then turn my efforts to aggressively work for projects that promote long-term economic viability to our region. After spending considerable time educating myself on this project, I am convinced that the PolyMet project has met the requirements to assess its potential impacts and has offered significant evidence that is will meet or exceed Minnesota's strict environmental regulations. I have had meetings with PolyMet officials to discuss the mining and processing operation as well as toured the actual site. I am impressed with the multiple safeguards the company has developed to protect the environment now and ewll into the future. This has been an over 5-year process to date. The company will manage waste rock from the beginning, separating it based on its acid generating (reactive rock) potential and storing it on engineered foundations with drains that will be able to collect any water that flows through the stockpiles and treat it at a wastewater treatment plant. Once operations are complete, stockpiles will be covered and vegetated to minimize the amount of water that can come into contact with the rock. Seepage will continue to be collected and treated. A financial assurance mechanism will be set up that is bankruptcy and judgement proof to assure funds are reserved to continue with treatment remediation well after the project production ceases. Further, I have looked to the objective, technically-based analysis of the lead agencies: Minnesota Department of Natural Resources and U.S. Army Corps of Engineer (ACE). I have the fullest confidence inyour jointly prepared DEIS findings. This confidence comes from my past dealings with these agencies both in my role now as a county commissioner and formerly as a Duluth City Councilor. On a more personal note, my confidence may be also attributed to the fact that as an Army Engineer I am deeply aware of the importance ACE places on jealously guarding its reputation to assure all such studies are meticulously conducted and scrutinized internally. I urge that regulatory agencies may soon begin using the data in the EIS to develop operating permits for PolyMet.	G1,G4

Sender Last Name: Dahlquist **Submission ID:** 3097

28	-There is no thought as to the damage to the area for recreational purposes and it's impact on tourist economies. These may be the only viable economic solution in the future.	SE4
721	For all concerned please allow more time for examination and discussion of this issue. I would rather move away from someplace because I could not make a living there than to move away because it was destroyed by trying to make one.	PRO6
1056	-No discussion of loss of wildlife habitat of both threatened and non-threatened species.	WI2
3038	-No clearly effective plan for containment of polluted water.	WR3A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3039	-No discussion of pollution hazards due to sulfates and methyl mercury of fish and the humans and animals that ingest them.	WR4B,FM1
3481	-No one is demanding proof that this type of mining has been done safely before. Because there is no example to be given.	EOO
3493	-There is no plan for governmental oversight to monitor the operations conducted by Polymet. No monitoring of environmental haze, No consideration as to water movement and the chance for contamination of wide spread and unintended areas.	PD8
3494	-No plan to escrow money for possible toxic cleanup by the mining company. Who will be left holding the bag should the company fail and there is failure to follow stringent protocols. The damage is done and the company can not be held up for assets they do not have.	PD4

Sender Last Name: Daly **Submission ID:** 2298

424	Also, it is crucial that the time frame be extended for public commentary on this issue of grave importance. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources.	PRO6
2736	There is no amount of economic gain, private, or public, that could possibly be more important than preserving a natural eco-santuary such as the MN Boundry Waters and surrounding waterways. The probable "runoff" caused by hardrock/sulfite mining is too heavy a price to pay for monetary gain, in any form!	EOO,G7A

Sender Last Name: Damon **Submission ID:** 2823

1639	The mine's tailings basin will also produce discharges high in sulfate concentrations, which will turn mercury into methlmercury, making fish dangerous to consume.	WR4B,FM1
2636	I'm Michelle Damon. Wondering what the revenue from the mine itself will be for the State.	G1
2670	Water Quality At Risk - Water quality concerns have not been adequately addressed in the PolyMet project's DEIS. Water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years.	WR1A,WR1E

Sender Last Name: Dana **Submission ID:** 2532

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3101	I am anxious to submit a comment regarding the PolyMet Corp. NorthMet mining project Draft Environmental Impact Statement. I am concerned about the consequences this project will have on Minnesota's economy and precious natural resources. I am certain you have received a number of responses outlining concerns about 1) safety, 2) impacts on water quality, including water leaching from waste rock piles, 3) long-term responsibility for clean-up, 4) subsequent tax burdens, 5) high sulfate (and therefore mercury) levels, 6) stability of tailings basins, 7) long-lasting contamination. I share these concerns, and I urge the DNR and the U.S. Army Corps of Engineers to more carefully examine the DEIS, working with PolyMet to complete stability analyses and create a realistic long-term plan for containing pollutants and striving for minimal impact. I am encouraged by the relationships which have been set up between the Wisconsin DNR and potential mining companies, because I value the care and thought put into permit grants. I would appreciate a similar prudence and critical eye from the Minnesota DNR. I understand the value of increased economic opportunity in northern Minnesota. I live in Wyoming now, and work for a science and conservation organization, but I am a Minnesota resident and have spent significant time in the ecosystems under consideration for these PolyMet mines. I know the economy could use a boost. However, I know that the pristine nature of these ecosystems is a huge part of their appeal, both for tourism and for agriculture and for industry. For these reason, I strongly urge the DNR to not only reconsider the PolyMet proposal but to implement a creative problem solving team to move towards innovation in northern Minnesota. The solution is not simply to abandon all mining prospects. I see the solution laying somewhere within a compromise, one that protects Minnesota's natural resources so they can continue to build an economy with vibrant tourism, fish and wildlife opportunities, and safe communities. I have grave concerns about the PolyMet proposal as it stands, and I fervently hope the DNR will reconsider before approval.	G4,G6,G7A,G11,G14
Sender Last Name:	DAngel **Submission ID:** 2215	
2622	Hi. I'm Dianne D'Angel from Hibbing, and I'm just very excited about the possibility of these jobs coming to the Iron Range. We really need them up there. And as far as the environmental impact, I believe that PolyMet has been meeting all their criteria that is required of them, and I believe that they're doing it in a responsible way, much more responsible than the rest of the world, as far as mining is concerned, and I have faith in the DNR and the Environmental Protection Agency to keep them on their toes as they need to, but I believe that this is a very positive impact for Minnesota, not only the Iron Range, but for Minnesota as a whole. That's pretty much all I have to say.	EOO,G5
Sender Last Name:	Danicic **Submission ID:** 3494	
48	our state's best interest - not the corporation's. Economic and Social Impact As the DEIS considered this, I must point out that the effects to other industries in the area were not adequately studied. There are serious outdoor tourism and lodging and recreation businesses that will likely see negative impact. These are environmentally sustainable. The effects an extractive industry truly has on an area have not been given due thought and Resource Curse theories not taken in. Mining has become so automated that few real sustainable jobs will be created and the real earnings will go to a very few. A cursory glance at Northeastern Minnesota's three big counties	SE4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3241	Waters Wilderness, of which I am a member, has submitted. Here are my concerns. Water Pollution It seems to me the best case scenarios have been studied in this draft EIS and few of the highly likely problems have been sufficiently analyzed. I have no faith that the tailings basin liners will last the amount of time it takes for the waste rock to become inert. This design will not work without expensive maintenance and no maintenance is described in the DEIS. Who will pay to get those fixed properly? And how long will the pollution from this likely scenario go on while Minnesota figures it out? High sulfate concentrations in the Tailings Basin will be released, resulting in high-risk situations for mercury methylation. Lakes and rivers in the area are already under mercury advisories, including the waters of the watershed into which the PolyMet mine would discharge. The ground water issues are not adequately studied or modeled. The analysis overlooks the fact that most fens in the area are porous and basically, the engineers do not know how waste water will move through it. I cannot support the risk to this area's wetlands when they are such a large part of our state's carbon sequestration, which will become increasingly important. Northeastern Minnesota has some interesting value beyond the minerals beneath its surface. The area has headwaters of three of the four major watersheds of North America, the Arctic, the Atlantic and the Mississippi. Surely, if this and other mines are permitted, and pollution begins trickling out of them, many of our neighboring states and Canada will be lining up for legal action. The BWCAW and neighboring public lands in Canada are also the world's first transboundary protection area. I believe the permitting of this and other mines like it at this time threaten that protection and our valuable position at the top of the water flow food chain. Precedent This is the first non-ferrous mine proposal here in Minnesota. Duluth Metals and Franconia stand right behind PolyMet and are watching this process intently. Their mines would operate well within the Boundary Waters watershed and thousands of feet deep. It will be highly unlikely their engineers will be able to predict the environmental damage to the groundwater and surface water. And again, the DNR would place itself squarely into controversy around conservation of the nation's most visited wilderness area vs the number one toxic polluting industry in the US today. If you are to permit any operation in this area, it had best be PROVEN not to create	WR1E,WE2,GT1
3691	water pollution, not depend upon unproven technology. Financial Assurance The EPA has recommended financial assurance be taken into consideration in any EIS for non-ferrous mine operations. It is not considered in this draft EIS. In this day an age, when surely, wehave learned from many corporations who have used bankruptcy as a business model, we cannot take a chance that will cost Minnesota's children millions of dollars. Any financial assurance regulations need to involve the Pollution Control Agency and MN Office of Management and Budget who have people who understand the latest financial products and securities and who will work for the people of	PD3,PD4
Sender Last Name:	Daniels **Submission ID:** 2054	
2490	Mining has a history of leaving behind environmental disasters. If the PolyMet Mining Corp is allowed to mine in Minnesota, It must leave the area as pristine as they found it.	G14
Sender Last Name:	Danz **Submission ID:** 2892	
3231	I am concerned about mercury pollution from the PolyMet sulfide mine proposal on public land in the Superior National Forest. I oppose any further mercury pollution. I believe allowing the PolyMet mine to open is both dangerous and illegal, damaging as it will the environment, human and animal lives, and tribal sovereignty. The project must not proceed.	G2
Sender Last Name:	Danzl **Submission ID:** 1719	
2226	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. The statistics show that even if PolyMet says they will not pollute the water or cause damage to the environment, it will happen (as it did in most other cases). I do not believe that this project is worth the damage that it is going to cause.	G10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Daub **Submission ID:** 327	
22	What I would like to share with you is my concern about the decision to allow policy-makers to speak and provide their endorsement of the project. The event was turned from a public informational meeting into a political rally. This was highly disturbing to see. Rather than an even-handed, unbiased and accurate portrayal of the project, members of the public were provided, from the politicians, with personal endorsements and at times inaccurate representations of the project. There was no equal time provided to speakers who might have expressed different points of view about the project. Conducting the event in such a fashion risks losing the public's trust in the state and federal agencies overseeing this project. Minnesotans need to know that decisions affecting this proposed mine will be made solely based on applicable laws, regulations and technical information. When the agencies hold a public meeting that instead becomes a rally for only one point of view, it shakes that confidence.	PRO1,PRO6
346	I wanted to give you some feedback about last night's public meeting on the PolyMet DEIS in Blaine. I was impressed with how well it was organized. It appeared that the lines to provide verbal or written comments flowed well. And I thought it was a good idea to have the tables with DNR staff to answer questions. I'm sure it was a large task to organize the event - and all seemed to go well. Some have provided their objections to a format that did not include a more public sharing of audience questions and comments. I will not add to that debate here.	EOO
347	I will add, I thought the presentations by Steven Colvin of the DNR and Al Trippel of ERM were well done and without any indication of bias. Had the agenda been limited to their presentations, it would have been a more fair and unbiased presentation of information. Please share these reflections with those appropriate individuals within your agencies.	EOO
Sender Last Name:	Dauphin **Submission ID:** 3234	
3560	Have you been to Sudbury, Ontario? I went through in the late 50's. From driving through thick forests, suddenly there was only deadness. No trees, no shrubbery. This continued on through town and beyond, describing perhaps a 10-15 mile circle. I drove through again in 2003. Now, there are a few tiny, sickly trees. Conditions have been "improved". This is the effect of copper/nickle mining and processing. I have a cabin and 94 acres of land about 20 miles of Hoyt Lakes. My heart aches for the destruction projected in this territory. You can always make things sound good on paper. But copper/nickle mining and processing is toxic. Maybe fancy "environmental devices" can slow down the rate of destruction, like the barrels of nuclear waste that were to last 10,000 years, but what Polymet is projecting is going to destroy the nature, your habitat and mine.	G2
Sender Last Name:	Daveau **Submission ID:** 242	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
254	To Whom it may concern. I feel that the PolyMet Project is a very important project for the Northern part of Minnesota as it will employ a number of people with good earnings that will allow there employees to prosper, currently the work situation is dismal on the Range and this would be a great boost for the area. I have personally sat with some of the researchers from UMD that have looked into some of the concerns that have been risen, they assured me that the plant can be built and ran so that it would not be detrimental for the ecology of the area. The processes that would be used are not the evasive and contaminating processes that are of concern. I also would like to point out that the minerals that they would be mining are very important to our society, if we are to ever become self sufficient and free of having to depend on other countries for our resources this is a huge step in the right direction. The time to build is now when the economy is slow, the owner will reap the rewards of very competitive bidding and materials are at a low due to the slow economy, the contractors that are hungry for work will reap the rewards of procuring work when there is little else to bid on, the people that would get employed would reap the rewards of a pay check and in turn spend money in the area and thus the area itself would reap the benefits of financial boost from the plant being built in their area. I ask that we stop trying to cease construction in Northern Minnesota as many people who do not live in the area, look at it as their play ground and vacation areas, we that live here and try to survive need real jobs that pays decent wages and will give us a secure future. I ask that you please push this project forward and stop stalemating industry growing in Minnesota.	EOO
Sender Last Name:	Dazenski **Submission ID:** 2487	
3014	In addition to the comments below, I would add that businesses often fail to honor the agreements they make with communities. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	G4A
Sender Last Name:	De Vries **Submission ID:** 1120	
1228	I have lived in the Great Lakes area for nearly all of my 71 years! It seems that greed continues no matter what we do. There is not, as far as I know, any urgent need for the mine mentioned below. The earth is the ONLY place we have to live and it behooves us to take care of it, not only for ourselves but our children and grandchildren as well. As much as I regret to say, it seems to me that the Corps of Engineers has become heavily infested with politics. The Corps MUST look out for ALL citizens and NOT just business.	EOO
Sender Last Name:	Dean **Submission ID:** 2108	
1706	I do not think the DEIS adequately addresses the impacts of the proposed mining on wild rice production in the state. The mine would release sulfate at a level that is unacceptable for wild rice growth. Again this would have a negative environmental and economic impact on the area. Please insist that the impact of the mine on wild rice quality be studied further.	WR1E
2497	This iemail s a comment on the proposal by PolyMet to do sulfide mining in northern Minnesota. I am concerned about using this method of mining that has unknown impacts and is therefore not allowed in other states. The potential for sulfuric acid in our state waters is high – and this is an unacceptable risk. This could have a negative environmental and economic impact on the area of the state.	G7
Sender Last Name:	Debevec **Submission ID:** 370	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
411	Destruction of the St. Louis River Watershed by Acid Mine Drainage would have a significant negative economic impact on the area and the State of Minnesota. A U.S. Fish and Wildlife Service survey found that in 2006 nearly half (48 percent) of Minnesotans said they were wildlife watchers while 13 percent said they were hunters. Wildlife watchers spent $654.5 million pursuing their sport last year, while hunters spent $475.8 million. While fishing is enjoyed by 28 percent of Minnesotans (tying Alaska as the highest participation rate in the nation), the 1.4 million anglers spend an amazing $2.5 billion on their sport. Minnesotans are more active in outdoor wildlife activities than residents in any other state in the nation. By estimating that the loss from destruction of the St. Louis River watershed is 1/100th of this spending means a loss of approximately $36,000,000/year to the area economy. 400 mining jobs at a $75,000 per year would represent only $30,000,000.	SE4
Sender Last Name:	Deblack **Submission ID:** 1714	
2216	Seriously, how can anyone possibly think that this is O.K? One day we will all be held accountable for ALL of our actions. Are you really O.K. with this?????	EOO
2448	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. I am a biologist and we all are stewards of Mother Earth. WE will forever be judged by the tracks we leave. We desperately need jobs here, but not at the expense of our environment and ecology. Mining can be done in a fashion that will leave no tracks or harmful legacy behind. We are all for that. Who would think it is acceptable to ruin or compromise any of nature for a short term gain. Not I, it can be done right and we should accept no less.	EOO,G2
Sender Last Name:	DeBreto **Submission ID:** 3441	
3663	What I want to know is who is going to hold PolyMet accountable to their promises and for their actions?	RFI
Sender Last Name:	DeLuca **Submission ID:** 248	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
261	I support the PolyMet NothMet Project. Enough is enough; let's get on with permitting this mine. I will not go into the discussion as to the impact on the local economy because of mining, or the number of jobs that are dependent on such. Or the effect on the local tax base and how those taxes "give back" to the area and those perhaps less fortunate. And the services that have flourished due to the mine's jobs and benefits. Those jobs that assure other essential services like hospitals and schools that have a base from which to operate. Or the fact that Minnesota has lost a great number of jobs due to its excessive tax structure and state policies as they pertain to business. But I will caution our legislature to view this issue in a world context rather then looking at it from a micro perspective. As economies flourish in developing nations it puts a burden on the entire world metals sector. We, as consumers pay more for those imports, and are held hostage, much like the OPEC Cartel has us held hostage today. This country does not even have a nickel, cobalt, or platinum mine producing today. This is a sad commentary for the most powerful nation in the world. PolyMet will mine and produce several metals not currently mined anywhere in the United States. And mining these metals in a foreign country will more then likely create a greater global environmental impact as they have no safe guards in place. One has only to review Mesabi Range Mining and its contribution to the industrialization of America, or the world for that matter. And let's not forget the role Iron Range mining played in the production of goods during our World War I and World War II effort. Mining is important to our county and its industrial base, as well as our national security. While no one wants to talk of war, our lack of self sustaining minerals will put our country in a precarious position. These "strategic" minerals are of paramount importance should a conflict erupt today. And PolyMet will also be a domestic supply of critical metals needed in medical applications, catalytic converters (necessary for pollution prevention), cell phones, computers and other essential products. These metals that will be mined are also important in our move to green technology such as wind turbines and hybrid cars. We have this "window of opportunity" that needs to be addressed. I firmly believe that our country will experience less "ups and downs" in the future should we become more self sufficient. Self sufficiency is the measure of a strong country and a healthy society. Special interest groups must not stop this project. And make no mistake they want to delay it as well. That is there intent. To analyze this project "to death" and hope it goes away. What is our county to become, one Giant Park or playground? That is not the measure of a great people or society. PolyMet's NorthMet Project has been designed to minimize environmental impacts using the best technology available. The DEIS has laid the groundwork for developing an environmentally and economically sustainable project and I support it. As for protecting our environment there are no better "watch dogs" then the employees of our mining companies. Unsound environmental policies put our employees in harms way. Its employees and our residents recognize this. Much of labors laws that have developed since the turn of the century are due to its own employees, as have the environmental safeguards. We live here 24/7 and no one wants to protect our resources more that those of us who make our living here. We do so now- within the existing laws. And what better place to develop a new mine then at an old one. I urge you to support this initiative in our region for the good of our residents, our state, and our country.	EOO

Sender Last Name: DeMarcken **Submission ID:** 1190

510	A different design is needed to prevent contaminated overflow into our local water bodies.	PD2
1305	Minnesota waters are an invaluable resource, they should not be polluted with heavy metals and sulfates. High sulfate discharges should not be permitted Minnesota should not permit the reduction of habitats for endangered species, including lynx and wolves. Give the value of peatlands in the context of carbon sequestration, they should be protected.	G2C,G7A

Sender Last Name: Dembiczak **Submission ID:** 3231

3558	We are in support of the Polymet Mining's NorthMet Project. This Reagen and the state cannot afford to let this project "slip through the cracks" do to a political agenda. The state needs these high paying jobs that this will create. In this time of government "over spending at every level," we need all the tax revenue that can be generated. That means letting business prosper as it should.	EOO,G10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name: Dennie	**Submission ID:** 233	
241	Gentlemen: Having had the opportunity to listening to a presentation by Mr. Joseph Scipioni, President of Polymet Mining, I feel comfortable in addressing the question of whether Polymet ought to receive permitting for their proposed mining facility. Mr. Scipioni presented out our Quad Cities Rotary* meeting the spring of 2009. His presentation covered the proposed mining of precious metals and then focused on the process involved in bringing the metal to final form. He was asked several in-depth questions regarding the potential of water contamination etc. When everything was said and done, the membership was support of continuing the permitting process by Polyment. It appears to me (and others) that Polymet has DONE their due diligence in meeting current and even future rules/regulations in place by Minnesota PCA, etc., etc. Government agencies have also done "their" job in scrutinizing Polymets' proposed mining process to make certain that pollution of water/land etc. is not in the offering. Further, is appears that governmental agencies know more about potential pollution issues than the general public and that ought to weight more in granting of the final permits necessary to begin mining. IN ADDITION, polymet has followed the processes necessary to secure permitting and should be granted the permits. The old adage "we can go on and on letting people make rules on the fly" only further delays and creates unforeseen expenses. One can surely say that there may be pollution from this project, BUT that can also be said about every business adventure in Minnesota today. We don't know what types of pollutes maybe out there and if we want to keep Minnesota TOTALLY green forever, we will have to shut down all types of businesses..which will cause total unemployment and no one will be living in the state in 20 years.even those who want the state green. I urge you to grant Polymet the permits necessary to move ahead with their project.	EOO,G6
Sender Last Name: Dennison	**Submission ID:** 3310	
3603	It is our turn to fight to preserve the BWCA as others have before us. As a college student at Bemidji State University and member of students for the Environment on our Campus, I believe that it is quite clearly not in the best interest of Minnesota to allow these mines to be dug. I am not a native Minnesotan. I grew up in Colorado, and was directly effected by sulfide mining. Many times I went fishing with my father and uncle an caught nothing because the lakes were dead from the acidic run-off form old gold mining operations in the 1900’s (Central City/Black Hawk). I do not want to see the yellow piles of waste rock, and dirty streams without fish in Minnesota. Enough is enough. We have already tainted the Rockies, let us stop there and keep our Boundary Waters precious, and our North woods free of this proposed monstrosity.	EOO,G2
Sender Last Name: Dent	**Submission ID:** 3534	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3796	Dear Mr. Arkley, I appreciate the opportunity to provide my personal perspective on the proposed NorthMet Project as described in the Draft Environmental Impact Statement (EIS) dated October 2009. I believe that the DEIS is a comprehensive document that adequately addresses State and Federal requirements and I fully support this project. Protection of the environment is a high priority for me. I live in Northeastern Minnesota, am an outdoor enthusiast and have spent a significant portion of my life enjoying fishing, hiking, skiing, snowshoeing, swimming and canoeing in northern Minnesota, on the Iron Range and in the Boundary Water Canoe Area Wilderness (BWCAW). As an environmental professional, I have seen that risk assessment and risk management are required as development occurs in order to protect human health and the environment. I have had the opportunity to observe my colleagues as the NorthMet Project has proceeded through the joint State/Federal environmental review process. The environmental assessments for this project have been conducted by professionals with high moral standards and respect for the environment. In addition, independent technical reviews have occurred by a team of environmental professionals that included State and Federal agencies. This lengthy and thorough process has identified effective solutions that will protect human health and the environment, as described in the Draft EIS. I am confident that the project design will continue to be optimized during the Final EIS and permitting process. The NorthMet Project will allow people in this State and Nation to produce more of the metals that we utilize and will limit our dependence on other countries for these metals. I also feel that we as consumers must share the responsibility for the environmental impacts that are associated with the goods that we purchase. The NorthMet Project meets rigorous environmental regulations. Lastly, I support the NorthMet Project because of the direct and indirect long-term jobs that it will bring to the region and the State. In summary, I recommend proceeding with the Final EIS and I support a declaration of adequacy for the NorthMet Project.	EOO,G10
Sender Last Name:	Deusen **Submission ID:** 1158	
1273	We have concerns over use of existing tailings basin for mining waste disposal. All evaluations show evidence of current leaking and Embarrass water contamination. What will our children see here? 20 years of minerals vs forever wild forest & waters? Force Polymet to perform appropriate studies and use proven methods, not best guess.	G7A,G8B
Sender Last Name:	Diamond **Submission ID:** 3192	
733	To allow this mining to occur would be a violation of the public's trust and basic health. With this context I urge you to: 1. Extend the time by 45 days to review the EIS for copper nickel mining in Ely. 2. Schedule more public meetings -- both in person and also virtually online (publicizing online meetings widely so that many people like myself who treasure the BWCA yet live far away) -- so that meaningful community input is obtained. 3. Make sure that public meetings are structured to allow citizens to make statements and to participate in discussion.	PRO6
2591	MARK DIAMOND: My name is Mark Diamond. I'm from Hibbing, Minnesota, and I think this is a real good thing because we need jobs up north. I'm a welder myself. I've been looking for work and it's real tough. I'm hoping this will open up some avenues of employment for myself and others. Other than that, I think I'll just hang tight and see what goes on here. I'm real happy with the situation with getting more work up north. With that, I'll close. Thank you.	EOO
3129	It is completely unacceptable to allow mining companies to leach sulfuric acids and heavy metals into the watershed upon which so many people -- wilderness enthusiasts, homeowners and cities -- rely.	EOO
Sender Last Name:	Dick **Submission ID:** 2198	
2606	MR. DICK: My name is Marc Dick, and I am for the PolyMet project for jobs. That is it.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Dietel **Submission ID:** 3272	
1922	The mine's tailings basin will also produce discharges high in sulfate concentrations, which will turn mercury into methlmercury, making fish dangerous to consume.	WR4B,FM1
3174	Water Quality At Risk - Water quality concerns have not been adequately addressed in the PolyMet project's DEIS. Water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years.	EOO
3580	So, I guess it just seems unbelievable that this is even an issue. I could scream, cry, and yell at those who want to harm our environment. But that has never proved to have a positive effect. So I am asking everyone involved in this decision to act on what YOU KNOW is the right thing to do. What price can we put on losing our fresh water? Please consider what this means for the future of our state and country. You can be a voice that will be respected and admired throughout not only our state, but also the country. Thank you for voting AGAINST the mining project. Put the value again on what is truly important for our children and country.	EOO,G2
Sender Last Name:	Dirks **Submission ID:** 1828	
2432	We don't need the proposed mining on the BWCA border badly enough to risk the environmental damage.	EOO
Sender Last Name:	Doane **Submission ID:** 3124	
3496	Please add me to list of people opposed to this proposal. I'm already disgusted enough with my government and this is another insane idea. Sulfide Mining has left a disaster everywhere it has been tried. Why would you ever consider doing it?	EOO
Sender Last Name:	Dodson **Submission ID:** 3562	
1067	Effectiveness of constructed wetland treatment systems has not been proven. The suggested method should not be relied upon as a water treatment method. Reliance on this method will likely result in pollution in rivers and lakes downstream. A complete stability analysis and acceptable basin design should be a part of the DEIS. Before any of PolyMet's tailings are deposited on top of existing tailings, existing structural deficiencies must be addressed. The tailings basin will contain extremely hazardous waste materials. An appropriate design is critical, and should be identified in the DEIS. The company should design another method for cleaning cleaning polluted waters.	WE6
1068	The PolyMet proposal's impact on wetlands and global warming is unacceptable: A major problem: Significant Loss of Wetlands – Increasing CO2 Emissions. Peatlands at mine sites have been identified as high quality wetlands in federal and state inventories. The peatlands represent habitats that are increasingly rare on the landscape, and should be protected from destruction. Reports commissioned by the MN State Legislature and by Governor Pawlenty call for the protection of peatlands for their ability to capture and secure carbon. Minnesota needs to heed these recommendations and halt any further destruction of these valuable habitats.	WE2,AQ3
1137	The PolyMet proposal's impact on wildlife is unacceptable: A major problem: Loss of Critical Habitat for Wolves and Lynx Critical habitat identifies geographic areas that contain features essential for the conservation of a threatened or endangered species. Habitat was designated for the lynx and wolf to prevent further population declines. Minnesota should not permit the diminishment of habitats for these species.	WI1
3275	The PolyMet proposal's risks to water quality are unacceptable: Major Problems: Contaminated Discharge from Waste Rock Pile; Contaminated Overflow from the West Pit; Tailing's Basin Water Discharges Will Be High in Sulfate; Unreliable Wetland Water-Treatment Plan; Unstable Tailings Basin Could Discharge Toxic Materials	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Doerr **Submission ID:** 2686	
3167	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. Water Quality At Risk - Loss Of Wetlands - Harmful To Wildlife - Cumulative Impacts Not Analyzed Financial Assurance Information Missing Land Exchange Analysis Missing	G2,G4A,G7,G8C
Sender Last Name:	Doerrie **Submission ID:** 3050	
26	Please just evaluate the health costs of people affected by toxins or add up the loss of income and taxes to resorts closing due to problems (plus dead fish clean up) and it will for certain add up to what it would cost the company in terms of implementing proper environmental safety controls. Even if you only took a small number of people getting sick or just a few resorts closing it would still add up to a huge expense, then compound that by it becoming an extensive problem, wow! Cost figures speak loudly when evaluating business decisions.	SE5
3466	I am writing my own personal comments, but I concur with the statements below that outline the incredible damage related to the PolyMet Mining Corp. NorthMet mining project. The Boundary Waters Canoe Area (BWCA) as well as the adjacent joining Canadian Quetico Provincial Park are treasures in terms of wilderness areas. People from all over the world come to experience the beauty and clean environmental state of these protected parks. Water contamination run off problems could have monumental, irreversible long term impact. In my youth I spent my summers in the BWCA and Quetico and as a camp counselor for many years I led youth into those wilderness areas. Plus I have traveled there as an adult many times. My two nephews now take yearly canoe trips in the BWCA. Since PolyMet Mining Corp. is a Canadian company I believe the Canadian government should also be concerned it terms of how it would impact the Quetico Provincial Park as well since the waters are interconnected. Canoeists pull drinking water directly from the lakes only using a water purifier for removing bacteria. To have to carry water in on trips in the future would be very difficult for canoe travel and portaging purposes and would likely limit use of the parks. Also the resort industry in northern Minnesota is vital to our economy and toxins/poisons in Minnesota waters would diminish that industry greatly, damaging fish and recreation potential. Also, we have a large native American population that relies on clean waters both for lifestyle and income. Health problems and related costs could be astronomical if pollutants go unchecked. Once it is in our waterways it cannot be contained. As a concerned long term Minnesotan I truly believe that companies can indeed create and implement proper pollution control methods due to the incredible technology and research that is available today. It is primarily a matter of cost and enforcement. If a company want to do business in a state that values environmental safety for it's citizens then strict controls need to be part of the package and they bear that cost or else they cannot do business here.	G7A,G11
Sender Last Name:	Dolan **Submission ID:** 1047	
1150	I am really interest in the PolyMet Draft EIS process and was unable to attend either of the two information sessions. Is there a video/audio recording Or transcript available from the meetings?	RFI
2469	This mining SHOULD NEVER HAPPEN due to the deleterious effects it would have on life, human and other species. If this mining is allowed to take place, I imagine suing the company as well as both the United States and Canadian governments for lack of forethought and bad policy would be an easy thing to do. It could be a veritable field day for unemployed lawyers.	EOO,G2,G3
Sender Last Name:	Dolphin **Submission ID:** 1155	
506	20 years of jobs for 2,000 years of clean up. How can you even begin to determine the cost of clean up?? It is not possible!! There is no proven way to clean up this type of mining, until it can absolutely be proven a permit to do so should never be given.	PD3,PD4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1271	It is our obligation and your responsibility to do the right thing. I do not want the land torn up and the waters polluted only for monetary gain. Can you put a price on clean water and a healthy landscape???	EOO
3063	To date there has been no proven adequate solution to prevent acid mine drainage from waste rock piles. This drainage has the potential to pollute and kill aquatic life in rivers, lakes, and wetlands for up to 2,000 years. This includes the unproven wetland water-treatment plan in the Polymet EIS. For the Polymet project this includes the loss of over 1,500 acres of wetlands/peat lands to do this type of treatment. Mines that require treatment of waters for thousands of years is not sustainable.	WR1A,WR1E,WE6
3064	It would also be difficult to quantify the cost of water treatment for that length of time. High sulfate concentrations in the Tailings Basin would be released, resulting in high-risk situations for mercury methylation. When mercury is methylated it can bioaccumulate in fish, making them unsafe to eat. Many of our lakes and rivers are already under mercury advisories, including the waters of the watershed into which the Polymet mine would discharge. Consuming these fish would be an even greater hazard to those catching and eating fish.	WR4B,PD3,PD4,FM1
3065	There are other sulfide ore mining companies presently exploring in Minnesota. The precedent that would be set by permitting Polymet would potentially be devastating to the water resources in Northern Minnesota including the Boundary Water Canoe Wilderness Area and Voyageurs National Park. It may encourage mining by other companies who are no more prepared to protect affected water resources than Polymet. With the uncertainty of adequate proven water treatment, the Austin Chapter 10 recommends a moratorium on all proposed sulfide mining requests. Austin Chapter 10 would recommend that the moratorium would be similar to or replicate the Wisconsin Act 171 on sulfide mining.	EOO,PD4
3526	Upon review of the Environmental Impact Statement for the Polymet proposal, Austin Chapter 10 is very concerned with the potential environmental damage that would occur with this project and other projects like it if they would be allowed to proceed. This type of mining has not previously been done in Minnesota. Where it has been done in other states, the sulfide mining industry has a poor track record in environmental clean up. The taxpayer in numerous instances has picked up the bill for clean up.	PD4,G9

Sender Last Name: Dornfeld **Submission ID:** 2513

3066	I would like to comment on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. The watershed contamination, damage to the area's wilderness aesthetic and image, and the precedent which will be established by the approval of this project are untenable. Water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. Mining operations such as these have an accurate notoriety for disappearing as soon as they have exhausted the resources they are after. It is not to be expected that PolyMet will take responsibility for mitigating even the short-term after-effects of this operation, much less such long lasting impacts. As concerning as is this project in itself, the precedent it will set for the approval of similar future ventures with even greater negative consequences is even more worrisome to me. Last year, applications were submitted for 32 permits for mineral exploration on the doorstep of the Boundary Waters Canoe Area Wilderness. The exploration by Franconia Minerals on Birch Lake is already disrupting recreation activities in the area and impacting the wilderness experience of BWCA users. As a longtime user of the BWCA and a seasonal employee in the tourist industry there myself, I am deeply apprehensive about the damage on many levels which will result from mining in the Arrowhead. These activities are fundamentally at odds with the wilderness ethic and philosophy of the Boundary Waters. They also present very practical concerns for local businesses who depend on the image of the wilderness. The Boundary Waters is one of the most unique and best known wilderness areas in the entire nation; it would be a great detriment to the state's reputation to allow anything to infringe the integrity of this unparalleled resource.	G2,G7A,G8C,G9,G11

Sender Last Name: Dosch **Submission ID:** 367

39	4.1-85—Humidity cell testing is not complete and not totally accurate. Explain to what extent humidity cell testing has been used in the DEIS.	WR2E

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
39	4.1-68—"…monitoring of the WWTF effluent is recommended as a leading indicator of potential groundwater issues at the Tailings Basins." The EIS process needs to explain the value of monitoring if there is no mitigation plan in place.	WR4C
39	4.1-69—"The analyses identified the following 16 constituents as being present in the NorthMet waste rock/ore and leaching in sufficient quantities to warrant additional analysis: aluminum, antimony, arsenic, beryllium, cadmium, cobalt, copper, fluoride, iron, lead, manganese, nickel, sulfate, thallium, vanadium, and zinc." Some of these metals, such as arsenic and nickel, are considered carcinogenic. Nickel and cobalt together have a synergistic carcinogenic effect. Nickel and arsenic are known to leach out in greater amounts in the neutral range, so if limestone is being added to water treatment to neutralize acid mine drainage, the result is an increased leaching of contaminants such as nickel and arsenic. According to "Toxic Water," MPR Midmorning January 27, 2010, all chemicals are lethal—we are simply giving them allowable levels. Arsenic is one of the top contaminants of concern nationally. Our drinking water standards have not been updated in the last ten years, and the EPA is starting to take a closer look at some of these pollutants. According to Wikipedia, "The Precautionary Principle states that if an action or policy has suspected risk of causing harm to the public or to the environment, in the absence of a scientific consensus that harm would not ensue, the burden of proof would fall on those who would advocate taking the action." The chemicals and metals listed above must be considered in the PolyMet EIS process as part of current contamination within the Embarrass River, the Partridge River, Colby Lake, and area wells, as part of cumulative contamination with Mesabi Nugget, and as part of a sulfide mining district. The burden of proof rests with the regulatory agencies.	WR1C
39	4.1-65—PolyMet proposes to construct five waste rock/lean ore stockpiles at the Mine Site segregated based on their potential to generate acid rock drainage and to leach metals." This is the one and only time that acid rock drainage (aka acid mine drainage) is mentioned in the DEIS. The lack of transparency within the DEIS regarding acid mine drainage and long term treatment deems this DEIS inadequate. The fact that PolyMet is proposing lean ore stockpiles needs to be addressed in two regards. First, lean ore stockpiles obviously have the greatest potential for generating acid mine drainage and leaching heavy metals. This is not being adequately addressed. Second, lean ore stockpiling suggests that further mine processing could be done, generating more tailings. The DEIS does not adequately address the potential of extracting metals from these stockpiles.	WR1E,WR2C,WR2D
39	4.1-65—There is no conclusion as to how ground water seepage would be treated.	WR4C
39	4.1—59—"However the scant data that does exist characterizing mine site hydrology suggests that there may be substantial connection between the bedrock and surficial aquifiers." There is a disconnect between this statement and the data provided by Barr Engineering. It appears that modeling was done to fit pollutants into existing standards irrespective of the actual physical hydrology. Explain the software program that produced this modeling. Explain how the independent consulting firm put this together. Neither the DNR nor the hired consulting firm is doing an adequate job of independently checking out statistical information provided by Barr Engineering for PolyMet. Explain in the introduction what standards the agencies are using when they accept data provided by Barr Engineering when Barr has been hired by PolyMet. Explain in the introduction how the agencies chose Environmental Resources Management, a London based firm, as an independent agency to assist with the environmental review process. Al Trippel's double dipping, being paid by ERM as well as being paid by Aquila, should be included under socioeconomic impacts, along with PolyMet officials who are retired from mining or other jobs but now receiving salaries from PolyMet. Explain how double dipping such as this contributes to the local economy.	WR1E

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
40	I am introducing my comments with the following remarks. The Minnesota Department of Natural Resources and the Army Corps of Engineers have twice denied Minnesota citizens free access to public comment and discourse. During both the PolyMet scoping hearing and the DEIS hearing process, citizens were denied the right to ask questions of the agencies in a public format. At the same time, the agencies allowed spokesmen to speak in favor of PolyMet. At the scoping hearing, PolyMet was allowed to present a power point introduction to its mine project with no mention of acid mine drainage. At the DEIS hearing, local politicians were allowed to speak in favor of the mining project, using verbatim quotes from company propaganda. Again, no mention was made of acid mine drainage and heavy metal leaching requiring long-term treatment. This process is further tarnished by the fact that PolyMet is considered in this DEIS as an isolated mine project, not as the lead mine within a metallic sulfide mining district. The sad fact is that agency heads are getting paid with public money to mislead and misinform the public. I don't understand how 5 years and $20,000,000 could result in a document so poorly put together and based upon such poor science. That amount of money in itself could have been a start toward cleanup of the area and a new vision of how the future might look. Instead, we have $20,000,000 of paperwork that tries to justify the mining of less than 1% ores. To top it all off, the public was given 90 days to make their way through 3 binders full of documents.	EOO,PRO6,RFI,WR3I
161	I respectfully urge you to extend the public comment period to May 3, 3010. This issue- the impacts if granted- will have major and lasting and irreversible consequences for our region. The official comment period fell during the major holidays and the worst weather. Please Extend!	PRO6
407	4.1-135—“PolyMet proposes to mitigate the increased solute load expected in the East Pit from the disposal of the higher sulfide waste rock by pumping East Pit water to the WWTF for additional treatment for approximately 30 years (years 21-50).” What happens after 30 years? Does the pollution disappear? What motivation is there for the company to spend money on treatment after the mine is closed and no longer making money? When Polymet gets bought out by another company, how will the transfer of this responsibility occur? What role does the DNR have in monitoring the pollution and the treatment? Does the DNR have enough of a budget to maintain this? How can we project such costs up to 50 years in the future? Please address the above within the EIS process. The Dunka mine site, at which LTV excavated sulfide ores in order to mine taconite underneath beginning in the 1960’s and continuing through the 1980’s, has been leaching toxic heavy metals into Birch Lake, and now into the Dunka River. This is concrete evidence that the sulfide ores will leach out toxic metals and that the agencies and the mining companies have not been able to control this leaching. The Dunka mine site continues to receive a variance. Information on the leaching of these heavy toxic metals has been known since the 1980’s. The Dunka pit legacy shows several things. First, it may take a period of 20 years or more for acid mine drainage and/or heavy metal leaching to appear after ore and rock has been stockpiled. Second, there is no known way to control the leaching, at least no way that is financially acceptable. The Dunka mine site records must be made part of the EIS process. All records from the MPCA regarding this matter must be brought forward, as the MPCA is the agency that has been granting variances in regard to the leaching of metals into Minnesota waters.	RFI,WR3I

Sender Last Name: Dostal **Submission ID:** 3387

3677	The mining should not take place simply to keep the area pure as it has been for so many years.	EOO

Sender Last Name: Dow **Submission ID:** 2963

3327	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources. My international and domestic guests value the time we have spent in the area the mine would affect and do not want to lose our natural treasure to a project that may bring money to the area for a few years, yet leave irreparable damage.	G2,G11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name: Draves	**Submission ID:** 287	
301	I am not an expert on environmental matters, nor am I an expert in the area of non-ferrous mining. However, I am an educated person who understands both sides of the issues that surround the Polymet Mining project in the Hoyt Lakes, Minnesota area. I would like to state my support for this much needed project. I grew up in Hibbing, Minnesota and currently live and work in the twin cities area. My grand-father, father, and uncle are all current/former employees of the mining industry. During college I was able to work two summers for National Steel Pellet Company in Keewatin as a truck driver in the iron ore pit and was able to see first-hand how much of the operation worked. Thanks to this opportunity, I was able to save enough money to pay for my entire college tuition and graduate debt-free. I have also experienced how much the state of Minnesota needs mining, especially in these grim economic times. Despite my family and geographic background, one would assume that my opinion is biased. However, I have spent my fair share of time hunting, fishing, canoeing in the BWCA, and I have even lived in Grand Marais for 4 years which is one of the most beautiful areas in Minnesota. I have also traveled to three other continents and have seen firsthand what real environmental devastation looks like in places that have no regulations. If there were any reasonable facts that one would lead a reasonable person to believe that irreparable harm would befall our state due to this mining process, I would be against it 100 percent because I love this state and enjoy its vast natural resources. No one wants an environmental disaster in their back yard. Many groups have voiced their opinions on the matter and despite Polymets and the State of Minnesota's best efforts, their response is blatantly predictable. Their idea of economic prosperity is to open another canoeing outfitter in Ely or another dog-sledding outfitter in Grand Marais. Their idea of good paying jobs is to have a bread-winner of a family working as a waiter/waitress in a restaurant or cleaning a hotel room for visitors from the twin cities area. They simply cannot come to terms with the fact that northern Minnesota's economy is sustained by the mining industry and not the tourism industry. If the state of Minnesota were to have these special interest groups impose their will upon it, we would soon be in a state of complete economic collapse. Growing up on the range, I saw piles of red rocks my entire life. Growing up on the range, I saw huge pits of water surrounded by red rocks. Now when I return, I see Birch trees reclaiming these red mountains and trout now swim in the pits of water. Thanks to the DNR and Mother Nature, these large man-made scars on the landscape are returning to their original state. However, the smoke stacks and conveyor belts stand idle and workers are waiting for a real opportunity to provide into the local and state economy. This project needs to be approved.	EOO
Sender Last Name: Dubiak	**Submission ID:** 328	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
348	I am writing in support of the EIS for the proposed Polymet project. It seems to me that after over 4 years, $20 million dollars, and countless hours on everyone's part that the companys compliance with the some of the most stringent environmental laws in the world can be assured. I believe the effort on the part of all interest involved in the process assures a win win situation for all interested parties. In projects of this magnitude, someone can always fault something but the focus on the main issue of does it meet the requirements needs to be of primary importance. With todays' technological capabilites monitoring of compliance should be readily available. I also believe approval will send a very positive message to the investment markets that while the state laws are very stringent, projects can get done in an nvironmentally friendly and economic manner. I believe Polymet has been very fortunate to have patient investors who have contributed over $60 million to the the Company. If the markets perceive that the state is a roadblock going forward investment capital for Polymet and other like companies on the Range will not be available from capital markets for developmental monies and the potentail for economic redevelopment will be lost. I spent my career in the investment business and I urge you to not lose sight of how important this factor is. If Glencore, which is providing Polymet over $50 million were not in the picture the project would not be moving forward due to lack of funds. This project in my opinion will prove to be a catalyst for rebirth of the mining industry on the Range in a number of different ways. First, it will create over 400 permanent jobs, numerous related jobs for other services, increase state and local taxes, and reinvigorate several communities. Secondly it will help preserve the cultural aspects of the Range which is important to many people and to the diversity of the state. I grew up in a steel mill town (East Chicago,Indiana) which once was thriving but now when I return it is boarded up with no tax base and declining population due to lack of jobs. I believe this project will contribute to a reversal of the trend on the Range so what happened to my home town will not happen there. Lastly, I really believe this project will prove to be a catalyst for further growth of metals mining throughout the entire area bringing with it job growth, more tax dollars, reinvigoration of communities, as well as increased domestic security from foreign sourced metals risk. Economic growth when balanced with environmental compliance is a real positive for everyone involved.	EOO

Sender Last Name: Dunn **Submission ID:** 1222

1352	I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources. I have researched the environmental effects on mining in this area and am convinced that it would be detrimental to this nature conservatory. Please do not allow mining to occur near the MN Boundary waters. Let's protect this land that has already been set aside for conservation amidst growing habitat loss.	G2A

Sender Last Name: Dunnington **Submission ID:** 2545

701	The mine site disrupts natural corridors for the movement of wildlife. Specifically the Canada lynx which is a federally-listed threatened species that requires large territories and benefits from undisturbed forest corridors. No provision is made for mitigating this loss of habitat in the DEIS.	WI5
1402	Sulfates are a problem that are not dealt with rigorously in the DEIS. Sulfates in surface water demonstrably impact aquatic vegetation, specifically wild rice. In addition sulfates react with elemental mercury in a process known as mercury methylation. Methylmercury is the form that bio-accumulates in fish and animals that eat fish, including humans. What process has been identified to detect and mitigate methyl mercury in the environment and how will community health be dealt with and paid for?	WR4B,WR4C,WR4F,FM1,F
2182	There was little or no field sampling done on the movement of ground water through the bedrock. Since the mine and its waste storage site sits nearly on the continental divide it should have been determined if there is any chance that polluted mine drainage (including acids, metals, or sulfates) could move in the rock over time to the north and into the Boundary Waters watershed. This was not done and should be before permitting.	WR2A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2373	The DEIS does not outline any specific plan for reclamation after the mine site is closed. In the same vein there is no specific mention of the method or amount of financial assurance that the mining company will need to set aside for the potential disasters after closing. Because acid mitigation is difficult to predict and long term treatment after closing is necessary, there needs to be a large sum of cash held in escrow as a damage deposit and that amount should be specific and included in the final EIS.	PD3,PD4
2374	The DEIS does not approach the most important question of cumulative impacts of this mine and the others that are proposed in the district. Polymet can not be looked at as a single, one-time event in N.E. Minnesota. With permitting of Polymet will come at least 2, perhaps 4 or more new applications for permitting from other mining companies. What will be the total impact on the environment by all these potential mines and how will the EIS deal with mitigation of all these in concert? Specifically the Boundary Waters, which is down wind of all these projects, will be negatively impacted in terms of atmospheric haze from dust particles and other emissions blown into the air. According to the U.S. Forest Service, the Polymet project alone will cause significant haze impairments in the Boundary Waters 36 days each year! Tell us how this cumulative effect on air quality must be dealt with for Polymet and all future applications. In addition how is global warming affected by this mining operation and the combinations of all potential mines in the future?	G9
2375	Where is the plan for constant monitoring of the mining operation by the DNR? Waste rock needs to be sorted by sulfide content, tailings basins need to be inspected for leaks, and waste piles need to be sampled for pH in runoff water regularly. Do we just depend on the mining company to do its own monitoring? There should be a program set up in the EIS for constant monitoring of operations by an independent environmental concern or the DNR.	PD8

Sender Last Name: Durbin **Submission ID:** 2573

3131	I would like to urge you to recommend and immediate halt ot the Polymet sulfide mine project. The possibility of mercury and acid contamination of the rivers and ground water is too great. The EIS was totally inadequate. As a resident of Lake Vermilion, I believe our watershed is too important a resource to risk possible, short-term economic gain. Every sulfide mine in the history of North America has had major contamination problems. Let's join our neighbors in Wisconsin and place a moratorium on nonferrous mining.	EOO,G7,G8,G12

Sender Last Name: Durtsche **Submission ID:** 2320

2773	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Finally, as a long-time user of the Boundary Water Canoe Area Wilderness, I have major concerns over mining operations encroaching on this treasured and pristine "island" of wildlife, nature, and beauty. The BWCAW is a significant recreation and tourism resource for MN today and will only increase in value as more and more of our earth is destroyed from industries such as mining. It would be foolish to use short-term, non-generational thinking when deciding on whether to allow this mining operation to move forward.	EOO

Sender Last Name: Dustin **Submission ID:** 1208

159	The draft environmental impact statement for this project is a massive document that cannot be adequately reviewed in the time period allocated for public comment. In addition, this project impacts	PRO6
160	the Superior National Forest, Lake Superior, an international body of water, and the atmosphere which is obviously international. Therefore public comment should at least receive national attention.	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
216	The wetland mitigation proposals make absolutely no sense. The wetlands impacted are in a sensitive watershed that depends on them to store, release, and filter water into the watershed. Why create wetlands in a different watershed to mitigate this destruction? That will not solve the problem of damage to the impacted watershed. Perhaps the saddest part of the DEIS is its coversheet.	WE3
771	The draft environmental impact statement for this project is a massive document that cannot be adequately reviewed in the time period allocated for public comment. In addition, this project impacts the Superior National Forest, Lake Superior, an international body of water, and the atmosphere which is obviously international. Therefore public comment should at least receive national attention. The document is based on many assumptions,	PRO6
1069	which it admits, are uncertain. Many of these are based on the experience of iron mining which is wholly illegitimate. The type of mining proposed here, because of its highly acidic production process, will produce toxic runoff that will continuously seep into the watershed. The pursuit of this project based on such uncertain and erroneous assumptions is nothing but an act of technological hubris. A fancy statistical technique—uncertainty analysis—was employed to get around uncertain assumptions. But how free is this method of bias since it was based on “data, professional judgment, and literature values that were approved by the resource agencies”? The wetland mitigation proposals make absolutely no sense. The wetlands impacted are in a sensitive watershed that depends on them to store, release, and filter water into the watershed. Why create wetlands in a different watershed to mitigate this destruction? That will not solve the problem of damage to the impacted watershed. Perhaps the saddest part of the DEIS is its coversheet. Three of its pictures depict the area that this massive blueprint for a toxic waste dump seeks to bequeath to posterity as a monument of our ignorance. The only responsible and reasonable alternative is the no action alternative. It is sad that the citizens of Minnesota did not have the wisdom and foresight to enact an Environmental Protection Amendment to the state constitution that could have prevented folly such as this. But, a political culture that is accelerating into degeneration cannot be expected to produce wisdom and foresight.	EOO,WE2,WE3,G7A,G7C

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1323	Bad public policy initiatives have a nasty habit of gaining traction and becoming impossible to stop. The proposed Polymet Mine at the edge of the Boundary Waters is an obvious example. The process through which this idea is being implemented is an ideal representation of internal parasitism—the corruption of the political process by narrows economic interests. (Mancur Olson called these distributional associations—highly organized, well financed, and relatively small associations that are able to drive public policy toward their own economic interest against the public interest—Mancur Olson, The Rise and Fall of Nations, Yale University, 1982) Polymet and its lobbying arm, Mining Minnesota, have successfully co-opted the local politicians in Northeastern Minnesota with their mantra of "jobs, jobs, jobs" to bring this destructive project to fruition. It is worth pointing out that the jobs mantra is often used to justify special interest rent seeking at the state and local level. At the federal level national defense is an additional excuse for special interest corruption. The environmental arguments against this project are so overwhelming that its rejection ought to be a no brainer. Since these arguments have been presented elsewhere (e.g. http://nmw.org/issues/sulfide%20index%20page.htm and http://www.preciouswaters.org/# <http://www.preciouswaters.org/>), I will not other to repeat them here. Rather I shall focus on some issues that may have received less attention. This whole problem began with the ill-advised leasing of state lands in Minnesota for mining exploration. This raises the question about the property rights attached to these lands. Supposedly these lands are held in the interest of all the citizens of Minnesota, and their acquisition and maintenance are supported by the tax payments of those citizens. The state justifies mineral exploration on the grounds that it will create jobs and drive economic growth. (It ought to be obvious that unlimited economic growth, by treating the earth as both a source and a sink, will consume and pollute the biosphere to our own detriment. The fact that this is not obvious is too complex to address here.) This possibility captures the interest of the people living near the areas where minerals are found. But living in the local area does not confer a property right to the resources in the area that are on public lands. Leasing these lands, however, initiates an illegitimate transfer of property. (Legality is not the issue here. Unfortunately much corruption is legal which has resulted in a general complacency regarding it.) The end result is that the local residents behave as if they have some sort of use right to the property to the detriment of the more diffuse interests of the rest of the citizens of the state. When all the negative externalities are added in, the issue of property rights becomes far more complex. What about the pollution of the Boundary Waters, a resource that belongs to all citizens of the United States, and is used by national and international visitors? What about the pollution of adjacent private lands? What about pollution of waterways that may affect Canada and air pollution that has worldwide effects? The fact that the approval of this proposal will inevitably lead to the approval of several more such "projects" magnifies the complexity and cumulative impact of these issues. This cumulative impact only received passing mention in the DEIS. In addition to negative externalities, there are transcendental values that are ignored by the economic calculations. These include natural beauty, the experience of being in the relatively unspoiled natural world, outdoor recreation, and the satisfaction of knowing that our natural heritage is preserved even though we may never visit it. Evidence is now beginning to accumulate that modern man is starting to suffer from a natural deficit disorder. The fact that we are becoming so divorced from the natural world may	G1,G2,G4,G13
1324	The document is based on many assumptions, which it admits, are uncertain. Many of these are based on the experience of iron mining which is wholly illegitimate. The type of mining proposed here, because of its highly acidic production process, will produce toxic runoff that will continuously seep into the watershed. The pursuit of this project based on such uncertain and erroneous assumptions is nothing but an act of technological hubris. A fancy statistical technique—uncertainty analysis—was employed to get around uncertain assumptions. But how free is this method of bias since it was based on "data, professional judgment, and literature values that were approved by the resource agencies"?	G7A,G8B
1325	Three of its pictures depict the area that this massive blueprint for a toxic waste dump seeks to bequeath to posterity as a monument of our ignorance. The only responsible and reasonable alternative is the no action alternative. It is sad that the citizens of Minnesota did not have the wisdom and foresight to enact an Environmental Protection Amendment to the state constitution that could have prevented folly such as this. But, a political culture that is accelerating into degeneration cannot be expected to produce wisdom and foresight.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3714	repeat them here. Rather I shall focus on some issues that may have received less attention. This whole problem began with the ill-advised leasing of state lands in Minnesota for mining exploration. This raises the question about the property rights attached to these lands. Supposedly these lands are held in the interest of all the citizens of Minnesota, and their acquisition and maintenance are supported by the tax payments of those citizens. The state justifies mineral exploration on the grounds that it will create jobs and drive economic growth. (It ought to be obvious that unlimited economic growth, by treating the earth as both a source and a sink, will consume and pollute the biosphere to our own detriment. The fact that this is not obvious is too complex to address here.) This possibility captures the interest of the people living near the areas where minerals are found. But living in the local area does not confer a property right to the resources in the area that are on public lands. Leasing these lands, however, initiates an illegitimate transfer of property. (Legality is not the issue here. Unfortunately much corruption is legal which has resulted in a general complacency regarding it.) The end result is that the local residents behave as if they have some sort of use right to the property to the detriment of the more diffuse interests of the rest of the citizens of the state. When all the negative externalities are added in, the issue of property rights becomes far more complex. What about the pollution of the Boundary Waters, a resource that belongs to all citizens of the United States, and is used by national and international visitors? What about the pollution of adjacent private lands? What about pollution of waterways that may affect Canada and air pollution that has worldwide effects? The fact that the approval of this proposal will inevitably lead to the approval of several more such “projects” magnifies the complexity and cumulative impact of these issues. This cumulative impact only received passing mention in the DEIS.	PD1,PD2,CR1
3825	Bad public policy initiatives have a nasty habit of gaining traction and becoming impossible to stop. The proposed Polymet Mine at the edge of the Boundary Waters is an obvious example. The process through which this idea is being implemented is an ideal representation of internal parasitism—the corruption of the political process by narrows economic interests. (Mancur Olson called these distributional associations—highly organized, well financed, and relatively small associations that are able to drive public policy toward their own economic interest against the public interest—Mancur Olson, The Rise and Fall of Nations, Yale University, 1982) Polymet and its lobbying arm, Mining Minnesota, have successfully co-opted the local politicians in Northeastern Minnesota with their mantra of “jobs, jobs, jobs” to bring this destructive project to fruition. It is worth pointing out that the jobs mantra is often used to justify special interest rent seeking at the state and local level. At the federal level national defense is an additional excuse for special interest corruption. The environmental arguments against this project are so overwhelming that its rejection ought to be a no brainer. Since these arguments have been presented elsewhere (e.g. http://nmw.org/issues/sulfide%20index%20page.htm and http://www.preciouswaters.org/#), I will not bother to	EOO
3826	In addition to negative externalities, there are transcendental values that are ignored by the economic calculations. These include natural beauty, the experience of being in the relatively unspoiled natural world, outdoor recreation, and the satisfaction of knowing that our natural heritage is preserved even though we may never visit it. Evidence is now beginning to accumulate that modern man is starting to suffer from a natural deficit disorder. The fact that we are becoming so divorced from the natural world may have deleterious consequences for human evolution. The wanton destruction of our natural areas will only hasten the development of this condition. Since transcendental values are not amenable to valuation by the price mechanism, they are not adequately accounted for in the economic calculations used to justify this ill-advised project. In addition, the failure to account for these values violates inter-generational equity since we will be leaving a despoiled environment to our descendents. The alleged benefits upon which this project is justified are local, short term and short sighted. The non-local benefits will accrue to an alien corporation. Once the resource is depleted (and sold to China which raises othe issues); a massive pile of waste will remain. History is very clear when it comes to clean-up after projects like this are completed—it does not get done. The corporate organization of the mining industry is designed to avoid these costs. Polymet is a subsidiary of a parent organization conveniently located in Canada. Once the resource is depleted, the	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3827	subsidiary will declare bankruptcy after transferring its assets to its parent. The taxpayers of Minnesota will be left with the mess to clean up. In addition, unfortunately, those who are responsible for this bad decision will not be in place to be held accountable once the environmental consequences become evident. The all purpose justifier of this project is that it will create jobs. But some jobs simply should not be done. A prime example is the creation and marketing of tobacco products. This creates jobs and provides wealth to the corporations in the business, and tax revenues to government. But it has no other purpose than to cause addiction, illness, and death, which, unfortunately, creates other jobs in the health care and funeral industries, all of which increases that sacrosanct indicator of economic growth--GDP. It has now become evident that some high paying, “good jobs” in the finance industry should not be done. The fact that this project will defoliate, consume, and pollute a resource that would generate far more lasting value if left alone puts it in the same category.	G1,G2,G4A
Sender Last Name: Dziuk	**Submission ID:** 2777	
3189	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. I am vastly opposed to this LARGE open pit sulfide mine next to the Boundary Waters Canoe Area Wilderness. The mine proposal is in an area that drains into the St. Louis River watershed. These mines are never clean during operation or after they supposedly close (Minnesotans are going to get stuck with the long term cleanup for many, many years.) Just visit the gigantic open pit copper mine in Bisbee Arizona - these are NOT clean or environmentally friendly operations! PolyMet is not even a United States Company, it is a Canadian firm based out of Vancouver, British Columbia so why would we have them rob us?	EOO,G2,G7A
3756	How can you justify mining near the BWCA. Not only will it have long term effects on our health, environment, and public safety; it will be endangering wildlife, fish, and people. Doesn't concern over the long-term effects outweigh the short term profits. I guess money talks! Think about it.	G2C,G3B
Sender Last Name: Earth Protector, Inc	**Submission ID:** 3438	
3210	Earth Protector is certain that it is not news to the Minnesota Department of Natural Resources (DNR)and the Pollution Control Agency (PCA) that when PolyMet mines and processes the sulfide containing rock, the wastewater from the process will be exposed to air and water and produce sulfuric acid, which will drain into the Partridge River. This discharge will affect the quality of the water and the wild rice contained therein that is an integral part of Minnesota's heritage and people's livlihood. While the rules for sulfide discharge to surface water are questionable, the rules protecting the wild rice are not. Please advise how PolyMet, DNR and PCA, will prevent damage to our valuable water and wild rice resources from the discharge of sulfide laden wastewater by the PolyMet company.	WR4F
Sender Last Name: Eaton	**Submission ID:** 3708	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	Moreover, the Draft EIS fails to demonstrate compliance of the proposed mining project with Minnesota's antidegradation policy and requirements. In fact, the Draft EIS discloses "uncertainty" as to whether the proposal would or would not comply with the antidegradation requirements. DEIS, 4.1-128 (stating that "there is some uncertainty whether mercury concentrations in the West Pit, or the ultimate discharge to the Partridge River when the West Pit begins to overflow around Year 65, would meet Great Lakes Initiative water quality standards"). Instead of stating that the project cannot go forward until compliance with water quality standards and the antidegradation policy are demonstrated, however, the agencies simply state in the Draft EIS that mercury monitoring is recommended to determine if there are elevated mercury concentrations. Id. There is no support within the CWA or Minnesota's regulations for the approval of a project that may in fact violate water quality standards and the antidegradation policy by simply recommending monitoring by the project applicant. To the contrary, the proposed project cannot be approved until full compliance with water quality standards, including the antidegradation policy - is demonstrated through a detailed and objective environmental analysis.	WR3I
2	Moreover, the Draft EIS admits that the proposed project "would degrade surface water quality by raising ambient concentrations of several parameters, primarily metals (e.g., antimony, arsenic, copper, nickel, and zinc)." DEIS, 4.1-191. The Draft EIS, fails to explain how this admitted degradation will somehow not violate the state's antidegradation policy.	WR3I
2	I. The Agencies Have Improperly Limited the Scope of the Environmental Analysis within the Draft EIS The Council on Environmental Quality ("CEQ") has promulgated regulations to implement the National Environmental Policy Act ("NEPA"), found at 40 C.F.R. Part 1500. The CEQ NEPA regulations are binding on all federal agencies. 40 C.F.R. § 1507.1. NEPA requires agencies to use the criteria for "scope" that is set forth in the CEQ regulations in order to determine "which proposal(s) shall be the subject of a particular statement." 40 C.F.R. § 1502.4(a). Proposals which are related to each other closely enough to be, in effect, a single course of action, must be evaluated together in a single EIS. Id. The CEQ NEPA regulations further define the proper scope of EISs, and mandate that connected, cumulative, and similar actions be assessed together in a single EIS. 40 C.F.R. § 1508.25. Actions are connected if they automatically trigger other actions which may require EISs, they cannot or will not proceed unless other actions are taken previously or simultaneously, or they are interdependent parts of a larger action and depend on the larger action for their justification. 40 C.F.R. § 1508.25(a)(1). Actions are cumulative if they will have cumulatively significant impacts. 40 C.F.R. § 1508.25(a)(2). And actions are similar if they have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography. 40 C.F.R. § 1508.25(a)(3). According to the Draft EIS: The Mine Site would be located at a previously unmined area in the Superior National Forest . . . The Mine Site is located on National Forest System lands; however, the mineral rights are privately held and under lease to PolyMet. It is the position of the United States that the mineral rights leased by PolyMet do not include the right to open pit mine the National Forest System land. . . The USFS and PolyMet are exploring the feasibility of a land exchange to consolidate the surface ownership and mineral rights to PolyMet and thereby remove all National Forest System lands from the proposed Project. The USFS will be initiating its own EIS to evaluate the proposed land exchange, while this NorthMet Project DEIS assumes the successful completion of a land exchange. Draft EIS at S-1; see also id. at 1-3. From this description, there is no question that the proposed NorthMet mining project and the proposed land exchange are connected, cumulative, and similar actions that must be assessed together in a single EIS. 40 C.F.R. § 1508.25(a). Because the mineral rights leased by PolyMet do not include the right to open pit mine the Superior National Forest lands, the proposed mine cannot proceed unless the	PRO1
3	Last, the Draft EIS is wholly deficient in its failure to analyze and predict impacts to Lake Superior. The simple statement that little information is available on the extent of methylmercury formation in the Lake Superior estuary is no substitute for the required environmental analysis, especially where it is acknowledged both that the project area waterbodies and the St. Louis River are already impaired for mercury, and that the NorthMet and other proposed projects would increase sulfate levels which would likely increase methylmercury. A comprehensive, cumulative effects assessment on the potential impacts to Lake Superior is required.	WR5A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3	Applicants for federal licenses and permits must obtain Section 401 Certification from the state "before a federal license or permit can be issued for activities that may result in any discharge into intrastate navigable waters." PUD No. 1 of Jefferson County v. Wash. Dep't of Ecology, 511 U.S. 700, 707 (1994). The triggers for the Section 401 certification requirement are 1) a request for a federal license or permit authorizing 2) any activity that may result in the discharge of pollutants into navigable waters. No federal licenses or permits, including a Section 404 permit, can be issued for the proposed NorthMet mine without the proper Section 401 Certification. And the required 401 Certification must demonstrate that the proposed project will comply with all water quality standards at all times. See Hells Canyon Preservation Council v. Haines, 2006 WL 2252554 (D. Or. 2006). In another mining case, the State of Washington Pollution Control Hearings Board (PCHB) vacated a previously-issued 401 certification largely because the water in the mine pit is predicted to violate water quality standards. See Okanogan Highlands Alliance v. State of Washington, Case No. 97-146, Final Findings of Fact, Conclusions of Law and Order of the Washington Pollution Control Hearings Board (1/19/2000), http://www.eho.wa.gov/searchdocuments/2000%20Archive/pchb%2097- 146%20final.htm, on reconsideration: http://www.eho.wa.gov/searchdocuments/2000%20Archive/pchb%2097- 146%20reconsideration.htm. (final agency action denying Mine's water rights and finding that there is no reasonable assurance that the Mine will comply with state water quality standards). Here, because the Draft EIS acknowledges that numerous water quality standards will be violated at some point, the State cannot issue the 401 Certification and thus the Corps cannot issue the 404 permit.	WR3I

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Comment ID	Comment Text	Theme Codes
4	V. The Draft EIS Fails to Disclose and Discuss Past Failures of Similar Mines, in Violation of NEPA NEPA requires that environmental information of high quality be provided to public officials and citizens before decisions are made. 40 C.F.R. § 1500.1(b). The purpose of NEPA is to help public officials make decisions that are based on an understanding of the potential environmental consequences, and to take actions that protect, restore, and enhance the environment. Id. § 1500.1(c). Moreover, an EIS must disclose and respond to "any responsible opposing view." Id. § 1502.9(b); see also Seattle Audubon Society v. Moseley, 798 F. Supp. 1473, 1479 (W.D. Wa. 1992), aff'd Seattle Audubon Society v. Espy, 998 F.2d 699 (9th Cir. 1993) ("[a]n EIS that fails to disclose and respond to 'the opinions held by well respected scientists concerning the hazards of the proposed action ... is fatally deficient.'"); Earth Island Institute v. U.S. Forest Service, 442 F.3d 1147, 1172-73 (9th Cir. 2006) (FEIS failed to respond "explicitly and directly" to conflicting views, and agency violated NEPA requirement to take a hard look and provide a full and fair discussion allowing informed public participation and informed decision-making). The proposed NorthMet mine would be the first ever copper nickel mine in the state. To comply with NEPA's disclosure requirements and the underlying purpose of NEPA, the agencies must fully disclose to the public the long-history of past failures and severe environmental harm caused by hard rock and copper mines across the country and world wide. Few if any activities have had more persistent, permanent and significant environmental impacts to water quality and other resources, and the Draft EIS violates NEPA by failing to objectively and openly disclose this legacy of environmental pollution from the hard rock mining industry. Before permitting this type of mining in the state, the agencies must plainly and openly disclose that, according to EPA, 40% of the headwaters of all western waterways have sections that are polluted by mining, and that EPA ranks the mining industry as the nation's top toxic polluter, reporting more toxic releases annually than any other industry sector. Moreover, in the scientific reports "Comparison of Predicted and Actual Water Quality at Hardrock Mines," and "Predicting Water Quality Problems at Hardrock Mines: Methods and Models, Uncertainties, and State-of-the-Art," prepared by Jim Kuipers, P.E., and geochemist Ann Maest, Ph.D., the authors analyzed water quality predictions and outcomes at 25 representative metal mines permitted in the United States during the last 25 years. See Attachment 2. The reports found that faulty water quality predictions, mitigation measures and regulatory failures result in the approval of mines that create significant water pollution problems. Id. Despite assurances from government regulators and mine proponents that mines would not pollute clean water, the researchers found that 76 percent of studied mines exceeded water quality standards, polluting rivers, and groundwater with toxic contaminants, such as lead, mercury, arsenic and cyanide, and exposing taxpayers to huge cleanup liabilities. Among the researchers' findings for the 25 mines examined in depth: • 76 percent of mines exceed groundwater or surface water quality standards • 93 percent of mines that are near groundwater and have elevated potential for acid drainage or contaminant leaching exceeded water quality standards[1] • 85 percent of mines that are near surface water and have elevated potential for acid drainage or contaminant leaching exceeded water quality standards • Water quality standards for toxic heavy metals, such as lead, mercury, cadmium, copper, and zinc, were exceeded at 63 percent of mines. • Mitigation measures predicted to protect clean water failed at 64 percent of the mines. Id. The researchers also found that mines located near surface or groundwater that tapped ore bodie	PD8
4	VI. The Draft EIS Analysis of Impacts to Air Quality and Greenhouse Gas Emissions is Inadequate As indicated by EPA in its July 31, 2009, comments, the Draft EIS must accurately describe and plainly disclose the toxic and harmful air pollutants that would be emitted from the proposed mine. This analysis must include the predicted local deposition of pollutants and their impact on local waterbodies, including potential contributions to water quality standard violations. Any conclusions that no significant deposition of pollutants is likely to occur must be supported by actual, objective analysis, and must include comparisons to other similar mines and their impacts. See Idaho Sporting Congress v. Thomas, 137 F.3d 1146, 1150 (9th Cir. 1998) (holding that NEPA does not allow an agency to rely on expert opinion unsupported by hard data and objective analysis); 40 C.F.R. 1502.24.	AQ4

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5	The Clean Air Act analysis, including the cumulative impacts analysis, must include PM2.5 emissions, which is recognized as a harmful Criteria Air Pollutant under the Clean Air Act. See EPA PM2.5 Rule, 72 Fed. Reg. 20586 (April 25, 2007). By failing to fully analyze PM2.5 baseline levels and emissions (including the emissions of other toxic or harmful air pollutants), any conclusion that the Project complies with air quality standards and requirements is contrary to NEPA and the Clean Air Act. PM2.5 emissions, also known as "fine particle" emissions, can cause serious health impacts. According to the U.S. EPA: Fine particles and precursor pollutants are emitted by … burning or combustionrelated activities. Health effects that have been associated with exposure to PM2.5 include premature death, aggravation of heart and lung disease, and asthma attacks. Those particularly sensitive to PM2.5 exposure include older adults, people with heart and lung disease, and children. 72 Fed. Reg. 20586 (April 25, 2007). See also EPA PM2.5 NAAQS Implementation Webpage, http://www.epa.gov/ttn/naaqs/pm/pm25_index.html; Attachment 8 (Vermont Dept. of Environmental Conservation, "Fine Particles, the Microscopic Menace"). Additionally, as stated by the Tribal cooperating agencies, the Draft EIS cumulative effects analysis is incomplete because the 24-hour PM2.5 modeling needs to account for emissions from the Keetac Expansion Project. DEIS, 4.6- 42, n. 9. "Furthermore the Tribal cooperating agencies feel that the full cumulative effects may lead to violations of the PM2.5 NAAQS standard. Id.	AQ4,AQ4B
5	Moreover, the agencies must prepare a comprehensive, cumulative impacts analysis concerning air pollution in the region. As explained by EPA: In order to accurately assess cumulative impacts of the proposed project, including those impacts to Class I and Class II areas, the DEIS air quality analyses (increment and visibility modeling) should consider all current and reasonably foreseeable projects occurring in the area. The air quality modeling analyses do not include a comprehensive inventory of existing and planned sources impacting regional air quality. In particular, the analysis does not appear to include the proposed Mesaba Energy power plant, the Mesabi Nugget Phase II projects, or the Keetac Expansion project. There may be additional projects that have emerged since the modeling was completed. We recommend revising the air quality analysis to include all reasonably foreseeable projects in the area. July 31, 2009, EPA Comments, p. 1; see also DEIS, 4.6-42, n. 8 & 9 (Tribal cooperating agencies commenting that Draft EIS analysis did not factor in any emissions from the Keetac Expansion Project or the Essar Steel Expansion project, and that "the full cumulative effects may lead to violations of the PM2.5 NAAQS standard"). This analysis must include a discussion of how this proposal and other reasonably foreseeable projects in the region would affect the ability to satisfy state, national, and international standards and goals regarding the reduction of mercury and other emissions.	AQ4B
6	The Draft EIS acknowledges that the emissions resulting from the proposed project would be approximately 776,650 metric tons per year of carbon dioxide. DEIS, 4.6-31. What is missing, however, is any meaningful discussion as to how this and other reasonably foreseeable projects under consideration in northeastern Minnesota will affect the state's ability to meet its goals and obligations under the Midwestern Greenhouse Gas Reduction Accord and related legislation. See DEIS, 4.6-32, n. 4 ("The Tribal cooperating agencies' position is that these emissions will have an effect on the Midwestern Greenhouse Gas Reduction Accord and their impact needs to be analyzed as to that effect"). Even the inadequate cumulative effects that was prepared and disclosed in the Draft EIS for air pollutants inexplicably neglects to include any assessment of the overall cumulative effects from greenhouse has emissions. With such a high number of major proposals under evaluation in northeastern Minnesota (see e.g., Table 4.6-22; DEIS, 4.6-50,51; Table 4.6-24), this lack of a cumulative effects analysis for this critically important issue violates NEPA. See Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, 809-10 (9th Cir. 1999) (NEPA requires EIS to consider cumulative impacts of a project, requiring detailed information "describing the cumulative effects of a proposed action with other proposed actions"); 40 C.F.R. §§ 1508.7, 1508.25(a)(2).	AQ3,AQ4B

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Comment ID	Comment Text	Theme Codes
6	The Draft EIS is also deficient in its analysis of greenhouse gas emissions and climate change impacts, including a complete lack of a cumulative impacts analysis for greenhouse gas emissions. As stated in the Draft EIS, the state of Minnesota has committed to long-term greenhouse gas reduction targets of 60- 80% below 2005 emission levels as part of the Midwestern Greenhouse Gas Reduction Accord in 2007. DEIS, 4.6-30. Moreover, in May, 2008, the Governor signed legislation requiring the tracking of greenhouse has emissions and directing that interim reduction recommendations be developing, including a 15% reduction target for 2015 and a 30% reduction target for 2025. Id. The interim goals are designed as milestones towards meeting the state's goal of reducing greenhouse gas emissions to a level at least 80% below 2005 levels by 2050. Id.	AQ3,AQ4B
Sender Last Name: Edstrom	**Submission ID:** 2737	
2505	Water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. Please do no harm to the water of Lake Superior or its watershed and to the lakes and rivers of the BWCA.	WR1A,WR1E
2621	And basically I support any jobs. I support union wages and jobs, of course, according to Minnesota. And I could use the work, obviously, just as a, you know, in whole, as a whole. Alright. That's it. That's all I got.	EOO
2829	As recommended by the EPA, the DEIS must include an evaluation of the financial assurance that would be provided to ensure postclosure reclamation of the PolyMet NorthMet mine and plant. Sulfide mining places huge burdens on taxpayers. These mines often require long-term or perpetual pollution and treatment. PolyMet has few assets or financial history. The question of where the funding will come from for post-closure treatment, monitoring and maintenance has not been adequately addressed, and Minnesota taxpayers may have to pay millions of dollars for clean up after PolyMet has gone. I don't want to pay to clean up this operation like I already have to pay to clean up many other former industrial operations on the shores of Lake Superior.	PD4
Sender Last Name: Effle	**Submission ID:** 3209	
3544	surrounding countryside. That was OLD technology and a cut and burn mentality! I have read large parts of the EIS for the Polymet mine. This mine will employ NEW, STATE of THE ART processes for the recovery of these metals. What with recycling an existing brownfield site(the LTV plant), NO water that will be discharged off site plus extensive monitoring of the ground and surface water, the autoclave process for recovering the metals, etc. I feel that the State of Minnesota, their consultants, and Polymet have done a very through job of identifying the risks and trying to mitigate any possible problems with nonferrious mining on this site. It is high time that this country stops depending on the rest of the world for the base metals we need to operate our industries and produce these metals right here in the USA. I feel that the Range should be able to develop these minerals for the well being of the residents, communities, and also for the taxes for the state. Polymet will provide good paying, long term employment on the Range. The " best science " has been brought to bear and the Polymet project should be allowed to be permitted and move forward towards production!!	EOO,G2
Sender Last Name: Eichom	**Submission ID:** 218	
220	I wholeheartedly support the Polymet Northmet project. As an elected official in Itasca County (county board) I understand the overwhelming positive economic impact the project will have to the entire arrowhead region. I believe Polymets' environmental impacts will be minimal. Please move forward with the permitting process, and allow this project to become a reality. Thank you. Rusty Eichorn 31708 lalpant rd. grand rapids, mn 55744 218-244-1049	EOO
Sender Last Name: Elhai	**Submission ID:** 1809	

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Comment ID	Comment Text	Theme Codes
2396	I cannot pretend to be an expert on the environmental impacts of sulfide mining or on the particular situation regarding the proposed PolyMet mine. I have only lived in the state of Minnesota for half a year, and became aware of the environmental threat posed by sulfide mining to the Boundary Waters less than an hour ago. But as a citizen who believes that the state government has a responsibility to protect our natural resources, I must speak up and urge the Department of Natural Resources and the US Army Corp of Engineers to more carefully consider the long-term effects of the proposed mine. Large-scale sulfide mining is not a zero-impact process, no matter what a mining company's intentions may be. It seems ludicrous to locate such a mine in the middle of a protected wilderness area, especially when the pollutants will make their way downstream to Lake Superior. If sulfide mining is unavoidable, it seems like it would make a lot of sense to find a less fragile location for it. Furthermore, if sulfide mining is pursued, I would urge the DNR to invest seriously in technology that could make the process less harmful. Please hold the mining companies accountable-- citizens like me who love clean water and the natural silence of wilderness will be depending on you.	G6,G7
Sender Last Name:	Elizabeth **Submission ID:** 2913	
3241	I strongly oppose the Iron Range PolyMet project, because of potential damage to our environment. The DEIS is inadequate and ignores loss of habitat, damage to wetlands, and the cumulative effects of sulfide mining. Please reject this project.	G2C,G7C,G9
Sender Last Name:	Ellies **Submission ID:** 195	
192	11-16-2009 I have reviewed the EIS and found the mining project to be acceptable, although I think the sulfur levels must be monitered. I support the project.	EOO
Sender Last Name:	Elliott **Submission ID:** 1341	
1566	Birch Lake and S. Kawishiwi River are much too large and beautiful to ruin! Their waters are especially soft and clean. I love to visit and swim there.	G7A,G11
Sender Last Name:	Emmons **Submission ID:** 2179	
19	The low grade character of this ore body is not adequately addressed under socioeconomic impacts. Because of the less than 1% metals in this ore body, mining will become progressively more expensive as gas, oil, and electricity prices rise. A rise in those prices will also increase the costs of limestone and chemicals needed in the process. Equipment replacement will become more costly. No one can accurately predict whether rises inthe market prices of the metals will outpace rises in the cost of mining. These factors will determine output, shutdowns, and bankruptcy. The risk factor is downplayed, based upon biased economic analysis by the Labovitz School of Business. The DEIS is inadequate in not addressing this issue from varying perspectives.	EOO,SE6
337	PolyMet would have an impact upon Class I air quality of the BWCAW and Voyageurs' National Park, due to proximity. PolyMet would have a cumulative impact upon this air quality. This issue is not defined or addressed adequately within the DEIS. The impact of acid rain from the autoclave/hydromet needs to be studied for cumulative effects in combination with acid mine drainage leaching into the water.Asbestiform fibers are not addressed in any thorough way.	AQ9
582	The DEIS allows for loss of open and coniferous bogs. The DEIS does not adequately address wetlands, sequestration, and global warming. The wetlands (peatlands) at PolyMet's mine site have been identified as worthy of protection by the USFS and DNR.	WE3,WE5

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Comment ID	Comment Text	Theme Codes
595	The DEIS does not adequately address loss of habitat for species considered threatened or with diminishing populations. The DEIS does not adequately address cumulative effects of its proposed operations in context with other projects in the environmental process stages.	WI5
1803	Arsenic, cobalt, selenium, copper, nickel, aluminum, beryllium, iron, manganese, and thallium may exceed water quality standards. The DEIS does not address cumulative or synergistic impacts for these parameters and others upon fish, wildlife, or humans. Water would need to be treated for anywhere from 30 years after closure through indefinitely. No financial assurance is listed or calculated. The St. Louis River watershed is already contaminated for mercury and sulfates and the former LTV tailings basin already leaches into the Embarrass River.	WR1A,WR5A
1997	The greatest inaccuracy within the DEIS is the treatment of PolyMet as a single mining project, even though all evidence points to the opening of a sulfide mining district. Addressing this issue as a single project is misleading to the public. The agencies are following political rather than scientific or legal guidelines in setting forth this DEIS from such a narrow perspective.This DEIS is inadequate by disregarding the environmental ramifications of a sulfide mining district within the Arrowhead Region of the state, and the impact upon our waters, wetlands, wildlife, air, and human health. The DEIS is inadequate due to its bias that favors the exploitation of mineral resources as the sole use of resources within the Arrowhead region.	G9

Sender Last Name: Emrich **Submission ID:** 3601

3872	I realize that the country needs copper, nickle etc. and Northern Minnesota wants and needs jobs. However, the open put mining project proposal by PolyMet Mining will populate our precious water resources in the BWCA. How much is difficult to predict - but polute they will. We are not only talking about the beauty an serenity of the area. We are talking about the future of our children & grandchildren. Will they have clean water to drink?	EOO

Sender Last Name: Engel **Submission ID:** 3205

3541	To Whom it may concern, I have personally been following Poly Met for a couple years. and find this to be a very favorable proposal for both the company and the citizens of Minnesota as well, I have read the EIS and found that the it is comprehensive and complete and should be accepted as proposed to complete the permitting process. This project is imperative to the survival of the Iron Range of Minnesota, especially so in these very difficult economic times. I encourage MN DNR to act now to grant the permit necessary for the Poly Met Hoyt Lakes project to begin. Thank you, Chris Engel	EOO

Sender Last Name: Engelsma **Submission ID:** 353

391	I am writing today in support of Polymet Mining's NorthMet project. Our firm, Kraus-Anderson Construction Company, is over one hundred years old and is one of the most respected general contracting/construction management organizations in Minnesota. As a business person and someone who is concerned about the environment, I took a serious look at the draft EIS. My evaluation indicates that it is far better to mine and process these minerals, that are so strategically essential to the American economy, right here in Minnesota with sound environmental practices, than rely on foreign sources that often operate free of oversight and regulation. We at Kraus-Anderson are extremely proud of our safety record in an inherently dangerous industry. I feel that worker safety at the NorthMet project can also be assured operating in Minnesota, a state with strong worker safety regulations and an exemplary worker safety record. Finally, the NorthMet project is exactly the kind of natural resource based manufacturing that is the foundation for a host of other industries that utilize these etals in their own products. This is the kind of economic stimulus that Minnesota and the United States needs right now. This project will provide many good paying jobs, with benefits, and tax revenue that will keep our State and local governments providing the basic services and education for our children. I see no reason to further delay the permitting necessary to proceed with the NorthMet project.	EOO

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Comment ID	Comment Text	Theme Codes
Sender Last Name:	Erickson **Submission ID:** 14	
13	My name is Dale Erickson from Aurora, Minnesota. I'm in strong support of this PolyMet project. It's too bad it drug out for that many years, for seven years to get permits and everything. I am in strong support of it.	EOO
19	My name is Debbie Erickson, from Aurora, Minnesota, and I support the PolyMet project.	EOO
215	My name is Joel Erickson and I represent Cummins NPower, the exclusive Distributor for Cummins Engines & Power Systems in the upper midwest. I, along with my company, fully support the approval of Polymet to operate an open pit mine. During the course of their extensive EIS review we've had the opportunity to be involved in many aspects of their operational and mining plans. Polymet has completed a comprehensive review of all potential environmental risks and have illustrated to us a commitment, second to none, to operate this mine in an environmentally sensitive manner. I can attest directly to their environmental efforts on mobile and stationary mining equipment that would be used to power their production equipment. Cummins is a world leader in clean emission technology, and PolyMet has pursued information from us on utilization of our very best technology, in an effort reduce exhaust and carbon emissions - even at a significant cost premium. Examples of this are rail cars that will shut off engines when not needed, full Tier II emission reduction technology for their high horsepower power units, and best available emission reduction technology options. Once operational they will be become a positive environmental example for all mining operations world wide to emulate. At a time in which this country is facing 10% unemployment levels and huge deficit spending the Polymet NorthMet project is exactly what we should be encouraging: responsible development that has been extensively researched, providing well paying jobs for our residents, an increased tax base for our state, and providing our country the natural materials needed to remain competitive in a global economy. Materials such as copper are necessary for a number of environmental products, including our copper zeolite SCR catalyst that will be utilized in 2010 on highway diesel engines. Using this technology 2010 on highway engines will emit virtually zero emissions by using the copper in the catalyst to reduce NOx levels while, at the same time, improving fuel efficiency significantly. We need a viable copper supply for this technology and what better way to produce it than in a mine committed to responsible environmental compliance, employing Minnesota residents, and paying Minnesota and federal taxes? I applaud their efforts and strongly recommend their request be approved as soon as possible so that operations and new jobs may begin.	EOO
2741	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Please consider impact to not only a pristine wilderness area, but to other economic engines that exist in northern Minnesota. Namely, tourism. Environmental destruction is a sure outcome of such a mining project. As persons in a position to make decisions that can have huge impacts to this precious land and water resource, PLEASE do not allow this type of mining here. Any environmental analysis must consider the possibility of a spill due to a natural disaster or failure of mechanical equipment. This is too serious to just consider some current economic gain.	EOO,G2,G11
3829	PolyMet Mining Corp. wants to dig an open-pit mine in more than 6,700 acres of the Superior National Forest. This is a deep deep hole roughly 1 1/3 miles in size. A permanent hole in the SNF! An terrible ecological eyesore accumulating all sorts of chemical pollutants virtually forever. Because the ores are in sulfide-bearing rock, the result will be staggering amounts of permanent chemical pollution in the immediate location, throughout the region, and any waterways associated with and around the mine -- the BWCAW would be one areas. Remember mines are 'treasure chests' with long term negatives. All for a few years of mining jobs and increasing wealth of the owners.	G2A
Sender Last Name:	Erie **Submission ID:** 2	

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Comment ID	Comment Text	Theme Codes
2	As a resident of Hoyt Lakes, Minnesota and the father of three children, I am very concerned about the environment that my children grow up in, and I believe that the PolyMet Mining Company has done their due diligence in seeing that our environment will be protected. So as a citizen, I fully support the PolyMet Mining project. I would like to see it move forward. That's it.	EOO
Sender Last Name:	Esau **Submission ID:** 2310	
426	I have only recently become aware of the proposals regarding sulfide mining in northern Minnesota. The public comment period on the DEIS comes to a close on February 3, 2010. This is far too soon for a proposal of this nature I respectfully request a sixty day extension for the public comment period to enable ditizens such as myself to properly examine the DEIS and make appropriate comment. As you are aware, the document is some eighteen hundred pages and deserves careful and thoughtful consideration before we move forward on decisions that will have impacts far beyond our lifetimes. Please be sensitive to the needs of the public for better educating themselves before bringing comments forward that will impact the decisions being made.	PRO6
Sender Last Name:	Essian **Submission ID:** 3215	
3546	once again toil for the country's needs by providing essential metals, base metals, to transform this country once again. So I urgently recommend the permitting of this project, the Polymet Mining Company specifically, so that the urgent work can begin now, towards rebuilding what America will surely loose if this project doesn't move forward. Our collect lives, and standard of living is in balance, for the better off amongst us, as well as the not so well off.	EOO,G1
Sender Last Name:	Esslinger **Submission ID:** 1547	
1892	Read on...I think you will enjoy this request regarding the PolyMet Mining decision: Before you make a decision on the PolyMet Mining Corporation, I would like to make a request of all those making the decision. It is a simple request that you WILL MOST ENJOY, I promise. Purchase and read "The Big Burn" by Timothy Egan which is about one of the largest fires this country has ever experiences (1910). BUT MOST INTERESTING is the discussion about the abuse of the land due mostly to politics, persons and corporations with large amounts of money and the lack of those managing our forest lands to keep things under control, especially under political pressure. I have serious concerns and you have some serious decisions to make. Reading this book might help you with your decision. I give you this challenge: read the book first. My email is www.geeessjr@wi.rr.com . Let me know how you appreciated reading the book and if it help with your decision on this and perhaps future issues.	EOO,G14
Sender Last Name:	Ethan K. **Submission ID:** 3370	
3660	It looks as if the cost isn't worth the reward. The environmental damage that could take place isn't worth the economic gain. My father works at MinTac and I've heard both sides. I've also been to the BWCA numerous times and hope to go there my whole life without it being harmed.	EOO
Sender Last Name:	Evans **Submission ID:** 3469	
44	Listed in the DEIS is the number of jobs this will provide to the area. Who has taken a look at this number? Are we relying solely on the statements of Polymet? Are there similar operations the state and independent observers should look at to see if the risks with the project are balanced by the promise of jobs?	RFI

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Comment ID	Comment Text	Theme Codes
766	I am troubled by the short time period the public had to review and comment on the project and the fact that environmental groups had to hire experts to do what should've been done by the agencies involved. If the state of Minnesota were truly interested in making this a process to protect the public interest they would've hired independent experts to review the plan and made those comments available to the public in a timely fashion.	EOO,PRO6
1059	The project is planning to use a wetland to scrub the water of pollutants. Yet this has never been proven to be effective.	WE6
3229	Mercury contamination through leaching of metals, drying of wetlands and change in water flows promises to be a huge problem. Has the Polymet project done enough actual measuring of water flows or are they relying on unproven untested models?	WR1E
3672	Financial assurance laws provide little if any protection for the public. The DNR commissioner can grant variances for a variety of reasons. I find it troubling that there are no financial estimates of the costs involved in closing the mine and the treatments in perpetuity. Certainly if I were Polymet I would want to know those costs if I were serious about cleaning up the mess after mining is finished. This should not wait until the mine permitting process.	PD4
3673	I am troubled by the proposed land exchange. The proposed open pit mine is on a unique wetland ecosystem. How is the loss of this wetland to be mitigated?	PD1
3674	Nowhere in the DEIS is a list of the many assumptions involved with this project. For example: if the sulfur content is as predicted, and if the waste rock reacts as predicted in a lab study, and if the liners hold, and if the company doesn't walk away in twenty years by declaring bankruptcy, and if the ground water flows as modeled, and if the price of the metals justifies the high cost of extraction, then the question can be asked "Is it worth it?"	PD9
3712	jobs. PolyMet purchased the former LTV taconite crushing plant and tailings basin for its plant site, but the open pit strip mine would be located within 6,700 acres of public Superior National Forest land which is designated to be sold to PolyMet without environmental review.	PD1
3744	Polymet is a Junior Mine Development Company. The executives and officers have received millions of stock options which allows them to sell their stock at a certain price. They have never operated a copper nickel mine. Their intent is clearly to get the permit to mine and then sell to the highest bidder. Their intent is not necessarily to design a mine that will safely operate and upon closure have minimal costs and minimal environmental effects. Yet this fact is not acknowledged anywhere in the DEIS and yet should be taken into account as a huge risk factor.	EOO
3745	This project is a template for mines to follow. It is very important that the state get this right.	G10
3800	I am in support of the Polymet NorthMet Project. The Polymet mine will create many long term jobs and bring much needed economic activity locally and statewide. The metals mined and the byproducts created will provide for further career opportunities. It will lessen the global environmental impact because Polyment will ensure environmentally sound mining procedures that cannot/will not be the case of mining practices overseas. It will cut down on environmental gas emissions by eliminating the need for overseas transportation of the metals. It will reuse existing equipment and facilities saving on environmental impacts, minimizing the disturbance of wetlands. Do not delay project any further. Issue the permits so job creation and economic activity can begin now while it is so desperatly needed. Improve the state of MN and the nation.	EOO
3803	I love Minnesota and at 62 am thinking of retiring there but want to be someplace that air, water, ground quality are protected as well as open spaces and other species. Polymet Northmet Draft Environmental Impact Statement PolyMet is a Canadian company, so this mining project will not provide a domestic source of copper, nickel, cobalt, platinum, palladium, and gold. The metals will be further processed in Canada and sold on the global market. The mineralization of northeast Minnesota is very low grade, containing approximately 8 pounds of copper and .01 ounces of precious metals per ton of waste rock. This will require energy and electricity to create enormous amounts of waste, making this a marginal mining venture on the global market, rather than providing a steady supply of	G1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3804	470 acres of imperiled or rare/uncommon black spruce (bog) and jack pine forest would be impacted. Excess capacity at the PolyMet processing facility would open the door for a sulfide mining district between the PolyMet site and the Boundary Waters Canoe Area Wilderness (BWCAW). Acid mine drainage and toxic heavy metal leaching are byproducts of mining sulfide ores, requiring water treatment for centuries. PolyMet admits the mine would pollute ground water, but claims that any pollution would meet water quality drinking standards. Mining pollution also adds sulfates to watersheds, triggering the chemical reaction by which mercury becomes methylated, and bio-accumulates in fish tissues. Since PolyMet's open pit would be within 20 miles of the BWCAW, haze and noise pollution would impact the wilderness. Disruption of the landscape would impact wildlife, bird, and plant habitat, while vegetation used in reclamation would introduce non-native species. Polymet's project is within federally designated lynx critical habitat. In addition, Polymet's project will impact moose habitat. Moose are experiencing rapid populations declines in Minnesota. Global warming threatens many wildlife species. According to conservation biologists working in the field, some key steps to helping wildlife survive are: 1) Protecting wildlife corridors and buffer zones, and 2) Limiting climate stresses, including habitat fragmentation and pollution.	WI2,WI5,G2B,G2C,G7A,G7
Sender Last Name:	Evenson **Submission ID:** 1534	
1868	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources. It is objectively impossible to believe that PolyMet will keep it's promises and fulfill their environmental responsibilities into even the near-term future. The mining industries record in Minnesota and nationwide is simply dismal. Unless a new level of serious is established on their side, giving them access to our sensitive public lands and waterways is unacceptable.	EOO
Sender Last Name:	Favet **Submission ID:** 1370	
665	Long-term financial guarantees - Mining projects of this type have left enormous economic burdens on the surrounding communities resulting from environmental degradation and social impacts, especially after closure of active mining. Polymet talks of long-term jobs lasting for 20-years. In the life of a community that is very short-term. Our communities are suffering enormous financial burdens that are peaking now due in part to the closing of iron mines over 20 years ago and the resulting loss of families raising children in our area. The mining companies involved must be required to put sufficient funds into escrow for bothenvironmental and social impacts. These companies who have no local ties must be held accountable for their impact as they reap what must surely be enormous financial gains to warrant the level of investment shown in just the exploratory phase of the project.	SE3,PD4
707	Water and air quality monitoring - The MPCA and USEPA have been understaffed and underfunded in recent years. A project of this scope with untested and unproven processes would require substantial, consistent monitoring to ensure the watersheds are not being pollited. The DEIS enumerates several anticipated water quality concerns for surface water, groundwater, wetlands and the greater St. Louis River Watershed (which empties in to Lake Superior) both during the mine operation and after closure. In addition to substantial monitoring there must be public access to monitoring data.	WR1A,WE3,AQ5
1601	We would like to express our concern about the proposed Polymet mining project in northern Minnesota. There are many reasons we feel it would be beneficial to have the mine project in our backyard, but there are several critical concerns not addressed by the Draft Environmental Impact Statement. If this project is allowed to go forward, out primary concerns are as follows:	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1602	History of environmental degradation resulting from similar mining - Several states have a moratorium in place on this type of mining because it has resulted in such horrendous environmental degradation everywhere it has been tried. Wet environments are even more susceptible to the exposure of sulfur than dry environments. Polymet claims they have a new procedure that will limit the environmental impact. Is a watershed that drains into the world's largest freshwater lake the best lace to test this new science? We must ensure they do this right the first time, with no shortcuts and no variances. The stakes for our region's environment, human and financial health are too great. The reality is we use the products made from these ores and we should ensure that mining is done safely. The DEIS indicates more needs to be required of Polymet to ensure that the mining will be done safely. The DEIS indicates more needs to be required of Polymet to ensure that the mining will be done safely for the people, plants, andimals and environment both during the active mining period and well in to the future.	G8A,G12

Sender Last Name: Fedo **Submission ID:** 138

129	My name is Lory Fedo and I am the president of the Hibbing Area Chamber of Commerce and I actually live in Side Lake, Minnesota, which is 30 miles north of Hibbing. I'm supportive of the PolyMet project, it's an important project for the people of our region. We've had double-digit unemployment for the last few years in Hibbing and many of those people are people who work for mining vendor companies so when mining -- when iron mining has been down, our people have been out of work, so for us it's just so important to have this project go forward. Already we have people from Hibbing that are working at the PolyMet project who are working for vendors who are working with the PolyMet people and we're excited about the project. We've had many -- or witnessed many presentations on the environmental aspect of the project and what they've done to minimize the environmental impact and people in our community and in our businesses are very supportive of it and really happy to see what they've done to make this a safe project for our region. I grew up around mining, I lived in northern Michigan and I lived in northern Minnesota after that, so I've been in mining communities my entire life. We know in our region how to do mining and this project, as I've reviewed it, has been one of the best put-together projects I've ever seen and we're just so excited and thrilled, I am, to see it and to be a part of something new that's going to be happening on the Iron Range. So thank you for allowing me to comment and for allowing other people to come from the Iron Range to this area. Thanks.	EOO
2634	John A. Fedo, Side Lake, Minnesota. I'm here to support the process that PolyMet has been involved with and the issuance of permits for the extraction of minerals that they're seeking. I've lived in northeastern Minnesota all my life. The last 20 years, I've lived in Side Lake. I've drawn my water from a well; we live on a lake; we've raised eight children on that site, and I think I've paid very close attention to the environment that I'm living in as well as the economy, hopefully, that both I work in and my wife works in as the director of the Chamber of Commerce in Hibbing and, frankly, the hopefulness that my children have at some time to find jobs within the area that they grew up in. I'm very comfortable with the process that PolyMet has been involved with in seeking the permit to extract the minerals. I have attended public hearings; I have read extensively about the processes that they intend to use to dispose of various elements that will be needed to refine the minerals and am comfortable that they have a process in place that frankly will do both, employ people, extract the minerals in an environmentally-safe way and ensure that I can continue to draw water from my well, which, frankly, is in the same watershed that this mine is	EOO,G6,G7

Sender Last Name: Feldhamer **Submission ID:** 1344

1570	We appreciate the importance of mining to the economy of Minnesota. However, sulfide mining has always, and will always, result in acid runoff- despite the claims of new technology by the mining industry. Pollution in the BWCA - and its adverse impact on the natural resources and tourism of the area- is clearly unacceptable. We own a home on White Iron Lake and strongly oppose any mining.	EOO,G7A,G11

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Comment ID	Comment Text	Theme Codes
18322	The Minnesota NPDES General Stormwater Permit for Industrial Activity requires permit coverage for all types of mining for metal and nonmetalic minerals. The DEIS does not address this fact. The DEIS should be revised to include permitting of the Project site under the Minnesota NPDES General Stormwater Permit for Industrial Activity. This permitting would extend beyond the period of mining operations and into the Post-Closure time period.	EOO
18323	COMMENT #2: NONDEGRADATION - APPLICATION OF MN RULE 7050. On page 4.1-33, the DEIS incluides the following text: "Because the Project is in the Lake Superior Basin, the Great Lakes Initiative (Lake Superior) water quality standards also apply (Minnesota Rules, chapter 7052). These Lake Superior standards can differ from the water quality standards for the same parameters in the Minnesota Rules, chapter 7050. Where different, the 7052 standards supersede the 7050 standards, even if the 7052 rules are less stringent. For parameters not listed in Minnesota Rules, chapter 7052, the standards from Minnesota Rules, chapter 7050 apply." This is not accurate and should be corrected. All the elements of DEIS that are affected by this correction should be revised. MN Rule 7052.0300, subp. 1 includes the following language: "This part and parts 7050.0180 and 7050.0185 establish the nondegradation standards and implementation procedures for surface waters of the state in the Lake Superior Basin. For the purposes of this part and parts 7052.0310 to 7052.0330, lowering of water quality means a new or expanded point source discharde of a BSIC to an outstanding international resource water, or a new or expanded point or nonpoint source discharge, for which there is a control document, of a BCC to a high quality water. The nondegradation standards established in this part and parts 7050.0180 and 7050.0185 for surface waters of the state in the Lake Superior Basin apply as follows:" (bold and underline added) As indicated by this language and other text from MN Rule 7052, the relationship between Rules 7052 and 7050 and the applicability of both of these Rules to this Project are not nearly as simple as stated in the text from the DEIS.	WR3I
18324	There are minimum requirements and protocols included under MN Rule 7050.0185. These should be followed. The DEIS should provide the information needed to make the "Determination of Significance". In particular, the data and analysis should be included to see if the discharge qualifies as a "significant discharge" under MN Rule 7050.0185, subp.2.G.3, as per MN Rule 7050.0185, subp.5. This provision must be applied to both the process discharge water and the stormwater discharge from the site (construction and site). This will require establishing the "baseline quality" consistently attained in the waters by January 1, 1988.	WR3I
18325	Additionally, MN Rules 7050.0185, subp.0 and 7050.0186 should be applied to any and all wetland impacts from the Project/	WE2,WE4
18326	Rule 7050.0185 applies to all pollutants. At a minimum, the analytic work in the revised DEIS should address all the chemicals on the GLI list of chemicals.	WR3I
18327	There are numerous instances in the DEIS where PolyMet proposes that long-term measures be implemented to address a problem idntified in the DEIS. For every one of these measures, there must be financial provisions proposed to assure that the measures will be funded for as long as they may be needed, even if PolyMet, or some other future owner of the Project, should go out of business. There are a variety of widely-accepted business methods to structure and implement such arrangements. The costs for such arrangements can be accurately determined in order to allow for almost every possible event or development over time. Such financial provision are the only method of assuring that there will be the monetary support to implement the necessary and appropriate measures. Wherever a long-term measure is proposed to address a problem identified in the EIS and requires review and approval by any requlatory body, that regulatory body should require a suitable financial arrangement to assure funding support for the measure for as long as may be necessary. If such an arrangement is not provided, the proposed measure should be ignored in the context of the regulatory review and approval.	PD3,PD4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
18328	Many of the proposed mitigation measures included in the DEIS would require long-term funding to implement. For each of these measures, the DEIS should include proposals from PolyMet to provide funding mechanisms to support these mitigation measures. These funding mechanisms should be sufficiently robust and durable to assure long-term funding even in the event of PolyMet going out of business. Where monitoring is proposed as part of a mitigation strategy, there should be a discussion of the possible alternatives that may be required in response to the moitoring results. The estimated costs of these possible alternatives should be provided along with durable long-term funding mechanisms. Where funding mechanisms do not accompany mitigation measures, those mitigation measures should not be considered or accepted by the agencies reviewing and approving the DEIS.	PD3,PD4
18329	The DEIS states that discharge from the Project reaches all these water bodies. There have been multiple State and Federal court rulings regarding discharges to waters that have been listed as impaired and for which a TMDL is required, but not yet completed. See, e.g, Friends of Pinto Creek v.United States Env'tl Prot. Agc'y. 504 F.3d 1007 (9th Cir., 2007) cert. denied sub nom Carlotta Copper Company v. Friends of Pinto Creek, et al. 129 S. Ct. 896 (2009). During the period of time that a water body is in this status, "40 C.F.R. 122.4(i) provides that "[n]o permit may be issued" [t]o a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards. The owner or operator of a new source or new discharger proposing to discharge into a water segment which does not meet applicable water quality standards or is not expected to meet those standards even after the application of the effluent limitations required by sections 301(b)(1)(A) and 201(b)(1)(B) of CWA, and for which the State or interstate agency has performed a pollutants load allocation to be discharged, must demonstrate, before the close of the public comment period, that: (1) There are sufficient remaining pollutant load allocations to allow for the discharge; and (2) The existing dischargers into that segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards." (MN Supreme Court ruling A04-2003, Cities of Annadale and Maple Lake NPDES/SDS Permit Issuance	WR3I
18330	This principle applies to project discharges of mercury and sulfates that would contribute to mercury methylation. The impairments are for mercury and mercury in fish tissue. This principle also applies to permitting for the project process operations and the site stormwater discharges (construction and industrial site NPDES permits).	WR4B,FM1,FM5
18332	The discharge requirements (no contribution at all) for mercury and sulfates that would contribute to mercury methylation under this principle are significantly more stringent than the impact criteria used in the DEIS.	WR4D
18333	Many of the statements in these sections are irresponsibly inaccurate, incomplete, and/or misleading.	WR1E
18334	"The statewide nondegradation procedures are in place to protect all waters from significant degradation from point and nonpoint sources" This statement is accurate, but the DEIS section provides no information or provisions in response to its applicability to this project. At a minimum, the DEIS should provide enough information to determine whether the degradation caused by the new or expanded discharges from the project are "significant" under Minnesota Rule 7050.	WR1E
18335	"The Lake Superior Basin nondegradation procedures apply to new or expanded point source discharges of bioaccumulative substances of immediate concern (BSIC) (Minnesota Rules, part 7052.0350)." This statement in the DEIS is incorrect. In MN Rule 7050.0300, subp. 1, there is the following text (highlighting added): "For the purposes of this part and parts 7052.0310 to 7052.0330, lowering of water quality means a new or expanded point source discharge of a BSIC to an outstanding international resource water, or a new expanded point or nonpoint source discharge, for which there is a control document, of a BCC to a high quality water." Mercury is a BCC. All the receiving and downstream waters are not currenly on the 303(d) Impaired Waters List are High Quality Waters. Thus, the Lake Superior nondegradation procedures apply to both point and nonpoint source discharges of BSICs and BCCs from this project..	WR1E

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Comment ID	Comment Text	Theme Codes
18336	"The NorthMet Project would be a new facility, but PolyMet has proposed a water balance that avoids the need for any point source discharges during mine operations." This project is required to have NPDES stormwater permits for Construction Activity and Indistrial Activity. These permits will cover site discharges, above and beyond the process discharges covered by another NPDES permit. By definition, discharges covered by NPDES permits are point source discharges. Thus, the project will have point source discharges during mine operations. In this section and others, the DEIS states that there will be discharge from the West Pit during Post-Closure. The Lake Superior Basin Nondegradation Standards would apply to this discharge, but the DEIS provides no information or provisions in response to their applicability to this Project discharge. Finally, this statement leads the reader to believe, in broad terms, that there is no new or expanded discharge from the site that is governed by MN Rule 7052. In addition to the discharges listed above, there are other Proposed Actions that will contribute to increased mercury discharge and/or mercury methylation listed in other sections of the DEIS, such as wetland disruption, forest loss, or disruption of peat deposits. These Actions are covered by the provisions and procedures of the Lake Superior Basin Nondegradation Standards.	WR1E,WR3I
18337	Based on the provisions of MN Rule 7052.0310 and the items listed above and elsewhere in these comments, a Nondegradation Demonstration is required. The EIS is the appropriate document for this Demonstration. Based MN Rule 7052.0310, subp. 3, the Nondegradation Demonstration must meet the requirements of MN Rules 7052.0323, subp. 2 and 7050.0320. subp. 3. At a minimum, the Nondegradation Demonstration must address mercury. The MPCA should provide guidance about whether the Nondegradation Demonstration should address other chemicals to be discharged from the Project process and/or site.	WR3I
18338	This text lists multiple new or expanded sources of mercury to downstream waters. In all these cases, PolyMet is relying on mercury reductions due to sequestration in the Duluth complex mine waste rock or the LTVSMC taconite tailings to eliminate this new or expanded discharges. In the case of the Duluth Complex rock, this assertion is based on batch simulation tests conducted by PolyMet. In the case of the taconite tailings, this assertion is based on one MnDNR study at two tailings basins. In both cases, the support for these assertions is insufficient. The support is based on only one study in each case. A study conducted by PolyMet, a party with a very strong self-interest, could be many other possible significant differences between the characteristics and sequestration capacity of the tailings in these basins and the LTVSMC tailings. Futhermore, no quantitative information from the MnDNR study is provided. There is no reason to relive that the sequestration capacity of the LTVSMC tailings will be sufficient to remove the loading of mercury generated at this project. Sequestration of chemicals by soil and/or minerals typically varies over time. For example, the soil under stormwater infiltration trenches I known to sequester heavy metals as the water leaches through the soil. At some point, though, the adsorbtion capacity of this soil is exceeded. From that time forward, the soil ceases to remove the heavy metals. Additionally, the heacy metals previously adsorbed by the soil may become mobile and start moving again through the soil column. This aspect of sequestration is not discussed in the DEIS.	WR4E,AQ6A
18340	This section also refers to meeting the Great Lakes Initiative water quality standard as an appropriate Impact Criteria. This is incorrect. This section should be revised to meet the more regorous Impact Criteria imposed by the downstream impaired waters and TMDL status and nondegradation under MN Rules 7050 and 7052.	WR4D

Sender Last Name: Fields **Submission ID:** 1035

1135	I am writing to you in regard to Poly Met Mining, Inc. North Met Project. This will significantly contribute to the State and local economy at a time when we really need the jobs and economic benefits. Many ofthe young families have to leave the area and the state in many cases to find employment, Poly Met has demonstrated it can produce these critical metals while following strict environmental requirements. Poly Met will be a domestic supplier of critical metals needed in so many applications. We need to start supplying our own goods rather than foreign suppliers for so many things including steel. It is my opinion that their project should secure approval which will benefit us locally as well as our country.	EOO

Sender Last Name: Fineday **Submission ID:** 2940

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3290	When deciding whether to take action, consider the following alarming predictions about water pollution from the PolyMet mine, taken from the DEIS itself: • Water from waste rock piles will be polluted for up to 2,000 years. • About 40 years after mine closure, the West Pit will overflow and begin discharging polluted water into the adjacent Partridge River which flows into the St. Louis River and then to Lake Superior. • Groundwater at the mine site will be contaminated with heavy metals. • Enormous sulfate releases will exceed the state standard for wild rice and will likely eliminate wild rice in the Partridge and Embarrass Rivers and the St. Louis River estuary near Duluth. • The iron range community had mining as an economic industry in the past and it wasn't sustainable nor good for the environment. It's time to support clean green energy. Let's look elsewhere for economic gains.	G1,G7A,G7B

Sender Last Name: Fink **Submission ID:** 3755

1	We are writing in support of the PolyMet Mining Inc./NorthMet Project. We are long-time residents of the Iron Range and we believe that environmental concerns will be carefully met and that the project will breathe much-needed life back into this wonderdul area.	EOO
2	I support the draft PolyMet EIS for the NorthMet project. PolyMet has developed a thorough EIS. The State of Minnesota is capable of conducting the necessary analysis + public review. The State's stringent standards for environmental protection will ensure the EIS requirements are met in developing + operating this project. The PolyMet NorthMet project will be developed and operated with modern technology. It will be properly supervised by the State. It will bring much needed employment to our region in a balanced, responsible way. The NorthMet EIS should be approved + accepted.	EOO
3	I am in favor of the project if air and water quality will not be adversely affected.	EOO,G2
4	In my opinion, the proposed PolyMet North Met project would benefit not only the community, but the entire state of Minnesota greatly. Locally, it would provide great opportunities for a lot of hardworking people. I also believe that the economy of the area would be greatly benefitted. I am aware of the said environmental factors, and I strongly believe that PolyMet and people in the area could join together, and work around the "roadblocks". I am pleased to see the project is moving forward, in hope to get NorthMet off the ground. I am hoping to see many great things start up in this area.	EOO,G1
5	I hope this project is decided by scientific evidence. That being said, it is very difficult for the average person to interpret the data. I wish more of the data could be put in a form that would compare Polymet with LTV. My main environmental concern is whether this will affect the BWCA. Nobody in Ely ever noticed the affect LTV had on the BWCA nor did we notice a difference when LTV closed. If Polymet will be less damaging than LTV was, I don't believe it will affect the BWCA. If that's the case, proximity to the BWCA should not be a consideration.	EOO
5	I support the Poly-Met project. I believe they will be responsible in the operation of the facility. The jobs and economic benefit it will bring to northeastern MN is very much needed. I also believe the mining of the resources in this country is a matter of national security. Also if there materials were to be mined somewhere else in the world to meet demand it would not be done as safely as Poly-Met is proposing to do. Poly-Met has made a huge investment in this project to date, it is time to move forward.	EOO
6	The Iron ranges economy was founded on mining natural resources. I have a child a house payment and intend to stay here on the range. I really hope this project goes thru so I can stay here.	EOO,G1
6	Please, I understand what economic crisis means and wish to show my support for no action proposal. I do not wish to see the exploitment of the natural resources of my home for more filthy pieces of woven cotton with writing on it to enter the area (disputable). The precious natural resources beneath our feet are not by any means worth the destruction and loss of what we have as a people in exchange to the extortion driving society and the potentially corrupt government. It's greedy, foolish, and wasteful. Think about it!	EOO,G2
7	I am a cabin owner on Birch Lake. I am in favor of Polymet 7 Fraconia Minerals. I believe in the expertise of the MN DNR. Technology can overcome the problems Northern MN needs these jobs.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
8	Snapshot Comments: -Environmental arguments should be relavant. NOT WHAT WAS DONE YEARS AGO. Present rules & science should prevail. -There are no 100% guarantees on anything. Don't do that to mining any more than reasonable to anything else. -New technology requires a place to be showcased and monitored. The present Polymet site is not a virgin site. Areas and facilities are already in place. Therefore minimal impact. -Studies have been extensive, much longer and greater than typically required. What are the results? Good or bad. If OK, get on with it. -Resources. economies are at stake. Evaluate, be reasonable and decide!	EOO
9	Craig Olson, C-R-A-I-G, O-L-S-O-N, I'm president of the Duluth Building and Trades Council representing approximately 6,000 men and women in the construction trades and 15 construction trade unions. I've been very active in the PolyMet process to-date. I think it is a very safe way to extract the copper and nickel, etcetera. It -- we have high unemployment in the northeast region of the state right now, some trades nearing 50 percent. This will provide much needed jobs for our local workforce. We will be able to create a better tax base if our people are working. Yesterday St. Louis County had a bond referendum for the school districts, which is the rural St. Louis County schools, and it did pass by a slim margin. And this is very important because we need to keep our kids locally in the communities and keep our parents working. So I just want to again say that we're here to -- I'm here to support the PolyMet mine and that it will provide much needed jobs for our community and our members of our unions. Thank you.	EOO
9	Dear Sirs: I am writing in favor of the Polymet Project. I feel that they have exceeded my expectations for environmental concerns and feel that the benefit of the jobs, precious minerals and general overall economic benefit to our area is far greater than the potential for environmental concerns. No facility is faultless nor can every contingency be covered but as the mining is developed, further safeguards can be implemented. These are not the same mines from 50 years ago. Many more safeguards have been implemented. We need a national supply of precious minerals to further develop fuel cells and emission controlling devices. We must not be held hostage by foreign mineral imports if we can obtain them here. The Copenhagen gathering will force us into stricter control and we need our natural resources to help with this.	EOO
9	We need the jobs on the Iron Range with all the spin-off jobs it would help tremendously, we need to keep the younger generations here. If Polymet do it safe let them do it.	EOO
9	From the information I have seen & heard, I believe that Polymet has either met or exceeded the requirements necessary to operate in No MN. I have lived in this area my entire life & plan to stay here. I have witnessed boom times and recessions and much prefer the up side. I support Polymets plan to mine in my back yard.	EOO
9	The Polymet project is a strategic project for the state of Minnesota and for the USA. It has been comprehensively evaluated and carefully designed to have minimal environmental impact. and will provide a huge economic boost to the local, state and national economies. The project must be supported by any and all right-minded citizens.	EOO
10	Having a cabin on the Kawishimi, I am very concerned that air, water, and noise pollution be guaranteed. What worries me most is the future and the impact of this mining on the N.E. portion of Minnesota wilderness.	G2C
11	My name is Elanne Palcich. I am from Chisholm, Minnesota. I have been following the PolyMet project since the scoping, and that was in like June of 2005. And, first of all, that hearing was very similar to this hearing in which people were not allowed to give -- there was no public discourse. Everybody just gave their private comment, so nobody got to hear anybody else's concerns, nobody got to hear questions. Acid mine drainage was not even mentioned at the scoping hearing. Now, I am not prepared to make real substantive comments at this time. I have the DEIS, which consists of three binders; I have followed the scoping documents, I have followed the preliminary draft EIS, and now I've got this laid out in front of me, and I don't see how anybody here tonight could possibly make substantive comments. It just takes too long to make your way through this. There is parts here, there is parts over here, you have to go back on the computer, you have to, you know, put it all together.	PRO6
12	We have a summer home in Ely, MN. I watch loons and bald eagles catch fish. I want them to live.	G2C

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Comment ID	Comment Text	Theme Codes
13	The Construction Industry throughout the state of Minnesota is struggling. The economic recession has taken a toll on the construction industry as unemployment reaches devastating levels. Hundreds of Signatory Union Contractors in Minnesota and the region have equipment and resources sitting idle, while many Skilled Construction Craft Union Laborers remain unemployed. It is truly a rough time to be in the building and construction industry. The PolyMet Mining Company proposal to build a copper-nickel-precious metal mine and processing facility near Hoyt Lakes, MN offers Union Contractors and Union Laborers some hope to get through this recession. Construction will require approximately 1.5 million man hours of construction over a two-year period, which will greatly help our struggling economy during this recessionary period. The impact that construction work brings to the economy is numerous and includes: state taxes, income taxes, goods, services, food, lodging and other expenditures. The PolyMet Mining draft Environmental Impact Statement (EIS) for the project has reviewed all of the potential impacts and offers options for mitigation, where appropriate. We hope that you find the draft EIS to be adequate so that construction may begin quickly. PolyMet has demonstrated it can produce these critical metals while following Minnesota's strict environmental requirements to protect air, water and land. With an abundant supply of natural resources to process, the PolyMet Mining project appears to be one that offers resources and supplies that will be utilized on a worldwide market, making it an even more worthy construction project. On behalf of the Minnesota LECET Board of Trustees, we support the PolyMet Mining Project and would like to see it move forward quickly without delay to help move our economy forward again.	EOO
14	The economy of Minnesota is an ecosystem just like the ecosystems found throughout the state. When one part of the ecosystem is struggling, it has a negative impact on the related parts. The Building Trades in the Twin Cities Metropolitan Area are struggling; the economic recession has devastated the industries that have kept our members employed. As many as 50% of our members are sitting on the bench on any given day. The PolyMet Mining Company proposal to build a copper-nickel-precious metal mine and processing facility near Hoyt Lakes offers our members some hope to wait out this recession. Construction will require about 1.5 million man hours of construction over a two year period; some of my members are bound to part of that construction work force. But we don't have time for delays. PolyMet has made our job relatively easy by proposing a very environmentally friendly project. Much of the infrastructure for transportation and processing will be recycled from the old LTV plant. Stockpiles will be managed so water infiltration is minimized and so any water that does percolate through the piles is collected and treated. Sulfur in the ore will be used as fuel in the process, and waste streams will be managed. Air emissions will be much less than other facilities in the region – so much less they're considered a minor source. The draft environmental impact statement for the project has done a very thorough job of looking at all the potential impacts and offering options for mitigation, where appropriate. The draft EIS should be deemed adequate so that permitting can begin quickly – and so our members can start working to build the facility.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
14	As Chair of the Minnesota Section of the Society for Mining, Metallurgy, and Exploration, I am pleased and honored to convey our Section's officers support to an adequacy determination of the draft Environmental Impact Statement (DEIS) for PolyMet Mining Company's NorthMet project proposed near Hoyt Lakes. The Society for Mining, Metallurgy, and Exploration (SME) is the world's largest society of mineral professionals. The Minnesota Section is made up of over 350 mining professionals from around Minnesota. The SME advances the worldwide mining and minerals community through information exchange and professional development. As mining professionals we understand the complexities of our industry and emphasize the role of environmental stewardship and regulation in mineral development and processing. The DEIS demonstrates that, time and time again, PolyMet has made well researched engineering and other choices so that it can operate the mine and processing facility without harming our environment. PolyMet carefully laid out the entire project so that the disruption of wetlands would be minimized and developed a comprehensive, multi-step waste rock management regimen to minimize the potential creation of acid mine drainage. PolyMet proposes to maximize the value of the ore by using the sulfur it contains to fuel the processing. Not only does this make the best use of the material mined, it also eliminates the need for greenhouse gas-producing fuels for the process. PolyMet will manage waste streams appropriately. To ensure no financial burdens falls on the people of the state, the State of Minnesota will regularly review the closure plans, estimated costs and the financial instruments proposed by the company. Before the first shovel of ore is removed the State will need to be satisfied that all costs of closure will be set aside in bankruptcy-proof financial instruments to cover estimates closure costs. As mining professionals, and engineers of all disciplines, we not only have a keen interest in seeing this project move forward but also a strong desire to ensure that any mining be done right, with a minimal impact on our natural environment. As Minnesotan's, we support the proper development of its mineral resources for the positive impact it has had on its people, the local area and the state. We believe the Draft Environmental Impact Statement adequately identifies the environmental issues associated with the PolyMet project and that measures have been determined to adequately address those issues. We support an adequacy determination for the draft Environmental Impact Statement (DEIS) for PolyMet Mining Company's NorthMet project. Any other determination would be a detriment to the State's otherwise valuable mineral resource. The PolyMet project should move from environmental review to the permitting stage.	EOO
15	I think that the project has been studied in full and [illegible] no change for the final EIS. Let Polymet get on with it.	EOO
15	The economy of Minnesota is an ecosystem just like the ecosystems found throughout the state. When one part of the ecosystem is struggling, it has a negative impact on the related parts. The Building Trades in the Twin Cities Metropolitan Area are struggling; the economic recession has devastated the industries that have kept our members employed. As many as 50% of our members are sitting on the bench on any given day. The PolyMet Mining Company proposal to build a copper-nickel-precious metal mine and processing facility near Hoyt Lakes offers our members some hope to wait out this recession. Construction will require about 1.5 million man hours of construction over a two year period; some of my members are bound to part of that construction work force. But we don't have time for delays. PolyMet has made our job relatively easy by proposing a very environmentally friendly project. Much of the infrastructure for transportation and processing will be recycled from the old LTV plant. Stockpiles will be managed so water infiltration is minimized and so any water that does percolate through the piles is collected and treated. Sulfur in the ore will be used as fuel in the process, and waste streams will be managed. Air emissions will be much less than other facilities in the region – so much less they're considered a minor source. The draft environmental impact statement for the project has done a very thorough job of looking at all the potential impacts and offering options for mitigation, where appropriate. The draft EIS should be deemed adequate so that permitting can begin quickly – and so our members can start working to build the facility.	EOO
16	I live in the Town of White, just outside of Aurora. I am in support of the Polymet Project. The technology that will be used in this project is the most up to date process that will have the least amount of impact on the environment that is available today. We have the natural resources here and we need the jobs. Having the plant in Minnesota with one of the strictest environmental regulations in the country is better than elsewhere with less regulation.	EOO

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Comment ID	Comment Text	Theme Codes
16	I attempted to review the E.I.S. on line, but was unable to access the process flow sheet. This item would be most valuable to ascertain: 1. Reagents used in the process 2. Containment provisions for: a. Waste dock b. Loan ore c. Gaseous containment. 3. Discharge points. 4. Dewatering plans. 5. In plant spill containment. I hope this session and/or future information will bring clear light to these issues.	RFI
16	Someone should do the math on the following How much money would Obama have to spend of our tax dollars on money we have to borrow from China to create 1000 jobs for 20 years? Go PolyMet	EOO
17	My name is Brock Kangas, and I'm for the project of PolyMet Mining. I think we need the mining up here. Things have slowed down. We need a new industry. Times are changing. They say it is for the hybrid cars and all the greenhouse -- the energy saving stuff. Let's do it, let's get it done, and let's put some people back to work.	EOO
18	We are very much for the polymet project. I have been following this project for 4 yrs. This is a company that is willing, and has already spent millions $ on the range w/o any TAX or government help. I am for this and the other precious metal projects. This project is key to our future in Northern Minnesota. I believe any environmental hazards have been overstated by outside special interest groups.	EOO,G1
18	Please don't do this! Our water, wildlife and land is what makes Minnesota special. Money will come and go but we must keep our responsibilities to our life our water. The threat is too high not everything goes as planned. We need clean water to sustain life.	EOO,G2
18	I think Polymet mining would be a great asset to the East end of the Range after listening to the comments on the Draft. We need jobs. The study took a long time (to long) I think it will open the door for more industry. We lived in Northern MN for 80 years + seen up + downs tax, etc. I hope Polymet will be successful + I think it will because a lot of study went into this project.	EOO
19	This city of Hoyt Lakes has attempted to obtain water from sources other than the Partridge River, with no results. It's the only water we have!!! I'm concerned that the quality and flow will be screwed up by the reduction of the watershed. Also the MP+h plant needs a set volume of water from Colby Lake which the Partridge River feeds. During August – the river is very low! Hopefully this won't end up with poor water quality + reduced flow so we experience water shortages, contamination + having to buy all our water.	WR3F
20	I believe with all the new Laws + equipment that the process is safe for all + our convience store personnel for tourists. I know you will use your education to see that it is right to proceed at this time.	EOO
21	I am writing in support of PolyMet. They have always been available to answer any questions we have. They have invested enormous amounts of money and time making sure they have the process right. We need jobs in this area. Need I say more. Issue the permits already.	EOO
21	I support Polymet Project for the future of Aurora and for the jobs it will create!	EOO
22	Let's get this off the ground + in production, our economy/ lives depend on it!	EOO,G1
23	Yes –	EOO
24	My name is Larry Brunfelt, and I'm in favor of this project, and I believe that it has went on -- the process has taken too long already, and I think it is time to move this forward. And we can use the jobs in the area, so -- that's all.	EOO
25	I have reviewed the summary EIS. I find, in it many concerns have been addressed. I also feel confident (very) that the project sponsors will be good stewards of our Natural Resources. Those of us who have grown up in this area and made it our home should look at this project closely. Not only does it address OUR concerns it also gives us hope for a future.	EOO
26	I am in full support of the PolyMet project and the economic benifit that it will bring. I believe that Mining can occur in an environmentaly sound manner and benifits our country.	EOO,G1
26	I agree with Mayer Mary Hess in the support of opening the mine. Let's get it done!	EOO,G15
27	I believe PolyMet will be good for our area. We need jobs for the willing to work people of our area.	EOO

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Comment ID	Comment Text	Theme Codes
28	I think this would be good for the area economy. The jobs this will bring good for the tax base. They have relieved my concerns about what this will do to the environment	EOO
28	I am in favor of approving the permit requests for PolyMet. We need jobs or our towns will die. PolyMet has shown that they will not pollute the environment.	EOO
28	This project is not only important for the economy of NE MN but is also important for the security of the US. We can not depend on third world nations for our stratigis in metal supplies.	EOO,G1
29	We need jobs! Good union jobs.	EOO
30	I am writing in support of the Polymet Project. It will be a benefit to the area in form of jobs, will support small businesses, and the communities as a whole. The project is well planned and very well studied as evident by the very thorough EIS process. I am looking for this operation to see a successful precedence for other operations of this type. The US needs more primary industry, especially well run primary industry.	EOO
31	My name is Dave Lislegard. I live in the city of Aurora. I serve on the city council. I am also the Chairman of the City of Aurora HRA, and I understand the inner workings of small government and also big government, and I realize that not only in this city, but in this state and in this nation, we are facing crisis for financial, health care, a wide variety, and many people are on fixed incomes. I think it is extremely important that we look at this project. I believe that many things are looked at that needs to be perfect, and perfection in all reality is subjective. We strive for excellence. I believe this plan covers that, and I think that -- I think it is time that we move forward, and I would appreciate a speedy process. Thank you.	EOO,G1
32	I support Polymets mine development proposal and look forward to the prompt issue of permits for this important project. Polymet has demonstrated through planning consultants and mitigation that such a project can be brought into production in a careful and sensitive way. The products produced by Polymet are key to the nation's manufacturing and are strategic to our nation. We should support projects such as this which balance carefully development and environmental values.	EOO,G1
32	At this time we need copper and we need jobs. We must go ahead with this project.	EOO
32	I am a union boilermaker & have been for the last 2 ½ years. I feel that mining has been the back bone of northern Minnesota for many many years, I don't feel we should stop that now! I also feel that the development of the polymet mining project would have a great impact on not only many families in the area but it would greatly support our surrounding communities and educational systems.	EOO,G1
33	Copper is a needed resource. It will be provided to the market. Please help Polymet do it with respect for the environment rather than in a third world economy that does not follow needed safe guards. Move ahead with this project!	EOO,G1
33	We need this project to proceed. Our children need jobs we need the tax base.	EOO,G1
34	Polymet is a must! To boost the economy and stimulate jobs! Very important!	EOO
35	I firmly believe that the Polymet project should move ahead to construction and that all necessary permits are granted. We need the jobs and the new industry on the Iron Range. The completion of this project will surely open the doors to additional development. Let's get this done quickly!	EOO
35	Given the high number of outstanding environmental concerns raised by this proposal, I believe it is incumbent on regulatory authorities to hold an event of this type in Duluth.	G10
36	I support this project because jobs are needed in our area. Times are tough the economy is down. This is an opportunity to not only provide long term jobs for several area people but also many short term jobs via the reconstruction process.	EOO
37	I support this project I'm a Union Iron worker and would like to see this go ahead. We could use the work.	EOO

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Comment ID	Comment Text	Theme Codes
38	My name is Virgil Sohm. I'm a Bois Forte Nett Lake tribal member. I'm here to represent the future generations, and I oppose the mining of the copper and the other precious metals. This area is used for our gathering, our hunting, our wild rice, and it is part of a treaty area, so I concern myself with the contamination possibility of our hunting, fishing and gathering areas. Thank you.	G3A
39	I think is a great thing in tough times like were in now to have this project go ahead. Because it will put a lot of people back to work that are laid off. And it might bring a lot of other jobs to there area which would be a good thing. And it can't be that bad for the environment.	EOO
40	I am a student at Mesabi Ease High School. I feel that this project would be a great success. Learning about Iron Range History has made me proud of this area and proud to be a part of it. The Polymet Project is history in the making. This is the future not only for Minnesota, but for the United States. I greatly support!	EOO
41	I feel that PolyMet has completed an extensive environmental impact study and is able to demonstrate that they are fully competent to operate the proposed facility in an environmentally friendly and safe manner. The EIS should be clearer. PolyMet is not in a Boundary Waters watershed. Enough said.	EOO,G2
42	We import 80% of ore copper from overseas, keep the job here. They have addressed all the requirements, let them build.	EOO
43	As a member of the building trades, my primary reason for supporting this project is the creation of jobs. I've reviewed the EIS online, and am comfortable that this project is possible without damage to the environment. As a proud citizen of the Iron range (10 min from Polymet site) I am concerned with the lack of economic possibilities for my children, and this project is a step in the right direction. Though it won't solve the entire economic recession for the Range, we must move ahead wherever we can.	EOO
44	I think the Polymet plant will be good to the area for jobs to all kinds of trades and small businesses. I believe in protecting the land and water but also bringing in jobs for families like mine. It's not like there ruining the land there because the old LTV plant is here somebody should use the old mine. I believe we should mine are natural resources instead of letting them go to waste.	EOO
45	Bring long awaited jobs, will be an economic boost to the economy. The development will take place on land already developed. These won't be any soil disturbed. Low environmental impact.	EOO
46	I'm curious -- I don't think I've seen enough analysis of what would happen in terms of catastrophic failure surrounding the tailings ponds. I'm a farmer.	GT2
46	I support the Polymet Project. This area needs the jobs that this project will bring for construction and permanent jobs. The EIS is well thought out and in a good plan.	EOO
47	So I think we need further assurances about the durability in the long-term, you know, 50, 100, 200 years, for some of these technologies they are going to be using in those storage pits.	GT2
47	I fully support the Polymet project. We need secure minerals for our national defense. It will be done in a manner, good for the area and environment.	EOO
48	And then a third consideration would be discharge of any contaminated water affecting wild rice. They mentioned wild rice on the Embarrass River, and one of the alternatives I believe then instead would channel some of that discharge into the Partridge River, but my understanding is that further south of the area there are wild -- significant wildlife areas that that water would be flowing into. And I know for a fact that sulfates can affect the health of wild rice and maybe the viability. So I would need further analysis and assurance that any discharge flowing into any of those rivers, you know, we need some study that it is not going to affect rice areas even outside of the mining site.	WR1E,WR4F

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48	I support the NorthMet project. The economic impact of this industry in our backyard is immense. Not only will Polymet create over 400 permanent jobs for the next 20 years, but the construction and spin off jobs created will stimulate our economy. At a time when employment is almost impossible to find also the millions of tax dollars that state and local communities will gain. Environmentally it has been proven that Polymet can mine for these metals without destructive waste and damage to the water, land and air. The metals that will be mined will be used for green technology such as wind turbines, hybrid cars also electronics that we use in everyday life and controlled here locally instead of somewhere overseas where environmental restrictions are not in place. I live and use all of Minnesota's natural resources I and my family camp, fish, hike, bike and have friends who live here in this area and some who have recreation property as well. I understand the balance between mining and living in this area and I strongly support this project.	EOO
49	Unemployed member painter and allied trades Local 106 Duluth. Project would be great for area and state with the technology available the impact to the environment should be very minimal with proper oversight.	EOO
49	I feel this phase is similar to the taconite industry was 60 years ago. No one wanted that at the time either. Polymet will have more gov't scrutiny than any company could possibly put up with. Please let them continue!	EOO
49	I have lived here on the Iron Range for 25 years. It is a great place to live and a great place to raise a family. This project would do this area and this end of the Range a great deal of good. I also believe that this is no better place to mine for these precious metals than right here in the US. I would rather see more jobs produced here on home soil than jobs overseas. I would also like to see this go through for the local economy and the surrounding local businesses to help everyone here out. This would help keep many families right here on the Range which if you are from here, you would understand the reasons why you would want to stay here. Keep up the good work.	EOO
49	I want nothing more than to see this project go 100%. With the number of jobs we will get in a time of large unemployment will wonderful. With minimal effect on the areas habitat and water is a great bonus and shows what today's technology allows us to accomplish. To think of all the families that this project will help and benefit from is great as well. My family has been part of the mining industry for more than 40 years and I hope that it will continue to stay that way for years to come.	EOO
49	This whole part of Northern Mn needs this project. I am a member of Local 49 Heat and Frost Insulator and we need jobs to put our member of other people to work. We need to put food on the table and put our kid through school. It's a no brainer, move forward, times have changed.	EOO
49	Another concern would be further financial assurances. It has been an unfortunate tradition for mining companies to sort of hit the road when the heat gets on, so financial assurances to the State in case of an event in which PolyMet would go bankrupt or, you know, further safety, water quality monitoring or clean-up procedures, you know, if they were necessary, financial assurances that PolyMet would -- bonds or whatever is needed, that that money would be available and the State wouldn't get footed with those bills. We all know that Superfund is a vastly underfunded program at the moment.	PD4
50	A great opportunity for the Range, NE MN, MN, USA and World!	EOO
50	We need jobs!!!	EOO

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50	They also say there's "a high degree of uncertainty regarding key input assumptions for water quality at the mine site". So again, we simply don't know how much pollution is going to result from this. We have a loss of over 1500 acres of wetland, a loss of 1700 acres of vegetative cover, direct impact to seven endangered species of plants. The tailings basin and residue facility embankment have "a low margin of safety due to previous mines and the underlying soils". So in other words, whatever gets put in the tailings bin doesn't stay in the tailings bin. And that's going to be sulfates. Finally, their alternative plan for the tailings basin entails testing of a permeable reactive barrier, ostensibly a chemical barrier, to prevent seepage. I find it very disturbing that PolyMet is relying on untested, unproven technology as a mitigation tool, and it should tell us -- it should give us severe pause, give the DNR serious pause in considering approving this Impact Statement. So in conclusion, I urge the rejection of the Environmental Impact Statement, the rejection of the sale of National Forest Service land and the rejection of pollution of our precious waters, which both provide habitat for wildlife, environment for recreation, huge tourist industry and drinking water for tens of thousands of Minnesotans who haven't been adequately served by this public input process. Thanks.	EOO,G2,G7A,G8
50	My name is Jeremy Fleming. I am a teacher at Mesabi East High School. I live in Chisholm and commute to work 45 minutes. I am in support of the Polymet project due to the fact that this area needs jobs like we used to have. Mines in this area ave produced iron ore that has produced metal to build this country. I believe this company will do everything to ensure that our quality of life will not be affected. The proposed LTV site which Polymet will be using was used for an excess of 45 years. With technology that we have today, and the resources that will be mined, I see great benefits in not only the amount of jobs created, but the potential students we would gain at Mesabi East. We have a brand new K-12 building and we are looking forward to an increased enrollment for the first time in ten years. In closing I would like to stress that this area deserves good news something positive since the closing of LTV. The iron range can prosper with another mine for the next twenty years.	EOO
50	The tailings pit that's proposed for use, the old LTV tailings pit, we already know is leaky, we already know has significant sulfate infiltration and runoff into the Embarrass River and that will only get worse. It should be cleaned up, not allowed to get worse by a new type of mining that would inherently severely increase the amount of sulfate that is drained into the river systems there. The groundwater is expected to be drawn down until Year 65, and levels of antimony, manganese and nickel are expected to exceed the maximum contaminant limits "potentially for the long term at the mine site". That's extremely troubling that the groundwater could be polluted forever.	G7B
51	As a resident of Northern Minnesota I would like to show my support of the Polymet NorthMet Project. First, it would contribute significantly to our local and state economies and provide many much needed jobs for this area. With the financial stat of the state (and local) economy, this project could not come at a better time. Second as a person who cares about the environment, I feel the project has been designed with the environment in mind by reusing a brown field, re-using existing infrastructure and utilizing multiple safeguards to protect the environment. I would much rather have this mine located in Minnesota where there are regulations that ensure the environment will be a top consideration versus being located in a place where it wouldn’t be considered at all. Thirdly I support the project because it will be supporting a buy local theme by producing several metals that are not currently mined anywhere in the US but that we need to produce necessary items for technology and green production such as photovoltaic cells and hybrid cars. In summary I believe that PolyMet is dedicated to protecting our environment, that our economy would benefit tremendously and we would reduce our need to import metals for certain industries. I support this project.	EOO
51	In addition, tonight we've had -- we've been under a snowstorm warning, we are continuing to be under a snowstorm warning until six o'clock tomorrow morning. So while I've come up with a small delegation of people from Duluth, others who wanted to come tonight to be here to comment couldn't, and they won't have the opportunity to do so unless the DNR revises its public input schedule to include a session in Duluth, which it should do to fulfill, you know, legally the requirement for public input.	PRO6,PD1
51	We as in Northern Minnesota need to have some work on the Iron Range.	EOO

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51	I don't believe the DNR has made adequate plans for public input on this project, and the public input that they're getting does not reflect the majority sentiment of the people of northern Minnesota who are going to be directly impacted by this project because no public input sessions have been scheduled in the major metropolitan areas that are impacted directly by the potential pollution from this site. You know, Duluth is the county seat of St. Louis County. It is the largest population area in the region, and it is directly downstream from the potential pollution that could be generated by the site, so all 150,000 people in the Duluth/Superior metropolitan area have a stake in this and their voices are being excluded by not having a public input session there.	RFI,PRO6
52	We need jobs in this area. This site will be good for the area as long as it is modified for contaminants.	EOO
53	My husband and I support the Polymet Project 100%. I think they have done their work to prove their product.	EOO,G1
53	I am in favor of this project for the fact that it will create jobs and potentially put me back to work so I can better afford to take care of my wife and kids.	EOO
54	My husband and I are retired, our children have jobs We are worried about our Grand Children. We trust in the E.P.A. We need work in the USA!!	EOO
54	I am here to support PolyMet. I believe most people who live in Northern Minnesota will tell you the same. We need this project! Not only will this project feed my family, but it will provide income for countless families in Northern Minnesota and many more in surrounding areas. With the economy at such a low point, this project will stimulate Minnesota's economy and the nation's economy by providing metals essential in producing many products such as wind turbines, catalytic converters, and computers. It will also stimulate local and national economy by providing income to other buisinesses local, state wide, and nationally who provide products and services to this mine. This in turn provides more jobs that the people of this country need! Many construction companies and workers will also benefit from its production and maintenance over the years. Polymet can do this in an environmentally sound maner by recycling an existing mine sit eliminating the need to cut down forests and minimizing the disturbance of wetlands. Using multiple safeguards they can protect the air, water, and land and follow Minnesota's strict guidelines. Bottom line, we need this project to pass! Thank you for reading this and hearing what I have to say.	EOO,G1
54	I was very impressed with information available at meeting + personel from all the government agencies available to answer my questions. I am confident polymet will get there permits.	EOO,G10
54	Local 106 painters, looking for more work, and to keep future going	EOO
54	I support the Polymet project for the economic benefit it will bring the Hoyt Lakes area and the Iron Range.	EOO,G1
55	I guess all I really want to say is that I'm for the project and everything looks environmentally safe. And I work out there right now for Our Gang Staffing and everything looks good. I hope to see some jobs on this side of the Range. That's all.	EOO
56	I support Polymet because they've takin the stepps in the direction of how to make sure that the process of mining these metals will be safe to the environment and cause no inamate threat to our Children's future and no threat to our wildlife. We've got thousands of people out of work and without health care this is our chance to better our Community and ourselves.	EOO
56	I would like to see Polymet go ahead with this project. We are probally one of the more enviromentaly consciencous countrys in the world, witch is good. To maintain a modern lifestyle we have to mine some place. And last, but not lease we really need the jobs in Northern Minnesota!	EOO
57	With 12 trillion dollars owed to the nations that make things it is time to get back to basics in the USA. The evidence of a profigate lifestyle is all around us in unemployment and debt. Job creation has to be the number 1 priority for this nation so that we can claim back the reputation of hard working productive people. This can be done with due regard to protecting the environment – and we need the close scrutiny that has been given to the project. The work on that front has been done. It is time to get on with the work of putting people to work on a good project.	EOO

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57	Polymet says the [illegible] will last 50 years – etc. That is nothing – Wish you could be a cleared answer to damage to our environment. But, I know there [illegible] yes or no.	EOO
58	With 12 trillion dollars owed to the nations that make things it is time to get back to basics in the USA. The evidence of a profigate lifestyle is all around us in unemployment and debt. Job creation has to be the number 1 priority for this nation so that we can claim back the reputation of hard working productive people. This can be done with due regard to protecting the environment – and we need the close scrutiny that has been given to the project. The work on that front has been done. It is time to get on with the work of putting people to work on a good project.	EOO
59	I consider my self to be very aware and consciouse of the enviorment. I enjoy canoeing, hiking, biking and the outdoors. I lived in this area all of my life. I also support responsible development and job creation. I think its entirely possible to have both. I support this project and the process the State of Minnesota has to make sure it's done right. Thank you for allowing me this opportunity to express my support.	EOO
60	The people of this area have logged and minned for well over 100 years. We can still drink the water we can grow garden in the soil eat the fish we catch. We have managed our resources and continue to do so. Poly Met certainly meets the standards for environmental responsibility and preservation of the land – Air + water.	G5
60	I am involved with mining projects throughout North America and internationaly and the companies that comply with + invest in technology that keep our environment clean are the ones that should be allowed to mine our resources. We need these minerals + jobs. The planet will be better off buying our needed minerals from "Compliant" environmentally aware companies. Art Ostman Minnesotan's including miners like clean water + aim to keep it clean.	EOO
61	My name is Karl Hansen. I just want to say that I feel good about PolyMet. I feel strong that it's environmentally strong. They're doing everything they can to do it the right way. And I feel that it's good for the people, good for the -- for the area, and I -- I strongly believe it's a really good, strong project for this community. And I hope it -- I hope it goes. And that's it.	EOO,G6
62	I beleive that this project would be a great asset to the iron range and it's economy. I live here on the range and work here through the Ironworkers Local 512 out of Hermantown, MN. This project would really help a lot of people that live here provide for their families and get off unemployment. I really like the fact that it would create short-term and long term employment for the area. All mines create environmental issues but even if it was built somewhere else it still would.	EOO
63	I'm a union Boilermaker, and a local resident of Aurora. As a avid sportsmen me and my family hunt, fish, take nature walks + work here. So a main concern was what was the impact going to be on the environment? So looked online at the States and all I see is good. as a union Boilermaker working at all the taconite plants + power houses across the Range and else where the one thing that comes to mind is that technology has improved 110% since the 50's, 60's, 70's. Alot is bieng done to clean up the mistakes of the past such as the SCR added to the power house in cohassette [illegible] to clean the NOC'S out of the emissions so with that said the next thing on my mind is jobs there is a lot of people on the Range without them, the proposal of 400 permanent jobs + 500 spin off jobs which is [illegible] my occupation [illegible]. this project will help the Range cities prosper once again. So in short I am all for Polymett mining project.	EOO,G2
64	I want polymet to come here to boost the jobs.	EOO
64	I want polymet to come here for more jobs.	EOO
64	PolyMet would be bomb on the range so come here. thank you	EOO
64	I feel poly met is good for this Region. We need job and things to keep people in this area it also will be good to have something beside minning ore this will be something to keep this area going when demand for steel is down people in our area what something to help keep there kids in the area our kids grow up and have to move to support there familys this will help in keeping job in the Region and keep familys intact.	EOO

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Comment ID	Comment Text	Theme Codes
64	Why does Minnesota DNR, Politicians, decision makers think they can accomplish what no other state in the union could not, environmentally safe CuNi mining. Why has no mining co. stepped up to prove to Wisconsin that they could. They have had since 1989. On the way into the meeting I asked 6 Aurora residents for directions to the DNR meeting. I was asked "Do you mean the Polymet meeting?"	EOO
64	I support the Polymet Project and they should be given a pemit to mine with these stipulations 1. They should buttress the tailing pond dikes beyond adequate requirements. 2. They should drill collection wells and treat any discharged water that can be regulated. 3. Polymet should be held to high standards not just lip service, the real thing!!! 4. Done properly it can be such a win-win for the economy and environment. 5. Hold Polymet to high standards and let them be a model on how it should be done. 6. Reuse of LTV facilitys is a big plus!!!	EOO
65	Polymet has proven in my opinion, that they have a process for copper mining that is financially beneficial to them as well as the Iron Range. They have proven this process to be safe to the enviroment. These benefits have been backed up with the determination and financial backing that should be applauded. The representatives of this state have taken enough time to decide on this. If they have any pride in the state, and the legislative process they have an obligation to decide either way. I hope for the sake of the Iron Range and it's people they will allow this to go forward and police it from that day forward. We have been sitting on our hands long enough.	EOO
66	Let do it! We need jobs - - Best Welfare Program in the World!	EOO
67	I just wanted to give my support for this PolyMet project. I think they've really done a lot of research on this project. I've come to some of the other meetings and I've listened to all the background information and all the technology that they're using in this process, and I really think that they have jumped through a lot of hoops to make this project go. And I'm a hundred percent for it, and I think the State of Minnesota will protect our resources. And I think northeastern Minnesota is ready for a new -- new industry to take hold and give people hope in this area.	EOO,G6
67	I'm commenting in favor of the Polymet project. I believe that Polymet and the State of Minnesota have done their due diligence as to the environmental impact of this project. While there are risks in any project of this type Polymet + the State of Minnesota have done as much as is reasonable to identify any potential problems. When the potential problems are identified the state and the community gain awareness of the effects of these potential problems and are in much better position to deal with them. The economic benefits to the area would be to count.	EOO
67	I support the Polymet Project because of the positive economic impact it will have in our area and state. I feel they have adequataly addressed the environmental issues that are associated with this project. As a resident of Hoyt Lakes, I feel the mining and processing process will not adversely affect the quality of the environment in our area and will result in the remediation of an existing field (i.e. Erie Mining to LTV Steel).	EOO
68	I support the Polymet Project. They have done their work to do this environmently correct. We need jobs in our area	EOO
68	I support mining in N.E. Minn Polymets proses in [illegible] mining and processing not smelting. good for the economy	EOO
68	As a resident of Duluth, I live downstream of the proposed NorthMet project via the St. Louis river. I will drink the consequences of sulfide ore mining south of the lorrentian divide. As a business owner in Duluth, my livelihood rises and falls with the state of the economy as a whole. Thus, for better and for ill, I would be impacted by the project. This project should not go forward. The PolyMet corporation lack the technology and the will to deal with the environmental consequences of sulfide ore mining. Sulfide tailing represent a novel challenge in waste containment. The techology to contain those tailing is unproven – and NE MN is too large and too dear a place to serve as a test bed. Sulfide tailings are also a permanent hazard. The repeated history of mining companies winning out of existence when the remediation bill comes due prevents me from having any faith in PolyMet's ability to follow through on its commitments. In short, I fail to understand why this project is worth the risk.	EOO,G7
68	I support the Polymet project. Jobs- jobs – jobs We need this to help this area	EOO
68	The next time Blaine has an EIS, I hope they hold a hearing on the Iron Range.	G10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
69	I am in full support of the Polymet Mining Project. I am a kindergarten teacher here at Mesabi East & would love to see an influx of families for the jobs that Polymet could offer. My husband has also been a Polymet employee for 5 ½ years. It is a great place to work – very family oriented. Polymet Mining has a lot to offer for many communities.	EOO
69	The environment was delt with threw out the ages. From a 20 yr life to who knows, we have advanced to better know how to deal with it. We have scholars that can advance our environment.	G2
70	I strongly support the Polymet project for the following reasons 1. Socio-economic - reserves will improve the economic stability of northern MN providing sound education facilities through school taxation 2. Mining the sulfide ore deposits will remove these potential sources of contaminants and improve ground water /stream water quality. 3. These are strategic metals for the future of the USA. This baseindustry will allow the USA to continue to be a world leader. 4. PolyMet can do this right. If we can plan a future mission to Mars 2020 we can certainly mine these reserves responsibly	EOO
70	I see no hidden facts, no pulling the wool over our eyes in trying to get the plan through. I think of all the people that are running this company, they're probably the most educated people they could get for this project. So -- and I'm all for the project. I can understand the environmentalist point of view, but they're comparing apples to oranges because they're basing it on companies and plants that were out West and in other parts of the country that have different mineral contents compared to what we are dealing with as far as contamination. And if they're going to fight this PolyMet plant, I think they should have the facts straight instead of a generic answer and look what happened out West. It's -- I had a brother that was involved in all the environmental testing for this plant, and even though he said it out of -- off record, he said this is probably going to be one of the cleanest copper nickel plants ever produced, so I don't think there is really any negatives to this. This part of this country is off the beaten path of traffic, so minerals is about the only product that can keep this area going. Tourism is a small part of it, but we're noncentrally located and the climate chases most people away anyway. So I'm all for the PolyMet. I think they're a very well-organized, well-led, honest company. And I think if they were given the chance, even the hardest protester of this company would see that they're going to do a clean mining operation with exceptional safeguards to prevent our most -- our most important natural resource from getting damaged, and that is our water. And I do see the point, but the facts are the facts and they have that all covered. That is it.	EOO
71	I am in 100% in favor of this project and strongly recommend approval of all permit applications. This project will provide needed jobs, benefits, and spin off benefits for many years. This project will set a new standard for environmental operation in an environment that will stand for nothing less. This project is widely supported by the immediate area, the region and broader interests. It is economically viable for the long term, providing many integrated benefits to our area. This project has been researched, vetted, and investigated and found to be well designed, environmentally safe & responsible, and well integrated into our region. The leaders of this effort are among the finest people I know. In my career of 21 years in mining and power, they have dedicated their lives to their family, their friends, and their work to provide a good future for all of the stakeholders affected by their actions. Build this plant. It’s the right thing to do.	EOO
71	This company has put up millions to make the mining process safe. They want to employ people. They are mandated by the state agencies. They are mandated by the Feds. A mining process in any other country would not have to go through this process. Anyone can tell that the safe guards in effect will protect the environment. Wall Street can crush the country, however people want to stop Polymet from making jobs.	G1
71	Concerned about political influences on the final discussion as to permit the new copper nickel mining in NE Minn What is the degree (%) of political sway from both parties & the governor offices on the permitting process given that the Governor appoints the head of many state agencies that are involved putting together the final draft of the EIS & the final permits for the mining companies to pursue the mining process.	PRO1
71	We don’t want jobs! We want welfare! OBAMA loves us!	EOO
72	We need to make this project happen! It will be done in a responsible manner with safeguards in place and plenty of watchful eyes. Let’s make it happen.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
73	Build it. We need the work – the state of Minnesota would not let a company do work in MN without being held accountable. I believe that PolyMet with the draft EIS has shown they will do the mining correct.	EOO
74	I have reviewed the Polymet EIS and I strongly believe that Polymet has addressed all environmental concerns, I am the vice-chair of the Mesabi East School District and we need to promote business/employment in this area.	EOO,G1
75	My name is Gregg Benz, I'm from Hibbing. I'm here for the public meeting for the PolyMet Manufacturing, which I believe is a good idea to have to mine the precious -- precious minerals that are available here. The Iron Range has been hurting for work for a long time, can't just rely on taconite plants forever. We gotta think of our kids also coming up, they need places to work. Besides, I remember when I went to high school, there was 400 kids in my class in '81. Now there's only 150 graduating. And it shows how much of -- of the economic value of people around here are losing. I mean can't go down the street without seeing five houses for sale in one block, which is sad. I know I'm not much of a talker. That's about all I have to say. I really don't have much else to say except that I hope this goes through. It's going to be good for the Range. Also it's not going to be a -- a huge factor in the environment because of the way they're mining, for one. That's all I have to say. Thank you.	EOO
75	I have read the EIS and support the proposed mine! I live in Hoyt Lakes and own a large tract of land on the partridge river near the proposed mine. If I didn't think the safeguards in place were adequate I would not be in support of this project. My friends and neighbors will run and work at the mine and I trust them to protect our lands. It is our Home.	EOO
75	I am requesting an extension of the comment period through the end of March. Those of us who have followed this entire process since the scoping hearing in 2005 do not feel we have ample time to study the DEIS. Likewise more hearings are needed. This project has ramifications that need to be addressed.	PRO6
76	I support the polymet project. Because I feel it would bring more jobs to area. And, we really need growth in this area. I think it would benefit everyone in many ways.	EOO
77	I would like to see this project go it's a safe process and we need jobs up here, I would like to see the range and its kids have a future here. So thanks for letting me comment and lets get this project going.	EOO
77	I am currently an equipment operator at Mintec. And I know first hand what good paying jobs mean to this area. We need jobs that pay a "living wage" not the 7.25 an hour, few and far between jobs that are currently available. And nowhere will you find more hardworking honest people to do the job! We are all proud of our area and support the environment. We all want responsible employers like Polymet & other mines. These mines are not the mines of the 60's! Where the environment was second to profit. Lets get this project going as the EIS shows all necessary safeguards are already in place! Let's put the people of the great Iron Range to work!	EOO
78	I am in support of the Polymet Project. It will bring needed jobs to our area – I think that from what I am told that they are very conscious of the environment and will abide in all rules that are in place.	EOO
78	I support Polymet 110%, I've been in new construction at Mesobi Nugget. As we near operation I am in the process of learning our environmental requirements. Knowing Polymet will be held to equally exacting standards for air/water emissions is good enough for me, The monitoring standards are incredible. Feel free to call me @ 218 750 3955	EOO,G5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2683	With this letter the Northern Counties Land Use Coordinating Board - a joint powers board of eight counties covering over 10 million acres and representing over 282,900 citizens - voices its support of the PolyMet Mining Corp. Draft Environmental Impact Statement on its proposed NorthMet non-ferrous mine on the Mesabi Iron Range. The board qualifies its support by including the following points: 1) The board recognizes the economic benefits to the region such a development represents, especially at a time when challenges to full employment are causing hardships to area families. 2) The board underscores the fact that while the region's economy has historically been dependent on its natural resources, throughout recent years best practices that support social and environmental concerns have developed alongside economic benefits. 3) The board puts confidence in the strong, well-defined environmental protections in place in the United States and Minnesota and in the agency personnel trained to ensure these protections. NCLUCB relies on these agencies and the permitting processes they have established.	EOO,G5
2684	4) The board insists that enforcement of permit requirements remain essential to the project. The board adds that third-party verification would add a measure of confidence regarding the EIS.	G5
Sender Last Name:	Flankey **Submission ID:** 2116	
2507	We are presented with a Golden Opportunity that we can't let slip away. With unemployment nearing record highs, many jobs going over seas and an economy steadily declining we need to do something about this. With Polymet Mining we have an opportunity to create hundreds of jobs right here at home. These new jobs will not only be direct jobs with Polymet, but many spinoff jobs will also be created. And with these new jobs comes money that will be spent in the community thus stimulating the economy. An existing infrastructure can be utilized and an existing brown field site can be reused. A thorough study, as detailed in the EIS, has been conducted to show that there will be minimal impact, if any, on the environment. I say 'Don't Delay', issue the permits, it is what America needs right now.	EOO
Sender Last Name:	Flaten **Submission ID:** 164	
154	I would like to comment on the EIS I recently reviewed for the Polymet project in the Aurora & Hoyt Lakes area. I would just like to say that I am fully behind this project and would like to see it proceed. This project is vital for the residents of the Iron Range and will also benefit the entire state of Minnesota as well. Please proceed with this project and bring much needed jobs to the Iron Range.	EOO
Sender Last Name:	Fleming **Submission ID:** 1683	
689	will effect the Superior Forest ecosystem 3)Tailings basin construction which allows excessive seepage and is susceptible to earthquake damage causing major damage to local waterways.	GT2
1017	1)Lack of financial assurance calculations which are essential to understand public financial burden to clean up the probable "mess".	PD3
1018	2)Lack of a detailed reclamation plan. This mine will exist for 100's/1000's of years and I need to know what it is going to look like and how it	PD3
1057	These comments relate to the Polymet Draft EIS. I have read the DEIS and understand most of what is written. It seems to me that there are significant technical weaknesses(list below) that need to be addressed before the project moves forward toward permitting. The key technical issue is the high potential to generate acid mine drainage and associated acidified lakes and streams in and around the project area. Acidified waters lead to direct damage to aquatic and ultimately land animals and plants including humans and associated indirect damage through the high concentrations of dissolved metals in the acid waters. There is too much risk to take a chance on the above water pollution.	WR3D,FM1
1058	5)Mercury and other metal pollution above accepted standards.	WR3I,AQ6,AQ6A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2154	6)Cumulative impacts of all effects generated by the mine and processing facility. These must be taken in conjunction with expected effects from other copper/nickel mining proposals,e.g., Franconia & Duluth Metals,which are in real formative stages now.	G9
2155	There are other detail items in the DEIS that reflect inadequate or incomplete science which need to be examined prior to moving ahead. I believe the project should be placed in the NO ACTION category pending data and science based clarification of the many problem areas.	G8

Sender Last Name: Flesvig **Submission ID:** 3730

20681	2.1 Acid Mine Drainage The Draft EIS (4.1-53) recognizes that waste rock from the Polymet mine could be a source for acid mine drainage (AMD). The plan to eliminate this source for AMD involves: 1) depositing the waste rock in the mine pits, 2) submerging the rock to create anoxic pore waters, and 3) applying limestone as a neutralizing agent. Although these treatments are commonly used to limit acid mine drainage elsewhere they are not always effective since exceptions have been reported in the scientific literature. First, it is now recognized that Acidithiobacillus ferrooxidans (formerly known as Thiobacillus ferrooxidans) , the common bacterium responsible for pyrite oxidation and acid mine drainage, is a facultative anaerobe since it is capable of surviving and solubilizing metals under anaerobic conditions (Pronk et al. 1992). A. ferrooxidans, for example was the dominant bacterium in anaerobic and highly acidic (pH of 2.4) mine waters that were pumped from 2 flooded copper mines in Wales (Coupland and Johnson 2004). Second, A. ferrooxidans has been shown to grow and etch pyrite crystals under circumneutral conditions in: laboratory cultures apparently by forming biofilms that maintain an internal environment favorable for its growth (Mielke et al. 2003). In view of these findings a degree of caution should be exercised in the Draft EIS with regard to predicting the generation of acid mine drainage by the waste rock. Specifically statements such as those listed below should be either altered or qualified to recognize that the prescribed treatments have not always been effective in preventing AMD at other locations. Specific Examples from the DEIS that need modification include at EIS, 4.1-56, 3rd paragraph: After inundation, wall-rock oxidation essentially stops due to the low solubility (~10 mg/L) and the slow diffusion rate (i.e., ~1/10,000th as fast as in air) of oxygen in water, so submerged wallrock may be considered essentially inert. (emphasis added); and DEIS, 4.1-56, last paragraph: Waste rock backfilled to the pit lake has a chemical effect similar to wall rock, with waste rock above the lake surface oxidizing and leaching solutes to the pit lake. When inundated by the pit lake, however, leaching stops and the submerged rock is essentially inert fill. (emphasis added). Recommendation: Although the measures taken with regard to waste rock disposal may limit acid mine drainage an element of uncertainty still exists with regard to the effectiveness of these measures because of the heterogeneities of the waste rock itself and the ability of the bacteria responsible for pyrite oxidation to cope with apparently unfavorable environmental conditions (e.g. anoxia and circumneutral waters). As a result a continuing monitoring plan should be designed to check for the generation of acid mine drainage within the mine pits and its seepage into surrounding areas.	WR1E,WR4A,WR4B

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
20681	A portion of the groundwater leakage from the tailings basin is predicted to occur toward the Partridge River during operations (4.1-63). If the tailings-basin alternative is implemented, some portion of the recovered groundwater seepage that would have gone to the Embarrass River could also be redirected in discharge to the Partridge River (4.1-155,156). Following closure additional sulfate loading to the upper reaches of this river will occur via overflow from the West mine pit and to the lower reaches (below Colby Lake) as discharge from the tailings basin through Second Creek (4.1-88). While the DEIS recognizes that these hydrologic inputs will increase sulfate loading to the Partridge River, the risk of sulfate-enhanced mercury methylation is downplayed because (1) sulfate levels are already high in the lower river (below the confluence with Second Creek, which drains former LTV Pits 1 and 6 on the proposed Mesabi Nugget site) (4.1-39), and (2) there are reportedly few wetlands along the Partridge River where mercury methylation might be enhanced. In-stream production of methylmercury is generally considered to be of minor importance relative to other watershed sources. However, elsewhere in the DEIS (4.1-23) the Partridge River is described as having "a very well-developed floodplain along most of its reaches with" ... many beaver dams along the entire length ... which create wide pools." Recent studies have shown that beaver impoundments provide conditions suitable for active mercury methylation and represent net sources for methylmercury in riverine systems (Roy et al. 2009). It thus seems likely that the risk of enhanced methylation from sulfate discharge to the Partridge River may be greater than is concluded in the DEIS. Two lakes located in the Partridge River watershed, Colby and the Whitewater Reservoir, could also see increases in mercury methylation as a consequence of the proposed action. Colby Lake is predicted to see a modest increase in sulfate loading from the Partridge River (increasing lake concentrations from 10 mg/L to 15 mg/L) (4.1-116), and the Whitewater Reservoir is expected to see a larger range of water level fluctuations (to maintain water levels in Colby Lake) than currently occurs (4.1-105). Fluctuating water levels are known to increase mercury methylation - principally through redox cycling of sulfate in littoral sediments during drying and rewetting (Munthe et al. 2007; Sorensen et al. 2005). The DEIS incorrectly concludes that this will not be a problem in the Whitewater Reservoir because it does not receive inflows from the Partridge River under normal flow conditions (4.1-127). This conclusion presupposes that additional sulfate inputs from the Partridge River would be necessary for water-level fluctuations to induce mercury methylation. However, it should be expected that current sulfate inputs to the Whitewater Reservoir (e.g. from other inflows including the City of Hoyt Lakes WWTP) would be sufficient to stimulate microbial sulfate reduction (and mercury methylation) during water level fluctuations.	WR1E,WR4A,WR4B,WE2,
20681	The Draft EIS (e.g. 4.1-89) proposes that wetlands could be used to treat acid mine drainage that leaks from the tailings basin and/or other sources. Although wetlands are often used to consume the acidity and immobilize metals arising from AMD they have not always been effective in other locations. Acid mine waters, for example were pumped from 2 Welsh mines and discharged into a wetland, which had little or no effect on either the acidity or metal content of these waters (Coupland and Johnson 2004). Unfortunately the term wetland covers a very wide range of ecosystems that are characterized by very different sets of physical, chemical, and biotic properties. It should therefore not be surprising that their capacity to neutralize the acidity and remove contaminants from different types of pollution sources varies depending on the type of wetland considered and its hydrogeologic setting. The natural neutralizing capacity of wetlands, within the project site, moreover, maybe limited by the low carbonate content of the glacial deposits in this area that are derived from the Rainy Lobe of the Wisconsin Ice Sheet. Recommendation: A long-term monitoring plan is needed to test the effectiveness of the wetlands for remediation of acid mine drainage from the tailings basins and/or waste rock stockpiles. A contingency plan should also be in place in case these wetlands prove to be ineffective in treating drainage from the tailings basins since many types of wetlands have a low acid neutralizing capacity.	WR4B,FM2,WR1E

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
20681	The DEIS predicts substantially increased groundwater leakage from the proposed NorthMet tailings basin largely in the direction of the Embarrass River to the north (4.1-65). This leakage would occur as a result of increased head gradients and is expected to discharge through an area of extensive wetlands located between the basin and the Embarrass River. Because leakage rates are expected to greatly exceed the flux capacity of the surficial aquifer, upwelling and surface ponding and drainage is expected to increase. According to the DEIS classification (4.2-3), most of these wetlands (72%) are ombrotrophic bogs (though a review by P. Glaser indicates that most are poor fens). Indeed, the DEIS concludes that legacy leakage from the existing LTV tailings basins is currently impacting portions of this wetland complex - though the actual extent of impact appears to be poorly known because of a lack of on-the-ground observation and sampling. Groundwater discharge through these wetlands and toward the Embarrass River is expected to increase from a current estimated rate of 1800 gpm to 3800 gpm by year-20 of operation (4.1-65). A tailings basin alternative in which ground-water seepage would be intercepted by a series of wells and returned to the plant operations as make-up water (or partially discharged to the Partridge River) is included in the DEIS (4.1-147). These operations, if implemented, would cease upon closure, and the tailings-basin leakage would revert to the Embarrass River wetlands (4.1-65). In my view this tailings-basin leakage poses the project's greatest risk of increasing mercury methylation and methylmercury export to downstream aquatic environments. As pointed out in the DEIS, wetlands are important sites for mercury methylation, and the aerial extent of hydrologically conrtected wetlands is one of the strongest predictors of fish-mercury levels in area lakes and streams (St. Louis et al. 1996; Wiener et al. 2006). Mercury methylation rates are strongly sulfate-limited in bogs (and poor fens), so that addition of sulfate from atmospheric deposition or groundwater discharge would be expected to stimulate methylmercury production (Branfireun et al. 2001; Branfireun et al. 1999; Jeremiason et al. 2006). The configuration of the Embarrass River wetland complex makes it especially susceptible to sulfate-enhanced mercury methylation. Not only would these bogs/poor fens be sulfate limited (and hence sensitive to additional sulfate), but the anticipated discharge would upwell through a mercury and carbonrich, anoxic environment ideal for SRB. Such groundwater discharge at the upland-wetland margin has been identified as creating sites of intense mercury methylation - "methylation hot spots" where methylmercury concentrations (or %MeHg) are exceptionally high relative to other wetland areas (Mitchell et al. 2008a). The increased ground-water and surface discharge toward the Embarrass River would also increase mercury transport from, sites of methylation to the river itself where the methylmercury load could then impact downstream aquatic systems. It is one of the unfortunate outcomes of Barr's stream sampling scheme that no water samples were apparently collected within the wetland complex north of the tailings basin (except locally at its toe). Such sampling would have provided a picture of current (legacy) groundwater discharge and associated sulfate and mercury levels by which a better understanding of the effects of increased groundwater discharge might be derived. Perhaps the best analogue for what might be expected from discharge of sulfate-rich groundwater through the Embarrass River wetlands is provided by the Everglades ecosystem of south Florida where agricultural drainage of sulfate-rich surface waters has greatly increased mercury methylation and mercury levels at all levels of the food chain (Gilmour et al. 1998). More recent reductions in sulfate discharge to the Everglades are closely associated with mark	WR1E,WR4B,WR4B,WE2,
Sender Last Name:	Flint	**Submission ID:** 1883
2466	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. As a Minnesota citizen I value the natural resources we have in this state. I enjoy spending time up north and have serious concerns about the implications of allowing this kind of mining here. I am not opposed to tapping our resources for economic benefit, unless it comes at the expense of the very reason so many Minnesota citizens love this state. Please apply the appropriate level of scrutiny to this proposal. I look forward to enjoying the beauty of norther Minnesota, and sharing it with my friends and family, for years to come. The PolyMet DEIS describes serious environmental issues associated with this proposed mine. These issues should be addressed and resolved before this mine is approved by the U.S. Army Corps of Engineers and the Minnesota Department of Natural Resources.	G2,G6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Florell **Submission ID:** 2275	
2693	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. This is my home, this is our home. Please, Please consider the negative impacts this will have on our land, it people now and the generations to come. Thank you for considering these words.	G6
Sender Last Name:	Flugstad **Submission ID:** 2260	
2670	Dear Mr. Arkley When I first read that this project, Polymet Mining Proposal, was getting positive attention by the DNR, I could not believe my eyes. I thought they were failing me. Being an ardent trout fisherman and having done so in the West and Midwest including the BWCA and surrounding areas, I have grown to value fresh water resources immensely. It is impossible for me to believe that an open pit mine using sulfuric acid to dissolve the metal and then leave that toxic waste out in the open behind earthen dams can be stable for the hundreds of years it takes for the compounds to detoxify. Breaches in dams are common place. I have seen myself what mining has done to streams and rivers in Montana, with the taxpayers picking up the cleanup tab. With full cleanup very questionable, so fish are edible, I think this a huge mistake. So please put me on record as very opposed to the permitting of the Polymet mine. I will be watching your actions with great interest.	EOO,G7A
Sender Last Name:	Flygare **Submission ID:** 1305	
1515	NOTE: the paragraphs below this are a form letter, but I'm leaving them in since I agree with them. My personal comment is that I was born and raised in MN. I've been to Lake Superior and BWCA nearly every summer growing up and I have some knowledge of the tourist and other industries around there from my adult work experience. You are destroying jobs, lives, and livelihoods by allowing sulfide copper mining. it is not like taconite mining, and it is not going to profit MN (although it may profit some few in MN who are already quite well off). Please look to the long term and preserve our state's natural resources, health, and beauty.	G2A,G11
Sender Last Name:	Forberg **Submission ID:** 2213	
2620	MR. FORBERG: Well, I think it is probably a really good idea for PolyMet to do their mining up there. First of all, it seems they have little to no environmental impact from what I have read. It is going to be really good, you know, during the economic downturn and recovery to have more jobs not only in Minnesota but in the Iron Range. That seems like it has had a little more trouble since the closings and layoffs up there. It would be nice to not have to travel really far to have to work. They are using pre-built facilities. They just have to refurbish them. What is it? 1.5 million man-hours of jobs. 400 permanent jobs. Spin-off jobs for not only the local economy, but it will be nice to actually keep it in state. You know, I was born and raised in the state and I would like to see Minnesota have more opportunities for people. And I know it won't just benefit the range, but it will also benefit Duluth and the surrounding cities; Cloquet. It will give the working men more opportunities to further themselves, especially with the trades. You know, I'm in the Ironworkers and I would like to see a lot of the other people in the trades, even people that aren't in the trades, be able to make enough to have a better life, both at home and within the drivable area, you know, so. And I would have to think more. It is nice to know that the money, you know, as long as it goes through, that the money is going to stay in state. If they don't open it up here, where else are they going to open it? It is either going A lot of the stuff they are going to be mining there, proposed mining, is stuff that we have to import from overseas, you know, for everyday things that we use. And the environmental standards here in the United States are a lot higher than they are overseas, so it would be an environmental impact worldwide as well, so. I think that's about as much as I have to say. Thank you very much.	EOO,G5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Ford **Submission ID:** 1755	
2294	I have serious concerns about the proposed sulfide mining in northeastern MN. This is an unacceptable risk to the area. Despite the best intentions and reassurances, there is no guarantee that the mine and its waste rock piles will be kept safe. It has not been shown anywhere yet that it is possible not to pollute the ground and water. The continued maintenance of this very real potential hazard is an unfair burden to pass along to the many generations who will follow. The proposed mine(s) could touch two major watersheds, including the precious Boundary Waters Canoe Area Wilderness. Two decades or more of mining jobs is very important and needed. But if we're trading two decades of mining jobs for ruining our natural areas (quite possibly including the BWCAW) and losing tourist dollars for many hundreds or thousands of years, that is not a trade-off worth making. This is an unacceptable choice, and we who love this place, who live here and who visit here, want to preserve our natural places from sulfide mining and its contiminants.	G7A,G11
Sender Last Name:	Foreman **Submission ID:** 2490	
3020	I am anxious to submit a comment regarding the PolyMet Corp. NorthMet mining project Draft Environmental Impact Statement. I am concerned about the consequences this project will have on Minnesota's economy and precious natural resources. I am certain you have received a number of responses outlining concerns about 1) safety, 2) impacts on water quality, including water leaching from waste rock piles, 3) long-term responsibility for clean-up, 4) subsequent tax burdens, 5) high sulfate (and therefore mercury) levels, 6) stability of tailings basins, 7) long-lasting contamination. I share these concerns, and I urge the DNR and the U.S. Army Corps of Engineers to more carefully examine the DEIS, working with PolyMet to complete stability analyses and create arealistic long-term plan for containing pollutants and striving for minimal impact. I am encouraged by the relationships which have been set up in Wisconsin between the DNR and potential mining companies, because I value the care and thought put into permit grants. I would appreciate a similar prudence and critical eye from the Minnesota DNR. I understand the value of increased economic opportunity in northern Minnesota. I am a Minnesota resident and have spent significant time in the ecosystems under consideration for these PolyMet mines. I know the economy could use a boost. However, I know that the pristine nature of these ecosystems is a huge part of their appeal, both for tourism and for agriculture and for industry. For thesereasons, I strongly urge the DNR to not only reconsider the PolyMet proposal but to implement a creative problem solving team to move towards sustainable innovation in northern Minnesota. The solution is not simply to abandon all mining prospects. I see the solution situated somewhere within a compromise, one that protects Minnesota's natural resources so they can continue to build an economy with vibrant tourism, fish and wildlife opportunities, and safe communities. I have grave concerns about the PolyMet proposal as it stands, and I fervently hope the DNR will reconsider before approval.	G4,G6,G7A,G14
Sender Last Name:	Forrest **Submission ID:** 1	
1	I'm a member of Painters and Allied Trades, Local 106, unemployed. I think the job opportunities will be great up here. Hopefully the technology has moved forward in the mining industry, and I think with the correct oversight we can do it safe; and the jobs is something that's really important, not only to the local economy, but to the whole State of Minnesota. I think it's a great opportunity for our area. I just give the project my full support. Thank you.	EOO
2608	I'm an unemployed member of the Local 106 Painters and Allied Trade in Keewatin near Hibbing, and I think it would be a great project for the jobs it would bring, not only to the area but for the state, to contribute. There's technology moving forward more and more every day, and we can, you know, take care of any problems that we have with anything coming, you know, any of the problems with the runoff and everything, we should be able to manage and take care of, the company should be up on it. And with as great as the state of Minnesota monitors stuff, we should be able to do good, and I'm just for the project.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Forsman **Submission ID:** 31	
29	I'm currently the county commissioner that represents the Fourth District here, which is in the -- this project will -- and this mine will be located, of course, in the district that I represent. I -- I watched -- having been -- having worked at the mines, and a steelworker for many years, I have -- I worked at Reserve Mining Company till I was laid off in 1982. When I look at how that affected my friends, myself, and that -- the -- the loss of employment and the difficulties that came on, I realize how important employment is on the -- on the Iron Range. Many of my friends, many of my neighbors, worked at LTV Steel when it was -- when it was closed down. When we look at the site that is the -- the proposed PolyMet site, we're looking at a brown field. We're looking at putting back less than the -- much less than the jobs that were lost at LTV. With a -- with a program and a mine that -- and all of the things that I've watched as a county commissioner, as I've watched, as I've listened to, as I've read about this thing, this is going to be an environmentally safe program that the -- mining company mining copper today in Northern Minnesota with the low sulfur that we have at this site, with the -- with the -- the -- the autoclaves that keep the process together, with the protections that the -- that the waste rock dumps are going to have, all of those things that are all under the -- under the guidance and the rules of -- of the State of Minnesota and the DNR, it is going to be a -- I believe it's going to be a -- a very benign system when we look at not only decades but centuries in the future. But the -- the -- the ability to put people back to work on the Range, put people back to work in Minnesota, and helping to take and build a -- a -- a -- a base for a -- for something that is -- is certainly, in my mind, a -- a -- a benefit to all of the -- it's so hard to talk when you're -- (indicating) -- but -- but it is a benefit to all of the people that reside up here. It -- the people buy homes, they buy at the grocery stores, they buy at the building centers. They -- and all of these things put a vibrant face to our -- to our -- our -- our -- the society we live in or the community that we live in up here on the Iron Range. Many people -- having been a resident of Ely, Minnesota, for the 62 years that I've been alive, I've watched as a -- as mining jobs have supplemented so many of those businesses that people consider tourism businesses, and I'll use just some examples. The Dairy Queen in Ely, I mean it was started by a -- by a foreman at Reserve Mining Company. As I go down Sheridan Street, many of these people all had secondary job -- they -- they became secondary businesses. They were -- they were -- but they had -- they -- the -- the dollars that came in from the mining companies were what sustained these businesses through the wintertime, the -- and -- and -- and without -- without these mining jobs on the Iron Range, I think that we -- that the -- the -- the depression that's facing the rest of the nation right now will be something that will be longlasting on -- on the Iron Range, and it -- you know, and I -- I guess I'm rambling a little bit, but, at the same time, it's -- it's -- we have a relatively benign, safe system that has been proven elsewhere, and putting it on the Range is going to take and be something that we can truly use and will be a great benefit to our community.	EOO
Sender Last Name:	Foster **Submission ID:** 3491	
3765	NO! I'll tell you just this. My ancestors made provisions for us to protect the water! These treaties will be reconciled in some ultimate fashion...AND they are not resting peacefully. Leave alone that which is within the ground, leave the open sores to heal! Leave it alone and move the capitalist to think how to reduce what we use and how to use alternatives! Please leave alone these things that don't have a voice in the Western Culture. We hear what they are saying and it is not good. Miigwech, Binesi'odekwe	EOO,G3A
Sender Last Name:	Fox **Submission ID:** 1270	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1448	I worked in the boundry waters for 4 summers. I have traveled around the united states. I have explored Yosemite National Park, Joshua Tree, Florida Keys, the kenai peninsula, baja, canyonlands, and the tetons. There is no place that I have been that has such pure water as the boundry waters. In a world where civilization continually destroys pristine environments we have to ask ourselves is it fair to the earth and future generations. I know the answer for me is NO. Unfornately, I do not make the decisions that make such impacts. I am a voice, I am a person who has explored the boundry waters and I hope to someday re-visit them with my family. I hope that my child has a chance to see the purity that I have seen. I also hope that who ever reads this has the strength to stand up and say NO!	EOO,G7A,G11

Sender Last Name: Fraley **Submission ID:** 1361

4	My concern about noise pollution is relevant to my work as a Spiritual Director, and Pastoral Care Provider to Clergy. I often advise people who are suffering from stress to care for their emotional, and spiritual needs by spending quality time in a place of beauty and peace. My family and friends frequently canoe in the Boundary Waters and we find that it is a restorative and therapeutic place to listen to the sound of silence and nature. Sound travels great distances across those precious waters and those in the Boundary Waters and neighboring resorts would experience mining noise from the blasting, drilling, and huge trucks hauling the minerals. How will this affect tourism?	N1
244	Failure of the basin would result in serious and long-lasting contamination. I am also wondering how this will affect our bird, wolf and lynx habitat.	WI5
400	Some sites remain toxic for years after aggressive efforts to clean up the sulfuric acid waste. High sulfate concentrations turns mercury into forms that make fish dangerous to consume. Too many of our lakes and streams already are under mercury advisories. We live near the Mississippi River and there are advisories on both the kind and number of fish per week that can be eaten from it. I also believe that leaching chemicals from these mines can enter wetlands, peatlands, and tributary streams that have potential to be a hazard to ourbeautiful rivers and lakes.	FM1
660	I have viewed videos of the enormous pollution problems from this type of mining in places like Montana where clean-up efforts continue, and because the mining companies declare bankruptcy after their monies for clean-up are depleted the taxpayers are left with very long term clean-up efforts. Some sites remain toxic for years after aggressive efforts to clean up the sulfuric acid waste.	PD4
703	Some sites remain toxic for years after aggressive efforts to clean up the sulfuric acid waste. High sulfate concentrations turns mercury into forms that make fish dangerous to consume. Too many of our lakes and streams already are under mercury advisories. We live near the Mississippi River and there are advisories on both the kind and number of fish per week that can be eaten from it. I also believe that leaching chemicals from these mines can enter wetlands, peatlands, and tributary streams that have potential to be a hazard to ourbeautiful rivers and lakes.	WR4B
1592	I am writing to convey my concerns about the proposed PolyMet mining project near Hoyt Lakes. I am concerned about the environmental and noise pollution from this site as well as the long term effects of mining in proximity to the pristine Boundary Waters area.	G2

Sender Last Name: Frandrup **Submission ID:** 3069

3468	I can't believe this proposal has even gotten this far. Actually, I can believe the shortsightedness of corporate interests and their unfailing resentment for what is more than pure aesthetic.	EOO

Sender Last Name: Frank **Submission ID:** 3648

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
18341	Just so you are absolutely clear from the get-go, the Climate Crisis Coalition of the Twin Cities (3CTC) is vehemently opposed to hard-rock, metallic sulfide mining in Minnesota or for that matter anywhere. Therefore, we call for not a moratorium or weak regulation thereof but a complete and thorough ban on all leasing, drilling, exploration, and extraction of metals by way of open-pit, strip and underground mining. The Arrowhead Region already looks like a wedge of Swiss cheese from all the drilling & exploration that has gone on thus far. We oppose this form of extraction not only the grounds of climate change but the long-term environmental and health impacts that will result if it is allowed to go forward. THE RELEASE OF GREENHOUSE GAS EMISSIONS Non-ferrous mining is just as energy-intensive as iron mining. The extraction, transport and smelting processes will release vast amounts of greenhouse gases that will add to global warming. With carbon dioxide levels already at 389 ppm, the planet cannot afford anymore such foolish and reckless behavior. The globe is rapidly heating up as seen in the alarming disappearance of Earth's cryosphere in the polar and alpine regions. Climate zones are shifting, bringing more droughts, heat waves and wildfires. Species are struggling to adapt with some succeeding and others failing and passing into the eternal void of extinction. More extreme weather events are causing natural disasters and unspeakable suffering and death for millions of people. The metals being smelted in Canada instead of here does not leave Minnesota off the hook. The state will be contributing hugely to the greenhouse gas equation and undermining Earth's heat balance. There is nothing climate-friendly about metallic sulfide mining especially since our climate is reaching its tipping point, which will eventually catapult the planet into complete ecological collapse. THE DESTRUCTION OF A VITAL CARBON SINK PolyMet's proposed strip mining operation will destroy 3,200 acres of forest and bog, which are needed not only for their water filtering capacity and precious wildlife habitat, but also for their carbon storage. Once the peat is removed and dried, it will oxidize and release tons of carbon. The deadly release of that carbon will add two percent to the state's CO2 emissions. It is quite astounding that the DNR could even consider it let alone grant a permit for such a heinous act as the destruction of an ecologically and climatologically essential peatland. PolyMet's promise to replace the lost wetland with another is only a ruse. A fake does not a wetland make. ACID-MINE DRAINAGE IN PERPETUITY Northern Minnesota being a water-rich region, it is extremely vulnerable to the pollution caused by the extraction of sulfur ores. The Duluth Tribune claims that the ore is low-sulfur, containing one percent or lower. The editors of the paper consider it negligible. However, an EPA senior research chemist, Gary Glass, has pointed our that "the folks who talk about low-sulfide ore content are using the 'game of units' to try to minimize the potential for impacts by the reactive component—sulfide—expressed in percentages…. By expressing the concentration of sulfide as a percentage, by weight, in the ore or ore tailings, the values computed are made to be small, but in reality, they are not insignificant." The sulfur contained in the huge volumes of ore that need to be mined in order to get at the sought-after copper, nickel, cobalt, palladium, platinum, gold and other precious metals will add up in no time as the rock waste accumulates. Once the rocks are blasted and piled up in slag heaps and tailings ponds, they will come into contact with surface and groundwater and the sulfur will acidify, making lakes and streams uninhabitable for aquatic life and causing massive fish and bird kills. That has been the experience elsewhere in the country. There will also be similar releases from tailings basins, whose linings are notorious for	G1,G2B,G3A,G3B,G5,G7C,

Sender Last Name: Franken **Submission ID:** 318

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
332	I am writing to express my support for the proposed PolyMet Mining Co. project in the Mesabi Iron Range. Minnesota needs jobs, and nowhere is that more true than on the Iron Range. PolyMet will help diversify the economy of the iron ore-dependent Range, and will help meet our nation's domestic demand for copper, nickel, platinum, cobalt, gold, and palladium. Most imp011antly, this project offers a real opportunity to put Northeastern Minnesota citizens back to work. At full operation, PolyMet will employ 400 people earning an annual payroll of about $40 million. In St. Louis County alone, it will create more than 500 spin-off jobs and create an economic impact of $242 million. Minnesota has strict environmental standards, and I have the utmost confidence in the environmental review process. This process includes public hearings, such as the one taking place here tonight. Throughout this multi-year process, PolyMet has done their due diligence and has faithfully followed the law. This includes providing all the necessary information for the draft environnlental impact statement (EIS). The resulting draft describes the many steps PolyMet will take to minimize enviromnental impacts. I am excited to see this process move ahead, and I look forward to creating more jobs on the Iron Range.	EOO,G6
Sender Last Name:	Fredrickson **Submission ID:** 1111	
1216	I respectfully urge that all necessary permits allowing PolyMet Mining to begin construction of it’s proposed precious metals mining operations be issued as soon as possible. I am very much in support of the project and feel there is great need for the jobs that will be created both in the construction phase and the operations phase. It is my opinion that the company has demonstrated that it bas taken the necessary steps to assure little or no adverse affects to the environment. I believe the company has thoroughly evaluated the potential threats to the environment and bas addressed those in detail in its draft Environmental Impact Statement. It will use existing infrastructure and land from the former LTV mining operation thereby reducing the need for completely new facilities. With the dismal state is our state's economy, the state is in great need of the tax revenues that will be generated from both taxes on the mining operation and the millions of dollars in salaries and wages that will be paid annually. The favorable economic impact to the Iron Range and to Minnesota as a whole would be phenomenal. I was raised on the Iron Range and have family and friends in Hoyt Lakes who have always been dependent on the mining industry and have suffered through its volatility. There is no better time to allow these new jobs to be created than now. Please consider carefully, the benefits to the people living in northern Minnesota.	EOO
Sender Last Name:	Freeberg **Submission ID:** 3533	
3795	I believe the Poly Met project shoud be allowed to proceed. The project would be good for the local economy. Minnesota and US regulations are the best in the world. If Mining can be competative I feel it should be done in the US rather than a country were there are no regulations to protect the enviroment or labor forces. Altough mining can change the landscape existing mineland reclaimation regulations can be inforced to protect the area. Richard Freeberg	EOO
Sender Last Name:	Freundschuh **Submission ID:** 204	
202	I recently visited and toured the new PolyMet facility where they described their operation and processes. I was very impressed with the detail and effort already committed. As a Minnesotan, born and bred, I appreciate all our state has to offer. The lakes and woods are something I enjoy on a regular basis. I believe that PolyMet has addressed the issues of contamination as well as those of what to do with the bi-products developed. In good economic as well as current times, companies willing to invest in Minnesota should be embraced and thanked. This facility will provide jobs and support for the local communities as well as provide needed financial support for our state. The sooner this plant is up and running, the better. Thank you for the opportunity of presenting my two cents,	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Fritschel **Submission ID:** 3188	
729	Come on, guys....This is too much, too fast. There needs to be more time spent studying the effects of this, and more public hearings. Why do I care, living in Colorado? Because I love the Boundary Waters and everything it stands for.	PRO6
Sender Last Name:	Froehlingsdorf **Submission ID:** 1050	
1153	My name is Tom Froehlingsdorf, and lam -a skilled construction laborer, with a educational background in Wildlife Biology. I support the PolyMet mine project! It would have a great impact on the economy, both local and nation wide. We need more domestically produced metals with less means of transporting. We all know how much the enviroment is hurt by the ongoing chain oftransportation. Enviromentally I believe Minnesota is ready for this mine. The-methods to mine the metals here in an existing. "infrastructure are a great idea. Please listen to all the Positives this job has and what it could do botheconmically providing jobs, and enviromentally controling them.	EOO
Sender Last Name:	Fryberger **Submission ID:** 1101	
1206	As a life-long resident of northern Minnesota and affiliated with its Iron Ore industry the past fifty years, I have been witness to the many changes across our Mesabi Iron Range - from the numerous small underground mines to the"red ore" open mines and now to the large taconite operations with state-of-the-art technology to process the low grade ores. During the last 100+ years these changes have brought considerable progress in the areas of-----environmental safe guards; safer work places for the employees; more and comprehensive benefits; a more stable tax base for the communities from Grand Rapids to Babbitt and finally the industry has been and continues to be the economic engine of northeastern Minnesota. This economic engine---- Contribute $3.1 billion to the states economy in 2007 and supported more than 10,000 jobs - Paid $148 million in state and local taxes in 2008 of which $46 million supported local schools and $11 million supported the University of Minnesota - As the foregoing makes very clear our minerals industry has certainly provided the foundation which has supported a high standard of living for many across our iron range. So it is not a question of whether or not our mining industry is important to our area and our state, that was determined years ago, but rather how do we manage an extractive industry without harming our precious natural resources of air, water, and land as we provide the necessary metals for our increasingly complex and technologically based way of life? I feel that Poly Met Mining, in their draft EIS for their Northeast Project, has thoroughly and painstakingly addressed the potential environmental hazards. The $30 million that Poly Met spent in researching and documenting the process to be used to protect our natural resources in the development of the DEIS, along with the expertise input from the folks at the Minnesota Department of Natural Resources, Minnesota Pollution Control Agency, US Corps of Engineers, and other stakeholders certainly convinces me that the North Met Project is an environmentally and economically sustainable project, which I can whole-heartedly support. In addition, we are all citizens of the world, not only of Minnesota, and consequently it would be irresponsible of me to speak out against this thoroughly researched and responsibility documented project hoping to force Poly Met to relocate from Minnesota to focus their efforts on minerals reserves in other areas of the world - areas in which the environmental regulations are more lenient and by their nature, more damaging to the world's natural resources. So let's get behind the project and make it a state-of-the-art operation that protects our precious natural Resources and becomes the benchmark for all other similar mines throughout the world. In other words, lets be part of the solution rather than an obstacle to the protection of our natural resources, not only in Minnesota, but also around the world. We in northeasterrn Minnesota can, in an environmentally responsible way, produce these metals so dearly needed to build our green technology of wind turbines, solar energy, and hybrid automobiles. Thank you for your consideration and ongoing commitment to protect our natural resources while providing the cooperative leadership with other stakeholders which is so necessary if our extractive industry is to be economically viable.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Frye **Submission ID:** 2856	
3208	I live in Minnesota and love to take advantage of the many opportunities to be outside, especially on the North Shore. Some of my favorite places are the BWCA, Superior Hiking trail, State Parks and Forrest Service campgrounds, and all the trails and back roads of northeastern Minnesota. The drive up Highway 61 to Grand Marais and stopping to look out at Lake Superior is amazing. I will never forget the first time I saw the Partridge River at the falls with the water spray falling on me. I would certainly hate for the Polymet project to impact our precious resources on the North Shore. I'm concerned about the impact on the wildlife in the area; especially the Canada lynx and the wolves. I am also concerned the impact on the Partridge River and the aquatic life and habitat and nearby lakes due to the discharge of sulfates from the Tailings Basin. I am also concerned for the health of the BWCA. According to the U.S. Forest Service, the Polymet project alone will cause significant haze impairments in the Boundary Waters 36 days each year! I don't think it has been determined if there is any chance that polluted mine drainage (including acids, metals, or sulfates) could move in the rock over time to the north and into the Boundary Waters watershed. Please take the time to consider my concerns as well as those of others before approving the Polymet project.	EOO,G2C,G7A
Sender Last Name:	Fuglie.pdf **Submission ID:** 2610	
3146	As one who grew up in the lakes and trees of North Eastern Minnesota, I have real concerns for how this project will impact an already mine ravaged area. Please assure that the environmental impact is thoroughly investigated prior to allowing any further mining which will have dramatic consequences on an area that should be treasured and protected.	G6
Sender Last Name:	Funke **Submission ID:** 3731	
1	The wetland classification was based on a generalized, largely physiognomic scheme that was not effective for characterizing wetlands within either the project area or potential mitigation sites. With respect to peatlands, this scheme failed to distinguish between bogs and fens, which have contrasting sets of physical, chemical, and biotic properties. It was therefore difficult to adequately evaluate Polymet mining impacts on peatlands within the project area or the quality of the mitigation plan.	WE1,WE2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2	According to the Draft EIS (4.2-3): The coniferous bog and open bog communities make up the majority of the wetlands· at the Mine Site. Black spruce, tamarack, and balsam fir are the dominant canopy tree conifers. White cedar and deciduous swamp birch are also occasionally found in this community ..... Shrubs are usually ericaceous (belonging to the heath family) and/or speckled alder and raspberry. Sphagnum moss comprises an almost continuous mat with interspersed, non-dominant forbs such as bunchberry and blue bead lily along with sedges and grasses. However, balsam fir, white cedar, swamp birch, speckled alder, raspberry, blue bead lily, and all the grasses in Minnesota are reliable fen indicator species that are never found on true raised bogs (see papers in the Glaser C.V. and also Field Guide to the Native Plant Communities of Minnesota. The Laurentian Mixed Forest Province). The scientific literature defines raised bogs on the basis of a discrete set of physical, chemical, biotic, and hydraulic factors such as: 1) the interior ofthese peat landfonns is higher than its margins (so the peatlands are called "raised bogs), 2) the surface waters have a pH less than 4.2 and Ca concentrations less than 2 mg/l, 3) the peatland has no fen indicator species, and 4) the peatland receives all its waters and salts solely from atmospheric deposition (so raised bogs are considered to be "ombrotrophic") (see Glaser CV for citations). Since the species composition provided for the bog vegetation types within the Draft EIS includes species that are clearly fen indicators, it is impossible to say that these wetlands are disconnected from groundwater or surface water flow systems as stated in this report. It is also illogical to conclude that these wetlands are "perched" since many of the wetlands in the Polymet site are probably forested or non-forested fens (or poor fens) that are supplied at least partly by surface or ground waters that have percolated through mineral soil. If these surface or groundwaters have elevated concentrations of sulfate, the wetlands could be significant sources of methyl mercury. The Draft EIS also fails to note that fens can be either forested or non-forested or that marshes are distinguished from non-forested peatlands by the absence of peat accumulation so that the vascular plants root directly into the mineral soil. Recommendations: The Draft EIS should be improved by using more generally accepted definitions for bogs, fens, marshes, peatlands, and other types of wetlands so that they conform to international scientific literature and also the scheme adopted by the Minnesota DNR's County Biological Survey's treatise on the native plant communities of Minnesota. It would be highly advantageous to collect samples of the surface water in the wetlands of the project areas for analysis of pH, alkalinity, and dissolved solutes particularly Ca for help in separating bogs from fens but also for assessing the acid neutralizing capacity of these wetlands.	WE1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2	The Draft EIS needs more documentation with regard to all the sites evaluated for the mitigation plan. I realize that the report is very long and broad in scope but it was not possible to evaluate the reasons why so many nearby sites for wetland mitigation were rejected within the Saint Louis River watershed and adjacent areas. This decision weakened the mitigation plan because the closer sites have the highest probability of containing wetlands that are similar to those that will be directly impacted by the Polymet mine. At the minimum a table should be included that contains the geographic coordinates and some rationale for rejecting each ofthese sites. As it stands the case for selecting 2 distant sites near Aitken or Hinckley for the mitigation plans seems weak, and unsupported given their distance from the Polymet site and their differences with respect to vegetation and environmental setting. My reservations with regard to the mitigation plan are fourfold: First, the 2 sites identified for mitigation efforts have different environmental settings with respect to climate, depth to bedrock, and glacial deposits than those at the Polymet project site. Second, the wetlands selected within these sites are also probably significantly different from those of the Polymet project areas because the Aitken and Hinckley sites are located at the extreme southern fringe ofthe boreal and mixed-conifer hardwood peatlands ofthe northern portions of Minnesota. Third, geographic coordinates were not provided for all the sites evaluated for. mitigation efforts so they could not be independently located with certainty and examined on Google Earth or topographic maps. Fourth, it is impossible to replace a peatland ecosystem within the lifetime of human beings since it takes centennial to millennial time scales for peatlands to form and develop into raised bogs. Fifth, I still feel that Polymet and the state of Minnesota are missing an important opportunity for restoring and protecting an exceptional complex of wetlands north of the town of Alborn in the Saint Louis River watershed that contains peatlands and wetlands very similar to those found in the Polymet site. This site was described in depth in my past report to Janette Brimmer ofthe MCEA and I am here enclosing digital files of its satellite jmage and a map of the site. Recommendation: In my opinion the DEIS misses an outstanding opportunity to restore and preserve an exceptional wetland complex in the Saint Louis River watershed that contains a complex of bogs, fens, and other types of wetlands similar to those at the project site and adjacent areas. In addition, this complex just north of the town of Alborn also has the most outstanding patterned fen in northeastern MN, robust populations of several rare and endangered plant species (Carex exilis, Rhychospora jitsca, Xyris montana, and Jungius stygius). The site has been previously impacted by drainage ditches and a now abandoned road, but occupies largely tax forfeit land and is relatively wild. It has a wolf pack in the vicinity and is apparently a prime wildlife habitat based on its lack of development. The land could be purchased, restored (by filling in drainage ditches) and provided to the state or county to be managed as a scientific and natural area.	WE3
3	1. The Polymet DEIS and supporting documents I reviewed addressed issues pertinent to potential hydrologic and geochemical effects of the proposed low-grade ore heavy-metal mine (e.g. copper, nickel and associated metals except for mercury) to suggest that there will be little regional long-term water quantity and water quality effects caused by the mining activity, and probably not many effects locally and proximate to the mine other than in the mine footprint itself. However, there still remains enough uncertainty to merit the Minnesota DNR (herein termed, "DNR") to take additional steps to minimize possible environmental degradation in the vicinity of the proposed mine.	WR2G,WR3B

Sender Last Name: Furlong **Submission ID:** 255

268	As a resident and business owner in Hibbing, MN, I am writing to express my support for the Polymet Mining Corporation project. As a financial advisor in an area that has been hit hard in the past 18 months by the decline in the steel industry, I would be remiss if I did not reach out at this time to make known the importance of this project to our local region. As a business owner in the financial sector, I continually strive to run my business in a manner that supports the local economy. Without any solicitation whatsoever, my clients have continually requested that portions of their dollars be invested in Polymet Mining Corporation (PLM). It is nothing less than inspirational to see the hope and support that has been generated by this project so far. It is my understanding that Polymet will produce the copper, nickel, platinum, gold and cobalt in an environmentally sound manner and generate significant economic activity in this depressed part of Minnesota. In addition, it will provide millions of dollars in local and state Taxes that will, in turn, give a boost to our communities and educational systems. It is my request that you make every effort to see the Polymet Mining Corporation project through to completion.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1594	I am writing to you in support of the PolyMet Mining Company's NorthMet project. This project would be located in an established mining district on the Mesabi Iron Range. It would develop a new mine and reuse many processing facilities of a shuttered taconite plant and recycle a brownfield site. The company would use environmentally superior processing technologies including using sulfur in the ore to fuel processingreducing the need for additional fuel. PolyMet Mining is proposing a mine and processing facility near Hoyt Lakes to produce copper, nickel, platinum, palladium, gold and cobalt-many of which are used in medical applications. The annual production would be 35,00 tons of copper (to be used in electrical wiring, hybrid cars, wind turbines, plumbing, roofing and water heaters-the US imports 40% of the copper used annually) and 7,700 tons of nickel (used in alloys, batteries, aerospace and stainless steel for many medical instruments-there are no nickel mines in the USA). They will also produce 360 tons of cobalt used in super alloys, aircraft engines, cell phone batteries, steel belted radial tires, hand tools, and medical applications like joint replacements and cardiac stents. There are no cobalt mines in the US. In addition to these uses, they will also produce 106,000 troy ounces of platinum, palladium, and gold. Platinum is in catalytic converters, fuel cells computer disk drives, fiber optic cables, spark plugs, and anti-cancer drugs, surgical implants, neurosurgical applications and dental implants. The US imports more than 90% of the platinum it uses each year. Palladium is in catalytic converters, fuel cells, watches, carbon monoxide detectors, mobile phones, dental crowns and filings and blood sugar test strips. We import 85% of the palladium we use each year. Gold is used in telephones, cell phones, air bag systems, home .appliances, electronics, computers, arthritis treatments, stents, pacemakers, and insulin pumps. We import more than 50% of the gold required each year. PolyMet will protect air and water resources while promoting efficient use of natural resources through an open and transparent process. The ultimate result of this environmental philosophy is that PolyMet will conserve and protect the air, water, and other natural resources upon which we all depend. PolyMet is dedicated to the conservation and protection of environmental resources and will conduct itself in an open and transparent manner regarding environmental monitoring, performance, and reporting. The PolyMet project will recycle and reuse water, be a minor source of air emissions, minimize impacts, reuse resources, and assure proper closure and reclamation. The project will have a huge economic benefit to the area. It will create 1.5 million hours of construction, employing about 300 workers over three years along with about 400 stable jobs with an estimated $40 million annual payroll. There sill also be an additional 500 spin-off jobs. This will create a $242 million economic impact in St. Louis County and $15 million annually in state and local taxes and $45 million in federal taxes, based on 2008 metal prices. PolyMet has worked with federal and state regulatory agencies in drafting an environmental impact statement exploring potential impacts and ways to address them. In closing, I urge the DNR and the MPCA to issue the necessary permits to move the PolyMet project to a reality.	EOO

Sender Last Name: Gabel **Submission ID:** 2223

2631	My name is Jed Gabel from Hibbing, Minnesota. I am a small business owner, and I support PolyMet because it brings more jobs and more economic growth to the Northland, and I support that as a business owner.	EOO

Sender Last Name: Gager **Submission ID:** 180

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
171	I am writing to you regarding the PolyMet Mining Co Proposal. It is my hope that you will be encouraged to continue this project. My family has worked for the different mines on the Iron Range for as long as I can remember. My father retired from the mines, all 3 of my brothers worked for the mines and I have one brother who is still working for the mines. As you can see, my family relied on this work to be able to remain living on the Iron Range. I know that many of our young people have moved out of the area because there is little work here on the Iron Range. According to what I have read regarding PolyMet, it looks like this is a good opportunity for our people to "come home" and live in this beautiful Northland - if not to be employees of PolyMet than to run businesses of their own which will spin off from the increase in people coming to the Iron Range. It looks like the environmental review process has been very thorough and does address all the impacts and how to mitigate them. I believe that PolyMet will meet the environmental requirements and be able to generate a boom in the economy in the Northland that only adds to the betterment of all of our lives in this area.	EOO,G5
Sender Last Name:	Gagnon **Submission ID:** 3224	
3553	Please do not compromise our wilderness for a temporary gain! We need our wilderness areas to sustain tourism and to uphold our charge to be good stewards of the land. I am not a die hard environmentalist, but selling our wilderness rights to a foreign strip mining company just smacks of nearsighted greediness. We are better than that. Some day our clean water and wilderness might be the greatest resource of all. Please honor that fact. Do not do business with Poly met. My tax dollar is speaking. Thankyou!	EOO,G2,G11
Sender Last Name:	Gaillot **Submission ID:** 3198	
739	To do so I am rquesting a time extension of 30 to 45 days to conduct a review of the EIS. In addition I am requesting more public meetings in more places be conducted to gather public input. The current EIS review schedule is too limited. Public meetings should include the option for citizen statements and discussion in the open meeting.	PRO6
3223	The DEIS does not outline any specific plan for reclamation after the mine site is closed. There is no specific mention of the method or amount of financial assurance that the mining company will need to set aside for the potential disasters after closing. Because acid mitigation is difficult to predict and long term treatment after closing is necessary, there needs to be a large sum of cash held in escrow, in perpetuum, as a damage deposit and that amount should be specific and included in the final EIS. What assurances are there that the mine site will be reclaimed if Polymet is closed in the future due to a down turn in the mineral market and abandons/orphans the mine site and leaves their environmental devastation to the taxpayers to mitigate? There was little or no field sampling done on the movement of ground water through the bedrock. Since the mine and its waste storage site sits nearly on the continental divide it should have been determined if there is any chance that polluted mine drainage (including acids, metals, or sulfates) could move in the rock over time to the north and into the Boundary Waters watershed. This was not done and should be before permitting. The DEIS does not approach the most important question of cumulative impacts of this mine and the others that are proposed in the district. Polymet can not be looked at as a single, one-time event in N.E. Minnesota. With permitting of Polymet will come at least 2, perhaps 4 or more new applications for permitting from other mining companies. What will be the total impact on the environment by all these potential mines and how will the EIS deal with mitigation of all these in concert? Where is the plan for constant monitoring of the mining operation by the DNR? Waste rock needs to be sorted by sulfide content, tailings basins need to be inspected for leaks, and waste piles need to be sampled for pH in runoff water regularly. You cannot just depend on the mining company to do its own monitoring. There should be a program set up in the EIS for constant monitoring of operations by an independent environmental concern or the DNR	EOO,WR1A,WR1E,WR2D,
Sender Last Name:	Gamble **Submission ID:** 3570	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3835	This letter is coming to you to inform you of my strong concern for the serious and dangerous water and wildlife impact your intended mining procedures would create. Keeping the waters of Minnesota and their contents not only safe, but as clean as possible has been the major concern of so many of us, especially in the Superior area and north. We are located on Burntside Lake in St.Louis County and actively participate in testing and protecting the purity of our lake.....and surrounding lakes. Sometime very soon we, as a country, need to become aware of the sustenance value of our water and environment. We have enjoyed the luxury of using all that our lands will give us with no recognition of what we are losing. We don't now nor will we want to pay for the added protection of our natural resources which are needed to provide us with safe drinking water and safe environs. We won't even have useable natural resources if we keep using all we have. I am sure you are already aware of all that I have said. My reason for writing you is to inform you of my great concern about the gradual destruction your mining procedures will cause to the priceless environment so many of us enjoy and intend to protect. Please take the time to develop safe methods. Those metals will remain there until you are ready with safe mining procedures. Until then, we all will firmly oppose the PolyMet proposal.	G2C
Sender Last Name:	Garber **Submission ID:** 2302	
425	1. Extend the comment period beyond February 1 so more citizens as they learn more about this project can convey their opinions	PRO6
2743	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. 3. Just because a foreign mining company can make money here for awhile, does not mean we should allow them to. Risking perpetual problems with our water makes no sense. 4. Why is our governor not standing up for the citizens of Minnesota on this issue?	G7
Sender Last Name:	Garbisch **Submission ID:** 1178	
1293	I am writing to oppose the permitting of the PolyMet project or any other sulfide mine in Minnesota. While I am a more conservative, business-oriented person than many PolyMet opponents, a business like sulfide mining places huge risks upon people (us, the public) who have nothing to gain from the mine. These who seek to earn the profits should also shoulder the risks. Once Lake Superior or the Boundary Waters lose their pure water, it will be gone forever.	EOO,G7B
Sender Last Name:	Garrity **Submission ID:** 187	
179	I'm writing to ask you to support PolyMet Mining. PolyMet’s 400 employees and the hundreds of spin-off jobs will provide a huge economic benefit across all of the Iron Range. It will also provide millions of dollars in local and state taxes of much needed support our communities and educational system. I am the General Manager of Midwest Communications here in Hibbing; we have six local radio stations serving Northern MN. PolyMet would be a huge help to not only my business, but so many other existing businesses. Without more jobs in this area, more people will be forced to leave the area and more local businesses will close. This beautiful area has so much to offer, but we need jobs to be able to keep growing and prospering. I’ve lived on the Range my entire life and I would love my daughters to be able to live and work in this area. I’m so proud to have not only grown up here, but have been so lucky to have been able to stay and raise my daughters. Our youth have been forced to move in previous years due to the lack of work after college and it would be ashamed for this to continue. I think PolyMet would be a huge step in the right direction to be able to keep our area people employed, existing businesses healthy and our youth would have a chance to stay in this area after college and work and raise their children. I’m asking you to please support PolyMet Mining for these reasons I stated along with so many other reasons.	EOO
3820	I strongly support the Polyment project. I think they are doing everything they can to maintain the safety to the environment. This area needs jobs. Last year was the worst year ever in this area. I was layed off for the first time in my carrer.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Gaschk **Submission ID:** 3516	
3784	I'm originally from North Dakota, and first came to Minnesota a few years ago for college. The North Shore is the most beautiful place I've ever seen, and I don't believe PolyMet has the capacity or the intention to conduct their mining in a safe and clean manner. The acid and toxic metals that will be released into our Minnesota waters will continue to pollute our rivers and streams for decades, long after PolyMet has cut and run from the disastrous site that sulfide mining has left in other states. Allowing this project to go through will be a mistake that will affect Minnesota for years.	G7A
Sender Last Name:	Gavitt **Submission ID:** 15	
14	Samuel Gavitt. I'm for the project because I'm a union ironworker and it will hopefully bring us a bunch of good jobs and also bring good jobs to all the people in the community and hopefully spinoff jobs like other businesses coming up here and all that good stuff. I'm totally for the project and hopefully this whole environmental impact statement shows people that it's a good thing and it won't really affect the environment that much. That's everything I have to say.	EOO
Sender Last Name:	Gedicks **Submission ID:** 2233	
1146	Increased levels of sulfates leached from the PolyMet Mine will increase mercury accumulated in fish tissues, causing harm not only to the fish but to animals and people who eat the fish. The DEIS did not adequately analyze the potential impact of the mine on mercury levels in surrounding waters and fish. This may have a disproportionate impact upon the Fond du Lac Chippewa Tribe who depend upon fish in their diet to a greater extent than their non-Indian neighbors.	WR4B,WR5C,FM1
1817	The PolyMet Mine will result in sulfate releases that will exceed state standards for wild rice, which is sensitive to sulfates. These sulfates will likely eliminate wild rice in the Partridge and Embarrass Rivers, and diminish the famous wild rice beds in the St. Louis River estuary near Duluth, which is 100 miles away from the mine. Any contamination or elimination of wild rice resources will likely have a disproportionate impact upon Chippewa Indians, who depend upon wild rice to a greater extent than their non-Indian neighbors.	WR4F,WR5C
2011	PolyMet does not propose a liner for the Tailings Basin. This would result in increased seepage from the tailings basin relative to existing LTVSMC seepage, including both surface seepage through the tailings basin embankment and groundwater seepage through the base of the LTVSMC tailings. It is the Tribal cooperating agencies' position that the existing LTVSMC tailings are contributing substantially to the level of constitutents observed in the groundwater. More mine waste will simply make this problem worse.	PD2,G9
Sender Last Name:	Geiger **Submission ID:** 1848	
304	I am most concerned about the loss of wetlands.. The project allows the loss of 1200 acres of wetlands in St. Louis County and the St. Louis River watershed, with an inadequate mitigation plan. The loss of these wetlands will result in a net loss in carbon sequestration provided by these wetlands (peatlands).	WE3
310	Harmful To Wildlife - The DEIS does not adequately address the mining project's impact on Canada Lynx and Grey Wolf Habitats. It also does not address the destruction of existing wildlife corridors. The project is located on land the USFWS designated less than one year ago as critical habitat for the Canada Lynx.	WI1,WI5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1280	I do not value short-term economic gains over long-term water quality. As an inner-city kid, going to the Boundary Waters changed the course of my life. The experience of being able to drink the water and have silence- made me more aware of the environment & how valuable it is. PLEASE take the time to judge this decision carefully. I don't want sulfide mining to ruin the BWCAW.	EOO,G11
Sender Last Name:	Geist **Submission ID:** 1244	
1395	As an environmental science instructor and resident of Minnesota, I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources, including waters and native habitat, especially lands designated as critical habitat for the endangered Canada lynx.	G2C,G7B
Sender Last Name:	Geiwitz **Submission ID:** 299	
313	I am pleased to support PolyMet Mining's NorthMet Project. The mining of these valuable metals is vital to the economic growth of Minnesota. At the same time, I know that the State of Minnesota has sufficient regulations to successfully guide the production of these metals using responsible, environmentally appropriate mining practices. The PolyMet Project offers Minnesota an opportunity to be the sole source of critical metals that are used in products across many competitive industries. Growth in employment in the Arrowhead region, growth in the tax base and the associated benefits to area communities/educational systems, all make the PolyMet Project a vital next step for the state economy. As an investor in private businesses, the prospect of increased production using environmentally responsible guidelines is the perfect formula for successful returns in today's economy. I urge the DNR to support the PolyMet Mining Project and therefore support the continued success of our MN economy.	EOO
Sender Last Name:	Gemuenden **Submission ID:** 371	
412	The Draft EIS must assess the cumulative impacts of past actions, including past mining activities, on affected aquatic species in considerable more detail than what is presented, including ongoing adverse impacts resulting from the pollution occurring at the LTV site. See e.g., DEIS, 4.5-9, n. 4 (Tribal cooperating agencies comments, stating "there is no evidence to support a conclusion that low species richness in either the macroinvertebrate or fish communities is solely a manifestation of poor habitat, and not also potentially a result of previous mining impacts in the watershed").	FM3
3573	I support PolyMet Mining's NorthMet Project. PolyMet will significantly contribute to the state and local economy at a time when we really need the jobs and economic benefit. PolyMet's 400 employees and the hundreds of spinoff jobs will provide a huge economic benefit to Minnesota and the Arrowhead region/and my local business GPM,inc. PolyMet will provide millions of dollars in local and state taxes to support our communities and educational system. The metals that Polymet will mine are essential to green technology such as wind turbines and hybrid cars and are necessary for pollution prevention devices such as catalytic converters. The PolyMet project has been designed to minimize environmental impacts; reusing a brown field site, reusing existing infrastructure, minimizing disturbance of wetlands and utilizing multiple safeguards to protect the environment. Polymet is not using Yesterdays Technology that cause people to be fearsome and water in the BWCA is on the otherside of the watershed.	EOO
Sender Last Name:	Gerdes **Submission ID:** 3157	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3115	I believe that the PolyMet sulfide open-pit mining project proposed on public land in Minnesota's Superior National Forest would harm the environment and has not been properly studied in the DEIS. I understand that the water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. It is unreasonable to expect thatmining companies will be able to maintain water treatment facilities for that amount of time and it is an unfair burden to pass on to future generations of Minnesotans who will inevitably be left to pay for these operations. Additionally, it will be all but impossible to calculate sufficient financial assurance for a mining operation that is going to require such long-term care. In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges, high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume and affects the growth of wild rice. Changes in water levels caused by the mine would affect a large surrounding area, mpacting recreation as well as mercury levels and water quality. It is also my understanding that PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials, but that the basin already has stability issues making it unsafe. All liners will eventually leak. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project. Require PolyMet to show that their waste rock and tailings piles won't collapse and dump uncontrolled pollution into nearby surface and ground water, and that they will not create water pollution from mine pits, seepage or discharge that lasts for decades or even thousands of years. Multiple discharges from the PolyMet project to surface water and ground water would violate Clean Water Act and State water quality standards, putting human health and animal species at risk. Safe, clean drinking water is a critical global issue and a matter of national security, as well as a state and local concern. Permitting a mine that projects these kinds of pollution outcomes and these uncertainties is unacceptable to me as a responsible citizen and steward. The DEIS has not addressed the effects of climate change, especially on water levels. What arethe effects of regional predictions for warmer, wetter winters and hotter drier summers? How do these predictions affect the ability of the proposed technology, to control water levels to contain sulfuric acid and other contaminants?	EOO,WR1E,WR2D,WR3I,P
3116	Specifically, the tribes commented that the studies of water pollution, wetlands, mercury in fish, wild rice, endangered species, financial risks and perpetual pollution from the sulfide mine are inadequate. I am convinced that there is no objective evidence that sulfide mining for copper, nickel, and other nonferrous metals can be done in Minnesota at this time without impairing wetlands, habitats and water quality of lakes, streams, rivers, and the aquatic species, ecological systems and communities that depend on them. The PolyMet DEIS describes significant environmental issues associated with this proposed mine.	EOO,WR1E,WI2,WE2,PD3,
3117	Furthermore, PolyMet has not yet done the research needed on existing LTVSMC contamination and drinking water wells near the tailings basin.	WR1E

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3125	I understand that the water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. It is unreasonable to expect that mining companies will be able to maintain water treatment facilities for that amount of time and it is an unfair burden to pass on to future generations of Minnesotans who will inevitably be left to pay for these operations. Additionally, it will be all but impossible to calculate sufficient financial assurance for a mining operation that is going to require such long-term care. In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges, high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume and affects the growth of wild rice. Changes in water levels caused by the mine would affect a large surrounding area, impacting recreation as well as mercury levels and water quality. It is also my understanding that PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials, but that the basin already has stability issues making it unsafe. All liners will eventually leak. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project. Require PolyMet to show that their waste rock and tailings piles won't collapse and dump uncontrolled pollution into nearby surface and ground water, and that they will not create water pollution from mine pits, seepage or discharge that lasts for decades or even thousands of years. Multiple discharges from the PolyMet project to surface water and ground water would violate Clean Water Act and State water quality standards, putting human health and animal species at risk. Safe, clean drinking water is a critical global issue and a matter of national security, as well as a state and local concern. Permitting a mine that projects these kinds of pollution outcomes and these uncertainties is unacceptable to me as a responsible citizen and steward. The DEIS has not addressed the effects of climate change, especially on water levels. What are the effects of regional predictions for warmer, wetter winters and hotter drier summers? How do these predictions affect the ability of the proposed technology, to control water levels to contain sulfuric acid and other contaminants?	WR2D,WR3I,PD2,PD3,PD4
3126	Specifically, the tribes commented that the studies of water pollution, wetlands, mercury in fish, wild rice, endangered species, financial risks and perpetual pollution from the sulfide mine are inadequate. I am convinced that there is no objective evidence that sulfide mining for copper, nickel, and other non-ferrous metals can be done in Minnesota at this time without impairing wetlands, habitats and water quality of lakes, streams, rivers, and the aquatic species, ecological systems and communities that depend on them. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. Furthermore, PolyMet has not yet done the research needed on existing LTVSMC contamination and drinking water wells near the tailings basin.	EOO,WR1E,WI2,WE2,FM1

Sender Last Name: Gerhardstein **Submission ID:** 3754

1	Outstanding EIS work. Great for MN jobs. Product for MN Mtg in copper, etc. Will help us economically. More jobs in support areas. Great tax income. Go for it!	EOO,G1
1	I suggest we move from 1.5 to 2 times wetland replacement + recovery. Wetland are critical to the eco system and our [illegible] should reflect that. Therefore – more taxes on mining revenue - greater percent of wetland replacement rejoined – from 1.5 to 2 times	WE3
2	I support the project. It seems that Polymet is trying very hard to assure Minnesotans that they have their hazards identified enviromentally. I am slightly concerned with Polymets' attitude towards it's own workforce. Mesabi Nugget which is its neighbor at the old LTV site is only paying some of it's employees $9.00 hr. This is not a living wage. I would hate to see Polymet get a permit if they are going to pay their employees only $9.00 hr. If polymet can make assurances they will pay their employees well, Grant them a permit, but Minnesota's economic environment needs to be protected as well.	EOO,G1
3	My name is Carey Kowalski, I am the Apprenticeship Coordinator for Boilermakers Local 647. I have unemployed Apprentices in this area who need work as well as fellow Journeymen. I support PolyMet! The only way out of these hard economic times is to create jobs not to stop them.	EOO
3	I support the project. I think we should use of are resoruces to keep are economic growth strong. These jobs, it would bring should be good wages with health and pension for stuablty	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
4	The project just makes good sense. Jobs, Revenue, product for the world market. JUST GET IT GOING!	EOO,G1
4	Well, my name is Bob Croteau, and I'm all for this PolyMet Mining. I've got a lot of people up here that need jobs, and after the mine closed down, this would be a very good thing to replace our work force. So that's about it.	EOO
4	Safe, environmentally sound mining that produces the products we all need and provides jobs & taxes to run our community. I am definitely in favor!	EOO,G1
4	Considering the following: - The strict rules governing possible environmental impact of mine development - The strategic nature of the mineral resources to the country - That this is one of the worlds largest resources of nickel & copper - The need of these metals for developing & manufacturing green technology - The positive impact it will have on the economy of the region & the state - The positive economic impact to the education system of Minnesota It would be a disservice to the local population & the state as a whole to prohibit this development.	EOO,G1
5	I think this project shoul be allowed to move forward. I believe the project is safe and will help economy. I live in city but own property near mine & Birch lk. I have nothing to gain from this mine personally but know it’s the right thing to do. Polymet is not asking for Bail out money to start business is creating work with/out government job creation at not cost to tax payers. THIS IS WHAT OUR COUNTRY NEEDS. I also was told how tailing ponds are forever contaminated in the area. I was told that even a fathead minnow could not live in these ponds. I was told this from members of Sierra Club. Guess What? I still trap minnows in these ponds and have for years. So in ending I hope Sierra Club can find more factual information.	EOO,G2
7	I am writing this letter to support the MolyMet project. This project is not only very important to Northeast Minnesota, the the many people, families and businesses this project will benefit. The additional jobs from construction to the long term employment opportunities the PolyMet project will bring to the State of Minnesota through additional individual income taxes, corporate taxes, lower unemployment costs, additional savings from people having health insurance coverage to people in northeast Minnesota having a positive attitude towards the economy will in its self be Northeastern Minnesota's "STIMULAS PLAN". As a person who decided to move to this area several years ago, I understand the need to balance the available resources such as monerals and water with the development of a project like PolyMet. I feel the EIS lays the groundwork for develiping an environmentally, economically project that will benefit not only northeast Minnesota residents, but people throughout the country and world by showing this type of mining can be achieved through good governmental entities and local people. In the end, this entire process should set the bar for future projects. I fully support this project. Thank you for your time and commitment to make this process open to everyone.	EOO,G1
7	My name is John Dahmen from Aurora, Minnesota. I'm a student here at Mesabi East, and I guess my interest in this project is more so for our area, too, because we were pretty devastated with the whole LTV closing, and we need something to, I guess, get our area boosting again. But I guess for my future in a way, because the way I look at it, once I leave from the area to go to college and stuff, what is here for me to come back? You know, how am I supposed to get a job back here if there is no options for me? And, you know, along with the economic boost for our area, us being northern Minnesota, Iron Rangers, we are pretty -- we care about our environment and stuff, so to see this many people in such favor for a project like this, that means that they must care for the environment, too, the company; otherwise, obviously we wouldn't be for it, too, because, I mean, we live in the outdoors, so we care about it, and we care about what happens with it. So I guess that's my statement I want to make. You know, the support that we have, not only is it for looking out for us and the money and the jobs and stuff, but it is for our future, I guess, for our kids and stuff, and the environmental future also for our area.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
7	As a life-long citizen of Grand Rapids, Minnesota and Itasca County, I am very pleased to share my thoughts on the draft enviornmental impact statement (EIS) for PolyMet Mining Company's proposed non-ferrous mine near Hoyt Lakes. We are interdependent upon the industries of northern Minnesota with many citizens working and living in and about the communities of the Iron Range. A project such as this has rippling effects throughout all of northeastern Minnesota, and I am strongly in support of the approval of the EIS. I have been well informed at various presentations throughout the last couple of years about the great care and concern the management has taken to address the many environmental issues involved with a project like this. I am confident that all state of Minnesota environmental processes will be followed, and the appropriate authorities will monitor all progress in the project. Economically, this project is a positive sign for the future of northeastern Minnesota. With rampant unemployment and young people leaving the area at a rapid pace, the types of jobs created by this project as well as the spinoff jobs will come at a very critical time. I am confident the state and federal agencies will do their jobs to determine the adequacy of the EIS and I recommend permitting when all processes are complete.	EOO
7	Birch Lake is a treasure and we can't allow it to be contaminated.	G7
7	As a construction worker who lives in Northern Minnesota, I have a first hand view as to what construction jobs will do for our area. I support PolyMet Mining's North Met project. As a parent, I would like to see our area continue to grow so my children can continue to love and play in Northern Minnesota. This project will have a huge benefit to the area. As an American, I would like to stop our dependence on foreign suppliers. From what I have read, they will mine and produce some metals not currently mined anywhere in the United States. This is crucial to our part in the global economy. I am hoping the DNR will consider all the positive impacts this project will have.	EOO
7	I am in favor of the PolyMet project. As a person who grew up in the area, educated in the area, and had to move away from the area to find work after my education I know the full value of this area. This project would bring many good paying jobs to an area that has been forced to outsource it’s youth to places with more opportunity. This is one of the many projects that would bring young people back to an area that knows family values and community.	EOO
Sender Last Name:	Gerhardt **Submission ID:** 1318	
1538	I am writing to voice my support of Polymet Mining/s NorthMet project. Kraus-Anderson Construction Company has been based in Minnesota for 113 years and is the largest provider of construction services in the State of Minnesota. I have reviewed the draft EIS for the NorthMet project and believe that mining and processing these minerals in Minnesota can be done in an environmentally sound manner. Minnesota places a great value on protecting our natural resources and 11m confident that we can implement mining practices that balance the ability to extract these valuable resources while protecting the surrounding environment. The people that live and work in Northern Minnesota would stand for nothing less. This project will provide many long term good paying jobs, with benefits] and tax revenue. It will also generate other jobs and business opportunities that will help keep our State and local communities stay strong and vibrant. I support moving forward with the permitting necessary to proceed with the NorthMet project.	EOO
Sender Last Name:	Gerharstein **Submission ID:** 2389	
2879	As my fianc□ and I say our wedding vows this August on the shores of White Iron Lake we want to be sure that our children and grandchildren will have the same experience of beauty and access to clean and safe environment as we?ve had. Please take the time to add supplements to the draft EIS and give people in Minnesota a fair chance to know what impact the PolyMet project would have on our State.	G6
Sender Last Name:	Germ **Submission ID:** 1347	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1574	People need jobs! Educating and engaging citizens that do not have good paying jobs is difficult no matter how important the cause maybe. Big mining companies may lie, pollute and leave a mess for many years but they hold the upper hand when offering citizens jobs. Friends of the BWCA need to be able to say "there are green jobs let's explore these coming to our area."	EOO

Sender Last Name: Germolus **Submission ID:** 256

269	I appreciate the opportunity to submit this letter in support of an adequacy determination for the draft Environmental Impact Statement for PolyMet Mining Company mine near Hoyt Lakes. The Chisholm-Hibbing Airport plays a key role in the economic development of Northeastern Minnesota - ensuring regional businesses have access to convenient, efficient air transportation. In turn, having a strong economic base helps ensure the success of the airport by ensuring a consistent stream of customers for flights. PolyMet Mining Company wi" be a significant player in the regional economycreating 400 direct jobs with an annual payroll of about $40 million and at least 500 indirect jobs with an economic impact in the county of about $242 million. In addition, PolyMet will pay millions each year in royalties and local, state and federal taxes. While the economic impacts of this project wi" be huge, the environmental impacts wi" be negligible, as demonstrated in the very thorough and comprehensive draft Environmental Impact Statement. PolyMet has worked hard to propose a project that doesn't require northern Minnesota to sacrifice its environmental riches for economic development. The project is in the midst of a we" established mining area that also has been logged off. PolyMet proposes to reuse significant existing mine, processing and transportation infrastructure-recycling this valuable equipment instead of scrapping it. The footprint has been designed to minimize the impact to wetlands. Waste rock, which could create acid mine drainage if not properly handled, will be managed according to acid-generating potential. All stockpiles will have engineered foundations and liners with drainage systems that will collect water and treat it before reusing it for processing. At the end of mining, stockpiles will have special covers installed to make it difficult for water to contact the rock. Greenhouse gases will be kept at a minimum, as well, because PolyMet will use the sulfur found in the ore to supply the fuel to start recovering the metals. Waste streams will be managed appropriately. And, as required by state law, PolyMet will set aside financial resources to cover all closure costs before operations even begin-ensuring that the taxpayer won't have to do so. PolyMet will be mining critical metals used by each of us every single day, even though the United States must import 40% to 95% of these strategically important metals. Do the countries importing these critical metals have similarly strict environmental standards and can we guarantee the long-term stability of these imports? It makes more sense to rely on U.S. materials mined under U.S. environmental standards providing employment for U.S. citizens! As someone involved in the aviation industry, I am particularly concerned that we have clean, reliable, domestic sources of cobalt and nickel, alloys of which are used in jet engines, a high-performance application where components must retain strength and physical properties to ensure the safety and security of passengers. From my perspective, PolyMet offers tremendous benefits - to the region and to our nation's economy. The draft Environmental Impact Statement has adequately addressed the environmental and other issues associated with the proposed project and should be deemed adequate so that permitting can begin quickly.	EOO,G2,G4

Sender Last Name: Gerten **Submission ID:** 3103

3486	The pristine area of the Boundary Waters must be preserved. Anytime the surface of the earth is scarred either by striping the surface or placing extracted earth a reclamation plan must be made with dollars set aside to do it upfront. The polluting of the waters must be prevented with a verifiably successful processes used elsewhere before the project begins and again the dollars must be set aside to implement this plan over time as the mining occurs.	G4A,G7

Sender Last Name: Getting **Submission ID:** 1343

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1569	My father told me about a mining operation in his part of Ohio near a little stream where he had played as a child. After the mining (for coal) he said that there was "not a living thing in the stream, not a living thing." with deep sadness in his voice. While I know things have progressed since that unregulated day, still risk remains and beautiful and precious things may be ruined for a short-term benefit. I know we need beauty and wilderness. How badly do we really need these ores and jobs?	G2C

Sender Last Name: Gibson **Submission ID:** 3189

730	I would like to request an extension to the comment and study period. This project and future expansion could possibly have a devestating effect on our watershed. It is clear to me that extreme caution should be exercised before moving forward. More public comment and uderstanding is required. Thank you.	PRO6
2496	Please allow more time to comment and study this issue. It is far too important and potentially devastating to rush into! Bob Gibson, 12855 64th ave SE Blooming Prairie , MN 55917	G10
3534	I want to voice a "NO" to the proposed PolyMet project in northern Minnesota. I believe that Minnesota should adopt a similar ban to this injurious sulfide mining as Wisconsin. It states that there will be no sulfide mining in Wisconsin until a mine has proven to be safe from water pollution for 10 during the mining and for 10 years post the mining. To date, this has not been proven. Why would our state, the state that just self-imposed a tax to protect our waters, allow such a travesty. PolyMet is a Canadian company with a short business record mining copper and cobalt that has a very volatile market. Jobs are a great incentive but it may be that the clean-up jobs at taxpayer expense are more predictable. You are the department of natural resources and minerals are a small part of your operations. Our healthy aquatic life and those who enjoy our vast water resources should have first priority. No to PolyMet!	EOO,G7,G12
3736	Jobs should not come at the expense of our environment. There is simply too much risk with this project. Please do not approve.	EOO

Sender Last Name: Gilk **Submission ID:** 1085

1189	I work for Eaton Corporation, which is a major employer in the state of MN. Through toese difficult economic times, Eaton has made some tough decisions that have unfortunately cost the state of MN jobs. As a resident of Chanhassen, MN, I don't want to see' any further increases in the state unemployment rate. I would like to voice my support for PolyMet Mining's NorthMet project. The number of jobs that will be created by this business is substantial at over 400. I would estimate that suppliers and other beneficiaries of a project (and ongoing business) of this magnitude would add significant jobs as well. It appears to me that any environmental concerns are far" outweighed by the positive .economicimpact of a successful ongoing business who is a good steward of the environment. Environmental issues are much better addressed by many businesses participating in a healthy economy. I look forward to seeing PolyMet Mining move forward with its NorthMet project. Your support is appreciated.	EOO

Sender Last Name: Gillach **Submission ID:** 16

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
15	Thomas Gillach. I've lived in Aurora all my life. I've been a former teacher here, athletic director and coach and have been very active in community affairs. Certainly this is probably the most important time up here on the Iron Range, in Aurora, regarding the PolyMet operation. The people around here are, there is no question, 100 percent behind the PolyMet operation. And we find no reason why they should not be able to go ahead with the present operation and construction of non-ferrous ores -- dealing with the non-ferrous ores. And one of the big things I think that has been pointed out is that the ore body around here which contains these various components, there is only one percent sulfide in them compared with the operations out west that are 20, 30, 40 percent of sulfide ore. That in itself reduces the risk regarding environment concerns, reduces it tremendously. So that in itself I think should be certainly one of the main considerations. Definitely we need jobs here, there is no question about that. And the tax base here would be increased tremendously so far as the State of Minnesota is concerned. It's a win-win situation for everyone. Once again, so far as the opposition is concerned, we understand the environmental concerns, but we've always been concerned about the environment up here and we've treated it well and we will continue to do so. That's it. We are saying a lot of prayers for this operation. The good Lord is behind us, I know. Again, I'm Tom Gillach, I've previously addressed this issue. But coming from the meeting of the EIS, that PolyMet has addressed all of these issues in the past at local meetings, have been very forthright and has been very informative to the public. We are very well aware of these problems and PolyMet has addressed all of them. We are very satisfied in this area that they are a very environmentally sound company and will not harm the environment and certainly will add jobs. And as many people have pointed out, why export these jobs, why not keep them locally where you know that within the State of Minnesota that environmentally they are going to be on top of this project all the time. If there are any problems in the future, they will be addressed immediately. Once again, this area supports this project totally, it is environmentally sound. There is no reason that they should not, in the near future, that is months, be able to start up the construction. Thank you.	EOO
Sender Last Name:	Gingold **Submission ID:** 2392	
427	Please extend the period of time for comments. Please respond to the call for more study that includes a wider scope of possible effects. Ultimately, please do NOT allow these mines to go forward.	EOO,PRO3,PRO6
2883	I write as a native Minnesotan, an owner of a business in St. Paul, and an owner of a lake property on White Iron Lake near Ely. For all of the reasons that have been cited by the Friends of the Boundary Waters this entire project is WRONG. I ask that Minnesota DNR act to preserve what is unique to my home state. There is no way to effectively bring back the pristine beauty we all enjoy.	G15
Sender Last Name:	Giombetti **Submission ID:** 1095	
1199	I SUPPORT POLYMET!! WE HAVE WAITED LONG ENOUGH FOR THE POLYMET PROJECT TO PASS.	EOO
Sender Last Name:	Gitzlaff **Submission ID:** 172	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
163	I am Senior Mine Manager for Cliffs Natural Resources. I have been working in mining for 15 years on the Iron Range and in Australia. I am writing you to endorse the Northmet project by Polymet Mining Co. The project would bring more than $1 Billion of revenue to St. Louis county. When the Northmet operation is running successfully it will foster the development of at least 5 other companies and the development of the second largest Cu-Ni PPG deposit on the planet. Final revenue to the county and state could be more than $13 billion. I feel that there is a more important reason for allowing Northmet. Mining companies represent the most active and well funded environmental stewards today. We do more to protect the environment than anyone. I have read the Northmet EIS Statement. It is thorough, professional and large. Polymet has covered all the environmental bases and the project will clean and controlled. Northmet represents an opportunity for the mining industry to prove that we will be environmental champions and we will usher in an era of mining and environmental protection. The Northmet project is exactly what the county and state need in this economy. It will be a safe, clean and profitable project that will lead to massive growth in the region.	EOO
Sender Last Name:	Giuliani **Submission ID:** 308	
322	I represented the Mining Industry in 1960 at the 1st National Air Polution Conference. Unitl I retired in 1986, I represented Pickands Mather regarding dust and water problems throughout the U.S. & Canada dealing with underground mines, coal mines, and all the Tactonite Plants. I was basically concerned about the pollution to protect our employee health so I am well trained in what is going on with PolyMet. I am all for getting this Copper/Precious metals mining going as soon as possible & approve their permit as soon as it can.	EOO
1134	I think that you people are doing a real good comprehensive study on this project. I handled all of the pollution problems for Erie Mining Company starting in 1960. When a new endevor is started, there are bound to be problems that turn up that were not considered in the original design. We studied these problems and one by one we were able to correct them. These included air, water, power plant emissions, asbestos, PCB transformers, etc. When I retired in 1986, I felt we had made Eriw a show place. I also assisted in working on the Wilwaukee Saluey Coke Plant in downtown Milwaukee, the Carbad Limertare + Coal operation in Ohio-Penn border + the Zolran Mines in Canada operated by Pickandes Mather. Before I came to Minn, I worked as a ventilation engineer for 6 underground mines in Northern Michigan. My only reason for going into the above is to remind you that as good a job as you are doing, there are going to be somethings that will be over looked. With all of the talented people out there, I have no doubt that they can be solved or corrected. Therefore, all I'm saying is that be prepared for things that you overlooked in the study but please give the company's a chance.	EOO
Sender Last Name:	Glass **Submission ID:** 3649	
18342	1) The draft EIS document fails to mention the wealth of information in the US and Canada on the observed negative impacts to aquatic resources from mining activities where sulfidecontaining minerals were mined and the disturbance of the soil and aquifers resulted in 2,500 miles of permanently acid-polluted streams draining sulfide-containing coal mines in Pennsylvania, and 10,000 acid-contaminated sulfide-mineral mine sites in Canada. In Minnesota, where acid-forming sulfide minerals were encountered and buried at the Dunka Mine area in the 1970s, acidified runoff is still being observed to this day from the reactive sulfide-containing rock, and the treatment plant that once was operated to mitigate the problem is no longer running, resulting in continuously contaminated surface water runoff from that source of acid-forming sulfide-containing rocks. The Dunka Mine pit case of omitted information and data should be added to the final EIS, along with an assessment of past and present resultant impacts, and the necessary requirements for permanent mitigation.	WR3D

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Comment ID	Comment Text	Theme Codes
18343	2) The magnitude of the current problem in Pennsylvania is exactly what will happen in Minnesota unless totally protective measures are implemented. Sulfide mineral mining without regard to sulfide-air reactivity and resultant acid-drainage has resulted in continuous on-going environmental problems dating from the early 1900s, and before. Federally funded research (overseen by the Duluth EPA lab) from 1970 focused on identifying the origin of the problem: sulfide-containing mineral-air oxidation to sulfuric acid, and the resultant mobilization of soil/rock components, (primarily iron, manganese, and aluminum) which caused the acute and chronic toxicity to aquatic life in streams receiving acidified groundwater and acidified-surface water containing toxic levels of mobilized metals. Pennsylvania's acid-drainage mitigation program is on-going and information may be found on the web address: http://www.depweb.state.pa.us/abandonedminerec/cwp/ or by contacting: Bureau of Abandoned Mine Reclamation Director: Roderick A. Fletcher, P. E. Rachel Carson State Office Building P.O. Box 8476 Harrisburg, PA 17105-8476 Phone: 717-783-2267 FAX: 717-783-7442. See reference listed below. Relevant information from this state's extensive experience has been omitted from the DEIS, and the relevant information and data should be added to the final EIS, along with assessments of resultant impacts, requirements for permanent mitigation, and the methodology presently being tested and implemented.	WR1E
18344	3) The DEIS omits the information and data from Canada relevant to describing and assessing the proposed mining project. The magnitude of the current problem in Canada originating from sulfide-minerals that have been mined in more than 10,000 sites were described in a Geology Dept. seminar at UMD on Nov. 8, 2007, A Canadian professor from the University of Waterlo, Dr. David Blowes, summarized over 20 years of research on more than 10,000 mines in Canada. All Canadian mine operations Dr. Blowes studied and summarized have exhibited contaminated the groundwater at each of the sites, to greater or lesser extents, from the oxidation of sulfide-containing minerals, rock-wastes, and mine tailings, and the subsequent leaching of metals and sulfuric acids into groundwater. If any sulfide minerals are present, they are oxidized and leach toxic acid and metals in toxic concentrations. Prof. Blowes presented detailed data and information, and his conclusions were: 1) Immediate oxidation of sulfides by gaseous air is the major mechanism causing toxic components to be leachable. The first five-to-ten years or mineral exposure to air are the most important to control and prevent oxidation and leaching; 2) Groundwater is the major recipient and conduit for toxic leachate from waste sulfide-containing piles to surface waters down stream. Water travel-times of 2-200 meters per day are typical for contaminated groundwater streams containing toxic acids and metals; 3) Permanent maintenance funds should be required for all sulfide mineral mine, rock pile, and tailings deposits before mining is allowed to begin. Funds must be permanent and by "bankrupt proof" to assure they will be available in future time when groundwater pollution becomes evident and mitigation is required, and: 4) Permanent methods for the collection and treatment of all runoff, run-through, and leachate are required if downstream water quality is to be protected. Different types of prevention and remediation mechanisms are being studied, but no "best methods" are available at this time. Further study and research are underway. The DEIS omitted relevant information from the University of Waterlo Department's efforts that should be summarized and included in the final EIS for use in evaluation, assessment, and mitigation of the known negative impacts from mining sulfidecontaining, acid-forming, toxic-metal mobilizing minerals.	WR1A,WR2E

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Comment ID	Comment Text	Theme Codes
18345	lean ore over the life time of the mine, 20 yrs. On a daily rate basis, the tonnages are 32,000 and 91,200 tons per day, respectively. The finished product annual yield from the proposed effort are stated on page 3-2, in tons, as 38,821 copper, 9037 nickel, 400 cobalt, and, in ounces, 22,184 platinum, 87,129, palladium, and 13,824 gold. Comparing the annual ore tonnage to the copper yield gives a beginning ore percentage of copper, 0.33%, and nickel, 0.077%. Assuming CuS and NiS as the predominant chemical forms for each, the mass of sulfide in the ore calculates to about 24,000 tons annually, with a potential to form about 72,000 tons of sulfuric acid. It is not at all clear where and to what fate the sulfide annually processed mass will be become or whether of not it will be neutralized. Assuming the extraction process to be 99% effective this would leave residual copper and nickel concentrations of 33 and 7.7 ppm, respectively, in the extracted sludge. If the waste rock and lean ore were one-tenth the concentrations of the metal sulfide ore being processed, then the potential for sulfuric acid formation by air oxidation in the piles 1-4 would be potentially 24,000 tons x 0.1 x 1.7 = 4,080 tons sulfide, and the potential for 12,000 tons sulfuric acid, added annually, (but not necessarily formed or released annually, since reaction times can take several years). Since there would be no metal extraction, the copper and nickel concentrations if 10 % of the processed ore would be, 330 and 77 ppm, respectively, in the waste rock and lean ore. Clearly these concentrations of metals in conjunction with oxygen reactive sulfide-containing lean ore would be of great concern from the potential for environmental damage to the aquatic environment from the piles containing 394 million tons of waste rock and lean ore.The calculations illustrated above for total mass quantities, using actual known values for metal and sulfide content of the ore, waste rock and lean ore, should be added to the final EIS, with the assessment and interpretations necessary to evaluate and mitigate probable environmental impacts.	PD2
18346	5) All sulfide-containing mined rock, ore, and sulfide-containing material is capable of reacting (Piles 1 - 4) with atmospheric oxygen and results in generating toxic sulfuric acid which then absorbs water from the air, mobilizes and transport toxic metal concentrations, and causes groundwater and surface water pollution. Data are absent for measured reactivity and predicted acid formation as functions of times of extraction, particle size, and exposure to various concentrations of oxygen in air vs. depth of cover and precipitation. The entire mining site can become a toxic acid-toxic metal solution generator where ever sulfidecontaining materials are deposited when mined, transported, handled, crushed, stored, processed, shipped, and their resulting wastes are finally disposed of. Long times of reaction will result in toxic acid and toxic metal solutions being generated over decades of time from when these reactive sulfide-containing minerals, ores, and wastes are exposed to atmospheric oxygen, extracted by precipitation, resultant runoff and groundwater displacement. Mine disposed of mineral extraction wastes in semi-pervious cells, build upon and within leaky iron-ore tailings basins are unacceptable and do not meet the specific requirements described in Minn. Rule 6132.2200 for REACTIVE MINE WASTES. Contaminated water collection systems must be put in place and all runoff water collected and treated at the WWTF for completion of mine waste reaction times to consume all reactive sulfide present, probably several decades into the future, post-closure. This information needs to be generated and added to the final EIS.	WR1E,WR3I,AQ4,AQ5
18348	6) All mine waste piles exceeding nickel concentrations of 1 part per million and other components exceeding specified concentrations in M.R. 7045.0214 EVALUATION OF WASTES should be handled and treated as hazardous wastes under Minnesota Rules. Any waste solid or liquid samples with concentrations exceeding the ppm values given in MR 7045.0214 are classified as hazardous wastes and must be properly treated and disposed of as such. The following components and concentrations in ppm (mg/kg) exceeding these values are defined as hazardous waste: antimony, 0.10 ppm; arsenic, 0.50 ppm; barium, 7.6 ppm; beryllium, 0.010; cadmium, 0.050 ppm; chromium (total), 0.33 ppm; cyanide (total), 1.8 ppm; lead, 0.15 ppm; mercury, 0.009 ppm; nickel, 1.0 ppm; selenium, 0.16 ppm; and silver, 0.30 ppm; thallium, 0.020 ppm; and zinc, 70 ppm, respectively. Any and all expected wastes predicted to exceed these concentrations must be properly disposed of in a properly designed, licensed, hazardous waste facility, according to Minnesota laws and regulations, with permanent monitoring to assure compliance, and the protection of present and future health and welfare. Specific components predicted to be present in the various mine wastes need to be added to the final EIS.	PD2,HM2

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Comment ID	Comment Text	Theme Codes
18349	7) The remaining ore and waste rock (from section "Rail Transfer Hoppe Demolition and Reclamation," page 3-37), including Category 1, 2, 3, & 4 piles of sulfide-containing rock, and including ore spillages along all rail tracks and haul roads that are expected to contain acid-forming sulfide rock and dust accumulations must be collected and placed in approved, lined disposal areas where all surface and ground water runoff is collected and treated in the WWTF for elevated concentrations of acid and metals including H2SO4, Cu, Ni, Co, Mn, Fe, Al, and others toxic components. Any of these reactive sulfide-containing materials remaining after the mining operations are completed must be located in protective enclosures where all water leachate is collected and treated at the WWTF, on a permanent basis, for the foreseeable future, otherwise toxic acid and toxic metal pollution will result and downstream river reaches and Lake Superior will be adversely affected. These considerations need to be used to strengthen the technical design approach, and added to the final EIS	PD5,PD7
18350	8) As stated in section (pg 3-37): covering acid-forming sulfide-containing ore and waste rock with two feet of soil and vegetated according to Minnesota Rules, parts 6132.2700 and 6132.3200 is not an acceptable treatment for reactive, acid-forming sulfide-containing ore and waste rock and will lead to acid and metal contaminated surface and ground water runoff, and eventually led to acid and metal polluted streams and lakes. These reactive mine wastes must be properly contained and treated to mitigate any remaining reactivity as indicated by the presence of sulfide-containing materials and comply with the specific provisions of M.R. 6132.2200 for reactive mine waste. Measurements of total sulfide, and correlations with measurements of chemical oxygen demand (COD) are absent and would be useful in determining the total quantities of oxygen capable of reacting with atmospheric oxygen for the different categories of ore, waste rock, and mine tailings as a function of particle size and condition. This information should be generated, evaluated and added to the final EIS.	PD2
18351	9) "Proper disposal" as stated on page 3-38 for "Nuclear sources" and "Partially used paint, chemical, and petroleum products" must include complete inventories, safe packaging, and be shipped off-site to an approved, licensed hazardous waste disposal site. Disposal on-site is unacceptable and will lead to surface and ground water contamination and pollution. The	PD2
18352	10) The Waste Water Treatment Facility (WWTF) if operated properly will generate solid wastes containing the extracted components from water contaminated with toxic metals and other dissolved and suspended particulates. This solid sludge must be properly disposed in an approved, licensed solid waste landfill suitable for handling this waste. The cost for operation and disposal of contaminated sludge is absent from page 201 showing Closure Costs Estimate Summary Tab. 3.1-14 and omits the post-closure costs of continuing operation of WWTF and disposal costs for contaminated sludge. Both costs during the time of mine and plant operation (20 yr) and continuing after mine site closure for the several decades need to be specified and planned for, because of the remaining reactivity of the sulfide-containing rock present in the 294 million tons of waste rock and mine tailings generated by the proposed project. The costs for these operations need to be described and added to the final EIS.	PD3
18353	11) The reaction times for the reactivity of atmospheric oxygen and sulfide-containing mineral and other substances to form sulfuric acid, and the subsequent reactions caused by newly formed sulfuric acid, itself, acting as a reagent, reacting to cause toxic metals to be mobilized and leached from mineral and soil particles must be determined. This information is presently missing from the DEIS, and is absolutely necessary to evaluate the time frames for observing environmental impacts and devising methods for their possible mitigation. It is a requirement of M.R. 6132.2200, Subp 2, B. (1) to determine when the reactive mine waste "is no longer reactive." The time frames for the various types of solid and liquid wastes to become non-reactive for both sulfuric acid formation and sulfuric acid reactivity in mobilizing metals must be measured and known, and added to the final EIS and used to determine the total scope and magnitude of the treatment and potential mitigation necessary for the proposed project. The time frames for surface and groundwater movements must also be known, and in combination with the inputs due to the reactivity of the mine and mine wastes, and added to the final EIS.	WR1E,PD2

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Comment ID	Comment Text	Theme Codes
18355	12) The use of impermeable liners to collect and control all infiltration into and through the piles, layers, and storage of reactive solids containing reactive sulfide mined ore and waste rock is absolutely critical that these liners do not leak. And if for any reason that water should contact the acid laden sulfide-containing particles resulting in leaching toxic concentrations of metals, the supporting structure under the storage piles must be constructed to collect all contaminated water and conduct it to the WWTF without any contact with the natural soil surface or be allowed to contaminate the ground water aquifer directly underlying the foundations of the storage piles. Liner leakage is referred to on page 209, and ditches to convey contaminated leachate water is not acceptable under any circumstances. Safeguards must be build into the plan to make sure it is impossible for any leakage what-soever to escape the second or third barrier to catch any highly concentrated toxic aqueous	WR2D,PD2,PD5
18357	13) The same is true for liners (described about in 10) used in mine waste storage cells constructed on the iron-ore tailings basin which was not constructed to retain all water and a significant quantity leaks out of the basin into the ground water and subsequently contaminates the surrounding surface waters. This condition of leakage must not be allowed for any water present in the mine-waste storage cells. These cells must be sealed for all time upon closure, and no precipitation or water through-put may be allow to occur, otherwise severe contamination of the ground water aquifer will occur and down-flow surface waters will be polluted, requiring very high cost mitigation and cleanup. These additions are needed in the final EIS.	WR2D,PD2
18359	14) The mine itself will leave exposed surfaces of reactive, acid-forming, sulfide-containing copper and nickel minerals which, like described above, will continuously form sulfuric acid and toxic concentrations of copper, nickel, aluminum, iron, and manganese, and mimic the acid-mine drainage problems observed in Pennsylvania for over 100 years. The final size and condition of the porosity of the mine wall surfaces will control to some extent the surface and groundwater flows into and out of the final mine pit. There is little question that the water contacting the solid surfaces of the sulfide-containing minerals making up the mine walls will change composition by leaching sulfuric acid and toxic metal concentrations into the otherwise potable water observed in iron-ore mines, absent exposed sulfide-baring minerals. Contaminated polluting acid mine drainage will have to be collected and treated through the WWTP requiring the probable permanent post-closure operation of such a mitigation process. These post-closure operations and costs need to be added to the final EIS.	WR1E,WR3I
18360	15) Human, animal health risk from airborne mineral fibers and mineral dust. A continuous program of air monitoring for mineral fibers (especially during times of high dust exposures during blasting, crushing, and conveying powdered minerals) is warranted to protect workers and the general population (City of Hoyt Lakes and the Boys Scout Camp, within 4 miles) given the positive identification of cancer-causing mineral fibers in test samples (Sec 4.6.5.1., pg. 4.6-60).) A program to continuously monitor the health risk from intermittent air exposure to mineral fibers is an absolute requirement given the positive identification in test samples and the un-sampled exposure conditions which will occur over the life-time of the mine, and ore processing, from non-homogeneous pockets of fibrous minerals which will be encountered in the ore body over the lifetime of the mine. These concerns and precautions need to be added to the final EIS.	AQ4C
18361	16) Accumulative Economic and Social Cumulative Effects (Tab. 4.10-14) omits at least three potential probable negative impacts from the potential health and safety hazards associated with the proposed project. Probable human exposures and negative impacts known (4.6-57) to be caused from exposure to mineral fibers in air may led to increases in lung cancer, asbestosis, and mesothelioma over the present baseline numbers, as well as increases in asbestosis over current known numbers of cases. This increased exposure most likely will lead to increased mortality and higher incurred health-care costs in the working population, and may well produce a number negative and cumulative impacts which are	SE5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
18362	17) Hazardous wastes and Hazardous Materials (4.12). The section 4.12.2 Impact Criteria gives four bullets stating conditions where "a significant environmental impact" would occur. The impression given is that small quantities of substances necessary for the project would be used and are classified as hazardous, and if for some reason or accident, some escaped would cause a (small) amount of environmental damage "if not recovered in a timely manner." (4.12.2). Omitted, and not found else where, is the fact that the object of the project - the Cu/Ni ore itself, is classifiable by its own chemical properties, as a reactive, hazardous mine waste, by the content of at least several components (see # 5 above). This information should be generated and added to the final EIS.	HM2
18363	18) The section 4.12.4 Cumulative Effects states these effects "…could not be predicted." This is because of the narrow definition used for "hazardous materials" and focusing of the relatively small quantities of these substances while ignoring the real threat from the 294 million tons of reactive, oxygen-consuming, acid-generating, toxic-metal mobilization and transport from within the natural environment's atmospheric oxygen and forces of the hydrologic cycle of water (pg. 4.12-15). The larger view and scope of the impacts should be added to the final EIS, and in comparison with negative wide-spread impacts observed in other states and provinces.	HM2
18364	19) Comparison of Anticipated Impacts for Each Alternative, Tab. 5.1-1. Fish and Macroinvertebrates (pg 5-11) entry in the table states "no significant effect." is incorrect and a significant omission do to the admission that increased mercury emissions and concentrations would be created further contributing to contaminated waters (4.1-24, -29, - 30, -31) (pg. 5-8) and mercury mobilization and methylation rates would be increased by further sulfate increases (5-12), the causative reactant in methyl-mercury formation and mobilization (Tab. 5.1-1 Mercury and Bioaccumulation (pg 5-12). Mercury in precipitation exceeds state water quality standards and reflects unacceptable, polluting sources of emissions from upwind sources including mining operations and constitutes the major source of contamination for Minnesota surface waters and fishery resources. All mercury additions from the proposed project will contribute to increasing the contamination already at	ALT6
18365	20) Financial assurance, 3-48. Add to the final EIS: given the proposed project would leave behind a massive quantity of reactive mine wastes, it is reasonable and good public policy that a portion of the finished product from the proposed project be left behind to guarantee financial assurance that any future needs and all remaining and developing problems are properly mitigated and attended to. The problems experienced by other states (Pennsylvania acid mine drainage lasts greater than 100 years/mine) and provinces indicate that 15% of the gross annual profit would not be out of line for guaranteeing financial assurance. An annual deposit for financial assurance should be paid from the annual metals production, in native Minnesota gold, silver and platinum, and be deposited and held in the North Shore State Bank of Duluth for as long as is necessary to assure permanent protection of Minnesota's aquatic resources of the Lake Superior watershed from the impacts of the proposed project.	PD4

Sender Last Name: Gobats **Submission ID:** 235

244	Give Polymet their Permit. We can go on and on letting people make rules on the fly. They have met the requirements existing on the books. The government agencies have done their job and know way more then "Joe Public" knows about the project. They have followed "due process" and deserve to be given their permits.	G6

Sender Last Name: Gohmath **Submission ID:** 1170

1285	Northeastern MN is a unique environment that is a very attractive tourist and educational asset belonging to Minnesotans. There is no way that mining will have no negative impact on these lands and waters. I am opposed to mining in the NE Minnesota and do not think the risk is worth the cost. It is my hope that my daughters will be visiting the same BWCA that I visit now. Please do not permit sulfide mining in NE MN.	EOO,G11

Sender Last Name: Golder **Submission ID:** 1246

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1402	Finally, and not only as an avid outdoors man and wildlife enthusiast, but also as a concerned Minnesotan, I would like to add to this letter a word from The Lorax; "Unless".	EOO
Sender Last Name:	Goldsmith **Submission ID:** 3361	
3652	We need to protect our environment. If this mine goes through, we can kiss the boundary waters good-bye. God Bless the almighty dollar.	G7
Sender Last Name:	Good **Submission ID:** 1560	
1916	Like every one of your neighbors human, animal, and vegetable in Northeastern Minnesota who are not motivated by greed for minerals and disregard for the true value of our resources, I must register my adamant opposition to the further consideration of the Polymet and Franconia Sulfide Mining operations being pushed by "The New generation of Mining in Minnesota." The assertion that removal of sulfide ore here at the very top of the watershed for the North American Continent can somehow magically be done in an "environmentally responsible" manner is simply absurd. If there is a proven way to isolate, contain and remove sulfuric and hydrochloric acid from the water and land from which it is extracted, it has never been demonstrated anywhere these mines have operated in the world. There are plenty of examples of the opposite: Vast yellow-orange acid-killed wastelands where nothing green will grow, rotten-egg stinking streams of acid devoid of fish, fowl, and fauna forever. We refuse to let our yearround and vacation homes and international wilderness be laid waste like Sudbury, Ontario which was for the sake of employment in Copper/Nickel mining and smelting turned into a moonscape devoid of any living thing except the humans in that "industry." The jobs we have in tourism and forestry are too valuable to discard for this short term gain and eternal damage. Besides that, it is just not right. The past, present and future defenders of our Boundary Waters will never allow this vicious assault to proceed. Any truthful assessment of these operations' environmental impact without including the words "horrific", "devastating" and "irreversible" have to be drafted by the mining corporations themselves. Oh, wait, "truthful assessment" and "mining corporations" don't really fit in the same sentence, now do they? Those who have worked in the mines ought to know that by now. Remember the pensions they promised?	EOO,G2B,G2C,G7A,G7B,G
Sender Last Name:	Graff **Submission ID:** 1128	
1236	I am not in favor of the sulfide mining. It will destroy our natural resources of water, aquatic life, animals, the aire, etc. These resources are irreplaceable. The contamination can not be cleaned up. It will ruin the Bwca, pollute our waters, etc. A little ore today is not worth the 200 years of pillution + troubles + expense.	G2C
Sender Last Name:	Graham **Submission ID:** 3138	
7	I've been coming to this area since 1968. I come here for the same reasons that your famous son, Sigurd Olson, came here - to enjoy the peacefulness of the place, to respect the natural surroundings, and to bask in the splendor that only northeastern Minnesota can offer. I am sure that I am not alone in objecting to the grating, blasphemous noise pollution that mining operations bring to the region.	N1
31	It is not news that tourism and wilderness recreation do not abide the mining industry. Mining companies are notorious for promoting job estimates that are over-inflated and promising jobs that don't materialize. In addition, mining jobs are often filled by non-local workers. Are you willing to sacrifice the growth in tourism for unsubstantiated job estimates? As tourism falls, will the economy suffer or will mining families infuse more money into the system? I believe the history of mining in northeastern Minnesota answers that question. Certainly, there will be an increase in the number of bars, but I question if the quality of life will improve.	SE4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
504	When workers get sick, and they will from air-borne asbestos (amphibole) fibers, will the State pick up the tab? Will you get the mining company to pay? Do you have enough attorneys on board to address this issue with the mining company and affected parties?	AQ4C
1291	The integrity of liners and cover systems are notoriously suspect, especially in humid environments like Minnesota. The MPCA should be able to verify the questionable long-term sustainability of liners and cover systems.	GT1
3077	The MPCA can't establish specific sulfate discharge limits. This should be a particularly big red flag. What levels are you willing to accept on a non-scientific basis?	EOO
3078	Analysis of downgradient water quality using Uncertainty Analysis and determinstic modeling is guess work. Because someone can develop a model does not make it right. Areas like northeastern Minnesota that are humid, covered with vegetation, and have a complex subsurface of bedrock and glacial sediments do not lend themselves to precise (or accurate) groundwater models.	EOO
3079	If I'm reading the DEIS correctly, groundwater quality at the mine site will exceed MCLs or MDH limits for antimony, manganese, and nickel. Sulfate will exceed the groundwater evaluation criteria of 250 mg/L. Knowing that contaminate levels will be exceeded and that humans live downstream, areyou willing to approve this mining operation?	WR2C
3508	This mining project proposes using unproven technologies in a relatively pristine area that has developed into one of the nation's premier tourist destinations and ecological wonders.	EOO
3509	When workers get sick, and they will from air-borne asbestos (amphibole) fibers, will the State pick up the tab? Will you get the mining company to pay? Do you have enough attorneys on board to address this issue with the mining company and affected parties?	G4
3510	I am not opposed to progress. Certainly, northeastern Minnesota has experienced a significant growth spurt in the past 25 years that has brought prosperity to Ely and revived this community. Because this area is so unique, and it is unique in every sense of the word for no where else on Earth can you find such an environment, I do not believe that the DEIS contains adequate safeguards to protect this marvelous ecosystem and I suggest that if you do not reject this mining operation altogether, which is what I would propose, then you seriously consider an expanded critical review of the project.	G8
3545	What happens when the mine packs up and leaves? Does the state of Minnesota have enough money to monitor surface and groundwater and if needed, address contaminants (especially mercury) into the resource?	PD4

Sender Last Name: Grahek **Submission ID:** 288

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
302	The Iron Range Building Trades and Construction Trades Council appreciates the opportunity to lend its full support to an adequacy determination for the draft Environmental Impact Statement (dEIS) for PolyMet Mining Co. PolyMet's plans to develop a copper-nickel-precious metals mine near Hoyt Lakes and process the ore at the facility formerly owned by now-bankrupt LTV Steel Mining Co. offers several benefits to the Iron Range, the State of Minnesota and the country. Constructing the $600 million project will require 1.5 million man hours of construction labor over two years and result in full-time employment for 400 people in the mine and plant with an annual payroll of $40 million. These employment figures do not include the hundreds of spin-off jobs, with their related economic benefits. Clearly, this would be beneficial for the economy of the Iron Range and all of Northeast em Minnesota. The project also will provide minerals that are used in everyday living - from pigments to blood sugar test strips, jet engines to wind turbines, catalytic converters to cell phones. The members of the Iron Range Building Trades and Construction Trades Council can be confident that PolyMet will produce these minerals in a way that protects our natural resources and treats workers fairly; we do not have the same degree of confidence in the environmental or human rights records of foreign producers, from which the U.S. gets up to 95% of these critical metals. The State of Minnesota will benefit from the increased sales and income tax revenue, in addition to the millions in taxes and royalties that PolyMet will pay. The U.S. economy also will derive many benefits, including the ability to have a domestic source for metals critical to American consumers. The dEIS demonstrates that PolyMet has the ability to produce these metals while protecting the air, land and water. It will generate negligible air pollution and won't discharge process water. Stockpiles will be managed to minimize water that comes in contact with the rock and to collect and treat any water that does contact the rock. The Iron Range Building Trades and Construction Trades Council believes in fair play. PolyMet has invested more than four years and more than $20 million providing detailed information and research results to inform the development of this dEIS. PolyMet has followed the very tough rules of environmental review. Now it's time for regulatory agencies to acknowledge that the draft EIS has done what it's supposed to do - adequately identify and address potential environmental impacts - and to get about the business of issuing permits so our members can get about the business of building a mine and processing plant that will contribute to our regional, state and national economies.	EOO
Sender Last Name:	Grams **Submission ID:** 181	
172	As a small business owner in Hoyt Lakes, I would like to show my support of the Polymet project. I run a daycare out of my home and rely on new families to come into the area and also to retain the families that are currently living here. In these hard economic times, we need the jobs that this endeavor will supply to our area now more than ever. Over the last few years, I am impressed with the patience and precautions that PolyMet has shown during their wait to start production. I know and live in the same community with the workers at PolyMet and they are committed to the safety and welfare of our future. I am excited to have them as my neighbor and to start production as soon as possible. They will be an asset to our area.	EOO
Sender Last Name:	Graveel **Submission ID:** 2863	
6	Impact on Aquatic Vegetation (ie, wild rice); fish & humans that eat the fish w/ increased levels of mercury. Will we have to stop fishing like they did in New York because of mercury in samon.	WR4B,FM1
967	Studies on the effects of wildlife; ie, Canada lynx, wolves, bears, elk, fish and all other small animals in the area of the mine and areas where the tailings of the mine are dumped as well as run-off areas.	WI5
2738	We need field sampling & test on the effects of the watershed - acids, metals, sulfates, cyanide, & any other items detected in the sampling.	WR1A
3175	Are you planning for Constant Monitoring by the DNR? You will need a larger work force	PD8

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3176	What is the plan and estimated cost to reclaim the mining area when the mine to shut down. Does NorthMet Mining Operations have enough ($) money to put things back in order? & do they list Potential Problems and test to prove everything is covered in their request including money to cover disasters.	PD3,PD4
3212	DNR needs to review the impact of other Companies that may follow with request (I have heard of four (4) other that may turn in a request. OR is the DNR going to just grant only one company for mining this area or other close by?	G8

Sender Last Name: Green **Submission ID:** 2454

25	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have just written a lengthy comment on my concerns about the PolyMet DEIS. Unfortunately, my computer deleted these comments when I attempted to send them. Therefore I would like to briefly state that I feel that the environmental and economic risks of this project are extremely high. The DEIS itself indicates many potential problems - probable leakage from pits and tailings basins, release of toxic chemicals such as heavy metals and sulfuric acid into waterways, the loss of peat and other wetlands, which would release greenhouse gases, and the loss and severe disturbance of critical habitat for wildlife. Much of the economy of northern Minnesota depends upon the maintenance of a relatively pristine environment, and the loss of income should waters become polluted, large areas cleared and degraded, noise and air pollution increased, would be devastating for it. We will be left with a huge bill and everlasting toxic waste long after the mining company has paid its last paycheck and vacated the state. This DEIS shows us how remarkably hurtful this project would be to northern Minnesota. We cannot sacrifice the long-term health of our region for short term interests.	SE4
1298	Short term gains in precious metals are not worth the potential impact on the environment. Find better jobs for the criticized on Northern MN! Can they recover 100% of the sulphur?? DO NOT PERMIT!	EOO
18367	The plan calls for placing all of the saturated overburden material (with potential for exceeding standards for S content), compacted, in the Category 1 and 2 stockpile, “although the effectiveness of compaction to limit oxidation [therefore AMD] is uncertain.” (p. 3-15). This should be known before permitting.	PD2
18368	The liner systems for Category 3 and 4 waste rock and Lean Ore include 80 mil LLDPE geomembrane. What is the industry experience with this material? For how many years has it been used? For how long has its performance been monitored under similar industrial and climatic conditions to this? On what quantitative basis is PolyMet’s confidence based, that this element will maintain its integrity over the hundreds of years that society will depend on it to do so? If a leak develops in such a liner, it it even feasible to locate and correct it?	PD2
18369	On p. 3-33 and 3-34, under Hydrometallurgical Residue Cell Design and Operation, end of par. 2, the liner system is said to include a “geosynthetic clay liner”. What is this? Clay is a natural geological material; what is “geosynthetic”?	PD2
18370	Also on p. 3-41, para. 2, under Stockpiles – Design and Cover, the statement is made, “The vegetated soil cover would be designed to promote runoff with minimal erosion and retain water until it is either transpired through vegetation or evaporated from the soil surface.” How can this cover be designed both to promote runoff (thus favoring runoff over infiltration) and retain water to be lost slowly through evapotranspiration? Can we have it both ways?	PD2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
18371	and/or physical remediation on into the unspecified future ("in perpetuity"?). This plan assures the ongoing involvement of some authority (MNDNR?) to carry out these activities. Who is to pay for this? Clearly this should not be an obligation of the citizen taxpayer. A fully legally-binding arrangement of financial assurance must be a basic element of any mining permit to make sure that the entity that profits from the project assumes all of these risks and obligations that are the consequence of the project. Some examples: p. 3-34, para. 3: "Turf and final cover would be inspected and maintained by mowing once per year or as needed, fertilizing when visual inspection indicates poor vegetation growth, and repair within four weeks after visual inspection . . . " p. 3-39, piping for dewatering "would remain until water quality discharge limits at compliance locations would be met." p. 3-42, para. 2: "Water draining from stockpile liners . . . after closure would be monitored, returned to the WWTF for treatment if necessary . . . " p. 3-43, end: "PolyMet would develop a final Mine Closure and Reclamation Plan, which would include . . . ongoing maintenance /water treatment." p. 3-44, Reclamation – Tailings Basin, "Periodic evaluation of dam stability by a qualified geotechnical engineer." p. 3-53, para. 2, Vertical wells, "The pumping wells would be operated long term and until no longer needed when . . . conditions allow." p. 3-54, para. 3, Increased rock buttress material, "The PRB, if built, may require periodic recharging."	PD2,PD4
18372	3. Insufficient data presented in DEIS before permitting. Thus the full disclosure of the Project's environmental impact is incomplete, preventing adequate public review. Several examples of this problem are: p. 3-43 end: PolyMet would not develop a final closure and Reclamation plan, with projected costs, until the post-EIS permitting stage. p. 4-13, Mine Site, Plant Site: ". . . however, a slope stability assessment has not been completed. Further design and analysis would occur during permitting . . . "; " . . . have a low margin of safety for saturated or static liquefaction conditions." p. 4.13-3, Plant Site: " . . . there is a risk that static liquefaction . . . could occur and may cause a flow failure . . . "; Mine Site Alternative: "Further design and analysis would occur during permitting . . . " [Same comment for Tailings Basin Alternative.] p. 4.13-4, Mine Site, Tailings Basin: only during permitting; if risks or stability concerns are identified, would analysis be undertaken.	G8
18373	An egregious omission from the brief discussion in this section is all of the nonrenewable fossil fuel resources that will be consumed in the processes of development, operation, and closure/reclamation of this mine. These would include coalpowered electricity, diesel fuel, gasoline, lubricants, natural gas, etc. The combustion of these fuels would also generate large amounts of greenhouse gases, especially CO2, with their known deleterious environmental effects. These should also be recognized as an	IR1

Sender Last Name: Greenberg **Submission ID:** 3466

1057	This is a project with a high likelihood of water and land contamination of disastrous proportions, both near the proposed site and well beyond. Any possible economic advantage to the local and state economy is very likely to be erased by the overwhelming cost of clean-up. And clean-up is never completely possible, so there would be a net loss in both money and ecological services. Proposed technology to reduce contamination includes the use of liners, which are notoriously leaky. If the proposed storage of mine tailings in "a subaqueous environment to reduce oxidation", and then to create wetlands from these sites is an indication of the "new technology" to be employed, we're in big trouble all around. Do they really think that water has no oxygen to oxidize sulfides? Do they really mean to create wetlands over tailings with heavy metals and sulfides and call that minimal environmental impact? It is shocking and disappointing that the state of Minnesota is seriously considering issuing a permit for such a project.	EOO

Sender Last Name: Greenberg - DUPLICATE-same as **Submission ID:** 3467

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3226	This is a project with a high likelihood of water and land contamination of disastrous proportions, both near the proposed site and well beyond. Any possible economic advantage to the local and state economy is very likely to be erased by the overwhelming cost of clean-up. And clean-up is never completely possible, so there would be a net loss in both money and ecological services. Proposed technology to reduce contamination includes the use of liners, which are notoriously leaky. If the proposed storage of mine tailings in "a subaqueous environment to reduce oxidation", and then to create wetlands from these sites is an indication of the "new technology" to be employed, we're in big trouble all around. Do they really think that water has no oxygen to oxidize sulfides? Do they really mean to create wetlands over tailings with heavy metals and sulfides and call that minimal environmental impact? It is shocking and disappointing that the state of Minnesota is seriously considering issuing a permit for such a project.	EOO
Sender Last Name:	Greger **Submission ID:** 3525	
3789	The on line report has too much need for additional information to be considered at this time. Before undertaking such a project all questions should be answered fully. There is too much potential for environmental harm to have any doubt about the effects of such an undertaking.	G8
Sender Last Name:	Griffith **Submission ID:** 3158	
3118	Damaged water quality would impact the area's ability to capitalize on it's primary natural resource - a pristine, water-based ecosystem and all the myriad recreation opportunities it affords - for decades and decades to come. This risk for all area residents and their local economy, as well as the people like myself who love to visit the area for those very same natural benefits, is not worth the potential short term gain that would be afforded to Polyment and residents who may work for Polymet. I have traveled in the east and west where acid mine drainage has seriously damaged waterways.	EOO
3119	There is no real-life demonstration of successful new technology applied to remove sulfides from tailings and thereby prevent development of acid drainage that would contaminate ground and surface waters. Controlled demonstrations are not comparable to the setting that Polymet would be operating in with the extensive ground and surface water in Northern Minnesota. Please, please, do NOT allow hard rock mining to go	EOO,WR1E
Sender Last Name:	Grumbles **Submission ID:** 3651	
1	from Dr. David M. Chambers, Re: Draft NorthMetEIS. Further, NMW joins in and adopts the contemporaneous comments of the Minnesota Center for Environmental Advocacy, Water Legacy, Friends of the Boundary Water Wilderness Foundation, and Save Lake Superior to the extent not inconsistent herein.	G14
2	The DNR has released an incomplete DEIS for public comment. The DNR should prepare and circulate a revised draft of the DEIS that addresses the missing and inadequately presented issues. The current DEIS is inadequate and does not comply with federal regulations. Because this is a joint federal-state EIS, the environmental review process must comply with federal law, despite the fact that a state agency has taken the lead. Under U.S. federal regulations, The draft statement must fulfill and satisfy to the fullest extent possible the requirements established for final statements in section 102(2)(C) of the Act. If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion. 40 C.F.R. 1502.9(a). For a number of reasons, the DEIS does not come close to meeting “the requirements established for final statements.” Conclusion: To satisfy the requirements of the applicable federal regulations, the DNR should release another iteration of the DEIS for comment that addresses the missing and inadequately presented issues discussed below.	PRO3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3	Conclusion: The final EIS for the PolyMet NorthMet project must be deferred until a comprehensive supplement to the DEIS has been prepared, with appropriate scoping, notice and public comment. Such supplement should include a detailed analysis of the specific lands proposed to be exchanged for the NorthMet mine site and the impact of this exchange on the public interest, the environment and cultural resources of affected tribes with usufructuary rights in the 1854 ceded territory.	PRO1
4	Conclusion: Since reclamation planning poses a significant environmental and economic impact of the mine development, a complete preliminary reclamation plan and cost estimate analysis should be included in the DEIS. The plan should be developed to show the reclamation liability on a year-by-year basis. Further, the DEIS must specifically analyze how the closure and post closure activities required by the PolyMet project comply with Minnesota statutes and rules requiring stable and maintenance free closure and reclamation. The DEIS should also provide more detailed and candid assessments of environmental impacts during closure and post-closure, including but not limited to the following: Waste Rock Stockpiles. DEIS data demonstrates that many pollutants in drainage from stockpiles would exceed groundwater criteria for up to 2000 years after the mine is opened under the Proposed (DEIS, p. 4.1-84). Note that numerous references to extended periods of pollution were deleted in the few weeks between the June 2009 PDEIS and the public release of the DEIS. (Compare DEIS, p. 4.1-80, Table 4.1-45 with Appendix D, p. 4.1-72, Table 4.1-41). West Pit Lake. The west pit lake will overflow post-closure, discharging water predicted to exceed water quality standards for arsenic, cobalt, copper and nickel and containing significant sulfate levels. (DEIS, p. 4.1-111, p. 4.1-114, Table 4.1-64). West pit lake overflow is also likely to exceed mercury water quality standards. (DEIS, 4.1-115). Tribal agencies have noted the likelihood that the west pit lake will remain at the site "in perpetuity and will exceed water quality standards." (DEIS, Tribal Positions p. 3-19). East Pit Wetland. Although east pit overflow is noted as a modeling assumption, (DEIS, p. 4.1-72) no information could be found in the DEIS to characterize east pit outflow or overflow. Tailings Basin. The explanation of the plant site reclamation and seepage collection neither evaluates the potential for ongoing seepage, nor cites historical exceedances of groundwater and surface water quality standards from tailings basin seepage. (DEIS, pp. 3-45; compare with Table 4.1-6, p. 4.1-12; Table 4.1-8, p. 4.1-15; Table 4.1-19, p. 4.1-30; Table 4.1-31, p. 4.1-49). Hydrometallurgical Residue Cell Closure. A geomembrane barrier and geosynthetic clay barrier are proposed to cover this cell of highly contaminated material. (DEIS, p. 3-34). The EIS should describe expected leakage rates during operations as well as the longterm effectiveness of the cover system. (DEIS, Appendix D, Tribal Positions on July 2009 PDEIS, "Tribal Positions," p. 3-34).	PRO3
5	Conclusion: The DEIS must discuss not only reclamation costs, but the contingency reclamation costs that will be covered by financial assurance, and the financial assurance mechanism that will be used to meet this requirement. Until it is known that a sufficient amount of money will be available to cover closure costs when mining ceases, it cannot be concluded that planned closure activities will prevent environmental impacts.	PD3,PD4
6	Problems concerning the proposed tailings basin form the basis for numerous and substantial NMW section specific comments. Some of the most significant of these are summarized below and one new conclusion (identified as "ADDITIONAL conclusion") is presented as a result. Tailings basin problems stem from four basic sources: 1) geotechnical instability in the area, 2) proposed construction of the NorthMet tailings basin on top of the existing LTVSMC tailings, 3) inherent problems in tailings basin waste treatment leading to long-term treatment, perhaps "in perpetuity," and 4) the 'experimental' nature of the proposed processing technology and the resulting need for additional financial assurance. The response by the applicant to this situation has been inadequate and irresponsible.	EOO,WR1E,WR2D,WR3I,P
7	Conclusion: Geotechnical stability is too important an issue to leave for analysis after the mine has been permitted. These stability issues should be thoroughly investigated and the issues resolved as a part of the DEIS process. Perhaps the most important component of the proposed basin is the tailings dam. NMW contends that, (3.1.5.3) "Upstream-type tailings dam construction, which was used for the existing taconite tailings, poses a long-term stability risk to the proposed hydrometallurgical residue cells. Upstream-type construction will also be utilized to contain the project's flotation tailings, and again poses a long-term risk, although less than that to the hydrometallurgical residue cells because the hydrometallurgical residues contain much higher levels of contamination. A thorough analysis of the risk associated with tailings dam construction has not been done, and needs to be conducted as a part of the DEIS.	GT1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
8	Conclusion: Centerline construction of the expanded tailings facility should be considered even though it would be more costly, and would likely require the destruction of more wetlands. The problems of geotechnical stability extend to the Hydrometallurgical Residue Cell Design and Operations Cell Seismic Stability (3.1.5.3). NMW reports that "The hydrometallurgical residue cells will be constructed at the edge of the existing tailings Cell 2W. Construction of the hydrometallurgical tailings cells on existing tailings, which are susceptible to seismic liquefaction, and are contained by upstream-type dams, also poses long term seismic stability risks." Further, "[f]or an upstream-type tailings dam, which uses the tailings themselves as a structural foundation for the dam, the tailings must be dewatered in order to safely support the dam under seismic loading." "Hydrometallurgical residue cells would be lined to minimize release of water that has contacted the residue. The liner would consist of a composite liner system utilizing a geomembrane liner above a geosynthetic clay liner." In NMW comments (4.13), "If the material on which the hydrometallurgical cells are built is unstable, then the hydrometallurgical cells will also be vulnerable to rupture during a seismic event." From DEIS reports, "It is known that unstable areas exist in tailings cell 2E: it appears that the potential stability of the tailings in cell 2W is not known."	EOO
9	Conclusion: The additional cost associated with a double liner with leak detection for the hydrometallurgical residue cells is not cost prohibitive. A double liner with leak detection would provide maximum protection for the residue material, and should be required. Further, since reclamation planning poses a significant environmental and economic impact of the mine development, a complete preliminary reclamation plan and cost estimate analysis should be included in the DEIS. The problem of geotechnical stability also complicates the evaluation of the Tailings Basin Alternative (3.2.3). The goal of this alternative is to increase the geotechnical stability of the Tailings Basin and to minimize impacts to the wetlands north of the Tailings Basin and in the Embarrass River that may arise from seepage water. The alternative reduces the Project's potential impacts to surface and ground water quality by capturing approximately 95 percent of the seepage generated from the PolyMet operation including from the proposed NorthMet tailings As reported by NMW, "The explanation of the plant site reclamation and seepage collection neither evaluates the potential for ongoing seepage, nor cites historical exceedances of groundwater and surface water quality standards from tailings basin seepage." NMW concludes (its evaluation of geostability impacts), (4.13.3.5): Due to the failure of the applicant to address any of the potential geostability impacts, it is the position of NMW that in the DEIS the applicant must address measures to assure the structural integrity of the tailings basin, provide a dam break analysis, and must conduct a risk assessment prior to permitting.	GT1
10	Conclusion: A complete geotechnical stability analysis must be conducted prior to permitting and must be included in the DEIS.	GT1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
11	The DEIS states that, "Current modeling assumes no interaction between NorthMet seepage with the underlying LTVSMC tailings." (DEIS, 4.1-94). NMW concurs with the position of the tribal cooperating agencies that groundwater contamination from the previous mining activities is still an issue near the LTVSMC tailings basin more than twenty years after operations ceased. Because of the limited distribution of monitoring wells, the extent of the contaminant plume is not known. However, recent well data show that the plume extends in some areas at least as far as private wells along the Embarrass River. In the wells that do exist near the tailings basin, pollutants including iron, sulfate, manganese, aluminum, and fluoride exceeded drinking water standards. Recent wells near the northern property line show substantial contamination of the groundwater aquifer (Barr 2009, Memorandum: Results of Tailings Basin Hydrogeological Investigation. June 2, 2009). The baseline data on which to base estimates of the impact of the proposed project on water quality at the mine site and the tailings basins is insufficient. The existing analysis for the PolyMet project calculates the additional constituents that the project will add to groundwater, but is unable to realistically estimate what the resulting water quality will be because background water quality has not been incorporated into the estimates. Private domestic wells lie between the tailings basin and the Embarrass River where tailings basin discharge water is expected to ultimately discharge. Some of the sampled private wells have contaminants at levels several times the drinking water standard (Barr 2009, Memorandum: Results of residential well sampling north of LTVSMC tailings basin. January 27, 2009) Samples from these wells show exceedances of manganese and close to exceedances of the arsenic standard. Once a groundwater flow model is developed that would show the direction and rate of groundwater flow, that pattern of flow should be used to plan a groundwater sampling scheme that would map the extent of the existing contaminant plume. This data and analysis should then feed into estimates of how the proposed project would interact with existing contamination. The combination of existing conditions with impacts due to the proposed project would show what groundwater quality can be expected during and post project.	WR1E
12	Conclusion: At a minimum, contingencies should be put in place to fund long term water treatment well beyond the 65-year limit assumed in the DEIS.	WR3I
13	ADDITIONAL Conclusion: Financial assurance requirements must be readjusted (upwards) to reflect the additional risk associated with an 'experimental processing technology.'	PD2
14	Many of the potential impacts of this project are still unknown because of a lack of data. Some of these gaps in critical information are pointed out in the DEIS, and some are not. However, the DEIS does not address the cost of obtaining the information for any of these gaps. Under the	G8
15	Stream flow, sedimentation, and water quality data (see Table 4.1-6). First, it is troubling that there is no stream flow data beyond 1964 for the Embarrass River, and beyond 1988 for the Partridge River. The lack of recent flow data calls into question the assessment of the severity of impacts to the Partridge River from mine dewatering, and the water quality modeling for the Embarrass River (which is based in part on dilution of pollutants from stream flow). Second, neither stream flow nor water quality data are available for the points of greatest impact to the streams, including Trimble Creek and Spring Mine Creek, area lakes, and the stretches of the Embarrass and Partridge Rivers closest to the mine site and tailings basin. Finally, there is no sedimentation data for the rivers in the mine area. In many forested locations, sedimentation from haul roads and stream crossings are the largest source of impact to streams, with the volume of traffic being the greatest single factor determining the degree of impact.	WR3J
16	Hydrogeological data under and downgradient from the tailings basin. Very little appears to be known about the hydrogeology of the area under and down gradient from the tailings basin. It is unclear at this point what additional data might be collected in response to the DNR's recent request to PolyMet. However, more data on groundwater elevation, depth to bedrock, and groundwater flow is needed before an accurate model of ground and surface water impacts can be undertaken. As the EIS notes, it is impossible to estimate impacts on groundwater elevation based on available data, and thus the EIS provides no assessment of the subsequent impacts on vegetation, wetlands, and other surface water resources downgradient from the tailings basin. Sufficient data to make this assessment must be gathered and included in the draft EIS before permitting can proceed	WR1E

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Comment ID	Comment Text	Theme Codes
17	Hydrological data at the mine site. The model of impacts to the Partridge River and adjacent wetlands is based on inadequate data. According to the EIS, ten single-well tests were done in the surficial aquifer at the mine site, which covers several square miles. The scarcity and quality of data are such that the assessment of impacts to the Partridge River and adjacent wetlands is virtually meaningless. Without this data, a determination of the potential acreage of impacted wetlands is impossible, as is a determination of the potential drawdown of the Partridge River. As the CPEIS concludes, “the potential for widespread drawdown of the water table within the surficial and wetlands deposits cannot be evaluated from the available study.” Monitoring wetlands and stream flow after the mine is built is not an alternative to collecting the data for the draft EIS. The whole point of the environmental review process is to reveal these impacts before decisions are made to permit the project.	WR3J
18	Mercury transport modeling. In several situations, mercury seems to have been deliberately left out of modeling and analysis presented in the CPDEIS. Since all of the water bodies in the mining area are either known to be or can be assumed to be above the water quality standard for mercury, this is a curious omission. As an example, the discussion of water quality impacts on the Partridge River omits mercury because “predicted concentrations for mercury were notavailable for the liner leakage of the stockpiles (RS53/RS42, SRK, 2007a) and groundwater recharge from the East Pit and West Pit (RS31, SRK, 2007b).” These predictions “were not available” because PolyMet has not done them, despite doing equivalent work for a number of other constituents that are far less likely to result in violations of water quality standards. It is incumbent upon the DNR to demand that this work be done so that it can be included in the EIS. The failure of the DEIS to address mercury release and transport is discussed further below.	WR4A,WR4B,AQ4,AQ6A
19	Wetland delineation and field data. The impacts of mine dewatering are likely to extend to wetlands far beyond those that have been delineated and described in the CPDEIS and the wetlands permit application. The lack of information on the hydrology of the mine site cannot become an excuse for failing to identify the full extent of potential impacts on wetlands. All of the wetlands that may be impacted must be delineated and field surveyed.	WE1
20	Conclusion: To comply with 40 C.F.R. 1502.22, relevant information, including, but not limited to the examples provided above, must be included in the DEIS.	G8
21	Conclusion: The EIS must provide a thorough analysis of the underground mine alternative. (See 3.2.4.1 for additional section specific comments.).	G9

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Comment ID	Comment Text	Theme Codes
22	The DEIS is unclear about discharges to surface water. For example, "Reuse of the Mine Site process water at the Plant Site would eliminate the need to discharge any process water to surface waters." (3.1.2.9.) This statement is misleading because the seepage to groundwater from the tailings basin will surface in wetlands and the Embarrass River. While it may be technically true that there will be no "surface discharge . . . to surface water" this does not mean that there will be no discharge to surface water. Based on this faulty reasoning, the DEIS concludes that a NPDES permit would be needed only for storm water run off during construction activities. (Table 1.1-1) The question of whether a NPDES permit is needed for the wastewater discharge through seeps is a question for the discharge permit proceeding. However, it is worth noting here that EPA and most federal courts require a NPDES permit where it is clear that a discharge to dry land or to groundwater is contributing pollutants to nearby surface water. The EPA has stated that "the Agency interprets the Clean Water Act to apply to discharges of pollutants from a point source via ground water that has a direct hydrologic connection to surface water." 66 FR 2960, 3015. Most federal courts that have addressed the issue have agreed with this interpretation. Following an extensive review of the case law, one court concluded, "The logic of these cases is compelling: since the goal of the CWA is to protect the quality of surface waters, any pollutant which enters such waters, whether directly or through groundwater, is subject to regulation by NPDES permit." Washington Wilderness Coalition v. Hecla Min. Co., 870 F.Supp. 983, 990 (E.D. Wash. 1994). This conclusion is particularly compelling here where discharges to the Embarrass River and its tributary streams and wetlands through groundwater seeps have been treated as surface water discharges for decades. There is no rational reason to treat seeps that reach ground level at a point that is covered by water differently than seeps that reach ground level in a dry area. PolyMet appears to be seeking to take advantage of what it sees as a loophole in permitting requirements, and this attempt must not be accepted by the permitting agencies. The situation is further complicated in that PolyMet plans to discharge mine pit overflow to surface water (the Partridge River) after the mine closes. It is incredible that because this discharge will not be happening within the current NPDES permitting cycle, the discussion of necessary permits treats it as if it does not exist. Once again, the public is led to believe that the	WR3A,WR3I
23	As noted above, the DEIS "must fulfill and satisfy to the fullest extent possible the requirements established for final statements." Thus the DEIS must include the comments and opinions of the Fish and Wildlife Service regarding impacts on lynx and lynx habitat. NMW can find no evidence in the DEIS of USFWS comments and opinions concerning the Canada Lynx (4.4.1.1 – Canada Lynx, and elsewhere). Conclusion: The EIS must include USFWS comments concerning the Canada Lynx that will satisfy the relevant federal regulations.	WI1,PRO3
24	Conclusion: At the very least, the EIS should identify the longest time frame that the activity might need to continue. This information is critical to evaluating environmental risks. Any activity that may be needed for years after mine closure presents significant risks that failures of the financial or regulatory systems will lead to a failure of the closure or mitigation activity. The longer the activity might need to continue, the greater the risk. In addition to a discussion of the potential length of time treatment and closure activities might need to continue, the EIS should include a description of the potential impacts if the operation or activity ends prematurely. Some of these activities (not a complete list) include monitoring and upkeep of wetland treatment systems; monitoring and upkeep of fencing around the pit lake; restricting tree growth on the top of bench areas in the waste rock stockpiles; pumping and piping drainage from stockpiles and the tailings basin; operation of the wastewater treatment facility; monitoring (and potentially treating) discharge to the Partridge River; pumping of water from Colby Lake to the tailings basin pond; monitoring and pumping drainage from the hydrometallurgical residue cells; and maintenance of the pit wall cover.	WR3I,PD4
25	The DEIS discusses the beneficial social and economic impacts of the PolyMet NorthMet project resulting from employment opportunities and increased tax revenue, but contains little analysis of potential adverse social and economic impacts from the project.	SE3
26	Without citing any reference, the DEIS suggests only negative social and economic outcomes from the No Action Alternative, including declining employment, population decline, underutilized housing and aging population. (DEIS, p. 4.10-21) The DEIS does not address as an adverse social or economic consequence the risk that project could create an unfunded Superfund liability for taxpayers, as other mining projects across the nation historically have done.	SE1,SE3

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Comment ID	Comment Text	Theme Codes
27	Missing from the DEIS analysis is any acknowledgement of the boom and bust cycle of extraction industries in Minnesota and the adverse social and economic impacts associated with the cycle once ores that can be economically extracted and processed are used up. Research pertaining to Northern Minnesota documents repeated booms and busts in the mining industry, leading to community instability and long-term decline. From 1979 to 2005, 83 percent of the iron jobs in Minnesota were eliminated, while 80 percent of the nation's copper mining jobs disappeared between 1972 and 2002. (See Thomas M. Power, The Economic Role of Metal Mining in Minnesota: Past Present and Future, October 2007, pp. ii, 6, 7, 29, "Power Report" and references cited therein).	SE3
28	Price volatility affects the decline cycle. When metal prices are high, lower grade deposits are brought on line, adding to supply and moderating price increases. In a global market, poorer nations also attempt to secure mining jobs, displacing American sources. In addition, technical change steadily displaces labor with more powerful equipment and new electro-chemical processes, resulting in a smaller workforce even for the same amount of ore extraction. Although mining inevitably depletes economically viable ores in a relatively short period of time, the process of extraction and processing creates relatively permanent environmental damage. (Power Report, pp. ii, 6, 7). The EIS must assess the adverse impacts to local communities of the bust cycle, when population and payroll drop due to temporary shut-downs or inevitable closure. (DEIS, Appendix D, Tribal Positions on July 2009 PDEIS, "Tribal Positions," p. 4.10-14).	SE3
29	In correlating a "no action" alternative with adverse consequences, the DEIS also fails to analyze the actual economy of Northern Minnesota and its reliance on sectors of the economy that depend on residential preference and, thus, indirectly on environmental amenities, as well as tourism and recreation, that depend directly on environmental quality. Mining related income is only a small percentage of earnings in Northern Minnesota and the growth of other sectors of the economy has provided sources of income many times larger than the loss of the iron industry payroll. (See Power Report, pp. iii, 10,11, 22-23, 25) Tribal agencies emphasize that the EIS must acknowledge negative economic and social impacts to local communities if natural resources are lost or damaged due to the project. (DEIS, Tribal Positions, pp. 3-50, 4.10-14).	SE4
30	Finally, the DEIS fails to analyze the price assumptions on which both the opening and continued operation of the project depend. This is not an academic inquiry. Interest in the project was, no doubt, spurred by the quintupling of copper prices from 2001 to 2006, rising from about $0.75 per pound to about $3.80 per pound. In the 1970's, a similar sharp increase in copper prices spurred interest in development of Minnesota's copper ore deposits, but copper prices fell in the early 1980's and copper mines shut down nationwide rather than opening in lower grade Minnesota deposits. (Power Report, pp.1, 5). Recent economic recession and predicted economic factors that might lead to the intermittent operation, early shut down or failure to fund adequate reclamation and post-closure activities if the project were to move forward should be analyzed in the EIS.	SE3
31	The final EIS should include adverse economic and social impacts of the project and benefits of the no action alternative, considering the following: □ Information on Minnesota's mining industry, including historical and reasonably predicted cyclical "boom and bust cycles; □ Analysis of the regional economy's reliance on perceived environmental amenities, including tourism, recreation and industries such as health and finance which may be located based on residential choices; and □ Analysis of the adverse economic and social impacts of population and payroll loss when mining activities stall or cease, or resulting from mechanization, including impacts on unemployment, demand for social services, and tax revenues to fund social services. Analysis of the price structure needed to support opening of the PolyMet mine and processing facility, sustaining operations and supporting closure and post-closure treatment and reclamation, including the potential economic risk that unfunded pollution costs would become a burden on communities or taxpayers.	SE3,SE4
32	Further, the discussion of socio-economics must include detrimental aspects of mining economies. Socio-economics cannot be reduced to the amount of money and jobs the project will ostensibly bring to the area.	SE3

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Comment ID	Comment Text	Theme Codes
33	The CPDEIS does provide numbers that reflect the fact that historically, mining has had more of a negative than a positive impact on communities. According to the CPDEIS, East Range communities, most of which are mining-based, have lower education levels, lower median income, and higher poverty rate than St. Louis County and the State of Minnesota as a whole. Table 4.9-10 indicates that of the selected East Range cities, Tower is the only one with less than 10% of its workforce employed by the mining industry; Table 4.10-6 indicates that while Tower has a lower median income than some of the cities that are heavily affiliated with mining, it also has a much lower poverty rate and a higher percentage of employed adults. This makes intuitive sense. Virtually anyone in Northeastern Minnesota who pays attention understands that mining jobs pay comparatively well, but are not stable over the long term. These statistics are also in line with studies of economic conditions in mining communities.1 Rather than simply list statistics, the DEIS should provide some interpretation to make the numbers meaningful.	SE3
34	The CPDEIS ignores the volatility of the mining industry, assuming that jobs will continue uninterrupted for the predicted life of the project. It has no more to say about mine closure than "Unless new industry is developed in the East Range area prior to completion of these activities, it is assumed that 95 percent of working-age people formerly employed by the NorthMet Project would need to secure alternative local employment or would leave the area after this time." This complete lack of concern for the impacts of mine closure is particularly galling given the fact that the taconite industry is currently suffering yet another downturn, and miners are being laid off as the DEIS is written. The DEIS discussion of socio-economics needs to include a discussion of the impacts of relying on a cyclical industry as the major economic driver of a community.	SE3
35	Since the mine site would be removed from the Ceded Territory in order for the PolyMet project to proceed, none of the wetland replacements proposed in the DEIS, including those on the mine site, would be within the 1854 Ceded Territory. At most, the 175 acres proposed to be restored on the mine site or the 175 acres to be restored post-closure (DEIS, p. 4.2-38) might have some relation to waters within the remaining Ceded Territory. The planned wetland replacement, thus, would lead to a loss of wetland function within the Ceded Territory. (DEIS, p. 4.14-5). Minnesota Rules state that a replacement plan for activities that involve modification of known archaeological, historical, or cultural resource sites must be denied if the proposed activities will have a significant adverse effect on the archaeological or historical value of the site. (Minn. R. 8420.0515, Subp. 5). Although the strict letter of this rule is restricted to sites eligible for inclusion in the National Register of Historic Places, its rationale may apply to the 1854 Ceded Territory. Tribal representatives have recently suggested that the 1854 Ceded Territory may meet the criteria for listing in the National Register, while the U. S. Army Corps of Engineers has concluded that it would not. As acknowledged in the DEIS, even if the Ceded Territory is not listed, "This does not diminish the significance of the Project impacts to the cultural geography of the Ceded Territory." (DEIS, p. 4.8-15). The 1854 Ceded Territory represents an important cultural resource that may be impacted by loss and impairment of wetlands. DEIS does not include this issue in its description of impacts on wetlands (DEIS, Section 4.2). The final EIS must analyze the cumulative impacts of the PolyMet project on the 1854 Ceded Territory, including, but not limited to the loss of wetlands and changes in wetland functional values during operation, closure and post-closure, the additive effects of air and water emissions on wetlands, and the loss of tribal access to wetlands due to the above changes and the mitigation of wetland impacts by replacements occurring outside the ceded territory. (PolyMet DEIS, Appendix D, Tribal Positions on July 2009 PDEIS "Tribal Positions," p. 4.2-44) Any loss of wetlands or loss of wetland functionality within the 1854 Ceded Territory that is not replaced within the 1854 Ceded Territory must be considered an irreversible and irretrievable loss of cultural resources resulting from the PolyMet project.	WE3,WE5,G3,CR1,CR2,CR
36	Conclusion: NMW repeats its request that the DEIS comment period be extended to at least 120 days.	PRO6
37	So few paper copies of the DEIS were made available that virtually all citizen groups such as NMW, as well as individuals were forced to work with electronic copies. With a complex 700+ page document, this is an unrealistic approach. Conclusion: The next version of the DEIS and certainly the EIS should be reproduced in sufficient quantities that citizens may reasonably make known their views.	PRO6

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Comment ID	Comment Text	Theme Codes
38	Comments are intended to be public. Citizens should have the opportunity to hear and to learn from the comments made by others in a public forum, and to have their own views challenged by others. The process adopted by DNR/USACE precludes these opportunities. Conclusion: Additional hearings should be scheduled and should include the opportunity to present views in a public forum and to challenge the views of others as part of the process.	PRO6
39	The PolyMet project is likely to have impacts on several receptors and from several sources that are not included in the DEIS. These include water quality in local wells at residences downgradient from the tailings basin; the impact of pit water quality on wildlife; mercury and sulfate impacts downstream from the tailings basin and mine site; and impacts from the generation of electricity used by the project. Conclusion: All of the above issues should be added to the DEIS.	ALT8,WR1E,WI2,CR1
40	NMW supports the tribal representatives view of themselves as uniquely and disproportionately impacted by mining activities in the 1854 Ceded Territory and it has not been possible to reach agreement on a number of conclusions within the DEIS. See e.g. Tribal Position on Chapter 4.10, Section 4.10.3.1 (Proposed Action; Environmental Justice). Extended NMW comments on the potential consequences of NorthMet on the tribes are presented under Major Issues and Multi-Section Issues.	G8
41	NMW urges USACE to reissue public notice of the section 404 permit because of significant changes in the Project design that have occurred since the initial public notice in 2005. As the DEIS states, “The majority of supporting documentation for the PD and potential impacts of the Project were submitted by PolyMet between July 2006 and July 2009, including documents and technical memoranda and reports as listed in Section 7.0.”	G10
42	Financial assurance can and should be addressed in the DEIS. NMW rejects the contention that financial assurance considerations can be postponed to the permitting phase. This position is developed in detail in the Major Issues section of NMW comments. Support for this position is also developed in comments in Sec. 3.1.8 of this document.	PD8
43	NMW supports the tribal cooperating agencies position that the Tribes were not involved as Cooperating Agencies during Scoping, or when the Final SDD was issued and that additional consultation and evaluation is needed to determine the degree of impact on the ceded territory as a result of this project.	PRO1
44	NMW supports the tribal cooperating agencies position that although groundwater hydrology and impacts to groundwater, Cultural Resources, and impacts to wild rice were “incorporated” after scoping, impacts resulting from groundwater drawdown and inundation cannot be determined without additional data. NMW notes further that consultation is ongoing between tribal cooperating agencies and USACE regarding Cultural resources and impacts to wild rice.	WR2A
45	NMW contends that, as proposed, Mine Site wastewater, both non-contact storm water and process water, will require treatment for centuries to avoid contamination to the Partridge River. Likewise, the proposed CPS will require operation potentially for centuries. Conclusion: Treatment in perpetuity is unacceptable and not allowed under Minnesota law. The Mine Site wastewater treatment proposal should be rejected.	PD8

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Comment ID	Comment Text	Theme Codes
46	All waste rock piles are to have engineered liners. The waste rock with the least predicted ability to generate acid mine drainage and/or metals leaching is the Category 1 and 2 waste rock. Category 1 waste rock piles will have an engineered barrier layer and overlying drain layer to minimize the amount of waste rock seepage that will enter groundwater. Categories 3 and 4 waste rock liners have additional liner protection in the form of a synthetic liner placed on top of the engineered subgrade barrier. In describing the subgrade barrier layer to limit vertical infiltration from the waste rock piles, it is stated that the barrier layer will have permeabilities ranging from 5x10-7 to 1x10-5 cm/sec. (DEIS, Table 3.1-9) Clarification: The DEIS should describe how this specification will be tested during construction, and should disclose the methods that will be employed if testing indicates that the target permeability is not being attained? This subgrade will be the only barrier between leachate from the waste rock and groundwater for Category 1 and 2 wastes. Although this waste is not projected to generate AMD, it could contribute to Metals Leaching. Quality control in the placement of the subgrade barrier will be particularly important. Achieving these permeabilities, especially the lower ones, could be difficult unless the subgrade material has significant clay content. Amending this material, once in place, would be time consuming and expensive. Conclusion: A thorough testing program for verifying the target permeabilities of the various subgrade barriers should be required. If testing indicates that the specified permeabilities are not being reached, then corrective measures should be required.	PD4
47	According to the DEIS, trains consisting of up to twenty 100-ton side dumping ore cars would transport the ore from the Mine Site to the Processing Plant. Under the plan, the cars would have hinged sides that drop down when the cars are tipped at the Coarse Crusher for unloading. Ore would inevitably escape the confines of the rail cars during transport. The plan for limiting the escape of ore (with metal contaminants) from the rail cars is to load the cars at the centerline to keep fines from reaching the edge of the car where they would be subject to spillage through the hinge gaps. The likelihood that this procedure will prevent spillage from rail cars is, quite frankly, not good. Unless the rail cars are designed to be completely enclosed, there will inevitably be spillage and resulting environmental contamination along the rail line. Given time, the spillage from the rail cars would likely spread from the rail line across a wide area. Conclusion: Ore-transport rail cars should be completely enclosed, for example a tipple-dump type car that would not have hinges that could leak, and which could be sealed with a hardtop cover to prevent windblown dust loss. Soil monitoring along the rail line should also be required to document the absence or presence of soil contamination. Provisions should be made to remove contaminated soil as a part of mine closure. Failure to remove contaminated soil has led to contaminated storm water runoff at other mine sites.	PD5
48	The shipment of concentrate poses a significant risk for contamination because of its high metal content and the small particle size of the concentrate material. The shipment of concentrate from the plant is projected to be by rail and with pneumatically sealed rail cars, or in rail cars with a rigid cover. A risk of leakage, however, remains, and there is no plan to monitor for soil contamination. Conclusion: As with the rail transport of the ore, soil monitoring at the concentrate loading facility and along the rail line from the plant should be required to document the absence or presence of soil contamination.	PD2
49	Conclusion: Centerline construction of the expanded tailings facility should be considered even though it would be more costly, and would likely require the destruction of more wetlands.	PD7
50	Conclusion: Given the nature of the material to be stored in the hydrometallurgical residue cells, these cells should be designed to withstand the maximum credible earthquake.	PD7
51	Conclusion: A better description of the composite liner for the hydrometallurgical residue cells should be included in the DEIS. The additional cost associated with a double liner with leak detection for the hydrometallurgical residue cells is not cost prohibitive. A double liner with leak detection would provide maximum protection for the residue material, and should be required.	PD10
52	While the volume of water requiring treatment post closure may decline substantially, pumping and water treatment activities at the plant sites would have to be conducted in perpetuity. The proposed cover and liner would also require perpetual maintenance. These perpetual activities need to be addressed.	PD2

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Comment ID	Comment Text	Theme Codes
53	Financial assurance associated with reclamation actions must be addressed in the DEIS, and not deferred until the permitting process as proposed. Analysis of the DEIS discloses the likelihood of extremely long-term/perpetual treatment, maintenance, and monitoring (centuries – perhaps thousands of years in some instances). NMW joins with the tribal cooperating agencies in requesting that DNR/USACE incorporate the views of EPA regarding inclusion of financial assurance in the DEIS. Namely that, because of its experience in expensive cleanups of contamination from many defunct or bankrupt sulfide mines, EPA Region 9 has strongly urged other Regions over the past two years to require financial assurance disclosure in the NEPA process. New national rules for financial assurance are under development by EPA, because "Given the history of adverse environmental effects resulting from some hard rock mines, and the expenditure of public funds used in some cases to address environmental problems caused by mining, EPA believes it is necessary to analyze these factors in the DEIS." (from InsideEPA.com, Tuesday, August 25, 2009). The DEIS is misleading in the claim that, "Post-Closure and reclamation activities would be expected to be ongoing until such time as the various facility features are deemed environmentally acceptable, in a self-sustaining and stable condition. This is misleading because post closure activities may well continue for hundreds or thousands of years.	PD2,PD5
54	Likewise misleading is the DEIS statement that, "When PolyMet has completed all reclamation required by the Permit to Mine, they may submit a Request for Release per Minnesota Rules, part 6132.1400. This request would provide the Commissioner of the MnDNR with detailed information on the final reclamation status of the Mine Site." This is misleading because if, as expected, the project would require perpetual maintenance it cannot be deemed to be "reclaimed" and would violate the stated goal of Minnesota's reclamation statute.	PD4
55	NMW concurs with tribal cooperators who note that the scoping period for a federal EIS continues until the release of the DEIS. Therefore, new issues that have been identified during the review of the three PDEIS documents must be considered for the DEIS.	PD3
56	Conclusion: The cost-benefit analysis of the No Action Alternative should be redone to reflect the full range of anticipated outcomes	PD2
57	Conclusion: All Category 2, 3 and 4 waste rock should be backfilled into the mined-out East Pit, and Category 1 waste rock should be used to fill (i.e. top off) all of the remaining room in the East Pit.	PD8
58	Conclusion: It should be clearly stated in the DEIS what levels of contaminants would trigger the use of capture wells for treatment, and what standards the treatment of the water must meet in order to be discharged into the Partridge River. Another aspect of the Tailings Basin Alternative is the buttressing of the toe of a portion of the northern embankment of Cell 2E. Any effort to increase the stability of the present upstreamtype tailings dams would lower long term financial risk to the public, and lessen long term environmental risk.	ALT8,PD5,PD11
59	The DEIS statement asserts that, "The Tailings Basin Alternative resulted from the comprehensive mitigation planning effort by the co-lead agencies, and included input from all Cooperating Agencies and consulting tribes." NMW concurs with the tribal cooperating agencies statement that "although they (tribal cooperating agencies) participated in the identification of potential mitigation measures for the tailings basin, they did not participate in the development of the tailings basin mitigation design." In addition, NMW endorses the position of the tribal cooperators that, "an untreated discharge of contaminated tailings basin water to the Partridge River in order to dilute and dispose of tailings basin water would have environmental impacts that must be avoided in order to adequately protect the environment."	PD5
60	The scope and depth of the analysis presented in ALT11 is not enough to state conclusively that underground mining is not economical at this site. Indeed, here, a significant portion of the mill processing facilities are already in place from previous mining. Underground mining might be economical at this site as metal prices increase, and when the processing technology proposed for the NorthMet operation has been proven enough to clearly quantify the costs.	PD11

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Comment ID	Comment Text	Theme Codes
61	The comments by the tribal cooperating agencies also yield some additional information on the topic of potential underground mining. As noted there, "A study of this particular deposit was performed by U.S. Steel that recommended underground mining. By examining cross-sections showing the distribution of ore by depth, it appears that there are substantial ore reserves at depths that likely could not be accessed by the proposed open-pit mine. The ecological costs of open-pit mining and above-ground disposal of tailings and waste rock are immense. This ecological cost, combined with the most current understanding of deposit ore grades and reasonably possible metals prices, must be evaluated to determine the viability of this alternative." (DEIS, p. 3-64)	PD5
62	Table 3.2.4 E7 Underground Mining (p. 3-64) NMW endorses the position of the tribal cooperating agencies that this alternative was eliminated prematurely and without sufficient consideration. Tribal cooperating agencies note that, "analysis of unquantified environmental impacts, values, and amenities have not been evaluated as required by CEQ regulations." A study of this particular deposit was performed by U.S. Steel that recommended underground mining. By examining cross-sections showing the distribution of ore by depth, it appears that there are substantial ore reserves at depths that likely could not be accessed by the proposed open-pit mine. The ecological costs of open-pit mining and above-ground disposal of tailings and waste rock are immense. This ecological cost, combined with the most current understanding of deposit ore grades and reasonably possible metals. This ecological cost, combined with the most current understanding of deposit ore grades and reasonably possible metals prices, must be evaluated to determine the viability of this alternative."	ALT8
63	Conclusion: The discussion of impacts to water quality should not be limited to constituents for which water quality standards may be violated. The increased level of all pollutants over background levels must be assessed and disclosed.	WR1E
64	Conclusion: A more pristine, upgradient site should be identified for baseline water quality data.	WR1E
65	Conclusion: The historic and cultural significance of wild rice to the Ojibwe tribes is recognized in the DEIS, which reflects the beginning of the consultation with tribes required under law. (DEIS, pp. 4.3-1, 4.8-5) This consultation must be completed, including an objective and thorough wild rice survey. (DEIS, Tribal Positions, p. 4.1-33). The EIS must include detailed information correlating wild rice conditions with sulfate levels throughout the entire St. Louis River system. It must also include the impacts of the Polymet Project on wild rice conditions. Information presented in the DEIS implies that waters of the Partridge, Embarrass and St. Louis Rivers would need to be treated in perpetuity to remove sulfates in order to comply with Minnesota statutes. The final EIS must then evaluate impacts on cultural resources and environmental justice, as well as defining the extent of violations of the 10 mg/L water quality standards pertaining to sulfates in waters designated for or producing wild rice.	WR1E,WR4F,WR5C
66	Baseline data for both the Mine Site and the Tailings Basin are inadequate. A comparison of hydrologic data that was collected for two other projects in the region (GLIFWC letter to Jon Ahlness and Stuart Arkley, February 6, 2009) demonstrates that the PolyMet project is data-poor in the area of basic hydrology. The use of flow data on the Partridge River from a site twenty years and seventeen miles distant from the proposed project does not provide sufficient information to allow a full assessment of the hydrologic and environmental impacts of the project on the Partridge River. The data presented in the DEIS is also not representative of the Partridge River near the mine site. The gauging station is seventeen miles from the mine site and the data from that station is twenty years old and, therefore, unlikely to be representative of current conditions at the mine site. Conclusion: Additional data must be collected before the DEIS may be considered adequate.	EOO
67	The extent of existing wild rice beds has not been fully characterized and may be in violation in MN statutes.	WR1E
68	NMW supports the tribal cooperating agencies' position that the standard for wild rice waters, as currently in place, must be enforced. Tribal cooperating agencies report that extensive research in Minnesota has demonstrated that healthy and viable wild rice beds occur only in waters with less than 10 mg/l of sulfate.	WR3I,WR4F

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Comment ID	Comment Text	Theme Codes
69	Listed parameters calculated for the Partridge River have little data to support them. The MODFLOW model was developed to assess the rates of mine pit inflow and as such, the results it gives for areas outside the mine pit footprint are unsupported by data. As noted earlier, the XP-SWMM is based on stream gage data that is 17 miles and 20 years distant from the proposed project. Field data collection is spotty or non-existent and the numbers used in this DEIS are derived from the MODFLOW groundwater model and XP-SWMM model.	WR1E
70	Conclusion: Closure water treatment, as well as the other closure costs, will probably require a financial surety of approximately $100 million. This is too important an issue to be ignored in the DEIS process. The financial surety amount should be analyzed and disclosed to the public in the DEIS.	WR3I
71	In discussing the geochemistry of the tailings, as it applies to the ability of the tailings to generate contaminants, it is noted in the DEIS: "Current modeling assumes an average tailings sulfur content of 0.13%. Predictions made from kinetic testing suggest that water reacting with NorthMet tailings could become acidic when sulfur content is between 0.14% to 0.17% (Day 2008)." (DEIS, p. 4.1-95) It is well known that mine waste can produce contamination by way of Metals Leaching (ML) under neutral or basic pH conditions. It should also be noted that the flotation process produces tailings with a sulfide sulfur content that is just under the range that could produce Acid Mine Drainage (AMD). Conclusion: More discussion and verification should be given to the finding that the sulfide sulfur content of the tailings is and will remain under 0.13% and non-acid producing.	WR1E
72	Conclusion: The mitigation of storm water management controls should be required, not merely recommended. This is good pollution prevention practice	EOO
73	Conclusion: At a minimum, contingencies should be put in place to fund long term water treatment well beyond the 65-year limit assumed in the DEIS. This is for the protection of the budget and citizens of Minnesota and the environment.	WR3I
74	Conclusion: The DEIS must provide a quantitative analysis of the discharge of mercury to the Partridge and Embarrass River from these pathways during and after mining, and from direct surface discharge from the West Pit after mining.	WR4E
75	Water quality analyses of aluminum cannot be explained away by the fact that aluminum concentrations already exceed standards. Analyses of aluminum must include appropriate variables. The DEIS reports: Predicted aluminum concentrations appear to exceed the surface water standard of 125 µg/L for low and average flow conditions in all mine years (i.e., Year 1 through Post-Closure) with a predicted high concentration of 346 µg/L. The exceedances are in part explained by the fact that average aluminum concentrations in the Embarrass River already exceed surface water standards under existing conditions, with an average concentration of 192 µg/L and a peak concentration of 433 µg/L based on available monitoring data, and a modeled existing low flow concentration of 671 µg/L. (DEIS, 4-118) The fact that background water quality already exceeds standards does not mean that an increase is not a significant impact. Just the opposite; once standards are exceeded, any additional amount is problematic. Conclusion: The DEIS analysis must include existing violations of standards.	WR3H
76	The DEIS then goes on to state, the surface water standard is for dissolved aluminum, whereas the modeled values predict total aluminum. Therefore, "the predicted aluminum concentration is not expected to exceed the surface water standard." This conclusion is undercut by the choice of an inappropriate outcome variable. Conclusion: The appropriate variable must be chosen, or results using a different measure preceded by an explanation of the measure and of the way its results will be modified to reflect those using an appropriate variable.	WR3H
77	Conclusion: The no-action alternative should assume compliance with state and federal law in the clean-up of existing contamination.	WR1E
78	In this section it is stated that: It is assumed under the Tailings Basin Alternative that the vertical wells would continue to operate at least through Year 50, which is the same year that operation of the WWTF would cease under the Mine Site Alternative. (DEIS, p. 4.1-148) It is not apparent why the WWTF would no longer be required after year 50. This time frame for the WWTF does not appear to be substantiated by the discussion in the DEIS, or in the supporting documents. Note: This reference to the cessation of WWTF operation may be an inadvertent error, but if not the documentation that supports the statement that the WWTF will not be required after year 50 should be cited and the statement should be justified.	WR3I

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Comment ID	Comment Text	Theme Codes
79	Conclusion: The agencies should clearly state which of the mitigation measures would be required in the permits, and which they consider to be voluntary for the mine operator. That way the public has the ability to weigh the importance of the 'voluntary' mitigation measures, and can then comment on the relevance and importance of the voluntary mitigation measures.	WR1E
80	In the analysis of cumulative effects, it is stated in the DEIS: "In order to be reasonably foreseeable, an activity cannot be simply speculative, but should be included in government plans and budgets or, for private projects, have filed for required permits." (DEIS, p. 4.1-173) To require that a project must "… have filed for permits" in order for it to be considered for cumulative impacts is imposing an unreasonably strict definition of what is a reasonably foreseeable impact. For example, there are several mining projects in the advanced stages of exploration that should be considered as reasonably foreseeable. These projects include the Duluth Metals Ltd - Nokomis deposit and the Franconia Minerals Corp - Birch Lake deposit. Ignoring the potential for these developments understates the cumulative impacts to the region. Conclusion: Mining projects in the advanced stages of exploration should be included as reasonably foreseeable impacts for analysis of the NorthMet project's cumulative impacts.	WR5A
81	We join the tribal cooperating agencies in disagreement with the DEIS conclusion that the NorthMet Project is expected to meet all surface water quality standards under all flow conditions for all mine years in the Partridge River. Wild rice grows on the lower Partridge River and it is our position that the wild rice sulfate standard applies. The PolyMet discharge under the tailings basin alternative would not meet this standard.	WR3I,WR4F
82	We join the tribal cooperating agencies' position that the wild rice standard for sulfate applies on the Lower Partridge River.	WR3I
83	Conclusion: The Section 401 certification process should be reopened and the MPCA should have the opportunity to examine the Projects' adverse water quality impacts.	WE4
84	Wetland resources affected include approximately 3,016 acres at the Mine Site and 1,000 acres at the Plant Site and along the railroad and treated water pipeline corridors. But this is less than 50% of the area that will be impacted by disruption of the existing hydrology. This is especially true around the Tailings Basin which will likely be inundated. USACE is working to assess these impact, but they are not in the current DEIS. This is a significant omission. Conclusion: An analysis of impacts on all wetlands areas potentially affected by the Project must be conducted.	WE2
85	The evaluation of hydrologic impacts to the Mine Site is flawed due to reliance on "best professional judgment" and aerial photographs. Conclusion: Data-based scientific analytical methods exist and should be used for estimating the impacts to drawdown and inundation on wetland hydrology. The current analysis is flawed.	WE2
86	The Agencies incorrectly identified wetlands at the Mine Site as "perched bogs," which are dependent on precipitation rather than groundwater flows. These wetlands are actually cedar, northern ash or alder swamps, rich forested peatlands, and poor fens: all of these require significant groundwater inputs. The groundwater impacts to them have not been determined. Conclusion: The analysis is incomplete and should be redone to include the issues identified above.	WE1,WE2
87	The Tailings Basin is "an actively permitted waste storage facility" and approximately 5,700 gpm of tailings waste is released due to past LTVSMC activity. Conclusion: This has had a significant influence on the hydrology of the area which should be accounted for in the DEIS to avoid any further cumulative adverse impact.	WE2,WE5
88	A mitigation plan that covers all wetland impacts must be included in the DEIS.	WE3
89	Conclusion: The 100 mile awamp must be included in a recalculated wetlands impacts analysis.	WE2
90	Second, given the lack of information on hydrology, the projected number of acres potentially affected is a very rough estimate. Conclusion: Information on uncertainty needs to be included in the wetlands impacts analysis, along with some disclosure of what the largest impacted acreage might turn out to be.	WE2

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91	Third, mitigation plans are not included in the DEIS. Conclusion: Mitigation plans must be identified included in the DEIS because replacement of wetlands is regarded as reducing the significance of wetland destruction, it is impossible to assess the significance of wetland impacts without knowing what the mitigation will be.	WE3
92	NMW supports the tribal cooperating agencies position that the proposed action would violate section 404(b)(1) guidelines of the CWA which prevents permitting when a feasible cost effective alternative (underground mine) would have less adverse effects, or when water quality standards are violated or significant water degradation would occur.	WE4
93	NMW supports the tribal cooperating agencies position that a larger mitigation ratio is warranted given the larger quantity and high quality of impacted wetlands.	WE3
94	Cumulative impacts on the St. Louis River watershed must be addressed. These include air and water emissions into the Partridge and Embarrass River watershed wetlands, the loss of wetlands, and the changes in wetland functional values. The same concerns also apply to the 1854 Ceded Territory. The cumulative impacts analysis does not include a quantitative analysis of the long-term effects of mine effluent, especially in the Embarrass River. If mine related effluent is to be perpetual, then the effects of perpetual mine discharge on wetlands must be assessed. Conclusion: The long-term maintenance requirements of the Polymet mine must be addressed and the potential cumulative impacts on the St Louis River Watershed and the 1854 Ceded Territory evaluated.	WE3,WE5
95	The Northmet Project would be the largest wetland impact that has occurred or is proposed to occur in the Partridge River watershed (814 direct impact acres and 318 indirect impact acres). It would impact high quality wetlands with significant functional values. However, the proposed mitigation would occur outside the Partridge River watershed and outside the 1854 Ceded Territory. As discussed in 4.2.4.2, 475 acres of additional required mitigation have not been addressed and must be included in the mitigation analysis and plans. The Northmet Project would be the largest wetland impact that has occurred or is proposed to occur in the Embarrass River watershed. One result would be an indirect loss of 352 acres which are considered to be of low quality. Conclusion: NMW supports the tribal cooperating agencies position that the impacts of this loss would be significant and should be ameliorated	WE2,WE3
100	Conclusion: Among many other negative impacts to wildlife, the Project will, by destroying wetlands, cause potential serious harm to moose populations in the Project Site area.	WI2
101	Conclusion: The DEIS impact criteria is incomplete. The effects of the Project on species harvested on public land must be analyzed.	WI1,WI3
102	Polymet plans to undertake some restoration of disturbed areas after mine closure. This would entail the re-creation of forest, wetlands and open water but “the successional process would likely take decades,” according to the DEIS. Thus, the area would be unavailable as lynx habitat for forty years, or longer -- twenty years of mine operation plus at least another twenty years before the area would provide even minimally suitable lynx habitat. Indeed, there is no guarantee that excellent Canada Lynx habitat would ever be restored, especially as more flexible competitor species, such as the bobcat, can be expected to more quickly re-colonize the regenerating forest and occupy the Canada Lynx’s ecological niche. Conclusion: The DEIS should note that the proposed restoration plan for the Mine Site would provide excellent bobcat habitat and that the presence of the Bobcat, which is a superior competitor, might prevent repopulation of this site by Canada Lynx.	WI1

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103	Among other important species which would potentially be affected by the Project is the bald eagle. Bald eagles are known to use a large range for both foraging and nesting. (Nests optimally do not occur within a ten-mile radius of each other, except where large areas of suitable habitat are unavailable.) According to the DEIS, "human activity within one-quarter mile to two miles can be seen by eagles and, depending on the level of screening and habituation of individual eagles, may cause them to abandon a nest." Since there are nests approximately two miles from the Project Site, disturbances from the Project may have an adverse impact on both eagle nesting and foraging. Despite these manifest concerns, however, the DEIS ignores its own findings and proposes that "the Project is not likely to adversely affect bald eagles." Conclusion: The DEIS fails to fully account for the potential negative impacts to bald eagles could result from the loss of feeding and nesting sites within or adjacent to the Project area. The DEIS should include, but is currently silent about, the potential that contaminants from the mine site, specifically mercury and other heavy metals, could bioaccumulate in prey species and have a secondary impact on bald eagle reproduction. The direct effects of heavy metals upon the survival of bald eagles, while unknown, are also potentially harmful	WI1
104	Although the Mine Site is adjacent to areas where there are known populations of wood turtles and the Project would produce water turbidity and flow modifications (specifically, a lowering of water levels in the Upper Partridge River), the DEIS asserts that "the Project is not likely to adversely affect wood turtles because there would be no direct loss of individuals, populations, or suitable habitat and the Project would have no indirect effects on downstream habitat." The decrease in river flow would, however, "expose additional nesting areas" in the area which might be attractive to wood turtles. These additional nesting areas might induce the turtles to begin nesting in unsuitable habitat, such as sites where mining and vehicular traffic occurs. If so, these turtles would be subjected to nesting disturbances as well as increased mortality of both adults and younglings. Conclusion: Improved analysis is needed to support the claim that the Project is not likely to affect wood turtles.	WI2
105	Restoration efforts at the Mine Site would include afforestation over 792 acres of degraded land with red pine seedlings. As the DEIS states, "a red pine monoculture would not mimic the natural plant community [now present] at the Mine Site." This red pine plantation would not cover the entire area of disturbed land at the Mine Site, and it would take twenty years for early succession to begin with aspen and willows, another two decades for larger aspens to grow, and 50-100 years to convert the more disturbed areas to a more diverse forest, as some native species such as jack pine, paper birch, spruce and fir invade. The disturbance would reduce the quality of habitat for decades because of soil compaction, removal of seedling stock, and the planting of a red pine monoculture. Conclusion: As recognized in the DEIS, and established in the scientific literature, singlespecies tree plantations (like the red pine monoculture proposed) do not in any way replace or replicate a diverse and resilient natural ecosystem (like the one that will be removed). Tree monocultures are impoverished in plant species, do not provide a rich variety of habitats for wildlife, and may actually retard the regeneration of a multi-tree-species forest due to removal of diverse seed stocks and the nutrients they need to take root, and by discouraging the presence of transient, seed-dispersing wildlife. The number of species of wildlife which can live or forage in these monocultures is greatly reduced from the natural condition. This opinion is supported by the statement in the DEIS that, "the quality of habitat for SGCN species is likely to remain degraded for some decades after Closure relative to pre-mining operations due to conversion of high-quality habitat to lower-quality habitat."	WI4
106	With regard to wetlands in areas which would be impacted by the Project, the DEIS is unacceptably vague. It mentions a number of wildlife Species of Special Concern which might use the wetlands within the Project area, but, except for the marbled godwit and olive-sided flycatcher, Polymet did not survey or assess wildlife populations, asserting only that these species are unlikely to be present -- even though the DEIS itself states that 1,522 acres of wetlands would be impacted and that "these wetlands are generally considered to be of high quality and provide valuable habitat to a wide range of wildlife species." It is unlikely that high quality wetland habitat would not be populated by a number of aquatic and riparian species. Conclusion: The responsible agencies should reevaluate the inadequate methodology used to predict the acreage of wetlands that will be indirectly impacted by the Project pit dewatering. Based on a revised methodology, reevaluate the indirect impact of the Project pit dewatering on area wetlands should then be reevaluated.	WI2,WE1,WE2

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Comment ID	Comment Text	Theme Codes
107	Conclusion: NMW considers the loss of mature forest a significant impact and notes that activities on the mine site will prevent more forest acreage from reaching this mature community state, representing a nearly permanent loss of habitat	WI2
108	Two wildlife corridors, identified as #11 and #12, are located close to the proposed Mine Site. Corridor 11 is identified by the DEIS as a poor-quality, partially obstructed corridor with limited wildlife movement and that the "moderate impact" mining activities would not be "complete barriers" to the movement of wildlife. Mining activities and construction would result in a more severe impact on Corridor 12 by increasing noise, limiting access to the corridor, and disturb wildlife with rail and vehicular traffic. As stated in the DEIS, "…mining operations could generate sufficient activity and noise to discourage wildlife use of this corridor…" Although Corridor 11 is of relatively poor quality, it has been proposed to restore it by revegetation, which would be precluded by mining activities. Corridor 12 will obviously be significantly impaired as a wildlife corridor by mining activities. Conclusion: It is the position of NMW that negative wildlife-corridor impacts disclosed in the DEIS should be considered significant.	WI5
109	Conclusion: These basically represent mine closure, not mitigation, efforts. NMW thus finds these efforts to be inadequate. A mere plan to remove the agents that will have degraded the area does not constitute rehabilitation, nor does it ensure restoration of the area to its former state. Any new impacts to existing wildlife migration corridors, (e.g., by mining) is by definition significant, and should require mitigation. Until the Section 106 consultation process between the USACOE and the tribes is complete, it is not possible to determine the potential impacts to treaty-protected wildlife.	WI3,WI5
110	Although the DEIS states that "There are no known occurrences of lake sturgeon and no likely habitat for lake sturgeon in the Project area," the tribal cooperating agencies note that lake sturgeon were once prevalent in the area prior to dam construction, and that lake sturgeon have been caught in the area recently. The Fond du Lac Resource Management Division has a restocking program based on early accounts of this fish's abundance. Thus, the current absence of this fish species in the area of the Project is not representative of the appropriateness of the aquatic resources to support lake sturgeon but is due to blockage of their migration routes by dams. Conclusion: Lake sturgeon fish could be restored in waters involved with the activities of the Project.	FM2
111	According to the DEIS, the northern brook lamprey is not present in the Project area, although there is probably suitable habitat in the Project area. No survey has been made, however, to ascertain the presence or absence of the fish or of suitable habitat in the Project area. Conclusion: Given the lack of data, no conclusions about the presence or absence of northern brook lamprey in the Project area can be made. It is suggestive, however, that this species has been found in the Dark River, only a few miles from the target area.	FM2
112	The DEIS asserts that "Unionid mussels …constitute one of the most imperiled major taxa in the United States." There are populations of the creek heelsplitter, one of the species identified by the State of Minnesota as a Species of Special Concern, in the St. Louis River basin. Further, according to the DEIS, suitable habitat for the creek heelsplitter does exist within the Project area itself (though the DEIS notes that the species has not been co collected in the Project area). Conclusion: This conclusion was based on a superficial survey, as many other (more common) species of mussels known to live in the St. Louis River basin were not collected in the survey relied upon by the DEIS. As the creek heelsplitter is a rare species, a more intensive collection effort might locate this species. Populations of this species have been located not far from the Mining Site	FM2

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Comment ID	Comment Text	Theme Codes
113	NMW objects to the statement in the DEIS that the species-poor fish fauna in the Partridge River is due to a natural impoverished habitat present in these bodies of water -- rather than due at least partially to anthropogenic causes (e.g., pollution from LTVSMC tailings). (The DEIS does allow that the poverty of macroinvertebrate species in the river might be, at least partially, anthropogenic in origin.) This river has been sampled and has a relatively low fish and species richness as compared to other rivers with presumably ecologically-similar habitats. NMW does not agree, however, that previous mining activity has not affected the productivity of these waters. NWM asserts that the data presented to support the claim of poor habitat is based on an unsound methodology incapable of determining habitat quality reliably. Additionally, the sampling sites represent three to four different habitat conditions, and therefore one cannot extrapolate from one to another. Conclusion: This DEIS finding is inconsistent with the DEIS position that the physical environment is the cause of fish species impoverishment.	FM2
114	Colby Lake and Whitewater Reservoir are the two bodies of water which would be most directly affected by the proposed Polymet mine. Alterations in the water table and water levels by discharges and withdrawals by the mine could affect water quality and the population sizes of aquatic species in both. Although the fish assemblage has not been established for Colby Lake or Whitewater Reservoir by the Minnesota Department of Natural Resources, the DEIS states that the assemblage in Colby Lake "appears to be similar to what might be expected based on other lakes in the region with similar physical and water quality conditions." Conclusion: This is not a valid evaluation of the fish populations present in Colby Lake because it is based on an assumption not verified by any data. If supporting data does exist, it should be cited in the DEIS. But no conclusions can be drawn from possibly fallacious comparisons. The same is true about the lack of data for the fish assemblage in Whitewater Reservoir: the DEIS finding is not valid because it is based on an assumption not supported by data. If supporting data does exist, it should be cited in the DEIS.	FM1,FM2
115	Given that there is so little data on either fish or invertebrate species in both Colby Lake and Whitewater Reservoir, it is curious that the DEIS suggests that these are species-poor waters, and that poverty of species (if it does, in fact, exist) is due to the inadequacy of the physical habitat. (The DEIS claims that "[t]his departure from richness expectations for the Mississippi and St. Croix River Basins is probably a manifestation of the species-poor nature of habitats encompassed by the Partridge River.") The DEIS further claims that the presence of certain midge species indicate good water quality in these bodies of water -- supporting the position that the alleged species-poor status of the waters is not due to earlier episodes of water pollution. But NMW disputes the DEIS's reliance on a proxy indicator, because midges are not on the sensitive end of the pollution-tolerance index. Conclusion: No current or recent water-quality data is cited to support the DEIS's proposed finding. Reliance on the presence of midges in these waters as an indicator of good water quality is unjustified for the reasons given above.	FM2
116	Conclusion: The significant hydrologic alterations predicted will likely have significant adverse affects on the aquatic biota.	FM1
117	Conclusion: There is insufficient flow data and hydrologic modeling to support the conclusion that reductions in high-end flows would not have a significant effect on physical habitat for aquatic biota. Any alteration of flow at the magnitude predicted will definitely result in a decrease of stream power, leading in turn to a decrease in the size of particle able to be transported. Thus, increased sedimentation is likely to result.	FM1
118	The DEIS states that "aluminum appears to exceed the chronic water quality standard in the Embarrass River." It seems that much of this contamination is due to the previous occupant of this property, LTVSMC. The DEIS goes on to state that "[t]here are several mitigation measures discussed [above] that could be used to treat the pit water before it is discharged and enable it to meet surface water standards." Conclusion: NMW regards this statement as weak and non-binding, in that it does not adequately analyze or disclose what could be done to prevent further contamination of surface water in the area of the proposed mine. NMW's position is that PolyMet must assume remedial liabilities of pollution from LTVSMC, and that mitigation measures relevant to this particular issue should be included and discussed in the DEIS to ensure that no new pollution exceeding aluminum standards for aquatic life will be released.	FM1,FM4

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Comment ID	Comment Text	Theme Codes
119	Conclusion: NMW holds that any increase of methylmercury bioavailability in the Partridge River watershed endangers a critical trust resource and should not be permitted. The fish resources from this area would potentially be impaired by waters highly contaminated with methylmercury. Further, any new discharges that would result in further degradation to waters already overloaded with mercury levels which would not be permissible under the Clean Water Act.	FM1,FM5
120	Conclusion: Additional analysis must be done concerning the reactivity of the waste rock dust. The environmental impact from the reactivity of the waste rock dust was overlooked in the current DEIS and needs to be included. This waste rock dust is reactive enough that the possibility exists that sulfates could form in wetlands and lead to an increase of methylation of mercury. Further, it has not been shown that the waste rock dust would not in and of itself create sulfuric acid.	AQ1
121	Conclusion: In addition to addressing the above concerns, a monitoring scheme should be required that will provide statistically reliable data on the autoclave mercury emissions, to ensure that the mercury capture systems on the autoclaves are functioning as designed.	AQ6A
122	Conclusion: Mitigation options should be aggressively pursued by the MPCA and the FLMs, as stated above. The Tribal cooperating agencies should be included in these discussions to every extent possible.	AQ5
123	Conclusion: Class II modeling did not adequately consider cumulative impacts. That analysis did not (1) take into account the effect of the full particulate emissions from the tailings basin, (2) factor in any emissions from the Keetac Expansion Project that plans to increase production by 61% by reopening another furnace line, or (3) include the planned Essar Steel Expansion project. The analysis is thus incomplete. The 24-hour PM2.5 modeling must account for emissions from the Keetac Expansion Project. Full cumulative effects may lead to violations of the PM2.5 NAAQS standard.	AQ4
124	Conclusion: The assessment that there is no significant impact cannot be considered correct, because that analysis did not take into effect the full particulate emissions from the tailings basin. That analysis did not factor in any emissions from the Keetac Expansion Project (that plans to increase production by 61% by reopening another furnace line), or the planned Essar Steel Expansion project.	AQ2,AQ4
125	Conclusion: The table is incomplete. There is no mention that the Keetac Expansion Project will be producing 64 lbs HG/yr controlled or 90 lbs uncontrolled. (Cumulative Impacts Analysis Local Mercury Deposition and Bioaccumulation in Fish, Keetac Expansion Project April.)	AQ6A
126	Conclusion: Noise-contour maps should be developed for inclusion in this DEIS. Noise-contour mapping would allow reviewers to assess the impacts of noise to all publicly accessible lands in the vicinity of the project which include large sections of the Superior National Forest immediately adjacent to the Mine Site (see Figure 4.9-1). An assessment of noise impacts to all public access lands is important information for assessing cultural impacts to tribes with hunting, fishing and gathering rights in the 1854 ceded territory. NMW concurs with the tribal cooperating agencies position that the Army Corps has not yet completed consultation with potentially affected tribes. Therefore, this document does not estimate the potential degree of disturbance to tribal members who may not be involved in traditional natural resource harvests on national forest lands.	N1
127	Conclusion: The DEIS does not present sufficient information to support the claim that “the continuous generation of noise at the Plant and Mine Sites would not have a significant effect on the noise environment during mine operations, Closure, and Post Closure.”	N1
128	Conclusion: An adequate cumulative impact of noise impacts analysis has not been done. Meeting ambient-noise standards is a different question than assessing impacts. Impacts should be fully characterized in this document. Contour maps that show overlapping noise pollution from different projects should be provided -- it is impossible for the public to review the cumulative impacts of noise without this information. Also, the cumulative impacts of mine related vibration have not been assessed	N3
129	Conclusion: The DEIS remains incomplete and compliance with federal law Section 106 cannot be determined at this time. The EIS must address the issues described above.	CR1,CR2

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Comment ID	Comment Text	Theme Codes
130	Comments concerning the Loss of Cultural Resources as a Result of Direct and Indirect Loss and Functional Impairment of Wetlands in the 1854 Ceded Territory were addressed in the earlier section, "Other Major Issues…" NMW hereby incorporates and repeats the conclusion offered in that section. Conclusion: The final EIS must include an evaluation of the Project's impacts on cultural resources and environmental justice, as well as defining the extent of violations of the 10 mg/L water quality standards pertaining to sulfates in waters designated for or producing wild rice.	G3,CR1,CR4
131	Continued current uses and activities at the Mine and Plant Sites under the No Action Alternative would be compatible and consistent with existing land management plans, regulations, and practices. Conclusion: This section of the DEIS should include a discussion of the remediation that would occur at the site under the no-action alternative, and its compatibility with the MFRC Landscape Management Plan.	CPLU1
132	Implementation of the above-referenced mitigation measure (e.g., a native seed mix) would allow the Project to comply with the long-term goals of the MFRC Landscape Management Plan. Therefore, there would be no long-term or cumulative effects during the life of the Project and Post-Closure relative to Compatibility with Plans and Land Use Regulations. Conclusion: Post-closure impacts have been insufficiently addressed. This section should discuss long-term and cumulative impacts from the Proposed Action, including a detailed native seed mitigation plan.	CPLU1
133	What impacts will the Polymet Project have on the socioeconomic conditions of these East Range Cities? In order to best weigh the positive and negative impacts of a project, economists usually perform a cost/benefit analysis. Only then can an informed decision be made about proceeding with a project. However, this was not produced for the Polymet DEIS, leaving a large information gap in the analysis. "This analysis did not identify any potentially significant adverse socioeconomic effects from the Project, therefore, no mitigation measures are proposed."	SE3
134	What has been provided is an accounting of the benefits: the direct effect of 448 new jobs and the indirect and induced multiplier effects on employment. Only 25% or 112 jobs would be filled by local residents. In 20 years these jobs are gone and 95% of working-age adults would be unemployed and either leave the area or seek alternative employment. The boom-bust cycle is repeated. An accounting is given of likely tax revenues to accrue from the Project. But no accounting is provide for the increased cost of building new infrastructure, renovating schools, hiring additional city staff, police, fire, ambulance, and medical providers-all at public expense. Adverse economic impacts to communities during temporary shutdowns and at closure are conspicuously absent from the study But these costs are real, and there is reason to believe that they will be high:	SE3
135	The negative impacts associated with the loss of natural resources and environmental degradation have also not been addressed. There is reason to think that these costs will be high, too:	SE4
136	The DEIS details the likely need to treat the waste streams from the Polymet Project for hundreds or thousands of years. But what is the present value of this cost to perpetually treat acid mine drainage? This cost has not been quantified or included in a cost/benefit analysis.	SE3
137	Impacts to natural resources will disproportionately affect the Tribes, due to their subsistence consumption of rice, fish and other wildlife within the 1854 Ceded Territory. This is an environmental-justice issue covered under Executive Order 12898, which specifically identifies issued to be addressed regarding Native American Populations. It is inappropriate to conduct anything less than complete analysis of this issue, given the history of the environmental-justice issues raised by mining projects:	SE2
138	The DEIS is thus deficient because it has not presented a full cost/benefit analysis of the Polymet Project.	SE3

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Comment ID	Comment Text	Theme Codes
139	NMW hereby incorporates and repeats the conclusion offered earlier ("Other Major Issues … Economic Aspects). Conclusion: The final EIS should include adverse economic and social impacts of the project and benefits of the no action alternative, considering the following: Information on Minnesota's mining industry, including historical and reasonably predicted cyclical "boom and bust" cycles; Analysis of the regional economy's reliance on perceived environmental amenities, including property values, tourism, recreation, and industries such as health and finance which may be located based on residential choices; Analysis of the adverse economic and social impacts of population and payroll loss when mining activities stall or cease, or resulting from mechanization, including impacts on unemployment, demand for social services, and tax revenues to fund social services; and Analysis of the price structure needed to support opening of the PolyMet mine and processing facility, sustaining operations, and supporting closure and post-closure treatment and reclamation, including the potential economic risk that unfunded pollution costs would become a burden on communities or taxpayers.	SE3,SE4
140	Because the nature and magnitude of construction and operation activities are different, the effects of these activities on the communities would differ. For instance, it is assumed that a greater percentage of local labor would be used during the operations phase than during construction. These differences are reflected in the IMPLAN calculated multiplier for the two phases of the Project. The impacts have been insufficiently addressed. PolyMet has failed to acknowledge or to account for the negative impacts associated with the loss of natural features that will occur as a result of the Project. In keeping with current ecological economic models, the indirect use values, option values, and nonuse values have not been addressed. NMW notes that the recent report by Dr. Thomas Powers entitled "The Economic Role of Metal Mining in Minnesota: Past, Present, and Future," addresses some of the impacts that are inadequately covered in the present draft. Conclusion: Dr. Powers' discussion of impacts should be used in developing this section for the DEIS.	EOO
141	As discussed in Section 4.8.3, the Project area overlaps the 1854 Ceded Territory, where certain tribal communities retain rights to hunt, fish, and gather on public lands. Although 2.1% of the population in St. Louis County is Native American, few members of these tribal communities live in the immediate vicinity of the Project. Conclusion: NMW recognizes the issue of Environmental Justice between the Project and Tribal communities. Further discussion of tribal use of Project area resources is provided in Section 4.8. Executive Order 12898 specifically identifies issues to be addressed regarding Native American Populations. Tribal representatives view themselves as uniquely and disproportionately impacted by mining activities in the 1854 Ceded Territory and disagree on a number of conclusions within the DEIS	SE2
142	According to the DEIS, the nearest potential visual receptors to the Mine Site are located approximately six miles to the east along Lake County Road 2 within the incorporated limits of the City of Babbitt, with the City of Hoyt Lakes is approximately nine miles to the southwest of the Mine Site. Conclusion: The DEIS's use of a few limited visual receptors to assess PolyMet-related visual impacts is not adequate. The DEIS fails to address visual impacts to any other publicly accessible area in the vicinity of the proposed project. A complete VIA has not been included in this iteration of the PDEIS. A complete VIA would allow the public to review the impacts of project features to all publicly accessible lands in the vicinity of the project which include large sections of the Superior National Forest immediately adjacent to the mine site. Further, a VIA of all public access lands is important information for assessing cultural impacts to tribes who have retained the right to hunt, fish and gather on national forest lands.	VI1
143	The primary issues related to visual resources, and therefore the potential for impacts, would include: The ultimate appearance of the Project at full reclamation versus current and interim stages of active mining. In the absence of a full VIS, this document does not estimate the degree of disturbance to tribal members who may be involved in traditional natural resource harvests on national forest lands. The Project would increase the scale of disturbance in the region; however, mining activity is a long-established aspect of the Iron Range landscape and the addition of the proposed mining facilities would not introduce visual elements to surrounding viewpoints that are in stark contrast to the regional visual character. Conclusion: In the absence of a full VIA, this document does not present enough information to make the claims it does regarding visual impact criteria.	VI1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
144	According to the DEIS, the Project, as proposed, would be visually secluded from the surrounding area by the Giants Range formation and surrounding vegetation such that it would not influence the surrounding landscape. In addition, implementation of the above referenced mitigation measure (i.e., shielded lighting) would minimize impacts to the night sky. Therefore, there would be no long-term impacts during the Project life and Post-Closure relative to Visual Resources and no cumulative effects analysis would be warranted. Conclusion: The VIA is insufficient and does not fully address cumulative impacts. A cumulative impact of visual impacts analysis is needed. Moreover, a thorough VIA following past Army Corps practices has not been conducted for this project and tribal consultation regarding cultural impacts has not been completed.	VI1
145	However, it appears that the potential stability of the tailings in cell 2W is not known: “Review of proposed Hydrometallurgical Residue Facility preliminary designs indicate it would have reasonable liner integrity and stability of embankments, however it is unknown if the slimes layer exists under the facility.” (DEIS, p. 4.13-2 (internal citations omitted)) If the slime layers are present under cell 2W, as would be expected, then this poses a risk to the integrity of the hydrometallurgical cells during an earthquake event. The long-term integrity of both the flotation and hydrometallurgical tailings storage facilities is necessary to protect water quality. But significant questions still need to be addressed regarding the long-term vulnerability of the waste storage facilities to seismic events. Further, in addition to the significant outstanding issues with the tailings storage facilities, there is similar concern for the waste rock piles. Analysis of a number of critical questions are not being conducted as a part of the DEIS. For example, while “[p]roposed heights and slope angles in the preliminary waste rock stockpile designs are within typical mine engineering practice, however a slope stability assessment has not been completed. Further design and analysis would occur during permitting to ensure that the proposed construction meets acceptable design standards.” (DEIS, p. 4.13-2) The DEIS makes this point explicitly, explaining that “[g]eotechnical stability will be further analyzed during permitting when final facility designs will be available.” (DEIS, p. 4.13-1) But geotechnical stability is too important an issue to leave for analysis until after the mine has been permitted. This is an issue that must be addressed in the DEIS, and is a major flaw of the DEIS. This concern has been echoed by the tribal cooperating agencies: “given the lack of confidence in the structural integrity of ... (liquefaction at the plan site, stockpile liner systems stability, stockpile heights and slope angles, tailings basin stability, dam break analysis) ... a risk assessment must be conducted prior to permitting and the results included in the DEIS so that the public can be fully informed about the risks associated with this project.” (DEIS, p. 4.13-2) NMW strongly concurs with the above conclusion of the tribal cooperating agencies. As discussed, these stability issues should be thoroughly investigated and the issues resolved as a part of the DEIS process. Conclusion: Geotechnical stability is too important an issue to leave for analysis after the mine has been permitted. These stability issues should be thoroughly investigated and the issues resolved as a part of the DEIS process.	EOO,GT1
146	Conclusion: NMW contends that this approach is not consistent with the federal EIS process. The EIS must identify alternatives and mitigation methods that address potential problems with the project. Sufficient data must be collected so that a complete structural integrity analysis can be performed and included in the DEIS.	GT1
147	According to the DEIS, increased rock buttressing designs prepared for the northern outer embankment side slope of the existing LTVSMC Cell 2E tailings embankment would increase the geotechnical stability of the NorthMet Tailings Basin to within an acceptable margin of safety. Further investigations, design, and analysis would occur during permitting to ensure that construction meets acceptable design standards, including: criteria regarding material characteristics and properties, disposal systems and methods, investigation techniques, facility analysis and design, hydrologic/hydraulic procedures, construction objectives and inspection, performance evaluation and redesign considerations to insure geotechnical stability and satisfy the geochemical and other water quality objectives for the project. Conclusion: A complete geotechnical stability analysis must be conducted prior to permitting and must be included in the DEIS.	GT1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
148	According to the DEIS, if stockpile slope stability concerns are identified during permitting, then mitigation measures (e.g., reduced heights, bench widths to reduce side slope angles) would be analyzed and any increased impact on wetlands would be assessed. Conclusion: This recommendation is unacceptable and violates the intent of the EIS. The purpose of an EIS is to identify mitigation measures that address potential problems in the project. The analysis described in the previous paragraph must be conducted prior to permitting and included in the DEIS.	GT1
149	Should the Tailings Basin Alternative be the design evaluated in permitting, and the predicted stability is determined to be insufficient through further analysis, additional mitigation measures such as further increasing the rock buttress and dewatering of LTVSMC tailings slimes layer (e.g. using sand drains), would be evaluated. Conclusion: Due to the failure of the applicant to address any of the potential geostability impacts, it is the position of NMW that the applicant must address measures to assure the structural integrity of the tailings basin, provide a dam break analysis, and conduct a risk assessment prior to permitting. These results must be included in the DEIS so that the public can be fully informed about the risks associated with this project.	GT1
150	The methodologies recommended in the CEQ guidance document were used by the USEPA in their Protocol to Assess Expanded Cumulative Effects on Native Americans (2007). Therefore, the 1997 CEQ guidance document was used in this DEIS to assess the potential cumulative impacts of the proposed NorthMet Project in combination with other past, present, and reasonably foreseeable future actions. The geographic scope of analysis varies dependent upon the resource under discussion (e.g., water resources, air quality, and uniquely-affected communities). The specific geographic scope for each resource is further discussed within the appropriate subsection of this analysis. Conclusion: While the protocol is mentioned in this section, none of the expanded data collection or analysis that the protocol recommends was done. Therefore the cumulative impact section is incomplete and does not properly assess cumulative effects of the proposed project on natural and cultural resources.	G8C
151	Climate Change implications of the proposed project. The project would disturb extensive areas of peat. (Section 4.2) Peat is known to be an important carbon sink. Wetlands in general are recognized as important carbon sinks and areas where wildlife will seek refuge as the climate warms.	AQ3
152	Cumulative impacts to wild rice. Wild rice is a valuable tribal resource that has been declining throughout the 1854 ceded territory. Mine effluent is often associated with levels of sulfate that has impacted wild rice and hydrologic changes from pit dewatering and seepage from tailings basins can also impact wild rice, which is dependent upon a relatively stable hydrologic regime. The cumulative impacts to wild rice have not been assessed.	WR5A,G3,CR1,CR4
153	Cumulative impacts to plant and animal species that are not listed as threatened or endangered. The focus of the EIS on listed species is understandable but other species that are important to tribal and non-tribal members would likely be impacted by mining projects. Moose, for example, are likely to be impacted through disturbance along the few wildlife corridors remaining along the Mesabi range and through wetland impacts of this project. At a time when moose populations in Minnesota are declining, this analysis is particularly important and should be done as part of this EIS.	WI5
154	The Cumulative effects of noise and vibration. These issues have not been analyzed although they were raised by the public during scoping.	N3
155	The Cumulative risk analysis of transportation of hazardous materials. This issue has not been analyzed.	HM3
156	The cumulative effects on fish and macroinvertebrates. This discussion is limited to sulfate and mercury. Cumulative effects of habitat degradation on the fisheries of the region have not been discussed.	FM3
157	For those resource areas not identified in this section, no cumulative effects were identified. Conclusion: A number of significant cumulative effects were identified after the scoping period and must be made a part of the cumulative impacts analysis and incorporated into the DEIS. These impacts include cumulative effects to groundwater, vegetation (other than threatened and endangered species), visual and noise effects, hazardous materials, and cultural resources.	G8C

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
158	Conclusion: Some mine features (e.g., pit lakes) would become permanent features of the landscape. Therefore post-closure impacts should also be included in the analysis	VI1
159	The DEIS fails to adequately analyze cumulative impacts to either the Partridge or Embarrass Rivers. Further, in Colby Lake, the community water supply for the city of Hoyt Lakes, aluminum, iron, copper, and mercury concentrations already exceed Minnesota Water Quality Standards (“WQS”). The existing large number of water-quality exceedances and the suite of constituents, particularly trace metals that exceed WQS, indicate that the site has not been remediated from previous mining activities. Additionally, amphibole or asbestos-like mineral fibers, known to cause digestive tract cancers in high concentrations, have been identified as existing pollutants in the Hoyt Lakes community water supply and their presence should be identified in the DEIS. Conclusion: Related cumulative-impacts issues such as groundwater drawdown or mounding due to multiple mine projects, water quality in aquifers impacted by previous and existing other mine projects, and surface waters such as the Partridge and Embarrass Rivers and Second Creek that are impacted by multiple mines need further analysis.	WR5A
160	Conclusion: A complete, rewritten wetlands section is required. Cumulative impacts also need to be addressed once the wetlands section is complete.	EOO
161	Conclusion: NMW notes that the applicant has incorrectly estimated cumulative impacts on wildlife. NMW is concerned that the analysis in the resource section has not been carried forward to the cumulative impacts section.	WI5
162	According to the DEIS, the Project, when combined with past, present, and reasonably foreseeable future actions, would reduce flows in the Upper Partridge River and contribute to an increase in the frequency and duration of low flows in the Lower Partridge River, depending on the timing of other mine dewatering activities, but these effects are not expected to be significant. (Section 4.1) Conclusion: As detailed in section 4.1, the available data and analysis is insufficient to make this claim. This cumulative impact analysis is thus incomplete.	WR5A
163	According to the DEIS, the Project, when combined with present and reasonably foreseeable future actions, would degrade water quality in the Partridge River, but would still comply with all surface water standards. These activities are predicted to increase average sulfate concentrations in the Embarrass River, which would attenuate as it flows downstream through the Embarrass chain of lakes. The increased sulfate levels could increase mercury methylation in the wetlands north of the Tailings Basin and downstream in the Embarrass River, (if sulfate is still a limiting factor), and therefore have a cumulative effect on downstream lakes already on the 303(d) list. The Tailings Basin Alternative options would redirect the seepage away from the Embarrass River and not contribute to a cumulative effect on downstream lakes already on the 303(d) list. (Section 4.1) Cumulative effects on the Embarrass River could be perpetual. Conclusion: The applicant is also obligated to assure that wild rice harvesting remains viable in this area.	WR5A
164	All of these impacts would combine to impair wildlife accessibility, although it should be noted that some impairments would still allow wildlife passage, albeit through degraded habitat conditions until completion of habitat reclamation activities. Conclusion: The applicant has failed to provide a complete, empirical cumulative impact assessment in this section.	WI5
165	Conclusion: The applicant's assessment of uniquely affected communities is incorrect. Consultation with Tribal cooperating agencies indicates that the project lands do support wild rice and moose populations. Wild rice grows in the Partridge River and a substantial moose population has been identified in the mine site area by aerial and ground surveys. Therefore, cumulative effects to both wild rice and moose populations must be considered.	WR5C,WI5,G3,CR1,CR2,C
166	IN CONCLUSION, NMW urges that the PolyMet DEIS be withdrawn until the serious omissions and flaws identified above can be corrected. A revised DEIS can then be submitted for an appropriate period of public comment.	G14

Sender Last Name: Grymes **Submission ID:** 2504

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3047	I have spent years enjoying the waters of Northeastern Minnesota. The threat to them that this project poses are frightening at the least. Please do not allow these precious Minnesota resources to be ruined. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	G7
Sender Last Name:	Grzybowski **Submission ID:** 135	
124	I am here because as a small business owner in Hibbing, Minnesota, I feel there's a real need for more jobs and I am strongly pushing to get jobs so that we can get more young people back on the Iron Range. I currently own a small business up there in Hibbing and I would love to have the opportunity to move more of my friends back to the Iron Range and promote business-to-business relationships. That's all I got.	EOO
Sender Last Name:	Guidinger **Submission ID:** 3164	
36	value" of this project is. The natural beauty of the area which brings jobs, gives quality of life and drives the economy here is SUSTAINABLE forever if treated with care. This project not only is finite, but will impact other economic sectors that are sustainable. This is copper mining and there is no example	SE4
3121	Mercury in Water - Relatively high sulfate concentrations in seepage from the Tailings Basin would be released to wetlands north of the Tailings Basin and lakes downstream on the Embarrass River that represent "high risk situations" for mercury methylation. There is some uncertainty as to whether the West Pit overflow would meet the Lake Superior mercury standard, but this impact could be mitigated if it would occur." "Could" be mitigated?! I live in and my family gets their water from this "high risk situation" that only "could" be mitigated! How dare you all. My children and my children's children having a	WR1E,WR4B,WR4C
Sender Last Name:	Gullickson **Submission ID:** 13	
12	Kimberly Gullickson, I'm from Deer River, Minnesota, and I'm a union boilermaker out of Local 647. I've been a union boilermaker for the last two and a half years and something I plan on making a career out of. And I feel that mining has been the backbone of Northern Minnesota for many, many years. I don't understand why we would put a stop to that now. I also feel that putting this project in order would put many families to work, benefit many families, not only families, but our community and the educational systems in the surrounding areas.	EOO
27	I'd just like to say I'd like to see it going because I've been on unemployment for the last two months, and this would really help me out. I just built a house, and I got three kids at home that I need to feed, so I'd really like to see this -- this go through. That's pretty much all I want to say.	EOO
Sender Last Name:	Gustafson **Submission ID:** 2112	
2499	I am a Minnesota citizen and taxpayer. I am totally opposed to the Polymet open pit mining project. We do not need this type of project risking quality of life and natural areas in Minnesota. Mine operators throughout history have taken the profits, provided jobs for a while, and then left the public and taxpayers holding the bag for later pollution and cleanup. This will be no different and we just need to say NO.	EOO,G4A
Sender Last Name:	Hackman **Submission ID:** 2693	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3168	I am continuously amazed that our state, a state which used to to pride itself on being near or on the top of the lists for healthy places to live has allowed itself to drop and drop and drop down those lists. I like to think that we are a state that is concerned about the environment but when these kind of things are even being considered, I'm worried. Will money and greed win??? I hope not. Once the damage is done it will be too late. Here are some of my concerns.	G2

Sender Last Name: Hagan **Submission ID:** 2922

3257	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. The profits and job creation resulting from the proposed mining could never match the expense of monitoring and remediation of water contamination for centuries to come. Nor could they ever justify the inevitable loss of the habitat, food, and recreational resources that your organization seeks to protect. In addition, this issuse is as much about Polymet as it is about the mining projects that will likely follow. Please don't encourage such projects by setting a short-sighted precedent. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers.	G1,G2C,G11
3285	For 15 years, I've worked as an environmental scientist specializing in trace metals pollution in numerous matrices - primarily surface water. Most of my work has been on behalf the State of California. For decades, that State has spent an alarming amount of resources studying and remediating the effects of ongoing mining. Of particular importance is the fact that the majority of this mining occured in the mid- to late-1800s. The profits resulting from the proposed mining could never match the expense of monitoring and remediation for centuries to come. Nor could they ever justify the inevitable loss of the habitat, food, and recreational resources that your organization seeks to protect. Finally, this issuse is as much about Polymet as it is about the mining projects that will likely follow. Please don't encourage such projects by setting a short-sighted precedent.	G2C,G8C,G11

Sender Last Name: Hagenah **Submission ID:** 1531

1862	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. It seems some people with some power are very shortsighted.I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources.These people need to watch Avatar. It's the same thing!!	EOO
1863	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues WON'T be resolved BY THE MONEY HUNGRY MINING COMPANIES!this mine MUST NOT BE approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers.	EOO

Sender Last Name: Hager **Submission ID:** 1201

1316	The Boundary Waters has been a major part of my life. I have grown up canoeing in the Boundary Waters and would like to continue to enjoy its beauty. I was very disturbed and concerned about the current situation with sulfide mining near the wilderness area. If this were to happen, it would be truly catastrophic for the environment, and those of us who enjoy. I ask that you stop this new mining proposal and keep the Boundary Waters clean.	EOO,G11

Sender Last Name: Hairtson **Submission ID:** 1160

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1275	We cannot become another West Virginia! Mining interests have no concern when it comes to the environment. A mine on the steps of our most treasured parks in the state should not be allowed. The record of mining industries is riddled with broken promises and years of clean up and public dollars used to mend those broken promises. People come from across the world to visit our state & its natural resources and environmental treasures. This mine is a bad idea and should not be allowed.	EOO

Sender Last Name: Halas **Submission ID:** 3439

40	Further, the PolyMet NorthMet project will result in total loss of 1,454 acres of federally designated critical habitat for two endangered species known to be in the vicinity of the mine site – the Canada lynx and the gray wolf. Finally, cumulative impacts must address the loss of revenue to the Boundary Waters Canoe Area Wilderness and Superior National Forest tourist industry as part of a sulfide mining district.	WI1,SE4
1314	PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project.	WR2D,GT2
1942	Water quality impacts are a top concern. I cannot understand how it could be considered acceptable to allow for up to 2,000 years of environmental impact for the short term gain of one company. Who will pay for the long term treatment required? PolyMet has few assets and little financial history. The DEIS fails to address where the funding will come from to pay for post-closure treatment, monitoring and maintenance. As a result, it seems likely that Minnesota taxpayers may have to pay millions of dollars to clean up after PolyMet has gone. It is grossly irresponsible to, in all likelihood, leave future generations with a massive cleanup debt in exchange for immediate benefit to a private company. In addition, the DEIS predicts that contaminated waters will be discharged from the mine site into the Partridge River after the mine's closure, as well as tailings basin discharges high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes.	EOO,WR3I,PD2,FM1,FM4

Sender Last Name: Halbach **Submission ID:** 3306

1054	The NorthMet project will have contaminated discharge from waste rock piles, there will be contamination from the west pit, water discharge will be high in sulfate, there isn't a reliable wetland water treatment plan, there will be a loss of critical wildlife, and will have a negative affect on ecotourism. Please reconsider the project.	EOO,WI2,WE6,SE4

Sender Last Name: Hall **Submission ID:** 3652

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	I strongly support Polymet's proposed NorthMet project in St. Louis County. Given the extensive evaluation in the DEIS, it is clear the project can proceed in an environmentally safe and sound manner. Any environmental concerns have been, or will be addressed in the EIS, including public input. It is clear that the regulations governing non ferrous mining in Minnesota are some of the most stringent in the world, and will ensure the project proceeds in an environmentally sound fashion. Misleading concerns have been raised. One example is the proximity of the project to the BWCA even though it is miles away and in a separate water shed. Such concerns should be treated as not applicable. The country is in the midst of the most serious economic downturn since the Great Depression. Northern Minnesota has been hit hard. It seems out of state interests have little consideration for the economic well being of Minnesotans. An economic development such as NorthMet would have a strong positive impact on the region and the state. Development of the non ferrous resources in the Duluth Complex would provide an economic base in addition to iron mining, for perhaps more than the next100 years. This would diversify and could help the regional economy during fluctuations in the ferrous industries. Other examples of the positive economic impact from development of the NorthMet Project are: . It would improve our trade deficit, with many countries. . The country would no longer be dependent on importing elements such as nickel for stainless steel, copper for transmitting power from wind turbines, platinum for catalytic converters etc. . It would provide greater employment, add to income tax revenues, and relieve some of Minnesota's burden from social programs such as un-employment benefits. . The project is expected to generate 400 jobs, including high paying technical jobs rather than minimum wage employment. . Increased tax revenues would help address the state's current budget deficit, and possibly present the opportunity to decrease income tax. . Royalty revenues to the Minnesota school system, would provide for better education without increasing the tax burden on Minnesotan's. . The money generated would be new money, not just the recycling of existing dollars. . The spin off economic benefits would impact the entire region, including suppliers and services, not just the mining industry. Positive environmental impacts would be: . Fewer greenhouse gases would be created by not having to transport (import) materials from other parts of globe. . Mineral development done domestically would be done in a safe and environmentally responsible manner. Alternatively, the copper, nickel etc. that we consume, would be mined in other jurisdictions, without the same environmental checks and balances, then transported here. The result may well be the un-checked release of pollutants into the atmosphere only to be deposited back here in the USA. . The project as proposed would ensure the rehabilitation of the site to an environmentally suitable condition. . The location is largely within an already disturbed mine site, minimizing the impact on existing forests. The EIS exercise demonstrates the NorthMet project can be done in an environmentally sound manner. The country needs the metals and materials this development would produce. The country would be better off if we did not need to import these materials. In addition, Minnesota needs the highly skilled, well paying jobs the project would provide, and the tax and royalty revenues. That being the case, the project should proceed without unnecessary delay.	EOO

Sender Last Name: Halvorson **Submission ID:** 1556

1909	My name is Charles Halvorson and I am a long-time visitor to the BWCA. I am concerned about the PolyMet project because I do not believe that this corporation is principally concerned with protecting and maintaining the wonderful natural resource that we have in the Boundary Waters. PolyMet has made statements to the effect of protecting against environmental degradation but they are a profitdriven corporation and inevitably there will come a conflict between the bottom line and environmental preservation. The Friends of the Boundary Waters assessment indicates the the risks of the PolyMet mine will be present for 2,000 years. There will be degradation in that time period - surely sooner rather than later. If you vote to approve this process, you are permitting this degradation. There is no other way to construct your culpability. Hiding behind the rhetoric of the PolyMet corporation, placing blind faith in that corporation's claims, is an act of willful ignorance, you are underestimating your own intelligence and you are doing it to serve the interests of the few.	EOO,G8B,G11

Sender Last Name: Hammer **Submission ID:** 3653

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	I grew up in Minnesota (although I now live in Montana) and am a property owner in Lake County. I am also an environmental scientist. I do not oppose the mine and I recognize the desire for jobs in this economy. However, I urge you to review my comments and also to pay special attention to the very pertinent comments submitted by the Cooperating Tribes. I would like to highlight two of these concerns: 1) Liners; and 2) Financial assurances.	G15
2	1) Lack of Required Liners The proposed action is located near the Partridge River and in a wetland area. These are sensitive ecosystems. I am concerned about the potential impacts of this mine on the river and wetland ecology. I am particularly concerned that the Minnesota Department of Natural Resources and the US Army Corps of Engineers would consider allowing a project of this magnitude to proceed without requiring that the tailings basin, ore pads, or pits be lined. This is a reasonable and prudent best management practice.	WE3
3	2) Need to require financial assurances from the Company The proposed project is large and potentially very profitable. It is standard practice to require financial assurances before an undertaking like this is permitted. Minnesota should protect its resources --- and its taxpayers – by requiring financial assurances from the Company. Otherwise, if something does go wrong, Minnesota, and possibly US taxpayers will be left footing the bill as has happened at so many other abandoned mine land cleanups across the	PD4

Sender Last Name: Hancock **Submission ID:** 1268

1445	I am writing you to request your help in a matter urgent to our environmental safety as Minnesotans. The Boundary Waters, the largest wilderness area east of the Rocky Mountains (over 2 million acres), is under threat from a foreign miming company. PolyMet, a Canadian mining company, intends to commence exploratory sulfide mining for precious minerals in the bedrock underneath a crucial section of the Boundary Waters where the contaminated waste water would actually cycle back into the Boundary Waters miles from the source of contamination. The Kawishiwi River forms Birch Lake near the site of the proposed sulfide mine, then flows back into the wilderness area affecting large portions of the rest of the wilderness area. In a sense, the contamination at this single point could contaminate vast stretches of the Boundary Waters Wilderness Area. The process of sulfide mining produces acids and heavy metal runoff that are unlikely to be contained in any sufficient manner. These toxins threaten to affect all forms of life that seek refuge in the pristine wilderness, including sport fish, birds of prey, loons, aquatic plants and invertebrates, and even higher mammals, including humans. Sulfide mining is NOT just another form of mining. Unlike iron, which can be extracted from the earth with very little toxic by product, the mining of ores like copper require some nasty compounds that will continue to leech into the watershed long after the copper is no longer "profitably extractable." The Boundary Waters are our State's pride and we cannot afford the catastrophe that is unfolding. There will be no going back, we cannot dismantle the damage that will be done. We will be left to explain to future generations why we allowed a single company to destroy the land that has remained pure for thousands of years. The Boundary Waters are the homeland of the Ojibwe, they are the biggest canoe destination in the world, and the Boundary Waters are the pristine home to an entire, unique ecosystem. We would be destroying the most pure and beautiful thing in our state for the shortsighted profit on a non-renewable resource. I have a personal tie to the Boundary Waters as well. I work for Outward Bound, teaching students life skills like leadership, selfsufficiency, and communication. The Boundary Waters are my classroom. If fear we will no longer be able to drink from many of the lakes within the Boundary Waters and therefore I will no longer be able to teach in the BWCA giving these students life changing experiences. Please use your voice to speak out against this proposed PolyMet mine. This is a decision whose affects (either way) will be felt for generations to come. I just hope that 150 years from now people will be remarking on the foresight we had to protect such a gem, not heartbrokenly observing a toxic wasteland.	EOO,G2C,G7A,G11

Sender Last Name: Hannah **Submission ID:** 3202

3538	I believe that PolyMet should not be allowed to develop this land. There work could potentaly harm the environment and cause pollution and damage.	EOO,G2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Hannig **Submission ID:** 1173	
1288	I am writing this comment to express my disapproval for the sulfite mining propositions in Northeastern Minnesota. The boundary waters preservation area presents an incredible opportunity for education, relaxation, personal growth & sustainability in the local economy. There is overwhelming evidence that the introduction of a sulfite mine would cause disastrous consequences on the pristine environment that past generations have worked so hard to maintain; dismissing their efforts to allow for temporary gain from sulfite mining would be a disgrace not only to our past but to our future as well.	EOO,G11
Sender Last Name:	Hansen **Submission ID:** 2182	
1808	Water and air quality monitoring—The MPCA and USEPA have been understaffed and underfunded in recent years. A project of this scope with untested and unproven processes would require substantial, consistent monitoring to ensure the watersheds are not being polluted. The DEIS enumerates several anticipated water quality concerns for the immediate area surface water, groundwater, wetlands and the greater St. Louis River Watershed (which empties in to Lake Superior) both during the mine operation and after closure. In addition to monitoring there needs to be public access to monitoring data.	WR1A,AQ5
2002	Long-term financial guarantees—Mining projects similar in scope to this project have left enormous economic burdens on the surrounding communities resulting from environmental degradation and social impacts, especially after closure of active mining. Polymet talks of long-term jobs being for 20-years. In the life of a community that is very short-term. Our communities are suffering enormous financial burdens that are peaking now due in part to the closing of iron mines over 20 years ago and the resulting loss of families raising children in our area. The mining companies involved must be required to put sufficient funds into escrow for both environmental and social impacts. These companies who have no local ties must be held accountable for their impact as they reap what must surly be enormous financial gains to warrant the level of investment shown in just the exploratory phase of the project.	PD4,G1
2587	I have lived in Ely, Minnesota for over 20 years and would like to express my concern about the proposed Polymet mining project in northern Minnesota. As a parent of two school aged children, I understand the need for jobs in the area and thus more children in our schools. However, I also understand the costs to our environment and lifestyle if the permitting process goes through quickly without high environmental standards. I will take small schools and fewer jobs over long term environmental concerns. I ask you to take your time with your decision and consider looking more closely at how to effectively Minnesota can maintain high environmental standards for the Polymet project and future mining proposals. There are several critical concerns not addressed by the Draft Environmental Impact Statement. If this project is allowed to go forward, my primary concerns are as follows:	G1,G8
2588	History of environmental degradation resulting from similar mining—several states have a moratorium in place on this type of mining because it has resulted in such horrendous environmental degradation everywhere it has been tried. Wet environments are far more impacted by the release of sulfur and mercury than dry environments. Polymet claims they have a new procedure that will limit the environmental impact. Is one of the last great freshwater systems in the world the best place to test this new science? The reality is we use the products made from these ores and we should ensure the mining is done safely. The DEIS indicates more needs to be required of Polymet to ensure that the mining will be done safely for the people, plants, animals and environment both during the active mining period and well in to the future.	G2,G12
3169	Please do everything you can to keep our beautiiful boundary waters area free of anything that will pollute the soil, air or water. Take no action that will damage that area in ANY way!	G2,G7

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3916	As a sportsman in NE Minnesota, I am naturally concerned about the environment and how its air, land and waters are being affected by the industry in this area. As a resident of NE Minnesota, I am also concerned about our economic conditions and the creation of new jobs. I welcome Polymet Mining's NorthMet Project to our area. The jobs it will create and the economic benefit created by these new jobs will have a positive effect on Minnesota's and the Arrowhead region's economy. I have faith that the environmental guidelines put into effect by the US and state governments will be met by Polymet. I believe that the impact to the air and waters will be minimal if any at all. And I believe that Polymet has shown that it will follow Minnesota's environmental guidelines. Polymet will provide us with a local supply of raw materials used by 'green' manufacturing for electric cars, catalytic converters, the medical industry and more. Some foreign suppliers do not necessarily follow the environmental practices followed in the United States. I support Polymet Mining's NorthMet Project and welcome their presence in NE Minnesota. Sincerely, Eric	EOO

Sender Last Name: Hanson **Submission ID:** 152

143	And I support the PolyMet Project. And I'm glad to see that they have spent a lot of time and money to do their environmental review. We definitely need good paying jobs up north. And I like to see that we are doing these jobs locally, you know. We're not going overseas where they don't have the environmental controls that we have here. That's about it. Thank you.	EOO,G6
2616	Pension Benefits. And I have seen the effects of no jobs in northern Minnesota for these guys and for people struggling to keep healthcare for their kids because there is no work out there and I would just love to see some jobs in that area, absolutely love to see it. Actually, my husband has been following PolyMet since I think day one. I wasn't really interested in the first part but now he has got me going on it, too. It just sounds like they are doing everything right. I just can't imagine why we shouldn't have it there. It sounds like a great company. It sounds like they have done their research and we need the jobs and I think it is time we go with it.	EOO
3242	I am concerned about the impact on fish and wildlife of the proposed PolyMet Mine in Superior National Forest and urge you to better analyze the proposed mine. I own a 40 acre historic Finnish immigrant homestead in the Superior National Forest on Little Creek Road in Brimson, Minnesota. My property is included in PolyNet's mine site. I do own the mineral rights to my 40 acres which puts me in a very precarious position.	G2C
3258	River. This is a positive benefit. However, we cannot forget that the root worry is the relatively high sulfate concentrations in the seepage. We MUST avoid the end result of a "Cumulative increase in sulfate loadings to the Partridge, Embarrass and St. Louis River." It is well known that the sulfate in mine seepage is essentially the cause of the Acid Mine Drainage (AMD) that we must avoid at all costs. So, discharging this sulfate laden seepage water into the Partridge River raises a critical concern: this discharge could cause AMD in that watershed. Water with relatively high sulfate concentrations should NOT be discharged into any of our natural rivers due to the real risk of AMD. The Partridge River (if it is healthy) contains oxygen, which would react with the sulfate seepage to produce acidic conditions in the river. It would be disastrous to avoid one problem (the creation of methyl-mercury) by creating another (sulfuric acid in the Partridge River). The suggested demonstration testing of a PRB or a constructed wetland at a location north of the Tailings Basin is good, but not good enough. A commitment should be made to treat nearly all of the seepage flow with a passive PRB, bioreactor with SBR and/or constructed wetland. The testing could determine which is the best alternative and location for treatment. But these relatively high sulfate concentrations in the seepage water must be treated to avoid AMD. The same treatment could also be used for the West Mine Pit outflow thereby eliminating the uncertainty of AMD resulting from this outflow. Polymet must be required to avoid both methyl mercury and AMD contamination from their operation in all of the related watersheds. Otherwise, the mining should not be done.	WR4F,WR5A,WE8

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Comment ID	Comment Text	Theme Codes
3588	precious natural landscape and water resources--and potentially expensive for the state. The type of pollution created from this type of mining (acid mine drainage) has disastrous consequences. Other states have learned the consequences the hard way. Let's learn from their mistakes. Upon review of the Draft Environmental Impact Statement for this project, I find Polymet's pollution prevention and reclamation plans dismal. This project needs to be looked at with great concern and diligence. More separation is needed between the stockpiles and overburden areas and the surrounding water resources. This area is also vulnerable to invasion by non-native plant species, which occur within miles of the project. This area of the state is one of the few that is not completely overrun with invasives. More provisions for the use of native plants and the prevention of colonization by invasives is needed in the EIS. More project alternatives need to be explored. Polymet, which by the way, is a foreign company who will likely bring in many of their own labor instead of creating jobs in the state, will not be able to stop all of the pollution as a result of this project. I urge you to help put financial assurances in place to ensure that Polymet will pay (UP FRONT) for any negative environmental consequences of this project and for increased monitoring many years after the project is proposed to end. The cost of monitoring and cleaning up after a project like this ranges in the tens of millions and is not something that the state can --or should-- pay for. I urge you, please to not let this project compromise our state's unique natural treasures and deprive the state's citizens of the healthy natural	EOO,WR1E,WR3A,PD3,PD
Sender Last Name:	Hanson, Hanson **Submission ID:** 3702	
1	I did not find within the summary any indication of what process and standards are being used by the MnDNR and the ACE to prepare this DEIS. They do discuss the areas considered but it is difficult to know who they consulted on what area. Further, use of technical terms such as beneficiation plant, hydrometallurgical plant. Class 1 areas PM 10 increment are technical terms which make specific responses from the population difficult. The use of such terms makes the document appear so technical that it discourages people from making comments on the document and decision. This is in conflict with the purpose of solicitation of comments from the public.	EOO,PRO1,PRO6,G10
1	I also find that to be poor utilization of tax dollars and staff time to have 2 DEIS prepared. On other actions I have been involved with, I am aware of the MnDNR has not been forthcoming with what standards they are using for the preparation of Environmental Impact Statements. They have appeared to rush through the process in order to effect the result they wish to occur. In those other actions, one branch of the MnDNR, has not consulted with other branches of the MnDNR that have knowledge that would be important to consider. I see no evidence that other branches of the MDNR have been consulted on such issues as water quality, contamination of aquifers, amount of water use, reuse of water, air pollution, etc.	G10
2	The importance of evaluating the impact of additional sulfate on these down stream aquatic systems is underscored by the acceptance for peer review by the Minnesota Legislative Commission Minnesota Resources (LCMR), of a research proposal to study sulfates and mercury methylation in the estuary in the summer of 2010. This proposal, 028- A3, Mineland Sulfate Release in Saint Louis River basin has been accepted for peer review. The expected Result: "A series of recommendations and supporting documents that state agencies, decision makers and other stake holders can rely on to help manage sulfate releases to the St. Louis river". The DEIS and any permits relating to sulfates will be completely inadequate until that study is complete. (10)Will permits be issued before that study is completed?	RFI

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Comment ID	Comment Text	Theme Codes
3	When we leave the area of influence of the Iron Range mines, from river mile 100 on down, the sulfate concentration gradually diminishes, due to bacterial reduction and dilution and probably other factors. At the mouth of the river in the St Louis River Estuary, it has been diminished enough so that a few remnant stands of wild rice appear after a 150 mile absence. According to Jerome Blazevic, a life long trapper in the estuary, the wild rice stands have gone from being the best in the whole area to just surviving in some bays and completely gone in others. The estuary wild rice crop is failing and the Fond du Lac Band, along with the Wisconsin and Minnesota DNR, have been trying for the last decade to restore it to its original vigor. So far they have had limited success. The sulfate standard for Class 4A water bodies of 10mg/L is sometimes exceeded in the estuary in modem times but is not exceeded in Pokegama Bay which is isolated from St Louis River water. Pokegama Bay has the only highly productive wild rice bed left in the estuary. The Schedule of Compliance, dated November 2007, between United States Steel Corporation and the Minnesota Pollution Control Agency, suggests appropriate boundaries for a detailed investigation and analysis in the PolyMet environmental review process. That Schedule stipulates that U.S. Steel shall model sulfate concentrations in the St Louis River and that "Modeling shall be done to the St Louis Bay." (21)Since the St Louis Bay is the site of well-documented decline in wild rice production, it only makes sense that PolyMet, the biggest sulfate generator proposed for this watershed, must be required to model cumulative sulfate impacts all the way to the Bay. Will that be done in the EIS?	WR5A,WR5C
4	The remnant stands of wild rice in the Partridge, Embarrass and St Louis Rivers must be protected with enforcement of the Minnesota Wild Rice Standard. Detailed investigation correlating wild rice conditions with sulfate concentrations and modeling impacts of the PolyMet project on wild rice throughout the entire chain to Lake Superior must be included in the draft EIS. Anything less would be a betrayal of the rights of Minnesota citizens and tribes who harvest and eat this valued wild grain and the waterfowl that depend on it. Minnesota Rules, part 7050.0224 subpart 2, addresses water quality as it relates to wild rice as follows: Sulfates 10 mg/L, applicable to water used for production of wild rice during periods when the rice may be susceptible to damage by high sulfates. The Lands and Minerals Division of the MnDNR, along with PolyMet, appear to have used a "boogey man" known as perpetual treatment to dissuade themselves from meeting the State Wild Rice Sulfate Standard. Instead of living up to State Standards, as you and I always have to do, they have developed a convenient but illegal strategy to try to bypass the standard. One of several examples will illustrate this strategy. On page 3-61 of the DEIS we read in table 32-3 Screening of NorthMet Individual Mitigation Measure Combinations, that combination C-1, which includes Water Treatment(long term), meets the purpose, is technologically feasible, and economically feasible but is judged regulatorily not feasible. No other rational was given to reject the only viable option for reducing sulfate sufficiently to meet the Wild Rice Standard, except that it "would require long-term treatment." This is basically perpetual treatment. There is no defining of the statutory basis for the supposed lack of regulatory feasibility. What we have instead is a vague Minnesota goal of maintenance free closure, which is, of course, a recipe for disaster in a project this large, this dirty and this wet. This vague goal trumps good science and the State Wild Rice Water Quality Standard. (22) The EIS must address this dichotomy straight up with clear definition of "Regulatorily feasible" and the goal of maintenance free closure, and how they intend to get around the problem of meeting the Wild Rice Standard of 10 mg/L without long term Waste Water Treatment.	WR4C,WR4F

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Comment ID	Comment Text	Theme Codes
5	The Wild Rice Standard has gone through the proper public Rule Making process and is a Minnesota Water Quality Standard that would require a Use Attainability Analysis or a Rule Change process to avoid compliance. No mention of either process has been mentioned to date. Therefore, the EIS must outline mitigation strategies wherever there is the likelihood of violating the 10 mg/L Standard in the Partridge, Embarrass or St Louis Rivers. The MPCA has used the sulfate standard in past permitting activities (MINNTAC Schedule of Compliance, 2008) and therefore, anew, untested startup company should be held to the same standard. This EIS has a huge sulfate problem. The contaminated leachate at closure from the PolyMet tailings basin alone is 7,000,000 g/d. If you do the math, you get 3,756,000 pounds of sulfate per year pouring out into our aquatic systems. Whether it is directed to the Embarrass or to the Partridge River, the conclusion is the same. To protect wild rice and avoid unnecessary methylation of mercury, that leachate must be and can be collected and treated.(refer to table 3.2-3 C-1) There are several options for treating leachate from basins and mines sites that must be addressed in more detail. First, is the use of a Permeable Reactive Barrier. Because this is an unproven technology, it needs to be tested immediately on the present leachate. That hasn't been done and the EIS must give some guidance on a timeframe for this testing. Second, is the use of ultrafiltration, as is being done at Minntac. Third, let me quote from page 8 of Environment and Natural Resources Trust Fund, Research Addendum for Peer Review, Michael E. Berndt, Project number 028-A3: "one relatively new method that is receiving recent attention elsewhere (e.g., Park, 2008), but which has not been used on the Iron Range, involves in situ treatment of sulfate in mine pits. This method involves addition of organic carbon and iron to promote biological reduction of sulfate to sulfide and subsequent precipitation as iron-sulfide." This deserves a discussion in the EIS. Finally, as mentioned in the first paragraph of page 4-1-148 of the DEIS, "If determined to be necessary based on actual seepage water quality, the treatment plant would be required." It also mentioned that this provision was not "included in the water quality modeling that was conducted." (23)Why not? That admission alone should be grounds to reject the adequacy of the DEIS. How can the permitters evaluate what would trigger this option without the necessary water quality modeling?	WR4C,WR4F
5	The following question may not please the foreign corporation or the DNR Lands and Minerals Division that are pushing this project. With regards to toxic leachate that exceeds state water quality standards for manganese, aluminum, mercury, arsenic, sulfates and others, it appears we have two choices: 1. Long term treatment, (it could be hundreds or thousands of years, therefore, perpetual treatment) or 2. perpetual pollution. (24)Which will it be?	G7B
6	State, county, township and tribal governments spend millions of dollars each year to control beaver problems. They are not very successful because they will have to do it again next year. This relates to the PolyMet proposal in that they also will have to maintain a complex system of water management. Even though every rural citizen of Northern Minnesota understands the complexities of living with beaver colonies, the writers of the DEIS didn't get it. In this wet environment, the DNR, Army Corp and PolyMet have to explicitly outline what practices will be implemented to kill beavers that dam up flowages and build bank lodges in dikes and ditch banks. Also, the EIS should mention that control of beaver colonies will have to be done in perpetuity. Another beaver problem that was not discussed is the impact the beaver ponds have on mercury methylation and how we can legally control these beaver colonies. On page 424 of the DEIS it says, "There are many beaver dams along the entire length of the Partridge River". I am only familiar with the large dams on the lower Partridge River but I don't doubt they extend all the way to the headwaters and on any small sub-watersheds along the way. If the dams are left intact, the ponds will be methylation hotspots with organic carbon, low oxygen, mercury in sediments, sulfate reducing bacteria and in this river, a surplus of sulfate from mines and tailings basins. In other words, everything that is needed for methylation is present. However, if you decide to blow those dams you will get a rinsing of methylmercury as appeared to have happen on Second Creek. (24) Again, this problem will be around for the next hundred years and needs to be addressed in the EIS.	WR1E,WI2,FM1

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Comment ID	Comment Text	Theme Codes
7	Finally, the beaver impact on wetland treatment operations needs to be addressed. Beaver can find and obstruct even very subtle flows and could tum wetland treatment facilities into a methylation hotspot. At this point, I would like to address the adequacy of the models used in the DEIS, from the perspective of the data that is used as input. I will just address a few inputs in which I have expertise as a biologist. Others will have to judge the validity of the mathematical processes involved. With regard to input there seems to be a consistent weakness that reflects lack of rigor in actual field generated data. It appears that the consultants ran into some sort of shortage of hip boots or maybe mosquito dope. Generating numbers on a map with a computer is easy, field work is hard. My first example will be the black sandshell, Ligumia recta. It's preferred substrate is gravel or firm sand in riffles or raceways. Mussel sampling was done by Heath(2004) and showed only one species, Pyganodon giardis, found in the Partridge River. However, in October of2009, four of us put on our boots and went out to sample on the Partridge River and found Ligumina recta at 47 degrees 29.611' North Latitude and 92 degrees 13.736' West Longitude. That is about 100 meters upstream from the mouth of the Partridge River and on the right side. Why were able to find Ligumia recta in the Partridge River and PolyMet couldn't? We looked in this species natural habitat and they didn't. They should have because Ligumia recta is found in the St Louis River Basin (table 4.5-1 of the DEIS) is a Species of Special Concern in Minnesota. In section 4.5.1.1 of the DEIS we read that the Minnesota Comprehensive Wildlife Conservation Strategy identified Ligumia recta as a Species of Greatest Conservation Need. It is also listed as Nearly Threatened on the IUCN (International Union for Conservation of Natural Resources) Red List. The two Partridge River sampling sites identified in Table 4.5-2 of the DEIS show the only places mussels were sampled. The substrate is primarily silt and boulders. It would be a good place to go if you didn't want to find Ligumia recta. I am not saying that they deliberately sampled the two areas that were most unlikely to produce threatened species, but obviously, the sampling design was inadequate and any conclusions drawn were inadequate. The fault may be twofold. First, is just the simple lack of enough samples. Second, in the context of setting up the design of sampling we read in the RS26 document under 2.1 Method, that Partridge River Rosgen "Level 1 classification was performed based primarily on 2003 aerial photography. That is not adequate to set up the sampling regime for mussels. Two poorly chosen sampling sites missed an important indicator species that could be threatened by this proposal and the alternative proposal. Mussels are sensitive to sulfate levels. Copper sulfate is widely used to kill mussels. When that doesn't work, calcium arsenate does. (25)With all the calcium and arsenic and copper and sulfate leaching out to this mine site, the EIS must address the impacts on Ligumina recta in the Partridge River, or it will be inadequate.	WI2,WI2,FM1,FM2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
8	I have been a science teacher in Cloquet, Minnesota for 40 years. I was able to take my students on hundreds of field trips. We visited, on a regular basis, the plant and animal communities of three North American Biomes, as defined by the National Hierarchial Framework of Ecological Units. (ECOMAP 1993) They are the Eastern Broadleaf Forest, Northern Conifer Forest and only 60 miles to the west, an Oak Savanah Prairie Grassland. The transition zone, which includes all ofthe Iron Range, is called the Laurentian Mixed Forest. To the south and east stretches the Eastern Broadleaf Forest all the way to the Atlantic Ocean. To the north lies the Boreal or Northern Conifer Forest and to the west lies the Prairie Parkland. Biomes are climate dependant. As climatic zones move, biomes move. The climatic underpinnings of our present biomes are shifting to the north. How does climate change relate to the PolyMet proposal? According to a Nancy Schuldt email of 5-8-2008 to tribal, state, federal staff with attachments, the "Federal Court Requires Wildlife Service to Analyze Climate Change Effects during ESA consultations" and "Ninth Circuit Court Requires Climate Change Analysis during NEPA". I fail to find any reference in the DEIS of the interaction of global climate change and movements of biomes, and especially how this proposal impacts wildlife corridors that are necessary for that movement. Let me show you what that analysis should include. Last year Frelich and Reich, from the University of Minnesota, published a paper in Natural Areas Journal. They listed tree species that are likely to disappear from Northern Minnesota because of climate change. These trees were: balsam fir, black spruce, white spruce, jack pine and red pine. The southern edge of the black spruce range could shift 300 miles to the north. What will replace it? In prehistoric times, the Eastern Broadleaf Forest moved north as the Boreal Forest withdrew. We should expect that to happen again. That brings us to the analysis of corridors through which all the thousands of species associated with the Eastern Broadleaf Forest must move if it is going to replace the receding Boreal Forest. Like the popular press, the DEIS addresses corridor impacts for large mammalian species. I don't worry so much about corridors for them. Moose, wolves, cougars and even animals like the opossum have shown that they can move quickly into new habitats and, in fact, can be found in several different biomes. Most of the emphasis in the DEIS corridor impact analysis is on these mobile species. The Emmons and Oliver report commissioned by the Minnesota DNR in 2006 concludes that there may be significant cumulative effects to the mammals they studied. I will show that the DEIS must address the cumulative effects on corridors for organisms that are much less mobile and there many of them. To understand the importance of corridors we need a continental perspective. The bulk of the land in North America east of the Mississippi is the Eastern Broadleaf Forest. To the north of most of that forest lies the Great Lakes. If you measure the width of the Eastern Broadleaf Forest at its northern boundary, you find that about 75% of that boundary is the Great Lakes, which effectively blocks movement of most plants and animals. There only two significant corridors through which most of the plants and animals must migrate if they are to move north. The widest corridor to the north is from Watertown, New York, at the east end of Lake Ontario, to the Atlantic Ocean. That corridor is tremendously impacted and restricted by human activities. The corridor around the west end of the Great Lakes is much smaller but, fortunately, the forest ecosystems are more intact. It extends to the west from Lake Superior for about 200 miles and we call it the Laurentian Mixed Forest. For over 100 miles this important corridor is almost completely obstructed by the Mesabi Range and associated human activities. Therefore, any re	WI2,WI5,AQ3,AQ4B
9	I just happen to know the ecology of the wood turtle from a life time of watching them when I am on those waterways. Also, as a member of the St Louis River Board's Citizen Advisory Committee, I worked with many others, including DNR non-game wildlife personnel, to devise a Management Plan that would protect the wood turtle. It is instructive to look at what the St. Louis River Management Plan has to say. On page 46 under Threatened and endangered species and critical habitat, it says, "Where these species are known to occur, management activities should be evaluated and if necessary, the area placed into a Unique Protection Area. There are some habitat components which provide critical food and cover for wildlife in the watershed. These habitats should be maintained or increased, if possible. They include: 7) Wood turtle habitat." Under Wood turtle Management we read, "Specific management guidelines for the wood turtle include: 2. route roads at least 330 feet (100 meters) from stream channels. Road beds should be vegetated and paved at stream crossings to reduce their attractiveness to nesting females. Protect cutbanks, which are prime nesting areas for wood turtles, by making sure that all stream bank restoration programs and erosion control projects with reaches along the river likely to contain wood turtle nesting habitat are reviewed by DNR Non-game Wildlife Program". (27) These reasonable management strategies must be addressed in the EIS.	WI2

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Comment ID	Comment Text	Theme Codes
10	In Section of I.A., the transportation of ore was cited but there was no indication of how and the rock waste would be transported from the mine to the processing facilities until later in the summary. Since mining is a dusty business at best, it is foreseen that there could be a lot of dust that could be distributed on the trip from the mine to the processing plant regardless of transportation method. It is assumed that the dust would settle on vegetation which would be killed by the sulfuric acid formed when the air and water hit the dust. This spreads the area of contamination over more of the site than spoken of in the DEIS.	PD7
11	In section I.C., it is stated that the MnDNR is the Responsible Governmental Unit (RGU). This is hard to follow since the Forest Service is the holder of surface land. Apparently the State of Minnesota auctioned off the mineral leases at some point. None of this is explained so it is not an easy leap to see how the MnDNR is the RGU. It would have been helpful if (Minnesota Rules, part 4410.4400, subpart 8) had been quoted here. Most citizens do not have ready access to such state rules nor they do they have easy access to the portion of the full document to sort through for the rule. It is unknown if it is cited in the full DEIS. Again this makes the document very difficult to make comments on.	PD1
12	In Section I.D. the Minnesota Pollution Control Agency and the Minnesota Department of Health are not formal players other than reviewing documents apparently. Since the potential for contamination is so great to both surface and groundwater, it is puzzling to me that they are not more involved in both the DEIS and in monitoring the contamination that will result.	G10
13	In II.C. There is some discussion of air quality. For years, the lakes and rivers have received heavy concentrations of acid rain that have been changing the quality of these resources. We need good monitoring of the effects by some one. It does not really address this oversight and who will be responsible for this monitoring of environmental effects.	AQ4D,AQ5
14	In Section III.A. some of the questions that I had noted previously are partially answered but we are left with new questions. On the 5th bullet point Construction and Operate a Tailings Basin. Perhaps some will remember the failure of the Tailings Basin at Lax Lake which allowed many hundreds of tons of tailings to wash out of the Basin and covered thousands of acres of property in addition to covering Highway 61 many feet deep in tailings. The tailings went all the way to Lake Superior. Those tailings, while full of asbestos, were not as destructive as these mine wastes will be to the environment. These mine wastes will need special recovery techniques and the question remains, who will be responsible? This section does not state who will be in charge of seeing that the closure and its monitoring is done. Again in bullet point 7 a lot of technical jargon is used so that it is difficult to tell what is being talked about.	PD3,PD4
15	In Section III.B.1 Proposed Action Description-Mine Site Discussion is held about holding Category 1 and 2 Waste Rock subaqueously. I did not see where the possible contamination of ground water was addressed. The dikes and ditches would capture some of the runoff which would be taken to the WWTF by the CPS. Once again there is a lot of mining jargon so that one cannot make reasoned comments on this action. In the Plant Site section in the last paragraph on page S-8 this area was not noted on Figure S-2. Also in the continuation of the Plant Site section, the second paragraph on page S-9 is full of mining jargon that is difficult to interpret.	PD2,PD5
16	Aside from direct impacts on native plants and plant communities, impacts on water resources need to be addressed further. Hydrologic conditions form the basis of entire ecosystems, and hydrologic forces and characteristics shape entire landscapes. As such, impacts to water resources have a much broader and longer-lasting environmental impact. NorthMet Project Draft EIS does not recommend commensurate actions and/or alternatives to mitigate such serious impacts. The type of mining proposed would leave behind sulfide-containing waste rock and may result in acid mine drainage. Stockpiled material also poses a significant threat to surface water and groundwater, beginning with the Partridge River and the entire St. Louis River Basin. The project would involve direct and indirect impacts to ,...,1,522 acres of wetlands, most of them ranked as high quality. This would be one of the largest wetland impacts in Minnesota history.	WR1E

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
16	While peatlands cover only 3 percent of the Earth's surface, they store 550 gross tons of carbon, which is equivalent to 30 percent of all global soil carbon. The amount of wetlands projected to be impacted by PolyMet does not currently accurately represent the total amount of wetland impacts that would occur. This is due to the fact that no initial area of influence (AOI) on the wetlands was made. This means that wetland impacts to communities such as cedar swamps, northern wet ash swamps, forested rich peatlands, northern alder swamps, and poor fens have not been accurately accounted for. These communities rely on a steady influx of groundwater flow for nutrients and soil moisture. If the hydrology around them is changed, they too will be affected. The Army Corps is developing a work plan to assess impacts to these additional wetlands, but this work plan has not been finalized or implemented. As the PolyMet project currently stands, there would be both direct and indirect impacts to over 1,500 acres of wetland. The destruction of just 1,000 acres of peatland correlates into a 2 percent increase in the total output of carbon dioxide emissions in Minnesota.	WE1,WE2
17	Please do not compromise Minnesota's natural heritage by allowing PolyMet to circumvent their responsibility by minimizing the negative environmental impacts of this project.	G2
17	This project is focused on short-term economic gains and does not adequately address the long-term negative impacts, for which the state and the USFS will ultimately be responsible. Furthermore, the job benefits of this project are unsustainable and short sighted. The natural communities-in the project area also providing habitat for native plants and animals and promote long-term economic tourism benefits, including tourism-related jobs. Minnesotans, as well as people from all over the country, have long been attracted to and enjoyed the relatively unspoiled beauty of northeastern Minnesota, and they will continue to value the integrity of their natural landscapes.	SE3,SE4
18	Polymet's proposal to mine copper, nickel, and platinum group metals in northern Minnesota has global benefits. The 'not in my back yard' mentality does not promote worldwide environmental protection; instead it encourages archaic mining methods in third world countries that don't have the resources to update their methods and government regulations to the high standards the United States demands. Refusing to let mining of essential materials in the United States does not resolve the problem because these materials are needed and used everyday and therefore will be mined regardless of environmental concerns. Mining in the United States ensures that the processes are done in accordance with stringent environmental regulations. A domestic supply offers American companies the opportunity to buy locally, reducing costs and greenhouse gas emissions associated with extensive transport of these materials. These environmental benefits not only affect the United States, but help further worldwide environmental protection. This will also provide jobs in Minnesota. It would be in Minnesota's and the Worlds best interests to suppoli the Polynlet project.	EOO,G1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19	The DEIS uses muddled modeling. The consultants have used reaches of the Partridge and Embarrass Rivers that are already badly polluted by excess sulfate, to evaluate the potential for methylation to occur. If a water body is above about 8 mg/L that is sometimes called the sulfide Max (Technical Memo concerning NorthMet project by Barr Engineering, Dated April 25, 2008) and additional sulfate will have little impact on the rate of methylation. The average concentration of sulfates in the Partridge River at SW-114 has been 10 mg/L for the last 4 years. After closure of PolyMet, it is predicted to go as high as 31.7 mg/L. The average concentration in the Embarrass over the last 4 years at location PM-13 is 36.1 mg/L and could climb to 63.4 mg/L at closure. All of those numbers are above the sulfur Max of 8 mg/L so we would not expect proportional increases in methylation. What they should have modeled would have been impacts of all that sulfate on downstream wetland methylation where the sulfate concentration is below 8 mg/L. Such a place would be the Scanlon Dam in Cloquet at river mile 35, according to the DNR research by Lindgren and Shuldt, published in 2007. The reservoirs and estuary are immediately below the Scanlon Dam and would be water bodies where sulfate is a limiting factor on methylation. (Gilmour et al. 1992; Krabbenhoft et al. 1998). It would not matter whether the excess sulfates came from the Embarrass or the Partridge River; it could stimulate methlylation from the Scanlon Dam on down to Lake Superior. These are waters that are listed by the Minnesota Department of Health for fish consumption advisories for fish tissue mercury. These waterbodies were excluded from the statewide mercury TMDL because the fish tissue mercury was above the level considered achievable by the TMDL. These waterbodies must be subject to a separate mercury TMDL which according to EPA guidelines should be completed in the next few years. Further degradation of these waters would not be legal under the Clean Water Act. (see Friends of Pinto Creek v. EPA (9 Cir.) (9)Will there be any modeling of mercury methylation in these waters in the final EIS?	WR1E,WR4B
20	Most of our watersheds have a riparian flood plain that typically is inundated each spring and then the water slowly recedes. These lowland swamps and forests are naturally sulfate poor as is typical of surface and ground water in Northeastern Minnesota. All of the other prerequisites are present for mercury methylation. With the usual spring expansion of water into these floodplains, an increase in sulfate loading is added to the mix of organic matter, sulfate-reducing bacteria, deposited mercury and low oxygen concentrations. In other words any sulfate added to this system has the potential to enhance mercury methylation in the floodplain of over 100 miles of river. This issue must be addressed as indicated by the MPCA in "MPCA Strategy to Address Indirect Effects of Elevated Sulfate on Methylmercury Production and Phosphorus Availability" adopted 10-19-06. That MPCA Strategy document defines "high risk" for mercury methylation as: 1.Discharge of elevated sulfate concentrations into low-sulfate waters <40 ppm or so) where sulfate may be a limiting factor in the activity of sulfate-reducing bacteria (SRB); 2. Discharge of elevated sulfate into streams with fluctuating water levels and bordering wetlands. Rising water levels would introduce sulfate into the high-organic wetland matrix, followed by falling water levels that hydraulically deliver elevated MeHg and/or phosphate into the stream. The important sentence "Rising water levels would introduce sulfate into the high-organic wetland matrix, followed by falling water levels that hydraulically deliver elevated MeHg and/or phosphate to the stream," is the perfect statement of modeling that must be done for the floodplains and multiple backwaters and bays of the entire watershed. It has not been done in this DEIS. (11)Will that modeling be included in the final EIS?	WR4A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
21	When we leave the area of influence for the Iron Range mines, from river mile 100 on down, the sulfate concentration gradually diminishes due to bacterial reduction and dilution and probably other factors. At the mouth of the river in the St Louis River Estuary, it has diminished enough so a few remnant stands of wild rice appear after a 150 mile absence. According to Jerome Blazevic, a life long trapper in the estuary, the wild rice stands have gone from being the best in the whole area to being barely alive in some of the best bays and completely gone in others. We have limited hard data to show the sulfate levels in the estuary, but if we look at the good data we have from the Scanlon dam on upstream and extrapolate down to the lower reservoirs and the estuary we would expect numbers in the 8 to 10 mg/L range. That is a critical range for both mercury methylation and wild rice. The St. Louis River estuary is such a significant resource that it has been chosen as the 28th National Estuarine Research Reserve. It is only the second such reserve in the Great Lakes. This is an important nursery for Lake Superior walleye. Research on mercury in fisheries (Trevor M. Selch, 2008) showed that for walleye "fertilization success declined with increased waterborne MeHg". Also Howard McCormick, doing research for the EPA in Wisconsin, showed that mercury negatively impacted the over- wintering survival of young of the year for several species of game fish. Obviously, the St Louis River and estuary are such an exceptional sustainable resource that we have to make a better effort to protect it from this new even more dangerous form of mining. The DEIS needs data and modeling to show the risks to this resource. The question then arises, would it ever be possible to complete a mercury TMDL that would get the St Louis River delisted for fish tissue mercury if a "no action" decision were made and the PolyMet project was rejected? The answer is yes, because the science is showing us that what is unique about the St Louis is the significance of anthropomorphic impacts. They are controllable. The taconite industry has agreed, in the last year, to support the state wide mercury TMDL implementation plan with big cuts in emitted mercury. Secondly, we now know that this watershed can manage draw downs in a fashion that will reduce methylation. But most importantly, we have to do what Minntac is doing to reduce its' release of sulfates to the West Two River. In a presentation to the 70th Annual University of Minnesota Mining Symposium, titled "Membrane Treatment of Taconite Process Water for Sulfate Removal and Commercial Implementation Potential" Tom Moe of U.S. Steel reported that it can be done. Ultra filtration through special membranes can reduce their high volume, high concentration sulfate water to acceptable levels at an economically feasible cost. (12)The IES also should discuss the possibility of "in pit" sulfate treatment. If they can do it, a new permittee must be required to do it also.	WR4B,WR4C,FM2
22	I want to point out how sulfate impacts on mercury methylation relates to the National Environmental Policy Act and the Council on Environmental Quality Regulations for Implementing NEPA. Section 1502.16 of those regulations requires a discussion of the environmental consequences of a project: 1. Section 1508.8 requires a discussion of indirect effects and their significance. I find no discussion in their documents of indirect impacts from the project on mercury methylation below river mile 139, even though impacts will occur well below river mile 139. 2. Section 1506.2(d) requires a discussion of possible conflicts between the proposed action and objectives of State, Federal and local plans. With regards to State and Federal plans, an EIS must discuss the cumulative synergistic impacts of this and other project releases of mercury and sulfates on the required future mercury TMDL for each listed watershed. (Section 303(d) of the Clean Water Act) Cumulative impacts are the impacts on the environment that result from the incremental impact of the action when added to other past, present and future impacts. (Section 1508.7 of CEQ Regulations) In other words, the mercury and sulfates produced by the PolyMet proposal and possible future mining proposals, must be considered in light of the cumulative impacts of mercury and sulfates of all the Iron Range tributaries to a watershed. That has not yet been done. (14)When will that be completed?	WR4B,PRO3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
23	Fortunately, we have good data on the sulfate concentration of this river. Moyle found in DNR Fisheries Report no 69, April 2, 1944, sulfate concentrations of only .3 mg/L in the Partridge River. That has changed. In 2008, Berndt and Bavin, working for Minnesota DNR, reported sulfate as high as 90 mg/L. So what has clearly happened here is: the recent impact of mining has raised the sulfate levels to the point that natural wild rice beds are no longer productive, but are still alive. Actual in field observations clearly show the validity of the State Wild Rice Standard, with tall productive rice teeming with waterfowl where sulfates were normal, and stunted unproductive rice in water contaminated with sulfates. Wild rice can survive above 10 mg/L, but not thrive. The legacy of sulfate contamination of these water bodies should warn us about the will of the agencies to enforce the Wild Rice Standard after a proposal is permitted. One rice stand on the lower Partridge River, which was completely missed by the recent company sampling, was about 70 meters long by 10 meters wide. This is not some recent stand. It has been struggling to survive there for years while our government agencies continue to allow industry to try to kill it. What happens in wild rice stands that are inundated with high sulfate waters like this is: during cell growth and differentiation, suberisation and cell wall thickening can reduce the ability to take up oxygen, water and iron (Armstrong and Armstrong, 2005), which can stunt growth and reduce yields. (Gao et al., 2004). Not all stands respond the same. It depends upon the amount of oxygen in the water that flows through a stand. Therefore, in the same river we expect to find some stunted stands and some that are surviving the sulfate overload much better. The only safe conclusion is that exceeding the Wild Rice Sulfate Standard will negatively impact the quality of some of the rice beds along any given river. After noting the abundance of productive rice above river mile 161 and the stunted condition of wild rice in the lower Partridge River, we paddled down the St Louis River to the take out at the Highway 100 bridge. This is down stream from the Partridge River. The wild rice at this location in the St Louis River, had the same stunted and reddish and thin appearance of the rice in the lower Partridge River. The DEIS does not even acknowledge the presence of these stands. (18)Will that be corrected in the EIS final draft?	WR1E,WR4F,WR5A
23	To address deficiencies in the CPDEIS and supporting documents that claimed there was no wild rice in the lower Partridge River, and in the St Louis River below their confluence, four of us paddled those reaches on 9-16-09. Above the junction with the Partridge River at river mile 161, the St Louis River was full of high quality rice with several hundred waterfowl feeding and resting in the rice. The rice immediately above the junction is tall and healthy with viable rice kernels all the way to the top of the heads. This is to be expected in this sulfate poor region of the world. According to the DNR Study of the St Louis River (John Lindgren and Nancy Schuldt) released on August 29,2006, at river mile 171, which is above the junction with the Partridge, the St Louis River has a sulfate concentration of only 2 mg/L and "Wild rice dominates this reach". Next, we entered the lower Partridge River and searched for wild rice. There were stands there, but they were in such poor health that even though we were there to harvest wild rice, the plants were so stunted that you could not bend the stalks over the side of a canoe to harvest the grain. The plants averaged about 10 inches in height and the color was more reddish than green. Most plants had no viable seed, and not surprising, we saw no waterfowl there. This was in complete agreement with the report "Effects of Sulfate on the Biomass and Seed Production of Wild Rice" by Bradley Dewey and John Pastor, University of Duluth, December 20, 2009 where the authors state under Results: "The mean weights of roots, shoot and viable seeds and the total number of seeds produced all consistently decreased with sulfate concentrations (table 2)." (17)I know that this study supporting the state wild rice criteria, was released after the DEIS was released, but will it be incorporated into the final EIS?	RFI,WR1E

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
23	If the sulfate and mercury released by this proposal are managed as described in this DEIS, we will have fish tissue consumption advisories in perpetuity. The adequacy of this DEIS with regards to mercury and sulfate should be decided by the EPA and MPCA working with the already established St Louis River Mercury TMDL Partnership not the Lands and Minerals Division of the Minnesota DNR. Those of us that have served on that Partnership have known for several years that for this river it is all about sulfate. Adequate modeling of sulfate impacts on the lower St Louis River will be impossible until we have the data from LCMR proposal #028-A3. At the present it appears that we have a choice, either perpetual water treatment for sulfate at the Partridge River or perpetual fish tissue consumption advisories for the St Louis River. Thank you for your honest consideration of those two choices. I have harvested wild rice alongside tribal enrollees from the Fond du Lac Band of Lake Superior Chippewa since 1954. I have hunted waterfowl in wild rice waters just as long. I have trapped muskrats in wild rice stands going back to 1948. The incredible productivity of healthy wild rice stands is very important to all cultures of Northern Minnesota. The superior quality of hand picked, locally parched wild rice, is a signature product of this part of the world. Good stands provide food, cover and nesting materials for dozens of vertebrate and invertebrate animals including waterfowl, muskrats, loons, grebes, blackbirds, rails and, of course, billions of rice worms. John B. Moyle established the relationship between wild rice and sulfates back in the 1940' s. In 1944 he wrote in the Journal of Wildlife Management, Volume 8, page 177-184, "No large stands of rice occur in waters having a sulfate content greater than 10 p.p.m., and rice generally is absent from water with more than 50 p.p.m." Based on this research, Minnesota has established by Rule, a Wild Rice Standard limiting sulfates to 10 mg/L to permit wild rice to thrive. (Minn.R. 7050.0224 sets a standard for sulfates of 10 mg/L, applicable to water used for production of wild rice during periods when the rice may be susceptible to damage by high sulfate levels. (16)Will the state apply the 10 mg/L sulfate criterion to any new discharges to the Partridge River?	WR4A,WR4B,WR4F
23	The 1997 CEQ document, "Considering Cumulative Effects Under the National Environmental Policy Act" delineates the process to determine geographic areas that will be appropriate boundaries for a cumulative effects analysis. This is referred to as "area of interest." It states "One way to evaluate geographic boundaries is to consider the distance an effect can travel." The current documents consider the area of interest to be limited to the Partridge and Embarrass River sub-watersheds. The area of interest for direct, indirect and cumulative impacts of sulfates on the aquatic resources in this watershed should be the St Louis River from river mile 179, and downstream to its mouth. That has not yet been done. Finally, in considering the only project that has released documents on water quality, (about 100 pounds of paper printed on both sides) PolyMet has done an inadequate analysis of the impacts of the PolyMet project on mercury releases, mercury methylation, delisting of water bodies, wild rice and aquatic species. It has artificially limited its analysis of sulfate impacts to portions of the watershed that are already at excessive sulfate levels. (15) Given the requirements ofthe Clean Water Act for mercury delisting and the cumulative impacts of sulfates on wild rice and game fish, is it not likely that permitting the PolyMet project would violate water quality laws as well as irreversibly harm watersheds?	WR5A
24	Now I will correlate the quality of the stands we observed with sulfate concentrations of those same reaches of the rivers. In personal communications with Mike Berndt and Travis Bavin (MnDNR), they reported sulfate concentrations of 2.2 mg/L on 7-7-08 for the St Louis River above the Partridge River, and we found luxurious growth of wild rice there. They found 90.0 mg/L in the Partridge River on 10-1-8 and we found thin and stunted rice there. They found 66.9 mg/L in the St Louis River below the Partridge River and we found thin stunted rice. In my judgment, as a professional biologist, the water velocity, sunlight and substrate were similar at all three sites. The big difference was sulfate and that made all the difference. How valid is the Wild Rice Standard of 10 mg/L? Put your hip boots on and walk and observe those three miles and you will know. According to all the supporting documents from PolyMet and Mesabi Nugget, this was never done. (19)Will this deficiency in the DEIS be corrected in the EIS?	WR4F

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
25	First, I would like to discuss the effect of the PolyMet project on mercury sequestration in peat bogs. The hundreds of acres of peat bogs that will be destroyed in this watershed by the proposed mine, means that hundreds of acres ofHg(mercury) sequestering surface will be permanently lost to the Lake Superior watershed. Research done by the MPCA and others has shown that any disruption of peat bogs is known to release mercury. A watershed cannot be managed for Hg this way and expect it to ever be delisted for Hg contamination. Therefore bog mitigation must be brought back to this watershed. The PolyMet proposal to replace this loss of wetlands with artificially constructed wetlands in Aitkin and Pine counties having disproportionately less peat bog surface and located in other watersheds, will result in substantial mercury impacts to the Lake Superior watershed. (1)Therefore their wetland mitigation proposal should be rejected or modified through the Section 404 permit process with USACE.	WR1E,WR4E
25	I have used the St Louis River from top to bottom and have been troubled by the big void of wild rice from river mile 161 all the way down to the St Louis River Estuary. We now know that the entire river from the Embarrass River down to the Fond du Lac dam is devoid of wild rice and is also consistently above 10 mg/L for sulfates. I can take you to many places on the river where the physical conditions are prime for productive wild rice stands but are devoid of any wild rice. From LTV to Minntac, we have been pouring sulfate into this section of the river for half a century. In contrast, compare the flourishing rice stands on comparable reaches of the Mississippi, Rum, Vermillion and Big Fork Rivers, where they do not have mining generated sulfates. In Sources and Fate of Sulfate in NE Minnesota Watersheds, May 16, 2008, Travis Bavin and Mike Berndt say on page 13, "however, increased sulfate loading from mining could potentially have a negative impact on many wild rice beds in the area." According to NEPA, the area of concern for this project should extend down the estuary, where important stands still survive but could be even more threatened by the PolyMet releases. Adequate data, collecting and modeling have to be completed before this DEIS can be called complete. The lead agencies working on the PolyMet EIS have been asked to do a cumulative analysis of the impact of sulfates on wild rice. That has not been done. Instead, the DEIS has done individual sulfate analysis on the Partridge River by itself and the Embarrass River by itself. That is hardly cumulative. Based on the observations I have made, as well as guidance from the National CEQ, cumulative analysis must involve the St Louis River as well. The CEQ document, "Considering Cumulative Effects under the National Environmental Act" delineates the process to determine geographic areas that will be appropriate boundaries for a cumulative effects analysis. This is referred to as "area of interest." CEQ states, "One way to evaluate geographic boundaries is to consider the distance an effect can travel." With concentrations of sulfate projected to be as high as 31.7 mgIL in the Partridge and 63.4 mg/L in the Embarrass River at closure of the PolyMet operation, the area of influence will definitely extend a considerable distance down the St Louis River. In fact, because of the many other sources of anthropogenic sulfates along the St. Louis River, the "area of interest" for sulfates must go all the way down to Lake Superior. (20)Will this cumulative impact analysis be done before permits are issued?	WR5A

Sender Last Name: Harig **Submission ID:** 2527

1127	It is my understanding that PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in longlasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project.	GT2
3093	I am not a Minnesota resident but this issue greatly affects me. Living on the shores of Lake Superior and having this same situation occurring in my area. I would strongly oppose this type of mine. The water quality from leaching is a major issue.	EOO

Sender Last Name: Harju **Submission ID:** 3544

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3807	I strongly oppose the developent of sulfide mining in Minnesota (or anywhere for that matter). This is a short term oportunity for economic gain that will not effect northern minnesotans in a positive way. This is a Canadian company that will exploit our natural resources and effect the environment in a way that cannot be reversed. I work in the tourism industry in northern minnesota, and I feel that the tourism industry, which is a pretty low impact-sustainable-way of enjoying our environment, will be adversely effected. Our national forests allow people to recreate, and even profit from the natural resources they hold. The difference between logging our renewable resources and mining minerals that will never be replaced (and many of us would argue that we don't even need) is astronomical. Please protect our waters from the influx of supheric acid that will leach into our water sources, please stop the pillage of our national forests. Do not put us at risk, do not allow this project to proceede.	EOO,G2A,G7A,G11

Sender Last Name: Harkins **Submission ID:** 2580

449	need for better information on existing pollution, the nature of wetlands, endangered species, and other resources that would be affected by the project.	WR1E,FM1,AQ4
689	Analysis of all of the impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources.	WI5,WE8
1146	The existing inadequate showing by PolyMet Company that their waste rock and tailings piles will not collapse and dump uncontrolled pollution into nearby waters, causing potentially catostrophic water pollution.	GT2
2217	The unacceptable prediction in the existing DEIS that water pollution from the proposed mine could possibly last 2,000 years.	WR1A
2218	inadequate information in the DEIS regarding the scope and extent of potential pollution, including detailed information regarding water flow from the affected areas.	WR2E
2413	As the U.S. EPA suggested, making sure that financial assurances for the public are included in the EIS long before any permitting process gets underway.	PD4
2414	The absence of a detailed reclamation plan which is tied to the required financial assurances	PD4
2415	The failure to analyze the land that is going to be exchanged for Superior National Forest land to make this project possible.	PD1
3138	I am writing to you as a citizen of Minnesota concerned about the PolyMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forest. Sulfide mining would be new to Minnesota. In other locations, sulfide mining has resulted in acid mine drainage causing extensive and expensive damage to water quality and the environment. Often, taxpayers have been stuck with the costs. The PolyMet project in Minnesota could degrade water quality, increase mercury in fish, destroy wetlands and peat bogs, fragment the habitat of endangered species, increase air pollution that results in regional haze and create a risk of perpetual pollution without adequate financial assurance that the public won’t end up paying the costs.	G2C,G4A,G7A

Sender Last Name: Harris **Submission ID:** 366

406	I support Polymet Mining’s NorthMet Project. Being a long time Iron Ranger I feel it is absolutely necessary for this project to go through. The economic benefit to our area and Minnesota is huge. We need our young people to be able to stay and make a living here which Polymet can provide. I honestly feel Polymet will be great stewards of our environment here in Northern Minnesota. They will protect our lakes and air. In closing I feel this project is necessary and in total support of it.	EOO

Sender Last Name: Hartman **Submission ID:** 3462

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3741	February 1, 2010 Stuart Arkley, EIS Project Manager Minnesota Department of Natural Resources Division of Ecological Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Re: Polymet Draft EIS Dear Mr. Arkley: Among the many positive effects the Polymet project would bring to Minnesota and the United States, the most impressive benefits are those pertaining to economic impacts. With the potential to create 400 full time positions, hundreds of spinoff jobs and millions of dollars in local and state taxes, Minnesota can hardly afford to pass up this opportunity to rejuvenate the iron range. These significant impacts would greatly benefit all local parties, including school children, members of the work force, land owners, small business owners and large manufacturers. Environmental concerns weigh heavily on everyone's mind; as they should. However, Polymet has taken great care to ensure their methods are environmentally friendly; Waste rock storage will be lined, with drains leading directly to water treatment facilities. Polymet's ore processing methods not only use sulfur as a fuel source, but also use limestone to neutralize acids and create a practical byproduct of gypsum, which can then be used to make sheetrock, concrete, and fertilizer. In addition, Polymet will use high tech air emissions controls to further ensure minimal sulfur dioxide emissions. Polymet also plans to utilize a brown field site and existing infrastructure, which will minimize disturbance of wetlands and surrounding greenfields. The combination of Polymet's extremely conservative approach to environmental concerns and the State of Minnesota's stringent environmental guidelines and regulations leaves little opportunity for environmental impacts. With all these positive benefits available, it would be in Minnesota's best interests to support the Polymet project. Sincerely, Marcella Hartman	EOO

Sender Last Name: Hartness **Submission ID:** 191

15	The EIS should be clearer; PolyMet is not in the Boundary Waters watershed.	WR3B
184	I support PolyMet Mining's NorthMet Project. PolyMet will significantly contribute to the state and local economy at a time when we really need the jobs and economic benefit. PolyMet's 400 employees and the hundreds of spinoff jobs will provide a huge economic benefit to Minnesota and the Arrowhead region/my local business. PolyMet will provide millions of dollars in local and state taxes to support our communities and educational system. We should move forward with permitting this mine. We need and want jobs. PolyMet can produce these metals in an environmentally sound manner and create hundreds of stable jobs that can support families. PolyMet has demonstrated it can produce these critical metals while following Minnesota's strict environmental requirements to protect air, water and land. The metals that Polymet will mine are essential to green technology such as wind turbines and hybrid cars and are necessary for pollution prevention devices such as catalytic converters. Based on the extensive documentation as outlined in the DEIS, I am confident that impacts to the air and water will be minimal, if any.	EOO,G5
185	I understand the need to balance use of resources like minerals and preservation of resources such as water and air. I feel this EIS lays the proper groundwork for developing an environmentally and economically sustainable project and I wholeheartedly support it. PolyMet project has been designed to minimize environmental impacts; reusing a brown field site, reusing existing infrastructure, minimizing disturbance of wetlands and utilizing multiple safeguards to protect the environment. PolyMet will be a domestic supply of critical metals needed in medical applications, electric cars, catalytic converters, cell phones, computers and other essential products. I understand the importance of buying locally. PolyMet will mine and produce several metals not currently mined anywhere in the United States. I use these metals every day. PolyMet will be a domestic source of the metals we all use every day. Mining these metals in one country, processing them in another and then transporting them to the U.S. creates unnecessary greenhouse gas emissions. Foreign suppliers of these metals don't necessarily follow sound environmental practices, creating a greater global environmental impact.	EOO,G5

Sender Last Name: Hauser **Submission ID:** 2321

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2774	Good grief! Do not jeopardize the wonderful waters of our precious Lake Superior or of the Boundary Waters! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	EOO

Sender Last Name: Hauser and Magliulo **Submission ID:** 3667

1	1. The unfinished land exchange between the U.S. Forest Service and PolyMet is a major issue which has not been addressed in the DEIS. This land exchange may have significant environmental impacts which could therefore effect other aspects of the Project. The DEIS should not have been released until this land exchange was finalized. Without this completed land exchange the DEIS is incomplete and unacceptable.	PRO4
2	2. The St. Louis River drainage and possibly the Birch Lake system will risk major contamination. This is obviously an untenable situation, environmentally and financially. Mercury and sulfates do not enhance water quality! The DEIS (4.1 - 113) predict high sulfate concentration which will transform mercury causing fish to be inedible. Additionally, the DEIS (4.1 -113) predicts that arsenic, cobalt, and selenium will exceed water standards. Our public waters must be protected from heavy metals. The current DEIS design allocated for the prevention of contaminated overflow into adjacent water bodies is unacceptable. Until another design has been proven to prevent such pollution this DEIS is	WR3I,WR5A
3	3. Wildlife will suffer from the Project as PolyMet would be located in critical habitat for both the protected species Canada lynx and Gray wolf. The effects of noise, vehicle strikes and habitat destruction are totally unacceptable in that they diminish the habit of these species. The DEIS (4.4.3.1.) notes "…the effect on statewide lynx populations would be insignificant since no individual lynx or pair of lynx would be significantly affected by the habitat loss." The demolition of food resources, denning sites, and forest shielding coverings for these protected species may ultimately cause breeding problems thus impeding population growth. The DEIS is unacceptable until further analysis of the loss of critical habit regarding the Canada Lynx and the Gray Wolf is further examined.	WI1
4	4. There are serious issues related to the destruction of over 1500 acres of wetlands (read "peatlands") and as such would hardly represent Minnesota's commitment to reduce greenhouse gases and enhance carbon sequestration. Peatlands sequester carbon and the destruction of approximately 1,000 acres of peatlands by the Project would result in a two percent increase in Minnesota's carbon emissions. The DEIS (S-10) acknowledges that "project facilities and operations would result in additional greenhouse gas (GHG) emissions in the Arrowhead region." The DEIS is unacceptable since these high quality peatlands in Minnesota need to be protected rather than their loss contributing to additional greenhouse gases in our region and ultimately contributing to global warming.	AQ3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
5	5. Native American gathering and hunting rights have long been guaranteed by law (their status under the 1854 Treaty) in the Project area, and they would be abridged by the Project's activities. According to the DEIS (4.3), “Several plant species have been identified as being of significant tribal concern including wild rice, cedar, and sage. These species are relatively common to northeastern Minnesota; therefore, loss of access to these areas is not anticipated to have a significant impact on tribal use of these plant species. There is no documented tribal use of the Plant and Mine Sites for harvesting these resources.” It is not Tribal custom to record the harvesting of wild rice, cedar and sage. Therefore no data can be examined. The quantity of these types of harvested resources can vary from year to year due to any number of variables leading to their destruction and, or, decline. This DEIS is inaccurate and unacceptable since it fails to show the data needed to evaluate the tribal utilization of these resources in the Plant and Mine Sites. (4.14.1.3) Uniquely Affected Communities DEIS(4.14-11) states…this area compared to other portions of the 1854 Ceded Territory and ongoing and future mining activities would be unlikely to encourage an increase in moose densities relative to the rest of northern Minnesota. It is imperative that northern Minnesota preserve its wetlands to protect the decline of our moose population.The MN Wildlife Advisory Committee notes these wetlands are required to prevent heat stress to moose. PolyMet is proposing the largest direct wetland fill in northeastern MN. Adjacint to the Project's wetland fill are two major wildlife corridors that moose have historically used. These wildlife corridors will be negatively impacted by the Project thus resulting in the decline of Tribal hunting. The DEIS' current evaluation of Tribal harvesting and hunting is inadequate and needs to be fully reconsidered since the availability of current tribal resources would be in danger of decline which by law should be protected. Until such time we find this DEIS unacceptable.	G3,CR1,CR4
5	5. Native American gathering and hunting rights have long been guaranteed by law (their status under the 1854 Treaty) in the Project area, and they would be abridged by the Project's activities. According to the DEIS (4.3), “Several plant species have been identified as being of significant tribal concern including wild rice, cedar, and sage. These species are relatively common to northeastern Minnesota; therefore, loss of access to these areas is not anticipated to have a significant impact on tribal use of these plant species. There is no documented tribal use of the Plant and Mine Sites for harvesting these resources.” It is not Tribal custom to record the harvesting of wild rice, cedar and sage. Therefore no data can be examined. The quantity of these types of harvested resources can vary from year to year due to any number of variables leading to their destruction and, or, decline. This DEIS is inaccurate and unacceptable since it fails to show the data needed to evaluate the tribal utilization of these resources in the Plant and Mine Sites. (4.14.1.3) Uniquely Affected Communities DEIS(4.14-11) states…this area compared to other portions of the 1854 Ceded Territory and ongoing and future mining activities would be unlikely to encourage an increase in moose densities relative to the rest of northern Minnesota. It is imperative that northern Minnesota preserve its wetlands to protect the decline of our moose population.The MN Wildlife Advisory Committee notes these wetlands are required to prevent heat stress to moose. PolyMet is proposing the largest direct wetland fill in northeastern MN. Adjacint to the Project's wetland fill are two major wildlife corridors that moose have historically used. These wildlife corridors will be negatively impacted by the Project thus resulting in the decline of Tribal hunting. The DEIS' current evaluation of Tribal harvesting and hunting is inadequate and needs to be fully reconsidered since the availability of current tribal resources would be in danger of decline which by law should be protected. Until such time we find this DEIS unacceptable.	WI2,WI3,WI5,WE2
6	6.Waste rock sequestration in perpetuity is impossible – just plain impossible, no matter what kind of ponds or liners are employed. When they start leaking their toxic slew (and they will – sooner or later) the local economy will suffer a terrible blow as fewer visitors mean declining lifestyle levels for our community. Four hundred “high-paying jobs” which might last a decade or two are not worth the loss of this unique landscape. The DEIS (Table 4.1 -45) notes water from waste rock piles will be polluted for up to 2,000 years. Future generations should not be responsible for our poor decisions now. The DEIS (S-10) recognizes the potential for basin structural failure: "The NorthMet Tailings Basin and hydrometallurgical facility embankments would have a low margin of safety due to fines and underlying soils in the existing LTVSMC Tailings Basin". Any potentail for basin failure, causing environment contamination in perpetuity, is unaccetable.	WR1E,PD2,GT2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
7	7. The DEIS is incomplete without addressing the requirements for financial assurance. It is necessary for the public to be protected against "footing the bill" in perpetuity or adverse environmental impacts which PolyMet will surely incur. The EPA is establishing new rules supporting the necessity of financial assurance with hard rock mining by requiring it in future EIS evaluations, see (InsideEPA.com, Tuesday, August 25, 2009). The following is a list of Project parts requiring financial assurance and must be addressed in the DEIS. a. Post closure treatments such as waste water at the mine. b. Underground mine alternative which has not been examined sufficently. c. Structural failures at the tailings facility with the needed information for the proposed stockpiles. d. The need for perpetual water treatment. e. Existing environmental problems at the LTVSMC Tailings Basin	PD4
Sender Last Name:	Haverkamp **Submission ID:** 3185	
726	The availability of this EIS has newly come to my attention and, given the risks of sulfide contamination to waters of Lake Superior and, if mining is extended into the BWCA watershed, to the waters and wilderness amenities of that region, I believe an extended comment period and opportunities for further public input are needed. At minimum, an additional 30-45 days are needed for review of the EIS and more public meetings at locations around Minnesota are necessary to inform and get the input of the many Minnesotans who use and have personal and commercial interests in the waters and wilderness amenities at risk. Moreover, in order to more fully educate and engage the public regarding their interests in this matter, making opportunity for public comment at those meetings is necessary.	PRO6
Sender Last Name:	Haycock **Submission ID:** 2253	
2661	I very much oppose allowing sulfide mining (PolyMet) in Minnesota. Superrior National Forest must be preserved in its natural state as much as possible. The minerals will be gone in a rather short time; pollution of water, peace & quiet of the area will last almost forever.	EOO,G2A
Sender Last Name:	Hazen **Submission ID:** 2682	
3164	The PolyMet proposal is basically a private sector "taking": A foreign company seeks to procure sub-surface minerals from public lands at great environmental and economic cost to the American people, put them on the international market, and retain the financial profit from it outside of our borders. The American people will suffer the health, environmental and financial costs of this result, in cases into perpetuity. Here are some of the details:	G1,G2,G4A,G9
Sender Last Name:	Heath **Submission ID:** 3732	
20685	b. At the scale (small size) of the modeled area being considered, the DEIS presented an inappropriate assumption, that the rock properties of the modeled hydrostratigraphic bedrock aquifers in the mine site area are uniform in all directions. I saw little effort to characterize the probable distributions of fractures in the bedrock by analogy in the Iron Range, or by direct measurement. I recommend that DNR explore the orientation and occurrence of fractures in the Iron Range to get a better sense of where groundwater in the bedrock at the mine site and proximate moves. Without this characterization, no conclusion can be clearly made as to where potentially contaminated water might move in bedrock after the mine closes, or even if this movement of potentially contaminated water might be an environmental problem.	WR2A
Sender Last Name:	Heck **Submission ID:** 3477	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
46	proposing to do so in should not be approved. Economic Impacts This project is focused on short-term economic gains and does not adequately address the long-term negative impacts. Minnesotans, as well as people from all over the country, have long been attracted to and supported the beauty of northeastern Minnesota. This project will negatively affect the local economy that is based on the tourism industry. Tourism is a sustainable source of income whereas mining, as has been proven in this area, is not a long-term, sustainable way of	SE3,SE4
3680	Many other jobs could be created which would be less polluting and support the community over the long run. Additionally, this project could leave taxpayers responsible for the costs of reclamation and cleanup after mine closure. The responsible agencies should require financial assurance from PolyMet should the project move forward. Pollution and financial assurance issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers.	ALT8,PD4
3751	directly or indirectly impact roughly 1,500 acres of high quality wetlands. The DEIS indicates that these polluting discharges and necessary water treatment would continue on for many years. This type and amount of pollution to Minnesota waters is unacceptable and any mine	G7C
Sender Last Name:	Hedlund **Submission ID:** 3464	
3743	Please consider our impact on our fragile environment. I know in these economic times, there is a temptation to take short cuts. Jobs today or environmental problems for generations. Hmm what should we choose?	EOO,G2
Sender Last Name:	Hedren **Submission ID:** 1613	
953	PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project.	G9
954	Future generations of Minnesotans will inevitably be left to pay for these operations. Additionally, it will be all but impossible to calculate sufficient financial assurance for a mining operation that is going to require such long-term care.	PD4
994	The DEIS predicts contaminated waters will be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. I understand that the water leaching from waste rock piles at the site is expected to exceed water quality standards for hundred of years. It is unreasonable to expect that mining companies will be able to maintain water treatment facilities for that amount of time. It is unacceptable to me to allow PolyMet to proceed with a mine that already predicts these kinds of pollution outcomes.	EOO,WR3I
2017	Please accept my comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential harmful impacts on not only Minnesota, but on the entire great lakes region of the USA and Canada	G10
2018	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. It is my feeling these issues must be totally resolved before the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers approve this mine.	G10
Sender Last Name:	Heep **Submission ID:** 2239	
604	The mine site disrupts natural corridors for the movement of wildlife. Specifically the Canadian Lynx which is an endangered species that requires large territories and moves through undisturbed forest corridors. No provision is made for mitigating this loss of habitat in the DEIS.	WI5
1150	Sulfates are a problem that are not being dealt with rigorously in the DEIS. Sulfates in surface water demonstrably impact aquatic vegetation, specifically wild rice. In addition there is the likely potential for mercury methlyation in surface waters as a result of mining. What process has been identified to detect and mitigate methyl mercury in the environment and how will community health be dealt with and paid for?	WR4B,WR4C,WR4F,FM1,F

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1824	There was little or no field sampling done on the movement of ground water through the bedrock. Since the mine and it's waste storage site sits nearly on the continental divide it should have been determined if there is any chance that acid polluted mine drainage could move in the rock over time to the north and into the Boundary Waters watershed. This was not done and should be before permitting.	WR2A
2017	The DEIS does not outline any specific plan for reclamation after the mine site is closed. In the same vein there is no specific mention of the method or amount of financial assurance that the mining company will need to set aside for the potential disasters after closing. Because acid mitigation is difficult to predict and long term treatment after closing is a necessary, there needs to be a large sum of cash held in escrow as a damage deposit and that amount should be specific and included in the final EIS.	PD3
2018	The DEIS does not approach the most important question of cumulative impacts of this mine and the others that are proposed in the district. Polymet cannot be looked at as a single, onetime event in N.E. Minnesota. With permitting of Polymet will come at least 2, perhaps 4 or more new applications for permitting from other mining companies. What will be the total impact on the environment by all these potential mines and how will the EIS deal with mitigation of all these in concert? Specifically the Boundary Waters which is downwind of allthese projects will be negatively impacted in terms of atmospheric haze from dust particles blown into the air. Tell us how this cumulative effect on air quality must be dealt with for Polymet and all future applications. In addition how is global warming affected by this mining operation and the combinations of all potential mines in the future?	G9
2019	Where is the plan for constant monitoring of the mining operation by the DNR? Waste rock needs to be sorted by sulfide content, tailings basins need to be inspected for leaks, and waste piles need to be sampled for pH in runoff water regularly. Do we just depend on the mining company to do its own monitoring? There should be a program set up in the EIS for constant monitoring of operations by an independent environmental concern or the DNR.	PD8
2645	As a residents of Ely and people whose livelihood is directly connected to the Tourism industry of our area we are very concerned about the long term effects and implications of the any prospective mining in our area. We are very concerned about the ultimate potential impact it may have on our water, our air, and the Boundary Waters Canoe Area Wilderness. We are concerned about the impact it has on our global environment. These concerns outweigh any short term benefit to be derived in jobs.	G8C,G11

Sender Last Name: Heeter **Submission ID:** 2332

2793	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources. I have been canoeing and camping in the bwcaw since my daughter was 10. She is now 46, and a resident of Minnesota. WE go back to the BWCA every summer. There is no place in the world like this set aside wilderness area. Once the waters become contaminated it will be lost forever. The value of this land and water is beyond any price tag.	G7,G11

Sender Last Name: Heino **Submission ID:** 372

413	There needs to be an evaluation of the potential for mercury demethylation and/or methylation in flooded mine pits.	WR4B
413	The DEIS should incorporate new results from ongoing monitoring of area rivers and lakes, especially those receiving sulfate leakage from legacy mining operations.	WR1A

Sender Last Name: Hellerstein **Submission ID:** 3305

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3599	I believe that the Boundary Waters Wilderness Area is an irreplaceable natural treasure that contributes a large portion of what makes Minnesota special. I encourage you to deny approval to sulfide mining projects that could negatively affect the environmental integrity of the Boundary Waters or Lake Superior.	EOO
3660	especially in the absence of any financial guarantee to clan up the mess that these mines are likely to create.	PD4

Sender Last Name: Heltunen **Submission ID:** 249

262	RGGS Land & Minerals, LTD., L.P. submits this letter in support of the PolyMet Draft EIS and the PolyMet-NorthMet Project. As the owner of the majority of the mineral resource to be utilized in this project, RGGS has complete confidence that the project will be developed in a sustainable, environmentally sound manner and provide a much-needed economic boost to this region and its' residents. RGGS has worked with PolyMet staff and has consistently observed their professionalism and their insistence upon producing a superior grade product while maximizing environmental protections. Efforts to minimize environmental disturbance by utilizing the former-LTV Steel Mining Company facility and transportation infrastructure while employing state-of-the-art technology represent PolyMet's commitment to produce a domestic supply of critical metals in an environmentally conscious manner. While confident in the environmentally-sound technology to be employed by PolyMet, the effect that this project will have on this area's economy, tax base, and employment cannot be overestimated. This region has been severely impacted by the recent downturn in the taconite mining industry and the development of the NorthMet project will be a major step in this region's effort in diversifying its' economic base. There are a high number of people trained, qualified and available to be employed by this project. RGGS provides its' total support to the PolyMet-NorthMet project and requests that the Minnesota Department of Natural Resources and U.S. Army Corps of Engineers find this Draft EIS to be complete and thorough in order to issue the required permits in a timely manner after this review	EOO

Sender Last Name: Henderson **Submission ID:** 3581

3849	Clean water is probably our most valuable thing on Earth. Please help protect our lands and water in northern Minnesota from the results of sulfide mining. Water and land pollution will effect those living now and those coming in the future, including humans, trees, fish, animals, birds, our/your great grandchildren... If we cannot stop the mining, please do your part to enforce all laws, written and moral, which keep the mining companies within the guidelines. There is only one Superior National Forest, let's keep it as natural as possible. Do we really have to trade ANY of it??	G2A,G2C

Sender Last Name: Hendrickson **Submission ID:** 236

245	I am writing this email to show my support for the Polymet Project. Polymet is a much needed project not only for the jobs it will produce, but for more independence from foreign countries in buying their precious metals and the tactics they use to extract these minerals. The draft EIS is more than adequate to reassure people that this project will be safe to the environment not only in water run-off, but in green house gas emissions also. I firmly believe Polymet, along with yourselves have done all the necessary research to make this a safe and viable project. Hopefully after the public comment period the Final Permits can be issued quickly to start construction before all hope is lost, along with the quality paying construction jobs and much needed permanent jobs tied in with this project.	EOO
1178	This Job would help my area 10 fold I live in iron mn and I know lots off people In union trades that are laid off from the slow movement of work when if this job would start it could help my entire family and friends I am a union boilermakers local 647 my mother works for union trades as a book keeper my close friend is in.the local laborers union with 2 kids one born a year ago and one born a week ago we need to keep are jobs and this is a close job for us we need this	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3726	Once this happens, the damage is virtually irreversible. Also, evaluate the land to be exchanged for Superior National Forest land to insure that the land swap would protect wetlands, hydrology and taxpayers' interests.	PD1
3727	Make sure, as the U.S. EPA has suggested, that financial assurances for the public are included in the EIS before permitting gets underway. Additionally, please requri e Polymet to show that their waste rock piles won't create water pollution problems after they have taken what they want and leave the rest of us with the waste.	PD4
3851	We are writing to you regarding the PolyMet sulfide mining project as concerned residents of Northeastern Minnesota. Our concern centers on the sulfide mining process and the great potential for acid mine drainage. We have heard about the "new" mining technologies that will prevent this from occurring, but other than stating that all necessary precautions will be taken, we have no idea what the "new" technology is and whether it has been proven. We are aware of past failures of sulfide mining operations to carry through on their promises to protect the environment. That is why Wisconsin now has a moratorium on sulfide mining operations. In this economy we know how powerful the promise of a few jobs can be, even if it means only short-term employment, and the mining companies are proficient at selling their projects based on the promise of these jobs. As long-term residents of Northeastern Minnesota, we see the results everyday of what the extraction of natural resources has done for the region and what happens once the resource is gone. The scars left from the wholesale harvesting of the white pine are still visible in the form of slowly rotting stumps. These will disappear in another generation, but the huge mine dumps and holes will be ruining our view until the next ice age. Now we understand that PolyMet and other companies wish to exploit this area once again for some minerals that, due to their current high value, are now considered worth mining even though they are present in low concentrations. Like the lumber companies and the iron mines before them, what assurances ar e there that they will not take what they want and leave us with the bill for clean up. A scarred landscape and, the very high probability of acid mine drainage, with the associated heavy metals, into the watersheds for generations to come could be what the State is left with. This will have a detrimental effect on one of the few sustainable industries in this region, tourism. Before sulfide mining is permitted, please insure that the mining process will not lead to the leaching of acid mine runoff into the watersheds.	G2C,G11

Sender Last Name: Henjum **Submission ID:** 3165

710	I am requesting an extension of the comment period. A minimum of 180 days are needed to comment on what would be Minnesota's first ever metallic sulfide mine. Permitting agencies need to hear from those opposed to the PolyMet project. If permitted, PolyMet would pave the way for a new sulfide mining district in Minnesota's beloved Lakes region.	PRO6
711	The Polymet proposed mine raises many concerns. The BWCA and the Superior National Forest lands are precious State resources. Any proposal that might impact them deserves very careful consideration. The DEIS is about 1800 pages, please allow for a 60 day extension for comments.	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3122	If a comment extension is not allowed then absolutely I would argue for a rejection of permits for Polymet. Some concerns listed below. Thank you. * Acid mine drainage and toxic heavy metal leaching are byproducts of mining sulfide ores, requiring water treatment for centuries. PolyMet admits the mine would pollute ground water, but claims that any pollution would meet water quality drinking standards. Mining pollution also adds sulfates to watersheds, triggering the chemical reaction by which mercury becomes methylated, and bio-accumulates in fish tissues. * Since PolyMet's open pit would be within 20 miles of the BWCAW, haze and noise pollution would impact the wilderness. * Disruption of the landscape would impact wildlife, bird, and plant habitat, while vegetation used in reclamation would introduce non-native species. * PolyMet is a Canadian company, so this mining project will not provide a domestic source of copper, nickel, cobalt, platinum, palladium, and gold. The metals will be further processed in Canada and sold on the global market. * The mineralization of northeast Minnesota is very low grade, containing approximately 8 pounds of copper and .01 ounces of precious metals per ton of waste rock. This will require energy and electricity to create enormous amounts of waste, making this a marginal mining venture on the global market, rather than providing a steady supply of jobs. * PolyMet purchased the former LTV taconite crushing plant and tailings basin for its plant site, but the open pit strip mine would be located within 6,700 acres of public Superior National Forest land which is designated to be sold to PolyMet without environmental review. 470 acres of imperiled or rare/uncommon black spruce (bog) and jack pine forest would be impacted. * Excess capacity at the PolyMet processing facility would open the door for a sulfide mining district between the PolyMet site and the Boundary Waters Canoe Area Wilderness (BWCAW).	WR1A,WI2,WI4,WI5,VI4,P
Sender Last Name:	Hess **Submission ID:** 145	
136	Well, I think this project is important to northern Minnesota in a lot of ways besides just diversify industry. I think it's important for the greater Minnesota to understand that. Hibbing and the surrounding area, the Iron Range, is not just a playground or an area for recreation; there are people that live and have their lives there and it's important for those people to have jobs so their lives can be sustained for the long term and last for posterity. I think that bringing copper mining and precious metal mining to the range will help us to off-set some of the economical swings that iron mining has. I think that these jobs will help backfill a lot of the cutbacks in the existing iron mining industry, which will complement the existing economy. That's it.	EOO
1603	This letter will serve as official notification of our support of PolyMet Mining. Our organization consists of veterans, most of who reside with their families within the surrounding area. Obviously, these people are all very interested in maintaining a healthy environment, not only for their own enjoyment, but for the enjoyment of future generations. PolyMet has invested tens of millions of dollars in studies to inform the EIS and permitting process, and we believe that the PolyMet EIS has evaluated, in detail, all the elements of potential environmental concerns fOr a new mine. PolyMet has demonstrated it can produce these critical metals while following Minnesota's strict environmental requirements to protect air, water and land. PolyMet and its vendors will provide our young people with multiple opportunities for challenging and exciting careers, thus keeping our young people in the area. PolyMet will contribute to the local and state economy at a time when we really need the jobs and generate significant economic activity in our area.	EOO,G10
2001	c. The DEIS did not adequately characterize the potentiometric surfaces of bedrock aquifers by measuring water levels, the potential for surface-water and groundwater interaction with respect to the Partridge and Embarrass Rivers, and the degree to which ground water naturally moves vertically and under the influence of drainage through the bedrock to the mine pit. I recommend that DNR install several piezometer nests south of the proposed mine and adjacent to the Embarrass and Partridge Rivers to better characterize this aspect of the subsurface flow system.	WR2A
Sender Last Name:	Hesterberg **Submission ID:** 1193	
158	Also, please extend the comment period on this project to 180 days to allow for thorough and accurate evaluation of this issue.	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1308	The DEIS says that water from waste rock piles will be polluted for up to 2000 years (Table 4.1-45). This is a bad idea – we can't expect mining companies to be responsible of the operations for that long. The DEIS says that the destruction of 1,000 acres of peatlands would result in a two percent increase in Minnesota's overall carbon dioxide emissions. Minnesota needs to halt the destruction of these valuable habitats.	EOO,G2B,G7A

Sender Last Name: Hietalati **Submission ID:** 1055

1159	I am Yiriting you in support of the PolyMet Mining's. NorthMet Project. I feel there has been plenty of studing and testing done to ensure the safetyof this project. I feeinorthem Minnesota needs the jobs this project would create; both in the construction and in,the running of the plant. I also feel it will make good use of and old mining area.	EOO

Sender Last Name: Hildenbrand **Submission ID:** 3583

3852	The PolyMet Mining Company proposal to develop precious metals mining at the old LTV Mining Company site near Hoyt Lakes needs the full support of our state and state agencies. From the sidelines, it appears that the PolyMet Mining Company has been run through the hoops with very little support from Minnesota. This mining will provide much needed jobs and much needed diversification to our region and will have financial impact for our region and state. This mining for our region is a new future. The environment should be protected within reason and it appears that the EIS answered all the elements of potential environmental concern. Stuart, let's support PolyMet and help them move forward with mining in an environmentally responsible way.	EOO

Sender Last Name: Hill **Submission ID:** 156

2	Now I didn't read the whole Environmental Impact Statement. I read the 27-page summary. I have just a couple comments about the scope of the Draft Environmental Impact Statement. There are some species listed in there that are endangered; but -- and this may be more a political boundary issue more than an endangered specie issue. The species of the bladderwort, the buttercup, or marsh marigold, the Canadian Lynx and the wolf -- there's only a narrow, small portion of that ecotype in the state of Minnesota. There's another 300 miles of that ecotype across the Rainy River in Canada. So while there may seem to be acacarcity of these species in and around the mine site, there's several hundred more -- there's thousands of square miles more of this ecotype in Canada that didn't get counted which these species exist in. And I realize that the mandate of the Environmental Protection Agency is just to do stuff in the United States; but because of the political boundary, these species seem more scarce because of the scoping of the Impact Statement than they really are, because they do exist north of our border. So I think that's it. Thank you very much	WI2
147	Okay I support the adequacy of the Draft Environmental Statement and I would like to encourage the agencies to support the permit for PolyMet -- or the required permits for PolyMet. I think we need the jobs in Minnesota. And from what I've read of the Environmental Impact Statement, it looks like they've adequately gone over what the hazards are.	EOO,G6

Sender Last Name: Hilshorst **Submission ID:** 1018

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1118	I am an engineer and have been in the mining industry for over 35 years. I have worked in four of the iron mines in Minnesota and two copper mines in other states. I have experienced good mining and environmental practices in both iron and copper, and know what it takes: a good and diligent attitude and acceptance of responsibility. I know the PolyMet management team and hold them in very high regard. They have always had the focus and direction to create a value for Northern Minnesota and their shareholders and of being a good environmental steward. Having spent in excess of $24 million for the Draft Environmental Impact Statement, PolyMet will neither squander the investment nor the opportunity to become good neighbors and good corporate citizens. I believe that they will follow through, with full responsibility and diligence, with all of the requirements that the state of Minnesota will have in the permits. Their integrity and honesty is above reproach. The state and the economy need this project, not only for the employment and revenues it will bring to the local and state economy, but also for the overall business stimulation that it will drive throughout the northern region. As important to the region as iron mining is and has been to the region, the environmentally responsible development of the Duluth Complex by PolyMet will bring social and economic benefits to us for several generations. I ask that this draft EIS be completed, and the final EIS issued for the issuance of permits. This is a great opportunity.	EOO
Sender Last Name:	Hilty **Submission ID:** 2575	
3133	Allow me to be one more voice in opposition to the current proposal. I would briefly like to state just a couple points. There are many scientists and geologists who believe that we have already extracted, by far, most of the rare earth elements and stategic minerals available worldwide, which is evidenced in part by the prices for them going up exponentially. It is also increasingly becoming recognized that there are more of these minerals already out of the ground, that are available for recycling and re-use, than there are left in the ground. And there are untolled amounts available for extraction from landfills and waste sites at far less cost and with far fewer potential adverse consequences. (For example, imagine how much copper can be retrieved when we finally determined that it's become unconscionable to waste electricity lighting billboards everywhere.) There is NO way to ensure that damage won't occur to our -- soon to be recogzied worldwide as one of earth's most valuable resources -- safe and clean water. And there is no way to ensure that damage once done to the watersheds of northeastern Minnesota can ever be repaired, or even satisfactorily mitigated. Stewardship demands that we respect sound reasons for restraint. The potential long term costs don't justify what can already be seen as questionable short term gains. We must find better ways to conduct our human enterprises on our earth if it is going to continue to be life-sustaining. The time for us to be good ancestors is now.	EOO,G2
Sender Last Name:	Hines **Submission ID:** 144	
135	Ready for my statement? No, I've been following this project for a couple years and I'm all for it. I think it's pretty good for the State: Create jobs, taxes, be good for the area, lot of spin-off jobs. As long as they do it in an environmently safe way, and I believe they've got that covered, I say, go ahead, they should do it. And that's all I got to say.	EOO
3148	Based on what I have heard about PolyMet's proposal and the history of this industry, it does not appear wise to make Minnesota's natural resources the guinea pig for unproven processes when the cost of failure will be so high and so long-term in nature. The resources will not disappear if you say no to this proposal at this time. If the processes prove viable elsewhere, this proposal will undoubtedly be made again in the future with the benefit of actual data instead of hypothetical projections. If the processes fail to prove viable elsewhere, the resources of Minnesota will not have suffered the long term negative consequences of gambling on the new processes. I have heard ongoing concerns that PolyMet's analyses have not adequately assured that the environmental history of the industry will not be repeated, and my understanding is that PolyMet does not have the financial resources to mitigate problems if the projected superior environmental results of their experimental processes fail to materialize. Please do not make me, as a taxpayer, responsible for the fallout if their gamble fails. Please don't let this company experiment on my state's resources.	G4A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Hintsala **Submission ID:** 309	
323	This letter is to advise of my support for the PolyMet-NorthMet Project near Hoyt Lakes, Minnesota. During my career I have provided and managed the engineering design of numerous mineral processing facilities throughout the United States and in eight (8) foreign countries. In 2006 I had the privilege of participating in the preliminary engineering study ofthe PolyMet -North Met project and I am of the sincere opinion that this project has addressed its impact on our environment with more detail than any other project I have personally witnessed. The economy of Northeastern Minnesota is founded on mining of minerals and Minnesota needs diversification within its mineral industry. Minnesotans managing and working at the PolyMet facility will responsibly produce value added base metals while generating significant economic assistance to our state and local communities, and regional educational districts. Again, I strongly recommend issuance of permits for PolyMet Mining Company-NorthMet Project.	EOO
Sender Last Name:	Hinz **Submission ID:** 3214	
3590	proposal. Tax payers would continue to foot the bill for needed clean up from the mine and the EIS does not account for mitigation action items that would need to be employed if there were an issue. Further, there is a lack of detail regarding content in dealing with toxic tailing which would be produced by the mine. Minnesota needs to get up to speed on current mining issues or be taken advantage of by mining interests. I am not against mines and understand	WR3A,PD3,PD4
Sender Last Name:	Hobbie **Submission ID:** 3528	
3257	While the Polymet project is not directly in the BWCA, the proposed mine site and the affected area are very close to the BWCA. We know where the surface water flows, but we do not know where the groundwater flows, so this could have a serious impact within the BWCA.	WR1E
3805	I have been reading the Draft EIS. I share the concerns of the Native Americans as stated in footnotes. I believe their concerns have not been adequately addressed, and they are sufficient to block the project. They are too important to be relegated to footnotes. The proposed new mitigation techniques are not, and cannot be, adequately tested. The unleashing of harm is an irreversible process.	G15
Sender Last Name:	Hobday **Submission ID:** 1666	
2117	Please **do not allow** the NorthMet mining project Draft Environmental Impact Statement. The "promise" of 400 jobs is just not worth the environmental catastrophe that would ensue.	EOO
Sender Last Name:	Hoch **Submission ID:** 3243	
3566	this type of mining should not be allowed in mn.	EOO
Sender Last Name:	Hocklin **Submission ID:** 345	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
373	As a resident of Hoyt Lakes I have watched Polymet employees work very hard to meet regularity requirements so the project can go forward. I have attended meetings and asked questions. As a 55 year resident of Hoyt Lakes I am very aware of our clean environment and tourist potential but the need for real work in this part of Minnesota requires development of our natural resoures. I trust that our state will classily observe the project's process and its effect on our resources. Our local residents and their children as they mature, deserve the opportunity for jobs that can support families and communities. Comparison of this project's process to old methods is not fair and the material to be mined is totally different. Let give this privately funded project the opportunity to enrich the lives of our communities.	EOO

Sender Last Name: Hodnik **Submission ID:** 25

23	Thank you. My name is Alan Hodnik. I'm here to speak as president of Allete on behalf of Minnesota Power, its electrical utility division serving Northeastern Minnesota. I'm also here to speak as someone with lifelong and deeply personal ties to this immediate area and region as this city's former mayor. Minnesota Power supports the PolyMet NorthMet project and this very public process for reviewing the NorthMet EIS. This process is designed to be an open, thorough, and factual examination of the environmental protection framework proposed for NorthMet. There are three major public benefits that can stem from NorthMet in this EIS process. One benefit lies in the metals NorthMet could produce, many of which are currently sourced outside this country, and all of which are needed for many things that support our daily lives, from medical applications to computers to wind turbines. Secondly, another public benefit connected to NorthMet are the estimated 400 direct jobs it would create. These jobs are solid, bread-and-butter employment opportunities for residents of this region and state. No one can argue that these jobs are not desperately needed now or that they aren't needed longer term. This employment would occur through sensibly utilizing natural economic advantages of local mineral resources and existing mining industry infrastructure. There is a logical, thoughtful plan behind the NorthMet project and a foundation for lasting success. It isn't a pipe dream with no realistic prospects or a venture easily whisked away to another location on a whim by its owner. The NorthMet project requires substantial investment and commitment by PolyMet. I can tell you from personal experience this is not the kind of investment made lightly without due economic and environmental diligence. The third major public benefit connected to the NorthMet project and its EIS is the conscious experience this is not the kind of investment made lightly without due economic and environmental diligence. The third major public benefit connected to the NorthMet project and its EIS is the conscious and documented protection of the natural environment surrounding the project. The standards the state will use to protect the land, air, and water involved with NorthMet will be established through the EIS process. Some people say that Minnesota is incapable of properly developing or regulating the NorthMet project in a way that protects the environment. They argue that we must choose between having NorthMet's benefits and having a healthy environment. Often these arguments are based on experiences in eras and locations far removed from today's technology, today's permitting standards, and Minnesota's very stringent regulatory supervision. As an officer of Minnesota Power and president of Allete with responsibility for environmental integrity of our operations, I know firsthand how very stringently state regulations and regulatory affairs govern our industrial facilities. There is no reason to believe Minnesota is unable to properly permit and regulate the NorthMet project. The EIS for NorthMet contains extensive documentation of PolyMet's plans, thorough plans to protect the environment. There is no need to drive the mining of these metals to other parts of the world with lower environmental standards. There is no need to forego good jobs for residents and our communities and, instead, create subsistence jobs in other parts of the world. There is especially no need to do this on the basis of a false choice between environmental and jobs. There is absolutely a need, however, to allow a rigorous, open EIS process to proceed to its conclusion, setting the regulatory framework for PolyMet and its needs to develop and operate NorthMet. I represent a company with extensive firsthand knowledge of the state's strong environmental regulation, and I am here to attest to Minnesota's ability to properly permit this project. Minnesota Power supports the NorthMet project, the	EOO,G6

Sender Last Name: Hoechst **Submission ID:** 196

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
193	I have been following the proposed Poly Met project near Hoyt Lakes since the beginning. I feel this project would be a true asset to the area and that this company is sincere about it's environmental impact on the property. I am in favor of this project.	EOO
Sender Last Name:	Hoeft **Submission ID:** 1399	
1632	I am writing to you as a citizen of Minnesota concerned about the PolyMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forest. Please support this bill as we are in need of any new job openings no matter what the lunatic tree hugger fringe groups say. Thanks	EOO
Sender Last Name:	Hoffman **Submission ID:** 2681	
3163	We must not let these companies pollute and destroy our valuable resources. We must protect the Boundary Waters Canoe Area and the wonderful lakes and rivers in this area. This pollution may last for 2,000 years or more. The real treasures are above ground. People come to Minnesota to vacation, hunt, and fish. They will not come and spend their tourist dollars if we have allowed these companies to destroy these waterways.	EOO,G7,G11
Sender Last Name:	Holets **Submission ID:** 1102	
1207	As a resident of Minnesota for the past 67 years, I wish to support the Poly Met development in the Hoyt Lakes area. I have been following this proposed development for the past 2 or so years and feel that it will bring about positive economic development in a way that is compatible with what already exists in the area. I have read the E.I.S. and believe that environmental concerns and damage will be minimal. It appears that this is a well-conceived project that will benefit our state and all of our communities in the area. I urge your favorable support of the Poly Met project so that it may move forward soon. Thank you for your consideration of this request.	EOO
Sender Last Name:	Holland **Submission ID:** 2045	
2488	We cannot let our waters to get any more poluted. Wisconsin banned until safe. i believe we should do the same.	G14
3665	I think it'll be a shame to see such pristine areas as the Boundary Waters be so negatively impacted if this project goes through. There is no way to mine in a "clean" way, even if the technology has supposedly improved. Also, once damage has been done to the environment monetary solutions could never fully put the environment in to the same place as it was before. I think the benefits of both sides need to be evaluated. The outcome that results from mining would be such a short-term one if there was one at all.	G2
Sender Last Name:	Hollander **Submission ID:** 2634	
3150	I also own property in St. Louis County, on Pequaywan Lake. Please do not approve the mine. We have precious little clean water left in our county. Jobs can be created in many ways, but clean water is a limited resource. Once polluted by mercury and other contaminants, there is precious little that can be done to restore the water. Pollution lasts alot longer than the jobs that will be created. Once the minerals in the mine have been depleted, the pollution remains for all our grandchildren and their children.	EOO,G7B
Sender Last Name:	Holmen **Submission ID:** 2930	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3273	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Furthermore, the PolyMet mine would change the symbolism of the area that the tourist industry relies on. Consequently, tourist businesses along the North Shore and Ely area would all bear the external costs of possible future mining, while all economic benefits would be contained to the community of the mine's location.	G1,G11
Sender Last Name:	Holzman **Submission ID:** 2978	
3356	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources. I have three young children, and while I sympathize with Minnesotans desperate for jobs, I can't support trading away clean water for short-term economic gain. Nor can I support creating what amounts to an enormous clean-up debt for the next generation.	G1,G4,G7B
Sender Last Name:	Honkanen **Submission ID:** 3459	
3738	Dear Commissioner, I would like to write in support of the Polymet Mining project that is being considered for implementation. To understand why I support the project, it is necessary to know some information about me. I have lived on the Iron Range since the age of eight. From the age of twelve, I knew that I wanted to be an attorney. Seventeen years later, I have my own solo practice in Virginia, MN, but while in law school at the University of St. Thomas, I received my MBA as well. Prior to opening my practice, I looked at a number of factors in consideration of opening a firm. One primary reason that weighed in favor of making an affirmative decision to start my practice here was Polymet. People on the Iron Range have become accustomed to the boom and bust cycle of the mining industry and that will not change. Polymet raises the economic floor of the entire region so that the economic busts are not quite as bad. In addition, more young people, like myself, will be more inclined to begin opening businesses and venture into the entrepreneurship waters. Mining is the way of life here and that cannot and will not change. Outdoor activities are also a way of life here, but that pales in comparison to the need for clean drinking water, fresh air, and uncontaminated soil. No one wants pollution; however, we live an area where some pollution is required in order to sustain the rest of the world. If people want pristine areas, such as the Boundary Water Canoe Area, then they must alternatively have places like the Iron Range. The goal, then, is to have the safest and cleanest form of mining possible. Polymet has achieved that standard by pursuing the policy of having the cleanest copper mine in the world. I know this because of the various statements made by its president and legal counsel, but also because of the EIS itself. The EIS is like a contract and Polymet is the bound party. That policy will be continued as the DNR, MPCA, and other various governmental and private agencies monitor Polymet's continued activities, assuming the plan is adopted. Therefore, not only is Polymet starting at an extraordinarily high standard, but it is seeking to sustain that standard into the future. Therefore, the Iron Range achieves the best of both worlds: continued economic growth and development and doing so in a responsible and clean manner. Please approve the Polymet mining project so that we can all get to work. Thank you. Sincerely. Erik J. Honkanen Law Office of Erik J. Honkanen	EOO,G1,G2
20687	f. The DEISreported recharge rates of precipitation and snowmelt through till from calibration of mathematical models, but these values for recharge seem many factors less than probable as determined by the USGS. I recommend that DNR determine recharge rates directly from hydrograph analysis in monitoring wells installed in glacial till at the mine site. Without doing this, there are no assurances of the validity of any of the model calibrations.	WR2A
Sender Last Name:	Horneff **Submission ID:** 3753	
1	Please Please extend public commenting period to spring 2010!	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2	In leu of groundwater extraction wells along the northern perimeter of the tailings basin, consider the emplacement of a permeable reactive barrier (or wall) to treat leachate. A PRB of GAC & ZUI would treat leachate impacted groundwater for 30+ years. Also this would alleviate flow increase to Embarrass River and increase stabilization of the [illegible] N. Wall.	WR3A
3	Allowing the PolyMet Project to proceed without foolproof environmental safeguards and full financial assurance would be the height of irresponsibility; which means that allowing the Project to proceed would be the height of irresponsibility. The wetlands, waters, and long-term welfare of Northeastern Minnesota will be ill-served by sulfide ore mining. The short-term gain for a few workers is not worth the irreparable damage to the ecosystem and the long-term clean-up costs to our children and grandchildren. This project should not proceed.	EOO,G2
3	Im a 20 yr old Boilermaker. I support PolyMet! It creats jobs not only for Boilermakers but other Union Crafts as well. With the economy so low I dont see why people wouldnt support Polymet. It would give hundreds of people jobs not only in the area but for hundreds of miles around. Thanks for the consideration and for all the jobs possible.	EOO
4	Environmental concerns – this type of mining project has never been able to prevent seepage. Why is this one suppose to be different?	EOO
5	I support this project. It seems to me by all of the support that the economic impacts would out way the enviromental impacts. I understand there are criteria that has to be met but all the impacts shared were potential risks not proven facts lets get this project going it is already 2 years to late. Boilermaker local 647	EOO,G1
6	I would like to see this done right, and that means some changes then so be it. As long as it is for the better of everyone involved.	EOO
7	This project has been long awaited. I would like to see it prosper, and that it would be a good advantage for the people of Hoyt Lakes and the surrounding area. I think that Polymet has met all of its requirements. So please get the project going	EOO
8	My name is Thomas Sturgis. I live in Biwabik, Minnesota, and I would just like to say that I would really like to see this PolyMet go. I believe Minnesota has some pretty stringent pollution control regulations, and I don't think we need to add more to this. I would like to see it go. I would like to see my kids not have to leave the area when they grow up and be able to have the opportunity to have a good-paying job here, I would like the grandkids to have the opportunity, and I just think it would be a big burden if this doesn't go through, and it is going to start a precedent where all of these opportunities for really good employment are going to not be available to the area. That's all I've got.	EOO,G5
9	I am pro polymet because it will do good for community's schools and jobs in Northern MN. People are starving loosing there houses and giving what they shouldn't have to give away because of poor economy and not having jobs like this will bring to MN. I would like to live + play in a State that is known to provide work and people live comfortably not in a State that is falling apart cause there is no work. Polymet has made the right steps to make this happen go let them build and provide the food on the tables these people + I need.	EOO
10	This project would put many people to work, which would boost the economy and help everyone. From what I have been told it is safe. I am all for the project.	EOO
11	This project means jobs for Minnesota. It can and will be done in the most prudent environmentally sound way as possible.	EOO
12	This is a well planned – thought out project that will create jobs, produce local copper and will help the local economy. Please move this project forward.	EOO
14	This is great. Let's get going with it. We need jobs.	EOO
15	I support this project because I believe it will create much needed jobs in Minnesota. I believe that, with modern practices, the construction and operation of this facility will maintain a safe and healthy environment. I have personally visited the site and I look forward to seeing it operation again.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
16	I am attending tonight in support of the Polymet project. I live in NE Minnesota and have raised my family there in the midst of many projects operating similar to Polymet. One environment is of a concern to me. If I thought the MPCA permitting process was deficient I would say so. If Polymet can meet their requirements I feel comfortable that we are doing what we can to protect the enviroment and shore up the economic vitality of the region.	EOO
17	My name's Darrell Godbout, I'm with the Ironworkers. I'm an Ironworker Business Agent. I represent about 1800 union ironworkers and we are in support of the PolyMet project. This is an existing mine site already. The property can't be developed for anything else. We all have families, friends, relatives living in the Aurora-Hoyt Lakes area who enjoy clean air and water. PolyMet has taken its steps to assure these areas stay that way. We import about 80 percent of our copper into this country from overseas; companies that work with no environmental restrictions. PolyMet has addressed all the environmental concerns to make sure that they are a good community member and a company to have in our community. A lot of the people in charge of PolyMet are from the area. You see them in our supermarkets, our kids' ball games, around town; they want to be good community people. Knowing that the project is environmentally safe, they can walk around town with their heads high. PolyMet will increase -- will create about 400 full-time jobs and hundreds of spinoff jobs, which is good for our community, our schools, our local businesses. Things to remember about PolyMet: They've addressed all the environmental concerns; PolyMet will provide millions of dollars in local, state taxes, support the community, and, again, our schools. The last is the job creations in the area which -- which are well-needed. And local people growing up in the community, having their kids graduate and having an opportunity to live at home is a big thing for the Ironworkers. That's it.	EOO
18	pro jobs, taxes, and deficit reduction. Get this up + running.	EOO
19	This is an excellent opportunity to provide jobs to the state of MN. I am concerned also about environmental issues but, I am confident that closely monitored, which of course it will be, we have very little to worry about.	EOO,G2
20	Secondly, consider a SRB Cell to treat eventual overflow of the pit discharge, and allow natural drainage to the lower Partridge River thus not effecting flow volume or quality. Constructed SRB Cells for acid mine drainage can be effective for 50+ years, and the matrix can be easily and effectively replaced. Enjoyed the meeting!!	WR3C
21	I believe that this project is good for Northern Minnesota. It is good for the Economy providing much needed jobs which in turn helps people keep their homes, stimulate our local and State businesses as well as a solid tax base for Minnesota.	EOO
21	I am in total support for the PolyMet Project. As an ironworker from Northern Minnesota we could all use the work that comes from this project, and all of the spinoff it would create for families in the area. I believe that it would produce jobs for all walks of life including building trades, vendors and environmentalist. From building, maintenance, and pollution control.	EOO
22	The PolyMet mine will be a positive impact to our region providing jobs to construction, jobs for mining, jobs for the spin [illegible] bay taxes. It is important for our area to have a strong economy. PolyMet mining will provide diversity to our current mining within the area. This mining is providing necessary metals for our society. The metals are necessary and will [Illegible] [Illegible] here if not here more than likely for our country which will [Illegible] with [Illegible] not as stringent as we have have in the USA and Minnesota. The mine will not be operated in a random will nilly [Illegible] but will be managed, operated [Illegible] [Illegible] [Illegible] professionals with consensus toward the environment as if its protection will be regulated and controled by our States Regulatory Agencies.	EOO
22	This is Minnesota's own economic stimulus program -without tax dollars. Five years of work – over 20 million dollars to date just for the draft Eis. Private dollars no tax dollars. The jobs this project brings to N. Mn is well over 1,000 in full production to say nothing of the ancillary jobs! Tax revenue to State is [Illegible] $40, million. Let's rule this Eis "adequate" – all on the issuance of permits. Do not put these folks through any more "hoops". Move forward – Jobs – State revenue. What more can be said.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
23	I would like to see this project moved forward. I was the Investment Banker for this company to help my fellow Minnesotan in the area of jobs. Most of the Shares were bought here in Minnesota. this company has demonstrated very Ethical Standards in quality of their work on the EIS Draft which should be view as adequate. The State needs the Revenues for employment, Company Taxes and hopefully alot of Capital gains Taxes. from my understanding the Company will be paying in the neighborhood of 50mil in St taxes. give these people Hope! They need it with Housing Collapse	EOO
24	I support All Projects that create Minnesota jobs Please Count on Me	EOO
25	I support the PolyMet Project for the following reasons: • The minerals that will be mined are critical for “Green Projects” that are being developed in the US such as electric cars, computers and emission control devices. • We Live in a Progressive State that will enforce environmental permits that will be used to monitor/regulate the mining operations. • We have the responsibility to use our own natural resources when-ever possible and not relay on resources from 3rd woold countries. • The Project will provide Jobs and promote the economic develoop of Minnesota.	EOO
26	So I came here, we are the mill lining manufacturer from Canada, and we supply liners here at U.S. Steel and all the other Iron Range, and this is a very important project. The metal price is going up, the economy is picking up, so it is a good project to be in here, and that's why I'm here. And I understand there are some issues about the environment which is being discussed today, but, you know, I started from India, then I worked in Sweden, I was in the UK, and worked in Africa in gold mines, and now I'm in Canada. You know, these plants are everywhere in the world, and these are being -- this technology is not new or the first time Minnesota will be using it, so it is a proven technology. And you can have all types of precautions and arrangements to check the environmental control, and that can be done. It is not the first time somebody is inventing a wheel. So that's all I would like to say. This is a good project to go, and the metallurgy is good, and you can do good economically here.	G5
26	I am all for the Polymet if they adhere to the EIS. Minnesota needs the revenue from non-ferrous mining. It should have started long ago. The ore contains less than 1% SO4. Therefore emissions from Polymet are miniscule compared to other industries. Polymet has the wastewater treatment plant proposed. It seems to me that Polymet is being held to a higher standard. This is a good thing. I drove my car here. It has copper wiring. The catalytic converter has platinum in it. As long as Polymet follows the recommendations of the EIS, there should be no reason to not build the mine. Lets get through this. If we have to make changes to speed up the process, Let’s do it now. But let’s get this State some more revenue. The metal is just sitting there waiting to be mined. I have a cabin on the north shore. Polymet would affect me if it were done in an unfriendly way. I have no reservations to Polymet being built.	EOO
27	We Need This!!!	EOO
28	I would say that I love the out doors and I am for the Polymet project it will be safe for the out door and great for jobs and tax base they have meet every thing that need to be these metals could be take out in any part of the globe with no reg that would be very bad for the globe. Let do it here were it will be done right!!! We need this it is time to get it moving.	EOO,G1
29	I’m a 23 year old Boilermake Apprentice. I have an 11 month old son and with the economy work is slow. Last year when we had our son I was out of work for 4 months. I would love to see this pass therefore giving us more work. I have 3 mouths to feed and with this work it wouldn’t be as hard. I would greatly appriciate the work and so would the economy.	EOO
30	28 year old boilermaker. Second year apprentice. Need work like this to help pay bills, feed children, keep a roof over our heads.	EOO
31	I’am 2nd year apprentice. family of 4. We need this job. Boilermaker local 647 Ramsey MN.	EOO
32	I feel that PolyMet is doing a great thing for trying to build this mine here in Minn. I will create alot of jobs especialy in this slow economy it would really help if u ask me!!!	EOO
32	We have to keep jobs here! I am tired of seeing made in China! Made in U.S.A. Union Made!	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
33	I support Polymet because it will create lots of jobs for many workers in Minnesota and surrounding areas. Work is slow right now and it would really help the economy to pass Polymet.	EOO
34	My name is Pat Tammen. I'm from Soudan, Minnesota. I taught for 30 years in Ely, and so I'm a retired teacher from there. I have lakeshore property on Birch Lake very close to where the proposed copper mining is going to be, which is four portages away from the beautiful Boundary Waters, and I'm very, very concerned about the copper mining that might be taking place if the permits are granted; that for less than one percent copper, I'm not sure that ruining -- or what I see as ruining our water is worth it. Raping our land is the way I'm kind of looking at it, because we are talking about 6700 acres of our beautiful Superior National Forest, which about one-third of that is wetlands, and how they can replace that or mitigate for that, I'm not convinced of that either. I really think that this is a poor way to go for 400 jobs; that I think that we can think of other ways for people to get jobs, and my idea with that is figure out how we can get some manufacturing plants up on the Iron Range or any place in Minnesota, for that matter, but right now the Iron Range is hurting. As we all know, it is pretty high unemployment. So instead of building windmills in Mongolia, maybe we could do that up on the Iron Range, or Duluth, or the Twin Cities, or wherever. But I would like to take and save our water and our land. That's all. Thank you.	G2A,G7C
35	I need work to support my family on this type of work. Boilermaker USA Eric Wudtke	EOO
36	I am currently a business agent for Pipefitters local 539 and we are suffering an unemployment rate above 30%! My members need jobs, jobs, jobs As well as all the different trades in the construction industry. This project would put 1000's of people to work, It would also create 100s of permadent job for the area!	EOO
37	I believe it is time to stop the cumulative loss of Minnesota jobs and time to start rebuilding our great state and put people back to work. I am a proud member of Boilermakers Local 647.	EOO
38	first off I want to say I am a UNION Boilermaker and am very proud of my job and UNION work. I believe that doing the PolyMet project would be nothing but good for this state and all its residents not to mention the rest of the country that will benefit from it. this project will creat many jobs for people and will be nothing but good in my eyes. this is exactly what we need in this economic times.	EOO
39	It looks like a good project I think it should be built.	EOO
40	What monitoring safeguards will be in place to protect the surrounding lakes?	WR1A
40	I am in full support of this project that PolyMet and Minnesotans are ready to do. I myself am a union electrician, and have not worked in Minnesota for almost 3 years. I am not alone in this, there are thousands of union construction workers laid off (out of work) in Minnesota. And tens of thousands out of work in Minnesota. We need projects/ jobs like this in MN. As well as in the U.S. To many jobs have been shipped overseas. To me the jobs, tax revenue and stimulas of the economy this project would creat is a no-brainer. This project can be done and continued to operate with the enviroment standards held at the level they need to be at. Lets give Minnesotans jobs so they can feed their family. Lets build, create & save jobs in America.	EOO,G1

Sender Last Name: Houdek **Submission ID:** 1248

1405	This project will have detrimental effects on the natural resources of the region and its watershed. It is impossible for PolyMet to control the leaching from waste for thousands of years. Minnesota's children and grandchildren should not be burdened with cleaning up a long-term waste site from PolyMet's quick resource extraction scheme.	G7A

Sender Last Name: Howard **Submission ID:** 22

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
20	Ray Howard, I am from West Duluth, and I support PolyMet where it will help our economy, bring in jobs and employ a lot of the people up on the Range. And I just hope they do everything environmentally safe, and that's it.	EOO

Sender Last Name: Howd **Submission ID:** 1496

519	Will the sulfide bearing materials exposed and removed from the bottom of the pit be piled on the top of the overburden piles where the leached sufluric acid can be taken to the watershed and then to Lake Superior?	RFI,WR3D
1793	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources. I am a property owner in Itasca County and regularly see the environment created by open pit mining I also appreciate the value to the United States in providing iron for steel for our use. Minnesota was a poineer in protecting the environment through the efforts to protect Lake Superior from taconite tailings which contain asbestos. This took great courage and effort by Minnesotan's who are willing to fight for a healthy environment. Now the PolyMet sulfide mine is again threatening our environment and most politians and all bussiness leaders chose to ignore the concerns and allow this potentialy dangerous action to proceed.	EOO
1794	At a meeting a few weeks ago for people concerned about the environment the director of the Minnesota Mining organization said "This is only the beginning". The BWCA is a very special place on our planet and God has given us the responsibility to protect it. The current recession is no excuse to compromise the health of Minnesota. It is the responsibility of an elected representative government to look after the safety and health of our people. Our founding Fathers did not give the business owners the right to do what ever they want irespective of the consequences. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers.	G2

Sender Last Name: Howick **Submission ID:** 3600

3871	To whom it may concern: The potential mining by the PolyMet Mining, Inc. in Northern Minnesota poses as a great risk to our natural resources. When considering this project you must take into account the long term effects on the water quality, the biodiversity, and the tourism industry of the BWCA area. As a scientist and a lover of the outdoors I think these effects are not justified by the creation of unsustainable jobs.	EOO

Sender Last Name: Hughes **Submission ID:** 3

3	My name is Dave Hughes. I'm in favor of the PolyMet project. I think it's environmentally sound and socially responsible.	EOO
4	I'm Brenda Hughes and I'm in support of the PolyMet project. I think it's good for the economy, and I believe they'll do everything they can to make it environmentally responsible.	EOO

Sender Last Name: Hund **Submission ID:** 2931

3274	Some of my favorite memories growin up and in College was spent in the north of Minnesota, which is a gift we North Dakotan´s and Minnesotans get to charish. I do not want this precious area that I feel so proud of, to be destroyed. Please say no to the Poly Met mines.	EOO

Sender Last Name: Huskins **Submission ID:** 3654

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	The costs of any long term damage to the environment will likely exceed by many times the value of the copper, nickel, platinum and other minerals extracted. Your decisions and those of other agencies involved must make sure that long term damage to the environment does not occur and that the corporation proposing the mine bears all costs of damage prevention and mitigation and restoration of all resources. The long term advantages must outweigh the long term risks in order for this proposal to be approvable, and there must be strong scientific and factual evidence substantiating the analysis. The DEIS does not provide sufficient evidence to conclude that the long term advantages outweigh the long term risks	G2
2	The sulfide ore that will be brought to the surface will interact with air or moisture to produce sulfuric acid. ANY escape of that acid into the groundwater, surface water, or air will damage the environment.	WR1E,AQ4
3	In general, the technologies proposed to contain, treat, and neutralize contaminants must be proven, tested, and supported with evidence demonstrating that water quality, habitat, human health, and the environment in general will not be impaired. Projections and computer-based models, without real-life demonstration of effectiveness, are insufficient for this purpose, given the risks. Remediation techniques in the proposal are not sufficient to remediate increased acidification, once released into surface water and groundwater. Once the damage is done, it can't be repaired.	WR1E
4	unreliable technologies provide the assurance this proposal surely requires. Consequently, responsibility for monitoring quality of surface water and groundwater must be assigned and must NOT be left to taxpayers and local inhabitants. No loopholes in this responsibility should be allowed. If variances will be allowed, the responsible agencies must be required to provide full public disclosure of variance applications, with adequate time for public comment and filing of objections before agency decisions are made.	WR1A,PD4
5	This brings to light the sight and noise pollution. Can you imagine living with the constant noise of the mining operation and then having the beauty of the pristine forests and lakes disappear forever to be overtaken by ugly huge piles of rock?	EOO,N2
5	Any increase in the acidity of surface waters will increase mercury methylation, leading to increased accumulation of mercury in fish. There are already significant concerns about the amounts of mercury in fish in the lakes and rivers in the area; the Minnesota Department of Health publishes annual consumption advisories restricting the numbers and types of fish that can safely be consumed. Mercury can cause brain damage, especially in the unborn, infants and children. All possible measures must be taken to avoid exacerbating this existing problem. All impacts of increased mercury in the fish usually consumed by local residents and by visitors should be analyzed.	WR4B,FM1
6	The argument that the amount of sulfide is low in the ore proposed to be mined is not sufficient protection—even sulfide content of less than 1% can produce sulfuric acid, which can produce the damages described above.	PD2
7	The DEIS recognizes that the tailings basin would have high sulfate concentrations which will seep into the wetlands nearby and ultimately into lakes and streams. This is unacceptable. Moreover, there are grave concerns about the stability of the tailings basin. A breach of the basin could have catastrophic results from uncontrolled spillage of contaminated liquids. The tailings basin alternative still would result in seepage into the Partridge River, either directly or indirectly, so it, too, is inadequate. The technologies proposed to treat contaminated water and to prevent release of contaminants are insufficient.	EOO,WE6,WE8
8	The project proposes storage of waste rock subaqueously in pits, with permanent liners and cover systems to prevent leaching to the surrounding landscape. Yet liners and cover systems will not last into perpetuity; they will eventually fail and the contaminated water will leach into groundwater and surface water. How long are the linings projected to last? For the entire life of the operation? Is that 20 years? That's certainly not long enough. Dikes and ditches will be built to capture surface run-off, but what about run-off that seeps into groundwater via breaks, fissures, etc? Will these systems—the tailings basin, liners, dikes and ditches be sufficiently strong and stable enough to guarantee against breaks, leaks, overflows, and other damage for centuries? Treatment of contaminated water before discharge is proposed, to minimize adverse effects; this treatment, too, should be required until the risk eliminated, which likely is long after the mine would be closed. Financial guarantee of payment for the costs should be in hand before any work begins.	WR2D,WR3I,PD2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
9	Increased acidification of groundwater and aquifers will leach mercury and other minerals into the drinking water used by municipalities and families and individuals, which are likely to produce adverse health effects to people and animals, whether or not they eat fish.	WR4B,AQ4
10	The DEIS predicts that the West Pit will begin leaking/overflowing contaminated water beginning at about year 65—again, long after mine closure. Full analysis is needed of the potential increase in concentrations of cobalt, copper, nickel, arsenic, cobalt, and selenium as well as sulfate, is needed, and adequate protection against leakage and/or overflow must be required. The DEIS states that the overflow "could be mitigated if it would occur." How can mitigation be effective once the contaminated liquid is flowing through wetlands, streams, rivers and lakes?	WR3A,PD2
11	The project would directly or indirectly affect over 1,500 acres of wetlands, including peatlands. Peatlands are known to be effective in carbon sequestration; impairment of these peatlands would	AQ3
12	Financial assurance needed Post-closure water quality monitoring, treatment, and remediation may be needed for centuries. In some other states, mining companies have gone bankrupt, abandoned mines, or sold out to other companies with the result that the taxpayers are left shouldering the costs of cleanup. If acid mine drainage finds its way into the streams, rivers, lakes, and aquifers, cleanup may be impossible, and at least will take decades or longer. The DEIS must ensure that monitoring, treatment, and remediation/cleanup measures will be taken regardless of any default, bankruptcy, transfer of ownership, or other change in responsible party— and will be the responsibility of the mining company/companies. Financial protection for taxpayers must be fully in place at the outset of permitting so that the mining companies are financially responsible for these measures and to guarantee that none of these costs will fall to the taxpayers.	PD3,PD4
13	Inadequate assessment of land exchange The DEIS presumes that the land exchange with Superior National Forest to consolidate ownership will be successfully completed. It does not adequately evaluate the effect of the land exchange on wetlands, forests, other ecosystems in the area, endangered species, hydrology, and taxpayer interests. This should be done before considering the effects of a project dependent on the land exchange.	PD1
14	Inadequate assessment of socioeconomic considerations The predicted increase in employment, economic benefits to the local economy, and income to state and local government and schools is not sufficiently analyzed. The analysis should include the "boom-andbust" cycle of mining: what will be the effects when the mine closes (its predicted life is 20 years or less)? What mitigation measures should be put into place to clean up the effects of job loss when the mine closes? The economic impacts should be evaluated well beyond the closure of the mine. It is important to consider in this analysis the viability of eco-tourism as an economic engine in the region if environmental damage has occurred. Impacts in areas downstream, including the St. Louis River area and Lake Superior, should be evaluated.	SE3
15	Inadequate assessment of effect on Tribal lands and resources and economic, social, and cultural effects The loss of Tribal access to lands and resources should be fully analyzed, as well as the impact of reduced water quality on Tribal and wild rice harvesting. Cultural impacts as well as economic impacts should be considered. It is not satisfactory that it was "not possible to reach agreement".	G3,CR1,CR4
16	Inadequate assessment of the "No Action" alternative The alternative of closure and reclamation of the current sites would avoid the environmental and social impacts of the proposed project. The DEIS states that, with this alternative, the economic benefits would not occur. This conclusion takes at most a 20-year view. The economic benefits of No Action should also be evaluated --including the economic benefits of avoiding the environmental damage long past the expected 20-year life of the mine. The comparison should include a comparison of the economic conditions that can be predicted, say, 40 years from now if the Polymet proposal does not go forward with the economic conditions at that same time if the proposal does go forward, the mine closes, the highpaying jobs go away, and the environment has sustained even noticeable long-term damage.	ALT8
17	Cumulative effects are not sufficiently analyzed What are the cumulative effects of the biological consequences of the proposed mine and the remaining closure, remediation and reclamation efforts, and the need for ongoing monitoring and "fixing" of additional problems that emerge in the future? The contamination currently occurring on these sites must be considered in determining cumulative effects. More information is needed on the legacy responsibilities and longer-term mitigation needs.	CR1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
18	Other matters Concerns registered by the Environmental Protection Agency and the Bois Forte and Fond du Lac Tribes must be given full consideration and detailed responses.	G15
19	Request for notice of final EIS We request e-mail and postal service mail notice of the final EIS in this matter, according to Minn. Rules 4410.2700, Subpart 3.	RFI
22	The quest of PolyMet sulfide mining is said to bring 400 new jobs for 20 years. What temporary assurance is that in comparison to the economic stability and continual attractiveness as a natural prime wilderness that draws visitors here annually by the thousands?	SE4
1162	PolyMet's sulfide mining seepage will pollute the rivers, streams, lakes, wetlands, eventually Lake Superior, with not only Sulfuric Acid produced when the sulfide rock is exposed to air and water, but also with increased levels of Mercury. Tribal Treaty rights would be imposed upon by the increased mercury, sulfates, and heavy metals levels in their wild rice and other vegetation areas. All wildlife, fish, birds, forests, and yes - human beings - would be subject to the poisoning of water and air. To date, PolyMet has admitted they have no proven proof that present technology exists in terms of safety. Wisconsin has banned sulfite mining for this very reason.	WR1E,WR4A,WR4B,WR4F
2043	Furthermore, PolyMet has offered no financial data to prevent taxpayers from having to pick up costs of failures or pollution caused by sulfide mining.	PD4
2663	For over 60 years, three generations of our family have chosen canoeing/camping summer vacations in the Boundary Waters Area. The groundwater, upon which the permanent residents in NE Minnesota as well as annual tourists are dependent, is now seriously and forever threatened by the sulfide mining industry.	G7
2664	Although the PolyMet mining at Hoyt Lakes would not directly affect the Boundary Waters at present, the result of the EIS could directly determine actions of other mining companies pursuing interests in the Kawishiwi Watershed including the Boundary Waters.	G8C
2665	Minnesota citizens have the right to know all the negative facts which sulfide mining would bring to our state, and these are not sufficiently addressed in the present Draft Environmental Impact Statement.	G8
3869	1. EPA reports sulfide mining is the single largest source of toxic pollution in the U.S. 2. PolyMet mining seepage would pollute all waters flowing into Lake Superior, largest freshwater lake in the world. 3. All waters would poison wildlife, fish, birds, forests, and human life forever. 4. The lake-based economy of NE Minn. would become extinct. Noise and sight pollution from mining operations and large water treatment facilities would be deafening. 5. Vacation Land has put NE Minn. on the map. Sulfide mining would destroy this. 6. Other states have been left with their taxpayers cleaning up the residue after mining has pulled out. A warning to the U.S. and the World. 7. The DEIS has many shortcomings.	G2A,G7A,G11

Sender Last Name: Husman **Submission ID:** 2153

2558	I am writing to express my support of the proposed action to construct a mine, build stockpiles, and crush and concentrate ore on the former LTV Steel Mining Company property. Minnesota has a long and rich mining heritage in this part of the state and I would like to see additional mining in the region. As Americans, I feel it is also our responsibility to produce the metals that we consume and Minnesotans would benefit from new mining through jobs and taxes. I believe that mining can be conducted in environmentally friendly ways and that an additional mine in northern Minnesota will not cause significant damage to the environment of the area. I am in favor of the proposed action as listed on page S-8 of the Draft EIS summary paper.	EOO

Sender Last Name: Hutchins **Submission ID:** 3343

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3636	-The Environment is ALOT MORE important than getting metal from sulfide mining. □-That isn't fair that because of the sulfide mining, a local resort on Birch Lake will lose customers. □-Boundary Waters Area was meant to be on reserve, meant to be there for a place to relax and bring peace to all visitors. We don't want sulfide mining to ruin that! □-If mining is one of the biggest pollutors, nation-wide, the why do we want Minnesota to be apart of that reason for pollution? □-Instead of giving jobs to sulfide miners, lets give jobs to these people that will benefit them & the environment.	EOO,G11
Sender Last Name:	Hyduke **Submission ID:** 3584	
3853	As a lifelong resident of Northeastern Minnesota and business owner in Duluth, I am writing to express my support for PolyMet Mining's North Met Project. PolyMet's draft environmental impact statement provides a thorough review of the project and its impact. I believe the EIS lays the proper groundwork for developing an environmentally and economically sustainable project, and I support the project one hundred percent. The North Met Project will provide vital metals that we all use every day, using environmentally sound methods. Our air, water and natural resources will be safe. This project will provide thousands of direct and spinoff jobs that will be a major boost to our struggling economy, not to mention the millions in tax dollars that will be generated. The homework has been done; the proof has been provided. This is a project that looks good from every angle. I urge you to move it forward.	EOO
Sender Last Name:	Hylton **Submission ID:** 3626	
3908	This letter is in regards to the proposed open-pit mine in northeastern MN. It is time that everyone realizes our most precious resources are the life sustaining plant communities on the surface of our planet. These complex systems can never be replaced yet we continue to destroy them in the name of progress. We can't afford to lose another acre of forest land. As stated in the Jan/Feb 2010 issue of the MN Volunteer Magazine "It is widely recognized that people have become a geological force in changing while ecosystems" "we must take responsibility for that and realize that our choices in the next decade will determine the forest of the future" Each acre of Mn forest holds an average of 99 metric tons of carbon, protecting forest from development keeps stored carbon from being released into the atmosphere. An open pit mine is going to destroy a large area of forest land and will also end up polluting our waters. Please deny the permits required for this mine MN's environment cannot afford it.	EOO
Sender Last Name:	Ibele **Submission ID:** 1744	
747	PolyMet's plan to use existing mine tailing basins for disposal of its tailings raises a red flag. As demonstrated by the failure of the coal ash slurry retaining basins at Oak Ridge Tenn,, such retention structures develop instabilities over time and fail, with disastrous	EOO
1077	environmental damage to air, earth, or waters: 2) be required to post bond of such size that unforeseen health and safety impacts on mine workers will be fully covered. The experience with taconite dust and tailings is a warning that in projects of such size and complexity always contains unpleasant surprises.	PD4
1117	I have these comments on the PolyMet Mining Corp North Met mining project DEIS. There are serious concerns with this proposal. The first is the negative impact on water quality. The proposed project anticipates the use of large volumes of water which, together with leachate from waste rock, form a seriouse environmental problem. There must be a clear,explicit description of the treatment process which will restore all used water to safe quality standards before release into the natural water system. The anticipated presence of high sulphate concentrations is of particular concern.	WR2G
1118	consequences. Before granting approval for this proposal to proceed PolyMet should 1) be required to demonstrate on a small scale,in the field. under actual conditions,whether it is possible to recover the specified metals without	EOO,WR1E,AQ4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Iverson **Submission ID:** 3655	
1	Franconia Mine. It literally breaks my heart to realize that if this project is approved, it is likely that I will not be able to teach my son to fish in these same beautiful lakes, because as we know, past sulfide mining elsewhere has resulted in acid mine drainage causing extensive and expensive damage to water quality and the environment. Given the rarity of protected forest and lake country in America, and the undeniable preciousness of Minnesota's Superior National Forest and the nearby BWCA, I cannot understand why we would risk potentially catastrophic pollution in exchange for the short-term profits that could be earned from exploiting these lands for their limited mineral resources. I am strongly against this project, and I fear greatly that it will be approved in the end. I ask that every one of the 5 steps cited below be taken to limit to the as much as possible the environmental damage I believe to be unavoidable, and attain every possible assurance that Polynet will pay for the cleanup necessary, and for the economic losses the region's outdoor tourism industry will suffer.	G4A,G11
2	1) Analyze the land that is going to be exchanged for Superior National Forest land to make this project possible. Make sure that the land swap would protect wetlands, endangered species, hydrology, tribal rights and taxpayers' interests.	PD1
3	2) As the U.S. EPA suggested, make sure that financial assurances for the public are included in the EIS long before any permitting process gets underway.	PD4
4	3) Analyze all of the impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources. Mercury in fish causes brain damage to children and to the fetus.	WR4B,FM1,AQ6A
5	4) Get better information on existing pollution, the nature of wetlands, endangered species, wild rice stands and other resources that would be affected by the project.	WR1E,WI5,WE2
6	5) Require the PolyMet Company to show that their waste rock and tailings piles won't collapse and dump uncontrolled pollution into nearby waters and that they will not create water pollution that lasts for hundreds or thousands of years.	GT2
Sender Last Name:	Jackola **Submission ID:** 257	
270	As a resident of Chisholm, Minnesota, I am writing to express my support for the Polymet Mining Corporation project. I am a proud member of my community, have built my career here and have raised my family in this area that has been hit so hard economically in the past 18 months. This Polymet project is vitally important to our region. As a part of an area that has survived the rise and fall of the steel industry many times, I strive to support my local community whenever possible. With that in mind, I have invested my own dollars in the Polymet Mining Corporation, and have encouraged my family, friends and neighbors to do the same. It is my understanding that Polymet will produce the copper, nickel, platinum, gold and cobalt in an environmentally sound manner and generate significant economic activity in this depressed part of Minnesota. In addition, it will provide millions of dollars in local and state taxes that will, in turn, give a boost to our communities and educational systems, while providing employment opportunities to our young adults so they do not have to leave the area. It is my request that you make every effort to see the Polymet Mining Corporation project through to completion.	EOO
Sender Last Name:	Jackson **Submission ID:** 1124	
1232	As a concerned carer for our earth, I must oppose the Polymet project on several grounds. One is that it is not for our people to have jobs, but is to destroy our area for the benefit of China. And already the plant at former LTV spot is teaching sulfates without even being in full production. We deserve. They spoiled land + jobs that are likely only short-term as metals run out.	EOO,G7A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Jacobson **Submission ID:** 3728	
1	The conclusion that there is little risk of sulfate-enhanced mercury methylation in the St. Louis River estuary (4.1-194) is unsubstantiated and should be modified or deleted.	WR4B
1	Conclusions based on sulfate and methylmercury concentrations at sites along the Embarrass River (4.1-126,4.5-21) rest on questionable data and should be modified or deleted	WR1E
2	The water chemistry of area lakes and streams represents a legacy of past iron mining activity with many surface waters enriched with sulfate leaking from old mine pits and tailings basins. A proper sampling of this system could have provided a powerful analog for predicting the methylation effects of additional sulfate discharges. But again, only minimum sampling was done, and nothing conclusive can be drawn from the results.	WR1E
3	The assessment of mercury methylation risks (supporting documents HG01 and HG02) by PolyMet's consultant, Barr Engineering, are scientifically biased and rely on inappropriate models and incorrect assumptions. Rebuttal memos by DNR and PCA staff scientists sharply criticize these documents, and as a result few if any of Barr's conclusions are included in the DEIS. The lack of a balanced and unvarnished assessment of methylation risk in supporting documents weakens the DEIS.	WR4A,WR4B
4	The DEIS does not fully consider the methylation risks posed by sulfate discharges to several key locations: the St. Louis River estuary, the wetland complex north of the tailings basin, hypolimnetic (bottom) waters of the Embarrass chain of lakes, and beaver impoundments along the upper Partridge River. All of these locations represent high-risk situations for sulfate-enhanced mercury methylation.	WR4B,WE8
1350	The stability of the existing LTVSMC tailings basin that PolyMet plans to use for their disposal is a well-recognized concern. Rather than generating a plan that increases the safety margin of the basin, PolyMet concedes that "further design and analysis is needed." o A stability analysis and acceptable basin design should be part of the Draft EIS. o Known deficiencies should be addressed before permitting PolyMet to pile additional waste tailings on top of existing tailings.	GT1
1351	PolyMet should develop and test a plan that increases the safety margin of its planned use of unstable, old tailings basins.	GT1
3332	The Draft EIS states that water from waste rock piles will likely remain contaminated with heavy metals for up to 2,000 years. And yet, after only 65 years, this contaminated water is expected to overflow from the west pit, contaminating nearby water.	WR3A
3333	• Seepage from the tailings pit is expected to create "high risk situations" for mercury methylation in wetlands and lakes downstream.	WR4B,WE8
3334	• PolyMet's proposal to construct a wetland for the purpose of treating contaminated water is unproven. o Previous tests of small-scale treatment wetlands have shown wide seasonal variations in effectiveness. o No-one knows if these wetlands can continue to absorb pollutants over thousands of years. o Full-scale testing should be completed before relying on a wetland to protect high quality watersheds and important wilderness areas in the nearby BWCA W. o PolyMet should propose a different method for treating the water.	WR3L
3335	Polymet should develop a full-scale wetland treatment system and demonstrate its effectiveness over all seasons and for a projected term of years equal to the expected discharge of polluted water from the mine.	WR3L
Sender Last Name:	Jalonen **Submission ID:** 2554	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3120	I am writing to oppose the issueance of any permits to Polymet for the development of a metalic sulfide mine in the Superior National Forest until and unless the issues raised in the DEIS are fully resolved. Also, that the company be required to purchase a bond to cover the potential costs to address any environmental damage done during or in the aftermath of the mining period. The DEIS makes it clear that the proposed mining operation presents too many dangers to our waters, critical habitat areas and other precious resources. They include the following: Water from waste rock piles will be polluted for up to 2,000 years (Table 4.1-45). One analysis in the DEIS predicts that arsenic, cobalt, and selenium will exceed water quality standards. Another analysis predicts cobalt, copper and nickel will exceed water quality standards. Both analyses pred high sulfate concentrations. (4.1-113). “Relatively high sulfate concentrations in seepage from the Tailings Basin would be released to wetlands north of the Tailings Basin and lakes downstream on the Embarrass River that represent ‘high risk situatio for mercury methylation” (S-9). When mercury is “methylated” it can bioaccumulate, making fish unsafe to eat. PolyMet proposes to construct a wetland to treat contaminated waters. DEIS: effectiveness of constructed wetlands to remove metals has “strong seasonal variability.” Also: “A limited literature review also reveals wide range of variability in the pollutant removal effectiveness of constructed wetlands….” (4.1-112). The proposed wetland would cause the destruction of 1,000 acres of peatlands. This would result in a two percent increase in Minnesota’s overall CO2 emissions. The DEIS acknowledges that “project facilities and operations would result in additional greenhouse gas (GHG) emissions in the Arrowhead region”(S-1 DEIS acknowledges the potential for project to result in a loss of critical habitat for both Canada lynx and gray wolf (federally listed species) . There would also be an increased risk of vehicle strikes for both species. PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials, but the stability of the tailings basin has been a serious concern since the project was first proposed, and has resulted in multiple designs. The DEIS acknowledges the potential for basin structural failure: “The NorthM Tailings Basin and hydrometallurgical residue facility embankments would have a low margin of safety du to fines and underlying soils in the existing LTVSMC Tailings Basin” (S-10). PolyMet has failed to address the safety issues, indicating instead that “further design and analysis would occur during permitting…” (4.13-2). In addition to the specific findings of the DEIS, it is my understanding that this form of mining has generally occurred in the arid western parts of the country, where there is not the danger to surface waters as there is in NE MN.	EOO,G2C,G4A,G6,G7A,G7

Sender Last Name: Jamar **Submission ID:** 300

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
314	I am writing this letter in support of the Polymet Mining's NorthMet Project. There are a few points that I would like to make. First, it is my understanding that Polymet will be a 0 discharge plant in terms of water and thus there will not be any contamination of the local watershed. It is also my understanding that Polymet has spent over 20 million dollars for the EIS in order to provide an environmentally sound project. I have reviewed the summary of the EIS and it would seem to me that the extensive EIS document and the rigorous review that the current regulating agencies have done would suggest that Polymet and the regulating agencies have done their due diligence. I also found two websites that ranked the states in terms of environmental success. Fordes.com ranked Minnesota 15th for a "green" state with number one being the best. Scorecard.com ranked Minnesota 43rd in terms of air pollution with number one being the worst. Both of these suggest that Minnesota is a leader in terms of environmental regulations and Polymet will meet the required regulations. I would much prefer to have these raw materials come from a plant that has met the rigorous environmental requirements imposed by Minnesota versus coming from those countries with less stringent requirements. There is a demand for copper and nickel worldwide. One has to wonder that if this plant is not allowed to be built here, where will these minerals come from and what type of environmental controls will it have. Would China or Brazil's environmental regulations be as stringent as our current ones? I doubt it. In addition, the process that Polymet is proposing does not inciude a smelter which is a source of pollution. What would they have in other parts of the world? I would also like to note that there was a copper mine in the upper peninsula of Michigan that is no longer operating. It is in a very pristine area as it was when it was operating and is still after having been closed for many years. These plants can operate in harmony with nature under the current rules. I know many of the Polymet people that are currently involved in designing the Polymet process and environmental control systems. Like me, they live in Northern Minnesota and are raising families here. Typical of people of this area, they are avid outdoorsmen whether that is fishing, hunting, skiing, or just enjoying the beauty of our area. We are all very conscious of our environment and are good stewards of the environment. It is in their personal best interest to have a clean environment for themselves and their children. The economy of Northern Minnesota has been reliant on one major industry for over 50 years: iron ore. We now have the opportunity to diversify the market with a new industry that is in demand and will be for many years. Polymet alone is projecting over 350 jobs excluding the spin-off jobs. In an area that currently has an unemployment rate of over 10%, these jobs would be a welcome relief to the unemployment. The impact to the local school districts would also be significant through the school trust fund. My company's 33 employees and families would certainly benefit from this plant being built. Given the current state of the Iron Ore industry, we need this new industry to insure jobs now and for our children such as my son and daughter. In closing, we all have to weigh the risks of projects with the rewards. In my view, due to the current rigorous environmental regulations in the State of Minnesota, the environmental risk is very small yet the reward to the state is very large. I strongly encourage you to grant Polymet the permits required to make this project a reality.	EOO

Sender Last Name: Janeksela **Submission ID:** 3729

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	Although the relationship between sulfate loading and mercury methylation is complex and difficult to model quantitatively, prior mining activity at the NorthMet site and nearby taconite operations have left a legacy of leaking mine pits and tailings basins that could provide a useful analog for predicting effects of future sulfate discharges on mercury methylation. The DEIS and supporting technical memo (HG01) report results from a modest sampling program conducted over a two year period (2006-2007) at 10 sites on the Partridge and Embarrass Rivers and smaller tributaries. Unfortunately this data set is grossly inadequate to assess sulfate effects on methylmercury levels in area surface waters. There are far too few sites to spatially characterize this large and complex drainage system, sampling frequency is too low to properly assess the effects of changing stream discharge on methylmercury and sulfate levels, and the analytical results for total mercury concentrations are nearly useless because of poor (high) detection limits and other analytical problems. Fully half of the 53 samples reported in Table 2 of Technical Memo HG0I report total-mercury levels below detection, which itself varies between 2 and 8 ng/L. Standard and widely used analytical procedures for total-mercury in water provide detection limits in the range of 0.5-1.0 ng/L, which is well below normal surface water concentrations. The lack of reliable numbers for total-mercury means that the %MeHg (the proportion of total-mercury present as methyl) cannot be calculated. %MeHg is a widely accepted and useful metric for the methylation efficiency of the environment, which allows for comparison across sites where total-mercury and other water chemistry variables may range widely (see MPCA response to HG01). The DEIS points out that methylmercury concentrations in the upper Embarrass River are greater in low-sulfate waters above the LTV tailings basin than they are at a downstream site that receives tailings-basin drainage and has higher sulfate (4.1-126, 4.1-133). However, the difference in methylmercury between the two sites is not statistically significant and furthermore cannot be expressed as %MeHg for lack of reliable total-mercury data. Moreover, some of the highest methylmercury concentrations (and %MeHg) are reported from Second Creek, which also has very high sulfate levels from mine drainage (4.1-169, see also DNR response to HOOl). But basically, the data set for the NorthMet site is far too sparsely populated with reliable numbers to allow for any statistically robust assessment of possible minedrainage effects on methylmercury levels. In all fairness, the DEIS does, point out that additional sampling of area waters is currently being conducted, which may help address the effects of legacy mining and sulfate loading on mercury methylation (4.1-113, 4.1-161, 4.5-1). One final note on mercury monitoring of surface waters is that a sampling plan that focuses solely on water samples is likely to be uninformative (Harris et al. 2007a; Mason et al. 2005). This is because water samples provide only an instantaneous snapshot of environmental conditions, especially in flowing waters where concentrations and fluxes can change quickly. Most mercury monitoring programs today include, and indeed focus on, biotic indicators of ecosystem mercury exposure. Forage-fish, zooplankton, and aquatic insects integrate mercury exposure over meaningful periods of time, yet if properly selected, represent discrete food-web (trophic) positions that are comparable across sample sites and through time. These lowertrophic indicators are also highly correlated with, and predictive of, mercury levels in game-fish and hence of human mercury-exposure risk.	WR1E,WR4A,WR4B,FM2
1	There is little in the DEIS that would mitigate the effects of sulfate discharge on mercury methylation potential. A tailings-basin alternative that would intercept groundwater discharge to a wetland complex along the Embarrass River is likely to be essential, though the flow would ultimately be redirected to the Partridge River, rather than being eliminated. No consideration is given to sulfate-removal alternatives that might reduce sulfate concentrations in discharges to something approaching background (natural) levels.	WR3I,WR4C
Sender Last Name:	Janes **Submission ID:** 2633	
3149	Altho I have read only about a hundred of the 700 page EIS online, it just seems to me a poor trade-off: a small number of jobs and some non ferrous metals for permanently damaging ten square miles of our state and producing a lot of pollution.	EOO
Sender Last Name:	Janice **Submission ID:** 3176	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
718	If you allow this beautiful part of the country be distroyed it will be a sin above all sins. The time set forth is not enough to allow for all that needs to be studies and understood. There should be at least 30 to 45 days extended to allow for such review. There should also be more public meeting in more locations so that all who wish to participate in this matter have a chance. the current schedule you have set forth is to limited. There should also be an option for citizens to produce statements and a discussion should be held during the meeting on all precented materials.	PRO6

Sender Last Name: Janson **Submission ID:** 3656

1	The DEIS does not outline any specific plan for reclamation after the mine site is closed. In the same vein there is no specific	PD3
2	mention of the method or amount of financial assurance that the mining company will need to set aside for the potential disasters after closing. Because acid mitigation is difficult to predict and long term treatment after closing is necessary, there needs to be a large sum of cash held in escrow as a damage deposit and that amount should be specific and included in the final EIS.	PD4
3	2. There was little or no field sampling done on the movement of ground water through the bedrock. Since the mine and its waste storage site sits nearly on the continental divide it should have been determined if there is any chance that polluted mine drainage (including acids, metals, or sulfates) could move in the rock over time to the north and into the Boundary Waters watershed. This was not done and should be before permitting.	WR2A
4	3. The mine site disrupts natural corridors for the movement of wildlife. Specifically the Canada lynx which is a federally-listed threatened species that requires large territories and benefits from undisturbed forest corridors. No provision is made for mitigating this loss of habitat in the DEIS.	WI5
5	4. The DEIS does not approach the most important question of cumulative impacts of this mine and the others that are proposed in the district. Polymet can not be looked at as a single, one-time event in N.E.	G9
6	5. Where is the plan for constant monitoring of the mining operation by the DNR? Waste rock needs to be sorted by sulfide content, tailings basins need to be inspected for leaks, and waste piles need to be sampled for pH in runoff water regularly. Do we just depend on the mining company to do its own monitoring? There should be a program set up in the EIS for constant monitoring of operations by an independent environmental concern or the DNR.	PD8
7	6. Sulfates are a problem that are not dealt with rigorously in the DEIS. Sulfates in surface water demonstrably impact aquatic vegetation, specifically wild rice. In addition sulfates react with elemental mercury in a process known as mercury methylation. Methylmercury is the form that bio-accumulates in fish and animals that eat fish, including humans. What process has been identified to detect and mitigate methyl mercury in the environment and how will community health be dealt with and paid for? For me personally, I have enjoyed recreating in the Boundary Waters Canoe Area Wilderness and adjoining Quetico Provincial Park over the past 20 years, and look forward to similar activity for the next 20 or more years. Contamination of these wilderness areas must be prevented to the greatest degree, even beyond what is technologically possible today even if that means Polymets (a.k.a. NorthMets) application to do extractive mining is delayed or denied until such technology exists. Perhaps Polymet (a.k.a. NorthMet) could invest similar effort and monies in recycling waste electronics to recover a similar amount of copper and nickel. Recycling efforts may be more costly now, but the collateral costs of not recycling are becoming astronomically unaffordable for each and every one of us.	WR4B,WR4F,FM1,FM4,A

Sender Last Name: Jaspersen **Submission ID:** 2594

3143	Minnesota - The Land of 10,000 Lakes - Please consider carefully what this action would do if you allow this mine to be located here. PLEASE DO NOT ALLOW THIS !!!!!!!!!	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Jay **Submission ID:** 3703	
1	Of much greater importance is the myriad of other small vertebrates, invertebrates and plants with limited seed and spore dispersal that will have to make their way up this wet corridor as the climate warms and the Boreal Forest retreats. (2S)The EIS must try to identify these species and design the proposal in such a way as to have the least obstruction to their access to the few remaining wildlife corridors through the Mesabi Range.	WI5
2	I am a teacher by profession, and have a home on White Iron Lake near Ely, Minnesota. At my great-uncle's resort I grew up loving the lakes of Northern Minnesota, and that love has never left me. I purchased my property on White Iron Lake when the Dunka Mine was the issue in the news. My realtor never told me about the problems at Dunka. I found out after the sale was complete and am doubtful that I would have purchased property on this beautiful chain of lakes had I known.	EOO
3	When discussing fugitive dust it is important to take note of a sentence under Rationale, Eliminated Alternative 1 (E1), in Table 3.2-4, Alternatives Considered but Eliminated "In addition, further waste rock characterization shows there would be no 'non-reactive waste rock'." Additional analysis must be done concerning the reactivity of all waste rock dust connected with this Project. The environmental impact from the reactivity of the waste rock dust was overlooked in the current DEIS and needs to be included in a revised DEIS . Especially important to include is the "extent of offsite migration through wind-borne and waterborne transport and related exposure and bioavailability (Laurel A. Schaider etal, Department of Environmental Health, Harvard School of Public Health)." Fugitive dust related to transport must be completely understood and solved. At the Red Dog Mine (Teck Cominco) in Alaska the National Park Service found that the haul road had heavy metal concentrations that were greater than severely polluted regions in Central Europe (Heavy Metals in Mosses and Soils on Six Transects Along the Red Dog Mine Haul Road, Alaska, 2001). A revised DEIS must include detailed fugitive dust studies of the haul roads and train transport routes of waste rock and ore, including loading to ship transport. These studies must include identifying and solving all fugitive dust problems. Fugitive dust may be from ore concentrate, road dust, or a combination of both. Studies must include transport, handling and storage between the plant and all destination areas within Minnesota, with special emphasis on routes throug h water rich areas, including shipping on Lake Superior.	AQ1
4	Mining company accountability PolyMet and all financial or industry backers must provide the agencies and the state with a resume. They are applying to Minnesota for the right to mine here. Minnesota needs to have complete, transparent records from all involved parties to determine liability, financial assets, history, etc. Ethical assurances must be as important as financial assurances when requiring a background check. The United States has strict rules concerning individuals who work in this country. Yet mining companies who are guilty, and in many cases held accountable in the courts, are allowed to work here despite violations worldwide. Hold mining companies accountable. No company has to mine to a poor standard. They choose how they mine. It is illogical to accept the mining representatives rhetoric that "they must mine here instead of a place with poor regulations." What they must do is stop mining poorly in a poor country that cannot stop them. Allowing sulfide mining to bring the pollution here is not solving anything, only exacerbating the problem. Sulfide-mining companies are now hiding behind exploratory companies without records. Teck Cominco has a one time back in with Franconia. It is crucial that a revised DEIS include all information on the companies proposing to work/mine here so the public has a clear and transparent view of who they are hiring. Historically and consistently, sulfide mines have polluted surrounding waters. New mines can take years before leaching shows. By then the damage is done. The USEPA position is that financial assurances must be required in the EIS before any permitting process gets underway. The DEIS should not have been released until all potential control measures and mitigation options had been considered and evaluated. It should not have been released until financial assurances and liability issues were resolved. It is not allowing the public to have input if all the information is not available to the public in the first place. A revised DEIS must remedy this lack of information.	PD4
5	Mitigation outside of the St. Louis Watershed does not meet the requirements of: 33 CFR PART 332 COMPENSATORY MITIGATION FOR LOSSES OF AQUATIC RESOURCES Authority: 33 U.S.C. 401 et seq. ; 33 U.S.C. 1344; and Pub. L. 108-136.	WE3,WE4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
6	4.2-19 paragraph 2 No one can drink any groundwater from the aquifers contaminated by this mine - virtually forever.	EOO
7	4.2- 26 4.2.3.4 A passive reactive barrier would require undefined periodic replacement of a significant amount of material in addition to other long term maintenance.	EOO
7	4.2-26 paragraph 2 Proposing to capture and treat all process water over the long life of these large project sites is not practical. Expected leakage and failure risks should be incorporated. Modeling basis must be based on actual maximum head testing and hydrogeology.	WE2
7	4.9.1.1 Federal Land Management: A discussion regarding the feasibility for a land exchange between USFS and PolyMet is discussed. This DEIS should not be approved or move forward until such time as the feasibility and legality of this idea be decided. The statement: “This analysis is based on a successful completion of the land exchange and elimination of National Forest lands from the Project” suggests the authors of this DEIS can predict the future. It is impossible for the public to fairly evaluate this DEIS with such speculation.	CPLU3
8	4.2-32 Filtering criteria are not requirements of statute or rules. More detailed justification of criteria used relating to economics is necessary. The choice of 1.1 miles from a ditch and at least 100 contiguous acres appear to be arbitrary . "Anticipated difficulties" is not specific enough for a final EIS / permitting. It can be argued that smaller projects spread over a wider area will provide more benefits (i.e. similar to prairie potholes.)	WE2
9	4.2-33 p3 Again, criteria not required are being used based on perceived costs. Actual costs should be defined for any comparisons.	EOO
10	That brings me to my next concern, which is: what happens to this mercury-rich peat at the mine site when it is dug up and stockpiled? In the RS73B document by Barr 2008 we read that about 1,536 acres of clear cut forest, soil and wetland disruption could occur if the project is approved. All soil sequesters mercury. The inorganic Hg in the peat stockpile has a high potential to mobilize and methylate, thus adding to the methyl mercury burden of the already polluted aquatic system. The stockpile should be capped unless moved within one year. Such mitigation measures are not discussed in the DEIS. The DEIS suggests such a potential major problem with methyl mercury from the mine site. In PolyMet documents under Peatland Disruption we read, "NorthMet mine site would result in a nominally estimated increase of 7-42 % in export of methyl mercury from the watershed". (2) This methyl mercury would be transported down the Partridge River to Colby Lake, both of which already have prohibitively high fish tissue mercury. Is this acceptable to the state and federal agencies involved?	WR4B,WR4C,PD8
11	The atmospheric Hg emissions from the proposed PolyMet mine and processing plant would contain three species of Hg: elemental Hg, ionic Hg and Hg attached to particles. The ionic Hg and Hg attached to particles, which are the most chemically reactive, will be deposited locally and the local wind rose (DEIS Figure 4.6-1) shows that the prevailing winds will deposit those species disproportionately within the Lake Superior watershed. This is not what the Clean Water Act demands for the watershed. The Clean Water Act Section 303 demands the implementation of a mercury TMDL that results in the delisting of waterbodies contaminated for fish tissue mercury. (3)Will the company have to buy "off sets" as defined by the State Mercury Implementation Plan, for any new mercury source?	AQ4,AQ6A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
12	Another mercury problem for these waterbodies that are already listed for fish tissue consumption advisories by the Minnesota health department (Colby Lake, the Whitewater reservoir and the St Louis River) is the proposed water level fluctuations, due to drawdown at the Whitewater reservoir. Addressed on page 4.1-176 we see that under the Proposed Action there will be a reduction in flow to the Partridge River of -10.5 cubic feet per second. And that reduction is intermittent and the magnitude varies. According to Figure 4.1-29 70-Year Cumulative Effects on Partridge River Hydrology, these intermittent reductions could result in a maximum drawdown to the Whitewater reservoir leading to as much as 300 feet of exposed sediments on some shorelines. It would also expose sediments in the many beaver ponds on the Partridge River and they are not addressed in the DEIS. Water level fluctuations have been shown to be a major contributor of methyl mercury to the sub-watersheds of the Red River and would do the same thing to the Partridge River and the reservoir in this case. Fluctuating water levels have been identified by the MPCA as putting a waterbody at risk for methylation. This DEIS does not discuss all the reasonable design and operating strategies needed to reduce these draw downs. There needs to be an attempt to schedule the water releases and withdrawals of the three mining operations, one city and one power plant that use this river, to minimize sediment exposure and therefore methylation. If we are going to allow them to use our water, then we have the responsibility to mandate that they use it in such a way that minimizes environmental degradation. That has not been suggested in this DEIS and needs to be addressed before it can be deemed adequate. (4) It needs to be addressed with a serious scientific attempt to quantify mercury methylation from water level fluctuations. That has not been done.	WR4A,WR4B,FM1,FM5
13	There are natural fluctuations in aquatic systems that present high risk for mercury methylation as defined by MPCA (2006). I am referring to spring snow melt and storm events in which the waters rise into wetlands and bring with it a higher than normal load of sulfates. On page 4.1-23 of the DEIS we read that 54% of the Partridge is a Type C channel according to a Level I Rosgen Geomorphic Survey. Type C channels are characterized as having a well developed floodplain. It goes on to say that in general the Partridge River has a well developed floodplain for all but the Type B reaches. Only 13% of the channel is Type B. That means 87% of the Partridge has a well developed floodplain and is at high risk for mercury methylation if the operation delivers the high sulfate waters that are predicted in this document. Currently, sulfate concentrations are often a limiting factor on mercury methylation and therefore on fish tissue mercury throughout Northeastern Minnesota. If sulfate levels increase as a result of these projects, mercury methylation may markedly increase. All of our wetlands are presently contaminated with decades of air borne mercury deposition. Most of them also have high carbon contents. Oxygen fluctuates by season, so the one sulfate reducing bacteria nutrient we can control is the sulfates. The research is clear that there is a sulfate threshold below which bacteria cannot convert inorganic mercury into the dangerous bioaccumulating form known as methyl mercury. That threshold is around 3 mg/l (Barr, 2008) and then it goes up from there. Our waterways are naturally around that threshold. Sometimes they are above it and sometimes below. Adding sulfates would clearly increase fish tissue mercury and that is not acceptable in such high quality watersheds. (8) Is this acceptable to the MPCA?	WR4B
13	Clearly, the statement on page 4.14-9 of the EIS is in error when it says, "Therefore, the NorthMet Project is not expected to contribute to cumulative effects on mercury in water and fish tissue in the Partridge River watershed." On the bottom ofthe page they make the same erroneous conclusion about the St Louis River watershed, even though they did no Geomorphic Survey of that river. If you survey the St Louis River below the US highway #2 bridge, along the Fond du Lac Reservation boundary, you will find a well developed floodplain all the way down to the Knife Falls Dam. (5)How will the EIS consider sulfate loading to floodplains, reservoirs and the estuary in the down river reaches where the additional sulfate loading will push concentrations towards and above 10 mg/L which is the wild rice standard and also push to levels that support higher rates of methylation?	WR5A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
13	It just so happens that the area from the Scanlon Dam on down to Lake Superior has the highest recreational use of the entire river. Spearing spawning fish that come up out of the Thompson reservoir is a longstanding local tradition. Jay Cooke State Park boasts a fantastic small mouth bass fishery. Even more important, is the St. Louis River estuary fishery. This estuary is home to world class walleye, muskellunge and sturgeon population. This is where the excess sulfate from PolyMet may have its worst impact and it is not even mentioned in the DEIS let alone analyzed to evaluate cumulative harms to natural resources. This is where sulfate levels are currently low enough so that often the lack of sulfate inhibits the sulfate-reducing bacteria that methylate mercury. This inadequacy of the DEIS must be addressed. Section 303(d) of the Clean Water Act demands that it be addressed. The St. Louis River was listed for mercury impairment in 1998 and it still doesn't have a mercury TMDL. EPA guidelines developed in 1999 show that a TMDL that will bring mercury in the St. Louis River to a level that would allow deli sting needs to be done in the next couple of years. I maintain that it is a violation of the Clean Water Act to permit this mining proposal, knowing that the excess sulfate ions are likely to enhance methylation to the point that it would preclude the successful implementation of a mercury TMDL. Permitting of this mine could prevent for decades or even longer, delisting of the st. Louis River, an impaired water body under Section 303(d) of the Clean Water Act. Upon closure of these mines, it is proposed that leachate will be routed through an artificially created and perpetually maintained wetland. The carbon and water and sulfate and mercury in these artificial wetlands may lead to additional methylation of mercury, (Page 4.1-123 of the DEIS) which will further pollute adjacent aquatic systems. We have known since 1985 (Compeau, G.C. and R. Bartha. 1985, "sulfate-reducing bacteria: Principal methylators of mercury in anoxic estuarine sediment", Applied and Environmental Microbiology, Vol 50, Pages 498-502) that carbon and water and sulfate and mercury are the nutrients necessary for the metabolism of the sulfate reducing bacteria that produce methyl mercury. Also according to their own documents in the Executive Summary ofRS54/RS56, about water released from the tailings basin, "Sulfate is predicted to exceed the secondary drinking water standard during the operational period and again in about mine Year 60." Any of these proposed mines in water rich environments would be massive sulfate generators. Waste water could be polished in a wetland treatment facility if the high sulfate concentration of both the mine site leachate and tailings basin leachate were first reduced by the use of nanofiltration or a Permeable Reactive Barrier. However, that would require waste water treatment for perpetuity. If that is what is needed to protect this watershed from harmful fish tissue mercury for perpetuity, so be it. (7)Will treatment of waste water for perpetuity be addressed and not just dismissed?	WR5A,WR5C,FM1,FM3,F

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
13	All of the watersheds in this part of Minnesota are naturally sulfate poor. This was documented by the highly respected DNR scientist, John B Moyle. He was the first to suspect the now well-documented relationship between sulfate pollution and wild rice decline. Moyle found in DNR Fisheries Report No 69, April 2, 1944, sulfate concentrations of only .3 mg/L in the Partridge River. Even today undisturbed portions of the watershed have low sulfate concentrations. According to the DNR Study of the St Louis River (John Lindgren, Nancy Schuldt) released August 29, 2006, at river mile 171 the St Louis River has a sulfate concentration of only 2 mg/L and "Wild rice dominates this reach". That stretch of river above the confluence of the mining impacted Partridge River was packed with migratory waterfowl this last fall. DNR research, done by Dr. Michael Berndt in 2008, shows that the Mud Hen watershed which is not impacted by mining has only 2.05 mg/L of sulfate. However, sulfate levels in the Embarrass River could climb as high as 63.4 mg/L at closure of the PolyMet operation, according to this DEIS. The St Louis River from river mile 160 on down stream for the next 60 miles has been heavily polluted with sulfates, as have been all the tributaries on the north side of the river. The taconite industry lies to the north of the river. In a DNR report on sulfates in 2008, Mike Berndt found high sulfates from the Partridge river on down. For example, he found 35.38 mg/L of sulfate below the Partridge River, 43.13 mg/L above the East Two River and 37.42 mg/L above the Whiteface River. Where did all this sulfate come from? It came from taconite waste that leaked sulfate into the sub-watersheds. For example, the East Two River went from a sulfate concentration of 5.5 in 1947 to 106.05 mg/L in 2008. The Embarrass River went from .2 in 1947 to 27.37 mg/L in 2008. The Partridge River went from .3 in 1947 to 77.42 mg/L in 2008 and the West Two River went from 1.0 in 1947 to 71.20 mg/L of sulfate pollution in 2008. All of the new sulfate produced in the proposed mine waste heaps, tailings basin, sulfuric acid mist and acid rain, has to go somewhere. Of course, it is headed downstream to river reaches and associated wetlands that are lower in sulfates. In 2008 it appears that sulfate releases associated with mining in this watershed are still significant 100 river miles later. That is correctable and PolyMet can either exacerbate the problem and push the sulfate impact all the way to Lake Superior or improve the situation, depending on how they treat or don't treat their leachate.	EOO,WR1E
13	I, Carla Arneson, support and hereby incorporate by reference all comments submitted by the Tribal cooperating agencies, as set forth in Appendix D to the Draft EIS, and also set forth within footnotes throughout Volume I of the Draft EIS.	G15
14	4.7 Noise: It is stated that the effect of noise on wildlife is reviewed in section 4.4. However, a review of 4.4 reveals a dearth of references to the wealth of science regarding the compelling adverse impact of noise on wildlife and human health. A separate section devoted to this topic should be written and included in the DEIS. The cumulative effects of noise as animals move along corridors over ranges of a few meters to > 100 miles must be considered. (Radle AL. Effect of Noise on Wildlife: A Literature Review. http://interact.uoregon.edu/MediaLit/wfae/library/articles/radle_effe ct_noise_wildlife.pdf. The DEIS fails to provide evidence regarding the serious and growing human health effects of noise. Former U.S. Surgeon General William H. Stewart said in 1978: “Noise must be considered a hazard to the health of people everywhere.” (Goins L, Hagler L. Noise Pollution: A Modern Plague. S Med J 2007: http://web.ebscohost.com/ehost/pdf?vid=2&hid=102&sid=72c7f77 8-d60d-4a16-9a7f-010ec30d90a7%40sessionmgr104) Summary: p4.7-9. The use of the word “continuous” is confusing. Does not “discontinuous” noise matter, eg, blasting; 100 ton mine truck traffic; etc? For those people who frequent the environs of the proposed Project for recreation, fishing, hunting, and such activities, the data presented in 4.7 would likely adversely affect their experiences.	N4,N5,N6
14	Two specific waste issues at the tailings basin are as follows. Toxic filter cake sludge from the Dunka Mine site containing copper and nickel was placed in the tailings basin and needs to be addressed in detail by the agencies. The 1992 MPCA Hoyt Lakes inspection report stated it was placed in the southeast corner of the tailings basin. How have the agencies determined in the DEIS that "little evidence remains" and where off site was the sludge taken? Any testing done to determine impacts from the sludge must be included in the revised DEIS evidence.	PD2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
14	The agencies must also address in detail the coal ash (bottom and fly ash) from the Hoyt Lakes and Taconite Harbor operations that was disposed of within the permitted area of the tailings basin, and placed on a base of tailings approximately four feet thick in order to keep the ash above the standing water in the area. Also, ash from the 1993 coal ash pile failure near Taconite Harbor was placed in the tailings basin and must be included in a detailed DEIS accounting . Approximately 1/2 million cubic yards of ash was released from the Taconite Harbor pile; a minimum of 300 cubic yards of ash per day was moved and disposed of in the tailings basin after the spill. What was the total moved there? Once described as "tiny bbs rolling around" by a Minnesota Pollution Control Agency official, ash is notoriously unstable and must be addressed in more detail when located within a tailing basin proposed for reuse.	PD2,GT3
15	The agencies must address in more detail the ash, the sludge from Dunka, and all other materials within the basin permitted area, their impacts to the cumulative toxicity of the basin waste, as well as to the stability of the tailings basin itself. This DEIS does not include all information concerning basin wastes and toxicity, so it does not fully assess impacts. A revised DEIS must do so.	PD8,GT3
15	All water going out of the plant must be tested before it goes to the tailings basin using Toxic Characteristic Leaching Procedure (TCLP) to determine hazardous waste. All water must pass the following testing criteria for hazardous waste: Ignitability, Corrosivity, Reactivity, Oxidizer, Toxicity, Lethality (Minn. Rules Ch. 7045.0131) and must also not be a specifically 'listed' chemical that i s automatically a hazardous waste by name. This must be stated in a revised DEIS.	WR1A,PD2
16	When determining hazardous waste at the Plant Site the revised DEIS must take into account reports from the 1992 MPCA inspection of the Hoyt Lakes facility and any other reports of violations. The 1992 report found violations of hazardous waste rules. These included manifest deficiencies, inadequate personnel training, and in two instances, failure to evaluate certain wastes. Such information would raise questions about the validity of historical records and their influence on decisions made for the PolyMet/NorthMet Project.	HM6
17	The Tribal cooperating agencies' position must be implemented concerning hazardous waste as follows; "The hydrometallurgical residue facility would contain the most hazardous waste materials produced by this project that, if released to the environment, would cause serious and long lasting contamination. The unknowns...are a serious data gap and the tribal cooperating agency position is that the analysis should be conducted and included in the DEIS to comply with NEPA and so that the public can review a complete set of possible environmental impacts associated with this project."	PD2,PD5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
18	The U.S. Environmental Protection Agency's Design and Evaluation of Tailings Dams (1994) stated, "More recently, concerns have been raised about the stability and environmental performance of tailings dams and impoundments. Stability concerns are raised in part by the use of tailings materials in tailings dams/embankments; to mitigate these concerns, such embankments often rely on a certain amount of controlled seepage to enhance stability, which in turn effects environmental performance." In PolyMet/NorthMet's case, under the current DEIS, there is no viable solution except "No Action". If the "necessity to prevent the pollutant from being discharged" is met, then geotechnical stability of the tailings dam will not be possible to achieve with PolyMet's compounded stability problems. If the tailings dam is allowed to continue to seep for stability reasons and thereby discharge the substantial pollutant amounts listed (as well as unidentified pollutants) than "the necessity to prevent the pollution from being discharged" will not be possible to achieve. Further, disadvantages to tailings impoundments detailed in EPA's Design and Evaluation of Tailings Dams (1994) and credited to Environment Canada 198 are: "difficulty in achieving good flow distribution, difficulty in segregating drainag e from uncontaminated areas, difficulty in reclamation (particularly with acid - generating tailings because of the large surface area and materials characteristics), inconsistent treatment performance due to seasonal variations in bio-oxidation efficiency, costly and difficult collection and treatment of seepage through impoundment structures, and potentially serious wind dispersion of fine materials unless the surface is stabilized by revegetation, chemical binders, or rock cover." "Inactive tailings impoundments also are receiving more attention due to the long - term effects of windblown dispersal, ground water contamination, and acid drainage. In many cases, the costs of remediation can be considerable, exceeding the costs of original design and operation of the tailings impoundment." (Design and Evaluation of Tailings Dams) The question must be addressed in a revised DEIS whether the NorthMet Project will be literally covering up a current contamination problem so it does not need to be properly dealt with now. (DEIS 4.1-7): As the LTVSMC Tailings Basin was built up over time, a groundwater mound formed beneath the basin due to seepage from ponds locate d within the various cells. Surface seeps have been identified on the south, west, and north sides of the Tailings Basin, although the number of seeps and the seepage rate have declined since January 2001 when LTVSMC terminated tailings deposition in the basin. " Now NorthMet is proposing to add millions of tons of waste to an already leaking basin, which will logically increase and surpass previous seepage. "Current groundwater seepage from the LTVSMC Tailings Basin to the north toward the Embarrass River is estimated at approximately 1,795 gpm (Hinck 2009, Personal Communication). This seepage rate exceeds the aquifer flux capacity, resulting in upwelling of as much as approximately 1,600 gpm o f groundwater to the surface. This upwelling, in conjunction with the surface seeps, has inundated some wetlands immediately downgradient of the Tailings Basin (DEIS 4.1-7)." "The LTVSMC Tailings Basin, proposed for reuse by PolyMet, was operated from 1953 until it was shutdown in January 2001. The existing Tailings Basin is unlined and the perimeter embankments do not have a clay core or cutoff, which allows for both surface seepage through the embankment and groundwater seepage under the embankment" (DEIS 4.1-29). PolyMet/NorthMet does not propose a liner for the Tailings Basin .	WR1E,GT2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
18	In August of 2009 the USEPA (Re: NorthMet Project — Preliminary Draft Environmental Impact Statement) stated: "In several sections, the Tailings Basin Alternative notes that groundwater will be pumped downgradient from the tailings basin, and recycled back to the tailings basin. In some options, the water will be discharged to the Partridge River – either during operation or post closure. Treatment is mentioned only as a potential option to be assessed later. We have several concerns about the discharge of this water to the Partridge River or to the unnamed creek also mentioned. We recommend that impacts from discharges and mitigation discussions be evaluated as part of this decision-making phase and not deferred to some later discussion outside the NEPA process." The subsequent DEIS contained two Tailings Basin Alternative options. The two options are "Maximum Recycle Option" and "No Recycle Option" which both discharge seepage directly to the Partridge River. All seepage and waste water of concern must be treated or contained, and a plan for doing so must be identified and open to public comment before any permitting is considered. Putting the decision-making phase, in this and other decisions, outside the realm of the NEPA process is a disregard for the EIS process and ultimately lack of respect for the rights of the citizens of the state. The Minnesota Environmental Quality Board, Tailings Basin Design report, 1978, states: "When the water contains a serious pollutant, the tailings dam must be designed to retain water for longer periods until the harmful chemicals have degraded or until the water evaporated. A completely closed system is preferred in all such cases, not only for conservation of water, but as a necessity to prevent the pollutant from being discharged. The seepage water from this type of dam must be controlled, treated, and pumped back to the mill for reuse." Vertical well pumping being proposed must be fully examined for total effectiveness in the revised DEIS. Used at superfund sites, its effectiveness is questionable. The revised DEIS must also be clear that long-term vertical well pumping is being proposed for an indeterminate period of time and likely equates as perpetual treatment.	WR1A,WR2C
19	In the past did Cliffs Erie, or any other party, have stability issues during the construction, filling, and operation of the tailings dam that would be considered accidents by ICOLD standards (Al, A2, or A3)? If so these incidents must be part of the revised DEIS record and included in stability studies of all NorthMet impoundments.	GT1
19	Fractured bedrock must be determined and all impacts dealt with in a revised DEIS. "Aquifer testing in the bedrock has not been performed in the Tailings Basin area, but the bedrock is believed to have a significantly lower hydraulic conductivity than the overlying drift (Barr 2009, Technical Memorandum: Results of Tailings Basin Hydrogeological Investigation)." Again, adding PolyMet tailings to an already leaking Tailings Basin will only increase seepage of pollutants. This must be solved. The agencies must include as part of the revised DEIS a detailed analysis of exactly how adding millions more tons of tailings to the Tailing Basin will improve the seepage of pollutants from the Basin to the groundwater. Kinetic testing is not reality.	GT2

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20	"The single most important criteria for the application of the upstream construction method is that the tailings beach must form a competent foundation for the support of the next dike. Vick (1990) states that as a general rule, the discharge should contain no less than 40 to 60 percent sand . . .Other references state that the determining factor for upstream versus downstream construction is grain-size distribution of the tailings. In addition to grain size tests, Brawner, et al, (1973) suggested that, "If a tractor cannot be operated on the first 100 to 200 feet of beach, the grind is too fine for upstream construction methods." (U.S.EPATechnical Report, Design and Evaluation of Tailings Dams, 1994) In addition to tailings gradation, several other factors can limit the applicability of this method. These factors include phreatic surface control, water storage capacity, seismic liquefaction susceptibility and the rate of dam raising. Upstream embankment construction offers few structural measures for control of the phreatic surface within the embankment (U.SEPATechnical Report, Design and Evaluation of Tailings Dams, 1994)." In the NorthMet Project DEIS Summary it states, "The NorthMet Tailings Basin and hydrometallurgical residue facility embankments would have a low margin of safety due to fines and underlying soils in the existing LTVSMC Tailings Basin." In 4.13.1.2 it further states, "Geotechnical investigations of this tailings basin (Sitka 1995 & 1997) indicate a significant portion of the peat and clay soils under the dam have the potential to develop instability under certain loading conditions. There are also layers of loose saturated slimes (fine silty tailings) within the LTVSMC stored tailings material that extend from the central portion of Cell 2E northward and connect with the perimeter embankment, which are subject to liquefaction under certain conditions and therefore may create instability of the perimeter dam. In addition, several seeps occur along the toe of the northern an d southern embankments." (4.13-2) "Review of the proposed NorthMet Tailings Basin preliminary design (Barr 2009, FTMP) geotechnical stability analysis indicates the perimeter embankments would be stable for unsaturated conditions, but have a low margins of safety for stability for saturated or static liquefaction conditions . Previous studies (Sitka 1995) have showed that slimes close to the dam face and clay beneath the peat in the foundation are the primary reasons for the lower factors of safety. This is a special concern for Cell 2E, the area where the NorthMet tailings would be deposited, as it contains the thickest and most extensive peat in the foundation and has the weak slimes close to the dam face." The contents of the Tailings Basin and its embankments must be examined further concerning liquefaction and catastrophic failure. Liquefaction contributed to the Taconite Harbor, Minnesota ash pile failure and the Kingston ash failure in Tennessee. At Taconite Harbor, in July 1991, "a new dike was constructed along the downhill side of the existing dike at the pile toe, and a grouted seal placed along the bedrock . The water pond at the toe of the pile was cleaned out and deepened to about 20 feet, and pumps were installed at the pond to recycle accumulated water (Sitka Corporation Failure Report)." Yet in July 1993, there was a failure. The Kingston ash pond dike had its annual stability inspection less than a year before it failed in 2008.	GT1,GT2
21	Regardless of the type of dams and the type of materials, dams can and do fail, even when not expected. To begin the NorthMet Project with an acknowledged possibility of failure is hard to fathom; ". . .there is a risk that static liquefaction (fluidizing of the saturated slimes by strain or deformation) could occur and may cause a flow failure along the impoundment perimeter if an event or stress condition triggers the liquefaction (Sitka 1997) DEIS (4.13.3.2). "	GT2
22	Sloughing must be addressed, particularly with the steep sides of the current tailing basin already making it very unstable. Historically Cliffs Erie had great difficulty keeping the basin stable because of sloughing problems, especially after rains. Sloughing, saturation, slumps and liquefaction contributed to the Taconite Harbor and Tennessee failures. These issues must be dealt with now at LTVSMC, not later.	GT2
23	All Tailings Basin issues must be fully solved. To state in the DEIS that "Geotechnical stability will be further analyzed during permitting when final designs will be available" is to circumvent the purpose of the DEIS . All information must be made available for public comment before any permitting is considered. If the information was not available than the DEIS should not have been released.	GT1
23	A Dam Break analysis and risk assessment must be done now, not during permitting. To suggest that the stability answer is to bring the NorthMet Tailings Basin "to within an acceptable margin of safety" by buttressing, as stated in the Tailings Basin Alternative, is high risk at best. Further investigations must happen in a revised DEIS, and not put off until permitting when they are not transparent and not consistent with the federal EIS process.	GT1

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24	The Minnesota Environmental Quality Board's Copper, Nickel Study, 1978, Tailings Basin Design, contains valuable information pertinent to this Project. "In the case of a tailings embankment, at least one borehole in the foundation soil should extend to a depth equal to 1.5 times the ultimate embankment height (MEQB Regional Copper Nickel Study, Tailings Basin Design). There was little information concerning test bores done for bedrock determination on the DEIS map, Figure 4.1-5 Depth to Bedrock at Tailings Basin Area. It appeared from the map that only one soil boring was done more than a mile from the tailings basin. 4.1-6 of the DEIS mentioned a Barr 2009, Technical Memorandum: Results of Tailings Basin Hydrogeological Investigation site boring logs but did not indicate where it could be found. Barr documentation must be made available to the public.	PD2,PD5
24	The tribal cooperating agencies' position was, "The structural stability of the tailings basin has been a serious concern since the PolyMet project was first proposed. This concern has led to the development of at least 3 different tailings basin designs that have been presented in various draft documents. Contractors reviewing these designs have expressed serious concerns with both the short-term and the long-term stability of the facility. Tribal cooperators take the position that given the history of design problems, it is irresponsible to postpone a serious analysis of the structural integrity of the latest tailings basin design until the permitting stage. A complete stability analysis must be included in the DEIS to comply with NEPA and so that the public can review a complete set of possible environmental impacts associated with this project." This position must be followed in a revised DEIS.	GT1
25	When considering NorthMet in a revised DEIS, particular attention must be paid to the MEQB Study's concern with winter conditions. "Freezing can affect tailings embankment design in several ways. Spigotting or cycloning operations may be impracticable during the winter, thus preventing raising of the embankment crest during this season. Meanwhile, with continued disposal of tailings into the pond, the pond level will continue to rise. Particularly with embankments constructed by spigotting, the freeboard available at the end of the winter for storage of the spring, snow-melt runoff may be very small, involving a real danger of overtopping or piping failures. This seasonal variation in disposal procedures may also affect the distribution of tailings materials in the pond, winter dumping of tailings at points distant from the embankment sometimes causing the fine 'slimes' fractions to settle near the face of the embankment. Subsequent raising of the embankment crest over these slimes may then lead to instability of the embankment. "	GT1
25	Also in MEQB's study; "A common error is in defining the bedrock surface. Often large boulders occur in the foundation well above the bedrock surface and provide cores that seem to be compatible with bedrock . . .where bedrock is irregular and where large boulders may be overlying the bedrock coring may have to extend 50 feet into rock for high embankments." "Where dams are to be constructed on or near bedrock, surface springs or artesian water can be a danger (MEQB)." Design for tailings dams with high embankments "requires careful and detailed study of the foundation materials, especially if clay, silt, or peat is present . . . soil samples should be tested for inplace density, gradation, shear strength, consolidation, and moisture content (MEQB). " "Organic soils are generally very compressible, have low shear strength, and should be removed from embankment foundations. When saturated or under load, they could act as a lubricant and cause a failure (MEQB)." More information concerning the bedrock and overlying drift under the tailings basin must be available in a revised DEIS. Composition of underlying drift must be clearly determined in relationship to the instability of the tailings basin. "The existing former LTVSMC tailings basin is unlined and was constructed in stages beginning in the 1950's. It was configured as a combination of three adjacent cells, identified as Cell 1E, Cell 2E, and Cell 2W and was developed by first constructing perimeter embankments (starter dams) and placing tailings from the iron-ore process directly on native material (DEIS 3.32) ."	PD2,PD5
26	It is doubtful that the concerns above and others from the Minnesota Environmental Quality Board's Regional Copper Nickel Study, Tailings Basin Design were implemented in the original LTVSMC Tailings Basin design before it was operational in 1953, or subsequently. Thus all possible inadequacies must be determined and solved before any permitting is considered for reuse of a tailings basin that would create an unstable base for the proposed NorthMet's Tailing Basin, with the distinct possibility of catastrophic basin failure throughout the life of the mine.	GT1,GT2

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27	I am aware that the Dunka mine was the most polluted site in Minnesota and yet was not reported as such by the agencies. In 1989 it was "strongly recommended" that Dunka be listed on the EPA's 304(L) list. Was the EPA informed of the extent of the Dunka problem when they agreed the MPCA could issue Dunka variances? At one time variances were not given by the Minnesota Pollution Control Agency. If variances are now given because it is not possible to clean up existing mining pollution, then that must be addressed in a revised DEIS. It will directly impact the ability of the agencies to deal with the PolyMet/NorthMet Project in any substantive manner. As long as variances are given there is not a law or regulation that can be unequivocally enforced, so our current mining laws in Minnesota mean little or nothing. When companies know a variance option exists or they can participate in a Voluntary Investigation and Cleanup Program (VIC) there is far less motivation for any meaningful compliance. See DEIS Table 4.1-9. Shutting down until pollution is cleaned up would motivate adherence to regulations.	PD8
28	I strongly suggest the LTVSMC tailings basin must not be used for NorthMet. And the existing site must be cleaned up rather than monitored and inspected	EOO
29	The West Pit will become a toxic lake. The West Pit is equally, if not more, frightening than the instability of the Tailings Basin. The initial sixty-five years of wetting and drying mineralized rock will equate to a pool of acid water. "An important factor of pit lake water quality is the interaction of groundwater with the walls and surrounding host rock of the pit. In an open pit, oxidation reactions on the exposed walls release sulfate, acid, and metals into the lake. Additionally, when a pit is excavated below the regional water table, the aquifer in the host rock is dewatered. The typically sulfide-rich host rock will oxidize when exposed to air that is pulled into the evacuated pore spaces, generating reaction products on the exposed surfaces. As the aquifer recovers following mining, those oxidation products will be flushed into the pit lake by groundwater flowing into the cone of depression. For every acre-foot of water that is replaced with air, sufficient oxygen is introduced to generate 514 mg/L of sulfate, initially as sulfuric acid (Precious Metal Pit Lakes, Controls on Eventual Water Quality, Glenn C. Miller, Ph.D.)." The Cove Pit Lake south of Battle Mountain, Nevada illustrates the potential impact of oxidation reactions in the dewatered aquifer. In 1999, geochemical models predicted the pit water would contain 120 to 260 mg/L of sulfate, primarily from oxidation of the wall rock surface. However, in early 2002, the sulfate concentration in the lake was 1240 mg/L, five to ten times higher than the 1999 prediction. The modeling underpredicted the amount of oxidation by up to one order of magnitiude . . . Metal solubility, particularly of divalent problematic metals such as cadmium, nickel, zinc, and copper, is much higher at low acidic pHs and can render poor water quality – a potentially toxic prospect for birds or other wildlife that may attempt to utilize the lake. The Berkley Pit in western Montana, for instance, has essentially no neutralizing capacity; as a result the pH is low and metal loadings are high (Precious Metal Pit Lakes, Controls on Eventual Water Quality, Glenn C. Miller, Ph.D.)." In 1995 at least 342 snow geese landed and died, likely as a result of the toxins in Berkeley Pit. In a revised DEIS the West Pit must be recognized as the potential hot spot that it is and if its potential toxicity cannot be solved, "No Action" is the only responsible choice.	WR2F
30	There have not been adequate decisions made regarding the handling, storage, and seepage issues surrounding the various stockpiles. All the stockpiles will be reactive to some degree, some exceedingly so, and yet the DEIS is again putting off decision making in favor of a "we'll deal with it later approach." These stockpiles are going to be pollution piles.	PD2,PD5
31	Revised DEIS must clearly determine sources of arsenic in the Tailings Basin. Are concerns with arsenic within the tailings basin due to the dumping of fly ash from the Taconite Harbor failure and disposal of ash generated from electrical plants at Hoyt Lake and Taconite Harbor? What is the impact from the use of limestone? When addressing arsenic fugitive dust emissions from the Tailings Basin, as well as treatment of sulfide bearing ore tailings, it must be acknowledged in the revised DEIS that, "Limestone may not be useful in remediating acid mine drainage resulting from weathering of arsenic - sulfides because As release from these minerals increases at higher pH values. Further, mobility of arsenic oxyanions at higher pH values may not be limited by sorption processes because surfaces of oxide/hydroxide minerals are negatively charged. Thus, mining impacted waters treated with limestone to increase pH may be affected by high As concentrations if arsenic-sulfides are present" Oxidation Kinetics of Arsenic-Sulfide Minerals by Regina Tempel.	PD2,AQ1

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32	Also, lime is used to render soils non dispersive. Is this contributing to arsenic levels? Revised DEIS should contain information on uses of lime/limestone, the effects of its use on all toxicity levels, and whether use of lime is being used to increase stability. If being used for stability in conjunction with compaction, a revised DEIS must state under Geotechnical Stability that, "reliance only on good compaction with or without lime modification is a relatively high risk option and is not recommended" (Geotechnical Engineering of Dams by Robin Fell et al) . In 4.6.3.1 of the PDEIS there is a reference to "arsenic emissions associated with fugitive dust from the Tailings Basin." Information such as this has been left out of the DEIS for various reasons and must be included in a revised DEIS because without all toxin information there are skewed and invalid conclusions in a number of areas.	EOO,PD2
33	The tribal cooperating agencies position is that, when considering a permit for PolyMet, all future development by companies already doing exploratory drilling must be included in the analysis of cumulative effects. I would add that an estimation of all possible additional development by mining companies holding large leases must be included in a revised DEIS analysis of possible cumulative effects. Cumulative effects must include cumulative air and water quality effects on lakes and rivers from all sources, including other mines. The EIS may set the standard for all water quality impacts analysis, and good cumulative impacts analysis is critical to protect water quality in the White Iron Chain of Lakes and elsewhere. Of paramount importance when addressing cumulative effects is the enormous amount of electricity that will be generated in the operation of all the projects and the resulting effect on air quality, particularly Class 1 areas already being impacted. This must be fully and transparently addressed in a revised DEIS. Air quality and inhalation is not the only risk concerns involved. Arsenic, nickel and other heavy metals can be deposited in water and soil to enter the food chain. The soil and water itself can be rendered unable to sustain life. Mercury methylation is already an issue in all of our northern waters. When considering cumulative effects the current levels of mercury contamination in all lakes, rivers, and streams that may be impacted by PolyMet/NorthMet must be added to the equation to achieve an accurate assessment of risk. A revised DEIS must also include an indepth analysis of all possible endocrine disruptors and possible impacts. "The Tribal cooperating agency position is that even though cumulative effects to groundwater, vegetation (other than threatened and endangered species), visual and noise effects, hazardous wastes, and cultural resource weren't considered during the initial scoping period, they were identified later in the process and therefore should have been made a part of the cumulative impacts analysis and incorporated into the DEIS. It is the Tribal cooperating agencies position that some mine features (e.g. pit lakes) would become permanent features of the landscape. Therefore post closure impacts should also be included in the analysis. (DEIS 4.14-3)." These Tribal cooperating agency positions much be implemented in a revised DEIS.	WR5A,AQ4B,AQ6A
34	Using wetlands for mitigation and replacing them is an oxymoron. Wetlands that developed over generations cannot be replaced in the short term. DEIS: "impracticable to replace all impacted wetland types with an equivalent area of in - kind wetlands". If wetlands cannot be replaced they should not be used for mediation. An MPCA official at the time of the Dunka Mine contamination wa s quoted as having said, "The MPCA may not allow LTV to use the wetlands as a sponge to soak up the metals." What has changed? Are we sacrificing our wetlands because despite all the research there are no other solutions; or only other solutions that would require mining companies to pay more than they are willing to pay? If wetlands are the only solution, then this needs to be stated clearly in a revised DEIS, so citizens understand the full implications of sulfide mining to our state waters. If not, then other alternatives need to be included in a revised DEIS, regardless of cost to PolyMet. The protection of our water must not be negotiable. The environmental impacts of the project on the 100 mile swamp, an undisturbed and very high quality wetland complex must be top priority in a revised DEIS.	WE2,WE3

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35	Low sulfide ore myth "The folks who talk about low sulfide ore content are using the 'game of units' to try to minimize the potential for impacts by the reactive component - sulfide expressed in percentages. While the potential impacts for significant water concentration changes are at water concentration units of parts per billion, or percent changes of 0 .000 000 001 % expressed in terms of weight of water . By expressing the concentration of sulfide as a percentage, by weight, in the ore or ore tailings, the values computed are made to appear small, but in reality, they are not insignificant! Try expressing the 'low sulfide ore' concentrations in parts per million of parts per billion, and you will get a better idea of the 'impact potential' for making changes in water concentrations for precipitation percolating through an unprotected pile of waste rock or sulfide ore tailings containing 0.1% sulfide (0.1% = 1/1000 = 1,000/1,000,000 or 1 thousand parts per million!). Consider the following simplified, hypothetical calculation: a sample containing 0.1% sulfide ore was contained in a box of one cubic decimeter in size, was air oxidized, followed by leaching with the same volume of water such that 1% of the sulfide resulted in acid sulfate dissolved. The amount of acid, in water, would be approximately 10 parts per million and the pH of the water would be about 5.0. If 10% of the sulfide leached the water pH would be about 4. (The actual amounts of acid would be higher (by 3x) due to the difference in density between ore and water.) As for impacts, most freshwater aquatic life can not tolerate water pH below 4. And this hypothetical calculation is just for the acid content, and is only the beginning of what happens as the metal content of the ore dissolves in low pH water giving toxic concentrations of heavy metals including aluminum, to aquatic life. The reaction times may be in the range of months to years, depending on amount of air present and volume of water infiltration and transport (Gary Glass, EPA retired, Ph.D. in Chemistry)."	EOO,PD2,FM1
36	Loons and Mercury and Us - A revised DEIS must look at research being done in areas with waters that have similar poor buffering capabilities. The current problems in the Adirondacks would be a place to start. Acid rain and acid mine drainage, despite different dissemination methods, have much the same effect on lakes that have little buffering ability. The Adirondacks started out with mercury advisories for fish consumption. Now many of its lakes contain no fish and scientists are seeing aberrations in the behavior of the loon population, including young who are no longer able to get on the parent loon's back. Consequently experts there are deeply concerned about the effects of methylmercury on humans since it is bioaccumulative. In Minnesota, we have had mercury advisories on the consumption of fish taken from our lakes for many years. One of the consequences of PolyMet/NorthMet, and other proposed projects, will be a significant increase of methylmercury in our waters. In the Adirondacks, ironically most of their problem came from Midwest industrial pollution.	EOO,WI5
37	Comments concerning Agency and Government Responsibility, Transparency of Environmental, Social and Economic Impacts In a 2001 State Master Agreement it was stated, " . . .the DNR will meet with Cliffs Erie and Rainy River Energy Corporation to discuss the status of non - ferrous metallic mining projects in this area and ways to mitigate any development plans that would interfere with non-ferrous metallic minerals mining." Disproportionate funding and support have been given to mining companies by organizations, agencies, and elected officials charged with promoting the economic diversity essential to building a strong economy in northern Minnesota. This needs to be addressed in the economic portion of the revised DEIS . Bringing sulfide mining to the Lake District of northern Minnesota is not only environmentally reprehensible; it is committing eventual economic suicide for the region. PolyMet/NorthMet will set the precedent for other sulfide mining projects on the edge of the Boundary Waters. The beautiful Kawishiwi River area will be decimated by both underground and open pit mines on its shores. Franconia's most lucrative scenario is an open pit mine. Clean up Dunka first. It may be true that no one knew what the outcome of mining in sulfide bearing ore would be when Dunka was permitted, but now it can't be cleaned up and that should be a warning in itself. Dunka looks like an anthill next to NorthMet. Once our waters require perpetual treatment, if treatment is even possible, the sustainable tourist industry will decline along with the fish in our lakes. A property owner on my chain of lakes has already decided to put plans on hold to build and move here. Realtors have buyers who do not want to buy land if they do not own the mineral rights, which doesn't leave them much to choose from; some are just scared away by the idea. The money these people bring to the economy in northern Minnesota is huge and a sustainable source, as long as the area retains what attracts them. As demonstrated by the struggling mining towns on the Range, mining's legacy makes it unlikely that new families and businesses can be attracted to an area with decimated lakes and landscapes. Instead of pouring money into an industry that will significantly damage if not eventually destroy the true wealth of our State, our water, government officials need to pour money into creating jobs compatible with that water.	SE4

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38	In Minnesota, if we choose sulfide mining over our water, we will have no one to blame but ourselves. However, we will have to answer to those who rely on us to keep the three major watersheds that originate here clean. And the next generation will not thank us for selling their birthright.	G7
39	In 2009 CNN did a piece on Picher, Oklahoma, highlighting the last resident to leave the town. Once a bustling mining town the entire place was basically condemned as one of the most toxic Superfund sites in the nation. The Picher aquifer was shallow and when the aquifer was mined and flooded anoxic leaching occurred. Acid leached from lead sulphate minerals with resulting contamination that, along with collapsing mine shafts, left Picher a ghost town. It is important to note here that the PolyMet/NorthMet proposed on-site subaqueous disposal (Proposed Action and Mine Site Alternative) must be reexamined in a revised DEIS. Subaqueous disposal does not mean that leaching, even severe leaching, cannot occur. This would be especially true of or e stockpiled for an indeterminate period of time. Also some concerns exist about another method that leaching occurs which is galvanic action. Tiny electrical differences between different metals create tiny amounts of electrical current that cause the metals to dissolve. Generally this occurs in damp tightly packed fines such as tailings and does not require oxygen. "The Picher site is a stark reminder of the limits of the federal government's ability to clean up the messes of the industrial age. And it raises questions about whether some Superfund sites have such intractable problems that no amount of money, time and effort will make them safe (Mines and Communities)." NorthMet is being designed for the 100-year flood. In the era of global warming a design for the 100-year flood is not enough. The 500-year flood should be the new standard. A revised DEIS must include a NorthMet tailings basin design based upon the 500-year flood. In order to ensure protection enough freeboard must be provided for this emergency excessive precipitation. As remote as the possibility is in northern Minnesota, the final blow to Picher was a tornado that further contaminated the town with a blanketing of fugitive dust blown from the chat piles. The impact of a repeat blowdown like the one that hit the BWCAW a few years ago is worth considering. Acts of God must be seriously planned for in a revised DEIS.	PD2,G1
40	The words alone in this DEIS are reason for alarm . Minimize, Minimum requirements, Mitigation (definition: make less severe), Could, Reduction, Reduced ("arsenic loadings from the Tailings Basin in closure could be reduced by 20%"), and "Help avoid the need", to mention just a few. Minimize when referring to pollutants is inexact. With a massive amount of waste, the amount of pollution left after being "minimized" could still be massive. This DEIS is incomplete, lacking in adequate science and ways to solve its inherent problems. Another example: "Mercury in the water – Relatively high sulfate concentrations in seepage from the Tailings Basin would be released to wetlands north of the Tailings Basin and lakes downstream on the Embarrass River to represent 'high risk situations' for mercury methylation. There is some uncertainty as to whether the West Pit overflow would meet Lake Superior mercury standard, but this impact could be mitigated if it would occur (DEIS)." In other words make it less severe, but less severe than what? That is a question that must always be addressed in a revised DEIS.	EOO,PRO3
41	This DEIS is incomplete and must be revised and rewritten so the citizens of the State of Minnesota are fully and clearly informed and can make comments on all the information, not just some of it. This DEIS has dangerous gaps that must be filled, not by the agencies behind closed doors, but in the open so citizens, th e tribal cooperating agencies, and NEPA will all be a valid part of the decision making. If this cannot be done then "No Action" is the only responsible action to protect our waters. I would also like to add that I object to citizens being denied the amount of time for comment writing that the EPA requested. Also, comments having to be received by instead of being postmarked on February 3rd further shortened the time for comments. The length of time the citizens of Minnesota were given to try to read, understand the information in the DEIS, and make comments was insufficient and a form of censorship.	PRO6
42	Our agencies are charged with the protection of our state waters. They must do so now. The No Action Alternative is the only choice that protects our waters, but only if it is combined with an ironclad requirement that the existing contamination at the site be cleaned up and no further contamination allowed.	EOO

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44	Referring to the No Action Alternative the DEIS states, "This alternative woul d avoid the environmental and social impacts associated with the Proposed Action, Mine Site Alternative, and Tailings Basin Alternative; however, the social and economic benefits from the proposed Project (increased employment and economic revenue) would not occur." What about the decreased employment and economic revenue that would occur? When addressing social and economic revenue the revised DEIS must include projected figures for what this area and this state stand to lose when promoting an unsustainable industry for short term profits that results in long term loss (economically and environmentally). When addressing economic benefits a revised DEIS must acknowledge that towns whose livelihood is still dependent on mining are dependent because mining itself has left them with no other options. The DEIS must include projections of economic loss and impacts to the recreation and tourism industry, businesses, homeowners, health and public services, among others. The figures that mining companies use are projections. The precedent has been set.	SE3
45	The agencies must adhere to State Statute. If they had done so, this DEIS would not have been released. In Minnesota water trumps everything else. Minnesota State Statute 116D.04, Environmental Impact Statements, Subd. 6, Prohibitions: "No state action significantly affecting the quality of the environment shall be allowed, nor shall any permit for natural resources management and development be granted, where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resource s located within the state, so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air water, land and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify." The Minnesota Department of Natural Resources (MDNR) must practice what its publication "A Strategic Conservation Agenda 2009-2013 " says: The mission : . . ."to provide for commercial uses of natural resources in a way that creates a sustainable quality of life." "The goals: . . . "Minnesota's water resources an d watersheds will be conserved and enhanced" . . ."Our vision for the future includes clean water and plenty of it. Aquatic ecosystems are healthy and sustainable" . . . "Waterways have integrity. Natural characteristics of shorelines, aquifers, and wetlands are protected" . . ."Ground water and other water resources are used in a way that preserves their integrity for future generations." Before an EIS can be issued for PolyMet, the State of Minnesota must clean up all polluted mining sites in the state. If they cannot be cleaned up, the state must not consider a sulfide mine. It is not logical to believe that the much more toxic waste from such a mine can be stopped, or cleaned up after the fact, when faced with th e evidence of numerous past failures.	PRO7
46	At its core PolyMet/NorthMet is an unscientific Project. If it were being advanced scientifically it would never be proposed in the most water intensive region possible. It would be done first in an area with little water, then in progressively more wet environments, until scientific evidence could be compiled (including impacts over time) that prove whether it can be done safely. PolyMet's claim to have new technology, when much of the operation is based on old technology, is a publicity smoke screen. It must be clear in a revised DEIS that this 'new technology' is unproven on a mine of this scope in a water rich environment. The citizens of Minnesota need to be informed that they are being asked to be first in line to see if it can be done safely. If it can't, it's too late. If our agencies are unable to take the necessary steps to protect our water, as the release of this seriously flawed and incomplete DEIS indicates, then the answer is a Minnesota Moratorium.	G8B,G12
46	One of the most serious flaws in the DEIS is the proposed Tailings Basin. It is incomprehensible that a seeping, unstable tailings basin at the LTV site is going t o become stable and non-polluting by adding millions more tons of mining waste. First of all the agencies must deal with the toxic waste that is already there and clean it up. They must account for all toxic materials deposited within or adjacent to the tailings basin over the life of the basin site and extrapolate resulting toxicity. There must be cumulative effects understood from all toxins that were deposited in or adjacent to the tailings basin and all toxins that will be deposited. Their chemical reactions with each other must be documented. Materials that have been or will be deposited, but are not normally considered toxic, must also be examined in combination with all other materials with which they may combine to achieve toxicity. Degradation information of past and future materials deposited must also be taken into account and made available. It is crucial that a revised DEIS examine all possible cumulative effects and interacting toxic impacts of tailing basin wastes. Only then can a plan be developed for their containment.	HM6,GT1

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47	I object to State of Minnesota Revenue being used in any manner to further the planning or permitting for an project which is contrary to and prohibited by federal law, the Weeks Act of March 1, 1911 (Public No. 435 .) The national forest lands that would be destroyed by this project are protected "to secure the maintenance of a perpetual growth of forest." The NorthMet project is contrary to the purpose of the Weeks Act. Quoting Henry S. Graves, forester, US Department of Agriculture Forest Service (issued march 27, 1911) on the purpose of the Weeks Act: "The general purpose of this law is to secure the maintenance of a perpetual growth of forest on the watersheds of navigable streams where such growth will materially aid in preventing floods, in improving low waters, in preventing erosion of steep slopes and the silting up of the river channels, and thereby improve the flow of water for navigation. While the improvement of the flow of navigable streams is the fundamental purpose, other benefits incidental in character but nevertheless important will be kept in view. Among these are (1) protection against disastrous erosion of the soil on mountain slopes and against the destruction of the soil and soil cover by forest fires; (2) preservation of water powers, since, like navigation, they depend for their value upon the evenness of streamflow; (3) preservation of the purity and regularity of flow of the mountain streams, with a view to their use for the water supply of towns and cities; (4) preservation of a timber supply to meet the needs of the industries of the country; (5) preservation of the beauty and ttractiveness of the uplands for the recreation and pleasure of the people. " [PUBLIC-NO.435.] [H. R. 11798] "AN ACT To enable any State to cooperate with any other State or States, or with the United States, for the protection of the watersheds of navigable streams, and to appoint a commission for the acquisition of lands for the purpose of conserving the navigability of navigable rivers. Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the consent of the Congress of the United States is hereby given to each of the several States of the Union to enter into any agreement or compact, not in conflict with any law of the United States, with any other State or States for the purpose of conserving the forests and the water supply of the States entering into such agreement or compact . . . .SEC. 9. That such acquisition may in any case be conditioned upon the exception and reservation to the owner from whom title passes to the United States of the minerals and of the merchantable timber, or either or any part of them, within or upon such lands at the date of the conveyance, but in every case such exception and reservation and the time within which such timber shall be removed and the rules and regulations under which the cutting and removal of such timber and the mining and removal of such minerals shall be done shall be expressed in the written instrument of conveyance, . . ." (emphasis added)	PRO7
47	4.8 Cultural Resources: Regulatory Framework: It is stated that Cultural Resources management within Federal and State agencies seeks identify cultural resources and balance the need for development with protection. Not included here is an analysis of public opinion in the Arrowhead as to whether the regulatory process is fairly achieving this balance. Development is driven by economic considerations that would likely overshadow the power of those whose goal is to protect Cultural Resources. This DEIS should provide evidence to support conclusions that suggest there are no cumulative effects associated with cultural resources.	G3,CR1,CR2,CR4
48	Characterization of wetland hydrology is sorely lacking and should use the USACOE technical note "Technical Standard for Water-Table Monitoring of Potential Wetland Sites by U.S. Army Corps of Engineers" (see #48 below)	WE2
49	The assumption that all water reaching the entire mine, transport, and processing sites will be contained and treated is ludicrous and without basis. Accurate site characterization, water infiltration rates, and leakage must be accounted for.	WE1
50	Specific Polymet HydroMet Project Draft EIS Wetlands Section 4.2 Comments, sequentially numbered with section and paragraph references. 1) In my judgment the use of words and phrases: "potential, would, non-field analysis, where available, based primarily on signatures presented by aerial photograph, portion of wetland located within the sites, may, would, generally, relatively (with no reference), approximately, believed, modeling, professional judgment, and it is not expected" are not adequate for analysis of the risk of perpetual permanent environmental damage this project represents. Use of these words indicates a project favorable biased choice of language.	EOO
50	A recent Pew report documents the situation of a small but similar recent sulfide mine that has been abandoned:	G4
51	2) 4.2.1.1 Wetlands that are Minnesota Public Waters are supposedly protected regardless of isolated or incidental status. A separate EIS is required before filling or draining of a public water.	WE4

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52	3) 4.2.1.2 Minnesota Public Waters Maps & Lists are conspicuously missing from the list.	WE1
53	4.2-4 and elsewhere the analysis is limited to wetlands on the sites without data supporting this limitation.	WE1
54	4.2.1.4 should list the wetland biome as the most productive type	WE1
54	4.2.2 No mention of the location component of impact. MOU between BWSR & ACOE gives capability of mitigation outside of the same watershed but this does not mean that impact should not be considered!	WE2,WE3
54	The draft DEIS is obligated to provide the burden of proof that the Polymet project holds sufficient value incentive to cover the risks inherent in the project. The unknowns of the DEIS analysis far outweigh the proven risks. In his Thursday Jul 17, 2003 Report To Shareholders On behalf of the Board of Directors, William Murray- President and CEO of Polymet said "The NorthMet project as defined in the 2001 pre-feasibility study did not meet minimum economic criteria required by investors or potential mining partners; essentially caused by low metal prices, a high dilution factor in the mine plan and perceived high technical risk." I do not believe the currently proposed project and Draft Environmental Impact Statement {DEIS} are sufficient to change this conclusion. The volatility of the metals market, the unproven status of overzealously named "safe" sulfide ore mining and the proposed processing along with the undeniable acid mine drainage risks on a geologic time scale lead me to conclude that the Polymet project should not be permitted. We should not recklessly dare to leave this extremely high risk legacy to future Minnesotans for a relatively short term of false gain. I see no possibility that this project will result in a net gain to Minnesota or society as a whole.	G8
55	4.2.2 It seems ludicrous to omit the inevitability of AMD impacts - it is my understanding that there are no sulfide ore mines without AMD to some extent.	WE2
55	4.2.3.1 What about direct and indirect effects off site and in downstream watersheds - inevitable with AMD .	WE2
56	4.2-16 paragraph 2 Is the receiving stream a Minnesota Protected Water? All fish and other life production will be lost to post closure overflow AMD.	WE1
57	4.2-18 paragraph 2 Maintaining flow would increase (not decrease) impacts of AMD. The practice described would not reduce anything from current status. How can you claim a reduction from maintaining very localized existing conditions that are not measured but only inferred from aerial photos and generalized vegetation interpretations ?	WE2
57	4.2-18 paragraph 3 Where does the apparently arbitrary "within 50 feet" limit to indirect impacts come from?	WE2
57	4.2-18 paragraph 1 Real problems will come with post closure leakage/overflow of AMD to the watersheds.	WE2
58	4.2-19 paragraph 2 The first sentence is a fallacy. Polymet "proposes" to capture and treat all water touching any disturbed ground. This is arguably a practical impossibility for a 3,016 acre mine site and 1,000 acre plant site! Where are the numbers? This would require containing every drop by sealing every inch of the entire site while digging a huge open pit . I roughly calculate that this would require handling somewhere around 30 million gallons of water for each inch of rainfall.	EOO
58	4.2-19 paragraph 1 The "belief" that the wetlands are bogs does not make it so. Therefore, one cannot assume hydrological isolation from impacts.	WE1,WE2
59	4 .2-19 paragraph 2 Groundwater contamination exists from LTVSMC tailings basin hydrological connection. 4.2-2 paragraph 2	WE2

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60	The "no-action" alternative needs to be given fair treatment. Informed and meaningful consideration of alternatives – including the no action alternative – is an integral part of NEPA' s statutory scheme. An alternative may not be disregarded merely because it does not offer a complete solution to the problem. The DES provides very little discussion as to the costs and benefits of the no-action alternative relative to other proposals. The no-action alternative is not given sufficient consideration when it is treated as a hands-off alternative. By establishing the purpose and need as providing metals and some general sales benefits, the agency may inappropriately conclude that the no-action alternative should be rejected. To not give the no action alternative adequate consideration is a violation of NEPA.	ALT8
61	4.2-20 paragraph 1 I have a real problem with the BWSR / ACOE MOU which allows mitigation outside of the watershed. It does not follow letter and intent of CWA & ACOE rules. See 33 CFR Part 332.	WE4
61	4.2-19 paragraph 2 The last sentence is an incredible conclusion. It is obvious to me that water not meeting wetland standards flowing into the Partridge river will affect all surface and ground water connected wetlands with very high confidence due to the long time frame.	EOO
62	4.2-20 paragraph 2 Indirect impact in areas beyond the site will assuredly result in huge impacts. This could be better quantified by tracer flow studies. Empirical inferences from dissimilar mining are not acceptable. Monitoring and after the fact detection is not protection and does not meet the Minnesota WCA requirement of mitigation before impact.	WE2,WE3
63	4.2-20 paragraph 2 What requires monitoring during mining and after closing to detect impacts. If not required by law it will not happen. Who pays forever after closure?	WE3
64	4.2-21 paragraph 2 Ore rock and fines will admittedly escape during transportation. Since huge amounts of ore will be transported the indirect impacts to wetlands along the transportation route will be significant.	WE2
64	4.2-21 paragraph 1 Loading and transportation spillage control should be passive and secondary. The amount of ore to be handled is huge and even a small loss percentage will be significant.	EOO
65	4.2-21 paragraph 3 s2 Indirect impacts will occur from processing plant site because runoff, seepage, and infiltration will occur both routinely and during extreme weather events.	WE2
66	4.2-21 paragraph 3 Collection of "essentially" all of the seepage to surface and groun d water from the plant site is not practical. Significant indirect impacts will occur from seepage to surface and ground water.	WE2
67	4.2-21 paragraph 4 s2, 4.2-22 pl Estimates are not adequate. Impacts estimated from dissimilar use are not an adequate basis for an EIS / permitting. Modeling is not definitive. Actual hydrogeology should be determined. Actual maximum head dye tracer testing that includes the entire watershed should be required.	WE2
67	4.2-22 paragraph 2 Assumption of the evaluation boundary is not adequate.	EOO
67	The "Platsol" extraction process has never been operated on an industrial mine scale. Sulfide ore mining benefits do not justify the risks in Minnesota. There has never been a sulfide ore mine that has not created acid mine drainage environmental damage. According to the U S EPA, acid mine drainage is the biggest toxic pollution problem in the US. The reality is that "total recovery of all sulfides is not achievable, so that the remaining wastes may nevertheless be acid-generating." (WISCONSIN DEPARTMENT OF NATURAL RESOURCES BUREAU OF SOLID & HAZARDOUS WASTE MANAGEMENT JULY 1995 Updated October, 1997) Common sense and experience support the conclusion that foolproof containment systems are not possible, especially when there is no time limit to the risk.	G7A
67	4.2-23 paragraph 2 Modeling is not definitive, especially when the basis of modeling is flawed or incomplete.	EOO
67	4.2-23 paragraph 2 Use of the site should require cleanup of past degradation to meet groundwater MCL as a minimum baseline (cumulative effects.)	WE5

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67	4.2-23 paragraph 1 Trends and boundaries of degraded groundwater should be definitively established. Offsite contamination should be delineated and documented as a definitive baseline.	WE2
68	4 .2-24 paragraph 1 Again, modeling basis is not adequate to infer water quality will meet wetland standards.	WE2
69	4.2-24 paragraph 2 Monitoring of wetlands after the fact is not adequate. Pre-permit monitoring and dye testing during project maximum head conditions should be conducted.	WE3
69	4.2-24 paragraph 3 & 4, 4.2-25 paragraph 1 & 2 Significant testing, definition of hydrogeology, and wetland typing based on defined hydrogeology are necessary to define the extent of wetland impacts to accomplish proper mitigation before approval of an EIS, permitting, and project commencement.	WE1,WE2,WE3
70	4.2-27 4.2.4.1 The no action alternative would avoid wetland impacts.	EOO
71	4.2-28 paragraph 4 4.2.4.2 Mitigation in an adjacent watershed means in one of the 81 Minnesota watersheds directly adjacent to the site. The functions of a wetland include it's benefit to the watershed it is in. Moving function out of one of the 81 defined watersheds meets the threshold of environmental harm.	WE3
72	The effects of changing climate have not been considered. A change in condition of the waste from a water isolated condition to a washed or dry condition or an increase in severe storm physical degradation and water table variations have not been considered.	EOO,WR5A,AQ3
73	4.2-28 paragraph 4 4.2 .4.2 More information is required to justify out of watershed mitigation: 19598 Federal Register / Vol . 73, No . 70 / Thursday, April 10, 2008 / Rules and Regulations	WE3
74	4.2-28 p4 4 .2.4.2 There is no mention of the watershed plan required by federal EPA/ACOE rules: 19610 Federal Register / Vol. 73, No . 70 / Thursday, April 10, 2008 / Rules and Regulations "District engineers will determine whether an existing watershed plan is appropriate for use in determining compensatory mitigation requirements (see § 332.3(c)(1) [§ 230.93(c)(l)]). In general, watershed plans will be developed by governmental and/or nonprofit resource planners, in consultation with watershed stakeholders. The purpose of a watershed plan is to maintain and improve the quality and quantity of aquatic resources within a watershed, not to facilitate development. District engineers will ensure that watershed plans used to determine compensatory mitigation requirements for DA permits have been developed through appropriate processes to satisfy this purpose."	WE3
75	4.2-28 p4 4 .2.4.2 33 CFR PART 332 COMPENSATORY MITIGATION FOR LOSSES OF AQUATIC RESOURCES Authority: 33 U .S.C. 401 et seq. ; 33 U .S.C. 1344; and Pub. L. 108-136. Source: 73 FR 19670, Apr. 10, 2008, unless otherwise noted. "(3) Compensatory mitigation for unavoidable impacts may be required to ensure that an activity requiring a section 404 permit complies with the Section 404(b)(1) Guidelines. During the 404(b)(1) Guidelines compliance analysis, the district engineer may determine that a DA permit for the proposed activity cannot be issued because of the lack of appropriate and practicable compensatory mitigation options."	WE3,WE4

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76	33 CFR PART 332 COMPENSATORY MITIGATION FOR LOSSES OF AQUATIC RESOURCES Authority: 33 U.S.C. 401 et seq . ; 33 U.S.C. 1344; and Pub. L. 108-136. Source: 73 FR 19670, Apr. 10, 2008, unless otherwise noted. § 332.3 General compensatory mitigation requirements. (b) Type and location ofcompensatory mitigation. "(1) When considering options for successfully providing the required compensatory mitigation, the district engineer shall consider the type and location options in the order presented in paragraphs (b)(2) through (b)(6) of this section. In general, the required compensatory mitigation should be located within the same watershed as the impact site, and should be located where it is most likely to successfully replace lost functions and services, taking into account such watershed scale features as aquatic habitat diversity, habitat connectivity, relationships to hydrologic sources (including the availability of water rights), trends in land use, ecological benefits, and compatibility with adjacent land uses. When compensating for impacts to marine resources, the location of the compensatory mitigation site should be chosen to replace lost functions and services within the same marine ecological system (e.g., reef complex, littoral drift cell). Compensation for impacts to aquatic resources in coastal watersheds (watersheds that include a tidal water body) should also be located in a coastal watershed where practicable. Compensatory mitigation projects should not be located where they will increase risks to aviation by attracting wildlife to areas where aircraft-wildlife strikes may occur (e.g., near airports)."	WE3,WE4

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76	4.2-28 p4 4.2.4.2 33 CFR PART 332 COMPENSATORY MITIGATION FOR LOSSES OF AQUATIC RESOURCES Authority: 33 U.S.C. 401 et seq.; 33 U.S.C. 1344; and Pub. L. 108-136. Source: 73 FR 19670, Apr. 10, 2008, unless otherwise noted. § 332.3 General compensatory mitigation requirements. "(c) Watershed approach to compensatory mitigation. (1) The district engineer must use a watershed approach to establish compensatory mitigation requirements in DA permits to the extent appropriate and practicable. Where a watershed plan is available, the district engineer will determine whether the plan is appropriate for use in the watershed approach for compensatory mitigation. In cases where the district engineer determines that an appropriate watershed plan is available, the watershed approach should be based on that plan. Where no such plan is available, the watershed approach should be based on information provided by the project sponsor or available from other sources. The ultimate goal of a watershed approach is to maintain and improve the quality and quantity of aquatic resources within watersheds through strategic selection of compensatory mitigation sites. (2) Considerations. (i) A watershed approach to compensatory mitigation considers the importance of landscape position and resource type of compensatory mitigation projects for the sustainability of aquatic resource functions within the watershed. Such an approach considers how the types and locations of compensatory mitigation projects will provide the desired aquatic resource functions, and will continue to function over time in a changing landscape. It also considers the habitat requirement s of important species, habitat loss or conversion trends, sources of watershed impairment, and current development trends, as well as the requirements of other regulatory and non-regulatory programs that affect the watershed, such as storm water management or habitat conservation programs. It includes the protection and maintenance of terrestrial resources, such as nonwetland riparian areas and uplands, when those resources contribute to or improve the overall ecological functioning of aquatic resources in the watershed. Compensatory mitigation requirements determined through the watershed approach should not focus exclusively on specific functions (e.g., water quality or habitat for certain species), but should provide, where practicable, the suite of functions typically provided by the affected aquatic resource . ii) Locational factors (e .g., hydrology, surrounding land use) are important to the success of compensatory mitigation for impacted habitat functions and may lead to siting of such mitigatio n away from the project area. However, consideration should also be given to functions an d services (e.g., water quality, flood control, shoreline protection) that will likely need to be addressed at or near the areas impacted by the permitted impacts. iii) A watershed approach may include on-site compensatory mitigation, off-site compensatory mitigation (including mitigation banks or in-lieu fee programs), or a combination of on-site and off-site compensatory mitigation. (iv) A watershed approach to compensatory mitigation should include, to the extent practicable, inventories of historic and existing aquatic resources, including identification of degraded aquatic resources, and identification of immediate and long-term aquatic resource needs within watersheds that can be met through permittee-responsible mitigation projects, mitigation banks, or in-lieu fee programs. Planning efforts should identify and prioritize aquatic resource restoration, establishment, and enhancement activities, and preservation of existing aquatic resources that are important for maintaining or improving ecological functions of the watershed. The identification and prioritization of resource needs should be as specific as possible, to enhance the usefulness of the approach in determining compensatory mitigation requirements. (	WE3,WE4

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76	4.2-28 p4 4.2.4.2 33 CFR PART 332 COMPENSATORY MITIGATION FOR LOSSES OF AQUATIC RESOURCES Authority: 33 U.S.C. 401 et seq.; 33 U.S.C. 1344; and Pub. L. 108—136. Source: 73 FR 19670, Apr. 10, 2008, unless otherwise noted. § 332.3 General compensatory mitigation requirements. (d) Site selection. (1) The compensatory mitigation project site must be ecologically suitable for providing the desired aquatic resource functions. In determining the ecological suitability of the compensatory mitigation project site, the district engineer must consider, to the extent practicable, the following factors: (i) Hydrological conditions, soil characteristics, and other physical and chemical characteristics; (ii) Watershed-scale features, such as aquatic habitat diversity, habitat connectivity, and other landscape scale functions; (iii) The size and location of the compensatory mitigation site relative to hydrologic sources (including the availability of water rights) and other ecological features; (iv) Compatibility with adjacent land uses and watershed management plans; (v) Reasonably foreseeable effects the compensatory mitigation project will have on ecologically important aquatic or terrestrial resources (e.g., shallow sub-tidal habitat, mature forests), cultural sites, or habitat for federally- or state-listed threatened and endangered species; and (vi) Other relevant factors including, but not limited to, development trends, anticipated land use changes, habitat status and trends, the relative locations of the impact and mitigation sites in the stream network, local or regional goals for the restoration or protection of particular habitat types or functions (e.g., re-establishment of habitat corridors or habitat for species of concern), water quality goals, floodplain management goals, and the relative potential for chemical contamination of the aquatic resources. (2) District engineers may require on-site, off-site, or a combination of on-site and off-site compensatory mitigation to replace permitted losses of aquatic resource functions and services. (3) Applicants should propose compensation sites adjacent to existing aquatic resources or where aquatic resources previously existed.	WE3,WE4
77	44) 4.2-28 4.2.4.2 Preservation of wetlands for mitigation does not meet the no net loss intent of the Minnesota Wetlands Conservation Act. Preserved wetlands already exist and the destruction mitigated is a loss with no replacement of function. Minnesota has decided to protect wetlands based on their functional value (MN 103B.3355) while allowing destructive activities where avoidance of activity is not feasible and prudent (MN 103A .201 Subd. 2 b.) The Board of Water and Soil Resources (BWSR) derives its authority from MN 1038.3355 (c) The first value of the public values listed in statute for wetlands is water quality. (MN 1036.3355 (a) (1)) Many of our waters are impaired. Some are impaired as a result of the destruction of ssentially all of the wetlands in a watershed. The destruction of wetlands in our watersheds, overall loss in quantity and quality of our waters and wetlands are consequences of development that we need not and should not easily accept.	WE3,WE4
78	4.2-30 Wetland Mitigation Study Limits — Due to the enhanced benefits to the sub watershed the second priority should be within the Partridge River and other adjacent sub-watersheds.	WE3
86	The DEIS does not address the recreational value of the arrowhead region and the potential loss of that value that sulfide mining would impose. It should.	SE4

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87	4.10 Socioeconomics: The major and growing contribution to the Arrowhead region in MN of tourism is not presented in this section and should be so that a more complete view of the economy of this region may be understood. Tourism contributes $11 billion to MN economy, with >41 million visitors annually. These numbers have increased steadily in recent years. The Northeastern region has 16% of the >41 million visitors or about 6.56 million visitors with generation of >$719 million in Gross Sales. This activity contributes 17,932 private sector jobs. (Explore Tourism 2008: http://www.tourismroi.com/Content_Attachments/26124/File_6334 80214451131154.pdf. A critical question not addressed in the DEIS is the extent to which current and proposed major increase in mining in the region will increase, have no effect or decrease tourism to the Arrowhead of MN. This DEIS needs to address this critical question with data. To focus on short-term financial gain from sulfide mining and not incorporate long-term consequences, including the predictable "boom" and "bust" mining cycles, in the DEIS analyses is a major deficiency of this DEIS. Potential depression of the tourism industry and land values in the Arrowhead, would have a devastating adverse effect on the entire region for decades to come. (Thomas M. Power (Economics Dept., University of Montana: "The Economic Role of Metal Mining in MN: Past, Present, and Future" prepared for MN Center for Environmental Advocacy and the Sierra Club, 2007.; http://www.sosbluewaters.org/mn_mining_economics_power.pdf.) Unfortunately, a study funded by industry (Labovitz School of Business, Duluth) failed to incorporate destabilizing boom and bust cycles and adverse impacts on the growing tourism industry in their narrowly focused analysis. (http://www.ironrangeresources.org/_site_components/documents/ user/aboutreports-publications230.pdf.)	EOO,SE3,SE4
88	4.10.2: Impact Criteria: This sections fails to include explicit review of the "boom" and "bust" cycles of mining (as noted above) that are extensively documented in the literature and relevant to the DEIS Northmet.	SE3
89	4.10.3: Socioeconomic Consequences: Impact Analysis for Planning (IMPLAN) was based on old data that does not reflect the current fiscal crisis. What impact will this have on estimating the "boom" and "bust" predictable cycles of the proposed mining?	SE8
90	4.10.3.1: Proposed Action: Environmental Justice: What assumptions are being made to support the statement that: "Therefore the Proposed Action would not have disproportionately high or adverse effects on minority populations?" While it is suggested that the proposed "boom" resulting from the proposed mining would benefit low income persons, isn't it logical to assume that the "bust" that could occur at any time during the proposed 20 year operation of the mine would have a deleterious impact on low income families—potentially a devastating impact on persons who lack safety nets of community support?	SE2
91	4.10.4: Cumulative Effects: Note is made that the data in Tables 4.10-15-16 do not appear to be based on the recent, unique fiscal situation in the U.S. and MN. Also note that neither this section nor the section "Socioeconomics" p S14 (Summary) reflect on compelling data regarding the "Boom" and "Bust Cycles", an issue of critical importance to the integrity of the Draft EIS Northmet as reflected by Thomas M. Power (Economics Dept., University of Montana: "The Economic Role of Metal Mining in MN: Past, Present, and Future" prepared for MN Center for Environmental Advocacy and the Sierra Club, 2007.; http://www.sosbluewaters.org/mn_mining_economics_power.pdf)	EOO
590	Blasting and explosive detonations produce nitric oxide and nitric dioxide as a by product. When inhaled, these cause irritation of the trachea which leads to increased risk of infection and/or emphysema. This health issue is not addressed. Mining may also cause inhalation of silica dust and/or iron oxide particles causing siderosis. This health issue is not addressed. Because of Minnesota's experience with increased incidence of mesothelioma among miners and their families and the state government's current studies, perhaps these health problems will be addressed. Results and recommendations of the studies should precede further sulfide mining. At a minimum these potential problems should be included in the EIS.	SE5,AQ4C,AQ6
591	In addressing air pollution problems the DEIS cited data from the Hibbing Monitoring station. Why is data from the Ely station not included? Wind patterns will affect that area for the months of April through September. (University of Minnesota: http://climate.umn.edu/wind/windRoseClimatology.htm .)	AQ4
593	3) Analyze all of the impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources. Mercury in fish causes brain damage to children and to the fetus.	WR4B,FM1,AQ6A

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595	4.6: Air Quality: (See 4.6.4.7 re Haze) Even in MN's two Class I areas (BWCAW and Voyageurs NP), visibility impairment is being quantified. New construction and development, including mining companies on the Iron Range, threaten to add to the problem. Global sources of air pollutants are increasing. The projected added air pollution from the proposed activities in this DEIS and subsequent proposed sulfide mining must be evaluated in the context of such changes. Fine particles (which have serious human and environmental adverse effects) will clearly be generated from multiple sources associated with this Project including forest disruption, soil erosion, road building, mining, vehicular traffic, etc.	AQ4B,AQ9
596	4.6.1.1 Existing Conditions: Regional Climate and Meteorology: Surface data are reported from the Hibbing Monitoring Station with estimates of the wind direction, etc. Why aren't other closer monitoring data provided. For example, wind roses for MN and surrounding cities (http://climate.umn.edu/wind/windRoseClimatology.htm) provide data from Ely, MN Municipal Airport. Since one of the major wilderness areas in the U.S. and MN is near Ely (BWCA) it would be imperative to know what impact Northmet Project will have on air quality of the BWCA, which is already suffering from degradation of ambient air quality from power plant and other point sources. While wind roses for Hibbing show a north north west through west-northwest direction 25% of the year and south-0southeast through southeast 15% of the year, Ely shows a pattern of west westsouth for the months of April through September. (University of Minnesota: http://climate.umn.edu/wind/windRoseClimatology.htm.)Thus, the BWCA which is only 34km or 21 mi from the Project Site would receive winds from the Polymet Project Site for several months of the year. To what extent will this add to the worrisome burden currently being experienced by Class 1 areas BWCA and Voyageurs NP? At BWCA, visibility impairments have been documented for 200 days in a recent year. Has the potential impact of the Northmet Project on BWCA been quantified as part of this DEIS? Has the potential impacts of other mining activities between the Northmet Project Site and the Franconia; Duluth Metals; Encampment and Tech Cominco projected mining sites been quantified as part of this DEIS? These are critical data that must be included in the Final EIS.	AQ4,AQ4B,AQ9
597	4.6.1.2 Local and Regional Air Quality: On p 4.6-2 it is noted that "ambient monitoring data from the closest monitoring stations to the Project are provided in Table 4.6.2." It is not clear where the "nearest monitor" to the Northmet Project Site was; the data are from MPCA 2008 but the monitor source is not listed. If the data in Table 4.6-2 are from a remote monitoring site, the Northmet Project should request relevant data from MPCA for the Site environs. Also, note is made that the MPCA data was for 2004-06. These data are out of date and should be updated to ensure reliable baseline data are available from the Site.	AQ5
598	4.6.1.4 Minnesota Standards of Performance: on p 4.6-6 the first point, the statement "that facilities are required to take reasonable precautions to prevent the discharge of visible fugitive emissions beyond the property line" raises serious concern for the following reasons: Particulate Matter (PM) especially, PM 2.5 micrometers is invisible so one would not expect to see it. Yet these fine particles pose threats, not only to the environment, but to human health. Fine particles are a known cause of cardiovascular disease (heart attacks; strokes); respiratory disease (asthma, COPD) and cancer, particularly, lung cancer. (Department of Health and Human Services: http://www.atsdr.cdc.gov/general/theair.html. The language in this DEIS should be revised to reflect the above. Finally, vehicular traffic and exhaust adds fine particles and other air toxicants to ambient air. Have estimates been made of the contributions to fine particle pollution over the life of the proposed Project?	AQ6

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599	4.6.3.1 Proposed Action (Criteria Pollutants): The assessments of human toxicity from exposure to chemicals used at the Mine Site (Table 4.6-17) need to consider the lung health of workers at the time of their employment. Preexisting respiratory diseases may be exacerbated by exposure to chemicals included in this table. Of great importance is the documentation of cigarette smoking status of workers since some chemicals on this list are mutagens or carcinogens. In general, combined exposure to inhaled chemicals and cigarette smoke may increase the likelihood of development of lung cancer. The Northmet Project should have ready access to state- of- the -art smoking cessation program, including a Quit Line to support workers' smoking cessation. (these resources may be obtained from the MN Department of Health) In addition to the above threats to human health, the mining activities, miners but protect from inhaling fine particles of hard rock dust. Lung neoplasms have been associated with mining and are markedly increased in tobacco smokers. There are concerns about the risk of mesothelioma among hard rock miners: (Univ. MN: http://taconiteworkers.umn.edu/about/study_goals.html. Lemen RA, et al. Epidemiology of Asbestosis-Related diseases. Envir Health Persp., 1980: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1568524/pdf/envhpe r00470-0008.pdf)	AQ4,AQ4C,AQ6
600	4.6.4.5 Cumulative Mercury Emissions. As noted above, the projected hard-rock mining operations of Franconia; Duluth Metals; Encampment and Tech Cominco must be included in this analysis and Table 4.6-22.	AQ4B
601	4.6.4.7 Summary of 2006 Visibility Class I Study Scope (Updated 2009): Regional Haze and Visibility Impairment. : On p 4.6-50 a table of projects and actions are presented. Again, this table needs to include all "foreseeable" projects that will adversely impact the air quality of northeastern MN, including Franconia; Duluth Metals; Encampment; and Tech Cominco projects.	AQ4B
1129	4.2 Wetlands: It would seem reasonable that "non-field" and field analyses be used to determine wetland locations unless there are scientific data that confirm that "non-field" analyses provide as much information as "non-field" plus "field" review. This DEIS states that only "non-field" analyses were used. Why? 4.2.1.2 Wetland Delineation: Since wetlands in MN are protected by both federal and state laws, it would seem critical that precise definitions of wetlands, including their characteristics be included in the Draft EIS. This is especially true in light of the fact that 70% of the wetlands are "high quality." (p4.2-25) 4.2.1.3 ; 4.2.1.4; Wetland Classification System: The question is whether the Wetland Classification System Descriptors (see Table 4.2.1 and 4.2-2) may be ascertained by only "non-field" analyses or whether a more accurate description would result from both non-field and field assessments as noted above.	WE1
1130	4.2.3.1: Proposed Action: Potential Indirect Wetland Impacts: It is not clear in the DEIS that robust methodology exist to quantify the changes in surface or groundwater flow rates and patterns needed to project wetland impacts from the Project. What specific methodologies have been used and have they been validated?	WE2
1131	4.2.4.3: Monitoring: A wetland monitoring plan is not included in the DEIS. But such a plan "should" be implemented. Such a plan has apparently been initiated by Barr 2005 and "may need to be expanded." Several features of this plan are suggested (p4.2-37). Since wetland monitoring is arguably the most important element of the Project's role in ensuring minimum harm to wetlands, it would seem critical that this plan be included in the EIS. This deficiency should be corrected.	WE3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1192	4.4 Wildlife; The fact that numerous species are deemed fragile in MN: federally and state listed endangered, threatened, and species of special concern (ETSC—7species); MN Species of Greatest Conservation Need (SGCN-58 species); the USFS Regional Foresters Sensitive Species (RFSS—23 species), indicates that, while conservation and environmental policies in northern MN have merit, there are major threats to this region from human activities, including mining, proposed sulfide mining and logging and industrial development. It is in this context that this DEIS must be viewed with the plausible likelihood that the Northmet Project will only add to these environmental burdens and threats to wildlife. I found no evidence in the DEIS that the proposed Northmet Site was monitored over time for evidence of the species noted above. This deficiency should be corrected. Canada Lynx: on p4.4-3 it is stated that "..portions of the Mine site lie within the revised boundaries of federally designated lynx critical habitat. A recovery plan has not yet been issued for the Canada Lynx." Will specific responsibilities for the Northmet Project regarding protecting Lynx habitat be included in the final EIS? Has PolyMet physically inspected the proposed Project site for lynx dens?Under NEPA and CEQ regulations, cumulative effects must be evaluated for project proposals, including alternative proposals, along with direct effects and indirect effects. It is therefore critical that a comprehensive assessment of the current and proposed mineral mining impacts on Lynx and snowshoe hare populations be conducted for the areas under consideration for mining and adjacent areas of Lynx habitat. Snow compacting from current and proposed activities and temporary roads and human activities are now and will continue to impact the lives of these creatures. The question is: How and to what extent will proposed Project activities affect these species and other species, in the context of all changes in human development in northeastern MN that may compound the adverse effects of mining? Road density has been found to directly affect predators high in the food chain: elk, wolves, wolverines, bears and lynx. (Switalski TA. How many is too many: A review of road density thresholds for wildlife. Wildlands CPR Newsletter, RoadRIPorter, 2006). Although the extent of proposed road development in this DEIS NorthMet may not suggest a deleterious effect on Lynx, it is the combination of multiple seemingly small changes across Lynx range and habitat that must be assessed, since seemingly minor effects in a complex system may in aggregate cause profound and deleterious, often unforeseen, adverse impacts. (Emmons & Olivier Resources. Cumulative effects analysis on wildlife habitat loss/fragmentation….Prepared for MN DNS, May 15, 2006; Fed Reg 2003 vol 68, No. 128. Part III. Dept of Interior: Fish and Wildlife Service. 50CFR Pt 17: Endangered and Threatened Wildlife and Plants; Notice..re Canada Lynx. Final rule. Pp 40076- 40101; Hickenbottom JR et al USDA Forest Service Biological Assessment (Canada Lynx) Lynx biological Assessment, Dec. 1999). The current DEIS Northmet does not provide sufficient information to clarify this issue?	WI1,WI2,WI5
1193	4.4.3.1 Proposed Action (Environmental Consequences): It is stated that the Final EIS will include results of consultation between USACE and USFWS regarding potential effects on Canadian Lynx and other federally listed species. I suggest that this consultation summary as well as the "process" be included with specific findings from research, assumptions and methodologies used. What specific efforts have been made at the Project site to identify Lynx? Have trail cameras been deployed? Have there been searches of the site for Lynx den sites. Or are statistical data being used to describe the potential impacts of mining on these species?	WI1
1194	4.4.5 Approach (Wildlife Travel Corridors): The list of projects identified as potentially impacting wildlife corridors does not include the Franconia; Duluth Metals; Encampment and Tech Cominco projects in the nearby Ely area. Please include these projects in your analyses. It is inconceivable that further development of mining in these areas is not relevant to the cumulative impact of the Northmet Project and other human activities in animal corridors in northeastern MN. Will Table 4.4-9 be revised to reflect these projects?	WI5
1371	Discharge of toxic Materials from unstable tailings basin is a possibility. The DEIS acknowledges the potential for basin structural failure; "The NorthMet Tailings Basin and hydrometallurgical residue facility embankments would have a low margin of safety due to fines and underlying soils in the existing LTVSMC Tailings Basin" (S-10) PolyMet has failed to address the safety issues, indicating instead that "further design and analysis would occur during permitting …" (4.13-2_. Failure of the basin would result in serious and long-lasting contamination. Health issues related to heavy metals released into ground water are documented in Table 125-6 in Churchill, Roscoe and Furtman, Laura. The Buzzards Have Landed! Deer Tail Press, LLC, 2007. A complete stability analysis and acceptable basin design should be a part of the DEIS. Before any of PolyMet's tailings are deposited on top of existing tailings, existing structural deficiencies must be addressed.	WR3A

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Comment ID	Comment Text	Theme Codes
1372	E) Require PolyMet Company to show that their waste rock and tailings piles won't collapse and dump uncontrolled pollution into nearby waters.	WR2D,GT2
1373	5) Require the PolyMet Company to show that their waste rock and tailings piles won't collapse and dump uncontrolled pollution into nearby waters and that they will not create water pollution that lasts for hundreds or thousands of years.	WR2D,GT2
2027	4.5.3.1 Proposed Action (Environmental Consequences: Fish): Water Quality Effects p4.5-15: Was the conclusion reached in this paragraph informed by the most recent Climate Change data regarding disruptions in normal cycles of extreme weather events? (WHO; UNEP Intergovernmental Government Panel on Climate Change: http://www.ipcc.ch/) Do the assumptions regarding lack of impact even under extreme low flow conditions include changes predicted by Climate Change forecasts? This question applies to all other sections that have reached similar conclusions. 4.5.4: Mercury and bioaccumulation in Fish: The DEIS does not include important science regarding metal contamination from hard rock mining and toxicity in fish and macroinvertebrates other than mercury. Cadmium (Cd), lead (Pb) and zinc (Zn) in water and streambed sediment have been found to exceed Ambient Water Quality Criteria (AWQC). This deficiency should be corrected. (Maret TR et al. Fish Assemblages and Environmental Variables…Trans Am Fisheries Soc 2002;131:865-84. http://afsjournals.org/doi/abs/10.1577/1548-8659(2002)131%3C0865:FAAEVA%3E2.0.CO%3B2)	FM1
2119	As landowners in the Ely, MN area (Endless Waters Road), my family is gravely concerned about the effects of the proposed mining by PolyMet. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	EOO
2504	My family has been in Minnesota for the last 100 years. I would hate to see such a lovely state add any more pollution to the environment and destroy one of the last pristine places. Please protect the fish and wildlife that currently thrive in Superior National Forest and safeguard this area for future generations.	G2C
3954	A principle of the US Forest Service is to "…to use the best scientific knowledge in making decisions and select the most appropriate technologies in the management of resources." http://www.fs.fed.us/aboutus/mission.shtml With this in mind, why doesn't the EIS include affects of sulfide mining on Global Warming? It should.	G8
3955	B) Get better information on existing pollution, the nature of wetlands, endangered species, wild rice stands and other resources that would be affected by the project.	WI5,WE1,G8
3956	4) Get better information on existing pollution, the nature of wetlands, endangered species, wild rice stands and other resources that would be affected by the project.	G8

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Comment ID	Comment Text	Theme Codes
3957	4.14 Cumulative Effects: The USFS must ensure that a full range of cumulative impacts, past, present and foreseeable future, from mining in this area and adjacent areas or regions are included in the analyses. The DEIS Northmet 2009 is narrowly focused and it appears to this reader not meet the CEQ definition and intent of the National Environmental Policy Act. The cumulative and related effects of mining exploration and hard rock mining in this area and the impacts of extending the 100 mile plus Iron Range corridor deep into northeastern Minnesota's SNF and BWCA wilderness areas, have not been addressed adequately as required by National Environmental Policy Act (NEPA) of 1969 (29) (CEQ Sec. 1508.7: Cumulative Impact). Cumulative Effects analyses on wildlife habitats in this region have demonstrated the need for such information. (Emmons & Olivier Resources, Inc. Cumulative effects analysis on wildlife habitat loss/fragmentation and wildlife travel corridor obstruction/landscape barriers in the Mesabi Iron Range and Arrowhead regions of MN. MN DNS, May 15, 2006). 4.14.1.1 Resource-Specific Scale: Table 4.14-2 presents findings of the Resource-Specific Cumulative Effects Analysis. Of note is that the DEIS Northmet 2009 Project, according to projections contained herein would cause the following changes: a. increase emissions re air quality; b. increase PM 10 emissions; c. increase deposition of SO2 and NO2; d. add new mercury emitting sources; e. add new emissions sources re visibility impairment; f. have measurable impact on vegetation; g. cause 1.0% - 3.4% loss in wetland area -Partridge and Embarrass River watersheds; h. largest impact: temporary habitat conversion; i. negative impacts in 10 of 18 wildlife travel corridors. Although the DEIS states for many projected changes above the levels would be within MN or related law, it is the case that these increases and adverse impacts will combine into the aggregate of such changes in other mining activities to produce a net negative impact on the environment in the Arrowhead. It is noted (4.14-4) that there is major disagreement with the conclusions of DEIS authors regarding the significance of the above findings. In addition, the legitimacy of the analytical approach to the Cumulative Effects approach is problematic for several reasons: 1. Major data elements are missing e.g. baseline data for the Partridge and Embarrass Rivers. 2. In the watersheds, concentrations of aluminum, iron, copper and mercury exceed MN Water Quality Standards; 3. Analytic methods were not robust, e.g., no dynamical systems analysis of these complex environments. 4. No inclusion of data regarding Climate Change impacts on the ecosystems.	G8C
18606	A) Make sure the financial assurances for the public are included in the EIS before any permitting gets underway.	PD4
18610	C) Analyze the land that is going to be exchanged for Superior National Forest land to make this project possible. Make sure that the land swap would protect wetlands, endangered species, hydrology, tribal rights and taxpayers' interests.	PD1
18611	D) Analyze all of the impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources. Mercury in fish causes brain damage to children and to the fetus.	WR4B,FM1,AQ6A
18616	Financial assurance (damage deposit) for clean restoration is missing in the DEIS. The Contingency Closure Estimate would be provided and updated annually as part of the Permit to Mine and its annual report. The DEIS states that the Contingency Closure Estimate would be the basis for computing financial assurance requirements for the Project. However, this is too late to realistically evaluate the impact of the mine closure and ensure that adequate funds are in place. This must be part of the DEIS and must be addressed.	PD4
18617	Baseline Water Quality Page 4.1-13 and 4.1-14 From the data in the DEIS, a logical conclusion is that the existing LTVSMC tailings are contributing substantially to the level of constituents observed in the groundwater. It also true that the modeling of PolyMet contaminants at the basins does not take these or other existing constituents adequately into account. This oversight leads the authors of the DEIS to the illogical conclusion that seepage water from PolyMet, after passing through both LTVSMC and PolyMet tailings, will be cleaner than the existing seepage that is passing only through the LTVSMC tailings. It is not a logical conclusion that the addition of mine waste to the basins would cause seepage water quality to improve.	WR1E

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Comment ID	Comment Text	Theme Codes
18618	Page 4.1-94 The DEIS concludes that on the basis of deterministic modeling, the Proposed Action would have relatively little adverse effect on groundwater quality downgradient of the Tailings Basin. However, groundwater contamination from the previous mining activities is still an issue near the LTVSMC tailings basin more than twenty years after operations ceased. Water quality is important and this concern must be acted upon. Because of the limited distribution of monitoring wells, the extent of the contaminant plume is not known. However, recent well data show that the plume extends in some areas at least as far as private wells along the Embarrass River. In the wells that do exist near the tailings basin, pollutants including iron, sulfate, manganese, aluminum, and fluoride exceeded drinking water standards. Recent wells near the northern property line show substantial contamination of the groundwater aquifer (Barr 2009, Memorandum: Results of Tailings Basin Hydrogeological Investigation. June 2, 2009). The baseline data on which to base estimates of the impact of the proposed project on water quality at the mine site and the tailings basins is insufficient. The existing analysis for the PolyMet project calculates the additional constituents that the project will add to groundwater but is unable to realistically estimate what the resulting water quality will be because background water quality has not been incorporated into the estimates. Private domestic wells lie between the tailings basin and the Embarrass River where tailings basin discharge water is expected to ultimately discharge. Some of the sampled private wells have contaminants at levels several times the drinking water standard (Barr 2009, Memorandum: Results of residential well sampling north of LTVSMC tailings basin. January 27, 2009) Samples from these wells show that they exceed the manganese standard and close to exceeding the arsenic standard. There must be a groundwater flow model to show the direction and rate of groundwater flow, using that pattern of flow should to plan a groundwater-sampling scheme to map the extent of the existing contaminant plume. This data and analysis should then feed into estimates of how the proposed project would interact with existing contamination. The combination of existing conditions with impacts due to the proposed project would show what groundwater quality can be expected during and post project.	WR1E
18619	The PolyMet Project would significantly increase mercury levels in local fish, creating human health and ecological risks. Sulfates would impair wild rice. The DEIS studies are inadequate to prevent degradation of water quality.	WR4B,WR4F,FM1
18621	The PolyMet project would take over 6,700 acres of public land in the Superior National Forest. Yet, the DEIS has done no analysis of a land exchange to protect the environment, tribal rights and public taxpayer assets.	PD1
18622	1) Analyze the land that is going to be exchanged for Superior National Forest land to make this project possible. Make sure that the land swap would protect wetlands, endangered species, hydrology, tribal rights and taxpayers' interests.	PD1
18623	2) As the U.S. EPA suggested, make sure that financial assurances for the public are included in the EIS long before any permitting process gets underway.	PD4
18630	To understand the potential impact of the proposed Project and related projects, systems analyses are required. The DEIS is narrow in scope and fails to address important questions regarding the impact of proposed hard-rock mining on the forest and related natural systems. The conclusions do not follow a principle of the USDA U.S. Forest Service: "We use the best scientific knowledge in making decisions and select the most appropriate technologies in the management of resources." (http://www.fs.fed.us/aboutus/mission.shtml) With science-based and unequivocal dynamic changes in global climate (WHO; UNEP Intergovernmental Government Panel on Climate Change: http://www.ipcc.ch/ (reflected in Ely environs weather in recent years), coupled with multiple recent and pending major human developments in northern MN (mining; new roads; new building; new power sources; and the like) the failure to use the best science, including dynamic systems methodologies, will have grave implications on the future sustainability of these treasured forest and wilderness areas. The data and information provided in this DEIS is inadequate for formulating conclusions let alone formulating the critical questions regarding effects of sulfide mining in SNF,	PD1

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Comment ID	Comment Text	Theme Codes
18631	4.0 Existing Conditions and Environmental Consequences: 4.1.1.2 Groundwater Resources (see 1.6.1 above): The lack of hydrologic data for the Northmet Project that would allow clear characterization of current bedrock groundwater, flow directions at the mine site and tailing basins is outlined. My review of the supporting data does not provide such detail. Question: Do the DEIS Lead Agencies have a disagreement regarding the facts of available data upon which key hydrological estimates can be made? The data is either available for such analyses or it is not available. There should be no “difference of opinion”. Also, on p4.1.5 footnote a similar “difference of opinion” is noted regarding the “underlying surficial aquifer.” If it is the tribal cooperating agencies’ position that any conclusions “..based on this aquifer test data have a great deal of uncertainty given the variability in the results” do the DEIS lead agencies have data that refute the “uncertainty given the variability in the results?” It would seem that variability can be quantified and the degree of uncertainty ascertained. Isn’t it the responsibility of the DEIS and lead agencies to clarify this? On p 4.1-3 note is made of fractures and joints in the bedrock and groundwater flow through fractures. If fractures occur at deep water levels, one could expect potentially contaminated mine waste chemicals to reach areas other than the Partridge and Embarrass River watersheds and perhaps distant sites such as Birch Lake. The geology of this region could allow this scenario. Have analyses been done to explore such possibilities? Contaminated pits will be present for many years during which time extremes in weather will occur; thus a plausible scenario would involve entry of mine contaminants into adjacent watersheds (see Fig 4.2-9). Please clarify this question. On p 4.1-8: Groundwater Quality: a quote from MN Rules, pt. 7060.0600 states: “The groundwater may in its natural state have some characteristics or properties exceeding the standards for potable water supplies. Where the background level of natural origin is reasonably definable and is higher than the accepted standard potable water and the hydrology and extent of the aquifer are known, the natural level may be used as the standard.” It is not clear in the accompanying tables and text how this applies to the current DEIS data. How frequently has this been observed in data collected for this DEIS? The definition of “natural state” would be critical since polluted water left to resume a “natural state” could still be polluted and thus require remediation. This raises the question: What is the position of the proposers and lead agencies for managing water quality not in conformance with state quality standards and prior to approving a new mining operation. Shouldn’t the existing water quality variances from standards be corrected before approvals are given for new mining projects?	WR1E,WR2A,WR1E

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Comment ID	Comment Text	Theme Codes
18632	4.1.1.3: Surface Water Resources: Mercury in Water: (p 4.1-48). It is noted that "PolyMet is conducting additional sampling in wetlands, streams, and downstream lakes in the Embarrass River watershed under an MPCA approved plan to help better understand mercury dynamics." It should be noted that mercury is an important water hazard but the MPCA should broaden its project to include detailed quantification of acid mine drainage; sulfates; and other heavy metals. Focusing only on mercury provides an incomplete assessment of impacts of hard-rock mining. Since baseline and current mercury and methyl mercury concentrations in watersheds of this Project are critical to assessing virtually all priority categories of this EIS (Water; Fish; Humans; etc) it is surprising that such data are not available to better inform the water assessments and resulting conclusions. The MN Regional Copper-Nickel Study prepared by the MN Environmental Quality Board (EQB) addressed water quality from mineral mining as a concern in 1979 study of Filson Creek, S Kawishiwi River and environs. Increased metals levels of Nikel, Copper and Zinc were found. Related studies of Unnamed Creek and Birch Lake at Bob Bay related to taconite mining (Erie Mining Company's Dunka Pit) documented increased concentrations of sulfates and nickel. Specific information should be included in the final EIS regarding: who is doing the sampling, who will do the measurements and what will be the timetable for accomplishing the assessments. The details of this MPCA plan should be appended to the DEIS. Such attention is needed for this matter given the hazards of mercury, particularly methyl mercury on fragile ecosystems and also the consequences for bioaccumulation of mercury and implications for human consumption of fish. MN has a growing problem with mercury in water and has existing statewide mercury fish advisories that limit human consumption of fish: see http://www.health.state.mn.us/divs/eh/fish/index.html. Seemingly "low" concentrations of mercury in water do not necessarily reflect mercury in the biota and fish tissue concentrations which may be logs higher and directly toxic to humans and on wildlife who feed on fish. The critical importance of these issues has led to creation of proposed national mercury monitoring network: see: http://toxics.usgs.gov/highlights/mercnet.html. Tables such as 4.1-97 (p 4.1-190) and text (eg, p 4.1-189 and 4.1- 193), throughout the Draft EIS Northmet, contain measures of mercury and methyl mercury concentrations. Since there are significant methodological issues involving such measurements of mercury, the question is whether the analyses reported reflect recognized causes of and degrees of variation in mercury concentrations. For example, significant daily variations have been noted by researchers: http://toxics.usgs.gov/highlights/mercury_streams.html and http://toxics.usgs.gov/highlights/metals_variation.html . Have models used to project methylmercury concentrations included estimates of expected variation in measures under varied conditions? Please clarify. 4.1.2.4 Mercury Impact Criteria: Note is made of the relationship between sulfate and production of methyl mercury. MPCA (2006) policies relevant to this issue are outlined and recommendations are to "avoid or minimize the discharge of water with elevated sulfate concentrations to methylmercury "high risk" situations." It is not clear, however, to what extent the Northmet Project incorporates these recommendations into their operating plans. No details are provided and "high risk" is not defined. This should be clarified.	WR4B,WR4C,FM2,AQ6A
18635	4.1.3 Environmental Consequences: It is stated: "The mining, ore processing, and tailings disposal operations associated with the Project may cause changes to the quantity and quality of ground and surface water in the Project area." The word "may" should be changed to "will". Has there ever been a circumstance reported in the peer-reviewed literature when such mining operations have not caused such changes? Hard-rock mining causes clear predictable and adverse acid and metal-rich drainage. This DEIS focuses primarily on mercury but as noted above numerous metals leach from mining sites with toxic consequences for the biota. (Kimball BA. Assessment of metal loads in watersheds affected by acid mine drainage..Applied Geochemistry; 17; 2002:1183-1207) 4.1.3 Environmental Consequences: Note is made of Uncertainty re key assumptions and the use of "Uncertainty Analysis" for selected contaminants. Since uncertainty analysis requires a variety of objective and subjective data inputs, such simulations may produce highly variable outputs. It is stated that the analyses were approved by the resource agencies? Could the methodology, data input and analyses be appended to this EIS?	EOO,WR1E

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Comment ID	Comment Text	Theme Codes
18636	4.1.3.5 Mitigation and Monitoring Measures. On p 4.1-172, Mercury monitoring is noted the MPCA Mercury Strategy (2006) that recommends water monitoring for sulfate releases and effects on methylmercury production and establishment of five monitoring sites on streams draining wetlands…" The language in this paragraph and the next paragraph where it states: "PolyMet should develop a similar mercury monitoring plan for the Mine Site.." are ambiguous. What specifically is the responsibility of PolyMet for achieving the MPCA 2006 recommendations and what does the word "should" mean? Please clarify.	WR4C
18637	4.1.4 Cumulative Effects on Water Resources: It is most disconcerting that there is "..existing seepage from the LTVSMC Tailings Basin" and that the Draft EIS suggests that the duration of these impacts would be extended. Why have the seepage problems not been corrected? The law requires polluting offenders to comply with remediation plans. The current problems should be corrected before any new mining operations are approved. As noted earlier, shouldn't the Cumulative Effects summaries in this and other Chapters include major projected mining activities of Franconia; Duluth Metals; Encampment; and Tech Caminco? If not, please provide rationale.	WR5A
18638	4.1.4.2 Water Quality: Northern MN, including the area of Northmet Project, has significant existing mercury impaired waters. (Fig4.5-4 and p 4.1-189 re Colby Lake) Almost 1,500 waterbodies in MN require Total Maximum Daily Load (TMDL) list. Remarkably a TMDL pollution reduction study has not been performed for Colby Lake to address this impairment. It would seem reasonable that this Draft EIS Northmet address when this will be accomplished and by whom. Is this planned prior to the projected operation of the Northmet Project?	WR3F
18639	On p 4.1-196 it is noted that MPCA (2006) "recommends avoiding "discharges" of sulfate to "high risk" situations, which include wetlands, low-sulfate water…where sulfate may be a limiting factor in the activity of sulfate-reducing bacteria…re the potential for methylmercury production." Has Northmet Project accepted this recommendation? Who will be responsible for ensuring that the recommendation is followed?	WR4C
18640	Note: Please clarify: Throughout the DEIS statements are made that recommendations have been made after study (such as the above by MPCA.) I am unclear as to what the disposition is on such statements. Are these all included in the final EIS? Are these negotiated with Polymet? Who makes the decision and what is the process? The current DEIS does not provide information to answer this question.	WR1E

Sender Last Name: Jenkins **Submission ID:** 2865

3214	There are to many open ended environmental issues at stake to let anyone mine in or near the Boundry Waters.	EOO

Sender Last Name: Jennings.pdf **Submission ID:** 2667

765	The project allows the degradation of 1200 acres of wetlands in St. Louis County and the St. Louis River watershed, with an inadequate mitigation plan. The loss of these wetlands will result in a net loss in carbon sequestration provided by these wetlands (peatlands).	WE3
793	The DEIS does not adequately address the mining project's impact on Canada Lynx and Grey Wolf Habitats. It also does not address the destruction of existing wildlife corridors. The project is located on land the USFWS designated less than one year ago as critical habitat for the Canada Lynx.	WI1,WI5
1493	The mine's tailings basin will also produce discharges high in sulfate concentrations, which will turn mercury into methlmercury, making fish dangerous to consume.	WR4B,FM1
2377	Divide, meaning that surface waters run either into the Boundary Waters Wilderness (note the word) Area through Birch Lake or into the Lake Superior watershed. Wetlands and ground water would be affected in perpetuity. Water quality concerns have not been adequately addressed in the PolyMet project's DEIS. And where they are mentioned, the vocabulary is horrifying: "exceed water quality standards;" "high risk situations, etc" Water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years.	WR1A,WR1E

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Comment ID	Comment Text	Theme Codes
2638	The DEIS should expand its analysis of the Cumulative Impacts of the PolyMet project to include a review of past, present and foreseeable future actions within the project vicinity. The state of Wisconsin has passed a law demanding this type of review and as yet no company has been able to meet its requirements.	PD8,G9
2639	As recommended by the EPA, the DEIS must include an evaluation of the financial assurance that would be provided to ensure postclosure reclamation of the PolyMet NorthMet mine and plant. Sulfide mining places huge burdens on taxpayers. These mines often require long-term or perpetual pollution and treatment. PolyMet has few assets or financial history. Mining is by nature a boom-andbust activity, with many bankruptcies. The question of where the funding will come from for post-closure treatment, monitoring and maintenance has not not been adequately addressed, and Minnesota taxpayers will have to pay millions of dollars for clean up, which is not a guarantee of return to pristine condition, after PolyMet has gone.	PD4
2640	The PolyMet project proposes a land exchange of 6,700 of federal land within the Superior National Forest. This "connected action" is required to be part of the EIS under federal law. Knowing which what lands will be exchanged is important in evaluating the environmental and cultural impacts of the PolyMet NorthMet Project.	PRO4,PD1
3158	How are jobs in sulfide mining, such as the ones seriously being discussed in the Lake Superior and Boundary Waters watersheds, good jobs? Pitting neighbor against neighbor, human being against wildlife habitat, irreplaceable pristine wilderness against iffy, onetime, short-term, destructive gain isn't a good trade-off. The economic advantage we now enjoy as a tourist, hunting and fishing destination will be forever lost.	EOO,G1,G2

Sender Last Name: Jensen **Submission ID:** 265

278	I am a third generation iron miner and I fully support PolyMet Mining's NorthMet project. My grandfather worked for Pickands Mather, my father worked for M.A. Hanna Company, and I worked for aimost 30 years for National Steel and for U.S. Steel at Keewatin Taconite. I currently work at Hibbing Community College and my current position as Director of Continuing Education and Customized Training is also dependent on NE Minnesota's mining industry. As a Quality Manager for almost 15 years I worked closely with our Environmental Manager and watched our company and the mining industry significantly improve their dedication to protecting the environment. Mining companies in NE Minnesota today understand the importance of sustainable practices and the long term cost savings associated with them. The process that will be utilized at PolyMet Mining is significantly different than the leaching process used in the non-ferrous mining industry in the past and will minimize any effects on the environment. I believe that PolyMet Mining's draft EIS has provided Minnesota's regulators with the information necessary to ensure that the mining and processing of the non-ferrous ores will be completed in an environmentally sound manner. I have watched the migration of Iron Range youth, including my children, since the early 1980's due to a shrinking job market. Investment in the non-ferrous mining industry will allow those who want to stay on the Iron Range opportunity to stay here. In addition, the domestic production of metals by Poly Met Mining critical to our way of life will reduce our dependence on foreign supplies. I firmly believe that domestically produced minerals and metals is in our country's long term best interests and will minimize effects on our global environment. I appreciate the opportunity to comment on this important issue.	EOO
2383	What liability will Poly Met agree to? Will they pay for any and all leakage and spills from the ponds? All liners do eventually leak. When the soils are contaminated and water carries contaminants into new territory, how will they deal with it? How will Poly Met compensate? Will they pay for health issues of populations far and wide? Will they pay for care of sickened wildlife? An entire landscape andneighborhood surroundings are at risk. It should be studied far more carefully than anything I have read thus far. Who has inspected other Poly Met mine sites, tested the surroundings? Who has interviewed people in similar mine situations?	PD4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2619	MR. JENSEN: I fully support the project. Okay? Primarily because I have two children that my entire life I told them, "There is no jobs up here, you are going to have to move." My daughter just graduated or is graduating on Saturday with a doctorate in chemical engineering. With these types of projects there may be opportunity for her to come back to northeastern Minnesota. Most of my generation is there. Our children are all gone because we haven't had jobs. I really believe that we can do this environmentally friendly. I have looked at the process and I would again like to say that I support the project and I think it would be good not just for northeastern Minnesota, but the entire state, and the country, because of the metals that we will be doing in the mining.	EOO
2668	The International Falls Area Chamber of Commerce, with direction and support of the Board of Directors, desires to go on record supporting PolyMet Mining Co., to develop a copper, nickel, palladium, gold and cobalt mine and process ore at the former LTV Steel Mining Company plant near Hoyt Lakes. The Chamber Board of Directors and its members understand the importance of buying locally and sees this mine as a critical component to the area's economic viability. It only makes good sense for PolyMet to mine and produce some metals not currently mined anywhere else in the United States. PolyMet, we understand, will produce these metals in an environmentally sound way and generate significant economic activity in our part of the state, while following Minnesota's strict environmental requirements to protect air, water and land. Additionally, it is our understanding that the PolyMet mine will create 400 full time jobs with an annual payroll of $40 million. The spin off economic benefit will be more widespread than st. Louis County and could also have an economic impact in the northern most cities in Minnesota with increased employment opportunities and a larger tax base. We support and applaud all of your efforts with this project and the adequacy of the draft EIS and we thank you for the opportunity to support and voice our opinion on this important project.	EOO,G5
3118	As a new Cook County, Mn resident, as a biologist, and health science practitioner, who has read of other mining disasters, I am disturbed about how little scrutiny there has been of the potential long termaffects of the Poly Met mining plan. The only incentive seems to be SHORT TERM JOBS. Perhaps to recover from the long term health problems will provide additional jobs at the expense of all taxpayers.	G2

Sender Last Name: Jepson **Submission ID:** 2010

2484	DON'T LET IT RAIN ON OUR PARADE - STOP POLLUTING - SAVE THE EARTH FOR FUTURE PEOPLE Loss Of Wetlands	EOO

Sender Last Name: Jerich **Submission ID:** 2171

2576	There is much mis-information being circulated by groups such as the one that solicited me to send out a canned letter to you both. I grew up in Ely, and understand the environmental at risk issues, and also the view of the people that live there and need meaningful jobs to replace those lost over the last 30 years in forestry, mining and supporting industries. My request is to exercise all caution as to the environmental impact. If you have ever seen the copper mines in Arizona, and the devistation they create, you know what I mean. There are new processes being presented here that may change the impact. Please be unbiased and balanced and protect the people economically with this opportunity as well as the area they and their children live in.	G14

Sender Last Name: Jhecimovich **Submission ID:** 1057

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1162	I am acquainted with the management and some of the directors of Polymet, and I believe they are honest trustworthy executives who keep their word. I believe they have conducted their business to date in an environmentally responsible manner and will continue to do so. I am aware of advances in mining technology wihich will allow Polymet to comply with the strict environmental standards of Minnesota. Minnesota regulations are among the most environmentally advanced in the world. Minnesota regulatory agencies are technically superior to those of other states. I am confident that our agencies will provided complete oversight and control over the Polymet project to safeguard our environment. I have no fear that Polymet will be allowed to damage the environment in any manner. I trust our regulatory agencies due to my paste experience in dealing with them. Our environmental special interest groups will provide a complete examination of Polymet's practices and will result in a stronger template for future non ferrous development. Non ferrous mining in Minnesota will result in an improvement in the overall world environment as other areas have less stringent environmental policies and protections in place. Worldwide demand for non ferrous metals is increasing and is expected to continue to increase. Minnesota mining of these metals will result in the least environmental impact while providing needed jobs in the area. The economic impact of the NOrthmet project of and by itself is a compelling reason for everyone 'make this happen'. Although the Northmet plan initially contemplates a 20 year production horizon, mineral deposits have been identified to extend the economic benefit for many years beyond. Benefactors of this economic boon would be the state itself, school districts, regional businesses and the many direct and indirect jobs created by this project. I fully support the Polymet Northmet project.	EOO

Sender Last Name: Jiricko **Submission ID:** 3659

1	The PolyMet DEIS describes significant environmental problems associated with this proposed mine. These issues should be resolved before this mine is permitted by the responsible state and federal agencies. The PolyMet proposal’s risks to water quality are unacceptable.	EOO
2	Water from waste rock piles will be polluted for up to 2,000 years (DEIS, Table 4.1-45). We can’t expect mining companies to be responsible for these operations for that long.	PD3
3	One analysis in the DEIS predicts that arsenic, cobalt, and selenium will exceed water quality standards. Another analysis predicts cobalt, copper and nickel will exceed water quality standards. Both analyses predict high sulfate concentrations (4.1-113). Minnesota waters should not be polluted with heavy metals and sulfates. A different design is needed to prevent contaminated overflow into nearby water bodies.	WR3A
4	PolyMet proposes to construct a wetland to treat contaminated waters. Effectiveness of constructed wetland treatment systems has not been proven. This method should not be relied upon as a water treatment method. The company should design another method for cleaning polluted waters.	WE6,PD5
5	The DEIS does not outline the method or amount of financial assurance that the mining company will need to set aside for the potential disasters after closing. Because acid mitigation is difficult to predict and long term treatment after closing is necessary, there needs to be a large sum of cash held as a damage deposit and that amount should be specific and included in the final EIS.	PD4
6	The DEIS Northmet proposes a form of mining that is highly controversial. There is a consistent pattern of hard-rock mining companies overstating the benefits of hard-rock mining while not revealing the true costs. The DEIS Northmet should provide evidence that the proposed Project will provide citizens of MN with benefits that exceed the risks.	PD4
3121	The Boundary Waters and Northern Minnesota are an International treasure. Visited by the World for its unique attributes, culture, and wilderness we have a strong duty to ensure no risk is taken to damage its preciousness. The sulfide mining process comes with inherent risk of long-term degradation to the environment. This has been demonstrated historically and currently with sulfide mines in other locations. When risk is unpredictable, as is the case for this mining type, analysis of future damage to the local ecosystem, economy, and environment, are impossible to mitigate accurately. Zero risk policy for this area is prudent given its World status. Please make Zero risk a fundamental part of your decision making tree.	EOO,G2,G6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Joerger **Submission ID:** 3381	
3671	All the proposals should be shot down because it would pollute Minnesota's environment. It could kill a lot of fishing opportunities and would basically kill all aquatic life. Is it smart to mine for a few minerals for a profit and lose all the fishing and tourism profits? The video showed that less people are coming to that area because of the noise of drilling. Hard rock mining has proven to be very toxic and the leading pollution producer in the US. The economical gain is short term and if this proposal is passed it will have long term economical affect. Please do not pass this proposal.	EOO,G2C,G11
Sender Last Name:	Johanneson **Submission ID:** 2252	
2660	Help! How can this be? Haven't we learned anything from the terrible messes we've created in the past? We're supposed to believe the Polymet statement? sulfide mining does not belong in our beloved wilderness area!	EOO
Sender Last Name:	Johanson **Submission ID:** 1523	
1847	A particular concern of mine is the approval a project that will pollute in such close proximity to the treasured Boundary Waters Canoe Area Wilderness. I am very concerned about the precedent this project will set, and any failure to fully mitigate the potential impact of pollutants that result from this project would, I believe, do serious harm even to those non-BWCAW lakes and rivers that are such a critical part of northern Minnesota's unique ecosystem.	G2C,G7B
Sender Last Name:	Johnson **Submission ID:** 171	
162	I am writing in support of Polymet Mining's NorthMet project. The draft EIS submitted has determined, without question, the viability and the environmentally safe foundation with which this project will be undertaken. This project is vital to the long term well being of the Range and the State of Minnesota. The jobs it will create, the products it will produce, and the tax revenues it will supply are critical to the economy. 400 plus jobs are dependent upon our acceptance of this safe mining solution. The contribution it will provide to the expanded industries it will support is the very best opportunity we have been provided in decades. We need the jobs, we need the revenue. We need to support the resources this state provides. As a citizen of Minnesota I recognize that pro-business and pro-mining is not what we have been known for. It is time this trend changes and allow us the benefits our state and our citizens deserve. I strongly support this project and all of the benefits we will realize once a permit for mining is issued. Please, let's not let another opportunity for prosperity slip through our fingers.	EOO
186	I have not previously felt so compelled to submit comments for a DEIS. As an unemployed resident of the region that will be impacted by this mine, I understand the need for jobs, especially in NE Minnesota. But I believe the long term economic impact of sulfide mining will be strongly negative for the region and for the people of Minnesota. Please consider the following comments to reject the risk to the waters of Minnesota, truly our most precious resource. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
214	We strongly support the advancement and allowance of mining of non ferrous minerals by Polymet in Hoyt Lakes. The EIS submitted for review clearly demonstrates that this mining system is safe and secure. Every caution has been researched and addressed. This mine will set the standards for the world for clean and sustainable mining for the future. The positive impact it will bring to the people and the economies of this state are unmeasureable. This resource deposited in Minnesota is valuable to all the people of Minnesota and the world. We need these metals to provide the United States with an uninteruptable supply of minerals not available in our United States. It eliminates our dependence on foreign producers of these metals. It is time to provide to this state and the people on the range jobs, revenues, taxes, and an improved and sustainable economic future. 400 new jobs and countless other construction and off shoot jobs will be created. We need this type of economic stimulus, not the governmental type we have grown used to. Jobs create pride and earned stimulus. Governmental stimulus creates liability and uncertain futures. It is time for this type of safe and environmentally friendly mining to be employed for the greater benefit of the citizens of the State of Minnesota. We need this venture to go forward.	EOO
717	I am requesting : (1) a time extension of 30 to 45 days for review of the EIS. The allotted time of the review is sparse (2) more availability of public meetings The current schedule is too limited. (3) Request that the public meetings include the option for citizen statements and discussion in the open meeting.	PRO6
745	Also, if there is to be any spirit of cooperation and compromise for the common good, we must listen to each other. Will there be another meeting with a more public format?	PRO6
1119	As a concerned Minnesota citizen, I feel it is my obligation to let you know that I support PolyMet Mining's NorthMet Project. At a time when our economic situation is unstable, I think we need the contribution that PolyMet will make to the state and local economy. The estimated 400 employees and hundreds of spin-off jobs will give a big boost to the financial situation in the Arrowhead Region, as well as the State of Minnesota, and a big boost to the morale and spirits of the people. It seems clear that PolyMet has completed an extensive environmental impact study that shows they can operate the proposed facility in an environmentally friendly atmosphere that will have a minimal impact on our environment. As a person who lives in northern Minnesota, I understand the need to balance use of resources like minerals and preservation of resources such as water and air. The draft EIS demonstrlltes PolyMet can mine these metals AND protect air, water and natural resources, and I support the project. PolyMet will provide millions of dollars in local and state taxes to support our communities and education system. Let's get on with pennitting this mine. We need the jobs.	EOO
1185	No project is without risk, but with the proper procedures and controls in place we can significantly reduce the level of risk on all projects. I know this first had,working as a safety directorfor,J.R. Jensen Construction Company. I feel that the 'benefits of this project'to the regIon and state far outweigh the potential negative impacts. Please pass the environmental permits needed to get this project up and running.	EOO
1190	I support Polymet Mining's NorthMet mining project. As with any project of this scale, there are many challenges. There are many important aspects to consider. :rhe EIS is an important step to address many environmental aspects of a project. This EIS was well prepared and answered many important questions, and has my support Consider in these hard economic times how'important it is to create revenue generators for the state, Creating local opportunities for workers,-and sources of materials for manufacturers, only increases the strength of our state moving forward into the future. Also it is important to think how complete and thorough this EIS is, and consider what kind of EIS other countries would produce for such a project. Apart fonn the quality differential, most countries would not provide any consideration for the natural environment. We are competing on a global stage in the modern world we need to stay competitive and manage our resources intelligently.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1191	I support PolyMet Mining's NorthMet project. The draft environmental impact statement does an excellent and thorough job of defining and addressing the potential environmental concerns. The NorthMet project will be an example and set the precedent for future mining operations. More than enough time and money has been spent preparing the draft EIS. It is time to move forward with this project. The demand for these metals will be met by world markets. We can be sure that the environmental concerns addressed by this EIS document, will not be taken into consideration by other countries around the world. -That is why, it is important to mine these metals here in Minnesota, where we know that the mining will be done to minimize environmental impacts. The economic impact of this project will benefit the local economy of northeastern Minnesota· as well as the rest of the state. Given the current economic conditions, it is important that the jobs provided by this project become a reality. With some of the highest unemployment in the state, -northeastern Minnesota needs the jobs created by this -project. The jobs include construction, mining, vender support, and all the other trickle down employment opportunities that-will result from the PolyMet's NorthMet project. Thank you for considering my support for this very important project.	EOO
1310	I am deeply concerned about the environmental impacts implement in the North Met, and specifically the impact that sulfide mining will have on the surrounding communities and local watershed. As a concerned citizen, I plead with you that this project will not pass.	EOO,G7B
2000	g. The DEIS provided insufficient documentation of the degree to which contaminants will move in the subsurface at and near the mine site, particularly in the upper weathered bedrock-till interface, to lead to the necessity of adaptive management in the future once the mine is closed.	WR2E
2000	a. The DEIS needed to present temporal field data on the Partridge River discharge near the mine site. Given the duration of the studies done at the site (years), I am surprised that these data appear to have not been collected. Rather than directly obtain surface water data, the DEIS presented the results of a surface-water numerical model, XP-SWMM, incorporating data collected years ago by the USGS at stations removed from the mine site and within a much larger watershed, and extrapolated these results to the mine site at a smaller watershed size. The recharge rates calculated from this model to get it to agree with assumptions produced recharge rates through the glacial till that seem implausible, at least based on well hydrographs in till collected by the USGS in the general area. The DNR should reconcile these results at the least, optimally by measuring recharge from water table well hydrographs. Otherwise, the amounts of water reaching the mine pit may be larger than anticipated and the validity of their surface water model for the Partridge River can be questioned.	WR2H,WR3J
2000	b. The DEIS surface water model results did not calibrate well to periods of high flow, despite broad sensitivity analysis done to try and assess what factors mostly affect the stream discharge. Getting field data closer to the site to use in the modeling process would have been invaluable. The DEIS needs to link more directly the extent to which the surface water model error affects interpretation on plausible effects on water quality to the Partridge River caused by AMD from the closed mine.	WR3J
2001	b. The AMAX and INCO field experiments do bear on what might happen, as the broader analysis and data compilation of water quality generated from sulfide mines, in general. The DEIS discussion of AMD at Polymet in the context of other mines constituted the strongest line of evidence that, given the low grade of are at Polymet, serious acid mine drainage should not evolve over time, compared to that found at other mines.	EOO
2001	2. I found the groundwater modeling approaches used by Polymet were insufficiently documented to allow me to evaluate their degree of certainty. These models may, in fact, be inappropriate to address the problems considered; a) dewatering of surficial aquifers and bedrock aquifers near the mine pit caused by the mine and b) how rapidly potentially contaminated water might move from , the closed mine to the Partridge and Embarrass Rivers. Additional documentation should be provided to support the conclusions reached in the DEIS from the groundwater modeling approaches used, including water table maps, potentiometric surface maps and hydrogeologic cross sections showing drawdown of groundwater levels around the mine during its operation, groundwater flow velocities (MODPATH simulation module), and how model results calculate the pits will fill over time after closure.	WR2E

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2001	a. I find that the results of the humidity experiments done at benchtopscale bear little, if anything, on what will happen in the actual stock piles or subaqueously to waste rock deposited in the former mine pits. The DEIS must address the matter of scale more directly and why these studies were done.	WR1E
2002	c. From first principles, and assuming the quality of the waste rock meets what the DEIS reports, the generation of serious acid mine drainage from Polymet should not occur except in small pockets within stock piles. Having said this, I urge DNR to develop an adaptive management plan in case unanticipated surprises evolve, particularly in light of the serious modeling uncertainty, lack ofdirect pertinent information on the surface water and hydrogeologic system as it now stands, and the national history of the inability of the environmental review process to project the extent of AMD at heavy metal mining operations elsewhere.	WR1E,WR2E
2002	Polymet considered all the bedrock formations a single hydrostratigraphic unit to prepare a potentiometric surface map, which implies that all the rocks behave as a single kind of water bearing unit. Yet, Polymet divided the rocks into clearly different horizontal hydrostratigraphic units based on differences in hydraulic conductivity, a measure by which water can move through soil and rock. This conceptual difference between characterizing the bedrock formation as a single hydrostratigraphic unit, and then later dividing rocks into different horizontal hydrostratigraphic units based on hydraulic connectivity, appears to be a major contradiction.	WR2A
2002	Polymet neglected to collect important hydrogeologic information needed for full characterization of the mine site. Without this data, no direct means can be used to characterize groundwater flow in the vertical direction, up or down, from the water table or surface waters under natural or perturbed conditions. As a result, there is no means to determine the accuracy of the broad results of Polymet's groundwater modeling efforts. Furthermore, some bedrock piezometers were constructed so they obtained water across the contact between the Duluth Formation and the underlying Virginia Formation. More piezometers isolated within presumed hydrostratigraphic units in the bedrock (individual water bearing zones) were needed.	WR2A
2003	I view it plausible, compared to what Polymet assumed, that flow paths in the bedrock diverge from directions defined by the water table in the overlying surficial materials. Ground water in the deep bedrock could very well move under the Partridge River to places beyond. The Partridge River hardly can be the regional discharge zone for water moving in the deep bedrock, despite what the Polymet DEIS modeling boundary conditions forced it to do. The Partridge River only serves as the discharge point of local systems in the very upper bedrock and surficial aquifers--but not to deeper waters.	WR2A
2003	I found it unfortunate that Polymet did not install piezometer nests in key locations to determine the potential for vertical head gradients. They could have been installed both north and south of the mine to intersect individual fracture sets in each rock unit and also near the Little Partridge River. The water levels measured in these could have been directly used to characterize vertical groundwater flow directions before, during and after the mine as well as the degree to which the bedrock connects with the river. Water quality measurements could also have been obtained from these to determine the degree to which fractures connect. Pumping tests could have been done from individual piezometers in such nests to determine vertical connectivity as well and the data obtained be used to calibrate the 3-D groundwater modeling effort.	WR2F
2003	The direction that ground water moves depends on the water levels measured in the wells. Ground water moves from high to low water elevations, and not only side to side, or horizontally. Water can also move up and down, vertically. Hydrogeologists routinely characterize vertical hydraulic gradients with multiple piezometers placed at the same location and called "couplets"or "nests" to determine whether ground water moves up or down, and this should have been done at Polymet. During mining, one would expect greater downward migration of water in bedrock aquifer to the open mine pit. Ground water flow directions in the deep bedrock at Polymet mayor may not be the same as that predicated from a water table map. But when the mine opens, I would expect it to act as a drain, inducing water horizontally and vertically to hit both surficial materials and underlying bedrock where fractures connect. Since the Little Partridge River does not cut deep into the bedrock, it seems unlikely it could be a drain to anything but grouodwater in the surficial materials, despite Polymet considering it a drain for ground water both in surficial materials and in deep bedrock.	WR2A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2004	Indeed, the contours of the potentiometric surface for all bedrock in Polymet's groundwater modeling report (Fig. 6.2, RS74A Surface Water and Groundwater Draft 02) do not bend upriver when they cross the Partridge River, which implies flow under the river. Polymet's analysis of flow paths did not address the potential that flow paths in bedrock could extend under the river, even though Polymet's groundwater modeling report indicated that potential. But, had Polymet installed bedrock wells near the Partridge River south of the proposed mine, it could have directly determined whether the river receives or loses water to the bedrock. Without such wells, only untested assumptions can be made regarding river-bedrock groundwater interaction and the validity of their solute transport model post mine remains questionable with respect to the deeper flow system.	WR2A
2005	To some extent, I agree with the position by the tribal cooperating agencies (DEIS, Vol. I at 4.1-2) that Polymet needed to install more instrumentation to characterize the hydrogeologic setting of the mine. But, I do not think a great deal more is needed. At least the potentiometric surfaces in the bedrock and surficial materials needed to be better characterized with respect to the Partridge River. Finally, the monitoring wells that Polymet installed in the wetland peat soils bears little on what the water table in surficial drift might do with mining. The wetland soils have very low hydraulic conductivity compared to other soils and effectively can be viewed as disconnected from the broader hydrologic system except very locally. I am not concerned about wetlands being drained by the mine, short of the ones that are directly in the mine footprint.	WR2A
2318	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources. I have been trying to find a sulfide mining operation that has not caused major water pollution but I can't find any. I believe that you know this to be true but it appears that the corporate power will have a big impact on your desision. With clean water becoming harder and harder to find on the planet I think taking a chance like this for a couple hundred short term jobs is totally irresponsible. How can I tell my grandchildren that I allowed this to happen?	EOO,G7
2319	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Don’t turn Northeastern Minnesota into a mining wasteland.	G8
2833	The DEIS text has only five citations to the Regional Copper-Nickel Study. This is a glaring omission of important data that was prepared especially for this environmental impacts evaluation of copper-nickel mining. This environmental impact statement is for copper/nickel/metals mining in the very same area of the Study. The DEIS does have a few citations for the Study so its authors knew the Study existed, but the DEIS does not even discuss the fact that the Study exists, its purpose, and applicability. The DEIS cannot be adequate without acknowledging and utilizing the Study data and subsequent research.	EOO,WR1E
2834	p. 4.1-34. The DEIS indicates that there are limited data pre the Peter Mitchell Mine. This infers there is data. The DEIS should provide the data that exists. The DEIS should also describe any problems or issues with each of the sets of data, as provided in any quality assurance lab reports or by the providing data source.	WR1E
3152	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. Do not initiate a project that will permanently degrade our state's greatest natural resource. Once again, business ahead of conservation will turn our state into another Louisiana. The PolyMet DEIS describes serious environmental issues associated with this proposed mine. These issues should be addressed and resolved before this mine is approved by the U.S. Army Corps of Engineers and the Minnesota Department of Natural Resources.	G2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3247	The DEIS basically says that they think bad contamination will not happen, in spite of metals releases in several places nearby which have not yet been controlled and continue to pollute. PolyMet must show that they have a reliable, appropriate capture/ treatment/ extraction/ disposal systems for any and all contamination that might be released, in addition to the financial assurance for performance. No matter who pays the bill, it is always cheaper to prevent contamination than to clean it up later. These comments put the preparers of the DEIS on notice of the existence and applicability of the entire study and subsequent research in the Legislative Library, which should lead to additional more recent applicable research. Because of the potential for pollution disasters in situations like this, regulatory agencies require financial assurance for pollution cleanup, closure, and required post-closure action. The DEIS should discuss an estimate of future dollars costs if an accidental contaminant release should occur, and if PolyMet or a successor should go bankrupt or leave the project area without closure or with uncontrolled contamination occurring. Please, avoid unintentional stupidity or Ponzi schemes to lay these costs on the public.	PD3,PD4
3248	Elements that should be included in the EIS are energy consumption and carbon use analyses. Will energy demand by the plant affect local residents' available supply, or their prices? What will the company do to minimize its energy and petroleum usage? What will the energy company require the mine to do to fulfill its obligations to the State to meet 25/25?	PD8
3249	This mine is in the Lake Superior watershed, an international water, and the mine is a short enough distance from the international boundary to consider international air quality issues. The DEIS should discuss what obligations the mining company has to the International Joint Commission serving both the United States and Canada. …the Commission rules upon applications for approval of projects affecting boundary or transboundary waters and may regulate the operation of these projects; it assists the two countries in the protection of the transboundary environment, including the implementation of the Great Lakes Water Quality Agreement and the improvement of transboundary air quality; and it alerts the governments to emerging issues along the boundary that may give rise to bilateral disputes. (www.ijc.org) Was public notice of this DEIS specifically served to the IJC, the Minister of Environment Canada, and affected provinces?	G2B
3292	I also note that the DEIS generously uses terms to evaluate data including, but not limited to, slow, fast, low, little, high, elevated, significant, insignificant. These are editorial terms that do not belong in a scientific document such as the DEIS without actual data and a discussion about how it relates to other similar data and other numbers arising from the Copper-Nickel Study, toxicity studies, health concerns and risk, and regulatory standards. If other authors disagree about editorial terms, this should be included in the text discussion. Footnoting disagreement is an insult and makes it appear that the DEIS authors think they know best. Good scientists know that they do not know everything and avoidance of the appearance of arrogance will be better evidence of non-bias.	EOO
3293	A non-ferrous mining sector EIS for certain aspects may be needed. Issues may arise if the NorthMet project moves forward at this time. If NorthMet is determined not to significantly contribute to haze, and does not need to follow through on certain air emission controls, what will be done when other mining applications come along and it is determined that the sector cumulative impact on haze exceeds the limit? At least four companies have been in headlines and in USFS permitting, moving forward. Do the first applicators get the breaks?	G8C,G10
3498	To Whom It May Concern: I support PolyMet Mining's NorthMet Project. Thank you for your consideration, Nancy Johnson njohnson@ulland.com	EOO
3530	Are we to auction off our public National Forest lands to the highest bidder these days? The exchange of a few temporary jobs for a polluting time bomb that could threaten the BWCA will never be a good idea. As a frequent visitor to the BWCA and Arrowhead region, I beg the DNR to take a firm stand against this mine proposal. Thank you.	EOO,G2
3612	This is ridiculous. It will ruin so many things that mean everything to people and to nature. If you cant clean it up don't make a mess! Think about the long term, not the short term.	EOO
3768	I am all in favor of the polymet project let's move forward and start building ..... Lois Johnson	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3909	Many of us who live in NE Minnesota have been disregarded by our area legislators! They live in fear of the red neck, snowmobiler, 4 wheeler coalition & live in fear of being called "queenies". They do not represent the mostly silent group, maybe even majority, that is not ready to turn over our lakes, rivers, logs, etc. that we have loved all of our lives to the mining interests (copper, nickel etc.) From Alaska to NE Minnesota, mining development with all of its ugly baggage, looms. It is instructive & interesting to think back to Teddy Roosevelt & his thoughts and actions back when things were pristine & there was very little development west of the Mississippi. He warned about development, especially mining, and how it would spoil those areas perhaps for all time. He worked to set aside vast areas of unspoiled grandeur that we still have today. We still haven't learned the lession that he laugh. Yet, were are considering using unproven technology that could have very bad long term consequences. Please side with all of us who want to preserve whats left of the Northern Minnesota. I could have loved elsewhere, but I chose to live here where I grew up, loving the area from the iron range to the Canadian border. Our area legislators no not represent the views of many, many of us. They have their formual for re-election & that is what concerns them. None of them seem to have any pro-environment feeling at all. They have a very skewed perspective. Please stop the development by being unconvinced by the technology & convinced of the risks. P.S. Enclosed is evidence that other mining projects are being considered.	EOO

Sender Last Name: Johnson and Godbout **Submission ID:** 267

280	The Twin Ports Construction Liaison Committee is made up of local unions and union employers. Our purpose is to promote the construction industry and show the cooperation between labor and management. On behalf of the committee and our many members we are writing to comment on and support Polymet's EIS. We have worked closely with Polymet for many months and are very knowledgeable about the effort they have made to make sure this project is safe environmentally. They have explained to us a number of times how they will proceed and operate to ensure an environmentally safe operation. Comparing this mining operation to those in the past that were not environmentally friendly is wrong Today's technology is far superior to that of the past. It should also be clear that Polymet is not in the BWCA's watershed. As local citizens we are very concerned about anything that would harm the environment; therefore we have made a very concerted effort to educate ourselves on Polymet's project. We understand the need to balance resources and the preservation of our water and air. We feel that this EIS supports Polymet's effort to develop and environmentally and economically sustainable project. This mining location contains the second largest deposit of cobalt in the world. Currently the United States is importing 80% of its copper. Polymet will be a domestic supplier of critical metals and will reduce our dependence on foreign metals and create a large tax base for the area and state. It will bring life back into a mining facility that now sits idle and once employed hundreds It is estimated that Polymet would create 900 permanent jobs, 400 at the mining facility and 500 spin off jobs. It will create 1.5 million much needed construction man hours. Northeastern Minnesota has one of the highest unemployment rates in the state. The tax base is becoming smaller, schools are being forced to merge, and government agencies are being forced to cut back their services. We are asking that you approve Polymet's EIS.	EOO

Sender Last Name: Johnson.pdf **Submission ID:** 3660

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Comment ID	Comment Text	Theme Codes
1	Summary: The DEIS lacks and has ignored valid and related scientific literature, coming to conclusions that are nothing more than conjecture. It further lacks critical definitions essential to the public's understanding of mining. It lacks important toxicological information. Discussion: Because of the essential, unavoidably scientific nature of environmental issues in identifying environmental impacts, the Draft Environmental Impact Statement (DEIS) must include scientific statements. A wealth exists of published and peer-reviewed literature regarding the potential impacts of copper/nickel mining in Minnesota (especially the Regional Copper-Nickel Study 1976-1979 by the State Planning Agency, a compilation of work by Minnesota Department of Natural Resources (MnDNR) and many others), and also a wealth of real-world data regarding seeps, discharges and leachates, yet the DEIS appears to rely on poorly referenced studies and computer models provided by advocates for the project, rather than existing studies and data. Private PolyMet-funded reports are unlike open scientific literature in that they have not been accessible to the public, nor have they been peer-reviewed as to data, data sources, data analysis and conclusions, and therefore lack the credibility of peer review. Presenting accurate detailed information includes how the DEIS is supported scientifically (the purpose of citations), and enables comment, including verification, by the public in a reasonable time frame. Most citations infer technical support for technical statements and conclusions. On the other hand many conclusions do not include citations to the scientific basis for the conclusions, which gives the appearance of conjecture. In addition, the citations that are included refer to documents that are not made easily available for review by the public (personal experience). The emails attached document that I requested the cited documents twice. I never did receive the CD as DNR stated would be sent. I continue my position in these comments that an extension should be granted so that I and other scientists can have the opportunity to review the scientific basis of the statements with such citations.	G8
2	The state of Minnesota spent millions of dollars on the Regional Copper-Nickel Study (Cu-Ni Study), which was a detailed study of a 500 square-mile area, including the PolyMet NorthMet site, from 1976 through 1979, and subsequent reports based on further research. The Cu-Ni Study is based on over 180 technical reports taking up 20 linear feet in the Legislative Library, prepared by the MnDNR, Minnesota Pollution Control Agency (MPCA), University of Minnesota, U.S. Bureau of Mines, US Environmental Protection Agency (EPA), many other government agencies, and contractors, for the purpose of providing relevant background for the event of a proposal of Cu-Ni mining in Minnesota. The preponderance of the Cu-Ni Study is directly related and currently timely to projects such as this. Metallurgical processes and toxicological and environmental data have not changed significantly since the time of the Cu-Ni Study. The differences between the DEIS and the Cu-Ni Study are glaringly apparent. I found only one cited publication from that study. Potential environmental impacts identified in the Cu-Ni Study have been ignored. Many of the authors of this study are still working for MnDNR, MPCA, U of M, or are now retired or working elsewhere but are still alive and available for discussions about the study, as I am. Many other scientific reports in the open literature have also been ignored. In the short time allowed for review of this document, I have only touched on the depth needed to address the multitudinous shortcomings of this DEIS in my field of expertise. Simply addressing my specific comments will not create an adequate EIS in the areas on which I comment. The DEIS must incorporate into its text -- lock, stock, and barrel -- the entirety of the Cu- Ni Study and its literature, using proper citations and providing all cited documents to the public. The current DEIS needs to be disregarded and a scientifically supportable document must be developed.	G8,G14
3	Polymet Corp is likely a corporate "veil" for other corporation(s) in a position of parent, partner, owner, financier or other supporting function. Many mining companies use veils to protect the veil corporations from liability. It is important to make the names of the veil companies public in the Draft Environmental Impact Statement DEIS for at least four reasons: 1. Past behavior is an excellent predictor of future behavior. If a veil company has a continuing poor environmental record, it should be taken into account when the DEIS is evaluated. 2. Properties owned by the veil corporations may be negotiable for properties that will produce fewer impacts than the existing ownership allows, e.g. a veil company may propose a environmentally poor place to dispose of waste, yet close by there is a far better site owned by a veil company. This may allow internal corporate negotiations to acquire the better disposal site. 3. If Polymet goes bankrupt, State and or Federal Superfund will have records to pursue any veil companies to clean up any contamination. 4. If Polymet obtains all its permits and is operating, a veil company may purchase Polymet and demand changes to agreements that have been made with the State.	G4A

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Comment ID	Comment Text	Theme Codes
4	A clear definition is needed between mineralized rock and ore, and other terms, like disseminated, used throughout the DEIS with important concepts to making decisions.	G8
5	Unlike many copper (Cu) deposits in the nation, this deposit includes significant quantities of nickel, cobalt, and zinc (Ni, Co, Zn). The DEIS ignores the fact that toxic metal releases of Cu, Ni, Co, Zn have already occurred from the Duluth Complex stockpiles and test plots at the LTV Dunka Taconite Mine (AKA Erie Mining Dunka Mine), Amax test site, Spruce Road Bulk Sample Site at near neutral pH. The release of Cu can be reduced with circumneutral pH (pH 6.7 to 7.2). This is not true for Ni, Co, and Zn (MnDNR,1980; EQB, 1977; Eisenreich S.J., May 1976, p. 27; Lapakko K., 1980, Table 2). The Cu-Ni Study Executive Summary p. 45 states these leachate impacts are of significance. This DEIS fails to address how circumneutral releases of Ni, Co, and Zn will be addressed.	PD2
6	The concept of a 20-year mine operation is misleading to most novice readers. The 20- year mine concept is the standard way mining companies plan their operations; the 20- year time frame has nothing to do with final closure dates. All mine closures are dictated by the ore resource available, the current market price, and the profits the company requires. For example, most of the taconite mines in Minnesota started in the 1950's and are still in operation 50 years later. In that time 2.5 20-year plans have come and gone. During the 50 years many operational changes have been made without holistic environmental review. For example, a flotation process was implemented by LTV Steel, AKA Erie Mining circa 1985. Polyacrylamides were used to remove silicates from the taconite. This process change was a major change in the basin and it was not assessed for environmental impacts by the regulatory agencies. No EAW or EIS was opened to assess impacts of the polyacrylamide discharge and its breakdown products. Data was available indicating this chemical may have an environmental impact. However the MPCA managers determined testing would not be required. Now scientific information has come to light that a breakdown product from polyacrylamides is acrylamide (Smith, 1997, introduction). Additionally, both the European Union and the USEPA have determined acrylamides to be toxic (USEPA, 1994, IV.; EUROPA, 2001, effects assessment). This highlights the fact that companies' operational changes are seldom denied since the companies threaten regulators and politicians with closure and the loss of jobs unless they are allowed the change (personal experience). A 20-year operation should be just that, 20 years. At the end of 20 years all equipment and capital expenditures should be retired. After that time if they wish to continue operations, Polymet or its successor must be required to develop an entirely new DEIS, taking into account past impacts from the previous 20-year operation of the mine and the adequacy of the first EIS. In a 20-year mine-life, significant process changes can be expected. For example, in past years the taconite process crushed the rock, magnetically extracted the iron and formed it into a pellet. To reclaim wastewater from the process, a thickener chemical was added to the crushed rock wastewater to help precipitate the solids before it was discharged to a tailing basin to settle. In the past 20 years most, if not all, companies have added flotation cells to remove silicates. This requires chemicals be added to the process. Initially all tailing basins were designed for the process without floatation and allowed waste water to seep through the walls and bottom of the dikes to the surface and underground water. These seepages have changed the chemical characteristics of the local surface waters. The law of conservation of matter states that matter cannot be created or destroyed in a normal chemical reaction. This means any chemical added to the process must go somewhere (into the product, air, or waste water, soil, etc). In theory, each process change is reviewed by an agency staff person who may or may not understand the process well enough to make a scientifically credible environmental review. This has resulted in a "creeping" of impacts beyond what was delineated in the initial EIS. The DEIS must address its impacts as being cumulative to already current impacts. All future process changes must be approved through the use of a supplemental EIS to insure all aspects of potential impacts are properly evaluated though the use of numerous technical experts from numerous agencies and the public.	G9
7	The Cu-Ni Study Executive Summary indicates Polymet mine site is in the report's development Zone II (State Planning Agency, August 31, 1979, Fig 4). Zone II has the highest quality mineralization but 2/3 of this resource is below 1000' (State Planning Agency, August 31, 1979, p 9). It is unlikely that an underground operation will be ignored for this operation in the future. This may be the reason the 800' West pit is not proposed for a underwater waste rock dump. Future development (beyond 20 years) must be addressed fully in the DEIS for adequate environmental planning.	G9

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Comment ID	Comment Text	Theme Codes
8	Under the "General" section of the Memorandum Of Understanding, it is relevant to identify all potentially problematic chemicals (DEIS, Volume III MOU, p. 2). This has not been addressed. All chemicals, both those contained within the Duluth Complex rock and those extraction chemicals that are proposed to be added, and their mixture and degradation products, must be clearly identified with their toxicology. Here is an example of some of these chemicals:	PD2
9	The impacts of each chemical and combination of chemicals and their degradation products must be clearly discussed in the DEIS. For example, the DEAW and DEIS identified a number of metal elements of interest found in the Duluth Complex proposed to be mined. The US Agency for Toxic Substances and Disease Registry (ATSDR) (http://www.atsdr.cdc.gov), part of the Center for Disease Control, assesses chemical toxicology for Superfund sites and other public health purposes. The ATSDR has listed a number of the DEIS-identified elements as chemicals that have been found in the environment and are of concern such as: Mercury, Copper, Nickel, Cobalt, Zinc. There is no acknowledgement by the DEIS of these concerns identified or discussed in the DEIS. This omission strikes at the heart of the purpose for having DEIS. Adequate environmental decisions simply cannot be made by ignoring this type of information commonly available to and well known by most environmental governmental units.	PD2
10	Computer models are used extensively in the DEIS. In the scientific realm, models must be appropriate for the purpose, calibrated against actual field data, tested and peer reviewed to be proven to be accurate for their proposed use. Models must be populated with data that is both appropriate and of sufficient quantity to allow the model to work within its design parameters. Additionally, a tested model must identify its design error percentage, e.g., + or – x%, which is a measurement of the risk of being wrong. The use of models within the DEIS is not transparent as to the above criteria describing limitations. This inadequacy must be corrected. Adequate environmental decisions simply cannot be made ignoring this information.	G8
11	The DEIS must include accurate groundwater and surface water flow direction and volume maps.	WR1E
12	Summary: The stockpile design is inappropriate for sulfide bearing waste rock. It relies on laboratory cutoff values, inappropriately designed containment, and ignores construction practices that would allow near 100% of precipitation to be channeled out and away from the piles. It further ignores the uncontrolled circumneutral leaching that will occur from allowing infiltration to reach mineralized material.	PD2
13	Summary: The dike construction ignores good engineering principles.	PD8
14	Summary: Ground water infiltration into the pit is basically ignored, yet being able to predict kinetic water movements around mineralized materials and rates of metals dissolution is critical in sizing waste water treatment plants.	WR2E
15	Summary: The DEIS fails to discuss the details of wastewater treatment design, its input chemicals, and chemical quality of both wastewater discharges and sludge production.	PD2
16	Summary: The east and central pits closure relies on laboratory scale thinking with no substantive data to prove the water quality from the pit would come close to meeting state water quality standards. It amounts to nothing more than a large experiment at taxpayer's expense. The DEIS ignores existing scientific information that demonstrates after closure the west pit will for 65 years have acid mine drainage filling it with no feasible way of treating the leachate water. The DEIS further speculates that once filled, the acid leachate will flow into the central and east pits. This disregards the fact that about 30 feet of granular material surrounds the pit and almost assuredly the outflow of the west pit will infiltrate into the glacial till rather than overflowing into the central pit. Even if the pit overflows it is inconceivable that the east and central pits will provide anything close to mitigation that will meet surface water quality standards.	PD2,PD4
17	Summary: Sulfide mineralized rock should be avoided in any construction due to the disseminated nature of the waste rock and possible spreading of circumneutral metals contamination throughout the area.	PD8

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Comment ID	Comment Text	Theme Codes
18	Summary: The DEIS fails to use proper chemical names for the chemicals to be used in the facility. It fails to test the facility's residuals including sludges and wastewater to determine: 1. are they hazardous waste; 2. the chemicals that will be discharged into both tailing basins. They further fail to discuss the toxicological and degradation products that will be discharged into these basins. Without a substantive scientifically based review, comparison to surface water and ground water standards and resultant impacts from these discharges cannot be assessed in any relevant manner.	PD2
19	The concentration and mass of chemicals and minerals in the wastewater (tailing discharge) must be identified and quantified. The DEIS uses company product names (MIBC, DF250, PAX, etc.) for many of these chemicals. This makes it almost impossible to research these products. The DEIS must used standard chemical nomenclature and CAS numbers so the public can track information regarding these products. Currently, MIBC, DF250, PAX, MagnaFlox10, Copper Sulfate will be added in this process. The ecological toxicity of these products and their breakdown products, interactions and half-life must be evaluated by qualified experts (see Minn. Rules 7050.0218 Subp. 5, 6, 7, 8). If these chemicals cannot be categorized as "environmentally safe" due to lack of data, the DEIS must not allow them to be discharged into the old LTV unlined tailing basin, which is a seepage pit.	PD2,HM4
20	The tailing slurry discharge into the basin must be tested to determine if it is hazardous waste, this includes testing for lethality (the oral rat test) and toxicity (Minn. Rules Ch. 7045.0129).	HM4
21	Since the DEIS proposes to discharge the tailing into the unlined basin, the DEIS failed to provide the chemical and toxicological information necessary to evaluate impacts of the tailing wastewater. At minimum the DEIS must: 1. Evaluate the tailing discharge to determine if it will meet stream water standards (chemical & toxicological). If the tailing fails to meet these standards, then a scientific study is required of the controllable chemical reatment (if any) that the old taconite tailing basin itself provides. This discussion must be based on scientific testing results and not speculation. 2. If the sole purpose of the basin is to filter solids and dilute the chemicals discharged, then the discharge must meet stream water standards at the end of the pipe -- not at the seepage points at the base. If this cannot be accomplished the residual chemicals must either be removed from the water before discharge to the basin or a basin should be underlined and the drainage water collected and reused as process makeup water. 3. Evaluate the tailing for sulfide and residual metals (including zinc) content and scientifically demonstrate these waste materials will not produce heavy metal leachates (at the time of discharge, in transit, and for perpetuity).	PD2
22	The concentration and mass of chemicals and minerals in the waste slurry was not identified and quantified as to its chemistry and toxicology. It is not possible to determine the adequacy of the containment proposal. Without the above information impacts cannot be assessed, nor whether the basin design is adequate to prevent impacts. Because the DEIS proposes a limited life (5 years) to each underlined basin, it appears that the waste will not meet either surface water or ground water standards. Open basins with liquids attract wildlife as a water source. If these basins require at least one under liner, they must also have covers to keep wildlife from using the waste liquids as a water source.	PD2
23	Summary: The current tailing basin condition is not adequately discussed. Tailing basins must be designed to deal with the wastes that they are to hold. The current tailing basin design appears to only serve to dilute potential toxic process chemicals. The DEIS cannot assess impacts without a full understanding of how the current basin is designed to handle both the mineral waste and chemical process wastes.	PD5,GT1
24	Summary: The proposed surface water standards do not take into account cumulative impacts from other mining operations, allowing a higher concentrations of chemical discharges.	WR5A
25	1. The DEIS must be based on scientific literature, include what we already know as pertinent field results from northeast Minnesota, and conclusions must include citations for supporting data.	G8
26	2. The basis for any copper-nickel DEIS must be the 180 + reports of the Regional Copper-Nickel Study.	G8
27	3. The corporate veil companies and financial stability must be part of the DEIS to avoid "Ponzi" schemes on the taxpayers.	PD4

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Comment ID	Comment Text	Theme Codes
28	4. Clear definitions and concepts are essential to identify chemical risks associated with mining.	G6
29	5. The DEIS must discuss implications of circumneutral metals leaching as related to water quality standards.	WR1E
30	6. The DEIS must address not only the 20-year mine life but also subsequent mine lives.	G9
31	7. The DEIS must fully and thoroughly discuss the toxicological implications of the metals encountered and chemicals that will be used, to then fully discuss impacts on human health and the environment.	PD2
32	8. The DEIS must provide sufficient information about computer models to enable the reader to understand the extent of basis in actual data, assumptions, and the measure of risk of being wrong, that all affect the validity of the results.	G7
33	9. The DEIS must include accurate and detailed ground water and surface water flow, volume and direction maps.	WR1E
34	10. The DEIS must reject the use of taconite stockpile design. All stockpiles must be designed to keep 100% of water out of the stockpiles. The only practical way is using synthetic membrane cap over the entire pile, have lower slopes even though the footprint will be larger, be repairable, and must control and direct precipitation away. Underliner installation must be redesigned, knowing the subsurface contours to prevent catastrophic rips and uncontrolled releases.	PD2
35	11. The materials used in ditch and storm water leachate collection systems must preclude seepage and be resistant to freeze/thaw cycles.	WR3K
36	12. A more detailed analysis of ground water inflow to the pits must be done.	WR2A
37	13. A detailed description of the WWTF is required to include but not limited to chemical characterization and volume of the discharged waste water and sludges. Failsafe controls and fall back plans are required if inflow volumes or chemistry exceed the capability of the facility to treat the water. Plans may include mining shutdown.	WR2G,PD2
38	14. Because the east pit and central pit closure plan entirely lacks scientific credibility to meet water quality standards, the DEIS must demonstrate that such a treatment scheme will in fact succeed. The new plan must show how massive variances will not be needed.	WR2G,PD3,PD4
39	15. Further more the DEIS must have a backup plan if discharges fail to meet surface water standards, both during mine operations and after shutdown.	WR1A
40	16. The DEIS must scientifically and conclusively demonstrate that 65 years of filling in the West Pit will not result in a lake filled to the brim with acid mine drainage from the mineralized side walls.	PD8
41	17. The DEIS must address the probability of acid mine seepage through the granular materials surrounding the pit and ultimately to the Partridge River with all of its impacts on the Lake Superior watershed.	WR2E,PD8
42	18. The DEIS must demonstrate how anoxic waters will not leach above surface or ground water standards.	WR1E
43	19. The DEIS must demonstrate how oxygenated surface waters in the pit will not provide continuing slow leaching of the side walls above standards for perpetuity.	WR3C
44	20. The DEIS must demonstrate how the Central and ast pits will be able to successfully treat the West Pit's large volumes of heavy metals in the order of milligrams per liter and possible acid drainage, with a discharge that fully complies with water quality standards on the order of micrograms per liter.	WR1E
45	21. The DEIS must describe how the West Pit oxygenated waters flowing in to the Central and East anoxic pits will not provide the kinetic actions releasing the metals in Category 3 and 4 materials in the Central and East Pits, and how standards will be met.	PD2
46	22. The DEIS must address the probability of galvanic anoxic leaching.	PD2

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Comment ID	Comment Text	Theme Codes
47	23. The road construction materials and engineering must avoid spread of Duluth Complex material and address water flow and species habitat.	PD7
48	24. The DEIS must discuss whether it will process zinc or not.	PD9
49	25. The DEIS must address impacts of emissions of the crusher's airborne fine metalcontaining particles on surrounding waters, soils, and plant vegetation, the worker safety issues, and haze regulations.	AQ4,AQ6
50	26. The DEIS must fully, completely and properly name with CAS numbers all the flotation chemicals.	G8
51	27. The outflow waters from the rougher and scavenger flotation to the basin must be chemically analyzed, conduct hazardous waste analyses, determine mixtures and degradation products, and toxicology of all the chemicals, mixtures, and degradation products.	WR3A
52	28. The DEIS must provide a scientific discussion of how the unlined basin treats, other than dilution, the discharges coming into it.	PD5
53	29. The DEIS must discuss the interactions between the residual heavy metals from the rougher/scavenger flotation discharge and other chemicals in the basin, and how these metals will be permanently sequestered in the basin for perpetuity.	PD2
54	30. The DEIS must identify the form of cobalt, and assure it is not a radioactive species.	PD2,HM5
55	31. The DEIS must identify the chemistry and toxicology of the hydrometallurgical residue and ensure the material is not a hazardous waste before placement in the lined basin.	PD2,HM4
56	32. The DEIS must discuss how wildlife will be prevented from utilizing the basin.	WI2
57	33. The DEIS must scientifically evaluate and discuss how the 1950 tailing basin design is adequate to deal with the sulfide waste and floatation chemicals it is planned to hold.	EOO
58	34. The DEIS must discuss how both the discharge into the basin and the seepages out of the basin will meet or exceed water quality standards. Dilution is not acceptable if this is the only treatment in the basin.	WR1A
59	35. The DEIS must discuss the mass loading of chemicals from the basin into the environment over its 20-year period.	PD2
60	36. The DEIS must discuss the changing anthropologic contributions of hardness and cumulative impact from adding NorthMet's discharge as it relates to the water quality metals standards that change with natural hardness values.	WR5A

Sender Last Name: Jones **Submission ID:** 1471

1760	#N/A	EOO
3775	leave are land in peace	EOO

Sender Last Name: Jurgens **Submission ID:** 3704

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	Metallic mineral development in northern Minnesota carries with it potential for very serious environmental harm. Much of this potential impact is associated with the fracturing and disposal of the large volumes of mining ore and waste which will be generated by mining operations. Waste created by mining of sulfide mineral deposits such as proposed have always resulted in the creation acidic drainage conditions which can persist for thousands of years and result in extensive environmental degradation. Such conditions are well-documented at mine sites throughout the United States and Canada. Citing the past failures of the mining industry to manage and reclaim sulfide waste materials, the State of Minnesota and Department of Natural Resources should prohibit mining of all ore bodies containing sulfide minerals until adequate technology has been proven to deal effectively with the sulfide ore waste management issue. If necessary the Department of Natural Resources should take the initiative to fulfill it's mission to protect the state's natural heritage and request the legislature to provide a moratorium on sulfide mining. The mission of the DNR reads:	G7A,G12
2	Wetlands: Some wetlands will be destroyed within the mine footprint. Some of the wetlands immediately adjacent to the rim of the pit will be drained. The effect to wetland resources further away from the pit is a point of contention. If there is a connection between the surface and bedrock ‘aquifer’ then the mine pit will drain wetlands further from the pit (this is the considered opinion of the tribes). If there is a confining layer between the surface and the groundwater aquifer, then the wetlands further from the mine pit will be unaffected (this is the considered opinion of the MnDNR). Both opinions have validity. The MnDNR assertion is based upon general experience with other open pit mines in the area. Additional site-specific data would offer the opportunity to help affirm this assumption prior to construction and provide additional opportunity to address potential effects prior to their occurrence. If there is a greater connection between surface and the bedrock aquifer, the mitigation options may be more limited, may be less effective, and potentially more expensive.	EOO,WE2
3	Page 4.5- 1: Section 4.5.1.1 Special Status Fish and Macroinvertebrates - Presence of suitable habitat for Regional Forester Sensitive Species - There is likely suitable habitat for Northern Brook Lamprey, Creek Heelspliter Mussel, and Black Sandshell Mussel in the Analysis Area. The Forest Service recommends consider this when analyzing the downstream extent of potential impacts. Since detection of these species is low due to limited numbers and distribution, analysis and effects disclosure is better served in the context of potential habitat rather than actual species presence/absence based on limited searches and sample intensity. In addition, survey methods for northern brook lamprey (i.e. electrofishing for ammocoetes buried in soft sediment) show limited success and may not be reliable.	FM1,FM2
4	Page 4.10-14: Tribal footnote. There is acknowledgement of possible net loss of acres to 1854 authority, however the DEIS could use discussion further disclosing effects to tribal concerns. For example, the DEIS could contain an analysis of acreage of lost hunting land and what that could mean for loss in money or subsistence to tribes. This could be done in terms of effects to wild rice as well.	SE1
5	Page 1-3: The DEIS indicates that the land exchange is a connected action (e.g. “This DEIS identifies and analyzes the potential alternatives and impacts for the Project based on the successful completion of a land exchange…”) (emphasis added). If the Army Corps of Engineers (ACoE) and Minnesota Department of Natural Resources (MN DNR) choose not to complete a Supplemental DEIS for the land exchange, the ACoE/MN DNR FEIS may want to explain why the land exchange is being done separately in more detail.	PRO7,PD9

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Comment ID	Comment Text	Theme Codes
6	Surface water quality at the Project remains insufficiently characterized or left uncharacterized, and the defects in analysis are profound in this area. The limited data used indicates that surface waters have already been adversely impacted by mining activity, which should give rise to more scrutiny, not less.60 Contaminant transport modeling suggests that the PolyMet Project will cause manganese, aluminum, and sulfate to exceed MiWlesota Water Quality Standards ("MN WQS").61 Mercury, sulfate, and specific conductance have already exceeded surface water criteria in surface water samples collected near the tailings basin at nearby Area Pit 5, and mercury and aluminum exceed surface water criteria in the Partridge River downstream of Colby Lake.62 Aluminmn, iron, manganese, and mercury all exceed MN WQS in Colby Lake.63 Contaminants from the Project will likely contribute additional loading to these existing exceedances of MN WQS in the Embarrass River, Colby Lake, and the Partridge River. No water samples have been collected from lakes near the tailings basin (including Hiekkilla, Mud, Kaunonen, or Hay Lakes) to determine if the pollutants found in the surface and groundwater at the existing tailings basin have caused contamination of those waterbodies. Aerial photography and state Public Waters inventory maps indicate that there is currently a direct surface water connection between the northwest comer of the old LTVSMC tailings basin cell 2W and the Embarrass River that has not been considered in the PolyMet tailings basin design or water quality predictions.64 Determination of the final water quality of the west pit was not included in the DEIS so that potential long-term water quality impacts to the Partridge River, St. Louis River, and Lake Superior can even be characterized.	WR3A
7	The wetland delineations that were done did not encompass all ofthe wetlands that may be affected by the Project because no initial determination of the Project's area of influence for wetlands was made.96 The site field surveys of wetland and other vegetation were limited to an area within the Project fence at the mine site, which covers less than one half of the area that might reasonably be expected to be impacted by disruption of the existing hydrology.97 Around the tailings basin virtually no wetland delineation has taken place although wetland impacts from inundation are likely to occur. 98 The USACE is developing a monitoring plan to assess the Projects impacts to wetlands but it has not been finalized or implemented.99 Moreover, this monitoring plan will only identify impacts after they have occurred. Additional analysis must be done and the DEIS supplemented.	WE1,WE2,WE3
8	There are also wetland areas of particular note that may be impacted. Potentially impacted wetlands that are part of the 100 Mile Swamp were identified by a United States Fisheries Service biologist in 1997 as "lacking ecosystem representation in protected areas.100 Interest in protecting the unique character of these wetlands was based on their "watershed integrity, the presence of riverine ecosystems, and large amount of interior forest present."101 This information was further substantiated in a report by the MNDNR titled "Evaluation of Selected Potential Candidate Research and Natural Resource Areas."102 This document describes the 100 Mile Swamp wetlands as representing "the highest quality remaining examples of characteristic ecosystems in each ecological Landtype Association on the Superior National Forest."103	WE3
9	There are also wetland areas of particular note that may be impacted. Potentially impacted wetlands that are part of the 100 Mile Swamp were identified by a United States Fisheries Service biologist in 1997 as "lacking ecosystem representation in protected areas.100 Interest in protecting the unique character of these wetlands was based on their "watershed integrity, the presence of riverine ecosystems, and large amount of interior forest present."101 This information was further substantiated in a report by the MNDNR titled "Evaluation of Selected Potential Candidate Research and Natural Resource Areas."102 This document describes the 100 Mile Swamp wetlands as representing "the highest quality remaining examples of characteristic ecosystems in each ecological Landtype Association on the Superior National Forest."103	WE2,WE3

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Comment ID	Comment Text	Theme Codes
9	Similar to the problems with measuring water quality impacts, the DEIS's failure to properly model and mitigate seepage rates could result in profound impacts on wetlands. Under the Proposed Action, the unrecovered seepage rate is predicted to increase to a maximum of approximately 3,800 gallons per minute ("gpm") in Year 20, over 2,900 gpm of which would be attributable to PolyMet.104 Therefore, under the Proposed Action, a significant increase (more than 100%) in groundwater upwelling relative to existing conditions would be expected. Some of this seepage water would drain to existing streams, but because of the generally flat topography and extensive wetlands, much of this water would be expected to form ponds and inundate wetlands. A more thorough hydrologic impact analysis that incorporates actual seepage rates from the tailings facility must be conducted. In addition, these seepage rates must be used, in conjunction with tailings basin water chemistry information, to assess the effects of this untreated discharge to the biota and functional values of the Embarrass River watershed wetlands.	WE2
10	The following "Technical Standard for Water-Table Monitoring of Potential Wetland Sites by U .S. Army Corps of Engineers" should be used for wetland hydrology, type determinations and delineations: http://el.erdc.usace.army.mil/wrap/pdf/tnwrapO5-2.pdf	WE1
11	Since Minnesota has no coal mines, it has no experience with acid mine drainage or the Surface Mining Control and Reclamation Act funding for ongoing clean-up and treatment costs. Sulfide or hard rock mining projects pose unique regulatory and technical challenges . The industrial sector of mining work affects every major EPA program, including programs implementing th e National Environmental Policy Act (NEPA), the Clean Water Act (CWA), the Clean Air Act (CAA), the Safe Drinking Water Act (SDWA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the Resource Conservation and Recovery Act (RCRA) which should all be addressed in comprehensive detail in the NorthMet EIS .	G5
12	I find the basis and assumptions for estimating wetland impacts lacking sufficient data to justify the limited impacts that were assumed by the DEIS: 1. Modeling basis assumptions are the downfall of many model outcomes. If the assumptions are wrong the model is wrong. Ground water flow assumptions made for this DEIS are not adequate to justify the conclusions about indirect wetland impacts. Tracer testing of hydrology following the US Army Corps of Engineers guideline attached below should be required for the basis of any modeling results considered. "Technical Standard for Water-Table Monitoring of Potential Wetland Sites by U.S. Army Corps of Engineers"	WE2
13	Water Resources and Wetlands The water resources and wetlands analysis were a primary focus of our review. It appears that these are areas within the DEIS analysis that could benefit from more discussion or clarification of the current analysis. The analysis in these areas may also be strengthened with further data collection (e.g. wetlands connectivity to groundwater) and including more detailed monitoring plans (e.g. surface water quality and stream flow) describing in detail what would be monitored as well as when and how the monitoring would occur.	WR1A,WR1E,WE2,WE3
13	My husband and I own a home in northern Minnesota on White Iron Lake. I am extremely concerned about the socioeconomic aspect of proposed plans to develop the Polymet project. The DEIS does not adequately address this.	EOO
14	Page 3-36: Section 3.1.7.2 – Need to address how and when the waste water treatment plant will be reclaimed. If there are no reclamation plans for this system (operations to treat water at this facility would extend in time beyond when mining and processing stops), the EIS needs to explain when the Waste Water Treatment Facility (WWTF) will be removed and site reclaimed, and how long it is estimated to be needed to treat wastewater for the mine waters.	PD4
14	Mining provided jobs, but the cost of those jobs far outstripped what the men were paid. Eastern Kentucky was basically a single-industry region, and when the mines shut down or the men were laid off due to automation, they had nothing. It was a poor area when I lived there and still is.	SE3
15	Page 3-49: Tribal Cooperating Agencies indicate that maintenance/monitoring would be required for hundreds or thousands of years or ‘in perpetuity’. How w this be addressed or handled? Would it be addressed in the Response to Comments to the FEIS? If ACoE/MNDNR thinks that maintenance would not be required in perpetuity, need to state why.	PD11

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Comment ID	Comment Text	Theme Codes
16	Page 3-51: As indicated by the Tribal Cooperating Agencies, it appears that there would be both positive economic/social benefits and negative economic/social impacts. It is not likely that this project would have zero negative economic/social impacts. It is likely that there would be some negative effects to tribal values since thousands of acres of 1854 authority surface resources (the Mine Site) would be eliminated. In addition, recreational opportunities at the Mine Site would be negatively impacted, with indirect negative effects to the tourism industry. The size of these negative effects might be debated, but these are greater than zero.	PD3,PD5
17	Page 3-51: State that the no action alternative is required by CEQ NEPA implementing regulations.	G1
18	Page 3-64: Footnote - The Tribal Cooperating Agencies cited a U.S. Steel study which recommended underground mining. The FEIS should address how the U.S. Steel study is or is not valid.	CR1
19	Proposed Action and Ch. 4.0 – Our last review comments asked for more information to be presented on the waste water treatment facility. This still needs to be addressed. There is very little information on the Waste Water Treatment Facility (WWTF). This is a critical facility for water quality protection and will be the major treatment process relied upon. It should be clearly described in the EIS (not just in technical reports). Please explain the facility and treatment process design in more detail, effectiveness, and what constituents it will and will not handle. Will it treat nitrates? This should also be better addressed in the water resources section where more information is provided, especially since the DEIS states that the constructed wetlands performance is highly variable and will only be used to “polish” treated effluents.	WR2G
20	Sulfate and Mercury There will an increase in the sulfate concentration in the rivers as a result of the project. This can result in an increase in available mercury to the environment due to increased microbial activity. The result of this is an increase in mercury concentrations in downstream fishery. Two arguments are presented that this will not be a concern. First, mercury concentrations related to microbial activity in the area may be not be sulfur limited and are more reactive to organic carbon concentrations. Secondly, downstream sulfate concentrations are already very high because of other mining and power generation activity. Recent monitoring on the Partridge River also indicates downstream levels at 289 mg/l (due to other sources related to mining and power generation). Background levels in the bedrock groundwater range from about 4 mg/l to 95 (Table 7 in the 1976 Copper-Nickel study) and from about 4 to 1,200 mg/l (Table 4.1-5) in the EIS. Hence, the proposed increase in sulfate could still be considered within the existing and perhaps natural range. The only existing Minnesota Pollution Control Agency (MPCA) surface water standard for sulfate is for wild rice systems (10 mg/l). It should be noted that the wild rice found in the Partridge River was in the area of highest sulfate concentrations (see Figure 4.1-16). Apparently MPCA is presently in the process of developing standards for other waters. However, even if the existing system is not limited by sulfate concentrations immediately downstream of the project, at some point (either within the St. Louis River, the estuary, etc.) it would seem reasonable that sulfate does become limiting and the increased loading may increase the available mercury. This may mean the project would require additional resources will be required to remove the fish consumption advisory for the downstream fishery. It also appears that the Northmet Project would increase direct mercury loading to the rivers. Although it is unclear how much the project would increase the loading to the rivers, some evidence points to meeting water quality standards at the point of discharge and some suggest that it would exceed the standard for the Great Lakes of 1.3 ng/ l (= 0.0000013 mg/l). The existing Upper Partridge River mercury concentration is about 2.3 ng/l and (Colby Lake is between 4.8 and 6.0 ng/l) (pg 4.1-48). The mercury loading may also be under-represented. The DEIS indicates the project would strip off the organic soil and put it on the stockpile. This would be a source of mercury. Although the DEIS indicates that this would be treated by the wastewater treatment facility and the treatment wetland the analysis recognizes that these treatments would not work very well.	RFI,WR1E,FM1

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21	The DEIS shows that there would be a wastewater treatment system at the downstream end of the project that would include a system of ponds and a pump to send water back through a wetland treatment system (the East Pit at the end of the project). The effectiveness of the constructed wetland system is based upon activity at the existing Dunka constructed wetland system. However, the Dunka constructed wetlands are not designed to remove sulfate and there is little mercury loading to the system. In addition, there may be more than one theory on how the mechanisms work for sulfate and mercury treatment. Table 4.1-63 could be more informative in its representation of effectiveness of the Dunka Mine constructed wetland (it is presently described as “Highly Variable”). Perhaps “Effectiveness Unknown” or similar verbiage would reflect the present level of understanding. Although nitrates have not been identified as an issue in mining in the area and the Northmet Project would be using some of the same processes, nitrates (from explosives) are often a concern in western mines. It should be noted that nitrates have not been considered an issue at other mines in the area. Treatment for nitrates have not been addressed (treatment has not described). Nitrates can be a concern in downstream reservoirs (in some cases increasing algal blooms and at very high concentration causing concerns for drinking water quality).	WR2G,WR3I,WR3L
22	In summary, estimates of impacts are difficult to discern because of inherent limits of understanding of the rock characterization, biochemical, and physical processes. Additional information and insight may be developed to help understand the processes and effects. However, as with all modeling, there will still be the necessary assumptions regarding the existing conditions and processes. Given these uncertainties, the DEIS appears to lean on the ability to implement adaptive management strategies through the life of the mine and throughout closure. The DEIS should reflect the need for additional resources to implement the essential adaptive management strategy, facility maintenance, and operation support in perpetuity. Additional data can be collected to characterize the background conditions and affirm accuracy of modeling assumptions to reduce the uncertainty in the analysis. Given the effects that are estimated in the DEIS, the uncertainty of the analysis, and the risk to water resources that arise from these uncertainties, it would be seem advantageous to consider additional mitigation measures and alternatives that would further reduce the impacts to water resources. It appears the Mine Site Alternative and the Tailings Basin Alternative are both superior to the Proposed Alternative at reducing impacts to water resources.	WR1E,WR1F,WR3I
23	Cumulative Effects Analysis While the DEIS demonstrates the ongoing efforts to address environmental consequences, some of the discussion on cumulative effects in some sections in Chapter 4.0 seem to indicate that cumulative effects analysis may be not completely shown in the DEIS.	G8C
24	Page 4.1-2: Groundwater – In comments to the preliminary DEIS, the Forest Service voiced an overall concern relating to the limited amount of actual on-site data gathered and used for the groundwater and water quality and quantity effects analysis. Confidence in the analysis and predicted project results may be improved by gathering more data and completing further analysis. Better representation of existing groundwater conditions, would improve the reliability of the analysis in predicting accurate project outcomes and effects	WR2A
25	Page 4.1-69: Solute Loading from Rock Stockpiles – Previous Forest Service comments on the preliminary DEIS included a comment on nitrate loading in solutions from the wasterock stockpiles due to blasting agents utilized during mining. This still needs to be addressed. What is expected and how will the nitrates be treated effectively?	WR2E
25	Page 4.1-112: Constructed Wetlands -This section does not provide information that supports the Minnesota goal for maintenance free closure. It actually supports the need for primary water treatment at the WWTF long term and possibly in perpetuity. More information and supporting documentation is needed to show that the wetlands will function adequately and that they can be relied upon to treat after the WWTF is closed. In addition, will nitrate be treated in the wetlands for the WWTF and at what effectiveness?	WR3L
25	Page 4.2-2: Section 4.2.1.2, Soils: ELT 13 and ELT 16 are errantly listed as being hydric soils. These soils are both well-drained which would not be a characteristic of hydric soils. These are, in fact, upland soils.	WE1

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Comment ID	Comment Text	Theme Codes
26	Tribal Cooperating Agencies The DEIS does a very effective job recognizing the input and concerns that the Tribal Cooperating Agencies provided on preliminary versions of the DEIS reviewed by cooperating agencies for this project. However, the DEIS could improve on incorporating these concerns into the text of the DEIS with less reliance on footnoting differences between the lead agencies and the Tribal Cooperating Agencies. The DEIS would be improved by describing any resolution on concerns raised and more fully developing support of the lead agencies analysis and processes disclosed in the document.	G8C
27	The DEIS addressed all terrestrial RFSS species. At some point, a BE will need to be completed that includes determinations for these species (as well as aquatic and plant species).	WI1
28	The Forest Service also would like to see some sort of monitoring program for the active goshawk territory in the nearby forested habitat. This could be included in the goshawk section or the other mitigation section later in the chapter. If the territory stays active or another one is found they following the SNF Forest Plan Standard S-WL-10 (Forest Plan page 2-34) would help protect the nest site and the guideline G-WL-22 (Forest Plan page 2-35) would help protect the post-fledging area. These would mainly come into play if the potential land exchange happens. It would help minimize overall effects if monitoring for nest sites were to be done and then protect active nests as possible.	WI2
28	Page 4.4-14: The Forest Service agrees with the Tribal Cooperating Agency comment #6 that wood turtles may use the possible new nesting sites that may be created. This could lead to increased mortality. The Forest Service would like to see some sort of monitoring included in the proposal to document if wood turtles start nesting in the area, and if they do protect the nesting sites from disturbance or discourage the use if protecting is not possible. This could be included in the wood turtle section or the other mitigation section later in the chapter.	WI2
29	Existing Condition and Cumulative effects of LTVSMC Tailings Basin The Forest Service requests that the DEIS address the assumptions of environmental liabilities to this proposal as they relate to (a) past and future environmental effects, (b) remediation, and (c) mitigation measures at the former LTVSMC tailings basin. (also see tribal cooperating agencies footnote #9, page 4.5-14, DEIS)	FM3
30	Page 4.5-5: Section 4.5.1.2 Habitat Conditions and Biotic Assemblages in the Partridge River and Embarrass River - Cumulative effects of Peter Mitchell Mine and LTVSMC Tailings Basin - Cumulative effects from both the Peter Mitchell Mine and LTVSMC Tailings Basin needs to be further developed in this and other sections of the document; especially in relation to potential anthropogenic effects on invertebrates (and fish) in the Partridge and Embarrass Rivers. Even though these systems represent lower-diversity, headwater communities, the potential for effects from past actions within the watersheds seems likely to have contributed to present biological and physicochemical conditions (e.g. low %EPT in Trimble Creek; high conductivity in Embarrass River and Trimble Creek; modified flows during critical periods on the Partridge River).	FM3
31	Page 4.5-12: Section 4.5.3.1 Physical Habitat Effects / Water Quality Effects - Potential Impacts to Colby Lake and Whitewater Reservoir - Under the higher water withdrawal scenarios, Whitewater Reservoir would fluctuate enough to potentially increase methylmercury formation rates and increase bioaccumulation fish and other aquatic organisms. Fluctuations under this scenario are also likely to negatively affect fish populations (e.g. declines northern pike populations due to loss or disturbance of spawning habitat) The Forest Service recommends that the DEIS clearly define “Historical water levels” on Whitewater Reservoir and Colby Lake. Under what environmental conditions were these levels established. For example, if historic levels were influenced by LTVSMC water use/yield, it would seem inappropriate to use these fluctuations as baseline, historical, or natural for comparing with the present proposal effects.	FM1,FM2
32	Potential Land Exchange Review of the DEIS has raised concerns about potential land exchange between the Forest Service and PolyMet to resolve the situation and ramifications of the “split estate” between the Forest Service surface ownership and PolyMet’s reserved mineral rights. Although a Feasibility Analysis has not been completed addressing this potential land exchange, it is reasonable to continue to review options on conducting potential effects analysis on any future land exchange between the Forest Service and PolyMet and to strive to resolve issues relating to a potential land exchange being a connected action to the Northmet Project mining proposals.	EOO,PD3

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33	Page 4.5-17: Section 4.5.3.3/4 Mine Site and Tailings Basin Alternative - Both the mine site and tailings basin alternative would result in better water quality and healthier aquatic communities than the proposed action. The reduction of water level fluctuations in Whitewater Reservoir and less of a reduction in Lower Partridge River flows would likely result in better water quality and healthier aquatic communities than the proposed action	FM1
34	Page 4.6-37: Section 4.6.3.5 – Visibility - The discussion on visibility mitigation options goes into great detail on a number of options that have been dismissed for different reasons but is lacking in detail on the option that has been identified as the likely one. The idea is working with EPA's mobile source staff in Ann Arbor, Michigan to plan and implement a pilot test of selective catalytic reduction (SCR) on a haul truck to control nitrogen oxide emissions. This has been discussed since 2008. The Forest Service met with the company and the MPCA in March of 2009 to discuss not only the idea of piloting SCR on a haul truck but also exchanged conceptual permit language. The Forest Service submitted comment on the PDEIS noting the absence of a discussion of this option and asked for a description of it. Discussion for this mitigation option needs to be included in the EIS.	AQ5
34	Page 4.5-19: Section 4.5.4 Mercury and Bioaccumulation in Fish - The Forest Service requests that the DEIS further address the potential loading of sulfate to the Partridge and St. Louis River and disclose potential effects as they relate to mercury in aquatic organisms within these watersheds. It seems likely to assume that increasing or releasing sulfate in these lotic systems would eventually deliver them to more lentic systems where they, in turn, may increase Methylmercury formation.	FM1
35	Page 4.6-60: The discussion of additional mitigation strategies includes options for which important details have not yet been determined. For example there is discussion of the possibility of Polymet purchasing mercury offsets from another source to offset its own mercury emissions. Establishing an offset system for mercury emissions is a considerable undertaking and to this point we were unaware that the MPCA was planning to establish one. Many details would need to be worked out before such a system could be implemented such as: • If reductions made in one year are usable in another, how long are the offsets good for? • What happens to the offset system after 2025 when the sector TMDL emission goal should be achieved? • How would the determination be made regarding what portion of the emission reductions made at another source are creditable (surplus)? • How will offsets be tracked and by whom? • What year is the baseline year for the offset system? 2005 appears to be an appropriate baseline since the goal of the Implementation Plan is a 75% reduction (from 2005) in mercury emissions from the minerals sector by 2025 (pg. 13). Reductions at a facility due to decreased activity or closure would not generate reduction units if they occurred before the baseline. • The integrity of an offset system is dependent on the quality of emissions information. In the federal mercury cap and trade rule that was proposed by EPA, mercury continuous emission monitors (CEMs) were required. Will mercury CEMs be required for Polymet and any other source it purchases offsets from to verify emissions? • Does the establishment of an emission offset system by itself require a separate rulemaking with a separate public notice and comment period? • How will timely progress toward the demonstration of mercury controls within the existing mineral industry be encouraged when the prospect for someone else to pay for the installation of controls exists? Paying for research studies was not mentioned as a mitigation option in the Guidelines for New and Modified Mercury Air Emission Sources (Guidelines) which is a part of the Implementation Plan. While alternative mitigation strategies were mentioned, this approach was viewed "as a last resort after all other equivalent reduction possibilities have been fully explored. The Guidelines go on to say "Alternative mitigation strategies should demonstrate an environmental benefit related to mercury and should be consistent with the objectives of the TMDL." Please explain how funding research studies would lead to timely environmental benefits.	AQ5,AQ6A
35	Pages 4.7-13 – 4.7-14: Section 4.7.4 Cumulative Impacts - The DEIS needs to more clearly state the specific geographic and timeframes the cumulative effects analysis is considering and to clearly provide the rationale for these aspects of the analysis. The DEIS considers various distances from various potential noise sources yet it does not clearly relate these to the Noise Sensitive Areas listed in Table 4.7-4. The DEIS also identifies a 20 year timeframe yet does not provide the rationale for this time frame. Presumably it is because of the timeframe of the mining operations but the DEIS does not make this clear.	N3

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35	Section 4.6.3.5 – Mercury - The Forest Service has an employee who serves on the Implementation Oversight Board for the statewide Mercury TMDL. As outlined in the Implementation Plan for Minnesota's Statewide Mercury Total Maximum Daily Load (Implementation Plan), Implementation Oversight Board members meet regularly to review and evaluate progress toward achieving the goals of the Statewide Mercury TMDL and to determine whether additional measures are needed to meet these goals. In light of this special role and background of Forest Service staff, the following comments outline specific concerns.	AQ6A
36	The heritage section write-up (4.8) is well written. However, it is clear that the Area of Potential Effect (APE) has not been clearly established, particularly in regard to Tribal concerns (4.8-13). In addition the Tribal Cooperating Agencies have commented that all Section 106 (NHPA) has been "incomplete and inadequate" (4.8-15). If the APE is more clearly established, then there will be a clearer picture of potential effects on heritage resources (including TCPs).	CR2,CR3
37	Page 4.9-3: State Land Management Heading. The Forest Service recommends that the revegetation plan would not include the use of NNIS?	PD1
37	The Forest Service recommends that the DEIS indicate how National Forest System (NFS) may be affected by the mine, and the ability to comply with the Forest Plan on this land. In this section of the DEIS, that would be lands that would not be included in a potential land exchange. Example A: Would the mine increase upland young/upland open in the HUC 6 watershed over the threshold and preclude future vegetation management on non-exchanged NFS land within the same HUC 6 watershed? Example B: How would the mine affect lynx habitat in the relevant Lynx Analysis Unit, and affect the Forest Service's ability to comply with Forest Plan lynx standards and guidelines when considering future management on non-exchanged NFS land within the same Lynx Analysis Unit? Example C: To what degree would water quality on non-exchanged NFS land be degraded? How would this affect the Forest Service's ability to achieve Forest Plan desired conditions? How much non-exchanged NFS land downstream of the mine?	CPLU3
38	Page 4.9-4: As indicated in the footnote for the Tribal Cooperating Agencies footnote, effects of the no action alternative should be disclosed.	EOO
38	Page 1-1: The DEIS states that the purpose is to 'open pit mine' but section 1.2 Project Purpose and Need, the DEIS on page 1-3 does not mention 'open pit mine'. It is important to have consistent discussions throughout the project description and the Purpose and Need.	PD9
39	Page 4.10-11: Recreational Facilities Heading. The DEIS erroneously indicates that the Voyageurs National Park is a part of the SNF. Also, the sentence about how the National Wilderness Preservation System prohibits motorized use except the motor lakes needs is incorrect.	COR
40	Page 4.10-21: Recreation heading. The Forest Service recommends that the FEIS more fully discloses potential effects to hunting and fishing opportunities, particularly downstream from the project area. How opportunities would or would not be affected and why. This disclosure could be linked to other sections of the EIS regarding wildlife, fish, and vegetation.	SE4
41	Page 4.10-21: Potential Mitigation Measures. A potential mitigation measure might be identifying non-federal lands in a potential land exchange that contain wild rice and attempting to achieve close to an equivalent acreage in the 1854 territory to what could be lost.	EOO
42	Page 4.10-22: Cumulative Effects Heading. Why does cumulative effects only look at jobs and income generated-what if cumulative actions result in more 1854 territory lost? The Forest Service recommends that the FEIS contains more discussion and good rationale as to why loss of 1854 territory is not an issue that needs to be analyzed in cumulative effects, more discussion regarding potential negative cumulative effects to recreation/tourism in the area, more discussion regarding potential negative cumulative effects to income from hunting or wild rice gathering?	SE4
43	Page 4.11-5: Section 4.11.4 Cumulative Impacts - Although the DEIS at this section gives a very brief evaluation of the potential for cumulative effects, this section states that "…and no cumulative effects analysis would be warranted." More detail is needed here to demonstrate how this project relates to the visual resource at this time and in a defined future time frame, and addresses any past, present, and reasonably foreseeable management that may or may not be applicable and why.	EOO

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43	Page 4.14-2: The DEIS lacks information on why no cumulative effects to tribal interests (e.g. size of 1854 territory, wild rice, hunting opportunities) exist. It is likely that cumulative effects exist for recreation/tourism, non-TES wildlife of interest (e.g. moose), non-TES plants of interest (e.g. white pine), fisheries, and groundwater. It appears that there is inadequate rationale for these topics to not be discussed in the DEIS. If the existing cumulative effects analysis already covers these concerns elsewhere in the DEIS then they need to be fully referred to here. Pages 4.14-9 to 4.14-12 do have some info addressing some of these topics. For example: The analysis area for cumulative effects to tribal interests should be the 1854 territory and it may be useful to quantify the analysis given that this is an EIS and the tribes are really concerned about this. Do proposed mines, power plants, land exchanges, land purchases or other projects eliminate or add 1854 land? How many acres? What is the cumulative total loss or gain of 1854 acres in physical existence? In public ownership? For noise and vibration, if it can be shown that the areas affected by noise or vibrations from the Project do not overlap other projects, then this could be eliminated from cumulative effects analysis, or at least reduced. But it appears that the DEIS does not indicate if that is true or not is true or not.	G3,CR1,CR2,CR4
44	Page 4.14-3: If effects on water quality, etc are perpetual, it would be helpful to disclose that in the temporal scale explicitly. If not, need to explain in the FEIS why it is incorrect that effects are perpetual.	WR3I
45	Page 4.14-7: Lack of analysis on climate change could be a problem since this is an industrial scale project. There is a paragraph on climate change on p. 4.14-7, however this may not be enough to fully address the concern. The lead agencies should consider if there should be a quantification of greenhouse gas emissions since this is an industrial scale project?	AQ3
46	Page 4.14-11: Please edit the sentence about USFS roads to indicate that USDA FS national forest system roads are available to the public	ALT8
46	Page 1-3: The DEIS states that 6,700 acres of National Forest System (NFS) lands on the Superior National Forest (SNF) have been identified for a land exchange. At this time, a Feasibility Analysis for a potential land exchange with PolyMet has not been completed by the Forest Service.	PRO8,PD1
47	Overall: There is a table of comparison of alternatives which is good. The lead agencies might consider adding some quantitative information such as numbers from key indicators for each resource.	ALT6
48	Page 5-16: The Tribal Cooperating Agencies say closure information is incomplete. Does the DEIS provide enough information about closure to estimate effects related to closure? If not, need to add more to FEIS	PD3
48	The extensive footnotes where the Tribal Cooperating Agencies disagree indicates that the FEIS could address these concerns either by adding more information into the FEIS incorporating these concerns into the text of the FEIS.	EOO
48	Page 5-18: The Tribal Cooperating Agencies say that a wetland monitoring plan should be available. The Forest Service recommends including at least a general description of monitoring plans in the FEIS/ROD. We do that for our projects.	ALT5
49	Overall: Please consider if water quality will permanently change in any way from the current existing conditions, even if the change is minor or meets water quality standards but it is somehow changed and could affect natural resources in some way. If there is a change, then this should be disclosed as irreversible and irretrievable. In addition, is there irretrievable loss of biological resources outside the mine site (e.g. wild rice)?	IR2
50	Page 3-2: Section 3.1.2 – Please provide representative cross sections (figures) for the pits and representative stockpiles for appropriate years such as 10, 20 and post reclamation. The locations for the cross sections should be shown on the plan view maps. This would provide clarification for understanding what is proposed and what will be completed.	PD1
50	Pages 2-5 – 2-6: Section 2.3.1 – Although the EIS explains why reclamation financial assurance will not be discussed, it is important to explain and disclose in a broad sense what would be covered, what the process would be, and how the potential for water treatment in perpetuity will be addressed especially given increasing costs in the future. Financial assurance could potentially have economic consequences to the public in the future.	PD1

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Comment ID	Comment Text	Theme Codes
51	Thank you for this opportunity to provide our input, information, concerns and recommendations for this proposed project of PolyMet Mining, Inc. Audubon Minnesota members have studied the DEIS and its associated technical background documents. Based on our review of the DEIS and associated documents, Audubon Minnesota has significant concerns about the lack of information about impacts to the environment of the PolyMet proposed mining operation. We are concerned about acid drainage from the waste piles leaking metals such as mercury, contaminating wetlands, rivers and lakes for hundreds of years after the mine has closed. Such contamination will negatively affect aquatic ecosystems, destroy wild rice beds, contaminate fish, and affect the health and reproductive capacity of birds, other wildlife and humans who consume fish and other organisms from the contaminated systems. We are particularly concerned about the risk of this mine mobilizing toxic metals such as mercury and feel the risks of such mobilization are incompletely analyzed with regard to likely impacts over hundreds of years to the aquatic ecosystems of the wetlands near the proposed mine to the estuary of the St. Louis River where it connects to Lake Superior. Additional issues identified in our comments attached include: - Extensive and persistent water contamination; - Potential failure of the tailings basin; - Methylated mercury impacts to fish, birds, other wildlife and humans; - Lack of analysis of impacts to birds and wildlife found in the Sax-Zim Bog Important Bird Area; - Wetland loss, degradation, and inadequate mitigation plans; - Potential loss of wild rice beds downstream; - Destruction of rare plants and rare plant communities, and the introduction of invasive, non- native plants to the area; and - Lack of any financial assurance calculations that would enable understanding the full risks of long-term environmental impacts of the project. These concerns are detailed further in the comments, which accompany this letter. We have included with our comments "Suggested Actions" which if taken, will make the final Environmental Impact Statement more useful to citizens and decision-makers in Minnesota. We strongly urge your full consideration of these actions.	G7A,G7B,G7C,G8A
52	1) Extensive and persistent water contamination: Analyses in the DEIS predicts that discharges of heavy metals and sulfates, which are known as acid mine drainage, from the proposed mine and associated waste disposal facilities will cause nearby lakes and streams to exceed water pollution standards. Tables in the DEIS show that these discharges of pollution will persist for up to 2000 years. Studies have shown that acid mine drainage kills most aquatic life. PolyMet proposes to use created wetlands as a water treatment method, but has not demonstrated that a created wetland system can effectively function in this manner. Despite this lack of supporting data, the Proposed Action relies heavily on the assumption that it will work. At the nearby Dunka Mine, where constructed wetlands were put in place to treat acid mine drainage, monitoring results show that concentrations of zinc and nickel actually increased. The DEIS acknowledges that a literature review “reveals a wide range of variability in the pollutant removal effectiveness of constructed wetlands treating mine drainage and other pollutant sources” (DEIS pg. 4.1-112). The DEIS also notes, “Constructed wetlands performance, however, is not sufficiently reliable to function as the primary treatment measure for assuring consistent year-round compliance with water quality standards” (DEIS pg. 4.1-113). The DEIS acknowledges that the constructed wetland will not likely remove mercury either. “There is very limited data regarding the effectiveness of constructed wetlands in removing mercury…Since neither the WWTF nor the East Pit constructed wetlands, which are the two primary treatment facilities for inflow to the West Pit, are expected to be consistently effective in mercury removal, concerns exist regarding the potential mercury concentration in the West Pit….There is some uncertainty as to whether the West Pit overflow would meet the Great Lakes Initiative standard for mercury and additional analysis of this issue is recommended” (DEIS pg. 4.1-123, 124). The DEIS also notes: “…a wetland treatment system in this location could promote mercury methylation, depending on the mercury and sulfate concentrations in the effluent” (DEIS pg. 4.1-167). Suggested Action: The proposed wetland system must not be relied on for mercury removal. Other methods for preventing mercury contamination must be analyzed in the EIS. Additional analysis of the issue of West Pit overflow not meeting Great Lakes Initiative standards must be conducted and presented in the EIS. The risk of the proposed "treatment" wetlands actually promoting the methylation of mercury must be thoroughly examined, as well.	WR3I,WR4B

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
53	2) Failure of the tailings basin: The DEIS acknowledges that "the NorthMet Tailings Basin and hydrometallurgical residue facility embankments would have a low margin of safety due to fines and underlying soils in the existing LTVSMC Tailings Basin" (DEIS pg. S-10). Despite this alarming and dangerous condition, the Proposed Action intends to use the existing tailings basin for the mine project's own tailings wastes. It appears to Audubon that this waste disposal area is acknowledged to have a low probability of successfully containing the tailings permanently, as is necessary to avoid environmental harm. Suggested Action: The final EIS must examine alternative tailings disposal systems with less potential for catastrophic release and resulting environmental damage.	GT1
54	3) Methylated mercury impacts to fish, birds, other wildlife and humans: The DEIS states that, "Relatively high sulfate concentrations in seepage from the Tailings Basin would be released to wetlands north of the Tailings Basin and lakes downstream on the Embarrass River that represent 'high risk situations' for mercury methylation." When mercury is "methylated" it can bioaccumulate in fish, making them unsafe to eat for birds, other wildlife and humans. Waters in the project area already are mercury impaired. Four lakes downstream of the project on the Embarrass River are listed for mercury in fish tissue impairments. Most of the water bodies in the project's area are already listed as impaired for mercury and have fish consumption advisories. We are particularly concerned about the potential impact of mercury to move into the food chain and bio-accumulate particularly in fish-eating birds, such as bald eagles, loons, and osprey and waterbirds in general. Many of these species have already received special conservation recognition, as state species in greatest conservation need, or federal status under the Endangered Species Act. Suggested Action: . Too many of our lakes and rivers are already under mercury advisories, including most of the waterways into which the PolyMet mine pollution would flow. Other methods should be examined in the EIS to eliminate sulfate pollution from the mining waste, and the resulting methylation of mercury. The proposed high sulfate discharges in this DEIS are not acceptable and should not be permitted.	WR4B,WI2,WI5,FM1
55	4) Impacts to birds and wildlife found in the Sax-Zim Bog Important Bird Area: The proposed mining sites are upstream from the Sax-Zim Bog Important Birding Area (IBA). Sax-Zim IBA provides habitat for over 240 bird species, many dependent upon clean water. We are particularly concerned about those 23 bird species dependent upon the area's patterned peatlands (such as America Bitterns and Yellow Rails), 35 species dependent upon conifer swamps (such as Magnolia Warblers and Boreal Owl), and the 22 species requiring floodplains forests (such as the Black-billed Cuckoo and Barred Owl). Audubon is concerned that the DEIS does not document the likely impacts to birds living in the Sax-Zim IBA of elevated mercury methylation and other bioaccumulative pollutants in nearby aquatic systems which will have a detrimental effect on the large bird populations residing there. Suggested Action: The EIS should analyze impacts to birds found in the Sax-Zim IBA from mercury and other pollution flowing from the mining area.	WR4B,WI2
56	5) Wetlands loss, degradation and inadequate replacement: The DEIS concedes that the NorthMet Project would result in the direct destruction of 854.2 acres of wetlands and 667.9 acres of indirect impacts to wetlands. Indirect impacts are likely to result from hydrologic changes in the project area from activities such as pit excavation, pit dewatering, and the development of dikes and ditches. Wetlands are an importance source of nesting and feeding grounds for waterfowl and other birds. The wetlands located around the proposed mining sites are high quality peat lands. The proposed mining project will have a direct or indirect impact on over 1,500 acres of these high quality wetlands. The DEIS claims PolyMet will mitigate the loss of some of these high quality wetlands by replacing them with constructed wetlands in Aitkin and Pine Counties - far from the mine site. However, these constructed wetlands will not be of the same type or quality as the destroyed wetlands. The overall result is a loss of high quality wetlands and the inadequate replacement of wetlands. Many wetlands near the mining sites that are not destroyed will suffer degradation due to contamination from the mines' proposed discharges. Suggested Action: The EIS should consider alternative mitigation sites to those proposed in the DEIS that are both geographically closer, and that more closely replicate the quality and type of wetlands to be destroyed.	WE2,WE3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
57	6) Elevated sulfate contamination leading to the loss of wild rice beds: Large numbers of resident and migratory waterfowl, including mallards, teal, wood duck, ringnecks, and coots, use the wild rice grown on rivers and lakes downstream from the project area as a major food source. The proposed discharges from the mines will elevate sulfate concentrations in waters in which wild rice grows. "Research in Minnesota has demonstrated that healthy and viable wild rice beds occur in waters with less than 10 mg/L of sulfate" (DEIS pg. 4.1-46). The PolyMet project presents a very real risk of raising sulfate concentrations above the 10 mg/L wild rice standard, with potential impacts on the health of wild rice beds. Suggested Action: The EIS should provide more information about expected sulfate concentrations downstream of the project site, and the anticipated affects on wild rice beds, and wildlife which use them for feed. This analysis should cover the time period during mine operations, immediately after closure, and for the hundreds of years during which sulfate discharges are expected from waste disposal basins.	WR4F,WR5A
58	8) Lack of information about financial assurances: The extensive and persistent water contamination anticipated from this project and documented in the DEIS will require ongoing clean up and monitoring for several decades, if not hundreds of years. Given the low probability that PolyMet corporation will persist as a legal entity during this entire period, the risk to the environment of failing or failed water treatment systems is real. Without upfront payment of secure financing to prevent the failure to maintain water treatment systems, Minnesota citizens will face the choice of environmental damages to public resources, or fiscal damages in the form of paying to maintain the water treatment systems. Suggested Action: Provide full examination in the EIS of projected financial assurance mechanisms and amounts necessary to assure maintenance of water treatment and other critical environmental remediation systems over whatever time is necessary to protect environmental resources. Thank you for allowing us this opportunity to provide this input. Sincerely, Mark R. Peterson Executive Director, Audubon Minnesota	ALT8
59	Additionally, the hydrologic characterization using MODFLOW models is too narrow in scope; it was only done for the immediate area ofthe mine pit and the tailings pile.59 It plainly cannot be used to characterize groundwater flow direction, watertables, potentiometric surface in the aquifers, fluxes to rivers and streams, or to predict drawdown or mounding impacts to the water tables or surface waters.	WR2F
59	The issuance of a proper EIS has already been long delayed-the Final Scoping Decision came out more than three years ago.3 Regardless of the time taken to prepare it, the Band is reissuing many of the same comments on the DEIS that it has issued on the last two preliminary DEISs ("PDEISs") calling for basic evaluation of Project impacts and application of wellestablished CEQ standards for EIS preparation, and incorporates all those comments by reference here. 4 Regardless of the complexity ofthe Project and many changes in Project proposals over the past three years, and despite the preparers' own delays, the co-lead agencies have refused to extend the 90-day comment period on the DEIS, despite repeated requests, including from the EPA.5 This will only contribute to serious problems in correcting the gaps and defects in analysis in this lengthy DEIS.	PRO6
60	Likewise, groundwater contamination from the previous mining activities is still an issue near the LTVSMC tailings basin more than twenty years after operations ceased. Over the decades of operations at the LTVSMC tailings basin, thousands of gallons per minute of tailings basin water were discharged through the bottom of the basin into groundwater.65 This plume of contaminated water has been slowly moving down gradient into surrounding wetlands and the Embarrass River.66 The monitoring wells that do exist near the tailings basin have concentrations of pollutants including iron, sulfate, manganese, aluminum, and fluoride that exceeded drinking water standards.67 But because of the limited distribution of monitoring wells, the extent of the existing contaminant plume is not known. However, domestic wells near the northern property line show substantial contamination of the groundwater aquifer.68 Regardless, modeling of Poly Met contaminants at the tailings basin did not take existing pollutant concentrations into account. This resulted in the contaminant modeling that concluded that seepage water from PolyMet sulfide mine tailings and hydrometallurgical waste, after passing through LTVSMC tailings, will be cleaner than the existing seepage water that is passing through only the LTVSMC tailings. In other words, by pretending that existing contamination is an acceptable "baseline" from which only new contamination should be measured, the DEIS entirely skirts the question of overall impacts on the groundwater aquifer from putting an already-contaminated site back into production, and then releasing yet more contaminants. This approach is both deceptive and destructive.	WR1E

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Comment ID	Comment Text	Theme Codes
61	The DEIS indicates that mine pit dewatering impacts will be very limited or non-existent based on the assumption that there is little or no connection between the bedrock and surficial aquifers.69 But this assumption is not supported by the data used to characterize mine site hydrology; instead, it is based on an unsupported "professional opinion."70 In fact, the data implies that there may be substantial connection between the bedrock and surficial aquifers.71 Such a connection would mean that dewatering of the mine pits could cause significant drawdown of the water table in the surficial aquifer, potentially dewatering wetlands and ephemeral streams. Impacts to surface waters, groundwater, and wetlands for a project of this size and complexity demand a scientific, data-driven approach rather than one based on opinion and scant, selectively used data.	WR2I
61	Furthermore, the effectiveness of the passive wetland treatment system the applicant proposes to treat mine pit and stockpile wastewater with high concentrations of metals and sulfate is untested and it is likely that the system would not function as the applicant has suggested.72 All cap and liner systems leak;73 therefore, some pumping of water that enters the hydrometallurgical residue cells would be needed in perpetuity, which the system does not include. The effectiveness of lime treatment to the stockpiles is very important in the final water quality of mine effluent, yet it remains uncertain in the DEIS. Additionally, 20 feet of pit wall will never be submerged and as such constitutes a perpetual source of mine related contaminants.74 Because of continued inputs from the stockpiles, the tailings basins, and the pit walls, the pit lake could exceed surface water quality standards for thousands of years. Therefore, it is possible that the wastewater treatment facility ("WWTF") would need to operate for thousands of years in order to treat leachate from the tailing basin, stockpiles, and contaminated pit water. However, the DEIS does not provide a range of probable water quality scenarios, much less a proven method to treat these problems over the life of the Project and beyond.	WR3I,WR3L
62	The Band is profoundly concerned at the preparers' refusal to consider past state agency experience with this site that had disastrous consequences for water quality. The Band has located an MPCA document from the Minnamax Exploration Project, a test shaft drilled into the Duluth Complex, the rock formation where the mine would be sited, by AMAX Corporation in the 1970s approximately three miles from the Project mine site.75 This document states that water was encountered 147 feet below the surface infiltrating into the test shaft at approximately 14 gallons per minute and identified another potentially water bearing fracture zone at 900 feet below the surface.76 This means that the volume of groundwater that may be encountered by the Project mine pit has been vastly underestimated. Other MPCA documents detail an unexpected saline water discharge that resulted as part of the AMAX Exploration Project from a water pocket 1,391 feet below the surface.77 The large quantities of saline water discharged, as much as 275 gallons per minute to Langley Creek, killed much of the vegetation en route.78 Data shows severe impacts to wetlands in the vicinity of the project.79 Water from stockpiles that were minuscule in comparison to the stockpiles proposed for the PolyMet Project drained water with very high concentrations of nickel, cobalt, copper, zinc, and sulfate, and discharged that water into Langley Creek and the Partridge River.80 The project polluted streams, groundwater, and a large wetland complex in its vicinity in order for the MNDNR to study potential impacts and mitigation strategies for non-ferrous mining. Yet the data collected from the AMAX project was not used to predict water quality or wetlands impacts presented in the PolyMet DEIS.	WR1E

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
63	Also ignored was experience with the Dunka Pit, located on the old LTVSMC site approximately five miles north and east ofthe PolyMet Project mine site. In the Dunka Pit, LTVSMC contacted the Duluth Complex and the Virginia Formation while mining for taconite in the Biwabik Iron Formation.81 By 1991, LTVSMC had removed about 50 million tons of Duluth Complex material from the Dunka pit and placed it in "gabbro" stockpiles.82 Monitoring of the drainage from these stockpiles beginning in 1976 revealed a decrease in pH and an increase in trace metals. 83 Copper and nickel concentrations as high as 1.7 and 40 mg/l respectively were observed in seepage/run-off from the Duluth Complex waste rock stockpiles and pH was observed as low as 5.0 at seep 1 between 1976 and 1980.84 Most of the seepage from waste rock piles at the Dunka site was discharged to Bob's Bay in Birch Lake via Unnamed Creek.85 A 1976-1977 study of trace metals in Bob's Bay found that concentrations of copper, nickel, cobalt, and zinc in the water of the Bay were higher than regional average concentrations and decreased with distance from the mouth of Unnamed Creek.86 Additionally, it was determined that Unnamed Creek contributed more than 90 percent of the trace metals to Bob's Bay load. 87 The NPDES pennit for this discharge expired in 200588 and another variance request is expected. A WWTF located at the site has been inactive because Cliffs Erie, LLC, the owner after LTVSMC, declared bankruptcy and claims it is simply too expensive to continue running.89 Unfortunately, the passive wetland treatment system has not functioned well enough to remove nickel and copper in waters still discharging from the mine pit and stockpiles to a concentration that comports to comply with MN WQS.90	WR1E
64	Similarly, the Mining Simulation Project (funded in part by a Minnesota Legislative appropriation of $185,000 to the MNDNR and MPCA) was a cooperative study to identify and resolve environmental issues associated with non-ferrous mining and to anticipate industry and govemment data needs to address those issues before commercial development occurred in Minnesota.93 The study clearly identified those state ground and surface water quality regulations that would apply to copper-nickel mining operations in Minnesota, including applying the 10 mg/l sulfate criterion to effluent discharges where wild rice is present, and prioritized nondegradation of both surface and groundwater and protection of groundwater as a drinking water source, and rejected using natural wetlands for mine effluent treatment ("as a toxic metals dumping ground").94 Yet the DEIS states that there is "uncertainty" if the sulfate criterion to protect wild rice should be applied to wild rice waters in the vicinity of the Project, or if state groundwater standards are enforceable.95 As stated in the Mining Simulation Project report, no such uncertainty exists and the DEIS must comply.	WR3I
64	But water quality impacts from prospecting and mining operations that have contacted the Duluth Complex are well known to the MNDNR and MPCA.91 The State of Minnesota spent $4.3 million over three years in the late 1970s to produce the Regional Copper-Nickel Study, a 5-volume compilation ofteclmical infonnation regarding the potential impacts of copper-nickel mining in the Duluth Complex.92 Nevertheless, predicted water quality impacts and ineffective mitigation methods referenced in the Study were ignored when the technical documents and DEIS were drafted for PolyMet. Therefore, water quality impacts have likely been underestimated and the mitigations proposed may not be effective.	WR1E
65	Similarly, the Mining Simulation Project (funded in part by a Minnesota Legislative appropriation of $185,000 to the MNDNR and MPCA) was a cooperative study to identify and resolve environmental issues associated with non-ferrous mining and to anticipate industry and govemment data needs to address those issues before commercial development occurred in Minnesota.93 The study clearly identified those state ground and surface water quality regulations that would apply to copper-nickel mining operations in Minnesota, including applying the 10 mg/l sulfate criterion to effluent discharges where wild rice is present, and prioritized nondegradation of both surface and groundwater and protection of groundwater as a drinking water source, and rejected using natural wetlands for mine effluent treatment ("as a toxic metals dumping ground").94 Yet the DEIS states that there is "uncertainty" if the sulfate criterion to protect wild rice should be applied to wild rice waters in the vicinity of the Project, or if state groundwater standards are enforceable.95 As stated in the Mining Simulation Project report, no such uncertainty exists and the DEIS must comply.	WR1E,WR3I

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
66	The National Environmental Policy Act ("NEPA")6 requires that an EIS at least discuss mitigation measures with "sufficient detail to ensure that environmental consequences have been fairly evaluated."7 With the current DEIS, such evaluation is impossible. The DEIS does not take the required "hard look" at all the environmental consequences ofthe Project, including polluting surface and groundwater resources and drying up or inundating thousands of acres of wetlands in the 1854 Ceded Territory. Without adequate study ofthe adverse effects and determination of possible mitigation measures, the DEIS does not provide sufficient information for either public review or agency decision making. The lead agencies must significantly supplement the DEIS and provide a full opportunity for agency and public review before issuing a final EIS.	PRO3
66	The cumulative public information regarding risks to area hydrology from mining the PolyMet site cannot be dismissed and new, favorable data be inserted into the EIS instead. Experience requires much more evaluation to be done and the water sections of the DEIS must be significantly supplemented.	WR5A
1591	We've been deeply disappointed with current plans to develop Polymet and the multiple sulfide mining projects planned for northeastern Minnesota. There has been a disheartening rush to begin operations without the careful environmental study we've come to expect in our state.	EOO,G8A
Sender Last Name:	jwzvrz@lwuaee.com **Submission ID:** 2309	
2756	tgsBTC saurogbxrryw, [url=http://srcoremqgszi.com/]srcoremqgszi[/url], [link=http://dtaupdoelblq.com/]dtaupdoelblq[/link], http://jahzhjisslku.com/	G15
Sender Last Name:	Kacura **Submission ID:** 3137	
3507	I travel and canoe in the Boundry Waters area. These proposed mines will do nothing but damage the fragile enviroment. DO NOT ALLOW IT.....PLEASE, keep this land prestine!	EOO
Sender Last Name:	Kaeter **Submission ID:** 3159	
1028	come costing us tax payers millions. The DEIS predicts that arsenic, cobalt, and selenium will exceed water quality standards. It also predicts high sulfate levels in the water. The DEIS table 4.1-4.5 states that water leaching from waste rock would contaminate water for up to 2000 years. To my knowledge there are no provisions to prevent waste rock to exposure from rain water. The DEIS estimates the west mine pit will overflow within 65 years. The apparent flowage would be into the Partridge River which flows into the St Louis River and ultimately into Lake Superior. Even the slightest chance of polluting any of these bodies of water is grounds to turn down this permit. In addition it is expected to destroy approximately 1000 acres of wet lands. Minnesota has lost most of its wetlands already; we should not allow this project to destroy any more. The tailings basin has structural problems which could cause it to fail, which would cause even more environmental contamination. As it is the groundwater contamination is expected to exceed water quality standards. No sulfide mining should be allowed in Minnesota unless it is proven completely safe during extraction and into the future long after the mine closes. Plastic liners aren't the answer, nor is filtration. I strongly oppose this project and for the good of our state and the citizens of this state you should	EOO,WR2D,WR3A
Sender Last Name:	Kaiser **Submission ID:** 3737	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	I could not find information in the DEIS or supporting documents regarding temporal changes in ground water levels in either surficial or bedrock wells. An analysis of temporal changes in ground water is essential to understanding the recharge from seasonal precipitation to surficial and bedrock water levels. From my reading of the DEIS and supporting documents, it seems that groundwater quality was analyzed once (DEIS, Vol. I at 4.1-8), which would be insufficient to evaluate any dilution by recharge. Groundwater levels and water chemistry change seasonally if recharge occurs during snowmelt, and these changes can be used to directly calculate recharge rates within the groundwater system. I think the DNR should have demanded such data and analysis to determine directly what the hydrology might be doing to the geochemistry at the proposed mine site, rather than rely on theoretical models to the degree that it did. If temporal data on water levels were not collected with sufficient frequency to evaluate recharge directly, it would be a major gap in the groundwater data set. There would be no direct means by which to test the hydrologic and geochemical models prepared in the DEIS and their results would have to, in some measure, be taken on "faith."	WR2A,WR2F
742	I would like to state my ardent disapproval of the process for public comment at the recent "public" hearings. There was no real access or open forum. In my opinion allowing gubernatorial candidates to have the floor with no rebuttal or chance for questions is ridiculous.	PRO1,PRO6

Sender Last Name: Kane **Submission ID:** 1807

1135	Water quality is just too important to fool around with. Northern Minnesota has irreplaceable beauty that is a resource that should be preserved and nurtured, not squandered for such a short term goal.The tourist industry, the quality of life and recreation, and the natural beauty would be forever affected by this kind of mining.Can we risk the pollution that will inevitably occur when water leaching from waste rock piles at the site impairs water quality for up to 2,000 years? This is unacceptable to me. It is unreasonable to expect that mining companies will be able to maintain water treatment facilities for that amount of time and it is an unfair burden to pass on to future generations of Minnesotans who will inevitably be left to pay for these operations. Additionally, it will be all but impossible to calculate sufficient financial assurance for a mining operation that is going to require such long-term care.	PD4,PD10,G1
2392	I am writing to comment on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I'm very concerned about this type of mining in such a water-rich area as northern Minnesota. Other mines of this type have created extraordinary pollution in western states and the people of those states have been left to clean up the mess.	EOO
2393	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Please do not approve this mine. It is far too risky to the health of the water table and there is no assurance that the pollution it will create will be able to cleaned up. Thank you.	G4A,G7C

Sender Last Name: Kang **Submission ID:** 3308

3601	Please consider my opposition to the NorthMet Project. As a physician, I value and use the natural wilderness to promote physical as well as mental health. We have so little pristine land left, it would be short sighted to mine for quick profit at the expense of long-term environmental damage. Sulfide mines are only bad, only dirty, only toxic. Please add this to the voices of opposition.	EOO,G2

Sender Last Name: Kangas **Submission ID:** 259

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
272	Essar Steel Minnesota LLC (ESML) is building a state-of-the-art Open Pit Mining, Concentrator and Pellet Plant operation which will be followed by DRI plant and Slab Caster. Once operational, Essar Steel Minnesota will be the first fully-integrated mine through steel-making facility in North America. We are located on the west end of the Mesabi Iron Range in northeastern Minnesota, and are adjacent to the community of Nashwauk. PolyMet will create several hundred permanent jobs and several thousand construction and other "spin off' jobs at a time when economic stimulus from manufacturing projects is so sorely needed on the Iron Range and in the United States. PolyMet, like Essar, is a company that is committed not only to protecting the environment we live and play in, but also providing for a safe, sustainable way for Minnesotans to make a living and provide for the future.	EOO

Sender Last Name: Kappes **Submission ID:** 3235

3141	I live to the north of one of the designated tailings ponds that will be used to store the waste from the mineral removal process. I am not in favor of this facility to begin operation, as to the uncertainity of the possible devastating outcome for the area.	EOO
3594	The creation of jobs is a pretty poor excuse to allow this to go through, if after twenty years the area can't be used for anything else but a dump. Who will be responsible for making things right if their so called patented process fails?	PD4

Sender Last Name: Karon **Submission ID:** 1071

99	What do we have to do to get a hearing in Duluth on the EIS for PolyMet? A certain number of signatures? A request or two?	PRO6
100	Otherwise who to contact to request an EIS hearing on sulfide mining in Duluth. Seems kinda silly to only hold two hearings in very small towns.	PRO6
1176	We're paying attention in Duluth, and we think that we have a stake in the potential pollution issues from sulfide mining on The Range.	G2B

Sender Last Name: Kate **Submission ID:** 3517

534	AIR QUALITY IN PRISTINE BOUNDARY WATERS: The DEIS does not approach the most important question of cumulative impacts of this mine and the others that are proposed in the district. Polymet can not be looked at as a single, one-time event in N.E. Minnesota. With permitting of Polymet will come at least 2, perhaps 4 or more new applications for permitting from other mining companies. What will be the total impact on the environment by all these potential mines and how will the EIS deal with mitigation of all these in concert? Specifically the Boundary Waters, which is down wind of all these projects, will be negatively impacted in terms of atmospheric haze from dust particles and other emissions blown into the air. According to the U.S. Forest Service, the Polymet project alone will cause significant haze impairments in the Boundary Waters 36 days each year! Tell us how this cumulative effect on air quality must be dealt with for Polymet and all future applications. In addition how is global warming affected by this mining operation and the combinations of all potential mines in the future?	AQ3,AQ4B
1125	WILDLIFE: The mine site disrupts natural corridors for the movement of wildlife. Specifically the Canada lynx which is a federally-listed threatened species that requires large territories and benefits from undisturbed forest corridors. No provision is made for mitigating this loss of habitat in the DEIS.	WI5
3248	BOUNDARY WATERS WATERSHED: There was little or no field sampling done on the movement of ground water through the bedrock. Since the mine and its waste storage site sits nearly on the continental divide it should have been determined if there is any chance that polluted mine drainage (including acids, metals, or sulfates) could move in the rock over time to the north and into the Boundary Waters watershed. This was not done and should be before permitting.	WR2A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3249	SULFATES IMPACT: Sulfates are a problem that are not dealt with rigorously in the DEIS. Sulfates in surface water demonstrably impact aquatic vegetation, specifically wild rice. In addition sulfates react with elemental mercury in a process known as mercury methylation. Methylmercury is the form that bio-accumulates in fish and animals that eat fish, including humans. What process has been identified to detect and mitigate methyl mercury in the environment and how will community health be dealt with and paid for? The Boundary Waters is a very unique National Park that deserves to be fiercly protected. Developing open mine pits without the proper monitering and regulations spells doom for this pristine paradise - if not in our generation, certainly in our grandchildren's time. Please do the right thing and protect this national treasure by addressing the above issues.	WR1E,WR4B,WR4C,WR4F
3703	The DEIS does not outline any specific plan for reclamation after the mine site is closed. In the same vein there is no specific mention of the method or amount of financial assurance that the mining company will need to set aside for the potential disasters after closing. Because acid mitigation is difficult to predict and long term treatment after closing is necessary, there needs to be a large sum of cash held in escrow as a damage deposit and that amount should be specific and included in the final EIS.	PD3,PD4
3704	MONITORING PLAN?: Where is the plan for constant monitoring of the mining operation by the DNR? Waste rock needs to be sorted by sulfide content, tailings basins need to be inspected for leaks, and waste piles need to be sampled for pH in runoff water regularly. Do we just depend on the mining company to do its own monitoring? There should be a program set up in the EIS for constant monitoring of operations by an independent environmental concern or the DNR.	PD2,PD3,PD5

Sender Last Name: Kearney **Submission ID:** 1033

1133	I am writing to you in support of Poly Met Mining Company, which is proposing to develop a copper, nickel, platinum, palladium, gold and cobalt mine, and process ore at the former LTV Steel Mining Company plant near Hoyt Lakes, Minnesota. My six brothers and I were born and raised on the Iron Range, and, as a young boy, we lived a short time in the area of the proposed PolyMet Mining Company. Our family later moved to Virginia. With the exception of the' years I attended college, and the short time I worked in west central Minnesota, I have lived my entire life on the Iron Range. My wife and I currently reside in Hibbing. During my years living on the Iron Range, I have witnessed times when the mining industry has been prosperous, and have experienced lean years of layoffs and unemployment. The Iron Range has an eager, willing and ambitious labor force that is hungry for stable employment. PolyMet Mining will certainly fill some of the industry's current void! PolyMet and its vendors will provide our young people with multiple opportunities for challenging and exciting careers providing critical metills needed in medical applications, electric cars, catalytic converters, cell phones, computers and other essential products. PolyMet will also provide millions of dollars in local and state taxes to support our Iron Range communities. I am excited to see the benefits that PolyMet Mining will be providing our local area, and I hope that Department of Natural Resources will find that PolyMet has properly addressed all potential environmental impacts of its mining and has shown that air, water. and natural resources will be still be protected.	EOO

Sender Last Name: Keefe **Submission ID:** 2635

3151	Please save our pristine norhtland from poluution	G2

Sender Last Name: Kelly **Submission ID:** 1739

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2265	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources. Though only twenty, I have paddled hundreds of miles over Boundary Waters Lakes and have an intimate relationship with the region. For the past two summers, I have worked as a canoe guide of sorts for the Charles L Sommers Canoe Base run by the Boy Scouts of America (located on Moose Lake). These two summers have made me aware of the peculiar and unique nature of the Boundary Waters. Only when one considers the extent of the environmental degradation that has occurred on American soil, the astounding way in which almost all of our land has become domesticated, tamed, and paved over, can someone see what the Boundary Waters is--a last vestige of the American wilderness, a final hiding ground for untrammeled nature. For me, just on these purely emotional and abstract terms, that would be enough to question any decision to dig a sulfide mine in the BWCA region. However, I think that there are also inherent economic reasons why the decision to allow mining would be detrimental to the region. Northern Minnesota has hosted several phases of resource extraction. The first white people to come into the region came for the furs, the second wave came for the lumber (in fact cutting down much of the BWCA), and the final wave mined iron. What is notable about all three of these historical economic booms is their negligible current effect: Where did the lumber wealth go? What jobs do the iron miners have now? What sustainable economy did these resource-based industries create? In reality, all of these industries created short-term, low-skill jobs while encouraging the growth of an unsustainably high population. Most of the profits went to companies based in other places and other cities (as would currently be the case with the Canadian mining companies who proposed the current project), and the end result was environmental degradation with little long-term development of the infrastructure or economic self-sufficiency of the region. In contrast, the money brought in by tourism is sustainable and generally promotes a healthy long-term economy for the region. Obviously, tourism will never create the short-term boom of the mining town. But it will also never create a painful bust. In the longterm, it is best to recognize that Northern Minnesota has finite resources. Perhaps it is best if we employ them in a sustainable manner rather than endangering our environment for the sake of a cheap and ephemeral buck.	G2,G11
3332	As a yearly user of BWCAW, I cannot imagine a Minnesota without this incredible expanse of untouched, singing wilderness. Have you ever read Sigurd Olsen? His book, "Singing Wilderness," perfectly describes the incredible, unique, and powerful majesty of the BWCAW. There is no where else on Earth like this place; to permanently damage its integrity and purity for a few years of economic profit is practically immoral. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	EOO

Sender Last Name: Kemp **Submission ID:** 2425

2916	I am writing to you as a citizen of Minnesota concerned about the PolyMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forest. As a former member of the Minnesota Pollution Control Agency Board, I toured th abandoned copper-nickel test mine near Babbit many years ago. There was pollution leaching out of that facility years after its closure, and there still is, requiring its ongoing monitoring for all time, apparently.	EOO
2917	The EIS is not adequate, and must more throughly consider the long term impacts on Minnesota's environment and future generations. I do not want future pollution officials to have to expend resources eternally monitoring and attempting to clean up toxic pollution at taxpayer's expense.	G8

Sender Last Name: Kenig **Submission ID:** 3112

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3490	I am writing to express my concern about the possible negative environmental impact of copper sulphide mining on the northeastern MN ecosystem. I worry that the current economic climate may lead us to overlook possible long term pollution problems in an effort to provide good jobs in the short term. I don't understand the scientific and technical questions well enough to judge the assertion that this kind of mining can now be done so as to ensure that pollution will not occur. I am also saddened at the thought that this question may continue to divide us as a community, and would like to pursue other less environmentally risky ways of making a living than extractive industry to sustain the local economy. I am a thirty-year resident of the area and a property owner on the White Iron Chain of Lakes near Ely. Thanks for your efforts in trying to make a careful, informed decision.	G1,G2

Sender Last Name: Kennedy **Submission ID:** 3475

3750	I believe the proposed PolyMet mine is an eventual inevitable future for NE Minnesota. I am all for the economic development that will be a result of this project. I am all for mining of the Platinum Group Metals when a tried, sound, safe process has been defined that will not result in serious environmental impacts for this area. PolyMet's proposal will leave too much degradation to the environment if allowed to proceed as proposed. Even the alternatives allow for too much degradation to the surface and ground waters in our area. The freshwater resource in NE MN needs to be protected for future generations. There are too many insults taking place in the name of progress to our environment, immediate and world wide that are irreversible. Need we allow for one more which impacts an already limited resource in our nation? The South Dakota mines, the Montana mines, the Colorado mines that have devastated areas from sulfide mining in the name of progress need not take place here. We have a choice to proceed differently. Let us take the time and allow those who are making large profits to define a process that will not leave our environment devastated and the local/state governments with a large investment of cleanup after the profits have all walked away. Require that the waste water be treated before being released into the environment, so the acidic properties of the water do not methylate the mercury into organics which can be taken up the food chain. I believe we can all benefit from PGM mine here, and, there is a way to make it a win-win	EOO,G2C,G7A

Sender Last Name: Kermeen **Submission ID:** 363

52	This company which is newly formed has no holdings in producing mines & as of January 31, 2009 had a huge deficit & only 20 full-time employees. The company does not have finances to assure post-closure reclamation, maintenance and treatment which tribal agencies studies conclude would be necessary for a minimum of 2000 years.	PD4
402	I live in Cloquet and clean water is imported to me and is vital to people, animals, fish and the entire world, not just Minnesota. In the past I have read of the devestation the sulfide mining process has caused and left behind in the western states of the United States—even after so called promises to care for and monitor the land and water perpetuity.	G7
403	I am very concerned about the permanent damage that would be caused by the PolyMet proposal which would be only a short term economic boost to a business that would be only temporary.	G1,G2
2000	The DEIS descriptions of the modeling design as well as results from this modeling were so minimal it was impossible to review the effort properly. Polymet used many assumptions in the modeling, the most important of which related to fracture flow in the bedrock. Polymet, for convenience, assumed the bedrock hydraulically behaved equivalent to a granular porous media, i.e. soils, and that the bedrock did not have any preferred direction of hydraulic conductivity (anisotropy). But, at the scale of the modeled area, the bedrock cannot be assumed to behave as if it were an equivalent homogeneous silty-clay. The area modeled is insufficiently large, given the infrequent occurrence of fractures, to merit such an assumption.	WR2A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2000	The DNR should request Polymet explain more thoroughly why their 3-D modeling efforts were not simply coupled to MT3D to characterize contamination transport. The DNR should request that all properties used in the modeling (e.g. hydraulic conductivity, effective porosity etc.) be discussed and explained in detail, and insist that the modeling should at least meet ASTM standards for modeling. This includes sensitivity analysis, and statistical calculations comparing measured and calculated water levels and water fluxes (movement) to streams, etc. to show the degree to which the modeling can be relied upon for projection in the future. Without this degree of explanation, the modeling results have to essentially be accepted with a large degree of faith that the work was properly done.	WR2E
2000	It cannot be assumed that the fracture pattern in the crystalline rocks does not have a preferred orientation. Fractures evolve because of regional and large-scale stress fields that geological processes impose on rocks. I expect that geologists have determined the predominant directions and even the frequency distributions of fractures in the bedrock of the Iron Range, given decades of geological research that have been done there. Polymet could even have had their geologists visit other Iron Range mines and determined the frequency of fractures and their orientation by direct observation. Using this data could very well have changed the assumptions used in the groundwater modeling effort of the DEIS and led to a different conclusion regarding how much potential mine water moving in bedrock aquifers might reach the Partridge River and other water bodies from the mine site and tailings basin.	WR2A
2002	I looked at groundwater hydrographs from multiple wells the USGS installed during the Copper-Nickel regional study (Siegel and Erickson, 1980) and saw that water levels fall on the order of 10 feet in thick till during the year. I multiplied that value by reasonable specific yields for clayey soils and came up with recharge at least several times more than that determined from Polymet model results. The amount of water calculated to potentially discharge to the mine may be factors too low, which could lead to unanticipated mine discharges to streams.	WR2A
2003	Polymet could have directly determined the order of magnitude of the amount of recharge to both bedrock and surficial groundwater systems from changes in the water levels in their observation monitoring wells, coupled to approximate specific yields of the materials (e.g. http://www.co.portage.wi.us/groundwater/undrstnd/soil.htm# Specific%20Yield; and http://water.usgs.gov/ogw/gwrp/methods/wtf/). From this direct data, Polymet could have better calibrated their surface water models and reduced error. Indeed, from monitoring water levels in their own piezometers in the bedrock, they also could have determined the extent to which the bedrock connects to or is isolated from surficial deposits and the water table. So, despite all the work done, Polymet did not collect sufficient data to easily evaluate several major aspects of the hydrogeologic system directly, but rather, chose to use a Model to do it.	WR2A
2003	Similarly, recharge to underlying bedrock groundwater could be determined directly from water level variations if available. Indeed, if conservative solutes (e.g. chloride) in groundwater sampled in deep piezometers changed from one year to the next, it would imply recharge to that horizon tapped by the well. The amount of recharge could be calculated using a simple mixing model. With respect to water levels, if Polymet did not measure water levels over time, there will be no direct way to test a major model assumption, how much recharge of precipitation and snowmelt occurs to surficial aquifers and underlying bedrock aquifers at the mine site.	WR2A
2003	I cannot emphasize too much that a difference between measured recharge rates from that assumed from modeling results does make a difference in understanding what goes on hydrologically at the mine site. All models are non-unique. Polymet argues they "calibrated" the MODFLOW model against some real hydrologic data. But this doesn't mean the models are "right". All it means is that the model could be calibrated by trial and error, changing assumptions to geta "fit." Without independent data to test the model results or history matching, there can be no assurance that the model results can be useful for future prediction.	WR2A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2004	With respect to the Polymet groundwater modeling results, Polymet produced no water table maps or potentiometric surface maps during the mining operations, no MODPATH simulations to show groundwater velocities and flow paths before or during mining, and no hydrogeologic cross sections showing vertical flow directional and velocities. Polymet did not present critical values for effective porosity for any of their subsurface solute transport calculations or water flex calculations from the pits post closure to the Partridge River. The effective porosity in bedrock can be less than 1%, compared to 10-30% for surficial materials. The lower the porosity, the faster the water will move. So, if Polymet used a default value in MT3D of tens of percent, typical for surficial material aquifers, their solute transport could be, wrong by many times-resulting in the possibility that contaminants could reach the Partridge River much faster than what the model projected. I did a search for the word "porosity" in document "RS74A Surface Water and Groundwater Quality Modeling: Mine Site Draft 02" I found it mentioned once in the introductory material.	WR2F
2004	Nor did I see how dewatering of the surficial aquifers during mining was handled by MOD FLOW. Did modeled areas, called nodes, mathematically lose all their water? I understand that groundwater draining from surficial materials into the mine will be inhibited by engineering, whereas drainage from underlying bedrock will still occur. How did Polymet use MODFLOW to handle this engineered condition, continual saturation of the upper layer of the model, while allowing the middle of the model to drain with little recharge to replenish it? I wonder if the model basically failed to converge to a proper mathematical solution.	WR2F
2005	What MODFLOW algorithm did Polymet use to handle de-saturation in the first place? Does dewatering in the ~700 foot mine induce dewatering from the Partridge River to the mine as the pit is excavated? If the river were in hydraulic communication with the bedrock, water from the river could plausibly recharge the mine from the south. Potentiometric surface maps for all layers and fluxes calculated from the river during mine operation needed to be presented.	WR2F
Sender Last Name:	Kern **Submission ID:** 2208	
2615	MS. KERN: I grew up on the Iron Range so I know a little bit about the project and I am in support of the project and I would like to see it move forward. I would like everything to stay safe. I know there is environmental issues about it, but I feel from the information that I have read that it is a good project and I would like to see PolyMet get some support to move forward with their copper mining.	EOO
Sender Last Name:	Keseley **Submission ID:** 329	
34	In fact, a possible "mining moratorium law" such as in Wisconsin should be considered.	EOO
Sender Last Name:	Kett **Submission ID:** 2360	
2847	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. I also do not believe that this project will contribute to any meaningful jobs beyond the extreme short term. If any long term jobs do come out of this, they will likely involve the clean up and monitoring of the site (i.e. government jobs).	EOO,G1
Sender Last Name:	Ketten **Submission ID:** 1192	
1307	As a Minnesota native, I am writing with deep concern about the proposed mining project. The waters of MN are out most precious resource and should not be polluted with heavy metals and sulfates. These contaminants area dangerous to fish and the delicate ecosystem. We have to care for our waters and mining near them is not an option.	G2C,G7B

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Kidd **Submission ID:** 159	
150	One of the reasons I want this project to go forward is the creation of jobs that it will give the community, as well as I love the fact that they have come up with a new process for extracting the precious metals besides the leaching process. The other aspect of this project that I love is that they are going to recycle the old plant instead of tearing down and building a whole new plant. I love the fact that we are recycling the old one, creating jobs for sandblasters, painters, electricians, everybody. That's all I have to say. Keep it short.	EOO
Sender Last Name:	Kiehne for Brice **Submission ID:** 3646	
18318	Franconia believes that this draft report is a good effort and reflects the extensive work that was behind its preparation. It is also our view that, after responding to the comments, it can lead the way to a Final EIS and a conclusion of Adequacy.	EOO
18319	The draft EIS is very thorough and covers all the potential impacts identified in the Scoping EAW and Draft Scoping Decision Document (June 6, 2005), including some additional concerns that were not initially identified. However, there is one aspect of the draft EIS that is somewhat confusing; that is where it appears to contain two sets of conclusions: one in the body of the report and others in footnotes. This issue was quite evident at several public meetings we have attended recently where the opinions of the American Tribal Cooperating Agencies (footnotes) are expressed as statements of fact rather than the viewpoints of one group. These opinions are often not based on facts in the Draft EIS. The carefully studied and factual conclusions of the Responsible Governmental Unit were often ignored at the meetings. This has created confusion and is misleading to the public. As you are aware, the draft EIS is intended to provide full disclosure of the technical information. Opinions should be supported by technical information contained in the draft EIS.	PRO9
18320	and most of its platinum and palladium. This exacerbates our international trade imbalance, exports jobs to other countries, and creates opportunities for others to limit our availability to vital raw materials (e.g. oil). It also ignores the environmental damage in other countries where responsible mining and processing practices are widely ignored. Additionally, having to import these resources also affects our country's ability to produce value added products, including "green" products (hybrid cars, wind generation, etc.), which use these important metals. The result is further loss of job creation opportunities. According to the International Platinum Group Metals Association, http://www.ipa-news.com/pgm/index.htm, "One in four of the goods manufactured today either contain PGMs (platinum group metals) or had PGMs play a key role in their manufacture". As we noted, we import nearly all of our Platinum Group metals.	G1
18321	Franconia believes that the EIS is complete, thorough, and well documented. We believe this should lead to a conclusion by the Agencies that the Northmet Environmental Impact Statement is Adequate. Thank you for this opportunity to comment on the Environmental Impact Statement.	EOO
Sender Last Name:	Kightlinger **Submission ID:** 3133	
3503	wanted to let you know that I am strongly opposed to the idea of sulfide mining in northeast Minnesota and the BWCA area in particular. Water is such a precious resource for Minnesota and sulfide mining does not have a good track record re: controlling environmental damage. Because northern Minnesota is such a watery area it's very naïve and foolish to think the mining operation can be safely contained. Please do not approve these mining permits – it's a bad idea and makes no sense. The few jobs that might be gained from mining can't even come close to the adverse economic impact to the Arrowhead region and BWCA due to water damage from mining.	G1,G2,G7
Sender Last Name:	King **Submission ID:** 1152	
1266	I spent many childhood summers in the BWCA and this last summer as well. Its pristineness is very important to me. No drilling sounds!	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3144	As a parent and a lifelong Minnesotan, I am very concerned about making short-term financial decisions that permanently diminish the natural legacy we are leaving to our children. I am very much afraid that is exactly what is happening here. Please reconsider and require that the DEIS completely answer these environmental concerns.	G2
3525	I am REALLY tired of so called 'environmental activists' completely mis-representing the draft EIS and PolyMet's proposed mining venture. These 'environmentalists' want to HALT any PROGRESS by deliberately lying and distorting the facts about this proposed project. The amount of sulfer in the rock in our area (1-2%) is drastically less than the sulfer amounts found in other areas where open-pit sulfer mines are operating (typically 20% and greater). Nowhere do they acknowledge that the water will be safe for human consumption after PolyMet has processed it. Nowhere do they admit that the existing wetlands from the old LTV plant NOW supports fish and wildlife; and this was the case BEFORE the LTV plant had access to the environmental controls that PolyMet will provide. Northeast Minnesota NEEDS the type of jobs that PolyMet will provide; and NE Minnesota should NOT be held captive to a SMALL group of rich Twin Cities citizens that visit our area for one week every year or so. These 'environmentalist extremists' claim that PolyMet is RUSHING the EIS process when in fact the process started in 2006!!! I do not consider 5 years and millions of dollars spent in compling with EIS guidelines to be RUSHING anything! Please let us enjoy the benefits of working again in the industry for which we have been trained - MINING; and do not let a bunch of rich fat cats using lies and distortions prevent us from providing for our families!!!!!!!	EOO
3870	As a resident of the arrowhead region, I feel strongly that the potential resources available from this initiative are not worth the impact it will have on a local and greater environment. Elli King PO Box 526 Finland, MN (No unrelated mailings please) 1800-619-3772	EOO

Sender Last Name: Kingery **Submission ID:** 3331

3624	Issues to think about: A short term economic gain is the main issue at stake. There are other options to build economic strength. This project has so many issues and the people of MN and the rest of the world deserve better. Health issues, water quality, wildlife, eco-tourism – Look what is in danger. The main threat is water – 50% of the endangered species need water or wetlands to live. Let's make the right decision about the environment + economic strength.	G1,G2C,G7,G11

Sender Last Name: Kingston **Submission ID:** 3111

1289	4) Require resolution of tailings basin geotechnical stability and seepage issues identified by the Tribes and the U.S. Environmental Protection Agency.	GT2
1884	3) Require detailed and cumulative impacts of potential mercury increases in fish as related to the PolyMet project and other nearby pollution sources, including mercury methylation as well as discharge and emissions. All lakes in the White Iron Chain of Lakes currently have mercury advisories for fish consumption, and this is an area of vital importance to members.	WR5C,FM1,FM3,AQ6A
3516	1) Include cumulative air and water quality effects on lakes and rivers from all sources, including other mines. This EIS may set the standard for all water quality impacts analysis, and good cumulative impacts analysis is critical to protect water quality in the White Iron Chain of Lakes.	WR5A,CR1,AQ4B
3517	2) Include future development of sulfide-mining by companies already doing exploratory drilling in the analysis of cumulative effects. (Tribal position)	G9
3518	5) Require financial assurances in the EIS before any permitting process gets underway. (U.S. EPA position)"	PD4

Sender Last Name: Kirby **Submission ID:** 1617

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2025	Lake Superior is one of the largest fresh water sources left on the planet. With global climate change progressively making fresh water more of a commodity, I find the idea of allowing this kind of pollution to take place incredibly irresponsible and arguably suicidal.	EOO,G7B
Sender Last Name:	Kireta **Submission ID:** 3520	
1126	The PolyMet mine will obstruct at least 2 of the remaining 13 corridors where wildlife can cross the 120 miles of the Mesabi Iron Range. These corridors are important not only for mammals like moose and wolves but also for the northward migration of the deciduous forest and all its components in the face of climate change. The DEIS ignored the mine's impact on wild corridors	WI5
3251	I am concerned about the impact on fish and wildlife of the proposed PolyMet Mine in Superior National Forest and urge you to better analyze the proposed mine. Of particular concern are the following issues, which were not adequately explored in the Draft Environmental Impact Statement (DEIS): 1) Mercury. Increased levels of sulfates leached from the PolyMet Mine will increase mercury accumulated in fish tissues, causing harm not only to the fish but to animals and people who eat the fish. The DEIS did not adequately analyze the potential impact of the mine on mercury levels in surrounding waters and fish.	WR1E,WR4B,FM1
3252	The PolyMet Mine will result in enormous sulfate releases that will exceed the state standard for wild rice, which is sensitive to sulfates. These sulfates will likely eliminate wild rice in the Partridge and Embarrass Rivers, and diminish the famous wild rice beds in the St. Louis River estuary near Duluth, which is 100 miles away from the mine. The DEIS did not adequately analyze impacts on wild rice and the associated health and economic impacts. Please protect the fish and wildlife that currently thrive in Superior National Forest and safeguard this area for future generations.	WR1E,WR4F
Sender Last Name:	Kise **Submission ID:** 1545	
1889	This is not okay. As a person that goes to the boundary waters area multiple times during the summer i think this is absolutely not okay. It's going to ruin the environment and the atmosphere up there as we know it with irreversible changes during our life times. Stop.	EOO,G11
Sender Last Name:	Kitterman **Submission ID:** 3173	
716	SLOW DOWN - EXTEND THE PERIOD IN WHICH YOU CONSIDER ALL ASPECTS OF THIS ISSUE!! DON'T MAKE AN INCREDIBLE ENVIRONMENTAL STEWARDSHIP MISTAKE HERE FOR THE SAKE OF SHORT RUN JOB NUMBERS IN NORTHERN MN!	PRO6
2517	I am writing today to express my extreme concern over the mining project that is being considered in northern Minnesota adjacent to the BWCA. I do not feel that adequate consideration has been given to the citizens of this state to decide if this mining project is a good long term decision for our future generations. Only a nominal amount of research on my behalf suggests that this class of hard rock sulfide mining is extremely deleterious to the health of the watershed. Historical records reveal that the prophlactic measures suggested by the mining companies are likely to be only marginally effective in the short run - and the effects of the acidic runoff are there to be delt with for thousands of years to come. Actually, I am a little shocked that our political and civic leaders - who we depend upon to protect our clean waters - would allow this process to develop to the point that it has without allowing for adequate input from individuals like myself that love the BWCA and Voyageurs' Ntnl Park. Please I admonish you to take a step back and reconsider this process that seems to bringing a potential threat closer to reality. Don't you want your grandkids to be able to hook a smallmouth bass in the BWCA? Wake up! I am not a political radical - just another guy who loves the BWCA - don't class my letter in with the tree huggers and bunny humpers. I am all for jobs in Northern MN, but we MUST KEEP this in perspective.	G1,G7

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3124	We (my family members) are deeply concerned about the long range effects of sulfide mining on the watersheds on north side of the divide. Short range measures to minimize the deleterious effects of acidic runoff and groundwater penetration have not been proven to effectively halt the long term pollution potential for the BWCA which is just adjacent to the north of the Duluth Mining and the Franconia test sites.	WR1A

Sender Last Name: Kivela **Submission ID:** 3662

1	Worldwide demand for copper and nickel continues to increase. Minnesota has legislated power companies to generate 25% of their electricity from renewable energy sources by 2025 with wind turbines providing a significant portion. Across the U.S. the demand for electricity generated by renewable resources is also rising. Mega-watt for mega-watt the construction of the average wind generation facility consumes 1.5 times more copper than a similar sized coal fired facility. Assuming the demand will be met, we must ask ourselves is it better to purchase foreign supplied materials produced under less strenuous environmental practices, or produce it where we can monitor the process. Though the draft Environmental Statement appears to have several figures improperly labeled, tables improperly referenced in the text, and typographical errors the document appears to address the environmental and economic impacts. The errors do not appear significant and additional EIS findings and mitigation review will be short and a decision of adequacy is in the near future. I have seen the good and bad of mining. I live, work, and play near the proposed PolyMet Mining operation and could be among the first to experience any impacts. Understanding the need to balance the preservation of our local and global environment versus the economic impacts, I feel the project is environmentally and economically preferable and sustainable and I wholeheartedly support it.	EOO

Sender Last Name: Klamm **Submission ID:** 1161

156	We are looking for the public to have more involvement.	PRO3
508	Financial assurance must be addressed.	PD4
1276	How can we consider granting permission to a “start-up” company in an industry known to contaminate streams downstream for 2000 years.	G7B

Sender Last Name: Klang **Submission ID:** 124

113	I am for the Polymet project. It will benefit our portion of the state with jobs and tax revenue, and the whole state which definitely needs more tax revenue. I live in the area and want clean air and water and believe Polymets plan will assure this will happen.	EOO
3554	I am 100% in support of PolyMet. We need to do everything we can to bring industry and jobs to the Iron Range. Right now, most of our young people are moving away to the Twin Cities and other large cities. We must make life on the Iron Range sustainable to preserve our way of life and our industrial history. And the address part should not be optional. The residents of northern Minnesota should take precedence over "once-a-year-if-that" visitors. We have families to feed, and we are struggling to stay here. They shouldnt have any say in what we do with our area. We do not have any say about how they live in the Twin Cities!	EOO
3574	I am for the Polymet project. It will benefit our portion of the state with jobs and tax revenue, and the whole state which definitely needs more tax revenue. I live in the area and want clean air and water and believe Polymets plan will assure this will happen.	EOO

Sender Last Name: Kloker **Submission ID:** 3739

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2000	There needs to be further documentation of flow velocities that MODFLOW (Mod path) and MT3D calculated throughout the model domains before mining, during mining and after to provide credence to the model results. The essential conclusions of the modeling relating to discharge of potentially harmful waters from the closed mine site tie directly to the values of effective porosity used in the models. I do not think, from my reading, that Polymet only considered groundwater flow through surficial materials from the pits postclosure, and readers need to clearly know how the models were put together and the degree to which they are calibrated on real data or simply "heuristic" or theoretical.	WR2F
2000	Given these modeling uncertainties in recharge rates, flow rates, flow velocities, effective porosity, dispersivity, and calibration points, even if water levels and discharge to streams numerically agree with that measured, the modeling does not provide certainty in forecasting. In the absence of proper and multidisciplinary field calibration using chemistry and water levels, there can be no assurance the models, in fact, worked. For example, hydrologists for decades have used isotopes of water and carbon to measure groundwater ages and how long water in groundwater flow paths has been in the ground after recharged as rain or snowmelt. These independent data could have been used to clearly determine if the timing of water flow in complex flow systems calculated by models are at least in the right ball park. For example, if no tritium were measured in water sampled from the deep Virginia Formation, then it can be at least assumed that the water in it must be at least 60 years old (Clark and Fritz, 1997). From the carbon isotopes in the dissolved inorganic carbon in it, Polymet could have determined if the water in the Virginia formation were 100's or 1,000's of years old. If water were that old, the issue of bedrock water impacting the mine would have been moot-flow rates to the mine would be so small as to be negligible.	EOO
2000	In the case of the flow paths south of the hypothetical closed mine, I was struck that a constant head boundary (same and constant water level) was used throughout the complete extent of the surficial sediment to the base of the rock units as a boundary condition upgradient, as well as on the Partridge River side. Polymet needs to justify this kind of boundary condition, akin to what would be a lake edge. Doing this forces water flow to be horizontal and technically speaking, "over-conditions" the flow system hydrodynamics. Basing flow paths on a constant head boundary in this manner forces discharge from the bedrock into the river, conceptually as if the river cut through the bedrock hundreds of feet. Moreover, actual head values (water levels) for these boundaries used in the model seemed arbitrary and "selected" to match the predicted hydraulic gradient. Yet, Polymet prepared a working three dimensional groundwater flow model for the mine. Why did Polymet choose not to simply add onto this model a solute transport component? This is what MT3D was designed to do, calculate solute transport in three dimensions coupled to MODFLOW, So, I don't fully understand why Polymet downgraded their model for solute transport post-mining to two dimensions along multiple flow paths, when the presumptive theoretical plumes of multiple contaminants from the closed mine could have been broadly simulated through normative coupling of the modeling modules and locally adding more rows and columns in the model as needed where more detail was desired.	WR2F
2000	3. I found that Polymet installed insufficient ground water monitoring wells and piezometers inbedrock to either characterize where and how ground water in bedrock moves across the mine site, or how it interacts with the Partridge River. The DNR should request additional (~6) monitoring wells in bedrock be installed south of the proposed mine area in an array sufficient to determine these issues. At several of these installations and some north of the mine site, piezometer nests should be installed in the Duluth formation and underlying Virginia formation to determine vertical head gradients. Installations with screens crossing these units serve no purpose in determining what happens between them. Finally, the DNR should install piezometers and water table wells adjacent to the Partridge and Embarrass Rivers where presumptive flow paths may end to determine if these streams lose, gain, or have no influence on groundwater flow in the bedrock underneath them.	WR1B,WR2A
2001	However, the boundary conditions used by Polymet for their post model scenario 2-D modeling do lead to a worst case scenario for the Partridge River, insofar as all the water from the mine winds upin the river, but it does not show what might happen under the river. Perhaps Polymet can do a sensitivity analysis to show that putting a constant head boundary only at the river node and in surficial materials, but not in the bedrock too, would not change, the results. When the pit water might reach the river is highly predicated on effective porosity values for which I have no information. Perhaps Polymet did their model at steady state after it was assumed that flow paths reached the river. This needs more clarification.	WR2F

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2005	I found it particularly troubling that Polymet could have directly determined how water moves in the shallow subsurface and bedrock at the mine site area in the field, but it was not done. The overall properties of the surficial materials and their connectivity to the uppermost bedrock probably are generally similar in the mine area, including where the tailings basin occur. The existing tailings pond at the proposed plant site has been in operation for decades. Had a series of piezometer nests (wells at different depths at the same location) been placed in the bedrock with a water table monitoring well perpendicular to the pond downgradient direction relative to the pond (towards the Embarrass River), a great deal could have been evaluated about how contaminant transport occurs in surficial materials over large distances and under elevated heads (driving force)-including characterization of the degree to which loss of potential contaminant metals by sticking to organic matter (sorption) to soils might occur, natural attenuation. Instead, Polymet chose to use modeling to estimate the effects of solute transport from the future new mine tailings pond to the subsurface. Yet, the opportunity was there to actually calibrate such a model against real field data. My suggestion does not constitute a "research topic" from an academic reviewer. Rather, doing this exercise would have provided proof of the concept that the models being prepared, material properties assumed, and so on, were properly configured. I have the same concerns with the modeling Polymet did from the tailings basins as with the other groundwater models done by Polymet: poor documentation of results, assumptions that cannot be tested very well because of insufficient instrumentation, and inarticulated logic behind the work. This is a missed opportunity if I have ever seen one.	EOO
2006	The quantification of ground water discharging to the Polymet mine may be reasonable. But, insofar as groundwater discharge seems to be the largest part of water entering the mine, the modeling needs to be clarified and maybe tested by some simple back of the envelop calculations using Dupuit Forescheimer equation or even Darcy's Law outright. I am not saying the results of the modeling are wrong. I am saying I can't tell if Polymet may be right or wrong from what was provided in the DEIS and supporting technical documents which I reviewed. If they are wrong, then contaminated ground water could very well reach the Partridge River faster than assumed in the future, and dewatering of aquifers around the mine may be greater than assumed from the models. Additionally, the amount of water entering the mine may be less than anticipated with attendant issues related to disposal.	WR2A
2006	So, I have to ask, What background values will the DNR use to compare future scenarios against each other? Will they use these compromised metal values or something else? Will the DNR only look at sulfate? Specific conductance? Dissolved heavy metals of interest? Or will the DNR choose to have consultants continue only to sample for "total" metals, thereby insuring false positives some of the time by virtue of human error and natural hydrology? Total analyses do not reflect what is dissolved in the water, but incorporate nonsystematic introduction of sediment and other debris during sampling and easily produce false-positives, leading to indications of contamination when it does not occur.	RFI
2006	Total and dissolved metals concentrations are apples and oranges. Total metals concentrations for major dissolved metals, calcium and magnesium, as well as iron and manganese may not be useful either for MCL comparison purposes for the same reason---they measure a combination of entrained sediment and what actually is dissolved in the water. Polymet compromised the ability to use the gathered background data for scientific comparison to aid in assessing potential future contamination by adhering only to the regulatory standards that use totals metals for all but a few of the metals of regulatory interest. This concern includes samples of ground water collected at the tailings basin area. Here too, there appear to be some violations of standards that may reflect not what is dissolved in the water, but what was stirred up into the water from the surrounding immobile soils as part of the sampling process. Perhaps the DNR insists that total analyses be used to characterize contamination, but if so, it is wrong, and Polymet's consultants needed to protect their client from unreasonable false positives. Nobody will drink dirty water, and my evaluation of much of the groundwater water quality data is that much of that sampled water was dirty from soil and rock flour particles stirred into the sample during the sampling process.	WR1E

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2006	Most of all, even EPA recognizes that MODFLOW models produce very limited results when water moves in fractured media at the scale of this investigation. (e.g. http://www.epa.gov/tio/tsp/download/2003_meeting_fall/final_ modeling_panel.pdf). The MODFLOW approximations used by Polymet, while possibly reasonable with respect to quantities during mining, do not have sufficient robustness. with respect to directions and rates of groundwater flow before and after mining concludes, and the degree to which subsurface contamination might move to the Partridge River. The modeling discussion and reportage did not include what normally are considered minimal requirements for model reporting suggested in textbooks (e.g. Anderson and Woesner,1992; American Society of Testing Materials, available at: http://www.astm.org/Standards/D5718.htm). Any description of a groundwater or solute transport model should at least include: 1. maps showing boundary conditions for each layer and distribution of material properties; 2. plots of calibration data against modeled results, and calculation of root-mean squared and other statistical parameters to show model calibration results statistically; 3. water level maps for transient conditions for water table and underlying stratigraphic units (mining conditions, in the case of this study); 4. hydrogeologic cross sections at steady state and under transient conditions (if appropriate), including flow paths and seepage velocities; and 5. a sensitivity analysis to show how assumed parameters condition model results.	WR2E
2006	Polymet characterized surface water resources in the proposed mine area by synthesizing USGS, MPCA and other prior and existing data resources and then developing mathematical models to evaluate the extent to which leakage from the closed mine via ground water and potential pit overflow would impact the Partridge River; which already receives significant discharges from taconite mines. The USGS and other agencies have no stream gage near the proposed mine site, so Polymet used modeling approaches to estimate what streamflow might be. It would have been far more valuable had Polymet installed stream gages immediately upgradient and down-gradient of the proposed mine, and then made discharge measurements there and at former USGS sites. Then, the assumed relationships between river discharge at the mine and much further downgradient at the USGS site could have been statistically verified.	WR3J
2006	I agree with using empirical analog observations, looking at what water levels may have done elsewhere when a mine excavation occurs, as a check for what would be probable and whether MODFLOW results can be considered reasonable or not. Indeed, looking at what has happened at other mines can be very useful given the similarity of broad hydrogeologic settings in the Iron Range. But these analogs examples need to be explained in much further detail than found in the DEIS to argue convincingly that water level changes to shallow and bedrock waters around the proposed mine will be negligible (DEIS, Vol. I at 4.1- 61).	WR2A
2007	But, knowing the true flow path directions and if groundwater in bedrock flows under the river may be important. For example, if subsurface contaminated water bypasses the Partridge River, it could move north towards the larger regional lake hydrologic discharge zones within the Boundary Waters Wilderness. The volume of water and degree of contamination probably would be slight, but at least the plausibility of it happening should have been addressed for completeness.	WR2A

Sender Last Name: Kluempke **Submission ID:** 253

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
266	I am writing to show my support of the Northmet project and am urging your Agency to support the recommendations of the draft EIS. The development of a precious metals mining industry is vital to the economy of Minnesota and especially to the economic future of Northern Minnesota. More importantly, the draft EIS indicates that the NorthMet project can be developed successfully while at the same time taking the needed precautions to minimize negative impacts on our environment. Our company has been engaged in the environmental engineering practice for more than 40 years and we are confident that the NorthMet project can be designed, constructed and operated in an environmentally safe manner. Additionally, the iron mining industry has been a significant economic driver in Northern Minnesota for more than 75 years, providing jobs to area families and enhancing the local tax base. The opportunity to diversify our mining industry to include precious metals mining indicates that mining can continue to contribute to our economy well in to the future. Another vital component to this economic initiative is that by generating and processing strategic metals here in Minnesota, we are able to reduce our dependence on importing these materials, and this is in the strategic best interests of the United States. Supporting the Northmet project is in our collective best interests and I urge the State and Federal Agencies involved to show their approval of this project.	EOO
Sender Last Name:	Klug **Submission ID:** 3307	
3600	I was absolutely terrified and appalled to learn about this proposal, both because it would be a disaster to allow a precedent to be set by granting permits to these companies and because before this evening, I had no idea that this issue was even taking place. I grew up in Two Harbors and Duluth and am now going to college at Carleton College in Northfield. I know what's at sake here, what amazing beauty and resources other than these "precious" metals are contained in our area. I miss the waters of Northern Minnesota when I am not there, please do not allow them to be polluted with sulfuric acid and consider that there mines would empty quickly enough.	EOO,G7A
Sender Last Name:	Knuth **Submission ID:** 3168	
712	After having done some reading regarding the type of mining proposed for Northern Minnesota, I urge that more time granted to look at the environmental impact and future costs incurred due to this type of mining.	PRO6
Sender Last Name:	Koerbitz **Submission ID:** 1082	
1186	I would like to voice my support for the Polymet project and the Polymet EIS. I believe proper study has been conducted and proper mitigations are/will be put in place to adequately protect environment and the people of NE Minnesota. This project is important to the region, state and the nation and it provides good paying jobs in an economically depressed area.	EOO
Sender Last Name:	Konze **Submission ID:** 1950	
2472	Follow Wisconsins lead - investigate before, not after. Remember taconite tailings in Lake Superior?	G6
Sender Last Name:	Korte **Submission ID:** 2579	
448	The need for better information on existing pollution, the nature of wetlands, endangered species, and other resources that would be affected by the project.	WR1E,FM1,AQ4
688	Analysis of all of the impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources.	WI5,WE8

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1145	The existing inadequate showing by PolyMet Company that their waste rock and tailings piles will not collapse and dump uncontrolled pollution into nearby waters, causing potentially catastrophic water pollution.	GT2
2214	The unacceptable prediction in the existing DEIS that water pollution from the proposed mine could possibly last 2,000 years.	WR1A
2215	The inadequate information in the DEIS regarding the scope and extent of potential pollution, including detailed information regarding water flow from the affected areas.	WR1A
2410	As the U.S. EPA suggested, making sure that financial assurances for the public are included in the EIS long before any permitting process gets underway.	PD4
2411	The absence of a detailed reclamation plan which is tied to the required financial assurances	PD3
2412	The failure to analyze the land that is going to be exchanged for Superior National Forest land to make this project possible.	PD1

Sender Last Name: Kosbiston **Submission ID:** 1180

1295	Having worked construction and in the trades for my entire adult life, I totally understand the local support of the new and proposed mines in NE Minnesota. Well-paying jobs is an attractive option when you are struggling to keep your family afloat. However I am alarmed & deeply concerned about the certain compromises to the landscape and especially the water quality, with equally certain long-term negative effects for very short-term gains locally – with the vastly disproportionally larger profits flowing out of the country, and the industries proven track record of dodging the clean up costs.	G2A,G7B

Sender Last Name: Koschak **Submission ID:** 3663

1	This letter is in regards to the proposed PolyMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forest. Upon personal review of the draft DEIS it is my opinion as a resident o f Minnesota that this project should absolutely not be allowed to proceed.	EOO
2	What proof does Polymet have that they can mine sulfide ores without environmental pollution? Have they mined sulfide ores in the past and not polluted? What is their track record and what assurances do we, as citizens of Minnesota, have that OUR environment will not be permanently damaged?	PD2
3	Polymet's own DEIS statement predicts violations of water quality from water running off waste rock piles for up to 2000 years (DEIS Table 4. 1-45). It also predicts that the West Pit will overflow at year 65, contaminating the Partridge River (Table 4. 1-64) which flows into the St. Louis River and then into Lake Superior. This water pollution contains mercury which negatively affects the fish population. Part of the DEIS statement includes that waste rock from the sulfide mine will be piled on old LTV waste sites, some of which have liners, and some don't. How can a company pile waste rock from the sulfide mine on top of taconite waste piles that are already polluting and call itself environmentally conscious? Please explain to me how the DNR will allow this type of water pollution? It is not a matter of if, but when and how bad the pollution will be according to the DEIS. How can the DNR allow a major polluter to operate	RFI,WR1E,WR3A,WR5A,G
4	methlylation? Polymet proposes to use the existing taconite mine tailings basins for disposal of sulfide mine tailings, but the stability of these tailing basins has been a serious concern since the project was first proposed. The DEIS acknowledges the potential for basin structure failure and Polymet has failed to address the safety issues and indicated instead that "further design and analysis would occur during permitting" (4.13-2). How can a mining company receive a permit to sulfide mine when appropriate due diligence is not performed? Failure of these basins would result in serious and long-lasting contaminations. What measures are in place to prevent the basins from failing? What happens when they fail?	GT1,GT2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
5	I have a couple of major concerns. I think the issue of the tailings basin is a big concern. I think the tailings basin itself is going to fail. There is no plan in place to save the environment once that tailing basin breaks loose. We've had that issue happen before, we had the pit up at Milepost 7 in Silver Bay that blew loose. We had the pit at Taconite Harbor that vacated how many millions of cubic feet of taconite tailings and that went across Highway 61, and we've waiting for an environmental disaster to happen in northern Minnesota again, so my concern is the -- I should say is the inaccuracies and poorly designed tailing basin that LTV Steel had that they plan on using; the liners, construction of the basin itself I think is inadequate. The boulders that they're going to be dumping from these massive 200-plus-ton trucks are going to rip through the liner and cause extensive damage to the liner.	EOO
5	Polymet's DEIS statement predicts that designated critical habitat for the protected species of the Canadian Lynx and the gray wolf will be destroyed. Deer habitat and travel corridors will be destroyed. The DEIS acknowledges that habitat will be lost for all animals and that there will be an increased risk of animal/vehicle collisions. Please explain how a federally protected animal such as the gray wolf should be allowed to lose critical habitat. Under the proposed land exchange, does the DNR come into possession of designated critical habitat for the protected species of the Canadian Lynx and the gray wolf? How does the DNR rationalize that this is a good decision for Minnesotans who pride themselves on the diverse environment in which they live?	WI1
6	Polymet proposes to destroy both directly and indirectly 1500 acres of wetland in the mining of sulfide ores. This would be the single biggest loss of wetlands in the history of the Army Corps of Engineers. Most of these wetlands are high-quality peatlands. The destruction of 1,000 acres of peatlands would result in a two percent increase in Minnesota's overall carbon dioxide emissions. Mr. Ahlness, please explain how you rationalize this destruction of our precious wetlands? Reports from the MN State Legislature and Governor Pawlenty call for the protection of peatlands for their ability to capture and secure carbon. How can this destruction be permitted? These wetlands cannot be replaced, so what are the other options? How can the Army Corps of Engineers allow this wetland destruction? How do we offset the two percent increase in carbon emissions?	WE2,WE4
7	The DEIS acknowledges pollution as fact. Who will pay for the cleanup of the pollution? What happens if PolyMet declares bankruptcy and cannot financially pay for any cleanup? Who is financially responsible for the cleanup – the taxpayers of Minnesota? The environmental cleanup costs should not fall on the citizens of Minnesota. If monies are not in place from PolyMet, than the project should not be allowed to proceed. If PolyMet, a foreign company, is allowed to reap the financial benefits of its proposed mine while ravaging the environment of Minnesota without penalty than that will be a travesty. What assurances do the taxpayers of Minnesota have that they will not be saddled with a cleanup bill?	PD4
8	4.7-1—"The region has traditionally supported various mining activities as well as logging on federal, state, county, industrial and private forest lands. Review of aerial photography and public records indicate that there are few noise sensitive areas or receptors such as residences, campgrounds, and national wilderness areas within the Project vicinity." What tests determined that noise won't be heard in the Boundary Waters 20 miles away? How do you determine effects of noise by sight rather than by sound (aerial photographs)? Was it determined that more noise is ok because there has traditionally been noise in the area? How does 24 hour a day noise affect the character of the land? This doesn't give credibility to the impacts on wildlife.	RFI,WI2,N1,N3,N4
11	I talked to the people at the meeting in Aurora last night and they had no plan in place to catch this water that's going to be exiting, they had no way to monitor it, so it's an intangible, so we need to address the water coming out of the tailings.	WR3A
12	The next big problem is the leaching that's going to come from the waste piles. The waste piles are the same thing, you take a 900-foot hole and you take 900 feet of earth, how many thousands of cubic yards, pile it up on top and you get the rain water leaching into that sulphur-based core and it's going to run off that pile and it's going to run right down into the Embarrass River and the Partridge River. There is no containment that can be designed and there's nothing that's been designed in the pilot plant in Hibbing, Minnesota, situated in the control lab atmosphere that's taking into account what the actual situation is going to happen, and this is a big concern of everybody. Everybody is concerned about clean water and what we're going to have to live with.	WR1C

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
13	Counsel for WaterLegacy. Furthermore, why does PolyMet's DEIS not contain an alternative underground mine option?	ALT3
14	3-50. (3.2.1 No Action Alternative)—Tribal cooperating agencies disagree with the assumption that the proposed project would only result in social and economic benefits. The environmental impacts of the project on the 100 Mile Swamp, an undisturbed and very high quality wetland complex, would constitute a social impact. Furthermore, economic development that is not centered on heavy industry (tourism for example) would be adversely impacted by the project. How will these social and economic problems be dealt with: the social impact of the 100 Mile Swamp and the loss of tourism revenue to dependent businesses? The economic reality of Northeastern Minnesota clearly shows that the stable source of the economic engine is from non-mining jobs. According to Tom Powers from the University of Montana Economics Department, mining only represents 5% of the total personal income in Minnesota's iron range counties.	ALT1,SE4
32	SOCIOECONOMIC IMPACTS • Weakness of a mining economy are not adequately addressed in the DEIS. As quoted from the Tom Powers report, "The Economic Role of Metal Mining in Minnesota": Mining inevitably depletes economically viable ores, forcing mines to be abandoned. Usually the very process of mining, concentrating, and refining the metal ores creates relatively permanent environmental damage: huge open pits, massive waste piles, extensive settling ponds, heavy metal pollution, acid mine drainage, etc. These reduce the attractiveness of mined-over areas to new residents and businesses, making it difficult for mining areas to diversify their economies. • The advancement and possibility of PolyMet being permitted has destabilized the real estate market in areas of northeastern Minnesota where the MDNR has leased and offered for lease state mineral leases. People do not want to live near a sulfide mine and property values are already being affected by the possibility of PolyMet's approval. • The economic analysis of the DEIS must be rewritten to address the above concerns.	SE4
42	This is not the old "mining as usual" of the past, such as seen in iron ore or taconite mining. When compared to sulfide mining, iron ore and taconite mining is quite benign, yet has left plenty of environmental pollution problems that we, in Minnesota, are still dealing with. Sulfide or nonferrous mining poses serious environmental threats to water via acid mine drainage or AMD which is one of the worst mining related environmental problems. AMD typically occurs in sulfide mining operations where sulfide-bearing ore comes into contact with air and water. Sulfuric acid is produced and can then leach into other bodies of water and pollute entire water sheds. The PolyMet proposed project's AMD will flow into the Partridge River joined with the Embarrass River, flows into the St. Louis River, and finally into Lake Superior---the cleanest of the Great Lakes.	WR3D
59	1) Too few public meetings There simply are too few public meetings in the state of Minnesota to adequately inform thepublic of this precedent-setting mining project. At both of the meetings held already, the public was sequestered because the expectation was that there would be too many people at the "public" meetings to be able to discuss openly, and have questions and answers given, as is the case in a NORMAL public meeting process. Procedures for the two "public" meetings were changed in response to your concerns over having too many people at the meetings. Obviously, on such a significant project, to be able to allow active participation by the public there should be more public meetings scheduled throughout the state, which would result in more manageable numbers of people at each of the meetings.	PRO6
60	2) Timing of the public meetings The Draft EIS, which came out in mid November, 2009 allows for a public comment period until February 3, 2010. The timeline and procedure for public study and review of the 1500+ page DEIS, as determined by the DNR and the Army Core of Engineers is utterly ridiculous. It took almost five years to create the DEIS. Could not the public of Minnesota have more than 100+ days to review it? The people of Minnesota are just now becoming aware of this massive issue.	PRO6
61	There are not sufficient paper copies of the document—most libraries in the northern cities and towns have not even been allocated one DEIS paper copy. Many people do not have access to a computer for the length of time it takes to read through this huge and complicated Draft EIS to learn about this precedent-setting project and express their opinions. Many people in outlying Minnesota do not have reliable computer service or do not have computer service at all.	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
62	Experts have hardly had the chance to review the information and many members of the public are just now beginning to learn what sulfide mining is. Thus, the urgent need for additional public meetings after the New Year so that the public can become educated about the environmental impact of this type of mining, and to become informed enough to make up their own minds. Only two public meetings, both in the month of December, which is most inconvenient for many people is certainly not enough for this controversial landmark project.	PRO6
63	3) Location of the public meetings The location of the two public meetings was poorly designed. The need for public meetings in many locations is imperative instead of just one meeting in northern Minnesota in Aurora, and a single Twin Cities meeting in Blaine, which is remote from the population center. This review process set up by the DNR was designed to make it difficult, if not impossible, for effective public access to information and the opportunity of give oral comments.	PRO6
64	4) Format of the public meetings The entire public meeting process is flawed, by not soliciting public comments at the two meetings held in Aurora and in Blaine on this massive project. No public debate or open discussion was allowed. The public was deprived its right to having the opportunity to publicly	PRO6
65	voice their opinion and hear other people's opinions. Furthermore, hearing only from the consultant for the agencies on its own draft EIS is simply ridiculous. Then, adding "salt to the womb", let's be sequestered and made to listen to two politicians in Aurora and three politicians in Blaine promote their belief that the PolyMet project is the best thing since "sliced bread" for the state of Minnesota! This cannot be called a "Public Meeting."Both meetings were "a one-sided propaganda" meeting in favor of PolyMet and sulfide mining. It is my belief that some members of the public who only hear from the consulting firm for the mining company and the politicians promoting the DEIS will certainly be intimidated and will be reluctant to express concerns that are different from those in the DEIS. Interestingly, the following legislative officials: US Rep. Oberstar, US Senators Klobochar and Franken, State Senators, Tomassone, Bakk and Saxhaug, and State Representatives Rukavian, Dill, Anzelc, and Sertich had all come out in support of the proposed mine prior to the public meetings.	PRO1,PRO6
66	1) Extend the comment DEIS period to at least the end of March, 2010, or later. The public needs this amount of time to read and understand the implications of the DEIS before the comment period is over.	PRO6
67	2) Schedule more meetings in January and February in Duluth, Rochester, Mankato, Brainerd, St. Paul, and other cities. This is the first ever proposed sulfide mine in Minnesota being considered for permitting---the people of Minnesota have the right to be informed.	PRO6
68	3) Let's get the "public" back into the public meeting. Operate as a public meeting with members of the public being able to speak into a microphone before a group and have their comments transcribed by a court reporter. (Instead of a one-on-one speech to a court reporter as in the Aurora and Blaine "public" meetings.) This is the standard procedure used for meetings involving environmental impact statements. By listening to and having the opportunity to respond to others at the meeting, the public becomes informed and more understanding of the very complex issues involved in the DEIS.	PRO6
69	4) Get rid of the politicians! Along with the consultant's opinions on the DEIS, let's get some balance into who gets to present. Other cooperating agencies who are formally involved in the process (the Tribes) should have a representative speak before the public. Furthermore, it is my belief that a representative of a formal environmental organization should also be allowed to speak at the public meetings, and share more fully the concerns that this new type of mining to Minnesota will have on the environment.	PRO1,PRO6
114	I just wanted to say that I am for clean water. I am against the mine operation starting in theAurora-Hoyt Lakes area. I think the environment should trump everything. I think clean watershould trump everything. It's a resource that cannot be renewed, once it's polluted, and I think that's what the mine will do. There is a lot of jobs at risk, obviously, but there is a lot of other avenues that I think we can take, other avenues such as industry, manufacturing, that would create jobs, rather than a mine, that's going to affect the environment, so that's it.	EOO,G7
125	And my concern is the impact of PolyMet and the water that is going to be exiting the plant and creating the sulphide issue that everybody's concerned about. This is not jobs, this is clean water; I am for clean water and I'm for preserving what we have.	G7

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
126	The State of Wisconsin has boycotted it, the State of South Dakota has boycotted it, why does Minnesota have to be a guinea pig for 400 jobs. After 20 years, 95 percent of the jobs that are going to be let -- are actually going to be gone and these people are going to leave the area, so we're going to have five percent of 400, 400 jobs and the environmental disaster that's going to happen here is just paramount, we cannot allow this. So as a citizen of northern Minnesota and the state of Minnesota, I am strongly against this until further studies have been done.	G1,G8,G12
127	The EIS that's been written is not up to the standards it should be and I think we need to take a strong look at this, 400 jobs is not worth it. We can stick to something that's more sustainable. We've got somebody that's going to get a job there 25 years old and they're going to work for 20 years and what happens then; unemployment. We can continue the situation that northern Minnesota has right now; uneducated kids finish school, high school, go get a job in the mine, running around with their truck and that's it, and that's it, what do they have, children, and then situations exist, it continues on and on and on, so we need to, as the State of Minnesota, evaluate this and stop the action right now and a no-action plan on this and let this thing lie. We don't need the minerals that bad. And that's it.	G1
134	My name is Kevin Koschak from Andover, Minnesota. And as far as the PolyMet proposal goes, I am against the creation of a sulphide mine in northeast Minnesota. I think that after reading the Draft EIS proposal, the admittance of PolyMet at this -- the tailings pile would leak and ground water will be compromised, whether it's in ten years or 20 years, they don't know. Our Great Lakes and Boundary Waters are our precious natural resources that the State of Minnesota promotes and hawks for tourism and generates billions of dollars to the state in tourism and revenue, and to see those areas possibly polluted would kill a viable tourism industry that as of now is supporting small towns such as Ely and all the other Iron Range facilities. As far as the Lake Superior tourism goes, if they had dead sea caused by sulphide waters that are polluting, killing fish, that would be a big black eye for the State of Minnesota all for the short-term economic gains of 400 jobs that most of which are not even going to be hired from in-state or locally in the Hoyt Lakes/Ely area, and I believe most of those jobs are going to be outsourced or they'll be brought in. I don't know, there's not many four-year graduates in geology that live in Ely, Minnesota, right now, so I think that a lot of those jobs are going to be filled from either the Canadian firm themselves or likewise. As far as the Canadian firm goes, I just don't think that Minnesota needs to be a guinea pig for a foreign firm to come in and decide to try, and I stress the word "try," to do this sort of mining in an environmentally responsible way. I think that it has never been proven to be done in any sort of an environmentally responsible way. Michigan has gotten some severe problems, as far as the Colorado River in Colorado is completely destroyed because of sulphide mining and all they're asking to do is put a different liner in for tailing and I don't think it's going to work. The State of Wisconsin has a moratorium on mining, this type of sulphide mining, and I believe Minnesota should have the same thing. I mean, we have only X amount of precious resources that we have left, I think we need to protect them. If we want to mine, I think the iron ore mining is great, that's a totally different animal, that's been wonderful to the northeastern portion of the state, and obviously in the country as well, with the iron ore exports and steel production, but this type of mining I think has got far too many economic consequences that could possibly wreak havoc to the Boundary Waters, which, you know, generates over a million visitors a year. And then Lake Superior, I just think it's just too much, in terms of environmental and tourism, you know, destruction, I think it does not add up to the fact that we're going to get 400 jobs that in the end are going to fizzle out in less than 20 years. Because progressively, according to the EIS, as there gets less and less rock to mine, you're going to have less and less people to do it, so these 400 jobs are going to be mostly short-term in the state of Minnesota and, in essence, the taxpayers are going to pick up the tab for the clean-up after that Canadian firm pulls out and calls it aday. That's what I have.	EOO,G1,G4A,G7A,G11,G1
362	I have grave concerns about the PolyMet copper sulfide-mining project because I firmly believe that our present clean water sources are in jeopardy if this project is permitted. Furthermore, the lives of those who depend upon these water sources will be negatively impacted into perpetuity.	G7
363	If approved, other mining companies such as the Franconia Minerals and Duluth Metals, also both Canadian companies, will be right behind seeking their permits to mine in Minnesota. These later two mines, if approved, would be mining at the doorstep of the Boundary Waters with their AMD flowing into Birch Lake, the entire Kawishiwi Watershed, into the BWCA and all the way to Hudson Bay.	G9

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Comment ID	Comment Text	Theme Codes
364	The politicians do not want to allow the public to make their own decision on the DEIS. No, let's tell them [the public] what they should think and do. Let's allow the mining companies to continue to convince our legislative officials and politicians that sulfide mining is the best solution to solve the "jobs" problem for northern Minnesota. Note the following information from the book "The Buzzards Have Landed" by Laura Furtman (regarding the Flambeau Sulfide Mine in Ladysmith, WI): HOW MINING COMPANIES MAKE INROADS INTO A COMMUNITY A mining company makes inroads by: • Getting to know those people presumed to be the decision makers in the community. Mining officials will woo local leaders, become their friends and join the right churches and local clubs • Learning everything about the political arena affecting the area in which the mine is to be built. All levels of government will be infiltrated, including the township, county, city and state. None will be ignored. • Claiming its mine will bring jobs and prosperity to the area, even though such claims have not proven to be true in other mining towns. • Declaring that its project will be environmentally safe, even though there is not a single example of a sulfide ore mine anywhere in the world that has operated without polluting the water. • Using all forms of the media to spread its message. It will contact local newspapers and place advertisements. It will get on the local radio station and explain how is project is environmentally safe and will supply good jobs. It will arrange to broadcast information on the local television stations so people will be able to see how the mining company is willing to address the concerns of "regular guys" like you and me. Anaconda Mining Company is a good example of this. It actually owned daily papers, magazines and radio station in Montana where it mined. • Spreading many "gifts" around the community for this and that to prove what a "good neighbor" it is, even though these gifts are but a drop in the bucket for a multi-national corporation. • Sending its lawyers to sit down at the table with the local people and town officials to discuss and clear up any problems or "misunderstandings" about the mine. This is the company's way of convincing the doubters in the community of G-364 how safe the mine will be and how good it will be for the local economy. The officials will appear only too happy to explain everything to the local country bumpkins. (Franconia Metals is an expert on above method. It provides a box lunch with its tour of the barge that sat for two summers on the water of Birch Lake, along with a tour to show its drill rigs, plus, a slide show with much "information" on its plans for sulfide mining and how wonderful it will all be. I know, because I was "honored" to be invited to one of its promotional programs.) • Discrediting the large numbers of people in the community who are opposed to the mine, claiming they are just a "small group of uninformed troublemakers." The company also will claim these people are "outsiders," even though the mining company is the real outsider and those who are opposed to the project live right there. • Sitting in on the drafting of any new rules or laws that will govern the mining project and spending lots of money on lobbying to weaken mining regulations and other environmental laws." I think that it is obvious that the mining companies have influenced our legislative officials, who in turn are influencing the people of Minnesota to believe that sulfide mining will be the panacea for all of our job and economic woes before the public has sufficient opportunity to learn more about this type of environmentally dangerous mining, and make up their own minds.	EOO
481	3. I have read that the air emissions from this potential plant will affect the air quality (haze) of the BWCA on 36 days. How well will the emissions be regulated? What will the tolerances be?	AQ5
505	S-11- under Cumulative Effects—"General increase in air emissions, however, no significant effect on regional air quality." What determines whether an effect is significant?	AQ4
506	4.4-10—"The Project would generate approximately 970 (948 vehicle and 22 rail) trips per day, totaling about 3,989 miles, between the Mine and Plant Sites. ..An additional 3,930 miles per day of vehicular traffic are expected within the Mine Site itself, primarily to haul ore to rail siding and waste rock to the stockpiles." Are these miles included in carbon and particulate emissions for the mining operation? What is the economic liability of so heavily relying on equipment that uses expensive fuels while emitting pollutants that contribute to global warming and haze?	G8C,AQ3

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507	4.6-32—However, while energy use is reduced by one-half, greenhouse gas emissions do not decline per unit of production from what would be expected…principally because of the large load of non-energy process emissions associated with hydro processing." How could a cap and trade policy or carbon tax affect the economic viability of this plant? Since this process is based upon a small pilot study done in Canada, what is the economic liability of this plant not operating in an economically efficient of a way as proposed? The hydrometallurigical plant will take approximately two years to construct, after PolyMet comes up with the money to start construction. PolyMet earlier asked for the option of hauling crushed rock from the site, prior to plant construction. Where is this addressed in the DEIS? What is the economic liability of transporting crushed rock rather than semi-processed metals? Why isn't the cost comparative stated in this DEIS? Would copper be able to be electroplated on site without going through the autoclave process? How would the copper be separated from the ore in order to do so? How would the resulting acid mine drainage trail, especially that of the rail line, be addressed?	PD4,PD7,PD8,AQ3,AQ4
508	4.6-32—However, while energy use is reduced by one-half, greenhouse gas emissions do not decline per unit of production from what would be expected…principally because of the large load of non-energy process emissions associated with hydro processing." How could a cap and trade policy or carbon tax affect the economic viability of this plant? Since this process is based upon a small pilot study done in Canada, what is the economic liability of this plant not operating in an economically efficient of a way as proposed? The hydrometallurigical plant will take approximately two years to construct, after PolyMet comes up with the money to start construction. PolyMet earlier asked for the option of hauling crushed rock from the site, prior to plant construction. Where is this addressed in the DEIS? What is the economic liability of transporting crushed rock rather than semi-processed metals? Why isn't the cost comparative stated in this DEIS? Would copper be able to be electroplated on site without going through the autoclave process? How would the copper be separated from the ore in order to do so? How would the resulting acid mine drainage trail, especially that of the rail line, be addressed?	PD4,PD7,PD8
510	The project could also increase air pollution that results in regional haze and create a risk of perpetual pollution. The PolyMet DEIS states that PolyMet would have no significant effect on regional air quality. This conclusion is taken in isolation. Cumulative effects of other proposed mining must be included in order to make the DEIS adequate.	AQ4B
511	Acid rain from the autoclave/hydromet plant must be taken in a cumulative context with sulfates and acid leaching into the ground water as part of the DEIS. PolyMet's contribution to Regional Haze in the Class 1 airs of the BWCAW and Voyageurs National Park, have not been adequately addressed in the DEIS. PolyMet's ore bodies potential to disperse toxic asbestiform fibers across northeastern Minnesota has not been adequately addressed. How will you address these concerns regarding air pollution?	AQ4C,AQ4D,AQ9
1021	4.6-33—"This additional mitigation of wetland types other than Type 8 (open and coniferous bog) would contribute to compensating for the Project's impacts on Type 8 wetlands." Which agency, and under what laws and rules was it determined that it is ok to lose open and coniferous bogs as long as they are replaced by other types of wetlands? How was it determined that wetland replacement for PolyMet could be made out of the county and out of the watershed?	WE3
1070	4.4-9—"Consultation between the USACE and the USFWS regarding the potential effects on federally –listed species is currently ongoing." Will this go on until those species are extinct? How will this be reported in the FEIS?	RFI,WI1
1072	4.7-7—"Impacts from blasting are expected to be minimal." How do these impacts affect wildlife? What studies determined use of the word "minimal"?	RFI
1195	7. Make sure that the potential waste rock and tailings piles will not collapse and dump uncontrolled pollution into nearby waters, creating pollution that will last for many years.	GT2
1292	3. How will PolyMet change the rubber liner that is proposed to be underneath the newly constructed tailings pond? How will they change the liner under the 20+ story high stripping pile? It is obvious that any sharp edge of even the smallest overburden will damage, if not ruin, the rubber liner.	GT1

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Comment ID	Comment Text	Theme Codes
1293	3-34—"LTVSMC coarse tailings layer would be placed to create the covered surface on which vegetation could be sustained." How stable are coarse tailings as a foundation?	RFI
1294	It is vitally necessary to require the PolyMet Company to show that its waste rock and tailings piles won't collapse and dump uncontrolled pollution into nearby waters and that they will not create water pollution that lasts for hundreds or thousands of years. I understand that the water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. This is unacceptable to me. It is unreasonable to expect that mining companies will be able to maintain water treatment facilities for that amount of time, and it is an unfair to future generations of taxpayers to pay for the reclamation and clean up of this faulty project.	PD2,PD3,PD6,GT2
1733	6. Are there potential dangers to humans, wildlife, aquatic life and vegetation that could destroy or reduce them? I would not like to see anyone contract diseases from sulfides.	FM1
2000	Could the State anticipate everything? No. But with adaptive management approaches, at least the State, the public, and the mining company could all feel comfortable with the process. How to define the "triggers" that would lead to changing activities or remediation strategies would need to be determined in a fair and equitable manner. I would recommend a clear statistical approach to document trends in water quality in the Partridge River post mining. Given the inherent uncertainty in both the hydrology and geochemistry, there need to be clear contingency plans upfront before any surprises emerge after the mine is permitted.	WR1A
2000	For example, provisions could be put into place in case the water quality of the Partridge River should systematically change to exceed MCLS that could be attributed to closed mine discharge. I note what looks to be the makings of a reasonable monitoring approach in place (DEIS, Vol. I, Table 3.1.S.13-C), but some modification related to solutes and hydrology would be appropriate.	WR1A
2000	I think a different regulatory approach based on adaptive management should be considered by the DNR. In an adaptive management approach, water quality, groundwater levels, and fluid discharges would be monitored sufficiently to formally trigger remedial changes during the mining activity and thereafter.	WR1E
2001	This conolusion probably is correct, although it would be more compelling had the modeling efforts been done clearer and conforming to standard practice.	WR1E
2001	4. Polymet insufficiently characterized how water leaking from the present and future tailings ponds may carry potential contaminants north to the Embarrass River. The hydrologic conditions caused by tailings ponds have been present for many years and offer a unique opportunity to directly evaluate important contaminant transport properties at the proper distance (scale) along subsurface pathways to the river prior to mine opening. Polymet chose not to do this, but to develop models and other methods to infer what might happen. The DNR should insist that Polymet directly take advantage of this opportunity and install a series of shallow piezometer nests (and water table monitoring wells) along appropriate transects from the existing tailings pond, and from these, determine flow directions, characterize changes in ground water quality and characterize material properties governing solute transport.	WR2A,WR2E
2001	As a result ofthese statements, the tenor of the public meeting was changed and, for me, the integrity of the process, which was ostensibly meant to provide an unbiased presentation of information regarding the environmental review process and a summary ofthe information in the DEIS, was called into question.	PRO6

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Comment ID	Comment Text	Theme Codes
2001	I bring these philosophical points up to put my review into context. The DNR and Polymet layered deterministic mathematical model on top of deterministic model in their evaluation of future hydrogeochemistry and fate and transport of dissolved substances in water at the mine site. Each model had some, but insufficient data, to fully characterize what it tried to do. But, without sufficient data to calibrate (match) on, these and other models cannot arrive to compelling "right" answers, only approximations of what might happen within a factor or two, at best. The properties of ground water and geochemical systems, as water moves through them, notoriously change spatially and with flow-path distance (e.g. hydraulic conductivity, retardation coefficients, interconnected porosity in fractured rock; Allison and Allison, 2005; Neuman, 1990; SchulzeMakuch et al. 1999; Schulze-Makuch, 2005). Indeed, the large range in natural variability of material properties of porous media and aspects of water-rock chemical reactions are such that models can be forced to mimic field data used to match modeled results by changing many combinations of assumptions.	WR2E
2001	Recognizing the difficulties of accurately projecting the environmental impacts from a mining operation of this nature, I strongly recommend that the DNR and other appropriate agencies develop an adaptive management plan to address closure of the mine. Parts of this adaptive plan would include: a. Developing a scientifically robust program of water quality monitoring in the Embarrass and Partridge Rivers adjacent to pit. This monitoring program would be tied to scientifically well-known changes in water chemistry caused by seasonal variations in river discharge (e.g rising water levels at snowmelt, low flow in September), rather than some kind of rigid temporal monitoring protocol; b. Developing statistical methods to characterize changing trends in water quality over time (not occasional violations of State maximum concentration levels); and c. Developing remediation strategies should unexpected but plausible water quality changes occur. For example, should unanticipated post-closure AMD cause the pH of the Partridge River to drop below acceptable levels for some environmental receptor, how would this change be handled locally before subsequent dilution and mixing downstream ameliorates the problem at a regional scale?	WR2E,WR1E,EOO
2001	a. The DEIS provided inadequate documentation of the 3-D groundwater modeling before and during the mine operation to allow a proper review of the modeling effort, including the documentation of the solute transport properties; dispersivity, and effective porosity, that affect how contaminants migrate. I found no statistical sensitivity anaiysis, no maps prepared of water table or potentiometric surface drawdown over time at the mine, and no hydrogeologic cross sections showing flow paths and ground water flow velocities. I refer the DNR to ASTM (2000) for guidance, or any textbook on groundwater modeling. I recommend that DNR obtain and present the fundamental materials used to document a groundwater model. Without this documentation, the validity of the modeling effort cannot be determined.	WR2E

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Comment ID	Comment Text	Theme Codes
2001	who lives on Birch Lake in the Superior National Forest. I have grave concerns about the PolyMet NorthMet mining project Draft Environmental Impact Statement (DEIS) proposed on 6,700 acres of public land in the Superior National Forest, not only for the safety of the proposed project, but for its potential impact on Minnesota's natural resources, and the future of its present sustainable economy. I have not taken this proposed project lightly, as I firmly believe it is a dangerous, unprecedented "mining experiment" in water-rich northern Minnesota, where this type of mining has never before occurred. I have spent many hours studying the enormous amount of information included in the DEIS and on the internet related to the danger of sulfide mining, and the multitude of disasters that have occurred in other states and other countries who have done hard-rock mining. It does not come without serious environmental consequences that every citizen in Minnesota has a right to know about since we all depend upon our water sources for life itself. The short amount of time since the release of the DEIS for PolyMet has NOT allowed sufficient time for serious study by Minnesota's citizens, and proper public input. Right now Americans are facing a not only dwindling water supply throughout our country, but a water crisis. "In the southeast, Georgia, Florida and Alabama are slugging it out in federal court over access to the waters of Lake Lanier outside Atlanta. In the Midwest, states around the Great Lakes have signed an alliance, telling everyone else to keep their hands off Great Lakes water. There is a growing gap between our demand and supply of water." CBS Reports: Where America Stands: January 8, 2010, Mark Strassman. The decisions "the powers that be" make now will affect Minnesota's water supply for the generations to come. The grave decision to even consider giving a permit to allow a proven dangerous type of mining that will pollute and destroy our fragile waters in our state is unfathomable. Our present life style is permitting pesticides, herbicides, pharmaceuticals, plastics and a myriad of industrial chemicals to end up in our water supply. These are believed to be one of, if not the cause of, rapid increases in asthma, Alzheimer's, youth behavioral problems, cancer, autism, and Parkinson's diseases. What more do we need to know about that connection? We cannot afford any further degradation of our water supply and should be doing all that we can to improve it, but we are not. Instead, our politicians have decided that we can tolerate a little pollution of our waters, within regulations (regulations that equal a permit to pollute), for the politically expedient and popular JOBS they promise. Take a look at the pollution on both coasts, The Chesapeake Bay and the Duwamish River in Seattle in "Poisoned Waters" http://www.pbs.org/wgbh/pages/frontline/poisonedwaters/view/ A Boeing environmental engineer stated that he didn't think we should expect to ever again subsistence fish, as the Native Americans attempt to do, in the Duwamish River currently a Federal Mega Fund Site. It seems once we create pollution we cannot clean it up. Minnesota environmental review law provides: Minn. Stat. 116D.04(6). "No state action significantly affecting the quality of the environment shall be allowed, nor shall any permit for natural resources management and development be granted, where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resources located within the state, so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct". Both the Indian tribes and the United States	G2A
2002	The DEIS does not adequately address loss of habitat or mining impact on threatened species, including that of lynx, wolves and rapidly diminishing moose populations. Wildlife corridors will be impacted if PolyMet is permitted and the effect that past and future mining projects, including associated roads, etc, has not been adequately addressed in the DEIS.	WI2,WI5
2002	The DEIS does not address the balance within an ecosystem between predator and prey. It does not address bird species and cumulative impacts on habitat of migrational species.	WI2
2002	The DEIS does not address the loss of Superior National Forest land or the legal restrictions against strip mining within Superior National Forest	PD1
2002	The wetlands (peat lands) at PolyMet's mine site have been identified as worthy of protection by the USFS and DNR. The DEIS is inadequate in not addressing this issue.	WE1,WE2

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Comment ID	Comment Text	Theme Codes
2002	The DEIS allows the loss of wetlands in St. Louis County and the St. Louis River watershed, and the loss of open and coniferous bogs. The wetlands would be mitigated in Aitkin County, which is in the Mississippi River watershed. (This does not help St. Louis County's loss of wetlands!) This loss of wetlands goes against the Wetland Conservation Act. PolyMet's wetland mitigation plan is inadequate. Most of the wetlands that will be impacted at the mine site are peat lands. Peat lands have been identified as one of the best terrestrial environments for sequestering carbon, a contributor to global warming.	WE3
2002	The loss of 1200 acres of wetlands will have an impact on the local climate, due to destruction of the carbon sequestering ability of wetlands. The DEIS is inadequate in that it does not address how PolyMet's increased greenhouse gas emissions will affect the Arrowhead. The DEIS acknowledges that "project facilities and operations would result in additional greenhouse gas (GHG) emissions in the Arrowhead region" (S-10)	AQ3
2003	Acid rain from the autoclave/hydromet plant must be taken in a cumulative context with sulfates and acid leaching into the ground water as part of the DEIS.	AQ4D
2003	The PolyMet DEIS states that PolyMet would have no significant effect on regional air quality. This conclusion is taken in isolation. Cumulative effects of other proposed mining must be included in order to make the DEIS adequate.	AQ4B
2003	PolyMet's contribution to Regional Haze in the Class 1 airs of the BWCAW and Voyageurs National Park, have not been adequately addressed in the DEIS.	AQ9
2003	PolyMet's ore bodies potential to disperse toxic asbestiform fibers across northeastern Minnesota has not been adequately addressed	AQ4C
2004	Weakness of a mining economy are not adequately addressed in the DEIS. As quoted from the Tom Powers report, "The Economic Role of Metal Mining in Minnesota": Mining inevitably depletes economically viable ores, forcing mines to be abandoned. Usually the very process of mining, concentrating, and refining the metal ores creates relatively permanent environmental damage: huge open pits, massive waste piles, extensive settling ponds, heavy metal pollution, acid mine drainage, etc. These reduce the attractiveness of mined-over areas to new residents and businesses, making it difficult for mining areas to diversify their economies.	SE3
2004	It would have been appropriate had Polymet provided an analogy where this approach has worked.	EOO

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Comment ID	Comment Text	Theme Codes
2004	The PolyMet "NorthMet" copper-nickel strip mine project is proposed to be sited on approximately 6,700 acres of United States Forest Service lands in the Superior National Forest. Pursuant to law, the project depends on the completion of a successful land exchange of Superior National Forest lands for non-federal lands. (PDEIS), p. 1-3. The proposed land exchange tracts and the characteristics of such land are not described in the DEIS and have not yet been publicly disclosed. Across Minnesota, there are dozens of applications for permits to prospect for nonferrous metals. Understanding land exchange and mineral rights is critical for the PolyMet Project and for future proposed strip mine development. The need for a land exchange prior to permitting of the PolyMet strip mine project must be transparent to the public and the DEIS, for the PolyMet project must include an analysis of the environmental impacts of the land transfer, including potential impacts on tribal rights. This precludes any possible permitting of the PolyMet DEIS as it stands now. A. PolyMet reserved mineral rights do not support strip mining on Superior Forest Land. PolyMet proposes to develop a copper-sulfide strip mining operation located primarily on Superior National Forest Lands. Although PolyMet has claimed that the mineral rights "reserved" in its 1935 deed authorize mining in any form, the U.S. Forest Service has maintained that the deed does not permit strip mining, so PolyMet must buy land to exchange before obtaining permits for the NorthMet mining project. The analysis conducted by the U.S. Forest Service is consistent with prevailing law. Strip mining necessarily entails massive removal of soil and plant life to access underground minerals. This results in irretrievable loss to the environment as well as a fundamental change in forest land use. Prepared by Bride Seifert, William Mitchell Law School, Intern for WaterLegacy; Paula Maccabee, Counsel for WaterLegacy. Furthermore, why does PolyMet's DEIS not contain an alternative underground mine option? B. Land exchange process requires equal value and environmental review. In order for PolyMet to purchase Superior National Forest land, a land exchange needs to occur. PDEIS, p. 3-1. Under The Federal Land Policy and Management Act of 1976 § 206, 43 U.S.C. §1716, lands exchanged must be of equal value, in the public interest and in line with the forest land and resource management plans. Public interest assessment examines the needs of State and local community, looking at the economy, recreation, fish and wildlife as well as food, fiber and minerals. 43 U.S.C. § 1716(a). Environmental concerns are clearly included. A critical first step in a public lands exchange is the public interest determination. No land exchange can take place unless it is in the public interest. The public interest determination considers the needs of State and local residents, fish and wildlife habitats, wilderness and recreation values, economic interests and cultural resources, and watershed issues. 36 C.F.R. § 254.3(1). C. Environmental Review – National Environmental Policy Act. The National Environmental Policy Act (NEPA) calls for the preparation of an Environmental Impact Statement (EIS) for any Federal activity that will have a significant impact on the environment. It is clear that the land exchange proposed for the PolyMet strip mine, which would involve approximately 6,700 acres of Superior National Forest land, will require an EIS. Tribal lands and rights will be impacted, with potential environmental justice, as well as Treaty rights implications. Wildlife and wetlands, including pristine areas, would be acquired by PolyMet and disrupted or degraded to develop the NorthMet strip mine and processing facility. Conclusion. Before the PolyMet NorthMet project could proceed, the PolyMet Company would need to find approximately 6,700 acres of land to exchange for the Superior National Forest lands on which the strip m	PRO2,PRO4,PD1,PD3,PD8
2005	The advancement and possibility of PolyMet being permitted has destabilized the real estate market in areas of northeastern Minnesota where the MDNR has leased and offered for lease state mineral leases. People do not want to live near a sulfide mine and property values are already being affected by the possibility of PolyMet's approval.	SE4
2005	I have read most of the Polymet documents and the studies done and their conclusions fall within a plausible range of what has been reported or expected.	EOO
2006	PolyMet's DEIS is based upon PolyMet using 1/3 of its plant capacity, as purchased from LTVSMC /Cleveland Cliffs. Excess capacity is planned to be utilized by neighboring Teck Cominco, Franconia, Kennecott and Duluth Metals. The Excess Capacity of PolyMet's processing plant is not addressed in the DEIS. The PolyMet DEIS is inadequate in not allowing for public knowledge or participation in the discussion of the creation of a sulfide mining district in the Arrowhead Region of Minnesota.	G9

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2006	The DEIS is remiss in considering the potential impacts of sulfide mining within the Arrowhead Region. The USFS has begun an EIS for Federal Hardrock Minerals Prospecting Permits Project for the Superior National forest. The DNR continues to sell exploratory leases to companies exploring the Duluth Complex of mineralization. Duluth Metals is advertising its Nokomis deposit of copper-nickel-platinum-palladium-gold minerals on its website. The Nokomis deposit is located alongside the Boundary Waters Canoe Area. Franconia Minerals is advertising its Birch Lake, Maturi and Spruce Roads deposits, all within the Boundary Waters Canoe Area watershed. The PolyMet DEIS is inadequate in addressing PolyMet as an isolated copper-nickel mining project.	G8C
2006	Cumulative impacts must address the loss of revenue to the Boundary Waters Canoe Area Wilderness and Superior National Forest tourist industry as part of a sulfide mining district	SE4
2006	The economic analysis of the DEIS must be rewritten to address the above concerns. [see comments 20-21 from this letter]	EOO
2007	At the least, sufficient piezometer nests needed to be installed to determine both the vertical gradients between surficial aquifers and underlying bedrock aquifers, and the extent to which assumptions on isotropic conditions were valid for bedrock aquifers. Without this information, the degree to which the Partridge River could receive future closed mine waste water and whether potential contamination by-passes this river to parts unknown cannot be determined. Perhaps Polymet has this kind of data among the observation wells, but if so, it needs to be presented in a manner easy to review.	WR1E
2007	But using the AMAX stock pile results as a benchmark for the Polymet mine ore, having far less sulfide, seems the prudent and wise approach. Based largely on that, Polymet argues that there should be little, if any, environmental problem with respect to contamination of surface waters at the NorthMet facility closed pits and tailings basin, and probably ground water as well from AMD. I think this conclusion may be right, but to invoke some measure of the precautionary principle, I think a bit more effort needs to be expended as discussed above.	WR1E
2007	I do understand that the proposed PolyMet mine is not in the Boundary Waters watershed. Water from the proposed PolyMet mine (and pollution) would flow through the Embarrass and Partridge Rivers into the St. Louis River, and ultimately Lake Superior. Pollution in those waters is unacceptable; the mine would also set serious precedents for future proposals and all interest, after PolyMet, is focused squarely in the BWCAW watershed.	G7A
2007	The DNR ‘s exploratory leasing is opening up the entire Arrowhead to become a sulfide mining district. An EIS needs to be completed on the mineralization of the entire Duluth Complex prior to the permitting of any one project.	PRO4
2007	As the owner of both a resort facility and a Boundary Waters canoe outfitting business since 1976, (and it has been in our Koschak family since 1944), I find it unbelievable that the DNR and the Corp of Engineers, have the sole power to determine if northeastern Minnesota will exchange its present sustainable tourism industry (a billion dollar industry— www.exploreminnesota.com) for a “non-sustainable” sulfide mine (and possible sulfide mining district) that will destroy our natural resources and forever more alter the incredible beauty of the lakes region of northeastern Minnesota for the sake of PolyMet’s 400 short term jobs, and additional spin off jobs for a lifespan of just 20 years. The tourism industry of 34 Minnesota contributes substancially to the tax base-… “Unlike US Steel which paid precious little in property taxes on its 3,000 acres…” Timberjay Newspaper, January, 21, 2010. The questions for you to evaluate are: Is this really what we want for this part of our state? Do we want to forever more change surrounding forests and wetlands as they are today? To no longer count on clean water? To deal a fatal blow to the sustainable economic base of this area? Timberjay Newspaper Editiorial, January 21, 2010 “Don’t for a minute discount the value of tourism, as some local officials are often quick to do. Over the past few years, the area’s timber industry has all but collapsed and area mines went through extended layoffs that may not be over yet. Through it all, tourism has held surprisingly steady. It’s been the one leg of our timber, tourism and taconite economic stool that didn’t go wobbly on us when the broader economy went south. Tourism is a sustainable, long term industry for our area. It may not pay the wages of the mining industry, but unlike mining, it doesn’t run out and it doesn’t come with a long list of environmental ills.”	PD1,AQ4B,AQ4D

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Comment ID	Comment Text	Theme Codes
2007	But, at the least, Polymet needed to obtain or present the limited data it could get to use it for maximum value in interpreting and evaluating its modeling efforts.	WR1E
2008	The stochastic modeling conducted by Polymet did provide calculated frequency distributions of results, and even "confidence levels" and "probabilities" of which combinations of geochemical and hydrological factors related to transport and reaction can produce common results. But what does this mean? I think it gives no more confidence than back-of-the-envelope calculations might, given all the uncertainty.	EOO
2008	Sufficient piezometers needed to be installed in separate bedrock units to get a sense for hydraulic continuity to the Partridge River, and across the mine site in each bedrock unit considered a hydrogeologic unit. Perhaps the bedrock aquifers are partitioned into small compartments, isolated from each other, because of fractures. If so, then water levels within different parts of a single bedrock unit, say the Duluth Complex, would be hard to evaluate because they would not show a clear trend.	WR2A
2008	Some piezometers were needed in deep formations adjacent to the Partridge River to determine the extent of deep underflow and surface water-groundwater interactions. For example, groundwater chemistry optimally should have been obtained seasonally (if it was, it should be presented as such, graphically, etc.) to see the extent to which snowmelt dilution occurred at depth and if seasonal hydrographs of groundwater elevations agreed with the dilution pulse.	WR2A
2008	These hydrographs, if the data are there, should be prepared to directly calculate estimated recharge rates through the bedrock and surficial materials rather than using estimates from modeling and produce - as Polymet has done - which led to a recharge rate akin to what I see in the arid west. With respect to recharge, the opinion by the tribal cooperating agencies that no recharge can occur to saturated soil near the tailings pond is wrong (DEIS, Vol. I at 4.1-6). Recharge depends on the ground water flow rate horizontally and vertically, and where the precipitation falls. Even peatland ground water is replenished from rain, although though some wetlands have soils with standing water on them in places.	WR2A
2008	Alternatively, Polymet can use analogy to existing mines that have been around for along time to estimate what ground water might do when the mine is opened. It seems unreasonable to me to think that groundwater discharging from the Duluth Complex and Virginia Formations will occur at significantly larger rates than has discharged to deep mines from rocks used for taconite. These metasedimentary rocks, because of bedding planes, would yield more water than fractures in a granite-like rock. However, the discussion of such analogy, and why it would generally apply to the NorthMet site, needs to be very clear, not just citation of an email by Adams and Liljegren (2009).	WR2F
2008	5. Having said the above, Polymet's comparison of their proposed mine to other mines (particularly in their geochemical analysis) does suggest that little acid mine drainage (AMD) should occur from the mine site or tailings basin, assuming that the ore quality and metal concentrations in waste rock will be as presented, and sub-aqueous disposal of it does not lead to unusual conditions of sulfide oxidation. Nevertheless, I think that the DNR should apply the precautionary principle, given the a priori failure of predicting the long-term extent of AMD from many other copper and other heavy metal mines, despite best intentions.	WR1A
2008	The DEIS does not address accumulation of toxic metals in wildlife and fish species used as game.	WI3,FM1
2009	Contaminated discharge from waste rock piles. Water from waste rock pile swill be polluted for up to 2,000 years (DEIS, Table 4.1-45)	WR1E

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2009	Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with the evaluation of this project. The following was announced on January 25, 2010 related to this huge problem: "Cliffs Cited for Extensive Minnesota Iron Mining Pollution: January 25, 2010" "Three groups today announced their intent to file a lawsuit against Cliffs Erie, a subsidiary of Cliffs Natural Resources, for ongoing water pollution from previous taconite iron mining at three sites on Minnesota's Iron Range. PolyMet Mining Co. plans to utilize two of the sites in order to dispose of wastes from its proposed metallic-sulfide NorthMet project. As part of a purchase agreement, Cliffs would maintain a roughly 7% stake in the project. The other Cliffs site, at the old Dunka Mine, is closer to Franconia Minerals and Duluth Metals' proposed sulfide projects. A news release issued by the Center for Biological Diversity noted that, "according to Cliffs Erie's own monitoring reports, there are numerous ongoing violations of water-quality laws relating to management of the former LTV tailings basin. PolyMet's proposal for its copper-nickel mine is to pile its own tailings waste on top of those from a former taconite mine that are still polluting." The Center for Biological Diversity, Save Lake Superior Association, and the Indigenous Environmental Network filed a formal notice letter today that acts as a "prerequisite to filing a citizen enforcement action under the Clean Water Act." The Save Lake Superior Association, a grassroots citizen group, proved instrumental in holding the Reserve Mining Co. to account for dumping iron mining waste into Lake Superior from 1955 into the 1970s. The pollution introduced asbestos-like material into the lake and harmed fishing in the area. "Before the state even considers the approval of a new wave of mining in northeastern Minnesota, it should first require the mining companies to clean up the pollution from past taconite mines," said Marc Fink, an attorney with the Center for Biological Diversity. "As we all learned as kids, you should clean up one mess before making another one." The LTV basin, located six miles north of Hoyt Lakes, was used for taconite tailings from the 1950s until 2001. The unlined basin is the source of numerous seeps and discharges of polluted wastewater into groundwater and surface waters, which eventually reach the Embarrass River. For the proposed NorthMet mine, PolyMet proposes to process more than 225 million tons of ore at the LTV processing facility, and use the same LTV tailings basin already known to be leaking. "While past mining has already polluted these waters, the proposed heavy metals mining would bring severe new threats of pollution to these waters, which ultimately flow into Lake Superior at the Duluth harbor," said Le Lind of the Save Lake Superior Association. "This new threat includes sulfuric acid runoff and higher levels of mercury in waters that are already impaired." http://lakesuperiorminingnews.net	GT2
2009	I do not think NorthMet should meaningfully affect the environment with regard to the hydrology and geochemical impacts from the mine except immediately adjacent to it during operation and thereafter, assuming Polymet does what they propose. I am not saying there will be no impacts. In any major industrial activity, local mishaps occur, occasional spills, breaks and so on. But I see no reason why significant, regional, environmental problems should occur related to either geochemistry or hydrology. From surface area and sulfide concentrations alone, the water quality at the mine site after closure cannot be similar to what occurs in ore stockpiles and fluids in the stockpiles, nor can it be similar to that found in open pit mines elsewhere with richer ore. During operation, the leachate from the stock piles will be processed to remove metals and other solutes prior to later use. Indeed, some stockpiles will remain, capped, and continue to produce leachate for many years. But the probability of a catastrophic stockpile failure that would affect the Partridge River or other waters seems very improbable to me. There remains the question ofthe potential for groundwater flowpaths under the Partridge River. However, I suspect that this potential is low, but it can be evaluated with a few more sites for instrumentation should the decision be made to do so.	EOO
2009	Habitat for wood turtles is not addressed.	WI2
2009	The DEIS does not address loss of wild rice and berries as food crops, or whether plants uptake toxic metals.	PRO4,PD1,PD3
2009	The DEIS does adequately address the instability of the LTCSCM tailings basin, especially considering the large amount of tailings that would be added from mining a less than 1% ore body.	GT2

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2010	Determination of the amount of financial assurance that will be required should be included in the EIS. Bonding is one of the most critical aspects of mine permitting, and one that is least understood and examined by the public. Many of the measures that will be taken to avoid environmental impacts depend on adequate bonding. For instance, the DNR will not be able to assert that a particular remediation plan will be instituted when the mine closes unless bonding is sufficient to ensure the remediation. Bonding is crucial to any determination that potential environmental effects will be avoided	PD4
2010	PolyMet is sited on USFS public lands which have protective covenants against strip mining, yet the DEIS does not contain an alternative underground mine option. Any possible Federal land exchange with PolyMet should be part of PolyMet's EIS. NEPA and MEPA require that all potentially significant impacts be addressed in the EIS (National and Minnesota Environmental Policy Acts)	PRO2
2010	Explain the sense of moving forward with the approval of a permit for a much more dangerous mining operation- PolyMet- when other mining companies have yet to clean up previous pollutions from much more benign mining operations than sulfide mining?	G10
2010	The DEIS does not adequately address the instability of waste rock pile slopes, especially considering the size due to mining less than 1% ores.	GT1
2010	The mitigation approaches seem appropriate, but the monitoring measures appear scant in detail regarding the "what if" question? What if the water in the remaining waste piles or in the closed pits actually becomes far more acidic than we think will happen, for reasons we have not thought of (environmental "surprises")? Or what if some acid mine drainage carrying metals does escape and enters the Partridge River? Then what do the State and Polymet do?	WR1E
2011	S-9—“There is some uncertainty as to whether the West Pit overflow would meet the Lake Superior mercury standard, but this impact could be mitigated it if would occur.” Explain how the mercury would be mitigated.	WR4C
2011	DEIS relies too heavily on modeling and predictions that things will go as planned. Uncertainty remains as to whether rock classified as nonreactive will remain nonreactive after fifty years, 100 years, 1,000 years, etc. An impermeable liner will be created under reactive waste rock piles, but some uncertainty will remain as to whether and when that liner will leak; all liners leak. The DEIS does not adequately address the degree of uncertainty involved (for issues that involve uncertainty) and the potential impacts on the environment if assumptions and conclusions prove to be wrong	PD2
2011	The St. Louis River watershed is already contaminated with sulfates, which become part of a biochemical process converting mercury into methylmercury. This methylated form of mercury accumulates in fish, resulting in fish consumption adversaries. Allowing PolyMet to store tailings on top of already leaching LTVSMC tailings would increase the amount of sulfates in the watershed. DEIS: “Relatively high sulfate concentrations in seepage from the Tailings Basin would be released to wetlands north of the Tailings Basin and lakes downstream on the Embarrass River that represent ‘high risk situations’ for mercury methylation” (S-9) When mercury is “methylated” it can bioaccumulate in fish, making them unsafe to eat. The DEIS is inadequate in not addressing state standards regarding sulfates and methylmercury.	WR3I,WR4B,FM1,FM5
2012	3-34—“LTVSMC coarse tailings layer would be placed to create the covered surface on which vegetation could be sustained.” How stable are coarse tailings as a foundation?	RFI
2012	S—11- “If water quality monitoring demonstrated the need, treatment of the pumped seepage could be provided prior to discharge to the Partridge River.” What would the treatment consist of and what impacts might the treatment have upon the water quality?	RFI
2012	Who does the monitoring, how often would the monitoring be done, and how would treatment be monitored?	RFI
2012	S-11- under Cumulative Effects—“General increase in air emissions, however, no significant effect on regional air quality.” What determines whether an effect is significant?	AQ4

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2013	4.1-135—"PolyMet proposes to mitigate the increased solute load expected in the East Pit from the disposal of the higher sulfide waste rock by pumping East Pit water to the WWTF for additional treatment for approximately 30 years (years 21- 50)." What happens after 30 years? Does the pollution disappear?	RFI,WR1E
2013	What motivation is there for the company to spend money on treatment after the mine is closed and no longer making money?	G4A
2013	When PolyMet gets bought out by another company, how will the transfer of this responsibility occur?	RFI
2014	Does the DNR have enough of a budget to maintain this?	RFI
2014	What role does the DNR have in monitoring the pollution and the treatment?	PD8
2014	Plant closure plans extend to year 50 (30 years after closure) but do not account for acid mine drainage that can last for hundreds to thousands of years, requiring perpetual or near perpetual treatment. The DEIS does not provide adequate plans for monitoring or mitigation. There is no adequate means of enforcement for clean-up or for any financial assurances that the mining company will be responsible. Instead, the MN taxpayers will bear the burden of clean-up cost of toxic wastes for decades—and into perpetuity.	PD3,PD4
2015	4.4-9—"Consultation between the USACE and the USFWS regarding the potential effects on federally –listed species is currently ongoing." Will this go on until those species are extinct? How will this be reported in the FEIS?	RFI
2015	4.1-143—"The deterministic modeling results suggest that three parameters (i.e., arsenic, cobalt, and selenium) could exceed surface water standards, in addition to relatively high sulfate concentrations. The Uncertainty Analysis for the Proposed Action suggests that copper and nickel could be underestimated by the deterministic modeling." What are the cumulative effects of these water quality exceedances?	RFI
2015	4.4-136—"Reservations existed about relying on just the low and average liner leakage rates for groundwater quality predictions, as it may not fully account for the essentially permanent use of the liner (e.g., liner degradation over time, differential settlement, and accidental tears during waste rock placement)." Exactly which liners would be able to be replaced in five years time, or as needed, according to statements made by Joe Scipioni and Frank Ongaro?	PD2
2015	How can we project such costs up to 50 years in the future?	RFI
2015	4.1-137—"It should be noted that aluminum, beryllium, iron, , manganese, and thallium exceeded the groundwater evaluation criteria in the model; however, this was due to high baseline concentrations that were not attributable to the Project and these solutes were not carried forward for detailed transient flow modeling." If the modeling was not attributable to the Project, what is the significance of the modeling?	WR2E
2016	Since this process is based upon a small pilot study done in Canada, what is the economic liability of this plant not operating in an economically efficient of a way as proposed?	AQ3
2016	4.4-10—"The Project would generate approximately 970 (948 vehicle and 22 rail) trips per day, totaling about 3,989 miles, between the Mine and Plant Sites. ..An additional 3,930 miles per day of vehicular traffic are expected within the Mine Site itself, primarily to haul ore to rail siding and waste rock to the stockpiles." Are these miles included in carbon and particulate emissions for the mining operation? What is the economic liability of so heavily relying on equipment that uses expensive fuels while emitting pollutants that contribute to global warming and haze?	AQ3
2016	4.6-32—However, while energy use is reduced by one-half, greenhouse gas emissions do not decline per unit of production from what would be expected…principally because of the large load of non-energy process emissions associated with hydro processing." How could a cap and trade policy or carbon tax affect the economic viability of this plant?	AQ3
2017	Why isn't the cost comparative stated in this DEIS?	RFI
2017	What is the economic liability of transporting crushed rock rather than semi-processed metals?	RFI

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Comment ID	Comment Text	Theme Codes
2017	This is unacceptable to me. It is unreasonable to expect that mining companies will be able to maintain water treatment facilities for that amount of time (once they extract the metals and make a ton of money, they will run back to Canada). This is an unfair burden to pass on to future generations of Minnesotans who will inevitably be left to pay for these operations. Additionally, it will be all but impossible to calculate sufficient financial assurance for a mining operation that is going to require such long-term care.	G4A
2017	The hydrometallurigical plant will take approximately two years to construct, after PolyMet comes up with the money to start construction. PolyMet earlier asked for the option of hauling crushed rock from the site, prior to plant construction. Where is this addressed in the DEIS?	PD7
2018	How would the copper be separated from the ore in order to do so?	RFI
2018	4.6-33—What is the cost of using electric drills in comparison to diesel drills? How expensive are Gen-Set locomotives? Has access to the amount of electricity and natural gas required been determined and laid out in this DEIS?	AQ3,AQ4
2018	How would the resulting acid mine drainage trail, especially that of the rail line, be addressed?	HM3
2018	Would copper be able to be electroplated on site without going through the autoclave process?	RFI
2019	4.7-1—“The region has traditionally supported various mining activities as well as logging on federal, state, county, industrial and private forest lands. Review of aerial photography and public records indicate that there are few noise sensitive areas or receptors such as residences, campgrounds, and national wilderness areas within the Project vicinity.” What tests determined that noise won’t be heard in the Boundary Waters 20 miles away?	N1
2019	4.6-33—“This additional mitigation of wetland types other than Type 8 (open and coniferous bog) would contribute to compensating for the Project’s impacts on Type 8 wetlands.” Which agency, and under what laws and rules was it determined that it is ok to lose open and coniferous bogs as long as they are replaced by other types of wetlands?	WE3
2019	How was it determined that wetland replacement for PolyMet could be made out of the county and out of the watershed?	WE3
2020	How do you determine effects of noise by sight rather than by sound (aerial photographs)?	N1
2021	Was it determined that more noise is ok because there has traditionally been noise in the area?	N3
2022	Bill H.F. No. 2560, as introduced-86th Legislative Session (2009-2010). Posted on Jan 08, 2010 is a bill for an act relating to natural resources; providing for financial assurance for nonferrous metallic mineral mining; amending Minnesota Statutes 2008, sections 93.481, by adding a subdivision; 93.49; Minnesota Statutes 2009 Supplement, section 93.481, subdivision1; proposing coding for new law in Minnesota Statutes, chapter 93. This new bill introduced by Representatives Alice Hausman and Bev Scalze is a first step in providing financial assurances to protect MN taxpayers from the cost of clean up and reclamation resulting from sulfide mining. However, I believe that a total moratorium on mining must occur in Minnesota, the same which presently exists in Wisconsin after their Flambeau sulfide mining disaster. This would allow for time to further evaluate sulfide mining in Minnesota and its expressed dangers with full and transparent disclosure to the public, since current MN laws have plenty of “gaps” in safeguards that expose the state and its citizens to significant risks. Some of these gaps are 1) Only the DNR can make decisions in calculating the amount of financial assurances and in determining the appropriate form of financial assurance. Presently, the Pollution Control Agency and the Dept. of Management and Budge are not involved in this process. 2) Mining could also be allowed up to the very borders of the Boundary Waters Canoe Area Wilderness and adjacent to (or under) water bodies that flow into the wilderness. 3) Mining companies are not required to discuss financial assurance or damage deposit, in the DEIS for their mine proposals, which is a key opportunity for public involvement in the process. These present “gaps” must be addressed and changed for the protection and safety of the state of Minnesota and its citizens.	G2,G12
2023	How does 24 hour a day noise affect the character of the land?	N1

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Comment ID	Comment Text	Theme Codes
2024	This doesn't give credibility to the impacts on wildlife.	EOO,N4
2025	4.7-7—"Impacts from blasting are expected to be minimal." How do these impacts affect wildlife? What studies determined use of the word "minimal"?	RFI,N4
2831	4. The same holds true for the waters the mine will use and the waters it will affect. How well will these be regulated? What will the tolerances be? Will run-off water affect streams, rivers and perhaps Lake Superior or more. Since we are located on the Continental Divide, is there a possibility that the discharge waters could affect the BWCA? Will the water tables of the BWCA be affected?	WR1A,WR3B,WR3D
2832	5. What will be the monitoring process for the waste rock, the tailings basin, the ponds and any other things that must be tracked?	RFI
3080	Secondly, how can one justify permitting a mine that in its own DEIS says it will pollute the waters? WATER CONSIDERATIONS: Contaminated discharge from waste rock piles. Water from waste rock pile swill be polluted for up to 2,000 years (DEIS, Table 4.1-45) • The St. Louis River watershed is already contaminated with sulfates, which become part of a biochemical process converting mercury into methylmercury. This methylated form of mercury accumulates in fish, resulting in fish consumption adversaries. Allowing PolyMet to store tailings on top of already leaching LTVSMC tailings would increase the amount of sulfates in the watershed. DEIS: "Relatively high sulfate concentrations in seepage from the Tailings Basin would be released to wetlands north of the Tailings Basin and lakes downstream on the Embarrass River that represent 'high risk situations' for mercury methylation" (S-9) When mercury is "methylated" it can bioaccumulate in fish, making them unsafe to eat. The DEIS is inadequate in not addressing state standards regarding sulfates and methylmercury. • Plant closure plans extend to year 50 (30 years after closure) but do not account for acid mine drainage that can last for hundreds to thousands of years, requiring perpetual or near perpetual treatment. The DEIS does not provide adequate plans for monitoring or mitigation. There is no adequate means of enforcement for clean-up or for any financial assurances that the mining company will be responsible. Instead, the MN taxpayers will bear the burden of clean-up cost of toxic wastes for decades—and into perpetuity.	WR1A,WR1E,WR3I,WR5A
3081	These present "gaps" must be addressed and changed for the protection and safety of the state of Minnesota and its citizens. Representative Rukavina has referenced "tough US environmental laws" in Minnesota that would hold PolyMet accountable in recent newspaper articles. However, the reality is that the leaking tailings ponds in his district are polluting public waters right now from past "benign" mining procedures. These same waters will be more dangerously polluted from the acid mine drainage from the stripping piles and the leaking tailings pond of the proposed PolyMet project. How then can you even consider permitting such a project?	EOO
3082	1. How will the existing tailings pond be stabilized to prevent the sulphuric acid from running out of the bottom of this pit. Wells and dikes will not work. Impossible. The best of the dams out west cannot contain all the water. Some always leaks.	WR3A
3083	2. There is nothing in the DEIS that addresses the future association of PolyMet and other mining companies, such as Franconia Minerals and Duluth Metals, who may want to use the same processing plant that PolyMet will use. How can the magnitude of the waste water be treated under this DEIS?	WR5B
3084	4. How can PolyMet 100% guarantee that there will be no leakage from the stripping piles flowing into the Embarrass River and on into Lake Superior?	WR3A
3085	5. How can the MN DNR and the Army Corp of Engineers even consider that states that the West Pit will overflow with toxic waste water and flow into Lake Superior?	WR3C
3086	• Arsenic, cobalt, selenium, copper, nickel, aluminum, beryllium, iron, manganese, and thallium from PolyMet's operations may all exceed water quality standards. Analysis predicts high sulfate concentrations. (4.1-113) The DEIS would allow this to happen. The DEIS does not address the cumulative or synergistic impacts upon fish, wildlife or humans as we ingest water containing all of these pollutants. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes. Third, will we be trading a lakes district for a mining district in northern Minnesota?	WR4C,WR5A,FM1,FM3,F

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3087	I do understand that the proposed PolyMet mine is not in the Boundary Waters watershed. Water from the proposed PolyMet mine (and pollution) would flow through the Embarrass and Partridge Rivers into the St. Louis River, and ultimately Lake Superior. Pollution in those waters is unacceptable; the mine would also set serious precedents for future sulfide mining proposals and all interest, after PolyMet, will be focused on the Boundary Waters watershed.	WR1E,WR3B
3089	S—11- "If water quality monitoring demonstrated the need, treatment of the pumped seepage could be provided prior to discharge to the Partridge River." What would the treatment consist of and what impacts might the treatment have upon the water quality? Who does the monitoring, how often would the monitoring be done, and how would treatment be monitored?	WR1A
3090	4.1-135—"PolyMet proposes to mitigate the increased solute load expected in the East Pit from the disposal of the higher sulfide waste rock by pumping East Pit water to the WWTF for additional treatment for approximately 30 years (years 21- 50)." What happens after 30 years? Does the pollution disappear? What motivation is there for the company to spend money on treatment after the mine is closed and no longer making money? When PolyMet gets bought out by another company, how will the transfer of this responsibility occur? What role does the DNR have in monitoring the pollution and the treatment? Does the DNR have enough of a budget to maintain this? How can we project such costs up to 50 years in the future?	RFI,WR1A,WR3I
3091	4.4-136—"Reservations existed about relying on just the low and average liner leakage rates for groundwater quality predictions, as it may not fully account for the essentially permanent use of the liner (e.g., liner degradation over time, differential settlement, and accidental tears during waste rock placement)." Exactly which liners would be able to be replaced in five years time, or as needed, according to statements made by Joe Scipioni and Frank Ongaro?	WR2D
3092	4.1-137—"It should be noted that aluminum, beryllium, iron, , manganese, and thallium exceeded the groundwater evaluation criteria in the model; however, this was due to high baseline concentrations that were not attributable to the Project and these solutes were not carried forward for detailed transient flow modeling." If the modeling was not attributable to the Project, what is the significance of the modeling?	WR2E
3093	4.1-143—"The deterministic modeling results suggest that three parameters (i.e., arsenic, cobalt, and selenium) could exceed surface water standards, in addition to relatively high sulfate concentrations. The Uncertainty Analysis for the Proposed Action suggests that copper and nickel could be underestimated by the deterministic modeling." What are the cumulative effects of these water quality exceedances?	WR5A
3245	1. What happens when the mine closes down? Who is responsible for any leakage or potential disasters. The mine is expected to operate for 20 years, but what then? There is not a specific plan for reclamation after the mine site is closed. Is the mining company required to set aside dollars or financial assurance for potential disasters after closing? The citizens of Minnesota do not want to be left holding the bag for potential cleanup for scores of years.	PD3
3246	2. You must make sure that there is protection of wetlands, tribal rights and also the taxpayer's interests if and when the land swap is completed.	PD1

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3511	on the environment. Presently, a lawsuit is pending on Cliffs Erie, a subsidiary of Cliffs Natural Resources, for ongoing water pollution from previous taconite iron mining: "Cliffs Cited for Extensive Minnesota Iron Mining Pollution: January 25, 2010" "Three groups today announced their intent to file a lawsuit against Cliffs Erie, a subsidiary of Cliffs Natural Resources, for ongoing water pollution from previous taconite iron mining at three sites on Minnesota's Iron Range. PolyMet Mining Co. plans to utilize two of the sites in order to dispose of wastes from its proposed metallic-sulfide NorthMet project. As part of a purchase agreement, Cliffs would maintain a roughly 7% stake in the project. The other Cliffs site, at the old Dunka Mine, is closer to Franconia Minerals and Duluth Metals' proposed sulfide projects. A news release issued by the Center for Biological Diversity noted that, "according to Cliffs Erie's own monitoring reports, there are numerous ongoing violations of water-quality laws relating to management of the former LTV tailings basin. PolyMet's proposal for its copper-nickel mine is to pile its own tailings waste on top of those from a former taconite mine that are still polluting." The Center for Biological Diversity, Save Lake Superior Association, and the Indigenous Environmental Network filed a formal notice letter today that acts as a "prerequisite to filing a citizen enforcement action under the Clean Water Act." The Save Lake Superior Association, a grassroots citizen group, proved instrumental in holding the Reserve Mining Co. to account for dumping iron mining waste into Lake Superior from 1955 into the 1970s. The pollution introduced asbestos-like material into the lake and harmed fishing in the area. "Before the state even considers the approval of a new wave of mining in northeastern Minnesota, it should first require the mining companies to clean up the pollution from past taconite mines," said Marc Fink, an attorney with the Center for Biological Diversity. "As we all learned as kids, you should clean up one mess before making another one." The LTV basin, located six miles north of Hoyt Lakes, was used for taconite tailings from the 1950s until 2001. The unlined basin is the source of numerous seeps and discharges of polluted wastewater into groundwater and surface waters, which eventually reach the Embarrass River. For the proposed NorthMet mine, PolyMet proposes to process more than 225 million tons of ore at the LTV processing facility, and use the same LTV tailings basin already known to be leaking. "While past mining has already polluted these waters, the proposed heavy metals mining would bring severe new threats of pollution to these waters, which ultimately flow into Lake Superior at the Duluth harbor," said Le Lind of the Save Lake Superior Association. "This new threat includes sulfuric acid runoff and higher levels of mercury in waters that are already impaired." http://lakesuperiorminingnews.net	G7
3512	Explain the sense of moving forward with the approval of a permit for a much more dangerous mining operation- PolyMet sulfide mining- when other mining companies have yet to clean up previous pollutions from much more benign mining operations than sulfide mining?	G4

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Comment ID	Comment Text	Theme Codes
3513	I have extreme concerns about the PolyMet NorthMet mining project Draft Environmental Impact Statement (DEIS) proposed on 6,700 acres of public land in the Superior National Forest, not only for the safety of the proposed project, but for its potential impact on Minnesota's natural resources, and the future of its present sustainable economy. Minnesota environmental review law provides: Minn. Stat. 116D.04(6). "No state action significantly affecting the quality of the environment shall be allowed, nor shall any permit for natural resources management and development be granted, where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resources located within the state, so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct". According to Tom Powers, economic rationality requires that mineral deposits be left in the ground undeveloped. Especially, since according to the Polymet data only 1 to 5 percent of the ore contains the non-ferrous metals, relegating the 95 to 99 percent not used to the tailings area. From my perspective, the environmental risk is one no rational person would take. Please review Comparison of Predicted and Actual Water Quality at Hardrock Mines: The reliability of predictions in Environmental Impact Statements and Predicting Water Quality at Hardrock Mines: Methods and Models, Uncertainties, and State-of-the-Art, Ann Maest and Jim Kuipers. The results of this study are: • 100 percent of sulfide mines predicted compliance with water quality standards before operations began; • 76 percent of mines, studied in detail, exceeded water quality standards due to mining activity; • Mitigation measures predicted to prevent water quality exceedances failed at 64 percent of the mines studied in detail. Other environmentally conscious companies embarked upon "safe" sulfide mining projects with every intention of being environmentally friendly. However, the facts are that three out four ended up be polluters. Statistically, that means that the PolyMet project has a 75% chance of polluting! That risk is untenable and one that should not be taken.	G7A,G14
3514	However, I believe that a total moratorium on mining must occur in Minnesota, the same which presently exists in Wisconsin after their Flambeau sulfide mining disaster. This would allow for time to further evaluate sulfide mining in Minnesota and its expressed dangers with full and transparent disclosure to the public, since current MN laws have plenty of "gaps" in safeguards that expose the state and its citizens to significant risks. Some of these gaps are 1) Only the DNR can make decisions in calculating the amount of financial assurances and in determining the appropriate form of financial assurance. Presently, the Pollution Control Agency and the Dept. of Management and Budge are not involved in this process. 2) Mining could also be allowed up to the very borders of the Boundary Waters Canoe Area Wilderness and adjacent to (or under) water bodies that flow into the wilderness. 3) Mining companies are not required to discuss financial assurance or damage deposit, in the DEIS for their mine proposals, which is a key opportunity for public involvement in the process.	G4A,G12
3515	The DNR 's exploratory leasing is opening up the entire Arrowhead to become a sulfide mining district. An EIS needs to be completed on the mineralization of the entire Duluth Complex prior to the permitting of any one project. As the owner of both a resort facility and a Boundary Waters canoe outfitting business, I find it unbelievable that the DNR and the Corp of Engineers, have the sole power to determine if northeastern Minnesota will exchange its present sustainable tourism industry (a billion dollar industry—www.exploreminnesota.com) for a "non-sustainable" sulfide mine (and possible sulfide mining district) that will destroy our natural resources and forever more alter the incredible beauty of the lakes region of northeastern Minnesota for the sake of PolyMet's 400 short term jobs, and additional spin off jobs for a lifespan of just 20 years. The questions for you to evaluate are: Is this really what we want for this part of our state? Do we want to forever more change surrounding forests and wetlands as they are today? To no longer count on clean water? To deal a fatal blow to the sustainable tourism economic base of this area?	G1,G8C,G11
3517	It my sincere hope that you will give proper evaluation to this landmark controversy facing the state of Minnesota and its citizens. We must learn from the mistakes made across our country in other states that allowed sulfide mining companies, usually from other countries, the opportunity to destroy its natural resources with the promise of lucrative jobs. A degree in engineering, geology or hydrology is not necessary to realize that the landscape changes alone will forever alter this northeastern Minnesota. This would mean centuries or more of potential water pollution left for our grandchildren and future generations. I urge you to not permit this DEIS, as it is flawed and totally unacceptable. Are the precious metals worth more than the value of our precious waters? A response is requested.	G2,G8

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Comment ID	Comment Text	Theme Codes
3518	Minnesota environmental review law provides: Minn. Stat. 116D.04(6). "No state action significantly affecting the quality of the environment shall be allowed, nor shall any permit for natural resources management and development be granted, where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resources located within the state, so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct". I believe that we, as a state, have to follow the environmental review law. In no way are 400 short term mining jobs worth the risk to our environment, especially our precious water and air. We have to start to think about our future generations and not be so easily persuaded to exchange our natural resources for very few jobs now just because of the poor economic conditions. In better times, I doubt we would even consider this drastic proposal. Why are we in Minnesota so gullible to let this happen? Our neighbors to the east in Wisconsin have a moratorium on this type of mining… why don't we have this until PolyMet and other hard rock mining companies can prove that there project is a 100 percent clean project which would result in zero damage to the environment?	G2,G12
3519	The DNR 's exploratory leasing is opening up the entire Arrowhead to become a sulfide mining district. An EIS needs to be completed on the mineralization of the entire Duluth Complex prior to the permitting of any one project.	G8C
3520	The questions for you to evaluate are: Is this really what we want for this part of our state? Do we want to forever more change surrounding forests and wetlands as they are today? To no longer count on clean water? To deal a fatal blow to the sustainable economic base of this area?	G1,G2
3546	How can PolyMet be permitted without the land? How can PolyMet be permitted without completing a land exchange for the 6,700 acres? As an Industrial Engineer, every project I have ever developed begins with a solid foundation and from there the project proceeds. There are serious flaws in the PolyMet DEIS because the most important aspect of this project is the need for 6,700 acres of land---the foundation—for the project, and the land has yet to be exchanged with the USFS. Both the Indian tribes and the United States Environmental Protection Agency have pointed out this very serious inadequacy in the PolyMet/NorthMet Draft environmental impact statement. Before PolyMet can even be considered for permits, the following gaps NEED to be filled: The PolyMet "NorthMet" copper-nickel strip mine project is proposed to be sited on approximately 6,700 acres of United States Forest Service lands in the Superior National Forest. Pursuant to law, the project depends on the completion of a successful land exchange of Superior National Forest lands for non-federal lands. (PDEIS), p. 1-3. The proposed land exchange tracts and the characteristics of such land are not described in the DEIS and have not yet been publicly disclosed. Across Minnesota, there are dozens of applications for permits to prospect for nonferrous metals. Understanding land exchange and mineral rights is critical for the PolyMet Project and for future proposed strip mine development. The need for a land exchange prior to permitting of the PolyMet strip mine project must be transparent to the public and the DEIS, for the PolyMet project must include an analysis of the environmental impacts of the land transfer, including potential impacts on tribal rights. This precludes any possible permitting of the PolyMet DEIS as it stands now. A. PolyMet reserved mineral rights do not support strip mining on Superior Forest Land. PolyMet proposes to develop a copper-sulfide strip mining operation located primarily on Superior National Forest Lands. Although PolyMet has claimed that the mineral rights "reserved" in its 1935 deed authorize mining in any form, the U.S. Forest Service has maintained that the deed does not permit strip mining, so PolyMet must buy land to exchange before obtaining permits for the NorthMet mining project. The analysis conducted by the U.S. Forest Service is consistent with prevailing law. Strip mining necessarily entails massive removal of soil and plant life to access underground minerals. This results in irretrievable loss to the environment as well as a fundamental change in forest land use. Prepared by Bride Seifert, William Mitchell Law School, Intern for WaterLegacy; Paula Maccabee,	PD1

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3547	B. Land exchange process requires equal value and environmental review. In order for PolyMet to purchase Superior National Forest land, a land exchange needs to occur. PDEIS, p. 3-1. Under The Federal Land Policy and Management Act of 1976 § 206, 43 U.S.C. §1716, lands exchanged must be of equal value, in the public interest and in line with the forest land and resource management plans. Public interest assessment examines the needs of State and local community, looking at the economy, recreation, fish and wildlife as well as food, fiber and minerals. 43 U.S.C. § 1716(a). Environmental concerns are clearly included. A critical first step in a public lands exchange is the public interest determination. No land exchange can take place unless it is in the public interest. The public interest determination considers the needs of State and local residents, fish and wildlife habitats, wilderness and recreation values, economic interests and cultural resources, and watershed issues. 36 C.F.R. § 254.3(1). C. Environmental Review – National Environmental Policy Act. The National Environmental Policy Act (NEPA) calls for the preparation of an Environmental Impact Statement (EIS) for any Federal activity that will have a significant impact on the environment. It is clear that the land exchange proposed for the PolyMet strip mine, which would involve approximately 6,700 acres of Superior National Forest land, will require an EIS. Tribal lands and rights will be impacted, with potential environmental justice, as well as Treaty rights implications. Wildlife and wetlands, including pristine areas, would be acquired by PolyMet and disrupted or degraded to develop the NorthMet strip mine and processing facility. Conclusion. Before the PolyMet NorthMet project could proceed, the PolyMet Company would need to find approximately 6,700 acres of land to exchange for the Superior National Forest lands on which the strip mine and processing facility would be located. According to the guidance of the U.S. EPA's NEPA Compliance Office and pursuant to applicable law, the NorthMet proposal and the land exchange are connected actions, requiring environmental review in a single EIS. It is inappropriate to release a draft EIS or commence substantive evaluation of the NorthMet project until an EIS analysis is performed for the proposed land exchange, addressing tribal rights and economic valuation as well as environmental issues. In 2002, my wife and I entered into the final stage of a land exchange involving the US Forest Service, Lake County and us. Our facility was located on federal land on Birch Lake at that time. We had followed the protocol for this land exchange which took nine years and 27 steps. Only after completing all aspects of the land exchange, including an EIS, did the land become ours. It is inappropriate, unfair, and totally unbelievable that a mining company such as PolyMet, could possibly be allowed to circumvent the environmental review, and public input, and the National Environmental Policy Act. In fact, if PolyMet is permitted without following the correct procedures for securing the land they need, we have grounds for a lawsuit. Compliance for the law regarding land exchanges for the "common person" should also be law for a mining company. How can they act and be "above the law?" Because the politicians endorsed it? That does not cut it. We provide jobs, and have not only provided jobs for 34 years to hundreds of people, but have brought thousands of tourists into northern Minnesota whose dollars spent make the tourism industry not only beneficial to merchants, restaurants, gas stations and others, but continue to make it a sustainable, non-polluting industry. We did not get any latitude to circumvent the law for our land exchange. Our economic contribution makes dollars that stay in the area, not like those of a Canadian mining company that extracts the natural resources, makes their money, lay off the workers, closes the plant, an	PD1,G1,CR1
3548	This is unacceptable. It is unreasonable to expect that mining companies will be able to maintain water treatment facilities for that amount of time (once they extract the metals and make a ton of money, they will run back to Canada). This is an unfair burden to pass on to future generations of Minnesotans who will inevitably be left to pay for these operations. Additionally, it will be all but impossible to calculate sufficient financial assurance for a mining operation that is going to require such long-term care. Bill H.F. No. 2560, as introduced-86th Legislative Session (2009-2010). Posted on Jan 08, 2010 is a bill for an act relating to natural resources; providing for financial assurance for nonferrous metallic mineral mining; amending Minnesota Statutes 2008, sections 93.481, by adding a subdivision; 93.49; Minnesota Statutes 2009 Supplement, section 93.481, subdivision1; proposing coding for new law in Minnesota Statutes, chapter 93. This new bill introduced by Representatives Alice Hausman and Bev Scalze is a first step in providing financial assurances to protect MN taxpayers from the cost of clean up and reclamation resulting from sulfide mining.	PD3,PD4,PD5

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3549	CUMULATIVE IMPACTS • The DEIS is remiss in considering the potential impacts of sulfide mining within the Arrowhead Region. The USFS has begun an EIS for Federal Hardrock Minerals Prospecting Permits Project for the Superior National forest. The DNR continues to sell exploratory leases to companies exploring the Duluth Complex of mineralization. Duluth Metals is advertising its Nokomis deposit of copper-nickel-platinum-palladium-gold minerals on its website. The Nokomis deposit is located alongside the Boundary Waters Canoe Area. Franconia Minerals is advertising its Birch Lake, Maturi and Spruce Roads deposits, all within the Boundary Waters Canoe Area watershed. The PolyMet DEIS is inadequate in addressing PolyMet as an isolated copper-nickel mining project. • PolyMet's DEIS is based upon PolyMet using 1/3 of its plant capacity, as purchased from LTVSMC /Cleveland Cliffs. Excess capacity is planned to be utilized by neighboring Teck Cominco, Franconia, Kennecott and Duluth Metals. The Excess Capacity of PolyMet's processing plant is not addressed in the DEIS. The PolyMet DEIS is inadequate in not allowing for public knowledge or participation in the discussion of the creation of a sulfide mining district in the Arrowhead Region of Minnesota. • Cumulative impacts must address the loss of revenue to the Boundary Waters Canoe Area Wilderness and Superior National Forest tourist industry as part of a sulfide mining district.	PD1,G9,CR1
3553	Contrary to what our short-sighted politicians (Klobuchar, Franken, Bakk, Oberstar, Rukavian, etc.) who endorsed this project without performing their "due diligence", would like us to believe, there are thousands of concerned Minnesota citizens, and countless vacationers to Minnesota who have serious issues with this proposed mining project. We owe it to our future generations to give a 100% assurance that this politically-touted, 20-year sulfide mining project can be accomplished without irreversible harm to our waterways and our wetlands. Our waters are the most precious of our resources, and we need to seek out sustainable industry for northern Minnesota instead of locking ourselves into a permanent resource-extraction economy—at the price of long-term water pollution from Lake Superior to the Boundary Waters—while driving away other industry and points of view. Too bad our politicians have apparently failed to ask this question.	PD3
3554	Furthermore, the most important fact is that PolyMet does not even own the 6700 acres yet. Explain to me how the state can even consider permitting this mining company without even following the proper protocol for a land exchange? Sounds like you are putting the cart before the horse:	PD1
3555	The PolyMet "NorthMet" copper-nickel strip mine project is proposed to be sited on approximately 6,700 acres of United States Forest Service lands in the Superior National Forest. Pursuant to law, the project depends on the completion of a successful land exchange of Superior National Forest lands for non-federal lands. (PDEIS), p. 1-3. The proposed land exchange tracts and the characteristics of such land are not described in the DEIS and have not yet been publicly disclosed. Across Minnesota, there are dozens of applications for permits to prospect for nonferrous metals. Understanding land exchange and mineral rights is critical for the PolyMet Project and for future proposed strip mine development. The need for a land exchange prior to permitting of the PolyMet strip mine project must be transparent to the public and the DEIS, for the PolyMet project must include an analysis of the environmental impacts of the land transfer, including potential impacts on tribal rights. This precludes any possible permitting of the PolyMet DEIS as it stands now. Thus, before PolyMet can be permitted for the land that is to be exchanged for Superior National Forest land to make this project possible must be analyzed. Include impacts of the land swap on wetlands, endangered species, hydrology, tribal rights, and taxpayers' interests.	PD1
3556	Sulfide mining would be new to Minnesota. In other locations, sulfide mining has resulted in acid mine drainage causing extensive and expensive damage to water quality and the environment. The PolyMet project in Minnesota could degrade water quality, increase mercury in fish, destroy wetlands and peat bogs, fragment the habitat of endangered species, and interfere with tribal treaty rights and tribal resources, like wild rice. The state must analyze ALL of the CUMULATIVE impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources. Mercury in accumulates in fish and causes brain damage to children and to fetuses.	WR4C,WR5A,FM1,FM3,C

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Comment ID	Comment Text	Theme Codes
3558	I find it unbelievable that the DNR and the Corp of Engineers, have the sole power to determine if northeastern Minnesota will exchange its present sustainable tourism industry (a billion dollar industry—www.exploreminnesota.com) for a "nonsustainable" sulfide mine (and possible sulfide mining district) that will destroy our natural resources and forever more alter the incredible beauty of the lakes region of northeastern Minnesota for the sake of PolyMet's 400 short term jobs, and additional spin off jobs for a lifespan of just 20 years. The tourism industry of Minnesota contributes substancially to the tax base-… "Unlike US Steel which paid precious little in property taxes on its 3,000 acres…" Timberjay Newspaper, January, 21, 2010.	G1

Sender Last Name: Koschaka **Submission ID:** 2196

342	One thing also that bothers me too that hasn't been talked much about is the air pollution problems with the mining project that is proposed or the ash disposal issue that will occur in Minnesota from the immense amount of electricity that will be needed to operate these proposed sulfide mines. Where will the electricity come from? If the plant includes a new power plant, Minnesota cannot right now meet our air emissions standards. One quarter of the haze presently sitting over Northern Minnesota, including the Boundary Waters and Voyagers National Park, is produced by sources within the State, five power plants and six taconite mining and processing plants, and that comes from the Minneapolis Star and Tribune, December 1, 2009.	AQ4B
999	Irrevocable damage to our environment, sustainable natural resource of water, air, wildlife and wetland greatly, greatly concerns me. PolyMet and their mining efforts always wave the job flag, but as proven by our neighbor to the east, Wisconsin, when it came time to employ people for the Flambeau mining project, people from other places, not Wisconsin, got the high paying jobs; and the low paying jobs, the first to be let go were the people from Wisconsin. Short-term jobs at best 20 years I don't think that is a reason to pollute our natural resources. 400 jobs at best for maybe 20 years, again, I don't think that is a reason to pollute our natural resources. I do have grave, grave concerns about the AMD, the acid mine drainage. The deposits here that we are looking out for the sulfide mines, 99 percent of it will be overburdened, will rot, which will be producing sulfide and the sulfuric acid, and only 1 percent of the ore body has the precious minerals. So it's really not a very high producing property, if you will, that they are talking about.	SE3,SE6,SE7
1811	I do not support PolyMet's efforts. I am totally concerned about protecting clean water. I am very skeptical that since the, how can I say it, the testing site thus far for this mine has been in a lab, if you will. There has been no proven, for-sure sulfide mine that has operated anywhere in the whole world that can do so without polluting the environment.	G7
2005	Also I have grave concerns that once again like most of the mining companies exploring in Minnesota these are Canadian companies. So once they take our precious minerals and tout jobs, make their money for all their investors, they will be gone and leaving us with the big mess to clean up.	PD3,G1
2602	MS. KOSCHAKA: I guess I will just wrap it up right now that I am extremely concerned about the DEIS, the contaminated wastewater discharge from waste rock piles that will be polluting for up 2,000 years, DEIS Table 4.1-45, and the fact about 40 years after the mine is closed the West Pit will overflow and begin discharging polluted water into the Partridge River, drained by the St. Louis River, and ultimately to Lake Superior. And then, of course, the fact that the groundwater at the mine site will be contaminated with heavy metals. I have grave concerns about the tailing basins where the grinding and slurry are going to end up that it's not going to hold. It would be similar to Taconite Harbor when the tailing spewed across Highway 61 when that broke. So, again, I really have grave concerns about this. I strongly oppose sulfide mining in Minnesota until it can be proven to be safe. (At this time the five minutes were up, but	G7

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Comment ID	Comment Text	Theme Codes
2603	MS. KOSCHAKA: I read a really excellent book called The Buzzards Have Landed by Laura Furtman and Roscoe Churchill about the Flambeau Mine in Wisconsin. It talks about how mining companies make inroads into a community, and I have seen this happen in our area. One of the first ones is getting to know those people presumed to be the decision-makers in the community. Mining officials will lure local leaders to become their friends and join the right churches and local clubs. Number 1, learn everything about the political arena affecting the area in which the mine is to be built. All levels of government will be infiltrated, including the Township, the County, the City, and the State, none are ignored. Number 3, claiming its mine will bring jobs and prosperity to the area even though such claims have not been proven to be true in other mining towns. Four, declaring that its project will be its lawyers to sit down at the table with local people and town officials to discuss and clear up any problems or misunderstandings about the mine. This is the company's way of convincing the doubters in the community of how safe the mine will be and how good it will be for the local economy. The officials will be only too happy to explain everything to the local bumpkins. One of the most important ones, sitting in on the drafting of any new rules or laws that will govern the mining project and spending lots of money on lobbying to weaken mining regulations and other environmental laws. I have grave concerns related to all of those and more. I guess the last thing that I want to say is that my sincere hope is that really true proper evaluation is given to the DEIS. I have read it. I have seen many things that are flags to me just as a layperson. We need as citizens of Minnesota to really take a good, hard look at this and learn from the mistakes that have been made across the country by elected officials in other states that allowed sulfide mining companies, usually from other countries, the opportunity to destroy its natural resources with the promise of jobs. You know, there are many other types of jobs such as manufacturing that wouldn't create the environmental pollution that is for certain going to happen with a sulfide mining project like is being proposed. In reality those jobs filter out when the mines are exploited, the companies make a ton of money for their respective companies, and their investors are leaving behind an environmental disasters for our State to attempt to clean up in perpetuity. This would be Minnesota's legacy. I pray not. I am wondering have the Northern Minnesota legislative people, including Al Franken and Amy Klobuchar, convinced themselves that our waters will be fine just because they want jobs at any cost. The facts are clear, sulfide mining cannot be accomplished without polluting our water. We may be Minnesota nice, but we, and I for one, am not Minnesota stupid. Thank you kindly.	G2
Sender Last Name:	Koshiol	**Submission ID:** 1229
1365	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources. It didn't work in Wisconsin, and it won't work here.	G2A
Sender Last Name:	Koskins	**Submission ID:** 1184
1299	I and my family are deeply concerned about how our XX XXX will respond to this issue of sulfide mining. It is not worth the short term fain that will be enjoyed by a few corporations and not enough citizens of the area. The water in Minnesota is a key resource that allows its residents to enjoy a high quality of life. Please strongly consider these impacts that effect the natural resources and people of this state. These issues will effect our children and our childrens children. I and my family oppose this kind of mining. Thank You.	G7B
Sender Last Name:	Kowaliw	**Submission ID:** 2683
3165	Please preserve and maintain the wilderness for current and future generations.	EOO
Sender Last Name:	Kramer	**Submission ID:** 173

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Comment ID	Comment Text	Theme Codes
164	My profession occasionally takes me to northern Minnesota, a place of beauty. I also vacation in the area and will be retiring there. I would be the last person who would support any development that would harm the environment. This projects first priority is protection of the environment. I understand the importance of balancing the need for the use of resources and preserving the quality of our air and water. I have been following the development of PolyMet Mining's NorthMet Project. I have read portions of the EIS and have had numerous discussions with those involved in the development. I support this project because I believe that the precautions that this company has taken will prevent any environmental concerns. Not only is the economic impact to the area huge, this project will also increase the supply of needed metals and will decrease our reliance on foreign supply. There will be a substantial increase in tax revenue for the local area, schools and state. Minnesota can become a leader in the production of these metals, several of which are not mined anywhere in the US. I encourage you to support the EIS statement and recommend to the state that PolyMet be given the permit to proceed with this project.	EOO
Sender Last Name:	Krause **Submission ID:** 1145	
1256	We have seen results of copper mining in Canada	EOO
3854	See attached a petition signed by 111 people opposed to copper / sulfide mining in N.E. Minnesota. We would like this public input to be considered as you ponder permitting the Polymet / Northmet mine. This petition was sponsored by the Duluth Area Green Party. I would also personally urge you to consider your agencies' stated responsibilities to ensure environmental integrity while you manage our natural resources . I really don't think that an expanding copper / sulfide mining industry is in line with your environmental protection duties.	EOO
Sender Last Name:	Kreis **Submission ID:** 1995	
2481	Please follow what Wisconsin has done and ban this type of mining until it can be proven safe. I enjoy canoeing and cross country skiing in this area and would hate to see it damaged as stated below.	G14
Sender Last Name:	Krumme **Submission ID:** 149	
12	The other thing that I think we should have is at the -- at these meetings, they issue public comments rather than written, in written form. I think we should be able to hear each other, pros and cons and have -- have a public debate. I think the time needs to be extended for the public comments, and I think it needs to reach a much wider range of audience in Minnesota.	PRO6
24	5) Require the PolyMet Company to show that their waste rock and tailings piles won't collapse and dump uncontrolled pollution into nearby waters and that they will not create water pollution that lasts for thousands of years.	GT2
29	1) Analyze the land that is going to be exchanged for Superior National Forest land to make this project possible. Make sure that the land swap would protect wetlands, tribal rights and taxpayers' interests.	PD1
34	3) Analyze all of the impacts (air and water) on increased mercury in fish from the PolyMet project and other nearby pollution sources. Mercury in fish causes brain damage to children and to the fetus.	WR4B,FM1,AQ6A
35	4) Get better information on the nature of wetlands, endangered species, wild rice stands and other resources that would be affected by the project.	WR1E,WI5,WE1

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Comment ID	Comment Text	Theme Codes
140	Hello. I am a landowner on Birch Lake from Ely, in Ely, Minnesota, and was born and raised in Ely, Minnesota, so I am very much aware of the BWAC, and the controversy that surrounded that. And also, I am a proponent of our waters in the Boundary Waters Canoe Area. I'm very fearful that if this project goes through, it's going to be a precedent setting for the rest of the other mines that might follow. That being said, in general, any nonferrous mine in that -- in the region proposes a lot of hazards that I don't think are fully -- have fully been addressed by the environmental impact statement. We -- I -- I really am -- have problems thinking about this containment of the waste rock. I don't believe that -- I just don't know how that would work. The -- the sulfur acid, I believe, will still be able to be leached out of that containment system that they're proposing. The other thing that I think that we should bring up into the DNR and the Army Corps of Engineers is the situation in Wisconsin, whereby they have proposed -- no, they have a moratorium on mining until it's proven that it is a safe and effective way to -- until it's proven that they have a safe and effective way to mine. And I really think that Minnesota, Minnesota's legislature should consider the problems that they've had there.	EOO,G7A,G12
293	I am writing to you as a citizen of Minnesota concerned about the PolyMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forest. Sulfide mining would be new to Minnesota. In other locations, sulfide mining has resulted in acid mine drainage causing extensive and expensive damage to water quality and the environment. Often, taxpayers have been stuck with the costs. The PolyMet project in Minnesota could degrade water quality, increase mercury in fish, destroy wetlands and peat bogs, fragment the habitat of endangered species, interfere with tribal rights guaranteed by Treaty and with tribal resources, like wild rice, increase air pollution that results in regional haze and create a risk of perpetual pollution with no financial assurance that the public won't end up paying the costs. The Indian tribes working on the EIS and the United States Environmental Protection Agency have provided helpful information on the inadequacy of the PolyMet draft EIS. Before this sulfide mining project is even considered for permits, please fill these gaps:	G2B,G2C,G3,G4,G8
Sender Last Name:	Kubinek **Submission ID:** 1972	
2476	To allow this permit process to go forward would be a huge mistake and losing proposition for all of the taxpayers and residents of the state of Minnesota. As it will only open the floodgates to more permit applications such as this From other Carpet Bagging Mining Companies. This is such a process that, really isn't even known if it is safe and far more importantly, what the future impact can or might be to the region's groundwater. By far and above, Minnesota's most valuable resource is it's Watershed. So valuable, That no one should ever even attempt to ever put a Dollar amount on it. Why then, would anyone ever consider to gamble any of it's future? By allowing this permit process to go forward, that is the only thing that will ever happen. As these mining companies don't care about the enviroment, they only care about their profits, at ANY Cost!	G7
Sender Last Name:	Kuehl **Submission ID:** 1515	
1831	As an out-of-stater and regular visitor to Minnesota, I might be considered a tourist. However, I live in northern Wisconsin where the environment is extremely similar to that of the proposed mining project. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources.	G7B,G11
Sender Last Name:	Kueper **Submission ID:** 2465	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2972	As a Graduate student of Conservation Biology at the University of Minnesota, I wanted to take a moment to express my deep concern over the possibility of the PolyMet Mining Corporation implementing their proposed sulfide mining project in Northeastern Minnesota. In terms of impact on water quality, I understand that the water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. This is a completely unacceptable timeframe. Additionally, it is my understanding that heavy metal contaminants from the mining operation would end up in surrounding rivers and streams, and ultimately Lake Superior. Such pollution, among its many impacts on the aquatic ecosystem and the human populations that depend on them, will lead to contamination of the fish populations that Minnesotans have long enjoyed. Minnesota – a state literally named for its water – already suffers greatly from water contamination issues, especially concerning heavy metals. The State should be condoning action that will result in undoing this natural resource problem – not intensifying it. The water quality impacts alone should provide the State with ample reason to prevent this operation, as proposed, from occurring. However, the reach of the consequences will extend even further, including a total loss of 1,454 acres of federally designated critical habitat for two endangered species known to be in the vicinity of the mine site – the Canada lynx and the gray wolf – as well as potentially dire ramifications to nature-based tourism industries in and around proposed mining regions. To allow such an operation to occur would be acting with a complete and utter lack of foresight, not to mention undue selfishness. In addition to the health andeconomic impacts for current residents and visitors to the area, the short-term gain acquired in this case would result in a long term burden left to millennia of future generations of Minnesotans. As the Native American proverb goes, “We do not inherit the Earth from our Ancestors, we borrow it from our Children.” Let us not leave them with nothing to borrow from their own. Minnesotans are fortunate to live in a state that is rich in a diverse array of both natural and social resources. To fall victim to the tunnel vision of the mining industry by focusing on such a narrow component of this resource base is to risk jeopardizing all of the others. As a recent popular film stated, “The wealth of this world is not in the ground, but all around us.” I ask you to please consider this and the above thoughts when you consider the proposed mining project’s Draft Environmental Impact Statement.	G2C,G7A,G11
Sender Last Name:	Kuhn	**Submission ID:** 3180
722	Request a time extension of 30 to 45 days for review of the EIS to ensure an adequate response can be developed. Request more public meetings in more places to gather input. The current schedule is too limited.. Request that the public meetings include the option for citizen statements and discussion in the open meeting.	PRO6
Sender Last Name:	Kunz	**Submission ID:** 1936
2470	Any risk to our natural resources should be weighed extremely carefully - while this project may provide jobs, this is not a project that will be sustained much past 20 years. Are all the risks listed below worth 20 years' of questionable employment?	G6
Sender Last Name:	Lackner	**Submission ID:** 2354
2835	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources. While not a citizen of Minnesota, I do come to the Duluth area and Boundary Waters annually for vacation, and this project clearly represents a threat to the wilderness that I value so highly. I and many others will not come to visit a despoiled vista of open pit mines and tailings ponds.	G2C,G11
Sender Last Name:	Ladewig	**Submission ID:** 2868
969	The draft EIS did not allow for how the habitat of the Canadian lynx will be protected. They ha-ve a right to be there and cannot just "move next door". Before this mining operates, this needs to be taken care of in an effective manner.	WI1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2742	I no longer live in Minnesta, but recreate there regularly. It appears the water movement through and over bedrock is unknown and may move toward the Boundary Waters watershed. Testing should be done before any mineral extraction is performed. The BWCAW is a unique place on earth, and needs to be preserved. It also draws thousands of visitors anually that have a huge impact on the northeastern Minnestoa economy. I know people who still drink unfiltered lake water there, and i would hate to think they may drink in metals in solution due to mining miles away.	WR2A
3177	I understand there is no financial structure or requirement for funding of mitigation after the mine closes. There needs to be, as any damage done to waters, soils, and habitats should be returned to their original condition. And, should their be leaks or evidence of damage to flora and fauna post closure, funds need to be set aside for damage to correct it. Unintended consequences can easily occur. Here in Green Bay, it has taken 20 years to determine who should pay for the PCB removal and capping in our local Fox River. (Our water source is not the river, happily)	PD3,PD4
3178	I am concerned that the permitting for this mine will be an open door for others who will apply later. There will be material in suspension in the air, dust, that I would not want to breathe. More mines equal more air pollution, pollution that has no place in the BWCAW's magnificent clarity.	G9
3179	A mine needs monitoring of its waste material for water pollution run off, and proper storage and disposal of tailings. This needs to be a requirement of permitting.	PD2

Sender Last Name: Laine **Submission ID:** 3586

3855	I am writing to express my full support for the pending PolyMet project in Aurora. As a construction electrician, I have a special interest in this project due to future job opportunities it will bring. PolyMet will significantly contribute to the state and local economies at a time when we are in need the jobs and economic benefit, especially in the Iron Range area. Given the large number of jobs this project will create (estimated to be 400), I believe that this project will provide local workers an opportunity to secure living-wage jobs at a time when this is needed most. Not only will this project directly impact the workers and their families, but the millions of dollars that PolyMet will provide in local and state taxes will support our communities and schools. PolyMet has demonstrated that it can produce critical metals while following Minnesota's strict environmental regulations that protect our air, water and land. This issue is critical to many of us who enjoy the pristine wilderness in Northeastern Minnesota, especially the Boundary Waters Canoe Area. Based on documentation produced by PolyMet representatives, I believe that impacts to the air and water will be minimal. As you are well aware, this project has been designed to minimize environmental impact; several examples include the reuse of a brown field site, the reuse of existing infrastructure and the minimization of the disturbance of wetlands. I appreciate any support your office may offer to this project. Thank you for your time.	EOO

Sender Last Name: Lakso **Submission ID:** 3211

1304	In regards to the structual stability of the tailings basin at the old LTV Mining site. I was an employee at this mine from 1981 to 2000. The company hired and engineering outfit several years before they closed down to determine the stability of the basin. They used drilling and other means to determine the stability. The report the company received said it would be structually sound and stable for at least 40 years or more. I personally talked to one of the lead employees from the engineering firm and he told me that as far as he was concerned it would be stable for another 100 years. I'm sure you could contact someone from the old LTV plant to verify this and he/she may be able to even produce the report they received from the engineering firm.	GT2

Sender Last Name: Landa **Submission ID:** 365

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
405	I support the Polymet Mining proposal. The jobs that will be created are sorely needed for a region that has been seriously depressed economically for years. The tax revenue that will be created for the region and State of Minnesota as a whole will be very beneficial. The size of the metal deposits in the Duluth Complex will generate a significant source of revenue for the State of Minnesota for many years to come. In addition, Polymet has demonstrated that they will be able to mine without significant detriment to the environment, and they have set aside sufficient funding to address any environmental issues that may arise. With this improved mining technology, Minnesota can lead the way in showing the world how to mine with minimal environmental damage.	EOO
1144	I support Polymet Mining for numerous reasons and feel the DNR should find the DEIS document adequate so that Polymet can begin mining operations as soon as possible. First of all, Polymet offers our state self respe9l. pride, honor and happiness, all,these human qualities are key to building a h"ealthy community. Also, Good paying jops which will last for multiple generations are what we need in Minnesota. I have read the Draft EIS statement and I believe Polymet in coordination with the DNR and supporting agencies have put together a document so complete and detailed that I highly doubt there is anything like it in the country to date. I believe environmental protections are in p!ace to ensure the minimum amount of seepage of sulfates into the ground water, lakes, rivers and wetlands. The cost vs benefit are such that it imperative we expand this industry to 'include Non Ferreous minerals, it is this State's duty to initiate and assist the creation of future business growth in the' mining sector that helps to protect the world's environ'ment from further degradation by all the bad actors'who practice careless and irresponsible mining ethics. These unethical practices continue to increase the global carbon footprint and present the world with a moral hazard that we (Minnesotans) as good stewards of the environment worldwide can not, and should not ignore. Further more, the state of Minnesota has discovered by way of business cycles, that it is now clear our mining sector needs additional diversification to include these strategic metals which are increasingly ir:nportantto our national security. Moreover, when it comes to ethical practices I believe that the executive and managerial team that Polymet has ass'mbled is a world class team beyond a doubt. I have reviewed their backgrounds and expertise levels respective to their roles and found them all extremely qualified and motivated to do the job of mining these metal safely and responsibly according to state regulations. I also believ when the time does come for closure, that Polymet has and will have.in place financial assurances that aresufficient to cover all aspects of mine closure so as not to cause any public financial burden.	EOO,G4

Sender Last Name: Langford **Submission ID:** 2317

2768	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Our family enjoys this area of Minnesota quite a bit in the summer. It is tranquil and provides our children with the ability to learn life skills, while enjoying, and learning how to respect nature. We are so lucky to have this gem of nature so close to us. Please take the time to make sure there is no impact to the BWCA from this mining project BEFORE hand. We have seen too many projects like this proposed, and the outcome has had a much greater impact on the environment than promised. This BWCA area is an asset to Minnesota and, and is worth protecting in every way possible.	G6

Sender Last Name: Langguth **Submission ID:** 3559

3822	To whom, I support PolyMetMining's NorthMet Project. I feel it would be a great benefit to our area financially and would protect our envronment. I hope you will move this project forward. Tim Langguth DDS 324 W Superior St, Duluth, MN 55802	EOO

Sender Last Name: Langr **Submission ID:** 3210

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3589	have not equated to environmentally responsible mining, or to clean-up afterwards. It is therefore imperative that the DNR require very large surety bonds from Polymet, to be paid before mining and from profits during each year of mining, so that foreseen and unforeseen environmental problems due to the mine may be cleaned up. These funds must remain in escrow, in safe investments, for decades or longer, so that when some containment measure fails (as is common), the funding to start the cleanup is quickly available and will not fall on taxpayers. Also, these funds can be used for the very long-term monitoring of the mine waste that will be necessary. After decades have passed, if these funds have not been used, they may begin to be repaid to Polymet.	PD4

Sender Last Name: Larkin **Submission ID:** 2106

2495	I am writing to voice my objection to the proposed hard rock mining in the Hoyt Lakes district of Minnesota by Polymet or any other, similar mining enterprise. My concern is, of course, environmental. The exposure of these rocks will cause leaching of sulphide into the nearby streams, affecting the water quality of those adjacent streams and rivers and, ultimately, Lake Superior. Sulphide pollution will also affect the wild rice grown in the region. Even more significant for fish and, therefore, humans is the leaching of mercury which has poisonous effect. The Izaak Walton League notes, in addition, the disruption of wildlife corridors across the Mesabi Iron Range due to the size and location of such mining. The need for jobs is, I understand, severe. Adding to the tax base is important. None the less, because of the importance of water, I urge you to look for solutions that are environmentally secure; this type of mining is not. As I'm sure you are aware, our natural resources are limited; water quality is the most important. Diminish water quality, and you diminish the amount (quantity) available for consumption, irrigation, recreation. Contaminated waters translate into poor health. Stewardship of our water is essential to life. It's my understanding the local American Indian tribes focus on actions that will benefit the seventh generation. If not for the environment, please act for the health of our children and work to deny this type of mining in Minnesota, land of sky-blue waters. Many thanks for your consideration.	G3B,G7A,G15
2717	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I believe the environmental impact of hard rock mining/sulfide mining proposed by Polymet and Franconia Minerals will be deleterious and severe. The exposure of the rocks and the fracturing of the rocks that will occur as a result of this type of mining inevitably signifies pollution. The history of similar mines points to this effect. There is no way of avoiding such pollution. Our Boundary Waters, a resource for humans as well as wildlife, need permanent protection from such assault. Once contaminated by the acidic result of this mining, the local rivers & streams, and ultimately Lake superior, will be contaminated; aquatic life will be much compromised if not terminated. That result will affect wildlife that ingests those waters. The environment is a resource and treasure every citizen, including those promoting this ravage of the land, should not only understand but also fight to protect. The devastation of our natural resources is approaching crisis levels; water quality is particularly important to the sustenance of life and health. Hard rock mining in the proposed areas IS NOT safe. I believe the Environment and the quality of our Minnesota waters are far more important than the proportionately small amount (compared to the quantity of rock removed) of mineral that can be extracted.	G2C,G7A

Sender Last Name: Larsen **Submission ID:** 3664

1	The Friends of the Cloquet Valley State Forest supports and hereby incorporates by reference all comments submitted by the Tribal cooperating agencies, as set forth in Appendix D to the Draft EIS, and also set forth within footnotes throughout Volume I of the Draft EIS, and the comments the League of Women Voters, and the comments and observations provided by on the chapter’s behalf Minnesota; Izaak Walton League, as prepared by Len Andersen; and those of the Friends of the Boundary Waters.	G15
2	1. The time period allotted for feedback has not been sufficient for us to respond fully. We will send additional comments as soon as we are able and again request an extension of time for public review.	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3	2. We believe the area impacted by the Polymet Northmet project is much larger than the area studied, that the project will negatively impact waters more than 100 miles away and for hundreds, perhaps thousands of years. We believe that even if plans were present to mitigate / render clean the waste anticipated to stream from the plant in perpetuity no calculations exist for anticipating such action.	WR1A,WR3B
4	3. Adding massive amounts of tailings waste to the existing problem of the existing leaking LTV tailings basin is only one example of how this project heaps insult upon injury – waters near the taconite dumps have been impacted by sulfide leaching from the pits with increased levels of sulfide as the waters are closer to the mines and pits.	G9
5	4. The company states the level of sulfate released from the tailings basin will exceed the secondary drinking water standard during the operational period and again at year 60. What about year 90? Year 200? It is a well known fact that drinking waters standards have not been updated to include all harmful substances, and are not appropriate measures to equate animal and plant habitat.	WR3A
6	5. Allowing companies that come to Minnesota to use our waters in ways that leave it harmed is unlawful and flies in the face of the economic realities extant in the world today – water is THE most precious resource.	G7
7	6. Wetlands in one watershed cannot be replaced by “creating wetlands” in another watershed. The watershed is impacted and changing another watershed does not fix the impact. The plants and animals impacted by destruction of one watershed are harmed or rendered extinct or kept from reviving regardless of what happens in another watershed or habitat. There is a proposal to divert waters seeping into the great wetlands surrounding the area of the Northmet Polymet existing dumps which would pull water seeping from the dumps and divert it to other waters – the Partridge River is one consideration. The idea that you can have an existing problem, add to it, take away an unquantified amount, dilute it and presume that this equates to no net gain is absurd on it’s face.	WE2,WE3
8	7. Human health impacts have not been quantified nor calculated in the EIS. In this video it is made clear that increased methylated Mercury will harm infants in utero. Each human being gets one chance to develop a healthy nervous system in the womb and the increased methylated mercury in our water will affect every living thing that comes into contact with it and by the process of bioaccumulation humans will be grievously impacted. In the EIS it is presumed that methylated mercury will increase but it is not quantified in the increased amounts coming from this project’s impact on humans. In addition the report states there will be increases	WR4B,FM1,AQ6
9	8. There is a prudent alternative to the Northmet Polymet strip mine project which may substantially reduce many of the concerns. This alternative has been rejected as not being economical without any investigation or study. It may be assumed that underground mining will be substantially less profitable however the statute says that economic considerations alone shall not justify pollution, impairment or destruction of the environment. A fair look at underground vs strip mining should be undertaken and should be coupled with the cost of underground mining remediation vs the cost of strip mining remediation and ensuing impacts. One mining company has announced it intends to mine underground. Underground mining is NOT out of the question.	ALT8
10	9. The northmet mine site surface rights are owned by the federal government and the mineral rights are subject to covenants agreed to by the holder of the mineral rights when the surface rights were sold to the federal government. The covenants are designed to protect the wetlands and were required by the Weeks Act www.foresthistory.org/Publications/*weeks*%20*act*.pdf as a condition of the sale of the surface lands to the federal government. The Weeks Act is a long standing law which is intended to protect wetlands and the environment. Both the DNR and the USFS have acknowledged that the Northmet mine site wetlands are worthy of protection are worthy of protection. The EIS is inadequate in that it merely assumes that the only type of mining possible is strip mining and this is based solely upon assumed economic considerations, the EIS does not adequately	WE7

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
11	10. The EIS is incomplete in that it does not address the remedial costs after closure and establish estimated costs including treatment of water for perhaps hundreds or thousands of years. It has to be a type of cash deposit or bond that is realistic for such estimation. Treatment in perpetuity is on its face incalculable. Even with a finite time of 100 years there must be specific planning in place to establish and maintain adequate water treatment. One can only surmise the reason Polymet says one must wait for the actual design is to get the permit, get the money, and leave a situation where the waste of resources invested and the socio economic impact is such that the political element will dominate and decree continuation and exceptions to the permit and law. In the common vernacular “too big to fail”.	ALT8,G9
744	The weather is so bad today, Weds Dec 9th that I do not want to be out on the roads tonight driving back home from Aurora. Is it possible you will reschedule the meeting?	PRO6
764	The Friends of the Cloquet Valley also submits the following comments and concerns: 1. The time period allotted for feedback has not been sufficient for us to respond fully. We will send additional comments as soon as we are able and again request an extension of time for public review. 2.We believe the area impacted by the Polymet Northmet project is much larger than the area studied, that the project will negatively impact waters more than 100 miles away and for hundreds, perhaps thousands of years. We believe that even if plans were present to mitigate / render clean the waste anticipated to stream from the plant in perpetuity no calculations exist for anticipating such action. 3.Adding massive amounts of tailings waste to the existing problem of the existing leaking LTV tailings basin is only one example of how this project heaps insult upon injury – waters near the taconite dumps have been impacted by sulfide leaching from the pits with increased levels of sulfide as the waters are closer to the mines and pits. 4.The company states the level of sulfate released from the tailings basin will exceed the secondary drinking water standard during the operational period and again at year 60. What about year 90? Year 200? It is a well known fact that drinking waters standards have not been updated to include all harmful substances, and are not appropriate measures to equate animal and plant habitat. 5.Allowing companies that come to Minnesota to use our waters in ways that leave it harmed is unlawful and flies in the face of the economic realities extant in the world today – water is THE most precious resource. 6.Wetlands in one watershed cannot be replaced by “creating wetlands” in another watershed. The watershed is impacted and changing another watershed does not fix the impact. The plants and animals impacted by destruction of one watershed are harmed or rendered extinct or kept from reviving regardless of what happens in another watershed or habitat. There is a proposal to divert waters seeping into the great wetlands surrounding the area of the Northmet Polymet existing dumps which would pull water seeping from the dumps and divert it to other waters – the Partridge River is one consideration. The idea that you can have an existing problem, add to it, take away an unquantified amount, dilute it and presume that this equates to no net gain is absurd on it’s face. 7.Human health impacts have not been quantified nor calculated in the EIS. In this video it is made clear that increased methylated Mercury will harm infants in utero. Each human being gets one chance to develop a healthy nervous system in the womb and the increased methylated mercury in our water will affect every living thing that comes into contact with it and by the process of bioaccumulation humans will be grievously impacted. In the EIS it is presumed that methylated mercury will increase but it is not quantified in the increased amounts coming from this project’s impact on humans. In addition the report	WR3B,WR3I,WR4B,WE2,
2592	STEVEN LARSEN: My name is Steven Larsen. I live in Esko, Minnesota, and I'm an electrician. I've been an electrician for 30 some years. And at this time, with the possibilities of jobs being created by this project, as well as for construction people and with the -- for people to work at the plant as it comes online, it would be great for northern Minnesota, as well as the whole state, both as an increase in tax base and also for the economy for the immediate area as well as other areas. The economy has kind of been shaken up with all the problems around the world, but I believe at this time Minnesota has a lot of opportunities to continue its tradition of creating jobs and being creative at the same time. And I'm running out of words. At this time, in Minnesota, there is a high unemployment rate among all the construction people. There has been work that has been done on the range recently that have employed construction people from both the immediate area as well as the greater parts of Minnesota and the metro area Blaine Steno Atkinson-Baker pt E because work has frankly been really curtailed because of the way of the economy and has helped a lot of people keep their homes and pay their bills and keep the way of life here in Minnesota, which has been a great tradition. And I ran out again.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2633	My name is Steven Larsen, and I live in Esko, Minnesota. I've been an electrician for 30-some years, and I believe this project is going to be good for northern Minnesota and as well as work for construction people but also for the communities that are around it and good for Minnesota and increase tax funds to help the tax base, which they're finding that we have a dwindling one at this time with so many people unemployed. And I think the more jobs we create in northern Minnesota, the better it is for the whole state and for the communities that have been losing their children to move elsewhere to find work and -- when there has been none, and it's quite a few years since they closed the original LTV site where PolyMet will be at. And I've run out of words.	EOO
3730	Feb 3, 2009 The Friends of the Cloquet Valley State Forest supports and hereby incorporates by reference all comments submitted by the Tribal cooperating agencies, as set forth in Appendix D to the Draft EIS, and also set forth within footnotes throughout Volume I of the Draft EIS, and the comments the League of Women Voters, and the comments and observations provided by on the chapter's behalf Minnesota; Izaak Walton League, as prepared by Len Andersen; and those of the Friends of the Boundary Waters.	G15
Sender Last Name:	Larson **Submission ID:** 1088	
1192	[have been to most seminars put on by PolyMet Mining. I believe PolyMet has viable products produced safely for the environment. We need to get this project moving for our economic well being! Please support this project and move: it forward.	EOO
3176	This project cannot be started unless there is an absolute guarantee that toxins will not be released into our environment.	EOO
3470	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. I fell in love with the Boundary Waters Canoe Area years ago when I experienced it for the first time at the age of 6. My parents took me and my 4 year old brother because they had a strong desire for me to experience the same wonder they had when they camped there. I have been there many times since and still cannot get over the awe I feel for such a beautiful place. It is truly a unique treasure! I have never been to a place that is anything like it. As a Minnesota resident and college student in Minneapolis, I feel I have a duty to speak out against the possibility of mining away the northern area of my home state and polluting our sensitive air and waters. I love living in Minnesota because I believe it has a commitment to sustainability and strives to protect the environment of our citizens and natural world. Historical evidence shows that sulfide mining has a tremendous negative impact on the surrounding areas, including the land, water habitats, and air quality. I thank you for offering to use to best technology available to protect the environment with regard to this mining project, however, I do not believe that it will be enough to protect the land, water, and air around the area. I will not stay silent as proposals are put forward to pollute my home, and undoubtedly corrupt the level of purity of the BWCA, with noise, evidence of human impact, and toxins. I ask you to cease all project proposals and activity for sulfide mining in northern Minnesota. I am not in support of the proposals for mining near the Boundary Waters Canoe Area in northern Minnesota because it is heavily invasive effort near an irreplaceable area of protected land. I will continue to respectfully speak out against such a mining project in every way I can. As a college student majoring in environmental science, I am also asking my fellow students and professors to rally around this issue and speak out against this mining. Please do not take away my dream of taking my children and grandchildren to the BWCA to experience the incredible clean air, land, and water it has to offer. I want them to be able to drink from a lake and eat freshly caught fish. I want them to see what the environment can be like when we respect it and choose to make decisions that promote sustainability. I do not exaggerate when I say I believe the pollution of this area in any way is an utter tragedy. The PolyMet DEIS describes serious environmental issues associated with this proposed mine. These issues should be addressed and resolved before this mine is approved by the U.S. Army Corps of Engineers and the Minnesota Department of Natural Resources.	EOO,G2,G7

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3570	I think the Northmet project would be a good project for northern Minnesota. I think they have looked at operating this project with the environment as there first priority. It would also give some needed work to the iron range in these times. Thanks for being able to comment on this project.	EOO
Sender Last Name:	Lasky **Submission ID:** 3454	
3734	After reviewing the extensive work done by PolyMet, MDNR and the Federal Corps of Engineers and associated regulatory agencies, I commend the agencies and the company for this very thorough assessmet of the potential impacts of the proposed project. The determinations and mitigation alternatives highlighted seemed reasonable and appropriate given this propossed new non-ferrous mining activity. I stongly support the approval of this draft EIS and the ongoing permitting of the project. It represents a sound economic development venture for Minnesota, has addressed potential environmental impacts with appropriate mitigation measures and alternatives given its location in the eastern Iron Range. These are stratgic minerals important to the country and our homeland security and also needs to be taken into consideration as we look to balance environemntal protection needs, economic development and jobs and the basic strategic needs of our country and the state. Thank you for the opportuntiy to provide these brief comments and support.	EOO
Sender Last Name:	Latimer **Submission ID:** 2584	
3140	•Sulfide mining proposals threaten our clean waters and tax dollars • Please support legislation that provides needed safeguards for this kind of mining • Pollution almost always occurs with sulfide mining, despite industry predictions that it won't • Future generations of Minnesotans deserve to inherit clean waters and a healthy environment. • I am a concerned lakeshore property owner in northern Minnesota	G5,G7
Sender Last Name:	Lauth **Submission ID:** 2529	
3096	I am anxious to submit a comment regarding the PolyMet Corp. NorthMet mining project Draft Environmental Impact Statement. I am concerned about the consequences this project will have on Minnesota's economy and precious natural resources. I am certain you have received a number of responses outlining concerns about 1) safety, 2) impacts on water quality, including water leaching from waste rock piles, 3) long-term responsibility for clean-up, 4) subsequent tax burdens, 5) high sulfate (and therefore mercury) levels, 6) stability of tailings basins, 7) long-lasting contamination. I share these concerns, and I urge the DNR and the U.S. Army Corps of Engineers to more carefully examine the DEIS, working with PolyMet to complete stability analyses and create a realistic long-term plan for containing pollutants and striving for minimal impact. I am encouraged by the relationships which have been set up in Wisconsin between the DNR and potential mining companies, because I value the care and thought put into permit grants. I would appreciate a similar prudence and critical eye from the Minnesota DNR. I understand the value of increased economic opportunity in northern Minnesota. I am a Minnesota resident and have spent significant time in the ecosystems under consideration for these PolyMet mines. I know the economy could use a boost. However, I know that the pristine nature of these ecosystems is a huge part of their appeal, both for tourism and for agriculture and for industry. For these reasons, I strongly urge the DNR to not only reconsider the PolyMet proposal but to implement a creative problem solving team to move towards sustainable innovation in northern Minnesota. The solution is not simply to abandon all mining prospects. I see the solution situated somewhere within a compromise, one that protects Minnesota's natural resources so they can continue to build an economy with vibrant tourism, fish and wildlife opportunities, and safe communities. I have grave concerns about the PolyMet proposal as it stands, and I fervently hope the DNR will reconsider before approval.	G4,G6,G7A,G11,G14
Sender Last Name:	Lazaryan **Submission ID:** 2224	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1813	And I started asking the people at the different tables very simple questions about what's going to happen and getting this explanation about the water and the water from -- that's going to be used in the old ponds from the old mine, and they're already leaky ponds and they're already causing a leakage problem, but they don't feel like that's a big deal and could not get a straight answer as to what's going to happen with the water and with the water quality. When you're using an old site that's already causing environmental problems, now you're going to add more problems to that, and it was suggested, so that it wouldn't leak out into -- and bubble up and create mercury, that the water would be recycled, and when you recycle and reuse water, it's going to be higher and higher concentrations. Well, at what point do you get rid of that very highly-concentrated water, and where does it go? Well, it was going to go down the Partridge River.Well, what happens? I said, "What happens?" Well, it goes down the Partridge River into the St. Louis River into Lake Superior. But my question had been, what's the impact of that? What happens to the environment when you're putting that kind of chemicals into the river?	WR1E,WR2D
2008	And, really, that's -- that's foundational law, and I think it is a high violation of our law when a company can be allowed to pollute and to not come up with solutions and not -- I could not get a question answered as to the amount of bond that this company is going to be required to post. I think it's very important that the worst-case-scenario-time-shell bomb of an environmental problem be analyzed and that this company be required to post a bond for that so if it does happen, that everything falls apart and their equipment fails or whatever happens, we, the people of the state of Minnesota, are not left with the mess to clean up.	PD3,PD4
2632	I guess, foundationally, I have a really serious problem with this project and with the -- I don't believe the Environmental Impact Statement is adequate; I don't think it's strong enough. I believe that every person has the right to their property; they have the right to their mineral rights on their property, but I also have the right to my body and that my water doesn't get polluted and that my neighbor's water doesn't get polluted. So that's my concern on this. I think that there should be no tolerance whatsoever and that they can do whatever they want with their property as long as it does not affect other people.	G2,G8

Sender Last Name: Lecocq **Submission ID:** 1452

1706	I was born and raised in MN, and have always been proud to come from such a beautiful state full of amazing wildlife. I now make my home in IL, but I still have family and many friends who live in MN and I frequently return to visit. The natural resources in MN are still very important to me, and for my daughter's and my future children's sakes, I hope that great care is taken in the decisions being made concerning the proposed mine. I want my children to be able to experience the beauty of MN that I knew growing up.	G11

Sender Last Name: Lee **Submission ID:** 1206

215	4) Get better information on existing pollution, the nature of wetlands, endangered species, wild rice stands and other resources that would be affected by the project.	WR1E,WI2,WE1
274	5) Require the PolyMet Company to show that its waste rock and tailings piles won't collapse and dump uncontrolled pollution into nearby waters and that they will not create water pollution that lasts for hundreds or thousands of years.	GT2
511	1) Analyze the land that is to be exchanged for Superior National Forest land to make this project possible. Include impacts of the land swap on wetlands, endangered species, hydrology, tribal rights, and taxpayers' interests.	PD1
512	2) As the U.S. EPA suggested, financial assurances for the public MUST be included in the EIS long before any permitting process gets underway.	PD4
547	3) Analyze ALL of the CUMULATIVE impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources. Mercury in accumulates in fish and causes brain damage to children and to fetuses.	WR5A,FM3,AQ4B,AQ6A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1321	I am writing to you as a citizen of Minnesota concerned about the PolyMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forest. Sulfide mining would be new to Minnesota. In other locations, sulfide mining has resulted in acid mine drainage causing extensive and expensive damage to water quality and the environment. Often, taxpayers have been stuck with the costs. The PolyMet project in Minnesota could degrade water quality, increase mercury in fish, destroy wetlands and peat bogs, fragment the habitat of endangered species, and interfere with tribal treaty rights and tribal resources, like wild rice. The project could also increase air pollution that results in regional haze and create a risk of perpetual pollution without adequate financial assurance that the public won't end up paying the costs. Both the Indian tribes and the United States Environmental Protection Agency have pointed out serious inadequacies in the PolyMet/NorthMet Draft environmental impact statement (EIS). Before Polymet can be considered for permits, the following gaps NEED to be filled:	G2B,G2C,G3A,G4A,G7A,G
3134	I am very concerned about how this mine will affect the quality of the BWCA. It is concerned that the study notes that 36 days of the year there will be a haze associated with this project. I hope we can think long term impact, long after the materials are taken.	G2
3575	The PolyMet Mining Corp's intentions to rape and slaughter the majestic north-minnesotan wilderness are fueled by greed and heartlessness. Giving your support to these corporate slanderers would be a direct assault against mother nature, and all which she has given to man as a race.	EOO,G2

Sender Last Name: Lehmann **Submission ID:** 2272

2687	We have reviewed the subject Draft EIS and find that it is thorough and competently prepared by the agencies concerned and by the consultants for the DNR and the Corps. We fully understand that an EIS needs to fairly present the project being proposed and the range of possible impacts, both positive and negative. We note that the lengthy EIS is supported by about 600 reference and reports. We believe that the draft, as prepared makes a fair and scientifically support assessment of the project and its impacts except perhaps not sufficiently as to the positive social and economic impacts of the proposed project. It is always important to keep in mind that an EIS is not a decision or permitting document. We view the footnotes which mainly set out issues apparently raised by some tribal representatives, as being based on weak science and faulty thinking. We support the project as being well conceived and using the latest technology for mining and processing of these geologically complex ores and for handling waste materials from the proposed operations. We also believe that the project will substantially benefit the region and the state by creating well paying, long term, direct jobs and many indirect jobs, as well as tax revenues for the state and the region. The project also will reduce, in an environmentally responsible manner, the nation's import dependence for the strategic and critical materials that will be the products of the mine.	EOO,G6

Sender Last Name: Lehnert **Submission ID:** 2033

2487	Wisconsin has banned this type of mining until it can be proven safe. Let's do the same here in Minnesota.	G14

Sender Last Name: Leitz **Submission ID:** 3665

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	The proposed project has numerous effects on groundwater levels and quality, which are summarized in Table 4.1-68 (page 4.1-129). This table and the accompanying summary make it clear that both at the proposed mine site and at the proposed project's tailings basin significant environmental degradation of groundwater resources is expected to occur. At the mine site, storage of chemically reactive waste rock is predicted to result in long-term exceedances of USEPA and MDH limits for antimony, manganese, and nickel. Further, long-term exceedances of groundwater evaluation criteria for sulfates are also predicted. The failure of the proposed project to meet these standards means that long-term, active treatment of residual seepage from the mine site would be required to reduce the impacts of these pollutants on the surrounding environment. The State of Minnesota has established the goal of closed mines being maintenance free, and this project fails to meet that goal. The perpetual treatment of mine site wastes that this project would require constitutes an unacceptable financial and environmental risk to the State of Minnesota. At the tailings basin, the DEIS establishes that greatly increased groundwater seepage rates will inundate wetlands and introduce high concentrations of sulfates to wetlands and water bodies in the area. These sulfates will acidify the area, causing the familiar and well-documented problems associated with acid mine drainage, including damage to aquatic life and increased methylization of	WR1A
2	pumping and drainage. The No Action Alternative for the tailings basin would not result in elevated concentrations of sulfates in groundwater, and thus avoids the serious long-term problems associated with acid mine drainage.	PD3
3	The proposed project has numerous effects on surface water levels and quality, which are summarized in Table 4.1-68 (page 4.1-129, 130). This table and the accompanying summary make it clear that both the proposed mine site and the proposed project's tailings basin will cause significant environmental degradation of surface waters in the watershed. Both the West Pit (upon mine closure) and the Tailings Basin (during mine operation and upon mine closure) are expected to pollute surrounding waters. The West Pit overflow is predicted to fail to meet water quality standards upon closure, thus impacting the Partridge River and downstream waters to Lake Superior. Release of sulfates and the resulting acid mine drainage are unacceptable long-term impacts of the proposed project's plan for the West Pit. At the Tailings Basin, increased groundwater seepage will result in upwelling that will affect surface waters, including the Embarrass River. Table 4.1 shows that sulfate concentrations at Embarrass River PM-13 are expected to increase from 33 mg/L to 53 mg/L, a jump of 60%. Increased sulfate levels will result in acid mine drainage, which will damage the watershed's biota. This environmental degradation is an unacceptable risk of the proposed project.	WR2C
4	Further, the DEIS shows that numerous groups have serious concerns about the geotechnical stability of the Tailings Basin (4.13-2). Failure of the Tailings Basin, either during mine operation or after closure, would result in catastrophic releases of sulfates and heavy metals into surrounding waters. The DEIS says that "further design and analysis would occur during permitting to ensure that construction meets acceptable design standards" (4.13-2). It is unconscionable to approve a project that has not yet determined that construction of the Tailings Basin can safely mitigate risk of basin failure. The scale of the environmental disaster that would result from such a failure makes it imperative that a full structural and design analysis of the Tailings Basin be part of the DEIS, to comply with NEPA and to allow the public to fully review, understand, and comment upon the environmental risks associated with the proposed project.	GT1
5	C. Methylmercury formation The releases of sulfates generated by the proposed project will significantly increase methylization of mercury in downstream waters. This methylmercury will bioaccumulate in aquatic life, further impairing a watershed that is already severely impacted by mercury. The proposed project will exacerbate mercury contamination by destroying peat wetlands (which sequester mercury), by releasing mercury from peat excavated from these wetlands, by causing atmospheric emissions of mercury, by releasing sulfate ions from the proposed mine site, and by releasing sulfate ions from the Tailings Basin. Many people consume fish from waters that will be affected by the proposed project, and most of these waters are already impaired by mercury. The St. Louis River is already too polluted by mercury for the State of Minnesota's mercury TMDL process to remedy, and thus is excluded from that process. The proposed project will severely impact the river all the way down to the St. Louis River Estuary, which supports world-class populations of walleye, muskellunge, and sturgeon. The DEIS fails to assess the proposed project's impacts on fisheries in the St. Louis River, fisheries that are of huge regional importance. These impacts will have social and economic as well as environmental consequences, none of which are analyzed in the DEIS.	WR4B,WE8,FM1,FM5,AQ4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
6	The proposed project would directly and indirectly affect 1,522.9 acres of wetlands, which are detailed in Table 4.2-3 (pp. 4.2-11 through 4.2-15). The PolyMet company's current proposal for mitigating the destruction of these wetlands includes on-site mitigation totaling 175 acres of wetland creation and off-site restoration of 1,123.2 acres. Further, 202 acres of off-site upland buffer zones would be preserved, leading to an assumed total of 1,287 wetland mitigation credits. This total "may not be sufficient to satisfy the compensatory mitigation requirements" for the total acreage of wetlands affected directly and indirectly (4.2-38). The enormous scale of the proposed destruction of wetlands places great importance on the quality and quantity of the wetlands to be restored or created. Leaving aside the fact that human-made wetlands cannot approach the quality of natural wetlands, at least on a human time scale, the fact that a significant portion of the wetlands mitigation plan is left undetermined by the DEIS violates the public's right to understand, review, and comment on specific details of the proposed project.	WE2,WE3,WE7
Sender Last Name:	Leningang **Submission ID:** 157	
148	I just want to say I think it would be good for the economy -- so -- because it's suppose to provide up to 400 jobs. And then I'm in construction so that part is good for us in our Local 647 because we're kind of slowing down because of the economy now. This would be a good project for us to be on. And that's it.	EOO
Sender Last Name:	Leoni **Submission ID:** 30	
28	I've been following PolyMet's progress for the last five years. I've been to a number of the DNR presentations. I understand exactly what the safeguards are, and it's totally different than any of the concerns that the environmentalists have regarding seepage or leakage of contaminated processes that they fear is going to go into the environment and/or into the Boundary Waters. This is a totally different mining system than any of the environmentalists are contesting. They're publicizing false information on what PolyMet is actually doing. They're basing it on phosphorus mining from different areas of our country and different areas of the world where sulfur and -- and minerals like this are mined. They haven't taken a true analysis of all of the environmental protections that PolyMet has done, and, therefore, the -- what they're projecting and what they're publicizing is incorrect. Now, on the positive sides of PolyMet, I truly believe that the economic position of not only Northern Minnesota but the state of Minnesota and the United States calls for a project like this. It will only benefit all of the workers in Northern Minnesota, the state of Minnesota, and the United States. It develops jobs, it is safe for the economy, and it also is necessary for the minerals that we will need in the future. We shouldn't rely on the minerals that are projected to be down in Brazil and also that are anticipated or they're trying to find in China. We have a resource here that is identified. It's going to be built on a preexisting mine that will never be reclamated. Nothing will be done with it. It will always be a abandoned mine. And it's -- it's only a win-win situation for the state of Minnesota and for the United States.	EOO
Sender Last Name:	Leplatt **Submission ID:** 141	
132	My name is Herb LePlatt and we have a cabin in Ely, Minnesota. I believe that the sulphide mining project that PolyMet is anticipating putting in will be a tremendous disaster for the entire area. It would eliminate not only the wilderness and the things that northern Minnesota is known for, but it would eliminate fresh water, fresh fish. It would take hundreds of years to clean up the mess and our grandchildren's children will be working with this same project when they're alive, trying to fix what we've allowed to happen, so I believe it's a real travesty to let this go through.	EOO,G2,G7
141	We have a cabin, which we hope to retire to, on Kawishiwi River in Ely, Minnesota, and we're very concerned for the water quality, for the forest, for the boundary waters, with the potential of sulfide mining. So I think that's the extent of it. We're just very concerned for the environment up there.	G2,G7

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
379	The loss of recreational jobs will offset any gains planned by mining. Plus there are no assurances that PolyMet will hire and maintain a Minnesota work force. They could bring in Canadians or Mexian miners that will work for less in the very near future. PLease don't allow this travisity to happen.	EOO,G1,G11

Sender Last Name: Leppala **Submission ID:** 5

5	My family is from up here, third generation working in the mines or working on them. I have a family of three and really need the work. I believe that the Iron Range was built on mines and mining natural resources, so I feel it's really important for the economy and families around this area in general.	EOO

Sender Last Name: Lermon **Submission ID:** 3217

3547	I don't believe the extraction industry when they say there will be no environmental effects from this mine. As a frequent vacationer in the northern Mn areas I see no evidence from the past mining operations that the future will be better. There are scores of abandoned pits and mines all over Minnesota, and there will always be ways for mine owners to skip out on their obligations to take care of the mines once they are played out. The material they intend to mine has only a 1% value of the materials they want, and 99% waste rock. The companies would do better to mine municipal landfills, the metals content there is estimated at 10% or more! Using hazardous materials to get a 1% yield while destroying clean water for the sake of jobs makes no sense.	EOO,G4A

Sender Last Name: Leschak **Submission ID:** 330

351	1. Peatlands Cannot Be Replaced in Any Practical Manner. To remove peat and stockpile it for restoration seems dubious at best. On page 4.2-38 we read: "Due to both on-site and offsite limitations and technical feasibility, it was not found practicable to replace all impacted wetland types with an equivalent area of in-kind wetlands." The PolyMet mining project would destroy (not damage) approximately 2000 acres of natural area that was identified as special habitat worthy of protection in ecological assessments done by the US Forest Service and the MNDNR a decade ago. About 1000 acres of this is peatland, and Governor Pawlenty's "Minnesota Climate Change Advisory Group" stated in 2008 that, "Protecting these enormous carbon resources (peatlands)...is critical." Furthermore, in a report (2008) requested by the Minnesota Legislature, the "Minnesota Terrestrial Carbon Sequestration Project" presented as its primary recommendation: "Preserve the existing large carbon stocks in peatlands and forests by identifying and protecting peatlands and forests vulnerable to conversion, fire, and other preventable threats." In an era when mitigating negative effects of climate change is a global priority, the PolyMet mine, due to the destruction of forest/peatland, would increase Minnesota's overall emission of greenhouse gas carbon dioxide by 2%. That alone is good reason to scrap this project.	G2A,G7C
352	2. History Tells the Tale. From the perspective of human health and environmental safety, there has never been an effective metallic sulfide mi ning operation on this continent - not a single one. PolyMet has not offered a significant modification to the customary sulfide mining process that would prevent what history demonstrates is inevitable poisoning of water resources longterm. The disasters at Butte, Montana and Sudbury, Ontario spring readily to mind. The astronomically expensive clean-up of the inevitable mess will fall to the taxpayer. It is likely that water escaping from the tailings basin will deliver excessive sulfates to the Embarrass River (and beyond), thus facilitating the conversion of natural mercury to the deadlier methyl mercury. All cap and liner systems leak. There is no reason to expect that typical acid mine drainage will not spread from the site, dissolving heavy metals such as copper and lead, and contaminating ground and surface waters. The "No Action Alternative" seems the most prudent course for this project.	G4A,G7A,G7B

Sender Last Name: Levin **Submission ID:** 335

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
42	I am writing on behalf of the Sierra Club and its members to request a minimum thirty (30) day extension of the public comment period for the draft Environmental Impact Statement ("DEIS") for PolyMet's proposed NorthMet open pit sulfide mine project, located within the Superior National	PRO6
43	Forest in Minnesota and to request that the U.S. Army Corps of Engineers and Minnesota Department of Natural Resources hold three (3) additional public hearings regarding this DEIS so that all members of the public who wish to participate are afforded an opportunity to do so.	PRO6
44	through 4:30 p.m. on Wednesday, February 3, 2010. Given the enormous size and technically complex nature of this DEIS, the Sierra Club respectfully submits that an extension of the comment period so that it is no less than 120 days will allow the public and other agency stakeholders the opportunity to make complete, accurate and meaningful comments on this DEIS.	PRO6
45	More time is needed for the public comment period to provide a sufficient opportunity for meaningful comments regarding the environmental impacts of this project for numerous reasons. First, the DEIS and its accompanying appendices are a staggering 1,800 pages, many of which discuss complex technical material. Given the technical nature of this material, Sierra Club and other public stakeholders wish to retain expert assistance to help analyze the DEIS. However, since the current comment period straddles a few major holidays (Thanksgiving, Christmas, and Hanukah), Sierra Club is having a difficult time finding experts with availability. In addition, this project is very controversial. It is the first large-scale cooper mine in Minnesota's history and it is proposed on a portion of the Superior National Forest.	PRO6
46	The Sierra Club, therefore, requests that the U.S. Army Corps of Engineers and Minnesota Department of Natural Resources extend the public comment period on the DEIS by 30 days. This reasonable and necessary extension would set the comment period to close on Monday, March 8, 2010.	PRO6
47	Sierra Club is not alone in its request to have a 120-day comment period. The U.S. EPA has also recognized that an expanded review period is needed to provide the public and agency stakeholders adequate time to review and comment on the DEIS. On August 25, 2009, the U.S. Environmental Protection Agency submitted comments on "red flag" issues concerning the proposed Northmet mine and urged the U.S. Army Corps of Engineers to adopt a 120-day comment period stating: The complexity and potential impacts of this project warrant a longer public review period than the 45-day minimum for a DEIS published in the Federal Register. Recent similar projects elsewhere in the country . . . have similar 120-day review periods . . . We observe that public interest in copper mines in the Upper Midwest is high. Decisions made for this project may be precedent-setting, as it is the first large-scale copper mine in Minnesota. We have consistently urged USACE to adopt a realistic comment period for this project over the past two years and will address this concern regarding the comment period with the USACE St. Paul District Colonel separately. Letter from Kenneth Westlake, Supervisor of NEPA Implementation, U.S. Environmental Protection Agency, to Tamara Cameron, Chief, St. Paul District Regulatory Branch U.S. Army Corps of Engineers (Aug. 25, 2009) (attached hereto).	PRO6
48	In addition to requesting an extension of the public comment period, Sierra Club also requests that the agencies schedule three (3) additional public meetings on the Fond du Lac Chippewa reservation and in the cities of Ely and Duluth.	PRO6
49	The residents of cities of Ely and Duluth and on the Fond du Lac Chippewa reservation have a considerable interest in this proposed project – the project may adversely affect the Fond du Lac Chippewa reservation and its residents; Ely, the entry point to the Boundary Waters Canoe Area Wilderness, is surrounded by metallic mineral exploration bordering the PolyMet site; and Duluth is the St. Louis County seat and is located at the mouth of the St. Louis River. By holding public meetings only in Aurora and Blaine, a vast majority of interested and concerned members of the public would not have the opportunity to participate in the public hearings. This is unfair for the public and does not further the policies behind public hearings.	PRO6
50	Therefore, Sierra Club requests that the agencies schedule three additional public meetings to accommodate all of those who wish to attend. Moreover, these hearings should have at least thirty (30) days notice and allow for the open exchange of information by permitting the public to pose questions to agency representatives.	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
355	The U.S. Army Corps of Engineers and Minnesota Department of Natural Resources will benefit from more public input, because your agencies will have a better understanding on a host of issues before issuance of the final environmental impact statement. The Sierra Club, along with other public and agency stakeholders, will address numerous important, highly complex technical issues in its comments, which call for additional expert input and a more thorough analysis than it can accomplish in the current limited comment period. Just a handful of these issues are listed below: o Water quality impacts, including impacts to surface waters, ground water, tailings basin seeps, and changes in hydrology are an immense issue for public and agency consideration, and these impacts are related directly to the proposed action, and alternatives and mitigation measures thereto. o Financial assurances and the implications that inadequate financial assurances would have on environmental impacts of the proposed project with regard to reclamation and closure. o Impacts to endangered species, such as the Canada Lynx and grey wolf, including but not limited to habitat loss, fragmentation, and degradation and impacts from disease and environmental contaminants. As you can see, a complete analysis of the enormous proposed sulfide mine and its accompanying environmental impacts will require extensive analysis, and the list above is in no way exhaustive.	G2C,G4A,G7,G10

Sender Last Name: Libbey **Submission ID:** 2568

2407	Why don't you require a lining on the old tailings basin?	PD5

Sender Last Name: Licari **Submission ID:** 280

294	I am writing to you to pledge my suppOJ1 for the PolyMet Mining Co. 's NorthMet Project. Having grown-up on the Iron Range in Biwabik, MN, I know first hand the impact the Mining Industry has had on NE Minnesota. I have seen the good times in the 1970's and the down times in the 1980's and 1990's. This project would add 400 full-time jobs as well as 500 spin-off jobs to our area! It would also add millions of dollars in state and local taxes that help support our communities and education system. But more than that, the PolyMet Mining Co.'s NorthMet Project, along with the Mesaba Nugget Project has brought renewed hope to the Eastern Iron Range. This renewed hope propelled the citizens of the Mesabi East School District to approve a multi million dollar expansion and up grade of their schools. PolyMet Mining Co.'s NorthMet Project would go a long way in re-energizing an area of Minnesota that has seen its share of downturn and hard times. As impressive as the employment numbers are, what is also very encouraging to all of us is the commitment from PolyMet Mining Co. to be a good citizen with respect to technology and environmental controls. I was even more impressed with how PolyMet Mining Co.'s NorthMet Project is going to reuse the mining infrastructure from the old LTV site. As an added bonus for our state, the NorthMet Project would be the first to mine and produce several metals not currently mined anywhere else in the United States. This is not surprising as Minnesota has always found a way to be a leader in many areas, including proper environmental stewardship. Being an employee of AmeriPride Services Inc., I know first hand the commitment needed to maintain a healthy environment. This is very important to all of us who live in NE Minnesota. I know and understand there is allot to consider with this project. The leadership at PolyMet Mining Co. is Minnesotans who know and understand the commitment needed to complete a project in a responsible and environmentally friendly way. I congratulate the DNR and MPCA for doing their due diligence in making sure this project is done right. But I am also a firm believer that if we work together, we can come to solutions that will benefit everyone. This project is very important to the entire state of Minnesota. Please see to it that it moves forward to completion. Thank you very much for your time and consideration.	EOO

Sender Last Name: Liebo **Submission ID:** 1205

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1320	As a concerned citizen, frequent user of BWCA and cabin owner near Spruce Road, I would appeal to decision makers to carefully consider longer term effects of externalizing all the sulfide waste (99% of rock mined), in a nature preserve area of our state. That is the part of our state that is supported by conservation and nature protection. Short term monetary gain will destroy this. Shame on you – DNR!	G2A
2748	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I cannot express my disappointment enough that the DNR of this great state would even consider potentially spoiling that which it is bound to protect. It would be ludicrous to allow sulfide mining adjacent to such a magnificent water park, as the boundary waters. With its track record around the world, it seems likely it will spoil the water shed and leave the public with the clean up. I agree that the people of the Iron Range need new jobs and industry, but the nature of this industry is obviously incompatible with the region it is currently proposed. The tourist industry in northern Minnesota is viable. The world is trying to become 'greener', so why spoil this area of the state for short term goals?	EOO,G7A,G11
Sender Last Name:	Light **Submission ID:** 3181	
3127	Dear Sir or Madam, I am concerned for the wellfare of the water quality not only on the St. Louis River but also Lake Superior. No matter how careful the mining could be conducted in this region, there will be acid drainage from the open pits and therefore the water pH will change. I know that most species live within a very specific range of tolerance of the change of environmental conditions such as pH. I hope that the impact study would include a lab review of the speices present in the aquatic environments and there ability to survive the change in pH that will occur no matter how careful the copper will be extracted. I feel that this study is being finished too quickly. It seems that the ultimate decision should be postponed until a more involved and extensive study can be conducted. I mean this is the Lake Superior watershed which is one of our largest sources of surface fresh water we have available to us. It would be a shame if we acted in haste to grab up what resources we could while impacting an even more vital and important resource in the process.	WR3D,PRO3,FM2
Sender Last Name:	Lillemo **Submission ID:** 3502	
3693	Polymet has been unable to stop current seeping from their tailings pit. How can anyone trust what the people at Polymet are saying when they tell us they won't add any more pollution to the watershed. They have an incentive to minimize the environmental impact of their operations. The DNR has a responsibility to the citizens of Minnesota to counter that incentive with strong, ironclad, legally binding, financially backed assurances that any operations going forward do not add to the pollution they are currently generating and that they will go back and clean up the pollution that is already occurring. Without that COMMITMENT, they should be denied any new permitting. Cleaning up there current mess would also provide jobs. I also note that other states more concerned with their water resources than Minnesota have banned the type of mining that Polymet is proposing. That should cause the Minnesota DNR to be extra cautious when it comes to taking Polymet's words at face value since Polymet has no incentive to be honest about scope of the problem they will be creating. Polymet should clean up their current polution before being allowed to go forward with any other projects.	PD4,G9
Sender Last Name:	Lind **Submission ID:** 3696	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	Acid generation potential The DEIS underestimates the potential for waste rock to generate ARD. We are aware that mine plans have changed since the tests to evaluate waste rock chemistry and acid generation potential were completed, and it is not clear if relative proportions of the waste rock in the current mine plan will be the same as those used in the waste rock characterization. We question whether the waste rock analyses are still representative of the waste rock that will be generated by the project. For example, we note from supporting technical documents that Unit 7 was not included in the analysis, although it will contribute to the waste rock. In addition, the DEIS states that more extensive characterization of the overburden is needed. (Page 4.1-65, Section 4.1.3.1). Recommendation: The revised/supplemental DEIS should evaluate whether the waste rock chemistry predictions, waste rock management plans and post-closure needs are taken into consideration in the current mining plans. We further recommend that USACE and the applicant determine what additional tests may be necessary to reflect the current mine plan, then complete those tests.	WR1E,PD2
2	Hydrogeology/hydrology assessment and impacts: plant site The Partridge and Embarrass Rivers already exceed or are close to exceeding water quality standards for some constituents. Section 4.1 of the DEIS describes storm water discharges from the Plant Site (excluding the Tailings Basin). These discharges would be routed to Second Creek, a tributary to the Partridge River. However, the DEIS has not adequately assessed these rivers. For example, the Partridge River flow-data summarized on page 4.1-21 and Table 4.1-12 is outdated (1980 to 1988). The Embarrass River flow data summarized in Table 4.1-17 is extremely old (1942-1964) and for this reason alone is not appropriate for characterizing existing flow conditions. Recommendations: More information is necessary to evaluate impacts to these rivers. We recommend the following. The revised/supplemental DEIS should provide a complete impact analysis of the Partridge River and Embarrass River based on an accurate characterization of their flow and assimilative capacity, under current and project conditions. More data is needed to describe conditions in the downstream lakes. Where current data is lacking, data collection may be warranted. Where historical data is not available, we recommend considering reference data from other similar streams in the area.	WR3J
2	The DEIS lacks an adequate groundwater characterization at the tailings basin. There are information gaps related to the extent of existing contamination, potential releases from the project, the groundwater pathway of potential releases, and the potential for contaminated groundwater to impact surface water. As evidence for inadequate analysis, EPA points out the following data deficiencies that should be addressed:	WR2A
2	Tailings basin stability The DEIS does not include a recent, detailed engineering analyses on the structural stability and integrity of the existing LTV tailings basin. Consequently, the stability of the existing tailings basin and its ability to retain the project's additional tailings and processing residues is not known, and this is an unacceptable data gap. The DEIS notes that geotechnical stability studies will be conducted during permitting (Section 4.1.3). These issues should be addressed in the revised/supplemental DEIS. The following issues should be addressed: • The tailings basins are already leaking. • The effect of the additional weight of new tailings and process wastes has not been estimated or analyzed. • The understanding of water flow through the waste is not well understood or described. • Groundwater data surrounding the tailings basin is scant; the groundwater flow regime is poorly characterized here, as is the potential for groundwater to impact surface water down gradient of the tailings basin. • NorthMet proposes to dispose of hydrometallurgical wastes in lined cells on top of existing tailing ponds - the integrity of the tailings basin to accommodate this management option is not described. Recommendation: EPA believes that analyzing tailing basin stability is important as part of informed decision-making for this project; clearly, the basin's ability to retain additional mine tailings and hydrometallurgical wastes is crucial to preventing releases to the environment. The revised/supplemental DEIS should include a stability analysis of the tailings basin in its current state and under the project's operating and post-closure conditions. Furthermore, if the basin is found potentially unusable as proposed, another disposal area would need to be evaluated as an alternative as part of the revised/supplemental DEIS.	GT1
3	Recommendation: Additional support is necessary to confirm the conclusions regarding improved water quality when NorthMet tailings are added to the LTVSMC tailings. We note that these experimental results cannot be interpreted further unless it can be established that the experiments that form the basis of this conclusion accurately simulate long-term behavior of the tailings under in situ conditions (i.e., pH, redox conditions, microbial effects, etc.).	WR1E

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Comment ID	Comment Text	Theme Codes
3	The DEIS' finding that the addition of NorthMet tailings to the LTVSMC tailings basin would improve leachate quality is not well supported. The DEIS concludes the effects of interaction between the NorthMet seepage and underlying LTVSMC tailings suggest that the latter will remove certain constituents from the NorthMet leachate. These column experiments were conducted for a limited period of time (~35 weeks; RS46); long-term results may differ significantly. In addition, the results of these experiments assumes that solutes from the NorthMet seepage are sorbed onto hydrous ferric oxide, manganese oxide, and aluminum oxides surfaces, but these are stable only under oxidizing conditions (assumed to be the experimental conditions, as no details of redox controls in the experimental columns were provided). Under the subaqueous conditions that are expected to prevail in the long term at the Mine Site, depletion of oxygen and the onset of reducing conditions will result in dissolution of oxides and the release of sorbed metals. This scenario should be reconciled with the conclusions drawn from the column experiments.	WR1E
3	Proposed seepage trench placement should be based on or adjusted to provide a more complete understanding or model of area hydrogeology. We recommend more comprehensive monitoring, including installation/expansion of a monitoring well network, around the tailings basin.	WR1B
4	The proposed hydrometallurgical plant would use selective leaching and precipitation to collect target metals out of solution. While hydrometallurgical processes are currently being used in both the gold and copper sectors, the DEIS states that the proposed hydro metallurgical plant process has not previously been employed on a commercial scale (p. 4.1-95) and that predictions of residue chemistry, settling times, and consolidation are uncertain. The DEIS, however, assumes for all the modeled environmental impacts that this plant will operate as proposed and that all of its wastes or discharges into the environment will meet the expected design parameters. The DEIS does not address the scenario of the plant not operating as designed and if the process may generate an unanticipated range of wastes and discharges that are not described in the DEIS, requiring treatment.	WR1E,PD11
5	II. Wetlands Synopsis: Insofar as the USACE is using the DEIS to support the CWA Section 404 wetlands fill permit decision, the revised/supplemental DEIS needs to address several wetlands permitting issues, including alternative mine plans, an assessment of wetlands functions, mitigation ratios, and a complete analysis of and mitigation for the indirect impacts to wetlands. EPA has determined that the DEIS does not contain sufficient information to demonstrate compliance with the CWA 404(b)(1) Guidelines (Guidelines). Pursuant to the Guidelines, the applicant bears the burden of clearly demonstrating that the preferred alternative is the least environmentally damaging practicable alternative (LEDPA) that achieves the overall project purpose, minimizes impacts to the aquatic environment to the maximum extent practicable, and does not cause or contribute to significant degradation of waters of the U.S. The Guidelines contain four main requirements (40 CFR 230.10(a) through (d)) and each must be satisfied to comply with Section 404.	WE2,WE3,WE4
5	In our June 9, 2005 letter the to the District Engineer, EPA reserved its right to elevate our objections to the individual wetlands fill permit for this project, under CWA Section 404(q) due to the potential that this project may result in substantial and unacceptable impacts to aquatic resources of national importance (ARNI). The proposed Mine Site contains approximately 1,300 wetland acres, which are within the Partridge River Watershed, which flows through Colby Lake to the Embarrass River and then to the St. Louis River and Lake Superior. Of these, 73% of the more than 1,100 wetlands acres proposed to be impacted consist of open bog and coniferous bog communities. Other wetland types at the Mine Site are coniferous swamp, alder thicket, hardwood swamp, wet meadow, and some shallow marsh. The wetland functional assessment included in the DEIS indicates that more than 90% of the wetlands to be impacted have Minnesota Rapid Assessment Method (MnRAM) scores corresponding to high vegetative diversity and high overall wetland quality. The DEIS also states that the Minnesota County Biological Survey (MCBS) has identified the Mine Site as having High Biodiversity Significance. For the above reasons, EPA believes the coniferous and open bogs, comprising a large percentage of the approximately 33,880 total wetland acres within the Partridge River Watershed to be an ARNI due to the values they provide in tenns of unique habitat, biodiversity, downstream water quality, and flood control.	WE1,WE2,WE4
6	Recommendation: EPA recommends that additional ground water data be collected to adequately evaluate the interconnection between bedrock and the surficial aquifers and wetlands.	WR2A,WR2I,WE2

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Comment ID	Comment Text	Theme Codes
7	Proposed actions are connected if they are interdependent parts of a larger action and depend on the larger action for their justification (CFR 1508.25). The National Forest land in question would not be transferred out of USFS ownership if not for the nature of the proposed mining project, making the proposed land transfer a connected action. As a connected action, impacts associated with the land transfer should be identified and analyzed as part of this DEIS. EPA finds the DEIS incomplete without the following: 1) a discussion of USFS regulations governing land transfers, 2) an analysis focused on the trade-offs between the two parcels, and 3) information explaining that any decision made by USACE is conditioned upon a successful land exchange between the USFS and PolyMet. Effects to threatened and endangered species, timber production, and recreation are among the issues that should be identified and analyzed for both parcels.	PRO4
7	Impacts along rail lines We recommend quantifying the potential for releases of ore and other mine debris along rail lines between the mine site and processing plant. The revised/supplemental DEIS should describe and address any consequent impacts to soil, surface water, groundwater, and wetlands along the rail lines.	PD4
7	Asbestos-like minerals The DEIS does not evaluate the potential for asbestos-like minerals to be released in water effluent or air emissions, although asbestos-like minerals and their health effects are emerging concerns on the Iron Range. Section 4.6.5.1 of the DEIS indicates that asbestos and asbestos-like fibers may be found in the ore deposit. The DEIS concluded that "impact [from asbestos fibers] is of uncertain magnitude." This conclusion is not supported by the analysis, and the potential impacts to air and water quality from this source bear further discussion and quantification. Recommendation: EPA recommends that the revised/supplemental DEIS include an appendix that reevaluates the potential for asbestos-like minerals to be found in the ore deposit. It should discuss an adaptive management approach that includes how the company proposes to monitor, and if necessary, address the potential release of asbestos-like minerals into the environment during operation, closure, and post-closure.	WR3I,AQ4C
8	Recommendation: We recommend the revised/supplemental DEIS address analysis pertaining to the land transfer with the USFS and impacts to tribal trust resources. The subsequent Final EIS would encompass impacts from all aspects of the proposed project and present a comprehensive, cumulative impacts analysis. This information is necessary to make an informed decision regarding the proposed project.	PRO4
8	Federal trust responsibilities should also be addressed since the land proposed for the Mine Site is part of tribal 1854 Treaty Ceded Territory. The DEIS should be revised to identify and analyze all impacts to tribes and Tribal trust resources that would result from a land transfer. Issues related to tribal resource availability and tribal access will be particularly important. The following questions should be addressed: • What will this new parcel(s) contribute to treaty rights or resources? • What impacts to quality and quantity of tribal trust resources will occur due to a potential land transfer? • What cumulative impacts to 1854 Treaty Ceded Territory trust resources will occur as a result of this land transfer (for example, impacts to moose movement and habitat quantity and quality over the entire 1854 Treaty Ceded Territory)? As federal agencies, USACE, USFS, and EPA need to ensure that federal trust responsibilities are adequately addressed in this analysis.	CR4
9	Recommendation: We recommend the revised/supplemental DEIS evaluate and disclose impacts to all media collectively across the 1854 Ceded Territory as a whole. We also recommend removing references to the draft work known as "the Protocol to Assess Expanded Cumulative Impacts to Native Americans." The referenced work is a draft document in development and is neither published by EPA nor publicly available.	CR4,CR5
9	Impacts in the 1854 Ceded Territory and to tribes practicing reserved rights in the Territory Insofar as a cumulative impacts study's geographic area need to reflect the geographic range of an individual resource outside a project property line, so should it reflect the geographic range of uses. In this case, the 1854 Ceded Territory functions as a single geographic area of legal jurisdiction in which tribes may engage in certain practices of cultural heritage and subsistence.	CR4

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Comment ID	Comment Text	Theme Codes
10	Potential mercury generation from waste rock EP A supports the goals of the 1991 "Binational Program to Restore and Protect the Lake Superior Basin" to establish a Zero Discharge Demonstration Program for critical pollutants (of which mercury is one), and we question whether the waste rock and the project overall have been adequately evaluated for their potential to introduce mercury into the Lake Superior watershed. The DEIS states that results from 36-day batch tests suggest that mercury will be absorbed by minerals in the waste rock (p. 4.1-122). Details of these experiments are not provided, but it is not clear that conditions expected to occur under field conditions were accurately simulated in the batch tests, nor is it established that the time scale under which these tests were conducted is adequate for predictions of long-term mercury behavior. In addition, EPA does not agree that "scientific understanding of mercury methylation and bioaccumulation is limited" (p. 4.1-122). A large body of work has been done on this topic (see, e.g., the references cited in the section discussing mercury methylation beginning on p. 4.1-125). Recommendation: The revised/supplemental DEIS should include information upon which conclusions regarding mercury behavior at the site were based. Depending on this information, EPA may suggest that the applicant perform additional or more appropriate studies on potential for mercury mobilization.	WR4B,WR4E
10	The DEIS analysis relies on unproven measures to limit oxidation of waste rock and assumes full success of these measures. EPA does not believe this assumption is supported, in part because several of the approaches proposed to control ARD (such as compaction, membrane covers, and lining of pit walls) have not been demonstrated as effective. For example, the East Pit closure cover includes ARD reduction measures that the DEIS admits have not been demonstrated successfully in the U.S. (Section 4.1-16). In addition, the plan to isolate the Category 4 in-situ material (Virginia formation) in the final backfill is not clear, inasmuch as the narrative indicates that four inches of limestone will be placed over this material that will be developed in a steep face. The DEIS also notes that waste rock oxidation will be limited by compaction measures, another unproven approach. Subsequent management plans based on these assumptions may lead to potential water quality impacts. Therefore, EPA believes the DEIS should assume that waste rock will in fact be oxidized and the extent should be predicted. Recommendation: EPA suggests that the revised/supplemental DEIS model ARD inflows assuming various degrees of effectiveness of covers and other designs. We further recommend analyzing other management strategies to prevent ARD and developing adaptive management options that can address the likely situation that ARD will be generated post-closure from pit walls. Regarding the stockpile liners, we recommend the revised/supplemental DEIS consider measures to protect the permanent stockpile liners from erosion or other surface impacts that could occur over the long term. These liners have potential to be damaged if they are exposed.	WR1E,WR2D,PD2
11	Waste rock management According to the DEIS, all waste rock at the site is acid generating. The proponent's plan to segregate waste rock into four categories (based on potential to generate ARD) is a key management approach in reducing the potential for acid generation. Supporting documentation has noted that acid generation in Category 2 waste rock is sensitive to the inclusion of Category 3 and 4 waste rock, meaning that if some proportion of the latter category rock is included in the Category 2 rock, the resulting overall drainage could be acidic and result in increased metal solubility (Report RS53/42). The DEIS explains that no sampling of the overburden will take place during stripping; instead, field determinations will be relied on for assessing overburden type (p. 4.1-66). Once acid generation begins, it cannot be reversed and will require more extensive management to minimize environmental risks. The DEIS does not describe how successful segregation will be achieved on a real-time basis; therefore, EPA does not have confidence that segregation will happen so as to assure that waste rock is stored properly according to its reactivity in a real-time operational timeframe. EPA is very concerned about the possibility that segregation would fail to separate reactive waste categories effectively to prevent eventual ARD. Recommendation: Waste rock management needs to be described thoroughly to allow decision-makers to evaluate whether it will sufficiently prevent ARD from entering the aquatic environment. EPA recommends the revised/supplemental DEIS describe how waste rock would be sorted during operation, and how the success of segregation will be determined. We also recommend a discussion of criteria for the field determinations and any plans for quality assurance in these field decisions. We also recommend the revised/supplemental DEIS describe how waste rock management and pits would be adaptively managed should segregation be compromised or ineffective in preventing ARD.	WR1E,PD2

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12	The DEIS proposes an artificial wetland to treat contaminated water at the mine site in perpetuity. Artificial wetlands have successfully treated low flows of acid waters; however, their success has been quite limited in treating flows containing a range of metals. The DEIS does not demonstrate that this treatment option will be successful in the severe winter environment found at the site or that if the artificial wetland fails how treatment will be accomplished. Other management decisions are contingent on the success of this proposed mitigation measure. Recommendation: The revised/supplemental DEIS should include information about the operation of the treatment wetlands. The information should include a long-term adaptive management plan for the treatment wetlands, especially with regard to plant maintenance, removal of accumulated metals in the wetland plants and sediment, and monitoring for effectiveness. Given that the performance history on treatment wetlands of this size and scope is limited, EPA further recommends the revised/supplemental DEIS explore additional alternatives for treating this wastewater.	WR3L
12	The DEIS does not offer supporting data that the proposed wastewater treatment facility (WWTF) has the capacity to treat all ARD effluent and will be sufficient to address waste rock pile drainage over a long-term timeframe. The proposed WWTF is intended to capture and treat all drainage from waste rock piles and recycle the water into the processing plant, or to discharge treated water into the Partridge River, in the event that process water is not needed. WWTF capacity is not described; therefore, there is inadequate information to know whether it could process all the contaminated stormwater flows during a maximum spring snow melt situation. In addition, the design capacity of the WWTF may be inadequate, since the project plan assumes that pit walls will not generate ARD. Recommendation: We recommend describing the WWTF further, in particular its capacity relative to anticipated flows. We also recommend using revised ARD assumptions (as described in above comments) to evaluate loading to the WWTF. Management plans should recognize that long-term treatment and discharge will likely be necessary in the post-closure period.	WR2G
12	EPA believes Category 1 waste rock should not be used for construction material since it has ARD potential, which could be increased if segregation techniques are not sufficient to prevent mixing.	PD2
13	West Pit overflows The predicted West Pit overflows to an unnamed tributary of the Partridge River will cause serious water quality impacts. The DEIS indicates that arsenic, cobalt, copper, nickel, and selenium would exceed water quality standards (p. 4.1-113). The DEIS notes uncertainty as to whether the West Pit overflow would meet the Great Lakes Initiative standard for mercury (p. 4.1-124). The presumption that the unnamed tributary would "essentially function as a mixing zone" is questionable. Considering that the Partridge River ambient levels for several of these parameters are already high (Table 4.1-24) and, in the case of aluminum, exceed the water quality standard, dilution is not a feasible solution to any West Pit overflows. In addition, many of these constituents will accumulate over time, especially in sediment. Sediment is where the majority of mercury methylation will occur. The results of the deterministic modeling and follow-up uncertainty analysis suggest that "as many as five parameters (i.e., arsenic, cobalt, copper, nickel, and selenium) could exceed surface water quality standards, in addition to relatively high sulfate concentrations." Recommendation: EPA recommends the revised/supplemental DEIS develop operations and closure alternatives that will avoid or prevent pit overflow. The overflow scenario should include measures that will protect water quality downstream, among them treatment alternatives, a monitoring plan, and adaptive management plans for the overflow. We also recommend further evaluation of whether overflow from the West Pit will meet Lake Superior mercury standards.	WR3C
14	Our issues fall into the following categories: Inadequate data collection Neither the number of wells (3) nor the frequency of monitoring (once a year in 2005, 2006, and 2009) constitutes adequate characterization of the surficial aquifer.	WR1E

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14	Inadequate model assumptions The DEIS states "The MODFLOW model was not developed to accurately predict drawdown in the surficial aquifer or the impact, if any, such drawdown would have on adjacent wetlands and surface waters" (p. 4.1-60). Consequently, its use and ability to represent potential impacts due to pit dewatering and maintenance pumping are very limited. Furthermore, given this caveat to using MODFLOW to evaluate the effects of mine pit dewatering on the Partridge River flows, it is not the optimal tool for predicting this information. The DEIS assumes the complete effectiveness of unproven anti-oxidation measures for groundwater modeling purposes (see above comments). This is not a conservative approach, and, therefore, modeling results based on this assumption are not credible. Several conclusions are provided that refer to groundwater elevation recovery following the closure of the mine. However, the DEIS states, "MnDNR believes that actual hydrogeological characteristics of the project site do not fit the model assumptions of homogeneous porous media flow (uniform vertical and horizontal conductivity) for the bedrock and till layers" (p. 4.1-57). With the potential deficiencies of the model, it is not consistent to provide relatively precise post-closure groundwater recovery elevations and dates of recovery based on the MODFLOW model.	WR2A
14	Hydrogeology/hydrology assessment and impacts: mine site The model assumptions and the amount of data used for groundwater modeling at the mine site are inadequate and may not be protective of water quality. The DEIS states that concentrations of several solutes could exceed water quality standards at mine site boundaries. In addition, the DEIS states that firm conclusions cannot be drawn due to conflicts between the results from deterministic modeling and the Uncertainty Analysis at the mine site (p. 4.1-84). Given the DEIS-stated potential for long-term (> 2000 yrs) leaching of solutes from waste rock to groundwater, further evaluation is necessary.	WR2A
15	Insufficient discussion/disclosure of empirical and reference data The revised/supplemental DEIS needs to present the available empirical or reference data that was used to assess potential impacts to the adjacent wetlands and surface water bodies. Based on comments in the DEIS, this data appears to include groundwater information and maps from dewatered mines in the area.	WR2I
16	Recommendations: The revised/supplemental DEIS should include an adequate hydrogeological and hydrological evaluation of the mine site. EPA maintains that additional data gathering is crucial to assessing impacts. Additional field data may be necessary. Furthermore, the revised/supplemental DEIS should clarify how and why the MODFLOW model is appropriate for use in the mine pit area.	WR2A
17	We also believe model assumptions should be re-assessed to take into account previous comments on the potential for ARD and less-than-complete success of untested anti-oxidation measures. If models continue to prove uncertain in this area, we suggest reevaluating groundwater analysis and developing more protective management and mitigation measures. The same applies to the use of the model for evaluating mine dewatering impacts on the Partridge River.	EOO
18	Mine pit water quality and wildlife EPA recommends that the revised/supplemental DEIS further evaluate the impacts of mine pit water quality on wildlife. The DEIS indicates fencing will be used as a deterrent for potentially sensitive wildlife species; however, aquatic-dependent migratory birds may use the pit lakes as a stopover, exposing wildlife to contaminants. The Endangered Species Act of 1973 (ESA) mandates all federal departments and agencies to conserve listed species and to utilize their authorities in furtherance of the purposes of the ESA. Given the potential for exposure near or at the West Pit, migration potential through the project area should also be considered for endangered species typically using this migration path (e.g., piping plover). Section 4.4.1.1 on page 4.4-1 only addresses federally- and state-listed endangered, threatened and species of special concern that are potentially present in the project area. Recommendation: We suggest the revised/supplemental DEIS discuss mine pit impacts to migratory birds, whether Federally-listed or not, as well as opportunities to reduce the risk of adverse impacts to tribal members' health due to subsistence consumption of potentially contaminated trust resources.	WR3C,WI2,WI3
19	Plant site storm water management Although the DEIS states that the lack of stormwater management facilities could result in increased pollutant loadings to the Partridge River, none are described. The nature of this discharge (construction, industrial) is not described nor is the method of conveyance to surface waters. Recommendation: We recommend that the revised/supplemental DEIS include information to determine whether and what type of NPDES permit coverage is required at the plant site.	WR3C

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Comment ID	Comment Text	Theme Codes
19	The DEIS needs to evaluate how ground water exceedences from the mine site may affect downstream fish populations. Groundwater sampling and modeling at the mine site (noted in Table 4.1-5) indicate that data from 9 bedrock wells exceed water quality standards for aluminum, iron, and manganese with occasional exceedances of beryllium, nickel and sulfate. Fish populations located in areas with high metal concentrations often adapt to a water quality level that allows for decent sustained population stability. Often, however, slight increases or decreases in metal loadings can have serious adverse affects. Recommendation: We recommend the revised/supplemental DEIS determine potential impacts to fish populations in waters downstream of the Mine Site. Water quality standard exceedances that may ultimately affect fish populations should be mitigated.	WR2C,FM1,FM2,FM4
20	• Some groundwater quality constituents were monitored only one to three times (p. 4.1-12 and 4.1-13, Tables 4.1-6 and 4.1-7), which we believe resulted in an extremely large range of concentrations.	WR1E
21	• Some constituents in water from the Tailings Basin and Tailings Basin area have only been measured a few times in the period reported (2001-2004), and this monitoring period and sampling frequency do not constitute adequate characterization (pp. 4.1-12 to 4.1-13, Section 4.1.1.2, Tables 4.1-6 and 4.1-7).	WR1E
22	• The number of monitoring points and the sampling frequency of wells downgradient from the LTVSMC Tailings Basin are not adequate to characterize groundwater in this area (p. 4.1-15, Section 4.1.1.2, Table 4.1-8).	WR1E
23	• The tailings basin model did not address the potential fate and transport of constituents that would mobilize at higher pH (e.g. antimony and arsenic), of particular concern because the current effluent is higher pH than proposed acidic tailings and mixing effects aren't evaluated.	WR2E
24	• Monitoring data relating to the LTVSMC Tailings Basin seeps was not available in the DEIS.	WR1E
25	• The extent of on-site contamination from previous operations is not characterized.	WR1E
26	Upwelling groundwater beyond the tailings basin barrier will potentially cause exceedences of water quality standards in waters receiving flow from the tailings basin. The DEIS suggests a connection between the tailings basin and surface water. In addition, upwelling flow at the tailings basin may continue past the closure of the tailings basin, requiring continued monitoring and management of surplus water. The DEIS states that current groundwater seepage from the tailings basin to the north toward the Embarrass River exceeds the aquifer flux capacity, resulting in upwelling of groundwater to the surface. This upwelling, in conjunction with the surface seeps, has inundated some wetlands immediately down gradient of the tailings basin. This seepage contains high levels of contaminants, such as aluminum, manganese, lead, and total dissolved solids. Under the proposed action, seepage from the tailings basin and long-term groundwater upwelling will continue. In addition, the surface seepage to Second Creek is expected to continue indefinitely (p. 4.1-56). This upwelling would inundate portions of the wetlands north of the tailings basin and potentially introduce high sulfate concentrations to the wetlands and downstream lakes on the Embarrass River. The Closure Plan does not propose any remediation of groundwater seepage from the tailings basin.	WR1A
27	Recommendations: We recommend that a revised/supplemental DEIS include adequate information about groundwater flow at the tailings basin and about the contribution of upwelling groundwater to surface water. Adequate information will also include an analysis of existing contamination. We recommend the revised/supplemental DEIS address the potential for metals or other contaminants to mobilize at higher pH (antimony and arsenic) and evaluate how mixing current and project-related tailings may affect contaminant mobility.	RFI

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Comment ID	Comment Text	Theme Codes
28	Tailings basin seepage The DEIS states that surface seeps will continue at the tailings basin during operation and following the closure of the mine. The DEIS does not provide adequate data on the anticipated amount of surface seepage at the tailings basin, because it appears the anticipated surface seepage conditions are based on conditions present in October 2008 (measurements made about seven years after the closure of the LTVSMC mine). DEIS predictions of basin seepage does not account for additional tailings loadings and different chemistry. Furthermore, the expectation that most seeps will dry out is unlikely given the addition of NorthMet's project tailings and process water and changes to the topographic and hydraulic features. Based on the continued seepage over seven years following the closure of the LTVSMC Tailings basin, without additional mitigation, probable seepage will continue following the closure of the NorthMet operations. Recommendation: Further study and justification is needed to validate the conclusion that conditions present in October 2008 will represent conditions when the NorthMet mine is active. EPA believes that a revised/supplemental DEIS should re-evaluate the estimated flow, location or duration of existing and potential future seeps. We also recommend the revised/supplemental DEIS describe the monitoring program that would address seeps, and the alternative remedies needed in the event that continued postclosure seepage does not meet water quality standards.	WR3A
28	If the contaminated flow is directly hydrologically connected to surface water, a NPDES permit would be required for the discharge. The DEIS should evaluate this possibility.	WR3C
29	Data supporting predictions that the proposed seepage collection system would be adequate to capture tailings basin seepage is inadequate. Table 4.1-35 indicates that 2 to 4 percent of the total seepage toward the Embarrass River will be recovered. In addition, the collection system places wells mainly in the area of current seeps, which may not be protective, given that past seepage occurred on the western tailings basin face and that the potential exists for additional seeps on other basin faces. Regarding the seepage recovery trench located to the south of the tailings basin, we note that the tailings basin MODFLOW was not prepared to evaluate the impact of seepage on the adjacent unconsolidated sediments. The proposed location of the recovery trench does not include groundwater monitoring points, so model calibration in this area was not possible. Recommendation: Additional justification needs to be provided ensuring that future mining operations will not result in the west side surface seeps to again become active. Depending on the results of this work, the seepage collection system may need to be enhanced to address these potential seeps. Any potential groundwater recovery system will also need to be evaluated for use along the western boundary of the tailings basin.	WR1A
29	EPA recommends further evaluation of the plan to use LTVSMC tailings as embankment material. The LTVSMC tailings are thought to be a source of sulfates and arsenic; we recommend modeling the chemical interaction between the chemically-different old and new tailings and evaluating other inert materials.	WR1E
30	Tailings Basin Alternative The DEIS should include adequate information on the efficacy of the Tailings Basin Alternative to prevent water quality impacts, particularly because hydrogeological information and analysis are inadequate. In addition, the DEIS indicates that this alternative would not remove the possibility of significant groundwater upwelling, particularly after closure.	WR1E
31	While the DEIS describes that pumping will occur until no longer needed, it also acknowledges that the total groundwater seepage rate (NorthMet seepage plus residual seepage from Cell 2W) would still significantly exceed aquifer flux capacity during operations and would approximately be four times the aquifer capacity during the post-closure period. Section 4.1-64 states that the total unrecovered groundwater seepage from tailings would be 1600 gallons per minute (gpm) in year 1 and up to 2900 gpm in year 20. A maximum seepage rate of 3800 gpm could be reached in year 20. The DEIS inadequately described how groundwater modeling on unrecovered seepage was conducted and whether unrecovered seepage exceed water quality standards. The levels of sulfate are well above levels that are considered protective of wild rice and will generally lead to increased mercury methylation and higher fish tissue levels of mercury in downstream waters. The Tailings Basin Alternative mitigation measures, as summarized on Page 4.1-162 and in Table 4.1-88, indicates that this option would still significantly increase sulfate loading and reduce assimilative capacity.	WR2F,WR4A,WR4F

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32	The placement of collection wells appears to be based on existing or past seepage incidents, without modeling for future project conditions, and, therefore, may not adequately address seepage. Furthermore, it is unclear whether this alternative would address long-term discharges to groundwater occurring post-closure. The DEIS description of the duration of pumping and long-term goals is open-ended.	WR1A
33	Recommendations: The revised/supplemental DEIS should also include a discussion of adaptive placement of collection wells, a discussion of long-term performance goals for this alternative, and an analysis of how this alternative will achieve water quality standards. We also suggest including a year-by-year modeling of this seepage to determine if its metal loadings increase over time.	WR1A
34	The DEIS indicates that PolyMet is conducting additional sampling to better understand mercury behavior in the Project Area. EPA recommends completing this study and presenting the results and conclusions in the revised/supplemental DEIS, prior to formulating conclusions regarding potential mercury impacts associated with the Tailings Basin Alternative.	WR1E
35	Under the Tailings Basin Alternative, groundwater seepage captured by the groundwater recovery system would be discharged, untreated, to the Partridge River. While the DEIS states that the effluent would meet water quality standards, adequate supporting data is not included and this discharge may need to be treated.	WR1A
36	Recommendation: The Tailings Basin Alternative should include a water quality monitoring program to assess groundwater quality prior to its discharge.	WR1B
37	EPA recommends the revised/supplemental DEIS evaluate using a non-discharge alternative for storm water runoff, if it can be carried out without increasing ground water flow to the pit, as opposed to the direct discharge of stormwater to the river. Benefits can include enhanced recharge to wetland areas, as well as providing groundwater storage and increased base flow during drought periods.	EOO
38	Recommendation: The revised/supplemental DEIS should provide more information on the PRB aspect of this alternative, including the proposed design of the PRB and a discussion of the mechanisms invoked for the simultaneous removal of sulfate, arsenic, and selenium. Given the uncertainty of this approach, we recommend the revised/supplemental DEIS evaluate contingency treatment alternatives for metals-contaminated water if the barrier system were to fail to meet its operating design and describe an approach for adaptive management.	ALT5,WR2D
38	The Tailings Basin Alternative would use a permeable reactive barrier (PRB) to reduce metals loadings (e.g., arsenic, sulfate and antimony). While there is published research on how such barriers may operate, EPA had found no data for the proposed barrier at the commercial scale. EPA also believes the proposed PRB would not address all contaminants because, while microbial sulfate reduction (with added organic substrate) is presented in the DEIS as "the only viable alternative for sulfate removal" (pp 4.1-169 through 4.1-171), the use of zero-valent iron does not appear to address the removal of arsenic and selenium (both oxyanions).	WR2D
39	Hydrometallurgical plant and wastes The uncertainties associated with the design and operation of the hydrometallurgical plant and with management of the hydrometallurgical processing waste disposal cells within the existing tailings basin cell 2W must be addressed.	PD11
40	Hydrometallurgical waste disposal into cells within the existing tailings basin are assumed to be fully contained and to cease drainage after 34 years. The project description does not adequately discuss where the drainage is occurring relative to the cells or how it is captured. It appears to indicate some drainage is exiting the cells on a regular basis, but will cease 34 years after operations begin. This assumption seems unlikely, since the area has a positive water balance. In addition, we understand that a lime mixture will be added to reduce process waste acidity. Since the hydrometallurgical waste cell units would be lined but not covered until closed, rain water and snow melt will accumulate in the units, and flows may continue for many years.	WR1E,PD2
40	Recommendation: The revised/supplemental DEIS needs to further clarify information on hydrometallurgical waste drainage, and we recommend adopting a management plan to monitor for drainage and, as necessary, manage drainage beyond year 34 from these cells. The revised/supplemental DEIS should more fully explain how the 34-year limit would be appropriate for hydrometallurgical cell drainage.	WR1E,PD2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
41	Downstream lakes and drinking water sources The limited amount of monitoring data for Colby Lake and the Whitewater Reservoir are inadequate to accurately evaluate water quality (p. 4.1-37 and Table 4.1-25). The existing high levels of aluminum and mercury in Colby Lake are a concern. Mean levels at this site from available monitoring data exceed the chronic Class 2Bd water quality standard for aluminum, which is 125 ug/L, and the range of data shows significantly high values. Even given the lack of sufficient data, the modeling results show concentrations for several contaminants in Colby Lake in excess of the water quality standards. Furthermore, the modeling does not appear to evaluate potential mercury impacts. The DEIS acknowledges that there is little water quality information on Whitewater Reservoir. Our review finds the evaluation of water quality impacts in the DEIS to be inadequate.	WR3F
41	Recommendation: We recommend collecting adequate additional data for Colby Lake and the Whitewater Reservoir that will support the proposed action will meet water quality standards.	WR3F
42	The amount of arsenic predicted to be in Colby Lake is 4.9 ug/L; the standard is 2.0 ug/L (p. 4.1-141). The text describes adjusting the model to achieve lower concentrations, but does not offer the data and reasoning behind the adjustment. Readjusting variables to less conservative inputs still produced a highest predicted arsenic concentration of 1.9 ug/L.	WR3F
42	Predicted concentrations of other constituents in Colby Lake may call for long-term prevention or management. Predicted elevations of iron, manganese, thallium and sulfate will exceed the wild rice standard of 10 mg/L. Colby Lake is classified as a Class 1 B water which only requires disinfection as a treatment for use as a public water supply. This treatment would not successfully address the constituents mentioned above.	WR3F
42	Recommendation: We recommend the revised/supplemental DEIS evaluate mitigation options that will reduce arsenic levels from the proposed action.	WR3F
43	Regarding manganese, there are sufficient studies and data currently available to generate a water quality criterion for this chemical. While this has not been done by EPA at the national level, or by the Minnesota Pollution Control Agency at the state level to date, the data are available and are being used by other states to develop criteria. For example, Illinois EPA has a proposed acute aquatic life water quality standard for manganese before the Illinois Pollution Control Board; the proposed standard (which is below 10 mg/l) has a hardness relationship and was developed for 50 mg/L hardness. (At higher hardness levels, the toxicity of manganese is lower and the resulting criterion would therefore be higher.) The hardness in Colby Lake seems to be within a range of 50 mg/L, and manganese would be elevated under project conditions. This information is mentioned here for consideration when discussing possible impacts on aquatic life.	WR3F
44	Recommendation: We recommend the revised/supplemental DEIS address the potential for additional management to prevent contamination to Colby Lake, or additional treatment at the Colby Lake Public Water Supply.	WR3F
45	There is no Safe Drinking Water Act maximum contaminant limit (MCL) for aluminum, however, several studies have shown various health effects related to aluminum. Aluminum, iron and manganese are easily removed by certain treatment technologies; however, the DEIS does not specify whether these technologies are in use in the Hoyt Lake public water system (PWS). We understand that the Hoyt Lake PWS uses open basin sedimentation, gravity sand filtration and some form of corrosion control. Although these techniques will help reduce the concentration of these metals, they are not the most effective at making significant reductions. A discussion of metals removal is needed to determine impacts on the public water systems of Hoyt Lake. It may be adequate to cite the American Water Works Association 2006 survey of 52 utilities that primarily used "conventional treatment" and the effectiveness of this treatment on manganese removal. The average manganese removal was 86%.	WR3F
46	Recommendation: The revised/supplemental DEIS should include information to support the DEIS conclusion that there will not be any impacts to the public water system in Hoyt Lakes. An analysis of the water systems treatment removal capabilities, especially for aluminum, should be included to ensure that these contaminants will not be an issue.	WR3F

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
47	Tribal water quality standards Reservation lands of the Fond du Lac Band of Minnesota Chippewa are located directly downstream from the mining site along the St. Louis River and have EPA-approved tribal water quality standards. Many of the Tribe's water quality standards are more stringent than Minnesota's standards because the Tribe uses a higher fish consumption rate in the numeric criteria calculations (i.e. 60 grams/day compared to 30 grams/day for Minnesota). The project's potential to affect water quality on the reservation needs to evaluated. Recommendation: The revised/supplemental DEIS should include the Fond du Lac downstream water quality standards in its discussion of applicable water quality standards and how the standards will be met (pp. 4.1-30 - 4.1-32).	WR3I,CR1
47	Wild rice The DEIS does not clearly address whether the Minnesota water quality criterion of 10 mg/L for wild rice waters will apply to the project. The DEIS acknowledges that isolated patches of wild rice were found in the Upper Partridge River, a tributary of the St. Louis River. Minn. R. Ch. 7050.0470 designates the St. Louis River as a wild rice water. The DEIS concludes, however, that both the proposed action and the Mine Site Alternative would comply with all surface water quality standards along the Partridge River, though the project may cause sulfates to exceed 10 mg/L. Recommendation: The revised/supplemental DEIS should clarify the application of the Minnesota wild rice sulfate water quality standards in Minn. R.Ch. 7050.0220 and 7050.0224, given that the DEIS acknowledges the presence of isolated patches of wild rice in the Upper Partridge River, and describe whether sulfates from the project will impact the St. Louis River. We recommend the revised/supplemental DEIS include the 10 mg/L sulfate number within the tables of lists of applicable standards and predicted water quality (Page 4.1-141) and include a discussion of how it applies to on-site and downstream waters potentially affected.	WR3I,WR4F
48	Recommendation: The revised/supplemental DEIS should define the subsistence fish consumption levels used to support the DEIS conclusions. It should also consider other Tribes located on Lake Superior that may also be adversely affected by higher mercury levels in fish tissue due to consumption rates higher than the general population (e.g., the Bad River and Red Cliff Reservations in Wisconsin, and the Keweenaw Bay Indian Community's Ontonagon Reservation on the Upper Peninsula of Michigan). We recommend the revised/supplemental DEIS describe how the NorthMet project may contribute to exceedance of the Grand Portage Band's water quality standards for wildlife.	WR4B,WR5C,FM1,FM2,W
48	The Grand Portage Band of Minnesota Chippewa, whose reservation is located northeast of the project site, has EPA-approved water quality standards. Many of that Tribe's human health numeric criteria, for example mercury, are calculated using a subsistence fish consumption rate of 142 grams/day, so any additional mercury (either direct discharges, or indirectly through the sulfate influence on methylation) to Lake Superior may have indirect impacts on the Grand Portage Band and their subsistence resources due to the bioaccumulation of mercury through the food chain. Page 4.5-20 of the DEIS concludes that there will be no incremental risks to recreational or subsistence fishers; however, the fish consumption levels for "recreational" and "subsistence fishers" are not defined. The Grand Portage Band has wildlife mercury standards to protect fish-eating birds (e.g., bald eagles, kingfishers, mergansers, etc.), as well as fish-eating mammals (e.g., otter and mink). The DEIS acknowledges that mercury will be discharged to the Partridge River and may eventually end up in Lake Superior.	WR4B,FM1,CR1,WR5C,CR
49	Cumulative Impacts to Water Quality The water quality analyses in the DEIS mentions existing high constituent baselines (for example, arsenic in Colby Lake) when discussing the reasons that the project will potentially bring the water body nearer to exceeding water quality standards. EPA points out that the purpose of the cumulative impacts assessment is to identify just these instances. However high the baseline, a new project should not contribute an increment that brings the water body to the point of exceeding water quality standards. Recommendation: We recommend re-evaluating cumulative impacts based on relevant data on project impacts, as noted in the comments in the water quality section above.	WR3I,WR5A
50	The lack of information on mining alternatives could be an issue in determining if the proposed mine plan is practicable based on 40 CFR 230.10(a) of the Guidelines. EPA believes that the DEIS does not support the Proposed Action as the least environmentally damaging practicable alternative (LEDP A). EPA is concerned that alternatives exist that would have less adverse impacts to the aquatic environment. The DEIS states that underground mining is not a feasible alternative because it would not be economically viable (Table 3.2-4: Alternatives E7 Underground Mining and Footnote 22), but the DEIS lacks information to justify this statement.	WE2,WE4

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Comment ID	Comment Text	Theme Codes
51	As detailed above, the water quality impacts are also a concern with regard to the Guidelines. In particular, 40 CFR Section 230.10(b), prohibits "discharges that will result in a violation of the water quality standards." If water quality standards cannot be met in conjunction with this project as described within the DEIS (e.g. West Pit Overflow-Page 4.1-113), we would not support the issuance of a permit for this project.	WR3C
51	The DEIS lacks infonnation to justify that the project will not cause or contribute to significant degradation of aquatic resources because (1) even with mitigation some of the proposed mitigation options are unlikely to replace lost aquatic resource functions, and (2) the DEIS underestimates the amount of indirect wetland impacts.	WE2,WE3,FM1
52	Because much of the wetland impact monitoring and mitigation will be finalized during the pennitting process, the revised/supplemental DEIS should include a description of the status of the 404 permit review and, if applicable, further 401 certification review (such as timeline, agency and public participation).	WR3I,WE4
52	Recommendations: We recommend the revised/supplemental DEIS include information about the feasibility and economic viability of underground mining for this project.	PD5
52	We recommend resolving water quality concerns prior to the 404 permit review.	WR5A,WE4
53	Wetland compensation and mitigation EPA recommends that mitigation for forested and bog wetland types have a minimum ratio of 2:1 for restoration due to the quality of the wetlands, the relative uncertainty of mitigation success, and the extended period of time (decades) that functions associated with forested/bog wetland types will be lost while mitigation areas are establishing themselves. The DEIS presumes a ratio of 1.5:1 and states that the actual replacement ratios required in permitting may exceed the minimum allowed, based on wetland functions and values (Page 4.2- 29). Pursuant to 40 CFR Part 230.94, Compensatory Mitigation for Losses of Aquatic Resources (Mitigation Rule), a compensatory mitigation plan must be submitted and approved by the Corps before the District Engineer can issue an Individual CWA section 404 permit. This plan must address a number of critical details regarding mitigation including: clearly articulated project goals and objectives; project site selection criteria; site protection instruments (e.g., conservation easements); detailed quantitative and qualitative baseline information describing both the impact and compensation sites; a detailed discussion of the mitigation project's credit determination methodology and results; a maintenance plan; ecological performance standards used to evaluate the degree to which the compensation projects are replacing lost functions and area; detailed monitoring requirements; a long-term management plan describing necessary long-term stewardship of the compensation sites and who is responsible for performing this stewardship; an adaptive management plan; and financial assurances to ensure project construction, implementation, and long-term management. Compensatory mitigation is intended only for unavoidable impacts after the LEDPA has been determined.	WE3
53	Given the magnitude of direct and indirect impacts, we believe that the revised/supplemental DEIS should include specific information on the wetland mitigation plan for all impacts and describe how the wetlands mitigation plan will address functional replacement. More information is also needed on the proposed on-site wetland mitigation, as well. Currently, the mitigation plan described in the DEIS does not account for functional replacement of the impacted wetlands, which include high quality forested wetland types. The DEIS projects that 175 acres of on-site wetlands will be used for compensation, but few details are outlined in either the DEIS or the referenced Wetlands Mitigation Plan Supplement. The DEIS also states that 40 acres of created wetlands would be established within the East Pit, separate from treatment wetlands created to treat effluent from the WWTF. It is not clear how the treatment wetlands would be separated from the mitigation wetlands.	WE2,WE3
54	The mitigation plan does not include compensation for the additional 475 acres of wetlands impacts at the mine site that were identified in the DEIS.	WE3
55	Recommendations: • EPA recommends adopting a 2:1 mitigation ratio for restoration, given the relative uncertainty of success and the extended period of time (decades) that functions associated with forested/bog wetland types will be lost while mitigation areas are establishing themselves.	WE3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
56	• EPA recommends adding the following in the revised/supplemental DEIS regarding the wetland monitoring plan: when the plan will be developed, how long monitoring will be required, and who will have the opportunity to review the plan.	WE3
57	• We recommend the revised/supplemental DEIS describe how the wetlands mitigation plan will address functional replacement.	WE3
57	• We recommend that the wetland mitigation and monitoring plan also include a description of financial assurances that will be established to ensure adequate long-term implementation.	PD5
58	The procedure used to estimate the area of indirect wetland impacts north of the tailings basin needs further support. The use of this methodology should be supported by its use at other similar open pit mine sites or cited by its use in scientific literature.	WE2
58	• We recommend using native seed mixes and weed-free mulch in the on-site wetland mitigation site. (This approach is described only for minimizing direct wetland impacts in the DEIS.)	WE3
58	The potential for releases of ore and other mine debris and consequent impacts to soil, surface water, groundwater, and wetlands along the rail lines should be quantified and addressed in this document. On page 4.2-21, the text asserts that spillage of ore from rail cars is difficult to estimate. If so, the DEIS should offer information to support the conclusion that predicted impacts to wetlands along the transportation corridor are likely to be insignificant. The discussion of predicted indirect wetland impacts to areas beyond the mine site is based in part on empirical evidence from taconite mines in the area (p. 4.2-20, Section 4.2.3.1). Before the conclusion that little indirect impact is anticipated at the Mine Site can be accepted, additional support should be provided with details of the experience at other sites and in particular how those sites compare to the proposed project.	WR1E,WE2
58	• The revised/supplemental DEIS should include additional information on the 175-acre on-site compensation (such as wetland type, soil characteristics, and past history of wetland creation on copper mine spoils) to assess its viability.	WE3
58	• We recommend the DEIS address mitigation for the remaining potential 475 acres of wetlands impacts.	WE3
59	The assessments of indirect impacts at the tailings basin and along rail lines should be supported by specific information from other sites, if they are referenced, or by a discussion of methodologies. We recommend describing proposed monitoring.	WE2,WE3
59	Recommendations: EPA recommends the revised/supplemental DEIS include a complete discussion of indirect impacts to wetlands along rail lines and at the mine site.	WE2
59	Page 4.1-21, Section 4.1.1.3, 3rd paragraph: The DEIS states that base flow to the Partridge River is low during winter months because of reduced groundwater recharge. This statement appears accurate; however, on page 4.1-5, 1st paragraph, the DEIS cites extremely low seepage rates from wetlands to the underlying surficial aquifer. Does the low base flow during winter, as opposed to more steady base flow conditions, reflect a closer interactive between wetlands, unconsolidated aquifer underlying wetlands, and surface water than expected?	WE2
59	Page 4.1-5, Section 4.1.1.2, 3rd paragraph: While information gained from the aquifer tests will be important to evaluate potential interaction between the wetlands and the deeper aquifers, these tests may not provide direct evidence on whether wetlands adjacent to the mine pits will be indirectly impacted by mine dewatering activities. The pumping test methodology is not provided in the DEIS. The pumped well will affect groundwater heads in the pumped aquifer; this stress mayor may not influence groundwater heads in the wetland sediments. However, conceptually, the ability of the pumping test to evaluate future mining dewatering conditions is not clear. The project is proposed to be an open pit mine, with the overlying unconsolidated material removed to extract the ore - this is conceptually different from the presumed pumping tests where the overlying wetland sediments were present. The open pit would then provide a direct conduit for potential infiltration of wetland sediments adjacent to the pit.	WE2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
59	Page 4.2-19, Section 4.2.3.1, 1st and 2nd paragraphs: The distinction between wetlands that are bogs (precipitation-supported) and other communities dependent on groundwater (e.g., swamps) is critical. The assertions in this section regarding the lack of communication between perched bogs and the underlying groundwater require additional support with data from the project area before the conclusion that "no indirect wetland impacts are anticipated at the Mine Site from groundwater quality" can be accepted. Some data and analysis from the site suggests a connection between bedrock aquifers and surficial aquifers, such as the presence of ammonia and nitrates in the deeper aquifer.	WR2I,WE1,WE2
60	Mercury emissions The DEIS states that the facility could emit up to 8.3 pounds of mercury per year (p. 4.6- 34). Minnesota's Statewide Mercury Total Maximum Daily Load (TMDL) recognizes mercury air emissions as a chief source of depositional mercury to surface waters. In the TMDL implementation plan, MPCA notes a need for mercury emission reductions overall. The DEIS does not, however, discuss plans to control mercury emissions. Current gold mining operations in Nevada currently employ either activated carbon filters or the Boliden chlorine treatment method to essentially remove all elemental mercury from the gas exhaust streams. Nevada gold mines also effectively treat mercury emissions from autoclaves using activated carbon filtration.	AQ5,AQ6A
61	Recommendation: We recommend the revised/supplemental DEIS describe mercury mitigation measures for the project.	AQ5,AQ6A
62	Cumulative impacts modeling EPA notes that the air quality modeling presented in the DEIS excluded emissions from the Keetac Taconite Mine and Processing Expansion Project and other proposed projects in the vicinity of the NorthMet project. Tribal cooperating agencies have noted this in several comments in the DEIS. Recommendation: The air quality modeling to assess cumulative impacts should consider all current and reasonably foreseeable projects in the area. We recommend adding these sources into the model and including the new information in the revised/supplemental DEIS.	AQ4B
63	IV. Financial Assurance Financial assurance should be discussed in a revised or supplemental Draft EIS because it is critical to determining whether all funding will be available and adequate for proper closure, reclamation, and post-closure care can be met by the mining company. Because the amount and viability of financial assurance are critical factors in determining the effectiveness of these activities, EPA believes it is necessary to analyze these factors in the revised/supplemental DEIS to determine the significance of potential impacts and the feasibility of long-term mitigation measures. For example, if appropriate closure, reclamation, and post-closure care measures are significantly under-funded, contamination of surface water and groundwater may not be controlled. EPA believes the adequacy of financial assurance for these activities could make the difference between a project sufficiently managed over the long-term by the site operator, or an unfunded or underfunded contaminated site that becomes a liability for the Federal government and the public, e.g., under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Recommendation: We recommend USACE ask the mining company to describe adequate financial assurance as part of a revised/supplemental DEIS so that the information on the feasibility and commitment to long-term controls and/or treatment can be evaluated during the decision-making process. The State requirements for financial assurance should be described in the revised/supplemental DEIS, as well. We recommend that the revised or supplemental DEIS identify the estimated bond amounts needed for each closure and reclamation activity for the proposed project facilities and also discuss whether and how the state can modify the bond during the course of operations if temporary, long-term, or perpetual treatment and/or remediation needs are discovered during operations. We recommend identifying responsible parties for any post-closure cleanup actions should they be necessary, as part of financial assurance.	ALT8,PD4
64	We recommend the DEIS estimate contingency reclamation cost. While the DEIS acknowledges that Minnesota Rule 6132.1200 requires the mining company to establish financial assurance one year after the beginning of operations, this information is not included in the DEIS. There is no discussion of how NorthMet intends to meet the Minnesota contingency rule, except that it pledges to comply.	PD4
64	EPA suggests the revised/supplemental DEIS include a reasonable determination of contingency closure cost estimates based on the plan of operations.	PD3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
281	This letter is a declaration of my support for PolyMet Mining's Northmet Project. Not since the early 1960's when the Taconite Amendment provided for the beginning ofa major construction boom era and a stabilization of the Iron Range economy have we had an opportunity like this. The economic impact, especially in view of the current economic and employment conditions in Minnesota and this country, would provide a lasting bright spot with far reaching benefits, not only to the local area, but the entire State of Minnesota and beyond. We have been mining here for over 120 years, which means, we have the knowledge, natural resources, strict state and federal environmental laws, and the experienced workforce to do it better than any place else in the world. I believe that PolyMet Mining has demonstrated that they will produce precious metal products needed in this world, especially in this country and the State of Minnesota, in an environmentally sound manner that protects our air, water and land, while providing the much needed economic benefits. PolyMet Mining has done a thorough job of plan development for this project and has spent many millions of dollars ensuring that its process and facilities will comply with the highest environmental standards known. It is now time to proceed with the permitting process.	EOO,G1,G6
282	PS: Please email any status updates to me at: aalind@msn.com	RFI
3576	Specify plans for funding long-term treatment of polluted groundwater.	PD4

Sender Last Name: Lindahl **Submission ID:** 285

299	Re: My Support of PolyMet Mining’s NorthMet Project • I have been a resident of Northern Minnesota my entire life. • I do not want my environment destroyed. • I believe that the technology exists to allow PolyMet to proceed. • PolyMet has met or exceeded all requirements. • As citizens of the United States we cannot allow projects like PolyMet to go elsewhere in the world. • We have the most stringent environmental requirements in the world. If you build the PolyMet project in other countries where there is very low environmental protection in place, the world will be a far worste place to live. (We must remember that we are in a world environment not just a local one). • In order for the United States to remain strong, we need to be a producer not just a consumer. • If PolyMet is not allowed to proceed, where will we be? Where will you find companies to invest $25M or more in permitting and have it denied a permit to mine at the end? • This is our chance to set the seeds for the nonferrous industry to bloom. This is very much like the importance of the passage of the “Taconite Amendment” without which there would be no taconite industry. • We cannot become CAVE Men. CAVE = Citizens Against Virtually Everything As citizens of Northern Minnesota we should consider ourselves lucky that PolyMet has pursued this project whereas most companies would go elsewhere. PolyMet has gone above and beyond what has been required by federal, state and tribal agencies. As opponents voice their concerns, we must see through the smokescreen and see reality. Therefore, I support PolyMet’s NorthMet project.	EOO

Sender Last Name: Lindgren and Dale **Submission ID:** 331

1	The Forum is informing the Minnesota Department of Natural Resources about the Lake Superior Binational Program to ask that any decisions made about the permitting of the PolyMet Mining in Hoyt Lakes, MN, will be consistent with the recommendations in the Lakewide Management Plan, especially where the mines' operations will affect air, water, habitat and soil quality.	EOO

Sender Last Name: Lindroos **Submission ID:** 3252

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3572	While reviewing the Draft EIS summary I was dissapointed not to find a benchmark to which to compare the proposed precious metal mining operation. Without this comparison it is difficult to decide the merits of this undertaking. There was also no estimate of the of the long term impact upon the lives and well being of the residents (human and otherwise) of northeastern Minnesota. My solution is to decide support/opposition for such mining on the response to the following two questions: What are the positive/negative comparisons of the proposed mining operation to existing precious metal mining operations in the United States? Is the anticipated negative environmental impact of precious metal mining in northeast Minnesota expected to be less than/equal to/greater than the known impact from past iron ore/taconite mining and logging activities? If greater, how much greater? These answers will enable state/environmental agencies and local residents to more confidently decide what is best for the long term benefit of the area.	G8
Sender Last Name:	Liquard **Submission ID:** 3523	
535	AIR QUALITY IN PRISTINE BOUNDARY WATERS: The DEIS does not approach the most important question of cumulative impacts of this mine and the others that are proposed in the district. Polymet can not be looked at as a single, one-time event in N.E. Minnesota. With permitting of Polymet will come at least 2, perhaps 4 or more new applications for permitting from other mining companies. What will be the total impact on the environment by all these potential mines and how will the EIS deal with mitigation of all these in concert? Specifically the Boundary Waters, which is down wind of all these projects, will be negatively impacted in terms of atmospheric haze from dust particles and other emissions blown into the air. According to the U.S. Forest Service, the Polymet project alone will cause significant haze impairments in the Boundary Waters 36 days each year! Tell us how this cumulative effect on air quality must be dealt with for Polymet and all future applications. In addition how is global warming affected by this mining operation and the combinations of all potential mines in the future?	AQ3,AQ4B
1127	WILDLIFE: The mine site disrupts natural corridors for the movement of wildlife. Specifically the Canada lynx which is a federally-listed threatened species that requires large territories and benefits from undisturbed forest corridors. No provision is made for mitigating this loss of habitat in the DEIS.	WI5
2849	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. In addition a 30-45 day time extension is needed for review of the EIS; as well as more public meetings in more places to gather input. The current schedule is too limited. Public meetings should include the option for citizen statements and discussion in an open meeting.	G10
3254	BOUNDARY WATERS WATERSHED: There was little or no field sampling done on the movement of ground water through the bedrock. Since the mine and its waste storage site sits nearly on the continental divide it should have been determined if there is any chance that polluted mine drainage (including acids, metals, or sulfates) could move in the rock over time to the north and into the Boundary Waters watershed. This was not done and should be before permitting.	WR1E
3255	SULFATES IMPACT: Sulfates are a problem that are not dealt with rigorously in the DEIS. Sulfates in surface water demonstrably impact aquatic vegetation, specifically wild rice. In addition sulfates react with elemental mercury in a process known as mercury methylation. Methylmercury is the form that bio-accumulates in fish and animals that eat fish, including humans. What process has been identified to detect and mitigate methyl mercury in the environment and how will community health be dealt with and paid for? The Boundary Waters is a very unique National Park that deserves to be fiercly protected. Developing open mine pits without the proper monitering and regulations spells doom for this pristine paradise - if not in our generation, certainly in our grandchildren's time. Please do the right thing and protect this national treasure by addressing the above issues.	WR1E,WR4B,FM1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3705	RECLAMATION: The DEIS does not outline any specific plan for reclamation after the mine site is closed. In the same vein there is no specific mention of the method or amount of financial assurance that the mining company will need to set aside for the potential disasters after closing. Because acid mitigation is difficult to predict and long term treatment after closing is necessary, there needs to be a large sum of cash held in escrow as a damage deposit and that amount should be specific and included in the final EIS.	PD3
3706	MONITORING PLAN?: Where is the plan for constant monitoring of the mining operation by the DNR? Waste rock needs to be sorted by sulfide content, tailings basins need to be inspected for leaks, and waste piles need to be sampled for pH in runoff water regularly. Do we just depend on the mining company to do its own monitoring? There should be a program set up in the EIS for constant monitoring of operations by an independent environmental concern or the DNR.	PD8

Sender Last Name: List **Submission ID:** 3742

1	3-50. (3.2.1 No Action Alternative)—Tribal cooperating agencies disagree with the assumption that the proposed project would only result in social and economic benefits. The environmental impacts of the project on the 100 Mile Swamp, an undisturbed and very high quality wetland complex, would constitute a social impact. Furthermore, economic development that is not centered on heavy industry (tourism for example) would be adversely impacted by the project. How will these social and economic problems be dealt with: the social impact of the 100 Mile Swamp and the loss of tourism revenue to dependent businesses?	RFI
1	The DEIS is premature. It should not have been released until the required land exchange between the US Forest Service and PolyMet has been completed. The DEIS is required to examine all potential environmental impacts associated with the Project. The land exchange may well introduce substantial impacts and these may in turn interact with other aspects of the Project which should be examined in the DEIS.	PRO4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2	The PolyMet DEIS describes significant environmental issues and other issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Unfortunately, the continued "poisoning" of our waterways and watersheds is what we Americans are almost getting used to: Poisoned Waters by Hedrick Smith, April 21, 2009: "More than three decades after the Clean Water Act, iconic American waterways like the Chesapeake Bay and Puget Sound are in perilous condition and facing new sources of contamination. With polluted runoff still flowing in from industry, agriculture and massive suburban development, scientists note…that these toxins are being found in drinking water of millions of people across the country and pose a threat to fish, wildlife, and potentially, human health…"…"the environment has slipped off the radar screen because it's not a hot crisis like the financial meltdown, war or terrorism, but pollution is a ticking time bomb. It's a chronic cancer that is slowly eating away the natural resources that are vital to our very lives." Sulfide mining industry in the great state of Minnesota must not become reality…..if it does….the same ticking time bomb of polluted water seen on the east and west coast with be the new reality in water-rich Minnesota. Let us not experiment with our natural resources. I have asked myself: If I was told that there is a new vaccine, but it has never been used successfully on a human yet, would I be first in line to try it? Highly doubtful. Mr. Arkley and Mr. Ahlness, you both would probably answer in the same manner. One can use the same analogy with the PolyMet project. Water rich Minnesota is being told to be first in line to try it…to be a large-scale experiment for sulfide mining. With the scope of the exploratory mining being done right now throughout MN, no area with minerals beneath its soil will be immune from the possible effect of sulfide mining and damage to the precious waters for all to live, and to recreate on…and that are the lifeblood of Minnesota's tourism industry. Water is undervalued Water is undeniably scarce Water boasts unrivaled demand Water is priceless Water is our most precious resource If you have not already done so, I urge you to consider what this project could mean to the generations to follow our decisions of today. What will be the consequences of the decisions made you? Will those decisions safeguard our "natural world" for the future, or will those decisions simply provide a few jobs for a few "lucky" Minnesota citizens for the short-term of 20 years. Let's work toward other sustainable industries in addition to tourism, for northern Minnesota that protect our waters. Let's not lock Minnesota into a "permanent resource-extraction economy" at the price of long term pollution to our waterways---while driving away other industry and points of view. Contrary to what our short-sighted politicians (Klobuchar, Franken, Bakk, Oberstar, Rukavian, etc.) who endorsed this project without performing their "due diligence", would like us to believe, there are thousands of concerned Minnesota citizens, and countless vacationers to Minnesota who have serious issues with this proposed mining project. We owe it to our future generations to give a 100% assurance that this politically-touted, 20-year sulfide mining project can be accomplished without irreversible harm to our waterways and our wetlands. It my sincere hope that you will give proper evaluation to this landmark controversy facing the state of Minnesota and its citizens. We must learn from the mistakes made across our country in other states that allowed sulfide mining companies, usually from other countries, the opportunity to destroy its natural resources with the promise of lucrative jobs. A degree in engineering, geology or hydrology is not necessary to realize that the landscape changes alone will fore	G2C
2	Factual evidence from mining projects in other parts of the USA demonstrates that clean up and restoration of most mine sites "do not work." A. Reference the Flambeau mine (with lawsuit pending over it "reclamation"). B. Reference the Appalachian Mountains where mountain top coal mining parallels some of the same concerns with sulfide mining as would exist in Minnesota if PolyMet mining is permitted: " According to Margaret Palmer of the University of Maryland Center for Environmental Science, "clean up laws may not be working. Federal and state laws require mining companies to clean up and restore mined areas. But Palmer and 11 other scientists who published their review in the journal Science say that's not working. "Even after a site has been reclaimed and attempts have been made to re-vegetate it," says Palmer, a biologist, "the streams that remain below that, that weren't filled, have high levels of all sorts of nasty things." Things, she says, like selenium, which in high amounts can harm fish and other aquatic life; and sulfates, which alter the water chemistry. Palmer and her colleagues say many animals in these valley streams — from algae to fish and birds — could be seriously harmed. """"Experts Urge Official To End Mountaintop Mining" by Christopher Joyce, January 7, 2010	PD3,PD4

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Comment ID	Comment Text	Theme Codes
3	Contaminated overflow from the West Pit The DEIS predicts that at year 65, the West Pit will begin discharging polluted water • Arsenic, cobalt, selenium, copper, nickel, aluminum, beryllium, iron, manganese, and thallium from PolyMet's operations may all exceed water quality standards. Analysis predicts high sulfate concentrations. (4.1-113) The DEIS would allow this to happen. The DEIS does not address the cumulative or synergistic impacts upon fish, wildlife or humans as we ingest water containing all of these pollutants. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes.	WR3I,WR5A,WI5,FM3
Sender Last Name: Lloyd	**Submission ID:** 163	
153	Please see that the mine gets a fair chance to hire people and startup production. My family and I live withing 10 miles of the mine and feel perfectly safe with Poly Met producing there products. The vast majority of the nay sayers are not local people. They have never lived on the Iron Range and seen that mining is the basis for this area. I think the various government agencies have jerked Poly Met around long enough..... Let them begin. bob lloyd aurora, mn	EOO
Sender Last Name: Lockhart	**Submission ID:** 1780	
2340	I can't say I'm an expert on mining, but I've heard a bit about the PolyMet mines being proposed in Northern Minnesota and I haven't heard anything good. Especially about the impact this could have on the environment. I grew up in Northern Minnesota. I grew up practically in the water of Lake Superior. I spent most of my summers up in the Boundary Waters Canoe Area Wilderness. I want to take my children and grandchildren there to have the same experiences I had. If this mine goes up they won't have that chance. The effect this mine could have on the environment is devastating to even think about. The river and lake eco-systems could be destroyed for hundreds of years by the by-products made by the mine. I understand that there are treatments that can be undertaken to prevent the pollution by the waste products, but I highly doubt these can reasonably be maintained for the length of time it would take for the by products to lose their toxicity. This mine doesn't just threaten one area, it threatens a huge part of our state - a state which is known for it's clear waters, fishing, canoeing and outdoor recreational activities. Any possibility of damage to the environment should be eliminated to the absolute best ability of both the state and the company proposing the mine. I don't want to lose the state I love to pollution and short-term economic gain. Please think about the future. What a mine now could mean to the environment ten years from now, twenty years, thirty.	G7,G11
Sender Last Name: Loney	**Submission ID:** 3743	
20795	The board, staff and members of the Friends seek the protection of the Boundary Waters Canoe Area Wilderness and the larger Quetico-Superior ecosystem. The organization values healthy ecosystems, clean water, wilderness character, and primitive recreation. Our members from all over Minnesota and the country enjoy the area for its canoeing, camping, fishing, hunting, birdwatching, and many other reasons, as well as the region's natural, largely-undeveloped character. The risks presented to many of these activities and attributes by nonferrous mining have been a significant concern for our organization for many years.	G11

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Comment ID	Comment Text	Theme Codes
20795	A. Financial Assurance 1.) The DEIS fails to provide information about the amount of financial assurance that will be required for the project. This is a fundamental problem with the DEIS. "Any additional detail regarding the amount of financial assurance associated with reclamation actions cannot be estimated until these actions are understood at a deeper level of design detail. This detail is more typically made available during the permitting process. Therefore, further discussion of financial assurance figures and instruments are not included in the DEIS" (DEIS pg. 3-48). But the inclusion of information regarding financial assurance is key if the public is to understand and assess the potential effectiveness of reclamation and closure activities. Financial assurance and a reclamation closure plan inform the public about the potential long-term environmental impacts of the mine and their absence in the DEIS is glaring. Financial assurance should be fully explored in the EIS. The DEIS outlines the possibility that long-term water treatment, monitoring, and maintenance may be required for the Proposed Action, making a timely analysis of financial assurance essential in fully appreciating the potential impacts. It is unclear, after years of design preparation by PolyMet, what new information regarding design details will become available between the release of the DEIS and permitting that would dictate that financial assurance calculations cannot be determined and outlined in the EIS. The U.S. Environmental Protection Agency (EPA) has also urged that financial assurance disclosure occur during the NEPA process. In an August 2009 letter regarding the NorthMet project, the EPA stated regarding the lack of financial disclosure for this project: "The EPA recommends including financial assurance information because one key component to determining the environmental impacts of a mine is the effectiveness of reclamation and closure activities…EPA has recognized the importance of disclosing financial assurance in EISs…." (U.S. EPA August 2009). The EPA's National Hardrock Mining Framework recommends that the: "EPA should evaluate the adequacy of EISs for mining operations in predicting the long-term environmental impacts of mining operations. Assessment of financial assurance mechanisms that will be utilized to provide funding of required long term environmental management systems is critical to this analysis" (U.S. EPA 1997). Dr. David Chambers has also highlighted the omission of financial assurance calculation as a major flaw in the document. "…the financial surety for the project could easily be in excess of $100 million. This is a very significant potential impact to the public, who is ultimately accountable should the mine operators go bankrupt without an adequate financial surety to close the mine and treat waste water" (Chambers 2010). Recommendation: Including financial assurance information in Environmental Impact Statements has become standard practice, especially for mining projects in which long-term water treatment is expected. The PolyMet project anticipates long-term water treatment needs, and its EIS must include the necessary financial assurance calculations for the public to assess risks and impacts. Financial assurance calculations must be included in the EIS. It is critical to fully understanding the potential environmental impacts from this project. The lack of financial assurance in the DEIS renders the analysis incomplete and inaccurate. This analysis should not be delayed until permitting.	PD3
20796	A. Cultural Impacts The NorthMet project would impact resources with cultural significance to the Ojibwa. Significant impacts to water resources, wetlands, wild rice and wildlife are possible from the project, and would affect natural resources available for Ojibwe use. Compensatory wetlands are proposed for outside the 1854 Ceded Territory and would result in a loss of these lands to the Ojibwa Bands. If the land exchange occurs, giving PolyMet ownership of the mine site lands, this area would be removed from public ownership and would diminish both Ojibwa Band members' and the general public's access to these lands. The potential impacts to wild rice beds from increased sulfate concentrations, and the potential impacts to fish consumption from methylmercury contamination pose significant cultural impacts to the Ojibwa Bands. Recommendation: The EIS must include the identification of land to be exchanged and the potential cultural resource impacts associated with this exchange.	G3,CR1,CR2,CR3,CR4

Sender Last Name: Lorentz **Submission ID:** 1773

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Comment ID	Comment Text	Theme Codes
2327	I feel that the impact on the BWCA, based on the fact that the water from the rivers will leak to the BWCA, is unacceptable. This is our only earth, home to the humans, animals, and all walks of life that we know of. To pollute our home on purpose, for the sole luxury of economic success, is not a balanced action. luxury does not outweigh environmental hazard. Our planet has already begun the downfall of human's impact based on the evidence of the Arctic melting away: (Global Warming). To drive the point across, to pollute our earth is like polluting a household, since earth is a home to humans and a house is a home to families. We would not sacrifice the safety of our loved ones for profit. Therefore one can conclude that it is unacceptable to pollute one's earth.	G2,G7
Sender Last Name:	Lorig **Submission ID:** 1242	
1391	One of Minnesotas greatest resorces is our fresh water. Please take a minuet and think how this will forever change the wadershed in northern MN and the great lakes. It might not effect it in this life time but think about the children and the next generation. We can not aford to distroy this recorces.	G7A
Sender Last Name:	Lowe **Submission ID:** 3489	
3763	To whom it may concern, This message is in regards to the pending PolyMet Mining Corporation’s NorthMet Mining Project Draft Environmental Impact Statement. This proposed plan is counter to the interests of Minnesotans, both current and future. The environmental impacts will be felt for 50 generations, long after PolyMet Mining is no longer around to cover the tab. Minnesota has already converted or lost so much of its natural heritage; I strongly feel that this is an unwise use of some of its remaining natural areas. The proposed site is on National Forest land. Trees can be harvested from this land sustainably for perpetuity while providing habitat for endangered and otherwise threatened species; once the open pit mine is created, that’s it. Please do the responsible thing and tell these folks to go elsewhere; Minnesota’s better than this. Sincerely, Ben Lowe PhD Candidate University of Minnesota’s Dept. of Ecology, Evolution, and Behavior 1987 Upper Buford Circle, Ecology 100 St Paul, MN 55108 Lowe0160@umn.edu	G2A,G2C
Sender Last Name:	Luck **Submission ID:** 2248	
2941	To whom it may concern, Approve the DEIS! MN economy needs it!	EOO
Sender Last Name:	Lundgren **Submission ID:** 2261	
2671	I have been a resident of the Iron Range since my birth in 1929, which is the same year my father started the Ford dealership in Eveleth. For the last four generations, our family business has been successful largely due to local mining. We have sold and serviced hundreds ofvehic1es to the mining companies and their employees over 81 years. I strongly urge you to accept the PolyMet project as it would not only allow our family traditions to continue, but it would greatly benefit the entire Iron Range. The PolyMet project would provide jobs for many struggling families in our area and would help to rebuild the prosperity our communities once had. PolyMet would be the best project the Iron Range could hope for.	EOO
Sender Last Name:	Lunz **Submission ID:** 3230	
3137	I am concerned that the discharge water will contain arsenic and it will find it's way into surface and downstream drinking water.	WR1A
Sender Last Name:	Lustig **Submission ID:** 1045	

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Comment ID	Comment Text	Theme Codes
1148	What In the world are 'we waiting for? Polymet to scrap to whole project so we can sit around and look at the trees and wonder why no one on the Iron Range can find a job or why have all the young people left: Give Polymet their permit. They have met the set forth existing requirements. The: government agencies have done 'there job and have much more knowledge about the project then the g,eneral public and the special interest groups trying to block the project. The have followed all the rules and deserve to be gIven their permits.	EOO
Sender Last Name:	Lynch **Submission ID:** 1194	
1309	Minnesota's lakes, rivers & streams are a huge part of what makes our quality of life so good & is part of who we are. I'm extremely concerned that the proposed mine by Polymet cannot prove that there is sufficient technology to clean up after itself. These mines have cause pollution everywhere else they've been tried. Don't let Minnesota's precious waters be the guinea pig they are far too important too fragile to mess with. Short term profits in exchange for long-term debt is unacceptable.	EOO,G7B
3480	I am a U Mn grad with a student there now. I drive from St Louis to the BWCA and other Northern Mn sites for an environmental experience that is difficult to find. I am strongly opposed to the establishment of another threat to that experience and to those Minnesota rresidents whose lives and livelihood may be damaged by another inadequately studied and unnecessary Environmental crap game. The welfare of the state and the people who care for the state depends upon responsible action by the DNR. Please take the long term view and protect what is left.	EOO
Sender Last Name:	M.G. **Submission ID:** 3356	
3647	The earth provides enough for every man's need… Not for every man's greed! Preserve the Boundary Waters.	EOO
Sender Last Name:	Maccabee **Submission ID:** 3666	
1	For purposes of potential future litigation, these comments explicitly include by reference the positions of tribal cooperating agencies reflected in Appendix D of the Draft Environmental Impact Statement (DEIS), additional comments on the DEIS submitted by the tribal cooperating agencies, comments made by the United States Environmental Protection Agency (U.S. EPA) on the preliminary draft environmental impact statement (PDEIS) released for agency review in July 2009 and comments of other environmental organizations regarding the DEIS, specifically Minnesota Center for Environmental Advocacy, Friends of the Boundary Waters Wilderness, Center for Biologic Diversity, Sierra Club North Star Chapter. WaterLegacy also incorporates by reference for purposes of future litigation any and all individual comments submitted pertaining to the PolyMet NorthMet DEIS by WaterLegacy members and by other attorneys who may represent individual WaterLegacy members, including but not limited to comments of Bruce Johnson, Len Anderson, Joel Roberts, Alphonse Gerhardstein and Matt Tyler, whether or not such comments are specifically cited in these Comments. Although some legal citations are provided in the succeeding pages, WaterLegacy's comments focus primarily on scientific, factual and analytic deficiencies of the DEIS. WaterLegacy expressly reserves the right, in any potential future litigation related to this matter to raise any and all legal issues raised by the asserted deficiencies, whether or not the specific argument is made in the succeeding comments or comments incorporated by reference.	G15
2	The final EIS for the PolyMet NorthMet project must be deferred until a comprehensive supplement to the DEIS has been prepared, with appropriate scoping, notice and public comment, which supplement would perform a detailed analysis of the specific lands proposed to be exchanged for the NorthMet mine site and the impact of this exchange on the public interest, the environment and cultural resources of affected tribes with usufructuary rights in the 1854 Ceded Territory.	PRO1

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Comment ID	Comment Text	Theme Codes
3	Based on the EPA's recommendations, the post-closure activities required by the project and the characteristics of its proponent, it would be irresponsible to prepare a final EIS for the PolyMet NorthMet project without a clear and specific financial assurance analysis based on a schedule and costs for closure and post-closure reclamation, maintenance and treatment. If no such specific assurance is provided, the final EIS should provide a detailed analysis of adverse environmental impacts assuming that no closure or post-closure reclamation can or will be sustained.	ALT8,PD2,PD3
4	The final EIS must specifically analyze how the closure and post closure activities required by the PolyMet project comply with Minnesota statutes and rules requiring stable and maintenance free closure and reclamation. For at least the following, the EIS should specify how 8 maintenance or treatment at closure and post-closure would meet water quality standards and comply with non-ferrous mining reclamation rules: • Waste Rock Stockpiles. Pollutants in drainage from stockpiles have the potential to exceed groundwater criteria for up to 2000 years after the mine is opened under the Proposed (DEIS, p. 4.1-84).1 Maintenance, collection of drainage and potential treatment should be discussed in terms of water quality and conformity with post-closure rules. • West Pit Lake. The west pit lake will overflow post-closure, discharging water predicted to exceed water quality standards for arsenic, cobalt, copper and nickel and containing significant sulfate levels. West pit lake overflow is also likely to exceed mercury water quality standards. Tribal agencies have noted the likelihood that the west pit lake will remain at the site "in perpetuity and will exceed water quality standards" (DEIS, Tribal Positions p. 3-19). The EIS requires a plan to prevent long-term water quality exceedances, not just a monitoring plan. • East Pit Wetland. The DEIS has not characterized water quality of east pit outflow or overflow. (DEIS, p. 4.1-72) or what measures would be taken to address potential inefficacy of constructed wetlands reduction of pollutants. • Tailings Basin. Maintenance of tailings saturation to reduce oxidation, maintenance of embankments to prevent catastrophic dam failure, treatment of seepage collected from the toe of the tailings basin and treatment of discharge once the seepage barrier is removed from Second Creek all require explicit discussion in terms of post-closure costs and legal compliance. • Hydrometallurgical Residue Cell Closure. Maintenance of a geomembrane barrier, geosynthetic clay barrier cover and liner system to control impacts over highly contaminated material over time should be discussed in terms of activities, costs, and the potential need to replace containment materials.	PD2,PD3,PD5
5	For these reasons, an EIS may not defer fundamental questions of design to a potential permitting process. As explained by tribal cooperating agencies, "The lack of a stability analysis for the stockpiles is a serious data gap given the serious environmental consequences of a structural failure of a stockpile." (DEIS, p. 4.13-2).	GT1
6	The DEIS notes that the Minnesota Department of Natural Resources recommends that a "Dam Break analysis and risk assessment" be done, but suggests that the analysis could be deferred until permitting. If the design is still deemed unstable, the DEIS suggests that additional rock buttress and dewatering of tailings could be evaluated. (DEIS, p. 4.13-4). However, reducing the saturation of tailings may increase acid and leachate generation within the tailings basin, creating adverse water quality impacts. In addition, there is no indication that either of these mitigation measures would be sufficient to prevent a dam break at the tailings basin, with potentially catastrophic consequences for water quality in the Embarrass and Partridge Rivers and in groundwater impacting residential drinking wells. This long-standing concern must be solved before a final EIS is released. Explain tribal agencies:	GT1
7	The DEIS proposes no measures that might provide assurance of hazardous waste containment if the hydrometallurgical facility is found to be located on slimes 11 and suggests no alternative methods of dealing with these waste materials if unstable materials underlie the disposal site. Tribal agencies stressed the need for data on stability of this hazardous facility:	EOO

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Comment ID	Comment Text	Theme Codes
8	The PolyMet NorthMet project should not proceed to release of a final EIS unless and until objective and reasonable engineering demonstrates that there is a design or set of designs capable of demonstrating geotechnical stability under all reasonably predicted conditions, including water saturation. Among the mitigation measures and designs that should be considered to provide reasonable assurance that there would be no catastrophic release of contaminants should be at least the following: • Storage of waste rock in an off-site location (proposed in Final Scoping Decision); • Reduction in the scope of the project; • Construction of a new fully lined and structurally sound basin for tailings; • Construction of a new structurally sound hazardous waste facility for hydrometallurgical residues. Even once a design has been developed that meets requirements for geotechnical stability, the final EIS should analyze a "worst case" scenario categorizing the risk that each of these structures will fail catastrophically. This analysis should both be specific to each major source of contaminants and cumulative, if there is a multiple failure. Historic information on slope instability and dam breaks at other mines should be used to identify factors, whether related to weather or maintenance issues, that increase or decrease the risks so that members of the public as well as regulators can better appreciate the degree to which uncontrolled release of pollutants may or may not be controlled.	GT2
10	The EIS must include a thorough analysis of the extent of contamination from the LTVSMC site, a 60,000 acre contaminated brownfield site proposed for the PolyMet NorthMet plant and for disposal of polluted water, sludge and residue from the PolyMet NorthMet project. The LTVSMC tailings basin continues to contaminate groundwater and surface water more than 20 years after operations have ceased. In the wells that do exist near the tailings basin, pollutants including iron, manganese, and aluminum exceed drinking water standards, while mercury exceeds Great Lakes Initiative limits. (DEIS, Table 4.1-7, p. 4.1-13) Wells near the northern property line show substantial contamination of the groundwater aquifer, and recent well data show that the plume extends in some areas at least as far as private wells along the Embarrass River. (DEIS, Tribal Positions, pp. 4.1-2 to 4.1-3) Surface water discharges at the tailings basin also demonstrate exceedances of mercury, pH and hardness as well as several metals. (DEIS, Table 4.1-30, p. 4.1-43).	WR1E,WR3I,PD2
11	The EIS must fully characterize the existing contamination plume, including impacts on wells, aquifers and surface waters and evaluate the cumulative impacts of existing contamination along with the additional loadings proposed by the PolyMet project. As recommended by tribal cooperating agencies, the EIS must at least do the following: • Develop a groundwater flow model to show the direction and rate of groundwater flow; • Provide a complete characterization of contaminant plumes to groundwater, including impacts on private wells along the Embarrass River; • Provide a detailed characterization of background contamination and an accurate prediction of groundwater water quality including the PolyMet inputs; • Conduct water samples from lakes near the tailings basin (Hiekkilla, Mud, Kaunonen, or Hay Lakes) to determine if the pollutants at the existing tailings pile have caused contamination; • Provide a detailed characterization of background contamination and an accurate prediction of surface water quality including the PolyMet inputs; • Develop an up to date closure plan, including remediation of groundwater seepage from the tailings basin. (DEIS, Tribal Positions, pp. 4.1-2, 4.1-3, 4.1-118)	WR1E
12	The gaps in information are more striking because the PolyMet plant and tailings basin site are proposed to be located on a contaminated brownfield that, for the most part, has neither been investigated nor remediated. The DEIS states that PolyMet has "acquired surface ownership of approximately 7,000 acres of real property and portions of the taconite processing facility formerly owned by LTVSMC, and approximately 8,100 additional acres from Cleveland-Cliffs, Inc." (DEIS, p. 3-19). Under applicable law, to the extent that unremediated contamination remains on this property, if the property has already been acquired PolyMet would be legally responsible for remediation whether or not the PolyMet NorthMet mine and processing facility are developed.	WR1E,PD2

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Comment ID	Comment Text	Theme Codes
13	According to summary information in the DEIS, PolyMet is responsible for 29 of the 62 areas of concern at the LTVSMC brownfield site. Of these 29 areas of concern, 22 require further investigation and action. (DEIS, Table 4.1-9, p. 4.1-17) Not only has closure and remediation not been completed, but in many case no Phase II investigation of the extent of contamination has been prepared or response action plan approved. The remainder of the areas of concern at the LTVSMC brownfield site, for which PolyMet would not be in the chain of title, similarly, are only in the early stages of VIC investigation, having neither completed Phase II investigations, obtained approval of response action plans or conducted remediation and closure activities. (DEIS, Table 4.1-10, p. 4.1-18).	WR1E,G9
14	The DEIS fails to provide detailed information on the extent of contamination of groundwater, surface water and wells, the nature of remediation required and the cost and schedule of remediation and closure, all of which and more would be developed through the VIC program prior to acceptance of a response action plan for a brownfield site.	WR1E
15	Perhaps most troubling, even as compared with earlier drafts, the DEIS contains less information about the LTVSMC brownfield site, in some cases removing pertinent information about contamination and effectively concealing this critical issue from the public.	PD3
16	As with other areas of critical environmental concern, the DEIS defers consideration of remediation of the contaminated LTVSMC site proposed to be used by PolyMet for disposal of tailings and hydrometallurgical wastes to a potential permit process. The DEIS defers the nature of the activities required for clean-up, the environmental impacts of legacy pollution and corresponding requirements for financial expenditures. (DEIS, 4.1-116). As emphasized by tribal agencies (See DEIS, Tribal Positions, pp. 4.1-2, 4.1-3; DEIS, p. 4.1-19), this approach is contrary to the purpose of environmental review. Knowing the extent of LTVSMC site contamination and the likely costs for remediation is critical to understand the likely environmental impacts of a mining and processing project dumping materials on a site that is already contaminated. This information must be included in the EIS to provide reliable information on water quality impacts from the plant site. Detailed Phase II, response action and remediation information is also critical to provide a credible analysis of the “no action” alternative in the EIS. A “no action” scenario would require investigation and remediation of the LTVSMC site in a timely fashion and would provide environmental benefits as a result of this clean-up. If the use of the LTVSMC site for additional waste disposal by PolyMet would delay site investigation and remediation for many decades until mine closure or post-closure, the environmental harm due to this delay as well as due to the incremental wastes dumped by PolyMet must be investigated. The EIS must also contain detailed information on the extent of contamination and the costs of remediation to determine the level of financial assurance that will be required for the PolyMet project. The economics of the project itself might be affected by knowledge of the nature and level of response needed to address existing contamination at the LTVSMC site. Particularly since the PolyMet Corporation has few obvious assets and no history of production, it would seem irresponsible to proceed with the EIS without detailed information on the extent of resources needed to address brownfield contamination.	PD3,PD5,G9
17	In its listing of permits that will be sought for the PolyMet NorthMet project, the DEIS neither references the need to comply with federal Resource Conservation and Recovery Act (RCRA) or Minnesota Hazardous Waste statutes or rules pertaining to regulation and permitting of hazardous waste disposal. (See DEIS, pp. S-2 to S-3) The DEIS identifies no mitigation measures for hazardous materials. (DEIS, S-17). Perhaps most striking, although the DEIS acknowledges that the project would use or generate thousands of tons of hazardous materials including mine site waste water treatment facility chemicals – (calcium hydroxide or hydrated lime, aluminum hydroxide, sodium hydrosulfide) and plant reagents (sodium hydrosulfide, sodium hydroxide, acids, flocculants and anti-scalants) (DEIS, p. 4.12-1), the DEIS provides little explanation of how the identified hazardous materials will be utilized or the way in which hazardous residues, reactants, or by products of these hazardous chemicals would be disposed of, consistent with federal and state hazardous waste disposal statutes and rules.	HM2,HM4

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Comment ID	Comment Text	Theme Codes
18	The wastewater treatment facility will use chemical precipitation technologies, resulting in chemical precipitates and solids that may be processed in the hydrometallurgical plant. (DEIS, p. 3-10). Hazardous materials used in the hydrometallurgical process will be included in the materials pumped to the hydrometallurgical residue facility. (DEIS, Table 3.1-12, p. 3-30, p. 3- 25). Based on the chemical constituents of these processes, it is likely that precipitates and residues would have at least one of the characteristics by which hazardous wastes are identified under federal and state law: ignitability, corrosivity, reactivity, toxicity, oxidizers, lethality. (See 40 C.F.R. §261; Minn. R. 7045.0131)	HM4
19	The DEIS section on hazardous materials provides no discussion of the process and life cycles for the hazardous chemicals described above, or their reactants, residues or by-products. Without this discussion, it is not possible to determine whether either wastewater facility effluent or tailings will contain corrosive or other hazardous material. This gap is yet more troubling for the hydrometallurgical residue waste facility. Although it is clear that the hydrometallurgical residue facility will be a disposal site for hazardous wastes, the DEIS does not use the term “hazardous waste” and does not describe either the regulatory, permitting or environmental consequences of creating a waste facility at the plant site, particularly on an existing contaminated brownfield site with potentially unstable soils. The EIS must include a complete life cycle analysis of hazardous wastes and permitting and disposal requirements under applicable laws. Assessment of the potential for leakage, seepage or geotechnical failure of the hydrometallurgical residue disposal facility must consider the implications of release of hazardous and toxic materials.	HM4
20	WaterLegacy and the tribal agencies have taken the position that the public notice for the Section 404 permit should be reissued and the MPCA should be given the opportunity to analyze and make a determination under Section 401 of the Clean Water Act. The tribes site significant changes in the design of the project and adverse impacts identified in the environmental review process among their reasons for requesting a reissuance of the notice. (DEIS, p. 4.2-1, fn 1) Project designs, impacts and policies of the Minnesota Pollution Control Agency have changed since 2005. Providing an up-to-date notice of the Section 404 permit for the PolyMet NorthMet project would ensure that Section 401 water quality certification proceeds consistent with federal laws and policy guidance, making the most effective use of resources.	WE4
21	The nature and magnitude of the project and the character of proposed activities and discharges have changed or only become evident since the May 2005 notice. Since May 2005, specifically, It has been determined that the PolyMet project will directly and indirectly impact 1,522 acres of wetlands on and adjacent to the mine and tailings basin site. It has been determined that of these 1,522 acres of impacted wetlands only 300 acres of the wetlands (175 of which would only be replaced post-closure) will be replaced within the St. Louis River watershed or even the Lake Superior Basin watershed. It has been determined that sulfate discharge, seeps through the tailings basin and hydrological changes create the risk of mercury methylation and that the proposed wastewater and constructed wetlands treatment methods at the project will be ineffective in removing mercury. It has been proposed as an alternative that wells be dug and seepage pumped from the toe of the tailings basin for direct discharge to the Partridge River. Creation of a west pit lake has been proposed and it has been determined that this pit lake will exceed water quality standards and will overflow post-closure. Wild rice production areas downstream of the project have only recently been surveyed, implicating Minnesota’s unique water quality standards to protect this resource. In addition, it should be emphasized that the MPCA’s waiver of Section 401 certification did not reflect a policy determination, but the severity of budget constraints. Since late 2006, the 20 MPCA has changed its practice of systematically waiving Section 401 authority, and has established criteria to identify projects where Section 401 authority will be exercised to ensure that projects comply with state water quality standards. Those criteria would strongly support exercise of MPCA Section 401 authority in connection with the PolyMet project. (http://www.pca.state.mn.us/water/401.html) Federal policy favors states’ exercise of Clean Water Act Section 401 authority to protect wetlands and water quality. (http://www.epa.gov/owow/wetlands/facts/fact24.html). In addition, particularly with respect to mercury releases and methylmercury, the MPCA has developed important expertise that could be applied if an opportunity to exercise Section 401 jurisdiction were afforded by reissuance of notice. Since 2005, the MPCA has completed a Statewide Mercury TMDL, which was approved by the U.S. EPA in 2007 and has analyzed waters impacted by the PolyMet project for fish tissue methylmercury and impaired under Section 303(d) of the Clean Water Act. Reissuance of the Section 404 notice would be appropriate under applicable law and allow an efficient use of expertise related to mercury, methylmercury, sulfates in wild rice waters and other important water quality issues under federal and state law.	WE2,WE3,WE4,WE8

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Comment ID	Comment Text	Theme Codes
22	SUMMARY The DEIS relies on a number of inappropriate assumptions regarding the Clean Water Act, NPDES permits and applicable standards preventing degradation of surface water and groundwater quality. Whether the Proposed Action, the Mine Site Alternative or the Tailings Basin Alternative is implemented, the PolyMet project will require an NPDES permit for industrial discharge. That permit may only be issued in compliance with statutes, rules and regulations protecting water quality, many of which the DEIS misinterprets or disregards. The DEIS needs to be revised consistent with NPDES permitting requirements and consistent with water quality standards and nondegradation regulations for both surface water and groundwater.	WR3I
23	There are too few public meetings to provide members of the community an opportunity to learn about this precedent-setting project and express their opinions. The perspective of which Mr. Arkley informed us on Monday, December 7, 2009, that the oral comments of members of the public cannot be made openly since so many participants are expected, heightens our concern about having only two meetings for such a significant project. We do not believe that a public meeting process where citizens are sequestered to make comments is adequately informative or participatory. If having too few meetings is contributing to the need for this type of process, the solution should be to schedule more meetings.	PRO6
23	The DEIS suggests that the only National Pollutant Discharge Elimination System (NPDES) permit required by the PolyMet NorthMet project is a stormwater permit for construction activity disturbing an acre or more of land and then diminishes the significance of a discharge of stormwater in implicating Clean Water Act requirements. Neither assumption is consistent with facts or with law. Although the DEIS attempts to suggest that there is no direct surface water discharge until the west pit overflows in approximately year 65 (DEIS, pp. 4.1- 107, 4.1-108, 4.1-109), facts belie this assumption: • Under all alternative scenarios, tailings basin seepage will upwell into wetlands draining into the Embarrass River, which wetlands as well as the river are navigable waters under federal law as well as waters of the state. Even if the Tailing Basin Alternative were to recover 95 percent of NorthMet groundwater seepage, total seepage from the NorthMet and LTVSMC tailings from Cell 2W would still significantly exceed aquifer flux capacity. (DEIS, p. 4.1-129). • Tribal agencies have identified a direct surface water connection between the northwest corner of Cell 2W of the tailings basin, through wetlands and to the Embarrass River. (DEIS, pp. 4.1-95, 4.1-107). • Water levels in the east pit and west pit after year 20 would be established by "outlet structures" used to route surface water overflows from the east pit to the west pit and from the west pit to wetlands west of the pit draining into the Partridge River. (DEIS, p. 4.1-64) • The Tailings Basin Alternative proposes direct discharge of collected tailings basin seeps to the Partridge River. (DEIS, pp. 4.1-139, 4.1-141) As acknowledged in the DEIS: [S]everal potential pathways for surface water quality impacts remain, including noncontact stormwater runoff; seepage from rock stockpile liners, the hydrometallurgical residue storage area, the Tailings Basin; and pit lake overflows. Recent hydrogeologic investigations of the Tailings Basin area show that there is not sufficient transmissivity in the downgradient aquifer to transmit the predicted seepage from the basin. As a result, the seepage upwells to the surface and affects surface water quality. (DEIS, p. 4.1-107) [N]on-contact stormwater runoff; unrecoverable groundwater seepage from the temporary and permanent waste rock/lean ore stockpiles, mine pits, overburden storage/laydown areas, various sumps, process water ponds, and the WWTF equalization ponds; and the ultimate overflow of the West Pit represent potential pathways for the Project to affect water quality in the Partridge River. (DEIS, pp. 4.1-108, 4.1-109) NPDES permits will apply to all potential sources of discharge to surface waters from various pathways, irrespective of PolyMet's attempts at characterization. In addition, "non contact" stormwater runoff must meet water quality standards, including non-degradation standards for Great Lakes Initiative waters as well as numeric concentration limits. The final EIS should be rewritten to acknowledge the application of NPDES permits to a variety of pathways for surface water discharge and to assess the potential for each and all cumulatively to violate water quality standards. To the extent that the effort to preserve a fiction that there are "no direct discharges" of surface water under the proposed alternatives has constrained a robust and candid consideration of alternatives to mitigate water quality impacts (See Section G (2), infra), the recognition that NPDES compliance is non-discretionary may improve the quality of DEIS analysis.	WR3C

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Comment ID	Comment Text	Theme Codes
24	The timing of the public meetings is too soon after the release of the massive and complicated draft EIS. Experts have not had a chance to review information and members of the public are often just learning of this issue for the first time. Scheduling public meetings in the weeks between Thanksgiving and Christmas is also inconvenient for many people, further diminishing the efficacy of public participation. Additional meetings are needed after the New Year, and the time for public comment should be extended by another two months to permit adequate public participation in review and comment on the DEIS.	PRO6
24	The DEIS contains additional errors and omissions in the application of water quality standards. For example, the DEIS states that Great Lakes Initiative standards supersede healthbased water quality standards in Minnesota rules (DEIS, p. 4.1-33), disregards nondegradation standards applicable to both Minnesota surface water and groundwater and suggests that compliance with mercury standards requires only a demonstration that water column concentrations of discharge will not exceed 1.3 ng/L. The DEIS should be revised in light of the following, more accurate highlights from federal and state water quality laws: • Where receiving surface waters do not meet applicable water quality standards for any pollutant, no discharge is permitted that will cause of contribute to the violation of water quality standards, unless there are sufficient remaining pollutant load allocations to allow for the discharge and the existing dischargers into that segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards. (40 C.F. R. §122.4(i)) • Where a pollutant in the Great Lakes System exceeds a fish tissue based standard for that pollutant, it is provided in law that any facility that discharges a detectable level of such pollutant to the water has the reasonable potential to cause or contribute to an excursion above water quality standards. (40 C.F.F. §132, Appendix F, Procedure 5, F.4; Minn. R. 7052.0220, Subp. 7). • Minnesota's health based standards, including specifically the health-based standard of 0.2 mg/kg for mercury in fish tissue is not superceded by Great Lakes Initiative water column standards. (Minn. R. 7052.0100, Subp. 1; Minn. R. 7050.0150, Subp. 2; Minnesota Statewide Mercury TMDL (2007). • Federal and Minnesota nondegradation requirements apply both to Great Lakes Initiative pollutants (Minn. R. 7052.0300, Subp. 2) and generally to pollutants that may affect uses of the surface waters in question. (40 C.F.R. §131.12(a)(1); Minn. R. 7050.0185). 23 • Minnesota nondegradation requirements apply to groundwater as well as surface water. (Minn. R. 7060.0500). • More stringent requirements for demonstration of nondegradation apply to Great Lakes Initiative bioaccumulative chemicals of concern (BCCs) and bioaccumulative substances of immediate concern (BSICs). Mercury is both. (40 C.F.R. 132.2, Table 6 (BCC); Appendix E, II.A (BSIC)). • By definition, a significant lowering of water quality for purposes of nondegradation occurs when there is a new or increased loading of any BCC (including mercury) from any new facility, whether from a point or nonpoint source. (40 C.F.R. 132, Appendix E, IIA). • Any discharger of BSICs such as mercury, into outstanding international resource waters including surface waters of the Lake Superior Basin must provide a complete nondegradation demonstration, including an analysis of best technology in process and treatment to eliminate or reduce the extent of the new or expanded discharge. (Minn. R. 7052.0010, Subp. 34, defining outstanding resource waters; Minn. 7052.0320, Subp. 3). • No variances apply to new discharges of mercury to Great Lakes Initiative waters. (40 C.F.R. 132, Appendix F, Procedure 2.A.1; Minn. R. 7052.0280, Subp. 1). • No mixing zones apply to new discharges of mercury to Great Lakes Initiative waters. (40 C.F.R. § 132, Appendix F, Procedure 3, C.1, C.4; Minn. R. 7052.0210, Subp. 3).	WR3I,WR5A
25	Many of the DEIS discussions of possible impacts to surface water and groundwater inadequately or inappropriately apply the Clean Water Act and federal regulations and State rules implementing the CWA. The DEIS needs to be revised consistent with NPDES permitting requirements with respect to water quality standards and nondegradation regulations for both surface water and groundwater.	WR3I
25	The locations of the current public meetings are inconvenient to large groups of citizens both in Greater Minnesota and in the Twin Cities area. The PolyMet project and its environmental review will set precedent for any future sulfide mining proposals. Setting a venue in the Hoyt Lakes area and placing a single Twin Cities meeting remote from the population center seem poorly designed to permit members of the public to access information and oral comment opportunities. Additional meetings are needed at more convenient locations.	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
26	A public meeting process that allows the consultant for the responsible government agencies to explain its perspective on its own draft EIS document and allows no other perspective to be voiced is neither a public meeting nor an informational meeting. This meeting format not only deprives members of the public of the opportunity to hear from each other, but prevents citizens from hearing from the cooperating agencies, who have a unique and official perspective on the findings and positions taken in the DEIS. Whether intentionally or inadvertently, it is certain that some members of the public who only hear from a consultant promoting the perspectives of the DEIS will be intimidated and will be less likely to express comments that differ from those in the DEIS	PRO6
26	The PolyMet DEIS takes this flaw a step further. The PolyMet NorthMet DEIS minimizes the primary risks of sulfide mining on water quality. The term “acid mine drainage” is contained only in the definition section, it is not used in the DEIS. Even the more euphemistic term “acid rock drainage” is used only to explain the sorting of waste rock into piles (DEIS, pp. 3-13, 4.1-65). There is no discussion in the DEIS of the risk of acid rock drainage from sulfide mines, and the experiences of other mines, including the nearby Dunka Mine, that have had this type of environmental pollution. (See e.g. U.S. EPA, Technical Resource Document Extraction and Beneficiation of Ores and Minerals, Vol. 3, August 1994, “U.S. EPA Tech. Report Ores,” pp. 1-35,1-39)	PD3
27	The PolyMet DEIS also contains no discussion of the impacts of copper, nickel and other metal leachates separately or in combination on aquatic toxicity. The Regional Copper Nickel Study data and experience at the Dunka mine underline the risk of metals releases to the aquatic food chain.2 The DEIS Section on fish and macroinvertebrates (Section 4.5) does not mention the potential for copper, nickel or other metals toxicity. Yet, since at least 1981, Dunka Pit leachate has exceeded aquatic toxicity standards: The Minnesota Department of Natural Resources (DNR) found that more than 95 percent of all leachate samples taken from the mine site between 1976 and 1980 had pH values between 6.0 and 8.5, but values as low as 4.5 were reported. Specific information regarding sampling procedures was not provided. Concentrations of trace metals (copper, nickel, cobalt, zinc) exceeded ambient levels by 10 to 10,000 times. Toxicity testing showed that copper and nickel concentrations exceeded the 48-hour lethal concentration (LC50) for Daphnia pulicaria, while nickel concentrations also exceeded the 96-hour LC50 for fathead minnow. . . Copper and nickel concentrations as high as 1.7 and 40 mg/L, respectively, have been observed in seepage/runoff from Duluth Complex waste rock stockpiles at the site. Toxicity testing of the leachate showed that copper and nickel concentrations exceeded the 48-hour lethal concentration (LC50) for Daphnia pulicaria; nickel concentrations also exceeded the 96-hour LC50 for fathead minnow. Concentrations of calcium, magnesium, and sulfate in the stockpile drainage were also elevated (MDNR, 1990). (U.S. EPA Tech. Report Ores,” supra, p. 2-43) 2 See also DEIS Comments of Bruce Johnson, which WaterLegacy has incorporated by reference. 25 Discharge from the Dunka Pit, in 2009, still fails to comply with additive toxicity (copper, nickel and zinc are combined to calculate additive toxicity) limits and Cliffs Erie continues to request variances from the Minnesota Pollution Control Agency for additive toxicity calculation, hardness and specific conductance. The extraordinary failure of the PolyMet NorthMet DEIS to address additive toxicity to the aquatic environment or acid rock drainage and the DEIS’ sanguine predictions regarding water quality result from assumptions made in the modeling, rather than the lack of real world risks from the PolyMet mine and processing facility. The next section of this comment explains some of the ways in which the PolyMet DEIS seems to assume away, rather than disclose water quality impacts.	WR3D,FM1,FM2
27	Extend the comment period on the DEIS from February 3, 2010 to at least March 26, 2010. Ensure that members of the public as well as experts have sufficient time to review and understand the DEIS before the comment period lapses.	PRO6
28	Schedule at least two meetings in late January and early February in convenient locations in Duluth and in St. Paul, Minnesota. Since the PolyMet project is the first sulfide mine to be considered for permitting in Minnesota and there are copper sulfide mining prospects in southeastern Minnesota as well, it is strongly recommended that there also be a public information meeting in Rochester.	PRO6

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Comment ID	Comment Text	Theme Codes
28	Stockpiling would expose overburden to oxidation and could result in acidic conditions and release of metals, especially cobalt, copper, nickel and zinc. NorthMet saturated overburden produced low pH in laboratory tests; although median sulfur concentrations were 0.06 percent, overburden has some areas of sulfur concentration of as high as 0.63 percent, equivalent to Category 4 waste rock reactivity. (DEIS, pp. 4.1-65 to 4.1-66). Despite areas of high sulfur concentration, the DEIS suggests that PolyMet would not sample overburden, but would place all saturated overburden in Category 1 and 2 waste rock stockpile. PolyMet would compact the overburden as it is placed "to limit oxidation and infiltration, although "the effectiveness of compaction to limit oxidation is uncertain." (DEIS, p. 4.1-66). The DEIS does not state what quantity, acid formation or metals leachate is assumed from overburden or how compaction is considered in this calculation. The DEIS does not discuss how compaction of overburden might affect liner integrity and leachate. Without this data transparently provided, it is not possible to determine whether (for purposes of all of the water quality calculations thenceforth) the DEIS has accurately modeled or has underestimated the potential for acid and metals pollution from the overburden.	WR1E,WR2D
29	Ensure that the additional public information meetings operate as public meetings. Allow members of the public to come to a microphone in front of the group and have their comments transcribed by a court reporter. This is the customary practice for environmental impact statement public meetings in energy proceedings throughout Minnesota. It is well-known and successful in helping the public understand complex issues.	PRO6
29	The DEIS assumes uniform sulfur concentrations within waste rock piles and uniform solute production throughout the rock. (DEIS, pp. 4.1-70, 4.1-71). These assumptions conflict with reports going back to the 1970s characterizing Duluth Complex rock as containing disseminated mineralization that may leach heavy metals even when it does not create low pH and acid drainage. (See Bruce Johnson DEIS Comments). The DEIS did not disclose the assumptions about pH made in deterministic modeling for the Proposed Action, stating only that the caps were based on the concentration in a water chemistry database for a given pH. (DEIS, p. 4.1-70). For the uncertainty analysis, the DEIS assumed a neutral pH range of 6.6 to 8.0 for Category 1 and 2 waste rock stockpiles and a pH of less than 4 for Category 3 lean ore. The DEIS states that copper and cobalt concentrations were higher in the uncertainty analysis as a result of using the pH range from 6.6 to 8.0 (which is a neutral rather than acidic range) and that "the maximum concentration for each of these metals is very sensitive to changes in pH." (DEIS, p. 4.1-83). The DEIS also used an acidification factor of 10 to account for the effect of a drop in pH in copper and nickel, even while admitting that this factor is very low for copper and nickel based on real-world data from the AMAX test piles. (DEIS, p. 4.1-85). The assumed rates of leaching used as inputs were based on less than six months of data, and did not predict changes in solution rate that may occur over decades or even hundreds of years. (DEIS, p. 4.1-85). The model's improbable assumptions about uniform sulfur content and uniform solute production at a specified pH are critical to the Mine Site Alternative, where the DEIS assumes that permanent stockpiles of Category 1 waste rock overburden will only contain materials with a sulfur concentration of less than 0.12 percent. (DEIS, p. 4.1-135). The DEIS does not explain how PolyMet would propose to test the 292 million tons of Category 1 waste rock piled as high as a 20 story building (74 percent of 394 million tons, DEIS, p. 3-13; maximum height of 240 feet, DEIS, p. 3-16) to ensure that no disseminated areas of higher mineralization are contained in these piles. As for the overburden, the Mine Site Alternative does not contradict the fact noted above that overburden may contain areas of high sulfur concentration and that PolyMet does not intend to test its sulfur content before stockpiling. For the Mine Site Alternative, an additional improbable assumption is then made that adding limestone to reactive waste rock stockpiles (Category 2, 3, 4 and lean ore) will maintain a uniform pH of 8 in order to limit metal solubility. (DEIS, pp. 4.1-135).	WR1E
30	Provide all meeting attendees (including attendees at the meetings this week) with a balanced perspective on the DEIS. Along with the consultant's point of view on the DEIS that EMR prepared, specifically invite a representative of the cooperating agencies to explain the alternative findings and positions developed by the Tribes. This will allow members of the public who haven't been able to wade through the thousands of pages of the DEIS and appendices to understand both points of view from the agencies formally involved in this process.	PRO6

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Comment ID	Comment Text	Theme Codes
30	The DEIS deterministic and uncertainty analysis models both used concentration caps to place an upper limit on the leachate concentrations that would otherwise have been predicted from scaling up smaller scale waste rock/lean ore stockpiles. (DEIS, pp. 4.169, 4.1-70, 4.1-82). The DEIS admits that the concentration caps require further evaluation and "may not be conservative as the amount of mineral surface area contacted by water passing through the full height of a waste rock stockpile is much greater than the surface area contacted by water passing through a humidity cell." (DEIS, p. 4.1-85). The DEIS also acknowledges that the vertical infiltration (seepage) rate for the Category 1 and 2 stockpiles will be higher than predicted. (DEIS, pp. 4.13-1, 4.13-2). Yet the water quality predictions in the DEIS are based on these questionable assumptions.	WR2F
31	The Poly Met proposed design, if achieved, is asserted to result in leakage at the "low" or average" rate. Concern regarding the ability of this system to maintain design criteria resulted in modeling a "high" liner leakage rate in the deterministic model. However, even the "high" liner leakage rate is based on defects per acre, rather than a wholesale or catastrophic failure. (DEIS, pp. 4.1-71, 4.1-75, 4.1-76). The assumptions in the uncertainty analysis regarding leakage are less transparent, but it is clear that liner failure was not among the range of probabilities analyzed. (DEIS, pp. 4.1-82 to 4.1-83). The DEIS does not state the total volume of contaminated water proposed to be contained by each liner system for each type of waste material so that the percentage of leakage from the liners that was assumed can be transparent. This is particularly problematic given the history of catastrophic failure at the Dunka Mine and some of the AMAX test plots. (See Bruce Johnson DEIS Comments). The proposed Mine Site Alternative makes even more questionable assumptions regarding liners. First this alternative appears to assume that tens of tons of Category 2, 3 and 4 waste rock can be removed to the east pit and the stockpiles where this material was piled "converted" to store hundreds of tons of Category 1 waste rock without tearing the liner system for the waste rock piles remaining in perpetuity. (DEIS, p. 4.1-135). Second, the Mine Site Alternative assumes (without citation or reference) that concerns about higher rates of liner leakage no longer apply to the more reactive waste rock since the stockpiles existing for more than a decade are temporary, so groundwater quality modeling results were evaluated using only "low" and "average" liner leakage rates. (DEIS, p. 4.1-136). The Mine Site Alternative also appears to assume that in the 10 to 20 years during which the "temporary" stockpiles of Category 2, 3 and 4 waste rock and lean ore are stockpiled, the absence of the geomembrane and overliner drainage layers in the Proposed Action would not affect oxidation, acid generation and metals leachate to groundwater from any of the stockpiles. (DEIS, p. 4.1-135). No data is provided to justify this assumption. The only cap system for waste rock in the Mine Site Alternative is a layer of soil and vegetation placed over the Category 1 rock (DEIS, pp. 3-17, 3-52)	WR2D
31	In addition, WaterLegacy would express our concern that the Minnesota Department of Natural Resources (MDNR) email address for public comments has been out of service for several days during the past week. We have repeatedly heard from citizens that their efforts to comment bounced back. We would not only request that this problem be immediately rectified and that the Department ensure that no additional shut-downs occur.	PRO6
32	We have also heard from citizens that paper copies of the DEIS are not yet available at all of the locations where the MDNR web site states that they will be available. We would request that paper copies be immediately provided at each of the referenced locations and that both paper copies and CD copies of the DEIS be available to citizens on request	PRO6
32	In addition to the above assumptions that would tend to reduce predicted water quality impacts, the PolyMet DEIS appears to disaggregate the total impacts on groundwater by analyzing each flow path from waste rock piles separately. (DEIS, pp. 4.1-79, 4.1-80, 4.1-85). It is possible that solutes from a single flow path might comply with water quality standards, while the total flow, once aggregated would not.	WR2E
33	In addition to concerns raised herein about the public hearing process and the magnitude and complexity of the environmental issues raised by the PolyMet DEIS (documented in previous letters by WaterLegacy and many other environmental groups), these technical problems with the comment process and with the availability of information to citizens provide yet further justification for extension of the time for public comment to at least March 26, 2010.	PRO6
33	Solute loading assumptions in the DEIS are also questionable, particularly the assumption of exponential decay used in the uncertainty analysis for predicting solute loading. (See Joel Roberts DEIS Comments, pp. 5-7).	WR2E

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34	The DEIS states that submerged wall rock "is not a substantial source of contaminants." (DEIS, p. 4.1-71). This analysis is flawed. Although it is highly probable that submerging wall rock reduces oxidation, it is virtually certain that it doesn't eliminate leaching of metals and acid. Inundated bulk samples in Minnesota and underground mines nationally have demonstrated leaching of both metals and acid. Seasonal turn over of water, wind and wave action will raise dissolved oxygen in open pits. In addition, even if oxidation is reduced, submerged rock will leach metals far above water quality standards. (See Bruce Johnson DEIS Comments). The Mine Site Alternative compounds the flaws in this assumption, asserting that filling the east pit with all Category 2, 3 and 4 waste rock (rather than providing liners, covers and leachate collection) will have the result of "virtually eliminating long-term sulfide oxidation and associated solute release." (DEIS, p. 4.1-134). The modeling then assumed, without references or citations, that "all backfill rock would not oxidize further once submerged." (DEIS, p. 4.1- 137).	WR2E
35	It is proposed both that the east and west mine pit will fill slowly over time and that, even when the pit lakes reach their final elevation, the water level will be 10 to 20 feet below the pit rim. (DEIS, p. 4.1-71). Although the DEIS seems to suggest that there will be a static water elevation (DEIS, p. 4.1-71), it is likely that precipitation and evaporation will cause variability in pit lake elevations, oxidizing and flushing solutes from the exposed pit rock. The DEIS fails to describe the level of solute loading from the exposed portions of the mine pits.	WR3C
36	The DEIS proposes that PolyMet will apply limestone to the pit wall rock face while backfill is being placed during pit flooding and will place overburden and a low permeability cover against the exposed Virginia Formation high wall after flooding. The DEIS admits that "successful application of this measure has not been demonstrated." Despite the lack of evidence of efficacy the DEIS states that the groundwater quality modeling in subsequent sections "assumes that these mitigation measures are successfully implemented." (DEIS, p. 4.1-66)	WR2E
37	In addition to capping solute loading from waste rock piles, the DEIS imposes limits on the prediction of solute loading from mine pits using concentration caps (DEIS, p. 4.1-72), apparently relying short-term testing of small rock piles. No specific pH, duration or chemical composition variables are explained and no scientific literature or real world verification of this assumption is provided. The Mine Site Alternative applied a concentration cap based on a pH of 8 (basic) to the oxidized solutes that would be leached during the flooding of the east pit, stating that lime would be added to the stockpiles or the pit if necessary. (DEIS, p. 4.1-137). The DEIS provided no empirical basis for the assumption that a uniform basic pH could be maintained in a sulfide rock stockpile or mine pit, yet its conclusions reflected markedly diminished predictions of leachate from many of the metals of greatest concern (copper, nickel, zinc, cobalt).	WR2F
38	The DEIS provides no information on the sulfates or solute concentrations in contaminated water entering the wastewater treatment facility (WWTF) or the specific chemical reactions and efficacy levels assumed in order to reach WWTF targets. Although the DEIS states that the WWTF will be designed for a maximum flow of 3,000 gpm, it does not disclose the volumes of contaminated waters that would be directed to the WWTF or the way in which "equalization ponds" would store contaminated water if the WWTF were operating at full capacity. (DEIS, p. 4.1-67). The DEIS, thus, provides no information from which it could be verified that WWTF effluent would attain its target concentrations and no way to estimate the size and pollutant levels of ponds storing excess contaminated water on site. The DEIS asserts that the PolyMet DEIS "targets" for treated process water need not meet state surface and groundwater standards, "since the facility does not actually discharge directly to either surface or groundwaters." (DEIS, p. 4.1-68) In fact, many of the salient water quality targets for the WWTF fail to meet one or more of Minnesota's water quality standards. The pH target (6.0-9.0) exceeds the acceptable range of both the groundwater criteria and surface water standards (6.5-8.5). The total dissolved solids target (700 mg/L) exceeds the groundwater criteria (500 mg/L). Antimony (31 μ/L) and beryllium (4 μ/L) targets exceed groundwater criteria (6.0 μ/L and 0.08 μ/L, respectively). The target for lead (19 μ/L) exceeds both the 31 groundwater (15μ/L) and the surface water (3.2 μ/L) criteria! For several metals of concern, WWTF water quality targets exceed surface water standards as follows: WWTF Target (μ/L) Surface Water Standard (μ/L)3 Cadmium 4.0 2.5 Copper 30 9.3 Nickel 100 52 Zinc 388 120 Since effluent from the WWTF will affect both groundwater and surface water, treatment targets that exceed standards are highly problematic.	WR2G,WR3I

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Comment ID	Comment Text	Theme Codes
39	The east pit wetlands is presumed to provide secondary treatment of wastewater treatment plant effluent starting at year 20 and to provide the primary treatment of waste rock stockpile leachate after the WWTF is decommissioned. (DEIS, p. 4-111). PolyMet's modeling assumed wetlands removal efficiencies ranging from 50 percent "low" removal to 80-90 percent "high" removal for six key parameters (antimony, arsenic, cobalt, copper, nickel and sulfate). These assumptions are poorly supported even in the data reflected in the DEIS. Constructed wetlands achieved 0 percent arsenic reduction, and highly variable copper and nickel reduction, and reduction rates as low as 25 percent for copper and 0 percent for nickel. Performance at the Dunka Mine wetland, with similar waste rock, was highly variable with as low as 30 percent reductions in cobalt and copper and reduction of nickel and sulfate designated only as "highly variable." (DEIS, p. 4.1-112). As noted by the tribal cooperating agencies, "the effectiveness of the passive wetland system has not been demonstrated and it is likely that the wetland treatment system would not function as the applicant has suggested." (DEIS, p. 4.1-112).	WR3L,WE6
40	The DEIS modeling acknowledges that west pit overflow could exceed surface water quality standards for arsenic, cobalt, copper, nickel and selenium. (DEIS, p. 4.1-113). Concerns about the reliability of modeling used are evident in discrepancies among the data, with cobalt, copper and nickel (released at lower pH) as much as 800 percent higher in the uncertainty analysis model. (DEIS, p. 4.1-114). Even in the case of west pit overflow, despite the continued presence of oxygen in the water and the perpetual exposure of the mine pit rim, the DEIS predicts, without citation to any	WR3C
41	Even with all of the above assumptions that minimize predicted water quality impacts, the DEIS predicted that waste rock stockpiles in the Proposed Action have the potential to exceed groundwater criteria for antimony, manganese, nickel and sulfate and to leach solutes for over 2,000 years. (DEIS, p. 4.1-84). However, the DEIS predicts no exceedance of surface water quality standards in the Upper Partridge River, except "initially" when the west pit overflows and no surface water quality exceedances in the Lower Partridge River, Colby Lake, Whitewater Reservoir or the Embarrass River. The DEIS minimizes the exceedance of groundwater quality downgradient from the tailings basin is for aluminum. (DEIS, pp. 4.1-130). Unsurprisingly, since the Mine Site Alternative assumed away most sources of acid drainage and metals leachate, the only remaining potential groundwater exceedance at the mine site was for antimony (DEIS, pp. 4.1-138 to 4.1-140). The DEIS could thus conclude, based on insufficient if not contrived information, that the Mine Site Alternative would significantly improve groundwater quality at the mine site as compared with the Proposed Alternative. The Tailings Basin Alternative does not affect predictions regarding mine site impacts. (DEIS, pp. 4.1-148, 4.1-149). Assumptions regarding the Tailings Basin Alternative as well as the tailings basin disposal system are addressed in Section B(2).	WR1E,WR3I
42	The final EIS must discuss the risks of acid mine drainage/acid rock drainage and summarize the nature of conditions at sulfide mines that increase or diminish acid production;	ALT8
43	The final EIS must discuss metal leachates as related to aquatic toxicity, particularly salient metals such as copper, and nickel, cobalt and zinc;	WR3A
44	The final EIS must model and disclose probable acid and leachate (metals and metalloids) generation from overburden, assuming the presence of uneven levels of sulfur, localized high acid and solute generation and the risks of liner rupture, potentially exacerbated by compaction;	EOO
45	The final EIS must model and disclose probable acid and leachate generation from waste rock piles, assuming disseminated mineralization and non-uniform solute formation at areas of higher mineralization even in rock that has a lower average sulfur content. It should not be assumed that any category of rock or overburden will not generate some level of acids or leachates;	WR2E
46	Whether or not lime is applied, the final EIS models should not assume uniformity of pH throughout any waste rock pile, particularly a uniformly basic pH. The effectiveness of lime in neutralizing pH in Duluth Complex rock is known to be highly variable. (K. Lapakko, MDNR Duluth Complex Mine Waste Drainage Research, presentation 3/4/09)/	WR1E
47	The final EIS must disclose leachates from dissolution rate inputs without imposing "concentration caps" and must verify that results are adequately conservative by comparing levels of leachate observed in real-world sulfide mine waste rock and lean ore piles.	WR1E

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48	The prediction of both groundwater and surface water contamination at every stage of the project must be revised based on solute concentrations that are not artificially capped.	WR1E
49	The final EIS must explain the differential acid and metal leachates likely to be produced in Category 2, 3 and 4 waste rock piles and the lean ore pile in the Mine Site Alterative as a result of having no geomembrane.	WR1E
50	The final EIS must detail the total water volumes proposed to be contained in waste rock stockpiles liners and provide a justification based on real-world experience for presumed leakage rates, including a transparent statement of the percentage of leakage assumed.	WR2D
51	The final EIS must also include modeling of water quality impacts based on catastrophic failure of and release from waste rock and lean ore liners and estimate the increased risk of liner failure due to removal of waste rock in the Mine Site Alternative.	WR1E,WR2D
52	The final EIS must also explain how each alternative complies with the requirements of Minnesota's non-ferrous rules (Minn. R. 6132.2200) stating that substantially all water should be prevented from moving through or over waste rock.	WR3I
53	The final EIS must address cumulative impacts on groundwater quality in addition to any separate analysis by flow path.	WR4A,WR5A
54	The final EIS must detail, based on peer-reviewed literature and real-world experience with submerged mine walls and reactive waste rock, the levels of acid and metals likely to continue to leach and contaminate water if pit walls and waste rock are submerged.	PD2
55	The final EIS must explain the levels of solute loading from pit walls above water levels, including the volume of contaminated water and the concentrations of acids and leached metals.	WR3C
56	The final EIS must candidly disclose the impacts of pit wall exposure on acid and leachates predicting a range of results that include inefficacy of limestone application and cover and the potential that some metals leaching would continue under a wide range of pH conditions	WR1A,WR3C
57	As with the waste rock pile solute caps, the final EIS must provide an analysis of solute loading from mine pits under the Proposed Action and the Mine Site Alternative without concentration caps.	PD2
58	If any caps are to applied, the final EIS must provide transparent information justifying the caps given the mineralization, fragmentation and pH in the mine pits over decades and even hundreds of years. The final EIS may not assume a uniform pH of 8 throughout a mine pit in which reactive waste rock has been disposed.	PD2
59	The final EIS must provide detailed information on the volume and characteristics of all inputs to the wastewater treatment facility, including solute concentrations and the treatment efficacy levels and treatment methods proposed to achieve WWTF targets.	WR2G
60	Unless specific proof is provided that a proposed secondary treatment will reduce pollutants to a level sufficient to meet both surface and groundwater standards, the final EIS must demonstrate that WWTF effluent will meet all groundwater and surface water quality standards.	WR3I
61	The final EIS must explain the size, construction and chemical composition of ponds storing contaminated water at the WWTF, including the extent of seeps to groundwater, the surficial aquifer or discharge to wetlands or surface waters likely to result from this storage.	WR3I
62	The final EIS must revise modeling of water quality impacts to reflect inefficacy of constructed wetlands to remove pollutants of concern, including copper, nickel, arsenic and sulfates as well as mercury.	WR1C,WR3L
63	The DEIS does not explicitly state the volume and concentrations of solutes in flotation tailings or wastewater effluent that would be disposed of in the tailings basin. Flotation tailings may contain flotation activators, such as copper sulfate, which is toxic to fish and other processing chemicals as well as solutes and acids. (DEIS, pp. 3-24, 4.12-6). Even if proposed targets for WWTF effluent were to be met, effluent inputs to the tailings basin would not meet surface water quality standards for pH, cadmium, copper, nickel, zinc and lead, would not meet groundwater criteria for pH, total dissolved solids antimony, beryllium or lead and would have 36 high sulfate levels. (Section B(1) supra). WWTF effluent would also have mercury levels exceeding surface water quality standards, as explained in Section B(5).	WR3I

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64	The DEIS explicitly excludes liner leakage from the hydrometallurgical residue cells within the tailings basin from groundwater modeling of the area north of the tailings basin in the Proposed Action (DEIS, p. 4.1-64, 4.1-91). Hydrometallurgical cell liner leakage will have very high sulfate concentrations – over 7,300 mg/L (DEIS, p. 4.1-118). Although the DEIS does not describe the chemical composition of hydrometallurgical residue cells and liner leakage, materials used in the hydrometallurgical plant process include toxic, corrosive and hazardous chemicals as well as the non-recoverable metals from the wastewater treatment process. (DEIS, pp. 3-30, 3-33, 4.12-1, 4.12-5, 4.12-6, Section A(6), supra).	WR2D
65	Existing LTVSMC tailings seeps result in surface water exceedances, contribute to downgradient groundwater quality violations and contain high concentrations of sulfates. Surface discharges from the tailings basin violate water quality standards for pH, hardness and mercury and have concentrations of sulfate as high as 473 mg/L. (DEIS, p. 4.1-43, Table 4.1-30). Downgradient wells from the LTVSMC tailings violate standards for pH, aluminum, beryllium, iron, manganese and mercury and have concentrations of sulfate ranging to 235 mg/L, approaching groundwater limits. (DEIS, p. 4.1-15, Table 4.1-8). LTVSMC tailings represent a significant source of sulfate and arsenic loadings. (DEIS, p. 4.1-168). Paradoxically, despite the proposed addition of a high volume of contaminants to a tailings basin already seeping and discharging sulfates and metals, the PolyMet DEIS predicts no exceedance of surface water quality standards in the Proposed Action other than for aluminum, which the DEIS explains away (DEIS, pp. 4.1-118, 4.1-119, and none in the Tailings Basin Alternative except for thallium, the significance of which is minimized. (DEIS, p. 4.1-155). The DEIS asserted that the Proposed Action would have “relatively little” adverse effect on downgradient groundwater quality. (DEIS, p 4.1-93)	WR3I
66	PolyMet would be legally responsible for any seepage from LTVSMC tailings and NorthMet and LTVSMC tailings would be physically and chemically combined. As suggested by tribal agencies, the variable pH, increased sulfates and other solutes in LTVSMC leachate must be considered in determining the level of acids, metals and metalloids that would seep from combined wastes in the tailings basin.	WR1E
67	The NorthMet tailings would be deposited with a spigot and a diffuser, which could oxygenate tailings. (DEIS, p. 4.1-87). Yet, as with submerged pit rock, the DEIS assumes that tailings that are saturated with water would be “essentially non-reactive” (DEIS, p. 4.1-86) and that the oxidation rate would be reduced to “essentially 0.” (DEIS, p. 4.1-89). No references to either literature or real-world examples are provided to support this assumption. The DEIS model also assumes no segregation of tailings, although it is known that some segregation will occur and increase oxidation. (DEIS, p. 4.1-94).	WR1E
68	The DEIS states that the sulfur content needed to produce acid drainage is between 0.14 percent and 0.17 percent sulfur, and then models releases from the tailings basin based on the average range of sulfur in pilot testing of the processing plant design (range of 0.10 percent to 0.13 percent), which just barely stays below this limit. (DEIS, p. 4.1-86). However, even in the 38 small scale plant testing, it is acknowledged that some of the tailings exceeded 0.13 percent, so that tailings could produce lower pH and higher release of nickel and cobalt. (DEIS, p. 4.1-95). It appears that the DEIS predictions may assume that sulfur in the tailings basin is below the threshold for acid drainage. Particularly since impacts of sulfates from wastewater effluent, hydrometallurgical liner leakage or LTVSMC tailings are not referenced, the DEIS may artificially limit levels of sulfur and leachate in tailing basin materials.	WR1E,WR3I

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69	For the Proposed Action, the DEIS steady state flow model predicted potential exceedances of groundwater standards for aluminum, antimony, arsenic, fluoride, iron, manganese, and sulfate. (DEIS, p. 4.1-92). The DEIS then altered assumptions in a "transient flow" analysis to predict lower concentrations, suggesting that monitoring would be used to "ensure that actual groundwater concentrations are within model predictions." (DEIS, pp. 4.1-92, 4.1-93). It appears in this section that modeling assumptions were designed to achieve a prediction of no exceedances and that there is little confidence in its reliability. A similar "transient flow" model is applied for the Tailings Basin Alternative, with similarly sanguine results. (DEIS, pp. 4.1-151, 4.1-152) DEIS applications of surface water quality standards to tailings basin seepage also require greater transparency. Looking at a single parameter, surface water quality standards for copper, the DEIS cites water quality standards at two locations on the Embarrass River in predictions for the Proposed Action (DEIS, p. 4.1-119, Table 4.1-66), but cites only the less stringent standard (20.7 mg/L at P-13) for the Tailings Basin Alternative (DEIS, p. 4.1-158, Table 4.1-84). The DEIS does not apply a surface water standard for tailings basin seepage even though the seepage would be directly discharged to the Partridge River under the Tailings Basin Alternative. Even under the limiting assumptions in the DEIS (as described above) tailings basin seepage would have maximum copper concentrations of 12µg/L to 14 µg/L, exceeding copper standards applied by the DEIS to the Partridge River. (DEIS, pp. 4.1-151,Table 4.1-79; p. 4.1-36, Table 4.1-24 hardness condition of 100 mg/L).	WR1E,WR3I
70	DEIS Comments prepared by Joel Roberts reflect flaws and inconsistencies in the technical reports pertaining to the tailings basin. Models are poorly documented, poorly validated and may exclude captured seeps to exclude solute pollution. (Joel Roberts, DEIS Comments, pp. 9-13). The modeling assumptions for the tailings basin seem to be designed to conceal rather than evaluate potential impacts on water quality. This section of the DEIS must be revised prior 39 to the final EIS as follows: • The nature and extent of contamination from the LTVSMC must be characterized through sampling as well as monitoring and considered as potential additive releases; • The volume and concentrations of inputs to the tailings basin from WWTF effluent must be quantified; • The volume and concentrations of inputs to the tailings basin from the plant must be quantified, including the volume and chemical composition of flotation tailings and volume and chemical composition of leaks from the hydrometallurgical residue facility; • Assumptions for tailings basin seepage should include conservative and "worst case" scenarios such as failure of WWTF effluent to meet target concentrations and liner leakage or liner failure from hydrometallurgical residue cells; • Modeling of the level of acid generation and metals leachate must not assume saturated tailings have "zero" reactivity, but must use predictions grounded in experience and literature, anticipating segregation of tailings and oxidation within the tailings, as well as modeling oxidation through unsaturated areas. • Modeling must not assume that tailings will remain uniformly below 0.14 percent sulfur or uniformly non-acid generating. Predictions must be based on a transparent and realistic range of potential pH from all inputs to the tailings basin, including the virtual certainty that pH will not be uniform throughout the entire tailings facility. • Chemical interactions between existing LTVSMC tailings and NorthMet inputs must be characterized for the full range of chemicals of concern. If the way in which most sulfide minerals react with existing tailings provides no "treatment" other than dilution, this result must be disclosed and appropriate regulatory limits on discharge applied. • Seepage from the tailings basin must be compared with both groundwater and surface water quality standards, applying the most stringent applicable standard. • The potential ecological and/or human health consequences of exceedances of water quality must be explicitly described. Ecological consequences must included aquatic toxicity and human health consequences must evaluate both mercury methylation in fish and effects of exceedances, including aluminum, iron and manganese, in residential wells not subject to public water quality treatment.	WR1E,WR3I,WR5A

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71	Analysis of underlying technical documents by individual WaterLegacy members reflects identical concerns about the extreme sparseness of the data and the lack of proof for extremely low hydrologic conductivity rates, which are orders of magnitude below those accepted for Duluth Complex. (Joel Robert DEIS Comments, pp. 2-5). It is troubling that the DEIS would rely on a consultant's email for conclusions about groundwater-surface water connections. It is even more troubling that the DEIS failed to provide information regarding reports and recommendations made by the United States Geological Survey in connection with this project. These omissions not only undermine the modeling on which the entire DEIS is based, but the fundamental requirements of public information and disclosure. The final EIS must be based on a rigorous and data-based hydrological model at the mine site, the plant site and impacted surface and groundwaters. Prior to the final EIS, the additional assessment, monitoring and characterization needed to accurately determine impacts on groundwater, surface water and hydrology must be performed, as recommended by the U.S. G.S. (See U.S.G.S. Minnesota Water Science Center, Quarterly Progress Report, February 25, 2009, Project 8607CEW) and tribal cooperating agencies, including but not limited to the following: • Identify, map and characterize major bedrock fractures at the mine site, identifying potential critical areas of ground-water flow between mine workings and local streams. Focus on areas where the effects of mining would have the greatest impact; • Design a monitoring-well network to assess ground-water-flow in fractures and bedrock fractures and in more permeable glacial sediments. Use borehole tools to characterize ground-water conditions in fractures and perform a series of tracer tests to establish flow conditions along important flow paths of concern; • Conduct aquifer testing and other hydrogeologic tests using a monitoring well network to determine whether a porous-media simulation could represent groundwater flow at the scale 43 of the mine site. (Recalibrate and validate models and incorporate high hydraulic conductivity features before model results are used for any ground-water-flow prediction or any geochemical modeling); • Assess vertical flow conditions between upper bedrock and glacial material based in the most critical areas of concern (shortest paths of flow between the project site and crucial water resources and habitats, and the orientation of major fracture patterns at the site); • Use geophysical surveys to map and borings and hydrologic tests to assess the extent and hydrogeology of glacial deposits and permeable glacial sands. Modeling based on lesser estimates of specific yield would affect predictions of water entering the mine and recovery after cessation of mine dewatering. • Perform current assessment of Partridge River and Embarrass River flows based on field collection of data, current and proximate stream gage information and variability of weather and precipitation, including low flow conditions; • Analyze groundwater flow direction, water tables, the extent to which water in aquifers can rise due to hydrostatic pressure (potentiometric surface), fluxes to wetlands, streams and rivers impacted by the mine site and the tailings basin. • Update and verify assessment of impacts on wetlands as well as groundwater and surface water impacts from the mine site; • Update and verify assessment of groundwater impacts on residential wells as well as impacts on wetlands surface waters from tailings basin seepage;	WR1E,WR2A
72	This analysis is completely inappropriate for mercury pollution. No mixing zones are allowed under either federal or state regulations for new discharges of bioaccumulative chemicals of concern into Great Lakes waters, including all waters impacted by the proposed PolyMet project. (40 C.F.R. § 132, Appendix F, Procedure 3; Minn. R. 7052.0210, Subp. 3).	WR4D
73	For other water pollutants, the Clean Water Act applies not only to a down-stream sampling site in the Partridge River, but would require compliance in streams (including intermittent streams) and wetlands that are connected with the Partridge River, which are also legally waters of the United States. (40 CFR § 122.2). Violation of water quality and nondegradation standards, thus, can consider no dilution for mercury and must apply to the nearest unnamed receiving water for all pollutants. The final EIS must analyze violation of water quality and nondegradation standards resulting from west pit lake overflow allowing no mixing zone for mercury and assessing impacts of all pollutants at the nearest receiving waters. It is also likely that the west pit lake itself would be protected by water quality standards under the Clean Water Act and under Minnesota law, as suggested by the tribal cooperating agencies. (DEIS, Tribal Positions, p. 4.1-103). This is particularly salient since the pit lake could exceed surface water quality standards for thousands of years, if not in perpetuity. (DEIS, Tribal Positions, pp. 4.1-101, 4.1-130) The weight of precedent holds that pit lakes can be regulated under the Clean Water Act if there is a "significant nexus" to waters that are navigable.	WR3C,WR3I

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74	As part of its assessment of water quality standards, the final EIS must: 1) describe the nexus between proposed west pit lake overflow and seepage to streams and wetlands draining into Partridge River; 2) evaluate water quality parameters and violation of water quality standards in the west pit lake, its seeps and overflow; and 3) analyze the adverse impact of water quality violations on aquatic life and water fowl exposed to the pit lake, including but not limited to piscivorous and migratory birds. (See DEIS, Tribal Positions, p. 4.4-17).	WR3C
75	All of the waters impacted by the PolyMet NorthMet mine and plant are within the Lake Superior Basin (DEIS, p. 4.1-33) and subject to the Great Lake Initiative amendment to the Clean Water Act and the federal and state regulations implementing the Great Lakes Initiative. (Minnesota Rules, Chapter 7052; Code of Federal Regulations, title 40, part 132). No new mercury discharge to these waters may exceed 1.3 ng/L. (Minn. R. 7052.0005). Although the Scoping Decision for the project suggests the potential for a variance if PolyMet discharge could not achieve this standard (DEIS, Final Scoping Decision, supra, p. 17), federal and state law prohibit variances for new discharges of mercury within the Lake Superior Basin. (40 C.F.R. §132, Appendix F, Procedure 2; Minn. R. 7052.0280). All discharges to surface waters from the project must comply with the Great Lakes Initiative mercury concentration limit. The DEIS does not clearly identify all of the ways in which the PolyMet NorthMet project could discharge mercury to surface waters. It is acknowledged that west pit overflow would be a discharge required to meet the Great Lakes Initiative mercury standard. (DEIS, p. S- 9). However, there are other aspects of the Project that are likely to be considered discharge under the Clean Water Act. Under applicable law, collected and channelized runoff, process water, pumped water from mine dewatering and waters discharged after treatment in the wastewater treatment facility would all be viewed as point source discharge if they were either directly released to the Partridge River, as in the tailings basin alternative, or if they seeped or leaked from channels, basins or pits into wetlands, streams, rivers or other surface waters.	WR4D
76	The DEIS fails to appropriately and transparently characterize the level of mercury in each of these potential discharge sources. This deficiency should be rectified in the final EIS.	WR1E
77	The EIS must evaluate the level of mercury in seeps and discharges from pit lakes and constructed wetlands, recognizing that neither the wastewater treatment facility (WWTF) nor the constructed wetlands will be consistently effective in removing mercury. (DEIS, pp. 4.1-123, 4.1-128). The average mercury concentration in drainage before treatment at the WWTF is predicted to be 8.5 ng/L, while the average after treatment is predicted to be 7.1 ng/L (DEIS, p. 4.1-123) both of which levels are far above the 1.3ng/L limit. As far as constructed wetlands:	WR3I,WR4B
78	The DEIS' reliance on dumping mercury-containing runoff water through the tailings basin to reduce mercury concentrations in seeps to below the 1.3 ng/L GLI standard, based on laboratory bench studies (DEIS, p. 4.1-124), is not consistent with real world data on mercury seeps and discharge. Testing of the groundwater beneath the existing LTVSMC tailings basin shows substantial exceedances of the GLI standard ranging from 4.2 ng/L to 7.7 ng/L (DEIS, p. 4.1-12, Table 4.1-6). Surface discharge from the tailings basin also shows repeated and significant exceedances of the GLI standard, ranging from 2.6 ng/L to 5.5 ng/L (DEIS, p. 4.1-43, Table 4.1-30). As noted by the tribal agencies, bench studies fail to take the impacts of leaching from existing tailings; their conclusions have not been adequately vetted and are illogical. (DEIS, Tribal Positions, pp. 4.1-16, 4.1-50 to 4.1-51). After treatment at the WWTF, PolyMet process water and runoff are predicted to have mercury concentrations of 7.1 ng/L (DEIS, p.4.1-123). Inputs of mercury are predicted to include 107.5 pounds per year from concentrations in the ore and 5.5 pounds per year from process materials (DEIS, p. 4.1-124). There is no basis in this data from which it could be reasonably concluded that adding WWTF effluent would reduce mercury in tailings basin seeps. The final EIS must also include a comprehensive analysis of mercury discharge to surface water and seeps to groundwater from the tailings basin based on realistic data. Groundwater modeling of the area surrounding the tailings basin must also include the mercury and sulfate load from the hydrometallurgical residue, which appears to have been excluded in the current analysis. (DEIS, p. 4.1-64).	WR3I,WR4A

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79	The DEIS released to the public removed both this summary and any quantitative assessment of the impacts of increased sulfate on mercury methylation. (Compare DEIS, pp. 4.5- 21 to 4.5-22). The DEIS also relies on a highly disputed characterization of wetlands to suggest that the tailings basin alternative, in particular, would avoid mercury methylation risks. (See e.g. DEIS, Tribal Findings, p. 4.1-113. Without analyzing downstream impoundments in the St. Louis River or the Lake Superior estuary, the DEIS asserts that the PolyMet project is not expected to "contribute significantly" to cumulative effects on mercury and methylmercury in the St. Louis River. (DEIS, p. 4.1-196). The impacts of mercury and sulfate loadings from the project to the Partridge and Embarrass Rivers must be considered with substantial cumulative sulfate loadings from other mining and minerals processing activities. (DEIS, p. 4.1-188, Table 4.1-96; p. 4.1-192, Table 4.1-99). The effects of PolyMet's increased mercury air emissions and the increased localized mercury air emissions from other mining, minerals processing and other emissions sources must also be considered. Recent MPCA data show that mercury emissions from the materials processing sector were at 735 pounds in 2005 and are anticipated to reach 841 pounds in 2010. These increases in mercury emissions are attributable to the Minnesota Steel Industries electric arc furnace steel mill and the Mesabi Nugget iron nugget production plant located in the Mesabi 51 Range and Hoyt Lakes areas, near the proposed PolyMet project. (MPCA, Estimated Mercury Emissions in Minnesota for 2005 to 2018, April 22, 2008, pp. 2, 18) Regulations under the Clean Water Act and the Great Lakes Initiative require that the point and nonpoint sources that could increase mercury methylation in impaired waters be analyzed cumulatively and quantitatively. (See Friends of Pinto Creek v. EPA, 504 F.3d 1007 (9th Cir., 2007). EPA guidance recommends, in connection with metals mining and processing that this analysis be performed in a TMDL for the affected watershed, investigating cumulative loads from point sources and localized nonpoint sources such as abandoned mines, contaminated sediments, atmospheric deposition and sulfate loadings. (U.S. EPA, 2009 Guidance for Implementing the Methylmercury Water Quality Criterion, p. 113 and Appendix D The DEIS analysis of the cumulative impacts of mercury discharge, mercury air emissions, sulfate loadings, wetlands inundation, hydrologic changes and other existing and foreseeable localized impacts on the St. Louis River watershed is clearly inadequate. The EIS should provide a realistic, comprehensive, quantitative and cumulative analysis of likely impacts on the ability of waters downstream to attain Minnesota's health-based fish tissue standards of 0.2 mg/kg (Minn. R. 7050.0220), including but not limited to the following: 1) Mercury discharges from the PolyMet project, including all nonpoint as well as point source discharges during mine operation, closure and post-closure; 2) Sulfate discharges from the PolyMet project, including all nonpoint as well as point source discharges during mine operation, closure and post-closure; 3) Quantitative analysis of mercury methylation inputs from the PolyMet project under a "worst case" scenario including high precipitation and flooding and drying weather events, based on at least the following factors during mine operations, closure and non-closure: • Increased sulfate discharge from the project, impacting methylation in streams, wetlands and impoundments from the mine site and plant site downstream until the juncture of the St. Louis River with Lake Superior. This analysis must be based on an accurate wetlands delineation and analysis of the places within the watershed where low availability of sulfates places a limitation on mercury methylation; • Hydrologic changes, particularly to the Partridge River, Colby Lake and Whitewater Reservoir result	WR1E,WR4B,WR5A,FM1,

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80	Protection of wild rice is uniquely recognized under Minnesota water quality laws. It is explicitly provided that the quality of wild rice waters and the habitat necessary to support wild rice must not be degraded: Wild rice is an aquatic plant resource found in certain waters within the state. The harvest and use of grains from this plant serve as a food source for wildlife and humans. In recognition of the ecological importance of this resource, and in conjunction with Minnesota Indian tribes, selected wild rice waters have been specifically identified [WR] and listed in part 7050.0470, subpart 1. The quality of these waters and the aquatic habitat necessary to support the propagation and maintenance of wild rice plant species must not be materially impaired or degraded. The quality of these waters and the aquatic habitat necessary to support the propagation and maintenance of wild rice plant species must not be materially impaired or degraded. If the standards in this part are exceeded in waters of the state that have the Class 4 designation, it is considered indicative of a polluted condition which is actually or potentially deleterious, harmful, detrimental, or injurious with respect to the designated uses. (Minn. R. 7050.0224, Subp. 1) The St. Louis River is explicitly identified in Minnesota law as a wild rice water (Minn. R. 7050.0470). Concentrations of sulfates above 10 mg/L are defined as degradation and prohibited in this wild rice water. Yet the DEIS both tries to minimize the presence of wild rice on the St. Louis River (an argument precluded by the regulatory classification of these waters) and provides no analysis of the impacts of cumulative sulfate loadings from the PolyMet NorthMet project on the St. Louis River. (See DEIS, p. 4.1-195). The EIS must provide detailed information on sulfate loadings to the St. Louis River from the PolyMet project. If these loadings, taken together, increase sulfate above 10 mg/L in this designated wild rice river, changes in project design, mitigation or treatment will be required to avoid violations of law.	WR1E,WR4F
81	The cumulative impacts analysis of the PolyMet project, along with other mining and minerals processing expansions acknowledges, “The activities included in this cumulative effects assessment have the potential to increase sulfate concentrations in the middle segment of the St. Louis River between the confluence with the Embarrass River and Knife Falls Dam. (DEIS, p. 4.14-9) The DEIS then provides no numeric analysis of the sulfate concentrations that would result from the cumulative impacts of these projects to the St. Louis River. This failure must be rectified in the final EIS and sulfate loadings from other sources may also need to be reduced.	WR5A
82	Tribal agencies have reflected a high level of concern that the environmental review process has failed to appropriately assess and recognize the prevalence of wild rice growing in the Partridge, Embarrass and St. Louis Rivers downstream of the project. The DEIS notes that field surveys of wild rice were recently done (four years after the application for the project was made to the U.S. Army Corps of Engineers): Recent (August and September 2009) field surveys found wild rice at various locations along the Upper and Lower Partridge River, to Embarrass River, and further downstream in the lower St. Louis River. Fairly dense stands were found in the Lower Partridge River and Cedar Island Lake along the Embarrass River. (4.8-13 to 4.8-14)	WR1E

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83	Water quality analysis and claims that project parameters "meet surface water quality standards" must be revised throughout the EIS to reflect exceedance of sulfate standards in the Lower Partridge and the Embarrass Rivers. (See e.g., DEIS, Tribal Positions, pp. 4.1-116, 4.1- 147). The sulfate levels in the new DEIS, Table 4.1-67 at page 4.1-121, Effects of the Proposed Action on Wild Rice Areas and Table 4.1-86 at page 4.1-160, Estimated Effects of the Tailings Basin Alternative on Wild Rice Ares, reflect potential exceedances of Minnesota's wild rice sulfate standard in various areas of the watersheds downstream of the project. A more rigorous and comprehensive analysis of the implications of sulfate effects of the proposed action should be provided in the final EIS: • The wild rice 10 mg/L sulfate standard should be applied to the St. Louis River and any areas of the Partridge and Embarrass Rivers historically producing wild rice. (See DEIS, Tribal Positions, pp. 4.1-105, 4.1-108, 4.1-109, 4.1-128, 4.1-159, 4.1-161). • Dilution estimates in particular, should receive additional scrutiny along with the potential that hydrologic changes from pit dewatering and tailings basin seepage. (See DEIS, Tribal Positions, p. 4.1-14 to 4.1-15). • Potential capture and treatment of all discharge to the Partridge or Embarrass Rivers to reduce sulfate concentrations must be considered in the final EIS. (See DEIS, Tribal Positions, pp. 3-51 to 3-52, 4.1-133). 55 • The EIS must analyze cumulative impacts on wild rice in the Partridge, Embarrass and St. Louis Rivers from other mining and processing activities. • The historic pre-mining prevalence of wild rice in the St. Louis River watershed under low sulfate conditions must also be considered, testing sediment cores for pollen as well as reviewing historical records. (See DEIS Comments of Len Anderson). • Consultation with tribes regarding the cultural significance of wild rice must be completed, including an objective and thorough wild rice survey. (DEIS, Tribal Positions, p. 4.1-33). • The EIS must evaluate impacts of wild rice impairment on cultural resources and environmental justice, as well as defining the extent of violations of the 10 mg/L water quality standards pertaining to sulfates in waters designated for or producing wild rice.	EOO,WR1E,WR3I,WR4B,
84	Rather than reporting potential exceedances of iron, manganese, arsenic and aluminum in drinking water and discussing the potential health risks of ingestion, the DEIS seems to take every possible opportunity to dismiss risks. Specifically, the DEIS adjusts predictive models to reduce apparent risk of arsenic exceedance, discounts aluminum concentrations and, without scientific references, dismisses iron, manganese and aluminum levels as having no human health risk. These defects of omission and commission are inconsistent with the comments made by the U.S. EPA Region 5 and contradict federal public health authorities on human health toxicity.	WR3I
85	There are at least 27 existing domestic wells located between the proposed NorthMet tailings area and the Embarrass River. (DEIS, p. 4.1-20). Several of the residential wells located downgradient from the existing LTVSMC tailings basin have manganese and fluoride concentrations exceeding the groundwater evaluation criteria, and at least one exceeds aluminum criteria. Samples also show levels of arsenic close to exceedance. Although groundwater downgradient from the tailings basin is heavily contaminated with iron (at 4,743 µg/L, more than 15 times the standard of 300 µg/L), the DEIS reports no sampling of residential wells for iron. (DEIS, p. 4.1-15, Table 4.1-8). DEIS predictions of groundwater impacts of the PolyMet tailings basin on residential wells do not evaluate the additional loading of chemicals combined with any existing contaminant plume from the LTVSMC tailings (DEIS, p. 4.1-94, Fn 27). The cumulative impacts discussion of water quality doesn't even mention residential well drinking water. (See DEIS, pp. 4.14-3, 4.14-6, 4.14-8, 4.14-9). The DEIS is clearly inadequate to evaluate water quality at residential wells near the tailings basin.	WR1E,WR3I,WR5A
86	As the U.S. EPA Region 5 noted in their comments, although the DEIS altered its predictive model by "readjusting variables to less conservative inputs" the predicted arsenic concentration of 1.9 µg/L is still very close to Minnesota's chronic water quality standard of 2.0 µg/L and is still a concern. (USEPA, PDEIS Comments, supra, p. 4, altering of predictive model see DEIS, p. 4.1-115).	WR3I,WR5A
87	Dismissal of human health concerns related to arsenic, iron, manganese and aluminum is inadequate if not misleading, as even the brief summary below demonstrates.	WR5A

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88	The DEIS did not discuss the contamination of Colby Lake with amphibole or asbestoslike mineral fibers. However, tribal cooperating agencies suggest that amphibole fibers have been identified as existing pollutants in the Hoyt Lake community water supply and that they are known to cause digestive tract cancers. (DEIS, Tribal Positions, p. 4.14-4). Both the background level of amphibole fibers in Colby Lake and the potential for their increase should be identified in the EIS.	WR3F
89	Minnesota rules proscribe degradation of groundwater irrespective of whether it is used for drinking water. (Minn. R. 7060.0500). Cumulative increases in groundwater contamination must be evaluated according to nondegradation policies as well as to assess human health risk.	WR5A
90	The DEIS states that the City of Hoyt Lakes water treatment plant is able to remove nearly all iron at its water treatment plant. (DEIS, p. 4.1-116). However, U.S.EPA Region 5 Comments suggest that the methods used by Hoyt Lakes – open basin sedimentation, gravity sand filtration and corrosion control – are not the most effective in making significant reductions. (USEPA, PDEIS Comments, supra, p. 4). The final EIS should clarify what levels of iron reduction are achieved by the Hoyt Lakes treatment plant. Even if the Hoyt Lakes water treatment plant is effective in reducing iron contamination, cumulative exceedances of iron in residential wells may have serious health consequences. A portion of the public is vulnerable to hemochromatosis, or “iron overload” disease. This vulnerability is genetic, and the specific gene mutation was discovered in 1996. According to the Centers for Disease Control and Prevention (CDC), hemochromatosis is the most common genetic disease in the U.S.A. One in 8 are "silent carriers" of the single gene mutation and 1 in 100-200 have the double mutation putting them at high risk for developing the disease. The symptoms of hemochromatosis vary and can include: chronic fatigue, arthritis, heart disease, and liver problems including cirrhosis and cancer. Hemochromatosis can lead to organ damage and even death.	WR3F
91	Although the DEIS suggests that iron is effectively removed from the Hoyt Lakes water plant, no similar control of manganese is even suggested. Hoyt Lakes has had problems with manganese in the water supply in the past, due to release of manganese from lake sediments in late summer. There is no basis to believe that the method used to reduce this risk – increasing the height of the intake valve – would protect drinking water contamination from upstream sources. (See DEIS, p. 4.1-116) Manganese is a toxic chemical (CAS#: 7439-96-5) classified by the Agency for Toxic Substances and Disease Registry (ASTDR). In laboratory studies, ingestion of manganese has been found to cause kidney and urinary tract illnesses, impairments of fertility and sperm damage and nervous system dysfunction. Manganese has been shown to cross the blood-brain barrier and can cross the placenta during pregnancy, enabling it to reach a developing fetus. Very high levels of manganese ingested in water have reportedly resulted in death and there are several studies linking manganese ingestion to neurological damage. (http://www.atsdr.cdc.gov/toxprofiles/tp151-c3.pdf)	WR5A
92	U.S. EPA Region 5 Comments express particular concern about increasing aluminum concentrations over time, especially at sampling points upstream of Colby Lake. The U.S. EPA notes that, although there is no Safe Drinking Water Act Maximum Contaminant Level (MCL) yet set for aluminum, “several studies over the past several years have shown various health effects related to aluminum” so that a conclusion that predicted levels would not pose human health risks would need verification and supporting documentation. (USEPA Comments, PDEIS, supra, p. 3). The CDC’s ATSDR toxicological profile reports that in some studies, oral exposure to aluminum has been associated with increased risk of Alzheimer’s disease. It is well-established that persons with kidney disease who have difficulty removing aluminum from the body can develop bone disease or neurotoxicity attributable to excess aluminum. (http://www.atsdr.cdc.gov/toxprofiles/tp22-c3.pdf). Potential health consequences of aluminum exceedances should not be dismissed.	WR5A

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93	The final EIS must more completely assess contamination of groundwater and drinking water, including human toxicity, as follows: • Conduct (or report) more complete testing of residential water quality, including testing for iron exceedances; • Use additional wells to monitor and model the plume of groundwater contamination from the LTVSMC site; • Provide a cumulative analysis of the impacts of the LTVSMC, NorthMet project and other sources of groundwater contamination on residential wells, including but not limited to potential exceedances of iron, manganese, aluminum and arsenic; • Assess the background level of amphibole fibers in Colby Lake and any potential for their increase as a result of the NorthMet project; • Model cumulative exceedances of iron, manganese, aluminum and arsenic in Colby Lake, identifying whether and the degree to which current water treatment methods do or do not reduce concentrations; • Evaluate increases in predicted groundwater contamination under Minnesota's nondegradation rules; • Explain the potential human health consequences of all exceedances in drinking water, using available public health references, such as CDC, ATSDR, U.S. EPA and MDH publications and guidance.	WR1A,WR1E,WR5A
94	The DEIS has estimated a total of 667.9 acres of indirectly impacted wetlands, 318.6 at the mine site and 349.3 (DEIS, p. S-9) at the plant site. Due to flaws in wetland delineation, limitation of the scope of wetlands analyzed, inadequacies in analysis of hydrology and lack of explicit consideration of impacts of the project during 20 years of operation and post-closure, it is virtually certain that the indirect impacts of the project on wetlands at these sites have been significantly underestimated. The final EIS must rectify these deficiencies and provide a transparent, science-based analysis of wetland impacts over time and throughout the potentially affected watershed. The DEIS both states and implies that the indirect impacts of the PolyMet NorthMet project on wetlands would be minimal due to its characterization of the nature of the wetlands on and near the mine site as coniferous and perched bogs that are dependent on precipitation, rather than ground water for their moisture and nutrients. (PolyMet DEIS, pp. 4.2-3, pp. 4.2-11 to 4.2- 14, Table 4.2-3). The DEIS states that few acres of mine site wetlands not excavated by the project are dependent on groundwater and then concludes that no indirect impacts on wetlands from groundwater are expected at the mine site. (DEIS, p. 4.2-19). This conclusion, with its obvious strategic importance, is vigorously disputed by the tribal cooperating agencies, who object to the scientific validity of determining wetlands delineation from aerial views referenced in an email (DEIS, Tribal Positions, pp. 4.2-1, 4.2-21; DEIS, pp. 4.2-1 to 4.2-2, 4.2-19). Tribal agencies state that many of the wetlands that have been identified during delineation as "perched bogs" are cedar swamps, northern wet ash swamps, forested rich peatlands, northern alder swamps, and poor fens, all of which require groundwater inputs. (DEIS, Tribal Positions, pp. 4.2-3, 4.2-4, 4.2-5, 4.2-22, 4.2-23, 4.2-27, 4.2-49; DEIS, p. 4.2-10). Characterizing various wetland types as unconnected to groundwater may also be inconsistent with classifications published by the MDNR. (See Matt Tyler DEIS Comments). Even the underlying project wetland delineation study suggests that many wetlands potentially impacted by the project are dependent on groundwater resources:	WE1,WE2
95	Insufficient wetland delineation has been provided around the tailings basin, although wetland impacts from inundation are likely to occur. (DEIS, Tribal Positions, pp. 4.2-1 to 4.2-2). This is particularly significant since the area described as the "tailings basin" is a vast area as much as two miles in diameter, much of which is surrounded by wetlands. (See DEIS, Appendix A, Figures 3.1-27, 4.1-11). Accuracy of the DEIS wetland delineation along the Partridge River is also disputed by the tribes. (DEIS, p. 4.2-43, 4.2-48). The accurate delineation of wetlands is critical not only on and immediately adjacent to the project site, but along the Partridge and Embarrass Rivers and downstream on the St. Louis River. Although not mentioned in the DEIS, studies show that both the Partridge and the Embarrass Rivers contain extensive wetlands environments. The Partridge River tributary has 20.3 square miles of wetlands (approximately 12.5 percent of its area is wetlands) and the Embarrass River has 19.3 square miles of wetlands (approximately 10.7 percent wetlands). (Berndt & Bavin, Sulfate and Mercury Chemistry of the St. Louis River in Northeastern Minnesota: A Report to the Minerals Coordinating Committee, MDNR, Draft Report, June 2009, p. 30). Depending on the nature of these wetlands, they may be more or less vulnerable to impacts of the project due to hydrologic changes and chemical inputs.	WE1,WE2

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96	In addition to relying on an email reporting aerial views for wetlands delineation, it appears that the DEIS has relied upon an email containing anecdotal information and aerial photographs from other mines to estimate groundwater drawdown impacts on wetlands from the project. (DEIS, p. 4.2-20; DEIS, Tribal Positions p .4.2-21). The DEIS contains no quantitative assessment of mine related drawdown of the regional water table, creating a serious data gap in the ability to adequately assess indirect impacts upon wetlands. (See Section B(3), supra, DEIS, Tribal Positions, p. 4.2-20, 4.2-22).	WE2
97	The DEIS' suggestion that, instead of performing a hydrological analysis in environmental review to verify the prediction of impacts on wetlands, PolyMet could monitor for hydrological impacts and mitigate if they are found (DEIS, p. 4.2-20) is inconsistent with the legal requirements for environmental review. The core purpose of both NEPA and MEPA is to disclose environmental impacts, not to defer their recognition until a project has been built and it is too late to prevent harm.	EOO
98	Tribal agencies maintain that a more scientifically rigorous delineation of wetland types and hydrological impacts to wetlands would demonstrate more significant indirect impacts to wetlands than described in the DEIS. (DEIS, Tribal Positions, pp. 4.2-21, 4.2-22, 4.2-23). Tribal agencies have also proposed a more customary method for estimating indirect wetland impacts developed by the Army Corps of Engineers for the Crandon sulfide mine project and presented by tribal staff at professional conferences. (DEIS, Tribal Positions, p. 4.2-25). The final EIS must include the following: • An objective, transparent and comprehensive delineation of wetlands at the project site and along downstream water bodies, consistent with MDNR classifications; • Absent specific scientific justification for deviating from this methodology, the EIS should use methodology developed for the Crandon mine to estimate indirect wetlands impacts.	WE1,WE2
99	Loss of wetlands from the direct and indirect impacts of the PolyMet NorthMet project constitutes one of the most significant irreversible losses of natural resources resulting from the project. Even without considering downstream impairment of wetlands in the Embarrass, the Partridge or St. Louis River channels, the PolyMet project would have approximately 854.2 acres of direct wetland impacts and 667.9 acres of indirect wetland impacts, for a total predicted impact of 1,522.1 acres. (DEIS, p. 4.2-24). Of these wetlands, all but one coniferous bog community wetland, all shrub community wetlands and all forested swamp community wetlands are rated high quality. (DEIS, pp. 4.2-5 to 4.2-6) Minnesota law requires that, if impacts on wetlands cannot be avoided or restored, wetlands must be replaced. (Minn. Stat. §103G.222). Replacement ratios are set in rules, and the baseline requirement in the PolyMet project area is that wetlands must be replaced on a 1.5 to 1 ratio if the wetlands used for replacement are either outside the watershed or different in kind from the wetlands being lost. (Minn. R. 8420.0117, see DEIS, p. 4.2-29) It is evident from the DEIS that no plan has been developed to fully replace the wetlands impacted by the PolyMet project. The plan proposed in the DEIS suggests that there would be 175 acres of on-site mitigation of wetlands, mitigation outside the project's watershed in Aitkin with 810 acres of wetlands and 123 acres of buffer, and mitigation outside the watershed in Hinckley with 313 acres of wetland and 79 acres of buffer, for a total of 1170.3 acres of wetland credits. It is suggested that the closure plan is designed to add another 175 acres of wetlands and that the current plan provides 1,287 acres of mitigation credits. (DEIS, p. 4.2-38) First, the on-site mitigation documented in the DEIS does not add up to the 350 acre total claimed in the above summary. Just a few pages earlier, the DEIS states that the current plan includes the creation of 30 acres of wetlands on the contaminated LTVSMC emergency basin, 75 acres on the tailings basin at closure, 30 acres on the mine stockpile areas and 40 acres at the east pit, which would not be eligible for wetland credits. (DEIS, p. 4.2-30). The DEIS then goes on to state that, although other location were identified, "At the current stage of planning it is not possible to estimate the potential extent of wetland mitigation in these areas." (DEIS, pp. 4.2-30 to 4.2-31). Identified on-site mitigation, thus, adds up to a total of 135 acres of wetland credits, including post-closure mitigation. The final EIS must reconcile this discrepancy.	WE2,WE3

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100	The suggestion that evaluation and mitigation of critical environmental impacts, such as loss of wetlands can be deferred until permitting or to project operations and closure is inconsistent with the National Environmental Policy Act and the Minnesota Environmental Policy Act. NEPA requires agencies to evaluate and mitigate environmental impacts of projects before the permitting stage, the core purpose for which NEPA was enacted. (See e.g. Mexico v. Bureau of Land Management, 565 F.3d 683, 703 (10th Cir. 2009). Any wetlands for which the replacement is not identified in the final EIS should be considered unmitigated. (DEIS, Tribal Positions, p. 4.2-42). The final EIS must detail replacement of all impacted wetlands, including a discussion of replacement quality or must acknowledge the irreversible loss of the equivalent of nearly 1,000 acres of highly valuable wetlands.	WE3,WE4
101	Since the mine site would be removed from the Ceded Territory in order for the PolyMet project to proceed, none of the wetland replacements proposed in the DEIS, including those on the mine site, would be within the 1854 Ceded Territory. At most, the 175 acres proposed to be restored on the mine site or the 175 acres to be restored post-closure (DEIS, p. 4.2-38) might have some relation to waters within the remaining Ceded Territory. The planned wetland replacement, thus, would lead to a substantial loss of wetlands within the Ceded Territory. (DEIS, p. 4.14-5).	WE3,CR1
102	The Ceded Territory represents an important cultural resource that may be impacted by loss and impairment of wetlands. The DEIS does not include this issue in its description of impacts on wetlands (DEIS, Section 4.2). The final EIS must analyze the cumulative impacts of the PolyMet project on the 1854 Ceded Territory, including but not limited to the loss of wetlands and changes in wetland functional values during operation, closure and post-closure, the additive effects of air and water emissions on wetlands, and the loss of tribal access to wetlands due to the above changes and the mitigation of wetland impacts by replacements occurring outside the ceded territory. (DEIS, Tribal Positions, p. 4.2-44) Any loss of wetlands or loss of wetland functionality within the Ceded Territory that is not replaced within the Ceded Territory must be considered an irreversible and irretrievable loss of cultural resources resulting from the PolyMet project	WE3,WE5,G3,CR1,CR3,CR
103	The DEIS identifies direct impacts from other mining projects of approximately 328 acres, but describes no indirect effects on wetlands from other projects. (DEIS, p. 4.2-46) Then, in analyzing impacts on wetlands in the Partridge River watershed, the DEIS suggests that existing wetland conditions will only be reduced by 1,155 acres (DEIS, p. 4.2-47, Table 4.2-9) even though its own analysis (which tribal agencies believe is understated) identifies 1,132 acres of impacted wetlands within the Partridge River watershed from the PolyMet mine project alone. (DEIS, p. 4.2-9) Simple addition suggests that impacts are understated.	WE2

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104	Although the DEIS acknowledges that acid mine drainage from the tailings basin has impaired the quality of surrounding wetlands (DEIS, p.4.2-52) the DEIS impacts analysis does not address the impacts of sulfate discharge, air emissions or hydrological changes beyond the mine site on wetland functionality in the Partridge River. Even with this constraint, the DEIS acknowledges that, due to the high quality of the Partridge River wetlands (3.4 percent according to the DEIS) impacted, "the function and values served by the wetlands in the watershed would be expected to be significantly affected" by the direct and indirect losses of wetlands from the PolyMet project. (DEIS, p. 4.2-48). The failure to consider functional impairment of wetlands and the impacts of increased tailings basin drainage on surrounding wetlands renders the analysis of impacts to the Embarrass River watershed meaningless. The DEIS minimizes the loss of wetlands around the existing tailings basin due to their low quality without an assessment of how increased discharge at the PolyMet plant might impair the function of additional wetlands. (DEIS 4.2-52). This analysis is inadequate. Minnesota Rules recognize that the public value of wetlands is based upon their function, including filtration of pollutants to surface water and groundwater, using nutrients that would otherwise pollute public waters, trapping sediments, recharging groundwater, flood and storm water retention and fish, wildlife and native plant habitats. (Minn. R. 8420.0522). Minnesota Rules on replacement of wetlands require analysis of both the value and function of wetlands that may be impacted. (See Minn. R. 8420.0515). Although the DEIS acknowledges that there would be significant impacts on the Partridge River watershed as a result of the PolyMet project, no characterization is provided as to the nature of the functions that would be impacted or the relationship of that loss of function to water quality and fish, wildlife and plant habitat. In order to assess wetlands impairment and mitigation, the final EIS must: • Recalculate the acreage of wetlands functionally impacted, including wetlands impacted by acid mine drainage, air emissions or hydrological changes under both the Proposed Action and the Tailings Basin Project alternative • Evaluate the impacts of loss of wetlands and wetland functionality throughout the Partridge, Embarrass and St. Louis River watersheds (See DEIS, Tribal Positions, pp. 4.2- 43, 4.2-44). • Consider cumulative indirect as well as direct impacts from other foreseeable projects in evaluating wetlands impacts to watersheds; • Provide and evaluate a mitigation plan for the NorthMet project that replaces wetlands and wetland functionality within affected watersheds. Although it might be more convenient to mitigate wetlands with large remote tracts, the Minnesota Wetlands Conservation Act may require identifying and securing smaller parcels of wetlands within the watershed to protect water resources and wetlands functionality.	WE2,WE3,WE5
105	The DEIS fails to document consultation with the USFWS pertaining to the potential that additional and cumulative mining activity will further impact critical lynx and wolf habitat. This oversight is particularly striking given the environmental impact statement process underway to address dozens of prospecting permits in the Superior National Forest (http://www.fs.fed.us/r9/forests/superior/projects/prospecting.php) and the fact that cumulative impacts from historical, present and future mining-related activities in the Mesabi Iron Range are estimated to be 153,184 acres, including impacts on 31,000 acres from future mining activities. (DEIS, p. 4.4-29).	WI1
106	Statements in the DEIS that impacts from the PolyMet and other mining projects on loss and fragmentation of wildlife habitat that extend for many decades should be considered "temporary" and not "significant" (DEIS, p. 4.14-5) have no legal or scientific basis. The DEIS cites no biological assessment that might support this conclusion. Destruction of endangered species habitat may impact species survival not only due to the destruction of acreage, but due to the impairment of wildlife travel corridors that permit endangered and other species to move between remaining areas of habitat. The DEIS acknowledges that destruction of wildlife corridors may lead to population and genetic isolation, reducing population stability and persistence. (DEIS, p. 4.4-30). The DEIS appears to rely on studies done for other proposed intrusive actions to assess the impacts of the PolyMet project on wildlife corridors. Based on this analysis, the DEIS notes that the project would impact 2 of the 13 wildlife corridors identified in a comprehensive study. (DEIS, p. 4.4-31, citing Emmons and Olivier Resources, Inc. 2006). With reference to impacts on Corridor 11 the DEIS states that the LTVSMC tailings basin, despite two decades since closure, "provides poor habitat." ((DEIS, p. 4.4-31). The DEIS characterizes the impacts on Corridor 12(17) as indirect and does not describe any impact to Corridor 10(14), southwest of the PolyMet plant site, which might be impacted, since the Mesabi Nuggett project is its other side. (DEIS, Appendix A, Figure 4.4-1). An independent USFWS consultation on corridor impacts is needed.	WI1,WI5

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107	This analysis of cumulative impacts turns environmental review upside down. Cumulative impacts analysis under the National Environmental Policy Act (42 U.S.C. §4332(2)(C); 40 C.F.R. §1508.11 and 1508.25(c)) and under the Minnesota Environmental Policy Act (Minn. Stat. §116D.04; Minn. R. 4410.1700, Subp. 7) is not intended to justify resource loss if other foreseeable projects may also be destructive, but to identify significant or even irreparable harm to the environment -- in this case, to two endangered species -- resulting from cumulative destruction. See e.g. Citizens Advocating Responsible Development v. Kandiyohi County, 713 N.W. 2d 817, 830 (Minn. 2006)(The point of the "cumulative potential effects" criterion is “to determine whether the project, which may not individually have the potential to cause significant environmental effects, could have a significant effect when other local projects already in existence or planned for the future are considered.”)	WI5
108	The final EIS must be based on Endangered Species Act law and scientific analysis of the impacts on lynx and wolf habitat and wildlife corridors rather than reassuring platitudes that impacts are not expected to be significant. Specifically, the final EIS must contain: • A biological assessment and consultation with the USFWS regarding impacts on lynx, wolf, critical habitat and wildlife travel corridors (See 50 C.F.R. 402); • Recognition that mining impacts represent a total habitat loss and that a 40 or more year loss of habitat for endangered species should be considered a permanent loss; • A cumulative impacts analysis in consultation with the USFWS based on reasonably predicted mining as well as forestry activities, consistent with the objectives of NEPA and the ESA prohibition of destruction or adverse modification of habitat for endangered species.	WI1
110	Assuming a high level of efficiency from the wet scrubber system at the hydrometallurgical facility, the DEIS identifies 8.3 pounds of new mercury emissions from the proposed PolyMet NorthMet project (DEIS, p. 4.6-34, 4.6-39). Based on a stakeholder-devised recommendation for mercury reductions, the DEIS then describes an offsetting plan for project mercury emissions that might include any of the following: offsets from purchasing emissions credits from in-state taconite or energy facilities, entering into a partnership with another mercury-emitting sector such as crematoria, collecting mercury products, or doing research with publicly owned treatment works. (DEIS, p. 4.6-35, 4.6-40 to 4.6-41). This plan is inconsistent with Clean Water Act protection of mercury-impaired waters and with Minnesota’s Statewide Mercury TMDL.	WR4C,AQ6A
111	Before the final EIS is released, a more thorough investigation of cumulative mercury emissions and sector increases must be conducted. The implication of compliance schedules for waters impaired for mercury and compliance with sector reduction targets should require a new analysis of the potential for offsets of project mercury emissions.	WR5A,AQ6A
112	The DEIS analysis of the human health risk from inhalation of pollutants at the PolyMet NorthMet plant and mine site and the analysis of risks and mitigation from hazardous air pollutants is incomplete. The final EIS must include at least the following additional analyses: cumulative cancer and non-cancer health risks including particulate emissions and amphibole fibers, identification of all hazardous air pollutants released at the mine and plant site, including releases attributable to fugitive emissions and diesel combustion, and explicit discussion of mitigation of cancer and non-cancer health risks, particularly when human health risks exceed Minnesota Health Risk Values.	AQ4B,AQ6
113	The cancer and non-cancer health assessment from the tailings basin and the mine site in the DEIS did not include amphibole fibers and does not appear to have included impacts from particulate matter or fine particulates. (DEIS, p. 4.6-23, Table 4.6-16, p. 4.6-26, Table 4.6-17). • The final EIS must clarify whether inhalation risks of particulates and fine particulates were included in the health risk assessment and explain what assumptions were made as to their chemical composition.	AQ6
114	In order to accurately characterize cancer and non-cancer risks from air emissions at the plant and mine sites, the additive risk of amphibole fibers must be included. • Additional testing should be conducted to verify that the grinding process did not interfere with the identification of amphibole fiber length; • The final EIS should estimate inhalation health risks including amphibole fibers. Given the level of uncertainty as to toxicity of the particular fibers found, a “worst case” analysis should be done under a “worst case” assuming that the toxicity of fibers in the NorthMet is similar to asbestos fibers and a “best case” analysis under less conservative risk assumptions.	AQ6

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115	Although inhalation health risks from both the NorthMet plant and the mine site are predicted exceed Minnesota health risk values, the DEIS does not describe any mitigation targeted to reduce cancer or non-cancer human health risks. This is a shocking omission. The final EIS must include mitigation to ensure that emissions from the NorthMet project do not increase health risks above acceptable levels under Minnesota Rules.	AQ5
117	The DEIS does not contain any analysis of health risks to on-site workers. • The EIS must analyze cancer and non-cancer inhalation risks to workers at the mine and the plant.	AQ6
118	The DEIS stresses that point source emissions from the PolyMet NorthMet project are below the 250 tons per year (tpy) "major source" thresholds for the prevention of significant deterioration (PSD) program so that neither technology-based requirements nor limits on incremental pollution apply. (DEIS, p. 4.6-4). This is somewhat misleading. Minnesota rules referenced in the DEIS do not set a 250 tpy threshold for a major source. Under Minnesota law, a major stationary source of pollutants for which a Part 70 permit is required is a facility that emits or has the potential to emit 100 tons per year of any air pollutant (Minn. R. 7007, Subp. 2.B.) In Minnesota, the PolyMet project would be a major source as a result of its point source criteria pollutant emissions alone, including 178 tpy of particulates (PM10), 150 tpy of fine particulates (PM 2.5), 193 tpy of total suspended particulates (TSP) and 102 tpy of volatile organic compounds (VOCs). In addition, when fugitive and mobile source emissions from the mine and the tailings basin are combined with "smokestack" emissions from the plant, the PolyMet project far exceeds even federal major source thresholds of 250 tpy for each pollutant. Mobile source emissions of nitrogen oxides (NOx) from the mine site are projected at 315 tpy, fugitive emissions of particulates (PM10) from the mine site (685 tpy) and plant site (122 tpy) combined are 807 tons per year and fugitive emissions of fine particulates (PM2.5) from the mine and plant site together are 116 tons per year. (DEIS, p. 4.6-10, Table 4.6-5). The Tailings Basin Alternative adds another 96 tpy of PM10 and 11 tpy of PM2.5 (DEIS, p. 4.6-13). The PolyMet will have a major source impact on air quality, especially as a result of particulate emissions. Criteria pollutant totals from the PolyMet project are summarized in the chart below	AQ7
119	The emission of hazardous air pollutants (HAPs) from the PolyMet project may also exceed federal source thresholds for HAPs. As noted in the preceding section E(2), the USEPA has questioned the analysis of HAPs in the DEIS, stating that mobile source toxic emissions must be included to determine whether the project exceeds major source thresholds for HAPs. (USEPA PDEIS Comments, supra, p. 2).	AQ7
120	The PolyMet NorthMet project would be located in a Class II area, rather than a Class I category applicable to wilderness areas. The first air quality analysis is whether the additional pollution from the project exceeds the increment by which pollution is allowed to increase. The DEIS estimates that the PolyMet project, combined with other regional sources will use up 97 percent of the increment in Class II areas for particulate emissions averaged over 24 hours at the mine site (29 µg/m3 of an allowable 30 µg/m3) and 83 percent of the increment at the plant site (25 µg/m3 of an allowable 30 µg/m3). (DEIS, pp. 4.6-13, 4.6-15, 4.6-16, Table 4.6-9).	AQ8
122	The DEIS air quality model included the Peter Mitchell Mine, Mesabi Nugget Phase I, Cliffs Erie Pellet Yard, Laskin Energy Center, and LTV Steel Mining Company emissions. (DEIS, p. 4.6-11). However, as the U.S. EPA highlighted in their comments, this air quality analysis did not consider all current and foreseeable projects. The Mesaba Energy power plant, Mesabi Nugget Phase II and the Keetac Expansion should have been considered in analyzing cumulative impacts on air quality, including Class II increments. (USEPA PDEIS comments, supra, p. 1). It is not clear from the DEIS whether all fugitive and mobile source emissions were included, whether cumulative impacts of the PolyMet project on mine or plant site receptors were considered or whether the increased emissions from the Tailings Basin Alternative were included. In addition to stating that additional foreseeable projects such as the Keetac expansion should not have been excluded from the cumulative analysis, tribal cooperating agencies suggest that modeling of compliance with Class II PSD increments, compliance with NAAQS and MAAQS air pollution standards and cumulative Class I PSD increment analysis failed to include complete particulate emissions from the tailings basin. (DEIS, Tribal Positions, pp. 4.6-40, 4.4- 41, 4.4-42). Since particulate emissions already approach the Class II increment limit, it is likely that if all cumulative sources and project emissions are included in the model there will be insufficient Class II increment to permit emissions of particulates at the levels proposed by PolyMet.	AQ8

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123	Data on potential exceedances of National Ambient Air Quality Standards (NAAQS) and Minnesota Ambient Air Quality Standards similarly show that standards or particulate will nearly be exceeded, even under DEIS modeling assumptions that may minimize cumulative impacts. Particulate emissions from the plant, combined with background levels of particulates are at 79 percent of allowable limits averaged over 24 hours (118 µg/m3 as compared to a standard of 150 µg/m3), while fine particulate emissions from the mine, combined with background are at 97 percent of allowable limits (34 µg/m3 as compared to a standard of 35µg/m3). (DEIS, p. 4.6-17, Table 4.6-10). Again, since particulate and fine particulate emissions already approach NAAQS and MAAQS limits, if all cumulative sources and project emissions are included in air modeling, federal and state air quality standards for particulate pollution are likely to be exceeded. Similar to the Class II increment at the project site, PSD analysis at the nearest Class I location, the Boundary Waters Canoe Area Wilderness (BWCAW) twenty-one miles away, suggests that total cumulative modeled air concentration would consume 94 percent of the increment (7.5 µg/m3, out of a PSD increment limit of 8µg/m3) for short term particulate pollution (DEIS, p. 4.6-4). The analysis of particulate (PM10) pollution, like the Class II and NAAQS analysis discussed previously, doesn't include the Mesaba Energy power plant, Mesabi Nugget Phase II and Keetac Expansion and may not include all project emissions from the tailings basin, in particular. If all cumulative sources and project emissions are included in the Class I increment analysis, it is likely that there would be insufficient remaining increment to accommodate PolyMet's increased PM10 emissions. In addition, despite requests by tribal cooperating agencies for this information (DEIS, Tribal Positions, pp.4.6-16, 4.6-18) the DEIS provides no Class I increment analysis for fine particulates. (PM2.5)	AQ8,AQ9
124	Air emissions from the PolyMet NorthMet mine and plant sites have the potential to adversely impact aquatic and terrestrial ecosystems as a result of deposition of pollutants as well as resulting in deterioration of air quality and visibility impairments. Particulates and fine particulates released by the project will contain nano particles of sulfates and heavy metals that may impact sustainable production of nearby forests. (Bruce Johnson DEIS Comments). Particulate emissions may also impact aquatic systems and increase mercury methylation:	EOO
125	Although the DEIS contains some assessment of impacts of air deposition, the analysis does not appear to include particulate or fine particulate deposition, but only sulfur dioxide and nitrogen oxide deposition. (See e.g. DEIS, pp. 4.6-20, 4.6-44). The DEIS also focuses on relatively remote receptors in Class I areas at least 21 miles away or on diffuse ecosystems, discussing the effects of NorthMet acid deposition on a four-county area including Itasca, St. Louis, Lake and Cook Counties. (DEIS, p. 4.6-44). Even without considering particulate depositions and looking at this highly diffuse four-county assessment area, the DEIS predicts that the NorthMet project will increase sulfur dioxide emissions by 6 percent and nitrogen oxides by 12 percent. (DEIS, p. 4.6-44). It should also be noted that while coal plant pollution controls may cushion the impacts of NOx and SO2 increases, particulate pollution is increasing throughout the region. (DEIS, p. 4.6-53).	EOO

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126	The misplaced advocacy in the DEIS against a finding that the NorthMet project is a major source increases suspicion that air quality modeling may fail to include appropriate inputs in order to attain a desired outcome. The final EIS must both revise its air quality analysis and provide greater transparency on sources and levels of emissions in order to dispel this concern, as follows: • Provide transparency regarding all project emissions sources, including specification of volatile organic compounds and total suspended particulates from mobile and fugitive sources and specification of the tons per year for hazardous air pollutants. Provide transparency and include in air quality modeling (Class II increment, Class I increment and compliance with NAAQS and MAAQS) all emissions from the mine and plant, including mobile and fugitive source emissions, additional emissions from the Tailings Basin Alternative and cumulative impacts from one project site to receptors at the other project site; • Revise modeling of compliance with/exceedance of Class II and Class I increments and federal and state air quality standards to include cumulative impacts of all current and foreseeable projects, including but not limited to the Mesaba Energy power plant, Mesabi Nugget Phase II and the Keetac Expansion; • In addition to the above revisions, calculate PSD Class I increment for fine particulates (PM2.5); • Revise calculations of light extinction and visibility impacts at the BWCAW based on inclusion of all project emissions and cumulative impacts of current and foreseeable projects; • Assess the chemical composition of particulate and fine particulate emissions from the mine site and plant site, including levels of sulfates and heavy metals; • Analyze the effects of deposition of particulates and fine particulates in aquatic and terrestrial ecosystems and the cumulative impacts of particulate, sulfur dioxide and nitrogen oxide deposition. • Base the analysis of deposition effects on areas of predicted highest deposition, in addition to a remote Class I or a diffuse multiple-county analysis.	AQ4,AQ8,AQ9
127	The PolyMet NorthMet DEIS contains an appropriate definition of environmental justice, but a glaringly insufficient and inappropriate analysis of this issue, in conflict with applicable law. Environmental justice requires that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial operations, such as the PolyMet mine and processing facility. Executive Order 12898 directs federal agencies to make achieving environmental justice part of their missions by identifying and addressing disproportionately high and adverse effects of agency programs,	SE2
128	The DEIS discussion of environmental justice is brief and laughably inappropriate, addressing primarily the Native American population census of St. Louis County as compared to the Native American population census for the State of Minnesota, rather than the actual impacts of the PolyMet project on property rights, health, or natural resources that are of significance to the culture and social and economic well-being of Indian tribal members. (DEIS, pp. 4.10-14 to 4.10-15). Based on this narrow and contrived analysis, the DEIS then concludes: The Project was evaluated for effects relating to the social, cultural, and economic well-being and health of minorities and low-income groups through a review of socioeconomic and demographic data compiled from the 2000 U.S. Census. Such effects are termed environmental justice issues, and none were identified for the Project. (DEIS, p. 4.10-14) The EIS must start over and provide an environmental justice analysis sufficient to comply with Executive Order 12898 and applicable civil rights laws. The environmental justice analysis should include evaluation of the disparate impacts of at least the following adverse environmental impacts of the project on Indian tribes, minority and low-income communities.	SE2
129	Indian tribal members, a protected population under civil rights laws and environmental justice analysis, are the only individuals directly and adversely impacted by loss of usufructuary rights in the 1854 Ceded Territory due to the potential transfer of Superior National Forest land to the PolyMet Mining Company. Although the DEIS suggests that the land to which Chippewa Tribes have rights will be exchanged for other land in the Ceded Territory, (DEIS, p. S-18), the DEIS neither identifies the land to be exchanged nor demonstrates that its size and functional value to the Tribes will be at least equal to that of the 6,700 acres lost. Unless the final EIS contains a detailed environmental analysis (including cultural as well as economic and environmental values) demonstrating that specific land to be exchanged for the PolyMet site creates no such adverse effect upon the Tribes, the project is discriminatory in its effect and creates a disparate adverse impact upon the Tribes.	SE2,PD2,G3,CR1,CR3,CR4

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130	The DEIS acknowledges that at least 1,222 acres of wetlands would be directly or indirectly impacted at the mine site (DEIS, p. 4.2-9). None of these wetlands are planned to be replaced in the Ceded Territory; even replacement on the mine site will no longer be within Ceded Territory once the land exchange is completed. Loss of wetlands and the cultural, social and environmental benefits they provide, will disproportionately impact the Ceded Territory to which only Indian Tribes, and no other populations have distinct rights. Since a substantial majority of the wetland acres lost as a result of the PolyMet project are within the Ceded Territory, under the current wetland replacement plan, loss of wetlands creates a substantial and unmitigated adverse impact on Indian Tribes.	WE3,WE5,SE2,G3,CR1,CR
131	Although the DEIS analysis is incomplete, it is clear that seeps and discharge from the mine and plant, local deposition of mercury emissions, sulfate mobilization of methylmercury and hydrologic changes are likely to increase the mercury contamination of fish tissue. The EIS must analyze the degree to which increases of mercury in fish tissue impact tribal waters and fisheries and the degree to which increased mercury in fish throughout the St. Louis River and Lake Superior Basin watersheds disproportionately impact Indian tribal members, other minority communities and low income persons. This analysis should address, as did proceedings to establish the Minnesota Statewide TMDL, the particular impacts on people who fish for subsistence and to whom the ability to fish for subsistence has cultural as well as social and economic significance.	WR4B,WR5C,SE2,FM1,AQ
132	Although the DEIS and Tribal Positions reflect disputes as to the degree to which wild rice will be impacted in the Partridge, Embarrass and St. Louis Rivers (See Section B(7), supra) some level of impairment is virtually certain. Any impairment of wild rice creates an environmental justice concern, since Indian tribal members gather rice at a rate greater than their census numbers and since impairment of wild rice harvests is likely to have a greater adverse impact on Indian cultural, social and economic well-being. Statewide, the DEIS acknowledges that more than 3,000 tribal members participate in wild rice harvesting statewide along with about 1,500 non-tribal individuals (DEIS, p. 4.1-44, citing MnDNR 2008). It is obvious that the rate participation in wild rice harvest is far greater for tribal members, who represent only 1.2 percent of the population in Minnesota. (DEIS, p. 4.10-14). In addition to analyzing compliance with 10 mg/L sulfate standards in wild rice waters, the final EIS must analyze environmental justice impacts of impairment of wild rice.	WR4F,WR5C,SE2
133	The DEIS has begun a more comprehensive analysis of the impacts of the project on natural resources and species of importance to Indian tribes. For each adverse impact, an environmental justice analysis is required, since “any impacts to natural resources will disproportionately affect tribes due to their subsistence consumption of wild rice, fish, and other wildlife within the 1854 Ceded Territory.” (DEIS, Tribal Positions, p. 4.10-15) In addition, since data in the DEIS suggests that the City of Hoyt Lakes has a higher percentage of families below poverty level and a lower percentage of persons in the labor force than the State of Minnesota as a whole (DEIS, p. 4.10-4, Table 4.1-06), specific potential adverse impacts to Hoyt Lakes, such as violation of water quality standards in Colby Lake, must be analyzed from an environmental justice perspective. The fact that persons in an economicallydepressed area might be willing to accept health risks if jobs are promised is precisely why an environmental justice analysis adverse impacts on low-income communities.	SE2
134	Without citing any references, the DEIS suggests only negative social and economic outcomes from the No Action Alternative, including declining employment, population decline, underutilized housing and aging population. (DEIS, p. 4.10-21) The DEIS fails to reference economic gains in St. Louis, Itasca and Lakes Counties over the past decades despite reduction in mining employment due to mechanization. See Thomas M. Power, The Economic Role of Metal Mining in Minnesota: Past Present and Future, October 2007, “Power Report,” pp. iii-v, 22-28) The DEIS also does not address adverse social or economic consequences of the risk that project could create an unfunded Superfund liability for taxpayers, as other mining projects across the nation historically have done.	SE1

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135	Missing from the DEIS analysis is any acknowledgement of the boom and bust cycle of extraction industries in Minnesota and the adverse social and economic impacts associated with the cycle once ores that can be economically extracted and processed are used up. Research pertaining to Northern Minnesota documents repeated booms and busts in the mining industry, leading to community instability and long-term decline. From 1979 to 2005, 83 percent of the iron jobs in Minnesota were eliminated, while 80 percent of the nation's copper mining jobs disappeared between 1972 and 2002. (Power Report, supra, pp. ii, 6, 7, 29). Price volatility affects the decline cycle. When metal prices are high, lower grade deposits are brought on line, adding to supply and moderating price increases. In a global market, poorer nations also attempt to secure mining jobs, displacing American sources. In addition, technical change steadily displaces labor with more powerful equipment and new electrochemical processes, resulting in a smaller workforce even for the same amount of ore extraction. Although mining inevitably depletes economically viable ores in a relatively short period of time, the process of extraction and processing creates relatively permanent environmental damage. (Power Report, supra, pp. ii, 6, 7). The EIS must assess the adverse impacts to local communities of the bust cycle, when population and payroll drop due to temporary shut-downs or inevitable closure. (DEIS, Tribal Positions, p. 4.10-14)	SE3
136	In correlating a "no action" alternative with adverse consequences, the DEIS also fails to analyze the actual economy of Northern Minnesota and its reliance on sectors of the economy that depend on residential preference and, thus, indirectly on environmental amenities, as well as tourism and recreation, that depend directly on environmental quality. Mining related income is only a small percentage of earnings in Northern Minnesota and the growth of other sectors of the economy has provided sources of income many times larger than the loss of the iron industry payroll. (See Power Report, supra, pp. iii, 10,11, 22-23, 25) The EIS must acknowledge negative economic and social impacts to local communities if natural resources are lost or damaged due to the project. (See DEIS, Tribal Positions, pp. 3-50, 4.10-14).	SE4
137	Finally, the DEIS fails to analyze the price assumptions on which both the opening and continued operation of the project depend. This is not an academic inquiry. Interest in the project was, no doubt, spurred by the quintupling of copper prices from 2001 to 2006, rising from about $0.75 per pound to about $3.80 per pound. In the 1970's, a similar sharp increase in copper prices spurred interest in development of Minnesota's copper ore deposits, but copper prices fell in the early 1980s and copper mines shut down nationwide rather than opening in lower-grade Minnesota deposits. (Power Report, pp.1, 5). Recent economic recession and predicted economic factors that might lead to the intermittent operation, early shut down or failure to fund adequate reclamation and post-closure activities if the project were to move forward should be analyzed in the EIS.	SE3
138	The final EIS should include adverse economic and social impacts of the project and potential benefits of the no action alternative, considering the following: • Information on Minnesota's mining industry, including historical and reasonably predictable cyclical "boom and bust cycles; • Analysis of the regional economy's current reliance on perceived environmental amenities, including tourism, recreation and industries such as health and finance which may be located based on residential choices; • Analysis of the adverse economic and social impacts of population and payroll loss when mining activities stall or cease, or resulting from mechanization, including impacts on unemployment, demand for social services, and tax revenues required to fund social services. • Analysis of the price structure needed to support opening of the PolyMet mine and processing facility, maintaining operations and salaries and funding closure and post-closure treatment and reclamation. • Analysis of the potential public economic risk that unfunded closure and post-closure reclamation and pollution remediation costs would become a burden on taxpayers.	SE3

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139	WaterLegacy shares the concern raised by tribal agencies that the underground alternative was prematurely eliminated, even though it would pose less harm to high quality wetlands and may be less damaging to water resources. (DEIS, p. 4.2-25). As stated by the tribes: It is the position of the tribal cooperating agencies that this alternative was eliminated prematurely and without sufficient consideration. . . The ecological costs of open-pit mining and above-ground disposal of tailings and waste rock are immense. This ecological cost, combined with the most current understanding of deposit ore grades and reasonably possible metals prices, must be evaluated to determine the viability of this alternative. (DEIS, p. 3-64) An EIS is deficient if alternatives to the project are not adequately set forth and discussed: A rigorous exploration and objective evaluation of the environmental impacts of all reasonable alternative actions, particularly those that might enhance environmental quality or avoid some or all of the adverse environmental effects, is essential. Sufficient analysis of such alternatives and their environmental benefits, costs and risks should accompany the proposed action through the agency review process in order not to foreclose prematurely options which might enhance environmental quality or have less detrimental effects. Nelson v. Butz, 377 F. Supp. 819, 823 (D. Minn. 1974), citing Environmental Defense Fund, Inc. v. Froehlke, 473 F.2d 346 (8th Cir. 1971). The final EIS must include a rigorous and objective exploration of the underground alternative, including but not limited to: • Characterization of the ore body depth, location and quality, including disclosure of the nature of resources that would not be extracted under either an underground or an open-pit method of extraction; • Independent analysis of the feasibility of underground mining, considering all costs of operation, maintenance, pollution prevention and remediation during mine operations, closure and post-closure under a range of reasonable assumptions regarding commodity pricing; • Detailed discussion of the ways in which an underground mining alternative would mitigate environmental impacts on wetlands, water quality, aquatic ecosystems, endangered species and emissions of particulates and hazardous air pollutants at the mine site as well as ways in which an underground mining alternative would affect the need for perpetual maintenance and treatment of water quality impacts post-closure.	SE4,PD1,CR1
140	Since the DEIS models minimize the risk of water quality exceedance, the need for additional mitigation of acid drainage and leachates is not readily apparent. However, in light of real world experience with drainage from sulfide mines, a robust and comprehensive range of additional mitigation measures to reduce water quality impairments is required in the EIS. The failure of the PolyMet NorthMet DEIS to consider even mitigation alternatives identified in the Final Scoping Decision undermines both the process and substance of environmental review. The suggestion in the DEIS that basic measures to protect water quality can be eliminated from consideration due to cost is inappropriate under applicable law.	WR1E
141	In the PolyMet NorthMet DEIS, several of the most obvious mitigation measures are rejected out of hand without analysis. Feasible and prudent alternatives that could protect public health and natural resources are prematurely eliminated or never considered.	ALT8
142	The final EIS must analyze in detail a robust and comprehensive range of mitigation measures to prevent waste rock, peat and overburden from contaminating groundwater and surface water and increasing mercury methylation at the mine site, including but not limited to the following: • Construction of a level and compacted platform or pad with no unsealed fractures of underlying rock surfaces prior to placement of either overburden or waste rock; • Treatment of all overburden and waste rock as reactive materials unless a protocol of small batch continuous testing has demonstrated that certain portions are non-reactive; • Use of liners under all waste rock (including Category 1 rock) stockpiles and overburden stockpiles at all times, whether or not some rock may be removed at a future date for subaqueous or off-site disposal. Such liner systems must have compacted soil liners at least three feet thick; • Use of enhanced liner systems with enhanced thicknesses and resistance to tearing and liners with leak detection systems; • Use of non-permeable liners and cover systems, including geomembranes, to prevent water infiltration on overburden and waste rock; • Collection of drainage from all waste rock and over burden facilities, including peat and unsaturated overburden stockpiles and treatment of such drainage at a wastewater treatment facility.	WR1E,WR2D,WR3I

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143	In the Final Scoping Decision, the Minnesota Department of Natural Resources (MDNR) and the U.S. Army Corps of Engineers (USACE) proposed an alternative to address the potential reactivity of the NorthMet tailings, suggesting that PolyMet develop a lined tailings storage facility at the existing LTVSMC to provide storage for five years of tailings while collecting data to determine if the tailings were reactive. If during this five-year period the tailings were determined to be non-reactive, an unlined tailings basin could be constructed and, if the tailings were ultimately determined to be reactive, Cells 1E and 2E would be lined for the entire life of the operation to prevent reactive runoff from seeping into the ground and surrounding environment, while any discharge would be monitored and, if necessary, directed to a wastewater treatment plant for appropriate treatment prior to release. The DEIS reflects that the January 2007 revised project description, arrived at with no public process or public review, removed the proposed lined tailings storage facility from consideration. (DEIS, p. 2-4). This striking change in scoping behind closed doors is inconsistent with public participation under both NEPA and MEPA.	PRO2
144	The failure to consider mitigation alternatives for the tailings basin or for disposal of hydrometallurgical waste is a fatal flaw in the DEIS. The final EIS must include mitigation of the risk of water pollution and failure of embankments at the tailings basin and the hydrometallurgical waste disposal facility, including at least the following: • Construction of the tailings basin and the hydrometallurgical waste disposal facility on a site or sites that are not already contaminated and seeping pollution into groundwater; • Construction of the tailings basin and the hydrometallurgical waste disposal facility on a site that has a secure geologic foundation, not peat, slimes or bog; • Construction of embankments for the tailings basin and the hydrometallurgical disposal facility out of inert and structurally sound material that will provide no additive sources of solute loadings, rather than LTVSMC coarse tailings; • Use of enhanced liners for the tailings basin, including geomembranes to reduce infiltration of any non-ponded area, if saturation is proposed to reduce acid and leachate formation; • Use of dewatering and thickening of tailings to reduce volume, drainage and stability concerns; • Construction of the hydrometallurgical residue disposal facility to prevent migration of constituents into groundwater or surface water, consistent with best practices for disposal of hazardous wastes, including double liners, a leak detection, collection and removal system, a cover system, a system for control of run-on and runoff, an inspection plan and treatment and disposal of any collected runoff and leachate.	ALT8,WR1E,WR2D
145	The final EIS should discuss mitigation measures for both the east pit and west pit that include the following: • Sealing of major fractures that would result in seepage to groundwater or the surficial aquifer from either pit. • Filling either or both pits with waste rock, overburden and non-reactive materials, capping the pit with a low-permeability cover to reduce infiltration and collecting and treating drainage. (Eliminating the east pit constructed wetland and/or the west pit lake). • In any alternative where a pit lake is constructed, providing specific in-pit water quality treatment and pumping of pit lake water through the wastewater treatment facility to reduce sulfates, mercury and other contaminants.	ALT8,WR3I,WR3L
146	The final EIS must include mitigation measures based on the premise that all water that will be discharged, seep or leak from the mine site or tailings basin should be treated so that it meets both groundwater and surface water quality standards and so that its release does not increase sulfate in wild rice waters. Mitigation alternatives that should be evaluated in the EIS include the following: • Construction of a wastewater treatment facility at the plant site as well as the mine site. • Capture, pumping and treatment in a WWTF of the following additional flows: seeps pumped from the tailing basin before either recycling or discharge to the Partridge River, seepage flowing south from the tailings basin to Second Creek, any overflow or standing waters from the east or west pit, seepage from waste rock stockpiles, including permanent stockpiles of Category 1 rock and overburden. • Providing sufficient WWTF capacity and treatment methodology to reduce sulfate through nanofiltration, filter mercury and achieve targets for all chemicals of concern that meet groundwater and surface water quality standards.	WR1E,WR3A,WR3I

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147	The final EIS must include alternatives to prevent exceedance of health risk values from air pollution and to reduce emissions, including emissions from fugitive and mobile sources, to accomplish at least the following objectives: • Reduce both cancer and non-cancer inhalation risks to human health at the plant and the mine site below health risk values, including significantly reducing diesel emissions. • Reduce emissions of particulates, fine particulates and nitrogen oxides through analysis of best available control technology in all mining activities, mitigating acid deposition and ensuring compliance with all Air Quality Standards and Class II and Class I prevention of significant deterioration limits. • Reduce cumulative mercury emissions increase from the plant, in light of mercury emissions increases in the minerals processing sector and the local watershed area.	AQ4B
148	The final EIS must evaluate mitigation of these impacts including the following: • Replacement of wetlands directly and indirectly impacted by the project with a) wetlands sufficient to meet legal replacement standards without a deficit; b) wetlands that provide equivalent resources to tribes and are within Ceded Territories; c) wetlands that provide the same functionality within the St. Louis River and Lake Superior Basin watersheds.• Specific steps to preserve endangered plant species, particularly those where project activities may impact a substantial proportion of State populations; • Specific steps to preserve and replace, contemporaneous with any impairment, critical habitat and wildlife corridors for endangered species that will be impacted or disrupted by the NorthMet project and other cumulative foreseeable activities. If mitigation measures cannot be taken to avoid impacts, whether on water quality, air quality, human health, wetlands or plant and animal species, the EIS must identify resulting effects as irretrievable and irreversible commitments of resources. It must be emphasized that the purpose of an EIS under both federal and state law is to identify what mitigation would be needed to prevent a proposed federal or state action in permitting a project from resulting in pollution, impairment or destruction of human health and natural resources. If the economics of extraction of ores from the NorthMet deposit don't permit basic mitigation measures, such as building a lined tailings basin on a solid foundation, treating discharges to remove sulfates and heavy metals, mitigating water and air pollutants that impair human health and violate standards and replacing impacted wetlands, either PolyMet has created overly inflated expectations in its investors or the NorthMet site has an inadequately rich deposit to permit exploitation. Part of the function of a properly written EIS is to assist project proponents in making the calculation of whether they can "do the project right" and protect the environment. If investors cannot reduce their profits or commodity markets cannot support high enough metals prices to justify mining this deposit under environmentally protective conditions, this project should go no further.	WI5,WE3
149	• Cumulative impacts on air quality, water quality, mercury loading, Class I and Class II increments of current and foreseeable actions including but not limited to the Mesaba Energy power plant, Mesabi Nugget Phase II, the Keetac Expansion Project and the Essar Steel Expansion Project;	WR5A,AQ4B
150	• Cumulative impacts of the LTVSMC tailings and other contaminated areas of concern in considering both the instability of NorthMet tailings and hydrometallurgical residues and the impacts on water quality;	PD8
151	• Cumulative impacts to wetlands, tributaries, the Partridge and Embarrass Rivers, to Colby Lake and the Whitewater Reservoir considering current water quality concentrations and exceedances, groundwater drawdown or mounding due to multiple mine projects in aquifers impacted by historical and existing mine projects;	WR5A,WE5
152	• Cumulative impacts on the Partridge, Embarrass and St. Louis Rivers including all flow paths from contaminants and all loadings from nonpoint sources and air deposition;	WR4A,WR5A,AQ4B
153	• Cumulative impacts on St. Louis River and Lake Superior Basin watershed of groundwater and surface water quality degradation, loss of wetlands, deposition of air pollutants, changes in cover and hydrologic changes resulting from historic, current and reasonably foreseeable mining and minerals processing activities;	WR5A,WE5,AQ4B
154	• Cumulative impacts on mercury in fish tissue of mercury point and nonpoint discharge, sulfate discharge, air deposition of mercury and sulfur compounds, hydrologic changes, peat disruption and stockpiling from the NorthMet project and historical, current and reasonably foreseeable actions;	WR5A,WR5C,FM3,AQ4B,

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155	• Cumulative impacts to wild rice from sulfate throughout the watershed and from hydrologic changes;	WR5A,WR5C
156	Cumulative impacts of loss of wetlands and wetland functionality throughout the St. Louis River watershed, the Lake Superior basin and the Ceded Territories, as well as in the Partridge River watershed;	WE5,CR1
157	Climate change implications of the proposed project, considering disruption of extensive areas of peat;	WE2
158	Cumulative impacts to plant and animal species that are not listed as threatened or endangered, including species such as moose that are important to tribal and non-tribal members would likely be impacted by mining projects;	WI5,G3,CR1,CR4
159	Cumulative effects on fish and macroinvertebrates, including habitat degradation and local emissions from deposition of mercury, sulfur dioxide, nitrogen oxides and particulates, and discharge to waters of sulfates and metals including mercury, nickel copper and cobalt;	WR5C,FM3,AQ4B
160	Cumulative impacts on wildlife corridors and habitat fragmentation for endangered species including historical, current and reasonably foreseeable development, including mining and minerals processing;	WI5
161	Cumulative impacts on human health, deterioration of air quality and violation of air quality standards of all NorthMet air emissions sources, including mobile source and fugitive air emissions of particulates, fine particulates, criteria pollutants and hazardous air pollutants;	AQ4B
162	Cumulative effects of noise, vibration, and visual impacts on members of the public, including tribal members;	EOO,N3
163	Cumulative environmental justice impacts of loss of usufructuary rights to Ceded Territory in the Superior National Forest, impacts on wetlands in Ceded Territory, mercury increases in fish, impairment of wild rice and wetlands in combination with other projects impacting tribal rights and resources;	SE2,G3,CR1,CR4
164	Cumulative impacts on wetlands, wildlife, water quality and social and economic concerns should be assessed for however long impacts would occur. In the case of wetlands, water quality and wildlife, impacts could occur for hundreds or thousands of years or could be permanent.	WR5A,WR5C,WI5,WE5
165	Prior to the final EIS, in addition to addressing flaws in resource-specific areas, it is strongly recommended that the DEIS reconsider the purpose of cumulative impacts analysis. The DEIS appears to conduct cumulative impacts analysis from the perspective of the project proponent. Cumulative actions are used to justify project pollution and suggest that prior or possible reductions in pollution by other sources could prevent the project from having a significant impact. (See DEIS, p. 4.14-4, discussing SO2 and NO2 deposition) or to assert that potential harm to the environment may be someone else's fault, for which another source is "culpable." (See DEIS, p. 4.1-120, 4.1-161, discussing impacts on Embarrass River water quality).	G8C
166	For all the reasons stated previously in these comments, the PolyMet NorthMet draft environmental impact statement is inadequate and insufficient. It appears to have been written to justify and promote the PolyMet NorthMet project, rather than to assess its environmental impacts and the cumulative impacts of this proposed project and other regional mining and minerals processing on the Superior National Forest, the Lake Superior watershed, human health, tribal rights and natural resources. Federal law specifically prohibits the use of an EIS to promote a project, "Environmental impact statements shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made." (40 CF.R. §1502.2 (g))	G10
167	The final EIS for the PolyMet NorthMet project must accurately and objectively apply the law, analyze the data, make appropriate modeling assumptions and assess cumulative impacts to determine the degree to which the project would result in violation of standards and regulations, pollution impairment and destruction of the environment and irreversible commitment and loss of natural resources. Any lesser analysis is legally as well as scientifically and morally insufficient.	G10
353	This letter is submitted on behalf of WaterLegacy, an organization founded to protect Minnesota water resources and the communities who depend on them. WaterLegacy has concerns about the PolyMet copper sulfide-mining project, the adequacy of the draft environmental impact statement DEIS and the adequacy of the current public meeting process.	G10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Macho **Submission ID:** 1516	
1834	DO NOT PASS! KEEP OUR MINNESOTA WATERS PURE. THERE IS NO SAFE WAY TO MINE, OUR WATERS WILL BE RUINED. DO NOT LET IS HAPPEN!	EOO,G7B
Sender Last Name:	Mackey **Submission ID:** 3532	
3794	Mr Arkley, I would like to express my current opposition to the Poly Met copper mining project. The risks involved in non ferrous mining of the type proposed and evaluated by the DEIS are too great. Northeastern Minnesota is unique in its pristine environment. We draw our drinking water from the lakes and aquifers with no fear of chemical contamination. How we move forward with this project will be judged and debated for generations. Has there ever been a sulfide mining project that did not contaminate surrounding watersheds? How can we justify the contribution of more "greenhouse gasses"? How can we answer the generations to come when they ask us how we could have offered the pristine water up for sale? The questions are endless. As long time residents of the the rural Ely area, we are aware of the need for economic stability and growth. The possibility of 400 jobs is enticing to say the least, however, without a guarantee of safety for our drinking water and air quality the price of those jobs is just too high. Provide examples of safe, successful mining operations. Our neighboring state of Wisconsin has determined that the price of sulfide mining is too high and called a moratorium on this type of operation. We need to follow their example. Thank you, Tobi Mackey	EOO,G2B,G7A
Sender Last Name:	Madrid **Submission ID:** 3200	
741	Wait a minute!! 60 days isn't nearly enough time to adequately review and judge the contents of the this EIS. Please give more time: at least an additional 45 days for review and comments; please add more public meetings to the current schedule so that more people will be able to participate; and please ensure the all public meetings be open, and allow for the public to speak and weigh in on the proposed plan. Discussion is vital to ensuring that all sides of the proposal are examined carefully, and the consequences of this proposal, both intended and unintended, are considered. Thank you, Sarah Madrid	PRO6
Sender Last Name:	Madson **Submission ID:** 1185	
1300	Hello, I am very concerned about the proposed mining – the acid min drainage will jeopardize the integrity of Minnesota's wares, particularly the BWCAW. These mines should not be permitted in order to ensure environmental & economic well being for future generations.	G7B
1411	It would really mean a lot to me if you took the time to read this. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	EOO,G2C
Sender Last Name:	Magliulo **Submission ID:** 35	
1	The DEIS is premature. The DEIS should not have been released until the required land exchange between U.S. Forest Service and public PolyMet has been completed. The DEIS is required to examine all potential environmental impacts associated with the project. The land exchange may well introduce substantial impacts and these may, in turn, interact with other aspects of the project which should be examined in the DEIS.	WR1E,PD1,GT2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2	The DEIS is incomplete. 3(a): The DEIS does not address the need for financial assurance or identify the project components for which financial assurance is necessary. Inadequate financial assurance can have profound environmental impacts extending over centuries. Financial assurance should be addressed in the DEIS rather than postponed to permitting decisions for which different regulations may apply. As quoted by the Tribal Cooperating Agencies, quote, "New national rules for financial assurance are under development by the EPA because, given the history of adverse environmental effects resulting from some hard-rock mines and the expenditure of public funds used in some cases to address environmental problems -- problems caused by mining, EPA believes it is necessary to analyze these factors in the DEIS." And this is from the insideEPA.com, Tuesday, August 25th, 2009. The DEIS fails to identify the post-closure treatment, such as wastewater, at the mine site and may have to continue for centuries. Financial assurance for such eventualities must be addressed in the DEIS.	ALT3,PD4,GT2
3	Number 1: The process for securing public comments, including the hearings of December 9th and 10th, is fundamentally flawed. 1(a): The comment period should be extended to at least 120 days as recommended by the EPA, among others. The DEIS is 700-plus pages and supporting documents run to several thousand additional pages. The intent of public comments is to secure widespread citizen input. Citizens' groups such as NMW are fairly limited in submitting comments by the enormous burden on volunteers required to respond to thousands of pages of technical presentation.	ALT3,PRO6,PD3,PD4
4	The process for obtaining public comments at the hearing is contrary to EPA intentions. Comments are intended to be public. Citizens should have the opportunity to hear and to learn from the comments made by others in a public forum and to have their own views challenged by others. The process adopted by DNR/USACE precludes these opportunities. Additional hearings should be scheduled and should include the opportunity to present views in a public forum and to challenge the views of others as part of the process.	PRO6,G9
51	1) The process for securing public comments, including the hearings of December 9 and 10, is fundamentally flawed. 1a. The comment period should be extended to at least 120 days, as recommended by EPA among others. The DEIS is 700+ pages and supporting documents run to several thousand additional pages. The intent of public comments is to secure widespread citizen input. Citizen groups such as NMW are unfairly limited in submitting comments by the enormous burden on volunteers required to respond to thousands of pages of technical presentation.	PRO6
52	1b. The process for obtaining public comments at the hearings is contrary to EPA intentions. Comments are intended to be public. Citizens should have the opportunity to hear and to learn from the comments made by others in a public forum, and to have their own views challenged by others. The process adopted by DNR/USACE precludes these opportunities. Additional hearings should be scheduled and should include the opportunity to present views in a public forum and to challenge the views of others as part of the process.	PRO6
53	2) The DEIS is premature. The DEIS should not have been released until the required land exchange between U.S. Forest Service and PolyMet has been completed. The DEIS is required to examine all potential environmental impacts associated with the Project. The land exchange may well introduce substantial impacts and these may in turn interact with other aspects of the Project which should be examined in the DEIS.	PRO4
54	3) The DEIS is incomplete. 3a. The DEIS does not address the need for financial assurance or identify the project components for which financial assurance is necessary. Inadequate financial assurance can have profound environmental impacts, extending over centuries. Financial assurance should be addressed in the DEIS rather than postponed to permitting decisions for which different regulations may apply. As quoted by the tribal cooperating agencies, “New national rules for financial assurance are under development by EPA, because ‘Given the history of adverse environmental effects resulting from some hard rock mines, and the expenditure of public funds used in some cases to address environmental problems caused by mining, EPA believes it is necessary to analyze these factors in the DEIS.’ (from InsideEPA.com, Tuesday, August 25, 2009).” The DEIS fails to identify that post closure treatments such as waste water at the mine site may have to continue for centuries. Financial assurance for such eventualities must be addressed in the DEIS.	PRO10
55	3b. The alternative of an underground mine was not examined in sufficient detail. The alternative is economically feasible. Profit margin should not be a consideration in examining the alternative in detail.	PRO2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
56	3c. The DEIS fails to adequately address a number of potential environmental impacts. These include the likelihood of structural failure at the tailings facility, the lack of structural integrity information for the proposed stockpiles, and the need for perpetual water treatment to avoid contamination to surface and groundwater resources. Structural stability of the tailings basin has been a serious concern since the Polymet project was first proposed. Three different tailings basin designs that have been presented in various draft documents. Reviews of these designs have expressed serious concerns with both the short-term and the long-term stability of the facility. A comprehensive analysis of the structural integrity of the latest tailings basin design must be included in the DEIS.	PRO3
57	3d. The DEIS fails to address existing environmental problems at the mine and processing sites. Problems at the LTVSMC Tailings Basin must be adequately addressed through PolyMet's assumption of remedial liabilities under the VIC program, and mitigation measures should be included and discussed in the DEIS.	PRO3
58	4) Data for analysis are often insufficient or absent. Analytic techniques are used inappropriately. Models are used inappropriately in the Project and rely on invalid data and assumptions. The MODFLOW model was developed to assess rates of mine pit inflow. Reported results are invalid for areas outside the mine pit footprint. The XP-SWMM model is based on stream gage data that is 17 miles from the proposed project and is 20 years old. DEIS modeling forecasts that the more PolyMet seepage released from the tailings basins, the better the water quality will be for Al, Mn and Fe in the Embarrass R iver. This incongruous result occurs probably because modeling at the basins does not appropriately account for leaching from the LTVSMC tailings when predicting future seepage quality.	PRO3

Sender Last Name: Mahlum **Submission ID:** 2581

450	- need for better information on existing pollution, the nature of wetlands, endangered species, and other resources that would be affected by the project.	WR1E,FM1,AQ4
690	- Analysis of all of the impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources.	WI5,WE8
1147	The existing inadequate showing by PolyMet Company that their waste rock and tailings piles will not collapse and dump uncontrolled pollution into nearby waters, causing potentially catostrophic water pollution.	GT2
2221	The inadequate information in the DEIS regarding the scope and extent of potential pollution, including detailed information regarding water flow from the affected areas.	WR1A
2416	As the U.S. EPA suggested, making sure that financial assurances for the public are included in the EIS long before any permitting process gets underway.	PD4
2417	- absence of a detailed reclamation plan which is tied to the required financial assurances. - unacceptable prediction in the existing DEIS that water pollution from the proposed mine could possibly last 2,000 years	WR3I,PD3
2418	The failure to analyze the land that is going to be exchanged for Superior National Forest land to make this project possible.	PD1
3139	Sulfide mining would be new to Minnesota. In other locations, sulfide mining has resulted in acid mine drainage causing extensive and expensive damage to water quality and the environment. Often, taxpayers have been stuck with the costs. The PolyMet project in Minnesota could degrade water quality, increase mercury in fish, destroy wetlands and peat bogs, fragment the habitat of endangered species, increase air pollution that results in regional haze and create a risk of perpetual pollution without adequate financial assurance that the public won't end up paying the costs.	G2C,G4A,G7A

Sender Last Name: Majerle **Submission ID:** 269

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
283	I am writing to you in support of the PolyMet Mining project. I am the Chapter Manger for the Twin Ports Arrowhead Chapter ofNECA which represents union electrical contractors in northern Minnesota who employ union employees. This project will help the Iron Range local economy by providing jobs at a time when they are needed the most. Not only will this project provide jobs for the construction workers on the project but it will hopefully allow people in the Hoyt Lakes and surrounding area's a chance to regain employment lost from the shutdown of LTV. A project to of this size will also provide significant tax dollars on a local and state level. It is my understanding that this project will be done under the strictest of environmental regulations to protect both air, water and land. The PolyMet project will be reusing not only the existing site but the current existing infrastructure as well as minimizing any disturbance of wetlands to help protect the environment. I support the construction of the PolyMet project, and I would hope that DNR would look at supporting this project as well.	EOO
Sender Last Name:	Makannak **Submission ID:** 1159	
1274	PolyMet’s plans for sulfide mining in the region from Hoyt Lakes to the edge of the Boundary Waters Canoe Area is a lose-lose situations for this irreplaceable region. Even if PolyMet does guarantee, before the mining begins, enough money for a damage deposit to cover clean-up costs when they are finished, will their financial assurance be sufficient to restore the area to its previous pristine state? My most serious concern is can the area be restored to its pristine state ever again even if the financing is available?	PD3,G4A
Sender Last Name:	Maki **Submission ID:** 231	
238	Give Polymet their Permit. We can go on and on letting people make rules on the fly. They have met the requirements existing on the books. The government agencies have done their job and know way more then "Joe Public" knows about the project. They have followed "due process" and deserve to be given their permits. Thank you,	G6
271	As a resident and business owner in Hibbing, MN, I am writing to express my support for the Polymet Mining Corporation project. As a financial advisor in an area that has been hit hard in the past 18 months by the decline in the steel industry, I would be remiss if I did not reach out at this time to make known the importance of this project to our local region. As a business owner in the financial sector, I continually strive to run my business in a manner that supports the local economy. Without any solicitation whatsoever, my clients have continually requested that portions of their dollars be invested in Polymet Mining Corporation (PLM). It is nothing less than inspirational to see the hope and support that has been generated by this project so far. It is my understanding that Polymet will produce the copper, nickel, platinum, gold and cobalt in an environmentally sound manner and generate significant economic activity in this depressed part of Minnesota. In addition, it will provide millions of dollars in local and state taxes that will, in turn, give a boost to our communities and educational systems. It is my request that you make every effort to see the Polymet Mining Corporation project through to completion.	EOO
290	We are writing, as Iron Range business owners, to support PolyMet's mining and production efforts. The lengthily environmental review process that PolyMet has gone through, with both the Federal and State regulatory agencies has not only been thorough but offers the potential environmental impact and how to mitigate it. PolyMet has proved that they will mine and produce copper, nickel, platinum, palladium, gold and cobalt in an environmentally sound way. Income generation to the potential 400 employees plus hundreds of spinoff jobs will not only lift up the depressed state of the Iron Range but it will provide millions of dollars in local and state taxes. All the affected areas need this type of financial boost in order to support the communities and educations systems. It is very clear that the people of PolyMet are Minnesotans committed to living, playing and protecting our state's environment. We cannot ask for a better business model in our state, at this time, at this place and in our state's future.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
295	We are writing, as Iron Range business owners, to support PolyMet's mining and production efforts. The lengthily environmental review process that PolyMet has gone through, with both the Federal and State regulatory agencies has not only been thorough but offers the potential environmental impact and how to mitigate it. PolyMet has proved that they will mine and produce copper, nickel, platinum, palladium, gold and cobalt in an environmentally sound way. Income generation to the potential 400 employees plus hundreds of spinoff jobs will not only lift up the depressed state of the Iron Range but it will provide millions of dollars in local and state taxes. All the affected areas need this type of financial boost in order to support the communities and educations systems. It is very clear that the people of PolyMet are Minnesotans committed to living, playing and protecting our state's environment. We cannot ask for a better business model in our state, at this time, at this place and in our state's future.	EOO
Sender Last Name:	Malinchoc **Submission ID:** 1662	
2110	I have written to Senators Klobuchar and Franken expressing my concern, please contact them for additional comment. As a resident of SE MN, which has no lakes, my family cherishes the Boundary Waters and requests that the tourism industry we support not become decimated by the quest to employ a few hundred Minnesotans at the expense of an entire industry, and one of Minnesota's greatest natural resources.	G11,G15
Sender Last Name:	Mangold **Submission ID:** 3458	
765	My opinion is that Polymet should be granted a permit to mine given the following considerations: 1.Adequate monies need to be in a government controlled fund to address any environmental issues that arise during operation that requires clean up and/or correction and any clean up issues that arise after operation. Adequate profits will be made by the corporate owners to fund this fund. 2.Polymet should be held to very high environmental standards. “Raise the bar” by the required application of the current and new technology. 3.The water runoff and any discharge water from operations must be consistently well within acceptable levels that do not impact downstream. It must be essential that the quality of water that comes out must be as good as the quality that went in. 4.The appropriate government agencies must uphold the environmental requirements and not “cave in” to corporate pressure. They have a responsibility to the public. There will be adequate profits made by the corporate owners to fund any issues properly. 5.Any issues with methyl mercury and any water quality discharge issues that are currently present from operations of LTV/Cleveland Cliffs should be dealt with by these entities and they must be held to very high standards and the government agencies must not “cave in” to pressure. Cleveland Cliffs has already made millions of dollars of profit from the purchase of the LTV operation.	EOO,PRO1,PRO3,G4A,G5,
Sender Last Name:	Mann **Submission ID:** 1177	
1292	What I would like to see is the project to be evaluated by the facts of today, not stuff that happened 30 years ago. Everyone that is born makes a impact on the world. The job is to minimize that impact while going forward.	G8B
Sender Last Name:	Marchel **Submission ID:** 2460	
2962	It only takes one bad decision to ruin an entire ecosystem, one that our children's children may never get to exsperince to decide for themselves what they like. I have a great concern that the very essence of minnesota may one day bestripped beneath our feet. The soils we know and love will change foreve, no need to speed up the process. ... and all this great stuff..Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources.	EOO,G2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name: Marchetti	**Submission ID:** 1365	
1596	Sheet Metal Workers' Local Union #10 supports the Polmet Project in Northeastern Minnesota because it will create quality jobs and boost the Iron Range economy. The$600 million project will require 1.5 nlillion hours by 300 construction workers over two years. The economic activity associated with the operation of the plant will create 400 full-time jobs and an additional 500 spin-off jobs in the region as money circulates through our communities. In particular, the ongoing maintenance of the plant will regularly employ many local people in the construction trades. Additionally, the plant will generate significant property tax revenue for the county. Investing billions of private money on the Iron Range will provide big economic benefits for regional households and governments. Rather than outsourcing quality jobs to other states and countries with weak environmental regulations, it is better to construct this plant that will serve Minnesota in Minnesota. Therefore Sheet Metal Workers' Local Union # 10 and other unions in the state support the construction of the Polymet Copper Nickel Mining Project, which will provide significant environmental improvements. With all of the employment and economic benefits associated with the Polymet Project, Sheet Metal Workers' Local Union # 10 strongly supports approval of the Polymet Project.	EOO
Sender Last Name: Marek	**Submission ID:** 3555	
3818	As you walk through day to day life you see common folks lost and hopeless, many without a job. This is the what has happened thanks to the current economic conditions. Jobs are what this country needs more than anything else, more than stimulus money, more than another unemployment extension, more than a free hand out. Allowing the PolyMet Mining Co. to move forward with their Hoyt Lakes construction project can create 300-400 new full time jobs, 500 spin off jobs in related surrounding industries, and 1000-1500 part time jobs during construction. Most of these union jobs. It are these types of jobs that get an economy moving and revive a families hope. PolyMet Mining Co. is truly a steward of our environment. When this project was first being considered the number one item on their list was taking care of the environment, and hasn’t changed today. I have spoken to members of the Polymet team and thier awareness of their place in the environment is keen. They have worked with federal and state regulatory agencies and it was found that they can meet and even exceed all environmental impact issues. Many of the people at Polymet are from the area and live their still, so their commitment to the environment is first hand and tangible. Is this letter self serving in that I am trying to get a contract from this upcoming project…….Yes it is. Yes I am trying to put of few more of my people to work for awhile. Yes I am hoping this will take a 1000 people off the unemployment rolls and onto the taxpaying rolls. Yes I am hoping that my company and the many, many more that will build this facility can make a few dollars to keep our struggling business going a little longer and keep even more on the taxpaying rolls. This is about creating jobs, not killing them. It is about giving people and families hope when they have very little to find. It is about being a steward to the environment right now and in the long term. It is about doing the right thing for many not the few. It is about much more than building this facility, and I hope that powers at be in the state of Minnesota understand that and do the right thing.	EOO
Sender Last Name: Mark	**Submission ID:** 2569	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3129	Hi, my name is Jeff Mark, and I have the good fortune to have property and a cabin on Wilson Lake. I have done much reading on the mining issue coming up for consideration in order to educate myself on the subject. Situations like this are very "charged" as both sides of the story are discussed. We need to ask ourselves why permits for this type of mining have been declined by our neighbors to the east (Wisconsin), because they felt it would do "hundreds of years worth of environmental damage for a few years worth of profit". Also, companies like this have a history of leaving the cost for clean up to be borne by the states, once they have extracted their wealth and the mine is no longer profitable. Minnesotans are just as smart as Wisconsonites, after all! I am opposed to issuing a permit for this operation. As I told my fellow Excelsior Park Board members, when a company wanted to construct a private project on public land, "just because a thing "can" be done, does not mean it "should" be done. Thank you for your help on this matter, Jeff	EOO,G4A

Sender Last Name: Markle **Submission ID:** 3493

1121	total loss of 1,454 acres of federally designated critical habitat for two endangered species known to be in the vicinity of the mine site – the Canada lynx and the gray wolf. Finally, cumulative impacts must address the loss of revenue to the Boundary Waters Canoe Area	WI1
1326	tailings basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project. Further, the PolyMet NorthMet project will result in	GT2
3240	In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes. Wisconsin has already banned sulfide mining due to the unacceptable environmental risk it presents. It is also my understanding that PolyMet proposes to use an existing mine	EOO,WR4B,FM1
3690	Water quality impacts remains a top concern. How is it acceptable to allow for up to 2,000 years of environmental impact for the short term gain of one company? Who will pay for the long term treatment required? PolyMet has few assets and little financial history. The DEIS fails to address where the funding will come from to pay for post-closure treatment, monitoring and maintenance. As a result, it seems likely that Minnesota taxpayers may have to pay millions of dollars to clean up after PolyMet has gone.	PD2,PD4
3767	Wilderness and Superior National Forest tourist industry as part of a sulfide mining district. As someone who frequently travels to the arrowhead region of Minnesota for the pristine wilderness and serenity it offers, I will very quickly take my money elsewhere if mining operations lead to widespread water contamination and loud drilling noises in the distance. While I fully understand the economic necessity of mining, and need for natural resources in our society, we need to be responsible in our decisions. Certain types of mines should simply not be permitted in certain places where the risk to the environment is too great. This appears to be the case for sulfide mining in northern Minnesota. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Sincerely, Tricia Markle	G11

Sender Last Name: Markward **Submission ID:** 2136

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2527	I support the Polymet proiject. I believe they have addressed all the environmental problems and have proposed proper solutions to those problems. All the criticism I have read about this project are based on problems that occured in the past when there was little or no restrictions on mining. Technology and restrictions have improved on everything. I believe that the DNR has installed restrictions to prevent the improper operations of the past. I am reading comments about stopping all mining. A lot of people have very short memories of what was a very significant part the mining played in the wining of the second war. In addition, if we put all our dependence on other countries for our supplies we are in deep trouble.Notheastern Minnesota is dependent on the mining industry for its economy. We have tried other industries and they do not survive. I worked for Erie/LTV Mining companies for 35 years which supported my family and the economy of our town and area. I have a cabin just outside of the BWCA and have not seen any air pollution except for the controlled burns in the BWCA. I was involved in some environmental projects at the Dunka mine to resolve some enviromental problems after the mining and stockpilling were done. A lot of work was done and was very effective. The point is that now everyone is aware of the problems before the project begins and the technology and restrictions are inplace that will prevent the environmental problems. Lets get this project going. We don't need anymore delays. Everyone had and equal chance to express their opinions. I question whether many of the oppossing opinions spent any time reading the EIS or Polymets plans.	G1
3823	I support the Polymet project. I believe the Polymet has done a good job in addressing all enviromental problems. I also believe that the DNR has done a very good job seeing that all enviromental problems have been addressed. I also question why people that do not live in this area feel that they have so much say what goes on here. They have employment elsewhere but want to eliminate us from their playground. I am still reding letters to the editors from people that have not studyed the Polymet proposal or the DNR regulations. Please bring this long debate to and end and let Polmet get started. Rules, regulations, and science are far better than 50 years ago.	EOO,G10

Sender Last Name: Markwardt **Submission ID:** 364

404	I am if favor of Polymet getting their operating permit. I think that Polymet has done an extensive job in assuring that their project can be done in an enviromentally safe way. In addition, the DNR has set up extremely tight regulations to see that the project is done environmentally correct. Everyone that had any comment had ever opportunity to do so at the schedule meetings and their should not be anymore delays for issuing a decision. The anti-parties trying to delay the process in hopes the company will decide to quit. We need the jobs in this area and the state could really use the tax money that will made.	EOO

Sender Last Name: Martin **Submission ID:** 134

123	My name is Curt Martin, I live, work and play in northeast Minnesota and, you know, our economy really needs the jobs right now. I believe that it would help Minnesota greatly to have a mine like this come into our area and it looks like they did their homework on their environment process that they've been going through and, like I said, it's going to help the economy and that's what we need right now in Minnesota is the jobs, we're really hurting for that. So that's pretty much what I've got to say and I support the mine wholeheartedly.	EOO,G6
3487	Please vote NO to Polymet Mine There is more then enough info on this subject to know that it will have a large impact on the BWCA This area is great just the way it is. Don’t destroy it for the next generation Thanks for your help	EOO

Sender Last Name: Marty **Submission ID:** 1991

1582	The question of where the funding will come from for post-closure treatment, monitoring and maintenance has not not been adequately addressed, and Minnesota taxpayers may have to pay millions of dollars for clean up after PolyMet has gone.	PD3,PD4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2479	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. Water quality, loss of wetlands, and harmful affects on wildlife are all important to consider. Just as important is the financial assurance that needs to be provided to ensure post-closure reclamation of the PolyMet NorthMet mine and plant. Sulfide mining places huge burdens on taxpayers. These mines often require long-term or perpetual pollution and treatment. PolyMet has few assets or financial history.	G2C,G4A,G7
2480	Our clean water, wildlands, and public health are valuable resources, and all of us must be sure we understand the sacrifice we are being asked to make for a Canadian company's profits. The PolyMet DEIS describes serious environmental issues associated with this proposed mine. These issues should be addressed and resolved before this mine is approved by the U.S. Army Corps of Engineers and the Minnesota Department of Natural Resources.	G2
Sender Last Name:	Masnado **Submission ID:** 2546	
2184	This example leads to my comment regarding the Draft EIS. I perused the document and did not see any indication on what actual monitoring requirements would be specified in a NPDES discharge permit or a mining permit. Nor did I see any indication that the	WR1A
2185	permits issued should require frequent monitoring for the metals in question. Specifically; arsenic, cobalt, copper, and nickel should be measured regularly from any direct discharge to nearby surface waters. A frequency of weekly would not be out of the question during mine operation. Similarly, groundwater monitoring wells located adjacent to surface water near any seepage pits or tailing containment ponds should be monitored monthly during operation and following closure of the site. As evidenced by the Ladysmith operation described above, these requirements should be continued - albeit at a reduced frequency - well after the mining operation ceases to extract and/or process ore. This is to determine whether or not the chemistry changes that occur over time create any situations where the pollutant concentrations in surface waters may increase above assumed values.	EOO,WR1A
2376	permittee would be required to set aside a specified amount of money to be used in if remediation of an unforeseen environmental issue is discovered at a later date - even after the site may be reclaimed following completion of ore extraction. At a minimum, any	PD4
Sender Last Name:	Masucci **Submission ID:** 174	
165	I am in total support of the Polymet Project, it would boost the economy we need in Northern MN, Polymet has demonstrated it can produce these critical metals while following MN’s strict environmental requirements to protect air, water and land. Polymet’s planned mine layout minimizes impact to wetlands.	EOO,G5,G7
Sender Last Name:	Mathias **Submission ID:** 2188	
2594	MIKEL MATHIAS: Well, I believe that this is a really good idea. The reason that I think it's a good idea is basically we need to keep our jobs in our country. And if we're not -- we got to start producing more in the United States to help with the economy. And if we don't do that, we're just -- we're spending our money and borrowing against the rest of the world. And if we keep a project like this in the United States, I believe that we can govern the pollution control side of1 it better than if it's overseas. Everybody knows that the world is just one place; and if it's mined here, overseas, it's going to be mined somewhere. If -- how do I want to say this? If it's mined elsewhere, somebody else is going to be making the money. And there is only so much resource for everybody, and I think that we can manage it better. And as far as the work goes, I know that the boilermakers, most of our work nowadays isn't Blaine Steno Atkinson-Baker pt E just coal burning boilers. It's a lot of pollution control, and it's becoming a very prime target. It's an important topic. And that's about it. That's all I have to say.	G1,G2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2595	BRIAN JOHNSON: My name is Brian Johnson. I'm a pipefitter from Duluth. I think the PolyMet project would be good for economic development in the Iron Range and in the whole state and the country. I think their process is environmentally friendly, and they've done research necessary to -- I had it all in my head. I'm all for protecting the environment just as much as anybody else, and I think that PolyMet has taken the right precautions to do so.1 I enjoy outdoor activities like hunting, fishing, and snowmobiling. I want to preserve the outdoors, but we need to start getting some good paying jobs in the area for economic development. And it would also be a source of these metals in the U.S. instead of importing them, which would benefit us. I think that's all I have to say.	EOO,G2

Sender Last Name: Mathur **Submission ID:** 3698

20004	The baseline data for both the Mine Site and the Tailings Basin are inadequate. The baseline data for both the mine site and the tailings basin are sparse. A comparison of hydrologic data that was collected for two other projects in the region (GLIFWC letter to Jon Ahlness and Stuart Arkley, February 6,2009) demonstrates that the PolyMet project is data-poor in the area of basic hydrology.	WR1E
20004	The economic reality of Northeastern Minnesota clearly shows that the stable source of the economic engine is from non-lnining jobs. According to Tom Powers from the University of Montana Economics Department, mining only represents 5% of the total personal income in Minnesota's iron range counties. What attracted me and my wife to the Ely area was the slnall town atmosphere embodied with clean air and water with abounding wild life, fishing, recreation, and scenic beauty. We invested a significant portion of our life savings into a very nice lake home on White Iron Lake. Even Lake County thinks it is nice. We pay more in taxes than our similarly valued home in Hennepin County, even though we are provided very little services from these taxes. We believe that we can reasonably expect Lake County and other govelnmental agencies to take all measures that ensure our lake quality remains high and our property values are protected. According to Tom Powers, economic rationality requires that mineral deposits be left in the ground undeveloped. Especially, since according to the Polymet data only 1 to 5 percent of the ore contains the non-ferrous metals, relegating the 95 to 99 percent not used to the tailings area! From my perspective, the environmental risk is one no rational person would take. Please review Comparison of Predicted and Actual Water Quality at Hardrock Mines: The reliability o/predictions in Environmental Impact Statements and Predicting Water Quality at Hardrock Mines: Methods and Models, Uncertainties, and State-of-the-Art, Ann Maest and Jim Kuipers. The results of this study are: • 100 percent of sulfide mines predicted compliance with water quality standards before operations began; 76 percent of mines, studied in detail, exceeded water quality standards due to mining activity; Mitigation measures predicted to prevent water quality exceedances failed at 64 percent of the mines studied in detail. Other environmentally conscious companies embarked upon "safe" sulfide mining projects with every intention of being environmentally friendly. However, the facts are that three out four ended up be polluters. Statistically, that means that the Polymet project has a 75% chance of polluting! That risk is untenable and one that should not be taken. My specific comments on the Polymet DEIS are attached. My education is a Masters of Science in Electrical Engineering and my background is a lifetime in the high-tech industry developing sophisticated products based upon technical standards. I am accustomed to reading technical documents and believe that there some significant shortcomings in the Polymet DEIS which I have included in my comments.	G7B
20004	Given the fact that a favorable disposition of the DEIS Northmet 2009 for the mining industry by decision-makers will have enormous “downstream” implications for human development and hard-rock mining in the Arrowhead of Minnesota and elsewhere, attention must be given to ensuring that the public has full and transparent understanding of the scientific, legal, economic, and social/ethical implications of the proposed project. The present DEIS Northmet does not meet this expectation. In its present form DEIS Northmet 2009 should not be approved.	PRO3
20004	The use of flow data on the Partridge River from a site twenty years and seventeen miles distant from the proposed project does not provide sufficient information to allow a full assessment of the hydrologic and environmental impacts of the project on the Partridge River. Additional data must be collected before the DEIS is deemed adequate.	WR3J

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Comment ID	Comment Text	Theme Codes
20004	Thus, the stated goal of 4.14 Cumulative Effects to "summarize the resource-specific cumulative effects analyses and provide an overall, synergistic analysis of the system-level cumulative effects resulting from the combined influence of the resource-specific effects to the regional airshed, watershed, and ecoregion surrounding the Project" has not been accomplished.	G9
20004	Finally, one must ask the question: What are the trends in the Arrowhead of MN for the overall quality of air; water; loss of habitat; threatened species; forest fragmentation? For these data categories, the trends over the past 20 years are as follows: overall worsening air quality; worsening water quality; increase loss of habitat; increase threats to the biota and human health; and increased forest fragmentation. These trends suggest that the process for approving projects in MN (whether power plants; mining operations; industrial development; other human developments) is failing to protect the health of the biota. The trends are not sustainable or consistent with stated federal and state goals of ensuring highly valued public natural and recreational environments for future generations. The trends, if sustained, will have adverse impacts on human health and the economies of health.	G2
20004	Also troubling is the fact that as noted (4.14-4) there is major disagreement with the conclusions of DEIS authors regarding the significance of the above findings. In addition, the legitimacy of the analytical approach to the Cumulative Effects approach is problematic for several reasons: 1. Major data elements are missing e.g. baseline data for the Partridge and Embarrass Rivers. 2. In the watersheds, concentrations of aluminum, iron, copper and mercury exceed MN Water Quality Standards; 3. Analytic methods were not robust, e.g., no dynamical systems analysis of these complex environments. 4. No inclusion of data regarding Climate Change impacts on the ecosystems.	WR5A,G8C,AQ3
20004	1.1: Background… The project is stated to consist of three components: Mine Site; Plant Site; Transportation Corridor. A fourth Project component should be considered: a Regional Site. Both NEPA and the MN Environmental Policy Act require that proposed projects include review of project impacts at the mine and plant sites, transportation corridors, and on regional environments. The scope of this DEIS is inappropriately narrow. Incorporation the fourth component would provide focus for filling in the gaps in data and information regarding direct, indirect, cumulative effects as required by NEPA.	G9
20006	I have spent some time reviewing the Polymet Project and have been convinced that this is a financially viable and environmentally responsible endeavor. There is a demand for the precious metals that will be produced using a proven process. Environmental concerns have been thoroughly researched and addressed. In fact, The Company began the environmental review in 2004 and has spent more than $20 million to date on just the review process. This project will create jobs for Minnesotans. Considering the current state of our economy and the political platforms of our chosen leaders, it seems prudent that this project is allowed to move forward without any further delay. It is important that we streamline the current permitting process so that in the future businesses may not be so frustrated with the permitting process that they choose to locate in another state. With unemployment rates exceeding 10%, I will be happy to have Polymet's NorthMet project creating jobs "in our back yard."	EOO
20006	Page 4.1-33 The extent of existing wild rice beds has not been fully characterized and may be in violation in MN statutes.	WR1E
20007	Page 4.1-46 The standard for wild rice waters, as currently in place, must be enforced. According to the tribal cooperating agencies extensive research in Minnesota has demonstrated that healthy and viable wild rice beds occur in waters with less than 10 mg/l of sulfate and is the standard that must be enforced. This must be addressed in the DEIS.	WR4F
20007	A DNR representative at the public meeting in Aurora flatly stated that all tailings basins leaked! If that is a factual representation of what happens then treatment will NOT terminate in year 34, but can be expected to last into perpetuity. This DEIS needs to reflect the real world and talk about how treatment into perpetuity will be provided.	WR3I
20007	Page 4.1-55 It would appear that the DEIS is using a crystal ball to predict long-term flow. There is no evidence to validate the wetlands treatment process proposed.	WE6

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Comment ID	Comment Text	Theme Codes
20007	Page 4.1-54 The DEIS admits that its analysis of all the water quality parameters was incomplete. With the importance of getting it right with the Polymet Mine incomplete analysis is not an option. This incomplete analysis makes this analysis suspect and casts doubt on other analysis. It is entirely illogical that adding sulfidemining tailings to the taconite tailings will improve the quality of the seepage water. There is a serious flaw in this analysis.	WR1E
20007	4.1.2.1 Hydrologic Alteration of Streams, Lakes and Aquifers Impact Criteria Page 4.1-50 The listed parameters calculated for the Partridge River have little data to support them and, therefore, cast doubt on the veracity of the data used. The MODFLOW model was developed to assess the rates of mine pit inflow and as such, the results it gives for areas outside the mine pit footprint are unsupported by data. The XP-SWMM is based on stream gage data that is 17 miles and 20 years distant from the proposed project. Field data collection is spotty or non-existent and the numbers used in this DEIS are derived from the MODFLOW groundwater model and XP-SWMM model. This deficiency must be corrected.	WR1E
20009	The leachate is predicted to not meet water quality standards for thousands of years (Table 4.1-45). The DEIS must be updated to reflect processing this condition.	WR3I
20010	Page 4.1-56/57 It is logical to conclude that hydrologic characterization using MODFLOW models provided information for the immediate area of the mine pit and the tailings pile only. Groundwater models designed to characterize the watertables, the potentiometric surface in the aquifers, fluxes to rivers and streams or to predict impacts to the water tables or surface waters are missing. The MODFLOW groundwater model at the tailings area is restricted to the tailings pile and cannot be used to characterize groundwater flow direction, the watertables, the potentiometric surface in the aquifers, fluxes to rivers and streams or to predict mounding impacts to the water tables or surface waters. Data driven models need to be developed and these impacts need to be predicted and evaluated.	WR2A
20010	Financial assurance (damage deposit) for clean restoration is missing in the DEIS. The Contingency Closure Estimate would be provided and updated annually as part of the Permit to Mine and its annual report. The DEIS states that the Contingency Closure Estimate would be the basis for computing financial assurance requirements for the Project. However, this is too late to realistically evaluate the impact of the mine closure and ensure that adequate funds are in place. This must be part of the DEIS and must be addressed.	PD4
20010	Page 4.1-56 The volume of seepage from the Tailings Basin is expected to decrease slowly over time, but, with no proposed dry cap, long-term groundwater seepage would be expected.	EOO
20011	Page 4.1-59 The MOD FLOW model does not provide credible data outside the footprint of the mine pits. The expertise of both local hydrologists and hydrologists with experience in other settings is needed to develop a plan for hydrologic data collection and for formulating the appropriate models to integrate the hydrologic data.	WR2A
20012	Page 4.1-61 The assumption that it is not practical to gather the necessary input data for a MODFLOW model proposes a lack of commitment to get it right. A robust groundwater model must be developed for this project in order to adequately characterize the potential impacts of various project alternatives to natural resources.	WR2A
20013	Even though Mn DNR has monitored several other lakes across the Mesabi Iron Range over the past several decades for effects from mine pit dewatering it has never monitored a sulfide mine. Vegetation data suggest that a significant groundwater-surface water connection exists and a more robust groundwater model must be developed for this project in order to adequately characterize the potential impacts of the various project alternatives to natural resources.	WR2I
20014	Page 4.1-61/62 The data presented is insufficient and must be corrected. The empirical observations in the Adams 2009 email are insufficient to support the conclusions. The evidence presented in the email can be interpreted to indicate substantial impact of the Peter Mitchell Pits on adjacent lakes. Aerial photography, without ground verification or georeference is an exceedingly imprecise method for determining water levels in lakes and wetlands (GLIFWC 2009, Memorandum to Jon Ahlness and Stuart Arkley: Photographic evidence for pit impacts to wetland hydrology. April 24, 2009).	WR1E

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Comment ID	Comment Text	Theme Codes
20015	The DEIS does not draw a firm position based upon good evidence and concludes that the Mine Site peatlands appear to be much more bog-like than fen-like. This confirms the tribal cooperating agencies' position that the referenced email (Adams 2009) used inadequate methods for determining impacts to surface water features.	WR2I,WE1,WE2
20016	Page 4.1-66 The groundwater quality modeling assumes these mitigation measures are successfully implemented with any assurance of proper testing, treatment, feedback, adjustment, and monitoring. What must happen is a control system that guarantees proper outcomes from water treatment. There is sufficient profit in the proposed mining operation to properly treat the water to assure water quality and not leave it to chance by dumping limestone and hoping for the best.	WR1A
20016	Section 4.2 discusses recommended wetland monitoring at the mine. While wetlands monitoring will be required, it is more important to get it right before mining starts rather than initiating a corrective action plan once monitoring detects a problem. After all that is a reason for a DEIS.	WE3
20018	Page 4.1-67 The data does not support the conclusions associated with the proposed mine closure. It is quite clear that perpetual water treatment will be required (or least water treatment for 2000 years). This is why it is necessary for the DEIS to include an estimate of the costs associated with mine closure and reclamation. A fund must me established prior to permitting that is adequate to support perpetual water treatment.	WR3I,PD5
20018	There is no time nor financial quantification to "These Post-Closure and reclamation activities would be expected to be ongoingfor many years until such time as the various facility features are deemed environmentally acceptable, in a self- sustaining and stable condition." The amount of time has been estimated to be hundreds or thousands of years. This is perpetual maintenance and does not meet the Minnesota requirement for a maintenance free closure. This must be addressed.	PD3
20018	Page 4.1-94 The DEIS concludes that on the basis of deterministic modeling, the Proposed Action would have relatively little adverse effect on groundwater quality downgradient of the Tailings Basin. However, groundwater contamination from the previous mining activities is still an issue near the L TVSMC tailings basin more than twenty years after operations ceased. Water quality is important and this concern must be acted upon. Because of the limited distribution of monitoring wells, the extent of the contaminant plume is not known. However, recent well data show that the plume extends in some areas at least as far as private wells along the Embarrass River. In the wells that do exist near the tailings basin, pollutants including iron, sulfate, manganese, aluminum, and fluoride exceeded drinking water standards. Recent wells near the northern property line show substantial contamination of the groundwater aquifer (Barr 2009, Memorandum: Results of Tailings Basin Hydrogeological Investigation. June 2, 2009). The baseline data on which to base estimates of the impact of the proposed project on water quality at the mine site and the tailings basins is insufficient. The existing analysis for the PolyMet project calculates the additional constituents that the project will add to groundwater but is unable to realistically estimate what the resulting water quality will be because background water quality has not been incorporated into the estimates. Private domestic wells lie between the tailings basin and the Embarrass River where tailings basin discharge water is expected to ultimately discharge. Some of the sampled private wells have contaminants at levels several times the drinking water standard (Barr 2009, Memorandum: Results of residential well sampling north ofLTVSMC tailings basin. January 27,2009) Samples from these wells show that they exceed the manganese standard and close to exceeding the arsenic standard. There must be a groundwater flow model to show the direction and rate of groundwater flow, using that pattern of flow should to plan a groundwater-sampling scheme to map the extent of the existing contaminant plume. This data and analysis should then feed into estimates of how the proposed project would interact with existing contamination. The combination of existing conditions with impacts due to the proposed project would show what groundwater quality can be expected during and post project.	WR1E
20020	Page 4.1-98 Little or no baseline data was collected to develop the modeling described in this document. And, therefore, model results cannot be used with confidence and do not allow an adequate assessment of environmental impacts.	WR1E
20020	Page 4.1-102 The available data does not support the DEIS conclusions. Proper data must be collected and used.	WR1E

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Comment ID	Comment Text	Theme Codes
20021	Unsupported conclusions have been reached in the DEIS and must be fixed. The available data do not support the conclusions presented in this section. The impacts predicted by technical reports (RS73B) to the Partridge River are primarily reduction in base flow due to mine pit dewatering and those impacts are predicted by the MODFLOW model. MODFLOW modeling in (RS22-Appen.B) forms the foundation for the predicted impacts. The MODFLOW model (RS22 Appen.B) is not calibrated to a data set representative of the area and predicts fluxes to the Partridge River based an a non-unique solution. A differently formulated and calibrated MODFLOW model could predict much higher inflow to the PolyMet pits and therefore, show greater impacts to stream baseflow The surface water model (SWMM) used for predicting impacts is calibrated to Partridge River flows from 1978 to 1988, seventeen miles downriver of the mine site. During the period of record, the Peter Mitchell pits were dewatered with unknown effects on the river flow data. According to technical documents (RS73A, page 21) the flow record at the Partridge River gage above Colby Lake (USGS #04015475) may have been impacted by mine discharges on the north branch. The monthly average flow recorded at this gauging station during 1978-1988 varied between a minimum of 1.3 cubic feet per second and a maximum of 454 cubic feet per second. The discharges from the Peter Mitchell Pit could account for up to 34 cubic feet per second. Since the timing, duration and location of mining discharges may be different now than during 1978-1988, the present hydrologic regime of the Partridge River may not be well represented by the period of record at USGS #04015475.	WR1E
20021	The DEIS is again weak in its analysis and must be improved. There will be surface water discharge to the Embarrass River. Aerial photography and state Public Waters inventory maps indicate that there is currently a direct surface water connection between the northwest corner of cell 2W and the Embarrass River. Aerial photos show that water discharging from the tailings basin follows a natural channel westward, through existing wetlands and intersects a channel that leads directly to the Embarrass River.	WR3C
20023	Page 4.1-11112 This is another example of analysis that logically shows the need for perpetual water treatment. The current approach from the DEIS results in a polluted pit lake. The WWTF needs to operate for a minimum of 2000 years in order to treat leachate from the stockpiles. The effectiveness of the passive wetland treatment system has not been demonstrated and it is likely that the wetland treatment system would not function as suggested. This water would never meet surface water quality standards. The conclusion is that the DEIS must discuss the implications of leaving a polluted pit lake at this site in perpetuity.	WR3C,WE6
20024	Page 4.1-113 Here the DEIS clearly demonstrates a problem and the logical conclusion is perpetual water treatment: "Constructed wetlands performance, however, is not sufficiently reliable to function as the primary treatment measure for assuring consistent year-round compliance with water quality standards. " Based on these uncertainties primary water treatment at the WWTF would need to continue for thousands of years. This does not meet the Minnesota goal for maintenance free closure and highlights the need for an up front determination of all the costs to close and reclaim the mine area.	WR3I,WR3L,WE6
20025	Page 4.1-114 All waters of the state are protected by Minnesota water quality standards and using this unnamed water as a mechanism to dilute mine related contamination is not appropriate. In addition no flow information for this unnamed water is available. This improper method of diluting the mine contamination must be eliminated and the DEIS updated to reflect this change.	WR3I
20026	Page 4.1-115 Section 4.1.3.5 is speculative because of continued inputs from the stockpiles, the tailings basins, and the pit walls; the pit lake could exceed surface water quality standards for thousands of years. 20 feet of pit wall will never be submerged and as such constitute a perpetual source of mine related contaminants, highlighting the need for treatment in perpetuity. This must be properly addressed including its impact on the costs associated with mine closure, reclamation, and perpetual treatment of water.	WR3C,PD3
20027	Page 4.1-117 Contaminants from the project would contribute to exceeding the standards below Colby Lake. Wild rice beds are located on the Partridge River immediately below Colby Lake. Therefore, the State of Minnesota wild rice standard for sulfate of 10 mg/l should apply along all of the Lower Partridge River.	WR3I,WR4F
20028	Page 4.1-120 The Embarrass River already exceeds water quality standards and the State of MN should not permit the addition of additional contamination from new or expanded sources.	WR3A

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Comment ID	Comment Text	Theme Codes
20029	There is not an adequate understanding of the composition of the ground water aquifers to understand the impact of the tailing pond and mining operations. Ground water cannot be compromised and the composition of the aquifers must be thoroughly characterized and integrated into the hydrological analysis and operation of the mine.	WR2A
20030	Surface water quality at the project has been poorly characterized or left uncharacterized. The limited data that exist suggest that surface waters are already adversely impacted by mining activity. Mercury, sulfate and specific conductance have exceeded Minnesota surface water criteria in surface water samples collected near the tailings basin proposed for use by PolyMet, at nearby Area Pit 5, and mercury exceeds surface water criteria in the Partridge River downstream of Colby Lake. However, no water samples have been collected from lakes near the tailings basin (Hiekkilla, Mud, Kaunonen, or Hay Lakes) to determine if the pollutants found in the surface and groundwater at the existing tailings pile have caused contamination of those water bodies. Contaminant transport modeling suggests that the PolyMet Project will cause manganese, aluminum and sulfate to exceed standards. These problems must be addressed.	WR1E
20031	Page 4.1-124 Again the DEIS shows it's analysis is incomplete by admitting to uncertainty as to whether the West Pit overflow would meet the Great Lakes Initiative standard for mercury and recommends additional analysis. In this case we agree with the DEIS. This is too important to not address prior to moving forward.	WR3I
20032	Page 4.1-125/6 We note that the conclusion that there is little opportunity for sulfate wetland interactions is based upon a single email that is suspect in its viability as a scientifically sound document. This needs to be properly analyzed.	EOO
20033	Page 4.1-129, Table 4.1-68 It is more important to prevent exceedances of water quality rather than mitigation. The west pit is predicted to violate surface water standards for all years that predictions were made and this must be addressed.	WR3C
20033	Page 4.1-128 The idea of mercury monitoring in the West Pit is good; however, it is analogous to closing the barn door after the horse has escaped. Determination of the final water quality of the west pit must be included in the DEIS so that potential water quality impacts to Lake Superior can be characterized.	WR3C
20033	Page 4.1-126 There are extensive rice beds in the Lower Partridge River and methylation of mercury may be significant in the Partridge River watershed. This must be addressed before moving forward.	WR1E,WR4F
20035	Page 4.1-131 Data collected in 2009 show that private wells north of the basin have been impacted by historic tailings basin effluent and, therefore, the conclusion that monitoring data does not suggest exceedances of groundwater evaluation criteria is inconect. Although two additional groundwater samples north of the basins collected in 2009 indicate that exceedances exist at the property boundary, the full extent of the contaminant plume has not been defined and must be.	WR1E
20035	Page 4.1-130, Table 4.1-68 The wild rice standard for sulfate and the Lake Superior standard for mercury would be exceeded. This must be corrected. Groundwater contamination in Table 4.1-68 is seriously flawed. It does not consider existing contamination and must do so.	WR1E,WR3I
20035	The Closure Plan does not propose any remediation of groundwater seepage from the Tailings Basin.51 There is no up to date closure plan for the proposed project, nor is there is a comprehensive cost estimate. A comprehensive closure plan is needed to evaluate long-term environmental impacts and to inform calculations of financial assurance that would be needed for the project. This financial assurance must be in place prior to permitting.	WR1A,PD3,PD4
20035	Page 4.1-131/2 The available data does not support the claim that the relatively high concentrations of aluminum, iron, and manganese currently found downgradient of the Tailings Basin may reflect natural conditions in this area. In addition, a basic assumption (i.e. plug flow [TB-14, July 2,2009, page 9]) of the contaminant transport modeling at the basin (RS74) assumes that all constituents in the groundwater are the result of past and current seepage from the basins. Even if the claim is true, it is illogical to exacerbate this condition with sulfide mining.	WR1E
20037	This section is full of assumptions that compromise the conclusions regarding flow of ground water. There is no data to substantiate the assumptions of this section and these assumptions must be addressed.	WR2A

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Comment ID	Comment Text	Theme Codes
20038	Page 4.l-132 The wild rice standard applies to all waterbodies where wild rice is found to be growing. It is the expectation that the PCA will enforce the standard accordingly. This impact needs to be addressed.	WR1E,WR4F
20039	Page 4.1-135 The effectiveness of lime treatment process is very important in the final water quality of mine effluent. Therefore, the analysis of this process should be conducted prior to the construction of the facility and the results included in the DEIS.	WR1E
20040	The effectiveness of the evapotranspiration caps (i.e., vegetated soil layer) has not been demonstrated. This analysis must be done (GLIFWC Comment letter of June 30, 2008 and GLIFWC comment letter of February 6, 2009).	WR2L
20041	The effectiveness of the wetland treatment system is in doubt and must be remedied.	WE6
20042	The effects on groundwater levels at the mine site are unknown for both the proposed project and the mine site alternative because of insufficient analysis. This must be addressed.	WR2A
20043	Page 4.1-144 All waters of the state are protected by surface water quality standards and using the unnamed water to dilute the contaminants of the West pit is not appropriate. The pit lake is predicted to be in violation of surface water quality standards for hundreds or thousands of years. This condition is not the result desired in a successful DEIS and must be addressed.	WR3C
20044	Page 4.l-146 The DEIS points out that there is uncertainty as to whether the West Pit overflow would meet the Great Lakes Initiative standard for mercury and recommends additional analysis. This is too important to pass on and analysis must be included in the DEIS.	WR3I
20045	Table 4.1-77 There is insufficient data to support the claim in table 4.1-77 regarding flow and river morphology. More analysis is needed in the DEIS.	WR3J
20046	The west pit is predicted to exceed standards for all years for which predictions were made and, therefore, preventive measures are required to be added to the DEIS.	WR3C
20047	4.1.3.4 Tailings Basin Alternative Untreated discharge of tailings basin water to the Partridge River will exceed water quality standards. In particular the wild rice standard will be exceeded.	WR3I,WR4F
20048	The DEIS readily states that there is wide variability in the data and, therefore, reliable conclusions cannot be made. Because of the importance of water to the ecology of this area this variability must be understood before moving forward.	WR1E
20049	The effectiveness of the permeable reactive barrier (PRB) must be known and included in the DEIS. If it is ineffective, then pumping could be needed for hundreds or thousands of years. Today, the PRB is untested and has not been demonstrated to work in similar situations. In addition, the PRB would need periodic recharging/replacement, which would need to occur at regular intervals for as long as water treatment is needed (hundreds or thousands of years). This long term maintenance is at odds with Minnesota's goal of maintenance free closure and must be included in the DEIS estimated costs for closure, reclamation, and perpetual maintenance.	WR2D
20050	Page 4.1-155 Wild rice grows on the lower Partridge River and the 10 mg/l standard for sulfate applies. This standard would be exceeded by the PolyMet discharge. Furthermore, there are other projects (Mesabi Nugget Phase II and Laskin Energy) that are discharging water with elevated constituents. Given these existing sources, it is unlikely that PolyMet discharge would be able to discharge their untreated tailings basin effluent without violating the clean water act. This situation must be addressed in the DEIS.	WR3I,WR4F
20051	The DEIS tries to explain away predicted concentrations of dissolved aluminum in TB-15 that exceed water quality standards (see TB-15, page 1). However, it is clear that the total aluminum is dissolved that exceeds standards. This is a very serious condition that must be addressed in the DEIS.	WR3H
20052	Page 4.1-157 The DEIS claim that all parameters are expected to meet surface water standards during all flow conditions for all modeled years is not correct. The wild rice sulfate standard applies (10 mg/l) and would be exceeded. This serious flaw in the DEIS must be addressed.	WR3C

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Comment ID	Comment Text	Theme Codes
20053	Page 4.1-163 The DEIS incorrectly concludes that all parameters are predicted to meet all surface water quality standards in the Embarrass River under all flow conditions for all mine years. The wild rice sulfate standard applies and will be exceeded. TB-15 predicts that dissolved aluminum would exceed surface water standards. These are serious issues that must be addressed.	WR3I,WR4F
20054	Page 4.1-164 Treatment of the tailings basin effluent that is captured by the vertical wells must be an integral part of the tailings basin alternative. This treatment could occur in the WWTF already proposed for this project or in a second facility closer to the discharge point. However, treatment of the tailings basin effluent prior to discharge to the Partridge River is not included in the potential mitigation measures listed below. Discharging untreated tailings basin water to the Partridge River is wrong and must be addressed. In addition, there are other existing facilities and mine proposals (Laskin Energy, Mesabi Nugget Phase II) that discharge, or are proposing to discharge water at this same location. Water quality of the discharge would exceed the wild rice sulfate standard that applies to the lower Partridge River.	WR5A
20055	4.1.4.2 Water Qualify Page 4.1-187 Again, the DEIS incorrectly concludes that the NorthMet Project is expected to meet all surface water quality standards under all flow conditions for all mine years in the Partridge River. Wild rice grows on the lower Partridge River and the wild rice sulfate standard applies. The PolyMet discharge under the tailings basin alternative would not meet this standard.	WR3I,WR4F
20056	Hydrologic data presented in the DEIS indicates that this aquifer is saturated by tailings discharge water. Therefore, it is not possible for recharge from precipitation to occur.	WR2H
20057	From the data in the DEIS, a logical conclusion is that the existing LTVSMC tailings are contributing substantially to the level of constituents observed in the groundwater. It also true that the modeling of PolyMet contaminants at the basins does not take these or other existing constituents adequately into account. This oversight leads the authors of the DEIS to the illogical conclusion that seepage water from PolyMet, after passing through both LTVSMC and PolyMet tailings, will be cleaner than the existing seepage that is passing only through the L TVSMC tailings. It is not a logical conclusion that the addition of mine waste to the basins would cause seepage water quality to improve.	WR2F
20057	Over the many decades of operations at the tailings basin, thousands of gallons per minute of tailings basin water have been discharged through the bottom of the basin, into the groundwater. This water has then moved down gradient and into surrounding wetlands and as stated in the water quality section, ultimately reaching the Embarrass River. In addition, limited recent groundwater sampling shows groundwater contamination at the property line and at private wells north of the basin. It appears to be clear that the full extent of the contaminant plume and the existing contamination to groundwater has not been defined and that adding sulfide mine deposits will cetiainly add to the contamination. This situation must be corrected prior to any sulfide mining operations.	WR1E,WE2
20057	I am sending you this e-mail in support of the Polymet Mining Project in Northeastern MN. I have several reasons for supporting this project. First: economic impacts. - This project will contribute to a depressed economy, local, state, and national. - The materials from this project will not only create employment directly and indirectly to the economy, but also the materials needed for today's technology. Renewable energy, electric vehicles, computers, medical and the list can go on. - The careers that could then be available to our younger work force can be in the new technology of this project, in the environmental areas, with the vendors, etc. - These jobs will be supplying the metals needed for today's technology. Second: domestic advantages. - These metals will be domestic source needed and used by all in this country. - For this state and country to keep up with the advancing technologies of other countries, we need these metals. Third: environmental concerns. - The environmental requirements of Minnesota are strict. If we were to get these metals from a foreign source, I would question those environmental guidelines. - This project is going to use an existing site and facility. Lesser disturbance to the environment. - We do need these metals today. Mining and processing here versus in another country, transportation becomes both environmental and cost issues. - The Polymet Draft EIS and those involved with it, shows the issues and concerns of this project have been addressed and will be met. It's time to complete this stage of the project, and move on to the next.	EOO

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Comment ID	Comment Text	Theme Codes
20058	The Northwest Mining Association (NWMA) appreciates the opportunity to comment on PolyMet Mining's NorthMet Project Draft Environmental Impact Statement (DEIS). On behalf of our members, NWMA expresses strong support for the NorthMet Project. Based on the extensive documentation as outlined in the DEIS, PolyMet clearly has demonstrated it can produce critical metals for our nation while meeting and exceeding Minnesota's strict environmental requirements to protect its air, water and land. NWMA is a 115 year old, 1,750 member, non-profit, non-partisan trade association based in Spokane, Washington. NWMA members reside in 40 states, including Minnesota, and are actively involved in exploration and mining operations on public and private lands. Our diverse membership includes every facet of the mining industry including geology, exploration, mining, engineering, equipment manufacturing, technical services, and sales of equipment and supplies. NWMA's broad membership represents a true cross-section of the American mining community from small miners and exploration geologists to both junior and large mining companies. More than 90% of our members are small businesses or work for small businesses. Most of our members are individual citizens. PolyMet Mining is one of our corporate members. PolyMet's NorthMet Project will create a domestic supply of critical minerals and metals needed in every aspect of our daily lives, from medical applications to cell phones and computers. The metals that PolyMet will mine also are essential for renewable and clean energy technologies, such as wind turbines and hybrid cars, which will help the U.S. become more energy independent. The U.S. can and should be more self-reliant for the minerals and metals we need. Despite reserves of 78 important mined minerals, the United States currently attracts only seven percent of worldwide exploration dollars. As a result, our nation is becoming more dependent upon foreign sources to meet our metal and minerals requirements, even for minerals with adequate domestic sources. Currently, America is 100 percent dependent on foreign sources for 18 minerals commodities and more than 50 percent import reliant on another 45 commodities (See 2008 USGS Net Import Reliance Chart below). Increased import dependency causes a multitude of negative consequences, including aggravation of the U.S. balance of payments, unpredictable price fluctuations, loss of high paying jobs and vulnerability to possible supply disruptions. We must not trade a dependence on Middle Eastern oil for an equally unhealthy dependence on foreign sources of minerals. PolyMet can produce these metals in an environmentally sound manner and create hundreds of stable jobs that will benefit Minnesota families and provide a true economic stimulus to the entire region. We urge you to expeditiously approve the permit for the NorthMet Project.	EOO
20059	1.1. The regional and local-scale models: basic setup. In the DEIS, the groundwater flow around the project is assumed to be described by the groundwater equation. That equation, given on page 6 of technical report RS-22, Appendix B, is a second-order partial differential equation with independent variables x,y,z, and t (time). There is no known method to find a closed-form solution {i.e. to give a solution as an actual formula}, so numerical computer simulations are used. In the DEIS, this involves the MODFLOW program, developed by the U.S. Geological Survey. Typically, a 3-dimensional spatial grid is used, along with a series of discrete time intervals. Properties of the cells in the model are based on known or estimated porosity of the subsoil and underlying rocks, and the presence of water sources or sinks. The values of the dependent variable (hydraulic head) are calculated at the grid points at various time intervals, being updated in successive iterations. The local-scale model for the mine site, as described in RS22, Appendix B, is done along the lines of the description above. {But there are some serious calibration issues, which I will discuss later.} The MODFLOW model is first mentioned in the DEIS around page 4.1-56, under the heading Evaluation Methodology. The local model covers an area of 100 square miles (about 10 miles by 10 miles). There were 8 levels, ranging from the surface deposits (about 1500 ft above sea level) down to a bottom level at 65 ft below sea level, estimated to be the bottom of the Biwabik Iron Formation. In the outer parts of the local model, the horizontal gridlines are about 100 to 200 meters apart; closer to the mine site, they are 10 to 30 meters apart. If this model had been correctly calibrated, then it might have been good enough to give valid indications of water flow into the mine pit and of drawdowns to the nearby groundwater.	EOO
20060	Interestingly, there even is some information in the DEIS that contradicts these values. For the hydraulic conductivity, we have Table 4.1-3: Bedrock and Surficial Aquifer Hydraulic Conductivity Estimates at the Mine Site. Here are the hydraulic conductivity values from that	WR2F

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20061	The points to be observed here are that the values for the various bedrock formations are reasonably comparable to the values in the MODFLOW assumptions, and that the horizontal rates in the MODFLOW for the surficial deposits are near the upper end of the range of the test results; however the tests give no evidence that would support the extremely low values used in the MODFLOW model for the vertical component of hydraulic conductivity.	WR2F
20062	Concerning the recharge rate, we can note that in the MODFLOW model for the Processing Plant and Tailings Basin, a value of 8 inches/year (or .0018 ft/day) has been used elsewhere in the technical memos. This is given in Figure 4-3 of Attachment 6 of RS-13. The figure, presented as a map, shows this value as applying to the entire area around the plant site and tailings basis except for the tailings basin itself and areas designated as bedrock (probably outcrops). {I did not find anything printed, either in the DEIS or the technical memos about the numerical value of this parameter, which obviously is needed in the MODFLOW model of the tailings basin area.} While the values for the two areas (mine pit and tailings basin) may not need to be identical, there is no reason to expect them to be very different. Indeed, the Plant and Tailings Basin are only a few miles apart, and the two areas are very similar in many respects.	EOO
20063	NOTE: The issue of non-unique calibration was already raised some time ago by the tribal cooperating agencies. I refer in particular to footnote 30, at the bottom of page 4.1-103 of the DEIS. As far as can be detected from reading the DEIS, this comment – which looked very significant to me on my very first reading of that part of the DEIS – has been completely ignored by everyone else who was involved in preparing the DEIS. This is very unfortunate, since many of the comments by the tribal cooperating agencies here, and at a number of other places in this DEIS are very insightful and could have led to considerable improvement in the DEIS.	EOO,G15
20064	What size of discrepancy in the model predictions could arise from this mis-calibration? To arrive at somewhat realistic parameter values, we probably would have to (1) adjust the vertical component of the hydraulic conductivity upward by a factor of 1000 for the wetlands and glacial drift, and (2) adjust the recharge rate upward by a factor of 5 for these same surficial features. The first change would bring the vertical component of hydraulic conductivity to a value similar to that of the Duluth complex. This still may be on the low side, but that will not matter very much. The second change would bring the recharge rate to 1.5 inches per year for the wetland deposits and 7.5 inches per year for the glacial drift. This latter figure is comparable to what was used in the technical memos for the Plant/Tailings Basin area.	EOO
20066	Now, what is the significance of the calibration discrepancy for this part of the DEIS? Given the significant increase in water that will flow into the mine pit, more sulfate will be leached out of the rock that is exposed in the pit, and more metallic ions (including arsenic, cobalt, mercury, nickel, and selenium) will be dissolved or suspended in the water also. It is difficult to predict the increased rates for these processes, but they probably will be significant. It also means that more water will have to be pumped out of the pit and treated in the WWTF (wastewater treatment facility). Since large amounts of water will have to be treated, a certain amount of the contaminants likely will be discharged to the Partridge River. In particular, it would be completely unrealistic to assume that the WWTF would be 100% effective in removing pollutants from the water that it discharges. Therefore, we can realistically expect a larger impact on water quality in that river, and also in the St. Louis River below its confluence with the Partridge River. This would include increased methylation of mercury, among other effects.	WR2F
20066	Any further change in the vertical rate of hydraulic conductivity probably would have fairly minor effects because the surficial deposits lie directly on top of the Duluth Complex rocks, which are very impermeable. On the other hand, the 5-fold increase in the recharge rate seems to translate into something approximating a 5-fold increase in the water that would flow into the mine pit. I do not claim that this is an exact calculation; it is only an estimate. Still it is clear that an open mine pit would be by far the easiest place for water in the surficial deposits to flow into, once excavation has begun. Accordingly, it is reasonable to conclude that the water flowing into the mine pit would increase by approximately 5 times as much.	EOO
20068	In both places, PolyMet claims that an exponential decay model should apply instead of the constant production model that was applied. I believe that the constant production is a closer approximation for what would be observed – even extending through a century or more. Accordingly, this point should not be conceded to PolyMet. Moreover, I will explain below why this point has practical	WR2E

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Comment ID	Comment Text	Theme Codes
20069	The attempted justification of the exponential decay model is given in Barr Engineering technical memo UA02, from Peter Hinck and Miguel Wong, dated September 19, 2008. There is a fairly lengthy but rather confusing verbal explanation , supplied by Stephen Day of SRK Consulting (a firm in Vancouver, B.C.), leading up to the following graph:	WR1E
20069	Does this represent an exponential decay model, or does it not? Some parts of it resemble graphs of transient phenomena followed by exponential decay, but (1) some parts of the data are in definite contradiction to this and (2) we don't see a sufficiently long run of the data to provide particularly strong empirical evidence. As far as the graph is concerned, the heavy red line (labeled as "brown") is drawn to show a linear model rather than an exponential decay model. A more fundamental flaw is that no clear conceptual reason is given as to why an exponential decay model should apply. Indeed, some reason of this sort would be needed in order to reliably conclude that an exponential decay model holds.	WR1E
20071	NOTE: In RS22, Appendix 2, it says that levels 2 to 7 of the local grid (ranging from 1350 ft above sea level down to 330 ft above sea level) correspond to pit bottoms at various stages of mine development. Level 2 is deeper than what other parts of the DEIS indicate for the mine depth.	WR1E
20071	An exponential decay model can only apply in a dilution problem if there is a fixed amount of solute. (I am very familiar with the exponential decay model because it is a commonly used example in introductory courses in differential equations.) The following assumptions also must apply: • clear water would be continuously poured into a container containing a solution; • the liquid in the container would be mixed with the clear water being added, and • the (diluted and) mixed solution would be continuously poured out from another side of the container. Basically, the exponential decay model applies when the amount of solute being removed at any time is directly proportional to what is present in the container at that time, and new solute is not being added. ∗	WR1E
20073	Do these assumptions apply to this mine-pit situation? I claim that the assumptions do not apply. The point is that the solute in the mine water will be continuously leached out of the rock on the walls of the mine pit. The rate of oxidation of sulfide ions in the rock, to form sulfate ions, should be proportional to the effective surface area of exposed rock. Similarly, as water flows into the pit over the exposed rock, the rate of leaching of sulfate ions to form dilute sulfuric acid also should be proportional to the effective surface area of exposed rock. Now, what is the effective surface area? At any stage in the excavation of the pit, there might appear to be a fixed amount of exposed rock surface. This does not, however, account for phenomena such as the inevitable cycles of freezing and thawing that occur for about six months of every year in Minnesota. There are inevitably going to be cracks in the rock faces of the pit, from various causes such as blasting. The cycles of freezing and thawing are going to expand the existing cracks and also will create new cracks. As cracks extend deeper into the rock, and as new cracks open, there will be new exposed surfaces where the processes of oxidation and leaching can occur. Therefore, we cannot claim that there is a fixed amount of rock surface available to produce leachate, and this rules out the exponential decay model for production of leachate.	WR2D,WR3A
20073	Does this discussion have any practical consequence for management of environmental effects of the proposed project? Yes, there definitely are such consequences. The point is that it will be a long time after closure of the proposed mine – probably several decades – before any significant decrease will be seen in the rate of leaching of sulfate, or of arsenic, cobalt, copper, nickel, and selenium (as mentioned on page 4.1-113 of the DEIS). In all probability, the rate of decrease probably will be very slow for some decades after that time. The continuation of sulfate leaching will lead to continued methylation of mercury downstream in the St. Louis River, and therefore continuation of fish consumption advisories for many more decades or even for centuries. It also means that very long term, or even effectively perpetual, monitoring of these pollutants, and very long term or perpetual maintenance of the wastewater treatment facility, will be needed. This is consistent with the position of the tribal cooperating agencies, as mentioned in footnote 12 on page 3-47 of the DEIS and in footnote 13 on page 3-49, that long term or perpetual monitoring and maintenance of the corresponding facilities will be needed for the tailings basin.	WR1E,WR3A,WR3I

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Comment ID	Comment Text	Theme Codes
20075	1.4 Implications for water transfers from the mine site. On page 3-10 of the DEIS it is stated that Mine Site process water will be piped from the WWTF to the plant site and/or used at the Mine Site to supplement flooding of the East Pit while that pit is being backfilled (with waste rock from various pits). As a result, it is claimed that these re-uses of Mine Site process water would eliminate the need to discharge any process water to surface waters. Usually, the term "process water" refers to water that is used in some industrial process. This statement could be confusing, since hardly any water-based processes take place at the mine site. After reading the DEIS and technical reports, however, it becomes clear that this term has been used to refer to almost all types of mine site water. There are several reasons to be skeptical about this claim.	WR2G
20076	(1) If more water is pumped out of the mine pit than what is needed in plant processes, then the surplus mine pit water would have to be disposed of somewhere, thus contaminating some nearby stream or local ground water.	WR1E,WR3A
20077	(2) Since we have seen that the amount of mine pit water is likely to be larger than predicted in the DEIS, the existence of surplus mine water, with resulting discharges, is unfortunately very likely. This is the situation that would be likely to hold during the first 10 years of mine operation, before backfilling of the East Pit is begun.	WR3A
20078	(3) Another problematic era is after closure of the mine, and especially after flooding of the West Pit is complete. We have seen in Section 1.3 that leaching of sulfate and metals likely will continue for many years. In page S-7 of the DEIS it is noted that West Pit overflow likely will be directed to the Partridge River, on page S-8 it is conceded that these overflows will initially exceed water quality standards after closure, and on page S-9 there is an indication of uncertainty as to whether the West Pit overflow would meet the Lake Superior mercury standard. These statements are accompanied by vague indications about the possibility of mitigation, but there is no mention of concrete measures for wastewater treatment after closure. Given the high likelihood of lingering water quality problems, the project plan and the DEIS really must include such measures and a specific plan for funding those measures.	WR1C
20079	(4) To whatever extent mine pit water is transferred to the plant area and the tailings basin, such a transfer may not be a positive step. While it might reduce the amount of water being discharged into the Partridge River, there could be a corresponding amount of water being added to the tailings basin. We will see later that the tailings basin may be even more problematic than the mine pit area. Thus, it could be a transfer of water from one problem area to another, or perhaps something worse than that.	EOO
20081	In this part, I will make some comments about the modeling of groundwater flow and solute transport. The EIS consultant staff made a moderately ambitious effort to construct a ground water model, but various aspects of the tailings basin design seem to have turned the modeling process into an impossible task. Therefore it seems important to comment on the implications of this design, not only for attempts to model the water and solute flows but also for environmental consequences.	EOO
20082	2.1 Consequences for model validity. Although the relevant sections of the DEIS discuss a tailings "basin", actual reading of the DEIS will quickly reveal that the tailings disposal actually takes place above the local ground level, with the tailings being confined by dams that are constructed from a combination of waste rock and coarse tailings. PolyMet proposes to deposit tailings from its proposed processing plant directly on top of the former LTV taconite tailings basin. It is usually mentioned in the DEIS as LTVSMC (LTV Steel Mining Company). Indeed, the three existing cells (2E, 1E, and 2W) of the former LTV tailings basin are at respective heights of 60 ft, 125 ft, and 200 ft above ground level.	EOO
20083	In contrast, the regional model has only a single layer, corresponding to 640 ft above sea level, said to be below the bottom of the mine pits. {This would be slightly below level 3 in the local model.} The regional model covers 1000 square miles, roughly 40 miles by 25 miles in Figure 3-1 of RS22, Appendix B. The grid spacing in the regional model is 500 meters (1640 ft).	WR1E

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20084	The tailings, both from the former taconite processing facility and also from the proposed PolyMet project, are a mixture of water and finely ground rock. As explained in the DEIS, the former LTV tailings basin is unlined and was constructed in stages beginning in the 1950's. Since it is unlined, there is nothing to stop water in the tailings basin from flowing into local groundwater or seeping out to ultimately flow into some nearby stream. As explained in technical report RS13, Attachment 6, there still are considerable amounts of water in cells 1E and 2E of the former LTV tailings basin. There are a number of known seeps on the north, west, and south sides of this basin, while RS74B gives estimates of the amount of subsurface seepage. The latter report mentions the following situation: "The bulk of this flow is subsurface seepage. All unrecovered seepage is assumed to reach the Embarrass River as groundwater flow during average and high flow conditions."	EOO
20085	There are two layers in the model of the existing situation. The top layer corresponds to the top of the existing LTV tailings, and the bottom layer corresponds to the surface deposits (peat and glacial drift). Additional layers are added to model future vertical expansion of the tailings basin. There obviously is a speculative element to this, but it seems to reflect the proposed design. It must, however, be noted that the model seems to apply to the original tailings basin design. In technical report RS13B, another design is discussed: Tailings Basin – Mitigation Design. It is not clear whether or not those modifications have been incorporated into the modeling reported in the DEIS.	WR2F
20085	The basic setup for the MODFLOW model is explained in technical report RS13, Attachment 6. The model for the tailings basin covers an area of 18 square miles. This is much smaller than the local scale model at the mine site. Accordingly, there could be some distortion in the water table contours predicted by the model because of boundary effects. The calibration of the model (including hydraulic conductivity and recharge rates) seems more plausible than what was done in the mine site model. The grid size is not explicitly given in the text of RS13, Attachment 6, but is indicated in Figure 4-1 of Attachment 6. The grid line separation appears to be 200 meters in the outer portions of the model area, which is somewhat coarse, but is much finer in the areas of the actual tailings basin.	EOO
20087	The basic setup reported so far seems fairly unremarkable: there are some deficiencies that could be remedied, but in general it seems plausible. Therefore, it was very surprising to find the following remarkable declaration on page 54 of technical report RS74B (Surface Water and Groundwater Quality Modeling: Plant Site): "This modeling was performed using MODFLOW and MODPATH. The transport of dissolved constituents through the Tailings Basin is complicated by many factors, including changing pond elevation, unsaturated flow conditions and numerous source areas with very different seepage travel times from each area. It was difficult to know a priori which of these factors would be important in the predictions that were to be made. Because of this, the first round of modeling (presented in the previously mentioned reports) attempted to simulate many of these complexities. The result was a complicated set of models that were difficult for the EIS contractor to validate and would be nearly impossible for the general public reviewing the EIS to understand. In order to provide for more transparent predictions, a second round of conservative modeling was undertaken for the Tailings Basin-Proposed Action."	EOO
20087	What are we to conclude from this? First of all, it seems that the new model is just as bad as the old one from a viewpoint of transparency. It seems that they should have told us something about what the old one predicted, even if it would have added to the length of this unreasonably long technical report. The most obvious suspicion about why they wouldn't publish it is that they didn't like the results for some reason. The report of the modeling results on pages 59-61 of RS74B mentions (supposedly temporary) exceedances of groundwater standards for sulfate, antimony, arsenic, and nickel, as well as (supposedly temporary) exceedances of surface water standards for silver, antimony, cobalt, and nickel. Thus, it seems likely that the first round of modeling would have produced even larger indications of exceedances of water quality standards.	EOO
20089	A similar withholding of documentation is encountered in Sections 8.1.2 and 8.2.3 of RS74B. The declaration in 8.1.2 is that "SRK Consulting provided mass load terms for each source area for each year of operations. This report is not intended to describe how these loads were computed, that will be done either in a revision to RS54/RS46 or in a separate technical memorandum provided by SRK." (Something very similar is said in 8.2.3.) The most recent draft of RS54/RS46 provided for the public comment process is dated July 20, 2007, which thus predates the technical report where the description is promised.	WR1E,PRO3

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Comment ID	Comment Text	Theme Codes
20089	In such a poorly documented use of spreadsheets, the formulas can be found only by painstaking inspection of many cells of the spreadsheet. This kind of report writing is a willful obstruction of the public comment process.	WR2K,PRO3
20089	Description of the spreadsheet models is sketchy at best. In particular, there is no narrative about what kinds of formulas were programmed into the spreadsheet cells. This does not seem like a method for presenting information, but rather a method for hiding information.	WR2K
20089	• The DEIS and technical report RS74B give only rather limited information about the methods that were used in the "second round of conservative modeling". One source is in Section 8 of RS74B (entitled "Geotechnical Mitigation – Groundwater Quality Modeling"), which includes subsections 8. 1 and 8.3, entitled "Modeling Methodology – Operations" and "Modeling Methodology – Closure" respectively. These mention using MODFLOW-SURFACT modeling to predict travel times through the basin, combined with a spreadsheet model to predict the concentration of dissolved constituents for water released to the environment.	EOO
20089	The original modeling was based on MODFLOW and MODPATH, which are widely accepted software packages developed by the U.S. Geological Survey. By contrast, we have no independent verification of the (mostly unspecified) methods used in the spreadsheet models.	WR2K
20092	• The DEIS briefly mentions on pages 3-31 and 3-32 that there has been a design change, effective as of June 2009. There is less than a page of description of the design changes. As I will explain in the next section, this design change is not adequately documented in the DEIS.	PD9
20092	Furthermore, to the extent that any mitigated design (or "Mitigation Design" as it is called in various RS documents) actually exists, the DEIS tells us very little about its probable environmental consequences, particularly water quality impacts. Specifically:	PRO3,G8
20092	• The wide spacing in the regional model, and the fact that it is 2-dimensional rather than 3-dimensional, make it effectively useless for predicting anything outside the immediate mine area. You could compare it to looking at a digital photo with extremely poor resolution. Moreover, the fact that the regional model calculates nothing at any levels above the presumed bottom of the mine pits makes this model even weaker for predicting environmentally significant variables. Indeed, the layers most likely to have interaction with surface waters are the layers closer to the surface.	WR3A,G9
20092	The DEIS does not disclose the fact (as mentioned in RS74B) that the EIS contractor was not able to validate the results of the MODFLOW/MODPATH modeling of the flow of dissolved constituents through and out of the tailings basin.	WR2F,PRO3
20092	This severely limits the value of further detailed study of this report, because the report applies to a tailings basin design that probably will not be constructed. And the same conclusion probably applies to sections of the DEIS that relate to this technical report or to RS22. Conceivably, some portions could apply to the new design, but other portions most likely will not apply. It is impossible to tell which is which; this also obstructs the public comment process.	WR2D,PRO3
20092	As surprising as the quoted statement from page 54 of RS74 may seem, an even more suprising statement appeared on page 61 of RS74B during the search for "exceedances": "Because MDNR has decided that the Tailings Basin-Proposed Action has sufficient geotechnical uncertainty to determine that the Proposed Action should not be pursued further, PolyMet decided to not further refine models and develop mitigations that could be modeled so as to demonstrate no exceedances of standards. It is likely that a combination of refined model and modeled mitigations could demonstrate no exceedances."	WR1E
20095	If PolyMet is allowed to postpone that documentation until the permitting phase, it would mean that a considerable amount of documentation is therefore unavailable during the EIS process, and in particular not accessible for inspection during the public comment period. Moreover, the DEIS fails to disclose that the design that the PolyMet Company proposes to use (the Tailings Basin - Mitigation Design) has not been documented in any detail and isn't intended to be documented until the permitting process. Since the Tailings Basin - Mitigation Design was formally substituted for the original design in June 2009 – four months before the October 2009 finalization date of the current Draft EIS, there really is no justification for the failure to disclose this important fact.	PRO1,PD8

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20095	• PolyMet claims in the above quotation from page 61 of RS74B that "a combination of refined model and modeled mitigations could demonstrate no exceedances". First of all, this statement implicitly acknowledges that some of the modeling must have shown exceedences. Most troubling, the language of this statement gives a strong appearance that the PolyMet modeling is designed to demonstrate no exceedances rather than to provide objective scientific information.	PD8
20096	The water quality predictions in Sections 8.2 and 8.3 of RS74B for the Geotechnical Mitigation design are more optimistic than the predictions in Section of RS74B for the original design. You can see this by comparing Figure 6-25 (Predicted Concentration – Cell 2E: Proposed Action – Arsenic) with Figure 8-19 (Predicted Concentration – Cell 2E: Geotechnical Mitigation – Arsenic). These figures are shown in an attachment at the end of my comments. {Both figures are from RS74B.	EOO
20096	In that technical report, the phrase "Proposed Action" refers to the original design, in contrast to the current DEIS where "Proposed Action" refers to the Tailings Basin – Mitigation Design.} A very conspicuous difference is that Figure 8-19 lacks the blue curve labeled "Captured Water". Clearly, this is because the horizontal drains in the original design have been removed from the mitigation design. There is no reason, however, why there would be less arsenic in the tailings water. It is just that no provision is being made in the mitigation design for capturing seepage, or is it that perhaps some future provision will be made for capturing seepage but that the arsenic in captured seepage was ignored when RS74B was prepared? Whichever case applies, it must be emphasized that the difference between Figure 6-25 and Figure 8-19 does not represent a real improvement, but rather a failure to account for all of the arsenic leaving the tailings basin. I also want to emphasize that these two figures are only samples: the corresponding figures in RS74B that apply to sulfate, antimony, cobalt, copper, and nickel exhibit the same kind of differences with no explanation provided.	WR1A
20096	These results for the original design and for the mitigation design were summarized in the text of section 6.2 and section 8.2 respectively of technical report RS74B. For the original design, exceedances were noted for antimony, arsenic and nickel, while temporary exceedances were noted for silver and cobalt. For the mitigation design, there only is an exceedance for antimony and a temporary exceedance for arsenic. It must be emphasized, however, that this does not represent a real improvement, but only the fact that the modeling of the mitigation design fails to account for solutes in captured seepage.	WR1A
20097	Why does the design of the tailings basin lead to such difficulty in the modeling process, and why does it have so many adverse environmental consequences?	RFI
20097	• There are issues of geotechnical stability, particularly the possibility of catastrophic dam collapse. Such a collapse would have horrendous consequences for the environment, for the safety of people in the area, and for the local economy.	GT2
20097	• Both the regional model and the local area model also suffer from the extreme sparseness of the data input. This is partly due to limited availability of historical stream monitoring in the area, but it could have been partly remedied if PolyMet or one of its sub contractors had taken the trouble to collect environmental data during the mineral exploration phase or as a preliminary to preparing this Draft EIS.	EOO,WR1E
20098	Another reason, which tends to amplify the adverse consequences is the sheer scale of the project: • The mine is expected to produce 91,000 tons of ore per day, or 11,680,000 tons per year. On the other hand, the total metallic content of various outputs will be around 48,000 tons per year. Thus, the metallic content is about 0.4% of the ore production, i.e. four-tenths of one percent. If we note that copper sulfide is about 80% copper, we can estimate that the metallic sulfide content being extracted is about 0.5% of the ore production. Even with an estimate that the concentrated output of the process has as little as 10% to 25% metallic sulfide content, we are still left with an estimate of only 2% to 5% of the mine output leaving the processing plant as finished product. This means that something in the range of 95% to 98% of the ore production is going to end up in the tailings basin. This will be over 11 million tons every year. It will be finely ground and mixed with a large enough amount of water to move this amount of material, and it will contain a considerable quantity of toxic substances such as sulfate, mercury, antimony, arsenic, cobalt, nickel, selenium, and silver. Since the material will be finely ground, the process of dissolving these toxic substances will be accelerated. One conclusion is inescapable here: the solution to an environmental problem of this scale will be complex and difficult.	EOO,WR1E

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Comment ID	Comment Text	Theme Codes
20098	• Because the former LTV tailings basin is unlined and the proposed PolyMet tailings basin also would be unlined, large amounts of polluted water will escape by subsurface seepage.	EOO
20099	It is also important to note that the Tailings Basin - Mitigation Design appears to be different from the Tailings Basin Alternative discussed in the DEIS which was first introduced prior to the date of the September 17, 2008 DNR memo.	WR1E,WR2D
20100	• The Tailings Basin Alternative provides for the capture and pumping of the tailings basin seepage but allows for the discharge into the Partridge River (especially after mine closure) with no definite provision for treatment. There should be a definite treatment plan, because any water that comes from the tailings basin is going to contain many toxic substances, such as sulfate, mercury, antimony, arsenic, cobalt, nickel, selenium, and silver.	WR1A
20100	• The PRB is an unproven technology; therefore a backup plan should be provided in case the test is unsuccessful.	WR1A
20100	• The PolyMet Mitigation Design vaguely mentions capture of tailings basin seepage but no definite provision is made regarding what would be done with any captured seepage. If this seepage is not handled properly, it would have serious adverse effects on groundwater in the Embarrass River basin. If seepage is not captured and treated promptly, it will make its way into wells and streams many years into the future, at which time the problem will have become much more difficult to remedy.	WR1A
20102	• Construction of a PRB of sufficient size to mitigate the groundwater problems would be a construction project of significant size. It is not clearly stated who would be responsible for paying for it.	WR1A,PD3
20102	• Although it is mentioned only once in the DEIS, it is true that the PRB would require periodic recharge. This would be analogous to replacing the cartridge in a drinking water filter – except on a much larger scale. So, we should recognize that even the PRB, just like other long-term mitigation measures, will require long-term maintenance.	WR1A
20104	1.2 Calibration issues. Once the basic setup of a MODFLOW model has been done, it must be calibrated before any predictive calculations are done. This means that the values of the parameters or coefficients in the equation must be determined or estimated. Some parameters cannot be determined directly, instead they are estimated by an essentially trial-anderror process. With trial values of the parameters of interest, you do calculations to predict values of things that have already been measured. A difficulty in this approach is that the number of parameters being estimated often exceeds the effective number of data points. The situation of an ambiguous result for this problem is called non-unique parameter estimation. An analogy in geometry is that there is a unique line going through 2 points, but if you only know where one of the two points is, then you don't know very much about the line.	EOO
20105	These provisions must be documented as part of the EIS process. No documentation of remediation of water pollution caused by these overflows and seepages is provided in this DEIS.	EOO
20105	Generally, we have to recognize that the tailings basin seepage, just like the mine pit overflow discussed in Part 1, will continue for many decades – and likely for centuries – after closure of the mine. The water pollution caused by these overflows and seepages will adversely affect future generations unless there are adequate provisions to deal with it ahead of time.	WR1A
20107	3.1 The need for financial assurance. We have seen, in connection with both the mine pit and the tailings basin, that there will be adverse effects to water quality that will continue long after closure of the mine and processing facility. The modeling may not be sufficiently precise to tell us the exact amount by which the various pollutants in the mine pit overflows and tailings basin seepage will exceed water quality standards, but we can conclude with a high degree of certainty that there will be significant exceedances and that these exceedences will continue for many years after closure of the facility. Continuing exceedances can be dealt with effectively only by means of continuous treatment of any contaminated water that leaves the mine site or tailings basin area. Therefore, the only responsible course of action is to make provision in advance for appropriate long-term treatment of contaminated water, long term monitoring of water quality, and long-term maintenance of the necessary facilities. This should include:	WR3I

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Comment ID	Comment Text	Theme Codes
20108	• Determination in the EIS process of the appropriate parameters of the necessary treatment facility or facilities.	WR2G
20108	• Determination in the EIS process of the appropriate financial assurances, so that the burden of future cleanup costs is not passed on to Minnesota's taxpayers.	PD4
20109	In the history of mine cleanups in the U.S., a large number are associated with bankruptcies of mining companies. In those cases, the taxpayers have paid and are continuing to pay for expensive cleanups. In the case of PolyMet, the company has no assets other than this mine, and this proposed project is to be funded largely by Canadian and other non-U.S. partners. It is not clear how these sponsors could ever be held accountable by Minnesota state law for massive cleanup efforts.	PD4
20110	3.2 EPA requirements. It is stated in the DEIS that Minnesota regulations require determination of financial assurances during the permitting phase, because the costs will be known more exactly at that time. These regulations been developed during an era when we did not have sulfide mining proposed in Minnesota. On the other hand, the EIS process could include discussion of the basic parameters that would apply to that determination. The experience in states or regions with a history of sulfide mining shows that it is better to discuss financial assurances during the EIS process, and this is now reflected in Federal EPA regulations. The situation is very well summarized in the statement by tribal cooperating agencies in footnote 13 on page 3-49 of the DEIS: "It is the position of the tribal cooperating agencies that financial assurance should be fully explored in the DEIS. This is particularly important given the potential for very long-term/perpetual treatment, maintenance and monitoring that may be needed for the Proposed Action. Because of its experience in expensive cleanups of contamination from many defunct or bankrupt sulfide mines, EPA Region 9 has strongly urged other Regions over the past two years to require financial assurance disclosure in the NEPA process. New national rules for financial assurance are under development by EPA, because "Given the history of adverse environmental effects resulting from some hard rock mines, and the expenditure of public funds used in some cases to address environmental problems caused by mining, EPA believes it is necessary to analyze these factors in the DEIS." (from InsideEPA.com, Tuesday, August 25, 2009)." Because of the high probability of environmental contamination documented in my earlier comments, the taxpayers of Minnesota deserve to know during the EIS process what the long-term costs of remediation are going to be and what financial assurances are going to be required of PolyMet.	PRO1,PD4
20111	o The regional model for the area surrounding the mine is based on a grid that is insufficient to provide any useful predictions.	WR1E
20112	o Both the regional model and the local-scale model for the mine area suffer from sparseness of data input.	WR1E
20113	o The hydraulic conductivity values and the recharge rates for the surface deposits (wetlands and glacial drift) were set to implausibly low values during the calibration of the MODFLOW model. This has led to incorrect calculation of the amount of water entering the mine pit – estimated to be off by a factor of 5. This will lead to a significant increase in the leaching of sulfate and of metals such as of arsenic, cobalt, copper, nickel, and selenium.	WR2F
20114	I can make my point about this part of the DEIS without further reference to this article; it is mentioned only to document the fact that this problem has been recognized by others. In the DEIS, the model was calibrated to the water levels of some test wells near the location of the proposed mine pit. The parameters which could be adjusted were the hydraulic conductivity and the recharge rate. Hydraulic conductivity refers to the rate at which water flows through a medium, the recharge rate is the rate at which water in the medium is replenished (for instance by precipitation).	EOO
20115	o The MODFLOW model was calibrated by trial-and-error methods, even though more reliable methods are well documented in the scientific literature.	EOO
20116	o The issue of non-unique calibration was raised some time ago by the tribal cooperating agencies, but has been ignored by the other agencies involved in later stages of preparing the DEIS.	WR2F,PRO3

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Comment ID	Comment Text	Theme Codes
20117	o Transfers of water from the mine site to other areas such as the tailings basin area will magnify water quality and discharge problems in those areas. Please see items (1) through (4) in the text of section 1.4 for more details.	WR1E
20117	o The production of sulfate through the oxidation of exposed rock, as well as the leaching of sulfate and metals (including mercury, arsenic, cobalt, copper, nickel, and selenium) will continue at a high rate during mine operations and for many decades after mine closure, This will lead to exceedance of water quality standards for most of these solutes, and therefore to the need for long-term continuation of water treatment, water quality monitoring, and related maintenance activities.	WR1E
20119	o Although the setup for the original modeling of the tailings basin generally looks plausible, the underlying technical report RS74B claims that the EIS contractor was unable to validate it. No specific reason is given, and none of the results from the first round are presented, leading to a lack of modeling documentation to review as part of the DEIS public comment process.	WR2F
20122	o The original model for solute transport, based on MODFLOW and MODPATH has been replaced by a less transparent model for which the documentation is sketchy to non-existent.	WR2F
20123	o There is no independent verification of the mostly unspecified methods used in the spreadsheet models that have replaced the MODFLOW-MODPATH modeling of solute transport.	WR2K
20123	o It is stated in the underlying technical report RS74B that the documentation of mass load terms for the various source areas is not being documented in the DEIS or in any of the technical reports that have been made available during the DEIS public comment process.	WR1E,PRO3
20124	o The DEIS does not disclose the fact that the EIS contractor was not able to validate results of the MODFLOW/MODPATH modeling of the flow of dissolved constituents through and out of the tailings basin.	WR2F,PRO3
20125	o In the technical report RS74B, PolyMet says that “a combination of refined model and modeled mitigations could demonstrate no exceedances”. The language of this statement gives a strong appearance that the PolyMet modeling is designed to demonstrate no exceedances rather than to provide objective scientific information.	WR1E
20126	If a low value is used for hydraulic conductivity, then you have to use a low recharge rate in order to accurately match the water level in the test wells. Similarly, a higher value for hydraulic conductivity will have to be matched with a higher recharge rate. If you use low parameters, then the model predicts less water getting into the mine pit. Similarly, high parameter values lead to a prediction of more water in the mine pit. The difference between the two choices could be extremely significant for predictions of environmental interest, as I will explain later. Here are the hydraulic conductivity rates presented in Table 3-3 of RS22, Appendix 2:	EOO
20126	o The DEIS fails to disclose that the design that the PolyMet Company proposes to use (the Tailings Basin - Mitigation Design) has not been documented in any detail and isn't intended to be documented during the EIS process.	WR1E,PRO1
20126	o Water quality results reported in the technical report RS74B for the Mitigation Design are more optimistic than the water quality results reported for the original design. This does not represent a real improvement, but rather the fact that captured seepage water was not analyzed in the modeling for the new design – as had been the case for the original design. Thus, the DEIS fails to report likely exceedences of water quality standards for antimony, arsenic, nickel, silver and cobalt.	WR2E
20128	o The PolyMet Mitigation Design vaguely mentions capture of tailings basin seepage but no definite provision is made regarding what would be done with any captured seepage. If this seepage is not handled properly, it would have serious adverse effects on groundwater quality in the Embarrass River basin. If seepage is not captured and treated promptly, it will make its way into wells and streams many years into the future, at which time the problem will have become much more difficult to remedy.	WR1A
20128	o Because the former LTV tailings basin is unlined and the proposed PolyMet tailings basin also would be unlined, large amounts of polluted water will escape by subsurface seepage.	EOO

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Comment ID	Comment Text	Theme Codes
20128	o There are issues of geotechnical stability, particularly the possibility of catastrophic dam collapse. A collapse would have horrendous consequences for the environment, for the safety of people, and for the local economy.	GT2
20130	o The Tailings Basis Alternative includes a possible test of a permeable reactive barrier (PRB) to intercept and treat some of the tailings basin seepage. Concerns about the PRB include the following facts: (1) it is an unproven technology, (2) constructing it on a sufficiently large scale would be an ambitious undertaking, and (3) it requires long-term maintenance in the form of periodic recharge. None of the parameters of the design or required maintenance are discussed in the DEIS.	WR1A
20130	o The Tailings Basin Alternative discussed in the DEIS provides for the capture and pumping of the tailings basin seepage but allows for the discharge into the Partridge River (especially after mine closure) with no definite provision for treatment. There should be a definite treatment plan, because any water that comes from the tailings basin is going to contain many toxic substances, such as sulfate, mercury, antimony, arsenic, cobalt, nickel, selenium, and silver.	WR1A
20131	o Because of the high probability of environmental contamination documented in my earlier comments, the taxpayers of Minnesota deserve to know during the EIS process what the long-term costs of remediation are going to be and what financial assurances are going to be required of PolyMet. Therefore the EIS process should include the following:	PD4
20131	o Because there will be a long-term need for water quality mitigation, continuing for many years after closure of the proposed mine, and because of a long history of mining company bankruptcies which have forced taxpayers to pay for expensive cleanup efforts, there is a definite need for financial assurances to guarantee that PolyMet will pay for continued water quality monitoring and mitigation, as well as maintenance of the necessary facilities.	WR3I,PD3,PD4
20132	Determination in the EIS process of the appropriate parameters of the necessary treatment facility or facilities.	PRO1
20133	Determination in the EIS process of the appropriate financial assurances, so that the burden of future cleanup costs is not passed on to Minnesota’s taxpayers.	PD4
20133	The rates for the various bedrock formations are from previous studies in the scientific literature or from recent testing, but the values for the surface features (wetland deposits and glacial drift) are more ad hoc or arbitrary. The Duluth Complex is known to consist of a particularly impermeable type of bedrock; nonetheless, the estimated value given for the vertical component hydraulic conductivity (0.0000033 ft/day) given for the wetland deposits and glacial drift is fully three orders of magnitude lower than the value of hydraulic conductivity (0.0024 ft/day) of the Duluth Complex. From the viewpoint of a scientifically educated layperson, this is inherently implausible. The supposed rationale is that water percolates very slowly out of the bogs. But it doesn’t explain why such a grotesquely low value was chosen. It also doesn’t explain why this low value is chosen for the vertical hydraulic conductivity of the glacial drift. Supposedly, this has to do with the high silt content of the glacial drift. It would seem, however, that this silt content also should affect the horizontal conductivity, which happens only to a very minor extent. So, we have to conclude that there is no convincing proof that this hydraulic conductivity value is correct.	WR2A
20134	o Based on the experience of states and regions with a history of sulfide mining, Federal EPA regulations strongly recommend discussion of financial assurances during the EIS process.	PD4
20135	It was a good idea to include the Tribal cooperating agencies' comments as footnotes to the DEIS text; they did a good job of technically evaluating the potential impacts described in the DEIS. As there are several areas of disagreement with the DEIS assumptions and projections, the Tribal comments and recommendations should be carefully considered in subsequent actions that will lead to the final EIS and decisions on whether or not to conduct, and how to conduct, the PolyMet mining operation.	G15

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Comment ID	Comment Text	Theme Codes
20136	I think the analysis of possible Hg effects did a good job of explaining the complexity of the relationship ofHg sources to its jncorporation into fish tissues, and the uncertainties about the role ecosystem factors might play in contributing to its conversion to methylmercury. My concerns about the possibilities of the mining activities causing increased fish tissue accumulations in water bodies as far away from the mining site as the St. Louis River and waters in between were substantially reduced since the amount of elemental Hg produced would be very small. There could also be a sequestering effect on elemental Hg by tailings (as seen previously), and conversion to organic Hg might not be increased by the amounts of sulfate residues produced Howerver, this must be balanced against the uncertainties; associated with an imperfect understanding of the processes involved and their complexity, the somewhat nebulous estimates of contaminant concentrations (particularly sulfate) that woutd be present the runount of seepage or overflow from the tailings basin and mine pits, and thus the ability to predict with confidence what will happen with regard to mercury. Considering the magnitude of the problem already, including fish tissue residues in lakes in the vicinity of the plant any likelihood of events leading to an increase is to be avoided, Therefore, the additional work being done to better define this possibility resulting from the Proposed Action is very important and must be considered at the environmental impact review stage, not after.	WR5A,WE8
20136	In my mind a big problem is the time frame over which the Proposed Action might require water treatment to prevent environmental impacts from surfuce and ground water contamination. According to the DEIS models, the Proposed Action could result in exceedances of state or USEPA water quality standards or "ground water evaluation criteria" (largely drinking water standards) for sulfates, arsenic, antimony, cobalt, copper, nickel, or selenium in ground or surface water collected onsite or adjacent to the mine or processing plant sites. Removal of these by the Waste Water Treatment Facility would of course be expected during the 20 years or so of plant operation, but is also expected 10 be needed for the additional 45 years or so "'Post Closure?" period until the West Pit overflows into surrounding wetlands. Models indicate that further treatlnent could also be required for an indefinite period after that (decades to centuries) to prevent pollution of adjacent wetlands or the Partridge or Embarrass Rivers.	WR3I,WE6
20138	I think It is unrealistic that Polymet or the state would be willing to assume financial responslbllity for treatment of seepages and leachates for this length of time. Too many domestic or foreign financial or economic factors could interfere with any such long-term funding plans. To further complicate matters, financial assurance figures and instruments can only be determined during the subsequent permitting phase of project review. This is far too unique and beautiful an area to be further degraded by the possibility of creating an uncontrolled, perhaps perpetual, pollution source, especially by a mining type (sulfide mining) with such a bad record for environmental damage.	PD3,PD4
20139	Added to the above uncertainties is the fact that the process for extracting the target metals at the plant site is new and has only been tested on a much smaller pilot scale, so hydrometallurgical residues going into and subsequently out of the tailings basin could be substantially different than the model-projected residues.	WR1E,PD2
20140	Based on the preceeding considerations, I would conclude the DEIS provides insufficient information to assure me that water contaminant and Hg residue increases win not occur as a result of the mining, particularly when I have no information on assurances by PolyMet that they will provide treatment to control contaminants for as long as elevated levels are capable of leaving the disturbed area, For these reasons I reject the information in the DEIS as being an adequate basis for proceeding to the permitting stage ,vith the Proposed Action. As a result of the "Catch-22" related to obtaining information about financial responsibility (not available until the permitting stage), I will probably never be able to agree there is a satisfactory basis for conducting this mining operation (ie. have adequate assurances at the EIS stage that PolyMet will pay whatever is necessary to protect the environment, regardless of how long it might take).	WR4B,PD2
20141	I am writing to you as a citizen of Minnesota concerned about the Polymet NorthMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forrest. Please accept these comments on PolyMet's Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	EOO

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Comment ID	Comment Text	Theme Codes
20142	Concerning impacts of water quality, I understand that the water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. this is unacceptable to me. It is unreasonable to expect that mining companies will be able to maintain water treatment facilities for that amount of time and it is an unfair burden to pass on to future generations in Minnesotans who will inevitably be left to pay for these operations. Additionally, it will be all but impossible to calculate sufficient financial assurance for a mining operation that is going to require such long-term care. in fact, a possible "mining moratorium law" such as in Wisconsin should be considered.	PD2,PD4
20143	In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfates can turn mercury into forms that make fish dangerous to consume. it is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes.	EOO,WR4B,FM1
20143	It is my understanding that PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of the basin to hold its contents would result in long-lasting and serious contamination PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project	GT2
Sender Last Name:	Matonich **Submission ID:** 1098	
1202	The state of Minnesota, after six years of intense scrutiny by an independent engineering company, is finally moving forward on a project that could lead to economic revival in northeastern Minnesota. The proposed development of a new mining facility by PolyMet Mining Company at Hoyt Lakes is important to our region, i.e.m direct jobs, support jobs, local, state and federal taxes. However, the project has positive implications that go far beyond the scope of this one endeavor. The future of mining nad manufactoring in Minnesota is dependent upon bringing the MolyMet mine to production. Without state support, it will be virtually impossible to entice other corporations and enterpreneurs to invest the money, energy, and time of the type that PolyMet has expended if such efforts get thwarted by the hue and cry of a scant number of well intentioned but ill informed people. The PolyMet project offers a variable paradigm for the minimg of scarce low-grade nonferrous mineral deposits. ANy modern mine must also conform to the rigorous standards that state, local and federal agencies have in place and will enforce. Taxpaying citizens of our area and state will gain substantially by allowing this project to move forward. A successful modern day and transparent mining operation is needed. At the present, mining in most of the regious of the world are not subject to the strict environmental standards in place in Minnesota. PolyMet should be grandted the opportunity to compete with those offshore polluters. However, PolyMet must operate in an environmentally safe manner, which the company has already demonstrated through corporate culture of compliance. Timing is critical. The United States is a net importer of copper, nickel and cobalt with a thrity billion dollar deficit balance of payment in minerals. This project can move America to self-sufficiency in mineral production. In these dire economic times with near record unemployment, a staggering number of people living below the poverty level and gargantuan state and federal spending deficits, the PolyMet project provides an opportunity for the creation of meaningful jobs crucial to homeland economic propserity and national security.	EOO
Sender Last Name:	Mattison **Submission ID:** 3668	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	Generally, I found the DEIES ominous and foreboding in its language and length and disturbing in its overall tone. It was an enormous challenge to attempt to read and digest the content of this document. Better organization and structure to reduce the redundant discussion would have better served the reviewing public. The shear volume of the document presents a formidable obstacle to good public review and familiarity with the project and its implications for Minnesota's environment. At times the DEIS became annoyingly apologetic consistently minimizing probable impacts or emphasizing lower impacts when model error was equally predictive of greater impacts. A glaring example of this writer bias is demonstrated in the finding that a single (and possibly outlier) data point was used to speculate that waters receiving discharge of sulfate pollutants from the project were not sulfate limited in the methylation of mercury therefore the pollutant was less likely to be of significant consequence. This type of "minimized impact tone" often is allowed to creep into environmental 2 review documents when the agencies responsible for preparing the document allow the project proposer (usually through it consultants) actually draft portions of the EIS. Whether the project proposers were allowed unwarranted authorship of the language in the DEIS or not the writers of the DEIS should strive to maintain a cynical objectivity that reflects their respective agency's recognition that their clients are the citizens of the state and the natural environment that sustains them rather than the project proposers. These cases of writer bias should be meticulously stripped from revisions of the DEIS and the FEIS	EOO
2	Secondly, the purpose and need statement for the project was inappropriately used to justify premature elimination of an important alternative, the underground mining of the desired ore. It is clearly a violation of the spirit and intent of the National Environmental Policy Act NEPA and the Minnesota Environmental Policy Act MEPA to eliminate an alternative to Polymet's preferred open pit mining project on economic considerations alone. Paraphrasing MEPA on this subject, regulatory agencies shall not permit the pollution, impairment or destruction of the natural environment so long as there is a prudent and feasible alternative. Economics alone shall not justify such actions. The underground mining of the desired minerals has the potential to avoid significant portions of the wetland impacts from the preferred alternative, reduce the oxidation and exposure to surface waters of sulfide containing ore thereby reducing potential for acidic runoff, sulfate and other polluting metals discharge to surface and ground waters, reduce air pollution and minimize wildlife and other impacts. This alternative should be fully developed in a revision of the DEIS or amended to the FEIS. Should this alternative be found to be significantly less polluting and to reduce other wildlife and wetland impacts to below significant thresholds the regulatory agencies would be obligated to entertain permit applications from Polymet for this alternative alone. Should Polymet then determine that mining the desired ore under the conditions imposed by following NEPA and MEPA were not feasible for them economically, the environmental review process would have performed as designed. Moreover, this process would have lead Minnesota to have come to the same conclusion about sulfide ore mining that several other states including Wisconsin have, that is that the mining of high sulfide containing ore is not yet feasible in the state while providing for the reasonable protection of natural resources and the environment. Premature elimination of this underground mining alternative in the environmental review process interfered with the logical and analytical process by which this determination could have been reached.	ALT8
3	Third, the segmentation of environmental, social and economic impacts from the land exchange with the Forest Service for an as yet unidentified parcel of land for separate environmental review is also contrary to NEPA and MEPA. Depending on the site ultimately selected there is the potential for significant environmental effects of the project that are not disclosed in the DEIS. Segmentation of the project to avoid full disclosure of the overall impacts of a proposed action is strictly forbidden by these statutes and supporting rules. The DEIS should be amended to include the impacts of the land exchange and then fully republished and re-noticed for public review. Similar to wetland replacement, only identifying to the extent possible the particular parcel or parcels of land involved in the exchange can the public be made fully aware of the complete impacts of the entire project.	PD1

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Comment ID	Comment Text	Theme Codes
4	Fourthly, while the cumulative effects analysis in this DEIS represent a significant improvement from past efforts by the Corps of Engineers and Department of Natural Resources there remain significant errors of analysis made that require revision of the DEIS. The DEIS conducts cumulative impact analysis from within the silos of specific pollutant, impacted resource or project aspect without ever bringing them all into focus together with all other past and foreseeable future impacts. This particularly true of the assessment for cumulative impacts on fish tissue mercury concentrations. Fish tissue mercury is an especially sensitive impact category because the resource (fish) has already been stressed beyond acceptable limits, (fish tissue mercury concentrations have triggered human consumption advisories) and special regulatory efforts are being expended to reduce the problem. Furthermore, the MPCA has found that reductions in air emissions alone will not be sufficient to bring fish tissue mercury back within acceptable limits and therefore other efforts (TMDL's's) regulating other factors contributing to the problem to be scaled back in order to realized desired fish tissue mercury levels. In this setting the significance of past human activities is already significant. This drastically 3 lowers the bar for present and future projects impact significance on fish tissue mercury. Essentially, any project that can be shown to potentially increase fish tissue mercury should be considered as having significant adverse impact on that aspect of the environment. Furthermore, to make this assessment the cumulative impacts assessment should have incorporated discussion of the past atmospheric emissions of mercury to the natural environment and the added cumulative impact of atmospheric emissions on methylation of the ambient mercury as it relates to fish tissue concentrations and the fish tissue impact within the geophysical, aquatic and air shed mercury impact footprint of the project. Other discharges non-atmospheric (i.e. wastewater discharges) of mercury and sulfates from all other past, present and future discharges should then have been added to the impact footprint. Then all hydrologic alterations of the watersheds within the impact footprint that further facilitated methylation of available mercury in the environment should have been assessed including construction of water impoundments, lake level control structures, inundation of or alternate draining and flooding of all wetlands (not limited to riparian wetlands) from watershed alterations etc. should have been taken into account. At least impacts of the Whitewater Reservoir's construction and past operation (water level fluctuations) and the added fluctuations associated with the proposed project's impact on mercury methylation should have been assessed in addition to the several reservoirs downstream from the project on the St. Louis River and elsewhere. The relationship between water impoundments and hydrologic alterations has been well documented in Canadian studies of hydroelectric dams and in the Final Joint State/Federal Environmental Impact Statement on Flood Control Impoundment in the Red River Basin of the North prepared by the Corps of Engineers and the Minnesota Department of Natural Resources. The relationship between riparian and riparian or drained wetlands and mercury methylation is well established in Corps of Engineers work on the Rainy River chain of industrial impoundments and their operational plan involving operational and seasonal fluctuations of water levels in these impoundments. Finally all emission sources and water discharges of mercury and sulfur containing pollutants from the proposed project should then have been added to the past and reasonably foreseeable non-project impacts on fish tissue mercury concentrations in the broader project foot print. Environmental impacts accumulate by various means as described in NEPA guidance documents on the	PD10,CR1
5	And finally, one reasonably foreseeable future action by Polymet itself was casually dismissed in the DIES that may have serious implications for the overall cumulative impacts of the proposed project and the impacts of which should be incorporated into this assessment. Alternative E20 on table 3.2.4 (page 3-67) of the DEIS states that "There are additional mineral resources in the West Pit that would effectively be lost if the pit was used for waste rock and/or tailings disposal." Use of the West pit for waste rock or tailings disposal is thus eliminated from further consideration. The probability of future mining of unspecified mineral deposits in the West Pit making it unavailable as a disposal alternative is clearly established in this decision by Polymet. Environmental impacts of this "reasonably foreseeable future action" by the project proposer must be incorporated into the current DEIS. While this may be an exception to the standard criterion for reasonably foreseeable actions (detailed plans or permit applications) the probability of this future action is strong enough for the company to reject reasonable alternatives to the proposed action and thereby rises to the level of reasonably foreseeable. This future mining should be assessed in the revised DEIS and the final DEIS.	G9

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Comment ID	Comment Text	Theme Codes
6	The summary findings (pages s-8) of the project impacts including Antimony, manganese and nickel concentrations exceeding EPA MCL's and sulfate exceeding groundwater evaluation standards is a significant impact of the proposed project that would favor alternatives including the no action or underground mining alternatives to prevent or minimize them.	ALT8,PD2
7	The discussion and land exchange with the U.S. Forest Service (page1-2) remain unresolved issues the finer points of which should have been developed and detailed in the DEIS. The public should be party to and reviewers of both the arguments for the mineral rights and the environmental impacts of the suggested land exchange. If the U.S. Forest Service is an unwilling partner in the land exchange or the access to the mineral rights within the National Forest Lands this debate should be conducted in full view of the public and documented in the DEIS. Failure to include the associated environmental or public resources at stake in the mineral rights access and the suggested land exchange is a critical omission from the DEIS and should be corrected by having these negotiations carried through to their ultimate outcome before final judgments can be made on the overall environmental impacts of the project.	PD1
8	On page 2-6 the DEIS sets forth an unacceptable rationale for not including estimates of financial assurance until the permitting phase. Since financial assurance issue may heavily influence economic viability, future public liability, financial assurance that future environmental impacts are sufficiently addressed after closure etc. the public must have at least reasonable estimates of needed financial assurance at the point of environmental review. Surely, those values can be estimated for each of the preferred and alternative project designs and projected future impacts using conservative (high values for sake of avoiding serious underestimates) to provide the skeptical reviewing public some measure of assurance that they are not being hoodwinked into receiving and monstrous future environmental and financial liability should the project move forward. The DEIS revisions and re-noticing of the revised final DEIS should be delayed until these numbers can be developed.	PD3,PD4
9	In Section 3.1.3 Proposed transport of ore on page 3-17 and 18 the issue of losses of ore from transport trains either by leakage through gaps in hinged doors or large pieces of ore falling out of rails cars is discussed. The center loading of fines and proper loading and or recovery of lost ore rock is offered as assurance that this spillage will not be of concern. The reviewing public should not be assured by these measures. Significant spillage from leakage and falling off of larger ore rocks may well be a significant source of all the pollutants at issue in this project with groundwater, wetland and surface stream and lake impacts. This source of sulfates, mercury and other metals was not properly 2 estimated in the DIES nor were the additional cumulative effects of this vast non-point source of these pollutants properly assessed in the DEIS. The DEIS should be amended to include this assessment.	PD7
10	The projected post-closure operating time of the proposed WWTF is questionable based on assumptions not well supported in fact or data in the DEIS. This contributes to uncertainty about the future financial assurance needed for the post-closure period of the project increasing the public risk of pollution or unpredicted economic burden on the general public should wastewater treatment be needed beyond the projected time frame. The uncertainty in this prediction should be better quantified and the implications for post closure WWTF operation costs and burden more fully developed in the DEIS.	PD5
11	On page in section3.2.1, No Action Alternative on page 3-51 the DEIS implies that the no action alternative would prevent the realization of the social and economic benefits of the Project. This the kind of project favoring speculative assumption referred to in the cover letter to these detailed comments. It has not been established that there would be, on balance positive social and/or economic benefits from the proposed project. Certainly there would be short-term isolated economic benefits to some but the DIES must remain objective and take the boarder long term view from the general society viewpoint. Long term environmental degradation and economic liability should financial assurance measures be inadequate are profound societal economic and social liabilities. The jury is still out as to which of these scenarios is the more likely. Skeptical objectivity on the part of the writers of the DEIS would avoid such unfounded project-favorabe findings. Furthermore, the no action alternative may have cumulative long term benefits to the environmental setting that were not discussed in the DEIS. This discussion should be presented here.	ALT8

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Comment ID	Comment Text	Theme Codes
12	Section 4.1.1.2 Groundwater Resources on page 4.12 presents rather vague and unsupported assertions about the dynamics of existing groundwater systems at and in the vicinity of the proposed project. Many calculations throughout the DIES rely on the accuracy of the exiting groundwater condition yet many uncertainties and unknowns exist that may have major repercussions for predicted surface and groundwater impacts from the project. The lack of groundwater data prevent the full development of reliable models and predictions for impacts of the project. This is unacceptable because it has serious implications for assessing all water quality impacts, both project and resource specific impacts as well as cumulative impacts. The entire DIES is severely weakened for lack of adequate groundwater data. These data should be collected and used to better calibrate the ground and surface water models that were used to predict project related water quality impacts and presented in a future revised draft EIS.	WR2F
13	In the proposed action and project alternative evaluation the underground mine alternative was acknowledged as have benefits addressing the four primary environmental concerns with the proposed tailings basin alternative but was eliminated for economics reasons (in addition to mine safety and deposit geography concerns which in reality are not technical but other forms of economic considerations. The DEIS did not find the underground mine to be technically unfeasible, it simply did not meet the 3 expressed purpose and need of the project proposers. That purpose and need was solely based on economic considerations which, by NEPA and MEPA are not justifications for eliminating feasible alternatives. If alternative mining techniques are available that will prevent the significant adverse environmental impacts of a proposed project these techniques must be presented and assessed. Should the project proposer find that the more adequate environmental protections afforded by this alternative make the mining infeasible from a solely economic perspective the EIS process will have served its purpose. The EIS would have provided strong evidence that economics of mining the sought after minerals at this site cannot be conducted in a manor sufficiently protective of human health and the environment. The DEIS should be revised to include evaluation of the benefits of this alternative and if necessary provide the decisive evidence suggested above should that be the outcome.	ALT8
14	The evaluation of alternative means of ore transport in table 3.2-4 on pages 3-64 through 3-67 rejects evaluation of conveyors rather than rail transport that may have significantly reduced spillage of ore and associated (not well evaluated in the DEIS) environmental impacts. Again, this transportation alternative was rejected primarily for economic reasons. Technical feasibility reasons were also cited but not explanation was provided. For the same reasons referenced above regarding the rejection of the underground mine alternative this transport alternative should have been included for more detailed analysis and its potential for reduced impacts assessed. The DEIS should be revised to include this information.	PD7
15	On this same table the alternative of using the West Pit for waste disposal was eliminated because there were “additional (unspecified) mineral resources in the West Pit area that would be lost if the pit was used for waste disposal. This represents a reasonably foreseeable future impact of the mine project that should be assessed in the cumulative impacts analysis. The DEIS should be revised to conduct the required analysis.	G9

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Comment ID	Comment Text	Theme Codes
16	The mine site geology and hydrogeology presents a data poor and speculative understanding of ground water flows and groundwater/surface water interaction that make predictions of impacts on the groundwater regime on the site very clouded. Further field collection of groundwater levels and movement should have been gathered for this review. Many of the groundwater and surface water impacts of the proposed project rest on having a clear understanding of the dynamics of the existing groundwater system. To the extent the existing groundwater regime is unknown or uncertain, the future immediate and long term impacts of the proposed project and its alternatives become less and less predictable. The DEIS should be revised with more reliable groundwater data on which more reliable predictions of impacts can be based. The discussion of Effects of Groundwater Quality at the Mine Site on page 4.1-66 is disturbing in that it seems to accept at face value and without questioning (objective skepticism) that the limestone treatment of the exposed high sulfide Virginia Formation High Wall in the East mine pits will be effective in controlling acidity developing on the exposed rock face. This is another example of the authors of the DEIS tilting matters of any doubt in favor of unsupported, speculative assertions by the project proposer. While 4 acknowledging that the successful application of the measure has not been demonstrated the authors proceed to accept the assertion as reliable and proceed to base groundwater modeling of East mine pit through filling with processes wastewater and waste rock. This modeling of groundwater quality becomes totally speculative and unreliable in a DEIS of this importance. Either the groundwater modeling should conservatively assume the full acid production that might be expected to leach from the untreated High Wall or the efficacy of the limestone treatment demonstrated both on lab scale and field scale to assure the assumptions in the groundwater modeling are valid before incorporating them in to conclusions in the DEIS. Either of these alternative corrections in the DEIS require a rewriting of this section and revisions of the DEIS conclusions on this topic accordingly.	WR1E,WR2A
17	The discussion of long term water budget for the closed facility in this section of the DEIS would have the reviewer believe that the facility would contain (not discharge) contaminated wastewater or pit drainage/seepage from twenty years after initial mining in perpetuity. This stretches credibility beyond reason given the poor characterization of the groundwater regime presented in the DEIS. A more conservative prediction tempered by the uncertainty introduced into the groundwater modeling of the site would suggest discharges of the contaminated water from the site for many years after closure and if post closure financial assurance does not anticipate these discharges, the general public will be unreasonably burdened with the long term care and maintenance of this facility. The DEIS should be revised to reflect more conservative projections of long term discharge on contaminated water from the site and consequent need for more extensive post closure measures to adequately provide for treatment of these discharges.	WR3I
18	In discussion of process water treatment in the WWTF on pages 4.1-68 and beyond the DEIS seems to suggest that there are doubts whether the proposed WWTF can actually meeting the required for preventing antimony, arsenic and sulfate contaminants from reaching groundwater through seepage from the tailings basin. While the DEIS offers monitoring to determine if the WWTF is providing the needed reduction in these contaminants it does not provide discussion of any contingency plan should the monitoring demonstrate that the required removal of these important pollutants is not provided by the WWTF. A risk assessment of this situation should be provided with the development of a contingency plan including plant shut down should the necessary treatment levels not be provided by the WWTF. The DEIS should be revised to include this risk assessment and contingency plan.	WR2G
19	The discussion on page 4.1-27 of the DEIS of Effects on Water Levels in Colby Lake and Whitewater Reservoir from the proposed action reveals that the Whitewater Reservoir will experience increased water level fluctuations periodically draining and flooding bays of the reservoir. The consequent increase in mercury methylation from the operation of this reservoir and alternate flooding and draining of bays of the reservoir were not included in the discussion of mercury methylation or cumulative fish tissue concentrations of methyl mercury. The DEIS should be amended to include this impact of the project. This section erroneously concludes that because the Whitewater Reservoir will receive inflows from the Partridge River under high flow conditions the resultant low sulfate levels would limit mercury methylation caused by lake level fluctuation. Mercury and sulfate already residing in the Whitewater Reservoir are more that sufficient to support increased mercury methylation with the predicted water level fluctuations. The DEIS should be revised to correctly reflect this response. Similar assessments of mercury methylation resulting from predicted fluctuations in Colby Lake levels should also be added.	WR3F,WR4B,FM1,FM3

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Comment ID	Comment Text	Theme Codes
20	In discussion of nondegradation standards on page 4.1-127 and 128 the DEIS offers little assurance other than monitoring that eh ultimate West Pit overflows in year 65 will not exceed nondegradation standards for mercury in the Great Lakes Basin. No contingency plan is provide should monitoring demonstrate that the predicted low mercury levels in the West Pit overflows fail to perform as predicted. The DEIS should be amended to develop possible contingency responses in this event.	WR4C
21	On page 4.1-164 in discussion of mitigation measures it is revealed that the wetting and dri of peat in the unlined overburden and storage area could be expected to accelerate methylation of mercury increasing methyl mercury in the drainage from this area. This prediction should have been a finding in the discussion of mercury impacts elsewhere in the DEIS and this discharge added to the cumulative impacts on fish tissue mercury. This should be corrected in the revised DEIS for the project.	WR1E,WR5A,FM1
22	Discussion of the waiver of Clean Water Act Section 401 Certification by failure of the MPCA to respond to the 2005 Corps of Engineers Section 404 permit on page 4.2-1 is troublesome. Certainly the result of scoping and negotiation of alternative facility designs that preceded the DEIS have altered the project sufficient as to make the Corps 2005 public notice of the project void. The Corps should republish a new notice of the revised project providing the MPCA another opportunity to conduct Section 401 water quality review based on the ample new information provided in the DEIS.	WE4
23	The discussion of wetland impacts on page 4.2-9 of the DEIS reveal that the hydrology and type of wetlands involved in the the project are hotly contested. The distinction between bogs and cedar swamps would appear to be a significant one with major ramifications for predicted on-site and off-site impacts. This disagreement between the authors of the DEIS and the tribal cooperating agencies should be resolved in the field and the DEIS revised if necessary based on these findings. The promise of future monitoring to resolve this dispute and determine accuracy on of predicted impacts is an unacceptable substitute for pre-project groundwater and wetland studies that would more accurately assess wetland characteristics before the project is permitted. Suggesting future monitoring to correct for possible weaknesses of the DEIS is contrary to the spirit and intent of NEPA and MEPA that require justification beyond economics to pollute, impair or destroy Minnesota's natural environment.	WE1,WE2,WE3
24	Likewise, the plant and tailings basin wetland impacts methodology was contested by the tribal cooperating agencies. More accurate and conventional methods were proposed they the tribal cooperating agencies that would take into account unique differences between Cell 2W and Celt 2E settings. These methods should be applied and results used in preparing a revised DEIS and the FEIS.	WE2
25	The DEIS in Section 4.5.4 addresses mercury bioaccumulation in fish. In section 4.5.4.3 project related effects on mercury are discussed. This section relies on an extremely small data set to propose that the sulfate concentration in the Embarrass River watershed is not the limiting factor in determining methylation rates. The establish MPCA strategy for addressing sulfate effects on mercury methylation cannot and should not be dismissed on the basis of "limited monitoring" that was only "NEAR" the Embarrass River. The increased sulfate loading to the Embarrass River and downstream chain of Lakes may well be significant in triggering mercury methylation. The promise of future monitoring should not be substituted for a finding of significant adverse effect of mercury methylation leading to increase fish tissue mercury levels in fish from the proposed project.	FM1,FM2
26	Likewise, the tailings basin alternative would be expected to result in increased methylation of mercury that would impact the Partridge River and fish tissue mercury levels in the impoundments downstream on the St. Louis River. Each of the alternatives would result in further degradation of streams, lakes and exiting fish tissue consumption advisory situations in the impacted areas contrary to provision of the Clean Water Act.	FM1,FM5
27	The potential for increased sulfate loadings to area wetlands, lakes and streams from fugitive dust and particulate matter emissions even after control measures are employed were not evaluated for the DEIS. This should be corrected in the revised DEIS and FEIS.	AQ1

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Comment ID	Comment Text	Theme Codes
28	On page 4.14-5 Wildlife Corridor Impacts are discussed. Consistent and unjustified minimization of resource specific and cumulative impacts are found throughout the DEIS but this is the most egregious example. Cumulative wildlife corridor losses should be considered significant even if the incremental impacts are attributable to the project are found to be relatively minor. This is an example of the “nibbling” effect at a resource the dismissal of which as insignificant is specifically prohibited in explanation of cumulative impacts in NEPA Guidance Documents. The DEIS should be revised to comply with NEPA guidance on this topic.	WI5

Sender Last Name: Matton **Submission ID:** 358

396	I am in support of the PolyMet project. PolyMet can produce these metals in an environmentally sound manner and create hundreds of stable jobs that can support families. Based on the documentation outlined in the DEIS, I am confident that impacts to the air and water will be minimal. As a person who lives, works and plays in Northern Minnesota I understand the need to ensure a safe environment project. Let's get on with a project that will do nothing but enhance the Iron Range.	EOO

Sender Last Name: Mattson **Submission ID:** 184

176	I am writing in regards to the draft EIS on the NorthMet project in Hoyt Lakes, MN. The environmental review process the Polymet project endured took over five years and cost them approximately $20 million dollars. This is very likely the most reviewed and scurtanized industrial project in the history of the world. The review produced a nearly 2000 page document addressing every possible enviornmental threat as well as multiple possible remediation processes. The Polymet will produce copper and multiple precious metals from the northmet deposit. Copper metal is utilized in wiring, plumbing, circuit boards, integrated circuits, etc. Cars, computers, electric lighting all are not possible without copper. Nickel can be used in products such as stainless steel, rechargeable batteries and is used in airplane components. Platinum, one of the precious metals, is a necessary component in catalytic convertors. All products are derived from natural resources. Every American relies on products made from these materials everyday. I would rather have the metals we need come from Minnesota than from China or South America. If we produce these products, we know they are being produced in the cleanest and safest possible way. If we do not produce these products here, we will still use these products, but will not have influence over the environmental conditions under which they are produced. If the metals are produced here we know that the people laboring are working for a good wage. We know that we do not have to rely on less stable parts of the world for resources that we require. Polymet, a privately funded operation, has spent five plus years now on its environmental permitting process, meeting all the guidelines laid out. Polymet will create good jobs that harvest resources we all need. If we do not get these materials here on our terms, with our labor, we will need to get them someplace else. My preference, and that of the union I represent, is to permit nonferrous mining in Minnesota to produce the vital metals, and jobs, we need.	EOO,G5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1188	The United States no longer has stockpiles of strategic metals or minerals. We depend(trade) on many countries to supply our needs for metals. Nearly everything we eat or touch originated from some form of Mining. We depend(use) potash and the Nitrogen(Huber Process) as a fertilizer for our food..from a mine or a gas well. In a sense farming and logging are a specialty subset of Mining. In farming we attempt to replace some of the removed minerals, by mining some more. Many of the places we trade(depend) with for metals or minerals are not our friends and do not have are best interest in mind. Countries such as Kazakistan, Russia, Mongolia and China. Many countries are unstable and supplies are questionable, such as Congo, Ecuador, Bolivia, Venezueala, or any Sub Saharan country. There is a continuing trend among countries to use critical resources as a lever to enhance their economy or hold sway over others. Recently China indicated they are considering restricting the export of Rare Earth elements, such as Niobrium and Tantalum. China is a major source of these elements. Very little of these elements occur in the US (or have been found). These as you are aware are used in high tech capacitors and magnets. Bolivia has made ovatures that they will resist 'exploitation' of their Lithium deposits. The US, unless I'm in error, has no Lithium deposits. Lithium of course has found its use for ubiquitous batteries for laptops and all sorts of electronic equipment, not to mention the proposed use for electric vehicles. The very industry, green energy, which this country hopes to exploit. The US imports 40% of the Cu used domestically. Their are no active Ni mines in the US. We depend on a low cost dependable supply fo these for modern society. They are everywhere from aircraft to medical equipment to wind turbines to cell phones. The US is already dependent for 60% of our petroleum needs. History has shown that this has not and is not working out well. We are forced to depend(trade) with countries which have diametrically opposed ideas of human rights and freedom of the individual. This trade supports and enriches their systems and objectives and creates a poorer United States. It is in the strategic interest of the United States economically, and politically to be able to produce or have a domestic supply of Metals and Minerals. Metals and minerals mined find their way into EVERY PRODUCT we use, eat, live in or wear. It would seem counterproductive at best to eliminate from our domestic supply the minerals which are required to advance to an energy indepedent and greener society. The windmills, electric vehicles and alternative energy projects (including laptop batteries) are not possible without Nickel, Copper,Paliadium and the other REE. True these can be produced elsewhere, and will be if this project is not successful, but the consequences are greater dependence on foriegn governments, greater air pollution worldwide, exploitation of workers in third world countries and the opportunity lost to create meaningful employment in Minnesota (that will pay taxes) and a new industry. Lets go forward into a more secure, stable world and help produce the advanced greener industries we need by building this facillty.. Northmet.	EOO
2778	The comments listed below are numerous and urgent. I know you have seen them many times. I would like to add that we have a duty to protect these areas for future generations and not just think of the economy of Minnesota for a few years. A 20 year mine that will make a few people rich and leave behind pollution and damage for hundreds of years is not acceptable. Mining companies cannot 100% prove that they will not injure the environment beyond the mine. Cleaning up afterwards is a poor option. The wealth we have in the land and clean waters cannot be measured in dollars. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources.	EOO,G2

Sender Last Name: Matyska **Submission ID:** 26

24	I'm for the project, and I think we should just quit the monkeying around and go on with it already. I've looked at all the information that I can, and I see no problem with it. That's all. Let's do it.	EOO
25	I support the project, and I believe that all the pollution concerns have been addressed to everyone's satisfaction, and most people are for it, and the only people I feel who remain against the project are environmental zealots who can never be satisfied, and so I just -- I would just say that we support the project.	EOO

Sender Last Name: Matz **Submission ID:** 3629

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3910	Please do not allow our pristine Boundary Waters area to be ruined by mining of any kind! It's a sacred place which should be saved for generations to come.	EOO
Sender Last Name:	Maxwell **Submission ID:** 3184	
725	To Whom It May Concern, I am very concerned about the PolyMet Project. It doesn't seem to have been publicized very well in my part of the state. And yet there could be a major impact on the environment which will affect recreational areas that are used by many of us Minnesotans who don't live on the Range. I respectfully request that there be a time extension for written comments, more public meetings around the state in places other thanAurora/Babbitt and Blaine, and that statements by citizens and a public discussion be allowed during each meeting. Sincerely, Margaret Maxwell	PRO6
3724	I am very concerned by the potential long term effects of the type of mining proposed by PolyMet and other mining companies. The land areas and watersheds will mostly likely be forever altered in ways that are not compatible with current use – for the beauty, peace, and recreational activities. Are the short-term benefits so large that they outweigh the long term problems for the people of Minnesota? Are there studies that show the “new” mining techniques are 100% effective. I want my grandchildren to have the places of refuge as I have.	G2A,G7
Sender Last Name:	Mayer **Submission ID:** 3456	
3735	I would encourage you to not yield to the hysteria surrounding this issue. Further I encourage you to go through the entire process, not to employ any short cuts. This is a delicate issue and all the evidence should be considered. Thank you Steve Mayer	G10
Sender Last Name:	McCauley **Submission ID:** 1036	
1136	Laborers Local 1097 and it's 1 000 members support PolyMet Mining's NorthMet Project. For many years we have known aboutthe precious metals that our area can deliver. Now we need the project to move forward with permitting to create new jobs desperately needed for our area. PolyMet will provide millions of dollars of local and state support. They will employ hundreds of people in the plant with just as many spin off jobs that will provide a huge economic benefit to Minnesota. Thank you for your time and we will look forward to seeing this project move forward.	EOO
Sender Last Name:	McClure **Submission ID:** 3125	
3497	Please keep mining out of this very pristine and unique area. I have traveled in the BWCWA since I was a young boy. It is unlike any other park in the USA. I would like to some day bring my yet unborn grandchild to visit this area, please ,please do not allow mining of this type anywhere near the BWCWA.	EOO
Sender Last Name:	McDowny **Submission ID:** 3398	
3688	What happens to the Northeast MN where the mines have been exhausted? Se we then, clean everything up and begin a new mine to keep up the economic boost? Given the risks and minor benefits our economy would pursue with this operation, I think it to be very absurd that this is even being considered. My only hope is that my great, great grand children can have the same experiences on Birch Lake that I have had.	EOO
Sender Last Name:	MCEA **Submission ID:** 3756	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	Mine Baby! MINE!	EOO
1	We need jobs that will support families.	EOO
2	On behalf of the 1,070 members of the Duluth Area Chamber of Commerce, I am writing to support an adequacy decision on the draft Environmental Impact Statement for PolyMet Mining Company. While PolyMet proposes to operate on the Iron Range, many of our local chamber members will serve as vendors and service provides to this new business – spreading the positive economic impact. Minnesota law has established a comprehensive and challenging environmental review process. PolyMet has been in the midst of this process for more than five years. It has invested a considerable amount of time and more than $20 million in studies and other research to support the development of the Environmental Impact Statement. While this is a significant commitment, it is necessary to demonstrate that the project can move forward without harming our environmental and natural resources. PolyMet has made such a demonstration. In addition to developing mitigation strategies for potential environmental challenges, the company also has done an excellent job developing an environmentally friendly proposal: • The project will manage waste rock aggressively, categorizing it and using special liners and ultimately covers to minimize the amount of water that contacts waste rock and treating water that does contact the rock. • Air emissions will be negligible, in part because PolyMet will use the sulfur contained in the ore to fuel the processing of the ore. • Byproducts of processing will be non-hazardous and managed equally aggressively in specially designed containment cells. • No process water will be discharged. I also am impressed with the financial assurance requirements that will ensure all closure costs will be paid for by the company, even in the unfortunate case of a bankruptcy. Minnesota taxpayers will not end up footing any clean-up bills. State regulatory authorities will ensure that PolyMet will mine minerals in a manner that meets state laws. I do not have the same confidence about mineral mined in countries that might nor even have such laws. PolyMet has done an excellent job of following state and federal laws and rules associated with environmental review. It is now time for state and federal entities to follow those same rules. I am confident that an adequacy decision is supported by the facts. Thank you for the opportunity to comment on this exciting and needed proposed project.	EOO,G4A
2	The Duluth Building & Construction Trades Council is a Council of 15 Unions with approximately 6000 members. On behalf of the Duluth Building & Construction Trades Council and our many members we are writing to comment on and support Polymet’s EIS. " ". We have worked closely with Polymet for many months and are very knowledgeable about the effort they have made to make sure this project is safe environmentally. They have explained to us a number of time show they will process and operate to ensure an environmentally safe operation. Comparing this mining operation to those in the past that were not environmentally friendly is wrong. Today's technology is far superior to that of the past. It should also be clear that Polymet is not in the BWCA's watershed. As local citizens we are very concerned about anything that would harm the environment; therefore we have made a very concerted effort to educate ourselves on Polymet's project. We understand the need to balance resources and the preservation of our water and air. We feel that this EIS supports Polymet's effort to develop and environmentally and economically sustainable project. This mining location contains the second largest deposit of cobalt in the world. Currently the United States is importing 80% of its copper. Polymet will be a domestic supplier of critical metals and will reduce our dependence on foreign metals and create a large tax base for the area and state. It will bring life back into a mining facility that now sits idle and once employed hundreds. It is estimated that Polymet would create 900 permanent jobs, 400 at the mining facility and 500 spin off jobs. It will create 1.5 million much needed construction man hours. Northeastern Minnesota has one of the highest unemployment rates in the state. The tax base is becoming smaller, schools are being forced to merge, and government agencies are being forced to cut back their services. We are asking that you approve Polymet's EIS.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3	As the President for the Hibbing Chisholm Breakfast Rotary, I have been directed by my local club inform you of our support of the proposed PolyMet project in Hoyt Lakes, MN. Our club is made of up of business leaders in the community and at this point in time we are painfully aware of the need for quality jobs and a diversity of our business mix. We presently have 1400 miners laid off at the 2 mining companies located in Hibbing. Mining is still the base of the Northeastern Minnesota economy and the PolyMet project will create four hundred living-wage jobs along with several hundred secondary jobs in our region. Even though PolyMet is 45 miles away from Hibbing we will be heavily impacted by the high quality jobs that this new type of mining will create. This, diversity of mining jobs are extremely important to our region if we hope to maintain and expand our economic base over the next 50+ years. All this will be done while using a former mine site, rail and utility infrastructure. According to all the information that I have seen, PolyMet will extract and produce these metals in an environmentally sound way and will generate significant economic activity in a depressed part of our state. The Hibbing Chisholm Breakfast Rotary hopes you will look favorably upon this new business venture.	EOO
4	I don't think there is any safe wat to mine copper no matter what this company preaches. We have done enough iron ore minine in northern Minnesota already. We don't need to start mining copper in this area with all the risk to the water in that area. Your welcome to read my letter at the two meetings your holding.	EOO,G7
5	I'm writing to offer my support for the PolyMet Mining & NorthMet Project. As you are well aware, PolyMet Mining has been doing everything in their power to design and minimize environmental impact with this project. I personally think it's high time to award PolyMet the permits needed to move forward. As you must be aware, we as a nation are in need of "JOBS". We must compete with the world market. Not only will PolyMet employ around 400, it will also create spinoff jobs in our area. If I remember right, several years ago when the highway 35 bridge collapsed we didn't spend years worrying about environmental impact studies. We needed action now, not eight years down the road. I'm sure Mr. Arkley, you as an educated man, know what I'm saying. Thank you for your time and effort in this matter.	EOO
5	I support the “NorthMet” project. Our area needs all the economic help it can get and this would definitely help. I hope that the project can move forward with being held up by lengthy court proceedings generated by special interest groups who really have no stake in the future of this area. Thank you for letting me share my thoughts.	EOO
6	It is my understanding that Polymet will be a 0 discharge plant in terms of water and thus there will not be any contamination of the local watershed. It is also my understanding that Polymet has	WR3D
7	There are so few areas like this left in the Country & the state – we hate to see them contaminated & spoiled for future generations!	G2
10	My name is Paul Knuti, I'm from Embarrass, Minnesota. My comments reflect two things: one, overall support for the project and for the Environmental Impact Statement as written, with my only concern that there is sufficient money for monitoring all emissions during the plant construction period and during the operating period of the plants in effect. Secondly, I hope there is sufficient monies in reserve in the event that there is a environmental accident or some other consideration that is not anticipated. So adequate monies for monitoring the process and adequate reserves in the event that there is an environmental accident. Those are my comments.	EOO,G4A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
11	My name is Jim Glowacki, my home address is 7300 Birch Point Road, Britt, Minnesota, 55710. My wife and I are 30-year residents of the area. My wife is a school teacher. I'm a business owner; I own three businesses with the full-time staff of 20 people. In addition, I'm on the Board of Trustees for the Nature Conservancy, and I've taken a great interest in this project both from a jobs creation and environmental standpoint. I think we need to seriously consider making this PolyMet project happen if it meets the environmental requirements of the EIS process. I see this -- this PolyMet model as being a model that can be used throughout the world. If we can demonstrate that new mines can be operated and permitted in an environmentally friendly way, I think we're going to be ahead of other countries and processes and this model can be used and Minnesota can be seen as a model of creating sustainable jobs and mining in an environmentally friendly way. So it also has other residual, you know, economic benefits in terms of perhaps selling the technology and mine development process to other developing countries who have the same kind of mineral base we do. Thank you.	EOO
12	Big Picture: The Range needs this economic boost! With the downfall we have been distressed, among the highest employment rates, we are also paying for these unemployed to go back to school and some are getting oversea comp.. We live here because we love the wilderness and all luxuries of recreational activities. We are not going down to the metro in "Special Interest Groups" proposing they stop infrastructure expansions which are contributing to acres per foot of impervious surface pollution runoff! So why are these special 'interest groups making such an issue? There are ways to follow through with this project in an Eco-friendly manner-such as: Management preventions for pollution control, recycling, water consumptions, using a high effluent treatment process and applying "green" technology (solar, wind and geothermal). Keep these jobs here so they don't go overseas!!	EOO,G2
13	As an out of state outdoor enthusiast I wish to comment about the behind closed doors aspect of this meeting regarding a permit process of PUBLIC Lands. What is the reason for excluding public comment about mining permits since that industry has a poor history of environmental stewardship. Trusting this industry to take care of public lands during their subsidized rape of public domains is ridiculus. This is how superfund sites get started, and to do this to an area like reeks of shortsighted pursuit of a few jobs at the expense of an area that'continues to provide steady employment in the tourism access industry. You have apparently been in the scorched earth chapter of conquest of North America for too long. So the operative question is, Who do you really work for? It doesn't appear to be the general public, perhaps the special interests?	G10
14	I believe that this project poses a serious long-term threat to (1) the wetlands, surface waters, and groundwater of Northeastern Minnesota, (2) the taxpayers of Minnesota, and (3) the long-term economic health of Northeastern Minnesota.	G1,G2
15	The mine will destroy thousands. of acres'ofwetlands and release massive amounts of greenhouse gases. Allowing this to happen would be, the height of irresponsibility. Minnesota needs·'responsible, sustainable economic development instead of archaic, outmoded, destructive resource extraction industry.	G2
16	To whom it may concern, HlanQ1 cuffmabzdktf, [url=http://qdvefamyowlc.com/]qdvefamyowlc[/url], [link=http://iokgtxfqzcrs.com/]iokgtxfqzcrs[/link], http://lmajqqbqmhef.com/	G15
17	While there are many more solid reasons for rejecting the PolyMet proposed mining, I am also quite disturbed that public hearings have been restricted to only two sites, and that at the northern Minnesota site the public was denied the opportunity to speak.	PRO6
18	I urge you to add public meetings on this proposal to Duluth, Ely, and the Fond du Lac Indian Reservation. It is crucial that as many of the public that will be impacted by the proposed mining be heard.	PRO6
18	I have grave concerns about the proposed PolyMet mining in northern Minnesota. Foremost among these concerns is the very likely environmental damage from such mining. You are probably aware of several studies done recently on similar mining projects, such as the Brohm Mine in South Dakota where sulfur in the ore no greater than that of the PolyMet proposed mine site resulted in significant acid mine drainage. A 2006 study of sulfide mining environmental impact appraisals showed that 76% of the mines had significant water pollution, although all the proposals predicted no water pollution at all.	G7A

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Comment ID	Comment Text	Theme Codes
19	No mine!!!!! THe damage it will do is NOT worth it. Mining is a destructive endeavor. We need to protect our lands, not rip them apart.	EOO
19	Regarding PolyMet ..... I say, "No, no, no!" They broke the law in Floodwood, MN regarding the wetland replacement. They have no business being here now.	EOO
20	As a business owner in Minnesota, I support the PolyMet Mining's NorthMet Project. PolyMet's 400 plus employees and hundreds of spin-off jobs are needed during this poor economic period. PolyMet will provide millions of dollars for local and state businesses who support families, as well as, paying taxes which support all government bodies. ThePolyMet project has been designed to minimize environmental impacts, reusing a brown field site, reusing existing infrastructure, minimizing disturbance of wetlands, and utilizing multiple safeguards to protect the environment. With Minnesota's strict environnient requirements to protect air, water, and land this project should go forward and be monitored as with all mining concerns. After reviewing the DEIS it certainly appears that the environmental impacts will be minimal. It is time that we as Americans begin to control our own destiny once and again. We have been turning our industrial base over to foreign concerns long enough. PolyMet has provided ample information, shown extreme patience, and should now be approved for the good of Minnesota and the United States of America.	EOO
21	The White Community Hospital Board of Directors and Administrator strongly support the PolyMet Mining Project. We are a 16 bed critical access hospital with a 55 bed nursing home located in Aurora, MN and excited to see the significant economic benefits that PolyMet will generate. They will contribute to the local and state economy, increase needed employment opportunities and support our area communities. Polymet's EIS has evaluated, in detail, all the elements of potential environmental concern for a new mine. The public can be confident that the draft EIS offers regulators the information they need to issue permits so that PolyMet can operate in a way that protects natural resources. Poly met has also demonstrated it can produce these critical metals while following Minnesota's strict environmental requirements to protect air, water and land. Again, the White Community Hospital supports and recognizes the tremendous benefit the PolyMet Mining Project will provide to this region.	EOO
22	The Iron Range Construction Liaison Committee is made up of local unions and union employers. Our purpose is to promote the construction industry and show the cooperation between labor and management On behalf of the committee and our many members we are writing to comment on and support Polymet's EIS. We have worked closely with Polymet for many months and are very knowledgeable about the effort they have made to make sure this project is safe environmentally. They have explained to us a number of times how they will proceed and operate to ensure an environmentally safe operation. Comparing this mining operation to those in the past that were not environmentally friendly is wrong Today' s technology is far superior to that of the past. It should also be clear that Polymet is not in the BWCA's watershed. As local citizens we are very concerned about anything that would harm the environment; therefore we have made a very concerted effort to educate ourselves on Polymet's project We understand the need to balance resources and the preservation of our water and air. We feel that this EIS supports Polymet's effort to develop and environmentally and economically sustainable project. This mining location contains the second largest deposit of cobalt in the world. Currently the United States is importing 80% of its copper. Polymet will be a domestic supplier of critical metals and will reduce our dependence on foreign metals and create a large tax base for the area and state. It will bring life back into a mining facility that now sits idle and once employed hundreds. It is estimated that Polymet would create 900 permanent jobs, 400 at the mining facility and 500 spin off jobs. It will create 1.5 million much needed construction man hours. Northeastern Minnesota has one of the highest unemployment rates in the state. The tax base is becoming smaller, schools are being forced to merge, and government agencies are being forced to cut back their services. We are asking that you approve Polymers EIS.	EOO

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Comment ID	Comment Text	Theme Codes
23	I am president and co-owner of Northern Industrial Erectors located in Grand Rapids, Minnesota and want to express my thoughts and opinions to you and the DNR regarding the proposed PolymetProject. It is very clear that Polymet has completed an extensive environmental impact study and is able to demonstrate that they are fully competent to operate the proposed facility in an environmentally friendly atmosphere. Based on the documentation, I am very confident that this mining operation will have minimal impact on our environment. In addition Polymet is proposing to utilize an existing bankrupt taconite facility and create much needed jobs for our north country. Just what good is this facility now to the state of Minnesota and to the local residents? Absolutely nothing - so why not give them the permits to start producing a product that will create real jobs and a steady tax base. We in northern Minnesota cannot survive without having private industry as our main job base. Most of our young leave the area as soon as they finish school to good jobs elsewhere. Our town's and school's populations are dwindling because of the loss of jobs in the industrial sector. Private investors are what we need to rebuild northern Minnesota not government sponsored entities that operate on subsidies. The majority of land in Minnesota is soil. On soil you can grow different commodities that produce a product. Every grower knows and understands that to prosper from your planting you have to fertilize. In my opinion these growers pollute the land and waters way more than a metals plant ever could. In northern Minnesota we have only two commodities - timber and rock. We can and will make an honest living from them if you let us. Mr. Arkley, please stand behind this project during this permitting phase and onto inception. Our people need good jobs and Polymet is willing to provide them.	EOO
23	As commissioners of the Department of Employment and Economic Development (DEED) and Iron Range Resources (IRR), we are writing to offer our institutional and personal support for the NorthMet Project being proposed by PolyMet Mining Corporation. PolyMet seeks to develop Minnesota's first open-pit copper-nickel and precious metals mine, using portions of the former LTV Steel Mining Company taconite facilities located near the Iron Range cities of Aurora, Hoyt Lakes and Babbitt. The company plans to employ environmentally-smart mining and processing techniques to harvest and beneficiate these important resources at a site where such work already has taken place for half a century. Their NorthMet project represents a $600 million investment in our state that intends to create 300 construction jobs, 400 permanent mining jobs, 650 permanent "spin-off' jobs, $15 million annually in state and local revenue and $45 million in federal revenue. These outcomes are critical to our nation, our state and the Iron Range area, especially as we climb out of the deepest economic downturn our country has seen in many years. DEED and IRR are economic development organizations that work with businesses and communities to retain and create quality jobs for Minnesotans. Less than a decade ago, we were dealing with the aftermath of the LTV bankruptcy and the ensuing closure of LTV's taconite plant at the PolyMet site, which put 1,400 people out of work. A state agency team worked with Cleveland-Cliffs and Minnesota Power to bring these valuable mining assets out of bankruptcy, with the hope that this infrastructure, equipment, buildings and land might one day be put back to work producing value-added products such as those contemplated by PolyMet. The NorthMet Project will restore much-needed economic prosperity to many individuals, families and communities of the Iron Range. Copper and nickel are crucial commodities that support housing, infrastructure and industry. Platinum, palladium, gold and other precious metals are used in computers, cell phones and catalytic converters, devices that not only drive our economy but protect our environment. Today's world needs and demands these materials. As Americans, we should mine and process such minerals here in an environmentally sustainable way, rather than let such activity ensue elsewhere on the globe where it may not be so carefully undertaken. It is within this context that we support this project, sincerely believing that it can be undertaken in an environmentally responsible manner, recycling valuable industrial assets to extract. strategic minerals our modem society requires, and is so doing, creating wealth and quality jobs upon which we build sustainable communities. We thank you for allowing us to submit these comments on the PolyMetINorthMet Draft Environmental Impact Statement. DEED and IRR are very supportive of this project. Please feel free to contact us if have any questions about our comments.	EOO

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Comment ID	Comment Text	Theme Codes
24	This letter is in support ofthe PolyMet Mining Project. As an educator in the St. Louis County School System, I have watched as enrollment declines due to families having to move from the area to find a job that provides a livable wage. Along with declining enrollment in the K-12 schools, often when our students choose higher education, we face losing them to other areas where they can find a job in their chosen profession. PolyMet Mines will offer an opportunity for up to 400 full-time positions, as well as 500 spin off jobs that will lead to challenging and exciting careers for our experienced and young. PolyMet Mining's contribution to our local and state economic base will be widespread not only by increased employment opportunities, but with a larger tax base, and increased county revenue from property taxes. Polymet will provide millions of dollars in local and state taxes to support our communities and educational system. I Welcome PolyMet into "my back yard". I have attended both Open Houses that PolyMet Mining made available to anyone who wished to attend. They provided all the information anyone needed to know regarding the project. It was interesting, exciting and I feel very confident that this project is environmentally safe and essential. Minnesota has the precious metals and is very strict in their environmental requirements and PolyMet is committed to protecting our air, water and land. The metals from this mine are needed for so many applications (medical, cell phones, computers, many products we use every day). I also know that that the United States has the Environmental Regulations that other countries do not even consider when looking at mining, manufacturing, or saving our planet, in general. It is time that this mine be permitted and have these metals mined domestically. PolyMet has invested much to make this an environmentally safe project. Move forward. No response needed to this letter.	EOO
24	I am a member ofthe International Union of Operating Engineers, Local 49. I am writing to comment on the Polymet project and the EIS. The area Polymet intends to use for the precious metals mine and production site are located in an area that was home to LTV, a now non-functional mine in Northeastern Minnesota. Mining on this site has taken place for decades prior to LTV going out of business. Now we, the residents of Northeastern Minnesota, have a chance to see new life injected into an economically depressed area. We are currently dealing with our children growing up, moving away and having very little chance of coming back and making a living here. Our schools are closing and consolidating due to decreased enrollment. We need this project to help sustain a future for the residents of this area. Please don't misunderstand, we will not sacrifice our environment just for jobs. We believe that this project will continue, as has been demonstrated in the EIS to protect and monitor the environmental impacts of this great state and country in which we live. As a 35-year member of the International Union of Operating Engineers, Local #49, I may or may not get an opportunity to work on this project but, I will in any case benefit by the positive impact through hundreds of spin off jobs of this project in our area. Please approve this EIS for Polymet so we can move forward for a change.	EOO
25	I am writing to express my strong support for the PolyMet Mining Co to develop a copper, nickel, platinum, palladium, gold and cobalt mine and process ore at the former LTV Steel Mining Company plant near Hoyt Lakes. As President of Air Liquide Large Industries U.S. LP I have a continuing interest in knowing PolyMet will produce these metals in an environmentally sound way and provide our young people with multiple opportunities for challenging and exciting careers while providing critical metals needed in medical applications, electric cars, catalytic converters, cell phones, computers and other essential everyday products. I believe PolyMet's EIS has evaluated, in detail, all the elements of potential environmental concerns for a new mine and the public can be confident the draft EIS offers regulators the information they need to issue permits so that PolyMet can operate in a way that protects our natural resources. In closing, I want to thank you for taking the time to read this letter and I look forward to hearing I have been successful in obtaining support for PolyMet to proceed with the permitting of this mine.	EOO
25	I am writing in support of PolyMet. I am a business agent for the International Union of Engineers, Local 49. We have some 13,000 members in Minnesota, North and South Dakota. It is our members that run the machines needed to build these projects. We, like everyone else are experiencing double digit unemployment. Many of our members continue to live in this area but most commute in many cases hundreds of miles for work. We need tbis project to help sustain tbe economics oftbe area. We believe tbe safeguards Polymet is proposing for the mining, production, and watershed will have a positive impact on this area and will not add an undue stress to tbose who live and visit this area. I ask that you approve the EIS and move Polymet forward.	EOO

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Comment ID	Comment Text	Theme Codes
26	Wells Fargo is a leading employer in Northeastern Minnesota, having 19 offices and over 400 team members who work, live and play in the region. As Senior Vice President and District Manager of business banking for the region, I know first hand the positive impact the PolyMet Mining Co. project could have on our area economy and Wells Fargo's ability to maintain and grow operations in the small communities we serve like Ely, Eveleth, and Hoyt Lakes, to name a few. The impact would likely reach to our Duluth operations. As an Iron Range native, born and raised in Eveleth in a railroad family, I also lived through the 80's, when unemployment was high and the economy struggled. My hometown population dropped, people moved away and eventually my high school, like many others, merged with a neighboring community. I watched as neighborhoods full of well-kept homes fell into disrepair. I still see the signs of that strain, both on the physical assets of the communities across the Iron Range and on families and friends living in the area. The PolyMet project can ease this strain and strengthen the regional economy by creating sustainable economic development. The project being proposed by PolyMet Mining Company would create that sustainable economic development, and I believe it would do so in an environmentally sustainable manner. The 400 jobs that PolyMet will create will lead to the creation of hundreds of other jobs throughout the region; these employers and jobs will be a catalyst to strengthen our base at Wells Fargo.	EOO
27	As a citizen concerned about the economic health of the State of Minnesota and the need to create jobs, I am pleased to support and endorse PolyMet Mining's NorthMet Project. The mining of nickel, copper and other precious metals from this project will clearly add to the vitality and growth of northeastern Minnesota's economy. However, I am equally concerned about the vitality of this state's natural resources. We cannot have increased economic value at the expense of our natural resources. That is why I am confident that our environment will remain safe due to the prudent safeguards the state has in place in order to make our mining industry safe in regards to our natural resources. I continue to have angst at seeing our state and country less competitive with foreign economies. We cannot survive economically if we don't actually produce raw materials that can compete in the global marketplace. This NorthMet project will give our state a good opportunity to compete on a global basis and will also produce complimentary industries which again will add to our economic vitality. This of course leads to more jobs and a healthier tax base. As an investor in the mining industry I believe the PolyMet project stands out in how thoughtful collaboration between state, federal and private parties can produce an outcome that is balanced and good for both the environment and the economy. This collaborative process is a model on how such projects can be done the right way.	EOO
28	As the Executive Director for the Hibbing EDA, my job is to support the development of new businesses with quality jobs and to promote the existing business community. The proposed PolyMet project will accomplish all of the goals. Even though PolyMet is 45 miles away from Hibbing we will be heavily impacted by the direct jobs as well as the secondary support industry jobs that are necessary with a large project of this nature. Hibbing is blessed with a large number of companies that support the existing taconite mining industry and we expect PolyMet will also need our business community to be successful. At this point in time Hibbing is also painfully aware of the need for quality jobs as we presently have 1400 miners laid off at the 2 mining companies located in Hibbing. Last week I was also notified that Internet, Northern Castings was going to be permanently closed, terminated 77 remaining jobs. Mining is still the base of the Northeastern Minnesota economy and the PolyMet project will reuse a former mine site so the environmental impacts will be minimal. According to all the information that I have seen, PolyMet will produce these metals in an environmentally sound way and will generate significant economic activity in a depressed part of our state. It is abundantly clear to me that the PolyMet project is the type of quality economic project that I am continually in search of and the data shows that the environmental impact will be at an acceptable level for those of us who have made the Range our home for generations and hope to remain here for generations to come.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
29	PolyMet Mining Corp. is currently attempting to permit ajob-creating project in Northern Minnesota. As long term investors in the state of Minnesota, as shareholders of Poly Met, and as beneficiaries of a strong investment climate, we support PolyMet's NorthMet project. We would like your support in helping this project move forward. As you are aware, PolyMet has submitted a draft Environmental Impact Statement (EIS) to the people of Minnesota. We urge you to take action to help the EIS gain approval and to help make the NorthMet project a reality. The approval ofthis project will enhance Minnesota's status as a state that welcomes investment. According to Forbes, Minnesota is currently #17 on their list of The Best States for Business, but it is a lowly #30 when it comes to the regulatory environment. By giving approval to the NorthMet project, we believe Minnesota will clearly improve its perception within the investment community. Heartland Advisors is an investment management firm in Milwaukee, Wisconsin. We have been investing globally and in Minnesota-based publicly traded companies for over two decades. As of June 30, Heartland had over $30million worth of investments in Minnesota-based companies. Minnesota has generally proven to be a friendly environment for investing, and we hope it can remain so. The NorthMet project has undergone more environmental engineering and review than any company we have ever witnessed, and we are confident it will be a flagship operation for environmentally sustainable minerals extraction. By approving this project, we believe Minnesota will not only demonstrate that the state is open for business, but it will be giving the people of Minnesota a landmark mining operation that will be admired around the world. We believe the approval of North Met will be a positive for Minnesota's business climate. In our opinion, your help in advancing the approval of NorthMet will only lead to a greater level of investor faith in the North Star State going forward.	EOO
30	I have reviewed the Draft EIS for the N ortbmet project and want to congratulate you and your staff for your diligence in assembling what I believe is likely the most comprehensive examination of a project to date in Minnesota. As I understand the EIS process, it explores potential impacts and mitigation strategies for those impacts. It is not meant to supply definitive answers to all possible operating scenarios. With that in mind, I believe the project should be allowed to move forward. This project has the ability to significantly improve the economic situation in Minnesota and provide a much needed boost to both construction and permanent jobs. The US is no longer the driver of the world economy and as such we need to have a more strategic position with regard to the metals that the NorthMet deposit holds. I feel that PolyMet has demonstrated it can produce these metals while following the states strict environmental requirements. There will be opportunities to learn from this project and to understand better the actual conditions that are'ocreirted. All thc work done by the MNDl\'R on Minnesota sulphide ores over the years has created an understanding of the mechanism and severity of acid rock drainage. We understand it and can safely deal with it. A society that remains static and does not continue to grow and develop is not a society that we can afford to have today in this global economy. Approve this project and continue your diligence on protecting Minnesota's environment while developing her natural resources for the benefit of all.	EOO
31	My name is Mark Mandich. I am a county commissioner in Itasca County. I am a strong supporter of Poly Met Mining's NorthMet Project. The economic impact of this project is huge for northeastem Minnesota. Our unemployment up here is worse than the state average. As a person who lives, works and plays up here, I do understand the environmental issues, and I believe that the EIS lays the proper groundwork for developing an environmentally and economically sustainable project, and I wholeheartedly support it.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
32	The electrical industry in Minnesota has been hit harder than most industries during this current recession. With nearly 50% of our member out of work for up to two (2) years, and no end in sight, electricians throughout the state are looking to support their families any way they can. On a daily basis, I hear about workers going through divorcees, bankruptcies, and losing their homes. The devastation this long and terrible recession is causing our families is terribly troubling. The PolyMet Mining Company proposal to build a copper-nickel-precious metal mine and processing facility near Hoyt Lakes offers our members some hope to wait out this recession. Construction will require about 1.5 million man hours of construction over a two-year period; some of my members are bound to be part of that construction work force. PolyMet has made your job relatively easy by proposing a very environmentally friendly project. Much of the infrastructure for transportation and processing will be recycled from the old LTV plant. Stockpiles will be managed so water infiltration is minimized and so any water that does percolate through the piles is collected and treated. Sulfur in the ore will be used as fuel in the process, and waste streams will be managed. Air emissions will be much less than other facilities in the region – so much less that they are considered a minor source. The draft environmental impact statement for the project has done a very thorough job of looking at all the potential impacts and offering options for mitigation, where appropriate. The draft EIS should be deemed adequate so that permitting can begin quickly, and so our members can start working to build the facility.	EOO
33	My name is David, and I would like to support the Project that is proposed for Polymet. I have looked at what the concerns are, and understand the DNR's desire to do what is the best for the state of Minnesota. It looks as if the Polymet company is going to meet the stringent requirements of the state. I would rather that we have a plant operating in Northern Minnesota than have more jobs go to China or one of the other countries that would be willing to do the same process with less regulation. I feel we need to think not only of what is best for Minnesota, but what is best for the planet.	EOO
34	As the owner of a small business in Northeastern Minnesota, I have followed with keen interest the development ofthe proposed Northmet Project, otherwise known as Polymet. I believe Polymet and the DNR have gone the extra mile to insure environmental safeguards second to none. Operational and mine closing issues have been addressed as well. The positive economic and positive environmental impact to the local area, State of Minnesota, and the United States will be significant. I stongly support the acceptance of this Draft E.I.S. and urge you to issue the necessary permits to begin construction of the plant and mine sites.	EOO

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Comment ID	Comment Text	Theme Codes
35	I appreciate the opportunity to participate in the public comment process for the draft environmental impact statement for PolyMet Mining Company and its NorthMet mine proposed near Hoyt Lakes, Minnesota. I am provost of Mesabi Range Comrhunity & Technical College, the college that serves the Citizens and businesses and industries of the Iron Range, where Hoyt Lakes is located. The majority of our students are from the lron Range and are the beneficiaries of generations of iron mining that has built and supported schools of excellence, that has provided jobs for tens of thousands of parents and grandparents, and that has managed to protect our environment and honor our natural resources. Our students understand that if they work hard, meet the requirements of their degrees and work to high standards and expectations, they will be successful in whatever career they may choose. I'd like to think the same advice applies to PolyMet. Additionally, I view PolyMet as an important partner in helping our graduates lead successful, meaningful lives in their hometown communities. The success of Poly Met translates to workforce and community development - factors that also drive the success and sustainability of the college and, most importantly, benefit our learners. PolyMet has worked hard - very hard. The process of developing this draft environmental impact statement has taken nearly five years and has required an investment of more than $20 million. (This is on top of the years of research and millions of dollars required just to enter the environmental review process.) PolyMet has met the environmental review requirements that the state and federal agencies have established. All of the issues raised in scoping documents have been addressed in the draft environmental impact statement and alternatives, where appropriate, have been offered. The draft impact statement demonstrates that PolyMet will be able to meet permitting requirements. And PolyMet will meet the state's financial assurance requirements, so taxpayers won't have to foot the bill for any clean up that might be required should PolyMet fail to do so. Finally, PolyMet has gone the extra mile - it has exceeded expectations by identifying the worst possible things that could go wrong and then creating safeguards to address that worst imaginable situation. PolyMet will protect our environment, my students' environment. PolyMet will create hundreds of jobs, jobs my students can help fill. Please make my participation in this public process meaningful. Please determine that the draft environmental impact statement is adequate and begin permitting this exciting neW development that is essential to the long term vitality and sustainability of the Iron Range and beyond.	EOO,G4
36	This letter is submitted to provide my comment on the proposed NorthMet mine and processing operations proposed by PolyMet Mining Company near Hoyt Lakes, MN. I have many years experience in the mining industry and specifically in the environmental issues related to the mining industry. I am familiar with the environmental review process through direct experience related to my past responsibilities at a local mine. It is clear to me that the environmental review process for the proposed project has resulted in a thorough and comprehensive draft environmental impact statement (DEIS). I conclude that the DEIS has thoroughly examined the potential environmental impacts of the proposed project. I am aware of the concerns that some citizens have expressed about the project, but these concerns do not support the conclusion that the DEIS has failed to examine the issues. The concerns about the project are properly addressed in the permitting processes. I urge that the DEIS should be declared adequate to enable this project to progress into the environmental permitting phase.	EOO

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Comment ID	Comment Text	Theme Codes
37	The economy of Minnesota is an ecosystem just like the ecosystems found throughout the State. When one part of the ecosystem is struggling, it has a negative impact on the related parts. The Building Trades in the twin cities metropolitan area are struggling. The economic recession has devastated the industries that have kept our members employed, As many as fifty percent (50%) of our members are sitting on the bench on any given day. The PolyMet Mining Company proposal to build a copper-nickel-precision metal mine and processing facility near Hoyt Lakes offers our members some hope to wait out this recession. Construction will require about 1.5 million man hours of construction over a two-year period. Some of my members are bound to be part of that construction work force, but we don't have time for delays. PolyMet has made your job relatively easy by producing a very environmentally friendly project. Much of the infrastructure for transportation and processing will be recycled from the old LTV Plant. Stockpiles will be managed as water infiltration is minimized and any water that does percolate through the piles is collected and treated. Sulfur in the ore will be used as fuel in the process and waste streams will.be managed. Air emissions will be much less than other facilities in. the region; so much less they're considered a minor source. The draft environmental impact statement (EIS) for the project has done a very thorough job of looking at all the potential impacts and offering options for mitigation, where appropriate. The draft EIS should be deemed adequate so that permitting can begin quickly so our members can start working to build the facility. Thank you for the opportunity to comment.	EOO
38	The economy of Minnesota is an ecosystem - just like the ecosystems found throughout the state. When one part of the ecosystem is struggling, it has a negative impact on the related parts. The Building Trades in Minnesota are struggling; the economic recession has devastated the industries that have kept our members employed. As many as 50% of our members are unemployed on any given day. The PolyMet Mining Company proposal to build a copper-nickel-precious metal mine and processing facility near Hoyt Lakes offers our members some hope to wait out this recession. Construction will require about 1.5 million man hours of construction over a two-year period; some of my members are bound to be part of that construction work force. But we don't have time for delays. PolyMet has made your job relatively easy by proposing a very environmentally friendly project. Much of the infrastructure for transportation and processing will be recycled from the old LTV plant. Stockpiles will be managed so water infiltration is minimized and so any water that does percolate through the piles is collected and treated. Sulfur in the ore will be used as fuel in the process, and waste streams will be managed. Air emissions will be much less than other facilities in the region - so much less they are considered a minor source. The draft environmental impact statement for the project has done a very thorough job oflooking at all the potential impacts and offering options for mitigation, where appropriate. The draft EIS should be deemed adequate so that permitting can begin quickly-and so our members can start working to build the facility. Thank you for the opportunity to comment.	EOO
39	I am writing in response to the EIS. I haven't changed my views on allowing copper mining in Monnesota.	EOO
40	Also why hasn't Poly Met had to put up or sigh a waiver for a potential clean up after the mining is over. It has happened numerous times in the past with copper mining leaving a huge mess of contaminents and not paying for a clean up.	PD4
41	I don't think you can protect our water from being contaminated from the sulfide. Your going to risk our water for 20 years of mining.	WR3A

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Comment ID	Comment Text	Theme Codes
42	As you may determine from the letterhead, I am a resident of Florence, Kentucky. Also, in the interest of full disclosure, I wish to state that I own stock in the PolyMet Mining Company. I started investing in PolyMet in the late 1990's when I realized that the United States was completely deficient in producing the raw materials (copper, nickel, cobalt, platinum and palladium) required by our industrial base for the production of the goods needed to maintain and enhance our standard of living as well as providing the equipment necessary for the safety of our country. Our country needs copper ore for the construction, plumbing and wiring of new homes and businesses; nickel for the batteries required by the electronics and defense industries; cobalt for hybrid vehicles; and palladium and platinum for the catalytic converters used by the automobile industry. The northeast area of Minnesota is the only area in the United States that contains all of the ore mentioned above, and, currently has the infrastructure already in place to produce this much needed commodity. Furthermore, PolyMet will provide good, safe, well paying jobs to an area that is currently experiencing a very high rate of unemployment. In addition to the advantages previously listed, the PolyMet project has been designed to minimize impacts to the environment by reusing a brown field site, reusing existing infrastructure, minimizing disturbance of wetlands and utilizing multiple safeguards to protect the environment. It is also important to note that the draft EIS is a detailed, independent review; federal, state and tribal agencies have shaped the development of the draft EIS, which was written by an independent third party. PolyMet has invested tens of millions of investor dollars in studies to comply with every EIS request and permitting process. As an investor in PolyMet, I have a keen interest in the success of the environmental review and permitting process and have been following it closely. I appreciate the opportunity to express my complete support of both the EIS and the PolyMet project and I look forward to the MDNR issuing the Permit to Mine after the review process is completed.	EOO
43	On November 24, 2009, the Virginia City Council went on record in support of the Environmental Impact Statement for the PolyMet Mining Company's project to develop a copper, nickel, platinum, palladium, gold, and cobalt mine at the former LTV plant near Hoyt Lakes. Enclosed please find a copy of Resolution No. 09140, in support of the PolyMet Project. The City Council encourages the Minnesota Department of Natural Resources to approve the draft Environmental Impact Statement for the PolyMet project, which will provide a huge economic benefit to Minnesota, especially Northeastern Minnesota, and also utilize a former mining plant. If you have any questions, please feel free to contact me at (218)748-7500. Thank you.	EOO
44	Having authored the Minnesota Reclamation Act of 1969, and having participated in the subsequent hearings and process leading to the adoption of the regulations needed to implement the Act, I have every confidence that the DNR has the capability and experience to responsibly oversee and regulate the potential development of non-ferrous mineral projects in our state. Starting with the PolyMet project, which the DNR has been assiduously reviewing for the past three years, I would hope that the EIS process can be completed, allowing PolyMet to move foreward with the devekipment of its project. Thousands of jobs and significant economic benefits will flow from the careful and environmentally responsible development of non-ferrous mining projects in Minnesota, Final approval and permitting of the Poly Met undertaking will start this positive resource development for our state.	EOO
45	As a descendant of the Merritt Brothers,who discovered the iron ore deposits on the Mesabi Iron Range, I would like to express my thoughts and feelings to you and the DNR regarding the proposed PolyMet Project. I feel that PolyMet has completed an extensive environmental impact study and is able to demonstrate that they are fully competent to operate the proposed facility in an	EOO

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Comment ID	Comment Text	Theme Codes
46	The people of Northern Minnesota, specifically the Mesabi Iron Range, have suffered from the boom & bust economy for almost 100 years. PolyMet has proposed using a former bankrupt taconite facility that left nearly 600 employees without jobs, health care, and pensions, as well as the State of Minnesota without the then stable tax base of nearly 50 years. Northern Minnesota cannot survive without private industry. Our schools and cities population are dwindling due to the loss of jobs from the private industry sector. Our children leave the area as soon as they graduate from high school because there is no industry to keep them here with good paying jobs. PolyMet will create 400 full-time jobs with an annual payroll of $40 million and more than 500 spin-off jobs with a $242 million payroll in St. Louis County alone. Construction of the $600 million project will require about 1.5 million construction hours over two years. As a former Executive Board member of Millwright Local 1348 in Virginia, Minnesota, and Millwright Local 548 in St. Paul, Minnesota, I feel that this project will significantly contribute to the state and local economy at a time when we really need the jobs and economic benefit. Let's move forward with the permits to allow this project to begin and to create much needed jobs in the area.	EOO
47	environmentally friendly and safe manner. The EIS should be clearer; PolyMet is not in the Boundary Waters watershed.	WR3B
48	I am writing to express my support for PolyMet Mining Company's permit request to develop a copper, nickel, platinum, palladium, gold and cobalt mine and process ore at the former LTV Steel Mining Company plant near Hoyt Lakes. This project is immensely important to the economic health of Northeast Minnesota, and equally as important, PolyMet has demonstrated that the mining will be done in an environmentally responsible manner. I support the project because I am a native and current resident of Duluth, and the economic health of Duluth is closely linked to the health of the Iron Range. If the economy on the Iron Range is thriving, all of Minnesota benefits as well. We can be confident that the environment will be treated with care because the people that work for PolyMet are from the area. Everyone has a stake in maintaining the environmental health of our area. Please issue PolyMet the necessary permits as soon as possible. This is the right project at the right time, and the mining will be done the right (i.e. responsible) way. Thank you for your time.	EOO
49	I would like to extend my support for the Polymet mining project in Northeastern Minnesota. If we are going to have a modern life style, we are going to have to mine somewhere in the world. I think we will be a lot more environmentally conscious with mining here, than perhaps some of the other countrys of the world would be. And last, but not least we could really use some jobs in Northern Minnesota!	EOO
50	I am in favor of the PolyMet Project. I do not live too far from it, so I would be affect by any mistakes if made. I think the Environmentalists are more interested in eventually shuting everything down up here not just this one operation.	EOO

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Comment ID	Comment Text	Theme Codes
51	The environmental review process serves a critical function for proposers and for regulatory agencies, identifying potential issues associated with a project and suggesting ways to mitigate them before the first shovel of dirt is turned. The Draft Environmental Impact Statement (DEIS) developed for PolyMet Mining Co.'s NorthMet project has oftered a comprehensive review of all potential issues identified in the Scoping Environmental Assessment Worksheet and offered mitigation alternatives, where appropriate. It should be deerned adequate and permits for the project should be developed. If the environmental review process is to fulfill its promise, it must be balanced and reasonable. It must move forward according to established laws and rules and resist attempts to distort its purpose. PolyMet has followed all the laws and rules associated with environmental review, It has invested more than four years and more than $20 million following those rules. That investment of time and money has provided extraordinarily detailed research and other data that have informed preparation of the DEIS. The DEIS has been developed by an independent contractor with the oversight and direction of no less than two federal agencies, two state agencies and several tribal governments. The PolyMet DEIS documents the following: • That PolyMet will be a minor source of air emissions. • That PolyMet will not discharge process water. • That PolyMet will generate non-hazardous waste streams that will be managed appropriately. • That Poly Met will ensure waste rock stock piles are managed based on acid-generating potential with a combination of foundation drains, liners, collection systems and covers. • That PolyMet will re-use existing processing and transportation infrastructure. • That PolyMet will generate very few greenhouse gases because it will use sulfur found in the ore as fuel in its processing. • That PolyMet will ensure closure costs are covered because it will set aside resources in advance and according to a plan approved by the Minnesota Department of Natural Resources. Minnesota's environmental review process also considers alternatives to proposed projects, and we suggest also considering this altemative: If the United States does not have a domestic source for the critical metals PolyMet will produce, it must import them from countries that lack Minnesota's strict environmental regulations, generating considerable greenhouse gas emissions transporting the ore for processing and then transporting the metal to the U.S. for consumption. This is not the environmentally sound altemative. PolyMet will produce metals our members - and every single person in this state - use every day. It will produce those metals while meeting or exceeding Minnesota's strict environmental requirements. And it will create significant economic benefits - hundreds of jobs and millions of local, state, and federal taxes. PolyMet has met every test in the environmental review process. The DEIS should be determined to be adequate and permitting based on the information contained in the DEIS should move forward immediately.	EOO

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51	The Minnesota Chamber of Commerce, represents more than 2,400 businesses statewide whose vision is to work together to make our state a better place to do business. We work toward that vision not only by encouraging sound economic development but also by preserving the vast natural resources that make Minnesota a unique place in which to live and work. PolyMet Mining Co.'s proposed copper-nlckel-precious metal mine proposed for Northeastern Minnesota is an excellent example of an extraordinary economic development opportunity designed with the uppermost in environmental protection. The Draft Environmental Impact Statement (DEIS) for the project demonstrates not only its job-creating potential but also its commitment to an environment. With unemployment of more than seven percent, Minnesota needs jobs. PolyMet will help fill this need by keeping about 300 construction workers on the job for two years. Once fully operational, PolyMet will support 400 families with full-time, stable employment and a' payroll of about $40 million. More than 500 spin-off jobs also will be created as a result of the project; the annual impact of those jobs will be more than $242 million. PolyMet also will generate tens of millions of dollars annually in royalties and state, local and federal taxes. All that economic activity will be created as PolyMet mines metals that each of us uses every single day and that oftentimes aren't available from domestic mines. Some might prefer the alternative of importing these metals. Some will suggest that they want the convenience of cell phones and computers and hybrid cars and wind turbines and catalytic converters, but they want other countries with little or no environmental protection to produce them. PolyMet offers a much more responsible alternative: Produce these minerals in Minnesota, right under our noses, so we can be certain that they will be rnined and processed in ways that meet our tough standards and so we can shrink the carbon footprint from transporting imported metals from mine to processor to the U.S. The United States needs the cobalt, copper, gold, nickel, palladium and platinum that PolyMet will produce. At the Minnesota Chamber, we insist that the metals we use be produced in way that protects the environment, in short, the way that PolyMet proposes. The DEIS demonstrates PolyMet's commitment to the environment on each of its 714 pages. It has adequately addressed each of the issues identified in the Scoping Environmental Assessment Worksheet. It's time to start permitting this exciting project. Thank you for the opportunity to comment.	EOO
52	Being a native of Northern Minuesota and wituessing first hand the major swings in the area economy, I am in full support of the PolyMet Mining NorthMet Project. My support is based on the following reasons: • PolyMet Mining has invested siguificant resources both in terms of time and money in bringing the Draft EIS to this point and has endured repeated delays to ensure that all questions and concerns are brought to light are being addressed prior to the start of the project. • The tax contributions to all levels of government, the direct jobs at the mine and the spin-off impact are tremendous and are desperately needed to help level the economic swings of the region. • As a person who resides, works, plays, pays taxes and votes in the region I am abundantly aware of environmental impacts. The resources of time and money spent to make sure all environmental issues are addressed prove to me that project is economically viable while working within the current environmental regulations. • The metals that PolyMet will be mining and refining at the NorthMet Project are essential to all of the modem conveuiences that Americans desire in their everyday lives. Many of these metals are not prodnced in the United States, thus requiring importation. The countries that produce these metals in many cases do not have the safe guards in place to protect the environment that will be required of the NorthMet Project. I am more confident of having the metals mined and refined at a permitted site with the ability to mitigate and eliminate the environmental impact, than the environment of another country without any environmental regulations. Thank you for the opportunity to submit a comment on this project that is essential to the State of Minnesota and to the Uuited States of America.	EOO

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Comment ID	Comment Text	Theme Codes
53	I am writing to encourage you to support the PolyMet Mining project. This is a very important project to Minnesota but more importantly, northern Minnesota. I am a Registered Respiratory Therapist at Grand Itasca Clinic & Hospital and have lived on the Iron Range my entire life. I have felt the benefits of a booming mining industry and the effects of a declining industry. It is extremely important to encourage the growth of a healthy and safe mining industry. Our communities/state depend upon it. PolyMet will help to support our local communities plus also feed into our State economy and in today's state of economic distress we can not afford to discourage new jobs and spin off jobs. My husband and I both have grown up on the Range and would love for our children to have the opportunity to do the same. Without our mining industry this is not possible. Please think long and hard about this opportunity to boosting our local and state economies. I strongly believe that this is a great opportunity for us. This is a company who has invested a lot of time and money into the research of producing a valuable product safely. Please support us here on the range by supporting PolyMet. We need the jobs!	EOO
54	I have been a resident of northern Minnesota most of my life, 4 years in Illinois. My dad worked at Erie mining for 30 yrs and I worked there during the summers while attending college. I am very familiar with the area, as opposed to some,out of the area, whom may want to influence the permitting process. I would very much like to see this mine come to being. It would diversify the manufacturing base and supply our country with a domestic source of strategic minerals. It would also open up the area to several other non-ferrous mining operations in the area. I have read some of the EIS and also some of	EOO
55	the plans that Polymet has to eliminate the possibility of acidified runoff. That is the problem that I feel is the biggest facing this project. You gentlemen at MNDNR had better make sure that this acid runoff problem is sufficiently being handled while the mine is operating and, more so, after the mine has closed. I am a pharmacist and I have had enough chemistry to know the problem that exists here. If you feel that Polymet has not put in place sufficient safeguards, let them and the public know. Ferrous mining caused pits to be formed that I have fished in and swam in as a child in Sparta. I would hate to see acid runoff into any river or lake in northern Minnesota. We are in need of jobs and I support Polymet in their effort. So MNDNR, do your job.	WR3D
56	This letter comes to support the Polymet Northmet project in northeastern Minnesota. After eight years of study and work, I believe that both Polymet and the Minnesota Department of Resources have addressed the issues related to nonferrous mining and taken the steps to handle the by products and to mine responsibly for the environment and the residents of the state of Minnesota. The entire state will benefit from the revenue produced from metals found to be underground at the site of the former LTV mine site outside of Hoyt Lakes MN. Anyone who visits the site will recognize that the large vacant expanses of land are a natural choice for another mining operation. As a resident of Aurora, I know that the Polymet proposed mining operation would bring new life to this area of Minnesota. Our educated and skilled workforce also has concerns for the survival of the environment and the desire to do the right thing for future citizens. For future generations to live and work here, Polymet's Northmet project will make a great difference in the survival and positive growth of this nature-blessed area of Minnesota. The required continual monitoring and response to resulting problems in the mining processes will maintain the quality of our natural resources, waters, and lands. Please register my support for this well-studied and proposed mining operation, Polymet Northmet.	EOO
57	I have watched the EIS review process and although I think that it is very necessary, I do think that it has dragged on way to long. There are very important reasons for the EIS and I do appreciate the fact that DNR has completed at least the draft portion. I do have a vested interest because I live within 5 miles ofthe proposed site, I do care about the air, water and land. My life will be affected by any ecological mishaps and therefore I do appreciate your thoroughness. There will always be worldwide needs for our natural resources. Thankfully we have the opportunity to provide then in an ecologically safe manner. If this was left up to some other countries to provide it could and probably would be an ecological disaster. I feel that Polymet has crossed all of the T's and dotted all of the I's and it is time that we move on to the permitting phase of this project. We are struggling with a weak economy and high unemployment. Let's move ahead and put this phase behind us.	EOO,G10
58	I support Polymet Mining's NorthMet Project. This project will provide significant economic benefits to the economy of Minnesota, at a very low environmental cost.	EOO

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Comment ID	Comment Text	Theme Codes
58	As a business that has supplied valuable equipment and service support while helping to create and sustain well-paying jobs on the Minnesota Iron Range for well over seven decades, Milwaukee-based P&H Mining Equipment hereby declares our support for the NorthMet Project plan that has been developed by PolyMet Mining for consideration by the Minnesota Department of Natural Resources. Our P&H MinePro Services - Iron Range employees based in Hibbing are most proud of our role as suppliers of highly reliable, productive equipment and efficient, safety-focused service support to mining operations across the Iron Range. Our customers are justifiably proud of their ability to efficiently and safely produce valuable iron ore while applying increasingly sophisticated and effective technology that safeguards a.nd minimizes the impact of their mining operations upon the ecosystem that encompasses the Minnesota Iron Range. We have invested in valuable service support and logistics management facilities in the Hibbing and Virginia, Minnesota communities. Above all, we have recruited, trained and developed a solid team of mechanics, electricians, welders and service support administrative employees from the region, and they are very highly regarded by our customers on the Iron Range for their devotion to quality, service and safety management excellence. In so doing, we have helped strengthen the communities in which we are based through positive generation of wages and tax revenues as well as numerous charitable community involvement contributions. For these reasons and more, we urge the Minnesota Department of Natural Resources to consider the merits and the overall social and economic good that can result from allowing the PolyMet NorthMet Project to move forward to the development and operations phases. We believe the PolyMet organization has the necessary capital, technology and above all people resources that will ensure valuable outcomes for Minnesota. They include ... • Investment in operations, infrastructure - and above all, well-paying, long-range jobs and careers for the residents of the Iron Range region and their families. • Beyond an estimated 400 jobs created within the PolyMet NorthMet operations, many more jobs will result as firms including P&H MinePro Services -Iron Range invest in expanded facilities and equipment on behalf of what will be a world-class, state-of-the-art mining operation. • Investment in businesses and jobs will result in a strengthened tax revenues base for both the regional economy as well as the State of Minnesota going forward. • PolyMet has access to the most advanced environmental protection technology and strategies available in the world today, arid they can be counted upon to carefully apply that valuable know-how to help responsibly safeguard the Minnesota Iron Range regional ecosystem. • As our global civilization transforms itself withxegard to application of renewable energy sources, the important minerals that can be extracted by the PolyMet operations can help in that transformation as they will be applied to wind turbines, hybrid transportation vehicles and other "green" technology as demand will continue to increase. In a world that sometimes undergoes volatile economic, social and pblitical transformations, it will be vital for our United States of America to have a safe and reliable source for the kinds of metals that are so abundant within the PolyMet ore body. The PolyMet project would contribute in many ways to the necessary strengthening of our communities on the Iron Range while safeguarding our environment and helping to strengthen our nation's economy. PolyMet employees can and will be counted upon to be environmentally responsible partners within the Minnesota economy. We are grateful to the Minnesota Department of Natural Resources for considering our position with regard to the PolyMet	EOO
59	spent over 20 million dollars for the EIS in order to provide an environmentally sound project. I have reviewed the summary and conclude that the extensive EIS document and the rigorous review that the current regulating agencies have done would suggest that Polymet and the regulating agencies have done their due diligence. This plant will be environmentally safe. My cabin is within 15 miles of the plant. I have no concerns about the effect that Polymet will have on the environment or wildlife in Northern Minnesota. Jobs: Polymet alone is projecting over 350 jobs excluding the spin-off jobs. In an area that currently has an unemployment rate of over 10%, these jobs would be a welcome relief to the unemployed. The impact to the local school districts would also be significant through the school trust fund. Given the current state of the Iron Ore industry, we need this new industry to insure jobs now and for our children. In closing, we all have to weigh the risks of projects with the rewards. Due to the current rigorous environmental regulations in the State of Minnesota, the environmental risk is very small yet the reward to the state is very large. I strongly encourage you to grant Polymet the permits required to make this project a reality.	EOO

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Comment ID	Comment Text	Theme Codes
60	The economy of Minnesota is an ecosystem - just like the ecosystems found throughout the state. When one part of the ecosystem is struggling, it has a negative impact on the related parts. The Construction Industry throughout the state of Minnesota is struggling; the economic recession has devastated the industries that have kept Skilled Construction Laborers employed. Too many of our members are sitting on the bench on any given day. The PolyMet Mining Company proposal to build a copper-nickel-precious metal mine and processing facility near Hoyt Lakes offers our members some hope to wait out this recession. Construction will require about 1.5 million man hours of construction over a two-year period; many of our members will find work as a part of that construction work force. But we don't have time for delays. PolyMet has made your job relatively easy by proposing a very environmentally friendly project. Much of the infrastructure for transportation and processing will be recycled from the old LTV plant. Stockpiles will be managed so water infiltration is minimized and so any water that does percolate through the piles is collected and treated. Sulfur in the ore will be used as fuel in the process, and waste streams will be managed. Air emissions will be much less than other facilities in the region - so much less they're considered a minor source. The draft environmental impact statement for the project has done a very thorough job of looking at all the potential impacts and offering options for mitigation, where appropriate. The draft EIS should be deemed adequate so that permitting can begin quickly - and so our members can start working and paying income tax again to build the facility and help to strengthen Minnesota's economy. Thank you for the opportunity to comment.	EOO
61	I support PolyMet Mining's NorthMet Project. There are many reasons for this project to be approved such as; by allowing the mining it will provide many jobs to support our economy and the metals that will be mined are necessary to environmental friendly technology. With the jobs that will be offered by PolyMet it will provide millions of dollars for local and state taxes that provide for the communities and educational systems. Now is the time to say yes and allow there to be more jobs available that will stimulate our economy, which will only be beneficial. The research that has been done on mining these precious metals it has provided nothing but positive feed back that our environment will be barely harmed, if at all because of following Minnesota's strict environmental requirements to protect air, water and land. PolyMet is also limiting its impact on the environment by reusing a brown field site, reusing existing infrastructure, minimizing disturbance of wetlands and utilizing multiple safeguards to protect the environment. As a person who works in Northeast Minnesota, I understand the need to balance the use of resources like minerals and preservation of resources such as water and air. I wholeheartedly support PolyMet Mining's NorthMet Project and hope this letter has persuaded you in supporting the project as well.	EOO
62	I am in support of the PolyMet Mining project. PolyMet will significantly contribute to the state and to our local economy. Employing approximately 400 men and women along with all the extrapolating jobs is crucial to the future of the Iron Range.	EOO
63	Please note that this project is NOT in the Boundary Waters watershed. I am confident that the DEIS	WR3B
63	documentation will show that the impact to the air and water will be minimal as our State has strict environmental requirements. Last but certainly not least, this project is critical for the production of Domestic Production. The United States must stop getting our metals from foreign suppliers that may or may not make sound environmental practices. Thank you for your cooperation.	EOO

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Comment ID	Comment Text	Theme Codes
64	IBEW Local Union 949 represents some 2,100 working men and women in the state of Minnesota. Many of them live, work and/or play in the Arrowhead region of Minnesota. The economic devastation to that area in recent years is horrific. The current recession has reduced the already scarce job market. The lack of jobs directly relates to bankruptcies, divorces, mortgage foreclosures and even suicides. The PolyMet Mining Company's proposal to build a copper-nickel-precious metal mine and processing facility near Hoyt Lakes offers the hope of relief for the working men and women in that area. Construction will require about 1.5 million man hours of construction over a two year period. PolyMet's 400 employees and the hundreds of spinoff jobs will provide a huge economic benefit to Minnesota and the Arrowhead region through wages, taxes and an increase in disposable income. PplyMet's proposed mine will domestically produce critical metals while following Minnesota's' strict environmental requirements to protect air, water and land. I believe their proposal is environmentally responsible. Based on the extensive documentation as outlined in the DEIS, I am confident that impacts to the air and water will be minimal. The environmental review process has been lengthy and thorough; the draft EIS addresses potential environmental impacts and how to mitigate them, and lays the proper groundwork for developing an environmentally and economically sustainable project. On behalf of the membership, Officers and staff of IBEW Local Union 949, I am asking that permitting move forward quickly. This project is responsible, safe and necessary. I fully support the project, and ask that you do too.	EOO
65	I'm writing this letter to encourage support for the proposed Polymet mine in Hoyt Lakes, MN. I work for Road Machinery & Supplies Co. We support the taconite mines, the paper mills, road and bridge contractors, and timber harvesters in Northern Minnesota via three branches in Duluth, Virginia, and Grand Rapids. Our economy depends on projects like Polymet, and I think the State of Minnesota and its residents should be as supportive and accommodating as possible to an opportunity like Polymet. I have met some of the Polymet senior management and its equity partners. They have invested their entire careers in the mining industry and understand what it takes to run a safe, efficient and successful mining operation. The depth of review they have performed to satisfY the public that the project will be environmentally sensitive is impressive. And I am encouraged by the prospects for good paying jobs and relative prosperity that this project will offer to the residents of Northern Minnesota. I have worked in the construction and mining industry for over twenty years, and during that entire time, we have not seen the range of growth opportunities that we have before us now. Polymetis one -great quality opportunity that we need to embrace now and we will see positive impact on many fronts for many years to come.	EOO
66	In fact, a possible "mining moratorium law" such as in Wisconsin should be considered.	EOO
67	I had trouble with your email address. Kept coming back undeliverable. This project must go forward. It's time we take better advantage of our natural resources. This project will benefit the State and our Country. If, for some reason, people stop the project, it will be a shame. Go-Go-Go	EOO

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Comment ID	Comment Text	Theme Codes
67	I am proud to offer these comments in support of the finding that the draft Environmental Impact Statement (EIS) prepared for PolyMet Mining Company adequately assess all impacts associated with the proposal and that permitting for this important project should begin immediately. As a St. Louis County Commissioner, I also would be proud to have PolyMet operating not only in my county, but also just south of my home. PolyMet has demonstrated that it puts the environment first, and that's just the kind of neighbor I want to have. The draft EIS is voluminous, and contained within its more than 700 pages are the kinds of details that tell me that PolyMet will be able to operate safely, protect our environment and put people to work producing metals that each of us uses every single day. As a neighbor of the PolyMet project, I was impressed by a number of the details, including: PolyMet will emit very little air pollution. In fact, it will be considered a minor source. PolyMet will not discharge any process water into the environment. PolyMet will use the sulfur contained in the ore itself as a source of fuel for processing instead of relying on coal, gas or electricity. PolyMet will re-use the shuttered Erie Plant - ensuring that this incredible industrial infrastructure is put to good use instead of turned into scrap. PolyMet will have a comprehensive plan for managing waste rock. As a St. Louis County Commissioner, I also was impressed by the other details in the draft EIS. Constructing the facility will keep construction workers busy for 1.5 million hours over three years, meaning they won't have to sit on the bench looking for work. PolyMet will create full-time jobs for 400 people in my county, at a good wage that can support a family. In addition, more than 500 spin-off jobs are expected in my county alone, with an economic impact of more than $250 million each year. PolyMet will pay considerable local, state and federal taxes - dollars governments like the county can use to provide essential services. In addition to being a local elected official, I have worked an entire career in the mining industry. I am proud ofthis industry and the contributions it has made to individual families, to communities, to our region and to the state. While I realize not everyone in Minnesota appreciates the contributions that mining makes, I know that everyone still wants the products made from the minerals we work hard to produce in an environmentally sound manner. People in St. Louis County know that we rely on the minerals that PolyMet will mine for our computers and cell phones, for our electrical wiring and our artificial hips. And people in St. Louis County know that, in order to get permitted in Minnesota, PolyMet will have to do it right and to protect our environment. That's what we expect of our neighbors. Please issue a determination that the draft EIS is adequate and issue the permits for PolyMet Mining Company.	EOO

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Comment ID	Comment Text	Theme Codes
68	As a retired taconite miner, school board member, and lifelong 61 year old resident of Ely, born and raised here, who has raised a family here, I do support the PolyMet - NorthMet Project that is proposed for operation between Babbitt and Hoyt Lakes, MN. The reason I live here is because of our quality of life in Northern Minnesota. At one time, it used to be a much more thriving area when we had our logging, mining operations, and former resort industry operating on a larger scale. Those industries using our Natural Resources provided living wage jobs to the various local communities and a much-needed tax base for our schools and government entities. Now that the majority of resorts have disappeared (1960's-70's), the lumber mills have closed (1970's) and mining employment has diminished, this would be a needed shot in the arm. This is an opportunity to revitalize our economy and keep our children in the area, and possibly draw some of those that have left, back to the area, their hometowns. It is estimated that the royalties from these minerals in the Duluth Complex will be in the area of $1.4 Billion for the Permanent School Trust Fund. These funds are sorely needed to address the inadequate funding of our schools in Minnesota and the loss of 150,000 Minnesota jobs in the last decade. Ely, at one time had 1,771 children in our local schools in the mid 1970's, a city population of over 6,000 due to the resort, logging and mining industries. Today, Ely has 538 children in school and a population of around 3,500. We cannot survive solely on a tourist-based economy as some have said. I believe that after hearing presentations by PolyMet, and also touching on reviewing the Draft EIS on-line, it appears that the NorthMet Operation, following State and Federal EPA laws, (and MSHA and County Mine regulations for miners) will protect our air, land, and waters here in NE Minnesota. We know that our air and waters are also precious Natural Resources and we would not want to damage them. So, it is important to do all that is necessary to protect them as this project and any future developments move on with adequate safe-guards and assurances for mine operation and closure in the future. This project is important to our local, state and national economies in that we would be employing Minnesotans using our Natural Resources, and more broadly U.S. industries. The materials mined and produced here would be able to be refined and used in wind generators, motors for hybrid cars, copper wiring, nickel for stainless steels such as in bearings, heart stents, and surgical tools. Platinum would be used in catalytiC converters for automobiles, and many of the other PGM's for use in multitudes of electronic devices and other products. This would make us able to promote our U.S. Industries instead of importing from countries that do not address environmental standards as we do and we end up with the pollution from those countries eventually in one form or another anyway. Take, for example, Beijing's air pollution at the Summer Olympics. We need to support this operation, here in the U.S., and promote our own economy with proper environmental and worker safeguards. We should make it happen here. Thank you for the opportunity to	EOO
69	I have reviewed the Draft EIS for the Polymet project and am in support of the project. The information provided in the EIS details how the project will minimize the impact to the wetlands and other existing natural resources. Polymet will be required to meet applicable environmental requirements/standards for emissions. Meeting these requirements will assure the natural resources are protected. The project will provide much needed employment and economic benefits to the region. Please include my comments in support of the project.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
70	The purpose of this correspondence is to indicate my support for the PolyMet Mining project near Hoyt Lakes, Minnesota. I am strongly in favor of a reasonable and thorough environmental study that analyzes the present and future impact of the proposed PolyMet Mining operations on our natural resources, including water and air. Although I have not reviewed the draft EIS, I am satisfied that the DNR has completed a very comprehensive review of the project, and that PolyMet has taken extreme precautions to minimize any detrimental effect upon the environment. As a result, I recommend that Permitting be approved, so that the project may proceed. Of course, any activity could be objected to on the basis of the activity's potential effect upon our environment. Mining operations will have some effect, including the fact that employees will consume gas to drive to their places of employment. However, even tourists who wish to enjoy our beautiful lakes, streams, and woods, affect the environment, as they also consume gasoline to arrive at their destination, restaurants that cater to the tourists use paper and plastic products, canoes and boats are made of steel, aluminum, plastic, etc. My point is that there should be a balancing of the need for productive jobs in our Region, State, and Nation, with the minimal effect upon the environment. Consideration should also be given to the fact that the minerals that PolyMet is proposing to provide by this project, are necessary for the world population. If the PolyMet project does not proceed, the minerals will be provided by a foreign company, possibly supported by a foreign government, and possibly subject to much less scrutiny with respect to its mining operations. It is likely that our local environment, as well as the world's environment, will be protected more by permitting this project, rather than by encouraging foreign mining operations. Should there be any questions concerning this letter, please feel free to contact me.	EOO
71	The economy of Minnesota is an ecosystem - just like the ecosystems found throughout the state. When part of the ecosystem is struggling, it was a negative impact on the related parts. The Building Trades in the Twin Cities Metropolitan Area are strugglingl the economic recession has devastated the industries that have kept our members employed. As many as 50% of our members are sitting on the bench on any given day. The PloyMet Mining Company proposal to build a copper-nickel precious metal mine and processing facility near Hoyt Lakes offers our members some hope to wait out this recession. Construction will reguire about 1.5 million man-hours of construction over a two-year period; some of my members are bound to be part of that construction work force. But we don't have time for delays. PolyMet has made your job relatively easy by proposing a very environmentally friendly project. Much of the infrastructure for transportation and processing will be recycled and so any water that does percolate through the piles is collected and treated. Sulfur in the ore will be used as fuel in the process, and waste streams will be managed. Air emissions will be much less than other facilities in the region - so much less they're considered a minor source. The draft environmental impact statement for the project has done a very thorough job of looking at all the potential impacts and offering options for mitigation, where appropriate. The dtaft EIS should be deemed adequate so that permitting can begin quickly - and so our members can start working to build the facility.	EOO
72	This project is strongly needed in Minnesota. If not for the tac money that the man on the jroject can produce, then for all of the construction people on unemployment who are get off the unemployment rolls but for the people who live in the range that need jobs and better way of life	EOO
100	I support mining in Minnesota. I think we have a very good record here. A lot of the materials that this PolyMet project is working with are basically the same materials that we've been digging up in the past. I mean it's adjoining mineralization. We need -- we need to have jobs that provide for the economy of our nation, to build the infrastructure that we need, the equipment that we need, supply the metals that we need to make equipment actually function. Any complex piece of equipment, including such things as solar-powered units or electric-powered units, require a great amount of different types of metals, and this particular project is going to be a real asset in providing some of the metals that we have not been able to produce in this country in the quantities that we need them in. And that's all I have to say for now, thanks.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
100	I'm Walt Hautala, and I'm the Chairman of Biwabik Township and I'm also on the Mesabi East School Board, and I also manage a business in this area and own a business, so new jobs are very important to me. And as I watch the TV, I see the government giving money away, spending billions on stimulus. Well, I thought wow, here they're giving money like that and here's this business trying to get a start without asking for money. That's why I think it's really important to support this. Also, being a business person, I have gone through permitting with DNR, Army Corps, etcetera and, I know they do an excellent job and very thorough, so if they're okaying this or agreeing to it, it's got to be good. The local residents, some people say we're going to pollute the area, the waters. Well, we have our kids living here, we have our grandchildren here, we're not going to allow them to do something that would hurt our own family. And also, there's a lot of talk by the environmental people, and I'm not sure, I'm not really up on that, but it seems like there would be issues like the smoke coming from China or the lead in toys, that if they -- if they are interested in something like that, why don't they check into that? Then I see other businesses locating outside of the United States. Well, here again, we've got somebody that's trying to do something within our boundaries. So that's another reason to support it. Of course one very important reason, we certainly need the jobs in this area and also in Minnesota and throughout the country. Thank you.	EOO
101	Exxon wanted a sulfide mine in the Crandon, Wisconsin area. Many folks did their homework, could not find a single example of a "clean" mine. Fortunatly, after many years of fighting a Wisconsin tribe bought the land. End of discussion. There is NO number of jobs woth jeopardizing the whole Lake Superior watershed region. Do the right thing- for the sake of our children and their children.	G2
103	My name is John Malevich. I'm a retired purchasing manager at Arcelor Mittal Steel in Virginia, Minnesota. I'm totally supportive of the PolyMet project. I would do anything to get this to move ahead, to help PolyMet, including writing any letters beyond this point, politically or otherwise. That's it.	EOO
104	I just basically want to say that I think this is a project we need. Jobs up here are true and hard to difficult -- hard to find, everybody knows. I've checked some of the data, I think the environmental impact will be low and I'm looking forward to it taking off.	EOO
105	I didn't prepare anything to tell anybody anything except I know a lot of stuff that they should do because I worked there for 41-and-a-half years and I worked on almost everything in the plant, and I know a lot of things that should be done before start-up because a lot of the things were froze and there was a lot of water supply systems that weren't fixed right because they were all broken. And I know many different things on everything in the plant, so if they wanted to know anything, call me up. That's short and sweet.	EOO
106	I just wanted to stay that I'm in favor of this new construction out here. I'm a boilermaker and my trade depends on this. I was working out at the original LTV site when it closed. I was there when the workers there got their pinks slips and I saw the looks on their faces. I'll never forget that, ever. And I'd like to see it open back up, not only for me, I don't even know if I'd be able to work there, but just the jobs that it will create. I used to live in the Twin Cities, now I live in northern Minnesota and I know that northern Minnesota is a place that's here all the time, it's not just here on weekends, it's 24/7 up here. So the people who live up here support the town and build the town and build the area. So that's really all I have to say.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
107	My name is Dan Harp, I live in Aurora, Minnesota. And I guess I'm not necessarily a supporter of the mine or the environmentalists. I'm a supporter of doing what I think is the right thing to do, and I'm a supporter of reasonableness. And I'm hoping that this project does not get forced to a 100 percent guarantee on anything because I don't think that's reasonable and it can get in the way of progress and an opportunity to try out new technologies. We need a place to try out things and this particular location has been a mining location for decades and the infrastructure is in place. I think if you're looking for a place that would have minimal impact, this is a great spot to try. And no one is asking to do things the way that they were before, so I think the environmentalists haven't been reasonable in their arguments when they talk about doing things the way that they were 50 years ago; that should not be applicable. Therefore, I'm hoping that we can try a new technology, monitor it to see how it's working, and perhaps it could be a stepping stone to furthering this technology or other technologies that might work better than this. At least maybe this one would work. But expecting 100 guarantee I think impedes all entities in this case. So I'm hoping that there has been more than enough study. I know that it has gone on for some time, I'm told, but I do not know for sure, that the study has gone on far greater than was ever expected in the typical environmental study process, and I haven't heard of negative results. So in light of that, I'm hoping that they will vote to proceed with the permitting. The second concern I have is even though you permit something, that they don't put things on it that make it something that you can't do. For example, a recent commercial where they have a little child on a bike surrounded by a square, you can ride the bike but you can't go out of the square. In other words, you let them ride but you don't let them ride anyplace. So I'm hoping that we permit this, but we don't put so many things on it that they still can't do anything with it. See what happens when I get a captive audience? Let's see, what else do I have? In terms of jobs, I think it's very relevant, but I don't think it should be the argument in terms of the permitting process. I think all parties are diminished by using the economic side of the argument because that's not what the environmental process is about; it's about can it be done and can it be done safely. So I'm not a miner, I'm not an environmentalist, but I'm an advocate of being reasonable and reasonable expectations. Thank you.	EOO
108	Brian Nelson, Cloquet. I strongly support the PolyMet project. I believe that -- that that mining operation and the balance of nature works together. They have a process for, I talked with the people out there, taking care of the waste, managing the waste. I grew up here, I -- I use all of Minnesota's natural resources. I hunt, fish, camp, hike, bike. I have -- I'm married, two boys, we enjoy it all. And we need the work, we need the jobs. Our economy could be stimulated with this project. 400 permanent jobs for 20 years, the construction jobs that would be created, it -- the tax dollars, the revenue, the schools. We don't want to close the doors to the northland, we want to keep as many people up here working and living and enjoying the environment. And I just strongly support this project. Thank you.	EOO
109	My name is James P. Glowacki. I live at 7300 Birch Point Road, Britt, Minnesota, 55710. I'd like to record these comments regarding the PolyMet project: I'm a business owner in northeastern Minnesota. I own three businesses. I have a staff of 20 full-time people. And in addition to being a business owner up here, I'm on the Board of Trustees for the Nature Conservancy, so environmental concerns are important to me and making sure that the PolyMet permitting process, you know, assures that the environmental needs of our residents are met. Having said that, it's equally important that we make this project happen, that we use the PolyMet project as a -- as our effort to show the rest of the world that we do mining right and we've set the example on how mining and the environment can co-exist. And, again, I'd be available for any further, you know, comment. And that concludes my remarks.	EOO
110	I'm Marlene Pospeck of the City of Hoyt Lakes. And my comment is that because I know that the socioeconomic benefits of a project are weighed equally with the environmental impacts of a project in the EIS, it would behoove the presenters to talk about the socioeconomic benefits or impacts of the project as well as the environmental impact. That way the people would be able to weigh the environmental impacts with the socioeconomic benefits and make better decisions, I believe. Thank you.	PRO6
111	Secondly, having read a portion of the DEIS and having discussed the issue with individuals and groups, I would not like to see this mine proposal go ahead. Considering what has happened with similar mines, environmental degradation as a result is inevitable. The land, water, and air are the bedrock upon which every human endeavor is built; should we compromise these, through actions such as the PolyMet mining operation, we compromise our future.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
112	Firstly, I believe that there should be open public forums for public comment held in both Duluth and Ely, in addition to the locations already scheduled.	PRO6
113	Also, because of the difficult time of year (holiday season and restricted travel due to inclement weather), the comment period ought to be extended. The majority of the public is as yet *uninformed* about the reality of the project; there has by no means been enough time for the public to understand the Draft EIS and form a response to it.	PRO6
114	My family has lived on Birch Lake for four generations. My great grandmother-purchased o'ur property on the lake in 1928 and my family and t live there permanently ,to this day. To be honest, the mining industry has employed members of my family over the years. However, I cannot support the current proposal for sulfide mining under and -around Birch Lake.	EOO
114	In addition, the DEIS predicts contaminated waters will be discharged from the mine site into the Partridge River after the mine's closure, along with tailing's basin discharges high in sulfate concentrations. Here too, the anticipated pollution should be unacceptable to all Minnesotans responsible for maintaining a healthy environment in our State's natural and Wilderness areas.	WR3A,FM1
114	I understand that Polymet's project will result in Water leaching from waste rock piles that is expected to exceed water quality standards for up to 2,000 years. This is unacceptable to me, and should be unacceptable to every Minnesotan concerned for the quality of life they pass on to future generations. There is no way to assure that mining companies can or will be able to maintain water treatment facilities for two millennia. It is simply absurd to expect that a calculus can be devised which accurately derives the economic, technological, and cultural exegencies affecting a mining operation over two thousand years!	PD2
115	If these issues cannot be resolved in a manner that preserves and protects our wilderness and natural areas for posterity the project should not be allowed to proceed.	EOO,G2
115	As a property owner on the east side of Sand Lake in Lake Co., MN, I have serious concerns about the safety of this project and its potential impacts on the Sand Lake Peatland SNA.	G2
116	My name is Leslie Zamzow. I grew up in Solon Springs; WI., but am currently going to the University of Minnesota. I really miss being home, and have a lot of fond memories from when I was little that-are surrounded by the little lake that we have in town. I hope that you don't put in that mine because, that little lake means A LOT to me. It is where my brothers, and I go fishing, tubing, and swimming in the summer. If the lake becomes polluted by the Brule River then there will be no way to enjoy it as I used to. I am also concerned about the Brule River. Canoeing and Kayaking down the river is a great summer activity that my family, and I take part in every year when my Uncle comes back to Wisconsin from Washington. So please don't put in that copper mine, because I know that I am not the only one who truly enjoys the Boundary Waters in Northern Wisconsin, and Minnesota.	EOO
117	I believe that most of the support for this project is coming from the cry that it will "create jobs." However clean water. air, future existence, all of these will surely be polluted and or lost. Certainty these costs are too high to consider proceeding with the project.	G2
117	I personally know that MN fish is considered dangerous for consumption by children due to mercury and dioxins by CleanWater Action which derive this info from scientific testing. I would like to be able to tae my child fishing and actully eat the fish without endangering her. We need to decrease or at least slow down our pollution burden in MN. Many of our lives freedoms and chance to participate in outoor activities arebeing encroached as it is.	EOO,WR4B

Sender Last Name: McElrath **Submission ID:** 1699

2185	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I am a former long-time Minnesota resident, and still love to visit her many beautiful northern areas. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources.	G11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2186	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. As the old Native American saying goes "WE DO NOT INHERIT THE EARTH FROM OUR ANCESTORS, WE BORROW IT FROM OUR CHILDREN" Please think of our children!	EOO,G10
Sender Last Name:	McElroy **Submission ID:** 1203	
1318	Please think of future generations – keep them in consideration. I understand the historical XXX Northern Minnesota has with mining, and yes it is easy to understand why families support mining for short-term economical gains, but keep in mind the longevity of some of the most beautiful land this country has to offer, and everything it offers.	G11
Sender Last Name:	McGilligan **Submission ID:** 206	
205	I am responding to the draft EIS for the Polymet Mining North Met project. Because of the heavy metals and sulfide acid that is produced by these mining methods, there is no safe way to protect our northern Minnesota environment from the effects of this mining. No one anywhere has devised a method of mining that mitigates these effects. No amount of assurances by the mining companies can change that fact. This project and others like it should be stopped.	EOO,G7A
Sender Last Name:	McGillivray **Submission ID:** 1040	
1141	I am a home owner in MT.lron I Virginia MN and a land o\yner in Elisberg township and on Sabin lake near Biwabik. In the commlng years we will build our retirement home on Sabin- Lake. As you may know Sabin Lake is. part of the Embarrass River system which is specfically named in the DEIS. I am convinced the project and mining will be the safest and most envimmentally freindly mining operation in the State if- not in the World. The DEIS isan amazing document. Nice work. I fully support 'PolyMet Mining and the NorthMet Project.	EOO
3550	retiremnt home on Sabin Lake. As you may know Sabin Lake is part of the Embarrass River system which is specfically named in the DEIS. I am convinced the project and mining will be the safest and most envirnmentally freindly mining operation in the State if not in the World. The DEIS is an amazing document. Nice work. I fully support PolyMet Mining and the NorthMet Project. -- Todd McGillivray 5421 Daffodil Ave Virginia, MN 55792	EOO,G2
Sender Last Name:	McKay **Submission ID:** 3374	
3664	It seems that corporations will promise anything to be able to do what they need to increase their profits. When they say that they are confident there will be no pollution, history shows that ¾ of all operations have caused pollution and damage to the environment. Damaging Minnesota's environment for temporary economic gain is not worth the risk. The long-term affects of mining pollution are apparent in past operations and to reverse the affects of this proposed operation would probably exceed the small economic gain provided in the short-term.	EOO,G2
Sender Last Name:	McKenzie **Submission ID:** 2558	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3123	I am deeply concerned about the proposed sulfide ore mine by North Met. The environmental impact study includes no provisions for clean-up, reserve funds for accidents or other compensation for the potentially significant environmental damage that could be caused by these mines. I urge you to require a more rigorous study of the impact of this substantial operation before granting approval to the impact study. It is discouraging that the taxpayers of Minnesota would vote to increase their own taxes in order to preserve clean water and wetlands, only to be undermined by mining operations such as this one.	G1,G4A,G6

Sender Last Name: McMillan **Submission ID:** 2201

999	We have learned a lot about the autoclave and the hydrometallurgical processes they're going to employ. We think it's excellent they're going to utilize a large number of the existing assets from the old LTV in Cleveland-Cliff's facility. Most importantly, we don't feel that this is an either/or situation. We feel that PolyMet can both benefit the environment and the economy at the same time. Minnesota Power stands ready to supply PolyMet with electricity from an increasingly cleaner fleet of assets that include new wind generation, hydroelectric generation, biomass generation and a fleet of retrofitted coal generation, so we have a power supply that we think is cleaner and that matches the processes that PolyMet is going to employ. The economic benefits of this project are undeniable. The Iron Range badly needs to diversify the industries it depends on. Copper-nickel provides one such opportunity to diversify. Northeastern Minnesota badly needs the jobs, not only to diversify its economy from dependence on taconite, but also	EOO
1000	KIRBY A. KENNEDY & ASSOCIATES (952)922-1955 awful lot of unemployed people up there. This project would employ at least 400 people directly and countless more indirectly. The University of Minnesota at Duluth has determined that there's about a 1.6 multiplier, so every direct job that's created, there's 1.6 additional indirect jobs that are created, and the economic effect of that, benefit of that is exactly what northern Minnesota needs. Speaking from the state of Minnesota's perspective, the state also needs new revenues to address a structural and ongoing deficit problem, and this project, with potential for additional copper-nickel mining elsewhere on the Iron Range, would provide much-needed revenues to the state to support K-12 education and to support general funds' pending needs. These are high-valued minerals that would result in a tremendous influx of revenue for the state. In closing, I strongly believe that PolyMet can do right by the environment, do right by the region and do right by the economy and mine theseminerals that are so vital to our development. (Oral comment concluded.)	EOO
2609	My name is David McMillan, and I live in Duluth, Minnesota. I am the senior vice president of Elite and executive vice president of its largest business, Minnesota Power, and I'm here to make sure people understand Minnesota Power supports the NorthMet project as described in the draft environmental impact statement. I want to explain why we're supportive of this. The company and myself are very familiar with PolyMet, very familiar with its officers, the assets that it will use to mine and process this ore and the processes that it will employ to make sure that the environment's treated properly. We're very confident that PolyMet can and will protect the environment and the natural resources we all depend on in northeastern Minnesota. We're equally confident that the State of Minnesota and its regulatory processes are capable of assuring that the environment will be protected, and we believe this is reflected in the draft environmental impact statement.	EOO

Sender Last Name: McMillen **Submission ID:** 2331

2792	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. PLEASE take NO chances on defiling the waters of Minnesota. As a native Minnesotan who has canoed the Boundary Waters, I want NOTHING negative to impact that entire area. Mining of any kind simply isn't compatible with pristine waters and country.	G7

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2842	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. I strongly feel the mine should NOT be approved. The disatrous effects of mining are well known and I fear the worst case scenario. Under no circumstances do I want the BWCA defiled in any way. It is an incomparable gem, and I speak from experience, having canoed those waters during the years I was a resident of Minnesota, the Land of Sky Blue Waters. Keep it that way!	EOO
Sender Last Name: McNamara	**Submission ID:** 2725	
3178	This is a really bad plan. Northern Minnesota is far more valuable as a nature area than as a mine. Please stop this project. It will damage the water quality.	EOO,G7B
Sender Last Name: McReady	**Submission ID:** 290	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
304	Conservationists with Common Sense (eWCS), an organization with over 4,000 members all across the United States, works to preserve recreational access to and multiple uses of public lands and waters. We submit the following comments on the PolyMet EIS. In regards to economic development, CWCS supports the use of common sense, the best available scientific data, objective analysis, and broad public input on the part of government agencies and elected officials when making and implementing land management and environmental policies. We believe a healthy natural environment, including clean air, water and soil is essential to present and future generations. But, along with being environmentally, economically and socially responsible, the human factor must be put back into land management policies. The needs of local communities and all users can and must be balanced with the conservation of sensitive natural environments. Common sense is needed in addressing economic development for the betterment of all. In this present depressed economy, jobs are very much needed all across the country and especially in northern Minnesota. The proposed NorthMet project at the former LTV Plant in Hoyt Lakes, a non-ferrous mining project of PolyMet Mining, would create 400-450 new, highquality permanent jobs with additional spin-off jobs. PolyMet's patented hydrometallurgical processing technology - PLA TSOL - makes recovery of both base and precious metals possible with high levels of recovery. This is a clean technology with no smelting involved and is the only process that can recover the platinum, palladium, gold and silver without using cyanide. This process is new to Minnesota but is used in Ontario, Laos, New Zealand, and even in southwestern U.S. With forever increasing use of computers, cell phones, iPods, medical eqUipment, appliances, catalytic converts in cars, and numerous other products, the need for these precious metals is in great demand. It would be far better to mine these metals here in Minnesota where we have strict environmental protection laws and regulations rather than continuing to get these metals from the polluting mines of China and Russia where they have no environmental protection laws. It is the acid rain from these overseas mines that is polluting our north country!The Friends of the Boundary Waters, Northeastern Minnesotans for Wilderness, the Sierra Club, and Ely business Piragis Northwoods Company have supported the production of a propaganda film opposing the PolyMet project. Even though PolyMet's process uses clean, energy efficient technology for low grade sulfide ore, the film shows polluted areas from other mining sites of a higher grade sulfide ore. The film states concern for the precious waters of the Boundary Waters, but the PolyMet project is not within the Boundary Waters watershed. Much of the propaganda film is aimed not at PolyMet, but at other proposed mining projects. All of these projects are outside of the Boundary Waters and there is no buffer zone to the Boundary Waters. And, if there were any impacts to the Boundary Waters you can bet that cwes and the people living and making a living near the Boundary Waters would be the first to get after the mining companies. PolyMet has set aside $600 million to correct any possible problems and to address reclamation of the area at the mine's closure. This amount is to be adjusted yearly. It's interesting to note, that in the 1978 BWCA Wilderness Act if the President declares a national emergency mining could take place within the Boundary Waters, but no one wants to do this. Energy usage required for the hydrometallurgical process would be about half compared to a traditional smelter. The opportunity to "recycle" the former LTV site (an already big hole in the ground) also makes the project more viable in the current global marketplace for base and precious metals. The concern about the huge footprint of mining is unjustified as other developments ha	EOO,G4
2639	My name is Nancy McReady. I was born and raised in Ely, Minnesota. I still live thereon Fall Lake, one of the lakes that is in the Kawishiwi watershed. My husband works at Northshore Mining Company in Babbitt, and it's been a good job that provided a good income for our family and also allowed me to be a stay-at- home mom. The importance of this mine is pretty personal. I have two replaced knees; one is titanium; one is cobalt, and those are some of the minerals that may be mined in this project. And our towns just need jobs. We need young families moving back to town to help enrollment at our schools, and tourism is a big part of our economy, but it doesn't provide a livable wage to support a family, and these mining jobs will. And that's about all I have to say.	EOO

Sender Last Name: Meagher **Submission ID:** 3239

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3563	Our family owns private property along the Dunka River, South of Babbitt and East of Hoyt Lakes and are very concerned with the overall impact on our natural resources that Polymet will bring to the environment with there proposed mining project. Our natural resources are currently in a fragile state and it is in the best interest of all of us to protect them and by letting this project go through for financial gains sends a bad message to all. The DNR is an agency that promotes sustainability for our resources not working along side companies that look to destroy such commodities like wetlands, forest re-generation, wildlife habitat, etc. I am against this project and any others like it. Please do not let my faith in your organization dwindle with the authorization of this project.	EOO,G2C

Sender Last Name: Mehrman **Submission ID:** 227

233	We are writing this communication to indicate our very strong support for the PolyMet Mining NorthMet Project. Along with the extensive economic benefits to our depressed Arrowhead Region it is clearly evident that PolyMet is committed and capable to mine and process these critical metals in an environmentally safe, sound and conscientious manner. The mining and processing of natural resources such as these are key to keeping our national economy strong and viable. American cannot blindly continue down the path of becoming a largely Service based economy, dependent entirely upon other nations for the supply of much needed goods and natural resources. PolyMet and their many local employees will provide the metals along with sustainable, good paying, jobs needed to keep us a strong global leader. Please do not be unduly swayed by those elements of our great state that would prefer that the residents of the Arrowhead Region attempt to provide for our families on the subsistence wages provided by low income, tourism based service jobs. We are confident that the rules, regulations, processes and procedures that are currently enforced by the State of Minnesota will ensure strict environmental compliance by PolyMet yet allow this dynamic and important project to come to fruition and provide the economic boost so badly needed during these trying times and for many years to come.	EOO

Sender Last Name: Meier **Submission ID:** 3204

3540	I respectively ask. How can this project not go through? The jobs created from this extensively researched and properly prepared mining project would be a savior to not only the citizens of Northern Minnesota but to people of neighboring states as well. The EIS for this project has been in development for more than 4 years at a cost of nearly $20 million dollars under the watchful, scrutinizing eyes of the MNDNR. Do the right thing for the good of the people, pass this draft EIS and help our Country be great once again. Sincerely, Dale Meier Below is from PolyMet Mining Corp. news letter	EOO

Sender Last Name: Meineke **Submission ID:** 167

157	Many of the metals to be produced by the PolyMet project are sourced outside the US. The PolyMet development will enable strict control of air and water emissions, and worker safety not required by most foreign sources. Minnesota has air and water regulations among the most stringent in the US and the world. Because of continued demand, these metals will be produced somewhere and Minnesota is the source of choice, where we can regulate the development. The US has and continues to lose manufacturing jobs to foreign countries, which restricts our economy and erodes the US currency. Development of natural resources is the foundation of any countries economy. The PolyMet project is the type of stimulus the US economy needs, an opportunity for Minnesota. This project will produce many high paying jobs and tax revenue, plus reduce the US reliance on foreign sources of the metals PolyMet will produce and improve the US balance of payments. These are the building blocks necessary to restore the US economy. As an engineer and business person, I find no reasons to expect this new metals industry in Minnesota will not be regulated to protect and safe guard the environment. The economic stimulus of the PolyMet project is an opportunity for Minnesota. Therefore, I support PolyMet's NorthMet project.	EOO,G5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Meister.pdf **Submission ID:** 3123	
503	o Air pollution over the BWCAW and surrounding areas.	AQ4
1067	o The division of wildlife corridors especially concerning species on the threatened list such as the Canadian Lynx.	WI5
3071	o No field sampling has been done to track ground water movement.	WR2A
3072	o Water quality impacts on macrophytes especially Wild Rice.	WR4F
3494	o Long term impacts on humans and our relatively unspoiled environment.	G2
3495	o Tired of the "take the money and run" philosophy that has ruined this country. The Superfunds have run dry. It is time to be proactive and avoid these high-risk, mega-impact projects that do way more harm than good for the state.	G4
3537	o Cumulative impacts over time from the acid mining.	CR1
3538	o No financial plans if disaster occurs.	PD4
Sender Last Name:	Melander **Submission ID:** 317	
331	The economy of Minnesota is an ecosystem - just like the ecosystems found throughout the state. When one part of the ecosystem is struggling, it has a negative impact on the related parts. The Building Trades in Minnesota are struggling; the economic recession has devastated the industries that have kept our members employed. As many as 50% of our members are sitting on the bench on any given day. The PolyMet Mining Company proposal to build a copper-nickel-precious metal mine and processing facility near Hoyt Lakes offers our members some hope to wait out this recession. Construction will require about 1.5 million man hours of construction over a two-year period; some of our members are bound to be part of that construction work force. But we don't have time for delays. PolyMet has made your job relatively easy by proposing a very environmentally friendly project. The draft environmental impact statement for the project has done a very thorough job oflooking at all the potential impacts and offering options for mitigation, where appropriate. The draft EIS should be deemed adequate so that permitting can begin quickly-and so our members can start working to build the facility.	EOO
Sender Last Name:	Melby **Submission ID:** 1117	
101	4. Consider extensive Public input.	EOO
272	3. Protect tailings and rock piles from ever leaking or collapsing and spilling pollution into rivers, Lakes, water supply, and wetlands.	GT2
502	We strongly believe a thorough analysis of the following (not all inclusive) should be completely addressed before mining in Minnesota: 1. Perpetual financial guarantees to the public for any clean up created by sulfide mining.	PD4
529	As a family we have been harvesting wild rice in the true Native American process for 30 years in most areas of Minnesota. We have great concern about increasing Sulfate concentration by 20 mil./liter. Wild rice cannot survive above 8 mil/liter. It seems Tribal rights guaranteed by treaty will be violated.	WR1E,WR4F,PD5,CR1,CR
530	2. Analyze impact of increased mercury on the water and air as effect fish & wildlife.	WR1E,WR4B,WI5,FM1,AQ
770	4. Consider extensive Public input.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1225	I am writing to you as a citizen of Minnesota concerned about the PolyMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forest. My name is Tim Melby. My wife and I have resided at Finland, Minnesota on 40 acres for over 25 years where we have raised 3 children. We are both university graduates and our children are pursuing higher education of which our eldest graduated from the University of Minnesota. We all have concerns with Sulfide mining in Minnesota and particularly on the 6700 acres in Superior National Forest and public land. One concern is the water quality in locations that have sulfide mines and upon investigation we find no clean sulfide mines. Apparently the DEIS has not found any clean Sulfide mining operation anywhere.	G7B
1329	3. Protect tailings and rock piles from ever leaking or collapsing and spilling pollution into rivers, Lakes, water supply, and wetlands.	GT2
1966	2. Analyze impact of increased mercury on the water and air as effect fish & wildlife.	WR5A,WI5,FM1,AQ6A
3267	As a family we have been harvesting wild rice in the true Native American process for 30 years in most areas of Minnesota. We have great concern about increasing Sulfate concentration by 20 mil./liter. Wild rice cannot survive above 8 mil/liter. It seems Tribal rights guaranteed by treaty will be violated.	WR4F
3713	1. Perpetual financial guarantees to the public for any clean up created by sulfide mining.	PD4
3814	We all have concerns with Sulfide mining in Minnesota and particularly on the 6700 acres in Superior National Forest and public land. One concern is the water quality in locations that have sulfide mines and upon investigation we find no clean sulfide mines. Apparently the DEIS has not found any clean Sulfide mining operation anywhere.	G2A,G7A

Sender Last Name: Meller **Submission ID:** 3022

3441	The perpetual effects of mining could last for centuries if not properly regulated. The gain of Poly Met mining cannot begin to justify the destruction of such a fragile and beautiful vestige of the North Woods. Please assure that the already tenuous state of the boundary water's water quality is protected and preserve this land.	G7

Sender Last Name: Metcalf **Submission ID:** 2350

2828	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. These issues cannot be resolved; therefore the mining company should not be allowed to pollute our northern forests and waters. This is totally unacceptable.	EOO,G2

Sender Last Name: Metso **Submission ID:** 3590

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3859	Krech Ojard & Associates, P.A. is a member of the Area Partnership for Economic Expansion (APEX), a business development organization led by top executives and senior managers from many of Northeastern Minnesota's largest, most successful companies. The goal of APEX is to strengthen the regional economy by creating sustainable economic development. On behalf of both Krech Ojard and APEX, I want to state that I strongly support the NorthMet project being proposed by PolyMet Mining Company in Northeastern Minnesota. Through this project, PolyMet will significantly contribute to the state and local economy at a time when both the resulting jobs and related economic benefit are sorely needed. Not only will PolyMet's 400 employees and the hundreds of spin-off jobs provide a huge economic benefit to both the Arrowhead region and Minnesota, but PolyMet will also provide millions of dollars in local and state taxes to support our communities and educational systems. More importantly, these economic benefits will not accrue at the expense of environmental protection, for as the comprehensive and detailed Environmental Impact Statement demonstrates, PolyMet will generate this economic activity while it is protecting our air, water and land. In addition to the economic benefits note above, PolyMet's NorthMet project will provide a domestic supply of critical metals needed in medical applications, electric cars, catalytic converters, cell phones, computers and other essential products – products that are used by APEX members and others on a daily basis. Under current production, these metals are mined in one country, processed in another, and then transported to the United States. Not only does this create unnecessary greenhouse gas emissions associate with the transportation of these metals, foreign suppliers of these metals do not necessarily follow sound environmental practices, creating an even greater global environmental impact. In summary, the draft Environmental Impact Statement outlines the many choices PolyMet has made to protect our environment, and has documented that PolyMet can mine these critical metals, create these jobs and contribute to our regional, state and national economy while at the same time protecting our environment. Consequently, the draft EIS should be deemed to be adequate, which would then allow for the appropriate permits to be issued and this long-awaited project to begin.	EOO
Sender Last Name:	Metter **Submission ID:** 3357	
3648	I believe that if these mines are built in northern MN there will be lasting effects for over 100 years to come. I would really like to see something happen here to stop this from falling through.	EOO
Sender Last Name:	Meyer **Submission ID:** 2205	
2613	I'm David Meyer from Roseville, Minnesota, and I support the PolyMet mining project because I believe it would create much-needed jobs in Minnesota, and I believe with modern methods the project can be accomplished while still preserving a safe and healthy environment in Minnesota. That's really all I want to say.	EOO,G6
2762	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. I am very much against such mining in this area of MN. I want our wilderness protected it is such a precious natural resource. "We did not inherit the earth from our ancestors we have borrowed it from our children!"	EOO
Sender Last Name:	Micks **Submission ID:** 1930	
390	Harmful To Wildlife - The DEIS does not adequately address the mining project's impact on Canada Lynx and Grey Wolf Habitats. It also does not address the destruction of existing wildlife corridors. The project is located on land the USFWS designated less than one year ago as critical habitat for the Canada Lynx.	WI1,WI5
Sender Last Name:	Middendorf **Submission ID:** 3348	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3640	Considering the reality of water shortages in the South Western United States, its very shortsighted to underestimate the value of clean, healthy water. Aside from the impact of tourism, for our own survival; we must fight to protect sources of quality water. We can live without the minerals, but there is no substitute for water. Building this mine will go against any benefit the economies of the area or company may gain for the people of the Midwest; potentially the whole country. For the safety + well-being of people + ecosystems we cannot do this.	EOO,G7B
Sender Last Name:	Midderdorf **Submission ID:** 3337	
3630	This project idea is disgusting. If those metals are so necessary, why can't recycling efforts for used electronics be improved? With the uncertainty of water sources with shrinking aquifers, water shortages are going to be, and already are, a dire issue in this country. We cannot live without electronics if need be, but we will not make it without quality water sources. I strongly urge you, please consider the well-being of your constituents. As for the jobs, we can survive by other means, but that will be compromised with this project.	EOO,G7B
Sender Last Name:	Miettunen **Submission ID:** 1091	
1195	I support the PolyMet Mining North Met Prtojecl.	EOO
Sender Last Name:	Milanese **Submission ID:** 3744	
1	C. Human Health Fish consumption advisories already occur for fish caught from many of the water bodies into which the project would drain. The risks of methylmercury contamination are examined in Comments II.N. Minnesota's fish tissue water quality standard for mercury is 0.2 mg/kg. At this level of mercury contamination, it is recommended that people not consume more than one fish per week. More than that is not considered safe. But for many people, fish constitutes an important nutritional and/or cultural part of their diet. People consuming more than one fish a week from impaired waters, or fish with higher levels of mercury than 0.2 mg/kg, are at risk of harming their health. The NorthMet project with its potential for increasing the mobilization of mercury, poses a human health risk to people who consume fish. The problems of geotechnical stability of the tailings basin (discussed in Comments II.K.), poses another serious risk to human health. The contents of the hydrometallurgical residue cells in particular will be extremely hazardous. Should the tailings dams fail (with an acknowledged "low margin of safety"), toxic materials would drain into water bodies from which human communities obtain drinking water. In addition, the DEIS also reviews the potential for mining to release amphibole mineral fibers to air and water. Exposure to these fibers has been connected to cancer and other health problems. The PolyMet project is in proximity to the Peter Mitchell Mine and Silver Bay Processing Plant, which has been associated with releases of amphibole fibers. "…amphibole minerals are present in the Duluth Complex and in close proximity to the NorthMet deposit. Thus, there remains an uncertain level of potential health risk from airborne amphibole fibers for the Project" (DEIS pg. 4.6-60). Recommendation: The EIS must fully examine the potential impacts from mercury contamination in fish and the resulting impacts on human health from fish consumption. It must include a new tailings basin design that has a reliable degree of stability. And it must more thoroughly examine the risks of amphibole mineral fibers in the project's ore and its impact on human health.	FM1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	B. Socioeconomic Impacts The DEIS presents a one-sided evaluation of impacts to communities and economies in the region. The only potential negative impacts from the project cited in the DEIS are that "the Project would further reduce access to the site for hiking, fishing and hunting" and "generate some noise and light which may impact the recreational experience," and "some impacts may experienced by recreational users of Whitewater Reservoir due to water fluctuations" (DEIS pg. 4.10-21). Absent from the DEIS is a meaningful assessment of other potentially negative impacts. Missing, for example, is any analysis of impacts to tourism and recreation, impacts on real estate values and sales, impacts to commercial fisheries if mercury contamination occurs. The Superior National Forest estimates that these public lands bring over $200 million in tourism and recreation to the region annually (personal communication, Jim Sanders, Supervisor, SNF). But the DEIS provides no evaluation of this project's potential impacts on this sustainable, important industry. The DEIS is devoid of any evaluation of reasonably foreseeable negative impacts, such as the impacts to communities from potentially contaminated drinking water, and impacts on fisheries from mercury contamination. There is not even an analysis of the impact on communities, schools, and the tax base when the mine closes in Year 20. This biased representation of impacts is not fair to those communities most directly affected by the mine's closure. Particularly disturbing is that the DEIS describes the "No Action Alternative" as the option that entails on-going population and employment decline. No data are provided to support the conclusion that not building the mine will lead to ever declining jobs and dwindling population. And no evaluation is provided to show how the Proposed Action won't lead to those same outcomes when the mine closes. Recommendation: The EIS must do a complete analysis of the potential negative impacts to communities, employment, and the economies of the area from this project. It must evaluate the region's reliance on environmental amenities such as tourism and recreation. The EIS should include an analysis of the impacts to the region when the mine closes. And it must assess the potential impacts from scenarios that include water contamination.	SE4,G1,CR1
2	-Inadequate assessment of the potential for contaminants to leak from the tailings basin, despite the presence of the existing tailings basin from which existing seepage could have been measured.	WR2E
3	-Failure to assess mercury exposure through the collection of biotic samples such as fish, as most mercury monitoring programs today include.	WR1E,FM2
3	-Inadequate sampling of water chemistry of area lakes and streams affected by past iron mining activity as a method of comparison and prediction for the methylation effects of additional sulfate discharges	WR1E
3	-A lack of useful data or supporting information on which to base predictions of methylation risk due to field sampling that was too little and of poor data quality.	WR1E
3	Dr. Engstrom notes many similar issues with insufficient data, overdependence on modelling, and inadequate sampling regarding the analyses for potential mercury methylation and sulfate contamination.	WR1E
4	Recommendation: Additional data collection must be conducted, and the results of this disclosed in the EIS. The technical experts repeatedly indicate that real world data is far more reliable and predictive than models with potentially faulty and layered assumptions. In nearly all cases, the data needed can easily be collected. See Dr. Siegel's and Dr. Engstrom's reports for complete recommendations for additional information and collection methods.	WR1E
5	-Lack of a detailed reclamation plan (that should be tied to a financial assurance analysis) for necessary closure activities.	PD4
6	-Providing additional documentation about groundwater modeling, including water table maps and model assumptions	WR2F
7	-Installing a series of shallow piezometer nests and water table monitoring well along appropriate transects from the existing tailings pond to determine such things as flow direction	WR2A
7	-Installing approximately 6 additional monitoring wells in bedrock south of the proposed mine area to determine how groundwater in bedrock moves across the site.	WR2A

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Comment ID	Comment Text	Theme Codes
8	-Installing several piezometer nests south of the mine and adjacent to the Embarrass and Partridge Rivers to better understand groundwater interactions with the rivers.	WR2A
8	-Obtain direct measurements of head and water chemistry downgradient and perpendicular from the existing tailings basin to assess leakage and solute transport.	WR2A
9	-Collect biotic samples and analyze for mercury contamination	WR1E
9	-Design a well constructed sampling program to assess methylmercury production that includes more and strategic sampling sites	WR1E
10	B. Problematic DNR Public Meetings The DNR held two public forums for providing information and opportunities for comment on the DEIS. One forum was in Aurora, MN, the other in Blaine, MN. Despite requests from the environmental community that additional forums in other more accessible locations be organized, the DNR refused to do so. Forums in Duluth and Minneapolis or St. Paul at a minimum should have been held, for these are centers of populations in the state. The DNR and USACE organized the forums in a manner that did not allow for oral public conversation, questions, or comments. Stenographers were available to take oral comments in a private space, but the public gathered at the event was prevented from hearing questions, answers and remarks from others. However, several politicians were given a formal platform during the presentation part of the gathering, to support the project. In some cases, the information these political leaders provided was inaccurate. The forums were biased events, in which only supporting comments were publicly heard, and no negative remarks were permitted in a public forum. This was an unbalanced event that deteriorated into a political rally in favor of the project. The fundamental purpose of the public forums – to provide a public space for citizens to learn, ask questions, and comment on the proposed project – was not achieved.	PRO6
10	2.) By not calculating the financial assurance, the DEIS fails to provide a full understanding of needed closure activities and closure costs. Water treatment actions are “one of the most important components of closure, especially from a financial standpoint…” (Chambers 2010). The DEIS acknowledges a need for water treatment for at least 45 years after mine closure. Given the predicted water contamination that may last for 2,000 years, it is obvious water treatment will be needed for a long time, if not in perpetuity. The DEIS does not clearly outline what the water treatment plan will be, and provides no cost analysis. Dr. Chambers provides a way of estimating these costs, something the DEIS did not do: “Again, as a rough estimate, the net present value of a chemical precipitation only system for the mine is $27 million, and for a nanofiltration only system for the mine $37 million. These costs include 20 years of operating costs…The closure water treatment systems will need to operate for at least 45 years, and the existing treatment systems will be 20 years old when closure begins. Given that the closure operating period is over twice as long as the 20 year mine operating period for which the cost estimates were made, and that the treatment systems will quite likely need to be replaced and upgraded during this 45 year period, using a figure of twice the cost estimate for the operating mine would seem to be a reasonable estimate. That would place the net present value of the Closure water treatment in the range of $54 million to $74 million for financial surety purposes” (Chambers 2010). This is a very large amount of money. The public will be liable for this cost or be forced to accept the water contamination if financial assurance is not properly calculated or if the mine operator goes bankrupt. As a result, the public has a right to be provided with thorough estimates as early as possible to properly understand the risks associated with this project. It is alarming that the only financial estimate provided in the DEIS, the Project Preliminary Closure Cost Estimate Summary (DEIS pg. 3-48), does not appear to contain water treatment operating and capital costs. If water treatment is not a component of financial assurance calculations, Minnesota taxpayers and human and natural resource health will be placed at unacceptable risk by this project. Recommendation: Financial assurance calculations must be included in the EIS. Water treatment operating and capital costs must be a component of financial assurance calculations. Dr. Chambers believes closure costs will likely require a financial surety of about $100 million. The agencies overseeing the development of the EIS have an obligation to inform the public of this risk and to protect the public from unacceptable risk through full disclosure. The DEIS must also provide a rationale for why water treatment may only be needed for 45 years when pollution is expected to continue for much longer. Any longer treatment estimates must be included in closure costs and analyses.	PD3,PD4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
10	B. Reclamation Plan 1.) The DEIS presents an incomplete plan for reclamation activities that will be needed to responsibly close the mine. Dr. Chambers notes: "Lack of a viable reclamation plan and cost closure estimate is a major flaw in the EIS…It does not go far enough to present these details as a complete reclamation package that can be assessed in terms of what the overall reclamation goals are and how they will be met, whether the closure technologies that are proposed are viable, and how much implementing these closure and post-closure technologies will cost" (Chambers 2010). Elements missing in the reclamation plan include: assessments of the technologies available to close the mine, estimates of the costs of these technologies, and articulation of overall reclamation goals and how they will be achieved. Central to this plan must be the calculations of financial assurance detailed within the EIS. Recommendation: Dr. Chambers notes, "Mine reclamation should not be developed based on future technologies, or future resources. The pre-mining reclamation plan needs to lay out a basic approach to reclamation using technologies that are proven and have measurable costs, and with enough detail to provide a conservative but reasonable estimate of what these closure costs will be" (Chambers 2010). Elements to include in a more detailed reclamation plan in the EIS are: assessments of the technologies available to close the mine, estimates of the costs of these technologies, and articulation of overall reclamation goals and how they will be achieved. Central to this plan must be the calculations of financial assurance detailed within the EIS. As Dr. Chambers highlights in his comments, most modern EISs analyze the reclamation plan as part of the EIS process. He recommends that the PolyMet EIS do the same, and show the reclamation liability on a year-by-year basis. His attached comments provide an example of a reclamation plan with an appropriate level of detail and cost estimates (Pogo Project Reclamation and Closure Plan, Dec. 2002). This template should be used to develop an appropriate reclamation plan for the PolyMet project.	PD3,PD4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
10	A. Length of Comment Period The Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers provided a 90-day public review and comment period for the DEIS. This was despite the urgings of the U.S. EPA to allocate a 120-day comment period. "The complexity and potential impacts of this project warrant a longer public review period than the 45-minimum for a DEIS published in the Federal Register. Recent similar projects elsewhere in the country that were submitted for public review under NEPA have had 120-day review periods, either initially or through one or more extensions. We observe that public interest in copper mines in the Upper Midwest is high. Decisions made for this project may be precedent-setting, as it is the first large-scale copper mine in Minnesota. We have consistently urged the USACE to adopt a realistic comment period over the past few years and will address this concern regarding the comment period with the USACE St. Paul District Colonel separately" (U.S. EPA August 2009). On October 7, 2009, The Friends of the Boundary Waters Wilderness joined ten other organizations through the Minnesota Environmental Partnership (MEP), a statewide coalition of more than 80 environmental, conservation, and non-profit organizations, to request a 120-day comment period. That request was rejected in favor of the 90-day period. With the release of the DEIS and a more full realization of the scope and complexity of the DEIS, MEP in December 2009 requested an extension that would provide a total of 180-day comment period. "As you are aware, November 2nd marked the start of the scheduled 90 day public comment period for the DEIS. We do not believe that the length of the comment period is adequate to meet the need for a credible and accessible public review process. We request that the time period for submitting comments be extended to 180 days…This DEIS was years in development and totals three volumes of material. It is unreasonable to expect citizens and concerned stakeholders to be able to fully review, analyze and prepare adequate comments in this relatively brief 90 day period. An extension to 180 days is necessary to provide time for adequate review and preparation of comments" (MEP letter to the DNR, USACE December 2009). This request was rejected. "The MnDNR has determined that no additional public meetings will be held and that the DEIS public comment period will not be extended" (Mn DNR letter to MEP January 15, 2010). The complexity and length of the DEIS warranted the 120-day period to enable the public to thoroughly examine and respond to it. The Friends worked with technical experts to solicit their analysis of the project, and the 90-day comment period proved very challenging for providing them the review and response time they needed. The Friends is an organization that works directly with the public, providing information to citizens on projects like the NorthMet project. The short timeframe was an extremely difficult one for us to both receive the technical comments from experts, and to summarize and distribute these findings to members of the public. We were prevented from adequately communicating these findings with our members and other members of the public due to this short timeframe for comments. The DEIS is 1,800 pages, three volumes, and hundreds of supporting documents in length. This is a sufficiently long and technical project to warrant the recommended 120-day comment period. In addition, the comment period included the Thanksgiving, Christmas and New Year's holidays, periods of time for which many organizations are closed for business, and for which members of the public are engaged in travel and activities that likely limit their time for review and comment on the DEIS. It was reasonable for the agencies to provide extra time given the overlap with this busy holiday period. In early December, 2009, the DNR's email address for public comments on the DNR website malfunctioned. In a	PRO6
11	2.) The DEIS describes general maintenance activities that would need to continue through post-closure, including: "repair of stockpile and tailings dike slope erosion, wetland outflow structure up-keep to ensure they are functioning properly, woody species and tree removal on stockpiles and hydrometallurgical cells with membranes, tailings pond maintenance, and seepage collection from the Tailings Basin" (DEIS pg. 3-49). These are all maintenance activities that will be required in perpetuity. Given this perpetual maintenance requirement, this project cannot ever be deemed "reclaimed." Minnesota Nonferrous Metallic Mineral Mining Rules (Chapter 6132) clearly indicate that reclamation goals are for post-closure maintenance to cease. The rules also state: "No release from a permit to mine shall be approved for a portion of the mining area requiring post-closure maintenance until the necessity for the maintenance ceases" (MN Rules 6132.4800 Subp. 3). Given these requirements, both the mine site and the tailings basin will fail to qualify, ever, as reclaimed. In addition, the responsible mining entity will never be released from their permit obligations. This is a failure to reach reclamation goals to achieve maintenance-free conditions and a final release from the permit conditions. Recommendation: The EIS must incorporate designs that achieve Minnesota State reclamation goals for an eventual maintenance-free site.	PD3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
11	C. Land Exchange and the Mine Site 1.) While PolyMet has leased the privately held mineral rights at the mine site, the surface rights are in public ownership, managed by the U.S. Forest Service. The DEIS notes: "It is the position of the United States that the mineral rights leased by PolyMet do not include the right to open pit mine the National Forest System land" (DEIS S-1). PolyMet and the Forest Service are exploring a possible land exchange to trade to PolyMet the mine site in exchange for new land to put into public ownership. The DEIS indicates that a separate EIS will evaluate this proposed land exchange. The PolyMet DEIS does not examine the potential environmental impacts of this land exchange even though it is an integral component of this project. The U.S. EPA in an August 2009 letter to the U.S. Army Corps of Engineers regarding the PolyMet project identifies as a "red flag issue," the failure to analyze impacts related to the potential land exchange with the U.S. Forest Service: "We are concerned that some impacts related to the potential land exchange between the U.S. Forest Service are not covered in the PDEIS. We question whether the discussion of the land exchange can be deferred to a separate EIS, as it is a connected action which is clearly related to the NorthMet project" (U.S. EPA August 2009). Recommendation: The EIS must include a complete analysis of the proposed land exchange. This is obviously a related and connected action to this project with the potential for environmental impacts.	PRO4,PD3
12	2.) The DEIS fails to provide important information about the value of the site proposed for the land exchange, land that would be significantly and irrevocably altered during the mining operation. The proposed mine site was identified in the late 1990s as special habitat worthy of protection in two assessments, one conducted by the U.S. Forest Service and another by the MN DNR. In these evaluations, the scientists concluded that the mine site, part of what is called the "100 Mile Swamp," represents some of the highest quality habitat remaining in the landscape. In January 1997, as part of its preparation for the Forest Plan Revision, the Superior National Forest released a report titled, "Identification of Potential Natural Areas, Including Representative Ecosystems, on the Superior National Forest" by forest biologist Robin Vora. The report summarized a process to identify natural areas on the forest that might qualify for permanent protection. The focus was to develop a list and general description of the highest quality remaining examples of common ecosystems present in each Landtype Association ("LTA" or "landscape"). The report notes, "A network of natural areas helps to protect biological diversity at the genetic, species, ecosystem, and landscape scales. Natural areas representative of common ecosystems in natural conditions serve as baseline or reference" (Vora 1997). The PolyMet potential mine site was identified in this report as part of the "100 Mile Swamp." It sits within LTA 8A, and was considered one of those "ecosystems in natural condition" that was representative of its landscape, and a good candidate for protected status. The site is especially important as LTA 8A was noted as lacking ecosystem representation in protected areas. Features that gave this area a high ranking were its watershed integrity, the size of its wetlands, the presence of riverine ecosystems, and the large amount of interior forest present. In December 1997, the Minnesota DNR released a report called, "Evaluation of Selected Potential Candidate Research and Natural Areas as Representative Ecological Landtype Associations on the Superior National Forest, Minnesota." This study was conducted by plant ecologist Chel Anderson. The purpose of this assessment was to continue the evaluations begun by Robin Vora. The assessment was to further assist the Superior National Forest in evaluating areas for protection for the Forest Plan Revision process. The study analyzed the 93 sites identified by Vora and developed a shorter list of 45 sites worthy of consideration as protected natural areas. The assessment notes that these sites represent the highest-quality remaining examples of characteristic ecosystems in each ecological Landtype Association on the Superior National Forest. Again, the "100 Mile Swamp" appears on this list of worthy candidates. The report notes, "Inclusion of the 100 Mile Swamp site would very likely complete representation of the prominent ELTs [ecological landtypes], and provide some additional upland diversity" (Anderson 1997). Representative ecological systems within the Laurentian Highlands, the ecological subsection in which the PolyMet mine site is located, include forested communities dominated by aspen-birch, jack pine barrens, red and white pine on uplands, and conifer bogs and swamps in the lowlands. The PolyMet mine site sits on a conifer bog and lowland swamp. Within the Laurentian Highlands are 58 species identified as Species in Greatest Conservation Need, including 12 species that are federal or state endangered, threatened or of special concern. Habitat loss, habitat degradation and pollution represent some of the most pressing threats to these species. Lowland conifer forests have been identified by the MN DNR as key habitats for Species of Greatest Conservation Need in this subsection. Within the Laurentian Highlands, 22 Species of Greatest Conservation Need are typically associated with lowland conifer fores	G3,CR1,CR2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
12	D. Geographic Scope of Evaluation The DEIS evaluates the potential environmental impacts from the proposed project, but the scope of the evaluation was largely limited to a five mile radius around the mine site, the plant site, and the transportation corridor. Given predicted water quality violations, the acknowledgement that drainage from the project will enter both surface and groundwater, the geotechnical instability of the tailings basin, admitted global warming impacts, and the many uncertainties in data and modeling, this project is certain to have impacts broader than a five mile radius around the project's core. Recommendation: The EIS must provide evaluation of the potential impacts within a much larger zone, including likely impacts to the entire St. Louis River watershed and Lake Superior. Statewide impacts, such as those from increases in carbon emissions from the project, must be included. (See Comments III.B.2.)	WR3B,AQ4E
13	E. Mitigation Measures In the DEIS, mitigation measures for the proposed project are almost exclusively presented as recommendations vs. requirements. As Dr. Chambers notes, "the description of the mitigation measures end with statements like: the measure 'warrants further consideration;' or 'it is recommended that…;' or the measure 'should…;' or, could…, or would…" (Chambers 2010). It is unclear and unstated which, if any, of the mitigation measures the responsible agencies will find significant enough to make requirements in the permit. It is unclear and unstated which measures will be considered voluntary. Dr. Chambers comments: "Since the EIS is a document that is tied directly to the state and federal agencies that will be issuing the permits necessary for the mine to operate, it would be reasonable for the public to assume that the agencies can and would require some or most of the mitigation measures described in the EIS when they issue the permits for the mine. But the way the mitigation measures are described in the DEIS all of the mitigation measures would be voluntary. That leaves this reviewer, and the public, unsure what the final project will look like and what effects it will actually have" (Chambers 2010). Recommendation: The EIS should specify what mitigation measures will be required of the mine operators. Voluntary measures should be stated, enabling the public to "comment on the relevance and importance of the voluntary mitigation measures" (Chambers 2010). Voluntary mitigation measure must be assumed, for impact analysis, as not occurring.	G2D
14	F. Data Collection and Disclosure A full understanding of significant environmental impacts can only be realized with the appropriate gathering of data and analysis. Repeatedly throughout the DEIS, however, it is clear that opportunities to gather relevant, available information were not taken. Models were created, with assumptions that may be inaccurate, to assess issues such as groundwater flow, when real world information could have easily been gathered for analysis. Details of models and assumptions are often not disclosed, making a review of these methods difficult. So often are necessary data missing, that an accurate portrayal of this project's impacts is potentially not reflected in the DEIS.	G8B
15	-Lack of any financial assurance calculations that would enable understanding the long-term environmental impacts of the project.	PD4
15	-Insufficiently documented groundwater modeling approaches. "These models may, in fact, be inappropriate to address the problems considered; (a) dewatering caused by the mine and (b) how rapidly potentially contaminated water might move from the closed mine to the Partridge and Embarrass Rivers" (Siegel 2010).	WR2F
16	-Installation of insufficient ground water monitoring wells and piezometers in bedrock to either characterize where and how ground water in bedrock moves across the site, or how it interacts with the Partridge River.	WR2A
17	-Insufficient characterization of how water leaking from the present and future tailings pond may carry potential contaminants north to the Embarrass River. "The hydrologic conditions caused by tailings ponds present for many years offered a unique opportunity to directly evaluate important contaminant transport properties at the proper distance (scale) along subsurface pathways to the river prior to mine opening. PolyMet chose not to do this, but to develop models and other methods to infer what might happen" (Siegel 2010).	WR5A
17	-Inappropriate assumption for the modeled area that the rock properties of the hydrostratigraphic bedrock aquifers in the mine site are uniform in all directions. There was little effort to characterize the distribution of fractures in the bedrock either by analogy with other sites in the Iron Range, or by direct measurement. "Without this characterization, no conclusion can be clearly made as to where potentially contaminated water might move in bedrock…" (Siegel 2010).	WR2F

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Milburn **Submission ID:** 3745	
4	G. Cumulative Impacts The DEIS fails to include in its examination of cumulative effects on water resources, known mining projects that are currently in development. Dr. Chambers notes, "For example, there are several mining projects in the advanced stages of exploration that should be considered as reasonably foreseeable. These projects include the Duluth Metals Ltd – Nokomis deposit and the Franconia Minerals Corp – Birch Lake deposit. Ignoring the potential for these developments understates the cumulative impacts to the region" (Chambers 2010). In an October 29, 2008 tour of the PolyMet processing plant, the existing LTVSMC plant, Friends staff member Greg Seitz was told by PolyMet that 8 of the 24 crushers would be operating for processing ore from the NorthMet project. The Friends is concerned that if permitted, PolyMet is likely to use the un-used portions of its plant to process ore from other nonferrous mining operations. If this is the intent, it must be outlined in this EIS. There are obvious potential cumulative impacts to the tailings basin, wetlands and water resources from increased activities resulting from handling ore from other mining operations. Recommendation: Mining projects in the advanced stages of exploration should be included as reasonably foreseeable impacts for analysis of the NorthMet project's cumulative impacts. Any anticipated use of the processing plant, tailings basin, project lands, and transportation corridors to handle ore from other mining operations must be included in this EIS's cumulative effects analysis.	WR5A,WE5
4	It is disturbing that, after years of preparation, the DEIS contains so many omissions and data gaps, and that opportunities to examine existing conditions that would obviously be helpful, were not taken. This lack of information must be resolved for the EIS to be complete.	G8
5	H. Underground Mine Alternative The option of developing an underground mine rather than the open pit mines of the Proposed Action was rejected by PolyMet as: "Not economically viable. The rate of ore production of an underground mine would not support the processing rate necessary to economically process the low-grade ore…Additionally, the ore deposit is shallow and broadly distributed throughout the Mine Site…" (DEIS pg. 3-64). But in Dr. Chambers' review of support document "ALT11High Level Underground Costs," from PEG Consultants Inc, July 30, 2009, he found only a limited economic analysis of an underground option. "This was not a detailed analysis of the costs of underground mining at the NorthMet site. The document is only 2+ pages in length, and lays out what must be rough estimates of the costs of underground mining compared to open pit mining. The scope and depth of analysis presented in ALT11 is not enough to state conclusively that underground mining is not economical at this site" (Chambers 2010). The tribal cooperating agencies provide additional information to suggest more consideration should be given to the underground alternative: "A study of this particular deposit was performed by U.S. Steel that recommended underground mining. By examining cross-sections showing the distribution of ore by depth, it appears that there are substantial ore reserves at depths that likely could not be accessed by the proposed open-pit mine. The ecological costs of open-pit mining and above-ground disposal of tailings and waste rock are immense. This ecological cost, combined with the most current understanding of deposit ore grades and reasonably possible metals prices, must be evaluated to determine the viability of this alternative" (Tribal Cooperating Agencies, DEIS pg 3-64). Recommendation: The EIS should provide a thorough analysis of the underground mine alternative, examining ore distribution, the economic viability of this option and the potential environmental impacts of an underground mine.	PD1
6	-A dangerously unstable tailings basin design that the DEIS acknowledges has a low margin of safety, and which would contain hazardous wastes.	GT2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
6	A. Reactive Waste Rock and Material 1.) Waste rock disposal plans under both the Proposed Action and the Mine Site Alternative raise water pollution concerns. Proposed Action Storage of reactive waste rock permanently above ground the acknowledged potential to generate Acid Mine Drainage (AMD) and to leach metal contaminants. The Proposed Action calls for placing only a portion of Category 1 and 2 waste rock, the least reactive material, into the East Pit for subaqueous disposal before converting the pit to a created wetland. Category 1 and 2 waste rock are predicted to contain less than 0.3% sulfur. Meanwhile, the Proposed Action would permanently leave on the surface all of the Category 3 and 4 waste rock, with sulfur contents between 0.3 and 0.6%. The DEIS indicates that Category 3 is medium reactive waste rock that may generate acid mine drainage and is predicted to leach heavy metals resulting in drainage with heavy metal concentrations in excess of water quality compliance levels. Category 4 waste rock is labeled highly reactive. “This material would generate ARD and leach heavy metals resulting in drainage with heavy metal concentrations in excess of anticipated water quality compliance levels” (DEIS pg. 3-14). Indeed, modeling described in the DEIS indicates significant potential pollution problems from storing reactive waste rock above ground. Table 4.1-44 shows results of modeling showing potential groundwater exceedances from the waste rock stockpiles. The Category 3 Lean Ore stockpile shows potential exceedances of copper, iron, manganese, nickel, aluminum, beryillium and thallium. The Category 3 waste rock stockpile shows potential exceedances for antimony, arsenic, copper, iron, manganese, nickel, sulfate, aluminum, beryllium, and thallium. The Category 4 waste rock stockpile shows potential exceedances for antimony, iron, manganese, nickel, aluminum, beryllium, and thallium. Additional modeling shown in Table 4.1-45 in the DEIS shows predicted groundwater exceedances into the Partridge River for nickel from the Category 3 Lean Ore stockpile lasting 50 to 2,000 years. Category 3 waste rock stockpile is predicted to exceed groundwater criteria for antimony, manganese, nickel, and sulfate from 50 to 2,000 years. Contamination exceeding groundwater criteria from the Category 4 waste rock stockpile is predicted for antimony lasting 90 to 250 years. Storing medium to highly reactive waste rock permanently above ground presents acknowledged and unacceptable pollution risks for unacceptable durations. Under the Proposed Action, some Category 1 and 2 waste rock will also be stockpiled on the surface, also with pollution risks associated with it. In one DEIS model, Category 1 and 2 waste rock are predicted to exceed groundwater evaluation criteria for arsenic, antiomony, sulfate, aluminum, iron, manganese, beryllium and thallium. In a second model, antimony, arsenic and sulfate are predicted to exceed groundwater evaluation criteria for 100 to 2,000 years. Mine Site Alternative The DEIS also presents a Mine Site Alternative to the Proposed Action that would place all the Category 3 and 4, as well as Category 2, waste rock into the East Pit for subaqueous disposal. The only permanent stockpiles would be for Category 1 waste rock and overburden. This is a preferable plan to the Proposed Action. Dr. David Chambers notes: “Backfilling Category 2, 3 and 4 waste rock into the mined-out East Pit would probably be the most protective of water resources in the long-term” (Chambers 2010). Nevertheless, although the Mine Site Alternative is preferable, modeling in the DEIS shows significant ground water pollution risks from this alternative action. A concern is the “dissolution of oxidation products formed prior to inundation with water in the East Pit (i.e. during temporary surface stockpiling) and continued reaction of the rock once submerged” (DEIS pg. 4.1-136). Modeling in the DEIS assumed oxidized solutes would be leached durin	WR1E
7	2.) The Proposed Action also calls for storing peat and unsaturated overburden in an unlined area called the Overburden Storage and Laydown Area. “Peat, in particular, is a sink for mercury. The wetting and drying of the peat that would occur in this storage area would promote the methylation of mercury” (DEIS pg. 4.1-166). The DEIS recommends that drainage from this area be collected and treated at the WWTF. Recommendation: Collecting and treating drainage from the Overburden Storage and Laydown Area must be a requirement in the EIS, rather than a recommendation.	EOO,WR4E

Sender Last Name: Miller **Submission ID:** 1125

102	I request that a public hearing be scheduled for Duluth as it is the largest population center near & shares a watershed of the proposed mine area.	EOO,PRO6
103	I request that the comment period be extended to 180 days. The existing comment period is inadequate for professionals much less the general public. the BWCA is a gift that can’t be risked!	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
118	I just want to say PolyMet -- I believe the leaders, the officials that are running it, come from a very experienced mining background and they will set a benchmark, set the standards for projects to come. I think they will set a high bar as far as having a project that has very little impact on the environment, and I believe there will be more mines like it that will start up as a result. Northeastern rural Minnesota is an important part of the state with lots of communities, families, people raising their families, and we need the jobs. It's a depressed area, economically, and we tend to lose a lot of our young people because we don't have a lot of good-paying jobs. And it would produce lots of tax dollars for the state. That's about it.	EOO,G6
166	I want to take this time to express my full support of the proposed Polymet project in Northeastern Minnesota. This project is badly needed in our part of the state. We have been blessed with an abundance of natural resources here. Developing those resources in a safe and environmentally stable way has been, and will continue to be, our major means of economic viability. These 400 potential jobs and the many indirect jobs that would result are critical to our communities' well-being. The spin-off from this kind of major economic activity makes most other jobs in our area possible, and directly affects the well-being of our related businesses, communities, schools, and institutions. We live in an incredibly beautiful part of the state, but our geographic remoteness from major U.S. markets severely limits other manufacturing-related entities to consider locating here. We in Northeastern Minnesota have closely followed the progress of this project, with high hopes for its viability. The environmental review process has been both lengthy and thorough. It is my opinion, in reviewing the draft EIS, that the proposed project more than adequately addresses the environmental concerns. I believe that this project will benefit not only our region and Minnesota in general, but will also benefit the U.S. as a nation, as these prescious metals are not mined anywhere else in our country. Relying on foreign sources for these metals takes control of how they are mined and refined out of our hands. This makes it more likely that environmental concerns are not being met, and results in a much more inefficient and resource-wasting route to get them to our market. Mining and producing them here in Minnesota, where strict environmental oversite takes place, greatly reduces these concerns and directly impacts our own economy in a positive fashion. State of Minnesota and our local governmental bodies will also benefit not only from the boost to our economy, but also from millions of dollars in additional revenue collected in local and state taxes. These additional revenues will be timely in bringing some relief to our presently tax-strapped local and state governmental bodies. I cannot stress enough what this project means to our region. We have seen the taconite industry, our economic mainstay, go through bankruptcies (LTV) and painful downsizing that has resulted in the shrinking of our communities and the exodus of our high-school-educated children and young families out of our region to seek meaningful employment elsewhere. I would like to see my own children be able to remain working here in Northeastern Minnesota, the area in which they grew up and for which they love and want to stay. There are many others who have left the area and would love to return if there were adequate means of employment here for their families. This decision will directly affect the well-being of our small business here in Hibbing and many others across our region, and the families that they employ. Please give this project your strongest consideration. I am thoroughly convinced that it will impact our region, state, and nation in a positive and environmentally friendly way.	EOO
1233	I oppose the Polymet/Northmet project due too high risk of serious environmental damage that may be impossible to control.	EOO
1974	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources. We here in Minnesota are so fortunate to have abundant water resources. Lake Superior is the largest lake in the United States and there is no area comparable to the BWCA in the United States. An article in the Star Tribune on December 8, 2009 carried the headline "Millions in U.S. drink contaminated water, records show." Experts predict that in the near future, clean water will be many times more precious than it already is. Please protect our water resources from pollution. If we pollute every source of fresh water on this planet, there is no where else to get it.	G9

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3493	I'm originally a Minnesotan but now live in Wisconsin. I still have family in Minnesota but besides visiting them I count on two to three BWCA trips a year and each trip I spend money "back home". I've always been proud of my home state but boy will I be disappointed if I learn that the principle watch dog group for Minnesota natural spaces and resources let's down America by turning a blind eye to additional mining operations for Polymet. Please plan for the future and make sure that there are provisions to hold Polymet fully responsible for environmental degradation over the long haul as a result of their business practices. There's a concept called Solastalgia that is currently being given more and more credence in psychology and this concept relates to the deeply disturbing psychological affect that destruction of ones homeland has on people's mental health. You risk more than destruction of Minnesota's natural resources that can benefit many for years and years by allowing the few to gain money in the short term and destroy the future prospects for sustainable resources. Please be both cautious and responsible as you cut deals to allow the exploitation of Minnesota Natural Resources. Trying to go after Polymet later will be incredibly more expensive than setting up responsible limitations now. I'm writing this assuming this is a done deal despite the terrible environmental practices of mining companies over time.	PD4,PD10,G6,G8
Sender Last Name:	Mills **Submission ID:** 3309	
3602	Please consider my sincere opposition to the NorthMet Project. Its merits to boost economy pales in comparison to the potential environmental degradation & long-term damage to one of the most beautiful resources in North America, and more importantly an area that many Americans & Canadians view as the last region to leave unpolluted to future generations. I will not travel to that area if the proposed mine were to arrive, it would be a sad day. Please forward this to decision making bodies.	EOO,G2
Sender Last Name:	Mirindas **Submission ID:** 2111	
2498	It is with great dissapointment That I find the DNR guilty of selling out the residents of this nation. It is no doubt that you and your agency are nothing but a tool for corporate interests. The many people I talk to are shocked that the DNR is working toward exploitation of Indian and national interests in what little remains of our National Forests. My organization and others will make it known to the country what your agency, Franken, Klobouchar, and Oberstar are trying to slip under the citizens of this state and country. Your intentional shutting out of public opinion of the environmentally concerned is so obvious to what your intentions are its a joke and so were your public hearings. It dosen't bother me that your closing out early of the hearings because they were a waste of time anyway for the people who wanted to express their environmental concerns. We will fight you every inch of the way I suggest you keep your eyes and ears open to the people and voices of the people you think are already defeated by your decision, for we don't intend to blindside you like you have done to Minnesota and the country. The fight you've asked for has only begun.	EOO
Sender Last Name:	Mismash **Submission ID:** 185	
177	I fully support the Polymet project and feel that they have followed all of the necessary guidelines in appropriating their permits and environmental requirements. They have shown genuine concerns about water and air safety and are willing to constantly look at new and improved ideas for the care and safety pertaining to these area. The Polymet operation will provide much needed jobs in the Northeast Minnesota area and will provide good usable products that are a USA produced material rather than importing. What they will do for the overall business communities in this area will be measured as a huge success and enable everyone in the area to raise families and grow with the success of Polymet. It will truly be a win/win situation for everyone. I firmly believe that Polymet will be a leader in the new area of mining in Northeast Minnesota and will convince others that it can be done in an environmentally sound manner. I feel that they will constantly exercise concerns to be as up to date with environmental issues as possible.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Mitchell **Submission ID:** 1140	
504	Include complete post-closure, reclamation, and financial assurance info for worst case.	PD3,PD4
545	Complete independent hydrological models with statistically significant data & verification.	WR1E
Sender Last Name:	Mizrachi **Submission ID:** 1169	
1284	Like many Minnesotans I am very concerned about the long term environmental consequences of non-ferrous mining. Until it can be proved to not be destructive to our lakes, rivers and streams I am against mining in our wetlands. Minnesota is not the right choice for a site for mining of this kind.	G7B,G7C
Sender Last Name:	Moates **Submission ID:** 2883	
2763	The mine would likely significantly raise methyl-mercury levels in the Partridge and Embarrass Rivers, due to leaching of sulfates which increase mercury methylation. Raising the levels of methyl-mercury in the Partridge River and the downstream St. Louis River, which are already impaired by the unsafe levels of mercury, is contrary to Minnesota State Law. Yet the DEIS does not adequately address this impact, even though Tribal Agencies have raised serious concerns about it. The impact of sulfate pollution on wild rice is similarly inadequately addressed, even though there is a Minnesota law governing wild rice water quality. The DEIS also fails to adequately address environmental justice impacts related to increased mercury and the loss of wild rice. The Fond du Lac Band of Lake Superior Chippewa live down stream, have treaty rights in this area, and have lower per capita and median incomes than the rest of Minnesota. Consequently, the DEIS should include analysis of environmental justice impacts to Fond du Lac tribal members such as loss of subsistence, loss of income, and loss of traditional cultural property from decreased water quality, toxic fish, and destroyed wild rice. Many non-native residents also rely on fish, wild-rice, and game to supplement their subsistence and/or incomes. The DEIS should also include analysis of environmental justice impacts on non-native rural residents of St. Louis County, particularly those who may need to subsist on fishing and gathering.	WR4B,WR4F,WR5C,G3,F
Sender Last Name:	Mockovak **Submission ID:** 3132	
30	If this is all about jobs, we need to consider the jobs that will be lost in the tourism industry if our pristine waters that draw visitors from around the nation and from other countries become polluted. In Northeastern Minnesota, tourism brings in $1.6 billion per year, $250 million in local and state taxes, and 35,500 full-time equivalent jobs. How can we even consider putting all this at risk?	SE4
3501	I am very concerned about the request by PolyMet to construct and operate an open pit mine to extract metals from sulfide ores. The process they wlll be using is known to create water pollution, which can affect the viability of our strong tourist industry in Northern Minnesota -- both inland and on the North Shore -- as well as threatening the safety of the ground water for residents of the area. The effects of this type of pollution can require treatment of waters for thousands of years. Why are we even considering giving apermit to such an operation, which puts our beautiful lakes and forests at risk?	G7A,G11
3502	How shortsighted are we? Do we not consider the generations to come after us? Let us focus on creating green jobs to help our economy -- not jobs whose end result will be pollution of our beautiful land and waters and harm to our vital tourism industry.	G1,G7,G11
Sender Last Name:	Moe **Submission ID:** 263	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
276	As a resident of Hibbing, Minnesota, I am writing to express my support for the Polymet Mining Corporation project. I am a proud member of my community. I have built my career here and I am in the process of raising a family in this area that has been hit so hard economically in the past 18 months. I would be remiss if I did not reach out at this time to make known the importance of this project to our local region. As a part of a community that has survived the rise and fall of the steel industry many times, I strive to support my local community whenever possible. With that in mind, I have invested my own dollars in the Polymet Mining Corporation, and have encouraged my family, friends and neighbors to do the same. It is my understanding that Polymet will produce the copper, nickel, platinum, gold and cobalt in an environmentally sound manner and generate significant economic activity in this depressed part of Minnesota. In addition, it will provide millions of dollars in local and state taxes that will, in tum, give a boost to our communities and educational systems. It is my request that you make every effort to see the Polymet Mining Corporation project through to completion.	EOO
2012	If the worst happens. The DEIS does not adequately address the scenario of what steps or measures will be employed if the "worst case" happens, such as the "waste" or rubbish piles were not adequately "sealed" and result in sulphuric acid polluting the ground water, lakes and streams? The projected life of the mine is 20 years of operation and then left to nature to cope with. Much of the effects of 20 years operation will not be evidenced for 50 to 100 years afterward and then who is responsible for the cleanup? Our thinking is that without strict supervision of the Polymet Mining Operation, it will never be "cleaned up" adequately in 20 years and you must think 100 years ahead!	PD3

Sender Last Name: Moehlenbrock **Submission ID:** 3591

1983	The last problem I would like to address involves polluted groundwater upwelling from the tailings basin during the time period when the mine is in operation. The following is a quote from page 4.1-129. "The groundwater seepage rate from the Tailings Basin during mine operations would greatly exceed the groundwater flux capacity of the aquifer, which would result in significant upwelling of groundwater with elevated sulfate concentrations. This upwelling would inundate portions of the wetlands found north of the Tailings Basin, introduce relatively high sulfate concentrations to the wetlands and downstream lakes on the Embarrass River that represent high risk situations for mercury methylation, and could affect sulfate concentrations in downstream waters ... " The Embarrass River watershed already has elevated mercury levels in its fish. Further methylation of mercury within the river system could render the fish very dangerous to eat. Considering that the area is currently experiencing a boom in development due to the recreational potential of the lakes within this watershed, word of increased contamination could slow down development and the local economy. The tailings basin alternative plan seems to improve upon the proposed action, but still has some inadequacies. Specifically, page 4.1-148 which states, "If determined to be necessary based on actual seepage water quality, the treatment plant would be required. " The quote from page 4.1-129 already stated that the leakage from the tailings basin would have elevated sulfate levels. This water would definitely require water treatment unless 100% of the leakage is recycled as make up water at the plant site. Whether the water is discharged into the Embarrass River or the Partridge River should have no bearing on what level of contamination is acceptable.	FM1
3301	The first problem I would like to mention refers to water leaching from permanent waste rock stockpiles after mine closure: On page 4.1-56, it states that, "PolyMet would continue to collect and treat leachate from the permanent waste rock stockpiles at the WWTF [waste water treatment facility] until monitoring shows that treatment is no longer necessary to meet water quality standards." That sounds acceptable at first glance, but what worries me is the table on page 4.1-80 (Table 4.1-45) that clearly states that water quality standards of the stock pile leachate will not be met for 2000 years. The idea that Polymet would operate a waste water treatment facility for 2000 years is absurd.	EOO,WR3I
3302	Pages 4.1-111 & 112 discuss another part of Polymet's plan for long term water treatment. " ... constructed wetlands would indefinitely provide the primary treatment of waste rock stockpile leachate." However, as you read on, pages 4.1-112 & 113 state that because of the way wetlands have been used for water treatment in the past and the variability in success that has been experienced … "Constructed wetlands petiormance, however, is not sufficiently reliable to function as the primary treatment measure for assuring consistent year-round compliance with water quality standards. "	WR3L

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3303	To summarize my first point, according to the EIS, the mine's plan for long term, post closure water treatment is not expected to work, meaning that to comply with their statement on page 4.1-56 and consistently meet standards, by Polymet's own calculations, they would have to operate the waste water treatment facility for a period of at least 2000 years. This is not a tenable long term solution. How can a project be approved when the EIS clearly states that discharges will exceed standards, and that the proposed mitigation measures will probably not work?	EOO
3304	My next concern is in regard to acid rock drainage. The mine's plan to neutralize acid rock drainage is to treat it with limestone, but on page 4.1-66, it states that, " ... successful application of this measure has not been demonstrated." I do not believe it is prudent to use an unproven technique when the consequences of acid rock drainage have proven to be very serious in other parts of the country and around the world. Doesn't Polymet have to provide some proof, or at least some strong evidence founded on empirical research that this method will work before the project is approved? The mine site alternative described on pages 4.1-134 & 135 does not appear to solve this problem. "PolyMet proposes to add limestone to the temporary stockpiles (Category 2 and 3 waste rock, Category 3 lean ore, and Category 4 waste rock) using multiple dosing stages and several mixing methods to neutralize acid formation until the rock can be backfilled into the East Pit beginning in Year 12. A key assumption is that the addition of limestone would be effective in maintaining a relatively high pH of 8 in order to limit metal solubility. This can be done, but close monitoring of the pH and water quality of collected leachate from these stockpiles is recommended to ensure the effectiveness of the lime treatment." It is clear that Polymet has not done enough research to be able to predict the result of this technique. If they can research the exact size, shape, and depth of the ore body, know the exact amount of the target minerals they expect to acquire, know the amount of waste rock and overburden, and know the chemical composition of the ores and surrounding minerals, then why can't they be expected to do the necessary research to provide us with adequate empirical data to prove that their contamination mitigation measures will work?	WR1E
3305	The last problem I would like to address involves polluted groundwater upwelling from the tailings basin during the time period when the mine is in operation. The following is a quote from page 4.1-129. "The groundwater seepage rate from the Tailings Basin during mine operations would greatly exceed the groundwater flux capacity of the aquifer, which would result in significant upwelling of groundwater with elevated sulfate concentrations. This upwelling would inundate portions of the wetlands found north of the Tailings Basin, introduce relatively high sulfate concentrations to the wetlands and downstream lakes on the Embarrass River that represent high risk situations for mercury methylation, and could affect sulfate concentrations in downstream waters ... " The Embarrass River watershed already has elevated mercury levels in its fish. Further methylation of mercury within the river system could render the fish very dangerous to eat. Considering that the area is currently experiencing a boom in development due to the recreational potential of the lakes within this watershed, word of increased contamination could slow down development and the local economy. The tailings basin alternative plan seems to improve upon the proposed action, but still has some inadequacies. Specifically, page 4.1-148 which states, "If determined to be necessary based on actual seepage water quality, the treatment plant would be required. " The quote from page 4.1-129 already stated that the leakage from the tailings basin would have elevated sulfate levels. This water would definitely require water treatment unless 100% of the leakage is recycled as make up water at the plant site. Whether the water is discharged into the Embarrass River or the Partridge River should have no bearing on what level of contamination is acceptable.	EOO,WR2D,WR3A,G1,G7

Sender Last Name: Moisio **Submission ID:** 1060

1165	I am writing to you to express my views on the proposed Potymet Mine. After attending two informational meetings of the proposed mine I give my full support to proceed with the construction of this project. Upon full review of the fact' and figures I believe this pompany h'as gone far and well beyond the requireme.nts of state, federal and regulatory guidelines. The benefits of this business would not only bring In much needed jobs to our community but would be a driver in the fact that projects of this nature can be done while achieving environmdntal compliance. I would not approve, of a business coming into our state or community just for the sake of employment while disregarding the possibilities of environmental destruction. Read the facts, get answers, ask questions and by all means don't just believe what rumors you hear to say this business is good or bad.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Monroe **Submission ID:** 2342	
2811	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. As a Minnesota citizen who frequents the area that is under consideration for mining, I have very serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources. I have encouraged many out of state visitors to join me in the Ely area to enjoy the bounty the Boundary Waters Canoe Area affords.	G2,G11
Sender Last Name:	Moogk **Submission ID:** 3135	
3505	For 43 years I have been canoeing in Boundary Waters/Quetico and now my son is as well. Our world of pristine areas are dwindling with big business on a daily basis. It pains me to think the waters will be extremely tainted. This is not an "if". This is the real deal. I remember seeing the bottom of lakes, dipping our cups in the water when thirsty smelling fumes from a small outboard which was 2 hours away. Ahhhh....the old days, well time has taken a small toll but in your heart you know this could be devastating to the area.Will the world really be a better place if this mine opens? I think not.Please step back and demand a LEAST a much more thorough scientific along term data report other than the one the mining company is offering. We will be trading money in someone's already deep pockets for one of the most beautiful places on this planet. Please don't let this happen. Our souls need places like this.	EOO,G7A
Sender Last Name:	Moon **Submission ID:** 2870	
3217	I love the Boundary Waters. It is a big part of my family and our tradition. It is hard for me to think about people destroying my family's tradition just for copper and nickel. The Boundary Waters are not just a big part of my family tradition, they are a huge part in many people's lives. This mining process will hurt the environment of the Boundary Waters hugely. Sulfates in the water impact our health and aquatic vegetation. Sulfates and elemental mercury react to each other in a process called Mercury methylation. Methylmercury is the form that bio-accumulates in fish in which humans eat. I will never understand why people would want to harm this great natural boundary. It is a hard concept for me to comprehend. There are a million reasons why this mining process is bad. I only named a couple. Please think about what you are about to do and think about how it could affect so many animals' and people's lives. Think about the right thing to do and how you would feel if you lost something close to you. Just think about it.	G2C,G7A
Sender Last Name:	Moore **Submission ID:** 2572	
2209	I am writing my comments on the PolyMet draft EIS out of concern for the Lake Superior watershed, in particular the St. Louis River and it's watershed. I will focus primarily on the threat of increased fish tissue mercury. Methyl mercury is presently the greatest threat to this water body. (The St. Louis River has been listed as impaired for mercury because of fish tissue consumption advisories.) Methyl mercury is the greatest threat from the PolyMet proposal. I believe all land and fish should be protected from this contamination. As a land owner in northern Minnesota I am personally affected by the threat of short and long term effects of increased mercury. As stewards of the land we have been given as citizens of Minnesota I consider it my responsibility to oppose projects and activities which contribute to environmental pollution. I also believe strongly that any damage to water and soil as a consequence of industrial action needs to be legally linked to financial responsibility by the polluting company. I am a member of the Sierra Club and the Nature Conservancy. I am pediatric nurse who works with children with cancer. Environmental decisions impact health on many levels. An increasingly toxic environment puts all of us at risk for significant health problems, including cancer.	WR4B,WR4C,FM1,AQ6A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Morgan **Submission ID:** 1542	
1883	I am writing to let you know that I think the PolyMet will severely jeopardize the one of kind natural heritage of Minnesota's North Woods. This ecosystem is one of a kind. Although I am not currently a Minnesota citizen I used to be and I have spent much time canoeing on the lakes and rivers in the area and know that these ecosystems are worth protecting. Every other state that has allowed these types of mining projects have banned them as they are so destructive to the health of the environment as well as the health of the people that live down stream. It is unrealistic to think that the mining company will be able to maintain a high standard of water quality and preserve the human and ecological health that will be exposed to this highly toxic form of pollution. Allowing this mine would be a poor choice if one values the health of the state and the people that live therein.	G2C,G3B,G7B
Sender Last Name:	Moriarity **Submission ID:** 2326	
2784	I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources. Simply put, NO mine like this has EVER been safe for the environment; every one has eventually leaked toxic chemicals into the environment with horrific and long-lasting effects. The BWCA and surrounding are not just pristine, but UNIQUE in the world. Their despoilation would be tragic, irretrievable, and criminal. In the 70s, through YMCA Camp Menogyn, based on West Bearskin Lake, I guided many teens through that priceless land. These young guys and girls had life changing experiences there, as did I. To even risk that this incredible area be poisoned for future generations is unthinkable. This project must NOT be approved. All issues should be completely aired in public, with public involvement, and then resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers.	EOO,G2,G10,G11
Sender Last Name:	Morris **Submission ID:** 197	
194	To Whom it May Concern, I live in Aurora - was raised in Aurora and have seen Aurora in good and bad times. PolyMet would be a Godsend for residents of the area. Please don't let us down. WE NEED THESE JOBS. I feel that there is a responsible way of mining for these precious metals and WE NEED THESE JOBS.	EOO
2361	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Although I did not personally write the bulk of this letter, please do not consider it to be a superficial contribution to an effort to which I hold no personal connection. The BWCAW watershed is of unique cultural significance to Minnesotans, representing the epitome of preserved, appreciated, and thereby invaluably moving wilderness.	G3,G8
2474	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. Will it really be worth the money to take the chance of environmental damage? Once our wetlands, rivers, lakes and land are spoiled there is no 'getting it back'. The PolyMet DEIS describes serious environmental issues associated with this proposed mine. These issues should be addressed and resolved before this mine is approved by the U.S. Army Corps of Engineers and the Minnesota Department of Natural Resources.	G6,G7
3475	I live on Wilson Lake with the Bountry Waters almost in our back yard. We moved here from Chicago a year ago to get away from pollution and be in such a wonderful, clean state. It is so sad to think that you would put in this mine, that in the end would pollute the pristine waters of Minnesota. Please do not put in mine.	EOO,G7
Sender Last Name:	Morrow **Submission ID:** 2085	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2493	Lets follow Wisconsin's lead in banning this type of harmful mining.	G14

Sender Last Name: Morse **Submission ID:** 334

39	As you are aware, November 2nd marked the start of the scheduled 90 day public comment period for the DEIS. We do not believe that the length of the comment period is adequate to meet the need for a credible and accessible public review process. We request that the time period for submitting comments be extended to 180 days. We are aware that a minimum comment period of 120 days was requested in a letter sent October 7, 2009 to Ms. Cameron and copied to Mr. Arkley. The letter was signed by ten MEP member organizations. In August, the U.S. Environmental Protection Agency also recommended a minimum 120 day comment period for a project of this scope. The current comment period was subsequently scheduled for 90 days that span the Thanksgiving, Christmas, Hanukah and New Year's holidays. This DEIS was years in development and totals three volumes of material. It is unreasonable to expect citizens and concerned stakeholders to be able to fully review, analyze and prepare adequate comments in this relatively brief 90 day period. An extension to 180 days is necessary to provide time for adequate review and preparation of comments.	PRO6
40	This need is compounded by several developments that have come to our attention in the past week. The DNR's advertised electronic site for receiving e-mailed public conmlents went down last week and to our knowledge is still not functioning	PRO6
41	Additional paper copies of the DEIS that had been requested for placement at regional libraries in greater Minnesota have not yet been distributed.	PRO6
354	The PolyMet proposal is the first of haifa dozen non-ferrous mining proposals being discussed for the Duluth Complex and possibly other locations in the state. Polymet's is the first project of this type in Minnesota and the public comment period is the first real opportunity residents have to learn about the impacts and weigh in with state agencies. Decisions made now will have serious and far reaching impacts for special places treasured by all Minnesotans, including the Boundary Waters Canoe Area Wilderness, Superior National Forest, and Lake Superior. Public involvement is critical to this process. This is especially true given the history of serious pollution this type of mining has created in other states, including damage to water resources and taxpayer liability for expensive clean-ups.	G4A,G7

Sender Last Name: Moses **Submission ID:** 2851

3143	The plan appears to be poor, as it does not even include any monitoring those who would engage in this activity. Neither is there a plan for reclamation. There was no field sampling. There is wildlife that would be disrupted ,right along the place where this mine would be.	PD3
3207	I am writing in opposition to allowing Polymet to mine copper in Duluth gabbro complex. Environmental concerns run high when it comes to sulfide ore minerals as they have caused massive damage to streams and lakes around the world when acid leaches from ore and waste piles into the ground and surface waters. I can’t believe we are really considering opening our beautiful Minnesota up to such a harmful activity.	EOO,G7A

Sender Last Name: Moses and Haller **Submission ID:** 3669

1	We are sympathetic with the economic needs in the area - we know the financial struggles of area school districts as enrollment declines when fanlilies don't have work. However, the AITowhead region of this state is a treasure of precious natural resources and beauty that must be preserved and that will continue to benefit the area economically, if it is not forever damaged by the NorthMet and other sulfide mining projects. NorthMet Project threatens the ecosystem of the area and may well put the people of Minnesota in a financial bind for unending cleanup costs that could never truly restore the land and water. The project and others in the works would favor twenty years of extraction of copper, nickel and other minerals over the protection of our precious and irreplaceable natural environment. As taxpayers we object strongly. The DEIS itself raises grave concerns with no apparent answers and is otherwise inadequate in the following specific areas.	EOO,G2,G8

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2	Sulfide ore will interact with air or moisture to produce sulfuric acid. Any leakage of such acid into the surface water, groundwater or air will damage the environment.	WR1E,AQ4
3	Water from waste rock piles will be polluted for two thousand years. It is incomprehensible that either the mining company or the state realistically will maintain treatment facilities that far into the future. Who would pay the cost? Even if the mining company were required to put up substantial financing in advance, it would not be sufficient to cover centuries' worth of restoration that almost celiainly would not be successful.	WR3I,PD2,PD4
4	The DEIS indicates that the West Pit will begin to discharge polluted water in 65 years. Adequate protection against leakage or overflow must be required. Although the DEIS indicates that overflow could be mitigated, it is unclear how - once the contaminated substance is flowing through wetlands, streams, rivers and lakes - in this case into Lake Superior?	WR3C
5	Further, per the DEIS summary, "relatively high sulfate concentrations in seepage from the Tailings Basin would be released to wetlands north of the Tailings Basin and lakes downstream ... that represent high risk situations for mercury methylation." The mercury level in fish in the lakes and rivers in the area is already a health concern and yet this proposal would almost certainly increase the health and safety risks posed by mercury concentrations. The EIS should include detailed and cumulative impacts of potential mercury increases in fish as related to the NorthMet project and other nearby pollution sources, including mercury methylation as well as discharge and emissions.	WR5A,WR5C,FM1,FM3
6	The DEIS acknowledges a potential for the proposed tailings hasin to fail due to fines and underlying soils in the existing L TVSMC Tailings Basin. Poly Met has not adequately addressed the safety issues -leaving the problem to further design and analysis during the permitting process. This is totally inadequate and should not be allowed. Proven solutions must be proposed in advance. Minimally, PolyMet should be required to resolve tailings basin geotechnical stability and seepage issues identified by the Tribes and the U.S. Environmental Protection Agency.	GT2
7	The proposal to construct a wetland to treat contaminated waters is inadequate in that effectiveness of such a system has not been proven and cannot be relied on, as it likely would result in pollution of rivers and lakes downstream.	WE6
8	In general, the proposed solutions to handle toxic contaminants have not been tested or proven to protect water quality, human health and wildlife. Considering the extreme risks, PolyMet's projections are inadequate both in the protection of water quality initially and in the proposed remediation. Once sulfuric acid is released, the damage is done.	EOO,WR1E,WI5
9	The NorthMet project would directly or indirectly affect over 1,500 acres of wetlands, including peatlands. Over 1,000 acres of peatlands would be destroyed. Because peatlands effectively sequester carbon, the DEIS correctly acknowledges that the project would result in additional greenhouse gas emissions in the Arrowhead. In fact, the emissions would result in a two percent increase in the state's overall carbon dioxide emissions. This is unacceptable.	AQ3
10	Peatlands develop over thousands of years and are known to be a highly effective and natural way of containing dangerous carbon. Their destruction cannot be undone. Peatlands have repeatedly been identified as extremely valuable in federal and state inventories and other reports commissioned by the legislature and governor call for the protection of peatlands because they securely contain carbon. Peatlands should be protected, not destroyed for short term gain.	WE2
11	Given the grave risks to the environment, the water quality monitoring, treatment and remediation that may be needed for centuries, PolyMet should be required to provide financial assurances in the EIS before any permitting process gets underway (This is the U.S. EPA position). Sulfide mining pollution in other states where mining companies closed or became bankrupt is a nightmare of cleanup costs that are borne by the taxpayer. It should be a cost of doing business for PolyMet and should be a standard set now for the other mining projects that will be proposed in the Arrowhead. Otherwise, we the taxpayers are left with the bill.	PD4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
12	The EIS should include cumulative air and water quality effects on lakes and rivers from all sources, including other mines and mine proposals in the works. This EIS may set the standard for all water quality impacts analysis. Good cumulative impacts analysis is critical to protect water quality in the entire area and it is irresponsible to view this project in isolation.	WR5A,AQ4B
13	Similarly, the EIS should include future development of sulfide-mining by companies that are already doing exploratory drilling in the analysis of cumulative effects. This is the Tribal position and we agree.	G9
14	There has been inadequate analysis of socioeconomic effects of the project. Specifically, the economic impacts should take the longer view, keeping in mind that the mine will last only twenty years. The analysis should include the effects of the mine's closure when job loss inevitably will occur, as it has repeatedly in historic mining cycles on the Iron 3	SE3
15	All the concerns raised by the Enviromnental Protection Agency and the Bois Forte and Fond du Lac Tribes must be fully addressed.	G15

Sender Last Name: Muelken **Submission ID:** 238

248	Give Polymet their Permit. We can go on and on letting people make rules on the fly. They have met the requirements existing on the books. The government agencies have done their job and know way more then "Joe Public" knows about the project. They have followed "due process" and deserve to be given their permits.	G6

Sender Last Name: Mueller **Submission ID:** 3490

1120	loss of 1,454 acres of federally designated critical habitat for two endangered species known to be in the vicinity of the mine site – the Canada lynx and the gray wolf. Finally, cumulative impacts must address the loss of revenue to the Boundary Waters Canoe Area	WI1
1325	basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project. Further, the PolyMet NorthMet project will result in total	GT2
3239	In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine’s closure, as well as tailing’s basin discharges high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes. Wisconsin has already banned sulfide mining due to the unacceptable environmental risk it presents. It is also my understanding that PolyMet proposes to use an existing mine tailings	EOO,WR4B,FM1
3689	Water quality impacts remains a top concern. How is it acceptable to allow for up to 2,000 years of environmental impact for the short term gain of one company? Who will pay for the long term treatment required? PolyMet has few assets and little financial history. The DEIS fails to address where the funding will come from to pay for post-closure treatment, monitoring and maintenance. As a result, it seems likely that Minnesota taxpayers may have to pay millions of dollars to clean up after PolyMet has gone.	PD2,PD4
3764	Wilderness and Superior National Forest tourist industry as part of a sulfide mining district. While I fully understand the economic necessity of mining, and need for natural resources in our society, we need to be responsible in our decisions. Certain types of mines should simply not be permitted in certain places where the risk to the environment is too great. This appears to be the case for sulfide mining in northern Minnesota. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of	G2

Sender Last Name: multiple **Submission ID:** 260

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
273	We are writing, as Iron Range business owners, to support PolyMet's mining and production efforts. The lengthily environmental review process that PolyMet has gone through, with both the Federal and State regulatory agencies has not only been thorough but offers the potential environmental impact and how to mitigate it. PolyMet has proved that they will mine and produce copper, nickel, platinum, palladium, gold and cobalt in an enVironmentally sound way. Income generation to the potential 400 employees plus hundreds of spinoff jobs will not only lift up the depressed state of the Iron Range but it will provide millions of dollars in local and state taxes. All the affected areas need this type of financial boost in order to support the communities and educations systems. It is very clear that the people of PolyMet are Minnesotans committed to living, playing and protecting our state's environment. We cannot ask for a better business model in our state, at this time, at this place and in our state's future.	EOO
Sender Last Name:	Munger **Submission ID:** 3246	
3143	The PolyMet Sulfide mining proposal will, without any reasonable doubt, have a serious impact upon our environment that will destroy many acres of our Northern Minnesota Wetlands. At the same time there is no proven way possible to guarantee that significant impact will not be made on water quality in Northern Minnesota rivers and streams. There is, as a result, a reasonably strong chance that underground water supplies and the lowering of the water quality of water sheds that feed Lake Superior could very well effect this, the worlds largest fresh water lake, as well.	EOO,WR3B
3595	it is my belief that the DNR should deny this permit unless the permitting process spells out an iron clad guarantee that minimizes the damage that will be made to the environment and guarantees that unforeseen clean-up costs will be paid by the industry and responsible parties.	PD2,PD4
Sender Last Name:	Murphy **Submission ID:** 3705	
1	Furthermore, in the DEIS, there is no reliable groundwater model for groundwater drawdown impacts associated with the mine pit dewatering. The estimates of groundwater drawdown are currently based on anecdotal observations and analysis of historical aerial photography.105 Aerial photos are a very imprecise measure of surface water level. As such, some changes in groundwater hydrology cannot be detected by aerial photography. The historical aerial photographs used to demonstrate that there would be no impacts as a result of drawdown show that the nearby Peter Mitchell Mine Pits are mostly flooded.106 Therefore, at the moment, there is little or no stress on surrounding wetlands at this time, but the company's plans demonstrate that there will be profound changes to the relevant conditions. The wetland soil conductivity values that were used to determine flow rates in the surficial aquifer are extremely low, and the supporting source citation in professional literature has not been provided.107 Additionally, the topographic relationship of the landscape features, including the depth of the Peter Mitchell Pits, which are only about 80 feet deep, and the proposed PolyMet Pits, which are approximately 800 feet deep, are very different and therefore head pressure resulting in groundwater drawdown into the pits would be expected to be substantially greater in the PolyMet Pits. With no quantitative assessment of the mine-related drawdown of the regional water table, there has been no mechanism to develop an adequate indirect impact assessment for wetlands. Based on the vegetation data collected from wetland delineations it appears that groundwater supported wetlands are common in the Project area.108 The workplan to identify indirect wetland impacts has not been finalized by the US ACE Wetlands Workgroup and consequently the results of those investigations were not included in the DEIS to allow a full public review. Unquestionably, the DEIS must be supplemented with this information.	WE1,WE2
158	I feel the DEIS for the Polymet project is very accurate and detailed. After reading the DEIS I am 100% for the project and I'm confident that Polymet will take care of our area while mining. This is 2009, not 1899. We have the technology to mine in an environmentally safe manner. I spend a lot of times in our forests hunting and hiking, fishing the rivers and lakes. If I had any doubt the mining couldn't be done in an environmentally safe manner I would be opposed to the project. Most everyone I talk to on the East Range is for this project, we want this mine to happen. Please don't let some out of area extremists ruin it for us. Thank you,	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3861	I am sending you this e-mail in support of the Polymet Mining Project in Northeastern MN. I have several reasons for supporting this project. First: economic impacts. - This project will contribute to a depressed economy, local, state, and national. - The materials from this project will not only create employment directly and indirectly to the economy, but also the materials needed for today's technology. Renewable energy, electric vehicles, computers, medical and the list can go on. - The careers that could then be available to our younger work force can be in the new technology of this project, in the environmental areas, with the vendors, etc. - These jobs will be supplying the metals needed for today's technology. Second: domestic advantages. - These metals will be domestic source needed and used by all in this country. - For this state and country to keep up with the advancing technologies of other countries, we need these metals. Third: environmental concerns. - The environmental requirements of Minnesota are strict. If we were to get these metals from a foreign source, I would question those environmental guidelines. - This project is going to use an existing site and facility. Lesser disturbance to the environment. - We do need these metals today. Mining and processing here versus in another country, transportation becomes both environmental and cost issues. - The Polymet Draft EIS and those involved with it, shows the issues and concerns of this project have been addressed and will be met.	EOO
Sender Last Name:	Musich **Submission ID:** 3521	
3787	I grew up under the "beauty" of glorious "dumps" of the Hull rust open pit mine. This latest scheme from the mining companies is incredibly dangerous and untested. Only the pockets of a very few will be lined with the benefits. Better to put the energy into rare mineral recovery. Better to pay directly people who need jobs. The natural state of the land has more to offer for both employment and to our health then mining. To move forward with the mining will only bring regret.	EOO
Sender Last Name:	Muzzi **Submission ID:** 1815	
2407	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. As a lifelong Minnesotan and lover of the BWCAW, I would hate to see these ecosystems damaged. I spend my summers guiding trips comprised of young adults from all over the country. All leave awed by the beauty of northern Minnesota, and with a respect for natural places and a desire to protect and preserve them. Please do not allow this permit; it would jeopardize a place that hold both sentimental value for me, economic value for the regions it serves, and educational value for children (and adults) from all over the world.	G3,G11
Sender Last Name:	Myers **Submission ID:** 3670	
1	LWVMN believes that it is important to protect the citizens' right to know what the government is doing and to facilitate the participation of citizens in government decision-making. While an extension would have been useful, we are pleased that the public had at least the 90 days.	G10
2	LWVMN has major concerns about this project because its environmental impact, as revealed in the DEIS, will be felt for many generations, long after the minerals have been removed and the mining company has left the area. We believe that natural resources should be managed as interrelated parts of life-supporting ecosystems; pollution of these resources should be controlled to preserve the physical, chemical and biological integrity of ecosystems and to protect public health. The DEIS documents the long-term pollution of the waters surrounding the mining site and flowing throughout the watershed, the destruction of over a thousand acres of wetlands and the loss of habitat for wildlife, including fish and birds.	EOO
3	Waste rock disposal plans under both the Proposed Action and the Mine Site Alternative raise water pollution concerns. Storage of reactive waste rock permanently above ground has an acknowledged potential to generate Acid Mine Drainage (AMD) and to leach metal contaminants. We will mention a few specific issues of concern.	WR1E

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
4	The Proposed Action would permanently leave on the surface all of the Category 3 and 4 waste rock, with sulfur contents between 0.3 and 0.6%. The DEIS indicates that Category 3 is medium reactive waste rock that may generate AMD; it is predicted to leach heavy metals resulting in drainage with heavy metal concentrations in excess of water quality compliance levels. Category 4 waste rock is labeled highly reactive; it would generate AMD and leach heavy metals resulting in drainage with heavy metal concentrations in excess of anticipated water quality compliance levels. In fact, storing reactive waste rock permanently above ground presents acknowledged and unacceptable pollution risks for unacceptable durations. In one DEIS model, Category 1 and 2 waste rock are predicted to exceed groundwater evaluation criteria for antimony, arsenic and sulfate for 100 to 2,000 years. The Category 3 waste rock stockpile is predicted to exceed groundwater criteria for antimony, manganese, nickel, and sulfate from 50 to 2,000 years. Contamination exceeding groundwater criteria from the Category 4 waste rock stockpile is predicted for antimony lasting 90 to 250 years. Antimony, arsenic and sulfate are predicted in another model to exceed groundwater evaluation criteria for 100 to 2,000 years, according to the DEIS.	WR2C
5	The Mine Site Alternative is an improvement and should be adopted, placing, as it does, Category 2, 3 and 4 waste rock into the East Pit for subaqueous disposal. However, modeling in the DEIS shows significant ground water pollution risks even from this alternative action. Among other things, an on-going monitoring plan should be included in the EIS, designed to check for the generation of Acid Mine Drainage within the mine pits and its seepage into surrounding areas.	WR1B,PD10
5	Another water pollution issue is the predicted natural flooding of the West Pit with groundwater and precipitation, leading eventually to the overflow of the pit into the Partridge River in about 65 years. The DEIS indicates that water quality standards for mercury could be exceeded in the long-term discharge from the West Pit. In fact, the predicted pollution from the overflow of the West Pit violates the Clean Water Act. The EIS must present alternative designs and methods to prevent contamination that exceeds water quality standards. Since neither primary method of water treatment is expected to be effective at removing mercury, the EIS must present an alternative method that is.	WR3I,CR1
6	The problems which flow from water contaminated with sulfate and heavy metal are too numerous to list here. To note just a few: Sulfate turns mercury into “mentholated” mercury which can bioaccumulate in fish, endangering humans, birds and wildlife by making the fish unsafe to eat. Since this project is in the St. Louis River watershed and will affect both water quantity and quality, there is the potential to negatively impact the valuable wild rice areas along that river. There are direct and indirect wetland impacts which have not been mentioned, including the potential connectivity between groundwater and wetlands.	WR1E,WR3N,WR5A
6	The failure of the DEIS to provide information about the amount of financial assurance that will be required for the project is the last concern we will include. In order to assess the potential effectiveness of reclamation and closure activities, the public must have this information. As you know, the EPA recommends including financial assurance information in EISs because a major factor in determining the environmental impact of a mine is the effectiveness of reclamation and closure activities. Since the public is ultimately responsible, should the mine operators declare bankruptcy, the public has a right to have this information long before the permitting process begins.	PD2,PD8
7	I live in the twin cities and care deeply about northern Minnesota, the wildlife and wild habitats. My use of the arrowhead region of Minnesota consists of hiking, camping, birding, and other wildlife watching, weighing in on Forest Service timber projects and other impacts to our public land forests. I believe that the Boundary Waters Canoe Area Wilderness (BWCA) and the Superior National Forest (SNF) are valuable natural heritage assets for the State of Minnesota – what is above the ground is far more valuable than what is buried beneath.	G11
7	LWVMN believes that the “No Action” alternative should be the selected outcome at this time. Given the risks to our ecosystem and the the DEIS statement that “the amount of financial assurance associated with reclamation actions cannot be estimated until these actions are understood at a deeper level of design detail,” we recommend that the DNR and the Army Corps of Engineers seek the information necessary to understand the PolyMet project at the deepest possible level before going forward.	PD3,PD4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
7	Replacing any of the over 1500 acres of wetlands impacted with this project outside the watershed does not replace the "functions and values" of the wetland resources. This is in direct conflict with the goals of the MN Wetland Conservation Act which has the goal of "no net loss of wetland functions and values".	WE3,WE4
8	a. Inadequate alternatives analysis, and inadequate analysis of the No Action alternative	ALT8
8	b. Inadequate cumulative impacts analysis	CR1
9	c. Inadequate wildlife and wildlife habitat analysis	WI2
9	d. Inadequate human health impact analysis	G8
Sender Last Name:	Nachman **Submission ID:** 1794	
2366	In addition to the note below, I'd like to say that I am not in support of this mining project and I hope that a decision will be made that will prevent any mining to take place that will cause any environmental damage. Thank you. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources	EOO,G2
Sender Last Name:	Nankivell **Submission ID:** 1577	
1947	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. As a Minnesotan, I value the rich natural resources of this state and will not stand idly by while it is threatened. The stakes are too high.	EOO
Sender Last Name:	Natzel **Submission ID:** 3058	
1021	Also wildlife would be at risk from the mining activities discharging poisons.	WI5
Sender Last Name:	Naughton **Submission ID:** 239	
249	Give Polymet their Permit. We can go on and on letting people make rules on the fly. They have met the requirements existing on the books. The government agencies have done their job and know way more then "Joe Public" knows about the project. Polymet has followed "due process" and deserves to be given their permits.	G6
Sender Last Name:	Neff **Submission ID:** 2441	
2934	Please take the time to add supplements to the draft EIS and give people in Minnesota a fair chance to know what impact the PolyMet project would have on our State OTHER THAN THE JOBS IT WILL BRING! Please look farther ahead than our current employment status. Is this a sustainable decision? Take the iron ore mines for example. Each year they struggle to keep their doors open and they've been around for nearly a century. Given the amount of copper in the earth to be mined, will this allow a company like PolyMet to keep a plant open for even a decade? If so, at what costs to surrounding residents including wildlife? The risks sure don't seem to outweigh the benefits in this situation. Remember,"Where conflicting interests must be reconciled, the question shall always be answered from the standpoint of the greatest good of the greatest number in the long run."	EOO,G2C

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Nelson **Submission ID:** 3746	
1	3.) Saturated Overburden would be stored in the Category 1 and 2 waste rock stockpiles. The DEIS describes analysis that indicates this overburden is likely to be high in sulfur content, sometimes equivalent to Category 4 waste rock. There is a risk of it acidifying and releasing metals and sulfate. “There is a concern that placement of this material in the Category 1 and 2 waste rock stockpile could result in acidification and release of various metals and sulfate on a liner system that was not designed for this level of reactivity” (DEIS pg. 4.1-165). Recommendation: The EIS should require that qualifying overburden be placed in the appropriate stockpile for its reactivity. An effective method for characterizing the reactivity of material in the field must be developed and required.	WR2D
1	B. West Pit Flooding and Drainage After Closure 1.) After mining operations cease, the Proposed Action calls for the West Pit to naturally flood with groundwater, precipitation, and surface runoff, eventually leading to overflow into the Partridge River around Year 65 (about 45 years after mine closure). The DEIS indicates that water quality standards for mercury could be exceeded in the long-term discharge from the West Pit, as neither the WWTF nor the East Pit constructed wetlands are “expected to be consistently effective in mercury removal” (DEIS pg. 4.1-123). Antimony from the West Pit drainage is predicted to exceed groundwater criteria for 550 to 2,000 years (DEIS Table 4.1-45). Additional exceedances may occur for nickel and sulfate. The deterministic model used to analyze West Pit overflow water quality predicts arsenic, cobalt and selenium would exceed surface water quality standards. An additional analysis, “uncertainty analysis,” predicts exceedances of surface water quality standards for cobalt, copper and nickel (DEIS pg. 4.1-113, Table 4.1-64). Sulfate concentrations are also predicted to be high. The DEIS notes: “There is the potential that this overflow could result in a short reach (approximately 1,000 feet) of the Upper Partridge River between the confluence with the unnamed tributary and the South Branch Partridge River exceeding some surface water standards. The water quality of the West Pit overflow, however, is not predicted to result in exceedances of surface water standards in the Partridge River at SW-004a (located approximately 1,000 feet downstream from where the West Pit overflow would reach the Partridge River and downstream of the confluence of the South Branch Partridge River)” (DEIS pg. 4.1-113, 114). But the DEIS does not provide flow information for this unnamed water body or explanation of why it is expected to sufficiently dilute contamination. This water body is a protected water of the State of Minnesota, and sacrificing it to potential contamination is not acceptable. The DEIS also fails to explain why contamination in the Upper Partridge River will be limited to 1,000 feet. Recommendation: The predicted pollution from the overflow of the West Pit violates the Clean Water Act. The EIS must present alternative designs and methods to prevent contamination that exceeds water quality standards. Given that neither primary method of water treatment is expected to be effective at removing mercury, the EIS must present an alternative method that is. Additional information must be presented to explain the expected geographic extent of contamination. No water bodies of the State of Minnesota should be sacrificed to pollution.	WR3A
504	This project must have "backup" safeguards in place and must have financial guarantees to fix problems as they occur. Realtime monitoring of water and air quality all around the area as well as in the immediate area must be a part of this project.	AQ5,WR1A,WR3I
728	I'd like to request: 1) a time extension of 30 to 45 days for review of the EIS. 2) more public meetings in more places to gather input. The current schedule is too limited. 3) that public meetings include the option for citizen statements and discussion in the open meeting.	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1160	I humbly request you consider,the following during your public comment review of the proposed NorthMet and other copper nickel mining operation in Minnesota . We must be loyal stewards of our environment while we are juggling the economic needs of our citizens and businesses. We encourage good paying jobs but they must not be at the expense of polluting our air and water. Iron Mining on the Iron Range has for the most part been good for Minnesota and our country, our challenge is to make copper nickel mining also good for Minnesotans. We cannot allow "any more" pollution into Lake Superior or its tributaries. The citizens of this great state are already greatly restricted in consuming fish from our precious lakes and waters. We must be striving to improve environmental conditions, not worsen them. Some of the air born problems are not of our own doings but we must not contribute to them. The citizens of this great state voted to tax themselves so that their dollars could go towards improvement in water quality, Please do not let them down so that these dollars are instead used in cleanup of failed water containment projects associated with copper nickel mining operations. I don't believe anyone intends to pollute our waters but accidents happen and we learn sometimes the hard way when we areexploring new horizons. Historic examples sometimes better illustrate my point such as: The use of agent orange to defoliate the jungle landed up causing our own troops irreparable harm - my own friend is currently suffering. Surely our own military did not intend to harm our own troops but it did. And we must learn from these experiences and not "repeat" them. Copper nickel mining likewise has not had a clean track record to date, so we must learn from these failures and not go down the same path.	EOO,G7
1161	I submit these comments as a land owner within 15 miles of the proposed mine and as a fisherman who enjoys drinking our local water and eating fish from our waters. I also want my grandson and your grandchildren to have these same opportunities.	EOO
2170	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources. It is beyond my comprehension why MN would allow something so environmentally detrimental for generations to come- which the DEIS itself admits- to happen in one of its most pristine areas. And then to further show how anxious we are to accept this payout, we are not requiring Polymet to set up an escrow account to clean up the inevitable destruction. It is my understanding that there has never been one sulfide mine in this country which has not caused environmental damage. And Polyment won't be the only one. Other mining companies have said they are just waiting for PolyMet to get approval and then they will also be coming. Once again, big money is winning because our natural areas can not compete against the enticements of greed. Instead of supporting the existing northern tourism industry, we are willing to endanger that economy for a quick but relatively short cash infusion. Support longterm economic and environmental sustainability or shortterm profits? It appears the decision makers in MN are no different than the Wall Street bankers.	EOO,G4A,G11
2528	I am not in favor of granting mining, processing, and waste storage permits for the proposed Polymet project. At the informational meeting in Blaine, I listened carefully as politicians from northern Minnesota spoke enthusiastically that Polymet had a different business model and would do metal sulfide mining in a cleaner way than is done by others. We were given no more information than that they would attempt better containment of sulfur waste. The politicians' focus was primarily on a desperate hope for 20 years of jobs, an issue that is popular with the northern citizens who traveled far to pack the meeting. They want work that will provide income to allow them to continue to live in and enjoy this beautiful, mostly unspoiled wilderness area. I don't blame them for their enthusiasm. However, the Army Corp of Engineers, the Minnesota Department of Natural Resources and the Pollution Control Agency are charged with the responsibility of either granting or denying permits on the basis ofevidence relating to possible harm to the natural environment. I ask that: the Army Corp carefully evaluate the long term risks to wetlands and waterways. the DNR consider the dangers that are posed to the natural environment from sulfur pollution. To get a clear understanding, DNR officials should visit Sudbury, Canada. the PCA evaluate the contention that Polymet can contain hazardous wastes over the very long term. Any permit that is granted would be contingent on the establishment by Polymet of an escrow fund of money dedicated, over the very long term, to the cleanups that would be needed in the event of an accidental release of toxins.	G4A,G14

Sender Last Name: Nessa **Submission ID:** 1315

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
375	I really worry about the increasing levels of dangerous chemicals in our day to day environment. She, my granddaughter seems to be good health now, but will her children be damaged by the efforts for short term financial gain by Poymet? How about her grandchildren when Polymet is done and gone?	EOO
1534	I wish to express my concern about the proposed PolyMet mine in the Superior National forest. The mining project summary indicates some of the problems and hazards of this kind of mining here in Minnesota. They predict the ground water would "generally meet" groundwater evaluation criteria "not to protect human health". They state that the level of methymercury in the Embarrass River would increase!	G7B
3832	I wish to express my concern about the proposed PolyMet mine in the Superior National forest. The mining project summary indicates some of the problems and hazards of this kind of mining here in Minnesota. They predict the ground water would "generally meet" groundwater evaluation criteria "not to protect human health". They state that the level of methymercury in the Embarrass River would increase! I don't know about your grandchildren if any, but I have a granddaughter living in Hermantown. Her family fishes in the St. Louis river. I really worry about the increasing levels of dangerous chemicals in our day to day environment. She, my granddaughter seems to be good health now, but will her children be damaged by the efforts for short term financial gain by Poymet? How about her grandchildren when Polymet is done and gone?	G5

Sender Last Name: Nett **Submission ID:** 302

316	As a taxpayer and resident of Minnesota I feel strongly in value add manufacturing moving forward in Minnesota. I also feel strongly about environmental stewardship. I believe Polymet meets both of these criteria and I support this project moving forward. Polymet is taking measures to ensure proper closure of the mine after 20 year life as well as making investments for mine closure. Polymet will be using an existing brownfield site which is currently not being used and there are benefits to putting this site to use.	EOO

Sender Last Name: Nevins **Submission ID:** 2475

2991	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources. This project should not even be on the table, it is completely unacceptable, citizens will never allow this to happen! This is a proposal to TRASH the most pristeen watershed in the country, not to mention all the watersheds connected to it. REALITY and ECOLOGY MUST BE CONSIDERED BEFORE DOLLARS!!! Who is going to explain to our children why they cannot swim, or fish, or drink?! If policy makers cannot or will not make the LOGICAL decision, the community will come together to stop this project!	EOO,G2
2992	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues cannot be resolved and so the project MUST NOT be approved by the MINNESOTA DEPARTMENT OF NATURAL RESOURCES (this IS your job!!!!!) and the U.S. Army Corps of Engineers.	EOO,G2

Sender Last Name: Nguyen **Submission ID:** 3504

3774	No mining should be in our state. It gonna hurt our land and be no good with mining. It shouldn't happen at all, throwing away nature, throwing away people love to do outside and enjoy the environment. If there is mining, think about the land is being destroyed for a single little piece of ore, go to a different state and look for that kind of crap. Also our clean water will be ruin if we did have mining in our state. Taking big fields like 500 football fields for mining is a waste of time, and using our tax money on something we don't need and don't need to destroy Minnesota at all. Minnesota is a great place, bringing mining to our state would be a place with bad pollution, bad clean water, and destroying land. Tell the company PolyMet to go some where with their plan some where else, we don't need them and they don't need our land. Our land is precious more than them and their ore.	EOO,G2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Nichols **Submission ID:** 1359	
237	Get better infotmation on existing pollution, the nature of wetlands, endangered species, wild rice stands and other resources that would be affected by the project.	WE1
242	Analyze all of the impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources. Mercury in fish causes brain damage to children and to the fetus.	AQ4B,AQ6A
243	Get better infotmation on existing pollution, the nature of wetlands, endangered species, wild rice stands and other resources that would be affected by the project.	WI2
263	I have been a Minnesota resident all my life and am still amazed that we say we want business in Minnesota but turn and do everything we can to keep business out. We make so many stipulations (roadblocks), tax the heck out of them, or a minority of residents who want their name in the paper, cause enough problems that the Company say "forget if' and moves on to another state or out of the country, to a place that wants them. We need jobs in this area to keep people in the northland. PolyMet will comply with all the governmental regulations. Most mining companies employ environmental engineers passionate with their job, that work to make sure the company is in compliance with what is expected. Let's recycle the old LTV Steel Mine, create jobs here in America, provide millions of dollars in local and state taxes, and use the resources that God placed here for us.	EOO
396	Require the PolyMet Company to show that their waste rock and tailings piles won't collapse and dump uncontrolled pollution into nearby waters and that they will not create water pollution that lasts for hundreds or thousands of years.	GT2
399	Analyze all of the impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources. Mercury in fish causes brain damage to children and to the fetus.	FM1
658	Analyze the land that is going to be exchanged for Superior National Forest land to make this project possible. Make sure that the land swap would protect wetlands, endangered species, hydrology, tribal rights and taxpayers' interests.	PD1
659	As the U.S. EPA suggested, make sure that financial assurances for the public are included in the EIS long before any permitting process gets underway.	PD4
701	Analyze all of the impacts (air and water) of increased mercury in fish from the PolyMet project and other nearby pollution sources. Mercury in fish causes brain damage to children and to the fetus.	WR4B
702	Get better infotmation on existing pollution, the nature of wetlands, endangered species, wild rice stands and other resources that would be affected by the project.	WR1E
1117	NorthMet project will result in total loss of 1,454 acres of federally designated critical habitat for two endangered species known to be in the vicinity of the mine site – the Canada lynx and the gray wolf. Finally, cumulative impacts must address the loss of revenue to the	WI1
1322	existing mine tailings basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project. Further, the PolyMet	GT2
1568	Think of the planet 7 generations from now. Bring these concerns to constituents including our earth. What would she say? Think of your ethical responsibility to the earth, our [illegibe] our people, our game…	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1589	I am writing to you as a citizen of Minnesota concerned about the PolyMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forest. Sulfide mining would be new to Minnesota. In other locations, sulfide mining has resulted in acid mine drainage causing extensive and expensive damage to water quality and the environment. Often, taxpayers have been stuck with the costs. The PolyMet project in Minnesota could degrade water quality, increase mercury in fish, destroy wetlands and peat bogs, fragment the habitat of endangered species, interfere with tribal rights guaranteed by Treaty and with tribal resources, like wild rice, increase air pollution that results in regional haze and create a risk of perpetual pollution without adequate financial assurance that the public won't end up paying the costs. The Indian tribes working on the EIS and the United States Environmental Protection Agency have provided helpful infotmation on the inadequacy of the PolyMet draft EIS. Before this sulfide mining project is even considered for permits, please fill these gaps:	EOO,G2B,G2C,G3A,G4A,G
1590	Please bring this to your biggest constituency- the earth herself. We cannot do these things as projects w/o thinking 7 generations ahead. Its ethically irresponsible.	EOO
3236	In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes. Wisconsin has already banned sulfide mining due to the unacceptable environmental risk it presents. It is also my understanding that PolyMet proposes to use an	EOO,WR4B,FM1
3684	natural resources and public health. Water quality impacts remains a top concern. How is it acceptable to allow for up to 2,000 years of environmental impact for the short term gain of one company? Who will pay for the long term treatment required? PolyMet has few assets and little financial history. The DEIS fails to address where the funding will come from to pay for post-closure treatment, monitoring and maintenance. As a result, it seems likely that Minnesota taxpayers may have to pay millions of dollars to clean up after PolyMet has gone.	PD2,PD4
3758	Boundary Waters Canoe Area Wilderness and Superior National Forest tourist industry as part of a sulfide mining district. While I fully understand the economic necessity of mining, and need for natural resources in our society, we need to be responsible in our decisions. Certain types of mines should simply not be permitted in certain places where the risk to the environment is too great. This appears to be the case for sulfide mining in northern Minnesota. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the	G2

Sender Last Name: Nigon **Submission ID:** 3153

3114	The St. Louis River is a key part of Minnesota's natural resources that needs to be protected	WR3D
3531	really do have a commitment to protect the natural world around us. It will be a disgrace to our state if this project is allowed to go through, and I am hope that the logical, obvious choice to stop this project will be the ultimate outcome.	EOO

Sender Last Name: Niska **Submission ID:** 3444

3216	Life perpetuates and thrives with clean water! To me it seems that with the contentious debate over the issue, that the non-ferrous mining proponents haven't specifically proven it to not have an detrimental effect on the water and surrounding watersheds and, from what I've heard, will not step up to the plate to say that they will absolutely guarantee funding of clean-up if needed, that moving forward would just be allowing an unbounded experiment in our backyard. With my background in science and engineering,	EOO,PD4

Sender Last Name: Niskanen **Submission ID:** 1298

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1502	We are so fortunate to have access to the Boundry waters. Once they are defiled you can never go back. Don't let them be destroyed by a business that has not proven to be trust worthy, I realize jobs are important but not at the cost of our pristine wildlife sanctury.	EOO,G11

Sender Last Name: Nitzsche & Fahey **Submission ID:** 3593

51	SECTION 4.10 SOCIOECONOMICS "Add the following to Section 4.10" NATIONAL SECURITY The minerals proposed to be mined and processed are Copper, Nickel, Cobalt, and the Platinum Group Metals; these minerals are strategic to National Security and a key component to the National Debt and Balance of Trade. The United States imports over 87% of Platinum. Palladium & Gold : imports in excess of 40% if the Cooper requirements: and 100% of Nickel and Cobalt except for the recycled Nickel. Therefore the United States must find suppliers of these valuable minerals within our County or face growing Trade Deficits. The sources for these minerals are from vast deposits in Russia, China, and to a smaller degree Canada. China and Russia can hardly be defined as friendly nations and nations that use the same environmentally responsible mineral development that is represented in this DEIS. In fact we know how careless these Countries are and we also know the carelessness does not stay within the host nation. THE UNITED STATES CONGRESS HAS ADOPTED THE MINING AND MINERAL POLICY ACT OF 1976 THAT REPRESENTS THE POLICY OF THE U S GOVERNMENT REGARDING GUIDENCE OF AGENCIES FOR REVIEW OF PROPOSALS LIKE POLYMET. THE CONGRESS, IN THE ACT OF 1976 STATED - TO "FOSTER. AND ENCOURAGE PRIVATE ENTERPRISE IN THE DEVELOPMENT OF ECONOMICALLY SOUND AND STABLE INDUSTRIES AND IN THE ORDERLY AND ECONOMIC DEVELOPMENT OF DOMESTIC (MINERAL) RESOURCES TO HELP ASSURE SATISFACTION OF INDUSTRIAL, SECURITY, AND ENVIRONMENTAL NEEDS OF THE UNITED STATES OF AMERICA". Congressional direction is clear and applies directly to this Proposal by PolyMet Mining, Inc. for development of Cooper, Nickel, Cobalt, Platinum , Palladium, and Gold. All the minerals are critical to industrial process in the United States and will provide a ready domestic source of product. The United States of America will have a reduced Trade Deficit, & will not be shipping dollars to unfriendly Countries that do not play by the same rules as outlined in The Mining & Mineral Policy Act of 1976 or as detailed in this DEIS. Cobalt is a strategic and critical metal used in many industrial and military applications. The largest use of cobalt is superalloys, which are used to make parts for gas turbine engines. However, Cobalt is used to make magnets; corrosion and wear-resistant alloys; high-speed steels; cemented carbides; steel-belted tires; radial tires; and air bags for the auto industry. Cooper will be used in the electric motors in the Power Plant that provides the energy and electric power that will be transmitted over existing transmission and distributions lines; Minnesota Power will generate electric energy in the power plants that utilize every metal that will be mined the PolyMet's NorthMet Mine. Therefore the impact on Minnesota and the Iron Range is critical.	EOO
52	SECTION 4.10.1 .4 PUBLIC FINANCE We request that certain pages from the Mining Guide, published by the MN Department of Revenue, be added to fully reflect the economic impact". See below TAXES IMPOSED ON Base Metals, Precious Metals, and Energy Minerals In the second paragraph there is a short sentence regarding 'Ad Valorem Taxes'; This should be corrected to read - "Ad Valorem Taxes are the result of the financial dollar requirements of the Townships, Cities, School Districts, Counties and any other Agency with Taxing Authority". In addition, the State of Minnesota levies a property tax (Ad Valorem) on Commercial and Industrial Properties. The property tax imposed by the State of Minnesota may be adjusted to assist the State with financing Revenue Shortfalls and Education Costs. A listing of the specific taxes may be found in Labovitz School of Business and Economics 'Economic Impact of Ferrous and Non-Ferrous Mining' or in the 'Mining Guide of 2009', on Pages 52, 53, 54, 50, and 29, 41, 38 published by the Minnesota Department of Revenue. We don't have an independent projection of the tax yield; however, the Labovitz School of Business has provided a projection on pages A-13. The projections clearly demonstrate the positive impact of non-ferrous Mining. Non-Ferrous Mining may produce taxes at a level of two times Iron Ore mining. The addition of non-ferrous mining tax yields will strengthen the financial structure of Cities, Counties, and School Districts. Hospitals, Assisted Living Facilities, Memory Care Facilities will be able to prosper. Other community and Non-Profit agencies will also benefit significantly.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
53	SECTION 4.10.1 .6-4.10.1 .7 The additional employment of 450 for operations will be a major economic impact for the School Districts, Medical Facilities, and Municipal Services. Each of the impacted communities has sustained a devastating loss of employment with the closing of LTV. The loss of LTV also meant the loss of hundreds of families, decrease in enrollment, higher cost per family for municipal services, and the loss of commercial enterprises. During construction, the permanent employees will begin to phase into start-up operations creating an easy transition for all the families and the communities.	EOO
3862	Let there be no mistake in Northland Securities, Inc. position on the PolyMet Mining, Inc. proposal to create NorthMet Mining Project. Northland Securities firmly supports the proposal for development of mining for Copper, Nickel, Cobalt, Platinum, Palladium, and Gold. As an active Broker Dealer in the area we have a responsibility to our Customers and Clients to support the project; and as a citizen of the State of Minnesota we must support the project to enhance the financial stability of the State. We must support this project because we know the positive impact on the residents and families of Northeastern Minnesota.	EOO,G1
3863	SECTION 4.10.3 SOCIOECONOMIC CONEQUENCES This section is covered in our comments in Section 4.10 Public Finance and in the Labovitz School of Business and Economics Report on the "Impact of Ferrous and Non-Ferrous Mining". SECTION 4.10.3. 1 We generally concur with the statements for purposes of the DEIS. SECTION 4.10-13 PUBLIC FINANCE We have commented on the public finance section above and have included in our comments the entire Labovitz Impact Study. However the total Public Finance exceeds our prior comments. Each job that is created will generate the following: 1. Federal Income Tax Obligation 2. Federal Social Security Contribution 3. Federal Medicare Contribution 4. State of Minnesota Income Tax Obligation 5. State of Minnesota - State Property tax on Comm.-Industrial 6. State of Minnesota - Contributions to State Retirement Plans. There are other benefits from the expansion of the region and stabilization of organizations within the region. SECTION 4.10-16 TOTAL IMPACTS FROM JOINT OPERATIONS, BY PROJECT, BY MEASURE, BY YEAR We concur with the impacts and project phasing and Conclusion.	EOO

Sender Last Name: no name **Submission ID:** 3393

528	Will the pollution from the sulfide mining affect the air? Besides affecting the water that ecosystem, is the air and atmosphere in trouble within the sulfide?	AQ4
1312	As someone who's never gone (yet!) to the boundaries waters, I am not only convinced that we must work to stop mining, but also, I must go on a trip this summer. How sad to think the opportunity to visit these waters might be gone in a moment.	EOO,G11
1314	Please protect wolf and lynx habitats.	G2C
1317	I trust that with technology and the process, any permit that would be granted, will protect the environment.	EOO
3594	Sulfide mining will damage Minnesota's unique wilderness areas for centuries to come; the bulk of the profits from the mining will go to private interests outside the state, and the public will be left inevitably with tremendous cleanup costs which still are unlikely to prevent all damage. Arsenic and selenium poisoning are not problems I want to be associated with Minnesota's waters; now or at any point in the future, and sulfide mining which could compromise our waters should not be permitted.	EOO,G4A,G7B
3605	As an avid outdoorsman & Minnesotan I feel like the BWCA is more than precious to our state & should not be taken for granted nor put at any risk. I feel the PolyMet Mining, Inc. should not be allowed. I firmly disagree with open pit mining but would consider waying options of drilling circumstances. Also if passed, the incorporations must be held to an extremely high standard as well as very high pollutant insurance. Heritage, cultural, precious water. Will to give this up???	EOO,G2,G4
3608	As a resident of Minnesota I am all about economic impart and growing our economy. I don't think this is going to be good for our economy over the next 200 years.	EOO,G1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3609	It's a bad idea! It's not worth any gain made. It needs to be about the long term impact instead of a short tem economic gain. You can't guaranteeN that nothing will happen.	EOO
3611	I think that the fact that people are willing to sacrifice our environment for a short term economic gain is completely crazy. In the long run it will only cause problems. We need to think into the future and this will not benefit the environment of the boundary waters at all. I go to the Boundary Waters every summer and most people go there for peace and quite and to escape society. If it is destroyed we will have nothing.	EOO
3613	We need to protect our waters and our enviorment. Here in Minnesota our water is everything. We can't afford to destroy what our state is. These mines are not worth the destruction of Minnesotan's way of life.	EOO,G7
3614	I would like to keep the boundary waters area untouched by man. Keeping it untouched for generations to come is key to this wonderful State. Please keep this from happening so my kids will be able to enjoy the boundary waters just like I am able to enjoy in the years to come.	EOO,G2
3616	It would be nice to see the enviroment unchanged. To me the gain from mining it isn't worth damaging the environment.	EOO,G2
3617	Really, I mean yes and no there are pros + cons about the whole minning controversy. But really as individuals/users/[illegible] of the boundry waters we have to understand why they want to do this. I personal don't agree with it because economilly there are loads of people who who depend on people going/ making trips to see and use the boundry waters. But we always say that we need to boost the economy,	G1,G11
3618	I think it's not worth the money. It may be good economically now but will not be in the future. It's too expensive to clean up after. Go drill somewhere else. Minnesota loves their state's geography. Minnesota deserves to keep their image of pristine wilderness. Minnesota's economy really depends on tourism income, especially during warm months.	EOO,G1,G11
3619	I don't think that there should be drilling in MN Boundry Waters. Obviously that's where people go to get away from the City to the wilderness and to do out doors activity it might be hard to breath with all that crap in the air.	EOO
3620	I don't want people to mine up there. Especially Canadians. I think the economics of the situation are better served by not mining.	EOO
3621	I think it is wrong for the mining companies to rape the land that we love and cherish. They promise jobs, but mines don't last forever. I am completely opposed to mining by the boundry waters.	EOO
3622	We should not mine! I live + grow up on the lake so I can't imagine if my lake got ruined.	EOO,G7
3623	This video has opened my eyes on this topic, and I think that they should not mine around the boundry waters at all. by minning around that area it will atleast move things their it will do them good. It will hurt Minnesota's fresh water, and the tourist people coming over every summer.	EOO,G7,G11
3625	I discourage the mining because its not looking at the long term effect. Noting the statistics that was given in the video the mining doesn't even seem to pay off in any way. Noting the distruction of summer rec. and wilderness than the cleaning up process and if it happens.	EOO,G2C,G11
3627	This is not going to help our State's economy, it will destroy it! The sulfuric acid that will be leached into our wetlands, will destroy our State's tourism. Poeple came to the boundary waters and the Lake Superior for it's prestine wilderness. If it's gone, Minnesota's economy is gone! Tourism is our State income! Please Stop This!	EOO,G7A,G11
3632	I don't think that the mine is worth it, sure the economy is suffering, but the net profit of such an operation is not guaranteed to be worth the years of clean up. I think it is not worth the risk of the effort. We should be looking for better ways to provide jobs in that region. Minnesota is not historically known for having rich sulfides, they are wasting their time looking for precious metal in the wrong place. Towns like Ely thrive off tourism if the BWCA is damaged JOBS WILL BE DESTROYED!	G1,G11
3633	The short term benefits of the mining are not worth the long term environmental consequences.	EOO
3635	I don't think that this project would be worth the risk. It has long terms effects that would be bad for the surrounding environment and economy. For example resrts in the area would lose a lot of business and it would also hurt the fish and animals in the surrounding area.	G2C,G11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3637	To disrupt a sector of Wilderness to such magnitude would be genuinely disheartening. Creating short term jobs and profit from mining is economically beneficial 4 some but long term negatively impacting for the local and regional mass. Canoeing, fishing, boating, camping, etc is a trademark of northern MN, and this would definitely suffer on the spectrum of those who visit here and those who provide those services.	G11
3638	The impact of the sulfide mine won't just effect the wetlands ecosystem. It will ultimately destroy the wildlife around those waters, and also the waterfowl population as well. The short term gain will not outlast the devastation and the generations to come.	G2C,G7C
3639	Fishing and canouing is way to important to sacrifice to mining. Piece would not be their anymore for people to get away from their heptic life. We need to preserve the boundary waters for us and our children.	G11
3643	I have been going up to northern Minnesota since I had been a little kid. The main reason my family loves it is because the beauty of the nature. I come from Chicago and the industry is not good looking in any regards. I can't inage seeing mines on my like. It would take the joy out of my familie's summer hunting and fishing.	G11
3644	I think that the mining should not go on because we would loose so much land and wild life we would loose everything Minnesota is known for.	G2A,G2C
3645	interesting, seems ridiculous that they would do something to a sanctuary place like the Boundary Waters.	EOO
3653	I think that is pointless to wreck such a beautiful place for a few minerals!	EOO
3654	I think it dumb to start mining by the boundary waters when we already know how much damage has been done by past sulfur mining. Also I think it is impossible to believe the things they say when they talk about no pollution when looking at the past. It is a dumb idea and the mining should not be done, it will ruin the boundary waters.	EOO
3655	I feel that mining would ruin what we have today. We need to preserve the environment. It's worth way more than any copper or metal that we can get. It is disturbing that people would want to pollute our lakes by choice. I just don't think it would be a smart decision.	EOO
3659	This industry is not what northern Minnesotans want. Wilderness areas such as the boundary waters is who we are. Its our identity. People travel from many places to experience this. Along with this and the obvious pollution problems that will be caused by this I'm just not sure if it [illegible] of a question to go through with this.	G2,G11
3661	but before they start minning they need to put/install a plan to restore the area after the mining has done. And most of all the need to follow through with it. What is our problem today will carry over to our children and their children and so on.	PD4
3667	I believe they should not mine. Our sacred Minnesotan lands needs us to protect them and keep things natural. I don't believe what they would be mining is absolutely necessary for humans to continue living so its not worth to mine and ruin what is so special and beautiful about Minnesota.	EOO
3668	I think they should not be able to mine in the Boundary Waters. We need to save our environment.	EOO
3673	I've just heard about this and I'm shocked that it would even be considered! Not only is the harm not worth the cost, it also endangers beautiful wildland habitats and ecology.	G2A,G2C
3676	If Poly-Met mining were to invade the Boundary Waters, I think it would decrease tourism to the area. The Boundary Waters define a pure, natural area and a mining complex would disrupt this image. Damage from mining would cost the state more money.	G11
3678	They should not touch the Boundary Waters. Because if they do it and as happes pollution will happen. The not just we lose, but the generations to come. Its not about you, its not about your kids. Its about 2 generations from now.	EOO,G2
3679	As the areas on this plants that include no trace of human life decrease, where or when do we draw the line on the precious areas? It is so rare to find a piece of wilderness in which there are no drones of far off machinery or vehicles, and using this land for short-term profit is insane. *76% of companies failed their "quota" of zero damage to nature.	EOO,G2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3680	The small sconomic boost it would provide is not worth the long term effects it will do to air enviornment. The boundry waters are beautiful, and have been for many generations, destroying or even cometimes tainting it would be extremely wrong.	EOO,G2B
3681	The video really opened my eyes to what Minnesota may be facing in the near future. Being a pro nature and wildlife person it maddens me to see that people are willing to put the enviornment at huge risk for their own benefits.	G2C
3682	I think that they should not mine it would ruin a lot of things in the community and also the enviornment	EOO
3683	Also, I think our lakes, rivers & land is polluted enough as it is. Why not fix those problems or at least tame them first, before thinking about mining again. Why is the sulfide mining so important? I think we have more important concerns to worry about with our land, or at least a better way.	G7
3686	A sulfide oar body like the one proposed to be mined by Polymet in Northern Minnesota is a serious concern to Minnesota citizens. The economic and ecological impacts are very serious. Sulfide mining operations have a bad track record all over the United States, especially when they are located near water. Lake Superior is one of Minnesota's greatest assets and is the cleannest of the Great Lakes. We cannot sacrifice this. Don't let Polymet mine in Minnesota.	EOO,G7A
3689	Don't do it Kill the environment and the workers	EOO
3690	Like the title of this video, "Precious Waters' water is in fact precious. Don't consider this safe at all since our water is at risk such as everything else such as the wildlife.	G2C,G7A
3691	I think it's awful that there are mines so close to rivers and lakes. This was a good video & it helped educate me	EOO
3692	To me, it is very important to save and preserve the Boundary Waters. Here, one is able to experience the true wilderness, which is very important. It represents who we are as Minnesotans and should be saved - We are very lucky to have this and it is out job to save it.	EOO
3693	I don't think they should do it. The boundry waters look like a very nice place to go. I've never been there before but it looks like somewhere I'd enjoy going.	EOO
3694	I have never been to the boundry waters. It would be sad to see so much beauty destroyed for the mining industry. Who would be paying for the cleanup if the mining went through? If there is no guarantee that the public won't be paying for it, it should not go through. It is very permenant for a short term gain. We are lucky to have preserved the boundry waters before & this will wreck it forever.	G4A,G7A
3695	The NorthMet Project will contaminate the boundary waters from pits and waste. The high sulfate discharge will form sulfuric acid and destroy the peatland. It will also damage aquatic life from drainage and put at risk the critical habitat in the boundary waters. This area holds special meaning and memories to my family and I and I would be devasted to see it ruined by mineral mining.	G2C,G7C
3696	The pollution from the kind of sulfide mining does not seem to be worth the risk of mining. I think our lakes/rivers/streams are polluted enough and the mining will make everything worse, especially in the long run. The mining should not be done unless the new technology will 100% be able to mine without pollution.	EOO,G7A
3697	Great movie. I didn’t know how much mining really destroys the environment. I personally love to hunt and fish so the outdoors is a big part of my life.	EOO
3698	How can they drill in the BWCA when they don’t even want you to wash your hair within like 200 ft of the water.	EOO
3699	I trust our federal government to handle this problem effectively. None of us (students) are experts or scientists. A half hour movie does not allow me to weigh in my opinion. Yes the Boundary Waters are great but even the Minnesota representative stated 76% of the mining companies harmed the environment. That other 25% still exists. The geologist also cited only 20 out of 200 sulfur mines as hurting the surrounding area. As far as job outsourcing goes, those are still American workers being employed and anything can help today’s economy.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3700	Would mining create jobs, yes, but what price are we willing to pay? Personally I think loseing nature and water is too high a price. I want kids of all generations to see nature and to swim in natural lakes. Not only are there environmental problems, but health problems too. Basically, you'd create jobs to put money into the economy, just to take all the money back to try to get a fraction of what we had in the first place. On top of that, you have more sickness and angry people to deal with. I like camping and fishing, so if mining is allowed consider me an angry person.	EOO
3701	I think that the people deciding on this issue need to way what values more, precious metals, or the environment we live in. I love to camp, hunt, and fish like many other people. They take us back to our roots. Our roots are the environment and if we keep mining and destroying it we will have no connection to where we come from. Not to mention we will be ruining the most beautiful things on Earth.	G11
3702	I think all the chemicals and metals in the water is super sad. Being the boundary Waters has no cell phone towers and other things, it's for a reason; to get away for peace and quiet. Why make something it wasn't ment to be?	EOO
3703	I think this video will open people's eyes. They have to realize that this beautiful, natural environment will be destroyed.	EOO,G2
3704	Kennecott is putting a mine in near my house and I was wondering about the effects of an underground sulfide mine? The mine would be in Tamarack, MN.	RFI
3705	Good video, showed the importance of our wilderness and exactly what open pit mining can do to a area.	EOO
3706	This was a good video. I can't believe that people would even consider risking our natural resources for money. Minnesota has always been known for it's forests and lakes and destroying those would be devastating. I believe that if MN decides to go through with this mine, they will lose many supporters. Not only will we lose MN support, but also those who vacation here. It will no longer be the clean, quiet area that it is. MN will lose all profits of tourists. This would be a stupid decision.	EOO,G11
3707	As a young college student, a young adult that will someday be raising a family in this area I feel like the mining shouldn't be allowed. The Boundary Waters is a very beautiful place and the potential for great water pollution in the future greatly effects all Minnesotans. The pollution can cause great health problems for ppl. in the area and surrounding areas. The water quality is very important and not to mention how the ppl. who have to pay more taxes to clean it up is worse. Also the effect it will have on ppl. living here (economy, pollution, jobs, way of life).	EOO,G4A,G7B
3708	As a Minnesotan I have great appreciation for our lakes and wetlands. The preservation of our waters is vital to who we are morally and economically. The mining that would take place would slowly deteriorate our most precious resource and destroy our way of life.	G7C
3709	The film was well done and very informative. I think the mining near the Boundary Waters should not take place. The risks for the environment, individuals, and habitat are too much. By doing this mining it puts too many things at risk. The Boundary Waters should be preserved as-is for generations to come…	EOO
3710	I think mining northern Minnesota would be a huge mistake. It would remove any value that part of the world has. The effects this would have would effect so much more than just Minnesota. The Great Lakes are tied in along with tons of smaller bodies of water/land that would be ruined. It may create jobs but many jobs will be losted because the area's income comes from the wilderness and the fact that it is so secluded is the reason people spend so much money for that.	EOO,G11
3711	I agree with many of the points against the mining. What has to be done is weigh and compare the consequences economically and environmentally past present and future.	G8C
3712	I believe we need to protect this area and not let them mine it. Minnesota's wilderness is beautiful and we should take care of it. I am also an angler and I would be very frustrated and angry if the fish were killed off in the lakes.	EOO,G2C
3713	I think it will ruin all my favorite Boundary Water Lakes walleye fishing and if it happens I might start a war against them because I live for the outdoors in this beautiful state and will not let this stand.	EOO,G11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3714	The PolyMet Mining should not take place near the MN Boundary Waters since it will disrupt the natural habitat of not only the organisms there but also everyone that goes there for the real experiences of wilderness. Additionally, the long-term effects are what we should focus on rather than any short term. We need to continually charish the uniqueness of MN's land and waters! Our wilderness is what brings non-Minnesotans here. I say NO to PolyMet Mining!	EOO,G2C,G11
3715	As a lifelong Northern Minnesota outdoorswoman, to allow a few companies to exploit our natural resources is unbelievable. Not only would mining destroy an area of my home state that I personally utilize, but also the flora and fauna that call it home. To think money is more important than an overwhelmingly large number of species (human, animal, and plant life) is disgusting. Also, hydrology is a relatively new science, so should mining companies be allowed to tell us they certainly know what could happen to our water resources? PROBABLY NOT!	G2C,G8B
3716	This project makes me feel very sad. To put the boundary waters at risk for short term economic reasons is a bad idea. To put the fish at risk, the waters at risk is not good. I myself love the boundary waters and would hate to see something like this happen to it.	EOO,G2C,G7A
3717	Given just the effects of this type of mining that have been recorded, is it even ethically permissible to allow this? Is human life to be measured as a lesser quantity vis-à-vis precious metals? And it, as in human life, will be affected negatively, history has shown a precedent; how much is the only question.	EOO,G2
3718	For the amount of damage that minning will do to Minnesota is not equal to the amount of profit minning people/companies/ect. will make. Nature is not to be messed with. Why destroy natural beauty?! What will happen to people who live around the boundary waters and the amount of money they will suffer for damage? What does minning offer our community besides a small job and a bigger damage?! Think about it!	EOO,G4A
3719	I live on a lake in northern MN. If my "home" got polluted like the video says is possible, I'd be so sad. The earth is pure, and man keeps messing it up. We need to give back to the environment, not take from it.	EOO
3720	I think that it's crazy that people are willing to let that happen to our lakes! It's gross and nasty but I guess big corporations and some people will do anything for a dollar these days. I understand that they want to provide jobs but can't they come up with a positive source of income and job that doesn't damage our environment?	EOO
3722	Minnesota is all about our water. The Boundry Waters is the heart of this state. It is so precious. It makes me sick thinking that it could so easily be destroyed. I want my future children and grand-children to go to the Boundry Waters and enjoy it's purity and serenity. With a lot of national forests and wilderness areas disappearing, we need to keep this as pristine as possible.	G7
3723	This sort of mining would not outway the harm that it does to our environment. The short term financial gain from this type of mining does not make the long term effects/harming the natural resources and water right. I believe that preservation is key and there is absolutly no need for the mining.	EOO
3727	I think that there should be a vote in each county that would be effected immediately by water pH levels, business, noise levels, etc. The rest of Minnesota and the country will not have a realistic opinion on this matter. Outsourcing jobs and materials will not help the areas. We need to tell people about immediate effects because they will not care about the seventh generation, or rather comprehend that far out.	G10

Sender Last Name: no name- **Submission ID:** 3431

3721	I understand the need for jobs in Northern Minnesota, especially on the Iron Range, but the effects of putting more mines in the area is dangerous. We house 100s of thousands of tourists each summer, we would lose that much money per year. People come to northern Minnesota to get away from honking cars, cell phones, and work, to just plain escape. So I honestly don't understand why they would disrupt such a peaceful place. Not to mention the mess that would be left for how many generations to clean up. So I think we should find a more safe way to create jobs.	EOO,G4A,G11

Sender Last Name: no nameno date **Submission ID:** 3350

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3642	I think it is true what she said about the ripple effect the money coming from the mining would boost the economy but it also will lose money for all the local businesses + create a mess that will be even more of a burden then worth.	G1

Sender Last Name: Noble **Submission ID:** 3594

3864	The email , below, which follows this (my) message is self-explanatory. I am a member of the League of Women Voters in Minnesota (LWVMN) and wish to express my sincere concern regarding the Poly-Met proposals for sulfide mining in the Arrowhead. In fact, it seems incredible to me that the Minnesota's DNR would even entertain such a proposal, along with the Corp of Engineers, considering the potential humungus risk to water quality, potentially destructive impacts on our wildlife, wetlands and global warming. I am objecting to Poly-Met's proposals and to any other sulfide mining proposas in the pristine wilderness of our state - no matter the promises of these mining companies that there will be minimum damage and that they will put the monies up front to clean up their mess. I do not want to see the tragic losses which have occurred in other states, e.g. Colorada, become Minnesota's. The Arrowhead and BWCA and surrounding area are much too precious to take a chance on losing. Please take a few minutes of your time to view the video at www.preciouswaters.org if you have not seen it. Thank you for your attention to this expression of my concern.	G2C

Sender Last Name: Nord **Submission ID:** 2452

2282	In order to protect the citizens of Minnesota financially from the long tail of water quality degradation from sulfide mining, I believe the state must require the mining companies to post a significant bond that will assure funds are available in the future for mitigating environmental impacts from the mines. If the mining companies respond that this will make the mines unprofitable and that they will not develop them, I believe that should be taken as a signal that the value of the metal that can be produced by the mines in Northeast Minnesota is not sufficient to undertake the risk to the environment that the mines pose. If because of superior design and operation the mine does not result in water quality degradation, the bond could be repayed to the mining companies at some point in the future with suitable interest. This seems to me the only way to equitably share the risks and benefits of the project between the citizens of Minnesota and the mining companies.	PD4
2948	To the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers: I am deeply concerned about the impacts on water quality in Northeast Minnesota due to the proposed PolyMet mine and other potential mines that are not as far along in the permitting process. The watershed for the PolyMet mine flows into Lake Superior. The watersheds for other proposed mines flow into the Boundary Waters Canoe Area. Both of these resources are among the "crown jewels" of Minnesota. They are fundamental resources in making Minnesota a very livable state. They also bring significant tourist dollars into the state. The BWCA is the most used wilderness area in the United States east of the Mississippi River. The cultural and economic value of both of these resources depends on their water quality. This is my primary concern with the proposed mines. The history of mining sulfide rock bodies in the U.S. is a history of creating acid mine drainage. Streams and rivers in Wisconsin, Michigan, Colorado, Montana and other states have been impacted, and in some cases rendered biologically unfit to support life, by acid mine drainage from sulfide mines. The history of sulfide mines is also a history of mining companies going bankrupt or just leaving, and leaving the people of the state to pay the bills for cleanup or having to live with the impacts of the degraded resource. The mining companies trying to get the PolyMet mine permitted have assured us that this won't happen this time. That they know how to do it right environmentally. This runs contrary however, to the whole history of sulfide mining, and should be taken with a significant degree of skepticism. Particularly because the life of the active mine is fairly short, but the duration of polluted water and a degraded environment is measured in geological time.	G4A,G7A,G8C

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2949	My final statement is that while technically the permitting action on the PolyMet mine does not impact directly on a watershed leading to the BWCA, I think that the MNDNR must consider that the actions taken will be a direct precedent for future sulfide mining permits in Northeast Minnesota. I think that rather than considering this as one isolated project, we must consider the potential impact of additional mines on water quality in Northeast Minnesota. This should be an important consideration in determining the amount and how a performance bond is structured. Once the precedent is set for allowing a mine, it will be extremely difficult to change the precedent for future permitting actions. There are many considerations in the permitting process. I am not a geologist or mining expert, but I am a citizen of Minnesota who loves our precious waters. I hope the potential for our future generations to recreate in our precious waters will also be taken into account in the decisionmaking.	G7A,G8C

Sender Last Name: Nordin **Submission ID:** 270

284	We support PolyMet Mining's NorthMet Project. It's time to get on with permitting this mine. We want JOBS! PolyMet will provide millions, of dollars in local and state taxes to support our communities and educational system. They will employ 400 people; with hundreds of spin off jobs that will provide a huge economic benefit to Minnesota and the Arrowhead region including construction of the $600 million project that will require about 1.5 million construction hours over two years. PolyMet can produce these metals in an environmentally sound manner and create hundreds of stable jobs that can support families; keeping them in northern Minnesota will help the economy and the educational system. Thank you for your time in reading this letter and we'll look forward to seeing this project move forward. We need to put our members to work!	EOO
1289	Minnesota’s water is certainly one of our most precious resources and to jeopardize the quality of that for some possible short term advantage is not a wise decision. I am opposed to any non-ferrous mining operations.	EOO,G7B
1291	Non-ferrous mines or sulfide mines should not be allowed as extracting mierals like copper and nickel from sulfide ores would pollute our lakes, rivers and streams and would be very costly to clean up. I am against sulfide mining. It is my understanding that sulfate turns mercury into forms that make fish dangerous to eat.	G3B,G7B

Sender Last Name: Norrgard **Submission ID:** 3671

1	e. Inadequate analysis of the toxics – numerous metals leaching, acid mine drainage, methyl mercury, sulfates in waters etc. The DEIS has done an inadequate analysis of the impacts of the PolyMet project on mercury releases, mercury methylation, delisting of water bodies, wild rice and aquatic species.	WR1E,WR4B,FM1
2	Sulfide mining is new to Minnesota. It has been responsible for extensive acid mine drainage and water pollution in mines all over the United States, resulting in hundreds of millions of dollars of costs to taxpayers. The Polymet Project would impact 6,700 acres of public lands in the Superior National Forest, including high quality wetlands and forests. It would release mercury, sulfates and heavy metals into the Lake Superior Watershed and rivers already impaired due to overly high concentrations of pollutants.	PD10
3	3-33—Explain why, if the gypsum filter cake is so high quality, that it must be placed within a hydrometallurigical cell that has a geosynthetic liner. Explain the chemical breakdown components of gypsum filter cakes within the residue tailings.	PD9
4	Figure 3.1-42—Explain how the pumps and pipes on the sheet of paper will withstand drilling, blasting, and ground vibrations caused by 240 ton trucks, locomotives, and other equipment.	PD9
5	3-43-Explain where the removal of storm sedimentation goes.	PD9
6	3-43—“…discharges from these outlet control structures would be monitored as necessary to ensure the runoff to the Partridge River would meet water quality discharge limits.” The EIS process needs to include a plan explaining who would monitor, when the monitoring would take place, and what mitigation procedures could bring the discharge under control.	PD8

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
7	3-45—The DEIS does not explain an inspection program or a mitigation program. There is nothing in place to adequately address the problems associated with acid mine drainage and leaching of toxic heavy metals. PolyMet advertises that it is following Minnesota's strict rules. If this is true, the rules need to be stated and the plan to prevent contamination clearly spelled out. The DEIS is inadequate in not addressing this problem. Monitoring for possible pollutants is not the answer to acid mine drainage. Monitoring simply perpetuates the current system whereby the mining company is fined, and the IRR promptly reimburses the mining company for the cost of the fine. Since the problem is never addressed, the agencies then grant the mining company a variance, so that pollution can continue.	PD8
8	The purpose of this DEIS is to assure the public that pollution will be prevented and/or treated. This is not adequately addressed in the DEIS.	PD2
9	3-47—"The cover used at Closure would consist of a layer of NorthMet flotation tailings or LTVSMC tailings." The EIS process needs to analyze the contaminants that would be found in these tailings as part of a surface water control plan. LTV tailings contain coal ash from the Highway 61 coal ash spill, and dredging from the contaminated Dunka mine site.	PD2
9	There is no justifiable reason for turning the Arrowhead Region of Minnesota into a sulfide mining district. The footprint left by taconite mining on the Iron Range, by mining rock that has 25% metal, will seem small in comparison to mining sulfide bearing rock that contains less than 1% metal. The acid mine drainage legacy of sulfide mining will destroy our last remaining clean waters. Forests and wetlands will be replaced by open pits, waste rock piles, and tailings basins. I am commenting on this DEIS because of my concern about the legacy that the permitting of metallic sulfide mining would leave behind. People of my generation, with our experiences and our knowledge, bear a responsibility toward future generations. What is it that we most value, that we most want to leave behind for those who will come after us? We do not inherit the Earth from our Ancestors, we borrow it from our Children.	EOO,G2
10	g. Complete lack of analysis to assure the taxpayer does not get stuck with the clean up costs (which reach into the future so far, 2000 years according to documents, as to be perpetual)	PD4
10	f. Inadequate analysis of climate change and the increase to impacts that this project will bring	AQ3
11	h. Inadequate explanation of how the technical and mechanical processes will protect the public and public values such as clean air and water and healthy wildlife and habitat – or how the DNR, USACE and Polymet can guarantee this project will meet the laws of this state. Altern	PD3
12	Alternatives Analysis This EIS is prepared to accomplish the purposes of NEPA. To accomplish these purposes, NEPA requires all agencies of the federal government to prepare a "detailed statement" that discusses the environmental impacts of, and reasonable alternatives to, all "major Federal actions significantly affecting the quality of the human environment." The EIS must "provide full and fair discussion of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." This discussion must include an analysis of "direct effects," which are "caused by the action and occur at the same time and place," as well as "indirect effects which are later in time or farther removed in distance, but are still reasonably foreseeable." An EIS must also consider the cumulative impacts of the proposed federal agency action together with past, present and reasonably foreseeable future actions, including all federal and non-federal activities, and an EIS must "rigorously explore and objectively evaluate all reasonable alternatives" to the proposed project. Due to these requirements the DEIS is inadequate in both not exploring an underground mining option to see what the difference in impacts to the environment and local communities and well as human health might be. Using expense is not an adequate excuse for not taking a "hard look" at this very viable alternative. Other mining in the area is done in this way, a recent study was done that shows that this may be a viable alternative to this particular project (study by U.S. Steel of this mineral deposit, which recommended underground mining because the ore depths were so great that open pit mining would not reach them), and this type of mine may eliminate a whole host of human and environmental impacts from this new type of non ferrous mining in Minnesota. Before this Project should move forward it should be required to take a hard look at the alternative of underground mining.	ALT8,PD3,CR1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
13	Creating 394 million tons of waste rock, 91,200 tons per day, that contain multiple toxins, create acid mine drainage, and impacts to air quality and human heath due to particulates and high mercury accumulations. Plus the loss of threatened and endangered plant species, loss of high quality wildlife habitat and wildlife travel corridors and critically important wetlands ecosystems, while also polluting the surrounding watersheds all the way to Lake Superior (and in future the BWCAW), is not a good future for Minnesota – we should create jobs, but jobs that do not destroy the landscape, waters, and the health of the communities that rely on them.	PD10
13	The one thing I really want to say is the DEIS is huge and it's going to take a while to really be able to read through it and see what this project is all about, the impacts that it has, and so I'm hoping that we can ask for extended time. We need a lot more time to be able to review this project. And I just wanted to make	PRO6
14	The No Action Alternative was not given full consideration and should be analyzed to the full extent of the Proposed Alternative. A full hard look analysis of the no action alternative would show the benefits of protecting the wetlands, forests, and wildlife values for the economic, health, and viability of the local communities. Sometimes it is far better to realize the value of what we have existing – and consider the dollar value of the ecosystem services that are already in place, than to destroy this valuable resource and realize the tremendous loss after it is too late.	ALT8
15	The No Action Alternative analysis should take into consideration the growth in the local economy that has happened since the last “bust” of mining – in social services, tourism and hunting. Metal mining has major negative aspects, disturbed and degraded land which in many cases will never fully recover, and water and air pollution continuing indefinitely. This industry also has a history of boom and bust cycles that can be devastating to local economies – jobs tend to be volatile and lead to community instability. Metal mining also leads to the social cost of “attractiveness” loss – the relatively permanent environmental damage, huge open pits, massive waste piles, extensive settling ponds, heavy metal pollution and mine drainage make it difficult for an area to attract new residents and businesses – who would want to live near this? Even the miners themselves tend to choose to live some distance from the mines to protect home values from these losses. (from the report The Economic Role of Metal Mining in Minnesota: Past, Present, and Future). According to the above mentioned report this project would only add less than one percent employment (using the multiplier impacts) and represent only three months of the earnings growth seen in recent years in St. Louis County. The State of Minnesota could do much better to focus on jobs that are truly “green” jobs. Green jobs do not destroy the environment upon which they are based.	ALT8
15	The attractiveness of a place, especially the environmental characteristics has become an important source of local economic vitality – an analysis of this in the arrowhead region should be a part of the DEIS. The analysis should also take into consideration the value of ecosystem services such as clean water, clear air, carbon sequestration, wildlife, soil stabilization, rainfall storage, and many others.	PD1
15	A discussion of the cumulative environmental effects of a proposed action is an essential part of the environmental review process, for otherwise the agency cannot evaluate the combined environmental effect of related actions. Cumulative impact is defined in NEPA’s implementing regulations as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions . . . . Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”	CR1
16	1. Discharge and seeps from the mine, pit lake, tailings and waste rock piles of the PolyMet project are likely to pollute water for decades, even thousands of years. Yet there is no showing that the PolyMet corporation can or will provide financial assurance to protect taxpayers from long-term pollution.	WR3I
17	The PolyMet Project would significantly increase mercury levels in local fish, creating human health and ecological risks. Sulfates would impair wild rice. The DEIS studies are inadequate to prevent degradation of water quality. The DEIS studies are inadequate for the public to be knowledgeable about the true risks of the project to health and the environment.	WR1E,WR4B,WR4F,FM1,F
18	There is no inspection program or mitigation program outlined within the DEIS as to the acid mine drainage that will be created.	WR1B,WR4C

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19	Technologies upon which PolyMet relies to treat contaminated water, prevent release of contaminants, including sulfuric acid compounds, are untested or unreliable.	WR1E
19	There is no way to logically categorize whether waste rock is a 1, 2, 3, or 4 category waste – there is absolutely no way to ensure the more toxic waste rocks are safe from leaching toxins into the environment, all waste rock has the potential pollute waterways, even category 1, but there is no way to test each stone as to it's category. Polymet's plan for storage of waste rock is inadequate to protect the environment – the DEIS should provide full public disclosure of this inadequacy.	WR1A
19	The Tailings Basin design does not meet minimum safety standards to prevent catastrophic failure and uncontrolled release of tailings to the Embarrass River. Waste rock piles, mine pits and liners will leak and seep pollution into groundwater.	WR2C,GT2
20	The PolyMet project would take over 6,700 acres of public land in the Superior National Forest. Yet, the DEIS has done no analysis of a land exchange to protect the environment, tribal rights and public taxpayer assets.	PD1
21	an assessment of the impacts of all of the pending sulfide mining projects within the arrowhead region, especially including the Duluth Metals Ltd (Nokomis deposit) and the Franconia Minerals Corp (Birch Lake deposit).	G9
22	additional capacity within the Northmet processing plant beyond what the Polymet project will use, it is a good probability that a reasonably foreseen future is greater – up to 100% - capacity use.	G9
23	additional "areas of interest" in the analysis of sulfates. And evaluate geographic boundaries to fully consider the distance sulfates can travel. The current documents consider the area of interest to be limited to the Partridge and Embarrass River sub-watersheds. The area of interest for direct, indirect and cumulative impacts of sulfates on the aquatic resources in this watershed should be the St Louis River from river mile 179 and downstream to its mouth.	WR3B
24	This project is on the Superior National Forest and within Forest Service lands which precludes this type of project – this should be addressed in the DEIS, and any actions in regard to this should be addressed within this Study. The project footprint is within very important ecological features, the impacts are of great concern. Due to the location of the Project on federal public lands there is a requirement to protect the public values of these lands. Forest Service Regulations state "Habitats for all existing native and desired non-native plants, fish, and wildlife species will be managed to maintain at least viable populations of such species."	PD1
25	MiningMinnesota strongly supports PolyMet Mining's NorthMet project. The project will bring much needed jobs and significant economic benefit to both the state and regional economy. These new jobs will support thousands of people in hundreds of families in our rural communities in Northeastern Minnesota, and the millions of dollars in annual tax revenue will benefit the schools, cities, and State tremendously. MiningMinnesota believes that the draft EIS is a thorough effort and reflects the extensive work behind its preparation. The draft EIS covers all potential impacts identified in the Scoping EAW and some additional issues of concern as well. The EIS identifies alternatives and mitigation to reduce or eliminate these impacts, and can and should lead the way to a Final EIS and a decision of Adequacy as soon as possible. PolyMet can produce the critical metals we need and use in our country on a daily basis and do so in an environmentally sound manner. The demand for these metals continues to grow. In the U.S. we are import dependent for all of the metals that PolyMet will mine and process including copper, nickel, platinum, palladium, and cobalt. This reliance on imports negatively impacts our domestic trade imbalance, creates limitations on availability and access to metals, adds cost, and results in the exportation of jobs and further loss of job creation opportunities. Many of these metals are also essential to green technology such as wind turbines, catalytic converters, hybrid cars, and solar. In fact, PolyMet will produce several metals that are not currently mined anywhere in the United States. By mining and processing these metals here in Minnesota under our strict environmental standard we will lead the way in global carbon responsibility. Mining these metals in one country, processing them in another and then transporting them to the U.S. for consumption creates unnecessary greenhouse gas emissions. Finally, PolyMet's NorthMet project has been designed to minimize environmental impacts. It will reuse a brown field site, reuse existing infrastructure, minimize wetland disturbance, and utilize multiple safeguards to assure air and water quality standards are met.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
25	Critical habitat for the endangered Canada Lynx. The lynx in Minnesota requires large unfragmented tracts of quality forest area – which is what the mine site proposes to destroy. Due to development, existing mining, and other human encroachment to the natural environment we are increasingly losing larger contiguous areas of habitat for our wildlife, especially those species that require mature and interior forest areas. Large unfragmented tracts of habitat are a rare and valuable resource for Minnesota.	WI1
25	The High Biodiversity Significance rating that the mine site footprint has requires a critical look at what is most important for this area of forest. If Polymet is permitted it will be a permanent and irretrievable loss to the Superior National Forest and Minnesota. What we would lose is over 3,000 acres of high quality native habitat containing some of the rarest species. Two of the vegetation communities (black spruce-Jack pine and rich black spruce swamp - DEIS 4.3-2) are considered imperiled/rare and rare/uncommon by the Minnesota County Biological Survey. It is far past time that Minnesota consider the importance of our rare ecosystems – if we are to protect our native species from extirpation and extinction. It is also unacceptable that diverse and at risk forest types will be replaced with a red pine plantation upon closure of the mine. This again points out the irretrievable loss to Minnesota this project creates.	IR2
25	The Polymet project will also impact 2 of the 13 wildlife travel corridors, (9 of which may be impacted by the additional mining projects). The impact of this loss for the movement and dispersal, foraging and hunting, and other activities of our wildlife is not addressed. The DEIS should analyze the cumulative impacts this will bring to northern MN species. What will happen to the movement of wildlife if access is prevented by the Project to Corridor 11 and 12? What will this mean to wildlife with the additional impacts from the future mining projects if they come on line? “Cumulative impact” means the impacts of this Project added to existing and future impacts (hence “cumulative”). All of the classification of impacts - 1. direct loss, 2. fragmentation of habitat in corridor 3. isolation of corridor by a barrier (DEIS 4.4-31) – are significant and should be further explained as well as mitigation measures discussed to better inform the public about cost to our wildlife from these impacts.	WI5
25	The loss of high quality wetlands and peat areas will exacerbate impacts of climate change. One of the most important things we can do to mitigate and address climate change is protect forests and wetlands as sinks for sequestering CO2. By protecting these areas from development, the carbon in above-ground biomass and belowground soil organic carbon can be maintained and additional emissions of CO2e to the atmosphere can be avoided. Peatlands and wetlands are recognized to have large stores of soil carbon. Studies to gain a full understanding of overall carbon dynamics show that peatland/wetland protection and enhancement programs should be initiated to protect this stored carbon and to sequester additional carbon in the future.	WE2,AQ3
25	The DEIS should analyze the impacts of introducing invasive species as a part of the mine closure plan. We should not allow the introduction and use of invasive species into the Superior National Forest. The United States is under attack from a diverse army of invasive plants and animals that are threatening to transform the country's natural ecosystems and obliterate regional economies. Exotic species cause billions in environmental losses and damages each year, out compete native species. Non-native plant species are nearly invisible to native birds and other wildlife as a food source.	WI4
26	See maps included in comment document.	EOO
26	The permitting of PolyMet would be an irresponsible decision, and this should be stated as such under IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES. The Army Corps of Engineers should most notably understand the impact of sulfide mining on our waterways, and the irreversible and irretrievable loss of wetlands. I support a No Action Alternative.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
27	I am a citizen of the State of Minnesota and I incorporate by reference the Tribal cooperating agencies' finidings and the Water Legacy comments: "The EIS Must Include Detailed Information on the Potential for Failure of Containment and Treatment of Wastes, Including Impacts on Water and Air Quality." There seem to me to be so very many areas of uncertainty regarding most, if not all, aspects of the proposed PolyMet mine project. Among other issues is that of the liners to be used. On page 4.1-164 of the DEIS it states that, "All liners leak to some extent." Then, on page 4.1-136 the DEIS states that, "Concerns still exist regarding the adequacy of the proposed overliner buffer thickness to protect the liner from accidental tears or rips during waste rock placement or removal given both the size of the waste rock and the equipment necessary to place or remove it properly." These are just two examples of legitimate concerns about how the liners will be able to do their job given the fact that they all leak to varying degrees and then given the fact that OVER 99% OF WHAT'S MINED WILL IN FACT BE TOXIC WASTE is the concern that the overliners have not been ensured. If this project were in your backyard, would you feel that the odds were good enough for you to continue living safely in that place??? Would you still drink the water???	EOO,WR2D,GT2,AQ5,AQ6
28	Yet another particularly problematic issue is the perfection of the seal at the seams. With so many unresolved questions and so much inherent risk, how can this project be permitted at this point?	G8
28	We have a unique and pricelss ecosystem in the vicinity of the proposed PolyMet mine. Should PolyMet be given the green light when there are questions regarding the integrity of the material they propose to use for the liners in terms of the pressure they will be exposed to under jagged rocks? Also, a related issue of concern regarding the liners is the question of the skill and thoroughness of installation.	GT1
29	First comments are maps: see comment document.	G14
30	3-34—“LTVSMC coarse tailings layer would be placed to create the covered surface on which vegetation could be sustained.” How stable are coarse tailings as a foundation? Is this designed for use on 320 foot high waste rock piles? Are the coarse tailings from taconite? Are they inert?	PD10
31	3-37—The EIS process needs to explain where the money is coming from for closure: demolition, special material demolition, etc., as well as for “long-term” water treatment.	PD4
32	3-38, 3-39—The EIS process needs to define reclamation, and explain what reclamation means in terms of further use of the mined land. If the mine cannot be used for other purposes, and if the land is unusable because of potential toxic leaching, then this needs to be explained, and this also needs to be included in the socio-economic impacts, and under Irretrievable Commitment of Resources.	PD3
33	3-40—An estimate for total amounts of limestone needs to be included in the EIS process. Due to the large amount of limestone needed, cost and availability of limestone needs to be included somewhere in the EIS, possibly as a liability under socio-economic impacts.	PD2
152	I just want to make a statement that I'm very concerned about this mine going in place for a number of wildlife issues. I think what's above the ground is much more valuable than what's under the ground. And habitat, we are losing it every day with new development. This is going to be a huge impact to our Superior National Forest forested habitats.	G2A

Sender Last Name: Norton **Submission ID:** 162

14	I wanted to say that it is important in a public meeting to provide a chance for a dialogue in that it is not sufficient to have an opportunity for individual people to speak their thoughts on the record. That is not dialogue. That is a statement from the agency, or in this case agency, Environmental Consulting Company, and representatives and senators from the state, followed by a response by a single citizen. And with that set up, you lose the opportunity for citizens to hear the thoughts and reactions of other citizens, and then responses to those thoughts, and counter-responses, and replies to those responses. That's dialogue. We	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
15	Second. The meeting tonight is too early in the comment period to afford citizens a chance to first read and understand the Draft Environmental Impact Statement (DEIS) which is, even without the supporting documents, nearly 2,000 pages long. More time is required for citizens to read, comprehend, formulate comments and questions, and then put those down in writing, than the 90 days that the Department has offered or afforded. The Department of Natural Resources many times in the last four years extended the time allowed for it and the consulting companies to prepare this Draft Environmental Impact Statement because it is a very complex proposition to carry out this project. If the Department does not extend the time allowed for citizens to understand and comment on the DEIS, then I believe that shows that the Department sees the process of preparing a Draft Environmental Impact Statement as an opportunity to determine the proper course of action, rather than to present to the public a proposal for environmental review and comment.	PRO6
16	I would also like to say that from what I heard tonight, it was not a particularly balanced public meeting in that the only people permitted to speak, including at the outset Senator Tomassoni, Senator Bach and Representative Rukavina were hardly neutral in their comments. They were not brief, welcoming comments; but	PRO6
17	rather a pep rally for the mine. Another round of public meetings is necessary to afford the public, whatever their opinions about the mine, a chance to have a proper dialogue. Those meetings should come after the comment period has been extended from 90 days to at least 120 days and that extension should be decided and announced sooner rather than later.	PRO6
34	I am writing to request an extension by at least 30 days of the comment period deadline for the Northmet (hereinafter, "Project") Draft Environmental Impact Statement (hereinafter "DEIS"). I am a staff attorney for the Minnesota Center for Environmental Advocacy (MCEA)." MCEA is a non-profit, non-governmental organization whose mission is to protect and defend Minnesota's environment and public health, using legal and scientific research, and various forms of advocacy. MCEA works with governmental agencies, in the courts, and at the legislature. MCEA, takes strong interest in the Project because of it's location, size, and nature. The Project DEIS was first released for public review on November 2, 2009, with public comments accepted until 4:30 p.m. on February 3, 2010. This results in a 90-day comment period. For several reasons, 90 days is an insufficient period oftime within which to read, comprehend, and draft helpful comments on the Project.	PRO6
35	First, the Project DEIS includes scores of documents, and the total size of the entire Project file is enormous. The sheer. volume of pages surpasses the ability of most individuals to read and formulate comments upon the DElS within 90 days.	PRO6
36	Second, the Project DEIS contains scores of highly technical documents. It will require more time to read, comprehend, and respond to the techical material than would be required for non-technical information.	PRO6
37	Third, this DEIS comrrient period overlaps several holidays. It is a time of the year during which many people travel and/or spend vacation time with family. In other words, the timing of the DEIS release and the resulting comment period deadline further reduce the amount of time likely to be available to most people for reviewing and commenting on the DElS.	PRO6
38	Fourth, this Project and its proper environmental review are exceedingly important, and not just because the land upon which the Project is proposed is owned in common by the public. This is the first project of its kind to reach the point of DEIS issuance in Minnesota, but many more are anticipated in the event this Project proceeds. Mining of sulfide-metal ore has never been accomplished without causing eventual acid metal leachate pollution of groundwater or surface water in the vicinity of the mine site. This is true even in arid environments. Minnesota is lake and wetland country, and presents even greater danger of such pollution coming to pass. In short, this is a new and potentially very dangerous type of project in an extremely sensitive area, and is likely to lead to a cluster of additional such project proposals.	PRO4,PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2610	My name is Kevin Norton, and I am a pastor in northern Minnesota. I grew up in Minnesota, born and raised in this state, and I've spent the last 28 years in the north, even though I graduated out of the Twin Cities, and what I've recognized in seeing many different people all over the state is that 11 they're hard-working, industrial people. Right now with the things -- the way things are going everyone needs work, and PolyMet would certainly assist in helping many people with finances, which helps them build self-respect and self-esteem because they're providing for their families. It would be good for the environment, I think, also, because of the fact that I think the United States is probably the leader, a model for the rest of the world to follow in terms of environmental issues and policies, and Minnesota statewide I think is probably the top of that league. And so if PolyMet decided to go somewhere else, I think that instead of being in a place that there would be the proper safeguards and so forth, we would see maybe a state or another country that isn't as interested in the safeguards as they are in making a profit would just let some of those things slide, and therefore we'd be culpable by omission by allowing it to go somewhere else, where here we do care about our environment. I have people in our congregation that have 80 acres of land that they feed the deer during the year, and then when they harvest the deer they self-impose restrictions and even fines on themselves and make sure that the deer are not overharvested and that they get to grow to a proper amount of age. That happening on a personal level, then what that says is that Minnesotans do care about the environment and they do care about the surroundings, they're responsible. And I think that all the work that's necessary to protect our environment has gone into the research and the studies, and we just can't -- we can't avoid the fact that we need to provide jobs and security and self-esteem and health insurance and all these things that come with thisjob. Therefore, I'm just very strongly encouraging whoever hears this thing that they would not get in the way of this, but rather they would endorse this and say this is good, because our state can handle it and will handle it well and with the kind of respect and dignity that it's supposed to. That's it.	EOO,G1,G4
Sender Last Name:	Nosanow	**Submission ID:** 2052
2489	Let's follow Wisconsin's example and ban this type of mining!!!	G14
Sender Last Name:	Nurmi	**Submission ID:** 3236
3561	I really hope the Polymet Project actually becomes a reality. I believe they have spent enough money jumping through hoops to satisfy even the "greenies". I love the lakes up here and surely do not want to see anything happen to our waters or land for that matter. I also look at the benefits for the people who actually live up here, paying taxes and trying to make a living. I think we should let our governing agencies do their jobs. It is past time to start moving dirt. I also expect the government agencies, local people, and even the "greenies" to make sure they use the best, modern processes available. Now if Polymet does not meet these expectations, I would expect to see them closed down immediately. I think this is more of a local issue. I do not know anyone who goes to Minneapolis trying to tell those people how to not ruin their lakes. It is past time for that. I do not subscribe to the theory, they know what is better for us, since they have ruined their lakes. We are the ones that live up here in the -40 degree winters, fight the bugs, and have to put up with them coming up here with one pair of jeans and a twenty dollar bill, changing neither one. We need these jobs. I am still working and have been in mining since April 1968 when I first started at Erie Mining Company. I now have over 33 years at the Minorca Mine near Virginia. I hate to see our young people leaving to find jobs in the crowded cities.	EOO
Sender Last Name:	Nyemetz	**Submission ID:** 3473

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3231	Long-term water contamination from waste rock – Modeling in the DEIS predicts that water leaching from waste rock piles will exceed Minnesota's water quality standards for multiple metals and compounds for up to 2,000 years. (Page 16) Contaminated overflow from mine pit – Approximately 45 years after mine closure, the DEIS predicts that the West Pit will overflow and spill into the Partridge River. Water from the pit is expected to exceed water quality standards and contamination of the river will violate the Clean Water Act. (Page 16-17) Unsafe tailings basins – The DEIS acknowledges that the tailings basins will have a “low margin of safety” because the underlying material—fine tailings from the LTV taconite mine—is unstable and poorly-constructed. Failure of the tailings basin would result in the release of a catastrophic amount of toxic waste from ore processing. (Pages 25-26) Sulfate contamination and mercury methylation – High levels of sulfates discharged into surface and groundwater will increase the methylation of mercury, a biological process which can result in the bioaccumulation of mercury in fish, wildlife and humans. Increased sulfate levels will also have negative impacts on wild rice beds in lakes and rivers downstream from the mine, seriously harming an important cultural resource of Native Americans in the region. (Pages 30-35). This is one of my main concerns for the fish and health of people downstream of this mine. Inadequate data collection and disclosure – The DEIS is overly dependent on modeling when real-world data could have been easily obtained and would have provided far more useful and predictive information. (Page 9) I cannot subscribe to risking our rivers and streams to this type of conjecture.	EOO,WR1E,GT2,FM2,FM5
3678	I am very concerned about risking our water quality with this project. Here are my issues with the PolyMet Northmet project DEIS. Lack of financial assurance – Delaying such an important component until the permitting stage is a serious omission, makes it impossible to fully assess the project’s potential environmental impacts, and puts Minnesota’s taxpayers and natural resources at risk. In his report, Dr. Chambers suggested that mine clean-up, closure and long-term water treatment could cost $100 million. If PolyMet goes bankrupt or otherwise abandons the mine, it will fall to the people of Minnesota to either live with the pollution or foot that bill. (Page 3)	PD4

Sender Last Name: Oberg **Submission ID:** 303

317	I live in Minneapolis but enjoy many aspect of Northern MN and want to ensure our environment is protected. I also understand the benefit of manufacturing and mining and the jobs it creates. I support the Polymet Northmet mining project and believe they are taking all required steps to protect the environment. I believe we need the jobs that will be created by this $600 million project and we need the tax revenue that will be $15 million per year.	EOO

Sender Last Name: Oberstar **Submission ID:** 1016

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1116	I am very pleased to express my strong support of an adequacy determination for the draft Environmental Impact Statement (DEIS) for PolyMet Mining Co. The environmental review process for what will be Minnesota's first nonferrous metal mine has been long and arduous, but the resulting draft demonstrates that PolyMet will help meet our nation's domestic demand for copper, nickel, platinum, cobalt, gold and palladium, put Northeastern Minnesota citizen back to work and ensure the protection of our. precious natural resources. PolyMet has earned my support from the outset because of its responsible, innovative approach to nonferrous mining and processing; the DEIS does an excellent job of describing the many steps PolyMet will take to minimize environmental impacts. PolyMet proposes to utilize superior processing technology to use the sulfur in the ore as fuel and minimizing the emission of greenhouse gases. PolyMet will re-use the exceptional infrastructure from the former LTV Steel Milling Company and proposes to mine within an already well established mining district. I am pleased in particular to see the redevelopment of this LTV brownfield site-the reuse ofthe facility will decrease the amount of undisturbed lands needed for the project and helps decrease capital costs for the project thus making the mine more competitive globally. PolyMet plans to carefully manage waste rock and will not discharge process water. And the company will follow state law by setting aside appropriate levels of financial resources to cover any and all closure costs. PolyMet will help our nation meet the demand for the metals already in widespread, daily use. Many of these metals are essential for our national security. PolyMet will also proceed with this vital project in an environmentally responsible fashion not necessarily found in foreign mining and processing facilities. In addition, PolyMet will help diversifY the economy of the iron ore-dependent Range, creating hundreds of jobs in the process. More than 300 construction workers will put in 1.5 million hours of labor constructing the $600 million facility over two years. At full operations, PolyMet will employ 400 people earning an annual payroll of about $40 million. Spin-off jobs in S1. Louis County alone will amount to more than 500 and generate an economic impact of $242 million. Over 100 years ago, Minnesotans began mining natural ore and then used ingenuity and . determination to extend our mining and processing capabilities to include taconite. Responsible, non-ferrous mining represents the next chapter in the evolution of the Iron Range; it is time to begin this new era. . Thank you for your consideration ofthese remarks.More than 300 construction workers will put in 1.5 million hours of labor constructing the $600 million facility over two years. At full operations, PolyMet will employ 400 people earning an annual payroll of about $40 million. Spin-off jobs in S1. Louis County alone will amount to more than 500 and generate an economic impact of $242 million. Over 100 years ago, Minnesotans began mining natural ore and then used ingenuity and . determination to extend our mining and processing capabilities to include taconite. Responsible, non-ferrous mining represents the next chapter in the evolution of the Iron Range; it is time to begin this new era. . Thank you for your consideration ofthese remarks.	EOO,G4

Sender Last Name: OBrien **Submission ID:** 244

257	As our country struggles to get out of this current economic recession it is exciting to hear about the new PolyMet facility. What does our economy need the most now - Jobs!. The new PolyMet facility will provide jobs and support for the local communities. My understanding is that PolyMet has addressed the issues of contaminations as well as what to do with the bi-products it develops. It sounds to me that Polymet is being a responsible corporate citizen. In good economic times as well as difficult economic times, corporation willing to invest in the US should be encouraged and supported. The sooner this plant is up and running the sooner people can get back to work to support their families and support their local communities.	EOO
3711	venture on the global market, rather than providing a steady supply of jobs. +PolyMet purchased the former LTV taconite crushing plant and tailings basin for its plant site, but the open pit strip mine would be located within 6,700 acres of public Superior National Forest land which is designated to be sold to PolyMet without environmental review. It is not appropriate to sell off a portion of the Superior National Forest for a marginal mining operation that has a high potential to cause long lasting damage to the environment. I am under the impression that our national forests are to be held in perpetuity on behalf of all the citizens of the United States. +Excess capacity at the	PD1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3797	Proposed sulfide mining in northern Minnesota in the Superior National Forest adjoining the Boundary Waters Canoe Area should be prohibited for the following reasons. +PolyMet is a Canadian company, so this mining project will not provide a domestic source of copper, nickel, cobalt, platinum, palladium, and gold. The metals will be further processed in Canada and sold on the global market. +The mineralization of northeast Minnesota is very low grade, containing approximately 8 pounds of copper and .01 ounces of precious metals per ton of waste rock. This will require energy and electricity to create enormous amounts of waste, making this a marginal mining	EOO,G1
3798	PolyMet processing facility would open the door for a sulfide mining district between the PolyMet site and the Boundary Waters Canoe Area Wilderness (BWCAW). +Acid mine drainage and toxic heavy metal leaching are byproducts of mining sulfide ores, requiring water treatment for centuries. PolyMet admits the mine would pollute ground water, but claims that any pollution would meet water quality drinking standards. Mining pollution also adds sulfates to watersheds, triggering the chemical reaction by which mercury becomes methylated, and bio-accumulates in fish tissues. +Since PolyMet's open pit would be within 20 miles of the BWCAW, haze and noise pollution would impact the wilderness.	G2C,G5,G7B

Sender Last Name: OConnell **Submission ID:** 2860

10	ALTERNATIVES: In light of the possible millennial scale of acid mine drainage impacts, and the failure of previous mines to achieve adequate treatment (for example, 5,000 years of acidity and toxic dissolved metals in the Rio Tinto district in Spain where the river pH reaches as low as 2-2.5; the 2.37-2.57 pH and toxic dissolved metals in the abandoned open-pit mine called the Berkeley Pit in Butte, Montana; and the Wisconsin "ban" on future sulfide rock mines until they're PROVEN safe), I find it hard to believe that Minnesota would even consider allowing any but the most stringent management and treatment of the reactive waste rock stockpiles and tailings basins. Those most environmentally protective options shouldn't be "alternatives", but part of the "proposed action", including the "alternatives incorporating reasonable mitigation measures identified through comments received during the EIS scoping the DEIS comment periods".	ALT9
11	"REASONABLE MITIGATION MEASURES": Again, these shouldn't be alternatives, but part of the "proposed action". In fact, these seem barely adequate, if not actually inadequate. For example, it's stated that if the tailings are "reactive", then the storage cells "would possibly be lined". Possibly? Even if they were lined, that wouldn't guarantee no leakage if the linings are designed to standards such as the Minnesota Pollution Control Agency allows for some waste facilities, which may leak 500 gallons per acre per day. That's a lot of leakage from a "lined" facility!	ALT9
12	Page 3-51 NO ACTION ALTERNATIVE: again, I agree with the Tribal comments – there are major environmental, social, and economic costs that would be avoided by NOT doing the project. The problem that I see is that the timescale for the benefits is short-term (20 years), while the costs are long-term (potentially thousands of years). Section 3.2 ALTERNATIVES: I've already stated that I believe that the MOST protective measures are what should be required.	ALT1
935	FOREST FRAGMENTATION: Open pit mining on formerly NFS land leads to further fragmentation of the forested lands and wetlands, causing changes such as: 1. Increases in the already extensive "edges" of forest habitat, and loss of deep forest habitats required by many species 2. Further interruptions in the limited north-south wildlife corridors within the Iron Range mining region	WI5,WE7
2732	MINE SITE PROCESS WATER (precipitation runoff & groundwater which has contacted disturbed surfaces) "Would be treated using a combination of membrane separation and chemical precipitation technologies at the WWTF". Then details follow, including "Reuse…would eliminate the need to discharge any process water to surface waters." That seems reasonable during the 20 years of operation, but what about the centuries after closure?	WR1A
2733	BASELINE ALUMINUM IN SURFACE WATERS: Yes, aluminum is already exceeding standards in the Partridge River. Do we want it to increase even more and interfere with fish gill functioning, etc,	WR3H

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2734	TREATMENT OF STOCKPILE DRAINAGE: What if acidity is slow to develop and the WWTF is shut down too soon? Be sure to keep it operable and be sure water quality acidity and metal levels are acceptable at "compliance locations" for DECADES before eliminating the need for the WWTF (EPA's 1994 study shows that pH decreased with time).	WR1C
2735	Page 4.1-5 and following pages GROUNDWATER: It is notoriously difficult to characterize the flow patterns and interconnectivity of groundwater, both between individual aquifers and with surface waters. The tribal comments raise significant issues that need to be addressed. Page 4.1-14 and following GROUNDWATER QUALITY & TAILINGS: Again, the Tribal comments raise pertinent issues, including limited monitoring not identifying a tailings basin groundwater plume, and difficulties drawing conclusions from very limited monitoring. Page 4.1-55 GROUND WATER AND TAILINGS AND RESIDUE CELL DRAINAGE: As described in the Tribal comments and as officially recognized in MPCA standards for liners: all liners leak. There will be seepage, yes, but will its chemical nature change with time? Yes, very likely, and not for the better. And will drainage end by year 34? What will happen if it continues longer – especially if long-term maintenance includes a pond on top? Page 4.1-67 WWTF, STOCKPILES, AND WEST PIT OVERFLOW: I'm happy to see that the WWTF is projected to operate at least until West Pit is projected to overflow in Year 65. But I wonder if West Pit might not end up like Berkeley Pit in Butte, Montana, where the pit water is extremely acidic, and part of the Superfund remedy there is a WWTF and a plan to keep the pit water level BELOW the overflow level, because it serves as the local ground water sink, keeping the contamination from spreading into thenearby river. Page 4.1-79 – 4.1-80 As the Tribal comment also points out (page 4.1-67), Table 4.1-45 predicts exceedances of some ground water evaluation criteria for up to 2,000 years (or perhaps more?), including antimony, sulfate, nickel, and manganese. Is this something Minnesota is happy to allow for 20 years worth of jobs? I'm also not happy to see that modeling does not include the metals which already exceed "Groundwater Evaluation Criteria" (as shown in Table 4.1-44). Although they already exceed the standards, what's the future likely to hold? I would also like to see pH measurements included in your projections. While they are currently nearneutral or basic, will they stay that way? Page 4.1-90 This table only shows groundwater impact predictions to closure, not post-closure. This seems too limited a timeline, since acidity from oxidation will continue for many years post-closure. What are the predictions for year 34, 65, 2000? Page 4.1-95 TAILING SULFUR CONTENT: If the average tailings sulfur content is 0.13%, then some, as you say, will exceed the 0.14% threshold when acidic leachate production and increased metal mobility occurs. Your data, then, support that some acidification is likely to occur, and continue to occur for an extended period of time. Page 4.1-111 SURFACE WATER IMPACTS TO UPPER PARTRIDGE RIVER: Table 4.1-62 is misleading – it doesn't state that this table is for impacts "for all mine years" (as mentioned on the previous page). What about post-closure years? Also, I would like to see pH predictions, in light of acid mine drainage. Page 4.1-114 WEST PIT WATER QUALITY, POST-CLOSURE: Those are high sulfate levels. What's the projected pH of this pit's water? Also, some of the exceedances could be a problem downstream if the water is used for drinking water (e.g., arsenic, shown at 198 ug/l, which has a drinking water standard of 10 ug/l). This may not be a problem now, but if the high levels continue for centuries and if more similar mines are permitted in the future, can we restrict drinking water use, or will communities need to pay the cost of future water treatment facilities which must treat for the arsenic levels caused by today's business making a profit for 20 years? Page 4.1-128 MERCURY METHYLATION AND WEST PIT OVERFLOW: Another concern that may continue for millennia. Page 4.1-129 (and elsewhere) "ALL MINE YEARS": I interpret "all mine years", as found twice in Table 4.1-68, to mean that you only predicted for the 20 years of the mine's life. That's certain	EOO,RFI,WR1A,WR1E,WR
3161	SEVERED MINING RIGHTS & OPEN PIT MINING: I'm very concerned about the severed mining rights on private and federal lands, especially if that mining right allows open pit mining which permanently changes the character of the land – regardless of revegetation and restoration efforts after the completion of ore removal. The resulting hydrological changes in groundwater and surface water flows and impacts on the water quality are highly likely to cause significant impacts for wildlife and vegetation, especially in an area of sulfide ores which results in acidic mine drainage.	PD1,PD8,CR1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3162	LAND EXCHANGE: Allowing a land exchange of private land for National Forest Service (NFS) land is a very bad precedent which threatens protection of all federally protected lands here and elsewhere, both now AND when future mining operations request the same opportunity. This is especially a concern for sites in close proximity to the Boundary Waters Canoe Area Wilderness. What's being requested here is like letting the "camel's nose into the tent". Can you stop it once you start it?	PD1,G9
3163	My question is – could treatment options such as those attempted at Dunka effectively operate at NorthMet (and potential future nonferrous mines) over a timeframe that could approach perpetuity? This is especially a concern when the company predicts a 20-year lifespan for the project, yet the environmental consequences may need to be prevented for orders of magnitude more years than that. Who will pay for those costs – a company that's no longer in business; a state that may have many other economic priorities; the NE Minnesota citizens who may or will lose the quality of their environment, the recreational options, and jobs; and/or the nonhuman organisms who no longer have viable habitats?	PD3,PD4,G1
3164	ORE vs. WASTE ROCK: Based on my rough-and-dirty calculations (below), apparently the final production of metals will be approximately 0.001% of the mined materials (based on calculations from the data reported here). Since the waste rock and tailings will be converted from its original solid material to fragments that take up more volume, that will be a huge amount of waste that will need to be stored, and much of it will be impacting the water quality in almost perpetuity. • My calculations from information on this page of the DEIS: o 228 Million tons over 20 years o 91,200 tons/day of "rock" o ~ 48,263 tons per year of metals = 132 tons/day □ = 0.001% produced ore o = 99.9% waste & tailings	PD2
3165	WASTE ROCK CATEGORIES: I understand the categories, and hope that they are indeed predictive of their chemical reactivity. I do notice, however, that, although not all categories are likely to generate acid mine drainage, all categories are predicted to leach "metal concentrations in excess of anticipated water quality compliance levels" (pages 3-13 – 3-14). Will treatment and maintenance practices ensure that all surface and groundwater "compliance levels" will be met before leaving the property boundary - for perpetuity?	PD2,PD11
3166	ACID-PRODUCING SATURATED OVERBURDEN: It's stated that saturated overburden can be the equivalent of Category 4 waste rock. The treatment option (bottom of page) sounds like a "guess" and not a good alternative, and "process water…would be sent to the WWTF". Maybe that's fine while the WWTF is operating, but how long will that be happening? 65 years or potentially hundreds of years?	PD5,PD11
3167	WASTE ROCK STOCKPILES: The Category 1, Category 2, and Overburden stockpile doesn't have a geomembrane covering, meaning that infiltration will not be prevented – and all of those categories may leach metals and/or the overburden may also leach acids. Again, if the WWTF is to treat the collected leachate, how long will that continue – in perpetuity at the cost of the company?	PD5,PD11
3168	The "clear water" from the tailings basin which "would be re-circulated" – but likely some would remain; is it really just water? Also, the tailings are in the <120 micron size – great dust storm material if they should dry out, before or after closure.	G2B
3169	TAILINGS POND DAMS: Somehow, building tailings pond dams out of old tailings sounds like a recipe for subsequent failure, especially as the walls rise higher.	PD8

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3170	LIMESTONE ON CATEGORY 4 SIDEWALLS: Are 4 inches of limestone enough to prevent oxidation in perpetuity? And how likely is it to stay put on a 3.5:1 slope?	PD2
3171	CLOSURE and "RECLAMATION": I agree with all of the tribal cooperating agency comments, especially regarding the need for full disclosure of financial assurance for post-closure costs and the need to recognize that full reclamation may be unachievable, since possibly perpetual maintenance may be required.	PD3,PD4
3209	I'm pleased to see that the MDNR has done quite a bit of research on the topic of treating acid waste (as I see cited on p 15-20 of http://files.dnr.state.mn.us/lands_minerals/reclamation/reclamation_publication_list.pdf, but I don't have the time to obtain and read these documents) including dry covers, subaqueous disposal/wetlands on tailings, mixing alkaline solids and limestone beds (even more materials stored on site and very costly to import those huge amounts), microencapsulation, sulfate reduction (all using sulfate-reducing bacteria?), trace metal sequestration/removal by peat etc. I particularly found the title of P. Eger's 2007 paper interesting but disturbing – "Solving Mine Drainage Problems at Soudan State Park – One Step Forward, Two Steps Back", a location which I hadn't realized even had acid mine drainage – but its title and recent date implies that the DNR doesn't yet have a solution to the problem of acid mine drainage. That doesn't bode well for approving this project, which is just the tip of the future iceberg of nonferrous mines in Minnesota? Although I wasn't aware of the Soudan Mine issues, I was aware that the Dunka Mine had acid mine drainage problems, and that the latter has received attention from both the MDNR and the U.S. EPA (see EPA's Office of Solid Waste's "Technical Document: Acid Mine Drainage Prediction", EPA539- R-94-036, NTIS PB94-201829, December 1994, at http://www.epa.gov/waste/nonhaz/industrial/special/mining/techdocs/amd.pdf). The EPA reports states that "Since these waste rock stockpiles were constructed in 1976, monitoring of drainage from the piles has revealed a decrease in pH levels, as well as an increase in trace metal concentrations…during sampling…pH values as low as 5.0 in Seep 1 were reported." Laboratory studies found that "drainage pH decreased as the sulfur content of the sample increased. Drainage pH also decreased as the experiment time increased." And "concluded that small particles (<2.0 mm) have a large influence on field stockpile drainage quality." Sampling of a receiving water of the mine's waste rock pile seepage (Bob Bay of Birch Lake) found elevated levels of copper, nickel, cobalt, and zinc. Treatment methods to be studied included "pile capping/channeling to limit infiltration, active treatment in a neutralization pond to lower pH and remove metals, and use of artificial wetlands to remove metals. The ultimate goal was a passive treatment system that would require little or no maintenance (U.S. EPA 1992d)."	G7A
3210	I agree with the footnote comments of the tribal cooperating agencies.	G14

Sender Last Name: OConnor **Submission ID:** 1163

1278	I'm sorry to say that any mining in any shape or form causes problems to land, water, environment, people and our future way of life.	EOO

Sender Last Name: Odendahl **Submission ID:** 3527

3256	the potential harm to water quality and harm to and loss of wetlands. More and more, we are beginning to recognize the precious value of our water resource here in Minnesota. The DEIS addresses this issue, but does not provide adequate assurances that our water resources will be protected. The loss of wetlands is also problematic. Wetlands are a tremendously undervalued resource. Again, the DEIS addresses this issue, but doesn't provide an adequate offsetting mitigating value. Among other concerns, my most significant concern relates to the potential economic impact on taxpayers of Minnesota should environmental damage occur and Polymet be unable to take adequate corrective measures, whether because of the extent of the damage or the inadequacy of the company's finances. In summary, the DEIS is disappointingly inadequate for a project with so much potential for environmental degradation.	WR3I,WR3N,WE3,PD2

Sender Last Name: Ogden **Submission ID:** 1747

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1121	The DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. Ultimately this will end up in Lake Superior. As a major source of fresh water for Minnesota and the other states surrounding it, Lake Superior should be protected from sulfide pollution.	WR3A,FM1
2278	The blasting particles from the open pit mining, the dust from the trucks transporting rock to the processing area, and the waste rock will all contain high sulfate concentrations. Rain and snow will cause the sulfate to enter and pollute the ground water, and eventually reach the Embarrass River	G2B,G7A

Sender Last Name: OHara **Submission ID:** 1089

1193	This is a well planned and scutinized project that should go forward. It will be good for Northeastern Minnesota and allow us to provide these minerals sourced in-the US instead of importing more goods. It will not only provide jobs lo'cally but the number of suppliers will multiply the economic benifitsthroghout the state and more. Lets not, let foreign countries have the upperhand anymore.	EOO

Sender Last Name: Oja **Submission ID:** 2238

2644	I have lived in northern Minnesota most of my life and enjoy the outdoors and also the ability to live here because I have been able to find employment. I am concerned about the area I live in from both an economic and environmental standpoint. The Polymet project will contribute to the state and local economy when northern MN as well as the United States need the jobs and the economic benefit. As a person who lives in northern Minnesota, I understand the need to balance the use of resources like minerals and preservation of resources such as water and air. I feel this EIS lays the proper groundwork for developing an environmentally and economically sustainable project. I work for a company that relies on the northern Minnesota mining industry and this project will help our company to survive and hopefully grow which will mean we will be able to hire additional employees. With this I wholeheartedly support the Polymet project.	EOO

Sender Last Name: Ojard **Submission ID:** 292

306	I am writing this letter in support ofPolymet Mining and their proposed project in Northern Minnesota. As a Minnesota resident the environment is of great concern to me as it is to all residents. I am convinced that this project will not only provide a great boost to our northern economy, but will do so in an environmentally safe manner. The conclusions of the Draft EIS confirm that this project has been designed to minimize environmental effects, not only through our designs but through the reuse of a brownfield site and the reuse of existing processing facilities. As part of the design team that has assisted Polymet in the evaluation and design of the proposed mine and processing facilities, I can honestly say that Polymet has always had environmental stewardship as the guiding principal for our designs. We were always directed to make design choices that limited the impact on the environment even if the choice resulted in significant increases in cost. Thank you for the opportunity to express my support ofPolymet Mining and for this well done and thorough EIS.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
318	I am writing in support of the Polymet project planned for Hoyt Lakes. The Polymet project will provide a positive impact on the entire region and provides benefit to the entire state and national economy. Additionally, by utilizing a former mining property and state-of-the art process and environmental controls, the ecological impacts will be significantly better than the development of a similar project on any site, anywhere. The United States and World require metals to manufacture virtually every product that society uses. If we in Minnesota cannot support and develop this project, the resources will be provided in other areas without the controls and protection measures our regulations require. As a community we have asked that Polymet follow the regulatory process, study their resource development and implement controls to minimize environmental impacts from the start of production through the mine closure. This process has taken years and has been thoroughly reviewed by experts in Professional practice and the Regulatory agencies. It is time to approve this project and move forward toward the future of the Iron Range. The Northland wants and needs this project. As a business professional and resident of Northern Minnesota, I offer my support for the approval of Polymet's development and hope to see a rapid resolution to the review process.	EOO,G1
326	On behalf of the Duluth Seaway Port Authority, I am pleased to write in support of Poly Met Mining's non-ferrous mining and processing facility proposed for Hoyt Lakes. The draft Environmental Impact Statement clearly reflects the years of study and research behind the project and equally clearly demonstrates the reasons why the project should move forward. The Duluth Port is a hub of transportation activity - receiving cargoes from other states and countries and sending cargoes off to other destinations. Because shipping can move large amounts of freight with the minimum of energy required, the port also serves as a model for environmental sustainability; shipping sends far fewer greenhouse gas emissions into the global pool than many other modes of transportation. The PolyMet project offers similar benefits to the environment. Metals critical for our domestic consumption and security will be mined locally-. following very strict regulations that will protect not only our water, land and air but also the air of other locales. PolyMet will mine and process this material with a bare minimum of greenhouse gas emissions and will save greenhouse gas emissions because it will be closer to ultimate domestic consumers. PolyMet's model is a vast improvement over current practices for obtaining these metals for domestic use-mine the ore in a country that may not have any environmental egulations, transport it to yet another country for processing that might not be regulated strictly and then transport it-once again-as a finished product to U.S. manufacturers. PolyMet offers a better way. Finally, the Duluth Seaway Port Authority is charged to support and enhance the economic development of Northeastem Minnesota. The PolyMet project offers us the opportunity to help meet our mission - sound economic development - while protecting the environment. Thank you for the opportunity to support the PolyMet project and to support an adequacy determination for the draft EIS.	EOO,G2
Sender Last Name:	Olds **Submission ID:** 3365	
3656	I agree with this [illegible] to be a [illegible] as good as [illegible] else that isn’t as important as the BWCA.	G15
Sender Last Name:	Oliver **Submission ID:** 208	
208	I recently visited the Polymet facility in Hoyt Lakes and was shown the proposed state of the art ore processing plan. Not only was it fascinating, there's virtually "no waste". Producing bi products such as sulfur being used with limestone to make gypsum is a sure sign of Polymet's commitment to the environment while producing a variety of useful and marketable products. I can't think of a better way to increase revenue for the state and provide much needed jobs for the area. Well done Polymet.	EOO
Sender Last Name:	Olsen **Submission ID:** 23	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
21	My name is Hans Olsen, I'm from Ely, Minnesota, and I read the summary EIS and in there it says that there's considerable uncertainty about the water impact, and then there was some discussion about various ways to mitigate the impact. And that caused me to think that since there is some uncertainty about the environmental impact of this project, perhaps there should be some uncertainty about the executive bonus compensation for the folks who run PolyMet. And so I'll offer this specific suggestion: The executives, the top five executives at PolyMet, agree to escrow their entire bonuses for the first five years of the project, with the understanding that if all of their rosy environmental assessments turn out to be true, the State of Minnesota will match their bonuses, essentially doubling their compensation and giving them a big reward for being right. But on the other hand, if it turns out that they're wrong and the environmental impact, in fact, is severely adverse and there's a lot of cleanup that has to be done, that they agree to forego their bonuses. That's my suggestion. I think it's actually a pretty reasonable one, and if you don't like that one, I think I ask that everyone involved here, Governor Pawlenty and so on, all consider how they can incent the industry to do this in an environmentally friendly way. They're going to get plenty of incentive compensation for selling the end product of the mine. It would be nice if they could also get some incentive compensation for doing it in a way that's is severely adverse and there's a lot of cleanup that has to be done, that they agree to forego their bonuses. That's my suggestion. I think it's actually a pretty reasonable one, and if you don't like that one, I think I ask that everyone involved here, Governor Pawlenty and so on, all consider how they can incent the industry to do this in an environmentally friendly way. They're going to get plenty of incentive compensation for selling the end product of the mine. It would be nice if they could also get some incentive compensation for doing it in a way that's friendly to the environment. And that's my suggestion. Thank you very much.	EOO
Sender Last Name:	Olson **Submission ID:** 1842	
2458	The value to the economy of sulfide mining is not sufficient to cover the environmental risks.	G2
2571	I am writing to you about the proposed PolyMet sulfide mining project. In other locations, sulfide mining has resulted in acid mine drainage, causing extensive and expensive damage to water quality and the environment. Often, taxpayers have been stuck with the costs. The PolyMet project in Minnesota is predicted to degrade water quality, increase mercury in fish, destroy wetlands and peat bogs, fragment the habitat of endangered species, and interfere with tribal treaty rights and tribal resources, like wild rice. The project also could increase air pollution that results in regional haze and could create a risk of perpetual pollution without adequate financial assurance that the public won't end up paying the costs. Both, the Tribal agencies and the United States Environmental Protection Agency have pointed out serious inadequacies in the PolyMet/NorthMet Draft environmental impact statement (EIS). I am very concerned about the possible irreversible damage this type of mining may cause in this sensitive area. From what I understand mines of this nature have in the past been given the go ahead with assurances from the mine operators that no damage will be done only to discover after the fact that safety measures were inadequate. This area deserves an absolute guarantee that the impacts will be what the mining industry says and assurances that funds for cleanup are in place when things go wrong. Please take the time to add supplements to the draft EIS and give people in Minnesota a fair chance to know what impact the PolyMet project would have on our State the Lake Superior basin.	G2B,G2C,G3A,G4A,G7A,G
2997	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources. Prove that it is safe before going forward.	G2,G6
3646	Honestly the average person does not really care about the Environment. So think of it from an Economic perspective. The mine's will produce $x in 20 years but then think of the amount of money lost in the local economies during + after the mine closes x the amount We, the tax payers, will have to pay to clean up the pollution over 60 years (not an actual statistic just a guess). Is it really economically beneficial?	G1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3726	I grew up on the Iron Range. I'm 36 years old. ¾ of my family, grandfather, uncles, cousins all have worked at Hibbing Taconite. Yes, the mining industry provide for those who choose stay. Having grown there up, went to school there, and have left there, the mining will stop. It is not unlimited. The Iron Range needs to find some other economic structure to cling to. Mining precious metals is not that answer! The damages it causes has no replacement value.	EOO,G1,G2
Sender Last Name:	Olund **Submission ID:** 3595	
3866	I find these concerns to be of utmost importance. Jobs are very important but not at a huge [illegible] permament negative impact on the environment. In addition our environment itselfis unique and also provides jobs.	G1
Sender Last Name:	OMalley **Submission ID:** 1247	
1404	Please do not rob Minnesota of one of its greatest natural resources and endanger the overall environmental health of the area.	EOO
Sender Last Name:	Ongaro **Submission ID:** 3672	
1	3-57—The EIS process needs to explain the procedure for replacing leaking liners and liner covers. The EIS process also needs to explain how much leaching is required from a tailings basin in order to prevent water pressure build up and tailings dike collapse.	PD2
Sender Last Name:	Ono **Submission ID:** 2655	
3154	Please do not let this happen. Life for future generations will be challenging enough with problems such as developing new energy sources to support our rising populations. However, contaminating our fresh water supply when it is known that fresh water is not limitless is madness! Before long water will be more expensive than oil, and where will we be? Thirsty... with all the contaminated water we can drink.	G7
Sender Last Name:	Oppegard **Submission ID:** 2586	
3142	I WORKED FOR HENKEL CHEMICAL IN MPLS IN 1979--1983 WHERE THEY MADE LIX REAGENT (LIQUID ION EXCHANGE) FOR COPPER MINING IN AFRICA---I KNOW HOW INCREDIBLY DANGEROUS AND POLLUTING THESE SUBSTANCES ARE (THEY HAVE NOT CHANGED MUCH) AND THERE IS A GOOD REASON WISCONSIN HAS BANNED THIS TYPE OF MINING. IF YOU REALLY CARE ABOUT THE PEOPLE OF THE RANGE AND OF GREATER MINNESOTA THEN IF YOU DON'T HAVE THE GUTS TO STOP IT THEN AT LEAST PUT SEVERE RESTRICTIONS ON ANY POLLUTION OUTPUT---IF WE HAVE WHAT THEY WANT, THEY WILL WORK WITH US--PLAY POKER WELL AND EVERYONE WINS.	G5
Sender Last Name:	Oss **Submission ID:** 1345	
3	not to mention the noise and air pollution, how does PolyMet take care of that?	RFI,N2
1319	Sir: I hope your not swayed by big money interests. Minnesota's lands animals and birds are already under pressure by development and ATV or OHV use. I trust you know what is best for the environment or you would not have the position you have.	G2C
1571	I'm not for it! It seems when they get their foot in the door, it's just the beginning of whats to come	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1572	It's just a shame to ruin our Northern Treasure. So many people have devoted their whole lives to preserving our wilderness. It's to bad; I guess money does all the talking	EOO
Sender Last Name:	Ostrowski **Submission ID:** 3450	
42	Further, the PolyMet NorthMet project will result in total loss of 1,454 acres of federally designated critical habitat for two endangered species known to be in the vicinity of the mine site – the Canada lynx and the gray wolf. Finally, cumulative impacts must address the loss of revenue to the Boundary Waters Canoe Area Wilderness and Superior National Forest tourist industry as part of a sulfide mining district.	WI1,SE4
1315	It is also my understanding that PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in longlasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project.	WR2D,GT2
1943	Water quality impacts remains a top concern. How is it acceptable to allow for up to 2,000 years of environmental impact for the short term gain of one company? Who will pay for the long term treatment required? PolyMet has few assets and little financial history. The DEIS fails to address where the funding will come from to pay for postclosure treatment, monitoring and maintenance. As a result, it seems likely that Minnesota taxpayers may have to pay millions of dollars to clean up after PolyMet has gone. In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes. Wisconsin has already banned sulfide mining due to the unacceptable environmental risk it presents.	EOO,WR3I,PD4,FM1,FM4
Sender Last Name:	Overby **Submission ID:** 2881	
2760	I have spent a lot of time over the past 40 years trying to improve the water quality of Lake Superior. The Polymet project, I believe, presents a definite threat to our great lake. The headwaters of the St. Louis River are currently being contaminated by leakage from the old Erie Mining tailings disposal area. Additional runoff from sulfide mining operations into public waters will create additional problems. Is there a sulfide mining operation anywhere that has not caused environmental degradation? Please do not let economic concerns override environmental protection. For our sake, as well as future generations, I sincerely request that a MPCA to Polymet, if offered, be the most restrictive, comprehensive, and environmentally sound possible.	EOO
Sender Last Name:	Overend **Submission ID:** 1285	
1476	PLEASE KEEP OUR PRECIOUS WATER SOURCES CLEAN! I love the BWCAW and hope that my children and their grandchildren will be able to save and see this precious wilderness. So please leave the BWCAW alone!	EOO,G8B,G11
Sender Last Name:	Paine **Submission ID:** 2560	
430	The very short time allowed for receipt of comments does not permit concerned citizens time for an adequate review of the issues.	PRO6
707	How will this operation and other similar operations which follow disrupt wildlife movement, such as the Canada Lynx, which requires a large contiguous territory?	WI1
2198	A study is needed to determine the direction and rate of flow of groundwater in the vicinity.	WR2A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2396	A provision is needed for DNR monitoring of tailings basins, waste piles, groundwater, and surface runoff.	PD9
Sender Last Name:	Pajunen **Submission ID:** 1049	
1152	I have read the entire proposal, visited the plant site and agree that there are always some risks in any endeavor. I encourage the approval of the project.	EOO
Sender Last Name:	Pakudaitis **Submission ID:** 3263	
1914	The mine's tailings basin will also produce discharges high in sulfate concentrations, which will turn mercury into methlmercury, making fish dangerous to consume.	WR4B,FM1
3158	Water quality concerns have not been adequately addressed in the PolyMet project's DEIS. Water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years.	EOO
3577	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. I am adamantly opposed to this type of mining in the state of Minnesota. We Minnesotans recently passed the Legacy Amendment which provides funding for clean water programs and the preservation of our natural landscape. It would be a crime to allow this kind of mining in our state and then have to use these funds to clean up its resulting contamination. Consider the state of Montana and how much it has had to spend cleaning up after the mining operations there. Montana taxpayer had to pay millions of dollars (and are still doing so) to clean up the messes that mining companies like PolyMet made. These companies extract and profit from our resources and then leave the burden of cleanup on the state. Although this mine may give short-term economic benefit to the region, its likely long-term environmental and economic harm is not worth those short-term benefits.	EOO,G2,G4A,G7
3614	What's more, PolyMet has not provided proof of adequate financial resources for post-mining cleanup. As I taxpayer, I DO NOT want to pay for the damage that this company will likely do to my state.	PD4
Sender Last Name:	Palcich **Submission ID:** 3675	
1	4.4-136—“Reservations existed about relying on just the low and average liner leakage rates for groundwater quality predictions, as it may not fully account for the essentially permanent use of the liner (e.g., liner degradation over time, differential settlement, and accidental tears during waste rock placement).” Explain which liners would be able to be replaced in five years time, or as needed.	WR2D
1	4.1-3—“The deposit consists of disseminated copper-nickel-iron sulfides, with minor local massive sulfides…” Based upon this and PolyMet investor reports, there is potential for further or deeper mining at the site. This information needs to be explained to the public, not buried in agency terminology. The potential for expansion of mining at the PolyMet site needs to be addressed as a potential further impact on the environment.	WR1E
2	4.1.4-4.18—What conclusions are drawn from all of these numbers? What are the cumulative impacts on our health? How do the concentrations of these metals and parameters affect fish populations, wild rice, birds, and wildlife? Some statements from the DEIS that concern me: “Limited water quality data are available from these four new wells.” (4.1-11) “It is difficult to discern to what extent these reductions are simply attributable to the effects of dilution.” (4.1-14) My conclusion is that water in the Embarrass and Partridge Rivers is already contaminated with mining pollution. PolyMet mining would obviously add to this load. The full impacts of this are not addressed in the DEIS. This study is incomplete. Production at the Mesabi Nugget plant must also be factored in to any of these numbers.	WR5C

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Comment ID	Comment Text	Theme Codes
2	4.6-18—NO2, SO2, and PM 10 are analyzed for their impacts on visibility. The PolyMet EIS needs to explain whether these contaminants can have an impact on health even if they cannot be seen.	AQ4,AQ6
2	4.6-14—"The MPCA approved the exclusion of the Mine Site emissions in assessing the impacts at the Plant Site receptor grid locations as they would not likely contribute to a change in the overall impacts." Based upon the MPCA's previous record of not being able to monitor mine sites appropriately and enforce mining companies to comply with laws, I disagree with this conclusion. The purpose of an EIS process is to consider all impacts. If a mining company cannot control its emissions in order to meet state and federal laws, then how can that mining operation be permitted? Explain how the EIS process can allow the permitting of pollution.	AQ4,AQ6
3	Section 4.12—Considering the extent of hazardous materials which would be handled at the PolyMet mine site, and considering that former LTV hazardous materials (4.1-18) are not totally cleaned-up, what assurances does the DEIS give the public that additional pollutants (that may not have been tested for) may be in the watershed, or may enter the watershed upon mining? Explain.	HM6
3	4.13.4—"No cumulative effects were identified for Geotechnical Stability." Explain how storing PolyMet tailings on top of LTV tailings will not have a cumulative effect.	GT1
4	3.24, Table 3.1-11—According to a law of physics, matter cannot be created or destroyed. Explain what ultimately happens to the flotation "consumables."	PD9
5	Table 4.1-45 is referenced throughout the report in footnotes as justification that groundwater impacts will persist for 2,000 years. However, a careful review of the results presented in this Table confirms that the potential impacts to groundwater are both limited and unlikely. Furthermore, as noted on 4.1-83 (last sentence of first paragraph), "the Uncertainty Analysis would suggest that the deterministic model results for these stockpiles may be conservatively high". In addition, as noted previously, the results presented in Table 4.1-45 represent a small portion of the water quality calculations prepared for project.	WR2E

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Comment ID	Comment Text	Theme Codes
6	As discussed on Page 4.2-28 of the DEIS, the wetland mitigation planning process relied on the WCA wetland replacement siting rules Minnesota Rules part 8420.0522), state compensatory mitigation requirements under state water quality standards (Minnesota Rules part 7050.0186), and the USACE St. Paul District Policy for Wetland Compensatory Mitigation in Minnesota (2009), which prioritizes the location of project specific compensation to first replace lost wetlands on-site, then within the same watershed or county, and finally within adjacent watersheds. The primary goal of wetland mitigation is to restore high quality wetland communities of the same type, quality, function, and value as those to be impacted to the extent practicable. The purpose of the passive wetland system that may need to be created between the West Pit outlet and the Dunka Road is to remove metals from discharge water. Because this wetland system is a treatment system it will not officially count toward the wetland mitigation required for the NorthMet Project. However, this passive wetland system would still be a functioning wetland created on the Project property, a highly preferred location for wetland restoration. Natural wetlands produce methylmercury and a constructed wetland will also produce methylmercury. The DEIS text suggests that a passive wetland treatment system "could promote mercury methylation, depending on the mercury and sulfate concentrations in the effluent". It is not clear whether the word "promote" means that methylation of mercury will occur, or if mercury methylation will be elevated above some background level. If there is a concern that a constructed wetland have enhanced or elevated mercury methylation compared to the functioning of a natural wetland in a non-mining area (i.e., a background wetland), the available field research data indicates that it is unlikely for this to occur. Monson (2007) evaluated a number of constructed stormwater wetlands in an urban area and found that the combined results for all sites indicated that constructed wetlands have methylmercury concentrations similar to natural wetlands receiving agricultural runoff. Monson (2007) also found that the stormwater wetlands were similar to biomonitoring wetlands in regard to methylation efficiency (as measured by %MeHg). Sulfate concentrations in the constructed wetlands ranged from a low of 0.5 mg/L (similar to current background concentrations) to as high as 87 mg/L (considered to be elevated concentrations), but sulfate was not correlated with methylmercury concentrations or methylation efficiency (the percent of mercury that is methylmercury, %MeHg). Preliminary data from PolyMet's 2009 Sulfate and Methylmercury Investigation indicates that elevated sulfate in water that seeps into wetlands north/northwest of the Tailings Basin does not result in elevated methylmercury concentrations in the streams that drain those wetlands. In other words, methylmercury concentrations in streams draining wetlands that receive elevated sulfate from the Tailings Basin are similar to methylmercury concentrations in streams draining background wetlands with low sulfate concentrations. Similar to the findings of Berndt and Bavin (2009) for the St. Louis River and its tributaries and to a previous review of sulfate and methylmercury data for a number of streams on or near the Iron Range (Barr Engineering Technical Memorandum, 2008), the preliminary results from PolyMet's 2009 Investigation indicate that sulfate concentration is not correlated with methylmercury concentration and some of the highest methylmercury concentrations were found in streams that drain background wetlands. Based on the available field research data it is unlikely that a passive wetland treatment system would have higher methylmercury concentrations or a greater efficiency of methylation (expressed as %MeHg) than a background wetland or a stormwater wetland in an urban area. Therefore, any decision regar	EOO,WR4B

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Comment ID	Comment Text	Theme Codes
7	Exceedence of a Guideline Risk Value The Tribal cooperating agencies state that they want all of the estimated potential human health risks to be below the MDH guidelines at the time an air permit is issued to PolyMet. This stated preference is inconsistent with state and federal risk assessment guidance and misinterprets the incremental risk estimates. Incremental risk guideline values are not “standards” and are not applied in the same manner as ambient air standards. The exceedence of incremental risk guideline values (cancer, 1E-05; noncancer, 1.0) does not indicate that adverse impacts are expected to occur. Rather, the real consequence of an exceedence of a guideline value is to focus attention on risk driver pollutants with regard to the factors that are contributing to the risk estimates (e.g., data used to estimate air emissions, variability in toxicity values) and identifying the conservatism in the analysis. A discussion on the conservatism in the risk estimates is provided in RS38B (AERA – Mine Site, Sections 3, 4.2, 4.4). For example, a primary source of conservatism in the risk analysis is the Maximum Exposed Individual concept that assumes continuous outdoor exposure (24 hours per day, 365 days per year) for a 70-year lifetime. Potential actual exposure would be a factor of 10 or more lower than that assumed for the MEI receptors. As another example, discussed in RS38B, the cancer risk drivers (dioxin/furan and PAH emissions) are associated with diesel truck emissions, and as the Mine Site AERA stated, “[t]he emission factors were developed on diesel fuel formulations in the mid-1990s. Diesel fuel formulations have changed since that time period to make the fuel burn cleaner. The available emission factors are considered conservative and do not reflect the current cleaner burning diesel fuel formulations.” More recent data from the European Union (UNEP Standardized Toolkit for Identification and Quantification of Dioxin and Furan Releases, 2005) reports an emission factor for dioxins that is 18.5 times lower than the one used in these calculations (UNEP factor = 7.13 x 10-13 lb/gal; factor from U.S. studies = 1.32 x 10-11 lb/gal). An alternative emission factor that is 18.5 times lower than the factor used in the initial emission estimates and risk estimates would result in much lower estimates of potential dioxin/furan risks. Additionally, the risk estimates reported in RS38B were calculated using the toxicity values preferred by the MPCA and MDH. An alternative toxicity value for dioxins/furans is available from the California EPA that is an order of magnitude lower (i.e., less toxic) than the value preferred by the MDH. When this alternative toxicity value is used to estimate potential risks from dioxins/furans, the incremental cancer risk for a farmer receptor decreases proportionally. In the case of the farmer receptor evaluated at the Mining/Industrial District boundary, the use of the California EPA toxicity value for dioxins/furans would decrease risk below 1E-05. In summary, risk guidelines are not bright lines that indicate a health risk problem if they are exceeded. Rather, risk guidelines indicate the need for further evaluation of the inputs to the risk assessment (e.g., emissions estimates, toxicity values, exposure assumptions, etc.). When the conservatism in the risk estimates is taken into account (e.g., MEI concept), adverse impacts to human health are not expected to be associated with emissions from the Mine Site. Therefore, even when the maximum hypothetical farmer incremental cancer risk is estimated to be slightly above the MDH guideline value of 1E-05, the conservatism in the analysis and the knowledge that the use of acceptable alternative values results in much lower risk allows for a reasonable conclusion that risks are acceptable.	EOO

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Comment ID	Comment Text	Theme Codes
7	Potential Farmer Risk The Mine Site Air Emissions Risk Analysis (AERA) (RS38B) is a screening-level risk analysis conducted with conservative parameters that estimate an upper bound on the level of potential risk at a particular location. The emphasis of an AERA is to estimate potential risk for hypothetical receptors and to be conservative and protective of public health. It is also recognized by federal and state agencies that actual risk to actual receptors can be many times lower (i.e., one to several orders of magnitude lower) than the potential risks estimated for a Maximum Exposed Individual (MEI). The Minnesota Department of Health (MDH) policy is that an incremental cancer risk guideline value of 1 E-5 be used as a point of comparison to incremental cancer risks estimated for human health risk assessments conducted in Minnesota. As stated in the DEIS, the estimated potential incremental cancer risk for a hypothetical farmer receptor at the Mining/Industrial District Boundary is 3E-05 and exceeds the MDH guideline of 1E-05. This hypothetical farmer receptor is approximately 2.5 kilometers southeast of the Mine Site emission sources (RS38B; Figure 3-1, Receptor Grid; Figure 3-2, Zoning Districts Boundary). Dispersion modeling conducted for the NorthMet Project Mine Site and for numerous other facilities in “flat terrain” and rural locations indicates that air concentrations decrease with distance from emission sources. As an example, the maximum modeled annual average PM10 concentration in the city of Babbitt (~ 8 kilometers north of the Mine Site property boundary) is two orders of magnitude lower than the maximum concentrations modeled at the PolyMet ownership boundary (near the northeastern corner of the site). Therefore, a receptor that is 6.5 miles (10.8 kilometers) to the north of the Mine Site sources will have lower modeled air concentrations and lower potential human health risks than a receptor located closer to the Mine Site emission sources. The probability that a farmer receptor located 10.8 kilometers from the facility would have higher modeled air concentrations and a higher potential risk than a farmer receptor located 2.5 kilometers to the southeast the Mine Site sources is essentially zero. Because air concentrations decrease with distance from the Mine Site, and because potential risk estimates for the hypothetical farmer are based on maximum modeled air concentrations at the Mining/Industrial District Boundary (a distance of about 2.5 kilometers from the Mine Site sources), scaling of risk with distance can be used to estimate potential farmer risks at some other distance. In this case, using the estimated risk of 3E-05 for a hypothetical farmer receptor 2.5 kilometers from the Mine Site sources, the potential incremental farmer cancer risk at 10.8 kilometers from the facility is estimated to be a factor of 4 lower, approximately 7E-06. This potential incremental farmer cancer risk of 7E-06 at 10.8 kilometers from the Mine Site is below the MDH guideline value of 1E-05. Based on the PM10 modeling results that show the concentrations in Babbitt to be 2 orders of magnitude lower than at the Mine Site ownership boundary, it is likely that potential cancer risk to a farmer located 10.8 kilometers north of the Mine Site would be lower than 7E-06, possibly one to two orders of magnitude lower. However, the potential incremental farmer cancer risk for a receptor 10.8 kilometers to the north of the facility cannot be any higher than that estimated for the farmer receptor 2.5 kilometers from the facility, 3E-05.	EOO

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Comment ID	Comment Text	Theme Codes
8	Some portion of future emissions from this project may be impacted by greenhouse gas (GHG) emission caps and rules implemented under the Midwest Greenhouse Gas Reduction Accord (the Accord). The Project emissions, however, do not influence baseline emission levels or greenhouse gas emissions reduction recommendations proposed under the Accord. The Accord, as the Advisory Group Draft Final Recommendations outline, is based on reductions normalized to a 2005 emissions baseline. As an example, the 2020 target aims to attain carbon dioxide emission reductions of 20% below the 2005 emissions baseline. Because the Project is not part of this baseline, it should not directly or indirectly affect reduction goals defined in reference to this baseline. The mechanism of emission reduction rests on annual allowance distributions (part-auction, part-allocation based on present industry sector emissions), coupled with a cap-and-trade system. As such, this Project has little effect on the Accord other than to potentially increase the industrial sector emissions in the near future, possibly creating an incentive for more allocated allowances to this sector than would happen in the absence of the project. (This increase would only happen if the absolute number of allocations were determined in the time period when the Project was operational, which is not certain.) As time goes on, the number of GHG emission allowances given out and auctioned off will decrease in line with the reduction goal. This goal will not be directly impacted by the Project but will be decided through a negotiated inter-state political process. In the case that the system described in the Accord comes to be the mechanism for GHG emission reduction, PolyMet will have to pay for allowances like every other covered business. In summary, the Project (1) will not affect the emissions baseline; (2) may have a minor effect on the proportion of allowances given to the industrial sector; (3) will not affect the setting of emission goals; and (4) PolyMet will have to obtain allowances like every other covered business.	EOO
9	This footnote does not accurately reflect information provided by PolyMet as stated in PolyMet's Supplemental NorthMet Project Description – Summary dated July 13, 2007. That document clearly states that this mode of operation would provide significant operating flexibility during changing market conditions and during periods of mandated power usage reductions (as well as during construction/commissioning and maintenance of the Hydrometallurgical Plant). Please see page 2 0f 6 of Supplemental Project Description Summary which describes the benefits of the concentrate mode including: More options will be available to deal with changing market conditions. At metal prices in the expected range, producing the higher value Hydrometallurgical Plant products is more desirable. But unexpected combinations of metal prices, shipping costs or customer situations could result in a circumstance wherein producing a 'copper' and 'nickel' concentrate may be more desirable. The option to reduce total electrical power load and still produce the 'copper' and 'nickel' concentrate product will provide the flexibility in managing product mix and power consumption during extended peak power situations and periods of mandated power usage reductions.	EOO
10	4.1-137—"It should be noted that aluminum, beryllium, iron, manganese, and thallium exceeded the groundwater evaluation criteria in the model; however, this was due to high baseline concentrations that were not attributable to the Project and these solutes were not carried forward for detailed transient flow modeling." If the modeling was not attributable to the Project, what is the significance of the modeling? Explain where these pollutants come from—naturally occurring, from the LTVSMC tailings basin, or from other what other source—and what studies were used to make this determination. Does this statement mean that PolyMet's mining proposal would add to contaminants that already have high concentrations in the water?	WR4C
11	4.1-143—"The deterministic modeling results suggest that three parameters (i.e., arsenic, cobalt, and selenium) could exceed surface water standards, in addition to relatively high sulfate concentrations. The Uncertainty Analysis for the Proposed Action suggests that copper and nickel could be underestimated by the deterministic modeling." What are the cumulative effects of these water quality exceedances? How is the uncertainty going to be addressed? The EIS process must include the cumulative impacts of the metals and parameters that are listed within the DEIS.	WR5A

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Comment ID	Comment Text	Theme Codes
12	4.1-143—"The deterministic modeling results suggest that three parameters (i.e., arsenic, cobalt, and selenium) could exceed surface water standards, in addition to relatively high sulfate concentrations. The Uncertainty Analysis for the Proposed Action suggests that copper and nickel could be underestimated by the deterministic modeling." What are the cumulative effects of these water quality exceedances? How is the uncertainty going to be addressed? The EIS process must include the cumulative impacts of the metals and parameters that are listed within the DEIS.	WR5A
13	4.4-9—"Consultation between the USACE and the USFS regarding the potential effects on federally – listed species is currently ongoing." Will this go on until those species are extinct? Explain the parameters of ongoing.	AQ6
14	4.4-10—"The Project would generate approximately 970 (948 vehicle and 22 rail) trips per day, totaling about 3,989 miles, between the Mine and Plant Sites. ..An additional 3,930 miles per day of vehicular traffic are expected within the Mine Site itself, primarily to haul ore to rail siding and waste rock to the stockpiles." Are these miles included in both carbon and particulate emissions for the mining operation? What is the economic liability of so heavily relying on equipment that uses expensive fuels while emitting pollutants that contribute to global warming and haze? These issues need to be addressed. The weather patterns being exhibited while this DEIS is going through the comment process indicate that global warming (rain and ice in northern Minnesota in January) or some large kind of global change 9 is in progress. The mining of low grade ores (less than 1%) as assayed by PolyMet exploratory drilling, which literally means mining 99% waste rock, puts this project at particularly high risk to fail in the economic market place. The use of large amounts of expensive, carbon producing fuels will be another liability. Please address this under socioeconomic impacts.	AQ3,AQ4,EOO,AQ4
15	4.6-7—"Due to the remote location of the Project, compliance can be demonstrated with a pollution control equipment efficiency of 85%." Ouch! Because metallic sulfide mining would take place in a fairly remote area, we can pollute that area to be in compliance with the rest of our polluted air (Minnesota rules 7011.0710)? The PolyMet EIS process must explain who is responsible for the above rule, and why those who live in northeast Minnesota should accept the logic behind this rule.	EOO,AQ4
16	4.6-7—"Various state and federal air quality standards and emissions standards have been established to minimize degradation of air quality." The PolyMet EIS process must justify why it is worth degrading the air quality of the Arrowhead Region.	AQ4
17	4.6-10—"Small amounts of toxic emissions known as Hazardous Air Pollutants (HAP) are expected to occur throughout the Project." The PolyMet EIS process must spell out the health hazards of the cumulative impacts of HAP.	AQ6
18	The PolyMet DEIS begins with a quandary. The DEIS does not state where the third party processing would take place. However, the DEIS jumps to the conclusion that the "processed resources" would help meet domestic demand by sale to domestic markets. At the Aurora DEIS hearing, a company rep stated that all of the inquiries that he was receiving in regard to the metals were for possible shipment to China. Therefore the DEIS statement "The processed resources would help meet domestic and global demand by sale of these products to domestic and world markets" should read "The processed resources would help meet global demand by sale of these products to world markets, and domestic demand by the purchase of these metals in the world marketplace." This would mean that Minnesota metals which are mined by a Canadian company which has an agreement with an international company headquartered in Switzerland (Glencore) will become a domestic source only if someone in the U.S. buys that metal, or a product containing that metal , back from Canada or some other country. The use of the word "domestic" in the PolyMet DEIS creates a false need for the mining of these metals. This falsity needs to be corrected as above.	G9
19	4.6-11—"Ozone emissions were not modeled or analyzed for NAAQS due to the regional nature of ozone formation involving complex interaction of multi-pollutants." The PolyMet EIS must specify which pollutants are interacting within the region, and the possible health damages of a sulfide mining district, including PolyMet.	AQ4,AQ6

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Comment ID	Comment Text	Theme Codes
20	4.6-20—Sulfur and nitrogen deposition was analyzed for its impacts on the wilderness. This analysis is not complete by taking PolyMet as an isolated case. This analysis is totally without merit unless taken as part of a cumulative impact with Mesabi Nugget and the Peter Mitchell mine. The PolyMet DEIS is inadequate in portraying PolyMet as an isolated mine project. PolyMet is the first in line to get permitted for metallic sulfide mining, shares former taconite property with Mesabi Nugget, and borders the taconite mining band of minerals. To present this DEIS analysis in a way that narrows the potential impact of metallic sulfide mining in order to appease political appetite for industry and perceived economic benefit, discredits the entire regulatory process of the state of Minnesota.	AQ4B
21	4.6-27—"The MEI multi-pathway cancer risk estimated was estimated to be 3 E-5 for farmers using the Mining/Industrial District Boundary. This is above the MDH additional lifetime cancer risk guidance level of 1 E-5." The PolyMet EIS process needs to explain how it would educate farmers about these risks. Who else might be exposed to carcinogenic pollutants as part of this mining project?	AQ6A
22	4.6-31—The EIS process must explain how the Barr Engineering CO2 sequestration loss figures were calculated.	AQ3
23	4.6-32—"However, while energy use is reduced by one-half, greenhouse gas emissions do not decline per unit of production from what would be expected…principally because of the large load of nonenergy process emissions associated with hydro processing." How could a cap and trade policy or carbon tax affect the economic viability of this plant? Since this process is based upon a small pilot study done in Canada, what is the economic liability of this plant not operating in an economically efficient of a way as proposed? Give details. Consult with an independent economic analysis agency. Place these studies under socioeconomic impacts. The hydrometallurgical plant will take approximately two years to construct, once PolyMet or the company that buys PolyMet attracts enough investment money to begin such construction. PolyMet earlier asked for the option of hauling a bulk concentrate from the site, prior to plant construction. Where is this addressed in the DEIS? According to NEPA, all options need to be addressed. What is the economic liability of transporting bulk concentrate rather than semi-processed metals in hydroxide form? Why isn't the cost comparative stated in this DEIS? Give details. Would copper be able to be electroplated on site without going through the autoclave process? Explain. How would the acid mine drainage trail of railing and shipping bulk concentrate be addressed? Explain.	AQ3,AQ4
24	.6-33—What is the cost of using electric drills in comparison to diesel drills? How expensive are Gen- Set locomotives? How has access to the amount of electricity and natural gas required been determined and spelled out for the public, who will be impacted by increased costs of these sources of energy as the 11 demand for these sources of energy is multiplied exponentially if a new mining industry is allowed to start up? What guarantee is there that PolyMet would buy this more expensive electric equipment once the project has been permitted? Explain how the agencies can enforce using technology that emits the least amount of green house gases. Explain how the electric company would then absorb that portion of PolyMet's carbon impact.	AQ3
25	4.6-33—"This additional mitigation of wetland types other than Type 8 (open and coniferous bog) would contribute to compensating for the Project's impacts on Type 8 wetlands." Which agency, and under what laws and rules was it determined that it is ok to lose open and coniferous bogs as long as they are replaced by other types of wetlands? How was it determined that wetland replacement for PolyMet could be made out of the county and out of the watershed? How will wetland mitigation in a different county compensate for carbon sequestration loss in St. Louis County? The PolyMet EIS process must explain how Minnesota laws are being followed, and how the mitigation plans will be of benefit to St. Louis County, especially in regard to climate change.	AQ3
26	4.7-1—"The region has traditionally supported various mining activities as well as logging on federal, state, county, industrial, and private forest lands..Review of aerial photography and public records indicate that there are few noise sensitive areas or receptors such as residences, campgrounds, and national wilderness areas within the Project vicinity." What tests determined that noise won't be heard in the Boundary Waters 20 miles away? How do you determine effects of noise by sight rather than by sound (aerial photographs)? Show other studies that have used aerial photography to determine the effects of noise pollution and show data that indicates whether or not these studies were accurate indicators of the effects of noise on wilderness, tourism, workers, and wildlife. Was it determined that more noise is ok because there has traditionally been noise in the area? How does 24 hour a day noise affect the character of the land?	N1,N4,AQ4

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Comment ID	Comment Text	Theme Codes
26	S-9—"There is some uncertainty as to whether the West Pit overflow would meet the Lake Superior mercury standard, but this impact could be mitigated it if would occur." The EIS process requires a plan that will allow the St. Louis River watershed to achieve mercury TMDL standards.	WR3I
26	4.10-2-4.10-4—Explain why the East Range cities are compared to the county and the state, rather than to the other Range cities. Comparing the Range to the State is comparing apples to oranges. When the whole county is included, that includes Duluth. Former mining towns should be compared with remaining mining towns in order to get a true comparison.	SE8
27	4.10-18—Public Finance Tax figures are misleading, because they don't account for swings in metal production. During the 34 years of my teaching career, the taconite industry suffered a major downturn in the 1980's, followed by major downsizing of the workforce. This was followed by a boom period during the lst decade of 2000, culminating in the depression of 2008-9. School population continued to decline during the 34 years of my teaching career, even though the Virginia school district was surrounded by mining on 3 sides. Iron Range school districts continue to consolidate, even though taconite mining was at 90% full production prior to 2008. Mining has become machinery intensive. As the workforce declined, the socioeconomic gap among student families widened. My own experience as a classroom teacher confirms the conclusions of "Mining the Data: Analyzing the Economic Implications of Mining for Nonmetropolitan Regions" by William R. Freudenburg and Lisa J. Wilson: "….even when higher incomes are associated with mining, those incomes do not prove sufficient to alleviate the problems of poverty and unemployment so often associated with mining-dependent regions." (http://f1.grp.yahoofs.com/v1/ENZkSxa3NFFHTojilcbN4n44UA58lcGsURC_p3AujquU40qIHzFjc7hqOYoi0nkIr3QSj_ k-FyAj70YhttowcloYXFmy-6jbA/Freudenberg%20article.pdf) (Paper copy included with mailed-in comments.)	SE3
28	4.10-27—"The beneficial effects include increased employment opportunities, a larger tax base, and increased county revenue from property taxes." County and state government continues to push for mining because of tax revenues and a tax base. From my experience as a classroom teacher, I would argue that the current mining economy of the Iron Range has created an entire layer of people receiving public assistance who choose to live here because the cost of living, especially housing, is cheaper. Fewer mine workers, due to more machinery, have left older housing on the market that is used for rental property. In the meantime, Range towns continue to dwindle in size and services, while local leaders have promoted big box stores and other highway sprawl marketing. Agency personnel who complete this part of the DEIS are no doubt isolated from the full view of the Iron Range socioeconomic structure. As a former classroom teacher, I am well aware of the Iron Range gap between the higher and lower income levels. I am well aware of this because during my own school days on the Iron Range, the majority of us were in the middle of a blue collar working class society. The middle no longer exists. In its place is a narrow top income layer and a wide bottom income layer. The opening of a metallic sulfide mining district is not the answer to economic woes. This is explained in the entry below: From Wikipedia, the free encyclopedia "The resource curse (also known as the paradox of plenty) refers to the paradox that countries and regions with an abundance of natural resources, specifically point-source non-renewable resources like minerals and fuels, tend to have less economic growth and worse development outcomes than countries with fewer natural resources. This is hypothesized to happen for many different reasons, including a decline in the competitiveness of other economic sectors (caused by appreciation of the real exchange rate as resource revenues enter an economy), volatility of revenues from the natural resource sector due to exposure to global commodity market swings, government mismanagement of resources, or weak, ineffectual, unstable or corrupt institutions (possibly due to the easily diverted actual or anticipated revenue stream from extractive activities)." The socioeconomic chapter must include an independent cost-benefit analysis that includes environmental, social, and governmental impact of metallic sulfide mining.	SE3

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Comment ID	Comment Text	Theme Codes
29	4.11-3—Explain how waste rock stockpiles (maximum height 320 feet) will not have a visual effect upon the project area. Explain how replacing 6,700 acres of Superior National Forest with open pits and waste rock piles will not impact the visual character of the Project Area. "The project would increase the scale of disturbance in the region; however, mining activity is a longestablished aspect of the Iron Range landscape and the addition of the proposed mining facilities would not introduce visual elements to surrounding viewpoints that are in stark contrast to the regional visual character." The above statement is incorrect, and needs to be corrected. The sulfide mining district is not within the Iron Range. It borders the Iron Range, and PolyMet's proposed mine would be situated within what is now Superior National Forest. The mine site would be situated approximately 20 miles from the BWCAW.	EOO
30	Any of the impacts stated within the DEIS are meaningless because of continued exploratory leasing, which would open up the entire Arrowhead to become a sulfide mining district. Exploration itself is playing havoc with wildlife habitat and water quality. An EIS must be completed on the mineralization of the entire Duluth Complex prior to the permitting of any one project. The agencies are knowingly misrepresenting metallic sulfide mining as individual operations rather than one complete district because that is the only way that sulfide mining can get permitted in the state. The overall impact of metallic sulfide mining would greatly exceed water and air quality standards and would not be acceptable due to its impact upon the Boundary Waters Canoe Area Wilderness. This is a travesty to the general public and to the integrity of this area for future generations	G8C
30	Chapter 5—Explain the rationale behind choosing to pollute the Partridge River rather than the Embarrass River.	RFI
31	Details of all sulfide mining exploration and findings must be presented to the public for comment as a complete sulfide mining district. Since the DNR Lands and Minerals Division has complete access to all records, the scope of mining exploration and the potential for opening other mines must be presented to the taxpayers who fund the DNR Lands and Minerals Divisions. The potential degradation of the Arrowhead Region, its waters, land, and air, and the extent of the Duluth Complex as it is being advertised as the largest body of mineralization in North America must be made known to the public. The public must be informed that 99% of this body of mineralization would be waste rock. The amount of waste rock that would be generated must be presented to the public in a way that they can comprehend, because it would be enormous. The demand for these metals must be put in the context of worldwide demand, as none of these companies are American companies and none of the metals mined would be considered a domestic source or supply. This must be clearly stated within the EIS process under socioeconomic impacts. It must be make known to the public that the profit figures advertised in regard to mining the entire Duluth Complex are figures that would go to foreign companies and whomever their investors might be, ultimately leaving the Arrowhead Region devoid of minerals, forests, wetlands, wildlife, clean water, and jobs.	G8
32	The USFS must also explain the land exchange process that is taking place in order to comply with PolyMet's request to mine in Superior National Forest. This is public land, and the land exchange process requires public input according to law. Since the USFS was remiss in completing an EIS on lands within the mining exploration zone, then the PolyMet DEIS must incorporate this environmental review into its process. This process cannot rely on legislation that the USFS and PolyMet have requested U.S. Rep. James Oberstar and U.S. Senator Amy Klobuchar to introduce. Such legislation would bypass public input on public lands, would exclude federal laws protecting threatened and endangered species, would bypass 100 years of federal law by which land was added to Superior National Forest with the intention of protecting the watersheds, and would exclude tribal rights. It is unfair of our state and federal agencies to ask our federal legislators to introduce legislation that is highly unethical.	PD1
33	S-11 under Cumulative Effects—"General increase in air emissions, however, no significant effect on regional air quality." The EIS process needs to give a qualitative definition for significant and a description of air without emissions.	AQ4
34	This mine plan is based upon the plans of current taconite mines, which we know are leaching metals and contaminants into our groundwater, and polluting our air. This DEIS does not explain how PolyMet's new, cutting edge, next generation technology, as advertised on radio, protects our environment.	PD8

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Comment ID	Comment Text	Theme Codes
35	This DEIS does not address health concerns of cumulative impacts regarding the following: flocculent chemicals, hydrometallurgical chemicals, water treatment chemicals, and toxic heavy metals. The cumulative effects need to include contaminants already in the Partridge and Embarrass Rivers, along with potential new contaminants from PolyMet, and from Mesabi Nugget which shares the LTV site with PolyMet. Synergistic effects must be included. Any hormone disrupters must also be singled out.	CR1
36	The DEIS lacks a separate chapter for politicians, who have backed the opening of a metallic sulfide mining district in Minnesota without knowledge of the science behind the mining and the pollution. Politicians, as well as average citizens, do not have the time to make their way through the PolyMet DEIS. Our local politicians have stated over and over again that they are relying on the agency process to make sure that this mining is done right. The agencies, assisted by independent, non-conflicted review, need to spell out for the politicians the pros and cons of mining low grade sulfide ores in northeast Minnesota's water rich environment and also where the responsibility for polluting the Arrowhead Region of Minnesota will lie.	EOO
36	The PolyMet DEIS shows that PolyMet will pollute the watershed, we just don't know exactly how much. There is nothing in this DEIS that shows how that pollution can be stopped—only mitigated to some extent. There is no way to enforce any treatment. The process is open ended, especially closure plans, depending on what actually happens on the ground rather than on charts. The DEIS is inadequate without a chapter that summarizes the extent and kinds of pollution that can be expected and how to address them.	WR1E
37	This DEIS is neither adequate nor complete. This DEIS process needs to be halted for the public good, based upon the fact that the permitting of PolyMet would indicate regulatory agency approval for the opening of a sulfide mining district in the Arrowhead Region of northeast Minnesota.	G8
37	There is little evidence that PolyMet has the finances to actually complete its mining plan, let alone clean up the pollution that the DEIS suggests will occur. This DEIS does not set forth responsibility for clean-up of acid mine drainage that would be passed from company to company, from agency to agency, from generation to generation.	G4A
38	S-11—"If water quality monitoring demonstrated the need, treatment of the pumped seepage could be provided prior to discharge to the Partridge River." What would the treatment consist of and what impacts might the treatment itself have upon the water quality? Who does the monitoring, how often would the monitoring be done, and how would treatment be monitored? How would clean-up be enforced? Explain.	WR1A,WR3C
39	3.2-1--Explain who made the decision, as stated at the PolyMet DEIS hearing in Aurora, that the No Action Alternative was only being used as a point of comparison. If the No Action Alternative will receive no action, then the EIS process must define the purpose of an EIS and state which laws it is following.	ALT8
40	We ask that the No Action Alternative be chosen after evaluation of the Northmet Project Draft Environmental Impact Statement. The basic assumption in the DEIS that the land involved will be exchanged with the US Forest Service and the fact that the analysis in this DEIS assumes that to be a fact is misleading and irresponsible and seems to side-step the issues involved in use of public land and mineral ownership.	PRO8
40	As residents of northern Minnesota for over 34 years and as active citizens who have spent the majority of our work lives here and pay taxes and contribute to the economy, we are concerned about the safety of this project and its potential impacts on Minnesota's natural resources and the quality of life for residents of this area.	G2
41	The PolyMet DEIS describes significant environmental issues associated with this proposed mine including water quality, heavy metals, invasive species, and major landscape changes that will last far beyond the 20 year life span of this operation. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers.	EOO

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Comment ID	Comment Text	Theme Codes
41	We understand that PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project. The analysis cannot assure water quality protection. A sample of statements implies that problems are inherent in the mining process. Page 3-4 states waste rock must be kept in a subaqueous environment to reduce environmental impact associated with oxidation and decompositition of sulfide mineals. Page 3-39 states that the West Pit will flood in 65 years with overflow to the Partridge River. Page 3-14 states there will be leaching of heavy metals in all categories of waste rock. Page 4.1-21 admits that tribal entities have issues with wetland assumptions made in this document. The PolyMet project is “data-poor in the areas of basic hydrology” (pg 4.1-21).	WR1E,WR2D,GT2
42	While PolyMet continues to pursue a land exchange with the USFS to acquire the surface ownership of approximately 6,700 acres of national forest land, it should be specifically noted that PolyMet is of the opinion that, pursuant to the mineral reservations on the lands which they have obtained mining leases, PolyMet has an absolute right to conduct mining operations including open pit or surface mining without acquiring surface ownership to the USFS lands. The mining reservation contained in the “Duluth” deed in Vol. 640 of Deeds, page 39, which deed encompasses all but three 40-acre tracts within the proposed mine site, specifically provide that the mineral owner has the right “. . . to cave, disturb or remove the soil or surface of said lands or any part thereof, and do any other matter or thing which may be necessary or convenient for carrying on an oil, natural gas, or a mining business upon, in, and under said premises, . . .” Applicable case law relating to the interpretation of mineral reservations supports PolyMet’s position that it has the right to conduct surface operations without acquisition of the USFS surface rights. PolyMet is of the further opinion that on the three 40-acre tracts which are subject to the “Longyear” deed, the deed to the United States being recorded in Vol. 639 of Deeds, page 353, PolyMet has the right to conduct surface mining on said tracts without acquiring the surface ownership. PolyMet retains the option to seek declaratory relief in Federal District Court to have the Court determine it has the right to mine the surface of the USFS lands without the necessity of acquiring said surface rights. A court decision in favor of PolyMet would not only affect the lands currently under lease to PolyMet but would affect a large number of other lands located within the Superior National Forest. In fact, a decision in favor of PolyMet could affect important forest lands throughout the national forest system which have mineral reservations with language identical or similar to that of the PolyMet mineral reservations. PolyMet remains confident that if such an action were commenced by PolyMet that they would prevail in such an action.	EOO

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Comment ID	Comment Text	Theme Codes
42	PolyMet strongly disagrees with the Tribal cooperating agencies' position that the results from the MODFLOW model outside the mine pit footprint are unsupported by data because the model was developed to assess the rates of mine pit inflow. The modeling objective of determining groundwater inflow rates to the pits does not mean that model results outside of the footprint of the pits are not supported by data. The hydrologic data and associated hydrologic/hydraulic modeling used to assess baseline conditions and impacts of the NorthMet Project on the Partridge River flows is comparable or superior to that used in the EIS of two other sulfide ore mining projects in the Upper Midwest (i.e., the Crandon and Eagle projects): • It is important to make a clear distinction between data available and data actually used to predict hydrologic impacts. Some of the hydrologic • If the goal of the impact assessment is to predict changes data available for the environmental evaluation of the Eagle and Crandon projects (per John Coleman, GLIFWC email communication to Stuart Arkley, MDNR dated October 30, 2008) was not actually used in predicting hydrologic impacts of these two projects; the data was simply listed as available.in flow statistics, there is no doubt that it is more appropriate to do such assessment based on a 10-year continuous record of flows in the study watershed than based on scattered instantaneous flow measurements. The first reason is that a larger sample size will produce more robust estimates of the statistics characterizing a process (e.g., mean, standard deviation). A second reason is that a continuous record eliminates the potential bias of instantaneous ("spotty") weekly or monthly measurements being assumed as representative of mean values over a week or a month. Even more critical, these instantaneous measurements do not help to represent the intrinsic temporal variability of the flow hydrograph at a given study location. More specifically regarding the data for the Crandon and Eagle projects: o Data used for predicting impacts of the Crandon project consisted of at most 3 years of weekly instantaneous flow measurements at 7 locations (in some locations, flow measurements were over a period of 3 months only) and 3.5 years of continuous flow data at one location (versus 10 years of continuous flow data at one location for the NorthMet Project EIS). o Data used for predicting impacts of the Eagle project consisted of one year of continuous flow measurements at 4 locations (versus 10 years of continuous flow data at one location for the NorthMet Project EIS). • Flow data collected by the USGS is generally considered more reliable than that from other parties because of the strict stream flow measurement protocols used by the USGS to develop accurate continuous flow measurements. The data used for the NorthMet Project EIS is exclusively from the USGS, whereas the source of the data used for the Crandon and Eagle projects is not the USGS in any cases except for one monitoring location. • The 10-year continuous record of flows in the Partridge River from the USGS Station above Colby Lake represents a good record of hydrologic conditions that span a range of climatic conditions. As discussed in RS73B and also in the NorthMet Project EIS, this period of record includes wet, average and dry years. The average precipitation for the Mine Site over this 10-year period was nearly identical to the 30-year climate normal precipitation, and the period included the second-wettest and fifth-driest years from the climate normal period. The shorter records and/or instantaneous flows measurements used to evaluate impacts of the Crandon and Eagle projects do not capture the same degree of climatic and stream flow variability. The stated goal for the streamflow modeling in the Final Scoping Decision Document is for a model period (extended if necessary) that is "long enough to include both wet and dry climatic conditions." The 10-year p	WR3J

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Comment ID	Comment Text	Theme Codes
43	Treatment wetlands, sometimes referred to as constructed wetlands, have been studied and used extensively for the treatment of many types of water. The U.S. EPA estimates that over 1,000 constructed wetland treatment systems are currently in operation in the U.S., treating a wide range of waters. Given this broad range of experience with treatment wetlands, it is highly likely that a wetland treatment system can be designed that would be capable of providing any additional treatment capacity that may be needed for the water that will eventually discharge from the West Pit to the Partridge River during post-closure. The water quality of the West Pit after filling has been calculated for two different mining scenarios using two different calculation methods. The results of these efforts suggest that the water quality of the West Pit will meet, or approach the potential applicable water quality discharge limits that would apply to the West Pit overflow. Several mitigation techniques have been described in the DEIS to help achieve the goal of meeting water quality discharge limit in the West Pit prior to overflowing. In addition, several other methods of further mitigating any potential impacts associated with discharging this stream to the Partridge River were considered in the DEIS. One mitigation method would be to construct a treatment wetland along the proposed flow path from the West Pit to the Partridge River. Current modeling suggests that this water would be relatively low in organic matter (unless it is augmented during filling) but may contain low concentrations of some dissolved inorganics such as arsenic, antimony, or cobalt. At low concentrations, these compounds are readily transformed to insoluble components or adsorbed to the organic matter created in wetlands, thus improving water quality. Because wetland systems are natural, growing systems, they replenish themselves and can operate with little or no maintenance. If they are designed properly (i.e. not overloaded) they can operate indefinitely. However, some minimal monitoring or maintenance is suggested, primarily to monitor changes in other natural factors, for example long-term changes in climate or the influence of beavers. In summary, if necessary, a constructed/treatment wetland would be a viable option for a final treatment of the overflow water from the West Pit as it flows toward the Partridge River.	EOO
44	During development of the preliminary design for the Hydrometallurgical Residue Facility, the MDNR and PolyMet specifically discussed the design of the cell cover system and the potential need for long term management or potentially management in perpetuity of liquid recovered from the cell drainage collection system. This drainage would result from the small amount of infiltration that could occur through the single geomembrane barrier component of the cell cover system that was initially proposed, while being prevented from escaping the cell by the composite liner system. To minimize the infiltration to the maximum extent practicable, PolyMet subsequently proposed supplementing the cover systems' geomembrane barrier layer with an underlying geosynthetic clay layer. This composite cover system design is the basis for the hydraulic flow modeling on which the 34 year timeframe estimate is based. Furthermore, this composite cover system design, which exceeds regulatory design requirements for industrial solid waste management facilities and designs normally implemented in the State of Minnesota, will minimize the potential for future infiltration by providing a final cover system with performance matching or exceeding the performance of the liner system, and will thereby minimize and likely eliminate long term drainage management requirements after operating water is collected from the cell.	EOO

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Comment ID	Comment Text	Theme Codes
45	The existing groundwater quality at the Mine Site already shows that the groundwater in this area of the State does not meet water quality standards for parameters such as iron, manganese, and aluminum. The results presented in Table 4.1-45 show that the existing parameters that do not meet groundwater quality standards at the Mine Site will continue to not meet those standards. In addition, the results presented in Table 4.1-45 represent one method of calculation (deterministic) for one of the alternatives (Proposed Action) considered in the DEIS. The deterministic method used to calculate these values was based on several conservative assumptions for the leakage through the cover of proposed waste rock stockpiles and conservative assumptions for the load that would be generated from the waste rock. Additional calculations, using the uncertainty analysis method and included in the DEIS demonstrated that for several of these parameters the values calculated using the deterministic method were overly conservative, even for the Proposed Action. Moreover, the results of these calculations helped to guide the development of the Mine Site Alternative, in which the Category 2, Category 3, and Category 4 waste rock would be placed in the East Pit during backfilling, rather than being left in above ground stockpiles. The development of this alternative eliminates the Category 2, Category 3, and Category 4 waste rock stockpile leakage. Thus, while the results of the calculations presented in Table 4.1-45 suggest that potentially adverse impacts to groundwater quality could be possible, given very conservative assumptions, even these limited impacts were enough of a concern to PolyMet and the permitting agencies to consider and ultimately develop a Mine Site Alternative that significantly reduces the potential for even these marginal impacts to occur.	EOO
46	The MODFLOW models used in the evaluation of impacts from the NorthMet project are more than adequate for making the predictions they were designed to evaluate, specifically groundwater inflow rates to the mine pits and base flow reduction in the Partridge River as a result of pit dewatering. The position statement represented in this footnote incorrectly implies that there were “conclusions” from the USGS report and the subsequent meeting (February 26, 2009) that could be implemented. This was not the case. The USGS report suggests ways in which uncertainty could be evaluated using the MODFLOW model and the suitability of the existing model for use in an uncertainty analysis. Further, the referenced meeting did not have participation by all necessary parties for decisions or conclusions to be made; notably no state agencies were represented. The meeting discussed ways in which wetland impacts could be evaluated for future mining projects, and used the NorthMet project as an example, but was not focused on additional work that could or should be done on the NorthMet project, as the footnote implies.	EOO
46	The MODFLOW model provides credible predictions for the type of analyses it was designed to perform, specifically the prediction of groundwater inflow rates to the mine pits and the reduction in baseflow within the Partridge River as a result of pit dewatering. The presence of ammonia in the bedrock well is discussed on page 4.1-11. As stated there, the presence of ammonia is attributed to either collection or laboratory error as the only two samples with hits of ammonia were collected on the same day and both were from 6-inch diameter boreholes that had collection difficulties. Further, there was no nitrite or nitrate found in these samples (these are the forms of nitrogen to which ammonia quickly converts). The lack of nitrite or nitrate indicates the ammonia was recently introduced and there is no on-going source of ammonia.	WR4C
47	The vast majority of the Virginia Formation wall that will be exposed during mining operations will be inundated during the backfilling and flooding of the East Pit. Lime will be included with the water that is used to flood the East Pit and will be directed to the Virginia Formation wall. This process will flush any salts from oxidation of the pit wall into solution where it will be neutralized. The neutralization of these salts in solution is a well understood and well documented chemical process that can be both monitored and controlled during the East Pit backfilling operations and during closure operations. In addition, sub-aqueous disposal of potentially reactive rock is also well documented. Thus, the effectiveness of this proposed operation is well documented and understood. Moreover, as noted, water quality predictions for both the Proposed Action and the Mine Site Alternative were calculated using two different methods – the deterministic method and the uncertainty analysis – which provided a very conservative range of water quality predictions. The basis for establishing both of these calculation methods were developed in cooperation with the permitting agencies and provide a more than adequate range of potential results for consideration of this project.	EOO

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Comment ID	Comment Text	Theme Codes
48	DEIS text is misleading in Section titled "Virginia Formation High Wall" when it states that the method for reducing oxidation and metal leaching from overburden has not been demonstrated. As commented in PolyMet's review of the July 31, 2009 PDEIS, it is not clear from this statement which part of this mitigation measure has not been demonstrated. The geomembrane cover will protected the area from the top of the bedrock wall down to the water table from further exposure to precipitation and erosion, thus limiting oxidation and solute leaching in this area. The wall rock below the water table will be subaqueous, thus limiting oxidation and solute leaching. Both of these methods are proven methods of limiting oxidation and further leaching; each of these methods is described in more detail below. The mitigation measure is depicted on DEIS Figure 3.1-41 and described in Section 3.1.7.2 (Reclamation of Mine Site, Mine Pit – East Pit Category 4 Foot-Wall Cover). It includes the use of a limestone layer applied directly to the face of the Virginia Formation, an overburden core, and capping with a geomembrane cover that extends from the overburden above bedrock to the waste rock four to eight feet below the water table. Geomembrane cover The application of a geomembrane cover for reducing oxidation and solute leaching from precipitation on waste rock stockpiles has been well demonstrated and documented at other mines by several researchers including the EPA, the Corps of Engineers, and the MDNR. The MDNR research at the Dunka Mine shows that, even with improper installation, geomembrane caps significantly reduce solute leaching (Eger, Antonson, and Udoh, 1990). Capping with a geomembrane is also the traditional approach to reduction of oxidation and solute leaching at landfills and other solid waste disposal facilities. Subaqueous Disposal The wall rock that is below the design elevation of the wetland would be subaqueous and therefore not exposed to oxidizing conditions. This is a thoroughly demonstrated method of limiting oxidation and solute leaching. Exposed Area The design elevation of the East Pit wetland is based on the estimated elevation of the long-term groundwater levels, which is estimated to be approximately 10 feet below the existing groundwater levels, as described in the DEIS (Sec. 4.1.3.1 Proposed Action, Groundwater Resources, Mine Closure and Post-Closure, page 4.1-63). The water level in the East Pit will be relatively stable, because it will be controlled by the long-term groundwater level and the East Pit outlet structure. As shown in Figure 3.1-41 from the DEIS, there will be an estimated four feet of bounce within this wetland. In order to maintain the East Pit as a viable wetland, this bounce may need to be reduced to a few feet. The East Pit wetland will be optimized during detailed design prior to closure to minimize the bounce in this wetland, based on a better estimate of the long-term water table elevation. Therefore, the wall rock exposed to this 2-4 foot water level fluctuation will be the only area exposed to oxidation and solute leaching. Summary The area above the water table would be protected from further exposure to precipitation and erosion by the geomembrane cap, which has been thoroughly demonstrated, and the area below the water table would be subaqueous, which has also been thoroughly demonstrated as effective. Therefore, this mitigation measure provides thoroughly demonstrated methods of limiting long-term oxidation and solute leaching from the pit wall rock to the area exposed to the water level fluctuation of the East Pit wetland. Reference: Eger, Paul, Dave Antonson, and Francis Udoh. 1990. Stockpile Capping Report. Minnesota Department of Natural Resources: Division of Minerals. February 1990	EOO
49	As noted previously, the results presented in Table 4.1-45 represent a small portion of the water quality calculations prepared for the consideration of this project. As provided in the comment on Footnote 14 in Section 4.1, during development of the preliminary design for the Hydrometallurgical Residue Facility, the MDNR and PolyMet specifically discussed the design of the hydrometallurgical residue cell cover system and the potential need for long term management of liquid recovered from the cell drainage collection system; just like what already occurs as standard operating procedure at scores of existing landfills in the State of Minnesota. This drainage would result from the small amount of infiltration that could occur through the single geomembrane barrier component of the cell cover system that was initially proposed, while being prevented from escaping the cell by the composite liner system. To minimize the infiltration to the maximum extent practicable, PolyMet subsequently proposed supplementing the cover systems' geomembrane barrier layer with an underlying geosynthetic clay layer. This composite cover system design exceeds regulatory design requirements for industrial solid waste management facilities and designs normally implemented in the State of Minnesota, will minimize the potential for future infiltration by providing a final cover system with performance matching or exceeding the performance of the liner system, and will thereby negate any requirement for an on-site treatment operation beyond the anticipated period of site closure operations.	EOO

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Comment ID	Comment Text	Theme Codes
49	In PolyMet's review of the July 31, 2009 PDEIS it was suggested clarifying that steady state modeling used highest predicted liner leakage rates (corresponding to an open stockpile) paired with highest predicted seepage concentrations (typically corresponding to a closed stockpile). This combination results in an impossibly high mass release of constituents to the environment. This change was not incorporated into the published DEIS.	WR2E
49	In summary, it is clear that both PolyMet and the permitting agencies recognized that the potential need for long-term water treatment at the Mine Site was undesirable. As a result of this concern, both PolyMet and the permitting agencies expended significant additional time and effort to develop a Mine Site Alternative and additional mitigation and monitoring activities for the express purpose of developing a project 'with the end in mind' of not needing long-term water treatment.	EOO
50	In PolyMet's review of the July 31, 2009 PDEIS it was noted that PolyMet does not agree with the approach used to define the pH range in the uncertainty analysis for the Category 1 and 2 waste rock stockpile. For the Category 1 Waste Rock Stockpile it is unlikely that the leachate pH will fall below 8.0. As reported in RS82 Draft-02 (February 2009), the humidity cell leachate pH observed for this type of waste rock stabilized for all samples between 6.5 and 7.5. When these results are scaled to the waste rock size (larger rock) and liquid to solid ratio (less liquid) expected for the stockpile, the corresponding pH of the stockpile leachate will be above 8.0 (see RS53/42 pg. 57, March 2007). The pH will be buffered by weathering of silicate minerals to produce carbonate alkalinity. However, PolyMet used the pH range of 6.6 to 8.0 in the uncertainty analysis because MDNR Division of Lands and Minerals requested this range for the analysis. PolyMet believes that the use of an uncertainty multiplier for the concentration caps, as applied in the analysis of the Category 3 Lean Ore stockpile, is more appropriate.	WR1E
51	Please see response above to Page 4.1-50, Footnote 11.	EOO

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Comment ID	Comment Text	Theme Codes
52	The model was calibrated to water levels measured in the bedrock and the surficial deposits, as well as a base flow target for the Partridge River. The fact that the model was calibrated to both head and flux targets helps to minimize the non-uniqueness issue that is often the problem with groundwater models that are calibrated to head targets alone. Please see response above to Page 4.1-50, Footnote 11 regarding the appropriateness of the XP-SWMM model for existing climatic and stream flow conditions in the Partridge River near the PolyMet Mine Site. Regarding dewatering discharges from the Peter Mitchell pits, the Final Scoping Decision Document (FSDD) states that during the 1978-1988 period of stream flow data the Reserve Mining Company (then-operator of the Peter Mitchell Pits) "was not pumping to the Partridge River so [the USGS gauge data] will probably be usable for calibration. This assumption needs to be verified, especially with respect to the impacts of any overflows that may have occurred from Reserve Mining Company pits." Peter Mitchell dewatering data was not available at the time that the surface water modeling for the Partridge River was completed in October 2007, and later updated in September 2008 (detailed in RS73A and RS73B). Contributions from the Peter Mitchell Pit watersheds to the Partridge River were included in the calibrated XP-SWMM model. This is akin to the assumption that any pit dewatering was for water level maintenance only and any excess runoff was delivered to the Partridge River, but it excludes any significant groundwater inflow to the Peter Mitchell Pit originating outside the Peter Mitchell (surface) catchment area. It is also important to highlight that the 30-day low flows developed from the XPSWMM model (and used in subsequent water quality modeling for the Partridge River) are less than 1.0 cfs for all monitoring locations upstream of the South Branch of the Partridge River (i.e. SW-001 through SW-004). Flows of this magnitude are extremely difficult to measure accurately, especially since they typically occur during winter when streams may be frozen. Monthly discharge data for the Peter Mitchell Pits from 1976-1986 was provided to Barr in an email from Nancy Smith (Northshore Mining) on October 7, 2008 (i.e., after publication of RS73A and RS73B). The data has several significant characteristics with regards to the Partridge River flow record: • Only monthly total flow data is available because it corresponds to data required as part of an NPDES Permit. Since 30-day low flow periods do not necessarily correspond to calendar months, it is not clear how the dewatering discharges affect all low flow periods. • The available data includes discharges from different locations in the Peter Mitchell Pits to different rivers and streams (one of them is the Partridge River). More specifically, the Peter Mitchell Pits discharge from up to 9 points in the Partridge River watershed (see Figure 19, RS73A). Several of these locations discharge directly to the Partridge River or its tributaries, and the flow would be expected to pass downstream relatively quickly (depending on flow rates and velocities). Other discharge locations are on the boundaries of Hundred Mile Swamp or other wetlands, where flow would pass through large saturated areas before reaching surface water streams. Depending on the magnitude of the Peter Mitchell Pits discharge, it is possible that flow through these wetland complexes would not immediately report to the Partridge River during dry periods or periods of replenishment of soil water storage. • Discharge from the Peter Mitchell Pits is generally highest during periods of high flow in the Partridge River, and lowest (occasionally zero) during winter low-flow periods. This is consistent with the assumption that dewatering during the majority of this period was primarily for water level maintenance in response to snowmelt and other storm events, and not for significant water	WR3J

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Comment ID	Comment Text	Theme Codes
53	As noted in previous comments, the calculations presented in Table 4.1-45 concerning stockpile leachate quality represent one method of calculation (deterministic method) of water quality impacts considered in the EIS process. The deterministic method resulted in conservative calculations of potential impacts. Even though these values were known to be conservative, PolyMet and the permitting agencies considered a Mine Site Alternative that would significantly reduce these potential impacts. Thus, Table 4.1-71 shows that when Agency-accepted sorption values are used, the only exceedances of groundwater standards correspond to antimony. Furthermore, Note 5 of Table 4.1-71 indicates that "The predicted antimony concentrations rely on the concentration cap developed from the contaminated humidity cell testing (80 g/L) rather than MDNR reactor data (3 g/L), which probably results in overestimated of antimony concentrations in groundwater at the Mine Site." It is worthwhile clarifying that under the Mine Site Alternative, Category 2, Category 3, and Category 4 waste rock will be temporarily placed in geomembrane-lined stockpiles and subsequently used to backfill the East Pit as part of the Closure Plan. Part of the Category 1 waste rock produced in the later years of the mining operation would be permanently placed in these geomembrane-lined stockpiles. The other permanent waste rock feature would be the Category 1 stockpile, which primarily drains toward the East Pit and West Pit. Consistent with the discussion in the previous paragraph, the West Pit does not drive exceedances of groundwater standards at the Property Boundary or Partridge River. The proposed water management under the Mine Site Alternative includes treating waters for part of the period of West Pit filling, not for 2000 years. In addition, pages 4.1-166 and 4.1-167 of the EIS discuss mitigation measures to implement while the West Pit is being filled, with the goal of meeting water quality standards in the West Pit at the time of overflow. In addition, while the results of wetland treatment systems are equivocal it is well understood that wetland systems generally provide a benefit to surface water quality.	WR2E
54	In order to help evaluate potential groundwater quality impacts, four additional monitoring wells were installed north of the Tailings Basin (these wells supplement the previously existing eight monitoring wells). In addition, 15 private wells north of the Tailings Basin were sampled. Analytical samples collected from the monitoring wells and the private wells provide the data necessary for the characterization of existing conditions for the purposes of the EIS. The water quality samples collected at private wells do not have exceedences of groundwater quality standards caused by seepage from the Tailings Basin. As is indicated in Chapter 4.1.1.2 and Table 4.1-6, regional baseline groundwater has concentrations of aluminum, iron and manganese that are over the drinking water standards. The concentrations of these constituents measured in the private wells are within the range of the natural baseline concentrations and reflect baseline conditions and not impacts from the Tailings Basin.	WR4C
55	The available data supports the statement in the EIS that elevated concentrations of aluminum, iron and manganese down gradient of the Tailings Basin may reflect natural conditions in this area. As is shown in Table 4.1-6, regional and background concentrations of these constituents are similar to the concentrations found down gradient of the Tailings Basin. The modeling methodology used to predict down gradient groundwater concentrations does not assume that all constituents in the groundwater are the result of past and current seepage from the basin as the footnote states. Mixing of seepage water and precipitation derived recharge is simulated in the modeling.	WR4C
56	This comment describes the use of lime or limestone to treat the temporary stockpiles of Category 2, Category 3, and Category 4 waste rock prior to being placed in the East Pit during backfilling operations. While it is likely that this operation could have reduced the rate of oxidation of these materials and the resulting load of dissolved solids to the East Pit during filling, the MDNR questions concerning effectiveness of this operation resulted in modeling of this operation using zero percent effectiveness. Because of the conservative use of zero percent effectiveness regarding the use of lime or limestone to treat the temporary stockpiles, this was not a key assumption in the modeling of the waste rock piles for the Mine Site Alternative.	EOO

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Comment ID	Comment Text	Theme Codes
57	Evapotranspiration (ET) covers have been used successfully for over the last few decades to reduce infiltration into landfills, stockpiles, and other solid waste disposal applications. EPA has a fact sheet (EPA 542-F-03-015, Sept. 2003) about ET cover use and application on landfills and hazardous waste sites. Engineered multi-layer soil covers to control acid rock drainage became more popular in the 1990s with the development of modeling tools, such as the SoilCover Model, that could predict the evaporation from the soil cover (GARD, 2009). Upon review of 10 to 15 years of cover performance data, Wilson et al (2003, 2008) have determined that these covers are successful in significantly reducing infiltration and oxidation within stockpiles. These covers are not meant to stop all infiltration into the stockpile from occurring; however, it has been successfully demonstrated that these covers significantly reduce the amount of infiltration into the stockpile, thus limiting the leachate collection from the liner of the stockpile. Wilson et al (2003, 2008), for example, goes into detail on the mechanisms of failure and success of these systems. Their study examined covers in a variety of climates, including temperate rainforests of British Columbia, Canada, humid alpine climate of north central British Columbia, and semi-arid regions of Saskachwan, Canada and North Queensland, Australia. They have been used successful in either climate type, although the design is different based on the climate. For example, in semi-arid to humid regions, a store and release type system, comparable to what is planned at PolyMet, is recommended. In temperate rainforests, a barrier-type system is recommended. Typical mechanisms of failure in a store and release type system include lack of storage capacity in the soil (a factor associated with soil depth and soil type), vitality and sustainability of the vegetation (a factor related to the vegetation type), and erosion (associated with slopes and stability of the design). One mine, Equity Silver Mine, in north central British Columbia has an ET cover very similar to what is planned at PolyMet. They also have a very similar climate with similar glacial till construction materials for their covers. SoilCover modeling for this mine predicted reductions in infiltration from 60 to 80 percent down to about five percent. Actual field measurements by lysimeters confirmed this drop in infiltration rates and success of these covers (Wilson, 2003). ET covers are also a standard cover for landfills as well as stockpiles. Several researchers have studied the performance of ET covers on landfills, comparing them to other conventional covers. Hauser (2002) reviewed long-term field data that measure the water balance at sites ranging up to 31 years that demonstrated that the ET cover can successfully control water movement. Hauser (2002) did note that improper soil depth was the leading cause of failure. Soil models, such as SoilCover and USAT-H, allow designers to determine what the proper depth of soil is based on areas specific climatic information. Overall, there are numerous researchers, from Federal, State and municipal agencies to private entities that have studied the performance of ET covers for use at mines and at solid and hazardous waste disposal sites. ET covers are not a new technology, but have been used for decades to successfully reduce infiltration. The cover system utilizes natural processes for long term success. Additional research on the cover type should not be necessary. The details of the ET cover design (soil properties, soil thickness, vegetation types, etc.) will be finalized in permitting.	EOO
58	The text is unclear as the section apparently refers to the West Pit Lake, but reference is made to seepage water. In PolyMet's review of the July 31, 2009 PDEIS, it was noted that the pit water is not predicted to have strong acidity; however, limestone could be used to make modest upward adjustments to pH if needed.	WR3C
59	The Central Pumping Station (CPS) will be used during the operation of the Mine Site to transfer treated water to the Plant Site for reuse. This operation will cease when the mining and processing operations are completed. No water will be pumped from the Mine Site to the Plant Site during closure or post-closure. Alternatives that have been considered to accelerate the filling of the West Pit, using water from the tailings basin or Colby Lake, however, could potentially use the CPS pipeline to carry water to the Mine Site (opposite direction of flow in closure).	EOO
60	The DEIS does not state that differentiation of the wetlands was based solely on canopy cover; field work was carried out as stated in the DEIS that, "Based on the habitat mapping, wetland field delineation/mapping was performed in 2004, and supplemented in 2005, 2006, 2007, and 2008 …). (DEIS, p. 4.2-4).	EOO

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Comment ID	Comment Text	Theme Codes
61	1. The Adams 2009 email (Adams and Liljegren 2009) refers to aerial photographs of lakes that are located very near the Peter Mitchell mine, which clearly show that the nearby lakes (Mud, Iron, and Argo) did not drain over a nearly fivedecade period while mining operations continued at the mine. Adams and Liljegren (2009) did not suggest, nor can the photographs show, small changes in lake water elevation, however it is clear that lakes immediately adjacent to the pit do not show any evidence of lowered water levels during mining activities. The Adams 2009 email (Adams and Liljegren 2009) also presents graphs showing water surface elevations for Argo and Iron Lakes over the period 1946 to 1981 in fractions of a foot. The graphs show lake level fluctuations and a gradual increase in lake surface elevation over the time period, which is also a period of active mining in the vicinity of the lakes. The lake level fluctuations shown on the graphs are presumably weather and seasonally-related, such as the drop in lake levels from 1976 to 1977 due to the drought of 1976 (with only 17 inches of precipitation at Babbitt compared to the average of 28.5 inches over the 1946- 1978 period). These graphs do not depend on "…aerial photos [as an] imprecise measure of surface water level", but are based on detailed measurements of water surface elevations for the lakes. 2. The photographs provided in the Adams 2009 email (Adams and Liljegren 2009) do not show that the pits are "mostly flooded." Only in the photograph sequence for Mud Lake do nearby parts of the pits appear flooded in recent photographs (July 1981 and July 2008). There is no flooding of the pits in the 1972 photograph of Mud Lake, when mining operations were ongoing near the lake with no apparent effect on its water level. 3. The footnote infers that because the NorthMet pits will be deeper than the Peter Mitchell pits, they would somehow be more effective at draining the lakes in question. In fact, water flows downhill, and if water levels in the pit and lake were closely linked via high conductivity strata, then even an 80-foot deep pit would be sufficient to drain the lakes. Only if the lakes were greater than 80 feet deep (which is doubtful) would they retain water. 4. The footnote point about the "lack of recognition that some changes in groundwater hydrology would not be detected by the large changes in surface water level that could be detected by aerial photography" is valid. But the point here is "some changes." The photographs and graphs do not show any change; therefore any change would have to be very subtle. The graphs also indicate that it would be difficult to separate changes induced from mining from changes caused by natural factors, such as weather. 5. The tribal cooperating agencies state that the arguments within the Adams 2009 email (Adams and Liljegren 2009) depend on "… wetland soil conductivity values that are extremely low and for which supporting source citation in the professional literature cannot be found." In fact, the email (Adams and Liljegren 2009) stated that hydraulic conductivity of peat is strongly controlled by its degree of decomposition (Rycroft et al. 1975, Ingram 1983, Boelter and Verry 1977). The generally accepted view of water flow in peatlands can be summarized by this quote from an overview of peatlands (Rydin and Jeglum 2006, p. 143): "Water on the surface may sometimes flow slowly in pools or channels, or as sheet surface flow in water tracks. Below the surface the flow rate will decrease drastically - even weakly decomposed material offers considerable resistance to water movement. The highest saturated conductivities, for example 10-4 – 10-6 m s-1, are for poorly decomposed fibric peats and undecomposed Sphagnum. Conductivities of 10-6 or 10-8 have been reported for moderately decomposed mesic peats and the lowest values, 10-7 – 10-10 for highly decomposed humic peats with very fine pores." In addition, two research papers cont	EOO

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Comment ID	Comment Text	Theme Codes
62	This footnote is addressing two related issues, 1) subsurface flow through upland soils to peatlands and 2) identification of wetland plant communities as described in the DEIS. Both points are relevant to the tribal cooperating agencies comments in the WETLAND and WATER RESOURCES portions of the DEIS as related to groundwater flow and the use of wetland vegetation as an indicator of that flow. The comments can be summarized by the statement on p. 5-2 of the DEIS, "It is not possible to completely evaluate the environmental impacts of this alternative to surface water, groundwater, or wetlands due to … the lack of knowledge on groundwater flow and the lack of understanding of the interconnections of groundwater and the extensive wetland complexes in the area." #1-Subsurface flow through upland soils to peatlands: A commonly accepted misconception is that peatlands directly reflect surface exposures of the regional groundwater system. Two examples show that the link between peatlands and the regional groundwater table is tenuous. In the first example, in the sandy soils of the Anoka Sand Plain in east-central Minnesota, Reuter and Bell (2001) reported that water table behavior differed between the peatland and the surrounding upland. They hypothesized that this difference was because, in the wetland, there was a hydraulic barrier of much lower conductivity between the peat and sand, a highly-decomposed layer of peat or lake-laid sediments, which have very low hydraulic conductivity. The second example is from peatland basins formed by lake filling in north central Minnesota (Boelter and Verry 1977). Monitoring indicated that two kinds of peatlands exist in this landscape, 1) bogs whose water table is perched above the regional groundwater table and 2) fens whose basin lies within the regional groundwater. The bogs are separated from the regional ground water system by very slowly permeable peat or lacustrine deposits, while the water tables in the fens are simply exposures of the regional groundwater table. While neither example is from bedrock-dominated terrains, the peatlands in these examples are isolated to a greater or lesser degree from the regional groundwater table by low-permeability substrates. In these two examples, water does not necessarily run downhill but instead runs from a point of higher potential to one of lower potential. Toth (1963) theorized three types or scales of ground-water flow; local, intermediate, and regional. A local system of groundwater flow has its recharge area at a topographic high and its discharge area at an adjacent topographic low. An intermediate system has one or more topographic highs and lows located between the recharge and discharge areas. A flow system can be considered regional if its recharge area occupies the water divide and its discharge area lies at the bottom of the basin. Water levels in local systems at shallow depths are most affected by seasonal recharge and discharge. Different recharge areas and flow path lengths contribute to differences in the chemical composition of water in different systems. The work on groundwater flow shows that wetlands (peatlands) can have varying degrees of groundwater influence, leading to varying degrees of minerotrophy and variations in vegetation. #2 - Identification of wetland plant communities: Wetlands described in the DEIS were classified using Eggers and Reed (1997) wetland community types as required by the U.S Army Corps of Engineers. As part of additional wetland work requested by the Wetlands Working Group (September 10, 2009), the classification of wetlands on the NorthMet Site included coniferous bogs (47%), shrub swamps (alder thickets and shrub-carr, 28%), coniferous swamps (16%), open bogs (3%), shallow marsh (2 %), open water (0.8 %), sedge/wet meadow (0.5 %), and hardwood swamps (0.4 %). Using the the MDNR (2003, p. 221) classification system, many of the wetlands complexes on the mine site are likely APn81, Northern Poor	EOO
63	The Tribal cooperating agencies correctly point out that there is some difference in the topography north of Cell 2W and Cell 2E. However, PolyMet disagrees with the interpretation of the effects the difference in topography would have on wetland impacts. North of Cell 2W, the upland areas would funnel flow into the low-lying areas. This would cause impacts in the wetland areas to extend further from the basin (more water spread out over a narrower area) than if there were no or fewer upland areas, such as the area north of Cell 2E. Thus, using the distance of observed impacts north of Cell 2W to predict the distance of impacts north of Cell 2E provides a conservative estimate of potential indirect wetland impacts.	EOO

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Comment ID	Comment Text	Theme Codes
64	PolyMet disagrees that there is an inconsistency between Section 4.1.3.1 and Section 4.2 or that the latest information developed for the water resources section (4.1) has not been incorporated into the wetland impact section (4.2) as suggested by the Tribal cooperating agencies comment. Section 4.1 quantifies the amount of seepage from the basin under historic and future conditions. Section 4.2 discusses the distance from the tailings basin where this seepage water likely discharges. Rather than being inconsistent, these two evaluations complement each other. The Barr memo (Lined Tailings Basin Alternative – EIS Data Request, April 8, 2008) describes the basis for the conclusion that wetlands will not become further impacted north of the Tailings Basin.	EOO
65	A screening analysis was conducted by PolyMet to assess the potential deposition of sulfur from fugitive dust emissions to wetlands within 2 kilometers of the Mine Site, including wetlands within the Mine Site property boundary that are expected to be present during mining. The major components of the analysis included: 1) estimating potential fugitive particulate dust emissions (as PM, includes fine fraction and coarse fraction up to 30 microns) from activities that handle sulfide rock (e.g., truck loading in the pit, waste rock dumping in stockpile areas, ore loading); 2) assigning a maximum potential sulfur content, as a percent, to each category of waste rock and ore and estimating potential sulfur emissions for each source; 3) estimating maximum potential total (wet + dry) sulfur deposition rates with the AERMOD model for delineated wetlands within and outside of the Mine Site property boundary; 4) comparing modeled sulfur deposition rates to an estimated average annual background total (wet + dry) sulfur deposition rate of 0.206 grams per square meter per year; g/m2/yr; 2004-2008 data (estimated from current background wet sulfate deposition of ~ 4.8 kilograms per hectare per year (kg/ha/yr), historically > 10 kg/ha/yr, National Atmospheric Deposition Program, Fernberg site, MN18; background dry deposition data from Clean Air Status and Trends Network, Voyageurs National Park site, VOY413). Initial results from this screening analysis indicate that the highest modeled deposition rates are estimated to occur immediately adjacent to the pits, stockpiles and rail transfer hopper. A very small number of receptors (~11, representing about 108 acres of wetlands; ~ 10% of wetland area within the Mine Site boundary) are estimated to have deposition greater than 20% of background. Because air concentrations and deposition become smaller as the distance from the emission source increases, most of the wetland areas within the Mine Site boundary and essentially all of the wetland areas outside of the Mine Site boundary are estimated to receive potential deposition that is less than 5% of background. Potential deposition increases that are 5% or less of background are small and the potential impact from fugitive dust associated with sulfide rock handling is not likely to be measurable and is considered to be insignificant. Therefore, for almost all of the wetland acreage included in this screening analysis, the potential increase in sulfur deposition due to fugitive dust from sulfide rock handling is considered to be insignificant. An additional evaluation was conducted for the small acreage of wetlands within the Mine Site boundary that might receive some measurable increase in sulfur deposition. The maximum modeled deposition rate occurred near the rail transfer hopper (0.148 g/m2/yr; ~ 72% of background deposition). Adding background to maximum modeled deposition = 0.206 g/m2/yr + 0.148 g/m2/yr = 0.354 g/m2/yr (= 3.54 kg/ha/yr). A very conservative assumption is that all of the estimated sulfur deposition (3.54 kg/ha/yr) converts to sulfate; ~ 10.6 kg/ha/yr as sulfate (wet + dry; model + background) and is within the historic total (wet + dry) deposition levels estimated for the Fernberg site. For the small acreage of wetlands within the Mine Site that might receive some additional sulfate deposition associated with sulfide rock handling, the potential for this additional sulfate to increase mercury methylation rates is uncertain. However, the available data indicate it is unlikely to occur. For example, field data indicate that an increase in sulfate concentration does not necessarily result in increased methyl mercury formation even when wet sulfate dosing was 4 times greater than background (~ 28 kg/ha/yr) (Jeremiason et al., 2006; Mitchell et al., 2008). In most cases there is no relationship between sulfate concentration and methyl mercury concentration in surface waters or fish because both Porcella (1994; Wisconsin lakes) a	EOO

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Comment ID	Comment Text	Theme Codes
159	I received the paper copy of the PolyMet DEIS in its 3 plastic binder. Seeing the beautiful water scene on the cover of this DEIS feels like a knife cutting into my heart. This mining project is the very antithesis of an environment featuring water, wetlands, and wildlife habitat. The PolyMet project would destroy at least 6500 acres of such land, and even PolyMet admits that its mining will contaminate the ground water. Into perpetuity. The cover design of this binder shows me that the agencies have lost touch with the organic living and breathing environment, and have become lost instead within the the virtual reality of pages of statistics, maps, charts, and documents. Throughout this process, I have tried to maintain a sense of respect and purpose for the agencies and their role in protecting our environment. In one painful swoop, the eagle on the binder cover shattered any belief that I had in this process. Why are you offering up an American symbol to Canadian companies, while denying American citizens the real truth about the impacts of this project on their land and water?	EOO,G2A,G7B
Sender Last Name:	Palmer **Submission ID:** 2174	
591	Obstuction of at least 2 of the remaining 13 corridors where wildlife can cross the 120 miles of the Mesabi Iron Range	WI5
1138	increased levels of leached sulfates increasing mercury accumulated in fish tissues	FM1
1796	Enormous releases of sulfate will exceed the state standard for wild rice dimisnishing famous wild rice beds in the St. Louis River estuary near Duluth	WR4F
2580	I respect that creating jobs for those out of work in the area is critically important but not at the exopense of hurting the environment and destroying the livability of that area for everyone if this mining is not stopped. Please protect the fish and wildlife and ultimately the neighboring human beings that currently thrive in and near the Superior National Forest. You must safeguard this area for future generations.	G1,G2
Sender Last Name:	Palo **Submission ID:** 2661	
3157	I grew up in Northern MN and spend part of every month there yet today. I am a property owner in St. Louis county as well. I also have six family members yet living there. I have grave concerns about the future impacts of this project on the local area and the broader region and, despite the positive promise of jobs in the short-term, am against the project for several reasons, including:	EOO,G1
Sender Last Name:	Parker **Submission ID:** 1259	
563	Given that the vast majority, upwards of 80%, of the predictions for ability to maintain water quality have been incorrect in the history of sulfite mining in the U.S., I have no confidence that these projections can be accurate and that the regulatory mechanisms at either the state or federal level are up to the task of making this work. As a taxpayer who is bound to pay for a potential failure of considerable likelihood, I would insist on financial assurance in the billions of dollars.	PD4
2026	Don't destroyed our precious land. We NEED this land untouched for the sake of the species that live there and EVEN US. we strive on the environment and by ripping it all up, you're ripping up our air, and our life. don't kill us all.	EOO,G2C
Sender Last Name:	Parvu **Submission ID:** 2328	

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Comment ID	Comment Text	Theme Codes
2786	I would like to submit my comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. As a resident of this area I can appreciate the short term economic benefit of mining up here, but as a lover and protector of the Wilderness, and as an outfitter, who is dependent on the wilderness for my living, I have very serious concerns about the environmental impact of the proposed mining operation. I have been studying this issue and I simply do not believe that this operation can be done without unacceptable damage to the environment. This type of mining has never been done in Minnesota and has never been done without damage to the environment anywhere. Minnesota should follow Wisconsin's lead and effectively ban this type of mining. What makes this area so special is that it is one of the few remaining reasonably intact wildernesses left. To put our wilderness in peril is simply unreasonable. Please block PolyMet and all other operations that would put our wilderness at risk.	EOO,G2C,G12

Sender Last Name: Patnoe **Submission ID:** 293

307	I support PolyMet Mining's NorthMet Project and I am convinced that PolyMet can produce these metals in an environmentally sound manner and create hundreds of stable jobs that can support families. Not only has PolyMet's $20 million environmental review demonstrated that it can produce these metals while following Minnesota's strict environmental requirements to protect air, water and land, the metals that Polymet will mine are essential to green technology such as wind turbines and hybrid cars and are necessary for pollution prevention devices such as catalytic converters. The PolyMet project has been designed to minimize environmental impacts especially through reusing a brown field site, reusing existing infrastructure, minimizing disturbance of wetlands and utilizing multiple safeguards to protect the environment. I am particularly impressed that they plan to use the sulfur in the ore as a fuel for processing instead of greenhouse gascreating fossil fuels. PolyMet's 400 employees and the hundreds of spinoff jobs will provide a huge economic benefit to Minnesota and the Arrowhead region as well as providing millions of dollars in local and state taxes to support our communities and educational system. The minimal environmental impact this project will have on our region is more than offset by this huge positive financial impact. PolyMet's 400 employees and the hundreds of spinoff jobs will provide a huge economic benefit to Minnesota and the Arrowhead region as well as providing millions of dollars in local and state taxes to support our communities and educational system. The minimal environmental impact this project will have on our region is more than offset by this huge positive financial impact. I urge you to allow Polymet to proceed with this much needed and environmentally safe project.	EOO

Sender Last Name: Patrick **Submission ID:** 1022

1119	As a ppncerned Minnesota citizen, I feel it is my obligation to let you know that I support PolyMet Miriiug's NorthMet Project. At a time when our economic situation is unstable, I think we need the contribution that PolyMet will make to the state and local economy. The estimated 400 employees and hundreds of spin-off jobs will give a big boost to the financial situation in the Arrowhead Region, as well as the State of Minnesota, and a big boost to the morale and spirits of the people. It seems clear that PolyMet has completed an extensive environmental impact study that shows they can operate the proposed facility in an environmentally friendly atmosphere that will have a minimal impact on our environment. As a person who lives in northern Minnesota, I understand the need to balance use of resources like minerals and preservation of resources such as water and air. The draft EIS demonstrlltes PolyMet can mine these metals AND protect air, water and natural resources, and I support the project. PolyMet will provide millions of dollars in local and state taxes to support our communities and education system. Let's get on with pennitting this mine. We need the jobs.	EOO

Sender Last Name: Payne **Submission ID:** 3519

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Comment ID	Comment Text	Theme Codes
3250	Dear MN Department of Natural Resources, I am writing to express my grave concern about the proposed PolyMet sulfide metal mining project proposed in northeastern Minnesota. The area that is being considered for this corporate project is amongst one of the largest natural wetland areas. The area is at a cross roads for drainage with portions of the wetland entering the St. Louis river watershed and utlimately Lake Superior and other portions of the wetland finding their way towards the Boundary Waters Canoe Area Wilderness and utimately border waters and Canada. Sulfide metal mining has never been without issue. Whether it is the sulfuric acid drainage that can result from disgarded tailing piles or the vast treeless expanses that litter the area where once wilderness existed. Why is this project even being considered in this wild area. The short term jobs that can come from this project come at a potentially high cost. The cost of mercury ladened waters, damaged water systems and the habitat lost when open pit mines replace the wilderness. How many more square miles of this region should be considered for mining? Do we really want the the mines of the Mesabi range to move eastward into uncharted territories with such potentially high risks. Please reconsider your position on this project. I realize that the Department has to balance the state's best interest and that of the environment but to me, this controversial project if approved would result in irreversible damage, limited jobs and the highest returns to corporate interests that will never return their profits to our state's citizens or wildlife.	EOO,G7A,G7C
3773	I've served as President of the Bassett-Cadotte Lakes Property Owner's Association for the past 4 years. We hold 2 well attended meetings each year and the Poly Met situation comes up at every meeting. The property owner's are deeply concerned about the possibility of sulfur run-off from the proposed mining. We are doing everything possible to protect our valuable resource. We emphasize shoreline protection, septic system maintenance, buffer zones etc. Past evidence shows thre have been problems resulting from this time of mining.	G7A

Sender Last Name: Pearson **Submission ID:** 251

264	We want to let you know that we support the NorthMet project. PolyMet will significantly contribute to the state and local economy at a time when we really need the jobs and economic benefit. PolyMet's 400 employees and the hundreds of spin-off jobs will provide a huge economic benefit to Minnesota and the Arrowhead region. PolyMet will provide millions of dollars in local and state taxes to support our communities and educational system.	EOO
418	The first comment I want to make is I think it's ridiculous to have a public meeting and not allow the public to speak, okay. It's unheard of -- maybe a new process -- but it smacks as if the outcome of this thing has already been decided, and this is to minimize people from hearing other people with like opinions communicate. So I think it's a very poor system that you've set up here -- the DNR.	PRO6
2627	Secondly, I'd like to ask the question as to why this project is different, and all the other mining projects similar to this. They've never been able to prevent the seepage problem. What do they expect different of this project to make it not happen?	G2
2628	And then, I guess, finally, is what kind of monitoring will there be as a safeguard to prevent seepage and other problems from going into the lakes. Thank you.	G2

Sender Last Name: Pegg **Submission ID:** 1153

1268	The proposed project’s are very short term & limited; the damages to the environment & our health are long term & profound.	EOO

Sender Last Name: Pekuri **Submission ID:** 3503

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Comment ID	Comment Text	Theme Codes
767	Greetings. First of all, extend the comment period another 45 days. This issue will affect N. Minnesota for the next 100 years. The citizens and the environment deserve a thorough review of the proposal, unhampered by a limited time period. Second, we need more public meetings, particularly in Ely and Babbit since these areas will be directly affected by run-off, infiltration through the ponds, and acid rain. Third, I am opposed to the project because the tailings pond will leach acid into the ground water. The proposed technology is unproven. This is not the place, if indeed there is ANY place to test new processes. Fourth, the separation process will use great quantities of electricity, produced by coal-fired power plants, which increase the amount of carbon dioxide in the atmosphere.	PRO3,PRO6
Sender Last Name: Pengal	**Submission ID:** 305	
319	This letter is provided as support for the PolyMet Project near Hoyt Lakes, by NORAMCO Engineering Corporation. The strong economy of Northeast Minnesota is closely tied to natural resources, as has been seen by the effect on the pulp/paper/chip board industries, and also the faltering of iron ore. Tourism aione cannot support the standard of living these industries provide. The PolyMet project will allow a solid third leg to the wood industry and iron economies, which in turn will help enhance the tourism factor. I truly believe that PolyMet has a sound environmental plan which will allow the mine to earn a profit. Furthermore, the employees and community will have a more stable economy in which to live, and I feel both the environment and tourism will also be protected. We, at NORAMCO Engineering, are pleased to endorse projects that positively impact our region's economy and are in compliance with air, water and natural resource standards. NORAMCO Engineering Corporation strongly recommends issuance of permits for PolyMet Mining Company.	EOO,G11
Sender Last Name: Pepin	**Submission ID:** 1597	
937	Negative effects on water quality will be substantial and unacceptable. Water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. Mining companies will simply be able to maintain water treatment facilities for that amount of time, and it is an unfair burden to pass on to future generations of Minnesotans who will inevitably be left to pay for these operations. Additionally, it will be all but impossible to calculate sufficient financial assurance for a mining operation that will require such long-term care	PD2,PD3,PD4
Sender Last Name: Perreault	**Submission ID:** 2190	
2596	JOSEPH PERREAULT: I'm a 23-year-old boilermaker apprentice. I have an 11-month-old son. I just had him last year. I was laid off for four months last year because of the shortage of work and the economy. It would be greatly appreciated if this was passed and they got more work for us up there. It would make it a lot easier on a lot of guys, and it would also help stimulate the economy. And as a young father raising a new family, it would definitely be appreciated. That's all I have to say.	EOO
Sender Last Name: Perrizo	**Submission ID:** 3709	
20511	VII. The Draft EIS Analysis of Impacts to Cultural Resources is Inadequate The National Historic Preservation Act (“NHPA”) includes provisions that apply to Native American Tribes. 16 U.S.C. § 470a(d)(6); Muckleshoot Indian Tribe, 177 F.3d at 805. Under the NHPA, properties of traditional religious and cultural importance to a Tribe may be determined to be eligible for inclusion ion the National Register, and in carrying out its responsibilities under Section 106 of the NHPA, federal agencies must consult with any Native American Tribe that attaches religious and cultural significance to these properties. Id; 36 C.F.R. § 800.1. The proposed NorthMet mine site and plant site are located within the 1854 Treaty Ceded Territory where the Bois Forte Band of Chippewa, Fond du Lac Band of Lake Superior Chippewa, and Grand Portage Band of Chippewa retain hunting, fishing, and gathering rights under the Treaty of 1854. Thus, in considering the potential impacts to cultural resources, the Corps must consult closely with the affected Tribes and Tribal members.	PRO5,G3,CR1,CR2,CR3,C

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Comment ID	Comment Text	Theme Codes
20512	II. The Draft EIS Fails to Adequately Explain How the Proposed Mine, Which Would Destroy and Adversely Modify Designated Critical Habitat, Would Not Violate the Endangered Species Act ("ESA") The Endangered Species Act ("ESA") represents "the most comprehensive legislation for the preservation of endangered species ever enacted by any nation." Tennessee Valley Authority v. Hill, 437 U.S. 153, 180 (1978). "The plain intent of Congress in enacting this statute was to halt and reverse the trend towards species extinction, whatever the cost." Tennessee Valley Authority, 437 U.S. at 184. In enacting the ESA, Congress spoke "in the plainest of words, making it abundantly clear that the balance has been struck in affording endangered species the highest of priorities, thereby adopting a policy which it described as 'institutionalized caution.'" Id. at 194. "One would be hard pressed to find a statutory provision whose terms were any plainer than those in [Section] 7 of the Endangered Species Act." Tennessee Valley Authority, 437 U.S. at 173. "Its very words affirmatively command all federal agencies "to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence' of an endangered species or 'result in the destructions or modification of habitat of such species.'" Id., (quoting 16 U.S.C. 1536) (emphasis in original). "This language admits of no exception." Id. Thus, pursuant to Section 7 of the ESA, each federal agency must consult with the U.S. Fish and Wildlife Service to insure that any proposed action is not likely to jeopardize the continued existence of any threatened or endangered species, or result in the destruction or adverse modification of the species' critical habitat. 16 U.S.C. § 1536(a)(2). The ESA therefore mandates that "federal agencies take no action that will result in the 'destruction or adverse modification' of designated critical habitat." National Wildlife Federation v. National Marine Fisheries Service, 524 F.3d 917, 933 (9th Cir. 2007) (quoting 16 U.S.C. 1536(a)(2)). "Destruction or adverse modification" of critical habitat is defined as a direct or indirect alteration that appreciably diminishes the value of the critical habitat for both the survival and recovery of a listed species. 50 C.F.R. § 402.02. Such alterations include alterations that would adversely modify any of the physical or biological features that were the basis for determining the habitat to be critical. Id. The courts have found, however, that this definition "reads the 'recovery' goal out of the adverse modification inquiry, and that agencies must in fact consider impacts that appreciably diminish the value of critical habitat for either survival or recovery. National Wildlife Federation v. National Marine Fisheries Service, 524 F.3d at 934; Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service, 378 F.3d 1059, 1069-71 (9th Cir. 2004). Thus, the agencies' assessment of the impacts of a proposed action on a listed species' critical habitat must include the project's impact on the species' habitat in terms of the species' recovery as well as its survival, and how the action may impact the physical or biological features that were the basis for the species' critical habitat determination. 50 C.F.R. § 402.02; National Wildlife Federation, 524 F.3d at 935; Gifford Pinchot, 378 F.3d at 1069. In addition, the agencies are not allowed to characterize as "insignificant" the potential impacts on a species' critical habitat by considering only the broad scale or long-term impacts. National Wildlife Federation, 524 F.3d at 935; Gifford Pinchot, 378 F.3d at 1069. For the proposed NorthMet mine, the agencies acknowledge in the Draft EIS that the proposed mine site is within formally designated critical habitat for both Canada lynx and gray wolves. DEIS, 4.4-2,3. More specifically, the mine site is located within "Lynx Analysis Unit" 12 on the Superior National Forest, and 94% of this Unit currently pro	WI1,WI5
20512	As acknowledged in the Draft EIS, "the Project may affect historic properties of religious and cultural significance to the Ojibwa Bands on and off reservation, or tribal lands." DEIS, 4.8-3. The Corps, however, is once again placing the cart before the horse by releasing the Draft EIS for public comment before this consultation occurs. Id. (stating that "a significant amount of consultation and survey work remains to be completed"); see also DEIS, 4.8-13 (stating that "[t]he identification of historic properties of religious and cultural significance to the Ojibwa is the subject of ongoing consultation between the [Corps] and the Ojibwa Bands," and that "[t]he potential impacts to any historic properties identified will need to be assessed"); DEIS, 4.8-15 ("[t]he cumulative impacts of past, present, and future mining projects to Ojibwa culture are unknown, but may be very significant").	PRO5,G3,CR2,CR3,CR4

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Comment ID	Comment Text	Theme Codes
20513	One of the primary purposes of NEPA is to allow meaningful public involvement in the environmental analysis, and this cannot occur where the analysis is simply described as ongoing and not disclosed for public comment in the Draft EIS. As set forth in the Draft EIS, It is the positions of the Ojibwa Bands that this chapter cannot be completed without significant additional consultation with the Tribal cooperating agencies, development of full, Tribal surveys of historic properties of religious and cultural significance to tribes, proper evaluations of natural and cultural resources based upon the recentlydefined (and much expanded) APE, and much more research. Therefore, the Tribal cooperating agencies take the position that even with the inclusion of all earlier changes and comments, the chapter will be far from ready for publication in the Draft EIS. The Tribal cooperating agencies expressly condition their comments on this position and maintain the position that Section 106 consultation is incomplete and inadequate, as to nearly every section. DEIS, 4.8-15. The Center agrees with this position of the Tribal cooperating agencies. In order to comply with NEPA's public disclosure and involvement requirements, a Supplemental Draft EIS will need to be prepared and released for public comment in order to properly address this and other issues.	PRO5
20513	Similarly, as explained by EPA, the Draft EIS "has not described all impacts to tribes and tribal uses in the mine site area." July 31, 2009, EPA Comments, p. 5. EPA thus "continues to recommend" that the Draft EIS "include an evaluation of impacts to tribal uses, insofar as the DEIS should disclose impacts to the environment and to the public from the project and provide pertinent information to all decision makers." Id.	G3,CR2,CR3,CR4
20513	Last, impacts to cultural resources again indicate why the proposed land exchange between PolyMet and the Forest Service is a connected action that must be analyzed together in a single EIS. See July 31, 2009, EPA Comments, p. 5 (noting that "some direct impacts to tribal uses are related to the transfer of public land out of the Ceded Territory," and questioning "how assessing the impacts of this connected action can be deferred to a separate analysis").	PRO5,PD1
20515	VIII. The Draft EIS's Analysis of Environmental Justice Issues is Inadequate and Misleading The Draft EIS attempts to brush aside any environmental justice concerns by stating that the affected community does not have a significant Native American population. What the analysis fails to consider and address, however, is that the affected Native American population has an increased interest in the natural resources that would be adversely affected, polluted, and destroyed by this mining proposal, as their culture is dependent on continued access to these natural resources, and in fact their current access to these resources is protected by treaty rights. When considered along with the related land exchange, there is no question that the adverse environmental consequences and related impacts resulting from this proposal would disproportionately affect the Native American Tribes and Tribal members. This is therefore a classic environmental justice issue in which a more privileged segment of society is making decisions that would benefit themselves – through jobs and the end products that would be produced – to the detriment of Tribal members in the region. As just one example of environmental justice issues that must be addressed and disclosed in considerabley more detail, see DEIS, 4.5-22, n. 11 (Tribal cooperating agencies explaining that "the potential impacts to tribal members of a significant increase in mercury in fish harvested in on-Reservation and ceded territories waters has not been adequately addressed").	G3,FM1,CR1,CR2,CR4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
20516	IX. The Draft EIS Fails to Provide Necessary Information Pertaining to the Closure Plan and Financial Assurance The Draft EIS explicitly defers its discussion and analysis regarding financial assurance. DEIS, 2-6 (stating that "[t]he amount of financial assurance associated with reclamation actions cannot be estimated until these actions are understood at a more detailed level of design" and thus "discussion of financial assurance figures and instruments are not included in the DEIS"); id., 3-38 (stating that details regarding the amount of financial assurance cannot be estimated until these actions "are understood at a deeper level of design detail"). As explained by EPA, the information regarding financial assurance must be included in the Draft EIS "because one key component to determining the environmental impacts of a mine is the effectiveness of reclamation and closure activities." July 31, 2009, EPA comments at 5. Further, "EPA as found the amount and viability of financial assurance are critical factors in determining the effectiveness of closure and reclamation and therefore the significance of environmental impacts." Id.; see also DEIS, 3-49, n. 13 (explaining that "[b]ecause of its experience in expensive cleanups of contamination from many defunct or bankrupt sulfide mines, EPA Region 9 has strongly urged other Regions over the past two years to require financial assurance disclosure in the NEPA process," and that new national rules for financial assurance are under development by EPA because "Given the history of adverse environmental effects resulting from some hard rock mines, and the expenditure of public funds used in some cases to address environmental problems caused by mining, EPA believes it is necessary to analyze these factors in the DEIS (from InsideEPA.com, Tuesday, August 25, 2009)"). Indeed, in a comprehensive analysis and report prepared in 2003, it was found that the amount of financial assurances provided by mining companies usually falls far short of the actual reclamation and closure costs. Attachment 5 ("Putting a Price on Pollution, Financial Assurance for Mines Reclamation and Closure"). The report found that the mining industry and regulating agencies regularly fail to accurately estimate reclamation costs, potential for acid drainage generation, long-term treatment needs, and the effects of pollutants such as cyanide, mercury, and selenium that present expensive and potentially long-term reclamation issues. Id. The Tribal cooperating agencies agree that the long-term environmental impacts of the proposed project cannot be meaningfully evaluated without additional disclosure of the closure plan and financial assurance. DEIS, 3-49, n. 13 ("It is the position of the tribal cooperating agencies that financial assurance should be fully explored in the DEIS. This is especially important given the potential for very long-term/perpetual treatment, maintenance and monitoring that may be needed for the Proposed Action"); id., 4.1-131 ("Tribal cooperating agencies note that there is no up to date closure plan for the proposed project. It is the tribal cooperating agencies' position that a closure plan is needed to evaluate long term environmental impacts and to inform calculations of financial assurance that would be needed for the project"). The required analysis and disclosure for financial assurance must also take into the account the high likelihood that perpetual treatment would be needed for this proposed mine to insure no future violations of water quality standards. And as noted by mining expert David Chambers, if a prediction of an end date on which treatment will no longer be required cannot be made with a reasonable degree of certainty, then the discharge and the mine should not be allowed to begin. Attachment 6 ("A Position Paper on Perpetual Water Treatment for Mines"). Minnesota law requires that a mine operator provide financial assurance to cover the contingency reclamation costs prior	CR1

Sender Last Name: Peters **Submission ID:** 219

221	Dear Sir, I just want to let you know personally how important the PolyMet project is to our economic lives in this part of the world. There are many very good reasons to allow the project to go forward from strategic mineral resources for the U.S., taxes paid directly to the State of Minnesota but most importantly the hundreds of good paying jobs in a region that is economically disadvantaged. The Draft EIS should be adopted and the permits issued to PolyMet. Thank you for your faithful work and careful consideration on behalf of the citizens of the region.	EOO

Sender Last Name: Peterson **Submission ID:** 3751

1	I just want to say that I think this project will probably be pretty beneficial for everybody in this area. It would be nice to see a company like this come in, you know, and provide more jobs for everybody in this area, you know, at least for some more growth, you know, to have more money in the community. I'm -- I support it all the way. So I think that's about all I have to say.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	The Range Association of Municipalities and School (RAMS) wishes to go on record as being in support of the Environmental Impact Statement (EIS) that has been published by the Minnesota Department of Natural Resources (MDNR) and the Minnesota Pollution Control Agency (MPCA) regarding the PolyMet Project. RAMS is an organization consisting of 25 Cities, 15 School Districts, 10 Townships and 20 Associate Members made up of private and private non-profit organizations located in the Taconite Tax Relief Area (TTRA) We are excited by the large impact the project would have on the economy and tax base for our area and region. Our support however is based more on what the published EIS says and requires. Historically RAMS has supported projects based on the economy and the environment. Minnesota is known as a very tough place to receive permitting. We attribute that to both the MPCA and the MDNR, and support their process. Although we have been asked, we have never joined efforts to shortcut the process or change timelines. We know that when an EIS is published with facts and solutions, the interests of the environment have been the top priority. Based on our review of this EIS, RAMS supports the EIS and the permitting of the PolyMet Project.	EOO
1	As we debate the pros and cons of the Polymet project on the Iron Range the world demand for minerals continues to grow. This demand will be met by companies with high regards for air and water quality such as Polymet or it will be met by companies that do not have the same standards, such as the new copper mine currently being built by the Chinese in Afghanistan. Our country needs good jobs created by good companies. Polymets time has come and it is time to get to work.	EOO
1	Thank you for the opportunity to provide my comments on the draft environmental impact statement (OBIS) for PolyMet Mining Co. I believe that this project holds great promise for economic development on the Iron Range, and that is why I am hopeful that the EIS process can be completed and the adequacy determination be finalized. I appreciate the environmental issues that have been discussed in the DEIS and on going public comment period, and I am hopeful that PolyMet can take appropriate steps to address the concerns raised. As you know, PolyMet proposes to mine copper, cobalt, nickel, palladium, platinum and gold in an established mining district near Hoyt Lakes, Minnesota. The company would reuse much of the infrastructure from the former LTV Steel Mining Company and would employ hundreds of people. Nonferrous metals are used in applications in daily life throughout the United States, and we have few domestic sources. The United States imports between 40 and 95 percent of the nonferrous metals it uses. When we can't get the materials we need from domestic sources, we are forced to import them from countries that don't share our commitment to environmentally responsible practices. In addition, the carbon footprint of these imported materials is extremely large, as they are shipped around the globe for processing, manufacture and delivery to the end user. At a time when our state and national economies are increasingly global, competitive, and unstable, we must protect our shared commitment to economic development through responsible resource management. That is why I encourage you to continue to move forward with the EIS process to ensure that the project meets all applicable state and federal guidelines.	EOO
2	Without question, the world needs these minerals and the area can desperately use the jobs. This project cannot begin to move ahead soon enough.	EOO
2	On behalf of the membership I can state with confidence that the NorthMet Project has received overwhelming support due to two main reasons. First, and most obvious, the economic benefits to our members and their families. Many of them live on the Iron Range and consequently are very anxious to start their next project. Our Local currently has close to 900 active members and we have recently completed two very successful projects in Northern Minnesota. Mesabi Nugget and Minnesota Power's SCR project at Clay Boswell. Since then the amount of work has dropped off drastically and we are experiencing unemployment rates in excess of 50 percent. Secondly, nearly all of our members have worked at taconite plants in their careers. PolyMets' plan to reuse an existing brown field site (old taconite facility) along with the specifics of the Draft EIS overwhelmingly convince us that this project makes good sense with minimal environmental impact. In conclusion, on behalf of Boilermakers' Local 647, I strongly encourage approval of the Draft EIS of Polymets' NorthMet Project. We are all eager to be part of this project and trust that your department, after all things considered, will conclude that this is right for northern Minnesota .	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3	I totally support the PolyMet project because it will contribute to the local economy at a time when we really need jobs. Plus all the spin off jobs it will create for the Arrowhead region & Minnesota. To the opposing side that are stateing Polymet will impact the Boundery Waters.That statement is absolutely incorrect. The Laurentian Divide separates the Boundery Waters from the PolyMet project. We do send unpolluted pristine water from the north to the south by way of the Minnissippi River. By the time the river leaves the southern boundries of this state it is very polluted. My suggestion to who oppose, you spend the same amount,20 Million dollars that PolyMet has spent on the Environmental Impact Statement to clean up the Mississippi River. Then I might consider listening to your side.	EOO
4	Need jobs. Good for the state	EOO
4	On behalf ofthe City of Aurora, as Mayor I have a responsibility to ensure the longterm health, sustainability and vitality of our community. Long-term sustainability requires a clean environment and stable employment. I feel that the Department of Natural Resources and PolyMet have thoroughly addressed the environmental issues related to the mining operation. PolyMet has invested millions of dollars in studies to inform the EIS and permitting process, fulfilling and oftentimes exceeding expectations. Based on the extensive documentation outlined in the EIS, I am confident that impacts to the air, water or land will,be minimal, if any. Foreign suppliers of these metals don't necessarily follow sound environmental practices, creating a greater global environmental impact. PolyMet can produce these metals, metals that we use every day, in an environmentally sound manner and create hundreds of stable jobs that can support families in our community. PolyMet's economic benefit will be widespread; the beneficial effects include increased employment opportunities, a larger tax base, and increased county revenue from production and property taXes.	EOO,G4
4	I am in favor of this project I believe this project can be done while protecting the environment We need the jobs this project will create, both in the short term with contruction and long term with the plants employees and support industries We also need the tax base this plan will provide I am also in favor of this project providing us with metels that we otherwise would have to import	EOO
4	How can we conclude that the job openings created will be filled by northern Minnesotans? Maybe people will be hired from elsewhere who will expect to stay in the area after the mine closes. This has the potential to increase the economic burden to create even more jobs in the Northern MN.	EOO,RFI
5	One of the comments I'd like to make is I'm a business manager for the Heat and Frost Insulators for Local 49 out of Duluth, Minnesota, and a lot of my members live throughout northern Minnesota, Wisconsin, and we have a very big territory that we heat, insulate pipes, boilers, you know, green, you know, everybody thinks green, you know, for the environment and everything for safety. What we do is insulate mechanical systems, and as a business manager, I have a lot of people that come into my office to fill out applications for a job, and I put these people to work, and what I have in front of you right now, as you can probably see, these are just kids, young kids that come into my office that want a job, a good paying job. I'm a union business manager. We pay our fringe benefits with health insurance, a pension, just like what everybody wants, health insurance, and what I got in front of you right here is about 75 people, young kids, that have come into my office for a job. And not only that, I have about 30 percent of my membership that's off, that's not working at this time through these difficult times, so it's just not only about my membership, it's about young kids that come in that want to make a job to pay their bills, families, and have health insurance and a good way of life, and my comment is times have changed. I know there's a lot of concerns about this project, but today is the day, and we're not going to move forward if we don't get jobs, produce jobs, and carry on and move forth.	EOO
5	The Superior Nat’l Forest, the BWCA and Lake Superior are for everyone to enjoy and are not to be compromised for short sighted economic gain.	EOO
6	This mine threatens our water, Lake Superior & possibly Birch Lake, the Kawishiwi River and everything down stream.	WR3B,WR3D
6	The jobs are short-term & exaggerated. The mining companies will use machines, not people. They promise 400 jobs, but we’ll be lucky if 200 people have jobs for 10 years.	SE3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
7	Mine now baby.	EOO
7	I am in support of PolyMet. This is a huge opportunity for us.	EOO
9	Let’s approve this project and get some development in the Northern MN. Northern MW, MW and this country needs this to happen. this will put people to work with stable jobs. The construction project will put hundreds of construction works to work for 2 years or more. This process of mining has proven to be clear and environmentally safe if done correctly. The studies that have been done with the process PolyMet is going to use looks as if it will leave a minimal impact. Let’s get past this and move ahead with this project.	EOO
18	Steve Peterson, I'm the mayor of the city of Virginia. Well, I believe that PolyMet has done due diligence, and we need jobs, we need stability and optimism for the area. I think they have brought together all the people they talked about, they've spent upwards of $20 million bringing in geologists, environmentalists, all the people that need to put this package together. And I'm no expert, but I think that when you put that kind of package together and you spend that kind of money, that there's a commitment on the PolyMet side. And I think that if we cry wolf every time somebody comes out with a new idea, we're never going to complete projects up in this area, and I think that's what's happening right now with some of the environmentalists. I think it's a viable project, and again, we welcome PolyMet to the area, to the whole region, and I think it's a win/win situation. I don't feel that going forward there's going to be problems because there are so many strict environmental regulations in place with EPA and all the other agencies, that PolyMet will be watched and monitored very closely, so I'm comfortable, and again, I welcome them and wish them all the best. That's about all I have to comment.	EOO
120	Let's try this: The people of this state want and deserve clean water. The people of this state want and deserve good jobs. We have the ability, the knowledge and the will to have both clean water and good jobs. This is not an either/or situation. We can, and must, have both clean water and good jobs. That's it.	G1,G7
679	I believe the damage done to the Boundary Waters Wilderness and Lake Superior from the outflow of contaminated dishcharge from the waste will be permant. One cannot rely on Polymet’s wetland treatment plan. It’s unreliable. There is leakage to rivers and lakes downstream. Our streams and lakes already suffer from the buildup of mercury. Now is the time to think ahead of what could destroy them for future generations – long after the jobs created have come and gone.	WR3B,WR3D
1552	Last night I saw a letter presentation at the Izaak Walton League which is why I am writing to you. I hope it matters that I take the time to do this.	G10
2058	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. The BWCA is a treasure because of its pristine nature. Please do not let it be dessimated by mineing.	G10

Sender Last Name: Petty **Submission ID:** 2315

2764	As a longtime traveler in the BWCA I am appalled by the suggestion that we undercut one of the best things our state has going for it for a mine. I've guided trips in the BWCA for multiple summers and can tell you all about its beauty and its power to change teenagers for the better. Let's not threaten this resource. When I tell my friends from out of town that there are places in my state where one can still drink straight out of the lake they are impressed by Minnesota's commitment to environmentalism. Help me keep it that way.	EOO

Sender Last Name: Pfankuch **Submission ID:** 3514

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
533	AIR QUALITY IN PRISTINE BOUNDARY WATERS: The DEIS does not approach the most important question of cumulative impacts of this mine and the others that are proposed in the district. Polymet can not be looked at as a single, one-time event in N.E. Minnesota. With permitting of Polymet will come at least 2, perhaps 4 or more new applications for permitting from other mining companies. What will be the total impact on the environment by all these potential mines and how will the EIS deal with mitigation of all these in concert? Specifically the Boundary Waters, which is down wind of all these projects, will be negatively impacted in terms of atmospheric haze from dust particles and other emissions blown into the air. According to the U.S. Forest Service, the Polymet project alone will cause significant haze impairments in the Boundary Waters 36 days each year! Tell us how this cumulative effect on air quality must be dealt with for Polymet and all future applications. In addition how is global warming affected by this mining operation and the combinations of all potential mines in the future?	AQ3,AQ4B
1124	WILDLIFE: The mine site disrupts natural corridors for the movement of wildlife. Specifically the Canada lynx which is a federally-listed threatened species that requires large territories and benefits from undisturbed forest corridors. No provision is made for mitigating this loss of habitat in the DEIS.	WI5
3246	BOUNDARY WATERS WATERSHED: There was little or no field sampling done on the movement of ground water through the bedrock. Since the mine and its waste storage site sits nearly on the continental divide it should have been determined if there is any chance that polluted mine drainage (including acids, metals, or sulfates) could move in the rock over time to the north and into the Boundary Waters watershed. This was not done and should be before permitting.	WR2A
3247	SULFATES IMPACT: Sulfates are a problem that are not dealt with rigorously in the DEIS. Sulfates in surface water demonstrably impact aquatic vegetation, specifically wild rice. In addition sulfates react with elemental mercury in a process known as mercury methylation. Methylmercury is the form that bioaccumulates in fish and animals that eat fish, including humans. What process has been identified to detect and mitigate methyl mercury in the environment and how will community health be dealt with and paid for? The Boundary Waters is a very unique National Park that deserves to be fiercly protected. Developing open mine pits without the proper monitering and regulations spells doom for this pristine paradise - if not in our generation, certainly in our grandchildren's time. Please do the right thing and protect this national treasure by addressing the above issues.	WR1E,WR4B,WR4C,WR4F
3701	RECLAMATION: The DEIS does not outline any specific plan for reclamation after the mine site is closed. In the same vein there is no specific mention of the method or amount of financial assurance that the mining company will need to set aside for the potential disasters after closing. Because acid mitigation is difficult to predict and long term treatment after closing is necessary, there needs to be a large sum of cash held in escrow as a damage deposit and that amount should be specific and included in the final EIS.	PD3
3702	MONITORING PLAN?: Where is the plan for constant monitoring of the mining operation by the DNR? Waste rock needs to be sorted by sulfide content, tailings basins need to be inspected for leaks, and waste piles need to be sampled for pH in runoff water regularly. Do we just depend on the mining company to do its own monitoring? There should be a program set up in the EIS for constant monitoring of operations by an independent environmental concern or the DNR.	PD2,PD3,PD5

Sender Last Name: Pfeifle **Submission ID:** 1996

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2482	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. I lived in salt Lake City, Utah from 1979 to 1985 and personnally observed what I considered the devestating effects of sulfide mining on the area around the Kennecott Bingham copper processing area. The area around the processing area looked sterile and it did mot appear as if there were even weeds growing in the immediate treatment area. I did not physically tour the site and all of my observations were from the air. Many times when making a final approach from the south to the airport we would be routed to the west side of the valley and make our approach to the airport directly over the treatment areas in West Jordan. I cannot visualize the type of operation I saw in Utah being placed in the Boundary Waters Area. The price of copper is high now but I also remember in 1983/4 when the price of copper was just a few pennies a pound Kennecott was laying off workers that had 20 or more years of service. Is it worth a few jobs and the tax money the State will receive to place a risk like this mine in such a unique and valuable area? The PolyMet DEIS describes serious environmental issues associated with this proposed mine. These issues should be addressed and resolved before this mine is approved by the U.S. Army Corps of Engineers and the Minnesota Department of Natural Resources.	G2,G6
Sender Last Name:	Philipson **Submission ID:** 1316	
1536	It is imperative that we protect the fish and wildlife that currently thrive in Superior National Forest and safeguard this area for future generations. The lessons learned (hopefully learned) from the continuing ground water polution caused by the 3M issues in the Twin Cities area should be enough to show it is easier and cheaper to prevent the introduction of pollutants than to try and clean them up later. Your consideration of the above in this matter will be appreciated.	G2C
Sender Last Name:	Phillips **Submission ID:** 3676	
1	Comment: Note: wetland classification is discussed in the comments on Section 4.2. It is correct that not all wetlands have the same carbon sequestration or emission potential. As a result of this and other terrestrial carbon-cycle uncertainties, the quantitative analysis of Project carbon footprint did not take any credit for the mitigation of wetland impacts. The discussion in the DEIS focuses on the fact that wetland creation will mitigate some of the carbon sequestration capacity lost from impacted wetlands, not that it will necessarily offset all sequestration loss. The assertion that there is a net decrease in carbon uptake due to an equivalent amount of Type 8 wetlands not being involved in mitigation, is not in a larger sense the appropriate metric to judge the overall impact on long-term GHG emission budgets. This is because it neglects to factor in the highly uncertain impact of methane on net radiative forcing. The current state of knowledge about wetland carbon sequestration and emission suggests that it is not yet possible to unequivocally assume that wetlands, as a whole, result in net negative radiative forcing. Recent research suggests a high degree of uncertainty surrounding carbon balance estimates for North American wetlands, including the rich peatlands mentioned in the comment, due primarily to their emissions of the more potent, but shorter lived GHG methane (Bridgham et al. The Carbon Balance of North American Wetlands. Wetlands 2006, 26(4), 889-916).	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2	The DEIS discussion of mineral fibers needs to be revised to accurately characterize applicable law and include important and available scientific information. The DEIS states that regulation of amphibole fibers is based on the District Court decision in Reserve Mining in 1974. In 2009, the Eighth Circuit Court of Appeals held that the Reserve case was "moot." Legal determinations regarding mineral fibers from a moot decision regarding a different facility and based on 35-year-old science are not germane to the potential environmental impacts from PolyMet—particularly as more recent research and studies provide the best available information on this issue. The DEIS also is misleading in its description of so-called "MN-fibers" and "MN-regulated fibers." No state agency has ever promulgated a regulatory definition of a "MN-fiber." The DEIS discussion of fibers also is misleading and incomplete based on its failure to consider and discuss the most recent and relevant science available regarding the potential for health risks from fibers. The International Symposium on the Health Hazard Evaluation of Fibrous Particles Associated with Taconite and the Adjacent Duluth Complex—Regulatory Toxicology and Pharmacology Vol. 52, No. 1, October 2008 ("Symposium"), specifically evaluated the potential risks from taconite fibers and found that "fiber" emissions from Northshore Mining Company in Silver Bay, based on fiber emission levels that are many times greater than anticipated from PolyMet, do not pose a risk to human health or the environment in the area surrounding the facility. In fact, the Symposium describes the environmental risk of the "taconite-derived fibers" as "trivial." Among the many specific findings of the Symposium's researchers were the following: (a) "fibers" in the area are best described as "cleavage fragments," which are separate and distinct from asbestos in their morphological characteristics and lack the carcinogenic properties of asbestos; (b) ambient "fiber" levels in the Silver Bay area are not significantly different than those found in other non-urban environments in the United States and Europe. In fact, the levels observed in Silver Bay are at what the World Health Organization considers the "low end" of "background" levels for airborne asbestos concentrations; and (c) a cancer risk assessment of environmental exposure in the Silver Bay area showed that even if one takes the overly conservative assumption that cleavage fragments generated at the Northshore facility have a carcinogenic potency equal to that of asbestos, the estimated risk of 0.24/1,000,000 cases would be comparable to the background rate of mesothelioma unrelated to asbestos exposure. The Symposium's findings represent state-of-the-art peer-reviewed determinations that support that "fiber" emissions from PolyMet do not pose a health or environmental risk. The Final EIS should thoughtfully consider and address these relevant findings.	EOO
3	Comment: The analysis provided on p. 4.11-3 (section 4.11.3.1) states: "The upland forest communities surrounding the Mine Site to the east, south, and west would shield groundlevel views of the Mine Site in those areas…Potential users on elevated terrain to the east, north, or west of the mine would have a limited view of the mine and stockpiles." This assesses receptors in publicly accessible areas other than those explicitly mentioned in section 4.11.1.1.	EOO
4	The statement in DEIS Section 4.13.3.1 that "it is unknown if the slimes layer exists under the facility" is incorrect and may lead to the erroneous conclusion that a significant data gap exists in the DEIS analysis. To the contrary, part of the additional geotechnical exploration performed in 2007 in the tailings basin was specifically targeted at Cell 2W, the area proposed for the Hydrometallurgical Residue Facility. As a result of this additional geotechnical exploration and from review of other historic tailings basin information, it is known that slimes exist under the proposed Hydrometallurgical Residue Facility location. Geotechnical modeling to evaluate the impact of the slimes on the stability and integrity of the proposed hydrometallurgical residue cell liner system was conducted for a worst-case scenario with only saturated slimes (no fine tailings lenses, though they exist rather frequently and aid in drainage and excess pore pressure dissipation) under the hydrometallurgical residue cell liner and dikes. This analysis will be made available as part of the FEIS and will be submitted as part of permitting to fulfill overall permit application requirements, thereby affording the public opportunities for further review and comment. Further, it is inappropriate to use the word "hazardous" when discussing the hydrometallurgical residue. "Hazardous" has specific regulatory implications when applied to discussion of solid waste; the hydrometallurgical residue is an Industrial Solid Waste and is not hazardous.	EOO

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Comment ID	Comment Text	Theme Codes
4	Proposed designs of the waste rock stockpiles are consistent with those employed throughout the Minnesota Iron Range in similar, if not nearly identical, geotechnical and hydrogeologic settings. These designs have proven to be effective and stable for over 50 years such that failure of stockpiles of similar design is not reasonably foreseeable. Furthermore, given the characteristics of the stockpiled materials, consisting of silt, sand, gravel, cobble and boulder size materials, it can be anticipated that in the unlikely event of a slope failure, the failure will be relatively isolated and easily remedied. Therefore, such a failure would be unlikely to result in significant environmental impact. The addition of the stockpile liner systems and in particular the stockpile subgrade preparation that must precede liner construction will only serve to improve stability of the stockpiles. Existing evidence and subgrade improvement plans notwithstanding, it is routine for stability analysis to be performed and submitted as part of permitting, affording sufficient opportunity for further public review and comment.	EOO
4	A stability analysis has been performed and is presented in the following document listed in DEIS Section 7.0 References: Barr Engineering Company (Barr). 2009. “Preliminary Geotechnical Evaluation, Flotation Tailings Basin.” GT01, Draft 02. March 18 The analysis presented in the Preliminary Geotechnical Evaluation was based on review of historic geotechnical information for the tailings basin and on the performance of additional geotechnical exploration in 2007 specifically in support of the DEIS and future permitting, including the following in-field testing: • Cone Penetration • Standard Penetration Testing • Dilatometer and Vane Shear • Seismic Shear Wave Velocity • Dissipation This in-field testing was performed at multiple locations within tailings basin Cells 1E, 2E and 2W. The in-field testing was supplemented with in-laboratory testing of tailings samples recovered from the field, which included standard materials classification testing and the following additional in-laboratory testing: • Triaxial Compressive Strength • Consolidation • Hydraulic Conductivity The cross-sections of the Cell 2E north tailings basin dam expected to exhibit the lowest slope stability factors of safety (Sections F, G and N) were analyzed using: • Effective Shear Strength Analysis (ESSA) • Peak Undrained Shear Strength Analysis (USSA peak) • Liquefied Undrained Shear Strength Analysis (USSA liquefied) The resulting slope stability safety factors as summarized in the Executive Summary of the Preliminary Geotechnical Evaluation report and as copied below were: Slope Stability Analysis Slope Stability Safety Factor Target Minimum Factor of Safety for Year 20 Proposed Conditions Section F Section G Section N ESSA ~1.5 2.63 2.86 3.22 USSA peak ~1.3 1.64 1.63 1.88 USSA liquefied ~1.05 1.055 1.06 1.11 In all cases the slope stability safety factors met or exceeded the target values. In the event that higher slope stability safety factors are desired by PolyMet for the USSA liquefied case and/or if performance monitoring during the life of the tailings basin shows slope stability safety factors lower than anticipated, the slope can be buttressed to improve safety factor values. A preliminary buttress design evaluation for the USSA liquefied analysis case was performed for the cross sections with the lowest safety factors (Sections F and G) in conjunction with the slope stability evaluation and the results are included in the following table, a copy of which has previously been presented to the MDNR: PolyMet’s Consolidated Comments on NorthMet DEIS February 3, 2010 Page 55 of 61 Slope Stability Factor of Safety with Varying Buttress Height Top of Buttress Elevation (feet) Section F Section G Buttress Height (feet) Factor of Safety Buttress Height (feet) Factor of Safety 1535 48 1.06 31 1.06 1540 53 1.09 36 1.07 1545 58 1.11 41 1.09 1550 63 1.12 46 1.10 1555 68 1.13 51 1.12 1565 78 1.17 61 1.15 As evidenced by the summary of slope stability modeling results presented above and the evaluation presented in the Barr 2009 Preliminary Geotechnical Evaluation, Flotation Tailings Basin, the analysis that has been suggested has already been performed. This geotechnical evaluation will be resubmitted as a part of the application for a Tailings Basin Dam Safety Permit, which is the normal venue for agency review of such analysis, but also affording sufficient opportunity for further public review and comment.	EOO
Sender Last Name:	Philzois **Submission ID:** 1029	
1129	I am in support of the PolyMet Mining project. PolyMet can produce these metals in an environmentally sound manner and create hundreds of stable jobs that can support families. Based on the documentation outlined in the DEIS, I am confident that impacts to the air and water will be minimal. As a person who lives, works and plays in Northern Minnesota, I understand the need to ensure a safe environment project. Let's get on with a project that will do nothing but enhance the Iron Range. Thank you for your cooperation.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Phinney **Submission ID:** 3199	
740	I request a time extension of 30 to 45 days for review of the EIS. I request more public meetings in more places to gather input. The current schedule is too limited. I request that the public meetings include the option for citizen statements and discussion in the open meeting.	PRO6
Sender Last Name:	Piekarski **Submission ID:** 3336	
3629	In the past sulfide mining has caused extreme damage in the western United States. Letting sulfide mining occur near a pristine wilderness area such as the BWCA seems like we want to ruin our environment. Water is a resource that wars are currently being fought over, & we are thinking about letting people come in and potentially damaging it for several years into the future. I personally have been to the BWCA, & would hate to see it destroyed.	G7
Sender Last Name:	Pier **Submission ID:** 3129	
3499	This is to express my concern about proposed mining operations in NE Minnesota. Information I have reviewed suggests that sufficient attention to negative environmental impact has not been provided. I have no confidence that the mining companies will adequately police themselves. I urge you to use extreme caution in assessing this proposal and to consider the potential for devastating and irreversible damage to this magnificent ecosystem.	G2,G8
Sender Last Name:	Pierce **Submission ID:** 2267	
1860	The sulfuric acid and sulfates produced when the ore is mined will effectively contaminate not only drinking water and fish populations, but be devastating to wetlands and the St. Louis River watershed. The mining plan presented to the MN DNR won't prevent irreversible water pollution.	WR3D
2681	The PolyMet copper mine plan is being described by the mining industry as safe and of no threat to our water supply. However, similar mines (one in South Dakota) described as having low sulfurcontent in the rock have created very real acid mine drainage problems. We're told about 'new techniques', but studies have proved that this new technology is untested and false claims for it are being made.	G7
2682	Not only do our lakes, streams and forests provide a healthy tourist industry, they are a beloved part of our heritage here in the northland--enjoyed by the majority of Minnesotans. If we compromise our natural resources, there will be no possibility of renewal. PolyMet should be required to give letters of credit with no expiration date in amounts sufficient to ensure that no matter what happens to the company, state taxpayers don't get stuck cleaning up the mess.	G4
Sender Last Name:	Pierson **Submission ID:** 2859	
458	According to the US Forest Service, this project will cause significant atmospheric haze from dust particles and other emissions. How will this be addressed, and what will be the impact on the area?	RFI,AQ5
2729	The Impact Statement predicts that the "West Pit" will begin discharging polluted water at year 65 and that arsenic,cobalt and selenium will exceed water quality standards.	WR3C
2730	There was little or no field sampling done on the movement of ground water through the bedrock. What are the possibilities of polluted mine drainage seeping into other areas, including the Boundary Waters?	WR2A

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Comment ID	Comment Text	Theme Codes
2731	The Statement describes a relatively high sulfate concentrations in seepage from the Tailings Basin which would be released into the wetlands to the north and into the lakes downstream on the Embarrass River. What will the effect of this be on the fishing and other recreation activities in this area.	WR3A
3160	The Impact Statement talks of water from waste rock piles being polluted for up to 2,000 years (Table 4.1-45), yet no where does it provide for specific financial assurance from the mining companies for long term treatment or maintenance. Will financial responsibility for this be absorbed by the DNA?	PD4
3215	I spent most of my adult life making a living in northeast Minnesota...first in the recreational arena in the BWCA, then in the social services arena of the Iron Range. Coming from that background, I empathize with the arguments to explore mining development to ensure the survival of the communites in the region; but, one simple statement regarding the potential impact on whaty is being proposed with the Polymet mine: Last I heard, one should not eat the trophy trout that exist in some of the reservoirs created by the mining industry...and levels of toxic lead and mercury were remarkably high even in Birch Lake, due to the run off of decomposing mine tailings. One simply cannot assert that mining done on the potential scale of Polymet will not have the same effect. The evidence is right there in front of everyone. Learn from the past...and its immediate impact on the present. Do not add fuel to what is often a disregard of very real environmental concerns for relative short-term development benefits.	G1,G2C,G7A
3732	PLEASE DO NOT ALLOW THIS TO PASS! I have young children and if this passes, I will consider moving out of the area. I will not subject my children to this environmental disaster. I am currently not working and could possibly get a job to support my family if this does pass. But I'm not willing to trade the health of my children for a paycheck in my pocket. This project may produce numerous jobs but many people will leave and the tourists will stop coming, which will result in job losses for others. Please. Do not allow this to happen.	EOO,G1,G11

Sender Last Name: Pilipauskas **Submission ID:** 1633

2054	With all of the sulfide mining that has taken place in the U.S and the consequences of those mines such as posioning ground water and killing off streams and lakes why would we want to allow these kind of mines to drain into the Boundary Waters? Obviously they weren't allowed to mine in Canada for a reason. Tell them to go home and mess up their own water.	EOO,G7B

Sender Last Name: Piron **Submission ID:** 1114

1220	I am writing to express my personal support for the Polymet project for the following reasons: 1. The Polymet project will provide several hundred high paying full-time jobs in the region that will benefit the local economies as well as Minnesota' - especially at a time when our country in is desperate need of good jobs. 2. The Polymet project will provide a reliable source of several metals critical to the production of electronics and other high tech components and products, thus reducing our dependence again on foreign countries that do not have our best interests in mind. 3. Polymet has complied with the regulatory requirements and deserves a chance to show that it can be both a huge benefactor to the regional and state economy as well as a responsible, caring steward of our natural environment. Please allow this important project to move forward at a time when our region, state and country truly need good jobs, economic development and a success story to celebrate.	EOO

Sender Last Name: Pister **Submission ID:** 2227

2635	Get 'er done.	EOO

Sender Last Name: Plendl **Submission ID:** 3394

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3684	Before Franconia is allowed to go any further, it should be an imperative that all aspects of this EIS is considered. When considering longevity of industry in NE MN, this proposal makes no sense considering its afects 50+ years down the road. As a BWCAW user, long term vacationer to Birch lake, business owner and environmentalist, I feel this situation needs to be heavily acrutinized before any further action is allowed by these mining companies.	EOO,G10
Sender Last Name:	Pliml **Submission ID:** 3163	
3536	Polymet will provide many needed jobs for the short and long term for the east range area. Along with needed jobs it has been shown that Polymet has spent countless hours planning how their process will provide safe gaurds for the environment. This is a business that should be given the green light.	EOO
Sender Last Name:	Popovich **Submission ID:** 1083	
1187	This email is to send. my SUPPORT for the, PolyMet Mining Project. I have been involved in the informative public meetings that have taken.place in Hoyt Lakes, Mn. As a part of the city of Aurora Chamber of Commerce, I have also been involved in meeting Mr. Scipioni to gain more information about the mining project. This'project Is good for our area in that it will provide many jobs to help our the local economy . The'main point about this project is that it will be done In a way that will have the minimum' environmental impact on the site. This is a brownfield ·site that has a great deal of infrastructure already in place that will be used and cared for properly. Water on the site will be claimed' and reused in the process and will meet all state requirements.for quality. , Much time, effort and monies have been sp_ent in preparation for this project and it is now time to move the process forward and get the permits to this company to allow production. .	EOO
Sender Last Name:	Porter **Submission ID:** 3169	
713	Request I am requesting that the response period to the DEIS be extended for 120 days. This would give time for the public to: 1.Better understand, evaluate and determine the effectiveness of the methods (many very technical) the company and government agencies are proposing to eliminate threats to the environment. 2.Require that the company must establish, ahead of time, that when the mine closes, the water flowing from and through the site won’t need to be treated before emptying into groundwater or surface water. 3.Propose regulations that would require the PolyMet Company to have the amount of money available for any cleanup bill at the end of the mining period, or, if it leaves the state or becomes bankrupt. 4.Review the PolyMet Company business plans to determine if this project will be sufficiently cost-effective and profitable for it to compete globally for their projected life of the	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3123	Non-ferrous mining in northeastern Minnesota proposal Dear Sir: This is not just another “iron ore” mining operation! Non-ferrous mining requires a process to separate the metals from sulfide minerals. If not done properly, the sulfuric mine drainage would cause irreversible groundwater and surface water contamination and other environmental degradation. The PolyMet Co. proposal for sulfide mining does not contain any examples of non-ferrous mining operations in Canada or the United States that have not resulted in environmental pollution including contamination of groundwater and surface water...during or after such mining. Supporters of the proposal believe that the opportunity to create new jobs far outweighs the potential threats to the environment and the company will be using “mining techniques that are much cleaner than those used in other countries”. However, the EIS does not state any of the older, present or newer technologies and methods have resulted in no introduction of hazardous material to the environment. In recognition of the environmental risks associated with this type of mining, other states have already established strict criteria for the permitting process for drilling exploration and mining of non-ferrous materials. They adopted these regulations fully realizing the tradeoff that was being made between needed jobs and maintaining a quality environment. State of Wisconsin Wisconsin has a “Mining Moratorium Law” that requires an applicant to provide examples of a mining operation in the U.S. or Canada that have not resulted in a significant environment pollution. The law includes specific qualifying criteria that must be satisfied in order for the example site, or sites, to be considered. The mining company must submit documentation from groundwater/surface water monitoring that includes data showing that: (1) An example mine has been closed for 10 years without the pollution of groundwater or surface water from acid drainage at the tailings site or at the mine site or from the release of heavy metals; and; (2) An example mine has operated for 10 years without the pollution of groundwater or surface water from acid drainage at the tailings site or at the mine site or from the release of heavy metals. In addition, the candidate mine or mines identified must be located in a sulfide ore body that together with the host rock has a net acid generation potential (i.e. the potential to create acid drainage). Furthermore, the candidate mine cannot be listed on the national priorities list of contaminated sites, and cannot be an operation for which the operator is no longer in business and has no successor that may be liable for contamination. The Department must verify the information and present its recommendations on satisfying the requirements of the Mining Moratorium Law before a mining permit can be issued. State of Oregon Oregon has established a Mined Land Reclamation (MLR) program which regulates mining that insures that off-site impacts (contamination of groundwater or surface water) and that the site is mined in a way that guarantees the reclamation of the site will be completed. It includes Best Management Practices (BMPs) that describe the mechanical means of minimizing or eliminating water-quality problems.	WR1E

Sender Last Name: Pospeck **Submission ID:** 126

115	I think it would be good for the economy up there because jobs are needed, and I think they aligned my fears, what they were going to do to the environment, just by the methods that they are going to come up with and get the copper, minerals out. I think it would be real good for the area just to have the jobs and the economy. That's why I was for it, because I think it would really be good for the economy, because we need jobs up there. That's, basically, it.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
167	We strongly support the Polymet project in Hoyt Lakes. We believe the draft EIS demonstrates that the impacts to the water and air will be minimal. Furthermore, Polymet is located on an existing brown field in an area where mining has occurred for over 100 years. The Polymet operation will impact the environment far less than the iron mining operation that occupied the minesite for the fifty years previous. A lot has been said about Polymet's proximity to the Boundary Waters. It IS NOT in the Boundary Waters watershed so this argument is nothing more than a red herring. Because the Northmet project will produce strategic metals essential to the American economy which are currently being imported, it is important to note we will no longer have to rely on foreign countries for these strategic metals. In an era where we are desperately trying to reduce our dependence on foreign oil it should be a lesson heeded. Besides, mining these metals in one country, processing them in another and then transporting them to the U.S. creates unnecessary greenhouse gas emissions. Foreign suppliers of these metals don't necessarily follow sound environmental practices, thereby creating a greater global environmental impact. We further believe that the benefits to be derived from the Polymet operation, such as providing livable wage jobs for over 400 people in an economy that desperately needs jobs; and injecting millions of dollars of state and local taxes into the state coffers at a time when the state badly needs additional dollars to operate should be of primary consideration. It will be a great boon to the local economy, encouraging growth in housing, retail development and hundreds of spin-off jobs. We on the Iron Range NEED this growth to survive and we've been patiently waiting for this interminable permitting process to be finally completed so we can get on with it. In closing, let me emphasize the we who live in Hoyt Lakes understand, perhaps better than anyone, the need to balance environmental concerns with the need to provide jobs for the region and we firmly believe that Polymet will take draconian measures to ensure that their operation will produce jobs and the metals critical to the United States in a responsible manner in accordance with Minnesota's strict environmental requirements to protect air, water and land.	EOO,G5

Sender Last Name: Powers **Submission ID:** 337

358	I live on the White Lakes chain. I know this is only the first request of many to follow. If this mine is permitted, there will be no way to save this area from degradation to the point that no one will want to be here. Don't do it.	EOO
429	I am concerned that the comment period is too short to allow adequate study and response to the DEIS. Please extend the comment period and take time to make the best decision possible considering the tremendous consequences to the area.	PRO6
2360	I am concerned about the need for financial assurance sufficient such that the citizens of Minnesota will not be left to clean up that remains when the Mining Company has taken it's profits and left the state (or declared bankruptcy). The EPA is developing rules to assess adequate financial assurance and the EPA believes financial assurance should be addressed in the DEIS, not later.	PD4

Sender Last Name: Pranskatis **Submission ID:** 3492

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3766	Stuart Arkley, EIS Project Manager Environmental Review Unit Division of Ecological Resources Minnesota DNR 500 Lafayette Road Saint Paul, Minnesota 55155-4025 February 2, 2010 Dear Mr. Arkely, Please be advised that my wife and I DO NOT support the proposed Polymet sulfide mining operation in northeastern Minnesota. We have reviewed the Environmental Impact Statement and have concluded that it would be irresponsible to let this project move forward. Our land and water quality are simply too precious. Interestingly, this EIS reminds me of a similar EIS that I read years ago regarding oil exploration on the north slope of Alaska. The company, British Petroleum, assured everyone that they would effectively mitigate land, air and water quality and that no harm would be done to the environment. Imagine my surprise, or lack thereof, when the Anchorage Daily News reported about a spill that happened this past December. Their headline dated December 09, 2009 read, "Spill is one of worst on the North Slope." BP was fault. In fact, not only were they at fault, but they were still on probation from an even larger spill that occurred on their watch three years earlier. Time and time again we are promised one thing but delivered another. We cannot keep taking these chances, not when clean drinking water and our last remaining wild places are at stake. In closing, please know that I, (we), can always find other work, but we cannot just pull a new ecosystem out of our hats when something goes wrong. Thank you for your time. Sincerely, Chris and Catherine Pranskatis 2629 Van Vac Road Ely, MN 55731	EOO,G2,G7
Sender Last Name:	Priem **Submission ID:** 3338	
3631	I agree 100% with this video. We need to stop mining. Mining near the boundary waters is an extremely stupid idea. I can't believe this can even happen. How can someone think this is ok? I think this is awful. Great video, and I think everyone needs to think about this a little more!	EOO
Sender Last Name:	Pritchard **Submission ID:** 1179	
1294	I saw the "Precious Waters" video which discusses the mining proposals for the Boundary Waters area. I am definitely opposed to this. We have a natural resource second to none. We must preserve this pristine area. Clean water is a precious commodity that is becoming more scarce. Do not proceed with mining ideas!!	EOO
Sender Last Name:	Prittinen **Submission ID:** 294	
308	I am writing you in regard to Poly Met Mining, Inc., North Met Project. I am the General Manager of Viking Explosives & Supply, Inc. in Hibbing, Minnesota, which provides explosives to the mining and quarry operations in Northern Minnesota. At the present time 30% of our employees are on layoff due to the reduced activity in the iron ore industry. We regard the Poly Met project as one of the only potentials to increase our production and employment. Hibbing, Minnesota at the present time has the highest unemployment rate in the State of Minnesota. The huge economic benefit that Poly Met will provide to our communities and educational system cannot be ignored. I recognize the need that the project be operated in an environmentally sound manner, as a graduate Mining Engineer and former General Manager of Raw Materials for LTV Steel I have had the opportunity to review their flow sheet and it is my sincere opinion that this project can be operated in a manner to minimize any environmental impacts. The critical need in our country for the metals they will produce is obvious. It is my opinion that their project should secure approval which will not only benefit us locally with jobs that are critically needed jobs but will be a domestic source of metals that are critically needed in our country.	EOO
Sender Last Name:	Proescholdt **Submission ID:** 3678	
1	Stock Piles – Waste Rock Stockpile Design and Cover: It is the position of the tribal cooperating agencies that in order to adequately assess the potentially significant environmental impacts of a stockpile failure, a slope stability analysis must be performed and included in the DEIS. For more information, see section 4.13 of this document.	PD2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2	DEIS 4.1.2.1, Hydrologic Alteration of Streams, Lakes and Aquifers Impact Criteria, lists as series of parameters recommended for a "range a variability approach", and states "The deviation from existing conditions, based on modeling, in the mean values of the hydrologic parameters help determine the degree of impact to stream ecology." It is the tribal cooperating agencies' position that there is no mechanism to accurately develop the data listed above. Field data collection is spotty or non-existent and the numbers used in this DEIS are derived from the MODFLOW groundwater model and XP-SWMM model. It is important to note that the MODFLOW model was developed to assess the rates of mine pit inflow and as such, the results it gives for areas outside the mine pit footprint are unsupported by data. The XP-SWMM is based on stream gage data that is 17 miles and 20 years distant from the proposed project. Therefore, the above listed parameters calculated for the Partridge River have little data to support them.	WR1E
2	The discussion of LTVSMC Tailings Basin seepage and exceedances of the mercury criterion is puzzling. In reviewing other permit applications and environmental review technical documents, Fond du Lac has heard repeatedly from the state agencies about taconite tailings' affinity for sequestering mercury. Evidently seepage from the Tailings Basin (which currently holds only taconite tailings) contains mercury at concentrations that frequently exceed the applicable GLI standard (Table 4.1-30), but the discussion on page 4.1-48 includes completely contradictory information ("Mercury monitoring has occurred at the LTVSMC Tailings Basin and along the Embarrass River, which generally found mercury concentrations consistent with baseline levels….all samples were well below average concentrations in precipitation…"). Not only is this problematic for permitting this project, it also sheds doubt on other existing taconite operations and their lack of permit requirements to treat for mercury removal. Most of this region (the St. Louis River watershed) is not covered by the statewide mercury TMDL, and additional actions, both regulatory and watershed-based, must be employed to remove the mercury fish tissue impairment. It is irrelevant to compare tailings basin seepage mercury concentrations to ambient precipitation mercury concentrations; precipitation is not regulated through a NPDES permit.	EOO,WR4B,WR4E,FM1,F
3	DEIS 4.1.3.1 Proposed Action/Closure (Years 20-65) discusses process water (e.g. stockpile leachate) generation and required treatment at the WWTF, pumping to the East Pit, and flow through a passive wetland treatment system before filling the West Pit. The Band has seen no evidence presented of the long-term effectiveness of this treatment system, and in fact, a similar passive wetland treatment system employed to treat discharge from the Dunka Pit has not been effective in meeting effluent limits. The DEIS predicts that seepage from the Hydrometallurgical Residue Cells would cease after 34 years. It is the tribal cooperating agencies' position that this 34 year timeframe is unlikely to be correct. Because all cap and liner systems leak, some pumping of water that enters the hydrometallurgical residue cells would be needed in perpetuity. This would be particularly true as the cap ages and develops additional leaks. Post-Closure (After Year 65) states that PolyMet would continue to collect and treat leachate….until monitoring show that treatment is no longer necessary to meet water quality standards". Tribal cooperators note that stockpile leachate is predicted to not meet water quality standards for thousands of years (Table 4.1-41). Without a dry cap, Tailings Basin seepage will continue to occur; it is the tribal cooperating agencies' position that water quality and hydrologic impacts to wetlands and the Embarrass River under this proposed alternative would be perpetual.	WR1A
4	Effect on Flow in the Embarrass River discusses alterations to flows in the Embarrass River due to seepage from the Tailings Basin during operations, closure and post-closure. It is the tribal cooperating agencies' position that there will be surface water discharge to the Embarrass River. Aerial photography and state Public Waters inventory maps indicate that there is currently a direct surface water connection between the northwest corner of cell 2W and the Embarrass River. Aerial photos show that water discharging from the tailings basin follows a natural channel westward, through existing wetlands and intersects a channel that leads directly to the Embarrass River.	WR3A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
4	Effects on Surrounding Groundwater Levels During Mine Operations states that “In this hydrologic setting, however, it is not practical to gather such locally variable input data for a MODFLOW model”. Tribal cooperating agencies disagree with this assumption. It is the tribal cooperating agencies’ position that in order to adequately predict potentially significant environmental impacts, hydrogeologic data must be collected that can be used as input to a MODFLOW model. Tribal cooperating agencies contracted with the United States Geological Survey (USGS) to review the uncertainty of the MODFLOW model and provide recommendations on how the model could be improved. The USGS report was submitted to the lead agencies in February of 2009 (USGS 2009, Letter Report reviewing PolyMet ground-water model. January 29, 2009). Tribal cooperating agencies organized meetings between USGS staff and participants in the EIS, including the applicant, to openly discuss all issues related to the USGS report, the MODFLOW model and the implications for the proposed project. The conclusions of the report and the meetings should be implemented so as to produce a useful model of project site hydrology. Tribal cooperating agencies believe that impacts to surface waters, groundwater, and wetlands for a project of this complexity demand a scientific, data driven approach rather than one based solely on professional opinion. Finally, it is the tribal cooperating agencies’ position that a robust groundwater model must be developed for this project in order to adequately characterize the potential impacts of various project alternatives to natural resources. The DEIS concludes that most surface water features, including bogs, are isolated and not affected by groundwater drawdowns (mine pit dewatering). As previously indicated, the empirical observations in the Adams 2009 email are insufficient to support the conclusions. The evidence presented in the email can be interpreted to indicate substantial impact of the Peter Mitchell Pits on adjacent lakes. However, it is the tribal cooperating agencies’ position that aerial photography, without ground verification or georeference is an exceedingly imprecise method for determining water levels in lakes and wetlands (GLIFWC 2009, Memorandum to Jon Ahlness and Stuart Arkley: Photographic evidence for pit impacts to wetland hydrology. April 24, 2009). The DEIS also defers an analysis of hydrologic impacts until the future, relying upon monitoring to reveal impacts rather than developing strong predictive tools. It is the tribal cooperating agencies’ position that the DEIS should not rely on future monitoring to detect impacts as a substitute for the development of data and analyses that would reasonably identify and predict those impacts as part of a DEIS. Virginia Formation High Wall mitigation measures are discussed. Tribal cooperators strongly disagree with the assumptions used in the groundwater quality modeling for the mine site. It is the tribal cooperating agencies’ position that relying on the effectiveness of a technology with highly variable outcomes (limestone treatment) in calculating long-term water quality is not a conservative approach. The DEIS should provide a range of water quality results including the groundwater quality under a scenario where lime treatment and covering the Virginia Formation wall is ineffective. Effects on Upper Partridge River Morphology concludes that sediment deposition would only be temporary, and no other significant effects on river morphology would be expected. It is the tribal cooperating agencies’ position that the available data do not support the conclusions presented in this section. The impacts predicted by technical reports (RS73B) to the Partridge River are primarily reduction in base flow due to mine pit dewatering and those impacts are predicted by the MODFLOW model. MODFLOW modeling in (RS22-Appen.B) forms the foundation for the predicted impacts. The MODFLOW mod	WR1E,WR3B

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Comment ID	Comment Text	Theme Codes
5	West Pit Overflow again discusses the passive wetland treatment system as the mitigation for water quality impacts. Tribal cooperating agencies believe the characterization in the previous paragraph is misleading. First, as previously indicated, the WWTF would need to operate for a minimum of 2000 years in order to treat leachate from the stockpiles. Second, the effectiveness of the passive wetland treatment system has not been demonstrated and it is likely that the wetland treatment system would not function as the applicant has suggested (see discussion below). Finally, the long term water quality of the pit lake is a concern. It is unlikely that this water would ever meet surface water quality standards. It is the tribal cooperating agencies' position that the DEIS should discuss the implications of leaving a polluted pit lake at this site in perpetuity. The DEIS notes that "passive treatment is an important component of the MnDNR's regulatory goal of minimizing or avoiding the need for long term maintenance. Constructed wetlands performance, however is not sufficiently reliable to function as the primary treatment measure for assuring consistent year-round compliance with water quality standards. Based on these uncertainties, it is the tribal cooperating agencies' position that primary water treatment at the WWTF would need to continue for thousands of years. This does not meet the Minnesota goal for maintenance free closure. The DEIS identifies a potential for water quality standards exceedances in an unnamed tributary. It is the tribal cooperating agencies' position that all waters of the state are protected by Minnesota water quality standards and using this unnamed water as a mechanism to dilute mine related contamination is not appropriate. In addition no flow information for this unnamed water is available. The DEIS states that "Water quality in the West Pit is expected to improve as oxidation would be negligible once the pit walls were submerged." It is the tribal cooperating agencies' position that because of continued inputs from the stockpiles, the tailings basins, and the pit walls, the pit lake could exceed surface water quality standards for thousands of years. Tribal cooperating agencies note that 20 feet of pit wall will never be submerged and as such constitute a perpetual source of mine related contaminants.	WR3A
6	Embarrass River Water Quality Results It is the tribal cooperating agencies' position that because the Embarrass River already exceeds water quality standards, it would be difficult to permit the addition of additional contamination from new or expanded sources.	WR3A
6	Water Quality in the Lower Partridge River states that "All parameters are expected to meet surface water standards under all flow conditions for all mine years as is predicted for the Upper Partridge River and Colby Lake". It is the tribal cooperating agencies' position that contaminants from the project would contribute to exceedances of standards below Colby Lake. Wild rice beds are located on the Partridge River immediately below Colby Lake. Therefore, the State of Minnesota wild rice standard for sulfate of 10 mg/l should apply along all of the Lower Partridge River.	WR4F
6	Mercury in Surface Waters discusses uncertainty as to whether the West Pit overflow would meet the GLI standard for mercury, and recommends additional analysis. Fond du Lac agrees; tribal cooperating agencies take the position that the analysis should be incorporated in the DEIS so that environmental impacts can be predicted and reviewed by the public. This may be one of the most significant environmental impacts of the Project, and clear analysis of the probability of non-compliance with water quality standards is undoubtedly a subject that requires full evaluation in the DEIS.	WR3I,WR4A
7	Increased Sulfate Loadings concludes that "the risk of increased sulfate loadings from the Mine Site promoting methylation of mercury in wetlands is expected to be low." Fond du Lac strongly disagrees with this conclusion; the Band believes that any increase in mercury or sulfate loadings is a significant environmental impact.	EOO
8	Nondegradation Standards suggests that simply monitoring for mercury from future West Pit overflows is sufficient. Tribal cooperating agencies disagree with this approach. It is the tribal cooperating agencies' position that the determination of the final water quality of the west pit should be included in the DEIS so that potential water quality impacts to Lake Superior can be characterized. As a downstream water quality regulatory agency, Fond du Lac is specifically concerned about this project's potential for further degradation of our most important on-reservation fishery, the St. Louis River. Any additional releases of mercury, or loadings of sulfate that enhance downstream methylation of mercury and bioaccumulation in fish, is an unacceptable violation of our water quality authority. As we do not have delegated §303(d) CWA authority, EPA Region 5 will be calculating a mercury TMDL for the Fond du Lac reach of the St. Louis River, which is impaired for mercury in fish (Fond du Lac has concurred with the state of Minnesota's impaired waters lists on our shared waters for the last three iterations).	WR4B,WR4C

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Comment ID	Comment Text	Theme Codes
9	DEIS 4.1.3.2 No Action Alternative/Effects on Groundwater states that "The monitoring data that are available do not suggest regular exceedances of groundwater evaluation criteria at downgradient evaluation points (e.g., property boundary). It is the tribal cooperating agencies' position that data collected in 2009 show that private wells north of the basin have been impacted by historic tailings basin effluent. Although two additional groundwater samples north of the basins collected in 2009 indicate that exceedances exist at the property boundary, the full extent of the contaminant plume has not been defined. This section also predicts that over time, concentrations of groundwater contaminants from the LTVSMC tailings would diminish, "but the relatively high concentrations of aluminum, iron and manganese currently found downgradient of the Tailings Basin may reflect natural conditions in this area." It is the tribal cooperating agencies' position that the available data does not support this claim. In addition, a basic assumption (i.e. plug flow [TB-14, July 2, 2009, page 9]) of the contaminant transport modeling at the basin (RS74) assumes that all constituents in the groundwater are the result of past and current seepage from the basins. This is yet another example of troubling inconsistencies in model assumptions and conclusions drawn in the DEIS. Fond du Lac disagrees with several of the key conclusions in Table 4.1-69, "Water Resource Impact Summary of the No Action Alternative". The tribal cooperators take the position that the basins will drain until seepage equals precipitation at which point the hydrology will have returned to approximately pre-basin conditions. As seepage declines, as has been already seen over the past 8 years, surrounding wetlands will begin to recover from the previous hydrologic impacts. The tribal cooperators take the position that the assumption of plug flow in the contaminant modeling suggests that as precipitation becomes the dominant source of new water to the aquifer, groundwater quality may improve dramatically.	WR1E
10	Hydrometallurgical Residue Facility Reclamation: (Drainage) It is the position of the tribal cooperating agencies that these pumping and water treatment activities would have to be conducted in perpetuity, and that the cover and liner would require perpetual maintenance.	PD6
10	Flotation Tailings Basin: It is the position of the tribal cooperating agencies that in order to adequately assess post closure impacts, this section should estimate the length of time that seepage collection would be required at the tailings basin.	PD2
11	It is the position of the tribal cooperating agencies that: • The applicant has not demonstrated the effectiveness of the secondary wetland treatment system. • The characterization of post closure activities as "occurring for many years" significantly underestimates the potential long term impacts of the project and the potential need for post closure activities to continue for hundreds or thousands of years. • Other continued maintenance activities would also have to be conducted in perpetuity (repair of stockpile and tailings dike slope erosion, wetland and outflow structure upkeep, woody species and tree removal on stockpiles and hydrometallurgical cells with membranes, tailings pond maintenance, and seepage collection from the Tailings Basion. • If this project would require perpetual maintenance, it cannot be deemed to be "reclaimed" and would violate the stated goal of Minnesota's reclamation statute.	PD5
12	The DEIS differs from previous drafts that we reviewed and provided comments to the lead agencies. This version states that "At the brownfield Plant Site, Cliffs Erie LLC would be required to complete closure and reclamation activities required under an existing MnDNR- and MPCA-approved Closure Program." Yet, on page 3-19 of the DEIS, it is stated that PolyMet "owns or leases 15,100 acres of which approximately on-third is predicted to have ground-level disturbance due to Project operations. Most of that area that would be disturbed has already been impacted by LTVSMC operations". The July draft EIS included discussion of PolyMet as a responsible party for closure and reclamation activities under the VIC (Voluntary Investigation and Cleanup) program. It appears that any reference to PolyMet's liabilities for the acres they have acquired has disappeared from the DEIS. Under NEPA, hazardous waste sites are "unequivocably relevant to future use of a site", and in fact should be driving the decision-making process.	PD3
12	Tribal cooperating agencies disagree with the assumption that the proposed project would only result in social and economic benefits. The environmental impacts of the project on the 100 Mile Swamp, an undisturbed and very high quality wetland complex, would constitute a social impact. Furthermore, economic development that is not centered on heavy industry (tourism for example) would be adversely impacted by the project. At the end of the project life, there would also be negative economic impacts as the surrounding communities deal with the loss of primary employment and economic revenue streams that were dependent on the Project.	PD5

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Comment ID	Comment Text	Theme Codes
13	It is the position of the tribal cooperators that water treatment of the discharge would be required to comply with the wild rice water quality standard. The Partridge River contains several wild rice beds immediately downstream of the proposed discharge point. In the discussion of demonstrating a Permeable Reactive Barrier (PRB) north of the tailings basin, the DEIS notes that it may require periodic recharging. The tribal cooperating agencies' position is that if this PRB is a proposed mitigation for an identified significant environmental impact, then the DEIS should include explicit estimates of how often "periodic recharging" would need to occur.	G1
13	Tribal cooperating agencies note that although they participated in the identification of potential mitigation measures for the tailings basin, they did not participate in the development of the tailings basin mitigation design. In addition, it is the position of the tribal cooperators that an untreated discharge of contaminated tailings basin water to the Partridge River in order to dilute and dispose of tailings basin water would have environmental impacts that must be avoided in order to adequately protect the environment	PD3
14	It is the position of the tribal cooperating agencies that this alternative was eliminated prematurely and without sufficient consideration. We note that analysis of unquantified environmental impacts, values, and amenities have not been evaluated as required by CEQ regulations. A study of this particular deposit was performed by U.S. Steel that recommended underground mining. By examining cross-sections showing the distribution of ore by depth, it appears that there are substantial ore reserves at depths that likely could not be accessed by the proposed open-pit mine. The ecological costs of open-pit mining and above-ground disposal of tailings and waste rock are immense. This ecological cost, combined with the most current understanding of deposit ore grades and reasonably possible metals prices, must be evaluated to determine the viability of this alternative. Under §404 of the Clean Water Act, the USACE is required to identify the "Least Environmentally Damaging Practical Action". Economics can play a role in determining the feasibility of an alternative, but it cannot be the sole source of making that determination. The economic analysis presented in the DEIS is flawed, because it does not take into account the money and resources saved by doing underground mining (reduced mitigation costs, etc.) 40 C.F.R. 23.10 (a)(2) "An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. The DEIS includes information comparing the initial capital cost of underground mining as compared to open-pit mining, but does not consider any other pertinent costs, such as wetland mitigation, wastewater treatment, pollution prevention and remediation, mine closure or reclamation or costs to purchase and exchange public forest lands. It is not possible to determine, based upon information presented in the DEIS, whether any of the costs associated with greater environmental risks of open-pit mining are included in the "unit costs" per ton from which the DEIS concludes that underground mining is infeasible. While the DEIS discusses the decrease in recoverable ore tonnage resulting from preserving pillars of ore left in place for geotechnical stability, it does not discuss the potential that open-pit mining methods to the depths specified in the DEIS will leave substantial ore reserves at depths inaccessible by open-pit mining. Although a consultants' memorandum is cited, the DEIS provides no basis to determine whether an independent review of feasibility of underground mining was performed, and includes no data pertaining to metals commodity pricing, costs of ongoing operations and reclamation, or profitability over time as a basis for determining whether underground mining is infeasible or simply less profitable than the proposed open-pit extraction. The DEIS does not diminish our concern that greater feasibility of open-pit mining may largely be attributed to the company's gross underestimation of future costs of long term water quality treatment, mine closure and reclamation.	PD5

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Comment ID	Comment Text	Theme Codes
14	Baseline. The baseline data for both the mine site and the tailings basin are sparse. A comparison of hydrologic data that was collected for two other projects in the region (GLIFWC letter to Jon Ahlness and Stuart Arkley, February 6, 2009) demonstrates that the PolyMet project is data-poor in the area of basic hydrology. The use of flow data on the Partridge River from a site twenty years and seventeen miles distant from the proposed project does not provide sufficient information to allow a full assessment of the hydrologic and environmental impacts of the project on the Partridge River. The lack of groundwater level data in the surficial aquifer and in the bedrock, except in the immediate vicinity of the mine pits, does not allow for a full or complete characterization of the watertable or the potentiometric surface in the bedrock or the surficial aquifer. The current bedrock groundwater model calibration to shallow wetland piezometers cannot be justified. The lack of groundwater level data at the tailings area except in the immediate area of the tailings piles prevents complete characterization of water tables, potentiometric surfaces, and groundwater flow direction. The dramatic scarcity of hydrologic data for the PolyMet project, both at the mine site and at the site of the tailings basins has been repeatedly recognized by hydrologists at technical meetings. Limited data collection to fill in the data gaps has recently been conducted and in general not incorporated into hydrologic analysis of the mine or plant site. Analysis. Hydrologic characterization using MODFLOW models was done for the immediate area of the mine pit and the tailings pile only. There are no groundwater models that were designed to characterize the watertables, the potentiometric surface in the aquifers, fluxes to rivers and streams or to predict impacts to the water tables or surface waters. The MODFLOW groundwater model at the tailings area is restricted to the tailings pile and cannot be used to characterize groundwater flow direction, the watertables, the potentiometric surface in the aquifers, fluxes to rivers and streams or to predict mounding impacts to the water tables or surface waters. Data driven models need to be developed and these impacts need to be predicted and evaluated. The view that mine pit dewatering impacts will be very limited or non-existent (Adams, John and Michael Liljegren. 2009 “Additional PolyMet peatland data/information.” email communication to Stuart Arkley, February 1, 2009) is based on the assumption that there is little or no connection between the bedrock and surficial aquifers (GLIFWC 2009, Memorandum to Jon Ahlness and Stuart Arkley: Photographic evidence for pit impacts to wetland hydrology. April 24, 2009). However, the scant data that does exist characterizing mine site hydrology suggests that there may be substantial connection between the bedrock and surficial aquifers. Such a connection would mean that dewatering of the mine pits could cause significant drawdown of the watertable in the surficial aquifer. Data presented in RS02 indicates that ammonia can be found in deep boreholes. Section 3.3 Analytical Results, Pg.10 of RS02 states: "The water sample from boring 05-407M exceeded the criteria for ammonia (1,900 ug/l)”; and goes on to state, “The sample from boring 05-401M exceeded criteria for ammonia (610 ug/l)."; and “Water quality criteria were exceeded for ammonia, aluminum, copper, and silver in both boreholes.”; and concluded that, “The presence of ammonia in the deep boreholes may indicate that the water in the borehole came from the shallow surficial deposits. Ammonia is not typically found in deep bedrock systems but is common in wetland environments." Similarly, technical document RS10 concludes: “The presence of ammonia nitrogen in the samples likely indicates that there is a hydraulic connection between the bedrock aquifer and the surficial aquifer; however, the nature of this connection cannot	WR2A

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Comment ID	Comment Text	Theme Codes
15	The old LTVSMC taconite mining and processing site encompasses approximately 60,000 acres. The PolyMet project would use some of the degraded areas of the old LTV site to develop the mine plant site and re-use the tailings basin. Groundwater contamination from the previous mining activities is still an issue near the LTV tailings basin more than twenty years after operations ceased. Because of the limited distribution of monitoring wells, the extent of the contaminant plume is not known. However, recent well data show that the plume extends in some areas at least as far as private wells along the Embarrass River. In the wells that do exist near the tailings basin, pollutants including iron, sulfate, manganese, aluminum, and fluoride exceeded drinking water standards. Recent wells near the northern property line show substantial contamination of the groundwater aquifer (Barr 2009, Memorandum: Results of Tailings Basin Hydrogeological Investigation. June 2, 2009). The baseline data on which to base estimates of the impact of the proposed project on water quality at the mine site and the tailings basins is insufficient. The existing analysis for the PolyMet project calculates the additional constituents that the project will add to groundwater but is unable to realistically estimate what the resulting water quality will be because background water quality has not been incorporated into the estimates. Private domestic wells lie between the tailings basin and the Embarrass River where tailings basin discharge water is expected to ultimately discharge. Some of the sampled private wells have contaminants at levels several times the drinking water standard (Barr 2009, Memorandum: Results of residential well sampling north of LTVSMC tailings basin. January 27, 2009) Samples from these wells show exceedances of manganese and close to exceedances of the arsenic standard. Once a groundwater flow model is developed that would show the direction and rate of groundwater flow, that pattern of flow should be used to plan a groundwater sampling scheme that would map the extent of the existing contaminant plume. This data and analysis should then feed into estimates of how the proposed project would interact with existing contamination. The combination of existing conditions with impacts due to the proposed project would show what groundwater quality can be expected during and post project. Surface water quality at the project has been poorly characterized or left uncharacterized. The limited data that exist suggest that surface waters are already adversely impacted by mining activity. Mercury, sulfate and specific conductance have exceeded Minnesota surface water criteria in surface water samples collected near the tailings basin proposed for use by PolyMet, at nearby Area Pit 5, and mercury exceeds surface water criteria in the Partridge River downstream of Colby Lake. However, no water samples have been collected from lakes near the tailings basin (Heikkilla, Mud, Kaunonen, or Hay Lakes) to determine if the pollutants found in the surface and groundwater at the existing tailings pile have caused contamination of those waterbodies. Contaminant transport modeling suggests that the PolyMet project will cause manganese, aluminum and sulfate to exceed standards. Proposals to collect data and monitor groundwater after the issuance of the DEIS would not allow for identification of potentially significant groundwater and surface water impacts, or provide this analysis and information to the public during the primary public comment period.	WR1A,WR1E
15	Tribal cooperating agencies strongly disagree with this conclusion (that the peat “bogs are isolated from the underlying groundwater, receiving virtually all of their water and nutrient input from precipitation”). It is the tribal cooperating agencies’ position that there is no data to substantiate this assumption. This assumption is based on incidental observation and the analysis of aerial photography, which is by its nature imprecise (Adams, John and Micheal Liljegren. 2009 “Additional PolyMet peatland data / information.” email communication to Stuart Arkley. February 1, 2009). Tribal cooperating agencies note that the wetland delineation indicates the presence of several hundred acres of cedar swamps and tamarack wetlands. These vegetation types, by definition, rely on an influx of groundwater to support them. Finally, tribal cooperating agencies note that the wetland delineation does not encompass all wetlands that are likely to be affected by the project. Because no initial determination of the projects area of influence (AOI) on wetlands was made, the site field surveys of wetland and other vegetation was limited to little more than the area within the project fence. The existing characterization of wetland and other vegetation does not cover even one-half the area that might reasonably be expected to be impacted by secondary impacts of the mine due to disruption of the existing hydrology. Around the tailings basin virtually no wetland delineation has taken place although wetland impacts from inundation are likely to occur. It is the tribal cooperating agencies’ position that any conclusions based on this aquifer test data have a great deal of uncertainty given the variability in the results (Table 4.1-3).	WR3B,WR3N

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Comment ID	Comment Text	Theme Codes
15	Tribal cooperators note that hydrologic data indicates that this aquifer is saturated by tailings discharge water. It is the tribal cooperating agencies' position that therefore, it is not possible for recharge from precipitation to occur.	WR2H
16	It is the Tribal cooperating agencies' position that the existing LTVSMC tailings are contributing substantially to the level of constituents observed in the groundwater. Unfortunately the modeling of PolyMet contaminants at the basins does not take these or other existing constituents adequately into account (RS74 and TB-14). The result of this oversight is that the contaminant modeling done by PolyMet comes to the illogical conclusion that seepage water from PolyMet, after passing through both LTVSMC and PolyMet tailings, will be cleaner than the existing seepage that is passing only through the LTVSMC tailings. According to PolyMet's consultant "the predicted concentration of seepage from the PolyMet basin is lower than the actual measured concentration of existing seepage".(TB-14, page 9). It is unclear how the addition of mine waste to the basins would cause seepage water quality to improve.	WR2F
17	Tribal cooperating agencies note that additional legacy issues exist. Over the many decades of operations at the tailings basin, thousands of gallons per minute of tailings basin water have been discharged through the bottom of the basin, into groundwater. This water has then moved downgradient and into surrounding wetlands and as stated in the water quality section below, ultimately reaches the Embarrass River. It is the tribal cooperating agencies' position that despite very limited recent groundwater sampling that shows groundwater contamination at the property line and at private wells north of the basin, the full extent of the contaminant plume and the existing contamination to groundwater has not been defined. The Band questions the conclusion on page 4.1-16, that "At Closure, all historic and any potential operational AOC's would be investigated and remediated as necessary." It is not acceptable to defer remediation of known contaminated sites from past mining operations until closure of the proposed project operations at some unknown future date. PolyMet's acquisition of portions of the Plant Site, as we point out in earlier comments, should also confer remedial liabilities with clear timelines for remediating those lands. The DEIS treatment of this critical issue – responsibilities for legacy contamination, and inclusion of existing contamination in the modeling and predictions of future conditions – is grossly inadequate. It should also be made clear to the public, and be a consideration for any future permitting, that Cliff's permitted facility (SW625) for land treatment of petroleum contaminated soils within Cell 2W of the Tailings Basin is by definition a hazardous landfill.	WR1E,WR5A
18	It is the tribal cooperating agencies' position that these patterns (streamflow records suggesting significantly reduced summer flow) are not representative of the Partridge River near the mine site. The gauging station is seventeen miles from the mine site and the data from that station are twenty years old and therefore, unlikely to be representative of current conditions at the mine site.	EOO
19	It is the tribal cooperating agencies' position that, as stated in Minn. 7050, the 10 mg/l of sulfate standard for wild rice applies for waterbodies where wild rice is found. The PCA has used this approach in past permitting activities (MINNTAC Schedule of Compliance, 2008). The 10 mg/l sulfate standard also applies to the Partridge River below Colby Lake where several wild rice beds are located. Tribal cooperating agencies note that the Army Corps has not completed consultation on cultural issues with the potentially affected tribes. This delay means that the extent of existing wild rice beds has not been fully characterized.	WR1E,WR4F,CR1,CR2
21	Tribal cooperating agencies take the position that the contaminant modeling for the project has not been adequately vetted, and consequently produces results that are illogical. For example, the contaminant modeling for the tailings basins (RS74B and TB-14) proposes that adding PolyMet tailings to the existing LTVSMC tailings will improve the quality of seepage coming from the basins for some parameters. The assumption (TB-14 of July 2, 2009, page 9) that PolyMet seepage water from the basins will be of better quality than the current seepage water results in an unexpected modeling result. The modeling proposes that the more PolyMet seepage that PolyMet releases from the basins, the better the water quality will be for Al, Mn and Fe in the Embarrass River (see Tables in TB-15 of June 24, 2009). It appears that the modeling at the basins does not appropriately account for leaching from the LTVSMC tailings when predicting future seepage quality.	WR2F

Sender Last Name: Prokop **Submission ID:** 2242

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2650	Please take the time to add supplements to the draft EIS and give people in Minnesota a fair chance to know what impact the PolyMet project would have on our State the Lake Superior basin.The MNDNR is supposed to endeavor to maintain, enhance and improve the opportunities for quality outdoors experiences. That doesn't seem to be the case here.Can anyone explain why this is so? Perhaps the DNR commisioner, Mark Holsten can do this. Ask him why he is in support of this project. Thank you.	G6,G7A

Sender Last Name: Przybylski **Submission ID:** 155

146	My name is Paul Przybylski and I have lived in the northern end of Minnesota, being the Iron Range, for the last 32 years. And I have seen both good times and bad times up there; but I have always wondered why we have maintained basically a single industry economy up there, being the Iron Range. Efficiencies within the iron mines have led to a decline in our young people population in that area -- and also hard economic times during different periods of our history. I believe that PolyMet will help reverse the decline of our young people population in northern Minnesota and also will provide a tremendous boost to our economy. As far as the environmental issues, I honestly believe, having travelled the world quite a bit, including more extensively in the United States, that the state of Minnesota enjoys an excellent reputation as safeguarding the environment of not only Minnesota, but of the world. And that if we allow PolyMet -- the operations such as PolyMet to move into other parts of the world, we will lose control of environmental controls that we impose which I think will provide safeguards to prevent pollutions of any magnitude. And I believe that the management of PolyMet, through their continuous public expression of their willingness to safeguard and improve the environment will continue. And I do not think that the PolyMet operation will have a significant impact in a negative way upon Minnesota; but will only add to the diversity of our state and our reputation as being people concerned with the world and how we live. Thank you.	EOO,G5

Sender Last Name: Ptacek **Submission ID:** 2850

3206	I would like to add to the public comments concerning the proposed mine. Employed as an outfitter in the BWCA wilderness for four years during college, I helped to facilitate thousands and thousands of visitors to the wilderness. The reasons these people headed north were many, including beauty, solitude, spirituality, and to smile at the simple pleasure of knowing that some areas on this planet remain free from the impacts of man. I know this area well and love it more than anywhere else on earth, and I am not the only one. This land's value is far greater than any amount of mineral in the ground; the pristine environment found in northern Minnesota is something that cannot be bought back if it is lost. Please take this into consideration before any regretful decisions are made.	G11

Sender Last Name: Quick **Submission ID:** 3602

3310	The DEIS enumerates several anticipated water quality concerns for surface water, groundwater, wetlands and the greater St. Louis River Watershed, which empties in to Lake Superior, both during and after the mine operation . How will these be addressed?	RFI
3873	The MPCA and USEPA have been understaffed and under funded in recent years. A project of this scope with untested and unproven processes would require substantial and consistent monitoring to ensure the watershed is not being polluted. I ask "Are these agencies able to handle an increased workload given the current scope of funding?"	EOO
3874	In addition to substantial monitoring I feel there must be public access to the monitoring data.	EOO
3875	Long-term Local Finances Mining projects similar in scope to this project have left enormous economic burdens on surrounding communities resulting from environmental degradation and social impacts, especially after closure of active mining. PolyMet talks of long-term jobs being for 20 years. In the life of a community that is very short-term. The mining companies involved must be required to put sufficient funds into escrow to alleviate both environmental and social long-range impacts. Companies who have no local ties must be held accountable for the impact their operations will have on those of us who live here.	G1

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Comment ID	Comment Text	Theme Codes
3876	Environmental Degradation Several states have a moratorium in place on this type of mining because it has caused horrendous environmental degradation everywhere it has been tried. Wet environments are more negatively impacted by the release of sulfur and mercury than dry environments. PolyMet claims they have a new procedure that will limit the environmental impact. Is a system that drains into the world's largest freshwater lake the best place to test this possibility?	G7B,G12

Sender Last Name: Quiram **Submission ID:** 3488

1119	Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with the project.	WI2
1324	It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes. Wisconsin has already banned sulfide mining due to the unacceptable environmental risk it presents. It is also my understanding that PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings basin for the disposal of its tailings and toxic materials - but that the basin already has stability issues making it unsafe.	GT2
3238	In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume. As an avid fisherwoman who grew up along the Minnesota River and was cautioned about consumption limits, I have always found areas in northern Minnesota, especially the boundary waters, a welcomed retreat where I do not have to be so afraid of the long term consequences of enjoying the states natural resources.	WR4B,FM1
3688	Water quality impacts remains a top concern. How is it acceptable to allow for up to 2,000 years of environmental impact for the short term gain of one company? Who will pay for the long term treatment required? PolyMet has few assets and little financial history. The DEIS fails to address where the funding will come from to pay for postclosure treatment, monitoring and maintenance. As a result, it seems likely that Minnesota taxpayers may have to pay millions of dollars to clean up after Polymet is gone.	PD2,PD4
3762	Having studied the effect of the release of sulfuric acid into the soils in the Mekong Delta in Vientam, I can tell you first hand that soils and waters containing sulfides exposed to oxygen are able to support a very limited biotic community. Further, the PolyMet NorthMet project will result in total loss of 1,454 acres of federally designated critical habitat for two endangered species known to be in the vicinity of the mine site – the Canada lynx and the gray wolf. Finally, cumulative impacts must address the loss of revenue to the Boundary Waters Canoe Area Wilderness and Superior National Forest tourist industry as part of a sulfide mining district. While I fully understand the economic necessity of mining, and need for natural resources in our society, we need to be responsible in our decisions. Certain types of mines should simply not be permitted in certain places where the risk to the environment is too great. This appears to be the case for sulfide mining in northern Minnesota. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Sincerely, Gina Quiram	G2C,G8C,G11

Sender Last Name: Rademacher **Submission ID:** 2702

3173	We need to keep this planet as clean as possible, but this mining will pollute the waters that are dear to Minnesota. Please don't do this, we need to preserve what is left of this planet.	G7

Sender Last Name: Radotich **Submission ID:** 3245

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3568	I and my husband are natives to the Iron Range. My grandfathers both worked in the iron ore underground mines and then the open pit mines. They were immigrants from Slovenia. My father was a shovel operator in the open pit mines until retirement in 1969. They loved our land and taught our family to love our land. In order to maintain the population of the Iron Range, we need employment. If this Polymet project does not get the DNR go-ahead, the Iron Range will depend solely on the taconite industry, which has shown in the recent past that it alone cannot sustain a modest, let alone a vibrant economy for us and our children and grandchildren, who love this area as much as we do. My husband and I, along with one of our sons have been mechanical contractors, structural steel erection contractors and crane service for over forty years. Our other son is a heavy equipment contractor. We all love the Iron Range and would be against this project if we thought it would harm our home in any way. We have looked at the process to be used very carefully, and feel that it is the future of copper mining and not the 'bad boy' that the opposition is trying to make it. Please consider this comment in your decision.	EOO
Sender Last Name:	Radzak and Reynoso	**Submission ID:** 313
327	Teamsters Joint Council 32 is writing to ask for your support for the PolyMet Mining Company's proposal to develop a nickel, platinum, palladium, gold and cobalt mine near Hoyt Lakes. We belive that PolyMet working with federal and state agencies ona a draft Environmental Impact Statement (EIS), has demonstrated that this project could and will be environmentally responsible. The Building Trades in Minnesota are struggling. The economic recession has devastated the building and construction industry that has employed our members for many years. As many as 50 percent of building trades workers are sitting on the bench on any given day. This project offers our members some hope because it will require approximately 1.5 million man-hours of construction over a two-year period. This will be a huge boost to the economy, not only in the immediate area, but in all of Minnesota. PolyMet has made your job relatively easy by proposing a very environmentally friendly project. Much of the infrastructure for transportation and processing will be recycled from the old LTV plant. Stockpiles will be managed so water infiltration is minimized. in the remote event that any water does percolate through the piles, it will be collected and treated. Sulfur in the ore will be used as fuel in the process and waste streams will be managed. Air emissions will be much less than otherfacilities in the region- so much less they're considered a minor source. The draft environmental impact statement for the project has done a very thorough job of looking at all the potential impacts and offering options for mitigation, where appropriate. The draft EIS should be deemed adequate so that permitting can begin quickly- and so our members can start working to build the facility.	EOO
Sender Last Name:	Ramer	**Submission ID:** 3295
760	The issue of safe mining in northern Minnesota is very important, too important to rush through in 90 days. Northern Minnesota needs good jobs but not just next year. We need a good sustainable approach to managing both mineral, water and forest resources. Please don't cut the debate short.	PRO6
Sender Last Name:	Rand	**Submission ID:** 2295
2731	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. As a tax payer, serious environmentalist and user of the Boundary Waters, I am opposed to any action by any action in and around the Boundary Waters that could even remotely harm this pristine area.	EOO
Sender Last Name:	Range Association of Realtors	**Submission ID:** 3228

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3557	The undersigned RANGE ASSOCIATION OF REALTORS have and will continue to support the Polymet Project on Minnesota's Iron Range. There have been many man hours and many, many dollars applied to the Environmental Impact Statement as well as mounds of research to insure land, air and water quality for our current and future generations. This has been a long and tedious study and we are confident in PolyMet's due diligence. They have followed all of the Minnesota Environmental standards as well as all other guidelines set and re-set by our laws and regulators and regulations. This project is a THUMBS UP project in all it has to offer, not only in jobs to the Range area but also badly needed tax dollars to our state and county. In an economy such as our country is in and still facing it is imperative that this company move forward and begin production as soon as possible.	EOO
Sender Last Name:	Rasch **Submission ID:** 3561	
3824	I have been to every major presentation by the PolyMet or MiningMinnesota people regarding nonferrous mining in Minnesota that was possible to attend. I have seen the mine plan and process change as required by environmental concerns. I have been on the fringe of the mining industry in Northern Minnesota for years since my graduation from college as a mechanical engineer in 1970. I am aware of how things have changed environmentally in the industry in that time. What I see with the PolyMet people are a group willing to do whatever it takes to do the job right and adhere to not just specific regulations but the spirit and intent of the law. As I'm sure you know that has not always been the case in the mining business. Whether you are a conservationist, environmentalist, Twin City dweller, Native American or a working miner you should support this project. We have an opportunity to have the most environmentally responsible copper mine in the world today right here in Minnesota. Not only providing all the economic benefits to an area that really needs it but a show place for the world to see that copper can be extracted in a profitable, environmentally responsible manner. Please accept my letter of support for the PolyMet NorthMet project.	EOO
Sender Last Name:	Rauk **Submission ID:** 3108	
3488	I am writing in regards to the PolyMet mining project. I am opposed to the mining in northern Minnesota. As a Minnesotan, I love our state and what it represents. If we allow the mining of our Northern country, I am concerned about the air pollution, ash disposal, water pollution, and where all of Polymet's waste will go. Northern Minnesota relies on tourism and real estate business; I worry that sulfide mining could potentially kill those related industries. Our waters are already under great stress; the people of Minnesota spoke loud and clear last fall when we voted and passed a tax increase to take care of our water and the land that we love. To now allow mining companies to come into our great state is very counteractive to what we agreed to protect. I agree with Senator Tom Bakk when he said, "I live there; the last thing I want is to do something that has long term impacts to the water quality for my kids or grandkids." We are at a pivotal point as Minnesotans and environmentalist. We need to protect what is ours for the future of our children and grandchildren.	G2,G7,G11
Sender Last Name:	Rayamajhi **Submission ID:** 3349	
3641	Senators and Representatives Listen to the voice of people, not the voice of rich company. Your decision will be responsible to the unwanted death of innocent people in future. "Peace" (drawing) We all know that we are destroying our nature everyday. Let's not just see the short term economic gain, but let's think about the impact of this mining in future. You! People all live away from the real place of mining or polluted area. We are the people who are playing with the pollution created by the mining and the decision is made by your guys. For example: Tar sand project. come on! Money is like the dirt on your hand. It's temporary. Nature is permenant, where we live. So, if your are the real representative as people, you should listen to us and take it seriously.	EOO
Sender Last Name:	RC Fabricators **Submission ID:** 198	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
195	We at R.C fabricators who represent 40 employees of our own, strongly support Polymet mining,s NorthMet Project. It is vital to our business and the surrounding communities economy for badly needed jobs and the economic benefit that Polymet will bring. As people who live in Northeastern Minnesota, We understand the need to balance use of resources like minerals and preservation of resources such as water and air. We feel this EIS lays the proper groundwork for developing an environmental and economically sustainable project and we wholeheartedly support it.	EOO
Sender Last Name:	Reardon **Submission ID:** 3311	
3604	As far as I can see it, the cons far outweigh the pro s and there is no reason this should happen.	EOO
Sender Last Name:	Redlin **Submission ID:** 1508	
1817	I was born in Duluth, so Lake Superior is very important to me. I don't want to see this national treasure polluted with sulfuric acid pollution. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources.	G7B,G11
1818	Minnesota's lakes, rivers and streams are critical to the health, econonmy and future of our state. That's why we need to ask new nonferrous mining companies to take a little extra care when they begin operations near these precious resources.	G7A
Sender Last Name:	Redmond **Submission ID:** 3296	
761	I would like to join the many people requesting a longer period for comment on the PolyMet mining proposal--ie, a 90-day extension, coupled with better publicity re the proposed project. I have been a user of the Boundary Waters for 45 years, have done my best to support local businesses in the North as part of this commitment. And, I recognize that the BWCAW is truly a unique area in this nation, if not the world. From what I've read, it does not seem that the mining could be done without substantial degradation of the waters nearby. I would like to see more scientific evidence that these uses are compatible. I would also like to see more informational and public participation meetings scheduled, before such a decision is made. We lose nothing by gathering more information. We could permanently degrade a treasure by rushing. Thus, as it now stands, I strongly oppose granting PolyMet's request.	PRO3,PRO6
Sender Last Name:	Reed **Submission ID:** 3572	
1973	1. PolyMet should be required to grant financial assurances (in excess of $100 million) that might be required to clean up the operation in 20 years from now. This money should be to protect the taxpayers. 2. I am concerned about open-pit mining on the Superior National Forest land and ruining this prime natural resources 3. Upon reading the DEIS, it appears there is concern about mercury levels. This is of great concern. 4. I am concerned about other pollution mentioned in the DEIS.	WR3I,PD4,FM1
Sender Last Name:	Reierson **Submission ID:** 3558	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3821	I support the Polymet project in Hoyt Lakes and believe the draft EIS demonstrates that the impact to the water and air will be minimal. Furthermore, Polymet is located on an existing brown field in an area where mining has occurred for over 100 years. Much has been discussed about Polymet's proximity to the Boundary Waters, however it is not in the Boundary Waters watershed so this argument is unfounded. The Northmet project will help decrease the importing of strategic metals from foreign countries, who don't necessarily follow sound environmental processes. This, coupled with the decrease in energy used for shipping will help reduce global greenhouse gases. Most importantly, this project will provide living wage jobs for over 400 people in an economy that desperately needs them while injecting millions of dollars of state and local taxes at a time when state and local governments are facing revenue shortages and budget problems. And this doesn't even include the spin-off jobs and economic activity that will happen as a result of this project. The Iron Range NEEDS this growth to survive and has been patiently waiting for this interminable permitting process to finally be completed. I think everyone associated with this project understands and considers the need to balance environmental concerns with the need to provide jobs. I firmly believe that Polymet has and will take the necessary steps to ensure that they are producing jobs and metals critical to the US in the most responsible manner, following Minnesota's strict requirements to protect air, water and land.	EOO
Sender Last Name:	Reindl **Submission ID:** 3297	
762	Please take action to extend the public comment period for the Polymet mine, and present more public forums so citizens can find out more about this proposal. This mine may be only the first sulfide mine to be proposed for northern Minnesota, and people need to know exactly what such mines may do to the environment of this state.	PRO6
3586	We humans have done extraordinary damage to the earth that sustains us and to the creation God gave us to keep and till. We have forgotten that we are only one of many life forms here on this earth, and are intricately connected to all other forms, including those in the soil, water and flora. Sulfide mining is inherently dangerous to the surrounding environment, especially to the waterways. I seems to me we humans would examine very painstakingly any proposal that will further damage our life-support system. It is my understanding that the copper to be extracted is negligible in quantity compared with the amount of mining and rock disruption needed to obtain it, and the processing water. Further, Polymet is a Canadian company, and thus its permission to mine in the U.S. possibly opens the door to the rules of the Free Trade Agreement between U.S., Canada, and Mexico, requests for permission to mine in Minnesota by other multinational corporations, and rulings of the WTO which supersede those of individual countries let alone states. Consideration of this proposal seems to be mostly about jobs. Jobs of course are very important in today's high-unemployment economy, but in light of current knowledge about pollution and the high environmental cost of mining to any community in which it is located, and eventually to all of us, it seems wise to not allow Polymet to locate a mine in northern Minnesota. Therefore I ask that you diligently pursue the EIS in every regard with the aim of disallowing this mine.	EOO,G1,G2,G7A
Sender Last Name:	Reinehart **Submission ID:** 1069	
1174	I am adamently opposed to the acid mining in MN.I vacation in Northeastern MN during the summer & enjoy teaching my son to fish in such pure uncontaminated waters. I am very aware of the- acid mining byproducts. They n,egatively impact the environment. I reside in TN & the're is an obvious difference in the waters here & in MN with TN having morecontaminatiotr.	EOO,G7B
Sender Last Name:	Reinke **Submission ID:** 3166	
3582	They should have to provide an ironclad guarantee that they will clean up after they are done mining. If they don't the requesting company officials should be put in jail and personally fined for cleanup costs. A 100 billion performance bond in advance should cover this. Do not allow this without a performance bond in hand.	PD3,PD4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Reisenweber **Submission ID:** 2269	
1861	Mining copper and nickel in the Iron Range will cause sulfuric acid runoff which would enter the watershed, run into the St. Louis River via a tributary and from the St. Louis River into Lake Superior. Damage to plant and animal life would be irreparable. The sulfuric acid-polluted waters would require treatment "in perpetuity." Please do not use your position to sell out Minnesotans' precious waters to those who wish to mine Minnesota. Long term, safe drinking water for Minnesotans, NOT short term mining goals, is the legacy citizens expect and deserve from the DNR. I urge the DNR to adopt Wisconsin's standard and NOT allow sulfide mining anywhere in Minnesota, unless it has a proven ten-year, clean record.	WR3D
2685	What this type of mining will destroy in northeastern Minnesota, no man can replace. No one should take the authority to "approve" these mines.	EOO,G2
2939	What this type of mining will destroy in northeastern Minnesota, no man can replace. No one should take the authority to "approve" such mines.	EOO
2940	Mining copper and nickel in the Iron Range will cause sulfuric acid runoff which would enter the watershed, run into the St. Louis River via a tributary and then into Lake Superior. Damage to plant and animal life would be irreparable. The sulfuric acid-polluted waters would require treatment "in perpetuity." Please do not sell out Minnesotans' precious waters to those who wish to mine Minnesota. Long term, safe drinking water for Minnesotans, NOT short term mining jobs, is the legacy citizens expect and deserve from the DNR. I urge the DNR to adopt Wisconsin's standards and not allow sulfide mining anywhere in Minnesota, unless it has a proven clean record for ten years. Thank you for weighing these concerns.	G6,G7A,G12
Sender Last Name:	Reisman **Submission ID:** 2830	
3197	I have reviewed information on this and similar types of mining done at other sites in the US. I am concerned that the results at other sites have resulted in water pollution and damage to the environment that reclamation does not resolve. It is very disconcerting that approval could be considered for this project when the safety of the process has not been proven. I believe that MN should follow Wisconsin in requiring the minimg company to prove the safety of their mining methods to people and the environment. Also, scientists have issued a statement asking for a ban on open pit mines. I hope that you will decide to take a very cautious approach and reject the PolyMet's environmental impact statement.	G2,G7,G12
Sender Last Name:	Renner **Submission ID:** 3603	
3738	The promise of jobs can be overwhelming and immediate needs can certainly cloud long term outcomes. Is there adequate funding now and will there be in the future to ensure total, complete and on-going monitoring by MPCA and USEPA? Is current knowledge adequate and testing methods available to absolutely know that the watersheds are not being polluted in increments undetectable until years after Polymet and others are gone? Will sufficient monies be held in escrow to (financially) prompt the companies to hold to their promises that mining will be done safely? Do we really know what hazards, impacts, outcomes will result? Best guessing, even by the best environmentalist, scientist, and very learned people have, at times, been totally disproved with costly results. This is not a 20 year project. The legacy of decisions made now will forever impact the future of this very sensitive, unique and beautiful area. I, personally, feel a responsibility to the future of this area . Does Polymet feel the same?	PD3,PD4
Sender Last Name:	Resch **Submission ID:** 130	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
119	Our entire family is from the Iron Range. We have been mining for years. We, obviously, feel there is things to protect the environment, and we do it the right way. And we believe that, you know, we need jobs up there. If we could, we would move up there in a heartbeat, but we need to make a living, and right now there is no way to do that up there. We think PolyMet is a good company, and if they do everything correctly, we would have so many jobs for people up there. That's it.	EOO
2626	I grew up on the Iron Range. We've mined up there for years, many years. I have family that worked in the mines. You know, I think that the mining industry is a safe industry. They do a -- they do a fine job of protecting the environment, protecting -- protecting everything that they can, and I think that this is a value that a employer, future employer of the range, and I feel that this is an opportunity for my wife and I to possibly move back up to the Iron Range where we'd like to raise our family.	EOO

Sender Last Name: Reschke **Submission ID:** 3679

19247	DEIS 4.1.3.3 Mine Site Alternative again suggests that monitoring is sufficient to ensure the effectiveness of the lime treatment of waste rock stockpile leachate. Tribal cooperating agencies disagree with this approach, and take the position that the effectiveness of lime treatment is very important in the final water quality of mine effluent. Therefore, this analysis should be conducted prior to the construction of the facility, and the results included in the DEIS. Fond du Lac also disagrees with the proposal to apply a vegetated soil layer over the waste rock stockpiles. The tribal cooperators take the position that the effectiveness of the evapotranspiration caps has not been demonstrated. Tribal cooperating agencies have requested that this analysis be done (GLIFWC Comment letter of June 30, 2008 and GLIFWC comment letter of February 6, 2009).	WR2L
19248	Effects on Surface Water Quality within the Partridge River Watershed concludes that “both the Proposed Action and the Mine Site Alternative would comply with all surface water quality standards along the Partridge River.” Tribal cooperating agencies note that wild rice grows on the lower Partridge River. Therefore, it is the tribal cooperating agencies’ position that the wild rice sulfate standard applies and the mine site alternative effluent would exceed that standard (Table 4.1-74).	WR3C

Sender Last Name: Reutter **Submission ID:** 3093

3033	There was little or no field sampling done on the movement of ground water through the bedrock. Since the mine and its waste storage site sits nearly on the continental divide it should have been determined if there is any chance that polluted mine drainage (including acids, metals, or sulfates) could move in the rock over time to the north and into the Boundary Waters watershed.	WR2A
3476	This is not a proven large scale mining process.	EOO
3477	The state of Wisconsin banned this type of mining due to the sulfite leakages into the ground water.	G7A
3478	Finally, mining like before will eventually expend the available natural resources and close down. It would be a public disaster if the BWCA were lost to future generations because we allowed mining operations during a brief period of time.	G11
3487	The DEIS does not outline any specific plan for reclamation after the mine site is closed. In the same vein there is no specific mention of the method or amount of financial assurance that the mining company will need to set aside for the potential disasters after closing.	PD3,PD4

Sender Last Name: Reynolds **Submission ID:** 3447

3667	I am just a citizen concerned about the potential environmental and financial hazards to this state if we go ahead with this project. I have yet to hear or read about any non polluting form of this kind of mining. And the citizens are always left to finance the cleanup. I am sure this is about jobs, and I am sure folks in Northern Mn do not want to hear from the big city folks in the Twin Cities. But the taxpayers of this STATE will have to pay the price to clean this mess up, because there will be a mess. And I am a taxpayer.	PD4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Rheineck **Submission ID:** 2066	
2492	I have been a longtime resident of Minnesota, and I have been visiting the BWCA since 1980, and it has made an enormous impact on my life and the lives of my children. The area in and around the BWCA is very important to me, and I consider it a precious resource that is unique in the United States. We have very little unspoiled wilderness remaining in our country, and by protecting the area, we can provide a very special experience and reminder for future generations. We are already dealing with challenges due to water level changes and acid rain effects within the BWCA, and risking further impacts from projects such as the proposed mining activity strikes me as unnecessary and unwise. It upsets me that we may be making short-term finiancial decisions due to the economic crisis our country is facing without properly considering the legacy we wish to leave for the future.	G2,G7
Sender Last Name:	Rice **Submission ID:** 2263	
2675	This letter is being written to fully support Polymet's effort to obtain mining permits. I am an insignificant stock holder but have been touched by the importance of the Polymet project. I do not have engineering degrees or expertise in the mining arena. I do have a very strong opinion on where our nation as a whole is heading. This year the United States have become more and more dependent on foreign governments. This has been through energy, mainly oil, debt, mainly incurred this year, and most important to this subject, raw materials, the same ones that will be mined by Polymet. As I see it we have a company requesting to mine ores by utilizing an existing facility tailing basins, power lines, etc. so minimal new ground is required to be disturbed. They have spent millions of dollars so far to make sure they will be probably the most environmentally responsible mining company ever in the United States if not the world. They are employing environmentally smart mining processes throughout. Our country is subservient to foreign governments for our oil since drilling from our vast supplies have been hampered or squashed by 'environment concerns'. These 'environment concerns' also want to squash the Polymet project. Many of the very ores that Polymet wants to produce is currently being obtained from foreign governments, some which are hostile to the United States. The United States should never be held hostage by any foreign concern. I was privileged to have had a tour of the Polymet facility. The journey there went through miles and miles of economic desolation. It was evident that economic prosperity had become a dim dream. Until then I was never in a casino that didn't have people waiting for a seat. The casino at the hotel was like a ghost town. Even after being awed at the tremendous magnitude of the reused facilities, I was really touched by talking to a few of the men currently hired by Polymet. They were seasoned miners that were almost giddy over having a job in their field of expertise and the prospect of being there with their friends for many more years. Their dreams may become a reality. It's now become personal. This is one of the best chances I have ever seen for the United States to become independent again at least in this field of raw resources. As global demand for raw resources will dramatically soar over the next few years, Polymet will help put the United States in control again leaving the foreign governments being dependent on us. Isn't that a welcomed reversal of the current trend? Polymet will also help thousands of local residents support their families and start to rebuild their lives. You have a company that wants to do the right thing for the United States, the state of Minnesota, the environment, and the residents. Please make a difference and issue the mining permits for Polymet.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3465	I have personally seen the results of such mining operations in Canada. The environment for almost 50 miles in all directions is completely destroyed. Trees are dead and wildlife is non-existent. It is unthinkable to allow such mining in our beautiful state just south of the Crown Jewel of Minnesota's tourism industry the BWCA. If this issue is really about offering jobs to the area then a better solution would be to lure Green Energy industries to the area to manufacture wind turbines, solar panels, and geothermal equipment thereby providing jobs and not destroying the environment. Our neighbors to the east of us, Wisconsin, has laws on their books explicitly forbidding this type of mining. Why would Minnesota even consider it? Kansas, California, Vermont, Michigan...etc. are locations of former sulfide mines that are 6 now Superfund sites awaiting clean up. Many of these location can never be cleaned up because of acid and heavy metal penetration into the aquifer. Do we really want to risk long term degradation of our natural resources for short term economic gain? Please do not allow passage of any legislation allowing this form of mining in our beautiful state. If it must be considered then DEMAND than an Environmental Impact Statement be prepared for review before any legislation is passed.	EOO,G1,G2C,G7A,G12
Sender Last Name:	Rich **Submission ID:** 2792	
3192	Along with all of these aspects of your decision, I strongly urge you to consider this: the Boundary Waters and Lake Superior coastal areas have long been home to many people seeking recreating and a back-door to the wilderness. Please don't let this be taken away from my brothers, sisters, and I. Keep the environment in mind and also let it be known that the Boundary Waters is my second home.	G11
Sender Last Name:	Richardson **Submission ID:** 2314	
2763	I have been hearing rumors that the Minnesota Boundary Waters area is at risk of environmental contamination, and have had it confirmed when hearing about happenings such as the NorthMet mining project. I would like to voice my opinion regarding the current events as one who knows the true value and beauty of the Boundary Waters and appreciates its singular place within Minnesota and the entire United States. Simply put, I feel the very idea of allowing a reputable pollution practice to occur anywhere near a wilderness area such as the Boundary Waters to be outright embarrassing. The idea that this practice is even being considered in such an area shines a poor light on Minnesota resource management. We know the risks. The damage has happened time and time again across our country, despite the promises of the mining promoters. I am disappointed that there is talk about throwing away future generations of soul-edifying experiences in exchange for a short-term economic stimulus package. I understand that creating and maintaining jobs in the area is a significant stress. This mining project, and others like it, however, is only a short-term solution. It is exchanging sustainable practices such as ecotourism for a relatively few years of economic gain. Is this project really worth so much, and our awe-inspiring wilderness area worth so little? I whole-heartedly encourage and support all efforts to maintain the Beautiful Boundary Waters wilderness area in it's current state, rather than sacrificing one of the most gorgeous places in the country for a few dollars gain.	G7,G11
Sender Last Name:	Riffel **Submission ID:** 2907	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3236	I have read the draft EIS for the Northmet project and I have concerns about this project?s impact on the environment in which I live. It is not in the best interest of my community or the Iron Range to create jobs at the expense of our health and water quality?that is all we have. As I read the impact of the project on ten of the fourteen resources evaluated, I was stunned. Those that concern me most are: Mine site Groundwater Quality?antimony, manganese, and nickel predicted to exceed USEPA primary Maximum Contaminant Levels or MDH Health Risk Limits potentially FOR THE LONG TERM at the Mine Site. What will this mean for the health of the workers? And how will the ?sulfate would exceed the groundwater evaluation criteria? impact the entire watershed? (page S8) Groundwater Levels Downgradient of the Tailings Basin ?seepage would exceed aquifer flux capacity resulting in significant seepage upwelling and wetland impacts.? Seepage of toxic chemicals will put our water quality at risk. (S8) Mercury methylation risk from high sulfate concentrations in seepage from the Tailings Basin released to wetlands (S9) and to the entire chain of lakes (S10). Fishing is a major tourist draw as well as a subsistence means for local tribal groups. Endangering fish is not in the best interest of our population nor our economy. I know that jobs vs. the environment is an ongoing tradeoff. But I teach environmental sociology and I also know that jobs rarely win in the long run. We must learn from other areas of the country where jobs were once thought to be more important than the environment. The jobs go away, and are predicted to last only a generation for this mine; the environmental damage takes many generations to mitigate, if that is even possible.	G1,G2C,G7A,G11
Sender Last Name:	Rimestad **Submission ID:** 2986	
3372	I don't know a lot of the technical and deep-thought comments, but I would really prefer that this mining project doesn't go through. A few years ago I was introduced to the BWCA through the Wilderness Canoe Base at the end of the Gunflint Trail. It has made me a better person inside and out. To see the world's wilderness in such a beautiful way is amazing. This area has changed me and caused me to look at the world in a differnt way. I just want you to know that this mining project shouldn't go through because of its signifagance to my life and thousands of other lives. The Boundry Waters is a place of peace for us and we would hate to see it go away. I hope what i have said is at least considered.	EOO
Sender Last Name:	Ringer **Submission ID:** 3508	
3694	I live approx. 25 miles SE of the proposed Northmet mine site, and I have concerns about the whole project. 1. Money needs to be set aside for any cleanup costs that will be associated with this type of mining, and we know there will be environmental cleanup needed. 2. I am concerned about the other mining interests that are keeping a close eye on the Polymet project. Some of the other companies are interested in areas that would have any acid mine drainage heading thru Birch Lake and into the BWCA wilderness. 3. I am concerned about the DNR mineral rights leasing process. Our property was put on the lease rolls at the sale in Jan. 2009, and if we weren't so diligent about obtaining information for this whole process, we would not have known anything. 4. I am concerned that mining companies have too much power and control, and can dangle the carrot of new jobs, and the range communities gobble it all up, without looking at the bigger environmental picture. 5. I am concerned about the current Dunka mine site, and what it is leaking into the ground.	PD1,PD4,G4A,G8C,G9,G13
Sender Last Name:	Riordan **Submission ID:** 2192	
2598	MR. RIORDAN: My name is Brian Riordan, R-I-O-R-D-A-N, of Esko, Minnesota. I am here to state that I wish for the PolyMet North project I would like it to go ahead and get their permitting in place so that myself, being a resident of Northern Minnesota, and my children and other people in the areas can benefit from the resources that are there for us to use. I think that the way that things are going to be mined in the area with the newer technology and the newer regulations, that it would be a safe and beneficial way to use the minerals that are in the area for the public benefit. I see no reason for not granting PolyMet to do this sort of mining in the areas and other ones also. The area has been used as open pit mines for many years, and there is no reason that they shouldn't be able to go ahead with the mining. Thank you very much.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Risser **Submission ID:** 1198	
1313	There is a history of water pollution and environmental degradation associated with sulfate mining. There simply is no guarantee that our waters will not be degraded – harming fish and wildlife. It is incredibly short-sighted to allow long-term damage for short-term gain. Water from waste rock piles will be polluted for up to 2,000 years. Minnesotans & future Minnesotans shouldn't be burdened for the benefit of a foreign company. We will be left with a mess to clean up.	G2C,G7A
Sender Last Name:	Rivers **Submission ID:** 32	
30	I would like to say that I strongly support the PolyMet project. I worked at the former LTV site for ten years and currently work for U.S. Steel at Minntac right now, and I'm very confident that the material could be mined in such a way that would be environmentally friendly, and I'm sure that the mining company would try to do it the right way that it needs to be done. And that's all I have, I guess.	EOO
Sender Last Name:	Roalson **Submission ID:** 338	
359	I am in favor of PolyMet's NorthMet project being approved for facilities/plant construction and mining activity. As long as PolyMet meets the safety and environmental criteria as laid out, and the DNR & MPCA continually monitors their compliance, the mining of non-ferrous metals should go forward. In addition, I propose that it be enacted, if possible, that the copper products such as wiring and tubing be made right here on the Iron Range for a strong value-added economic effect for this region and the whole state. There are strong environmental groups, however, that are dead-set against this project. To them I would say, "If we do not go forward with this now, the minerals will be mined elsewhere in the world, and monetary gains will benefit a dictatorship, warlord, or a terroristic network, and the environmental damage will be catastrophic due to no environmental oversight at all." (Worse than China today).	EOO,G1
Sender Last Name:	Roberts **Submission ID:** 3707	
1	The result of all these gaps in analysis is that, among other problems, the proposed action and the preferred alternative do not comply with the requirements of Clean Water Act ("CWA") Section 404(b)(1) guidelines.110 The CWA does not allow a permit when there are practicable alternatives that would have less adverse effects, when the Project would lead to a violation of state water quality standards, or when it would cause or contribute to significant degradation of waters of the United States.111 Significant changes in the design of the Project have occurred and other important information needed to determine the nature and magnitude of the Project's impacts has been developed since the public notice of the Project was provided by the USACE in May 2005. As indicated in the Tribal Position, 112 but omitted from the main text of the DEIS, 113 public notice for the Section 404 Permit should be reissued and that the Mirmesota Pollution Control Agency ("MPCA") should be afforded the opportunity to analyze and make a determination under Section 401 ofthe Clean Water Act.	WE4

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Comment ID	Comment Text	Theme Codes
2	A. Cultural resources. Section 106 consultation between the USACE and Tribes is ongoing. Therefore, despite significant changes through recent, increased consultation with tribal cooperators, the Cultural Resources chapter of the DEIS is still incomplete, and the requirements of the National Historic Preservation Act ("NHPA") 124 have not yet been fulfilled, and the Project cannot proceed until they are. Under the NHPA implementing regulations for the protection of historic properties, 125 the Band has been designated a "consulting party," and the lead agencies "shall consult with the THPO [Tribal Historic Preservation Officer] instead of the SHPO [State Historic Preservation Officer] regarding undertakings occurring on or affecting historic properties on tribal lands."126 Additionally, the lead agencies must consult with any tribes that attach "religious or cultural significance to historic properties that may be affected by an undertaking," regardless of the location of the historic property.127 The agencies must give a tribe "a reasonable opportunity to identify its concerns about historic properties, advise on the identification and evaluation of historic properties, including those of traditional religious and cultural importance, articulate its views on the undertaking's effects on such properties, and participate in the resolution of adverse effects."128 The regulations go on to inform agencies that they "should be aware that frequently historic properties of religious and cultural significance are located on ancestral, aboriginal, or ceded lands of Indian tribes... ," as in the Ceded Territory here. 129 One aspect of the identification of such historic properties is through gathering information from consulting tribes, through a variety of methods. 130 Where, as here, there are historic properties affected, then there is an entirely separate level of adverse-effects assessment that must be performed, again in coordination with consulting agencies. 131 In light of these rules, and as the chapter itself acknowledges, it is apparent that far more consultation and site work must be done to comply with Section 106.	AQ3,WI2,WI3
3	As the Band pointed out at least as early as its comments on the June 2008 PDEIS, the DEIS acknowledges that there are bald eagles that nest within 2.4 miles of the Project. 148 The Band is therefore concerned that this culturally-important animal could be subject to serious noise pollution or other habitat impacts, and further analysis must be done. Critical habitat, habitat segmentation, environmental mitigation measures, and changes in plant cover or forest type all fall under both the categories of traditional environmental and cultural analysis for purposes of the DEIS.	WI1,G3,CR1,CR2,CR4
4	11. Summary, Section III.B.2, p. S-10; The Tailings Basin and hydrometallurgical residue facility embankments may be geotechnically unstable due to the fines and underlying soils in the existing LTVSMC Tailings Basin. This potential problem is in addition to the potential problems created by storm events and/or flooding.	GT2
4	10. Summary, Section III.B.2, p. S-10; Potential loss of critical habitat for Canada lynx and gray wolf, and a greatly increased risk of vehicle strikes for these species are significant potential ecological impacts in the Mine Site area.	WI1
5	25. Section 4.1.2.1, p. 4.1-50; The DEIS states that "(t)here are currently no impact criteria for change in water levels", even though the DEIS acknowledges that drawdown in the Mine Site and groundwater level increases in other areas (e.g., north of the Tailings Basin) may affect surface water flows and wetlands. This is an issue that should be addressed at the DEIS stage, and criteria should be developed for changes in water levels.	WR3E
5	2. Sulfide mining and its attendant environmental degradation. It surprises me that Minnesota, as a way to create jobs for its citizens, is turning to an industry known for creating environmental degradation as part of its industrial processes. Wisconsin's experience with sulfide mining at the Flambeau mine resulted in the passage of the Mining Moratorium Law (s.293.50, Stats.). Why aren't we learning from Wisconsin's mining experiences?	G2,G12
6	2. There appear to be no contingencies for worst-case scenarios, such as flooding of pits or tailings basins.	WR3A
7	Similarly, the Draft EIS analysis for mercury and sulfates must also factor in the related impacts and contributions that would be created by the predicted water level fluctuations, which may be another major source of methyl mercury.	WR4A

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Comment ID	Comment Text	Theme Codes
8	The Draft EIS also fails to comply with NEPA by failing to disclose, address and respond to the credible scientific evidence strongly indicating that the wetland mitigation will be ineffective. See 40 C.F.R. § 1502.9(b) (agencies must discuss "any responsible opposing view"); South Fork Band Council v. U.S. Dept. of Interior, 2009 WL 4360798 (9th Cir. (Nev.)) at *6-7 (stating that an essential component of a reasonably complete mitigation discussion is an assessment of whether the proposed mitigation measures can be effective). As summarized by the Forest Service, "[f]urther analysis is needed to disclose how effective and reliable the [constructed] wetlands will perform in the field." September 2, 2009 Forest Service Comments. For instance, in a 2001 report, the National Research Council found that "the literature on compensatory mitigation suggests that required mitigation projects often are not undertaken or fail to meet permit conditions." Attachment 3 ("Compensating for Wetland Losses under the Clean Water Act"); see also, 1992 report by the National Academy of Sciences, concluding that "many [mitigation] projects fall short of the goal of returning ecosystems to the predisturbance condition, and there is indeed considerable controversy over whether or not wetlands can actually be restored"). The National Research Council further found that "[s]ome wetland types – in particular, fens and bogs – cannot be effectively restored with present knowledge." Id. Moreover, because the legal and financial mechanisms for assuring long-term protection of wetland mitigation sites are often absent, especially for permittee-responsible mitigation, the National Research Council recommended that compensatory mitigation should be in place concurrent with, and preferably before, the permitted activity. Id. Similarly, the U.S. Government Accountability Office has found that the Corps has performed very limited oversight to determine the status of the required compensatory mitigation. Attachment 4 ("Wetlands Protection, Corps of Engineers Does Not Have an Effective Oversight Approach to Ensure that Compensatory Mitigation is Occurring"). Because many projects do not receive any oversight, the Corps cannot definitively assess whether the required compensatory mitigation has even been performed. Id. The Corps has thus consistently failed to ensure that the mitigation it has required as a condition of obtaining a 404 permit has been completed. Id.	PRO3
9	In sum, these numerous predicted water quality exceedances are not allowed under the CWA (see e.g., 33 U.S.C. 1311; 40 C.F.R. § 122.4(d); 40 C.F.R. § 122.4(i)), and the EIS must more thoroughly assess and disclose the extent to which water quality violations are likely to occur.	WR3I
10	The Band continues to object to the lack of a comprehensive cumulative-impacts analysis throughout the DEIS. The CEQ has issued guidelines that illustrate the breadth of the required analysis, which the DEIS purportedly relies upon. 114 While the draft "Protocol to Assess Expanded Cumulative Effects on Native Americans" is mentioned in this section, there is no evidence that any expanded data collection or analysis was done in this area.115	G3,CR2,CR4,CR5
11	As noted in the Tribal Position, 116 there are multiple examples in the DEIS where cumulative impacts have not been fully addressed: 1. There has been no analysis of the 1854 Ceded Territory as a discrete area of impact. The Band continues to ask that it be included. As mentioned previously, cumulative effects to the 1854 Ceded Territory have not been adequately considered in the DEIS. The DEIS simply says "[t]he tribal representatives view themselves as uniquely and disproportionately impacted by mining activities in the 1854 Ceded Territory and it has not been possible to reach agreement on a number of conclusions within the DEIS."117 In other words, the preparers believe that because they did some consultation but disagree with the Tribe, they need not properly evaluate impacts to Band members or the Ceded Territory in the EIS. This is entirely incorrect, given the federal agency trust responsibility to affinnatively protect these resources. For example, while Uniquely Affected Communities does mention that the Bands maintain rights under the 1854 Treaty, 118 it solely identifies as potentially-impacted resources wild rice and moose. It then states that wild rice is "common" in the region and compares the relative occurrence of moose resources as compared to "other portions of the 1854 Ceded Territory." 119 These are not the appropriate standard for evaluation ofthe cumulative impact on those species, nor does it include the many other culturally important species that must be evaluated. Furthermore, the section acknowledges that there will be a loss of tribal access, and that there is no guarantee that there will be a "land swap" within the Ceded Territory that would then be available to the tribes. Another example is that cumulative impacts to wild rice have not been assessed. Wild rice grows in the Embarrass, Partridge, and St. Louis Rivers. Wild rice is a valuable tribal resource that has been declining throughout the 1854 Ceded Territory. Mine effluent is often associated with levels of sulfate that has impacted wild rice and hydrologic changes from pit dewatering and seepage from tailings basins can also impact wild rice, which is dependent upon a relatively stable hydrologic regime. More analysis of the cumulative impact on treaty rights is needed.	G3,CR1,CR2,CR3,CR4

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Comment ID	Comment Text	Theme Codes
12	2. Climate change implications of the proposed Project have not been detennined. The project would disturb extensive areas of peat. Peat is known to be an important carbon sink. Wetlands in general are recognized as important carbon sinks and areas where wildlife will seek refuge as the climate warms.	AQ3
13	I. The DEIS fails to properly "disclose and discuss all major points of view." The Council on Environmental Quality ("CEQ") has implemented specific regulations regarding the requirements of a sufficient EIS, in accordance with NEPA. Under 40 C.F .R. Section 1502.9, a lead agency "shall make every effort to disclose and discuss at appropriate points in the draft statement all major points of view on the environmental impacts ofthe alternatives including the proposed action."8 All three Bands and two intertribal agencies (1854 Treaty Authority and Great Lakes Indian Fish and Wildlife Commission, or "GLlFWC") worked together to produce one set of comments on the July 2009 PDEIS to encompass the "Tribal Position." As requested, these groups jointly prepared, at significant time and expense, an integrated, in-line set of comments, which is attached with some edits to the DEIS at Appendix D, including the Tribal Position in blue. But the co-lead agencies the Minnesota Department of Natural Resources ("MNDNR") and the U.S. Army Corps of Engineers ("USACE") only selectively included tribal comments in the DEIS text or footnotes, instead of addressing all these major tribal points of view this way. Even where it does "disclose" tribal positions in footnotes, the DEIS offers none of the required "discussion" ofthese major tribal points of view. In short, the DEIS does not comply with the plain language of Section 1502.9 to make disclosures of major points of view at appropriate points, or to discuss them. The DEIS inconsistently also claims that it "includes almost all of the tribal position statements submitted in response to the July 31, 2009 Preliminary DEIS (PDEIS)" and that "the differing opinions are included in footnotes throughout the document."9 But this is untrue. While some revisions have been made, some tribal comments regarding key, controversial aspects of the Project have been entirely selectively left out of the DElS Volume l footnotes and text. Examples of these problems include failure to either discuss or mention at the appropriate location the Tribal Position asking for inclusion of the expected leakage rate of waste rock liner and cover systems might be; 10 failure to discuss the Tribal Position on what long-term maintenance might be required for those systems;11 and what changes in the water quality predictions might result from those effects.12 The DEIS also fails to discuss the Tribal Position regarding the possibility that stockpile failure might occur and request that a slope stability analysis should be performed and the results included in the DEIS.13 Potential cumulative effects to the Partridge River, almost all of the Tribal Position regarding cumulative impacts analysis for air, and a large portion of the Tribal Position regarding cumulative effects to the St. Louis River watershed were also omitted. I4 The tribal cooperators had many conference calls with the lead agencies to try to resolve these and other disputes to ensure that the Tribal Position was included and discussed in the main body of the DEIS, even if only in footnotes, to no avail.15	PRO9
13	3. Cumulative impacts to culturally-important plant and animal species that are not listed as threatened or endangered have not been analyzed. Species that are important to tribal and non-tribal members would likely be impacted by mining projects, and these, too, must be evaluated. A substantial moose population has been identified in the mine site area by aerial and ground surveys. Moose are likely to be impacted through disturbance of two of the few wildlife corridors remaining along the Mesabi Range and through wetland impacts ofthis project. The Project has proposed the largest direct wetland fill ever permitted in this region. The wetland mitigation that is being proposed would be outside of the St. Louis River watershed and 1854 Ceded Territory.120 The MNDNR's Moose Advisory Committee studying the decline of the moose population in northeastern Minnesota has recommended preserving wetlands as sanctuaries for moose from heat stress. 121 Therefore the Project will have cumulative effects on the moose herd and tribal harvest in the 1854 Ceded Territory. At a time when moose populations in Minnesota are declining, this analysis is particularly important and should have been done as part of this DEIS.	WI2,WI3,WI5,G3,CR1,CR4

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Comment ID	Comment Text	Theme Codes
14	4. The DEIS fails to adequately analyze cumulative impacts to the water quality of the Partridge, Embarrass, or St. Louis Rivers. In Colby Lake, the community water supply for the City of Hoyt Lakes, aluminum, iron, copper, and mercury concentrations already exceed MN WQS. 122 The existing large number of water quality exceedances and the suite of constituents, particularly trace metals, exceeding MN WQS shows the site has not been remediated from previous mining activities. Additionally, amphibole or asbestos-like mineral fibers, known to cause digestive tract cancers in high concentrations, have been identified as existing pollutants in the Hoyt Lakes community water supply and their presence should be identified in the DEIS. Related cumulative-impacts issues such as groundwater drawdown or mounding due to multiple mine projects, water quality in aquifers impacted by previous and existing other mine projects, and surface waters such as the Partridge and Embarrass Rivers and Second Creek that are impacted by multiple mines need further analysis. 123	WR5A
15	5. The cumulative effects of noise and vibration have not been analyzed although they were raised by the public during scoping.	N3
16	6. The cumulative risk analysis of transportation of hazardous materials has not been analyzed.	HM3
17	7. Discussion of the Project's cumulative effects on fish and macroinvertebrates is unreasonably limited to sulfate and mercury, and cumulative effects of habitat degradation on the fisheries of the region have not been discussed.	FM3
18	S. Post-closure impacts should also be included in the cumulative effects analysis because some mine features (e.g. pit lakes) would become permanent features of the landscape.	CR5,G3,CR1
19	III. The DEIS continues to lack sufficient characterization of existing and predicted impacts analysis of cultural resources and the 1854 Ceded Territory. Just as the DEIS does not evaluate cumulative impacts to the Ceded Territory, it does not fully evaluate direct and indirect impacts. Significant supplementation is needed.	CR2,CR3,CR4
20	A key piece of the work that remains to be done is traditional cultural property ("TCP") studies. The National Register of Historic Places defines a TCP as "one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history and (b) are important in maintaining the continuing cultural identity of the community."132 An appropriate investigation of the Project site using this standard, and in cooperation with all involved THPOs, must be perfomled and properly documented. 133 They will require a high level of tribal input and consideration of seasonal changes. As noted in the chapter, consultation is underway on this topic, but is far from complete.	CR2,CR3
21	The DEIS should include language to the effect that the Band continues to take the position that the Ceded Territory is itself a TCP and does not agree with the USACE's determination that it is not. 134 Nevertheless, in the interests of timely evaluating Project risks and mitigation, the Band has agreed, for the time being, to proceed in accordance with the USACE's offer to fully evaluate the Ceded Territory, including all factors that would be considered in a TCP analysis, pursuant to its trust responsibility. 135	G3,CR2,CR3,CR4
21	Based upon the Tribal Position, this chapter now includes language acknowledging that the acceptability of the proposed land swap for purposes of preserving treaty interests depends upon many factors, none of which have yet been evaluated. 136 This underscores the need to include consideration of the land swap in this EIS.	PD1

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Comment ID	Comment Text	Theme Codes
22	A. Financial assurance. In order to determine the impacts of a mine, the effectiveness of closure and reclamation after the mine is no longer in use must be assessed.16 But in the DEIS, there is no discussion regarding the type and estimated amount of financial assurance that would be sufficient for reclamation, closure, mitigation, and remediation of adverse effects from the Project, despite tribal calls for it to do so.17 Nor is there any discussion regarding financial assurance for the existing contamination associated with previous mining activities at the site that PolyMet would be responsible for cleaning up-as previously noted, the former LTV site is a brownfield. I8 This is of particular concern because the hardrock mining industry has a pattern of failed operations, which often require significant environmental responses that cannot be financed by industry. 19 In fact, there is widespread acknowledgement for the need to provide such financial assurance on projects like these. The General Accounting Office ("GAO"), in testimony before the Senate Committee on Energy and Natural Resources, U.S. Senate entitled "HARDROCK MINING: Information on Abandoned Mines and Value and Coverage of Financial Assurances on BLM Land," presented findings that in total, the federal government spent at least $2.6 billion to remediate hardrock mine sites from 1998 to 2007, highlighting the need for adequate financial assurance. 20 The EPA recently identified mines as a priority class of facilities for which to develop financial responsibility requirements.21 In 2009, as part of the largest environmental damage bankruptcy case in U.S. history, the mining company ASARCO was ordered to pay $194 million billion to resolve environmental liabilities from operations that contaminated land,water, and wildlife resources on federal, state, tribal, and private land.22 The State of Minnesota has spent millions of dollars remediating mine sites (e.g. Reserve Mining).23 Yet financial assurance discussions have been postponed for the pennitting phase ofthis Project. This approach fundamentally contradicts federal and state environmental policy and the DEIS must be revised, with significant additional study, to appropriately evaluate closure, mitigation, and reclamation.	HM3,FM3,PD1
22	On page 4.8-6, the paragraph beginning "In 1999, the U.S. Supreme Court held ... " should be moved down the page and inserted below the quoted portions of the 1854 Treaty in order to properly preserve the chronology of the authorities cited.	EOO
22	On page 4.8-9, the reference to the "two Indian trails," although edited, still improperly concludes that the preparer's third-party contractor "was unable to locate either trail."137 As the Tribal Position states, any such attempt was not made in consultation with the Band's THPO (nor with any other cooperating tribe's THPO, to the Band's knowledge).138 This field work must be re-done in consultation with the relevant tribes, who are well aware of the location and cultural importance of these trails.	CR2
23	Finally, citations in this section should be made consistent with the remainder of the DEIS, and additional proofreading is in order.	EOO

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Comment ID	Comment Text	Theme Codes
24	The preparers have not completed consultation with the potentially affected tribes regarding culturally-important species. This delay means that the extent of existing wild rice beds, which are protected both under federal and state law, has not been fully characterized. Consequently, evaluation of the impacts and cumulative impacts to wild rice has not been determined. The DEIS has unreasonably limited discussion of these impacts, as evidenced by its own language. For example, one footnote purporting to "discuss" the Tribal Position simply reprints it: "[i]t is the position ofthe tribal cooperators that water treatment ofthe discharge would be required to comply with the wild rice water quality standard. The Partridge River contains several wild rice beds immediately downstream of the proposed discharge point."139 Wild rice areas are not only protected under the 1854 Treaty but under Minnesota State law. 140 Moreover, portions of the DEIS fail to recognize the field studies done in August and September 2009 that identified wild rice along the Upper and Lower Partridge River, the Embarrass River, and the lower St. Louis River, amongst other locations. 141 Given the obviousness of the threatened impact to such wild rice beds, additional analysis and mitigation must be included throughout the DEIS. As noted, wild rice grows on the Embarrass River, the lower Partridge River, and the St. Louis River; therefore, the MN WQS of 10 mg/l sulfate standard applies. 142 This standard would be exceeded by the PolyMet discharge. Furthermore, there are other projects (including Mesabi Nugget Phase II and Laskin Energy) that are discharging water with elevated constituents. Given these existing sources, it is unlikely that PolyMet would be able to discharge untreated tailings basin effluent without violating the CWA. Regardless, treatment of the tailings basin effluent prior to discharge to the Partridge River is not included in the potential mitigation measures. Again, the DEIS merely acknowledges this Tribal Position without addressing the obvious problems with any untreated discharge: " ... it is the position of the tribal cooperators that an untreated discharge of contaminated tailings basin water to the Partridge River in order to dilute and dispose of tailings basin water would have environmental impacts that must be avoided in order to adequately protect the environment."143	G3,CR1,CR2,CR4
24	C. Band member use of other usufructuary resources. There has not yet been sufficient evaluation of Band member use of vegetation and other usufructuary resources in the APE, and there is no permissible basis to omit such evaluation where the USACE and other federal permitting agencies have a trust responsibility to the Band to maintain treaty resources in the 1854 Ceded Territory. The APE for the Project was not determined until August 11, 2009, after tribal cooperators insisted upon it,144 and tribal consultation is ongoing. Historic and current tribal harvest information has not been finally determined even for the Plant or Mine Sites. Although this area is significantly disturbed and will be for the foreseeable future, the closure and reclamation plans should have a significant effect on native vegetation as it is reintroduced. The prevalence of invasive, non-native species and their ability to out-compete native plants in disturbed areas, coupled with PolyMet's plan to introduce non-native and invasive species to this area, would result in significant impacts to cultural resources that have not been discussed in the DEIS.	G3,CR2,CR3,CR4
25	Several wildlife species of high cultural and present-day value to the Band exist in the APE. Some of these include moose, whitetail deer, wolf, fisher, marten, and lynx, to name a few. Most notably, the Minnesota moose population is under a long-term population decline.145 Mining operations will certainly do nothing to aid in the recovery of moose and are likely to reduce available habitat and impact travel corridors. Water, air, and noise pollution, combined with increased road density, have been shown to have negative impacts on most boreal wildlife species including wolves, moose, and lynx. Further evaluation of wildlife impacts must be done.	WI3,WI5
26	There are also specific defects in the lynx survey that was done at the PolyMet site so far. 146 First, it was conducted at the low point of the lynx population cycle. Therefore, the low numbers reported are not surprising. Surveys should have been done during the high point in the cycle because that is when lynx are competing for available habitat and many animals are dispersing looking for desirable areas. Impacts to the travel corridors and the removal ofthe mine site habitat would be particularly harmful to the lynx during these times. Second, lynx mortality is linked to the number of road and train trips through an area of suitable habitat. Lynx mortality would be a significant impact given the number of trips that are mentioned in the DEIS. Finally, data used in the DEIS for lynx mortality is out of date-tribal sources report that there are two additional lynx-train and one lynx-car collisions to add.	WI1

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27	Several lakes and the Partridge River watershed are likely to be affected negatively, which will impact fish species and thus the Band's 1854 Treaty rights to harvest fish in those water bodies. The DEIS as written fails to mitigate the costs to fisheries and wildlife species that are protected under the 1854 Treaty. Treaty reserved fishing rights cannot be fully exercised when fish consumption must be restricted for health reasons to one or two meals per week. The entire DEIS must include proper analysis of the potential impacts of this Project on treaty rights. Any increase of methylmercury bioavailability in the Partridge River watershed constitutes a significant adverse impact to a critical trust resource.	G3,FM1,FM4,CR1,CR4
28	Moreover, the potential impacts to Band members of a significant increase in mercury in fish harvested in on-Reservation and Ceded Territory waters has not been adequately addressed. The State of Minnesota's mercury total maximum daily load ("TMDL") process will not adequately address the fish consumption impairment in these waterbodies, and any new discharges that would result in further degradation to waters with an existing water quality impairment would not be legally permitable under the CWA.147	WR5C,G3,FM1,FM5,CR1,C
29	B. Alternatives. Contrary to the express requirements of the CEQ rules, the DEIS does not even purport to identify a preferred alternative.24 The Band has long cited this defect in PDEIS comments.25 Multiple modifications have been cast as "mitigations," and the now-preferred methodologies remain as "alternatives."26 For example, the use of LTV tailings for tailings berm construction and capping and the disposal of waste rock in the east mine pit are both now preferred, but they remain cast as "alternatives."27 The DEIS must be revised or supplemented to reflect the actual preferred course of action for all material Project aspects. Without this, there is a high degree of uncertainty regarding the company's actual proposed course of action and effective review is unnecessarily complicated, in addition to violating CEQ rules.	ALT7,ALT9,PRO2,PD3
30	Finally, at or near the Project site, there is evidence that there were maple sugaring areas as recently as the 1950s, and the Band's THPO has specific knowledge of related artifacts and site specifics. Moreover, as part of the 1854 Ceded Territory, this is an area of importance for traditional plant and medicine harvest, and has great religious significance in connection with the Ojibwe Seventh Generation Prophecy. Again, additional consultation with the Band is imperative in order to comply with Section 106 and to preserve the sites.	FM4,CR1,CR4
31	D. Wetlands delineation. The physical environment and habitat comprises an integral part of the concept that cultural resources are natural resources for tribes, which the DEIS acimowledges. Therefore, characterization of natural features is doubly important. Many of the wetlands that have been delineated have been misidentified as "perched bogs."149 They are actually cedar swamps, northern wet ash swamps, forested rich peatlands, northern alder swamps, and poor fens, all of which require groundwater inputs. 150 Indirect impacts to communities that require groundwater inflow have not been determined, but would likely be significantly different than expected impacts from the Project to perched bogs. The Project wetland delineation study identified over 390 acres of wetland community with a significant white cedar component. 151 Those cedar swamps were incorrectly named "cedar bogs" in the original wetland delineations and in later documents renamed "coniferous bogs."152 The significance of this is that bogs tend to be precipitation fed, while swamps tend to be groundwater fed. Therefore, estimating impacts due to hydrologic disruption without requiring sufficient background data regarding groundwater or incorporation of the specific ecological requirements of culturally significant wetland vegetation is inadequate.	WE1,WE2
32	E. Socioeconomics. Executive Order 12898 specifically identifies Environmental Justice issues to be addressed regarding Native American Populations.153 But in the DEIS Socioeconomics chapter, none of the issues identified in the Executive Order have been addressed, despite the Band repeatedly asking for further analysis. Under the heading "Environmental Justice," the DEIS summarily concludes that there will not be disproportionate impacts to Native Americans based on census reported populations alone.154 It is the Band's position that any impacts to natural resources will disproportionately affect tribes due to their subsistence consumption of wild rice, fish, and other wildlife, and gathering of traditional plants and medicines within the 1854 Ceded Territory. Native Americans should be specifically evaluated as an affected population throughout this section.	SE2

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Comment ID	Comment Text	Theme Codes
33	The DEIS must be substantially supplemented to have sufficient detail to ensure that environmental consequences have been fairly evaluated and to provide a full opportunity for agency and public review. The sheer volume of reasoned, major opposing positions now included in the DEIS, and the lack of any explanation for their rejection, speaks for itself. The Band and others have repeatedly asked for justification for the conclusion that underground mining is not viable. The proposed land exchange is a connected action that cannot be deferred to a separate EIS process. The type and estimated amount of financial assurance that would be sufficient for reclamation, closure, mitigation, and remediation of adverse effects from the project and pre-existing contamination, should be disclosed in the DEIS. The water quality and quantity impacts analysis in the DEIS must be supplemented to provide scientifically supported hydrologic and geochemical characterizations using all existing data before reasonable estimations of impacts to water resources, and strategies to mitigate those impacts, can be determined. A scientific assessment of the mine-related drawdown of the regional water table must be developed so that an assessment of indirect wetland impacts can occur. The DEIS must be supplemented with a comprehensive cumulative-impacts analysis that includes the 1854 Ceded Territory as a discrete area of impact. The DEIS must make a reasonable effort to assess the Project's potential for impacts on the exercise of treaty rights. These problems can only be corrected through a significant supplement to the DElS, which can only be issued after proper analysis and full consultation.	PRO3
34	Since even before submitting its comments on the June 2008 PDEIS, the Band has explained the fundamental problem with the DEIS's failure to address possibly the most important alternative: underground mining.28 The Band reiterates that the CEQ rules require that the EIS "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public."29 The DEIS does not contain the appropriate level of detail.The conclusion that underground mining is not viable, or preferable, remains substantially unjustified, despite repeated requests for further analysis.30 This section states, without any economic analysis, that underground mining was "[n]ot economically viable. The rate of ore production of an underground mine would not support the processing rate necessary to economically process low grade ore .... Additionally, the ore deposit is shallow and broadly distributed throughout the Mine Site; [sic] which increases risk of the mine ceiling collapse unless a sizable amount of ore was left in place and not recovered."31 At its heart, this is merely a cost-benefit claim, with an unsupported, one-sentence claim about the threat of mine ceiling collapse tacked on. In addition, this is not the appropriate use of a cost-benefit analysis for purposes of analyzing an EIS altemative. The CEQ regulations require that, where a cost-benefit analysis is "relevant to the choice among environmentally different altematives," there are a variety of additional requirements, including "analysis of un-quantified environmental impacts, values, and amenities," 2 in addition to other CEQ altematives rules. As already argued in the Tribal Position,33 significant additional study of the underground mining altemative is mandated, and the DEIS offers no discussion of the reasons for rejecting the altemative. The economic viability of an underground mine depends on a variety of factors including ore grade, market prices, cost of tailings, and waste rock disposal. A study of this particular deposit was performed by the prior owner of the site, U.S. Steel, that actually recommended underground mining.34 PolyMet is well aware ofthis study, given that the company included it in a 2003 filing with the Securities and Exchange Commission.35 In fact, by examining cross-sections showing the distribution of ore by depth,36 it appears that there are substantial ore reserves at depths that likely could not be accessed by the proposed open-pit mine. The ecological costs of open-pit mining and above-ground disposal of tailings and waste rock are immense. This ecological cost, combined with the most current understanding of deposit ore grades and reasonably possible metals prices, must be evaluated to determine the viability of this altemative.	ALT2

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35	D. Proposed Land Exchange. The current ownership by the U.S. Forest Service ("USFS"), and the possibility that the Project is effectively proposed to take place on what are USFS lands, must be addressed in the DEIS.37 The Band has already identified this and other problems with the proposed land exchange "solution."38 The proposed land exchange is a connected action that cannot be deferred to a separate EIS process. The land exchange could have implications for Band members' usufructuary treaty rights in the 1854 Ceded Territory, and these problems are plainly unexplored at this time, as is the possibility that any comparable offset will really be available: "Potential loss of access to public lands for tribal use due to the land exchange; however PolyMet intends to propose private lands within the 1854 Ceded Territory for exchange, which could offset the loss of access."39 The Band has not agreed to such an approach. Alternately, the DEIS claims such a land swap "would" be an offset, even as it acknowledges the irreversible loss of culturally important natural resources.40 Acreage, distribution of wildlife corridors, and access by Band members to the lands cannot be determined at this time because PolyMet has not made an offer for specific lands to exchange for the properties they are hoping to receive. This directly implicates the federal regulatory agencies' trust responsibilities to the Band; they cannot approve permits that will have impacts to treaty resources without any evaluation and mitigation.41 The details of the land exchange must be submitted for consideration as part of the DEIS.	CR4,ALT7,ALT9
36	E. Water quality and quantity. Acid mine drainage ("AMD") is one of the greatest enviromnental liabilities associated with mining, especially in pristine enviromnents like the Project mine site, that have economically and ecologically valuable natural resources.42 There are no hard rock surface mines that exist today that can demonstrate that AMD can be stopped once it occurs on a large scale.43 Inaccurate pre-mining characterization and interpretation often results in a failure to recognize or predict impacts to water quality and aquatic life.44 Evidence from literature and field observations suggests that permitting large scale surface mining in sulfide-hosted rock with the expectation that no degradation of surface water will result due to acid generation imparts a substantial and unquantifiable risk to water quality and fisheries. 45 In a report comparing predicted and actual water quality at hard rock mines, two types of characterization failures were identified that led to differences between the predicted water quality in EIS documents and the actual water quality either during or after mining began.46 These included: (1) insufficient or inaccurate characterization of the hydrology; and (2) insufficient or inaccurate geochemical characterization of the proposed mine.47 The authors reported primary causes of hydrologic characterization failures as overestimations of dilution, lack of hydrological characterization, overestimations of discharge volumes, and underestimations of storm size.48 The primary causes of geochemical characterization failures were identified as lack of adequate geochemical characterization, in terms of sample representativeness and sample adequacy.49 The primary causes of mitigation failures were that mitigation measures were not identified, were inadequate, or were not implemented; waste rock mixing and segregation was not effective; liners leaked; tailings were spilled; or embankments failed, and land application discharge was not effective. 50 The DEIS suffers from all of these characterization failures. Project baseline data used for both the Mine Site and the Tailings Basin are insufficient.51 A comparison of hydrologic data that was collected for two other projects in the region demonstrates that the PolyMet project is data-poor in the area of basic hydrology, much less mitigation.52 Moreover, given the utility of the many existing studies of area hydrology, it is perplexing that the preparers have continually refused to use them, even as tribal cooperating agencies have repeatedly requested that they be used. Just a few publicly available examples include: the state Voluntary Investigations and Clean-up ("VIC") Program;53 the Minnamax Project;54 the LTVSMC Dunka Pit,55 and historic MNDNR fisheries documents. 56 All these resources should be used to supplement the hydrology analysis and fully inform the permitting agencies and the public. There is no explanation for the DEIS' failure to use, for example, pre-mining flow and sulfate data available through MNDNR fisheries reports was not used to determine potential water quality impacts, or cumulative effects to flow and water quality in the Embarrass, Partridge, or St. Louis Rivers. Surface water and groundwater quality and quantity data collected for the Minnamax Project, LTVSMC Dunka Pit, and the VIC program were largely ignored.	PRO2,PD3,WI1
37	The acidity in the discharges and seepages will reduce the viability of wild rice beds that are downstream and that are used by Native Americans as well as being an important source of food for waterfowl. This pollution will continue for decades, hundreds and perhaps thousands of years. This in no way allows "Ground water and other water resources to be used in a way that preserves their integrity for future generations" as stated in the DNR goal quoted above.	CR1

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37	The hydrology model that was applied used outdated data collected too far from the site.57 The Project XP-SWMM model included in the DEIS is based on a stream gauging station for the Partridge River that is seventeen miles from the mine site and the data from that station are twenty years old.58 Therefore, the results are highly unlikely to be representative of current conditions at the mine site.	WR3J
37	In the past, we (the citizens of Minnesota) have worked together to take care of Minnesota's environment. But this sulfide mining issue has polarized us. We are now "people who live in the northern part of the state" and the "rest of us." I am concerned that this polarization will not only damage the state as a whole, but also our desire to work together for the common good. I feel the mining situation was set up as a done deal. Prior to the formal environmental review process, no one asked us if we wanted to go this route, nor were we given choices. I think the polarization created by the proposed sulfide mine is forcing us to take sides instead of creatively thinking of alternatives for job creation and unbalanced state budgets. A neutral third party mediator could help us resolve some of our differences and come up with a workable solution to the sulfide mining issue.	EOO
38	7. Summary, Section III.B.2, p. S-9; Relatively high sulfate concentrations in seepage from Tailings Basin and downstream areas represent "high risk situations for mercury methylation". This represents a significant concern for adjacent ecosystems and potentially for human health.	FM1
38	6. Summary, Section III.B.2, p. S-8; Groundwater levels downgradient of the Tailings Basin are expected to cause groundwater seepage that would result in significant seepage, upwelling and wetland impacts. If these are expected impacts, then unexpected impacts caused by storm events, flooding, etc. could be even more significant.	WR2F
39	8. Summary, Section III.B.2, p. S-9; Direct water quantity and quality impacts to wetlands are expected for 804.3 acres in the Mine Site area. This is a large expected direct impact, and unexpected or indirect wetland impacts due to flooding, acid mine drainage, etc. could affect much larger areas.	WE2
40	13. Section 3.1.2.2, page 3-4, 1 st and 2nd paragraphs; The DEIS discusses backfilling of East Pit with Category 1 and 2 waste rock, but does not explain how waste will be physically sampled and chemically analyzed to be categorized.	PD11
40	12. Section 1.1, p. 1-1, 1 st paragraph; The text refers to "low-grade disseminated sulfide mineral ore", but does not mention the localized presence of massive or semi-massive sulfides. These higher sulfide materials, which may be either ore or waste, present a much higher potential for acid mine drainage.	PD11
41	14. Section 3.1.2.10, p. 3-14 to 3-15; These two paragraphs discuss saturated and unsaturated overburden and their respective sulfide content and leachability. The text concludes that the leachate from the saturated overburden will contain higher sulfate and metals concentrations than the leachate from the unsaturated overburden. This conclusion was based on the samples tested, but there is no explanation why this would be so. In general, the average sulfide content of saturated and unsaturated overburden should be the same, and thus the leachate from these materials should contain the same average sulfate and metals concentrations.	PD2
42	15. Table 3.1-9; This table contains a summary of the proposed stockpile liners and covers. The proposed liners for the Category 3 and 4 Waste Rock Stockpiles and the Category 3 Lean Ore Stockpiles are all proposed to be constructed with one 80 mil LLDPE geomembrane on top of a compacted low permeability sub grade (e.g., clayey soil). This proposed construction is inadequate: it does not provide enough protection (a one-foot drainage layer) for the liner, and it assumes that the liner will not leak. For stockpiles of waste rock of the proposed dimensions (up to 156.8 acres, and over 200 feet high), at least 6-8 feet of drainage layer should be placed on top of the liner in order to prevent the liner from being damaged by equipment and waste rock placement. In addition, HDPE should be used instead of LLDPE. In general, the DNR should require Polymet to construct the waste rock stockpile liners in a manner consistent with MPCA rules for solid waste landfills.	PD2
42	1. What is the driving force behind this process? The state of Minnesota will receive revenues and royalties from this mine and all other sulfide mines in the pipeline. How does this money play into resolving the state's budget deficit? We are not told how much money the state is planning to make as a result of the mining initiative, but obviously the state has a big stake in its success.	G1

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43	16. Section 3.1.5.2, p. 3-28; The text states that sodium hydrosulfide, a hazardous substance, will be added to the autoclave discharge slurry for copper recovery. Table 3.1-12 indicates that 847 tons per year of sodium hydro sulfide will be utilized in a 45% solution with water (w/w), and that sodium hydro sulfide will be stored in a 52,600 gallon storage tank. Could this chemical increase the sulfide-leaching potential in the hydrometallurgical wastes?	PD2
43	17. Section 3.1.8, p. 3-49, footnote 13; The Tribal cooperating agencies' comment discusses the importance of financial assurance disclosure within the DEIS. The comment also mentions that U.S. EPA Region 9, based on their experience with sulfide mines, recommends financial assurance disclosure in the DEIS. It seems clear that financial assurance should be fully disclosed in the NorthMet DEIS. The state of Minnesota should consider legislation similar to the rules passed in 2000 by the state of Wisconsin that require the mining permittee to establish an "Irrevocable Trust Agreement" before mining begins and to maintain the agreement for an indefinite time period after mining ceases.	PD3,PD4
44	18. Section 4.1.1.2, p. 4.1-4 and 5; In this section about Mine Site hydrogeology, the DEIS makes a generalization about the relationship between surface water (i.e., wetlands) and groundwater. Specifically, the DEIS states "These bogs are isolated from the underlying groundwater, receiving virtually all of their water and nutrient input from precipitation. They receive essentially no groundwater inflow and have extremely low seepage rates to the underlying aquifer." The DEIS does not provide any data to support this generalization. See also the Tribal cooperating agencies' comment (footnote #2 on p. 4.1-5).	WR1E
45	19. Section 4.1.1.2, p. 4.1-8; The groundwater quality in the surficial aquifer at the Mine Site is based on only three monitoring wells, and none of the three wells is located in a proposed mine pit area. This sampling density does not constitute an adequate characterization of the existing groundwater quality in the surficial aquifer at the Mine Site.	WR1E
46	20. Table 4.1-4, p. 4.1-9; This table lists Groundwater Evaluation Criteria Applicable to the NorthMet Project. However, the table only lists "General" parameters (including chloride, nitrate, sulfate, etc.) and metals. There are no criteria for volatile or semi-volatile compounds, such as fuels and lubricants, which could be contaminants produced by mining equipment and related storage facilities. The table assumes that there is no interaction between surface water and groundwater (see comment #18 above), and therefore only lists human health-based (drinking water) standards. This is a significant oversight, and the table should be amended to include surface water standards (Minnesota Rules Chapter 7050), many of which are ecologically-based standards or criteria.	WR2E
46	21. Section 4.1.1.2, p. 4.1-11; Groundwater quality data for the bedrock aquifers (Duluth Complex and Virginia Formation) were collected from only nine wells in the Mine Site area. Four of these wells are pumping wells, which tend to dilute contaminant concentrations. This sampling density does not constitute an adequate characterization of the existing groundwater quality in the bedrock aquifers, especially since groundwater occurs mainly in fractures in these aquifers. Please see also General comment #3 above.	WR1E
47	22. Section 4.1.1.2, p. 4.1-11; Baseline groundwater quality in the surficial aquifer at the Plant Site is based on only one monitoring well. In addition other parameters, such as VOCs, should be monitored. This approach is inadequate for baseline data purposes.	WR1B,WR1E
48	23. Section 4.1.1.2, p. 4.1-12 and 13; Existing water quality within the Tailings Basin Pond and at the toe of the Tailings Basin; The text states that "(t)he LTVSMC Tailings Basin is a disposal facility and is not part of a natural surface water body or a point of compliance pursuant to Cliffs Erie's NPDES/SDS pennit, so comparison of these data with surface or groundwater standards is not appropriate ... " This text may have attempted to clarify that the Tailings Basin is not considered by Polymet to be "waters of the state", and therefore is not subject to Minn. Rules Ch. 7050. However, the Tailings Basin is an existing pond, there is likely some degree of ecological exposure to contaminants, wastes, etc. Thus, the water quality data of the Tailings Basin should be compared to surface water (Minn. Rules, Ch. 7050) standards or criteria. In addition, Table 4.1-7 should be amended to include these standards or criteria.	WR2G

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49	24. Table 4.1-20; This table lists surface water quality standards that apply to the NorthMet Project, and it only lists General parameters (chloride, sulfate, etc.) and (total) metals. This table should be amended to include VOCs and other potential contaminants of concern. In addition, Toxicity Characteristic Leaching Procedure (TCLP) analyses should be completed on representative samples of Category 3 and 4 Waste Rock and Category 3 Lean Ore to determine if leachate from these materials poses a potential threat to surface water or groundwater resources.	WR1C
50	26. Section 4.1.2.2, p. 51. The DEIS reads: "Groundwater standards are U.S. EPA primary (MCL) and secondary drinking water standards and MDH HRLs ... " Since there is likely a direct connection between surface water, wetlands and groundwater (see comment # 18 above), the surface water standards and criteria (Minn. Rules, Ch. 7050) should also be applied to groundwater.	WR2G
51	27. Section 4.1.3.1, p. 4.1-66; The text states that "Polymet does not intend to sample the overburden during stripping activities, but rather would distinguish the three types based on field determinations." The DEIS should specify what field determinations will be used to distinguish the three types of overburden.	WR1A
52	28. Section 4.1.3.1, p. 4.1-66; This section states: "Polymet proposes applying a limestone treatment to the exposed Virginia Formation walls in the East pit while backfill is being placed during pit flooding to help neutralize the acidity of the rock face." The text does not provide any details for this plan. However, it seeins unlikely that this method could effectively prevent oxidation and solution leaching on such a large scale (see Figure 4.1-3 in the DEIS). In addition, the oxidation and leaching processes will have already developed by the time backfilling occurs (year 20).	WR1E,WR2D
53	30. Section 4.1.3.1, p. 4.1-112; In this section, the DEIS describes the performance of constructed wetlands as part of the proposed closure plan. However, "Polymet assumed wetland removal efficiencies in the East pit passive wetland system would range from 50 to 80-90% for six parameters (Table 4.1-63)." Polymet's assumption was made in spite of the documented poor performance of the constructed wetlands at the nearby Dunka Mine. Specifically, data from the Dunka Mine showed that in some cases, constructed wetlands actually resulted in increases in nickel and zinc conqentrations. The performance of the proposed constructed wetlands should be pilot-tested before implementing constructed wetlands on such a large scale as the entire East pit. If these constructed wetlands are proven to be successful, then there should be additional areas besides the East pit where they should be implemented.	WR3L
53	29. Section 4.1.3.1, p. 4.1-87; The DEIS states "Polymet does not propose to line the Tailings Basin, nor is the underlying LTVSMC Tailings basin lined." This proposal would likely lead to fairly large-scale groundwater contamination, despite the localized injection of bentonite and other small-scale response actions (e.g., seepage barriers) proposed by Polymet.	WR2D
54	32. Figure 3.1-10; This map shows the process water management for the first year of operation at the Mine Site. There is only one wastewater treatment facility, which is adjacent to the Central Pumping Station. Several wastewater treatment facilities may be needed if several pumping stations are used (see previous comment).	ALT8
54	31. Figure 3.1-1; This layout map shows that there is a "Central Pumping Station" at the Mine Site located just south of the West pit. This location hardly seems central to the Mine Site. In addition, several pumping stations may be necessary to adequately control surface drainage, due to several different directions of surface water flow in the Mine Site area.	ALT8
54	The economic benefit of this project has been over-estimated by PolyMet and its promoters because the short-term gain of 100 to 400 jobs has to be balanced against the loss of jobs and revenue for the state from recreation, tourism and related activities over a much longer period of time. As a Canadian company, PolyMet has already entered into an agreement with Glencore AG, a Swiss company, who will market 100% of production on the world market, primarily to China (See PolyMet Investor's Report, 2009). A foreign corporation will extract Minnesota's natural resource, send it overseas for production and leave Minnesota taxpayers with the pollution, waste and long-term expense of reclamation and clean-up.	SE3
55	33. Figure 3.1-13; This figure shows the existing drainage subwatersheds at the Mine Site. Note that surface water flow directions are generally away from the Mine Site, and not towards the Central Pumping Station. This could be problematic, especially during storm events or flooding.	ALT8

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56	34. Figure 4.2-5; This map shows "20 Year Wetland Impacts" at the Mine Site. The figure shows direct and indirect impacts on-site, but no off-site areas are shown. If data are available, the figure should be amended to show the (projected) impacts to off-site areas.	WE2
57	35. Figure 4.5-2 The map shows biological sampling points for the project area. However, there is only one sampling point in the Mine Site area and one sampling point in the plant site area (with seven total sampling points overall). For an adequate study there should be more data points within the Mine Site and Plant Site areas.	FM2
58	3. Creation of jobs. We all understand the need for jobs in this state. But is it necessary to create these jobs through an industry that damages the environment? Because Minnesota's beautiful northland attracts tourists (and creates jobs as well), wouldn't it be more advantageous to create green jobs in this area of the state? For example, some of the taconite tax revenues could be used to improve existing state parks. Green jobs created by such improvements would certainly be more in harmony with the image Minnesota is trying to convey.	EOO
58	36. Figure 4.7-1; "Predicted Nighttime Noise Levels" are displayed on this figure. The map shows "noise sensitive areas": how were these eight areas selected or identified? In addition, why were only human receptors considered?	N1,N4
59	1. Impacts to groundwater and surface water should be data-driven, and not based solely on professional opinion or empirical observations (e.g., page 4.1-61). Please refer to the Tribal cooperating agencies' comment (footnote #19).	WR1E
60	3. In the various sections pertaining to existing groundwater conditions, there is no mention of high salinity groundwater that is present in some nearby portions of the Duluth Complex (e.g., Mesaba Copper-Nickel Deposit). These high salinity waters could exacerbate leaching of metals into groundwater, and could present problems during and after mining operations.	WR1E
61	4. The DEIS does not explain how waste rock will be physically/chemically evaluated and managed during mining operations in order to separate the materials into the four designated waste rock categories. This would seem to be a regular (daily?) logistical problem due to the large volumes of waste rock and lean ore (394 million tons) that will be generated during mining operations.	PD11
62	5. Summary, Section III.B.2, p. S-8; Antimony, manganese and nickel impacts to groundwater quality at the Mine Site are expected to exceed MCLs or HRLs, potentially for the long-term. Given these expected impacts, there may be other unexpected impacts from other metals or contaminants not found in nature that are utilized during the mining operations.	WR2E

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63	The Minnesota NPDES General Stormwater Permit for Industrial Activity requires permit coverage for all types of mining for metal and nonmetallic minerals. The DEIS does not address this fact. The DEIS should be revised to include permitting of the Project site under the Minnesota NPDES General Stormwater Pelmit for Industrial Activity. This permitting would extend beyond the period of mining operations and into the Post-Closure time period. In Table 1.1-1 of the DEIS (pages 1-5, 1-6), the Government Permits and Approvals for the Project from the MPCA are listed as follows: (NOTE: SEE COMMENT LETTER FOR TABLE) This item is significant for multiple reasons: • Discharges that are permitting under an NPDES/SDS permit are, by definition, point source discharges. This means that the following statement in the DEIS is enoneous and should be revised: "The NorthMet Project would be a new facility, but PolyMet has proposed a water balance that avoids the need for any point source discharges during mine operations. " (page 4.1-128) The inaccuracy of this statement has implications throughout the DEIS. All of these should be addressed in the revision of the DEIS. The stormwater discharges from the site should be clearly identified and listed as point source discharges throughout the entire DEIS. These discharges should be included in the water balance for the Project during mining operations. All text and tables should be revised to reflect this. • As a point source discharge of a BSIC (mercury), the site stormwater runoff comes under the control of MN Rules 7052. • When the mercury TMDLs in the downstream water bodies are done, the permitted stormwater discharge from the NorthMet site will be part of the Waste Load Allocation of these TMDLs. The SWPPP for the mine site will have to be modified to implement the measures considered appropriate in the TMDL study and implementation plan. These measures will then be mandatory for the mine site. o Nondegradation must be addressed in all the NPDES permitting for the site. This would include the site stormwater discharge permit as well as the process operation pennit. Please see Comment #2. o The linkage between NPDES pelmits and the status of downstream waters (impaired and a TMDL is required but not yet completed) means that the MPCA may not permit the project (process, site stormwater, or construction) if there is any contribution from the Proposed Action to mercury levels or sulfate that would contribution to increased mercury methylation. Please see comment #4. Recommended Actions Related to Comment #1: Action 1 a: Revise the DEIS to acknowledge the requirement for the NPDES Industrial Activity Permit. Also, revise the DEIS to acknowledge that the water balance for the project includes point source discharges both during and after mine operation. Action 1b: Revise the DEIS everywhere the items in Action la above have implications. Action 1c: Revise the DEIS to address the nondegradation provisions under MN Rules 7050 and 7052, including a nondegradation demonstration. Please see Comments #2 and #5. Action 1 d: Revise the DEIS to acknowledge that the project will have to comply with any and all TMDLs on water bodies that the site contributes to, including o Embarrass River, o Partridge River, o unnamed waters of the state, o St. Louis River, and o Lake Superior. Include a commitment to this effect from PolyMet. Action 1e: Revise the DEIS to acknowledge that the linkage between NPDES permits and the status of downstream waters (impaired and a TMDL is required but not yet completed) means that the MPCA may not permit the project (process, site stormwater, or construction) if there is any contribution from the Proposed Action to mercury levels or sulfate that would contribution to increased mercury methylation. Revise the Impact Criteria in the DEIS, especially for mercury and sulfate, to comply with this fact. Revise the DEIS to acknowledge that meeting water quality standards is not a suffici	WR3I,WR4B

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64	I have first-hand experience with water quality issues associated with mining of copper sulfide ore deposits. Up until 1996 I worked for the US Bureau of Mines, Twin Cities Mining Research Center as a groundwater hydrologist. My experience with conventional open pit mining of copper sulfide ores centers on several years of field work that I did at the Mineral Park Mine near Kingman, Arizona. The Mineral Park mine was a large conventional open pit operation that flourished from the 1950's through the 1970's. By the early 1990's when I worked there it had been mostly abandoned. The company that owned the mine at that time would not close it down entirely however because the remediation and closure costs were so high. As long as they kept the mine open they were not responsible for past mining impacts. All of the pits were flooded, and the company pumped acidic water from the pits onto old copper waste dumps. They produced some copper, but they also contributed to large volumes of acidic drainage which flowed either onto a large tailings impoundment or into a nearby creek. Acidic drainage would also flow from the base of the impoundment. Pumping to lower the pit lake level was required by the Az. DEQ, since as soon as they stopped pumping the pit lake level would rise to the natural groundwater elevation and become a point source for contamination of surrounding groundwater. Any geochemist will tell you that once exposed to air and water,sulfide waste rock produces acidic discharge that will continue for decades if not centuries. An abandoned and flooded open pit in a sulfide ore deposit becomes an acidic lake. The acidic water will also then mobilize other heavy metals. My experiences at the Bureau of Mines have made me deeply skeptical of mining company claims that they can guarantee zero contamination in perpetuity by using the "latest technology" (essentially liners or barriers of one type or another). Check out what happened in Montana with the Zortman-Landusky gold mine. They promised the latest technology tool with multiple liners and barriers. That was also a Canadian mining company. Perpetual water treatment is of course very expensive and mining companies are generally unwilling to commit to this type of mitigation long-term. They want to be able to walk away from any possible mess they make. They will try to externalize all the remediation and closure costs and stick Mn. taxpayers with the bill. Based on my 20 odd years of experience in dealing with mining companies on environmental issues I don't trust any of them to do what they say they will. Without a very very big bond, Minnesota taxpayers are being forced to take a huge risk here.	G4A,G7A

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Comment ID	Comment Text	Theme Codes
65	COMMENT #2: NONDEGRADATION - APPLICATION OF MN RULE 7050 On page 4.1-33, the DEIS includes the following text: "Because the Project is in the Lake Superior Basin, the Great Lakes Initiative (Lake Superior) water quality standards also apply (Minnesota Rules, chapter 7052). These Lake Superior standards can differ from the water quality standards for the same parameters in Minnesota Rules, chapter 7050. Where different, the 7052 standards supersede the 7050 standards, even if the 7052 rules are less stringent. For parameters not listed in Minnesota Rules, chapter 7052, the standards from Minnesota Rules, chapter 7050 apply. This is not accurate and should be corrected. All the elements of DEIS that are affected by this correction should be revised. MN Rule 7052.0300, subp. 1 includes the following language: "This part and parts 7050.0180 and 7050.0185 establish the non degradation standards and implementation procedures for surface waters of the state in the Lake Superior Basin. For the purposes of this part and parts 7052.0310 to 7052.0330, lowering of water quality means a new or expanded point source discharge of a BSIC to an outstanding international resource water, or a new or expanded point or nonpoint source discharge, for which there is a control document, of a BCC to a high quality water. The nondegradation standards established in this part and parts 7050.0180 and 7050.0185 for surface waters of the state in the Lake Superior Basin apply as follows:" (bold and underline added) As indicated by this language and other text from MN Rule 7052, the relationship between Rules 7052 and 7050 and the applicability of both of these Rules to this Project are not nearly as simple as stated in the text from the DEIS. MN Rule 7052.0300, subp. I.C includes the following language: "Part 7050.0185 applies to the discharge of non-BCCs to all surface waters of the state in the Lake Superior Basin not designated as ORVWs, and to the discharge of BCCs to waters not designated as ORVWs or high quality waters. " This language applies to every chemical discharged from the NorthMet site, except mercury. It also applies to all the waters that the NorthMet site will drain to, including: • Partridge River • Embarrass River • unnamed "waters of the state" • Colby Lake • Whitewater Reservoir • Second Creek • Sabin Lake • Wynne Lake • St. Louis River • Lake Superior There are minimum requirements and protocols included under MN Rule 7050.0185. These should be followed. The DEIS should provide the information needed to make the "Determination of Significance". In particular, the data and analysis should be included to see if the discharge qualifies as a "significant discharge" under MN Rule 7050.0185, subp.2.G.3, as per MN Rule 7050.0185, subp.5. This provision must be applied to both the process discharge water and the stormwater discharge from the site (construction and site). This will require establishing the "baseline quality" consistently attained in the waters by January 1, 1988. If it is apparent that any ofthe discharges meet the significance test, the EIS should be revised to include sufficient information for the "Determination of reasonable control measures for significant discharges", as per MN Rule 7050.0185, subp. 8. Additionally, MN Rules 7050.0185, subp. 9 and 7050.0186 should be applied to any and all wetland impacts from the Project. Rule 7050.0185 applies to all pollutants. At a minimum, the analytic work in the revised DEIS should address all the chemicals on the GLI list of chemicals. Recommended Actions Related to Comment #2: Action 2a: Revise the DEIS to address the nondegradation provisions under MN Rules 7050.0185 and 7050.0186, including the significance test under MN Rule 7050.0185, subp. 2.G. If the new or expanded discharge form the Project meets the significance test, revise the DEIS to include reasonable control measures for significant discharges. Address all the pollutants that may be discharged from the Project. Ad	WR3I

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Comment ID	Comment Text	Theme Codes
66	COMMENT #3: FINANCIAL SUPPORT FOR LONG TERM MEASURES There are numerous instances in the DEIS where PolyMet proposes that long-term measures be implemented to address a problem identified in the DEIS. For everyone of these measures, there must be financial provisions proposed to assure that the measures will be funded for as long as they may be needed, even if PolyMet, or some other future owner of the Project, should go out of business. There are a variety of widely-accepted business methods to structure and implement such arrangements. The costs for such arrangements can be accurately determined in order to allow for almost every possible event or development over time. Such financial provisions are the only method of assuring that there will be the monetary support to implement the necessary and appropriate measures. Wherever a long-term measure is proposed to address a problem identified in the EIS and requires review and approval by any regulatory body, that regulatory body should require a suitable financial arrangement to assure funding support for the measure for as long as may be necessary. If such an arrangement is not provided, the proposed measure should be ignored in the context ofthe regulatory review and approval. For example, page 4.1-128 ofthe DIES includes the following text: "As discussed previously, since neither the WWTP nor the East Pit constructed wetlands are expected to be consistently effective in mercury removal, there is some uncertainty whether mercury concentrations in the West Pit, or the ultimate discharge to the Partridge River when the West Pit begins to overflow around Year 65, would meet Great Lakes Initiative water quality standards. Mercury monitoring is recommended to determine if elevated mercury concentrations are found in the West Pit (see Section 4.1.3.5 for a discussion of recommended monitoring measures)." This text appears to be suggesting that the uncertainty about mercury concentrations in the West Pit over time (beyond Year 65) should be acceptable if mercury monitoring is implemented. Specific provisions to fund such monitoring over such a long period of time should be proposed by PolyMet, with a cost estimate and definite commitments to financial arrangements that will guarantee such funding from PolyMet. Such proposed funding arrangements must be sufficiently durable to assure implementation of the monitoring even in the event of Poly Met going out of business. Without such provisions, the monitoring proposal should be ignored and the uncertainty considered unacceptable. Many of the proposed mitigation measures included in the DEIS would require long-term funding to implement. For each ofthese measures, the DEIS should include proposals from PolyMet to provide funding mechanisms to support these mitigation measures. These funding mechanisms should be sufficiently robust and durable to assure long-term funding even in the event of PolyMet going out of business. Where monitoring is proposed as part of a mitigation strategy, there should be a discussion of the possible altematives that may be required in response to the monitoring results. The estimated costs of these possible alternatives should be provided along with durable long-term funding mechanisms. Where funding mechanisms do not accompany mitigation measures, those mitigation measures should not be considered or accepted by the agencies reviewing and approving the DEIS. Recommended Actions Related to Comment #3: Action 3a: Revise the DEIS to include a cost estimate and proposed long-term funding mechanisms for every mitigation measure and proposed alternative that is proposed to be implemented beyond the duration of the mining operation. The proposed funding mechanisms must be sufficiently robust and durable to assure long-term funding even in the event of PolyMet, or some other future owner of the Project, going out of business.	PD3,PD4

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Comment ID	Comment Text	Theme Codes
66	COMMENT #4: CONTRIBUTION TO THE VIOLATION OF WATER QUALITY STANDARDS - IMPAIRED WATERS & TMDLs THAT ARE NOT COMPLETE The DEIS includes the following text: 4.1.1.3 Surface Water Resources Embarrass River The Embarrass River is not on the 303(d) list of impaired waters. however several lakes downstream of the Project (referred to as the 'chain of lakes') through which the Embarrass River flows are listed for "mercury in fish tissue" impairment, including Sabin, Wynne, Embarrass, and Esquagama Lake (Figure 4.1-1). Further downstream, most of the St. Louis River is also listed for "mercury in fish tissue" impairment. These lakes and the St. Louis River are not covered by the Statewide Mercury TMDL, but are impaired waters and are still in need of a TMDL pollution reduction study. These waters are not included in Minnesota's regional mercury TMDL because the mercury concentrations in the fish are too high to be returned to Minnesota's mercury water quality standard through reductions in atmospheric mercury deposition alone. A TMDL study of these waters is needed to determine what actions are required to reduce the mercury concentration in fish. 4.5.4.2 Background Mercury contamination of fish is a widespread problem in Minnesota and elsewhere. Many of the waterbodies in the Project area are among those listed as impaired by mercury, including Wynne, Sabin, Embarrass, and Esquagama Lakes (through which the Embarrass River flows); Colby Lake and Whitewater Reservoir in the Partridge River watershed; and segments of the St. Louis River (MPCA 2006, Minnesota's Impaired Waters and Total Maximum Daily Loads) (Figure 4.5-4). These water bodies have fish consumption advisories because the mercury concentrations in fish tissue pose a hazard to human health (MDH 2007, Fish Consumption). Mercury contamination of fish also poses a toxicity risk to fish-eating wildlife (Wolfe et at. 1998; Wiener et at. 2003). The waterbodies listed above, as well as most other waterbodies in the St. Louis River basin were excluded from the statewide mercury TMDL because mercury levels in the fish were above the level considered achievable by the TMDL. These waterbodies may be subject to one or more separate TMDLs to be developed in the future. 4.5.4.3 Project-related Effects The Proposed Action would result in the release of sulfate to areas that MPCA considers "high risk"for mercury methylation within the Embarrass River watershed. The MPCA Web site map for the 2010 303(d) list of impaired waters in the Lake Superior Basin shows the following water bodies to be impaired, at least for mercury, and needing to have a TMDL (the terminology on the map is "At least one use is impaired and a TMDL is required"): • Colby Lake • Embarrass Lake • Esquagama Lake • Sabin Lake • Saint Louis River • Wynne Lake. The DEIS states that discharge from the Project reaches all these water bodies. There have been multiple State and Federal court rulings regarding discharges to waters that have been listed as impaired and for which a TMDL is required, but not yet completed. See, e.g, Friends of Pinto Creek v. United States Env'tl Prot. Agc'y, 504 F.3d 1007 (9th Cir., 2007) cert. denied sub nom Carlotta Copper Company v. Friends of Pinto Creek, et al. 129 S. Ct. 896 (2009). During the period of time that a water body is in this status, "40 C.F.R. § 122.4(i) provides that "[n]o permit may be issued" [t]o a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards. The owner or operator of a new source or new discharger proposing to discharge into a water segment which does not meet applicable water quality standards or is not expected to meet those standards even after the application of the effluent limitations required by sections 301(b)(1)(A) and 301(b)(1)(B) of CWA, and for which the State or interstate agency has performed a pollutants load allocation for the pollutant to be discharged,	EOO,WR3I,FM1,FM5

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Comment ID	Comment Text	Theme Codes
67	COMMENT #5: LAKE SUPERIOR BASIN WATER STANDARDS AND NONDEGRADATION The DEIS includes the following text on page 4.1-31): All Project area waters are also designated Outstanding International Resource Waters (Minnesota Rules, part 7050.0460 and 7052.0300), which prohibits any new or expanded point source discharges of bioaccumulative substances of immediate concern (e.g., mercury) unless a non degradation demonstration is completed and approved by MPCA. The DEIS includes the following text on pages 4.1-127 & 4.1-128: Nondegradation Standards Minnesota Rules, parts 7050.0185 and 7052.0300, establish nondegradation standards and procedures for surface waters statewide and for waters in the Lake Superior Basin, respectively. The statewide non degradation procedures are in place to protect all waters from significant degradation from point and nonpoint sources. The Lake Superior Basin non degradation procedures apply to new or expanded point source discharges of bioaccumulative substances of immediate concern (BSIC) (Minnesota Rules, part 7052.0350). The only BSIC with applicability to the Project is mercury. The NorthMet Project would be a new facility, but PolyMet has proposed a water balance that avoids the need for any point source discharges during mine operations. During Post-Closure (approximately Year 65), the West Pit would eventually fill and overflow. As discussed previously, since neither the WWTP nor the East Pit constructed wetlands are expected to be consistently effective in mercury removal, there is some uncertainty whether mercury concentrations in the West Pit, or the ultimate discharge to the Partridge River when the West Pit begins to overflow around Year 65, would meet Great Lakes Initiative water quality standards. Mercury monitoring is recommended to determine if elevated mercury concentrations are found in the West Pit (see Section 4.1.3.5 for a discussion of recommended monitoring measures). Many of the statements in these sections are irresponsibly inaccurate, incomplete, and/or misleading. "The statewide nondegradation procedures are in place to protect all waters from significant degradation from point and nonpoint sources" This statement is accurate, but the DEIS section provides no information or provisions in response to its applicability to this project. At a minimum, the DEIS should provide enough information to determine whether the degradation caused by the new or expanded discharges from the project are "significant" under Minnesota Rule 7050. "The Lake Superior Basin non degradation procedures apply to new or expanded point source discharges of bioaccumulative substances of immediate concern (BSIC) (Minnesota Rules, part 7052.0350). " This statement in the DEIS is incorrect. In MN Rule 7050.0300, subp. 1, there is the following text (highlighting added): "For the purposes ofthis part and patts 7052.0310 to 7052.0330, lowering of water quality means a new or expanded point source discharge of a BSIC to an outstanding international resource water, or a new or expanded point or nonpoint source discharge, for which there is a control document, of a BCC to a high quality water." Mercury is a BCC. All the receiving and downstream waters that are not currently on the 303(d) Impaired Waters List are High Quality Waters. Thus, the Lake Superior nondegradation procedures apply to both point and nonpoint source discharges of BSICs and BCCs from this project. "The NorthMet Project would be a new facility, but PolyMet has proposed a water balance that avoids the need for any point source discharges during mine operations. " This project is required to have NPDES stormwater permits for Construction Activity and Industrial Activity. These permits will cover site discharges, above and beyond the process discharges covered by another NPDES permit. By definition, discharges covered by NPDES permits are point source discharges. Thus, the project will have point source discharges during mine operations. In this se	WR3I

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Comment ID	Comment Text	Theme Codes
68	COMMENT #6: MERCURY SEQUESTRATION IN MINE WASTE ROCK The DEIS includes the following text on pages 4.1-122 to 4.1-124. The highlighting has been added. Mercury in Surface Waters Mercury can be released to surface or groundwaters through mobilization of mercury stored in rock, soil, peat, and vegetation. Methylmercury is the biologically active form of mercury that accumulates in fish and is toxic to humans and wildlife. Current scientific understanding of the factors and mechanisms affecting mercury methylation and bioaccumulation is limited. Mercury concentrations in fish sampled from downstream lakes presently trigger advice to limit fish consumption. An increase in mercury bioavailability would be counter to state-wide efforts to reduce mercury concentrations in fish. This section discusses mercury from only a water quality perspective; the potential effects of the Proposed Action on the bioaccumulation of methylmercury in fish are discussed in Section 4.5. Direct Release of Mercury to Waterbodies from the Mine Site The potential for mercury to be released to waterbodies by exposing rock that contain mercury and the clearing of vegetation (primarily peat) is evaluated below. The NorthMet waste rock and ore contain trace amounts of mercury. Laboratory analysis of humidity cell leachates from waste rock samples found average total mercury concentrations between 5 and 7 ng/L, with concentrations unrelated to rock type or sulfur content (RS53/42, SRK 2007). Separate 36-day batch tests using local rainfall (12 ng/L total mercury) found that contact with Duluth Complex rock actually decreased total mercury concentrations to between 1.9 and 3.2 ng/L (RS53142, SRK 2007). Therefore, the data suggest that mercury present in rainfall or released by sulfide oxidation is typically absorbed by other minerals present in the mine waste rock. For these reasons, the release of mercury from waste rock and ore at the Mine Site is not expected to be a constituent of concern in groundwater seepage. Forest foliage is a major sink for airborne mercury. Mercury accumulated in the foliage of vegetation is then added to the surface litter layer and the soil upon litterfall (Ericksen et al. 2003). Porvari et al. (2003) reported significant increases in total mercury and methylmercury concentrations and loads in streams following clear-cutting and soil treatment (e.g., harrowing, scarification, and mounding) in a boreal forest catchment. Organic matter contained in peat also constitutes a large reservoir of mercury, but this mercury is strongly bound to the organic material (Drexel et al. 2002). Disruption of peat deposits, such as proposed excavation and stockpiling of peat at the Mine Site, resulting in oxidation and decomposition of the peat may increase the mobility of the stored mercury. Mining operations at the Project would result in forest clearing and soil and wetlands disruption over an area of approximately 1,536 acres (RS73B, Barr 2008). Desiccation-induced acidification of the peat can also be expected to mobilize mercury bound to the peat (Tipping et al. 2003). Periodic rewetting of exposed peat by precipitation and water level fluctuations may then promote methylation of mercury by sulfate-reducing bacteria within the oxidizing peat material and thereby mobilize mercury that has accumulated over many years. PolyMet proposes to place the excavated peat in either the Category 1 and 2 waste rock stockpile or the Overburden Storage and Laydown Area (Barr 2009, Technical Memorandum: NorthMet Waste Management and Modeling Assumptions for Overburden Material). Drainage from these stockpiles would be considered process water, which would be collected, possibly treated at the WWTF, and either pumped to the Tailings Basin for reuse/ultimate disposal (Years 1-11) or to help in the flooding of the mine pits (Years 12-65). The WWTF is not predicted to be very effective in removing mercury, with an average non-flow adjusted reduction during mine opera	WR4A,WR4B,WR4D,WR4
69	The Center has numerous members in the region who would be adversely affected by the proposed project. As proposed, the NorthMet mine would violate a number of environmental laws and regulations, including but not limited to the Endangered Species Act, state water quality standards and the Clean Water Act, laws and regulations intended to protect wetlands, the National Environmental Policy Act, the Superior National Forest Plan, and the Clean Air Act, and thus cannot be approved.	G5A
70	Additionally, the Draft EIS cumulative effects analysis is deficient in failing to discuss or disclose the considerable and serious water pollution that would occur if a series of copper-nickel mines are approved in the state, as currently anticipated.	WR5A

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Comment ID	Comment Text	Theme Codes
71	As commented by the Tribal cooperating agencies, the Draft EIS also fails to demonstrate that perpetual water treatment would not be required at the mine site. DEIS, 4.1-55. The agencies cannot simply assume that PolyMet's estimation of 34 years for water treatment is correct. Id. If, as the Tribal cooperating agencies predict and other similar mines have shown, water treatment is likely to be necessary in perpetuity – for thousands of years (DEIS, 4.1-56 n. 15-16) – this obviously is a critically important factor for calculating financial assurance and insuring there will be no long-term legacy pollution resulting from this proposal. See DEIS, 4.1-112, n. 32 (Tribal cooperating agencies stating that a wastewater treatment facility "would need to operate for a minimum of 2000 years in order to treat leachate from the stockpiles"); DEIS, 4.1-113, n. 33 (stating that primary water treatment "would need to continue for thousands of years," which "does not meet the Minnesota goal for maintenance free closure").	WR3I
71	The Draft EIS is also inadequate in its analysis of potential releases of mercury, which should be a primary issue of detailed analysis due to the already high levels of mercury in surrounding waterbodies. For instance, both during and after mining, stockpile leakage containing mercury will discharge to groundwater in very close proximity to the Partridge River. There will likely be additional discharge and release of mercury from the tailings basin into groundwater and surface waters. The Draft EIS fails to provide a sufficient, quantitative, and cumulative analysis of the likely discharge of mercury to all surface waters in and downstream from the project area, both during and after the proposed mining.	WR5A
72	Regarding wetlands, in addition to the issues discussed below in the context of Section 404 of the CWA, the Draft EIS cumulative effects analysis is inadequate. The agencies cannot ignore the substantial impacts to wetlands resulting from taconite mining in this region. As explained by the Tribal cooperating agencies: At a regional scale, Iron Range taconite mining has impacted wetlands through direct wetland fill as well as indirect impacts due to air deposition of mine related contaminants, water quality degradation, and the flooding/de-watering of wetlands which lead to changes in wetland functional values. There are two additional geographic scales at which wetland cumulative impacts should be characterized: St. Louis River Watershed. The Fond du Lac band of Lake Superior Chippewa has identified this watershed as an area of concern. The cumulative impact analysis should quantitatively characterize the following: 1. The additive effect of PolyMet related air and water emissions to the Partridge and Embarrass River watershed wetlands and their impact on water quality of the St. Louis River. 2. The loss of wetlands and changes in wetland functional values in the St. Louis River watershed during the 3 timeframes, including a characterization of the potential for future mining impacts and the longterm maintenance requirements of the PolyMet mine as currently proposed. 1859 Ceded Territory. The Fond du Lac, Grand Portage, and Bios Forte tribes retains treaty guaranteed rights to harvest natural resources within the 1859 ceded territory. The cumulative impact analysis should quantitatively characterize the following: 1. The additive effect of PolyMet related air and water emissions to the wetlands of the 1859 ceded territory. 2. The loss of wetlands and changes in wetland functional values in the 1859 ceded territory during the 3 timeframes. 3. Loss of tribal access to wetlands in the 1854 ceded territory due to either the changes documented in 2. above, or due to mitigation of wetland impacts occurring outside of the ceded territory.	WE4,WE5
73	DEIS, 4.2-43, n. 38. Moreover, as with numerous other issues, the Draft EIS analysis of wetlands impacts is inadequate because much of the work and analysis is deferred until later. As commented by EPA, "the current mitigation options – two restoration sites in Aitkin and Pine Counties and on-site post-closure locations – compensate for only 68% of projected impacts." July 31, 2009, EPA Comments, p. 1. While the Draft EIS "states that the rest of the uncompensated wetlands would be addressed as permit conditions," EPA requested that all mitigation be included within the Draft EIS, prior to permitting. Id. This is indeed required by NEPA, both to allow an accurate assessment of wetland impacts, and to allow the public to be meaningfully involved in commenting on this significant issue of concern for the proposed action.	WE3,WE4

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Comment ID	Comment Text	Theme Codes
74	IV. The DEIS Fails to Adequately Explain How the Proposed Mining Project Would Not Violate the Clean Water Act ("CWA") The CWA is designed to "restore and maintain the chemical, physical and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). The goal of the CWA is that the discharge of pollutants into navigable waters be eliminated, and "it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited." Id. Section 301 of the CWA prohibits the discharge of any pollutant into waters of the United States, except as provided by specific statutory authority. Id. § 1311. The CWA and its implementing regulations define "waters of the United States" to include wetlands and riparian habitats adjacent to waters of the United States. Id. § 1362(7); 33 C.F.R. § 328.3(b). "Pollutant" is defined to include dredged or fill material. 33 U.S.C. § 1362(6). Any applicant for a federal permit to conduct any activity which may result in the discharge into the navigable waters must provide the permitting agency with a certification from the State that any such discharge will comply with the CWA and state water quality standards. Id. § 1341. In addition, the CWA requires federal agencies to comply with state water quality standards. Id. § 1323(a); Northwest Indian Cemetary Protective Ass'n v. Peterson, 795 F.2d 688, 697 (9th Cir. 1986). A. Section 404 of the Clean Water Act Section 404 of the CWA regulates the discharge fill material into waters of the United States. 33 U.S.C. § 1344(e). The Secretary of the Army, acting through the Corps, may issue permits for such activities. Id. The Corps has adopted regulations to implement this permitting process, known as the "public interest" factors. 33 C.F.R. §§ 320 et seq. In addition, the EPA promulgated regulations, known as the "404(b)(1) Guidelines," to eliminate unnecessary environmental impacts. 33 U.S.C. § 1344(b)(1); 40 C.F.R. § 230. The Corps must review all proposed section 404 permits under both the Corps' public interest factors and EPA's 404(b)(1) guidelines. 33 C.F.R. § 320.2(f). The Corps may issue individual and general permits under section 404 of the CWA. 33 U.S.C. § 1344(a) & (e). Section 404 of the CWA prohibits the filling or dredging of wetlands without first receiving a § 404(b) permit from the U.S. Army Corps of Engineers. 33 U.S.C. § 1344 (a), (d). The CWA and its implementing regulations "express a strong preference for wetland protection." National Wildlife Federation v. Whistler, 27 F.3d 1341, 1344 (8th Cir. 1994). A Section 404 permit may not be issued if (i) there is a practicable alternative which would have less adverse impact and does not have other significant adverse environmental consequences, (ii) the discharge causes or contributes to violations of any applicable state water quality standards, (iii) the discharge would result in the likely destruction or adverse modification of critical habitat, (iv) the discharge will cause or contribute to significant degradation of waters of the United States, (v) the discharge does not include all appropriate and practicable measures to minimize potential harm, or (vi) there does not exist sufficient information to make a reasonable judgment as to whether the proposed discharge will comply with the Corps' Guidelines for permit issuance. 40 C.F.R. § 230.10-12; see Bering Strait Citizens for Responsible Resource Dev. v. U.S. Army Corps of Engineers, 524 F.3d 938, 946-47 (9th Cir. 2008). For the "practicable alternative" requirement, the Corps must follow a specific two step procedure. First, a correct statement of the proposed project's "basic purpose" is necessary. See 40 C.F.R. § 230.10(a)(3). The Corps is to define the proposed project's basic purpose. See 33 C.F.R. Part 325, App. B(9)(b)(4). Second, after the Corps defines the basic purpose of the project, it must determine whether that basic purpose is "water dependent." See 40 C.F.R. § 230.10(a)(3). As one example, a gold mining p	FM1,FM5,WR3I
75	DEIS, 4.2-22, n. 27. The Draft EIS fails to demonstrate that there is no practicable alternative which would have less adverse impact and does not have other significant adverse environmental consequences. The proposed mine is clearly not a "water-dependent project," and thus the Corps must assume that practicable alternatives exist unless the applicant clearly demonstrates otherwise. National Wildlife Federation, 27 F.3d at 1344 (quoting 40 C.F.R. § 230.10(a)(3); see also 7050.0186(4) (prudent and feasible alternatives that do not involve wetlands are presumed to be available unless clearly demonstrated otherwise by the permit applicant). "This presumption of practicable alternatives 'is very strong.'" National Wildlife Federation, 27 F.3d at 1344. The Draft EIS falls far short in demonstrating that there are no practicable alternatives that would have less severe impacts to wetlands. 40 C.F.R. § 230.10(a). As commented by the Tribal cooperating agencies, "[o]ther alternatives that were not considered in the DEIS (e.g. underground mining) would pose less harm to high quality wetlands, and may be less damaging to aquatic resources." DEIS, 4.2-25, n. 33; see also DEIS, 4.2-25, 26 (finding that Mine Site and Tailings Basin alternatives would reduce impacts to wetlands).	WE4

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Comment ID	Comment Text	Theme Codes
76	In addition, as stated, the permit applicant must also provide compensatory mitigation for unavoidable wetlands impacts, and if compensatory mitigation is accomplished by restoration or creation, the replacement wetland must be of the same type and in the same watershed as the impacted wetland, to the extend prudent and feasible. Minn. R. 7050.0186(6). For the proposed project, nearly all wetland compensation would occur outside of the St. Louis River watershed. DEIS, 4.2-36, 37. The applicant and agencies, however, have failed to sufficiently demonstrate that replacement wetlands of the same type and in the same watershed as the impacted wetlands is not prudent or feasible. Federal and state wetland mitigation requirements are clear that the preference for mitigation is within the same watershed where the impacts will occur, and it is not simply up to the permittee to decide whether opportunities within the watershed would be too expensive. The Corps and DNR must require that PolyMet restore wetlands within the St. Louis River watershed if an appropriate location can be found, regardless of the added cost to the mining proponent.	WE3
76	The proposed mine will cause and contribute to violations of state water quality standards, and therefore a Section 404 permit cannot be issued. 40 C.F.R. § 230.10(b)(1); see also, id. § 230.10(c) (not allowing permit to be issued if the proposal "will cause or contribute to significant degradation of waters of the United States"). As explained below in more detail, the Draft EIS acknowledges the following: West Pit overflow is predicted to "initially" exceed water quality standards. DEIS, S-8. Modeling predicts "that three parameters (i.e., arsenic, cobalt, and selenium) would exceed surface water quality standards when the West Pit overflows" and an "uncertainty analysis" "predicted exceedances of surface water standards for cobalt, copper, and nickel." DEIS, 4.1-113. "The modeling results suggest that perhaps as many as five parameters (i.e., arsenic, cobalt, copper, nickel, and selenium) could exceed surface water quality standards, in addition to the relatively high sulfate concentrations." Id. Groundwater seepage at the tailings basin would not be recovered and would eventually impact surface water quality in the Embarrass River. DEIS, 4.1-117-18. Modeling predicts that the proposed mine "would increase sulfate concentrations" to as high as 146 mg/L during low flow conditions. DEIS, 4.1-120. Wild rice grows on the lower Partridge River, and therefore the wild rice sulfate water quality standard applies; and the proposed PolyMet discharge would not meet this standard. DEIS, 4.1-187, n. 80. The proposed project, in combination with other past, present, and reasonable foreseeable future projects "have resulted in a significant increase in sulfate concentrations from baseline conditions of approximately 5 mg/L to the existing concentration of 149 mg/L . . . , which is expected to increase further as a result of the NorthMet and Mesabi Nugget Phase II projects." DEIS, 4.1-189. Sulfate concentrations in the St. Louis River are sometimes elevated due, most likely, to mining related sulfate releases. DEIS, 4.1-194. Moreover, "[t]he activities included in this cumulative effects assessment, which include several mining projects, have the potential to increase sulfate concentrations." Id. In addition, EPA's comments indicate water quality standard violations for aluminum in the Embarrass River and Colby Lake. July 31, 2009 EPA comments at 3. This includes violations that could impact the drinking water supply of Hoyt Lakes. Id. See also Table 4.1-68, DEIS, 4.1-129. As explained above, the proposed mine would also directly result in the destruction and adverse modification of critical habitat for Canada lynx and gray wolves, and therefore a Section 404 permit cannot be issued. 40 C.F.R. § 230.10(b)(3). The proposed mine does not include all appropriate and practicable measures to minimize potential harm, and therefore a Section 404 permit cannot be issued. 40 C.F.R. § 230.10(d). The Draft EIS fails to provide sufficient information to make a reasonable judgment as to whether the proposed discharge will comply with the Corps' Guidelines for permit issuance, and therefore a Section 404 permit cannot be issued. In fact, the agencies admit within the Draft EIS that "[r]elatively high sulfate concentrations in seepage from the Tailings Basin would be released to wetlands north of the Tailings Basin and lakes downstream on the Embarrass River that represent 'high risk situations' for mercury methylation," and there is "uncertainty as to whether the West Pit overflow would meet the Lake Superior mercury standard." DEIS, S-9; see also DEIS, 4.1-124 (stating "there is some uncertainty as to whether the West Pit overflow would meet the Great Lakes Initiative standard for mercury and additional analysis of this issue is recommended"); DEIS, 4.2-194 ("[i]t is unclear to what extent increased sulfate loadings may have on mercury methylation within the downgradient wetlands and downstream lakes," and the project "may contribute to cumulative ef	WR4B
77	The Center supports and hereby incorporates by reference all comments submitted by the Tribal cooperating agencies, including those set forth in Appendix D to the Draft EIS, and within footnotes throughout Volume I of the Draft EIS.1	G15

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Comment ID	Comment Text	Theme Codes
78	Additionally, just because the amount of wetlands that would be affected by the project proposal is so large should of course not mean that the permittee can look outside of the watershed for the required mitigation. The opposite should be true – that the larger the amount of wetlands to be impacted, the more important it is for the project proponent to mitigate the loss within the same watershed.	WE3
78	Moreover, there is no assurance that the wetlands to be restored at the Aitkin and Hinckley sites are of the same quality of the wetlands that would be destroyed at the mine site, as required. Because the proposed Aitkin and Hinckley sites are located so far away and to the south, these restored wetlands would not provide the same habitat that would be lost for wildlife species such as moose, lynx, wolves and other species that are not found that far to the south.	WI6,WE3
79	In addition, the amounts of wetlands that are proposed to be created or restored falls far short of the amount necessary to compensate for the wetlands that would be directly and indirectly affected by the proposed project. The Draft EIS claim that additional compensatory mitigation would be addressed later fails to comply with NEPA. 40 C.F.R. 1500.1(b) ("NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken) (emphasis added); see also DEIS, 4.2-39 n. 37 (stating that "unless the mitigation for the additional 475 wetland acres is identified in the DEIS, or there is a detailed statement of how the permit conditions would address the needed acres, the impacts must be considered unmitigated for purposes of the DEIS").	WE3
80	It is apparent from the Draft EIS that the proposed NorthMet project would violate state water quality standards. For instance, for water quality in the Upper Partridge River, the Draft EIS states that West Pit overflow is predicted to "initially" exceed water quality standards. DEIS, S-8. According to the Tribal cooperating agencies, "the west pit is predicted to violate surface water standards for all years that predictions were made." DEIS, 4.1-129, n. 45. And according to EPA, this overflow "clearly exceeds several water quality standards." July 31, 2009 EPA comments at 3. Indeed, modeling predicts "that three parameters (i.e., arsenic, cobalt, and selenium) would exceed surface water quality standards when the West Pit overflows" and an "uncertainty analysis" "predicted exceedances of surface water standards for cobalt, copper, and nickel." DEIS, 4.1-113. "The modeling results suggest that perhaps as many as five parameters (i.e., arsenic, cobalt, copper, nickel, and selenium) could exceed surface water quality standards, in addition to the relatively high sulfate concentrations." Id; see DEIS, 4.5-16 (stating that "[t]he West Pit is expected to overflow around Year 65," and that "[t]he initial overflow is currently predicted to exceed surface water standards for as many as four parameters (i.e., arsenic, cobalt, nickel, and selenium) . . ."). Furthermore, as noted by the Tribal cooperating agencies, "because of continued inputs from stockpiles, the tailings basins, and the pit walls, the pit lake could exceed water quality standards for thousands of years." DEIS, 4.1-115, n. 35; see also September 2, 2009, Forest Service Comments (stating that additional "information/analysis/conclusions regarding the ability of the West Pit overflow's to meet the Great Lakes Initiative should be included in the DEIS").	WR3C
80	Last, as noted by the Tribal cooperating agencies, the public notice issued by the Corps for the Section 404 permit must be reissued, and MPCA afforded another opportunity to analyze and make a determination under Section 401 of the CWA, because significant changes have been made to the proposed action since the May, 2005 public notice. DEIS, 4.2-1, n. 1.	PRO3
81	Furthermore, the Draft EIS acknowledges that groundwater seepage at the tailings basin would not be recovered and would eventually impact surface water quality in the Embarrass River. DEIS, 4.1-117-18. Modeling predicts that the proposed mine "would increase sulfate concentrations" to as high as 146 mg/L during low flow conditions. DEIS, 4.1-120; see also DEIS, 4.1-64 ("[T]he total unrecovered NorthMet groundwater seepage from the Tailings Basin is expected to range from approximately 1,600 gpm in Year 1 to approximately 2,900 gpm in Year 20"). "The analysis indicates that groundwater seepage . . . would be the primary input of sulfate to the Embarrass River during low flows in all mine years." Id. As recognized by the Tribal cooperating agencies, the limiting data indicate that surface waters already adversely impacted by past and ongoing mining activity, and "because the Embarrass River already exceeds water quality standards, it would be difficult to permit the addition of additional contamination from new or expanded sources." DEIS, 4.1-120, n. 37-38. Modeling suggests that the proposed project would cause manganese, aluminum, and sulfate to exceed water quality standards. Id.	WR1A,WR2G

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Comment ID	Comment Text	Theme Codes
82	In addition, mercury concentrations in fish sampled from downstream lakes already triggers advice to limit fish consumption, and an increase in mercury bioavailability "would be counter to the state-wide efforts to reduce mercury concentrations in fish." DEIS, 4.1-122. As disclosed within the Draft EIS: The groundwater seepage rate from the Tailings Basin during mine operations would greatly exceed the groundwater flux capacity of the aquifer, which would result in significant upwelling of groundwater with elevated sulfate concentrations. This upwelling would inundate portions of the wetlands found north of the Tailings Basin, introduce relatively high sulfate concentrations to the wetlands and downstream lakes on the Embarrass River that represent high risk situations for mercury methylation, and could affect sulfate concentrations in downstream waters that contain wild rice.	FM1
83	DEIS, 4.1-129. As further disclosed in the Draft EIS, "[r]elatively high sulfate concentrations in seepage from the Tailings Basin would be released to wetlands north of the Tailings Basin and lakes downstream on the Embarrass River that represent 'high risk situations' for mercury methylation," and there is "uncertainty as to whether the West Pit overflow would meet the Lake Superior mercury standard." DEIS, S-9; see also DEIS, 4.1-124 (stating "there is some uncertainty as to whether the West Pit overflow would meet the Great Lakes Initiative standard for mercury and additional analysis of this issue is recommended"); DEIS, 4.1-125 (acknowledging that the proposed mine "would result in increased sulfate loadings via groundwater to both the Partridge and Embarrass rivers"); DEIS, 4.1-126 ("increasing the sulfate load from the Tailings Basin could increase the potential for mercury methylation both in wetlands north of the Tailings Basin and at the downstream lakes"); DEIS, 4.1-127 ("seepage from the Tailings Basin would introduce elevated sulfate concentrations to a high risk situation for mercury methylation"). As recognized by the Tribal cooperating agencies, this "further analysis" must be presented within a Supplemental Draft EIS to allow this significant and directly relevant information to be reviewed by the public and other agencies. DEIS, 4.1-124, n. 39. Similarly, the "additional sampling" being conducted by PolyMet "to help better understand mercury dynamics in the Project area" is similarly directly relevant and highly significant information that must be presented to the public within a Supplemental Draft EIS. DEIS, 4.1-126.	WE2,WE4
84	Minn. R. 7050.0224 sets a standard for sulfates of 10 mg/L, which is applicable to all waters used for the production of wild rice. The Draft EIS fails to demonstrate how the proposed project would meet this standard not only in project area streams, but also downstream in the St. Louis River.	WR4F
85	The Center also incorporates by reference the Draft EIS comments submitted by Minnesota Center for Environmental Advocacy, Friends of the Boundary Waters Wilderness, Save Lake Superior Association, the Indigenous Environmental Network, the Sierra Club, and WaterLegacy.	G15
86	The Draft EIS acknowledges that the proposed NorthMet project, in combination with other past, present, and reasonable foreseeable future projects "have resulted in a significant increase in sulfate concentrations from baseline conditions of approximately 5 mg/L to the existing concentration of 149 mg/L . . . , which is expected to increase further as a result of the NorthMet and Mesabi Nugget Phase II projects." DEIS, 4.1-189. Additionally, the NorthMet and Mesabi Nugget Phase II projects "have the greatest potential to affect sulfate, and potentially methylmercury, concentrations in the Partridge River." Id. The Draft EIS, fails to explain, however, how the cumulative impacts of these and other past, present, and reasonably foreseeable future projects will still comply with all applicable water quality standards, including the state's nondegradation policy.	WR5A
87	The Draft EIS further indicates additional water quality violations downstream in the St. Louis River, which discharges into Lake Superior. According to the Draft EIS, "[i]t has long been known that sulfate concentrations in the St. Louis River are sometimes elevated due, most likely, to mining related sulfate releases." DEIS, 4.1-194. Moreover, "[t]he activities included in this cumulative effects assessment, which include several mining projects, have the potential to increase sulfate concentrations." Id. The St. Louis River is already listed on the 303(d) list due to mercury in fish tissue, and this expected increase in sulfate is not allowed. See e.g., 40 C.F.R. § 122.4(d); 40 C.F.R. § 122.4(i).	WR4B,FM1

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Comment ID	Comment Text	Theme Codes
87	Similarly, for the Embarrass River, the Draft EIS acknowledges that seepage from the Tailings Basin "would introduce additional sulfate to several high risk situations for mercury methylation." DEIS, 4.1-194. The agencies claim, however, that "[i]t is unclear to what extent increased sulfate loadings may have on mercury methylation within the downgradient wetlands and downstream lakes," and that the project "may contribute to cumulative effects on methylmercury concentrations in downstream lakes that are already on teh 303(d) list." Id. Minnesota's water quality standards and nondegradation policy are not merely aspirational goals that polluters are encouraged to obtain through trial and error as a project moves forward. Rather, there are mandatory, enforceable standards, and the agencies must not permit a project to proceed until the project proponent and the agencies can demonstrate actual compliance with these standards. See e.g., 40 C.F.R. § 122.4(d); 40 C.F.R. § 122.4(i); see also DEIS, 4.5-22, n. 11 (Tribal cooperating agencies, recognizing that "any new discharges that would result in further degradation to waters with an existing water quality impairment would not be legally permitable under the Clean Water Act (see Friends of Pinto Creek v. EPA (9th Cir.), known as the Carlota Decision").	G15,WE3,WI6
87	It is simply not credible for the agencies to acknowledge that numerous waterbodies in the project area are already in exceedance of mercury standards, with many not even included in the state's regional mercury TMDL because mercury concentrations are too high, but then claim that major activities including NorthMet and Mesabi Nugget Phase II are "not expected to contribute to additional cumulative effects on mercury concentrations in water or fish tissue." DEIS, 4.1-190. Substantially more information is required to fully explain what caused these waterbodies to be already severely impaired for mercury, as well as why the acknowledged addition of significant amounts of sulfates will somehow not result in additional mercury pollution.	WR4B
88	In addition, EPA's comments indicate water quality standard violations for aluminum in the Embarrass River and Colby Lake. July 31, 2009 EPA comments at 3. This includes violations that could impact the drinking water supply of Hoyt Lakes. Id. As stated by EPA, to conclude that predicted levels (which significantly exceed water quality standards) 'would not pose any human health risk' needs verification and CENTER FOR BIOLOGICAL DIVERSITY'S DRAFT EIS COMMENTS 21 supporting documentation," and the fact "that predicted levels could be almost three times the standard should be discussed in the DEIS." Id.	WR3H
89	According to the Forest Service, nitrates are another constituent that is commonly exceeded for water quality at mine sites due to blasting agents utilized, and the Draft EIS must adequately explain how the proposed NorthMet mine would not result in water quality standard violations for nitrates. See September 2, 2009, Forest Service comments.	WR1E,WR3I
90	The Draft EIS also fails to disclose that Cliffs Erie currently holds NPDES permits at the NorthMet proposed site in which ongoing discharges are already violating their permit and the CWA. The Draft EIS is wholly inadequate in analyzing how the NorthMet mine can be expected to add massive amounts of waste on top of the unlined and already leaking tailings basin, in which CWA violations are already occurring, and somehow expect to maintain or exceed all applicable water quality standards. See e.g., DEIS, 4.1-63 (stating that "the Proposed Action would result in increased seepage from the Tailings Basin relative to existing legacy LTVSMC seepage, including both surface seepage through the Tailings Basin embankment and groundwater seepage through the base of the LTVSMC tailings").	WR5A
91	The Draft EIS is also deficient in failing to adequately explain and demonstrate why no NPDES permits would apparently be required for the proposed NorthMet mine. As stated by the Tribal cooperating agencies, there will be surface water discharge to the Embarrass River, as there is a direct surface water connection between the northwest corner of cell 2W and the Embarrass River. DEIS, 4.1-107. "Aerial photos show that water discharging from the tailings basin follows a natural channel westward, through existing wetlands and intersects a channel that leads directly to the Embarrass River." Id.	WR3C
773	The proposed PolyMet project would take over 6,700 acres of public land in the Superior National Forest. The DEIS provides no analysis of the land exchange and its impact on tribal rights, plant and animal habitat, and public assets.	PRO4

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Comment ID	Comment Text	Theme Codes
1152	The PolyMet project will lead to increased acidity of streams and rivers, especially the Partridge River which flows into the St. Louis River. This acidity will occur because of leaching of the exposed rock in the mine pits and the waste rock piles as they come into contact with air and water. The acidity leads to increased methylation of mercury which is known to harm fish and other aquatic forms of life. This will lead to increased fish consumption advisories and have a direct impact on fishing, recreational opportunities, tourism, treaty rights and human health. Because the area of the proposed open pit mining operation is much larger than what would be required for an underground mine, much more wildlife habitat would be destroyed for the project as proposed. Several endangered or threatened species will be impacted by this project including but not limited to the wood turtle, black sand shell mussel and the floating marsh marigold. The project is proposed to be located in habitat currently inhabited by Canada lynx and gray wolf, which are protected species. The impact of the proposed PolyMet project on wildlife is not acceptable. Endangered, threatened and protected species must be conserved.	WI2,WI3,WI5
1986	The PolyMet project will lead to increased acidity of streams and rivers, especially the Partridge River which flows into the St. Louis River. This acidity will occur because of leaching of the exposed rock in the mine pits and the waste rock piles as they come into contact with air and water. The acidity leads to increased methylation of mercury which is known to harm fish and other aquatic forms of life. This will lead to increased fish consumption advisories and have a direct impact on fishing, recreational opportunities, tourism, treaty rights and human health. Because the area of the proposed open pit mining operation is much larger than what would be required for an underground mine, much more wildlife habitat would be destroyed for the project as proposed. Several endangered or threatened species will be impacted by this project including but not limited to the wood turtle, black sand shell mussel and the floating marsh marigold. The project is proposed to be located in habitat currently inhabited by Canada lynx and gray wolf, which are protected species. The impact of the proposed PolyMet project on wildlife is not acceptable. Endangered, threatened and protected species must be conserved.	FM1
3311	The discharges from the mine pit and waste rock piles, seepages from the tailings basin and overflow from the flooded mine pit after closure are likely to pollute local ground water and water in the Partridge and Embarrass Rivers as well as downstream in the St. Louis River which empties into Lake Superior. Some of these are acknowledged in the DEIS to exceed water quality standards after closure including the Lake Superior mercury standard. It is also noted in the DEIS that the surface aquifers to the north of the tailings basin are already saturated by contaminated water from the old LTV tailings. This means that there will be little or no dilution of the polluted groundwater from additional rainwater and that more polluted water will be added to the same area by putting PolyMet's tailing slurry on top of the LTV tailings. Manganese, aluminum and sulfate discharges from the existing LTV tailings are already in serious violation of water quality standards. In the DEIS PolyMet is claiming that the discharges of these known pollutants from their tailings won't be any worse and therefore they don't have to do water treatment for their discharges. The Department of Natural Resources should not allow the mining companies to evade their pollution abatement responsibilities in this way.	EOO,WR3A,WR3I
3739	The proposed PolyMet project would take over 6,700 acres of public land in the Superior National Forest. The DEIS provides no analysis of the land exchange and its impact on tribal rights, plant and animal habitat, and public assets.	PD1

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Comment ID	Comment Text	Theme Codes
3740	The DEIS does not require financial assurances from PolyMet even though the Environmental Protection Agency has advised states to require financial assurance due to the experience of expensive cleanups of contamination from many defunct or bankrupt sulfide mines in other states. PolyMet assets appear to be limited to this mine or are sheltered in foreign countries. The taxpayers of Minnesota should not be held responsible for the costs of the massive environment cleanup that is likely to result from this proposed project. The Department of Natural Resources already has the authority to force mining companies to pay for environmental cleanup but has not exercised this authority. For example, the LTV tailings basin continues to pollute groundwater after 50 years of operation and nearly ten years after closing. The addition of PolyMet tailings to this same basin will only aggravate a bad situation. Mining companies must be required to cleanup their own messes and must pay for the cost of cleanup when others have to do it for them. The Minnesota Department of Natural Resources has the responsibility to insist on design changes that would mitigate the environmental impact of the mining, ore processing and disposal of waste materials of this proposed PolyMet project. The Department's own Strategic Conservation Agenda calls for protection of all the state's natural resources and this is a case where they should exercise that responsibility.	PD4
3877	The proposed PolyMet copper-nickel mining project raises serious concerns about potential environmental contamination and deleterious effects on water quality, habitat, fish and wildlife and human health. Sulfide mining is new to Minnesota, but the experience of extensive acid mine drainage and water pollution in other states should alert public officials in Minnesota to the serious risks to the environment associated with this type of mining. In fact after considerable contamination associated with the Flambeau Mine near Ladysmith, Wisconsin placed a moratorium on sulfide mining operations until it can be demonstrated that such a mine has operated in a sulfide ore body for 10 years without polluting the groundwater and surface waters. Does Minnesota care less about the quality of its water and natural resources? The Minnesota Department of Natural Resources is charged with the protection of the state's resources for all the inhabitants of the state. The short-term financial gain of a Canadian mining company should not trump the long-term stake that all of us have in protecting our natural resources for future generations. The Minnesota Department of Natural Resources' Strategic Conservation Agenda 2009 - 2013 developed through extensive discussions lists several strategic goals. The goals listed below would be violated if this proposal is allowed to be permitted.	G2,G5,G12
3878	The area of the proposed mining project is home to several endangered or threatened animal and plant species and also provides a natural corridor for birds and other forms of wildlife from the south of Lake Superior to the areas north and beyond. The construction of the mine will destroy thousands of acres of wetlands, mainly high quality bogs that provide habitat for a number of species and also purify the water, regulate the water flow and sequester carbon which reduces climate change. The proposed replacement wetlands are not of comparable quality and are not even in the same St. Louis River watershed.	G2C,G7A
3879	Minnesota's natural resources are integral to many parts of the state's economy including mining, forestry, outdoor recreation and tourism. The lands and waters of the state must be managed so as to not exploit one of these parts at the expense of the others. The proposed PolyMet project would impact thousands of acres of forest and wetlands that will not be available for other uses for generations even with reclamation. Serious contamination of the ground and water due to acid rock and mine drainage will impact areas far removed from the mine and tailings basin sites. After closure the flooded mine pit will be a large body of water but will not be available for any recreation purpose. Contamination from there will spill into a tributary of the Partridge River and flow downstream into the St. Louis River and into Lake Superior. The ability of the Department of Natural Resources to ensure environmental integrity for significant parts of northeast Minnesota will be compromised if this proposed project is allowed to move forward.	G7A,G11
3880	As property owners in northern Pine County we have an individual responsibility to protect our wetlands and bog lake so that they will continue to provide suitable habitat for black spruce, sundews, pitcher plants, lady slippers and other flora and fauna in order that future generations will be able to enjoy the beauty that is Minnesota. We expect that public agencies will also honor their responsibility to protect our natural resources, especially on public lands, for all Minnesotans now and forever.	G7

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Robertson **Submission ID:** 3630	
3912	I am a resident and land oner in the Superior National Forest for the last twenty-five years. I am against any permits given for the PolyMet sulfide mining projects. Thisis an area pristine in water quality and needs to be protected not exploited by short term gains in company prfits and jobs. Due to water contamination problems in other states from this activity (i.e. Idaho (Thompson Creek), South Dakota (Gilt Edge Mine), and Montana (Zortman-Landusky) tax paters have been liable for clean-up not to mention the impact on the wildlife and overall environment. All mining is energy intensive and I do not support an activity that will increase the demand for this in a time when we are trying to reduce carbon emissions and oil consumption. I urge you to put a moratorium on oil sulfide mining in minnesota.	G12
Sender Last Name:	Robinson **Submission ID:** 2276	
2694	Please do not let short term gain bate anyone into decision that may negative effects for generations to come. The BWCA and Birch lake is a resource that exists now and will continue to provide for Minnesotans for years and years. All we need to do is to leave it unharmed. This risks of this project are obvious. Don't gamble away this precious Minnesotan resource. I have lived on Birch lake for 5 years. Please spare it. The exploration drilling is already negatively effecting mine, and my Outward Bound Students experience.	G7A
Sender Last Name:	Rockets **Submission ID:** 3298	
763	I'm writing to request that the public input period be extended to at least 180 days on the above-referenced matter, with public and interactive hearings scheduled throughout the State of Minnesota. We are very concerned about the pollution of our water and land by sulfide mining in the northern region.	PRO6
Sender Last Name:	Roering **Submission ID:** 170	
13	_ The EIS should be clearer; PolyMet is not in the Boundary Waters watershed.	WR3B
160	I just wanted to send you an e-mail to let you know that I support PolyMet Mining's NorthMet Project. The Project's Economic Impact is substantial. _ PolyMet will significantly contribute to the state and local economy at a time when we really need the jobs and economic benefit. _ PolyMet's 400 employees and the hundreds of spinoff jobs will provide a huge economic benefit to Minnesota and the Arrowhead region/my local business. _ PolyMet will provide millions of dollars in local and state taxes to support our communities and educational system. _ Enough is enough; let's get on with permitting this mine. We NEED jobs. Environmental Precautions _ PolyMet can produce these metals in an environmentally sound manner and create hundreds of stable jobs that can support families. _ PolyMet has demonstrated it can produce these critical metals while following Minnesota's strict environmental requirements to protect air, water and land. _ The metals that Polymet will mine are essential to green technology such as wind turbines and hybrid cars and are necessary for pollution prevention devices such as catalytic converters. _ Based on the extensive documentation as outlined in the DEIS, I am confident that impacts to the air and water will be minimal, if any.	EOO,G5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
161	_ As a person who lives/works/plays in Northeast Minnesota, I understand the need to balance use of resources like minerals and preservation of resources such as water and air. I feel this EIS lays the proper groundwork for developing an environmentally and economically sustainable project and I wholeheartedly support it. _ PolyMet project has been designed to minimize environmental impacts; reusing a brown field site, reusing existing infrastructure, minimizing disturbance of wetlands and utilizing multiple safeguards to protect the environment. Domestic Production _ PolyMet will be a domestic supply of critical metals needed in medical applications, electric cars, catalytic converters, cell phones, computers and other essential products. _ I understand the importance of buying locally. PolyMet will mine and produce several metals not currently mined anywhere in the United States. _ I use these metals every day. PolyMet will be a domestic source of the metals we all use every day. _ Mining these metals in one country, processing them in another and then transporting them to the U.S. creates unnecessary greenhouse gas emissions. _ Foreign suppliers of these metals don't necessarily follow sound environmental practices, creating a greater global environmental impact.	EOO,G5
Sender Last Name:	Rohlfing **Submission ID:** 3082	
3471	Have you ever been to the Boundary Waters??? Minnesota has precious habitat and environment. This will significantly and perhaps permanently destroy the fauna and flora, dependent on clear air and water. Not to mention the disrution of the aethetics, and harm to human health.	G2C,G8
Sender Last Name:	Rolan **Submission ID:** 3500	
3772	I believe that what is happening is wrong due to the fact that you are obviously missing the fact that you are possibly hurting alot of people and damaging their lives. You are completely overlooking the fact that this mining business can do more damage than not having it. And as one of the citizens of the U.S. i beg that you reconsider this idea.	EOO,G3
Sender Last Name:	Rolloff **Submission ID:** 1756	
2295	I AM UNEQUIVOCALLY OPPOSED TO SULFIDE MINING IN THIS AREA! The hydrological nature of this area and it's location immediately adjacent to the Boundary Waters Canoe Area Wilderness and several major watersheds make this project completlely unacceptable. Water quality concerns alone make this project one that should not proceed. I've seen sulfide mining in the western United States and have no belief that this project will do anything but seriously damage the environment in the region. It's also a well known fact that nature-based tourism is heavily dependent on perceptions of high quality natural resources. Poisoning the waters of northern Minnesota will seriously damage our nature-based tourism economy which is much more lucrative and long term than the short-term gain and job additions that sulfide mines would contribute. I am adamantly opposed to these mining projects and ask that the DNR determine that these projects are incompatible with the wilderness, hydrological, and economic values of northern Minnesota.	EOO,G7,G11
Sender Last Name:	Romano **Submission ID:** 3710	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	XI. The Agencies Have Failed to Explain Why Additional Analysis and Information Could Not Be Provided Within the Draft EIS As stated and set forth above, for a number of issues including wetlands, water quality, cultural resources and financial assurance, the Draft EIS acknowledges that the agencies are still compiling information and that additional analyses have yet to occur. Additionally, many of the potential impacts of the proposal are unknown due to a lack of the necessary data and information. The CEQ NEPA regulations include a detailed regulation regarding "incomplete and unavailable information," which has been ignored for the NorthMet proposal. 40 C.F.R. § 1502.22. According to the NEPA regulations, where there is incomplete or unavailable information, the agency must first make clear that such information is lacking. 40 C.F.R. § 1502.22. Moreover, "[i]f the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement." Id., § 15022(a). The agencies have provided no information to indicate that it would have been an exorbitant cost to obtain any of the missing data or information that are relevant to the project's environmental impacts. The agencies for the most part instead simply proclaim that such information and data will continue to be gathered during the permitting processing. Furthermore, even if the costs of obtaining the data and information are determined by the agencies to be exorbitant, the environmental impact statement must still disclose (1) a statement that such information is incomplete or unavailable; (2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment; (3) a summary of the existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the environment; and (4) the agency's evaluation of such impacts based on theoretical approaches or research methods generally accepted in the scientific community. 40 C.F.R. § 1502.22(b). The agencies have entirely failed to comply with this NEPA regulation concerning the missing data and information for the NorthMet proposal.	PRO2,PRO3
2	XIII. Technologies upon which PolyMet Relies to Treat Contaminated Water, Prevent Release of Contaminants and Leaching of Sulfuric Acid are Unspecified, Untested and/or Unreliable PolyMet proposes to rely on a wastewater treatment facility ("WWTF") to treat contaminated water. The Draft EIS, however, provides no description of the proposed WWTF, or any information that would allow the public and other agencies to determine the effectiveness of the WWTF for treating the polluted waters. See e.g., July, 2009, MPCA comments ("it would be helpful to the reader to insert a paragraph that describes the proposed WWTF in moderate detail – at least in more detail than in the VERY brief description here . . . this is appropriate since use of the WWTF for treatment of various wastewaters factors in so prominently throughout the [Draft EIS] document and in the supporting modeling and prediction efforts."); September 2, 2009, Forest Service comments (stating that "[t]here is very little information on the waste water treatment facility," and that "[t]his is a critical facility for water quality protection and should be clearly described"). For example, information is not provided regarding the volume of water expected to be treated, the methods by which water would be treated, which constituents would be treated, the levels of chemical constituents in water which treatment would seek to attain, the way in which chemicals extracted through treatment would be disposed of or any data supporting the effectiveness of proposed treatment at the WWTF. As a result, there is no basis by which one could determine the amount or extent of potential environmental harm and pollution that will and will not be mitigated through the proposed WWTF, or whether reliance on WWTF treatment is reasonable.	WR2G
2	XII. The Draft EIS Fails to Provide Sufficient Information to Demonstrate that the Tailings Basin Design Will Prevent Catastrophic Failure PolyMet proposes to use the existing LTV tailings basin, which is known to already be leaking. The Draft EIS fails to demonstrate that this tailings basin will be adequately designed to prevent a catastrophic failure and severe contamination of the Embarrass River. In fact, the Draft EIS indicates that inadequate slope stability at the LTV tailings basin could result in release of the impounded tailings and process water, which could contaminate an extended reach of the Embarrass River down-gradient of the basin. The Draft EIS fails to provide disclosure and analysis regarding the severe adverse environmental consequences if such a failure occurs during or after operation of the proposed mine. The proposed project should not be allowed to proceed without a tailings basin design that is proven to be sufficient to prevent slope instability, catastrophic failure and the release of tons of impounded wastes and process water.	GT2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3	III. The Draft EIS analysis of impacts to water quality, groundwater, and wetlands is inadequate under NEPA See comments submitted by the Tribal cooperating agencies, as set forth in Appendix D to the Draft EIS, and also set forth within footnotes throughout Volume I of the Draft EIS, which are incorporated herein.	WR3I,WE2
4	In addition, despite the widely recognized concern of long-term acid mine drainage from sulfide mines, PolyMet's plan to prevent long-term acid mine drainage by covering acid-generating rock is an unproven technology that is insufficiently addressed in the Draft EIS.	WR1E
4	Waste rock stockpiles are another substantial component of the proposed mine. Over the twenty year operations of the mine, 394 million tons of waste rock and lean ore would be stockpiled, with the maximum height of waste rock stockpiles at 240 feet and a total footprint of over 750 acres. The Draft EIS fails to provide a sufficient analysis of the potential environmental consequences of this mountain of created waste rock, including the potential for large scale slope instability, the movement of waste rock off the proposed area, the potential release of contaminants, and the significant mitigation that would be necessary for the massive stockpiles post closure.	WR2D,WR3I
5	PolyMet's proposal to treat future discharges through constructed wetlands is similarly unsupported, would likely require perpetual maintenance, and must be much more significantly analyzed through the NEPA process to demonstrate its effectiveness.	WR3L
6	As currently described in the Draft EIS, critical components of the proposed mine are unspecified, untested and unproven. Before either the environmental review or permitting process moves forward, PolyMet and the agencies must demonstrate that the proposed methods of waste disposal, treatment of contaminated water and prevention of discharge and acid mine drainage after closure are thoroughly developed, assessed and validated with objective data and analysis. See Idaho Sporting Congress v. Thomas, 137 F.3d 1146, 1150 (9th Cir. 1998) (holding that NEPA does not allow an agency to rely on expert opinion unsupported by hard data and objective analysis); 40 C.F.R. § 1502.24.	WR2G
7	XIV. The Proposed Mine Would Significantly Increase Mercury in Local Fish, Causing and Contributing to Human Health Risks that Are Not Properly Assessed and Disclosed in the Draft EIS The proposed mining project would increase the accumulation of mercury in the food chain within streams within and downstream from the project area, in which current levels of mercury in fish are already unsafe. This increased bioavailability of mercury would violate water quality standards and the state's antidegradation policy, and may pose a substantial health risk that has not been properly analyzed or disclosed to the public. Waterbodies within and downstream from the project area already have unsafe levels of mercury in fish, and are subject to fish consumption advisories because the mercury concentrations in fish tissue pose a hazard to human health. Mercury levels are in fact to high that many of these streams were not included in the statewide mercury TMDL, as even the actions identified in the TMDL would not be sufficient to bring mercury to safe levels. The proposed mine would further increase these mercury levels, further harming fish and further increasing the health risk to those eating fish from these streams. More specifically, the proposed mine would result in the increased discharge of sulfates, which would increase the methylation of mercury. Mining operations are predicted to stimulate methylmercury production and thereby enhance the bioaccumulation of mercury both onsite and offsite as a result of increased sulfate or mercury concentrations in water draining from the site. In addition, the hydrologic changes and water level fluctuations from the proposed mine would likely further increase mercury methylation and mercury concentrations in the food chain. Similarly, the flooding of wetlands can also result in a significant increase in mercury mercury concentrations in fish. And the destruction of peat bogs and wetlands by the project would release stored mercury. Individually and collectively these factors may significantly increase the potential for the bioaccumulation of mercury in fish by increasing the production and bioavailability of methylmercury. The Draft EIS violates NEPA by failing to meaningfully analyze the environmental consequences to fish and human health risks to humans cased by this increase of mercury in fish tissue. And these undisclosed environmental and health risks may be severe, as methylmercury is recognized as a highly toxic substance that may cause a number of health risks to humans and other species. See EPA, Integrated Risk Information System, Methylmercury, CASRN 22967- 92-6; EPA, Mercury Health Effects, http://www.epa.gov/mercury/effects.htm.	WR4A,WR4B,FM1,FM5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
8	XV. The Draft EIS Fails To Adequately Analyze and Disclose Impact to Domestic Wells The Draft EIS is also inadequate by failing to adequately analyze and disclose the likely environmental consequences from the proposed mine on drinking water wells located near the project area. The agencies must supplement or revise the Draft EIS to much more thoroughly assess and disclose the location of domestic wells, the contamination to these wells already being caused by the LTV tailings basin, the current water quality of these well sites, and a detailed analysis of the potential additional contamination of these wells resulting from the proposed mining project.	WR1E
9	XVI. The Draft EIS Fails to Demonstrate Compliance with the Superior Forest Plan and All Applicable Forest Service Regulations The Draft EIS acknowledges that the mine site is on the Superior National Forest, and yet there is no mention of the applicable Forest Plan standards and guidelines, or Forest Service regulations. The agencies must demonstrate compliance and consistency with the Forest Plan standards and applicable regulations before this project could proceed. See e.g., 16 U.S.C. § 1604(i). The Draft EIS states that according to the Forest Service, the mineral rights leased to PolyMet “do not include the right to open pit mine the National Forest System land.” Draft EIS, p. S-1. The proposed mine therefore would also violate PolyMet’s mineral lease and related laws and regulations.	PD3
Sender Last Name:	Rose **Submission ID:** 2240	
2647	Please take the time to add supplements to the draft EIS and give people in Minnesota a fair chance to know what impact the PolyMet project would have on our State the Lake Superior basin. Please help us top save one of the most pristine natural areas in the lower 48. The economy of Minnesota will disintegrate if the natural areas are harmed. Just listening to the test drilling is very unpleasant. When we were out birding near the test drilling sites, there were no birds to be seen. Actual mining would be even noisier. Because of mechanization, very few jobs will be created for these types of mines.	G7A,G8
Sender Last Name:	Rosenthal **Submission ID:** 2334	
2797	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. In a strict business sense, the eco-tourism industry in this part of Minnesota will undoubtedly outlive any economic burp caused by adding few mining jobs in the area. We run a children's summer camp at the cusp of the Boundary Waters Canoe Area Wilderness, and see lives changed summer after summer. Children come to our camp from all over the US and the world for that matter. ANY chance of even a scintilla of sulfuric acid, or other contaminants entering even a puddle is enough to end this discussion. We met a representative from the DNR (Gunflint Trail area) last year, who proudly announced the introduction of 4 million walleye fry into Lake Saganaga. The hope is that 25,000 will survive and multiply by the end of he next 5 years. We are truly greatful that such an expense was made to restore the Walleye population to an area that still holds the 1979 record for the state's largest Walleye. We hope that the DNR and Army Corps of Engineers will remember values such as the sustainability of our pristine natural habitat when considering approving this project. If such a value is clouded by something else, then consider the notion of wasting the money that was expended on 4 million walleye fry when the waters in the BWCAW are lifeless. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers.	G2C,G6,G7A,G11
Sender Last Name:	Ross **Submission ID:** 3726	
1	A more complete evaluation of sulfate removal alternatives including the expected efficacy of enhanced nanofiltration as a mitigation alternative is needed. Other possible methodologies, such as enhanced sulfide precipitation in flooded mine pits, should be considered.	WR2G

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2686	WHEREAS, PolyMet Mining Co. proposes developing a copper, nickel, platinum, palladium, gold and cobal t mine and an ore processing plant at the former LTV Steel Mining Company plant near Hoyt Lakes; and, WHEREAS, It is projected that PolyMet will create 400 fulltime jobs with a payroll of $40 million and more than 500 spin-off jobs with a $242 million payroll in St. Louis County alone; and, WHEREAS, Construction of the $600 million NorthMet Project will require about 1.5 million construction hours over two years; and, WHEREAS, PolyMet worked with federal and state regulatory agencies in drafting an Environmental Impact Statement (EIS) exploring potential impacts and ways to address them; the draft EIS demonstrates PolyMet can mine these metals AND protect air, water and natural resources; and, WHEREAS, PolyMet will provide millions of dollars in local and state taxes to provide much needed support to our communities and educational system; and, WHEREAS, PolyMet will have a positive economic impact on the City of Hibbing just as LTV Steel Mining Company had when it was operating. NOW, THEREFORE, BE IT RESOLVED, That the Board of Commissioners of the Hibbing Economic Development Authori ty hereby go on record in full support of the Poly Met Mining NorthMet Project. The motion to adopt the foregoing Resolution was duly supported by Member Larry Furlong, and upon being put to a vote, carried as follows:	EOO,G6
3651	Minnesota is loosing enough forests and lake land due to people already. Houses, buildings etc are ruining the beauty of our state. Mining this area for these resources would be stupid.	EOO

Sender Last Name: Rossi **Submission ID:** 2954

3309	My husband and I are not residents of Minnesota yet but we have property in Ely, Minnesota and plan to move there in a couple of years. We are greatly concerned about the future of the area. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources	G2
3310	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. I am also concerned about the existing businesses in tourism in the area and the impact this will have on them.	G2,G11

Sender Last Name: Rothe **Submission ID:** 283

297	I am writing today to request your consideration of my comments regarding this project. I am a life-long resident of Northeast Minnesota and part-owner of a construction company based in Superior, WI. I am fully supportive of PolyMet's NorthMet project for many reasons. 1. This project is within and adjacent to, abandoned mine property operated for decades by Erie / LTV Mining Company. Doing nothing is a worse option for these properties. 2. PolyMet will re-use much of the infrastructure already in place and left behind when LTV shut down in 2001. This closure was devastating especially to the cities of Hoyt Lakes and Aurora. 3. This will give a positive impact to these mining communities that desperately need jobs. Residents of NE Minnesota are hard-working and appreciate PolyMet for their fortitude in restoring a sense of hope for the eastern iron range. 4. I am confident that PolyMet will minimize the environmental impacts of the mining operation. ALL Minnesotans care about protecting our waters, wetlands, and air. Not just outsiders who have no concern about our people or economy. Mining is a way of life here. It's nothing new. 5. The DEIS is extensive, required years of diligence, and confirms my opinions that PolyMet will do it right and will follow through with the necessary environmental safeguards. 6. The demand for the precious metals PolyMet proposes to mine is increasing, and production by foreign nations comes at a much higher cost to the global environment. 7. Projects such as this have tremendous economic impacts to our region, and nation, at a time when it is needed the most. It is needed right here, right now. In summary, the DE IS proves that PolyMet can operate the mine while protecting our treasured environment. Please help ensure the project moves forward accordingly.	EOO,G6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Roy **Submission ID:** 2698	
3172	This is a reckless plan that will endanger an area that is a natural treasure!	EOO
Sender Last Name:	Royseth **Submission ID:** 8	
8	For, what is it now, five years, Polymet has spent its own money to meet the strict environmental guidelines that Minnesota follows, as well they should. In that time any doubt I had that they would not be responsible stewards to my great land has disappeared. I'm not in a job that is tied in any way to the success or failure of PolyMet. I want to welcome PolyMet to our area and thank them for proving that they will be my responsible backyard neighbor.	EOO
Sender Last Name:	Rubin **Submission ID:** 3470	
45	We will focus on additional deficiencies that make the DEIS unacceptable. Socioeconomic Impact When we are not in our Ely home, we rely on the income it provides when we rent it for short-term vacation rentals. Our customers rent our cabin because of the peace, the clean environment, the recreational opportunities, and the non-industrial character of the area. The NorthMet project threatens these values, and therefore our ability to rent the property and to sustain our income. The recreational values that NorthMet threatens include viewing lakes and rivers with wild rice, catching fish that can be eaten, and enjoying natural, unpolluted air and water. Some of the nearby lakes already have warnings about mercury in fish, so even a small incremental impact from Polymet could eliminate recreational fishing for edible fish. Degrading these scenic and recreational resources threatens our income. The Ely area and many of its businesses, such as our cabin rental, have invested and worked hard for many years to create a reputation and an image of a clean, unpolluted, non-industrial, relatively noise-free recreation area. Degrading even the “Ely image” or the “Ely brand” threatens those investments and their economic benefits. The DEIS addresses only the purported positive benefits that the mine would bring, namely jobs during the mine’s operational period. The DEIS is deficient in ignoring mining’s well-documented history of long-term, negative impacts on communities.	SE4
3675	Cumulative Impacts The DEIS is deficient in addressing cumulative impacts of the NorthMet project and other exploration and mining. The United Stated Forest Service (USFS) is currently considering applications for dozens of additional exploration and mining projects, as described in the Federal Hardrock Minerals Prospecting Permits Project (FHMPPP) http://www.fs.fed.us/r9/forests/superior/projects/prospecting.php). The NorthMet project must identify, analyze, and discuss mitigations for the cumulative impacts of NorthMet in the context of these other proposed activities. The impacts include, but are not limited to, air and water quality (e.g., sulfate and mercury impacts on plants and animals, acid drainage, etc.), traffic and noise, and socioeconomic impacts..	CR1
3746	The DEIS is incomplete and unacceptable due to errors, misleading and unsubstantiated assertions, and omissions. The problems with the DEIS are not limited to the proposed NorthMet project; the project and DEIS will set a number of precedents for mining in northern Minnesota, so the DEIS must be evaluated in that context. The project should not move forward with permitting or any other activities until Polymet resolves the DEIS’s deficiencies. The Tribal findings have already addressed many of the errors, unsubstantiated assertions, and omissions in the DEIS. We generally support the Tribal conclusions, and will not repeat those findings.	G8C,G15
19249	DEIS 4.1.3.4 Tailings Basin Alternative concludes that there would be no effect on flows or water quality in the Upper Partridge River. Fond du Lac strongly disagrees with this conclusion, and believes that discharging untreated tailings basin water to the Partridge River will have significant adverse water quality impacts.	WR3A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19249	DEIS 4.1.3.5 Mitigation and Monitoring Measures It is the tribal cooperating agencies' position that treatment of the tailings basin effluent that is captured by the vertical wells must be an integral part of the tailings basin alternative. This treatment could occur in the WWTF already proposed for this project or in a second facility closer to the discharge point. However, treatment of the tailings basin effluent prior to discharge to the Partridge River is not included in the potential mitigation measures listed below. Tribal cooperating agencies strongly oppose an untreated discharge of tailings basin water to the Partridge River. In addition, there are other existing facilities and mine proposals (Laskin Energy, Mesabi Nugget Phase II) that discharge, or are proposing to discharge water at this same location. Finally, water quality of the discharge would exceed the wild rice sulfate standard that applies to the lower Partridge River.	EOO,WR4F
19250	DEIS 4.1.4 Cumulative Effects on Water Resources Tribal cooperating agencies note that the USACE has not completed its National Historic Preservation Act §106 consultation with the potentially affected tribes. In addition, a survey for wild rice presence in the waters potentially affected by the proposed mine has only recently begun. Tribal staff have already found extensive stands in the Lower Partridge River, and non-tribal harvesters have reported to the state on the presence of wild rice in the Partridge River and in the St. Louis River downstream of its confluence with the Partridge. Tribal cooperating agencies believe that the consultation process and wild rice surveys should be completed and the results included in the DEIS. This data can then be used to evaluate the cumulative impact analysis to this important tribal resource.	WR1E,WR5C,CR2
19251	As previously stated, it is Fond du Lac's position that the public notice for the §404 permit should be re-issued and that the MPCA should be afforded the opportunity to analyze and make a certification determination under §401 of the Clean Water Act. Significant changes in the design of the Proposed Action have occurred, and other important information needed to determine the nature and magnitude of the Project's impacts has been developed since the public notice was provided by the USACE in May of 2005. Adverse water quality impacts and exceedances of groundwater quality standards are predicted as a result of the proposed Project. Additionally, the Project would lead to significant degradation of aquatic resources, including water quality standards violations in both the Partridge and Embarrass Rivers (see Table 4.1-68 for a summary of water quality impacts). MPCA should be afforded the opportunity to certify or deny certification to the Proposed Action.	WE4
19252	It is Fond du Lac's position that it is not possible to differentiate between rich forested peatlands, poor fens, and bogs using canopy cover alone. Identification of the low shrub, forb and graminoid layers are required. It is the position of the tribal cooperating agencies that the current wetland delineation does not encompass all wetlands that may be affected by the Project. Because no initial determination of the Project's area of influence (AOI) on wetlands was made, the site field surveys of wetland and other vegetation were limited to little more than the area within the Project fence. The existing characterization of wetland and other vegetation does not cover even one-half the area that might reasonably be expected to be impacted by disruption of the existing hydrology. Around the tailings basin virtually no wetland delineation has taken place although wetland impacts from inundation are likely to occur. The Army Corps is developing a workplan to assess impacts to these additional wetlands but this workplan has not been finalized or implemented. Given the importance of this work in assessing potentially significant impacts to wetlands, it is the position of the tribal cooperating agencies that this work should be included in the DEIS to allow for a full public review.	WE1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19253	Tribal cooperating agencies strongly object to the characterization of the hydrology at the mine site presented in the first paragraph. It is the Tribal cooperating agencies' position that the methodology used in the Adams 2009 email is not adequate for characterization of pit dewatering impacts to wetlands (GLIFWC 2009, Memorandum to Jon Ahlness and Stuart Arkley: Photographic evidence for pit impacts to wetland hydrology. April 24, 2009). Problems with the methodology used in the email include: 1. Lack of recognition that aerial photos are a very imprecise measure of surface water level. 2. Photographs presented in the paper show that the Peter Mitchell pits are mostly flooded. Therefore there is little or no stress on surrounding wetlands at the time. 3. Lack of consideration of the topographic relationship of the landscape features including the depth of the Peter Mitchell Pits (P-M Pits approximately 80 feet deep, PolyMet pits approximately 800 feet deep). 4. Lack of recognition that some changes in groundwater hydrology would not be evidenced by the large changes in surface water level that could be detected by aerial photography. 5. Dependence on wetland soil conductivity values that are extremely low and for which supporting source citation in the professional literature cannot be found. The PDEIS appears to rely on "best professional judgment" for estimating impacts due to hydrologic disruption without incorporating specific knowledge of the ecological requirements of culturally significant wetland vegetation such as cedar, and without requiring sufficient background data regarding groundwater. A "best professional judgment" approach is being used as a replacement for data-based scientific analysis of potential impacts. Quantitative methods for estimating the impacts of drawdown and inundation on wetland hydrology exist, have been used at other mine sites, and can be used in addition to professional judgment. Tribal cooperating agencies take the position that subsurface flow through upland soils likely provides the micro nutrients necessary for rich forested peatlands, cedar swamps and poor fens found in the mine site area. Many of the wetlands that have been identified during delineation as "perched bogs" are actually cedar swamps, northern wet ash swamps, forested rich peatlands, northern alder swamps, and poor fens, all of which require groundwater inputs. Indirect impacts to communities that require groundwater inflow have not been determined, but would likely be significantly different than expected impacts from the Project to perched bogs.	WE1,WE2
19254	Tribal cooperating agencies take the position that a stable water table in NE MN is typically the result of groundwater inputs in periods of low precipitation.	WE2
19254	Tribal cooperating agencies take the position that northern alder swamps (FPn73) "occur in settings that receive mineral rich surface or subsurface flow, which is maintains surface water with nearly neutral pH." (MnDNR Field Guide to the Native Plant Communities of Minnesota, the Laurentian Mixed Forest Province, pg 205.) Tribal cooperating agencies take the position that "Surface water in Northern Wet Meadow/Carrs is derived from runoff, stream flow, and groundwater sources, it has a circumneutral pH (6.0 - 8.0) and high mineral and nutrient content." (MnDNR Field Guide to the Native Plant Communities of Minnesota, the Laurentian Mixed Forest Province, pg 292.) Tribal cooperating agencies take the position that Northern mixed cattail marshes "develop in areas occupied by fens or wet meadows following fires-usually during severe droughts-that remove accumulated peat from the fen or meadow". (MnDNR Field Guide to the Native Plant Communities of Minnesota, the Laurentian Mixed Forest Province, pg 298.) Tribal cooperating agencies take the position that this canopy cover depicts a northern rich spruce swamp (FPn62) which requires groundwater. Balsam fir and white cedar are both rich forest indicator species. Tribal cooperating agencies take the position that bunchberry and blue bead lily are both indicator species in the forb layer of mineral rich peatlands (MnDNR Field Guide to the Native Plant Communities of Minnesota, the Laurentian Mixed Forest Province, pg 317).	WE1

Sender Last Name: Rudnicki **Submission ID:** 3465

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
11	Comments on the proposed PolyMet Mining Project The Draft EIS is deficient on at least three points. First, the cumulative effects analysis is limited to the segmented project effects on discrete environmental elements such as the air, water and vegetation proximate to the proposed mining operations. The limited analysis assumes the effects of the actual mining operation are somehow separate from the effects of the processing, tailings basin and other aspects of the proposed project. While this incomplete analysis may be an attempt to satisfy the letter of the law, the analysis fails to fully satisfy the intent of the law; that is, to actually identify the cumulative effects of a proposed project. The analysis is limited and incomplete because it only considers some effects of isolated project components on segmented environmental media rather than the totality of the proposed project and its overall effects on the local as well as contiguous ecosystems. Further, with respect to the cumulative effects and GHG emissions, the analysis fails to do more than state there will be increased emissions. The cumulative effects analysis is deficient since it does not fully analyze the implications of current levels of GHG emissions nor does the statement of cumulative effects consider the additive effect of the GHG emissions from the proposed project and the complete array of adverse consequences associated with the GHG levels	WR5A,AQ3,AQ4B
17	The analysis fails to explicitly identify those adverse effects on the environmental systems that sustain human and other life and it does not identify, nor address, the broad range of consequences associated with the increase in GHG emissions from the proposed project. A second deficiency with the Draft EIS rests with the No Action Alternative. The analysis fails to consider the broad range of alternatives to supplying virgin raw materials required for manufacturing processes. The Project Purpose and Need assumes the only way to supply raw materials for the production of products by manufacturers is to use virgin raw materials as found in the various ores proposed to be extracted by the proposed project. An alternative to using highly subsidized (considering the full range of environmental and other externalities associated with this proposed project and the grossly undervalued state natural resources proposed to be sold to the project proposer) virgin raw materials, is to use Clean Production Technology. This jobs creating technology is a well established industry that reclaims materials and produces products using systems and processes with few adverse environmental impacts. Virgin raw materials should be the last source of materials to supply manufacturing processes.	ALT8
43	The No Action Alternative does not adequately examine the actual alternatives and the job creation options from those alternatives to the proposed project. The third deficiency is found in the analysis of the Socioeconomics. While the emphasis is on the increase in employment associated with this particular project, rather than jobs that can be created through some Clean Production Technology alternative, the analysis fails to consider the full set of adverse socioeconomic effects. Where is, for example, the analysis regarding the negative values associated with viewscapes filled with mountains of tailings and other mining debris, the perpetuation of a societal dependency on virgin raw materials rather than on greater use of reclamation and closed loop production systems or the long-term alteration of the landscape that could be caused by the proposed project? Where is the socioeconomic analysis of the local, short-termbenefits as well as the long term adverse socioeconomic effects? This analysis requires a broader perspective when considering the benefits and burdens of the proposed project	SE3

Sender Last Name: Rudzinski **Submission ID:** 2559

706	1. There is no specific reclamation plan after the site's closure. 2. Inadequate sampling of ground water movement may imperil the Boundary Waters watershed. 3. Disruption of wildlife movement may threaten endangered species such as the Canadian lynx. 4. Potential for other mines adding to the impact of the Polymet Mine for multiplicative damage. 5. Lack of governmental monitoring of the mining operation. 6. Potential sulfates in surface water are not addressed.	WI1,WI4,WI5
2196	1. There is no specific reclamation plan after the site's closure. 2. Inadequate sampling of ground water movement may imperil the Boundary Waters watershed. 3. Disruption of wildlife movement may threaten endangered species such as the Canadian lynx. 4. Potential for other mines adding to the impact of the Polymet Mine for multiplicative damage. 5. Lack of governmental monitoring of the mining operation. 6. Potential sulfates in surface water are not addressed.	WR1A,WR1E,WR3I

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2197	1. There is no specific reclamation plan after the site's closure. 2. Inadequate sampling of ground water movement may imperil the Boundary Waters watershed. 3. Disruption of wildlife movement may threaten endangered species such as the Canadian lynx. 4. Potential for other mines adding to the impact of the Polymet Mine for multiplicative damage. 5. Lack of governmental monitoring of the mining operation. 6. Potential sulfates in surface water are not addressed.	WR1A,WR1E,WR3I
2393	1. There is no specific reclamation plan after the site's closure. 2. Inadequate sampling of ground water movement may imperil the Boundary Waters watershed. 3. Disruption of wildlife movement may threaten endangered species such as the Canadian lynx. 4. Potential for other mines adding to the impact of the Polymet Mine for multiplicative damage. 5. Lack of governmental monitoring of the mining operation. 6. Potential sulfates in surface water are not addressed.	PD3
2394	1. There is no specific reclamation plan after the site's closure. 2. Inadequate sampling of ground water movement may imperil the Boundary Waters watershed. 3. Disruption of wildlife movement may threaten endangered species such as the Canadian lynx. 4. Potential for other mines adding to the impact of the Polymet Mine for multiplicative damage. 5. Lack of governmental monitoring of the mining operation. 6. Potential sulfates in surface water are not addressed.	PD3
2395	1. There is no specific reclamation plan after the site's closure. 2. Inadequate sampling of ground water movement may imperil the Boundary Waters watershed. 3. Disruption of wildlife movement may threaten endangered species such as the Canadian lynx. 4. Potential for other mines adding to the impact of the Polymet Mine for multiplicative damage. 5. Lack of governmental monitoring of the mining operation. 6. Potential sulfates in surface water are not addressed.	PD3
Sender Last Name:	Rue **Submission ID:** 1518	
1838	I understand the argument that this would create jobs and revitalize the area. For a short period this may be true. If however, the region is contaminated, many more jobs will be lost. The number of jobs that rely on hunting and fishing, skiing, sight -seeing, camping and other areas related to tourism, will be lost. The quality and safety of living in this area will be diminished. We could end up with a greater problem than what exists today.	EOO,G11
Sender Last Name:	Rule **Submission ID:** 2729	
3179	Minnesota's greatest asset is our lakes, rivers, wetlands and wildlife. We should do nothing to put them at rist, especially allowing PolyMet Mining to open a mine in Minnesota.	G7
Sender Last Name:	Runck **Submission ID:** 142	
11	their devastation. I ask the DNR and the Army Corps of Engineers to extend the public comment period and arrange for more public hearings. This is our health, let our voices be heard.	PRO6
133	My name is Taryn Runck and I'm a resident of Minnesota, I'm here testifying as a concerned citizen and one of millions of owners of our collective natural resources. It is in this role that I feel compelled to speak against the PolyMet project and in support of the no-action alternative. While some claim that with this project Minnesotans can have both jobs and the environment, a 2006 study of sulphide mining environmental impact statement shows that 100 percent of mines predicted no water pollution, 76 percent did in fact pollute, because of this and because of PolyMet draft environmental impact statement predicts ground water pollution at the mine site, we have every reason to believe that this project will harm our collective natural resources and the delicate ecosystems they sustain. This will harm our food and water, our health and well-being. I believe these natural resources are for the benefit of us all, not the relatively few who will profit short-term from	EOO,G7

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Running **Submission ID:** 146	
137	My statement would be that I think there's enough environmental protections that we should allow this project to go ahead, and I don't see any minuses in it. And I think there's a lot of people that -- well, there's a certain amount of people don't want this to go ahead because this is their playground and they don't care if anybody works. And being a working person all my life, I think that this is a wonderful thing for northern Minnesota, keep our children in northern Minnesota yet. That's all I have to say. Okay?	EOO
Sender Last Name:	Ruppert **Submission ID:** 1392	
1625	Please take the time to add supplements to the draft EIS and give people in Minnesota a fair chance to know what impact the PolyMet project would have on our State the Lake Superior basin. The eco-systems there deserve your protection! Our health and welfare depend upon protecting the natural environment and wildlife from contamination. We need to be proper stewards of the land and wild life not only for ourselves but for the future of our families. We are connected to the land and to the eco-systems presently living there. Please also read "Neither Wolf Nor Dog" by Keny Nerburn, aan author from Bemidji, MN who writes about this very topic of how to preserve our land and thus protect ourselves.	G8A
Sender Last Name:	Russell **Submission ID:** 350	
387	We have a family cabin on water feeding into the BWCA & that would be affected by PolyMet / mine contamination. Present y possible problems before issuing approval of the project!!!!!	EOO
2235	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources. We need to protect these resources and I am worried that the impact of the project is overlooking these issues.	G10
2236	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Please consider these comments and be conservative in your actions as they relate to water quality	G7B,G10
2477	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. Given the already impaired state of many of MN's waters (40% of the waters we test don't meet basic health standards and less that 20% of our lakes and rivers are even tested at all!) the last thing we need is another project that is almost certain to put a high quality water body at risk. This project is irresponsible, relies on proven-to-fail technology and doesn't address vital economic viability, habitat protection and long-term clean up & resource protection issues. We can do better than this!	G7B
Sender Last Name:	Russelle **Submission ID:** 3468	
530	Finally, although we do not know the trajectory of all components that will be affected by global climate change, two signatures that have been evident in Minnesota are increased intensity of precipitation in convective storms and higher minimum air temperatures in winter. There is a need to consider the resilience of the proposed mining (with perhaps a 20-year time horizon) and closure (with a 'permanent' time horizon) activities in light of changes that are forecast for the region by one or more simulation models. Again, I appreciate the care with which the DEIS was constructed, and hope these criticisms result in equally thoughtful responses.	AQ3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1317	The mitigation strategies to prevent offsite movement of the leachate (caps, liners, subsurface drainage collection) likely are inadequate in the short term and certainly will be in the long term. For example, compacted 'clay' liners in manure storage pits nearly always leak. A cap that provides only 1.5 feet of rooting depth (Table 3.1-9 Cat 2, 3, and 4 waste rock) will result in vegetation that is regularly stressed by severe drought, leaving the soil surface exposed to erosion by convective storms and snowmelt runoff. These runoff events likely will involve gully erosion, because the soil cover will have little cohesion that develops in undisturbed soils. Although a bentonite layer will slow the exposure of the waste rock to infiltrating water, I do not believe that it would prevent exposure due to erosion. I expect that the geotextile membrane will be exposed after many of these erosion events, subjecting it to biotic and abiotic degradation.	EOO,WR2D
1945	As we know from the acid rain research done during the 1970s and 1980s, surface waters in northeastern Minnesota are very poorly buffered with regard to pH. Declines in pH will affect aquatic invertebrates and vertebrates. Furthermore, as the DEIS recognizes, the acidic leachate will contain high concentrations of some toxic metals, like antimony, and the high sulfate concentration will promote methylation of mercury. After decades of work to reduce the presence of contaminants in Minnesota waters, we recognize that contamination of fish by mercury is a persistent, serious problem, especially for those who depend on fish for a major source of protein. We know how readily mercury is transformed from compounds that have little biotic effect to those that cause severe nervous system damage at low concentrations. The mining operation and proposed closure greatly increase the risk of higher methylmercury concentrations in northeasterrn Minnesota ecosystems. It is critical to establish the flow paths of both shallow and deep ground water in the area. Does it follow surface flow paths or does it flow north? The pits will provide a large cross sectional area for water to move into ground water. The DEIS recognizes that inflows from the site will cause upwelling, which will result in increased horizontal flow away from the site. The DEIS does not forecast the extent or direction of movement of ground water that is impacted by material in the pits. To what extend do surface water and ground water mix? For example, if the Partridge River were severely impacted by mining activities or residual effects, will that affect ground water quality?	WR1E,WR4B,FM2

Sender Last Name: Rust **Submission ID:** 2484

3008	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources as well as economic burdens & possible health issues for the people of Minnesota.	G2,G9

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3881	The Minnesota DNR and the Army Corps of Engineers are creating an Enviornmental Impact Statement on a new type of mine being proposed for Northern Minnesota near the Boundary Waters Canoe Area Wilderness, and 50 miles from Voyager National Park. This mine is different from long established iron ore mines that Minnesota has had over the years. These proposed mines, contain among the copper, nickel, platinum, and silver, significant deposits of sulfide. The sulfur in the resultant mine tailings could leach off into the surface and ground water, creating yellow and red steams and creeks with toxic heavy metals and sulfur. Water that contains heavy metals and sulfuric acid kills fish, birds, and other aquatic life. The watershed for these proposed sulfide mines includes that Kawishiwi River, which flows into the Boundary Waters Wilderness, and includes that St. Louis River, which flows into Lake Superior. Contaminated water flowing from abandoned mines is one of the most significant contributors to water pollution in the United States. A toxic form of pollution caused by sulfide mines is called Acid Mine Drainage (AMD). AMD can have severe impacts on aquatic resources, killing microorganisms, insects, fish, and other aquatic life. It stunts terrestrial plant growth, harms wetlands, contaminates groundwater, raises water treatment costs, and damages concrete and metal structures. There are several thousands miles of streams impacted by AMD within the United States. The economic losses on fisheries and recreational use mounts to hundreds of millions of dollars' annually. See appendices C and D. AMD causes elevated levels of dissolved metals and sulfates, which render the stream unsuitale as a source of drinking water for humans, livestock or for use as aquatic habitat for wildlife. Because of the potential for Acid Mine Drainage, sulfide mines require treatment systems to ensure that acidic water is not discharged. these systems must be in place for the life of the mine, and continue in perpetuity to treat acidic waters after the mine is closed. Due to the ongoing treatment porcess, the risk of discharging acidic water increases over time. Water treatment systems at reclaimed mining sites is complicated by changing levels of ground water and fluctuating rain fall levels over decades and centuries. If movement of the acidic water is not contained within an impermeable barrier (e.g. pipe, plastic, glass, etc.) the acidic water flows into the underlying groundwater system. Once the acidic water enters the groundwater system, the detrimental affects on flora and fauna becomes widespread. Containment and treatment of the affected groundwater system is difficult, if not impossible. Generation of acidic waters is a long-term situation that requires perpetual chamical treatment. Therefore, funding for long-term treatment of acidic waters and long-term responsibility and liability for enviromnmental protection is on going. Mining companies and sulfide handling operators may not be perpetual and often go bankrupt. As a result, there are many examples of perators abandoning properties that discharge acidic water and requiring public money to clean up the site. See Appendix B. Unlike many dry Western states, Minnesota is rich in water resources that are especially vulnerable and are a great part of Minnesota's outdoor heritage for anglers, canoeists, duck hunters and of course wildlife. Our neighbors in Wisconsin have a moratorium on mining metallic sulfide ores written into law. In effect, the Wisconsin law says: "Industry can mine metallic sulfide ores in Wisconsin when it can show one mine in the United States or Canada that has operated and been closed for ten years without significant damage to its watershed." See Appendix A. The Izaak Walton leagure of American and the Minnesota Ike's in particular, have a long history of fighting for, protecting, and preserving Minnesota's North Woods and the wildlife it contains. It was instrumental in	G2C,G7A,G11,G12

Sender Last Name: Rutchasky **Submission ID:** 1094

1198	I support the NorthMet project, it will be good for the economy up here and I don't see any environmental issues. I process seems less intrusive than most of the processes that are currently going on.	EOO

Sender Last Name: Ruud **Submission ID:** 264

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
277	I am writing to tell you that I personally and the company the employs me fully support Polymet Mining's Northmet Project. This project will have a huge positive impact on the local Northern Minnesota economy, plus it will provide approximately 400 new permanent jobs along with hundreds of spin-off jobs for local businesses like RMS. I am an avid outdoorsmen and I love to fish and hunt in our great north woods. The Polymet Project has been designed to minimize environmental impacts and will utilize multiple safeguards to protect the environment. Polymet will be a domestic supplier of many different metals, which we all use in someway almost every day. Polymet will also supply some critical metals that are currently not being mined anywhere in the USA. The bottom line is that this project makes sense and we need to move forward with the permitting process. Please call me if you want to discuss my opinions further.	EOO
Sender Last Name:	Ruzynski **Submission ID:** 153	
144	All my relations are up in the Range. I'm originally from Floodwood, Minnesota and I'm a business agent for Local 49. I represent 13,000 men and women in the construction industry. And I am in full support of PolyMet and whatever we need to do to move this project along and to create jobs for men and women. I'm in support of it. And that's all I'd like to say. All my relatives are still up in the Range from Floodwood to International Falls on both side of my family. There's probably about a hundred of them and they are in 100 percent support also of this project. It's a good project and I don't see any concerns whatsoever of the environment or anything. I know it's a clean, green job. And it should go good. And you know that the main thing is we protect everything and I think they are doing a good job so far and will continue to do so. So I'm in support of that.	EOO
Sender Last Name:	Ryan **Submission ID:** 199	
196	THERE IS ABSOLTELY NO WAY THE PROPOSED MINING SHOULD EVER GO FORWARD. I am a resident of Michigan and have visited the of proposed mining area and I believe that any activity that could possibly affect the area should be squelched IMMEDIATELY. There is no financial reason great enough that the State of Minnesota should ever take such a chance. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources.	EOO
837	It is not acceptable to permanently disturb the wetland ecosystem of this area and to pollute any of the waters of Minnesota or the Great Lakes. If there will be groundwater pollution exceeding existing standards and unproven methods of water treatment, this project should not proceed as currently planned.	EOO
1697	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources.	EOO
1915	Can you really trust the mine companies? Have you seen the Berkeley Pit in Butte Montana? Is that what we want for a reputation in Minnesota? http://en.wikipedia.org/wiki/Berkeley_Pit	EOO
2638	I'm an electrician in Local 292 of the International Brotherhood of Electrical Workers, and I'm here at this meeting to listen to both sides -- all sides of this issue. It's my wish that a compromise between environment, the First Nations, the mining company and Labor compromise so that this project will start. I know that it won't be perfect, but the impact on the economy will be very significant. There's not that many products and businesses that can't be outsourced, but mining cannot be because we have the product in the state of Minnesota, so that is one thing we should take advantage of and not let this slip away. Thank you.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3882	We are writing to show our support for the draft Environmental Impact Statement for PolyMet Mining Co. We look at the PolyMet Mining Co. project as a great opportunity for Northern Minnesota, as well as the entire State. What a great green project when PolyMet will use the majority of an existing facility. We all talk about green but what a better way then to use an existing plant. PolyMet will produce copper, nickel, cobalt, platinum, palladium and gold. These metals are essential to green technology such as wind turbines, hybrid cars, computers, joint replacements and are necessary for pollution prevention devices such as catalytic converters. To mine these nonferrous metals with the regulation of environmental controls in our Nation rather then importing them from other countries who have little or no environmental regulation is really something one should consider when determining the adequacy of the draft EIS. This construction project will cost over $600 million, and provide 1.5 million construction man hours and close to 400 stable jobs when fully operational. We need this on the Iron Range to help to diversify our manufacturing and provide a future for all of our families. We ask that you approve the adequacy of the draft EIS.	EOO
Sender Last Name:	Ryks	**Submission ID:** 1021
1121	On behalf of the Duluth Airport Authority I appreciate your consideration of my comments regarding the draft environmental impact statement for PolyMet -Mining Company's proposed NorthMet mining project. This project is incredibly important to the economy of Northeastern Minnesota. PolyMet Mining will support 300 skilled tradespeople over the next three years and, when fully operational, the project will employ over 400 individuals with an annual payroll of $40 million. There will be over 500 additional spin-off jobs in St. Louis County resulting in an economic impact of hundreds of millions of dollars annUally. PolyMet will also generate tens of millions in local, state and federal taxes. Clearly, PolyMet will create jobs and build wealth in a region of the state that desperately needs both. As a frequent user of area lakes streams and forests, I would not be supporting PolyMet if this project and associated jobs would come at the expense of the envirorunent. PolyMet has been rigorous in developing an environmentally sound project, as the draft envirorunental impact statement clearly points out. While nonferrous mining poses challenges far different from iron mining. PolyMet's proposal addresses these challenges. In particular, I am impressed with the multiple safeguards the company proposes to use to manage waste rock generated during mining. There will be liners, foundations, drainage collection and waste water treatment during mining, plus special covers and vegetation placed on the waste rock after mining to prevent water from contacting the rock. This foresight in planning will minimize the potential for any contaminated water to leave the site. I also appreciate that PolyMet will consume sulfur in the ore as a fuel during processing. Not only does . this reduce reliance on other fuels, it also makes good use of the ore extracted. PolyMet has developed an excellent proposal and invested the time (nearly five years) and resources (more than $20 million) to demonstrate the proposal can move forward without harming our environment. I urge you to deem the draft envirorunental impact statement to be adequate and to move forward with permitting as quickly as possible. Thank you for the opportunity to present my views on this critical project for northeastern Minnesota.	EOO
Sender Last Name:	Sagen	**Submission ID:** 3607
774	The process for securing public comments, including the hearings of December 9 and 10, is fundamentally flawed. 1a. The comment period should be extended to at least 120 days, as recommended by EPA among others. The DEIS is 700+ pages and supporting documents run to several thousand additional pages. The intent of public comments is to secure widespread citizen input. Citizen groups such as NMW are unfairly limited in submitting comments by the enormous burden on volunteers required to respond to thousands of pages of technical presentation. 1b. The process for obtaining public comments at the hearings is contrary to EPA intentions. Comments are intended to be public. Citizens should have the opportunity to hear and to learn from the comments made by others in a public forum, and to have their own views challenged by others. The process adopted by DNR/USACE precludes these opportunities. Additional hearings should be scheduled and should include the opportunity to present views in a public forum and to challenge the views of others as part of the process.	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
775	The DEIS is premature. The DEIS should not have been released until the required land exchange between U.S. Forest Service and PolyMet has been completed. The DEIS is required to examine all potential environmental impacts associated with the Project. The land exchange may well introduce substantial impacts and these may in turn interact with other aspects of the Project which should be examined in the DEIS.	PRO4
1339	3c. The DEIS fails to adequately address a number of potential environmental impacts. These include the likelihood of structural failure at the tailings facility, the lack of structural integrity information for the proposed stockpiles, and the need for perpetual water treatment to avoid contamination to surface and groundwater resources. Structural stability of the tailings basin has been a serious concern since the Polymet project was first proposed. Three different tailings basin designs that have been presented in various draft documents. Reviews of these designs have expressed serious concerns with both the short-term and the long-term stability of the facility. A comprehensive analysis of the structural integrity of the latest tailings basin design must be included in the DEIS.	GT1
3312	3c. The DEIS fails to adequately address a number of potential environmental impacts. These include the likelihood of structural failure at the tailings facility, the lack of structural integrity information for the proposed stockpiles, and the need for perpetual water treatment to avoid contamination to surface and groundwater resources. Structural stability of the tailings basin has been a serious concern since the Polymet project was first proposed. Three different tailings basin designs that have been presented in various draft documents. Reviews of these designs have expressed serious concerns with both the short-term and the long-term stability of the facility. A comprehensive analysis of the structural integrity of the latest tailings basin design must be included in the DEIS.	WR2D,WR3I
3313	4) Data for analysis are often insufficient or absent. Analytic techniques are used inappropriately. Models are used inappropriately in the Project and rely on invalid data and assumptions. The MODFLOW model was developed to assess rates of mine pit inflow. Reported results are invalid for areas outside the mine pit footprint. The XP-SWMM model is based on stream gage data that is 17 miles from the proposed project and is 20 years old. DEIS modeling forecasts that the more PolyMet seepage released from the tailings basins, the better the water quality will be for Al, Mn and Fe in the Embarrass River. This incongruous result occurs probably because modeling at the basins does not appropriately account for leaching from the LTVSMC tailings when predicting future seepage quality.	WR1E
3741	The DEIS is incomplete. 3a. The DEIS does not address the need for financial assurance or identify the project components for which financial assurance is necessary. Inadequate financial assurance can have profound environmental impacts, extending over centuries. Financial assurance should be addressed in the DEIS rather than postponed to permitting decisions for which different regulations may apply. As quoted by the tribal cooperating agencies, “New national rules for financial assurance are under development by EPA, because ‘Given the history of adverse environmental effects resulting from some hard rock mines, and the expenditure of public funds used in some cases to address environmental problems caused by mining, EPA believes it is necessary to analyze these factors in the DEIS.’ (from InsideEPA.com,Tuesday, August 25, 2009).” The DEIS fails to identify that post closure treatments such as waste water at the mine site mayhave to continue for centuries. Financial assurance for such eventualities must be addressed in the DEIS.	PD4
3742	3b. The alternative of an underground mine was not examined in sufficient detail. The alternative is economically feasible. Profit margin should not be a consideration in examining the alternative in detail.	ALT8
3743	3d. The DEIS fails to address existing environmental problems at the mine and processing sites. Problems at the LTVSMC Tailings Basin must be adequately addressed through PolyMet’s assumption of remedial liabilities under the VIC program, and mitigation measures should be included and discussed in the DEIS.	G9

Sender Last Name: Salo **Submission ID:** 1028

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1128	On behalf of the Aurora Housing and Redevelopment Authority (HRA) for the City of Aurora, the Aurora HRA supports economic benefits for revitalization of businesses and housing in the Aurora area. The proposal by Polymet, as stated in the ElS, seems to fit the economic and environlllental strategy for the Aurora area . There have not been any enviromnental issues that would adversely affect Aurora or the people in the area. As a result, the commissioners of the HRA would strongly suggest that the DNR support this project ina favorable manner.	EOO
Sender Last Name:	Sand **Submission ID:** 2747	
3185	This absolutely cannot be allowed. We have already had many many issues stemming from the taconite plants and then on top of that the railroad has dumped creosote all over the state from the early 1900's thru 1986. Out water simply cannot take any more abuse!! PLEASE STOP THIS!!!	EOO,G7,G8C
Sender Last Name:	Sandberg **Submission ID:** 3445	
3728	I DO NOT want the mine that is proposed. It is an environmental and financial hazard to our state	EOO,G2,G4A
3729	I DO NOT want the mine that is proposed. It is an environmental and financial hazard to our state	EOO,G2,G4A
Sender Last Name:	Sanders **Submission ID:** 3750	
1	What’s going to happen in 20 years when this is all over? What’s the next THING? What’s going to happen when there isn’t any more to mine? Then what?	G1
1	Metal prices are projected to fall early next year – Kiplinger Letter Nov 25th, 2009 Vol 86, No 48. If the were a shortage – prices would not be projected to fall.	G1
1	If this mine is permitted to go through - along with those that will come after - we will regret it. The facts point to this being the case. It cannot be good for our beautiful state in the long term. It’s unfortunate that the citizens of Minnesota do not have a say in this matter. If it were put to a vote, with all of the facts put forth prior to - it would never be allowed. You know, I know it, the politicians know it, and the mining companies know it.	G10
1	http://diss-epsilon.slu.se:8080/archive/00001874/01/Kappan_Avhandling_nr_08.88.pdf We want mining to take place in Minnesota, so that we can call upon our long tradition of mining excellence Are you for real? How much pollution has already been proven from mining – and you call that excellence? and show the world how nonferrous mining can be done the right way. Finally, we want it done in Minnesota, so our country has its own supply of precious metals How many cell phones are made in America? How many computers are made in America? And what about PolyMet’s deal with Glencore? and will not have to rely on foreign dictators or polluting countries to make the products our green economy will need to be successful You mean relying on Canada, Australia, the US, and Sweden for example? Yep, those tyrannical bastards. Boy, do these politicians actually believe their own BS?	G1
2	This sulfide mining project and district will add to global warming and climate change.	AQ3
3	We need more time for people in Minnesota to learn more about the dangers of sulfide mining in Minnesota. Please extend the time period for study and comments by citizens.	PRO6
4	• extend the deadline for public comments a minimum of 30 days beyond the current Feb. 3, 2010 deadline	PRO6
4	• locate additional public meetings in accessible sites: Duluth, St. Paul, and Rochester;	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
5	All this info is to say that my observation is that the people of MN are hard working, active, and productive. Having the Polymet mine in Northern MN will be a boost to the MN economy. It will provide families financial security, investments for their future and health insurance opportunities. Polymet jobs will help build self respect and self esteem through honest hard work. It will have a positive impact in MN on multiple levels. One of those levels is the environment. The USA is a leader in global environmental initiatives and policies. MN is a model for others to follow. Therefore it makes sense that having Polymet in Northern Minnesota will allow the world to see the importance of treating the environment with care and dignity. If we reject this project another location who are not as concerned about environmental safeguards may end up with this project. In such a case we have assisted, by omission, in hurting the very environment we want to protect. Please bring Polymet to Northern MN.	EOO
6	Mine site alternative. Submerging tailings is not a convincing mitigation strategy. Water tables may fill, there may be seepage to groundwater. This option needs a more vigorous analysis.	ALT2
6	Low margins of safety for tailings and embankments are a significant concern as it increases the risk of catastrophic failure.	GT2
7	On behalf of the Painters & Allied Trades Local 106, I am pleased to provide these comments that support an adequacy determination for the draft Environmental Impact Statement for PolyMet Mining Co. PolyMet is proposing to develop a mine for nickel, copper, gold, platinum, cobalt and palladium-metals that my members use daily and that are critical for our domestic economy. PolyMet also will transform the shuttered LTV Steel Mining Company facility into a processing facility for these important metals. Development of the mine and processing plant will require 1.5 million man hours of construction over a two-year period. When fully operational, PolyMet will create 400 full-time jobs with an annual payroll of about $40 million. At least 500 spin-off jobs with an economic impact of more than $242 million in St. Louis County alone will be created, as well. And PolyMet will help contribute to the local tax base. While all of those figures are important, the Painters & Allied Trades Local 106 would not be supporting PolyMet unless it was able to protect our air, water and natural resources. Based on the evidence found in the draft Environmental Impact Statement, it's clear that PolyMet will provide critical metals and create hundreds of jobs-all the while keeping our environment clean. The project won't discharge process water. It will be a minor source of air emissions and use sulfides in the ore as a fuel. It will re-use a brownfield site and have a minimal impact on our wetlands. Finally, PolyMet will set aside financial resources to pay for closure costs before the first shovel of dirt is moved. PolyMet is a win-win-win for our region, our state and our country. Please move quickly to determine that the draft Environmental Impact Statement adequately addressespotential environmental concerns and begin working on the permits so that this exciting project can begin operations as soon as possible.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
7	We realize the proposed PolyMet project for a copper/nickel mine is different than the mines that are presently in operation, and we are encouraged with the new technology that will be used to protect our environment and lake waters. We have confidence in our state environmental agencies - the Minnesota Department of Natural Resources and Minnesota Pollution Control Agency. They have kept a strong eye on the taconite industry and fined them for any infractions. We feel they will be even more vigilant in watching what PolyMet does, to assure that our lakes are not in danger of pollution from acid runoff. We all care about our environment and do not want to see our tourist industry destroyed, but there is no buffer zone to the Boundary Waters. All the proposed mining projects are outside of the wilderness area. Tourism jobs are important to our economy, but they are seasonal and not the jobs that provide a livable wage to sustain a family. They are not the jobs that bring young families to our towns and help sustain a healthy community. Our ommunities are dying. Our schools and hospitals are in dire trouble without the population to support them. PolyMet NorthMet Project is not in the Boundary Waters Watershed. We need to balance the need for livable wage jobs with care for our environment. These mining jobs will help stimulate the economy of northeastern Minnesota. As people return to the Iron Range for these mining jobs, spinoff jobs will be created and people will be able toshop in their communities again. These jobs are essential to the year round health of our communities. There is a need for copper, nickel and other precious metals, and if it isn't mined here safely, it will be mined elsewhere (Russia) very badly. And that's the acid rain that will affect our beautiful Boundary Waters. We should be thinking globally and acting locally. That's conservation with common sense! The needs of local communities and all users can and must be balanced with the conservation of sensitive natural environments. We are fortunate copper/nickel mining didn't take place in the 1970s, and that there is safer technology today. We are proud that Minnesota has some of the country's strictest pollution regulations to protect our precious waters	EOO
8	The environmental standard should be comparison of impacts of this project to other existing mining and refining projects; not the best attainable or least objectionable environmental impact because the cost of minimizing environmental impacts is prohibitive and contrary to any perception of equity; a cornerstone of the US system of government. This environmental review has dragged on way to long without any other direct comparative measurements to other mining and refining projects; which would have ended this EIS review long ago.	EOO,G8C
9	I urge immediate acceptance of the environmental impact statement for this project noting the minimizing environmental impact goals are impractical and unlawful. There is an above average chance the US NSA may intervene in any event to stop this obstructionist activity of this critical supply metal to the US economy.	EOO
10	PolyMet talks about funds that will be set aside in case something happens. How much and in what form will the monies set aside for future clean up be? When will they be set aside? I sure hope prior to anything being started.	PD4
11	PLEASE READ THIS!!! http://dissepsilon.slu.se:8080/archive/00001874/01/Kappan_Avhandling_nr_08.88.pdf Sulphide oxidation is catalyzed by a bacteria, named Thiobacillus ferroxidans. Without that bacteria the oxidation would be much, much slower (it's in the above thesis, the reactions are described in the appendix). In nature, that bacteria is present everywhere. If you take fresh tailings, however, directly from the flotation processes, and bring them to the laboratory for leaching studies, the bacteria may not be present in the tailings. That may be the explanation for the difference in oxidation rate between field studies and laboratory studies. Has there been long term field studies with the tailings? It's very important, because that’s the natural conditions, the real scenario for the tailings, with the bacterias present. I searched the DEIS and found nothing on field studies concerning the tailings - only wild rice. Why?	WR1E
12	Would the subaqueous tailing pond(s), over time, evaporate? If so, then what?	WR3A
12	What effects does winter have on the tailings ponds, etc?	WR3A
13	“The west pit would eventually fill with ground water and over flow. This initially would not meet surface water standards. For how long? There would be a reduction in the flow of the Partridge River. How much of a reduction, and what will the	WR3C
14	“When the west pit overflows, add water treatment during the flooding, or treat the Partridge River.” How will this treatment happen? Will it not be too late to act once it overflows? I believe so…	WR3C

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
15	"The seepage of sulfates through the tailings would produce methylmercury." How much? What's the impact? What about the groundwater?	WR4A
16	"There would be an increase in the flow of the Embarrass River." What effect will this have?	WR3E
16	"There is a potential for sulfates flowing north to impact wild rice." How far north? How big of an area? What is the "potential" damage? What will be the damage to the aquifer(s)? And for how long?	RFI
17	"Minimal effects on the watershed of the St. Louis River." Define minimal please?	WR5A
17	Problem: Tailings basin current alternatives: Use of the existing tailings basin for discharge of flotation effluent even with the dike/well alternative to capture leakage is unacceptable. Discussion: The tailings basin has leaked in the past and it will leak again. The current alternatives will not capture all leakage. The chemical make-up of the effluent is not completely known at this time and is likely to vary considerable over time of PolyMet's operation. Proposed alternative: Rebuilding of the tailings basin with clay and impermeable liner at the outset of the project will minimize change of leakages, eliminate leakage discharge to Partridge River and be much easier to do before basin is used. (i.e. future mitigation)	GT1
17	Problem: Concentrated acids Discussion: The storage of HCL & H2SO4 seems safe enough in the indoor fully contained storage tanks. However, the E.I.S. did not make it clear to me that the safety of the rail cards and the unloading area was all it could be. The transfer of responsibility between the RR carriers and PolyMet requires definition. The RR Siding where these tank cars will await unloading requires containment provisions for spills and leakage. The unloading area also requires containment safeguards.	PD7
18	Problem: Discharges exceeding current state/federal concentrations. Discussion: Adoption of and insisting on the most stringent safeguards to prevent ground water and waterway contamination may or may not become reality on this project. My concern is the regulatory reality of PolyMet's operation. A. Will the standards be relaxed for the project, thus giving the green light for the now stated concentrations of sulfate, antimony, nickel, & manganese to be discharged? B. If not will the water treatment facilities be upgraded to meet the standards?and C. Will adequate mine/mill test wells be set-up to enforce compliance?	RFI,WR3I
18	Problem: Mine put reclamation/backfill Proposed plan: The exposed ore body will have its ore faces covered upon completion of mining. The eat pit will be backfilled. Water accumation in the spent pits will occur, overflow is likely. Discussion: The ground fracturing that will occur during drilling and blasting over the life of the mine will be extensive. Leaching and water migration into surrounding structure will occur. Covering exposed ore faces & subaqueous containment of waste rock will not alleviate these problems. Safeguards: Long term put pumping and water treatment will be necessary. Perimeter monitor wells will also be required.	EOO
18	Problem: Stockpiled material Proposed plan: Waste rock will be deposited on lined acreage and covered with weather proof membrane. Additional safeguards: Lean ore stockpiles may or may not be consumed over the life of the project and also need to be deposited in the same manner as waste rock. Economics may dictate long term storage of loan ore, as proven in nearly every mine nation wise, loan ore stockpiles still exist from mining activities 50 years ago. Proposed alternative: Treat all stockpiled material in same protected manner to avoid rehandling and later construction of safe long term storage pads.	PD11
19	I watch loons and bald eagles catch fish. I want them to live.	G2C
19	I am concerned about water, air & noise pollution in the Kawishiwi River area with this project. Who will guarantee that this area remains pristine?	RFI,G2B,G7A
19	The proposed mining district will severely impact by my habitat moose habitat for this declining species should be protected.	WI5
19	Birch lake is a treasure and we can't allow it to be contaminated.	G7A
20	I am especially concerned about protecting clean air and clean water.	G2B,G7A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
21	Future citizens and tax payers should not have to pay for clean up.	G4A
22	I am also very concerned about the dangerous and harmful impacts to the natural resources, natural areas, forests, wetlands, and lakes, ground water, forests, wildlife, fisheries in northern MN. I am worried about establishing a sulfide ore mining district in northern MN.	G2A,G2C,G7A,G7C
23	I am also worried about the impacts to natural resource based tourism economic development. The BWCAW will be harmed by water and air pollution, and haze.	SE4
33	and so near to the core of the nations most visited and vulnerable wilderness areas, the boundary water cave area wilderness. Clean water is the key to protecting this valuable wilderness.	WR3B
34	Also nearby and threatened by water and air pollution is Lake Superior. Our states low part reserve of clean water should be protected. Zero discharge of air and water pollution into Lake Superior must be overarching goal for all Minnesotans.	WR3D
35	Mercury pollution and the harmful impacts to people are a big problem in MN. This sulfide mining district will add to this problem.	EOO,WR4B
36	I support the PolyMet project. I work in this area, and I want this project to bring new jobs, both at the mine and the spinoff jobs in the area.	EOO
37	• the timing of the public meetings is too soon after the release of the massive and complicated draft EIS, making it difficult / impossible for most individuals to familiarize themselves with the details of the DEIS;	PRO6
37	• the paucity of public meetings (2) to provide members of the community an opportunity to learn about this precedent-setting project and express their opinions;	PRO6
38	• the difficulties some citizens have experienced in submitting their public comments (I.e. bounce back and institution of a new Survey Monkey-based form);	PRO6
39	• there is no information on where citizen participants can obtain written records of submitted comments and answers.	PRO6
39	• schedule more public meetings in early January, 2010, permitting individuals to read the DEIS, submit informed public comments, and participate in holiday events;	PRO6
40	publicly acknowledge difficulty in submission of comments and repair by institution of the Survey Monkey site;	PRO6
41	monitor the site(s) to insure that additional shut downs do not occur;	PRO6
42	insure that multiple hard copies of the DEIS are available at all sites listed by MDNR;	PRO6
43	extend the deadline in acknowledgement of all the issues listed above;	PRO6
44	5. The PolyMet project would take over 6,700 acres of public land in the Superior National Forest. Yet, the DEIS has done no analysis of a land exchange to protect the environment, tribal rights and public taxpayer assets.	CPLU4
44	• provide clear information detailing where citizens· may obtain a written (or web-based) record of submitted comments and answers, preferably as a daily-updated link to the DNR site detailing this proposal.	PRO6
45	3. The Tailings Basin design does not meet minimum safety standards to prevent catastrophic failure and uncontrolled release of tailings to the Embarrass River. Waste rock piles, mine pits and liners will leak and seep pollution into groundwater.	EOO
46	2. The PolyMet Project would significantly increase mercury levels in local fish, creating human health and ecological risks. Sulfates would impair wild rice. The DEIS studies are inadequate to prevent degradation of water quality.	WR1E,WR4B,WR4F,FM1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
46	1. Discharge and seeps from the mine, pit lake, tailings and waste rock piles of the PolyMet project are likely to pollute water for decades, even thousands of years. Yet there is no showing that the PolyMet corporation can or will provide financial assurance to protect taxpayers from long-term pollution,.	PD4
47	4. Technologies upon which PolyMet relies to treat contaminated water, prevent release of contaminants, including sulfuric acid compounds, are untested or unreliable.	WR3D
48	(1.) My name is Darrell Godbout I am a Ironworker Business agent I represent over 1800 Union Ironworkers And we are in support of the polymet project. (2.)This is an existing mine site already. The property can't be developed for anything else. (3.)We all have families, friends and relatives living in the Arora, Hoyt Lake area who enjoy clean water and air. Poly met has taken the steps to ashore this area stays that way. (4.)We in port 80% of are copper this country uses from over sees companies that work with no environmental restrictions. Poly met has addressed all the environmental concerns to make sure they are a good community member and a company to have in are community. (S.)A lot of the people in charge of poly met are from the area. You will see them in the super market, kids ballgames, around town. They won't to walk with their heads hi knowing they are good for the community not destroying it. (6.) Polymet will create about 400 full time jobs and hundreds of spin off job and 1.5 million construction hours over 2 years. It is very clear Polymet is very good for northern M N. (7.)The things to remember are. (8.) Polymet has addressed all the environmental concerns. (9.) Polymet will provide millions of dollars in local and state tax to support the community and are schools. (10.) And last of all the jobs it will create in this area wich we are in need of.	EOO
49	I presently live in the Twin Cities, but grew up in Hoyt Lakes, MN, the site of the proposed PolyMet project. I am very happy to see the PolyMet Mining Project moving forward. It is long over due. It's time we finally start getting some job growth in Northern Minnesota once again, so that people like myself do not have to move away from the area to find employment. The towns we grew up in are now half the population they were when we lived there. It's frustrating, seeing how much control these lobbyist groups have, in delaying something which will be good for our state. I keep hearing about how this new project is being built on pristine wilderness land and how it will interfere with the wildlife habitat. PolyMet is being built on existing Mining Land which has been used for over half a century. With the improved technology being used today, this mine will be far more environmentally friendly compared to what was there before. With the tough economic times our country is facing, these are the type of projects we need. Projects that will bring jobs back to areas that have been hit hard with unemployment. It's time to move forward with the construction of PolyMet. We've jumped through enough hoops that keep. delaying the project. It's time our government let this project go through, and move on. It's a wonder anything can get done in this country anymore with the control the lobbyist groups have on everything. It's about time our country address the lobbyist problem we have in this country as well, so that job growth proposals like this don't keep getting shut down and stalled.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
51	The AGC supports PolyMet's NorthMet project. We support this project for the following reasons. We believe the project will create badly needed jobs at a time when unemployment is 20% and higher. The existing labor pool is highly qualified for these jobs, allowing employers to hire quality Minnesota workers who need stable jobs to sustain their families. The State of Minnesota and the Iron Range will benefit immensely by providing millions of dollars in local and state taxes to support our communities and educational system. The construction industry is environmentally responsible. We believe in clean air and water, recycling, and sustainable design, construction, and development practices. We believe in taking care of the land and in conservation of resources. To this end, we believe PolyMet can produce these metals in an environmentally sound manner and create hundreds of stable jobs that can support families and the Minnesota communities in which we live. The metals that Polymet will mine are essential to green technology such as wind turbines and hybrid cars and are necessary for pollution prevention devices such as catalytic converters. PolyMet will be a domestic supplier of critical metals needed in medical applications, cell phones, computers and other essential products used in daily living. PolyMet will mine and produce several metals not currently mined anywhere in the United States. This is extremely important at a time when Minnesota is striving to differentiate itself in the global and domestic economy. Metals from the mine are necessary for modern society. Mining these metals in one country, processing them in another and then transporting them to the U.S. is highly inefficient and creates unnecessary greenhouse gas emissions. Foreign suppliers of these metals don't necessarily follow sound environmental practices, creating a greater global environmental impact.	EOO
52	Thank you for the opportunity to comment on the draft Environmental Impact Statement (EIS) for PolyMet Mining. On behalf of the Board of Directors and members of the Hibbing Area Chamber of Commerce, I am pleased to offer my support and to encourage a finding that the draft EIS is adequate so permitting for the project can begin. The Hibbing Area Chamber of Commerce supports the proposed PolyMet Mining project because it will provide critical metals used in our daily lives, it will create new jobs and economic development and it will operate in an environmentally sound manner, as documented in the comprehensive draft EIS. Part of the mission of the Hibbing Area Chamber of Commerce is to support local economic development and to highlight how local businesses can contribute to the sustainability of our economy. The PolyMet project is a perfect example-a local business providing critical metals used by my members every day and doing so in an environmentally sound manner. In particular, the Hibbing Area Chamber of Commerce notes that: PolyMet will re-use an existing brownfield site, which will minimize the destruction of wetlands. PolyMet will manage waste rock based on its potential to generate acid. Engineered liners, foundation drains to collect seepage for treatment and, in the end, covers for each stockpile will ensure that the minimal amount of water that contacts the rock will be treated, PolyMet will not discharge process water. PolyMet will use the sulfur found with the metals to process the ore-saving on greenhouse gas emissions and making the best use of the ore itself. PolyMet will have very few air emissions because it will use the sulfur as a fuel to process ore. PolyMet's residue will not be hazardous and will be stored in specially designed cells. PolyMet will set aside money to cover all closure costs-before the first spade of dirt is turned. PolyMet will achieve many of these environmental milestones with the help of many of my members - businesses that have developed globally recognized expertise in mining that will be put to good use in the PolyMet project. The United States imports as much as 90 percent of the metals that PolyMet will mine, making us reliant on foreign supplies of minerals we use every day. Many, if not most, of those foreign supplies are not produced with the same eye toward environmental protection that PolyMet has demonstrated throughout the draft EIS. The draft EIS does an excellent job of documenting the steps PolyMet will take to protect our environment, identifying impacts and providing mitigation alternatives. As such, the draft EIS should be found to be adequate and permit development based on the information contained in the draft EIS should begin immediately.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
53	The Minnesota Pipe Trades Association believes that the Polymet Project will be operated in a responsible and professional manner and in accordance with Minnesota's existing stringent environmental regulations as well as for the following reasons: The state of minnesota has the finest environmental regulations in the country in regards to the mining industry. There are over forty pages of Minnesota Rules on record that were formulated with the input of Environmentalists, Area Citizens, Mine Owners, Labor and the Department of Natural Resources (DNR lin the 1990's. If these rules are enforced today and with the Cooperation of all parties, the mines have operated and the environment has been protected. I was very pleased to see the comprehensive DEIS and that the Army Corp of Engineers, the Department of Natural Resources as well as the American Indian Tribes all had input in the draft. The Minnesota Pipe Trades Association supports the Polymet Project.	EOO
54	I am writing this letter to express my support for approval ofPolymet Mining's Northmet project. I work for Road Machinery and Supplies Co, an 80 plus year old Dealer in the equipment distribution and support industry. This project and the people and businesses of the Iron Range are vital to our state and economy. I believe Polymet, the DNR, MPCA and Corp of Engineers have required a level of scrutiny and detail in preparing the Draft EIS that sets a very high standard for understanding the impacts to our northern Minnesota natural resources. My family has enjoyed the beauty of the area near Tower for over 30 years and I have a strong personal stake in protecting this resource. The Polymet Project plan has been designed with safeguards to protect the environment. It comes at a time when Minnesota needs to show that we can balance economic opportunity, growth of our Mining heritage, along with responsible stewardship of our states natural resources. This project is well planned, has the safeguards needed and makes clear economic sense. Please move forward and issue the permits for this project.	EOO
55	I'd like to start off, I support the PolyMet mining project. I believe it will bring good-paying jobs to the area. It's one thing this area really needs. You know, instead of importing a lot of the jobs overseas, buying metals and the state of the economy that we are in right now, and there's no other way to do it, except for maybe have some jobs in Minnesota here. I believe they can do it safely. I believe the EPA should have strict regulations on them so if they don't do it safely, they pay the cons -- consequences before we do. I'm an average fisherman, hunter, and I've lived up in northern Minnesota my whole life, and I believe there are clean lakes up here, and there always should be. I'm a big -- I am big on domestic production. I believe we wouldn't be in this state of the mess if people wouldn't buy foreign vehicles, foreign -- everything comes from foreign. More or less, we need jobs. Jobs means taxes, dollars that stay in the United States, stay here. They don't go overseas. I know it's a world economy these days. Well, then the EPA should be a world thing also. You know, if we can't do it here, why should China, why should these foreign countries get away with things that we can't. It's just we need jobs. I'm a resident of Tower-Soudan. Last night, we had a vote on schools, because the state -- state is not providing money, taxes are not enough, so they tax us more. Well, how are we supposed to pay taxes when we don't have jobs? Everyone wants to live in the Cities and point fingers, but I believe we need jobs. I just believe that with all the -- with all the technology through these years, I believe we can do it safely, environmentally friendly, and provide families with not going to bed on worrying how to buy food, shelter, and how to provide future for their families. Thank you very much.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
56	I have a Bachelor of Science Degree in Biology from the University of Minnesota with a Chemistry Minor. I (thankfully) reside year-round with my family on Wynne Lake, a few miles from the proposed Polymet site. After reading both the long- and short-form of the DEIS on the Northmet (polymet) Project and finding that the proposed methods of abatement and the procuring of metals within the limits of accountable environmental industry, I lend my support to this project. As my family's health and Wynne Lake's health are directly tied to this project being environmentally responsible, I am concerned that the project stays within set parameters. After reviewing the proposed plans set forth in the DEIS, I have confidence the project will be carried out in the most responsible way. This is where the ore is at, this is where it must be mined. The proposed project area has been a mine for years and with the abatement proposal, could be bettered (from the condition it is now in) once the project is finished. In an economy ri4dled with job loss, this project comes here at the right time. Our national security will benefit from this project. Those cell-phone parts and Hybrid car parts are made of the metals this project will produce and represent just a small example of products the raw materials from this project will become. Other countries have less stringent regulations and our dependency upon foreign imports of raw materials is detrimental to our economy and our national security. There is a global need for this project and we can do it in an environmentally sound mauner here, or others concerned only with massive profit will carry out the same project without regulation and we will still pay environmentally as well as socially and financially. Because of the aforementioned mentioned reasons and many others, I support the Polymet project.	EOO
57	Do let the public know that just because this mine will move forward with the permitting process that you will continue to work with Polymet throughout the life of the mine to ensure the quality of the environment.	PRO3
57	Within this statement is my support of the Polymet Mining project. The mine that is proposed is one that has thoroughly been written by an independent third party, reviewed by federal, state, and tribal agencies along the way to shape the full development of the Draft Environmental Impact Statement. Polymet has been designed to exceed expectations, .minimize environmental foot print, and reuse a good portion of existing infrastructure at a Brownfield site. The thousands of supporting documents written by professional world class engineers and geologists support this mine and should be moved to the permitting process as soon as possible. The Minnesota Department of Natural Resources, The Minnesota Pollution Control Agency, and the United States Army Corps of Engineers should be proud of their accomplishments in contributing to this complex document that is at hand. Polymet has demonstrated that it can produce these critical metals while following Minnesota's strict environmental requirements. My faith in the system we have put in place, here in Minnesota is high; it is upon you to continue your work as the convening authorities to allow the process to move forward.	EOO
57	The tax base for this state will be a positive seen many places. The economic benefits will help stabilize the area. Additional companies! corporations will follow to the area to be closer to these metals, spurringeven more growth for our great state.	EOO
57	Do establish financial assurances for any issues that may arise in the future.	PD4
58	Further, the effects of long term environmental and climate change are not included in the uncertainty analysis.	AQ3
59	While a net loss of 1-3% of wetlands doesn’t sound terrible, Northern Minnesota’s peat lands are an invaluable and essentially irreplaceable resource. I have not seen any evidence that our-of-area mitigation replacement is adequate to compensate for peat land loss.	WE3
60	In view of the controversial nature of the proposed project and the extraordinarily poor record of similar mines implemented in the past, it would be a useful exercise, that would help place this in context, to look at any environmental reviews or predictions that were made for other sulfide mines and the subsequent condition of those projects.	PD8
61	Although the proposed alternative evaluation acknowledges a high likelihood of water quality problems as a direct and indirect result of mining activity, proposed mitigation measures are not adequately evaluated.	WR1E
62	It would also be useful to provide the public with a disinterested 3rd-party evaluation of proposed mitigation measures, and references to projects or locations where those measures have been successfully implemented.	PD8

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
63	Pumping water. Colby Lake, Barge #1, Booster Pump House #1, Tails Pond pumps, loading pockets, and many things all over the plant. Need relief valves on GIW pumps-suc. And disch. Of each pump if you are using such a pump.	EOO
64	First, I believe the Northmet project serves as an excellent example of advancing my research group's mission which is" to foster the economic development of Minnesota's natural resources in an environmentally sound manner to promote private sector employment. Our economic geology group, for example, has studied northeastern Minnesota's copper/nickel IPGM mineral resources for the past 24 years and now we finally have a technically and environmentally sound process to extract the low concentrations of metals they have studied which are needed to meet many ofthe United State's strategic uses for copper, nickel, cobalt, and platinum group metals. Just as our research institute has continually supported the taconite mining industry in the areas of geology, mine engineering, mineral processing, product metallurgy, and environmental engineering, we greatly look forward to supporting the advancement of copper/ nickel/ PGM mining in Northeastern Minnesota. We therefore plan to build, operate, and staff a new hydrometallurgical research laboratory on our Coleraine Minerals Research Laboratory campus to advance technical developments in the area of copper nickel mining and processing focusing on the use of our extensive mineral resources in Northeastern Minnesota. From a sustainability viewpoint, I feel the project offers an outstanding route to return the economic viability of this region in the State which previously existed and was lost due to the 2001 closure of the LTV Steel Mining Company and the loss of its 1400 permanent high paying jobs for the Hoyt Lakes area as well as for greater Minnesota. In addition, by operating with a philosophy of sustainability through maintaining high level safety, health, and environmental standards, this mining operation has great potential to make continuing and lasting contributions to the local, regional, and national economy. From a sustainability viewpoint, the project also wisely reuses the previous LTV Steel Mining company's iron ore crushing and concentrating facilities and equipment, as well as other infrastructure including LTV's previous rail lines, power lines, and tailings basin. It is important to recognize that the Northmet property and associated mine and processing plants have no surface water discharges and will institute groundwater monitoring stations to actually measure the results of its extensive environmental control efforts. I therefore believe that the parties involved have diligently prepared a very solid Environment Impact Statement which well informs the permitting agencies of the proposed actions required to conduct surface mining of the Northmet deposit and mineral processing ofthe Copper-Nickel-Platinum Group Elements contained in the ore. I also believe the EIS adequately assesses the potential environmental impacts of this new mining project and provides operating methods to control the level ofthese potential impacts. Additionally, the agency recommended mitigation measures identified provide an excellent set of operating procedures to further reduce environmental impacts potentially encountered during operation of the mine, mineral processing, and hydrometallurgical plants. I believe the proposed Northmet Project has well balanced the economic capture of strategic metals from the Duluth complex with a set of operating practices designed to maintain high level environmental standards to safeguard our valuable air, water, and land resources.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
65	We, in northeastern Minnesota realize that, by its very nature, a mining operation will affect our enviromnent. The landscape of the region bears evidence of over a century of iron ore mining. However, through the oversight of the Minnesota Department of Resources, and the insistence of the people who live here, the scenic beauty of the region completely overshadows the traces left by mining operations. The thousands oftourists who flock to this region to enjoy sparkling blue lakes and thriving forestlands attest to that fact. Now, as we usher in a new kind of mining in northeastern Minnesota, some people are concerned that the same careful consideration for the enviromnent that we have experienced for over 100 years will somehow cease to be important. Nothing could be further from the truth. Those ofns who live and work in northeastern Minnesota are perhaps even more concerned about our enviromnent than those who come use this area as their playground. After all, we appreciate the beauty of the region year after year, twelve months a year, and are careful custodians of the natural resources that make the region where we live and work so special. Through this EIS process, the Minnesota Department of Natural Resources has conducted an exhaustive study to ensure that copper/nickel and precious metal mining can occur in the region with a minimum effect on the natural enviromnent. We believe and trust that those intense studies have considered and answered any questions concerning the potential effects ofNorthmet's operations and that the DNR will continue to partuer with the residents of the area to ensure strict adherence to all of Minnesota's rules and guidelines conceming our enviromnent. It is important to note that although most public discussion highlights concerns about the possible effects of copper/nickel mining on the natural landscape, the EIS process demands equal consideration of the socio-economic implications for the region. It has been found that that the Northmet operation will greatly benefit the region economically by creating approximately 400 new jobs and at least three times that number in support jobs. This, in tum, will generate additional revenue for the state's ailing budget, help strengthen our school districts statewide, and encourage additional retail activity in our region which will result in the development of stronger and wealthier communities on the Iron Range. Although the protecting the beauty of northeastern Minnesota remains of paramount importance it is also imperative that the people who live in the region can continue to work at productive jobs, raise healthy, well-educated families, live in thriving communities and enjoy all that northeastern Minnesota has to offer in recreational opportunities. It has been proven through the EIS process that the Northmet project can reliably adhere to the stringent environmental rules set forth by the state of Minnesota and, just as importantly, can help to ensure the quality of life desired by the people of northeastern Minnesota.	EOO
Sender Last Name:	Sandnas	**Submission ID:** 346
374	As a lifelong resident of Northern Minnesota, I have first hand knowledge of what these much needed jobs can do for our area. As much as we need these jobs, I am unwilling to compromise our drinking water and air quality. However, based on the documentation outlined in the DEIS, I am satisfied that PolyMet can extract these resources in an environmentally sound manner with minimal effects. I am in full support of Poly Met Mining's North Met project. As an American, I am greatly concerned about our growing dependence on foreign countries to meet our needs. This is a trend we urgently need to reverse and this project is a good start in the right direction. Let's move forward with a project that will enhance the Iron Range and reduce our dependence on others.	EOO,G2
Sender Last Name:	Sandri	**Submission ID:** 3681
19255	Tribal cooperating agencies take the position that the canopy cover and herbaceous layer noted above indicate significant groundwater inputs to the wetland communities.	WE2
Sender Last Name:	Saphner	**Submission ID:** 1484

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1769	I have enjoyed the Lake Superior Watershed for many years at my cabin in Michigan. Pit mining was just approved there and I can see only short term gains. A watershed is not an isolated place; pollution originating in Minnesota migrates throughout the area. Please do not contaminate such a beautiful place.	G11

Sender Last Name: Satrom **Submission ID:** 182

14	The EIS should be clearer; PolyMet is not in the Boundary Waters watershed.	WR3B
173	PolyMet will significantly contribute to the state and local economy at a time when we really need the jobs and economic benefit. PolyMet's 400 employees and the hundreds of spinoff jobs will provide a huge economic benefit to Minnesota and the Arrowhead region/my local business. PolyMet will provide millions of dollars in local and state taxes to support our communities and educational system. We should move forward with permitting this mine. We need and want jobs. PolyMet can produce these metals in an environmentally sound manner and create hundreds of stable jobs that can support families. PolyMet has demonstrated it can produce these critical metals while following Minnesota's strict environmental requirements to protect air, water and land. The metals that Polymet will mine are essential to green technology such as wind turbines and hybrid cars and are necessary for pollution prevention devices such as catalytic converters. Based on the extensive documentation as outlined in the DEIS, I am confident that impacts to the air and water will be minimal, if any.	EOO,G5
174	I understand the need to balance use of resources like minerals and preservation of resources such as water and air. I feel this EIS lays the proper groundwork for developing an environmentally and economically sustainable project and I wholeheartedly support it. PolyMet project has been designed to minimize environmental impacts; reusing a brown field site, reusing existing infrastructure, minimizing disturbance of wetlands and utilizing multiple safeguards to protect the environment. PolyMet will be a domestic supply of critical metals needed in medical applications, electric cars, catalytic converters, cell phones, computers and other essential products. I understand the importance of buying locally. PolyMet will mine and produce several metals not currently mined anywhere in the United States. I use these metals every day. PolyMet will be a domestic source of the metals we all use every day. Mining these metals in one country, processing them in another and then transporting them to the U.S. creates unnecessary greenhouse gas emissions. Foreign suppliers of these metals don't necessarily follow sound environmental practices, creating a greater global environmental impact. Thank you for considering my concerns and comments.	EOO,G5

Sender Last Name: Savage **Submission ID:** 220

222	I would like to comment in support of the Polymet project in Hoyt Lakes. In this day and age, it is important to use common sense when it comes to developing our US resources and jobs and this project can be an essential part of our countries strategy. Everyone is concerned we protect our countries ability to compete, be self sufficient, and protects the environment as much as current technology allows. This project does all of that. It has been improperly labeled as a Boundary Waters project so as to evoke emotions and resistance. In reality, the site has been an existing mining site, Polybrite can meet the most stringent requirements and still generate job, taxes and protect the US interests. I work in the electronics industry and watch as millions of jobs are moved overseas, taxes are lost and America becomes indebted to other countries. We are losing our position in the world and no one seems to see the long term problem. Other countries are buying up natural resources in the world thus controlling the prices, all of which does not bode well for us in the future. Please let's not "cut off our nose to spite our face" as they say.	EOO

Sender Last Name: Schaaf **Submission ID:** 1953

2473	This is insane. We need to save our environment, fish and wildlife now & not give in to money hungry companies that will destroy all of this. After it's gone, it will be too late to repair the damage.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Schaedig **Submission ID:** 3186	
727	I would like to see a time extension of 45 days to review the EIS - especially warranted for a project with the potential for so much environmental degradation. Meetings should definitely be open for citizen statements and discussion. What kind of a legitimate process is it without it? Additional meetings should be scheduled to reach a broader segment of the public.	PRO6
3634	It will be the height of irresponsibility if you allow this project to procede. If you do you will be a player in a new version of an old story. Long term environmental loss for short term financial gain. And that gain will be mostly to the company, not the labor force. It is your responsibility and mandate to protect our natural resources. It is time for you to do so.	EOO
Sender Last Name:	Schaefer **Submission ID:** 1171	
1286	Open-pit sulfite mining is simply not the same as taconite iron mining. The long term risk is not worth the short-term profit. I have no interest in visiting the Boundary Waters if there is open-pit mining on its edges. I will spend my money elsewhere and encourage my friends to do the same.	EOO,G11
19256	Fond du Lac does not agree with the DEIS statement that beavers cause artificial impoundments; the hydrological modifications that beavers create is natural.	EOO,WI2
Sender Last Name:	Schatz **Submission ID:** 1304	
1513	The consideration of this action is deplorable and absurd. The BWCAW is a pristine area with a fragile ecosystem. You cannot overfish or bring in anything non organic, and this report claims that mining near it is A.O.K.? Please Please get your minds out of the short term and realize that a fleeting buisness venture is only around for a few years while an area such as the BWCAW can and will be around for hundreds.	EOO,G2C
Sender Last Name:	Scheibe **Submission ID:** 3711	
1	The cumulative effects analysis is also significantly inadequate for a number of resources, including greenhouse gas emissions; water quality, including mercury and sulfate levels; wild rice impacts; wildlife; aquatic resources; and wetlands. See e.g., DEIS, 4.14-2, n. 2. For example, as set forth above, despite the large number of ongoing and future projects within this region, including Minnesota Steel, the Keetac Expansion Project and other expansion of taconite mines, the Essar Steel Expansion project, Mesabi Nugget, the Excelsior coal gasification plant, Franconia Minerals Birch Lake proposal, Duluth Metals Nokomis proposal, the Teck Cominco Mesaba mine proposal, the widespread mineral exploration, there is no quantifiable, detailed, or objective assessment of the overall amount of greenhouse gas emissions that will be caused by these projects, nor an assessment as to how this will impact the State's ability to meet goals and standards that it has committed to achieve. There is also a lack of a cumulative effects analysis regarding the amount and importance of the peat that would be destroyed, which serves an important carbon sink and also sequesters mercury; and the importance of the destroyed wetlands both as important carbon sinks and areas where wildlife will seek refuge during this era of unprecedented climate change. Id.	WR5A,WI5,FM3,AQ3,AQ4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	Similarly, even though most project area waterbodies are already water quality impaired due to mercury pollution, with a TMDL already in place for some waterbodies and others too impaired for the TMDL to even be applied (see e.g., DEIS, 4.5-19, 20), the Draft EIS fails to include an adequate cumulative effects assessment regarding the amount of increased sulfates, mercury and other pollutants that will be produced cumulatively by these numerous projects and how these significant increases will somehow meet all applicable water quality standards and requirements. As explained, in order to consider cumulative effects, some quantified or detailed information is required, and general narrative statements about “possible effects” and “some risk” are insufficient. Neighbors of Cuddy Mountain, 137 F.3d at 1379-80. The proposed mine “would result in the release of sulfate to a high risk situation for mercury methylation” (DEIS, 4.5-21), and this “high risk situation” of one proposal must be considered cumulatively along with all other past, present, and reasonably foreseeable proposals to determine and disclose the overall risks to water quality, fish, wildlife species that prey on aquatic species, and human fish consumption. Significantly, this cumulative impacts analysis for sulfates and mercury cannot be limited to only project area streams, but must include downstream areas including the St. Louis River, the St. Louis River estuary, and Lake Superior; and must include an analysis of the potential impacts to the aquatic species present in these downstream rivers, streams and Lake Superior.	WR5A,FM3
1	XVII. The Draft EIS Cumulative Effects Analysis is Inadequate In accord with NEPA, the Forest Service must "consider" cumulative impacts. 40 C.F.R. § 1508.25(c); Neighbors of Cuddy Mountain v. U.S. Forest Service, 137 F.3d 1372, 1379 (9th Cir. 1998). “To ‘consider’ cumulative effects, some quantified or detailed information is required.” Neighbors of Cuddy Mountain, 137 F.3d at 1379. “Without such information, neither the courts nor the public, in reviewing the [agency’s] decisions, can be assured that the [agency] provided the hard look that it is required to provide.” Id. “General statements about ‘possible’ effects and ‘some risk’ do not constitute a ‘hard look’ absent a justification regarding why more definitive information could not be provided.” Id. at 1380. “Nor is it appropriate to defer consideration of cumulative impacts to a future date,” id., as NEPA requires consideration of the potential impact of an action before the action takes place. 40 C.F.R. § 1500.1(b). The Draft EIS provides a very general, mostly non-quantified analysis for some resources, which falls short of the detailed analysis required by NEPA. In fact, in a major mining and NEPA decision, the United States Court of Appeals for the Ninth Circuit has rejected a similar cumulative effects analysis. In Great Basin Mine Watch v. Hankins, 456 F.3d 955, 971-974 (9th Cir. 2006), the court struck down the agency’s reliance on the same sort of acreage listing and brief, generalized descriptions of mining impacts in the region. The court required the agency to include “mine-specific … cumulative data.” Id. at 973. Relying on prior cases, the court highlighted the need for a “quantified assessment of [other projects] combined environmental impacts” and “objective quantification of the impacts.” Id. at 972. Here, the Draft EIS fails to provide this necessary analysis. More specifically, there are a number of additional deficiencies with the cumulative effects analysis for various resources within the Draft EIS. First, the Draft EIS fails to include in its analysis a number of reasonably foreseeable proposals in the region. As stated by the Forest Service, “[a] list of reasonably foreseeable (including existing) projects should be included,” including the expansion of the Peter Mitchell pit, the Forest Service “Tracks” project, a Pellet Transfer Facility, Mesabi Nugget Phase II, and a proposed highway connection. September 2, 2009, Forest Service Comments. The Draft EIS also fails to explain that PolyMet fully intends for the Plant Site to be utilized for future copper-nickel mining projects in this region, as it would only be operating at approximately one-third capacity through the NorthMet project. The additional use of this Plant Site for additional mining proposals would presumedly significantly increase the amount of waste that would be deposited into the LTV tailings basin, which again is already leaking from past mining. This would also greatly increase the amount of vehicle traffic and other disturbances in the immediate project area, as well as downstream.	PRO3,GT2,WR2G

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2	In addition to the comments submitted by the Tribal cooperating agencies regarding impacts to water quality, groundwater, and wetlands, the Draft EIS is also significantly deficient in addressing the cumulative effects of past mining in the Iron Range on these resources. Before permitting an entirely new form of mining in the state, the agencies must take a hard look at the past and ongoing legacy of water quality and wetlands impacts from the iron ore and taconite mining in northeastern Minnesota. The Draft EIS neglects to discuss the current and past pollution and wetlands impacts extending from Grand Rapids to Ely resulting from extensive mining, even though the proposed NorthMet mine would be located within this same, already polluted region. More specifically, the Draft EIS is inadequate in its discussion, analysis, and disclosure of the ongoing pollution that is already occurring at the LTV site where the NorthMet mine is proposed. As acknowledged in the Draft EIS, surface seeps have been identified on the south, west, and north sides of the LTV tailings basin, which is proposed to again be used by NorthMet. DEIS, 4.1-7. “In addition to these visible surface seeps, groundwater flows out from beneath the Tailings Basin into the surrounding unconsolidated deposits to the south, west, and north.” Id. The current groundwater seepage from the LTV tailings basin north towards the Embarrass River already exceeds the aquifer flux capacity, which has inundated wetlands immediately downgradient of the tailings basin. Id; see also DEIS, 4.1-29 (stating that the “existing Tailings Basin is unlined and the perimeter embankments to not have a clay core or cutoff, which allowed for both surface seepage through the embankment and groundwater seepage under the embankment”). As explained by the Tribal cooperating agencies, the existing LTV tailings are already contributing substantially to the level of pollutants observed in the groundwater, and it is simply illogical for the agencies to assume that additional seepage of water created by the NorthMet mine would somehow be cleaner than the existing seepage that is currently passing through the LTV tailings. DEIS, 4.1-14 n. 5. The Center agrees with the Tribal cooperating agencies that it is “unclear how the addition of mine waste to the basins would cause seepage water quality to improve.” Id. Wishful thinking is no substitute to the hard look required by NEPA. Similarly, EPA “remains concerned” about information gaps regarding the possible impacts to groundwater from portions of the former LTV Mine, particularly (but not exclusively) the tailings basin.” July 31, 2009 EPA comments at 4. EPA is concerned that the proposal “would perpetuate seepage from the tailings basin, which could introduce contaminated or high sulfate groundwater into the receiving surface water bodies. Id. EPA thus recommends “that the DEIS thoroughly evaluate the benefits of a geomembrane cover to the tailings basin, insofar as the applicant’s analysis has not established that it is infeasible, only that it would have higher costs.” Id. In light of the ongoing pollution and high likelihood of additional pollution at this site, this issue needs far more detailed discussion within the EIS.	WR5A
4	The cumulative effects analysis for wildlife must also include and address the impacts being caused by ongoing climate change, and how this will likely affect wildlife and plants during the 20 year period of this proposed mine. Lynx are already threatened with extinction in the lower 48 states, the state’s moose population is already in decline, and vegetation patterns are predicted to be altered, but there is no assessment of this significant impact in the Draft EIS.	WI5,AQ3

Sender Last Name: Scherber **Submission ID:** 2553

3119	I am against the Polymet mine proposal I believe it will have a severe negative impact on the water quality in the northern watershed. Sincerely, Dennis Scherber	EOO,G7

Sender Last Name: Scherer **Submission ID:** 1634

2055	The boundary waters are a staple in our ecosystem as well as a trademark to Minnesota culture and history. A sulfide mine would severely deplete and damage our ecosystem. Please do not allow this. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources.	EOO,G2C,G7B,G10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2462	All of these issues must be thoroughly studied by experts in each area, not just by PolyMet personnel. Please don't endanger Northeast Minnesota for short term profit.	G6
Sender Last Name:	Schieber **Submission ID:** 2351	
2830	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. This is too big of a risk. At most, a short term gain with far reaching and long lasting economic and health consequences I am not willing to deal with.	G2
Sender Last Name:	Schlimgen **Submission ID:** 2696	
3171	In addition to the "canned" message below, I just have to say that what I love about MN, is our natural areas. We need to preserve these spaces and our wildlie. Short term economic gain does not warrant long term damage to our environment. Please make the environment one of your top priorities.	G2C
Sender Last Name:	Schmelzer **Submission ID:** 177	
168	Polymet should be given the permit to start operations. With our economy in the state it is in, this project should go forward. We need the jobs and the money to stay in Northern Minnesota. Please push this forward.	EOO
Sender Last Name:	Schmidt **Submission ID:** 375	
418	I am a boilermake apprentice with Boilermakers Local 647, Ramsey, MN. I wholeheartedly support this project. While being environmentally conscious, NorthMet is producing hundreds of jobs in an area that desprately needs employment; in a State that desperately needs employment. I do not see a down side!	EOO
418	The State should receive a higher percent of revenue in taxes. The local economy benefits from jobs, but the rest of the State does not benefit proportionately – and the resources belong to all the people.	EOO
Sender Last Name:	Schmitt **Submission ID:** 1855	
2464	I am greatly concerned that Wisconsin has banned this type of mining until it can be proven safe for the environment. Why would MN want to adopt standards lower than our neighbor state? What could be more precious to MN than the water quality of our lakes, rivers, and ground water?	G7,G14
Sender Last Name:	Schochet **Submission ID:** 1771	
17	d) Economic impacts: There would be substantial loss of tourism, both transient and seasonal. No one will come for recreation to an area devoid of solitude, scenery or serenity. For some jobs for 20 years, one would lose residents forever. Short-term gain would come at a price. Additionally, the clean-up costs of the mine discharges would be astronomical, and surely (as everywhere else) borne by the taxpayers. Cleanup would have to be carried out for an unlimited time (in perpetuity) and the mining company would surely not be prepared to do this.	SE3,SE4
299	c) Wetland destruction: There is much wetland, including peatland, a rare habitat, in the mining area; it is essential for many plants and animals, especially water bird. Destruction of peatlands also contributes to an increase in greenhouse gases; the effect will be substantial.	AQ3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
305	b) Wildlife habitat: The mining operations (road construction, deforestation, stripping) would fragment and destroy wildlife habitat; noise and activity would seriously disturb wildlife. Recovering and rare species such as lynx and wolves would be affected.	WI2
1143	a) Water quality: Water quality would almost certainly be degraded by discharge from waste rock (full of toxic heavy metals and sulfides), by overflow from the containment pit (similar issues) and discharges from tailings basins into the wetlands and waterways around the mining site. Contaminated water would flow through rivers into Lake Superior, damaging its purity. Sulfate released from mining operations and rock would increase available mercury levels in waters, allowing accumulation in fish and aquatic wildlife. Mercury is already a concern in Minnesota's fish. A constructed wetland would hardly be suffiient to purify the discharged and leaked water of its toxic elements.	WR1E,WR3L,WE6,WE8
2324	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. As homeowners in northern Minnesota (Ely area), we are most concerned about the potential impacts of this project upon the quality of life and continuing economic prospects of northern Minnesota. The DEIS provided by the mining company itself indicates some of these impacts. And sulfide mining is well known from other parts of the world, where it has contributed enormous pollution problems and cost vast sums of money for cleanup (potentially forever).	G1

Sender Last Name: Scholtz **Submission ID:** 1570

952	The DEIS says nothing about what the effect of the mine will be on groundwater. This failure to consider the potential impact of groundwater contamination is an arbitrary and capricious oversight that renders the DEIS legally insufficient.	WR2C

Sender Last Name: Schonfeld-Hicks **Submission ID:** 1810

2397	I am a lifelong Minnesota resident. I have been visiting the Boundary Waters since I was young when my father took me on trips there with several of our friends. I have traveled to many places in the world, but the Boundary Waters is still one of my all-time favorites. I try to visit for skiing or canoeing at least once a year. I am very concerned about the news of the proposed PolyMet mine. I know that Wisconsin has a policy in which mining companies such as PolyMet must prove long-term sustainability and environmental benefit or neutral impact. There have been no instances anywhere in the world where they can show that this mining process is safe in the short or long terms. In fact, wetlands such as those at the proposed site on the edge of the Boundary Waters are one of the most dangerous places to locate a mine like this because it is so easy for the pollutants to leach into our groundwater and travel quickly to pollute many lakes and rivers far from the source area. I know that opening a new mine such as the one PolyMet has proposed seems like an easy short-term solution to the region's economic needs, but our state needs to look forward. There are very real economic concerns on the range. People need employment. However, destroying the lifeblood of Minnesota, which I would argue that our northwoods are, is not the answer. Our waters and woods are too unique and precious to put at risk in this way. I feel that this is an "old" solution. We need to look to the future and explore options that are cleaner and greener. They exist and may be less familiar, but our world is moving that way anyway. Lets put Minnesota at the forefront. We can be leaders in the green technology movement that is gaining steam around the world. Nations like the Netherlands, Denmark and Germany, among many others, have proven that developing environmentally sustainable technologies can be a lucrative pursuit. Please think about our children and their future. I have always planned to someday take my own children to the Boundary Waters as my father did with me. This proposal scares me because it makes me realize that we may not be able to swim and play and drink in the waters of the wilderness as I once did. Please don't let this essential part of our state's heritage and identity disappear.	EOO,G7C,G11

Sender Last Name: Schow **Submission ID:** 216

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
218	Compudyne, Inc. has been conducting business in Northeastern Minnesota for over 20 years. We would like to go on the record as a strong supporter of PolyMet Mining's NorthMet Project. We have closely followed the efforts of PolyMet Mining during the permitting process. We believe they have done their due diligence and more to ensure the environmental impact of this operation is minimal and well within acceptable limits. We live here and understand and appreciate the value of our natural surroundings. If there was any chance of losing this resource, we would certainly object. But the Draft EIS clearly shows that this is not the case. It is evident that the demand for the metals to be produced at the PolyMet Mining NorthMet Project is only going to increase as we move into the 21st Century. This means not only short term relief to our economic situation, but a viable, sustainable contribution to our region. As a locally owned and operated business, we have witnessed and been impacted by the turbulent economy of our region. The Polymet project will have many positive economic impacts for our region and state. At a time when the entire world is struggling to recover from a deep recession, here is an opportunity to create hundreds of jobs with good wages and benefits plus the resulting millions of dollars in local and state tax revenue. The process of permit approval has gone on long enough – let's get this great project underway!	EOO

Sender Last Name: Schrage **Submission ID:** 3476

1112	Therefore, as a taxpayer and resident of northern Minnesota, I don't care to get stuck with the cleanup bill. The Iron Range already presents a 100 mile long industrial scar running west to east across northern Minnesota. The size of this industrial landscape represents a significant barrier to wildlife. There are only a few remaining intact corridors across this landscape.	WI5
3232	While the EIS identifies significant impacts to some of the remaining corridors, it fails to adequately mitigate these impacts. In addition to wildlife corridors, the EIS recognizes significant impacts to water quality, wild rice, mercury levels in fish, and visibility and air quality; however, sufficient mitigation for these impacts are not identified. The risks for spills and residue from the hydrometalurgical process are not well analyzed. Experience with other mining activities suggests it can cause significant groundwater contamination. The EIS needs to better identify how groundwater contamination will be avoided, and how it will be cleaned up if it's not.	EOO,WI5,FM1,FM4,AQ5,A
3679	I am concerned the proposed EIS does not adequately identify the environmental impacts of the PolyMet mine nor does it identify adequate mitigation for those impacts. The EIS needs to describe in greater detail the financial assurances to clean up the mess if the mine closes or goes bankrupt. The mining industry has a long history of leaving behind poisonous wastes that degrade the environment for generations after the mine closes. I'm unlikely to ever see much personal benefit from this mine.	PD3,PD4

Sender Last Name: Schubbe **Submission ID:** 1100

210	Although there will be a loss of grey wolf and Canadian Lynx habitat, and fragmentation of lynx habitat; the DEIS indicates that neither loss nor fragmentation of habitat or vehicle strikes are expected to have a significant impact on grey wolf or Canadian Lynx populations. In addition, from section 4.4-10 of the DEIS, the United States Forest Service (USFS) indicated that no USFS management standards of guidelines would be violated.	WI5
211	The DEIS (section 4.6-32) indicates that the Project would increase the CO2 emissions in the atmosphere. NorthMet Project metals such as copper, nickel, platinum, palladium, etc. are vital for our current way of life (e.g., cell phones, computers, etc) and are necessary for green technologies to be implemented such as windmills for power generation, electric cars, etc. If NorthMet metals are not mined and processed under Minnesota's stringent environmental rules and regulations, the metals will be mined and processed somewhere else where environmental rules and regulations are less stringent or none existent. If our mining jobs are sent to another country, the overall global environmental impact would be negative and the potential for global warming would be greater.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
214	Wetland mitigation planning is a required pard of obtaining a permit to mine in Minnesota. As part of wetlands mitigation, a greater amount of wetland acres is typically required to replace wetland acres that have been impacted. No net loss of wetlands is allowed in Minnesota.	WE3
271	Stability of the Tailings Basin has been addressed in the DEIS. If additional mitigation (Tailings Basin Alternative) is necessary, the DEIS indicates that" "Geotechnical stability would be enhanced by increasing the size of the rock buttress along the northern toe of the Tainings Basin".	GT1
524	Conservative modeling results have been interpreted in the DEIS to indicate that fround water standards for the Proposed Action will be exceeded for antimony, manganese, nickel, and sulfate for a long period of time (DEIS Table 4.1-45). Conservative ground-water model predictions can be addressed by installation of a ground-water monitoring system that can be used to detect ground-water quality problems if they arise and will allow them to be addressed before they reach the established compliance (property) boundary as defined by permit. Mitigation has been proposed in the DEIS as the Mine Site Alternative. Based on interpretation of conservative modeling the Mine Site Alternative eliminates all predicted exceedences except for antimony. As indicated in the DEIS, the predicted antimony exceedence most likely results from antimony lab testing that was compromised by leaching of antimony from lab apparatus which in turn falsely increased the amount present in rock and therefore modeling results. In addition, per the DEIS, sorption of antimony was not accounted for during the modeling and contributes to the model results being over conservative. The result is an overestimate of antimony concentration which results in model prediction of an antimony exceedence. The predicted antimony exceedence can be addressed during finalization of the Environmental Impact Statement or during permitting by refining the conservative modeling.	WR1E
525	In the DEIS the Proposed Action water quality standards have been predicted by conservative modeling to be exceeded at year 65 when the West Pit will begin discharging. In the DEIS it is indicated that the exceedence of water quality standards is expected to be a relatively short term effect. However, mitigation (Mine Site Alternative) proposed in the DEIS will lower concentrations for those parameters predicted to exceed standards. For either the Proposed Action or the Mine Site Alternative, pit water quality can be monitored as the pit is filling to detect water quality problems (if the occur) and allow adequate time for action to be taken (if necessary) to prevent water quality standards from being exceeded.	WR1F
526	According to the DEIS the Proposed Action will allow relatively high sulfate concentrations to be discharged in seepage from the Tailings Basin that could promote mercury methylization downstream and may cause sulfate standards for the production of wild rice to be exceeded. The MPCA addresses sulfate with respect to mercury methylization in their: "Strategy to Address Indirect Effects of Elevated Sulfate on Methylmercury Production and Phosphorus Availability" (MPCA, 2006). Additional field studies currently being done by PolyMet will allow the state to make a determination with respect to exceedence of the wild rice standard and to determine if an increase in sulfate concentration will lead to an increase in methyl mercury. If necessary, mitigation (Tailings Basin Alternative) presented in the DEIS can be implemented to address sulfate concentrations with respect to wild rice and/or mercury methylization.	WR1E,WR3I,WR4B,WR4F
1204	Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for the PolyMet's NorthMet Project. I personally believe that the DEIS is a comprehensive document that adequately addresses state and federal requirements, including adequate evaluation of alternatives. Please accept this letter as my formal request that the DEIS be finalized and that the final document declared to be adequate. Based on a review of the DEIS and information provided during the Public Hearings (e.g. Aurora and Blaine, Minnesota), I have compiled issues that others may bring up with regard to the DEIS and attempted to provide a DEIS response as follows:	EOO
1205	Please accept this letter as my formal request that PolyMet's NorthMet Project Environmental Impact Statement be finalized and that the Final Environmental Impact Statement be declared to be "adequate".	EOO

Sender Last Name: Schue **Submission ID:** 3359

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3650	I don't believe its worth the risk by letting the mines work even with their new technologies. I have worked in logging most of my life and with that I know that even though we as loggers say we aren't hurting the environment, it is inevitable that the environment will be affected because of brown hydraulics or accident or accidents where fuel gets spilled, and also the destruction of the natural lay of the land. There are too many factors involved that it can't possibly fully contained. It affects not only the land and water but animals and humans. It will be a huge ripple effect.	G2C,G7A

Sender Last Name: Schuldt **Submission ID:** 3683

19257	Tribal cooperating agencies take the position that the approximately 5,700 (RS13B) gallons per minute of tailings water released by past mine waste disposal activity has likely had a far greater influence on the hydrology of the area than beaver dams or transportation features.	WR3A
19258	DEIS 4.2.2 Impact Criteria states that "The most likely types of indirect impact on the functions and values of remaining wetlands at the Mine Site include fragmentation from haul road construction and indirect hydrological impacts that may result in a conversion of one wetland type to another or the conversion of a wetland to an upland." This is NOT an indirect impact but a direct impact.	WE2
19259	Tribal cooperators note that the work needed to properly assess indirect wetland impacts at the mine site and at the plant site has not been completed. It is the position of the tribal cooperating agencies that the wetlands work group should finalize the indirect wetland impact workplan and that the results of that investigation be included in the DEIS to allow a full public review.	WE1,WE2
19259	DEIS 4.2.3.1 Environmental Consequences/Proposed Action/Mine Site Direct Wetland Impacts states "The most common wetland types are coniferous bog (510 acres) and open bog communities (76 acres). These two communities comprise 73% of the direct wetland impacts at the Mine Site (Table 4.2-4)." Tribal cooperating agencies disagree. The wetland delineation study (RS14, Appendix A) identified over 390 acres of wetland community with a significant white cedar component. For example, wetland ID-48 (Table 4.2-3) was identified in delineation reports as dominated by white cedar. White cedar is an indicator of mineral rich waters. Renaming wetland ID-48 as a coniferous bog, as was done in Table 4.2-3, does not make that community a bog. Cedar dominated wetlands are cedar swamps, not bogs. The significance of this is that, bogs tend to be precipitation fed while swamps tend to be groundwater fed. Data from the wetland delineations (RS14) suggest that bogs are not the most prevalent wetland type. In fact, it appears that wetlands that require groundwater inputs: forested rich peatlands and poor fens are the most prevalent. Table 4.2-3 is not useful as it is presented. Whether deliberately or not, the total number of acres for each wetland is not provided on the table. This makes it impossible to determine to what real extent the wetland will be impacted. As an example, a given wetland of 100 acres may be able to survive an impact of 40 acres, but not an impact of 80 acres. If only the acres of impact are provided and not also the total wetland acres, then this determination is impossible.	WE1,WE2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19261	Tribal cooperating agencies note that there is no reliable groundwater model for groundwater drawdown impacts of the proposed project. The estimates of groundwater drawdown are currently based on anecdotal observations and analysis of historical aerial photography. Therefore, there is no quantitative assessment of mine related drawdown of the regional water table. This serious data gap has prevented an adequate indirect impact assessment for wetlands from being conducted. Tribal cooperating agencies strongly disagree with the conclusion that "no indirect wetland impacts are anticipated at the Mine Site resulting from groundwater quality." As previously indicated, there is no data based evidence or analysis on which to conclude that wetlands would not be affected by mine related water quality changes. Existing exceedances do not predict plant community changes that may occur due to additional disturbance. The Project's discharges to groundwater and surface waters will have to comply with Minnesota water quality standards. Tribal cooperating agencies take the position that indirect impact acreages would be greater than 318.6 if data and quantitative analysis of mine induced drawdown had been conducted. As previously discussed, tribal cooperating agencies have reviewed the information in the above referenced email (Adams 2009) and it is the Tribal cooperating agencies' position that the methods used are insufficient for prediction of indirect impacts to wetlands. For example, the projects referenced are located in upland areas of the range and are not proper reference sites for potential impacts at the PolyMet mine site. The Peter Mitchell Mine, although in close proximity, is very shallow compared to the proposed mine pits (Peter Mitchell pit is approximately 80 feet deep, PolyMet pit is approximately 800 feet deep). Tribal cooperating agencies take the position that the conclusion ("additional indirect impacts to wetlands associated with drawdown from pit dewatering is anticipated to be minimal, with little to no dewatering of wetlands expected outside the Mine Site") is faulty. Based on the vegetation data collected from wetland delineations it appears that groundwater supported wetlands are common in the Project area. Indirect impacts to communities that require groundwater inflow have not been determined, but would likely be significantly different than the expected impacts from the Project to perched bogs. The discussion on 4.2-19 makes too many assumptions regarding the potential of nickel and antimony in groundwater. It is not clear why the presence of nickel and antimony in the waste rock would only affect ground water and not surface water runoff. It is also assumed here that all affected wetlands are not ground water influenced. This is not necessarily the case if Thuja occidentalis (Northern White Cedar) is present in any of these wetlands. This tree species is circum-neutral to slightly alkaline in regards to its hydrologic requirements, and therefore would not necessarily survive in an acidic precipitation-influenced bog. The DEIS concludes this discussion with the statement "Compensatory wetland mitigation would be required for any indirect wetland impacts determined through (this) monitoring". Tribal cooperating agencies disagree with this approach. Monitoring would only identify impacts after they have become apparent in the wetland. Tribal cooperating agencies take the position that the DEIS should provide a detailed description of reasonably foreseeable impacts to wetlands so that decision makers and the public can have a complete picture of the environmental consequences of this project.	WR1E,WR3N,WE1,WE2,W
19262	The DEIS concludes that any indirect impacts along the transportation corridor from spillage would be minor. Tribal cooperating agencies disagree with this conclusion. As indicated in section 3.1.3 it is likely that ore dust would spill from rail cars and be deposited in wetlands adjacent to the rail line. No analysis of any type has been conducted to determine if such impacts would be significant.	WE2,PD3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19263	PolyMet "proposes a surface seepage collection system that would capture essentially all of the surface seepage and return it to the Tailings Basin until the seeps dry out". Tribal cooperating agencies take the position, based on the existing available contaminant modeling, that seepage capture would be needed for hundreds or thousands of years to avoid water quality and quantity impacts to wetlands. Tribal cooperating agencies take the position that the method referenced in the DEIS (from Barr 2008, Lined Tailings Basin Alternative – EIS Data Request) is inadequate to assess indirect wetland impacts. This method ignores the fact that there is an area of uplands north of cell 2W which has constrained the movement and direction of tailings basin seepage. Therefore, using the northern extent of wetland impacts of 2W for 2E, north of which there are no uplands, is unjustified. Ignoring the presence of the upland area north of cell 2W creates an underestimation in the extent of wetland impacts due to seepage. Tribal cooperating agencies have suggested a more conventional method for indirect wetland impact estimation to the lead agencies (Methods for evaluating indirect hydrologic impacts to wetlands, March 26, 2009). This method could be applied at both the mine site and the plant site. The method proposed by tribal cooperating agencies was developed by a consultant for the Army Corps for use in another sulfide mine project EIS (Crandon Mine Project Environmental Impact Statement: Wetlands Technical Memorandum, 2003). In addition to having been developed by the Army Corps, this method has been presented by tribal technical staff at professional conferences (Society of Wetland Scientists Conference, 2009 and 55th Annual Meeting of the Institute of Lake Superior Geology, 2009). Tribal cooperating agencies do not agree that the unconventional method described in the DEIS can produce defensible results for indirect hydrologic impacts to wetlands. A more robust method should be used and the analysis presented in the DEIS so the public can review a science-based assessment of potential impacts. Tribal cooperating agencies note that there is a serious inconsistency between this section and information presented in Section 4.1.3.1 of the DEIS. Section 4.1.3.1 states: "Therefore, future impacts to the hydrology of the aquifer and wetlands downgradient of the Tailings Basin were estimated by comparing predicted seepage rates for the Proposed Action (Hinck 2009) with the estimated groundwater flux capacity of the aquifer (155 gpm)(Technical Memorandum: TB-2 and TB-14: Tailings Basin Seepage Groundwater Quality Impacts Modeling Methodology). The current seepage rate toward the Embarrass River from the Tailings Basin (Cells 1E/2E and 2W) is estimated at 1,795 gpm, which continues to result in the upwelling of seepage water into the wetlands as the seepage rate exceeds the aquifer flux capacity by over 1,600 gpm. Under the Proposed Action, the unrecovered seepage rate is predicted to increase to a maximum of approximately 3,800 gpm in Year 20, over 2,900 gpm of which would be attributable to PolyMet (Hinck 2009). Therefore, under the Proposed Action, a significant increase (>100%) in groundwater upwelling relative to existing conditions would be expected. Some of this seepage water would drain to existing streams, but because of the generally flat topography and extensive wetlands, much of this water would be expected to form ponds and inundate wetlands." Tribal cooperating agencies take the position that the latest relevant information developed for the water resources section has not been incorporated into the wetland impact section. The presentation of two different methods is confusing and does not provide an adequate assessment of wetland impacts. A thorough hydrologic impact analysis that incorporates actual seepage rates from the tailings facility should be conducted. In addition, these seepage rates should be used, in conjunction with t	WR1A,WR3N,WE1,WE2
19264	Tribal cooperating agencies take the position that data from the wetland delineations indicate that bogs are not the most prevalent wetland type. In fact, it appears that wetlands that require groundwater inputs: forested rich peatlands and poor fens are the most prevalent.	WE1
19265	Tribal cooperating agencies note that potentially impacted wetlands that are part of the 100 Mile Swamp were identified by the forest biologist in 1997 as "lacking ecosystem representation in protected areas." (SNF 1997, January) Interest in protecting the unique character of these wetlands was based on their "watershed integrity, the presence of riverine ecosystems, and large amount of interior forest present." This information was further substantiated in a report by the MnDNR titled "Evaluation of Selected Potential Candidate Research and Natural Resource Areas." (SNF 1997, December) This document describes the 100 Mile Swamp wetlands as "these sites represent the highest quality remaining examples of characteristic ecosystems in each ecological Landtype Association on the Superior National Forest." Tribal cooperating agencies take the position that this information must be included in the functional assessment for this project and included in the development of mitigation requirements for this project.	WE2,WE3

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Comment ID	Comment Text	Theme Codes
19266	It is the position of the tribal cooperators that the proposed action and the preferred alternative would likely not comply with the requirements of §404(b)(1) guidelines, which do not allow a permit when there are practicable alternatives that would have less adverse effects, when the Project would lead to a violation of state water quality standards or when it would cause or contribute to significant degradation of waters of the United States. Other alternatives that were not considered in the DEIS (e.g. underground mining) would pose less harm to high quality wetlands, and may be less damaging to aquatic resources. As documented in Table 4.1-68, the Project would result in water quality standards violations.	ALT8,WR3I,WE4,PD7
19267	DEIS 4.2.3.4 Tailings Basin Alternative states “It is recommended that existing wetland acreages and impacts be delineated prior to issuance of the Final EIS.” Tribal cooperating agencies take the position that this delineation should occur prior to the issuance of the DEIS so that the public can review a complete set of potential impacts from the project. Should it receive permits for its project, PolyMet will assume responsibility for all legacy contamination caused by the tailings basin to surface water, groundwater and wetlands. Therefore, tribal cooperating agencies take the position that the current exceedances, which are the result of decades of untreated discharges from the tailings basin, must be addressed by PolyMet as part of its closure plan.	WE1,WE2
19268	DEIS 4.2.4.2 Wetland Mitigation/Offsite Mitigation states that mitigation site analysis criteria were limited to sites of 100 acres or more. Fond du Lac has provided comments on several previous drafts of the EIS that the analysis should also have considered “clusters” of smaller potential sites. This recommendation has not been addressed.	WE3
19269	"Watersheds Neighboring Adjacent Watersheds” is an artificial construct that only serves to highlight the significant and permanent loss of wetlands within the St. Louis River watershed and the 1854 Ceded Territories. The significance of this permanent loss of resources within the Ceded Territories cannot be overstated.	WE2,CR1
19270	Mitigation Summary Tribal cooperating agencies take the position that unless the mitigation for the additional 475 wetland acres is identified in the DEIS, or there is a detailed statement of how the permit conditions would address the needed acres, the impacts must be considered unmitigated for purposes of the DEIS. The entire 4.2.4.4 Mitigation Summary section is inadequate. Any wetland restored after mine closure should not be included as any true mitigation because it cannot and will not ever compensate for the loss of wetlands during the 20+ years of mine operation. Mitigation ratios should be set higher for any “difficult to mitigate” wetland type such as forested, bog, and shrub wetlands. Furthermore, mitigation ratios should be fully discussed and finalized in the EIS and not in permitting.	WE3,WE4

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Comment ID	Comment Text	Theme Codes
19271	DEIS 4.2.5.2 Cumulative Wetland Impacts – Partridge River Watershed states that the analysis was restricted to the Partridge and Embarrass River watersheds because "several of the primary functions performed by wetlands are directly related to watershed processes". Fond du Lac notes that not all wetland functions are related to watershed processes, therefore, the cumulative effects analysis should not be limited by it. Fond du Lac disagrees with the statement that "no fens are known to occur in the Project area." Tribal cooperating agencies take the position that, based on the data from the wetland delineations, there are fens in the project area. Tribal cooperating agencies disagree that limiting the analysis of cumulative wetland impacts to the Partridge River is appropriate. Tribal cooperating agencies take the position that wetland impacts related to regional mining operations throughout the area as well as large wetland impacts of the proposed PolyMet project to the Embarrass River watershed must be included. In addition, the analysis must include impacts related to changes in wetland functional values, only impacts related to direct fill. At a local scale, PolyMet is likely to impact wetlands in the Embarrass River watershed as water that percolates through the bottom of the tailings facility enters that shallow aquifer. This water, which is likely to have degraded quality, will re-emerge at the surface within wetlands of the Embarrass River watershed. The high chemical load of this water will affect wetlands by degrading water quality and altering the wetland functional values. In addition, PolyMet air emissions may deposit contaminants in the watershed of the Embarrass River and further degrade wetland quality. The full extent of wetland impact resulting from 20 years of emissions from the proposed PolyMet project via air and water must be quantitatively characterized. This quantitative analysis should be done using model output (air, surface and groundwater). A quantitative assessment of changes to functional values should include an analysis of the effects of 20 years of surface and groundwater emissions along with the additive effects of air emissions for Embarrass River Wetlands. Finally, the PolyMet project as proposed includes a possibility of post-closure contamination of surface and groundwater. The wetland cumulative impact analysis must include a quantitative analysis of the long-term effects of mine effluent on wetlands of the Embarrass River. If mine related effluent is to be perpetual, this section must discuss the effects of perpetual mine discharge on wetlands. In regards to the Partridge River watershed, the analysis correctly focuses on 3 timeframes of analysis; Pre Settlement Resources, Existing Resources, and Future Resources. However, the cumulative impact discussion includes only wetland loss due to direct fill. There is no attempt in the document to assess cumulative impacts that result in changes to functional values. The issue of changes to wetland functional value has been highlighted to the USACE and the MnDNR during technical meetings. The DEIS should provide a quantitative analysis of the cumulative changes in wetland functional values for the Partridge River. This analysis must include the functional value changes related to maintenance of features of the closed mine (e.g. changes in water quality of mine site wetlands, changes in water flow through mine site wetlands, etc.).	WE1,WE5
19272	At a regional scale, Iron Range taconite mining has impacted wetlands through direct wetland fill as well as indirect impacts due to air deposition of mine related contaminants, water quality degradation, and the flooding/dewatering of wetlands which lead to changes in wetland functional values. There are two additional geographic scales at which wetland cumulative impacts should be characterized: St. Louis River Watershed. Fond du Lac has identified this watershed as an area of concern. The cumulative impact analysis should quantitatively characterize the following: 1. The additive effect of PolyMet related air and water emissions to the Partridge and Embarrass River watershed wetlands and their impact on water quality of the St. Louis River. 2. The loss of wetlands and changes in wetland functional values in the St. Louis River watershed during the 3 timeframes, including a characterization of the potential for future mining impacts and the long-term maintenance requirements of the PolyMet mine as currently proposed. 1854 Ceded Territory. The Fond du Lac, Grand Portage, and Bois Forte Bands retain treaty guaranteed rights to harvest natural resources within the 1854 Ceded Territory. The cumulative impact analysis should quantitatively characterize the following: 1. The additive effect of PolyMet related air and water emissions to the wetlands of the 1854 Ceded Territory. 2. The loss of wetlands and changes in wetland functional values in the 1854 Ceded Territory during the 3 timeframes. 3. Loss of tribal access to wetlands in the 1854 Ceded Territory due to either the changes documented in 2. above, or due to mitigation of wetland impacts occurring outside of the Ceded Territory.	WE5,G3,CR1

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Comment ID	Comment Text	Theme Codes
19273	It is the tribal cooperating agencies' position that while there is no current documented tribal use of said resources, most band members do not report their harvest sites. Therefore, it should not be assumed that there is no use of resources in these areas. Additionally, tribal cooperating agencies note that the Area of Potential Effect for the Project was not determined until August 11th, 2009, and tribal consultation under §106 NHPA is ongoing. Therefore, historic and current Tribal harvest has not been determined for either the Plant or Mine Sites.	CR2
19274	Tribal cooperating agencies note that the Area of Potential Effect for the Project was not determined until August 11th, 2009, and consultation under §106 of the NHPA is still ongoing between the USACE and the Tribes. Therefore, historic and current Tribal harvest has not been determined for either the Plant or Mine Sites yet. The tribal cooperators' position is that while there is no current documented tribal use of said resources, most band members don't formally report their harvest sites at the scale that would allow identification of proximity to the mine site. If species of tribal concern 'relocated' to other lands and these other lands were private lands, there would be a loss of opportunity to harvest. Recent studies from the MnDNR, the Natural Resources Research Institute at University of Minnesota-Duluth and Tribal natural resource management staff indicate that preservation of wetlands may be one of most important factors in maintaining the moose population in northeastern Minnesota.	WI3,CR1,CR2
19275	Tribal cooperating agencies disagree with the conclusion that the effect on statewide lynx populations would be insignificant; this analysis does not consider the possibility that the Mine Site might include critical components of lynx habitat present, such as den sites. The DEIS concludes that "Therefore, the Project would be likely to adversely affect, but not significantly affect the Canada Lynx because of the direct loss of designated critical habitat, fragmentation of additional habitat within the critical habitat boundaries, and the increased potential (albeit low) for incidental take resulting from vehicular collisions." Fond du Lac notes that there is no scientific basis for this conclusion, and in fact, consultation with the US Fish & Wildlife Service on the potential impacts of the Project to Canada lynx or any other ESA species has not been concluded. This is another critical deficiency of this EIS process, and must be addressed before the Project can proceed.	WI1
19276	Fond du Lac disagrees with the conclusion that "Therefore, the Project is not likely to adversely affect Bald Eagles because the Mine and Plant Sites are more than two miles from any known nesting sites and do not provide optimal habitat for nesting and foraging bald eagles." Impacts to bald eagles could result from eagle feeding sites within or adjacent to the project area. Contaminants from the mine site, specifically mercury and heavy metals, could affect prey species thus having secondary impacts on eagle reproduction.	WI1
19277	Tribal cooperating agencies have noted concerns in previous drafts of the EIS that the project may create attractive nesting sites where mining or heavy vehicle activity takes place. This could result in increased adult or nest mortality. The tribal cooperators do not see any new evidence or clear analysis to support the claim that the Project is not likely to adversely affect Wood turtles.	WI2
19278	Tribal cooperating agencies reiterate previous DEIS review statements that single species conifer plantations have little wildlife value.	WI4
19279	Tribal cooperating agencies strongly disagree with the conclusions presented in the wetlands section. The methodology used to predict the acres of wetlands indirectly impacted by the project pit dewatering are not adequate to assess indirect wetland impacts.	WE2
19280	Tribal cooperating agencies consider the loss of mature forest a significant impact, and note that the activities on the mine site will prevent more forest acreage from reaching this mature community state, representing a nearly permanent loss of habitat.	WI2
19280	Tribal cooperating agencies' position is that Corridor 11 (Emmons & Oliver 2006) is currently a poor and obstructed corridor (pending the long term success of a proposed revegetation corridor), and Corridor 12 will likely be degraded as a corridor by the Project; these impacts should be considered significant.	WI5

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Comment ID	Comment Text	Theme Codes
19281	The tribal cooperating agencies' position is that lake sturgeon were once prevalent in many tributaries to the Great Lakes, and that prior to the extensive dam construction on the lower St. Louis River, the upper St. Louis River was likely part of the historical range of the species. Tribal conservation officers have verified angler success in catching lake sturgeon upstream of the Minnesota Power hydropower dams in the past few years. The Fond du Lac Resource Management Division based its attempted restocking program on historical accounts of lake sturgeon abundance during the early logging period in Minnesota's history.	FM2
19281	The tribal cooperating agencies' position is that per Emmons & Oliver (2006), any new impacts to the existing wildlife migration corridors is by definition significant, and should require mitigation. No mitigation has been proposed for this impact. For the entire time period (decades) of mine development and operation, Corridor 12 would experience a significant direct loss or fragmentation of wildife habitat, and impact the ability of many wildlife species to migrate throughout their ranges. Also, until the §106 consultation process between the USACE and the tribes is complete, it is not possible to determine the potential impacts to treaty-protected wildlife.	WI3,WI5,CR1,CR2
19282	The tribal cooperating agencies' position is that no conclusions about the presence of northern brook lamprey can be made in this analysis without specific surveys in the Project Area. Tribal fisheries biologists have definitively identified this species in the Dark River, just a few miles to the west of the St. Louis River.	FM2
19283	The tribal cooperating agencies' position is that there was not an adequate sampling effort to determine the presence of the creek heelsplitter (Lasmigona compressa) in the Project Area, particularly for a species that is already known to be limited in numbers or distribution. While the detection probability is low for each site, tribal fisheries biologists have sampled this species in the headwaters region of the St. Louis River, approximately a mile downstream of Seven Beavers Lake (B. Borkholder, pers. comm.) in 2008.	FM2
19284	DEIS 4.5.1.3 Habitat Conditions and Biotic Assemblages in Colby Lake and Whitewater Reservoir concludes that, in the absence of state-established biocriteria for fish communities, the fish assemblages/composition appear to be similar to what might be expected based upon physical and water quality conditions. The tribal cooperating agencies' position is that if there is data to support this statement, it should be cited in the EIS. The tribal cooperating agencies' position is that the benthic invertebrate data described in this section does not support a conclusion of good water quality. In the first place, the data is nearly 30 years old, and secondly, the presence of Chaoborus and the two other midge taxa is not indicative of good water quality; these species are not on the sensitive end of the pollution tolerance index.	FM2
19284	The tribal cooperating agencies' position is that the conclusions regarding potential anthropogenic impacts are in some cases inconsistent, and in other cases simply not defensible. The writers conclude that macroinvertebrate species richness (low EPT taxa) at one site may be of anthropogenic origin given its location downstream of the LTVSMC tailings basin, but dismiss that possibility with regards to the fish community. We would agree that most of these sampling sites represent headwaters habitat conditions (particularly B3), which alone can account for lessthan- expected species richness. But there is no evidence to support a conclusion that low species richness in either the macroinvertebrate or fish communities is solely a manifestation of poor habitat, and not also potentially a result of previous mining impacts in the watershed. The QHEI scores are of little use in this analysis, as this index is notoriously poor in its power to distinguish the quality of habitat in headwaters streams; hard substrate is a key variable leading to a high QHEI score. In the technical report (Breneman 2005), the author expressed a disclaimer on the data interpretation from site B3, because of its habitat characteristics. It is critical to recognize that the six sampling sites in this survey represent 3-4 distinct habitat conditions, which is useful as background data but makes any comparisons problematic.	FM1,FM2
19285	The aquatic biota present in these streams have adapted over millennia to normal seasonal fluctuations in streamflow. But a reduction in summer baseflow would be expected to adversely affect the biota. The tribal cooperating agencies' position is that there is insufficient flow data and hydrologic modeling to support the conclusion that reductions in high end flows above Colby Lake would not have a significant effect on physical habitat for aquatic biota. Comments submitted on previous drafts of the EIS have expressed tribal technical staff concerns that any alteration of flow at the magnitude predicted will definitely result in a decrease of stream power, with a subsequent decrease in the size of particle able to be transported. Thus, increased sedimentation is likely to result.	FM2

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Comment ID	Comment Text	Theme Codes
19286	The DEIS acknowledges "local factors related to Project Construction and operation have the potential to affect mercury bioaccumulation either through mobilization of mercury stored in rock, soil, peat and vegetation on site, or through factors that may enhance the methylation of mercury….The primary concern related to mercury for the NorthMet Project is the potential for releasing increased sulfate loads, which could promote mercury methylation." Additionally, "…the Proposed Action would results in the release of sulfate to a high risk situation for mercury methylation" as defined under the MPCA's mercury strategy. Monitoring, however, has only focused on sulfate and methylmercury concentrations downstream of the Project area, and has not included sampling fish tissue to determine actual bioaccumulation. It is not sufficient to simply monitor in-stream concentrations; the true biological endpoint that Fond du Lac is concerned about is fish tissue mercury concentrations. This section reveals one of the most likely, and most environmentally significant adverse effects of the Project: a worsening of the existing mercury in fish impairment in waters downstream of the Project area. Fond du Lac's position is that increasing methylmercury bioavailability in these watersheds is unacceptable, as access to fish that can be safely consumed is an essential component of treaty resource harvest rights. Consultation with tribes on cultural resource impacts is ongoing, and the potential impacts to tribal members of a significant increase in mercury in fish harvested in on-Reservation and 1854 Ceded Territory waters has not been adequately addressed. The tribal cooperating agencies' position is that any increase of methylmercury bioavailability in the Partridge River watershed constitutes a significant adverse impact to a critical trust resource. The State of Minnesota's mercury TMDL process will not adequately address the fish consumption impairment in these waterbodies, and any new discharges that would result in further degradation to waters with an existing water quality impairment would not be legally permittable under the Clean Water Act (see Friends of Pinto Creek v. EPA (9th Cir.), known as the Carlota Decision).	WR4B,WR5C,FM1,FM2,F
19286	The DEIS assumes that PolyMet will be a "new", rather than "existing", source of air emissions and, as such, that it does not exceed major source thresholds, making it a minor source. As a minor source, PolyMet would not be subject to BACT or modeling requirements. Although PolyMet has agreed to perform modeling anyway, no BACT analysis was performed. However, it is Fond du Lac's understanding, after conversations with the MPCA and the EPA, that the status of PolyMet as a new source is not a certainty. If it is determined that the PolyMet project is a modification to an existing source, the project would be major. This is because the thresholds are different for new sources and modifications to existing sources. As a major source, BACT would become applicable. Our concern is that if PolyMet is ultimately found to be a modification to an existing source, the FEIS will be incomplete if it does not include a BACT analysis. In Table 4.6-5, please also include minor source permitting thresholds, as these could turn out to be applicable. It is FdL's belief that the DEIS should address this issue in the most conservative way, i.e. by assuming it is an existing source requesting a major modification. By assuming the more favorable scenario, the impression is given that this decision has been made and is final, when that is not the case.	AQ2,AQ4A
19286	Despite several comments from tribes on previous versions of the DEIS, it appears that the release of fugitive emissions of reactive waste rock have not been addressed. The Band continues to be concerned about this issue, and believes that this analysis needs to be completed.	AQ1
19286	Tribal cooperating agencies' position is that existing contamination seeping from the LTVSMC Tailings Basin must be adequately addressed through PolyMet's assumption of remedial liabilities under the VIC program, and that mitigation measures should be included and discussed in the draft EIS to ensure that no new exceedences of the chronic aluminum aquatic life use criterion will occur. Fond du Lac does not believe that simply monitoring for aluminum is sufficient to protect aquatic life, particularly when the existing seepage is already causing exceedances downstream.	WR1A,WR1E,FM2,FM4
19288	DEIS 4.6-9 The DEIS does not explain why more stringent controls for fugitive air emissions are to be used on Tailings Basin roads than on Plant Site roads. What is the reason for the difference in 60% control for Plant Site roads versus 80% control for Tailings Basin roads? Please explain why the facility is not proposing to use the extra controls on both sets of roads.	AQ1
19288	Tribes have also commented several times previously that air emissions from the proposed Keetac expansion project need to be included in the PolyMet air quality and mercury analyses. This is essential for a valid cumulative impacts analysis.	AQ4B

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Comment ID	Comment Text	Theme Codes
19288	DEIS 4.6-12 states that the FLAG Phase I report was used. Please discuss how use of the updated version of this document could change the findings.	AQ4
19288	DEIS 4.6-13 Modeling did not include current proposed tailings basin emissions. Increased emissions of PM10 and PM2.5 of 96 and 11 tpy, respectively, are expected. These emissions increases were initially deemed too low for concern. Then further analysis was done, but it has not been evaluated yet by the MPCA. The DEIS states that "data is included but should be considered preliminary". Where is this data? It is critically important for this to be included in the DEIS (along with the applicable MPCA comments) not just in the FEIS, because by then the ability for tribes to comment will be past. This needs to be done because emissions from the facility are predicted to be very close to the NAAQS for PM2.5 (see comment below).	AQ4A
19288	DEIS 4.6-14 states that modeling for PM2.5 increment cannot be completed b/c EPA has not set a baseline date yet. The DEIS should state that the permit will be re-opened and this modeling will be done when the baseline date is set. That way, any needed mitigation can take place.	AQ4
19290	DEIS 4.6-15 states that the PM10 24-hr impact approaches the Class II increment level for the Mine Site. Fond du Lac cautions that Class II increment is very close to being fully consumed in this area. This is important to note due to all the expansion planned in the area.	AQ4B,AQ6,AQ8
19291	DEIS 4.6-16 The highest-sixth-high ("H6H") corresponds to one exceedence per year, yet the standard says one exceedence is allowed per year, not over the five-year modeling period. Fond du Lac believes that the H6H from each of the five years of modeling should be examined to see if it exceeds the standard.	AQ4
19292	DEIS 4.6-17, Table 4.6-10. Fond du Lac notes that PM2.5 total is very close to the NAAQS (34 ug/m3 versus 35 ug/m3). This is especially concerning because PM2.5 emissions estimates from this project have a high degree of uncertainty. Again, this total comes very close to exceeding a health-based standard, with numerous new projects planned in the area. The DEIS needs to explain what measures are proposed to limit the chance of exceeding these standards. Will monitoring be conducted? What mitigation plans are in place if an exceedence is detected? What conservative measures were included in the modeling?	AQ5,AQ6
19293	DEIS 4.6-19 states that potential mitigation measures for visibility are located in Section 4.6.3.4, but that section is Tailings Basin Alternative. The section should instead be 4.6.3.5, Mitigation Measures.	AQ5
19293	The Tribal cooperating agencies' position is that this analysis does not use the full particulate emission rate from the plant site, which would be 622 tpy using Table 4.6-6 with fugitive and mobile sources. Also unaccounted for are the additional 102 tpy from the tailings basin.	AQ4
19294	Fond du Lac notes conflicting statements due to risk effects. From the 2nd paragraph of this section, "Although the current Project utilizes LTVSMC tailings to develop a portion of the current Tailings Basin, sampling data from the LTVSMC tailings show that the toxic compounds are lower than the modeled tailings material, except for potentially for manganese, beryllium, cadmium, and antimony. Cadmium and antimony are included in this discussion, although the content of the LTVSMC tailings was below analytical detection limits… However, these four compounds were not drivers in the original risk assessment." If cadmium is higher than what was modeled and is a major risk driver, this MEI analysis could be inconclusive as it does not take into effect the latest data. The Tribal cooperating agencies' position is that regardless of the likelihood of farming being present at the boundary of the installation, the farm that is 6.5 miles away still might be within an area of exceedence of the MDH standard even though it is not at the maximum risk receptor point and must be evaluated to all direct and indirect toxic health risks associated with this project. It is also the position of the Tribal cooperating agencies that all risks outside the project boundaries need to be below MDH guidelines at the time that an air permit is issued to this facility.	AQ4,AQ6

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19295	DEIS 4.6-28 Greenhouse Gases Fond du Lac has repeatedly requested that the lead agencies develop a comprehensive analysis of the Project's potential impacts on climate change, beyond a greenhouse gas inventory. The Ninth Circuit Court of Appeals held in Nov 2007, for the first time, that federal agencies must assess carbon dioxide emissions and other climate change impacts in environmental review documents prepared under the National Environmental Policy Act (NEPA). The Court's unanimous decision in Center for Biological Diversity v. National Highway Traffic Safety Administration arose out of challenges to new automobile fuel efficiency standards for light trucks and SUVs developed by the National Highway Traffic Safety Administration (NHTSA). The Ninth Circuit took the unusual step of ordering NHTSA to prepare an EIS assessing carbon dioxide emissions attributable to the new standards, as well as the actual environmental effects associated with climate change. Petitioners alleged that NHTSA's environmental review under NEPA failed to: (1) take the requisite "hard look" at the carbon dioxide emissions and other climate change impacts attributable to the new CAFE standards The fact that 'climate change is largely a global phenomenon that includes actions that are outside of [the agency's] control . . . does not release the agency from the duty of assessing the effects of its actions on global warming within the context of other actions that also affect global warming.' While NHTSA did the calculations necessary to determine how much extra carbon dioxide would be emitted, it failed completely to discuss in any detail the global warming phenomenon itself, or to explain the benchmark for its determination of insignificance in relation to that environmental danger. The Court faulted NHTSA for failing to "discuss the actual environmental effects" of the proposed standard, and directed the agency to "evaluate the 'incremental impact' that [those] emissions will have on climate change or on the environment more generally in light of other past, present, and reasonably foreseeable actions In light of the Ninth Circuit's emphatic declaration that the "impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impact analysis that NEPA requires agencies to conduct," agencies cannot avoid evaluating climate change impacts for a broad range of projects requiring federal approvals or permits, such as energy facilities and transmission lines, casinos, landfills, mines, and transportation projects. The Court's holding also suggests that simply quantifying emissions and comparing them to a baseline is insufficient. Instead, project proponents should be required to evaluate the interplay between a project's emissions, emissions attributable to other past and reasonably foreseeable future actions, and the actual environmental impacts attributable to climate change.	AQ3

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Comment ID	Comment Text	Theme Codes
19296	In addition to the broadly recognized services that wetlands provide, they also store significant amounts of carbon. It has been estimated that wetlands (only about 6% of the world's terrestrial area) contain carbon equal to the total atmospheric carbon store (Intergovernmental Panel on Climate Change, Working Group 11: Impacts, Adaptation and Vulnerability, 5.8.1 (2001)). Much of the carbon stored in wetland soils and vegetation will be released if they are drained, and the release of carbon will exceed sequestration. A relatively simple response to climate change is prioritizing avoidance of wetland impacts. Wetlands store more carbon than any other ecosystem. Including carbon storage in the §404 permit avoidance and minimization sequencing through the 'least damaging practical alternative' evaluation would be a logical step towards reducing the regional carbon footprint. Carbon sequestration services provided by forested wetlands and peat bogs must be considered in the avoidance equation alongside mitigation. The American Society of Wetland Managers climate change recommendations include: •incorporating adaptations to climate change in water projects to add safety factors for floods and erosion •added ecosystem protection and adjustment goals reflecting anticipated climate changes such as low flow protection for fish and other wildlife. •Add protection of wetland carbon stores as an explicit goal of the §404 permitting program •require impact reduction and compensation •Consider the impact of proposed activities on carbon stores in regulatory Permitting The Minnesota Carbon Sequestration Project, an interdisciplinary research group, produced an assessment of the potential capacity for carbon sequestration in Minnesota's terrestrial ecosystems, on the request of the state legislature. After analyzing existing scientific literature, land use, and current state policies and programs on carbon sequestration potentials, they released a report in 2008 entitled The Potential for Terrestrial Carbon Sequestration in Minnesota. Key findings from the team include: • Peatlands in Minnesota contain the largest carbon stocks in the state, in excess of 4 billion metric tons • Release of this carbon to the atmosphere as CO2 can result from peatland drainage and conversion • Release of this carbon to the atmosphere would accelerate global warming and require greater reductions in CO2 emissions elsewhere • Destruction of 1,000 acres of peatland in Minnesota from mining or other activities would increase the state's total CO2 emissions by 2% over 2005 levels Their top recommendation was to "Preserve the existing large carbon stocks in peatlands and forests by identifying and protecting peatlands and forests vulnerable to conversion, fire, and other preventable threats." The Minnesota Climate Change Advisory Group, a broad-based group of Minnesota citizens and leaders, including a representative from the Fond du Lac Environmental Program, was created to develop state-level policy recommendations to Governor Pawlenty. In 2008, the group released "Minnesota Climate Change Advisory Group Final Report", which included the following findings and recommendations: • Wetlands have among the highest potential carbon-sequestration capacities for any type of land cover in Minnesota. Peatlands are likely Minnesota's largest single carbon sink, containing 37% of all carbon stored in the state. • Protecting these enormous carbon reservoirs is critical • Policy goals include protect and restore northern peatlands; by 2015, identify peatlands at risk of releasing greenhouse gases because of lowered water table or industrial uses such as mining; design policies to protect peatlands and wetlands from drainage and other carbon-releasing land uses.	AQ3
19297	Fond du Lac acknowledges that climate change regulations and requirements have not yet caught up with policy in Minnesota. But this Project is clearly in violation of the science-based recommendations of multi-disciplinary experts across the state and throughout the country. Climate change litigation has resulted in a clear mandate for the EIS process: any project subject to environmental review must include a comprehensive analysis of climate change impacts.	AQ3
19298	DEIS 4.6-40 In order to meet the conditions of the statewide mercury TMDL implementation plan for new or expanded sources, PolyMet proposes to work with crematoria on mercury reductions, but only suggest working to quantify their emissions. This may include research or evaluation of control technologies, but the DEIS indentifies no real, enforceable requirements to take action. Any air permits issued must contain clear deadlines for actions.	AQ5,AQ6A

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Comment ID	Comment Text	Theme Codes
19298	DEIS 4.6-37 The text states that "calculated visibility impacts greater than 5 or 10% could occur at some point within the BWCAW on a small number of days each year (a maximum of 23 days per year above 5% and one day above 10%)". Fond du Lac does not believe that 23 days of visible impact on visibility per year can be characterized as "a small number". The Federal Land Managers are concerned with any number of days with a visibility impact above 5%. While the Band realizes that mitigation discussions are still underway between PolyMet, the MPCA, and the FLM's, we would still like to have options presented in the DEIS stage so that we may comment on them. At this point, it is impossible to know what scale of mitigation may be possible, especially as a number of other sources in the area intend to perform mitigation, as well.	EOO,AQ5
19299	DEIS 4.6-42 It appears that tribal comments found on this page have not been addressed. This should be done in the DEIS	AQ4
19300	DEIS 4.6-45 Analyses of cumulative acid deposition, Class I and Class II air impacts, and mercury do not include the Keetac expansion. The Fuel Diversification item is a different project from a few years ago.	AQ4B
19300	DEIS 4.6-44 Table 4.6-21 shows that the total cumulative modeled air concentration of 7.5 ug/m3 is very close to the Class I PSD Increment of 8 ug/m3. This is a concern to the Band due to the number of other new projects proposed in the area that will also emit related pollutants.	AQ4B
19301	It is the position of the tribal cooperating agencies that noise contour maps should be developed for inclusion in this PDEIS. Noise contour mapping would allow reviewers to assess the impacts of noise to all publicly accessible lands in the vicinity of the project which include large sections of the Superior National Forest immediately adjacent to the mine site (See figure 4.9-1). An assessment of noise impacts to all public access lands is important information for assessing cultural impacts to tribes with hunting, fishing and gathering rights in the 1854 Ceded Territory.	N1
19302	It is the tribal cooperating agency position that the Army Corps has not completed §106 NHPA consultation with potentially affected tribes. Therefore, this document does not estimate the potential degree of disturbance to tribal members who may be involved in traditional natural resource harvest harvests on national forest lands.	N1
19303	DEIS 4.7.3 Environmental Consequences/Summary concludes "Based on the above information, it is anticipated that the continuous generation of noise at the Plant and Mine Sites would have an insignificant effect on the noise environment during mine operations, Closure, and Post Closure." Tribal cooperating agencies disagree with this conclusion. This document does not present enough information to make this claim.	N1
19304	DEIS 4.7.4 Cumulative Effects states "The cumulative effects of a few reasonably foreseeable projects (i.e., future developments) within a 10 mile radius of the Project area were also considered over the 20 years of Project mining." Tribal cooperating agencies are not aware of any assessment that has been conducted. Contour mapping of cumulative noise sources should be presented in this section. Tribal cooperating agencies do not believe that an adequate cumulative impact of noise impacts analysis has been done. Meeting ambient noise standards is a different question than assessing impacts. Impacts should be fully characterized in this document and contour maps showing overlapping noise pollution from different projects provided. Without this information, it is not possible for the public to review the cumulative impacts of noise. In addition, the cumulative impacts of mine related vibration have not been assessed.	N6

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Comment ID	Comment Text	Theme Codes
19305	It is Fond du Lac's understanding that this chapter is still being revised, as part of the ongoing §106 NHPA consultation process with the tribes. We note that the EIS cannot be considered final under federal guidelines, or a Record of Decision issued, until this consultation process has concluded. The tribal cooperating agencies' cultural resources staff have worked to improve and refine the information and analysis in this chapter, as the protection of treaty resources is our prime concern. While the USACE did not determine that the 1854 Ceded Territory is a Traditional Cultural Property, the Grand Portage Band has documented its disagreement with this determination. The tribal cooperators are proceeding in accordance with USACE's offer to fully evaluate the Ceded Territory, including all factors that would be considered in a TCP analysis, pursuant to its trust responsibility. The USACE has not completed consultation with the potentially affected tribes regarding culturally important species. The extent of existing wild rice beds has not been fully characterized; consequently, evaluation of the impacts and cumulative impacts to wild rice has not been determined. Wild rice grows on the Embarrass River, the lower Partridge River, and the St. Louis River; the Minnesota water quality criterion of 10 mg/l sulfate applies to these waters. There are other regional projects (including Mesabi Nugget Phase II and Laskin Energy) that are discharging water with elevated constituents. With these existing sources, it is unlikely that PolyMet would be able to discharge untreated tailings basin effluent without violating the CWA. But treatment of the tailings basin effluent prior to discharge to the Partridge River is not included in the potential mitigation measures. There has not yet been sufficient evaluation of Band member use of vegetation and other usufructuary resources in the APE, and there is no permissible basis to omit such evaluation where the USACE and other federal permitting agencies have a trust responsibility to the Band to maintain treaty resources in the 1854 Ceded Territory. The APE for the Project was not determined until August 11, 2009, and tribal consultation is ongoing. Historic and current tribal harvest information has not been finally determined even for the Plant or Mine Sites. Although this area is significantly disturbed and will be for the foreseeable future, the closure and reclamation plans should have a significant effect on native vegetation as it is reintroduced. The prevalence of invasive, non-native species and their ability to out-compete native plants in disturbed areas, coupled with PolyMet's plan to introduce non-native and invasive species to this area, would result in significant impacts to cultural resources that have not been discussed in the DEIS. Several wildlife species of high cultural and present-day value to Band members exist in the APE, including moose, whitetail deer, wolf, fisher, marten, and lynx. Most notably, the Minnesota moose population is under a long-term population decline. Mining operations will certainly do nothing to aid in the recovery of moose and are likely to reduce available habitat and impact travel corridors. Water, air, and noise pollution, combined with increased road density, have been shown to have negative impacts on most boreal wildlife species including wolves, moose, and lynx. Further evaluation of wildlife impacts must be done. Several lakes and the Partridge River watershed are likely to experience adverse water quality and hydrologic impacts, which will impact fish species and thus the Bands' 1854 Treaty rights to harvest fish in those water bodies. The DEIS as written fails to mitigate the costs to fisheries and wildlife species that are protected under the 1854 Treaty. Treaty reserved fishing rights cannot be fully exercised when fish consumption must be restricted for health reasons to one or two meals per week. The entire DEIS must include proper anal	G3,CR1,CR2,CR3,CR4
19305	The Project is clearly inconsistent with several of the identified land use plans: the Minnesota Forest Resource Council Landscape Management Plan (in particular, the goal of "providing diverse habitat to maintain natural communities and viable populations for the plant and animal species in northeastern Minnesota") and the St. Louis River Management Plan (the goal "to promote preservation and improvement of water quality, recreational opportunities, ecological health and archaeological resources"). The mitigation measure (using native seed mix) is not sufficient to compensate for the adverse impact.	CPLU1,CPLU2

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Comment ID	Comment Text	Theme Codes
19306	It is Fond du Lac's position that, because the Project would create a situation where the applicant would enjoy substantial financial gain while potentially creating disproportionately high and adverse human health or environmental effects on minority and low income populations, the Project requires a complete analysis of environmental justice (Executive Order 12898, signed by President Clinton on February 11, 1994; EPA's website at http://www.epa.gov/compliance/environmentaljustice). The casual dismissal of environmental justice issues in the DEIS is offensive. A simple recitation of census numbers and proportions of Native Americans in the regional and statewide populations is not a legitimate analysis. There are significant environmental justice concerns with the Project, including but not limited to: loss of usufructuary rights, permanent loss of wetlands in the 1854 Ceded Territory and the subsistence and cultural benefits they provide, increasing mercury in fish harvested from reservation and Ceded Territory waters, loss of wild rice resources, loss of wildlife species. These impacts must be fully considered in the DEIS.	SE2
19306	Since the proposed land exchange between PolyMet and the USFS/Superior National Forest has not even begun formal review, it is appropriate to consider the Project's compatibility with SNF plans. During preparation for the Forest Plan revision in 1997, SNF set about identifying natural areas on the Forest to potentially designate for permanent protection, to be maintained as natural. Their approach was to develop a list and general description of the highest quality remaining examples of common ecosystems present within each Landtype Association ("landscape"). Forest biologist Robin Vora conducted that assessment. His results were presented in a report titled "Identification of Potential Natural Areas, Including Representative Ecosystems, on the Superior National Forest." In the report he notes, "A network of natural areas helps to protect biological diversity at the genetic, species, ecosystem, and landscape scales. Natural areas representative of common ecosystems in natural condition serve as baseline or reference."	CPLU3
19306	In most cases, determination of the level of discussion on biological diversity should, as with all impacts, be made during the scoping process. The scoping process should he used to identify whether biological diversity will be an important consideration in the environmental analysis. Biological resources are important ecologically and economically. At the ecosystems level, maintenance of structural diversity and functional integrity is essential to the continued provision of important ecological services, such as regulation of hydrologic cycles, and carbon and nutrient cycling. Healthy, functioning ecosystems are necessary to support commercially and recreationally important fish and wildlife populations. Furthermore, the aesthetic, ethical, and cultural values associated with unique forms of life lend additional support to the establishment of biological conservation as public policy (Wilson, E.O. ed. 1988. Biodiversity. National Academy Press, Washington, D.C.) Physical alteration, as a result of resource exploitation and changing land use, is the most pervasive cause of biodiversity loss. Ecosystem alteration includes habitat destruction, simplification, and fragmentation. When natural areas are converted to industrial, residential, agricultural, military, recreational, or transportation uses, ecosystems are disrupted and biodiversity diminished. Beyond the direct removal of vegetation and natural landforms in local areas, development of sites for human use fragments larger ecosystems and produces isolated patches of natural areas. Climate change impacts biodiversity as well: the ability of ecosystems to shift their locations would be further hindered by fragmentation of the natural landscape that places inhospitable environments between current and future ranges. There are general principles of ecosystem management: minimize fragmentation (promote natural pattern and connectivity of habitats); protect rare and ecologically important species; protect unique or sensitive environments; that promote or protect biodiversity. This project is clearly inconsistent with those principles	AQ1
19308	The public process for the DEIS was grossly deficient in ensuring effective public participation and access to information to the Native American population potentially affected by the Project. The public hearings were tightly controlled, and did not include an opportunity for the tribal cooperating agencies' technical staff to provide their perspective to the public.	EOO
19309	The EIS process will not be complete or adequate until a full analysis of environmental justice issues has been conducted.	SE2
19310	The Tribal cooperating agencies' position is that the Army Corps has not completed consultation with potentially affected tribes. Therefore, this document does not estimate the degree of disturbance to tribal members who may be involved in traditional natural resource harvest harvests on national forest lands.	CR2,CR4

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Comment ID	Comment Text	Theme Codes
19310	Tribal cooperating agencies' position that the use of a few visual receptors to assess PolyMet related visual impacts is not adequate. Using this method means that the conclusions presented in this chapter apply only to those visual receptors and do not apply to any other publicly accessible area in the vicinity of the proposed project. Tribal cooperating agencies have requested that a more complete Visual Impact Assessment (VIA) be developed for inclusion in this PDEIS (GLIFWC Comment letter of June 30, 2008 and GLIFWC comment letter of February 6, 2009). Methods for a complete VIA were developed and used for other mine proposals as part of the Army Corps federal EIS process (Crandon Mine EIS Preliminary Draft Technical Memorandum: Visual Resources Section of Draft Chapter 3, November 2002). Despite these comments and Corps precedent, a complete VIA has not been included in this iteration of the PDEIS. A complete VIA would allow the public to review the impacts of project features to all publicly accessible lands in the vicinity of the project which include large sections of the Superior National Forest immediately adjacent to the mine site (See figure 4.9-1). A VIA of all public access lands is important information for assessing cultural impacts to tribes who have retained the right to hunt, fish and gather on national forest lands	VI1
19311	DEIS 4.11.4 Cumulative Effects concludes "Therefore, there would be no long-term impacts during the Project life and Post-closure relative to Visual Resources and no cumulative effects analysis would be warranted." The Tribal cooperating agencies' position is that a cumulative impact of visual impacts analysis is needed. A thorough VIA following past Army Corps practices has not been conducted for this project and tribal consultation regarding cultural impacts have not been completed. Therefore, this conclusion is premature. Finally, the Tribal cooperating agency position is that the introduction of non-native, invasive species as a revegetation measure may have longterm visibility impacts to the site. It is the Band's understanding that the company and the Federal Land Managers are close to an agreement for visibility mitigation that is not fully fleshed out in the DEIS. Please address further.	VI2
19312	DEIS 4.13 Geotechnical Stability/ Environmental Consequences discusses waste rock slope stability analysis (deferred until permitting), low safety factors at the Tailings Basin because of slimes, and unknown stability or presence of slimes underlying the proposed Hydrometallurgical Residue Facility. The Tribal cooperating agencies' position is that this approach is not consistent with the federal EIS process. The purpose of this document is to provide information for all reasonably foreseeable impacts. The lack of a stability analysis for the stockpiles is a serious data gap given the serious environmental consequences of a structural failure of a stockpile. The structural stability of the tailings basin has been a serious concern since the PolyMet project was first proposed. This concern has led to the development of at least three different tailings basin designs that have been presented in various draft documents. Contractors reviewing these designs have expressed serious concerns with both the shortterm and the long-term stability of the facility. Tribal cooperators take the position that given the history of design problems, it is irresponsible to postpone a serious analysis of the structural integrity of the latest tailings basin design until the permitting stage. A complete stability analysis must be included in the DEIS to comply with NEPA and so that the public can review a complete set of possible environmental impacts associated with this project. The hydrometallurgical residue facility would contain the most hazardous waste materials produced by this project that, if released to the environment, would cause serious and long lasting contamination. The unknowns listed in the DEIS are a serious data gap and the tribal cooperating agency position is that the analysis should be conducted and included in the DEIS to comply with NEPA and so that the public can review a complete set of possible environmental impacts associated with this project.	GT1
19313	The Tribal cooperating agencies' position is that the existing facility has stability concerns before any Polymet tailings have been deposited on top of it. This simple fact illustrates the need for a complete structural stability analysis to be performed and included in the DEIS.	GT1
19314	Tribal cooperating agencies strongly disagree with this approach. The Tribal cooperating agencies' position is that this approach is not consistent with the federal EIS process. The EIS must identify alternatives and mitigation methods that address potential problems with the project. Sufficient data must be collected so that a complete structural integrity analysis can be performed and included in the DEIS.	GT1
19314	The Tribal cooperating agencies' position is that this approach is that the analysis must be conducted prior to permitting and included in the DEIS.	GT1

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Comment ID	Comment Text	Theme Codes
19316	Tribal cooperating agencies strongly disagree with this approach. The Tribal cooperating agencies' position is that the purpose of an EIS is to identify mitigation measures that address potential problems in the project. The analysis described in the previous paragraph must be conducted prior to permitting and included in the DEIS.	GT1
19317	The Tribal cooperating agencies' position is that given the lack of confidence in the structural integrity of the tailings basin, the dam break analysis and risk assessment must be conducted prior to permitting and the results included in the DEIS so that the public can be fully informed about the risks associated with this project.	GT1
19318	Climate Change implications of the proposed project. The project would disturb extensive areas of peat (Section 4.2) Peat is known to be an important carbon sink. Wetlands in general are recognized as important carbon sinks and areas where wildlife will seek refuge as the climate warms.	AQ3
19318	It is the position of Tribal cooperating agencies that the CEQ guidelines on cumulative effects were only one of the sources used to develop the "Protocol to Assess Expanded Cumulative Effects on Native Americans." This protocol was submitted to the lead EIS agencies with the expectation that the additional information detailed in the protocol would be used to assess cumulative impacts on the potentially affected tribes. The Tribal cooperating agency position is that while the protocol is mentioned in this section, none of the expanded data collection or analysis that the protocol recommends was done. Therefore it is the tribal cooperating agency position that the cumulative impact section is incomplete and does not properly assess cumulative effects of the proposed project on natural and cultural resources.	G8C
19319	Cumulative impacts to plant and animal species that are not listed as threatened or endangered. The focus of the EIS on listed species is understandable but other species that are important to tribal and non-tribal members would likely be impacted by mining projects. Moose, for example, are likely to be impacted through disturbance along the few wildlife corridors remaining along the Mesabi range and through wetland impacts of this project. At a time when moose populations in Minnesota are declining, this analysis is particularly important and should be done as part of this EIS.	WI5
19319	Cumulative impacts to wild rice. Wild rice is a valuable tribal resource that has been declining throughout the 1854 ceded territory. Mine effluent is often associated with levels of sulfate that has impacted wild rice and hydrologic changes from pit dewatering and seepage from tailings basins can also impact wild rice, which is dependent upon a relatively stable hydrologic regime. The cumulative impacts to wild rice have not been assessed	WR5A,WR5C,CR1,CR2
19320	The Cumulative effects of noise and vibration. These issues have not been analyzed although they were raised by the public during scoping.	N3,N6
19320	The DEIS fails to adequately analyze cumulative impacts to the water quality of the Partridge, Embarrass, or St. Louis Rivers. In Colby Lake, the community water supply for the City of Hoyt Lakes, aluminum, iron, copper, and mercury concentrations already exceed Minnesota water quality standards. The existing large number of water quality exceedances and the suite of constituents, particularly trace metals, exceeding standards shows the site has not been remediated from previous mining activities. Additionally, amphibole or asbestos-like mineral fibers, known to cause digestive tract cancers in high concentrations, have been identified as existing pollutants in the Hoyt Lakes community water supply and their presence should be identified in the DEIS. Related cumulative-impacts issues such as groundwater drawdown or mounding due to multiple mine projects, water quality in aquifers impacted by previous and existing other mine projects, and surface waters such as the Partridge and Embarrass Rivers and Second Creek that are impacted by multiple mines need further analysis. In particular, the contribution of legacy contamination from the LTVSMC plant site and tailings basin must be fully evaluated.	WR5A
19320	The cumulative effects on fish and macroinvertebrates. This discussion is limited to sulfate and mercury. Cumulative effects of habitat degradation on the fisheries of the region have not been discussed.	FM3
19320	The Cumulative risk analysis of transportation of hazardous materials. This issue has not been analyzed.	HM3

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Comment ID	Comment Text	Theme Codes
19320	The cumulative effects of the Project on the 1854 Ceded Territory has not been addressed.	G3,CR4
19322	The cumulative effects on air quality have not been adequately addressed. The cumulative analysis did not account for all of the PolyMet emissions from the tailings basin, nor did it factor in emissions from the Keetac Expansion Project. The attainment for PM2.5 is questionable because the 24 hr standard is almost met without those sources included in the modeling. The Class 1 PM10 increment analysis did not take into account the full particulate emissions from the tailings basin. That analysis also did not factor in any emissions from the Keetac Expansion Project, which plans to increase production by 61% by reopening another furnace line, nor is there any mention of the Essar Steel Expansion project that is planned. The present analysis showed that there was very little increment left without accounting for these sources and that as such it would have a significant impact by exceeding the increment limit. Data from the Central Regional Air Planning Association (CenRAP) indicate that visibility in Minnesota Class I areas is not expected to improve as much as is required by the Regional Haze Rule, even with expected reductions. Aggressive mitigation of NOx emissions is expected by the MPCA and the FLM's during the permitting process. The Tribal cooperating agencies should be included in these discussions to the extent possible.	AQ4B
19322	Fond du Lac is specifically concerned that water quality within the St. Louis River has already been degraded by past and present mining activities, as documented by Fond du Lac and 1854 Treaty Authority monitoring. Additional discharges of sulfate, mercury and other trace metals will have a cumulative effect on water quality in the St. Louis River. An Antidegradation Analysis for the Lake Superior Basin must be conducted for several contaminants in addition to mercury. The results of this analysis should be included in the DEIS.	WR5A
19324	For the reasons stated below, the DEIS is legally and technically flawed because it improperly segmented the decision regarding a possible land exchange into a separate environmental analysis, eliminated viable alternatives from its analysis, failed to adequately the cumulative impacts associate with this project, and insufficiently analyzed the environmental consequences to numerous resources such as water quality, wildlife, wetlands and air quality. Accordingly, the Sierra Club requests that DNR and the Corps conclude the NorthMet Project will cause significant and irreparable environmental harm and reject the Proposed Action. Alternatively, we request that DNR and the Corps fully and completely address the following deficiencies and concerns surrounding the DEIS and re-issue the DEIS for further public comment.	G8
19324	please see your way clear to supoort polymet mining.....	EOO
19324	In summary, Fond du Lac believes that the DEIS as published does not contain sufficient detail or complete analysis to ensure that environmental consequences of the Project have been fully considered, and the public provided opportunity for review. The deficiencies identified throughout the EIS process by the tribal cooperating agencies have been rarely addressed, let alone incorporated into the analysis. Outstanding significant issues include: • Elimination of the underground mining alternative • Inadequacy of scoping process • Inclusion of the proposed land exchange in this EIS process • Full discussion of appropriate financial assurance for reclamation, remediation and restoration of resources • Long-term treatment of contaminated water/consistency with maintenance-free closure goals • Clear discussion of PolyMet liabilities for legacy contamination, and inclusion of existing levels of groundwater contaminants in modeling predictions • Indadequate water quality impacts analysis • Project's affect on existing water quality impairment (mercury bioaccumulation) • Project's affect on wild rice waters (sulfate loadings) • Project's affect on wildlife corridors • Project's affect on air quality (new source of mercury; visibility in Class 1 airshed) • Inadequate analysis of geotechnical stability (waste rock stockpiles, tailings basin, hydrometallurgical residue cells) • Inadequate hydrologic and geochemical characterizations using all existing data; insufficient new data to support modeling and assumptions • Inadequate assessment of indirect impacts to wetlands • Inadequate cumulative effects analysis, across all resource categories • Inadequate analysis of impacts to the 1854 Ceded Territories and exercise of treaty rights • Inadequate analysis of environmental justice issues • Inadequate analysis of climate change impacts Fond du Lac expects that supplemental information and analysis must be forthcoming before the EIS process can conclude. We look forward to continued involvement and consultation on this Project and EIS process.	G8

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19324	The piecemealing of the environmental impacts analysis is a violation of NEPA. First, despite PolyMet's claims, the Forest Service has a duty to protect the surface lands of the Superior National Forest. Second, any possible land exchange is a "connected action" that the agencies must analyze under one EIS. Finally, as a connected action, there are numerous areas of environmental review that the DEIS unlawfully fails to address	ALT8
19326	The Forest Service has the duty to protect the public's surface lands for forests, water, and multiple uses under NFMA, the Organic Act, and the Property Clause. Congress has the power under the Property Clause to regulate federal land. U.S. CONST. art. IV, § 3, cl. 2; California Coastal Comm'n v. Granite Rock Co., 480 U.S. 572, 580 (1987). Congress may even regulate conduct occurring on or off federal land which affects federal land. Kleppe v. New Mexico, 426 U.S. 529, 539 (1976).	PD2
19327	The proposed NorthMet Mine fails the independent utility test. First, as discussed above, the Forest Service interprets PolyMet's deed language to the mineral rights as prohibiting open pit mining. DEIS at S-1. This is consistent with Eighth Circuit precedent, which holds that even in the face of private mineral rights the Forest Service has limited but substantial authority to "determine the reasonable use of the federal surface." See Duncan, 109 F.3d at 498. Therefore, without the land exchange, the proposed NorthMet Project would not move forward. This project thus fails the independent utility test because it cannot reasonably be completed without the land exchange. See, e.g., Wetlands Action Network, 222 F.3d at 1118; Utahns for Better Transp., 305 F.3d at, 1183; Native Ecosystems Council, 304 F.3d at 894.	PD1
19327	Thus, although the United States and PolyMet currently disagree regarding whether PolyMet has the authority to open pit mine these minerals on the Superior National Forest, DEIS at S-1, the case law and Eight Circuit have clearly established that the Forest Service has substantial authority to itself "determine the reasonable use of the federal surface." Duncan, 109 F.3d at 498. Since the NorthMet Project mine site is located on the Superior National Forest, DEIS at S-1, the Forest Service has the ability, right, and duty to restrict open pit mining on the national forest.	PD1
19328	Land transfers of public lands for private lands have recently been held to fully change the scope of environmental under NEPA, warranting acknowledgment and analysis within an EIS. Center for Biological Diversity v. U.S. Dep't of Interior,	PD1
19328	The DEIS identifies and considers in detail three alternatives: (1) the "no action" alternative; (2) the mine site alternative; and (3) the tailings basin alternative. DEIS at 3-50 – 3-62. The fundamental difference in the mine site relative to the proposed action is the long-term treatment and disposal of the waste rock at the Mine Site. This alternative would subaqueously dispose of the most reactive waste rock (Category 2, 3 and 4) in the East Pit while the least reactive waste rock (Category 1 and overburden) would remain as a permanent surface stockpile. DEIS Summary 2-15. The Tailings Basin Alternative consists of a modified design or layout to reduce the Proposed Action's potential impacts to surface and ground water quality at the Tailings Basin. This alternative is the combination of several potentially viable individual mitigation measures to address seepage and geotechnical stability in the Tailings Basin. DEIS Summary 2-16. Thus, none of the alternatives evaluated in the DEIS involved different mining techniques or a different scale or magnitude of mining.	PD1
19328	As in Center for Biological Diversity, examining the environmental impacts of the proposed NorthMet project would substantially change if the agencies considered how land was owned, in particular applicable federal regulations under federal ownership. The DEIS would analyze the project's potential impacts in lightof the applicable federal requirements, such as the Organic Act, National Forest Management Act, and others. Since these regulations establish different standards and guidelines, the applicability of these regulations would significantly change the environmental impacts analysis and scope of issues that the environmental analysis must consider. For instance, the Superior National Forest Plan has far different standards than were used under the DEIS, such as "watersheds … are maintained or restored in a way that allows for the conservation of genetic integrity of native species," which would substantially alter the analysis. Superior National Forest Land and Resource Management Plan, July 2004.1	PD1

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Comment ID	Comment Text	Theme Codes
19328	Minnesota Rules states that an agency may exclude an alternative if "it would not meet the underlying need for or purpose of the project; it would likely not have any significant environmental benefit compared to the Project as proposed; or another alternative, of any type, that will be analyzed in the DEIS would have similar environmental benefits but substantially less adverse economic, employment, or sociological impacts." MN Admin. Code § 4410.2300(g). This rule does not allow an agency to eliminate an alternative that would have significant environmental benefit simply for economic reasons. The agencies eliminated an underground mining alternative because it determined that this alternative did not meet the purpose and need of project because such an alternative "was not economically viable." DEIS at 3-64, Table 3.2.4. In addition, the agency eliminated this alternative because it claimed that the ore deposit is shallow and could increase safety concerns. Id. Finally, although not specifically referencing underground mining, the DEIS states that it eliminated alternative metal extraction technologies – underground mining is an alternative metal extraction technology – because it determined that "it would not have significant environmental benefits over the proposed action." DEIS at 3.68. The cooperating tribal agencies disagreed with this rationale noting the significant environmental benefits of underground mining and a study by U.S. Steel of this mineral deposit, which recommended underground mining because the ore depths were so great that open pit mining would not reach them. Id. In addition, the agencies eliminated alternatives that had a modified scale or magnitude. The agencies determined that although these alternatives offered environmental benefits, the agencies still eliminated them because the reduced return on investment they were not economically feasible. DEIS at 3.70. The agencies did not attempt to link this rationale with the project's purpose and need. Id. Each of the rationales advanced by DNR and the Corps are legally deficient reasons to eliminate underground mining or reduced scale as alternatives that the DEIS should have evaluated. First, the ecological costs of open-pit mining and above ground disposal of tailings and waste rock are immense. Underground mining would not destroy the breadth of wetlands that the proposed project would destroy. In addition, with underground mining there is no waste rock and above ground disposal issues because the toxic material is left underground. This greatly reduces the impacts to groundwater and surface waters. These are just a few of the environmental benefits that the DEIS should have explored in its comparative analysis of the underground mining alternative. In addition, a project of reduced scale would obviously have immense environmental benefits. Therefore, the agencies should have considered a smaller project alternative and compared the environmental impacts of the proposed project with this reduced scale alternative. MN Admin. Code § 4410.2300(g) (agency may exclude an alternative if "it would likely not have any significant environmental benefit compared to the Project as proposed"). Second, Minnesota regulations do not allow an agency to eliminate an alternative for economic reasons. See MN Admin. Code § 4410.2300(g). Thus, the agencies elimination of the modified scale alternatives is not justified under Minnesota law. The agencies should thus modify the DEIS to include this alternative in its detailed analysis. With regard to the underground mining alternative, the agencies attempt to shoe-horn this illegal economic rationale into the purpose and need exemption. DEIS at 3-64, Table 3.2.4 (agencies eliminated underground mining alternative because it determined that this alternative did not meet the purpose and need of project because such an alternative "was not economically viable."). This rationale is not legally defensible because the purpose an	ALT8,PD1
19331	The DEIS' analysis of cumulative impacts is conclusory and lacks any specific analysis. These are discussed in detail throughout these comments; however, the following example demonstrate the DEIS' inadequacy. In discussing wildlife corridor impacts from the NorthMet Project in light of the other "reasonably foreseeable projects" the DEIS states: "the other reasonably foreseeable projects are anticipated to affect nine of the 13 wildlife travel corridors identified by Emmons and Olivier. . . . These impacts should be considered significant; however, relative to the impacts from these other reasonably foreseeable projects the contribution of the NorthMet project to cumulative effects on wildlife corridors would be minor." DEIS at 4.4-32.	G8C

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19331	DNR and the Corps used an inadequate scope of projects for its cumulative impacts analysis. First, the NorthMet Project acknowledges that the current project will only utilize approximately 30% of the existing processing plant's capacity. Yet nowhere in the DEIS do the agencies account for the probable expansion of this processing plant to 100% of its capacity. See PolyMet Mining Advancing Port Production Cooper, Nickel and Precious Metals in US at 8, 17 (2009) (attached hereto). Second, the agencies arbitrarily restrict the projects that they consider "reasonably foreseeable." For instance, with regard to cumulative effects to water resources, the DEIS states "In order to be reasonably foreseeable, an activity cannot be simply speculative, but should be included in government plans and budgets or, for private projects, have filed for required permits." DEIS at 4.1-173. To require that a project must "have filed for permits" in order for it to be considered for cumulative impacts is imposing an unreasonably strict definition of what is a reasonably foreseeable impact. For example, there are several mining projects in the advanced stages of exploration that DNR and the Corps should have considered as reasonably foreseeable. These projects include the Duluth Metals Ltd (Nokomis deposit) and the Franconia Minerals Corp (Birch Lake deposit). Ignoring the potential for these developments understates the cumulative impacts to the region. DNR and the Corps also arbitrarily restricted "reasonably foreseeable" future actions with regard to its analysis of cumulative impacts on wildlife. Once again the agencies failed to include the Duluth Metals Ltd (Nokomis deposit) and the Franconia Minerals Corp (Birch Lake deposit) in its list of future mining projects. See, DEIS at 4.4-27, 4.4-31; Barr Engineering Co., Revised Cumulative Effects Analysis – Wildlife Habitat and Sensitive Wildlife Species (March 31, 2009) at p. 21- 24. Ignoring the potential for these developments inappropriately minimizes the	ALT8,G1

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Comment ID	Comment Text	Theme Codes
19332	The DEIS does not adequately disclose the full-range of potential impacts associated with the NorthMet Project because critical relevant data was not obtained. In addition, although the DEIS acknowledged a few of these data gaps, it did not claim that the information was not obtained due to financial reasons. Instead the DEIS just makes conclusions about impacts and alternatives based on this inadequate information. This is inadequate under NEPA. Under NEPA's implementing regulations: "If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement." 40 C.F.R. § 1502.22. The data gaps in the DEIS are "essential to a reasoned choice." 40 C.F.R. § 1502.22(a). Without this information, DNR and the Corps are not fully informed regarding the environmental consequences associated with the Proposed Project and its alternatives. Since the agency did not claim that these data gaps were the result of exorbitant costs, the DEIS is inadequate because the information discussed below is missing. For instance, the DEIS omitted mercury from its modeling and transport analysis for water quality impacts. Specifically, the DEIS states: "The models predicted concentrations for 26 parameters (i.e., silver, aluminum, arsenic, boron, barium, beryllium, calcium, cadmium, chloride, cobalt, copper, fluoride, iron, hardness, potassium, magnesium, manganese, sodium, nickel, lead, antimony, selenium, sulfate, thallium, vanadium, and zinc). Mercury was not included in either model because data for mercury were not available for stockpile liner leakage (RS53/42, SRK 2007) or groundwater recharge from the East and West pits (RS31, SRK 2007)." DEIS at 4.1-108. This omission of data is especially troubling because the water bodies impacted by the NorthMet Project do not comply with mercury water quality standards, discussed in detail later. In addition, the agencies do not claim that this data was omitted due to cost concerns. 40 C.F.R. § 1502.22. In addition, the DEIS provides insufficient information regarding stream flow data. The DEIS only provides information for the Embarrass River to 1964 and for the Partridge River to 1988. The DEIS completely fails to provide stream flow rates or water quality data for important stretches of the Embarrass and Partridge Rivers, such as Trimble and Spring Mine Creek. Later in these comments, Sierra Club addresses how flow fluctuations are an important factor in methylation. So without this information it is difficult, if not impossible, for DNR and the Corps to predict the water quality impacts to these water bodies; making it impossible to render a reasoned decision. Once again, the agencies do not provide a reason for this data gap. This is inadequate under NEPA. 40 C.F.R. § 1502.22. Finally, the DEIS provides insufficient information regarding the environmental impacts associated with aluminum leaching and groundwater. Even though the agency recognized the NorthMet Project would leach aluminum in significant quantities from the Tailings Basin, DEIS at 4.1-69, the agency did not model aluminum transport through groundwater because the existing concentrations in groundwater already exceeded water quality standards. DEIS at 4.1-78. Once again, the agencies do not provide a reason for failing to obtain this information. 40 C.F.R. § 1502.22. Without this information it is difficult, if not impossible, for DNR and the Corps to predict the groundwater quality impacts associated with aluminum.	WR1E,G8
19333	There are seven species that are federally or state listed as endangered, threatened, or considered species of special concern; 58 species that are considered Minnesota Species of Greatest Conservation Need, and 23 species listed on the USFS's Regional Foresters Sensitive Species list that the NorthMet Project may potentially impact. The DEIS analyzes the direct, indirect, and cumulative effects of the project on these wildlife, wildlife habitat, and travel corridors. This analysis, however, is deficient for a number of reasons.	WI2

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19333	Portions of the Mine Site lie within the revised boundaries of federally designated lynx critical habitat. DEIS at 4.4-3. The USFWS designated this critical habitat on February 25, 2009. 74 Fed. Reg. at 8,642 The DEIS mistakenly relies upon an assumption that there is no presence of Canada Lynx within the project area. Based upon a single year (2006) winter survey and several summer surveys, it stated that evidence of 20 different lynx were identified within 18 miles of the project site, including reproductive individuals, and that the nearest sighting was six miles from the Mine Site. DEIS at 4.4-3 First, the DEIS does not analyze at what point in the lynx-hare population cycle, the lone winter tracking survey was conducted. Lynx populations cycle according to the availability of their favorite prey and primary food source, snowshoe hare. This prey tends to cycle within a ten year term. The DEIS does not provide any information as to what point we are within the lynx-hare cycle, currently or when the winter survey was done. Moreover, analysis is needed of the full cycle, to obtain an accurate portrait of lynx numbers. This is especially important when the lynx populations are high. Population surveys of the lynx for just one year are meaningless without an understanding of where we are in the lynx-hare population cycle, and survey information is required for several of years immediately before and after the 2006 survey. It is anticipated that we are at the near low of the ten year cycle, but the DEIS provides no guidance on this issue whatsoever. Second, in order to be capable of providing more definitive conclusions about lynx presence and use of the Project area, the DEIS should have included winter lynx tracking data from several consecutive years, but it did not. The DEIS improperly relies upon a single winter survey in 2006 and numerous summer surveys. The DEIS claims that no lynx were found during summer wildlife surveys at the Project area in 2000 and 2005. Any determination, however, that lynx were not present within the area is not proven. Sighting of uncollared lynx are far rarer in summer, and the primary method to detect an uncollared lynx is through lynx tracks in snow. This is one reason the USFS is developing a new protocol for tracking lynx in the winter. The Forest Service chose this method because “with fluctuating budgets and resultant limited staff and shortfalls in equipment, a costeffective and practical method is needed.” See Catton, Shedd, A Snow Tracking Protocol to Survey and Monitor Lynx (Lynx canadensis) Populations on the Superior National Forest, Minnesota (2007); Abstract for presentation at Canada Lynx, Biological and Political Realities for Conservation Planning, International Workshop Grand Portgage, MN Oct 2007 (attached hereto). Such data is readily available but was not relied upon by the DEIS. The Canada Lynx Project is a joint research project of the University of Minnesota Natural Resources Research Institute’s Center for Water and Environment, the Superior National Forest, and the U.S. Geological Survey’s Biological Resources Division. See Moen, Niemi, Burdett, Canada Lynx in the Great Lakes Region, Final Report (2009) NRRI Technical Report No. NRRI/TR-2008-14 Release 1.0., 6 (attached hereto) (hereafter referred to as “Moen Final Report”) .	WI1
19335	The Project is within designated “critical habitat” for the lynx, and the DEIS acknowledges the destruction of approximately 1,454 acres of suitable habitat. The DEIS, does not however, address any of the objectives set forth in the Recovery Outline, the Conservation Strategy, or the Superior National Forest Plan.	WI1
19335	Third, the DEIS does not evaluate information readily available that there has been one female lynx (know as L11) documented to have moved within the Project area. Her location was near the southwest edge of the proposed mine site between Wetlegs Creek and the Partridge River, just over one mile south of the mine site and road, and a half-mile south of the rail line. This information was provided by live capture in February 2003, and telemetry provided by a radio collar and documented by researchers of the Canada Lynx Project. Data ended in November 13, 2006 when L11 was trapped and killed in Ontario. Moen, Ronald, Canada Lynx in the Great Lakes Region 2008 Report, at 7 (attached hereto). The radio collar signal placed the lynx in T59N–R13W, approximately at the corner of sections 16, 17, 20, and 21. Id. The DEIS should have addressed the fact that at least one female has been observed at the project site, as it is possible that other females may have entered the site since this data was recorded. The DEIS inaccurately concludes that the Canada Lynx would experience “localized direct loss and fragmentation of designated habitat and increased potential … for incidental takes resulting from vehicular collisions; however, these impacts are not anticipated to threaten the overall species population level and abundance in Minnesota.” DEIS at 4.4-12. (emphasis added). This statement is not supported by the environmental impact analysis because the agency failed to consider numerous aspects of impacts to the lynx and their habitat as required by federal law.	WI1

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19336	Second, the Canada Lynx Conservation Assessment and Strategy as amended in 2003 provides direction on the management of Canada Lynx with National Forest. The Lynx Conservation Assessment and Strategy was developed to provide a consistent and effective approach to conserve Canada lynx on federal lands in the conterminous United States. Lynx Conservation Assessment and Strategy Page 7 (hereafter referred to as "LCAS") (attached hereto). When listing the Canada Lynx as threatened, the U.S. Fish and Wildlife Service concluded that the lack of guidance for conservation of lynx in the National Forest Land and Resource Management Plans and the Bureau of Land Management Land Use Plans impaired survival of the lynx throughout a contiguous part of the United States. Id.	WI1
19336	First, the DEIS does not address the 2005 Recovery Outline prepared by the Fish & Wildlife Service. These documents identify key objectives to ensure the protection of the lynx population while the formal recovery document is prepared. The DEIS must assess the Lynx Recovery Outline including evaluating recovery actions needed to maintain the four objectives identified in the document to make positive progress towards lynx recovery. These objectives are: (1) retain adequate habitat of sufficient quality to support a long-term persistence of lynx in the identified core habitat areas; (2) ensure sufficient habitat for immigration and emigration between the core areas and adjacent populations; (3) ensure that habitat in secondary areas remains available for continued lynx occupancy; and (4) to ensure that threats are adequately addressed to protect lynx population in the contiguous United States for at least 100 years. See U.S. Fish & Wildlife Service, Recovery Outline, Contiguous United States Distinct Population Segment of the Canada Lynx 12 (2005) [hereinafter "Recovery Plan"] (attached hereto).	WI1
19337	The proposed project is on federal land. Had the DEIS included an analysis of the connected action of the land exchange, it would have included a review of the Lynx Conservation Assessment and Strategy standards. Even separate from the land exchange issue, the LACS provides essential information concerning proposed projects on lynx habitat that was readily available to the Corps and DNR that should have been included in the DEIS. Neither agency performs an adequate analysis of reviewing these standards as applied to this NorthMet project.	WI1
19337	The DEIS failed to incorporate any these standards in its analysis, and therefore provides inadequate analysis to the DNR and the Corps.	WI1
19337	Third, In recognizing that northeastern Minnesota provides important habitat for the lynx, the National Forest Plans on the Superior National Forests have been revised to provide for the conservation of the lynx. Recovery Outline at 9. The Superior National Forest Plan states that its objective is to fulfill the purpose of a useful, proactive plan, until a formal Recovery plan is promulgated. They state, "the Plan is intended to err on the side of maintaining and restoring lynx habitat for lynx and their prey." U.S. Fish & Wildlife Service, Superior National Forest Plan, Appendix E (2004).2 The Forest Plan sets forth procedural guidance to address mortality risk factors and guidance to address movement and dispersal risk factors, U.S. Fish & Wildlife Service, Superior National Forest Plan, E-6-E-8; the DEIS did not address either of these issues. As the Forest Plan is listed in the FWS Recovery Outline as being a document useful to the conservation of lynx habitat prior to a formal recovery document being prepared, the DEIS should have addressed the issues set forth within it. Failure to address these issues was a failure to consider an important aspect of the problem, and until DNR addresses these issues, the basis for the DEIS is arbitrary and capricious.	WI1
19339	The DEIS examines destruction to the lynx's habitat in terms of the geographical size of the project, but fails to adequately consider the effects of habitat degradation.	WI1

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Comment ID	Comment Text	Theme Codes
19354	The DEIS states that Corridor 11 (identified as 16 in the Barr Report) and Corridor 12 (17) are near the mine site. The E & O Report identifies Corridor 11 as a "very small, but probably very important passageway." E & O Report at 18. The DEIS, however, states that because Corridor 11 (16) is already impacted by the tailings basin, it is of minimal value and will not be further damaged. This statement does not adequately address how increased vehicle traffic and local development associated with the mine site could further impact Corridor 11. Additionally, the DEIS does not address the differences between the report it relies on that calls the corridor "very important" and the DNR's assessment that the corridor is of "minimal value." The analysis in the DEIS relating to the impact the project will have on Corridor 12 (17) runs directly counter to what the relied on report states. The DEIS says that the Corridor will likely be indirectly impacted by reducing the size and degrading the quality of the habitat located to the southeast of the corridor, but that no direct impact to the corridor will occur. DEIS at 4.4.-31-32. The Barr Report, however; states, "Corridor 17 . . . contains High Quality corridor habitat where it is not significantly impeded by mining features. . . . In the reasonably foreseeable future, this corridor will be lost to the expansion of NorthShore's mine pits to join into one large pit." Barr Report at 56. As the DEIS indicates that Corridor 12 (17) will be impacted by this project, the aforementioned discrepancy must be rectified. If there is a total destruction of the one high value corridor by this project, there are no material facts to suggest that this is a minimal impact. Additionally, the agency must take a "hard look" at the problems involved, and must show that it was "genuinely engaged in reasoned decision-making." Citizens Advocating Responsible Development v. Kandiyohi County Board of Commissioners, 713 N.W.2d 817, 832 (Minn., 2006.) A project that affects two out of 13 (18) wildlife corridors by increasing traffic, encroaching onto natural habitat, and potentially destroying one of the corridors is a significant impact that the DEIS must disclose.	WI5
19354	The DEIS's failure to analyze the effect of the project on the quality of the Lynx's habitat is an error that must be corrected. It is not enough to simply state the total quantity of habitat that will be affected.	WI1
19354	The project will result in large scale fragmentation of critical lynx habitat, yet little analysis was made within the DEIS on the project's contribution to habitat fragmentation. Serious consequences occur with the habitat fragmentation. Studies has shown that fragmentation results in: (1) reduction of key snowshoe hare habitat and of patch size of late-successional forest; (2) increase in competing carnivores such as bobcats and coyotes; 3) increased edge densities between early successional and other forest types; and (4) changes in seral forest stands within landscapes. See Leonard F. Ruggiero, et al. 1999. Ecology and Conservation of Lynx in the United States. USDA-Forest Service. General Technical Report RMRS-GTR- 30WWW, at Chapter 4, pp.85-86 (attached hereto).	WI1
19358	The DEIS is inadequate in its assessment of the cumulative impacts of mining projects to the Canada Lynx. Under NEPA, a DEIS must examine "actions, which when viewed with other proposed actions have cumulatively significant impacts." 40 C.F.R. 1508.25(a)(2). A cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions." 40 C.F.R. 1508.7, Dep't of Transportation v. Public Citizen, 541 U.S. 752, 770 (2004), see also discussion above related to Cumulative Impact analysis. The Minnesota Supreme Court, when interpreting similar "cumulative impact" analysis requirements under Minnesota Environmental Policy Act ("MEPA") (which is the state equivalent of NEPA) stated that the purpose of performing a cumulative impact assessment is to "determine whether the project, which may not individually have the potential to cause significant environmental effects, could have a significant effect when other local projects already in existence or planned for the future are considered." Citizens Advocating Responsible Development v. Kandiyohi County Board of Commissioners, 713 N.W.2d 817, 829 (Minn., 2006). The DEIS concludes with little to no scientific evidence that the habitat and wildlife corridor loss will not have a cumulative impact on the lynx nor does the DEIS identify and discuss all of the projects that should be considered a past, present, or reasonably foreseeable future action.	WI5

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19359	The DEIS misstates the law. It states that although the cumulative impacts on wildlife corridors "should be considered significant," DEIS at 4.4-32, the contribution of NorthMet is insignificant, therefore the NorthMet Project is a minor contributor to cumulative effects. It is an "erroneous assumption that if a given project does not in itself have the potential for causing significant negative environmental effects, there is no possibility of cumulative potential effects resulting from the project." Citizens Advocating Responsible Development v. Kandiyohi County Board of Commissioners, 713 N.W.2d 817, 836 (Minn., 2006). While DNR and the Corps should find the loss of the two corridors significant, they should definitely find the total cumulative impact is unquestionably significant. As the Minnesota Supreme Court stated in Kandiyohi	WI5
19360	Likewise, this project's impacts, while important and substantial, are not the only basis for determining cumulative impact. The agency must take a "hard look" at what the cumulative loss of 9 out of 13 corridors means for wildlife protection and habitat preservation. The analysis must be thorough and based on the best available science. For instance, the DEIS should determine the travel capacity of the remaining four corridors, analyze whether the remaining 4 corridors are enough to sustain the Canada Lynx population, what type of physical pressure does this place on the Lynx survival (how much farther will the lynx have to travel, what are the increased dietary demands due to this additional exertion), which roadless blocks are cut-off from the lose of these 9 corridors, and were these corridors also popular denning or breeding sites. A reasoned assessment would have looked at all of these issues plus more. There is no reasoned assessment or scientific reports to support that loss of 9 corridors is not a significant cumulative impact, rendering the DEIS inadequate.	WI1,WI5
19361	The DEIS does not account for future cumulative effects from either the Duluth Metals proposed mines, nor the Franconia mine. Duluth Metals is working to develop an ore reserve near Ely. The Nokomis property, which they seek to mine, covers approximately 3,000 acres. Franconia Minerals is seeking to develop a mine under Birch Lake, located to the northeast of the project area.3 They also control mineral deposits in Maturi and Spruce Road Deposits. The Birch Lake project is in pre-feasibility studies and can reasonably be foreseen to be a potential future impact. Also, PolyMet itself has stated that the NorthMet Project will only utilize approximately 30% of the existing plant capacity, allowing for it to triple its capacity. PolyMet Mining Advancing Port Production Cooper, Nickel and Precious Metals in US at 8, 17 (2009) (attached hereto). DNR and the Corps should have accounted for these reasonably foreseeable actions when looking at cumulative impacts of habitat degradation. Additionally, while the DEIS states that the Emmons & Olivier Report on habitat loss through logging activities studied cumulative impacts through 2014, DEIS 4.4-27, in fact, the report stated; "[f]orestry data are available on a limited temporal scale. Specific state plans for harvesting are available through 2007 only. This means that beyond 2007, the cumulative effects with respect to all three actions are incomplete." E & O Report at 20. Thus, the DEIS admits that the cumulative affects of mining projects combined with logging projects are not fully analyzed. The cumulative impact of logging in addition to the proposed project should be examined in order to fully estimate potential habitat loss.	WI5
19362	We have documented above in these comments that the 2006 lynx winter survey and the general wildlife summer surveys were insufficient for the DEIS to conclude that lynx were not present with the proposed project area. The DNR and the Corps are advised that rather than presuming that no lynx are in the project site, the opposite is true. By designating critical habitat for the Canada Lynx on February 25, 2009, the U.S. Fish and Wildlife Service stated in the final rule and in accompanying press releases that "[a]ll designated areas have recent verified records of lynx occurrence and reproduction and are considered occupied." 74 Fed. Reg. at 8,617, see also U.S. Fish & Wildlife Service, News Release: Revised Critical Habitat Designated for the Canada Lynx (Feb. 24, 2009) (attached hereto). The DEIS should therefore perform an analysis that presumes that lynx have been using the project site. Indeed, Sierra Club has provided documentation above that at least one radio collared female was on or near the site before being killed in 2006 in Ontario Canada. It is therefore reasonable for the DEIS to take presence of lynx into consideration in an analysis on cumulative effects, and we strongly recommended that the DNR and the Corps remedy this deficiency in the DEIS.	WI1

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Comment ID	Comment Text	Theme Codes
19363	Both the Barr Report and E & O Report note the destruction of over 1400 acres of critical habitat and cumulative destruction of at least 9 travel corridors. As such, the DEIS must look at mitigation measures under both the requirements of NEPA and the ESA. DRN and the Corps have failed to do adequately examine possible mitigation measures. The DEIS has some mitigation "proposals" but does not clearly articulate which specific measures the agencies will implement. For example, the DEIS notes that there is potential for wildlife mortality due to the increased traffic at the project site, and states that a mitigation measure will be to control vehicle speed. The Barr Report, however, states that auto and rail collisions are a source of mortality for lynx, noting that one lynx was even killed attempting to cross a gravel road where speeds are only supposed to reach 30 mph. Barr Report at 13. The DEIS needs to take a "hard look" at available mitigation measures. For instance, the agencies should look to implement large animal culverts or overpasses along the main project road and railway. When discussing many of the travel corridors, the Emmon & Olivier report indicates this is a mitigation measure that may result in fewer mortalities. E & O Report at 8,12. Other reports regarding lynx protection have also proposed this as a mitigation measure. For example, the Washington State Lynx Recovery Plan recommends that "[t]he needs of carnivores should be considered during the design and site selection for crossing structures such as oversized box culverts and fences . . ." Washington Department of Fish and Wildlife, Lynx Recovery Plan 35 (2001) (attached hereto). This DEIS should examine this as a possible mitigation measure along with others.	WI5
19364	As stated above, the agency must look at all reasonably foreseeable environmental effects and important aspects of the problem. The DEIS entirely neglects to discuss the effects of climate change on the lynx or its critical habitat. According to the Intergovernmental Panel on Climate Change, the term "climate change" refers to "any change in climate over time, whether due to natural variability or as a result of human activity."4	WI5
19365	DNR and the Corps overlooked some very important factors with regard to the waste rock stock piles. Each of these overlooked elements would significantly impact the quantity of constituents leached from these stockpiles. Without properly determining the amount and type of leachate, the DEIS has failed to examine the true environmental impacts associated with the waste rock stock piles, in violation of NEPA.	G9
19365	The NorthMet Project will unquestionably result in the destruction or adverse modification of critical habitat for the endangered Canada Lynx. First, the DEIS explicitly states that the NorthMet Project will destroy 1,454 acres of critical lynx habitat. DEIS 4.4.-10. Further, as discussed in the Wildlife section, supra, this project will significantly degrade critical habitat for the Canada Lynx by negatively impacting two of the lynx's travel corridors, which are listed as critical habitat. (Specifically, the NorthMet Project will adversely impact travel Corridor 11, and completely destroy Corridor 12. Barr Report at 56.) This is a violation of ESA § 7(a)(2), which prohibits such destruction and adverse modification without an exemption. 16 U.S.C. § 1536(a)(2). Nowhere in the DEIS does DNR or the Corps address the NorthMet' Project's conflict with this essential federal law. This is inadequate under NEPA. 40 C.F.R. § 1502.16.	WI1,WI2,WI5
19365	The DEIS falls far short of the standard NEPA and federal courts have held is required for an EIS.	PRO3
19365	The analysis of environmental impacts within the DEIS is inadequate because there was no analysis as to the impact of climate change upon the lynx or it habitat. This deficiency must be addressed. See Ctr. for Biological Diversity v. Kempthorne, 588 F.3d 701, 2009 U.S. App. LEXIS 26160,*20 (where the court found an agency's decision not arbitrary and capricious, noting "the Service's EA did acknowledge climate change and enumerated its long term effects on polar bears . . ." (emphasis in original)). Climate change is an important aspect of the problem that the agencies must address with regard to the lynx.	WI5
19367	The agencies categorization system is inadequate and overlooks an important aspect of the problem. The DEIS proposes to categorize waste rock using its average sulfur content (and sulfur to copper content). DEIS 3.13 – 3.14.	CR1

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19368	By only focusing on the sulfur and copper content as indicators for leachate, the agencies have ignored an important aspect of the problem. Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983). The DEIS must remedy this problem and disclose how Duluth Complex disseminated mineralized rock will release heavy metals significantly exceeding surface water standards at neutral pH conditions. In addition to copper, at a minimum, Nickel, Cobalt and Zinc are readily released in near neutral pH (+/- pH 7).12 These releases are well documented. Nickel, Cobalt and Zinc are especially mobile at circumneutral pH. As early as 1976, circumneutral metals releases at the Dunka mine were known to have exceeded MPCA surface water standards. In 1983 these discharges were acutely toxic.13 Other national scientific studies have documented similar leaching behavior from nickel sulfides.14 These facts are ignored by the DEIS and hold significant potential for large long-term toxic environmental impacts from the PolyMet operation. Failure to analyze this information is a violation of NEPA. See Friends of the Boundary Waters Wilderness v. Dombeck, 164 F.3d 1115, 1128 (8th Cir. 1999).	PD2
19369	The liners and cover systems proposed are defective for a number of reasons. First, it is impossible to accurately segregate millions of tons of waste rock based on sulfur content. Moreover, the disseminated nature of the Duluth Complex makes it impossible to accurately identify and segregate millions of tons of disseminated mineralized Duluth Complex rock with statistically high accuracy and precision. Inevitably, some waste rock with a sulfur content higher than 0.5% will find its way into the Category 1 pile, and visa versa. Given this inevitability the DEIS must either re-examine the environmental consequences associated with leaching assuming that less than 100% of the waste rock is effectively sorted or it must require the lower categories of waste rock have the same liner systems as the higher categories.	PD2
19370	Moreover, as discussed above, acid and circumneutral leaching is expected from all stockpiles of mineralized Duluth Complex waste rock. This type of leachate has been found to exceed surface water standards and to be acutely toxic.15 To date, the only potentially long-term strategy to prevent the above metals release is to keep water away from the mineralized Duluth Complex rock. The DEIS fails to disclose, analyze, or evaluate any of these environmental concerns. Due to the inherent inaccuracies with sorting Duluth Complex waste rock and the fact that acid and circumneutral leaching occurs with all stockpiles, the agencies must cover all waste rock stockpiles, including Category I and II, with synthetic membranes to eliminate infiltration. Additionally, the agencies should not allow PolyMet to use Category I waste rock as construction material due to its potential for non-acid metals releases. Only non-Duluth Complex rock should be used for construction. Second, the DEIS does not address what, if any, actions PolyMet will take to smooth the topography at the bottom of the pits before commencing stockpiling.	WR4B,PD2,PD11
19370	The DEIS never acknowledged this problem, which could have severe environmental consequences. To address this issue, the agencies can require PolyMet to remove all overburden from the bedrock and survey. Additionally, after removal of the overburden the agencies should require that PolyMet survey the bedrock under stockpiles, which would include mapping elevations and clearly identifying drainage channels. The agencies should require that changes in elevations that could cause a tear are dealt with and that all holes are grouted. Only after the above actions are completed, should the agency allow the stockpiling of waste rock. Moreover, if this liner has a catastrophic failure, the above survey information will provide valuable insight to locate all leachate discharge locations for mitigation.	PD11

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19371	Third, the agencies need to redesign the stockpiles to ensure that precipitation does not come into contact with these stockpiles. As previously stated leaching in the Duluth Complex increases with low pH, elevated temperature, elevated oxygen, stockpile height, elevated ionic strength of water, rainfall, surface area, decreased alkalinity, increased organic ligands, stockpile composition. The elimination of infiltration water from mineralized waste rock is the only proven way to eliminate leachate. Elimination of infiltration water represents a considerable hurdle for the project. The average annual precipitation for the area is 28.4 inches. It can be expected that 855.9 acres of stockpiles can be expected to receive 660,008,592 gallons of precipitation in an average year. Uncovered AMAX test plots indicated 50% to 60% of precipitation was released as leachate.16 In an average year, calculations would predict PolyMet stockpiles produce between 330,004,296 to 396,005,155 gallons of leachate. This could lead to significant impacts since the infiltrated water will contain metals and sulfides. As noted, the Category 1 and 2 stockpiles will not have synthetic liners as part of their covers. The DEIS assumes the proposed 0.5% sulfur cutoff limit has the unlikely precision and accuracy of 100%. If the sulfur evaluation proves less accurate, acid leachate of the above heavy metals and copper can be expected in some areas for perpetuity. Toxic metal releases of nickel, cobalt, and zinc that also exceed surface water standards can be expected for perpetuity (see discussion above). The DEIS must discuss how releases would impact surface waters, such as the Partridge River watershed, which could be disastrous.17 Additionally, the DEIS should discuss how these releases effect the cumulative impacts to local drinking water supplies, such as Colby Lake. The stockpile reclamation proposed lacks specificity as to how the proposed stockpile design will prevent significant amounts of precipitation inflow into already leaching mineralized waste rock at closure. The DEIS states that PolyMet will construct the waste rock similar to the taconite waste rock stockpiles to have 60’ lifts. DEIS at 3-39. In addition, the DEIS states that catch benches at least 30’ in width would remain on all waste rock stockpiles. DEIS at 3-41. The DEIS does not state if the lifts and benches would face inwards or outwards or mention the bench slope direction. If the lifts faced inwards, like taconite lifts, it would maximize precipitation infiltration into the waste stockpiles. This is an inappropriate design for mineralized Duluth Complex stockpiles since they are chemically dissimilar to taconite waste stockpiles. Numerous reports conclude that it is imperative that water not infiltrate into mineralized rock stockpiles to prevent the formation of circumneutral heavy metal leachates and/or acid heavy metal leachates. The DEIS must specify how PolyMet would construct these benches and lifts in order to accurately assess the potential for metal and acid leachate.	WR2D,PD2,PD11,PD3
19372	Finally, the DEIS is silent with regard to a number of issues that will significantly impact the ability of the cover to prevent water infiltration and leachate production for perpetuity. For instance, the DEIS does not discuss how the synthetic membranes will be incorporated into the sideslopes or how the membranes will be maintained for perpetuity. This is especially problematic because PolyMet would cover the Category 3 and 4 stockpiles with yet undefined “soil.” DEIS at 3-17. The DEIS fails to discuss how this cover will prevent infiltration since covering the tops, lifts, and benches may route stormwater to the steep uncovered sideslopes allowing infiltration and the resultant acid and circumneutral leaching of metals and sulfates.	PD2
19373	In addition, the DEIS provides no information or analysis with regard to the closure concentration/mass loading/toxicological impacts of mine drainage from the stockpiles to the Partridge River watershed including Colby Lake drinking water supply. The DEIS must address all of these inadequacies in order to sufficiently disclose the possible environmental impacts from these stockpiles, most importantly regarding the potential for leachate.	WR3A,PD2,PD9

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19373	The DEIS discusses placing limestone additions into the waste rock piles to reduce anticipated acid leachate by raising pH. DEIS at 3-40. DNR and outside literature suggest such treatment may be somewhat effective for copper. Only focusing on a mitigation measure that addresses copper ignores an important aspect of the problem. The highest heavy metal concentrations from circumneutral leachate observed from Duluth Complex Material are nickel, cobalt and zinc and these metals leachate exceed surface water quality standards and are acutely toxic (see above). Scientific literature has documented the release of nickel at neutral and basic pH (at low sulfur concentrations), see above. Furthermore DNR pilot testing has demonstrated only a 10% reduction in nickel release by the use of limestone in a Dunka Mine Duluth Complex waste rock seepage. Clearly, under active control, limestone may reduce pH under acid conditions, reducing the catastrophic release of heavy metals from acid mine drainage. However it will not bring the aforementioned metals into compliance with today's surface water standards. Moreover, the proposed treatment effectiveness becomes questionable when you look at the shear magnitude of waste rock involved – waste rock piles 300 feet high and 1/2 to 1 mile long. The DEIS never addressed a number of problems related to the scale of the stockpile. For instance, there are no controls to regulate or oversee the process. Without such controls it is impossible to understand how the limestone is working. In addition, scientific literature reports limestone is easily coated, rendering it useless. Therefore, periodic replacement is likely necessary. The DEIS never discusses how this will be accomplished. In addition, limestone will increase the hardness of the water. The DEIS never discloses the consequences to existing soft water biota from the added hardness being introduced. The DEIS must address all of these inadequacies in order to sufficiently disclose the possible environmental impacts from these stockpiles.	PD2
19373	These conclusory statements in the DEIS is not supported by any evidence within the DEIS. Froehlke, 473 F.2d at 348 (an EIS cannot be composed of statements "too vague, too general and too conclusionary."); Mid States Coalition for Progress, 345 F.3d at 536 (remanding for preparation of supplemental EIS when agency failed to "explain fully its course of inquiry analysis and reasoning."); Ctr. for Biological Diversity, 538 F.3d at 1223-1224 (holding agency violated NEPA when it "shunted aside significant questions with merely conclusory statements, [and] failed to directly address substantial questions"). In fact, the DEIS assumes that once the mineralized Duluth Complex material is underwater, it will not leach. However, this assumption is not substantiated by the DEIS or existing literature. The DEIS assumes that pit water that is anoxic (<1mg/l) will not leach metals. The DEIS provides no scientific documentation to substantiate this statement and does not acknowledge the scientific evidence that contradicts this assertion. For instance, in 1980, DNR reported the results of Professor S. Eisenreich laboratory testing of Mineralized Duluth Complex rock at differing oxygen levels. After approximately 33 days at <1 mg/l dissolved oxygen results demonstrated a slow but consistent release of metals copper, nickel, zinc and cobalt. This leaching rate will probably increase significantly over time and continue in perpetuity. Other mines have observed similar leaching. From 1850 to 1950 the Tri-State mining district underground mined lead and zinc sulfates. The mining took place within the groundwater aquifer. After mine closures the diggings filled rapidly with ground water (anoxic). Today the remaining mining district has severe ground water acid and metal contamination.18 Additionally, acid leachate and sulfate as high as 3,500 mg/l were documented in inundated underground mines containing carbonate minerals at the Shullsburg, Wisconsin Zinc Mines. The DEIS suggest the waste rock before water inundation will be allowed to begin the acid mine drainage process (with the waste water treated and sent to processing). The DEIS indicates that this acid mine draining will cease once inundated. Existing scientific literature, however, suggests that once acid mine leaching begins inundation may not control it. The DEIS must address whether inundation can actually stop this process. Simple conclusory statements are not sufficient under NEPA. Froehlke, 473 F.2d at 348 (an EIS cannot be composed of statements "too vague, too general and too conclusionary."); Mid States Coalition for Progress, 345 F.3d at 536 (remanding for preparation of supplemental EIS when agency failed to "explain fully its course of inquiry analysis and reasoning."); Ctr. for Biological Diversity, 538 F.3d at 1223-1224 (holding agency violated NEPA when it "shunted aside significant questions with merely conclusory statements, [and] failed to directly address substantial questions"). It is the responsibility of the Corps and DNR to remedy the deficiencies of the DEIS.	WR2F,PD2

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19373	The Tribal cooperating agencies' concerns are justified because the agencies did not sufficiently quantify current water quality standards for both the ground water and surface water. The agencies overlooked an important aspect of the problem. Motor Vehicle Mfrs. Ass'n, 463 U.S. at 43. The DEIS should have presented information from the monitoring data for NPDES permits MN0042579 and MN0054089, which are the NPDES permits for the Tailings Basin. The monitoring data show that the Tailings Basin has violated, continues to violate and will continue to violate the Clean Water Act with regard to water quality standards.19	WR3I
19375	However, as Dave Chambers exposed, the assumptions that lead to a conclusion that water treatment will no longer be required after 65 years should be considered very tentative. Center for Science in Public Participation Comments at 10 (attached hereto). For example, the assumptions used in determining the scaling factors summarized in Table 4.1-37 – Solute Release Scaling Factors, (lab to field) for the release of contaminants from waste rock piles could easily contain inadvertent errors (for example in the choice of particle size, temperature, fraction of rock flushed by infiltrating water, and the upper limit of contaminant concentrations) that could cause a significant departure from the predicted contaminant loads assumed in the EIS. Id.	WR1E
19375	These findings call into question whether the conclusion in the DEIS that water quality standards will be met in 65 years represents reasoned decisionmaking. Froehlke, 473 F.2d at 348 (an EIS cannot be composed of statements "too vague, too general and too conclusionary"); Mid States Coalition for Progress, 345 F.3d at 536 (remanding for preparation of supplemental EIS when agency failed to "explain fully its course of inquiry analysis and reasoning"); Ctr. for Biological Diversity, 538 F.3d at 1223-1224 (holding agency violated NEPA when it "shunted aside significant questions with merely conclusory statements, [and] failed to directly address substantial questions"). In addition, these findings strongly suggest that the agencies should take a conservative approach with regard to financial assurances for closure, see detailed discussion below regarding financial assurances.	WR1E,WR3I,PD2,PD8
19375	Despite the chemical disparity between these two types of mining waste, DNR and the Corps never chemically characterized the NorthMet tailings to determine if they were compatible with the LTVSMC Tailings Basin design in the DEIS. Without such an analysis, the DEIS has failed to disclose an important and potentially significant environmental impact. The DEIS fails to document both chemically and toxicologically how this basin will treat into perpetuity the tailings. For instance, the DEIS failed to evaluate the tailing waste to determine if it is a hazardous waste as required by Minnesota Rule 7045. This testing would include toxicity and lethality as well as verifying none of the chemicals used are listed hazardous wastes. If it is determined to be hazardous waste, the waste must be regulated under the Resource Conservation and Recovery Act ("RCRA"). Without knowing the chemical make-up of the tailings, it is literally impossible to know if the LTVSMC Tailings Basin can serve its intended purpose. For instance, if these tailings are deemed hazardous waste, the LTVSMC Tailings Basin does not have appropriate design to serve as a waste receptacle, since it was only designed to remove solids from water.	PD2
19375	In the DEIS, DNR and the Corps unlawfully limited the "area of interest" for its sulfate analysis to the Partridge and Embarrass River sub-watersheds. This is inappropriate. The agencies should have included the St. Louis River from mile 179 to the mouth of the river in the area of interest the sulfate could impact this water body. By artificially limiting its analysis of sulfate impacts to portions of the river watershed that are already at excessive sulfate levels (the Partridge and Embarrass River sub-watersheds) the DEIS has failed to disclose the full impacts of mercury methylation.	WR4B
19375	The NorthMet Project, which will release sulfates, would affect the mercury methylation rate. The impact on the methylation rate is directly tied to the current sulfate concentration (i.e., if the sulfate concentration is less than 8 mg/l the impact is considerable, but if the concentration is above 8 mg/l the impact is negligible). The DEIS's analysis of this issue was inadequate because it used an artificially limited "area of concern," which only had a sulfate concentration of greater than 8 mg/l. However, if the DEIS had used a proper area of concern, the environmental consequences of this Proposed Project would be markedly different. The agencies need to modify the environmental review to include the appropriate area of concern.	WR4B

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19375	The DEIS should have disclosed a number of problems that could result from the use of silty sand soils. For instance, it is well documented that silt is a very poor engineering material because it lacks engineering plasticity necessary to remain stable from freeze thaw cycles, and will allow seepage. In addition, silt dries quickly and dusts. Silt is also readily carried off by storm water and forms colloidal suspensions that are difficult to settle without chemical additions. Finally, if the dikes break or erode substantially, they could allow the release of both silt-laden water and toxic levels to wetlands and surface water. Given the deficiencies with this material for engineering purposes, the DEIS should have disclosed this possibility and addressed the environmental consequences of such an incident. The DEIS needs to do one of two things to address this problem. First, it can disclose the disadvantages of using silt and chronicle the environmental impacts that could occur based on these deficiencies. Alternatively, it could use standard engineering materials instead of silt and have strict non-point runoff control measures.	EOO,PD4
19377	Second, mercury contamination of fish is a widespread problem in Minnesota and elsewhere. Many of the water bodies in the Project area are among those listed as impaired by mercury, including the Wynne, Sabin, Embarrass, and Esquagama Lakes (through which the Embarrass River flows); Colby Lake and Whitewater Reservoir in the Partridge River watershed; and segments of the St. Louis River. DEIS at 4.5-19. These water bodies have fish consumption advisories because the mercury concentrations in fish tissue pose a hazard to human health. Id. Mercury contamination of fish also poses a toxicity risk to fish-eating wildlife. Id. The water bodies listed above, as well as most other water bodies in the St. Louis River basin were excluded from the statewide mercury TMDL because mercury levels in the fish were above the level considered achievable by the TMDL. DEIS at 4.5-20. These water bodies may be subject to one or more separate TMDLs to be developed in the future. Id. Reducing the releases of sulfates, rather than increasing sulfate releases, as proposed in the PolyMet DEIS, is critical for delisting this water body for fish tissue mercury. Since increasing sulfate loads in these water bodies would exacerbate any future plans to address mercury levels, the DEIS must analyze how the NorthMet Project's increased sulfate loads would effect mercury methylation temporally (i.e., how much longer would it take for the sulfate concentrations to reduce to a level so they became a limiting factor on mercury methylation). Moreover, further degradation of these waters would violate the Clean Water Act. See, e.g., Friends of Pinto Creek v. E.P.A., 504 F.3d 1007 (9th Cir. 2007). It is a violation of the Clean Water Act to permit this mining proposal, knowing that the excess sulfate ions are likely to enhance methylation to the point that it would preclude the successful implementation of a mercury TMDL. See U.S. Environmental Protection Agency, Consideration Of Cumulative Impacts In EPA Review of NEPA Documents at 8-10 (1999) (attached hereto) (agency needs to consider temporal nature of impacts). Permitting of this mine could prevent for decades or even longer, delisting of the St. Louis River, an impaired water body under Section 303(d) of the Clean Water Act. The agencies failure to look at the temporal significance of continued pollution is a violation of NEPA.	WR4B,WR5A,FM1,FM5
19377	The agencies should have examined the sulfate impacts for water bodies further downstream where the sulfate concentration is below 8 mg/l, such as the Scanlon Dam in Cloquet at river mile 35. The reservoirs and estuary immediately below the Scanlon Dam are water bodies where sulfate is a limiting factor on methylation. DEIS 4.1-195. Since the sulfates emitted from the NorthMet Project could travel to these downstream water bodies, excessive sulfates could stimulate methylation in these water bodies. The DEIS should have included these other water bodies in its impacts analysis.	WR1E
19378	Finally, because the DEIS has inadequately assessed the environmental consequences of sulfate concentrations on methylation, the DEIS has also failed to address mitigation measures that could address this problem. Ultra filtration through special membranes can reduce their high volume, high concentration sulfate water to acceptable levels at an economically feasible cost. The DEIS should also discuss the possibility of "in pit" sulfate treatment.	WR1E,WR4C
19379	Although not disclosed in the DEIS, it would also expose sediments in the many beaver ponds on the Partridge River, yet another aspect the DEIS should have addressed.	EOO

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19380	The DEIS does not cite to any report or scientific data to support its proposition that flow fluctuations associated with the Proposed Project "is not expected to result in significant increases in mercury methylation." Id. In fact, it is the "tribal cooperating agencies' position that the data used to support the DEIS conclusion is inadequate." Id. at fn. 42. This cursory analysis is not sufficient under NEPA. NEPA's implementing regulations require that the information in an EIS must "be of high quality" with "accurate scientific analysis." 40 C.F.R. § 1508.1(b). The regulations also state than EIS "shall identify any methodologies used and shall make explicit reference by footnote to scientific and other sources relied on for conclusions in the statement." 40 C.F.R. § 1502.24. In this case, the DEIS does not provide reference to any source that supports its conclusion. Froehlke, 473 F.2d at 348 (an EIS cannot be composed of statements "too vague, too general and too conclusionary"); Mid States Coalition for Progress, 345 F.3d at 536 (remanding for preparation of supplemental EIS when agency failed to "explain fully its course of inquiry analysis and reasoning"); Ctr. for Biological Diversity, 538 F.3d at 1223-1224 (holding agency violated NEPA when it "shunted aside significant questions with merely conclusory statements, [and] failed to directly address substantial questions"). Moreover, there is likely no data to support the DEIS's conclusion. With the decline in water level, labile organic matter in the surface becomes oxidized releasing bound mercury as well as sulfate to the dissolved phase.26 In fact, water level fluctuations have been shown to be a major contributor of methyl mercury to the sub-watersheds of the Red River. This indicates that it would have the same impact on the Partridge River, Colby Lake and Whitewater Reservoir. The DEIS should provide sufficient scientific data to support this conclusory statement. Otherwise, the DEIS should address the problem of flow fluctuations and mercury methylation, which would include quantifying the mercury methylation from water level fluctuations	WR4A
19381	Moreover, because the DEIS failed to acknowledge that flow fluctuations could impact mercury methylation, it makes no attempt to mitigate these impacts. There are reasonable design and operating strategies that the agencies could put in place to reduce these draw downs. For instance, the DEIS could mitigate these impacts by establishing a schedule for water releases and withdrawals from the NorthMet project and other projects to minimize sediment exposure and therefore methylation. If we are going to allow them to use our water, then we have the responsibility to mandate that they use it in such a way that minimizes environmental degradation. This basic concept has not been suggested in this DEIS and needs to be addressed before it can be deemed sufficient.	WR4C
19382	Finally, the DEIS inadequately addresses sulfate loading to floodplains. There are natural fluctuations in aquatic systems that present high risk for mercury methylation such as the spring snow melt and storm events in which the waters rise into wetlands and bring with it a higher than normal load of sulfates. Most of Minnesota's watersheds have a riparian flood plain that typically is inundated each spring and then the water slowly recedes. These lowland swamps and forests are naturally sulfate poor as is typical of surface and ground water in northeastern Minnesota. With the spring expansion of water into these floodplains, an increase in sulfate loading is added to the mix of organic matter, sulfatereducing bacteria, deposited mercury and low oxygen concentrations. In summary, any sulfate added to this system has the potential to enhance mercury methylation in the floodplain. The DEIS states that 54% of the Partridge River is a Type C channel according to a Level I Rosgen Geomorphic Survey. DEIS at 4.1-23. Type C channels are characterized as having a well developed floodplain. The DEIS also states that in general the Partridge River has a well developed floodplain for all but the Type B reaches, which account for only 13% of the channel. That means 87% of the Partridge has a well developed floodplain and is at high risk for mercury methylation if the operation delivers the high sulfate waters predicted by the DEIS. The DEIS, however, never discusses how this floodplain poses risks of methylation. Instead, the DEIS makes conclusory statements that are counter to the information known about the Partridge River's floodplain without any reference to scientific information to support it. For instance, the DEIS states that "the NorthMet Project is not expected to contribute to cumulative effects on mercury in water and fish tissue in the Partridge River watershed." DEIS at 4.14-9. The DEIS makes the same statement regarding the St. Louis River. Id. Once again, these conclusory statements are not supported by the record because agencies did not perform a geomorphic survey of that river. Froehlke, 473 F.2d at 348; Mid States Coalition for Progress, 345 F.3d at 536; Ctr. for Biological Diversity, 538 F.3d at 1223-1224. Had the agencies done such an analysis, they would have found a well developed floodplain, which is extremely susceptible to methylation.	WR4B

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19383	The agencies must remedy this deficiency by modeling the rising water levels, which would introduce sulfate into the high-organic wetland matrix, followed by falling water levels, which hydraulically deliver elevated methyl-mercury and/or phosphate to the stream for the floodplains and multiple backwaters and bays of the entire watershed. Otherwise, the DEIS is legally deficient.	WR4A
19384	In addition, the location of these stockpiles mandates that the agencies take a hard look at the mercury releases from these stockpiles and Tailings Basin. The Category 1, 2, and 3 stockpiles are located less than one-eighth of a mile from the Partridge River. A mile-long stretch of this stockpile is located about one-eighth of a mile from the Partridge River headwaters. The Category 1 and 2 stockpiles, with their associated mercury release from peat, may account for the largest source of mercury releases. These stockpiles, along with the Tailings Basin and other stockpile and pits, are potential pathways to the Partridge River, Embarrass River, and Colby Lake. Although the Partridge River is not listed as an impaired water body on the 303(d) list, further downstream most of the St. Louis River is listed for "mercury in fish tissue" impairment. DEIS at 4.1-33. In addition, Colby Lake and the Whitewater Reservoir are on the Minnesota 303(d) TMDL list because of mercury concentrations in fish tissue. DEIS at 4.1-37.	WR4B,WR4E
19384	There are a number of problems with this assessment of mercury impacts. First, while it may be true that minerals present in the mine waste rock will absorb mercury present in rainfall, this is not the only source of mercury release. The DEIS acknowledges that the waste rock will leach mercury concentrations between 5 and 7 ng/l. In addition, PolyMet proposes to include peat in the Category 1 and 2 stockpiles. Peat, which, owing to slow growth and efficient adsorption of mercury, can accumulate mercury deposited from many centuries of precipitation, discussed in detail below.27 Therefore, the peat included in the waste rock stockpiles will be a massive source of mercury release. The DEIS should have accounted for each of these independent sources of mercury – waste rock leach, peat release and rainwater, modeled their respective releases, and then determined what impact the NorthMet Project would have on groundwater impacts.	WR4A,WR4E
19384	The DEIS does not provide a quantitative analysis of how mercury will impact water quality. Specifically, the DEIS states that: "The effects of the Proposed Action on surface water quality were evaluated using mass balance models linked to the hydrology predictions from the XP-SWMM model. . . . The models predicted concentrations for 26 parameters . . . . Mercury was not included in either model because data for mercury were not available for stockpile liner leakage (RS53/42, SRK 2007) or groundwater recharge from the East and West pits (RS31, SRK 2007)." DEIS at 4.1-108. The agencies attempt to justify this lack of quantitative data based on assumptions	WR4A,WR4B
19385	Given all these facts, it is incomprehensible and a violation of NEPA's hard look standard that DNR and the Corps's failed to require the same analysis of mercury release and transport as was performed for other constituents. The agencies must correct this error and provide a quantitative analysis of the discharge of mercury to the Partridge and Embarrass River from these pathways during and after mining, and from direct surface discharge from the West Pit after mining.	WR4A,WR4B
19386	In addition, the DEIS acknowledges that this project will eventually discharge to groundwater because the "West Pit overflow would ultimately be directed to the Partridge River." DEIS at S-7. The DEIS does not address the environmental impacts associated with this known discharge. Instead the DEIS states that this issues will be addressed at closure. See, e.g., DEIS at 3-39 ("The East and West pits are expected to flood and have a net outflow of surface water. Outlet structures would establish the steady-state water levels in the East and West pits after Closure.")	WR2C
19386	The DEIS inadequately addresses environmental impacts associated with surface water discharges because it uses an artificially restricted definition of surface water discharge – a surface discharge only occurs if there is a surface discharge to a surface water. For instance, the DEIS states with regard to the Tailings Basin "These water management methods would result in no direct surface discharge of process water at the Plant Site or Mine Site." DEIS at 3-35. In addition, the DEIS states "[t]he Tailings Basin would be designed not to overtop, so there would be no surface discharges. It is expected that surface seepage would occur from the basin, but PolyMet proposes a surface seepage collection system that would capture essentially all of the surface seepage and return it to the Tailings Basin until the seeps dry out." DEIS at 4.2-21.	EOO
19387	DNR and the Corps need to address these surface water discharges in the DEIS. In fact, these types of discharges are covered by the Clean Water Act's requirement to get a National Pollutant Discharge Elimination System ("NPDES") permit.	EOO

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19388	The agencies must address this deficiency in the DEIS and address these surface water discharges because its current treatment of these discharges does not meet the hard look standard. See, e.g., DEIS at S-9 ("There is some uncertainty as to whether the West Pit overflow would meet the Lake Superior mercury standard, but this impact could be mitigated if it would occur."). In addition, the DEIS cannot piecemeal this analysis by stating that it will address the pit overflow discharge to surface water at the time of closure because, as discussed above, this is a	EOO
19389	The analysis done by DNR and the Corps does not adequately reflect the possible environmental impacts to groundwater. The "conservative" (i.e., low probability of occurrence) predictions from the deterministic model were in some cases not only below the high probability of occurrence predictions, but below the mean figure in the probabilistic predictions. DEIS at 4.1-53 – 4.1-54. DNR and the Corps should not have used "conservative" (i.e., low probability of occurrence) values but rather the average or high probability values because using these conservative values downplays the environmental consequences (and allows illogical results like seepage from the NorthMet Project will improve water quality). The fact that the agencies should have used the median or high probability numbers is supported by the fact that studies found that environmental impact statements consistently under-predict water quality impacts.28 There are many complex factors contributing to uncertainty and modeling simply cannot account for all these factors.29 In addition, the agencies never identified in the DEIS whether the numbers they were relying on to predict water quality impacts came from the deterministic modeling or Uncertainty Analysis. Without this information, it is impossible for the public to assess the adequacy of impact predictions throughout the DEIS. Numbers given in tables without a reference to the where they lie in the range of probability (low, median to high) provide very little information regarding the validity of those predictions. The DEIS should have presented the full range of impacts in environmental consequences discussion. In sum, the DEIS presents arbitrary numbers as to water quality predictions, rather than revealing the full extent of the potential impacts on water quality. Arbitrarily selecting low probability numbers does not represent a "hard look" at the environmental consequences.	WR2C
19389	The DEIS inadequately addresses uncertainties surrounding impacts to groundwater resources. The manner in which the agencies addressed these uncertainties actually downplayed the possible environmental impacts of the NorthMet project to groundwater and, in some cases, allowed the DEIS to make illogical conclusions that are arbitrary and capricious.	WR2C
19390	The DEIS' analysis of groundwater impacts from aluminum is inadequate and does not represent a "hard look."	WR2C
19391	Rather than make unsupported conclusions, Froehlke, 473 F.2d at 348; Mid States Coalition for Progress, 345 F.3d at 536; Ctr. for Biological Diversity, 538 F.3d at 1223-1224, the agencies should take a hard look at the project's impacts to groundwater from aluminum concentrations. This would include modeling the direction and rate of groundwater flow, model the extent of the existing contaminant plume, and model how the contaminant plume would change with the addition of the NorthMet leach of aluminum. This data and analysis should then feed into estimates of how the proposed project would interact with existing contamination. The combination of existing conditions with impacts due to the proposed project would show what groundwater quality can be expected during and post project.	WR1E,WR2C
19393	As stated earlier in this section, the DEIS asserted that issues relating to groundwater contamination "will be addressed at closure." See, e.g., DEIS at 3-39 ("The East and West pits are expected to flood and have a net outflow of surface water. Outlet structures would establish the steady-state water levels in the East and West pits after Closure.") Delaying such analysis until after mine closure does not meet the "hard look" standard required by federal law. Such an analysis must be included in the DEIS.	WR1A

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19394	The DEIS inadequately deals with this peat destruction and associated mercury release in two significant ways. First, the DEIS does not quantity or take a hard look at how much mercury is sequestered in these wetlands and peat lands and what will happen to the environment when this mercury is mobilized. “What constitutes a ‘hard look’ cannot be outlined with rule-like precision. At the least, however, it encompasses a thorough investigation into the environmental impacts of the agency’s action and a candid acknowledgment of the risks that those impacts entail.” Nat. Audubon Soc’y v. Dep’t of Navy, 422 F.3d 174 (4th Cir. 2005). This superficial analysis at this issue in the DEIS is far from a hard look. For instance, the DEIS states: “Organic matter contained in peat also constitutes a large reservoir of mercury, but this mercury is strongly bound to the organic material. Disruption of peat deposits, such as proposed excavation and stockpiling of peat at the Mine Site, resulting in oxidation and decomposition of the peat may increase the mobility of the stored mercury.” DEIS 4.1-123. However, this is where the analysis ends. The agencies never attempt to determine how much mercury will be mobilized from this wetland and peat destruction, where this released mercury will go (i.e., which water bodies would be impacted), the odds that this mercury will become mercury methylation, what organisms or aquatic species will be impacted by this additional mercury. By ignoring all of these issues, the agency has failed to take the requisite hard look.	WR4E,WE1,WE2
19394	However, the DEIS fails to analyze the impacts to water quality from the local deposition and run-off of metal emissions. The failure to analyze these impacts renders the DEIS inadequate. Motor Vehicle Mfrs. Ass'n, 463 U.S. at 43. It included metals in its air quality analysis, and should have also included them in its local deposition and water quality impacts analysis. Given the amount of metals this project will emit, such as nickel, it is unconscionable that the agencies have not performed this analysis. It is quite possible that deposition of metallic emissions will lead to the conclusion that water quality standards in nearby water bodies will be violated. Without this information and analysis, it is impossible for the agencies to fully address the environmental consequences associated with the NorthMet Project.	WR3M
19395	Second, the DEIS’s discussion of how to mitigate or deal with this mercury release is inadequate. Like other elements in an EIS, an agency must discuss mitigation measures in sufficient detail to ensure there has been a fair evaluation of environmental consequences. Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 352 (1989). The agency must take a hard look at these mitigation measures. See, e.g., Neighbors of Cuddy Mtn. v. U.S. Forest Serv., 137 F.3d 1372 (9th Cir. 1998). Courts will find an EIS inadequate when it does not adequately discuss mitigation measures or does not discuss mitigation measures it should have discussed. See, e.g., Environmental Defense Fund v. Froehlke, 473 F.2d 346 (8th Cir. 1972) (failure to include land acquisition as mitigation measure for impact of channelization project on migratory fowl); Oregon Nat. Res. Council v Harrell, 52 F.3d 1499 (9th Cir. 1995) (remanded to consider additional mitigation measures); Friends of the Earth v. Hall, 693 F.Supp. 904 (W.D. Wash. 1988) (questioning mitigation measures). The DEIS states that to address this mercury release, “PolyMet proposes to place the excavated peat in either the Category 1 and 2 waste rock stockpile or the Overburden Storage and Laydown Area. Drainage from these stockpiles would be considered process water, which would be collected, possibly treated at the WWTF, and either pumped to the Tailings Basin for reuse/ultimate disposal (Years 1-11) or to help in the flooding of the mine pits (Years 12-65). The WWTF is not predicted to be very effective in removing mercury,” DEIS 4.1-123. “Since the WWTF is not expected to be very effective and effluent concentrations are predicted to remain above the Great Lakes Initiative standard of 1.3 ng/L, mercury removal prior to release (i.e., Tailings Basin seepage and West Pit overflow) would be important.” Id.; see also DEIS at 4.1-128. The DEIS then goes on to state that the tailings basin may remove mercury from the WWTF effluent during years 1-11. Id. Then after year 11, PolyMet would pump the effluent to the East Pit, which would eventually years later be turned into an artificial wetland, which “would be expected to be variably effective in removing total mercury.” Id. This analysis of mitigation measures does not represent reasoned decisionmaking that is reflective of a hard look analysis. Noting that the selected options would be variably effective at mitigating the impacts does not constitute a hard look. See, e.g., Friends of the Earth v. Hall, 693 F.Supp. 904 (W.D. Wash. 1988) (questioning mitigation measures). For instance, the DEIS does not discuss whether stockpiling peat will actually increase the methtylation rate. All soil sequesters mercury. The inorganic mercury in the peat stockpile has a high potential to mobilize and methylate. The DEIS should have discussed the environmental consequences of stockpiling peat with regards to the methyl mercury burden of the already polluted aquatic system. In addition, the DEIS should have addressed ways to mitigate the methyl mercury problem associated with the stockpiles. For instance, perhaps the stockpile should be capped.	WR4C,WR4E,WE2,WE3,W

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19395	Finally, to mitigate this wetland loss, PolyMet proposes to replace this loss of wetlands with artificially constructed wetlands in Aitkin and Pine Counties. 4.2-36 – 4.2-37. The Aitkin mitigation site is located within the Mississippi River-Brainerd watershed. The Hinckley wetland mitigation site (which is located in Pine County) is within the Snake River watershed. Id. The lost wetlands, which consist mostly of peat lands that are better sequesters of mercury, are located in the St. Louis watershed. The NorthMet Project proposes the destruction of hundreds of acres of peat bogs, which means that hundreds of acres of mercury sequestering surface will be lost to the St. Louis watershed. Since the mitigation efforts involve the creation of artificial wetlands in a different watershed, these impacts will be permanent. The DEIS never discusses how this mitigation measure is slated for a different watershed, so that it will not alleviate mercury release impacts in the St. Louis Watershed. A watershed cannot be managed for mercury this way and expect it to ever be delisted for mercury contamination. Moreover, the DEIS does not disclose whether the newly created artificial wetlands will be peat lands, which sequester mercury better than wetlands. Since Aitkin and Pine Counties have disproportionately less peat bogs, this is likely to be the case. The DEIS did not take a “hard look” at this mitigation measure. At a minimum, the DEIS should have considered replacing the lost wetlands and peat lands with wetlands in the Lake Superior watershed. In addition, the DEIS should have considered a 1-for-1 peat bog replacement. See, e.g., Environmental Defense Fund v. Froehlke, 473 F.2d 346 (8th Cir. 1972) (failure to include land acquisition as mitigation measure for impact of channelization project on migratory fowl); Oregon Nat. Res. Council v Harrell, 52 F.3d 1499 (9th Cir. 1995) (remanded to consider additional mitigation measures); Friends of the Earth v. Hall, 693 F.Supp. 904 (W.D. Wash. 1988) (questioning mitigation measures). The impacts to the St. Louis watershed are aggravated by the fact that the proposed project’s ionic mercury and mercury attached to particles, which are the most chemically reactive, will be deposited locally, DEIS Figure 4.6-1, shows that the prevailing winds will deposit those species disproportionately within the Lake Superior watershed. The DEIS did not look at the total direct impacts of this mercury problem for the St. Louis watershed, which it should have done.	WE2,WE3
19396	Despite this over arching goal of replacing lost function in the same watershed, the agencies only analyzed with detail in the DEIS two mitigation sites that are located in different watersheds than the NorthMet Project. PolyMet proposes to replace this loss of wetlands with artificially constructed wetlands in Aitkin and Pine Counties. DEIS at 4.2-36 – 4.2-37. The Aitkin mitigation site is located within the Mississippi River-Brainerd watershed. The Hinckley wetland mitigation site (which is located in Pine County) is within the Snake River watershed. Id. The lost wetlands, which consist mostly of peat lands that are better sequesters of mercury, are located in the St. Louis watershed. Such a wetland mitigation analysis is inadequate. It is inadequate for several reasons. First, the agencies should have required PolyMet to detail what would be the lost function from these destroyed wetlands. Next, the agency should have had PolyMet determine if the mitigation wetlands would replace this lost value, in quantity and function. The wetlands which will be destroyed by the NorthMet Project serve a variety of functions that were not evaluated. For instance, these wetlands provide habitat for a number of wetland species, including lynx, wolves, moose, and a number of bird species. These species are not found as far south as the proposed wetland mitigation sites, so the proposed mitigation wetlands simply cannot replace this lost value. In addition, when PolyMet performs its wetland functional analysis, it should be sure to include an analysis of the wetlands that will be created on site. PolyMet is proposing to construct wetlands on-site after closure. These wetlands will serve a water treatment function. It is doubtful that wetlands, which receive mine waste discharges and serve as a passive treatment system will serve the same aquatic function as the destroyed wetlands. Second, the DEIS’ treatment of wetland mitigation was inadequate because it allowed PolyMet to rebuff federal standards that off-site mitigation should be located in the same watershed, without a detailed analysis concerning why such watershed replacement was not possible. The National Research Council reported that while as a nation we may have halted the loss of wetland acreage, we have by no means halted the loss of wetland value and function.35 The new Corps rules were supposedly designed to change this so that the wetland permitting process actually identified the specific values and functions that were being lost and designed mitigation geared specifically to replace those losses. The Corps needs to require PolyMet to redo its wetland mitigation analysis so that at least some of the mitigation projects actually compensate for the functions and values lost.	WE3

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Comment ID	Comment Text	Theme Codes
19397	When preparing a DEIS, an agency must include all direct effects and their significance, along with means to mitigate adverse environmental impacts. See 40 C.F.R. § 1502.16(a) & (h). The purpose of NEPA is to "ensure[] that important effects will not be overlooked or underestimated only to be discovered after resources have been committed . . ." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989). Further, publication of a draft EIS serves an informational role. Id. The EIS "gives the public the assurance that the agency 'has indeed considered environmental concerns in its decisionmaking process.'" Id., quoting Baltimore Gas & Electric Co. v. Natural Resources Defense Council, Inc., 462 U.S. 87, 97 (1983). Here, however, the DEIS only makes general geotechnical statements and concludes that "[g]eotechnical stability will be further analyzed during permitting when final facility designs will be available." DEIS at 4.13-1. The DEIS is thus deficient in its analysis of pertinent direct environmental effects, and this deficiency does not allow the public to ascertain whether the agency has taken the required "hard look" at possible effects of the project.	GT1
19398	The DEIS acknowledges that the embankments are unstable in saturated conditions, stating "[r]eview of the proposed NorthMet Tailings Basin preliminary design geotechnical stability analysis indicates the perimeter embankments would be stable for unsaturated conditions, but have a low margin of safety for stability for saturated or static liquefaction conditions." DEIS at 4.13-2 (internal citation omitted). Further information and analysis is required as to whether the upstream type of construction; both existing and proposed, is the proper type of tailings dam for this project site.	GT1
19399	Additionally, the DEIS proposes lined cells to store hydrometallurgical waste to be built on top of existing taconite tailings in cell 2W. DEIS at 3-33. The DEIS acknowledges that Cell 2E is unstable, stating, "[t]here are also layers of loose saturated slimes (fine silty tailings) within the LTVSMC stored tailings material that extend from the central portion of Cell 2E northward and connect with the perimeter embankment, which are subject to liquefaction under certain conditions and therefore may create instability of the perimeter dam." DEIS at 4.13.-1. The DEIS does not, however, state whether cell 2W is also unstable; stating only that ". . . it is unknown if the slimes layer exists under the facility." DEIS at 4.13-2. Without this information relating to the stability of cell 2W, the agencies and the public may not accurately assess the potential for contamination from the hydrometallurgical waste.	EOO
19400	While the two facilities are certainly not the same, this accident highlights the environmental consequences that can occur when an agency fails to adequately assess geotechnical stability. DEIS should still seek to provide all the relevant information related to both the existence of slimes and to whether the type of construction proposed is proper, in order to avoid any potentially catastrophic collapses that would result in significant water pollution and possible devastation of a community.	GT1
19401	In addition to the significant issues found with the tailings storage facilities, the waste rock stockpiles also offer cause for concern because a slope stability assessment has not been completed. The DEIS states, "[p]roposed heights and slope angles in the preliminary waste rock stockpile designs are within typical mine engineering practice, however a slope stability assessment has not been completed. Further design and analysis would occur during permitting to ensure that the proposed construction meets acceptable design standards." DEIS at 4.13-2. The geotechnical stability of these waste stockpiles is incredibly important and the agencies must present information related to the stability for public review. If reasonably complete information is not included, "neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." Robertson, 490 U.S. at 352. As noted above, the ability to assess the adverse effects is a large part of the NEPA process, and because of this omission this DEIS is inadequate.	GT1
19402	The DEIS does not state whether water quality predictions took account of these inadequacies. For instance, the DEIS does not state whether the efficacy of the proposed liner is reflected in the "high liner leakage" scenario. DEIS at 4.1-75. If it was not included than the leakage potentially could be even greater than assumed in high liner leakage scenario. The DEIS must disclose whether this information was evaluated in its environmental consequences review. In addition, the DEIS should state whether the prediction of environmental consequences accounted for this slope instability.	EOO

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Comment ID	Comment Text	Theme Codes
19403	Lack of a viable reclamation plan and closure cost estimate is a major flaw in the EIS. The cost alone, however, is not the only area of concern. Another problem that has plagued mine reclamation plans is a complete failure to accurately predict environmental consequences associated with mine closures. A recent study showed that although 100% of the mines they studied had predicted compliance with all applicable water quality standards, in fact, 76% exceeded water quality standards and 64% of the time the mitigation measures did not work. Alan Septoff, Predicting Water Quality Problems at Hardrock Mines-A Failure of Science, Oversight, and Good Practice, 1 (2006) (attached hereto) [hereinafter Predicting], quoting Jim Kuipers & Ann Maest, Comparison of Predicted and Actual Water Quality at Hardrock Mines. This failure to accurately predict and then subsequently manage water quality impacts can result in significant negative impacts; on water quality, environmental health, and the costs that tax-payers have to shoulder. Predicting at 1. Based on the wide disparity of the EIS's submitted by the mines and the actual results, agencies must make improvements in the prediction and prevention of impacts to water quality and other resources. Id at 2. The DNR should have examined the reports that show a massive disconnect between EIS's claiming to have "minimal water impact" and the reality of the water quality after the mine closed. As there is an uncertainty in water quality predictions, DEIS 3-54, 4.1.-53, 4.1-60, etc., the DNR should have been extremely conservative in their assessment of potential reclamation costs.	PD3,PD4
19403	As part of this analysis, the DEIS should have addressed these recent scientific reports showing a higher likelihood of unpredicted contamination in projects that have the potential to create acid rock drainage and that are situated near ground or surface waters. 93% of the mines surveyed in Ann Maest and Jim Kuipers Study that were near groundwater and had an elevated potential for acid drainage exceeded water quality standards. Predictions at 3. 85% of the mines near surface water exceeded water quality standards. Id. The most ominous fact, however, is that of all of the sites that did develop acid drainage, 89% predicted in their EIS that they would not. Id. The disparity between the predicted and actual water quality exceedences is an important aspect of the problem, and should have been discussed in the reclamation plan and included in the DEIS specifically with regards to the financial assurances that the company would provide.	PD3,PD4
19403	Typically mine closure and post-closure costs run in the tens to hundreds of millions of dollars. Many of the measures that will be taken to avoid environmental and public health impacts require adequate financial assurances and/or bonding. When there are inadequate financial assurance measures taken, there is a significant potential impact to the public health, the environment, and taxpayers. That is why it is imperative that financial assurances be discussed as a part of the EIS process. The EPA notes that the severity of the consequences posed by hard rock mining is evident in the massive costs associated with the actions needed to protect public health and the environment after releases from these facilities. 74 Fed. Reg. 37,213, 37,217 (July 28, 2009).	PD8
19403	A very important part of the environmental analysis for a mine is evaluating the reclamation plan. The reclamation plan documents not only what the goals for the reclamation of the site will be (i.e. the designed post-closure use), but also what is needed in terms of reclamation methods and financial resources to achieve the reclamation goals. DNR and the Corp's decision not to discuss the reclamation plan in detail or address the best available science with regards to the potential for significant increases in contamination, coupled with the failure to include any financial assurance information renders this DEIS incomplete and inadequate. CEQ regulations require agencies to include all pertinent data in the EIS. An agency must "provide full and fair discussion of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." 40 C.F.R. 1502.1. Moreover, NEPA's implementing regulations state that "a draft statement must fulfill and satisfy to the fullest extent possible the requirements established for a final statement . . . . If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion." 40 C.F.R. § 1502.9(a). The actual anticipated cost of closure and the full reclamation plan are items that would inform the public and decisionmakers about the merits or dangers of possible significant environmental contamination from the proposed action. Without this important information, the DEIS is inadequate.	PD5

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19403	Here, the DNR's and the Corps' decision not to include this information is arbitrary and capricious because it is critical to the analysis of the long-term environmental impacts. Due to the importance of financial assurance information, in July 2009, the EPA identified copper mining as a class of facility within the hard rock mining industry that they were going to develop financial responsibility requirements for under CERCLA section 108(b). 74 Fed. Reg. 37,213 (July 28, 2009). The final rules are anticipated in 2011. Research performed by the EPA indicates that hard rock mining is responsible for the pollution of 3,400 miles of streams and 440,000 acres of land. 47 Fed. Reg. at 37,215. Further, the Forest Service believes that approximately 10,000 miles of rivers and other waterways have "been contaminated by acid mine drainage from the metal mining industry." Id. The metal mining industry releases between 1.07-1.5 billion pounds of toxic chemicals annually, which equates to approximately 28% of the total releases by all U.S. industry. Id. The fact that large mines will operate for decades may extend the timeframe for potential toxic releases and exposure to hazardous chemicals. Id. A significant reason for requiring complete financial assurance is the magnitude of the costs that federal agencies, state agencies, and ultimately the taxpayer have to shoulder in cleanup costs. Some mine owners have defaulted on their environmental liabilities associated with their mines, making the cleanup costs borne mostly by taxpayers. U.S. Government Accountability Office, Environmental Liabilities, Hardrock Mining Cleanup Obligations, at 1 (2006) (attached hereto) [hereinafter HMCO]. The average cost of addressing a mining site under the Superfund program is approximately $22 million per site. U.S. Environmental Protection Agency- Abandoned Mines Land Team, Reference Notebook, at 14 (2004) (attached hereto). As of 2006, there were 63 hard rock mines on the Superfund's National Priority List. These sites are estimated to cost a total of 7.8 billion to remediate, and at least 2.4 billion of this is to be paid by the tax payer, rather than the company that was responsible for the contamination. Id. at 2. The Federal government spent at least 2.6 billion dollars to remediate hard rock mine sites between 1998 and 2007. 74 Fed. Reg. at 37,217. Additionally, while mining operators have provided financial assurances totaling approximately $982 million for projects located on BLM land, the Government Accountability Office has determined that these assurances fall short of the stated reclamation budgets by approximately $61 million dollars. U.S. Government Accountability Office, Hardrock Mining, Information on Abandoned Mines and Value and Coverage of Financial Assurances on BLM Land, at 15 (2008) (attached hereto). This shortfall, however, does not account for the potential for the reclamation costs to be significantly higher than originally estimated. The potential burden to the taxpayer is obvious, and as such reclamation costs and financial assurance instruments need to be discussed in the DEIS. The importance of this information to be analyzed in the DEIS can be shown by many regional EPA offices negatively rating EISs that do not contain this information. For example, EPA Region 10 has already promulgated standards for reviewing EIS's for mining projects. The agency will adversely rate any EIS that does not include adequate and complete financial assurance information. U.S. Environmental Protection Agency Region 10, Region 10 Mining Financial Assurance Strategy (2009) (attached hereto). The agency further states that "[e]nsuring compliance with financial assurance requirements at mineral processing facilities is an OECA national priority for 2008-2010." Id. at 6. In a 2007 comment on an mining related DEIS, Region 9 EPA requested information about financial assurance, stating "EPA believes this information is important in the EIS because the	PD2,PD3
19404	The DEIS should analyze whether this proposed project may have a net negative impact on the local and state economy. This should include analyzing direct costs associated with the project such as increased costs for road maintenance, operating the health, safety and environmental protection systems necessary for mining; supporting training and research and development for the industry; and providing various tax breaks and subsidies. This should include analyzing external costs such as increased costs associated with healthcare, lost productivity resulting from injury and health impacts, water treatment caused by surface mining, water infrastructure to replace damaged wells, limited development potential due to poor air quality, and social spending.	SE3

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19404	The DEIS' treatment of socioeconomic issues is inadequate. The DEIS acknowledges mining communities, compared to other parts of Minnesota, are characterized by poor socioeconomic conditions including higher levels of poverty and lower education rates. DEIS at 4.10-4 – 4.10-8. The DEIS, however, stops there and never attempts to analyze whether the proposed project would continue that trend of poor socioeconomic conditions. Instead, the DEIS claims that the proposed mining project would have a positive impact on the economy of St. Louis County and the region, primarily through the creation of jobs and the generation of tax revenue. DEIS at 4.10-26; see also DEIS at 4.10-15. However, its analysis is incomplete and ignores important aspects of the problem. For instance, the discussion of socioeconomics must analyze whether there are any detrimental aspects of mining economies. Socioeconomics cannot be reduced to the amount of money and jobs the project will ostensibly bring to the area but rather most consist of a robust economic analysis. It is imperative that the agencies look into the negative economic aspects of this project because a number of recent studies on mining have found that mining has an overall negative impact on state and local economies. For instance, a study on the impact of coal mining on the Kentucky state budget concluded that "the industry actually costs more than it brings to the state."39	SE3
19405	The DEIS should also examine if there are additional economic impacts from the lost potential for jobs and other economic benefits from industries that are incompatible with surface mining both in the short- and the long-term. The very process of mining, concentrating, and refining the metal ores creates relatively permanent environmental damage, such as huge open pits, massive waste piles, extensive settling ponds, heavy metal pollution, acid mine drainage.44 These reduce the attractiveness of minedover areas to new residents and businesses, making it difficult for mining areas to diversify their economies.45	SE4
19406	The dramatic effects of surface mining on the landscape and ecosystems render the land unusable for certain industries that could otherwise employ residents in an ongoing basis. Surface mining permanently limits the opportunities for new jobs in other incompatible sectors, such as sustainable harvesting of timber or tourism and recreation. The DEIS should, thus, analyze what are the lost opportunity cots.	SE3
19407	The expectations of increased employment are often based on the illusion that mining will provide long-lasting and continuously profitable employment. Studies demonstrate that not only are mining communities often less profitable than their counterparts relying on other industries, but also that the profits garnered are short-lived and followed by a period of high unemployment.46 Professor Freudenburg of U.C. Santa Barbara and Lisa J. Wilson of the Watershed Research and Training Center used four criteria to analyze studies detailing the economic trend of numerous mining communities.47 They ensured that the studies they utilized were performed over a significant period of time and that they provided quantitative assessments of the impacts of mining activities.48 They looked only at studies which took into account at least one of the following attributes: incomes, unemployment rates, and poverty rates.49 They ensured that only nonmetropolitan areas were included, so they were not influenced by uniquely metropolitan economic statistics.50 While the conclusion notes that the immediate effects on income ranged mostly from neutral to positive; the analysis of poverty, unemployment and the overall trend was overall very negative.51 The DEIS should analyze additional studies, including this one, to ensure that the agencies have taken a "hard look" at the socioeconomic impacts of this project.	EOO,SE3
19408	Although the DEIS acknowledges that a large portion of the St. Louis population, and its current source of income, comes from its retirement age residents, DEIS at 4.10-1 -4.10-5, the DEIS never analyzes whether these individuals will want to remain in St. Louis with the proposed development. If these residents do not want to remain, the community could lose a large source of its income. As Professor Power notes in his report, as real earnings in St. Louis County decreased, other sources of earnings throughout the county increased.54 In particular, from 1983 to 2000, earnings from Social Security payments and Medicare reimbursements increased by $91 million.55 The retired population within St. Louis county contributes a large portion of earnings into the local economy, and an increase in mining would likely bring about a decrease in retirement-related revenue because mining causes a reduction in the natural beauty and serenity of any area it takes place in, immediately reducing the appeal to prospective retiree residents. In order to take a hard look at the socioeconomic impacts, the DEIS must analyze how this project will impact the flow of retirement-related income into Iron Range communities.	SE3

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19409	The DEIS also ignores the volatility of the mining industry and simply assumes that the operating jobs will continue uninterrupted for 20 years. DEIS at 4.10-15. However, this assumption does not account for volatility of metal prices and increased environmental regulation, which may impact PolyMet's decision regarding how long to operate the plant. The economic benefits of the mining industry relies on multiple uncontrollable factors. Primary among these factors is the internationally competitive nature of mining. The price and demand for metal and metal ores fluctuates on a global scale, often causing developing countries producing at a lower cost to see a higher and more consistent demand for materials.56 In addition, mining is continuously undergoing technological advances, often requiring a smaller workforce than previously needed, leaving many out of work.57 It is generally in the company's best interest to employ as few as possible to cut costs while using technological advances to ensure increased production.	SE3
19410	Finally, the DEIS treatment of socioeconomic impacts with regard to closure of the NorthMet mine is inadequate. Regarding mine closure the DEIS states that "[u]nless new industry is developed in the East Range area prior to completion of these activities, it is assumed that 95 percent of working-age people formerly employed by the NorthMet Project would need to secure alternative local employment or would leave the area after this time." DEIS at 4.10-16. The DEIS should have analyzed whether this project will permanently limits the opportunities for new jobs in other sectors incompatible with surface mining, how long it will take this community to recover from such an economic lose, whether there are mitigation measures that could address these impacts. The DEIS discussion of socioeconomics needs to include a discussion of the impacts of relying on a cyclical industry as the major economic driver of a community.	SE3
19411	In the DEIS, DNR and the Corps did not analyze the health impacts associated with air pollution, including particulate matter emissions. Instead, the agencies compared the air emissions to the National Ambient Air Quality Standards ("NAAQS") and the state standards. DEIS at 4.6-13 – 4.6-17. The agencies concluded that, since the emissions were below these thresholds, the project's air emissions would not have a significant effect. DEIS at 4.6-17. This analysis is not adequate and does not constitute a "hard look" under NEPA. First, as discussed above, particulate matter is a nonthreshold pollutant, meaning that any exposure above zero will have adverse health impacts. See American Trucking Associations, 175 F.3d 1027; see also 62 Fed. Reg. 38,652. Therefore, reliance on the NAAQS standards would not inform an agency about possible adverse health impacts associated with these emissions. Instead of only looking at the NAAQS and MAAQS, the agency must take a hard-look at the health and environmental impacts associated with particulate matter emissions to determine if the project's emissions will have a significant impact. See, e.g., Uprose v. Power Authority of State of New York, 729 N.Y.S.2d 42, 46-47 (N.Y.A.D. 2 Dept. 2001) (environmental analysis that assumed all PM10 emissions were PM2.5 and compared to NAAQS was not sufficient "hard look" for an EIS because PM 2.5 is a nonthreshold pollutant). A hard look would entail determining if the air emissions associated with this project would lead to a significant increase in premature mortality, aggravation of respiratory and cardiovascular disease lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems such as heart attacks and cardiac arrhythmia. The agencies should consider the studies that exist documenting the health concerns cited and other appropriate studies.60 Such an analysis is especially required for particulate matter. The review for compliance with NAAQS shows that the expected 24-hour PM 2.5 predicted total ambient impact (plus the background) is 34 micrograms, which is just under the 35 microgram per cubic meter NAAQS ambient standard for PM 2.5. Given that PM 2.5 is a nonthreshold pollutant and that the NorthMet Project's emissions are just under the NAAQS, the agencies must undertake further analysis before concluding that there are no significant public health impacts associated with these emissions.	AQ4,AQ6
19411	Second, it is known that older populations are more susceptible to the adverse health impacts associated with particulate matter, including premature mortality, aggravation of respiratory and cardiovascular disease lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems such as heart attacks and cardiac arrhythmia. 72 Fed. Reg. 20,586 (April 25, 2007). There have been other studies that have provided compelling evidence that fine particle concentrations well below the national standard are harmful to the cardiovascular and respiratory health of our elderly citizens.61 Although the DEIS acknowledges that the NorthMet project would be located in an area that has a very high elderly population, DEIS at 4.10-1 -4.10-5, the agencies never analyze the increased health risks to this segment of the population associated with these air emissions. This simply does not meet NEPA's "hard look" requirement.	AQ6

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Comment ID	Comment Text	Theme Codes
19413	In the DEIS, DNR and the Corps did not analyze the health impacts associated with air pollution, including particulate matter emissions. Instead, the agencies compared the air emissions to the National Ambient Air Quality Standards ("NAAQS") and the state standards. DEIS at 4.6-13 – 4.6-17. The agencies concluded that, since the emissions were below these thresholds, the project's air emissions would not have a significant effect. DEIS at 4.6-17. The agencies, however, did not compare the sulfur dioxide emissions with the new standards proposed by EPA. The agencies need to correct this analysis to compare the sulfur dioxide emissions with the new NAAQS standards that EPA is about to promulgate, otherwise the agency has failed to take a hard look at the environmental consequences of this proposed action. See, e.g., Uprose v. Power Authority of State of New York, 729 N.Y.S.2d 42, 46-47 (N.Y.A.D. 2 Dept. 2001). Once the Corps and DNR have performed this analysis, they will determine that the NorthMet Project will lead to a violation of the newly proposed NAAQS standard for sulfur dioxide. The DEIS states that the NorthMet Project will emit 293 ug/m3 for the 1-hour averaging time. DEIS at 4.6-17, Table 4.6-10. When you convert 293 ug/m3 to parts per billion you get 110 parts per billion. This is over the proposed new sulfur dioxide NAAQS of 50 and 100 parts per billion ("ppb") measured over 1-hour. 74 Fed. Reg. at 64,810.	AQ6
19414	As discussed above, DNR and the Corps completed its air emissions impact analysis by comparing the NorthMet air emissions to the NAAQS and the state standards. DEIS at 4.6-13 – 4.6-17. Under this analysis, the agencies determined that the 24-hour PM 2.5 predicted total ambient impact (plus the background) is 34 micrograms, which is just under the 35 microgram per cubic meter NAAQS ambient standard for PM 2.5. In addition, the agencies determined that the Class II PSD Increment for 24-hour PM 10 for the project (plus the background) was 29 micrograms, just below the 30 microgram Class II PSD increment threshold. The agencies, however, did not provide the air quality modeling data for public review. Without this information, it is impossible to determine if the PM 2.5 emission inventory was sufficient and complete. For instance, the DEIS states that PolyMet will use the LTV taconite crushing equipment for NorthMet ore crushing and grinding. DEIS at 4.7-8. However, taconite does not have similar mineralogy to Duluth Complex material and crushing releases significant particulate matter. Without the modeling information, it is impossible to know whether the taconite crushing equipment emissions were inventoried and whether those emissions were assumed the same as with the taconite crushing or were updated to reflect the material that would be crushed in the NorthMet Project. Withholding this information has essentially precluded the public, including the Sierra Club, from effectively commenting on this analysis. The agencies must provide the air quality modeling data and allow for additional public comment. In addition, the agencies do not disclose whether condensable particulate matter was included in addition to filterable particulate matter in its air emission estimates. If the air emission estimates did not include condensable particulate matter, then the air emissions analysis is inadequate and the agencies determination that the Class II PSD Increment for 24-hour PM 10 and the NAAQS for 24-hour PM 2.5 were not violated is wrong. Withholding this information has essentially precluded the public, including the Sierra Club, from effectively commenting on this analysis. The agencies must provide the air quality modeling data and allow for additional public comment.	AQ4,AQ8

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Comment ID	Comment Text	Theme Codes
19415	In the DEIS, DNR and the Corps conclude that the NorthMet Project does not need to comply with the Prevention of Significant Deterioration Requirements (commonly referred to as the "PSD Program") of the Clean Air Act because the "emissions from the Project are below 'major source' thresholds for the PSD program." DEIS at 4.6-4. This is inaccurate. The 258,648 tons/year of carbon dioxide that the new NorthMet Project would emit far exceed the EPA's proposed major source threshold for greenhouse gases of 25,000 tons/year.69 Therefore, PolyMet is required to obtain a PSD permit for this project, which contains a Best Available Control Technology ("BACT") emission limit for carbon dioxide. Such a limit is required by the Clean Air Act, as explained below. The Clean Air Act's Prevention of Significant Deterioration ("PSD") program applies to major new sources of air pollution. Among other requirements of the PSD programs, the Act imposes stringent emission limits on new major sources of air pollution based on the emission limits that would be possible if the "best available control technology" were incorporated into the design and construction of the facility. 40 C.F.R § 52.21(j)(2), App. H. See also 42 U.S.C. § 7479(3). The Clean Air Act defines "best available control technology" as follows: The term "best available control technology" means an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this Act emitted from or which results from any major emitting facility, which the permitting authority, on a caseby- case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant. 42 U.S.C. § 7479(3) (2009), App. E (emphasis added). A requirement for a facility to obtain a PSD permit with a BACT emission limit is triggered when a facility's emissions will exceed a major source threshold for a pollutant "subject to regulation" under the Clean Air Act. 42 U.S.C. § 7475(a)(4); see also 40 CFR § 52.21(b)(50) (2007). While there has been an ongoing debate regarding whether GHG emissions, including carbon dioxide, are "subject to regulation" under the Clean Air Act, that debate will end in March 2010. In May 2009, EPA issued proposed rule to regulate GHGs from mobile sources under Title II of the CAA. 74 Fed. Reg. at 24,007 (May 22, 2009). EPA stated that it expects to finalize these final regulations in March 2010. 74 Fed. Reg. at 55,295 ("the light-duty motor vehicle rule, which EPA recently proposed and expects to promulgate by the end of March 2010"), 55,296 ("March 2010, when we expect PSD and title V requirements to be triggered for GHG emitters"). In addition, EPA has publicly announced that "it is EPA's position that new pollutants become subject to PSD and title V when a rule controlling those pollutants is promulgated (and even before that rule takes effect). Accordingly, as soon as GHGs become regulated under the light-duty motor vehicle rule, GHG emissions will be considered pollutants 'subject to regulation' under the CAA and will become subject to PSD and title V requirements." 74 Fed. Reg. at 55,300. Therefore, any major source of GHG that commences operation after March 2010 will have to obtain a PSD permit under the Clean Air Act. There is no dispute that the NorthMet Project will emit CO2 and that these emissions will far exceed the EPA's proposed major source threshold for greenhouse gases. NorthMet has stated that its direct CO2 emissions (or more specifically its "carbon dioxide equivalent" (CO2-e) emissions) will be 258,648 CO2-e tons/year. DEIS at 4.6-31. These emissions exceed EPA's proposed major source threshold for greenhouse gases of 25,000 tons/year. 74 Fed. Reg. at 55291.	AQ3,AQ4A

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Comment ID	Comment Text	Theme Codes
19416	The environmental review process under NEPA provides an opportunity to review the effect of agency action on the creation of greenhouse gas emissions and other climate change issues, such as the destruction of carbon sinks or decreasing the efficiency of carbon sinks. DNR and the Corps have failed to comply with NEPA because its analysis only addressed a limited subset of issues related to climate change. First, the DEIS does not address cumulative impacts of the NorthMet Project in light of climate change. The DEIS states "The potential impact of the NorthMet Project is evaluated only based on emissions of greenhouse gases from the project on its own and in combination with offsite emission generation. There are not analytical or modeling tools to reliably evaluate the incremental impact of a project's discrete greenhouse gas emissions on the global and regional climate. In addition, there are no analytical and modeling tools to reliably evaluate any cascading impacts, cumulative effects, from a particular project's greenhouse gas emissions on natural ecosystems and human economic systems in a given state or region." DEIS at 4.6-32 (emphasis added). After claiming that there are no reliable modeling tools, DNR and the Corps completely shirk their obligations to examine impacts to effected resources (such as wetlands and wildlife) from climate change, including past, present and reasonably foreseeable future projects. For instance, although the DEIS acknowledges that the state of Minnesota has set a goal of reducing greenhouse gas emissions to a level at least 80% below 2005 levels by 2050, DEIS at 4.6-30, it does not address whether the NorthMet Project's GHG emissions (258,648 CO2-e tons/year) will significantly impact the states ability to achieve that goal. It does not determine whether the incremental impact of this project, when considered with other past, present, and reasonably foreseeable future projects, will impact this state declared goal or any other possible impacts. In fact, the DEIS completely fails to determine whether the project will have a significant impact on the environment in light of climate change. DEIS at 4.6-28 – 4.6-33. Instead, the agencies simply make general statements regarding possible risks and then propose reclamation and mitigation activities to offset some of the impacts. DEIS at 4.6-32. The agencies never officially make a significance determination. In violation of NEPA, this perfunctory analysis consists solely of the conclusory opinion of agency personnel and provides nothing more than a general statement about some risk and ways to possibly mitigate those risks. See Klamath- Siskiyou Wildlands Ctr., 387 F.3d at 996 ("NEPA documents are inadequate if they contain only narratives of expert opinions."); Ocean Advocates v. U.S. Army Corps of Engineers, 402 F.3d 846, 869 (9th Cir. 2005); Friends of the Earth, Inc. v. U.S. Army Corps of Eng'rs, 109 F.Supp.2d 30, 42 (rejecting EA's brief discussion with no analysis). It falls well short of the "hard look" that NEPA requires and fails as an assessment of the cumulative impacts. Anderson v. Evans, 371 F.3d 475, 486 (9th Cir. 2004); Ocean Advocates, 402 F.3d at 869. Climate change is the classic example of a cumulative problem; emissions from numerous sources combine to create the most pressing environmental and societal problem of our time. Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin., 538 F.3d 1172, 1217 (9th Cir. 2008). Indeed, "[o]ne of the most important environmental lessons that has been learned is that environmental damage often occurs incrementally from a variety of small sources. These sources appear insignificant when considered individually, but assume threatening dimensions when considered collectively with other sources with which they interact." Communities for a Better Env't v. California Resources Agency, 103 Cal.App.4th 98, 114. (Cal. App. 2002). As the Ninth Circuit stated in Center for Biological Dive	AQ3

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Comment ID	Comment Text	Theme Codes
19417	The second way that its climate change analysis is insufficient is that the DNR and the Corps did not use climate change as an additional screen to determine if impacts to certain resources would be significant. For instance, the analysis did not address the combined effects of the NorthMet Project with the weakened physical condition and declining reproductive fitness of the Canada Lynx caused by global climate change. While the DEIS generally discusses global climate change as something that may affect "forest ecosystems, water resources, other unique ecosystems, agriculture and human health" it doesn't take this analysis to the next level. DEIS at 4.6-28 – 4.6-33; see also DEIS at Section 4.4. For instance, the DEIS never examines how climate change is affecting the Canada Lynx, its habitat, or that of its primary prey, the snowshoe hare. DEIS at Section 4.4. The record reflects no analysis of whether or how the weakened condition and reduced habitat and prey capacity caused by climate change combine with the impacts of disturbance and harassment caused by the NorthMet Project to harm the lynx. Id. In addition, although the DEIS acknowledges that "Minnesota's forested areas could decrease by 50-70%" it never overlays this information onto its wildlife significance analysis. For instance, it never determines whether this lose of forested lands, in conjunction with other known impacts such as corridor degradation, would lead to a significant impact on the Canada Lynx or other wildlife. See DEIS at 4.6- 29 and DEIS Section 4.4. This is not a sufficient analysis. So while the DEIS claims that the NorthMet Project will not significantly impact the Canada Lynx, see, e.g., DEIS at 4.4-32, it reached that conclusion based on a limited analysis that excluded overlaying climate impacts on top of the other impacts. See, e.g., Grand Canyon Trust v. Fed. Aviation Admin., 290 F.3d 339, 345 (D.C. Cir. 2002) ("[E]ven a slight increase in adverse conditions that form an existing environmental milieu may sometimes threaten harm that is significant. One more factory . . . may represent the straw that breaks the back of the environmental camel.") (quotation omitted). This is not sufficient under NEPA.	AQ3
19418	NEPA's implementing regulations mandate that an EIS discuss "possible conflicts between the proposed action and the objectives of Federal, regional, State, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned." 40 C.F.R. § 1502.16. Here, the DEIS does not discuss how the NorthMet Project conflicts with the Endangered Species Act, Clean Water Act, the National Forest Management Act, the Organic Act, and other related laws.	G5A
19419	The NorthMet Project will unquestionably result in the destruction or adverse modification of critical habitat for the endangered Canada Lynx. First, the DEIS explicitly states that the NorthMet Project will destroy 1,454 acres of critical lynx habitat. DEIS 4.4.-10. Further, as discussed in the Wildlife section, supra, this project will significantly degrade critical habitat for the Canada Lynx by negatively impacting two of the lynx's travel corridors, which are listed as critical habitat. (Specifically, the NorthMet Project will adversely impact travel Corridor 11, and completely destroy Corridor 12. Barr Report at 56.) This is a violation of ESA § 7(a)(2), which prohibits such destruction and adverse modification. 16 U.S.C. § 1536(a)(2). Nowhere in the DEIS does DNR or the Corps address the NorthMet' Project's conflict with this essential federal law. This is inadequate under NEPA. 40 C.F.R. § 1502.16.	WI1
19420	As discussed in detail above, the NorthMet Project's Tailings Basin will discharge pollutants to surface water via a hydrological connection with groundwater. For at least two of these constituents, mercury and aluminum, these point source discharges would cause or contribute to the violation of water quality standards.70 Thus, PolyMet would not be able to obtain a NPDES permit for these discharges. 40 C.F.R. § 122.4(i). Nowhere in the DEIS does DNR or the Corps address the NorthMet' Project's conflict with the Clean Water Act. This is inadequate under NEPA. 40 C.F.R. § 1502.16.	WR3I
19421	Since the DEIS ignores the fact that this project is locate on Forest Service lands, it never analyzed whether this project was in compliance with various statutes that govern national forests, specifically the Organic Act and NFMA.	PD4,CPLU3

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Comment ID	Comment Text	Theme Codes
19422	Prior to statehood, Minnesota was comprised of approximately 18.6 million acres of wetland. Minnesota Board of Water and Soil Resources, Wetlands Regulation in Minnesota, 3 (2003). Currently, Minnesota only has about half of that, approximately 9.285 million acres, remaining. Minnesota Department of Natural Resources, http://www.dnr.state.mn.us/wetlands/index.html. The Minnesota Legislature adopted a policy of promoting no net loss of wetlands. See Minn. Stat. § 103A.201, subd. 2(b). Minnesota courts have also expressly held that the state has a strong policy devoted to wetland protection. See, e.g., Application of Christenson, 417 N.W.2d 607, 615 (Minn. 1987) ("[v]anishing wetlands require . . . protection and preservation"); Application of Central Baptist Theological Seminary, 370 N.W.2d 642, 649 (Minn. Ct. App. 1985) ("[w]etlands provide a unique natural ecosystem because they are capable of supporting a greater diversity of life than other habitats."); County of Freeborn by Tuveson v. Byrson, 243 N.W.2d 316, 322 (Minn. 1976) (wetlands "are something to protect and preserve."). The DNR estimates the total direct wetland impacts at 854.2 acres, DEIS 4.2- 9, and an indirect wetland impacts at 667.9 acres, for a total predicted impact of 1,5221.1 acres. DEIS 4.2-24. The DEIS has not proposed to replace in quantity or quality these impacted wetlands. Nowhere in the DEIS does DNR or the Corps address the NorthMet' Project's conflict with the Minnesota Protection laws. This is inadequate under NEPA. 40 C.F.R. § 1502.16.	WE3,WE4
19422	For the above stated reasons, the Sierra Club recommends that the DNR and the Corps reject the Polymet project or substantially revise the DEIS to address these deficiencies and provide the public with an opportunity to review and comment the document.	G10
19422	The mere fact that our State of Minnesota is even considering the swap of precious waterways and wilderness areas for jobs is incomprehensible to anyone with an understanding of the consequences of copper mining. The long-term, significant pollution threat, served up by PolyMet Mining, is a poor bargain for the short-term employment gain. Copper mining has a terrible reputation for trashing its immediate and downstream environment. Historically, copper mining has always been a rape of the land; has always contaminated rivers and lakes; has always left behind pollution and lasting damage for others to clean up. No amount of money can undo the damage and restore the mine vicinity and downstream environment to its original condition. Look to other states with mining, and you'll find wasted land, and limits to other economic opportunities, in mining's tracks. Look to our own state and you'll find many environmental mistakes made with past mining ventures. The risks of PolyMet's mining proposal far outweigh any rewards gained by job creation. All the years of environmental growth and all the future generations negatively impacted by the inevitable waste of the land, far exceed the few years of benefit the jobs will provide. We must refuse to sell our environmental health for short-term economic gain (neither ours, Canadian owned Poly- Met's, nor it's stock holders). Future jobs will always be created and economies will always improve, while damaged, fragile ecosystems, far too often, cannot be recovered. We must keep Minnesota clean and environmentally healthy for ourselves and for our future generations. We must not sell one of Minnesota's most valuable resources - our natural world, which distinguishes us from most other states. The pain is simply not worth the gain. The grandeur of our Northland is too precious to risk damaging. It is through our protection of our land that we will distinguish ourselves from citizens of many other states.	G2A
19422	I have been employed on the proposed Polymet plant site and am concerned about legacy pollution from taconite mining and the probability of more serious pollution likely to result from opening up a sulfide ore body in Minnesota's wetlands.	G9
19424	p. 1-6 "Section 401 Water Quality Certification/Waiver. Waived by default in May 2006" The DEIS should address why the Water Quality Certification was waived and if the MPCA will waive its authority in future regulation of Polymet	RFI
19426	p. 2-6 "The amount of financial assurance..." The DEIS should address the recent historical documentation of the failure of the State of Minnesota to use available statutes to require adequate financial assurance. (Reserve & LTV)	PD4
19427	p. 2.8 "...availability of new information related to potential impacts..." (2.3.4) The DEIS should address the probability that the permitting of Polymet would lead to a cascade of permits for other development in the Duluth complex. (As Duluth Metal's Rick Sandri puts it, Polymet is the snowplow and Duluth Metals is the car behind the plow. [Minnesota Public Radio, April 21, 2009 as reported in Mining Minnesota-News]) The DEIS should have an evaluation of probable effects after Polymet plows through the EIS process.	G8C

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Comment ID	Comment Text	Theme Codes
19427	p. 2-8 "Issues Incorporated into EIS After Scoping" The EIS should incorporate a study of why the mining industry has failed to sustain prosperous communities on the Iron Range even when those communities are almost surrounded by active mining operations. (Virginia, MN. Minntac Mine, Minorca Mine, United Taconite Mine.)	G8
19428	p. 3.3 "The peat would be removed and stockpiled..." The DEIS does not adequately describe the disposition of peat as it applies to carbon sequestration.	AQ3
19429	p. 3-11 "In areas where peat is present, seepage would be prevented by compressing the peat..." Peat compression did not prevent seepage at Minntac tailings pond and Dunka LTV site. (Minntac Schedule of Compliance, November 15,2007. Dunka Variances)	PD10
19430	p. 3-48 "Closure Cost Estimate" This section should fully address financial assurance. Recent failures of the State of Minnesosta to have adequate financial assurance (Reserve and LTV) should be reason to inform the public about those failures and of the likelihood that non-ferrous mining corporations will wield the same political power that created earlier failures. (Regulatory Capture)	PD3,PD4
19430	p. 3-12 "...limiting the oxidation of the sulfide minerals..." DEIS should address the leaching of metals at neutral Ph. (Tempel, Regina N. Oxidation Kinetics of Arsenic-sulfide Minerals at Neutral Ph, 2004)	PD2
19431	p. 3-51 "No Action Alternative" The Purpose and Need of the Project did not document any long term economic benefits. There is no assurance of long term prosperity but if the project goes forward there is documentation of long term economic and environmental liabilities. Mining rebates and subsidies should be documented as obvious supporting evidence for the No Action Alternative.	ALT8
19432	p.3-56 "Table 3.2-2 TBM-7" Proposed use of paper mill residue should initiate a base line study of endocrine disruptors in the plant site and mine site watersheds so that added endocrine disruptors from mitigation measures can be properly assessed. Endocrine disruptors may be synergistic so a multi- generational fathead minnow test should be conducted and results included in the DEIS.	PD8
19433	My main personal concerns with the Draft Environmental Statement (DEIS) are that it does not include an analysis of the long term economic consequences of a mining project as would be predicted by an economist familiar with the broadly accepted theory of the Resource Curse and the DEIS does not address endocrine disruptors which have been given serious consideration by Minnesota's legislature and scientific community. My wife and I have a special interest in endocrine disruptors being we were never blessed with children. We hope to protect future generations from being damaged by minerals and compounds associated with mining in Minnesota. Failure to even mention the Resource Curse or endocrine disruptors suggests that this DEIS was crafted to be defensible by mining proponents rather than to be informative for the public.	SE3
Sender Last Name:	Schultenover **Submission ID:** 3191	
732	I ask for the following: 1. A time extension of 30 to 45 days for review of the EIS. 2. More public meetings in more places to gather input. The current schedule is too limited. 3. That the public meetings include the option for citizen statements and discussion in the open meeting. Thank you	PRO6
Sender Last Name:	Schumacker **Submission ID:** 3507	
3777	DONT MESS UP OUR LAND!	EOO
Sender Last Name:	Schwain **Submission ID:** 3512	

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Comment ID	Comment Text	Theme Codes
3781	I urge further study on this matter. I believe the following excerpt from the DEIS is important: " In some cases the results of the deterministic modeling and the Uncertainty Analysis conflict, which makes it difficult to draw firm conclusions (Table 4.1-48). Nickel, for example, is predicted by the deterministic modeling to meet groundwater evaluation criteria in the West Pit. The Uncertainty Analysis, on the other hand, suggests that the deterministic modeling predictions underestimated nickel concentrations in the West Pit. Although the conservatism of some of the assumptions used in the Uncertainty Analysis can be argued, it is clear that the Proposed Action would exceed groundwater evaluation criteria for at least several solutes (i.e., antimony, manganese, nickel, and sulfate along several flow paths), even when accounting for high liner leakage rates and assuming natural attenuation by sorption. As indicated in Table 4.1-45, some of the waste rock stockpiles have the potential to leach solutes to groundwater for long periods (i.e., over 2,000 years), so these effects would be significant (RS74A, Barr 2008). " If the DEIS "can not draw firm conclusions" we can not in proceed with a clear conscience. The long-term (2000 year) potential consequences of this plan far exceed the short-term (20 year) economic benefits in my opinion. Thank you for you careful study of this matter.	EOO,G7B,G8B
Sender Last Name:	Schwartz **Submission ID:** 2396	
2887	As a citizen of Minnesota I am concerned about the PolyMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forest. It appears to me that there will be short-term economic gains with massive long-term problems. I am primarily concerned that there will be environmental damage to surface and groundwaters in northern waters. I am firmly in opposition to this type of mining in Minnesota.	EOO,G7A
Sender Last Name:	Schwarze **Submission ID:** 3105	
1287	Require resolution of tailings basin geotechnical stability and seepage issues identified by the Tribes and the U.S. Environmental Protection Agency.	GT2
1879	Require detailed and cumulative impacts of potential mercury increases in fish as related to the PolyMet project and other nearby pollution sources, including mercury methylation as well as discharge and emissions. All lakes in the White Iron Chain of Lakes currently have mercury advisories for fish consumption, and this is an area of vital importance to members.	WR5C,FM1,FM3,AQ4B,AQ
3502	Include cumulative air and water quality effects on lakes and rivers from all sources, including other mines. This EIS may set the standard for all water quality impacts analysis, and good cumulative impacts analysis is critical to protect water quality in the White Iron Chain of Lakes.	WR5A,CR1,AQ4B
3503	Include future development of sulfide-mining by companies already doing exploratory drilling in the analysis of cumulative effects. (Tribal position)	G9
3504	Require financial assurances in the EIS before any permitting process gets underway. (U.S. EPA position)	PD4
Sender Last Name:	Scofield **Submission ID:** 306	
320	I am writing this letter in support of the Polymet Mining's NorthMet Project. It is my understanding that Polymet will be a 0 discharge plant in terms of water and thus there will not be any contamination of the local watershed. It is also my understanding that Polymet has spent over 20 million dollars for the EIS in order to provide an environmentally sound project. Polymet will produce these metals in an environmentally sound way and generate significant economic activity in a depressed part of our state. There was a copper mine in the upper peninsula of Michigan that is no longer operating. It is in a very pristine area as it was when it was operating and is still after having been closed for many years. These plants can operate in harmony with nature under the current rules. In my view, due to the current rigorous environmental regulations in the State of Minnesota, the environmental risk is very small yet the reward to the state is very large. I strongly encourage you to grant Polymet the permits required to make this project a reality.	EOO

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Comment ID	Comment Text	Theme Codes
3130	If you are counting votes for this PolyMet deal, then please count my vote as "against" the PolyMet deal going forward. However, I am pessimistic when situations such as this PolyMet deal arise. Politicians will always claim credit for providing jobs for their faithful, and this PolyMet deal will prove this out. Minimally, I hope that PolyMet is required to set aside more than enough money to clean up the future messes it will no doubt create, both short-term and long-term.	EOO,G4

Sender Last Name: Scott **Submission ID:** 3677

1	A stability analysis has been performed and is presented in the following document listed in DEIS Section 7.0 References: Barr Engineering Company (Barr). 2009. "Preliminary Geotechnical Evaluation, Flotation Tailings Basin." GT01, Draft 02. March 18 A portion of the Preliminary Geotechnical Evaluation specifically addresses the structural stability of the basin and more specifically addresses the topic of liquefaction by way of the slope stability analysis performed using Liquefied Undrained Shear Strength Analysis (USSA liquefied) tailings strength parameters. The results of the analysis show slope stability safety factors within values accepted regionally for tailings basin dam construction.	EOO
2	Minnesota Rules, Chapter 7050 does not define wild rice waters as all waters where wild rice is found. Minn. Rule 7050.0224 indicates that wild rice waters within the Lake Superior Basin have been identified and listed as such in Minn. Rule 7050.0470, subp. 1. The Partridge River is not listed as discussed on p. 4.1-47 of the DEIS. In this and in other footnotes, the Tribal cooperating agencies have suggested that the numerical sulfate standard of 10 mg/l strictly applies to any water body where wild rice happens to be growing, regardless of the amount of wild rice present or the actual use of the water body for wild rice cultivation or harvesting. While PolyMet understands and respects the cultural importance of wild rice for the Tribal cooperators, it disagrees with their interpretation of the MPCA's rules, which are the source of the relevant water quality requirements. The meaning of these rules may be an issue that must ultimately be resolved in permit proceedings, but PolyMet believes that the scope of the water quality standards applicable to wild rice waters is not nearly so broad as suggested by the Tribal cooperators. The MPCA's water quality rules set forth two standards for Class 4 waters relevant to wild rice --- a narrative standard, prohibiting the material impairment or degradation of wild rice waters, and a numerical sulfate standard of 10 mg/l, "applicable to water used for production of wild rice during periods when the rice may be susceptible to damage by high sulfate levels." See, Minn. Rule 7050.0224, subps. 1 and 2. The 1997 rulemaking, which added the narrative standard to the rule, also designated twenty-four specific water bodies within the Lake Superior Basin as "wild rice waters." These water bodies with "current and/or historic stands of wild rice" were identified from a list of 124 lake and river segments located within the 1854 Ceded Territory and ranging over three different watersheds that had been submitted to the MPCA by the Fond du Lac Band. According to the Statement of Need and Reasonableness (SONAR) for the 1997 rule, only wild rice waters within the Lake Superior Basin were ultimately designated as wild rice waters by the rule, because the scope of the rulemaking was narrowed to that watershed. The SONAR indicated that the designation of any additional wild rice waters "would be considered in future rulemakings . . ." Thus, within the Lake Superior Basin, the waters to which the narrative and numerical wild rice water quality standards apply have been limited by rule to those water bodies that have been specifically designated as wild rice waters. None of the water bodies designated as wild rice waters is located downstream from the project, and thus none should be impacted by project operations. Even if could be argued that the pre-1997 numerical sulfate standard continues to apply to a broader group of waters within the Lake Superior Basin than those specifically designated --- a position that does not seem to be supported by the 1997 SONAR --- the applicability of that numerical standard is still limited to waters "used for the production of wild rice . ." This language strongly suggests that as originally adopted, this agricultural standard was intended to apply only to wild rice beds that are actively harvested or under active cultivation, and not to any water body where wild rice happens to be found, however minimal the amount. Again, none of the downstream water bodies that may be impacted by the project meet this criterion. Morever, the MPCA rule states that the numerical sulfate standard is merely to be used "as a guide" in determining the suitability of waters for the production of wild rice and other listed uses, and does not specify that the standard must never be exceeded.	WR1E,WR4F

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Comment ID	Comment Text	Theme Codes
3	Other reasonably foreseeable projects in the area will also affect eight of the 13 wildlife travel corridors (DEIS 4.4.5.3). And the list of reasonably foreseeable projects does not include additional likely mining projects like Duluth Metals, Franconia, Encampment Minerals, and others. The cumulative impacts on these corridors is not adequately analyzed by the DEIS.	WI5
4	My wife and I own lakefront property south of Ely. We rely on local groundwater for drinking and all household needs. We rely on surface water, and its attributes such as wild rice and edible fish, for recreation and as a scenic resource. We rely on the recreational, non-industrial character of the area for part of our income. We have serious concerns about the impacts of Polymet Mining's proposed NorthMet project. This letter provides our comments on the NorthMet project Draft Environmental Impact Statement (DEIS). The DEIS is incomplete and unacceptable due to errors, misleading and unsubstantiated assertions, and omissions. The problems with the DEIS are not limited to the proposed NorthMet project; the project and DEIS will set a number of precedents for mining in northern Minnesota, so the DEIS must be evaluated in that context. The project should not move forward with permitting or any other activities until Polymet resolves the DEIS's deficiencies. The Tribal findings have already addressed many of the errors, unsubstantiated assertions, and omissions in the DEIS. We generally support the Tribal conclusions, and will not repeat those findings. We will focus on additional deficiencies that make the DEIS unacceptable.	G8,G11
5	This is arguably the most important part of the NEPA process, yet the Band's request to be a cooperating agency was not honored for over one year after our original request to the USACE St. Paul District office. Tribal concerns were not fully identified during the state-led scooping process, nor when the Scoping Decision Document was issued, because the federal lead agency did not conduct its federal trust responsibility to the tribal governments to include them "at the earliest possible point" in the EIS process. While the Minnesota Environmental Policy Act (MEPA) considers scoping to be essentially concluded with the issuance of the Final Scoping Decision Document, NEPA does not consider scoping complete until the EIS analysis is complete. This disconnect between the state and federal environmental review process created a substantial disadvantage for the Band in our ability to elevate tribal concerns early in the scoping process of this EIS. It is the Tribal cooperating agencies position that additional consultation and evaluation is needed to determine the degree of impact on the 1854 Ceded Territory as a result of this project. Although groundwater hydrology and impacts to groundwater, Cultural Resources, and impacts to wild rice were "incorporated" after scoping, cumulative effects for a number of resources were not added. To adequately determine impacts and mitigation strategies a greater understanding of groundwater hydrology at the site is required. In addition, impacts resulting from groundwater drawdown and inundation cannot be determined without additional data. Consultation is ongoing with the USACE regarding Cultural resources and impacts to wild rice.	PRO1
6	Tribal cooperating agencies disagree that the amount of ore that could escape from rail cars would be "small." Taconite pellets currently litter most of the railroad right of way between the plant site and the proposed mine site, confirming that ore can and does spill from the gaps along the side door. Second, fugitive dust escaping through these gaps is also a concern. These very small particles have the potential to cause contamination of soils and wetlands that are located along the rail route, as evidenced by ongoing contamination issues at the Flambeau Mine in Wisconsin. Tribal cooperators are unsure how ore debris can be visually distinguished by rail track maintenance crews from other rocks and ore that litter the embankments. In addition, spillage of ore pieces into the wetlands and creeks that are located along the rail line could not be easily identified and recovered. It is reasonable to assume that some acid drainage and metal leaching would occur along the waterbodies located along the rail line.	PD5
7	Hydrometallurgical Residue Cell Design and Operations": It is the position of the tribal cooperators that this section should describe expected leakage rates during operations as well as the long-term effectiveness of the liner system. Given that the applicant has not proposed any long-term maintenance of this system, these parameters should be described in this section and taken into account in sections of the EIS that predict long-term surface and ground water quality. "Hydrometallurgical Residue Cell Closure": It is the position of the tribal cooperators that this section should describe expected leakage rates during operations as well as the long-term effectiveness of the cover system. Given that the applicant has not proposed any long-term maintenance of this system, these parameters should be described in this section and taken into account in sections of the EIS that predict long-term surface and ground water quality.	PD2

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8	It is the position of the tribal cooperating agencies that the existing Closure Plan is insufficient to allow an adequate assessment of post-closure impacts. The Proposed Action has changed significantly since the development of the Closure Plan, and additional detail is needed to appropriately inform post closure impacts, since those impacts depend on the specific plans and methods used to close the mine. For example, the conclusions of the West Pit Lake Uncertainty Analysis indicate that "some of the waste rock stockpiles have the potential to leach solutes to groundwater for long periods (i.e., at least 2000 years)." Water quality of the leachate would "exceed USEPA primary MCL's and MDH Health Risk Limits." In order to adequately assess the environmental impacts of the Proposed Action, additional detail on the specific environmental impacts of this leachate and information about the remediation activities that would be needed to avoid damage to surrounding waters should be included in the Closure Plan.	PD7
9	Mine Pit - East/Central Pit Category 4 Foot Wall Cover: It is the position of the tribal cooperating agencies that this section should describe the long-term effectiveness of the geosynthetic membrane that is proposed to cover the Virginia formation rock wall. Given that the applicant has not proposed any long-term maintenance of this system, expected long-term leaching rates should be described in this section and taken into account in sections of the EIS that predict long term surface and ground water quality.	PD3
9	West Pit Filling: It is the position of the tribal cooperating agencies that this section should acknowledge that the pit lake will remain at the site in perpetuity and will exceed water quality standards, and should clearly discuss its status as a “water of the state.”	PD2
10	The Proposed designs of the waste rock stockpiles are consistent with those employed throughout the Minnesota Iron Range in similar, if not nearly identical, geotechnical and hydrogeologic settings. These designs have proven to be effective and stable for over 50 years. As such the waste rock stockpiles stability is not expected to be problematic. The addition of the stockpile liner systems and in particular the stockpile subgrade preparation that must precede liner construction will only serve to improve stability of the stockpiles. Existing evidence and subgrade improvement plans notwithstanding, it is routine for stability analysis to be performed and submitted as part of permitting, affording sufficient opportunity for further public review and comment. However, preliminary analysis can be provided for the FEIS to document the basis for conclusions regarding stockpile stability.	EOO
11	Analysis of rock buttressing to increase the geotechnical stability of the northern slope of tailings basin Cell 2E has been provided in conjunction with the submittal of the Barr Engineering Company (Barr) 2009 “Preliminary Geotechnical Evaluation, Flotation Tailings Basin.” The analysis clearly predicts the success of the buttressing approach. Buttress material will be obtained from existing waste rock and/or overburden stockpiles near the tailings basin. As such, any impacts on the environment should be near neutral as compared to existing conditions. Further, since it is inevitable that certain things will not be known before operations begin, it is common practice to employ a design-build approach (a.k.a. the Observational Approach) to allow the design to be periodically reviewed and modified to optimize the design based on observations made throughout the life of the tailings basin, rather than based on data obtained and assumptions made only prior permitting and construction.	EOO
12	Proposed designs of the waste rock stockpiles are consistent with those employed throughout the Minnesota Iron Range in similar, if not nearly identical, geotechnical and hydrogeologic settings. These designs have proven to be effective and stable for over 50 years. As such the waste rock stockpiles stability is not expected to be problematic. The addition of the stockpile liner systems and in particular the stockpile subgrade preparation that must precede liner construction will only serve to improve stability of the stockpiles. Existing evidence and subgrade improvement plans notwithstanding, it is routine for stability analysis to be performed and submitted as part of permitting, affording sufficient opportunity for further public review and comment.	EOO

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13	During development of the preliminary design for the Hydrometallurgical Residue Facility cells, the MDNR and PolyMet specifically discussed the design of the cell cover system and the potential need for long term management or potentially management in perpetuity of liquid recovered from the cell drainage collection system. This drainage would result from the small amount of infiltration that could occur through the single geomembrane barrier component of the cell cover system that was initially proposed, while being prevented from escaping the cell by the composite liner system. To minimize the infiltration to the maximum extent practicable, PolyMet subsequently proposed supplementing the cover systems' geomembrane barrier layer with an underlying geosynthetic clay layer. This composite cover system design exceeds regulatory design requirements for industrial solid waste management facilities and designs normally implemented in the State of Minnesota, minimizes the potential for future infiltration by providing a final cover system with performance matching or exceeding the performance of the liner system, and will thereby minimize and likely eliminate long term drainage management requirements after operating water is removed from the cell. The capability of the proposed composite cover system to virtually eliminate infiltration and thereby eliminate the need for long term pumping and water treatment is evidenced by the composite cover performance computations presented in Appendix I of PolyMet Technical Design Evaluation Report RS28T (Barr, 2007), which show zero inches of infiltration through the cover at closure. Perpetual maintenance of liner systems is not required. After liner construction, the liner is covered with the hydrometallurgical residue and thereafter is never again open to the environment; it is protected by the overlying layer of residue. Access to the liner therefore becomes unnecessary. This is the case for all permanent lined solid waste management facilities – once the liner is covered with the site-specific waste being disposed of, the liner is permanently protected, requires no maintenance, and is never again accessed. Similar to liner systems, the barrier layer components (i.e., geomembrane, geosynthetic clay) of final cover systems are also permanently covered with protective soil layers to prevent future damage from animals, hail storms and other natural events that might otherwise cause harm to the barrier layer component of the cover system. Since the barrier layer is protected, its hydraulic barrier function remains intact long term and no maintenance to the barrier layer of the cover system is required. Maintenance of the soil components of the cover system above the final cover system barrier layer is required, particularly during the first several years after completion of cover construction. During this time period cover vegetation is still becoming established and it is common for occasional erosion repair and reseeding to be required until a dense stand of vegetation is established. In the long term, little to no maintenance of the final cover system is required, particularly for sites where an open meadow type end use is envisioned, such as with the Hydrometallurgical Residue Facility cells.	ALT8

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14	A stability analysis has been performed and is presented in the following document listed in DEIS Section 7.0 References: Barr Engineering Company (Barr). 2009. "Preliminary Geotechnical Evaluation, Flotation Tailings Basin." GT01, Draft 02. March 18 The analysis presented in the Preliminary Geotechnical Evaluation was based on review of historic geotechnical information for the tailings basin and on the performance of additional geotechnical exploration in 2007 specifically in support of the DEIS and future permitting. The slope stability safety factors determined from the additional exploration and analysis have previously been presented and are summarized as follows: Slope Stability Analysis Slope Stability Safety Factor Target Minimum Factor of Safety for Year 20 Proposed Conditions Section F Section G Section N ESSA ~1.5 2.63 2.86 3.22 USSA peak ~1.3 1.64 1.63 1.88 USSA liquefied ~1.05 1.055 1.06 1.11 In all cases the slope stability safety factors met or exceeded the target values. In the event that higher slope stability safety factors are desired by PolyMet for the USSA liquefied case and/or if performance monitoring during the life of the tailings basin shows slope stability safety factors lower than anticipated, the slope can be buttressed to improve safety factor values as follows: Slope Stability Factor of Safety with Varying Buttress Height Top of Buttress Elevation (feet) Section F Section G Buttress Height (feet) Factor of Safety Buttress Height (feet) Factor of Safety 1535 48 1.06 31 1.06 1540 53 1.09 36 1.07 1545 58 1.11 41 1.09 1550 63 1.12 46 1.10 1555 68 1.13 51 1.12 1565 78 1.17 61 1.15 The geotechnical analysis presented as part of the Preliminary Geotechnical Evaluation clearly demonstrates the viability of the proposed rock buttress approach and the increased slope stability safety factors that result. Use of buttressing is a common approach to improving slope stability and adjustments can be made to the design of the buttress if monitoring performed throughout the life of the proposed 20-year project shows a need for increased buttressing, thereby mitigating associated risks. It should also be noted that in the context of a tailings basin whose configuration (i.e., dam height, dam construction status, seepage condition) changes throughout its life, the geotechnical evaluation of the dam is ongoing. The stability conditions are continually evaluated as performance monitoring data is gathered and analyzed. Therefore, preparation of definitive and final slope stability analyses prior the initiation of the project is not possible and not prudent. It is imperative that the ongoing performance of the dam be monitored throughout the projected 20-year life of the project and for some period of time thereafter, that adjustments to the dam design be made as needed to maintain targeted slope stability factors of safety, and that facility permits accommodate this required flexibility.	EOO
15	There are numerous methods that could be used to mitigate water quality of the West Pit during pit filling (an approximate 45 year period) and many of these methods are described on pages 4.1-166 and 4.1-167. As stated in DEIS (page 4.1-167), if these mitigation measures were not successful at improving West Pit water quality to applicable discharge limits at the time of overflow, the West Pit overflow structure could be altered to route flows to the WWTF for treatment before discharge until the overflow would meet applicable discharge limits. Treatment at the WWTF (if needed at all) is not expected to be required long-term as pit wall oxidation would be negligible once the West Pit is completely flooded, thereby significantly reducing solute loadings to the pit lake.	EOO
16	There are numerous methods that could be used to mitigate water quality of the West Pit during pit filling (an approximate 45 year period) and many of these methods are described on pages 4.1-166 and 4.1-167. As stated in DEIS (page 4.1-167), if these mitigation measures were not successful at improving West Pit water quality to applicable discharge limits at the time of overflow, the West Pit overflow structure could be altered to route flows to the WWTF for treatment before discharge until the overflow would meet applicable discharge limits. Treatment at the WWTF (if needed at all) is not expected to be required long-term as pit wall oxidation would be negligible once the West Pit is completely flooded, thereby significantly reducing solute loadings to the pit lake.	EOO
17	As noted in the response to Footnote 3 (p. 3-10), this comment ignores the significant time and effort that PolyMet and the permitting agencies have made to develop this project 'with the end in mind' of preventing long term impacts or the need for long-term post closure activities.	EOO

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18	It is correct that much of the area north of the Tailings Basin is fully saturated, with the water table at or very near the ground surface. In these areas, there would be very little aquifer recharge. However, approximately 30% of the area between the toe of the Tailings Basin and the power line to the north is composed of upland area, where recharge would be occurring. The 0.3 inches per year recharge rate referenced in the DEIS represents the average over the entire area (both upland and wetland) north of the Tailings Basin which is made up of zones where no recharge is occurring and zones where recharge is occurring. This rate is less than 5% of the regional average annual recharge rate for this part of the state (Delin and Falteisek, 2007, USGS Fact Sheet 2007- 3002).	EOO
19	In PolyMet's review of the July 31, 2009 PDEIS it was suggested adding a clarifying sentence that said, "[The USEPA primary drinking water standard] is the maximum allowable amount of a contaminant in drinking water that is delivered to the consumer, reflecting required water quality after treatment." This sentence was not incorporated into the published DEIS.	WR3I
20	Our members also share a deep concern for water quality, biodiversity, wetland conservation, land use, and many other types of environmental factors that would be negatively affected by the proposed PolyMet Mine. Our analysis of the DEIS has revealed a number of major deficiencies in the DEIS and the potential for enormous harm to the environment and natural resources from the Proposed Project. We do not believe that the Proposed Project should proceed unless and until all of the deficiencies are addressed and mitigation measures are in place to fully deal with all ofthe potential environmental harms.	G8
21	6. The DEIS fails to analyze surface ownership of the lands needed for the Proposed Project. The federal government owns the surface lands needed for the open pits of the Proposed Project. These lands are managed by the U.S. Forest Service as part of Superior National Forest. The lands were acquired by the federal government under authority ofthe Weeks Act, and it is the federal government's legal opinion that these lands cannot be used for open pit mining. Yet the DEIS fails to address or analyze the surface ownership issues, options for how these issues might be resolved, or environmental impacts for any such alternatives. The Proposed project cannot move ahead with a resolution to this issue, so it is astounding that the DEIS did not address this issue and fully analyze the impacts from the options. This is a major failing of the DEIS, and must be corrected in the Final EIS.	PD8,CPLU4
22	7. The DEIS fails to analyze any alternatives to open pit mining. The DEIS looked at only one option for mining the minerals in the Proposed Project area: open pit mining. The Proposed Project envisions the excavation of three open pits at the Mine Site. Other options, such as underground mining, were never considered. These other options would have significantly different environmental impacts, and perhaps less severe environmental impacts than open pit mining. Yet no other option to open pit mining was considered in the DEIS, so the public has no opportunity to evaluate other options and their associated environmental impacts.	PD4
23	8. The DEIS fails to adequately analyze impacts of increased sulfates on wild rice. The PolyMet Mine will result in enormous sulfate releases that will exceed the state standard for wild rice, which is sensitive to sulfates. These sulfates will likely eliminate wild rice in the Partridge and Embarrass Rivers, and diminish the famous wild rice beds in the St. Louis River estuary near Duluth, which is 100 miles away from the mine. Wild rice is a key food source for many species of waterfowl, and plays an important role in the culture and diet of Native Americans. 6 Minnesota has established a Wild Rice Standard limiting sulfates to 10 mg/L to permit wild rice to thrive. (Minnesota Rules 7050.0224). This standard was established based on research by Minnesota biologist John B. Moyle, who established the relationship between wild rice and sulfates in the 1940s. In 1944, Moyle wrote in the Journal of Wildlife Management, "No large stands of rice occur in waters having a sulfate content greater than 10 p.p.m., and rice generally is absent from water with more than 50 p.p.m." (Journal of Wildlife Management, 1944, Vol. 8,pp.I77-184.) Mr. Leonard Anderson, in his comments on the DEIS, has extensively documented the presence and quality of wild rice stands on the Partridge, Embarrass, and St. Louis Rivers, and correlated the presence and health of these stands with sulfate levels. The League endorses his comments, his analysis, and his recommendations on wild rice and sulfates. The DEIS did not adequately analyze impacts of the increased sulfate levels on wild rice in the Partridge, Embarrass, and St. Louis Rivers. This failure must be rectified in the Final EIS.	WR1E,WR4F

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24	9. The DEIS fails to adequately aualyze increased mercury methylation and mobilization from the Proposed Project. Increased levels of sulfates leached from the PolyMet Mine will increase mercury accumulated in fish tissues, causing harm not only to the fish but to animals and people who eat the fish. The DEIS did not adequately analyze the potential impact ofthe mine on mercury levels in downstream waters and fish. The discussion of methyl mercury is one of the most significant inadequacies in the PolyMet DEIS and one of the greatest threats should the Proposed Project move ahead as proposed in the DEIS.	WR4B,AQ6A
25	a) Inadequate analysis of mercury sequestration in peat bogs. The proposed mitigation, to replace these wetlands with artificially constructed wetlands in Aitkin and Pine Counties, will result in substantial mercury impacts to the Lake Superior watershed. This wetland mitigation proposal should therefore be rejected through the Section 404 permit process with the U.S. Army Corps of Engineers.	WE3,WE8
26	b) The DEIS admits that the Mine Site would result in an increase of 7-42% in the export of methyl mercury into the watershed, which would be transported down the Partridge River to Colby Lake, both water bodies of which already have prohibitively high mercury in fish tissue.	WR4B,FM1,FM5
27	c) No TMDL (Total Maximum Daily Load) process has yet started let alone implemented for the St. Louis River watershed as required by Section 303 of the federal Clean Water Act, despite the listing of these water bodies as impaired by mercury currently. The addition of mercury from the Proposed Project makes it unlikely that this mercury contamination could ever be remedied.	WR4B
28	d) The DEIS fails to adequately address the significance of sulfate releases and their impacts on increased methylation of mercury. The sulfate-reducing bacteria that produce methyl mercury require carbon, water, sulfate, and mercury. The huge increases in sulfates by the Proposed Project will increase the methylation of mercury in the Partridge, Embarrass, and St. Louis Rivers, including the St. Louis River estuary. (See Compeau, G.C. and R. Bartha, "Sulfate-reducing bacteria: Principal methlyators of mercury in anoxic estuarine sediment," Applied and Environmental Microbiology, 1985, Vol. 50, pp. 498-502.)	WR4B
29	10. The DEIS fails to adequately analyze the impacts to wildlife corridors impacted by the Proposed Project. The PolyMet mine will obstruct at least two of the remaining 13 corridors where wildlife can cross the 120 miles of the Mesabi Iron Range. These corridors are important not only for mammals like moose and wolves but also for the northward migration of the deciduous forest and all its components in the face of climate change. The DEIS ignored the mine's impact on wildlife corridors.	WI5
30	11. The DEIS fails to adequately analyze the unstable tailings basin that the company plans to utilize for the Proposed Project. PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials, but the stability of the tailings basin has been a serious concern since the project was first proposed, and has resulted in multiple designs. The DEIS acknowledges the potential for basin structural failure: "The NorthMet Tailings Basin and hydrometallurgical residue facility embankments would have a low margin of safety due to fines and underlying soils in the existing LTVSMC Tailings Basin" (S-10). The DEIS and PolyMet have failed to address the safety issues, indicating instead that "further design and analysis would occur during permitting ... " (4.13-2). Failure of the basin would result in serious and long-lasting contamination. A complete stability analysis and acceptable basin design should be a part of the Final EIS. Before any of Poly Met's tailings are deposited on top of existing tailings, existing structural deficiencies must be resolved. The tailings basin will contain extremely hazardous waste materials. An appropriate design is critical, and should be identified in the DEIS.	GT1

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Comment ID	Comment Text	Theme Codes
30	1. The Draft EIS fails to describe or analyze impacts of the proposed action on the wilderness character of the BWCAW. The Boundary Waters Canoe Area Wilderness (BWCAW) is a federally designated wilderness area protected by Congress. The BWCAW was an original unit of the National Wilderness Preservation System. It is the most heavily visited wilderness in the national wilderness system. People from all over the nation, and indeed from all over the world, come to visit the area because of its wilderness character. The Wilderness Act, 16 U.S.C. § 1131, et seq., governs the administration of the Boundary Waters Canoe Area Wilderness. Section 4(b) of the Wilderness Act imposes on the federal government a fundamental duty to protect the wilderness character of designated wilderness, above all other purposes for which an area may be established: Except as otherwise provided in this Act, each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character. Except as otherwise provided in this Act, wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use. 16 U.S.C. § 1133(b) (emphasis added). The agency's duty to preserve wilderness character is non-discretionary. Nothing in the Wilderness Act allows an agency to avoid that duty and authorize the degradation of the wilderness character of a designated area. The Boundary Waters is also governed by the Boundary Waters Canoe Area Wilderness Act of 1978, which aims, in part, to "protect[], enhance[], and preserv[e]" the "natural values" of the BWCAW. 92 Stat. 1649 § 1 (1978). The federal agencies that manage wilderness use four qualities of wilderness in their analysis of wilderness character. The four qualities are "untrammeled," "undeveloped," "natural," and "solitude or a primitive and unconfined type of recreation." See Peter Landres et al, Keeping It Wild: An Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System, Gen. Tech. Rep. RMRS-GTR-212. The analysis of impacts from the proposed project on the wilderness character of the BWCAW is not addressed in the DEIS. 2 At least several types of impacts to wilderness character must be analyzed. These include but should not be limited to noise and sound impacts from drilling, blasting, processing, etc.; impacts on the night sky from lights associated with the project; and impacts on air quality. Sound and noise impacts to wilderness character are much more sensitive than the common noise standards cited in the DEIS at Table 4.7-3. In a recent court case dealing with impacts to wilderness character of the BWCAW, the federal court found: On the other hand, agency activity that results in noise that is louder, more constant, more frequent, or of a different quality, is more likely to degrade the wilderness character from its present condition and thus violate § 4(b). See Izaak Walton League v. Kimbell, 516 F. Supp. 2d at 990. As such, any noise from new mining operations heard within the Boundary Waters has the potential to degrade wilderness character, and such impacts must be thoroughly analyzed to comply with NEPA. The Final EIS for the PolyMet Mine must analyze impacts on the wilderness character of the BWCAW. If this analysis shows impacts to wilderness character, the Proposed Project must not move forward.	G5,G8
31	2. The Draft EIS fails to adequately analyze impacts of the proposed action on haze and visibility in the airshed above the Boundary Waters Canoe Area Wilderness. Both the Boundary Waters Canoe Area Wilderness (BWCAW) and Voyageurs National Park are classified as Class I areas under the federal Clean Air Act. As such, both areas fall under the Clean Air Act's Prevention of Significant Deterioration (PSD) program. 42 US.C § 7472. The "Class I" status provided to Voyageurs National Park and to the BWCAW meant, among other things, that existing visibility impairment would have to be eliminated. 42 US.C. §§ 7491-92. Both the US. Forest Service and National Park Service testified before the Minnesota Pollution Control Agency in November 2009 that the State's Regional Haze State Implementation Plan (SIP) will not result in meeting the ultimate goal of haze reduction by 2064. Despite this testimony, the agency approved the Revised Regional Haze SIP on December 15, 2009, and sent the plan on to the federal Environmental Protection Agency (EPA). EPA has yet to decide whether to accept the Minnesota SIP. The DEIS, page 4.6-55, admits that even the interim goal of haze reduction set for 2018 will not be met with the Proposed Project. The DEIS is silent on whether with the additions of pollutants from the Proposed Project that the ultimate goal can be achieved by 2064. This failure to adequately analyze these impacts must be corrected. The Final EIS for the PolyMet Mine must more adequately analyze impacts on visibility and haze in the BWCAW, the contribution of the Proposed Project to the projected failure to reach the interim haze goal for year 2018, and the impacts of the Proposed Project on achieving the ultimate elimination of haze by year 2064.	AQ9

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32	3. The DEIS fails to fully analyze the waste rock piles from the Proposed Project that will contaminate run-off water for up to 2,000 years. The DEIS, Table 4.1-45, shows that water run-off from the waste rock piles generated by the Proposed Project will be contaminated for up to two millennia. Mines that cause such lengthy contamination and/or require perpetual treatment should not be permitted. It is unlikely that PolyMet Mine corporation will still be in existence in 100 years from now, let alone for 2,000 years. The DEIS does not examine how mitigation measures such as liners, etc., will still be operating after 2,000 years.	WR2D,WR3I
33	The DEIS also fails to properly examine how financial assurance will be in place to cover contaminated run-off for up to 2,000 years. The DEIS also fails to properly examine how water treatment will be conducted for up to 2,000 years. These glaring shortcomings must be corrected in the Final EIS.	EOO
34	4. The DEIS fails to adequately analyze the West Pit's discharging of polluted overflow water at year 65. 4 The DEIS, page 4.1-113, predicts that the West Pit will begin overflowing at year 65, and discharging heavy metals such as arsenic, cobalt, selenium in excess of water quality standards (according to one analysis in the DEIS) or cobalt, copper, and nickel in excess of water quality standards (according to another analysis). Both analyses predict high sulfate concentrations as well (DEIS 4.1-113). Minnesota should not allow pollution of its waters with heavy metals and high sulfates. Sulfate pollution also exacerbates mercury methylation, which increases bioaccumulation in fish tissues, making them unsafe to eat. The DEIS fails to adequately analyze the environmental impacts and possible mitigation measures for the overflow of the West Pit in year 65. The DEIS fails to adequately analyze the financial assurance needed to respond to the overflowing of these contaminated waters. The Final EIS must analyze these problems.	EOO,WR3A,WR3I
35	5. The DEIS fails to adequately analyze all of the impacts related to the destruction of more than 1,500 acres of wetlands. The Proposed Project would cause direct and indirect impacts to over 1,500 acres of wetlands. Most of the wetlands that will be impacted at the mine site are peatlands. Peatlands have been identified as one of the best terrestrial environments for sequestering carbon, a contributor to global warming.	WE2
36	The destruction of 1,000 acres of peatlands would result in a two percent increase in Minnesota's overall carbon dioxide emissions. The DEIS acknowledges that "project facilities and operations would result in additional greenhouse gas (GHG) emissions in the Arrowhead region" (S-10).	AQ3
37	The peatlands at the proposed mine site have been identified as high quality wetlands in federal and state inventories. The peatlands represent habitats that are increasingly rare on the landscape, and should be protected from destruction. Reports commissioned by the Minnesota Legislature and by Governor Pawlenty call for the protection of peatlands because of their ability to capture and secure carbon. Minnesota needs to heed these recommendations and halt any further destruction of these valuable habitats.	WE1

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Comment ID	Comment Text	Theme Codes
38	The first concern is that I have found no suggestion that a Generic EIS may be needed for sulfide mining projects in northern Minnesota. PolyMet's NorthMet Project is anticipated to be the first of several proposals for sulfide mining of precious metals in northern Minnesota. At least two other proposed mine projects have been made public: Duluth Metals and Antofagasta's "Nokomis Project" near Birch Lake and the Kawishiwi River, and Franconia Minerals' "Birch Lake Project" at Birch Lake. I understand that there are numerous mining exploration permits to search for precious metals in the Duluth Complex rocks. I understand that if ore containing small percentages of precious metals is found, mines would be proposed which would presumably utilize similar sulfide mining processes to extract precious metals from the rocks. A Generic Environmental Impact Statement (GEIS) is a specific form of environmental review that can be used to study certain types of projects not adequately reviewed on a case-by-case basis. The authorization for conducting alternative forms of environmental review, such as a GEIS, is found in Minnesota's Environmental Policy Act, MS 116D.04, Subd. 4a. Specific criteria for determining the need for a GEIS and the unit of government most appropriate to oversee its preparation, and the general process and content of a GEIS are identified in Minnesota Rules, part 4410.3800. Although only the Minnesota Environmental Quality Board (EQB) is authorized to order a GEIS, any person or government body may request the EQB to consider the preparation of a GEIS. I suggest that MN DNR and US ACE ought to be requesting the EQB to order a GEIS for sulfide mining in northern Minnesota. According to Minnesota Rules, part 4410.3800, a GEIS may be ordered by the EQB to study types of projects that are not adequately reviewed on a case-by-case basis. Subpart 5 lists twelve criteria to be considered in determination of the need for a GEIS. I think at least nine of the twelve criteria are relevant to sulfide mining projects in northern Minnesota. Those criteria are listed below: A. if the review of a type of action can be better accomplished by a generic EIS than by project specific review; B. if the possible effects on the human environment from a type of action are highly uncertain or involve unique or unknown risks; C. if a generic EIS can be used for tiering in a subsequent project specific EIS; D. the amount of basic research needed to understand the impacts of such projects; E. the degree to which decision makers or the public have a need to be informed of the potential impacts of such projects; G. the potential for significant environmental effects as a result of the cumulative impacts of such projects; H. the regional and statewide significance of the impacts and the degree to which they can be addressed on a project-by-project basis; K. the need to explore issues raised by a type of project that go beyond the scope of review of individual projects; and L. the need to understand the long-term past, present, and future effects of a type of action upon the economy, environment, and way of life of the residents of the state.	G10
39	My second concern is that numerous position statements and comments submitted by the tribal cooperating agencies have not been adequately addressed in the DEIS. The tribal cooperating agencies have a multitude of well-reasoned arguments and differences of opinion with the content and conclusions in the DEIS. I counted 262 such position statements and comments in the footnotes to the DEIS. When the environmental review process for the NorthMet Project began, I was pleased to learn that tribal agencies representing Minnesota Chippewa tribes covered by the 1854 Treaty had seats at the table in the DEIS process. However, when I first looked at the DEIS, I was very disappointed that the differing opinions of the tribal cooperating agencies were relegated to footnotes in a smaller font than the rest of the DEIS document. It seems that the preparers of the main text of the DEIS are not adequately familiar with or respectful of the treaty rights reserved for the Ojibwe/Chippewa tribes in the 1854 Treaty. The 1854 Treaty is federal law. When the land in the NorthMet Project area was ceded to the United States, the Ojibwe chiefs who agreed to the treaty wisely reserved rights to hunt, fish, and gather in the ceded lands. If the MN DNR and US ACE do not address the position statements of the tribal cooperating agencies, it seems that both MN DNR and US ACE would be vulnerable to lawsuits aimed at protecting tribal treaty rights reserved in the 1854 Treaty. It seems to me that in the face of huge state and federal deficits and difficult economic times, it would not be prudent to allow our state and federal agencies to be vulnerable to such treaty rights litigation. Out of respect for the position statements and comments submitted by the tribal cooperating agencies, I have compiled the 262 footnotes from the main document of the DEIS, and I put them in a 12-point font that matches the main text of the NorthMet DEIS document. This compiled set of DEIS footnotes is 35 pages long. I have attached a copy of this compilation to this message. I ask that the MN DNR and US ACE please address all of these position statements and comments before issuing a final EIS.	G10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
40	When we are not in our Ely home, we rely on the income it provides when we rent it for short-term vacation rentals. Our customers rent our cabin because of the peace, the clean environment, the recreational opportunities, and the non-industrial character of the area. The NorthMet project threatens these values, and therefore our ability to rent the property and to sustain our income. The recreational values that NorthMet threatens include viewing lakes and rivers with wild rice, catching fish that can be eaten, and enjoying natural, unpolluted air and water. Some of the nearby lakes already have warnings about mercury in fish, so even a small incremental impact from Polymet could eliminate recreational fishing for edible fish. Degrading these scenic and recreational resources threatens our income. The Ely area and many of its businesses, such as our cabin rental, have invested and worked hard for many years to create a reputation and an image of a clean, unpolluted, non-industrial, relatively noise-free recreation area. Degrading even the “Ely image” or the “Ely brand” threatens those investments and their economic benefits. The DEIS addresses only the purported positive benefits that the mine would bring, namely jobs during the mine’s operational period. The DEIS is deficient in ignoring mining’s well-documented history of long-term, negative impacts on communities.	SE4
41	The DEIS is deficient in addressing cumulative impacts of the NorthMet project and other exploration and mining. The United Stated Forest Service (USFS) is currently considering applications for dozens of additional exploration and mining projects, as described in the Federal Hardrock Minerals Prospecting Permits Project (FHMPPP) (http://www.fs.fed.us/r9/forests/superior/projects/prospecting.php). The NorthMet project must identify, analyze, and discuss mitigations for the cumulative impacts of NorthMet in the context of these other proposed activities. The impacts include, but are not limited to, air and water quality (e.g., sulfate and mercury impacts on plants and animals, acid drainage, etc.), traffic and noise, and socioeconomic impacts..	G8C
42	Our property is almost adjacent to USFS land. The DEIS mentions a land exchange between NorthMet and USFS, but the DEIS gives no information on the land to be exchanged. This exchange land becomes part of the NorthMet project. The DEIS is not complete if it does not describe in detail the location, extent, and character of these exchanged lands. How might these lands, potentially adjacent to our property, be impacted by future exploration and mining on USFS land, such is in the FHMPPP?	PD1
43	The DEIS analyses impacts primarily over a 5-mile radius from the project site (e.g., Figure S-2). The environmental and socioeconomic impacts will occur over a much larger area. If DEIS is to claim credit for mitigations as far away as Aitkin and Hinckley (e.g., Table III-1, page S-19), it must also address impacts over a similar area. The impacted area includes our cabin south of Ely, and other nearby areas where natural and non-industrial characteristics are the foundation for their recreation-based economy.	CR1
44	The DEIS mentions “legacy cleanup responsibilities” (page S-21), and there are many other monitoring, maintenance, and potential remediation requirements that will continue for a very long time after the mine stops operations. Guaranteeing geotechnical stability of the tailings dam is just one aspect of this long-term requirement. Polymet must make financial provisions for these, well before the end of its operations. The DEIS implies that taxpayers are to fund these NorthMet obligations.	PD3,PD4
45	This letter is in support of the Draft Environmental Impact Statement prepared by the State of Minnesota and various federal agencies on the proposed NorthMet mining and processing Project of PolyMet Corporation. I have read the entire document and have found it to be comprehensive in addressing the issues and alternatives for the proposed NorthMet mine and operation. From my review and in discussions with my staff, the effort put forth by the various State and Federal agencies, in conjunction with PolyMet and the myriad of consulting specialists, demonstrates the range of topics identified and addressed, including the recommendation of best practice alternative solutions in order to minimize and/or mitigate environmental impacts from the project. Duluth Metals therefore recommends that the State and Federal agencies proceed in a prudent, yet timely manner to complete their review of the draft comments and proceed with the Final Environmental Impact Statement on the Project.	EOO
46	I am submitting these comments on behalf of Kristin Henry for the Sierra Club. Please confirm receipt. A hard-copy of the comments and a digital copy of the attachments will follow via FedEx overnight mail.	RFI

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
47	The tribal cooperating agencies were highly dissatisfied with the lead agencies' attempt to edit or eliminate the tribal alternative position statements in the draft of the EIS that would be released for public review, and with their initial intent to prevent the tribal cooperators from conducting a final review of the DEIS before it was published. Fond du Lac and Grand Portage both formally invoked the dispute resolution process provided in the MOU for the PolyMet EIS cooperating agencies. For the record, Fond du Lac is not satisfied that our positions are presented in the DEIS as we intended them to be, and we do not believe that our status as a cooperating agency has been fully afforded. We attempted to bring specific expertise on issues of tribal concern to this EIS process, and engaged with other federal agencies (USEPA, USGS) to bring better science and analysis to bear in the process, but our efforts have been largely dismissed. The potential for this project to create significant adverse impacts to reservation and treaty-protected resources is of grave concern to Fond du Lac, and we take this opportunity to repeat our positions on flawed analyses and conclusions, lack of supporting data, EIS inadequacies, and new issues identified in our review of this draft document.	G8
48	Clearly, a federal land exchange process is a connection action, in that the Project cannot proceed unless the exchange is legally completed, and the exchange itself depends upon the larger action for justification. EPA Region 5 comments on the July 2009 draft of the EIS explicitly point out that the requisite EIS process for the federal land exchange should be conducted within this EIS process, as they are connected actions: "EPA finds it difficult to consider the U.S. Forest Service (USFS) land exchange as a separate action. Based on the interpretation of its authorities, USFS maintains that a land sale or transfer must occur for the applicant to access the mineral body, currently on public land. The PDEIS indicates that effects of land transfer will be addressed in a separate analysis prepared by the USFS. We further note that some direct impacts to tribal uses are related to the transfer of public land out of the Ceded Territory. We question how assessing the impacts of the connected action can be deferred to a separate analysis. (Kenneth Westlake, U.S. EPA to U.S. Army Corps of Engineers (August 25, 2009)). The Project is proposed to be sited on approximately 6,700 acres of United States Forest Service lands within the Superior National Forest (SNF). These lands are also within the 1854 Ceded Territory, where the Fond du Lac, Bois Forte and Grand Portage Bands retain usufructuary rights under the Treaty of LaPointe (1854). The SNF lands proposed for exchange (and permanent removal from public management), contain high quality forested wetlands and peat bogs that lie within the Lake Superior basin, as well as vegetation communities and wildlife habitat for species of prime importance to Band members exercising their treaty-protected hunting, fishing and gathering rights. Since the location of the proposed non-federal land has not yet been identified, it is simply not possible to evaluate the environmental characteristics of the land, the value of the land to the public or the impacts of the proposed land exchange on cultural resources. The DEIS acknowledges that there could be an impact on cultural resources due to the loss of access to public lands for tribal use due to the land exchange. There remains substantial disagreement between the lead agencies' discussion of this issue in the DEIS, and the position of the tribal cooperating agencies, who have consistently raised concerns about potential environmental, cultural and economic impacts of a land exchange on tribal treaty resource use within the Ceded Territory. The tribal cooperating agencies have noted that, since land exchange is based on monetary value, not acreage, there could be a permanent net loss of public lands within the Ceded Territory. Additionally, "there could be other types of losses based on the natural resources found on the original versus exchanged lands." (DEIS 4.9-2, Appendix D, Tribal Positions on July 2009 PDEIS)	PD1
49	The Minnesota Pollution Control Agency, under its delegated water quality standards authority, has a responsibility to ensure that a proposed action (in this case, the issuance of a USACE §404 wetland permit) is consistent with the state's water quality standards through its §401 certification process. The MPCA waived this certification responsibility by default when the permit application was publicly noticed in 2005. It is the Band's position that the USACE should reissue notice of the §404 permit application, and that MPCA should evaluate the §404 permit application under its Section 401 certification process, because the Project design has significantly changed since the initial public notice of the permit application, and because of the massive scale of wetland impacts and potential for degradation of aquatic resources of national importance. The DEIS for the U.S. Steel Keetac Taconite Mine Expansion Project indicates that MPCA will be conducting a §401 certification on the USACE §404 permit for that project; this project certainly warrants the same scrutiny.	EOO,WE4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
50	Fond du Lac's position is that financial assurance should be fully explored in the DEIS, and EPA review comments on earlier drafts also strongly recommend that it be included in the DEIS: "The PDEIS does not include information on financial assurance. EPA recommends including financial assurance information because one key component to determining the environmental impacts of a mine is the effectiveness of reclamation and closure activities. EPA has found the amount and viability of financial assurance are critical factors in determining the effectiveness of closure and reclamation and therefore the significance of environmental impacts. EPA has recognized the importance of disclosing financial assurance in EISs in the "National Hardrock Mining Framework (September 1997)" developed by several EPA national water, waste, and enforcement offices (Kenneth Westlake, U.S. EPA to U.S. Army Corps of Engineers (August 25, 2009)). There is a high potential for very long-term or perpetual treatment, maintenance and monitoring needed for the Project. Because of its experience in expensive remediation actions for many defunct or bankrupt sulfide mines, EPA Region 9 has strongly urged other Regions over the past several years to require financial assurance disclosure in the NEPA process. New national rules for financial assurance are under development by EPA, because "Given the history of adverse environmental effects resulting from some hard rock mines, and the expenditure of public funds used in some cases to address environmental problems caused by mining, EPA believes it is necessary to analyze these factors in the DEIS" (from InsideEPA.com, Tuesday, August 25, 2009). Fond du Lac has strongly recommended that the lead agencies keep adequate financial assurance considerations 'front and center' during the EIS process. The Band requested technical assistance from EPA Headquarters and the National Hard Rock Mining Team, and specifically requested that agency experts conduct a workshop for the Project EIS lead agencies, cooperating agencies, and the company on financial assurance considerations for the PolyMet project. The Band hosted this workshop in November 2008, which was attended by representatives of the DNR, USACE, MPCA, the US Forest Service, PolyMet, and tribal cooperating agencies. Unfortunately, it appears that the lead agencies are choosing to disregard the recommendations of the EPA on this matter, instead relying upon the state's own untested regulations and guidelines somewhere 'down the road' before issuing the permit to mine.	PD4
51	Tribal cooperating agencies note that under the proposed project, the Wastewater Treatment facility will need to treat water for hundreds or thousands of years to avoid contamination to the Partridge River, and that the CPS would need to operate for hundreds or thousands of years in conjunction with the WWTF.	PD1
52	In the "Waste Rock Cover and Liner Systems" section, Fond du Lac notes that this section should describe expected leakage rates as well as the long-term effectiveness of both the liner and cover systems. Given that the applicant has not proposed any long-term maintenance of these systems, these parameters should be described in this section and taken into account in section of the EIS that predict long term surface and ground water quality.	PD4
2471	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. Tourism is an important industry for Minnesota, and for those of us who live here, the protection of our pristine natural environment, especially in the northland, is critical to our ability to enjoy what little is left of our spectacular wildlife, trees, lakes and rivers. Sulfide mining would be the kiss of death for much that we hold dear. I cannot express, strongly enough, how deeply I oppose the opening of our state to this project. The money and jobs this project would bring would not begin to compensate for the attendant losses, which would last far beyond the life of the mine. The PolyMet DEIS describes serious environmental issues associated with this proposed mine. These issues should be addressed and resolved before this mine is approved by the U.S. Army Corps of Engineers and the Minnesota Department of Natural Resources.	G2,G11

Sender Last Name: Scoville **Submission ID:** 2495

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3029	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources. Although PolyMet describes its proposed mining operation as "state of the art," it remains for them to prove that this system has been used elsewhere and closed without serious environmental consequences. Previous PolyMet sulfide mines have caused serious environmental problems. Yet, they too were undoubtedly "state of the art" for their time.	EOO

Sender Last Name: Scuffy **Submission ID:** 1090

1194	I am writing you in regards to the Poly Met Mining, Inc North Met Project to give my full support to the project. I feel that the Poly Met project would be a huge exonomic benefit to the iron Range and also for the state of Minnesota. The job opportunities alone that would be created from this project would be a plus for families that live and want to stay in Northern Minnesota. I do not feel that the good people of PolyMet Mining would want to have a mining process that would have a significant affect on the environment considering that they and there families live here as well, not to mention the tight leash the pollution agencies have on the mining industry already. I have been a resident of northern Minnesota for 36 years and I can't see this mining process being any worse than other mining taking place across the Iron Range. I feel this project needs to succeed.	EOO

Sender Last Name: Seckinger **Submission ID:** 368

408	p. 3-58 "Table 3.2-2 TBM-25" Consideration of underground mining should not have been eliminated. Consideration of underground mining in the Duluth Complex has been optimistically evaluated by other mining corporations. (Franconia Minerals, birchlakeproject.com)	ALT8

Sender Last Name: Seifert **Submission ID:** 3509

49	130 jobs = 2000yrs of pollution. It is not a formula that makes any sense. Politically it doesn't even cut it. Has PolyMet made any guarantee that a certain percentage of locals will be employed? No. Will American companies be benefiting from the minerals removed? No. PolyMet is a shell company with no real assets. It appears from minimal research that PolyMet is part of a huge Canadian mining conglomeration. There is no guarantee that PolyMet itself will even emerge as the true operator of the NorthMet project. There is nothing to stop PolyMet from pushing through this permitting process and selling the entire approved proposal off to the highest bidder. Even if PolyMet emerges as a upstanding mining operator, the costanalysis falls far short of logical. 130 jobs for maybe 20 years. Realistically, the only significant benefit to the community will be in short term construction jobs. Local people will be hired and let go upon completion of the treatment works and other facilities. Taking into consideration that mining, like any industry, strives for automation, the proposed 130 will likely be 1/2 that by the time the project is up and running. Nothing in the DEIS even mentions that if the price of copper drops significantly, the project will shut down. Are we Minnesotans willing to open our precious northern lands up to sulfide mining in exchange for a few short-term jobs? The answer should be no.	SE3,SE7
3695	The DEIS fails to address significant issues. The most troubling to me are the expectation of a successful land exchange without identification and public comment prior to the permitting phase. Particularly given that land exchanges need to be based on market value. The proposed PolyMet project sits on land that has enormous market value because of the mineral rights. Any proposed land exchange would need to include this increased market value in the exchange analysis. Given this, it is very unlikely that appropriate land would be found within the same watershed. If acceptable land is not identified within the state, the land exchange would fail. Even the EPA realizes that the land exchange process needs to be incorporated into the EIS. It is not some insignificant hurdle to jump through. This entire project is predicated on the completion of a land exchange. It is an absolute failing on the part of DNR and the Corps to not identify and address the land exchange complete in this DEIS.	PD1,PD3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3696	Another area of major concern to me is the lack of financial assurance. Sulfide mining has proven to be an absolute disaster in terms of long-term clean up costs. In reality, there is no true "clean up". Sulfide mining leaves a tremendous environmental, social and economic void. PolyMet will be no different. Without bankruptcy-proof financial assurance up front, the project should not move forward.	PD4
3761	I am deeply opposed to this proposed mining operation. I do NOT believe that it supports sustained job creation. Most importantly, it will have permanent negative impacts on our most valuable resource, water. I love northern Minnesota, I love the BWCA. These treasures need to be protected.	EOO,G7
3779	The cumulative impact analysis is silent on the other sulfide projects just waiting for PolyMet's approval. It is no no coincidence that Duluth Metals' partnership with Antofagasta occurred just a month after the DEIS was published. Franconia Minerals is also waiting in the wings. Non-ferrous mining should not be approved in MN; or at least not until successful, long-term mining operations with minimal environmental degradation has been demonstrated elsewhere. PolyMet is the worst form of non-ferrous mining- open-pit. There is no reason at this time to allow open-pit sulfide mining in MN. The cost is too high and potential payoff too low in comparison to the economic and environmental waste.	G8C,G9

Sender Last Name: Seiler **Submission ID:** 1626

2041	These concerns about safe water go far beyond the boundaries of States. Every US citizen should be afforded good quality water for drinking and recreation. Haven't we done enough damage to the environment? Isn't it time to be responsible citizens in all manners of existence - in personal and business life.	EOO,G7B

Sender Last Name: Seitz **Submission ID:** 193

188	As a lifelong Minnesota citizen, one who values the state for its vast natural resources, most notably clean WATER, I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	G7
1064	The DEIS also acknowledges that the project would cause direct and indirect impacts to more than 1,500 acres of wetlands, most of which at the mine site are peatlands. Peatlands have been identified as one of the best terrestrial environments for sequestering carbon, a contributor to global warming. The DEIS acknowledges that "project facilities and operations would result in additional greenhouse gas (GHG) emissions in the Arrowhead region" (S-10). Because peatlands at the mine site have been identified as high quality wetlands in federal and state inventories; and because the peatlands represent habitats that are increasingly rare on the landscape, these wetlands should be protected from destruction. Also, reports commissioned by the MN State Legislature and by Governor Pawlenty call for the protection of peatlands for their ability to capture and secure carbon. Because of this overwhelming evidence, Minnesota must heed these recommendations and halt any further destruction of these valuable habitats.	WE2
1123	The DEIS acknowledges the potential for loss of critical habitat for gray wolves and Canada lynx because the project is in designated critical habitat for these protected species. There would also be an increased risk of vehicle strikes for both species. Because this habitat was designated for the lynx and wolf to prevent further population declines, Minnesota should not permit the diminishment of habitats for these species.	WI1
1297	Please consider extending the comment period on the Polymet DEIS. As the first proposed sulfide min in Minnesota, I think there are so many issues to consider before safely moving forward.	G10
1328	It is my understanding that PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet must complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project.	GT2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3244	Concerning impacts on water quality, I understand that the water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. This is unacceptable to me. It is unreasonable to expect that mining companies will be able to maintain water treatment facilities for that amount of time and it is an unfair burden to pass on to future generations of Minnesotans who will inevitably be left to pay for these operations.	EOO
3245	In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. High sulfates turn mercury into forms that make fish dangerous to consume. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes.	EOO,WR4B
3700	Additionally, it will be all but impossible to calculate sufficient financial assurance for a mining operation that is going to require such long-term care. We must have financial assurance from this proposed mine, a point which is lacking serious exploration in the DEIS.	PD4
3782	THE POLYMET DEIS DESCRIBES SIGNIFICANT ENVIRONMENTAL ISSUES ASSOCIATED WITH THIS PROPOSED MINE. These issues must be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. As this is the first proposed sulfide mine in Minnesota, it is IMPERATIVE that we proceed with utmost caution and carefully plan for the future: for our state, our natural resources and for the generations - plural - of residents that will be affected by our actions today. I urge you to think more broadly than what short-term special interests and a handful of jobs will bring to the state and consider the longlong- term effects of what sulfide mining will truly bring to our state. I will be carefully watching the actions of the Minnesota DNR and expect that all of my above points, and all of those points raised in the DEIS, will be properly addressed in the EIS and be fully and completely resolved before any further action on this or any sulfide mine is taken.	G2,G10

Sender Last Name: Seliskar **Submission ID:** 1078

1182	I am sending this letter to express my support for PolyMet Mining's NorthMet Project. I. believe the PolyMet project will create jobs and revenue that will benefit the entire state of Minnesota. I also think that we have the technology and the ability to prevent environmental disasters. I also think that the state of Minnesota has the ability to oversee and detect any environmental contamination and the power to ensure cleanup should any environmental damage occur. As a person with a family who lives, works, and plays in Northeast Minnesota I feel that this EIS is a good foundation on witch to build this project and I strongly support it. Domestically producing these metals makes much more sound environmental and economic sense so lets permit this mine and get the jobs we need in this state.	EOO
1563	I am in support of the PolyMet Mining project. PolyMet can produce these metals in an environmentally sound manner and create hundreds of stable jobs that can support families. Based on the documentation outlined in the DEIS, I am confident that impacts to the air and water will be minimal. As a person who lives, works and plays in Northern Minnesota, I understand the need to ensure a safe environment project. Let's get on with a project that will do nothing but enhance the Iron Range.	EOO
1593	I am in support of the PolyMet Mining project. PolyMet can produce these metals in an environmentally sound manner and create hundreds of stable jobs that can support families. ased on the documentation outlined in the DEIS, I am confident that impacts to the air and water will be minimal. As a person who lives, works and plays in Northern Minnesota, I understand the need to ensure a safe environment project. Let's get on with a project that will do nothing but enhance the Iron Range. Thank you for your cooperation.	EOO

Sender Last Name: Senker **Submission ID:** 3183

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
724	I spend a lot of my time during the summers in the Boundary Waters and am concerned about the proposed mining project. I am writing you to suggest the following: 1. Extend the current EIS review period by 30-45 days. 2. Increase the number of public meetings in more places to obtain additional input. 3. Include an option for citizen statements and discussion during public meetings. Thank you for taking the time to read this e-mail, Etienne Senker	PRO6

Sender Last Name: Seppi **Submission ID:** 360

398	I would like to first of all write to you in support of the Northmet Project Polymet Hoyt Lakes, Mn. As a business and residential homeowner in Virginia and Hibbing, Mn, I have seen the local economy be heavily dependent on the mining sector. We have attempted to diversify but ultimately return to our mining facilities to insure our economic survival. We are presently experiencing a new era of mining with the DRI nuggets and hopeful non ferrous mining. We are confident the extraction and production of these metals will be conducted in an environmentally friendly manner. We can enjoy the beauty of the lakes plus the positive economic impact Polymet will provide to northern Minnesota. We support the Polymet project and the economic impact it will provide to northern Minnesota and the entire state of Minnesota. We do have to remember that job creation has to be conducted hand in hand with a business plan that assumes a healthy clean environment for our children in the future. I have confidence in Polymet officials that their business plan is pro environment with 2010 technologies. Let's support the project.	EOO

Sender Last Name: Severson **Submission ID:** 2854

9	The narrative pertaining to the “no-action” alternative in regard to socioeconomic consequences seems to be excessively short. This alternative assumes that the socioeconomic conditions on the eastern Mesabi Range will continue to deteriorate at the current rate. This assumption does not take into account that many of the communities in this part of Minnesota are “holding on” in the hopes that the PolyMet project will come to fruition. We believe that conditions will plummet if this project and other pending Cu-Ni projects are not allowed to proceed. The narrative also states that some of the taconite mines are conducting exploration efforts in anticipation of expanding. While this may be true to some degree, some of these exploration efforts are also aimed at extending known reserves. This should also be explained in the “no-action” alternative.	ALT1
3150	Waste Rock Characterization – there is virtually no discussion regarding the battery of tests that PolyMet has conducted over the last five years in order to determine when, and to what degree, the waste rocks and tailings materials will generate acid mine drainage (AMD). Furthermore, there is no mention of the consultations they had with experts in the AMD field to determine the most environmentally safe way to dispose of their waste products. We feel that a document of this magnitude should provide to the public a short 1-2 page narrative that at least discusses what PolyMet has done regarding their waste characterization test work. While it would be impossible, and probably unnecessary, to discuss in detail all of this characterization work we feel that the public should be informed of the types of test work that have been conducted and that PolyMet takes the AMD potential very seriously.	PD2

Sender Last Name: Sharp **Submission ID:** 3136

3506	Please, No Mines in this area. This is beautiful treasured land. Let's keep it that way. Lisa Roth Sharp	EOO

Sender Last Name: Shattich **Submission ID:** 3397

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3687	Sp, this proposal aims to fix out mining economy for the next 20 years. The companies proposing operations are from Canada, so the money will ultimately leave not only MN, but the U.S. too. What will revive the mining economy when these become exhausted? I do not believe the forthought has been extended far enough into the future on this matter. The proposed operations are not only dangerous to NE Minnesota's environmet, but also absurd to be thought of, to solve any long term problems we will face.	G1,G2
Sender Last Name:	Shaw **Submission ID:** 3536	
3799	I am a out of state resident but own a second home in northeastern Minnesota. I am fully against this type of mining or any additional mining in the area. I could have purchased my property in Michigan or Wisconsin but chose northern Minnesota because it is the last true wilderness left in the upper Midwest. I may not be able to vote in local elections, but I pay Minnesota property taxes and support local businesses and of pay my share of sales tax. There are many of us whose voices are not heard and sometimes even ridiculed. Before retirement I was active in the mining business for a major mining equipment manufacturer. I have seen Copper mining and processing all over the world. I do not want it as my neighbor. This short term gain would be a long term disaster. T Shaw	EOO
Sender Last Name:	Shepard **Submission ID:** 1189	
1304	I am concerned that the level of financial assurance required of PolyMet will be insufficient. Ongoing water treatment required by extensive pollution is not acceptable. The value of waters impacted by the mine and of the wilderness surpass the value of the mine.	G4A,G7B
3868	Dear Mr. Arkley, I am regular visitor and summer wilderness guide to the BWCA. For the sake of all the local communities and the watersheds that would be effected by the pending mining projects. I implore you to do whatever you can to give a voice to concerned Minnesota residents, such as myself. I fear for what long-term negative impacts these projects could have. Thank you so much for your support. Sincerely, Anna Shepard	G2
Sender Last Name:	Sherman **Submission ID:** 3449	
3218	PolyMet acknowledges that some acidified water will escape and enter lakes, streams, wetlands, and rivers in the region. Their assurance that safe drinking water standards will be met only addresses one designated use for water. Ecosystem services will most certainly be impacted. It would destroy thousands of acres of wetlands and forests, put endangered species at risk and place the burdens of environmental harm disproportionately on Indian tribes who have rights to the land that would be most impacted. It is likely that the PolyMet project would increase mercury levels in fish and adversely affect wild rice growing downstream. The DEIS is inadequate in many ways. The information on current water quality problems and the polluted site that will be used for dumping wastes from the processing plant is inadequate. The DEIS ignores real historical impacts of local mines, rather than admitting the risks of the project, and contains no proof that either the public interest in Superior National Forest land or tribal interests in treaty lands will not be irreparably harmed. I oppose the PolyMet project because it is likely that the mine and processing plant will pollute Minnesota’s precious waters for hundreds or thousands of years to come and have serious impacts on the environment, human health and tribal rights. I agree with the tribal cooperating agencies and the U.S. EPA that the DEIS is incomplete and does not demonstrate that the proposed mining and processing operations could be done without harming the environment and tribal resources and without putting taxpayers at risk for substantial ongoing cleanup efforts that would be needed at such a massive disturbance of sulfide rock. The tribes and the EPA have pointed out many inadequacies of the PolyMet DEIS.	WR1E
3668	PolyMet sulfide mining project. Sulfide mining, which would be new to MN, has a long history of environmental problems and the current technology available to address the impacts isn't adequate. Often, taxpayers have been stuck with the clean-up costs. The PolyMet DEIS provides no financial assurance to protect taxpayers in the event that PolyMet company goes out of business, leaving seeps and wastes behind.	PD4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Sherpa **Submission ID:** 3384	
3674	NorthMet Project is a big project. Advantage- electronic recycling is the best idea, which we can use in our own country. As people need more metal. Disadvantage- It pollutes the ecosystems. It's said that MN is known as 10,000 lakes but due to any negative reason the state is not going to be known because of this and all the other lake [illegible] can be stopped if the lake are polluted.	G7
Sender Last Name:	Shexpa **Submission ID:** 3333	
3626	NorthMet Project – PolyMet Mining, Inc., is doing a great job. More people should be aware of the environmental protection + pollution. I encourage more of these works.	EOO
Sender Last Name:	Shinner **Submission ID:** 2259	
2669	The PolyMet sulfide open-pit mining project proposed on public land in Minnesota's Superior National Forest would harm the environment and has not been properly studied in the Draft Environmental Impact Statement (EIS). The Indian Tribes who looked carefully at the PolyMet mine and the draft EIS have already commented that the studies of water pollution, wetlands, mercury in fish, wild rice, endangered species, financial risks and perpetual pollution from the sulfide mine are inadequate. Before any permits are even considered, all of the additional analysis recommended by the Indian tribes must be done. The United States Environmental Protection Agency also said that the draft EIS is inadequate because it doesn't explain what lands would be exchanged for the 6,700 acres of public forest lands that would be taken by the mining company and because there is no assurance that the public won't end up paying the costs for pollution. The gaps in the EIS found by the U.S. EPA must be filled to protect the public. Sulfide mining would be new to Minnesota. Acid mine drainage has occurred in nearly every mine of this type, polluting water and leaving taxpayers to bear the costs. Destruction of forests and wetlands can harm endangered species and increase global warming, while mercury and sulfate pollution of water create risks to wild rice, ecosystems and hU!llan health. Please stop the PolyMet mine unless the company can prove in the EIS that it won't harm the environment. As a start:	EOO,G4A,G8
Sender Last Name:	Shippar **Submission ID:** 2257	
2667	Minnesota Power has reviewed the draft EIS for the Polymet Northmet project and commends the Minnesota Department of Natural Resources (MNDNR) as the Responsible Governmental Unit (RGU) and the U. S. Army Corps of Engineers (USACE) for their thorough environmental review of this Project. The planning, public communication and input associated with the review of this project will significantly and appropriately advance the environmental assessment process to the benefit of all Minnesotans. Minnesota Power recognizes the significant positive socioeconomic impact to the region resulting from the Northmet Project, which will be reusing an existing facility to process the area's native minerals. This project will bring growth and revitalization to the Eastern Mesabi Range, which was economically devastated by the closure of LTV Steel Mining Co. in 2001. Minnesota Power appreciates the efforts of MNDNR and USACE in their comprehensive review process and looks forward to the completion of the Northmet permitting process. Minnesota Power believes that a thorough and exhaustive review process requires key parties asking the right questions to provide a framework and mechanism for ensuring that responsible stewardship of our precious resources is maintained. Minnesota Power supports this project and looks forward to a successful completion of this process and the eventual start of the Northmet Project.	EOO,G6
Sender Last Name:	Shirley **Submission ID:** 2917	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3248	I have spent the last 6 years working in the BWCA and Lake Superior. Respect and preservation of the surrounding watershed and land holds not only an intrisic value, but an economic one as well. While the creation of such a mine will create jobs in the short-term, the lasting effects of the mine will not only hold environmental impacts, but will create a significant loss of jobs in the tourism industry, which will sustain long after the mine has ceased to exist. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. In light of these issues this mine should not approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers.	G1,G2C,G11

Sender Last Name: Shoden **Submission ID:** 228

234	I am writing to you to give my full support to the Polymet project. The Iron Range, as well as the State of Minnesota, will greatly benefit economically. We need this project to succeed! I personally know some of the Polymet employees, and know how they feel about the environment. They will do everything humanly possible, to minimize any affect, the project would have on the environment. I totally trust these people, who also have families and live on the range.	EOO

Sender Last Name: Shrode **Submission ID:** 1656

664	PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials in an already unstable basin. Failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet must complete a stability analysis of the basin and devise an acceptable design before proceeding. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues must be resolved before this mine is approved by the MN DNR and the U.S. Army Corps of Engineers. Lake Superior is seriously stressed. It is beyond reproach to further imperil this inland sea for a short term, unsustainable and destructive industry.	GT2
992	I understand that the water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. It is unreasonable to expect that mining companies will be able to maintain water treatment facilities for that amount of time. It is an unfair burden to pass on to future generations who will be left to pay for these operations.	PD2,PD4
1902	from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes.	FM1
2097	Regarding: PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I am a visitor to the areas and do not want them affected. It is not acceptable to risk national forest and other areas by claiming that the mining is not IN the Boundary Waters. One cannot seriously believe that the "exploration" in Birch Lake is not having an effect on that environment, much less active mining and its long term after effects.	G2A
2098	This moves beyond the environmental impact issue into area economics. This is a dangerous, short sighted economic solution to an area that has green and sustainable answers at their doorstep. Rather than further degrading the recreation and tourism opportunities and experiences and the local businesses, now is a prime opportunity to plan for promoting citizen access to and protection of wilderness areas and the businesses that facilitate such activities. We are being told that "green industry" is the future. Now is the time to step up to the plate and put the money where the mouth is. If it may be thought that because I don't live in the affected area that I don't know what it is like to suffer economic depression, our long time family business is being destroyed by an imminent domain process that is putting three people who support families and the community out of work. We will be making hard changes in our lives. We certainly are not going to sell out our environment for a job; it may very well be the key to our personal future.	EOO,G11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3111	I expect them, the U.S. Army Corps of Engineers and any other involved agency to stand up against this proposal. Concerning impacts on water quality, I understand that the water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. This is unacceptable to me. It isunreasonable to expect that mining companies will be able to maintain water treatment facilities for that amount of time and it is an unfair burden to pass on	EOO
3112	from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes.	EOO,WR4B
3113	It is my understanding that PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project.	WR2D
3527	I have seen the dead environments in Montana. It is not acceptable in any way to risk national forest and other areas by claiming that the mining is not IN the Boundary Waters. One cannot seriously believe that the "exploration" in Birch Lake is not having an effect on that environment, much less activemining and its long term after effects. I am a volunteer for the DNR frog calling survey and I am trying to assist in identifying at-risk areas and make a	G2
3528	Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. This moves beyond the environmental impact issue into area economics. This is a dangerous and short sighted economic solution to an area that has green and sustainable answers at their doorstep. Rather than further degrading the recreation and tourism opportunities and experiences and the local businesses, now is a prime opportunity to plan for promoting citizen access to and protection of wilderness areas and the businesses that facilitate such activities. We are being told that "green industry" is the future. Now is thetime to step up to the plate and put the money where the mouth is. Lake Superior is already seriously stressed. It is beyond reproach for further imperiling this inland sea for a short term, unsustainable and highly destructive industry.	G1,G2,G11
3579	to future generations of Minnesotans who will inevitably be left to pay for these operations. Additionally, it will be all but impossible to calculate sufficient financial assurance for a mining operation that is going to require such long-term care. In addition, the DEIS predicts contaminated waters to be discharged	PD4

Sender Last Name: Shuck **Submission ID:** 3712

1	The Draft EIS also fails to include moose in its discussion of the few remaining wildlife corridors in the region, and in its cumulative impacts assessment for wildlife and wetlands impacts. As noted by the Tribal cooperating agencies, the Minnesota wildlife advisory committee studying the decline of the moose population in northeastern Minnesota has recommended preserving wetlands as sanctuaries for moose from heat stress, and the yet PolyMet is proposing the largest direct wetland fill ever permitted in this region, with the proposed wetland mitigation located outside of the St. Louis River watershed and 1854 ceded territory. The proposed project will thus clearly contribute to cumulatively significant effects on the state's moose populations and Tribal harvest in the 1854 ceded territories, which the Draft EIS has failed to assess or disclose.	WI2,G3,CR1,CR4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	Additionally, the Draft EIS cumulative effects analysis is inadequate by failing to consider cumulative impacts to bird species, which are currently in decline due to habitat losses and fragmentation. See e.g., Lind, J; Danz, N.; Jones, M.T.; Hanowski, J.M.; 2001 Annual Update Report: Breeding Bird Monitoring in Great Lakes National Forests 1991-2001 (NRRI 2001); Birds Of Conservation Concern, 2002 (identifies species and subspecies and populations of birds "in need of additional conservation action"; follows up and expands on a 1995 list of migratory nongame birds that are likely to become candidates for ESA listing without additional conservation actions. The report identifies species that are of the highest priority for conservation efforts and attempts to include all species thought to be at risk in order to focus conservation attention on them "well in advance of a possible or plausible need" for ESA protection); available on line at http://migratorybirds.fws.gov/reports/BCC2002.pdf	WI5
2662	This letter will serve as official notification that I support PolyMet Mining. Based on the extensive documentation as outlined in the DEIS, I am confident that impacts to the air, water or land will be minimal, if any. I believe that PolyMet will produce these metals in an environmentally sound way and generate significant economic activity in a depressed area. Unfortunately, after 9 years of service, I lost my job with LTV Steel in 2001, when LTV permanently dosed. For several years I struggled to support my family, picking up jobs wherever I could. In 2005, I was hired by PolyMet and have worked at the Hoyt Lakes site since then. With the PolyMet Mine, hopefully soon, in the construction phase and in actual operation, these job opportunities would bring hope to others who are still struggling from LTV dosure and others seeking employment as well. I have lived in this area all of my life and I am obviously concerned about our environment, not only for myself but for my family as well. I am also an avid sportsman, especially enjoying hunting and fishing. I am very interested in maintaining a healthy natural environment, not only for my own enjoyment but for the enjoyment of future generations. As a person who lives, works and plays in the area, I understand the need to balance use of resources like minerals and preservation of resources such as water and air. I feel this EIS lays the propergroundwork for developing an environmentally and economically sustainable project.	EOO,G2
Sender Last Name:	Sikora **Submission ID:** 3608	
3883	As a college student, I spent my summers fishing in and around the Boundary Waters/Quetico Provincial Park/Shebandowan Lake area …on both sides of the border…and always by canoe. The abundance of small mouth bass in the area was the target and the results were always spectacular. I still spend time in the area, with both my father and son…and can honestly say the fishing is still fantastic. Given my love of the outdoors coupled with my interest in engineering, my field of study at University was Metallurgical Engineering with a specialization in Hydrometallurgy. Upon graduation, I had the good fortune to work for several mining companies that were focused on non-ferrous extractive metallurgy. I strongly believed then, as I still believe today, that hydrometallurgy is the best approach for a harmonious existence between extractive metallurgy and the environment. Non-ferrous minerals [chalcopyrite, chalcocite, pentlandite, bornite,…] can be separated and reduced without damaging the environment. The technology and approach, as detailed in the DEIS, works. PolyMet Mining has clearly done their homework with respect to protecting the environment. In addition, the NorthMet Project will bring much-needed jobs to the Hoyt Lakes area and allow young families to return and enjoy the great fishing and hunting, while providing them with the financial security to raise their families. The project should be allowed to proceed as quickly as possible and bring back those young families to the area. Self-interest groups should not be allowed to side-track/delay the project any longer. People need jobs. America needs a secure and domestic source of nickel [rather depend on foreign entities that, at times, can appear to be so hostile]. It's time to get going!	EOO
Sender Last Name:	Simberg **Submission ID:** 295	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
309	I am writing in support of the PolyMet Mining Project. PolyMet has taken the time and expense in working with federal and state regulatory agencies on their draft Environmental Impact Statement. I urge you to let the decision to approve this EIS stand on its own merit. Mining of copper, nickel and platinum is not conducted today as it was thirty and forty years ago. Fears of environmental damage based on past practice is unfounded. If today' s PolyMet EIS passes all regulatory agency scrutiny, then the project must be allowed to move ahead. PolyMet must not be hindered by fears from the past nor standards above and beyond today's requirements. I know several key PolyMet employees. They are outstanding Northeast Minnesota citizens who will provide economic development critical to the future of our region, and be excellent stewards of our environment. I have four adult sons. Three of which relocated to the Minneapolis-St. Paul area to find gainful employment. Their hearts are still in the Iron Range. PolyMet has the potential to provide opportunity and a life style they, and scores of others, deserve close to home. Thank you for your prudent and timely action on this important matter.	EOO
Sender Last Name:	Simmons **Submission ID:** 1355	
162	Extend the comment period beyond Feb 3	PRO6
1582	I understand that even the engineers designing this project project that acidified mine wate storage areas will begin to leak into ground and surface water in about 60 years. How can this be acceptable? No amount of develipment or temporary mining jobs is worth turning the Arrowhead into the hydrologic equivalent of the wasteland around Sudsbury, Ontario.	EOO,G7A
1583	Just because a dirty-process mining company finds it currently economic to mine these deposits is no reason to allow it to happen now. Leave the deposits in the ground until there is a clean way to mine them, if there ever is.	EOO
Sender Last Name:	Simpkins **Submission ID:** 2345	
2818	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. This looks like a case of short term gain and long term disaster. Are you willing to clean up the mess?	G4,G6
Sender Last Name:	Sink **Submission ID:** 3451	
3731	I urge the DNR to support legislation that requires copper mining in Minnesota be held to the strictest standards in regards to contamination of water and land and clean-up procedures. The desire for copper and even need for copper must be weighed against the common good. Does our rock contain a high enough percentage of copper to warrant such large-scale disruption? To risk the health of local populations or threaten the watershed in the area? I argue that it is not worth it if our rock is not copper-rich, no matter what the price of copper on the market today.	G2,G5,G7
Sender Last Name:	Skaer **Submission ID:** 3706	
1	More indirect impacts to wetlands have also not been quantified. As noted in the relevant Tribal Position, ore dust will spill from rail cars and be deposited in wetlands adjacent to the rail line.109 But no analysis of any type has been conducted to determine if such impacts would be significant. Other alternatives (e.g. underground mining) that would pose less harm to high quality wetlands, and may be less damaging to aquatic resources, were not adequately considered.	WE2
Sender Last Name:	Skinner **Submission ID:** 3299	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3593	I am a resident of St. Louis Park, MN and an undergraduate at Carleton College in Northfield, MN. The BWCAW has been an important part of my life for ass long as I can remember, and my family and I take long canoe trips up there every summer. The importance of such a unique and peaceful facet of our state's identity cannot be understated, and any mining operation that threatens the area in the future should not be allowed the opportunity to jeopardize this precious region and its surrounding areas. The NorthMet project would set a dangerous precedent along with posing an environmental risk. Do not let this go forward.	EOO,G2

Sender Last Name: Skoog **Submission ID:** 240

250	I think grating a permit to Polymet is a poor idea. To call this a jobs projects is very misleading. 10 to 12 other states have tried this mining, and they have not been able to find a real answer for the waste. Putting it in big liner then treating the waste water for the next 100 years is not a sound solution. I oppose this and hope you consider the toxic run off that will make it's way into our waters.	G7B
251	Why was there a drilling barge on a lake near Ely?	EOO

Sender Last Name: Skraba **Submission ID:** 36

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
32	Thank you. My name is Roger Skraba. I'm the mayor of Ely. I'm here to support the PolyMet project. It will be a business incubator for our community. We look at it, the City of Ely is like a commerce center. We draw people from Isabella, Babbitt, Tower, Ely, and we're hoping, if a lot of folks come and start businesses around the area and more people live -- not specifically in Ely, but in Babbitt or Aurora, they're going to gravitate towards Ely, so we're going to benefit some from the business from that. We're also hoping we can pick up a few of the employees, because they want to live in our environment, they want to live next to the woods and work on the other side of that ridge, and that's something that I think needs to be addressed. As -- as mayor of a city, gateway to the Boundary Waters Canoe Area Wilderness, we are pretty particular about what goes in our water, and this project is on the other side of our watershed. This is on the Lake Superior watershed, not into the Nelson River watershed. All our water goes up to Hudson Bay, down the Nelson -- Lake Winnipeg to the Nelson River. We're -- the city council has sent me to make a presentation, and we are confident that it will not pollute our watershed. I have been -- I did read the -- not the whole EIS, but a bunch of the EIS, and I'm confident that PolyMet has met and -- and exceeded the standards that the DNR and PCA, Minnesota Pollution Control Agency, has set. I am -- I'm impressed at their desire to work with everyone involved in the permitting process, from what I've seen, on -- on the -- on the property itself, where the water is going to go, how they're going to contain it, how they're going to treat any of the runoff with a wastewater treatment plant to keep the sulfides out and they're going to cover -- they're going to put a blanket underneath, they're going to put a blanket on top, you know, a cover, so we're not going to get the leaching. They're going to try. It's -- it's good to see. I think everyone is aware of what can happen. And they're going to mitigate as -- to the point of when, if it is an issue, it will be brought forth and they'll have to deal with it. The good thing about the sulfide in this project is that it is a low sulfide. It's not high. It's in the small percentages. And from the -- from the stuff that I've read and learned about, it takes a long time for that sulfide, long in the time of nine months to a year to two years, for it to really react, and -- and it won't be in the air that long, most of the sulfide they're using. Again, I think the -- the biggest -- the biggest issue that our council sees are -- are the jobs that are going to come, the economic development. Our downtown is pretty -- is starting to go away, and -- and I'm not desperate, I'm not here desperately -- it's not like I'm here, this is the last savior. I'm saying this is one of the straws in the big pile that makes a -- a -- a community. Or it's part of the fabric of our community. Mining's always been in Ely, Minnesota. The miners -- that's why Ely is where it's at. 1888 we started, and it was because of the iron-ore mining and the timbering, and so we -- we have a history of mining, and I hope -- I hope that we can help contribute to this next level of mining. And I -- and I think I -- I have to state that the permitting for Franconia or Duluth Metals is separate from the PolyMet mining permit. PolyMet is PolyMet, and I sit on the St. Louis County planning commission and we give out conditional use permits, and each one is unique to itself. And I truly believe that with this permitting process, and I'm -- I'm -- I'm impressed to see what -- the process that we're going through now, getting the information. Where it goes from here, I -- I don't know. I don't know where you guys take this information, how you compile it, and what you do with it. But it -- it is a -- it's a process that, so far, I've been impressed with, what you guys have done. I'm -- I don't feel	EOO,G10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2607	MR. SKRABA: Hi. My name is Roger Skraba, I am Mayor of Ely, Minnesota, and I was asked to come down here and testify in favor of the PolyMet DEIS from the City Council of Ely. It was a unanimous decision. We are here to talk about a couple of things. One of the main things I want to bring up is the PolyMet project is on the other side of the Laurentian Divide, so the watershed from this project does not interfere with the Boundary Waters in any way. As far as air pollution goes, it has 90 percent less air pollution than the taconite mining that was formerly, so the air pollution issue isn't as big of an issue as a lot of folks are led to believe. It will bring in hundreds of thousands of dollars of taxes in the long run for the whole area, northern St. Louis County, Babbitt, Ely, the Taconite Tax Relief Area. That is one of the advantages. We need commerce in our area businesses. Ely is a hub, is a business hub in the area right now. We are hoping that if the PolyMet project gets permitted and people start living in the Range that they will come to Ely for an evening of meals or to shop and then find out how quaint and beautiful it is and live there. That is my goal. My goal is get more residents so we can lessen the tax burden on everyone else. Sorry to sound like a businessman, but that is what we've produced that program to do right. Our population could use a little hit. We could use a few more people. The PolyMet process that they are talking about using is a proven process. It's not new. All parts of it have been used in other places successfully in the world. It's fortunate that this EIS calls out this process and investigates it. From the information that I have read and that I have gathered, I am going to find it hard to believe that the government can prove that it isn't a safe way, and I look forward to the government scrutinizing this because that is part of the process. What else do I want to talk about? The PolyMet project will bring in approximately 400 new jobs, up to they are talking about like 500 spinoff jobs from different manufacturing. Whether or not Ely is successful in getting the raw copper that will be produced on the plant to make wire or to make copper tubing or to make anything out of the copper, whether Ely is successful or any other communities are, the fact that the potential is there is what we are excited about. Our communities could benefit from it directly or indirectly. As far as our concern about polluting the Boundary Canoe Area Wilderness, again it's on the other side of the Divide, the watershed goes the other way. Each project, whether it's PolyMet, Duluth Metals or Franconia, they are all stand-alone projects. They are all different. The PolyMet project is on the other side of the Laurentian. The Franconia and Duluth Metals are on this side, and they in themselves will be scrutinized even more because if they do pollute that pollution does enter the watershed and does affect our commerce and the way we will be viewed as a world-class place to come. Ely is known worldwide. You can go anywhere, pretty close anywhere in the world and say Ely, Minnesota, somewhere and someone is going to say I have been there or I have a friend that goes there. We don't want to ruin that, and I am here to make sure it doesn't get ruined. The Council sent me to support this, and I hope that PolyMet is successful in their process. Thank you.	G1,G6,G11

Sender Last Name: Sloan **Submission ID:** 2979

3358	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have VERY SERIOUS concerns about the safety of this project and its potential impacts on Minnesota’s natural resources. If Minnesota does not have its natural resources, what are we as a state? That's what makes this place worth living in.	EOO
3359	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. This is very important to the citizens of Minnesota and of the United States.	EOO

Sender Last Name: Smith **Submission ID:** 24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
22	My main comment about this would be that Minnesota has some of the best environmental standards in the world right now, and I'm really frustrated by all the delays in this project. When I came to speak at the draft, I was actually employed. Now I'm unemployed, and I'd really like to see this process move along. I think it's taking way too long, and even this delay now on the draft for a longer comment period, to me, it just -- it's been five years. It's time to get this project going so the people that live up in this area can work. And there's a lot of areas in the world where these projects are done and they aren't done with even close the environmental standards that we have here, and why not do it and do it with the best environmental standards around. It's time to get the project going.	EOO,G10
1253	Is this mining project worth the cost of ruining MN's most untouched region? Is it worth destroying the enviroment by polluting the crystal clear water with toxic run off? When it is gone you can not bring it back to it's original state. Please listen to the people of MN who last year voted to protect it clean water.	G7C
1558	Additional comments: My family is from northeastern MN. Currently, we live in Texas but we spend our summers in MN, while I work. We plan to live there in retirement. It is hard to believe that you would allow this type ,of mining in NE MN when there have been no prior sulfide mining that has proven safe for the environment. Jobs are not worth destroying our environment. Please do not allow this mining to be done in my home country.	EOO,G11
2345	I want to express my concerns on the minning project. I hold an opinion of a nature enthuseist as well as a member of a community with a demand for a perservation of the natural environment. Most citizens in Minnesota are passionate about wildlife and the enjoyment we recieve from our memorize and futures to come here. I for one, am aware the potential threat of many surrounding ecosytems for many years to come. It saddens me to think that one day my grandchildren will not be able to experience the true beauty of the boundary waters.	EOO
3198	THERE COULD BE NO GREATER MISTAKE THAN TO ALLOW PLYMET TO GO FORWARD WITH THIS PROJECT. WILL YOU ALLOW GREED TO OVER-RIDE RATIONAL BEHAVIOR AND COMMON SENSE. OUR BOUNDARY WATERS AND JOINING AREAS ARE OUR GREATEST NATURAL RESOURCE. NOT POLY-MET AND WHAT THEY CAN GRAB. I WANT TO KNOW WHO IS GETTING PAID OFF BY THIS NOW! THIS PROJECT SHOULD NOT GO THROUGH. PERIOD!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! AS IF THE ARMY CORPSE EVER DOES ANYTHING RIGHT ANYWAYS.	EOO
3504	I live 2000 miles from the canoe country, but I have been going to Ely for 30 years, taken 57 canoe trips into the Quetico/Superior, have introduced a dozen Arizonans to that area, and sponsor 3 scholarships at Vermilion Community College every year, for wilderness studies. Leave this wilderness alone. I've seen Sudbury, Ontario, and what nickel mining does to the environment. The Arrowhead region is a national treasure; please treat it as such. Michael Smith Tucson, AZ	EOO

Sender Last Name: Smolich **Submission ID:** 3714

1	Water quality within the St. Louis River watershed has already been degraded by past and present mining activities. Additional discharges of sulfate, mercury and other metals will contribute to the cumulatively significant effects on water quality in the St. Louis River watershed. As noted by the Tribal cooperating agencies, an Antidegradation Analysis for the Lake Superior Basin must be conducted for several contaminants in addition to mercury, and the results of this analysis must be included in a revised DEIS.	WR5A
2623	I'd just like to say that ever since the LTV closure, we need jobs to support our schools, support our community, support local businesses, maybe attract some satellite industries. Like I said, it's very important for the city, as a whole, to have a project like PolyMet on the east end of the Iron Range. Everything that I've read, their environment -- I believe they'll do this in an environmentally-friendly way. And basically, that's -- you know, we got to keep our new school full, and fill up some houses and build some new houses, and small towns are going to die off. I mean, it cost more to run your waste water and your water plants, and if you don't have people to support them, I mean, your small towns are just going to go away. So that's, basically, all I got to say. And thanks for having this forum down here.	EOO

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Comment ID	Comment Text	Theme Codes
Sender Last Name:	Sobanja **Submission ID:** 3610	
3885	As part of the public comment period currently underway regarding the draft EIS for the PolyMet project, the Cook County Board of Commissioners would like to express its appreciation for the thorough review process that has been conducted to identify and mitigate any significant negative environmental impacts. After meeting with Barr Engineering consultant Brad Moore, and considering Mr. Moore's background with the MN DNR and MPCA, the Cook County Board of Commissioners understands that there would be minimal negative impacts to the ground water or air quality in Cook County, that the EIS adequately addresses the impacts to and needs of the mining and processing sites as well as the impacts to surrounding counties, and that proper technologies are in effect to mitigate environmental concerns going forward into the future. Having said that, and understanding the positive economic and social value this project brings to northeastern Minnesota, both short and long-term, the Cook County Board of Commissioners supports the EIS as the proper tool to use for mitigation on the PolyMet project.	EOO
Sender Last Name:	Solberg **Submission ID:** 339	
41	Sulphide oxidation is catalyzed by a bacteria, named Thiobacillus ferroxidans. Without that bacteria the oxidation would be much, much slower (it's in the thesis, the reactions are described in the appendix). In nature, that bacteria is present everywhere. If you take fresh tailings, however, directly from the flotation processes, and bring them to the laboratory for leaching studies, the bacteria may not be present in the tailings. That may be the explanation for the difference in oxidation rate between field studies and laboratory studies. Has there been long term field studies with the tailings? It's very important, because that’s the natural conditions, the real scenario for the tailings, with the bacterias present. I searched the DEIS and found nothing on field studies concerning the tailings - only wild rice.	WR1E
139	My name's Greg Solberg. I'm not for the mine, I'm not against the mine. I'm pretty sure I'm not going to stop the mine, so I want to be on the side, the middle guy. I want to -- I don't want to listen to all the mining stuff and I don't want to delve into the environmentalists who think we're going to die tomorrow. I want to know the truth, and since it's probably going to happen, let's just make sure we do it right the first time. And I have this research thesis I got from a Swedish grad student that I'd like someone to look at, and that's really all I have. That was quick and easy. I'm concerned because I own 120 acres just south of Sudan, which is 20 to 25 miles north of the proposed mine, so it's kind of in my backyard or -- backyard, more or less. So I'm concerned and, you know, just -- I'm a north -- it's my dream, my 120 acres, I've got that, and I've started planning a log cabin. I just wanted to own a little piece of this earth, have a log cabin since I was about five, so -- and so, you know, this is a concern, but as long as they do it right, it maybe isn't. That's all.	EOO
360	I spoke with a few people from the DNR and PolyMet at the Blaine discussion and have some real concerns that the tailings will not be handled correctly.	G2D
361	I gave an oral comment, left a copy of the attached research, and want to make sure you guys have this in your hands as well. Please read this!!! Here's a link just in case: http://diss-epsilon.slu.se:8080/archive/00001874/01/Kappan_Avhandling_nr_08.88.pdf I'm not trying to stop the mine - I have no say in the matter. Since it will go through, I want to be assured that things will be done right the first time. Also, I really think you guys would be better off leaving the politicians behind - their BS is not helping your cause. At the very least, sit them down and teach them. Well, that's my opinion anyway.	G14
Sender Last Name:	Solitis **Submission ID:** 3697	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	I am writing on behalf of myself, my two sisters and my family to comment on the Draft Environmental Impact Statement (DEIS) for the NorthMet Project (Polymet Mining, Inc.). Our family has canoed, fished and hunted in the BWCAW and the Superior National Forest for nearly 50 years. We are concerned that this project will result in a significant loss of publically owned forest and wetland habitat, and that it will degrade the water quality of the Partridge, Embarrass and St. Louis River watersheds. We eat the fish and game, consume the wild rice and drink the water from this area. As proposed, this project has the potential to significantly impact the natural resources of this fabulous land of forests, lakes and rivers, and to further contaminate the food and water we obtain from it. I am a science and math teacher for junior and senior high students at the Cloquet Christian Academy. I have taught there for 22 years. My husband works as a wildlife biologist. We have raised three daughters and all of them loved to go camping and fishing, especially in the canoe county of northeast Minnesota. As young girls in our teens, my two sisters and I attended Widjiwagon YMCA camp near Ely. This is where we learned about canoe camping and fell in love with the BWCAW. We still go on canoe trips together every year in the Boundary Waters. This land is important to us. As citizens of this great state we depend on the Department of Natural Resources (DNR) to protect Minnesota's lands and waters. In your publication, A Strategic Conservation Agenda 2009-2013 Part 1: Strategic Directions, published in May of 2009, you describe your mission and conservation strategies for the future. Following are some of the statements made in this document that relate to this mining proposal: • DNR's mission is to provide for commercial uses of natural resources in a way that creates a sustainable quality of life. • DNR's goal is to conserve and enhance natural lands, habitat, water resources and watersheds and to provide healthy fish and wildlife populations. • Mining and reclamation are planned to ensure environmental integrity while producing important mineral products. • Prevent the conversion of forest, and protect peatlands and wetlands to mitigate the effects of climate change by sequestering carbon. • Expand the sustainable woody biomass supply to meet the state's renewable energy goals. • Seek to improve land and water health at local, landscape and watershed scales. • Apply regulatory tools to conserve water supply and promote land and water-use practices that protect water quality. I am encouraged by these statements from the DNR which represent a strong conservation agenda. Your document lays out a good strategy for sustainable use of our natural resources. However, I am very disappointed that the DEIS for the NorthMet project, prepared by the same DNR, falls far short of accomplishing what you claim to be your own agenda. As citizens, we all need and use the minerals that would come out of this mine. The economy could certainly use the jobs it would provide. To be responsible citizens, we also need to know the real costs and risks of copper-nickel mining, so an informed decision can be made. If mining proceeds, it must be done in a way that protects our environment, and is an ecologically sustainable form of land use. This DEIS does not clearly identify all the environmental costs and risks of this proposal, especially the cumulative impacts. The project does not meet environmental standards, nor provide a sustainable approach to mining. The greatest concern about the Polymet mine is the impact to water quality due to pollution from heavy metals, sulfates and mercury. These serious concerns are being raised by many people and I fully agree with them. However, the project will also have a huge impact on public forest lands, wildlife habitat and land use. My comments focus on these issues which include the destruction and degradation of a significant	G2
2	As mentioned in the discussion of Section 3.1.5.3 "Management of Process Waste Products," the type of dam construction used for both the existing taconite tailings and proposed flotation tailings impoundments is upstream-type construction, which is the most unstable of the dam construction types. This fact is reflected in the discussion of the long term stability risks for the tailings impoundments themselves, and has implications for the stability of the hydrometallurgical tailings storage facilities which will be built on top of existing tailings impoundment 2W.	GT1
3	Recommendation: A thorough testing program for verifying the target permeabilities of the various subgrade barriers should be required. If testing indicates that the specified permeabilities are not being reached, then corrective measures should be required.	PD11
3	• Monitoring of the sedimentation ponds discharge is recommended as part of any NPDES/SDS permit. (DEIS, p. 4.1-110)	WR1A
3	• There is some uncertainty as to whether the West Pit overflow would meet the Great Lakes Initiative standard for mercury and additional analysis of this issue is recommended. (DEIS, p. 4.1-124)	WR3I
4	• It is recommended that groundwater quality downgradient of the Tailings Basin and waste rock stockpiles be monitored on a regular basis to ensure that actual groundwater quality is consistent with model predictions. (DEIS, p. 4.1-172)	WR1B

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4	• It is recommended that the sulfur concentration and pH of the tailings be monitored regularly to ensure they remain below a specified percent sulfur and above a specified drainage pH to prevent the development of acidic conditions or increased solubility of metals within the Tailings Basin. (DEIS, p. 4.1-172) [Note: It is recommended that the specified level of sulfur be 0.13%, the average tailings sulfur content assumed in the water quality modeling.]	WR1A
4	• It is recommended that the effluent from the WWTF be monitored regularly to ensure the proper level of treatment is being attained as this effluent is an important factor affecting the quality of groundwater seepage from the Tailings Basin (DEIS, p. 4.1-171)	WR2G
4	• Intermediate monitoring locations between these source areas and regulatory points of compliance (e.g., Dunka Road) are recommended to serve as "early warning" of any groundwater quality issues. (DEIS, p. 4.1-172)	WR1B
5	The DEIS notes that the mine site groundwater quality with respect to antimony, manganese, and nickel are predicted to exceed Maximum Contaminant Levels (MCLs) or MDH Health Risk Limits, potentially for the long term at the Mine Site. In particular Sulfate would exceed the groundwater evaluation criteria of 250 mg/L.	EOO
6	3.2: Project Alternatives: Paragraph 3, p 3-50 states that "NEPA requires that a "range of alternatives" must be discussed….This includes all reasonable alternatives which must be rigorously explored and objectively evaluated…" It is questionable whether either the rigor or objectivity of the project alternative analyses meets the intent of NEPA. For example, failure to include in any analyses in this DEIS Northmet data/information regarding Franconia; Duluth Metals; Encampment and Tech Cominco is problematic.	ALT8,PRO2
6	2.3.4: Issues Incorporated into EIS after Scoping: It is noted that the DEIS will have "greater emphasis" on several areas not anticipated at the time of the Final SDD: these include methylation of mercury; fine particulate emissions and greenhouse gas emissions and climate change, among others. The current DEIS provides inadequate information for judging the validity of assumptions and conclusions regarding these critically important issues. (see below)	G2B,G8,AQ3,AQ4,AQ6A
7	Have models used to project methylmercury concentrations included estimates of expected variation in measures under varied conditions? Please clarify.	WR4A
7	4.1.2.4 Mercury Impact Criteria: Note is made of the relationship between sulfate and production of methyl mercury. MPCA (2006) policies relevant to this issue are outlined and recommendations are to "avoid or minimize the discharge of water with elevated sulfate concentrations to methylmercury "high risk" situations." It is not clear, however, to what extent the Northmet Project incorporates these recommendations into their operating plans. No details are provided and "high risk" is not defined. This should be clarified.	WR1E
7	The goal of transparency should also be advanced by providing detailed information for public review of Project principals: the corporation; staff, collaborators; consultants; affiliated organizations, agencies, and universities who participated in all phases of the Project proposal. There should be public review of potential conflicts of interest and/or disclosures of interest. The relationship between Project funding entities and researchers should be known in full. The DEIS Northmet should provide evidence that science-based data and information from independent research institutions were used in preparing the Project proposal. And the project should provide data regarding the extent to which this Project will impact the growing, collective adverse impacts of human activities in the Arrowhead region of MN.	PRO2
7	Tables such as 4.1-97 (p 4.1-190) and text (eg, p 4.1-189 and 4.1-193), throughout the Draft EIS Northmet, contain measures of mercury and methyl mercury concentrations. Since there are significant methodological issues involving such measurements of mercury, the question is whether the analyses reported reflect recognized causes of and degrees of variation in mercury concentrations. For example, significant daily variations have been noted by researchers: http://toxics.usgs.gov/highlights/mercury_streams.html and http://toxics.usgs.gov/highlights/metals_variation.html .	WR1E
7	4.1.3 Environmental Consequences: It is stated: "The mining, ore processing, and tailings disposal operations associated with the Project may cause changes to the quantity and quality of ground and surface water in the Project area." The word "may" should be changed to "will".	EOO

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Comment ID	Comment Text	Theme Codes
8	Potential Indirect Wetland Impacts: It is not clear in the DEIS that robust methodology exist to quantify the changes in surface or groundwater flow rates and patterns needed to project wetland impacts from the Project. What specific methodologies have been used and have they been validated?	WE2
9	While wind roses for Hibbing show a north north west through west-northwest direction 25% of the year and south-0southeast through southeast 15% of the year, Ely shows a pattern of west westsouth for the months of April through September. (University of Minnesota: http://climate.umn.edu/wind/windRoseClimatology.htm.)Thus, the BWCA which is only 34km or 21 mi from the Project Site would receive winds from the Polymet Project Site for several months of the year. To what extent will this add to the worrisome burden currently being experienced by Class 1 areas BWCA and Voyageurs NP? At BWCA, visibility impairments have been documented for 200 days in a recent year. Has the potential impact of the Northmet Project on BWCA been quantified as part of this DEIS? Has the potential impacts of other mining activities between the Northmet Project Site and the Franconia; Duluth Metals; Encampment and Tech Cominco projected mining sites been quantified as part of this DEIS? These are critical data that must be included in the Final EIS.	AQ4,AQ4B,AQ9
10	The Vegetation and Wetland sections of the DEIS both describe a rich diversity of forest and wetland habitats, most of which are rated as being of high quality. Yet the impact from the loss of such a large area of forest and wetland is dismissed as being not significant. The rational being used is that although the amount of area destroyed is large, when compared to the rest of the watershed, or northeastern Minnesota, or the whole state, it is minor in comparison. This is an illogical assessment of cumulative impacts. The DEIS should analyze the size of the project's impacts as compared to other development activities that cause permanent loss of forestland, such as roads, trails, housing, cabins, business, industry, and transportation. Then it should assess the cumulative impacts of the mine, these other development activities, and future mining activity, along with the other stress factors that northeastern forests and wetlands are facing such as global warming, growing recreational demand, and expansion of biomass harvesting, invasive species and new insect and disease problems such as the emerald ash borer. Can the argument be made that our forests, wetlands and watersheds will be able to withstand the cumulative effects of all these factors, plus a huge increase in mining activity?	SE3
10	The Wildlife section of the DEIS identifies a rich variety of wildlife species that are located on or near the project site. This list includes many important boreal forest animals including the Canada lynx, gray wolf, great gray owl, three-toed woodpecker, northern goshawk, blackbacked woodpecker, boreal owl, black duck and many others. Based on this list, the project area, especially the Mine site, provide high quality habitat for wildlife. According to Table 4.4-4 this project will destroy about 5 square miles of forest and wetland habitat. An additional area will be indirectly affected. Yet, the DEIS indicates the project will not have significant impact to wildlife because: • Most of them are relatively common species (pg 4.4-1). • They will disperse to other nearby habitats (pg 4.4-1, 4.4-10, 4.4-12, 4.4-15, 4.4-17, 4.4- 20) • The project will not effect their survival at a statewide scale (pg 4.4-12, 4.4-13). It is a well known fact that displaced wildlife cannot successfully relocate into adjacent areas as those habitats are already occupied and at their current carrying capacity. A significant net loss of wildlife will occur, and over much of the 5 square miles wildlife will nearly disappear. The forest and wetland mitigation proposed will do little to replace this wildlife habitat loss. The logic being used is that if the mine project does not threaten the existence of a plant or animal population at a large scale, then the impact is non-significant. This is not a rational approach to assessing impacts. The loss of 5 square miles of quality forest and wetland habitat is obviously significant, especially in the light of the fact that more mines will follow this one. As farmers drained and plowed the wetland and grassland on their individual farms years ago each one could say it was not significant because it was only one farm in a sea of prairie. Yet today over 90% of the wetlands and prairie are gone in most of southern and western Minnesota. The northern forest is a sea of trees today, but if we continue to take 5 square mile bites out of it the losses will add up.	WI2,WI5

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Comment ID	Comment Text	Theme Codes
11	I feel anyone who believes they won't do damage is a fool. Their PR spin doesn't fool me. No mine of this type is safe in wet environments such as NE Minnesota. They don't care about MN, they only care about the profits they'll make exploiting Minnesota's greatest treasure the BWCA. We hold a vast amount of precious, clean water. Water is worth protecting! Plus, if PolyMet and society wants copper so bad, we've got 60 years of copper buildup in our landfills. Everything from computers, electronics, appliances, old vacuum cleaners, etc. Let them go into the recycling business.	EOO
12	• Recommendation: Since reclamation planning poses a significant environmental and economic impact of the mine development, a complete preliminary reclamation plan and cost estimate analysis should be included in the DEIS. The plan should be developed to show the reclamation liability on a year-by-year basis. (see report section 3.1.7.2 Reclamation of Mine Site, Closure Cost Estimate)	PD3,PD4
12	• Recommendation: All Category 2, 3 and 4 waste rock should be backfilled into the mined-out East Pit, and Category 1 waste rock should be used to fill (i.e. top off) all of the remaining room in the East Pit. (see report section 3.2.2 Mine Site Alternative)	PD11
13	The financial burden associated with closing the mine is largely incurred in the first few years of the mine’s life. When a mine is developed much of the disturbance takes place in the first few years of operation. As the mine operates the pit will get deeper, and waste piles larger, but the plant area and tailings impoundment will stay largely the same.	PD4
14	Recommendation: All Category 2, 3 and 4 waste rock should be backfilled into the mined-out East Pit, and Category 1 waste rock should be used to fill (i.e. top off) all of the remaining room in the East Pit.	PD11
15	This has the cost advantage of utilizing existing facilities for treatment. However, at closure the treatment systems will be 20 years old, and some capital expense will likely be necessary to replace aged and worn components. This is probably most relevant for the nanofiltration system, which is likely to see heavier use given that it is the polishing system for sulfate, which will be a long term concern in the mine discharge.	PD4
16	Since the DEIS is a document that is tied directly to the state and federal agencies that will be issuing the permits necessary for the mine to operate, it would be reasonable for the public to assume that the agencies can and would require some or most of the mitigation measures described in the DEIS when they issue the permits for the mine. But the way the mitigation measures are described in the DEIS all of the mitigation measures would be voluntary. That leaves this reviewer, and the public, unsure of what the final project will look like and what affects it will actually have.	G2D
17	This reviewer agrees that the major potential source for mercury emissions is from the air exhaust of the autoclaves. This has been a significant problem in the autoclave emissions from gold mines in Nevada, where the mercury content is significantly higher than the mercury content of the NorthMet ore. However, the concern is that high temperature processes like the autoclaves can volatilize mercury,and this mercury must be recovered through mercury capture equipment on the autoclave exhaust. One of the major concerns with these capture systems is ensuring that they are performing as planned. At the present time the State of Nevada is the only regulatory jurisdiction that has mercury air emission standards for mines, and mercury air emission standards for mines are being developed by the USEPA. Under Nevada’s standards mercury emissions from autoclaves are mostly monitored only once a year, and are sometimes based only on manufacturer’s specifications with no monitoring. Once a year measurements will not provide enough data to ensure statistically reliable measurements of the efficiency of the mercury capture systems.	AQ5,AQ6A
18	As suggested in the DEIS (p. 4.1-172), a monitoring plan should include appropriate monitoring for mercury to ensure that mercury is not leaving the tailings basin via water discharges.	WR4C
19	Recommendation: In order to ensure that the mercury capture systems on the autoclaves are functioning as designed, a monitoring scheme should be required that will provide statistically reliable data on the autoclave mercury emissions.	WR4C,AQ5
19	Monitoring of air mercury emissions from coal-fired power plants on a continuous basis was installed on 16 boilers at coal-fired power plants and used for monitoring operations and compliance reporting. On average these systems operated about 90 percent of the time. The technology for measuring mercury economically and often enough to provide meaningful data is available.	AQ5,AQ6A

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Comment ID	Comment Text	Theme Codes
20	The waste with the most potential to impact water quality is the hydrometallurgical waste, which will be stored in lined cells built on top of existing taconite tailings in cell 2W. If the material on which the hydrometallurgical cells are built is unstable, then the hydrometallurgical cells will also be vulnerable to rupture during a seismic event. It is known that unstable areas exist in tailings cell 2E:	EOO
21	This subgrade will be the only barrier between leachate from the waste rock and groundwater for Category 1 and 2 wastes. Although this waste is not projected to generate AMD, it could contribute to Metals Leaching. Quality control in the placement of the subgrade barrier will be particularly important. Achieving these permeabilities, especially the lower ones, could be difficult unless the subgrade material has significant clay content. Amending this material, once in place, would be time consuming and expensive.	PD2
21	However, it appears that the potential stability of the tailings in cell 2W is not known:	EOO
22	If the slime layers are present under cell 2W, as would be expected, then this poses a risk to the integrity of the hydrometallurgical cells during an earthquake event.	EOO,GT2
23	The long term integrity of both the flotation and hydrometallurgical tailings storage facilities is necessary to protect water quality. However, significant questions still remain to be addressed regarding the long term vulnerability of the waste storage facilities to seismic events. And, in addition to the significant issues outstanding with the tailings storage facilities, there is similar concern for the waste rock piles.	WR2D,GT2
24	"Proposed heights and slope angles in the preliminary waste rock stockpile designs are within typical mine engineering practice, however a slope stability assessment has not been completed. Further design and analysis would occur during permitting to ensure that the proposed construction meets acceptable design standards." (DEIS, p. 4.13-2) As implied in the quote from the DEIS above, analysis of these critical questions is not being conducted as a part of the DEIS. The DEIS indicates that:	GT1
25	Geotechnical stability is too important an issue to leave for analysis until after the mine has been permitted. This is an issue that must be addressed in the DEIS, and is a major flaw of the DEIS.	GT1
26	This concern has been echoed by the tribal cooperating agencies: "... given the lack of confidence in the structural integrity of ... (liquefaction at the plan site, stockpile liner systems stability, stockpile heights and slope angles, tailings basin stability, dam break analysis) ... a risk assessment must be conducted prior to permitting and the results included in the DEIS so that the public can be fully informed about the risks associated with this project." (DEIS, p. 4.13-2) This reviewer strongly concurs with the above conclusion of the tribal cooperating agencies. As discussed, these stability issues should be thoroughly investigated and the issues resolved as a part of the DEIS process.	GT2
27	Recommendation: Geotechnical stability is too important an issue to leave for analysis after the mine has been permitted. These stability issues should be thoroughly investigated and the issues resolved as a part of the DEIS process.	GT1
28	• Monitoring for ore spillage is recommended to determine the effectiveness of mitigation measures. (DEIS, p. 4.1-86)	WR1A
29	• Water quality monitoring should be required to ensure that actual groundwater concentrations are within model predictions. (DEIS, p. 4.1-92)	EOO
29	• It is recommend that PolyMet either provide engineering calculations showing that the West Pit outlet channel would be stable or provide appropriate energy dissipation or erosion control measures prior to discharge to the wetlands. (DEIS, p. 4.1-104)	WE2,WE3
30	• Mercury monitoring is recommended to determine if elevated mercury concentrations are found in the West Pit. (DEIS, p. 4.1-128)	WR4C
30	• Close monitoring of the pH and water quality of collected leachate from these stockpiles is recommended to ensure the effectiveness of the lime treatment. (DEIS, p. 4.1-135)	WR1A
30	• In order to minimize the risk of accidental tears of the underlying geomembrane liner during the removal of the reactive waste rock, a nominal overliner thickness of 24 to 36 inches is recommended. (DEIS, p. 4.1-164)	WR2D

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31	• The stockpiles should be treated with limestone (in either lump or ground form) to help neutralize the potential for ARD, and to reduce the potential for acidification of groundwater and surface water at the mine site. (DEIS, p. 4.1-165)	WR1A
32	• Treat drainage from the Overburden Storage and Laydown Area as process water at the WWTF. (DEIS, p. 4.1-166)	WR2G
33	• Increase the backfill of the East Pit to allow for a geomembrane cover over the entire exposed Virginia Formation. (DEIS, p. 4.1-166)	WR2D
33	• Expedite flooding of the West Pit. (DEIS, p. 4.1-166)	WR3A
34	It is recommended that such storm water management controls be designed and installed. (DEIS, p. 4.1-168)	EOO
35	Trains consisting of up to twenty 100-ton side dumping ore cars would transport the ore from the Mine Site to the Processing Plant. The cars would have hinged sides that drop down when the cars are tipped at the Coarse Crusher for unloading. Ore could escape the confines of the rail cars during transport. The plan for limiting the escape of ore (with metal contaminants) from the rail cars is to load the cars at the centerline to keep fines from reaching the edge of the car where they would be subject to spillage through the hinge gaps. The likelihood that this procedure will prevent spillage from rail cars is, quite frankly, not good. Unless rail cars are designed to be completely enclosed, there will be spillage and most probably metals contamination along the rail haulage line. Given time, the spillage from the rail cars could be spread from the rail line across a wide area by wind.	PD7
35	• It is recommended that PolyMet investigate alternative sources of relatively inert embankment material to use in lieu of the LTVSMC coarse tailings. Potential (DEIS, p. 4.1-168)	WR2D
35	• It is recommended that PolyMet maintain the seepage collection and pumping barrier on Second Creek during closure. (DEIS, p. 4.1-169)	WR3A
36	• It is recommended that PolyMet establish a permeable reactive barrier (PRB) test cell during mine operations to facilitate the evaluation of alternative construction materials and a range of mass and flow loading scenarios to help define the effectiveness of a PRB for a full-scale treatment of groundwater seepage from the Tailings Basin during closure. (DEIS, p. 4.1-170)	WR1A
37	• Close monitoring of the pH and water quality of collected leachate from the waste rock stockpiles is recommended to ensure the effectiveness of the lime treatment in maintaining a relatively high pH. (DEIS, p. 4.1-171)	WR1A
38	• Monitoring should be conducted to ensure that woody species do not get established in areas where they could damage the stockpile covers. (DEIS, p. 4.1-171)	EOO
39	• It is recommended that the water quality of the West Pit be monitored regularly during closure (i.e., before pit overflow in Post-closure). (DEIS, p. 4.1-171)	WR1A,WR3C
40	3) What are the global and economic factors that could lead to a reduction in the work force below estimates, or a closing of the plant earlier than expected?	SE3
40	I am concerned that while the impacts of a single project may seem negligible, there are multiple projects under consideration in northeastern Minnesota, and that permitting multiple sulfide mining will lead to significant negative impacts on the long-term health of what has been a significant resource for the socio-economic well being of this region—environmental tourism.	G8C,G11
41	4) What will be the fall-out from a precipitous drop in employment, should it occur?	SE3
42	5) What are the trade-offs between jobs created from mining versus growth from tourism based on the unique wilderness and environmental aspects of this region?	SE4
43	6) What financial safeguards will be put in place to provide for future closure and post-closure problems or issues that arise once the original mining company (Polymet in this instance) is no longer actively mining or seeking to expand operations in this region?	PD4

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44	7) What percent of the revenues coming from this mine will stay in the area or for that matter the United States?	SE7
44	8) What percent of the processed resources will be used to meet domestic use versus shipped across the border to Canada or elsewhere?	RFI
45	9) What concessions is the State of Minnesota and USFS willing to make to facilitate this project (in addition to the proposed land exchange)	RFI,PD1
46	In summary, the DEIS is not able to address some of the less tangible potential impacts of increased mining in this region. Many of the most dynamic, forward-thinking individuals in my community, who have promoted and been recognized on a state-wide level for community-based efforts towards responsible management of our wilderness resources—came to this region because of the unique wilderness and pristine lakes. Our ability as a community to attract such people likely will suffer from extensive mining activities, unless adequate monitoring and regulatory oversight is transparent and functioning on a regular basis. I also am worried about the negative impacts that are outlined in the DEIS regarding short term influxes of workers during construction and the abilities of the local and county agencies to deal with possible related stresses to present infrastructure.	G8
46	10) What are potential long-term health risks to workers at the mine? Long-term health problems caused by taconite mining in the region are just now coming to light. Will the burden of paying for potential unexpected health risks be on individuals, the State (and taxpayers), or the mining company? As noted in the DEIS “Thus, there remains an uncertain level of potential health risk from airborne amphibole fibers for the Project.” The potential exists for the release of amphibole mineral fibers from the proposed operations, which could pose a potential public health risk of uncertain magnitude.	SE5,CR1
47	1) Water quality—The risks associated with the proposed and alternative plans are based on a combination of deterministic and probabilistic analyses. The Uncertainty Analysis approach was used to assess only certain conditions. Given that probabilistic approaches more explicitly recognize and acknowledge uncertainties in the input parameters for the various models, I would like to know if the FEIS will acknowledge these uncertainties explicitly using probabilistic methodologies rather than deterministic approaches.	WR1E
48	With regard to the overall review process, the communities of Northeastern Minnesota would benefit from an extension. The issues are complex: 1) the project proposes new technologies and approaches that are not proven; 2) the socio-economic aspects of the proposed project are based on a number of assumptions that need to be fully debated and outlined; 3) the regulatory environment on both a State and Federal basis is governed by budgetary mandates and resource allocations that may or may not mean that there is sufficient time or support to adequately review the DEIS and more importantly the long term monitoring of the mine throughout its lifetime, into closure, and in post-closure periods.	PRO6
49	The DEIS notes that in some cases the results of the Uncertainty Analysis used to evaluate input parameters for the modeling of flooding and water quality downgradient of the Tailing Basin, waste rock stockpiles, and Partridge River surface water quality conflicted with the results of the deterministic modeling. It would appear that additional review of the conflicting results is warranted.	EOO
50	Regarding water quality in the Lower Partridge and Embarrass rivers: All parameters are predicted to meet surface water quality standards during all flow conditions for all mine years. What about post-mine years? The DEIS states that there will be an expected increase in sulfate concentrations under average flows of 20 mg/L predicted at PM-13, although sulfate concentrations are already somewhat elevated in this area. Again, these consequences are estimated based on modeling of various scenarios.	WR3A
51	2) Mercury—There is a reason that sulfide mining has not been allowed or encouraged in humid environments such as that of the Project Area. How quickly will potential mercury exceedances be detected and mitigated? What financial safeguards will be available to the communities to address future problems like the ongoing Dunka Pit contamination?	WR4C,PD2,PD4,PD5
52	3) Noise Pollution--Blasts from mining operations in the vicinity of our current home are intrusive, especially for my husband, who suffers from hyperacusis and tinnitus. The proposed plant may not impact us directly but expansion of this mine and other mines in the area in the future will lead to a deteriorating environment.	N3

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53	Adequate safeguards to protect the environment require careful initial design, monitoring to make sure that the systems (both active and passive) are functional and can identify problems quickly, and sufficient resources to develop and complete closure design and long-term monitoring systems. I am concerned that these issues will not receive adequate critical review in the FEIS.	G2,G4
53	I have worked for an Environmental Consulting firm for over three decades and have seen the effects on project clean-ups that stem directly from such budgetary issues. The enforcement of regulations only works if there is sufficient budget and personnel to provide diligent oversight. Will Federal and State Regulatory Agencies be able to guarantee that sufficient resources will be available to provide oversight over the duration of the project and into post-closure time?	G4
54	1) A series of dikes and ditches would capture and convey most, but not all, of the surface runoff and process water to the WWTF by the CPS.	WR3K
55	2) The long-term mitigation plan with regard to permanent surface waste rock stockpiles relies on the integrity of liners and cover systems.	WR2D,PD2
56	3) What safeguards will be in place for shipping metal concentrates offsite for final processing?	G9
56	4) For large surface waste piles, what is the long-term monitoring plan to determine when 'water quality discharge limits are met?' Is it possible for conditions to change (i.e., climate, precipitation, or anthropogenic changes) such that there could be changes in the values of water quality after the initial discharge limits are met? Also, as noted in the DEIS "The MPCA has set forth a strategy (MPCA 2006, Strategy to Address Indirect Effects of Elevated Sulfate on Methylmercury Production and Phosphorus Availability) for addressing the effects of sulfate on methylmercury production that encompasses technical, policy, and permitting issues. The strategy acknowledges that the technical basis does not exist to establish specific sulfate discharge limits."	RFI
57	2) How reliable are the estimates of the number of jobs that will be generated over the lifetime of the project?	SE3
57	1) Discussion of financial assurance figures and instruments should be included in the DEIS. These are integral elements in assessing the potential negative impacts of a project, weighed against short-term financial return.	PD4
58	The DEIS Northmet proposes a form of mining that is highly controversial in Minnesota, the U.S. and globally. (Precious Waters. http://www.preciouswaters.org/resources/polymet-mining-activityminnesota/ ; Sulfide Mining: http://bwcaboard.com/board/viewtopic.php?f=88&t=1698 ; OK Tedi Mine: http://archive.wri.org/biodiv/pubs_content_text.cfm?cid=1860; Environmental Impact of Mining: http://rainforests.mongabay.com/0808.htm.) This controversy is fueled in part by a consistent pattern over decades of hard-rock mining companies overstating the benefits of hard-rock mining while understating the true aggregate costs and adverse impacts on the environment and health. (Power TM. Economic Role of Metal Mining in MN, 2007: http://www.cas.umt.edu/econ/documents/faculty/power_econRoleMetalMining.pdf; Boulanger A, Gorman A.Hardrock Mining: Risks to the Community, 2004: http://www.womenandenvironment.org/newsreports/issuereports/Mining_Health_Report_final_lo%23 0.pdf. For these reasons, the DEIS Northmet should provide clear and convincing evidence that the proposed Project will provide citizens of MN with benefits that exceed the risks. In light of the well-documented deleterious impacts on the environment of hard-rock mining in the U.S., the Project proposers should offer detailed evidence as to why the predictable and often devastating effects of hard-rock mining witnessed at mining sites in the U.S. over many decades will not occur with the Northmet Project in northeastern Minnesota.	EOO
58	1.5: Agency Roles and Responsibilities….This would be a convenient place to include all governmental and non-governmental organizations; corporations, consultants, etc. who worked under the direction of "Lead Agencies; Cooperating Agencies, Others". Transparency of the process is critical to serve the public's interest and such information would benefit that interest.	PD9
59	1.6.1: Tribal Cooperating Agency Positions Included in the DEIS: In paragraph 2 last sentence (P1-8) it states "…differences of opinion remain between the lead agencies and the tribal cooperating agencies." Question: Are the differences noted between the DEIS lead agencies and the tribal cooperating agencies differences of opinion or differences in agreement as to facts or both? See 4.1.1.2 below.	RFI

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59	2.3.1: Potentially significant Issues: It is noted that the "Final SDD determined that the EIS would also address the potential cumulative impacts associated with the combined environmental effects of the Project and of past, present, and reasonably foreseeable future actions relative to: Air Quality; Biological Resources; Water Quality; Economic Impacts and Social Impacts. Nowhere in the DEIS, including Chapter 4.0: summary of the cumulative effects (Section 4.14) are the nearby proposed hard-rock mining operations of Franconia; Duluth Metals; Encampment; and Tech Cominco referred to, yet each of these proposed projects—within <25 miles of the Northmet Project site—are expected to have potentially major impacts in the region. To the extent that all these areas are bound together in regional linked ecosystems, the failure to include reference to these projects as noted in the Final SDD is surprising and suggests that Project proposers do not accept the premises embodied in NEPA and/or the heightened legal protections of BWCA and Voyageurs National Park which will clearly be impacted by hard-rock mining.	G9
60	3.2.1: No Action Alternative: It is stated that: "This alternative would avoid the environmental impacts associated with the proposed Action; however, the social and economic benefits from the Project would not occur." Extensive data accumulated over decades indicates that this statement should be modified to include that fact that the highly predictable "bust" cycle that is part of "boom" and "bust" mining cycles would cause "social and economic" hazards as result of this Project.	ALT1,G1
61	3.2.3: Tailings Basin Alternative: (1) Vertical wells (to capture and pump Tailings Basin seepage): in this and other sections the term "seepage" is used but not defined (under Definitions iv). The term "surface seepage" is used. It would seem that "seepage" could occur at the "surface" or below the surface from hard rock fractures resulting from drilling, blasting, and other mining operations. While surface seepage could be recognized and recovered, how does this Draft EIS Northmet propose to 1. Detect subsurface "seepage" and 2. Determine the rates, location, directional flow; and ultimate destination of groundwater in aquifers; bogs; streams; rivers; lakes?	RFI
62	4.1.1.2 Groundwater Resources (see 1.6.1 above): The lack of hydrologic data for the Northmet Project that would allow clear characterization of current bedrock groundwater, flow directions at the mine site and tailing basins is outlined. My review of the supporting data does not provide such detail. Question: Do the DEIS Lead Agencies have a disagreement regarding the facts of available data upon which key hydrological estimates can be made? The data is either available for such analyses or it is not available. There should be no "difference of opinion".	RFI
63	Also, on p4.1.5 footnote a similar "difference of opinion" is noted regarding the "underlying surficial aquifer." If it is the tribal cooperating agencies' position that any conclusions "..based on this aquifer test data have a great deal of uncertainty given the variability in the results" do the DEIS lead agencies have data that refute the "uncertainty given the variability in the results?" It would seem that variability can be quantified and the degree of uncertainty ascertained. Isn't it the responsibility of the DEIS and lead agencies to clarify this?	PRO3,PD8
64	On p 4.1-3 note is made of fractures and joints in the bedrock and groundwater flow through fractures. If fractures occur at deep water levels, one could expect potentially contaminated mine waste chemicals to reach areas other than the Partridge and Embarrass River watersheds and perhaps distant sites such as Birch Lake. The geology of this region could allow this scenario. Have analyses been done to explore such possibilities? Contaminated pits will be present for many years during which time extremes in weather will occur; thus a plausible scenario would involve entry of mine contaminants into adjacent watersheds (see Fig 4.2-9). Please clarify this question.	RFI,WR2A
65	To achieve this goal, the DEIS Northmet should be a transparent and clearly science-based project proposal. The goal of transparency should be advanced by providing detailed information regarding the respective roles of the lead federal and state agencies. The unique, separate and at times, conflicting roles of the Forest Service and Bureau of Land Management regarding oversight and management of the Superior National Forest and mineral resources should be elucidated. The focus, mission and legal underpinnings of these entities are different and goals, objectives, and expected outcomes related to this Project and related projects should be provided.	PRO2
66	4.1.1.3: Surface Water Resources: Mercury in Water: (p 4.1-48). It is noted that "PolyMet is conducting additional sampling in wetlands, streams, and downstream lakes in the Embarrass River watershed under an MPCA approved plan to help better understand mercury dynamics." It should be noted that mercury is an important water hazard but the MPCA should broaden its project to include detailed quantification of acid mine drainage; sulfates; and other heavy metals. Focusing only on mercury provides an incomplete assessment of impacts of hard-rock mining.	WR1E

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66	This raises the question: What is the position of the proposers and lead agencies for managing water quality not in conformance with state quality standards and prior to approving a new mining operation. Shouldn't the existing water quality variances from standards be corrected before approvals are given for new mining projects?	RFI
66	On p 4.1-8: Groundwater Quality: a quote from MN Rules, pt. 7060.0600 states: "The groundwater may in its natural state have some characteristics or properties exceeding the standards for potable water supplies. Where the background level of natural origin is reasonably definable and is higher than the accepted standard potable water and the hydrology and extent of the aquifer are known, the natural level may be used as the standard." It is not clear in the accompanying tables and text how this applies to the current DEIS data. How frequently has this been observed in data collected for this DEIS? The definition of "natural state" would be critical since polluted water left to resume a "natural state" could still be polluted and thus require remediation.	WR1E
67	Since baseline and current mercury and methyl mercury concentrations in watersheds of this Project are critical to assessing virtually all priority categories of this EIS (Water; Fish; Humans; etc) it is surprising that such data are not available to better inform the water assessments and resulting conclusions. The MN Regional Copper-Nickel Study prepared by the MN Environmental Quality Board (EQB) addressed water quality from mineral mining as a concern in 1979 study of Filson Creek, S Kawishiwi River and environs. Increased metals levels of Nikel, Copper and Zinc were found. Related studies of Unnamed Creek and Birch Lake at Bob Bay related to taconite mining (Erie Mining Company's Dunka Pit) documented increased concentrations of sulfates and nickel.	WR1E,WR4B
68	Specific information should be included in the final EIS regarding: who is doing the sampling, who will do the measurements and what will be the timetable for accomplishing the assessments. The details of this MPCA plan should be appended to the DEIS. Such attention is needed for this matter given the hazards of mercury, particularly methyl mercury on fragile ecosystems and also the consequences for bioaccumulation of mercury and implications for human consumption of fish. MN has a growing problem with mercury in water and has existing statewide mercury fish advisories that limit human consumption of fish: see http://www.health.state.mn.us/divs/eh/fish/index.html.	WR1E,WR4B
69	Seemingly "low" concentrations of mercury in water do not necessarily reflect mercury in the biota and fish tissue concentrations which may be logs higher and directly toxic to humans and on wildlife who feed on fish. The critical importance of these issues has led to creation of proposed national mercury monitoring network: see: http://toxics.usgs.gov/highlights/mercnet.html.	WR4B,FM2
70	Has there ever been a circumstance reported in the peer-reviewed literature when such mining operations have not caused such changes? Hard-rock mining causes clear predictable and adverse acid and metal-rich drainage. This DEIS focuses primarily on mercury but as noted above numerous metals leach from mining sites with toxic consequences for the biota. (Kimball BA. Assessment of metal loads in watersheds affected by acid mine drainage..Applied Geochemistry; 17; 2002:1183-1207)	RFI
71	4.1.3.5 Mitigation and Monitoring Measures. On p 4.1-172, Mercury monitoring is noted the MPCA Mercury Strategy (2006) that recommends water monitoring for sulfate releases and effects on methylmercury production and establishment of five monitoring sites on streams draining wetlands…" The language in this paragraph and the next paragraph where it states: "PolyMet should develop a similar mercury monitoring plan for the Mine Site.." are ambiguous. What specifically is the responsibility of PolyMet for achieving the MPCA 2006 recommendations and what does the word "should" mean? Please clarify.	EOO
71	4.1.3 Environmental Consequences: Note is made of Uncertainty re key assumptions and the use of "Uncertainty Analysis" for selected contaminants. Since uncertainty analysis requires a variety of objective and subjective data inputs, such simulations may produce highly variable outputs. It is stated that the analyses were approved by the resource agencies? Could the methodology, data input and analyses be appended to this EIS?	PRO3

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72	4.1.4 Cumulative Effects on Water Resources: It is most disconcerting that there is "..existing seepage from the LTVSMC Tailings Basin" and that the Draft EIS suggests that the duration of these impacts would be extended. Why have the seepage problems not been corrected? The law requires polluting offenders to comply with remediation plans. The current problems should be corrected before any new mining operations are approved.	WR5A
73	As noted earlier, shouldn't the Cumulative Effects summaries in this and other Chapters include major projected mining activities of Franconia; Duluth Metals; Encampment; and Tech Caminco? If not, please provide rationale.	WR5A
74	4.1.4.2 Water Quality: Northern MN, including the area of Northmet Project, has significant existing mercury impaired waters. (Fig4.5-4 and p 4.1-189 re Colby Lake) Almost 1,500 waterbodies in MN require Total Maximum Daily Load (TMDL) list. Remarkably a TMDL pollution reduction study has not been performed for Colby Lake to address this impairment. It would seem reasonable that this Draft EIS Northmet address when this will be accomplished and by whom. Is this planned prior to the projected operation of the Northmet Project?	WR4B
75	On p 4.1-196 it is noted that MPCA (2006) "recommends avoiding "discharges" of sulfate to "high risk" situations, which include wetlands, low-sulfate water…where sulfate may be a limiting factor in the activity of sulfate-reducing bacteria…re the potential for methylmercury production." Has Northmet Project accepted this recommendation? Who will be responsible for ensuring that the recommendation is followed?	WR1E
76	4.2 Wetlands: It would seem reasonable that "non-field" and field analyses be used to determine wetland locations unless there are scientific data that confirm that "non-field" analyses provide as much information as "non-field" plus "field" review. This DEIS states that only "non-field" analyses were used. Why?	WE1
76	Note: Please clarify: Throughout the DEIS statements are made that recommendations have been made after study (such as the above by MPCA.) I am unclear as to what the disposition is on such statements. Are these all included in the final EIS? Are these negotiated with Polymet? Who makes the decision and what is the process? The current DEIS does not provide information to answer this question.	EOO
77	4.2.1.2 Wetland Delineation: Since wetlands in MN are protected by both federal and state laws, it would seem critical that precise definitions of wetlands, including their characteristics be included in the Draft EIS. This is especially true in light of the fact that 70% of the wetlands are "high quality." (p4.2-25)	WE1
78	While much effort has gone into the preparation of this DEIS Northmet, there are major deficiencies: The DEIS does not clearly demonstrate that Project benefits outweigh the risks; there are major gaps in transparency of the Proposal, with no information provided on disclosures or potential conflicts of interest; and finally, each section of the DEIS Northmet contains statements and conclusions that lack supporting documentation of the assumptions upon which these statements and conclusions are based. Profuse generalizations often mask the lack of specific evidence-based answers to critical questions. Much data in this DEIS was provided by consulting organizations, whose science expertise, and relationship (programmatic and fiduciary) with the lead agencies and mining company are not included.	G8
79	4.2.1.3 ; 4.2.1.4; Wetland Classification System: The question is whether the Wetland Classification System Descriptors (see Table 4.2.1 and 4.2-2) may be ascertained by only "nonfield" analyses or whether a more accurate description would result from both non-field and field assessments as noted above.	WE1
80	4.2.4.3: Monitoring: A wetland monitoring plan is not included in the DEIS. But such a plan "should" be implemented. Such a plan has apparently been initiated by Barr 2005 and "may need to be expanded." Several features of this plan are suggested (p4.2-37). Since wetland monitoring is arguably the most important element of the Project's role in ensuring minimum harm to wetlands, it would seem critical that this plan be included in the EIS. This deficiency should be corrected.	WE3

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81	4.4 Wildlife; The fact that numerous species are deemed fragile in MN: federally and state listed endangered, threatened, and species of special concern (ETSC—7species); MN Species of Greatest Conservation Need (SGCN-58 species); the USFS Regional Foresters Sensitive Species (RFSS—23 species), indicates that, while conservation and environmental policies in northern MN have merit, there are major threats to this region from human activities, including mining, proposed sulfide mining and logging and industrial development. It is in this context that this DEIS must be viewed with the plausible likelihood that the Northmet Project will only add to these environmental burdens and threats to wildlife. I found no evidence in the DEIS that the proposed Northmet Site was monitored over time for evidence of the species noted above. This deficiency should be corrected.	WI2
81	Note: Dynamical systems analyses have apparently not been used in preparation of this and other Chapters and Sections of the DEIS. As complex systems, ecosystems lend themselves to such modeling and simulation. The ACE and DNR should incorporate such tools into the EA/EIS process and make the findings public.	G8
82	Canada Lynx: on p4.4-3 it is stated that "..portions of the Mine site lie within the revised boundaries of federally designated lynx critical habitat. A recovery plan has not yet been issued for the Canada Lynx." Will specific responsibilities for the Northmet Project regarding protecting Lynx habitat be included in the final EIS? Has PolyMet physically inspected the proposed Project site for lynx dens?	RFI,WI1
83	The question is: How and to what extent will proposed Project activities affect these species and other species, in the context of all changes in human development in northeastern MN that may compound the adverse effects of mining?	WI5
83	Under NEPA and CEQ regulations, cumulative effects must be evaluated for project proposals, including alternative proposals, along with direct effects and indirect effects. It is therefore critical that a comprehensive assessment of the current and proposed mineral mining impacts on Lynx and snowshoe hare populations be conducted for the areas under consideration for mining and adjacent areas of Lynx habitat.	WI5
84	4.4.3.1 Proposed Action (Environmental Consequences): It is stated that the Final EIS will include results of consultation between USACE and USFWS regarding potential effects on Canadian Lynx and other federally listed species. I suggest that this consultation summary as well as the "process" be included with specific findings from research, assumptions and methodologies used. What specific efforts have been made at the Project site to identify Lynx? Have trail cameras been deployed? Have there been searches of the site for Lynx den sites. Or are statistical data being used to describe the potential impacts of mining on these species?	RFI,WI1
84	Road density has been found to directly affect predators high in the food chain: elk, wolves, wolverines, bears and lynx. (Switalski TA. How many is too many: A review of road density thresholds for wildlife. Wildlands CPR Newsletter, RoadRIPorter, 2006). Although the extent of proposed road development in this DEIS NorthMet may not suggest a deleterious effect on Lynx, it is the combination of multiple seemingly small changes across Lynx range and habitat that must be assessed, since seemingly minor effects in a complex system may in aggregate cause profound and deleterious, often unforeseen, adverse impacts. (Emmons & Olivier Resources. Cumulative effects analysis on wildlife habitat loss/fragmentation….Prepared for MN DNS, May 15, 2006; Fed Reg 2003 vol 68, No. 128. Part III. Dept of Interior: Fish and Wildlife Service. 50CFR Pt 17: Endangered and Threatened Wildlife and Plants; Notice..re Canada Lynx. Final rule. Pp 40076-40101; Hickenbottom JR et al USDA Forest Service Biological Assessment (Canada Lynx) Lynx biological Assessment, Dec. 1999). The current DEIS Northmet does not provide sufficient information to clarify this issue?	WI5

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84	Finally, the cumulative effects analyses are few and incomplete with little information provided about the broader implications of this Project and other hard-rock mining activities in various phases of development and in the queue in the Arrowhead region. While it is vital that Minnesota take a focused view of the potential impact of the Projects, it is critical that a broader view be taken by Mn and lead agencies of the context in which this and related projects are taking place in northeastern MN. The impacts on the biota and on human health of such projects will be felt locally, regionally and globally. The aggregate effects must be critically examined since science tells us that our current rate of human activities affecting land use are unsustainable. (Foley et al. Our share of the pie. Science, 2005: http://www.pnas.org/content/104/31/12585.full; Boakes et al. Extreme contagion…Proc R Soc B, 2009: http://rspb.royalsocietypublishing.org/content/early/2009/11/25/rspb.2009.1771.abstract ; Foley et al Global Consequences..Science, 2005: http://www.sciencemag.org/cgi/content/abstract/309/5734/570; Haberl et al. PNAS 2007: http://www.pnas.org/content/104/31/12942.full.pdf+html)	G8C
85	4.4.5 Approach (Wildlife Travel Corridors): The list of projects identified as potentially impacting wildlife corridors does not include the Franconia; Duluth Metals; Encampment and Tech Cominco projects in the nearby Ely area. Please include these projects in your analyses. It is inconceivable that further development of mining in these areas is not relevant to the cumulative impact of the Northmet Project and other human activities in animal corridors in northeastern MN. Will Table 4.4-9 be revised to reflect these projects?	WI5
86	4.5.3.1 Proposed Action (Environmental Consequences: Fish): Water Quality Effects p4.5-15: Was the conclusion reached in this paragraph informed by the most recent Climate Change data regarding disruptions in normal cycles of extreme weather events? (WHO; UNEP Intergovernmental Government Panel on Climate Change: http://www.ipcc.ch/) Do the assumptions regarding lack of impact even under extreme low flow conditions include changes predicted by Climate Change forecasts? This question applies to all other sections that have reached similar conclusions.	FM1
87	4.5.4: Mercury and bioaccumulation in Fish: The DEIS does not include important science regarding metal contamination from hard rock mining and toxicity in fish and macroinvertebrates other than mercury. Cadmium (Cd), lead (Pb) and zinc (Zn) in water and streambed sediment have been found to exceed Ambient Water Quality Criteria (AWQC). This deficiency should be corrected. (Maret TR et al. Fish Assemblages and Environmental Variables…Trans Am Fisheries Soc 2002;131:865-84. http://afsjournals.org/doi/abs/10.1577/1548-8659(2002)131%3C0865:FAAEVA%3E2.0.CO%3B2)	FM1
88	Even in MN's two Class I areas (BWCAW and Voyageurs NP), visibility impairment is being quantified. New construction and development, including mining companies on the Iron Range, threaten to add to the problem. Global sources of air pollutants are increasing. The projected added air pollution from the proposed activities in this DEIS and subsequent proposed sulfide mining must be evaluated in the context of such changes. Fine particles (which have serious human and environmental adverse effects) will clearly be generated from multiple sources associated with this Project including forest disruption, soil erosion, road building, mining, vehicular traffic, etc.	AQ4,AQ4B,AQ9
88	4.6.1.1 Existing Conditions: Regional Climate and Meteorology: Surface data are reported from the Hibbing Monitoring Station with estimates of the wind direction, etc. Why aren't other closer monitoring data provided. For example, wind roses for MN and surrounding cities (http://climate.umn.edu/wind/windRoseClimatology.htm) provide data from Ely, MN Municipal Airport.	AQ4,AQ5
89	Since one of the major wilderness areas in the U.S. and MN is near Ely (BWCA) it would be imperative to know what impact Northmet Project will have on air quality of the BWCA, which is already suffering from degradation of ambient air quality from power plant and other point sources.	AQ4

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90	Particulate Matter (PM) especially, PM 2.5 micrometers is invisible so one would not expect to see it. Yet these fine particles pose threats, not only to the environment, but to human health. Fine particles are a known cause of cardiovascular disease (heart attacks; strokes); respiratory disease (asthma, COPD) and cancer, particularly, lung cancer. (Department of Health and Human Services: http://www.atsdr.cdc.gov/general/theair.html. The language in this DEIS should be revised to reflect the above. Finally, vehicular traffic and exhaust adds fine particles and other air toxicants to ambient air. Have estimates been made of the contributions to fine particle pollution over the life of the proposed Project?	AQ6
90	4.6.1.2 Local and Regional Air Quality: On p 4.6-2 it is noted that “ambient monitoring data from the closest monitoring stations to the Project are provided in Table 4.6.2.” It is not clear where the “nearest monitor” to the Northmet Project Site was; the data are from MPCA 2008 but the monitor source is not listed. If the data in Table 4.6-2 are from a remote monitoring site, the Northmet Project should request relevant data from MPCA for the Site environs. Also, note is made that the MPCA data was for 2004-06. These data are out of date and should be updated to ensure reliable baseline data are available from the Site.	AQ4,AQ5
91	In addition, the DEIS Northmet and other mining activities in this region appear to conflict with the Forest Service Mission and Goals (USDA Forest Service Strategic Plan FY 2007-2012, USDA, FS-880, July 2007; USDA FS Land and Resource Management Plan, Superior National Forest, July 2004) which state: “Forest Service Mission (is to) sustain the health, diversity, and productivity of the Nation’s forests and grasslands to meet the needs of present and future generations;” and a primary goal: “Promote ecosystem health and conservation using a collaborative approach to sustain the nation’s forests and watersheds.” Hard-rock mining is in direct conflict with the purpose for which the SNF was created. The aim must be to reconcile the strikingly differing legal mandates and missions of lead agencies with stated aims, goals and objectives of PolyMet Northmet Project and related mining and human development activities in northeastern MN.	CPLU3
91	4.6.3.1 Proposed Action (Criteria Pollutants): The assessments of human toxicity from exposure to chemicals used at the Mine Site (Table 4.6-17) need to consider the lung health of workers at the time of their employment. Preexisting respiratory diseases may be exacerbated by exposure to chemicals included in this table. Of great importance is the documentation of cigarette smoking status of workers since some chemicals on this list are mutagens or carcinogens. In general, combined exposure to inhaled chemicals and cigarette smoke may increase the likelihood of development of lung cancer. The Northmet Project should have ready access to state- of- the -art smoking cessation program, including a Quit Line to support workers’ smoking cessation. (these resources may be obtained from the MN Department of Health)	AQ6
92	In addition to the above threats to human health, the mining activities, miners but protect from inhaling fine particles of hard rock dust. Lung neoplasms have been associated with mining and are markedly increased in tobacco smokers. There are concerns about the risk of mesothelioma among hard rock miners: (Univ. MN: http://taconiteworkers.umn.edu/about/study_goals.html. Lemen RA, et al. Epidemiology of Asbestosis-Related diseases. Envir Health Persp., 1980: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1568524/pdf/envhper00470-0008.pdf)	AQ4C,AQ6
93	4.6.4.5 Cumulative Mercury Emissions. As noted above, the projected hard-rock mining operations of Franconia; Duluth Metals; Encampment and Tech Cominco must be included in this analysis and Table 4.6-22.	AQ4B
93	4.6.4.7 Summary of 2006 Visibility Class I Study Scope (Updated 2009): Regional Haze and Visibility Impairment. : On p 4.6-50 a table of projects and actions are presented. Again, this table needs to include all “foreseeable” projects that will adversely impact the air quality of northeastern MN, including Franconia; Duluth Metals; Encampment; and Tech Cominco projects.	AQ4B
94	4.7 Noise: It is stated that the effect of noise on wildlife is reviewed in section 4.4. However, a review of 4.4 reveals a dearth of references to the wealth of science regarding the compelling adverse impact of noise on wildlife and human health. A separate section devoted to this topic should be written and included in the DEIS. The cumulative effects of noise as animals move along corridors over ranges of a few meters to > 100 miles must be considered. (Radle AL. Effect of Noise on Wildlife: A Literature Review.	WI2,N4

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95	4.8 Cultural Resources: Regulatory Framework: It is stated that Cultural Resources management within Federal and State agencies seeks identify cultural resources and balance the need for development with protection. Not included here is an analysis of public opinion in the Arrowhead as to whether the regulatory process is fairly achieving this balance. Development is driven by economic considerations that would likely overshadow the power of those whose goal is to protect Cultural Resources. This DEIS should provide evidence to support conclusions that suggest there are no cumulative effects associated with cultural resources.	PRO5,G3,CR1,CR2,CR3,C
95	Summary: p4.7-9. The use of the word “continuous” is confusing. Does not “discontinuous” noise matter, eg, blasting; 100 ton mine truck traffic; etc? For those people who frequent the environs of the proposed Project for recreation, fishing, hunting, and such activities, the data presented in 4.7 would likely adversely affect their experiences.	N6
95	http://interact.uoregon.edu/MediaLit/wfae/library/articles/radle_effect_noise_wildlife.pdf. The DEIS fails to provide evidence regarding the serious and growing human health effects of noise. Former U.S. Surgeon General William H. Stewart said in 1978: “Noise must be considered a hazard to the health of people everywhere.” (Goins L, Hagler L. Noise Pollution: A Modern Plague. S Med J 2007: http://web.ebscohost.com/ehost/pdf?vid=2&hid=102&sid=72c7f778- d60d-4a16-9a7f-010ec30d90a7%40sessionmgr104)	N5
96	4.10.2: Impact Criteria: This sections fails to include explicit review of the “boom” and “bust” cycles of mining (as noted above) that are extensively documented in the literature and relevant to the DEIS Northmet.	SE3
96	To understand the potential impact of the proposed Project and related projects, systems analyses are required. The DEIS is narrow in scope and fails to address important questions regarding the potential impact of proposed hard-rock mining on the forest and related natural systems. The conclusions in the DEIS do not follow a principle of the USDA U.S. Forest Service: “We use the best scientific knowledge in making decisions and select the most appropriate technologies in the management of resources.” (http://www.fs.fed.us/aboutus/mission.shtml) With science-based and unequivocal dynamic changes in global climate (WHO; UNEP Intergovernmental Government Panel on Climate Change: http://www.ipcc.ch/ (reflected in Ely environs weather in recent years), coupled with multiple recent and pending major human developments in northern MN (mining; new roads; new building; new power sources; and the like) the failure to use the best science, including dynamic systems methodologies, will have grave implications on the future sustainability of these treasured forest and wilderness areas. The data and information provided in this DEIS is inadequate for formulating conclusions let alone formulating the critical questions regarding effects of sulfide mining in SNF, adjacent ecosystems and in the critically protected areas such as BWCA and Voyageurs National Park, which by law require special attention for preservation.	PRO3,G8
96	4.9.1.1 Federal Land Management: A discussion regarding the feasibility for a land exchange between USFS and PolyMet is discussed. This DEIS should not be approved or move forward until such time as the feasibility and legality of this idea be decided. The statement: “This analysis is based on a successful completion of the land exchange and elimination of National Forest lands from the Project” suggests the authors of this DEIS can predict the future. It is impossible for the public to fairly evaluate this DEIS with such speculation.	PRO4

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Comment ID	Comment Text	Theme Codes
96	4.10 Socioeconomics: The major and growing contribution to the Arrowhead region in MN of tourism is not presented in this section and should be so that a more complete view of the economy of this region may be understood. Tourism contributes $11 billion to MN economy, with >41 million visitors annually. These numbers have increased steadily in recent years. The Northeastern region has 16% of the >41 million visitors or about 6.56 million visitors with generation of >$719 million in Gross Sales. This activity contributes 17,932 private sector jobs. (Explore Tourism 2008: http://www.tourismroi.com/Content_Attachments/26124/File_633480214451131154.pdf. A critical question not addressed in the DEIS is the extent to which current and proposed major increase in mining in the region will increase, have no effect or decrease tourism to the Arrowhead of MN. This DEIS needs to address this critical question with data. To focus on shortterm financial gain from sulfide mining and not incorporate long-term consequences, including the predictable "boom" and "bust" mining cycles, in the DEIS analyses is a major deficiency of this DEIS. Potential depression of the tourism industry and land values in the Arrowhead, would have a devastating adverse effect on the entire region for decades to come. (Thomas M. Power (Economics Dept., University of Montana: "The Economic Role of Metal Mining in MN: Past, Present, and Future" prepared for MN Center for Environmental Advocacy and the Sierra Club, 2007.; http://www.sosbluewaters.org/mn_mining_economics_power.pdf.) Unfortunately, a study funded by industry (Labovitz School of Business, Duluth) failed to incorporate destabilizing boom and bust cycles and adverse impacts on the growing tourism industry in their narrowly focused analysis. (http://www.ironrangeresources.org/_site_components/documents/user/aboutreportspublications230. pdf.)	SE3,SE4
97	4.10.3: Socioeconomic Consequences: Impact Analysis for Planning (IMPLAN) was based on old data that does not reflect the current fiscal crisis. What impact will this have on estimating the "boom" and "bust" predictable cycles of the proposed mining?	SE8
98	4.10.4: Cumulative Effects: Note is made that the data in Tables 4.10-15-16 do not appear to be based on the recent, unique fiscal situation in the U.S. and MN. Also note that neither this section nor the section "Socioeconomics" p S14 (Summary) reflect on compelling data regarding the "Boom" and "Bust Cycles", an issue of critical importance to the integrity of the Draft EIS Northmet as reflected by Thomas M. Power (Economics Dept., University of Montana: "The Economic Role of Metal Mining in MN: Past, Present, and Future" prepared for MN Center for Environmental Advocacy and the Sierra Club, 2007.; http://www.sosbluewaters.org/mn_mining_economics_power.pdf)	SE3
98	4.10.3.1: Proposed Action: Environmental Justice: What assumptions are being made to support the statement that: "Therefore the Proposed Action would not have disproportionately high or adverse effects on minority populations?" While it is suggested that the proposed "boom" resulting from the proposed mining would benefit low income persons, isn't it logical to assume that the "bust" that could occur at any time during the proposed 20 year operation of the mine would have a deleterious impact on low income families—potentially a devastating impact on persons who lack safety nets of community support?	SE2
99	4.14 Cumulative Effects: The USFS must ensure that a full range of cumulative impacts, past, present and foreseeable future, from mining in this area and adjacent areas or regions are included in the analyses. The DEIS Northmet 2009 is narrowly focused and it appears to this reader not meet the CEQ definition and intent of the National Environmental Policy Act. The cumulative and related effects of mining exploration and hard rock mining in this area and the impacts of extending the 100 mile plus Iron Range corridor deep into northeastern Minnesota's SNF and BWCA wilderness areas, have not been addressed adequately as required by National Environmental Policy Act (NEPA) of 1969 (29) (CEQ Sec. 1508.7: Cumulative Impact). Cumulative Effects analyses on wildlife habitats in this region have demonstrated the need for such information. (Emmons & Olivier Resources, Inc. Cumulative effects analysis on wildlife habitat loss/fragmentation and wildlife travel corridor obstruction/landscape barriers in the Mesabi Iron Range and Arrowhead regions of MN. MN DNS, May 15, 2006).	G9
99	Although the DEIS states that for many projected changes above the levels would be compliant with MN or related standards, it is the case that these increases and projected adverse impacts will combine into the aggregate of such changes in other mining activities to produce a net negative impact on the environment in the Arrowhead region.	G8C

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100	This project will cause a net reduction in wildlife habitat and increase habitat fragmentation. On a local scale the loss is quite significant. The DEIS should clearly state, not obfuscate these facts. If the company were environmentally concerned, the DEIS would contain actual measures they plan to take to mitigate the loss, not suggestions of what they might be able to do.	WI2
100	A reasonable measure, from a sustainability standpoint, would be to ask Polymet acquire an area of similar quality forest and wetland habitat and put it in public ownership. At a minimum, they should be required to replace the public forest land area that will be destroyed. This should be land that is currently unprotected from development, and is located in the St. Louis River watershed. The DEIS states that Polymet and the USFS are exploring the feasibility of a land exchange (pg 4.4-7). This land exchange needs to be identified and secured prior to completion of the EIS, so the relative merits of the two parcels for wildlife habitat, recreation and other resource benefits can be evaluated in the light of public scrutiny.	WI4,CPLU4
101	The Wildlife Section of the DEIS primarily evaluates the effects of the project on rare species (The federally- and state-listed Endangered, Threatened, and Special Concern species; the Minnesota Species of Greatest Conservation Need; and the U.S. Forest Service Regional Foresters Sensitive Species) (pgs 4.3-5 to 4.3-9 and 4.4-1 to 4.4-9). Very little is said about other more common plants and wildlife using the area, or the value of the habitat for wildlife in general. Their concern is focused only on those species that have some legal standing or protection. To adequately analyze plant and wildlife impacts all kinds of wildlife and their habitat should be considered. Their overall value at the plant and animal community level should be analyzed. In addition, their recreational and economic values to people should also be considered, especially since much of the project site is currently public forest land.	WI5
101	A significant omission in the DEIS is that I find nothing about the impacts to Canada moose. This is an important species in northeastern Minnesota that may be in trouble. What is the value of the habitat for moose that will be lost and how will this impact their population? Both wetlands and conifer cover are key habitats for moose and this project would destroy a large amount of each.	WI2
102	The potential for long-term, cumulative impacts from copper-nickel mining are enormous. The Polymet project will be a precedent setting event. It is imperative that the DNR and COE permit this mine in a way that truly protects the environment and is sustainable. The regulatory bar should be set high enough so this type of mining is done correctly from the beginning. The mining companies should not be allowed to get rich at the expense of our forest, wetland, water and wildlife resources, which would all be seriously impacted by the current form of the DEIS.	EOO,G8C
102	The DEIS states that bald eagles are not likely to be adversely affected by the project because the project site is more than 2 miles from any known nest sites and it does not provide optimum habitat for nesting and feeding (pg 4.4-13). However, eagles and other water birds may travel long distances to feed and rest, and will use nearly any body of open water at times. The tailings basins and other open water bodies on the project site will most likely be used at times by eagles, osprey, herons, ducks, geese, kingfisher, mink, otter, etc. These species are common on taconite tailings basins. What contaminants will they be exposed to? What is the likelihood they could bio-accumulate heavy metals, mercury or other contaminants? Could this be an issue for hunters who may eat waterfowl that have used these contaminated waters?	WI1,WI2,WI3,FM1
103	The DEIS states that the project will create 278 acres of open water by flooding the West Pit and that water quality will exceed surface water standards for several parameters (pg 4.4-19). The West Pit will be fenced to deter wildlife, but that will not prevent most of the species listed above from accessing the pit and its contaminated water.	WI2
103	A similar concern applies to the Partridge, Embarrass and St. Louis rivers. Increased sulfate discharge from the mine and discharge of atmospheric mercury form the processing plant would likely increase export of methyl mercury from these watersheds. This could affect fish and wildlife all the way to Lake Superior. An increase in sulfate discharge may also destroy what is left of wild rice beds in the St. Louis River watershed. Wild rice is a critical habitat for fish and wildlife. How will these contaminants be evaluated and monitored? This is not discussed at all in the Vegetation or Wildlife sections of the DEIS.	WR4B,WR4C,WR4F,G3,C

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104	The DEIS states that two studies have been done that have identified between 15 and 18 wildlife corridors left along the Mesabi Iron Range (pg 4.4-30). These vegetated corridors provide avenues for plant and animal migration across the heavily disturbed Range. According to the DEIS two of the corridors will be impacted to some degree by Polymet. The DEIS goes on to say that several other corridors will be significantly impacted by other projects. They conclude that the impacts by Polymet are relatively minor in comparison, and thus are not a concern. This is not a valid conclusion. If other corridors will disappear, then those left at Polymet become even more important. Every effort should be made to minimize the impact and restore them fully. The corridors may become even more important in the future if climate change occurs and plants and animals are forced to migrate northward.	WI5
104	The overall concern I have with this DEIS is that it takes a minimalist approach that seems to disregard or underestimate the project's impacts. The measures given to avoid, minimize and mitigate the impacts are narrow and inadequate. The significant environmental dangers that copper-nickel mining presents, the possibility of cumulating impacts from more mines in the future, and the need to develop our lands in a sustainable manner demand a much stronger EIS, or a moratorium on copper-nickel mining as Wisconsin has done. We need a project and a company that will set high standards that will meet, not avoid, the sustainability goals laid out in DNR's Conservation Agenda.	G2D,G12
105	There is a low level of commitment made in the DEIS to protect the environment. It is clear that Polymet and the DNR are willing to only meet the minimum requirements to obtain the mining permits. The language in the DEIS indicates they will not achieve high environmental standards, or mine in a way that has a low impact on Minnesota's natural resources. My hope is that the DNR and COE will force Polymet to abide by higher standards, or deny their permits.	EOO
105	In addition, there is no financial assurance that the project would be mitigated or cleaned up when the mining is done. Copper-nickel and other types of sulfide mining have a history of placing huge burdens on taxpayers to clean up the pollution they have left behind. What kind of financial resources does Polymet have, and will a bond be posted for cleanup to protect taxpayers? Will the DNR request that the state require some kind of financial protection for environmental cleanup? If Polymet cannot afford to mine copper-nickel in an environmentally sustainable manner, then our state cannot afford to permit the mine.	PD4
106	According to the DEIS this project will impact 1522.1 acres of wetland. This is a tremendous loss of wetland in a state that advocates a policy of no-net loss of wetlands! According to the DEIS the Polyment mine will operate for 20 years and thus the minerals extracted from this mine will only provide a temporary financial benefit to the state. These wetlands, which have a number of known beneficial functions and values, will be lost forever. What is the economic cost of this wetland loss to the St. Louis River watershed? How can this huge wetland loss be justified? Why is underground mining not considered as an alternative to reduce these significant wetland impacts?	WE2,SE4
107	This project will destroy a diverse variety of high quality wetland types including both perched bogs and groundwater flow influenced wetlands. Coniferous bog and open bog are the wetland types that will be most impacted. Nearly all of the wetland mitigation will take place offsite in a different county and watershed, and will create a different type of wetland. There will be a net loss of coniferous and open bog, and other wetland types in the St. Louis River watershed. The important water quality functions and values that such wetlands provide to the watershed's ecosystem will be forever lost. How much change will occur in surface and groundwater temperatures, flow regimes, storage volumes and water quality in the headwaters of the receiving streams as a result of the removal of so much wetland? Wetlands, and especially peatlands, also provide a high level of carbon sequestration which is important for combating climate change. Peatlands are nearly impossible to create artificially. These issues and impacts have not been adequately addressed in the DEIS.	RFI,WR3N,WE2,WE3
108	The Wetlands section of the report refers to the presence of white cedar and balsam fir in the coniferous wetland communities (pg 4.2-5). Cedar and fir are very important as thermal cover for wildlife. What is the extent of these cover types in the project area? White cedar is an important cover type in the northern forest that is declining in abundance in Minnesota because it is very difficult to regenerate, especially in areas with high deer numbers. Will the wetland mitigation for this project include the establishment of white cedar to replace what is lost on the project site? If so, how will this be accomplished since both wetland mitigation sites are located in areas of the state that have high deer numbers?	WI2,WI4,WE1,WE3

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109	The large area of wetland loss, the diverse types and high quality of these wetlands and the difficulty of recreating such wetlands are factors that strongly indicate more effort should be made to avoid this wetland loss, and that mitigation should be required within the St. Louis River watershed.	WE3
109	Like wetlands, a large area of forestland will be destroyed by this project. Most of it is diverse, high quality forest. Much of this forest is rated by the DNR as having a “High Biodiversity Significance”. Most of it is currently public forestland. This section of the DEIS focuses on rare plant species, but does not discuss many other important aspects of this forest land. What are its recreational values for hunting, trapping, hiking, bird watching, berry picking and other outdoor activities? What are its commercial values for timber harvest and biomass? What is the carbon sequestration value of this forestland? How and will these values be mitigated or will their loss be another permanent cost for this temporary mining project?	SE4,AQ3
110	The level of detail available is appreciated in the sense that a great deal of significant information is being disclosed, and it is too often the case that detailed information is withheld from the public largely because agencies don’t consider the public to have the expertise necessary to review and competently comment on this detailed information. On the other hand, the large volume of detailed technical reports appended to this DEIS pose real challenges for public sector reviewers with limited resources and limited time to review this information. However, given a choice between too much or too little detailed information, this reviewer believes that it is always best to err on the side of more information, because too little supporting information often means that critical details and assumptions go unreviewed, and can lead to significant errors in the project design.	EOO,PRO6
111	Recommendation: Ore-transport rail cars should be completely enclosed, for example a tipple-dump type car that would not have hinges that could leak, and which could be sealed with a hardtop cover to prevent windblown dust loss. Soil monitoring along the rail line should be required to document the absence or presence of soil contamination. Provisions should be made to remove at least the top one foot of soil as a part of mine closure. Failure to remove contaminated soil has led to contaminated storm water runoff at other mine sites.	PD7
114	• Mercury monitoring recommended for receiving waters for sulfate releases to high risk areas for methylmercury production. Five monitoring sites on streams draining wetlands (two of which receive seepage from the Tailings Basin) and five additional monitoring sites at the downstream Sabin and Wynne lakes should be established. (DEIS, p. 4.1-172)	WR4C,WE3
114	• PolyMet should develop a similar mercury monitoring plan for the Mine Site, in particular, to ensure that mercury concentrations within the West Pit would meet Great Lake Initiative standards at the time of overflow (~Year 65). This should include monitoring of mercury from peat in the Overburden Storage and Laydown Area as well as mercury concentrations in WWTF effluent. (DEIS, p. 4.1-172)	WR4C,WE3
114	• It is recommended that monitoring of both groundwater and surface water include both total and dissolved aluminum on a regular basis to ensure that the state water quality standard for dissolved aluminum would be maintained. (DEIS, p. 4.1-172)	WR1A
115	• A recommended mitigation measure is shielding the operation light sources downward to reduce light impacts. (DEIS, p. 4.11-5)	G2E
115	• Recommendation: A thorough testing program for verifying the target permeabilities of the various subgrade barriers should be required. If testing indicates that the specified permeabilities are not being reached, then corrective measures should be required. (see report section 3.1.2.10 Waste Rock and Overburden Management)	PD2
115	• It is recommended that wetland monitoring be conducted during Project operations and Closure over a larger area (to be determined during permitting) to determine if any additional impacts would occur. (DEIS, p. 4.2-24)	WE3

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115	• Recommendation: Ore-transport rail cars should be completely enclosed, for example a tippledump type car that would not have hinges that could leak, and which could be sealed with a hardtop cover to prevent windblown dust loss. Soil monitoring along the rail line should be required to document the absence or presence of soil contamination. Provisions should be made to remove at least the top one foot of soil as a part of mine closure. Failure to remove contaminated soil has led to contaminated storm water runoff at other mine sites. (see report section 3.1.3 Proposed Transport of Ore)	PD7
115	• It is recommended that existing wetland acreages and impacts be delineated prior to issuance of the Final EIS. (DEIS, p. 4.2-27) [Note: Tribal cooperating agencies take the position that this delineation should occur prior to the issuance of the DEIS so that the public can review a complete set of potential impacts from the project.]	WE1
116	• Recommendation: As with the rail transport of the ore, soil monitoring at the concentrate loading facility and along the rail line from the plant should be required to document the absence or presence of soil contamination. (see report section 3.1.5.1 Beneficiation Plant)	PD7
117	• Recommendation: Centerline construction of the expanded tailings facility should be considered even though it would be more costly, and would likely require the destruction of more wetlands. (see report section 3.1.5.3 Management of Process Waste Products, Flotation Tailings)	WE2,PD10
118	Shipment of concentrate from the plant is also projected to be by rail. However the concentrate will either be shipped in pneumatically sealed rail cars, or in rail cars with a rigid cover. These are appropriate methods for concentrate shipment.	PD7
119	• Recommendation: Given the nature of the material to be stored in the hydrometallurgical reside cells, these cells should be designed to withstand the maximum credible earthquake. (see report section 3.1.5.3 Management of Process Waste Products, Hydrometallurgical Residue Cell Design and Operations, Cell Seismic Stability)	GT2
119	• Recommendation: A better description of the composite liner for the hydrometallurgical residue cells should be included in the DEIS. The additional cost associated with a double liner with leak detection for the hydrometallurgical residue cells is not cost prohibitive. A double liner with leak detection would provide maximum protection for the residue material, and should be required. (see report section 3.1.5.3 Management of Process Waste Products, Hydrometallurgical Residue Cell Design and Operations, Cell Liners)	WR2D,PD2
120	• Recommendation: It should be clearly stated in the DEIS what levels of contaminants would trigger the use of capture wells for treatment, and what standards the treatment of the water must meet in order to be discharged into the Partridge River. (see report section 3.2.3 Tailings Basin Alternative)	WR2G
120	• Recommendation: Closure water treatment, as well as the other closure costs, will probably require a financial surety of approximately $100 million. This is too important an issue to be ignored in the DEIS process. The financial surety amount should be analyzed and disclosed to the public in the DEIS. (see report section 4.1.3.1 Proposed Action, Closure (Years 20 to ~65))	WR3I,PD2,PD4
121	• Recommendation: More discussion and verification should be given to the finding that the sulfide sulfur content of the tailings is and will remain under 0.13% and non-acid producing. (see report section 4.1.3.1 Proposed Action, Effects on Groundwater Quality at the Tailings Basin)	PD2
122	• Recommendation: The mitigation of storm water management controls should be required, not recommended. This is good pollution prevention practice. (see report section 4.1.3.1 Proposed Action, Non-contact Stormwater Runoff)	EOO
123	It should be recognized that concentrate poses significant risk for contamination because of its high metal content and the small particle size of the concentrate material. Recommendation: As with the rail transport of the ore, soil monitoring at the concentrate loading facility and along the rail line from the plant should be required to document the absence or presence of soil contamination.	PD7
123	• Recommendation: At a minimum, contingencies should be put in place to fund long term water treatment well beyond the 65-year limit assumed in the DEIS. This is for the protection of the budget and citizens of Minnesota and the environment. (see report section 4.1.3.1 Proposed Action, West Pit Overflow Water Quality)	WR3I,PD4,PD5

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124	Under the Proposed Action, flotation tailings would be placed on Cells 1E and 2E of the former LTVSMC tailings basin. The existing LTVSMC tailings basin is unlined. The future tailings basin perimeter dams would be raised in an upstream construction method using compacted LTVSMC bulk tailings. Upstream construction poses the highest risk for seismic and static failure of tailings dams. Most tailings dam failures have been associated with upstream dam construction.	PD11
124	• Recommendation: In order to ensure that the mercury capture systems on the autoclaves are functioning as designed, a monitoring scheme should be required that will provide statistically reliable data on the autoclave mercury emissions.	G2B
124	• Recommendation: Geotechnical stability is too important an issue to leave for analysis after the mine has been permitted. These stability issues should be thoroughly investigated and the issues resolved as a part of the DEIS process. (see report section 4.13 Geotechnical Stability)	GT1
125	The International Commission on Large Dams and UN Environmental Program offer the following assessment of the three basic types of tailings dam construction methods – upstream, downstream, and centerline. (See Figure A – Types of Sequentially Raised Tailings Dams)	PD10
125	The primary concern with upstream tailings dam construction is its susceptibility to failure during earthquakes. If the tailings upon which the dam is constructed are saturated with water, the tailings do not form a stable foundation for the dam under seismic loading. (See Figure B – Upstream Dam Construction with Zones of Liquefied Slimes) Tailings are placed in a saturated state. Tailings materials are relatively uniform in their size and shape, and typically have very low permeability, a fact often cited by mining engineers to argue that liners are not needed for tailings facilities. As a result, it will be difficult to consistently drain the water from all the tailings under the proposed dam expansion.	PD10
125	Continuing to use upstream-type dam construction methods to increase the capacity of the tailings at the NorthMet tailings facility is the least expensive approach, but poses the most risk to long term seismic stability. The proposed buttressing in the Tailings Basin Alternative would help, but not eliminate this concern. Recommendation: Centerline construction of the expanded tailings facility should be considered even though it would be more costly, and would likely require the destruction of more wetlands.	WE2,PD10
126	The hydrometallurgical residue cells will be constructed at the edge of the existing tailings Cell 2W. Construction of the hydrometallurgical tailings cells on existing tailings, which are susceptible to seismic liquefaction, and are contained by upstream-type dams, also poses long term seismic stability risks. For an upstream-type tailings dam, which uses the tailings themselves as a structural foundation for the dam, the tailings must be dewatered in order to safely support the dam under seismic loading. Not only are these cells constructed on top of existing tailings, which have the potential to liquefy during an earthquake, but the taconite tailings cell was also constructed using upstream dam construction method, the most seismically unstable tailings dam construction method. If a portion of the Cell 2W dam fails in an earthquake, it would likely cause the failure of the hydrometallurgical residue cell located on top of it. Recommendation: Given the nature of the material to be stored in the hydrometallurgical reside cells, these cells should be designed to withstand the maximum credible earthquake.	EOO,PD8
127	There is no drawing of the "composite liner" so it is assumed that this is not a double liner with leak detection, but merely a synthetic liner placed directly on top of a GCL liner. A double liner with leak detection would be the most protective liner design approach.	EOO,WR2D,PD2
128	Recommendation: A better description of the composite liner for the hydrometallurgical residue cells should be included in the DEIS. The additional cost associated with a double liner with leak detection for the hydrometallurgical residue cells is not cost prohibitive. A double liner with leak detection would provide maximum protection for the residue material, and should be required.	EOO,WR2D,PD2
128	Probably the most glaring omission is that there is only the most scant analysis of the financial surety that will be needed for this project. As is discussed in more detail to follow, the financial surety for this project could easily be in excess of $100 million. This is very significant potential impact to the budget and citizens of Minnesota, who are ultimately accountable should the mine operator go bankrupt without an adequate financial surety to close the mine and treat waste water. If the mine operator were to go bankrupt without an adequate financial surety public funds for closure would either need to be provided, or the public would bear the environmental consequences of not properly closing the mine. Either way, the public would pay, probably for centuries.	PD4

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129	A very important part of the environmental analysis for a mine is evaluating the reclamation plan. The reclamation plan documents not only what the goals for the reclamation of the site will be (i.e. the designed post-closure use), but also what is needed in terms of reclamation methods and financial resources to achieve the reclamation goals. The reclamation plan will be a living document. The mining plan and the timing of various mine activities will change during mine operation, and new reclamation technologies might be available when it is time to close the mine. However, mine reclamation should not be developed based on future technologies, or future financial resources. The pre-mining reclamation plan needs to lay out a basic approach to reclamation, using technologies that are proven and have measurable costs, and with enough detail to provide a conservative but reasonable estimate of what these closure costs will be. This cost estimate would be used to establish the amount of the post-closure financial surety, until it is amended by subsequent estimates that are based on actual operating costs and pre-closure reclamation experience at the site.	PD3
130	The goal for the first version of the reclamation plan should be to assess whether there are technologies available to responsibly close the mine (i.e. assuming the mine operator goes into bankruptcy and the regulatory agencies must assume responsibility for closing the mine), and to assess these technologies in enough detail to conservatively estimate the cost (i.e. to ensure that the public will not bear the financial responsibility for cleaning up and closing a mine abandoned by an operator). The reclamation planning presented in the DEIS does not meet this standard.	PD3
130	The discussion of site reclamation in the DEIS does go into considerable detail about what will be done to close the various mine facilities, but it does not go far enough to present these details as a complete reclamation package that can be assessed in terms of what the overall reclamation goals are and how they will be met, whether the closure technologies that are proposed are viable, and how much implementing these closure and post-closure technologies will cost.	PD3
131	The present Closure Plan2 does contain short term goals and objectives derived from a number of project reports that discuss the various mine facilities and how they will be closed, but it doesn't discuss the methodology of how this will be accomplished, or how much it will cost.	PD3
132	Typically mine closure and post-closure costs run in the tens to hundreds of millions of dollars. This is a significant potential impact to the public that should be discussed as a part of the DEIS process. Today many, if not most, mining DEISs do analyze the reclamation plan as a part of the DEIS process.	PD3,PD4
133	A "preliminary" reclamation closure cost estimate is presented in the DEIS Table 3.1-14 "NorthMet Project Preliminary Closure Cost Estimate Summary." However, this "preliminary closure cost estimate" is not supported by detailed calculations and/or information. One of the technical support documents "PolyMet Technical Design Evaluation Report RS52 Mine Closure Plan Report" does discuss mine closure, but again does not provide sufficient documentation to substantiate this closure cost estimate. Lack of a viable reclamation plan and closure cost estimate is a major flaw in the DEIS.	PD3,PD4
134	Recommendation: Since reclamation planning poses a significant environmental and economic impact of the mine development, a complete preliminary reclamation plan and cost estimate analysis should be included in the DEIS. The plan should be developed to show the reclamation liability on a year-by-year basis.	PD3
135	Annual review of the reclamation plan, and costs, as proposed in the DEIS (pp. 3-43, 3-44) is the best way to review and update reclamation estimates.	PD3
136	An example of a reclamation plan with an appropriate level of planning detail and cost estimates is the Pogo Project Reclamation and Closure Plan, December 2002. The document is available through the Alaska Department of Natural Resources, Anchorage, AK, and was submitted as the referenced reclamation document for the Final Environmental Impact Statement, Pogo Gold Mine Project, USEPA, Region 10, September 2003.	PD3
137	Every DEIS should contain a Draft Reclamation Plan, which includes a detailed analysis of the financial surety, so that it is demonstrated before the project is allowed to proceed that project closure can be accomplished using demonstrated reclamation techniques, and at a cost that is affordable. Lack of a viable reclamation plan and closure cost estimate is a major flaw in the DEIS.	PD3

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Comment ID	Comment Text	Theme Codes
138	In Table 3.1-7 "Waste Rock Placement Schedule" it can be seen that all of the Category 1 & 2 waste rock is produced in years 1-11. Backfill of the East Pit begins in Year 12, so the 125 million tons (approximately) of Category 1 & 2 waste would require temporary storage and then must be moved into the East Pit. If Category 2 & 3 & 4 Lean Ore and Waste Rock are backfilled instead, only 57 million tons (approximately) of this material would require temporary storage before being moved into the East Pit. Therefore, this option provides not only a potential environmental benefit, but also a significant economic benefit to PolyMet, since some 68 million tons will need to be moved only once, instead of twice.	PD11
139	"Under this alternative, the permanent subaqueous disposal of the most reactive waste rock (all Category 2, 3, and 4, waste rock) in the East Pit, rather than in permanent surface stockpiles, would virtually eliminate long-term sulfide oxidation and associated solute release and would significantly improve groundwater quality at the Mine Site relative to the Proposed Action. This predicted enhancement in groundwater quality would ultimately result in improved water quality in the Partridge River for most parameters." (DEIS, p. 4.1-146) These statements also support the supposition that water quality would be better protected by the Mine Site Alternative.	EOO,PD11
140	The alternative reduces the Project's potential impacts to surface and ground water quality by capturing approximately 95 percent of the seepage generated from the PolyMet operation including from the proposed NorthMet tailings by a series of vertical wells installed on the lower-most bench of the tailings facility. Captured seepage would be pumped and directly discharged to the Partridge River.	WR1F
141	In the DEIS it is stated: "If it were determined upon further analysis during permitting, or during operational monitoring, that pretreatment were necessary prior to discharge, a treatment facility would be installed." (DEIS, pp. 3- 52, 3-53) It is not clear from the wording in the DEIS what would trigger the requirement for "pretreatment," or what standards the pretreatment would need to meet prior to discharge.	WR2G,PD8
142	Recommendation: It should be clearly stated in the DEIS what levels of contaminants would trigger the use of capture wells for treatment, and what standards the treatment of the water must meet in order to be discharged into the Partridge River.	WR2G
143	Another aspect of the Tailings Basin Alternative is buttressing of the toe of a portion of the northern embankment of Cell 2E. Any effort to increase the stability of the present upstream-type tailings dams would be lower long term financial risk to the public, and lessen long term environmental risk.	PD11
144	An analysis of the costs of underground mining is given in support document "ALT11 High Level Underground Costs," PEG Mining Consultants Inc, July 30, 2009. This was not a detailed analysis of the costs of underground mining at the NorthMet site. The document is only 2+ pages in length, and lays out what must be rough estimates of the costs of underground mining compared to open pit mining. The scope and depth of the analysis presented in ALT11 is not enough to state conclusively that underground mining is not economical at this site.	ALT8,EOO
145	That being said, based on my experience I would agree that underground mining would not be viable given metals prices today. However, a significant portion of the mill processing facilities are already in place from previous mining. Underground mining might be economical at this site in the future with an increase in metals prices, and when the processing technology proposed for the NorthMet operation has been proven enough to clearly quantify the costs.	ALT8,EOO
146	The comments by the tribal cooperating agencies also yield some additional information on the topic of potential underground mining. "A study of this particular deposit was performed by U.S. Steel that recommended underground mining. By examining cross-sections showing the distribution of ore by depth, it appears that there are substantial ore reserves at depths that likely could not be accessed by the proposed open-pit mine. The ecological costs of open-pit mining and above-ground disposal of tailings and waste rock are immense. This ecological cost, combined with the most current understanding of deposit ore grades and reasonably possible metals prices, must be evaluated to determine the viability of this alternative." (DEIS, p. 3-64)	ALT8,EOO

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Comment ID	Comment Text	Theme Codes
147	Upstream-type tailings dam construction, which was used for the existing taconite tailings, poses a long-term stability risk to the proposed hydrometallurgical residue cells. Upstream-type construction will also be utilized to contain the project's flotation tailings, and again poses a long-term risk, although less than that to the hydrometallurgical residue cells because the hydrometallurgical residues contain much higher levels of contamination. A thorough analysis of the risk associated with tailings dam construction has not been done, and needs to be conducted as a part of the DEIS.	PD11
148	One of the most important components of closure, especially from a financial standpoint, is whether there will be a need for long term water treatment. There are a number of places in the DEIS where it is stated that water treatment after closure will be required, but this is probably best summed up by the following sentence: "Additional wastewater treatment - during the approximately 45-year closure period, the WWTF would be operating at reduced capacity and this excess capacity could be used to provide additional treatment of process water, East Pit overflow water, or even West Pit lake water." (DEIS, p. 4.1-167)	WR3I,PD5
149	It is not clear from the discussions in the DEIS just what the Closure water treatment scheme will be. In RS52, the Mine Closure Plan Report, closure water treatment is described as follows:	WR3I,PD3
150	The basic costs of the system have been estimated in RS29T, although it is clearly stated in that document: "Costs for the potential treatment technologies considered in this evaluation are outlined in Appendix F. These estimates represent preliminary (feasibility study level) costs, not detailed costs that would be associated with the design and construction of a wastewater treatment facility. These costs are developed as a basis for comparing alternatives in this evaluation." (RS29T Wastewater Treatment Evaluation, Barr, 30Mar07, p. 5-12)	PD4
150	However these cost estimates are useful in that they give at the very least an order of magnitude estimate of the capital and operating costs for the water treatment system. It is also obvious from these estimates that with not too much more effort this approach could be used to develop an estimate for the purpose of establishing a financial surety for closure water treatment.	PD5
150	The Closure water treatment systems will need to operate for at least 45 years, and the existing treatment systems will be 20 years old when closure begins. Given that the closure operating period is over twice as long as the 20 year mine operating period for which the cost estimates were made, and that the treatment systems will quite likely need to be replaced and upgraded during this 45 year period, using a figure of twice the cost estimate for the operating mine would seem to be a reasonable estimate. That would place the net present value of the Closure water treatment in the range of $54 million to $74 million for financial surety purposes.	PD5
151	This is a significant amount of money, and an amount for which the public is potentially liable should the mine operator go bankrupt. It should also be noted that the cost estimate in Table 3.1-14 "NorthMet Project Preliminary Closure Cost Estimate Summary" (p. 3-48) does not appear to contain water treatment operating and capital costs.	PD4
151	Recommendation: Closure water treatment, as well as the other closure costs, will probably require a financial surety of approximately $100 million. This is too important an issue to be ignored in the DEIS process. The financial surety amount should be analyzed and disclosed to the public in the DEIS.	PD4
151	It is well known that mine waste can produce contamination by way of Metals Leaching (ML) under neutral or basic pH conditions. It should also be noted that the flotation process produces tailings with a sulfide sulfur content that is just under the range that could produce Acid Mine Drainage (AMD). Recommendation: More discussion and verification should be given to the finding that the sulfide sulfur content of the tailings is and will remain under 0.13% and non-acid producing.	WR1E,PD2
152	Recommendation: The mitigation of storm water management controls should be required, not recommended. This is good pollution prevention practice.	EOO

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Comment ID	Comment Text	Theme Codes
152	The mitigation measures proposed in the DEIS are almost exclusively recommendations vs. requirements. The description of the mitigation measures end with statements like: the measure "warrants further consideration;" or, "it is recommended that …;" or, the measure "should…; or, could…, or would…." The agencies should clearly state which of the mitigation measures would be required in the permits, and which they consider to be voluntary for the mine operator. That way the public has the ability to weigh the importance of the voluntary mitigation measures, and can then comment on the relevance and importance of the voluntary mitigation measures.	G2D
153	However, the assumptions that lead to a conclusion that water treatment will no longer be required after 65 years should be considered very tentative. For example, the assumptions used in determining the scaling factors summarized in Table 4.1-37 – Solute Release Scaling Factors, (lab to field) for the release of contaminants from waste rock piles could easily contain inadvertent errors (for example in the choice of particle size, temperature, fraction of rock flushed by infiltrating water, and the upper limit of contaminant concentrations) that could cause a significant departure from the predicted contaminant loads assumed in the DEIS.	WR3I
154	It should also be noted that water quality standards for mercury could be exceeded in the long term discharge from the West Pit: "Since neither the WWTF nor the East Pit constructed wetlands, which are the two primary treatment facilities for inflow to the West Pit, are expected to be consistently effective in mercury removal, concerns exist regarding the potential mercury concentration in the West Pit." (DEIS, p. 4.1-123)	WR3I
156	Deterministic modelling and the Uncertainty Analysis both indicate the possibility of potential water quality exceedances from the West Pit discharge after closure, although PolyMet disagrees with this analysis. Predictive results for post-mining water quality and quantity for many mines over the last two decades have yielded very poor results.3 3 Comparison of Predicted and Actual Water Quality at Hardrock Mines, Kuipers et al., 2006. This strongly suggests that a conservative approach to requiring financial surety for Closure water treatment should be taken.	WR3I
157	Recommendation: At a minimum, contingencies should be put in place to fund long term water treatment well beyond the 65-year limit assumed in the DEIS. This is for the protection of the budget and citizens of Minnesota and the environment.	WR3I,PD4
158	Clarification: This reference to the cessation of WWTF operation may be an inadvertent error, but if not please cite the documentation that supports the statement that the WWTF will not be required after year 50.	RFI
158	It is not apparent why the WWTF would no longer be required after year 50. This time frame for the WWTF does not appear to be substantiated by the discussion in the DEIS, or in the supporting documents.	WR3I
159	In virtually every case, the mitigation measures are almost exclusively recommendations vs. requirements. The description of the mitigation measures end with statements like: the measure "warrants further consideration;" or, "it is recommended that …;" or, the measure "should…; or, could…, or would…."	G2D
160	The agencies should make it clear which of the mitigation measures they consider important enough to make requirements in a permit, and the mitigation measures for which they are still weighing the environmental benefit versus the cost to the operator. In this way the public can provide more meaningful comment on the proposed project.	G2D
161	See the consolidated list of recommendations, including both the recommendations from this review and the voluntary recommendations taken from the DEIS, at the end of the report.	G14
162	All waste rock piles are to have engineered liners. The waste rock with the least predicted ability to generate acid mine drainage and/or metals leaching is the Category 1 and 2 waste rock. Category 1 waste rock piles will have an engineered barrier layer and overlying drain layer to minimize the amount of waste rock seepage that will enter groundwater. Categories 3 and 4 waste rock liners have additional liner protection in the form of a synthetic liner placed on top of the engineered subgrade barrier. In describing the subgrade barrier layer to limit vertical infiltration from the waste rock piles, it is stated that the barrier layer will have permeabilities ranging from 5x10-7 to 1x10-5 cm/sec. (DEIS, Table 3.1-9) Clarification: How will this specification be tested during construction? What methods will be employed if testing indicates that the target permeability is not being attained?	PD2,PD11

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Comment ID	Comment Text	Theme Codes
163	Recommendation: The agencies should clearly state which of the mitigation measures would be required in the permits, and which they consider to be voluntary for the mine operator. That way the public has the ability to weigh the importance of the 'voluntary 'mitigation measures, and can then comment on the relevance and importance of the voluntary mitigation measures.	G2D
164	To require that a project must "… have filed for permits" in order for it to be considered for cumulative impacts is imposing an unreasonably strict definition of what is a reasonably foreseeable impact.	WR5A
165	For example, there are several mining projects in the advanced stages of exploration that should be considered as reasonably foreseeable. These projects include the Duluth Metals Ltd - Nokomis deposit and the Franconia Minerals Corp - Birch Lake deposit. Ignoring the potential for these developments understates the cumulative impacts to the region.	WR5A
166	Recommendation: Mining projects in the advanced stages of exploration should be included as reasonably foreseeable impacts for analysis of the NorthMet project's cumulative impacts.	G9
Sender Last Name:	Sorensen **Submission ID:** 2211	
2618	Oh, I support PolyMet. I am a laid off boilermaker and this project could give me and my family work. It could give me work and feed my family. So that's all I have got to say. I am all for it. Thank you.	EOO
Sender Last Name:	Soular **Submission ID:** 2256	
2666	This letter will serve as official notification that I support PolyMet Mining. Based on the extensive documentation as outlined in the DEIS, I am confident that impacts to the air, water or land will be minimal, if any. I believe that PolyMet will produce these metals in an environmentally sound way and generate significant economic activity in a depressed area. After thirty-five years of service, I lost my job with LTV Steel in 2001, when LTV permanently closed. For several years I struggled to support my family, picking up jobs wherever I could. For the past two years I have worked at PolyMet at Hoyt Lakes, Minnesota. PolyMet is an excellent project that demonstrates we can have both economic development and a good, clean environment for everyone to appreciate. I have lived in this area all of my life and I am obviously concerned about our environment, not only for myself but for my family as well. I have children and grand-children that also reside in this area. I am also an avid outdoorsman and I am very interested in maintaining a healthy natural environment, not only for my own enjoyment but for the enjoyment of future generations. I believe that PolyMet can operate - and create nearly 1,000 direct and indirect jobs - without threatening the most important legacy we will leave our children - the clean environment we have enjoyed in Northeastern Minnesota for generations.	EOO,G2
Sender Last Name:	Soules **Submission ID:** 2206	
414	First of all, there's -- just a couple months ago a federal judge in the Eastern District of Wisconsin ruled in a case called the Highway J Case that public meetings where the comments are limited to just being taken by a stenographer as opposed to being made out in the open, that that violates the National Environmental Policy Act, so in my view the way in which public comments are being received at this public hearing violates federal law.	PRO6
415	Secondarily, given the EIS has only recently been released and given that the comment period extends until early February, it is again my view that there should be additional public hearings near the end of the EIS process, not just near the beginning of the process.	PRO6

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Comment ID	Comment Text	Theme Codes
416	And then finally, and probably most importantly, I do believe it was highly inappropriate to have a series of public officials, elected politicians who were on record supporting this project to speak at the beginning of an informational meeting on this environmental impact statement. I believe that that tainted the entire -- the entire meeting process, and I think there should be subsequent public hearings which are not front-loaded with a bunch of pro comments by elected officials, that should be just be a pure informational session as opposed to cheerleading -- cheerleading sessions.	PRO1,PRO6
417	And then finally, given that it is an 1800-page EIS document, I think -- and given the purpose of the National Environmental Policyt that citizens are able to provide informed comment and play -- essentially have an informed role in the EIS process, I think that the comment period should be extended past February 3rd, at least by 30 days, probably 60 more days, just so that people have time to digest the document and then provide truly informed comments.	PRO6
769	As a threshold matter, I would like to elaborate on the comments I made to a court reporter at the December 10 meeting in Blaine. I believe that this EIS process does not satisfy the National Environmental Policy Act's (NEPA) goal of informed public participation. In particular, I think the process is deficient in three respects: 1) At the Blaine meeting, the DNR improperly allowed certain project proponents (e.g., pro-mining state lawmakers) to make comments in public, while forcing everyone else to make their comments in private to a court reporter. This is problematic for two reasons: first, by limiting public comments to project proponents, the Minnesota DNR improperly tainted the entire public hearing in favor of the project. This "informational" meeting felt more like a political rally than a neutral forum for public comments. Second, by prohibiting citizens from speaking in public, the DNR undermined NEPA's goal of "informed public participation." Friends of the Boundary Waters Wilderness v. Dombeck, 164 F.3d 1115, 1130-31 (8th Cir. 1999) (citation omitted). 2) I continue to believe that, given the enormous size of the draft EIS, and the serious implications this project has for Minnesota's environment, a longe comment period should have been provided. Again, NEPA is intended to ensure "both informed decision making and informed public participation." Id.; see also 40 C.F.R. § 1500.1(b) (recognizing that "public scrutiny [is] essential to implementing NEPA"). Providing a longer comment period serves these important goals. 3) The DNR's decision to hold only two public meetings, both of which were held relatively early in the comment period, prevented many members of the public from having enough time to properly review the EIS so they could provide informed comments. Further, I believe that additional public meetings should have been held, particularly in the Twin Cities (as well as other parts of the state). NEPA contemplates robust public participation in agency decisions that affect the environment. Holding a single public meeting on the northern outskirts of the metropolitan area – at a location inconvenient to urban residents, those dependent on public transportation, and many minority communities – hardly satisfies the spirit of this law. The solution to the above-mentioned defects is obvious: the DNR should extend the public comment period an additional thirty to sixty days; hold additional public meetings on this project (including at least one meeting in the Twin Cities proper);	PRO6
1063	Loss Of Wetlands - The project would allow the loss of 1200 acres of wetlands in St. Louis County and the St. Louis River watershed, with an inadequate mitigation plan. Beyond the negative effects on water quality and habitat, the loss of these wetlands will result in a loss of the carbon sequestration benefits provided by these wetlands.	WE3
3243	I also have deep concerns about the substance of the draft EIS, including the following: 1) Water Quality - Water quality concerns have not been adequately addressed in the draft EIS. Water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. The mine's tailings basin will also produce discharges high in sulfate concentrations, which will turn mercury into methlmercury, making fish dangerous to consume.	EOO,FM1

Sender Last Name: Spaeth **Submission ID:** 1700

5	My principal concerns revolve around noise and water pollution potential which I don't feel the DEIS has sufficiently addressed to alleviate my concern. I am also weary of the precedent being set for more and more mining in the region. It is presently a gem of a National Recreation and Wilderness Area which attracts tourism, provides jobs, and is sacred ground for the spiritual connection to nature that it provides.	G8A,G11

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Comment ID	Comment Text	Theme Codes
5	My principal concerns revolve around noise and water pollution potential which I don't feel the DEIS has sufficiently addressed to alleviate my concern. I am also weary of the precedent being set for more and more mining in the region. It is presently a gem of a National Recreation and Wilderness Area which attracts tourism, provides jobs, and is sacred ground for the spiritual connection to nature that it provides.	EOO,WR1E,N1
2187	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources. I admire recent mining improvements and applaud the industry's respectable advances. I also feel the type of mining proposed for this wetland area is unstable. The short term gain is out of balance with the long term loss. I would be supportive when legislation approves appropriate financial assurance.	G4A,G7C
Sender Last Name:	Sparks **Submission ID:** 3130	
1020	I am writing to express my concern about the DEIS for the proposed sulfide mine in Minnesota. I don't think that the DEIS has clearly identified the means that will be used that absolutely eliminate the possibility of contamination of the wetlands. How will the basin be designed to insure stability over time? How will the basin be designed to eliminate all possibility of hazardous waste materials from escaping?	WE2,WE3,GT2
Sender Last Name:	Spaulding **Submission ID:** 2574	
3132	I am writing to endorse the acceptance of the Polymet Draft EIS. After reviewing the document I believe it is comprehensive and will ensure that the project goes forth in a manner acceptable to the people of Minnesota.	EOO
Sender Last Name:	Speckman **Submission ID:** 2827	
913	We can't risk harming the water quality in our state and especially in that area. Losing 1200 acres of wetlands in St. Louis County and the St. Louis River watershed will result in a net loss in carbon sequestration provided by these wetlands. Wildlife and fish might be harmed, which eventually harms all of us. Don't do this. Just don't.	AQ3
3196	Find other ways to bring jobs to the area. Let's stop harming our natural resources.	G2
Sender Last Name:	Spector **Submission ID:** 1769	
1101	Concerning impacts on water quality, I understand that the water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. This is unacceptable to me. It is unreasonable to expect that mining companies will be able to maintain water treatment facilities for that amount of time and it is an unfair burden to pass on to future generations of Minnesotans who will inevitably be left to pay for these operations. Additionally, it will be all but impossible to calculate sufficient financial assurance for a mining operation that is going to require such long-term care. Once our clean water is gone, ITS GONE FOR EVER. Do not take the word of an industrial concern because they don't and won't live in this state. They're only motivation is to dangle a few jobs in front of the local miners while they'll be carting cash out of the state. Once problems arise, they'll ask the state to clean them up. DON'T BE SUCKERED, YOUR NAMES WILL FOREVER BE ASSOCIATED WITH THE DAMAGE DONE!	PD2,PD4
Sender Last Name:	Spencer **Submission ID:** 2869	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3217	I love the Boundary Waters. It is a big part of my family and our tradition. It is hard for me to think about people destroying my family's tradition just for copper and nickel. The Boundary Waters are not just a big part of my family tradition, they are a huge part in many people's lives. This mining process will hurt the environment of the Boundary Waters hugely. Sulfates in the water impact our health and aquatic vegetation. Sulfates and elemental mercury react to each other in a process called Mercury methylation. Methylmercury is the form that bio-accumulates in fish in which humans eat. I will never understand why people would want to harm this great natural boundary. It is a hard concept for me to comprehend. There are a million reasons why this mining process is bad. I only named a couple. Please think about what you are about to do and think about how it could affect so many animals' and people's lives. Think about the right thing to do and how you would feel if you lost something close to you. Just think about it.	G2C,G7A
Sender Last Name:	Spiespdf **Submission ID:** 2837	
3199	I hope Minnesota will prevent this type of mining and any others that carry unknown environmental impacts from occurring like Wisconsin has. The proposal is insufficient in demonstrating that environmental impact is minimal and worthwhile. This mining has the potential to cause great environmental problems such as ground-water pollution, acid rain, etc. As a Minnesotan, I do not want to take the chance at degrading our environment to produce short term financial gain. Let's not open doors for foreign business to degrade the Minnesotans' quality of life by stressing and damaging our fragile,fertile, beautiful ecosystems.	EOO,G2,G7A
Sender Last Name:	Spoeth **Submission ID:** 3395	
3685	The proposed Polymet mine in Northern Minnesota is a huge economic risk for Minnesota. The short term economic gains do not outweigh the long term enviornmental and economic burdens. Taxpayers will have to pay for the remediation of this project's clean up if large financial assurances are not given up front by Polymet.	G4A
Sender Last Name:	Spreth **Submission ID:** 3335	
3628	Sulfide mining has proven destructive in every case across the United States. Wisconsin currently has a moratorium against sulfide mines until a company can prove that they won’t pollute. According to the Minnesota Environmental Policy Act this sulfide mining project should not be considered because it will impair water quality near Hoyt Lakes. Eventually, that water drains into Lake Superior.	G7B,G12
Sender Last Name:	Spry **Submission ID:** 1046	
1149	I support PolyMet Mining's NorthMet Project.	EOO
3552	I support the Polymet "NorthMet" Project. I applaud all of those people who have spent tens of millions of dollars and hundreds of thousand, if not millions, of manhours putting this eis together. Mining is not new to this area nor are the people working on this project and eis. Polymet has taken all environmental precautions into consideration for this new style of processing in MN. The amount of effort put into this eis and the environmental precautions placed into the design for this mine is not seen anywhere else in this world. There should be no reason not to move forward on this project. The local economical impact for this project will be huge. The state economical impact will be huge. The regional economical impact will be huge. And it will continue to trickle down to help the entire national economic situation. Putting people to work is the backbone to a stable economy. It is time to act, now. Thank you for considering my support for this project.	EOO
Sender Last Name:	Stabler **Submission ID:** 1093	

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Comment ID	Comment Text	Theme Codes
1197	I support the PolyMet Mining NorthMet project. We need to create jobs in this country and this project will do just that.	EOO
Sender Last Name:	Staffon, Jones, Blakeborough **Submission ID:** 3699	
1	The Polymet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers	G2
2	9) What is the basis for Polymet not lining the tailings basin while the underlying LTVSMC tailings basin is also not lined? (Section 4.1.3.1) What assurances can be provided that there will not be extensive groundwater contamination even with the other response actions that are propose by Polymet e.g. bentonite injection and seepage barriers?	RFI
2	8) The relationship between surface and groundwater (Section 4.1.1.2) is not adequately characterized. What are the data on which these assumptions are based?	WR2A
3	The alternative to sulfide mining is for the state of Minnesota to raise revenue by selling back the mineral interest that they hold on millions of acres in Minnesota back to the surface estate owners. This will increase property values and lead to a stabilization of environmental conditions more conducive to attracting non-mining business and promote the stated goal of the IRRB to diversify the economy.	EOO
4	Control of metals will end up overseas anyway inflating the cost of buying them back. Potholing of our national forests through an erosion in the Weeks Act is a greater economic harm. The PolyMet project and the filling of the excess capacity for its plant through the mining of areas north of the plant will cause a polluted corridor from Superior, Wisconsin, to Lake of the Woods on the Canadian border creating a barrier to wildlife migration and contaminating a food supply for thousands of hunters and fishermen. This contamination will affect all of the states by diminishing and poisoning migratory birds on the Mississippi flyway including all states fronting the Mississippi River. This activity constitutes a violation of the Migratory Bird Act and other law.	WI2
5	Public opposition has been disregarded from the method that the DNR has used for conducting due process notice and hearing, to the repeal of environmental and mine worker safety laws by the legislature, to the overturning of Aitkin Counties decision to deny exploration permits.	PRO6
5	Picher Oklahoma needs to be looked at as an example of what is likely to happen in Northeastern Minnesota if PolyMet goes through. Picher was the center of a zinc and lead mining region in Oklahoma until the 1970's. Recently it has had lead poisoning among its children of 30 percent. The inability to mitigate the pollution and fix this problem has resulted in it being declared a superfund site by the EPA. Residents continue to live in denial that mining companies, former governments, or their own bad judgment are responsible for their diminished property values. They blame the EPA for low property values because of the listing as a superfund site.	G8
6	My great-grandparents raised ten children in Elmer Township, which fronts the St. Louis River. Currently, the township's biggest employer is the peat mine. More mining. My Greatgrandmother is buried in the cemetery there. When the farmers are gone her grave will grow over from neglect and her life as an immigrant farmer at the turn of the twentieth century will be forgotten. PolyMet pollution will stop any chance of a revival of an agricultural economy. Mining and PolyMet will kill all other economic activity and displace the people who care about any other aspect of the economy. Ely, Two Harbors, and Duluth with their prosperous tourism economies, are next on the list of mining destruction. The Range delegation won't stop until no one has anything and all that is left are the ghost towns across the whole region. No consideration is shown for the economic loss of displaced farmers, cabin, resort and other property owners.	G1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
6	The PolyMet proposal is not just a mine it includes a processing facility. This processing facility should be of a more serious and alarming concern. The process proclaimed to be clean and water based in fact involves large quantities of toxic chemicals and is sulfuric acid based. It simply substitutes water born pollution for the airborne pollution of a smelter. Nothing in the Minnesota DNR's Environmental Impact Statement is reassuring that large quantities of these pollutants will not be discharged into the St. Louis River. The St. Louis River already has a PH lowered from iron mining activity. Fish consumption advisories are posted along the river and people have had to seek medical treatment from acute mercury poisoning from eating the fish. The PolyMet project will inflame the mercury problem and project it downstream to contaminate the drinking water of cities like Duluth, Cloquet, and Superior, Wisconsin. The results of studies done to show pollutants in the various watersheds from year to year are subject to manipulation, e.g. the pollution would be minimized by dilution at high water levels, and should be deemed suspect, inaccurate, and minimized.	WR1E,WR2D,WR5A,FM1
6	The EIS prepared by the Corp of Engineers fails to assess inflow into from the nearby 100 mile swamp and the Partridge River. No testing has been done to assess this inflow. The EIS neglects to assess pollution already occurring in the partridge river, Embarrass River, and St. Louis River already occurring from iron mining and other sources. No assessment is made of negative economic impacts.	WR3J
6	A key part of the environmental portion of the EIS is the treatment method indicated at 3-9, 3-10. The EIS states there in part that treatment of reactive water will be done by "membrane separation and chemical precipitation technologies. Experience of the MDNR and MPCA has shown at the Soudan Mine site that proper treatment of mine water is unavailable. The DNR stipulated to the payment of a ten thousand dollar fine to the MPCA, agreed to pay for a twenty -five thousand dollar supplemental environmental project, and put ninety thousand dollars in escrow for future non-compliance related fines. The DNR remains out of compliance with legal emissions standards for copper, cobalt, and mercury. A Study conducted initially in Sweden, replicated by Canada, and a college in Minnesota showed that the addition of Sulfides to a swamp stimulates the production of methylated mercury for which fish consumption advisories have already been issued.	WR1E
7	The DNR cannot be trusted as it continues to be in violation of the law at the Soudan Mine site. It's EIS recites conclusions and not facts and is not properly explained. The tailings basin is not to engineering standards and will collapse as the Forbes basin has, as can be seen on Google Earth. An aerial view of other taconite mine basins shows that most mines allow run-off of their tailings pond water and simply berm around the collapsed and leaking sections of tailings. PolyMet is going to have to to pump out the 100 mile swamp and in the process flush every bit of it through its pit basin and with it will be pumped out every bit of poison any sulfide mine has ever given up and in the process kill the swamp. Why should people in Wisconsin have to suffer the pollution of our interstate water for jobs in Minnesota and Michigan when it's legislature has made PolyMet Sulfide Mining categorically ILLEGAL.	G7C
7	Chemical precipitation, a.k.a. bioremediation, has failed at other sight as well. At the Buck/Dober Mine complex in Iron River/Caspian Michigan, the discharged water has left a trail of Acid Mine Drainage and metal precipitate leading to the Iron River and is clearly failing from a simple visual inspection of the site. Even if bioremediation is partially successful in neutralizing acid and precipitating out heavy metals, it result in a release of arsenic and other toxic substances and never sequesters methyl mercury that becomes toxic to fish and humans. In general, all liners leak and eventually release toxins into river systems. PolyMet's promise to have a liner and cover system constructed of "local till overburden soils generated from the processing of overburden removed from the mine pit and stockpile footprint areas" are merely a description of the stockpiles themselves and promise the no run-off will be collected and treated. This assertion is not supported by any proof and is merely speculative on the part of PoyMet	WR2C

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
7	The additional pollutants combined with the already poor health of the river will cause problems for the St. Louis River Estuary, and it is foreseeable that it could contaminate our drinking water out into Lake Superior. The contamination of the St. Louis River is a civil legal violation of the riparian water rights of the downstream water users for drinking, recreational, agricultural, industrial, and other purposes. This contamination is not merely regulatory or administrative, it is a violation of common law, a taking without compensation by state government if the project is permitted, a violation of the Great Lakes Compact, a violation of the NEPA law and other law. The permitting of pollution of Minnesota waters to the detriment of downstream users given the vast holdings of the State of Minnesota of mineral interests for lease, its entrenched relationship in the industry, subsidies given or allowed by the State of Minnesota, and equity owned by Minnesota officers constitutes an unconstitutional taking without compensation and not for a public or legal purpose. The pollution from the PolyMet toxins will end up in our Duluth/Superior drinking water, degrading and destroying our health and our prosperity.	WR3E,WR3I
7	The solid silting/suspended solids clouding the St. Louis river including the Spirit Bay estuary will be increased by PolyMet. The methyl mercury contamination, silting, and other toxic contamination of interstate waters is un-neighborly, provides poor public relation with, and is illegal and offensive to the neighboring state of Wisconsin that has seen the wisdom in banning this type of mining. The inability of the State of Minnesota to treat or effectively regulate mine run-off and sulfide/methyl mercury pollution in particle, is outlined in their "Progress Report" authored by Bavin & Berndt in May of 2008. The LTV tailings basin in particular, has shown a higher discharge of these pollutants.	WR1A
8	The MDNR's claim that adding toxic waste from metals processing to the old LTV's tailings basin will result in the now admittedly toxic run-off turning clean underscores the stupidity of the whole project. Adding limestone to the tailings basin with the tailings from the Dunka Pit has failed to stop or arguably even decrease the release of sulfides, heavy metals, mercury, arsenic, and other toxic substances. This is indicated in the DNR's own Bavin and Berndt study. The claim that sulfide mining tailings and discharge at PolyMet will turn polluted water into clean water is just as erroneous as the claim made that sulfide pollution and limestone can produce a commercial grade of Gypsum. China has tried this with catastrophic results. The Chinese company that exported wallboard made with industrial waste sulfides is facing hundreds of millions of dollars in liabilities for supplying a defective product used in US homes.	WR1E,G9
9	In April of 2008, the Duluth News Tribune Article relating to a rate increase wrote that there would be a ten percent rate increase fully attributable to subsidizing a lower rate for PolyMet. From 2006-2007 income from Minnesota Powers energy business went up from 52.4 million to 65.9 million, so why the need for unprecedented rate increases? With an increase in community opposition to PolyMet has come a change in the story. Now the Tribune writes that a rate increase is needed by "so we can bring cleaner, greener energy into our systems."	G1
9	I am writing to object to the manner in which the following hearing is being conducted. It is clear from the attached news release that the hearing being conducted presents a safety concern and that the hearing is being conducted in spite of a clear and present danger to the public. The danger being that the hearing is being conducted in a building where the available parking space for that building is being expected to be exceeded. No regard has been given in that light to the safe occupancy capacity for the building that the parking lot serves.	PRO6
10	I would like to speak to the socioeconomic benefits that are identified in the Draft EIS, and one of those comments is that I understand that the -- the length of the mining operation is 25 years or 20 years, and then there's an additional 45 years for mitigation and cleanup and so forth. My point I'd like to make is that if you are a young person who hopes to be hired on on this project, let's say you're 20, by the time you're 40, 45, the mining operation will cease to exist and you will not have enough years to retire, and so there you are at 40, 45 without a job. And so I wonder if someone has weighed the cost benefits of that impact, and I'd like to see a response to that in the final draft statement. That's it. That's all I want to say.	SE3
15	1) How will the waste rock generated by the mining operation be evaluated and handled so that the materials can be segregated into the four waste rock categories? This issue appears not to be addressed.	PD11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
15	2) The Tribal Cooperating Agencies make cogent and well researched comments about the impacts from this proposed activity on surface and groundwater. Their comments should receive serious consideration (eg footnote 19). Impacts based on data should receive higher credence than impacts based on professional opinion or empirical observation.	EOO,WR1E
16	3) It appears that there are no contingency plans for unexpected but potential scenarios such as flooding of tailings basins or pits.	WR1E
17	4) The EIS addresses groundwater seepage due to groundwater levels down gradient of the tailings basin that would cause seepage, wetland impacts and upwelling. What about other impacts, e.g. flooding, storm events etc?	WR3A,WE2
17	5) What is the response to concerns from the "high risk situations for mercury methylation" (p. S- 9) for human health and the environment?	FM1
18	6) The case needs to be made for adequate protection provided by the proposed waste rock stockpile liners and covers. The construction that is proposed is inadequate. Eighty mil LLDPE geomembrane on top of clay soils is inadequate for a variety of reasons.	PD2
19	7) Why are financial assurances not fully disclosed in the NorthMet DEIS? The comments regarding this issue provided by the Tribal Cooperating Agencies are valid and deserve to be fully addressed.	PD4
20	This letter will serve as official notification that I support PolyMet Mining. Based on the extensive documentation as outlined in the DEIS, I am confident that impacts to the air, water or land will be minimal, if any. I believe that PolyMet will produce these metals in an environmentally sound way and generate significant economic activity in a depressed area. I have lived in this area all of my life and I am obviously concerned about our environment, not only for myself but for my family as well. I am also an avid sportsman, especially enjoying hunting, fishing and trail riding. Actually, my job is grooming trails. I am very interested in maintaining a healthy natural environment, not only for my own enjoyment but for the enjoyment of future generations. As a person who lives, works and plays in the area, I understand the need to balance use of resources like minerals and preservation of resources such as water and air. I feel this EIS lays the proper groundwork for developing an environmentally and economically sustainable project.	EOO
20	History of environmental degradation resulting from similar mining-several states have a moratorium in place on this type of mining because it has resulted in horrendous environmental degradation. Wet environments are far more impacted by the release of sulfur and mercury than dry environments. Polymet claims they have a new procedure that will limit the environmental impact. Is one of the last great freshwater systems in the world the best place to test this new science? In reality we use the products made from these ores so we should ensure the mining is done safely. The DEIS indicates more needs to be required of Poly met to ensure that the mining will be done safely for the people, plants, animals and environment, both during the active mining period and well in to the future.	EOO
20	Long-term financial guarantees-Mining projects similar in scope to this project have left enormous economic burdens on the surrounding communities resulting from environmental degradation and social impacts, especially after closure of active mining. Polymet talks of long-term jobs being 20-years. That is short-term in the life of a community. Our communities suffer enormous financial burdens that are peaking now due in part to the closing of iron mines over 20 years ago. Mining companies involved must be required to put sufficient funds into escrow for both environmental and social impacts. These companies without local ties must be held accountable for their impact as they reap what must surly be enormous financial gains.	PD4
20	Water and air quality monitoring-The MPCA and USEP A have been understaffed and underfunded in recent years. A project of this scope with untested and unproven processes would require substantial, consistent monitoring to ensure the watersheds are not being polluted. The DEIS enumerates several anticipated water quality concerns for the immediate area surface water, groundwater, wetlands and the greater St. Louis River Watershed (which empties in to Lake Superior) both during the mine operation and after closure. In addition to monitoring there needs to be public access to monitoring data.	WR1A,WR1E,AQ5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
21	This letter will serve as official notification that I support PolyMet Mining. Based on the extensive documentation as outlined in the DEIS, I am confident that impacts to the air, water or land will be minimal, if any. I believe that PolyMet will produce these metals in an environmentally sound way and generate significant economic activity in a depressed area. I n previous years, I spent a lot of time in this area as my family resided here. Upon my retirement a few years ago, I moved to this area and made my home in Aurora. I am obviously concerned about our environment, not only for myself but for my family as well. I am also an avid sportsman, especially enjoying hunting, fishing and trail riding. I am very interested in maintaining a healthy natural environment, not only for my own enjoyment but for the enjoyment of future generations. As a person who lives, works and plays in the area, I understand the need to balance use of resources like minerals and preservation of resources such as water and air. I feel this EIS lays the proper groundwork for developing an environmentally and economically sustainable project.	EOO
22	This letter will serve as official notification that I support PolyMet Mining. Based on the extensive documentation as outlined in the DEIS, I am confident that impacts to the air, water or land will be minimal, if any. I believethat PolyMet will produce these metals in an environmentally sound way and generate significant economic activity in a depressed area. I have lived in this area all of my life and I am obviously concerned about our environment, not only for myself but for my family as well. I am also an avid sportsman, especially enjoying hunting, fishing and trail riding. I am very interested in maintaining a healthy natural environment, not only for my own enjoyment but for the enjoyment of future generations. I also serve on the Aurora City Council. As a local elected official, I have a responsibility to ensure the long-term health, sustainability and vitality of my community. Long-term sustainability requires a clean environment and stable employment. PolyMet can produce these metals in an environmentally sound manner and create hundreds of stable jobs that can support families in this community. As a person who lives, works and plays in the area, I understand the need to balance use of resources like minerals and preservation of resources such as water and air. I feel this EIS lays the proper groundwork for developing an environmentally and economically sustainable project.	EOO
22	The permit for PolyMet should be denied because the technology is unproven on a large scale separating a variety of metals. The lack of reliability in the process creates an undue risk of financial and environmental harm when the technology fails and an already open and polluting pit has to be mitigated with public money after the PolyMet business fails. This risk increases when market conditions are taken into consideration. Minnesota has never had a profitable sulfide mining operation and will be competing with already developed and profitable mining regions around the world. The PolyMet project also disregards the basic economics of supply and demand. As metal prices have increased numerous other projects have materialized or will be coming online for production which will overwhelm PolyMet's profitability and requiring large public subsidy for it to survive or for closure.	EOO,PD2
22	Furthermore, the time period for the mine to operate has been exaggerated in the EIS. The mine does not have the capacity to supply the mine for twenty years with a supply of economically processable ore. Any claim to the contrary given uncertain prices for the ores and on the basis of unproven technology regarding what level of richness in ore can be economically and viably be processed is for propaganda purposes only. The Flambeau Mine is an example of a plant that failed to live up to the promise of longevity for job creation.	EOO
22	PolyMet is claiming publicly that it will create 400 jobs at its processing plant. The plant that they are seeking a permit for will be 3 times the capacity of the mines. The EIS needs to be corrected to reflect this and reprocessed for additional comments based on the corrections and the additional mines that are proposed to supply the additional capacity need to be specified in the reprocessed EIS. Otherwise, the permit can only allow permitting for a plant that will only meet the capacity of the permitted mine.	PD9
22	The following are my comments in response to the DEIS promulgated by the MDNR on the PolyMet project proposed for roughly a few miles north of Hoyt Lakes Minnesota. The project as portrayed by the media is indicative of a mentality of gold fever. It has mostly been described as precious metals mining when the DEIS itself refers to sulfide mineralized deposits and the emphasis of the project is on the production of base and not precious metals. The emphasis on jobs creation from the project take on the air of desperation. A subject for a sequel to a Stephen King movie.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
22	GPM,inc(all 37 employees) strongly support the Polymet project in Hoyt Lakes. We believe the draft EIS demonstrates that the impacts to the water and air will be minimal. Furthermore, Polymet is located on an existing brown field in an area where mining has occurred for over 100 years. The Polymet operation will impact the environment far less than the iron mining operation that occupied the minesite for the fifty years previous. Because the Northmet project will produce strategic metals essential to the American economy which are currently being imported, it is important to note we will no longer have to rely on foreign countries for these strategic metals. Polymet operation will supply livable wage jobs for over 400 people in an economy that desperately needs jobs; and injecting millions of dollars of state and local taxes into the state coffers at a time when the state badly needs additional dollars to operate should be of primary consideration. GPM, Inc will need two additional employees as just a token of new jobs throughout Minnesota that will be developed to support the economic expansion. GPM, inc needs this to prevent layoffs let alone adding new jobs. We have been patiently waiting for the permitting process to be finally completed so we can save our business. Please speed the process up----not another delay….PLEASE(say all 37 empoyees)!	EOO
22	Furthermore, the burden of proof in reviewing the permit issued by the DNR needs to be adjusted to reflect the DNR's financial interest as an industry participant. The burden of proof needs to be reallocated to the DNR to show the truth and accuracy of the EIS claims made. The DNR leases property to mining companies a practice which has continued through the EIS comment period. The DNR is not impartial as an industry participant and it would be unfair to the public and the industry to set a precedent a deferential standard for the DNR. For example, the DNR will give permitting preference to mines for which they have a lease and will receive a royalty.	EOO
23	Every day I see an add promoting gold or other metals investment. This unregulated situation invites market manipulation. When the ads are withdrawn sales will decrease and so will prices. The industry manipulates prices. On a trip to Arizona in 1979 I rode with a truck driver who told me that his twenty thousand pound load of copper was being brought to the warehouses to await a price increase. This manipulation makes our community vulnerable to industry blackmail for the jobs it creates and the pollution from a non-producing and abandoned mine.	G1
24	The DNR's plan for more mining has already caused an obstruction in the goal of economic diversity. The economics of the State of Minnesota owning mineral rights to twenty-five percent of the mineral rights beneath the state creates a cloud on economic development by creating a fear of uncompensated relocation for mining and redistributes the tax burden to non-mining businesses as a result of lowered collection from the encumbered land.	EOO
24	I care about jobs and economic prosperity in Northeast Minnesota as much as anyone and that is why I oppose PolyMet. The economic dislocation of jobs in industries such as tourism and the economic impacts of its pollution will far outweigh the four-hundred jobs to be created. PolyMet is simply a taking. A taking of our clean water, property values, and health. It will increase costs for other businesses. Increased health care costs, a larger share of the tax burden for businesses that remain and as we have already seen increased cost of electricity to subsidize PolyMet that must absorbed by small business. Polymet has already been subsidized heavily. Much of the taking is yet to come. The already acidic condition of the St. Louis River as indicated by the sign at the swinging bridge in Jay Cook and the toxic condition as indicated by the fish consumption advisory at the Munger Trail bridge indicate a fragile condition that cannot sustain more loading of these substances.	G1

Sender Last Name: Stalling **Submission ID:** 374

417	-Inadequate characterization of the potentiometric surfaces of bedrock aquifers from lack of measuring water levels, the potential for surface-water and groundwater interaction with respect to the Embarrass and Partridge Rivers, and the degree to which groundwater moves vertically naturally and under the influence of drainage through the bedrock to the mine pit.	WR2A

Sender Last Name: Stark **Submission ID:** 1126

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1234	I am very concerned about the possibility of sulfide mining in Northern Minnesota and especially in close proximity to the Boundary Waters and the watershed of Lake Superior. I strongly urge a moratorium on permits for sulfide mining until strong assurances can be given that the groundwater and surface waters can be protected. We have a moral obligation to protect the few wilderness areas we have left.	EOO,WR3B,WR3D,G12
1576	We must stop sulfide mining until miner can prove conclusively they do not pollute groundwater and surface water. We must not stick taxpayers with horrendous clean up bills as other states have. I strongly urge that no more mining permits be issued to sulfide mining interests.	EOO,G4A,G7A
Sender Last Name:	Stavnes **Submission ID:** 178	
169	My name is Steve D. Stavnes and I support the Northmet project 100%. The Iron range is in desperate need of new mining/technology that will enable the communities to flourish. The environmental impact appears to be minimal and the new technology seems state of the art.	EOO
Sender Last Name:	Steen **Submission ID:** 1351	
1578	I'm surprised at the possibility of an open pit mine in very close proximity to some of our states most beloved wilderness. The proximity to the BWCAW will no doubt place it in shared watersheds. I understand the sulfide concentration is relatively low resulting in the need for more material removal to gain enough precious metal to make the project worthwhile. This makes me wonder if the risks of a foreign company, cutting a ineffiecient mine in our most loved park is really worthwhile.	EOO,G2A,G7B
Sender Last Name:	Stefanyshyn **Submission ID:** 3685	
19556	Hydrogeological data under and downgradient from the tailings basin. Very little appears to be known about the hydrogeology of the area under and down gradient from the tailings basin. It is unclear to me at this point what additional data might be collected in response to the DNR's recent request to PolyMet. However, more data on groundwater elevation, depth to bedrock, and groundwater flow is needed before an accurate model of ground and surface water impacts can be undertaken. As the EIS notes, it is impossible to estimate impacts on groundwater elevation based on available data, and thus the EIS provides no assessment of the subsequent impacts on vegetation, wetlands, and other surface water resources downgradient from the tailings basin. Sufficient data to make this assessment must be gathered and included in the draft EIS before permitting can proceed.	WR2A
Sender Last Name:	Steffke **Submission ID:** 252	
18	want to make. I also wnted to tell you that I tried to e-mail you at Enviromentalrev.Dnr@stata.mn.us, and the web postmaster couldn't find the address.	PRO6
265	I want to comment that I think being used by Polymet Mines as a guinea pig, with what we have to loose, and their previous track record, would be a BIG mistake that we don't	EOO
Sender Last Name:	Steil **Submission ID:** 3255	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3145	I looked at the EIS but did not find what I was looking for: a section that would specifically address the acid runoff concern. If it is in there please let me know where I might find it. Before going ahead with this project I think a small scale trial run needs to be done to answer the pressing questions. I think it would be a serious mistake to give the go-ahead to this without having the answers needed to address the enviornmental impact. Acid is my greatest concern. How much acid is produced by this project and what will be done about it needs to be established before moving ahead. For a small scale demonstration run experiment I would thing the UMD NRRI would be an ideal facility. Please do not go ahead with this project without having a clear answer. Once we have unintended consequences there is no turning back. We certainly must get this right the first time.	WR1E
Sender Last Name:	Stein **Submission ID:** 2563	
2200	WHAT MEASURES ARE IN PLACE TO MITIGATE POSSIBLE WATER SEEPAGE FROM THE OPERATION??????	WR1A
2397	ARE APPROPRIATE DISPOSAL MEASURES IN PLACE?????	PD9
2398	WHAT PROVISIONS ARE IN PLACE FOR RECLAMATION AFTER MINING CONCLUDES???????	PD3
2399	BY APPOVING THIS PROJECT WILL THIS OPEN THE FLODGATE FOR MANY ADDITIONAL MINE VENTURES???????	G9
2400	WHAT PROVISIONS ARE IN PLACE FOR MONITERING THE NORTHMET PROJECT?????	PD8
Sender Last Name:	Stenberg **Submission ID:** 3317	
3610	Wetlands are declining at a rapid rate. We have to fight to preserve what little natural wetlands we have left. Minnesota creates millions of dollars in revenue from outdoor activities. Diminishing our wetlands will have a major impact on the income Minnesotans make from the outdoors.	G7C,G11
Sender Last Name:	Stephens **Submission ID:** 2221	
8	I also strongly recommend that the DNR and the US Corps of Engineers look at an alternative way of accessing this, and that's through underground mining, which seems to be a better way of getting at the metals, protecting the jobs that they have been promised but, yet, limiting the environmental damage, and I'm disappointed in that they have not looked at that carefully, that they have not looked at this at all. It's not listed as an alternative in the Draft	ALT3
419	I'm very concerned that not enough time is being given to the public to study the proposal. I'm not opposed to mining in Minnesota if it's done carefully and we balance the interest, but I don't think that 90 days is nearly enough time for a project of this kind. I strongly support the DNR and the US Corps of Engineers to give the project at least another 30 days to extend the comment deadline to March 8th, 2010.	PRO6
420	I also strongly support additional public meetings in Duluth and in Ely and in the Fond Du Lac. I do believe that this mine is going to affect all of Minnesotans, is going to be served as a precedent for other future mining for nickel and copper, and how we choose to get at those precious metals is very important.	PRO6
421	availability of the hard copy of the -- of the DEIS. It seems like it's very difficult to get access to that.	PRO6
422	I also feel it's important that we receive comments from the Forest Service, who is the land manager of this particular area, at least until the land exchange or land sale goes through, and the US Fish & Wildlife Service. I don't seem to see their comments anywhere around there.	PRO6

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
423	One other thing: I'm a little concerned about this particular type of public hearing. I want to make sure that the public has an opportunity to make sure that their comments are heard in a public forum, and while I appreciate the opportunity to have this noted in a very clear and concise way, I think we also need to balance that with making sure that people have an opportunity to be heard amongst other Minnesotans.	PRO6
599	And I'm also concerned that the area for the proposed strip mine does overlay critical habitat for the Canada Lynx. I think that maybe some mitigation or some modification of the project may be in order in order to minimize impact to the Canada Lynx.	WI1
2629	Finally, I believe that the more transparent and the more information that is available to the public benefits all Minnesotans. I'm -- while I'm appreciative of the opportunity of 300 jobs, I'm also concerned of the prospect of technology that has not been proven to protect our water resources and the impacts of sulfuric acid on our water and our watersheds for decades to come.	G7
2630	many other Minnesotans have, and I must stress again the need to expand/extend the comment period at least another 30 days, particularly since there have been some problems with people filing their comments on the website of DNR, to at least	G10

Sender Last Name: Stephens and Henry **Submission ID:** 3684

19434	p. 4.1-1 "Water Resources" The DEIS should address endocrine disrupting compounds. "The widespread, continual, and low-level contamination associated with EDCs does not lend itself to remediation. Therefore, preventing the initial use and release of EDCs will likely be more effective in reducing environmental contamination." (MPCA, Endocrine Disrupting Compounds, A Report To The Minnesota Legislature, January 15, 2008)	WR1E
19435	p. 4.1-4 "These bogs are isolated from underlying groundwater..." (Last sentence on page) The December 14, 2009 meeting of the Iron Range Resources Board included a handout that reported on page 36 that "Keetac has historically exceeded its winter season turbidity limits for NPDES monitoring..." The report indicated that ground water inflow contributed to the increased turbidity. This documentation of historic exceedances should generate an acknowledgement in this DEIS that the State of Minnesota does not enforce discharge limits.	EOO
19436	p. 4.1-6 (... there is some groundwater flow to the south...) (Last paragraph) How much?	RFI
19437	p. 4.1-7 "...the number of seeps and the seepage rate have declined since January 2001 when LTVSMC terminated tailings deposition in the basin." (Second paragraph) This DEIS is grossly inadequate for not disclosing that a reason for declining seeps is the fact that collection and pump-back of basin seepage was terminated in 2001. The fact that the State allowed exceedances of effluent limitations should be disclosed in this document so that the public can assess the probability of enforcement of permit requirements on Polymet.	WR1E
19438	p. 4.1-16 "Legacy Groundwater Quality Issues..." Table 4.1-9 and 4.1-10 do not list lead-tainted grease barrels. The Tuesday, August 28, 2007 MEP newsletter reported the following: "And at least one of the [LTV] sites appears to be an old barrel dump," said Doug Beckwith, the PCA's supervisor of the hazardous site assessment team in northern Minnesota. "We haven't done an assessment of that dump site as yet." The DEIS should document the status of those lead contaminated barrels.	WR5A
19439	p. 4.1-29 "...surface seepage at most locations has declined or stopped since tailings disposal was discontinued in 2001." The DEIS should disclose to the public that the pump-back of polluted seepage was terminated in 2001. The decision process for terminating seepage pump-back should be documented. Any modeling of Polymet ground water or surface water pump-back should include a study of the cessation of that pump-back for at least eight years being the State of Minnesota has demonstrated at the LTV tailings pond that pump-back cessation is a State policy.	WR1E
19440	The Flambeau mine demonstrates that prediction of the results of limestone treatment are remarkably inaccurate. (Furtman, The Buzzards Have Landed, 2007)	WR1E
19441	p. 4.1-67 "...it would flow through a wetland treatment facility..." (Last paragraph) Effectiveness of wetland treatment has not been documented. The Dunka wetland treatment site still requires a variance.	WR3L

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19442	p. i Acronyms and Abbreviations contains a listing for Acid rock drainage (ARD) but the DEIS does not emphasize Acid Mine Drainage. The EPA and reputable scientists regularly reference acid drainage from a mine as Acid Mine Drainage (AMD). Failure to give AMD its own listing in this document suggests that it is a promotional brochure for the mining industry rather than a science based document. p. iii Acronyms and Abbreviations lists Voluntary Inspection and Cleanup Program (VIC). The DEIS does not contain such a listing. VIC probably refers to Voluntary Investigation and Cleanup Program. VIC definition should be corrected.	EOO
19442	p. 4.1-171 "Recommended Monitoring Measures" A test for endocrine disruptors in all potential receiving waters including ground waters should be conducted to establish a base line reference and should be included in the DEIS.	WR1E
19443	p. 4.2-44 "Water resources other than wetlands..." Mud Lake T. 59N R. 13W on the Superior National Forest map (2003) is shown as Yelp Lake on the Superior National Forest map (1972). Yelp Lake and Yelp Creek do not appear to be properly identified in the DEIS.	WE1
19443	p. 4.2-1 "The MPCA did not act on the Section 401 request..." (Third paragraph) The DEIS should describe for the public the reasons why the MPCA did not act on the Section 401 request so that the public can evaluate the probability that Minnesota State Agencies will adequately regulate sulfide mining in Minnesota's wetlands.	WE4
19444	p.4.3-19 "Addition of organic amendments to the Tailings Basin" Proposed organic amendments should be identified. Base line endocrine disruptor tests should be conducted so that impact of subsequent operations can be evaluated.	EOO
19445	p. 4.4-19 "Open Water" This section should include an analysis of Mud Lake. (Designated as Yelp lake on Superior National Forest map. (1972)	WI2
19445	p. 4.6.-1 "Existing Conditions" This section should disclose mining industry failures to comply with state air quality rules and standards. (U. S. Steel, Keetac, United Taconite) The public should have information to assess the probability of future mining operations respecting permit conditions.	AQ4B
19447	p. 4.6-32 "Greenhouse gas reduction measures" The processing location and technology for metals other than copper should be addressed in the DEIS. Off-site third party processing mentioned in the Cover Sheet should have been addressed in the body of the DEIS.	AQ3
19448	p. 4.6-40 "...Project would not be permitted until a verifiable plan can be approved..." (3rd Par) Verifiable plan should be included in DEIS.	AQ4
19449	p. 4.8-1 "...with the goal of balancing the need for development with protection." (1st Par) The DEIS has not documented a need for sulfide mining development.	CR1
19450	p. 4.8-3 ..."a significant amount of consultation and survey work remains to be completed." DEIS is inadequate without completion of consultation and survey work.	CR1,CR2,CR3
19451	p. 4.8-8 "...an amendment was passed that guaranteed that the tax advantages of the 1941 taconite legislation would be maintained..." (First Paragraph) The DEIS should clarify this statement to acknowledge that the tax advantages have generally accrued to the mining industry rather than to local schools and communities of the Iron Range, most of which are struggling under both conditions of boom and bust. The DEIS should enumerate rebates and subsidies to the mining industry including the FY 02-06 rebate of 20% of School and University trust funds to taconite mining companies. (DNR Division Fact Sheets, Taconite Mining Grants)	CR1
19452	p. S-1 "USFS and Polymet are exploring the feasibility of a land exchange" Details of any land exchange should be part of this DEIS so the public can evaluate the desirability of any such exchange as a connected action to the proposed project.	PD1
19453	p. 4.8-8 "...because the project is located in a mining area..." (Third paragraph) The proposed open pit mine is located within the Superior National Forest, a multiple use recreation area. It makes no more sense to say that the proposed mine site is appropriate for mining because of its proximity to a mining operation than it would to declare that the Peter Mitchell pit is appropriate for logging because it's next to the Superior National Forest.	CR1

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Comment ID	Comment Text	Theme Codes
19454	p. 4.8-15 "Cumulative Effects" During the summer of 2008 my wife Pat and I were picking blueberries near Cook County 3. A gentleman who identified himself as a member of the Fond Du Lac band stopped to visit about fishing and commented on moose sign in the vicinity of Plouffe Creek. As a descendant ofeuropeans, I am pleased to live in an area where we can have a friendly relationship with our tribal neighbors. I believe that the continued enroachment of mining interests on tribal resources is a threat to that relationship.	G3,CR1,CR2,CR4
19455	p. 4.10-1 "...surrounding areas would experience some portion of the Project's socioeconomic effects." (First Paragraph) No long term beneficial socioeconomic effects have been documented at the county level. The DEIS should incorporate the report titled The Curse of Natural Resouces: An Empirical Investigation of U.S. Counties (Alex James, David Aadland-May 2009).	EOO
19456	p. 4.10-1 "...the IRR provides grants and other programs to foster community redevelopment..." (Second Paragraph) The DEIS is incomplete and misleading. It should document the millions of tax dollars that are rebated to mining corporations every year by the IRR when those funds should have been routed to schools and community businesses to foster community development.	EOO
19457	p. 4.10-12 "Participation in Voluntary Associations" The fact that no environmental organizations are listed is a sad reflection on this DEIS. This bias should be considered as evidence of inadequacy and lack of professionalism.	EOO
19458	p. 4.10-14 "The economic multiplier effect for St. Louis County was estimated using the Impact Analysis for Planning (IMPLAN) model completed by the University of Minnesota Duluth (UMD) Labovitz School of Business and Economics Bureau." (1st Par) Page B-3 of the Labovitz School of Business and Economics report (March 2009) states that: Unless a cost-benefit analysis is done, and the study of alternatives is presented, the percentage of total activity in this report is not immediately relevant to decisions about mining investment. The DEIS should contain a cost-benefit analysis.	SE3
19459	p. 4.10-15 "...the Project would create an economic benefit to the community..." The DEIS does not support this statement. Table 4.10-14 reports that employment at the LTV site went from 3,000 in 1970 to 1,400 in 2001. Automation is eliminating jobs and there is no data in this DEIS to suggest that the trend will change.	SE3
19460	p. 4.10-15 "...few members of these tribal communities live in the immediate vicinity of the project." My wife and I live within 15 miles of the project. We frequently encounter tribal members in Soudan and Tower.	EOO
19461	p. 4.10-15 "Operating Period" Labor force projections do not appear to take into account the effects of automation. Mining productivity more than doubled since I started working at Minntac in 1969. The ongoing elimination of mining jobs by automation should be documented in the DEIS. (The Economic Role of Metal Mining in Minnesota: Past, Present, and Future, Thomas Michael Power, October, 2007)	SE3
19462	p. S-2 I.B "uninterrupted operation" The history of mining in Minnesota does not document or suggest the possibility of uninterrupted operation of mines to meet the purpose and need of the project as stated in this paragraph. Mining was interrupted while this DEIS was being prepared.	PD9
19462	p. 4.10-16 "...five percent of working-age people...would remain to help with long-term closure..." The DEIS does not provide documentation for the five percent statement. If the statement is accurate, will financial assurance be calculated to provide funding for that level of employment? Financial assurance should be addressed in the DEIS.	RFI
19463	p. 4.10-17 "The projected labor force for the steady state operating period..." Steady state operations in the mining industry do not have steady state employment. The DEIS should analyze the expected job losses from continuing automation.	SE3
19464	p. 4.10-19 "Project tax impacts are based upon IMPLAN model estimates..." The IMPLAN model does not appear to incorporate tax rebates to the mining industry. Rebates and other services and subsidies provided by state agencies to the mining industry should be enumerated and the impact analyzed in terms of Opportunity Cost.	SE8
19465	p. 4.10-21 "Post-Closure and reclamation activities are expected to generate 20 to 50 jobs..." What is the basis for the prediction of 20 to 50 jobs? Will financial assurance be calculated on that basis? p. 4.10-16 predicts 5% of employees remaining post-closure. What is the basis for the differing predictions?	SE8

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Comment ID	Comment Text	Theme Codes
19466	p. 4.10-26 "Conclusions" The project should be evaluated for negative socioeconomic impact in regards to the Resource Curse, Regulatory Capture, Deep Capture and Opportunity Cost.	SE3
19467	p. 4.13-4 "If during permitting...designs and analyses suggest risks..." (Second Paragraph) As a resident of the Iron Range I expect risk analysis to be available in the DEIS.	GT1
19468	p. 4.14-7 "...analyzed for additive and synergistic cumulative effects." Endocrine disruptors should be included for their additive and synergistic effects.	G8
19468	p. 4.14-1 "Cumulative Effects" The Minnesota Legislature, Legislative-Citizen Committee on Minnesota Resources, and U.S. EPA have recognized endocrine disruptors as a problem in Minnesota. Recognizing that the proposed Polymet project would be layering sulfide mining slimes and plant discharges on top of existing iron mining discharges and recognizing that various endocrine disruptors can be synergistic at low levels, multi-generational fathead minnow tests should be conducted to protect Minnesota citizens and environment from potential damage. The results of the endocrine disruptor tests should be presented in the DEIS. Tests should be conducted in all mining tailings ponds before dilution or attenuation in public waters.	G8C
19468	p. 4.14-3 Table 4.14-1 "Water Quality Changes" The DEIS should examine the potential effect of proposed sulfide mining projects on the corrosion of pilings in the Duluth-Superior harbor. The corrosion apparently involves sulfates, iron, copper, organic material and bacteria. This problem is documented and should be addressed. (Andy Greder, Duluth News Tribune, December 7, 2009. Randall E. Hicks, CURA Reporter, Spring/Summer 2009)	G8
19469	p. 5-14 "Socioeconomics" The conclusion of beneficial effects is not documented. It does not appear that negative effects have been evaluated. Opportunity Cost, Regulatory Capture, Deep Capture, and Resource Curse should be evaluated by impartial economic consultants. It does not appear that the DNR as RGU has demonstrated the impartiality that would be required for them to select such a consultant. The technical comments presented by tribal representatives suggest that they would be the logical entity to be selected and funded to thoroughly examine socioeconomic impact.	EOO
19470	p. S-2 I.B "The processed resources would help meet domestic and global demand..." The DEIS does not document this claim. Polymet output has been contracted to Glencore, a commodities and derivatives trader which might hold output off of the market for speculative purposes. Glencore is based in Switzerland. The DEIS does not document the claim that output would enter domestic markets. Glencore has a financial relationship with China. (Reuters, September 17, 2009) Minerals from our wetlands could very likely be creating value added jobs in China. (Reuters, October 30,2009)	G1
19471	p. S-9 "...the Proposed Action would exceed groundwater evaluation criteria at the Mine Site for at least several parameters." Existing ground water and surface water contamination should be cleaned up before permitting additional degradation. (Notice of intent to sue. Law offices of Charles M Tebbutt, January 25, 2010)	EOO
19472	p. S-10 Socioeconomics "Beneficial effect..." The DEIS does not evaluate economic negative effects from mining at the local, county, state, and national levels. Effects should be evaluated in terms of the Resource Curse, Regulatory Capture, Deep Capture, and Opportunity Cost. (Hanson, Jon D. and Yosifon, David G. The Situation: An Introduction to the Situational Character, Critical Realism, Power Economics and Deep Capture, 2003)	SE3
19473	p. S-14 Cumulative Effects "...would reduce sulfate loading..." Both the Partridge and Embarrass River feed the St. Louis River. Sulfate destination would be the same.	WR5A
19474	WAG supports the No Action Alternative as the preferred choice to promote the economic and environmental welfare of the State of Minnesota.	EOO

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Comment ID	Comment Text	Theme Codes
19474	The two authors cited above document that for hundreds of years, residents of mining areas have more often been victims than beneficiaries. Local support for mining projects is generally driven more by a lack of alternatives than for a love of mining. This DEIS should address the political power structure that channels development energies to mining projects rather than to support locally generated economic alternatives.	G1
19474	The DEIS should address the socioeconomic deficiency in entrepreneurial spirit in mining economies. (Jim Skurla, Labovitz School of Business, Duluth News-Tribune, September 1, 2008)	SE3
19476	Processing of Nickel concentrate should be evaluated for environmental impact. "Not the best quality nickel concentrate. In a good nickel market it is a very salable product, but probably only about 4 or 5 places in the world can take that," he said. (Reuters, June 18, 2008. Polymet CFO Douglas Newby) The 4 or 5 places should be listed and evaluated for smelting or processing techniques. In the event of a bad nickel market, the DEIS should address disposition of nickel concentrate.	G1
19477	Polymet's marketing contract with Glencore, a Swiss derivatives and commodities trader, should be acknowledged as an indication that there is no requirement to use Polymet output to satisfy domestic markets.	G1
19477	The DEIS failed to list information available to document the large cost of subsidizing mining in Minnesota. The Governor's Committee on Minnesota's Mining Future (September 2004) listed the following groups of organizations. The costs to the public of supporting those mining promotion groups should be calculated and listed.	PD9
19477	Copper market manipulation (Sumitomo et al) should be acknowledged in the DEIS as evidence that there is no reliable evidence for real supply and demand in commodities markets. Similarity between commodity market and financial market manipulations should be evaluated. The wisdom of destroying real natural resources to create derivatives should be addressed.	G1
19477	The DEIS does not mention mining slimes as a major output of the Polymet plant. Failure to use professionally accepted terminology to describe plant processes could mislead those using the DEIS as an evaluation instrument. A definition and quantification of mining slimes in the Polymet process should be included in the DEIS. Public presentations by mining promoters have referred to some mining wastes as "washed sand." (Joe Scipioni to MPCA, May 24, 2007, verbally. Joe Scipioni to LCCMR, August 18,2009, verbally. Frank Ongaro to film audience, January 13, 2009, verbally. Polymet presenters, April 29,2008, printed handout.) The handout referred to washed sand and to the ore body as "roughly 3 percent" valuable minerals. These misleading statements should be corrected in the DEIS.	PD9
19479	The use of University Trust Funds to subsidize mining which is supposed to support the University Trust Fund should be examined in the context of the snake eating its own tail. Long term sustainability is questionable. The DEIS should address historical negative socioeconomic consequences of having our political system dominated by mining. (Roles of Public Organizations, The Governor's Committee on Minnesota's Mining Future)	EOO
19480	In support of the above issues and others to follow, Wag incorporates by reference comments by the following individuals and organizations: Northeastern Minnesotans for Wilderness Save Lake Superior Organization Tribal Cooperating Agencies Water Legacy Leonard Anderson Bruce Johnson Elanne Palcich Robert Tammen Stephen J. Jay Center for Biological Diversity	G15

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Comment ID	Comment Text	Theme Codes
19480	SULFIDE MINING DISTRICT The DNR Lands and Minerals Division has been studying copper-nickel mineralization in northeast Minnesota for the past thirty years, and has a facility full of core samples at its Hibbing location. The DNR Lands and Minerals Division knows full well that exploration is taking place throughout the Arrowhead region of Minnesota as part of a sulfide mining district. The DNR continues to sell leases for mining exploration throughout the Duluth Complex. The isolated environmental review process for PolyMet goes against NEPA and MEPA legislation. This process is being done ahead of a complete environmental scoping and impact study which needs to consider the cumulative impacts of a sulfide mining district in the Arrowhead Region of Minnesota. A complete review needs to consider the cumulative impacts to water, air, wetlands, forests, and wildlife in accord with the Clean Air Act, the Clean Water Act, the Wetlands Conservation Act, and the Endangered Species Act. The PolyMet DEIS is circumventing the law in regards to cumulative impacts of metallic sulfide mining as being proposed and as being facilitated by the DNR Lands and Minerals Division. Franconia, Duluth Metals, and Teck all have exploratory drill sites adjoining each other and adjoining Polymet. How can this not be considered a metallic sulfide mining district? Furthermore, this extension impacts the watershed flowing into the Boundary Waters Canoe Area Wilderness, which has special protection under the national Wilderness Act. It appears that putting PolyMet first on the list of possible metallic sulfide mines is purposely circumventing Federal law, and misleading the public by declaring that this type of mining will not impact the BWCAW. Mining Minnesota advertises the following copper-nickel companies on their website: PolyMet, Franconia, Duluth Metals, Encampment, Kennecott/Rio Tinto, and Teck Cominco. The planning for a sulfide mining district is advertised by the mining companies themselves. PolyMet must be considered as part of a sulfide mining district.	G1
19480	CUMULATIVE EFFECTS The PolyMet/ NorthMet draft environmental impact statement does not adequately address cumulative effects.	G8C
19481	The PolyMet DEIS is also remiss in openly addressing the fact the PolyMet is seeking permitting for 1/3 of the plant capacity as inherited from LTVSMC. This under-permitting leaves open the door for adjoining companies such as Franconia or Duluth Metals to use the PolyMet plant with minimal additional permitting, even though such mining would directly impact the waters of the BWCAW. The DNR has already stated that permitting for additional capacity would not require a full EIS.	CR1
19482	CUMULATIVE EFFECTS ON TRIBAL LANDS The disregard of consideration of a sulfide mining district becomes an environmental justice issue when tribal lands, as part of the Treaty of 1854, are being swept aside as part of a piece meal approach to permitting metallic sulfide mines.	CR4
19482	The USFS is also remiss in this regard, because much of the land involved in a sulfide mining district would be part of Superior National Forest. The USFS is seeking to circumvent its responsibility in this part of the process by requesting special federal legislation to sell USFS land directly to PolyMet. A land sale to PolyMet would undermine the Weeks Act, which has been in place since 1909. Our current Federal legislators would perform an unethical service by setting aside legislation and a purpose that has been in place to protect public lands and waters for the past 100 years.	G9
19484	CUMULATIVE EFFECTS ON TRIBAL LANDS The disregard of consideration of a sulfide mining district becomes an environmental justice issue when tribal lands, as part of the Treaty of 1854, are being swept aside as part of a piece meal approach to permitting metallic sulfide mines.	G3,CR1,CR4

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Comment ID	Comment Text	Theme Codes
19485	CUMULATIVE EFFECTS WITH OTHER PROJECTS FURTHER ALONG IN THE ENVIRONMENTAL REVIEW PROCESS Even without the consideration of a sulfide mining district, the PolyMet/Northmet DEIS does not adequately address the cumulative impacts of other projects that are ahead of PolyMet in the environmental review process. The cumulative effects would include air pollution and haze over class I air quality areas, an increase in the mercury and sulfate load of waters within the St. Louis River watershed and the adjoining Rainy River watershed, the cumulative impact on wildlife and wildlife corridors, noise and light pollution on a 24 hour basis, total loss of forests and wetlands as part of global warming, total contribution of green house gases, and total general impact on air and water quality. These projects include the Mesaba Coal Gasification Project which is in the final environmental impact statement stage and includes Hoyt Lakes as its second choice of a site and also as the second site to be built upon completion of its first site choice; Mesabi Nugget which shares the former LTV property with PolyMet and which was fast tracked without environmental review of its plant construction, so is currently in the early stages of production; an expansion of the Arcelor-Mittal taconite production into the Biwabik area; and continuing operation and expansion of the Peter Mitchell mine near Babbitt. In addition, the Essar Steel taconite/steel plant which has been permitted for the Nashwauk area will contribute large amounts of green house gases and haze, affecting the St. Louis River watershed as well as air quality and micro- climate in the Arrowhead/Boundary Waters area. Since none of these environmental impact statements include the permitting of PolyMet, but are ahead of PolyMet in the review process, NEPA and MEPA laws are not being followed. The total emissions of these projects need to be addressed before another project can anticipate permitting. This again involves the Clean Air Act, the Clean Water Act, federal haze standards, mercury TMDL limits, the Wetlands Conservation Act, and the Endangered Species Act. The Mining Minnesota website also advertises the expansion of Minntac and Keetac.	G9
19486	CUMULATIVE EFFECTS OF METAL LEACHING Although the PolyMet DEIS lists 17 metals and 8 general parameters (Table 4.1-50) as seeping into ground water, the DEIS gives no information on the cumulative effects of these metals on ground water quality. This is in total disregard to human health. Even if the maximum concentration of each individual metal or parameter stays within water quality limits, what is the effect of all of these contaminants within the water supply? What effect does drinking this water have upon the health of humans, wildlife, fish, and plants—and upon the wildlife, fish, and plants that might be consumed by humans? What are the synergistic effects of these contaminants, for example of a combination of cobalt and nickel? Are some of these contaminants considered carcinogenic? The same is true of surface water contaminants (Table 4.1-20). Other tables include 4.1-5, 4.1-6, and 4.1-7. Nor is there a summary of cumulative impacts of chemicals that are used in the hydrometallurgical plant processes and stored in the plant residue tailings. Even if water is treated within the WWTF, what impact do the treatment chemicals have upon water quality and water that ultimately seeps into ground water or surface water? Although PolyMet claims that not one drop of this water will reach surface water, what happens if there is a failure within this system? This must be explained and addressed within the EIS process. This quote is from the State of Washington Department of Ecology: “Different chemicals combined together in the same effluent can have unknown additive effects even when the individual toxicity of each chemical is well known.” Whole Effluent Toxicity (WET) testing is done, in this case by a University, to determine cumulative effects. The DEIS cannot continue to rely on testing done by an engineering firm that is dependent for its income upon the mining company, and that uses software models that are not available to the public.	WR5A,WR5C
19487	CUMULATIVE IMPACTS ON FUTURE ECONOMIC OPPORTUNITIES The DEIS does not address the end product of PolyMet’s mine closure –which is land that cannot be used for any other purpose. The waste rock piles will be too large and unstable for any use, the tailings will be too large and contaminated, and water treatment will have to continue indefinitely into the future. This will preclude forestry, recreation, tourism, or any other real estate or business development. Any income from these industries would be lost as soon as PolyMet would begin operations. Again, this issue is not addressed as part of a sulfide mining district. Nor are PolyMet’s 400 projected jobs anywhere substantiated. PolyMet does not explain where or how these workers would be used. In comparison, Mesabi Nugget is using 75 workers in its plant operations.	SE3

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Comment ID	Comment Text	Theme Codes
19487	CUMULATIVE EFFECTS ON THE ST. LOUIS RIVER WATERSHED This DEIS is remiss in addressing the cumulative effects of additional mining within the St. Louis River watershed. The St. Louis River is already highly impacted by drainage from Minntac's operations. The issue of leaching from Minntac's tailings basin and the issue of contaminated water that has been recirculating through the Minntac plant since its start-up in 1967 and which Minntac now seeks to release into the environment, is already a burden on our resources. United Tac (Forbes), Minorca, Keetac and HibTac also drain into the St. Louis River watershed. The St. Louis River watershed is so impacted for mercury, due to air and water emissions from the taconite plants and power plants that run them, that the state agencies have not been able to include the watershed in its mercury TDML plans. Potential leaching from the PolyMet mining operation, which would drain into either the Embarrass or Partridge River, and which would be added to leaching from the former LTV Steel Mining Company tailings, must be considered in regard to the cumulative impacts that are already placed upon the watershed. The St. Louis River ultimately drains into Lake Superior. The Nature Conservancy is currently working to preserve and restore the St. Louis River estuary because of its significant values. Individual mine sites cannot be isolated from the watersheds that they impact. This also becomes an economic impact concern. The St. Louis River watershed is used by tribal communities, and by others who hunt, fish, recreate in the area, or live in the watershed and drink its waters. A supply of jobs could be created to clean up and maintain the watershed for its intrinsic uses. The benefits of this would stay within the state, rather than be shipped abroad for use by other nations.	WR5A
19487	This issue is not adequately addressed simply because of the volume of tailings and tailing slime that will be placed upon a tailings basin that is already leaching pollutants, that contains pollutants of unknown quantity and origin, and that is already considered unstable. The issue alone should be enough to prevent the permitting of PolyMet under the current plan. The LTV tailings basin was used to store coal ash, and dredging from the manmade wetlands that were designed to filter heavy toxic metals from the Dunka site. The potential leaching of unknown contaminants from the LTV tailings basin needs further analysis. PolyMet's sulfide tailings are not being treated any differently than the tailings of the taconite plants. We know that the taconite tailings continue to pollute the St. Louis River watershed, and also some of the northern waters. The DEIS does not address the cumulative effect of the leaching of PolyMet's tailings, as part of the LTV basin, on the St. Louis River watershed. Along these same lines, the agencies have not been able to figure out a plan for the disposal of Minntac water that has been recycled during the current lifespan of the plant, and is now so polluted that it is corroding plant infrastructure. The choice is now whether to allow this water to be drained into the north or south watershed. PolyMet also plans to recycle its water for the 20 year projected life span of the plant. PolyMet's alternatives then become whether its tailings will leach into the Embarrass River or the Partridge River. This is, in effect, the same problem facing Minntac. Minntac's sulfate load has destroyed wild rice and fisheries due to low level leaching from its tailings basin. In fact, tailings basin must be allowed to leak, in order to prevent water build-up which will collapse the dikes. This is what happened at the coal ash spill on Highway 61 by the North Shore. If PolyMet is permitted without this problem being addressed, then Duluth Metals will be next in line to store its tailings in the Dunka basin. These tailings will leach directly into the Boundary Waters Canoe Area.	G9
19487	CUMULATIVE EFFECT OF WETLAND LOSS The PolyMet DEIS does not adequately address the loss of carbon sequestration from the destruction of forests and wetlands on PolyMet's proposed mine site. The agencies have refused to use the most up-to-date information on carbon sequestration and its impact on mitigating local climate change impacts. The agencies have downplayed the impact of global warming gases to be emitted, and PolyMet has transferred some of these impacts to the electric power plants by projecting the use of electric rather than diesel equipment. However, electric shovels and blasting rigs are much more expensive than their diesel counterparts, so what guarantee is there that PolyMet would follow through on this plan? The DEIS does not account for possible carbon taxes and the impact those taxes would have on an industry that produces 99% waste rock. This also needs to be addressed under socio-economic impacts. The loss of the specific conifer bogs of the 100 Mile Swamp, which will not be replaced through PolyMet's wetland mitigation plan in Aitkin County, do not follow the Wetland Conservation Act , and should not be approved by the ACOE. The ACOE is also remiss, along with the USFS, in not addressing the loss of wetlands within the St. Louis River watershed, and as part of a sulfide mining district. This is misleading the public and does not follow NEPA law.	WE5

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Comment ID	Comment Text	Theme Codes
19489	ALTERNATE PLAN WITHOUT AN AUTOCLAVE/HYDROMET Once permitted, PolyMet would need to seek funding in order to build its autoclave/hydromet. The construction of this plant would take approximately two years. During this time, PolyMet has theorized shipping out ores that have gone through crushing and flotation. This is not addressed anywhere in the DEIS. The railing of this product, with its potential to leave behind a trail of acid producing dust or waste rock, MUST be considered as an alternative plan within the DEIS. The DNR is remiss in not addressing this issue, which was brought up at least two years ago.	PD7
19489	CUMULATIVE IMPACTS ON WILDIFE, FISH, BIRDS Wildlife habitat and corridors are not adequately addressed, because of lack of cumulative impacts as part of a sulfide mining district, cumulative impacts regarding other projects and expansions, cumulative impacts due to mining exploration, and cumulative impacts of metal deposition from air emissions and dust into the ground and water. Loon studies and the effects of mercury on loon populations MUST be addressed within this DEIS. The loss of habitat for migratory birds, which are also suffering habitat loss along their migratory routes, needs to be addressed as part of a cumulative study. Fish and aquatic life need to be studied for bio-accumulative impacts due to metals, mercury, and other contaminants. This DEIS is top heavy on promoting the mining of low-grade sulfide ores, without adequate regard for the huge amount of waste rock and accompanying leaching of metals and acid mine drainage, as well as the impact on the environment of the moving of such vast amounts of rock and their ultimate storage—and the accompanying impact on the connected ecosystem that is being fragmented or destroyed. The job of the ecological division of the DNR is to provide this information for the EIS process.	WI2,WI5,FM3
19491	CUMULATIVE ECONOMIC IMPACTS Everywhere it is advertised that huge amounts of metals will be dug out of the Duluth Complex mining district, when in actuality huge amounts of waste rock will be crushed in order to extract less than 1% mineralization. The DEIS is perpetuating an economic scenario which cannot be substantiated as being sustainable, simply because of the large amount of waste rock that must be removed, using large amounts of dwindling oil and gas resources, which are undoubtedly going to rise in costs. This DEIS is relying almost totally on an economic report put out by the Labovitz School of Business which is funded by the taconite industry. This report gives a very favorable and biased economic outlook for the mining of low grade sulfide ores. Other studies by Tom Powers of the University of Montana and by William R. Freudenburg of the University of Wisconsin and University of California give much different versions of the economic implications of mining. These studies must be included under socioeconomic impacts.	EOO,SE6
19492	CUMULATIVE IMPACTS ON HEALTH The DEIS lacks a section on health effects. This would include exposure to air pollutants, fibers and dust, exhaust and particulates. Effects of 24 hour a day noise on workers, wildlife, and residents need further study. Water contamination of wells and city drinking water supplies need to be studied for the cumulative effects of heavy metals and other contaminants. Synergistic effects of contaminants need to be studied. Potential endocrine disrupters entering the watershed from chemicals used in the flotation process and in the autoclave/hydromet process must be studied as part of synergistic and cumulative impacts on water supplies and impacts on fish, wildlife, and humans. The PolyMet DEIS has not waited for results of tests trying to determine the number of cases of mesothelioma among Iron Range workers, a cancer that is caused by asbestiform fibers. These are the same kind of fibers that were implicated in the Reserve Mining case, and that ultimately stopped Reserve Mining Company from dumping its tailings in Lake Superior and contaminating Duluth's drinking water supply. These same fibers can be airborne when rock is crushed and ground to a powder form in order to extract low grade minerals. The air in the processing plants is often filled with dust, and dust can also blow off tailings basins. Workers bring this dust home on their clothing and in their vehicles. Results from the mesothelioma studies will take several more years. Cumulative health impacts of mercury must also be addressed as part of a taconite mining district and the potential of a sulfide mining district. The health hazards of mercury in fish have the biggest impact upon pregnant women, children, and segments of society that rely more heavily on fish as a food supply. Studies regarding the mercury-sulfate-methylized mercury bio-chemical chain must be included and analyzed as part of this EIS process.	EOO,WR5A,WR5C,FM3,A

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Comment ID	Comment Text	Theme Codes
19493	NO ACTION ALTERNATIVE The DEIS conclusion that a no action alternative would allow for continued leaching of the current LTV tailings into the watershed defies logic. According to a VIC agreement, the current owner of the LTV tailings basin is responsible for clean-up. If the regulatory agencies cannot manage the clean-up of taconite tailings basins, how can the agencies assume, or the public expect, that these same agencies will be able to oversee clean-up of sulfide tailings? The acid mine drainage and heavy metals leaching from sulfide tailings have the potential to last for centuries. The sheer volume of tailings left from the mining of less than 1% metals will ensure that contamination will be a problem that will require "perpetual" treatment, even though the agencies downplay this problem by labeling the treatment as "long-term." The obligation of both mining companies and agencies over such a long time period is a huge liability.	ALT8
19494	AIR QUALITY The PolyMet DEIS is inadequate in labeling PolyMet's impacts upon air quality as "insignificant." The 20 mile proximity of PolyMet to the Boundary Waters Canoe Area Wilderness will undoubtedly increase haze in a Class I area. This will come at a time when federal statute requires an overall reduction in haze. The impact of haze within the BWCAW and Voyageurs National Park needs to be considered as part of a sulfide mining district. Once sulfide mining is permitted in Minnesota, the expansion of that mining will be very difficult to delay, especially considering that PolyMet has 2/3 excess plant capacity. The DNR has stated that expansion of PolyMet's plant capacity would not require a new EIS, even though this would overwhelm the tailings basin and multiply contaminants going into the water and the air. The impact of haze within the BWCA and Voyageurs National Park must also be considered as part of cumulative effects involving Mesabi Nugget, which shares part of the former LTV mine site with PolyMet, with Peter Mitchell mining operations, with Arcelor – Mittal expansion plans, with the proposed Mesaba Coal Gasification Project (FEIS), with Essar Steel (permitted) and with expansion plans for Minntac and Keetac. The PolyMet DEIS does not address acid rain and its impact upon the wilderness. Because the hydromet process puts more pollution into the water than the air, and because wet scrubber technology is to be implemented, the possible ramifications of acid rain are being neglected. Acid rain falling in the plant and mine site vicinity will contribute to the leaching out of toxic heavy metals. Acid rain in a wilderness setting upsets the ecological balance. In eastern states, acid rain left lakes and streams devoid of fish. SO2 and SO3 from plant emissions will contribute to acid rain.	AQ4,AQ4B,AQ4D
19494	SUPERHIGHWAY STUDY COMPLETED BY ST. LOUIS COUNTY A hearing was held in January 2009 regarding the building of an economic development corridor between Hoyt Lakes and Babbitt. As of today the project is on hold, pending further funding. This road project needs to be addressed in the PolyMet DEIS because of cumulative impacts on wildlife, wildlife corridors, wetlands, air pollution, and noise, and because the road would facilitate movement of mining vehicles within a sulfide mining district. Because PolyMet preferred an alternative road site that would border its mine plan operation, this alternative must be included in the PolyMet DEIS as a distinct possibility. St. Louis County spent a significant amount of money on the road study, and is planning to renew the project as soon as funds become available. Previous funds were from the federal government, and additional federal stimulus money will be released in 2010. This road project would be a necessary part of a sulfide mining district. Because the agencies have failed to address this issue as a whole, significant impacts will be ignored. Additional Superior National Forest wetlands and forests would be destroyed. Since all submitted potential effects must be considered within an EIS, the agencies cannot arbitrarily exclude potential impacts and the opportunity for public input. According to dIALOG notes from January 21, 2010, Paul Bergman indicated that non-ferrous activities in Lake County are picking up. "Plans are in place between Lake and St. Louis Counties to designate the Denley Lake Road (Old Tomahawk, FR 424), a County State Aid Highway. This alignment is the major east west link south of Birch Lake." The redesignation of Denley Road as a county road, and its subsequent widening, must be addressed within the PolyMet DEIS. This road would facilitate non-ferrous mining traffic, and would also impact wildlife habitat and corridors. NEPA law requires that all such impacts be considered. The PolyMet EIS process must acknowledge these road projects as part of its mining proposal.	G9

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Comment ID	Comment Text	Theme Codes
19494	CONSULTING FIRM CONFLICT OF INTEREST The DNR hired Al Trippel of the London-based consulting firm Environmental Resources Management to oversee the NEPA process. Al Trippel has been on the Aquila payroll, conducting baseline environmental studies necessary prior to submitting a mine application for Aquila's Back Forty gold-zinc deposit between Michigan and Wisconsin. Al Trippel's consultation was called on the carpet in Michigan for conflict of interest. His conclusions about the potential for acid rock drainage were also questioned in Michigan. The PolyMet DEIS needs to include unbiased research on acid mine drainage, such as that done by Canadian scientist Dr. David Blowes, who spent 20 years studying mines and trying to manage AMD. His studies, as well as studies by other researchers, conclude that there is no sulfide mine in existence that is not polluting the groundwater to some extent or another, and that the potential for pollution is greater in a water-rich environment (such as that of northeast Minnesota). According to the report "Comparison of Predicted and Actual Water Quality at Hardrock Mines, The reliability of predictions in environmental impact statements," prepared by James R. Kuipers and Ann S. Maest, 2006, "Despite assurances from government regulators and mine proponents that mines would not pollute clean water, researchers found that 76% of studied mines exceeded water quality standards." This DEIS is relying on a consulting firm representative who is conflicted out and Barr engineering models that cannot be reproduced by the public in drawing its conclusions about the impacts of metallic sulfide mining in northeast Minnesota's watersheds. This represents a gross inadequacy in the conclusions of this DEIS while misleading the public on the impacts of this kind of mining on sensitive ecological areas. And where the DEIS actually concludes that certain metals will exceed drinking water standards during different aspects of the mining process, those conclusions are overturned by charts and figures from Barr Engineering which put all pollutants within state standards. Nowhere are the cumulative impacts of these pollutants addressed. Treatment for any pollution, contamination, or spills is left up to Poly Met and treatment upon closure is open-ended and to be monitored. The agencies will have no control over this project or the environmental degradation that it leaves behind outside of a few state reclamation laws. These laws include the total demolition of all buildings upon closure, and providing some kind of ground cover on site. The entire plant and mine site will be virtually unusable upon mine closure. This is not addressed under IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES. The PolyMet DEIS is inadequate in addressing the potential threat of acid mine drainage and toxic heavy metal leaching in the wetland environment of Minnesota and the consequences of that pollution within the St. Louis River watershed. The PolyMet DEIS is inadequate in ignoring the potential impacts of a sulfide mining district upon the Rainy River watershed.	G10
19494	The fish population is also subject to mercury contamination, and mercury deposition is airborne. Aquatic life, fish populations, and birds and wildlife that feed on aquatic species are all exposed to cumulative toxic effects of mercury, acid rain, and heavy metals. These impacts are not presented in the PolyMet DEIS in a way that clearly defines the total kinds of impacts that affect plant and animal life in Superior National Forest, the Boundary Waters Canoe Area Wilderness, and Voyageurs National Park.	FM1,FM3,AQ6A
19496	By reading through the PolyMet DEIS, one can see that the copper nickel mine plans are based upon the same design as the taconite plans. This plan includes tailings basins, ditches, dikes, waste rock piles, and open pits. Although the mining of sulfide ores is known to create acid mine drainage, there is very little difference in the design of these mines. PolyMet's plan includes some liners under tailings that are considered to be most reactive and that contain residue from the proposed autoclave/hydromet. However, the majority of PolyMet's tailings would be placed upon unlined tailings in the former LTVSMC tailings basin, an area that is already considered unstable. The remedy for this would be to build higher dikes out of less porous materials. It is also known that tailings basins need to leach in order to prevent a build-up of water pressure that could collapse the dike walls, as happened in the coal ash spill on Highway 61. (See MPCA records for more information.)	EOO
19496	The handling of this DEIS process is enabling the start up and expansion of sulfide mining in the Arrowhead Region of northeast Minnesota without proper concern for the high standard of air quality and water quality that has remained OUTSIDE OF THE IRON MINING DISTRICT. The opening of a SULFIDE MINING DISTRICT will destroy the quality of the remaining environment that has acted as a buffer zone between the Iron Range and the BWCAW.	AQ4B

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Comment ID	Comment Text	Theme Codes
19497	As citizens of this area and this state, we are stepping forward to call a halt to this EIS process, and the beginning of an EIS process which considers the full impact of opening a sulfide mining district within the Arrowhead Region of northeast Minnesota.	EOO,G8C
19498	The socio-economic impact of mining on the Iron Range needs to be reanalyzed.	SE3
19499	The Arrowhead Region of northeast Minnesota that is slated for metallic sulfide mining has never been mined. It does not contain the cluster of mining towns that trail the former natural open pits across the Iron Range. The Arrowhead Region consists largely of Superior National Forest lands, which have been used traditionally for logging, recreation, tourism, camping, hunting and fishing, and tribal rights. The metallic sulfide range also pushes right up against the Boundary Waters Canoe Area Wilderness. Land in this area has been used for real estate, tourism and recreation, and as a buffer zone surrounding the Boundary Waters. Ely was the lone Iron Range town left out of the taconite development, and has created an economy based upon tourism as the gateway to the BWCAW. The impacts of mining are not compatible with the character of a tourist area that's based upon wilderness.	SE3,SE4
19500	What northeast Minnesota needs right now is a DEIS that figures out how to clean up our mercury pollution, how to remove sulfates from the watershed, how to treat taconite tailings basin pollution, and how to clean up our water and air. This will generate plenty of jobs.	G1
19501	This is a moral issue which is substantiated by science. The DEIS plainly shows that metals will contaminate our water supply for centuries. No cost-benefit analysis has been done in regard to health and a healthy environment and what that contributes to a local economy. Nor have the impacts of increased pollution within the St. Louis River watershed been analyzed in regard to tourism along the North Shore and in Duluth. There is no mention within the DEIS of clean-up costs due to bankruptcy failure or failure of pollution control methods, although sulfide mining clean-up costs in other states have been as high as $500,000,000.	SE3
19502	In the report, "The Economic Impact of Ferrous and Non-Ferrous Mining On the State of Minnesota and on the Arrowhead Region and Douglas County, Wisconsin," Appendix B, p. B-1, it states, "Policy recommendations should be based on the 'big picture' of total impacts, and a cost-benefit analysis would be needed to assess the environmental, social, and governmental impacts of ferrous and non-ferrous mining in the State." This is the very report which the PolyMet DEIS has relied upon. Therefore, the PolyMet environmental impact process must include an independent cost-benefit analysis as stated above.	SE3

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Comment ID	Comment Text	Theme Codes
19502	The following quote is from the Iron Mining Association of Minnesota website: “Recovering iron from taconite is a challenge, especially at a cost the world will tolerate. Equipment is massive and complicated. It takes enormous amounts of energy.” The quote represents an industry that mines 25% iron. What economic implications does this hold for an industry that would be mining less than a half a percent of metals? The politically expedient path to the permitting of metallic sulfide mining is based upon projections for a future economic market that nobody can predict. However, an economy based upon low grade metal extraction is not going to lead to world market stability. Therefore, the socioeconomic section of the DEIS is incomplete, biased, and unacceptable. It is already out of date, as the 35% figure regarding the mining industry segment of the regional market comes from studies that were done previous to March of 2009. Subsequent to this, two of the taconite plants shut down for the remainder of the year. A more accurate study, one which would not be funded by mining company money, would be based upon an averaging of mining industry contribution to the regional market. While the mining component of the economy fell, tourism held its own. However, tourism doesn’t affect the Iron Range directly, because mining has impacted the landscape, leaving behind few tourist destinations. These kinds of economic issues must be part of the socioeconomic record set forth in the DEIS. Furthermore, the socioeconomic impact chapter needs to include some kind of market analysis that covers speculation, hedge funds, and stockpiling as part of price manipulations in the copper/precious metals market. The ores of the Duluth Complex are extremely low grade, making them extremely susceptible to price changes. Company bankruptcy places the burden of environmental clean-up on the taxpayer. The agencies performing this DEIS have a responsibility to the taxpayers of this state to insure that this kind of mining is sustainable in the marketplace and that companies are required to post financial resources up front to ensure that any clean-up costs from metallic sulfide mining will be paid for by the company, not the taxpayer, should the company go bankrupt or otherwise close with a one to twenty year time frame. The politics and the economics do not justify the opening of a sulfide mining district in northeast Minnesota. Agency heads who truly understand this issue, although pushed into permitting by political pressure, bear the burden of sacrificing the Arrowhead Region of Minnesota to foreign mining companies.	SE6

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Comment ID	Comment Text	Theme Codes
19503	CARBON FOOTPRINT OF POLYMET'S OPERATIONS This issue must have its own chapter within the DEIS. The carbon footprint must begin with the loss of forests and wetlands on the proposed PolyMet mine site, and include the fact that wetlands would be lost in St. Louis County, but "preserved" in Aitkin County. This results in a release of CO2 to the Arrowhead Region, and a loss of carbon sequestration. The mine site would also destroy forests and their carbon sequestration role. The mining of less than 1% ores results in 99% waste rock. This chapter must address how much carbon would be released into the air in order to mine 99% waste rock. This would start with the amount of carbon this is released in constructing the large machinery that is needed for mining, including trucks, tires, drills, blasting equipment, railroad equipment, plant equipment, etc. The record must include the amount of CO2 that would be released from the use of this equipment, and also from the operations of the plant and hydromet/autoclave. Additional information needs to be compiled on the release of CO2 as limestone (200,000 tons per year) and plant chemicals are mined, produced, and railed or otherwise transported into the area. The record needs to include CO2 released from the vehicles of the workers as they commute to the plant/mine site. Since this is a rural area, all workers would commute. Next the record must track the shipping out of the semi-finished product, first by rail to Lake Superior, and then by barge on the Great Lakes and by ocean going vessel to China. This part of the carbon record contains how much CO2 would be released from the mining operations. Next, the amounts of metals that would be used in wind turbines or parts, solar parts, or hybrid or electric vehicles or vehicle catalytic converter parts must be calculated as a carbon offset. The shipment of these devices back to the United States, and projected shipment of the products across the United States must then be calculated and subtracted from the carbon offset. This figure would then be compared to the original CO2 figure from the mining operations to determine whether PolyMet's mining operations would leave behind a positive or negative carbon footprint. If the result of this carbon footprint study results in PolyMet leaving behind a global warming footprint, then this project must be scuttled. It will not be sustainable in the future economy. This study must be conducted by an independent consultation agency. Al Trippel and his ERM agency must be disqualified, due to conflict of interest regarding the Back Forty mining project. Barr Engineering must be disqualified, as they represent PolyMet. This DEIS must include studies made by our own agencies of changes in plant species and wildlife related to climate change within our own Arrowhead Region. The public perception is that the DNR and USFS have personnel in the field who are documenting such changes and making recommendations to preserve our natural biodiversity. The public expects that such documentation be a part of this record. Our tax dollars are funding the jobs of personnel within these agencies; their expertise needs to be included within this DEIS.	SE3,G2A,G8C
19503	I am sending these comments and concerns in regard to the Draft Environmental Impact Statement for the proposed Polymet mine in Minnesota. I've been advised it helps to mention specific pages where I have concerns, but there are few pages that do not raise concerns. I believe the DEIS is inadequate throughout.	G8
19504	First, it does not seem logical that this DEIS is being commented on while the surface rights (in the Superior National Forest that are needed for an open pit mine) have not been fully and/or officially obtained. It also does not seem logical that many issues should rely on future monitoring to detect impacts, when there are already impacts that are not being properly monitored now. The recent notice of a citizen suit concerning the leaking tailing's pond at the LTV site must be addressed before future impacts from the Polymet operation can be seriously measured. This becomes even more of a concern when the DEIS does not supply adequate information on ground and surface water, nor an initial determination of the Project's area of influence on wetlands. DEIS repeatedly states issues will be answered later in the permitting process. The DEIS' purpose is to evaluate these questions in the D The EIS.	PRO3
19504	Since the DEIS does not adequately measure the problems left by past operations, it makes it impossible to estimate future impacts--or to hold Polymet financially liable if/when problems occur in future operations. Financial liability must also be addressed in the DEIS in order to measure whether there are better alternatives to open pit mining and the use of a tailings pond that is already leaking. I'm not a chemist or geologist, but these appear to be elemental omissions.	PD3,G9

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Comment ID	Comment Text	Theme Codes
19505	Reserve Mining was required to stop dumping tailings in Lake Superior in the 1970s to protect the public drinking supply. Those tailings were supposed to sink into a deep part of the lake and stay there—they didn't. Tailings ended up in the drinking water in Duluth and elsewhere. The cost to Reserve Mining to move their tailings' pond on land has been blamed for their bankruptcy just a few years later. The DEIS need thoroughly address the stability of the existing tailings pond Polymet plans to use. Will adding more tailings to it potentially cause it to fail, potentially creating an enormous spill of toxic material? The DEIS needs to spell out who will pay for cleanup if it does fail. According to numerous regulators, the state of Minnesota gave assurances to the mining company that took over after Reserve left, that they would not be liable for the environmental problems left by Reserve. This is another example why relying on future monitoring instead of measuring the current conditions could be a recipe for disaster--and an unknown expense for the taxpayers of the state.	ALT8,PD4
19505	The DEIS cumulative effects analysis also fails to address the asbestos-like mineral fibers found in the ore in the area. These have been identified in the Hoyt Lakes community water supply and have also been an issue in regards to fugitive dust emissions at the Peter Mitchell Mine and Northshore mining--and others-- including LTV.	AQ1,AQ4C
19506	Fugitive dust created by the blasting, moving, and crushing of rock must be addressed. Suppression of dust could create more leaching problems since it is often done with water. Testing by the Minnesota Department of Resources has shown water and oxygen are not a good mix for this type of ore. Dust escaping from trucks, trains, or ships used to transport ore and concentrate must be addressed. This is of special concern because other companies may be using the old LTV site for processing. Since there are currently taconite pellets littering the rail tracks in the area, it is apparent future leaks and spills of ores and concentrate are inevitable, including fine particles escaping into wetlands, rivers, lakes--and workers' lungs.	RFI,AQ1
19507	A recent report by the United States Army Corps of Engineers on the corrosion of steel pilings used for docks, bridges, and bulkheads in the Duluth Superior harbor, highlights the questions that remain unanswered in the DEIS. The study indicates copper in the water in the harbor is partly to blame for potentially tens if not hundreds of millions of dollars in replacement cost to stabilize and/or replace existing steel pilings. The study also mentions the history of Cu enrichment in sediments along the shore of Lake Superior and mentions metal rich ore as a source. If more metal rich ore is moved into this environment, will it make it even more expensive to solve and fix this problem? Shipping is extremely important to many businesses in the region--including mining. Who pays to fix present and future problems in the harbor? I'm concerned it will be taxpayers--and not only those from Minnesota.	G9
19508	Because of an apparent lack of transparency by the Minnesota Department of Health, the University of Minnesota is currently studying the health effects of taconite ore dust on workers in northeast Minnesota. This issue is decades old and has been kicked down the road for most of that time. The lack of details on past and future mining impacts in this DEIS further erodes Minnesota's past reputation for good government.	G8
19509	My name is Matt Tyler. I live in Finland, Minnesota in Lake County. I am an angler and avid wild rice harvester. Wild rice and fish are a significant part of my diet. Because I rely on these natural resources for sustenance, I take the protection of water resources in my region very seriously.	G7
19510	I have reviewed the Polymet-NorthMet DEIS and many of the supporting technical documents, and have concluded that it is scientifically inadequate. I share many of the concerns raised in the Cooperating Tribal Agency findings, and have identified additional deficiencies. I describe three significant problem areas and their possible solutions below.	G8

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Comment ID	Comment Text	Theme Codes
19511	Wetlands are asserted to be unconnected to groundwater without reference to field data and despite important DNR literature to the contrary. The DEIS asserts in several places that wetlands and other surface water features near the mine site have little hydrologic connectivity to groundwater. "Based on this empirical evidence as well as prior studies (Adams et al. 2004, Siegel and Ericson 1980), it appears that the ability of the poorly sorted surficial glacial sediments in the Project area to transmit water is highly variable and to a large extent surface water features, including wetland bogs, are isolated from, and not affected by, groundwater drawdown from nearby dewatering activities impacts to wetlands and other surface water features at the Mine Site (Adams and Liljegren 2009; and Adams 2009)." (DEIS p. 4.1-61-62) These assertions were made primarily on the basis of two emails from a consultant despite well reasoned arguments to the contrary by tribal cooperating agencies, who advocate on-site examination to determine connectivity (DEIS p. 4.1-61). Furthermore, the discussion in the DEIS is vague and carelessly refers to surficial and bedrock groundwater interchangeably (DEIS p. 4.1-62). Together this suggests a deliberate attempt to confuse the public and minimize the potential effects of pit dewatering and groundwater pollution on wetlands. The assertion that surface water features have little connectivity to surficial sediments (i.e. the surficial aquifer) is contradicted by the SWMM hydrologic model (RS-73A). The model showed that groundwater flow through the surficial aquifer is a significant contributor to Partridge River flows. When the groundwater component of the SWMM was turned off, the model hydrographs were "much more 'flashy' than the ones recorded at the USGS gauging station" and "did a poor job in matching base flows." (RS-73A p. 25). Detailed Forest Service soil maps of the mine site (RS-73 Figure 8) show that organic peat soils are intermingled at a relatively fine scale with loamy lowland and sandy upland soils. The presence of loamy lowland soils between peat and upland soils suggests that peat is not accumulating at the wetland edges because decomposition is possible there. This would tend to suggest that the wetlands have a more neutral pH and at least some connectivity to the surficial aquifer. Some of the potentially impacted wetlands at the mine site have been classified according to the Cowardin system (DEIS Table 4.2-3). While most of the wetlands are coniferous bogs, many other types are present, including alder thickets, wet meadows, marshes, and hardwood swamps. The latter types of wetlands are more generally indicative of surficial groundwater inflow, as they are systems where decomposition is more prominent than peat formation. (MN Dept. Nat. Res. 2003) Northeastern Minnesota's wetland communities have recently been described and classified in Field Guide to the Native Plant Communities – The Laurentian Mixed Forest Province (MN Dept. Nat. Res. 2003). Based on hundreds of field plots and many detailed studies, the guide has classified forested coniferous peat forming wetlands in Minnesota's Laurentian Mixed Forest ecological province into eight native plant communities. Based on the distribution maps in the guide, below are the six types that could occur at the mine site and their connectivity to groundwater: • FPn62 Northern Rich Spruce Swamp (Basin) – may be connected to groundwater • FPn63 Northern Cedar Swamp – connected to surficial aquifer • FPn81 Northern Rich Tamarack Swamp (Water track) – connected to groundwater • FPn82 Northern Rich Tamarack Swamp (Western Basin) – may be connected to groundwater • APn80 Northern Spruce Bog – isolated from groundwater • APn81 Northern Poor Conifer Swamp – often adjacent to communities influenced by groundwater Clearly, groundwater flows are potentially important in five of the six types of coniferous peatlands, regardless of the presence of wate	WR2I,WE1,WE2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19512	Partridge River hydrologic models do not accurately reflect known precipitation variability. The U.S. EPA Storm Water Management Model (SWMM) used to model the hydrology of the Partridge River watershed was calibrated using stream gauge and precipitation data from a period that is not representative of the long-term precipitation pattern in the region. “In order to assess the representativeness of the 1978-1987 period of simulation, precipitation occurring during this period was compared with the 112-year period of record (1896-2008) for Northeast Minnesota available from the National Climatic Data Center (www.ncdc.noaa.gov/oa/climate/climatedata.html) as a surrogate for the relatively short 10-year period of flow records for the Partridge River. The data show that the 1978-1987 period included one very wet year, several fairly average years, a relatively dry year, but no very dry years. Therefore, there is some uncertainty regarding the models predictions of dry extremes.” (DEIS, p. 4.1-97) My own analysis of the same data from the National Climatic Data Center confirms this and emphasizes the importance of including very dry years. Very dry years have been relatively frequent in the past 20 years. Four very dry years (<24” precipitation) occurred between 1989 and 2009. Furthermore, extremely dry years (<19” precipitation) have occurred twice in the last 100 years, most recently in 1976. In contrast, there was 24.6” of precipitation during the driest modeled year (1980). Consequently, the 30-day low flows used to represent “dry” conditions are probably not low enough. If, as the DEIS states, 30-day low flow periods represent a worst-case scenario with the highest potential for surface water quality impacts (DEIS, pg. 4.1.110), then the omission of very and extremely dry years means that the worst case scenario is not realistically “bad” enough. This is unacceptable for a project that has potentially very serious impacts. To be credible, the final EIS must include modeling of very dry and extremely dry years. This could be done by running a continuous simulation of the watershed using the calibrated model with precipitation data from water year 1970-1971 through water-year 2008-2009, and then selecting the lowest 30-day low-flow value from this period. This period would include one extremely dry year (1976 - 18.3”), and four very dry years (1989 – 23.9”, 1997 - 22.0”, 2003-23.7”, 2006 - 22.6”). The 1970-2008 continuous model period should improve prediction accuracy over running individual very dry and extremely dry water years because longer runs are thought to better represent the “multi-annual variability in soil moisture conditions across the study watershed” and minimize the impact of initial model conditions (RS73A, p. 28). This longer run could also be used to revalidate the model over the 1978-1987 period for which stream gauge data is available. Precipitation data from 1970-2008 is available from the Tower (ID: 218311) and Brimson (ID: 210989) weather stations, and the combined Ely (ID: 212543) and Winton Power Plant (ID: 219101) weather stations.	WR3J

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Comment ID	Comment Text	Theme Codes
19513	groundwater pollutant transport models fail to include important hydrologic processes and variation in soils and precipitation. The models used to assess the movement of waste rock leakage and mine pit water in groundwater at the mine site (DEIS 4.1 p.73-80, RS-74A) do not accurately reflect the heterogeneity of the soils at the site, the three dimensional nature of groundwater flow, exfiltration, or the temporal variability of precipitation. The models used to simulate groundwater quality at the mine site are “simple two-dimensional cross-section models” that assume no lateral flows (RS-74A, p. 83). In essence, these models can be thought of as a series of “tubes” of layers of soil and bedrock through which water and pollutants (solutes) move between the waste rock piles and the Partridge River. These “tubes” are referred to as pathways in the DEIS. Six pathways were modeled: one pathway between each of the five waste rock piles and the Partridge River, and one pathway between the west pit and the Partridge River. The head of the pathway for the category 4 lean ore pile began at the rim of the east pit, so seepage from the pit was also modeled. Each of these pathways was 10 meters wide (RS-74A, Table 6.2), with five 1m deep soil layers (RS74A, p. 84-85) along the entire length. Soils were modeled with a constant conductivity of 9.3 ft/day, which is based on the average sampled conductivity of wetland soils. Recharge from precipitation was set to a constant 1.5”/yr (RS-74A, p. 85), which is the average yearly infiltration for glacial deposits in the calibrated SWMM model. The scientific literature shows that such a simplistic model is of little predictive value when there is high spatial variability in soil and/or bedrock conductivity and porosity. It is well known that spatial variability in soils and bedrock controls groundwater flow and solute transport, and that the incorporation of variability in models is generally required to predict solute transport (Mackay et. al 1986, Guven et al. 1992, Mas-Pla et al. 1992, Kapoor and Gelhar 1994, Phanikumar et al., 2005, Salamon et al., 2007, Hu et al. 2009). Although there are still many challenges, methods to characterize and incorporate heterogeneity have been developed over the last 30 years (e.g., Dagan, 1989, Gelhar, 1993, Cushman, 1997, Hyndman et al., 2000, Zhang, 2002, Rubin, 2003 and Meerschaert et al., 2006). Soils at the mine site are clearly very spatially variable, which indicates a high degree of spatial variability in the hydrologic conductivity and porosity of the surficial aquifer (RS-73A, Figures 8- 9). This is also clearly evident in the wide range of soil types, soil depths, and conductivity values sampled at the site: “The bouldery drift of the Rainy Lobe that covers the Mine Site has an estimated hydraulic conductivity range of 0.1 to 30 ft/day (Siegel and Ericson, 1980). Lab permeameter tests on the silty sand from drill core and test trenches at the Mine Site found the hydraulic conductivity values to be 0.00043 to 0.0081 ft/day, while field testing of the various unconsolidated deposits found a range in hydraulic conductivity values of 0.012 to 31 ft/day (see RS02). The ability of this unit to transmit water is highly dependent on the thickness of the sediments (Adams et al., 2004; Siegel and Ericson, 1980).” (RS-74A p. 15-16, emphasis added) “The surficial sediment across the site are relatively heterogeneous, ranging from very dense clay to well-sorted sand” (RS-2 p. 13). Furthermore, soil depth varies considerably throughout the site, ranging from 0 to 50 feet, but generally less than 25 feet (RS-2 Table 6, RS-74A p. 14-15). These features prompted the author of RS-2 to conclude that, “the ability of the surficial aquifer to transmit water was highly variable depending on location” (RS-2 p. 13) The model clearly does not reflect the known spatial variability in the surficial aquifer (soils) at the mine site, and consequently has little predictive value f	WR2A
19513	My concerns about sulfide mining are based, partly, on the demonstrated results of taconite mining in Minnesota. First, the tailing basins of several mines in the State leak and discharge chemicals in exces of the State standards. Second, these excess discharges are varianced by the State without penalty to the mines. Little, if any efforts are made to enforce the existing standards. No shutdown of generating additional pollution is being made. This inaction sets the behavior pattern of the taconite mines regarding the standards. If this performance is tolerated by the State and citizens, there is no assurance that Sulfite mining, being more environmentally dangerous, will be held to the standard. Second, there has never been a sulfide mine that has not polluted the air and water with it's discharges. The proposed Polymet mine is upwind of the BWCA and the watershed goes either back into the BWCA or into Lake Superior. Both air and water emissions beyond the standards are possible with potentially disastrous results, killing plants, fish and polluting whose effects will last many years past the active life of the mine. Third, evidence of past pollution by sulfide mines have resulted in State money being expended in the cleanup with taxpaying citizens bearing the brunt of cleanup. In some cases, no cleanup is attempted leaving a permanent scar on the earth. There is no evidence that sulfide mining can be accomplished without pollution. Moreover, the State of Minnesota has not demonstrated a will to stop the pollution of existing mine operations. I am opposed to sulfide mining in my neighborhood for these reasons and I will have to suffer the consequences.	G2B,G4A,G7A

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Comment ID	Comment Text	Theme Codes
19514	The 1854 Treaty Authority would like to highlight a number of additional resource concerns related to the proposed project, even though comments made on the preliminary draft EIS still hold value and are relevant to this version of the EIS.	G8
19515	Under the proposed project, it appears that long-term or even perpetual water treatment, site maintenance, and monitoring will be needed after closure to protect the environment and meet water quality standards. We don't believe that this meets the goal ofa maintenance free closure. Specifically, issues remain in regards to the stability of the tailings basin, and the effectiveness of the permeable reactive barrier (PRB). It is untested and has not been demonstrated to work in any similar situations. In addition, the PRB would need periodic recharging/replacement which would need to occur at regular intervals for as long as water treatment is needed.	WR3I,PD4
19516	The waste water treatment facility (WWTF) and the passive wetland treatment system might al so not be as effective as predicted. The EIS states that the collected Hydrometallurgical Residue Cell drainage would be treated by the WWTF until approximately year 34, but no discussion of the maintenance and repair of the caps used on the tailings basin is included. Infiltration from precipitation will increase as the caps age and develop additional leaks. With continued flow of water through the tailings basin, we cannot see how the assumption of treatment ending at year 34 can be justified.	WR2G,WR3I,WE6,PD3,PD
19516	Also in regards to the WWTF, the preliminary draft EIS states: "Without a demonstration of effectiveness, the wetland treatment must be assumed to be ineffective due to short-circuiting. The primary objectives for the WWTF are to ensure that the treated process water is of sufficient quality to allow reuse in the Beneficiation Plant and to help meet groundwater standards for groundwater seepage from the tailings basin. The treated process water quality design targets reflect a combination of state surface and groundwater standards, although the most restrictive of the two is not always proposed (RS29T, Barr 2007). The WWTF effluent represents the primary source of antimony, arsenic, and sulfate to the tailings basin pond and seepage from Cells 1E/2E during mine operations (Wenigmann, Pint, and Wong 2009). Since the WWTF effectiveness would be an important factor affecting the quality of groundwater seepage from the tailings basin, we recommend monitoring of the WWTF effluent as a leading indicator of potential groundwater issues at the tailings basin (Section 4.1.3.5). " Nothing has changed in regards to the design of the WWTF to the draft EIS, and this statement quote still has relevance. The draft EIS also mentions the passive treatment ability: "Constructed wetlands performance, however, is not sufficiently reliable to function as the primary treatment measure for assuring consistent year-round compliance with water quality standards." This version of the EIS leaves out the following sentence from the previous version: "Furtlter, the assimilative capacity of these wetlands is limited and they would presumably require long-term maintenance to ensure its effectiveness." The EIS has not addressed legacy issues with the site and seems to minimize potential issues. Page 4.1-19, states there has "not been any documentation of any offsite contamination, and the extent of onsite contamination from the legacy sites appears to be limited to localized soils and possibly groundwater. "	WR1E,WR2G

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Comment ID	Comment Text	Theme Codes
19516	We appreciate the effort and attention wild rice received in preparing the draft EIS. On page 4.1-47 it states that Minnesota Rules, part 7050.0470 does not designate wild rice waters along the Partridge River. We would like to note that these rules do not attempt to identify all wild rice waters, so care should be taken on how this list is referenced or utilized. The Natural Wild Rice in Minnesota report included an attempt to summarize all wild rice waters in the state, but is an ongoing work in progress as better or new information is acquired. Field work conducted in 2009 by the project proposer did identify a number of rice stands in the Partridge River. In addition, the 1854 Treaty Authority also investigated the river from approximately Colby Lake downstream to its confluence with the St. Louis River in August 2009. Several areas containing wild rice identified in the draft EIS were confirmed during this survey. However, we also documented additional areas of rice in the section of river downstream of county road 110. Wild rice was also identified in the St. Louis River near the county road 100 crossing, and in Second Creek where it discharges into the Partridge River. Wild rice growth can be affected both by water quantity and water quality. A water quality standard for sulfate of 10 mg/L exists for waters which support wild rice. As shown in Table 4.1-67, measured sulfate concentrations exceed this standard in several waters containing wild rice. It is our understanding that this standard must be met in areas where wild rice is found (and perhaps historically found as well). The EIS states that sulfate levels in Partridge River are approximately 149 mg/L downstream of Second Creek. Impacts from this level of sulfate on the rice beds in the Partridge River are unknown, but sulfates in this range could be or like ly are affecting wild rice growth and success. In fact, recent work completed at the University of Minnesota Duluth indicates impacts on wild rice from elevated sulfate levels. Additional discharges from the project would increase sulfate loading and/or concentration levels in these waters. We are interested in following how water discharges would be permitted in relation to the wild rice water quality standard.	WR4F
19518	The 1854 Treaty Authority still has concerns about the National Ambient Air Quality Standards (NAAQS) and Prevention of Significant Deterioration (PSD) Increment Impact Analysis. On page 4.6-13 its states that modeling analysis done to date does not reflect the current Proposed Action for the tailings basin. Those changes represent a 19% increase in PM 10 and 5% increase in PM2.5. Even though the EIS is supposed to include all current and reasonably forseeable projects occurring in the area, the Mesabi Nugget Phase II project and the Keetac Expansion Project have not been included in the modeling analysis. This is troubling because modeling that has occllrred to date show that 24-hr PM IO and PM2.5 NAAQS impacts for the Plate Site assessment were modeled at 97% of the standard (page 4.6-13). The modeling for the maximum 24-hour PM 10 impacts in the Mine Site approaches the Class II Increment for PSD (29 mg/m3 versus 30 mg/m3), and the 24-hr PM2.5 Class II NAAQS modeling shows the total plant, minc, and background total equaling 34 ug/m3 out of the standard 35 ug/m3. With the Mesabi Nugget Phase II and the Keetac Expansion Facility emissions added in as well, the modeling might show violations of the standards. Table 4.6-22 is still missing the Mesabi Nugget Phase II project, the Keetac Expansion Project, and the Essar Steel Facility. Due to this, the increase of potential mercury emissions will be considerably higher.	AQ4B
19518	As mentioned earlier, previous comments and language submitted by the Tribal collaborators are still relevant in addressing issues in this version of the EIS. Specifically in the ail' section, we have question of whether fugitive emissions will be reactive and to what extent in generating acid runoff. The proposed action calls for water or dust suppression being used on all unpaved roads at the Plant Site resulting in a 60% reduction in emissions, and more controls on the roads to the tailings basin with an even greater estimated reduction of 80%. We would like to further understand what additional controls are forecasted to be used on the roads used to transport construction materials at the tailings basin, and if these controls should be used on all roads.	PD2,PD5,AQ1

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Comment ID	Comment Text	Theme Codes
19518	Nearly all of the wildlife impact analyses that were presented dealt with species of special status (endangered, threatened, special concern, USFS regional forester sensitive, etc.). We understand that there is a trend to manage for multi-species and indicator species, yet the importance of moose and other game/furbearer species to tribal interest demands a high enough priority that these species should be addressed specifically. Certainly we support protection of species of concern as well, but others are often of high priority, particularly for a project that is impacting species and habitat permanently. Regarding access, in planning for reclamation phase, it would nice to see options that would allow for some public access to the site. Successful reclamation could make the site a valuable treaty-right or recreational resource in the future. Furthermore, some disagreement may exist on the analysis of wildlife corridors. Page 4.4-30 of the EIS states: "Emmons and Olivier may have underestimated the number of corridors by treating all historic mining features as impediments to travel and not accounting for closed mines, revegetation, and natural succession." As that study was peer reviewed and Barr Engineering's did not undergo the same rigorous review, it is a concern that Barr's study may have over-estimated the ability of some wildlife to bypass what they term "moderate impact features".	WI3,WI5
19518	The proposed project would have significant impacts to wetlands, with approximately 1552 acres impacted from the total project. If the project moves forward, it is our understanding that this would be the largest wetland impacts ever permitted in the region. Much of the planned mitigation would occur outside of both the St. Louis River watershed and the 1854 Ceded Territory. This raises concern if resources within the watershed and those guaranteed by treaty with the United States are being properly preserved and protected. Other tribal collaborators have raised concerns about the predicted impact of wetland drawdown and its effects on the surrounding area. The wetland delineation has had questions raised about the proper classification of wetlands and their dependency on groundwater upwelling. Wetland impacts could even be greater than what is stated in the EIS.	WE1,WE2,WE3
19518	No matter how the proposed project is viewed, it would result in a permanent loss or change to treaty guaranteed resources and the exercise of treaty rights. Any type of land exchange with the U.S. Forest Service would not directly address this impact. As the draft EIS states, the tribes view natural resources as cultural resources. It is impossible to separate the two. Further consultation required by federal agencies is needed to better understand effects to cultural resources, and to properly plan for avoidance or mitigation.	PD7,G2B
19520	The EIS states that financial assurance requirements for the project are not included in the document, but will instead be determined during the permitting phase. We are concerned about this approach given the potential for long-term/perpetual treatment, maintenance, and monitoring that may be needed from the proposed project. The environmental effects, expensive cleanups, and bankruptcies at other precious metal mines raise a significant red flag. This project may stand on its own, but completing financial assurance disclosure during the EIS process will help understand the needs to safeguard the environment and protect the public from significant expenditures.	PD1
19520	Finally, an additional consideration along these lines is the possible future need to complete a Natural Resource Damage Assessment and Restoration (NRDAR) claim against the project. In the event that natural resources are injured from a project (perhaps likely in this case), the NRDAR process attempts to make the public whole for its losses. The public is compensated for lost resource services, typically through the identification and completion of restoration projects. Depending upon the impacts, this can be a significant expense for a company. It is necessary now to visualize the potential need for this process down the road, and we believe it is important to build in the necessary monitoring for baseline data before and during operations.	CR1
19521	We all have concerns about Sulfide mining in Minnesota. We are particularly concerned about the sulfide mining on 6,700 acres in the Superior National Forest and other public lands. We are concerned about the impact these mines have on surrounding bodies of water. Upon investigation, we have found no evidence of any clean sulfide mines in existence now or in the past. Furthermore, the DEIS has not found any clean Sulfide mining operations. We feel that the evidence we have reviewed suggests that it is not possible to conduct Sulfide mining with out a devastating and incapacitating impact to the surrounding environment and ecosystems.	EOO,PD1,PD3,PD4,PD10

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Comment ID	Comment Text	Theme Codes
19522	As a family we have been harvesting wild rice in the true Native American tradition for 30 years in many areas of Minnesota. We have great concern about increasing Sulfate concentration in areas surrounding the sulfide mine by 20 mil./liter. Wild rice cannot survive in water when it's levels of Sulfates rise above 8 mil/liter.	WR4F
19523	Additionally it seems Tribal rights guaranteed by treaties with the federal government will be violated by the destruction of wild rice in the area around the proposed Sulfide mine.	G3,CR4
19524	Primarily we believe that the only way to properly protect the fragile and unique ecosystems that exist in the area surrounding the proposed sulfide mine is to not build one in the first place. However, if the mine must be built, we strongly believe a thorough analysis of the following aspects of the proposed sulfate mine should be completely addressed before the sulfate mining commences in Minnesota:	G8
19525	Perpetual financial guarantees to the public for any clean up created by sulfide mining.	PD4,PD8
19526	Analyze impact of increased mercury on the water and air as it affects fish & wildlife.	WR4B,FM1,AQ6A
19527	Protect tailings and rock piles from ever leaking or collapsing and spilling pollution into rivers, Lakes, water supply, and wetlands.	WR2D,GT2
19528	Consider extensive Public input.	EOO
19529	Several sections of the DEIS are incomplete and deficient and should be revised. This should be done under the NEPA aegis and not left to the permit process. The DEIS also presents a frightening specter of massive wetland loss, massive waste rock piles and tailing ponds, polluted surface and groundwaters, guaranteed acid mine drainage, and the likely need for perpetual treatment of waste streams. (Read massive public bailout)	PD10,PD3
19530	First and foremost, the proposed project lands do not even belong to PolyMet. The NorthMet DEIS assumes the successful completion of a land exchange of 6,700 acres between USFS and PolyMet. This is a connected action and should have predated the DEIS. A land exchange would need to go thru an EIS and the NEPA process. This is not a done deal because it also involves the transfer of public lands with retained usufructory rights by the Tribes under the 1854 Ceded Territory. The larger question is should the land be used for mining purposes in the first place. In 1997 the area of the mine site was studied by the USFS in its Forest Plan Revision process and found to be worthy of permanent protection as a " candidate Research and Natural Area". "Features that gave this area a high ranking were its watershed integrity, the size of its wetlands, the presence of riverine ecosystems, and the large amount of interior forest present." (Friends of the Boundary Waters Wilderness (FOBW) report: "PolyMet Mine Site: Important Natural Area Will Be Obliterated for Dangerous New Mine", June 2009) Subsequently, the Minnesota DNR, The Nature Conservancy and the North Central Forest Experiment Station also cited the need to protect this area. However, when the USFS Forest Plan Revision was released in 2004, the area was not designated as a " candidate Research and Natural Area". Interestingly, the initial scoping for the PolyMet Project began in 2004…	PD1
19530	The NorthMet Mine would be situated in an area of wetlands known as the "100 Mile Swamp". "The mine would occupy and destroy over 1,000 acres of that peatland… Destruction of the more than 1,000 acres of peatland by PolyMet's proposed mine would release approximately 2.7 metric tons of C02 to the atmosphere. This would increase Minnesota's total annual emissions of C02 by two percent (above 2005 levels)" (FOBW report: "PolyMet Mine's Destruction of Peatlands Would Significantly Increase Minnesota's Carbon Emissions", June 2009). The depletion of this carbon reservoir is contrary to Minnesota's comprehensive plan to reduce emissions of greenhouse gases. The Minnesota Terrestrial Carbon Sequestration Project, an interdisciplinary group commissioned by the Minnesota State Legislature, cited as its number one recommendation: "Preserve the existing large carbon stores in peatlands and forests by identifying and protecting peatlands and forests vulnerable to conversion, fire, and other preventable threats." (FOBW, ibid) In MCEA v. Holsten (2008), Minnesota's environmental review laws were extended to include greenhouse gas emissions and climate change.	AQ3

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19531	It is incomprehensible that the DEIS is largely silent on the question of financial assurance. In a landmark study: "Comparison of Predicted and Actual Water Quality at Hardrock Mines: The Reliability of Predictions in Environmental Impact statements",(Kuipers, Maest and associates, 2006), Kuipers found: "Of the 25 case study mines, nine (36%) have developed acid drainage to date. Nearly all mines (8/9) that developed acid drainage either underestimated or ignored the potential for acid drainage in their EISs. Of the 25 case study mines, 19(76%) had mining-related exceedances in surface or groundwater. However, nearly half of the mines with exceedances (8/19 or 42%) predicted low contaminant leaching potential in their EISs. The constituents that most often exceeded standards or that had increasing concentrates in groundwater or surface water included toxic heavy metals such as copper, cadmium, lead, mercury, nickel, or zinc (12/19 or 63%), arsenic and sulfate (11/19 or 58% each), and cyanide (10/19 or 53%)." Kuipers has also estimated the taxpayer liability for clean-up costs at closed hardrock mining sites in the U.S. to be upwards of $12 billion. The average acreage per mine involved is 1,800. The current cost for financial assurance where acid drainage has been identified is $80,000 per acre. We can see that it is likely that surface and groundwater will be affected; it is likely that there will be acid mine drainage; and the costs of clean-up will be dear. It is recommended that state and federal agencies hire a professional consulting firm to calculate mine reclamation costs. A detailed mine closure and reclamation plan with realistic financial cost predictions is necessary in the DEIS. The current DEIS is deficient.	PD4

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Comment ID	Comment Text	Theme Codes
19531	The DEIS contains several statements that lead to the conclusion that waste streams will need to be treated for tens to thousands of years. “Water draining from stockpile liners and water collected in the stockpile foundation underdrains after Closure would be monitored, returned to the WWTF for treatment if necessary, and ultimately discharged to the East Pit treatment wetlands.” (DEIS 3-42) “Once the entire facility is closed, any water collected by the seepage collection systems would be returned to the pond until it can be demonstrated by water quality that it is no longer necessary to actively manage Tailing Basin seepage.” (DEIS 3-45) “Inspection, maintenance, and reporting activities would be required at the Mine Site and Plant Site after the Closure activities are complete… These Post-Closure and reclamation activities would be expected to be ongoing until such time as the various facility features are deemed environmentally acceptable, in a selfsustaining and stable condition.” (DEIS 3-49) “Other continued maintenance activities that would continue throughout Closure and Post-Closure would include repair of stockpile and tailings dike slope erosion, wetland and outflow structure up-keep to ensure they are functioning properly, woody species and tree removal on stockpiles and hydrometallurgical cells with membranes, tailing pond maintenance, and seepage collection from the Tailings Basin.” (DEIS, ibid) “The generation and disposal of tailings in the Tailings Basin would end in Year 20, but PolyMet proposes to retain a permanent pool of water, primarily from precipitation with Colby Lake withdrawals as a backup, over a portion of the Tailings Basin for water quality purposes. All collected surface seepage would be pumped back into the Tailings Basin until the seeps dry out or water quality discharge limits are met, except for Second Creek where the seepage recovery system would be removed at Closure. The collected Hydrometallurgical Residue Cell drainage, which previously was being used at the Plant Site, would be pumped/trucked to the WWTF for treatment until approximately Year 34, when the drainage is expected to end.” (DEIS 4.1-55) Dr. David Blowes, a geologist from Ontario, Canada and the world’s foremost authority on mining liner systems, stated that all liners leak, usually at an average of 8 years post-installation. (Presentation at the University of Minnesota, Duluth. November, 2008) Therefore, pumping drainage from the Hydrometallurgical Residue Cells would need to be continued indefinitely. “The Post-Closure period is considered to begin once the West Pit begins to overflow and drain into the Partridge River, which is estimated to occur around Year 65 (Figure 4.1-21) The West Pit overflow would not occur until several decades after mining ceases. PolyMet would continue to collect and treat leachate from the permanent waste rock stockpiles at the WWTF until monitoring shows that the treatment is no longer necessary to meet water quality standards.” (DEIS 4.1-56) But, according to Table 4.1-45 (p. 4.1-80), the stockpile leachate is expected to exceed groundwater criteria for “around 2000 years”. “Sometime after the West Pit overflows, the WWTF would be decommissioned and the constructed wetlands would indefinitely provide the primary treatment of waste rock stockpile leachate.” DEIS 4.1-111) “Constructed wetlands performance, however, is not sufficiently reliable to function as the primary treatment measure for assuring consistent year-round compliance with water quality standards.” (DEIS 4.1-113) “The best policy for an agency with the responsibility for water protection is to deny any application for a mine that includes a requirement for long-term water treatment. If a prediction of an end date on which treatment will no longer be required can not be made with a reasonable degree of certainty, then a discharge should not be allowed to begin. The long-term risk to the public, who is the ultimate guarantor for	WR2D,WR3I,PD3,PD5
19532	The total direct and indirect impacts to wetlands is 1522 acres. The vast majority of them are rated as high quality wetlands. PolyMet plans are to mitigate 1,287 acres. Given required mitigation ratios, this is a 475 acre shortfall. All but 175 acres would be outside the Partridge and Embarrass Rivers watersheds. These are the largest wetland impacts that have occurred in these watersheds. The mitigation would also occur outside the 1854 Ceded Territory. This would result in the loss of treaty-guaranteed rights to access the wetlands and harvest natural resources with in the 1854 Ceded Territory.	WE3

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19532	Groundwater and surface water quality would be degraded and in many cases exceed current water quality standards. "Several parameters are predicted to exceed USEPA primary and secondary MCLs and MDH Health Risk Limits at multiple flow paths for various periods and durations." (DEIS 4.1-78) This refers to exceedances of groundwater evaluation criteria at the Mine Site for arsenic, antimony, sulfate, iron, manganese, nickel, and copper. Table 4.1-45 (p. 4.1-80) predicts these will exceed groundwater criteria for "around 2000 years". "The West Pit overflow would discharge to an unnamed "waters of the state" and would have to meet effluent limitations based on meeting surface water quality standards…The modeling results suggest that perhaps as many as five parameters (i.e., arsenic, cobalt, copper, nickel, and selenium) could exceed surface water quality standards, in addition to relatively high sulfate concentrations." (DEIS 4.1-113) See Table 4.1- 64 (p.4.1-114) "Groundwater seepage from the Proposed Action, however, would not be recovered and is expected to range from 1,600 gpm (Year 1) to over 2,900 gpm (Year 20), which would eventually impact surface water quality in the Embarrass River. In addition, liner leakage from the hydrometallurgical cells would seep from cell 2W…this liner leakage is predicted to have a very high sulfate concentration (i.e., over 7,300 mg/L as measured in laboratory testing)" (DEIS 4.1-118) "The Proposed Action would result in increased sulfate loadings via groundwater to both the Partridge and Embarrass Rivers." (DEIS 4.1-125) Sulfate loading in the Partridge and Embarrass Rivers would be expected to damage wild rice crops and increase the risk of mercury methylation. August and September 2009 field surveys found wild rice at various locations along the Upper and Lower Partridge River, Embarrass River and further downstream in the lower St. Louis River. There is a 10 mg/L sulfate standard in Minnesota for wild rice waters during periods when the rice may be susceptible to damage. Current sulfate levels in undisturbed waters (read absence of mine effluent) on the Partridge River average 5-6 mg/L. Sulfate levels measured on the river downstream of the LTVSMC Tailings Basin average 149 mg/L. The NorthMet Mine's contribution is predicted to be 174 mg/L (DEIS Table 4.1-96 p. 4.1-188) Current sulfate concentration on the Upper Embarrass River above the Tailings Basin average 4.6 mg/L. Sulfate concentration below the LTVSMC Tailings Basin is 36 mg/L. Under the proposed Action, it would increase to 53 mg/L. This is clearly in violation of the sulfate standard. The MPCA has used the sulfate standard in past permitting activities (MINNTAC Schedule of Compliance, 2008) "There are four lakes downstream of the Embarrass River that are on the 303(d) list for mercury in fish tissue impairment. These lakes stratify, which can further promote mercury methylation. Therefore, increasing the sulfate load from the Tailings Basin could increase the potential for mercury methylation both in the wetlands north of the Tailings Basin and at the downstream lakes." (DEIS 4.1-126) The Proposed Action would violate section 404 (b) (1) of the Clean Water Act which prohibits permitting when water quality standards are violated or significant water degradation would occurs.	WR1E,WR2D,WR3I
19533	The Canada lynx is protected under the ESA as a federally-listed threatened species. Twenty individual lynx were identified within 18 miles of the Mine or Plant Sites. Potential lynx habitat could be lost for the duration of the mine operations (over 20 years), and an additional 20 years or more after closure before suitable lynx habitat would reoccur at the Mine Site. Wildlife corridors 11 and 12 would see significant impacts and would require mitigation. Corridor 12 (Mine Site) would experience a significant direct loss or fragmentation of wildlife habitat which would impact the ability of many wildlife species to migrate throughout their ranges.	WI1,WI5
19534	The PolyMet Project is predicted to release 8.3 lbs/year of mercury. The mercury TMDL standards require new or expanding facilities expecting to emit more than 3 lbs/year to arrange for a reduction equal to the new emissions from existing sources in the state. PolyMet currently does not have a specific mercury emission control plan and would not be permitted.	AQ5,AQ6A
19535	PolyMet will add 30 tpy of S02 and 159 tpy of N0X and 1,175 tpy PM10, thus contributing to the predicted failure of the State of Minnesota to meet the current Regional Haze State Implementation Plan goal, which is to reduce emissions from Northeastern Minnesota by 30% over 2002 levels. Amphibole minerals are present in the Duluth Complex and in close proximity to the NorthMet deposit. Nine percent of the fibers collected from samples PolyMet has tested are amphibole minerals which: "could pose a potential public health risk of uncertain magnitude." (DEIS 4.6-60)	AQ4C,AQ6

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19536	"Polymet proposes clearing of uplands and wetlands, and a revegetation plan that includes the use of nonnative and potentially invasive species, which would prevent the Project Area from meeting the goals of the MFRC Landscape Management Plan to promote diverse, natural floral and faunal communities and populations and maintain a spatial structure consistent with Northeastern Minnesota ecology." (DEIS 4.9- 3)	CPLU1
19537	The cumulative impacts of the loss of wetlands, changes in wetland functional values, air and water emissions into these watersheds and long-term maintenance requirements of the PolyMet Project would cause a permanent and irreplaceable loss of cultural resources in the 1854 Ceded Territory. Impacts to the natural resources will disproportionately affect the Tribes due to their subsistence consumption of rice, fish and other wildlife within the 1854 Ceded Territory.	IR2
19537	What impact will the PolyMet Project have on the socioeconomic condition of the East Range? In order to best weigh the pros and cons, economists usually perform a cost/benefit analysis. This was not produced for the PolyMet DEIS. What was provided is an accounting of the direct effect of 448 new jobs and the indirect and induced multiplier effects on employment. The cost of increased public services and protection, adverse economic impacts during temporary shutdowns and closure and the negative impacts associated with the loss of natural resources and environmental degradation have not been addressed. "The challenge represented by metal mining is that it is a landscape-intensive activity that almost always has had a significant negative impact on the natural environment. That means that it has the potential to damage one part of the local economic base, environmental quality, while developing another, the mineral deposit. To the extent that the environmental damage could be significant and permanent while the mineral development, in contrast, is relatively temporary, significant economic policy issues are raised: Is there a net gain or loss to the local economic base as a result of developing the mineral deposit?" (Thomas M. Power, "The Economic Role of Metal Mining in Minnesota: Past, Present, and Future", October 2007, p. 31)	SE3
19538	The existing LTVSMC tailings facility has stability concerns: there is a risk of failure along the impoundment perimeter under stress conditions. This is before any PolyMet tailings have been deposited on top of it. Structural stability of the Tailings Basin has been has been a serious concern. Serious analysis of the structural integrity of the latest tailings basin design has been postponed until the permitting stage. A stockpile slope assessment has not been completed. These are serious gaps given the environmental consequences of a structural failure of the tailings basin or stockpile.	GT2
19539	The NorthMet Project DEIS must be rejected due to the preponderant evidence that the Project will cause irreparable harm to the environment and is likely to become a superfund site that we taxpayers can ill afford.	G2A,G5A,G7A
19540	I have serious concerns regarding the draft EIS for the polymet mine. The draft EIS does not have the proper "frame work" in planning for the reclamation of the mine once it is closed. The long term treatment of complications is complex and could become extremely expensive. I do not want this cost passed on the Minnesotans'. The final EIS should have provisions setting aside a trust with the maximum predicted cost of the "worst case" mitigation cost.	PD3
19542	In addition to understanding groundwater movement, the final EIS needs to have a plan to constantly monitor the mining operations by the DNR. The proposed mining site/sites are too closely approximated to biologically sensitive areas. It is imprudent to leave monitoring and inspection to the mining company. The DNR needs to provide this service or have and independent entity fulfill the "policing" of the mine sites. This is a significant aspect which should be in the final EIS.	PD8
19542	The final EIS also needs to include and field sampling tests to understand how water moves through the bedrock. If this testing is not completed, it could dramatically interferer with clean-up and recovery/ mitigation. Currently in the draft EIS does not demand this testing. This is a critical piece that needs admission into the final EIS.	WR2A
19543	There are other concerns which also require routine monitoring and addressing in the final EIS. Emissions, according the USFS, the Polymet project alone will cause and average of 36 days of haze every year, the potential disruption of wildlife corridors specifically the Canada Lynx which is a federally listed as a threatened species, and the cumulative effects of the multiple mines that will inevitably develop in the surrounding area. These additional concerns need to be addressed in the final EIS.	WI2,WI5,AQ4,AQ4B

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19544	I believe that this project is not compatible with the surrounding public and private land usage.	EOO
19545	From our perspective the DEIS is inadequate to describe a project that would protect Lake Superior and its watershed from toxic and perpetual water pollution from this proposed copper-nickel mining and processing operation. A summary of our reasons follows with detailed discussion directly after.	G8
19545	Prevention of Significant Deterioration Review The Project may well be “designed” to limit “presumed” synthetic minor emissions below major source thresholds but for reasons stated in comments on Section 4.6.1.3 herein no modeling calculations have been submitted that give any surety that the Project should not be permitted as a major source for PSD. Modeling results would need to be calibrated after the fact which has proven to be the case in most if not all of the reference metallic sulfide mines in the U.S. and elsewhere. The nature of this type of mining does not allow for modeling errors without enabling significant negative environmental consequences. Vivo”, Cook et al, Feb 1982).Toxicity has been shown to depend upon a number of factors. One factor is intensity or concentration of fibers during human exposure. (Ref. “Taconite Fibers Lecture: Can Amphibole Fibers/Particles Contribute to Mesotheleoma and Other Asbestos Related Diseases in Northeast Minnesota?”, Philip M. Cook, Ph. D. June 17, 2008, sponsored by MN Dept of Health) How would the level of exposure during mining and processing be determined on a regular basis with a test protocol determined by factor analysis? Stationary test monitors and corresponding analytical procedure (MDH 851 and 852) have been in use for years. The USEPA also has an “activity-based” test protocol (AHERA) for determining levels of exposure to both PM10 and PM2.5 sized fibers during normal activities in areas receiving airborne and natural pollution. Why does the DEIS not address these issues? (Ref. “U.S. EPA Asbestos Assessment for El Dorado Hills (CA), May 2005) • The “background” comments dwell on semantics of the definition of asbestos and not on the toxicity of the amphibole and asbestos-like fibers found in the vicinity of the Northmet deposit. Fragments of fibers and fibers themselves have the same properties and are equally toxic per recent studies at the USEPA Laboratory. See previous refs) So-called “MN-fibers” are defined by the MPCA as having characteristics and effects similar to “asbestos’ in legal documents. These fibers include cummingtonite-grunerite and ferroactinolite. The fact that chrysotiles do not register at high levels on fiber sampling efforts in this area is not surprising since significant numbers of these fibers do not occur naturally in this mining district. Why was this document released with such selective use of scientific references describing the toxicity of these materials? This violates NEPA rules. Non-Asbestos Fibers pp 4.6-58, 59 • The DEIS avoids discussion of the most relevant studies of “asbestos-like” and asbestos fibers from air samples taken from ore from the eastern Mesabi Range (e.g. Cook et al, 1982ff) The staff at the EPA Laboratory in Duluth have conducted exhaustive studies on fiber samples of these ores and found that their toxicity is greater than that of comparable “asbestos” fibers. • MPCA classifies ferroactinolite and cummingtonite-grunerite as “asbestos” or “asbestos-like” fibers. The Control City Standard (Ref. Reserve I and US v Reserve federal cases) has not been mentioned as a potential standard for the Hoyt Lakes, Babbitt and other locations surrounding this proposed project. This federally recognized standard serves as an excellent measure of community exposure to toxic fibers. The effectiveness of BACT controls could be measured in this context. Nearly pure veins of these amphibole materials have been identified as intrusions into the Duluth complex. Why has the DEIS not addressed this potential threat to humans in the vicinity of the Polymet Northmet site? From MDH data, 85% of mesothelioma cases from as far back as 1984 were employees of Erie Mining on the same site as the proposed Project. Statements downplaying the significance of this exposure are backed by erroneous and irrelevant references in the DEIS. The public needs to understand as part of this DEIS that these fibers are a threat to their health. Per NEPA rules	AQ4,AQ4C

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19546	No valid justification has been given for not treating the project as a major PSD source. BACT requirements must apply based upon experience of fiber sizes emitted from the proposed mining and processing equipment. The "top down" BACT analysis must include PM10 particles to include all toxic fibers. Improved filtration would be required in additional to the standard baghouses chosen for the Plant emission points. Proximity to residential communities is not a factor used to determine the effect of pollution from toxic substances such as fibers from amphiboles and sulfide ores. The surface material and water in all directions from the mine and plant would be permeated with fibrous material from this project. Amphiboles on the surface would at some time reach a level detectible by EPA activity-based testing and analysis. Sulfide particles would react with air and water to acidify the water in the vicinity of the project. The damage is cumulative over time especially with contributions from other mining activity in the area. PSD and cumulative effect rules must be applied in any EIS for this proposed project per NEPA rules. Tailings basin air emission control by "capillary action" and wet tailings disposal has not shown to be effective in places like Milepost 7 at Silver Bay. Fiber monitors at the F1 (Beaver Bay) location routinely register high levels of amphibole fibers in the ambient air in strong northwest winds. Dust is often visible as far away as highway 61 blowing into Lake Superior. The proposed type of emission management would not be adequate to protect the public from either short or long term exposure to toxic fibers. EPA studies identify peak exposure to toxic amphibole and asbestos-like fibers as a basic parameter affecting toxicity of ingested fibers. What is the peak exposure to PM10 and PM2.5 fibers in the sulfide, oxide and amphibole classes during high velocity winds using either fiber counts or weights? How does this correlate with the EPA toxicity studies of these fibers? These issues must be addressed in the EIS per NEPA rules.	AQ4A,AQ4B,AQ4C
19546	The DEIS acknowledges "an uncertain level of fibers on the project". This would suggest a need for continuous monitoring supported by a factor analysis to determine the best placement of the monitors. Climate factors clearly affect sampling results and should be simultaneously recorded. EPA scientists have determined that so-called cleavage fragments with the same characteristics as asbestos are as harmful to the lungs as asbestos. The Crump and Berman studies did not evaluate data past 15 years longevity of workers and is irrelevant in determining the true long term effect of exposure to these fibers. NEPA requires that impacts from unknown environmental factors be closely evaluated in the EIS. The project plan does not meet that standard. Inclusion of the Cook et al U.S. EPA research on relative potencies of complex mixtures of mineral particles would help alleviate this inadequacy.	AQ4C
19547	The Minnesota Department of Natural Resources (DNR) stated repeatedly that this document would be finalized and released as the Draft Environmental Impact Statement (in 2008). SLSA accordingly retained me to assess the document's compliance with federal and state law, and to help write comments for submission to the agencies. Because of the complexity of the issues and the volume of information, we all felt that it was imperative to begin this work prior to public notice of the DEIS in order to have sufficient time to review it. I do not believe it would be possible to conduct a thorough review of the DEIS for this project in 45 days; thus my first advice to the organizations is to request a longer public comment period. (Which we did and were refused without notice.)	PD2
19548	My understanding is that the DNR has asked PolyMet for additional information on four issues: design and safety of the tailings basin dam; the increase of sulfates in the Embarrass River and the impact on wild rice waters; the discharge of sulfates and the impact on mercury methylation; and the discharge and movement of arsenic and antimony into and through groundwater. Because the DEIS is likely to change significantly in regards to these issues, for the most part they are not included in this assessment. This should not be construed as a lack of concern about these issues, however. Based on the information available at this time, each presents risks of environmental and/or safety impacts to the extent that the project could not be legally permitted as proposed.	G7A,G7B,G8

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19549	Moving beyond these four issues, it still appears to be the opinion of the DNR that it can put out an incomplete DEIS for public comment, and fill in the missing information in the Final EIS. This is a disservice to the public and does not comply with federal regulations. Because this is a joint federal-state EIS, the environmental review process must comply with federal law, despite the fact that a state agency has taken the lead. Under the federal regulations, The draft statement must fulfill and satisfy to the fullest extent possible the requirements established for final statements in section 102(2)(C) of the Act. If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion. 40 C.F.R. 1502.9(a). For reasons explained below, the CPDEIS (did) not come close to meeting "the requirements established for final statements." If the first public DEIS is substantially similar to the CPDEIS on the issues identified below, we should expect that another iteration of the draft EIS will be prepared and put on public notice before agency decisions are made.	G9
19550	The only discussion of financial assurance that I found in the CPDEIS is in section 2.3.1. It states that the final scoping document determined that the EIS would "evaluate the reclamation costs and their effect on facility design, construction, and closure. Financial assurance estimates associated with corrective actions cannot be developed until the corrective action is known; therefore, discussion of the assurance costs would not be included in the EIS." The CPDEIS (did) not include an evaluation of reclamation costs; this needs to be added to the DEIS released for public comment. Minnesota law requires that a mine operator provide financial assurance to cover contingency reclamation costs prior to receiving a permit. Minn. R. 6132.1200(4)(B). The DEIS needs to discuss not only reclamation costs, but the contingency reclamation costs that will be covered by financial assurance, and the financial assurance mechanism that will be used to meet this requirement. Unless we know that a sufficient amount of money will be available to cover closure costs when mining ceases, we cannot conclude that the planned closure activities will prevent environmental impacts.	PD4
19551	The CPDEIS (admitted) that it does not address the fact that the mine site is on land that is currently owned by and under the jurisdiction of the United States Forest Service. The CPDEIS (indicated) that the mine project is unlikely to go forward unless there is a land exchange, but it does not describe the impacts of that exchange. Instead, it indicates that a separate EIS will be prepared. This violates the federal regulations, which state: Agencies shall make sure the proposal which is the subject of an environmental impact statement is properly defined. Agencies shall use the criteria for scope (Sec. 1508.25) to determine which proposal(s) shall be the subject of a particular statement. Proposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement. 40 C.F.R. 1502.4(a). The criteria for scope read: To determine the scope of environmental impact statements, agencies shall consider 3 types of actions, 3 types of alternatives, and 3 types of impacts. They include: (a) Actions (other than unconnected single actions) which may be: (1) Connected actions, which means that they are closely related and therefore should be discussed in the same impact statement. Actions are connected if they: (i) Automatically trigger other actions which may require environmental impact statements. (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously. (iii) Are interdependent parts of a larger action and depend on the larger action for their justification. 40 C.F.R. § 1508.25. Under these provisions, the impacts of the land exchange must be presented to decision makers and the public at the same time and in the same EIS as the other impacts of the project. When read in combination with the requirement that the draft EIS present everything that is required of the final EIS, it becomes clear that the draft EIS cannot be released until information on the land exchange is available and incorporated into the document. It would be prejudicial to the public interest to encourage public review of a draft EIS when potentially significant impacts have not been included.	PD8
19552	The (DEIS) is also inadequate because it does not assess reasonable alternatives that are likely to have less environmental impact than the mining plan as proposed. These include the underground mine alternative and the reduced production alternative. The fact that the mining company does not choose to consider these alternatives is not a legitimate reason for eliminating them from study. If there might be significantly less environmental impact from these alternatives and if the alternatives are technically feasible, they must be assessed. Eliminating an alternative simply because a permittee indicates that it would not go ahead with the project if the alternative was required would allow permittees to avoid increased costs for environmental protection at their own discretion. This would essentially nullify the Minnesota Environmental Rights Act.	PD4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19552	Although this alternative is identified as one that will be studied in the EIS, I did not find any mention of it in the assessment of water quality impacts. While the section on wetland impacts states that this alternative would result in a reduction in water discharged to area wetlands and the Embarrass River, the discussion does not provide enough information by which to make a comparison to other alternatives. It appears that PolyMet is using the potential impacts on wetlands and stream flow as an excuse to avoid preparing an analysis that would allow an informed decision. The DNR should insist that this alternative be fully explored, and complete an assessment of potential impacts that could be compared with PolyMet's preferred alternative. Particularly if the drainage is treated before discharge when the current cells are drained, at first blush this appears to be an alternative that could significantly ameliorate the water quality impacts of this project.	ALT8,PD1
19554	We incorporate by reference and attachment the comments of David M. Chambers, Ph.D. of the Center for Science in Public Participation. His comments cover a number of DEIS topics including this section. In some cases his comments are aimed at improving the DEIS. In other cases the basis and assumptions of the design are described as problematic.	EOO,G8,G15
19554	Many of the potential impacts of this project are still unknown because of a lack of data. Some of these gaps in critical information are pointed out in the DEIS, and some are not. However, the DEIS does not address the cost of obtaining the information for any of these gaps. Under the federal regulations, If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement. 40 C.F.R. 1502.22. All of the gaps in information described below are essential to a reasoned choice between the alternatives of granting permits for this mine, denying them, or requiring additional mitigation measures. Without the information, the agencies simply have no idea what the impacts will be, and thus cannot make the judgment that the benefits of the project are worth the impacts. It is thus critical to know whether "the overall costs of obtaining" the information are "exorbitant." This information is completely absent from the DEIS.	G8
19555	Stream flow, sedimentation, and water quality data (see Table 4.1-6). First, it is troubling that there is no stream flow data beyond 1964 for the Embarrass River, and beyond 1988 for the Partridge River. The lack of recent flow data calls into question the assessment of the severity of impacts to the Partridge River from mine dewatering, and the water quality modeling for the Embarrass River (which is based in part on dilution of pollutants from streamflow). Second, neither stream flow nor water quality data are available for the points of greatest impact to the streams, including Trimble Creek and Spring Mine Creek, area lakes, and the stretches of the Embarrass and Partridge Rivers closest to the mine site and tailings basin. Finally, there is no sedimentation data for the rivers in the mine area. In many forested locations, sedimentation from haul roads and stream crossings are the largest source of impact to streams, with the volume of traffic being the greatest single factor determining the degree of impact.	WR3J
Sender Last Name:	Sternal **Submission ID:** 3486	
3760	I do not want this mine to be built. 1) It has not been proved that Polymet has the balance sheet to make good on their commitments. Polymet is a development stage company that could easily walk away from the mess it is about to create. 2) It is a marginally profitable project in competition with copper and nickel produced globally at less cost. A small fluctuation in the price of copper will result in the mine closing. 3) In the future water will be more valuable than copper. Let's forgo the environmental destruction and wait for the opportunity to profit from a renewable resource. 4) Have you seen the Anaconda pit in Butte, Mt? 5) Wisconsin law allows permitting mines if they can show a similar mine that has not polluted during ten years of operation and for ten years following closing. So far, no applicants; let's follow their lead. 6) Mines pollute, why allow it? For 400 jobs?	ALT8,EOO,PD2,PD8,G2,G4
Sender Last Name:	Stevens **Submission ID:** 2778	
3190	Crazy crazy idea -- PLEASE DO NOT POISON MINNESOTA.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Stewart **Submission ID:** 1812	
2400	Do not consider allowing PolyMet to begin sulfide mining in our state! For all the reasons outlined below, this would be an egregious decision. The economic gains from sulfide mining won't even go to the people suffering the environmental consequences. Further, Minnesota stands to gain more economically, as well as in the precious currency of natural beauty and recreational opportunity, by preserving the integrity of Lake Superior and the BWCAW. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	G2
Sender Last Name:	Stiles **Submission ID:** 1162	
1277	Please stop the Poly-Met mine. Water is such a valuable resource in Minnesota, why would we jeopardize it? Minnesotan's value of our natural resources and do a lot of activities outdoors. As a small business owner PolyMet needs to step up to the plate and put down assurances that they'll run a clean mine.	EOO,G7B
3258	How can we transition a national forest area into an industrial complex? The noise and dust pollution plus disruption of native habitat and wildlife that has been protected for 100's of years is intollerable. Only the people of the United States should profit from such a wilderness area, not corporations seeking profits for a few individuals. The Lessard Council in 2009 voted to protect 187,000 acres of forest for all to enjoy. We need to protect these large tracts of natural habitat from industrial mining.	G2C
Sender Last Name:	Stitt **Submission ID:** 3301	
3595	Dear Sir or Madam: I am very concerned about this project. Please do not carry out this mining project – it would waste a lot of rock and likely contaminate water and kill fish and water insects without producing adequate benefits to justify the drawbacks.	EOO,G2C
Sender Last Name:	Stone **Submission ID:** 1103	
1208	The Grand Rapids Area Chamber of Commerce would like to go on record as a strong supporter of the PolyMet Mining Project. Included with this letter is a copy of a resolution of support that was passed by our Board of Directors on August 27,2007. This resolution lists the reasons for our support and confirms our commitment to the PolyMet Mining Project. Thank you for the opportnnity to comment on this very important project.	EOO
1377	I have been paddling in the BWCAW since I was 16. I love that region more than I can express in words, and value greatly having access to clean air, clean water, and wild spaces. I have spent more than 120 days in the wilderness since age 16 -- as a visitor, guide, Forest Service wilderness ranger and Outward Bound Instructor. Not only does this proposed mine endanger my favorite recreation, it also endangers my career. If the mine pollutes the border lakes, it will harm one of the most sustainable sources of revenue in this region. Mining may only last a few years, but if we treat this area with care, the recreation industry can use it forever.	G2B,G2C,G11
1599	Both my husband and I were born and raised on the Iron Range. We have lived and worked here all of our lives and now have children and grandchildren living in the area. We visit the BWCA W regularly for recreational purposes and support a clean environment. As both a scientist and a life long local resident, I support the Polymet project in Hoyt Lakes. We need the jobs to sustain our local economy and ultimately to support our American economy by reducing the need for foreign imports. Minnesota has a strict permitting process and regulatory controls in place to protect the environment and I have confidence in that process. There is no reason to believe that we cannot combine a strong local economy with environmentally sound mining practices. Therefore I strongly support Polymet's NorthMet proj ect.	EOO,G11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Storm **Submission ID:** 2919	
3252	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. We are very fortunate to have such a large area of fresh water. It seems extremely short sighted to put it at risk without failure proof methods for mining along with the financial guarantees that it will be the mining company who pays for the clean up and not the tax payers.	EOO
Sender Last Name:	Strain **Submission ID:** 2203	
2611	Hello. I'm John Strain. I support the PolyMet project for the following reasons: One, for economic development, for job creation and for construction services that would be provided to build the facility. I also think it's our responsibility as U.S. citizens to supply our own natural resources, not to rely on Third World countries. I feel that the MPCA and the Minnesota Department of Natural Resources can manage this project in an environmentally sound fashion. Thank you. (Oral comment concluded.)	EOO
Sender Last Name:	Strebig **Submission ID:** 2204	
2612	My name is Kelly Strebig. I have over 30 years experience in health and environmental research, and I'd like to just make a positive comment. This is an exceptionally good, clean mining and processing operation, and I hope it goes through as soon as possible. It's really well planned and well done from both a health and environmental standpoint. And that's the end of my statement.	G5
Sender Last Name:	Strom **Submission ID:** 3080	
3469	I find it hard to believe that MN DNR would even let a project of this nature even get this far. They need to protect our irreplaceable natural resources and wild areas they if lost cannot be replaced.	EOO
Sender Last Name:	Struck **Submission ID:** 3531	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3792	The cited EIS does not concern itself with the cultural implications of the proposed mine. Does anyone really care about the natural biotic community to be destroyed in this mine project? In our nation that loses nearly 2.2 million acres of land every year, do we not want to step back to consider what's at stake here? It's more than JOBS! In an area long noted for its boreal forests, water ways and wildlife, mining simply is not a compatible ingredient to add today. In spite of the oft-cited technology supposedly sufficient to "save" the area noted, we need to give attention to what we're destroying in the name of profits and jobs. I cannot imagine that future generations will support our decision to destroy up to 6,700 acres through mining rather than keep these northern areas free from such exploitation. Please note the following article. Thank you. R. Struck For: StarTribune January 21, 2009 Mining in NE Minnesota: Buyer Beware! A recent article in the Cook County NewsHerald, “New Technology Bringing Big Mining Dollars to the Northland” is a challenging story of huge implications, some good and a great deal that’s bad. This feature follows an article in the StarTribune and a challenging follow-up article by columnist Nick Coleman on the same topic regarding the perils of “hard rock mining”. The articles remind me of the old addage: If it sounds too good to be true, then it is! Why beware? As noted in the NewsHerald article, a quote directly from Range View, a publication of the Iron Range Association, “...New environmentally sound technologies are allowing the region to wring our maximum value from its existing natural resource base.” This phrase may be politically correct for the mining industry but it hides the crude reality that to accomplish this task, thousands of northern forest and watershed acres will be permanently destroyed, an area of about five square miles, two of which are wetlands. The implications of acid mining drainage are staggering as a result. The Herald article did not note that The PolyMet mine would destroy, in addition to the 854 acres of wetlands, more than 1,700 acres of other vegetation, and that wetland credits mentioned can not replace this natural biotic community. Nor did the article note that this large open pit mine would probably be followed by a half-dozen or more copper mines stretching from the Ely area to Aitkin County. This tidbit was reported later in the Duluth Tribune. What Minnesotans need to know about hard rock mining is nicely captured in the flyer, “Metallic Sulfide Mining, Environmental Impacts”, provided by Northeastern Minnesotans for Wilderness. This brochure cites several chilling situations which include: 1. In Canada, for every ton of copper produced, 99 tons of waste rock is discarded... the source of sulfide mining’s biggest hazard: acid mine drainage. 2. In 1995, more than 300 snow geese were killed when they drank the contaminated water at the Berkley Pit, a closed copper mine in Butte, Montana. 3. Roman mine sites in Great Britain continue to generate acid drainage 2,000 years after mining ceased. 4. The US Environmental Protection Agency calls the drainage the “largest problem facing the U.S. mining industry.” The numbers are astounding. More than 7,000 kilometers of streams in the eastern United States are affected by acid drainage. In the western U.S., the Forest Service estimates that between 20,000 and 50,000 mines are currently generating acid on Forest Service Land. 5. Acid mine drainage has already polluted more than 12,000 miles of rivers and streams and over 180,000 acres of lakes and impoundments in the U.S. 2 6. Neither PolyMet nor the Environmental Protection Agency has identified a single hard rock mining site that is totally safe from acid drainage.	G2A,G3,G7A,G7C,G14

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3793	7. The state of Wisconsin has a moratorium on sulfide mining. Wisconsin Act 171 requires that no mining company will be given a mining permit unless they can: A) Prove that an existing mine has operated in a sulfide ore body for 10 years without polluting the groundwater and surface waters with acid mine drainage at the tailings site or mine site, or from the release of heavy metals; and B) Prove that a mining operation that operated in a sulfide ore body and has been closed for 10 years has not polluted the ground and surface waters with acid mine drainage and other heavy metals. To date, no sulfide mining permits have been issued. The seduction of new wealth, jobs and growth of commercial enterprises emanating from the PolyMet mine, and other mines in northeastern Minnesota, is a compelling influence for many reasons. Good jobs are hard to come by and with Minnesota's $1.2 billion revenue short fall already hitting the wage-eonomy of northern Minnesota, such a proposal has some positive issues going for it. Yet we need to step back and consider carefully what we're doing to our natural landscape. It's not enough to just say we need JOBS, JOBS, JOBS. There is more at stake than jobs and the shifting economic realities today. Consider for a moment: Why is it that we are willing to rush into a project that destroys so much of our northern forests and watershed areas for the sake of temporary jobs and profits? How is it that we feel we can manipulate that which gives us life and yet destroy it? How would we feel if such a mine is proposed close to the Twin Cities? Is not our life dependent on our landscape? Why do we think we can continue to destroy our natural resources, our land, water and air quality, and still live in the world as though nothing has changed? Are we content to accept this form of ecological genocide because we're not individually affected by the process or outcomes? I am not against jobs, profits or reasonable economic growth. But I am against such things if the costs are too high. If these mines come in, we stand to lose what is worth more than profits. We are putting at serious risk the very natural resources that have made Minnesota so attractive for generations, and those to come. Looking ahead, will future generations of Minnesotans inherit a landscape ravaged by mining or an intact, ecological community of great natural beauty? This is the challenge for all Minnesotans, not just those up north. ### Submitted by: Richard C. Struck 40 County Road 44 Grand Marais, MN 55604 thelodge@boreal.org 218-387-2608	EOO,G2,G12
Sender Last Name:	Sturdy **Submission ID:** 245	
258	Dear Sir: Give Polymet their permits. They have met the requirements that exist on the books today. The government agencies have done their job in the EIS, and they know much more about the permit and the permitting system than any obstructionists. Polymet has followed due process and shown that they can and will conform to the laws. Polymet deserves to be given their permits. They have earned the right to mine the ore they already own. Trickle down economics will prevail. The Polymet project will create over eight hundred new jobs in construction phase, and over four hundred long term new jobs working the plants and the mine. The Polymet company will be of enormous benefit to other ancillary businesses on the iron range. The Polymet project will be a benefit to the whole state of Minnesota. The Polymet project will put people to work when unemployment is over 10% nationally, and higher on the iron range of northern Minnesota. Ignore the lies of the radical far left evnviros. Give Poltmet their permits and let them conduct invironmentally safe mining on the iron range, where the regular folks know how to do mining, safely and at a profit, employing real people from the iron range and the state of Minnesota. It will be a happy day when the hard rock miners of the iron range can go back to work at Polymet and earn a living mining metals in a safe, profitable way. Sincerely,	EOO,G6
Sender Last Name:	Suelflow **Submission ID:** 1142	
133	At this hearing I also request that it contain an open-mike period for questions by the public	PRO6
3179	Another concern is that the DEIS does not account for unforeseen circumstances and human error. As far as I am aware only deterministic modeling was used to analyze potential pollution transport and rates, rather than stochastic modeling which would account for more extreme scenarios. In the age of global climate change we are likely to see increased weather extremes that would impact seepage and drainage throughout the project area. I would like to see more stochastic modeling done to account for such extreme weather patterns before this type of sulfide mining is deemed ?safe?.	WR1E,AQ3,AQ4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3181	PolyMet says only so much acid seepage and pollution will occur, but what will happen to the surrounding groundwater, rivers and wetlands if they are wrong and the rates are higher? Minnesotans need to be aware of the risks involved. Rarely does a process extensive as this proceed without incidence or error. What if trucks hauling ore are stalled in open air during a blizzard? What if a labor strike held up operations? What if a truck broke down during a heavy rainstorm and acid runoff from the rock/ore drained to the road? What if a waste rock or tailings pile collapses? How does PolyMet plan to address pollution that lasts beyond their 65 year wastewater treatment plan? Given the history of mining operations in MN and elsewhere, there is hardly a precedent of these companies responsibly compensating the public. Rather there is a precedent of damage to natural areas and clean-up/pollution costs left to the public. The final EIS needs to address these concerns in order to present a more realistic analysis of this project to the public.	WR1E,WR3I
3639	I find many flaws in this argument, the first being that 20 years of natural resource extraction by a foreign held corporation hardly qualifies as significant and sustained economic development for Minnesotans. Along with the U.S. EPA suggestion, stronger financial assurances need to be made to the public to insure that PolyMet is held responsible for any and all clean-up and pollution costs. Given the nature of sulfide mining it seems likely that there will be groundwater pollution and wetland contamination, and the impacts of these will extend well beyond even their 65 year wastewater treatment plan. If we as Minnesotans are going to allow in foreign-held companies to extract OUR natural resources they should at least be held financially responsible for any and all impacts they cause in this extraction process. Furthermore, PolyMet should be required to build any and all processing facilities in MN, rather than shipping ore to other regions.	PD4
3640	On our farm, we were once sold a ?leak-proof liner? for a pond, and a muskrat promptly chewed a hole in the liner, rendering it useless. While I understand that PolyMet's proposed waste rock pile liners will be more durable than our little pond liner, Kuipers et. al. (2006) demonstrated that mitigation measures such as dikes, pumps, liners, etc are the most common points of failure. What assurance can PolyMet make to the public if their liners do n't prove as reliable as they now claim?	PD2,PD8
3641	During the 20 year construction period the waste rock piles will be partially uncovered and the project plans to channel runoff through dikes to be pumped to the plant for treatment. What happens if there is a massive pump failure or flood situation that overwhelms the pumps? Again, mitigation measures are one the most common points of failure outlined in the Kuipers study. The final EIS needs to include realistic analysis of the potential for pollution damage in the event of extreme weather events, unforeseen disasters, etc.	WR3A,PD11

Sender Last Name: Suggs **Submission ID:** 3314

3607	PolyMet should NOT be allows to mine in Minnesota – Period. Our land and water are precious resources to us and worth more than any monetary amount. Do not spoil our lands with your greed!	EOO,G2

Sender Last Name: Sulander **Submission ID:** 2739

3184	Minnesota should not allow any mining proposal (such as PolyMets or others) that have such serious and long term pollution problems. These are flawed proposals that do not merit approval by Minnesota. Wisconsin has already prevented such proposals from proceeding until the mining process can be fully evaluated and determined to be safe in the long run for future generations. Minnesota should at least match Wisconsin's caution, and go even further to fully evaluate the PolyMet and other such mining proposals. What Minnesota will find: the long-term damage from this type of mining is not worth the small short term gain from a few mining jobs.	EOO,G12

Sender Last Name: Sularz **Submission ID:** 3182

3128	The wealth of the Boundary Waters is immeasurable by economic standards. To destroy, or even hurt, such an area that was here so long before us and will be here so long after us, is not only the wrong choice but a choice that does not belong to us.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Sullivan **Submission ID:** 200	
198	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. Public television recently ran a series about the history of our National Park, which makes it clear that there has always been tension between commercial development and the parks. I feel very strongly that the park system in Minnesota is a unique treasure whose preservation far outweighs the risk of damaging it through this and other projects. I am a business owner, and understand the need for industry, but there also needs to be some places where other priorities are more important. I understand the PolyMet proposal, and am concerned about the stability of the basin among other issues that could have a profoundly negative environmental impact. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers.	EOO
Sender Last Name:	Sundbom **Submission ID:** 3170	
3537	A project like this will be a welcome to area.It will be nice to see it happen in minnesota instead of another state. This is the next phase of minnig in todays market place. If we as people of minnesota donot allow this to happen here it will happen in some other part of the US. It will be a well needed investment to the area.	EOO,G1
Sender Last Name:	Sundquist **Submission ID:** 1241	
1390	This project should not be permitted without a state of the art water treatment plant built to last forever.	G7A
Sender Last Name:	Suttie **Submission ID:** 1072	
499	I hope someone nas a rock solid agreement from Polymet that should there be damage as a result, the company will be held totally liable for repairing it, (if that can even be done.) - Please reconsider this craziness, it's not too late	PD4
521	I think this mine and others like it are insane being placed so close to one of the most beautiful areas in the country. I refuse to see how the BWCAW and probably Lake Superior watershed will not be damaged with the potential leaching of sulfuric acid from run-off from this mine.	WR3B,WR3D
Sender Last Name:	Swarts **Submission ID:** 1734	
738	It the mine is to be implemented, the very least that can be done is to not cut corners when dealing with the waste. Already it will have environmental effects; the least that can be done is to mitigate those that are already known about.	GT2
1068	The impacts that the mines will have on the water of the area are unacceptable to me. I understand that the water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. 2,000 years is a long time; it is unreasonable to expect that mining companies will be able to maintain water treatment facilities for that amount of time. Not only that, but in doing so we are passing on the burden to future generations. My children and the rest of my descendants will pay the price for our greed. Such long-term care will take a long term-financial commitment, and I doubt that any company will be willing or able to pay for its continual management.	PD2,PD4
1108	In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. Other mines that claim to be environmentally friendly have had drastic impacts on the environment. It is already predicted that this one will release toxins into the water. It is unacceptable to me to continue on with a project that is predicted to have such drastic effects. After all, if the other mines claimed to be safe, and turned out not to be so, this one that predicts the pollution of the river is bound to have a drastic impact.	WR3A,FM1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2256	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. When such a project involves so many generations of Minnesotans, the very least that we can do is spend more time assessing the technology and the impact.	G10

Sender Last Name: Swedberg **Submission ID:** 3229

3136	This is a horrible idea with short term gains outweighing common sense. The potential for pollution of ground water, runoff and quite possibly Lake Superior is to great for this project to have any value to the Citizens of this State. The citizens of the Iron range are a vulnerable group of Adults and this proposal seeks to take advantage of them and then quite likely abandon them with an environmental mess. Who will be responsible for the safe maintenance of mining by-products/effects when Polymet declares bankruptcy or is sold to another party? We have the chance to stop this... and that is the greater good for all concerned	EOO,PD2,PD4

Sender Last Name: Swinda **Submission ID:** 10

9	Mike Swinda from Chisholm, Minnesota. Just here to support PolyMet today. I'm a firm believer, I've grown up here on the Iron Range all my life, and third generation actually of mining and mining related. And I'm a firm believer that PolyMet has all the safeguards in place to protect our environment. The majority of the people there are from the area and they wouldn't, to the best of my belief, ever allow anything that would endanger our environment because we all live, hunt, play, recreation in this area. So I just wanted to come in and show support for the project. And also state that this is also going to be a big benefit for our community as far as jobs go. And all the spinoff from this project would be a tremendous boost for our economy, both local and statewide and further out, if you will, across the U.S. Many factories that I deal with, being a company owner here on the Iron Range, would benefit from this, and also all of their employees would benefit from this. So in closing, I'm just here to show my support today for PolyMet.	EOO

Sender Last Name: Synnes **Submission ID:** 2327

2785	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources. I live here and I really don't care to see PolyMet, or any other operation, destroy my home. There is simply no way to extract these minerals without damage to the environment and there is a significant risk of major damage to the waters on which I depend. I would ask that the PolyMet mine not be allowed to operate.	EOO,G2,G7

Sender Last Name: Szymialis **Submission ID:** 3715

1	The cumulative effects analysis also fails to adequately address the overall cumulative impacts on the numerous ongoing and proposed projects within this region on wild rice, a significant Tribal and public resource which is already on decline throughout the 1854 ceded territory.	G9,WR5A,WI5
2	[see table included in comment document, page 66] As shown by these materials, and the attached map which includes an overlay of the map from the Copper Nickel Study on top of a map of the NorthMet mine site, the NorthMet mine site is clearly in the area identified by the Copper Nickel Study as having significant resources accessible only through an underground mine.136 Assuming that the NorthMet DEIS assertion is true that underground mining is not currently economically feasible, it is reasonable to assume that underground mining at the NorthMet mine site will become economically viable in light of historical trends of increasing metal prices and the cost saving which will be experienced after the initial investments needed for the infrastructure to process the ore for the open pit mine are in place. Accordingly, it is reasonably foreseeable that an underground mining operation at the NorthMet mining site will be pursued and the cumulative impacts from this underground mining activity should be acknowledged and analyzed in the NorthMet DEIS.	G9

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3	Even as these earlier environmental review documents indicate the extent to which an underground mine could be an alternative feasible technology with significant environmental benefits to the proposed open pit mine, the NorthMet DEIS now indicates that underground mining technology will not meet the purpose and need of the Project separate from economic considerations. The NorthMet DEIS must support its conclusions that an underground mine does not meet the purpose and need of the project with adequate documentation and analysis to allow the public to evaluate this alternative and the agency's conclusion that an underground mine will not meet the purpose and need of the Project.	ALT3
4	The Project requires formal Section 7 consultation because, if built, it will have tangible negative effects on designated critical habitat for the Canada lynx, including permanent destruction of designated critical habitat; destruction of suitable denning habitat38; and habitat fragmentation that damages local and regional habitat connectivity. Formal consultation was not begun before publication of the DEIS, depriving the public of the opportunity to review and consider the information in the consultation materials.	WI1
5	Diminishment of the approaches to the corridors will diminish the value of the wildlife corridors themselves, and make it less likely that dispersing lynx can cross safely through less hospitable mined areas in the Range. The degradation of wildlife corridors and fragmentation of core lynx habitat areas conflicts with the Service's Final Lynx Recovery Outline, which emphasizes the importance of large habitat patches and the connectivity of those habitat patches, so that lynx may move between habitat patches, as they commonly do over substantial distances.51 Generally speaking, for individuals in a species that must move across the landscape to find suitable denning, feeding, sheltering, or rearing habitat, the inability of individuals to disperse as they previously could can cause an influx, or crowding effect. The consequences of habitat fragmentation and the edge effect include higher mortality rates, decreased recruitment, and increased stress on surviving individuals unable to disperse as needed and in the direction desired.52	WI1
6	The DEIS does not include and fails to consider significant information showing that at least one lynx, known as "Lynx #11" or "L11," is known to have moved through the Project area. L11 was located at least once just off the southwest edge of the mine site, between Wetlegs Creek and the Partridge River, roughly one mile south of the mine site and road, and a half-mile south of the rail line. The location data was produced between February 12, 2003 (when L11 was live-captured and fitted with a radiocollar by the researchers of the Canada Lynx Project54) and November 13, 2006 (when L11 was trapped and killed in Ontario).55 The radio collar signal placed the lynx in T59N–R13W, approximately at the corner of sections 16, 17, 20, and 21.	WI1
7	In addition, a recent EPA Region 10 memorandum specifically addresses the issue of financial assurance information as related to NEPA. The memorandum states that: "a key component to determining the environmental impacts of a mine is the effectiveness of closure and reclamation activities. The amount and viability of financial assurance are critical factors in determining the effectiveness of reclamation and closure activities and, therefore, the significance of environmental impacts. This is particularly important when long-term water management and treatment will be needed."4 The memorandum goes on to describe steps EPA Region 10 can take under NEPA to improve financial assurance at new and operating mines, notably indicating that financial assurance estimates for the preferred alternative should be included in the draft EISs authored by the EPA and that the EPA should adversely rate draft EISs that do not include adequate and complete financial assurance information, particularly where long-term water management is reasonably foreseeable.5 In clear contradiction to these statements made by the EPA, the NorthMet DEIS claims that "[t]he amount of financial assurance associated with reclamation actions cannot be estimated until these actions are understood at a more detailed level of design", asserting that "[t]his detail is more typically available during the permitting process."6 As discussed above, the EPA regularly requires environmental impact statements to include detail regarding required reclamation actions and mitigation measures needed to provide information regarding financial assurance as part of the environmental review process. The assertion made in the NorthMet DEIS that the level of detail regarding reclamation and required mitigation measures needed for financial assurance is "more typically available during the permitting process" is simply not true.7 The EPA regularly requires this type of information in environmental impact statements, especially for hardrock mining operations for which long-term water treatment will be required, as is the case for the NorthMet Project.	PD4

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Comment ID	Comment Text	Theme Codes
8	Moreover, the DEIS fails to account for all the confirmed lynx tracks, sightings, mortalities, and scat locations discussed in the technical document upon which the DEIS relies. An area map56 is provided in a technical supporting document, ENSR's 2006 Canada Lynx Assessment Final Report, and it does show locations of confirmed lynx scats collected in the winter of 2006, but it does not show the locations of L11 and other confirmed lynx nearby, and in any case the map is not provided as it should be, in the DEIS itself.	WI1
9	The DEIS also provides incorrect, out-of-date figures for lynx mortality from lynxvehicle collisions. The DEIS cites DelGuidice et al. 2007, which reported five confirmed roadkilled lynx in Minnesota since 2000.57 Since 2007, at least one additional road-killed lynx has been found. In addition, it is critical to note that not all road-killed lynx are reported or located; there are almost certainly more road-kills of lynx happening than we find out about.58 Moreover, the DEIS is silent about the two confirmed lynx-train mortalities in the Arrowhead since 2002. Accordingly, there have been at least eight detected lynx mortalities due to lynx-vehicle collisions since 2000, rather than five, and it is likely that the true number is higher than eight.	WI1
10	Additionally, the Draft EIS cumulative effects analysis fails to address the amphibole or asbestos-like mineral fibers, which have been identified as existing pollutants in the Hoyt Lakes community water supply and thus their presence must be identified and analyzed in the DEIS.	AQ4C
11	The alternatives section is the heart of an environmental impact statement. 40 C.F.R. 1502.14. Agencies must therefore rigorously explore and evaluate all reasonable alternatives. Id. at 1504.14(a); see also Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, 812-13 (9th Cir. 1999). An agency may not define a project so narrowly that it forecloses a reasonable consideration of alternatives. Fuel Safe Washington v. Federal Energy Regulatory Commission, 389 F.3d 1313, 1324 (10th Cir. 2004). The alternatives analysis for an EIS requires full examination of a "no-build" alternative (meaning status quo in an undeveloped state) and examination of a spectrum of "real" options, not just those tailored to the desires of the project proposer. See Fuel Safe Washington, 389 F.3d at 1324 (10th Cir. 2004); Custer County Action Association v. Garvey, 256 F.3d 1024, 1040 (10th Cir. 1002); Muckleshoot Indian Tribe, 177 F.3d at 812-13. For the proposed NorthMet project, both smaller scale proposals and underground mining alternatives should have been included in the alternatives analysis.	ALT2,ALT8
11	Due to the numerous and significant violations of state water quality standards, the Endangered Species Act, and other state and federal laws and requirements, as identified and explained above, the proposed NorthMet project cannot be permitted to proceed. And due to the numerous and significant problems with the Draft EIS, as identified and explained above, a revised Draft EIS must be prepared if the agencies decide to continue consideration of the proposed NorthMet mine. Thank you for the opportunity to provide comments on the Draft EIS, and please keep me on the mailing list regarding this proposed project.	G5A,G10
12	The Draft EIS is also seriously deficient in failing to analysis the impacts of past iron ore and taconite mining in this region on sulfate levels and mercury pollution, including the resulting impacts to fish and wild rice. The very purpose of an EIS is to inform the public and the decision maker in order to insure better decisionmaking for projects that may affect the environment. These purposes cannot be fulfilled until there a detailed, objective analysis of the past and ongoing impacts of past mining in this region on sulfates and mercury, prior to considering a new wave of future mining in the region. This is especially critical due to the fact that streams in the project area and downstream are already acknowledged to be substantially impaired due to current mercury pollution. While its easy to blame mercury problems on other states and regions, it is not simply a coincidence that areas downstream from the iron range have considerably higher mercury and sulfate levels than prior to the onset of decades of mining in this region.	WR5A

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Comment ID	Comment Text	Theme Codes
13	Overall, the NorthMet DEIS does not take the "hard look" required by law. Rather, much of the information provided is encyclopedic, describing ways in which the Project purports to fit within various regulatory regimes. In many areas the DEIS lacks real assessment of the environmental and health impacts resulting from the Project. Summary conclusions without any documentation supporting these conclusions are offered in place of rigorous evaluation that allows the public and regulators to weigh the true impacts of alternatives and the Project overall. As discussed, below, MCEA has identified substantial inadequacies in the DEIS. As a result of these inadequacies, it is not sufficient for the Minnesota Department of Natural Resources ("DNR") and Army Corps of Engineers ("ACE") to merely prepare a Final EIS. The DNR and ACE must first submit a revised Draft EIS for public review and comment. MCEA urges the DNR and the ACE to require additional evaluation of environmental effects consistent with these comments prior to publishing a final EIS for the NorthMet Project.	PRO3,PRO6
13	The Draft EIS analysis for mercury and sulfates is also deficient in failing to consider and include the related impacts that would be caused by destroying hundreds of acres of peat bogs and wetlands, which are known to sequester mercury, and which would further release mercury into the environment, streams and waterbodies.	WR4B,WR4E,WE2,WE8
14	The NorthMet DEIS indicates that under the No Action Alternative, groundwater levels and quality would remain similar to existing conditions.13 However, the DEIS fails to provide accurate or reliable baseline data which can be used to determine what groundwater levels and quality would be under the no action alternative. Specifically, the DEIS fails to adequately characterize legacy leakage from the existing LTV tailings basin and associated contamination from the old LTV processing site and related Areas of Concern which have been identified as part of Minnesota's Voluntary Investigation and Cleanup Program ("VIC"). Accordingly, the conclusions reached in the DEIS regarding environmental conditions under the no action alternative are suspect. The DEIS indicates that accurate baseline conditions have not been determined, yet bases its assessment of natural conditions related to the No Action Alternative on "relatively high concentrations of aluminum, iron, and manganese currently found downgradient of the Tailings Basin".14 The DEIS further assumes that under the No Action Alternative seepage of relatively high sulfate concentrations would continue to discharge into wetlands north of the Tailings Basin, notwithstanding the potential improvements in background environmental conditions if the contamination from tailings basin seepage were improved and the Areas of Concern cleaned up.15	ALT1
15	The DEIS describes likely aspects of the form climate change will take, regionally – warmer average temperatures, higher total rainfall, higher rates of evaporation, more frequent droughts, and fewer but more extreme rain events, etc. – but there is no analysis of how these changes would affect the assumptions in the DEIS and the long-term consequences of the Project. For example, would the higher temperatures increase rates of redox reactions in waste rock, hydrometallurgical tailings, the materials in the East Pit, and the highly reactive category 4 rock exposed in the pit walls? Would the more frequent periods of drought, reduction in ice cover in winter, warmer temperatures, and higher rates of evaporation cause water levels in the pits to drop substantially over a number of years or decades? If water levels do drop substantially, might the fewer but more intense rain events cause water levels to rise and fall, periodically exposing and re-submerging the more reactive categories 4, 3 and 2 material in the pit? Nothing we could find in the DEIS addresses questions such as these, which apply the acknowledged likely effects of climate change to the presumed functioning of the Project during and following operations and reclamation. Please address these issues directly in before the FEIS is released, and if they are already addressed, then please address them more fully.	AQ4A,AQ5

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Comment ID	Comment Text	Theme Codes
16	The NorthMet DEIS failed to include in its cumulative effects analyses the current and anticipated mineral exploration in the Superior National Forest and the three other sulfide-metal mines (other than PolyMet) that are very likely to go into production in the not-too-distant future (presuming they could obtain the necessary permits). State and federal regulations require the NorthMet DEIS to analyze the cumulative potential effects of hardrock mineral exploration in the Superior National Forest, currently being considered by the U.S. Forest Service "Federal Hardrock Minerals Prospecting Permits Project". This U.S. Forest Service project is currently in the scoping phase for an EIS to evaluate the environmental impacts from "current and anticipated future proposals" for hardrock mineral exploration in the Superior National Forest.122 This Hardrock Minerals Prospecting Project will evaluate the environmental impacts from federal hardrock mineral exploration in the Superior National Forest for the following: 1) 32 current permit applications from Duluth Metals Corp., Lehmann Exploration Management Inc., Encampment Resources L.L.C., and Prime Meridian Resources Inc.; 2) future permit applications, current and future operating plans; and 3) future use and occupancy authorizations (Special Use Permits) on the SNF over the next 20 years.123 An analysis of environmental impacts from these activities in an EIS by another federal agency is a clear indication that these types of activities fall within the parameters of a NEPA cumulative impacts analysis and should have been considered in the Polymet DEIS. Additionally, three other sulfide-mining companies – Duluth Metals, Franconia, and Teck Cominco – are developing hardrock mining proposals that are reasonably foreseeable and should be included in the cumulative impacts analyses. Nevertheless, the DEIS never mentions Franconia Minerals, or Teck Cominco. Duluth Metals is mentioned once, but not for purposes of analyzing Duluth Metals mine's likely contribution to cumulative environmental effects.124 The NorthMet DEIS does not explain why the Franconia, Teck Cominco, and Duluth Metals proposals are not included. Even if specific project details are not yet available, sufficient information shows that the projects are reasonably foreseeable. Plans do not have to be so far along as to "constitute actual proposals" to conclude that a project under current consideration is a "reasonably foreseeable future action." See Tex. Comm. on Natural Res. V. Van Winkle, 197 F. Supp. 2d 586, 618 (N.D. Tex 2002) (remanding Corps EIS for failure to include reasonably foreseeable plans in cumulative effects	PD4
17	In short, these mines are engaging in development activities, and are receiving investment interest and capital influxes that are described as allowing funds for project development, such that there are more than reasonably foreseeable future actions. The development activities of these mining projects amount to much more than simply "exploratory drilling events." An environmental effect is "reasonably foreseeable" if it is "sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision. Mid States Coalition for Progress, 345 F.3d 520, 549. Because it is reasonably foreseeable that these three mines will be built, all of their likely effects must be included and discussed in the DEIS sections discussing cumulative effects analysis.	PD3
18	The DEIS has failed to include the Duluth Metals, Franconia Minerals, and Teck Cominco sulfide mining projects in the cumulative effects analysis for GHG emissions and climate change effects. These omissions must be corrected in the DEIS before an FEIS is released for public comment.	AQ4B
19	The NorthMet DEIS should recognize the potential that underground mining could be pursued after the mineral deposits accessible through an open pit mine are exhausted and analyze the impacts from an underground mining operation at the NorthMet mine site as reasonably foreseeable. Significant mineral resources exist below those which are proposed to be accessed by the open pit mine under consideration in the NorthMet DEIS. The Minnesota Regional Copper-Nickel Study ("Copper Nickel Study") specifically stated that "the copper-nickel mineralization in the resource zones is known to occur both near the surface and at great depths", recognizing that "the creation of both open pit and underground mines appear to be distinct possibilities in northeastern Minnesota."134 As indicated in the map and table included, below, the Copper Nickel Study shows that the area in which Polymet is located ("Zone 5") is within a region identified by the Copper Nickel Study as an area in which the amount and grade of the ore available through underground mining operations is significantly higher than that which would be accessible through an open pit mine.135	G9

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Comment ID	Comment Text	Theme Codes
20	The discussion of mitigation measures included in the NorthMet DEIS fails to meet the standards required by federal regulations. The NorthMet DEIS simply identifies a number of mitigation measures which might help address some of the environmental impacts from the proposed action, but fails to indicate if any of the mitigation measures will be required or even which of the mitigation measures are preferred. NEPA requires more. NEPA requires the NorthMet DEIS to discuss mitigation measures in sufficient detail to ensure that environmental consequences have been fairly evaluated. Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 333 (1989). It is insufficient simply to list possibilities rather than include a reasoned discussion of the possibilities and the impact they would have. See Northwest Indian Cemetery Protective Ass'n. v. Peterson, 795 F.2d 688, 697 (9th Cir.1986), rev'd on other grounds, 485 U.S. 439, (1988). "CEQ regulations require that the agency discuss possible mitigation measures in defining the scope of the EIS, 40 CFR § 1508.25(b) (1987), in discussing alternatives to the proposed action, § 1502.14(f), and consequences of that action, § 1502.16(h), and in explaining its ultimate decision, § 1505.2(c)." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 352 (1989). "[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the 'action-forcing' function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." Id. The bulk of mitigation measures listed in the Polymet DEIS amount to little more than suggestions of potential measures that might have some mitigating value.137	G2D
21	The failure of the NorthMet DEIS to provide information or specificity regarding the mitigation measure which could be used to ensure that the West Pit overflow will meet the Lake Superior mercury standards.138	WR4C
21	The failure of the NorthMet DEIS to provide information or specificity about the effectiveness of nanofiltration units to remove sulfates and other solutes or discussion of alternatives that might reduce sulfate concentrations in discharges closer to background (natural) levels.139	WR2G
21	The lack of accurate baseline data and use of existing contamination as natural conditions is significant as there is the distinct possibility that existing contamination at the old LTV plant site and seepage from the tailings basin is contributing to these high concentrations of metals and sulfate concentrations. However, the NorthMet DEIS fails to provide information regarding contributions from the old LTV plant site and seepage from the tailings basin to the high metal and sulfate concentrations downgradient of the tailings basin. The failure of the NorthMet DEIS to ascertain the extent to which existing contamination is contributing to these high concentrations of contaminates violates NEPA's mandate to take a hard look and establish baseline data on which the impact to the environment from the Project and different alternatives can be determine	ALT1
21	The failure of the NorthMet DEIS to provide information or specificity regarding stormwater management facilities that may be needed to manage sediment associated with stormwater runoff. The NorthMet DEIS indicates that stormwater management facilities may be needed it does not propose any in the DEIS and simply recommends that such storm water management controls be designed and installed.140	EOO
22	The concerns regarding the lack of specificity and information concerning mitigation measures discussed in the NorthMet DEIS listed above is a small sampling of mitigation measures inadequately addressed in the NorthMet DEIS. MCEA's experts identify numerous other mitigation measures included in the NorthMet DEIS which fail to include the level of specificity or information needed to allow the public to adequately weigh the environmental risks and availability of mitigation measures to address these risks associated with the Project.141 The type of broad generalizations and vague references to mitigation measures found throughout the NorthMet DEIS do not include the detail as to mitigation measures that would be undertaken, and their effectiveness as required by NEPA. Neighbors of Cuddy Mountain v. U.S. Forest Service, 137 F.3d 1372, 1381 (9th Cir. 1998). Without specific information regarding the available mitigation measures to address these and other environmental concerns identified in the NorthMet DEIS, MCEA is unable to properly evaluate the severity of the adverse effects associated with the NorthMet DEIS or the long-term environmental impacts anticipated from the Project. The DNR and ACOE must clearly indicate whether any of the mitigation measures identified will be adopted and how effective the mitigation measures would be if adopted, or given a reasoned explanation as to why such an estimate is not possible. Id.	G2D

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Comment ID	Comment Text	Theme Codes
23	The approach taken by the NorthMet DEIS in regard to connected actions does not comply with state or federal regulations. Federal and state laws require that the environmental impacts of connected actions be evaluated in a single EIS. 40 C.F.R. § 1508.25(a)(1); Thomas v. Peterson, 753 F.2d 754, 757 (9th Cir. 1985); Minn. Rule 4410.200, subp. 4 ("connected actions . . . must be considered in total. . . ."). A connected action includes any action that "cannot or will not proceed unless other actions are taken previously or simultaneously." 40 C.F.R. § 1508.25(a)(ii). Under Minnesota Rules, connected actions include any projects where one induces the other or where one project is a "prerequisite for the other." Minn. R. 4410.0200, subp 9b(A) and (B). The NorthMet DEIS fails to analyze the power source for the NorthMet Project and the land exchange between the Forest Service and Polymet as connected actions in violation of legal requirements under NEPA and MEPA. The NorthMet DEIS indicates that it "identifies and analyzes the potential alternatives and impacts for the Project based on the successful completion of a land exchange and elimination of National Forest lands from the Project." The NorthMet DEIS states that "the USFS and PolyMet have been having detailed discussions exploring the feasibility for a land exchange. The USFS has identified approximately 6,700 acres of National Forest land to exchange to PolyMet for a yet to be determined non-federal land" indicating that "[o]nce the current discussions have been completed and a feasible land exchange proposal has been identified, the USFS will be initiating an Environmental Impact Statement (EIS) evaluating the proposed land exchange."142 The DNR and ACOE must include the land exchange as a connected action in the NorthMet DEIS. The failure of the DEIS to include the land exchange as a connected action is a fundamental inadequacy of the DEIS.	PRO4
24	Both federal and state regulations require that connected actions must be discussed together in the same environmental impact statement ("EIS"). See 40 C.F.R. § 1508.25(1), Minn. Stat. § 116D.04; Minn. R. 4410.2000, subp. 4. Two projects are considered connected actions if they are related and one project would directly induce the other; one project is a prerequisite for the other and the prerequisite project is not justified by itself; or neither project is justified by itself. The courts have defined connected actions as actions that would not take place independently of one another. Native Ecosystems Council v. Dombeck, 304 F.3d 886, 894 (9th Cir. 2003). The land exchange between the Forest Service and Polymet is clearly a connected action which must be evaluated in the Polymet DEIS under both NEPA and MEPA. The land exchange and the NorthMet project are related and the land exchange would not be necessary "but for" the NorthMet Project. The EPA specifically identified the failure of the DEIS to include impacts related to the potential land exchange as a 'red flag' issue and of considerable concern. The EPA noted that the land exchange is a connected action to the NorthMet project, indicating that discussion of the land exchange cannot be deferred to a separate EIS. (See EPA Comments, dated August 25, 2009). Notwithstanding the federal and state regulations requiring the DEIS to include the land exchange as a connected action and the EPA's identification of this issue as recently as August 25, 2009, the DNR and ACOE issued the DEIS for public comment without including this critical information.	PRO4
25	The NorthMet DEIS cannot avoid the analysis of the true environmental impacts of the Project by stating that it intends to purchase power from Minnesota Power and fail to analyze the environmental impacts associated with the production of this energy as a connected action in the same environmental review document. The NorthMet DEIS indicates that electrical service would be provided for the Project by a new Minnesota Power electrical substation located on Minnesota Power property southwest of the Mine Site near the Dunka Road.146 The NorthMet DEIS indicates that the Project will purchase 59.3 megawatts (MW) from one of Minnesota Power's coal-fired power plants.147 Supplying 59.3 MW of electricity to the Project requires electricity generation and the generation of electricity is a separate, connected action that has environmental effects. As indicated earlier, alternative energy sources must be considered. In any case, it is not sufficient for the NorthMet DEIS simply to identify a "power purchase" from Minnesota Power. The purchase will require Minnesota Power to generate additional electricity. The generation of electricity, whether from coal, natural gas, hydro or wind is a "connected action" with environmental effects that must be disclosed, analyzed, and if possible mitigated. The generation of this energy is a necessary and connected action to the Project that will have major environmental consequences.	ALT8,PRO3

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Comment ID	Comment Text	Theme Codes
25	The land exchange is a connected action that must be addressed in this DEIS, but even if it were not a connected action, the environmental indirect and cumulative effects from the land exchange must be evaluated here. Indirect effects are those "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems."143 A cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."144 The land exchange is a "reasonably foreseeable future action." Indeed, the DEIS admits that the project hinges on a successful land exchange. 145 The environmental impacts of the land exchange will occur as an indirect (if not direct) effect of the NorthMet Project and must be disclosed and analyzed here. The NorthMet DEIS did not include any analysis of the environmental impacts from a land exchange between the Forest Service and Polymet. The DNR and ACOE cannot defer analyzing the direct and indirect effects or of the cumulative impacts from a land exchange to a separate EIS as proposed. Inclusion of this analysis in the NorthMet DEIS is required for the DEIS to meet federal and state adequacy standards for an EIS. A land exchange between the Forest Service and Polymet is a reasonably foreseeable future action which will unquestionably have impacts on the environment, including impacts on wildlife, vegetation, wetland destruction and mitigation, green house gas emissions, and multiple other environmental impacts. The failure to include an analysis of the cumulative impacts from the land exchange in the NorthMet DEIS prevents the public from understanding the full scope of environmental impacts associated with the NorthMet Project. Inclusion of this analysis in the NorthMet DEIS is required for the DEIS to meet federal and state adequacy standards for an EIS.	PRO3,PRO6,ALT1

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26	The format of the informational meetings held by the DNR and the ACOE on December 10, 2009, in Blaine and on December 9, 2009, in Aurora did not meet the minimum requirements for public meetings required by federal and state regulations. The DNR and ACOE sponsored the meetings in Blaine and Aurora DNR "for the purpose of considering public comments on the Draft EIS".148 The DNR was required to hold an informational meeting on the NorthMet DEIS after the DEIS was completed and made available for public review and comment. Minn. R. 4410.2600, subp. 2. The ACOE was not required to hold an informational meeting under its rules or NEPA regulations. However, while NEPA did not require the agencies to hold an informational meeting on the NorthMet Project DEIS, once the ACOE decided to convene an informational meeting, it was obligated to conduct this meeting "in accordance with statutory requirements" applicable to the Army Corps of Engineers. 40 C.F.R. § 1506.6. The informational meetings held in Blaine and Aurora did not meet the statutory requirements for meetings or hearings sponsored by the ACOE. Federal regulations governing hearings and meetings conducted by the ACOE include specific requirements for the conduct of ACOE hearings. Specifically, pursuant to 33 CFR § 327.8, members of the public must be permitted to submit oral or written statements concerning the subject matter of the hearing, to call witnesses who may present oral or written statements, and to present recommendations as to an appropriate decision. 33 CFR § 327.8. While the meetings in Blaine and Aurora were billed as an "informational meeting" rather than a "hearing", the involvement of the ACOE and controlling regulations required that the meeting be conducted in a manner to ensure a fair and unbiased presentation of information or to ensure that competing points of view were allowed to be expressed in a fair and equitable manner. The fundamental concept of due process and responsibility of government agencies to the public requires nothing less. As indicated in the attached declaration of Matthew Norton, the format of the informational meetings regarding the NorthMet DEIS failed to provide the public an opportunity to consider or discuss the environmental impacts of the Project in an open and unbiased manner.149 While the meeting was ostensibly structured to provide the public with an opportunity to obtain a fair and unbiased assessment of the risks and benefits of the Project, the decision by the DNR and ACOE to allow policy-makers and elected officials to speak and provide their endorsement of the Project while denying other members of the public to express their concerns or disagreement with the positions voiced by policy-makers and elected officials resulted in a one-sided presentation which was weighted in favor of the Project. Rather than an even-handed, unbiased and accurate portrayal of the project, members of the public were provided, from the politicians, with personal endorsements and at times inaccurate representations of the project. There was no equal time provided to speakers who might have expressed different points of view about the project. Conducting the event in such a fashion violated the obligations of both the DNR and ACOE to ensure that the environmental review process for the NorthMet Project met fundamental standards of due process and public participation to which agency sponsored meetings should be held.	PRO6

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27	Closely related to NEPA's mandate that agencies take a "hard look" at environmental impacts is NEPA's prohibition against agency reliance upon conclusions or assumptions that are not supported by scientific or objective data. NEPA's implementing regulations require agencies to: [I]nsure the professional integrity, including scientific integrity of the discussions and analysis in environmental impact statements. [Agencies] shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement. 40 CFR § 1502.24 (Methodology and Scientific Accuracy). "Unsubstantiated determinations or claims lacking in specificity can be fatal for an [environmental study] …. Such documents must not only reflect the agency's thoughtful and probing reflection of the possible impacts associated with the proposed project, but also provide the reviewing court with the necessary factual specificity to conduct its review." Committee to Preserve Boomer Lake Park v. Dept. of Transportation, 4 F.3d 1543, 1553 (10th Cir. 1993). The CEQ regulations require that: "NEPA procedures must ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken." 40 CFR § 1500.1(b). To ensure information is available to citizens before decisions are made and before actions are taken, underlying environmental data from which the agency drew its conclusions must be provided in the DEIS. 40 CFR § 1502.24. Courts have held that NEPA requires that the public receive underlying environmental data from which an agency expert derived her opinion (citing for authority 40 CFR § 1502.24). Idaho Sporting Congress, 137 F.3d 1146, 1150 (9th Cir. 1998). See also Siskiyou Regional Education Project v. Rose, 87 F.Supp.2d 1074 (D.Or. 1999) (holding an environmental assessment inadequate for lack of scientific support). Further, 40 CFR § 1502.1 mandates that NEPA documents be "supported by evidence that the agency has made the necessary environmental analysis." Consequently, the DNR and ACOE have a duty to disclose the underlying scientific data and rationale supporting the conclusions and assumptions in the FEIS. Unsupported conclusions and assumptions in the NorthMet DEIS violate NEPA. Public availability to the underlying information on which DEIS conclusions are based is the key to fulfilling NEPA requirements. Massachusetts v. Watt, 716 F.2d 946, 951 (1st Cir. 1983) ("[U]nless a document has been publicly circulated and available for public comment, it does not satisfy NEPA's EIS requirements."); Dubois at 1287 ("Because of the importance of NEPA's procedural and informational aspects, if the agency fails to properly circulate the required issues for review by interested parties, then the EIS is insufficient even if the agency's actual decision was informed and well-reasoned."). Each of MCEA's experts identifies specific concerns regarding the lack of underlying documentation supporting key conclusions reached in the DEIS. The failure of the NorthMet DEIS to include the information on which the DEIS conclusions were based is a direct violation of NEPA.150 The DNR and ACOE must provide the information identified by MCEA's experts to the public and allow the public an opportunity to evaluate this information and comment on it prior to the release of a Final Environmental Impact Statement ("FEIS").	PRO2,PRO3
28	The DEIS recognizes that potential improvements in environmental conditions could result from the No Action Alternative. However, notwithstanding this recognition, the NorthMet DEIS continues to reference "baseline conditions" which include contamination from the old LTV site and violations of NPDES permits as its basis for the assessment of environmental conditions under the No Action Alternative. The NorthMet DEIS must include information regarding the extent of environmental improvements associated with remediation of the Areas of Concern and reissuance of the NPDES permits in its assessment of environmental conditions under the No Action Alternative. The NorthMet DEIS should provide this information to allow the public to have an accurate understanding of the environmental benefits associated with the No Action Alternative.	ALT1
28	A number of Areas of Concern which are part of Minnesota's Voluntary Investigation and Cleanup Program ("VIC") are still outstanding at the old LTV plant site and tailings basin. In addition, ongoing violations of the NPDES permits have been identified through daily monitoring reports provided by Cliffs Eerie to the Minnesota Pollution Control Agency. Under a "no action" scenario, clean-up of Areas of Concern and NPDES permit enforcement would likely improve water quality conditions in and around the site. Therefore, the "baseline" conditions which have been used in the NorthMet DEIS do not accurately reflect baseline conditions under the no action alternative. Federal regulations require the Minnesota Pollution Control Agency to ensure that corrective actions are taken by the permit holder to address these ongoing NPDES violations. The NorthMet DEIS indicates that these corrective actions could reduce sulfate loadings of impacted waters yet still bases its assessment of baseline conditions used for the No Action Alternative on the existing contamination.16	ALT1

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Comment ID	Comment Text	Theme Codes
29	The NorthMet DEIS did not adequately consider an underground mining alternative or provide adequate justification for eliminating this alternative from consideration. An underground mine could be a feasible and prudent alternative with a significant environmental benefit to the proposed open pit mine. While the NorthMet DEIS indicates that an underground mine would not meet the purpose and need of the Project, the DEIS provides no justification for this separate from economic considerations.17 The NorthMet DEIS fails to explain why an underground mine cannot meet the stated purpose of the mine, "to produce base and precious metal, precipitates, and flotation concentrates from ore mined at the NorthMet deposit by uninterrupted operation of the former LTVSMC processing plant site."18 Earlier drafts of the NorthMet DEIS recognized that underground mining technology could meet the purpose and need of the project, was technically feasible, was an available technology, and could possibly offer significant environmental or socioeconomic benefits when compared to the proposed project.19 Additionally, the Response to Public Scoping Comments recognizes that underground mining technology could offer environmental benefits to using the proposed open pit mining technology to mine the ore deposit.20 Likewise, the NorthMet Mine and Ore Processing Facilities Project Final Scoping Decision ("Final Scoping Decision") recognizes that environmental benefits may be associated with a smaller footprint from an underground mine.21	ALT3
30	While the underground mining alternative was ostensibly rejected due to the additional cost associated with it, the environmental impact of an underground mine involves a smaller environmental footprint than an open pit mine. Considering the anticipated amount of financial assurance which would be required to address the larger-scale environmental footprint of an open pit mine, the additional costs of an underground mine could be offset by the smaller environmental footprint of the mine and likely smaller financial assurance requirement for this type of mine. The NorthMet DEIS fails to rigorously explore and objectively evaluate an underground mine as a viable alternative or to justify its exclusion from consideration as an alternative as required by NEPA.22	ALT3
31	The NorthMet DEIS also fails to consider alternatives for electricity consumption which would significantly affect the project's impact on the environment. Consideration of alternative energy sources should be a major component of the EIS given the enormous variation in environmental impacts between different sources. See, e.g., U.S. Department of Energy, Carbon Dioxide Emissions from the Generation of Electric Power in the United States (http://www.eia.doe.gov/cneaf/electricity/page/co2_report/co2report.html#electric). The environmental consequences of generating power for the Project, along with an evaluation of alternative energy sources, must be evaluated in the EIS. See additional discussion of this issue, Infra, pp. 52-56.	ALT8
32	While there is some uncertainty regarding the impacts from increased sulfate loading on methylmercury rates, the NorthMet DEIS also underrates current scientific understanding of mercury biogeochemistry and the environmental factors controlling methylation rates.26	EOO,FM1
33	The NorthMet DEIS indicates that the West Pit overflow might not meet the Lake Superior mercury standard.29 The potential exceedance of the Lake Superior mercury standard by the West Pit overflow must be more fully discussed in the NorthMet DEIS, including a clear identification of mitigation methods which can be used to ensure that the West Pit overflow complies with the Lake Superior mercury standard. The NorthMet DEIS may not simply put off consideration of an identified and necessary mitigation measure until some point in the future. The NorthMet DEIS must clearly discuss potential issues in water quality associated with the West Pit overflow and measures which can be taken to prevent these water quality violations.	WR3I,WR4C
34	The NorthMet DEIS fails to include a comprehensive reclamation plan or financial assurance information regarding the cost associated with closure of the Project. The failure of the NorthMet DEIS to include specific information regarding reclamation plans and the associated financial assurance which will be required to ensure that the reclamation will be completed is a fundamental inadequacy of the DEIS. By failing to include this information in the DEIS, the public is not able to assess the true environmental risks associated with the Project. The inclusion of information regarding financial assurance is critical to allow the public to fully understand and assess the effectiveness of reclamation and closure activities which serve to inform the public about the potential long-term environmental impacts of the mine and the potential risk to the public in the event the public has to assume responsibility for the cost of the reclamation.	PD12,G9
35	MCEA shares the concerns articulated by the tribal agencies regarding the impact from increased sulfate levels on wild rice stands	WR4F

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Comment ID	Comment Text	Theme Codes
36	Assessments conducted by the Minnesota Pollution Control Agency in the late 1990's suggest that the Biwabik Iron Formation could be a sole-source aquifer.30 These MPCA studies recognize the impact mining activity and mine pits can have on ground-water recharge and water quality of aquifers used for public water supplies. The MPCA specifically identified nonferrous minerals mining as a potential risk to groundwater and single source aquifer water quality.31 The DEIS must identify and discuss the potential that the Biwabik Iron Formation could be a sole-source aquifer and the impacts from the NorthMet Project on water quality in this aquifer and related impacts on public water supplies	WR2A
37	The DEIS inadequately characterizes wetlands in the Project area. As a result, the DEIS also inadequately characterizes the environmental impacts from the proposed Project. With the actual types and numbers of wetland acres cast into doubt and the connectivity of these wetlands to groundwater, the selection and discussion of wetland mitigation sites, total acre, and options is left without basis in scientific fact and reasoned basis, and must be redone after proper wetland typing is conducted.33	WE1,WE2
37	In addition, the NorthMet DEIS should provide the public with information regarding special protections under federal law for sole source aquifers due to the significance of these water sources as sole or principal drinking water sources for an area.32	WR2A
38	The DEIS' wetland classification was, "based on a generalized, largely physiognomic scheme that was not effective for characterizing wetlands…."34 To the extent that vegetative species data was collected from the mine site wetlands, much of it indicated serious conflicts between that botanical data (in which one can generally have a fairly high degree of confidence) and the wetland classifications that the DEIS assigned to those wetlands.35,36 It is not possible to rely upon wetland replacement ratios that are based on the reported wetland classifications, because in light of the very strong conflicting information about the wetlands, the classifications lack a rational scientific basis. Due to the aforementioned flaws in the wetland classification, the DEIS does not contain sufficient information to allow the reviewer to determine whether the suggested wetland banking projects identified in the DEIS, are proper sites capable of mitigating for all wetland losses.	WE1,WE3
39	The revised DEIS must include a more careful field assessment so that a revised wetland classification of the Project area is based on sound scientific data. The classification should be reviewed carefully to ensure that classifications do not conflict with species data. The mitigation plan must also be revised to include a re-worked analysis of wetland acres and types necessary to provide proper mitigation. MCEA suggests that careful consideration be given to restoration of the Alborn fen-bog complex.37	WE1,WE3
40	The DEIS requires substantial improvement in several important areas, including: more complete lynx location data	WI1
41	The DEIS requires substantial improvement in several important areas, including: disclosure of low snowshoe hare numbers wher the ENSR 2006 winter survey was conducted	WI1
42	The DEIS requires substantial improvement in several important areas, including: failure to discuss the need for and proposed content of a habit conservation plan, in the even a federal-private land exchange convers the mine site to private ownership	WI1
43	The EPA's National Hardrock Mining Framework (hereinafter, "Hardrock Mining Framework") indicates that: "EPA should evaluate the adequacy of EISs for mining operations in predicting the long-term environmental impacts of mining operations. Assessment of financial assurance mechanisms that will be utilized to provide funding of required long term environmental management systems is critical to this analysis." 1 Including financial assurance information in an Environmental Impact Statement is becoming standard practice, especially for mining operations which are reasonably anticipated to require long-term water treatment. (See attached letters from EPA, Region 92, and Region 103, concerning mining operations in which the EPA sought financial assurance information as part of the environmental review process.)	PD3
44	The DEIS requires substantial improvement in several important areas, including: failure to include all current and reasonably foreseeable future projects in the required catalogue and analysis of cumulative impacts	WI5

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Comment ID	Comment Text	Theme Codes
44	A portion of the destroyed habitat, mainly representing the area covered by stockpiles of overburden and low-grade ore, will be destroyed and unavailable to lynx for a period of time lasting at least several decades. Roughly a decade after the mine closes and reclamation has been completed, the stockpiles may by then have become partially revegetated. Still, that partially-restored habitat will never regain the same quality it possesses now. Thus, the stockpile areas will be temporarily destroyed and permanently adversely modified by the Project.39 The remainder of the destroyed suitable lynx habitat and designated critical habitat, mainly representing fenced areas, steep-sided and/or flooded mine pits, will be destroyed as lynx habitat, completely and permanently.40	WI1
45	Destruction and degradation of suitable lynx habitat (especially designated lynx critical habitat) causes habitat fragmentation. Habitat fragmentation has been called “the most serious threat to biological diversity,” and “the primary cause of the present extinction crisis.”41 Fragmentation has other serious implications for lynx conservation, including42: (1) reduction of area and patch size of late-successional forest and of optimal snowshoe hare habitat; (2) creation of openings that facilitate access by potentially competing carnivores43 like coyotes, which have been found near the Project area44 and possibly bobcats; (3) increased densities of edges between early successional and other forest types; and (4) changes in the amounts and structural complexity of seral forest stands within landscapes. In addition: Although landscape-level studies have not determined how fragmentation affects lynx ecology and population persistence (Koehler and Aubry 1994), rare species associated with wilderness, such as the lynx, generally are considered most susceptible to fragmentation (Bright 1993). Likewise, habitat specialists with large individual spatial needs, including the lynx (Quinn and Parker 1987; O’Donoghue et al. 1998), are likely to be impacted by habitat fragmentation (Andrén 1994). This is so because generalist predators tend to dominate the predator guild in fragmented landscapes (Oehler and Litvaitis 1996).45 In short, habitat loss in one location also has significant effects that extend to immediately adjacent and local surrounding habitat areas.	WI1
46	In addition, the habitat loss and adverse modification resulting from the proposed Project would contribute to lynx critical habitat fragmentation on a regional scale. The Project would impair two of the rare remaining wildlife corridors through the 115 mile-long Mesabi Iron Range.46 Wildlife corridors 11 and 12 (Barr denotes them as 16 and 17) are two of just 13 (18) wildlife corridors that connect suitable habitat to the north of the Iron Range with suitable habitat to the south of the Iron Range. Absent the few remaining wildlife corridors, the Iron Range would block direct travel between the northwestern third and the southeastern third of designated lynx critical habitat.	WI5
47	If and when the mine is established, the fenced mine pits and overburden stockpiles will eliminate some habitat permanently, narrowing the funnel leading to the corridors, and thereby making it less likely that lynx attempting to travel to the north or northwest would encounter the corridors.	WI1
48	During the life of the mine and for some time thereafter, the activity at the tailings pile and tailings basins (not to mention the possibility of tailings basin expansions to the east), will diminish the funnel of habitat approaching the corridors from the north and west.	WI5
49	The Project will leave large, wide-open, and for a long time unvegetated, expanses of tailings piles and settling ponds, steep rock stockpiles that are miles long. “[L]arge openings (greater than 100 m across) may create barriers to lynx movement and travel corridors are needed for cover for lynx.”4	WI5
49	Habitat fragmentation by loss of corridors also tends to facilitate competition by generalist predators,50 including bobcats.	WI1

Sender Last Name: Taggart **Submission ID:** 1054

1158	It is Important that" PolyMet be pennitted to start operations as soon as ·possible. Jobs in our'region and in our country are v"ital to all aspects of our economy. Mining Is being done in a safe and responsible manner and can provide long term, high paying jobs that feed local, state, and national busInesses with economic value. This In turn is very positive for a wide variety supporting industries.	EOO

Sender Last Name: Tammen **Submission ID:** 3686

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Comment ID	Comment Text	Theme Codes
1	Hydrological data at the mine site. The model of impacts to the Partridge River and adjacent wetlands is based on inadequate data. According to the EIS, ten single-well tests were done in the surficial aquifer at the mine site, which covers several square miles. The scarcity and quality of data are such that the assessment of impacts to the Partridge River and adjacent wetlands is virtually meaningless. Without this data, a determination of the potential acreage of impacted wetlands is impossible, as is a determination of the potential drawdown of the Partridge River. As the CPEIS concludes, “the potential for widespread drawdown of the water table within the surficial and wetlands deposits cannot be evaluated from the available study.” Monitoring wetlands and stream flow after the mine is built is not an alternative to collecting the data for the draft EIS. The whole point of the environmental review process is to reveal these impacts before decisions are made to permit the project.	WR1E
1	Bob Tammen, Soudan, Minnesota. I'd like to comment that the process should not have been changed for this meeting. In previous hearings we've had the opportunity to address the issues in public so we could hear what both supporters and opponents of the project have to say. It's good information for us to have, whether people support it or oppose it. And the format they have here tonight, nobody hears my comments here, I don't have the opportunity to hear anybody else's comments, and it's like having a trial where the prosecutor and defense don't get to hear the trial. And so I'd request that we have additional hearings on this issue, that they be held at least in Duluth and Rochester so other parts of the state can have input and that they can hear what the issues are. Thank you.	PRO6
2	Predicted mine inflow rates are provided as single-value numbers. As discussed above, there is not enough data to make these predictions with any level of certainty. This section should provide information on the degree of certainty in these predictions, which should then be carried over into the discussions of decreased stream flow and groundwater drawdown. While the agencies are not required to include a “worst case analysis” in the EIS, they are required to explain the degree of certainty of their predictions. To the extent that the predictions are uncertain, the EIS must provide more information on the consequences if the drawdown proves to be greater than predicted.	WR1E
3	All of the water quality analyses need to include aluminum. In some of the water quality modeling, aluminum was not modeled because it is already present above water quality standards. Yet it appears likely that the sources in question will increase the aluminum concentration in ground and surface water. The fact that background water quality already exceeds standards does not mean that an increase is not a significant impact. Just the opposite; once standards are exceeded, any additional amount is problematic.	WR3I
4	All of these impacts will cumulatively affect the Partridge River. In addition to be more forthcoming about each of the impacts individually, the DEIS needs to describe the cumulative impact.	WR5A
5	· Lack of indirect wetland impact assessment, including delineation of wetlands in the Embarrass River watershed.	WE1,WE2

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Comment ID	Comment Text	Theme Codes
6	The cumulative impact analysis of wetland impacts for the NorthMet project is fatally flawed. It is inappropriate to limit the analysis of cumulative wetland impacts to the Partridge River. GLIFWC staff reiterate that wetland impacts related to regional mining operations throughout the area as well as large wetland impacts of the proposed PolyMet project to the Embarrass River watershed must be included. In addition, the analysis must include impacts related to changes in wetland functional values, only impacts related to direct fill. At a local scale, PolyMet is likely to impact wetlands in the Embarrass River watershed as water that percolates through the bottom of the tailings facility enters that shallow aquifer. This water, which is likely to have degraded quality, will re-emerge at the surface within wetlands of the Embarrass River watershed. The high chemical load of this water will affect wetlands by degrading water quality and altering the wetland functional values. In addition, PolyMet air emissions may deposit contaminants in the watershed of the Embarrass River and further degrade wetland quality. The full extent of wetland impact resulting from 20 years of emissions from the proposed PolyMet project via air and water must be quantitatively characterized. This quantitative analysis should be done using model output (air, surface and groundwater). A quantitative assessment of changes to functional values should include an analysis of the effects of 20 years of surface and groundwater emissions along with the additive effects of air emissions for Embarrass River Wetlands. Finally, the PolyMet project as proposed includes a possibility of post-closure contamination of surface and groundwater. The wetland cumulative impact analysis must include a quantitative analysis of the long-term effects of mine effluent on wetlands of the Embarrass River. If mine related effluent is to be perpetual, this section must discuss the effects of perpetual mine discharge on wetlands. In regards to the Partridge River watershed, the analysis correctly focuses on 3 timeframes of analysis; Pre Settlement Resources, Existing Resources, and Future Resources. However, the cumulative impact discussion includes only wetland loss due to direct fill. There is no attempt in the document to assess cumulative impacts that result in changes to functional values. The issue of changes to wetland functional value has been highlighted to the Army Corps of Engineers (ACE) and the Minnesota Department of Natural Resources (MDNR) during technical meetings. The DEIS should provide a quantitative analysis of the cumulative changes in wetland functional values for the Partridge River. This analysis must include the functional value changes related to maintenance of features of the closed mine (e.g. changes in water quality of mine site wetlands, changes in water flow through mine site wetlands, etc.). At a regional scale, Iron Range taconite mining has impacted wetlands through direct wetland fill as well as indirect impacts due to air deposition of mine related contaminants, water quality degradation, and the flooding/de-watering of wetlands which lead to changes in wetland functional values. There are two additional geographic scales at which wetland cumulative impacts should be characterized: St. Louis River Watershed. The Fond du Lac band of Lake Superior Chippewa has identified this watershed as an area of concern. The cumulative impact analysis should quantitatively characterize the following: 1. The additive effect of PolyMet related air and water emissions to the Partridge and Embarrass River watershed wetlands and their impact on water quality of the St. Louis River. 2. The loss of wetlands and changes in wetland functional values in the St. Louis River watershed during the 3 timeframes, including a characterization of the potential for future mining impacts and the long-term maintenance requirements of the PolyMet mine as currently proposed. 1854 Ced	WE1,WE5
7	· Lack of identified wetland mitigation for the amount of wetland impacts that are identified.	WE3
8	GLIFWC staff reiterate that the impacts to these wetland acres is significant. In addition, 475 acres of required mitigation has not been addressed. Finally, the DEIS should also indicate that this would be the largest wetland fill ever permitted by the St. Paul District of the Corps of Engineers.	WE3
9	The DEIS states that there is no current documented tribal use of resources in the area of the proposed project. GLIFWC staff stress that most band members do not report their harvest sites and therefore it is not surprising that no records are available. The DEIS should not assume that no tribal natural resource use has/is occurring. Army Corps consultation with potentially affected tribes had not been completed at the time of publication of this DEIS. Therefore, historic and current Tribal harvest has not been determined for either the Plant or Mine Sites.	CR2

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Comment ID	Comment Text	Theme Codes
10	Mercury transport modeling. In several situations, mercury seems to have been deliberately left out of modeling and analysis presented in the (DEIS). Since all of the water bodies in the mining area are either known to be or can be assumed to be above the water quality standard for mercury, this is a curious omission. As an example, the discussion of water quality impacts on the Partridge River omits mercury because "predicted concentrations for mercury were not available for the liner leakage of the stockpiles (RS53/RS42, SRK, 2007a) and groundwater recharge from the East Pit and West Pit (RS31, SRK, 2007b)." These predictions "were not available" because PolyMet has not done them, despite doing equivalent work for a number of other constituents that are far less likely to result in violations of water quality standards. It is incumbent upon the DNR to demand that this work be done so that it can be included in the EIS. The failure of the DEIS to address mercury release and transport is discussed further below.	WR4A
11	Wetland delineation and field data. The impacts of mine dewatering are likely to extend to wetlands far beyond those that have been delineated and described in the (DEIS) and the wetlands permit application. The lack of information on the hydrology of the mine site cannot become an excuse for failing to identify the full extent of potential impacts on wetlands. All of the wetlands that may be impacted must be delineated and field surveyed.	WE1
12	The (DEIS) is very unclear about discharges to surface water. In the first of many disingenuous statements, the text reads, The NorthMet Project proposes a wastewater management strategy that would eliminate the need for a surface discharge of process wastewater, including mine pit dewatering, to surface waters of the state from either the Mine or Plant Sites. At the Mine Site, leachate from stockpiles and 'contact' storm water (i.e., storm water that has contacted the stockpiles) from disturbed surfaces would be collected and treated in a wastewater treatment system prior to being transferred to the tailings basin, where it would be stored for reuse in the processing plant. There would be no discharge from the facility with the exception of seepage to ground water from the tailings basin. This statement is misleading because the seepage to groundwater from the tailings basin will surface in wetlands and the Embarrass River. While it may be technically true that there will be no "surface discharge . . . to surface water" that does not mean that there will be no discharge to surface water. And yet that is exactly the impression that the above paragraph gives. The mining company and its supporters are already flagrantly misrepresenting the situation in the local press and to elected officials. It is incumbent on this EIS not to contribute to that campaign of misinformation.	EOO
13	The question of whether a NPDES permit is needed for the wastewater discharge through seeps is a question for the discharge permit proceeding. However, I think it is worth noting here that EPA and most federal courts require a NPDES permit where it is clear that a discharge to dry land or to groundwater is contributing pollutants to nearby surface water. The EPA has stated that "the Agency interprets the Clean Water Act to apply to discharges of pollutants from a point source via ground water that has a direct hydrologic connection to surface water." 66 FR 2960, 3015. Most federal courts that have addressed the issue have agreed with this interpretation. Following an extensive review of the case law, one court concluded, "The logic of these cases is compelling: since the goal of the CWA is to protect the quality of surface waters, any pollutant which enters such waters, whether directly or through groundwater, is subject to regulation by NPDES permit." Washington Wilderness Coalition v. Hecla Min. Co., 870 F.Supp. 983, 990 (E.D. Wash. 1994). This conclusion is particularly compelling here, where discharges to the Embarrass River and its tributary streams and wetlands through groundwater seeps have been treated as surface water discharges for decades. There is no rational reason to treat seeps that reach ground level at a point that is covered by water differently than seeps that reach ground level in a dry area. PolyMet appears to be seeking to take advantage of what it sees as a loophole in permitting requirements, and this attempt must not be accepted by the permitting agencies. The paragraph quoted above is also untrue in that PolyMet plans to discharge mine pit overflow to surface water (the Partridge River) after the mine closes. It is incredible that because this discharge will not be happening within the current NPDES permitting cycle, the discussion of necessary permits treats it as if it does not exist. Once again, the public is led to believe that the mine will not discharge pollutants to surface waters, and this is completely untrue.	WR3I

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Comment ID	Comment Text	Theme Codes
14	(It is noted that) pursuant to the federal Endangered Species Act, the Army Corps of Engineers is required to consult with the Fish and Wildlife Service prior to issuing a 404 permit. The CEQ regulations state, To the fullest extent possible, agencies shall prepare draft environmental impact statements concurrently with and integrated with environmental impact analyses and related surveys and studies required by the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), the National Historic Preservation Act of 1966 (16 U.S.C. 470 et seq.), the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), and other environmental review laws and executive orders. 40 C.F.R. § 1502.25(a). According to the statute itself, Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved. 42 U.S.C. § 4332. As noted above, the draft EIS "must fulfill and satisfy to the fullest extent possible the requirements established for final statements." Thus the draft EIS must include the comments and opinions of the Fish and Wildlife Service regarding impacts on lynx and lynx habitat.	WI1,PRO3
15	One of the greatest concerns surrounding the NorthMet project is the number of operations and activities that will need to continue for decades or centuries after the mine closes. When the avoidance of significant environmental impacts is dependent on closure activities extending indefinitely into the future, the EIS should say so, and explain the risks. To the extent that these operations and activities are described in the EIS, very rarely is a timeframe mentioned. We cannot tell from the EIS if a particular water treatment activity is likely to be needed for five years after mine closure, or for five thousand. At the very least, the EIS should identify the longest time frame that the activity might need to continue. This information is critical to evaluating environmental risks. Any activity that may be needed for years after mine closure presents significant risks that failures of the financial or regulatory systems will lead to a failure of the closure or mitigation activity. The longer the activity might need to continue, the greater the risk. In addition to a discussion of the potential length of time these activities might need to continue, the EIS should include a description of the potential impacts if the operation or activity ends prematurely. This is not a complete list, but some of these activities include monitoring and upkeep of wetland treatment systems; monitoring and upkeep of fencing around the pit lake; restricting tree growth on the top of bench areas in the waste rock stockpiles; pumping and piping drainage from stockpiles and the tailings basin; operation of the wastewater treatment facility; monitoring (and potentially treating) discharge to the Partridge River; pumping of water from Colby Lake to the tailings basin pond; monitoring and pumping drainage from the hydrometallurgical residue cells; and maintenance of the pit wall cover.	ALT8,WR1A
16	Liner integrity has not been established with any degree of confidence. Dr. David Blowes, Canada, UMD Geology Department lecture circa 2005, provided evidence that waste rock liners and acid mine drainage barriers inevitably fail. Considering the implications of toxic drainage from liner cracks into ground and surface water, the DEIS should include an in-depth study of liner designs and failures, especially from his research and development work in Canada. Per NEPA this evidence and information is available and cannot be ignored. Probable causes of liner failure are compressive and shear stresses combined with stress risers and aging of liner materials. These stresses could well exceed the limits of the liner material and must be reviewed as part of the DEIS in terms of safety factors. Potential seismic events during and after the full waste rock pile loading are also a factor in this type of risk analysis.	PD2,PD9,GT1

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17	The(DEIS) states that impacts to groundwater will be assessed at the property boundary or the nearest discharge to surface water, whichever is closer. This is poor policy (as it assumes that groundwater under the site will be sacrificed to mining contamination) and does not comply with state law. Under Minnesota law, "waters of the state" include groundwater. Minn. Stat. § 103G.005(17). Minnesota law protects the quality of all groundwater, regardless of location. See Minn. R. 7060.0300(6) ("' Underground water' means the water contained below the surface of the earth in the saturated zone, including, without limitation, all waters . . ." (emphasis added)). Groundwater is thus a public rather than a private resource. As such, impacts to that resource must be revealed to the public and considered in agency decision making regardless of where the groundwater is located. An impact to groundwater below the project property is an impact to resources of the state. Minnesota regulations provide that the highest and best use for all groundwater is as potable water. Minn. R. 7060.0400. Regulations forbid the deposit of waste "in such place, manner, or quantity that the effluent, or residue therefrom, upon reaching the water table, may actually or potentially preclude or limit the use of the underground waters as a potable water supply, nor shall any such discharge or deposit be allowed which may pollute the underground waters." Minn. R. 7060.0600(2). The prohibition on discharges of pollutants to groundwater is not meant only to ensure that water quality standards are met, but rather "to preserve high quality waters." Id. I am not aware of any law or legal precedent that allows property owners to contaminate the water under their property as long as water quality standards are met at their property boundaries. The (DEIS) states that groundwater compliance points will be determined in the discharge permit process. According to the groundwater regulations, the compliance point is at the point of contact with the water table. Although variances are available, to my knowledge no such variance has been applied for, and the (DEIS) says nothing about the need for a variance. The (DEIS) should not assume that a variance will be granted, or that compliance points will be located no closer to the project than the property boundary.	WR2J
17	It appears that the assessment of water quality impacts from the tailings basin will be based on a comparison with water quality at groundwater monitoring well GW002. The well appears to be located at an industrial dumpsite and well within the area that has been disturbed by previous mining activity. A more pristine, upgradient site should be identified for baseline water quality data.	WR1E
18	Minnesota and federal law both recognize that the degradation of water quality in high-quality waters can be significant even if the impact does not reach the level of violating water quality standards. The permitting regulations that apply to discharges to both surface water and groundwater thus include "nondegradation" requirements. Minn. R. 7050.0185 (all waters); 7052.0300 (surface waters of the Lake Superior basin); 7070.0500 (groundwater). The discussion of impacts to water quality should thus not be limited to constituents for which water quality standards may be violated. The increased level of all pollutants over background levels should be assessed and disclosed.	WR3I
19	The (DEIS) states that for wetland impacts, "a threshold of 1- foot of simulated water level change will be used when evaluating numerical model results." Aside from the problems of insufficient data to determine this threshold with any degree of accuracy, many wetlands are sensitive to drawdown of less than one foot. No citation or rationale is given in the (DEIS) as the basis for this cut-off.	WE2

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20	Unfortunately, the (DEIS) gives no citation, table, or figure by which a reviewer can compare the outcomes of the deterministic and probabilistic models. Specific discrepancies are indicated in the text (i.e., for cobalt, copper, and fluoride for the Category 1/2 waste piles), but no specific information is given for the majority of constituents from the majority of the sources. Numbers given in tables and figures are based only on the deterministic modeling; despite an occasional footnote saying as much, these table and figures are misleading. The numbers presented do not represent the full range of water quality impacts predicted in modeling. The problem is exacerbated in additional text that provides deterministic results with no mention of the degree of uncertainty or the results of probabilistic modeling. In sum, the (DEIS) presents somewhat arbitrary numbers as to what the water quality might be, rather than revealing the full extent of the potential impacts on water quality. As a subsequent portion of the text states, “Presented with ranges for values, the decision on what effect constitutes an “impact” then become a decision for the managing State or Federal agency.” However, the (DEIS) does not present ranges of values. I have heard that the DNR has requested additional design work on the tailings basin, and expect that a new round of modeling will be done to predict impacts, and thus I have not reviewed this section of the (DEIS) in detail. I would like to note, however, the (DEIS) text that reads, In any case, similar to the conclusions from the limited uncertainty analysis for the Proposed Action, it is considered that a thorough uncertainty analysis for the Mitigation Design is likely to indicate that solute concentrations could range between several times higher and several times lower than these [deterministic] predicted values. It is absolutely critical that the uncertainty analyses be done before the DEIS is put on public notice, and that they be included in the DEIS.	WR1E
21	It is unclear from the discussion whether the water quality impacts presented in the CPEIS incorporate the assumptions that discharge water will be treated passively in the East Pit wetland prior to discharge and that the wall rock cover will remain perpetually sound. It appears from the CPDEIS that the DNR is not yet convinced that these assumptions are warranted. If that is indeed the case, the estimate of potential water quality impacts should be revised accordingly.	WR3L
22	Similarly, section () states, “The proposed Category 1/2 stockpile liner system does not appear to provide adequate containment.” It is unclear whether water quality predictions took account of this inadequacy. Is the efficacy of the proposed liner reflected in the “high liner leakage” scenario, or will leakage potentially be even greater than assumed in that scenario? If it might be greater, once again the water quality impact predictions should be revised. The absence of an adequate slope stability assessment for the waste rock stockpiles is also noted. Although this discussion does a slightly better job describing impacts, it needs to provide some sense of how large an impact a slope failure might have on water quality.	EOO
23	The (DEIS) states that under the no action alternative, “Natural dissolution, mobilization, and transport of PCOC’s would still occur at current rates due to past mining and milling activities.” Similar statements are made in other sections. Hopefully they are untrue. Much of the plant and tailings basin site is subject to ongoing efforts at remediation. As described in the CPDEIS, the facility has been out of compliance with its discharge permit for many years. Mobilization and transport of PCOCs will not continue at current rates if the owners and permittees of the property are required to comply with state and federal laws.	ALT8,WR3I
24	In regards to the Dunka Pit stockpiles, the (DEIS) states, “Although monitoring of the site has produced a detailed long term record of stockpile drainage chemistry, uncertainty in rock composition and drainage pathways led to elimination of this drainage chemistry as an analogue for stockpiles proposed at NorthMet.” Although I understand that it might not be appropriate to use this data in quantitative modeling, the experience at the Dunka Pit is extremely pertinent to the NorthMet project and at the very least should be qualitatively described. The Dunka Pit is geographically much closer to the NorthMet site than other sites from which data was used, and illustrates the uncertainty of predictions and the problems with addressing impacts that turn out to be greater than expected. In several other sections, the authors of the (DEIS) cite professional judgment and experience to downplay other types of potential impacts. For instance, insufficient data on area wetlands is excused by stating that experience at taconite mines indicate that wetlands in areas adjacent to mines are often not affected. The experience at Dunka Pit is at least as relevant to decision makers as other experience on the Iron Range that is incorporated into the (DEIS). I believe it would be of value to decision makers to describe the situation at Dunka Pit and the difficulties MPCA and the DNR are having in dealing with it.	PD3

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25	The statement "Depending on the customer's requirements, two methods would be considered for loading the dried concentrate into storage containers and unloading the concentrate from those containers into rail cars for shipping:" implies that processors other than PolyMet would be either contracting for concentrate from PolyMet or having their ore processed at this plant. In either case the analysis and recommendations on this DEIS would be altered and need in-depth review per NEPA and MN rules. The movement of concentrate with 20% sulfur content itself has serious environmental consequences. Would contract processing affect the projected volume of material being processed in the benefaction and waste management areas?	PD2
26	Despite indications from humidity cell tests that leachate from waste rock will have a mercury level five times the surface water quality standard, PolyMet did not include mercury in its water quality model, and the (DEIS) gives no data on the potential impact of leakage and discharge from the stockpiles and pit lakes on mercury levels in the Partridge River. Given that mercury is known by everyone involved to be one of the most sensitive issues for any industrial facility in the Lake Superior Basin, it is difficult to interpret this omission as anything other than an attempt to avoid the prohibition on new discharges of mercury to Lake Superior tributaries.	WR4A,WR4B
27	It may or may not be true that the ground that the stockpile leakage passes through on its way to the Partridge River will adsorb mercury to the extent that it will meet surface water quality standards where it discharges to the river. It is beyond belief, however, that PolyMet (and apparently the DNR) do not believe that that any further analysis is needed to make that determination. Both during and after mining, stockpile leakage containing mercury will discharge to groundwater in close proximity to the Partridge River. The Category 1, 2, and 3 stockpiles are located less than one-eighth of a mile from the river. Unlike other constituents, the Category 1 and 2 stockpile might be the largest source of mercury releases, as mercury leaching is not dependent on sulfur content. A mile-long stretch of this stockpile is located about one-eighth of a mile from the Partridge River headwaters.	WR4B,WR4B
28	The (DEIS) is equally lacking in information about mercury discharge from the tailings basin. While I understand that percolation through taconite tailings is likely to reduce the concentration of mercury originally present in the discharge, PolyMet needs to present something more than conclusive statements that the mercury level will be below the surface water quality standard when it discharges to surface water. The company has not provided scientifically defensible justification for this conclusion. A very high volume of water will travel through the basin, some of which will flow under the collection system and emerge in surface waters. Some of these waters (such as Trimble Creek and several lakes) are considerably closer to the tailings basin than the Embarrass River, and have been ignored in the analysis so far.	WR4A,WR4B,WR4B
29	In light of this statement, the DNR's failure to require the same analysis of mercury release and transport as was performed for other constituents is incomprehensible. The Draft EIS must provide a quantitative analysis of the discharge of mercury to the Partridge and Embarrass River from these pathways during and after mining, and from direct surface discharge from the West Pit after mining.	WR4A
30	A mitigation plan that covers all wetland impacts needs to be available at the time the DEIS is put on public notice. The (DEIS) estimates indirect impacts at 328 acres, and states that 300 of these acres are not yet included in the mitigation plan. First, given the lack of information on hydrology, this number is a very rough estimate. Information on uncertainty needs to be included, along with some disclosure of what the largest impacted acreage might turn out to be. Second, mitigation plans must be identified prior to release of the Draft EIS and included in that document. Because replacement of wetlands is regarded as reducing the significance of wetland destruction, it is impossible to assess the significance of wetland impacts without knowing what the mitigation will be.	WE3

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Comment ID	Comment Text	Theme Codes
31	The federal and state wetland mitigation requirements are unequivocal regarding the preference for mitigation within the watershed. It is not up to the permittee to decide that the opportunities for mitigation within the watershed carry too high a price. The DNR and Army Corps of Engineers should insist that PolyMet restore wetlands within the St. Louis River watershed if an appropriate location can be found, regardless of the added cost. The very size of the wetland impact in this case is going to make the purchase of additional land appear unreasonable, but it is actually the size of the wetland impact itself that is unreasonable; the cost of mitigation follows directly from the size of the impact. Similarly, if a number of smaller mitigation locations are available within the watershed, the fact that it is more difficult to undertake several smaller projects than one or two large ones cannot be used as an excuse to go outside the watershed. The enormity of the impact seems to be creating a situation that makes it easier to receive permission to mitigate the impact outside of the St. Louis River watershed, and that is unacceptable. The policy should be just the opposite; the greater the impact to the watershed, the greater the need to keep compensation within the watershed. If permitted, an entire subwatershed of one of the St. Louis River's main tributaries will be sacrificed to this and past mining projects. The least that can be done in mitigation is to improve conditions in other subwatersheds of the St. Louis River if locations are available. The Aitkin and Hinckley mitigation sites are a long way south of the PolyMet project, and virtually none of the values and functions of the wetlands at the mine site can truly be compensated for there. In addition to the hydrological and water quality values of these wetlands to the Partridge and St. Louis Rivers, the PolyMet site provides habitat for a number of wetland species, including lynx, wolves, moose, and a number of bird species that are not found as far south as the Aitkin site. In addition to the difference in climate, tree and plant species that are heavily affected by deer density may have more difficulty at the mitigation sites, and it is questionable whether comparable ecosystems can be established there. For too long, the mitigation rules have been used to ignore the actual impacts of wetland destruction. The National Research Council report that led to the new federal wetland mitigation rules found that while as a nation we may have halted the loss of wetland acreage, we have by no means halted the loss of wetland value and function.2 The new Army Corps of Engineers rules3 were supposedly designed to change this so that the wetland permitting process actually identified the specific values and functions that were being lost and designed mitigation geared specifically to replace those losses. My understanding is that this would be the largest wetland loss ever permitted in the St. Paul region. The Corps has the opportunity on such a large project to use its new regulations to usher in a more responsible era of wetland mitigation. PolyMet needs to be sent back to the drawing board to design one or more mitigation projects that actually compensate for the functions and values lost.	WE3
32	The impacted wetland acreage from this project is so large that it will significantly impact at least the North Branch of the Partridge River. That impact cannot be ameliorated by restoration of wetlands in any other watershed, and yet there isn't a site large enough to replace the wetlands within the North Branch watershed. As a result, this project proposes to sacrifice the North Branch of the Partridge River to mining. I do not believe this is a legally permissible outcome regardless of the mitigation rules. Portions of the (DEIS) downplay the impact by focusing on a higher watershed level (e.g., section 4.2.7.4 on cumulative impacts); the DEIS should more consistently describe the degree to which the North Branch of the Partridge River will be destroyed by this project.	WE2,WE3
33	Wetlands that will be created at the mine site after closure as mitigation wetlands are listed. Many of these wetlands are also slated to provide treatment of water that may not meet water quality standards after closure of the mine. Wetlands that will receive discharges of water that does not meet standards and that are used as a passive treatment system cannot be counted as wetland mitigation.	WE3,WE6

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34	The (DEIS) gives no information about the extent of surveys for rare plants or wildlife, nor the time of year when surveys were conducted. I cannot be sure from the information I have, but the only reference I have found regarding multi-species plant surveys appears to be to the data from a single survey, apparently conducted in August of 2004. If this is actually the case, more work needs to be done before concluding that there are no additional rare plant species present on the site. The (DEIS) makes several statements that lead me to believe that the site has not been extensively surveyed for wildlife. For instance, the (DEIS) states "Significant populations of Wood Turtle, however, are unlikely to be found at the Project." It is unclear if anyone has actually looked for Wood Turtles at the project site. Similarly, "the Heather Vole has not been recorded within 10 miles of the Project by the Minnesota Natural Heritage Program (NHP). It was also not found in nearby surveys of small mammals on the Chippewa National Forest (Christian 1999) and in Cook County (Jannett 1998)." It is unclear if anyone has looked for the Heather Vole at the project site. The text does provide a reference to a survey by "ENSR," but no information is given about the extent of that survey or its findings. It would help to have this basic information included in the DEIS text.	WI2
35	Assumptions concerning hydraulic conductivity in the bedrock beneath the Tailings Basin and the general direction of groundwater flows beneath and surrounding the Tailing Basin are inadequate to form a basis for assessing the need for an NPDES Permit for the Tailings Basin. Outflows to surface waters of the Partridge and Embarrass rivers from both identified and unidentified seeps plus the resurfacing of polluted groundwater have not been identified. Lack of specific hydrologic subsurface flow data from the Tailings Basin in itself makes the DEIS inadequate. From the Ref. "Groundwater Sensitivity and Solid Waste Disposal in Minnesota" by Stuart Grubb, PG; U of Minnesota, 5.7.2009, in Igneous and Metamorphic Aquifers, "…localized flow patterns can be unpredictable". Further, "Groundwater flow from such sites is typically via one or more conduits and the probability of intersecting the relevant conduit with any rational number of monitoring wells is vanishingly small. Contaminants routinely are not detected in these site monitoring wells but show up in off-site wells or springs long distances from the site. However, the springs may be inaccessible, for example, beneath lakes or rivers." The same paper concludes, "Tracer tests are the established and preferred method of documenting groundwater flow velocities and directions in Karst and fractional flow aquifers. And, "time of travel is a good surrogate when accounting for other factors might reduce contaminant concentrations and groundwater sensitivity, such as sorption and chemical reactions." Since no such data exist for this Tailings Basin area, predictions of pollutant discharges would need to be made long after the fact of construction and operation. The DEIS does not account for this problem with respect to NPDES permitting justification or need. NEPA requires a detailed explanation of this issue. Per "Kuipers-Maest et al, 2006, "Comparison of Predicted and Actual Water Quality at Hardrock Mines", 100% of existing mine plans predicted compliance with water quality standards before operations began and over 75% exceeded (failed) water quality standards after the fact. The mine being in a wet environment such as that found at this proposed Project site makes potential of preventing acid mine drainage and metals leaching very low. Modeling of Mine and Plant site hydrology comments in the DEIS admit to pollution problems with leakage from storage heaps and cells. For example in Section 4.1.3.1, Environmental Consequences, Proposed Action, Post-Closure , After year 65, "the surface seepage to Second Creek (Seeps 32-33, Figure 4.1-14) is expected to continue indefinitely based on experience after closure of LTVSMC Cell 1E". And from section Effects on Groundwater Levels, Evaluation Methodology, P. 4.4-57, "The MnDNR believes that actual hydrogeologic characteristics of the Project site do not fit the model assumptions of homogeneous porous media flow (uniform vertical and horizontal conductivity) for the bedrock and till layers." The potential for acid generation from the 394,082 tons of waste rock (Table 3.1-7) is huge. Using the MnDNR chemical mass balance equation $4FeS2 + 15O2 + 14H2O = 4Fe(OH)3 + 8H2SO4$ (Lapakko, 2009) indicates that tens of thousands of tons of acid generation potential exists in the waste rock from the proposed Project. Apparently the seeps are expected to continue indefinitely. NEPA requirements are not satisfied by satisfied by proceeding with long term water pollution assured. The consequences must be addressed in the EIS.	WR2A,WR3I

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36	I found the treatment of state endangered, threatened, and special concern species quite problematic. Despite the fact that a very significant percentage of the statewide populations several species will or may be affected by this and other foreseeable projects, the (DEIS) dismisses each one as insignificant. For instance, the (DEIS) first determines that 17% of the state's known populations of pale moonwort, a state endangered plant, may be destroyed by this and other projects. It then dismisses the significance of this percentage by insinuating that the plant is not "really" endangered but probably just has not had many of its populations identified, and that because it is found on disturbed sites, these projects are unlikely to affect its presence in Minnesota. If only 64 populations have been found in Minnesota thus far, however, it is clear that tolerance for disturbed sites does not correlate with widespread presence. It is completely unclear why impacting more than one-sixth of all of the known populations is not a threat to the presence of the species in Minnesota, regardless of tolerance for disturbed sites. The discussion of floating marsh marigold is particularly troubling. Half of the state's known occurances of this plant occur on or closely downstream from the mine site. According to the text, eight of the thirteen populations at the mine site "are believed to be sufficiently removed from potential direct and indirect affects [sic] of the Project so as not to be affected." The document does not reveal how far downstream these populations are, but given the lack of knowledge about hydrology in the area and what the actual indirect impacts on wetlands, streamflow, and water quality will be, the DEIS should treat these populations as potentially impacted by the project. Furthermore, even if "only" five populations of this species are impacted, this is 20% of the state's populations of a state-listed endangered plant, and has to be treated as significant. Similarly, impacts on 21% of Minnesota's known populations of neat spike-thrush, a state-listed threatened species, has to be considered significant. The speciousness of this entire discussion is reflected in a statement regarding the clustered burr-reed: "Enforcement of existing wetland regulations, which require avoidance and minimization of wetland impacts, reduces the likelihood that known populations of this species would be significantly affected over the long term." If enforcement of existing wetland regulations is not going to avoid impacts on nine percent of the known state populations under discussion here, at what point will the wetland regulations begin to be effective?	WI2
37	The (DEIS) states, "Water quality modeling of the potential for [groundwater discharge] to impair water quality indicates that predicted concentrations of the modeled parameters in the Partridge River will meet Minnesota water quality standards, and therefore is expected to be protective of aquatic life." As explained earlier in the text, the range of potential levels of many of the constituents of concern is very broad. There is no certainty that leakage from the stockpiles and pit lakes will not violate water quality standards where it discharges to the Partridge River. The range of uncertainty needs to be discussed here, along with the potential impacts on aquatic life if acid drainage turns out to be more significant than PolyMet expects.	WR2F,WR2F
38	Furthermore, what the text does not tell us is that mercury is not one of "the modeled parameters." We have been given no predicted concentrations of mercury and do not know if it will meet Minnesota water quality standards. The conclusion that water quality "is expected to be protective of aquatic life" is thus unwarranted.	WR4A,FM2,FM5
38	As discussed below, I have found no support for this statement in the record. Deposition and run-off of metals and sulfur needs to be modeled to determine whether this statement is true.	WR3M,AQ4A
38	One of the significant impacts of this project that is virtually certain to occur is the reduction in base flow in the North Branch of the Partridge River. The (DEIS) acknowledges this ("Reduced habitat quantity resulting from this reduction in flow may be of sufficient magnitude to appreciably alter the structure and function of biotic assemblages in the Partridge River in the vicinity of SW002 and to a lesser degree in the vicinity of Stations SW003 and SW004 further downstream"), but hides the acknowledgement three-quarters of the way through a page-long paragraph. It is thus unlikely to be noticed by any but the most persevering reader.	WR3E

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39	Another likely impact on the North Branch of the Partridge River is the rising of temperature due to reduced groundwater discharge. As groundwater begins to flow toward the mine excavation, a greater percentage of water in the stream will stem from precipitation and surface flow. In addition to reducing stream flow, this water generally has a higher temperature than groundwater. Particularly in mid- to late summer, streams are dependent on groundwater inflow to stay cool enough to serve as fish habitat. Reducing the groundwater discharge to a stream presents the double-whammy of raising temperatures due to less volume and slower movement, and also due to the temperature of the source water. The DEIS should provide an assessment of the likely impact of the project on temperatures in the Partridge River.	WR2A
40	The single most likely form of impact from air emissions is the local deposition of sulfur and metals, and their ultimate run-off into local water bodies. This issue does not appear to be covered by any of the criteria listed for the impacts analysis. The (DEIS) lists the various emissions calculations and modeling that were performed, and then concludes “Considering the composition and magnitude of fugitive and stack emissions, airborne deposition is not a likely pathway of contamination leading to significant impacts on fish or macroinvertebrates in local streams and lakes.” No scientific support for this statement is given here or in any of the supporting documents. According to the (DEIS), the project will emit up to six tons of nickel per year. In a similar mine permitting proceeding in Michigan, deposition modeling indicated that most metallic emissions are deposited in close proximity to the mine.4 The emission of 1300 pounds of copper per year at that site led to the prediction that a nearby stream that is similar in size to the North Branch of the Partridge River would exceed the water quality standard for copper due to run-off of deposition, particularly during snowmelt. PolyMet prepared an analysis of the potential deposition of sulfur and nitrogen in Class I areas, twenty miles away or more. It also prepared an analysis of the impact of the emissions of metals on air quality in the project vicinity. Clearly the means are available to model local deposition of these same substances. MPCA staff are well-versed in estimating the run-off of deposition into surface waters from their studies of mercury deposition. The impact on local water quality from deposition is potentially significant and must be studied.	WR3M,AQ4
41	The discussion of the loss of access to resources retained by Ojibwa tribes under treaties with the United States demonstrates the problem with preparing a DEIS before important aspects of the project have been determined. It is stated, “A potential land exchange is currently being considered by the USFS for National Forest System lands proposed to be used by the Project; should this occur, access to natural resources on the additional land by 1854 signatory tribes may be made available, although it is unknown whether or not this would compensate for or result in a net loss of access rights to ceded territory.” This lack of information on impacts that are critical to local tribes is unacceptable. As explained above, it is not sufficient to say that these impacts will be assessed in a separate EIS. All of the impacts of the project must be reviewed together in one document.	ALT8,PD8,G3,CR1,CR4

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41	The position that this Project area emissions are below "major source" thresholds for the PSD Increments for PM10 has not been sufficiently supported by data or modeling. There are no correlations given to show that the Annual Point Source Criteria Air Pollutant Emissions for PM10 and PM 2.5 (Table 4.6-5) meet the Allowable Class II Increments for PM10 in Table 4.6-3 on either the PM10 24-hour or the annual averaging period. The units are incompatible and it should not be left to the reviewer to make this determination. What is the equivalent of tons per year in micrograms per cubic meter in this comparison? Further, based upon the rationale for selecting coefficients and constants for algorithms used in modeling each individual air pollutant emission source, the calculated values are subject to a great deal of individual interpretation. For instance in the mine site section a great deal of discussion is centered on subjective justification for picking a value for a constant out of a reference book. For example, on P. 42, RS57A, 3.2.4 Dunka Road Sources, "…site specific silt content data is not available. Therefore, the "most representative value" from AP-42 Table 13.2.2.1 was used. This was "taconite mining and processing, service road" with a mean value of 4.3%." Why was the mean value selected rather than another value? Modeling errors have significant negative consequences in a case involving irreversible pollution. On P. 39, section 3.2.1 Raw Material Handling, a "mean wind speed" of 9.3 mph was obtained from "climates of the States" Vol. II, Water Information Center, 1974 for International Falls, MN. This dated data was used to calculate lb/hr emissions of PM and PM10. How would this method of selecting coefficients provide a range or degree of confidence scenario for generation of PM or PM10 at this location? The coefficient for high winds applied to the calculation would produce a much higher value for PM10 and PM in any case. These constants are usually tabularized or written into a higher order equation for use in modeling. With these examples in mind, the projected emission for PM10 (3t/y) and PM 2.5 (1 t/y) appear very low for an "upper bound" calculation. There are no ranges or confidence intervals expressed for any of these numeric values which is unusual in cases where subjective selection of modeling coefficients and constants occurs. The degree of confidence in these modeling results is very important since pollution control strategies for both this and future projects would depend upon the size of this Increment. The maximum Increment value would determine the PSD source designation. This Project could very well be a "major source". Ambient monitoring data from open pit metallic sulfide mines exists and in most cases demonstrates that air quality in the vicinity of the open pit mines and processing plants is impaired beyond NAAQS, MAAQS and PSD increments. Evaluation of this project on a partial plant capacity basis does not meet NEPA criteria requiring that all potential scenarios for generation of air emissions be evaluated.	AQ4
41	The discussion of socio-economics must include detrimental aspects of mining economies. Socio-economics cannot be reduced to the amount of money and jobs the project will ostensibly bring to the area.	SE3
41	As someone who (along with many others involved in reviewing the PolyMet project) has been very involved in fighting for reductions in emissions of pollutants like mercury over the years, it is disheartening to find that rather than resulting in permanent reductions, our efforts are being used to allow new emissions. The cumulative mercury emissions analysis indicates that statewide reductions and additions will result in a statewide emission level of 2,337 pounds by 2015, down from 3,638 in 2000. The state goal is 789 by 2025. Simply to state those numbers is to understand how unlikely it is that we will meet the goal if these new emissions are permitted. The (DEIS) repeats the tired excuse that most of the mercury deposited in Minnesota comes from somewhere else. Yes, and the mercury emitted in Minnesota falls somewhere else, creating problems for others. The Minnesota mercury reduction goals were chosen to reflect the degree of reduction that everyone will have to make before Minnesota waters will become "fishable" again. If we do not meet our goal, we have no business asking anyone else to meet that goal, and yet we need them to meet the goal to make our fish edible. By permitting these increases in mercury emissions, we are likely contributing to a worldwide failure to reduce emissions to a level that would clean up Minnesota's water in the foreseeable future. Global climate change is perhaps the ultimate cumulative impacts issue, and yet the (DEIS) omits this from its discussion of the cumulative impacts of air emissions. The DEIS should include a cumulative impacts analysis similar to the ones done for other pollutants and issues. Furthermore, I disagree that the amount of CO2 this project will either emit or be responsible for (due to electric production and transportation) is insignificant. By stating the amount as a percentage of worldwide emissions, of course the amount appears miniscule. A better indicator of significance would be comparison to total U.S. industrial emissions, along with a discussion of reduction targets and what they would mean for the State of Minnesota.	WR5A,FM3,AQ3,AQ4B,AQ

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Comment ID	Comment Text	Theme Codes
42	The (DEIS) does provide numbers that reflect the fact that historically, mining has had more of a negative than a positive impact on communities. According to the (DEIS), East Range communities, most of which are mining-based, have lower education levels, lower median income, and higher poverty rate than St. Louis County and the State of Minnesota as a whole. It is indicated that of the selected East Range cities, Tower is the only one with less than 10% of its workforce employed by the mining industry; It is indicated that while Tower has a lower median income than some of the cities that are heavily affiliated with mining, it also has a much lower poverty rate and a higher percentage of employed adults. This makes intuitive sense. Virtually anyone in Northeastern Minnesota who pays attention understands that mining jobs pay comparatively well, but are not stable over the long term. These statistics are also in line with studies of economic conditions in mining communities.5 Rather than simply list statistics, the DEIS should provide some interpretation to make the numbers meaningful.	SE3
43	The (DEIS) ignores the volatility of the mining industry, assuming that jobs will continue uninterrupted for the predicted life of the project. It has no more to say about mine closure than "Unless new industry is developed in the East Range area prior to completion of these activities, it is assumed that 95 percent of working-age people formerly employed by the NorthMet Project would need to secure alternative local employment or would leave the area after this time." This complete lack of concern for the impacts of mine closure is particularly galling given the fact that the taconite industry is currently suffering yet another downturn, and miners are being laid off as the DEIS is written. The DEIS discussion of socio-economics needs to include a discussion of the impacts of relying on a cyclical industry as the major economic driver of a community.	SE3
44	In addressing environmental justice it is concluded that because the affected community does not have a significant Native American population, Native Americans are not disproportionately affected by the project. However, members of local tribes do have a disproportionate interest in the resources at risk; their culture is dependant on continued access to such resources, and their current access to resources at the mine site is protected by treaty. In contrast, the destruction of plants and wildlife habitat may mean little to the majority of the European-American population. The impacts of the proposed project would thus fall disproportionately on tribal members. One of the points behind environmental justice concerns is that a more privileged segment of society often makes decisions that disproportionately affect less privileged segments of society. This is exactly what appears to be happening here. The majority non-native population is making a decision to permit the destruction of resources that are of particular interest to the native population. Tribal members, who will be most affected by the loss, are apparently being given little or no say as to whether that loss will be permitted. This is precisely the type of situation that environmental justice is meant to address.	SE2
45	The PolyMet project is likely to have impacts on several receptors and from several sources that are not included in the (DEIS). These include water quality in local wells at residences downgradient from the tailings basin; the impact of pit water quality on wildlife; mercury and sulfate impacts downstream from the tailings basin and mine site; and impacts from the generation of electricity used by the project. All of these should be added to the draft EIS.	G7A,G8
46	Based upon previous comments herein, the assumptions that this project would not be considered a "major source" for PSD considerations is not supported by the modeling analysis pursuant to PSD regulations. Being the first metallic sulfide mine in the State of Minnesota and the DEIS not having been supported by data from equivalent projects elsewhere, the Project is experimental in nature at best. A hydrometallurgical metals separator of this size has never been built. The business model as well as the pollution modeling is designed to need post-build calibration if the Project were permitted. Use of uncalibrated, site specific modeling results to set "upper bunds" for assessing potential impacts does not meet NEPA criteria. Irreparable damage would occur from this experimental approach to a major Project design. Also, potential mine expansion and contracting for processing material from other similar mines must be assessed in the EIS per NEPA. These would be "indirect effects" and must be considered in analyzing air quality impacts. We support and hereby incorporate by reference all comments submitted by Tribal cooperating agencies, as set forth in Appendix D to the Draft EIS, and also set forth within footnotes throughout Volume I of the Draft EIS. This includes comments concerning the effects of releasing reactive waste rock dust into wetlands. This would contribute to increased methylation of mercury and must be evaluated in the DEIS.	AQ1,AQ4,AQ4B

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Comment ID	Comment Text	Theme Codes
47	As stated, fugitive emissions are expected to occur from the Tailings Basin. Dust control mechanisms described include the use of wet tailings, floatation slime and existence of capillary action at the water and tailings interface. In no other known instance in MN or elsewhere have these mechanisms prevented huge peak releases of fugitive dust during high winds. The shell game of identifying previously captured PM10 and PM2.5 material transported from the Plant to the Tailings Basin as fugitive dust and excluding it from being included in the determination of a major source must be addressed under NEPA. This is an “indirect source” of criteria pollutants directly connected to Plant emissions. Modeling fugitive emissions using average wind velocities of (9.3 mph) from International Falls grossly underestimates the emissions of these PM10 criteria pollutants. Selection of coefficients for modeling is also affected by both the alteration of the nature of tailings material and non-linear effects of friction coefficients. As discussed earlier herein, there are no confidence limits given on the data presented. The projected PM10/2.5 emissions from the mine site appear very low based on fiber monitor data from the Babbitt, Silver Bay and Beaver Bay sites. The effects of increased PM2.5 emissions and impacts must be stated in the criteria pollutants summaries per NEPA rules.	AQ1,AQ4
48	• There is no data showing sampling methods and data to verify that amphibole mineralization does not occur either at the Northmet deposit or at other deposits that would feed the 2/3 plant capacity not being included by PolyMet in the DEIS assessments.. • The Stevenson Thesis (Amphiboles at the Base of the Duluth Complex, Minnesota, Robert J. Stevenson 12/1982 University of Minnesota) and other technical observations indicate that intrusions of extremely toxic ferroactinolite and other amphiboles occur at and in close proximity to the Northmet mine site. Stevenson analyzed ten samples from South Kawishiwi and Partridge River intrusions including the Inco Spruce Road and Maturi sites plus the Dunka Pit Site. Amphibole content varied from zero to 13.1% by volume with a median value of .43% by volume. Samples were taken from both overburden material and at varying underground site depts. Hornblende, actinolite and cummingtonite fiber concentrations were found at high levels. • Recent (1/7/2008 through 10/26/2009) fiber monitoring data from Hoyt Lakes and Babbitt, MN demonstrate that amphibole fibers are present in the ambient air in the vicinity of the Northmet mine and LTV ore processing sites on a continuing basis. Amphiboles were detected in 14 of the 61 samples or 34% of the time at the Hoyt Lakes monitor site. The comparable value at the Babbitt site was 75% indicating that the ambient air in the entire area is currently filled with toxic amphibole fibers. Adding the proposed project would result in a cumulative toxic effect not described in the DEIS. Peak levels of 8175 fibers per cubic meter in Hoyt Lakes and 12023 fibers per cubic meter of air in Babbitt should be cause for concern even before considering adding a new source in this area. • Fiber monitoring at scientifically defined sites should continue on a regular schedule as long as there is any activity at this Project location since the amphibole intrusions occur randomly and would not be identified by other means. This is a public health issue on-site and in surrounding areas. • Scientific work regarding the toxicity of ferroactinolite, cummingtonite-grunerite and other asbestos-like fibers has been conducted since the early 1980s at the EPA’s Duluth Water Quality Laboratory by experts familiar with material from this area. (e.g. Ref. “Interpretation of the Carcinogenicity of Amosite Asbestos and Ferroactinolite on the Basis of Regained Fiber Dose and Characteristics in Planned Class II increment analysis shows 24 hour PM10 predicted concentrations just under the PSD increment of 30 micrograms per cubic meter. No confidence or statistical bounds are given to support this data. Similarly, the review for compliance with NAAQS shows that the expected 24 hour PM2.5 predicted total ambient impact plus the background to be just under the 35 microgram per cubic meter NAAQS for PM2.5. NEPA requires a more detailed study and justification of the conclusion that this data validates the claim for designation as a minor source for PSD. As supporting evidence for a major source PSD designation, the recently completed fiber monitor tests by MPCA at the Babbitt, MN, a site close to the proposed Project, show that the air is filled with amphibole fibers of the PM10 and PM 2.5 class in this area. True BACT would be appropriate for the PolyMet Project especially in view of the potential for both sulfide and amphibole fibers filling the air. The Plant Site Projected Actual Emissions for PM10/PM2.5 potential in Table 4.6-5 may also be understated. Adding bag houses on the front end of the processing plant is desirable. However, the waste from the filters is sent to the tailings pond and its potential for emission is not included in the emissions calculations. These are highly concentrated sources of P10/PM2.5, amphiboles and asbestos-like fibers. This should be considered for major source PSD increment definition and pollution abatement practices. There are numerous examples of serio	AQ4A,AQ4C

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Comment ID	Comment Text	Theme Codes
49	Staff remain, as they have for many months, primarily concerned about two issues: 1) that the draft EIS cannot withstand NEPA scrutiny because it does not meet the requirements for a federal EIS, and 2) that the project, as proposed, cannot be permitted by either the state of Minnesota or the Army Corps of Engineers. The following issues have the potential to fall into one of these categories and are more fully described in the attached comments: C the applicant has not proposed sufficient mitigation acreage to cover identified wetland losses caused by the project; C the structural stability of the waste rock stockpiles has not been demonstrated; * the effectiveness of the wetland treatment system has not been demonstrated given the predicted water quality; * the technical feasibility of a 95% capture efficiency required for the tailings basin alternative has not been demonstrated; * the draft EIS does not contain sufficient detail regarding financial assurance, particularly if very long term water treatment is needed; and * the draft EIS fails to reasonably predict indirect hydrologic impacts to wetlands. * the draft EIS is flawed in that it predicts substantial improvements to groundwater quality through the addition of sulfide mine waste to an existing tailings basin.	G8
50	GLIFWC staff reiterate that the method presented in this section (Figure 4.2-8) is inadequate to assess indirect wetland impacts. This method ignores the fact that there is an area of uplands north of cell 2W which has constrained the movement and direction of tailings basin seepage. Therefore, using the northern extent of wetland impacts of 2W for 2E, north of which there are no uplands, is unjustified. Ignoring the presence of the upland area north of cell 2W creates an underestimation in the extent of wetland impacts due to seepage. Tribal cooperating agencies have suggested a more conventional method for indirect wetland impact estimation to the lead agencies (Methods for evaluating indirect hydrologic impacts to wetlands, March 26, 2009, Attachment #8). This method could be applied at both the mine site and the plant site . The method proposed by tribal cooperating agencies was based on work by a consultant for the Army Corps for use in another sulfide mine project EIS (Attachment #7). In addition to having been developed by the Army Corps, this method has been presented by tribal technical staff at professional conferences (Society of Wetland Scientists Conference, 2009 and 55th Annual Meeting of the Institute of Lake Superior Geology, 2009). Tribal cooperating agencies do not agree that the unconventional method described in the DEIS can produce defensible results for indirect hydrologic impacts to wetlands. A more robust method should be used and the analysis presented in the DEIS so the public can review a science-based assessment of potential impacts.	WE1,WE2
51	GLIFWC staff reiterate that there is a serious inconsistency between this wetlands section and information presented in Section 4.1.3.1 of this document. Section 4.1.3.1 page 4.1-65 states: “Therefore, future impacts to the hydrology of the aquifer and wetlands downgradient of the Tailings Basin were estimated by comparing predicted seepage rates for the Proposed Action (Hinck 2009) with the estimated groundwater flux capacity of the aquifer (155 gpm)(Technical Memorandum: TB-2 and TB-14: Tailings Basin Seepage Groundwater Quality Impacts Modeling Methodology). The current seepage rate toward the Embarrass River from the Tailings Basin (Cells 1E/2E and 2W) is estimated at 1,795 gpm, which continues to result in the upwelling of seepage water into the wetlands as the seepage rate exceeds the aquifer flux capacity by over 1,600 gpm. Under the Proposed Action, the unrecovered seepage rate is predicted to increase to a maximum of approximately 3,800 gpm in Year 20, over 2,900 gpm of which would be attributable to PolyMet (Hinck 2009). Therefore, under the Proposed Action, a significant increase (>100%) in groundwater upwelling relative to existing conditions would be expected. Some of this seepage water would drain to existing streams, but because of the generally flat topography and extensive wetlands, much of this water would be expected to form ponds and inundate wetlands.” GLIFWC staff reiterate that the latest relevant information developed for the water resources section has not been incorporated into the wetland impact section. The presentation of two different methods is confusing and does not provide an adequate assessment of wetland impacts. A thorough hydrologic impact analysis that incorporates actual seepage rates from the tailings facility should be conducted. In addition, these seepage rates should be used, in conjunction with tailings basin water chemistry information, to assess the effects of this untreated discharge to the biota and functional values of the Embarrass River watershed wetlands.	WR2A,WE2

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Comment ID	Comment Text	Theme Codes
52	For the DEIS to state that "The aerial extent of this impact (degraded groundwater) is unknown due to the lack of a monitoring well network, but based on the limited data available, no offsite contamination has been documented" would appear to be disingenuous. Private wells north of the basin show high levels of constituents found in basin water and well GW009, north of the property boundary, demonstrated high levels of the same constituents found at the toe of the basin. Should it receive permits for its project, PolyMet will assume responsibility for all legacy contamination caused by the tailings basin to surface water, groundwater and wetlands. Therefore, tribal cooperating agencies take the position that the current exceedances both on-site and off-site, which are the result of decades of untreated discharges from the tailings basin, must be addressed by PolyMet as part of its closure plan.	WR1E,WE2
53	As previously stated, GLIFWC staff disagree with these conclusions and take the position that that acreage totals for indirect impacts are underestimated. GLIFWC staff reiterate that data from the wetland delineations indicate that bogs are not the most prevalent wetland type. In fact, it appears that wetlands that require groundwater inputs: forested rich peatlands and poor fens are the most prevalent.	WE1,WE2
54	GLIFWC staff note that potentially impacted wetlands that are part of the 100 Mile Swamp were identified by the forest biologist in 1997 as “lacking ecosystem representation in protected areas.” (SNF 1997, January) Interest in protecting the unique character of these wetlands was based on their “watershed integrity, the presence of riverine ecosystems, and large amount of interior forest present.” This information was further substantiated in a report by the MNDNR titled “Evaluation of Selected Potential Candidate Research and Natural Resource Areas.” (SNF 1997, December) This document describes the 100 Mile Swamp wetlands as “these sites represent the highest quality remaining examples of characteristic ecosystems in each ecological Landtype Association on the Superior National Forest.” Tribal cooperating agencies take the position that this information must be included in the functional assessment for this project and included in the development of mitigation requirements for this project.	WE2,WE3
55	GLIFWC staff reiterate that the additional delineations needed for this project should occur for inclusion in a revised DEIS so that the public can review a complete set of potential impacts from the project.	WE1,WE2
56	GLIFWC staff believe that the large acreage of wetlands to be directly impacted and the high quality of the wetlands warrant a mitigation ratio of greater than 1.5:1	WE3
57	The DEIS does not identify sufficient wetland compensation for the impacts that have been identified. This omission is compounded by the likely underestimation of the acreage of wetlands that will be impacted. GLIFWC staff reiterate that the mitigation for the additional 475 wetland acres be identified in the DEIS. If this information is not available, impacts to these 475 acres must be considered as unmitigated impacts.	WE3
58	GLIFWC staff object to the unilateral editing of tribal position statements by the DNR in this section of the DEIS.	EOO
401	We want to keep our water clean in Buck Lake and all affected areas	G7
19615	The DEIS states that there is no current documented tribal use of resources in the area of the proposed project. GLIFWC staff stress that most band members do not report their harvest sites and therefore it is not surprising that no records are available. The DEIS should not assume that no tribal natural resource use has/is occurring. Army Corps consultation with potentially affected tribes had not been completed at the time of publication of this DEIS. Therefore, historic and current Tribal harvest has not been determined for either the Plant or Mine Sites. In addition, GLIFWC staff note that if species of tribal concern ‘relocated’ to other lands and these other lands were private lands, there would be a loss of opportunity to harvest.	WI3,CR2,CR4

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Comment ID	Comment Text	Theme Codes
19616	GLIFWC staff note that this list of impact criteria is incomplete. This section should also analyze the effects of the project on species harvested and gathered by tribal members on public lands. An example of the analysis that is missing from the DEIS, Recent studies from the MN DNR, the Natural Resources Research Institute at University of Minnesota-Duluth and Tribal natural resource management staff indicate that preservation of wetlands may be one of most important factors in maintaining the moose population in Northeast Minnesota (Attachment 9). The loss of moose habitat associated with this proposed project should have been assessed and the impacts to tribal harvest opportunities described. Finally, the Corps did not complete the consultation process with the potentially affected tribes prior to the release of the DEIS.	WI2,WI3,CR1,CR2,CR4
19617	GLIFWC staff reiterate that the conclusion that the effect on statewide lynx populations would be insignificant is not based on complete information. This analysis does not consider the possibility that the Mine Site might include critical components of lynx habitat present, such as den sites. In addition, the restoration of 'lynx habitat' described in the DEIS ignores the fact that good bobcat habitat will be created first. Bobcats are superior competitors to lynx and thus may prevent lynx from returning to the site.	WI1
19618	The DEIS states that no impacts to bald eagles are expected to occur. GLIFWC staff disagree with this conclusion because impacts to Bald Eagles could result from eagle feeding sites within or adjacent to the project area. Contaminants from the mine site, specifically mercury and heavy metals, could affect prey species thus having secondary impacts on eagle reproduction.	WI1
19619	In the impact discussions for lynx and wolf, the DEIS assumes that these animals would move to other suitable habitat in response to the disturbance at the mine site. This conclusion is overly simplistic and incorrect. GLIFWC staff maintain that displaced wildlife tend to suffer higher mortality just by having to leave familiar territory. This mortality is caused by a lack of knowledge of the new territory, lack of knowledge of the available food sources and competition with animals that are already occupying the area. A complete analysis of the effects of habitat loss on lynx and wolves is required for this project.	WI1
19620	GLIFWC staff note that the discussion regarding pit water quality is misleading. The DEIS states that water quality will improve over time. While technically true, the DEIS should note that pit water quality is expected to exceed standards for hundreds or thousands of years.	WR3C,WI2
19621	· Lack of demonstration of the effectiveness of the wetland treatment system given the expected water quality.	WR3L,WE6
19622	GLIFWC staff strongly disagree with the conclusions presented in the wetlands section. As detailed in comments and tribal positions for section 4.2, the methodology used to predict the acres of wetlands indirectly impacted by dewatering are not adequate to assess indirect wetland impacts. Therefore, any conclusions in this section that are derived from the flawed wetland analysis are invalid.	WI2,WE2
19623	GLIFWC staff reiterate that the loss of mature forest is a significant impact, and note that the activities on the mine site will prevent more forest acreage from reaching this mature community state, representing a nearly permanent loss of habitat.	WI2
19624	GLIFWC staff note that the Emmons and Oliver report (Attachment 10) provides a well researched and clear summary of the expected impacts to travel corridors. However, the DEIS provides greater weight to an analysis provided by the consultant for the applicant (Barr Engineering). GLIFWC staff concur with the Emmons and Oliver report in stating that Corridor 11 is currently a poor and obstructed corridor pending the long term success of a proposed revegetation corridor, and #12 will likely be degraded as a corridor by the Project. We agree with the Emmons and Oliver report that these impacts should be considered significant.	WI5
19625	GLIFWC staff reiterate that per Emmons & Oliver (Attachment 10), any new impacts to the existing wildlife migration corridors is by definition significant, and should require mitigation. For the entire time period (decades) of mine development and operation, Corridor 12 would experience a significant direct loss or fragmentation of wildife habitat, and impact the ability of many wildlife species to migrate throughout their ranges. Also, until the Section 106 consultation process between the USACOE and the tribes is complete, it is not possible to determine the potential impacts to treatyprotected wildlife.	WI3,WI5

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Comment ID	Comment Text	Theme Codes
19626	GLIFWC staff reiterate that noise contour maps should be developed for inclusion in this DEIS. Noise contour mapping would allow reviewers to assess the impacts of noise to all publicly accessible lands in the vicinity of the project which include large sections of the Superior National Forest immediately adjacent to the mine site (See figure 4.9-1). An assessment of noise impacts to all public access lands is important information for assessing cultural impacts to tribes with hunting, fishing and gathering rights in the 1854 ceded territory.	N1,CR2,CR4
19627	GLIFWC staff reiterate that this document does not estimate the potential degree of disturbance to tribal members who may be involved in traditional natural resource harvest harvests on national forest lands. The Corps had not completed the consultation process with the affected tribes prior to the release of the DEIS. Finally, the data included in this section does not permit a characterization of noise impacts to lands that tribal members can access in the vicinity of the proposed project.	N1,CR2,CR4
19628	The DEIS states that the continuous generation of noise at the Plant and Mine Sites would have an insignificant effect on the noise environment during mine operations, Closure, and Post Closure. GLIFWC staff reiterate that this document does not present enough information to make this claim.	N1
19629	GLIFWC staff do not believe that an adequate cumulative impact of noise impacts analysis has been done. Meeting ambient noise standards is a different question than assessing impacts. Impacts should be fully characterized in this document and contour maps showing overlapping noise pollution from different projects provided. Without this information, it is not possible for the public to review the cumulative impacts of noise. In addition, the cumulative impacts of mine related vibration have not been assessed.	N3
19629	GLIFWC reiterates that to fully describe the no action alternative, this section should include discussion of the remediation that would occur at the site under this alternative and it's compatibility with the MFRC Landscape Management Plan.	CPLU1
19629	GLIFWC staff note that the project depends on the successful completion of a land swap with the USFS. This land swap and the NEPA process required for it are clearly linked actions to this DEIS. The DNR should not proceed with this DEIS without fully exploring all issues related to the land exchange process.	PD8,CPLU4
19630	· Lack of incorporation of results of the mercury methylation study and an assessment of the adequacy of said study.	WR1E
19631	GLIFWC staff are concerned that this section does not provide a complete picture of mine related socioeconomic consequences. This section as a whole fails to acknowledge or account for any negative social impacts associated with the loss of natural features that will occur as a result of the Project. It also fails to adequately assess the economic and social impacts to local communities at and postclosure, or as a result of a temporary shutdown. The tribal cooperating agencies note that a recent report by Dr. Thomas Powers entitled "The Economic Role of Metal Mining in Minnesota: Past, Present, and Future," (Attachment 11) addresses some of the impacts that are inadequately addressed in the present draft and should be used in developing this section for the DEIS.	EOO,SE3
19631	GLIFWC staff reiterate that any impacts to natural resources will disproportionately affect tribes due to their subsistence consumption of wild rice, fish, and other wildlife within the 1854 Ceded Territory. We note that the Army Corps had not concluded the consultation process with the affected tribes prior to the release of this DEIS.	SE1

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Comment ID	Comment Text	Theme Codes
19632	GLIFWC staff reiterate that the use of a few visual receptors to assess PolyMet related visual impacts is not adequate. Using this method means that the conclusions presented in this chapter apply only to those visual receptors and do not apply to any other publicly accessible area in the vicinity of the proposed project. Tribal cooperating agencies have requested that a more complete Visual Impact Assessment (VIA) be developed for inclusion in this PDEIS (GLIFWC Comment letter of June 30, 2008 and GLIFWC comment letter of February 6, 2009). Methods for a complete VIA were developed and used for other mine proposals as part of the Army Corps federal EIS process (Crandon Mine EIS Preliminary Draft Technical Memorandum: Visual Resources Section of Draft Chapter 3, November 2002). Despite these comments and Corps precedent, a complete VIA has not been included in this iteration of the PDEIS. A complete VIA would allow the public to review the impacts of project features to all publicly accessible lands in the vicinity of the project which include large sections of the Superior National Forest immediately adjacent to the mine site (See figure 4.9-1). A VIA of all public access lands is important information for assessing cultural impacts to tribes who have retained the right to hunt, fish and gather on national forest lands.	VI1
19633	GLIFWC staff reiterate that the impact criteria are incomplete. The Army Corps had not completed consultation with potentially affected tribes prior to the release of the DEIS. Therefore, this document does not estimate the degree of disturbance to tribal members who may be involved in traditional natural resource harvest harvests on national forest lands.	CR2
19634	GLIFWC staff reiterate that a cumulative impact of visual impacts analysis is needed. A thorough VIA following past Army Corps practices has not been conducted for this project and tribal consultation regarding cultural impacts was not completed. Therefore, this conclusion is premature. Finally, the Tribal cooperating agency position is that the introduction of non-native, invasive species as a revegetation measure may have long-term visibility impacts to the site.	VI2
19635	GLIFWC staff strongly disagree with this approach and note that it is not consistent with the federal EIS process. The purpose of this document is to provide information for all reasonably foreseeable impacts. The lack of a stability analysis for the stockpiles is a serious data gap given the serious environmental consequences of a structural failure of a stockpile.	GT1
19636	GLIFWC staff reiterate that the structural stability of the tailings basin has been a serious concern since the Polymet project was first proposed. This concern has led to the development of at least 3 different tailings basin designs that have been presented in various draft documents. Contractors reviewing these designs have expressed serious concerns with both the short-term and the long-term stability of the facility. Given the history of design problems, a serious analysis of the structural integrity of the latest tailings basin design must not be postponed until the permitting stage. A complete stability analysis must be included in the DEIS to comply with NEPA and so that the public can review a complete set of possible environmental impacts associated with this project. The DEIS acknowledges that there are stability concerns related to the proposed tailings basin. The DEIS deals with this concern by postponing a serious stability analysis until the permitting process. GLIFWC staff strongly oppose this approach as it is not consistent with the federal EIS process. The hydrometallurgical residue facility would contain the most hazardous waste materials produced by this project that, if released to the environment, would cause serious and long lasting contamination. The unknowns listed in this section of the DEIS are a serious data gap and GLIFWC insists that the analysis should be conducted and included in the DEIS to comply with NEPA and so that the public can review a complete set of possible environmental impacts associated with this project.	GT1
19637	As previously stated, GLIFWC strongly disagrees with waiting to conduct a serious stability analysis until the permitting process. This approach is not consistent with the federal EIS process. The EIS must identify alternatives and mitigation methods that address potential problems with the project. Sufficient data must be collected so that a complete structural integrity analysis can be performed and included in the DEIS.	GT1
19637	As previously stated, GLIFWC strongly disagrees with waiting to conduct a serious stability analysis until the permitting process. The purpose of an EIS is to identify mitigation measures that address potential problems in the project. The analysis described in this section must be conducted prior to permitting and included in the DEIS.	GT1
19637	GLIFWC reiterates that the structural stability analysis must be conducted prior to permitting and included in the DEIS.	GT1

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Comment ID	Comment Text	Theme Codes
19639	GLIFWC staff strongly state that given the lack of confidence in the structural integrity of the tailings basin, the dam break analysis and risk assessment must be conducted prior to permitting and the results included in the DEIS so that the public can be fully informed about the risks associated with this project. This position is supported by the following comments that were provided by the DNR Dam safety section to the Pre Draft EIS (DNR comments are available on the DNR FTP site): "Dam safety is concerned that the DEIS pushes addressing potential environmental impacts into the permitting process because the chapter is vague about what the final plan will be and it seems that all potential mitigation measures are on the table. It would have been better to review a conservative design with safety measures possibly deleted during permitting than the current design that may require possible additional safety measures to be added during permitting. The permitting process should smoothly flow from the EIS, but this chapter does not address the environmental impacts of potential changes to the design during the permitting process or provide good guidance for the dam safety permitting process. It would seem difficult to determine the environmental impacts without knowing the final plan. We are concerned that the responsibility for addressing the potential environmental impacts of any changes to the design will fall on the dam safety permitting process." We agree with DNR technical staff and reiterate that stability analysis of the stockpiles and tailings basin are vitally important in the impact analysis for this project and must be performed prior to permitting.	GT1
19639	· Lack of tailings basin stability analysis.	GT2
19640	· Cumulative impacts to plant and animal species that are not listed as threatened or endangered. The focus of the EIS on listed species is understandable but other species that are important to tribal and non-tribal members would likely be impacted by mining projects. Moose, for example, are likely to be impacted through disturbance along the few wildlife corridors remaining along the Mesabi range and through wetland impacts of this project. At a time when moose populations in Minnesota are declining, this analysis is particularly important and should be done as part of this EIS.	WI5
19640	· Cumulative impacts to wild rice. Wild rice is a valuable tribal resource that has been declining throughout the 1854 ceded territory. Mine effluent is often associated with levels of sulfate that has impacted wild rice and hydrologic changes from pit dewatering and seepage from tailings basins can also impact wild rice, which is dependent upon a relatively stable hydrologic regime. The cumulative impacts to wild rice have not been assessed.	WR5C
19640	The Cumulative effects of noise and vibration. These issues have not been analyzed although they were raised by the public during scoping.	N3
19640	The Cumulative risk analysis of transportation of hazardous materials. This issue has not been analyzed.	HM3
19640	· Climate Change implications of the proposed project. The project would disturb extensive areas of peat (Section 4.2) Peat is known to be an important carbon sink. Wetlands in general are recognized as important carbon sinks and areas where wildlife will seek refuge as the climate warms. Changes in the frequency and intensity of precipitation events are expected to occur within the next 50 to 100 years. Increased severity of storm events and increased intensity of rainfall events have already altered the way in which municipal stormwater collection systems are designed. The tailings basin and stockpile designs, for which stability concerns remain, are designed assuming that the traditional climate normals still apply. This assumption is incorrect and further increases the likelyhood that these facilities will fail in time.	AQ3
19640	The Cumulative risk analysis of transportation of hazardous materials. This issue has not been analyzed.	HM3
19640	GLIFWC staff believe this analysis is overly simplistic and contains numerous flaws. In general a qualitative analysis is attempted but important factors are often omitted or left uncharacterized. Furthermore, the qualitative analysis is carried forward in the document even where data are available to conduct a more robust quantitative analysis.	G8

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Comment ID	Comment Text	Theme Codes
19643	GLIFWC staff reiterate that even though cumulative effects to groundwater, vegetation (other than threatened and endangered species), visual and noise effects, hazardous materials, and cultural resources weren't considered during the initial scoping period, they were identified later in the process and therefore should have been made a part of the cumulative impacts analysis and incorporated into the DEIS. As previously indicated, the scoping period for a federal EIS does not end until the issuance of the DEIS. These topics must be properly analyzed in order to comply with NEPA.	G9
19644	The spatial scale described for loss of wetlands in table 4.14-1 is too small to properly assess the cumulative impact to wetlands. Decades of taconite mining have destroyed thousands of acres of wetlands. These previous impacts by mining activity should be part of the cumulative impact analysis. In addition, the temporal scale is too short. The proposed project includes a number of components that will last for thousands of years. Therefore, the temporal scale for wetland impact analysis should also last for thousands of years. As previously stated for wetlands, the temporal scale of habitat fragmentation cumulative impact analysis should also last for thousands of years given the duration of post-mine treatment and maintenance needs.	WE5
19645	· Lack of stockpile stability analysis.	GT1
19646	The DEIS states that " The Project and future actions would add new mercury emitting sources; however, the implementation of mercury reducing legislation will cause a reduction in existing mercury emissions in the region. This reduction will serve to off-set the new mercury sources and result in a net decrease in mercury emissions. Therefore, there would be no cumulative impact to fish from mercury deposition and bioaccumulation." GLIFWC staff strongly disagrees with this conclusion. Section 4.1 describes the potential for increased mercury methylation associated with this project on the St. Louis River Watershed. The conclusion presented is speculative at best and is not based on quantitative methods.	WR5A,AQ4,AQ6A
19646	GLIFWC staff strongly disagree with the estimates of wetland loss and the potential impacts of that loss in table 4.14-2; see discussion in Section 4.2 for further detail. A cumulative impact assessment should be conducted after the flaws in the wetland section have been addressed.	WE2,WE5
19646	GLIFWC staff reiterate that the DEIS fails to adequately analyze cumulative impacts to either the Partridge or Embarrass Rivers. Cumulative impact analysis is hobbled by lack of baseline data. In Colby Lake, the community water supply for the city of Hoyt Lakes, aluminum, iron, copper, and mercury concentrations already exceed Minnesota Water Quality Standards ("WQS"). The existing large number of water-quality exceedances and the suite of constituents, particularly trace metals, exceeding WQS shows the site has not been remediated from previous mining activities. Additionally, amphibole or asbestos-like mineral fibers, known to cause digestive tract cancers in high concentrations, have been identified as existing pollutants in the Hoyt Lakes community water supply and their presence should be identified in the DEIS. Related cumulative-impacts issues such as groundwater drawdown or mounding due to multiple mine projects, water quality in aquifers impacted by previous and existing other mine projects, and surface waters such as the Partridge and Embarrass Rivers and Second Creek that are impacted by multiple mines need further analysis.	WR1E,WR5A,WR5C
19647	Regarding streamflow and water quality information presented in table 4.14-2. GLIFWC has commented extensively on the fatal flaws of section 4.1. GLIFWC staff strongly reiterate that there is no scientific basis for the conclusions presented in this cumulative impact section. This analysis should be done after adequate data has been collected and after a proper analysis has been done for section 4.1.	WR5A
19647	GLIFWC staff strongly object to the unilateral removal of tribal position statements submitted for this section by the DNR. Watershed GLIFWC staff strongly object to the unilateral removal of tribal position statements submitted for this section by the DNR. Hydrology GLIFWC staff reiterate that it is not possible to write a cumulative impact section because there is no credible data on the hydrologic impacts of this project.	G8C

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Comment ID	Comment Text	Theme Codes
19647	GLIFWC staff disagree with the conclusions in table 4.14-2 that impacts to wildlife corridors would be minimal. Regarding the cumulative impacts of mining on wildlife corridors, section 4.4.5.3 states “These impacts should be considered significant” . The significant nature of the impacts is clearly stated in the Emmons and Oliver report (Attachment 10). GLIFWC staff are concerned that the analysis in the report has not been carried forward to the cumulative impacts section.	WI5
19649	GLIFWC staff reiterate that this is not an adequate cumulative impact assessment for water quality impacts. An adequate cumulative impact analysis would have quantitatively assessed the impacts of the multiple projects in the Embarrass and Partridge River watersheds for all parameters and not just sulfate and mercury. Data are available for the existing and predicted water quality impacts of Mesabi Nugget Phase I and II, the existing water quality discharges of Laskin Energy, and the legacy water quality for pit lakes for the other projects in the watershed. Predicted air quality emissions from NorthMet and Mesabi Nugget Phase II have also been developed. None of these data appear to have been used in the cumulative impact analysis. The tribal cooperating agency position is that a complete cumulative impact analysis should be conducted.	WR5A
19650	In addition to the methodological flaws mentioned above, GLIFWC staff reiterate that factual errors remain in this section. This section states that the NorthMet project is expected to meet all water quality standards. GLIFWC staff disagree. Sulfate, mercury, and specific conductance are already being exceeded in both the Partridge and Embarrass Rivers. Aluminum is being exceeded in the portions of the Embarrass River below the old LTV tailings basin and area Pit 5NW, as stated in the Water Resources section. Colby Lake (the Hoyt Lakes community water supply) already has several constituents including aluminum, iron, copper, and mercury in concentrations that exceed Minnesota Water Quality Standards. The existing large number of water-quality exceedances and the suite of constituents, particularly trace metals, exceeding WQS shows the site has not been remediated from previous mining activities. Therefore, this Project will have a cumulative effect on the waters in Colby Lake, the Partridge River and the St. Louis River.	WR3I,WR5A
19652	· Lack of full analysis on the underground mining option (as required by the final scoping document).	PD1
19652	The Emmons and Oliver report on the cumulative impacts on travel corridors states that impacts are significant. This section also states that cumulative impacts are significant but then attempts to minimize that conclusion by stating that the NorthMet contribution to these impacts would not be significant. This last statement is irrelevant because it is the cumulative impact that is being discussed in this section. Furthermore, GLIFWC staff disagree with this final statement and we do not believe that it is supported by the available data	WI5
19653	GLIFWC staff reiterate that the Proposed Action has a number of serious flaws that must be addressed, both from the perspective of the substantive environmental impacts of the Proposed Action and from the perspective of presenting an adequate assessment of the potential impacts that the Project may cause. These include the likelihood of structural failure at the tailings facility, the lack of structural integrity information for the proposed stockpiles, and the need for perpetual water treatment and perpetual synthetic cover replacement to avoid contamination to surface and groundwater resources.	EOO
19654	GLIFWC staff reiterate that the tailings basin alternative is also seriously flawed due to the lack of accounting for the interaction between basin seepage and the existing tailings and the long-term water quality treatment that would be needed to prevent significant environmental impacts. The Permeable Reactive Barrier (PRB) that is proposed to be pilot tested during operations may require periodic recharging/replacement that would last for as long as water treatment is needed. The length of time that water treatment would be needed for tailings basin effluent has not been defined in this document but is likely to last centuries. In addition, it is likely that the proposed discharge of untreated tailings basin water to the Partridge River that is part of this alternative would further exacerbate water quality violations already occurring.	ALT4

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Comment ID	Comment Text	Theme Codes
19654	As previously stated, GLIFWC staff believe that the environmental impacts associated with the mine site alternative have not been adequately defined. It is not possible to completely evaluate the environmental impacts of this alternative to surface water, groundwater, or wetlands due to the lack of baseline water quantity and quality information, the lack of knowledge on groundwater flow and the lack of understanding of the interconnections of groundwater and the extensive wetland complexes in the area. What data is available for the mine site, suggests that water treatment would be needed for an unspecified period of time (likely centuries) in order to avoid contamination to the Partridge River. It is the position of the Tribal cooperating agencies that these serious data and knowledge gaps should have been addressed prior to the release of the DEIS.	ALT2
19655	GLIFWC staff believe that this section is flawed. The DEIS mentions in several areas that analysis vital to impact assessment will be postponed until the permitting process (closure plan, tailings basin stability analysis, etc.). This lack of information does not allow for the development of adequate mitigation measures. GLIFWC staff do not see how a complete list of mitigation, that address reasonable and foreseeable impacts can be developed if the impact characterization is incomplete.	ALT9
19656	GLIFWC staff object to the way in which monitoring is used in this DEIS. As previously stated, the DEIS does not include vital information needed for impact characterization. Instead, the DEIS proposed to substitute monitoring of the project for an analysis that can be included in the DEIS. For example, the complete extent of indirect wetland impacts have not been determined. The DEIS acknowledges that some indirect wetland impacts will occur in addition to those impact identified in the document. The DEIS states that a wetland monitoring system will be used to detect impacts after the project is underway. This method is not acceptable to GLIFWC and does not meet the intent of NEPA.	ALT5
19657	This section states that monitoring program for the project operations and closure is included in RS 52. RS 52 is the applicants closure plan that was extensively reviewed and determined to be inadequate by state and tribal technical staff. In addition, RS 52 was produced in 2007 and there have been numerous changes to the project, including new tailings basin designs, new alternatives and new mitigation measures. There have also been changes to the proposed monitoring and it is unlikely that the original closure plans are valid. Finally, vital monitoring information regarding indirect impacts to wetlands are still being developed by the Corps. These plans should be finalized and included in the DEIS.	PRO3
19658	GLIFWC staff reiterate that the existing rail cars would spill ore along the length of the rail line the replacement of outdated rail cars should be added to the mitigation measure table.	ALT5
19659	· Lack of demonstration of the technical feasibility of the 95% capture efficiency required for the tailings basin alternative.	PD3
19659	· Lack of demonstration of a mechanism for the addition of Polymet tailings to cause ground and surface water quality improvements in the Embarrass River watershed.	WR1E
19659	The DEIS does not adequately asses the impacts of the proposed project to surface and groundwater quantity and quality. The analysis in the DEIS is based on faulty assumptions and inadequate data. The DEIS relies on professional judgment in areas where empirical data are needed to properly assess impacts. Finally, the DEIS does not characterize existing contamination of groundwater, surface water, and wetlands surrounding the existing LTV tailings basin. Without characterizing baseline contamination, it is not possible to properly assess future impacts and mitigation needs. The fatal flaws in section 4.1 are detailed below.	WR1E

Sender Last Name: Tammons **Submission ID:** 1187

1302	Considering that this project will mine less than 1% copper, I believe that the waste, destruction, and pollution that this will cause is not worth the price we must pay. Wetlands will be destroyed (6700 acres) in our Superior National Forest is another negative regarding. Will our future generations be thanking us for what we let you (Polymet) do to our water, streams, lakes, and wetlands. Please think about this and say no to Polymet.	EOO,G7B,G7C

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Tarnow **Submission ID:** 2730	
3180	We need to make sure our water and air are protected, so before we give anyone permission to do anything, it needs careful evaluation.	G2B,G7
Sender Last Name:	Tepp **Submission ID:** 2303	
2745	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. It is disheartening that companies can continue to abuse our natural resources for the benefit of a few. Please stop this now!	EOO
Sender Last Name:	Terwilliger **Submission ID:** 3631	
3913	Thank you for your work on behalf of the Polyment DEIS. I have read quite a bit of it and have paid special attention to the issue of water quality. I have a graduate degree in biology which includes work in both liminology and geology, so the DEIS is comprehensible for me. The site for waste rock appears to be designed adequately for the relatively short term and for most probable situations. The long-term however, appears to be not the case. The decades following the likely active life of this mine are the most threatening in the DEIS: the volumes of rock wil be greatest, the surface area exposure will be greatest. All materials will be at or near the limits of their containments, and he mine company will have lost the incentive to comply with regulations. I herby request that you consider "over-engineering" the site for this phase of the mines life; it's when we who live here and our children, will have the most to lose.	EOO
Sender Last Name:	Teselahl **Submission ID:** 3373	
3663	I think the proposals to mine this beautiful area of wilderness is absurd. This is an area that people from all over the world come to enjoy and get away from every day life. Mining this structure is not worth the reward or [illegible] of this area. Destroying the Boundary Waters area for this project would be very unethical. A solution needs to be proposed to protect this area from the devastation and loss that mining would cause this great place.	G2,G11
Sender Last Name:	Tessneer **Submission ID:** 2197	
412	Has there been adequate public input on this issue? No. The public comment period needs to be extended until at least March, more hearings need to be planned in order to get an accurate perspective of public input.	PRO6
413	pollution. We must extend the public comment period so that Minnesotans have the opportunity to weigh in on mining proposals that will hurt Minnesota's great outdoors. Thank you.	PRO6
2006	Is there any way to ensure that the pollution will be cleaned up? No. At this point any cleanup would be the responsibility of the State, paid for by the taxpayers, and in the past has cost tens of millions of dollars.	PD3,PD4
2007	Taking all of this into consideration, we must require that the mining companies proposing projects that I will negatively impact Minnesota's environment prove that they have financial resources to clean up waste and	PD3,PD4
2604	Are there precautions to be taken to protect the environment? The mining company says yes. The technology is too new to have any guaranteed effect.	G6

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Comment ID	Comment Text	Theme Codes
2605	Has this type of mining been done safely elsewhere? The mining company again will say yes, but 89 percent of the mines that have said that they would not pollute actually have.	G6

Sender Last Name: Tewes **Submission ID:** 314

328	I am writing to you today to show my strong support for PolyMet Mining's NorthMet Project in Hoyt Lakes, Minnesota. I am an Architect in the Duluth, Minnesota, and the spin-off jobs from this mining operation will bring needed construction that would require Architecture and Engineering Services. I attended an American Institute of Architects (AlA) conference in Minneapolis last week and I heard sobering news from my colleagues. The architects in Minnesota are at an unheard of unemployment rate of 40-50% (a quote from the AIA-MN Executive Vice President). If you include architects at reduced hours this number could be as high as 54%. The work by PolyMet would provide new design opportunities for Architects in Northern Minnesota, and ease these troubling unemployment statistics. Our firm seeks to benefit directly from this work in that we have been contracted by PolyMet to provide Architectural Services in the form of code analyses on a number of existing buildings at the PolyMet site. We have not had a chance to start this work because we are waiting the results of the $20 million, 5-year EIS. Once this process is complete, we will be able to begin work on our portion of the site in Hoyt Lakes. Beyond my firm 's direct contractual obligations with PolyMet, this work will mean jobs for my colleagues ranging from the design of new business buildings, updating existing buildings, designing housing and upgrading/new school buildings. PolyMet has shown due diligence in preparing the EIS. It is a complete, clear and concise document that definitively shows that PolyMet will protect the air, water and land of the Hoyt Lakes region. Thank you for taking the time to read my letter of support for the PolyMet Mining's NorthMet Project. I believe that this work will provide a huge economic impact to Minnesota, the Minnesota Arrowhead region and Architectural/Engineering firms in Northern Minnesota.	EOO,G6

Sender Last Name: Thastin **Submission ID:** 1129

104	I request that a public hearing be scheduled for Duluth as it is the largest population center near and shares a watershed of the proposed mine area.	G10
105	I request that the comment period be extended to 180 days, the existing comment period is inadequate for professionals much less the general public.	PRO6
1237	I oppose the Polymet/Northmet project due to a high risk of serious environmental damage that may be impossible to control.	EOO

Sender Last Name: Thell **Submission ID:** 1636

2059	Thank you for taking the time to read these concerns that everyone is sending. The Boundary Waters are not just a wilderness land, but an escape. They are there to remind people of what was here before humans.It is a peaceful retreat that brings people together. The Boundary Waters is a symbol of teamwork and unity because without that people could not survive. Polluting the Boundary Waters just shows that humans cannot keep anything pure. Efforts to try to clean the Boundary Waters will arise, but the Boundary Waters will never be the same. It will have the essence of being touched by man. The escape will not be a full escape.	EOO,G7B,G11

Sender Last Name: Therbjornseu **Submission ID:** 1146

1258	400 jobs for 20 years is not worth permanent environmental damage.	EOO

Sender Last Name: Thieret **Submission ID:** 3251

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3144	I support the no-action alternative in the EIS. The mining should NOT be allowed to proceed. I do not believe it can proceed without adverse affects to water and air quality. This is an area too close to the BWCA to tamper with in such an extreme way.	EOO
Sender Last Name:	Thomas **Submission ID:** 1200	
1315	I have been coming to the BWCA since 1971. I am a high school teacher and I regularly bring students to the BWCA for a week-long canoe trip. I am concerned that allowing open pit mining will contaminate the water of a large area of Minnesota, causing permanent damage. I strongly oppose allowing PolyMet Mining to proceed with their proposed mine.	EOO,G7B,G11
3187	I'm a conservative and support economic development in our state. I am also a sportsman and boater. I attended the PolyMet/DNR meeting Dec 10 in Blaine. It was clear to me by the bus-loads of union people there are folks needing jobs and it's natural they support this project. I came away from that meeting with many more questions than answers. There's a finite timeframe this mine will be useful. What happens to the land and water after PolyMet has their profits? What assurance do we have this technique is safe in the long-term? Don't screw up a treasure like the Boundary Waters Canoe Area because some Canadian company wants to make money or because we've got people on the iron range that need jobs.	EOO,G1,G2,G4
Sender Last Name:	Thomason **Submission ID:** 2920	
3254	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. For what will only be about 20 years of mining operations generations of possible natural destruction is too high of a price.	EOO
Sender Last Name:	Thomey **Submission ID:** 1322	
1543	Very concerned of the environmental imput. We are cabin owners on Laolette Lake. It angers me to see how blindsided [illegble] can be. The potential for environmental disaster is great while polymet will be generating a small number of jobs. I realize this is a desparate economic [illegible]- time to move on people. Healthy vs. wealthy	G11
Sender Last Name:	Thomme **Submission ID:** 3553	
3816	Just recently I learned of the proposed PolyMet Mine in the Superior National Forest. As a landowner in that area and a citizen concerned with the environment and the impact of our activities on fish and wildlife I urge you to look very closely at the potential impact of this mine. Based on information I received from the Izaak Walton League I have particular concern related to the following issues:	G2C,G15
Sender Last Name:	Thompson **Submission ID:** 341	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
365	After review of the NorthMet EIS, I believe that a major positive impact should be a domestic source of strategic precious metals. Based on USGS statistics, 90 percent of palladium consumed in the US is imported, primarily from Russia and South Africa. Canada has one PGM mine source. The United States has two small PGM mines, both in Montana. Most of the remaining ten percent was recycled from originally imported sources. Based on 2005 USGS data, there are no Nickel producing mines in the US, even though there were 221,000 metric tons of nickel consumed in the United States. At least 55 percent of the world's production came from third world or emerging markets. Some of the major producers are countries that do not have the best interest of the United States in mind, such as Venezuela, ndonesia, Cuba and Russia. I will let you decide the environmental considerations that the major PGM and nickel mining countries have when it comes to the mining and refining of these products. A major positive impact should be a domestic source of strategic precious metals. It is an issue of national security.	G1
366	Furthermore, I believe that the primary objective of not all, but many of the environmental groups is to eliminate mining in the United States. Civilization cannot survive without mining.	EOO
397	It is my understanding that PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials - but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project.	GT2
661	Concerning impacts on water quality, I understand that the water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. This is unacceptable to me. It is unreasonable to expect that mining companies will be able to maintain water treatment facilities for that amount oftime and it is an unfair burden to pass on to future generations of Minnesotans who will inevitably be left to pay for these operations. Additionally, it will be all but impossible to calculate sufficient financial assurance for a mining operation that is going to require such long-term care. In fact, a possible "mining moratorium law" such as in Wisconsin should be considered.	PD2,PD4
704	In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes.	EOO,WR4B,FM1
1248	Clean water for our future please…	G7B
1597	lam writing to you as a citizen of Minnesota concerned about the'PolyMet NorthMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forest. Please accept these comments on PolyMet's Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	EOO,G10
3467	While all of us are concerned about the economy and the needs for jobs for Minnesotans, relaxing environmental standards to meet a short term goal is not wise in the long term. Minnesota's natural resources are one of its prizes, and the priority we Minnesotans give to protecting our natural areas is something that makes our quality of life the envy of so many. Please do not approve licensing to PolyMet, or any other company with a like project, unless it cam be proven safe, as Wisconsin has insisted.	EOO,G1,G2
3708	Furthermore, the continued operation of Polymet or other companies involved is not guaranteed. It is paramount that money be paid up front to pay for correcting any pollution or accidents that may occur and for clean up, restoration and environmental maintenance when the mine closes. This money should stay with the mine in case the mines ownership changes.	PD4
3709	There should be on going testing of air and water quality by a third independent party near the mining site. If there is any pollution exceeding federal or state regulations, remediation should be immediate or the mining process terminated. Timetables should be established with fines being given on a daily basis for foot dragging.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3783	I am currently of Madison, Wisconsin, but I plan to return to Minnesota to live within the next 5 years. With many fond memories and hope for future expeditions, I am very distressed by the environmental threats posed by potential new mining operations up in Superior National Forest so close to the BWCAW. Such mining has a shown history of destruction, and only after a thorough evaluation and approval by the public should the public's lands and natural heritage be put at risk. Everyone who stands to lose should have a voice	EOO,G11
3791	I believe more needs to be done to determine the total carbon footprint of this mining project to assure there won't be an increase in CO2 emissions for the region. Consideration needs to be given to needs to be made for electricity needed to mine and process ore, transporting ore and other materials into and out of the mining/processing site, destruction of forest, bog and wetland areas that currently take CO2 from the atmosphere and any other potential carbon emissions that could occur because of activities of the mining operation and/or other businesses that could develop to compliment the activities of Polymet.	G2B,G8
3893	I enclose a copy of my brochure my husband and I and my 3 part time workers have worked very hard for over 10 years to make this a sustainable business in northern minnesota. It is not compatible with H2SO4 mine drainage into our Laurentian Divide water courses and wetlands. Most businesses which have been built up even for generations in this region wil not thrive with the mine drainages, noise, particulates in the air, and even "ambience" of Cu-Ni mining. If Cu-Ni mining is allowed in this area you will be exchanging established jobs in tourism with sustainability and built-up good will over a long period if time, for the "premise" of jobs which will suffer every recession in the same downward curve as iron mines. Is my buisiness/job of so much less value that the "premise" of some cu-ni mining job?	G11

Sender Last Name: Thorbjornsen **Submission ID:** 194

8	It is my understanding that PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials – but that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in longlasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project.	GT2
13	Concerning impacts on water quality, I understand that the water leaching from waste rock piles at the site is expected to exceed water quality standards for up to 2,000 years. This is unacceptable to me. It is unreasonable to expect that mining companies will be able to maintain water treatment facilities for that amount of time and it is an unfair burden to pass on to future generations of Minnesotans who will inevitably be left to pay for these operations. Additionally, it will be all but impossible to calculate sufficient financial assurance for a mining operation that is going to require such long-term care.	PD2,PD4
18	In addition, the DEIS predicts contaminated waters to be discharged from the mine site into the Partridge River after the mine's closure, as well as tailing's basin discharges high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes.	EOO,FM1
190	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	EOO
191	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers.	EOO

Sender Last Name: Tillman **Submission ID:** 3226

3555	I and my household are in favor of Polymet mining in Minnesota. The nation and the world are using the metals that will be mined. Polymet has shown to me that they can process and contain any hazards. The metals will be processed else where in the world at much greater polution and it will travel to us. With all the new technology available today, Polymet has our blessing to start mining as soon as possible. Thank You	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3894	In have reviewed the Draft EIS for the Polymet Project and am in total support of the project. I believe they have a plan that will produce a good resource for our Country, and will not jeapordize the natural resources while doing it. This will be a great use of the former LTV site, and will bring much-needed jobs to the area.	EOO
Sender Last Name:	Tindall **Submission ID:** 3155	
3532	I have heard quite a bit of uproar about the impact of this project on the St. Louis River, and the questionable history of the people proposing this project. I hope the DNR does the necessary work to ensure that this project is environmentally safe should it pass. Mike	G6,G7
Sender Last Name:	Tinglv **Submission ID:** 2151	
2555	As a Minnesota native, I appreciate the many lakes rivers and streams that makes our state beautiful and attractive to visitors. Protecting these resources is more valualbe than the jobs that minning would create. Please carefully consider the long term affects of this project	G7
Sender Last Name:	Tomassoni **Submission ID:** 34	
31	I've got 35 years in the mining industry, and mining has taken a quantum leap since I started working back in 1974. Companies today employ employees not only to be good workers but also to become safety professionals, quality inspectors, and environmental stewards in our business. Employees receive extensive training in the environment. And I just feel strongly that PolyMet is a great project for Northeastern Minnesota and, with training, that people will become good environmental stewards and will make PolyMet a company that will set benchmark standards for other companies.	EOO
367	I am writing in full support of the Polymet Mining Project for Northeastern Minnesota! After being in the mining business for 35 years, I've seen many major and positive changes in the mining business. By far the top three improvements have been in the safety, quality and environmental fields! A business can no longer remain profitable (and in business) if these goals and values are not in line with all governmental rules and regulations. Being in the mining business at both Minntac and Keetac, United States Steel Leadership drove these values to each and everyone of us! Our top management team which included former USS employees, Joe Scipioni, Jim Swearingen, Paul Brunfelt, Jim Teiberg, Dave Draves and Latisha Giezten are now working at the Polymet and lead our team to run a very successful and environmental friendly business! They lead our team not because they were told to do so, but because they truly cared about the area and the people that call this area our home! Doing the right thing, being safe, having a quality product and being a great environmental steward were goals that these people held close to their hearts and minds! Some people in the state and from around the country are trying to drive fear, false information and the idea of uncontrolled pollution into uninformed minds. With the help of the State of Minnesota's mining and environmental permits along with federal and state guidance, the dedicated Polymet management team (along with its future 400 plus employees and countless vendors) will do the right thing and make Polymet a reality! A reality that I know in my heart and soul will be a flagship and a trend setting operation that will be used to bench mark other operations not only in the state, but in the rest of the country! We badly need these jobs in northeastern Minnesota now! We need these precious metals to strengthen and build our country now! I know the Polymet team will deliver on these promises to us in a safe and environmentally responsible manner! I also hope that the State of Minnesota and the U.S. Army Corp of Engineers will help Polymet succeed by giving its full support! I support the Polymet Mining Project 110 percent and hope that you will approve this project and help get our country working again! Together we can help the State of Minnesota and the United States diversify its economy and become a leader in a new precious metal mining business!	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1163	This .email is show my support for the Polymetmining project for northeastern.MN near Aurora. Simply said, northeastern MN needs jobs I Good paying jobs to support our area, to help 'our economy and local schoo,ls. We have been hard hit and ,mining is truly in our blood. I know from friends and family that Polymet is a well run with ahanest hard working 'group of local people that care about our areal With the help of the MPCA, Army Corp of Engineers and the EPA, Polymet will keep our waters and air clean! We live in a very modern and progessive time, Polymet will follow the' rules and with government oversite: it wilf help make sure that all the rules are followed and that our area will be safe and that we will continue to enjoy what God has given us in Northeastern MN. In closing, I again want to say that I fully support the potymet project and hope that we can make this a success story and to help the people of northemeastern Minnesota and the State of Mi'nnesota as well.	EOO

Sender Last Name: Tomassonia **Submission ID:** 1020

1120	I am writing in full support of the Polymet Mining Project for Northeastern Minnesota! After being in the mining business for 35 years, I've seen many positive changes in the mining business. By far the top three improvements have been in the safety, quality and environmental fields! A business can no longer remain . profitable (and in business) if these goals and values are not in line with all governmental rules and regulations. Being in the mining business at both Minntac and Keetac, United States Steel Leadership drove these values to each and everyone of us! Our top management team which included former USS employees, Joe Scipioni, Jim Swearingen, Paul Brunfelt, Jim Teiberg, Dave Draves and Latisha Giezten are now working at the Polymet, lead our team to run a very successful and environmental friendly business! They lead our team not because they were told to do so, but because they truly cared about the area and the people that call this area our home! Doing the right thing, being safe, having a quality product and being a great environmental steward were goals that these people held close to their hearts and minds! Some people in the state and from around the country are trying to drive fear, false information and the idea of uncontrolled pollution into uninformed minds. With the help of the State of Minnesota's mining and environmental permits along with federal and state guidance, the dedicated Polymet management team (along with its future 400 plus employees and countless vendors) will do the right thing and make Polymet a reality! A reality that I know in my heart and soul will be a flagship and a trend setting operation that will be used to bench mark other operations not only in the state, but in the rest of the country! We badly need these jobs in northeastern Minnesota now! We need these precious metals to strengthen and build our country now! I know the Polymet team will deliver on these promises to us in a safe and environmentally responsible manner! I also hope that the State of Minnesota will help Polymet succeed by giving its full support! I support the Polymet Mining Project 110 percent and hope that you will approve this project and help get Minnesota working again! Together we can help the State of Minnesota diversify its economy and become a leader in a new precious metal mining business!	EOO

Sender Last Name: Tomassonia et. al. **Submission ID:** 1017

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1117	We appreciate the opportunity to participate in the public comment process on the Draft Environmental Impact Statement (DEIS) for PolyMet Mining Company and to add our voices to the thousands of Minnesotans who want to create jobs and produce metals that we all use every day and protect oUf environment for future generations. PolyMet Mining Company offers the State of Minnesota a win-win-win opportunity that we cannot afford to pass up. PolyMet is an economic win. It will create jobs at a time when the unemployment rate is more than 7% and as hig!J as 14% in some cities on the Iron Range. During construction, PolyMet will require 1.5 million hours oflabor so skilled workers will be on the job and not on the bench. Once fully operational, PolyMet will provide jobs to more than 400 workers at good salaries that families can live on. In St.Louis County alone, the spinoff jobs are anticipated to be more than 500. PolyMet also will generate millions of dollars in state, local and federal taxes each year. PolyMet is a strategic win. The copper, nickel, platinum, palladium, gold and cobalt that PolyMet will produce are essential to our way oflife. They are found in electrical wiring, hybrid cars, wind turbines, stainless steel, jet engines, cell phones, computers, blood sugar test strips, artificial joints, catalytic converters and a myriad of other products, but the United States imports from 40% to 90% of these metals. We import them from countries that don't follow our stringent environmental laws, that subject miners to unsafe working conditions and that contribute to the global pool of pollution circulating in our atmosphere. Then, we contribute to greenhouse gas emissions by shipping them to another Country for processing before we ship them to the U.S. And PolyMet wins by demonstrating environmental safety - not only because it is more environmentally sound than importing metals but also because PolyMet has shown that it will operate in a way that protects our air, our water and our land. The DEIS is an impressive review of the project and all its potential impacts -- along with alternatives that make it even better than originally proposed. The DEIS documents the many steps the company will take to operate in an environmentally sound manner -- from being a minor source of air emissions to the exhaustive waste rock stockpile management efforts. When mining ceases, fmancial assurance will be available to pay for closure if, for some reason, PolyMet is unable to do so. As elected officials representing the Iron Range, we are confident that after more than four years of Poly Met working with scientists and biologists and spending upwards of $20 million, that the DEIS is covering all the bases. The products that will be mined are extensively usedin our society. The data shows, a safe mining operation, one that has the controls to address the environmental concerns. We want mining to take place in Minnesota, where we know that the regulations are stringent and that regulators are tough on enforcement. We want mining to take place in Minnesota so that we can call upon our long tradition of mining excellence and show the world how nonferrous mining can be done the right way. Finally, we want it done in Minnesota so our country has its own supply of precious metals and will not have to rely on foreign dictators or polluting countries to make the products our green economy will .' . need to be successful The DEIS should receive an adequacy determination. Permitting on this win-win-win project should begin immediately.	EOO

Sender Last Name: Tomonowich **Submission ID:** 3616

3895	Yes, after mining t his country for over a hundred years other streams, rivers, mountains and lakes are in [illegible] shape. Compare this with the other half of the globe and you have concerns that are a hundred times greater then any risk we will take wih mining. Our mining companies are environmentally sound. At this point in time they have strong saftey regulations and environmetal concerns. As far as I know there is nothing to keep the environmentalists from going to the other parts of the globe to clean up the environent in mining and heath issues.	EOO

Sender Last Name: Tomsich **Submission ID:** 3717

1	Because there is much more to indicate these projects will be pursued to environmental review,65 permitting, and likely construction, the exclusion of these three sulfide-metal mine projects, among others, from cumulative effects analysis is a major failing, and it must be corrected during the DEIS's revision.	WI5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1	Accurate and up-to-date lynx mortality numbers and locations must be included in the DEIS revision. An estimation of undetected lynx mortalities, in absolute numbers or in relationship to confirmed mortalities, must be included in the DEIS revision, along with a direct discussion of the data, assumptions, reasoning, and supporting scientific analysis underpinning an expanded treatment of lynx mortality.	WI1
1	As already discussed, the DEIS omits available and reliable data showing that at least one lynx, L11, has occupied the Project Area.60 It may have been for a day, a week, or longer, depending upon the frequency with which locations were determined for L11.	WI1
1	In addition, the DEIS fails to discuss when, i.e., at what point in the lynx-hare population cycle, the 2006 winter tracking survey was conducted. The winter 2006 survey of the Project area may have occurred at or near a low in the Canada lynx population cycle. Because lynx populations cycle, an accurate determination of lynx usage should not be based on surveys conducted during a population low, but rather when lynx populations are high, or possibly in the first winter postpeak. The matter of timing in the lynx population cycle should be addressed in the DEIS revision.	WI1
1	These three sulfide-metal projects must be considered along with the Project, in analyzing the Project's cumulative effects on wildlife. Specifically, the three sulfide-metal mining projects would widen the Mesabi Iron Range substantially in the vicinity of Polymet and Teck Cominco, and would lengthen the Mesabi Iron Range to the northeast by approximately 10 miles. The cumulative effects on lynx movement would include significantly more impairment in an area where there are a lot of lynx being detected. The 115-mile long Mesabi Iron Range would be lengthened by nearly 9%, and significantly more designated lynx critical habitat would be destroyed. More habitat would be adversely modified in a permanent way, and still additional habitat would experience adverse effects lasting many decades.	WI5
1	These failings in the DEIS must be addressed by incorporating and considering the significance of all existing lynx location information, including at a minimum the confirmed lynx scat sample location data now being collected by the U.S. Forest Service,59 and lynx location data collected by the Canada Lynx Project during its east-side lynx capture-collar-track study.	WI1
1	The NorthMet DEIS inadequately describes the wind direction and conditions at the Project site. The NorthMet DEIS, Volume II, provides a wind rose for Hibbing, Minnesota, implicitly suggesting that the Hibbing wind rose is relevant to determining wind conditions at the Project site. More detailed wind roses for two other locations - Ely and Virginia-Eveleth - are readily available but were omitted from the DEIS.	AQ4
1	Ely and Virginia-Eveleth are nearer to, and bracket, the Project site. Their wind roses also differ from the wind rose for Hibbing. First, the Hibbing wind rose is an annualized wind rose, meaning that a single diagram depicts the entire year's averaged winds.66 The Ely and Virginia-Eveleth wind roses present monthly wind rose data.67	AQ4
2	Moreover, in order to be capable of providing more definitive conclusions about lynx presence and use of the Project area, the DEIS should have included winter lynx tracking data from several consecutive years, but it did not. The DEIS states that it is based on the 2006 winter tracking survey, and other general wildlife summer surveys. Summer surveys are not of value in determining lynx presence or absence. The fact that summer surveys at the Project area in 2000 and 2005 detected no lynx carries no probative value in answering whether lynx were present in the Project area at the time, because it is far rarer to sight an uncollared lynx in the summer than it is to encounter lynx tracks left in the snow. Any conclusions about lynx presence or absence based on summer habitat studies are suspect for lack of data.61 For that reason, any suggestion of reliance on summer wildlife surveys to conclude that lynx were not present in the Project area at the time, should be qualified accordingly or deleted in the DEIS revision.	WI1

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2	Second, the Hibbing wind rose provided in the DEIS indicates that winds from the northwest and from the southeast predominate; southwest winds are far less common in Hibbing. This is significant, because it is southwest winds that are far more likely to blow pollution into the Boundary Waters Canoe Area Wilderness (BWCAW). In comparison, it is evident from looking at the wind roses for Virginia- Eveleth and for Ely that during many months of the year, southwesterly winds are among the most common. June, July, August, and September, when southwesterly winds are most common in Ely and in Virginia-Eveleth, are also the months when visitors to Minnesota's Class I areas (the BWCAW and Voyageurs National Park) is at its highest. In other words, from the perspective of human enjoyment and perception, the Project may be sending more of its pollution more often into the BWCAW than the DEIS reflects. It is not clear, from reading the appropriate sections of the DEIS, whether predictions of haze and visibility impacts from the Project on the Class I areas, were based on the wind data from Hibbing.	AQ4,AQ8
3	The DEIS should have included site-specific wind data, and the absence of that data is a meaningful flaw and could easily have been avoided. The DEIS must include better wind rose data, preferably from the processing plant and mine sites within the Project area. The DEIS should explain exactly how the Hibbing wind rose data was used, and must re-do whatever work incorporated the Hibbing data, using the Ely and Virginia-Eveleth data if site-specific data is not collected.	AQ4
3	The DEIS contains no recommended mitigations for the Project's negative effects on lynx, other than post-closure mine site reclamation.62 The DEIS should have included mitigation measures that eliminate or minimize adverse effects on lynx. The mitigations for lynx suggested in this comment would also mitigate the Project's effects on other wildlife known to move through the Project area including, among others, wolf, moose, and herpetofauna.	WI1
4	DNR and ACE have not provided a sufficient basis or explanation for being unable to estimate financial assurance requirements associated with reclamation. If the adequate "detailed level of design" is not available for financial assurance purposes, how is it available for determining the extent of significant environmental impacts of the project, whether during operation or following operation? The DEIS offers no reasonable distinction between the amount of design detail required for financial assurance and the amount of design detail to evaluate the project's environmental impacts. If PolyMet has not yet offered a level of design detail to allow the agencies to evaluate end-of-life impacts, reclamation and financial assurance, then it also have not offered a level of design detail to allow the agencies to adequately evaluate the project's significant environmental effects.	PD3,PD4
4	The Forest Service specifically noted that emissions from the NorthMet Project over the course of each year are anticipated to cause a 10% change in light extinction for one day and a 5% change in light extinction for 36 days as compared to natural background.71 The significance of the Project's contribution to visibility impairment in the BWCAW can be illustrated from the fact that the Haze SIP recognizes that a significant contribution to visibility impairment from an entire state equals a contribution over five percent. The fact that the NorthMet Project, by itself, is anticipated to cause a 10% change in light extinction for one day and 5% change in light extinction for 36 days as compared to natural background conditions is significant when considering that a five percent contribution towards visibility impairment from an entire state is considered significant by the MPCA.	AQ6
4	It is particularly troubling that the preliminary closure cost estimate summary which was included in the NorthMet DEIS fails to include projected costs for long-term water treatment. The NorthMet DEIS includes the following preliminary closure cost estimate summary, indicating that "[t]he costs provided were primarily intended only to provide an indication of the scale of the task and therefore were very rough estimates."8 [See table in comment document] Notably, this preliminary closure cost contains no mention of the costs of long-term water treatment upon closure. The information included in the Closure Cost Estimate Summary misleads the public and creates the appearance that closure costs will be significantly less by leaving out the closure cost for what the EPA has identified as one of the most significant environmental issues associated with the NorthMet Project. The failure of this cost estimate to include costs associated with long-term water treatment leaves out what promises to be the most significant cost associated with the closure of the NorthMet Project.	PD3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
4	Post-closure reclamation will neither bring back the permanently-destroyed habitat, nor make up for the three- to four-decade-long, up-front loss of reclaimable habitat. Post-closure reclamation also cannot compensate for the degraded condition of reclaimed land compared to the original habitat condition, pre-mining. But other mitigation strategies and opportunities exist and should have been explored. For example, in addition to post-closure reclamation at the Project area, the DEIS could and should have considered requiring PolyMet to begin immediate reclamation and revegetation on old mining areas that were never appropriately reclaimed and revegetated. Areas could be selected for reclamation and revegetation, so as to improve and expand existing wildlife corridors through the Mesabi Iron Range. Starting large-scale reclamation and revegetation in wildlife corridors beyond the Project area, concurrently with mining operations in the Project area, would likely improve (to some extent) habitat conditions for lynx in half the time required for post-closure reclamation.	WI4
4	Another example of mitigation that could have been considered is the purchase and retirement of conservation easements on lands adjacent to the north and south of wildlife corridors. Simple land management changes designed to benefit lynx and snowshoe hare could yield improvements in the value and function of wildlife corridors, simply by revegetating and creating larger blocks of core habitat connected to the corridors.	WI4
4	The DEIS should provide additional documentation to justify the elimination of these mitigation measures from consideration. Specifically, the DEIS indicates that the use of waste heat from the autoclaves to assist in the space heating requirements could ultimately achieve a 65% reduction in the overall NOx emissions. However, the DEIS eliminates this mitigation measure from consideration, “due to concerns over possible changes to the Project water balance,”75 without providing any information or supporting documentation regarding these concerns to allow the public to weigh the potential benefits to air quality in relation to the changes to water balance. Considering the significant reductions in NOX emissions which could be achieved through the use of waste heat from the autoclaves for interior work space heating requirements, the DEIS should provide additional documentation to support the elimination of this mitigation measure from consideration.	AQ5
5	A second category of negative effects on lynx is the increase in expected lynx mortality resulting from the Project. The 4,000 miles of daily vehicle traffic between the mine site and processing plant site will make wildlife corridors ## 11 and 12 more deadly to lynx. The Project area is an area that currently experiences very little traffic, particularly in the corridor between the processing plant site and the proposed mine site. Increased rail and road traffic in that corridor will increase expected lynx-vehicle collisions and mortalities.63	WI1,WI5
5	To mitigate the on-site effects – increased chances of lynx-vehicle collisions and mortalities – the DEIS should have considered requiring the Project proponent to remodel the haul road and railroad line, so as to install bridges and wildlife underpasses in likely places, like stream valleys and vegetative funnels. In conjunction with the bridges and over/underpasses, wing-fencing (a.k.a. “drift” fencing) must be installed, inspected, and maintained so as to funnel wildlife to the safe crossing areas. Due to the funneling of wildlife to certain crossing areas, trapping on the property would have to be prohibited for as long as the road and/or rail corridor remain in use. When the Project is closed and reclaimed, the road and rail corridor should be obliterated and the fencing removed.	WI1
5	The proposed reductions in emissions included in the Haze SIP fail to meet the visibility goals of the Regional Haze Rule. Addition of new sources prior to a determination that visibility goals can be achieved, should not be permitted.	AQ6
5	The NorthMet DEIS does not adequately explain how the goals of the Regional Haze Rule will be met, notwithstanding the additional emissions from the NorthMet Project. The NorthMet DEIS needs to include an analysis and explanation of how the goals of the Regional Haze Rule will be met if the Project is built.	AQ4,AQ6
5	Further, the DEIS indicates, “that discussions are currently in progress with PolyMet, MPCA, and the FLMs to evaluate additional potential control measures that may be applicable to the Project,” that, “mitigation options exist that are being considered and could be evaluated in the Final EIS,” and that, “[t]he investigation is expected to be completed during the permitting process with MPCA and the FLMs.”76 Information regarding additional mitigation measures that could be used to improve visibility conditions in the BWCAW and other Class I areas should be provided, to allow the public an opportunity to review and comment on mitigation measures which could help Minnesota achieve the visibility goals of the Regional Haze Rule.	AQ5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
5	Mitigation measures should include, but not be limited to, actions that improve habitat post-closure, inside the Project area. If mitigation consists only of actions within the Project area, then the mitigation will come too late in time to be as effective as is possible. The mine will operate for 20 years, after which another 10, 20, or more years will be needed before vegetation re-growth may yield lynx-friendly habitat on the less-productive mined landscape.	WI4
6	The NorthMet DEIS failed to include an analysis of the cumulative impacts of all reasonably foreseeable activities on visibility in Minnesota Class I areas. Specifically, for example, the NorthMet DEIS failed to include an analysis of cumulative impacts on visibility from hardrock mineral exploration in the Superior National Forest, and entirely omitted the three additional sulfide-metal mines that are currently in advanced stages of exploration and development, in the assessment of cumulative impacts on visibility. The cumulative impact from these activities should be included in the NorthMet DEIS.	AQ4B
6	As noted elsewhere in this comment letter, the DEIS fails to include any discussion about three reasonably foreseeable, likely to be developed, sulfide-metal mines, among other projects. Infra, pp. 59-63. The DEIS cumulative effects review, consequently, fails to include these projects in its cumulative effects analysis.	WI5

Sender Last Name: Tondra **Submission ID:** 1168

1283	I do not want this project to be approved. There would be severe damage to the environment.	EOO

Sender Last Name: Topel **Submission ID:** 188

180	I support PolyMet mining North Met Project. At this present time of 15% unemployment in the area, Polymet will significantly contribute to the State and Local economy when we really need jobs and economic benefits. Based on the extensive documentation as outlined in the DEIS, I am confident that impacts to the air and water will be minimal, if any. The EIS should be clearer; PolyMet is not in the Boundary Waters watershed. Mining these metals in one country, processing them in another and then transporting them to the U.S. creates unnecessary greenhouse gas emissions. I represent two hundred seventy two members of the International Brotherhood of Electrical Workers that live and work and play in Northern Minnesota.	EOO
3898	To whom it may concern my name is Travis Topel and I am a laid of union electrician out of local 292 Minneapolis, mn. I also was raised and graduated from Hibbing High School on the Iron Range. I have lived in the twin cities metro for about three and a half years now, but I still manage to travel home to see family and friends. Even though I live a ways away from this area of where this project is going to be built it will still impact me in many ways if the project proceeds. A direct way it will impact me is that I will probably be able to get back to work so I can make a good honest living to pay for my house. Many other ways it will impact me is that the economy with start to thrive again for the area so my family and friends can also find jobs to pay for things. Plus with the new people moving into town to work at the plant after it is up in running the town “where I grew up at” will start to grow again and put kids back in the schools so they will stay open. On an environmental note I do not see where this is going to cause a problem with the environment. We have the technology in the world today to properly excavate and build a clean efficient running facility that should meet or exceed the EPA regulations. PolyMet has already shown this by wanting to use an existing site and renovating the facility that is already there. They have done extensive research to show there wanting ability to build a great facility and still keep a clean environment for the northeast area of Minnesota. The even better thing about the facility being built here in Minnesota is that it will provide domestic minerals for the United States. Which in return will hopefully help more of the United States economical problem get better. I believe that if you do not let this facility proceed that it could mean even greater loss for Minnesota families and friends with that lack of a good economy with good paying jobs, which none of us want in these hard times.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Torgrimson **Submission ID:** 1196	
1311	I'm very concerned about the proposed PolyMet mine in northern Minnesota, particularly about water contamination and threat to eco-tourism economy. Minnesota waters should not be polluted with heavy metals and sulfates, especially not waters protected as wilderness & essential to our quality of life as Minnesotans. Water from waste rock piles will be polluted for up to 2000 years, and we can't expect mining co's, to be responsible for water treatment & clean-up. Taxpayers, no doubt, will bear the brunt of this debt & loss of our water quality.	G7A,G7B,G11
Sender Last Name:	Tracy **Submission ID:** 3275	
3582	I understand that copper sulfide mining is being considered in our bioregion. I?m just writing to say what a wonderful idea this is for the long term future of the economy, especially when considering the health of our natural resources that future generations will depend on. I think it?s great that large multi-national corporations (that have no interest in the long term well being of the area) would turn a huge short term profit (moving natural wealth out of the area) by extracting large amounts of natural resources. I?m sure the future generations will appreciate both the clean up costs and environmental impacts they will have to deal with. Pardon my sarcasm. Looking at the environmental and economical track records of large mining operations makes it obvious that allowing this mine would be a bad decision overall for the long term interests in our region. I have also looked into the particulars of this specific type of mining and I am very concerned with Polymet?s plan. Thank you for hearing my concerns.	EOO,G1,G2
Sender Last Name:	Trehus **Submission ID:** 2734	
3182	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. The impacted area is one of my favorite vacation areas. I can't believe that such a toxic enterprise is even being considered anywhere in Minnesota, let alone such a beautiful portion of the state. Even if there were no associated health risks, to allow such environmental degradation in this area not only robs tax-paying citizens and future generations of the opportunity to enjoy the high-level natural resources currently present, it will also impact the local tourism industry, mitigating any financial benefits from the proposed mining activities. However, the health risks cannot be understated, both to humans, flora, and fauna. We should follow the lead of the State of Wisconsin and ban this type of mining. Please deny this proposed mine.	EOO,G2C,G7,G11,G12
Sender Last Name:	Trentlage **Submission ID:** 160	
151	I just want to say: Is it worth 40 years of jobs to pollute the environment forever? That's all I want to say. I'm sorry. It's not. To me it's not worth 40 years of working to pollute the Great Lakes with the salt, with the run-off down the St. Louis River ultimately to get into the Boundary Waters. It's not worth it to me. And I have financial interests in the area.	EOO,G7
Sender Last Name:	Trepka **Submission ID:** 1368	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1600	I am writing to you as a citizen of Minnesota concerned about the PolyMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forest. Clean water is the most valuable resource that Minnesota has. Future wars will probably be fought over water rather than oil. As a chemistry major and long time chemistry teacher, I know how difficult it is to control even small simple reactions in the lab. If you think back on your lab experiences, you will concur. To believe that massive reactions with extremely heterogeneous materials can be controlled is wishful thinking. Sulfide mining would be new to Minnesota. In other locations, sulfide mining has resulted in acid mine drainage causing extensive and expensive damage to water quality and the environment. Often, taxpayers have been stuck with the costs. Please think long term. Before this sulfide mining project is even considered for permits, please fill these gaps:	G2A,G4A
Sender Last Name:	Triebenbach **Submission ID:** 1435	
1674	As a lifelong Minnesotan, I've come to enjoy the bountious unspoiled natural settings that our state has to offer. This mining plan as currently presented poses serious and dangerous impact to the environment and everyones enjoyment of our great outdoors. I understand the value of the metals that are the goal of this mine, and I am sure I benefit from their use everyday. This does not outweigh in my mind the value of our clean water and fish populations. We are the caretakers of this earth, and I see it as our duty to not create scars on it that it cannot heal in our own lifetime or even the lifetimes of our children and grandchildren. Please take all measures necessary to ensure that this plan does not go forward without proper measures in place to ensure the safety of the water, wildlife and all nature surrounding the area.	G2C,G7B
Sender Last Name:	Trullinger **Submission ID:** 271	
285	I am a resident of Hibbing, MN and am in support of the PolyMet / NorthMet project. I have briefly read through portions of the draft EIS, and have followed some of the news coverage of the project. I realize this is a complicated issue that requires thoughtful consideration of societal and economic benefits weighed against the environmental consequences. It seems to me like the planned environmental impacts are mitigated and very small in comparison to the benefits of the project. I realize that mining is a dirty business, but PolyMet seems to have an environmental plan in place to mine these ores in a more environmentally friendly manor that almost any other similar mine in the world.	G2
Sender Last Name:	Tuff **Submission ID:** 1896	
2468	Northern Minnesota provides a unique environment for people to enjoy and for wildlife. Please protect it from unsafe mining.	G2
Sender Last Name:	Turk **Submission ID:** 3313	
3606	This project cannot go forward. This action will affect generations to come and we will loose the beauty of Northern MN.	EOO
Sender Last Name:	Turner **Submission ID:** 373	
416	e. The DEIS did not adequately characterize the potential for possible contaminants from the closed mine and tailings basin to reach the Partridge River and Embarrass Rivers through the groundwater flow systems. There was no consideration of possible migration of contaminants in bedrock under the Partridge River or Embarrass River or whether the river constitutes a no-flow boundary for anything but the surficial materials. I recommend that DNR do appropriate field studies to show whether both rivers hydraulically connect to bedrock aquifers beneath it, and whether groundwater flow paths move under the river in the bedrock.	WR2A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
416	d. The DEIS did not adequately address the degree to which groundwater and associated potential contaminants might leak from the tailings basin because of uncertainties in material properties of the porous media along the flow path and other assumptions used. Here, the tailings pond has been in place through prior operations for decades. I recommend that DNR obtain direct measurements of head and water chemistry either by GeoProbe or piezometer nests downgradient and perpendicular from the existing basin to provide ground truth with respect to the degree that leakage and solute transport may occur, including possible approximation of probable retardation rates for metals.	WR2C
Sender Last Name:	Tuura **Submission ID:** 2187	
2593	CHAD TUURA: I am for PolyMet. I believe it will bring a lot of good for the communities that surround it; good for the state, for the economy. I believe that it's going to bring a lot of jobs and hopefully make good for many years to come. Hopefully I could get a job there, possibly, you know. I feel that PolyMet has made all the right choices and done the right steps to hopefully make this whole project happen. Environmentally, I think they are doing a good job. They are doing better than years past, plants and stuff. I don't know. I think it would be really good for the State of Minnesota.	G1
Sender Last Name:	Tweed **Submission ID:** 3688	
1	The DEIS, as currently written, is inadequate by the standards of NEPA and must be significantly improved if a responsible accounting of the environmental impacts of the proposed project is to be developed. The following general comments detail several fatal flaws of this DEIS.	G8

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2	Baseline. The baseline data for both the mine site and the tailings basin are sparse. A comparison of hydrologic data that was collected for two other projects in the region (GLIFWC letter to Jon Ahlness and Stuart Arkley, February 6, 2009, Attachment #1) demonstrates that the PolyMet project is datapoor in the area of basic hydrology. The use of flow data on the Partridge River from a site twenty years and seventeen miles distant from the proposed project does not provide sufficient information to allow a adequate assessment of the hydrologic and environmental impacts of the project on the Partridge River. The lack of groundwater level data in the surficial aquifer and in the bedrock, except in the immediate vicinity of the mine pits, does not allow for a full or complete characterization of the watertable or the potentiometric surface in the bedrock or the surficial aquifer. The current bedrock groundwater model calibration to shallow wetland pizometers cannot be justified. The lack of groundwater level data at the tailings area except in the immediate area of the tailings piles prevents any characterization of water tables, potentiometric surfaces, and groundwater flow in the surrounding wetlands and uplands. The dramatic scarcity of hydrologic data for the PolyMet project, both at the mine site and at the site of the tailings basins has been repeatedly recognized by hydrologists at technical meetings. Limited data collection to fill in the data gaps has recently been conducted and in general has not been incorporated into the DEIS's hydrologic analysis of the mine or plant site. Analysis. Hydrologic characterization using MODFLOW models was done for the immediate area of the mine pit and the tailings pile only. There are no groundwater models that were designed to characterize the watertables, the potentiometric surface in the aquifers, fluxes to rivers and streams or to predict impacts to the water tables or surface waters. The MODFLOW groundwater model at the tailings area is restricted to the tailings pile and cannot be used to characterize groundwater flow direction, the watertables, the potentiometric surface in the aquifers, fluxes to rivers and streams or to predict mounding impacts to the water tables or surface waters. Data driven models need to be developed and these impacts need to be predicted and evaluated. The view that mine pit dewatering impacts will be very limited or non-existent (Adams, John and Michael Liljegren. 2009 “Additional PolyMet peatland data / information.” email communication to Stuart Arkley. February 1, 2009) is based on the assumption that there is little or no connection between the bedrock and surficial aquifers (GLIFWC 2009, Memorandum to Jon Ahlness and Stuart Arkley: Photographic evidence for pit impacts to wetland hydrology. April 24, 2009, Attachment #2). However, the scant data that does exist characterizing mine site hydrology suggests that there may be substantial connection between the bedrock and surficial aquifers. Such a connection would mean that dewatering of the mine pits could cause significant drawdown of the watertable in the surficial aquifer. Data presented in technical document RS02 indicates that ammonia can be found in deep boreholes. Section 3.3 Analytical Results, Pg.10 of RS02 states: "The water sample from boring 05-407M exceeded the criteria for ammonia (1,900 ug/l)”; and goes on to state, “The sample from boring 05-401M exceeded criteria for ammonia (610 ug/l)."; and “Water quality criteria were exceeded for ammonia, aluminum, copper, and silver in both boreholes.”; and concluded that, “The presence of ammonia in the deep boreholes may indicate that the water in the borehole came from the shallow surficial deposits. Ammonia is not typically found in deep bedrock systems but is common in wetland environments." Similarly, technical document RS10 concludes: “The presence of ammonia nitrogen in the samples likely indicates that there is a hydraulic connection bet	WR2A
3	As previously stated, financial assurance can and should be discussed in the draft EIS.	ALT8

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3	PolyMet project would use some of the degraded areas of the old LTV site to develop the mine plant site and re-use the tailings basin. Groundwater contamination from the previous mining activities is still an issue near the LTV tailings basin more than twenty years after operations ceased. Because of the limited distribution of monitoring wells, the extent of the contaminant plume is not known. However, recent well data show that the plume extends in some areas at least as far as private wells along the Embarrass River. In the wells that do exist near the tailings basin, pollutants including iron, sulfate, manganese, aluminum, and fluoride exceeded drinking water standards. Recent wells near the northern property line show substantial contamination of the groundwater aquifer (Barr 2009, Memorandum: Results of Tailings Basin Hydrogeological Investigation. June 2, 2009, Attachment #3). The baseline data on which to base estimates of the impact of the proposed project on water quality at the mine site and the tailings basins is insufficient. The existing analysis for the PolyMet project calculates the additional constituents that the project will add to groundwater but is unable to realistically estimate what the resulting water quality will be because background water quality has not been incorporated into the estimates. Private domestic wells lie between the tailings basin and the Embarrass River where tailings basin discharge water is expected to ultimately discharge. Some of the sampled private wells have contaminants at levels several times the drinking water standard (Results of residential well sampling north of LTVSMC tailings basin. January 27, 2009, Attachment #4) Samples from these wells show exceedances of manganese and close to exceedances of the arsenic standard. Once a groundwater flow model is developed that would show the direction and rate of groundwater flow, that pattern of flow should be used to plan a groundwater sampling scheme that would map the extent of the existing contaminant plume. This data and analysis should then feed into estimates of how the proposed project would interact with existing contamination. The combination of existing conditions with impacts due to the proposed project would show what groundwater quality can be expected during and post project. Surface water quality at the project has been poorly characterized or left uncharacterized. The limited data that exist suggest that surface waters are already adversely impacted by mining activity. Mercury, sulfate and specific conductance have exceeded Minnesota surface water criteria in surface water samples collected near the tailings basin proposed for use by PolyMet, at nearby Area Pit 5, and mercury exceeds surface water criteria in the Partridge River downstream of Colby Lake. However, no water samples have been collected from lakes near the tailings basin (Hiekkilla, Mud, Kaunonen, or Hay Lakes) to determine if the pollutants found in the surface and groundwater at the existing tailings pile have caused contamination of those waterbodies. Contaminant transport modeling suggests that the PolyMet project will cause manganese, aluminum and sulfate to exceed standards. Proposals to collect data and monitor groundwater appear to have stalled. These would allow for identification of potentially significant groundwater and surface water impacts.	WR1E
4	This section should clearly state that under the proposed project, the wastewater treatment facility and pumping stations will need to operate for hundreds or thousands of years to avoid contamination to the Partridge River. This statement is a simple part of describing the project (i.e. length of time the project will last) and must be included.	PD5
4	This section should describe expected leakage rates as well as the long-term effectiveness of both the liner and cover systems. Given that the applicant has not proposed any long-term maintenance of these systems, these parameters should be described in this section and taken into account in section of the EIS that predict long term surface and ground water quality. This information is a simple part of describing the project (i.e. length of time the cover systems are expected to last) and must be included. Furthermore, table 3.1-9 is misleading. It indicates that the stockpile duration is permanent, while that is true, the liner systems on which the integrity of the stockpile and the water quality of the stockpile effluent depend are not permanent. The EIS should not selectively omit pieces of information. The life expectancy of the liner and cover systems must be included, regardless of the fact that such information may put the project in a negative light.	PD4

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
5	GLIFWC staff disagree that the amount of ore that could escape from rail cars would be "small." Taconite pellets currently litter the railroad right-of-way between the plant site and the proposed mine site, confirming that spillage from rail cars does occur (attached Figure 1). Second, fugitive dust escaping through these gaps is also a concern. Given the duration of this proposed project and the large quantity of materials to be moved, approximately 228 million tons of ore and 394 million tons of waste rock, there will be tracking, dusting, and spillage of material that has been demonstrated to leach contaminants when exposed to air and water. Even a loss of only one thousandth of one percent (0.001%) of the extracted material to tracking, dusting or spillage would result in 6,220 tons of fine leachable material being released into the environment. Our experience with a much smaller, shorter duration, sulfide mine in Wisconsin (Flambeau Mine) indicates that tracking and dusting of ore and waste rock, even at a level that is unnoticed during operations, can result in soil and runoff contamination that exceeds standards. Transport of ore between mine site and processing plant will be done by rail using the rail cars previously used by LTV. These cars are not sealed and will readily spill a fraction of the approximately 228 million tons of ore they are transporting. Attached are pictures of the cars proposed for transporting the sulfide ore (attached Figures 2 and 3). The rail line between the mine and the processing plant is approximately 8 miles long, 1 mile of which is over wetlands, and crosses over at least 3 creeks. The current proposal to use existing rail cars for ore haulage raises concerns about impacts to biotic endpoints along the rail corridor. Given the design and current condition of the rail cars proposed for transport an ecologically significant amount of spillage could occur into these streams, wetlands and their watersheds. Because transport will deposit some level of ore and ore dust along the rail line, methods for control of contaminated runoff from along the rail line must be developed and implemented in the mine plan. During the operation of the mine, ore dust from haul trucks and from haul roads and waste rock dust from trucks and stockpiles will escape into the adjacent wetlands and uplands. All lands within the mine site and in a buffer around the mine site can be expected to receive metal contamination from dusting and tracking. All waters collected from within the perimeter of the mine site should be considered contact water and retained until treated or until the water is tested to demonstrate that the water has not been exposed to mine derived contaminants . Within the footprint of the proposed mine, good baseline data on the chemical characteristics of runoff must be collected prior to mining so that changes in runoff water chemistry can be detected. The DEIS states that rail maintenance crews can collect spilled debris along the rail track. The material of significant concern would be too small to pick up. GLIFWC staff are unsure how ore debris can be visually distinguished by rail track maintenance crews from other rocks and ore that litter the embankments. In addition, spillage of fine ore pieces and dust (the most leachable sizes) into the wetlands and creeks that are located along the rail line could not be easily identified and recovered. It is reasonable to assume that some acid drainage and metal leaching would occur along the waterbodies located along the rail line. GLIFWC staff do not believe that the method described in the DEIS to segregate fines in the center of the rail car is practical. In addition, DNR technical staff commented on this approach in a previous version of the DEIS (December 2009)" "Spillage of fines has occurred at other mine sites through gaps in railcars. The mitigation method proposed by PolyMet includes a plan to place fines in the center of the railcar, with the	PD5
5	GLIFWC staff object to the unilateral removal of the tribal position statement for section 3.1.4 by the DNR. We reiterate that the section should state the Polymet will assume responsibility for these legacy contamination issues if it is granted operating permits for its proposal.	PD2
6	GLIFWC staff object to the unilateral removal of the tribal position statement for section 3.1.5.3 by the DNR. We reiterate that this section should describe expected leakage rates during operations as well as the long-term effectiveness of the liner system. Given that the applicant has not proposed any longterm maintenance of this system, these parameters should be described in this section and taken into account in sections of the EIS that predict long term surface and ground water quality. In addition, this section should describe expected leakage rates during operations as well as the longterm effectiveness of the cover system. Given that the applicant has not proposed any long-term maintenance of this system, these parameters should be described in this section and taken into account in sections of the EIS that predict long-term surface and ground water quality.	PD7

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
6	GLIFWC staff object to the unilateral removal of the tribal position statement for section 3.1.7 by the DNR. We reiterate that the existing Closure Plan is insufficient to allow an adequate assessment of post-closure impacts and does not comply with NEPA requirements. The Proposed Action has changed significantly since the development of the Closure Plan, and additional detail is needed to appropriately inform post closure impacts, since those impacts depend on the specific plans and methods used to close the mine. For example, the conclusions of the West Pit Lake Uncertainty Analysis (DEIS page 4.1-84) state that "As indicated in Table 4.1-45, some of the waste rock stockpiles have the potential to leach solutes to groundwater for long periods (i.e., at least 2000 years), so these effects would be significant." In order to adequately assess the environmental impacts of the Proposed Action, additional detail on the specific environmental impacts of this leachate and information about the remediation activities that would be needed to avoid damage to surrounding waters should be included in the Closure Plan.	PD7
7	GLIFWC staff object to the unilateral removal of the tribal position statement for section 3.1.7.2 by the DNR. We reiterate that this section should acknowledge that the pit lake will remain at the site in perpetuity and will exceed water quality standards, and should discuss its status as a “water of the state.” This section should describe the long-term effectiveness of the geosynthetic membrane that is proposed to cover the Virginia formation rock wall. Given that the applicant has not proposed any long-term maintenance of this system, expected long-term leaching rates should be described in this section and taken into account in sections of the EIS that predict long term surface and ground water quality. This section should list the potentially significant environmental impacts of a stockpile failure, a slope stability analysis must be performed and included in the DEIS. For more information, see section 4.13 of this document.	PD2,PD3
8	The DEIS does not include a preferred alternative. This omission creates serious problems because development of financial assurance and closure information become more difficult. We believe that at this point in the project, there are no permittable alternatives in the DEIS. It is possible that a permittable project could emerge with the incorporation of several of the identified mitigation options, however, the environmental impacts of the various measures have not been fully characterized and therefore the DEIS is inadequate.	PD1,PD3,CR1

Sender Last Name: Tyler **Submission ID:** 3689

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19670	GLIFWC staff object to the unilateral editing of the tribal position statement for section 3.1.7.3. The positions included in the DEIS are not what the tribes submitted and were modified without our consent. We reiterate that in order to adequately assess post closure impacts, this section should estimate the length of time that seepage collection would be required at the tailings basin. The pumping and water treatment activities described in this section would have to be conducted in perpetuity, and the cover and liner would require perpetual maintenance. This perpetual maintenance requirement is a basic descriptive fact of the project and should be included in this section. The cover and revegetation paragraph in this section should indicate that the applicant has not demonstrated that vegetation can be sustained without perpetual inspection and maintenance of the vegetative cover. This data gap should be addressed in this section of the DEIS. This section indicates that ponded water from the top of the hydrometallurgical residue facility and drainage from the bottom of the facility would be collected and transported to the WWTF for treatment and discharge to the wetland treatment system. This section should state that the WWTF may need to operate for an extended period of time (hundreds of years) and the feasibility of this has not been determined. Furthermore, DNR technical staff and GLIFWC staff have repeatedly indicated to DNR managers that the ability of the treatment wetland to treat water in the long term is in doubt and no analysis of the effectiveness of the treatment wetland has been provided. Finally, it should be indicated that the pumping of drainage from the bottom of the hydrometallurgical facility cells would be required in perpetuity to avoid a “bathtub effect” in the cell which would lead to a catastrophic failure of the cell. These issues are basic descriptive facts about the project and should be included in this section. The Cover and Surface Runoff Control paragraph indicates that the turf cover would need to be mowed “once a year”. The section should note that this would need to occur in perpetuity in order to permanently inhibit tree growth. This is necessary in order to prevent root damage to the cover system. The DEIS should discuss the feasibility of this plan. Finally, the section of cost estimate indicates that the complete amount of financial assurance for this project “cannot be estimated until these actions are understood at a deeper level of design detail”. While this may be sufficient for the state process, it is inadequate in the view of the USEPA, as described above.	PD2,PD5,PD6
19671	GLIFWC staff object to the unilateral editing of the tribal position statement for section 3.1.7.3. The positions included in the DEIS are not what the tribes submitted and were modified without our consent. We reiterate that the applicant has not demonstrated the effectiveness of the secondary wetland treatment system. In addition, the section should note that the long term impacts of the project and the potential need for post closure activities would continue for hundreds or thousands of years. The applicant and the DNR have not addressed how this very long term maintenance plan meets the stated goal of Minnesota’s reclamation statute.	PD2
19672	GLIFWC staff disagree with the assumption that the proposed project would only result in social and economic benefits. The environmental impacts of the project on the 100 Mile Swamp, an undisturbed and very high quality wetland complex, would constitute a social impact. Furthermore, economic development that is not centered on heavy industry (tourism for example) would be adversely impacted by the project. At the end of the project life, there would also be negative economic impacts as the surrounding communities deal with the loss of primary employment and economic revenue streams that were dependent on the Project. It is important that the DNR present a balanced picture of the impacts of this project. A one-sided presentation of social and economic impacts does not fulfill the need for full disclosure in a DEIS.	PD3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19672	Section 3.2.3 is misleading to the reader because it omits several important facts. First, the section indicates that 95% of Polymet tailings water would be captured. However, this 95% number is only true if one ignores the existing tailings water seepage. This seepage, which violates groundwater quality standards and which Polymet would assume responsibility for if permits are granted, has already contaminated the groundwater and wetlands between the tailings basin and the Embarrass River. The section should explicitly state that existing discharges from the basin are not included in the 95% number and therefore, contamination north of the tailings basin will continue into the foreseeable future. GLIFWC staff believe that water treatment of the discharge would be required to comply with the Clean Water Act and the wild rice water quality standard. GLIFWC staff are skeptical of the accuracy of the predicted 95% water capture efficiency. Information presented by Barr Engineering (PolyMet consultant) for capture efficiency at the Minntac tailings basin, which is also a taconite tailings basin of similar design as the LTV basin, stated that 59% was the maximum possible water capture efficiency. Minntac (USS) is currently proposing a seepage capture system with an estimated 40% capture efficiency because of excessive cost and infeasibility of the 59% efficient design. GLIFWC staff note that 95% is the capture efficiency that would needed to occur to prevent sulfate from entering the high risk methylation area north of the tailings basin. However, GLIFWC staff are not aware of any study that demonstrates that the 95% capture efficiency is technically feasible. This demonstration should be performed and included in the DEIS. Finally, GLIFWC staff believe that Figure 3.2-2 is incorrect. The extent of the wells evaluated by Barr Engineering (Polymet's consultant) for the tailings basin alternative only extends along the north of cell 2E. Figure 3.2-2 is instructive in that it shows the extent of capture wells that are needed to deal with historic sulfate discharges from cell 2W as well as 2E. This is the extent that should be proposed by PolyMet. GLIFWC staff note that although they participated in the identification of potential mitigation measures for the tailings basin, they did not participate in the development of the tailings basin mitigation design. In addition, it is the position of the tribal cooperators that an untreated discharge of contaminated tailings basin water to the Partridge River in order to dilute and dispose of tailings basin water would have environmental impacts that must be avoided in order to adequately protect the environment and meet water quality standards. GLIFWC staff are also concerned about project dependence on the testing of the Permeable Reactive Barrier. This type of treatment has not proven effective at treating sulfate in tests conducted at the MINNTAC taconite mine (Table 3.2-3) The effectiveness of such treatment is very speculative at this time and we believe that the “periodic recharging” of the barrier would need to occur in perpetuity. GLIFWC staff disagree with the rationale for eliminating the underground mining alternative presented in Table 3.2-4. We reiterate that this alternative was eliminated prematurely and without sufficient consideration. Staff note that analysis of unquantified environmental impacts, values, and amenities have not been evaluated as required by CEQ regulations. A study of this particular deposit was performed by U.S. Steel. At that time they recommended underground mining. In addition, this site is identified as an underground project in Figure 37 of the Siegel and Ericson Copper Nickel Study. By examining cross-sections showing the distribution of ore by depth (Figure 4.1-2), it appears that there are substantial ore reserves at depths that likely could not be accessed by the proposed open-pit mine . The ecological costs of open-pit mining and above-ground dispo	PD5,G1
19672	As previously indicated, GLIFWC disagrees with the rationale used to eliminate underground mining as an alternative.	PD5
19674	The assumption that the wetlands in the area are perched and receive no groundwater inflow is based on incidental observation and the analysis of aerial photography, which is by its nature imprecise (Adams, John and Micheal Liljegren. 2009 “Additional PolyMet peatland data / information.” email communication to Stuart Arkley. February 1, 2009, Attachment #2). GLIFWC notes that, contrary to Figure 4.3-1, the wetland delineation conducted by Polymet (RS14, 2006), indicates the presence of several hundred acres of cedar swamps and tamarack wetlands. These vegetation types, by definition, rely on an influx of groundwater to support them. In addition the wetland delineation does not encompass all wetlands that are likely to be affected by the project. Because no initial determination of the projects area of influence (AOI) on wetlands was made, the site field surveys of wetland and other vegetation was limited to little more than the area within the project fence. The existing characterization of wetland and other vegetation does not cover even one-half the area that might reasonably be expected to be impacted by secondary impacts of the mine due to disruption of the existing hydrology. Around the tailings basin virtually no wetland delineation has taken place although wetland impacts from inundation are likely to occur.	WR2I,WE1,WE2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19675	GLIFWC has repeatedly commented to the lead agencies on the problems with the available aquifer tests and we reiterate that any conclusions based on the existing aquifer test data have a great deal of uncertainty given the variability in the results.	WR2A

Sender Last Name: Ukuemn **Submission ID:** 1048

1151	[comment is the link to a website - see submission text.]	G15

Sender Last Name: Ulland **Submission ID:** 343

368	Thank you for the opportunity to provide my opinion and comment on PolyMet Mining Company's draft environmental impact statement currently under public review. As a geologist who spent much of his career exploring and assessing the Duluth Complex, I am well acquainted with the potential this deposit holds and the cautions that must be employed should the ore body be mined. I am pleased that PolyMet has taken the unique challenges of sulfide mining into account, as documented in the draft environmental impact statement. In general, my greatest concern for the environment when mining a sulfide ore body is the potential to create acid mine drainage when the sulfide in the ore reacts with oxygen and water; this is of particular concern with stockpiles. PolyMet clearly is cognizant of this potential and has proposed a rigorous and robust system of controls to manage its waste rock stockpiles, as well as other portions of its operation. For example, PolyMet has characterized its ore body thoroughly and will manage waste rock according to its potential to generate acid mine drainage. Stock piles will have liners and sturdy, engineered foundations with a drainage systems built to collect any water that percolates through the stockpiles during operations. When mining is complete, plans call for covers designed according to the waste rock's potential to generate acid; these covers, which ultimately will be vegetated, will minimize the water that is able to come into contact with the waste rock. Additionally, PolyMet will use the sulfide in the ore as fuel in its hydrometallurgical processing – maximizing the use of the ore extracted from the ground and minimizing the use of greenhouse gas-producing fuels. As a geologist, I have had the opportunity to examine how mining practices are conducted in other parts of the country and the globe. Frankly, Minnesota's environmental protection requirements are the most stringent I've seen, and I am confident that state and federal regulators will help ensure that PolyMet conducts its operations in an environmentally sound manner that protects our natural resources. I use the minerals that PolyMet will mine and process—as does every person in Minnesota. I prefer to "buy local" when it comes to my minerals whenever possible – from mines that will be overseen by regulatory authorities I trust to protect the environment. I do not share the same confidence in regulatory authorities in other jurisdictions. While mining and processing ore in an environmentally responsible fashion, PolyMet also will be creating jobs – more than 400 full-time jobs at full operation and a minimum of 500 spinoff jobs. Construction of the plant will require 300 construction workers to work 1.5 million hours over three years – an economic injection our local economy desperately needs. I believe that the draft environmental impact statement does what it was designed to do – to look at the issues identified in earlier public comment periods and to assess the impact on the environment. The draft demonstrates that, with some modifications, the project can move ahead without harming our environment. Please acknowledge this demonstration by determining that the draft is adequate so that permitting can begin.	EOO,G2A

Sender Last Name: Ulmen **Submission ID:** 344

369	I have reviewed the Polymet Mining Draft Environmental Impact Statement as posted at the site of the MN DNR. It should be noted that environmental concerns related to any mining operation also are present with the Polymet project, however, most if not all of these conditions pre-date Polymet during the era of iron ore and taconite mining in the area. Polymet Mining Corporation proposes to reclaim non-ferrous resources in areas of Minnesota where the environment already suffers major pollution concerns from the iron ore days when environmental quality was not a significant issue with permitting.	G2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
370	Polymet will enter a polluted area, mine it for 20-plus years for copper, nickel and platinum group metals, and upon completion of the mine life, will restore the mined area to a level of environmental quality far in excess of the current level. In addition, according to Polymet news releases, the reclaimed mine area will meet or exceed all standards for environmental quality. When mining is completed, the environment will be restored to a level significantly improved over its quality at present. Polyment has proven it can and will act as a responsible steward of the environment and has committed the financial resources to carry out this promise. Polymet has access to Platsol, a proven technology to economically reclaim non-ferrous minerals from the mine site. Polymet has the resources, both technological and financial, to do what it says it will do. Extensive testing has shown that using Platsol technology will have a major positive impact on that area of the state by providing jobs, payroll, and taxes which will significantly improve the economics of the State of Minnesota. This proposal is a win-win situation to all concerned- the state, the economy, the local labor pool on the old iron range, and the reuse of existing resources such as the Erie plant which has already taken place. Resources from the mine have been consistently estimated at very conservative levels. Even using these conservative levels, Polymet has proven that it can mine these resources at far less that the world prices for these resources. Polymet wil make a significant profit over the life of the mine, and already has a buyer under contract to purchase the resources mined. This project proposal is a no-brainer. Issue the mining permits as soon as possible and let this project move forward.	EOO
371	As silver is a bi-product of the mining of copper, Polymet should be encouraged, and authorized by permit, to extract silver from the proposed Polymet project if it is economically and environmentally feasible to do so.	EOO
372	Legislators should enact special legislation authorizing purchase of shares of Polymet mining stock by the state of Minnesota with subsequent sales of these shares dedicated to bringing the state retirement funds of Minnesota governmental employees closer to the level of being fully funded. Further, that these funds are in trust for the above purpose and are immune from future reclamation and redirection by the legislature, and that such retirement funds becomes an entitlement to retired governmental employees by law.	EOO

Sender Last Name: Ulrich **Submission ID:** 137

128	My name is Joann Ulrich, I live in Hibbing, Minnesota. I am supporting the PolyMet project. We need more jobs on the Iron Range and more kids in our schools. I believe the state government will do their job and protect our environment. I guess that's it for me.	EOO
3156	In every other case these mines have severely polluted the environment in which they were developed. Once polluted the Boundary Waters will never again have the value they have now. The mine will be blip on the economic scene but the physical damage will be permanent.	G2,G7

Sender Last Name: Ulseth **Submission ID:** 1073

1177	I am writing in support of the PolyMet mining project. I am an engineer and engineering instructor both at Itasca Community College and in the new Iron Range Engineering bachelors of mechanical engineering program. I have studied the process and personally have no concerns regarding negative impact on our environment. I believe due diligence has been given to protecting our natural resources and producing these metals in an environmentally sound manner. Economically, the PolyMet project will have substantial impact on the northeastern Minnesota region and the entire state as has been fully established. In closing, I fully support this project.	EOO

Sender Last Name: Umrikar **Submission ID:** 3304

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3598	As a college student at Carleton College, I've heard about how precious the Boundary Waters are from all my native Minnesotan peers. I went to the screening of "previous Waters" to learn more about the Boundary Waters region, and I am absolutely horrified as to the type of mining you wish to introduce to the region. Minnesota is so lucky to have the Boundary Waters; it provides such great resources (clean water, fresh air, healthy food, etc.) and activities (fishing, canoeing, etc.) to so many families and wildlife. Why are you taking away this gift to us? You know the negative environmental impact it'll have. Why are you doing this?	G2

Sender Last Name: Unger **Submission ID:** 3098

3483	I am writing to you as a Minnesotan concerned about the PolyMet sulfide mining project proposed on 6,700 acres of public land in the Superior National Forest, where I live. Please consider that 20 years of jobs for a very small percentage of the northern Minnesota workforce DOES NOT equal the total devastation of areas of the Superior National Forest, the expected destruction of the Boundary Waters, and Lake Superior! It has been proven that this type of mining will destroy this largest fresh water lake in the world, along with any number of small lakes and rivers in the watershed. While the sagging economy seems overwhelming to some at the moment, someone needs to stand up to defend the "jewels of Minnesota" as Tom Rukavina recently called our lakes during the gubernatorial debates last week. Further, I believe the emphasis of job creation seems to be overstated, given the technological and automated advances in the industry. The Superior National Forest should be treated with the same respect as the National parks in the United States. This Forest is also a national treasure, to be protected, not ravaged, for short term corporate gains and short term job creation. This environment and clean water are given to us only once! There would be no way to reclaim the fresh water devastation of acid leaching, if PolyMet cannot show that, without a doubt, their waste rock and tailings can be contained. The lakes and rivers that support natural habitat, including humans, would be gone, if our waters were contaminated!	EOO,G1,G2,G7A
3495	If this type of mining becomes inevitable in Minnesota, at the very least, in the permitting process, these companies should be mandated to set aside, up front, in a secure institution, money (not stock!) for any land cleanup and restoration after operations are shut down or abandoned, as the US EPA suggests. Don't make others responsible for the shortsightedness of PolyMet and current lawmakers!	PD4
19677	GLIFWC staff reiterate that the data used in this section are inadequate. In numerous letters, meetings and conference calls to the lead agencies we have requested that additional data be collected. As previously discussed, GLIFWC staff maintain that the flow patterns are not representative of the Partridge River near the mine site. The gauging station is seventeen miles from the mine site and the data from that station are more than twenty years old and therefore, unlikely to be representative of current conditions at the mine site.	WR3J
19677	GLIFWC staff reiterates that the existing LTVSMC tailings are contributing substantially to the level of constituents observed in the groundwater. Unfortunately the modeling of PolyMet contaminants at the basins does not take these or other existing constituents adequately into account (RS74 and TB-14). The result of this oversight is that the contaminant modeling done by PolyMet comes to the illogical conclusion that seepage water from PolyMet, after passing through both LTVSMC and PolyMet tailings, will be cleaner than the existing seepage that is passing only through the LTVSMC tailings. According to PolyMet's consultant "the predicted concentration of seepage from the PolyMet basin is lower than the actual measured concentration of existing seepage" (TB-14, page 9). It is unclear how the addition of mine waste to the basins would cause seepage water quality to improve.	WR1E

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19677	GLIFWC staff reiterate that additional legacy issues exist. Over the many decades of operations at the tailings basin, thousands of gallons per minute of tailings basin water have been discharged through the bottom of the basin, into groundwater. This water has then moved down gradient and into surrounding wetlands and as stated in the water quality section, ultimately reaches the Embarrass River. It is the tribal cooperating agencies' position that despite very limited recent groundwater sampling that shows groundwater contamination at the property line and at private wells north of the basin, the full extent of the contaminant plume and the existing contamination to groundwater has not been defined. Finally, the DEIS claims that elevated constituents at the private wells north of the tailings basin are explained by background. Suggestions that high manganese and aluminum concentrations in the private wells are background are not adequately justified. A more logical explanation is that the groundwater plume from the tailings basin has reached those wells and has degraded their water quality. It is clear by recent hydrologic data (Barr Engineering Technical Memorandum: Results of Residential Well sampling North of LTVSMC Tailings Basin, January 27, 2009, Attachment 4) that the seepage from LTV tails has saturated the aquifer to the north. It seems unreasonable to assume a natural cause for the highly elevated constituents at the private wells when an obvious mechanism for those values is available in the existing tailings basin.	WR1E
Sender Last Name:	Unsworth **Submission ID:** 2003	
2483	Don't be remembered for being the one to destroy the Boundary Waters. It is the jewel in our crown for our state and should not be destroyed for short term gain. We are guardians of this rare beauty and must pass it on, unspoiled, for future generations. There has not been an example of a pit of this kind, anywhere in the world, including the USA, that has not created a serious pollution problem. Why would you risk that here?	G14
Sender Last Name:	Upton **Submission ID:** 1987	
2478	We are already well into the SIXTH MASS EXTINCTION....man-made. or "Madman made" if we allow this... PolyMet is another soul-less corporation consuming our planet for filthy lucre... The extinction RATE for plants, animals, insects, etc, continues at over 1,000 TIMES the historical rate. Minnesotans, we stopped public pollution of air by smokers.... now let's stop the corporate polluters and destroyers.	EOO,G2C
Sender Last Name:	Urban **Submission ID:** 2264	
1853	Ultimately the release of chemicals in the waste rock from PolyMet mining will seep into the watershed. The exposed rock, being transported from the mine to the processing facility, may fall off the railroad cars onto the land and eventually start leaching chemicals into the soil. These toxins will eventually find their way into Lake Superior. This pollution of Lake Superior will defy Article N of the Boundary Waters Treaty of 1909 which states: "It is further agreed that the waters herein defined as boundary waters and waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other."	WR1D,WR3D
1854	In the absence of hard data, the DEIS often uses professional opinion. This is a common practice but it has its limitations and hazards. The assumption expressed by John Adams and Michael Liljegren to Stuart Arkly that there is little or no connection between bedrock and surficial aquifer may not be corroborated by the fact that water from boring 05-401M "exceeded the water quality criteria for ammonia, aluminum, copper, and silver in both boreholes". Because this flies in the face of professional opinion it demonstrates the clear need for a data driven approach. You simply do not have the necessary facts to proceed responsibly. The DEIS is again forced to use professional opinion to conclude that release of water from tailing ponds and water used in processing of ore will not impact water levels in the Partridge River. This opinion had to rely on data that is over 20 years old and well downstream of the proposed operation. It should be noted that the reason there is not current data on stream flowage is because the monitoring station on the Partridge River was decommissioned 20 years ago as part of budget trimming. Trimmed budgets for the same agencies that are projected to monitor the new operations.	WR1E

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1855	I want to close by pointing out the obvious. This area is unique. It is unique in that it is the kind of environment that is most vulnerable to the pollution inherent in hard rock mining. Such mining is safest in areas with minimum water exposure. Our beautiful Northeast Minnesota is full of lakes, rivers, streams, and wetlands. It has been described as a swamp on rock. By defmition it is the worst place to do hard rock mining. But what is even more unique is the fact that water in this area does not come from others but rather flows to millions. Our unique area is at the pinnacle of three water sheds. The plaque at the rest stop on Hwy 53 says it all. When it rains here, the water flows into Lake Superior and the Great Lakes, into Hudson's Bay through the Rainy Lake water shed, and to the Gulf of Mexico through the Mississippi watershed. For the citizens of Minnesota and for the millions of people who must have clean water to survive, this unique area deserves unique protection. Do not permit this type of mining until scientific and historical data, not professional opinion, not political pressure, not short term profit-indicate it can be done safely.	EOO
2048	Again according to the DEIS (table 4.1-45) water from waste rock piles will be polluted for 2,000 years. Can PolyMet forecast financial assurance for that long? Can this contaminated water be protected from record rain falls, forest fires, tornados or blow downs or other natural disasters? Is there any worse case scenarios in the DEIS? I didn't see any.	PD3,PD4
2676	I am a citizen of the USA. I grew up in Minnesota, as did my parents. I graduated from Macalester College in 1968. My husband and I chose to raise our family in St. Paul. My grandparents raised their families in Minnesota. In 1933 my maternal grandparents bought property and built a cabin in Crow Wing County. I spent all my summers there. I taught children 3-10 years old and their families in public and private schools and at Warner Nature Center. I have three grandchildren. My husband and I retired and moved to Eagles Nest Township near Aurora in 2004. We own a small log cabin on a lake. I am extremely fearful and worried about the DNR and the U.S. Army Corp of Engineers giving a permit to the PolyMet Project for nonferrous mining in Minnesota. I am aware that Minnesota has many resources. I know that some of the oldest lands in the world are here. (D. E. Willard, The Story of the North Star State, 1922) Minnesota has many natural resources of soil, rocks and minerals, rivers and lakes, bogs, forests, plants, animals, fish and birds. We all live here together. The protection of these resources should be of concern to all of us! I have studied the issue of the PolyMet Project. In 2008 I helped organize a forum on this issue in Ely, and I went to the public meeting in Aurora on Dec. 9,2009. I read press releases, editorials, and much of the DEIS.l talked with former and present taconite mining employees. Now I have come to the conclusion that non-ferrous mining should be prohibited in Minnesota. I plead with you--do NOT permit this PolyMet project! Our Minnesota laws governing the protection of the environment are not strong enough. Our laws governing the runoff and clean up of mine projects are not adequate. PolyMet's technology is not proven anywhere and certainly not proven to work in the habitat of St. Louis and Lake Counties. Examples: 1. The former L TV site used by Cliff Erie is seeping sulfates into the St. Louis River watershed. Also, residents between this LTV site and the Embarrass River have arsenic levels in their wells that exceed Minnesota water quality standards. 2. The Minntac Tailing Pond, 30 miles away from Lake Vermilion, is draining sulfides into that lake. That should not be happening. 3. The Dunka Pit is still polluting the area years after the company has ceased operation there. Where are those financial assurances?	G4,G7

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2677	There are already advisories and beaches closed in and near Duluth on Lake Superior because bacteria levels exceed water quality standards. Add the chemical runoff from the proposed PolyMet site to Lake Superior. I say NO. I understand that the precedent and common procedure in Minnesota and the United States is to allow companies and industry to go ahead--be given permits. Then if some problem happens, some pollution occurs, some hazardous waste fowls the water, air, or land--clean it up. I implore your agency to put an end to this policy. Allow companies a permit only when experience shows safe procedures are in place and when proof that these procedures are safe has been provided. Already there is a $475 million budget proposed to clean up the Great Lakes. Our Eagles Nest Lakes Association received a DVD titled Minnesota's Lakes at Risk. This production was funded by the Minnesota Pollution Control Agency. We cannot afford to add more risk to our lakes and rivers. The Minnesota DNR should be working with the Minnesota PCA to assure that our fresh water stays unpolluted. I do not want lakes and rivers here devoid of all life like some rivers in Montana where mining runoff destroyed all life for miles. The impact on wildlife -- birds, fish, animals, plants, trees--on or near the mine site will be severe. The rare species found (DEIS pages 147-149, table 29-1) within or near the PolyMet mine site will be jeopardized! The impact on tribal wild rice habitat in and near the St. Louis River is unforgivable (4.1-94) My family eats and depends on Native wild rice for our diet. My grandparents taught me to value Minnesota. I choose to live here because I am proud of our state. My grandparents left me a legacy: Clean water Clean air Forests Birds Fish The Seasons I want desperately to leave that same legacy to my children, my grandchildren, and their descendants. In the preamble of our U.S. Constitution it says: "We the people" are insured "justice, domestic tranquility, promotion of the general welfare, and to secure the blessings of liberty to ourselves and our posterity". NOWHERE does it say that foreign companies or corporations have that liberty. Clean water and air have been and must continue to be guaranteed to all of us in Minnesota. Please do not give a permit to PolyMet.	G2,G7
2678	Because of my appreciation of the necessity of clean water I have been closely following the PolyMet mining proposal. I have read much of the DEIS, attended the public meeting at Mesabi East H.S., spoken with neighbors, asked questions, and attempted to become as informed as possible. It would take volumes to address everything I find problematic in the DEIS but I feel compelled to call your attention to several areas that I find critical. My overall objection to the DEIS is that while it is full of data, it is lacking in scientific method and logic. In short its data is presented to support theory, not demonstrate a proven system. The DEIS admits that the critical problem of hard rock mining is the large amount of waste material that may produce acid runoff when exposed to air and water. It then admits that such acid runoff has been a major environmental catastrophe in other operations (eg Montana and Colorado). It further explains the steps that will be required of PolyMet to insure that this pollution does not take place in Minnesota and we are given data about lined holding ponds, air exposure rates, etc.	G7,G8
2679	But the most important data is missing. Where are the reports of other mines in similar environments that have successfully operated and achieved little or no pollution? The maps I have seen shows hundreds of similar mines all across Ontario. Recently the Canadian Federal Court has required Environment Canada to make the mining industry annually report the toxic waste accumulating in tailing ponds and waste rock piles. Since 1998 the United States has required mining companies to report all pollutants under the Toxics Release Inventory (TRI). In 2005, the 72 mines in the U.S. reporting to the TRI released more than 500 million kilograms of toxic substance to mine tailing and waste rock. This accounted for 27% of all U.S. pollutants reported. So my question--and what ought to be your question-- is where is the data that shows operation of such mines can, in fact and not in theory, be done in a way to protect the environment. Requiring proof that such catastrophic pollution would not occur would be the scientific way to proceed. Without such evidence the proposed PolyMet operation is nothing more than a gambol.	G8
2680	The DEIS asserts that the safety of this kind of mining operation is insured because MN has such strict environmental regulations and standards. The argument by Rep. Rukavina at Mesabi East H.S. and others in editorial comments is that Minnesota should take the moral high ground by allowing hard rock mining here in a well regulated environment rather than forcing the mining industry to operate in states and countries which have low environmental standards and protection. This kind of logic is problematic on several accounts. First, according to the DEIS on various pages (4.1-113) the West Pit will discharge water the exceeds water quality standards for arsenic, cobalt, selenium, copper, nickel, and high sulfate concentrations. What good are high standards if groups are permitted to exceed them. Has the mining industry any history of lobbying to reduce standards or seeking variances in order to exceed standards? The answer is yes.	G5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Urie **Submission ID:** 272	
286	I am writing this letter to support the proposed NorthMet Project as presented for consideration by the PolyMet Mining group. I have been interested in mining most of my adult life being involved through the service sector - worked for the DM&IR railroad, and have followed this particular project with a keen interest. I have attended two of their open houses and have seen in person the community interest and support that has been generated for this project. I have also attended other presentations given by the PolyMet management group and have been very impressed with their due diligence and dedication to do this mining environmental safe! The economic impact for Northern Minnesota is easily understood and assumed by the citizens who live and work in our region. For those Minnesotans who do not live and work here, these jobs also will have a significant contribution to the state both in taxes and economic benefits which will benefit all! I believe that with the new technologies developed and other environmental safe mining practices, that this new opportunity will be a win win for all of us living in Minnesota. The metals that PolyMet will mine represent a huge portion of the need for these metals as they will be used in such things as wind turbines and hybrid cars and are necessary for pollution prevention devices such as catalytic converters for our cars & trucks. I know they are committed to providing a good work environment as they are looking to use both rail and mining equipment which will meet the most stringent EPA emissions requirements. Their commitment to use Gen Set Locomotives is a great example of this. It is time for the permitting and then the building process to begin. Northern Minnesota need the jobs, all Minnesotans need the opportunities and benefits that will result from this project.	EOO
Sender Last Name:	Valine **Submission ID:** 3621	
3900	This is written as a letter of support for PolyMet Mining Company's proposed NorthMet Project. This project would create needed economic development in Northern Minnesota and produce valuable metals in an environmentally safe manner. I was born and raised in Northern Minnesota and am aware how important it is to have stable employment in the area, and maintain and care for the environment. I now live in Superior Wisconsin but often work and vacation in Northern Minnesota, and get to visit my parents in Hibbing. The proposed mine will add several hundred permanent jobs along with adding support industries and construction jobs. The taxes generated from PolyMet and the workers will help support the state and local communities with needed funds for education and improvements to infrastructure. The environment will be protected as detailed in the draft environmental impact statement. There has been a four-year long review process for this proposed mine, and the review has been very thorough. PolyMet has detailed their plans to use some existing facilities at the former LTV Steel Mining site, and will follow Minnesota's strict environmental requirements. With the necessary controls in place to protect the environment, the permits for the project should be granted, and Minnesota can start producing some metals not found at this time in the U.S. that we use in our everyday lives. Thank you for your review of the project, and for seeing that Minnesota's environment is protected. Thank you also for not delaying in issuing the permits so the project can get started.	EOO
Sender Last Name:	Van Grinsven **Submission ID:** 1536	
1872	A place I have come to love and will continue to visit for the rest of my life is immediately downstream from the proposed mining. Nobody wants to part with the products these minerals provide and it can be said that people are O.K. with these mining practices until it's in their backyard. As a person who fishes and swims in the waters this mine we be affecting, I ask that you do your absolute best to insure the best practices and planning are implemented, as I can only hope that their integrity may be maintained in the face of such an invasive project.	G2C
Sender Last Name:	Vandersteen **Submission ID:** 2656	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3155	I know most of the messages you receive are not cleverly thought out like the beginning and end of my Email are, so I hope this part of the email has a little more effect of your decision. Since the young age of 5 or so I have always gone up to the Boundary Waters Canoe area. This area of natural beauty is of great importance to me and thousands of minnesotans. The thought of, in my opinion, the best part of Minnesota being polluted and destroyed is extremely upsetting. I guess the questions that I hope you are truly asking yourself are; Is Acid Mining really worth destroying Minnesota's crown jewel? How much money is worth the cost of what Sigered Olson worked so hard to accomplish? Will you regret this action in the long run? And is this really for the better of everyone? I hope you vote in a manner you feel best represents you as a Minnesotan and reflects the views of your constituents. Thank you for your time if nothing else, -Leif	G2,G7,G9
3576	I realize that everything following this is just an overwhelming amount of card stacking. But it does not do an adequate job of explaining how important this region of Minnesota is to thousands of Minnesotans. I have spent every summer since I was five years old in the remote wilderness of the Boundary Waters. From this area I learned to respect the land in all its natural beauty. I love every single part of the Boundary Waters: huge lakes, luscious skys, bitter winds, the abundance of wildlife, and even the mucky little ponds with Beaver dams. If I were to not voice my opinion, I would be ignoring every responsibility that I have gained and letting down myself and the thing that I love and cherish the most; Minnesota Thank you for your time Leif Gavin Vandersteen.	G2

Sender Last Name: Vang **Submission ID:** 3506

3776	Dont get too greedy and help save our land so everyone and the next generation can live peacefully and nice	EOO

Sender Last Name: Vaughan **Submission ID:** 1546

1891	As an avid fisherman, canoeist and general outdoor enthusiast, I am saddened by this proposal. Mining will never be environmentally friendly despite all of the assurances and I hope that this will be reconsidered for the health and enjoyment of many fellow Minnesotans.	EOO,G11

Sender Last Name: Vavricka **Submission ID:** 3162

3535	Please do not allow sulfide mining in Minnesota. Tony Vavricka Minnesota boater, fisherman, and clean water drinker Does the Minnesota DNR support	EOO

Sender Last Name: Vecchie **Submission ID:** 1116

211	2) Corridors. The PolyMet mine will obstruct at least 2 of the remaining 13 corridors where wildlife can cross the 120 miles of the Mesabi Iron Range. These corridors are important not only for mammals like moose and wolves but also for the northward migration of the deciduous forest and all its components in the face of climate change. The DEIS ignored the mine’s impact on wild corridors.	WI5
527	1) Mercury. Increased levels of sulfates leached from the PolyMet Mine will increase mercury accumulated in fish tissues, causing harm not only to the fish but to animals and people who eat the fish. The DEIS did not adequately analyze the potential impact of the mine on mercury levels in surrounding waters and fish.	WR1E,WR4B,FM1
528	3) Wild Rice. The PolyMet Mine will result in enormous sulfate releases that will exceed the state standard for wild rice, which is sensitive to sulfates. These sulfates will likely eliminate wild rice in the Partridge and Embarrass Rivers, and diminish the famous wild rice beds in the St. Louis River estuary near Duluth, which is 100 miles away from the mine. The DEIS did not adequately analyze impacts on wild rice and the associated health and economic impacts.	WR4F

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1224	I am concerned about the impact on fish and wildlife of the proposed PolyMet Mine in Superior National Forest and urge you to better analyze the proposed mine. Of particular concern are the following issues, which were not adequately explored in the Draft Environmental Impact Statement (DEIS):	G2C,G8A
Sender Last Name:	Verderame **Submission ID:** 2790	
3191	Many thousands of us use this area for recreation because of its unspoiled natural beauty. Not many places remain that are so wild, pristine and accessible.	G11
Sender Last Name:	Verstegen **Submission ID:** 3115	
3491	Polymet's proposed mining in northern Minnesota in out of control. The lack of government oversight and public input on this very important environmental issue is a scandal of epic proportions. We the people have a right to know that the purity of the Boundary Waters Wilderness and the Lake Superior water shed are being safe guarded. These national treasures are facing one of their greatest threats from this form of sulfide mining. No amount of economic growth in worth the long term, permanent ground water pollution threatened by this process. Please reconsider this permit, please seek further environmental studies. It is our responsibility to protect this most wonderful natural resource.	G7
Sender Last Name:	Vesper **Submission ID:** 3117	
29	Polymet advertises that they will create a certain number of jobs. The jobs argument is very short-sighted. Lawmakers right now are under tremendous pressure to show that jobs were created on their watch. It is assumed that job creation will have a positive effect on the local economy. However, we cannot assume that these jobs will go to local people. Make no mistake: Polymet will hire the most qualified workers who apply, even if it means relocating workers from outside of the area. When mining ends after twenty years, these people may want to stay in the area. Then we will still need more jobs in Northeastern Minnesota. I would like to see Polymet be mandated to hire as many people as possible who already live in the local area, even if it means devoting extra training resources to these workers.	SE7
3492	Polymet was mandated to study alternatives to mining. I would like to see this project put on hold until we develop a better nationwide metals recycling program. It is estimated that one third of our copper resources are currently in landfills. This problem needs to be addressed. It would be irresponsible to mine new copper when we dispose of copper that could be re-used. I am not advocating that we mine existing landfills for copper; I'm sure that would be impractical. However, we need to do a better job of reclaiming metals out of the waste stream. Many countries in Europe already reclaim metals. In Scandinavia, for example, paper and plastic garbage is mixed together with slash and other wood waste from logging operations and incinerated to provide district heating, even in small communities. Because municipal waste is burned, it is illegal to mix metal objects into the waste stream. Virtually all metals are recycled for use in rebar and other products. We would be well-served to emulate such programs. If the Polymet project is permitted, I would like to see a portion of the company's profits go toward developing a state-wide metals reclamation program. I am also concerned about the effect of this mine on the Boundary Waters Wilderness. I have been a guide in the wilderness for eight years, and I currently work as a seasonal ranger with the US Forest Service. The integrity of the Boundary Waters Wilderness is extremely important to the regional economy. I recognize that this mine is not projected to directly affect the Boundary Waters. However, the Polymet would set a dangerous precedent for other mining companies to follow. Duluth Metals, for example, recently partnered with a South American mining company to bring a mine to within the watershed of which the Boundary Waters is a part. The Boundary Waters is the most visited wilderness area in the country. The local economy would certainly suffer if wilderness waters incurred long-term damage. If the Polymet mine is permitted, it may set a precedent which becomes grounds for other mining companies to bring a lawsuit to insist on their mining rights.	G2,G8C,G11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Viacrucis **Submission ID:** 2807	
3194	The facts should be known before mining could take place. Otherwise we're leaveing our environment to chance.	EOO
Sender Last Name:	Vickers **Submission ID:** 3197	
738	Please allow more time, more locations, and citizen statements and discussion regarding this review. The Boundary Waters area is too valuable and fragile for anything less. Thanks!	PRO6
Sender Last Name:	Vier **Submission ID:** 3571	
3837	_Our land is all we have to pass on to future generations and I feel that this mine would destroy the purity of our land for economic advancement. Our land is sacred and once it is polluted can never be restored. Please do not destroy our land. There has got to be another way	EOO
Sender Last Name:	Viken **Submission ID:** 2511	
428	There should be another review period provided to the public once these additions are made.	PRO6
1112	Finally, PolyMet must be required to show that its waste rock and tailings piles won’t collapse and dump uncontrolled pollution into nearby waters and that they will not create water pollution that lasts for thousands of years.	GT2
2337	DEIS needs to have stronger language that will ensure the citizens of Minnesota/United States/both will not be left paying 100% or even a portion of the cleanup cost. In addition, any land swap needs to protect endangered species, make sure lands exchanged have equal ecological value, equivalent or greater area while not fragmenting habitat.	PD4
2383	Even if precautions in the DEIS for preventing water acidification are somewhat effective it won’t matter because a pH change of only one or two point(s) will kill many fish and will not be required for leaching of mutagenic, carcinogenic and lethal doses of heavy metal. The danger in mine waste rests in the fact that rock containing the precious metals (gold, platinum, copper, zinc, titanium, cobalt, silver and palladium etc.) and hazardous materials (acidifying sulfide and heavy metals such as lead, mercury, aluminum, cadmium, copper and arsenic) goes from a form that has low surface area (bedrock) to a form that has infinite surface area (fine powder) which allows the low level of leaching of these hazardous materials, that occurs naturally, increases infinitely with increased surface area. Nothing in the DEIS addresses the need to “lockup” the waste by decreasing the surface which may be accomplished through encasing it in a concrete/epoxy slurry or melting it. It may be possible to both lock up the mine waste and reduce CO2 that causes global warming (see the following link). Sulfide mining waste needs to be disposed of as carefully as nuclear waste. Even nuclear waste will decay over tens of thousands of years to a safe product whereas sulfide mine waste will pose a hazard to future generations until geological time and plate tectonics subducts the waste in the interior of the earth.	G2B
2413	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. The state of WI had two mines of this kind where they both leaked into the rivers after the mines closed. After this happened, the state of WI passed a law in 1997 Wisconsin Act 171 where mining companies have to have 10 years where the mine did not leak acid drainage into groundwater or surface water, and the mine had to be shut down for 10 years where acid drainage didn't leak into ground water nor surface water. Minnesota should have the same restrictions if we want to preserve the largest fresh water lake, Lake Superior, and its watershed areas, as well as the BWCAW which is next in stake.	G7A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3061	I am a Duluth resident and I am concerned about the proposed PolyMet sulfide/non-ferrous/hardrock mining (SM) project south of Babbit in the St. Louis River watershed on 6,700 acres of public land in the Superior National Forest. PolyMet mine is just the first SM mine that is being proposed (Franconia Mineral Company and Duluth Metals are among others in process) so this will set the bar that subsequent SM proposals will have to meet. Given large amount of interest in SM in the state and the historical fiasco of SM around the world and the country we have to be flawless in how the mining is carried out or we will suffer severe financial and environmental consequences. The draft environmental impact statement (DEIS) for the PolyMet SM project must be insured by the mining company with sufficient assets that would pay for perpetual cleanup. This is important because history tells us that most SM have troubles with acid mine drainage. These mines include the Berkley Pit Mine, MT, Argo Tunnel, CO, Iron Mountain Mine, CA, Zortman Landusky mine, MT, Monday Creek, OH, Thompson Creek Mine, ID, Gilt Edge Mine, SD, Britannia Creek, BC, Summitville Mine, CO, Elizabeth Mine, VT, Hughes Bore Hole, PA, Flambeau mine, WI and many others in the US and other countries such as Tinto River, ESP, Aznalcollar Mine, ESP, Tasmania, Wheal Jane, UK,. The public has been stuck with the cleanup many times before one of which is the Summitville Mine that costs $30,000/day to cleanup in perpetuity. Eagerness to mine for the sake of jobs without an eye on long term cost is foolish. Colorado could pay 365 people or companies $30,000 a year for some service or product and get something tangible rather than pay for cleanup in perpetuity. 365 people is similar to the number of people that PolyMet expects to have under long term employment. The problem is, the PolyMet mine will only employ these people for approximately 30 years.	G4A
3062	The real costs of sulfide mining should not be subsidized by government risk taking. If society needs these metals the cost for these metals should be high enough so we either recycle them, after all they are finite resources, or extract them from the ground in such a way as the waste is locked up for a period of time measured on a geological time scale. We need to protect the integrity of our land in the future, NOW, because just like the financial institutions that irresponsibly gambled with our money, mining company officers will do the same if they are allowed to for short term gain.	G1
3063	I hope you see that what I, the Indian tribes and the United States Environmental Protection Agency have pointed out are serious inadequacies in the precedence setting PolyMet DEIS. Before PolyMet AND other SM can be considered for permits these issues need to be addressed so Lake Superior (the largest lake in the world in terms of surface area threatened by the PolyMet project) and the Boundary Waters Canoe Area Wilderness (the most used wilderness area in the United States threatened by Franconia and Duluth metals projects). Waters in the northeast part of the state are already being threatened by acid rain, in part, because of the low buffering capacity of the soil in this region. We have to be sure we are not going to pressure the ecological services that the environment already produces. Please take the time to add supplements to the draft EIS and give people in Minnesota a fair chance to know what impact the PolyMet project would have on our State	G8

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3216	I am writing to you as a citizen of Duluth, MN and very concerned about the proposed PolyMet sulfide mining project on 6700 acres of public land in Superior National Forest. The PolyMet site is located on the Patridge River near Hoyt Lakes, MN, which is a part of the Superior watershed. Lake Superior is the largest freshwater lake in the world, which provides drinking water to people in MN, WI, MI and Canada. The St Louis River will bring any waste from this mine project into Lake Superior. The state of Minnesota needs to guarantee that this watershed is not irreversibly damaged by the sulfide mine being proposed by PolyMet. Money to clean up the project is not sufficiently guaranteed for the people of Minnesota. Assurances that the Superior watershed will not be polluted in perpetuity by sulfide mining byproducts are necessary for this project to be approved. PolyMet is going to use old taconite tailings which have air gaps and will not provide adequate containment of the sulfide mining waste from seeping into the groundwater and nearby surface waters. The Tailings Basin design does not meet minimum safety standards to prevent catastrophic failure and uncontrolled release of waste into the Embarrass River. The state of Wisconsin has had experience with sulfide mining in its history. There was a sulfide mine called the Flambeau Mine, south of Ladysmith, WI and a proposed site in the Crandon mine which caused the state legislature to pass WI Act 171 where any mining company must operate a sulfide ore body mine for 10 years without seepage into groundwater or surface water; and the mining company's sulfide ore body mine shall be closed for 10 years without seepage into groundwater or surface water. No mining company has been able to meet the new standards in WI set forth by this law passed on April 22, 1998. These regulations seem to be so minimal when one thinks that it would allow for complete failure of containment at year 11. Failure would be catastrophic to the environment. The main reason the Crandon mine was defeated was the opposition of the local Indian tribes unable to guarantee the water quality in the wild rice lakes. Sulfates created by sulfide mining will affect wild rice lakes in the area of the PolyMet project. Mercury levels will increase affecting local fish, creating human health risks above the current levels. PolyMet is going to use thousands of acres of wetlands in the St Louis River Basin in St Louis County, and is replacing it with wetlands in the Mississippi River Basin in Aitkin County. Doing this will erode the capability of the St. Louis river watershed to buffer flooding into wetlands and result in increased flooding risk and decreased ability of the St. Louis watershed's ecological services. It also can increase flooding in the Mississippi River by adding a lot of wetlands in Aitkin County. All wetlands removed in St Louis River Basin should be replaced in the same river basin. Lastly the major issue with sulfide mining is the environmental effects of the sulfide found in the pulverized rock, when exposed to water and air, forms sulfuric acid. Sulfuric acid found in water can dissolve harmful heavy metals out of the surrounding rock, including mercury. These metals would be carried by the river system near the mine to the St Louis River, eventually making its way into Lake Superior. Due to the important issues that I have raised above, I would strongly discourage a permit being given to PolyMet at this time as these critical issues must be addressed first. The state of Minnesota legislature should have hearings on the proposed mine, and pass laws to ensure the environmental standards are preserved, and living wages and health care benefits are to be legally bound by Polymet.	G2B,G2D,G4A,G5,G7A,G7
Sender Last Name:	vmhsjerx **Submission ID:** 2339	
2806	pBKEoq vcayuktibtxo, [url=http://xrmyfgzkilwg.com/]xrmyfgzkilwg[/url], [link=http://iveddnkttvzb.com/]iveddnkttvzb[/link], http://zqsqyqllkgvw.com/	G15
Sender Last Name:	Vogt **Submission ID:** 3691	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19678	State Agencies communicated to tribal cooperating agencies and the Army Corps that the proposed action is not permitable because of the high probability of failure at the tailings basin. This statement was made at a meeting held on April 30, 2009 to develop mitigation alternatives for the tailings basin. The tailings basin alternative, presented in section 3.2.3, originated as a way to address this problem. However, GLIFWC staff do not believe that the alternative is permitable because it is a perpetual pump and treat proposal [see section 3.2.3(1)]. In addition, this alternative has not been evaluated adequately. For example the claimed capture efficiencies of 95% have not been demonstrated at any other site and seem improbable. The alternative would capture tailings basin water and discharge it at the Partridge River. This capture would need to continue until the tailings basin effluent meets standards in the Embarrass River watershed. This is not expected to occur in the foreseeable future. Finally, water treatment would be required prior to discharge into the Partridge River because the section of the river currently exceeds the applicable sulfate standard.	ALT8,PD2,PD4,PD5
19679	GLIFWC staff are concerned with the attempt to avoid applying the state wild rice standard to this project. As stated in Minn. 7050, the 10 mg/l of sulfate standard for wild rice applies for waterbodies where wild rice is found. The PCA has used this approach in past permitting activities (MINNTAC Schedule of Compliance, 2008). The 10 mg/l sulfate standard also applies to the Partridge River below Colby Lake and to the Embarrass River below Trimble Creek where wild rice is located.	WR4F
19679	The proposed stockpiles have the long term potential to leach metals into the environment. As indicated in the Executive Summary of the Copper – Nickel study (Siegel and Ericson 1979) “There is some evidence to suggest that revegetated piles may not always have the expected positive effect of diminishing the leaching of heavy metals. Seasonal cycles of wetting and drying caused by seasonal photosynthetic activity have been suggested as the cause of increased leaching in sanitary landfills and would have similar effects on waste rock.” This information suggest that the source terms used for stockpiles that are proposed to have an evapotranspiration cover system have the potential to increase the amounts of metals that are leached over time. This increase in the source term is not accounted for in the modeling. Therefore, water quality impacts to the Partridge River are likely underestimates.	WR1E,WR2L
19682	State approved water quality standards specifically state that 10 mg/l of sulfate is the standard for wild rice waters. There is no language in the standard that allows for the standard to be ignored when it is inconvenient. It is the expectation of GLIFWC staff that state law will be followed and the wild rice sulfate standard applied accordingly.	WR4F

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19682	GLIFWC staff reiterate that the contaminant modeling for the project has not been adequately vetted and consequently produces results that are illogical. For example, the contaminant modeling for the tailings basins (RS74B and TB-14) proposes that adding PolyMet tailings to the existing LTVSMC tailings will improve the quality of seepage coming from the basins for some parameters. The assumption (TB-14 of July 2, 2009, page 9) that PolyMet seepage water from the basins will be of better quality than the current seepage water results is a modeling result that requires some explanation. The modeling proposes that the more PolyMet seepage that PolyMet releases from the basins, the better the water quality will be for Al, Mn and Fe in the Embarrass River (see Tables in TB-15 of June 24, 2009). It appears that the modeling at the basins does not appropriately account for leaching from the LTVSMC tailings when predicting future seepage quality. Table 4.1-53 summarizes maximum predicted concentrations of several constituents in the groundwater north of the tailings basin at several evaluation points (Fig.4.1-26). One of the evaluation points is the property boundary. The currently observed levels (average of 2007-2009 data from Barr memo TB02-14 of June 24, 2009, similar values seen in DEIS Table 4.1-7) of these constituents are substantially higher at locations both closer to, and farther from, the basin. The current levels are the result of discharges to groundwater through LTV tailings. Two wells (GW009 & GW001) are on, or very near, the modeled flowpath and bracket the model evaluation point at the property boundary (Fig. 4.1-7). The high levels of Al, Fe, and Mn observed both closer to, and farther from, the basin than the modeled evaluation point suggest that the modeled predictions have little relation to reality. These unexpected, and presumably illogical, modeling results help to explain the equally puzzling conclusion of the surface water modeling; that is, that adding Polymet tailings to an already contaminated site will improve water quality in the Embarrass River. As demonstrated by the illogical modeling results above and others noted in previous comments, the contaminant modeling at the Polymet site does not appear to provide useful predictions.. Comment letters describing these illogical model results were submitted to the lead agencies prior to the release of the DEIS. GLIFWC staff still await a response.	RFI,WR1E
19682	GLIFWC staff reiterate that the MODFLOW model does not provide credible data outside the footprint of the mine pits. As previously indicated, GLIFWC staff have reviewed the Adams and Liljegren 2009 email and do not consider the methods used to be adequate (GLIFWC 2009, Memorandum to Jon Ahlness and Stuart Arkley: Photographic evidence for pit impacts to wetland hydrology. April 24, 2009, Attachment #2). The evidence presented in the email can be interpreted to indicate substantial impact of the Peter Mitchell Pits on adjacent lakes. However, it is the tribal cooperating agencies' position that aerial photography, without ground verification and georeference is an exceedingly imprecise method for determining water levels in lakes and wetlands. Finally, vegetation data (e.g. the presence of extensive cedar swamps) suggest that a significant groundwater-surface water connection exists which directly refutes the Adams email. It is the tribal cooperating agencies' position that a more robust groundwater model must be developed for this project in order to adequately characterize the potential impacts of the various project alternatives to natural resources. GLIFWC staff maintain that in order to adequately predict potentially significant environmental impacts, hydrogeologic data must be collected that can be used as input to a MODFLOW model. Tribal cooperating agencies contracted with the United States Geological Survey (USGS) to review the uncertainty of the MODFLOW model and provide recommendations on how the model could be improved. The USGS report was submitted to the lead agencies in February of 2009 (USGS 2009, Letter Report reviewing PolyMet ground-water model. January 29, 2009, Attachment #5). Tribal cooperating agencies organized meetings between USGS staff and participants in the EIS, including the applicant, to openly discuss all issues related to the USGS report, the MODFLOW model and the implications for the proposed project. The conclusions of the report and the meetings should be implemented so as to produce a useful model of project site hydrology. We believe that impacts to surface waters, groundwater, and wetlands for a project of this complexity demand a scientific, data driven approach rather than one based solely on professional opinion. Finally, GLIFWC staff reiterate that a robust groundwater model must be developed for this project in order to adequately characterize the potential impacts of various project alternatives to natural resources.	WR2A,WR2I

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19682	GLIFWC staff reiterate that there is no mechanism to accurately develop the data needed for impact analysis. The impact criteria listed in this section require robust modeling of the hydrology of the area that is developed on the basis of adequate field data. Neither of these vital tasks have been performed for this project. Field data collection is spotty or non-existent and the numbers used in this DEIS are derived from the MODFLOW groundwater model and XP-SWMM model. It is important to note that the MODFLOW model was developed to assess the rates of mine pit inflow and as such, the results it gives for areas outside the mine pit footprint are unsupported. The XP-SWMM modeling is based on stream gage data that is 17 miles and 20 years distant from the proposed project. Therefore, the listed parameters calculated for the Partridge River have little data to support them. Finally, the lack of impact criteria for groundwater levels is troubling. The DEIS recognizes that groundwater drawdown around the mine pits and groundwater mounding around the tailings basin will occur, however, no attempt is made to characterize the existing conditions or reasonable foreseeable impacts. This data gap constitutes a fatal flaw in the DEIS.	WR1E
19682	There are several serious oversimplifications in the water balance discussions of this section. First, GLIFWC staff reiterate that the 34 year timeframe for hydrometallurgical cell drainage collection is unlikely to be correct. Because all cap and liner systems leak, some pumping of water that enters the hydrometallurgical residue cells would be needed in perpetuity. This would be particularly true as the cap ages and develops additional leaks. Second, stockpile leachate is predicted to not meet water quality standards for thousands of years (Table 4.1-45). Third, the section should note that water quality and hydrologic impacts to wetlands and the Embarrass River under this proposed alternative would be perpetual.	WR1E
19685	GLIFWC staff reiterate that the property boundary has not been defined for this project. Therefore, It is the tribal cooperating agencies' position that the Dunka road should be used as an evaluation point. On multiple occasions PCA assured cooperators that the Dunka Road would be used as a water quality evaluation point (GLIFWC meeting notes from the Tribal/State meeting on mining issues held in Hinkley, MN on April 17, 2008). In addition, meeting notes provided by Knight Piesold (DNR Contractor) for a meeting held in St. Paul on September 29th 2008 state: "Richard Clark: Dunka road point was selected as indicator of impacts, but it is not necessarily a "compliance point" for permitting." Furthermore, Barr Engineering, October 9, 2008 meeting notes list as an action item: "7. Barr to provide tabular data on concentrations at the Dunka Road." However, this data does not appear in the DEIS. Information for the Dunka Road evaluation points must be included in Table 4.1-39 and 4.1-45.	WR1E
19685	GLIFWC staff strongly disagree with the assumptions used in the groundwater quality modeling for the mine site. We reiterate that relying on the effectiveness of a technology with highly variable outcomes (limestone treatment) in calculating long-term water quality is not a conservative approach. The DEIS should provide a range of water quality results including the groundwater quality under a scenario where lime treatment and covering the Virginia Formation wall is ineffective.	EOO
19686	As previously stated, it is unclear how the applicant would segregate particle size in the rail cars. Furthermore, dust emissions from transportation of ore have caused contamination issues at other mines. The paragraph assumes that because the volume spilled along the rail line is small when compared with the total ore transported, then the contamination would be insignificant. This assumption is not based on any analysis. The DEIS should include more than unsubstantiated guesses on the significance of impacts.	WR1D
19687	The DEIS does not include a detailed closure plan. This serious information gap is a fatal flaw that prevents the full disclosure of environmental impacts for this project. Tribal cooperating agencies and technical staff from the lead agencies reviewed the initial closure plan (RS-52) and submitted extensive comments to the applicant. The applicant did respond to a portion of those comments but the closure section refers only to RS-52 which was determined to be inadequate. A detailed closure plan that analyzes the feasibility, effectiveness, and cost of closure methods of a preferred alternative and all feasible alternatives / mitigation measures must be provided for the EIS to be adequate.	PD5
19687	GLIFWC staff reiterate that little or no baseline data was collected to provide inputs to the XP-SWMM modeling described in this document. Therefore, it is the tribal cooperating agencies' position that the model results cannot be used with confidence and do not allow an adequate assessment of environmental impacts.	WR3J

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19687	GLIFWC staff reiterate that the available data do not support the conclusions presented in this section. The impacts predicted by technical reports (RS73B) to the Partridge River are primarily reduction in base flow due to mine pit dewatering and those impacts are predicted by the MODFLOW model. MODFLOW modeling in (RS22-Appen.B) forms the foundation for the predicted impacts. The MODFLOW model (RS22 Appen.B) is not calibrated to a data set representative of the area and predicts fluxes to the Partridge River based an a non-unique solution. A differently formulated and calibrated MODFLOW model would predict much higher inflow to the PolyMet pits and therefore, show greater impacts to stream baseflow The surface water model (XP-SWMM) used for predicting impacts is calibrated to Partridge River flows from 1978 to 1988, seventeen mines downriver of the mine site. During the period of record, the Peter Mitchell pits were dewatered with unknown effects on the river flow data. According to technical documents (RS73A, page 21) the flow record at the Partridge River gage above Colby Lake (USGS #04015475) may have been impacted by mine discharges on the north branch. The monthly average flow recorded at this gaging station during 1978-1988 varied between a minimum of 1.3 cubic feet per second and a maximum of 454 cubic feet per second. The discharges from the Peter Mitchell Pit could account for up to 34 cubic feet per second. Since the timing, duration and location of mining discharges may be different now than during 1978-1988, the present hydrologic regime of the Partridge River is unlikely to be well represented by the period of record at USGS #04015475.	WR1E
19688	GLIFWC staff reiterate that there will be surface water discharge to the Embarrass River. Aerial photography and state Public Waters inventory maps indicate that there is currently a direct surface water connection between the northwest corner of cell 2W and the Embarrass River (attached Figure 4). Aerial photos show that water discharging from the tailings basin currently follows a natural channel westward, through existing wetlands and intersects a channel that leads directly to the Embarrass River.	EOO
19688	Tribal cooperating agencies believe the characterization in this section is misleading. First, as previously indicated, the WWTF would need to operate for 2000 years or more in order to treat leachate from the stockpiles. Second, the effectiveness of the passive wetland treatment system has not been demonstrated and it is likely that the wetland treatment system would not function as the applicant has suggested, due to eventual shortcircuiting. Finally, the long term water quality of the pit lake is a concern. It is unlikely that this water would ever meet surface water quality standards. It is the tribal cooperating agencies' position that the DEIS should discuss the implications of leaving a polluted pit lake at this site in perpetuity.	WR3C,WR3G
19689	GLIFWC reiterates that because the Embarrass River already exceeds water quality standards, it would be difficult to permit the addition of additional contamination from new or expanded sources. Compliance with the clean water act should be demonstrated in the DEIS. Water quality for the project has been poorly characterized or left uncharacterized. The limited available data suggest that surface waters have already been impacted by mining activity. Mercury, sulfate, and specific conductance exceed Minnesota surface water criteria near the tailings basin and at Area Pit 5. Mercury also exceeds surface water criteria in the Partridge River downstream of Colby Lake. However, no samples have been collected from lakes near the tailings basin (Heikkilla, Mud, Kaunonen, or Hay Lakes) to determine if the pollutants found in the surface and groundwater at the existing tailings pile have caused contamination of those waterbodies. The contaminant transport modeling suggests that the project will cause manganese, aluminum, and sulfate to exceed standards. Despite these results, the DEIS indicates that the proposed project complies with all water quality standards for the Embarrass River. This is misleading and must be corrected.	WR1E,WR3I
19689	GLIFWC staff strongly disagree with the approach presented in this section. All waters of the state are protected by Minnesota water quality standards and using this unnamed water as a mechanism to dilute mine related contamination is not appropriate. In addition, no flow information for this unnamed water is available. In addition, the DEIS should more clearly state that water quality standards at the Partridge River would be expected to be exceeded. GLIFWC staff reiterate that because of continued inputs from the stockpiles, the tailings basins, and the pit walls, the pit lake could exceed surface water quality standards for thousands of years. We also note that 20 feet of pit wall will never be submerged and as such constitute a perpetual source of mine related contaminants.	WR3C

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19689	Based on the uncertainties in the performance of the constructed wetland treatment system (DEIS page 4.1-112 to 113), GLIFWC staff reiterate that primary water treatment at the WWTF would need to continue for thousands of years. This does not meet the Minnesota goal for maintenance free closure.	WR3L
19691	The discussion on the potential effects of wild rice ignore the applicability of the Wild Rice sulfate standard. Because the lower Partridge River, Embarrass River, Embarrass Lake, Lower Embarrass Lake, Unnamed Lake, Cedar Island Lake, and Esquagama Lake already exceed the applicable wild rice sulfate standard, any new emission of sulfate would constitute a violation of the clean water act. The DEIS should explain how those exceedances are to be regulated.	WR4C,WR4F
19692	This section indicates that there is little opportunity for sulfate-wetland interactions at the mine site. This statement is incorrect and is contradicted by the previous paragraph. The constructed wetland is designed to be directly between the pit overflow and the Partridge River. As indicated in the DEIS, wetlands are a prime area for mercury methylation and the situation created by using a wetland to treat water that is also high in sulfate, creates a high risk situation for mercury methylation. In addition, the Upper Partridge River does have a set of extensive riparian wetlands which may also contribute to methylation. The full extent of this impact should be analyzed and described in the DEIS. GLFWC staff agree that additional work is needed to properly characterize the mercury dynamics in the area surrounding the tailings basin. However, we note that the sampling plan that was developed may not lead to conclusive results because of the small sampling effort. The data obtained from this effort should be fully peer reviewed and vetted before any conclusions are used in the DEIS.	WR1E,WR4B
19692	There is a great deal of uncertainty in this section. Much of that uncertainty could be resolved with further analysis of the functioning of the treatment wetland. This wetland, while intended as a passive water treatment facility, is likely to also be a source for methylmercury. As the DEIS indicates, there is no reliable method proposed for eliminating mercury. This oversight is unacceptable. A variety of Mercury removal technologies are available, but none of them have been included in the design of the proposed project or any of the alternatives/mitigation features listed in the DEIS. This oversight constitutes a fatal flaw in the DEIS because not all reasonable alternatives for protecting the environment have been explored. The DEIS recommends additional analysis on this issue. GLIFWC staff reiterate that further analysis must be conducted and incorporated in the DEIS so that environmental impacts can be predicted and reviewed by the public. As described in comments for section 4.1.3, modeling done for mercury emissions give results that are illogical. The DEIS proposes that the more PolyMet seepage that PolyMet releases from the basins, the better the water quality will be for mercury. Model results for Hg in seepage from the tailings basin is predicted to be 0.9 ng/L (DEIS, page 4.1-124) yet the average mercury concentrations at the existing tailings seepage is in the range of 1.5 to 2.0 ng/L (DEIS Table 4.1-31). As with other parameters, it appears that the modeling at the basins does not appropriately account for the effect of the LTVSMC tailings when predicting future water quality.	WR4A,WR4B
19693	The DEIS does not include detailed financial assurance information. This information gap is particularly important given the potential for very long-term/perpetual treatment, maintenance and monitoring that may be needed for the Proposed Action. Because of its experience in expensive cleanups of contamination from many defunct or bankrupt sulfide mines, EPA Region 9 has strongly urged other Regions over the past two years to require financial assurance disclosure in the NEPA process. New national rules for financial assurance are under development by EPA, because "Given the history of adverse environmental effects resulting from some hard rock mines, and the expenditure of public funds used in some cases to address environmental problems caused by mining, EPA believes it is necessary to analyze these factors in the DEIS." (from InsideEPA.com, Tuesday, August 25, 2009). GLIFWC staff believe that the Polymet DEIS should follow this directive. The tailings basin alternative includes a perpetual pump and treat system that would require the capture of large quantities of water. This system would be expensive and the applicant must demonstrate the ability to be financially responsible for that alternative. As stated above, a preferred alternative must be developed which includes a detailed closure plan. Once these missing pieces of information have been developed, detailed financial assurance information can be included in the EIS.	PD3,PD5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19694	GLIFWC staff reiterate that there are no reliable data on water level fluctuations for the Partridge River. The data used in the DEIS were obtained from the MODFLOW model that has been deemed unreliable outside of the mine pit area by all participants in the DEIS process. GLIFWC agrees that characterizing water level fluctuations in the Partridge River is important and have repeatedly suggested that appropriate data be collected and modeling be conducted.	WR3J

Sender Last Name: Volovich **Submission ID:** 1132

112	It’s near my home, I’d like a hearing to be hosted here!	PRO6

Sender Last Name: von Euw **Submission ID:** 3177

719	Regarding the Draft EIS, I am requesting the following: 1. A time extension of 30 to 45 days for review of the EIS. 2. More public meetings in more places to gather input. The current schedule is too limited. 3. The public meetings include the option for citizen statements and discussion in the open meeting. Thank you for your time.	PRO6
720	Regarding the Draft EIS, I am requesting the following: 1. A time extension of 30 to 45 days for review of the EIS. 2. More public meetings in more places to gather input. The current schedule is too limited. 3. The public meetings include the option for citizen statements and discussion in the open meeting. Thank you for your time.	PRO6

Sender Last Name: Voris **Submission ID:** 3530

3710	I'm concerned about what appears to be lack of a way to meaningfully hold this company responsible for recovery costs. Shouldn't they have to escrow at least *some* of the estimated clean up cost? It sounds to me like they're going to make a mess. If that's deemed acceptable, I surely want to have their money in the bank to clean up when they move on!	PD4

Sender Last Name: Voss **Submission ID:** 261

274	We are residents of Hoyt Lakes. We fully support the opening of the Poly Met facility formally LTV Steel. We also feel the EIS draft very adequate in looking at the safeguards for our area and other concerns. First and foremost in our minds is the job situation in our area and the help this could bring to us. With so many families struggling please don't let another opportunity go by that would not simulate the economy of this area. We love the outdoors, and if anyone had a convincing argument as to why this would do more harm than good we would be on that side, but frankly we have seen nothing to indicate that. It's always been interesting to us that as people debate the pros and cons of the environment; they do not seem to take into account the health of our families as it relates to social problems that are created in these hard economic times. Please provide all the help you can to move ahead on this project.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3153	I am concerned about the proposed sulfide mining for a few reasons. Many Minnesotans have no idea who Polymet mining is, what they do, and why they do it. What the mined materials of previous mines produce must be widely known. With an already suspicious public about energy sources like coal and nuclear, its scary so have another extraction company creeping in unnoticed by the public and starting their operation before enough people know about it. If mines are developed, whatever plans for development in ecotourism of the area will be neglected. Canoe and boundry water opportunities will always be able to grow as long as the boundry waters are pristine. That means the northern minnesota economy depends on this habitat. The mining may bring larger profit in a shorter ammount of time, but once the mining has happened we can't be sure if we'll get the boundry waters back to their prisitne condition. I don't think this is worth the risk. Money and efforts could be placed in sustainable development and eco-tourism instead of mining. Efforts could be placed on making products without these dangerous mined metals, allowing alternatives to come to the market and decrease the demand for such mining. The longer we postpone the marketing of more environmentally friendly products that don't require extensive mining and metals, the longer it will take to get them into the mainstream. A new mining site is a setback the alternatives that lead to a sustainable future. I hope the utmost seriousnes is taken into consideration before any actions are taken in the boundry waters. I also hope that the long MN tradition of boundry waters canoing gets first priority in the issue. Please see past the temporary economics of the issue. I would love to see this area remain how it is undeveloped and unmined, to ensure the safety of our critical habitat and clean water.	G11
Sender Last Name:	Vourch **Submission ID:** 2113	
2505	For my great pleasure, my French daughter married a wonderful boy from Minnesota and they often stay at Ring Rock . Iff they have the chance to have a child one day , I wouldn’t wish anything of this project around a baby before or after he is born… And for adults, we don’t need that neither, we don't want it… Whom is it for? We all around the world try so hard to prevent pollution !.	EOO
Sender Last Name:	Voytilla **Submission ID:** 1584	
1960	As a wilderness guide, my livelihood is dependent on the health of the ecosystem and watershed that would be affected by this mine.	G11
Sender Last Name:	Wahl **Submission ID:** 151	
142	I'm in favor of the mining project to start as soon as possible. I don't think there should be any delays on it. I'm very conservation-minded. I pick up garbage after other people in the woods. If I thought this could be in any way harmful to our environment, I wouldn't think it would be a good idea, but I believe they have their ducks in a row, I believe that the impact will be minimal, and I believe it should be started without delay. That's it.	EOO
Sender Last Name:	Wainio **Submission ID:** 3250	
3571	At their regularly scheduled meeting held on December 7, 2009, the Mountain Iron City Council unanimously endorsed the NorthMet project and urges the approval of the Environmental Impact Study so this project may move toward reality.	EOO
Sender Last Name:	Waite **Submission ID:** 1716	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
2220	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Lets not forget what Reserve Mining did to Lake Superior at Silver Bay. We trusted their response and look what we got in return. This is not a good thing for Minnesota and it's citizens so lets put a stop to it.	G9

Sender Last Name: Wakonabo **Submission ID:** 3382

3672	As a student of higher education, pushing for more sustainable development of our natural resources. It is amazing to see public treasure and an ecological wilderness area face the possibility of exploitation. Not only is the land for all peoples it should be for all time. The wildlife are under enough stress like the moose, from environmental impact. Archaeological degradation of potential sites are often overlooked as well. Northern Minnesota has been hacked over before in the past and it has taken this long to recover. An open pit mine and it’s operation will never recover. The wounds of our time will be the scars of our children.	EOO,G2C

Sender Last Name: Walker **Submission ID:** 1283

1472	#N/A	G2C,G7B
2624	Okay. My name is Greg Walker. I live at Savage currently. I spent 24 years on the Iron Range, and I know the people up there, I know the culture, I understand mining, and at least I'm in favor of the PolyMet project. Certainly, the economic benefit is going to be great, very beneficial to the Iron Range, and we support it primarily for that reason. We feel that the consulting effort with Barr and other consultants and the engineering effort to assess the environmental aspects of the project have been well done, well undertaken, and I feel very confident the engineering is there, and this project should be at least as good as Flambeau in Wisconsin, the Flambeau mine in Ladysmith, Wisconsin. I think it will be another benchmark in sulfide mining and environmental mediation. And, let's see. That's about it. I think I can speak on behalf of my family, my wife -- probably can't legally do that -- but we're in favor of that project. We do own property in Itasca County, so although we're going to be remote from the actual mine location, again, we favor the project.	EOO,G6

Sender Last Name: Wallace **Submission ID:** 3479

1114	Further, the PolyMet NorthMet project will result in total loss of 1,454 acres of federally designated critical habitat for two endangered species known to be in the vicinity of the mine site: the Canada lynx and the gray wolf. Finally, cumulative impacts must address the loss	WI1
1320	has already banned sulfide mining due to the unacceptable environmental risk it presents. It is also my understanding that PolyMet proposes to use an existing mine tailings basin for the disposal of its tailings and toxic materials despite the fact that the basin already has stability issues making it unsafe. Any failure of this basin to hold its contents would result in long-lasting and serious contamination. PolyMet should complete a stability analysis of the basin and devise an acceptable design before being able to proceed with this project.	GT2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3124	Please do not allow the same mistakes to be made over again by allowing Sulfide mining in areas where the run off will permanently affect the ground water FOREVER. The proposed Polymet of mine just south of Babbit Mn. is a very dangerous idea and also a very bad precedent for other areas in your beautiful state. Water quality and the recreation economy will be seriously and negatively impacted. I am an avid outdoors man, a canoeer, a scientist and a chemistry teacher - sulfide mining has been banned in several states due to the ground water contamination issues that last forever. Your recreational resources in Minnesota are superb and should not be subjected to this type of threat - your economy can not afford to loose recreational $$ in the long run. This type of mining follows the typical "boom and bust" program that disrupts communities socially and environmentally - I just returned from the Upper Peninsula of Michigan where the economy has suffered greatly from the "bust" part of the sulfide mining cycle. This type of mining also left tailings ponds with no funding to monitor and abate future problems - that work was left to the already burdened people of the state of Michigan.	G7A,G11
3134	I am glad that I have visited northeastern Minnesota before these mines are to be developed. I don't believe for one second that these sulfide mines can be developed in such a way that they will NEVER pollute the adjacent waterways. Once they are opened, there is no turning back and the inevitable stain on the environment will remain for tens of thousands of years. Given the numbers of proposed sulfide mines in the area, it is almost certain that many lakes	WR3G
3233	waters to be discharged from the mine site into the Partridge River after the mines closure, as well as tailings basin discharges high in sulfate concentrations. High sulfates can turn mercury into forms that make fish dangerous to consume. This has serious human and wildlife health implications. It is unacceptable to proceed with a mine that already predicts these kinds of pollution outcomes.	EOO,WR4B,FM1
3682	well known history within the U.S. of causing severe and long lasting environmental impacts. Despite industry assurances, there are no new technologies which are capable of preventing this environmental damage. Water quality impacts remains a top concern. How is it acceptable to allow for up to 2,000 years of environmental impact for the short term gain of one company? Who will pay for the long term water treatment and clean up efforts which will be required? PolyMet has few assets and little financial history. The DEIS fails to address where the funding will come from to pay for post-closure treatment, monitoring and maintenance. As a result, it seems likely that Minnesota taxpayers may have to pay millions of dollars to clean up after PolyMet has gone. In addition, the DEIS predicts contaminated	PD2,PD4
3753	of revenue to the Boundary Waters Canoe Area Wilderness and Superior National Forest tourist industry as part of a sulfide mining district. While I fully understand the need for natural resources in our society, we also need to be responsible in our decisions. Certain types of mines should simply not be permitted in places where the risk to the environment is too great, as is the case for sulfide mining in northern Minnesota. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These serious long-term negative consequences outweigh the limited short-term economic gains this proposed mine might provide. Sincerely, Liz Wallace	G2

Sender Last Name: Waller **Submission ID:** 3151

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Comment ID	Comment Text	Theme Codes
3529	To whom it may concern, I would like to voice my opinion on the matter of developing a copper/nickel mine in the vacinity of not only some of Minnesota's most precious natural wilderness, but also that of a treasure of the world. This area is one of the most important sources of fresh water in the western hemisphere. To risk the negative impact that is inevitible from such a project would be to continue adding strain to the limits of our resources and harm not only our immediate natural landscape and all the creatures that depend upon it, but also endanger the futures of our coming generations. I understand that this kind of development would bring some jobs to the north (those who may have the education to work within the operation) and meet demands for our current society's needs, but it is also a short-term salvation with a long term impact that can never be repaired. I value on a much larger scale the protection of our fresh bodies of water and the essential life-sustaining and soul-sustaining gifts that come with interacting with this area's natural beauty. It is the last outpost that we have in the state. The more we eat at its edges the quicker the erosion of its beauty and the erosion of the laws that protect it. Let us learn from history for once! Once it is gone, we cannot get it back! I, as a Minnesotan, as a citizen of the United States, as a human being upon this earth who invests and contributes to our society and to my children's futures, do strongly oppose the plan to develop a copper/nickel mine near the boundery waters wilderness area. Thank you for your time, Nicholas Waller	EOO,G2,G7
Sender Last Name:	Wangerness **Submission ID:** 1166	
12	Also, the income generated by tourism must be seriously considered, a resource vulnerable to mining mistakes, a resource dependent on a pristine environment.	SE4
509	We need a guaranteed, upfront fund established to address any pollution problems incurred from mining. This must be available even if the offending companies are defunct.	PD4
1281	I am writing this note in support of transparency in deciding where mining is to occur in Minnesota. Above all else, we ust insure no severe damage be done to our environment, particular to the BWCA.	EOO
Sender Last Name:	Ward **Submission ID:** 2506	
3051	At the front of this pre-written statement I would add that this mining should not be permitted unless the mining company puts up the clean-up and restoration money (with inflation) before mining begins. gward. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources.	G2,G4A
Sender Last Name:	Warner **Submission ID:** 1308	
1521	First, let me explain that I have been visiting the Boundary Waters Canoe Area and the Quetico for 41 years, and will make another trip to the area in September. I am unalterably opposed to the said mining proposal. If this plan is allowed, Ely and its citizens will be trading many thousands of visitors like me for a few jobs in the mining industry. Eventurally and inevitably, any mining will affect the pure waters of the BWCAW and, one day, the Quetico. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources.	G7B,G11
Sender Last Name:	Warren **Submission ID:** 2016	
2485	The first thing I have to say is "what are you thinking? Have you no humanity?" Have you no concern for those who come after us? Mining was done in Northern Minnesota in the past. We as residents have already dealt with toxic results which drastically affected our resources - Lake Superior, wildlife, loss of natural habitate and the like.	EOO,G2C,G7

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Comment ID	Comment Text	Theme Codes
Sender Last Name:	Waterbury **Submission ID:** 284	
316	I am writing on behalf of PolyMet Mining, Inc. I would like to see this project move forward and personally feel frustrated with the State's delay in producing the draft EIS. I further understand that PolyMet is the first Copper, Nickel mine to seek approval in the State, thus review is prudent. However, I remain disappointed in my perception of the State's lack of project attention that PolyMet should have commanded. Why should the State of Minnesota approve this project? • Jobs that pay a livable wage, and taxes generated to pay off the State's deficit. • PolyMet's facilities and mine site are located in the middle of the Mesabi Iron Range – not in the heart of the BWCA. • Is it not true that PolyMet will be the only domestic source of nickel – a national interest by definition? • Through the EIS, PolyMet has proven it can produce critical base metals while adhering to the State's incredibly strict environmental standards. • PolyMet utilizes existing structures, tailing basins, rail, power and road structures. As a result, no new damage to the environment occurs. I am expecting a prompt conclusion to the public comment period, and a direct movement into the permitting process.	EOO
Sender Last Name:	WaterLegacy **Submission ID:** 3623	
3903	WATER LEGACY CHARGES DRAFT EIS IS WHOLLY INADEQUATE SAINT PAUL, MN, November 3, 2009 – WaterLegacy, a non-profit organization formed to protect Minnesota's waters and the communities who rely on them, learned today that their effort, in collaboration with nine other environmental and faith-based groups, to obtain a 90-day public comment period (legal requirement is 45 days) for the PolyMet strip mine project in Minnesota has succeeded. Members of the public will be able comment to the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers on the proposed copper sulfide strip mine draft EIS through February 3, 2010. WaterLegacy attorney, Paula Maccabee, stated, "The good news is that members of the public will have at least 90 days to comment on the PolyMet strip mine draft EIS. The bad news is that the proposed strip mine is likely to result in thousands of years of acid mine drainage, increase mercury contamination of fish, destroy wetlands and habitats, and put Minnesota taxpayers at risk for hundreds of millions of dollars in Superfund liabilities." WaterLegacy pointed out that both the United States Environmental Protection Agency and the Indian tribal experts involved in the process as cooperating agencies believe that the draft EIS is inadequate. Key issues include: 1) use of fatally flawed water quality analysis; 2) perpetual water pollution inconsistent with state mining laws; 3) failure to address the risk of catastrophic collapse of tailings dumps; 4) failure to include an environmental and economic analysis of the land exchange needed to proceed with the strip mine; and 5) failure to discuss financial assurances to protect taxpayers from footing the bill for future strip mine water pollution. Public hearings on the PolyMet draft EIS will be held in Aurora, Minnesota on December 9 and in Blaine, Minnesota on December 10, 2009. See waterlegacy.org	G2A,G4A,G7A,G8B
Sender Last Name:	Waters **Submission ID:** 2533	
3102	I live on the shores of lake superior, the sulfide mining proposal made by PolyMet is EXTREMELY likely to do irreparable damage to the Boundary Waters and the water quality for anyone in the same watershed. Regardless of what humans think, this is not our planet anyways and we should be conscious of our effects on other beings that we share this planet with. Do NOT allow this project to go through, Our future generations will be deeply effected by this decision	G7
Sender Last Name:	Watkins **Submission ID:** 3752	
1	My support is for more jobs in Mn & surrounding areas. the work will go somewhere it might a well be here. I believe there are enough standards to prevent over polution. If they do not exist now, they will be passed sonner or later. Plants can comply then. There are our jobs. Iron workers 512 Duluth.	EOO

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Comment ID	Comment Text	Theme Codes
2	Is it worth some jobs to ruin the Lake Superior and Great Lakes with the ultimate sulfide run-off. Jobs last maybe 40 years – resulting polution lasts forever. Where is Polymet's proof of their "new" sulfide treatment??	EOO
3	I feel the need for the mines are essential for economic reasons, so we are not so dependent upon foreign imports of minerals. It is my opinion that PolyMet will mine these minerals in a manner as to not hurt the environment.	EOO,G1
4	We very much need the industry in Northern MN. Polymet has done their homework, they are not asking for handouts. This industry, starting with this project can help sustain the Iron Range and Northern MN economy – I firmly support this project.	EOO,G1
4	The question is: "Why hasn't this project gone through yet?" It seems to me the only issues here are the environmental issues, which are issues I can see, but from what I have observed, Polymet mining company have been compliant with any and all obligations in order to ensure this mine runs environmentally safe. Mercury in our water & soils is a serious issue indeed, but when their precautions are presented and they are up to standards by DNR & other companies controlling the issues. Why are we still debating whether or not it would be a good idea to create 400+ jobs? Northern MN was boring & is sustained by the mining companies. They mines are what made the Iron Range. This meeting may be procedure but it is being used only to better inform its supporters & only make their decision more concrete. Obviously MN needs this mine & so does our economy. This mine won't only help the ones employed at Polymet, but w/the boost of economy it'll boost other businesses as well. The environment is important & so is the health of the people that surround it, but this mine has the financial capabilities of making it an environmentally friendly one, so get it started already!	EOO,G2
4	Dave Bozicevich, Virginia, Minnesota. I'm in full support of the PolyMet project. I'd like to give reasons or....I mean, what do I do, other than say that? Okay. Some of the reasons that I feel this project is worthwhile, I think it would be -- first and foremost, it would be an economic boom to the Iron Range. I think it would be the next step in the taconite process. We had the red ore, then we had the taconite, then we have, you know, Magnetation, and PolyMet, and now we should take it to the next step. I really believe that the world needs these elements that the PolyMet project wants to harvest. I believe that after 7 years, PolyMet Mining still does not have their permits. I think that is a travesty. Why should it take 7 years to not get their permits? I also believe that the world needs the commodities. You know, we've all seen what's happened with the price of gold in the last few months. Unfortunately, this Obama Administration is going to turn this frickin' country upside down, but you see why gold has increased, because the value of the dollar is decreasing. And it's not only gold, but it's platinum, palladium, silver, copper, nickel; all the other elements that we could possibly extract from the area here, I think it's done. I think it has been done with a lot of insight and a lot of resource, a lot of information, a lot of thought has gone into this situation. And, you know, it's not like copper mining was a hundred years ago where you dig a hole and you extract it and who really cares about, you know, the remaining situation; what it's going to do to the environment. You know, the main concern with these leaf-licking, granola-crunching left-wingers is, you know, the acid runoff, but....that might have happened a hundred years ago, but I think things are in place now where we can prevent these so-called travesties so that couldn't possibly happen. Would you rather have the world use these precious metals in an environmentally-controlled situation, or would you like to have a third-world country harvest these commodities with no care for the environment at all? And something else that I'd like to state about the opposition is: Most of the opposition that is coming are from the environmental wackos; you know, the left that really, you know, they're against progression. If we have our thinking like they think, we would still be going to work on horses instead of cars, because what they're really doing is stifling progress. And I really believe that the world needs this commodity, our area needs this to take it to the next level; the next step, like I had previously mentioned. And I think that it's -- that it's really unjust that the State of Minnesota, the EPA and whatever, why it takes so long to get the permits. You know, why does it take 7 years to not get your permit? Why can't it be, like, 6 months? You know, what do you have to study and what do you have to look at after 7 years? Don't you think that everything has -- all the issues have been addressed? I think it's a travesty, I really do. And I have 100 percent support behind this. I hope that it goes through. And we need the commodity.	EOO,G10

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Comment ID	Comment Text	Theme Codes
5	10-15% unemployment, massive state budget deficit, huge trade surplus. How can we not allow the project to proceed? Northshore mining is proof that mining operations can be performed in environmentally sensitive areas. The state of Minnesota has the regulations to enforce compliance.	EOO,G1
5	Seems like the independent studies have been done this isn't a quick approach…looks good. Need jobs. MN needs this.	EOO
5	As a person who/lives work/plays/in Northeast Minnesota, I support Polymet mining project. It will significantly contribute to the state and local economy at a time when we really need the jobs and economic benefits.	EOO,G1
5	I feel Polymet has done a very complete job researching and planning this project. I'm in full support of this.	EOO
6	I am a pipefitter that is currently laid off. I enjoy and want to preserve the outdoors as much as anyone else. I believe PolyMet has a safe and enviromentally freindly process for processing the ore. People opposed to this prodject are using false in formation to scare people into stopping this prodject. I think this prodject would benefit the Iron Range, Minnesota, and the entire country. It would provide good paying jobs both during production and during construction. We would also have another source of these metals in this country instead of importing them. Good jobs are the backbone to a good economy. I think the PolyMet prodject completion would encourage even more growth in the mining feild in this state. I just can't understand why people would try to stop such a good prodject for economic growth.	EOO,G2
7	I am writing in support of the PolyMet NorthMet Project.	EOO
7	As a former resident of Hoyt Lakes, I recognize and support the NorthMet project in terms of it's much needed contribution to the iron range.	EOO
7	it would be beneficial for the EIS Summary to address the fact that if PolyMet did not continue there would still be detriment to the environment due to the fact that there would still be a demand in this country for copper (and the other metals PolyMet would mine).	EOO
8	Steven Thums, Isabella, Minnesota. I'd say that I think this is a good thing for the economy around here and for people working. I believe in protecting the land and water, but there's an old plant there already. They've done damage. I can't see this place overdoing that much damage to the area with the days and how we protect things nowadays. So I think this is a very good thing for this area up north.	EOO
8	I am for the project it will help the economy.	EOO
8	I am for this project. I think it will be a great way to get some of our guys back to work.	EOO
9	I still have many questions and concerns about the environmental impact of the proposed mine, and ask that you extend the public comment period to allow us to better study + respond to the complex issues that this project raises.	PRO6
10	I'm a Union Ironworker who supports Union work in Minnesota. I currently have a family to support and could use the work.	EOO
11	Think globally act locally. That's conservation with common sense!	EOO
12	Lets approve this mine "In my backyard". Our nation needs the metals that will be produced by this mine. The operation as proposed by Polymet will be more environmentally friendly that almost anywhere in the world. Minnesota with the approval of this project would create jobs in Minnesota, bet the tax revenue and supply our country with safely and cleanly produced important metals. This would be a win, win, win situation for Minnesota!	EOO
13	I also think that he was telling me that they need to do a lot more stochastic modeling on what the storm surge kind of things are going to be at the -- at the tailings basin, because he said they have a whole bunch of new eleventh-hour data that's just come in about how that works, so they need to do -- run another stochastic model on that. They haven't really done a good job there.	EOO,WR1E
14	The public meeting was for the purpose of informing people about the EIS process not a debate of mining or not mining. This was no more a one sided event than the Precious Waters meeting held by the Friends of the Boundary Waters.	EOO,G10

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Comment ID	Comment Text	Theme Codes
14	He also said there's eleventh-hour data that's come in on wild rice, and there's a Minnesota Wild Rice Standard that says there can only be so many parts per million of sulphate in the water, and clearly, that hasn't been taken into account fully in this, he tells me, so that needs to be added to the analysis, because that's a crucial thing that affects 1854 Treaty rights to some extent, and those are -- probably trump the U.S. Constitution. Of course, it should be U.S. Constitution Treaty Rights are the law of the land, so given that, that needs to be in there. It hasn't been done. There hasn't been good modeling on it. They thought there was no wild rice in the Partridge River. Now they're saying that they have confirmed reports on that, but they haven't worked that into all the different alternatives and scenarios, so clearly, there is a lot more sort of modeling work and analysis that needs to be done that hasn't been done yet.	WR4A,WR4F
15	I think it is an absulute shame, if not criminal, to allow a public meeting that was meant to inform concerned citizens on both sides of the issue to become a one-sided political rally. I came here tonight to listen to subject matter experts, not politicians making stump speeches.	EOO
16	The -- I think there's a real potential for some serious pollution that's going to negatively affect the city of Hoyt Lakes' drinking water supply, water supply for people's wells all up and down the reaches of the Embarrass and the Partridge River, going down all the way to St. Louis, and I -- or St. Louis River drainage, and I think that cumulative -- they say that there is no cumulative water quality impacts, and I'm -- I'm pretty dubious about that, because I just don't see how, with possibly more plants like this going in all up and down the Range, the East Range, that there's not going to be cumulative water-quality impacts, at least further down the St. Louis River drainage way. I just don't see that not being an issue. You know, at some point, you're going to -- you know, pH is not a linear thing. It's a -- it's a loga -- logarithmic, exponential thing, and when it gets past certain quality thresholds, it starts changing more rapidly.	EOO,SE3,WR3B
17	I support Polymet and their project. It is safe and we need jobs in northern Minnesota.	EOO
18	So I was just talking to the water quality specialist from the consulting firm, and he was just telling me that there is a number of analyses that they haven't completed yet regarding sort of financial assurances, what -- what the correct levels of financial assurances are for the correct levels of financial assurances are forthis, because, for example, if PolyMet shuts down or goes bankrupt, either -- you know, before or after the 20-year thing and there's not enough money in the fund for monitoring or whatever bond assurance they put forward, the state's going to get stuck holding the bag, and I think that's a really critical piece that needs to be in the Environmental Impact Statement, because that really affects what the -- the possible public impacts are.	PD4
18	1) Polymet spent $20 million on a study 2) Science is good and the environment cost is really in the execution of the “good” engineering. Conclusion: let them have their mine. Let good men and women have their good jobs. Let the environmentalist know that Polymet play by the rules and the liberals from St. Paul do not (Rep. Houseman wants to introduce laws to change the rules)	EOO
19	I am very supportive of the proposed Polymet mining proposal. I am satisfied that the engineering team from Barr Engineering and the staff of the DNR and Army Corp of Engineering have identified a responsible plan to develop this mining operation with an acceptable/minimal impact on long term water quality. The benefit of economic development is very powerful for our state and it’s people. I think the other mineral deposit adjacent to the Polymet site should be consolidated into this operation over time to minimize any added environmental impact to the area and this provides a sustained economic engine for Minnesota that would last for 50-100 years. I would also like to see the floating bog wetlands produced by BROTEX used as part of the remediation. This product is more from recycled carpet fibers (nylon) and lasts forever.	EOO,G14
20	I’m very concerned about the destructive nature of this project. Acid mining was rejected by Wisconsin and ultimately banned because of the LT harm that would have been caused by sulfide mining. Now, with the economy in rough shape, PolyMet is preying on an economically vulnerable area & asking them to accept even more contamination in exchange for a few years of jobs.	G2,G12
20	The mining itself will produce toxic leachate, and so will the tailings. What will this do to drinking water & groundwater?	RFI
20	There are so many things that this EIS doesn’t even begin to cover. I’m especially interested in hearing from native peoples about the real affect on them & their land. What was this treat that was mentioned – more on that.	CR2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
21	How many species of animals will be affected?	RFI
21	Where are the Elk?	RFI
22	I'd like to see in the next presentation exactly the affects of these toxins on fishm on other wildlife, in swamps – our earths filter systems, the rice, the air etc., maybe in the form of photos.	G2,G14
23	I have lived in NE MN all my life & feel that I have allways been concerned about the balance of the economy & the environment in which I have lived worked & raised my family (8 children). We have lived on Big Sturgeon Lake & draw our drinking water from a well for the last 19 years. I have paid close attention to the process undertaken by Polymet and am confident in their expertise & the systems they will be employing in extracting the various minerals they are seeking. I support the issuance of the permits necessary to proceed.	EOO
23	Also, the drainage that would occur into the Embarrass & the Partridge River.	WR3D
24	I THINK THIS COMPANY SEEN TO BE DOING THINGS BY THE BOOK AND THE BENIFETS OF JOBS WOULD BE GOOD FOR FAMILYS	EOO
25	Being a resident of Northern Minnesota, I am in full support of the PolyMet Mining NorthMet Project. My support is based on the following reasons: PolyMet Mining has invested significant resources in terms of time and money in developing the Draft EIS to ensure that all questions and converns are brought to light and are being addressed prior to the start of the project. The tax contributions to all levels of government, the direct jobs at the mine and the spin-off impact are tremendous and are needed to help level the economic swings of the region. As a person who resides, works, plays, pays taxes, and votes in the region, I am greatly aware of environmental impacts. The resources of time and money spent to make sure all environmental issues are address prove to me that the project is economically viable while working within the current environmental regulations. The metals that PolyMet will be mining and refining at the NorthMet Project are essential to all of the modern conveniences that Americans desire in their every day lives. Many of these metals are not produces in the United States, thus requiring importation. The countries that produce these metals in many cases do not have the safe guards in place to protect the environment that will be required of the NorthMet Project. Thank you for the opportunity to submit a comment on this project that is essential to the State of Minnesota and to the United States of America.	EOO
26	I support the Polymet project. It will provide long term mining employment and short term construction employment. It will boost the economy of the iron range and improve the quality of life. In the bigger picture copper mining in Minnesota will reduce imports of metal and contribute positively to the trade balance.	EOO
26	I'm Joni Stutzman with the Hoyt Lakes IGA, and I would like to address to -- I'd like to address the -- if nothing happens, let's say that PolyMet is turned down and nothing happens. The impact that that would have of not allowing jobs to come to the area, young people to come to the area, would be a continuing deterioration of services for the area, including retail, including school, including churches, including the hospital, because we need those jobs in order to maintain our retail environment. And if we do not have those jobs, we will continue to lose our retail environment, we will deteriorate the school, because there will be less kids available, the school will have a difficult time paying for the new school, and I just think the -- and then allowing the importation of the needed minerals will cause a bigger problem environmentally than having them locally and under a controlled circumstance.	EOO
26	Tourism and the precious natural resources will be affected for the short term gain of jobs.	EOO,SE4
26	I think the environmental studies are adequate and I sure would welcome more jobs around our area. So I'm strongly for this project.	EOO

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Comment ID	Comment Text	Theme Codes
27	I support the PolyMet Project for there ability to mine the minerals needed without doing damage to our environment new processes that will reduce drainage to rivers and lakes and air. and support the project for the economic impact it will have in the Iron Range. 400 new jobs close to 500 new jobs from spin offs improve the tax base more income for our schools and cities on the iron range precious metals more accessible to US companies provided with damage to air water.	EOO
27	It would take our grandchildren's children before it would be cleaned up and the metals mined would have been used up 15 years after it was mined.	PD3
27	This company seems willing to do what is right, and with all the people out of work, what a help to the area.	EOO
27	I believe PolyMet’s project should move forward as it will provide good paying jobs & taxes not only for Northern MN, but also for the state on Minnesota. Based on the time & labor spent on the project so far it’s fine to approve it and move on.	EOO
27	I support Polymet for tax's + jobs It will also support my job + company.	EOO
28	How can you gurantee that the tax payer won't be picking up the clean up costs?	PD4
29	This project would be a positive for all Minnesotans. Build it!	EOO
29	How can you prove that the wastes will remain clean?	RFI
29	Wonderful project! I love the idea of mining ore industry in the northern part of the state. This region has such a history of production and significance to not only the state but the region. Please move forward with this project and get Minnesota's economy back on track.	EOO
29	Worse yet, the Fon du Lac tribe is situated downstream from the proposed site, and not only would the river flowing through the reservation be affected, the upstream wild rice stands already recognized as threatened would likely disappear.	G14,WR3D,EOO
29	William Moraski, and I don't have a middle name. I live in Hoyt Lakes, Minnesota. And I have lived up in the Iron Range now for 50 years, and 40 of these years, I worked for LTV Steel Mining Company. And I have sat through several meetings with PolyMet with telling about how the process was going to work and I was absolutely impressed at the changes from the old mining, what they have to do to meet the standards of mining copper. And I am totally convinced what I have seen, that they will meet any pollution standards at the highest level. I certainly would like to see this project go forward. And I think it's a wonderful company -- PolyMet -- as I see it, from all the discussions we've had. And, again, I got grand kids that live up here, and if there's anything I sensed that would hurt them, I certainly would not support it. I think, again, living here all these years, I have the utmost confidence in PolyMet. Thank you.	EOO,G5
29	This proposed mine is surrounded by rivers which flow into the St. Louis and ultimately into Lake Superior. The water and wetland scientists at tonight's talk even readilly admitted that the leachings could spill over the lagoons and into Partridge creek. Why then should this mine project be considered? I have fished and canoed the St. Louis River for many years now, and it sickens me to think that this pollution will likely limit my ability to do these things.	WR3D
30	I fully support the PolyMet project. I believe after going to a number of meetings explaining the process that yes in fact they have covered all bases from an environmental stand point and will do even more if required by permit. I live and work in northern MN. The economic vialbility of the region is at stake. I believe that a environmentally feasible project which will still create jobs can be achieved. The most important economic impact is obviously the job creation which diversifies the industry in NE MN and stabilizes the area. The taxes paid will benefit the whole state.	EOO
31	Creation of the Polymet Project will allow the creation of jobs that will provide a hiring wage. It will also help retain and possible help return young people to Northern MN. I believe that the state of MN has and will continue to safe guard the environment of MN and that the management of Polymet had committed to, and will continue to protection of the environment.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
32	Chpt. 5 16-16-Monitoring of the proposed budget Currently there is no explicite monitoring information – it is critical for explicite monitoring information to be included in the final draft. For instance, what happens when agency budgets are cut & funding is not available to continue monitoring? Who will monitor? Certainly not the company – must be independent monitors who report to PCA, DNR, AC of E, throughout the life of the project and with power.	ALT5
33	We need the jobs in Minnesota. We can't rely on tourism alone. Mining has been a way of life in Northern Minnesota for a long time. Polymet is going to revive a pellet plan, which means the area already has buildings on it and there are a lot of mines the area already. I don't think there will be much of an impact on the environment.	EOO
34	I think the PolyMet Project should be allowed to move forward. The project would provide needed jobs to the area. It also appears to use best available technology to minimize the environmental impact to the area. In addition, it will reduce our dependence on metals mined out side of the country.	EOO
34	We have thousands of people out of work with the economy and all. We have the technology to keep a safe and clean environment I don't see any reason we cannot put everyone to work and also keep a clean environment which is also important.	EOO
34	I fully support this project for the creation of construction jobs, permanent jobs and the tax base that it will create in the state of MN.	EOO
35	I SUPPORT POLYMET'S NORTHMET PROJECT This project will contribute to state and local economy significantly at a time when we need it and the jobs that it will bring. This project will be done in an environmentally sound and safe manner. The metals that will be supplied by this mine are useful in green energy projects and inhance our ability to provide the supply we need instead of depending on offshore supplies.	EOO
35	John Martin, Talmoon, Minnesota. I was just thinking that this project would be real good for us people in the community living in the northland, just to kinda jump-start the economy. And, you know, we'd be bringing all these jobs up here and....not the permanent jobs, but the construction jobs too; having the people come into the area spending money at motels, restaurants. I think it would just be really good to put the northland back to work. I guess that's all I really have to say about that.	EOO
35	The St. Louis River flows less than a mile behind my home and through the piece of this earth most dear to me. But the area so close to my heart is threatened – by a lack of economic opportunities. I've watched so many of my peers downtroddenly head "south" to earn a living wage. PolyMet would bring 400 jobs to the area directly along with an exponential number of spin off jobs. The copper and nickel they hope to mine are metals that the world needs especially in the creation of green technology. With the technology in place so much better than years ago and the Iron Range ethic, we could safely and cleanly provide them to the world and diversify our economy at the same time. It's ethical to our region, state, and country that we keep some industrial focus and not look entirely to tourism & strive to service to sustain us. The agencies and industries in this project are people I trust. They are people who, like me, grew up in Northern Minnesota, live there, breathe the air and drink the water. I'm sure they will do nothing to sacrifice the land we all love, including my dear St. Louis River.	EOO,G7
36	I think the PolyMet Project should be permited to provide working wage jobs to families with new technologies in place to protect the environment new regulation for safe mining for the Northern Minnesota area – there is no reason not to mine more metals in a mineing enriched area.	EOO
36	I believe in strong union representation. I have a family up here, and so far have made my living and support for my family by working union jobs. This PolyMet job is security for my job and for my family in the upcoming years.	EOO
36	I support for more jobs in MN for the community & contractors. I believe that the standards to keep the environment clean and give back in profit what it will trade.	EOO

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Comment ID	Comment Text	Theme Codes
37	There has never been a sulfide mine yet that hasn't polluted & I don't believe that Polymet can run a sulfide mine without polluting our waters. Minnesota is the land of over 10,000 lakes and it is one of our biggest and most important assets. I don't think that our environment should be jeopardized for any promises that haven't been proven. What good do jobs do in a polluted landscape. H2O is life we need to protect our Minnesota waters at all cost!	WR3D
37	Inadequate consideration has been given to the impact of noise and light, both on wild life and on land owners throughout the region.	PD12
38	I very much support Polymet and its jobs it will create. Minnesota specially Iron Range (N.E. Minnesota need job. Polymet will not only put people to work put will also have many spinoff jobs. Also it is better to use our own resources instead of using foreign material. It not only keeps our money here but also keeps people working.	EOO
38	The mining company has exaggerated the employment that this project will generate in order to create political support. Equipment and technology have advanced & will continue to advance, reducing the numbers employed.	SE3
38	Inadequate consideration has been given to the long-term impact of the mine. For example, waters will exist for centuries. No consideration has been given to how protection can be economically maintained for these centuries, especially in view of the impact of potential climate change on water, storm, security & wildlife.	EOO,G1,EOO
38	I support Polymet. I support the continuation of effective mining in the U.S.A. If we can do it here lets do it! We can do it right and improve our economy and the environment. I support Polymet.	EOO
39	I think that this project would be an excellent company to begin on the range. We need the jobs in this depressed economy. Also I think that Polymet on a whole has tried to cover all the bases as far as the environmental issues. I've done my homework on the company and the process they use for separation of the ores eliminate the sulfur and acid levels once the metals are separated to a very small amount!! They are trying to be environmentally safe and are being very professionable in the way they are trying to get this project started. I think in my opinion that this would be very beneficial toward the range.	EOO,G2
40	Please build Minnesota need this project.	EOO
41	I support this project. I think the DNR Agency did a great job of compiling the report. I think the reward outweighs the risk. We need job & state revenue. Please let the project proceed. Thanks.	EOO,G1
42	I support the employment opportunities an also support the environment – Lets get our people back to work.	EOO,G2
44	I am in favor of the Polymet Project. The Northern MN area has been hit unusually hard by the economy over the past several years. This project would provide much needed high paying jobs for a young generation. If this project is not approved, these young people will be forced to move away from the area they love. They would move their young families with them forcing more school closing, more layoffs and less money into an already struggling area. I believe there are safety measures in effect to do this project safely today & for generations to come. The research and the studies must be trusted. The experts must be heart. This is a good, solid project that must be approved.	EOO,G1
44	On a scientific basis, I am as soil scientist, and I am extremely astonished that such a project would even warrant the consideration of a permit if the tailings basin does not have a liner and as designed will allow polluted water to leave the basin, enter the adjacent wetland, and consequently our state water resources. The health of our children, families, wildlife, and our environment will be in peril.	PD5
44	On converns over the agenda of the public meeting, a DNR employee informed me that politicians were informed that they had 5 minutes of time to talk and no position statements. There insuring time on the stage lasted at least 10 minutes a piece and were nothing more than campaign speeches to win the roles of Polymet supporters who clearly outnumbered the opposition (most likely because they were bussed in). I am also concerned that these sales pitches given by the legislators will influence the resultant comments on the EIS and, taking into account that DNR says all comments will be considered, this is a problem.	PRO1,PRO6

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Comment ID	Comment Text	Theme Codes
44	This project is important to me due to the new process involved for extracting precious metals. I also like the fact that we will be recycling an existing plant instead of mothballing resources. Any process that keeps products coming out of America helps this recession we have found ourselves in. Lets talk about one of the most important thing about this project, putting Americans back to work with American products.	EOO
45	This process (Polymet) is a very complete environmentally friendly process. We need to keep our jobs in MN. We all have family in N.E. MN. Please support our communities and jobs.	EOO
45	Diane Krueger-Pirnat, Zim, Minnesota. My opinion: I feel that the PolyMet project is a great business for our area. It should create well-paying jobs. It should enhance our economic situation up here. They've been in business a long time. And I know the effects of having employees and how it boosts the economy in many many phases, so I don't have anything to say against it. That's it.	EOO
45	I support this PolyMet concept, the ability to harvest our natural resources to support the needs of U.S. businesses. Some resources need to remain available in this country to protect our national security. The proposed PolyMet site is an existing brownfield with a long history of iron ore & taconite mining. Utilizing existing land, buildings, tailings delta, etc support limiting our carbon footprint. Coincidently it also saves the company enough money to make the project financially feasible allowing the owners to take the risk that has viable for many generations. The jobs, both primary & secondary are important to diversify the economy of NE Minnesota. Finally, from the testimonials I have heard the new technologies for extracting the ore(s) are designed to be safe to protect our natural assets for generations to come.	EOO
45	Northern Minnesota, the Iron Range and rural communities of Northern MN is an important economy for our state. It can often be overlooked as just a vacation spot. Polymet employees and officials are responsible leaders that live and raise their families in our communities. They have put together a viable and one of the most environmentally responsible plans for a new generation of mining in Minnesota. I believe they will raise the bar and hold high standards in environmental responsibility. This an important long term project that will support local economies as well as produce important tax dollars for the state of MN. Polymet will also be setting an example and setting new standards for more projects like it that will follow. Northern Minnesota is in a depressed state of economy and would benefit greatly from 400 permanent jobs as well as supporting as even greater number of spin-off jobs. Polymet has the ability to be a leader or set the example for similar operations around the globe by encouraging and motivating other potential operations to being both profitable and lucrative while producing very low impact to the environment which we all live, work, and raise our families in.	EOO
46	I support Polymet! I am a boilermaker and am currently laid off. My family depends on projects like Polymet to keep me working.	EOO
46	Sulfide mining in Northern MN also has the potential to jeopardize the long standing tourism business of the area.	G11
47	Like it or not tourism is the only way Northern MN can be economically stable for the long term. Destroying portions for a ritual forest and an in tact ecosystem will only harm in the long run.	SE4
48	I have lived in the Northern MN area all my life. I have seen people leaving our area steadily for years due to lack of work. I love our wilderness and utilize our hiking/biking and lakes as much as I can. I am always concerned with the environment and hiking as “green” as I can. From what I have read & researched I believe Polymet will be a good thing for our area. They have covered all aspects in their development of this project. Minnesota has touch guidelines for pollution control & environmental issues. I think Polymet is working well within the guidelines of safety and a clean environment for this project.	EOO,G2
48	These minerals are essentials. They will be mined whether or not this project is approved. We should build it here, make it here so that it is done safely and our citizens benefit from the jobs. MN has an opportunity to benefit from this project in many ways. Minnesotans need the jobs. Permit the damn mine.	EOO
48	I wish to express my support for Polymet mining. I believe all aspects of their operations can and will be done in an environmentally safe and responsible manner (including reclamation). Also, the resulting jobs and taxes are badly needed. Please approve this project ASAP.	EOO

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Comment ID	Comment Text	Theme Codes
48	I'm here to support Polymet and the spinoff jobs that will occur when this project is finally started. Polymet will be a great economic boom that the state of Minnesota needs. Northeastern MN needs this project. I'm a laid off painter in the Duluth Blds trades and many of my union brothers and sisters need this project to happen. Lets look to the families and the growth MN will have with this project.	EOO
48	As a cabin owner & a home owner in St. Louis County I am definitely in favor of this project. Technology & enforcement of codes = success. PolyMet will pay needed tax revenue for our schools & provide needed jobs for our citizen without polluting our environment.	EOO,G2
49	In these times we need the work & this company seems to be making all the right moves to keep our land water & air clean.	EOO,G2
49	This is something that's going to be done somewhere, so it might as well be here. I fit is here we have control over the environmental impact. Also in todays economy we can't afford to give away all the jobs and revenue this will generate locally! I see no benefit in not pushing forward with this project.	EOO
49	The bottom line is for jobs to be created for us and our downlines in our area.	EOO
49	I support this project mainly for the reason of jobs. I, in the last 2+ years, have worked extensively on the Mesabi Nugget sight for my employer. This has given my family the chance to continue our quality of life and not have to move away like many other that I know. The "Iron Range" is a dying area & we need these types of jobs to keep the area on the map. These sights are done professionally, efficiently & with the environment in mind. I am a proud union member of local 49 and fully support this Polymet, Mesabi Nugget & other projects. Thank you.	EOO
49	I 100% support the Polymet project. I am a laid off painter and we need jobs in the area. These are good high paying jobs. Our region in Northeastern MN needs these kinds of jobs. It is time to put people back to work. I hope I will have a chance to work on this project.	EOO
49	My name is Norm Voorhees and I live in Duluth, Minnesota. And I'd just like to say I support the PolyMet project 100 percent. I'm a construction worker, I'm a representative for Ironworkers Local 512, and I represent members in northeastern Minnesota. We feel that it -- I feel that it would be a huge economic benefit if a project like this moves forward. I also believe that PolyMet is going to be a responsible partner in the mining process here. And I also think that globally, this project would be much better off being done here in this country than somewhere else in the world where there's not as strict of standards to follow. So I feel it's important globally and I also think it's a matter of national security for our country to be able to produce these precious metals in-house and not have to depend on foreign-mined products. That's about it.	EOO
50	In these poor economic times it is important to move ahead with the products and technology to generate jobs, material, and state income to keep the quality of life for hard working Minnesotans. We need this and more projects to get moving ASAP.	EOO
50	As a resident and person who believes that economic and environmental concerns can and must be a balance for the long term viability of our state, I absolutely support the project!	EOO
50	My name is Anne Clayton from Aurora, Minnesota. My father came up here in '56 with Erie Mining Company, and I was raised here a good portion of my childhood when I was in 5th grade and returning the 9th grade; left when I was just right after graduation. I always loved this area. I came -- lived in Texas and Mississippi until I was 50, returned to the Range and now live in Aurora. It's a beautiful place to live. I think that it would be wonderful if the people would support PolyMet, let it return to what it once was. I feel like -- just in checking with some of the people, that the amount of lead that was let out when it was LTV in the -- you know, a year was, like, 83, and this would be only 8; and that's 1/10th. I think that the majority of the environmental damage has already been done and I would just hope that this would be passed. And I guess that's it. Thank you.	EOO
50	On behalf of trades people everywhere I say "Lets build this facility". The pros greatly outweigh the cons. Northeastern Minnesota has not had anything to celebrate lately. Lets give the Arrow head a real economic boost. Changing subjects, regarding nuclear power, I feel we are about thirty years overdue for the nuclear power industry to show signs of life again. End the congressional grit lock, lift the moratorium in nukes and get this country going again. America cannot afford any more banking scams, the last one just about did us in.	EOO

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Comment ID	Comment Text	Theme Codes
50	I am in full support of this project. With the economy is people of Northern MN need this project to support their families plus all the other jobs that will be created by this mining operation, not just Northern MN, but the whole state will benefit with Polymet paying taxes. More people employed with good paying jobs.	EOO
51	I am an owner of Wayne Transports We need to put our drivers to work. We have drivers that are laid off. We need industry to support our drivers.	EOO
51	I am in support of the Polymet Project. All rules have been followed. Efforts have been made to identify and minimize impacts. Monitoring requirements are defined. All human activity results in impacts on the environment (air, water, soil). The issue is NOT whether there will be impacts, but rather, are the impacts reasonable. If we attempt to seek 100% guarantees of no impact, nothing would happen and any part of human activity. That is an unacceptable requirement (100% perfect).	EOO,G2
51	Am 21 and love hunting & fishing but I can't find a decent job in my favorite area of Minnesota. If this facility was built, I'd move back in a jiffy.	EOO
52	Put Minnesota back to work. Jobs Jobs Jobs	EOO
52	I am absolutely in favor of issuing a permit for this project. Jobs, revenue, safe mining, progress. Let's take advantage of this project. Our children will thank us.	EOO,G1
53	I grew up in Northern Minnesota so I'm naturally an outdoorsman. I also remember how hard it was to earn a decent living on "the range". From what I've learned tonight	EOO
54	at the open house (12-10-09), I believe that this project should be allowed to proceed as long as Polymet us help accountable for all waste products for the long term.	PD4

Sender Last Name: Watkins-Melby **Submission ID:** 3693

19705	GLIFWC staff disagree with the information presented in Table 4.1-68. The column "Effects of the Proposed Action" should be rewritten to reflect the serious data gaps that prevent an adequate characterization of the environmental impacts of the proposed action. The discussion of the uncertainty analysis for the West Pit water quality indicates that groundwater evaluation criteria would be exceeded for antimony, manganese, nickel and sulfate and that those impacts would be significant. Despite this assertion, Table 4.1-68 indicates that initial water quality exceedances would be reduced over time. First, the table should indicate that the impacts are significant and that water quality may not meet evaluation criteria for 2000 or more years. Groundwater downgradient of the tailings basin already exceeds standards for multiple parameters. Therefore, the statement in Table 4.1-68 seems puzzling.	WR3I
19705	This section states that violations of Great Lakes Initiative Water Quality Standards would be discovered as part of a monitoring program. GLIFWC disagrees with this approach. The reasonably foreseeable impacts of sulfate and mercury discharges from the west pit, WWTF, and constructed wetland should be included in the DEIS so that potential water quality impacts to Lake Superior can be characterized.	WR3I
19705	The paragraph describing the closure plan for the LTVSMC is misleading. GLIFWC staff reiterate that there is no up to date closure plan for the proposed project. A closure plan is needed to evaluate long term environmental impacts and to inform calculations of financial assurance that would be needed for the project. For more information refer to our comments on section 3.1.7.	ALT8
19705	GLIFWC staff disagree with relying on monitoring to assess the effectiveness of lime treatment. The effectiveness of lime treatment is very important in the final water quality of mine effluent. Therefore, this analysis should be conducted prior to the constriction of the facility and the results included in the DEIS. Monitoring is a purely reactive approach which runs contrary to the intent of the NEPA process which is to characterize all reasonable and foreseeable impacts.	WR1E

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Comment ID	Comment Text	Theme Codes
19705	An important part of any EIS process is to identify and fully describe the existing conditions of areas that would be affected by the project. Surface and groundwaters north of the tailings basin have been contaminated by decades of LTV tailings effluent. Data collected in 2009 show that private wells north of the basin have been impacted by this historic tailings basin effluent. Although two additional groundwater samples north of the basins collected in 2009 indicate that exceedances exist at the property boundary, the full extent of the contaminant plume has not been defined. Defining the contaminant plume is of vital importance to this project because the contaminant plume will be augmented by the deposition of PolyMet tailings. The additional contaminants will interact with the existing plume and create a new set of water quality and quantity conditions. Unless the existing condition is properly defined, the impact of the proposed project cannot be properly assessed. Finally, discharging contaminated water into an aquifer that is already contaminated is a clear violation of the clean water act.	WR1E
19707	GLIFWC staff reiterate that the effectiveness of the evapotranspiration caps has not been demonstrated. Tribal cooperating agencies have requested that this analysis be done (GLIFWC Comment letter of June 30, 2008 and GLIFWC comment letter of February 6, 2009, Attachment #1). This analysis must be performed and included in the DEIS. In addition, GLIFWC staff reiterate that the effectiveness of the wetland treatment system is in doubt. Finally, GLIFWC staff reiterate that the effects on groundwater levels at the mine site are unknown for both the proposed project and the mine site alternative because of insufficient analysis.	WR1E,WR2L
19708	Another issue of concern is the lack of discussion of the need for an NPDES permit for the west pit. Under all mining scenarios, PolyMet would leave behind a polluted pit lake which will exceed surface water quality standards for thousands of years. It is the position of GLIFWC staff that an NPDES permit will be required for this facility and that additional discussion on the implications of this pit lake must be included in the DEIS.	WR3C
19708	GLIFWC staff reiterate that all waters of the state are protected by surface water quality standards and using the unnamed water to dilute the contaminants of the West pit is not appropriate. The DEIS should discuss the impacts of the project on this unnamed stream. GLIFWC staff are not aware of any biological or cultural resource surveys done on this stream. If this unnamed water is to be destroyed, a thorough accounting of the natural resources present in the stream must be provided. Furthermore, tribal cooperators note that the pit lake is predicted to not meet surface water quality standards for hundreds or thousands of years. Therefore this section is misleading when it says that water quality effluent will improve over time. A full assessment of the environmental impacts of the west pit discharge is needed.	WR3C
19709	As previously discussed, GLIFWC staff believe that additional analysis on the possible exceedance of the Great Lakes Initiative mercury standard must be included in the DEIS.	WR3I
19710	We observe that in several areas, the DEIS excludes previously established information that depicts the project in an unfavorable light. Previous versions of the DEIS indicated that the proposed tailings basin design is not adequate and likely to fail. While this is still the case, the DEIS that was released to the public has omitted that language. The DEIS is inconsistent in the application of water quality standards. Wild Rice waters have a 10 mg/l standard for sulfate which is an approved state standard. However, the DEIS is vague about where the standard is enforced or whether the standard applies at all. The position of GLIFWC staff and of tribal cooperating agencies is clear and unequivocal. The wild rice sulfate standard is a state water quality standard and applies where wild rice is growing. All available information on the presence of wild rice in the waters surrounding the proposed project must be included and a robust analysis of the compliance of the proposed project to those standards must be developed.	EOO,WR3I,WR4F,PD3,PD
19710	GLIFWC staff disagree with the information presented in Table 4.1-77. This summary is misleading because the conclusions are based on insufficient data and faulty analysis. Furthermore, we note that the section on water quality in the Upper Partridge River is untrue. GLIFWC staff note that the west pit is predicted to exceed standards for all years for which predictions were made. These inconsistencies must be corrected.	WR3C
19711	The analysis presented in this section is misleading. The conclusion that groundwater evaluation criteria are met is only true if the contamination of the existing aquifer is ignored. If the existing contamination is considered the conclusions are likely to be different. Any analysis assuming a receiving aquifer with zero constituents is unrealistic.	WR2E

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Comment ID	Comment Text	Theme Codes
19711	GLIFWC staff note that pumping could be needed for hundreds or thousands of years if the Permeable Reactive Barrier (PRB) is not effective. The PRB is untested and has not been demonstrated to work in any similar situations. In addition, the PRB would need periodic recharging/replacement which would need to occur at regular intervals for as long as water treatment is needed (hundreds or thousands of years). It is GLIFWC staff's position that this long term maintenance is at odds with Minnesota's goal of maintenance free closure.	WR2D
19711	GLIFWC staff reiterate that an untreated discharge of tailings basin water to the Partridge River will exceed water quality standards and violate the Clean Water Act. In particular the wild rice standard will be exceeded.	WR3I,WR4F
19714	GLIFWC staff reiterate that discharging untreated tailings basin water to the Partridge River will have significant adverse impacts.	WR3A
19714	The DEIS states that Aluminum is the only constituent that may exceed standards. However, As stated in TB-14 "Manganese: The concentration of manganese in groundwater is predicted to be above the groundwater standard and the MCL at all four of the evaluation locations."	WR3I
19716	GLIFWC staff reiterate that wild rice grows on the lower Partridge River.and that the 10 mg/l standard for sulfate applies. This standard would be exceeded by the PolyMet discharge. Furthermore, there are other projects (Mesabi Nugget Phase II and Laskin Energy) that are discharging water with elevated constituents. Given these existing sources, it is unlikely that PolyMet discharge would be able to discharge their untreated tailings basin effluent without violating the clean water act.	WR3I,WR4F
Sender Last Name:	Watson **Submission ID:** 3718	
1	The DEIS inadequately addresses mercury air emissions from the autoclaves. First, the mercury projections used in the DEIS are based on specifications from the autoclave manufacturer and not based on field testing. Historical data indicate increased mercury levels associated with the use of autoclaves. Accordingly, in the absence of data from field tests of this type of autoclave process, significant uncertainty remains in regard to the actual mercury emissions from the autoclaves.77	AQ6A
2	In order to minimize the amount of hazardous fibers emitted to the air in surrounding communities, the proposed mining operation should implement Best Available Control Technology (BACT). If BACT is indeed unenforceable at this site as stated in the DEIS, MCEA supports a fiber emissions control scheme along the lines of that described on DEIS pages 4.6-61 through 4.6-63, i.e., one in which Polymet has agreed to install "the most stringent level of fine particulate matter control possible with current technology."	AQ5
3	MCEA conditionally supports the idea of an amphibole fiber air monitoring scheme such as that described briefly in narrative form on page 4.6-63. When a more detailed monitoring plan is provided, MCEA will comment further and determine whether full support is warranted.	AQ5
4	In the meantime, the narrative description raises at least two questions: 1) Will airborne fiber monitoring continue beyond the one-year operational period described in the DEIS? 2) How much higher would operational concentrations have to be, relative to baseline concentrations, to trigger enforcement action?	AQ5,AQ6
5	To protect public health, MCEA recommends enforcement of an ongoing airborne fiber monitoring program akin to the one already in place at the nearby Northshore Mining Co. operation.	AQ5
6	The plant site Air Emissions Risks Assessment (AERA) which begins on page 4.6-22 provides concentrations of various carcinogenic metals and volatile organic compounds (VOCs) that are expected to be released either at the plant site (Table 4.6-16) or from the proposed mine (Table 4.6-17). It is encouraging that aside from the farmer scenario described on page 4.6-27, the population excess cancer risk caused by the mining operation is not expected to exceed the current MDH threshold of 10-5. However, MCEA believes that it would be prudent for Minnesota government agencies to follow the lead of other states (e.g., MA, VT, NC, NY) and apply the more protective standard of 10-6 when protecting the general public from carcinogenic air pollutants.82	EOO

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Comment ID	Comment Text	Theme Codes
7	The failure of the NorthMet DEIS to analyze the potential negative socioeconomic impacts associated with the Project is a serious shortcoming of the DEIS. Historical trends clearly show that the mining industry in Northeastern Minnesota and elsewhere is predictably characterized by a boom and bust cycle with short-term increased employment followed by decreased employment and associated socioeconomic costs experienced by communities overlydependent on the mining industry for employment.89	SE4
7	A rigorously health-protective approach to carcinogenic air emissions control is especially important in areas where cancer rates are already elevated. Northeastern Minnesota has the highest overall cancer incidence rate of any of the state's eight cancer surveillance regions.83 As noted above, Northeastern Minnesota also has higher rates of both lung cancer incidence and lung cancer mortality than elsewhere in Minnesota.84 This target organ is of particular relevance because many of the metals and VOCs expected to be emitted from the proposed mining operation have been found to cause lung cancer and/or other respiratory system cancers when inhaled. Metallic emissions listed in the DEIS, including chromium VI, cadmium, and inorganic arsenic, are known human carcinogens that cause lung cancer.85 Other chemicals listed in the DEIS, such as the VOCs naphthalene, acetaldehyde, and formaldehyde, are classified as known or probable human carcinogens, and are associated with cancers of the lung and/or respiratory system.86 Health risks of these and other carcinogenic emissions (e.g., PAHs) from this site should be assessed using the 10-6 risk threshold, in order to ensure that the proposed operations do not contribute to a regional excess of relevant cancer types.	EOO,AQ6
8	In addition, the NorthMet DEIS fails to recognize the socioeconomic risks associated with the impact on other employment sectors as a result of the environmental degradation and destruction accompanying the Project. Specifically, the NorthMet project and the reasonably foreseeable development of additional sulfide mines in the region creates a significant risk to sustainable economies in Northeaster Minnesota which rely on wilderness, recreational and access to unspoiled public lands.	SE3
9	Further, the NorthMet DEIS mentions nothing about the fact that the mine processing site appears to be or may be planned to be in a JOBZ zone, or the implications for this on Minnesota revenue and the social and economic effects of the project.90 According to information provided by the Minnesota Department of Employment and Economic Development (DEED), if the NorthMet Project is or becomes a JOBZ location then it will receive incentives likely to have an impact on the social and economic benefits assumed to be associated with the project, possibly including projected Minnesota tax revenue from the project.91	SE3
9	In addition, the lifestyle and economies of tribal communities, from wild rice harvesting and reliance on other cultural and natural resources, are also threatened as a result of the NorthMet Project and reasonably foreseeable sulfide mining activity in the region.	SE3
10	Second, the DEIS does not indicate what type of monitoring will be required for mercury emissions from the autoclaves. In light of uncertainties associated with mercury emissions from the autoclaves and historical data indicating increased mercury levels associated with the use ofautoclaves, and considering the significant environmental impacts associated with emissions of mercury, continuous emissions monitors ("CEMs") should be required for the autoclaves. CEMS would ensure an accurate and complete record of mercury emissions from the autoclaves, and ensure that the autoclaves are operating within the manufacturer's specifications.	AQ5,AQ6A
11	The fact that these deadly cancers already occur more frequently in northeastern Minnesota communities necessitates a high level of caution when a new source of potentially carcinogenic and asbestoslike particulate air emissions is under consideration.	AQ4C

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Comment ID	Comment Text	Theme Codes
11	We believe that it is difficult to exclude fibers of a particular dimension from a role in causing disease within the lung or extrapulmonary sites when one accepts that both the exposure and tissue burden have fibers of varying lengths and widths. In contrast the experimental models are limited by the simple fact that fibers of very limited length distributions were tested. A telling point remains that when the appropriate analytical techniques are utilized it becomes apparent that in most tissues the overwhelming majority of the asbestos fibers are less than 5 Ym in length. Based on the lack of scientific certainty as to what would constitute a “safe” amphibole fiber, and the established presence of amphibole mineral at the site of the proposed mine, it is critical that Minnesota state agencies are vigilant in their efforts to protect public health. As a key component of this effort to protect the general public, who may be exposed to these air emissions 24 hours per day, 365 days per year, MCEA supports the continued application of the MDH/MPCA definition of a “regulated fiber” as any amphibole particle with AR Z 3:1. As long as the precise relationship between fiber characteristics and pathogenicity remains unclear and hotly disputed, this screening threshold is a reasonable method of ensuring that communities are protected from the risk of diseases caused or exacerbated by fiber inhalation.	AQ4C
12	In comments regarding the NorthMet Project – Preliminary Draft Environmental Impact Statement, dated August 25, 2009, the EPA specifically recommended that the NorthMet DEIS include information on financial assurance. The EPA indicated that inclusion of financial assurance information in the DEIS was recommended “because one key component to determining the environmental impacts of a mine is the effectiveness of reclamation and closure activities” and that “EPA has found the amount and viability of financial assurance are critical factors in determining the effectiveness of closure and reclamation and therefore the significance of environmental impacts.”9	PD4
1573	This project does not create enough jobs to justify the large cost of cleanup. Do not approve!	EOO
3769	After following the polymet project for several years I think it is time to start building the plant and provide employment for our area. Northern MN is not just the PLAYGROUND for the metropolitan population. We live here, we are proud our our lakes, hunting, and fishing and I know that polymet will take care of the land as it should be. kris watson	EOO
3770	I atteneded the meeting Dec 9th in Aurora and am all for the Polymet project. I believe that they have done what is required and far beyond to be sure of an enviromentaly and economicly sound project. I have been following this project from the begining and it's time to move forward. thank you, jim watson	EOO,G6

Sender Last Name: Weappa **Submission ID:** 3219

3549	I have been to many meetings over this project. I have read a lot if information also. This would be a great project for the State of Minnesota as well as the Iron Range area. The permit processing has been handled well by the State but it is time to permit this project. PolyMet has shown due diligence on the design of this project as well as the State. From everything I have read this project would be a great addition to our area. The good paying jobs on both the construction and running of the plant will bring in enormous tax dollars to the area and the State at a time of need. By adding 700 permanent jobs to our depressed area would let a lot of our young people stay home. This would be good for our schools with what has been a steady and slow decline in students. As far as the construction it would add hundreds of new apprentices and employ hundreds of tradespeople throughout the State. In my estimationthis project is a win for the whole State. Thank you for your time. Scott Weappa	EOO,G6

Sender Last Name: Wegerson **Submission ID:** 3694

19717	The statement that the tailings basin alternative will not exceed and surface water quality standards is incorrect. As previously indicated, this conclusion is based on faulty modeling assumptions, incomplete data, incorrect reporting of the analysis conducted and an apparent lack of understanding of basic hydrology.	WR3A

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19717	GLIFWC notes that the predicted concentrations in TB-15 represent dissolved aluminum (see TB-15, page 1) and not total aluminum as stated in the DEIS. TB-15 presents the most recent water quality predictions for the Tailings Basin Proposes Action and Alternatives. TB-15 predicts exceedance of standards by dissolved aluminum under the Proposed Action and the Alternatives. This section should be corrected	WR3H
19718	The assertion in the DEIS that all parameters are expected to meet surface water quality standards is incorrect. GLIFWC staff reiterate that the wild rice sulfate standard applies (10 mg/l) and would be exceeded. In addition, GLIFWC reiterates that the results in TB-15 (see page 1) represent dissolved aluminum. TB-15 predicts exceedance of the aluminum standard.	WR3A
19719	The DEIS is written under the assumption that the mining company owns the land where the mine pits would be located. However, that is not the case, the land is currently owned by the public and administered by the United States Forest Service. Any land transfers that may occur in the future between the Forest Service and the mining company are a connected action to this DEIS. Therefore, additional information of the details of the land transfer must be included in this document to comply with NEPA.	PD5
19720	GLIFWC staff reiterate that wild rice grows on the lower Partridge River. Therefore, it is the tribal cooperating agencies' position that the wild rice sulfate standard applies and would be exceeded by the proposed PolyMet discharge.	WR4F
19721	The discussion in this section is incorrect. The section states that all surface water quality standards will be met, However, GLIFWC staff note that the Embarrass River exceeds the sulfate standard. Modeling (TB-15) also predicts exceedance of surface water standard for dissolved Aluminum. GLIFWC also reiterates that the wild rice sulfate standard applies in waters where wild rice is growing. The Embarrass River contains several wild rice stands that may have already been impacted by sulfate discharges from the LTV tailings basin. These sulfate emissions will continue under all alternatives proposed for the NorthMet project and the applicant will assume responsibility for those discharges if they receive permits. The effect of this sulfate in the methylization of mercury in the Embarrass River should be mentioned in the DEIS.	WR3I,WR4A,WR4F
19721	This section states that "The NorthMet project is expected to meet all surface water quality standards under all flow conditions for all mine years in the Partridge River." This statement is incorrect for the tailings basin alternative.That alternative would discharge untreated tailings water directly into the Partridge River below Colby Lake. This section of the river will also be impacted by the Mesabi Nugget Phase II discharge and is currently impacted by the Lasking Enery plant. The cumulative impact analysis does not provide a quanitative analysis of water quality impacts of the three projects even though data exist to conduct this analysis. Finally, wild rice grows in this stretch of river. As the DEIS indicates, the Lower Partridge River already exceeds the applicable wild rice sulfate standard of 10 mg/l. GLIFWC staff believe that additional discharges of sulfate from the NorthMet project are not permitted under the clean water act.	WR1E
19721	GLIFWC staff believe that treatment of the tailings basin effluent that is captured by the vertical wells must be an integral part of the tailings basin alternative. This treatment could occur in the WWTF already proposed for this project or in a second facility closer to the discharge point. Tribal cooperating agencies strongly oppose an untreated discharge of tailings basin water to the Partridge River. In addition, there are other existing facilities and mine proposals (Laskin Energy, Mesabi Nugget Phase II) that discharge, or are proposing to discharge water at this same location. Finally, water quality of the discharge would exceed the wild rice sulfate standard that applies to the lower Partridge River.	WR1E
19721	As previously discussed, there is very little data on which to base any discussion of hydrology for the mine site. Therefore, the conclusions in this section are not reliable.	WR1E
19723	This section states that the NorthMet Project would not have any surface water discharges to the Embarrass River. This is incorrect. Aerial photos clearly show a surface water connection between the toe of the tailings basin and the Embarrass River, as do state maps of public waters (attached Figure 4). Polymet will assume responsibility for this and all other LTPV discharges if they receive mining permits. Therefore PolyMet would be responsible for a NPDES permit required at this location.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19723	GLIFWC staff disagree that an untreated discharge of contaminated tailings basin water to the Partridge River would not have impacts. The area of the Partridge River that would receive the discharge already receives contaminants from Laskin energy and the Mesabi Nugget Phase II project is proposing a discharge at the same location. This discharge should be included in the analysis. Finally, wild rice grows on the Partridge River below Colby Lake. GLIFWC staff and the tribal cooperating agencies insist that the 10 mg/l sulfate standard be discussed in the section and be applies as indicated by state law.	WR1C,WR4F
19723	This section states that "The tailings basin alternative would redirect most tailings basin seepage away from the high risk areas and discharge it to the Partridge River." This statement is incorrect. As currently proposed, the alternative would capture only some of the seepage from the NorthMet project. High sulfate seepage from the existing 2W cell would not be captured. Therefore, emissions of sulfate into the impacted wetlands and aquifer north of the basin would continue for the foreseeable future. PolyMet would assume responsibility for these historic discharges if the receive mining permits. Therefore it is not proper to exclude a discussion of these existing discharges from the DEIS impact analysis.	WR2E
19723	GLIFWC staff note that NorthMet effluent will be discharging through the bottom of the tailings basin into an aquifer and wetland systems that have already been impacted by decades of LTV mine effluent. Additional data is needed to fully characterize the extent of the contaminant plume. Only then, can a proper cumulative impact analysis be conducted for the area north of the tailings basin.	WR1E
19724	GLIFWC staff reiterate that the current wetland delineation does not encompass all wetlands that may be affected by the Project. Because no initial determination of the Project's area of influence (AOI) on wetlands was made, the site field surveys of wetland and other vegetation were limited to little more than the area within the Project fence. The existing characterization of wetland and other vegetation does not cover even one-half the area that might reasonably be expected to be impacted by disruption of the existing hydrology. Around the tailings basin virtually no wetland delineation has taken place although wetland impacts from inundation are likely to occur. Since 2008 the Army Corps has been developing a workplan to assess impacts to these additional wetlands but this workplan has not been finalized or implemented. This serious data gap must be addressed for the DEIS to be considered adequate.	WE1
19725	Tribal cooperating agencies take the position that the approximately 5,700 (RS13B) gallons per minute of tailings water released by past mine waste disposal activity has likely had a far greater influence on the hydrology of the area than beaver dams or transportation features.	EOO,WR3A
19725	· Lack of Closure Plan.	PD2
19726	GLIFWC staff reiterate that the work needed to properly assess indirect wetland impacts at the mine site and at the plant site has not been completed. The wetlands work group and the Army Corps have developed a workplan to collect the data needed to assess indirect wetland impacts. The results of that investigation must be included in the DEIS to allow a full public review.	WE2
19726	GLIFWC staff reiterate that the wetland classification available for this project is not detailed enough to fully assess wetland impacts. The information available in the wetland delineation provided by the applicant is not detailed enough for wetland functions and values to be determined and does not identify important species level information needed for impact analysis. GLIFWC staff have commented that a more robust field characterization of the wetlands is needed. Wetland Plant Communities of the Crandon Mine Site (Attachment #6) provides an example of the types of field data that are needed for the PolyMet project. In addition, the DEIS does not fully incorporate the data that is available. The wetland delineation study (RS14, Appendix A) identified over 390 acres of wetland community with a significant white cedar component. For example, wetland ID-48 (Table 4.2-3) was identified in delineation reports as dominated by white cedar. White cedar is an indicator of mineral rich waters. Renaming wetland ID-48 as a coniferous bog, as was done in Table 4.2-3, does not make that community a bog. Cedar dominated wetlands are cedar swamps, not bogs. The significance of this is that, bogs tend to be precipitation fed while swamps tend to be groundwater fed. Data from the wetland delineations (RS14) suggest that bogs are not the most prevalent wetland type. In fact, it appears that wetlands that require groundwater inputs: forested rich peatlands and poor fens are the most prevalent.	WE1,WE2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19727	As detailed in comments provided for section 4.1, there is no reliable groundwater model for groundwater drawdown impacts of the proposed project. The estimates of groundwater drawdown are currently based on anecdotal observations and analysis of historical aerial photography. Therefore, there is no quantitative assessment of mine related drawdown of the regional water table. This serious data gap has prevented an adequate indirect impact assessment for wetlands from being conducted.	WR2A,WE2
19727	GLIFWC staff strongly object to the assumption that wetlands at the mine site are primarily bogs. This assumption is contrary to the field data reported in RS-14. GLIFWC staff reiterate that the methodology used in Adams 2009 is not adequate for characterization of pit dewatering impacts to wetlands (GLIFWC 2009, Memorandum to Jon Ahlness and Stuart Arkley: Photographic evidence for pit impacts to wetland hydrology. April 24, 2009, Attachment #2)). Problems with the methodology used in the opinion paper include: 1. Lack of recognition that aerial photos are a very imprecise measure of surface water level. 2. Photographs presented in the paper show that the Peter Mitchell pits are mostly flooded. Therefore there is little or no stress on surrounding wetlands at the time. 3. Lack of consideration of the topographic relationship of the landscape features including the depth of the Peter Mitchell Pits (P-M Pits approximately 80 feet deep, PolyMet pits approximately 800 feet deep). 4. Lack of recognition that some changes in groundwater hydrology would not be evidenced by the changes in surface water level detectable by aerial photography. 5. Dependence on wetland soil conductivity values that are extremely low and for which supporting source citation in the professional literature cannot be found. The PDEIS appears to rely on “best professional judgment” for estimating impacts due to hydrologic disruption without incorporating specific knowledge of the ecological requirements of culturally significant wetland vegetation such as cedar, and without requiring sufficient background data regarding groundwater. A “best professional judgment” approach is being used as a replacement for data-based scientific analysis of potential impacts. Quantitative methods for estimating the impacts of drawdown and inundation on wetland hydrology exist (e.g. Attachment #7), have been used at other mine sites, and can be used in addition to professional judgment.	WE2
19728	It is unclear how the 83.3 acres was calculated since all participants in the DEIS process have agreed that the groundwater model results are invalid outside the area of the mine pits. Therefore, it is impossible to know how far hydrologic impacts will extend at this time. GLIFWC staff believe that conclusions in the DEIS should be based on actual data and not on speculation. Finally, GLIFWC staff reiterate that, based on the vegetation data collected from wetland delineations (RS-14) it appears that groundwater supported wetlands are common in the Project area. Indirect impacts to communities that require groundwater inflow have not been determined, but would likely be significantly different than expected impacts from the Project to perched bogs.	WR2A,WE1,WE2
19729	GLIFWC staff do not agree that mitigation ratios and mitigation sites should be determined during permitting. Indirect impact acreages would be greater if data and quantitative analysis of mine induced drawdown had been conducted. Waiting until the impacts have occurred to characterize them runs contrary to the intent of NEPA and is not a responsible way of informing the public of the environmental cost of a project. Finally, this wait and see approach makes it more difficult to determine adequate financial assurance for the project.	WE3,WE4,PD3,PD4
19730	The conclusion that additional indirect impacts are unlikely at the mine site is faulty. As previously discussed, there are insufficient data to support that conclusion. Based on the vegetation data collected from wetland delineations it appears that groundwater supported wetlands are common in the Project area. Indirect impacts to communities that require groundwater inflow have not been determined, but would likely be significantly different than the expected impacts from the Project to perched bogs. Ultimately, the DEIS conclusion is not based on data but is based on the Adams 2009 opinion paper. GLIFWC staff reiterate that the methods used in the opinion paper are insufficient for prediction of indirect impacts to wetlands. For example, the Iron Range projects mentioned are located in upland areas of the range and are not proper reference sites for potential impacts at the PolyMet mine site. The Peter Mitchell Mine, although in close proximity, is very shallow compared to the proposed mine pits (Peter Michell pit is approximately 80 feet deep, PolyMet pit is aproximately 800 feet deep).	WE2
19731	GLIFWC staff reiterate that no analysis has been done to support this conclusion. As indicated in section 3.1.3 it is likely that ore dust would spill from rail cars and be deposited in wetlands adjacent to the rail line. No analysis of any type has been conducted to determine if such impacts would be significant.	WE2,PD3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19732	EPA determined that the project will result in unacceptable and long-term water quality impacts, which include exceeding water quality standards, releasing unmitigated wastewater discharges to water bodies (during operation and in the post-closure period), and increasing mercury loadings into the Lake Superior watershed.	WR3B,WR3I
19732	Based on our review of the DEIS, EPA has rated the DEIS as Environmentally Unsatisfactory - Inadequate, or EU-3. Environmentally Unsatisfactory (EU) indicates that our review has identified adverse environmental impacts that are of sufficient magnitude that EPA believes the proposed action must not proceed as proposed. The numeric portion of the rating indicates the DEIS does not present adequate information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment or EPA identifies reasonably available alternatives which could reduce the environmental impacts of the action. This rating applies to the Proposed Action, the Mine Site Alternative and the Tailings Basin Alternative. Our summary of ratings definitions is enclosed. EPA has assigned the EU rating because our review of the DEIS determined that the proposed action will result in environmentally unsatisfactory water quality impacts. Specifically, EPA believes that the project will exceed water quality standards because of discharges during the life of the mining operation and on a long-term basis, including the post-closure period. These water quality impacts are largely related to water that contacts acid-generating waste rock and mine faces and to wastewater escaping the tailings basin through seeps and in groundwater. EPA also finds the wetlands mitigation plan environmentally unacceptable because it does not provide mitigation for all impacts to wetlands, particularly for indirect impacts. EPA has assigned the Inadequate (3) rating to the DEIS because EPA believes that the analyses of the hydrogeological profiles at both the mine and processing sites are inadequate to determine the full extent of impacts or to justify mitigation options. Consequently, we believe that the DEIS likely underestimates water quality impacts and that the project is likely to have additional unmitigated long-term discharges. EPA has identified information gaps relating to groundwater impacts, groundwater-surface water interaction, tailings basin stability and containment, and groundwater discharges to surface water. EPA believes the DEIS should evaluate alternatives to avoid mine pit overflow and explore additional mitigation for discharges and waste rock management, some of which are identified briefly in the document. Furthermore, EPA does not agree with the compensation described for wetlands impacts and proposes alternative mitigation ratios. The DEIS did not provide information on financial assurance, which EPA believes critical to the decision-making process when long-term impacts and mitigation are involved. We have enclosed detailed comments outlining our issues more completely and offer recommendations as a starting point for discussion. Our main issues are summarized below.	ALT8,PRO3,PD1,PD2,PD3,
19732	GLIFWC staff reiterate that based on the existing available contaminant modeling, that seepage capture would be needed for hundreds or thousands of years to avoid water quality and quantity impacts to wetlands.	WR3I,WE2

Sender Last Name: Wegler **Submission ID:** 352

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
390	I am writing today in support of Polymet Mining's NorthMet project. Our firm, KrausAnderson ® Construction Company, is over a hundred years old and is one of the most respected general contracting/construction management organizations in Minnesota. As a business development person and someone who is concerned about the environment, I took a serious look at the draft EIS. My evaluation indicates that it is far better to mine and process these minerals, that are so strategically essential to the American economy, right here in Minnesota with sound environmental practices, than rely on foreign sources that often operate free of oversight and regulation. We at Kraus-Anderson are extremely proud of our safety record in an inherently dangerous industry. I feel that worker safety at the NorthMet project can also be assured operating in Minnesota, a state with strong worker safety regulations and an exemplary worker safety record. Finally, the NorthMet project is exactly the kind of natural resource based manufacturing that is the foundation for a host of other industries that utilize these metals in their own products. This is the kind of economic stimulus that Minnesota and the United States needs right now. This project will provide many good paying jobs, with benefits, and tax revenue that will keep our State and local governments providing the basic services and education for our children. I see no reason to further delay the permitting necessary to proceed with the NorthMet project. Living in Northeastern Minnesota I know we need this project now and for our children's future.	EOO
Sender Last Name:	Weithum **Submission ID:** 1097	
1201	The City of Biwabik Mayor and Council would like to express our support for the Polymet Mining project. PolyMet has the potential to create hundreds of jobs in non-ferrous mining, while utilizing an area previously used for taconite production. We acknowledge that PolyMet has spent millions of dollars and countless hours on environmental study and has gone to great lengths to minimize any impact on the local environment. The copper, nickel, platinum, gold and cobalt that will be extracted from the land vacated by LTV Steel Mining are necessary components in thousands of items used everyday. As evidenced by the large turnout at the public meeting held on December 9th at Mesabi East High School, we are not alone in supporting this much needed project.	EOO
Sender Last Name:	Welander **Submission ID:** 189	
181	My understanding is there are currently no nickel mines in North America. This being the case, nickel is most certainly a strategic metal to the US government; an absolute necessity in case of a military or other related emergency. The environmental standard should be comparison of impacts of this project to other existing mining and refining projects; not the best attainable or least objectionable environmental impact because the cost of minimizing environmental impacts is prohibitive and contrary to any perception of equity; a cornerstone of the US system of government.	EOO
182	This environmental review has dragged on way to long without any other direct comparative measurements to other mining and refining projects; which would have ended this EIS review long ago. I urge immediate acceptance of the environmental impact statement for this project noting the minimizing environmental impact goals are impractical and unlawful. There is an above average chance the US NSA may intervene in any event to stop this obstructionist activity of this critical supply metal to the US economy. If the NSA does intervene, there is also the chance they will hold those personally responsible for the obstructionist activities of this project and its EIS.	EOO
Sender Last Name:	Welch **Submission ID:** 154	
145	Okay. I live in Hoyt Lakes, Minnesota. I'm very much in favor of the PolyMet Project. We have a lot to lose up there, so I've researched their project and I think it is very environmentally safe for us. Our water supply comes from Colby Lake which is fed by the Partridge River which runs next to the mine. And if I was concerned at all, I would be against the project. I also own land on the Partridge River and I'm still totally in favor of the mine. I guess that's it.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Welna **Submission ID:** 3569	
3834	I support the PolyMet Mining's NorthMet Project. I feel it will have a positive economic impact for Minnesota and beyond. It will create much needed jobs both directly and indirectly. I feel all necessary environmental precautions will be taken with this project. Further, I feel it is important to mine these materials in a location that has strict environmental standards, such as Minnesota, rather than importing these materials in from oversees where environmental standards are lacking and a large amount of natural resources would be consumed simply in their transportation.	EOO
Sender Last Name:	Welsh **Submission ID:** 37	
1	X. The Draft EIS Fails to Include Sufficient Information to Satisfy NEPA A primary purpose of NEPA is to "guarantee that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and implementation of that decision." Robertson v. Methow Valley Citizens, 490 U.S. 332, 349 (1989). "[T]he broad dissemination of information mandated by NEPA permits the public and other government agencies to react to the effects of a proposed action at a meaningful time." Marsh v. Oregon Natural Resources Council, 490 U.S. 360, 371 (1989). Agencies must therefore "make information on the environmental consequences available to the public, which may then offer its insight to assist the agency's decision-maker through the comment process." Dubois v. U.S. Dept. of Agriculture, 102 F.3d 1273, 1285 (1st Cir. 1996). "Because of the importance of NEPA's procedural and informational aspects, if the agency fails to properly circulate the required issues for review by interested parties, then the EIS is insufficient even if the agency's actual decision was informed and well-reasoned." Id. at 1287. As set forth above, for a number of issues including wetlands, water quality, cultural resources and financial assurance, the Draft EIS acknowledges that the agencies are still compiling information and that additional analyses have yet to occur, with much of this required analysis apparently deferred until later permitting. This includes, but is not limited to, directly relevant information pertaining to the proposed land exchange between PolyMet and the Forest Service, the results of consultation with the U.S. Fish and Wildlife Service pertaining to impacts to threatened and endangered species, the results of consultation with the affected Tribes and Tribal members concerning impacts to cultural resources, much more precise wetland delineation throughout the project area and beyond, a description and assessment of all required wetland mitigation/compensation, more detailed information pertaining to wild rice that may be affected by the proposal, and information pertaining to financial assurances. As expressed by EPA, "[w]e note instances where there is incomplete information about impacts and mitigation or where impacts were simply not evaluated." July 31, 2009, EPA Comments, p. 6. EPA further states that the Draft EIS "appears to defer some impact assessments to a future permit stage," and that therefore the Draft EIS "may not be entirely sufficient to meet federal expectations of impact assessment and disclosure." Id. EPA's examples of where additional information appears to be needed include mine site overburden, wild rice occurrence, predicted mercury concentrations in the West Pit overflow and whether the discharge meets the Great Lakes Initiative standard for mercury, whether overflow from the West Pit will exceed water quality standards and require treatment, and the discharge of wastewater from the Tailings Basin to the Partridge River either during operation or post-closure. Id., pp. 6-7. Additionally, EPA notes additional issues in need of additional analysis, including storm water management, West Pit overflows, liner cover thickness for waste stockpiles, sulfate seepage, passive wetlands treatment at the West Pit outflow, stockpile amendment, and additional monitoring measures that should be included. Id., p. 7-8. Indeed, releasing a Draft EIS for public review and comment prior to the completion of much of the required environmental analysis plainly violates NEPA. As set forth in the CEQ NEPA regulations: The draft statement must fulfill and satisfy to the fullest extent possible the requirements established for final statements in section 102(2)(C) of the Act. If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion. 40 C.F.R. § 1502.9(a). Similarly, the CEQ NEPA regulations fur	PRO2,PRO3

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Wen **Submission ID:** 3099	
3484	I have read the Polymet mining study. After reading it, I have these comments to make about it. If there seems to be no other options available for this resource, than it seems it must be done. However, if it must be mined out of this particular area, concern for the generations of local business people, and the thousands of recreationalists, who frequent this area, must be taken into equal consideration. There are few areas that can offer the miles of almost untouched natural areas, that this place can offer. It would be a tragedy if it where jeopardized just for some minerals. However, if all the proper considerations are accounted for, and the mining is done in an almost, unnoticed, and non-damaging way. And it is determined to be that crucial for the advancement of mankind, than so be it.	EOO,G1,G11
Sender Last Name:	West **Submission ID:** 1141	
505	The mining companies must put up and assure cleanup costs before mining.	PD4
1251	Where is an example of a nonpolluting mine?	RFI
1577	Dear Mr. Arkley, I fervently hope that the proposed open pit sulfide mining project can be prevented. Experience in other locations in the U.S. proves that this type of mining has short-term financial gains for the few, and long-term ecological loss for all. Please work to protect the fragile waters of Lake Superior, the BWCAW, and the entire Arrowhead region. Sincerely, Arlene West	EOO,G2A,G7B
Sender Last Name:	Westcott **Submission ID:** 2143	
2540	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Sulfide mining is not something that should happen anywhere that it might impact any of the great lakes - especially Lake Superior. This is a critical resource that is of great importance not only to Minnesota, but to all states surrounds the great lakes. I may be living in Michigan, but this impacts all of us.	G7
Sender Last Name:	Westfall **Submission ID:** 1175	
1290	The proposed PolyMet NorthMet project threatens Minnesota's water quality and wildlife habitat. We should not allow this type of mining in Minnesota. This project would not provide real long-term prosperity to Minnesotans and will most likely result in devastating pollution. We need sustainable economic proposals for Northern Minnesota – the NorthMet project is not sustainable. This proposed project is already threatening the tourism industry in the area of the proposed mining.	EOO,G2C,G7B,G11
Sender Last Name:	Westholm **Submission ID:** 3201	
3130	The St. Louis river is one of the most important tributaries to Lake Superior, but for years has suffered from extensive industrial pollution. Fortunately, most of this degradation has been localized to areas downstream of Cloquet. If the Polymet mine fails to protect the Partridge River from acid-runoff, the St. Louis will become degraded from the start, endangering the entire river ecosystem.	EOO,WR3D
Sender Last Name:	Wheeler **Submission ID:** 2965	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3331	I have serious reservations about the safety of this project and its potential impacts on Minnesota's natural resources. I believe the gravity of the environmental issues inherent in this project should require the permitting agencies to simply deny all permits. The mission of each of those agencies is to protect the health of the environment and the public's assets and resources. I believe that permitting this project would be contrary to their missions. Taxpayer-paid cleanups of similar projects have been required over the last several decades all over the country. There is no reason to continue this folly, and especially at a time where our country has just seen enormous public debts pile up due to the poor stewardship of resources, for only the personal and private gain of a few. It is time to change this trend in history. It is time to simply stop projects such as this one, which have such an enormous potential to pollute our waters and which have so frequently left a legacy of environmental degradation! I agree that there are serious and significant deficiencies in the DEIS, which have been explained in some detail by others, including the comments from groups including Friends of the Boundary Waters Wilderness and others. If this project is eventually permitted, even against the wishes of so many people who oppose this project, then I believe, at a minimum, the issues they have raised should first be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers.	EOO,G2,G4A,G7,G8
Sender Last Name:	Wheelock **Submission ID:** 2146	
2545	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. After learning about this project, I have serious concerns about the impacts on Minnesota's natural resources, especially in the areas of water quality, affects on the sanctity of the BWCA and surrounding areas, the toll wildlife and fish will pay, and the pollution and general disruption of the natural cycle when a mine is built and operated. The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Please, let's think long-term here and make decisions for the benefit of all who live in and love Minnesota and her great wild and natural spaces. Creating a mind to obtain "limited" minerals and create some jobs is a short-term view. We owe future generations more than a short-term view.	G2,G7
Sender Last Name:	White **Submission ID:** 3154	
34	If the BWCAW is preserved you may expect me and people like me to return year after year spending our dollars in your state. If the BWCAW is compromised byan ill-advised mining operation the tourism income will decrease. By contrast, the proposed mining operation will bring jobs and revenue for a only relatively short time - it is a finite resource.	SE4
709	I am concerned that the time period alotted for reveiew of the PolyMet environmental inpact statement is insufficient. Moreover, there need to be more open public meetings to provide adequate input and comment before this inportant decision is made. The public has neither budget nor lawyers to speak for it. The public voice will not be heard unless the Minnesota DNR and other regulatory agencies "go the extra mile" to ensure that more than enough time andopportunity is allowed for comment and discourse. I have spent several thousand dollars annually for a number of years on my visits to the BWCAW.	PRO6
Sender Last Name:	Whiteside **Submission ID:** 1079	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1183	I'm writing in support of the PolyMet project in Hoyt Lakes. I am a local business owner who lives and works in northeastern Minnesota. I went to school and grew up living, hunting and fishing in what is now referred to as the "Boundary Waters" (to me it was simply home). Polymet is not in the "Boundary Waters" watershed. To be a true environmentalist one must consider that the health and welfare of people, and their environment, is directly linked to the successful utilization and stewardship of resources. I believe many so called "environmental groups" ignore the facts, falsify data, and resort to scare tactics to undermine our use of resources. It seems they would prefer that decisions be made based on opinion and emotion rather than the facts. We need to provide our own metals and materials to be able to survive economically, politically and socually. The POLYMET project meets our state and federal governments' stringent comprehensive environmental review and permitting process, and should be permitted. PolyMet has invested four years and more than $20 million so far to comply with the EIS process. The people at Polymet are mostly native Minnesotans, they are experienced and knowledgeable about mining in Minnesota, they value our life on what we fondly call "The Range", our home, and I am proud to call them my good neighbors and friends. The true unemployment rate for my area in Hibbing has been over 20% this year, and what many people see as unreasonable delays in permitting a mine on mine lands is a injury we can not afford. The facts speak for themselves, no more delays.	EOO
Sender Last Name:	Whitmore **Submission ID:** 229	
235	Would this mining project have an impact on Birch Lake? With regard to water quality, mercury levels in fish, and noise levels? Would they mine 24/7?	G2
3533	Please do not allow Polymet to mine...the damage that would be done far outweighs any financial benefit. I spend my spare time paddling all the rivers up north in Minnesota and cannot fathom the damage that would be done. History has shown that tax payers usually end up cleaning up after these vultures. I count on you the DNR to be the defense against people like Polymet. Thanks for being there. Nora	EOO,G2,G4A
Sender Last Name:	Wick **Submission ID:** 1589	
1971	The PolyMet DEIS describes significant environmental issues associated with this proposed mine. These issues should be resolved before this mine is approved by the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers. Please protect our Minnesota's precious resources.	G10
Sender Last Name:	Wielinkski **Submission ID:** 1074	
522	I want to express my deep concern over the proposed allowance of sulfide mining by Potymet. Suffide mining has a very poor track record when it comes to environmental impact, and permitting this type of operation this close to the Boundary Waters and to· Lake Superior would , be a very bad thing. I am against it.	WR3B,WR3D
Sender Last Name:	Wigley **Submission ID:** 3207	
3542	To whom it may concern, This project is needed if this country is to move to a greener future. The metals are absolutely necessary for green technology which is absolutely necessary for the well-being of future generations. Please give this company a green light (no pun intended). Thank you.	EOO,G1
Sender Last Name:	Wikman **Submission ID:** 1332	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
1553	I have very fond memories of spending some time during young adulthood in the BWCA of northern Minnesota. I would like my children and grandchildren to be able to enjoy those same waters in their future. I am writing today about the proposed sulfide mining project by PolyMet in the Superior National Forest. I am concerned about the impact that such a mine would have on northern Minnesota. We have all too often seen the damage years later of the mining industry and then we as citizens are burdened with the cost of cleaning up the pollution that is caused. And I question whether the damage can ever be truly cleaned up well enough to restore such a beautiful area. I understand that the Indian tribes in this area are also helping to provide helpful information for you, and they should be respected, and their information taken into serious consideration. Please take the time to scrutinize this project and if PolyMet can not insure that there will be absolutely no impact on this area, then please do not allow it to move forward.	G4A,G11
Sender Last Name:	Wild **Submission ID:** 3498	
3692	permanent long term damage to Minnesota's water resources and to the local environment, an existing mine site. I would not believe any assurances from a company that stands to gain financially by starting this mining. Suppose they are wrong and gosh, we didn't think of that, or too bad, we were wrong. What protects Minnesota? All we have is our relatively clean environment and fine outdoor recreation. The few jobs that would be created do not offset the damage that will occur. The only way I would approve this mine is if the principals and the DNR staff would personally guarantee to protect Minnesota from harm and post a bond to do so - say $1,000,000,000. If you would not do that, why would you expect anyone else, the citizens of Minneaota, to shoulder the risk?	PD4
Sender Last Name:	Wilferling **Submission ID:** 2338	
2804	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. As someone who grew up close to the BWCA, I have serious concerns about the safety of this project and its potential impacts on Minnesota’s natural resources.	G2
Sender Last Name:	Williams **Submission ID:** 183	
175	We wish to comment on PolyMet’s NorthMet project. As people who live and play in Northeastern Minnesota and have for a major part of our childhood and adult life, we understand the need to balance use of resources like minerals and preservation of resources such as water and air. We feel this EIS lays the proper groundwork for developing environmentally and economically a sustainable project and we wholeheartedly support it. The PolyMet project has been designed to minimize environmental impacts; reusing a brown field site, reusing existing infrastructure, minimizing disturbance of wetlands and utilizing multiple safeguards to protect the environment. Enough is enough. Let’s get this project permitted and get people to work and help our part of the state do our part to make our economy reach the goals for being greener and less dependent on foreign energy and foreign metals.	EOO,G1
1235	Wisconsin has a moratorium on sulfide mining. I hope Minnesota will do the same.	G12
3195	Water is a finite resource period. There is no toleration of any pollution in any of Minnesota's fresh water resources. These mines must have thorough reclamation and site clean up plans with rigorous follow-up enforcement. Our lives, our future -children, grandchildren, plants, fish and animals depend on this. All of these costs must be borne by the mining corporation and it's owners, shareholders, investors, and financial interests.	G4A,G7
Sender Last Name:	Wilson **Submission ID:** 2162	
2567	I am writing to you as a citizen of Minnesota to support the PolyMet sulfide mining project.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Winson **Submission ID:** 201	
199	I have reviewed draft EIS summary and selected portions of the full draft EIS documentation. I appreciate the opportunity to express my support for an adequacy decision on the draft environmental impact statement for PolyMet Mining Company. It is my opinion that the statement provides a very comprehensive review of the project and all of its potential environmental and socioeconomic impacts. It documents what PolyMet intends to do to ensure that it can mine its copper-nickel-precious metal ore and process it without harming the environment. In particular, I am impressed with the waste rock management plans for the project. The segregation of waste rock based on its potential to generate acid runoff and engineering a set of foundations, liners, drainage collection systems and treatment options based on the rock's acid-generating potential appears to be a prudent method of mitigating the effects of metallic and acid leaching to me. Covers installed after mining ceases also helps ensure that a potential problem material is managed appropriately. PolyMet has offered a proposal that meets Minnesota's extremely tough environmental standards. And while it is meeting them, the project will be creating hundreds of jobs and hundreds of millions of dollars in economic impact – both things that are badly needed in our region. A quick adequacy determination will allow the timely development, review and issuance of permits and facilitate moving this critical project to the point at which permanent jobs will be created.	EOO,G5
Sender Last Name:	Wirth **Submission ID:** 2679	
3162	The Boundary waters are my favorite place on earth, and I'm sure I'm not alone. I've followed the issue closely, and it is apparent to me that the economic conditions in our state are a major factor in the decision-making process to this point. There are still plenty of unaddressed concerns, and I fear we are sacrificing one of nature's most beautiful places for money. At the very least, allow more time for research and discussion.	G2,G10
Sender Last Name:	Wkvrdbnobe **Submission ID:** 1670	
2125	WGOyPr maerwveqiqzg, [url=http://bopwoypwvwtd.com/]bopwoypwvwtd[/url], [link=http://jdeqaleqwxzc.com/]jdeqaleqwxzc[/link], http://ytcdjusrppkb.com/	G15
Sender Last Name:	Woida.pdf **Submission ID:** 2606	
3145	Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. To Whom It May Concern: Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the project and the potential impact on the natural resources of Minnesota as well as public health. The following need to be given the utmost consideration: Water quality, loss of wetlands, wildlife, and what happens when the mine closes. These issues need to be addressed in behalf of future generations. The PolyMet DEIS describes serious environmental issues associated with their proposed operation. These should be addressed and resolved before this mine is approved by the U.S. Army Corps of Engineers and the Minnesota Department of Natural Resources.	G2
Sender Last Name:	Wolff **Submission ID:** 307	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
321	I am writing this letter in support of the NorthMet (Polymet Mining) Project to be built at the old LTV mining site in Hoyt Lakes MN. As Mayor of Hibbing Minnesota, I understand and agree with the need to preserve and protect our environment and the many natural resources we have here in Northeastern Minnesota. However, it is also vitally important that we build and maintain an economy that can support and sustain the area as a viable economic region. It has been our goal from the day I became Mayor to diversify our economy to help cushion the natural ups and downs that occur in the iron ore mining industry and the markets for steel in the global economy. NorthMet will mine and produce several minerals not currently mined anywhere in the continental United States. Processing these minerals here also reduces the need to mine and ship them from somewhere else minimizing energy usage. This is the type of diversification we have been encouraging all along. Presently, Hibbing has the highest unemployment rate in the state. Polymet has projected 400 jobs and the spin off jobs they create will provide an important and needed economic boost to all of Northeastern Minnesota. Without jobs this area will lose population and the ability to sustain its future. Millions of dollars in tax revenues generated will be used to support local governmental and educational units. I have known the people involved with the project for years. They are local folks committed to making Northeastern Minnesota economically stronger. They live here. Their commitment is not only to the economic health of the region, but also to an environmentally safe future for an area where their families live and work. We appreciate the work that the MPCA does. The permitting process is a complete and thorough one I wish was copied by all companies throughout the world. I truly believe it is possible to strike the appropriate balance between the environment and the economy of a region. I believe that the review process has been thorough and addresses potential environmental issues and also the ways to mitigate them. I believe that Polymet will use the new technologies available to mitigate potential environmental impacts. Many of these technologies were not available previously. I have people in my own family that are unemployed. The hope of future jobs and industry is the only thing sustaining them. Polymet will provide these jobs which will be the cornerstone for a strong economic future for this region. Thank you for the opportunity to comment. The future of Northeastern Minnesota is tied directly to projects such as Polymet.	EOO
2600	MR. WOLFF: Hi. My name is Rick Wolff, and I am from Hibbing, Minnesota, and I am here tonight to talk or comment in support of the PolyMet project. I live and work in Northeastern Minnesota, and so I am very familiar with not just PolyMet, but a number of the large mining companies in Northern Minnesota. There is typically a commitment on their part to protect the environment, and I think that especially in PolyMet's case because it is a new type of mining that it's being experimented -- not experimented, but developed in the mines in Northern Minnesota that they have had to be extra careful in developing the environmental aspects of their project, and I think they have done a good job doing that. I think that essentially the fact of the economic viability of the whole region in the State has to be balanced with the environmental protection that needs to happen in a situation like this, and I think that realistically that can happen. I think that both the environment and PolyMet has indicated that the new technology they are offering to protect the environment is much more advanced than what was in place 10, 15, 20 years ago when these kind of projects were coming forward in different locations around the country. So I think that this new technology offers the environmental protection that is needed, and I think that in addition to that that creates an economic engine for Blaine Steno Kirby Kennedy A the region so that the jobs that Minnesota needs, not just Northeastern Minnesota, but the whole State of Minnesota needs are created by a project like this. Taking that one step further, obviously part of the problems that we face as a State is our revenue stream that we are deriving from our tax base in a project like this will pay million of dollars of taxes to the State of Minnesota on an annual basis, creating, you know, another revenue stream that can be used to help with the bunch of problems that they do have. So I think that kind of summing it all up is that I think it is very possible because I went through a number of these different hearings both with the SR Steel project, and the MPCA and their permit for SR Steel that there can be a common ground reached between both the developer of the project, PolyMet, and those folks that need to protect the environment. I think that realistically that can be established here. There has been a willingness and a flexibility on the part of PolyMet to do those things necessary that are brought forward that are felt to be needed to protect the environment. So I hope that people will continue through the process, work it through the MPCA permitting process, and we do get the permit, and this kind of a project is allowed to actually develop and become an entity in Minnesota and become a force not only in Northeastern Minnesota but a force in Minnesota period. So thank you.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Woolson **Submission ID:** 1535	
1869	I'm not a MN resident. Though I use BWCA annually and hate to see anything bad happen to it. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	EOO,G11
Sender Last Name:	Wright **Submission ID:** 2502	
3043	I was a life time MN resident until my job brought me to NC in 2002. I am very concerened about the PolyNet Mining Corp. Our family owned a cabin in northern MN for years. My sister currently has property in Ely. We can not afford to make decisions such as this...the stakes are just too high with unproven technology. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	EOO
3170	Please listen to these comments on this mining project. The boundary waters is one of the most beautiful and one of the only untouched places around Minnesota. Please don't disrupt the the environment, its inhabitants and the recreational industry just for a short term economic profit. These changes are for life, unlike the profit the company may receive. All I personally ask is you take in mind the worth of such a pristine place when weighing your decision.	EOO,G1,G2
Sender Last Name:	Wulling **Submission ID:** 3510	
3697	Assurances of environmental protection into the long-term future are not adequate. Provide evidence that the techniques for removing heavy metals and preventing acidic water are adequate for protection of the wetlands environment not only through the active period of the mine but long after that. Are these established techniques or is experience with them limited?	WR3I,WE3,PD3,PD4
Sender Last Name:	Wyckoff **Submission ID:** 1554	
1905	We've already experienced the noise pollution from test drilling at all hours. We've felt the ground shake and foundations tremble from explosive devices. Now we have roads cutting through previously roadless areas, and more than one of them cuts straight through a fragile bog. What environmental impact study can say for sure what short or longterm effect this development will have on wildlife, especially threatened species? Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Draft Environmental Impact Statement. I have serious concerns about the safety of this project and its potential impacts on Minnesota's natural resources.	G8A
Sender Last Name:	Yeley **Submission ID:** 17	
16	My name is Tony Yeley. I live in Mountain Iron, Minnesota. I just want to speak in support of PolyMet. I'm employed by Mesabi Nugget, which is also a new venture located about two miles from the PolyMet site. I know the hoops that we had to jump through and the standards we had to meet as far as air and water emissions, the constant monitoring as far as even things like dust collectors have to be -- we have to notify the State if they're down for more than one hour. I'm confident that PolyMet will meet the same standards and I just want to voice my support for them. I'm confident everything will be done in the right manner. I also know -- I assume, anyway, that from our environmental engineer's perspective, she will not let anything slide because the penalties that are involved with her personally, and I can't see PolyMet's environmental engineers allowing anything to slide under the table or be done incorrectly or be lied about. Just the -- it's not the right thing to do and the penalties are too severe. So I'm confident it will be handled forthright. That's all. Thank you.	EOO

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Last Name:	Yetter **Submission ID:** 3195	
736	Once a mining operation begins and does harm to the environment -- it is irreversible. Please: 1. Extend the review of the EIS by at least 45 days. 2. Please hold more public meetings in more places to gather input. The current schedule is too limited. 3. Please allow citizen statements and discussion openly in the public meetings. Thank you	PRO6
Sender Last Name:	ymedcnfn **Submission ID:** 2318	
2769	ijCOeu qutdmevmsouj, [url=http://jfxoblilzztb.com/]jfxoblilzztb[/url], [link=http://bbwtbicyfnnr.com/]bbwtbicyfnnr[/link], http://ztnlamrunggz.com/	G15
Sender Last Name:	Yoder **Submission ID:** 1364	
1595	We are responding to the Environmental Impact Statement for the NorthMet Project both as landowners who live nine miles north of Babbitt on CR 120 and as citizens who care deeply about the land and the future of our community. The EIS is quite frank in admitting, for example, that "relatively high sulfate concentrations in seepage from the Tailings Basin would be released to wetlands north of the Tailings Basin and lakes downstream on the Embarrass River ... " and that "it is clear that the Proposed Action would exceed groundwater criteria at the Mine Site for at least several parameters" that include wetlands, vegetation, wildlife, fish, air quality, etc., not to mention pure water. This is unacceptable! According to the EPA, copper-nickel mining often results in significant pollution problelms. In fact, according to the Minnesota Center for Environmental Advocacy, mining of sulfide-metal ore has never been accomplished without causing eventual acid metal pollution of ground and surface waters. Even though the EIS offers several plans for "mitigating" the impacts on the environment, we don't believe, given this history, that these will be sufficient or that the public will not have to pay in one way or another. We believe that there should be a moratorium on mining of sulfide-metal ore until it can be proved that it can be done without endangering our environment and therefore the future of our comnunity.	G7A,G10,G12
Sender Last Name:	Yuzna **Submission ID:** 3540	
3802	Minnesota needs the tax money, so turn the company loose so that we can become a world leader in green mining technology. I would suggest linking the university of minnesota with polymet to form as research project in green mining technologies using the iron range as a test bed.	EOO
Sender Last Name:	Zakruistek **Submission ID:** 1096	
1200	I support PolyMet mining project. Northern Minnesota needs more jobs unless you want to pay welfare!	EOO
Sender Last Name:	Zelinskas **Submission ID:** 3695	
19733	EPA believes the information about the project's estimation of acid generation needs to be updated. The project's proposed operation and post-closure management plan for acid-generating waste rock and wastewater is inadequate and needs to be improved. The proposed approaches to manage acid generation are untested or unproven at the proposed scale. EPA believes the tailings basin will contribute to water quality impacts by leaking contaminants into groundwater that may be hydraulically connected to surface water. EPA believes the Environmental Impact Statement (EIS) needs to include adequate hydrogeological and hydrological analyses for the tailings basin and surrounding area and for the mine site. Tailings basin and mine site water management needs to be based on adequate hydrogeological/hydrological information.	WR1E,PD2,PD3,PD4,PD8

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
19734	EPA finds this project may have substantial and unacceptable adverse impacts on aquatic resources of national importance (ARNI). EPA believes the coniferous and open bogs, comprising a large percentage of the approximately 33,880 total wetland acres, within the Partridge River Watershed to be an ARNI due to the values they provide in terms of unique habitat, biodiversity, downstream water quality, and flood control specifically, to the Lake Superior Watershed and the Great Lakes Basin.	WE1
19735	With impacts to over 1,000 acres of wetlands, the DEIS provides incomplete and inadequate compensation for the loss of wetlands and their function. Indirect impacts to wetlands are not completely identified or compensated for in the mitigation plan. EPA also believes that some of the mitigation offered for direct impacts is inadequate, given that the type and function of wetlands impacted is difficult to replace. EPA's preferred mitigation ratios for the project's impacts are described in the attached detailed comments. Insofar as the DEIS for this project is the chief environmental document supporting the issuance of the USACE CWA Section 404 permit, a revised or supplemental DEIS should identify and describe mitigation for all impacts. It should also include wetland monitoring plans and adaptive management plans, especially related to indirect impacts to mine site wetlands. The Section 404(b)(1) Guidelines, 40 CFR Section 230.10(b), prohibit discharges that will result in a violation of the water quality standards. If water quality standards cannot be met in conjunction with this project as described within the DEIS, U.S. EPA would not support the issuance of a permit for this project. If our concerns are not addressed prior to the issuance of the Section 404 permit, EPA may elevate pursuant to Part IV, paragraph 3(a) and 3(b) of the August 1992 CWA Section 404(q) of the Memorandum of Agreement between EPA and the Department of Army.	WE2,WE3,WE4
19736	We have also identified discharges that may require National Pollutant Discharge Elimination System (NPDES) permit coverage in addition to the permit requirements listed in Table 1.1-1 (Government Permit and Approvals).	WR3I
19736	Long-term post-closure treatment will be necessary to protect water quality; therefore, EPA believes financial assurance information should have been included in the DEIS. The amount and viability of financial assurance are critical factors in determining the effectiveness of these activities, and EPA believes it is necessary to analyze and disclose financial assurance factors in the DEIS to determine the significance of the impacts and inform decisions about the project. Financial assurance information includes a description of State and/or federal agency requirements, closure costs, estimated bond amounts needed for each closure and reclamation activity, and how the bonds should be modified should additional temporary, long-term, or perpetual treatment and/or remediation needs be determined during operations.	PD2
19736	EPA believes that because of deficiencies in the DEIS, additional information, alternatives, and mitigation measures should be evaluated and made available for public comment in a revised or supplemental DEIS. EPA will continue to work with USACE and the cooperating agencies to resolve the issues we have identified. If we are unable to resolve our concerns, this matter may be a candidate for referral to the Council on Environmental Quality (CEQ) for resolution. We appreciate the opportunity to review the DEIS. Please feel free to contact me at 312-353-2000 or Kenneth Westlake of my staff at 312-886-2910 should you desire a meeting to discuss these comments.	PRO3
19736	Synopsis: The DEIS describes a proposed action that will exceed or have the potential to exceed surface water quality standards in the Partridge River, Embarrass River and downstream in Colby Lake (a drinking water source) and the St. Louis River. EPA also concludes that the DEIS underestimates the potential for waste rock and exposed pit faces to generate acid rock drainage (ARD) and the potential for this drainage to enter the environment. EPA believes that there are water quality impacts that have been unevaluated because of gaps in hydrogeological and hydrological site assessments. Since hydrogeology at the mine site is not well described, EPA is concerned that fate and destination of long-term drainage is unknown. We are concerned that mine operation and closure decisions will be made based on inadequate information. Neither the Tailings Basin Alternative nor the Mine Site Alternative would completely prevent or mitigate impacts to water quality.	WR3A
19738	Finally, due to the projected need for long-term water treatment, EPA does not agree with DEIS statements that the Proposed Action could achieve maintenance-free closure.	WR3I

Sender Last Name: Zentner **Submission ID:** 3624

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
776	LAND SALE Legislation was introduced in the U.S. Senate, and House that would have authorized the sale of these lands had the legislations passed. The transactions would have been apart from the Project EIS. The issue of lands to be bought, sold, or, transferred; belong in the EIS, not outside as a separate diversion.	PRO4
1085	WETLANDS: The project proposes to destroy a significant amount of wetlands. Over the course of the wetlands discussions, there have been a number of conversations, and meetings about location of wetland replacements, amounts, and types. As these discussions have evolved, it is becoming dear that the course outlined by the Wetland Conservation Act in Minnesota, especially the avoidance, mitigation, and replacement within the watershed; be followed. At one time it did appear there might be merit in using Poly Met as an opportunity to create significant replacement outside of the watershed. If this had merit, it was because it was perceived greater biological productivity would be a likely result; especially targeted toward wildlife in other Minnesota locations. This certainly would not apply for example; to Atkin County. Those discussions did not take into consideration the mercury sequestration capability of our northern peat bogs. This is the wetland type being lost to the project. Understanding that information puts forth the requirement that replacement, be of the same or very similar type of wetland within the watershed in order to minimize the loss of mercury sequestration in an area already known for mercury problems in fish advisories etc. Seeking out the most economical and readily available near by counties for wetlands mitigation may be economically attractive, and, politically available. And, the action could be justified in the WCA; but it is not in the original spirit and intent of the WCA that many of us worked to create. The wetland process should follow avoidance, minimization, and; when necessary replacement of amount, and, function, within the watershed of the existing wetlands impact.	WE2,WE3,WE4
1158	WILDLIFE CORRIDORS: The history of mining in the area of the proposed site has eliminated a significant number of wildlife corridors according to expert opinion. The estimate is; that thirteen such corridors remain in the area. It is also stated that the Project will eliminate two to three of those remaining corridors. There is no discussion of mitigation plans for this negative impact. The area is home to some of our most sign ificant species, including some that are struggling, or, are generally acknowledged as rare. The EIS must indude such a discussion and proposed response.	WI5

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3328	MERCURY/ SULFATES : My read of the proposal suggests that mercury additions to the environment could occur sever a ways. First, in the wetlands destruction, we lose the sequestration science concludes is part of the capability of the bog type wetlands. Next we read that reservoir and stream areas may be exposed by draw downs and other manipulations of affected watersheds in the proposed operation of the project. The process of disturbing the land to procure the elements sought for the mining process will expose the mercury in soils; and, the waste remaining after processing presents long term potential exposure for mercury contamination. The EIS does not adequately deal with these additions, or, their prevention, adequately. The potential for mercury levels to impact the lower St. Louis River, and Duluth-Superior Estuary are troubling. The tax dollars invested in resource recovery; have varied from dramatic improvements, to more modest progress. Regardless, the millions invested must not be wasted by upper watershed mining. The economic value of the improvements must not be put at risk! There is a long and well documented history of the impact of sulfate levels on wild rice. Minnesota has worked to restore our original wild rice cultures. These efforts have had several objectives. One is the desire to support enhanced wildlife populations through the availability of this critical food source. And, these restorations aid native cultures as well as non native interest in rice harvesting and use. Several rivers, and or river segments show the degradation of wild rice beds as a result of mining impacts. It appears that this project has the potential to exacerbate this condition. I see no assurance in the EIS that adequately recognizes this problem. Nor do I se e where there is a requirement to identify a reference stream; and, the required actions to maintain the existing quality where natural conditions are desirable for rice, and, the operating requirements to allow TMDL attainment on segments not now meeting required sulfate level. Related to mercury, sulfates, and other pollutants; is the issue of drainage from tailings basins, or other project sources. I've read statements that there is no threat to places like the BWCAW, as potential waste flow is away from the Boundary Water Canoe Area. While these statements ignore the other concerns such as air transport; I am compelled to add that as a lay person, I am well aware that hydrology is a tricky subject indeed. I do not find any comprehensive modeling that attempts to assess for certain the drainage from waste rock storage during or, after mining. Confirmation of potential for flows behaving in a different manner than projected must be a part o f a more serious examination of area hydrology as a part of the EIS .	EOO,WR1E,WR3N
3329	ST. LOUIS RIVER & ESTUARY/ Reference Streams I have fished the St. Louis River, from the Duluth Superior Area upstream to the Eveleth area, for many years. I am well aware that over the years of my life this resource has slowly recovered from the impacts of logging, and, industry. As a result; from the estuary upstream fora significant stretch; until the impacts of taconite mining become more evident (wild rice etc.), the St. Louis River has improved as a recreational resource. This is reflected not only in the wildlife populations; and, in the numbers of recreation users; but it is also evident in the significant residential real estate development on both the WI and, MN side of the estuary. This physical recovery has been financed by the taxpayer. The ability to continue, and, maintain this recovery, is at least in part; predicated on the mitigation of the impacts of Poly Met; and, any projects to follow. To fail to adequately consider the potential impacts through out the watershed is unacceptable. The present EIS does not, in my opinion, satisfy that requirement. Given the water quality issues existing in the St. Louis River, and other area streams that have been impacted by mining, and, potentially impacted by this project; it is essential that a near by high quality stream segment, that is representative of generally understood post glacial plant and animal communities be used as a reference stream in order to objectively construe the treatment needed to protect St. Louis River and other streams; and, to prevent the Poly Met Project from creating a condition that precludes successful TMDL strategies over time.	WR3B
3758	The Minnesota Department of Natural Resources periodically notices bids for mineral prospecting and, knows full well the current relatively high rates of interest reflected in the sale o f lease bids offered. There is enough intellectual knowledge at DNR, along with the information on Poly Met, and present conditions to cause a discussion of the cumulative impacts. In fact a serious discussion of cumulative impacts and their potential for degradation of existing values, and, or preventing current attainment efforts from reaching their goals, is an imperative for the Poly Met EIS.	G9

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3904	I have lived in Duluth, Minnesota since 1955. I have long been active in the area of the proposed sulfide mining activity as an outdoor user with a variety of interest ; and for a very long time (beginning in the 1960's) as an active conservationist. I am also a retired business owner, and understand and support the need for a healthy and prospering economy. My interest' include, serving on the original board of the Western Lake Superior Sanitary District, an authority whose mission could potentially, be impacted by a Poly Met Mine. I have served on the Minnesota Pollution Control Agency, 1974-79 and have experienced very directly participation in applying the rules, and outcomes of PL-92-500 (Clean Water Act). I've served as National President of the Izaak Walton League of America . My experiences have included public lands management issues, watershed restorations, wetlands restorations, wildlife management issues, response to invasive species management challenges; as well as working to secure adequate funding for our natural resource restoration, protection and enhancement. I actively participate in outdoor recreation year round in the area near and adjacent to the proposed sulfide mining activity. I am not writing as a technical expert. However; I have maintained a very high level of citizen participation over more than four decades. As a result; I have experienced a great deal of education and practical experience. These combine to give me a significant historical context for expected outcomes and the likelihood that such a complex endeavor will cause unanticipated consequences; and the ability after permits are secured to effectively deal with unintended, negative results. Post permit mitigation, and, correction, if possible; will be very difficult technically, financially, and; politically. Getting it right now is critical. It is the only alternative. Understanding the truth in the paragraph above is as important as any technical detail about this project. I am going to comment briefly on the following relevant subject areas: 1. Mercury & sulfate concerns 2. cumulative impacts 3. perpetual management 4. financial assurance 5. wetland mitigation including focus on mercury sequestration 6. wildlife corridors 7. potential impacts on St . Louis and other area streams, and, lack of identification of a reference stream in the area 8. land transfer/ sale issues My comments will be relatively brief as my emphasis will be on the importance of these project related issues; not on attempting to present a lot of technical data. Others are far more qualified to comment technically, than I am. I will say however, that given that it is acknowledged that the area of potential impact does not attain State or National goals in a variety of environmenta l policy areas, (fish consumption, clean water act TMDL attainment standards etc), that the EIS must describe mitigation outcomes that allow achievement of those goals, or at a minimum, not add to the inability of ongoing actions to achieve compliance. Finally I will state that while this proposed mine has support from those who believe the mine will create high paying long term employment of significant importance to Northern Minnesota, the final EIS must make it dear that the Project does not threaten existing resources of State, National and World significance, nor the jobs and economies associated with them.	EOO,G2

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
3905	PERPETUAL MANAGEMENT/ FINANCIAL ASSURANCES If the Poly Met project goes forward, the conditions prescribing pre and post project environmental management, and; their financial arrangements are perhaps, as critical if not, the most critical environmental protection elements of the Project/ EIS . In order to understand the difficulty Minnesota faces in providing perpetual management of the site during and post mining, and with Poly Met and successor organizations; one must understand our world and business community today. One must look beyond the present proposal. In the last thirty to forty years corporate power and influence among very large global companies has increased by many magnitudes. Our society has encouraged this as a necessary response to required capitalization, and; global competition. The result includes corporations that in some cases are very ready to use their legal and political opportunities to avoid previous commitments. It is dangerous to generalize. But, it is a fact that modem global corporations appear, disappear, use bankruptcy; and, other options to avoid a wide variety of obligations resulting from previous agreements, agreements usually made in good faith at the time. Such a system often places the significant burden that remains, on two targets. First; the tax payer who had been promised jobs and tax income, is financing the obligations created by failure to fulfill previous promise' by someone else. Second, natural resources are harmed, new business' is precluded from using the site; and existing business' are often impacted negatively by the pollution impact. We need only to read the daily news about one aquatic invader after another in our Great Lakes to understand the impact on our quality of life, and our pocketbooks. ATV use is another point of instruction one needs to understand before, relying on the Minnesota regulatory framework as adequate in the matter of ensuring that Poly Met will be under appropriate regulatory protections and functions. A small group of users have been successful in denying the wishes of professional forest and fisheries groups, and the general public. The Legislature after a great deal of public in put, and, debate, passed a very compromised piece of legislation that was almost immediately weakened through an amendment that rewrote the rules "north of highway two". We must understand that our regulatory system will not succeed in correcting a project that may be inadequately described and analyzed in this EIS. Understanding these possibilities, (post project risk) should result in pre permit perpetual care arrangements that are adequate given the magnitude of the potential impact; and such arrangements are agreed to before permit issuance and; and the financial arrangements are delivered worked out before permit issuance as well . The EIS must at a minimum; recognize this critical need, and; set the direction for resolution.	G4A

Sender Last Name: Zientek **Submission ID:** 3483

3757	I would just like it to be known that I am utterly against any mining company doing sulfide mining in MN until it can be PROVEN safe (and not just on a computer model but in real life). Don't get me wrong, I would love it if some good paying jobs came to this area--I would love to have one myself!--but the short-term gains cannot possibly outweigh the forever to be lost if our beautiful, clean waters are destroyed. I don't choose to live in this area because of the great paying jobs-- my family and I eek out a living here because we want the clean air and the clean water. My well water is the best tasting water I've ever had and clean water is an absolute blessing to this whole area. Polymet Job: $50,000 (give or take, and for how long?) Clean water: Priceless Please take Wisconsin's good example to heart and put a moratorium on this type of mining until the mining companies can GUARANTEE that no damage will be done. It's impossible to put the genie back in the bottle once degradation has occurred! Please do not be cavalier about this---think how your decision will affect generations to come! Thank you for your time and the opportunity to state my opinion.	EOO,G2B,G7,G12

Sender Last Name: Zimmerman **Submission ID:** 202

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
200	I am writing in support of PolyMet's NorthMet project. I would like to see the project given the green light to begin. It is clear to me that PolyMet has done everything that they have been asked to do and more to prove the environmental viability of the project. PolyMet has demonstrated that it can adhere to MN's strict requirements when it comes to protecting the air, water, and land. Once allowed to proceed PolyMet will be a domestic source of these important metals which decreases our dependence on unstable foreign suppliers who may or may not practice sound environmental practices, more than likely they do not. This project will contribute significantly to both the State and to our local economy at a critical time. The plant will support 400 full time employees and most likely 2 to 3 times that amount in local jobs that are their to support the plant. PolyMet will also pay millions of dollars in local and state taxes also at a time that is critical to our government. I work and play in the area and I live just across the bridge in Wisconsin. I am very much looking forward to this project getting underway. I ask that you support the project as well.	EOO,G5
Sender Last Name:	Zink.pdf **Submission ID:** 2617	
3147	I have visited the Boundary Waters area every summer for over a decade and want to plan on it's pristine beauty being available to me and other Minnesotans as well as many other Americans and international visitors. If this proposed mining is allowed, the Boundary Waters as we know it will no longer exist. If our good neighbors to the East have banned this mining until proven safe, then Minnesotan's should exercise our best judgement and do the same! I strongly oppose this proposal.	EOO,G7,G12
Sender Last Name:	zkieghty **Submission ID:** 3020	
3438	TtqMMu sdutxdcgejaq, [url=http://syothkxxztkd.com/]syothkxxztkd[/url], [link=http://pcavkcqsxyww.com/]pcavkcqsxyww[/link], http://phoglwsrnujs.com/	G15

Individual Comments and Theme Responses

Alphabetical by sender's first name

Sender Name (Submission ID) 1854 Treaty Authority (42968)

3058	Regardless of how this issue is described or strategically worded in the document, it is our understanding that the project will require long term/perpetual monitoring, maintenance, and treatment. We would argue that a timeframe of potentially hundreds of years should be considered perpetual rather than long term. This will not constitute a site that is maintenance free at closure.	PER04
3111	Under the proposed project, it appears that long term (perhaps perpetual) water treatment, site maintenance, and monitoring will be needed after closure to protect the environment and meet water quality standards. We don't believe that this meets the goal of a maintenance free closure, which is required under MN Rule 6132.3200…Regardless of how this issue is described or strategically worded in the document, it is our understanding that the project will require long term/perpetual monitoring, maintenance, and treatment. We would argue that a timeframe of potentially hundreds of years should be considered perpetual rather than long term. This will not constitute a site that is maintenance free at closure.	COOP01, PER04
3113	Effectiveness of the proposed water treatment and seep collection methods are vital to the project meeting water quality standards. Analysis and design detail are lacking in the SDEIS as a whole. More detail is needed on water treatment and seep collection, including long-term operation and maintenance, since they are essential components of the project meeting environmental standards.	COOP01, PD35, WR019, WR128, WR143, WR144, WR148
3114	The seep collection system is modeled to have a capture efficiency of 90%. Description is needed on how this efficiency rate was determined. We question if such a high capture rate can be achieved, and it would be helpful to include examples and citations of other projects operating seep collections at that efficiency rate. Further, if such capture rates are not achieved, impacts to water quality and quantity should be described in the SDEIS.	COOP01, WR018, WR020
3115	Concern also exists over the methods used to estimate Partridge River baseflow (Section 5.2.2.2.2). XP-SWMM model estimates of Partridge River baseflow presented in the SDEIS have been found to be three times lower than observed values. The XP-SWMM projections, which are based on data from 17 miles away collected from 1978 to 1987, do not align with the rating curve from recent Minnesota Department of Natural Resources (MDNR) winter monitoring data, or the results of the Great Lakes Indian Fish and Wildlife (GLIFWC) projections taken from two years of recent data from the Dunka Road gage in the XP-SWMM model.	COOP01, WR003, WR175
3116	Additional analyses should be performed and included in the SDEIS that investigate how the XP-SWMM model predictions may change with using the new baseflow measurements for the Partridge River to calibrate the model, and how that may affect the MODFLOW and GoldSIM model predictions.	COOP01, WR003, WR091, WR165
3118	It is our understanding that MODFLOW modeling does not account for any water to move east from the tailings basin. The head differential between the tailings basin and surrounding elevation may push water through the east side of the basin, potentially forming a lake. Significant uncertainties exist with groundwater flows and related contaminated water transport.	COOP01, WR093
3119	We disagree with the conclusion in the SDEIS that the PolyMet project will not have any impacts on surface or ground water hydrology in the Partridge and Embarrass Rivers (Section 5.2.2, page 5-8). Augmenting stream flow to tributaries with treated and Colby Lake water will impact surface water hydrology.	COOP01, WR107, WR183
3121	We believe that the interaction of the project's impacts with natural variability in precipitation would be more adverse than reported in the SDEIS. This is because effects of climatic variability are additive to the project-related change, which would be especially true for drier periods.	COOP01, WR077, WR180
3123	It is also noted in section 5.2.3 (Wetlands) that indirect effects on wetlands are expected due to groundwater drawdown. Groundwater drawdown will impact groundwater hydrology and it’s connectivity to the surficial aquifer, which will likely impact surface water hydrology.	COOP01, WET15, WR053, WR086, WR166

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	1854 Treaty Authority (42968)	
3124	Currently, the wild rice water quality standard is not being met in portions of the Embarrass and Partridge river systems. The SDEIS states that the wild rice sulfate standard would be met for the Embarrass River, assuming the containment and seepage collection system would capture seepage presently going to the Embarrass tributaries. However, the Partridge River will exceed the standard during low-flow conditions. We question how this will be handled in permitting.	COOP01, PER10, WR152, WR154
3125	According to SDEIS, PolyMet is seeking seasonal application [April 1 through August 31] of the standard during non-mechanical water treatment after closure. If seep collection and water treatment do not work as planned (substantial assumptions without a lot of detail), the seasonal discharge may become a larger issue. The SDEIS states that this is beyond the scope of the document, but we believe that it is relevant to the project meeting water quality standards and is an issue to be addressed.	COOP01, WR153
3126	We do not believe the proposed project will result in a decrease in mercury loading to the Embarrass and Partridge River aquatic systems (Section 5.2.2.3.4). For the Embarrass River, we do not believe that: 1) the tailings basin will function as a mercury sink; and 2) mercury methylation would decrease due to projected reductions in sulfate contributions. Regarding flows of the Partridge River, Embarrass River, or their tributaries, we disagree that the project would not significantly impact flow and water level fluctuations, thus leading to increased mercury methylation and bioaccumulation, which taken together may be sufficient to impact habitat leading to alterations of species composition, food web structure, and ultimately mercury bioaccumulation.	COOP01, MERC06, MERC20, MERC23
3128	Potential mercury contributions from peat stored at the Overburden Laydown and Storage Area have also not been addressed.	COOP01, MERC20
3134	Mercury-related concerns are present for created wetlands at the East Pit and mercury concentrations in water discharged from the West Pit.	COOP01, MERC09
3135	Air-related mercury emissions do not account for sources from energy generation or vehicle use at the site.	AIR02, COOP01
3136	For the Lake Superior watershed, any additional mercury releases to theenviromnent are exacerbating already existing impairments including fish advisories set for recreational fishing. Increased fish mercury levels will also have direct impacts on both the cultural and recreational resources of the region.	AQ11, COOP01, MERC02
3137	Indirect impacts to wetlands from mine pit dewatering (866.9 acres with high likelihood of wetland hydrology effects (Zone 1)) may be underestimated as a result of using the analog method described in the SDEIS (Section 5.2.3.2.2). We do not feel the proposed analog method of assessing potential indirect impacts from mine site pit dewatering is adequate, and as such should not be the sole means of indirect impact assessment for the SDEIS.	COOP01, WET08
3138	We do not feel the impact zones and distances are well described, and do not agree with the automatic exclusion of ombrotrophic wetlands from potential drawdown effects. ...GLIFWC conducted an independent assessment using the same methods as the Co-lead Agencies, along with additional analog data from other mining-impacted sites. The assessment found an estimated total of 5719.75 acres of wetlands would be potentially susceptible to severeindirect impacts from mine pit drawdown (Zone 1).	COOP01, WET10
3140	We also disagree the Partridge River would act as a "natural barrier" to the cone of depression, which suggests that the riparian zone of the Partridge River will not be affected by groundwater drawdown (page 5-243).The upperPartridge River is located in Zone 2; GLIFWC's independent analysis estimated drawdowns of 3 to 5 feet under the river, which would severely reduce baseflow in the channel, indirectly impact riparian wetlands downstream, and affect other surface water features. GLIFWC's analysis should be considered in the SDEIS for estimating potential indirect effects on wetlands from mine pit dewatering. This would also have implications for the cumulative effects analysis presented in Chapter 6 (Section 6.2.3.4.4).	COOP01, WET10, WET18

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	1854 Treaty Authority (42968)	
3141	Much of the proposed mitigation (Aitkin and Hinckley sites) for directly impacted wetlands is outside of the watershed and 1854 Ceded Territory. This is a permanent loss to these areas and should be discussed in the document.Mitigation options within the watershed and 1854 Ceded Territory should be re-visited.	COOP01, WET03
3143	Upfront mitigation for wetlands susceptible to severe indirect impacts is currently not proposed, and we believe that the USACE should require up front mitigation for all severely impacted wetlands. We also contend that additional up front mitigation should be considered for wetlands that are classified in the moderate to severe category, with robust monitoring being required for wetlands in the moderate category.	COOP01, WET01, WET02
3144	Section 5.2.9.2.2 (Wildlife) does not contain information on game species such as moose, deer, grouse, waterfowl, furbearers, etc. These species are important to the Bands for the exercise of treaty rights, and further analysis is needed.	COOP01, CR01, WI09
3145	This section also contains language about "1854 Treaty Authority-regulated species". We suggest removing or altering this language. The Fond du Lac Band also exercises treaty rights in the 1854 Ceded Territory, and has their own regulations. Further, the 1854 Treaty Authority maintains seasons and limits on some species, but these are not the only species of importance.	COOP01, EDIT01
3146	The project would result in one more piece of the 1854 Ceded Territory permanently altered and impacted. When taken in combination of all the mining operations across the Iron Range and other general development, the Ceded Territory and related exercise of treaty rights have been significantly impacted.	COOP01, CR01
3147	The SDEIS states on page 4-340 that subsistence activity (including hunting, fishing, and plant gathering) accounted for approximately one meal per week among the survey respondents… Our interpretation and analysis of the results would likely show an increased consumption rate from what is reported in the SDEIS.	COOP01, SO09
3148	The SDEIS also states that harvest for all species (including big game and trapping) have generally declined since 1994. We believe that this statement is inaccurate and also seems to minimize the importance of the exercise of treaty rights.	COOP01, SO04
3149	In addition, this section focuses only on harvest activities regulated and reported by the 1854 Treaty Authority, and does not include the exercise of treaty rights by the Fond du Lac Band.	COOP01, CR01
3150	The SDEIS essentially contains no analysis on moose. This issue has been raised by the cooperating agencies a number of times throughout the EIS development process.Given this listing [on August 19, 2013], and the cultural importance to the Bands, the SDEIS should analyze project impacts to moose and also consider it from a cumulative impacts perspective.	COOP01, WI01
3151	Stating the economic benefits of the project, while not stating economic costs to resources and related uses, does not allow for a fair comparison or overall view of the project. Environmental economic tools do exist to value resources and the services they provide, and perhaps some would be applicable and beneficial for the SDEIS.	COOP01, SO04
3152	The document states that there will be a net increase of up to 579.6 acres for the Superior National Forest. Any gains or losses in federal ownership will not be known until the values of all the proposed lands in the exchange have been determined.The proposed exchange loses one large tract of public land for several smaller tracts. The project also results in permanent impacts and changes to the resources regardless of ownership. These issues should be clearly identified in the SDEIS.	COOP01, LAN03
3153	The SDEIS also puts too much emphasis on the current lack of access to the Forest Service lands (Section 3 .1.2.1, page 5-579). This is seemingly done to minimize the impact of losing it.	COOP01, NEPA12

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	1854 Treaty Authority (42968)	
3154	Access to the specific public waters and wild rice associated with the land exchange (Pike River, Hay Lake, Little Rice Lake) is currently available. Adjacent land ownership is not a direct impact to this access because wild rice is in public waters that are currently accessible. The SDEIS does not paint an accurate picture to say that the land exchange will result in additional wild rice beds, that there is currently no opportunity to harvest wild rice directly on the federal lands, or that the public would have better opportunities for wild rice harvesting (Section 5.3.4.2.1, page 5-609).	COOP01, VEG04, VEG08, WR155
3155	page 5-591 states that the proposed land exchange would result in a net increase of wild rice beds to the federal estate. Wild rice in these locations are found in public waters (and would not be on federal lands or under federal ownership/management) and are currently accessible through an access on the Pike River. Some resource protection advantages may exist to gaining adjacent federal ownership as it relates to land management.	COOP01, VEG08, WR155
3157	We do not agree that the project and proposed land exchange would increase habitat availability because even the with land exchange, the overall result of the project is permanent impacts, loss, and changes to the resources of n011heastern Minnesota and the 1854 Ceded Territory (Section 5.3.5, page 625).	COOP01, WI02, WI03
3158	Regarding habitat availability and impacts from the proposed land exchange, there is no mention of effects on game species such as moose, deer, grouse, waterfowl, furbearers and others in Section 5.3.5.2.5 nor in Section 6.2.3.6 from the cumulative effects analysis.	COOP01, WI10
3160	We would suggest that the proposed School Trust Lands Exchange also be a consideration. The project would entail exchange, purchase, or some combination of both for the Forest Service to acquire the school trust lands within the Boundary Waters Canoe Area Wilderness.	COOP01, CU08
3161	We believe that limiting the cumulative effects analysis area (CEAA) for water resources (Section 6.2.3.3), wetlands (Section 6.2.3.4) and aquatic species (Sections 6.2.3.7) to the Partridge and Embarrass River watersheds is too small. These CEAA's should be expanded to include the St. Louis River watershed. Impacts associated with United Taconite's proposal for 1,200 acres of wetland destruction to build a new tailings basin within the St. Louis River watershed should be considered. The PolyMet project would add to the load of pollutants in the St. Louis River and would reduce tributary flows to the river. Impacts that may occur clue to the project could be underestimated (due to modeling concerns), and would not stop before reaching the St. Louis River. Further, any added impact from the project to the St. Louis River watershed would in turn impact Lake Superior. We believe that this should be the appropriate scale to analyze cumulative effects for these resources.	COOP01, CU01, WR024
3162	We disagree with the conclusion that no cumulative effects to groundwater resources are expected (Section 6.2.3.3, page 6-16)…Cumulative effects at these locations should be assessed with the proposed project along with potential groundwater pollution from the Peter Mitchell Pit, Laskin Energy, Arcelor-Mittal, United Taconite, and US Steel Minntac.	COOP01, WR024
3163	A future action that should be considered in the cumulative effects analysis is any potential future backfill of Virginia Formation waste rock forin-pit disposal at the Cliffs Peter Mitchell Pit. Potential dewatering-related interaction effects between the proposed PolyMet Project and the Peter Mitchell Pit should also be evaluated for cumulative effects.	COOP01, WR024
3164	In Section 6.2.3.4.4 (Future Wetlands and Water Resources) wetlands that would be indirectly impacted from the PolyMet project (and other projects) should be considered for inclusion in the number of wetland acres lost.	COOP01, WET18
3165	In Section 6.2.3.10.4 (page 6-95), it should be clarified that the project would result in permanent impacts, changes, and loss within the 1854 Ceded Territory… No matter how the proposed project is viewed, it would result in a permanent loss or change to treaty guaranteed resources and the exercise of treaty rights….Further consultation required by federal agencies is needed to better understand effects to cultural resources, and to properly plan for avoidance or mitigation.	COOP01, CR01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	1854 Treaty Authority (42968)	
3166	it is anticipated that Minnesota Biological Survey sites of High Biodiversity Significance would be decreased by 6056.4 acres on Superior National Forest lands.	COOP01, VEG02
3167	The SDEIS states that financial assurance requirements for the project are not included in the document, but will instead be determined during the permitting phase. We are concerned about this approach given the potential for long-term/perpetual treatment, maintenance, and monitoring that may be needed from the proposed project.	COOP01, FIN12, WR037
3168	The SDEIS states that contingency mitigation will not be included initially in the financial assurance package. Financial assurance must be monitored and updated as the project proceeds to properly cover site cleanup and closure.	COOP01, FIN11
Sender Name (Submission ID)	4095481751@vzwpix.com (4305)	
1800	America and the world will need these metals soon.	NEPA05
Sender Name (Submission ID)	a s dorman (49088)	
16967	The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility.	PD17
16969	The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won’t allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards.	WR189, WR202
Sender Name (Submission ID)	Aaron Brasket (16895)	
14451	This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin.	WR035, WR111
14457	If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness.	CU04
Sender Name (Submission ID)	Aaron Camacho (28831)	
13876	Being that I live just off the Mississippi River and down stream from this potential mine is disturbing knowledge. Any water affected by this mine will eventually make its way down stream to this area where I live.	WR111
13877	I am a concerned citizen of Wisconsin and Native American who feels this continual TAKING from the land for financial gain, will be our undoing.	SO02
Sender Name (Submission ID)	Aaron L. Wittnebel (47268)	
9260	Instability of the industry; if the business collapses or goes bankrupt, won't it be the taxpayers left covering the costs of cleanup, unemployment, and reemployment?	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Aaron L. Wittnebel (47268)	
9264	No health impact study has been conducted, and this industry has a propensity to be very dangerous to not just the health of employees, but to the general public in the surrounding area. If people become ill…the state as a whole will be left to care for those that become ill.	HU01
9267	The proximity of the mining operations are very close to pristine and natural lands, that our state pride's itself on. They are natural wonders that draw people to come to Minnesota for our great tourism industry. What will happen to our state's branding, once mining is expanded and we destroy these attractions?	LU06
Sender Name (Submission ID)	Aaron Poznanovic (54686)	
17857	the proposed sulfide mine has grave forecasts...The largest wetland loss ever proposed by Minnesota by directly destroying 913 acres anddegrading 7351 acres through water and air deposition pollution, mine dewatering, and wetland water diversion.	WET23
17858	the proposed sulfide mine has grave forecasts...Permanently degrading the pristine "1 00 Mile Swamp" and Partridge River Headwaters by altering the basic geochemistry of the system- ultimately increasing toxic heavy metal pollutants such as methyl mercury and reducing biological diversity.	WR111, WR115
17860	the proposed sulfide mine has grave forecasts...Eliminating or degrading prime moose habitat. This is particularly concerning seeing that our state moose population has plummeted over the last decade.	WI02
17861	The proposal will not meet the new sulfide standards specified by the Minnesota Pollution Control Agency (MPCA).	PER10
17862	The proposal has no alternative that could reduce water pollution and wetland destruction.	ALT06, ALT13
17863	[The Project poses] Unacceptable impacts on water resources and wetlands of both national and international importance.	WET19
17864	As a resident of Grand Marais, MN, this proposal will directly impact my health and well-being as well as the ecological health of one of the most pristine environments in the country.	HU01
Sender Name (Submission ID)	Aaron Vail (3039)	
614	[The NorthMet Project is]… creating hundreds of jobs in a downtrodden and economically suffocated area of our great state…	SO10
Sender Name (Submission ID)	Abbi Evans (54337)	
17564	The water could be contaminated with sulphate, metals, and mercury. It can affect the following around it: bodies of water, wetlands, vegetation, wildlife, and many other environmental features.	WR107, WR108
17565	It will be moving the earth, and will have visual obstructions, noise, and dust.	N01
17566	If there are buildings on the land would either result in closure and/or demolition. This would result in people losing their jobs/businesses.	SO02
17568	There can be some positive effects though too.1. To make everything run smoothly they will need to hire people, so then there will be jobs forpeople.2. The new resources: iron, copper and nickel.3. It will boost the economy.	SO10
17569	Wildlife can be harmed, that includes animals on the threatened andendangered species list.	WI01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Abby Huset (54340)	
17444	Some cultural resources could be affected during construction and operations. The things that this could affect are, the sugarbush, a piece of sacred land of the Mesa be Widjiu, part of beaver bay, and a couple other things.	CR05
17445	I think that Minnesota can benefit from this mining process because of all the jobs it will provide and all of the money that it will bring in. Some advantages to this [PolyMet mine] process are …1. make a lot of new jobs2. once we get the minerals then we can make more electronics and stuff we use in our everyday life3. it will make a lot of money4. they will grow the vegetation backSome disadvantages of this process are …1. cut down forest area2. it may pollute the water3. it might affect some different cultural resources	SO10
17580	I do agree with the Land Exchange offers because if they don ' t do it here where will they do it. They have to do it somewhere why not here where we know how to make it safer and not pollute as much.	LAN11
17581	All these products (copper, nickel, platinum) are used in our everyday lives. A way this could affect us is if you don't mine we might start running low in those few minerals and they won't be able to make all of those things that we use everyday such as: electronics, batteries watch bands etc.	NEPA05
17582	Another thing is that even though they are going to cut down all this forest and vegetation, as soon as they are done mining they have to try and put it back so it is almost like what it was before.	VEG05
17583	A reason why a lot of people say that it would be a bad idea to mine is because they think it is going to pollute the surface water. What they might not know is that you guys do so much to make sure that it doesn't not, and if it does some how then you guys have an emergency backup to either stop it or make sure the pollution isn' t more than just a little.	WR190
Sender Name (Submission ID)	Abdullah Ali (54169)	
16376	I don’t like the idea of drilling to happen. Because after the mine is over the environment will be affected for a long time.	WR195
16377	These so much copper you can drill from other locations.	ALT09, ALT16
16379	It can also effect the animals who live near the area.	WI13
Sender Name (Submission ID)	aboges1@gmail.com (44547)	
11767	Acres upon acres of our land and gallons upon gallons of our water all over this country are polluted …the Boundary Waters Area WILL have negative effects on our environment, and it is not worth it for a little extra money and a handful of jobs.	SO01
Sender Name (Submission ID)	Aby Wolf (38776)	
4874	Waste rock would leak and seep into the ground regardless of their "99% clean" promises, and it seems very shortsighted to believe that covering huge piles of waste rock with bio-tarp sounds to me like a very dangerous "sweep it under the rug" approach to clean-up.	PD03
4875	Contingency plans for accidents and mishaps are not adequately addressed in the SDEIS, nor is it clear who would be financially accountable for clean up years after PolyMet's business in the region ends.	FIN01, FIN05
4876	The land exchange proposed by PolyMet is not a fair deal-- Superior National Forest needs to keep that valuable land protected for generations to come.	LAN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Aby Wolf (38776)	
16787	The economic boost to miners and small towns in northern Minnesota would be short-lived, unlike the inevitable pollution and contamination to the water and land of Hoyt Lakes and surrounding watershed.	SO01
Sender Name (Submission ID)	Adam (42981)	
8779	How does the land exchange assist the environmental sustainability of the mine?	LAN01
15186	Glencore Xstrata has a terrible reputation globally for avoiding taxes by producing “shell” corporations which they contact for purchase of materials….Why does the SDEIS not include reference to Glencore Xstrata? Why does the SDEIS not include Glencore Xstrata as a strategic partner?	FIN02
15187	As of Thursday, February 27, 2014, the [Minnesota Pollution Control Agency] has decided they will delay the release of their findings [from a 3-year study to determine if the established sulfate standard of 10 ppm should be adjusted]. The MN DNR also decided the same day that they would not review legal request to extend the SDEIS public comments period beyond March 13, 2014. What are the implications for adjusting the sulfate concentration standards on the decision to permit the copper-nickel mine? Why was the SDEIS public comment period not extended to allow incorporation of theMCPA findings?	NEPA07, WR152
15188	The mine site sites uphill and to the south of One Hundred Mile Swamp, which drains to Langley Creek, into the Dunka River, and ultimately to the BWCAW. There is a statement in Section 4.3.3 of the SDEIS that “no delineated boundary exists for the One Hundred Mile Swamp.” However, the US Government National Atlas shows that the One Hundred Mile Swamp drains by Langley Creek. At some point, all water is groundwater. What are the implications for stating that One Hundred Mile Swamp has “no delineatedboundary”? Will the next draft EIS include federal assessments?	WET19, WR024, WR080, WR081, WR111, WR175
15189	Minnesota DNR hydrologists Mike Lilijegren correctly informs citizens that “the base flow is really the catalyst for everything.” It is the assumption of base flow that underlies the hundreds of complex computer models determining the estimates of, for example, 500 years required water treatment and 90% groundwater containment...The tribal community has contested in courts since 2008 that the PolyMet base water estimate is at least five times below the actual base flow. What are the implications for utilizing potentially flawed base water flow estimates established 10 years ago?	WR003
15190	What are the preparations for ensuring water models comply with the projections for increased precipitation in the area? What precautions are in the place in the event of a large precipitation event?	WR189
15191	Polymet asserts that contaminated seepage is no more than a “garden hose.”Without the MPCA sulfate standards decision, how can we know that this will not surpass acceptable levels?	WR163, WR164
15192	If the water is going to be contaminated enough that it needs treatment, and the basins are unlined, where is the information about how the ground will filter and clean this water before it enters surface water downstream?	WR070
15193	how much money PolyMet will have to set aside to reclaim the mine, treat polluted runoff and fix any major problems that develop even long after themine shuts down.	FIN05
15194	As far as I understand, the project is still in the public comment period. Why has the DNR “already started the process of getting ready for the permit applications”?	PER38

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Adam (42981)	
15195	a few dozen people could make millions of dollars (Glencore shareholders). A few hundred people could make thousands of dollars (~360 jobs). The rest of us (Minnesotans; water-drinkers; children; humans) would have to deal withsulfuric acid contamination in the most freshwater rich environment in the whole world.	WR115
Sender Name (Submission ID)	Adam Benson (39720)	
6951	I sincerely hope that your agency thinks long and hard about the tradeoff between 20 years of mining jobs versus up to 500 years of needed pollution control. Not to mention it now appears only half the jobs will go to locals and this project could get canceled as soon as copper prices fall below the needed threshold to make it economic.	SO01
6958	Polymet has a “plan” but no proof they can do this without polluting the regions’ watersheds. I see they claim they will treat the tailings to take out the sulfuric acid content and use reverse osmosis water treatment. Yet it’s clear this has never been proven on an industrial scale. This is especially concerning when one considers the fact that this is a low grade deposit that will produce 99% waste rock.	PD03, WR128, WR143
6987	It appears there is no proposed trial run on a smaller scale for Polymet to prove this can work in a variety of conditions .... In the next 200 to 500 years we can be assured of some extreme weather including periods of flooding. How will their reverse osmosis treatment handle this?	PD03
6991	Are any alternate plans being considered that would utilize an underground mine where the tailings are kept well below the water tables?	ALT06
6997	It is my understanding that determining the financial assurance needed is not part of this initial EIS and comment period. ... Polymet says the ongoing treatment could cost $3.5 to $6 million per year and last 500 years. Using the midpoint of these estimates produces a liability of over $2 billion not even accounting for inflation….there is no way your organization can claim to know what the assurance should be.	FIN05
7003	Since it’s clear this project will result in decades of pollution risk versus a 20 year limited benefit I propose not doing it at all.	SO01
Sender Name (Submission ID)	Adam Ferris (7180)	
533	allowing this mine to proceed will only benefit all parties involved.	SO10
Sender Name (Submission ID)	Adam Flett (19928)	
13947	I understand the DNR has conflicting motives, both set to make a profit and protect the environment, though I think the presumption that the PolyMet project, or any sulfide mining project can be done without public health issues is a dangerous one, and one that surely has a greater cost than what will come out in profits and tax revenue for the State of Minnesota.	HU03
Sender Name (Submission ID)	Adam Sippola (57350)	
18370	The potential for acid mined drainage alone is reason enough to say no to this proposal. If not, we risk long-term pollution of the surrounding wetlands, lakes and rivers, including the St. Louis River that flows into Lake Superior.	WR107, WR108, WR111
18372	water cleanup following the mine's closure is estimated to last up to or beyond 500 years. It is hard to imagine PolyMet still existing by then, paying for continued cleanup of the water that will be polluted and poisoned if this mining project is approved. No. Instead, that responsibility will fall to the citizens.	FIN01, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Adam Sippola (57350)	
18375	20 years of jobs, only 25 percent of which are estimated by PolyMet to be local jobs, cannot justify centuries of cleanup and billions of dollars in cleanup costs.	SO01
18376	As it is, Minnesota law calls for mines to be maintenance free after closure. And this proposed mine site is located in the Superior National Forest, where open pit mines aren't allowed anyway. We cannot begin making these kinds of exceptions for corporations at the expense of our natural environment and at the expense of pure, fresh water for generations to come. We must employ a longer view.	PER04
18377	The destruction of more than a thousand acres of wetlands at the PolyMet mine site would be the single largest loss of wetlands ever permitted in Minnesota.	WET23
18381	it is our responsibility as human beings to begin a trend away from catering to corporations and toward catering to our environment, including the wildlife, plants, land, water and human beings that are a part of it.	GEN03
Sender Name (Submission ID)	Adam Swansom (7721)	
908	We loan PolyMet our land for 20 years, less than one generation's time, and they will leave it polluted for 500 years?	PD01
909	Experts who have studied other mining projects across the country said even those that start with financial safeguards can end up costing taxpayers millions of dollars. In Montana, they underestimated the volume of water needing treatment after a gold mine had closed, and state taxpayers had to create a $34 million trust fund to pay for it. Northern Minnesota cannot afford a miscalculation of that magnitude.	FIN01, FIN05, FIN10
910	acid mine drainage kills fish, wildlife and plants, leaving contaminated waterways devoid of most living creatures. Mining by-products such as arsenic, manganese and thallium, have been shown to increase the risk of cancer and other illnesses in humans.	HU03, WR113
Sender Name (Submission ID)	Adam Theis (45635)	
12844	Reject the Polymet mine. These mines that are only miles away, are in complete opposition to the ideals that make the BWCA what it is. These mines threaten the purity and integrity of the BWCA [and incompatible with wilderness special area]	WILD02
12845	Unacceptable environmental risk. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin.	WR111
Sender Name (Submission ID)	adam wright (38312)	
13670	After reviewing the SDEIS and hearing experts on the topic, it is very clear that this company will be responsible not just in the present, but in the future. There is a way to mine these materials safely and Polymet has show that they can do it.	PD28
Sender Name (Submission ID)	Addie Welch (57181)	
18661	Combined with other factors environmentally, economically, and socially, Polymet Mining is a dangerous idea that should not be executed in Minnesota.	SO02
Sender Name (Submission ID)	Adele Martin (42723)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Adele Martin (42723)	
14354	The tax payers will be paying for the vast part of the clean up after PolyMet leaves. This happens all the time where mining companies have finished their dirty work.	FIN01, FIN10
Sender Name (Submission ID)	Adrienne Beck (57226)	
17173	The proposed mine is in a very sensitive watershed area. The polluted water can enter ground water effecting rivers, ponds and Lake Superior.	WR111
Sender Name (Submission ID)	Aidan Resh (44527)	
10680	I have concerns about your track record in maintaining ecological standards	PD23
10682	I appreciate your commitment to a five hundred year clean up plan, yet I have no assurance your company will even be around for that long	FIN01
10686	I get that there could potentially be some reforestation attempts assuming you hold yourselves to your proposed plan. What do you plan to do about the displacement of native species?	VEG05
10690	I believe it is the DNR's obligation to prevent companies such as this from destroying our nations largest investment.	PER35
Sender Name (Submission ID)	Aitkin County, MN (21209)	
16718	There are no actions eligible for crediting identified. If the landowners are claiming partial drainage or farmed wetlands, they must provide the actual Farm Security Agency documents, plus a summation of the information, showing that they meet cropping history. The summary must include field-by-field information. There are conflicting statements in Section 15.2.3 and Attachment C. Section 15.2.3 states that the fields have been used for more row crops than Attachment C claims. Fields are referred to occasionally in the report, but no field map was provided. In addition, sod does not qualify under cropping history. This property is continually referred to as a sod farm or sod fields. Page 30 of the report states that the conversion to a sod farm was in 1998. At that point, most of the dikes from the former rice paddies were pushed into the ditch area. A copy of the Corps permit that details what work was allowed for their impacts to the ditches might provide additional information.	COE08
16721	There are a number of major issues regarding the drainage. Section 15.2.3 states that the fields have subsurface tile drainage. There is no map or drawing provided showing the tile layout. In addition, subsurface tile is not mentioned in Attachment C. In January, 2006, a Conditional Use Permit (CUP) was applied for to conduct peat mining on 40 acres of this property. At that time, the CUP applicant/representative stated that there were no tile lines in either site proposed for peat mining. The areas requested for peat mining were on the east and west sides of County Road 1. Also, because they have been significantly damaged, those areas should not be included in restoration unless the peat is returned to the site.The drainage on this site is listed as ditches spaced 700 feet apart. Figure 9 shows the ditches to be intermittent at best, and generally 1-2 feet deep. The potential restoration proposed at Zim has scope and effect calculations, but there are none for the Aitkin site. For example, at Zim, there is a 2.5 foot deep ditch that has a scope and effect of 60 feet and a 3' deep ditch that has a 65' scope and effect.The ditches at the Aitkin site are 700 feet apart and are shallower than the Zim site. How is this site drained? The scope and effect of a 2-foot deep ditch is not 350 feet. We understand that different soil types affect drainage, however, never to that extent. The applicant must provide adequatedocumentation of drainage. If there are tile lines that are being used, they must be shown to be working effectively. A detailed ditch and tile map and scope and effect calculations must be provided.	COE08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Aitkin County, MN (21209)	
16722	There is no wetland delineation for this project. A pre-restoration delineation is required. A copy of the delineation shall be provided to the Aitkin County TEP/LGU for approval. It will be ground-truthed in the spring. There was evidently water table information collected on June 5-6, 2007 (page 26). This is one snapshot in time; two days worth of information does not adequately represent a 933-acre site and may not reflect long-term conditions of the site. Also, on page 26, the report states "The water table appears to be near the surface throughout much of the general area, as indicated by the large wetland complexes underlain by muck and peat soils." This paragraph begins with a reference to the wetland restoration site being composed entirely of hydric soils. The information is very conflicting. The timing of the monitoringis not addressing the potential for having wetland hydrology near the surface during the wettest time of the year. We need copies of the monitoring that was done. Mapping conventions can be used to provide wetland delineation information. If the report is claiming that the hydrology is wetland, then,again, we need the cropping history to allow for any crediting under WCA. Also, the 1' contour should be provided in better detail than is shown on Figure 9.There are additional questions on the hydrologic monitoring. How were the monitoring wells installed? Are they meeting Corps standards? How were the wells distributed throughout the site? If a wetland delineation is not provided to the TEP/LGU for approval, the applicant must perform hydrologic monitoring for a minimum of 2 years before any potential crediting is discussed and before any alteration of the site is done.	COE10
16723	An unrealistic and unsustainable number of wetland types are proposed on one 933-acre site. There are ten types, plus upland buffer. These do not represent the original vegetation and it is unlikely that this number of wetland types is found on any other large wetland site in Aitkin County. Regardless of what is being impacted, the wetland types for this potential restoration must be altered to reflect neighboring reference wetlands and the number of wetland types proposed drastically reduced.What is the source for the seeding recommendations? What local reference wetlands were used for theseeding plans? Seeding recommendations prescribed by the Board of Water and Soil Resources (BWSR) should be used. Seed mix #2 should be used on the berm. The monitoring period of 5 years for the tree plantings is not adequate.The performance standards may be unrealistic. Only allowing 5% non-native invasive vegetation seems low. Is it realistic, or should it be somewhat higher (1 0%?).	COE08
16724	The plans to breech the diversion channel dike must get approval from the ditch authority. The information we have indicates that the diversion channel dike is specifically engineered to direct flow into the channel and not into the surrounding lands. The applicants are proposing a major change to how theCity of Aitkin has benefitted from the diversion channel.Eventually a land alteration permit and probably Conditional Use Permit will be required in order to construct the berm around the homesteaded property and to complete all other earth moving activities. Are there any archeological concerns in the project area? There is no information discussing this issue.Is this project specific or banking? 300 acres are left over. The applicants must be made aware that they are restoring more than they can use and that it can't be used for impacts on other projects or phases.	COE08
Sender Name (Submission ID)	Akilah Sanders-Reed (58090)	
19906	Finally, the Tribal Governments have shown that the water models used by PolyMet contain errors which may have vastly underestimated the hydrological damage that will be incurred by the mine. The disastrous impacts are unknown, and it would be irresponsible to pass such a proposal.	GT01
19908	Further underlining the proposal's ecological incompetence is the U.S. Forest Service land exchange...those plants provide ecosystem services estimated to be worth significant amounts of money, performing tasks such as water filtration and retention, and soil protection. These resources are necessary for human occupation of connected ecosystems across the state of Minnesota....Our natural resources are not trivial niceties but necessities. Please decline the Poly Met SDEIS and avert the ecological and economic toll it would take on Minnesota's future.	GEN03
19950	No details are provided on how five centuries of water treatment will be financed. The operation, maintenance, monitoring, and reconstruction of these facilities for over five hundred years is massive liability and financial investment.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Akilah Sanders-Reed (58090)	
19988	The plan readily admits that... millions of gallons of polluted water will seep off site, uncaptured and untreated. This is irresponsible natural resource management, as well as a serious human health threat.	GT01, HU03
20002	The SDEIS is insufficient and should not be approved.	NEPA09
20010	There are sustainable alternatives that, when externalities are factored in, would be financially beneficial: increased recycling rates, or an underground mine, have both beenproposed.	ALT01, NEPA06
Sender Name (Submission ID)	Al DeJuliannie (5979)	
1960	Idea for next meetings so it is fair is to have a box for people that want a chance to speak, one for Anti Mining and one for Pro Mining. Then pick speakers evenly from each box to give there comments.	NEPA11
1961	Also person picked should have to give there comments not like what I seen last night where the Anti Mining Group stuffed the Box and then would give there spot to one of there experts and we had to listen to the same lies over an over and I felt it ruined a good meeting.	NEPA11
1962	We need these good paying jobs on the Iron Range	SO10
1963	[The] whole country and world needs the metals.	NEPA05
Sender Name (Submission ID)	al eisentrager (41739)	
3258	At a time when MN is starting to take a lead in preventing more pollution, this is just plain wrong. It doesn't matter how many jobs it creates, how much in revenue MN with get from it. It doesn't matter how many jobs it creates, how much in revenue MN with get from it.	SO02
Sender Name (Submission ID)	Al Martin (43449)	
7205	There was no provisions to prevent Polymet from simply selling off their company's mining to other companies that may not have to follow the same rules. … A huge "damage deposit" must be required…. It would be foolish to think that 50 or 100 years from now, if Polymet didn't return to address the problems, that Minnesota residents and taxpayers could simply send them a bill for any cleanup costs incurred by the people. Besides, at that point it would be highly unlikely that Polymet would still exist in a legal, solvent form, with sufficient cash reserves to pay for any such damages.	FIN01, FIN08
15719	These resources belong to the people of Minnesota, and if we leave them in the ground, they'll still be there later should we change our minds, or find more protective ways of mining. Any jobs from these mining activities, would soon dry up and be gone, just like the iron mining cycles. Once we mine it, the resources will be gone and we'll be back at square one.	SO01
Sender Name (Submission ID)	Al Ringer (54690)	
17830	We are very concerned about acid mine drainage and it affecting the water supply for many years after a possible mine would close.	WR001
17831	If Polymet is permitted to operate, it will only open the floodgates for the multiple other companies that are waiting in the wings to see what happens here.	CU04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Al Ringer (54690)	
17832	I would like to see a very strict oversight on the water issues and assurances that there will be adequate funds to clean up the mess that is going to accompany any mining project.	FIN01
17833	My other issue is I think surface property owners should be notified when theirproperty is put on the auction block for mining companies to bid on. Why should I have to hear about this from a neighbor who reads the auction sheets hidden in the journals of the DNR website? Mining companies seem to have all the power, and surface property owners, none.	LAN06
Sender Name (Submission ID)	Al Rudeck (18079)	
3193	[The SDEIS]'s sophisticated modeling and engineered solutions proposed by the agencies and the company, in my professional judgment, will be enable PolyMet to perform at or beyond the stringent state and federal requirements to protect water quality on all fronts. In fact, the overall project will reduce background concentrations in sulfates and not increase them, as well as reducing mercury, and not increase them.	PD28
3194	[Mining jobs] provide basic living essentials for hundreds of families and I look forward to the prospect of job creation the PolyMet Project brings…	SO10
3195	They [jobs] provide basic living essentials for hundreds of families and I look forward to the prospect of job creation the PolyMet Project brings, and moreover, the high-quality metals to be produced representing important new and domestic sources of essential clean copper-nickel and other precious metals that fuel modern life, including wind turbines, hybrid vehicles and other modern necessities.	SO10
Sender Name (Submission ID)	Alaina Kelley (58116)	
19929	I request that the SDEIS be rejected because it lacks accurate estimates of the economic costs o fthe proposed NorthMet sulfide mine. I see three potentially expensive side effects of the proposed NorthMet sulfide mine:1. Active treatment of polluted water and other annual maintenance of the mine site and waste site for at least 500 years.2. Known pollution resulting from untreated water that will be costly to Minnesota to clean up, or costly to leave polluted (loss of natural capital and health costs).3. Expected pollution from the accidents that are most likely to occur in and around sulfide mines. SDEIS does not give a comprehensive estimate of how much these three side effects of the proposed NorthMet sulfide mine would cost. As a Minnesota taxpayer, I want to know if the potential benefits of the proposed NorthMet sulfide mine outweigh the potential costs.	FIN10
19930	I see three potentially expensive side effects of the proposed NorthMet sulfide mine:1. Active treatment of polluted water and other annual maintenance of the mine site and waste site for at least 500 years. 2. Known pollution resulting from untreated water that will be costly to Minnesota to clean up, or costly to leave polluted (loss of natural capital and health costs). 3. Expected pollution from the accidents that are most likely to occur in and around sulfide mines. SDEIS does not give a comprehensive estimate of how much these three side effects of the proposed NorthMet sulfide mine would cost. As a Minnesota taxpayer, I want to know if the potential benefits of the proposed NorthMet sulfide mine outweigh the potential costs.	SO07
Sender Name (Submission ID)	Alan Andreae (40380)	
12161	The jobs are disparately needed in the Arrowhead region of Minnesota and with the scientific research that has been done I see no reason permits shouldn't be granted.	SO10
Sender Name (Submission ID)	Alan Engebretson (30200)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Alan Engebretson (30200)	
10991	the boundary Waters Canoe area of northern Minnesota, And Lake Superior, are too important to our environment to risk a mining of any sorts in that area. This area has been used for generations for people to enjoy the great outdoors and have clean water and beautiful forests.	WILD02
10992	Mining in this area would destroy something that cannot be replaced and pollute a beautiful Lake superior and its watershed.	WR111
Sender Name (Submission ID)	Alan Janetka (27503)	
14746	Stop this erosion of our natural habitat which effects all of us and most importunately the wildlife which dies off because of contaminated water and foliage !	VEG06
Sender Name (Submission ID)	Alan Knaeble (45114)	
8328	the former mine pits that will be used to store mined waste material will be over 600 feet deep into bedrock. Ground water that accumulates in these pits will be contaminated by waste rock and will move following the regional flow through bedrock fractures and will have the potential to affect the entire water system down gradient.	WR088, WR111
8334	The public comment period for reviewing a document of this complexity and size, over 2000 pages, is inadequate. I would suggest extending the public comment period for an additional 90 days to allow more time for reading through the document and formulating comments.	NEPA07
8337	There is no Financial Assurance Plan. It is imperative that a comprehensive plan be presented to the public before the public comment period is over and before a permit is issued.	FIN13
8350	Without addressing how PolyMet will avoid [environmental problems from sulfide mining] for this mine, what assurance do the citizens of Minnesota have that these same problems will not occur again.	SO04
16737	in this region ground water exchange between bedrock and glacial deposits is the norm. Lakes and streams are the surface exposures of the ground water, therefore they are interconnected with groundwater in the bedrock.	WR010
16738	If the PolyMet project is permitted as outlined in the SDEIS I believe pollution problems will be inevitable. The only questions in my mind will be. How severe and how wide spread?	PD22
16739	There is no Financial Assurance Plan. It is imperative that a comprehensive plan be presented to the public before the public comment period is over and before a permit is issued. As tax payers each Minnesotan may have to foot the bill if expenses due to remediation of mining problems are not adequately covered by a detailed Financial Assurance Plan.	FIN13
Sender Name (Submission ID)	Alan Muller (47778)	
8632	Further, it is clear that several other copper-nickel mining projects are projected in the area…Looking at the NorthMet project in isolation violates basic principles of environmental review and cannot give us a trustworthy indication of cumulative impacts.	CU04
8633	The SDEIS fails to recognize the probability that the NorthMet project would expand in size and duration subsequent to permitting.	PD30
8635	The SDEIS fails to consider the impacts of...electricity generation on the scale required to extract and process the volumes of ores projected…How many megawatt hours are involved and what would be the source? The impacts of generation….?	PD39

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Alan Muller (47778)	
8636	The SDEIS lacks a meaningful evaluation of alternatives.	ALT06
8637	[T]he present SDEIS fails to conform to the letter or the intent of the Minnesota Environmental Policy Act and the National Environmental Policy Act.	NEPA08
Sender Name (Submission ID)	Albert van Daalen (21127)	
1943	The Polymet project will create at least 1,000 jobs. Which is a conservative estimate in my opinion. The State of Minnesota will get substantial revenue.The surrounding communities will also benefit as PLM Management shows clear interest of community projects.	SO10
16240	For those who oppose Polymet operations they should consider that mining of copper is vital and that instead of importing from countries that do not have environmental standards equal to those in the US that mining is better done in the US.	NEPA05
16241	With regards to environmental concerns, Polymet is committed to providing adequate financial assurance.	FIN16
Sender Name (Submission ID)	Alex Andrea (45471)	
11464	THE SDEIS DOES NOT TAKE INTO ACCOUNT THE WATER POLLUTION THAT WILL RESULT IN POLLUTION OF RIVERS: THE SDEIS DOES NOT TAKE INTO ACCOUNT SEEPAGE INTO THE GROUNDWATER: PolyMet's own plan shows that millions of gallons of water will seep "offsite," untreated, during usual operations. There is no way it can adequately guard against toxic pollution of the St. Louis River watershed, and Lake Superior itself, from pollutants such as copper, lead and sulfates.	WR042, WR064, WR081, WR107, WR108, WR111
11466	THE SDEIS DOES NOT TAKE INTO ACCOUNT AIR POLLUTION:	AIR11
11468	THERE IS INSUFFICIENT FINANCIAL ASSURANCE: The SDEIS is inadequate with regard to the financial assurance required of the company to protect the state of Minnesota and its taxpayers. … Once the pollution occurs, Minnesotans can only engage in "reclamation"--a poor substitute for not polluting in the first place	FIN01
Sender Name (Submission ID)	Alex Barbeau (15744)	
11945	I do not believe that the SDEIS fulfills the requirements of the Clean Water Act or Clean Air Act.	PER26
11946	The mercury and sulfide emissions have in no way been proven to be mitigated by the proposed tailings pond technology over a 200-500 year period.	MERC06
11949	I find the studies showing that wild rice, a protected species, will be negatively impacted to be reprehensible in light of treaty obligations to the various tribes.	VEG04
11952	I also find the menger finacial assurance details in the SDEIS alarming given that cleaning is estimated to last twice as long as this county has existed.	FIN13
17036	The lack of an adequate much less accurate water flow study casts the whole of the SDEIS into doubt.	WR003

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Alex Barbeau (15744)	
17038	the broader impact on tribal resources…point to profound reprocussions on the future ability of the [Bands] to use, enjoy, and thrive within the boundaries of the…Ceded Territory.	CR01
Sender Name (Submission ID)	Alex Christensen (41568)	
6364	The proposed project poses significant, unpredictable, and functionally indefinite environmental health risks to both the humans and other biota of the area.	HU03, WI04
6367	I understand that proponents of the mine routinely cite the influx of jobs and taxable income that would boost the area's economy. I think that is a naive assessment of what this mine would accomplish over time. For starters, the mine, if all goes exactly to plan, will not be around forever. What happens when it must close? Additionally, I have not heard a satisfactory explanation of how polluted water, earth, and air might be treated in a fiscally responsible and ethical [manner].	FIN10
Sender Name (Submission ID)	Alex Comb (6445)	
1077	From what I have gathered the proposal is offering what may become 20 years of employment and profit from this mining venture while it is suggested monitoring of the mining may be necessary for up to 500 years. This alone does not suggest a favorable balance.	SO01
1078	Should sulfur pollution occur it could greatly impact this economy as well as possibly impacting the forest products economy of the area.	SO02
1142	I think it would be great to see the LTV site back in operation and a boon to the economy that the construction and operation of the proposed NorthMet mining operation would bring.	SO10
1143	I fail to see how during the mining process these aquifers are protected from contamination of the sulfides exposed in the mining process. The rock is obviously exposed to the air, which makes it reactive and the addition of water when it rains makes it seem likely to lead to contamination of the aquifer.	WR001, WR090
1144	The proposal of returning the waste rock, which is still reactive, to the pit also seems poorly determined. This would seem to be putting highly acidic water into the unlined pit, allowing for an even greater chance of contaminating the water table.	WR001
1145	The plan seems to rely also on using reverse osmosis to treat the effluent. There is a good track record with some of these treatments, though mechanical difficulties can obviously lead to over-flows that would need to be addressed.	PD03, PD22, WR143
1146	What is most troubling is that there is an implied admittance that sulfides are a long-term contaminate. I see nowhere it is suggested that the wastes are ever to be rendered neutralized.	PD05, WR060
1147	It is very difficult indeed, to look down the road 200 to 500 years. …. To think that this mine could be effectively monitored for that time period seems ludicrous at best. And what would the land use in this area be within that time period?	PD05
1148	And what would the land use in this area be within that time period? I don’t think we can effectively imagine that, though given what looks like long-term global warming and obvious population growth it would seem this land would be valuable for human development.	LU02
Sender Name (Submission ID)	Alex Heegaard-LeGros (47036)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Alex Heegaard-LeGros (47036)	
10935	There is not a realistic long term storage plan for the mine tailings; the current plan has huge ground water seepage risks due to inadequate computer modeling based on optimistic best case scenarios... We are talking about at least 500 years of waste storage so we should be talking about containment systems based on worst case scenarios.	WR128, WR189, WR202
10936	the Polymet Mine EIS allows risk to our fragile moose population, unique wild rice supply, local long-term tourism economies, local tribal economies and communities, and in general the Minnesota that we are leaving to Minnesotans hundreds of years into the future.	SO02, VEG04, WI01
16504	The current models are based on lower than usual water levels; a unusually wet year (which seems likely when we consider our changing weather due to climate change) could overwhelm the containment systems and lead to incredibly expensive and possibly irreversible groundwater and surface water contamination.	WR057, WR176, WR180
16505	In addition, these problems are likely to occur after Polymet has moved on/been turned into another company to protect the owners from financial liability.	FIN01
Sender Name (Submission ID)	Alex Reich (43206)	
9002	With 1 in 10 MN newborns in the Lake Superior basin born with unsafe levels of mercury in their blood (according to the MDH), we must make sure that the proposed mine and the associated energy production facilities that will be the source of energy to the mine and processing plant do not cause health harm to the population.	HU01
9010	I question whether we as a state (or as a DNR) will ultimately (especially in the 500+ year timeline) want to promote [this project] in a the Arrowhead/Superior/ BWCAW region, an area central to our economy (with $1.6B of nature-based tourism annually) and to our state identity. These are important factors that have not been addressed by the current EIS process, even in the cumulative impacts sections.	CU11
16158	We must make sure that the mine does not negatively impact the health of locals (especially tribal communities whose psychological wellbeing depends on wild rice and other water-related phenomena), or of others in the state.	HU02
16159	The unprecedented public involvement in this EIS process indicates that it is important to the people of Minnesota. Improved though the public involvement process for this EIS was over others in the past, I know that not all Minnesotans who wanted to be involved were able to participate.	NEPA10
16160	Whether through a programmatic environmental impact statement review process, a state-wide voter referendum, or another method, please determine whether sulfide mining in the Duluth Complex will be beneficial to the long-term interests of the state, and whether the majority of Minnesotans support it.	CU19
Sender Name (Submission ID)	Alex Swingley (43716)	
15093	This is our home. We have nowhere else to live. Do not ruin our earth for a man-made concept known as currency.	SO01
Sender Name (Submission ID)	Alex Ventrelli (54212)	
17657	I don’t think you should mine near the boundary waters because it kills aquatic life and the water gets polluted and the ecosystem will be destroyed.	AQ05
Sender Name (Submission ID)	Alexa Mcdowell (27966)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Alexa Mcdowell (27966)	
14736	Although I respect the position presented by residents of the Iron Range whose livelihood has, for generations relied on mining, I have serious concerns about the plan to develop sulfide mining in northern Minnesota.	SO02
14737	The threat to the state's natural resources is very real and the specifics of the plan for a longterm response to potential contamination are vague at best. Too many questions remain unanswered.	PD01
Sender Name (Submission ID)	Alexander Rosen (27564)	
14743	Please do not allow the destruction of the Boundary Waters and Lake Superior to take place. The loss of the health of these great places is NOT worth the dollar amount that will be gained from this sulfide mine.	SO01
Sender Name (Submission ID)	Alexandra Jane Vagac (57140)	
16835	PolyMet’s Mining proposed NorthMet sulfide mine fails to meet four common sense clean water principles: keeping MN’s water safe and clean, putting safegards in place for when things go wrong, leaving the site clean and maintenance free, and protecting MN taxpayers	FIN10, FIN14
16836	Furthermore, NO sulfide mine has ever operated without polluting its nearby waters.	WR023, WR113
Sender Name (Submission ID)	Alexis Berke (11531)	
2482	…I am worried about the length of proposed water treatment (200-500 years) after mine closure. How will the state of Minnesota be assured that PolyMet can meet the financial requirements to continue to treat waste water? This is an irresponsible legacy to leave future citizens of our state.	FIN01
2482	…I am worried about the length of proposed water treatment (200-500 years) after mine closure. How will the state of Minnesota be assured that PolyMet can meet the financial requirements to continue to treat waste water? This is an irresponsible legacy to leave future citizens of our state.	FIN01
2483	After reading about the rejection of the underground alternative, I am also disappointed that the economic value of clean wetlands was not considered. In a state with much outdoor recreation – snowmobiling, fishing, hunting, canoeing – the value of our forest is great – and provides revenue to local communities. A single private corporation’s profit, should not trump the value of our public water resources.	ALT01, ALT06
2483	After reading about the rejection of the underground alternative, I am also disappointed that the economic value of clean wetlands was not considered. In a state with much outdoor recreation – snowmobiling, fishing, hunting, canoeing – the value of our forest is great – and provides revenue to local communities. A single private corporation’s profit, should not trump the value of our public water resources.	ALT01, ALT06
Sender Name (Submission ID)	Alice Duggan (50929)	
16472	We might want to protect [water] from sulphide mining; it is unlikely that we can. In such a vulnerable area as the Boundary Waters, it is beyond foolish.	WILD02
16473	I would like to see some of our tax money to be funneled into NEW development for the Arrowhead region. I would not like to see out tax dollars spent on repairing tragic damage to wetlands and aquifers [due to mining].	SO01
Sender Name (Submission ID)	Alicha Greenlee (18348)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Alicha Greenlee (18348)	
14630	PolyMet project is a great asset to our community. Their safe technologies and their (inaudible) processes, they will be providing (inaudible) services, as well as, even more importantly, jobs for our state.	SO10
14632	We need these resources, and the more we can get responsible operators, the better off we can be.	NEPA05
Sender Name (Submission ID)	Alicia Newell (40703)	
14191	I understand that this is a tough issue but we are at a major crossroads. We have to make a major shift and stop this path of destruction.	PER35
Sender Name (Submission ID)	Alison Aune (44879)	
17382	[The project] would destroy 1,450 acres of designated critical habitat for the Canada Lynx, habitat essential to the conservation of a threatened species. We must not allow the fragmentation and loss of habitat for moose, Canadian Lynx, and other wildlife.	WI02
17384	Wild rice is sacred to the Ojibwe people, and is a symbol of our state.	CR01
17385	Wild rice beds downstream of PolyMet would become polluted with toxic sulfates. Millions of gallons of untreated polluted water will escape every year, and the mine plan predicts an increased chance that water exceeding the sulfate standard will be released at times, years after closure.	WR149, WR156, WR162
17387	How can we risk the need for extensive water treatment of our waterways for hundreds of years? Who would pay for the cleanup? Taxpayers would have to pay for this and I do not support the huge cleanup bills when sulfide mining companies have declared bankruptcy or walked away from closed.	FIN01
17390	Exposure to air and water pollutants like mercury, asbestos-like fibers, and arsenic would have a significant impact on local communities. I have listened to the physicians who have spoken out against this mine to the very real health dangers it poses.	HU03
17391	PolyMet would be a huge consumer of electricity, using some of the dirtiest coal power plants in Minnesota. PolyMet would emit 707,342 metric tons of carbon dioxide into the atmosphere every year.	AIR02
Sender Name (Submission ID)	Allan Blais (54161)	
16054	Who will pay for the hundred year cleanup after this company is long gone?	FIN01
Sender Name (Submission ID)	Allan Frink (18303)	
4159	[PolyMet] wanted to put the rock in there and cover it with water, so it doesn't have oxygen, but there is oxygen in the water. The water fluctuates through the ground, depending on how the aquifer moves. Stuff is going to go into the aquifer. They're not even looking at that. They're saying the water can't do that. If water can flow one direction, it can flow the other way.	WR010, WR029
4160	I haven't seen anybody talking about how they are going to have the mercury that is in that rock and all of the other stuff, because there is all of the hard metals in it, too. That's why there is gold and the platinum, because there is lots of them. The problem is because it is low volume. But when you start crushing it all up, to powder like for makeup, which is what they crush that at, that's what they did for the taconite, too, all of that stuff is released.	MERC20

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Allan Frink (18303)	
12295	So, that's exactly what will happen here if they are not getting enough of this stuff out. The Swiss company is going to say, "We're not giving you any more money." And of course they won't have nothing. There won't be anything there to do any treatment or any repair.	FIN01, FIN02
Sender Name (Submission ID)	Allan King (16918)	
11020	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Allen Killian-moore (11579)	
2236	[SDEIS preparers] have not, to my mind, substantially addressed who will monitor…. regulate, and hold accountable the operations involved in the mining and pollution process. And the years given for water treatment are on an estimate. We really have no way to determine how accurate said estimates are.	FIN01, FIN05, FIN06, WR035, WR129
2236	[SDEIS preparers] have not, to my mind, substantially addressed who will monitor…. regulate, and hold accountable the operations involved in the mining and pollution process. And the years given for water treatment are on an estimate. We really have no way to determine how accurate said estimates are.	FIN01, FIN05, FIN06, WR035, WR129
2911	I think the SDEIS inadequately addresses workers safety and inadequately addresses ground water pollution issues	HU04
7773	I would like to note that, while SDEIS has estimated that cleanup of pollution ... will last for hundreds of years, ... not, ... addressed who will monitor, regulate, regulate, and hold accountable the operations involved in the mining and pollution process.	FIN01, FIN11
7773	I would like to note that, while SDEIS has estimated that cleanup of pollution ... will last for hundreds of years, ... not, ... addressed who will monitor, regulate, regulate, and hold accountable the operations involved in the mining and pollution process.	VEG04, WR156
18495	I would like to call for a 500-year comment period instead of 500 years of downwater pollution.	NEPA07
18496	I think the SDEIS inadequately addresses workers safety and inadequately addresses ground water pollution issues. And I think we need more time to look at those things.	HU01
Sender Name (Submission ID)	Allen Oberg (47195)	
8804	Polymet should go ahead with providing upfront evidence of complete insurance coverage in event of a pollution incident with their mining operation…	FIN01
Sender Name (Submission ID)	Allen Richardson (11613)	
2290	The potential greenhouse gas emissions from the PolyMet sulfide mine and processing facility are staggering. Including the fossil fuels burned to run the vehicles on site and the plant, potential carbon dioxide equivalent emissions would be 707, 342 metric tons per year according to SDEIS pg 5-405.	AIR01
2290	The potential greenhouse gas emissions from the PolyMet sulfide mine and processing facility are staggering. Including the fossil fuels burned to run the vehicles on site and the plant, potential carbon dioxide equivalent emissions would be 707, 342 metric tons per year according to SDEIS pg 5-405.	AIR01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Allen Richardson (11613)	
2291	Over a 20-year mine plan, PolyMet would emit 15,790, 752 tons of CO2 equivalent pollution, more than 10 million tons from burning coal to run it's processing. (SDEIS pg 5-406). The PolyMet project should not be permitted without substantial changes to reduce emissions. The SDEIS should be redone to compare alternatives that reduce CO2 emissions, starting with changes in vehicle fuel and reduced reliance on coal power.	AIR02
2291	Over a 20-year mine plan, PolyMet would emit 15,790, 752 tons of CO2 equivalent pollution, more than 10 million tons from burning coal to run it's processing. (SDEIS pg 5-406). The PolyMet project should not be permitted without substantial changes to reduce emissions. The SDEIS should be redone to compare alternatives that reduce CO2 emissions, starting with changes in vehicle fuel and reduced reliance on coal power.	AIR02
2523	The SDEIS should be done with more comparatives and alternatives that would reduce Co2 emissions, starting with changes in vehicle fuel and to reduce our reliance on coal power	AIR02
14621	The potential of greenhouse gas emissions from the PolyMet mine, sulfide mine and processing facility are staggering, including the fossil fuels burned on site to run the plant.	AIR01
Sender Name (Submission ID)	allene burns (40088)	
15266	This is too hazardous to consider drafting the MpolyMet Mine in northern Minnesota. We have too many fragile natural plants and animals to say nothing for the environment as well, to consider this risky endeavor.	VEG10, WI13
Sender Name (Submission ID)	Allete (54719)	
18519	Mining in general and PolyMet in particular are vital to the economic health, prosperity and vibrancy of northern Minnesota and northwest Wisconsin. Development of natural resources, including the rich bounty of minerals and timber in our region, has been the bedrock of our region's economy forwell over a century.	SO10
18526	The metals that will be mined by PolyMet are critical to renewable energyproduction and other clean technologies. Copper is used in copious amounts in the wind turbines at our growing Bison Wind Energy Center in North Dakota. Other metals that will be extracted by PolyMet are used in emission control equipment at our Boswell Energy Center in Cohasset. Copper is a key ingredient in solar energy installations as well as in catalytic converters for automobiles and computer technology, not to mention the wires we use to deliver electricity to homes and businesses everywhere. Why import these minerals when they can be mined and processed right here in Minnesota?	SO10
18533	We have faith in the institutions we rely upon to make surenon-ferrous mining never endangers the world-class environment we hold dear.	PER34
Sender Name (Submission ID)	Alliance for the Great Lakes (22327)	
3357	In light of Lake Superior's unique status as a major resource for drinking water, food, wildlife habitat and cultural heritage, we urge the co-leadagencies to reconsider their decision to exclude [Lake Superior and the St. Louis River]... from the cumulative impacts analysis...	WI08
3365	the SDEIS concludes the project will not have cumulative negative impacts on water quality, giving the impression that the NorthMet mine will improve water quality. This is not the case when one considers the rivers and their downstream lakes and wetlands individually.	WR024, WR115
3374	The SDEIS does predict a net decrease in mercury loading to the Partridge River from 24.2 to 23.0 grams per year. This amounts to about a 5% decrease. … Even if the project would reduce the amount of mercury from existing sources in the Partridge River, we do not accept that it is appropriate to use this decrease as an offset for increases in mercury loadings in the Embarrass River due to the proposed project.	MERC18

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Alliance for the Great Lakes (22327)	
3376	The negative impacts the project will have on individual downstream lakes and tributaries to the St. Louis River and Lake Superior and the potential to impact the St. Louis remedial action plan support the need to expand the CEAA for water resources.	WR111
3382	The SDEIS does not include adequate consideration of how climate change may affect the cumulative impacts of the NorthMet project on water resources consistent with Council on Environmental Quality (CEQ) draft guidelines. … The CEQ guidance clearly states that an environmental impact statement should consider climate change in a variety of contexts, not just in terms of greenhouse gas emissions.	WR180
3389	Section 6.2.3.8.10 describes the project's cumulative impacts on climate change, but only in relation to greenhouse gas emissions. A more in depth discussion of these "predicted increases" [(SDEIS at 5-221)] to temperature and precipitation and how they may impact the NorthMet project would help the co-lead agencies and the affected community better understand the project's long-term implications and would better conform to the CEQ draft guidelines.	AIR01
3391	The SDEIS should consider additional alternatives for the category one waste rock pile and the emergency overflow channel to reduce harmful run-off and dust emissions.	ALT11
3402	we are concerned with the proposed decision to leave the category one pile uncovered for 13 years, as currently proposed. … [the project planners] should consider an alternative that would cover the category one pile on an ongoing basis, or build multiple category one piles that can be covered incrementally over the first 13 years. Such an alternative is also consistent with Minnesota Rules, part 6132.2400	ALT13
3410	We are concerned by the lack of detail describing how the agencies determined that discharges from the emergency overflow channel are "not expected." When one considers that some level of postclosure water quality monitoring and treatment will be required at the plant site for approximately 500 years and the extent of harmful substances in the tailings basin, the environmental review should provide a more detailed analysis to ensure that harmful overflows from the tailings basin will not occur. The lack of discussion about climate change impacts on water resources… raises further concerns about how this determination was made.	WR057, WR070, WR128, WR180
3419	Article 6 of the Great Lakes Water Quality Agreement of 2012 contains a notification provision … [and] specifically lists "mining and mining related activities" as an example of activities that could have a significant cumulative impact. Providing such notification will ensure that the government of Canada, as well as representatives from Federal Governments, State and Provincial Governments, Tribal Governments, First Nations, Métis, Municipal Governments, watershed management agencies, emergency response authorities, and other local public agencies all receive proper notification of thisproposal. We further recommend that ample time for responsive comment be provided following such notification.	HU03
3542	In light of these well documented and accepted impacts [including decreased water flows in tributary streams and wetlands, mercury increases in the Embarrass River and downstream lakes, and increased sulfate levels in the Partridge River], it seems inconsistent to categorically classify the impacts to the St. Louis River and Lake Superior as "only minor" without conducting a proper cumulative impacts analysis.	WR024, WR042, WR081, WR111, WR159
3558	Mud Lake Creek has a current mercury concentration of 3.5 ng/L. The redirection of more runoff to Mud Lake Creek would increase mercury loadings to this water body, which is part of the Embarrass River watershed.	MERC23
3562	the Tailings Basin containment system would collect seepage from the Tailings Basin, which has a current estimated mercury concentration of 1.1 ng/L. The project would be designed to route the seepage to the WWTP, which would be constructed at the mine site. The discharge from the WWTP is expected to be 1.3 ng/L (consistent with the Great Lakes Initiative Standard). The result is a net increase of 0.2 ng/L of mercury as a result of the wastewater treatment.	MERC20

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Alliance for the Great Lakes (22327)	
3578	Even though the category one waste rock is considered low risk for environmental damage, the project planners should consider options that can significantly reduce harmful pollution in an economical way.	ALT07, ALT13
3582	We urge the co-lead agencies to consider alternatives for the emergency overflow channel that provide greater assurance against harmful runoffthat account for the long-term site management.	ALT11
Sender Name (Submission ID)	Allison Engel (42830)	
7330	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range.	SO10
7330	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range.	SO10
Sender Name (Submission ID)	Allison Herreid (42986)	
8816	The SDEIS acknowledges the destruction of habitat of some of Minnesota's threatened and endangered species, but does not propose a viable solution. In addition to this, resources for such animals, including moose - which though not endangered are in rapid decline in our state, may alter in quality (such as water) that may also affect the health of the animals.	WI01, WI02
15177	The process of restoring "certain disturbed lands" to "potentially create new habitat" will take decades. What about now? We will allow the current habitats to be destroyed, along with crucial resources, leaving these already endangered animals with less...The impact to the habitats and resources of our endangered and threatened species should be more carefully analyzed in order to determine the effects on currently declining populations.	WI01, WI02
15178	Another very important issue that needs more attention is that of water quality and the effect of sulfate on quality and nutrient cycling for wild rice. With the increase of sulfate, nitrogen becomes less available to plants and animals. This means that with the increasing sulfate levels, it will be harder for wild rice to grow due to the lack of nitrogen.	VEG04, WR156, WR157
15179	[sulfate and sulfuric acid] will damage water quality no matter how much gets in, and because most of our water sources are connected, it will be hard to keep these elements from spreading from wetlands, to rivers, and to lakes.	WR111
15180	it is important to add a study of the health impact of this mine.	HU01
15181	Another major flaw I see with this SDEIS is that it doesn't account for uncertainties or accidents. What happens if the wastewater leaks from its container? What if something breaks, allowing for waters to be polluted? How can this science behind this project be so accurate if it has not been performed? It is important that we know exactly what could go wrong and what the mine plans to do when something does go wrong.	MERC20
15182	We will only get 20 years out of this mine, and hundreds will be spent cleaning up after it, which will have substantial costs. It is unreasonable to think that this company will be around to ensure the clean-up is paid for. This will be left for future generations to deal with.	FIN01
Sender Name (Submission ID)	Allison LaBonne (45521)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Allison LaBonne (45521)	
11504	Please protect our most important natural resource: fresh water	WR115
11505	The increased risk of chronic illness is too high	HU03
11507	The risk that taxpayers will end up footing the bill for long term clean up is too high	FIN01
15758	and though it creates a few jobs and a some tax revenue, the bulk of the profits go to foreign countries.	SO06
Sender Name (Submission ID)	Allison Plathe (44324)	
9977	I know that you are weighing the 200 jobs that this mine will bring to the area, but it is not worth it to destroy our natural resources.	SO01
Sender Name (Submission ID)	Allison Spoelhof (52297)	
10796	No mine like this has ever had a good environmental track record, and short term profits are not worth long term environmental and health costs.	SO01
Sender Name (Submission ID)	Alyssa Hoppe (18119)	
3392	Redo the SDEIS to disclose mercury concentrations and loading release directly or indirectly into the surface waters from all PolyMet sources.	MERC08, MERC16
3393	Redo the SDEIS to assess mercury impact without unreasonable assumptions, like the off-site or Embarrass mercury increases, or the claim that 99 percent of mercury is never released from tailings.	MERC06
3395	Redo the SDEIS to evaluate the metal mercury bioaccumulation from air emissions of mercury and sulfide, water discharge of mercury, an sulfate and hydrological changes resulting from the PolyMet project.	MERC08
3397	Redo the SDEIS to require a separate and clear health risk assessment prepared in conjunction with the Minnesota Health Department to analyze impact of all sulfide mines and plant emission releases and accumulations on health, including a description of the known human health impact of PolyMet's emissions and discharges in language understandable to the public;…	HU01
13498	Redo the SDEIS to require a separate and clear...assessment of potential impact on residential wells from tailings basin seepage;	WR041
13499	Redo the SDEIS to require a separate and clear.. health risk assessment for onsite workers at both the PolyMet mine and plant;	HU04
13500	Redo the SDEIS to require a separate and clear... assessment of cumulative mercury risk including actual (inaudible) in lakes already impaired;	MERC10
13501	Redo the SDEIS to require a separate and clear... assessment of cumulative cancer and non-cancer risks from existing and additional sources of manganese, arsonic, lead, nickel, and other toxic chemicals, (inaudible) health risk limit and federal profile health analysis; assessment of all risks using a 70-year lifetime for exposure;	HU01
13502	Redo the SDEIS to require a separate and clear...assessment of cumulative risks of multiple chemicals in exposure wells, drinking water, fish, wild rice, on infants, children, and the elderly; assessment of cumulative risk of mercury contamination of the fish in the St. Louis River (inaudible); complete a measure TMDL study for the St. Louis River before finalizing the PolyMet SDEIS;	CU11, MERC22

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Alyssa Mcgillivray (10719)	
586	The SDEIS is comprehensive, informative, complete. It's time to move on to the Permitting process.	NEPA16
Sender Name (Submission ID)	Amanda (39252)	
5496	As the granddaughter of a man who worked in the Iron Ore mines in Hoyt Lakes, I fully understand that this area desperately needs jobs to bring back a struggling economy. But I also know, as a passionate environmentalist, that this is a short term fix to a long term problem.	SO01
5497	PolyMet is promising things that have the potential to fail, and the pristine wetlands and unique Minnesota wildlife can't take that risk.	PD01
5498	the health of the people who live up there as well as the health of fresh water sources is in danger if PolyMet is able to proceed with their plans.	HU03
16380	I am against the sulfide mining because they're owners and tourists that cares and are fighting against it too.	SO02
16381	It will affect the lakes and rivers that are around the areas. And also [ILLEGIBLE].The lakes has been untouched ever since 1978 Wilderness in MN.	WR111
16382	Another thing that the sulfide mining will also affect the living things under the water.	AQ05
Sender Name (Submission ID)	Amanda Johnson (38423)	
13640	I trust that the DNR has done a thorough job and our water will be safe.	PD28
13641	This project will help our local businesses and schools which are both in desperate need and have been since LTV shut down…the people who live here want to work and have their children be able to stay in the area instead of moving away because of a lack in jobs.	SO10
Sender Name (Submission ID)	Amanda Kelly (44211)	
14887	The Boundary Waters is my home away from home, and the truest form of escape that I can imagine. It is a wonderful and serene area where I have made my most cherished memories, and I simply cannot fathom not being able to experience it with with my unborn children.	WILD02
Sender Name (Submission ID)	Amber Arntz (47239)	
9243	I support the PolyMet Project because PolyMet will have dramatic, positive socioeconomic impacts to a region that exists merely because of mining. This project is located in an area that supports mining and the jobs it will bring.	SO10
9244	Looking into a future without mining advancements, having only an economy based on the current prospects and tourism has a grim and bleak future for our youth and the area itself.	SO10
Sender Name (Submission ID)	Amber Garlan (3002)	
12333	Sulfide mining releases toxic metals and can create Acid Mine Drainage (AMD), polluting our rivers and groundwater for hundread of years - long after the profits are spent and the products buried in landfills.	WR001

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Amber Garlan (3002)	
12334	PolyMet's own study says that the wter from the mine side would need at least 500 years to treatment. 500 years of cleaning up toxic, hazardous waste is not in the public interest.	PD01
14649	The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated.	WR010, WR070, WR108, WR128
14654	PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean[;]… does not put safeguards in place for when things go wrong[;]… does not leave the site clean and maintenance free[; and]… does not protect Minnesota taxpayers	WR037, WR130
14657	the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions.	WR049, WR189
14658	There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis.	PD22
14659	The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment?	WR129, WR144
14660	The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates.	PD22
14663	The plan for at least 500 years of active water treatment violates Minnesota Rules (6132.3200) that call for the mine to be left maintenance free at closure… A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years.	PER04, WR037, WR131
14670	The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuries of costly water treatment, or how the public will be protected from liability.	FIN01, FIN05
15632	Manoomin (wild rice) is recognized as a significant resource for Minnesota's tribes, access to which is protected by the Treaty of 1854. Even low levels of sulfates are proven to affect wild rice stands, a fact recognized by Minnesota's protective wild rice sulfate standard… Since sulfate levels in wild rice beds downstream of the proposed mine already exceed the standard, the proposal must demonstrate it "would have an acceptably high probability of not increasing sulfate concentrations in these areas" (p. 5-5). The mine plan does not meet this test	WR162, WR163
15633	PolyMet claims they will meet this [sulfate] standard by using water treatment (including reverse osmosis) to eliminate sulfates before wastewater is released. However, the mine plan predicts that 5.2 million gallons per year will seep out without treatment at the Mine Site after closure, and 11 million gallons of untreated water per year will escape the Tailings Basin (5-8). This seepage will surface and enter streams and rivers nearby.	WR070

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Amber Garlan (3002)	
15634	The standard to protect wild rice is 10 milligrams grams per liter of water. The waste rock left behind at the Mine Site will create runoff with sulfate levels of 2,000 to 4,000 micrograms per liter after closure, 5 million gallons of which will escape untreated every year. In fact, the SDEIS predicts that many years after closure this could violate the sulfate standard to protect wild rice, requiring additional measures (5-142).	WR156
15635	The SDEIS is contradictory, on the one hand relying on mechanical water treatment for hundreds of years in order to seemingly meet the sulfate standard, but also describing possible passive treatments that may be developed that would seasonally violate the protective sulfate standards. The EIS should eliminate that contradiction.	WR137, WR153
15636	the SDEIS inadequately characterizes wild rice waters downstream of the PolyMet sites. The Great Lakes Indian Fish and Wildlife Council has provided additional wild rice sites other than those included in the SDEIS. The EIS should be revised to include these additional wild rice waters.	WR154
17010	500 years of cleaning up toxic, hazardous waste is not in the public interest.	SO01
Sender Name (Submission ID)	Amber Waller (54357)	
18205	I think that PolyMet Mining has a very good plan in place. … I feel PolyMet will take the proper precautions and will deal with any spills or leaks. They have assurance that all water will be treated and plant life restored. They also will keep track of affects to cultural resources. So, I must say that I agree with their plan to build the mine.	PD28
18206	It's a good idea to have insurance if the mine suddenly closes.	FIN01, FIN08
18207	The mine will definitely provide more jobs. It will also boost our economy.	SO10
18208	If the water isn't treated properly, it could cause a lot of contamination problems. Mercury contamination would not be good.	WR128
18209	mining noise could seriously affect the First Peoples hunting. If contaminants leaked, it could kill a lot of gathering plants.	CU11
Sender Name (Submission ID)	Amelia George (37817)	
11158	I think that this mine could be really bad for the tourist industry	SO02
11160	the pollution that this mine will generate will definitely be bad for the health of the people, animals and plants that will be downstream of this plant.	VEG06
11162	I heard that Polymets SDEIS water model is not accurate; that the actual rate of groundwater base flow is 200-300% higher than the rate used in the SDEIS. It needs to be redone.	WR003, WR071, WR091
13926	I don't think that the environmental damage to the area is worth the jobs that would be created by Polymet's mine.	SO01
Sender Name (Submission ID)	American Exploration & Mining Association (42890)	
10031	The SDEIS provides ample support for the conclusion that this Land Exchange would be consistent with management of the Superior National Forest and governing Land Exchange requirements.	LAN11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	American Exploration & Mining Association (42890)	
18268	…because these regulations require exploration and mining companies to provide financial assurance to guarantee reclamation at the end of the project, mines today will not become future abandoned mine lands (AML).	FIN01
18269	Mining creates new wealth and the high-paying jobs Minnesota and our country desperately need.	SO10
18270	Moreover, the indirect employment multiplier for the mining industry is twice the national average.	SO10
Sender Name (Submission ID)	Amethyst Hare-Heim (57173)	
18689	Don't put in any more mines. We need more resourceful answers that will not hurt our future generations.	NEPA02
Sender Name (Submission ID)	Amie Stone (54204)	
17265	This mine project proposal for Northern Minnesota will in no way be beneficial to the people of this state of the BWCA...The "economic benefits" will not at all influence the area surrounding the mine, other than the few, short-term jobs it will provide...The negative aspects completely outweigh the "benefits."	SO02
17266	As an avid canoer and camper, the BWCA is the perfect place to do so...The watershed is 100% pure, I can dip my canteen in the certain areas directly into a lake or stream and just drink.	LU06
17268	There has been undeniable evidence regarding the pollution associated with sulfide mining. It releases sulfuric acid into the water, lowering the pH and therefore harming critters.	WI04
Sender Name (Submission ID)	Amy Donlin (40169)	
6562	This is the ecological, social and economic legacy footprint that will impact OUR STATE for hundreds of years; that's a scary prospect when Polymet, Northmet and their cohorts will be long gone by the year 2040 or so, without intention or means to pay for the superfund site they leave behind for us.	PD24
6564	[Polymet's] track records should be enough to convince the State of Minnesota to drive them away before they do any more damage than they already have.	PD23
6565	[concern project will have]Impacts to three watersheds	WR111
6569	[concern project will cause] Loss of pristine wetlands and forest	VEG03
6571	[concern project will have] Impacts on wildlife	WI01
6574	[concern project will cause] Climate change due to carbon emissions	AIR01
6575	[concern project will cause] Serious health threats to people including cancers and respiratory ailments	HU03
6578	[concern project will cause]Mercury poisoning- people who live in the Superior Basin are already exhibiting dangerous levels	MERC03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Amy Donlin (40169)	
6579	[concern project will cause] Loss of public lands	LU06
6582	[concern project will have] Devastating aesthetic impacts	LU04
6583	[concern project will cause] Loss of wilderness.	WILD02
6584	[project will cause] Loss of northeastern economy based on eco-tourism	SO02
6586	[project will cause] Loss of wilderness jobs- thousands of people depend on ecology and wilderness for their wages (compared to three hundred jobs that will last a couple of decades—and then where will the miners go when the last traces of mineral are gone?)	SO01
6588	A strange lack of any cost/benefit analysis is a dangerous red flag [in the SDEIS]	FIN08
6589	[Polymet will cause] Superfund cleanup to the tune of billions of dollars for hundreds of years	FIN05
6591	[polymet project] is the ecological, social and economic legacy footprint that will impact OUR STATE for hundreds of years; that’s a scary prospect when Polymet, Northmet and their cohorts will be long gone by the year 2040 or so, without intention or means to pay for the superfund site they leave behind for us.	PD24
Sender Name (Submission ID)	Amy Farland (39906)	
6919	The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of200 years at the Mine Site..." Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure.	WR035, WR038
6925	Minnesota Rules 6132.3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule.	PER04
Sender Name (Submission ID)	Amy Freeman (43088)	
10059	The idea that the site would reach a self-sustaining stable condition by around year 40 doesn't pass the sniff test. They are writing this as if somehow the WWTF that they present as being necessary to prevent long-term discharge of contaminants from the west pit could sustain itself a few decades out. How could this be possible?	PD03
14993	The real issue in terms of long term environmental detriment is this (from page 988 of the SDEIS):...When the West Pit water level rises above the top of bedrock, there would be a release of pit lake water into the West Pit Surficial Flowpath. The affected groundwater in this flowpath would migrate slowly towards the Partridge River.	WR130

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Amy Freeman (43088)	
14994	the document says that the WWTP (wastewater treatment plant at the plant) and WWTF (water water treatment facility at the mine site) will remain active for long-term needs, but it is very vaguely stated. The reality is that there would be water that is significantly affected by sulfides and metal leachates associated with the exposed rock in the pit and the waste rock in the "stockpile" for a very long time.	WR035, WR037, WR173
14995	It is also hard to envision that the hydarluc barrier could really be that effective as is illustrated. Lots of things happen in soils---animal burrowing, roots that would make it very hard to maintain an impermeable hydraulic barrier.	PD07, PD15, WR019
14996	The WWTF would remain operational until water quality monitoring results demonstrate that a non-mechanical system could produce an effluent water quality, which is shown by pilot-testing and modeling, to achieve future water quality criteria at evaluation locations without the need for mechanical treatment. ...I read this to mean that Polymet really doesn't know how they can come up with a water treatment strategy that is sustainable for the long term.	WR035, WR137
14997	Who then is operating the WWTF on the long-term? The models themselves are based on the notion that high chemical loading will continue for at least 200 years.	WR035
Sender Name (Submission ID)	Amy Gardner (44524)	
10668	Trading two decades of benefits for polluting this water rich environment with potential contaminants like arsenic, sulfate, manganese and heavy metals for at least 500 years just doesn't make sense.	SO02
10669	I ask that a better job be done in studying the impact of mercury contamination of fish and the impact of untreated pit releases to surface groundwater on wild rice before the EIS is finalized.	MERC02, WR156
10670	The SDEIS does not address who will perform the indefinite monitoring of the on-site constructed wetlands.	WET22
10672	The SDEIS must reveal wastewater volumes, pollutant levels and it must explore options if something goes wrong(fails) during long term water treatment	WR130, WR181, WR182
10674	I feel that the SDEIS is flawed because the models for the amount of pollutants to be released are based on data from other sites and not on the current water data from the project site or it's surrounding area	WR023, WR071
10675	The company did not study the type of rock or the structure beneath the wetlands.	WR120
Sender Name (Submission ID)	Amy Goetzman (44457)	
10963	In order to let an outside corporation access one resource, copper, for 20 years, the DNR appears ready to throw away a much more important resource, water, for a much longer period of time. How it is possible that we are even talking about poisoning our water for 500 years, in two of the state's most environmentally sensitive and important areas?	WR115
10964	Why are they [polymet] being allowed to come in and destroy our natural areas, contaminate our water supply, and ultimately leave the taxpayers with a mess that will never truly be cleaned up?	FIN10
10966	PolyMet has indicated that many of the jobs will go to outsiders. Even the local jobs that are generated are temp jobs.	SO06
10967	It is the DNR's job to protect Minnesota's resources, not give them away to outside interests.	PER35

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Amy Goetzman (44457)	
10968	If PolyMet wants our resources so badly, don't give them away — at the very least, make the company work hard to come up with a better plan.	PD32
Sender Name (Submission ID)	Amy Levin (26455)	
15199	Many. ,many sulfur compounds have a TERRIBLE ODOR. This is another reson I oppose sulfide mining. Winds could move the terrible smell over several states and in to Canada, hurting international relations.	AIR10
Sender Name (Submission ID)	Amy Okaya (42862)	
8863	We know that many chemicals involved in sulfide mining, including nickel dust, cause cancer. However, the SDEIS does not disclose cancer risks to on-site workers. Further, it uses a 30 year time period to calculate lifetime cancer risk -less than half the 70 year standard used by the EPA - and thus distorts the actual risk...I request that the DNR conduct a cumulative effects analysis of sulfide mining on the Lake Superior Basin. This should include an analysis of health effects conducted by the Minnesota Department of Health.	HU04
8863	We know that many chemicals involved in sulfide mining, including nickel dust, cause cancer. However, the SDEIS does not disclose cancer risks to on-site workers. Further, it uses a 30 year time period to calculate lifetime cancer risk -less than half the 70 year standard used by the EPA - and thus distorts the actual risk...I request that the DNR conduct a cumulative effects analysis of sulfide mining on the Lake Superior Basin. This should include an analysis of health effects conducted by the Minnesota Department of Health.	HU01, HU04
8864	Especially troubling in the SDEIS is the omission of mercury that would be released into surface waters from mine pits, waste rock, draining piles of peat and polluted sumps (p. 5- 107, 5-109, and 5-129). Mercury has damaging effects all the way up the food chain, and disproportionally and unfairly affects native peoples and others exercising their right to hunt and fish on the land. We know from recent studies by the Minnesota Department of Health that already 1 in 10 infants in Northeastern Minnesota are born with unsafe levels of mercury in their blood. We can't afford to put the health of our people and wildlife at any greater risk.	HU03
8864	Especially troubling in the SDEIS is the omission of mercury that would be released into surface waters from mine pits, waste rock, draining piles of peat and polluted sumps (p. 5- 107, 5-109, and 5-129). Mercury has damaging effects all the way up the food chain, and disproportionally and unfairly affects native peoples and others exercising their right to hunt and fish on the land. We know from recent studies by the Minnesota Department of Health that already 1 in 10 infants in Northeastern Minnesota are born with unsafe levels of mercury in their blood. We can't afford to put the health of our people and wildlife at any greater risk.	HU03
8868	The DNR is the first to admit that much is still unknown about our state's groundwater, that more research needs to be done, and that it must do more to actively protect these resources. The Polymet proposal is contradictory to these goals. The Polymet tailings basin is unlined, and existing seepage already exceeds groundwater standards. In addition, on the LTV site next to the tailings, the SDEIS has documented that Area of Concern #8 has a plume of pollution propagating through fractures (SDEIS, p. 4-12)... I request that the DNR conduct a cumulative effects analysis of sulfide mining on the Lake Superior Basin…[taking] into account up-to- date statewide policy that seeks to better understand, protect and preserve Minnesota's groundwater resources.	CU01, CU18

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Amy Okaya (42862)	
8868	The DNR is the first to admit that much is still unknown about our state's groundwater, that more research needs to be done, and that it must do more to actively protect these resources. The Polymet proposal is contradictory to these goals. The Polymet tailings basin is unlined, and existing seepage already exceeds groundwater standards. In addition, on the LTV site next to the tailings, the SDEIS has documented that Area of Concern #8 has a plume of pollution propagating through fractures (SDEIS, p. 4-12)... I request that the DNR conduct a cumulative effects analysis of sulfide mining on the Lake Superior Basin…[taking] into account up-to- date statewide policy that seeks to better understand, protect and preserve Minnesota's groundwater resources.	WR086, WR105
18118	Mercury has damaging effects all the way up the food chain…. We know from recent studies by the Minnesota Department of Health that already 1 in 10 infants in Northeastern Minnesota are born with unsafe levels of mercury in their blood. We can't afford to put the health of our people and wildlife at anygreater risk.	MERC03
18118	Mercury has damaging effects all the way up the food chain , anddisproportionally and unfairly affects native peoples and others exercising their right to hunt and fish on the land…. We know from recent studies by the Minnesota Department of Health that already 1 in 10 infants in Northeastern Minnesota are born with unsafe levels of mercury in their blood. We can't afford to put the health of our people and wildlife at any greater risk.	MERC03, SO01
18121	At this time more than ever, the Minnesota legislature, the DNR, the Met Council and others are focusing attention on groundwater. The DNR is the first to admit that much is still unknown about our state's groundwater, that more research needs to be done, and that it must do more to actively protect these resources. The Polymet proposal is contradictory tothese goals. The Polymet tailings basin is unlined, and existing seepage already exceeds groundwater standards. In addition, on the LTV site next to the tailings, the SDEIS has documented that Area of Concern #8 has a plume of pollution propagating through fractures (SDEIS, p. 4-12)	WR070
18121	At this time more than ever, the Minnesota legislature, the DNR, the Met Council and others are focusing attention on groundwater. The DNR is the first to admit that much is still unknown about our state's groundwater, that more research needs to be done, and that it must do more to actively protect these resources. The Polymet proposal is contradictory tothese goals. The Polymet tailings basin is unlined, and existing seepage already exceeds groundwater standards. In addition, on the LTV site next to the tailings, the SDEIS has documented that Area of Concern #8 has a plume of pollution propagating through fractures (SDEIS, p. 4-12)	WR070
18122	I request that the DNR conduct a cumulative effects analysis of sulfide mining on the Lake Superior Basin. This should include an analysis of health effects conducted by the Minnesota Department of Health, and take into account upto-date statewide policy that seeks to better understand, protect and preserve Minnesota's groundwater resources.	CU01
18122	I request that the DNR conduct a cumulative effects analysis of sulfide mining on the Lake Superior Basin. This should include an analysis of health effects conducted by the Minnesota Department of Health, and take into account upto-date statewide policy that seeks to better understand, protect and preserve Minnesota's groundwater resources.	CU01
Sender Name (Submission ID)	Amy Wilfahrt (54656)	
17954	I believe the SDEIS is insufficient and should not be approved because it is lacking vital information about longterm water treatment and how it will be paid for- information that is necessary to decision makers.	GEN03
17955	PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part ofthe Superior National Forest the largest designated important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captu red for treatment will affect the aquatic organisms and habitats downstream.	AQ05, WI02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Amy Wilfahrt (54656)	
17956	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Blackbacked Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
17957	1 do not want large foreign corporations taking advantage of our metals for their own financial gain. They destroy the Minnesota landscape and its water resources without realizing it.	SO02
17958	Clean water resources are something Minnesotans are proud of and most of us recognize the importance of keeping it clean, so let us not potentially contaminate it with the open pit mining.	WR107, WR108
17959	Twenty years of mining threatens hundreds of years of water pollution to sensitive birds, their habitats and Minnesota's water. This trade-off is not worth the risk.	SO01
Sender Name (Submission ID)	Amy Wilson (43608)	
12545	I am adamantly apposed to the proposed PolMmet mine because it will endanger our collective watershed and ultimately it will harm Lake Superior	WR195
12546	There is a grievous lack of responsibility to allow a sulfide mine to be built for the profits of a few when the long-term effects will harm the many. Human wants for monetary gain cannot and should not take precedence of environmental health.	SO01
15107	It is impossible to monitor the tailings ponds for 500 years even if it were a safe option.	PD08
Sender Name (Submission ID)	Anders Lindquist (54533)	
19064	I see a general lack of accountability for PolyMet and its investors for the environmental issues that are sure to follow a mining project that produces such large quantities of waste. Who will be held responsible for the environmental impacts 200 years from now. Also is there any contingency planning in case the new technology for controlling the inevitable pollution fails? I would like to see a revision that makes proposed plans for how to deal with every conceivable contingency plan.	FIN01
Sender Name (Submission ID)	Andre Bell (16961)	
11025	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Andre Leavitt (18248)	
13665	jeopardizing the watershed of Lake Superior. That is just madness for 20 years of jobs. I’m sorry, you got to move and find work elsewhere, start a business.	SO01
Sender Name (Submission ID)	andre lima (42)	
35	The EIS cannot account for all scenarios that could occur in real life, for example power outages, major winter storms or tornadoes that could damage the waste water treatment facilities leading to potential environmental contamination.	PD22, WR128, WR129

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	andre lima (42)	
424	The only way to guarantee the safety and cleanliness of our water and air is to not allow [this mining operation].	AIR11, WR111, WR195
Sender Name (Submission ID)	Andrea Girtz (20660)	
15836	The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act!	WET23
15837	Wetlands in the 100 Mile Swamp and Partridge River Headwaters… are important for water quality and as a habitat for moose and other at-risk species.	WET19
15838	Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St. Louis River and Lake Superior fish.	HU03
15839	Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance.	WET19
15840	The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site… It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed.	ALT06, ALT13
15841	The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm.	ALT01
15842	The "compensation" wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact.	COE01, COE02, WET01, WET03
15846	[Please] Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance.	WET19, WR195
15847	[Please] Reject the PolyMet SDEIS as in adequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS.	ALT06
15848	[Please] Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions.	COE03
15850	[Please] Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses.	COE02
15851	[Please] Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin.	COE01
15856	[Please] Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality… [including] Underground mining, looking at the full ore deposit and PolyMet's real costs;	ALT01, ALT13
15865	[Please] Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality… [including] Putting a liner under the Category 1 waste rock stockpile;	ALT06, ALT07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Andrea Girtz (20660)	
15866	[Please] Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality... [including] Placing all tailings on a new completely lined facility;	ALT10, ALT13
15867	[Please] Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality... [including] Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres;	ALT06
15868	[Please] Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality... [including] Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands.	ALT13
Sender Name (Submission ID)	Andrea Thompsom (39785)	
14253	There is only one Lake Superior and wilderness area! Sulfide mining can ruin it for all times!	WILD02
Sender Name (Submission ID)	Andrea Vail (3126)	
574	I believe they will generate millions of dollars in local and state taxes to support the MN communities and educational system.	SO10
Sender Name (Submission ID)	Andrew Comfort (43342)	
11651	The December 2013 Polymet SDEIS is inadequate because it does not include analysis of uranium in the waste rock, tailings etc. The Eagle Mine in Michigan had trouble with uranium contamination of drinking water. So it is reasonably foreseeable that the Polymet mine could as well. Rock with up to 7 ppm of U was one potential cause of the uranium problems at Eagle Mine.	HAZ03
11829	Rephrase the financial assurance section in the SDEIS so that there is clearly no cessation of financial assurance under any circumstance. Further, state that Polymet and its parent, assigns, successors etc…remain responsible for the financial assurance for all time. Otherwise there is a risk that a legal maneuver could be taken to force the cessation of financial assurance – which would then place the burden onto Minnesota taxpayers instead.	FIN01
12168	Interpretation: the SDEIS is inadequate because it too narrowly interprets “cumulative effects” and “reasonably foreseeable,” thus inappropriately categorizing numerous proposed mines as “speculative.” Both CEQ and Minnesota Rules suggest a broader interpretation.	CU02
12169	in the revised SDEIS one scenario of the cumulative effects analysis should include all proposed mining operations from Polymet to Spruce Road and a further scenario should include the assumption of mining operations along the entire basal contact zone from Polymet to Tuscarora Lake	CU02
12170	the revised SDEIS will provide the opportunity to take a broad view of mining on the Duluth Complex, now, before it commences, based on full information available today of what the area will look like in 150 years or 500 years if/when Polymet to Spruce Road or Polymet to Tuscarora Lake is fully mined and closed, with water treatment either ongoing or prematurely ceased	CU13
12171	the SDEIS…excludes Teck American, Twin Metals and others from the cumulative effects analysis by labeling them as “Speculative Actions.”	CU02
12173	The discussion throughout this comment demonstrates that the SDEIS is inadequate because the future actions of Teck American, Twin Metals and others have been wrongly excluded from the cumulative effects analysis.	CU02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Andrew Comfort (43342)	
12178	Teck American, Twin Metals and other mining along the basal contact zone of the Duluth Complex (Figures 4 and 8) to the north and northeast of the Polymet site should be included in the cumulative effects analysis per Minnesota Rules because:1) future development is indicated by historic and forecasted trends 2) these projects can reasonably be expected to affect the same environmental resources, and 3) there is a reasonable basis of expectation that these projects will occur	CU02
12180	it is reasonably foreseeable that any mining company will, over time, mine the entire ore body within its lease area. This suggests that Polymet will mine its deposit right up to the border with Teck American (Figure 10) and the several mines and the continuous ore body linking them from Polymet to Spruce Road will all eventually be one continuous mega-mine.	CU02, CU04
12270	The Bedrock Geology Map by Jirsa of MNGS is a summation of geologic understanding of the Duluth Complex. A note on this map says it "compiles the efforts of many geologists working over a period of nearly 100 years." It is not currently mentioned in the SDEIS, but should be.	WR012
12276	the historic and forecasted trends discussed above demonstrate that Polymet, Teck American, Twin Metals and others in the area should be included in the cumulative effects analysis per guidance by CEQ and Minnesota Rules, for water from all is funneled to the Basswood River in the BWCAW/Quetico (Figure 5).	CU02
12300	Revise the SDEIS to include study of the cumulative impacts of Polymet and Northshore/Mitchell on the BWCAW/Quetico	CU01, CU02
12304	Revise the SDEIS to include study of the cumulative impacts of Polymet and Teck American on the BWCAW/Quetico and to study the nature of the faults and/or bedrock valleys connecting the two pits.	CU01, CU02
12313	Several dams could be built along the length of this south arm in order to submerge these cliff walls and use a "subaqueous containment" strategy to keep air away from the sulfide-bearing cliff walls. These dams would be at least 800 feet tall and would need to last in perpetuity, but would also need to be repaired and perhaps replaced every 200-500 years. The financial assurance could be used to pay for this repair and replacement of dams as needed.	FIN11
12315	the SDEIS wrongly concludes that Polymet will always drain only southward. But like the site of Northshore/Mitchell which once naturally drained southward, the act of mining changes the land and changes the flow of water and moves the Laurentian Divide. Polymet post-closure will impact the BWCAW/Quetico and the SDEIS needs to be revised with further study to reflect this.	WR024, WR071, WR081, WR111
14742	Polymet is currently south of the Laurentian Divide, but post-closure Polymet will be a part of the BWCAW watershed. The broader interpretation of "cumulative effects" will allow a revised SDEIS to more accurately present how mining operations will change the geography and shift the Laurentian Divide southward.	CU01
14747	pollution will occur with respect to any sulfide ore in Minnesota, even with the advent of new technologies. But the risk is particularly high in the water rich environment of the area from Polymet to Spruce Road and beyond as this is the location of the famously densely packed and interconnected waterways of the BWCAW/Quetico. The granite and other bedrock in this area has no propensity to offset acidity introduced by sulfide-ore mining through any accidents or pre-mature cessation of waste water treatment	WR111, WR195
14748	The Minnesota Minerals Coordinating Committee (MMCC) ...sponsored a March 2013 brochure titled "Explore Minnesota: Copper, Nickel, PGEs." Three projects (Polymet, Teck American and Twin Metals) are listed in a section called "Active Cu-Ni-PGE Projects." This categorization suggests that all three deserve to be in the SDEIS cumulative effects analysis.	CU02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Andrew Comfort (43342)	
14750	As currently devised, the SDEIS is "putting on blinders" and pretending that all of the other mining on the Duluth Complex is not in the works. As the discussion above on historic and forecasted trends shows, the gears of international finance and industry and various marketing forces within Minnesota are at work actively promoting the mining of the whole Duluth Complex, strongly suggesting that this mining will occur.	CU04
14751	we should be judging Polymet in the context of the mining of the whole Duluth Complex – considering both the environmental protections and financial assurance required for that far larger total endeavor, and the environmental and economic devastation that could ensue if such protections or assurance fails. The SDEIS should be revised to reflect how Polymet contributes to the cumulative effects of this mining of the Duluth Complex all the way up as far as Tuscarora Lake. And if we together decide this mining is a bad idea, we can put a permanent moratorium on it before any damage is done.	FIN08
15723	This issue should be studied and if necessary discussed in a revised SDEIS regarding how to protect ground water and what needs to be done for proper disposal of any uranium collected.	WR145
Sender Name (Submission ID)	Andrew Gibbons (42923)	
17477	BOTH STATE AND FEDERAL POLICY SUPPORT THE DEVELOPMENT OF MINING PROJECTS SUCH AS THE NORTHMET PROJECT IN THE SUPERIOR NATIONAL FOREST. …When the U.S. Congress created the Boundary Waters Canoe Area Wilderness ("BWCAW") and adjacent Mining Protection Areas in 1978, it defined the areas in the SNF in which mining is prohibited, as well as the areas in which mining is allowed….Congress and the State went a step further than simply establishing that mining is allowed in certain areas within the SNF but outside the BWCAW.	PER39
17478	In 1979, Minnesota completed a Regional Copper-Nickel Study ending Minnesota's three-year moratorium on copper-nickel mining. The study concluded that hardrock mining can be conducted in an environmentally sound manner and recommended that state agencies coordinate on mining regulatoryactivities to facilitate copper-nickel mineral development….THE NORTHMET PROJECT PROPOSAL ADEQUATELY EVALUATES ENVIRONMENTAL CONSIDERATIONS.	PER34
17479	The USACE, USFS and other federal and state agencies that will issue permits for the NorthMet Project will be able to draw upon this substantialinvestment by the State of Minnesota in preparing for copper-nickel mining in northeastern Minnesota to facilitate mining development within the framework of robust state and federal environmental regulations applicable to projects in the state.	PER34
17480	See 1 Minn. Envtl. Quality Bd., The Minnesota Regional Copper-Nickel Study 1976-1979, at I (1979); E.K. Lehmann and Associates Inc., Minn. Dep't of Natural Res., Minn. Pollution Control Agency & Project Environment Fund, The Report on the Mining Simulation Project (1990); Div. of Minerals, Minn. Dep't of Natural Res., Report to the State Executive Council, at 31 (1991). Since the 1970s, the MDNR and Minnesota Pollution Control Agency ("MPCA") have conducted water, rock characterization, and reclamation studies identifyingpotential environmental impacts, including the impact of sulfide-bearing mine wastes and available mitigation techniques. See, e.g., Kim A. Lapakko and David A. Antonson, Duluth Complex Rock Dissolution and Mitigation Techniques: A Summary of 35 Years of DNR Research (2012). MDNR andMPCA have also established sophisticated, well-funded programs for regulating mining and protecting the environment in Minnesota. See Minn. R. Chs. 6115 (DNR-public water resources); 6132 (DNRnonferrous mining); 7007-7019, 7021, 7023 (MPCA – air pollution control); and 7050-7060 (MPCA-waterpollutioncontrol)(2013). Twin Metals Minnesota submits the above-referenced materialsdeveloped by the state for inclusion in the administrative record in support of the SDEIS and the findings and conclusions therein.	REF01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Andrew Gibbons (42923)	
17481	The NorthMet Project will utilize brownfield sites for the location of the processing facility and tailings basin, and in doing so will address existing environmental concerns at those sites...the former LTVSMC processing plant will be refurbished, and portions of the former LTVSMC tailings basin willbe used as the tailings basin for the NorthMet Project…. This reliance on brownfield redevelopment reflects sound public policy that is encouraged by both federal and state law.	PD28
17482	The adaptive management principles incorporated into the NorthMet Project design and the SDEIS will enable both PolyMet and the Agencies to adapt long-term management of the project sites to evolving environmental and development considerations. The SDEIS's incorporation of adaptive management techniques into its analysis is consistent with the requirements of both NEPA and MEPA.	PER34
17483	NEPA and MEPA require that issues surrounding long-term reclamation of the Project sites must be addressed with sufficient specificity for the Agencies to evaluate the potential environmental concerns. The SDEIS accomplished this by presenting in an overarching analysis – subject to the imposition of additional specific requirements in the permitting phase and in ongoing monitoring and evaluation once operations commence – the long-term reclamation plans for the NorthMet Project. While development of detailed plans early in the process can be beneficial, the FEIS does not need to address such issues with the level of specificity necessary for permitting, final planning, and ongoing operational management.	NEPA16
17484	There will be multiple opportunities for the pertinent state and federal agencies to address longterm reclamation and financial assurance with specificity and on an ongoing basis during the permitting and operations phases of the NorthMet Project when the details necessary to address those issues will be available. The permitting processes for the MDNR Permit to Mine and other approvals required for the NorthMet Project are subject to the scrutiny and expertise of the permitting agencies, are open to robust public participation, and will incorporate the findings of the FEIS.	FIN17
17485	Minnesota law requires the submission of a "contingency reclamation plan" withthe application for the Permit to Mine and annually thereafter. Minn. R. 6132.1300, subp. 4 (2013). The contingency plan must include the methods, sequence, and schedule of planned reclamation activities, including specifically closure and post-closure maintenance. Id. Estimates of the costs that would need to be incurred to implement the contingency reclamation plan if operations were to cease in the upcoming year also must be provided. Id. These estimates form the basis for the financial assurance requirements, which are similarly reviewed on an annual basis for the life of the Permit to Mine and revised as necessary.	FIN05, FIN08, FIN14
17486	At this time, it is important to evaluate these considerations and reach conclusions at a conceptual level sufficient to fulfill the purposes of NEPA and MEPA, but not in the detail that may be necessary to satisfy the requirements for permit issuance or subsequent monitoring of permit compliance during operations. The pertinent issues are adequately addressed in the SDEIS, thereby allowing the FEIS to be issued, and any necessary additional details can be developed during the permitting process or at appropriate future stages of project evaluation.	NEPA16
17487	reclamation needs, and the associated financial assurance required to cover those closure needs, will necessarily change over the course of the operation of any mining project. Accordingly, the requirements of the MDNR Permit to Mine and other applicable permits establish a process for adaptation of closure and postclosure activities and other reclamation requirements over time as needs or facts change. ... It is not feasible to address such operational issues in substantial detail at this point in the process, and the Agencies' approach in analyzing reclamation and financial assurance in the SDEIS complies with the requirements of NEPA and MEPA.	FIN17
17488	The criteria for the release of PolyMet's obligations with respect to long-term water treatment of the NorthMet Project need not be identified in the FEIS in order for the Agencies to meet their duties under NEPA and MEPA to consider the long-term implications of, and mitigation available for, the project. Rather, the details of the long-term reclamation plan, and specifically the monitoring and treatment requirements for the NorthMet Project with respect to water quality, can appropriately be addressed at the permitting stage without compromising the adequacy of the FEIS.	NEPA16, WR190

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Andrew Gibbons (42923)	
17489	The alternatives analysis in the SDEIS appropriately evaluated project alternatives and provided explanation as to why certain alternatives identified were excluded from analysis in the SDEIS...The NorthMet Projectenvironmental review process as a whole met both the NEPA and MEPA standards for alternatives analysis.	NEPA16
17490	The SDEIS appropriately identified other past, present and reasonably foreseeable future actions for consideration of the cumulative impacts of the NorthMet Project as required by applicable law…excluded possible projects, including the potential Twin Metals Minnesota project, are appropriately identified as "speculative actions" in the SDEIS, and therefore, are correctly excluded from the cumulative impacts analysis. "Reasonably foreseeable future actions" that must be included in the NEPA cumulative-impacts analysis are limited to those actions that are "imminent or inevitable."	CU02
17491	…as presented in the SDEIS, the NorthMet Project design and long-term commitments are tailored to achieve compliance with both the state and federal policies supporting mining development and environmental protection.	PER34
Sender Name (Submission ID)	Andrew Johnson (16203)	
9799	I also believe that we are at a peak for removing resources from the earth. We are spending more and risking more to reach ever more difficult resources. At some point we need to stop this and take a different approach.	NEPA03
Sender Name (Submission ID)	Andrew Paul (58135)	
19907	From a health and environmental protection standpoint I can see no reason that Polymet will not protect the citizens and natural resources of the area.	GEN02
19932	I support the Polymet project for many reasons, one of those being the potential economic impact this mine could provide. An impact of nearly 1,000 sustained good paying wages! To me that equates to at least 1,000 families being better suited to provide themselves and their future generations the same opportunities to pursue their goals and ambitions as mining has provided my family.	SO10
19959	Polymet has committed to the proven and effective technology of a Reverse Osmosis Treatment System which will allow them to meet and exceed the sulfate standard. I commend the Environmental Stewardship Polymet is showing by implementing this technology and eliminating the sulfate issue as a concern for their process moving forward.	NEPA16
20012	there will be no impact to the BWCA, and there will be no acid rock drainage.	GEN02, WILD03
Sender Name (Submission ID)	Andrew Slade (18130)	
3450	...we've seen some proof tonight that the 90-day comment period is really too short.	NEPA07
3451	... and I think this is more important, is that the project, fundamentally, the EIS document does not present -- presents very few alternatives. The only alternative is the size of the land exchange from the forest service. There was, buried in EIS, the rejection of an alternative which I really think should have been considered more seriously and that was the alternative of an underground mine	ALT06
3452	it [underground mine] would have reduced the impact on wetlands of 900 acres…An underground mine would have provided more jobs. However, the reason that it was rejected out of EIS as an alternative was pretty simple; it was too expensive.	ALT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Andrew Thorsen (38652)	
11896	I beleive the sdeis adresses all the concerns about the environment and that they have a solid plan in place to mitigate any issues that may arise.	PD28
Sender Name (Submission ID)	Andrew Turke (18291)	
12324	Based upon the 500-year projection of that water filtration requirement. It is just a very high risk.	SO01
Sender Name (Submission ID)	Andrew Urban (18103)	
3229	[The SDEIS] serves As a wonderful public relations tool, but does little to protect the areas' wetlands, lakes, rivers and watersheds.	WR115
3230	According to Patricia Engelking (phonetic) of the MPCA, since 2010 there have been 12 water quality enforcement actions against eight metallic mining operations, which we know how to do. The settled cases resulted in fines of over $113,000. The companies paid the money, but the pollutants remained.	WR023, WR139
3231	The SDEIS gives a best-case scenario for a double osmosis system that has never been tested with these particular contaminants and at this proposed volume. The SDEIS is built on best-case scenarios, with skewed data to support them.	PD03
6792	A land swap of this kind is supposed to be land of equal value. But where has this been established in this case? What is the criteria? Does the proposed swap have equal value for the wildlife? Does the proposed swap help the Forest Service achieve its environmental goals?	LAN03
13468	The SDEIS says little about the problems posed by fractures. Pollution of groundwater and wells doesn't happen under a best-case scenario, but in July of 2012, after a record-breaking rainstorm, Duluth learned that nature doesn't always follow best-case scenarios.	WR169
13469	The SDEIS promises robust economic benefits, with little or no environmental damage. History tells us otherwise.	SO01
16359	Help the struggling Northeast Minnesota moose population! Help protect the habitat of the Canada Lynx! Refrain from fracturing contiguous forest to promote healthy habitat for nesting warblers and insure unimpeded corridors for wildlife!	WI01, WI02, WI03
16360	Plant native species and trees to create an ecosystem where invasive plants do not thrive! Offer the public low cost seedlings of native trees and shrubs to increase proper habitat for wildlife!	VEG05
16362	The reason this swap is necessary is the proposed site for the open pit mining is on land that is protected from open pit mining. It is transparently immoral and a breach of public trust to now swap that land so that a mining company can make a profit off it.	LAN02
Sender Name (Submission ID)	Andrew Van Hauer (45550)	
11591	I am deeply concerned that neither EIS nor the SDEIS accurately portray the drainage, watershed, or borders of the 100 mile swamp	WET19
11593	I am deeply concerned that neither EIS nor the SDEIS accurately portray the drainage, watershed, or borders of the 100 mile swam	WR080, WR175
11595	This area is of critical concern for migratory birds, and there is no land that exists that would be able to replace this ecologically unique piece of land	WI01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Andrew Van Hauer (45550)	
15890	The fact is, no open pit copper nickel mining project in the world has been successfully completed without significant environmental harm. Often, the nearby waters are polluted with high concentrations of sulfuric acid, requiring hundreds of years of water treatment.	WR023, WR195
15891	We have a rich deposit of precious metals, copper, nickel, and rare earth minerals in Minnesota. We should wait until a company has proven that it is capable of operating a mine elsewhere in the world, without significant environmental impact, before allowing them to operate here.	PER35
15893	PolyMet's only interest is in this mining project. … They are not owned by Minnesotans, or even by Americans, but based in Canada and the majority ownership is in the hands of Glencore Xstrada, possibly the world's worst international mining conglomerate.	PER02
Sender Name (Submission ID)	Andrew Wyffels (42744)	
14423	I understand that we will need these metals soon; however, I can tell that this technology has not yet been employed without eventual water pollution.	WR143
14424	I implore project decisionmakers to run a test mine at a site far from the BWCA to demonstrate the technology. Since this type of mining has never occurred in the state (and never elsewhere without water pollution), Minnesotans need reassurance that our most valuable landscapes will remain as they are for generations to come.	PD32
Sender Name (Submission ID)	Andy Boyum (16572)	
2038	…go ahead with the mine as long as the Mine is ran properly to ensure the minimum environmental impact and there is proper oversight on the project by the DNR.	PER34
Sender Name (Submission ID)	Andy Johnson (48602)	
16757	he irreversible effects for a quick want, or got to have it hot item. This mine will effect generations forever and the only REALL return will be for the very few who will make a lot of money and move on.	SO01
Sender Name (Submission ID)	Andy Kell (54866)	
19354	The risks that are involved with copper and nickel mining are not only dangerous to the environment, but also to the people living near the mines. The sulfuric acid that is produced would leak into watersheds & reservoirs & poison people's drinking water and kill them.	HU01, WR041
Sender Name (Submission ID)	Andy Wamstad (5948)	
1951	New jobs have a trickle down affect and it appears this company has done it's homework.	SO10
Sender Name (Submission ID)	Angela Livieri (47366)	
16946	Economy is not more important than the environment.	SO01
Sender Name (Submission ID)	Angela Schweiberger (10089)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Angela Schweiberger (10089)	
12184	The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards.	WR189, WR202
12187	Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota.	WR195
12189	This project would violate water quality standards for generations to come.	WR115
Sender Name (Submission ID)	Angela Silberberger (52403)	
13222	The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility.	PD17
Sender Name (Submission ID)	Angeline Dufner (39223)	
5450	We can learn from our neighbor Wisconsin and from Europeans: Ban all potentially toxic mining until each proposed mine has been proven safe.	PER35
5451	Do not sell our future for short-term profits.	SO01
5452	Letr us not be recorded in history as the Land of 10,000 Toxic Lakes!	WR195
Sender Name (Submission ID)	Angie Nichols (12057)	
2006	but I do think that the people and animals inhabiting the state all have a right to a healthy environment and we have a right not to be forced into spatial "swaps" that compromise existing wildlife habitats.	LAN01
Sender Name (Submission ID)	Angie Pedersen (54350)	
18174	Having another mine up in the north would create more jobs for people. This will help people create better lives for their families and themselves.	SO06
18175	One of the advantages I came up with is we will get more natural resources, like copper, nickel, and platinum deposits from mining in this area. These products will help fuel our economy by providing our economy with construction material, electrical equipment, and more.	SO10
18176	One disadvantage is we will have a lower air quality, water quantity and quality. This would cause slight problems with our ecosystem.	WR115
18177	Another disadvantage is with the land exchange, it will most likely cut off river flow and may kill some large black spruces, tamaracks, and cedar wetlands. Without this mining project, the land remains a part of the Superior National Forest.	LAN01
Sender Name (Submission ID)	Angie Simonson (47273)	
9284	The industry is what keeps us moving forward both economically and developmentally. Creating more industry based jobs will support not only those working directly for the mines but hundreds of supporting jobs.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Angie Simonson (47273)	
9285	The need for precious metals is not going to decrease anytime soon, if we don't mine here, it'll be done elsewhere and likely with less regulation and concern for the environment.	NEPA01
Sender Name (Submission ID)	Anita Alcantara (35022)	
13298	The Boundary Waters Canoe Area Wilderness is the most beautiful area our Girl Scouts, Boy Scouts, and countless campers of all ages have experienced. It is extremely important to preserve it from impact of mining.	WILD02
13300	The precious clean water of the great lakes where Isle Royale National Park sits are also necessary to protect for continuation of life on earth.	WR111
Sender Name (Submission ID)	Anita Gille (18317)	
4255	I am concerned about water quality and especially tailings pilings that will be located on top of the old taconite tailings basin that was designed in the 1950's before there was environmental safeguards and on top of streams to allow drainage through the tailings.	GT01, WR104
4256	If you go back and look at the draft EIS in figure 4.1.9, you can see that there are at least three streams running under the old LTV tailings site. One of those streams runs right under cells 1E and 2E where they plan to dump the PolyMet tailings and then into Spring Mine Creek.	WR167
4257	Even when the stream is filled over, water is still flowing under the channel where it has been draining for thousands of years. And Spring Mine Creek is already impaired for aquatic life as a result of past mining and past excessive levels of sulfate and mercury.	AQ11
4258	The SDEIS just assumes that all tailings wastewater will seep into the north side where PolyMet will have a row of pumps. But the SDEIS must specifically analyze impacts on water quality of seepage that would escape following historic stream drainage beneath the tailings basin.	WR056
4259	I also question the methodology used for creating the EIS and the summary document. I have attempted to read the summary and I found it very unclear….We know it's very complicated, however; and I can't understand the ultimate levels, such as mercury and sulfide.	NEPA07
11624	The SDEIS should include a cost-benefit analysis of the PolyMet sulfide mine proposal over the long term, considering all of the potential long-term costs. I do not want to see the taxpayers of Minnesota stuck with clean-up costs for centuries into the future, all for promises of up to 360 jobs for only 20 years. This also assumes copper prices remain high and cheaper mining locations do not materialize.	FIN01, FIN08, FIN10, SO07
13076	I would like to recommend a performance bond be required of PolyMet to cover all damages to the environment.	FIN08
Sender Name (Submission ID)	Anita Kovacich (2916)	
641	Polymet['s NorthMet Project] will generate millions of dollars in state and local taxes to help support our economy and educational systems.	SO10
642	Polymet['s NorthMet Project] will keep jobs in Minnesota…[and] will keep our young and educated people from seeking jobs elsewhere.	SO10
845	I trust that Polymet can mine in an environmentally sound manner.	PD28
Sender Name (Submission ID)	Anita Seeling (51501)	
3609	Twenty or so extra jobs now are not worth 500 years of pollution.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Anita Seeling (51501)	
10746	the rich run the country's economy into the ground. Then, bit by bit - they take advantage of our desperation by convincing the masses to help them to not only dismantle the labor force protections, but also the necessary environmental safeguards. Indeed, they portray these safeguards as responsible for the stagnant economy. Twenty or so extra jobs now are not worth 500 years of pollution. And, as West Virginia also illustrates - bankruptcy by the offending company is the usual "out" for them.	SO01
Sender Name (Submission ID)	Anita Suzanne Tillemans (42951)	
12362	Greater than 90% of this water would be captured and treated using reverse osmosis, a process that poses risks as outlined in 2006 by the World Health Organization's report in Geneva, Nutrients in Drinking Water, Chapter 12.	WR143
12367	Has the SDEIS calculated the very real danger of RO processed waters on plant and animal organisms as well as the disposal of these concentratedtoxins?	VEG06, WR143, WR145
12370	Estimates of contamination in the SDEIS are based on models that do not take into account inevitable accidents and failures.	WR202
12374	the SDEIS has no bedrock groundwater samples available from theplant site and the tailings basin, and no testing was done in the Biwabik lron Formation for these sites. For what reason?	WR008, WR071
12398	The report assumes that most all water in these wetlands is recharged by rainfall and that the underlying bedrock is of low conductivity. I could not find substantial proof of this in the report. There are no long term records and field reports of rainfall over many seasons and years. Even so, the assumption seems to be made that there are no fractures, no artesian aquifers ofsignificance in the area	WR010, WR053
12405	No substantive studies have been done to determine the recharge and discharge areas for all aquifers along the Laurentian Uplands, including the Embarrass and Partridge River watershed aquifers...How much of the pollution will discharge into unexpected waterways from contamination in the recharge areas? ...reports need to be produced on these flowages,There are few wells on site and very little detail concerning underground water flowage at the sites proposed for Polymet's operations.	WR007, WR008, WR071, WR091, WR135
12408	Do we know what vital waters are supplied by particular aquifers in the Laurentian Divide at the proposed sites?	WR071, WR120, WR135
12410	With inevitable variables over hundreds of years, and without additional, extensive, field work and research concerning these aquifers, what reliable calculations can be made to predict drawdowns, potential depressurization of artesians and upwelling of brackish waters among other possible dangers?	WR189
12416	What will the accumulation of polluted water from the mine over decades, hundreds of years do to the St Louis River estuary? The St Louis River is already an AOC.	WR107, WR109, WR111
12423	What of algae bloom, reduction of oxygen and creation of a dead zone at the mouth of the St Louis River and Lake Superior?	WR111
12428	Concerned members of the Ojibwa Nation have indicated that groundwater seepage is greatly underestimated...Without studies of rainwater, and seepage over many seasons and years, how can the SDEIS predict outcomes confidently?	WR060, WR070, WR071
12434	How many more trains will be traveling through and over the wilderness of Superior National Forest and the Arrowhead? How many more trucks? How many earth movers, ATVs, OTVs, roads, how much dust, cumulative noise pollution from 24/7 mining operations (explosions, drilling, digging, crushing, processing, hauling metal)?	N03, N07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Anita Suzanne Tillemans (42951)	
12436	The scope of the SDEIS does not address the actual extent of operations related to this project and effects that will most definitely exceed the actual boundaries of the two sites and the transportation corridor.	PD30
12437	The SDEIS considers addressing pipeline failures and spills speculative and beyond the scope of the study. What then is a study based on assumptions and predictions hundreds of years into the future?	WR129, WR131
14760	The proposed copper mine in Babbitt should be a concern to all of us since it will threaten water resources in an extremely important hydrological area of the North American continent and at the source of the largest fresh water body in the world, our Great Lakes.	WR111
14761	Copper mining leaks sulfuric acid into waters above and below ground and is one of the worst polluting mining processes in the world historically. Metal mining requires prodigious amounts of water, and copper mining has historically degraded those resources.	WR001, WR023
14762	demineralized water[generated by reverse osmosis] has proved dangerous in many ways. lt will aggressively attack contacted materials by dissolving metals and some organic substances in pipes, storage tanks, hose lines and fittings. Because of this, it poses an increased risk of filtering toxic metals into the groundwater, wetlands and streams at the source and particularly downstream.	WR131, WR143
14763	Without the protective or antitoxic protection of calcium and magnesium additional, increased risk of cardiovascular disease occurs in humans from drinking water treated by RO, and reserve minerals in the body are often depleted.	HU03
14764	the hazards of controlling contamination would continue into perpetuity. Discharges of mining wastewater would continue as long as it rains, with water seeping into pits and ponds and leaching of toxic mining byproducts into groundwater. Potential failure of tailings dams, concentrate spill into streams and wetlands are historically valid concerns and need to be addressed since these will add to the pollution.	WR115
14765	Clean up of polluted river beds and aquifers would not be possible. The damage done, no financial assurance would replace the irreplaceable. In addition, the cost of perpetual treatment of waters that would continue to spill and leach toxins into the environment forever...would outweigh the profit of a relatively few, finite years.	FIN10
14766	Wild rice beds can be found all along the St Louis watershed, rice beds the Ojibwa depend upon in this highly connected and diverse aquatic habitat.	VEG04, WR156
14767	Laws that were made to protect the environment within the ceded territory have eroded away...once the land exchange is made, ... much of the treaty obligations under the ceded territory and wildlife and wilderness protections will no longer have any teeth.	LAN05
14768	polluted water will affect not only flora and fauna that depend on these wetlands, it will, eventually, affect Lake Superior and the Great Lakes.	WET24
14769	The distributions and flowages along nonconforming wavy bedrock formations in the area should be prominent factors in the decision-making process and at the forefront of the SDEIS. The Laurentian Divide runs through the middle of the tailings pond at 1700-1800 feet and very little is documented to date about the complex underground flows from this area. In fact, there is more study necessary before we understand specific recharge and discharge areas in this divergent geological and hydrological area of the Mesabi.	WR008
14770	Once copper mining is begun, contamination of groundwater cannot be prevented in the Laurentian Divide. Water will be contaminated as aquifers are traversed, through cracks, joints, fractures, and bore holes in bedrock aquifers and in direct contact with waste rock as it is mined. It can also flow along bedrock under glacial drift to locations unknown from the site ofcontamination, seeping into and out of these mining pits and tailings bins without being captured.	WR010, WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Anita Suzanne Tillemans (42951)	
14771	Once the mine is closed, seepage and discharge from mining pits of waste rock, slurry and tailings basins will continue into perpetuity. No reliable, extensive studies have truly been done, nor can they be, to determine how much water will actually seep into and from the mining pits and tailing basins at these sites over hundreds of years.	WR023, WR070, WR130
14772	water will be drawn continuously from surficial and possibly bedrock aquifers, as well as St Louis watershed streams and Lake Colby in order to mine copper for 20 years. ...what guarantees can there be that groundwater will not be mined as well, as levels of ponds, pits, and rivers are managed to maintain certain levels? lt is impossible to predict the effect that global warming will have on water reserves, nor is it possible to predict weather from year to year.	WR086, WR180, WR181, WR182
14773	Wetlands destroyed will not be replaced in kind...lncluded in the areaof concern will be 100-Mile Swamp. ...These wetlands are open and continuous, one feeding into another along the entire watershed of the St Louis River.	WET04, WET19
14774	Once granted permits to mine, Polymet will, of course, set a precedent...Would NFS have granted these drilling permits if it had not considered allowing copper mining so close to theBoundary Waters Canoe Area Wilderness? Once noise, air, water pollution have been granted at these levels, even higher levels will then be more acceptable. lt is easy to see then how lovers of wilderness, the BWCAW the Quetico … might be threatened by a copper mine inBabbitt.	WILD02
14775	Could it be that we do not know enough about the aquifers that underlie the Laurentian Divide? Minnesota is a land of more than 10,000 lakes, a land of waters, water that has no boundaries essentially. When one area is polluted, the effects are felt like a ripple.	WR071, WR111
14776	Where little allowance has been made for fractured and folded metamorphic rock in the area, fault lines, and percolation from confined aquifers that are also in the area, it would seem that the report is flawed. This error could cause other faults in predicting leaching, groundwater effects, toxin releases and solute levels in wetlands, lakes and streams.	WR012
14777	Copper mining will pollute ...our fresh water, in an area of complex aquifers that depend heavily upon each, interconnected in ways that we have yet to understand. Without consideration for loss of wilderness, which would be great enough, pollution and drawdown of our water table on the scale that Polymet could bring would be disastrous for a much wider area than this report has addressed.	WR001, WR023, WR115
14778	What financial assurances would restore these priceless reserves of water?	FIN08
14779	Consequences will go beyond the limits of liability for Polymet, and their operations will endanger lands and waters that neither Polymet nor the National Forest Service owns...Although "direct" impacts are considered to be within the boundaries of mining operations, permanent, irreconcilable impacts will have no boundaries. Pollution will reach underground into the water table, above ground into our air, and down stream most certainly into our oceans through vital freshwater resources.	FIN11
14780	SDEIS promises that safeguards and standards will be established in the permitting process, but these are not given in this report and cannot be assessed for the public view.	PER35
14781	Is it correct that less than .004 of the mined material will be copper at the cost of so much pollution? A trade like this does not seem to be in our best interest.	SO01
14782	lf concentrate spilled into a stream, it would settle forming sediment, highly toxic unless dredged which would have disastrous effects. This sediment would persist for decades and eventually end up in Lake Superior. Wetlands are susceptible to spills releasing slurry, return water, diesel fuel, solutes, leaching into water tables.	WET24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Anita Suzanne Tillemans (42951)	
14783	Reduction in wetlands due to degradation of habitat and wetlands ability to support fish and invertebrates would result in an incalculable loss ofwildlife population abundance.	AQ24
14784	It is "reasonably foreseeable" that weather will change and is unpredictable, even in the short term. No scenario that forecasts over hundreds of years can be taken seriously. ...the water and environment will be permanently changed and that no mitigation will return our waters and wilderness to pre-mining condition.	GEN03
14785	Mining operations will cease along with the jobs and profit, long before the degradation has run full circle. What will Minnesota and the world have in return for a few years of jobs and cash if we fail to act as responsiblestewards? There are no financial assurances that would cover the cost of such a tragedy.	SO01
14786	We need to take into account the over-reaching consequences of this project in an irreplaceable and unique, geological and biological ecosystem that is Northern Minnesota, the source of three of the greatest river systems in the North America	PER12
14787	What will be the consequences of the land exchange, once Polymet owns the surface and mineral rights to the land on which their operations occur? What powers will the NFS, BLM, DNR and other parties have and exercise to control and monitor damage to our environment then?	LAN04
14788	Downstream from the proposed Northmet project, where all mining water, sediment and dissolved particulates from this plant will eventually go, Jay Cook State park is home to 181 species of nesting and feeding fowl. There are bear, deer, wolves, coyote among 46 animal species in the park. Sax-Zim Bog in the St Louis River estuary is world famous wintering grounds for great gray, boreal, hawk owls and other boreal forest birds. Over 60,000 raptors migrate over Hawks Ridge National Preserve in the St Louis River estuary each year...The Laurentian Divide is home to 155 nesting birds and 40 wildlife species.	WI01, WI02
14789	In Embarrass, just north of the LTV site, there are birding and nature trails,river canoeing and fishing opportunities. At Babbitt, lies beautiful Birch Lake south of the BWCAW, both part of the Rainy River Watershed, so close that mining cannot help but affect the whole area.	LU06
14790	The Superior National Forest Scenic Byway tour begins in Two Harbors and goes through Silver Bay to Aurora through Hoyt Lakes over 145 miles of untouched wilderness with relatively few roads. There are wolves here and Canadian Lynx, only a few of the animals that are attracted to this area. Wolves are of concern in particular, since the DNR has still yet to make a count of the existing wolf populations after two hunting seasons. How do we know the threat to this vital apex predator without a study to determine its numbers?	WI01
14791	Polymet's trains will traverse open wetland networks linked to Dunka River,North River, Ridgepole Creek , Seven Beaver Lake, Swamp Lake, Big Lake, and Yelp Creek, among a few.	WR151
14792	There are 318 species of birds, 200 regular in the Superior National Forest of which 36 are uncommon, 30 rare and 61 very rare, among these the Pie billed Grebe and the Red breasted Merganser. With 155 nesting species, the SNF has the greatest number of breeding birds in any national forest. The BWCAW is of incalculable value biologically, ecologically	WI01
14793	The BWCAW is ...a popularwilderness area with over 200,000 visitors annually, with 1500 miles of canoe routes and 2200 campsites. Do we truly believe that copper mining so close to the entry points of this wildernesswill not have significant consequences on these resources and the essence of this kind of experience?	WILD02
14794	This SDEIS, as stated, appears to be based upon "variability and uncertainty around many ... model input assumptions”- in other words, a best casescenario that, in spite of this, predicts 500 plus years of mitigation and pollution from 20 years of mining in the Arrowhead...Once the water is polluted and the ecosystem destroyed, one that took millennia todevelop, we will be left with a toxic environment that will be changed forever	PER12

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Anita Suzanne Tillemans (42951)	
14795	The Arrowhead region is one of the crowning ecological jewels of this world...The no mining alternative is, above all, a choice for environmental diversity and sustainability.	WILD02
19312	water would be captured and treated using reverse osmosis, a process that poses risks as outlined in 2006 by the World Health Organization's report in Geneva, Nutrients in Drinking Water, Chapter 12...it poses an increased risk of filtering toxic metals into the groundwater, wetlands and streams at the source and particularly down stream	WR143
19313	Laws that were made to protect the environment within the ceded territory have eroded away… with the proposed land exchange this will be affirmed by further eroding these treaty obligations ans allowing Polymet to operate outside of protections promised in the treaty.	PER08
19332	The SDEIS has no bedrock groundwater samples available from the plant site and the tailings basin and no testing was done on the Biwabik Iron Formation..more study needs to be done to get a clearer picture of the interaction between the bedrock and surface aquifers of the region... more study is necessary before we can understand specific recharge and discharge areas in this divergent geological and hydrological area of the Mesabi…what technology would be in place to prevent seepage from mining pits and tailings basins?	WR007, WR008, WR090
19338	what will the accumulation of polluted water [in wetlands] over hundreds of years do to the St. Louis River estuary.	WR111
19341	Once granted permits to mine, Polyment will… set a precident…copper mining will…extend into the Rainy River Watershed… there are others [who] have been granted exploratory permits...Moving millions of tons of ore will have effects beyond pipeline, tracks, and roads within the corridor and mining site	CU04
19342	What financial assurance would restore these priceless reserves of water?	FIN08
19350	downstream of the proposed project, sediment and dissolved particulates.. Will eventually go [to] Jay Cook State Park, home to 181 species of nesting and feeding fowl	WI01, WI04
19351	a best case scenario predicts… 500 years of mitigation.. This does not mean that maintenance will no longer be needed… it means that the SDEIS stopped assessing damage	WR037, WR128
Sender Name (Submission ID)	Anita Zager (6086)	
1026	As I look at the map of the mine site it is surrounded by wetlands and lakes. Would any other project requiring dangerous unproven chemical processes be approved by the state of MN if it sat in this location?	WET24, WR112, WR143
1028	How does the State of MN and PolyMet protect the water treatment for 500 years in any known or proven method both financially and chemically?What is the financial value of the current clean watershed over 500 years?	FIN01, FIN05
1031	Have economists reviewed this contingency of 500 years of water treatment in weighing the value of the minerals, cost of the project for 500 years and the potential value of clean water in 500 years?	FIN01, FIN05
1032	When human beings are involved in any engineering processes there are always mistakes, unforseen consequences, catastrophic accidents. Do the principle leadership of PolyMet and their contractors have a record of lax and ignored oversite of environmental risks and laws?	PD23
Sender Name (Submission ID)	Ann Burns (15663)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ann Burns (15663)	
783	the region's future will rely more and more upon sustainable resource management and an emphasis on the natural world that attracts tourism and retirement dollars to the area.	SO02
785	I am concerned about the long-term environmental impacts of the planned Polymet sulfide mine, and feel that the current plan does not do enough to protect our waters.	WR035
791	It is highly unlikely that PolyMet, as a business, will be here [in 500+ years] to keep paying for and executing on any water treatment requirements. Rather, taxpayers will pick up the tab. This plan does not do enough to ensure that the necessary financial resources, to treat waste water and remove sulphur contaminants, will be secured and reliably sufficient.	FIN01, FIN10
796	Further, the current plan is already insufficient in its planned water treatment scope. At the mine site itself, each year more than 5 million gallons of untreated contaminated water will seep into our ground water. At the tailing basin, more than 11 million gallons of untreated contaminated water will seep into our ground water each year.	PD03
802	The plan for waste water treatment [for over 500 years] is not based upon best practices; it is based upon hope and pretense, and should not be permitted.	PER04, WR037
Sender Name (Submission ID)	Ann Campbell (715)	
443	I understand [the NorthMet Project] will create jobs but at what cost. 500 years of clean up?? For 20 years of employment.	SO01, WR115
Sender Name (Submission ID)	Ann Dow (26131)	
15198	Exchanging land or allowing sulfide mining on Superior National Forest will be at the expense of too many of the other "multiple uses" the forest was established to provide.	LAN01
Sender Name (Submission ID)	Ann Galbraith Miller (41085)	
13946	While jobs are certainly important, they are not a scientific argument based on the draft EIS. Those jobs will benefit a few, while the after effects of open-pit sulfide mining will potentially impair thousands of acres of watershed and the Lake Superior basin for HUNDREDS OF YEARS.	WR195
Sender Name (Submission ID)	Ann Meany (43351)	
15575	This is a toxic operation. There is no way that copper sulfide mining can be compared to taconite iron ore mining. To allow something as toxic as sulfide mining anywhere in Minnesota, let alone right next to the Boundary Waters Canoe Area is insane.	PD27
Sender Name (Submission ID)	Ann Possis (10115)	
337	We must be able to come up with livable-wage jobs without trashing our natural environment. Twenty years of jobs, many of which would be filled with people brought in from outside our area, are not worth hundreds of years of pollution of an irreplaceable part of the world.	SO01
339	The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children.	AQ05, WR115, WR156, WR158

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ann Possis (10115)	
1426	…to urge you to deny the permits for this mine. It's not worth the risk and possible destruction of our precious natural resources in northeastern Minnesota.	PER35
1428	Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.”	WR035
Sender Name (Submission ID)	Ann Reed (50228)	
11003	The next crisis we are facing is one of adequate clean water…we want jobs for people but what good are the jobs if everyone's water is contaminated?	WR115
12406	The next crisis we are facing is one of adequate clean water...We have a responsibility to protect the lakes and rivers we hold so dear. Please help us and reject PolyMet's plan.	WR195
Sender Name (Submission ID)	Ann Schley (41854)	
2050	privileged live among beautiful wetlands and forests. ….our responsibility to protect those resources for the future. ….too much risk that dangerous chemicals will be released now or in the future from the mining operations.	WET24, WI04
Sender Name (Submission ID)	Ann Snodie (11044)	
644	A few things to consider is whether our future WATER quality is worth more to us in the long-run (some predict 100's of years of possible damage) then job creation in Northern MN?	SO01, WR115
Sender Name (Submission ID)	Ann Stangland (54899)	
18852	Do not support or legislate any technology that will polute our lakes, rivers and streams, especially in the BWCA.	WR111
18853	We don't want any chemicals affecting human or wildlife health and polluting our tourist vacation spots.	HU03, WI04
18854	Do what is in the best interests of the people not "big business."	SO04
Sender Name (Submission ID)	Ann Vreeland (57337)	
18445	I feel very confident that they have done due diligence as far as their safety for the water and for the environment.	NEPA16
18446	We need the jobs up here and we need mining, and that has been our lifeblood for over 50 years, and I support it 100 percent.	SO10
Sender Name (Submission ID)	Anna Blaine (54174)	
16394	I believe this mining should not be introduced in MN. It’s degrading to our land and water!	WR195
16395	The water and area around where this mine is supposed to be is too precious to our environment to be compromised for this mining project.	WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Anna French (43064)	
11524	…the mine would impact our dwindling moose populations and the already endangered Canada Lynx by destroying their habitat.	WI01, WI02
11526	Other impacts, such as those to air and water quality, are still uncertain. The plan is incomplete and has not been carried out thoroughly.	NEPA15
11527	…[Regarding] the lack of a health impact study. For something that could have impacts 500 years into the future, it seems like we could take a little more time analyzing consequences.	HU01
Sender Name (Submission ID)	Anna Hess (10352)	
508	We certainly hope that ore processing at the Polymet mine site is not part of the plans, because no matter how much scrubbing of the air takes place, the prevention of air pollution is impossible.,	AIR11
510	The creation of jobs, and economic influence of such a development is so far over shadowed by the possibility of water or air pollution that the development can not be allowed to proceed.	SO01
1455	The DEIS does not give adequate assurance that water and air pollution will not occur	AIR11
Sender Name (Submission ID)	Anna Peterson (43809)	
11826	The SDEIS has not shown that mining of precious metals in rocks with sulfide can be done safely in the watery environment of NE Minnesota without serious contamination and destruction to wetlands and habitat.	PD01
Sender Name (Submission ID)	Anna Runestad (44598)	
12054	The long term effects of choosing to open the Superior National Forest to mining is a choice that I don't agree with. It has short term benefits that do not out weigh the long term cost our state and our natural water habitats will suffer for years.	SO01
Sender Name (Submission ID)	Anna Russel (58146)	
19982	The lives of countless plants and animals will be impacted, not to mention the entire ecosystem as a whole. The profits are not worth the risks involved.	GEN03, SO01
20021	We are NOT dependent on copper! Throw away your cellphone and take a walk in the woods! We need to be putting minds together to figure out actually proven environmentally safe processes to achieve our goals. Create more jobs to plant new trees and wetlands on the proposed sites.	NEPA06
Sender Name (Submission ID)	Anna Sherman (15282)	
406	Another benefit of mining in Minnesota is the economical growth it will bring.	SO10
407	Mining in Minnesota would cause tremendous economic and financial growth as well as provide a large quantity of precious metals that are in short supply.	SO10
415	This procedure will grow Minnesota's economy by providing jobs for thousands of Minnesotans and extracting metals crucial for the manufacturing of countless products used in everyday life.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Anna Sherman (15282)	
417	Minnesota environmental standards are sure to protect the water and air from pollution, keeping wetlands and forests surrounding some areas of the mining procedure safe and healthy.	PER34
Sender Name (Submission ID)	anna zirkes (43205)	
11557	I am concerned that the pollution created by this plan will forever change the Boundary waters.	WILD02
Sender Name (Submission ID)	Anne (42498)	
7144	Why would a public agency allow a known source of mercury pollution to conduct such a business in such a interconnected water rich area right next to the BWCA?	WR111
7148	I do not see the DEIS addressing the concern about the impact of large scale mining on moose and lynx habitat.	WI02
7156	It is not in the public interests to “trade” vast tracts of biodiverse wetlands area in the BWCA area for land somewhere else that can just later be mined as well. I would urge the DNR to act on behalf of the interests of the public in preserving the integrity of the existing wetlands and not agree to any trades that jeopardize this important ecosystem and wildlife habitat for species of concern such as moose and lynx.	LAN01
9423	I do not see the DEIS addressing the concern about the impact of large scale mining on moose and lynx habitat.	WI01, WI02
9427	Request an assessment of the social impact issues of the project. Will the native people whose traditional way of life involves fishing and rice harvesting be placed at risk with this plan? ... impact be on the local recreational economy? ...impact the local way of life? Will residents become priced out of the housing market?	SO04
14684	Why would a public agency allow a known source of mercury pollution to conduct such a business in such a interconnected water rich area right next to the BWCA?	WR158
14685	Was an alternative explored by Polymet that does not impact wetland areas?	ALT13
14686	How will [seepage] be captured without liners? What happens when there is episodic flooding? ...Why is their even a consideration of the plan without adequate liners and a plan to clean any impacted water now not later?	WR021, WR035, WR077, WR127
14687	Even 30-40 years is too much of an impact to the area. The burden should be on Polymet to design mining plans with no risk to the drinking water in the area. I am confident that you would not allow a homeowner to conduct a business in the BWCA area that would jeopardize his/her neighbor’s well water.	PD03
14688	Too much has already been taken from the native people. We need to be protecting native traditions in the area not jeapardizing them. This is a social impact that remains is fundamentally incompatible with the Polymet plan. ...Will the native people whose traditional way of life involves fishing and rice harvesting be placed at risk with this plan?	SO02
14689	it is not in the public interests to “trade” vast tracts of biodiverse wetlands area in the BWCA area for land somewhere else that can just later be mined as well. I would urge the DNR to act on behalf of the interests of the public in preserving the integrity of the existing wetlands and not agree to any trades that jeopardize this important ecosystem and wildlife habitat for species of concern such as moose and lynx.	WET14, WI02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Anne (42498)	
14690	It would seem that any mercury release is unacceptable given the nature of mercury to accumulate in the environment.	MERC01
14692	What will the impact be on the local recreational economy? How will Ely becoming the site of an international mining operation impact the local way of life? Will residents become priced out of the housing market?	SO03
14693	What will be the impacts on the BWCA as the most desirable, unique, and frequently visited wilderness areas in the United States if the fish and water become polluted with toxic chemicals?	WILD02
14694	It makes no sense to risk the long term health of the many for the short term profit of the few. All burden of proof should be on Polymet to comply with the established environmental standards, no exceptions.	SO01
15273	The burden should be on Polymet to design mining plans with no risk to the drinking water in the area.	WR042
15274	Too much has already been taken from the native people. We need to be protecting native traditions in the area not jeapardizing them. This is a social impact that remains is fundamentally incompatible with the Polymet plan.	CR01
15275	It would seem that any mercury release is unacceptable given the nature of mercury to accumulate in the environment.	MERC01
15276	There is a looming water crisis. Risking pollution of this vast water resource is unconscionable and under no circumstances should be placed at risk.	WR111, WR195
15277	Request an assessment of the social impact issues of the project. Will the native people whose traditional way of life involves fishing and rice harvesting be placed at risk with this plan?	CR01
Sender Name (Submission ID)	Anne Clark (40660)	
14254	Clean ground water is essential. Please don't risk something that can't be recovered, except by extraordinary means and centuries of time for short term prosperity.	SO01
Sender Name (Submission ID)	Anne Elizabeth Haugan (45022)	
7085	Do we provide several hundred construction and mining jobs for a few hundred people for twenty to thirty years and pollute the watershed basin flowing into our great Lake Superior for hundreds of years, as well as polluting the air? … Or [do we] protect this valuable watershed environment for hundreds of years?	AIR07, WR115
7086	Another great concern is dealing with Poly Met, a small new company, which has little accountability and the likelihood of the mining operation being turned over to Glencore Xstrata. This scares me as Glencore Xstrata has a poor environmental record, as well as treating their employees unjustly.	SO02
16791	Do we provide several hundred mining jobs and construction jobs for a few hundred people for 20 to 30 years and pollute the watershed basin into the great Lake Superior for hundreds of years? … or [do we] protect this valuable watershed environment for hundreds of years?	SO01
16792	Another great concern is dealing with PolyMet, a small new company, which has little accountability and the likelihood of the mining operation being turned over to Glencore Xstrata. This scares me as Glencore Xstrata has a very poor environmental record, as well as treating their employees unjustly.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Anne Elizabeth Haugan (45022)	
16793	Let's find alternatives that will provide jobs to better the Northeastern Minnesota economy, such as the solar panel industry on the Iron Range, tourism industry, or forest products.	ALT13
17289	Let's find alternatives that will provide jobs to better the Northeastern Minnesota economy, such as the solar panel industry on the Iron Range, tourism industry, or forest products industry.	SO06
18865	It is NO to providing jobs fo ra few hundred vs. saying yes to protecting the watershed basin to Lake Superior for hundreds of years.	SO01
18869	PolyMet has little accountability and this proposed mining operation turned over to Glencore Xstrata scares me. They do not have a good environmental record.	PER02
Sender Name (Submission ID)	Anne Macaulay (54699)	
17787	Let us not be short-sighted and hasty in making decisions without all the [data]….	NEPA09
17788	I have lived here my entire life and want to continue living a healthy life. I feel this dream is being compromised by not thoroughly researching and believing in the past lessons from Reserve Mining in the 70s.	HU03
Sender Name (Submission ID)	anne morrison (42907)	
8719	I am deeply concerned about the possible impact on the BWCA [Boundary Waters Canoe Area] posed by acid mine drainage from PolyMet's NorthMet project.	WR024, WR081
8720	PolyMet's web site claims that water that will be discharged from its project site would never enter the Boundary Water Canoe Area Wilderness lakes or streams.	WR024, WR081, WR111, WR175
8726	In reality, however, hydraulic conductivity testing is needed to determine the actual effect of [NorthMet] acid mine drainage into the waterways on the edge of the Boundary Waters.	WR071, WR081
8729	The proposed PolyMet mine site borders and is uphill from One Hundred Mile Swamp, which drains (in part to Langley Creek, which is a tributary to Rainy Lake in the BWCA watershed.	WR024, WR071, WR080, WR081, WR111, WR175
8731	Without hydraulic conducitivty testing and measurements, PolyMet has no way to show that water entering One Hundred Mile Swamp will not then flow into Rainy Lake in the BWCA watershed.	WR024, WR071, WR080, WR081, WR111, WR175
8738	It is also a concern that the authors of the SDEIS have used incorrect maps which contradict the US National Atlas watershed map, with the goal of suggesting that mine waste water will not seep into the BWCA watershed.	WR024, WR071, WR081, WR111
8739	Significantly, the SDEIS claims that there is no delineated boundary for One Hundred Mile Swamp—while in reality, the boundaries of One Hundred Mile Swamp have been delineated, and are accessable at www.nationalatlas.gov/streamer.	WR080, WR175
8741	…the SDEIS maps then omit the section of One Hundred Mile Swamp that drains into the BWCA watershed: whereas the National Atlas shows a 10-mile-long wetland that drains to both the St. Louis River and BWCA watersheds, the most recent SDEIS maps depict the One Hundred Mile Swamp as only six miles long, and as existing only on the St. Louis River side of the divide.	WR080, WR175

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	anne morrison (42907)	
8743	PolyMet's re-drawn and inaccurate maps would mislead a reader to believe that its proposed project [NorthMet] would have no impact on the Boundary Waters.	WR024, WR071, WR080, WR081, WR111
8749	Finally, there has been no baseline water testing in the Dunka River, Langley Creek, or anywhere else in the Rainy Lake watershed.	WR071, WR081, WR085
8751	Without…[baseline water] testing in the Rainy Lake watershed, there is no way to gauge the possible harm to the BWCA [Boundary Waters Canoe Area] and Quetico from PolyMet mine drainage.	WR024, WR081, WR085
8753	PolyMet must be required to correct its SDEIS to include accurate watershed mapping, with hydraulic conductivity testing in One Hundred Mile Swamp, with water quality testing for the BWCA watershed, and with a data-based statement of the impact of the proposed mine on BWCA water quality.	WR080, WR081
8757	I urge you to view the SDEIS critically, and to require PolyMet to provide correct and appropriate data so that the impacts of its proposed project can be accurately assessed.	WR072
Sender Name (Submission ID)	Anne Stewart Uehling (54775)	
19463	Polymet does not have a plan for converting to a passive system at the plant site. Thus the need for high maintenance water quality equipment extends possibly into centuries.	GEN03
19465	Polymet (and the DNR) needs to explain how the existing conditions including plant and animal life [in reclamation wetlands] would be replicated in full.	WET04
19467	Models used for comparison of water flow, pollution, etc., are often models too dissimilar to be correct. … Furthermore, the difference in bedrock type and structure fails to account for fracture and fissure patterns. According to the MN Geological Survey, there are faults under the mine site.	WR012
19469	A truly thorough study of economic impact needs to be made. Polymet claims over 360 jobs for the time of operation, Both the Forest Service and the recreation industry each provide that many jobs. The mine will cause the decline of property values and taxes, affect recreation… Mining will cause the exiting of the 55% of township residential property owners who are seasonal and thus cause a serious decline in tax income for townships. State agencies receive income from permitting and leasing, but local governments do not.	SO05
19471	The impact of one more source of contamination (no matter how small) on the St. Louis River watershed needs to be given careful consideration. The current iron mines are adding levels of contamination, often with waivers from the MPCA, and air borne pollutants arrive from elsewhere.	CU05
19472	Of particular concern is mercury, particularly methylmercury which has become a health hazard in the St. Louis River/Lake Superior estuary.	MERC03
19474	Many of the indefinites need to be filled in. Specifics for water flow calculations, reclamation plans for closure, long term water monitoring plans and financial assurance are either in documents available but not included in the SDEIS or left for future negotiations during the permitting process.	PD01
19475	mercury above 1 0 mg/L are harmful to wild rice, a plant harvested by Native American Tribes, particularly the Fond du Lac Band of Ojibwe whose reservation is on the lower reaches of the St. Louis River.	SO09
Sender Name (Submission ID)	Anne Wetteland (54882)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Anne Wetteland (54882)	
19570	With all the risks, is it really worth it. How many states in the Union have an abundance of water like we do and we are willing to risk it? I say NO.	WR108, WR111
Sender Name (Submission ID)	Annette Anderson (38646)	
11893	I believe that the Polymet Project would be safe for the environment and would have huge positive economic benefits.	SO10
Sender Name (Submission ID)	Annette Heiberg (16225)	
10266	500 years of cost and responsibility should be assumed by the company that profits, not the residents of Minnesota.	FIN01
10274	It is unrealistic to expect mistake-free operation even for the twenty years of operation, especially when this operation is located in a state that has extreme weather conditions. And I find it very hard to have faith in a company that would not even take these normal conditions into consideration in their proposal. This seems to indicate an under-researched and incomplete proposal.	PD22
Sender Name (Submission ID)	Annette Jaros (57169)	
18694	I oppose sulfide mining in NE Minnesota because of appalling and costly long-term impacts on irreplaceable natural resources. Science supports you in putting a stop to this potential desecration.	SO02
Sender Name (Submission ID)	Annette Strom (39349)	
6130	Living in Duluth, I am so fortunate to have the largest surface area of freshwater nearly outside my door. We would like to keep our wonderful freshwater resources in this area. After over 30 years of clean up, we are almost able to say that the St. Louis River is not polluting our great lake. That time period compared with 500 years seems quite small, and yet that clean up has affected all of us in this area.	WR111
Sender Name (Submission ID)	Annie Carlin (37600)	
16330	I do not support this copper cobalt mining venture and its highly probable irrevocable damage by exposing toxic contaminants to our water.	WR115, WR195
Sender Name (Submission ID)	Annie Gardner (57978)	
19867	PolyMet has not shown that they can adequately protect Minnesota's environmental resources, especially our invaluable water resources.	PD23
Sender Name (Submission ID)	Anon (1) (15728)	
13049	the boundaries & extent of the damage it will casue is totally false. We most not destroy this pristine natural exosystem in the name of profit.	SO02
13051	We must protect tribal homelands preople and resources.	CU11
Sender Name (Submission ID)	Anon (12) (15731)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Anon (12) (15731)	
12913	if this project goes through, we might have another "Freedom Industries" debacle on our hands. Dump the toxic crap in our land and water, stick us with the dean up bill which could last hundreds of years, then file bankruptcy, take the money and run.	FIN10
Sender Name (Submission ID)	Anon (2) (15732)	
13142	The 100 mile swamp is far greater thanthe defined "boundary" as better examined by satellite imagery and the true wetland will allow a greater contaminant flow into at least two watersheds as studied by Dr. Eric Morrison	WET19
Sender Name (Submission ID)	Anon (6) (15736)	
13075	the environmental impacts [of the NorthMet Mine Project] seem too grave for the blith assurances of those who would most profit from this endeavor	SO01
Sender Name (Submission ID)	Anon (7) (15737)	
13091	mining in Minnesota is a tremendous economic driver for the state and region. Expanded mining of precious metals will have significant and sustained effect on economies of both.	SO10
13095	Costs of all associated products and services are higher when these raw materials must be imported, especially when using foreign sources that areunreliable or have unstable governments. There are also substantialenvironmental impacts when importing materials from countries that do not value environmental protection the way we do in our country.	NEPA05
13098	The Polymet project has been designed to minimize environmental impacts by reusing a brownfield site and existing infrastructure, minimizing disturbance ofwetlands and utilizing multiple safeguards to protect the environment.	PD28
13101	Polymet will provide a domestic supply critical metals needed in medical applications, electricity generation, catalytic converters, cell phones, computers and other essential products.	NEPA05
Sender Name (Submission ID)	Anon (8) (15738)	
13399	only 20 years after they begin mining the copper + nickel will be depleted. However the pollution will continue for 500 years[.] It will need to be contained and cleaned up somehow but it appears that nobody realy nows how	SO01
Sender Name (Submission ID)	Anon (9) (15739)	
13600	lakes, streams, rivers, and lall naltural water sources would be polluted forever.	WR115
13603	There is no assurance the people of NE Minnesota will fulfill the jobs provided. Very likely, PolyMet will bring in their own people from out of state and out of the country to fulfill the jobs available.	SO06
13605	Accidents/Failures - with such mishaps sure to happen, will PolyMet pay the wages for lost days, lost health insurance, incidental expenses conoected with "lost" days?	FIN05
13606	500 years Water Treatment? -It is absdurd for PolyoMet to assure water treatment will be maintained for even 20 to 50 years.	WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Anon (9) (15739)	
13607	The exploratory drilling at all hours -even the middle of the night - is infringing on inhabitants, property owners, campers, and their rights also to the serene, quiet of the NE or Arrowhead Region.	N01
13672	The Reservations' economy is dependent upon harvesting wild rice from lclean streams and lakes.	CR01
13678	How will PolyMet address the rights and the questions proposed by the Native Americans on land which is their's?	CR01, CR05
13683	How will seepage water be treated to assure it is safe for humans, wildlife, harvesting wild rice, etc. wild rice, etc.	WR070
Sender Name (Submission ID)	Anonymous (54115)	
15977	Greedy companys only need pay fines when things go wrong.	FIN01
15978	Copper mining is not mining. It's destruction. I believe in iron ore mining. Please stop putting the two mining types in the same category.	PD27
16052	lead & aluminum--toxic metals for the young and old.	HU03
16383	I don’t think you guys would bid a mine only for your benefit and there is other places you can find copper	ALT09, ALT16
16385	I think it’s a wonderful ecosystem for the animals and it’s a quiet, sacred place for Minnesotans	LU04
16386	Also I’m against the mine is because of the pollution.	GEN01
16387	The affects are environment would be negative and you could put it somewhere else.	GEN01
16829	I am concerned about the possible damages that the facility and the mine could do to the environment. I am also worried about the land that the Native Americans are connected to. I understand that the land is important to them. I know that in the treaties and other documents on your website, the mining company has said certain things concerning all of the concerns mentioned above.	SO01
17381	I think you should allow this mine, because it would be of great benefit to our economy.	SO10
Sender Name (Submission ID)	Anonymous (3) (54333)	
16882	The mining will just harm the environment not help it. It will take twenty years to mine the area. That is just too long to be doing that to the environment. The area is around a beautiful place of nature. The mining will just ruin it by destroying trees and most likely some wildlife along with many other things.	WI01
16888	A lot of money [is needed] to clean the water after you are done mining and that will be years and years from now when we are done with that. We won't have the money to continue cleaning the water so we will just stop cleaning the water so then it will get polluted. If the water gets polluted then the environment will have a counter effect. The water is very important and that's what we need to live.	FIN11, SO07, WR128
Sender Name (Submission ID)	Anonymous (Duluth) (1) (11516)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Anonymous (Duluth) (1) (11516)	
17077	Get a different job if you need to, something that isn't a risk or threat to the environment. Think about the long term – not only temporary employment.	SO01
Sender Name (Submission ID)	Anonymous (Duluth) (2) (11517)	
2468	Costs too much to clean up!!! Who's going to pay? Too much of a financial risk, upon many detrimental environmental risks.	FIN01
17080	Temporary jobs to ruin the greatest aquafor in the world?	SO01
Sender Name (Submission ID)	Anonymous (Duluth) (4) (11519)	
2470	Sulfide-mining companies should be putting their financial assurances where their mouths are. $200 MILLION will not restore contaminated water to the original state. What is the average cost to clean up a Superfund Site? How many such sites are yet to be cleaned up?	FIN05, FIN08
2471	Water treatment is expected to be necessary for 200 to 500 years, if not forever. Is there a company or a government that has lasted that long? Adequate financial assurance may be important, but how likely would it be to solve the contamination problem, if no one is around to ensure treatment? What guarantee is there that the proposed treatment would work on all of the waters which could be affected? What about the wetlands? What about the groundwater?	FIN01
7039	Water treatment is expected to be necessary for 200 to 500 years, if not forever. Is there a company or a government that has lasted that long?	FIN01
Sender Name (Submission ID)	Anschel Burk (39355)	
12839	[Allowing the mine is] ultimately threatening human lives, the Minnesota tourism industry to natural wonders like the Boundary Waters, and any other industries that depend at all on clean water.	SO02
Sender Name (Submission ID)	Anthony B (44965)	
8353	Please don't compromise our clean water for pollution at any cost.	SO02
15903	Please don't compromise our clean water for pollution at any cost.	WR195
Sender Name (Submission ID)	Anthony Taylor (54206)	
17641	A majority of us believe that building a mine next to the only preserved native area is not a good (or smart) idea. It is the HABITAT of animals. They need the boundary waters they have nowhere to go.	WI02
Sender Name (Submission ID)	Antoinette Moran (406)	
36	The potential for the state to be stuck with >100years of clean-up plus the potential to harm important state water resources is just too great to justify a few hundred jobs for 20 years.	SO01
Sender Name (Submission ID)	Antonia Cristofaro-hark (15752)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Antonia Cristofaro-hark (15752)	
12033	The environmental impact of these projects are not worth the temporary jobs and temporary industry.	SO01
17043	A 500+ [year] clean up plan is not fair to the generaltions to come and the minnesota wildlife areas and drinking water.	PD01
19036	[PolyMet] would leach sulfuric acid and other poisons metals into lakes and wetlands in the region and because of this the boundary waters landscape would be changed forever.	WILD02
19038	sulfuric acid could also leach into our drinking water and dramatically effect the health of the people.	WR041
19039	I like many Minnesotan citizens am not willing to compromise our most breathtaking natural landscapes for shorter-term economic benefit.	SO01
Sender Name (Submission ID)	apeterson8083@yahoo.com (45146)	
8370	You would be fools to even consider any further, the detrimental damage polymet and sulfide mining would have on our aquafor	WR195
8374	This project is too expensive in the long run, for clean up.	FIN01, FIN10
8376	Why sacrifice our water for a few temporary jobs?	SO01
Sender Name (Submission ID)	April Hughes-Brauner (43726)	
11943	Given that the mine in question is in one of Minnesota's most scenic and pristine areas, where water is of such abundance and purity I would like to voice opinion to the mine, especially of the threat to native flora and fauna, wild rice in particular.	VEG04, VEG10, WI13
Sender Name (Submission ID)	Archie K Benham (47364)	
16944	Climate change and global warming are real issues. (…) The CONS **far** outweigh the pros. I do not want to take away from Minnesota's healthy environment.	GEN01
16945	The world does not need to farm Copper/Nickel anymore. Recycling can handle the demand.	ALT09, ALT16
Sender Name (Submission ID)	Ariane Norrgard (57465)	
19514	If citizens of this community allow companies to mine copper and nickel at the expense of clean water, we are setting the stage for years to come. Fresh water is a more valuable, precious resource that will provide more wealth to Minnesota in the far future. PolyMet mining hinders Minnesota's ability to use water resources because of the detrimental effects copper nickel mining has on water and wild rice. Please consider protecting the boundary waters area, Lake Superior, and water quality as a whole by not allowing PolyMet (or companies like PolyMet) to operate within our region.	SO01, WR159
Sender Name (Submission ID)	Arlene Renshaw (16252)	
10424	The [long-term] environmental price that would be paid [for this mining operation] is far too great to outweigh short-term profits for the mining company.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	armand ball (41095)	
14194	mining would…pose human health risks through contamination of drinking water and fish, seriously degrade the St. Louis River, destroy wild rice and irreplaceable wetland habitat, and harm Lake Superior that holds 10 percent of the world's fresh water.	GEN03
14195	[the mine would] provide a significant risk in the watersheds receiving the drainage from Polymet's waste rock and tailings complexes, given that two million tons of sulfur would be brought to the surface during mining, result in unacceptable and long-term water quality impacts, which exceed water quality standards	WR115
14196	All of this for a foreign corporation whose stated goal is to provide the first eight years of copper produced to China, without any plan to meet domestic needs in our country.	FIN04
Sender Name (Submission ID)	Armando Santos (54203)	
17259	[mining is] going to destroy the beauty of the land	LU04
Sender Name (Submission ID)	Arno A Kahn (54801)	
18151	My concerns center on the documented concentration of sulfur in the holding ponds which is a result of the mining process, as reviewed in the EIS. The likely leaching of this highly toxic sulfur into the surrounding lakes and streams would severely damage the ecology of our area. Elevated sulfur levels would decimate fish populations and reduce or eliminate other aquatic species. These waterways would change from the clear pristine watershed we all know and value.	AQ12
18152	The company has argued that all of this highly toxic water borne sulfur can becontained. Similar mines in other parts of the world and not situated in a massive fresh water basin have been unsuccessful in this regard.	WR023
18153	The EIS states a need to monitor and repair the holding ponds for at least 500 years! Clearly, no current corporation will likely be around 500 years from now Even the posting of bonds or setting up trust accounts would be unlikely to stop the dispersing of this very toxic pollutant [sulfur].	FIN01, FIN08
18154	I see little reason to think that mining precious metals in a pristine watershed that connects to our Great Lakes is a necessity. The short term financial gains and some employment aren't remotely sufficient to risk the inevitable pollution of our watershed. Once introduced into the watershed these pollutants will rapidly disperse, and we have no foreseeable technology to remove sulfur from billions of cubic feet of water.	NEPA02
Sender Name (Submission ID)	Art Dale (42522)	
2437	With the experts, I perceive both a flaw in the model used and the lack of basic inputs into that model.	CR01, WR071, WR149, WR156, WR189
6750	The plan that projects no pollution seeping from the permanent mine site waste rock pile into the 100 mile swamp and that pups on the edge of the two mile wide tailings pile will capture 99.37 percent of seepage are based on substantiated assumptions. It is virtually certain that the amount of discharge into surrounding wetlands projected by PolyMet's plan is flawed and that the discharge will not meet water quality standards.	WET24, WR037, WR115
Sender Name (Submission ID)	Art Lind (18131)	
3453	You [anti-mining people] keep talking about 200 to 500 years of water treatment. It doesn't say that. It doesn't say the treatment will be 500 years. It says, "Treatment will be determined using measured results," which is the way the law is designed to responsibly handle it. The 200- to 500-year timeframes used in the SDEIS model represents the durations that models were run, not to predict how long treatment would be needed.	WR190

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Art Lind (18131)	
13507	You have to have good-paying jobs to support young families. Tourism? Yeah, we like tourism. Tourism wouldn't make a pimple on a mining job's behind when you compare the economics each of those jobs produces. On the horizon is the next era of mining and the top-paying jobs that will come with the development of one of the world's largest deposits of precious metals.	SO02
Sender Name (Submission ID)	ARTHUR (5936)	
1940	Most people do not realize the value that mining brings to their everyday life and the historical development of this country … They take for granted the conveniences as though they are picked from the sky when in fact most are derivatives of mining processes in one way or another.	NEPA05
1941	many tens of millions of dollars have been invested, not only by Polymet, but the State of Minnesota and the Federal Agencies to process the best environmental alternatives known in modern technology to be the best that we can be.	NEPA16
1942	Not to utilize this vast resource and the economic benefits they will provide and allow the metals to be mined somewhere in the world not as attentive as Minnesota is HYPOCRITICAL!	SO10
Sender Name (Submission ID)	Arthur Dorman (2997)	
12332	With unknown outcomes, it is essential for us to err on the side of caution, requiring total thoroughness in studying the matter, and total transparency in reports.	NEPA15
Sender Name (Submission ID)	Asher (54721)	
18582	Sulfide mining has never been done in Minnesota and threatens wetlands,rivers, lakes and streams across the Arrowhead Region of Minnesota,including Lake Superior and the Boundary Waters Canoe Area Wilderness.	WET24
18583	Acid Mine Drainage and heavy metal contamination have polluted waters inall other places where sulfide ore mining has occurred.	WR023
18585	I have grave concerns about this project's potential impacts on our region'snatural resources and public health, including: risks to water quality, lossof wetlands, harm to wildlife such as the threatened lynx and decliningmoose populations, and cumulative impacts from mining.	WI01
18586	The Federal land exchange of protected Superior National Forest land tofacilitate PolyMet's destructive and polluting open pit sulfide mine is not inthe public interest.	LAN01
Sender Name (Submission ID)	Astrid Yankosky (49973)	
12991	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Audrey Cullen (18300)	
12725	Who out of that governmental agency is going to be around in 500 years to make sure everything is good? Not one of us breathing at this moment is going to be here. Who is going to take care of the future generations?	FIN01
12726	There is frogs, birds, deer, fish, moose, lynx, cougars, skunk, raccoons, et cetera, et cetera, that all depend on land. Why are we able to go in and tear it apart for our inability to conserve anything as a people?	WI01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Audrey Haynes (10337)	
505	Throwing away the natural beauty, a large source of income and state pride, in favor of the temporary income from mining is foolish and shortsighted.	SO01
Sender Name (Submission ID)	audrey jiricko (44117)	
8061	From an economic standpoint, any short term gain for Polymet and addition of some jobs in the immediate future will be negated by longterm negative environmental and economic impact when the environment including something as precious as water quality is damaged.	SO01
8065	Heavy metals and toxic chemicals… will certainly impact the reproductive health of women living in the area as well as the development of embryos/fetuses… A lack of information regarding the specific pollutants may lead to catastrophic outcomes for individual women in the area.	HU03
8094	Overall, the project appears to focus on short term gain while ignoring significant negative long term impacts.	SO01
14902	More time is needed to investigate fully the potential outcomes for Minnesotans and the citizens throughout the world who travel to visit your beautiful state.	NEPA07
14903	What is the chance that decades from the mining of the desired material, the company will still be around to take responsibility and continue to try to clean up the surrounding area? History tells us not a chance.	FIN01
Sender Name (Submission ID)	audrey kramer (40083)	
6988	The company chosen to head this overwhelming project is not trustworthy. Tell them to look elsewhere for their mining projects.	PD23
Sender Name (Submission ID)	Audrey/Dennis M (39318)	
8048	PolyMet is a company with no mining experience and no substantial financial backing. The financial assurances for hundreds of years ate not addressed in the SDEIS. This must be corrected.	FIN01
8051	The computer model shows that the water seepage will pollute for at least 500 years and must be treated for the entire time. This is totally unrealistic to expect this to happen. PolyMet is asking to be allowed to run a 500 years experiment that has never been tried before.	PD29
8097	In addition the computer model is known to have been run with incorrect water flow information. The water flow was greatly underestimated requiring the analysis the be completely redone	WR003
Sender Name (Submission ID)	Audubon Minnesota (42897)	
4112	The entire Superior National Forest has been identified as an IBA…PolyMet proposes to exchange 6,650 acres of the Superior National Forest for private lands elsewhere in the region. Their mine would then be placed on the former public lands, destroying over 6000 acres of habitats of high biological diversity. Waste rock, tailings and open pit walls would pose a risk to the adjoining wetlands and waters for centuries, due to toxic metal leaching and acid drainage.	VEG02, WI02
4113	The St. Louis River, the major drainage from the proposed mine and processing site, borders large stretches of [the Sax-Zim Bog] IBA. Mercury, lead, arsenic, copper, nickel and other toxic metals that escape from the mining site and any water collection and treatment process will affect aquatic life and accumulate in birds and people who eat the fish or wild rice found in the river. This risk of toxic aquatic pollution will last for centuries.	WR111, WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Audubon Minnesota (42897)	
4132	The SDEIS modeled the "proposed action" with 200 years of active water treatment at the Mine Site and 500 years at the Plant Site. The SDEIS in numerous locations indicates uncertainty about the actual duration of needed active water treatment, but acknowledges it is expected to be "long-term." Tables and information in the SDEIS Water Modeling Data Package shows high sulfate levels, several times water quality standards in the collected seepage water at year 200 – indicating the need for treatment beyond this timeframe. Arsenic, lead, manganese, nickel, copper, and other toxic metals show similar exceedences, centuries after closure at the Plant Site. Many important facts such as these were not included in the actual SDEIS, obscuring important information needed by the public and agency decision-makers evaluating this proposal.	WR035, WR036
4133	The SDEIS acknowledges that some polluted water will not be captured for treatment – even under the best scenarios forecast in the SDEIS. Untreated seepage to the groundwater and surface water are noted in numerous instances in the SDEIS at the Mine Site, at the Category 1 waste rock dump, and at the Tailings Basin. The pit walls are another source of toxic leakage, particularly after the pits fill with groundwater following closure. These acknowledged sources of toxic runoff total tens of millions of gallons annually…The SDEIS provides no information about what pollutants and at what concentrations will be in the waters that will be captured and sent for treatment from the Plant and Mine sites.	WR002, WR035, WR070
4134	The SDEIS provides little information about the actual design, function and performance of the proposed "reverse osmosis" water treatment system, upon which so much depends to keep water discharges within standards.	WR143
4135	The SDEIS does not provide information on the constituents and concentrations of pollutants in the reject concentrate that contains the pollutants separated in the water treatment system.	WR147
4136	The SDEIS provides no information about the expected parameters of the water discharged from the water treatment systems to area waters.	WR147
4137	With centuries of toxic seepage generation from the mine site and waste piles, it is a near certainty that spills, leaks and discharges in excess of water quality standards will occur, creating a lasting risk to Minnesota's waters. PolyMet's proposed action asks Minnesotans to commit future generations to a significant, persistent pollution risk. The SDEIS obscures, rather than illuminates this risk, with important analysis not discussed in the SDEIS itself.Many important questions are left unanalyzed (e.g. how long will it take for tailings and waste piles and the pit itself to stop leaking waters contaminated beyond water quality standards?) or obscured in background reference documents.	WR086, WR195, WR202
4138	PolyMet's proposed mine anticipates creating centuries of water pollution and neglects to examine alternatives such as lined waste piles and underground mining (discussed later) which could reduce the risk of water pollution in excess of standards...The proposed action provides a near certainty that toxic water pollution will pose a perpetual risk to the St. Louis River watershed and downstream Lake Superior: it must be rejected in favor of the "no-action" alternative.	ALT01, ALT07, ALT13
4140	The mine plan proposes unacceptably large direct (912 acres) and indirect impacts (up to 7350 additional acres) on wetlands, primarily in and near the mine site. PolyMet proposes to mitigate only directly impacted wetlands, while merely monitoring the actual indirect impacts to nearby additional wetlands totaling more than ten square miles. They plan to leave actual details of any mitigation for indirect impacts to later permitting. This information must be included in the environmental review documents available for public review, because the impacts are extensive and significant, and the destroyed and damaged wetlands include rare and fragile types that are difficult, if not impossible to replace (e.g. globally rare tamarack bogs and swamps.)	WET01, WET02, WET05
4141	The SDEIS proposes that more than two-thirds of the mitigation for the 912.5 acres of direct wetland impacts take place outside the affected watershed. This indicates the inability of this company to find mitigation sites within the watershed. With up to 7350 acres of indirectly-impacted wetlands necessitating mitigation in the future, leaving the details and locations of thousands of acres of future mitigation for permitting is likely to lead to massive amounts of out-of-watershed mitigation, which is unacceptable. The SDEIS is incomplete without details of wetland mitigation for the range of indirect impacts estimated in the document.	WET01, WET03

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Audubon Minnesota (42897)	
4143	The SDEIS uses calculations of groundwater flow that have been shown to be grossly understated. Tribal hydrologists have been trying to bring this information to the attention of the cooperating agencies from within the process (SDEIS Section 8, MDO #7) while recent releases of internal documents, during the public review period, indicate agreement by DNR technical experts on this point. (Star Tribune, January 24, 2014.) The corrected information is vital to a fair review of the possible impacts of thisproject, as PolyMet's premise that pollution can be contained is built on the idea that nearly all contaminated waters can be collected and treated to water quality standards for centuries. The SDEIS must be rejected as insufficient because it does not contain proper groundwater flow calculations, and any resulting necessary changes to water collection and treatment systems.	WR003, WR017, WR049, WR128
4144	The SDEIS uses extremely optimistic assumptions about the ability of the tailings basin seepage collection system to intercept and divert for treatment contaminated surface and groundwater. The document postulates the capture and treatment of more than 99% of seepage during operations, and in excess of 98% during closure…a period of centuries. (SDEIS 5-159/160) This defies rational thought and actual experience. These optimistic assumptions allow the entire document to portray minimal impacts to downstream waters, wildlife and ecosystems from toxic water pollution. This unrealistic assumption fatally flaws the critical analysis of downstream impacts, necessitating the rejection of the SDEIS.	WR018, WR020
4145	The SDEIS avoids analysis of possible failure scenarios for tailings dams and waste rock stockpiles that will become permanent landscape features. Instead the SDEIS postulates that perpetual regulation applying "design and safety requirements" and "adaptive management" to waste piles totaling hundreds of millions of tons of rock, negate that need for foresight. (SDEIS Section 5-546) This is an entirely inappropriate expectation of perpetual regulation, and transfer of the costs of remedial response to future generations that will see no benefits, only costs, from this project. The avoidance of this analysis in the SDEIS renders it incomplete and inadequate.	GT15
4147	The SDEIS avoids discussion of the detailed performance of the proposed active water treatment systems. The lack of information about design and expected performance, operational effectiveness, and contingency plans for water treatment when the plants are down for maintenance, repairs or replacement is critical. The premise of this document is that "pollution of waters and ecosystems will not happen because we will intercept and treat to water quality standards more than 98% of contaminated runoff." The SDEIS lacks detailed information to support this critical assertion. Furthermore, without detailed information on water treatment, it is impossible to estimate long-term funds needed for the operation of these facilities for centuries into the future. The SDEIS cannot be considered adequate nor complete without all of this vital information.	WR017, WR018, WR070, WR128, WR143, WR144
4150	The SDEIS does not examine a number of alternatives which would potentially reduce environmental impacts...The 526 acre permanent, category 1 waste rock pile should be lined to reduce the seepage, and the potential for toxic runoff.	ALT07, ALT13
4151	The SDEIS does not examine a number of alternatives which would potentially reduce environmental impacts...The tailings basin should be lined to provide more certainty that the seepage to surface and groundwater is minimized.The projection in the SDEIS of collection of in excess of 98% of leakage without a liner would be somewhat more credible if a liner were in place.	ALT10, ALT13
4153	The SDEIS does not examine a number of alternatives which would potentially reduce environmental impacts…Underground mining should be examined as an alternative to reduce the impacts to wetlands, and associated habitats and species that depend upon those habitats, and as a means to internalize the costs of mining (transferring impacts from public natural resources, to company balance sheets.) The rejection of a full analysis of this feasible alternative is based solely on a constrained economic analysis (did not consider mining the full ore body, used point-in-time commodity values and mining costs, etc.) by PolyMet consultants which appears designed to "prove" this alternative is economically unfeasible. We agree with the Tribal position regarding the inadequacy of the cooperating agency review, and premature elimination of this alternative in SDEIS Section 8, MDO #5.	ALT01, ALT13

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Audubon Minnesota (42897)	
4155	The SDEIS is lacking in planning for reasonable contingencies and foreseeable problems which the project might face both during operations and after closure…[including] Extreme rainfall events, such as have been experienced in the region recently, which go beyond the traditional 100 year and 500 year calculations. Impacts to the water collection and treatment systems of such events should be considered and described. What effect will such extreme events have on the concentrated pollution contained in the water treatment pond, or on the reject concentrate from the reverse osmosis system? What are the plans to prevent toxic pollution from escaping into surrounding waters?...Breakdown and failure of any of the critical components of the water collection and treatment system…Contingency plans if the water collection system does not collect upwards of 98% of seepage from the tailings basin…[and] Plans for remediation of portions of the Category 1 waste rock pile if they do produce acid drainage due to inaccurate characterization of the rock, or natural variability of sulfate in the waste.	PD22
4156	The SDEIS does not adequately describe the content and fate of the "reject concentrate" from the reverse osmosis system upon which the claim is based that no water quality standards will be violated for centuries into the future. This reject concentrate will presumably contain a high concentration of toxic metals and sulfates – and be of a large volume. The SDEIS is incomplete and insufficient without this information.	WR143
4157	The SDEIS (Section 5-202) asserts that contact with Duluth Complex rock actually decreased mercury concentrations in rainfall, due to adsorbtion, going on to state that, "For these reasons, mercury released from waste rock and ore at the Mine Site is not expected to be a constituent of concern in groundwater seepage. The primary NorthMet Project Proposed Action-related source of mercury to the Partridge River would be the WWTF discharge." ...We believe that this understates the risk of mercury release, and because the mercury is adsorbed and not absorbed, several important issues come into play: [1] adsorption sites fill and, once filled, mercury will flow through the system unimpeded, and [2] adsorption sites are unstable – situations such as changes in pH could cause a significant 'dump' of mercury from the adsorption sites, causing significant down-gradient pollution. This needs to be further considered; the SDEIS is incomplete without this analysis.	MERC20
4162	The St. Louis River, the major drainage from the proposed mine and processing site empties into [the Saint Louis River Estuary] IBA...Mercury, lead, arsenic, copper, nickel and other toxic metals that escape from the mining and processing sites and any water collection and treatment processes will affect aquatic life and accumulate in birds and people who eat the fish or wild rice found in the river. Sediments of the estuary could remain permanently polluted, with centuries of toxic pollution expected from the mining site.	WR111, WR115
4188	The SDEIS in several places states that, "mercury loadings are predicted to increase slightly in the Embarrass River (3 percent) as a result of the NorthMet Project Proposed Action, but would be offset by a larger decrease (5 percent) in the Partridge River, resulting in a net decrease in overall mercury loadings (0.6 grams per year) to the St. Louis River as a result of the NorthMet Project Proposed Action." Assuming this is "net effect" assertion is true, the Clean Water Act does not allow "trades" wherein one water body has increased mercury that is proposed to be offset somewhere else. Increased mercury cannot be allowed in the Embarrass River. The proposed action must be adjusted to propose a manner to eliminate the increase in mercury loading to the Embarrass River.	WET18
4190	Wildlife Exposure and Sensitivity to Mercury: The SDEIS quotes portions of a document (Judd 2013) that discusses lesser levels of sensitivity to mercury in Bald Eagles and river otters, while neglecting to examine more thoroughly area wildlife species which are sensitive to mercury: the Common Loon and mink. (SDEIS Section 5-368)...It is misleading to discuss in depth the lesser sensitivity of some species to mercury toxicity, while neglecting a more thorough consideration of such toxicity to species such as Common Loon and mink. The SDEIS is incomplete without further consideration of the impacts of mercury on sensitive species.	WI01, WI04

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Audubon Minnesota (42897)	
4192	The proposed mine will destroy 1718 acres of "Sites of High Biodiversity Significance" according to the Minnesota County Biological Survey. It is expected to destroy populations of nine plant species of state-listed Endangered, Threatened or Special Concern (ETSC) and "indirectly" affect two addition ETSC species. Seven hundred acres of "imperiled-vulnerable" or "vulnerable" native plant communities are included in this total, with the 495 acres of black spruce-Jack pine woodlands slated for destruction representing 20% of this community within the Laurentian Uplands subsection. (SDEIS 5-341)	VEG01, VEG02
4193	This is an unacceptably large impact [of 1718 acres of Sites of High Biodiversity Significance, nine state-listed ETSC, indirectly two ETSC, etc.] that could be avoided, were PolyMet to consider underground mining as an alternative.	ALT01, ALT13, VEG01, VEG02
4194	PolyMet's proposed mine will destroy more than two square miles of designated critical habitat for the federally-listed Canada Lynx. It is stated that this habitat is unlikely to be restored to suitable habitat conditions for a period of over twenty years after mine closure. (SDEIS 5-364,365.)	WI01, WI02
4195	The SDEIS is incomplete because it fails to seriously consider underground mining which would avoid most of these impacts to this federally-listed species [(i.e., the Canada Lynx)].	ALT01, ALT13, WI01
4197	Moose are in trouble in Minnesota, with populations statewide and regionally on a steep downward trajectory. Moose are a state species of Special Concern. The mine proposes destruction of 2775 acres of key Moose habitat types.	WI01, WI02
4622	The SDEIS is incomplete because it insufficiently considers (hardly mentions) impacts to this important species [Moose], and does not consider alternatives to reduce the loss of Moose habitat, such as underground mining.	ALT01, ALT13, WI02
4623	"Financial assurance information to safeguard future taxpayers from financial liability is lacking in detail and provides no basis for the few figures cited in the SDEIS. PolyMet provides a few numbers in the SDEIS, asserting, for example, that long-term financial needs to run post-closure monitoring and water treatment systems centuries into the future might require $3.5-6 million annually (SDEIS 3-138). The details of how these numbers were calculated, however, are missing from the document! The fact that the estimate is provided, indicates that the assumptions and calculations exist – they are not provided for public review, however.Small changes in assumptions about discount rates, inflation and rate of return on invested surety assets could make a difference of one or more orders of magnitude over the timeframe that PolyMet's site is likely to need monitoring and care. It is not acceptable to maintain that this information is not required now, and will be provided only during permitting. This is a grievous omission given the hard-to-believe reliance on active water treatment for centuries to maintain water discharges within water quality standards. This omission alone is grounds for declaring this SDEIS incomplete and insufficient, and was cited as one of the reasons the EPA ranked the previous Draft Environmental Impact Statement "Environmentally Unsatisfactory-Inadequate."""	FIN05, FIN08, FIN10, FIN13
4624	The SDEIS also does not describe how mitigation of thousands of acres of indirect wetland impacts would be financed. Costs of mitigation on this scale will require millions of dollars. The SDEIS has not proposed any mitigation for these impacts, nor financial assurance for wetland mitigation should it be required in the future. The lack of this information is a serious inadequacy of the SDEIS, and raises the concern that the state will fail to achieve its stated wetland conservation goal of "no net loss."	FIN11, WET01
4625	The United States Army Corps of Engineers (Corps) should reject the Section 404 wetlands permit for the following reasons...PolyMet proposes unacceptably large direct (912 acres) and indirect impacts (up to 7350 additional acres) on wetlands, primarily in and near the mine site. They propose to mitigate only directly impacted wetlands, with two-thirds of the proposed mitigation to take place out of the affected watershed.	COE01, COE02, WET01, WET03

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Audubon Minnesota (42897)	
4626	The United States Army Corps of Engineers (Corps) should reject the Section 404 wetlands permit for the following reasons...PolyMet proposes only to monitor the actual indirect impacts to nearby additional wetlands totaling more than ten square miles; leaving actual details of any mitigation for indirect impacts to later permitting or future regulatory actions. The SDEIS and application for a 404 permit is incomplete without information on how such large indirect impacts to wetlands at the headwaters of the St. Louis River system would be mitigated.	COE02, WET01
4627	The United States Army Corps of Engineers (Corps) should reject the Section 404 wetlands permit for the following reasons...The wetlands that would be destroyed by direct dredging or filling and those that would be damaged by indirect impacts are especially high quality systems. “Approximately 92 percent of the wetlands in the Mine Site are of high overall wetland quality..." (SDEIS 4-157) The DNR and USFS conducted ecological evaluations of the area in the 1990s: both concluded that a large portion of the Mine Site, called the “100 mile swamp” was of high quality because of such features as watershed integrity, the size of its wetlands, the presence of riverine ecosystems, and the large amount of interior forest present.	WET19
4628	The United States Army Corps of Engineers (Corps) should reject the Section 404 wetlands permit for the following reasons...The SDEIS acknowledges that, “The majority of wetlands that would be affected by the NorthMet Project Proposed Action would be ‘difficult to replace’ (coniferous bog, open bog, coniferous swamp, and hardwood swamp)” (SDEIS 5-313)….	COE03, WET05
4629	The United States Army Corps of Engineers (Corps) should reject the Section 404 wetlands permit for the following reasons...The SDEIS fails to seriously examine underground mining as an alternative to reduce the impacts to wetlands, and associated habitats and species that depend upon those habitats. It acknowledges that an underground mine would “reduce effects on wetlands, vegetation and wildlife habitat… (and would) reduce the scale and duration of potential water quality effects.” (SDEIS 3-150) Despite this, the rejection of a full analysis of this feasible alternative is based solely on a constrained economic analysis (did not consider mining the full ore body, used point-in-time commodity values and mining costs, etc.) by PolyMet consultants which appears designed to “prove” this alternative is economically unfeasible. We agree with the Tribal position regarding the inadequacy of the cooperating agency review, and premature elimination of this alternative in SDEIS Section 8, MDO #5.	ALT01, ALT13
4630	The United States Forest Service (USFS) should reject the proposed land exchange as “not in the public interest” for the following reasons...The proposed land exchange circumvents a long-standing prohibition on surface mining in the area. “This project would involve open pit development of privately held reserved and outstanding mineral rights where the Forest Service manages surface resources. Most of the lands involved in the Project were acquired by the United States under the authority of the Weeks Act which restricts the Forest Service from allowing large surface mining as proposed by PolyMet.” (Superior National Forest website) The lands proposed for exchange would not carry this protection, resulting in a loss of protection for USFS lands, and is therefore not in the public interest.	LAN01, LAN02
4631	The United States Forest Service (USFS) should reject the proposed land exchange as “not in the public interest” for the following reasons...The lands proposed for exchange, with one exception, do not come with mineral rights. Without the transfer of both surface and subsurface rights, nothing will prevent a continuing “shuffling” of public ownership via land exchange as severed mineral rights are developed. This is unacceptable and not in the public interest.	LAN04
4632	The United States Forest Service (USFS) should reject the proposed land exchange as “not in the public interest” for the following reasons...The lands proposed for exchange include more than two square miles of critical habitat for Canada Lynx, a federally-threatened species. The result of this exchange will be the destruction of this habitat, in exchange for existing habitats in the region: a net decrease in habitat for the Lynx and many associated species. This is not in the public interest.	WI01, WI02
4633	The United States Forest Service (USFS) should reject the proposed land exchange as “not in the public interest” for the following reasons...The land exchange would result in a net loss of 2775 acres of moose habitat, a species that is in sharp decline in the region. The SDEIS avoids analysis of the impacts to this important species (state listed as of Special Concern). This is not in the public interest.	WI01, WI02

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Audubon Minnesota (42897)	
4634	The United States Forest Service (USFS) should reject the proposed land exchange as "not in the public interest" for the following reasons...PolyMet Mining Corporation refuses to consider a feasible alternative to their proposed mine plan, which would negate the need for this land exchange, leave most of the surface estate intact and available for habitat for wildlife, and maintain most of the hydrological functions of the wetlands and river systems: underground mining. The SDEIS rejects this technically-feasible mining system on the basis of an unsupported "economic analysis" which presents conclusions, without assumptions and methodologies. This renders the SDEIS incomplete and insufficient, and negates the justification for the USFS to consider a land exchange.	ALT01, ALT02, ALT06, ALT13
Sender Name (Submission ID)	August W Haugan (57230)	
17176	I am concerned that leaching from the sulfides in the pit, waste rock, and tailings from the proposed PolyMet copper-nickel mine cannot be effectively contained after the mine is decommissioned.	WR129
17177	Furthermore, if permits are approved this could set a precedent for possible approvals of the Twin Metals projects and the leaching from those projects, could be disastrous for the BWCA watershed.	WR198
Sender Name (Submission ID)	Avery Jorgenson (54343)	
17453	Polymet Mining seems to have a very set plan in place. I think that this plan is a good well thought plan because they are doing the best they can to not change to much of the surroundings. Personally I think the copper-sulfate mining will benefit MN. I think that it will benefit us by helping create a better environment and also finding better ways to get the resources we need.	PD28
17456	I agree with the land exchange. I agree because I think that Polymet is trying their best to make it fair but still get the resources they need to continue with this project. The Net will gain or increase most of the needed land and material from this land exchange.	LAN11
17457	This process will also affect the cultural resources greatly. Ways being, fish, plants, and animal species being affect either positive or negative. This project will also affect the people that are living in this area.	CR01, CR05
Sender Name (Submission ID)	B Erickson (38678)	
11897	That beautiful region of our state generates 1.6 billion in tourism. Let's protect and preserve a national treasure... Let's not gouge away our future recreational areas.	SO02
Sender Name (Submission ID)	B Graves (43114)	
10177	Although Minnesota requires mining companies to provide financial assurances to fund cleanup if the company goes bankrupt or is otherwise unable to perform the work itself, it is very difficult to predict the extent of the pollution and resultant cleanup costs. Also, assets of bankrupt mining companies are often awarded to other creditors.	FIN01
10205	Minnesota law requires PolyMet to put up "financial assurance," a damage deposit that is supposed to cover the costs of cleaning up the site and treating pollution. However, in the PolyMet mine plan, there are no details of the amount and type of damage deposit adequate to cover the cost of treating polluted water for hundreds of years.	FIN05, FIN08

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	B Graves (43114)	
17798	One peer-reviewed study found that, while all projects that were reviewed predicted they would not pollute, at least 76 percent of the time they still did. The same study found that 89 percent of mines that have polluted said they would not. It is this history that is one of the biggest reasons for worry about proposals to bring the mining to Minnesota. The industry says they won't pollute our prized waters, but they've said that before, and they've been wrong more often than not.	PD26
17805	The Minnesota legislature needs to first pass a bill similar to Wisconsin's "Prove It First" law that, before opening a mine, a company must be able to point to a similar mine to what it is proposing that a) has operated for 10 years without polluting and b) has been closed for 10 years without polluting.	PER25
17814	Wild rice is a significant resource for Minnesota tribes. Even low levels of sulfates are proven to kill wild rice stands, a fact recognized by Minnesota's protective wild rice sulfate standard. There are wild rice beds downstream of PolyMet. PolyMet must show it would not increase sulfate concentrations in these areas. However, it fails to do so.The mine plan inaccurately describes wild rice waters, understating the area that supports stands of wild rice.	VEG04, WR156, WR157
17816	The mine plan claims to reduce sulfates, but that assumes that expensive water treatment will continue for hundreds of years. Millions of gallons of untreated polluted water will escape every year, and the mine plan predicts an increased chance that water exceeding the sulfate standard will be released at times, years after closure.	WR107, WR128, WR156
17817	It's not just wild rice that suffers from too much sulfate. The toxic reaction that occurs in the much around the plant's roots can adversely affect all types of aquatic flora.	AQ13
17818	Moose have declined dramatically over the last decade. Minnesota suspended the moose hunting season and added moose to its "Special Concern" list in 2013. That listing should trigger analysis of Polymet's impact on moose habitat, but that analysis is lacking. Thousands of acres of moose habitat would be destroyed at the PolyMet mine site, and moose have been observed there. Protecting moose is a particular concern for tribal members, and there is no analysis of the cumulative impact on moose from the PolyMet project and other habitat disruptions.	WI01, WI02
17821	The Canada Lynx is listed as a threatened species under the federal Endangered Species Act. There are only 200 lynx in Minnesota. Lynx have been tracked on land adjacent to the PolyMet mine site, and lynx sign have been found on the site as well. PolyMet would destroy 1,450 acres of designated critical habitat for the Canada Lynx, habitat essential to the conservation of a threatened species. Fragmentation and loss of habitat puts the survival of the Canada Lynx in jeopardy.	WI01, WI02
17823	An important wildlife travel corridor near the PolyMet proposal risks being lost due to mining activity, and increased truck traffic may kill lynx along the road linking the mine and plant sites. Despite this, the PolyMet mine plan fails to analyze the cumulative impact on lynx from the proposal and other nearby projects.	WI01, WI03
17826	) PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. PolyMet would dig up nearly 1,000 acres of high value peat bogs, part of the 100 Mile Swamp, a critical habitat for many plants and animals. This wetland is designated an Area of High Biodiversity Significance by the Minnesota Biological Survey.In addition, over 6,000 acres of wetlands could be damaged or destroyed by PolyMet changing the water flow. When you dig a deep hole in the ground, it fills with water. That water would come from surrounding wetlands, and could dry out and destroy them. PolyMet is required to replace lost wetlands, but they understate the area of wetlands they would affect, they fail to replace the unique habitat offered by peat bogs, and they propose replacements that are far from the mine site.	WET05, WET19, WET23
17838	PolyMet's electricity supplier, Minnesota Power, got 85% of their power from coal in 2013.	AIR02

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	B Graves (43114)	
17845	Asbestos-like fibers are in the rocks at PolyMet. The nearby Northshore Mine was required to stop dumping their tailings in Lake Superior in the 1970's due to similar fibers. Studies show miners who worked in the Northshore and LTV mines have higher levels of mesothelioma. Extremely small fibers from asbestos-like minerals are being studied by the University of Minnesota to see if they caused some of the higher levels of mesothelioma. PolyMet would produce mineral dust smaller than what is regulated and has been studied. It is not known if these fibers would cause harm to workers or nearby residents since they haven't been studied adequately. PolyMet admits that "the potential exists for the release of amphibole mineral fibers from the proposed operations, which could pose a potential public health risk of uncertain magnitude."	AIR04
17846	The PolyMet water computer model assumes that there is little groundwater moving through the site. The result is that the model shows water moving very slowly, and pollutants sticking to soil instead of moving with the water. DNR hydrology data show that the PolyMet water model significantly understates the amount of water flowing in the nearby Partridge River. If this information is wrong, predictions about water pollution are in question. If the model is incorrect, and there is more water flowing through the site than it assumes, the polluted water from pits and waste rock will move more easily through the soil, and reach lakes and rivers more quickly. The water could also carry more pollutants than the PolyMet model predicts.	WR047, WR062, WR091, WR165, WR171
17850	PolyMet is proposing something Minnesota has never allowed before. The company's own computer models show that hundreds of years after the mine closes, water seeping into groundwater and flowing into streams and rivers at the site will be polluted with heavy metals and sulfates. Unless all of this water is captured and treated, the mine will pollute surrounding waters.	WR115
17852	Minnesota law requires that a closed mine site be "maintenance free," but PolyMet's mine plan calls for hundreds of years of monitoring and expensive water treatment. Worse, these models don't even show that the pollution stops after 500 years. They just stopped modeling at 500 years. In other words, the pollution could go on for even longer.	PER04
17856	Minnesota has never permitted a mine that would require hundreds of years of expensive water treatment. This public comment period is the best chance for the public to weigh in on whether the financial assurance required of PolyMet would be adequate, but there is only a brief mention of it in the mine plan.	FIN13
17859	There are several alternatives that should be considered and evaluated in the PolyMet mine that are simply discarded. These include whether the PolyMet proposal could operate as an underground mine instead of an open pit, and whether all of the waste rock created by PolyMet should be backfilled into the mine pits after closure.	ALT01, ALT03, ALT06
17869	Recognize Glencore as a responsible party for permitting.	PER02
Sender Name (Submission ID)	B H Flora (45472)	
11482	PolyMet would require hundreds of years of expensive treatment of polluted wate	WR128
11483	PolyMet would destroy thousands of acres of habitat used by threatened moose and lynx	WI02
11485	PolyMet's mine plan lacks analysis of human health impacts from mercury and asbestos-like fiber	HU01
11487	PolyMet's studies contain inaccurate water data that need to be corrected .	WR003, WR052, WR086, WR091, WR189

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	b wagner (39540)	
6333	Any and all profit from the mine [should go] into a trust fund to pay for any damages and clean up that is caused by the mine. Once the water and any other environmental damage(s) is fixed, then PolyMet can have what's left in the trust.	FIN01, FIN08
Sender Name (Submission ID)	B. J. Alexis (35452)	
13826	West Virginia, North Carolina, how many others have been damaged for years to come due to some form of mining or chemicals for mining. That should provide more than enough evidence to prevent any mining on or near the Great Lakes.	WR023
Sender Name (Submission ID)	Backcountry Hunters & Anglers (50932)	
7856	We respectfully request (for the reasons detailed in the report below: "Hunters & Anglers Question Northern Minnesota Sulfide Mining Proposals") that you reject the PolyMet Mining NorthMet SDEIS and deny permits (i.e., a permit to mine and a Section 404 wetlands permit) that would allow PolyMet's open-pit sulfide mine to irrevocably degrade Minnesota's waterways and watersheds for centuries, if not indefinitely.	PER35
7862	The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater without being treated.	WR070
7863	The plan for at least 500 years of active water treatment violates Minnesota Rules (6132.3200) that call for the mine to be left maintenance free at closure. Over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material.	PER04
7864	A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years.	PD04, PD11, PD35
7866	And the proposed mine plan does not protect Minnesota taxpayers. The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance and a "damage deposit" the company provides are not outlined in the revised mine plan.	FIN01, FIN08, FIN10
7867	The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuries of costly water treatment, or how the public will be protected from liability.	FIN01, FIN05, FIN10
7868	PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps will last for at least 500 years and pollution seeping from mine pits into the watershed "would continue in perpetuity."	WR035
7869	This short-sighted sulfide mining proposal amounts to gambling with the future of our Great Outdoors, and Minnesota's nearly 2 million hunters and anglers—and the bait shops, sporting goods stores, resorts, fishing guides, outfitters, gas stations and hotels that depend on their business—won't stand for it.	SO04
7873	The Minnesota chapter of Backcountry Hunters & Anglers (BHA) is concerned about proposed sulfide mining operations in northern Minnesota. The two foreign-owned sulfide mining operations include PolyMet's NorthMet Project mine near Hoyt Lakes and the Duluth Metals mine adjacent to the Boundary Waters Canoe Area Wilderness (BWCAW).	WI13

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Backcountry Hunters & Anglers (50932)	
7879	Much of the debate surrounding sulfide mining revolves around whether companies have adequate bankruptcy-proof financial assurances in place to cover cleanup costs when (not if) acid-mine drainage (AMD) occurs.	FIN01
7880	Copper-mining operations, sometimes called “hard-rock mining” or “sulfide mining,” have left toxic scars across the country, with acids and sulfides leaching into streams, contaminating rivers and lakes, killing fish, and leaving dead zones. And PolyMet says acid-mine drainage (AMD) will be occurring at its proposed Hoyt Lakes mine “for up to 2,000 years.” Less than 1% of the ore would be produced as copper, etc., with waste rock comprising the remaining 99%.	PD01, WR023
7884	Mining of these ores is economically marginal, which is why they haven’t been mined previously. Such mining is highly energy intensive, making the industry susceptible to market fluctuations and vulnerable to bankruptcy.	PD25
7888	Former state Rep. Frank Moe is a guide and outfitter on the North Shore. Moe says when his old friends in the State Legislature consider whether to grant a permit to PolyMet to operate a hardrock sulfide mine, they should consider the other jobs at stake. Not just a couple hundred mining jobs, but jobs like his: there are 30,000 people working in the Northwoods recreation economy. Moe asks the legislators and commissioners whether tourists will still come north if the rivers and lakes are polluted.	SO02
7893	[Former state Rep. Frank Moe] wants PolyMet to make upfront financial assurances that will pay for any and all cleanup costs. He doesn’t want taxpayers stuck with the bill, but Polymet says the upfront assurance is a deal-breaker	FIN01
7898	PolyMet says new technology will virtually eliminate the threat of acid-mine drainage. If that’s the case, why won’t they provide up-front financial guarantees? Why is this a deal-breaker if there’s no concern about creating a toxic waste site? Answer: They must not believe their own rhetoric.	FIN01, PD25, PD32
7900	The very lifeblood of northern Minnesota’s economy is its healthy watersheds and waterways, but PolyMet’s proposed mine waste will be leaching sulfuric acid into those same northern Minnesota waterways “for up to 2,000 years.” Is 20 years of a couple hundred sulfide mining jobs worth 2,000 years of poisoned waterways and watersheds that will cost the rest of us millions, and possibly billions, to clean up?	SO01
7901	It’s no surprise that some of the early warnings have been sounded by resort owners, outfitters and township boards, who rightfully worry that the encroachment of a major mining district into the heart of the Superior National Forest near the Boundary Waters Canoe Area Wilderness (BWCAW) could fundamentally alter the tourism industry. The Stony River Township Board of Supervisors in Lake County passed a resolution rejecting sulfide mining. The township is located in the cross hairs of intense sulfide mining interest at the edge of the BWCAW.	SO02
7903	Minnesotans are beginning to realize that the economic revival touted by mining boosters is nothing short of wishful thinking. Mining has historically always been a boom and bust industry, and in the last 20 years sixteen hard rock mines declared bankruptcy. This devastates local economies dependent on the mining industry and forces taxpayers to cover the enormous cost of cleanup and restoration.	SO02
7904	And the jobs that mining companies offer will not bring prosperity. If mining companies’ promises were true, northern Minnesota would be the wealthiest part of the country after some 130 years of iron ore mining in the region.	SO02
7908	Fishing and hunting annually contribute more than $190 billion to our nation’s economy, without turning waterways and watersheds into lifeless Superfund sites. Businesses that provide services and products to sportsmen–everything from guide and outfitter services to sporting goods stores, motels, grocery stores and gas stations–are the lifeblood of many rural communities.	SO02

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Backcountry Hunters & Anglers (50932)	
7925	The headwaters of two internationally important water resources, Lake Superior and the Boundary Waters Canoe Area, are found here, along with over 10,000 lakes and countless streams, rivers, and wetlands. In terms of acid-mind drainage (AMD) risk, you could easily argue this is one of the worst places on the planet for a sulfide mine.	WR001, WR111
7928	No sulfide mining should be permitted in Minnesota without genuine escape-proof assurances that the mine operators will be held fully accountable for any and all environmental harm they cause. Mining companies have compiled a long record of promising safe practices, breaking those promises, and then shifting the costs of dealing with the damage onto taxpayers.	FIN01
7929	As Bob Tammen, a BHA volunteer (and former miner) from Soudan, said: “The risks to taxpayers cannot be overstated. There’s no profit in operating clean-up at closed mines. Makes a lot more sense for parent companies to strip the subsidiary of assets and then file for bankruptcy, letting the rest of us pick up the bill.”	FIN01, FIN10
7933	we urge you to help ensure that no sulfide mining is permitted in Minnesota without genuine, escape-proof assurances that the mine operators will be held fully responsible for any and all environmental harm they cause.	FIN01
16452	In northern Minnesota, the underlying geologic complex consists of low-grade, highly disseminated metals which are very costly to extract, and over 99% of the mined material would be “waste.” … Mining less than 1% sulfide ores requires blasting, crushing and grinding of rock, leaving behind tons of waste rock and tailings that will leach acid-mine drainage (AMD) and toxic heavy metals into the watershed.	WR070
16456	“Mining without harm” and “environmentally safe mining” may sound great, but there is zero evidence to back up the claim that sulfide mining can be done without causing devastating watershed pollution.	PD03, WR023, WR195
16464	“In Minnesota, the fishing industry alone supports 50,000 jobs and recreational fishing brings in $3 billion a year,” adds Minnesota BHA vice-chair Erik Jensen, “which would be in jeopardy when acid-mine drainage (AMD) leaches into creeks, streams, rivers and watersheds, eventually ending up in Lake Superior. In the 1990s, acid drainage from the Formosa Mine polluted streams in Oregon and reduced the fish population by 90 percent.”	LU06, SO02
Sender Name (Submission ID)	Bailey Rehnberg (39376)	
6347	Drainage and toxic run-off into the St. Louis River and ultimately Lake Superior is both a hazard to local inhabitants and a dangerous long-term decision. Water has become one of the most precious resources in the world and we must recognize both its crucial importance and its finite nature.	WR111
6348	After 20 years of mining, the taxpaying citizens of Minnesota deserve a detailed financial plan for how Poly Met will ensure 500+ years of water treatment. The fact that these assurances have not made it into the SDEIS scares me as a Minnesota resident and tells me that this company is not looking out for our best interest.	FIN13
6349	this mine would set a horrific precedent for both the health of Minnesota's wildlife and wilderness areas across the country. Please do not allow Minnesota to be part of this short-term economic project that will create pollution for hundreds of years to areas of beautiful and precious wilderness.	WI04
Sender Name (Submission ID)	Banny Lesar (42547)	
15615	I think that the SDEIS properly addresses all concerns & shows that the extraction of the minerals by Polymet can be & will be done in an environmentally sensitive manner & the permitting process needs to proceed so that they can start production.	PER34

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Barb Cooper (52181)	
13348	The money for any potential cleanup after mining needs to be in a secure financial institution BEFORE the mining starts.	FIN08
16234	The “what ifs” on toxic effects to water are still unknown and cant be fixed quickly once it starts to happen	WR129
Sender Name (Submission ID)	Barb Landes (43239)	
15812	The Environmental Impact study has not adequately addressed the elevated levels of sulfate and metals such as copper, cobalt, and nickel. The potential presence of mercury is also a threat to water based organisms.	WR107, WR108
15813	The amount of wetlands at risk (913 acres) is too great to warrant the minimal benefits of the project.	WET24
15814	The minimal number of jobs promised by this project is not worth the permanent damage likely to be done to the natural resources of this area. … The minimal compensation promised for the workers to be hired is not worth the damage likely to be done to the natural resources of this area.	SO01
Sender Name (Submission ID)	Barb LaVigne (39319)	
8121	We can not gamble our future for the promises of questionable environmental protection and short term jobs.	SO01
8124	Clean water is the basis of our economy in NE Minnesota. PolyMet's plan puts my business at risk.	SO02
Sender Name (Submission ID)	Barb Swanson (11360)	
844	[The NorthMet Project]will have unacceptable environmental impacts … in the sulfide-bearing Duluth Complex from the Boundary Waters to beyond Lake Superior.	CU01, WR024
Sender Name (Submission ID)	Barb Wiklund (47376)	
12271	I believe that the SEIS had been thoroughly prepared and reviewed and demonstrates that industry and environment can co-exist and thrive!	NEPA16
Sender Name (Submission ID)	Barbara A. Haack (21171)	
1944	The main jobs are to be given not to Minnesotans but to imported professionals therefore providing only minimum income for the people of our state.	SO06
1945	Poly Met mining experience of this type is limited therefore Poly Met could end up losing money and filing bankruptcy leaving the tax payers of Minnesota to pay the bill for all clean-ups	FIN01
16252	Permitting this type of mining operation opens the door to other companies who can use this permission to say, "You granted permission before, how can you refuse us?"	CU04
Sender Name (Submission ID)	Barbara Adams (28242)	
10888	Any potential gain from jobs or what the industry provides must be offset by the cost and loss it could potentially cause.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Barbara Adams (28242)	
10889	If only those PR-like proposals and income/jobs charts and graphs by companies were mandated to show costs for clean-up and recovery, there would be a very different presentation and bottom line. And a very different legacy that politicians would be asked to make by signing any approval this PolyMet project.	PD25
Sender Name (Submission ID)	Barbara Bottger (14850)	
13803	[t]his is about doing the right thing to create the world we want for future generations. That means working towards changing the way we manufacture goods that have been destroying our natural resources.	NEPA06
Sender Name (Submission ID)	Barbara Crow (11547)	
2502	It's even more important for our future. I don't believe that PolyMet or the MN DNR or State of MN will be able to protect our watershed from the tailings leaching for 500 years+! The risk to our watershed does not justify the benefit of jobs for 20 years.	FIN01, FIN10, WR037, WR115
2502	It's even more important for our future. I don't believe that PolyMet or the MN DNR or State of MN will be able to protect our watershed from the tailings leaching for 500 years+! The risk to our watershed does not justify the benefit of jobs for 20 years.	SO01, WR195
Sender Name (Submission ID)	Barbara Curphy (19963)	
1559	Please reconsider the continuation of this EIS and the project until we can comfortably say this mining will not now or ever damage our beautiful land and water.	LU06
14842	I am very concerned about the lack of knowledge of this type of mining. What kind of clean up will be needed. The amount of sulfuric acid into the ground water. The 500 year plan for clean up???	PD01
Sender Name (Submission ID)	Barbara Durbin (42822)	
7289	Projected mercury emissions, degraded wildlife habitat, damage to wild rice stands, and the potential for long-term acidification of our streams, lakes, and groundwater make this a dangerous project.	VEG04, WI02, WR001, WR156
7289	Projected mercury emissions, degraded wildlife habitat, damage to wild rice stands, and the potential for long-term acidification of our streams, lakes, and groundwater make this a dangerous project.	WR018, WR020, WR117
7290	We depend on clean water for recreation, fishing, and tourism. According to the Minnesota Department of Revenue, in 2011 the tourism in Northeastern Minnesota generated over 700 million dollars and provided private sector employment to 16,000 people. Any denigration of our natural resources would put this money at risk.	SO02
7290	We depend on clean water for recreation, fishing, and tourism. According to the Minnesota Department of Revenue, in 2011 the tourism in Northeastern Minnesota generated over 700 million dollars and provided private sector employment to 16,000 people. Any denigration of our natural resources would put this money at risk.	SO02
7291	Demanding full financial assurance in the form of a full bond against potential cleanup costs should be a minimum requirement before proceeding with any new, high-risk mining…	FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Barbara Durbin (42822)	
7291	Demanding full financial assurance in the form of a full bond against potential cleanup costs should be a minimum requirement before proceeding with any new, high-risk mining; however, even that would still not safeguard our waters from contamination.	FIN08
18236	Polymet's mining plan is an unproven process, proposed by a junior mining company with no current operation to evaluate. They offer us only theoretical models with no real world testing.	PD23
18236	Polymet's mining plan is an unproven process, proposed by a junior mining company with no current operation to evaluate. They offer us only theoretical models with no real world testing.	PD23
Sender Name (Submission ID)	barbara erickson (46649)	
9207	I am opposed to a foreign company mining on our soil	PD23
16373	20 years of jobs for what this will do to the land, air and water , is shortsighted. It will not provide a man or family with a lifetime of work and wages. Please do the right thing , not the shortsighted money decision.	SO01
Sender Name (Submission ID)	Barbara Fleishman (17662)	
1983	I don't want to lose anymore of these precious birds d/t environmentally unsound practices by humans.!	WI01
2107	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for--information that is necessary to evaluate the environmental effects of this proposal.	FIN01, WR035, WR128
2108	More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts.	WET01
2109	… sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
2110	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	Barbara Imes (11568)	
2215	Acid mine drainage in Western states has caused some of the largest and most contaminated Superfund sites…. the Flambeau Mine in northern Wisconsin is the perfect example. It closed in 1997, but despite the removal of 7,400 tons of contaminated soil, it continued with runoff of copper at high levels of toxicity….	WR023
2215	Acid mine drainage in Western states has caused some of the largest and most contaminated Superfund sites…. the Flambeau Mine in northern Wisconsin is the perfect example. It closed in 1997, but despite the removal of 7,400 tons of contaminated soil, it continued with runoff of copper at high levels of toxicity….	WR023
2216	It's not worth 20 years of mining, 350+ jobs, or the expectation that water leaching from waste rock piles will exceed water quality standards for up to 2,000 years!	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Barbara Imes (11568)	
2216	It's not worth 20 years of mining, 350+ jobs, or the expectation that water leaching from waste rock piles will exceed water quality standards for up to 2,000 years!	SO01
7602	The very notion that a copper-nickel sulfide strip mine could function without polluting the ground and surface water with heavy metals seems to be discredited by the EPA's own records. They indicate that acid mine drainage in the U.S. has already polluted more than 12,000 miles of rivers and streams and over 180,000 acres of lakes.	WR023
7602	The very notion that a copper-nickel sulfide strip mine could function without polluting the ground and surface water with heavy metals seems to be discredited by the EPA's own records. They indicate that acid mine drainage in the U.S. has already polluted more than 12,000 miles of rivers and streams and over 180,000 acres of lakes.	WR023
14348	The incentive to move here...was to be able to live in an area that offered an opportunity to explore beautiful Northeastern Minnesota. ... Camping, hiking, canoeing, biking, wildlife, fishing, and more were only steps away from our back door. Now, it feels threatened.	LU06
14348	The incentive to move here...was to be able to live in an area that offered an opportunity to explore beautiful Northeastern Minnesota. ... Camping, hiking, canoeing, biking, wildlife, fishing, and more were only steps away from our back door. Now, it feels threatened.	LU06
14349	Wisconsin has a moratorium on sulfide mining and also initiated Wisconsin Act 171 which prohibits metallic sulfide mining until it has been proven safe through analysis of long term operation and the closure of similar mines. Minnesota needs to have the same "Prove-It-First" law in effect	WR107, WR108
14349	Wisconsin has a moratorium on sulfide mining and also initiated Wisconsin Act 171 which prohibits metallic sulfide mining until it has been proven safe through analysis of long term operation and the closure of similar mines. Minnesota needs to have the same "Prove-It-First" law in effect	PER25, PER35
14350	I can read and understand what the consequences would be if PolyMet...are allowed to build copper-nickel sulfide strip mines within the Boundary Waters watershed without providing adequate plans for monitoring and mitigation in the event of acid mine drainage or toxic leaching.	PD29
14350	I can read and understand what the consequences would be if PolyMet...are allowed to build copper-nickel sulfide strip mines within the Boundary Waters watershed without providing adequate plans for monitoring and mitigation in the event of acid mine drainage or toxic leaching.	PD29
Sender Name (Submission ID)	Barbara Jones (42541)	
6810	It is essential to maintain a clean environment in the headwaters feeding into the Partridge and Embarrass Rivers and to Lake Superior. The main assessment tools used to predict contaminant loads are computer models and spread sheets to calculate water flows into, through, and out of the mining and processing sites. It is on the basis of this model that claims of sulfate levels and mercury, are calculated. The model also predicts that water treatment is likely to be required for 200 years for the mining site and 500 years for the processing site. Are these predictions realistic?	WR035, WR070, WR189
6811	This rock generates acid run off and releases noxious heavy elements. Containment systems can be maintained and replaced with good planning and adequate funding, but liners under mountains of rock cannot.	WR127

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Barbara Jones (42541)	
13488	One basic property a model should have is to predict current observed conditions from current measured input parameters…Experts in this are have made the following assessments:From the USEPA to MNDNR, USFS, USACE on Apr 5th 2013 referring to "Goldsim" modelling"A software quality assrance/quality control was not performed. Relying on professional judgment may not always be accurate, and/or others may have different professional opinions. Therefore, the reults may not be scientifically defensible.The section of the Quality Assurance Plan pertaining to data quality objectives does not discuss numerical accuracy levels nor did it discuss their underlying rationale. Without this information, the adequacy of the data is indeterminable.	WR189
15594	I have not yet found information to give me confidence that the models can be trusted. Even worse I have found experts in the field who have severe reservations about the predictions. If the models are untrustworthy stop the project. If they are just poorly presented, do a better job. If the system is too complex for the experts to agree on how to proceed we should wait to do more research until we have a better understanding to make an informed choice.	WR189
15595	An item I expected but did not find in the DEIS is detail of contingency plans in case of natural or man-made disasters. What happens if a local wild fire destroys power lines and the site is evacuated for a week or more? Water treatment facilities are vulnerable to these events. There will also be man-made problems from accidents, operator errors, and poor design.	FIN05, NEPA08
15596	During the long period after mining stops, the DEIS estimates that ongoing expenses of $3-6 million dollars per year are needed to treat water flowing from waste rock and maintain covers and dams. The climate, technical, social, political conditions even 50 years in the future are impossible to predict.	FIN05
Sender Name (Submission ID)	Barbara Peterson (7153)	
492	The number of jobs PolyMet would create would be a huge benefit to the Iron Range and increase the tax base which in turn benefits our local economy. Including families, schools,and merchants.	SO02
Sender Name (Submission ID)	Barbara Ritter (57245)	
17372	I am concerned about the impact the proposed mine will have on the state's water. The plan for treating polluted water does not have enough detail. How will this be paid for in the future? Is having polluted water for hundreds of years a reasonable by product of this mine?	FIN01
Sender Name (Submission ID)	Barbara Ronningen (44833)	
7974	the risks are too great in a pristine environment.	SO01
16440	I am more concerned about the rush job the DNR has taken on comments. I agree with the Minnesota 2020 piece on the very short comment period.	NEPA07
Sender Name (Submission ID)	Barbara Sellers (45687)	
15933	Polymet's mine plan fails to address mitigating the environmental impact of the mine by using underground mining, rather than open-pit mining. If the financial cost is currently too great to justify underground mining, the metals should be left in the ground until the demand for them justifies the cost of underground mining.	ALT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Barbara Sellers (45687)	
15934	The precious metals that Polymet proposes to mine would currently be available in sufficient quantities if previously-mined metals were reclaimed and recycled. Polymet's mine plan fails to address mitigating its environmental impact by reclaiming and recycling previously-mined metals instead of digging any mine, whether underground or open pit.	NEPA06
Sender Name (Submission ID)	Barbara Teawalt (23422)	
14318	the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for -- information that is necessary to decision-makers.	FIN01, FIN08, WR035
14319	sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons.	WI01, WI02, WI04
14320	four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
14322	PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota.	WI02
Sender Name (Submission ID)	Barbara Walker (14210)	
147	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for	WR035, WR128, WR143
148	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
149	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	Barbara Wirth (16942)	
1636	The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever.	WR067
1637	The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility [HRF].	WR069
2078	Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever.	NEPA04, WR195
2079	The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health.	MERC02, WR041, WR115, WR189

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Barbara Wirth (16942)	
2080	The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards.	WR189, WR202
2081	•The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streams.	WR003
2082	•The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge.	PD07, PD29
2083	•The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures.	WR010, WR012
2084	•The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility.	PD17, WR067, WR126
2085	Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come.	NEPA09, WR195
Sender Name (Submission ID)	Barry Babcock (39440)	
7783	The historical evidence of contamination from sulfide mining is too risky to place our waters in jeopardy. The MN DNR should be more protective of our clean water assets than catering to the wishes of industry.	WR023
7791	According to "Earth Works" a 2008 study shows that the American taxpayer is stuck with a 70 billion dollar cleanup cost for sulfide mine AMD in our waters. We would be foolish to risk our waters to a 20 or 30 year mining project.	FIN10
Sender Name (Submission ID)	Barry Bissonett (43007)	
11664	The PolyMet Environmental Impact Study is hypothetical. Even proven first methods can result in environmental disaster given the event of natural earth movement, equipment failure, or human error.	GT14
11665	Should companies be allowed to put at great risk the health and welfare of ecosystems, people, and wildlife? No, because individual citizens are not permitted to. ...The world's water crisis is closely related to the flaws of modern economics and politics. Greater than a crisis in jobs. is a crisis in our own values.	SO02
11667	Minnesota ought to first make mandatory the recycling of all metals.	NEPA06
Sender Name (Submission ID)	Barry Peterson (39706)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Barry Peterson (39706)	
6501	… this toxic mining organization will be harming both wildlife and humans for over 500 years. There is just too much ground water around that area to risk poisoning citizens and guests who depend on potable water.	WI04, WR001, WR041, WR114, WR115, WR195
14066	How is it that a 90-day response period will end on March 13, 2014 when citizens have not had an adequate time to know about the horrific pollution this will cause in inhabited regions, and near regions where a substantial water table exists? The comment period should be extended until June 10, 2014.	NEPA07
Sender Name (Submission ID)	Barry Shoultz (20022)	
1668	I am opposed to the mining proposal due to likely negative impacts on our natural resources which may never be corrected once they occur.	SO02
Sender Name (Submission ID)	Barry W. Tungseth (10161)	
361	for a 20 year life span of a mine that will not even complete the working lifetime of one single long term employee, the risks out weigh the bennies.	SO01
362	Clean water is FOREVER. Mining is not.	WR115
Sender Name (Submission ID)	Barry Wolfe (11644)	
2339	What is the significant short term ….and long term….environmental impact of the PolyMet proposal? A detailed cost analysis should be required	SO04
2339	What is the significant short term ….and long term….environmental impact of the PolyMet proposal? A detailed cost analysis should be required	SO04
2340	How would PolyMet's "intentional surface discharge" be treated if they are depending on a reverse osmosis plant that will not be built until 40 years after starting operations?	WR143
2340	How would PolyMet's "intentional surface discharge" be treated if they are depending on a reverse osmosis plant that will not be built until 40 years after starting operations?	WR143
2341	Specifically, how would the MPCA monitor and enforce mercury, sulfates and other water quality standards in the PolyMet project? What would be the cost analysis of monitoring and enforcement?...the cost analysis of monitoring and enforcement? …. the cost analysis for twenty years? 100 years? 200 years? 500 years?	PER06
2341	Specifically, how would the MPCA monitor and enforce mercury, sulfates and other water quality standards in the PolyMet project? What would be the cost analysis of monitoring and enforcement?...the cost analysis of monitoring and enforcement? …. the cost analysis for twenty years? 100 years? 200 years? 500 years?	PER06
2342	How would PolyMet's proposal safe guard te citizens of Minnesota, and the United States tax payers, from paying costs related to health, air quality, water quality and environmental clean up costs in the next 20 years, 50 years, 100 years and beyond?	FIN01, FIN10
2342	How would PolyMet's proposal safe guard te citizens of Minnesota, and the United States tax payers, from paying costs related to health, air quality, water quality and environmental clean up costs in the next 20 years, 50 years, 100 years and beyond?	WR035, WR036

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Barry Wolfe (11644)	
2343	Disasters happen, where is PolyMet's back up plan on anything related to ground water contamination by internal or external unforeseen problems? What is the Minnesota DNR plan when it happens?	WR130
2343	Disasters happen, where is PolyMet's back up plan on anything related to ground water contamination by internal or external unforeseen problems? What is the Minnesota DNR plan when it happens?	WR130
8548	How can the public be assured reverse osmosis will work if it is truly in the theory stage now and has not been used in any mine? If PolyMet is so sure reverse osmosis will work, why hasn't the federal government used the idea to clean up sites such as the Berkeley Pit in Montana?	PD03
8548	How can the public be assured reverse osmosis will work if it is truly in the theory stage now and has not been used in any mine? If PolyMet is so sure reverse osmosis will work, why hasn't the federal government used the idea to clean up sites such as the Berkeley Pit in Montana?	PD03
Sender Name (Submission ID)	Bart and Lynn Galle (54498)	
18126	…the Supplemental Draft Environmental Impact Statement (SD EIS) is insufficient and should not be approved. It lacks vital information about long-term water treatment and how this will be paid for.	FIN01
19041	[The SDEIS] lacks vital information about long-term water treatment and how this will be paid for.	PD03, PD25
19042	The information available in the report leads us to believe that this mine would be extremely detrimental to the water quality and wetland habitats in this area.	WET24
Sender Name (Submission ID)	Bart Sutter (11356)	
263	the SDEIS offers no detailed analysis of the possible effects of the proposed NorthMet operation on moose.	WI01
Sender Name (Submission ID)	Barton Sutter (42776)	
6727	The proposed plant site occupies a natural water source. There has been no study regarding the source of the water at the present site and whether or not the area is prone to subterranean water migration by way of natural permeability or existing fractures. Any spill at the site could use such existing routes to dangerously taint the local fresh water system (page ES-5 and 4-43 through 4-44). Why has such a study not been conducted?The SDEIS states (ES-36 paragraph 2) that there is an expected case that stormwater runoff will include lead beyond acceptable levels. It also states (ES-36 paragraph 5) that the NorthMet project would increase the amount of mercury in the Embarrass River. These toxins pose serious risks to plant, animal, and human life in the immediate vicinity and also downstream. The SDEIS admits that the project will pollute the Embarrass River and other streams but pays scant attention to the fact that these streams flow toward and into the St. Louis River, which is, itself, the largest tributary of Lake Superior. Why is there no detailed analysis of possible pollution of the St. Louis River?	WR010, WR024, WR071, WR081, WR099, WR125
8584	Sulfide-bearing rock exposed to air and water yields sulfuric acid, which results in forms of pollution that will last at least 500 years… copper-nickel mining companies have a terrible history of leaving environmental damage in their wake--but it is least dangerous in arid settings. Why would we allow this kind of mining in our region, one of the world's premiere sources for fresh water?	WR001, WR023
8587	The proposed plant site occupies a natural water source. There has been no study regarding the source of the water at the present site and whether or not the area is prone to subterranean water migration by way of natural permeability or existing fractures. Any spill at the site could use such existing routes to dangerously taint the local fresh water system (page ES-5 and 4-43 through 4-44). Why has such a study not been conducted?	WR012, WR071

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Barton Sutter (42776)	
8590	The SDEIS states ...that there is an expected case that stormwater runoff will include lead beyond acceptable levels [and that] the NorthMet project would increase the amount of mercury in the Embarrass River. These toxins pose serious risks to plant, animal, and human life in the immediate vicinity and also downstream.	VEG06
8591	The SDEIS admits that the project will pollute the Embarrass River and other streams but pays scant attention to the fact that these streams flow toward and into the St. Louis River...Why is there no detailed analysis of possible pollution of the St. Louis River?	WR111
8592	the SDEIS appears to be grossly inadequate and should be rejected.	NEPA15
14536	The SDEIS states (ES-36 paragraph 2) that there is an expected case that stormwater runoff will include lead beyond acceptable levels.	WR082
14537	[The SDEIS] also states (ES-36 paragraph 5) that the NorthMet project would increase the amount of mercury in the Embarrass River. These toxins pose serious risks to plant, animal, and human life in the immediate vicinity and also downstream. The SDEIS admits that the project will pollute the Embarrass River and other streams but pays scant attention to the fact that these streams flow toward and into the St. Louis River, which is, itself, the largest tributary of Lake Superior. Why is there no detailed analysis of possible pollution of the St. Louis River?	VEG06
Sender Name (Submission ID)	Basil Loney (54868)	
19361	Why isn't the Swiss company [Glencore] seeking the permit if they have …experience mining thiese minerals rather than creating a subsidiary or dummy company to do it?	PER02
19364	What is [Glencore's] history and record everywhere it has operated historically and currently?	PD23
19368	I do not believe these liners [used to insulate the tailings from escaping into the environment] will maintain their integrity over time…do you have the research that shows the science that liners will last? If you don't how can you approve the permit to operate?	PD07, PD08
19373	…a company spokesman… could not comment on the financial package that the company would have in place to protect the environment over the long term, how will you deal with this? Why isn't this information available or at least a plan now and not later	FIN01, FIN08
19384	I was at the January meeting in Saint Paul and tried to get information from the DNR & EPA representatives there about pollution issues relating to long term tailings control and safety issues…but I only got vague general replies to the questions…it would have been reassuring to me to meet an older employee and even a scientist that would make an effort to explain what the DNR & EPA actually know about issues involving tailing storage.	NEPA11
19385	I would regret that northern families would not have jobs if this mine does not exist but this is not iron mining and the consequences would be high is the state government makes a mistake.	SO01
Sender Name (Submission ID)	Becca Krasky (57190)	
18646	I can’t imagine the havoc and destruction Polymet mining near the Boundary Waters would cause. ... Our wilderness is priceless.	WILD02
Sender Name (Submission ID)	Beck Austin (39709)	
6528	We are suppose to be good stewards of the land. This is not about jobs etc. It is about taking care of what we have been entrusted with.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Beck Austin (39709)	
6529	Leaks and spills can never be cleaned up, really they can't. Please don't allow this to happen Please!	WR070, WR195
12966	We are suppose to be good stewards of the land. This is not about jobs etc. It is about taking care of what we have been entrusted with…Leaks and spills can never be cleaned up.	SO02
Sender Name (Submission ID)	Becky Ault (44084)	
14914	I feel strongly that sulfide mining should not be allowed in NE Minnesota until it has been thoroughly explored.	PD32
Sender Name (Submission ID)	Becky Erickson and Dan Sullivan (40122)	
6687	the SDEIS indicates few cumulative effects, there are many unknowns and a significant number of assumptions contained in that report. We know for certain that other similar mines have had measureable adverse environmental impacts.	CU14
15298	We also know that mining companies have poor track records for safety and environmental concerns. Given the fragility of the environment in the vicinity and the potential for long term adverse impacts, I would encourage the DNR to decline this permit.	PER35
Sender Name (Submission ID)	Becky Hall (41645)	
2146	Having participated in the public comment events, reading the SDEIS, visiting with PolyMet officials at their site as well as reviewing information provided by the three governmental co-lead agencies (MNDNR, USACE and USFS), I am very confident that each entity has done thorough and extensive work to address the environmental concerns of this project and it should be permitted to move forward with its construction and production of the mining facility at the former LTV site in Aurora, MN.	PER34
2147	The argument that it will take 200-500 year to treat the water from the site is factually incorrect. What the model does show is that PolyMet can comply with Minnesota's laws, some of the strictest in the nation, regarding environmental protection of its lands and water.	PER34, WR036
2148	I also learned, after visiting PolyMet, that even at the site, should any water inadvertently escape the "lined" tailings basins, its acidic level (after being treated at the site) is well below the agencies requirement as well, about the same acidity as milk for that matter.	WR147
2149	Additionally, PolyMet has already committed somewhere between $100 – 200 million for water treatment, clean-up and mitigation once the plant is closed. Along with already investing millions of dollars in the permitting process over the last decade, PolyMet is also committed to investing millions more in leaving its home, once the mining is complete, in the best condition as it received it.	FIN16
2150	I support this project wholeheartedly rather than remaining dependent on these [precious metal] resources coming from other countries with less environmental regulation and more harm to their environments.	NEPA05
2151	this project has a huge economic impact on our region creating hundreds of great paying jobs for families – 360 full-time jobs, 600 more related jobs, 2 million construction hours, and increased tax revenue that benefits our communities and education system.	SO10
Sender Name (Submission ID)	Becky Milanese (54766)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Becky Milanese (54766)	
19769	Page ES-38- If the mine is permitted, who will do the monitoring of the wetlands to see if they being affected? These are high quality wetlands as noted on pages 5-224. No determination has been made for replacement but there is a potential for a very high number of acres of high quality wetlands to be affected indirectly as well as directly with as many as 6,498-7,250 acres to be affected. Much of this affect will be from the mine's drawdown of groundwater for processing of ore plus seepage from the tailings basin. Paragraph 2.Page ES- 38-Wow, loss of a huge number of acres of High Biodiversity native wetlands plant communities! Reclamation after mining will not restore the loss of this type of native plant community that has been undisturbed for many years. None of the properties being proposed for exchange will have such Biodiversity in such high number of acres? Is this an acceptable loss? Paragraph 4.	WET01, WET02, WET14
19770	Watershed Restoration- Page 3-71 In the 5th paragraph, who will do the evaluation for conversion to wetlands?McFarland Lake Tract (Tract 5)- I do not know what G-LA-51 is and it does not appear in the Abbreviations section. The only thing that Tract 5 offers is proximity to McFarland Lake. It has no wetlands to assist with replacement of wetlands.Page 4-46-Paragraph 2- The different types of wetlands were not well defined. What are ombrotrophic wetlands? It would have been better to put something in the Glossary or give a much clearer explanation than that provided. Effects are difficult to determine when you cannot understand the terminology.	WET16, WET21
19771	4.2.3 WetlandsPage 4-136-Piease see comments in this document for Page 4-447. What is shrub-carr? Will these wetlands be replaced with similar high-biodiversity wetlands? Too bad to lose these good wetlands that are excellent filters of water.4.2.3.1.1 Wetlands Delineation and Classification- Page 4-139- What is the Eggers and Reed classification System? Who did the classification? Were there other systems that could have been used? Figure 4.2.3-2- Why was only one wetland surveyed south of the Transportation and Utility Corridor?	WET04, WET07
19772	Wetland Delineation and Classification-Page 4-441- In the final paragraph on this page, wetlands are evaluated by function but do not seem to be evaluated by quality which means that a poor wetlands that shares the same function as a high quality wetland could be exchanged without regard for the quality of the wetland. This makes it possible to substitute any wetlands for another by looking only at the functional qualities.Hydrology, Wetland Vegetation, and Community Types- Page 4-447 Paragraph One-The wetlands proposed for exchange are usual types of wetlands found on the Iron Range and are not equivalent in diversity to the wetlands that would be lost on the Mine Site for the North Met project.	WET14, WET17
19773	Table 4.3.3-4- Lists the wetlands by type for the lands proposed for exchange. I have prepared a comparison table with Types of Wetland being lost compared to those in the exchange. … The tracts for exchange are much different and not equivalent wetlands. Tract 5 has no wetlands at all.Wetlands Functional Assessment-Page 4-448Once again the only criteria used for wetland evaluation seems to be that of function. Most of the wetlands for exchange did not have the best Amphibian habitat.Also similarly found on Page 5-298. "Wetland hydrology is a complex mix of precipitation, surface runoff, and, in some cases, groundwater. Despite the use of augmentation to mitigate effects, the response of complex natural systems to human disturbance could only be estimated. Therefore, monitoring of wetlands hydrology and vegetation communities would be the most appropriate way to document the extent and magnitude pf wetland responses to theNorthMet Project Proposed Action."Lots of decisions are left to "during the permitting phase". This phase of decision making that does not involve public comment nor will we hear the results that are decided during permitting.	WET14
19774	4.2.2.3.1 Groundwater ResourcesGeology and Hydrology- Page 4-95- In paragraph 3 the "wetlands between the Tailings Basin and the Embarrass River are assumed to represent surficial expressions of the water table (Barr 2009b) and reflect, at least in part, the increase in groundwater and surface water flow from LTVSMC tailings seepage." It is assumed that these wetland/bogs will be studied to see what solutes from the tailings basin are presently present for a baseline of discharge from the tailingsBasin.WWTF discharges with sulfate concentration of less than 10 mg/L would be discharged into an existing wetland that flows toward Dunka Road and eventually into the Partridge River. Would this discharge continued over the long term, have a negative effect on the wetland and eventually the Partridge River?	WR079, WR143

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Becky Milanese (54766)	
19775	4.3.2.2.7- Tract 5- McFarland Lake Lands There are no wetlands on this tract of land so it cannot be used for wetland credits. At present around 90% of Cook County is under Governmental ownership (State and Federal) which makes for a very small tax base in the County. PILT (Payment in Lieu of Taxes) payments to local governments have been sharply reduced by the Federal Government which has reduced the tax income for Cook County from PI LT. In addition, the County has strenuously resisted land exchanges in the past with the rationale that lands taken out of private hands reduces the tax base. I think this is not the best option for a land exchange given the situation in Cook County. 4.3.3.2.1 Non-Federal Lands- Page 4-440 In paragraph two, there are three criteria set forth for land exchanges related to wetlands. Since Tract 5 at McFarland Lake has no wetlands, it does not meet the criteria as set forth. General Comment: On the pages covering land exchange information for the five Tracts and the Mine Site, information was hard to follow because information was not well separated.	LAN03, LAN06
19776	Page ES-40- Like all mining, this will be a boom and bust proposition which was not fully alluded to in this analysis. There will be the large number of jobs in the beginning and then when the plant and mine are operational, the number will decline to just a few jobs leaving many of the workers unemployed. This has been the pattern for all mining conducted on the "Iron Range". After the boom, the people that choose to remain in the area are then under or unemployed and are then a drag on the economy of the state of Minnesota. Many have also experienced health issues related to exposure to the dust and debris from mining (mesothelioma) for example. This is also a cultural and socioeconomic fact that was not discussed in this SDEIS.	SO04
19777	4.2.10.1.5 Public Service and Facilities Water and Sewer- Page 4-336 Many of the wastewater systems are aging in the area and many of the septic systems are failing which the three counties in the study area are attempting to deal with. Given the bedrock conditions septic systems are expensive to put in and repair. Additional people living in the area will create strain on these systems. 4.2.10.1.4 Housing- Page 4-332 With an influx of mining personnel, there will be an increase in the price of housing and this will present a hardship for many of the low-wage workers that work in tourism or for the government or education. It will retard the development of the area's tourism and influx of retirees who would provide a more long term stable base for the community. 4.2.10.1.3 Public Finance Page 4-332- "The mining and processing of base and precious metals in the state are not currently subject to production tax." Could not believe this when I read it! The taconite industry must be trying to figure out ways to get into the precious metal mining business since they have to pay production taxes. I saw indication among the other taxes listed that there might also be exemption from sales taxes. They are paying taxes on precious little. No wonder it is called precious metal mining. Also please refer to notes on Page ES-40 in this document.	SO04
19778	1.3.1 Applicant's Purpose and Need Statement Page 1-11-lt is admirable that PolyMet finds its mission to be the creation of jobs in northern Minnesota so that it can export our minerals to "developing countries like India, China and Brazil". I realize that PolyMet is an international rather than an American company so that maybe their focus is on the world rather than use of these minerals here domestically, however they are a resource that currently belongs, at this point, to the American people through the United States Forest Service. I am not sure that they should be exported to other countries, especially places like China that have not always had a good relationship with the United States. We also need these types of minerals to develop our green industries. Why the preferential treatment for developing nations? How much of a partner is China in PolyMet? How much of the ores have been pre-promised to these developing nations?	SO06
19779	Pages 4-325-4-326- "Mining employment has declined consistently in all three study area counties, from more than 12,000 in 1980 to approximately 3,000 in 2009 in St. Louis County. Mining-related employment is volatile and fluctuates from year to year due to the market price of commodities being extracted. Since mining employment can vary greatly from one year to the next, the decline observed from 1980 and 2009 does not represent a steady reduction in mining-related employment." Mining is not going to provide a stable base of jobs for this area. During later years of mining operation, the numbers of persons employed usually drops to very low levels compared to that at the beginning of mining. It is disingenuous of PolyMet to indicate that one of its prime interests is relieving unemployment in the area.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Becky Milanese (54766)	
19780	Page 1-11&1-12 D-MN-2 "Ensure that exploring, developing, and producing mineral resources are conducted in an environmentally sound manner so that they may contribute to economic growth and national defense." At present this Land Exchange and the mining would not meet these qualifications. It would appear that at least temporarily jobs would be created but mining is a boom and bust proposition so the economic conditions might be met only for 20 years at most. Sending minerals to China would not be a way to contribute to the national defense because we could not know if they are going to be used for peaceful purposes or to develop missiles or the computers that control them. Paragraph 1.	LAN04
19781	3.2.2.4 Financial Assurance-Page 3-136 This is the most troubling portion of this SDEIS. There is much riding on these financial assurances for the State of Minnesota and its taxpayers as well as our environment. In many places, mining companies have not acted responsibly with the recent examples in just the last several weeks of the pollution of rivers in West Virginia and a 32 million dollar fine against a mining company conglomerate from the EPA for over 6,000 violations of its permits. In the end PolyMet's first priority is to successfully mine and make money for its shareholders. It has spent a lot of time and money in advertising at the High School tournaments and in newspapers to appear to be a concerned and progressive company. The company and this SDEIS accents that this mine will be bringing jobs to a depressed portion of our state. However, this has to be balanced against other factors. Mining is a boom and bust industry. At first there are a lot of jobs but after a few years, the number of jobs declines radically and then there are many fewer positions. After the ore is gone, there is no more work and at some point northern Minnesota will be mined out and left with whatever the mining companies have left in their wake for good or bad both in human and environmental terms. If the water is polluted, it will not be possible for anyone to live or use the land or water. Also of concern is the fact this this mine produces highly reactive waste rock that can easily pollute not only the two rivers dose to it but also the St. Louis River watershed and in the end Lake Superior which is a much vaster resource than one copper mine. Since this will not be like iron mining and the wastes are predicted to remain for hundreds of years, there is a lot riding on approval of this mine and its financial assurances. I know of no investment that has stood the test of 200-500 years. I would like to have such instruments at my disposal for my own use. One can only hope that whomever approves the financial assurance documents, is extremely careful and conservative in making their estimates of how much money will be needed to assure treatment of wastes for up to 500 years. Paragraph 2- Since there are no federal financial assurances to be incorporated into this Permit to Mine, does this mean that this site would not be eligible for Federal Super Fund Cleanup Funds?	FIN01, FIN05, FIN08, FIN10, FIN15
19782	Page ES-11-It appears that the final land reclamation, closure and post-closure maintenance would include water treatment that is not yet proven effective which might mean that higher levels of water treatment might be needed over a very long period of time. Who will be providing the maintenance and monitoring activities over the 200 to 500 year horizon? It is not anticipated that PolyMet will exist for that length of time as mining companies seem to come and go relatively quickly. Does this mean that the State of Minnesota and its tax payers will be on the hook for a long time to come? Also determining costs for the Financial Assurances to the State will be extremely difficult since the costs for cleanup are going to be difficulty to determine. It would appear to need to be a very substantial sum of money. Given that the amount needed for financial assurance and closure should be very high, is it even cost effective to mine this deposit since the company's objective is to make money for its shareholders?	FIN01, FIN05, FIN10, FIN11
19783	Page 3-138 & 3-139- Are these Financial Assurance Instruments subject to failure and if so who Will be responsible for the financial costs of cleanup and monitoring? Does this mean a good chance that the State and its taxpayers are going to be responsible for this? 3.2.2.4.2 Financial Assurance Instruments Page 3-138 "failure or limitations on the ability of third parties to pay reclamation costs." Who are these third parties?	FIN01, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Becky Milanese (54766)	
19784	1.4.5 Financial Assurance Pages 3-136, 3-137, 3-138 Page 1-17- This is covered most extensively in Chapters 2.6 & 3.2.2.4 and the following portions of the SED IS. Comments on financial Assurance will be made that this point in the comments rather than during comments for Chapter 3. "Minnesota Rules, part 6132.1200, require that before a Permit to Mine can be issued, financial Assurance instruments covering the estimated cost of reclamation, should the mine be required to close for any reason at any time, must be submitted and approved by the MDNR." A paragraph later the following is stated: "The level of engineering design and planning required to calculate detailed financial assurance amounts is typically made available during the permitting process and was not available at the time that this SDEIS was prepared." These two statements appear to be somewhat at odds. Is the financial assurance information done before the permit can be applied for or does it have to be done before the permit can be issued? Who reviews the financial assurance information for adequacy? Since we are talking very long time spans of 200-500 years for remediation of waste water from this mining and ore processing and since the likelihood that PolyMet will not exist in those time frames a lot seems to be at stake for the taxpayers of Minnesota and our future generations. Are a few jobs now worth huge expenses for cleanup, since PolyMet is not likely to exist for long into the future and the financial instruments may also not hold their value over that long a time frame. This may mean the citizens of the state will be on the hook for cleanup and follow through. This is not like the mining that has been permitted in the past since there is much more significant environmental damage that is likely to occur. What happens if PolyMet (not an American Company} declares bankruptcy? Although financial instruments listed for use are supposed to be not dischargeable by bankruptcy, you cannot get blood out of a turnip so to speak and the mining companies have proven adept at shirking their financial responsibilities in the past by using bankruptcy. On page 3-138 the following is stated: "failure or limitations on the ability of third parties to pay reclamation costs" Who are the third Parties? In the SED IS a point is made that there are no Federal assurances needed for this mine. Does this mean that it would not be eligible for Super Funds for cleanup?	FIN01, FIN04, FIN05, FIN08, FIN10, FIN14, FIN15
19785	3.2.2.1.10 Reclamation and Long-term Closure Management- Page 3-59 What is mechanical vs. non-mechanical water treatment? Has non-mechanical water treatment been developed at this point? No explanation is offered. What agency did the modeling for the water treatment discussed in this section? No mention is made of what the conditions would be for the release of PolyMet from water treatment. Since time frames discussed for water treatment are 200-500 years is it reasonable to expect that PolyMet will still be around or even financially able to provide for this water treatment? Isn't it reasonable to assume that someone like the State on Minnesota will have to be committing resources to this? No plant will last the 200-500 year length of time water treatment many be needed. In paragraph four, who is responsible for the monitoring of the water from treatment? Also in that same paragraph, what happens with water treatment? One would have to assume that the Plant described will not function for the 200-500 years described as the period estimated for treatment of the water. What happens when the plant fails? Who rebuilds it? It is unimaginable that PolyMet will exist for that time period. There seem to be no plans in the SDEIS for replacement of water treatment facilities and one has to hope that the financial assurances cover the costs for new water treatment facilities.	FIN01, FIN10
19786	Page ES-17- What monitoring is done for the water that accumulates in the pits? Is it acidic and hazardous to wildlife? Page ES-24- Since the water in the pit lake will need treatment, who will be providing the treatment and who will oversee that equipment stays functioning after the mine is closed? What happens if the treatment equipment needs replacement or if non-mechnical treatment does not become an option? No equipment will function for the 200-500 year time horizons given as the length of time treatment will be needed. If the pit water is not treated properly does this pit lake become a hazard to wildlife that may land on or use the lake for nesting? Figure 3.2-29 Will water in tailings basin be toxic to any water birds or wildlife that might get into it? Hydrometallurgical Residue Facility Reclamation- Page 3-130 Is any ponded water safe for wildlife such as waterfowl?	WI04
19787	Page 4-122- Embarrass River Water Quality-Spring Mine Creek is not visualized on any maps in this section of the SDEIS. Paragraph 2-"Spring Mine Creek was listed by the MPCA as impaired for invertebrates and fish while the Embarrass River Watershed from the headwaters to Embarrass Lake was listed as impaired for fish." Are we to expect that the pollution that has resulted in these impaired waters will increase with the use of the tailings basin for the NorthMet mine?	WR060

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Becky Milanese (54766)	
19788	Page 4-133 Lower Embarrass River-It appears from the third paragraph that the conclusion of this SDEIS is that the fish are all ready so contaminated that it will be all right to mine because the mercury in the fish is at mercury concentrations that are too high to remediate. Studies are suggested but have not been done. Why? Because it is a lost cause? The reference to these waters in the center of the paragraph is not clear as to which waters are being referred to. How were the conclusions regarding the mercury concentration in seepage determined? Is this water going to be treated so that mercury levels are lowered? Is the idea that there is already mercury in the fish so the company should not have to worry about possibly adding any mercury? As written, this is difficult to understand.	AQ11
19789	Page 4-29 Table 4.2.2-2- Footnote to this Table indicates that Colby Lake is on the final 2012 TMDL List. With the possibility of mining wastes being added to Colby Lake and White Water Reservoir, will more mercury treatments need to be added for drinking water or fish. I know that the SDEIS indicates that mercury will not be added but is there going to be monitoring to assure that this does not occur?	MERC22
19790	3.2.2.2.4 Use During Operations- Page 3-83 It is anticipated that there will be quite a bit of dust generated over the years of operation of the Mine and the transportation of the ore in open railroad cars. What happens to the water and vegetation in the area of drift from the railroad line? Will this be monitored and if this is a problem would some other type of railcar be used? What remediation is planned for this drift and the environmental damage?	AIR04
19791	4.2.4.2.2 Invasive Non-native Plants- Page 4-174- It is noted in this section that non-native plants and seed mixtures exist and have been used in the past as cover for mining pits and reclamation sites. It is hoped that during reclamation, an effort will be made to use mixes of seed that do not have non-native seed that will continue the former patterns of reclamation. 4.2.4.2.3 Threatened and Endangered Plant Species Page 4-176- What happens to the two state endangered, two state threatened and seven state species of special concern that have been identified on the Mine Site? 4.2.4.2.1 Cover Types- Page 4-183- Regional Foresters Sensitive Species-The Biological Evaluation is referred to in the first paragraph of this section however it is not available and it is not known what is in it which which does not aid in evaluation of the SDEIS.	VEG01, VEG05
19792	Page 4-173-Minnesota Biological Survey- Paragraph One- "The entire 3014.5-acre Mine Site has been characterized by the MBS as various Sites of High Biodiversity Significance due to the presence of the One Hundred Mile Swamp site, which covers 15 percent of the Mine Site, and the Upper Partridge River site, which is 85 percent ofthe Mine Site (MDNR 2008a)." In Paragraph 2 it is further specified 1/Two native plant communities, black spruce-jack pine woodlands (Fdn32c; 34 percent of Mine Site) and rich black spruce swamp {FPn62a; 7 percent of Mine Site), have been characterized by the MBS as "imperiled/vulnerable" and "vulnerable" respectively MDNR 2008b)." This means that the mine site covers wetlands of which 41% are of high ecological value. This is a pretty large loss. See also Paragraph Two on Page 4-174 under National Hierarchical Framework of Ecological Units.	VEG02
19793	Page ES-41- In Paragraph 6 the following is noted" Air emissions can travel many miles before they are no longer detectable." Does this mean that persons in the surrounding areas are going to be under the threat of particles that can cause respiratory diseases such as mesothelioma? Page ES-41- In this section the point is made that the air pollution is below state and federal risk guidelines. Unhappily, iron mining has created an epidemic of persons with mesothelioma in the area that is currently being studied by the University of Minnesota. I have seen no indications in this document of what will be done to prevent similar respiratory difficulties for the miners doing this new type of mining and the public from drift of particulates. Paragraph 1.	AIR03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Becky Milanese (54766)	
19794	4.2.2.1.3 Wild Rice Page 4-33- Presence of Wild Rice within the North Met Project Area- The "MPCA has reached a draft staff recommendation regarding waters used for the production of wild rice." The waters From the draft statement are listed but not the conclusions from the recommendations. Page 4-93 & 4-94- Paragraph 2- "Concentrations of sulfate are of special concern because the MPCA staff has recommended that this entire reach of the river from the outlet of Colby Lake to its confluence with the St. louis River is a water used for the production of wild rice (MPCA 2012b). Based on the 2008-2009 data, sulfate concentration in the Lower Partridge River averages about 162 mg/l. For the North Met Project Proposed Action, sulfate concentrations in receiving water has been identified as an issue for consideration in the EIS." This paragraph speaks for itself.	WR158, WR162
19795	4.2.14.2.5 Geotechnical Summary- Page 4-376 In concert with the comments above the following is noted in this section. "The existing northern dam in Cell 2E has been identified as a potential area of weakness as it is underlain a layer fibrous peat up to approximately 10ft. thick that extends north beyond the toe of the dam into a nearby wetland and due to the presence of some contractive fine tailings and slimes."	GT01
19796	Page 4-43-Geology of the Mine Site- "underlying the Virginia Formation is the Biwabik Iron Formation, which is the source of taconite iron ore and is an important water source for residential and community wells in the region. The mine pits would retain about a 130-ft separation between the final pit and the Biwabik Formation based on current drilling and interpolation of geology between drill holes." How will the drillers and blasters know how much separation is being kept between the two formations. Since the Biwabik Formation is quite permeable, with groundwater and precipitation, what are the chances of leakage into the Formation from the mining pit with its reactive wastes resulting in contamination of the ground waters?	WR007
19797	*Page ES-47- It is understood that two of the Co-lead Agencies have no requirement to have a preferred alternative. Without a preferred alternative, it makes it difficult for the public to understand where these agencies (with their expertise) stand in relationship to this SEDEIS and since they should be representing public interests, it would be valuable the public to know if they do have a preferred alternative or what their concerns might be. Paragraph 3.	ALT20
19799	3.2.2.1.7- Waste Rock categorization and Management- Page 3-46 In the first paragraph the "East Central Pit would be flooded (using groundwater, in-pit runoff," etc. Where will this groundwater be obtained and what will the effects be on the aquifer that it Is taken from? Will this do damage to the remaining wetlands or to the flows of the Embarrass and Partridge Rivers? 3.2.2.1.8 Engineered Water Controls- Page 3-46 What and where is this non-contact stormwater coming from? More importantly, where is it being direct to? This is also a question that is not answered on Page 3-64 in the Section on East Pit and Central Pit. Water Management- Page 3-72 Paragraph One- Why is effluent from the WWTF now sent to the combined East Central and West Central pit when formerly it was sent to an off-site landfill? Also in paragraph one is The following: "The objective of treating the West Pit water would be to manage water quality within the pit prior to groundwater outflow from the pit lake via the surficial aquifer" Why is this water that needs treatment being allowed to get into the surficial aquifer?	PD03, PD04, PD35
19800	1.4.2.1 Overview Page 1-13- "By rule, the MDNR is the designated RGU for the NorthMet Project." This has never made any sense that the MDNR should have the final decision over property that is currently owned and managed by the United State Forest Service for the benefit of ali the citizens of the United States of America. I do not understand how a local branch of government can tell the Federal government what will happen on property that it has no interest in or jurisdiction over. Makes no sense what so ever despite what the MEQB (another local unit of government) says. Shouldn't the USFS be the determining agency since the land exchange has not occurred? Paragraph 3. Reclamation Planning- Page 3-63 What agency receives the annual Contingency Reclamation Plan specified in Minnesota Rules?	PER45

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Becky Milanese (54766)	
19801	Table 3.2-12- How toxic are the material stored in the Reagent Building? What plans are there for cleanup of spills? (Think West Virginia storage tank leakage and water contamination). 3.2.2.3.6 Hydrometallurgical Process- Page 3-112 & 3-113 Table 3.2-13- How toxic are these materials? I see they need secondary containment. Is there a team trained to deal with spills or leakage? We have to hope that we do not have a situation like the contamination in West Virginia with tank leakage into surrounding rivers.	HAZ01
19802	4.2.14.2.1 Location and Description Overview- Page 4-368 Failure of the tailings basin with a height of 200 feet would release a lot of tailings. Since the new tailings are at the top, they would be sure to inundate the surrounding area. 4.2.14.2.2 Development of the Existing LTVSMC Tailings Basin Page 4-371 What is a long ton? What is a short ton? The Tailings Basin seems unsound in areas. Page 4-372- 11ln 1995 and 1996, approximately 1,500 cubic yards of spoil material dredged from Taconite Harbor in Lake Superior was placed in the south-eastern portion of CelllE." I think this Is the material that entered Taconite Harbor when the Tailings Basin at Lax Lake collapsed sending tailings over a large distance eventually entering Lake Superior at Taconite Harbor. As can be seen, Tailings Basins can collapse.	PD10, PD11
19803	4.2.1.4.2 Legacy Contamination- Page 4-10 & 4-11 "Additionally the LTVSMC Tailings Basin seeps are being managed under the Cliffs Erie Consent Order using short-term measures until long-term mitigation measures are determined." What happens to the AOCs when PolyMet takes over? These seeps were not mentioned in the information on the tailings basin in Chapter 3. When are long-term mitigation measures determined? Page 4-17-ls Cliffs Erie continuing to "land farm" petroleum-contaminated soils at this time? This also was not mentioned about the tailings basin in Chapter 3. What is likely to happen when the mining wastes are added on top ofthese "land-farmed" materials. Is this something that PolyMet will continue?	HAZ05
19804	3.2.2.4.1 Cost Coverage and Estimation- Page 3-137 Off-site disposal of pore water from Hydrometallurgical Residue Facility- Who does this disposal and where is it disposed of? How is the water transported? 3.2.2.3.7 Hydrometallurgical Residue Management- Page 3-115 How stable is the existing LTVSMC Emergency basin that will be used for these wastes? 3.2.2.3.2 Existing Facilities- Page 3-87 The tailings basin is of an old design. I assume it is similar to the tailings basin at Lax Lake that failed sending tailings downhill for many miles. This area still looks like a moonscape and efforts to reclaim the area have been pretty unsuccessful. Plants do not grow well. Same concerns for the Tailings Management on page 3-102. What plans are in place should this basin fail? Same comments and concerns for Tailings Basin page 3-116 & 3-117. See also comments later in this document for page 4-126.	PD10, PD11, PD18

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Becky Milanese (54766)	
19805	Product and Product Tank Disposal-Page 3-128 Who is responsible for the monitoring the tanks for leakage or maintenance? The reagent suppliers or PolyMet? Tailings Basin Reclamation- Pages 3-128 & 3-129 Last paragraph page 3-129, what is periodic inspection? As I have reviewed the rest of the SED IS, it is apparent that the Executive Summary does not highlight many of the problems and important facts that are presented in the rest of the document. It appears to be an overly optimistic and very simplified view of the document and many of the problematic areas are not addressed in the Executive Summary at all. Page ES-10- The tailings basin from the former mining is proposed for use. Has this tailings' basin been studied to determine if it is stable enough to receive more tailings? We have had tailings basins collapse (the basin at Lax Lake) which resulted in massive restoration needs and environmental degradation. Both the Embarrass and Partridge Rivers and their watersheds are close to the tailings basin as noted from later in this SDEIS. Page ES-23- When waste rock is in the Category 2/3 and 4 stockpiles, how is reactivity of the rock controlled since it is exposed to air and water? Paragraph 2. What are stockpile liners made from and are they degraded by the sulfuric acidic runoff from the waste rock? Paragraph 3 In the Executive Summary there are no Figures that show location of the Category 4 stockpile and its proximity to water control system. They appear later in the document but no references are given so it is difficult to understand what is being described. Page ES-23- During operations, the top of the tailings basin is open which allow reactivity of wastes with air and water. Sides of tailings basin is addressed. Again see comments on page ES-10. Paragraph 3 in this document. Page ES-23- In this paragraph it sounds as if the waste rock will be placed immediately into the East Pit however, later in the SDEIS it indicates that waste rock will be stored in piles outside of the pit. Monitoring, Adaptive Management, and Mitigation Pages ES 24-25- How will a flotation tailing basin pond bottom cover system be installed during reclamation? This sounds like it is below water in the tailings basin but how will that prevent oxygen getting to the tailings if it is in the bottom?	PD07, PD10, PD15
19806	Figure 10- Poor labeling of structures on the map make it difficult to evaluate the proposal where this figure is referenced. Missing are the Embarrass River and Colby Lake. Although these structures are identified in later figures, it is difficult to search through the whole SEDEIS to find Figures that show what is being referenced in the proposal at this point. Page ES-40- It is interesting to note that the figure for wages and rents that is estimated for the economy ($231 million) is not a whole lot below the figure of $332 million that is estimated for the value of the extracted minerals. Apparently this is enough of a profit for Poly Met to feel that is willing to take on the mining of these minerals. There is nothing to indicate where these figures were obtained and whether the cost of closing the mine and ongoing remediation of the wastes was factored into these figures. Paragraph 5.	PD38, SO04
19807	Category 1 Stockpile Water Containment System and Cover- Pages 3-46 & 3-47 In the last few years, there have been 100 year rain events with rainfalls of over 1" per hour lasting a number of hours. Will this system and its pumping capabilities be capable of handling an event of this magnitude? What if the power fails to the pumping or water treatment facilities? Category 2/3 and 4 Stockpiles and Ore Surge Pile Liners-Page 3-51 It is noted that Category 2/3 and 4 piles are treated exactly the same as one another. Why is this when Category 4 wastes are going to be so much more reactive and produce so much more sulfuric acid? Has this 80-mil LLDPE geomembrane been tested against sulfuric acid? What is the overliner drainage layer composed of? Has it been tested against sulfuric acid runoff? Wastewater Treatment Facility- Page 3-52 Does this Central Pumping Station have power backup in case of power failure from the grid? What happens when the power goes down? What agency does the water quality monitoring and oversees the wastewater treatment?	PD15, PD16
19808	3.1.1.5-Plant Site Layout Overview-Page 3-3 and 3-4 No figures are given that show the location of all the structures at the plant site until later in the chapter. This makes it difficult to visualize both the mine and plant sites and the relationship of structures and make pertinent comments. No mention is made as to whether the tailings basin has been studied for stability. A number of years ago the tailings basin at Lax Lake collapsed spilling tailings across many miles and eventually spilling across Highway 61 and into Lake Superior. Environmentally that area has had very poor recovery. Since this tailings basin is older than the one at the former Lax Lake, structural stability might prove of the essence since these wastes are considerably more toxic than taconite tailings.	PD07, PD11

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Becky Milanese (54766)	
19809	3.2.2.1.9 Water Management- Page 3-52 &3-53 "Sludge waste would be disposed of off-site in a solid waste landfill until the Hydrometallurgical Plant became operational." Where is this landfill? Is it properly devised to handle such sludge until it is returned to the Hydrometallurgical Plant for processing. Shouldn't this be considered a hazardous waste and is there such a landfill in the area? Reference is made to the Hydrometallurgical Plant in Section 3.2.2.3, however in reviewing that section no mention is made of when that plant might be constructed. This means that sludge could be hauled for an uncertain length of time and no indication is given of when the sludge would be returned to the plant for processing. Again the tailings basin is discussed but actual location has yet to be shown.	PD17, PD19
19810	West Pit- Page 3-65 "Reject concentrate from the WWTF RO would be evaporated and the residual solids disposed of off-site." Is this the same off-site facility referenced in section 3.2.2.1.9? This is not the section referred to previously, but is it the same facility? See comments for page 3-53 this document. Category 1 Stockpile- Pages 3-65 & 3-66 Is the process for covering stockpile 1 a new process or is it a proven technique? Who will do maintenance for removal of brush and trees and for how long will that be needed? 200-500 years? In paragraph two, once again there is talk of converting the RO reject concentrate to residual solids, which would be disposed of at appropriate off-site facilities. Again, are is this the same Facility referred to in Section 3.2.2.1.9? Post Closure Activities-Page 3-79 Paragraph one- Who will do the repair and maintenance of the Cover system for Stockpile 1? What are the non-mechanical water treatment systems? Have they been developed to deal with such large amounts of wastes?	PD03, PD06, PD16
19811	3.2.2.2.3 New Construction and Pre-production Development- Page 3-83 In construction of the new water pipeline of 7.5 miles in length, is special piping being used that can withstand the sulfuric water being carried in the line?	PD36
19812	5.2.2 Water Resources- Page 5-5 Summary: "While reusing the existing LTVSMC Tailings Basin offers environmental benefits (e.g., reducing wetlands effects, addressing legacy water quality issues), it does create some challenges because the existing LTVSMC Tailings Basin is not lined and currently releases seepage with elevated concentrations of sulfate, TDS, and hardness, among other constituents. Many of the engineering controls proposed by PolyMet at the Plant Site are related to managing seepage from both the existing LTVSMC tailings and the additional NorthMet tailings. The North Met Project Proposed Action would have the potential to affect groundwater and surface water hydrology and quality in both the Partridge River and Embarrass River watersheds. These two rivers are both tributaries to the St. Louis River and within the Lake Superior Basin." These statements from the SDEIS appear to present a somewhat different picture than the information presented in the rest of the SDEIS. There are many other comments that could be made at this point but much of them would repeat those provided previously in this document. It is distressing to see how many features would not have their effectiveness known until the actual construction of the features such as tailings basin bottom cover and the possibility of damages to these liners. Non-mechanical water treatment is another such item where the final ability for this process to is not known. Much seems to be left to chance and we will figure it out as we go along kind of planning. This would appear to be an invitation for disaster.	WR127, WR137
19813	3.2.2.3.11 Water Management- Page 3-123 What about heavy rain events falling into the Tailings Basin? We have had some 1-2" per hour rain events in the last several years. How will this be handled?	WR057, WR077, WR176
19814	4.2.2.1.2 Water Resource Use Classifications Page 4-23 Groundwater- Mining does not appear in the list of 6 priority allocation of waters determined by the commissioner and would appear to be a low priority for allocation of water. It is not explained who the commissioner is or what organization the commissioner is with. Page 4-24 Surface Water- I would be worried if I lived in the City of Hoyt Lakes because of possible impairment of my drinking water. With so much water taken from Colby Lakes and with discharges into the streams feeding Colby Lake and the White Water Reservoir drinking water could be placed at high risk.	WR043, WR200

Alphabetical by sender's first name

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Sender Name (Submission ID)	Becky Milanese (54766)	
19815	4.2.2.2.1 Groundwater Resources Page 4-45- Paragraph 1-Presence or lack of presence of fractures in the bedrock seems to be just speculation at this time. If fractures are found, what will be done? Would there be reassessment of the seepage of contaminated waters into other Formations and aquifers? 4.2.2.2.2 Surface Water Page 4-61- Upper Partridge River Hydrology- "Seeps from the southern portion of the existing LTVSMC Tailings Basin (south side of Cell1 E) naturally flow to Second Creek, a tributary of the Partridge River in the Lower Partridge Watershed (see Figure 4.2.2-1); however, they are presently being captured and pumped back to the Tailings Basin und the Consent Decree between the MPCA and Cliffs Erie." What happens when PolyMet takes over? Page 4-86-Colby Lake Water Quality- A TMDL study of Colby Lake is needed but has not been done yet. Is it even worth doing the study since the mine wastes and discharges may change or make the mercury levels even higher and even more difficult to remediate? Page 4-90-Lower Partridge River Water Quality- In the 4th Paragraph, seepages from Pit 9 have high sulfate concentrations. What is being done to improve this situation? We hope this is not a sign of what will happen after closure of the North Met mine project. Page 4-90- 5th Paragraph- It is a shame that MPCA will not be evaluating water quality standards until the NPDES/SDS permitting process so those results are not available.	WR087, WR118, WR125
19816	4.2.2.3.1 Groundwater Resources Page 4-95-ln Paragraph 5 the heights of the tailings basin cells are given. One cell is currently topped and closed at 200 feet. It is assumed that the other cells might be filled to a similar height during the North Met project. Again, the stability of the tailings basin is questioned for filling to such heights and the possibility of collapse has not been studied in this SDEIS at any point.	GT02, GT15
19817	General Comments: Chapter 5 has a number of issues that made it difficult for a layperson to make comments on information in this Chapter which include but are not limited to: Much of the information in Chapter 5 depends upon the use of models with which a layperson has no familiarity. Therefore the ability to judge whether the models being used for decision making are competent has to fall to the experts and there is no discussion of those models by experts in the SDEIS. Despite the use of many models, a lot of this work appears to be "educated guesswork" that will have to be field monitored and checked for accuracy at the time the mine is operating and that is pretty late to make changes. An example of this is found on page 5-213. "water management can be answered using the current construct of GoldSim (i.e. transport time for constituent load in Category 1 stockpile). Certain assumptions were made that may not be applicable to all potential project feature modifications."	NEPA07, WR189, WR201
19818	Page ES-17- What is the Category 1 Stockpile groundwater containment system listed in the first paragraph? Use of the LTVSMC tailings basin is worrisome. See comments from page ES-10. Who monitors contaminants in water seepage levels from the Tailings Basin? Paragraph 4. North Met Project Effects of Water Resources Page ES-35 and ES-36 Who conducted all the water tests listed in Paragraph 2? Aluminum-None of the structures (Tailings Basin, Embarrass River or Colby Lake) are labeled on maps in this section making it difficult to know where the structures are located. Page ES-36- Although water from Colby Lake will be used and it is higher in Aluminum, it does not mean that all the increases in Aluminum will be from water from Colby Lake and there might be some contribution from the North Met project as well. Pretty broad statement that might not supported when the process water is analyzed and found to have more aluminum than the Colby Lake water. Why is Colby Lake water high in aluminum in the beginning. Is this a legacy from iron mining? Paragraph 1 Seepage from Tailings Basin sounds like a lot of water despite the percentage it is quoted as being. Paragraph 4.	WR017, WR082, WR090

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Becky Milanese (54766)	
19819	Page ES-39 What if the current drought continues and water levels in the Embarrass and Partridge continue to drop? Where will water for the mine be taken from? Paragraph 1 Page ES-39 Who did the water quality measuring? See also comments from page ES-36 Paragraph 2 in this document. Watershed Restoration- Page 3-71 In the 6th paragraph who will monitor the discharges and the runoff to the Partridge River? Beneficiation Process Water 810 gallons (gpm) is a LOT of water to draw from anywhere. How often will this be needed? No lengths of time for such draws were given. Who does the monitoring and reporting on groundwater and surface water quality? Page 4-111- Baseline Groundwater Quality within the Tailings Basin Pond and at Toe of the Tailings Basin- Paragraph 3- What or who is the NTS? This abbreviation is not listed in the Abbreviations or Glossary. Page 4-122- Paragraph 5- Will the only monitoring of the Embarrass River water quality be at PM-13? Who is responsible for collecting those figures and which agency will review these figures? Page 4-126- Embarrass River Tributary Streams- "The existing LTVSMC Tailings Basin, proposed for reuse by PolyMet, was operated from 1953 until it was shut down in January of 2001. The Tailings Basin is unlined and the perimeter embankments do not have a clay core or cutoff, which allows for both surface seepage through the embankment and groundwater seepage under the embankment." This is troubling. How easy are the proposed modifications to do to the Tailings Basin? From Figure 3.2-28, it appears that the Tailings Basin will only have a rock buttress on the toe of the pile with a cutoff wall with a shallow drainage collection system. What is the cutoff wall composed of and is it impermeable? Page 4-127- "For the parameters monitored, data show compliance with water quality standards except for exceedances of hardness and pH near the toe of the of the embankment; exceedances of aluminum, boron, cobalt, copper and lead at PM-10; and exceedances for mercury at all locations." Are we to expect that these exceedances will increase with the new tailings being added to the Tailings Basin the North Met tailings?	WR056, WR070, WR093, WR139, WR188
20069	GlOSSARY Page lx- geosynthetic membrane cover- what is this made of and would we expect decomposition over time from natural forces or the sulphuric wastes?	EDIT01
20070	IMPLAN- How accurate is this model? Who or which agency uses this modeling?	EDIT01
20071	MODFLOW- How accurate is this and who uses it?	EDIT01
20072	National Pollutant Discharge Elimination System {NPDES) Permits- No agency is listed as responsible for issuance of these permits and setting their limits and requirements.	EDIT01
20073	Page lx-GoldSim- what is a engineered systems model? Which analysis gets used in which place and who uses these models?	EDIT01
20074	Page lxi- Humidity cell- Who or which agency uses this test? Hydrometallurgical residue- what is an amorphous form?	EDIT01
20075	Page lxiii- Monte Carlo Simulation- Who or what agency uses this simulation and determines its use and outcome?	EDIT01
20076	Page lxiv- Paste or thickened tailings- what is a homogeneous nonsegregated mass?	EDIT01
20077	Page lxix- Wastewater treatment facility (WWTF) & Wastewater Treatment Plant (WWTP) - What is the difference between these two and who permits and oversees their discharges?	EDIT01
20078	Page lxv- Permeable reactive barrier- Huh? Who installs and maintains this barrier? Is it a separate facility?	EDIT01
20079	Page lxvi- Reject concentrate- What happens to this water or brine?	EDIT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Becky Milanese (54766)	
20080	Page lxvi-lxvii- Spill Prevention Control and Countermeasure (SPCC) Plan- Who produces, writes, revises and oversees this plan.	EDIT01
20081	Pumping Test- Who uses these tests and determines the results and effects that need to be considered?	EDIT01
20082	Reclamation- Who oversees this and decides that it is done in a proper manner?	EDIT01
20083	XP-SWMM- Which agency uses this modeling software and what is it used to determine.	EDIT01
Sender Name (Submission ID)	Becky Richardson (54826)	
18535	I believe that the environmental impact is potentially too damaging to warrant 350 jobs for 20 years.	SO01
Sender Name (Submission ID)	Becky Zientek (45149)	
8403	I am opposed to nickel/copper sulfite mining in Northeastern MN because my understanding is that it has never been done before without polluting the water where these mines are located.	WR195
8407	I am all for good paying jobs, but it is just too risky and not worth the harm I believe these mines will very likely cause.	SO01
8409	Clean air and water are priceless resources that belong to millions of Minnesotans and should not be risked for a hundred or even thousand jobs.	AIR11
15427	Time and again you read about environmental disasters and the companies that cause them who fight tooth and nail not to pay what they should for a proper cleanup or declare bankruptcy and leave taxpayers with a large cleanup bill along with the wrecked environment.	FIN01
15478	I am opposed to nickel/copper sulfite mining in Northeastern MN because my understanding is that it has never been done before without polluting the water where these mines are located.	PD26
15479	I am all for good paying jobs, but it is just too risky and not worth the harm I believe these mines will very likely cause.	SO01
15481	Time and again you read about environmental disasters and the companies that cause them who fight tooth and nail not to pay what they should for a proper cleanup or declare bankruptcy and leave taxpayers with a large cleanup bill along with the wrecked environment.	FIN01
Sender Name (Submission ID)	Ben Christiansen (39799)	
7142	An impact study would be the very least you could do for the public.	HU01
Sender Name (Submission ID)	Ben Isbell (52493)	
17035	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies.	WR023, WR060, WR181, WR182, WR195
Sender Name (Submission ID)	Ben Niessen (41187)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ben Niessen (41187)	
9218	Please reject the PolyMet NorthMet SDEIS as inadequate ….Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion.	WR003
9222	Reject..SDEIS…and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on..streams.	WR003, WR004, WR115
9234	The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands…..Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the “evaluation locations” used in the SDEIS.	WR003, WR091, WR165
9236	The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world….	WR018
9237	The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet’s own reports for the Canada stock exchange reveal significant faults and fractures.	GT01
Sender Name (Submission ID)	Ben Senauer (58058)	
19862	Claiming environmental safeguards can prevent pollution from this mining is a JOKE!	PD01
Sender Name (Submission ID)	Ben Wagner (45344)	
12796	How can a responsible plan, which supposedly(?) aims to protect and preserve the future interests of the state, as well as the common citizen and local resident, allow for a plan with abstractions such as "500 years" of ongoing water treatment?	WR035
12798	What happens when(not if) the mine pollutes surrounding waters, and let's say anecdotally, the mining company is dissolved and/or goes bankrupt? Who will pay for further maintenance of the polluted waste site?	FIN01
15619	You also need to HONESTLY address issues of habitat destruction and impacts of stress on local inhabitants (MOOSE anyone?), regional human health impacts of mining, effects on local infrastructure, noise pollution in surrounding wilderness areas, HONEST information on local job creation associated with mining, and most importantly, HONORING THE EARTH.	WI01, WI02, WI05
15620	I happen to have a deep connection with Loons, and am very concerned about your plan to seriously impact a favored area of one of the most enchanted, magical creatures of this landscape.	WI01
Sender Name (Submission ID)	Ben Wolfe (11645)	
2344	the PolyMet Mining site in northern Minnesota, for example, will require water treatment for up to 500 years. How do we calculate such financial risk 500 years into the future? How do we account for changes brought on by technology, the environment or the economy over such a long period of time?	PD29, WR189

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Sender Name (Submission ID)	Ben Wolfe (11645)	
2344	the PolyMet Mining site in northern Minnesota, for example, will require water treatment for up to 500 years. How do we calculate such financial risk 500 years into the future? How do we account for changes brought on by technology, the environment or the economy over such a long period of time?	FIN01, FIN05
2345	How will local governments and the local economy be financially impacted? Will other local economies suffer a negative financial impact? Will it impact other stakeholders such as hunters and anglers and wild rice gatherers?	FIN08
2345	How will local governments and the local economy be financially impacted? Will other local economies suffer a negative financial impact? Will it impact other stakeholders such as hunters and anglers and wild rice gatherers?	FIN08
2346	PolyMet's water Modeling Data Package" graphs indicate that water quality would remain poor, meaning that water treatment could be perpetual. This runs counter to Minnesota laws, which calls for mining sires to be maintenance-free after closure.	WR037, WR038
2346	PolyMet's water Modeling Data Package" graphs indicate that water quality would remain poor, meaning that water treatment could be perpetual. This runs counter to Minnesota laws, which calls for mining sires to be maintenance-free after closure.	WI04, WR071, VEG04, WR156
2347	Substantial amounts of polluted seepage could enter our groundwater untreated.	WR070
2347	Substantial amounts of polluted seepage could enter our groundwater untreated.	WR070
2348	more than 900 acres of high-quality wetlands could be permanently destroyed with thousands of additional acres of wetlands indirectly affected	WET24
2348	more than 900 acres of high-quality wetlands could be permanently destroyed with thousands of additional acres of wetlands indirectly affected	WET24
2349	more than 4,000 acres of wildlife habitat could be degraded, including more than two square miles of critical habitat for the endangered Canada lynx and important habitat for Minnesota's declining moose population	WI01, WI02
2349	more than 4,000 acres of wildlife habitat could be degraded, including more than two square miles of critical habitat for the endangered Canada lynx and important habitat for Minnesota's declining moose population	HU01, WR195
2350	the proposed mine site is located on the Superior National Forest, where an open-pit mine is not allowed. But instead of rejecting the proposed mine, the U.S. Forest Service is proposing a land exchange with PolyMet to eliminate this surface protection.	LAN02
2350	the proposed mine site is located on the Superior National Forest, where an open-pit mine is not allowed. But instead of rejecting the proposed mine, the U.S. Forest Service is proposing a land exchange with PolyMet to eliminate this surface protection.	LAN02
2351	PolyMet is just the first of several copper-mine proposals for Northeastern Minnesota, with widespread exploration occurring in both the Lake Superior and Boundary Waters watersheds. Much of the Lake Superior watershed already exceeds standards for mercury and other pollutants. And the Environmental Protection Agency has identified heavy-metals mining as the nation's top toxic-producing industry	CU04
2351	PolyMet is just the first of several copper-mine proposals for Northeastern Minnesota, with widespread exploration occurring in both the Lake Superior and Boundary Waters watersheds. Much of the Lake Superior watershed already exceeds standards for mercury and other pollutants. And the Environmental Protection Agency has identified heavy-metals mining as the nation's top toxic-producing industry	CU04

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ben Wolfe (11645)	
2352	Before the first sulfide copper mine is approved in the state, the agencies should take a step back and prepare a region-wide risk assessment to assess the extent of existing pollution and determine what a new sulfide mine district would mean for this regions world-renowned waters.	CU18
2352	Before the first sulfide copper mine is approved in the state, the agencies should take a step back and prepare a region-wide risk assessment to assess the extent of existing pollution and determine what a new sulfide mine district would mean for this regions world-renowned waters.	CU18
2353	Glencore is a multibillion-dollar Swiss corporation chaired by former BP CEO Tony Hayward, whose environmental record is infamous around the world. The corporation stands to profit id PolyMet is permitted; shouldn't it also be responsible for the cost of cleaning up the mess left behind if things go wrong?	FIN02, FIN04
2353	Glencore is a multibillion-dollar Swiss corporation chaired by former BP CEO Tony Hayward, whose environmental record is infamous around the world. The corporation stands to profit id PolyMet is permitted; shouldn't it also be responsible for the cost of cleaning up the mess left behind if things go wrong?	LAN02, LAN04
8565	I love Minnesota, its people, its land, and most certainly its water….Can you spell HUNDREDS OF YEARS regarding the financial aspects, let alone the destruction of one of Minnesota's greatest assets, its water?	FIN05
8565	I love Minnesota, its people, its land, and most certainly its water….Can you spell HUNDREDS OF YEARS regarding the financial aspects, let alone the destruction of one of Minnesota's greatest assets, its water?	FIN05
8566	Who is really going to pay for the PolyMet mess? You know PolyMet does not, nor will not have that type of money to pay for its errors, and in the long run the "price", beyond the destruction of the environment for a few years of jobs and taxes, will not be just the State of Minnesota taxpayers, but ...all the taxpayers in the United States.	FIN01, FIN10
8566	Who is really going to pay for the PolyMet mess? You know PolyMet does not, nor will not have that type of money to pay for its errors, and in the long run the "price", beyond the destruction of the environment for a few years of jobs and taxes, will not be just the State of Minnesota taxpayers, but ...all the taxpayers in the United States.	SO06, WR195
Sender Name (Submission ID)	Benjamin A. Sullivan (43004)	
11509	There are also different Native American lands, which would be disturbed in this process of opening up the land for mining.	CR01
15286	The area is home to many vital wet lands (sic) which this project would destroy indefinitely roughly 900 acres of this pristine wildlife habitat. My greatest upset with this project is the large scale of the affected area…Six miles is too much wetland lost when wetlands are already under serious concern here in the United States.	WET24
15287	Not only will this project destroy valuable wetland the surrounding vegetation will also be harmed in this process, whether destruction by physical removal or harmed by the pollution that will be caused from the mine.	VEG06
15288	Poly Mets open mine will be pumping acidic water and toxic metals into the waterways, which eventually lead into Lake Superior. The project should be terminated because these toxic metals are very harmful to the environment, and could have affects not yet looked at by scientists.	WR001, WR111
15289	Mining the sulfide mineral would increase the amount of mercury in the water which would subsequently get into the fish, and eventually into the human population. The surrounding area already has a high mercury level, and this open pit mining would just worsen the problem.	HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Benjamin A. Sullivan (43004)	
15290	The proposed surface mining of Poly Met will have many harmful effects on the natural state of the environment and disrupt the enjoyment of the many people that come to visit these sacred natural areas.	LU06
15291	With sulfide mining the waste when exposed to air and water will chemically formulate sulfuric acid. This acid will leech toxic metals from the waste rock into the sweet natural waters of Lake Superiors headwaters.	WR001, WR111
15292	The project would jeopardize the Boundary Water Canoe Area Wilderness, which is a destination for many canoe enthusiasts.	WILD02
Sender Name (Submission ID)	Benjamin B. Eide (42450)	
6788	Our lake and waterways are what help make Minnesota a great place to live.Lake Superior is not only a state or national treasure but a ONE OF A KIND treasure that is vital to our state. Please don't risk polluting it for a few jobs and a few dollars.	WR111
Sender Name (Submission ID)	Benjamin Cook (51560)	
3615	There is no guarantee that any company will be around long enough to sufficiently correct all of the damage done, no matter what these companies promise in the beginning.	FIN01
3616	The companies that own the mines will reap the profits and then leave, forcing the citizens of Minnesota to deal with the damage to the health of humans as well as wildlife.	WI04
3617	However, there is a guarantee that damage will be done to the natural environment, especially the irreplaceable Boundary Waters Canoe Area Wilderness. Destroying the beauty and health of the state of Minnesota is not worth creating a few hundred temporary jobs.	WILD02
Sender Name (Submission ID)	Benjamin H Johnson (43031)	
12505	The water treatment plans contemplated in the draft EIS assume that the region will for centuries be part of an organized, advanced industrial civilization that produces abundant electricity, and educated populace with advanced technical skills, and a legal and institutional framework that will hold Polymet to its commitments or, if necessary, assume them. This is a dangerous gamble, and the proposal should be turned down on that basis, or at least altered to require all mandated remediation to take place within a viable timeframe.	PD01
17118	…the remediation operations proposed by Minnesota PolyMet are virtually guaranteed to fail…because the company's operations create dangerous waste that will have to be actively managed for centuries. This management presumes the existence of a basically uninterrupted supply of electricity to power the reverse-osmosis process of water filtration, the continual existence of a corporate or state bureaucracy to operate the equipment, and a level of political stability and cohesion necessary for these electrical and organizational systems to endure.	PD01
Sender Name (Submission ID)	Benjamin Tsai (58160)	
19996	The PolyMet SDEIS is still inadequate....It doesn't analyzethe effect of pollution on workers' health or on nearby drinking water wells. It doesn't explorealternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect thatPoly Met's sulfide mine, combined with other mines, would have on toxic pollution, like mercurycontamination of fish.The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake SuperiorBasin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surfacewater and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, andimpair health of adults and children... pollution from the mine tailings andwaste heaps would last for at least 500 years.	GEN03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Benji Pajari (11608)	
3291	I believe this project will bring jobs to the area.	SO10
3291	I believe this project will bring jobs to the area.	SO10
Sender Name (Submission ID)	Bentleydog (21277)	
934	· Land Exchange: The DEIS does not adequately address all the biological and land use issues with the land exchange. Additional information on the natural heritage and timber resources of the exchange lands need to be gathered. In the long run, the public is best served if the public gains much more public land than it gives up. The exchange ratio should be at least 2 to 1.	LAN03, LAN05
935	· Storage of Tailings: To prevent the oxidation of sulfide tailings a tailings basin must be designed to secure those tailings…forever. Forever is a very long time. No made-made structure can be designed to last forever so at some point in the future the tailings storage facility will be compromised. At some time in the future the people of Minnesota will have to pay for and clean up the failing tailings storage facility. Large amounts of money put aside today for future remediation will fall short of what is really needed. Millions of dollars today will equate to pennies in the distant future. The DEIS should make very clear that the tailings storage facility will not last forever and at some time in the future the people of Minnesota will either pay huge amounts for a cleanup of endure sulfide pollution.	FIN01, FIN05, FIN10
Sender Name (Submission ID)	Bernard Malacina (29436)	
10980	I can't believe any company would want to endanger this area where you can actually drink from the lakes.	WR195
13868	I have personally worked in the BWCAW as a outfitter and have taken several canoe trips into this pristine area…I have had people from Denmark come to this country just to canoe in this area. Please stop putting our public lands into destructive companies hands.	WILD02
Sender Name (Submission ID)	Bernice Norregaard (10440)	
547	Not only are the mines scientifically safe, but they add tax dollars to the local, state and federal coffers.	SO10
549	We can have both mining and clean air and water.	AIR14
1462	I believe that it is better to have the mines in Minnesota with its tough laws than in third world countries where they don't care how they pollute the air and water and they have no regard for the safety of their employees. We would not have children working for little of nothing so that big corporations can get even bigger profits. We have to care about those far off countries, because their polluted air and water does make it to North America.	ALT16
6946	The SDEIS studies will show that Polymet's plan to operate a mine on the Iron Range are very sound and will not adversely affect the air or water of NE Minnesota. In Minnesota we have strong environmental laws … It is much better to have the mines here, where they will add to our productivity, rather than in third world countries that exploit not only the land, but the people as well.	SO10
Sender Name (Submission ID)	Bernie Baltich (11524)	
2476	As a business owner in Ely, the community would be crazy not to re-utilize the old LTV site. All of the towns are in need of financial investment, this would help re-build failing communities.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bernie Baltich (11524)	
2476	As a business owner in Ely, the community would be crazy not to re-utilize the old LTV site. All of the towns are in need of financial investment, this would help re-build failing communities.	SO10
Sender Name (Submission ID)	bernita flynn (38523)	
13571	The company says it will restore the land for 500 years following the sulfide mining? Really? They won't be around and our future generations will be the ones to suffer.	FIN01
13572	Minnesota should be putting its efforts and funds into alternative forms of energy such as solar and even nuclear. Both would create more skilled jobs that pay higher wages that could employ our graduating college students who are now unable to find jobs. We must stop destroying our land and atmosphere and it is time to take other forms of energy seriously.	SO02
Sender Name (Submission ID)	Bert and Cynthia Weberg (57171)	
18692	Have other sulfide mines been near a big body of fresh water? If so, what are/were the results? We would hate to be part of the generation that would allow Lake Superior and other great lakes to be poisoned.	PD26
Sender Name (Submission ID)	Bert BG Hyde (42868)	
8896	4.2.1. – pg 4-17 – last Paragraph [SDEIS text] "In May 2009, Cliffs Erie conducted a detailed assessment of both surface and ground water…"I am amazed that the mine is assessing their own potential water pollution/contamination – and found no off site contamination... If this is an example of how the MDNR would be monitoring the sulfide mining I have no faith in that kind of oversight. The only alternative that the MDNR can choose is the "No Action Taken" plan.	WR139
8898	Table 4.2.2.1 – Air Temp and Precipitation: The period of record – Babbitt = 1948 – 1986, Hoyt Lake 1958-1984. This data is 28-30 years old. Climate change data is collected from the early 1980s to the present. Table 4.2.2.1 is obsolete. It is of no factual value. Why was it included? It just adds to the bulk of the document without adding to the decision making process.	WR072, WR077
8899	Impaired waters – there is no mention of any CONSEQUENCES meted out to those who impair the waters. Any financial consequence that any mine pays for violating laws, rules, regs…. Is figured into their cost of doing business (CODB) – no mine executives have ever served jail time for poisoning our drinking water.	FIN14
8900	Table 4.2.2.2. – There is nothing on page 4-29 that indicates any ACTION to be taken by the MDNR to stop Hg or any other pollution from taking place!	MERC15
8909	Table 4.2.6.4. has no information about Hg in fish tissue. The IBI doesn't tell me much, mostly "N/A" 61 and 33 – 61 & 33 scale of 0-100 does not indicate good fish assemblage conditions. Why is this disinformation included in the SDEIS?	AQ04, AQ10
8910	Pg 4-45 1st paragraph – fails to mention that in the area of Harris Lake is one of the old quarry sites probably operated by the Cold Spring Quarry Co. As noted elsewhere blasting can contribute to fracturing ground and bedrock which could lead to ground water being transmitted through bedrock over distances of thousands of feet. Pollutants would also be transmitted into the surface water and water table and watershed. Harris Lake area is in the Kawishiwi River watershed which flows into the Boundary Waters Canoe Area Wilderness.	WR010, WR016, WR061, WR081, WR090
8911	Pg 4-45 and 46, 47 – The content of these pages is so well hidden that I could not understand what the author was trying to communicate.	EDIT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bert BG Hyde (42868)	
8917	Table 4.2.2.-5 – Well aquifer tests are so few in number as to be insignificant.	WR071, WR072, WR078
8920	MDNR measured Partridge River during winters 2008, 2010, and 2011. PolyMet used 1985-86-87 to estimate their data. What is the value of using data almost 30 years old especially in light of changing rainfall characteristics due to climate changes? Why would PolyMet use out of date Information?	WR003, WR077
8923	Average monthly outflow from Pit 3 (SD012) was about 0.7 cfs, or 1, 814,400 cubic feet/month or 241,920 gallons/month. What does average winter outflow 40.1 cfs mean? 47,520 cubic feet/month? 6336 gallons/month?	WR201
8929	[Text from SDEIS] "Colby Lake is on the MN 303 (d) TMDL list because of mercury concentrations in fish tissue...A TMDL study of Colby Lake is needed to determine what actions are required to reduce the mercury concentration in fish, but has not yet been performed." - Why has the MDNR not got around to starting to protect the public from this toxic element?	MERC22
8934	"Water quality is affected by local runoff from the former LTVSMC processing plant operations" – Is this an example of how the DNR will protect the environment/water quality after PolyMet has abandoned its mining operations?The poor water quality exhibited by these streams is an indication that the permitting process does not prevent water pollution. It documents how much the water has been polluted. There is no mention of CONSEQUENCES that fall upon the mine. At best they may try to mitigate the pollution – but by the time the pollution has been reported, documented, debated, sued-counter sued … much of the land/water scape has been damaged-destroyed-poisoned.	WR139
8936	High concentrations of sulfate inhibit or prevent wild rice from thriving in waters that would otherwise support an abundance of wild rice…There were several bodies of water that were examined and found no wild rice but then no water samples were tested for sulfates. Why not? Could too high a concentration of sulfates totally kill off a wild rice bed? Wouldn't PolyMet want to know that?	VEG04, WR156, WR157
8938	Paragraph 3 – Last sentence LTVSMC tailings are still seeping from the abandoned mine. Is this an appropriate example of how well abandoned mines are allowed to continue to pollute ground water and surface water? And how well the DNR can prevent pollution from mines in the first place.	PER06, WR070
8941	Were the results of the tests of the residential wells made available to the residents who drank the water from those wells? Were the results an explanation of the results made to the residents? What is the state of their health relative to their drinking water?	HU13
Sender Name (Submission ID)	Bert Hyde (46196)	
8220	Pg.3-136 Section 3.2.2.4 Financial AssuranceParagraph 2 - The wetland mitigation that would be constructed should require financial assurances.	FIN11
8221	Why are the financial assurances not spelled out in the SDEIS? These should stand to answer many of the "what if?" questions raised in these SDEIS reviews. With all the pages of "infrastructure" that PolyMet has generated, it seems suspicious that they did not have the time, resources, or expertise to put together a complete and accurate financial assurance plan.	FIN08
8223	Please have PolyMet submit a true financial assurance detailed statement. Please include financial assurances that include information that extends 500 years into the future. Please include information that would make clear how the state of Minnesota would not be financially liable for environmental clean-up if PolyMet goes bankrupt, dies, disappears, or otherwise "skips town."	FIN01, FIN08, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bert Hyde (46196)	
8246	Pg. 3-158 Section 3.3.1.1 Priority 2, 2b through 2eThe reasons that the land exchange should NOT take place: I ask that the USFS reconsider and then refuse the USFS land exchange. 2a and c Land that enhances recreational opportunities, public access, and aesthetic values. The area of the proposed land exchange includes much of the High Value Biodiversity, 100-mile Swamp wetlands. This area supports many varieties of life forms that are not common to other areas in Minnesota. Caltha natans and Felm Canadensis are but two.	LAN04
8247	2e. The Partridge River, among others, would be severely negatively impacted by this PolyMet project. The Partridge River flows into the St. Louis River, then Lake Superior. Heavy metals and other toxic and carcinogenic pollutants would definitely be washed to the lake Superior waters.	WR111
8251	Pg 4-192 - 4.2.3.3 Threatened and Endangered Plan SpeciesThere are three state-listed ETSC plant species. Even though they are not federally listed, that does not weaken the argument that they are rare and unique individuals and deserve full protection. The land exchange would doom these plants and their community. The No Action alternative is the only fair and reasonable path.	VEG01
8253	Pg 4-1732 Mn Biological Survey, paragraph 2 Two native plant communities: Black Spruce-Jackpine woodland (FDn32c) is 34% of the mine site and Rich Black Spruce Swamp are characterized by the MBS as "imperiled/vulnerable" and "vulnerable" - another reason for the No Action alternative.	VEG02
8260	Pg 5-4, 5.2.1.2.2 paragraph 1, last sentence: "The USFS also requires preparation of associated reclamation plans to insure the long term protection and restoration of the natural resources." The SDEIS has not documented the "protection and restoration" of the natural resources.	VEG05
8264	See pg 3-124, 3.2.2.3.1.2 PolyMet says they have developed a Reclamation Plan, but they WILL submit it to the MDNR (not USFS) as part of the permit process. These plans should have been included in the SDEIS for examination and evaluation by the public. I ask that these plans be included in the next draft of the EIS.	PD09, PD35
8271	5.2.1.2.3 - Areas of Concern. #8 groundwater plume & all other AOCs need to be investigated long before the mine would close. This is so irresponsible! The MDNR needs to protect the environment against groundwater pollution. Pg 3-158 Priority 2, 2b, and 2c. Deny PolyMet their permits. Choose the No Action alternative to ensure groundwater safety.	WR012
16168	Please have PolyMet submit a true financial assurance detailed statement. Please include financial assurances that include information that extends 500 years into the future. Please include information that would make clear how the state of Minnesota would not be financially liable for environmental clean-up if PolyMet goes bankrupt, dies, disappears, or otherwise "skips town."	FIN01, FIN08, FIN10
16169	I ask that the USFS reconsider and then refuse the USFS land exchange. ... Land that enhances recreational opportunities, public access, and aesthetic values. The area of the proposed land exchange includes much of the High Value Biodiversity, 100-mile Swamp wetlands. This area supports many varieties of life forms that are not common to other areas in Minnesota. Caltha natans and Felm Canadensis are but two.	LAN03, VEG01, WI02
16170	The Partridge River, among others, would be severely negatively impacted by this PolyMet project. The Partridge River flows into the St. Louis River, then Lake Superior. Heavy metals and other toxic and carcinogenic pollutants would definitely be washed to the lake Superior waters.	WR111
16171	There are three state-listed ETSC plant species. Even though they are not federally listed, that does not weaken the argument that they are rare and unique individuals and deserve full protection. The land exchange would doom these plants and their community. The No Action alternative is the only fair and reasonable path.	VEG01
16172	PolyMet says they have developed a Reclamation Plan, but they WILL submit it to the MDNR (not USFS) as part of the permit process. These plans should have been included in the SDEIS for examination and evaluation by the public. I ask that these plans be included in the next draft of the EIS.	NEPA08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bert Hyde (46196)	
16173	groundwater plume & all other AOCs need to be investigated long before the mine would close. This is so irresponsible! The MDNR needs to protect the environment against groundwater pollution.	PER04
18424	Pg 3-2, sect. 3.1.1.1. – 2 para "New processing buildings…further refine" what does it mean "refine"? Is this smelting? How does it differ from smelting?	PD33
18426	3.1.1.2. High potential waste rock moved from lined stockpiles to E & C Pits – how is waste rock stored in E & C Pits relative to permanently being stored to prevent contamination? Waste rock would be moved after 11 years to the permanent storage – what kind of linings would protect the waste rock/water – how is it being monitored?	PD35
18427	Pg 3-4 3.1.1.5 – what are hydro metallurgical residue? Geomembrane layer? Geosynthetic clay? Geo composite drainage system?	GT10
18429	Pg 3-63,2,1 – Construction of permanent featuresUnderwater store for most reactive rock – and one flooded mine pit – How will this technique protect surface/ground water from pollution that is stored underwater? How will these polluted waters not get into the groundwater & watershed?	WR029
18431	Pg 3-7, #5 "Construction of temporary…removed…before or at closure" "Caps and covers….could be adapted to alter water infiltration as needed"-Post closure should only involve passive means – especially given that environmental assurances must be in place for many, many years. PolyMet will not be able to maintain the post closure environmental safeguards. They will no longer exist.	PER03
18432	The No Action alternative is the only course of action that protects both the environment and tourists, hunters, fishers, and those who want to experience and learn from the untraveled wilderness…	ALT14
18434	Public land that may be leased – exchanges from USFS to PolyMet. What is public paid for the minerals that will be taken? How much is that per person? What is done with the money given to the public for selling its minerals to the Polymet mine et al?	SO04
18444	Pg 3-46 3.2.2.1.8 – Category 1 stockpile….Para 3, last sentence "Performance modeling …. Capture efficiency greater than 90%." When talking about many millions of gallons of water for many years 90% is quite a lot of polluted water. It is too much!	WR070
18448	Pg 3-52Waste water Tx FacilityPara 1, last sentence: A Reverse osmosis unit … WWTF at closure. RO is not passive. It needs to be maintained for many many years. Who will do that?	PER19
18451	Pg 3-59 & 3-72 Both mechanical and non-mechanical Tx would require periodic maintenance and monitoring activities … duration of the [ILLEGIBLE]. 200 years mine site, 500 years at plant site.These numbers are astounding! Please explain why they were included! Obviously no one will be maintaining or monitoring anything in 500 years.	PD03, PD06
18453	Pg 3-79, Post Closure Act, Para 1, last sentence: How will future rules and regulations and laws impact the PolyMet Co? Will they be held to the future rules, regs, laws or will they be "Grandfathered" in to the present standard (which might be a lower standard assuring that future standards will be even more environmentally enlightened and advance? "to achieve future water quality criteria…."	PER06
18455	Pg 3-95 "Dewatering" – I could not find definition in glossary. What is the dewatering process?	PD20
18456	Pg 3-100 What is the chemical composition of the slurry and the tailings? What happens to the methyl isobutyl carbonyl and polyglycol ether?	PD18
18457	Pg 3-101 What backup for power failure will be in place? Is there a plan for solar or wind power?	PD22

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bert Hyde (46196)	
18459	Pg 3-102Beneficiation Process Water – What is average annual makeup water? Is average annual demand of 275 gpm = 144,540,000 gallons per year?	PER09
18463	3.2.2.3.5 . . . Why would 11.27 million short tons be placed on top of unlined tailings basin each of the first 7 years.	WET12
18464	Pg 3-114, 3.2.2.3.7. High purity gypsum is a useful product – it should not be managed as waste – waste is ultimately very expensive.	EDIT01
18466	Pg 3-116, 3.2.2.3.1.0 - what contingencies have been made for water-soil freeze – thaw cycles, frost heave, soil expansion-contraction especially dams, dikes, ditches, pond pipes…? Tailings Basin – again 90% of [ILLEGIBLE] seepage as capture rate is too much water left.	WR008, WR065
18470	Figure 3.2-28 = Assumption! Bedrock assumed no flow boundary price it. Tailings are shown to leak – bedrock contains fractures contaminated water will pass through bedrock into water shed.	WR108
18472	Pg 3-124, para 22312 – reclamation plan is not available for review. It should be included in the SDEIS.	PD09
18474	Pg 3-128Product and Product tank disposal – 1st sentence & 2nd sentence: --Polymet should be responsible for the totality of all materials that they cause to be brought to the site,	PD36
18478	Cover and Revegetation— Use of non-native, rapid growth mix—Native plants should be used. Non-native invasives will be brought into the mine site by heavy equipment and workers vehicles soon enough without putting it into the plans, "Disturbed areas on the plant site…" any areas left undisturbed?	VEG05
19436	I am amazed that the mine is assessing their own potential water pollution/contamination – and found no off site contamination…. If this is an example of how the MDNR would be monitoring the sulfide mining I have no faith in that kind of oversight. The only alternative that the MDNR can choose is the "No Action Taken" plan.	ALT14
19437	Table 4.2.2.1 – Air Temp and Precipitation…The period of record – Babbitt = 1948 – 1986, Hoyt Lake 1958-1984. This data is 28-30 years old. Climate change data is collected from the early 1980s to the present. Table 4.2.2.1 is obsolete. It is of no factual value.	AIR01
19438	4.2.2.1.2 – water use-ground water, surface water impaired waters – pg 4-25 impaired waters – there is no mention of any CONSEQUENCES meted out to those who impair the waters.	WR139
19439	There is nothing on page 4-29 that indicates any ACTION to be taken by the MDNR to stop Hg or any other pollution from taking place!	MERC02
19440	I could not find section 4.2.6.4 – table 4.2.6.4. has no information about Hg in fish tissue. The IBI doesn't tell me much, mostly "N/A" 61 and 33 – 61 & 33 scale of 0-100 does not indicate good fish assemblage conditions. Why is this disinformation included in the SDEIS?	AQ04
19441	Pg 4-45 and 46, 47 – The content of these pages is so well hidden that I could not understand what the author was trying to communicate. If the goal of this SDEIS is: (ES-3, 1st column, 4th line from bottom) "The purpose of the SDEIS is to describe the process undertaken to evaluate the issues related to and predicted effects of the NorthMet Project Proposed Action and Land Exchange Proposed Action and alternatives" it has failed me. This description does not communicate!	NEPA07
19442	Pg 4-53 Paragraph 2 – "As recognized in other studies (MDNR 2004; Siegel and Ericson 1980) aquifer testing (Table 4.2.2-3) showed that the ability of the surficial sediment to transmit water was highly variable and depended upon location and thickness of the sediments. No data were available regarding the storage parameters for the surficial deposits.	WR071, WR072, WR095

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bert Hyde (46196)	
19443	Table 4.2.2.-5 – Well aquifer tests are so few in number as to be insignificant.	WR071, WR072, WR078
19444	Pg 4-66 Upper Partridge River Base Flow…MDNR measured Partridge River during winters 2008, 2010, and 2011. PolyMet used 1985-86-87 to estimate their data. What is the value of using data almost 30 years old especially in light of changing rainfall characteristics due to climate changes?	WR003, WR071, WR086, WR091
19445	Pg 4-86 Colby Lake is on the MN 303 (d) TMDL list because of mercury concentrations in fish tissue which are considered too high to be returned to MN mercury water quality standard. A TMDL study of Colby Lake is needed to determine what actions are required to reduce the mercury concentration in fish, but has not yet been performed.	WR123
19446	The poor water quality exhibited by these streams is an indication that the permitting process does not prevent water pollution.	PER06
19447	There were several bodies of water that were examined and found no wild rice but then no water samples were tested for sulfates.	WR152
19448	Pg 4-111 Were the results of the tests of the residential wells made available to the residents who drank the water from those wells? Were the results an explanation of the results made to the residents? What is the state of their health relative to their drinking water?	WR039, WR041, WR142
Sender Name (Submission ID)	Bert Weberg (54572)	
18229	Some years ago, the acid rain resulting from emissions from coal fired power plants south of us was a problem for the northern Minnesota ecosystem. Would the acid resulting from the extraction and processing of the sulfide ores present the same problem?	AIR04
18230	In other sulfide mine sites, as in So. Africa, have there been problems with dust from the mining process? We worry about the workers and flora/fauna in nearby forests.	AIR09
Sender Name (Submission ID)	Beryl Schewe (40146)	
6729	Can we realistically accept a plan that demands remediation for the next 500 years? Do we expect PolyMet to exist in 500 years?...If the pollution proves too costly for PolyMet to clean up, they will most likely file for bankruptcy and leave Minnesota with both the spoiled and polluted environment and the bill for the cleanup.	FIN01
Sender Name (Submission ID)	beshig (44126)	
14898	You have the Scientific Data ,Enforce it? Tell polymet and their Chinese Investors to go elsewhere!	SO06
Sender Name (Submission ID)	Beth Blackledge (10139)	
357	We have water in Minnesota so why should we take any chance of polluting it with a material that wreaks it for people and wildlife?	WR115
358	The only people making large amounts of money are the owners of the companies, and it is my understanding that no one has on record just who these companies are.	SO02
Sender Name (Submission ID)	Beth Davidson (11548)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Beth Davidson (11548)	
2503	It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells.	WR041
2504	It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands.	WET20
2506	The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children.	FIN05, FIN01, WR066, WR130
2506	The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children.	AQ05, WR107, WR108, WR156, WR158
2507	PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity."	WR111, WR115
2507	PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity."	WR035, WR070
7476	The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. (…) explore alternatives that could reduce PolyMet's destruction of wetlands. ... effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish.	COE03, WET20, WR041
7476	The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. (…) explore alternatives that could reduce PolyMet's destruction of wetlands. ... effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish.	COE03
Sender Name (Submission ID)	Beth Gohdes (57986)	
19865	the long term effects of keeping the water clean are not being acknowledged.	PD01
Sender Name (Submission ID)	Beth Lewis (9291)	
1105	I favor the no action alternative on the USFS Land Exchange proposal becausewhen I looked at the locations and description of the tracts of land which PolyMetproposes to swap for the mining site USFS land, I do not feel they are of equalenvironmental quality. This seems especially true regarding the location, size andquality of wetlands.	LAN03
1108	I asked for more explanation on wetland mitigation required under the WetlandSection 404 of the Clean Water Act. Again, I was shown a map and the areas whichPolyMet are proposing to mitigate to offset the destruction of wetlands at the miningand processing sites. These sites are small and at scattered locations, most outsideof the St. Louis River watershed.	COE01
1110	I believe the Tribal Agencies Major Difference of Opinion #8 on the method ofassessing indirect impacts from mine dewatering and groundwater drawdown shouldget further consideration. I agree “that the USACE should require up front mitigationfor all severely impacted wetlands, but at a minimum up front mitigation should berequired for wetlands occurring in Zone 1” and other recommendations. I alsobelieve this wetland mitigation should be in the St. Louis River watershed.	COE01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Beth Lewis (9291)	
1114	Despite the improvements in the supplemental draft, Ithink the SDEIS needs better data for analysis and further work. Based on theinformation I have learned from the SDEIS, I believe the St. Louis River watershed willsuffer a lost of critical wetlands and risk further contamination to wild rice areas andwater quality for plants, animals and humans. This is not acceptable.	GEN03
10781	I do appreciate the extensive work which the Co-lead and Cooperative agencies staff have done on both initial and supplemental DEIS.	NEPA16
10783	I believe more than 90-day review period is warranted for people with the necessary technical knowledge to thoroughly review this analysis and provide substantive comments.	NEPA07
10787	I view the proposed land swap, not in terms of number of acres or appraised value, but in terms of the USFS mandates on forest management. The environmental risks associated with swapping the land requested by PolyMet seem to out number the environmental benefits for the various other parcels.	LAN01
10789	The Lake Superior watershed is already at risk from mercury and other pollutants. The SDEIS materials impressed me with the scope and duration of this mining and processing operations. Tons and tons of tailings are going to be mined and moved in a sensitive, water-rich environment for 20 years. The new flow data on the Partridge River needs to factored into the hydrological modeling. Why would we risk even a 10% chance of further polluting this key watershed?	WR003
10790	I am also concerned about the quantity of water used in the mining and processing and the impact to groundwater and aquifer sources. The report predicts no significant changes to groundwater and surface water flow when compared to existing average conditions. Yet, I did not read how mining operations will be adjusted in prolonged periods of drought and low water levels, as we have experienced in northeast MN over the last several years and should expect to experience even more in coming decades.	WR181, WR182, WR188
10792	I am also very concerned about the processing facility on the LTVSMC site and the QEAA on groundwater pollution. I...found credible the projection by investment analyst, Wayne Atwell of Edison Investment Research, that the mining company will want to maximize the use of this processing facility for return on investment and increase daily ore production from 32,000 to90,000 tons per day...I believe this EIS should include modeling with possible daily increases in production.	PD29
10794	What if something goes wrong? In all of this technical analysis, I didn't see “what if' scenarios of impacts if something goes wrong. There is enough history of nonferrous mining to inform a list of key things that can go wrong, what mitigation would be required and possible environmental impact.	PD22
10795	Financial assurance will be legally required. The key questions are how will it be calculated and how much? Will it be adjusted as scope of project changes or unaccounted environmental impacts occur? How do we put a commodity price on clean water?	FIN05, FIN08
Sender Name (Submission ID)	Beth Yokom (43334)	
15592	Water is essential for all life, and in MN we are especially known for our water...Land of 10,000 Lakes... To consider jeopardizing our water flabbergasts, confuses and disappoints me.	WR195
Sender Name (Submission ID)	Bethany Ebert (9599)	
8657	Therefore it's possible they also gave inaccurate information about air pollution. ... people in the world who are predisposed to cancer, and too many carcinogens in the air could aggravate their conditions, causing more illness and death.	AIR11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bethany Ebert (9599)	
8659	What sort of risks would the pollutants in the atmosphere bring to a fetus in the first trimester, or a newborn?	HU01
9966	PolyMet gave inaccurate information about the amount of waterflow. Therefore it's possible they also gave inaccurate information about air pollution.	WR003
9967	What sort of risks would the pollutants in the atmosphere bring to a fetus in the first trimester, or a newborn?	HU01
10663	it's also true the quality of life while living should be a good one. PolyMet is not going to do much to improve the quality of life. It will just make the environment more polluted. A lot of people here like to fish and hunt, a lot of people like walking their dogs, a lot of people like just hanging out by the lake, and if the mining happens, who's to say any of that would continue?	LU06
11010	What sort of risks would the pollutants in the atmosphere bring to a fetus in the first trimester, or a newborn?	HU01
11011	PolyMet gave inaccurate information about the amount of waterflow. Therefore it's possible they also gave inaccurate information about air pollution.	AIR11
13382	Please also keep in mind there are some people in the world who are predisposed to cancer, and too many carcinogens in the air could aggravate their conditions, causing more illness and death.	HU03
13384	A lot of people here like to fish and hunt, a lot of people like walking their dogs, a lot of people like just hanging out by the lake, and if the mining happens, who's to say any of that would continue?	LU06
13388	Kids should be able to get outside and play. If there's a lot of pollutants in the environment, this kind of ruins that.	LU06
16222	A lot of people here like to fish and hunt, a lot of people like walking their dogs, a lot of people like just hanging out by the lake, and if the mining happens, who's to say any of that would continue?	LU06
Sender Name (Submission ID)	Bethany Owen (38907)	
5408	The regional economic benefits of PolyMet being permitted to safely mine this valuable mineral deposit radiate outward far beyond the 75-mile distance between the proposed mine in Minnesota and our facilities in Wisconsin. Our regional economy is highly integrated through suppliers, contractors and qualified workers. Of course, our environment is highly integrated as well - sharing the tremendous fresh water resource that is Lake Superior.	SO10
5409	We believe we can have economic growth and jobs, while also protecting our environment. Damaging practices from the early days of mining are no longer tolerated or allowed…Technology and environmental science have evolved, bringing positive changes to the mining industry just as they have to virtually every other industry in our region.	SO10
Sender Name (Submission ID)	Bethel Anderson (42722)	
9906	Please reconsider allowing us more time to comment on this EIS document.	NEPA07
17427	At present, in the St. Louis River, sulfate has been shown to produce methyl mercury, which bio-accumulates in the fist. Addding sulfates to the tributaries which feed into the St. Louis River will occur under the SDEIS, both from mass loading from sulfate and from the seepage waste piles.	WR107, WR108

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bethel Anderson (42722)	
17428	This project [Polymet] would add particulate and nitrogen oxide load and furhter degrade air quality.	AIR13
17432	Another heavy metal that needs to be considered in a health risk assessment in Manganese. (…) This problem of manganese in the ground water has bot bene mitigated, and is an inherited problem for PoylyMet, as they plan to pile further waste on top of this basin. (…) High levels of manganese in drinking water are harmful to health and heave been assocaited with several neuological problems, both in youngh children and older people.	HU02
Sender Name (Submission ID)	Betsy Blume (44364)	
10374	Noise pollution near wilderness areas like the BWCAW will effect users (like me!) and the economic interests of the community that supports these recreation gems.	N02
10375	It is an experiment that Polymet proposes in dealing with the issues of polluting our watersheds. New technology is Not evidence that the projects will not have severe long term damage to our water resources.	WR128
Sender Name (Submission ID)	Betsy Bowen (42857)	
8814	The Boundary Waters and Lake Superior are precious in the health and welfare of the land that these waters support, and while I do care about jobs for supporting the local people, nothing I have read and studied about this proposal sounds like the risk is worth it... I urge you to protect the water quality. Over-protect it. Without clean water, we are all lost.	WR081
8814	The Boundary Waters and Lake Superior are precious in the health and welfare of the land that these waters support, and while I do care about jobs for supporting the local people, nothing I have read and studied about this proposal sounds like the risk is worth it... I urge you to protect the water quality. Over-protect it. Without clean water, we are all lost.	SO01, WILD02, WR081, WR195
Sender Name (Submission ID)	Betsy LePlatt (23581)	
3514	I am very concerned about trading our long term environmental health for short term and not clearly spelled out financial gain.	SO01
3515	One of the things which concerns me most is permanent water pollution. I do not think it is good enough to base such important decisions on “probabilistic simulations,” or computer models, of the effects of PolyMet’s mining activities on water quality.(…) I read the other day that the flow rates on the Partridge River entered on the SDEIS were wrong.	WR003, WR035, WR189
3519	The long term economic impact of this project is also a big concern of mine. Would the clean up cost the State more than the economic gains of the project?	SO04
Sender Name (Submission ID)	Betty Holmen Greene (54730)	
18773	In addition, this is just the first of many proposed projects, and it is important to consider the cumulative effects of many copper-nickel sulfide mines.	CU04
18775	Among the unanswered questions are the health impact both on humans and on wildlife, such as moose and lynx. Clean water is vital for both humans and moose and other wildlife.	WI01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Betty Holmen Greene (54730)	
18777	The impact of wetland destruction needs to be carefully considered. Mitigation ofwetlands using lands in other watersheds does not really help, especially for wildlifedirectly impacted by the lost wetlands.	WI02
18778	The impact of sulfates on wild rice needs careful review and consideration. Wild rice isof vital importance to Minnesota's Native American tribes, and the St. Louis Riverwatershed flows through tribal lands. The U.S. Government and Minnesota do not havethe greatest track record of respecting the rights of sovereign tribes. The impact on andneeds of the sovereign tribes must be given high consideration.	VEG04, WR156, WR157
18780	Hard-rock mining carries the potential for asbestos-like minerals to be released in water effluent or air emissions. The supplemental EIS does not adequately address this, even though the effect on human health of asbestos-like minerals is an emerging concern in Northeastern Minnesota.	AIR03
18783	Sulfide mining will place a huge burden on taxpayers. It is not possible for PolyMet or any other company to provide enough financial funding up front to handle post-closure treatment, monitoring and maintenance, leaving the burden on taxpayers. In addition, should an incident affecting the water supply happen during the mining process, the likelihood of PolyMet or any other company actually providing the clean-up funds is minimal.	FIN01, FIN10
18785	If we lose our precious water resources, the economy of the whole region will be greatly adversely affected, and Minnesotans are the ones who will have to deal with that, in terms of both our health and our finances.	WR195
18786	The environmental review process has not adequately addressed the cumulative impacts to water, land, or air and the degradation of thesevital resources for wildlife or for future generations.	CU11
Sender Name (Submission ID)	Betty Preus (46968)	
10853	- Health risks such as exposure to mercury, asbestos and arsenic. Mercury is already a problem with 10% of newborns in the Lake Superior basin. Polymet admits that mineral dust released could harm workers and nearby residents. Doctors have recently requested a study of the potential health impact of this project. Let's study the potential impact and not the problem after it has sickened or killed many people.	HU01
10855	- Hundreds of years of polluted water seeping into our streams. I am not convinced that Polymet would be able to contain all polluted water. It will inevitably seep into our clean waters. Boundary Waters rivers have been named at risk for pollution as a result of this proposal. The Boundary Waters is a most precious resource that we simply must preserve for future generations.	WR111, WR129
10857	- Destruction of 6,000 acres of wetland which are currently habitat for our endangered moose and lynx populations and many other species.	WI02
10858	- Questions about whether Polymet would cover the costs of cleanup and whether they would be paying fair taxes. To me, I don't think it would be possible for them to pay enough for damage and taxes because they would be destroying a treasure that is priceless and irreplaceable.	FIN01
Sender Name (Submission ID)	Betty Tisel (38391)	
9609	I am concerned that the SDEIS does not include any analysis of the health effects for on-site workers at the mine...The SDEIS must analyze particles and fibers in crushing plant air, not just air outside the property boundary.	HU04
13653	The only "health-risk assessment" in the SDEIS was done for people who are off-site...Other Minnesota environmental impact statements and documents have looked at cancer risks for workers. Why not PolyMet?	HU04
13654	The PolyMet site is a "lean" deposit of copper and nickel - 99% of what is dug out of the ground will be considered waste. Blasting and grinding the dug-up rock will unleash huge amounts of particles and fibers that workers will breathe.	AIR03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bev Scalze (47482)	
11194	[SDEIS does not include financial analysis] The SDEIS doesn't account for the replacement capital costs of the mine proposal, eg. water treatment plant, holding pond liners, etc…..The draft SDEIS doesn't include capital costs of the life of the liners of the pits or stockpiles, nor does it include methods to monitor the liners and the replacement of those liners and the surrounding possibly-contaminated soils and aquifers.	FIN05
11247	The aquifers surrounding the proposed sites haven't been monitored for the existing conditions of the waters. The draft SDEIS doesn't include maps and analyses of surrounding streams and rivers as to their existing conditions and a process for monitoring in the future. No accounting for monitoring of conditions in he 200 and 500 year models as included by Polymet. The Polymet document labeled Figure H-16-24.2 shows Mixed Influent Cncentration (ug/L) at year 200 that is six times higher than the present water quality standard.	WR060, WR071, WR078, WR079, WR081, WR173
11249	The SDEIS is silent regarding emergency measures in case of failures in construction and treatment	PD22
17924	The SDEIS doesn't analyze the relationship between Polymet and Glencore Xtrata. If the Glencore firm is a silent partner, or at least a financier, that information should be included in the SDEIS because a partner or assign should be part of the application for the permit. The partner or assign (or any other term) should be noted so that all parties are included in the permit and are responsible for cleanup if Polymet (or NorthMet) goes bankrupt.	PER02
Sender Name (Submission ID)	Beverly Blinde (42457)	
6794	The risk to our children, grandchildren, and the environment for many generations to come is too great - and not worth the benefits of a few jobs for a few years.	SO01
Sender Name (Submission ID)	Beverly Finke (16154)	
11169	Please continue to stand up for Minnesotans, and the many people from the states and around the world who have enjoyed the Boundary Waters area, and wish to continue to do so; this is an irreplaceable asset that should be kept available in its present condition for generations to come,	WILD02
11172	The proposed mine plan isn't just a minor inconvenience. It strikes me as big business making money on the backs of ordinary citizens who would give up far more than they would benefit from the proposed mine plan.	SO02
Sender Name (Submission ID)	Beverly Gillen (40727)	
6667	My family has camped in the Boundary Waters and experienced its beauty and peacefulness. We cannot afford to have this resource polluted by mining companies who lamely promote job growth but are really counting profits.	WILD02
Sender Name (Submission ID)	Beverly Hanson (42727)	
14364	The ground water and beauty of a natural area is my major concern. I DO NOT trust the mining companies to do the right thing.	LU04
14365	I am writing to express my concerns about open pit mining for copper/nickel in northern Minnesota.Jobs are important, but at what cost?	SO01
Sender Name (Submission ID)	Beverly M Berntson (42738)	
11478	I notice lack of proof that the efforts at mitigation stated in the SDEIS will be effective. The SDEIS was supposed to analyze alternatives to prevent this loss and destruction, but in more than 2,160 pages there are no alternatives to avoid or minimize wetland loss.	WET01, WET04, WET20

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Beverly M Berntson (42738)	
11484	The SDEIS claims that putting a compressed dirt pile in a trench is "better" than using a liner for this huge waste rock pile, however it gives no facts. I ask that further studies be conducted to analyze putting a liner under the 526-acre Category 1 permanent waste rock pile located right next to the 100 mile Swamp. No permit should be granted without a liner.	ALT07
14411	I am writing because I am extremely concerned about the potential effect on wetlands that the PolyMet Sulfide mine (section 404) could have, both in the relatively near and the very far future. While the SDEIS admits that the mine will directly destroy 913 acres of wetlands as well 7,315 acres of wetlands that could be lost due to pollution and changes in water patterns at the mine and tailings site, I notice lack of proof that the efforts at mitigation stated in the SDEIS will be effective.	COE02, WET01
Sender Name (Submission ID)	Bianca Geisdorf (18104)	
13470	Jobs are important for the future of the students of Mesabi East and the Iron Range. ...We need these jobs that PolyMet will bring to our towns for strong communities and thriving families; not ones that just get by living in poverty.We truly care about our land, air and water and believe that the SDEIS is sufficient to address this. The co-lead agencies have done the job needed to show that PolyMet will not pollute our land, air and water.	SO10
Sender Name (Submission ID)	Bill (6595)	
1087	Let them build the copper mine so we can have jobs in Minnesota.	SO10
3464	Obviously there is a tremendous need for jobs here in our area, not China. We need the metals. We also care if mining is done environmentally responsibly to maintain our clean water and air.	SO10
15915	I have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations.	PER34
15917	I'd also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS.	WR190
19926	I look at the opportunity to bring PolyMet to our area and look at the needs, the jobs, the benefits, and (inaudible) and also look at the challenges that face a project like this in water quality, wetlands, wildlife. ..Tourism by itself is not providing sustainability.Obviously there is a tremendous need for jobs here in our area, not China.	SO10
Sender Name (Submission ID)	Bill & Nancy Henke (4783)	
1895	Full financial assurance by my definition means that it is provided for by the company inflicting the damage, for the duration, whether this is for decades or for hundreds of years. The monetary amount backing this full financial assurance should take into account not only industry projections of clean up needs but also worst case scenarios including catastrophic accidents and acts of nature that overcome technology.	FIN01, FIN05
Sender Name (Submission ID)	Bill Collins (57476)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bill Collins (57476)	
19515	I have been actively following Polymet's efforts and after reviewing SDEIS, news articles and opinion pieces I am confident PolyMet's project will have no discernable impact on the natural environment while at the same time greatly benefitting the economic environment.	SO10
19516	I have personally invested in the project not only because of my confidence in PolyMet but also because I want to see my state benefit from the great jobs, economic synergy and expanded tax base and my country from the increase in the domestic supply of critical metals needed in many vital manufacturing industries.	SO10
Sender Name (Submission ID)	Bill Conger (38700)	
11900	Please consider the quality of life, the value of wild and natural places, and the health of our citizens and environment and reject the PolyMet plan. It is difficult to place a dollar amount on the above items.	SO02
Sender Name (Submission ID)	Bill Erzar (38801)	
4955	I believe that the PolyMet NorthMet project will provide an improvement in the Socio-Economic well being of the area communities, providing primary jobs and affiliated support industry employment.	SO10
4959	It will also provide the school districts and State with additional Natural Resource tax royalties.	SO10
4960	The much needed metals in this complex of copper, nickel, and metals of the PGM grouping will add to the nation's available resources for our modern day technology that are widely used, and also diminish the need to rely on foreign operations for these minerals.	SO10
17050	[The NorthMet mine] will bring in good paying mining jobs with benefits that will also necessarily employ people in MSHA and County Mine safety engineering to make sure the miners work environment is safe.	SO10
Sender Name (Submission ID)	Bill Fredrickson (43099)	
15880	I have followed this approval process for several years and strongly believe that the PolyMet Mining Company has operated in the best interests of the public and the enviroment. Both in the past and fully intends to meet all expectations in the future of the EPA and the Minnestota Department of Natural Resources.	NEPA16
15881	Minnesota really needs the jobs.	SO10
Sender Name (Submission ID)	Bill Holden (58108)	
19970	St. Louis, Lake, and Cook counties have a combined population of approximately 220,000 people. The PolyMet plan estimates about 360 permanent jobs over the twenty year life of the mine. This means that the equivalent of .16% of the 3 county regions will have jobs through the mine.If those 360 jobs each pay $100,000 per year then they will bring thirty six million dollars a year into the community, for the 20 years of operation.In 1996 David T. Schaller form the Department of Geography at the University of Minnesota did a research study of the economic impact of tourism in the region. He found that the major group of visitors are from Minnesota and visit for the fishing. He estimated the regional monetary impact of tourism at around fifty million dollars a year. Tourism and diversified small businesses will bring in that fifty million dollars a year for the next twenty years and on into our great grand kids' futures.The issues are simple but deep. Short term extractive wealth and its threats to the established community or long term environmental and economic stability.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bill Holden (58108)	
19974	The DEIS states on page 5-7 that the mine and plant site might need hundreds of years of monitoring and maintenance. What American companies can you name that are still viable after only one hundred years? How will future inhabitants of northeastern Minnesota pay for this task?	FIN01
19993	The PolyMet plan estimates about 360 permanent jobs over the twenty year life of the mine. This means that the equivalent of .16% of the 3 county regions will have jobs through the mine .If those 360 jobs each pay $100,000 per year then they will bring thirty six million dollars a year into the community, for the 20 years of operation. In 1996 David T. Schaller...estimated the regional monetary impact of tourism at around fifty million dollars a year...Short term extractive wealth and its threats to the established community or long term environmental and economic stability.	SO02
Sender Name (Submission ID)	Bill Horsch (7663)	
813	I am writing to you today to thank you for the excellent job done putting together the NorthMet Mining Project and Land Exchange SDEIS for the PolyMet Project. It is a thorough analysis of all aspects of the proposed mining effort with specific solutions defined to address all areas where the environment could be impacted.	NEPA16
Sender Name (Submission ID)	Bill Mckechnie (39014)	
4941	You cannot build this mine because the company and it's owners will not fund the two hundred plus years of compliance to protect their mine waste from our fresh water.	FIN01, WR037
4943	there is not enough jobs to make this [project] work either.	SO01
Sender Name (Submission ID)	Bill Morrissey (42739)	
14414	I appreciate and support our environmental requirements and from what I have seen, they will be responsible stewards of the land and water. We need economic activity in northern Minnesota and ways in which we can raise new tax revenue for our state.	SO10
Sender Name (Submission ID)	Bill Steele (15967)	
1064	5.2 million gallons of polluted, untreated water from the mine site and 11 million gallons of untreated seepage from the tailings pond will enter groundwater every year with no treatment whatsoever, and ultimately much of this water will end up in the Embarrass and Partridge Rivers. … Moreover, the groundwater model used to obtain these numbers may be flawed so as to skew them to be unrealistically low.	WR058, WR060, WR070, WR167
1068	the SDEIS indicates that the NorthMet Project is to operate for only 20 years but water from the site may need to be treated for 500 years. If we consider a human generation to be 25 years, is one generation of mining employment worth condemning 20 generations to pollution?	WR035
1070	How can 500 years of waste water treatment be financed over such a period? … I doubt that Polymet will exist 500 years from now.	FIN01
1073	provision must be made to protect Minnesota taxpayers from the expense of dealing with the abandoned mine and plant sites. How do you finance waste water treatment for 500 years? Regulators must obtain funds for long term waste water treatment and cleaning up failures of tailings management facilities up front.	FIN01, FIN05, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bill Steele (15967)	
1075	The SDEIS itself gives no indication about how centuries of waste water treatement and remediation of probable failures of tailings containment infrastructure will be financed. Clearly, the state of Minnesota must mandate establishment of a large fund for future environmental maintenance at the NorthMet site.	FIN01, FIN05, FIN08, FIN11
1076	Government regulators have an obligation to secure funding to protect Minnesota taxpayers.	FIN10
1080	The SDEIS says nothing about how Polymet will deal with unexpected problems when they arise. ... How will Polymet manage these emergency situations? … The SDEIS is totally deficient by not spelling out plans for dealing with such contingencies.	PD22
1084	If ... the mine is approved, it should only be authorized with the establishment of a fund large enough to assure that Minnesota taxpayers will not be burdened with the enormous costs of remediation	FIN10
2015	Large ownership of Polymet by Glencore should itself be a red flag. Glencore and its many subsidiaries are notorious for a wide variety of egregious behavior including tax avoidance, violating UN embargoes of despotic regimes, rampant pollution by its mines, and even major human rights violations	PD23
Sender Name (Submission ID)	Bill Thronson (54654)	
17970	I support Poly Met Mining and believe they will build and operate a mine that complies with all state and federal regulations. I have attended several of the public meetings and it's clear to me that PolyMet has been extremely patient and thorough in there due diligence. … I feel the SDEIS lays the proper groundwork for developing an environmentally and economically sustainable project and I support it.	NEPA16
17971	I believe in the importance of buying locally. This mine will produce some metals not currently mined anywhere in the United States. This gives us a clear opportunity to have a positive impact on the economy, not only locally but nationally as well. In addition to the economic benefits, this will be done in an environmentally safe way and help diversify our economy on the ironrange.	SO10
17972	I am confident that impacts to the air, water or land will be minimal, and the land post-closure will be reclaimed to protect natural resources over the long term in compliance with the law.	FIN16, FIN17
Sender Name (Submission ID)	Bill Wallace (9644)	
1360	The company says they have a plan to deal long-term with the water pollution and will be putting away money into a fund to address it. The easy solution is to triple or quadruple the amount of funding that the company "claims" needs to be set aside. It is certainly in the company's best interest to lowball the number needed so let's have them put in a much higher number that would cover all possible worst case scenarios. What we don't want to happen is for us to run out of money 40 years from now and be stuck with a company that may not even exist.	FIN01, FIN05
Sender Name (Submission ID)	Billy Southwell (43142)	
14538	the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange.	ALT21

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Billy Southwell (43142)	
14539	The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible."	ALT01
14540	The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock.	ALT03
14541	Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility	ALT01
14542	Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits	ALT01
14543	Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action	ALT01
14544	Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action	ALT03
Sender Name (Submission ID)	Bjorn K Monson (43043)	
12912	Sulfuric acid, the result of disruption of the sulfide containing rock and exosing it to water and air(oxygen.) This will poison the watershed. It is unlikely that this can be neutralized or contained in the short term, let alone for half a millennium.	WR001
17305	Although drainage from the PolyMet mine would flow to the St. Louis River, which already has adverse effects from acid drainage, allowing a permit for the PolyMet Mine would set a precedent, and likely accelerate permits for mines closer to the BWCA. Acid drainage from these mines would then drain into the boundary waters with disastrous effects.	PER07
Sender Name (Submission ID)	Blake Romenesko (11614)	
2293	I also have huge concern for the wild rice and other aquatic plants that are making a recovery in these waters and elsewhere that this project affects.	WR057, WR077, WR180, WR193
2293	I also have huge concern for the wild rice and other aquatic plants that are making a recovery in these waters and elsewhere that this project affects.	VEG04, WR157
7348	I enjoy kayaking in the lower St. Louis River, and I often seen fisherman in the Spirit Lake area. ... I never would go fishing in that water due to pollution particularly from a century of ferrous mining... if this project follows through I am sure that the lower St. Louis will never be able to sustain healthy fishing and remove recreational activity.	LU06
7348	I enjoy kayaking in the lower St. Louis River, and I often seen fisherman in the Spirit Lake area. ... I never would go fishing in that water due to pollution particularly from a century of ferrous mining... if this project follows through I am sure that the lower St. Louis will never be able to sustain healthy fishing and remove recreational activity.	LU06
Sender Name (Submission ID)	Blakely Fraasch (44379)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Blakely Fraasch (44379)	
10437	I realize that this mine could cause severe environmental damage with little pros to individuals (little jobs created, with the boom hitting only the corporation).	SO01
10440	[mine will provide] little economic impact for the state of Minnesota with a huge environmental impact to our land.	SO01
Sender Name (Submission ID)	blayne johnson (57479)	
19517	I would hope people agree that Minnesota's Natural Resources and water quality is more important than pillaging a beautiful natural forest area for a few dollars and a lifetime of potential contamination.	SO01
Sender Name (Submission ID)	Bob Amis (15289)	
431	there appear to be a number of deficiencies remaining in the document, including numerous unsupported assumptions and unsubstantiated, overly optimistic projections which, if uncorrected, will not adequately protect the region from an unacceptably high risk of air and water pollution.	AIR11, WR026, WR129
432	The SDEIS estimates ... a collection rate of over 99%. The SDEIS does not support this estimate by naming one tailings pile in Minnesota, or anywhere else, that has experienced such a high collection rate from pumps at the edge of an unlined tailings pile . It is my understanding that comparable real world experience is between 50% and 75% collection rates.The SDEIS does not consider the impact to water quality if the collection rate is lower than this extremely optimistic estimate.	PD08, WR018, WR023
433	I ask you to require the SDEIS to be revised to include real world data on collection rates for tailings piles of this type, and an analysis of water quality outcomes if the tailings pile collection rate is not what PolyMet claims.	PD07, WR018, WR023
434	water will flow along the bedrock, find the fractures, and then flow through those fractures ... much faster than the SDEIS assumes. Furthermore, in addition to the existing fractures, mine site blasting will occur ..., creating more fracturing in the bedrock. The impact of this increased bedrock fracturing is not contemplated in the SDEIS.	WR016, WR168
435	Therefore, I ask you to require the SDEIS to be revised to clearly analyze and explain the impact on surface and ground water if contaminated water from the mine site is transported through fractures in the bedrock.	WR012, WR168
Sender Name (Submission ID)	Bob Bartlett (28003)	
14735	PolyMet must be able to prove, guarantee that their mine will not affect the quality of wetlands and water in this area. They cannot do this as of yet.	WET24
Sender Name (Submission ID)	Bob Beutel (44578)	
11809	20 years of profit and a handful of jobs are not justification for ruination of our natural jewels.	SO01
11813	The cost of failure is cataclysmic: All of the Boundary Waters and Quetico from Basswood to Crane Lake, and Voyageurs National Park, Rainy River, and Lake of the Woods would be rendered sterile – no fish, no vegetation, no clear water, no safe swimming, nothing	GEN03
Sender Name (Submission ID)	Bob Brezinski (54473)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bob Brezinski (54473)	
17467	I strongly object to any possibility that our citizens be left with any financial obligation to cover the cost of keeping our lakes, streams as well as all water safe from pollution. Facing the possibility of spending taxpayer money for 500 plus years of guarding our clean water from pollution of this project is outrageous.	FIN01, FIN10
Sender Name (Submission ID)	Bob Carlson (18089)	
3217	The areas downstream of the PolyMet Project have such a tiny bit of wild rice that I don't think it's really an issue. There's not a bed of rice down there that's large enough to harvest any rice out of, and -- and another thing to add in that tiny bit of rice down is something that really went haywire with the wild rice, we've got a lot of lakes in this area that historically didn't have rice.	WR161
3218	So it makes me wonder if the DNR and maybe our legislators shouldn't look at raising that 10-part-per-million sulfate level because rice is growing pretty darn good right now where that -- where the levels are higher.	PER10
3219	I guess the last thing I'd like to say is that the band members in the 1854 Treaty area have concerns about wild rice, but I think their concerns are really unfounded due to all these other lakes that have been planted that historically didn't have rice.	WR161
13385	I think that concerns about wild rice with this PolyMet Project are really overblown. I've been picking wild rice since 1963, and I've picked most of St. Louis County and adjoining counties, and downstream of PolyMet, I'm completely unaware of any significant wild rice stands. So even if they did release sulfites that were damaging to wild rice, there isn't any wild rice there to hurt, so I think it's an insignificant thing to think about.	WR161
13389	if wild rice was harmed by some sulfides released from the PolyMet Project, they could quite easily mitigate that by purchasing some ponds and planting wild rice. The United States Forest Service and the State of Minnesota have planted wild rice in the area with very good success.	WR161
13390	I think the wild rice concerns are really insignificant and should not be a factor in this draft EIS.	WR161
13461	They've got Hay Lake listed as a control site, you know, for comparison to the PolyMet Project. I think that's a poor, poor lake for a number of reasons.	WR075
Sender Name (Submission ID)	Bob Hale (44617)	
12083	My concern with granting permits to the mining companies pertains to the water quality of the mines after the metals have been exhausted.	WR195
12084	I do not see adequate funds being required to execute a plan B in case all the currently mentioned mitigation fails	FIN05, FIN08
15904	there is a larger than prudent risk of contamination. I don't see specified, who will monitor these so called bedrock walls that would contain pollutants.	PD09, PD35
Sender Name (Submission ID)	Bob Ilg (45848)	
13069	Please do not let SDEIS do any mining in the Superior National Forest.Please save our wetlands, bogs, and swamps from being destroyed by pollution due to open-pit mines. We do not want contamination of ground water or our lakes and rivers. Once the water is polluted it will never be the same. Clean water is precious to every form of life.	WR111, WR115
Sender Name (Submission ID)	Bob Lenzmeier (44829)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bob Lenzmeier (44829)	
10600	Twenty years of jobs with the result being hundreds of years of polluted water.	SO01
10602	This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin…Any project that harms the water supply should be turned down without question.	WR111, WR115
Sender Name (Submission ID)	Bob Shannon (47660)	
7828	I have concern that substantial conflicting short-term political and economic interests within the State of Minnesota and the agencies who are conducting the review of this document may compromise the state's ability to provide a rigorous and impartial review of the SDEIS.	NEPA18
7854	The SDEIS provides inadequate evidence that levels of mercury in waters in the 1854 ceded territories will not lead to elevated levels of mercury in fish thus depriving tribal entities of edible fish resources.	MERC24
7857	The SDEIS provides inadequate evidence that wild rice will not be impacted by increases in sulfate levels in waters in the 1854 ceded territories.	VEG04, WR159
7858	Recent action by EPA with regard to limiting (i.e., rolling back) seasonal variances to sulfate standards...should be directly addressed in an EIS.	WR153
7861	The proposed plan provides no credible assurance that any legal or business entity can be relied upon to maintain [remedial] engineering controls for many centuries after cessation of mining activity at the site.	PD24
7865	It is known that problematic measurements of input parameters [were] used for this SDEIS (e.g., critical measurements of water flow). There is considerable and reasonable doubt that site conditions can be considered as stable, especially over [a] very long period of time.	WR003
7870	Beyond the assurances of interested parties, what assurance is there that input parameters and associated estimates of uncertainty are robust, accurate, and unbiased? Would independent measurements yield equivalent values? Have realistic estimates of worst-case assumptions been evaluated?	WR071, WR072, WR189, WR202
7872	What empirical evidence is available that models used will provide robust and defensible estimates for output parameters (including uncertainty) for predictions made for, say, 1 year, 5 years, or 20 years, let alone 500 years?	WR189
7874	Mercury modeling has been deficient: See concerns listed in Appendix C, Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Mercury Section, comments 1-15.	MERC13
Sender Name (Submission ID)	Bob Tammen (18090)	
3220	I think it's time [the mining companies] started cleaning up their mine sites and quit granting variances.	PER06
3221	We're going to be trapped in this boom-and-bust economy until we finally accept that we are a talented people up here and we're going to have to build our economy on the talents of our people instead of on stripping our assets, which are going to be shipped overseas, they aren't going to be building windmills in our backyard.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bob Tammen (18090)	
9273	It has been my experience in the industry that acid draining from a mine is referred to as Acid Mine Drainage. Industry efforts to euphemize the term to Acid Rock Drainage is sadly unprofessional and should be corrected in the glossary and in the SDEIS. 4-165 "The Plant Site is located north of the Laurention Divide... Misprint? The plant is South of the divide. See map. 4-376 Last paragraph. Heal should be heel. 5-5 "located in...Mesabi Iron Range" The mine is located in the Duluth Complex in the Superior National Forest. Once again, the SDEIS deserves an EU-3. 6-9 6.2.2.1.6 Essar...begin operation in 2014. Essar will not begin operation in 2014. Update SDEIS. 6-7 Table 6.2-1 Mesaba Energy Project. The IRRRB has granted Mesaba Energy an option to purchase land near Hibbing for a gas power plant. Update table. 6-1 reasonably forseeable. The impacts of developing a 10 billion ton ore body as described by geologists in Minnesota should be evaluated as reasonably forseeable.	EDIT01
9274	ES-10 "uninterrupted operation" There is no history or probability of uninterrupted mining operations in Minnesota. 5-5 "waste rock is predicted to average 0.15 percent sulfide" From the Northern Miner January 14, 2008 authorized reprint. "Waste rock...can have up to 6% sulphur content."	PD30
9283	ES-31 PolyMet. Several documents refer to PolyMet and Poly Met (Two words). There must be a reason for having two different legal entities. The SDEIS should explain the difference and perhaps declare which will get dividends and which will have environmental cleanup liability.	FIN01
9286	ES-40 Federal, state, and local taxes. The SDEIS does not quantify rebates traditionally given to the mining industry. Our history of rebates to the taconite industry should be documented and the probability of rebates to the sulfide mining industry should be acknowledged.	SO04
9287	ES-41 "There is no legal access to the federal lands via land,... The SDEIS should acknowledge that the mining industry has the power to prevent American citizens from accessing Superior National Forest land and should resist efforts to give the industry even more power by facilitating a sulfide mining operation in Minnesota.	PER35
9289	ES-41 Cumulative Effects. Respected geologists have estimated that the Duluth Complex is a 10 billion ton ore body and have predicted with great certainty that it will be developed. Being the State of Minnesota has been able to estimate the cumulative benefits for school trust funds, the State should also be able to give a reasonable estimate of the square miles of pits, waste dumps, and tailings ponds that will be created in our water rich environment by the processing of our sulfide ore.	CU04, PD30
9291	1-11 Purpose and Need. There is little economic evidence for proposing mining for purposes of economic development. If you google "world class ore body" you'll probably get over 2 million hits. There's a lot of information about world class ore bodies. If you search for thriving mining communities in conjunction with those ore bodies, your search will probably be fruitless. Mining no longer creates healthy communities.	NEPA01
9292	Endocrine disruptors should be evaluated by the SDEIS. Several metals are endocrine disruptors and the synergistic and cumulative impacts should be evaluated.	HU01
9298	4-95 Tailings Basin. Discussion of tailings storage should include an evaluation of the 1,000' crack in the Hibtac dike in February of 2012 and possible applicability to understanding of Polymet's proposed tailing storage plan. 5-113 Bedrock Groundwater. SDEIS should disclose that exploratory drillings do not have to be sealed for 10 years and the consequences in ubiquitous briny water formations.	GT05, WR023, WR078
9300	4-371 "higher-sulfur waste rock" Percent sulfur of the Dunka waste rock that was buried in LTVSMC tailings should be disclosed.	PD10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bob Tammen (18090)	
9301	5-93 "proximity of wells to mine pits" Discussion of water resources and mining should include the problems the City of Hibbing had with one of its wells and the proximity of that well to Hibtac which was reluctant to accept responsibility for the problem. Discussion might appropriately be moved to socioeconomics. 7-12 Unavoidable Adverse Effects. The mining industry is stripping Minnesota's mineral assets. That unavoidable effect should be quantified by the SDEIS and a reasonable estimate made of the long term financial benefit of leaving the Superior National Forest intact for future generations. 7-10 irreversible loss of ore. The November 2013 Minnesota Mining Tax Guide describes ore as a wasting asset and allows a percentage depletion allowance for the reduction in reserves. The SDEIS should give us an estimation of the value of Polymet's ore asset so that the public could evaluate the benefits of leaving that ore in the ground. 6-14 "a portion of Highway 53...would need to be relocated". The SDEIS should disclose that Minnesota taxpayers will pay to move the highway for Cliffs Natural Resources and that it would be reasonable to expect unanticipated taxpayer costs for Poly Met. 5-503 Operations. IMPLAN discussion does not address the Minnesota policy of rebating taxes to the mining industry. Disclose rebates.	SO04
9302	6-16 cumulative effects on groundwater. NRRI TR 2005/01 states that over 2,000 exploratory holes have been drilled in the Duluth Complex. Geological maps show numerous faults in the vicinity of Polymet's operations. The possibility for cumulative effects in an area with saline groundwater is obvious. 5-155 "oxidation of the pit walls" Reference should be made to the Lone Tree flooded pit in Nevada and the surface concentration of low Ph water.	WR010, WR023
9303	5-532 Lime. The SDEIS should analyze the consequences of increasing the amount of calcium in waters that might be invaded by zebra mussels.	AQ17
9304	5-525 Mishandling...discharge into the environment. Even proper handling of ANFO results in the discharge of ultra-fine particles into the environment. SDEIS should analyze fine particle discharge from blasting.	AIR10
9305	5-506 Public Services and Facilities. New schools are being proposed even if sulfide mining is not permitted.	NEPA15
10601	Wetlands Action Group requests that a cost-benefit analysis be done that recognizes ore removal as asset depletion.	SO04
10604	We also request that the EIS analyzes the synergistic effects of discharging mineral based endocrine disruptors from mining operations into waters that already have other endocrine disruptors	HU02
13438	The [mining] industry regularly requests variances to Minnesota's discharge standards, and the State of Minnesota regularly grants those variances. ... There is a variance request for PolyMet's tailings pond which is leaking approximately 2.9 million gallons a day as we speak. If we have stringent environmental regulations in Minnesota, why are these tailings ponds constantly leaking.	PER06
Sender Name (Submission ID)	Bob Tanner (18377)	
2828	I don't think the EIS treats the economic issues thoroughly.	SO04
2834	Minnesota has a history of being unable to regulate the mining industry.	NEPA15
14706	see that we're getting millions in taxes. But that EIS doesn't disclose that we're giving $220 million back to the mining companies. Over the last 20 years they clawed back $220 million of our tax dollars.	SO04
14707	What is it going to cost us to move that highway (Highway 53)? The mining company wants the highway moved. We're going to pay. They have enough political clout to get an agreement that we're going to move that highway.	PD36

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bob Wirtanen (46536)	
9129	Waters Resources are portrayed as capturing greater than 90% of the water for treatment. This should be reset to 100%.	WR018
9130	Mercury loading levels to a receiving water resource should NEVER be allowed to increase.(example ...Table 1 Page 53...the Embarrass River)	MERC23
9131	Aluminum and lead evaluation criteria should NEVER be allowed to exceed applicable water quality evaluation standards	WR082
Sender Name (Submission ID)	Bobbi Galush (4)	
15	Reverse osmosis is the best technology to keep the water supplies clean.	WR190
Sender Name (Submission ID)	Bois Forte Band (42979)	
2974	The Area of Potential Effect (APE) for cultural resources divided the project into two separate sections surrounding the proposed mine site and the proposed plant site should be revised….An APE that encompasses the Mine and Plant sites and surrounding area affected by operations would better describe the undertaking for cultural resource investigations.	COOP01, CR02
2975	Mesabe Widjiu is correctly identified as a sacred landform, but needs to be considered in its entirety (see attached map as an example). The segment encountered within the project area is small, but integral to the property.Adverse affects to any portion impact the entire feature.	COOP01, CR02, CR05
2976	The Beaver Bay to Lake Vermilion Trail requires further clarification….Additional fieldwork should be conducted in the spring or fall when ephemeral features such as foot trails are less easily concealed by vegetation and more easily discerned.	COOP01, CR05
2977	The Bois Forte THPO is skeptical of the co-leads claim that there will be no effect to the Spring Lake Mine Sugarbush from the proposed NorthMet Project. Indirect effects through dust deposition and unauthorized collection are anticipated since the Sugarbush is situated immediately adjacent to the proposed plant site.	AIR04, COOP01, WR151
2978	the three properties [Mesabe Widjiu, Beaver Bay to Lake Vermillion Trial, and Spring Lake Mine Sugarbush] would benefit from additional investigation; the sugarbush has not been formally recorded, the trail has been adequately documented within the SNF proposed land exchange, but requires additional survey in the upland sections of the project area and Mesabe Widjiu should be considered in its entirety. Finally, all three must be formally nominated to the National Register of Historic Places.	COOP01, CR02, CR05
2979	Acknowledgement by the SDEIS authors that adjacent habitat is available signifies a lack of analytical rigor in effects assessment of wholesale population displacement in response to mining activity….The SDEIS fails to assess cumulative effects to wildlife population changes, not only in the project area, but the entire region. The co-lead agencies should document how habitat destruction and concomitant wildlife migration will affect local and regional ecology.	COOP01, WI05
2980	Cooperating agencies' concerns with cumulative effects remain valid and germane, but have yet to be addressed by the Lead Agencies.	COOP01, CU12
3097	A 216,300 acres area bounded by the St Louis River, Lake Superior, Lake Vermilion and the Beaver Bay to Vermilion Trail better describes cultural resources to be effected by the NorthMet project..	COOP01, CR04
Sender Name (Submission ID)	Bonnie (45164)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bonnie (45164)	
8517	I believe it is not worth the risk to our water resources so I am opposed to the PolyMet proposal.	WR195
Sender Name (Submission ID)	Bonnie DeClercq (10748)	
605	Water needing to be treated for 200-500 years is just too long. What an awful legacy to leave future generations. They need to have a better process before I would be in favor of this mining.	PD03
Sender Name (Submission ID)	Bonnie Morris (39523)	
13543	Please think of the generations of the First People's who lived lightly on this land.	CU11
13544	Please consider the significant environmental impact that this mine would have to the treasure that is our Northern Minnesota-- the wilderness, the pristine waters of the BWCA,to the Great Lake of Superior.	WR111
13545	Consider how the unintended consequences of what is projected but not known about how this mine's construction and operations could lead to impacts that would affect this area for generations to come.	PD01
Sender Name (Submission ID)	Bonnie Nelson (18279)	
4094	For the Land Exchange, I am concerned that we are taking land that is currently in a natural state and turning it into or exchanging it into land that's going to be mining. It would make more sense to take mining land and turn it into a natural state in exchange, so that the two would have an equal use exchange.	LU01
Sender Name (Submission ID)	Bonnie Peterson (45234)	
11199	Who really believes that polluted leach water would be monitored and treated for hundreds of years after the mining ends? We have no mechanism for long term treatment on that scale.	WR035, WR090
11201	The land swap should be denied, and mining company should not be allowed to strip mine and expose sulfide waste. Mining company should instead mine underground, replacing waste materials in mined out tunnels.	ALT01
11203	20 years of jobs is a bad trade for hundreds of years of problems.	SO01
11204	If the strip mine is to be allowed, regulators must keep in mind that are no materials that will hold up for hundreds of years. Waste pit liners will degrade over time, and leak. The project must include at least one, and probably more liner replacements.	PD15
11279	Please reject the land swap that would enable sulfide mining in the arrowhead region of Minnesota. Sulfide mining and resultant fragmentation of our wild areas would be a permanent loss for Americans.	WI02
15906	Please reject the land swap that would enable sulfide mining in the arrowhead region of Minnesota. Sulfide mining and resultant fragmentation of our wild areas would be a permanent loss for Americans.	WI02
Sender Name (Submission ID)	Bonnie Shallbetter (45677)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bonnie Shallbetter (45677)	
12853	The shortsighted 20 years of jobs versus 500 years of pollution is not the legacy we should be leaving for our children and the generations to come.	SO01
Sender Name (Submission ID)	Brad Borrman (36887)	
15871	I have seen the damage done by other mining projects and do not want to jeopardize the clean water, fishing, forests, and tourism industry we currently have in place.	GEN03, WR195
Sender Name (Submission ID)	Brad Clifford (19530)	
13450	The PolyMet SDEIS doesn't study impacts that could affect mercury contamination of fish in the St. Louis River Estuary, let alone impacts to habitat and tribal resources in the region.	AQ28
13451	A cumulative effect analysis of mining should be done before the PolyMet SDEIS gets finalized.	CU18
18354	How do we trust this economic opportunity? And how do we assure ourselves that we can see sustainability, we can see an economic balance, sort of the idea of an "economic equilibrium," and Dr. Gram Nash's theory…where values were assigned to each component, the land exchanged, the reclamation, the actual value of the minerals in the ground and the cost to get them up, and the tax revenue that the agencies and state can levy to keep it balanced	FIN16
18357	if the questions aren't answered and mitigation and rationalization and the science isn't proven, that's the problem that we have. Who can say honestly and clearly that this science has been proven? When Mesabi Nugget tried to prove their technology, they did a very, very small equation, and it took several years for that to be proven, before they went forward to the next step. And if we skip any step and try to argue that our concerns are dismissive, then the deliberative democratic process gets thwarted.	NEPA09
18361	And so suddenly somebody's assertion isn't as important as the individual that has more money and can buy it, does it? So, when we look at our mineral rights in our forest, they may not be worth what some people believe them to be worth. And if they are, then show us what the math is. And if they can do that, then people will buy into it. But if they can't, and they can't deliver, then remediation, for example, in the river, if it gets to certain levels -- and how do we determine those levels? At .2 on the map, and down at the rice patties it is like .5, and so when they say there is a problem, they are going to go out and build management systems and waste management expansions. ... And so how much damage can happen to the wild rice and the habitat? ... So, unless we can truly understand what the economies are and what the cost benefit is, and making sure that a tax revenue is there to be able to put and build the trust, as well as the bonding and the sureties that they put their money where their mouth is. If I allow you to make a dollar, and I'm going to charge you 25 cents to assure that we are going to have recovery and reclamation, why would you be upset?	SO02
Sender Name (Submission ID)	Brad Davidson (44755)	
7481	The potential impacts to the watersheds and the other... resources … cannot be taken lightly and trusted to the normal economies of mining.	SO01
7485	What kind of extreme weather events are considered?	GT15
7486	Who would maintain containment in perpetuity?	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Brad Davidson (44755)	
7490	What if we made a Return To Initial State a requirement for tailings? I see no better standard to set than one of returning the sulfide to an identically sequestered state as that of the pre-mining condition. The goal is lofty but given the realities of past metal sulfide mining no current solution exists and no mining should be allowed until a method is demonstrated that does much more to protect existing resources.	ALT16
Sender Name (Submission ID)	Brad K (43090)	
14801	I believe [the PolyMet Mining project] will be very positive for Minnesota economic development and provide much needed natural resources for our region and nation and others around the globe. It will provide needed jobs so more people can pursue the American dream.	SO10
Sender Name (Submission ID)	Brad Little (38873)	
5380	A health impact assessment should be standard for projects like this that have the potential to affect both human and environmental health across the Arrowhead.	HU01
16867	20 years of copper reserves is not worth jeopardizing ten percent of the world's fresh water in the Lake Superior watershed.	SO01
Sender Name (Submission ID)	Brad Meier (42878)	
9012	Minnesota has a proud mining tradition that has created thousands of jobs and billions of dollars in economic activity for our residents. The Northmet project is a vital continuation of that heritage and will provide positive impacts not only for Northeastern Minnesota, but across the state as well.	NEPA01
9012	Minnesota has a proud mining tradition that has created thousands of jobs and billions of dollars in economic activity for our residents. The Northmet project is a vital continuation of that heritage and will provide positive impacts not only for Northeastern Minnesota, but across the state as well.	NEPA01
9015	We urge the DNR to grant permission to Poly Met to build this mine confident that the DNR will adhere to the highest environmental standards necessary to protect Northern Minnesota's natural beauty and be strict in its oversight of Polymet' s operation.	PER34
9015	We urge the DNR to grant permission to Poly Met to build this mine confident that the DNR will adhere to the highest environmental standards necessary to protect Northern Minnesota's natural beauty and be strict in its oversight of Polymet' s operation.	PER34
Sender Name (Submission ID)	Brad Sagen (42928)	
12172	the SDEIS is legally and technically flawed because it eliminated viable alternatives from its analysis, failed to adequately the cumulative impacts associate with this project, and insufficiently analyzed the environmental consequences to numerous resources such as water quality, wildlife, wetlands and air quality.	CU03
12175	NEPA regulations and case law have determined that agencies cannot eliminate (an underground mining) alternative because they conclude this alternative, is not considered a reasonable alternative because it would not be economically viable…The agencies eliminated an underground mining alternative because they determined this alternative, “is not considered to be a reasonable alternative because it would not be economically viable and therefore it would also not meet the Purpose and Need (MDNR et al. 2013a).” (SDEIS 3.2.4.1)	ALT06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Brad Sagen (42928)	
12205	Even if economic viability was an allowed reason for rejection of an alternative, the scant analysis of the costs of underground mining does not meet NEPA requirements of review...A robust analysis of costs of underground mining would have set forth a history of metal prices, determined what price makes underground mining viable, analyzed metal price projections in the past and projected metal prices over the next twenty (20) years, and then determined the economic viability of underground mining.	ALT06
12206	Adaptive management is itself an alternative that must be analyzed in a revision of the SDEIS, and on which the public must have a meaningful opportunity to comment.	ALT18
12351	The Scope of the Cumulative Impacts Analysis is Inadequate Because the SDEIS Arbitrarily Excludes Projects that Are Not in Permitting Stage and Fails to Account for Full Plant Operation...The cumulative impacts analysis should be expanded to include projects such as Twin Metals that are in the pre-feasibility stage, and should include all potential mining projects that may utilize approximately more of the existing NorthMet processing facility capacity.	CU02
12352	the SDEIS omitted mercury from its modeling and transport analysis for water quality impacts. Specifically, the SDEIS states: “Mercury was not included in the GoldSim model, as insufficient data and a general lack of definitive understanding of mercury dynamics prevented modeling mercury like the other solutes.”(SDEIS 5.2.2.3.4) This omission of data is especially troubling because the water bodies impacted by the NorthMet Project do not comply with mercury water quality standards...Mercury must be added to SDEIS modeling and transport analysis for water quality impacts	MERC13, MERC16
12355	The SDEIS map that appears as Figure 4.2.3-1 appears to have been deliberately falsified to reduce the size of the 100 Mile Swamp and avoid the issue of whether groundwater from the mine could drain into the Rainy River Basin as well as the Lake Superior Basin. A comparative government map of the swamp area, available at www.nationalatlas.gov/streamer, shows the swamp to be considerably larger and to extend further east and also north...The possibility of groundwater drainage to the Rainy River Basin should be acknowledged and procedures established for monitoring that possibility.	WET19, WR080
12356	The DEIS is Inadequate Because it Does Not Include the Required Financial Assurance Information…Some mine owners have defaulted on their environmental liabilities associated with their mines, making the cleanup costs borne mostly by taxpayers...The average cost of addressing a mining site under the Superfund program is approximately $22 million per site.	FIN01, FIN05
12358	The SDEIS must provide reasonable estimate(s) of how long post-closure treatments will be required so that the public may evaluate assess the potential effects and the financial risks of the project.	FIN05, WR036
12359	Toxic Waste Projections in the SDEIS Demonstrate That Water Quality Standards Will Be Exceeded for an Indefinite Future.	WR035
12360	SDEIS post closure reclamation plans rely heavily on adaptive management ...The SDEIS misuses the concept and guidance regarding adaptive management so that it fails to identify the actual contingency measures being considered for possible use, and the circumstances under which they would most likely be employed. It is impossible to estimate financial assurance requirements under these conditions.	FIN05
12364	A revised SDEIS must be prepared to provide supporting evidence that the land exchange serves the public interest. The revised SDEIS must document how the proposal both meets USFS land exchange objectives and fulfils USFS regulations regarding protection of forest lands. Any claim that the project consolidates mineral and surface rights should be removed.	NEPA04
12366	The Forest Service has the duty to protect the public’s surface lands for forests, water, and multiple uses under NFMA, the Organic Act, and the Property Clause	LAN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Brad Sagen (42928)	
12369	Failure to Meet USFS Land Exchange Objectives.....Four of the five tracts … fail to meet the Forest Service objective of reuniting mineral and surface rights. (SDEIS 3-163). Future mining on these lands cannot be ruled out as possible, and thus the public could be acquiring lands that carry the risk of future land-use conflicts. Tract 1, the Hay Lake parcel, has "moderate" risk for future mineral conflict because of the presence of "potential surficial aggregate resources in the far northeastern corner of the tract" (SDEIS 5-586).	LAN04
12372	The Forest Service has the duty to protect the public's surface lands for forests, water, and multiple uses under NFMA	PER35
14363	The requirement that agencies consider alternatives is critical to NEPA's implementation...The SDEIS identifies and considers three alternatives: (1) the "no action" alternative (SDEIS 3.2.3.2); (2) the underground mine alternative (SDEIS 3.2.4.1); and (3) the west pit backfill Alternative (SDEIS 3.2.4.2) None of the alternatives evaluated in the SDEIS directly involved different mining techniques or contemplated a different scale or magnitude of mining.	NEPA01
14366	Each of the rationales advanced by DNR and the Corps are legally deficient reasons to eliminate underground mining or reduced scale as alternatives that the SDEIS should have evaluated. Most importantly, the underground mine alternative would fulfill one of the major purposes of the Project. "To eliminate the conflict between PolyMet's desire to surface mine and the USFS ownership and management of NFS lands, by exchanging federal lands for non-federal lands that have equal or greater value." (SDEIS 1.3.2.1) With an underground mine, there would be no need for the proposed land exchange.	ALT01, ALT02, ALT06
14367	A revised SDEIS should be prepared to address the substantial environmental benefits provided by an underground mine alternative, including but not limited to preserving forest lands and other natural resources such as wetlands.	ALT01
14368	MN Admin. Code § 4410.2300(g) (agency may exclude an alternative if "it would likely not have any significant environmental benefit compared to the Project as proposed")…A project of reduced scale would obviously have immense environmental benefits. Therefore, the agencies should have considered a smaller project alternative and compared the environmental impacts of the proposed project with this reduced scale alternative.	ALT06
14372	SDEIS' analysis of cumulative impacts must expand beyond "general statements about possible effects and some risk" to provide the required "hard look."..."A proper consideration of the cumulative impacts of a project requires some quantified or detailed information; general statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." Klamath-Siskiyou Wildlands Ctr., 387 F.3d at 993 (citations omitted).	CU14
14379	Information on mercury discharge to rivers, potential water quality standard violations, and the impacts on water quality if water collection and treatment systems end prematurely are all missing from the document. In fact, the SDEIS seems to systematically omit any information that might lead a reader to question whether legal standards will be met. These omissions result in an SDEIS that is fatally flawed.	WR038, WR060, WR125, WR158, WR184
14380	The SDEIS must be rejected until mercury is modeled by GOLDSIM for both the Embarrass and Partridge Rivers, or an alternative evaluation of the potential for increased loading of mercury to the Embarrass and Partridge rivers and related wetlands based upon the best available science is provided.	MERC13
14383	Estimates of increased loading of mercury to the Partridge and Embarrass rivers (and extending to the St. Louis River) must include mercury from air deposition, from leaching to groundwater, and from the transfer of Colby Lake water.	MERC10
14390	The Clean Water Act Section 303(d) and 40CFR122 do not permit the tradeoffs proposed in the SDEIS (5.2.2.3.4) in which one water body (the Embarrass River) that already has increased mercury suffers increases in mercury because of a proposal to offset the increase somewhere else. Increased mercury cannot be allowed (Embarrass River) based on a projected mercury decrease (Partridge River).	PER11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Brad Sagen (42928)	
14401	...new or increased mercury discharges to waters that do not meet water quality standards are forbidden, no matter how small. Minn. R. 7052.0300(2)...Project Area lakes (Sabin/Wynne, Embarrass, Esquagama, and Colby) must adhere to Minnesota regulations forbidding increased mercury discharges... to waters that do not meet water quality standards.	PER11
14404	Since most mercury methylation occurs in wetlands, the release of mercury to wetlands may be more problematic than direct releases to rivers or lakes. The concurrent addition of sulfates and the likelihood of water level fluctuations in wetlands contribute to the problem...Project Area wetlands must adhere to Minnesota regulations forbidding increased mercury discharges, no matter how small, to waters that do not meet water quality standards. Minn. R. 7052.0300(2); and maintaining the quality of wetlands…Minn. R. 7050.186(1).	MERC09
14407	Failure to Include a Draft Reclamation Plan ... for the Project is a Fatal Flaw in the SDEIS…The SDEIS analysis should have gone farther and shown how the reclamation activities would actually work to keep water quality standards at predicted levels.	PD22
14409	the Partridge River through the East Pit/Category 2/3 Flowpath is predicted to violate water quality standards at the P90 level for both aluminum and cobalt...Regarding the West pit overflow, the SDEIS should disclose that at the P90 level, groundwater in the West Pit flowpath is predicted to violate the surface water quality standard for cobalt (by a factor of 5) and lead at the point of discharge to the river...Although the predicted average discharge from the WWTF would add significant dilution capacity at that point, it is unclear what the discharge regime will be in order to protect seasonal variation in the river flow.	WR177
14410	The SDEIS should address issues raised by...recent scientific reports showing a higher likelihood of unpredicted contamination in projects that have the potential to create acid rock drainage and that are situated near ground or surface waters.	WR023
14417	Waste treatment in the NorthMet Project will be perpetual, as “perpetual” is defined in standard dictionaries to include, “lasting for an indefinitely long time.”...According to Minnesota Rules, Post-Closure Treatment Cannot Continue Indefinitely…NorthMet cannot be approved until proponents can demonstrate the mining area will be closed according to rule and will be maintenance free.	PER04
14422	NorthMet financial assurance must provide for unforeseen but potentially identifiable uncertainties…[such as] climate change where increased variability in weather has led to ‘500 year’ devastating events such as excess rainfall occurring several times in a single decade. Uncertainties concerning the stability of tailings dam (basin) construction and waste rock liner performance, as well as earthquake potential must be provided for.	FIN05
14432	USFS wetland losses from the [land] exchange would be significant, in quality and function. Two of the non-federal tracts proposed for acquisition are located outside the Lake Superior Watershed. At least three are outside the St. Louis River Watershed. The result would be an actual loss of contributing wetlands to an important watershed. Although proposed candidate lands bring wetland values, they are in different watersheds and are adding currently value. The result is a net loss of wetland function values.	WET14, WET15
14433	“USFS policy (Forest Service Handbook 5409.13 § 33.43c) provides that the following list of three conditions satisfy the requirements of EOs 11990 and 11988: 1. The value of the wetlands or floodplains for properties received and conveyed is equal (balancing test) and the land exchange is in the public interest” (SDEIS 1-15). While wetland acreage in the exchange may be equal, the value of the wetlands is not. The public is losing 100 year old peatlands for fragmented wetlands of other types	WET14
14446	“Adaptive Management” is nowhere defined in the SDEIS. The SDEIS identifies situations that may require adaptive responses. It does not typically specify the situation specific circumstances requiring a response and nowhere does it identify the specific response and link it to the conditions requiring the response (as required by USFS regulations and recommended in CEQ guidance)…This misuse of adaptive management must be corrected and its erroneous proposals modified or withdrawn	PD22

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Brad Sagen (42928)	
14448	The SDEIS should be rewritten to follow the CEQ guidance concerning adaptive management, including the identification of specific mitigation alternatives and the circumstances under which they would be used. Adaptive Management itself constitutes an alternative and should be identified and analyzed as a major alternative in the SDEIS	PD22
Sender Name (Submission ID)	bradford c. (43249)	
15798	For a few jobs created during the brief period such mining would be around it will leave in its wake hundreds of years of toxic waste and destruction. We do not consider this a fair trade off - not even close.	SO01
15802	This type of mining has a proven track record of being destructive to the environment and communities - without exception! This fact alone should dictate a flat denial of permitting for such mining in Minnesota. The u.s. e.p.a. has shown this industry to be the largest polluter in our nation. There is no doubt this type of mining if allowed in the area proposed would have devastating negative effects on the wilderness, the local communities, water supplies, wetlands and property values (ours included).	PER35
Sender Name (Submission ID)	Brandenburg Gallery (46103)	
10810	The PolyMet Environmental Impact Study is hypothetical. Even proven first methods can result in environmental disaster given the event of natural earth movement, equipment failure, or human error.	GT15
10811	M.I.T. researchers, when asked their opinion on whether or not copper-nickel sulfide mining should be permitted in northeastern Minnesota replied: "In a water table as fragile and valuable as the one in northeastern Minnesota, you just don't do it."	WR195
10813	Should companies be allowed to put at great risk the health and welfare of ecosystems, people, and wildlife? No, because individual citizens are not permitted to. If a terrorist were to come and poison our water supply we would go to war over it.	WI01
10814	Minnesota is defined by its lakes and quality of clean water. The shortage of clean water in the world is becoming increasingly severe and large scale. Unlike other resources, there is no substitute for clean water.	WR195
10816	I am saddened to think that Minnesota even considers permitting copper-nickel sulfide mining. Minnesota ought to first make mandatory the recycling of all metals.	PER35
Sender Name (Submission ID)	Brandon (44581)	
11818	The clean up costs will far outweigh the costs of running this mine for only 20 years.	SO01
Sender Name (Submission ID)	Brandon Swann (11628)	
3315	The PolyMet SDEIS is still inadequate. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells.	HU04, WR041
3316	The PolyMet SDEIS is still inadequate. It doesn’t explore the alternatives that could reduce PolyMet’s destruction of wetlands.	ALT13
3317	The PolyMet SDEIS is still inadequate. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish.	MERC02, MERC10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Brandon Swann (11628)	
3318	The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin.	WET24
3319	Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children.	AQ05, WR107, WR108, WR156, WR158
3321	PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity”.	PD03, WR115, WR195
7415	the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity”. Please reject the PolyMet SDIES and deny permits that would allow the open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever.	PER04
Sender Name (Submission ID)	Breawnna Wunder (19513)	
13270	The SDEIS is insufficient and should not be approved. It does not provide adequate information about the water treatment. How will up to five centuries of water treatment be paid for? No details are provided as to how the centuries of operation, maintenance, monitoring and reconstruction of water treatment facilities will be paid for.	FIN01, FIN05, FIN08, FIN11
13273	Claims in the SDEIS that mercury and sulfate pollution will decrease in nearby waterways as a result of mining are dependent in large part on operation of water treatment systems that are not detailed. To ensure protection for future generations, we need a detailed report that guarantees the protection of our waterways.	PD03
Sender Name (Submission ID)	Brenda Adams (16912)	
11019	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Brenda Beebe (22188)	
3351	The cost to the taxpayers of this state will be unthinkable, and the costs will be on the taxpayers because corporations always externalize such costs. No reasonable person can think that any corporation will live up to the responsibility of paying for that kind of cleanup, and that is just the financial cost.	FIN01, FIN10
3434	The cost to the taxpayers of this state will be unthinkable, and the costs will be on the taxpayers because corporations always externalize such costs. No reasonable person can think that any corporation will live up to the responsibility of paying for that kind of cleanup, and that is just the financial cost.	FIN10
Sender Name (Submission ID)	Brenda Doup (5993)	
1504	There is no amount of jobs worth putting MN resources at risk.	SO01
1505	Our freshwater lakes already have contaminates.	WR109
1510	Please do everything you can to secure our great resources in our state.	WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Brenda Doup (5993)	
1967	There is no amount of jobs worth putting MN resources at risk.	SO01
Sender Name (Submission ID)	Brenda Hoppe (44417)	
10624	I am extremely concerned with the impacts that the PolyMet project will have not only on area ecosystems but to water resources that will serve generations to come	WR195
Sender Name (Submission ID)	Brenda Jerich (47225)	
9193	PolyMet is a Canadian Company and their largest investor is a Swiss commodities trading firm (Glencore) with a poor environmental and human rights record...This Swiss commodities trading firm (Glencore) has an agreement to sell copper concentrate to China. What about the US?	NEPA01
9197	Open-pit mining and the entrails leave behind a devastating landscape.	LU04
9200	100 jobs (short term) in exchange for millions of dollars lost in tourism and clean up (long term).	SO01
Sender Name (Submission ID)	Brenda Johnson (43341)	
15586	This mining operation in filthy. It will have long lasting effects on the environment and our children. No amount of jobs or money could possibly be worth the trade off.	SO01
15587	Please explain why the continued pollution of our land is in the best long term interest of anyone. Put PolyMets history on the table for review by the people in this state. What is their history in previous places. I'd like to hear interviews by the people who live near a PolyMet mining operation, both current and past. Include environmental photos of the areas affected by PolyMet.	PD23
Sender Name (Submission ID)	Brenda L Sweet (44063)	
15882	The history of copper mining/pollution/clean up is very disheartening. What makes us think this will be any different? I have been told “well, it is all underground!” Honestly, that just doesn’t satisfy my concern for such a beautiful area and the potential seepage and damage we are asking them to merely put a deposit on.	FIN01, FIN08, FIN10
15883	We will not only lose jobs people are fighting for at that point but we will lose the whole BWCA Wilderness and all this area is appreciated for.	WILD02
15888	We are saying “We are so certain you are going to mess up this area, we would like a damage deposit. It won’t be enough money to get the job done after you destroy where we live but gosh, go ahead make your mess and leave, we have your deposit.”	FIN01, PD25
Sender Name (Submission ID)	Brenda Palo (35413)	
14101	I am not in favor of this sulfide mining project due to its well documented and clearly established long-term negative consequences for the local and regional people, animals, and natural environment.	WI01
Sender Name (Submission ID)	Brenda Solomon (20207)	
1792	We are VERY CONCERNED about the negative impact the mining will have on the land, water, wildlife and tourism in NE MN.	LU06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Brenda Solomon (20207)	
1793	We understand mining may create jobs/revenue for the next 20 years, but the destruction/pollution it will create will last for centuries. We feel protecting the environment far outweighs any benefits PolyMet claims.	SO01
1794	Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure.	PD02, PD03
1796	Minnesota Rules 6132.3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule.	PER04
1809	I ask that you…revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS.	PD03
Sender Name (Submission ID)	Brennen Stenke (46226)	
8858	The term “risk” implies uncertainty, but as your Environmental Impact Statement shows, there is no uncertainty that PolyMet will negatively impact our environment. Without doubt, PolyMet will foul our air, dirty our waters, rob habitat from our endangered animals, kill our endangered plants, and alter our landscape and its ecosystems.	VEG01, WI02
8859	Indeed, PolyMet will lose an opportunity to make a profit and some of us will miss out on a short-term economic boon.	SO02
Sender Name (Submission ID)	brent chezick (44851)	
8015	I believe the environmental review process has been sound and thorough.	NEPA16
8016	The state and federal regulators will ensure that PolyMet’s project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations.	PER34
8020	It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time...[The modeling completed in the SDEIS] shows the project will still meet water quality standards even that far out – all the more reason to support it.	WR190
8023	This model demonstrates that PolyMet’s plans comply with Minnesota’s laws – some of the strictest environmental regulations in the country.	PER34
8024	Minnesota is home to a world-class deposit of copper, nickel, platinum, palladium and gold. This is an economic opportunity right below our feet that will benefit the state’s economy for future generations.	SO10
8026	PolyMet will…generate significant economic activity, expanding and diversifying our economy and creating hundreds of jobs that can support families and sustain communities...This project would mean 2 million construction hours, 360 full-time mining jobs and more than 600 related jobs – jobs that our state needs.	SO10
8029	Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands.	PER34
Sender Name (Submission ID)	Brent Notbohm (23922)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Brent Notbohm (23922)	
10293	I beg of you to seriously consider the consequences heavy metal contamination could have on our precious region, and the wildlife and water quality that people travel from around the world to enjoy.	GEN03
15019	As a tax paying citizen of the great state of Minnesota who loves the beauty of the Lake Superior basin and the Boundary Waters Canoe Area Wilderness, I am extremely concerned about this project's potentially hazardous environmental impact on the region where I live.	GEN01
Sender Name (Submission ID)	Bret Johnson (40019)	
14893	These risks are not acceptable for the economic benefit in a region that prizes natural beauty and pristine waters.	SO01
Sender Name (Submission ID)	Brett R. Ewald (41331)	
9316	PolyMet offers at least 20 years of jobs for between 300-360 personnel. The state will reap the benefits of taxes per pound or ton with additional taxes from purchased goods in the local communities. Their modeling….eludes to 200 years of water treatment costing between 3.6 and 6 million dollars per year. What occurs if treatment is ....200 or 500 years?	SO04
14217	It is great if their modeling is too farsighted and treatment is not needed for that long. What occurs if treatment is needed after the 200 or 500 years? Can we rely on future technologies to better mitigate the untreated water?	FIN01
Sender Name (Submission ID)	Brett Reierson (43)	
420	I think a properly planned and managed project could be positive, but i don't think this project, at this point, is properly planned or managed.	PD01
Sender Name (Submission ID)	Bria Schurke (18212)	
13444	I will not accept any pollution in the community that I want to raise my children, if there's risk that my children will be raised on polluted water.	WR195
Sender Name (Submission ID)	Brian Anderson (38814)	
5006	I'd also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out.	WR190
5008	We cannot afford to miss this job opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands.	SO10
Sender Name (Submission ID)	Brian Berggren (43525)	
8134	The Watershed Restoration goals described on page 3-71 seem overly optimistic. Water events, sediment and toxic waste or process water migration, have a way of defeating barriers and will only minimize watershed contamination.	PD03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Brian Berggren (43525)	
8139	Section 3.3.3.4 Financial Assurance ...that costs can be better estimated later in the permitting process as outlined in para..4.1. The 200 year and 500 year timeframes, numbers that exceed the lives of nations and certainly that of commercial enterprises, are beyond both planning and funding. The effects of dewatering, sediment movement, chemical leaks and seeps, and ground disturbances on a large scale in such a sensitive area are not possible to estimate.	FIN01
8141	With... the sensitivity of wild rice to sulfates…, the state should reduce or eliminate problem sites prior to permitting.	VEG04, WR159
8143	placing processing facilities and tailing sites at the head of an important watershed, and adjacent to the BWCA and Rainy River Watershed should never be allowed.	WILD02
15699	The 200 year and 500 year timeframes, numbers that exceed the lives of nations and certainly that of commercial enterprises, are beyond both planning and funding. The effects of dewatering, sediment movement, chemical leaks and seeps, and ground disturbances on a large scale in such a sensitive area are not possible to estimate.	PER04
15700	We cannot leave a legacy of NURPs (National Urban Runoff Ponds) for a principal watershed of Lake Superior.	WR111
Sender Name (Submission ID)	Brian Bluhm (43729)	
11773	Despite the use of new technology, there is always risk involved when disturbing natural processes. If some aspect of the proposed management system were to fail, for example from a sustained power outage, are there other measures in place to prevent contamination?	HAZ01
11774	I am also concerned about the potential effects on human health, and the related monetary costs to those impacted and their communities.	HU03
15090	If contaminated water were to enter the watershed, are there assurances in place to prevent the cost of these impacts on human and community health from being imposed on the municipalities, tax payers and individuals of northeast Minnesota?	FIN01
Sender Name (Submission ID)	Brian Hanson (47634)	
7629	PolyMet will be a domestic supplier of critical metals consumed every day… PolyMet can produce these metals in an environmentally sound manner and create hundreds of jobs that can support families, sustain communities and ensure a thriving Minnesota for future generations.	SO10
7646	PolyMet’s project is a case study for business and economic development. The Company will put a brownfield site back in operation and reuse existing infrastructure at the former LTV site in Hoyt Lakes – a $350 million facility that would cost nearly $1 billion to reconstruct today.	SO10
7647	PolyMet’s project will create 360 direct jobs and over 600 indirect jobs, at a time when family-sustaining jobs are needed in Northeast Minnesota.	SO10
7648	The SDEIS was a sound process – a detailed and independent review...The draft EIS offers regulators the information they need to issue permits so that PolyMet can operate in a way that protects natural resources.	NEPA16
14714	They're going to produce metals that we all need, that we all use. No matter who are you are, unless someone came here either walked here in moccasins, clothes that they made themselves, they probably got here aided by the metals we're talking about and that we need.	SO10
Sender Name (Submission ID)	brian huberty (9279)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	brian huberty (9279)	
80	The SDEIS does not include an option or discussion for a closed water system for not only Polymet but also for other Iron Range industries.	ALT13
863	Polymet should have in good faith already restored the wetlands needed to compensate for the proposed impacts on the existing wetlands. In good faith, this action would show a more proactive approach which would help mend the long term and permanent impacts any mining operation produces.	WET04
Sender Name (Submission ID)	Brian J (43363)	
11752	My concern lies primarily with the money available for cleanup when the containment fails because it will fail...the rock in the area fractures with frost, settling, etc so the containment isn't going to stop it all. I reviewed their stock/invester information and as far as I can tell, they don't have any money...they are completely funded by others as a startup which as soon as the well runs dry and income stops, they are going to sell their shares as fast as possible. This will leave MN taxpayers with the cleanup costs …	FIN01
11753	I am not opposed to mining in general, but as far as I can tell, this company cannot prove they can do it safely, and cannot prove they have the finances to keep our waters clean.	PD01, PD25
Sender Name (Submission ID)	Brian Johnson (11569)	
2217	One unique area where water is the source of life, the boundary waters should be the last place a mine goes	WILD02
2217	One unique area where water is the source of life, the boundary waters should be the last place a mine goes	WILD02
17922	With water's value going up and the aquifors going down Prairie du Chien – Jordan and the Ogalala heading for disaster with the Keystone pipeline hold off on the permits.	NEPA03
17923	Has there ever been a non-toxic copper/nickel mine? Our carbon footprint should be shrinking, NOT increasing.	PD01
Sender Name (Submission ID)	Brian Maki (18094)	
13463	We have the opportunity to revitalize Northern Minnesota with the promise of good-paying jobs. We have done our homework and science is on the side of progress, and on the side of responsible environmental stewardship. We have the opportunity with non-ferrous mining and PolyMet to demonstrate to the world the type of people we are in Northern Minnesota. Hard working, thoughtful and caring folks who would never harm the land we love so dearly. Every job is a family. Every job is a family, and don't forget it.	SO10
Sender Name (Submission ID)	Brian Mensolek (54502)	
19069	I am not convinced that Polymet or any other mining operation will monitor and be responsible for the tailings of these operations for the extended period of time that is warranted.	FIN01
19070	It would be exciting to see new development that can improve the economy on the Range. I would not expect, though, that it's to come at the price of risking the land we live on.	SO01
Sender Name (Submission ID)	Brian Nelson (42553)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Brian Nelson (42553)	
17051	With technology in place and federal and state guidelines and enforcement the chance to prove copper mining can be done safe for the environment is here. Reverse osmosis is a reality and if we can do it here it will help protect the rest of the world. The economic impact of this is also beneficial for northern Minnesota lets put people to work	PER34, SO10, WR190
Sender Name (Submission ID)	Brian Peterson (44186)	
11876	We should be working to expand the borders or protected areas, strengthen the protections and see to it that we save and preserve what we have not yet ruined. In many parts of the state it is too late or not feasible to take such actions.	WILD02
11877	I am fully confident that when all true costs are considered (loss of habitat, noise pollution, water contamination, clean-up, human health costs, infrastructure demands, etc.) these proposals will be a net loss for MN both in economic terms and human terms.	SO01
11878	I also see almost no circumstance where some of the clean-up and reclamation does not fall on the taxpayers.	FIN10
11879	The jobs this will likely create, long-term, are Superfund jobs, the kind of jobs Minnesotans don't want.	SO01
11880	My suggestion: $500,000,000 in escrow, with an oversight board using the money to immediately address environmental and human concerns.Polymet can always add money, and keep any interest. If the fund is depleted to $250,000,000, all mining stops, the money is used to reclaim the land and any leftovers go into the Legacy Fund. When the mine closes and the area is properly cleaned and restored, Polymet gets any remaining balance back.	FIN01, FIN05, FIN08
Sender Name (Submission ID)	Brian Slaby (24278)	
10320	Considering that Lake Superior has a water retention time of almost 200 years, even a small risk of pollution should be taken seriously. It could create a problem for our continent's largest freshwater lake that's unsolvable for two centuries.	WR111, WR115
Sender Name (Submission ID)	Brian Stompe (20141)	
9351	I understand the need for mining but there are places it should not be done no matter what the short term gain.The water shed that feeds into Boundary Waters is one of those places.	NEPA01
Sender Name (Submission ID)	Brian Tighe (43187)	
10356	Allowing the Northmet sulfide mining operation would violate a binding treaty with the Chippewa to protect their hunting and fishing rights in that region, by contaminating their food sources.	PER08
15852	Please protect our most important natural resource: fresh water.	WR111
15853	Surrounding water would be contaminated by the NorthMet Mine, and though it creates a few jobs and a some tax revenue, the bulk of the profits go to foreign countries. The risks for environmental degradation are too high.	SO06
15854	The risk that taxpayers will end up footing the bill for long term clean up is too high.	FIN10
15855	The increased risk of chronic illness is too high.	HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Brian Wicklund (7083)	
10603	I am deeply concerned about the potential for PolyMet and other mining corporations to be allowed to mine public land that contains Minnesota's most pristine and fragile water system. It is foolish to allow a type of mining with a 100% failure rate of toxic leakage into ground and surface water to be allowed at the source of three watersheds.	WR115
10607	A decision to allow sulfide mining would also be an economic disaster. Any short term gain of jobs and revenue would be trumped by the estimated 500 years of maintenance of the waste.	SO01
10609	In spite of assurances by PolyMet, what companies can you name that have been continuously viable for 500 years? You can bet our tax paying children will be footing the bill for clean up for generations to come.	FIN01
Sender Name (Submission ID)	Brian_Walvatne (37830)	
16338	Water is the essence of life and this mine will increase risk of severe environmental damage that could last for 500 years or more.	WR195
Sender Name (Submission ID)	Brianne Plumadore (42730)	
14381	I have no confidence that the Polymet company can keep the surrounding watershed safe from pollution caused by the mine.	WR037
14382	As a person with special appreciation for wildlife and resident of the state of Minnesota, I am urging you to reject Polymet's proposals for sulfide mining in our state.	WI01
Sender Name (Submission ID)	Bridget Peterson (43547)	
11090	Water is a finite resource. The Great Lakes holds some 80% of North America's fresh surface water and about 20% of the entire world's… putting resources needed not just by us here but by the entire WORLD in such jeopardy for mere profit is ridiculous.	WR111, WR195
11093	We are already wasting such resources by not engaging in recycling what's already out there as much as available, something which could both reduce pollution…and create the much-needed jobs, probably more and longer lasting employment than the mine will create, at a benefit to our environment rather than more harm.	SO02
11094	It astounds me how willing some are to let an outside corporation come in and muck up our environment so drastically for resources that seem most likely destined to be shipped overseas at a great profit for them, and just a few jobs and decades of likely irreversible pollution to our drinking water and environment for us.	SO01
Sender Name (Submission ID)	Britt K Johnson (57263)	
17403	The impact of winter release of sulfates should be further studied. The sulfides will accumulate in the organic sediments and not flush down river during the winter. Then in the spring when the H2O warms up the micrbiome will be high on verifying the stored sulfates into sulfite at the same time as the wild rice begins to germinate. John Patter's research has shown that sulfite is toxic to wild rice seedlings at very low concentrat6ions. Thus the predictor would be that the sulfite concentration would be the highest in the spring after continuous winter loading due to water discharging of sulfate from the Polymet site. This would put the wild rice seedlings at even greater risk. The EIS should assess to the fact of what winter water releases from the Polymet site on spring sulfite levels in the seedlings of wild rice beds downstream.	VEG04, WR153, WR157
Sender Name (Submission ID)	Britt See-benes (11619)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Britt See-benes (11619)	
3302	I believe that PolyMet has shown their responsibility by meeting all the standards purposed by the various regulatory agencies.	NEPA16
3302	I believe that PolyMet has shown their responsibility by meeting all the standards purposed by the various regulatory agencies.	NEPA16
Sender Name (Submission ID)	Britta Dornfeld (45147)	
8383	This sulfide mine has said that it has a plan for dealing with acid mine drainage; however, this plan has never been tested before.	WR001
8391	The jobs that this mine would provide are based off of cycles of boom and bust- while they would provide jobs for a thirty to forty years, areas that benefited from these jobs would be in the same, or worse place than they were before the mine	SO02
8393	In starting this mine, more long-term jobs in tourism and public land management would be harmed, since this area would not doubt be damaged by acid mine drainage.	SO02
15426	Also, since acid mine drainage can last for hundreds of years, it is highly likely that the mitigation of the drainage will fall upon the government- an expensive, long-term task that we, as citizens and tax-payers who would help foot the bill, can ill afford.	FIN01
Sender Name (Submission ID)	brittany kron (39112)	
5171	It would be unwise of Minnesota to destroy its streams and lakes, poison its animals, and ultimately lower the living standards of its citizens, because it will more than likely pollute lake superior.	WR111
17679	A short gain of profit is not worth the hundreds of years this project could take to clean up.	SO01
Sender Name (Submission ID)	Bromley Griffin (22700)	
3294	Short-term jobs for a few native and non-native Minnesotans is no where near worth the risk of the permanent damage to the resource that almost always follows the flash of profits and then polluted silence following the fading of almost all major mining projects, especially copper mines.	SO01
Sender Name (Submission ID)	Brooke Shepherd (11263)	
787	The Polymet mine will also affect our air quality by releasing sulfur dioxide, greenhouse gases and nitrogen oxide into the environment. They estimate that even with this pollution, the air quality will still be up to standards. However, an estimation alone doesn’t seem safe enough to go ahead with the project.	AIR11
788	There is also a chance of mercury being released into our air and water. Though it would be a minimal amount, it is still dangerous to be releasing any amount of it into our air or water systems.	MERC22
789	The construction of the mine, the noise from the workers, the clearing of forests and the changes in air and water quality could greatly affect the several different species of animals who call the area home. Two of which are endangered species, the gray wolf and the Canadian lynx. Polymet claims that once they finish with the land, they will attempt to restore it; however, this could take decades to have it return to normal and the animals who lost their forest homes may not come back.	WI01, WI05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Brooke Shepherd (11263)	
790	My hope for the future is that we find a safer way to extract copper so the flora and fauna and the mining can live peacefully together. At this time however, the Polymet mine is not ready for this and it would be wise to wait until we know more.	NEPA03
1584	We simply do not have enough information of the damage it could cause to our environment at this time.	NEPA15
1587	The water useage from Colby Lake is another large concern in building this mine. Polymet says it could vary in using between twenty and 810 gallons per minute. There is a very large difference between twenty and 810, so we really won't know what affect it will have on the lake if we aren't sure how much water they'll be using. They say that they will build a waste water treatment plant and let it run off into two nearby rivers, but what does that mean for the lake?	WR043, WR056
Sender Name (Submission ID)	Brooklyn Blackman (54173)	
16390	We should not use the sulfide mining act because it pollutes the water with sulfuric acid the PH levels will go down.	WR001
16392	People like to fish up there and eat the fish, if the people of Minnesota and tourists eat the poisoned fish it's not going to be good.	SO02
16393	Also it will put a huge amount of business up there. We as the people should have at least one place of natural wilderness where we could count on our generations to come and be a part of this beautiful wilderness center we have been protecting for 30 years.	SO01
Sender Name (Submission ID)	Brownie Wood (39216)	
12350	There is absolutely nothing about copper nickel mining through the environmental impact studies that have been done that eases my mind regarding the future health of all of life so dependent on water.	WR110, WR195
Sender Name (Submission ID)	Bruce and Linda Anderson (57928)	
19845	Any risky endeavors such as this mining project will negatively affect eh environment, the wildlife, and water quality.	GEN03
Sender Name (Submission ID)	bruce berggren (45923)	
10345	Minnesota law is in conflict with the SDEIS, as in order to advance the SDEIS an arbitrary term of 500 years is used as the last year that monitoring is needed. The State law I am talking about is the one prohibiting issuing a" Permit to Mine" to any mine requiring "Perpetual" maintenance after closure.Chapter 5.2.2.8 "Mine Site Surficial Flow Paths" state that both the East and West pits Solute Source End Time is listed as continuous. Not for the 200 or 500 years will the flow come from the mine, but continuously. Perpetual and continuous sound pretty similar to this reader.	PER04
10349	The USFS requires the preparation of a reclamation plan to ensure the long term protection and restoration of the natural resources. If a reclamation plan has, or is being developed, the project may meet their goals. The Weeks Law of 1911 is designed to protect the headwater watershed of navigable rivers. The Partridge and Embarrass River Watersheds falls into this type of area. This law has not been addressed in any of the chapters I've read.	PD09, PD35, WR037
10352	In all the tables of contents I could not find anywhere how an emergency shutdown or closure will be handled if or when needed. An emergency shutdown chapter would let others know what management or mine owners plan to do in an emergency.	PD22

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	bruce berggren (45923)	
10355	The USFS and State are sacrificing a good part of the 100 mile swamp. The USFS in their forest plan consider this an ecologically sensitive area.	WET19
12091	The land exchange should consider lands within a reasonable distance from the mine site. The site in Cook county is beyond a fair distance from the mine site and should be removed from the exchange process.	LAN06
12773	Minnesota law is in conflict with the SDEIS, as in order to advance the SDEIS an arbitrary term of 500 years is used as the last year that monitoring is needed. The State law I am talking about is the law prohibiting issuing a "Permit to Mine" to any mine requiring Perpetual maintenance after closure.	PER04
12774	The Weeks Law of 1911 is designed to protect the headwater watersheds of navigable rivers. Both the Partridge and Embarrass river watersheds fall under protection from this law but I could not find it addressed in any of the chapters I read….In all the tables of contents, I could not find anywhere how an emergency shutdown or closure will take place if or when needed. An emergency Shutdown chapter would let others know what management or mine owners plan to do in an emergency.	NEPA04
12776	This project is for the300 to 600 jobs that will last for about 20 years or so. The USFS and State are sacrificing portions of the 100 Mile Swamp for this mine. The USFS, in their forest plan, has considered this an ecologically sensitive area.	SO01
Sender Name (Submission ID)	Bruce Blackburn (54783)	
19500	There is no clean sulfide mining. The waste water will never be clean. And a coal power plant is the energy source for the proposed mine. … Deny the permits!	PER35
Sender Name (Submission ID)	Bruce E Grewcock (42750)	
14434	As you know, mining in Minnesota is a tremendous economic driver for the state and region. Expanded mining of precious metals would have a significant and sustained effect on the economies of both. The addition of thousands of long-term jobs and expanded commerce would directly impact companies such as Minnesota Power, which serves the mining industry.	SO10
14435	Additionally, the raw materials, including the precious metals available in north eastern Minnesota, are essential to construction, and are a substantial cost for our business and ultimately our clients. Costs are higher when these raw materials must be imported, especially when using foreign sources that are unreliable or have unstable governments. There are also substantial environmental impacts when importing materials from countries that do not value environmental protection.	PD30
14436	PolyMet will provide a domestic supply of critical metals needed in medical applications, electricity, catalytic converters, cell phones, computers and other essential products. It will produce these metals in an environmentally sound manner and generate significant economic activity, expanding and diversifying our mining economy. The metals that PolyMet proposes to mine are essential to green technology such as wind turbines, solar panels, hybrid cars and pollution prevention devices such as catalytic converters.	NEPA05
14437	In short, responsible domestic mining will have a huge impact on the economies of the state of Minnesota, the upper Midwest and the nation, and will provide a reliable economical and environmentally sustainable source of raw materials for the construction industry.	SO10
Sender Name (Submission ID)	Bruce Harten (3205)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bruce Harten (3205)	
157	I propose an underground mine , that does not infringe on the existing mess…that has an "adjacent" New Closed Loop Crushing, milling, extraction, smelting, sulphide processing & capture, water filtered and reused, dry tailings/site return…with NO EXTERNAL PONDING OR BERMS…every process INTERNAL	ALT01, ALT09
623	In putting the polymet footprint into the existing…polymet wants to use the same berms, tailing pools, ect ect, which in turn gives Polymet the liability phrase "It was poluting before we began"…were not responsible.	PD10
10449	Do not let the Footprint of this Plan get anywhere near an existing "Abandoned or Operating" mining venture! Closed loop crushing, milling extraction, smelting, sulfide packaging, tailing compaction and return, Interior ponding and water reuse...ALL IN ONE ENCLOSURE !!!...Power Goes off everything stops !!!....and all mining is done without "Open Pit"...This procedure also lets Attorney Generals Office off the hook for defending the "Criteria of Permit !	PER03
Sender Name (Submission ID)	Bruce Hurtley (39097)	
10264	It would be wonderful if the PolyMet and GlencoreXstrata companies could guarantee that the NorthMet mine would be safe for the environment during its operation and centuries after its closure. However, the risks of sulfide mining are very high and there are no guarantees.	SO02
10270	You may believe that PolyMet would never allow sulfuric acid runoff from their mining/refining operations to destroy surrounding wetlands and that any liability for future cleanup costs would fall to the company and not to the tax payers of Minnesota… but please, also consider the track record of sulfide mining because the stakes are very high for Minnesota and this industry does not deserve your faith.	FIN10
Sender Name (Submission ID)	Bruce Johnson (43003)	
11445	The WWTF, (Mine Site Nano-filtration) Fails to Produce Credible Results. Predicted performance of the nanofiltration system is theoretical and lacks bench scale test performance results using predicted chemical concentrations that will be seen during operations.	WR143
11463	Sulfate mass loadings will increase in the tailings basin far beyond the predicted low sulfur content of the tailing itself. This increase will produce a lowering of pH and like acid conditions. Sulfate producing acid conditions is a major cause for leaching of some heavy metals e.g. copper, nickel, cobalt, and zinc	HAZ01, WR001, WR060, WR113, WR150
12902	The long-term pollution of our precious water resources is unacceptable. Clean water is our area's most valuable resource.	WR195
12904	The financial assurances are inadequate. What is said is vague and completely unacceptable.	FIN08
12905	The proposed operation would require massive amounts of carbon-intensive energy. We need to be transitioning to sustainable energy systems.	AIR01
12906	The habitat of already vulnerable species, such as moose and lynx, are threatened by this project.	WI02
12907	Wild rice would be further damaged by the inevitable pollution from this misplaced mine.	VEG04, WR156
15303	the PolyMet NorthMet Supplementary Draft Environmental Impact Statement (SDEIS) fails to adequately address major ions and trace elements. The document ignores aquatic toxicity and possible synergistic impacts from waste rock leachates…As a result, predictions of impacts to surface and ground water are understated. Parameters that are minimized or not analyzed may also impair the ability of installed water quality treatment to meet surface and groundwater standards.	AQ06, WR060, WR064, WR110, WR113, WR130, WR147

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bruce Johnson (43003)	
15304	PolyMet 2013g, p.29 states the nanofiltration membrane has a high selectivity for multivalent ions over monovalent ions. Thus significant monovalent Ions will not be retained by the mine site wastewater treatment facility (WWTF) and will be discharged. ... For PolyMet, these are the monovalent ions elements of chloride (Cl-1), fluoride (F-1), sodium (Na+1) and potassium (K+1). These elements will pass though the filter and be discharged with the filtered water...There is a conflict in statements in the SDEIS. There cannot be a 99+% removal rate while the monovalent ions pass through the filter. This demonstrates that no actual bench scale testing with actual waste and the values are simply computer predictions that have no relation to actual performance of the WWTF.	WR143
15305	The SDEIS fails to perform mass balances. Without mass calculations impacts from the tailing basin cannot be reviewed in any scientifically defensible manner. This is a major omission...there only three major locations where waste chemicals can leave this system 1. In a sludge; 2. In a seepage/leakage; 3. In a wastewater discharge. As a result each chemical must be traced by weight from its input to its final disposition. This allows a mass balance to be developed e.g. the waste input is equal to all the waste outputs.	WR189
15307	Average inputs of 500 tons per year of sulfur will be added from the WWTF to the tailing basin ...The sulfate/sulfur mass in the tailing basin will near double annually for 20 years. This impacts the prediction that sulfur will not be a problem in the tailing. It further ignores the latent impacts of the high sulfate releases after the operation ceases.	WR060, WR189
15308	The antimony mass loading is significant and demonstrates a significant potential for long-term impacts...The following are PolyMet's predicted average inputs: beneficiation = approx.0.05 tons per year, WWTF backwash = approx. 0.05 tons per year. WWTP backwash 0.08 tons per year. Seepage amounts to approx. .08 tons per year. This indicates 0.18 tons of antimony will be added to the basin each year.	WR035, WR038, WR060
15309	Nickel mass loadings to the tailings basin are substantial...SDEIS Ch.1,p.1-5 states that 11.3 million tons of tailing will be produced annually. This is 30,959 tons per day (assuming 365 day operation). Nickel can be roughly estimated from PolyMet 2013j Table 5-17, PolyMet 2013g Table 2-1, Large table 1 as describe the background discussion. Using the 90% confidence number and flow the WWTF input to the tailing basin would be 2,699 lbs./day or 1.3 tons per day. Beneficiation of the ore produces 30,958 tons tailing per day with an average nickel concentration in the tailing of 0.031 . The resultant tailing would contain approximately 959 tons of nickel per day. Thus the total nickel addition to the basin would be roughly 960 tons per day.	WR108
15312	The SDEIS fails to address the impacts of blasting agent residues [including nitrate and un-ionized ammonia] in a scientifically defensible manner...The SDEIS further states they will use 15.3 million pounds of explosive per year blasting every two to three days. This calculates to 144,000 lbs. of blast explosive for a twice a week blast cycle, and 96,154 lbs. of blast explosive on a three times a week blast cycle. Polymet 2013L, 8.4.2, p.88 defines the explosive to be used as a mixture of 30% ANFO and 70% emulsion (Table 8-9). These amounts are not inconsequential.	WR032
15313	The SDEIS conflicts with its references on ANFO usage.SDEIS Chapter 3, Table 3.2-5 states 0.45 tons/lb. per blast will be used for waste rock. SRK 2007b report states the ANFO will contain 67% ammonium nitrate. However it further states that it will use 0.3 lbs. per ton of waste rock, which is in conflict with the SDEIS. This discrepancy results in a 27% higher use of blasting agents. This significantly raises the predictions found in Polymet 2013L, Section 8.4.2, p 88.	GT01
15314	The SDEIS does not adequately analyze the fate of blasting agents remaining after individual blast hole failures.	N05
15315	The SDEIS fails to assess nitrogen impacts from blasting residues in the tailing basin...Nitrate is highly mobile and will move through the tailing basin and enter groundwater and shallow seepages. Nitrate will also enter the waste water treatment systems and complicate the treatment efficiency or be discharged to surface waters or the tailing basin. The SDEIS must fully address these inputs.	WR032, WR147

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bruce Johnson (43003)	
15316	The SDEIS is in conflict with the scientific article they cite to support their modeling and evaluation. PolyMet 2013L 8.4.2. attempts to design their own model to model ground water leachates that pass through the category 1 containment to the Partridge River. Their model cites Footnote 1 as their justification to model release rates of nitrogen blasting residues. Polymet states their evaluation uses a “standard method” for this type of evaluation from footnote 1. (Polymet 2013L p.88) However the Morin report states: "…standard pre-mining techniques cannot be counted on for accurate predictions of nitrogen species. Instead, case studies become an important source of predictive information.”… “ Based on this, it is not possible to provide a generic narrow range of nitrogen leaching for prediction, since values here ranged from 0.2% to 28% (two orders of magnitude). The leached nitrogen is obviously dependent on many site-specific factors (Section 2)”…It is apparent from this that PolyMet’ statement of a “standard model” does not agree with their own cited reference and the PolyMet model lacks scientific credibility. Mine Water Leaching of Nitrogen Species from Explosive residues, Kevin A. Morin and Nora M.Hutt, Minesite Drainage Assessment Group, Surrey, British Columbia.	WR189
15317	PolyMet’s analysis ignores discharges from the stockpiles that drain into the pit that then is pumped to the mine site wastewater treatment system. It also ignores the blasting agents that remain in the ore that will either enter the tailing basin and it seepages or enter the hydromet processing facility (NorthMet Waste Water Treatment Facility Design Plan, Version 2 November 30, 2012 pp. 9,10,11,12). These inputs must be evaluated in the SDEIS	WR031, WR032, WR173
15318	The SDEIS evaluation incorrectly assumes un-impacted ground water can be contaminated to the company’s property boundaries for dilution purposes in direct conflict with MN Rule Chapter 7060. The cutoff wall leakage from the category 1 stockpile is modeled assessing nitrate impacts at PolyMet’s property boundary as the point of compliance (PolyMet 2013L 8.4.2). Although property boundary limits have been used by MPCA previously in contaminated site mitigation. It is inappropriate to use property boundaries to allow a new industry to use ground water for dilution when a contamination source is identified prior to operations.	PER09
15319	The SDEIS evaluation ignores synergistic toxic effects of the hazardous materials citation identified in the SDEIS...ANFO is listed as harmful to aquatic life at low concentrations. The blasting emulsion is also a hazardous material and is listed that it may cause elevated nitrate levels in water and could affect aquatic animals (SDEIS Table 5.2.13-1, p 5-528)...emulsions can contain guar-gum, starch, Al203, calcium nitrate, sodium nitrate, and various wax-like hydrocarbons. None of this chemistry including aquatic toxicology are defined or provided in the evaluation by the SDEIS or the reference document Polymet 2013L section 8.4.2. PolyMet lacks an evaluation on the impacts of blasting emulsions.	AQ06
15320	The SDEIS proposal to dispose of category 3 & 4 waste rock underwater in the east pit lacks scientifically defensible evidence that the disposal will reduce metal and other parameters leaching/dissolution will meet surface water and ground water standards including toxicity standards.	WR173
15321	The SDEIS ignores the impacts from non-sulfide metal parameters in proposing underwater disposal. There are a number other regulated chemical parameters that will be released when waste rock is placed underwater. These include ...specific conductance, TDS, hardness, bicarbonates, sulfates, sodium, fluoride, chloride, aluminum, arsenic, mercury, calcium, magnesium, manganese. ...As the pit/s fill, the high concentrations of these parameters will seep or flow out of the pit/s and will impact both the adjacent wetlands and the Partridge River (SDEIS Fig.5.2.2-4). Increased calcium loads will also enhance zebra mussels colonization of the watershed	AQ09, AQ17, WR060
15322	The East pit footwall membrane lacks scientific support.The Virginia formation is known to contain high sulfides (3% to 5%) . In the East pit the north footwall will be in the Virginia Formation. This formation when exposed to weathering will degrade and create addition surface area for leaching. ...The SDEIS proposes coat the footwall with limestone and to cover the sidewall with a synthetic membrane and to prevent leaching (PolyMet 2013l, p 99). No documentation or data is provided whether this is a successful practice at other similar sites.	PD35

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bruce Johnson (43003)	
15323	The SDES proposal to dump high sulfur waste rock underwater is not supported by existing data.	MERC08
15324	Once waste rock is disposed in the East Pit and the pits discharge water fails to meet standards the ability to correct the problem to meet standards will be unrealistic.	PD04
15325	The SDEIS fails to include bicarbonates as a regulated chemical...The bicarbonate surface water standard for 2b surface waters is 5 meq/l (7050.0220 Subp.5). Bicarbonate is currently one of MPCA's parameters of concern for the LTV tailing basin leachate and under an enforcement consent decree. Standards for these parameters have also been exceeded at Mesabi Nugget, a taconite-to-pig iron processing facility on former LTV property.	HAZ01
15326	The SDEIS fails to analyze beneficiation reagents impacts from disposal within the tailing basin. ...The following chemical compounds will be used in the beneficiation process MIBC and DF250 – 2.75 tons per day (tpd); PAX – 3.20 tpd; MagnaFlox10 – 0.45 tpd, Copper Sulfate – 2.9 tpd; Gangue Depressant – 2.9 tpd. (SDEIS Ch. 3 3.2-12. (SDEIS Ch. 3 Table 3.2-12)...Metal sulfide tailing can be expected to contain the residues from the chemical additives of methyl isobutyl carbinol, MIBC/DF250 and potassium amyl xanthate...The SDEIS fails to address the toxicity of individual flotation chemicals. It fails to discuss the individual degradation products or toxicity associated with chemical mixtures, Toxicology on bench scale beneficiation wet testing has not been reported, thus environmental impacts from these chemicals are not addressed in any scientifically defensible manner.	HAZ04
15327	Insufficient time for review…The SDEIS is approximately 2000 pages, however the document only summarized conclusions based on over 60,000 pages of references. A 90-day review window for this size document is absurd.	NEPA07
Sender Name (Submission ID)	Bruce Kuehl (39347)	
6125	I am a long term, out of state frequent visitor to MN for tourism reasons. Should MN allow this mine project I think my friends, family and I will look for a different state/province to visit.	SO02
Sender Name (Submission ID)	Bruce Ludewig (43496)	
7899	Regarding the land swap…. It seems that there would be a net loss of forest and wetland as a result of this trade and the subsequent Polymet operations.	VEG03, WET14
7907	the proposed trade the USFS is not getting a good "price" for the lands that would be traded to PolyMet…. The lands proposed to be traded to the USFS have little mineral value, so are effectively worth much less.	LAN03
7915	Is there enough financial assurance to cover rebuilding the containment systems 100 years from now? ….. I am not confident that the proper monitoring, maintenance and response to unforeseen issues will occur into the future as assumed in the SDEIS.	FIN01
7919	According to the SDEIS, the water discharged...is expected to contain levels of sulfate that are less than or equal to current levels in the watershed, and less than the current standard for wild rice waters…are we certain that we aren't replacing a natural water flow that would have had lower sulfate levels in the absence of the NorthMet project, and thus increasing the flow of sulfate into the watershed?	WR063
7923	If the model results show at a 90% certainty level that water quality won't be impaired with this project, isn't it reasonable to expect that one out of 10 similar projects might result in unacceptable contamination?	WR192
15701	Is sub-aqueous storage really a safe way to dispose of the category 4 waste rock?	PD15

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bruce Ludewig (43496)	
15702	For what it's worth, I think the comment period should have been extended; the SDEIS is a very large and complex document. Given the high level of public interest in this issue, 90 days wasn't enough time for an average citizen with a full time job to properly review the document.	NEPA07
Sender Name (Submission ID)	Bruce Magnuson (12077)	
1650	As I understand it, there will have to be long-term containment of acid formation, and that means 200 years at the mine site and 500 years at the processing site. I think this is too long.	WR115
1651	I think the risk is too high. I know there are jobs that would be created by the mining of copper and nickel, but I feel that the area's current economic base of tourism and agriculture can continue to be a good source of income for that area.	SO02
Sender Name (Submission ID)	Bruce McBeath (39521)	
8034	[Permitting of NorthMet mine project] is too important and has consequences too extreme to pass human health and safety concerns.	HU03
Sender Name (Submission ID)	Bruce Peck (52548)	
15352	Please, please, please--extend the time for critical comments from the community!	NEPA07
Sender Name (Submission ID)	Bruce Philipson (43701)	
13148	Certainly a 1,000 temporary construction jobs and something less than 400 so called permanent jobs, if 20 years is permanent, all are appealing but at what costs?	SO01
13151	The common method of operation is for the mining concerns to get while the getting is good and leave behind a path of environmental destruction. All too often escaping the economic responsibility for cleaning up their mess thru bankruptcy and leaving the public holding the bag.	FIN01
15414	Seems it would be best to err on the side of protecting the environmental certainly at least until safer mining techniques with less risk for pollution have been developed and proven to be effective.	PD32
15416	The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period.	NEPA07
Sender Name (Submission ID)	Bruce Reno (39550)	
6351	There are no safe guards to protect the environment and the tourism industry after the mining has been approved and started.	SO02
13354	There are no safe guards to protect the environment and the tourism industry after the mining has been approved and started. What happens to the businesses and jobs that will be eliminated after the problems arise from this mining practice as has happened every where this type of mining has occurred.	SO02
13355	The people of this state cannot afford to fix the problems resulting from the mining process and the lack of over site that always occurs due to greed and miss management that is pervasive in the mining industry as a whole.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bruce Reno (39550)	
13535	The people of this state cannot afford to fix the problems resulting from the mining process and the lack of over site that always occurs due to greed and miss management that is pervasive in the mining industry as a whole.	FIN01
Sender Name (Submission ID)	Bruce Snyder (58064)	
19870	Do we still offer short term riches in exchange for our long term best interests? I hope not.	SO01
Sender Name (Submission ID)	Bruce Synder (18184)	
3985	The surface water and streams and groundwater that this plant will be affecting are in the watershed of the Great Lakes. The Great Lakes is 20 percent of the world's freshwater	WR111
Sender Name (Submission ID)	Bruce Ventura (34208)	
13243	Sulfide based ore extraction took place in northern Wisconsin in the late 1990s, with disasterous results for the rivers in that area. NO sulfide based ore mining or extraction of coal that is high in sulfur has ever been done without major contamination of water resources. No technology has ever been developed to prevent the damage and destruction of watersheds in any region in the world where sulfide based mining has occurred.	WR023, WR128
Sender Name (Submission ID)	Bruce Vukelich (44066)	
7697	200 and 500 year spans of cleaning pollutants and waste from water and the land in the area and surrounding areas is testament enough for me of the potential damages we could sustain to our already endangered eco-system.	PD01
7714	Jobs and opportunities are very important to the vitality of the Iron Range of northeast Minnesota but not at the cost of our water and soil.	SO01
14920	the FonDuLac watershed district maps produced to show current levels of pollution, many with areas that are already over the limit specified by the EPA as being safe is a big concern. Adding this new mining operation to this area will only add to these already troubled areas.	CU11
14921	We are one of the few states in the country with the water resources we have and we should be highly protective of those resources.	WR195
Sender Name (Submission ID)	Bryan Emmel (39577)	
13484	Hydrologists and futurists agree that one of the most precious commodities of the future is clean, potable water. Northeast Minnesota has some of the most pristine surface waters in the world. It makes no sense to trade it for ten pieces of gold.	SO01
Sender Name (Submission ID)	Bryan Nelson (47518)	
11343	Twenty years of minor prosperity is not worth 500 years of pollution.	SO01
Sender Name (Submission ID)	Bryan Thao Xao Chay (54220)	
16683	Do you know what [Polymet's mine] would do to the Boundary Waters? It would basically poison the water with sulfuric acid! But that’s not all of it. The water would be contaminated for over 500 years! And the cost to decontaminate it would cost a lot, even higher than one billion dollars.	FIN10, SO01, WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bryan Thao Xao Chay (54220)	
17311	Polymet's plan to mine is also wrong too. They plan to mine in a huge area, but they are telling everybody that they're only mining in a small area. Which is a lie! How can you trust and allow a company to go through with this plan, when it is so obvious that they are lying!	PD30
Sender Name (Submission ID)	Bryan W Cox (9333)	
936	If Polymet has developed a reverse osmosis process that extracts minerals from waste well below the EPA standards as they claim, one would believe their ability to be environmentally viable. Furthermore, waste water can be treated before being reinstituted into the surrounding area.	PD03, PD05
937	Recent concern regarding water flow data along the Partridge River have been brought forth. Opponents tout further reason to avoid implementing the mine; however, according to the Duluth News Tribune, a sensor was not placed into the river until mid-2011. I question the true impact of this revelation. First, two years is not a sufficient period of time to conclude consistent water flow data. Second, Northern Minnesota went through one of the worst floods in history in June of 2011, which would obviously elevate data. Finally, data can be skewed by both opponents and proponents alike to meet their own agendas.	WR003
938	Our current laws are sufficient enough to protect these standards.	PER34
Sender Name (Submission ID)	Bryan Wood (9521)	
10798	a lot of already mined precious metals end up in the garbage and dumps because our state and nation have inadequate and underperforming recycling programs, which would reduce our need to mine these metals.	NEPA06
10808	[A]s soon as sulfide rocks are exposed to water and air, sulfuric acid is createdand toxic metal leaching occurs. The outflow of this sulfuric acid infused water, otherwise known as acid mine drainage, contaminates drinking water aquifers, lakes, and streams, agricultural lands, and prime fish and wildlife habitat. Because acid mine drainage cannot be stopped, once started it must be treated until the acid generating material runs out.	AQ08, WR115, WR141
10812	With the proposed PolyMet and Twin Metals mines, there is the strong likelihood that not one but two watersheds (St. Lawrence Seaway and Hudson Bay) would be impacted.	WR198
10815	Just because you write in an EIS that you can contain the pollution doesn't mean you actually can. If you have enough good writers and attorneys, anything can be made to sound convincing, but Minnesotans are the ones who are going to pay for this when the pollution happens.	WR017, WR018, WR037
10818	The promise of jobs is obviously a huge selling point for this proposal and a reason many back it. But when you look past PolyMet's initial allure of 360 permanent jobs and 1,000 construction jobs projected, you see the reality...PolyMet is a Canadian based mining company headquartered in Toronto. While they do have Minnesota offices, neither are owned by a Minnesota company, let alone a US company. How much do you think stakeholders hundreds or thousands of miles away in Canada and Chile are going to care about northern Minnesota's environment when making decisions?	SO06
10820	PolyMet writes that its company expects only 25% of the workers would be hired locally. 90 workers would be from neighboring communities, almost 200 would come in from elsewhere, and 72 would commute from regional hubs like Duluth.	SO06
10821	How many families in St. Louis, Lake and Cook Counties are reliant upon the hundreds of thousands of tourists and outdoor recreationalists who visit this amazing part of our country to enjoy our beautiful waters and lands? How many of those 216,322 Northeastern Minnesotans have jobs heavily or directly tied to tourism and recreation that will be negatively impacted by a polluted environment? Are we prepared to find them all new jobs?	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bryan Wood (9521)	
10826	Mining is an extractive business. Because we live on a finite planet with limited resources that also means that it is temporary. At some point, the resource will be exhausted and at that time so will its ability to produce jobs. By contrast, responsibly managed natural resources that support outdoor recreational opportunities can generate revenue and jobs in perpetuity. If we make decisions based on the health of the water, land and air, we will also be creating the framework for a sustainable economic model that will provide jobs and enjoyment for generations and generations.	SO02
10828	The BWCAW is the most loved and visited wilderness area in the U.S.A. providing a continuous, perennial source of revenue for businesses in Northeastern MN…How many people are going to want to camp on those shores, swim in those lakes, eat the fish and drink the water when it is laced with sulfuric acid?	WILD02
10829	If the mining industry impairs our waterways and natural resources to the point where we lose tourism and ultimately jobs, even if all the losses are made up with mining jobs, we still lose.	SO02
10832	The Environmental Impact Statement on the mine suggests that the water from the mines will need to be treated for 500 years...How many operations do we have that have been going for 500 years, are several hundred years into a cleanup phase and are still doing it as they had originally stated? None. How many companies do we even have in North America that have been around for 500 years? Again, none.	WR037
10834	Even if there is only a 1% chance annually that there could be water contamination from the mines, over a 500 year lifespan of the project that turns into a 50% likelihood that at some point, some time, something will go wrong and contaminated water will make its way into the watershed.	WR107, WR108, WR129
10835	To cover the contamination danger, PolyMet will put money away into a cleanup fund. It might even amount to several hundreds of millions of dollars down the line. But how can anyone possibly know what amount of money will be adequate for a cleanup if some disaster happens in 300-400 years? How could there possibly be enough money for a spill that far down the road?	FIN01, FIN05
10837	How popular will we be with our Great Lakes neighbors if we pollute the Greatest of the Great Lakes after all this work has been done to protect and restore it?	WR111
10839	[The Superior National Forest] brings in millions of dollars of revenue into the tri-county area. Fully 445,000 of its acres are covered with water (190,000 of those acres are within the BWCAW). The BWCAW is home to 1,175 of some of the cleanest lakes in the U.S. What are the odds that not one of those acres of freshwater will be contaminated with these mines?	WR111
10840	This permitting process should not be awarded to these mining operations because they have sunk $190 million into this process, have the loudest voices, the largest demonstrations, pay for buses to bring people down from the Iron Range and sponsor a softball team in Ely. This permitting process needs to be made based on science.	PER35
10841	[T]he science shows that sulfide mining creates acid drainage, and history shows that wherever there have been copper and nickel mines, there have been environmental problems.	PD26
16174	To get at the deposits, mining is necessary, and unfortunately as soon as sulfide rocks are exposed to water and air, sulfuric acid is created and toxic metal leaching occurs. The outflow of this sulfuric acid infused water, otherwise known as acid mine drainage, contaminates drinking water aquifers, lakes, and streams, agricultural lands, and prime fish and wildlife habitat.	WI02, WI04, WR001
16176	Because acid mine drainage cannot be stopped, once started it must be treated until the acid generating material runs out. As acknowledged in federal governmental mining permits, this can take hundreds or thousands of years.	FIN11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bryan Wood (9521)	
16177	The proposed mining sites are all located within igneous and metamorphic bedrock, billions of years old and full of fractures that will allow contaminated water to infiltrate quickly through the cracks and get into waterways and aquifers.With the proposed PolyMet and Twin Metals mines, there is the strong likelihood that not one but two watersheds (St. Lawrence Seaway and Hudson Bay) would be impacted.	WR010, WR042, WR071, WR090, WR198
16178	A 2006 study by mine engineer Jim Kuipers and geochemist Ann Maest showed that 76% of the world's similar sulfide mines have exceeded the water quality predicting in their pre-mining Environmental Impact Statements, and for mines near surface water, that number is 85%.	WR023
16179	We will pay with the loss of our pristine waters, recreational opportunities, jobs built around those resources and a diminished future.	SO01
16182	PolyMet writes that its company expects only 25% of the workers would be hired locally. 90 workers would be from neighboring communities, almost 200 would come in from elsewhere, and 72 would commute from regional hubs like Duluth.	SO06
16183	How many families in St. Louis, Lake and Cook Counties are reliant upon the hundreds of thousands of tourists and outdoor recreationalists who visit this amazing part of our country to enjoy our beautiful waters and lands? How many of those 216,322 Northeastern Minnesotans have jobs heavily or directly tied to tourism and recreation that will be negatively impacted by a polluted environment?	LU06
16185	These northeastern cities are reliant upon the fact that this part of the state is a nation-wide attraction for people wanting to camp, hike, boat, paddle, fish, hunt and explore. How will a damaged and polluted northern Minnesota impact the jobs of realtors trying to sell once beautiful places with pristine views, clean water and air?	SO01
16186	At some point, the resource will be exhausted and at that time so will its ability to produce jobs.	SO02
16187	How many people are going to want to camp on those shores [BWCAW], swim in those lakes, eat the fish and drink the water when it is laced with sulfuric acid?	AQ05
16188	If the mining industry impairs our waterways and natural resources to the point where we lose tourism and ultimately jobs, even if all the losses are made up with mining jobs, we still lose.	SO02
16192	The Environmental Impact Statement on the mine suggests that the water from the mines will need to be treated for 500 years...Can we honestly be serious about asking 20 generations of Minnesotans to clean up our mess so one or possibly twogenerations can earn some money?	FIN10
16193	By the time 2516 rolls around, do we really believe PolyMet, Twin Metals and whatever political system is governing this area will still concerned with cleaning up an old mine area in northeastern Minnesota from nearly 500 years ago?	FIN01
16195	Even if there is only a 1% chance annually that there could be water contamination from the mines, over a 500 year lifespan of the project that turns into a 50% likelihood that at some point, some time, something will go wrong and contaminated water will make its way into the watershed.	WR107, WR108, WR129
16197	To cover the contamination danger, PolyMet will put money away into a cleanup fund. It might even amount to several hundreds of millions of dollars down the line. But how can anyone possibly know what amount of money will be adequate for a cleanup if some disaster happens in 300-400 years?	FIN01, FIN05
16199	With the recharge cycle for Lake Superior at 191 years, the real impact to Lake Superior could be nearly 700 years if contaminated water is still reaching it as the clean up reaches its supposed end point.	WR198
16201	The BWCAW is home to 1,175 of some of the cleanest lakes in the U.S. What are the odds that not one of those acres of freshwater will be contaminated with these mines?	WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bryan Wood (9521)	
16478	I also know a lot of already mined precious metals end up in the garbage and dumps because our state and nation have inadequate and underperforming recycling programs, which would reduce our need to mine these metals.	NEPA03
16480	We are the state that voted to add a constitutional amendment to protect our environment so that future generations will be able to enjoy these natural resources. What kind of message do we send to our state's residents who volunteered to be taxed more hard-earned money to protect, restore and preserve the environment when we open up a sulfide mining operation in our two globally unique and pristine natural resources?	NEPA02
16481	The proposed mining sites are all located within igneous and metamorphic bedrock, billions of years old and full of fractures that will allow contaminated water to infiltrate quickly through the cracks and get into waterways andaquifers. With the proposed PolyMet and Twin Metals mines, there is the strong likelihood that not one but two watersheds (St. Lawrence Seaway and Hudson Bay) would be impacted.	WR012, WR111, WR198
16482	Would you get behind the wheel of a car if you knew that model of seatbelt broke three-quarters of the times it was used? Would you grant a permit toa type of mining that exceeds its pollution mandates that often?	GEN03
16483	Just because you write in an EIS that you can contain the pollution doesn't mean you actually can. If you have enough good writers and attorneys, anything can be made to sound convincing….	PD01
16484	Minnesotans are the ones who are going to pay for this when the pollution happens. We will pay with the loss of our pristine waters, recreational opportunities, jobs built around those resources and a diminished future.	SO01
16485	How much do you think stakeholders hundreds or thousands of miles away inCanada and Chile are going to care about northern Minnesota's environment when making decisions? Will profits take a backseat? Are they going to care as much about protecting our wonderful natural resources as the resort owners, the fishing guides, the outfitters in the area?	PER02
16486	How many families in St. Louis, Lake and Cook Counties are reliant upon the hundreds of thousands of tourists and outdoor recreationalists who visit this amazing part of our country to enjoy our beautiful waters and lands? How many of those 216,322 Northeastern Minnesotans have jobs heavily or directly tied to tourism and recreation that will be negatively impacted by apolluted environment? Are we prepared to find them all new jobs? These northeastern cities are reliant upon the fact that this part of the state is a nation-wide attraction for people wanting to camp, hike, boat, paddle, fish, hunt and explore. How will a damaged and polluted northern Minnesota impact the jobs of realtors trying to sell once beautiful places with pristine views,clean water and air? And after 20 years, when the mine likely shuts down, what do we do then?	SO02
16487	responsibly managed natural resources that support outdoor recreational opportunities can generate revenue and jobs in perpetuity. If we make decisions based on the health of the water, land and air, we will also be creating the framework for a sustainable economic model that will provide jobs and enjoyment for generations and generations.	SO02
16488	Today, nearly 140,000 visitors come to the BWCAW for multi-day trips,buying supplies, filling gas tanks, frequenting restaurants and lodging establishments, and supporting the local economy. How many people are going to want to camp on those shores, swim in those lakes, eat the fish and drink the water when it is laced with sulfuric acid?	WILD02
16489	By the time 2516 rolls around, do we really believe PolyMet, Twin Metals and whatever political system is governing this area will still concernedwith cleaning up an old mine area in northeastern Minnesota from nearly 500 years ago? And not just at that point, but every year from now until then, because we can't afford even one year where mistakes and accidents are allowed to happen.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bryan Wood (9521)	
16491	How can we know what the potential clean up costs will be hundreds of years down the road? How many of us are willing to ask our future Minnesotans to clean up this mess when something goes wrong? They are the ones who will be stuck with whatever happens with that mine, long after the initial players are gone.	FIN01, FIN05
16493	We have worked too hard and passed hard-fought legislation like the BWCA Act of 1978 to protect what we have here in Minnesota; amazing natural resources; clear, clean lakes intertwined and connected unlike anywhere else on Earth. We do not have the right to damage and impair these places.	PER41
16494	This permitting process should not be awarded to these mining operations because they have sunk $190 million into this process, have the loudest voices, the largest demonstrations, pay for buses to bring people down from the Iron Range and sponsor a softball team in Ely. This permitting process needs to be made based on science. And the science shows that sulfide mining creates acid drainage, and history shows that wherever there have been copper and nickel mines, there have been environmental problems.	GEN03
Sender Name (Submission ID)	Bryce Makela (19522)	
13377	I can't find any information in the EIS that has looked at the existing copper mine that was closed in Ladysmith, Wisconsin. I would think that, rather than modeling, computer modeling, you know, sulfite concentrations in water, that there should be a comparison study of a few existing copper mines that use modern technology, such as the Eagle Mine in Upper Michigan, and the closed Ladysmith Copper Mine.	PD26
Sender Name (Submission ID)	Bryn M Shank (57198)	
17086	Ruining the environment for up to 500 years is selfish! The CEOs of these mining companies won’t be around. They won’t have to pay for the health concerns.	FIN01
Sender Name (Submission ID)	Bryn M. Shank (16486)	
1525	500 years of clean up is way too long.	WR115
Sender Name (Submission ID)	BSMAJEWSKI@aol.com (47161)	
8372	It is imperative that any water discharges from this operation off site meets all standards that protect all users of the resource (plants, animals, insects, etc. that are part of the food chain at all levels) within the watershed it will be placed in.	WI04
8381	It is assumed that rather large quantities of water will be affected by the process and whether this amount can be adequately stored onsite and treated before release to the adjacent watershed for travel eventually to the St. Louis River and Lake Superior where it will be drawn into the intake for drinking water by the residents of the urban area of Duluth and Superior. The 12,000 acre estuary could be adversely affected by the water if it is not adequately treated before release.	WR042, WR111, WR147
8384	Once groundwater pools are contaminated there is no remediation. This contamination could travel considerable distances to affect areas unknown to us today.	WR115
8397	If treatment time is in the range of 200-500 years… I don't think anyone is going to have the resources to set aside to support the long term cost of the treatment process and replaced equipment for that long.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Bud Fontana (18116)	
3373	... the average mining job paid $62,000 per year on average. The jobs PolyMet will create are good, high-paying jobs people on the Iron Range are trained for and are good at. Spin-off jobs created because of PolyMet, like those at (inaudible) also very important to our community.	SO10
Sender Name (Submission ID)	Building Construction Trades Council (54696)	
17794	We believe that questions on water quality now and into the future have been identified. The report describes a method in which remediation would occm; minimizing the potential impact on our watershed.	WR190
17795	The report also describes a clear path in developing fmancial assurance for our State and its residents on the North Met site.	FIN16
17796	We believe that PolyMet, DNR, with other State and Federal agencies have complied with the requirements and expectations laid out in the SDElS. … We believe the SDEIS has met and exceeds mining standard which promotes good stewardship in this exciting mining opportunity in Northeastern Minnesota.	PER34
17797	Tlu·ee public hearings, an extended period oftime for comment, and reams of paper should be enough to move this project to its next step.	NEPA16
Sender Name (Submission ID)	Burgess Eberhardt (16181)	
9767	In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts.	NEPA15
11500	I just do not understand haw any company can provide adequate insurance for a 500-year period.	FIN01
11510	And although jobs are very important, they in the very long time frames discussed are relatively short-term.	SO06
Sender Name (Submission ID)	bwolfe (4570)	
1852	If water pollution will last for a MINIMUM of 500 years this document gives generalities when it comes to COSTS.....repairs, monitoring, treatment of the water. etc. Are we really going to pass all this on to future generations?	FIN11
1853	the SDEIS document NEEDS a cost/benefit analysis of the Polymet mine! This document is inadequate and the risks are too unknown to have this type of mining in Minnesota!	SO04
8675	Polymet's SDEIS needs to be more specific about the expected amounts of mercury that will be released into the surrounding watersheds.	MERC16
8682	The SDEIS needs to include the effects of mercury emissions and the exposure to asbestos and arsenic on the health of humans living in the area or visiting the area, as well as the animals and vegetation.	VEG06
8685	The SDEIS needs a cost analysis on the indirect harming of wetlands, air pollution, and redirecting of water in the Partridge River headwaters.	AIR11
8692	Once the water is contaminated there is no way to purify the water to make it safe for human consumption; it would cost billions and take decades.	WR070, WR109, WR115, WR147
Sender Name (Submission ID)	Byron Kuster (16074)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Byron Kuster (16074)	
9830	I believe it has overlooked one important matter, the possibility of a terroristic action directed towards the mercury that is planned to be stored on-site... My concern is that a terrorist, foreign or domestic, could create an improvised explosive devise (IED) and direct it to the Polymet's on-site stockpile of mercury. If accomplished, the explosion could disperse mercury in all directions in a manner that would be extremely difficult to clean up quickly and thoroughly. The un-recovered, toxic mercury could then cause seriously pollution to the watershed and underground aquifers…A plan of prevention needs to be included in the SDEIS…This plan should include an estimate of its cost, its duration, and its liklihood of success.	PD22
Sender Name (Submission ID)	byron paulson (20178)	
1772	is [it] reasonable to expect that vigilance in monitoring and potential cleanup will really occur centuries from now.	PD01
Sender Name (Submission ID)	Byron Rice (39876)	
14279	I don't want my grand children having to pay for cleaning up Northern Minnesota because we thought it would be a good idea to get jobs up there for a 20 year stretch.	FIN10
Sender Name (Submission ID)	Byron Richard (8)	
30	The process presented is blind [and inadequate] to an informed consideration of impacts that could extend from 200 to 500 years into the future.	WR021, WR036, WR115
31	Geological asset extraction yields short-term financial benefits while expending social, health and other economic resources a score of generations or more into the future.	SO01
11431	Your assumptions call for best case scenarios for rainfall and assume no leakage in the containment facility. Both of these assumptions are on the wrong side of caution. There is no sulfide mining mitigation that has been successful. The Polymet reserve osmosis plan doesn't have the capacity, never mind the funding for 2000 years.	WR126, WR128, WR195
15725	Your assurance, though possibly legal, does not adequately equip the state and future residents to maintain the mitigation of water pollution.	WR037
15727	I'm looking at Mine Site Version 5.0 Model, Annual Average of Concentration Statistics, CU in the long-term WWTF Influent. This chart ends at year 200 with almost no change in concentration. 1) what kind of fraudulent representation is this? At that slope how long does it take to achieve acceptable mitigation, 2000 years?	PD03
Sender Name (Submission ID)	C Goustin (8128)	
10628	This is permanent destruction of our home planet for short-term corporate gains. The pressure is on you to sell the citizens out to a dirty, greedy corporation. Do the right thing. Say no.	SO01
10629	Even if reverse osmosis is the miracle that the mining companies claim, who will be here to do it?	PD03
10631	Who will be here to treat the wastewater in five or six hundred years? Do you think PolyMet will be there? What is the average life of a polluting corporation in our modern era?	FIN01
Sender Name (Submission ID)	C Jean Kilgour (11578)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	C Jean Kilgour (11578)	
14201	We are on top of some of the best water in the world and cannot afford to risk any danger to it. What would we do without that water. Duluth had to carry water because of asbestos and we don't want to go thru that again – or worse. Unless a full proof way of using the waste (not storing it) I can't see why we would even consider it.	WR195
14201	We are on top of some of the best water in the world and cannot afford to risk any danger to it. What would we do without that water. Duluth had to carry water because of asbestos and we don't want to go thru that again – or worse. Unless a full proof way of using the waste (not storing it) I can't see why we would even consider it.	WR195
Sender Name (Submission ID)	C Stephens &/or L Olson (38855)	
5166	It does not and cannot provide reassurance that this mining will not result in irreparable harm to the watery environment in Minnesota's Arrowhead. PolyMet's proposed mine threatens the state's clean water, wild lands, and public health.	HU01, WR115
16838	These valuable resources [i.e., water, wilderness, and public health] must be protected and not sacrificed for short term employment and profits.	SO01
Sender Name (Submission ID)	c. dino pappas (4006)	
712	The environmental issues will be answered with a cleaner state that which exists now (remember this is an old iron ore mine).	PD28
713	The community is desperate for jobs, this area has some of the highest unemployment in the state, with this project there will be thousands of new jobs.	SO10
715	The fact is that PolyMet is going to be using reverse osmosis as it's topping of it's water treatment.	WR143
717	Minnesota is very rich in natural resources lets use these gifts, and we have a very well educated population. I think that we have a chance to keep more of these people in the state by creating these new jobs.	SO10
721	these are strategic materials which we currently get from other countries which are not all that friendly.	ALT16
Sender Name (Submission ID)	C. Morgan McNeil (25624)	
10431	Renal tubular malfunction and pulmonary emphysema from Cadmium, Arsenic, Mercury are on offer to local residents. A corresponding threat to the health of wildlife will result in species decline.	HU03, WI04
Sender Name (Submission ID)	Cahrene Dimick (57968)	
19873	I understand the need for employment, however I am completely opposed to jobs that will place at risk and harm our natural resources.	SO01
Sender Name (Submission ID)	Caitie Ryan-Norton (45112)	
10605	Participating in a mine that has even the most remote chance of polluting our waterways is not worth it. Our water is an incredibly valuable resource that should not be taken for granted.	WR111
Sender Name (Submission ID)	Caitlin Bellis (42444)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Caitlin Bellis (42444)	
6781	The proposed PolyMet mine is a dangerous beginning to the degradation of lands and waterways we have fought hard to protect for decades.	PD01
6782	Understandably, there is profit to be made by mining. However, money has a finite existence, whereas the natural beauty and resources of the BWCA are infinite, so long as we protect them.	SO02
6784	we have the responsibility of protecting the headwaters of the Mississippi River, a water source that cuts through our country and supplies water to millions of Americans.	WR111
Sender Name (Submission ID)	Caitlin Kelley (57189)	
18648	The PolyMet proposal represents unjust risks to our natural resources and the public health. Do not allow this to go through and threaten Minnesota’s water quality and native and state resources. Mines like the mine proposed have never been operated without contamination of the environment.	SO02
19352	The mine poses countless environmental risks like the sulfuric acid waste that will contaminate the Lake Superior watershed. Any proposal that states that pollution from the proposed plant could be an issue for 500 years should send up a red flag.	WR111, WR115
19975	The environmental costs of the mining project being proposed are not worth temporary jobs supporting a temporary industry.	SO01
Sender Name (Submission ID)	Caleb DeGolier (47695)	
7947	The possibility of an accident that could drastically affect Minnesota's wilderness and habitats of our wildlife is definitely not worth the relatively few number of jobs the mine will provide.	SO01
7950	[N]o company that can be trusted to provide clean-up for contamination for hundreds of years. What if they file bankruptcy for instance. The tax payer and the environment will end up paying the price.	FIN01
Sender Name (Submission ID)	Cali Mellin (57192)	
17078	The mining project would damage Minnesota’s Boundary Waters, a very important part of the environment;	WR111
Sender Name (Submission ID)	Candace Smolich (44677)	
7008	I see PolyMet as keeping our mining jobs alive on the Iron Range.And jobs with decent living wages which will keep our futurefamilies stay in our area and grow our population overall.	SO10
7112	I believe once the PolyMet mining project begins [jobs are] something I willbe able to offer.	SO10
7114	I have no doubt that the SDEIS gives regulators the informatonthey need to issue PolyMet Mining permits to operate whileprotecting natural resources.	PER34
Sender Name (Submission ID)	Candice C Pierce (54823)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Candice C Pierce (54823)	
18492	If we let Polymet mine the way they want to an even worse problem (sulfuric acid run off) will occur in the water of the Lake Superior watershed and by some knowledgeable estimates could take 500 years to be cleaned up. Do we really want to do this to one of the world's largest and most beautiful lakes?	WR111
18494	In every sulfide mine we know of that is not located in permafrost or desert, acid mine drainage has resulted in polluted water. When mining companies claim that mines have operated without violating water quality standards, it is because some states routinely exempt mines from the standards.	WR023
18497	Polymet must ... answer truthfully and positively as to how the polluted water [will] effectively be treated. Is it even possible to rehabilitate the water and environment from pollutants, what is the guarantee of money for rehabilitation and what is the cost and who will pay when Polymet has left?	FIN01, FIN05
Sender Name (Submission ID)	Caree Gordon (37752)	
11145	If PolyMet wants us to believe their mining won't pollute the rivers, lakes and water shelf, then they need to take inspectors to past mining sites they have constructed and actually demonstrate that the waters have not been polluted. I doubt very much if they can demonstrate this, as mining has always resulted in pollution.	WR023
11147	Many well established businesses in Northern MN that depend on clean water for fishing, as well as the survival of our wilderness & wildlife will be in jeopardy if PolyMet's mining initiative is allowed to begin destroying the land in Northern MN to extract minerals.	SO02
11151	… the Superior National Forest borders are in jeopardy of being changed. If a border is changed it is geographically a small change; however, the polluted and/or fresh water that runs underground cannot observe a man-made boundary. If our great lakes, rivers & drinking water are polluted, aware people will stop visiting MN for their summer vacations.	LAN01
11152	In 15-20 years when PolyMet has extracted all the copper and minerals from the Earth, they will pull out and leave a wasteland that will take 100s of yrs to rehab.	PD01
11155	I don't even need to mention the health risks people will face when the water is polluted from the carcinogens that are used in the chemical buffers added to the waste before being dumped into the rivers (that eventually run off & enter Lake Superior (i.e. water shelf).	HU03
Sender Name (Submission ID)	Carl and Jean Stueland (47082)	
11236	Mining should be allowed only if the mining companies are held to the current Minnesota environmental laws and standards without giving them variances. Mining isn't a problem as long as the mining companies aren't given variances which weaken the laws and standards already in place.	PER06
Sender Name (Submission ID)	Carl Anderson (43112)	
11695	When something goes wrong, they'll pay the environmental fine and we'll be left with the mess and contamination for eons to come.	FIN01
Sender Name (Submission ID)	Carl Grandstrand (36613)	
10519	I would take clean water over digging up a whole bunch of rock to gain a few tons of copper nickel ore that they might get, and then leave that area in mess of mining taillings. Don't let them destroy our beautiful state and its water supply.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	carl helke (14776)	
13792	how can anybody know for a fact whats going to happen 500 years fromnow?	FIN01
Sender Name (Submission ID)	Carl Johnson (16285)	
10502	Mark Dayton and his executive council should be at least as cautious as Wisconsin's counterparts in banning any future sulfide mining in the state until the technology, if and when, proves harmless after ten years of mining and at least ten years following the termination of mining, anywhere else!	PER25, PER35
Sender Name (Submission ID)	Carl Unger (11635)	
8257	The undevelopment of the arrowhead region is what makes MN more pristine than other states. With the northwoods environment being mined for resources…the state of MN should be taking a proactive stance in preventing such erosion of our precious wilderness with the replacement of poisons that will get into the air and water.	WILD02
8257	The undevelopment of the arrowhead region is what makes MN more pristine than other states. With the northwoods environment being mined for resources…the state of MN should be taking a proactive stance in preventing such erosion of our precious wilderness with the replacement of poisons that will get into the air and water.	WILD02
Sender Name (Submission ID)	Carla Arneson (9536)	
953	There is no cumulative impact study of all sulfide mining proposed for our labyrinth of waters, where PolyMet would set the standard.	CU04
954	Now we know that mine-site water modeling was based on incorrect numbers for groundwater flow rates, the same concern that tribal agency scientists have raised for years. And why are we even considering a project that has so little data it cannot factor in water-flow variables from multiple years?	WR003, WR091
3320	Released to the public on December 6, the final version of PolyMet's SDEIS is a fabrication, morphing from ERM's determination of water treatment for "perpetuity" to a watered-down version… By the time the general public saw PolyMet's SDEIS there was no mention of perpetual… And by then the public's right to know had been emasculated even further. "Minimum" had been cut, no longer delineating water treatment of "200 years at the mine site and 500 years at the plant site." Water treatment "for the very long term" became "long term." But one telling word survived, it concerned closure, and "transitioning from mechanical to non- mechanical/passive water treatment if or when proven effective." (SDEIS 3.1.1) IF. If, or when, proven effective! Sophistry.	PD03, PD06
7693	There are inadequate and incomplete cumulative impacts (effects) analysis…The SDEIS does not look at the true cumulative impact of a copper-sulfide range in the middle of an irreplaceable ecosystem, an ecosystem that will be damaged beyond repair, for “perpetuity,” by the pollution of such a mining district.	CU11
7695	A study of the human health effects from proposed sulfide mining, vital information for the well-being of our children, is missing from the SDEIS.	HU01
7699	Impacts to wildlife, in particular Minnesota’s moose, are inadequately addressed, or in the case of moose, missing.	WI01
7700	The massive amounts of coal-fired electrical power needed by proposed sulfide mining operations, in light of global warming, are missing and must be addressed.	AIR02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Carla Arneson (9536)	
7703	Superior National Forest Service land, prime wetlands, must not be exchanged. Open pit mining on the proposed land is prohibited. To destroy all surface resources for one subsurface resource is not why the Superior National Forest was created. It was intended to be sustainable for future generations.	LAN02
7704	The NorthMet mine would be in the Superior National Forest, right up against the Laurentian Divide; the mine would be situated on top of bedrock that is riddled with fractures and faults (one runs the length of the mine site and crosses beneath the Divide). Blasting would create more fractures, widen and lengthen the ones that exist...No one knows where the contamination will end up. Some of it could easily transfer to the Kawishiwi Watershed.	WR012, WR016, WR169
7705	PolyMet's SDEIS is flawed in all of those areas. Incorrect water flow modeling and incorrect assessment and modeling of contaminated, uncollected seepage makes this SDEIS unacceptable and it must be rejected.	WR189
7718	The SDEIS is missing health studies necessary to protect our children from the impacts of sulfide mining, and from the impacts of massive amounts of coal-fired electricity used for powering the industry.	HU01
7719	The PolyMet SDEIS does not address loss of habitat and other impacts to Minnesota's moose population by proposed sulfide mining, as well as by taconite mining	WI01, WI02
11931	…Minnesota's Arrowhead is facing perpetual pollution and water treatment from PolyMet's NorthMet Project, if its mine is permitted.	WR035, WR111
11941	There is no acceptable trade-off for perpetual water pollution and increased neurological damage to our children, some of it inheritable for unknown numbers of generations.	HU03
11944	The mine pits will eventually fill with water. The north wall of the East pit is Virginia Formation. It is well documented that this formation contains high sulfates and other heavy metals. This fractured mineralized wall will leach acid and metals. The mine pits will eventually discharge, carrying contaminated pit water to the wetlands and the Partridge River. "The East Pit, West Pit, and Category 1 Stockpile are permanent features that would continue to provide solute-loading [metals and sulfate] for a minimum of 200 years." (SDEIS)	WR029, WR173
13373	The Minnesota Department of Natural Resources is lying to the public. PolyMet's NorthMet Project will require perpetual water treatment for its solution. This project, by law, must not be permitted.	WR195
15076	A study of the cumulative health effects from proposed sulfide mining and from taconite mining industries is missing in the SDEIS.	HU01
15077	The massive amounts of coal-fired electrical power, in light of related documented health issues, are missing and must be addressed.	AIR02
15079	the PolyMet SDEIS is missing ...cumulative impact studies of the Duluth Complex. The Duluth Complex is the area where a comprehensive environmental impact study needs to be done of all foreseeable sulfide mining, a sulfide-mining district…."Past, present, and reasonably foreseeable future actions" must be addressed completely	CU01, CU04
15080	Protect our children from further harm; there is no excuse that our fish are so contaminated with methyl mercury that a pregnant woman cannot eat them. There is no excuse that we have 10% of tested newborns with unsafe levels of mercury, likely resulting in diminished IQ. We must have cumulative impact studies, health studies	HU01
15081	Incorrect water flow modeling and incorrect assessment and modeling of contaminated, uncollected seepage makes this SDEIS unacceptable and it must be rejected.	WR003, WR017, WR018, WR049, WR189

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Carla Arneson (9536)	
15082	perpetual water treatment of our waters... is delusional on an environmental, operational, and economic level. Minnesota Statute states that a mine needs to be “maintenance free” at closure. To permit a project that the Co-lead agencies know cannot meet those criteria before it begins is a flagrant disregard of laws put in place in the public’s best interest. No Action Alternative is the only reasonable (sane) choice.	PER04
15084	Thousands of exploratory boreholes are already punched into the Duluth Complex and acting as conduits to our aquifers. Full-scale mining would send contaminants through the numerous faults and fractures (Copper-Nickel Study) and through the exploratory boreholes (many of which are unsealed or partially sealed).	CU02, CU11, WR010
15086	The LTV Steel Mining Co. plant and tailings basin at Hoyt Lakes has long drained its toxic waste to the St. Louis River watershed, and will continue to do so ... if PolyMet's NorthMet sulfide mine is permitted and reuses the LTV site for its massive toxic sulfide mining waste, with correspondingly massive calcium issues. Any increase in mining-related calcium releases to the system would increase the calcium available to zebra mussels.	AQ17
15089	The PolyMet SDEIS does not address loss of habitat and other impacts to Minnesota’s moose population by proposed sulfide mining	WI01, WI02
15433	"Minimum" had been cut, no longer delineating water treatment of "200 years at the mine site and 500 years at the plant site."Water treatment "for the very long term" became "long term." But one telling word survived, it concerned closure, and "transitioning from mechanical to non-mechanical/passive water treatment if or when proven effective." (SDEIS 3.1.1)	NEPA09
15437	During the April 9, 2013 panel discussion on nonferrous mining at the University of Minnesota-Duluth, MDNR Commissioner Tom Landwehr was asked whether the MDNR could issue a permit if it received a plan that called for long-term treatment. "Landwehr replied that treatment would need to be passive (such as water being filtered through a wetland) or not active at closure." (Cook County News Herald)	PER04
15439	Minnesota Administrative Rules concerning closure and postclosure maintenance (Minnesota Rule 6132.3200) states: "The mining area shall be closed so that it is stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." Perpetual water treatment is not maintenance free.	PER04
17704	If a bonding company does take on the risk of PolyMet or any other sulfide mine, PolyMet's SDEIS indicates there is a high probability that sulfide-mining contamination of surface water, sediments, ground water, and soil cannot be cleaned up in our lake district. Money cannot fix the unfixable - or replace the irreplaceable.	FIN10
17705	Sulfide mining in water-intensive areas has never been done without contaminating surrounding waters. Reverse osmosis is not “new” technology. It had been around for decades. If it could solve water contamination caused by metal mining it would have done so by now. Reverse osmosis cannot even solve water pollution at Minnesota’s taconite mines, which are operating under variances or expired permits.	WR143
17706	In Minnesota, mining permits are often written to deliberately leave out or weaken important contaminant parameters.	PER06
17707	The company neglects to point out that reverse osmosis will only treat part of the contamination from PolyMet’s proposed NorthMet Project, only treating discharge water at the end of the 20-year operation; it will not treat water going to the tailings basin for the proposed 20 years of production. As multiple types of waste chemicals concentrate in the basin (alleged in the proposal as a closed system) the treatment will become less effective, (e.g. 80% of 1000 ppm leaves 200 ppm, 80% of 2,000 ppm leaves 400 ppm). Keep in mind that many of the stream standards are in the parts-per-billion level.	WR143

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Carla Arneson (9536)	
17708	Reverse osmosis for PolyMet is not scientifically defensible. No testing has been done that is relevant to the actual mining and treatment situation for this application. No substantive data indicates that reverse osmosis will work fully to meet water-quality standards. In PolyMet's case reverse osmosis was tested, but using what? It is unclear just what was run through the reverse osmosis system. Was wastewater used from its mineral extraction bulk sample testing? Compared to what PolyMet proposed to actually run through a full-scale treatment system, the "real" water will be much worse. Pre-filter plugging and reject water will be major issues. PolyMet underestimates the quality and quantity of input water that will need to be treated.	WR143, WR176
17709	All filtration systems (reverse osmosis and nano-filtration) require backwashing (backflushing) the pre-filters and the final filter. Since the pre-filter waste is a concentrate of the input wastewater, it will likely be aquatically toxic. Depending on the quality of the input water, up to 40% of the input water can be this reject back flush. The proposal is to return reject waster to the tailings basin. Sludge may go to a landfill, but is untested and likely to be aquatically toxic. Precipitation (rain, snow) will impact the hydrometallurgical residue facility (solids dump). The solids dump will cause leaching. Since the waste particles will be similar to silt or clay, treatment of the solids to prevent toxic leachate will be difficult if not impossible to treat into perpetuity.	HAZ02
17710	PolyMet takes only a small number of samples in its environmental testing processes, which does not represent what will occur in the real world. The heterogeneous mixture of rocks is not consistent and small samples cannot reflect anywhere near actual field conditions. This can be demonstrated with field data from both the Dunka mine and MinnAmax, which has demonstrated that water quality ia much worse than the small-scale lab testing that has been performed. This difference is caused by the heterogeneity (disseminated) nature of the entire deposit; one spot will have lots of sulfur, another spot will have little sulfur. They have only taken a very limited number of environmental laboratory samples in this heterogeneous deposit. In comparison, to evaluate the economics of the minerals, they report taking thousands of analyses to define the 1% of the minerals that are of economic interest.	PD15
17711	The current PolyMet mine is designed for the 100-year storm (a 1980s statistical description of a 1% chance of a very high precipitation storm); given climate change, this design is insufficient. Scientific studies suggest the facility must be designed to withstand a 500-year storm, because the 1980s' 500-year storm is no occurring almost as often as the 100-year storm. For PolyMet this is critical; it must be able to manage hugh volumes of wastewater. If the storage and/or treatment system is insufficient, untreated wastewater overflows to the nearest stream partially treated or untreated.	WR180
Sender Name (Submission ID)	Carla Johnson (13351)	
13738	PolyMet is going to polllute the water for 500 years	FIN01, FIN11
Sender Name (Submission ID)	Carlos I Vasquez (54210)	
17652	I feel that if a mine is built by the boundary waters, by people with big names and lots of money and power well feel like it's okay to destroy beautiful places such as the boundary waters just for a quick buck.	SO02
17653	I feel that there is a high chance that the water will become polluted and that the poor innocent fish well die.	WR113
Sender Name (Submission ID)	Carlsons (42936)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Carlsons (42936)	
9877	The mining industry has provided a good living for our parents and generations of other northern Minnesotans. PolyMet will provide an opportunity for satisfying and productive careers for many young people who wish to be able to remain on the Iron Range and raise their families in northern Minnesota.	SO10
Sender Name (Submission ID)	Carly (9474)	
1671	PolyMet has stated [the NorthMet Project] would create ~300 jobs (as a guess)… PolyMet is an international business, so it is very possible that people they hire will not be from Minnesota.	SO06
1672	the project would be for ~20 years...PolyMet says it will take 500 years to clean up… what company would even last 500 years, let alone follow through with their clean-up in a foreign country in which they only got 20 years of product out of?	FIN01
1673	with that number [500 years to clean up], PolyMet either… 1)has no idea how long it would take to clean up, but they know this is highly toxic so it certainly will take a long time…2)they really know it would never be able to be cleaned up but instead of saying "Never or Forever", they just threw out a big number instead.	WR035
1674	[with that number [500 years to clean up], PolyMet]… don't care what number they say because they aren't going to clean it up and why would they, it's not even their country to care about.	FIN01
1675	the St. Louis River Watershed is the largest watershed in Minnesota. The St. Louis River is the largest U.S. river flowing into Lake Superior (the largest freshwater lake in the world). The health of our entire ¼ of the state [could be impacted by the NorthMet Project].	WR111
1676	The negative impacts of sulfide mining would turn this Minnesota gem [Jay Cooke State Park] into an undesired wasteland.	CU11
1677	[The NorthMet Project could have] lasting negative, irreversible impacts [including] jobs [lost] across a wide variety of job fields, [and] many will lose their way of life.	NEPA09
1678	Due to its negative consequences on both the environment and on the citizens of Minnesota, sulfide mining (PolyMet project) is indubitably unethical [because it jeopardizes and damages the overall well-being of the greater biotic community].	HU03
Sender Name (Submission ID)	Carly Coulson (11332)	
278	Our clean water resources are more valuable in the long-term than the short-term economic benefits of the mine.	SO01
279	A 500 year commitment to mine waste water treatment is far too great.	PD01
1607	I oppose the planned PolyMet Mining Inc Project because the location is within the Lake Superior watershed and puts our clean water resources at risk.	WR111
1608	Our clean water resources are more valuable in the long-term than the short-term economic benefits of the mine.	SO01
1609	The 300 or so jobs created by the mine is such a small number in comparison to the high environmental and regulation risks that will go on for 500 years	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Carly Coulson (11332)	
1610	The State of Minnesota should not trust that the PolyMet Mining Inc company will take it's environmental responsibilities seriously. The project has in it's planning, investors, and management team individuals with very poor records regarding environmental damage. Bill Williams is being charged with Crimes Against the Environment in Spain. Tony Hayward was responsible for the BP disaster in the gulf. These leaders should not be trusted to operate such a high risk mine in Minnesota!	PER02
Sender Name (Submission ID)	Carlyle Conrad (11543)	
2497	What is the guarantee that this mine will not pollute – and who will pay if it doesn't? Is the enough money in place to cover this situation at the front end – Obviously the mine is being proposed to create jobs – BUT if they weren't going to get a return they wouldn't open the mine!	FIN01, FIN05
2498	How can we expect an already fragile watershed, St. Louis River on into Lake Superior to take more abuse and pollution from another open pit mine. Wetlands, wildlife, plants, water quality and flow are already compromised. Why would we continue this pattern into the future?	WR115, WR195
2498	How can we expect an already fragile watershed, St. Louis River on into Lake Superior to take more abuse and pollution from another open pit mine. Wetlands, wildlife, plants, water quality and flow are already compromised. Why would we continue this pattern into the future?	AQ05, WR109, WR123, WR156
Sender Name (Submission ID)	Carol A Sandstrom (57246)	
17373	By removing our minerals you are also causing all these sink holes.	GT09
Sender Name (Submission ID)	Carol A. Overland (42955)	
12646	the SDEIS has not adequately addressed the issues raised in the EPA letter date stamped February 18, 2010, particularly in the area of Water Quality…"EPA determined that the project will result in unacceptable and long-term water quality impacts, which include exceeding water quality standards, releasing unmitigated wastewater discharges to water bodies (during operation and in the post-closure period), and increasing mercury loadings into the Lake Superior watershed."	WR111
14955	It is essential that this project provide the financial assurance necessary to address the full spectrum of potential impacts and harms, not just after closing in 20 or more years, but sufficient to provide for remediation and mitigation in the event the company is sold or goes bankrupt – Minnesota and US taxpayers and our environment must not be left holding the bag for environmental damage accompanying mining.	FIN01, FIN11
14956	the "majority of the surface land at the proposed Mine Site is part of a single contiguous area of publicly owned land managed by the USFS." Because this is public land, the DEIS must address adequate compensation for this land to the USFS to compensate not only for impacts, but also for opportunity benefits and a percentage of the profits.	LAN03
14957	The DEIS does not, and must, adequately address cumulative impacts, yet as noted, "the analysis does not address the cumulative effects of the Proposed Connected Actions." Cumulative impacts that should be address include both the likely potential for expansion of PolyMet mining1, and that of adding the impacts of PolyMet to the many mining impacts scarring the Range, and of the many projects now proposed and now in permitting and construction.	CU02, CU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Carol A. Overland (42955)	
14958	Another type of cumulative impacts that is not adequately addressed is that of impacts to supply the electricity to power the operation. The cumulative impacts section ... assumes the Mesaba Energy Project would be built, as although it was granted a site permit for the western site near Taconite, it was denied a Power Purchase Agreement by the Minnesota Public Utilities Commission...where will electricity come from and what will the impacts be? Coal generation or other generation with environmental impacts? The impacts of transmission lines to bring electricity to the project? The impacts of generation and transmission lines on air quality, haze, forest fragmentation, and other issues are not addressed.	AIR02, CU15, PD39
14959	although PolyMet is one of the largest producers of particulate emissions, it is “not considered to be a concern” under Minnesota’s Regional Haze SIP. However, that does not mean that this cumulative impact of particulate matter should be dismissed. See DEIS 6-83, and also note conclusion that regarding SO2 and NOx “additional mitigation or reductions may be necessary to reach the 2018 goal” and that the 2018 goal would not be met.	AIR08
14960	The alternatives review is inadequate. The alternatives review of the DEIS erroneously presumes that the project is needed, and the PolyMet framing is adopted for the context of alternatives, falsely limiting alternatives under consideration. As noted in “RECYCLING OF NON-FERROUS METALS–AN ALTERNATIVE TO SULFIDE MINING IN MINNESOTA, recycling has potential to meet the need for non-ferrous metals and should be considered. The alternatives listed were nearly entirely “eliminated” resulting in an inadequate alternatives analysis.	ALT09, ALT21
14961	In the section on climate change, the EIS addresses only the direct impacts, and not the indirect impacts, such as coal generation for electricity to power the plant, which should be considered	AIR01
14962	Section 8, regarding Major Differences of Opinion is a crucial part of the DEIS, and the position summaries of the stakeholder Tribal Cooperating Agencies in all 18 categories, and Appendix C, Tribal Position Supporting Information, should be given great weight.	NEPA12
Sender Name (Submission ID)	Carol and Doug Damberg (43020)	
16947	The technology that mining interests claim will protect water quality is untested and unproven. It’s just not possible that the proposed mine, particularly with the anticipated sulfide impacts, can be put in place without significant long-term environmental damage, particularly to surface and ground water quality.	WR107, WR108, WR128
16948	The Boundary Waters Canoe Area Wilderness is a national treasure. It is one of the most pristine and unique locations not just in the lower 48 states but anywhere in the world. There’s nothing else like it and once it is trashed, it can’t be repaired, fixed, or mitigated for.	VEG10
16949	[The] associated social impacts [of the PolyMet mine] could significantly alter the fabric of significant parts of northern Minnesota, and not for the better…[There are] significant social impacts of transient workers – folks who work hard but play hard too and don’t have a vested interest in the long term viability of the area...and it’s not hard to see the complex social issues of both the boom, and the bust, on the local economy and lifestyle	SO02
Sender Name (Submission ID)	Carol Atchley-Mashuga (19826)	
9950	[T]he PolyMet NorthMet SDEIS plan…will have a damaging and permanent impact on the environment.	NEPA09
Sender Name (Submission ID)	Carol Bogart (27021)	
16720	Please do not issue permits that will allow this threat to one of the world's largest freshwater resources. Please also initiate testing of feeder rivers to Lake Erie such as the Sandusky River so as to ascertain the impacts of upriver discharges to the river.	WR081

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Carol Bolin-Abrahamson (10743)	
10594	PolyMet has stated that it may not have insurance available to cover liabilities for environmental pollution; (and the pollution would be for OVER AT LEAST A 500 YEAR PERIOD).	FIN01
Sender Name (Submission ID)	Carol Brandenburg (47177)	
8536	Water pollution Fresh water, the world's most precious natural resource, is now threatened in many places….Once our priceless Boundary Waters area has been destroyed, it can never be restored.	WR111, WR195
8543	Negative impact on three separate watersheds, and all wildlife in the area	WI01
8545	Climate change due to carbon emissions	AIR01
8547	Serious health threats, including cancers and respiratory ailments	HU05
8549	Mercury poisoning People who live in the Superior Basin are already exhibiting dangerous levels.	MERC03
8556	Devastating aesthetic impact… Loss of northeastern economy based on eco-tourism	SO02
8559	Loss of wilderness jobs Thousands of people depend on ecology and wilderness for their wages (compared to an estimated 300 mining jobs that may last a couple of decades	SO02
8562	Superfund cleanup to the tune of billions of dollars for hundreds of years	FIN05
Sender Name (Submission ID)	Carol Dallman (18278)	
13990	I am here to oppose the mining because I do not believe that we have done enough to recycle and conserve resources and now is not the time to mine an area that has such potential for long-term environmental effects.	NEPA06
Sender Name (Submission ID)	Carol Frechette (50312)	
11006	Minnesota should not be an experiment for untested technologies.	PD32
12578	The PolyMet NorthMet SDEIS is an open-pit sulfide mine that will ruin ground water quality for hundreds of years, if not forever and must be rejected!	WR195
Sender Name (Submission ID)	Carol Gisselquist (17697)	
2119	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for--information that is necessary to evaluate the environmental effects of this proposal.	WR035, WR128
2120	More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts.	WET01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Carol Gisselquist (17697)	
2121	…sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
2122	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	carol haasl (7631)	
812	No one address out responsibility to provide a way for us to acquire the metals we need in a responsible manner. We live in a world economy and will get the things we want. Is it ok to buy the copper from a source that has no environmental controls or concerns as we do. Are we responsible for the damage that happens in another part of the world. I believe that you cant have it both ways, if we choose to use the things PolyMet will provide we need to find a way to let them produce them, or continue to buy them from questionable sources.	ALT16
Sender Name (Submission ID)	Carol Hedberg (4185)	
9874	Minnesota needs to focus on -- and invest in -- our pristine spaces and relatively unpolluted fresh water as our biggest asset!	WR195
Sender Name (Submission ID)	Carol Iwata (45040)	
17277	This revised draft (SDEIS) is still very inadequate and makes optimistic promises based on speculation….	NEPA09
17278	[The SDEIS has] no consideration of alternate methods (like underground mine, putting liners under the waste dumps)….	ALT01, ALT07
17279	[The SDEIS offers] no guarantees of who pays for even routine monitoring/treatment after mine closes…PolyMet says they will guarantee the water treatment for "however long it takes." But PolyMet is a shell company. Their chief investor, Glencoe Xstrata, is not on the hook for any guarantees.	FIN01, FIN02, FIN11
17280	The computer model for treating wastes and handling pollution is based on poor data, not even good science: sparse water data from dry years. (MN has had 4 "100-year" floods in the last 9 years.)	WR052, WR165, WR189
17281	Knowledge about this bad [water modeling] data has been available to the DNR for years. Native scientists (from the Great Lakes Indian Fish and Wildlife Commission) have been trying to draw it to their attention, and have very different data.	PD03
17282	Taxpayers will end up paying for environmental damage. The single biggest Superfund costs have been cleaning up sulfide mining.	SO01
17283	The Iron Range needs jobs. But these mining jobs come at too high a cost. There are other jobs that depend on a clean natural environment, such as for tourism, hunting, fishing etc. these jobs would be lost.	SO02
17284	PolyMet is just the first of the companies that will be mining in this environment. If they are granted a permit, there are numerous other copper-nickel projects targeting the BWCA watershed) that are waiting for the outcome of this process.	CU04
Sender Name (Submission ID)	Carol L Weber (50602)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Carol L Weber (50602)	
16086	The SDEIS and the sulfide mine project are based on seriously flawed, unrealisistic and inconsistent assuptions, not accurate science.	PD03
Sender Name (Submission ID)	Carol Mason Sherrill (58059)	
19880	We can live w/o money, politics, water - we CANNOT live w/o our water, creatures, air, land	SO01
Sender Name (Submission ID)	Carol Michealson (42869)	
8948	[PolyMet] will try to set aside money for clean up, they say. However, I'm mindful of the coal company in West Virginia where lax regulation allowed it to badly pollute a river and then file for bankruptcy. This is a common practice with mining companies. Then the State will be left with the bill of clean up, and it won't have the money. It will have to come from the education fund or the highway fund or the state parks fund, or possibly not happen at all.	FIN01
8948	[PolyMet] will try to set aside money for clean up, they say. However, I'm mindful of the coal company in West Virginia where lax regulation allowed it to badly pollute a river and then file for bankruptcy. This is a common practice with mining companies. Then the State will be left with the bill of clean up, and it won't have the money. It will have to come from the education fund or the highway fund or the state parks fund, or possibly not happen at all.	FIN01, FIN05, FIN10
8949	While I think it is very important for people to have good jobs, I have to believe that good jobs for a small number of foreign workers that will work for [PolyMet] for about 20 years is not worth polluting Minnesota's waters with sulfide and other pollutants for hundreds of years...The amount of really good fresh water on the planet is less every year. We must do what we can to save our water and the beauty of country for generations to come.	SO06, WR195
8949	While I think it is very important for people to have good jobs, I have to believe that good jobs for a small number of foreign workers that will work for [PolyMet] for about 20 years is not worth polluting Minnesota's waters with sulfide and other pollutants for hundreds of years...The amount of really good fresh water on the planet is less every year. We must do what we can to save our water and the beauty of country for generations to come.	SO06, WR195
18096	our lakes and forests that have been here for thousands of years wherepeople have fished and swam and sailed. The amount of really good fresh water on the planet is less every year. We must do what we can to save our water and the beauty of country for generations tocome.	GEN01
18096	our lakes and forests that have been here for thousands of years wherepeople have fished and swam and sailed. The amount of really good fresh water on the planet is less every year. We must do what we can to save our water and the beauty of country for generations tocome.	GEN01
18097	We can find a way to recycle all the minerals in our electronics to be used again. Please say No to Polymet and other mining companies.	NEPA06
18097	We can find a way to recycle all the minerals in our electronics to be used again. Please say No to Polymet and other mining companies.	NEPA06
Sender Name (Submission ID)	Carol Neumann (39621)	
6749	We cannot undo, either financially nor physically, the death of fish, the extensive pollution of our water (from one of the largest bodies of fresh water in the world), nor can we unpollute the air.	AIR11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Carol Neumann (39621)	
13480	Our communities in the great north country of Minnesota should not perish at the hands of greed, backwards thinking in the mining industry, or a bad decision by our lawmakers.	SO02
Sender Name (Submission ID)	Carol Reamer (24316)	
10325	If [Polymet] can not provide PROOF of Zero pollution, both now and future, from their project it must be rejected. The requirement of providing proof and reimbursement of all governmental cost to verify their proof is valid must be 100% their responsibility.	FIN01
Sender Name (Submission ID)	Carol Reschke (42931)	
8321	PolyMet's NorthMet Project is anticipated to be the first of several proposals for sulfide mining of precious metals in northern Minnesota. The SDEIS lists eleven projects they consider "Speculative Actions" in section 6.2.2.1.21 that "have not been mapped or considered in the cumulative analysis"...I suggest that a [Generic Environmental Impact Statement] for sulfide mining on the Iron Range would be an appropriate document for addressing cumulative impacts of multiple mining projects currently being planned.	CU19
8349	My...concern is that numerous position statements and comments submitted by the tribal cooperating agencies have not been adequately addressed in the [NorthMet] SDEIS…the cooperating tribal agencies' substantive comments and discussion of these MDOs are buried in Appendix C	NEPA12
8375	The 1854 Treaty is federal law. When the land in the NorthMet Project area was ceded to the United States, the Ojibwe chiefs who agreed to the treaty wisely reserved rights to hunt, fish, and gather in the ceded lands. If the MNDNR, USACE, and USFS do not thoroughly address the position statements of the tribal cooperating agencies presented in Appendix C, it seems that these co-lead agencies would be vulnerable to lawsuits aimed at protecting tribal treaty rights reserved in the 1854 Treaty. ... it would not be prudent to allow our state and federal agencies to be vulnerable to such treaty rights litigation.	NEPA12, PER08
8387	I agree with the cooperating tribal agencies that the analysis of cumulative effects should include the entire St. Louis River watershed. Considering the investment of federal funds from the Great Lakes Restoration Initiative (GLRI) in the removal of beneficial use impairments in the St. Louis River AOC, it is prudent to consider the cumulative effects of mining projects in the headwaters on the sensitive areas we are working to restore in the St. Louis River AOC.	CU01
8392	I also agree that if some of the hydrology models (e.g. GoldSim) do not accurately predict existing water quality conditions, then it doesn't make sense to trust the predictions of those models for evaluating cumulative effects.	WR049
8404	I agree with GLIFWC [Great Lakes Indian Fish & Wildlife Commission] that an ecologically significant amount of spillage from rail cars could occur into streams, wetlands, and their watersheds.	WET11, WR151
8420	The SDEIS does not adequately incorporate the findings of recent research on the influence of sulfates and sulfides on the growth of wild rice. The 1854 Treaty Authority accurately notes that research and evaluation of the sulfate surface water standard are ongoing and that application of the standard may change.	VEG04, WR152
8441	In light..of the MPCA research on the wild rice sulfate standard, the SDEIS discussion and models used in the evaluation of environmental effects and cumulative effects need to address the sediment pore water concentrations of sulfides, concentrations of iron in affected sediments, and relationships to concentrations of sulfates in surface and ground water flowing into the St. Louis River watershed.	VEG04, WR152, WR159
8451	Site-specific [sulfate] standards may be needed for some waters. Considerable data suggest that in some cases the development of a site-specific standard would be protective of wild rice production. This is most likely to occur in waters where the sediment iron is elevated.	VEG04, WR152

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Carol Reschke (42931)	
8457	The MPCA [Minnesota Pollution Control Agency] Study and research commissioned by the Minnesota Chamber of Commerce (Fort, 2013) both show that sulfate is not directly toxic to wild rice. However, sulfate in the surface water can be converted by bacteria to sulfide in the sediment porewater of the rooting zone of wild rice…Further analysis is needed to explore the potential for adopting a sediment porewater sulfide standard to replace, complement or work in conjunction with a sulfate standard.	VEG04, WR152
14468	I agree with the cooperating tribal agencies that the loss of sites identified by the Minnesota County Biological Survey (MCBS) as sites with "High Biodiversity Significance Values" needs to be addressed more adequately. These sites include headwater wetlands that are likely important for maintaining water quality within the St. Louis River watershed.	VEG02
14476	as a resident of Lake Coundy Minnesota, I think we need to be assured that any new mining projects will avoid polluting our surface water and aquifers	WR115
Sender Name (Submission ID)	Carol Selmason (57216)	
17152	Until they can prove otherwise, sulfide mining is a destructive process.	GEN01
17153	The permanent rape of our environment is not worth the profit of a few (Big Business). We all need jobs, but not at such a price.	SO01
17154	Let them prove they can mine safely, until then sulfide mining has no business in Minnesota.	PER35
Sender Name (Submission ID)	Carol Smith (52228)	
8038	The location of the anticipated mining is too close to the BWCA, Superior National Forest, and other natural wilderness.	WILD02
8042	The inevitable water pollution, the loss of the natural land, the mitigation of wildlife and fauna is too high a price to pay for any benefit from mining -- including jobs the opposition argues for. Once the land is compromised, it is lost forever.	SO01
Sender Name (Submission ID)	Carol weber (47291)	
11390	The risks of sulfide mining are unacceptable as they place the Boundary Waters Wilderness Area and the Great Lakes in serious jeopardy.We cannot afford to lose the multifaceted Life that these sources hold.	GEN01
Sender Name (Submission ID)	carole blaska (11889)	
13611	The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health.	HU01, WR041, WR115, WR189
Sender Name (Submission ID)	Carole Megarry (47795)	
11616	I question whether the [SDEIS has adequately addressed] containment of leached chemicals because the area is more difficult [for containment] than in a drier environment…	WR156, WR189
11617	I question, has the SDEIS adequately considered damage to fish, birds and other wildlife as well as to the wild rice crop. This is an area where we already have fish advisories due to mercury, and this proposal would only increase the levels of mercury.	MERC02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Carole Megarry (47795)	
11621	PolyMet says it can treat the contaminated water, and that it might have to do this for 250 to 500 years after the proposed 20 year operation ceases. ...some scientists believe that treatment might in fact be necessary far longerWhat is the worst case? Is it even determinable?	WR038, WR202
11622	I question the extent to which the jobs created would be filled by local residents rather than technicians drawn from other mining operations. However, even if the industry truly does provide 300-400 jobs a year for 20 years for local residents, is that worth devastation of the area and destruction of the existing tourism businesses?	SO01
Sender Name (Submission ID)	Carole Zanardi (44365)	
10378	Could there be a positive use for the sulfide acid that might be created? Could it some how be harvested and used in industry or in consumer products so that it would be reclaimed from the start instead of being wasted? Kind of like motor oil is a waste product of making gasoline	HAZ03
Sender Name (Submission ID)	Carolyn Chalmers (39258)	
5500	The permit should require the companies to pay for independent experts to do monitoring if DNR's resources and independence fail the test.	PER03
5502	I have grave concerns about this project's potential permandent destructive impacts on Minnesota's natural resources and public health.	HU03
5503	I also have grave concerns about the projects delivery on the economic benefits it promises.	SO10
5505	I have grave concerns about relying on the slow judicial process to remedy pollution when it is discovered. There needs to be agreement on an expedited process so that pollution is stopped immediately.	PD01
16766	I have grave concerns about relying on DNR to monitor. DNR monitoring resources are not guaranteed and it's independence from the companies'influence not assured...The permit should require the companies to pay for independent experts to do monitoring if DNR's resources and independence fail the test.	PER06
16767	I have grave concerns about relying on the slow judicial process to remedy pollution when it is discovered. There needs to be agreement on an expedited process so that pollution is stopped immediately.	PD01
Sender Name (Submission ID)	Carolyn Crooke (6067)	
1010	going to let them dig massive holes in the ground, destroy wide swaths of wetland, and count on them to treat the water for hundreds of years after? Let them create another Superfund site?	WET24, WR115, WR195
1011	I get that we need jobs but not at the cost of unacceptable, irreversible environmental impacts.	SO01
1013	According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different? The SDEIS supplies no answers.	PD01
1014	And the mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. Everybody knows the land exchange is just a sham and won't be in the public interest.	LAN01, LAN02
1051	The SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts -- and so it should be rejected.	NEPA09

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Carolyn Merrill (54765)	
19244	As an elderly person (86) I am especially vulnerable to the environmental degredation Polymet's new mine would cause.	HU03
Sender Name (Submission ID)	Carolyn Porter (42816)	
7173	It seems impossible to believe that PolyMet will be able to build and maintain containment vessels that will prevent water pollution. Here are the specific issues I would like the DNR to address:•If water treatment is required for 200, 500, or more years, how will those costs be calculated? Will water treatment plans in include contingency plans? What about spills, ruptures, or pollution discovered decades from now?•How will the DNR ensure that taxpayers will not be liable for short-term clean-up costs?•Why is the DNR leaving issues of Financial assurance until later in the process? That seems irresponsible.•If it is projected that 500 years of treatment will cost billions of dollars ($10m/per year x 500= $5 Billion dollars!) how can we ensure MN taxpayers are not going to pay this!	FIN01, FIN05, FIN10, FIN13
Sender Name (Submission ID)	carriageguy@yahoo.com (46294)	
8905	It is nearly impossible to obtain guaranties sufficient to protect future generations from the damage and expense of the resulting polution. Requiring deposits sufficient to forstall future environmental damage will probably scare investors away.	FIN01
8907	Scare them away, or make them pay the exorbitant sums necessary to protect our land and non-mining livlihoods.	FIN01
Sender Name (Submission ID)	Carrie Evans (44282)	
11961	By allowing Polmet to extract the metals, that are critical in so many key areas of our everyday life, I feel that not only will the environment be protected to a greater extent but it will also benefit the state of MN economically. ...If we do not allow Polymet to mine in MN we lose economically and environmentally.	SO10
11963	I believe that Polymet has shown that they will mine the metals in a way that is the most environmentally safe for air, water and land.	PD28
Sender Name (Submission ID)	carrie shanahan (40956)	
8227	500 years to clean up the toxic mess [the NorthMet Mining Project] would leave behind? Too much risk. I don't trust these people to clean up ANY mess they make.	FIN01
Sender Name (Submission ID)	Cary Anderson (46079)	
10747	We have an amazingly beautiful state and very unique area in all the world that is the Boundary Waters Canoe Area Wilderness. … A multinational resource extractor …wants to dig gigantic pits there, to take out copper and other metals from rock, ship it out of the country, and leave sulfuric acid in it's place, fully expecting and admitting pollution cleanup will be necessary for 200 years in the surrounding area, and 500 years on the site. WHAT?!! What in hell's name are you considering here?	WILD02
10758	[Glencore Xtrata] have a terrible record of labor rights violations. These jobs they promise do not take that into account, nor account for how long they would even be there, or who takes care of workers when they get illnesses from the mine.	HU04
10760	I don't want large chunks of watershed in northern MN to be [Glencore Xtrata's] quick profit and my sulfuric acid waste dump. Minnesotans will be paying for the clean up in so many more ways than just $$ for as long as we are living and our descendents.	HAZ03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Cary Anderson (46079)	
10761	How much fresh water is pumped up from the ground to be used in the mining process? Lots! We don't have any to spare.	WR181, WR182
10763	Copper mining is so much different than the traditional iron mining that has been happening in MN. The difference is sulfuric acid.	HAZ03
10764	Fewer than 20% of computers are recycled in the U.S. Why mine when we can recycle? Because Glencore Xtrata wants gobs of $$. Recycle computers by choosing e-Steward certified recyclers	NEPA06
13726	•The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site	FIN01, FIN10
Sender Name (Submission ID)	Casandra Ladas (17273)	
9353	Support our state by not putting out all the local boundary waters camps and business' as well as the beauty where we can't find anywhere else in our state.	SO02
9354	Lake Superior is the prominent feature of Minnesota...It's one of the only places that has been untouched by humans for years and the beauty which has grown as a result of that is marvoulous. Please don't take away something we value and can never get back.	LU04
12821	I want to be able to take my children to her glistening lakes and it's completely unfair of you to take that opportunity away from everyone so that there can be a profit for some billion dollar company	LU04
Sender Name (Submission ID)	Casey Betts (11532)	
17112	Building this plant will help me and my brother Ironworkers provide for our families.	SO10
17112	Building this plant will help me and my brother Ironworkers provide for our families.	SO10
Sender Name (Submission ID)	Casey Lebens (9484)	
175	I am scared the boundary waters will be an unsafe place to bring my children when they grow up.	WR111
946	Glencore Xstrata, the primary owner of PolyMet, which [reportedly] will buy the rest of PolyMet once all the permits are in placefor the copper mine in northern MN. So, who is Glencore Xstrata?Glencore Xstrata is a Swiss-based firm known for its ruthlessness. It is the fourth-largest mining company in the world. It controls 50 percent of the world's copper through its ownership of more than 100 mines around the world, and its commodities trading operations.Glencore Xstrata has run up a long list of labor and environmental abuses, including 58 mining fatalities between 2008 and 2010, over twice the number reported by any other mining company over that period.Just in 2012, their environmental and labor record includes dumping raw acid in waterways in the Congo, failure to provide a vapor barrier to keep an acid mist from descending on 3,000 people in Zambia, utilizing child labor as young as 10 years old in mines in Congo, and causing environmental damage at its McArthur River mine in Australia.	PER02
Sender Name (Submission ID)	cass kane (6716)	
1106	What is Polymets plan 2 keep sulfide pollution from the groundwater table?	WR129

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Cat Thompson (40916)	
7528	I still do not understand why, in a time when fresh water is becoming more and more scarce, we are considering allowing a 20 year short term project to take precedence over clean water.	WR195
13745	* The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense?	NEPA07
Sender Name (Submission ID)	Catherine (42978)	
8770	THIS LETTER ALSO CONSTITUTES A MN GOVERNMENT DATA PRACTICES ACT REQUEST. PLEASE PROVIDE ALL DOCUMENTS, BOTH ELECTRONIC AND PAPER, IN THE POSSESSION OF THE MN DNR RELATING TO THE NEED OF THE NORTHMET MINE. PLEASE ADVISE ME IF THE COST TO REPRODUCE AND PROVIDE THE DOCUMENTS IN ELECTRONIC FORMAT WILL EXCEED $25.	RFI01
15161	According to the U.S. Geological Survey, the U.S.'s need for copper has decreased. The Copper Development Association states the trend is towards recycling more copper than mining new and, copper scrap commands 90% the price of new. A study conducted by Yale University indicates only 50% of the copper in commerce today is recycled...the need to mine copper, especially in the U.S. is unwarranted	NEPA06
15162	Recycling copper, while still creating waste, will do so with less toxicity and environmental damage than mining. Given the robust recycling economy here in MN… a copper nickel mine is unnecessary.	NEPA06
15163	The alternatives suggested and reviewed during the EIS process indicate recycling of copper was not considered. Copper recycling is a relevant and viable alternative as it "improves environmental and/or socioeconomic benefits."	NEPA06
Sender Name (Submission ID)	Catherine Anderson (15249)	
394	I firmly believe that we need to be good stewards of our natural resources, and one of the most precious of these resources is clean water.The stakes are just too high to gamble with our water supply, even if the chances are small of it being contaminated for possibly hundreds of years into the future.	WR129, WR195
1819	I am opposed to this mining proposal, as I believe that environmental consequences outweigh the benefits.	SO01
Sender Name (Submission ID)	Catherine Coult (32643)	
13832	With our worldwide population on the rise and the shrinking of habitable land resulting from global warming, we must fight to maintain not only our own health but the increasing threat to the wonderful wild animals that increasingly must struggle simply to stay alive.	WI01
Sender Name (Submission ID)	Catherine Hegg (36439)	
3800	I cannot help but think the costs to the environment outweigh the gains to the current economy.	SO01
14246	I understand the economic considerations in wanting to approve this project, but I think past history should teach us that once pollution occurs, it is extremely difficult and costly to clean it up - and the pollution could become an issue long after PolyMet ceases to exist as a company. Of course, then you and I would not be here either, so we can leave the mess to a new generation. we are still dealing with other mining pollution and significant pollution by 3M that no one even thought about.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Catherine Nicholl (39330)	
12799	Nothing is more precious than our water resources!	WR195
Sender Name (Submission ID)	Catherine Nicholson (58132)	
20022	We do need more jobs, but we need clean jobs that don't create a long term cost.	SO01
20027	What irks me is that this company is not even an American company. They'll make their money and the few jobs thelll provide Minnesotans and then leave and go bankrupt, leaving us with the mess.	FIN04
Sender Name (Submission ID)	Catherine Wright (11646)	
2354	I am very concerned that PolyMet's SDEIS does not address the increasing potential for natural disasters and how the toxic runoff would be contained during a flood, like we recently experienced in Duluth and the surrounding area, when eight to ten inches of rain fell within 48 hours.	WR180
2354	I am very concerned that PolyMet's SDEIS does not address the increasing potential for natural disasters and how the toxic runoff would be contained during a flood, like we recently experienced in Duluth and the surrounding area, when eight to ten inches of rain fell within 48 hours.	WR180
2355	It doesn't describe the planning done for storm events. It is necessary to dig for it in reference PolyMet 2013e, the Water Management Plan for the Mine on page 9.•Ponds for rail transfer and haul roads and Category 1 waste containment are designed for 100 year 24 hour events.•Sumps for Category 2/3 waste, Category 4 waste, and high sulfide ore sure are designed for 10 year 24 hour events.•Overburden storage is designed for 25 year, 24 hour event.	WR057, WR077, WR180, WR193
2355	It doesn't describe the planning done for storm events. It is necessary to dig for it in reference PolyMet 2013e, the Water Management Plan for the Mine on page 9.•Ponds for rail transfer and haul roads and Category 1 waste containment are designed for 100 year 24 hour events.•Sumps for Category 2/3 waste, Category 4 waste, and high sulfide ore sure are designed for 10 year 24 hour events.•Overburden storage is designed for 25 year, 24 hour event.	ALT01, ALT06
8574	In reference to PolyMet 2013e, the Water Management Plan for the Mine on page 9: In Hoyt Lakes, if you read the official NOAA National Weather Service Atlas, a 100 year rain is 5.69 inches and a 10 year rain is 3.54 inches. ... we are going to get heavier precipitation and more frequent severe weather...I am horrified that the SDEIS does not explain how PolyMet will deal with flooding. No information on what chemicals, and in what amounts, will be released if they plan wrong.	PD22
8574	In reference to PolyMet 2013e, the Water Management Plan for the Mine on page 9: In Hoyt Lakes, if you read the official NOAA National Weather Service Atlas, a 100 year rain is 5.69 inches and a 10 year rain is 3.54 inches. ... we are going to get heavier precipitation and more frequent severe weather...I am horrified that the SDEIS does not explain how PolyMet will deal with flooding. No information on what chemicals, and in what amounts, will be released if they plan wrong.	PD22
8575	This SDIES should be redone: I want to know how each waste area is going to be designed to prepare for heavy rains. I want to know what chemicals are in these wastes and what the impact will be, immediate and long term, should they overflow. I want to read or hear about several different designs costs and effectiveness, to protect our lands and wasters during severe rains, loss of power, tornadoes etc.	PD11
8575	This SDIES should be redone: I want to know how each waste area is going to be designed to prepare for heavy rains. I want to know what chemicals are in these wastes and what the impact will be, immediate and long term, should they overflow. I want to read or hear about several different designs costs and effectiveness, to protect our lands and wasters during severe rains, loss of power, tornadoes etc.	PD11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Catherine Wright (11646)	
8576	I sincerely as you to reject the PolyMet SDIES and deny permits that would allow this open-pit sulfide mine to harm Minnesota's precious fresh water for centuries, if not forever.	PER35, WR195
8576	I sincerely as you to reject the PolyMet SDIES and deny permits that would allow this open-pit sulfide mine to harm Minnesota's precious fresh water for centuries, if not forever.	AIR02, MERC16
Sender Name (Submission ID)	Catherine Yamoor (42808)	
14596	Our water and wildlife are our community treasure. Do not allow PolyMet to destroy our treasure for its corporate profits!	WI01
Sender Name (Submission ID)	Cathi Koenig (39696)	
6354	… we were told that they have some of the purest water in the country. As a Minnesota resident, I want to retain my RIGHT to experience this pristine environment. I also want my children and grandchildren to do this.This is our treasure, and I fear development will destroy it.	WR195
Sender Name (Submission ID)	Cathy Gagliardi (16340)	
1486	The man who heads a Hedgefund project to open an alleged open pit mine in the Penokee Range south of the Bad River Ojibwe Reservation in Northern Wisconsin, and over the objections of all eleven WI tribes has been indicted. I hope MN looks into this too with the proposed Polymet Mine.	CR01
1566	I urge the powers-that-be in Minnesota to take a long, hard look at what toxins could possibly be in our Lake Superior someday. Especially since the safe long-term storage of metallic sulfide waste depends entirely on complete isolation from air and water.	WR111
Sender Name (Submission ID)	Cathy Geist (47656)	
7710	I am extremely concerned about the long-term ecological impacts of this project and also the serious ecological "unknowns".	VEG10
7716	I am particularly concerned about the probability of not being able to sucessfully restore the impacted wetland areas...The required restoration in the proposed area seems more like an experiment than a known process.	NEPA09
7717	I am certain that many people have written about their concerns for the long-term effects on the waters of the area (including groundwater) and the effects on endangered species (e.g. lynx) and their habitats. I echo these concerns.	WI01, WI02, WR115
Sender Name (Submission ID)	Cathy Hanson (39778)	
14251	500 years to treat the water from the mine so it's safe? I've seen some of the devastation from mining - there is no wildlife, no fish, not even weeds grow near that toxicity. I don't want this in the state I live in.	WR115
Sender Name (Submission ID)	Cathy Klegstad (11193)	
686	I feel this SDEIS lays the proper groundwork for developing an environmentally and economically sustainable project and I wholeheartedly support it.	NEPA16

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Cathy Klegstad (11193)	
688	PolyMet and its vendors will provide our young people with multiple opportunities for challenging and exciting careers.	SO10
1494	I support PolyMet Mining and believe they will build and operate a mine that complies with all regulations and protects the environment.	PD28
1495	Based on my review and the level of detail included in the draft EIS, it appears that a thorough evaluation of the project and potential impacts have been completed.	NEPA13
1496	Polymet can produce these metals in an environmentally sound manner and create hundreds of jobs that can support families and sustain communities.	SO10
Sender Name (Submission ID)	Cathy Silvern (22782)	
12159	The long term effects are incalculable and won't be known for at least a generation; by then it will be far too late to help those impacted and to clean-up the toxic stew that fouls the water	HU03, WR129, WR195
13969	We cannot affort short-term jobs at the expense of long-term environmental degradation.	SO01
Sender Name (Submission ID)	Cathy von Euw (45185)	
8987	Based on the fact that sulfide mining has never been conducted without negative environmental impact, the proposed NorthMet mine is not expected to create a sustainable quality of life within the area of Hoyt Lakes and the Lake Superior watershed.	SO02
8993	I believe that the MN DNR should not allow a company to undertake such a huge mining operation without a record showing that they are a qualified company to safely operate the proposed NorthMet mine.	PER35
8995	PolyMet does not have the resources to provide financial assurance for environmental clean-up.	FIN01
8996	If there are any releases of sulfuric acid to the soil, surface water and/or groundwater, then long-term significant environmental clean-up will be needed.	WR070
Sender Name (Submission ID)	ceceile hartleib (41056)	
13941	I think they [PolyMet] want to make the money and then pull out and let the state pay for the clean up.	FIN01, FIN10
Sender Name (Submission ID)	Cecelia Newton (9331)	
105	The SDEIS should be redone to compare alternatives that reduce Carbon Dioxide emissions, starting with changes in vehicle fuel and reduced reliance on coal power.	ALT13
3469	The CO2 emissions from the PolyMet sulfide mine and/or processing facilities would greatly increase Minnesota CO2 emissions. The greenhouse gas emissions from the PolyMet Mine, the processing facility, including the fossil fuels burned to run the vehicles on site and the plant on both places would be potentially -- now I know this is 107,342 metric tons per year. The statistic I'm giving is stated in this Supplement Draft EIS, Chapter 5, 405.	AIR01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Cecelia Newton (9331)	
3473	Over a 20-year mine plan PolyMet will emit 15,790,750 tons of CO2 equivalent pollution from burning coal to run its processing. That also is from the draft statement, Chapter 5, 406. Climate change caused by rising greenhouse gases will be affecting our natural habitats, our agriculture, and our health.	AIR01
13404	I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this.	NEPA07
13405	Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014.	NEPA07
Sender Name (Submission ID)	Cecilia Lieder (41702)	
2166	It would change the whole identity and ecology of our state - and for what? A few jobs for a short time and to advance the wealth of Polymet?	SO01
2168	Please put your considerable will and weight behind slowing down this process until it can be proved one way or another that Minnesota and its waters will remain that unharmed.	WR195
14093	How can the safeguards that have been proposed realistically be backed up?	PD01
Sender Name (Submission ID)	Celeste Kawulok (54906)	
18873	Where is the human health impact information and clear information about toxic pollutants getting into the watershed?	HU01, WR042
18876	Where is the guarantee that we'll not have an expensive clean up left for the tax payers?	FIN10
Sender Name (Submission ID)	Center for Biological Diversity (52183)	
6006	The Organizations agree that the wetlands that would be impacted by this project constitute an aquatic resource of national importance. The wetlands constitute part of the One Hundred Mile Swamp, a long-recognized wetland of great value, and headwaters of the St. Louis River, the largest U.S. tributary to Lake Superior. Lake Superior and its watershed have been singled out for protection by the U.S. and Canadian governments.	WET19
6007	The One Hundred Mile Swamp has been recognized by the U.S. Forest Service (USFS) and the Minnesota Department of Natural Resources (DNR) as an important wetland and habitat area. All parties recognize the high quality of the wetlands, and their ranking as an area of high biodiversity. … In sum, this very large, high-quality wetland area is located in an internationally important watershed that has been subject to an enormous effort toward restoration and protection led by the EPA. For the reasons explained below, destruction of these wetlands would amount to "substantial and unacceptable adverse impacts on aquatic resources of national importance."	WET19
6008	Many of the deficiencies described in the 2010 EPA letter remain in the amended permit application and the SDEIS. In particular, some of the specific reasons that the EPA gave for the finding that adverse impacts of the project may be substantial and unacceptable have not changed. The application and SDEIS still do not provide a mitigation plan for indirect impacts, do not provide sufficient hydrogeological information about the site on which to base an assessment, do not assess or compensate for the actual wetland functions that will be lost, do not ensure that water quality standards will be met, and propose most of the mitigation outside of the St. Louis River watershed.	COE02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Center for Biological Diversity (52183)	
6009	In this case, all of the activities and impacts of the proposed mine are dependent on the wetland fill permit, and should be considered as part of the review under the EPA Guidelines. … If the applicant does not provide sufficient information to support a finding that the discharge will not cause or contribute to violation of water quality standards, ACE must find that "there does not exist sufficient information to make a reasonable judgment as to whether the proposed discharge will comply with [the] Guidelines," id. § 230.12(a)(3)(iv), and deny the permit.	COE03
6010	Our first concern in regards to wetland water quality is that the release of mercury in leachate from waste rock and peat, in air emissions and fugitive dust, and in the discharge of water drawn from Colby Lake will lead to increased levels of mercury in fish, both in the Partridge and Embarrass Rivers and their tributaries, and in downstream lakes and the St. Louis River.	MERC02, MERC16
6011	Neither the impacts of mercury deposition in wetlands nor the addition of mercury to groundwater flow through wetlands is assessed in the SDEIS. The SDEIS discussion meets neither NEPA requirements nor the requirements of the Section 404 permitting Guidelines in this regard.	PER11
6017	ACE should also consider the impact of fugitive dust and Plant emissions on mercury levels in the wetlands, as the fugitive dust would result from the same activities that require the Section 404 permit and are thus secondary impacts under 40 C.F.R. § 230.11(h). …Unfortunately, mercury deposition has been quantified and considered for downstream lakes only, and not for wetlands or rivers and streams.… The SDEIS also explicitly ignores mercury in fugitive dust at the mine site. Although this is a relatively small source in regards to total emissions, virtually all of it will be deposited at the mine site, within the Partridge River watershed, and it is thus virtually certain to cause or contribute to water quality standard violations in wetlands and the Partridge River.	WET11
6018	Finally, the mine project includes a plan to discharge Colby Lake water into wetlands and headwaters immediately below the Tailings Basin. As explained in our comments on the SDEIS, Colby Lake water has a high level of mercury. Releasing this water into wetlands along with sulfate and combined with fluctuating water levels will almost certainly result in increased mercury methylation in this wetland system. ACE should consider this scenario both as a secondary effect, and in its public interest review pursuant to 33 CFR § 320.4.	MERC09
6026	in the context of impacts from drawdown, Section 5.2.1.2.2 reveals that within 1,000 feet of the pits, impacts are likely even to peat wetlands. In short, the SDEIS and its reference material do not provide support for the assertion that "significant quantities of groundwater are not expected to discharge to the wetlands." Mineotrophic wetlands form when the groundwater level approaches the land surface for a significant portion of the year. In essence, water in these systems is groundwater. In the absence of adequate rationale for the assumption that groundwater flowing from the mine features would not enter these wetlands, ACE must assume that contamination would impact all wetlands that are hydrologically connected to groundwater in each flow path.	WET10
6032	Neither the permit application nor the SDEIS delineate or otherwise describe a mixing zone. If a mixing zone is being considered, it needs to be delineated and disclosed, and an assessment must be done to make sure that wildlife and aquatic life uses are protected. See Minn. R. 7050.186(1). A mixing zone based on the property line with no assessment of impacts on wildlife and aquatic life is inappropriate for surface water, especially when it is located on what is currently public land.	WR051, WR063, WR093, WR189
6033	The wetland fill at the Plant Site is also likely to result in water quality standard violations. The fill is required in part to buttress and otherwise alter the Tailings Basin so that it can receive tailings from the NorthMet project. The resulting discharge of pollutants from the tailings to wetlands and headwater streams should thus be considered pursuant to 40 C.F.R. § 230.11(h).	PER15, WET12
6034	The SDEIS assumes that more than 99 percent of the Tailings Basin seepage will be collected by the water collection system. The groundwater that is expected to escape the system is apparently assumed to travel underground, not discharging to any wetlands or streams until several miles downstream. No rationale for this assumption is given in the SDEIS.	WR058, WR166, WR167

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Center for Biological Diversity (52183)	
6035	The SDEIS further assumes that 100 percent of the seepage from the south wall of the tailings basin will be collected, and will not enter Second Creek and its associated wetlands. No details are given regarding the water collection system or the hydrology or surface features of the area. At the very least, the SDEIS needs to provide adequate support for the assumption that seepage will not affect wetland water quality in this area. Finally, the SDEIS does not address the potential for seepage from the east side of the tailings basin and the potential that it will drain to Spring Mine Creek. Although most of the east side consists of higher elevation bedrock, a break in the bedrock provides an opening toward Spring Mine Creek. This entire area appears to consist of wetlands that currently drain toward the Tailings Basin. However, the east side of the tailings basin will gain significant elevation from the NorthMet project, which will result in a reversal of the drainage. Significant seepage is likely, and no collection is planned.	WET12, WR018, WR020, WR054, WR056, WR102, WR117, WR133
6037	this project would release additional sulfate into the St. Louis River system. As the largest U.S. tributary to Lake Superior, this river system is of national and international importance. It is already heavily impacted by sulfates, to the point where historic wild rice stands have disappeared from many areas and fish is unsafe to eat. Most of the sulfate pollution is from mining. Permitting new open pit mines within this watershed will only add to an already intractable problem.	WR158, WR159
6044	In summary, due to deficiencies in the SDEIS, we do not know how much sulfate would be released to the St. Louis River over the coming decades and centuries due to this mine, but we do know that the potential is high. We also do not know the level to which we must reduce sulfate additions to wetland, stream and lake environments to restore the ecosystem and eliminate negative impacts on human and wildlife health and welfare. But we do know that significant reductions are needed, and that the level is likely to be below the level at which PolyMet expects to discharge for hundreds of years. If ACE does not have sufficient information to determine whether this mine would contribute to significant degradation of the waters of the United States due to sulfate discharges, it must deny the permit based on a finding that it has insufficient information on which to make a judgment. 40 C.F.R. § 230.12(a)(3)(iv).	WR149
6045	the [EPA] Guidelines require consideration of impacts on state-listed species and other wildlife that is dependent on aquatic ecosystems when determining whether a permitted discharge would cause or contribute to significant degradation of waters of the United States. 40 C.F.R. § 230.30, .32. In this case, the destruction of an important population of a state-listed endangered plant species and the destruction of habitat for moose, a state-listed species of special concern, compel a finding that the permitted discharge would cause or contribute to significant degradation of waters of the United States, and thus must be denied pursuant to 40 C.F.R. § 230.10©.	PER09
6048	Although the Mine Site appears to provide prime moose habitat, no assessment of the loss of this habitat was included in the SDEIS.	WI02
6065	For many years, the EPA and other parties have suggested that the possibility of an underground mine should be assessed as an alternative to PolyMet's preferred alternative. There appears to be no disagreement that an underground mine would have less adverse impact on the aquatic ecosystem. The Underground Mine and other alternatives, and the lack of sufficient information and assessment, are addressed in our comments on the SDEIS. The Section 404 permit must be denied because "there does not exist sufficient information to make a reasonable judgment as to whether the proposed discharge will comply with [the] Guidelines," 40 C.F.R. § 230.12(a)(3)(iv), regarding the availability of practicable alternatives.	ALT01, ALT06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Center for Biological Diversity (52183)	
6070	The fact is that PolyMet still has not conducted an assessment of the wetland functions that will be lost, despite many comments in 2010 pointing out this requirement, including those from the EPA. Rather than describing the functions that each wetland provides, the SDEIS simply assigns a rank to each wetland based on its quality. The PolyMet mitigation plan is geared toward replacing lost wetlands with wetlands of a similar quality (i.e., high, medium, or low), without regard for functions. This approach does not comply with the EPA Guidelines. Without an assessment, the ACE cannot determine whether mitigation would "compensate[e] for the aquatic resource functions that will be lost as a result of the permitted activity." 230.93(a)(1). Unless and until PolyMet provides an assessment of lost wetland functions and a mitigation plan designed to replace those functions, ACE must deny this permit application.	COE05
6074	While the exact extent of indirect wetland loss cannot be predicted, some amount of loss is certain. For instance, minerotrophic wetlands within a certain distance of the mine are certain to be lost to groundwater drawdown. Implementing compensatory mitigation in advance of this impact is thus practicable. To the extent that losses cannot be predicted, the permit needs to be detailed, clear, and unequivocal on the mitigation that will be required once impacts are ascertained. The permit application and SDEIS make vague references to additional mitigation if it is deemed appropriate based on monitoring. This is completely insufficient to ensure that lost wetland functions will be compensated for. Although the permit application provides monitoring locations, it does not say what parameters will be monitored, or what would constitute an impact. For instance, will monitoring be limited to groundwater levels, or will wetland vegetation and water quality also be monitored? Will wetlands be deemed "impacted" only when the groundwater level drops a foot below their lowest (i.e., late summer) levels, or will the hydrological regime throughout the year be considered (and if so, how)? Finally, it provides no plan as to what sort of mitigation will be undertaken when wetlands are found to be impacted.	COE02
6075	The Guidelines require that compensatory mitigation be based on a watershed approach "to the extent appropriate and practicable." 40 C.F.R. § 230.93(c)(1). In a situation where the watershed is losing between 912 and 7350 acres of wetlands, the watershed approach is not only appropriate, but necessary to compensate for lost functions….The permit application describes a process of looking for large acreages within the St. Louis River watershed that could be used for mitigation sites. It describes nothing, however, in regard to watershed needs or plans, or how the proposed mitigation will compensate for lost watershed functions. PolyMet has apparently rejected several potential mitigation possibilities as too expensive or bothersome. While the Guidelines do emphasize "practicability," ACE needs to consider that term in light of the extremely large loss that it would be permitting here.	COE01
6077	The reality here is that the proposed loss of wetlands is too large to be compensated for. It represents a loss to the Partridge River watershed and to wildlife that cannot be replaced due to its size. PolyMet is having trouble finding mitigation sites within the St. Louis River watershed because of the sheer size of the proposed loss...they [all state and federal agencie involved] are approving significant losses of wetlands within the system that cannot be replaced. This flies in the face of all of the effort and planning that has gone into the Lakewide Management Plan and the Binational Program to Restore and Protect the Lake Superior Basin….This is particularly disturbing given that the wetlands here are not even private property; they belong to the federal government. While PolyMet has private property interests in the mineral estate, the federal government most certainly has authority to limit the circumstances under which the minerals can be extracted in order to protect valuable public resources. PolyMet has rejected underground mining as an option because it is not currently economically feasible.	COE01
6078	In addition to reviewing the permit application according to the EPA Guidelines, ACE must consider whether granting the permit would be in the public interest, weighing the expected benefits against the detriments. 33 CFR § 320.4(a)(1). Granting this permit would not be in the public interest … We particularly want to emphasize the impact of wetland destruction on global climate change. … the destruction of this amount of peatlands cannot be considered to be in the public interest.	COE03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Center for Biological Diversity (52183)	
6079	The ACE public interest review weighs the financial and other benefits of projects that require wetland destruction against the environmental and other costs. PolyMet sponsored an economic study that was used in the SDEIS that vastly overstates the financial benefits of this project, and these projections cannot be used in a legitimate cost/benefit analysis. Furthermore, the SDEIS assumes that these metals are needed by the world economy, and this assumption cannot be accepted as true without supporting evidence. These issues are addressed in our SDEIS comments; we highlight them here as of particular importance to the public interest review.	SO07
6387	Since the SDEIS assumes that changes in groundwater quality may effect wetland water quality, and since the groundwater will include mercury released from mining features (including fill material) the only possible conclusion is that the fill may cause or contribute to violation of the mercury water quality standard and violate an applicable toxic effluent standard or prohibition.	WR158
6390	Appropriate compensatory mitigation is generally required to minimize potential adverse impacts. See 40 C.F.R. § 230.91(c)(2). The mitigation proposed in this case does not “minimize potential adverse impacts of the discharge on the aquatic ecosystem.” The Section 404 permit must therefore be denied due to the lack of an adequate mitigation plan.	COE02
13043	The Hydrogeological Model Used Faulty Assumptions Regarding Baseflow andHydraulic Conductivity, Making Predictions Based on the Model Unreliable	WR003, WR052, WR086, WR091, WR105
13077	PolyMet’s approach in modeling groundwater flow was to divide the flow at SW-005 based on the area of the watershed at each modeling point. Clearly this approach does not work for a river that loses flow between upstream and downstream modeling points.	WR086
13086	The SDEIS Does Not Include Sufficient Information About Mine Pit Inflow and Drawdown of the Partridge River	WR086, WR179
13105	the discussion of mine pit inflow does not provide a citation at all, see SDEIS 5-90.	EDIT01
13107	the SDEIS must be substantially supplemented and revised to provide information as to the certainty of predictions regarding mine pit inflow and Partridge River drawdown and the range of various model inputs that was used to obtain them.	WR179
13108	The Water Quality Modeling and Assessment Ignores or Mischaracterizes Many Potential Impacts	WR189
13109	The SDEIS Does Not Assess Water Quality Impacts to the Partridge River Along a Three-Mile Stretch Upstream of Monitoring Point SW-004	WR016
13118	SW-003 represents an unimpacted location and the groundwater evaluation location below it represents a location impacted by the East Pit/Category 2/3 Flowpath.	WR177
13126	The Discussion of Aluminum and Lead Exceedances in the EmbarrassRiver is Misleading and Incomplete	WR082
13127	[The SDEIS] fails to consider and disclose the impacts of aluminum and lead on aquatic organisms as required by NEPA and MEPA.	AQ07
13128	The Aluminum Exceedance Would Violate the Clean Water Act...discharges to surface waters that have the potential to result in water quality standard violations are limited by water quality- based effluent limits. See 40 C.F.R. § 122.44(d).	WR177

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Center for Biological Diversity (52183)	
13134	The Lead Exceedance Would Violate the Clean Water Act...What the SDEIS does not reveal is that natural runoff has a lead concentration below 0.6 ng/L ninety percent of the time, Water Modeling Data Package Vol. 2, Fig. 6-108, while contaminated groundwater at the first evaluation point that includes discharge Northern Organizations Page 11 of 157 to surface water has a predicted lead concentration of up to 2.5 ug/L id., Fig. 6-69.	WR059
13139	Aluminum and Lead Exceedances are Significant Environmental Impacts and Would Violate the Minnesota Environmental Rights Act...PolyMet would discharge lead at a level that would result in water quality standard exceedances where it mixes with water in the environment.	WR059, WR082, WR177
13182	It is unclear whether the “100% deposition line” refers only to total metal, or if it also includes all areas where a specific metal deposition will be greater than 100%. Also, Northern Organizations Page 17 of 157 absence of this information makes any judgment of the contribution of air deposition toviolations of water quality standards impossible, as those standards are all for specific constituents.	WR151
13190	The SDEIS needs to include air emissions and fugitive dust sources in its assessment of impacts to water quality.	AIR07, WR151
13193	Finally, we note that the portion of metal that is from fugitive dust will virtually all be deposited locally. The obvious question is, how much of this metal will end up in the Partridge and Embarrass Rivers?	AIR07, WR151
13206	The Assessment and Discussion of Mercury Loading to the Partridge andEmbarrass River Systems is Inadequate in Many Ways….increased mercury discharges to waters that do not meet water quality standards are forbidden, no matter how small. Minn. R. 7052.0300(2)	PER11
13211	The SDEIS Dismisses the Possibility of Mercury Transport to the Partridge River Through Groundwater Without Scientific Support	MERC20
13218	The SDEIS Uses Arbitrary Numbers for Many Mercury Inputs...Although the SDEIS predicts that the amount of escaped seepage will be very small, these predictions are based on flawed analyses regarding hydrology (at the Mine Site) and the effectiveness of the collection system (at the Tailings Basin).	MERC04, MERC11
13223	The Estimated Mercury Concentration in Tailings Basin Seepage is Not Based on All Available Data...The SDEIS does not address mercury in water that escapes the tailings basin collection system.	MERC06
13224	The SDEIS Uses Numbers for the Mass Balance Demonstrations That Appear to Have No Scientific Basis...No explanation is given for the use of 3.5 ng/L for other runoff; again, it would seem more accurate to follow the MPCA method.	MERC04
13225	The SDEIS Must Include an Assessment of Mercury Inputs from Air Emissions to the Partridge and Embarrass Rivers and Their Tributaries	AIR05
13226	The SDEIS Must Address Mercury in Colby Lake Water Used to Augment Flows to Embarrass River Tributaries and Second Creek	MERC11
13228	Sulfate Discharges and Water Level Fluctuations from the Proposed Project Would Contribute to Mercury Levels in Fish	AQ28
13232	The SDEIS Must Address the Potential for Mercury MobilizationFrom Overburden Materials	MERC20
13353	MEPA similarly requires an EIS to identify mitigation measures that “could reasonably eliminate or minimize any adverse environmental, economic,employment, or sociological effects of the proposed action.” Minn. R. 4410.2300(I).	NEPA09
Sender Name (Submission ID)	Chad Jurgens (16272)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Chad Jurgens (16272)	
10456	Mines also leave signficant and permanent scars to the landscape and for a relatively small ecomomic benefit to our state we are willing to forever change one of the most naturally magnificent places in the world.	SO01
Sender Name (Submission ID)	Chad Sahr (22037)	
3332	We can have both clean water and jobs in northern MN. PolyMet has demonstrated it and will prove it when they get their permits.	PER34
19518	I trust that all of the agencies will ensure that PolyMets mining will be safe for the environment. I also know the huge economic impact that this could provide for the whole state of MN. I also know that all of these metals that they will be mining, will still be mined elsehere. So why not have it done here….. Where we already have the strictest standards!	SO10
19519	PolyMet has proven that they will meet all of the standards and I hope that the regulators won't let the environmentalists delay this any longer. I feel that the groups that are against this are not pro-environment, they are anti-mining. If these groups were pro-environment then they would want this kind of mining here where we know it will be regulated and watched closely. Not in another country where standards are lower.	PER34
Sender Name (Submission ID)	Chad Trebilcock (21879)	
9617	I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations.	NEPA16
9620	It's time to move forward as people want and need jobs in the area.	SO10
Sender Name (Submission ID)	Chanda Welch (44726)	
16184	The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. [For example,] The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that…during a typical year of operation the federal government would receive $17.3 million and the state and local governments would receive $14.5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4.10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503).	SO05, SO08
16189	Table 5.2.10-3 in the SDEIS… projects state taxes of $15.6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation… No explanation of the change is provided, and no source provided other than personal communication with PolyMet.	SO05, SO08
16190	[Please] Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies	SO05
16191	[Please] Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates	SO05
Sender Name (Submission ID)	Charlene Maertens (57244)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Charlene Maertens (57244)	
17370	All of your mining is destroying our water, the wetlands for animals, and causing more pollution.	WET24
17371	You are also partial to blame for formations of sink holes. You take away the ground, but you don't replace it.	GT09
Sender Name (Submission ID)	Charles Baribeau (18127)	
3438	The PolyMet Project will increase, and as already mentioned, jobs in this area by about 400, from 1,000 1,000 to more. The Iron Range unemployment rate right now is higher than the state average, so This will help to increase the employment in this area.	SO10
3444	The [reverse osmosis] process will be pure; all the minerals, all the chemicals, the mercury, everything you've heard, them talk about will not be available to go back into the downstream system of the Lake Superior watershed.	PD28, WR190
13506	With that, I'm going to introduce for the record, two resolutions we [Virginia City Councilor] passed on PolyMet. One for the original draft EIS and we'll be putting together another resolution in next Tuesday's council meeting for this current supplemental EIS draft that's out at the present time….These resolutions were a 7-nothing vote and a 7-nothing vote with two members absent. The PolyMet Project will increase, and as already mentioned, jobs in this area by about 400, from 1,000 1,000 to more.	SO10
Sender Name (Submission ID)	Charles Borden (50229)	
11004	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards.	PD29, WR060, WR181, WR182
11036	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies.	WR023, WR060, WR181, WR182, WR195
12448	I'm a lifelong friend of the boundary waters and …the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality now and long into the future.	WR111
12449	This mine would work fine…where the water table is not rich and pristine. But to do this mine at the top of the laurentine divide where its effects would not just damage local water tables but run off into Lake Superior, the Mississippi River and hundreds of other smaller rivers and lakes is simply foolhardy.	WR111
16206	to do this mine at the top of the laurentine divide where its effects would not just damage local water tables but run off into Lake Superior, the Mississippi River and hundreds of other smaller rivers and lakes is simply foolhardy.	WR195
16207	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards.	WR023, WR195
Sender Name (Submission ID)	Charles Dayton (43340)	
15738	I don't doubt that the agencies will act in good faith, but as a lawyer for environmental groups on the Reserve Mining case I learned that State Permitting agencies are not adept at predicting what will happen in nature in the future, even using the best available scientific information. … The lesson for this EIS is that potential changes in climate, particularly rainfall, should be evaluated.	PD22

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Charles Dayton (43340)	
15739	Economic analysis of future treatment costs is required by law. … [the absence of this] is an obvious flaw in the Supplemental EIS.	PER03
15740	My understanding is that the waste basins and treatment facilities for the water polluted by contact with waste rock will be designed for a hundred year rain event of 5.2 inches of rain in 24 hours. This is insufficient. … So rather than assuming a single value for future rainfall, the EIS should evaluate treatment requirements and the costs of treatment under differing projections of rainfall, based on potential limits, and differing outcomes regarding the length of treatment that will be necessary.	WR176
Sender Name (Submission ID)	Charles Derry (33513)	
12290	Maybe you don't seem to understand that the Lake Superior waters are pretty much a closed system and, as I have heard, have 300 year turnover. The lake may look big, but, it really isn't and this type of mining, shows the potential of killing the entire lake and its surroundings.	WR111
Sender Name (Submission ID)	Charles Krysel (46075)	
10702	I think the environmental risks of this mining project far outweigh the projected economic gains if realized. Hundreds of years to mitigate the waste generated for a decade or two the mine is operated? …This is just another of the mounting instances where an Industry takes control over public lands and its agencies. The State of Minnesota should reject this destructive and dangerous project.	PER35
Sender Name (Submission ID)	Charles Lahti (18061)	
3156	...when [the waste rock and tailings are] in transportation we have hazardous materials that's in a liquid solvent state or a dried state going across all the water aquifers between here and the location. I'm afraid a train accident or something like that will put it into our water system, the Great Lakes, the Red River, going up the Hudson Valley or the Mississippi. And we are talking thousands of tons of hazardous material. How do we handle that? And why isn't the Department of Transportation involved in this permitting?	HAZ06, WR151
3159	And the other thing is on these routes we have to look at the hazardous characteristics for the emergency people and the fire responders. Those first responders are they going to be aware and properly equipped to handle the hazards that this brings forth to their towns.	HAZ06
Sender Name (Submission ID)	Charles Marsden (42819)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Charles Marsden (42819)	
7255	How can we be assured that Minnesota taxpayers will not be stuck with an enormous bill for cleanup of the mining sites and ongoing treatment costs? Minnesota Rules, part 6132.1200 is supposed to provide for that, but the rule is only effective if (1) the future financial liability is forecasted realistically and (2) PolyMet is capable of providing financial assurances to the extent required to meet their potential obligations for both mine closure and reclamation and environmental damage.Section 3.2.2.4 Financial Assurances of the SDEIS for the NorthMet Mining Project and Land Exchange is the only place where this issue is addressed. Having reviewed that short section (3 pages), I can say with confidence that no businessman would consider the statements made and assurances suggested to be anywhere near adequate for entering into an agreement with PolyMet….no more definitive estimates of future costs to reclaim the sites and deal with long term monitoring of ground water are available. Further, there is no indication that the possibility of substantial contamination of ground water due to failure of impoundments or other issues has even been considered. Costs to deal with this kind of issue could far exceed the general estimates of closure costs ($120-$170 million after 20 years of mining) and post-closure monitoring and maintenance costs ($3.5-6 million annually) that are referred to in this section. There are also no details to permit the DNR or anyone else to evaluate the reasonableness of the estimates given. Furthermore, it is clear from PolyMet's financial statements, that PolyMet will be incapable of providing the kind of financial assurances the state should require before any mining permits are granted. The Consolidated Financial Statements for PolyMet Mining Corp. for the year ended January 31, 2013 shows Total Shareholders' Equity of $142.9 million, but if intangible assets are excluded (mostly capitalized costs and environmental obligations), Total Shareholders' Equity falls below zero. So at this stage, PolyMet has no capacity with its own resources to provide reasonable financial assurances, and also would not be able to induce a US based institution with adequate financial resources to provide the required assurances. ...Interestingly, buried in a footnote in the offering document for the recent IPO of Glencore, is a statement that Glencore controls PolyMet. In another place, the document assures prospective investors that Glencore is effectively immune to suit in the US. So there is a deep pocket behind PolyMet, but that deep pocket, is not reachable by Minnesota if Glencore fails to voluntarily step up to pay damages….In the situation at hand, the state of Minnesota has its best opportunity to demand meaningful, enforceable financial assurances regarding future damages right now….to protect all Minnesota taxpayers from winding up with a huge bill down the road to clean up large anticipated or huge unanticipated environmental damage by insisting that those who seek permission to conduct mining operations involving sulfide bearing rock provide adequate financial guarantees that those costs will be paid by them or a third party….These guarantees must be enforceable in the US to be meaningful. This probably means requiring a substantial cash deposit into a Trust Fund before mining begins and adding to that from a tonnage charge during mine operations.	FIN01, FIN04, FIN05, FIN08, FIN10, FIN14
8792	The SDEIS doesn't even consider the potential cost of remediation in the event something goes wrong and toxic mine waste escapes a tailings basin or mine or plant site.	FIN05
8794	Is Polyment required to provide adequate Financial Assurance as required by Minnesota Rules, part 6132.120?	PER03
8797	...annual post closure monitoring and maintenance ($3.5-6.0million)...is projected in the SDEIS to be required for 200 years for the tailings basin and 500 years for the plant site. Since PolyMet has a vested interest in estimating these numbers on the low side, it is reasonable to use the upper end of the projections, and they may well be too low. These are cost estimates based on cost today. Costs will grow in the future, and the cost of inflation of 3% a year seems realistic.	FIN05, FIN08, FIN11
8801	Mine closure and reclamation costs of $170 million today will be $307 million in twenty years (using 3% cost inflation). For a Trust Fund to grow to $307 million in 20 years, $170 million would have to be deposited today, assuming an earnings rate of 3% a year, a reasonable assumption.	FIN05, FIN08
8806	…any agreement on Financial Assurance that does not provide, before mining commences, the equivalent of a cash Trust Fund well in excess of $1 billion is grossly inadequate.	FIN05, FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Charles Marsden (42819)	
8809	Do not allow Financial Assurance to be pushed until late in the negotiating process with PolyMet. Address it early…Do not wait for PolyMet to make a proposal on Financial Assurance. Decide what would be good for the state and taxpayers and tell PolyMet what they need to do to provide adequate Financial Assurance.	FIN13
8850	…engage a licensed actuary to assist in the Financial Analysis process…An actuary could also be helpful in providing useful analysis of the probability of an environmental problem that could arise.	FIN09
17037	This is an experiment on a massive scale in Minnesota, and PolyMet must make a highly compelling case that they are capable of preventing downstream pollution. ...How would you defend your decision to undertake this experiment in the face of so much compelling evidence of the extreme difficulty (impossibility, some will say) of preventing downstream pollution from a copper mine?	WR023, WR111
Sender Name (Submission ID)	Charles Moore (57343)	
18418	I think that the proposed or postulated cleanup has not been adequately tested on a large enough scale at other such mines.	GEN03
18419	the cost of the cleanup for hundreds of years seems to be -- how is that going to be guaranteed?	FIN01
18420	I am opposed because I think underground mining hasn't been given a – I don't know how much that has been looked into.	ALT01
Sender Name (Submission ID)	Charles Plumadore (4781)	
1892	After reviewing the information from the recent environmental impact analysis, I have no confidence that the Polymet company can keep the surrounding watershed safe from pollution caused by the mine.	WR115
Sender Name (Submission ID)	Charles Schaedler (3049)	
853	The fact that this company will provide so many good jobs for Minnesotans [with this Project], is by far the most important thing to remember	SO10
855	The fact that [we can create jobs]… with no appreciable effect on the environment, is all the more reason to promote this project!!	SO10
Sender Name (Submission ID)	Charles Sugnet (48670)	
12813	From a strictly economic point of view, it is a question of a large number of jobs that last for a short time and destroy the resource (the capital) versus a smaller number of jobs that are sustainable over the very long haul because they do not destroy.	SO01
Sender Name (Submission ID)	Charles Wick (54568)	
18968	Minerals are too toxic in parts per billion to ensure safety. Monitoring of water quality has to be done way past the life of the mine and the corporate owners. Its too close to the BWCAW to risk such a major intrusion.	WR090, WR111, WR128
Sender Name (Submission ID)	Charlotte Anderson (10158)	
359	Our natural resources in Minnesota have always been a defining part of our state's economic health and culture, and they MUST be protected.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Charlotte Anderson (10158)	
360	I do not believe that human progress and economic need should be held to be more valuable than our beautiful lakes, trees, land and wildlife. We need these places of quiet, clean air and water, these places of refuge.	AIR11
1435	The history of previous sulfide mining projects elsewhere in the country tells the story of ongoing pollution, bankruptcy of the mining companies, and cleanup burdens left to taxpayers. Why would we expect it to be different in Minnesota?	FIN01, FIN10, WR023
Sender Name (Submission ID)	Chase Carter (54178)	
16407	The boundary waters is a beautiful place with many aquatic and non-aquatic animals. There is a lot of people who frequently visit the boundary waters. People also own businesses on and around the waters.	WI01
16410	If you start to mine for precious metals you will destroy so many great things. Sulfide ore mining will kill thousands of innocent animals	WI01
16412	It will also turn the water yellow and polute the little wilderness we have with acid and lower the ph so fish will die.	WR001, WR113
16413	The mining will bring jobs but it will also destroy many family businesses. Tourists won't come to visit because the wilderness won't be there. You think you will get profit from precious metals but its not worth destroying so many great things.	SO01, SO02
Sender Name (Submission ID)	Chelsea Helmer (19942)	
1543	I concur with MDO #1 that "the natural variability in precipitation would be more adverse than reported in the SDEIS."… Predications of future water quality cannot be based on flawed statistical data related to current water quality. The agencies response states that if "actual NorthMet Project Proposed Action effects were found to be higher than predictions that steps could be taken to reduce those effects." What these steps would be needs to be specified. I request that the SDEIS needs to be redone to accurately reflect quantities of water in this hydrological system.	WR026, WR071, WR073, WR077, WR130, WR180
1544	There is NO PLAN to compensate for these thousands of affected wetlands. Additionally any compensatory mitigation, an undefined term, does not affect the St. Louis River watershed or Lake Superior resident. As a citizen of the Lake Superior Basin, I believe that the Section 404 permit must require "compensation" for loss and injury to wetlands in the Lake Superior Basin.	COE01, WET01, WET03
1545	Contaminants in the permanent waste rock and tailings will require treatment for hundreds of years, and admittedly mine pit pollution would continue in perpetuity… It is extremely unlikely that the PolyMet Corporation would survive the years that are needed to mitigate this pollution. Costs and a plan necessary for funding this treatment must be sufficiently developed and provided to the public. The SDEIS should explain exactly what would ensure how the treatment of mine pit pollution will be funded for hundreds of years.	FIN01, FIN05, FIN08, FIN13
14839	Firstly, I want to express disappointment that the ninety day comment period has not been extended. Ninety days is insufficient for proper public analysis of this SDEIS given its length and complexity.	NEPA07
Sender Name (Submission ID)	Cheryl and Mark Wilke (54912)	
19314	Expensive clean-up operations that may ultimately fall to Minnesota taxpayers. Pollution, noise, and other serious impacts in areas near the Boundary Waters Canoe Area Wilderness that are important tourism and recreation areas. Sulfide mining is a gamble where the stakes are just too high.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Cheryl Dannenbring (7548)	
782	Being aware of these critical roles that wetlands play in the ecology and culture of Northern Minnesota, I am extremely concerned about PolyMet's proposed impact on such lands. By its own admission, PolyMet will destroy 913 acres of wetlands directly and another 7,351 acres will likely be destroyed due to fragmentation, pollution and changes in hydrology.	WET24
784	the Polymet's EIS details no plan to mitigate this huge loss within the Lake Superior Basin. Furthermore, the Army Corp of Engineers has no record of requiring wetland compensation or mitigation after a project is built.	WET03
786	I ask that the EIS be deemed unacceptable and that the DNR does not permit the mine on the basis of its own stated goals for preservation and improvement of wetlands in Minnesota.	NEPA09
3602	This EIS should cover all possible known variants of the mining plan, not just the one proposed at the time being. I am concerned that the mining company could start with a small operation and thus be grandfathered into a larger operation without needing to go through all review processes.	ALT01
8607	no copper-nickel mine has ever operated in the United States (or elsewhere) without leaving behind irreparable environmental damage… I believe it behooves our state representatives to look at what heavy metal mining does to the surrounding land and water before deciding to open our state to a similar fate.	WR023
8778	"There is no mine plan for any material that lies outside of the proposed open pit; as such, mining material located beyond the proposed pit outline would be evaluated as appropriate if proposed in the future." This EIS should cover all possible known variants of the mining plan, not just the one proposed at the time being.	CU02, PD30
9341	Polymet claims that all but 21 gallons of seepage per minute ... will be contained via pumps. That is a 99% collection rate. Nowhere is there an example of this almost perfect result .... Simply saying it will happen does not mean that it will…. PolyMet makes claims that are not backed up with hard evidence or scientific review. Nor do they explain what will happen when PolyMet is no longer there to keep the mechanical form of reclamation going - some 50, 200, or 500 yrs….	WR020, WR037
9342	The Forest Service claimed that the purpose of a land exchange was to unify ownership of federal lands so federal forests would not be on top of mineral leasing. But the proposed land swaps do not fill that purose. Almost all of the land proposed for the swap have split ownership and severed mineral rights.	LAN04
9426	The mine will open a pit reaching below the presently used aquifer, thereby making a permanent connection between all geologic zones that are mined through. There is no plan to create a permanent barrier from the toxic mining byproduct to the water, either during mining or after by-product disposal.	WR090
10516	The SDEIS needs to be redone to analyze water quality outcomes/risks IF the tailings pile collection rate is not what PolyMet projects.	WR018, WR090
10518	[The SDEIS] also needs to detail Polymet's financial guarantee to back up its claims.	FIN01
10520	the land swap will allow PolyMet to take lands from the Superior National Forest—lands currently available for multiple-faceted public use—wildlife habitat, forestry, and recreation—and turn them into a single use (mining) parcel. It is not the Forest Service's job to make land available for a foreign corporation's economic benefit.	LAN01
10762	The mine will open a pit reaching below the presently used aquifer, thereby making a permanent connection between all geologic zones that are mined through. There is no plan to create a permanent barrier from the toxic mining byproduct to the water, either during mining or after by-product disposal.	WR090

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Cheryl Dannenbring (7548)	
11026	The amount of water that the proposed PolyMet mine would require for operations is of great concern to me... 'make-up water' drawn from Colby Lake would average 275 gallons per minute...After twenty years of use, this would mean removing a significant portion of the lake's total volume. No study was done to measure the effects of this lake drainage.	WR181
11029	I reject the 'we'll deal with that if it arises' solution which seems to be an integral part of this SDEIS. Plans for such eventualities must be in place before the operation is permitted.	PER06
11103	the Whitewater Reservoir could become tainted from the City of Hoyt Lakes' sewage discharge. Any number of unintended consequences could arise from using such large volume of water, and polluting much of it to the point that it cannot be discharged from the plant.	WR111
11105	Furthermore, as with the issue of pollution, the effects will be greatly multiplied with each additional mining operation permitted for the Arrowhead region.	CU11
11905	The mine will open a pit reaching below the presently used aquifer, thereby making a permanent connection between all geologic zones that are mined through. There is no plan to create a permanent barrier from the toxic mining byproduct to the water, either during mining or after by-product disposal.	WR090
12492	This EIS should cover all possible known variants of the mining plan, not just the one proposed at the time being. I am concerned that the mining company could start with a small operation and thus be grandfathered into a larger operation without needing to go through all review processes.	CU02, PD30
16200	Polymet's SDEIS, section 3-40 paragraph 2 states "There is no mine plan for any material that lies outside of the proposed open pit; as such, mining material located beyond the proposed pit outline would be evaluated as appropriate if proposed in the future." As in many sections of the EIS, this vague language opens the door to future environmental assaults without having a plan 'on the books' to deal with those eventualities.	CU02, PD30
16846	ES-24, paragraph 3 states that the Hydrometallurgical Residue Facility will be capped and double-lined for the duration of the estimated 500 years of toxicity. No know man-made structure can retain its original and viable properties for such a length of time, especially concrete or geomembrane, which are known to degrade. Thus any claims which count on this system to contain polluted material must be discounted.	PD17
16847	I am wondering how the MN EPA can approve and permit the Polymet copper-nickel mine…when many MN water ways are already polluted by old iron mining operations. The Clean Water Act clearly states that no new source of pollution can be added to already polluted water. PolyMet's permit must be denied until old pollution problems are dealt with.	COE03
16848	all "estimations" for pollution assumed by the SDEIS must not be accepted. Simply saying Polymet won't produce water pollution does not make it so.	WR025, WR072, WR189
16849	There has been no study that proves or disapproves that water pollution will migrate via natural permeability or existing fractures...Until independent studies are conducted (not connected to the agencies authorizing the SDEIS) regarding water seepage (sub-terrain water migration) to give a clean understanding of where pollution may travel, the SDEIS should not be approved.	WR007, WR008
19520	What I would like to see in Polymet's EIS draft, is:1. a clear explanation of how they are going to prevent pollution from leaking out of holding ponds that are designed to leak.2. how they plan to keep the leaking pollution from seeping into surface and groundwater? 3. whether accurate water samples are being taken now to determine the pre-mining sulfate levels in surrounding ground and surface water?	WR044, WR045, WR049, WR057, WR066, WR072, WR088, WR116

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Cheryl Dannenbring (7548)	
19521	What I would like to see in Polymet's EIS draft, is:4. whether Polymet is making financial commitments to be responsible for 'clean up' of pollution that appears 20, 50, and 100 years from now. (as it is known that this type of pollution often takes that 20 years to manifest itself--hence the need for accurate pre-mining samples--and that it can be expected to linger indefinitely.5. whether they will be held responsible for restoring deforested areas with the biodiversity that presently exists, and continue to finance that restoration until the forests regain their former health?	FIN01
19523	What I would like to see in Polymet's EIS draft, is:6. whether the economic impact of the loss of tourism-related jobs, jobs related to our present resources of clean water, forests, and wilderness, have ben figured into the scenario?	SO06
Sender Name (Submission ID)	Cheryl Gerth (48563)	
13396	I have several friends who still have a financial stake in Polymet's future, but their small economic loss is nothing compared to the threat to the clean air and water which is Minnesota's best legacy.	SO01
Sender Name (Submission ID)	Cheryl Lawrence (41633)	
2144	Are you going to put up one third of the profits to remedy your mistakes? … How much land will be forever ruined, unfit for anything when you stop because the price falls.	FIN01, FIN08
2145	Tell [politicians] what YOU WILL DO DIFFERENTLY to keep your holding ponds from ruining our lakes and rivers so the water runs brown and we can't even bathe in it.	WR141
Sender Name (Submission ID)	Cheryl Olivanti (3139)	
150	As a small business owner, the higher paying jobs would bring customers to my business. With more business comes the possibility of having to hire more employees and hopefully lower the unemployment rate in norhtern MN.	SO10
Sender Name (Submission ID)	Cherylyn C. Kelley (45323)	
9210	Downstream from the PolyMet site are wild rice beds, which are sensitive to sulfates and will die at even low levels.	VEG04
9213	There was very little information about the water treatment systems that would be used. How will it be paid for in the years after the mine is profitable? Will taxpayers be held responsible for the treatment costs?	WR035, WR128, WR143
9216	The SDEIS also does not include information about potential influence on the endangered species in the area.	WI01
9219	The SDEIS also mentioned that the cut off wall would extend down to the bedrock, but what will they do if there are cracks in the bedrock?	WR019, WR021
9224	PolyMet boasts the creation of 360 jobs and others that wouldn't be local, so I fail to see how that will help a great deal.	SO06
15582	The mine would dig up roughly 1000 acres of peat and bog but its effect would be felt for more than 4000 acres.	WET24
Sender Name (Submission ID)	Chippewa Ottawa Resource Authority (42954)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Chippewa Ottawa Resource Authority (42954)	
3895	CORA understands that, in order to address pollution of the St. Louis River watershed…the proponent, under the NorthMet Project Proposed Action, would need to install and operate wastewater treatment systems for the duration of the modeled pollution simulations (200 years at the mine site, and 500 years at the plant site). We are extremely concerned that the authors of the SDEIS…have accepted this concept as a possible scenario. CORA agrees with the cooperating Native American Tribes that this time frame constitutes perpetual maintenance and should not be acceptable by any jurisdiction.	WR037
3896	We do not believe that proposals to mitigate the wetland loss listed in the SDEIS will be adequate and that alternatives to open pit mining at this site should be considered.	WET01, WET04, WET20
3897	Tribal cooperators…have requested that the SDEIS utilize the USEPA's 2011 NEPA review guidance titled "Applying Cumulative Impact Analysis Tools to Tribes and Tribal Lands" however this document has not been used to assess cumulative effects on tribal resources in the current SDEIS. CORA requests that the lead agencies use the resource-specific GIS-based approach as defined in the 2011 guidance to better account for cumulative impacts to resources of tribal significance.	CR03, CR08
3898	We would point out that the requirements for additional mining or disturbance should be even more stringent because of the history of environmental degradation in this area…We believe that the SDEIS should consider [the] commitments [made by the Commissioner of the MDNR in the Duluth News Tribute] and others that, not only the State of Minnesota but the State of Wisconsin, have made to protect wetlands, restore the St. Louis River AOC and ensure that future generations are not left with another costly cleanup.	PER07
4049	[The Project] will destroy and otherwise compromise over 1,000 acres of wetlands located in the Lake Superior basin and will destroy or permanently alter over 1,700 acres of bird and wildlife habitat classified by the Minnesota Biological Survey as sites of high biodiversity significance and nearly 700 acres of imperiled or vulnerable native plant communities.	VEG02, WET24, WI02
4056	the destruction of most of the wetlands and the requirement for a land exchange with the USFS could be avoided if the proponent had kept the alternative of proposing an underground mine for consideration however this alternative has been eliminated from the SDEIS… the reasoning given by the proponent for eliminating this alternative was economic feasibility [however the authors]... did not give the details on what an adequate return to investors would be…We request that the lead agency require that the underground mining alternative be re-examined and included in this SDEIS.	ALT01, ALT06
4069	we would like to point to an editorial by John Line Stine… and Tom Landwehr... published in the August 11. 2013 edition of the Duluth News Tribune and titled "Commissioners' View: St. Louis River is a Gem Worth Saving". In this editorial the commissioners outline the considerable efforts to restore damage to the St. Louis River system ... including over $500 million of taxpayers' money that have already been spent on remediation. We believe that the SDEIS should consider these commitments and others that, not only the State of Minnesota but the State of Wisconsin, have made to protect wetlands, restore the St. Louis River AOC and ensure that future generations are not left with another costly cleanup.	WR111
4070	CORA does not believe that lands held in trust by the United States Forest Service (USFS) should be exchanged or sold to corporations for development, especially for open pit mining that will affect the ability of future generations to practice their treaty rights.	CR01
Sender Name (Submission ID)	chooch karton (45067)	
7552	What a dreadful shame it would be for corporations from other countries to damage our beautiful state for short term gains! Short term gains with disastrous long term consequences!!!	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	chooch karton (45067)	
16775	Nature that is timeless and rewards each generation with its lessons as well as guides us towards a healthier earth and more enlightened future: this is what we stand to lose!	WILD02
Sender Name (Submission ID)	Chris A Norman (11604)	
14242	you need to let the company show the world they can mine and process these elements safely by letting them try. We need the jobs! The world needs the previous metals.	SO10
Sender Name (Submission ID)	Chris Adams (41554)	
9336	In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out ….	WR190
9337	This project would mean 2 million construction hours, 360 full-time mining jobs and more than 600 related jobs – jobs that our state needs.	SO04
9338	Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands.	PER34
Sender Name (Submission ID)	Chris and Catherine Pranskatis (54688)	
17842	The (SDEIS) repeatedly states that water treatment upon closure of the site will be required for an "undetermined amount of time." In all fairness, the site could require treatment for as little as a year following closure, but it may also require treatment for as many as a thousand years. Nobody really knows, which is extremely unfortunate for those of us that live near the proposed mine. Isn't a mine that requires treatment upon closure a violation of state law anyway?	PER04
17843	This SDEIS relays heavily on computer modeling. As we all know, a reliable computer model depends on good quality historical data, and even then, they fail. Considering that this type of project is new and unique to this ecosystem, we simply do not have reliable historical data.	PD22
17844	We have a saying in the engineering field; "Software eventually works. Hardware eventually fails ." I'm sure the engineers of the Deepwater Horizon were surprised when their drill rig sank in the Gulf of Mexico. What about the recent chemical spill in West Virginia? We're rolling the dice by allowing this project to move forward in one of the most water-rich regions of the United States.	WR070, WR111
Sender Name (Submission ID)	Chris Bangs (36657)	
14388	The costs for these copper mining jobs will come at far too high a price for all of the people of MN. The industry's track record of envirommental damage is long and damning. Too many abandoned mines have been left for other state's residents to clean up at obscene cost levels.	SO01
14389	Furthermore, this mine is located much too close to the jewel of northern MN-the BWCA, which is a treasure we cannot risk to lose. On its eastern flank lays Lake Superior, the continent's largest source of clean water-which in time may prove to be far more valuable than all the copper below our state's surface.	WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Chris Bangs (36657)	
14391	With only 350 jobs being proposed over 20 years and with environmental reparations costs projected to be in the hundreds of millions-why are we even considering this one-sided fiasco of a proposal?	SO01
Sender Name (Submission ID)	Chris Bollis (46047)	
10452	I do not think it is in the best interest for the citizens of Minnesota to be responsible for future tax burden as a result of cleanup costs for pollution that will result from poly mets project. … Financial assurances that need to be in place for 200 to 500 years have not ever been proven.	FIN01, FIN10
10455	The land swap between the forest service and poly met in my mind needs to have its own separate review. … It cannot be lumped together and hurried through….. I feel it is a mistake for us to make this trade which would allow non ferrous mining to be done in our national Forrest without a longer period of time for public comment and education on this important change of use.	LAN10
10462	There is some discrepancy as to the amount of water being released from the project. I would believe the tolerances were put into the model for a good reason therefore it would make sense that the correct numbers be put in and the model be rerun. This is an important part of the EIS. In order to protect our citizens it is only responsible to redo the calculations and do a revision of the model.	WR086, WR093, WR178, WR183, WR189
10468	I believe this [type of mining] would be damaging to the already established tourism environment of that area. This includes businesses as well as cabin owners. The related jobs, as well as construction jobs, taxes and other benefits this tourism economy and vacation home industry brings to the state is sustainable and can be grown. I do not believe that the current tourism economy and vacation home industry could flourish side by side with the nonferrous mining economy	SO02
10476	PolyMets mine plan … [should] account for the destruction of moose habitat as well as other natural habitat for the Canadian lynx.	WI02
10478	PolyMets mine plan…should call for a detailed plan for financial assurances that protect current and future taxpayers	FIN10
10483	PolyMets mine plan... should accurately assess health risks to the public	HU01
10490	PolyMets mine plan…[should] address the risks of mercury pollution for our children as well as future generations	HU01
10492	Polymets mine plan…should improve wetland protection and replacements	WET05
10494	Polymets mine plan…[should] provide Minnesotans with accurate information about how long polluted waters will require treatment	WR036
10496	Glencore must be recognized as a responsible party for permitting because of its ties with PolyMet	PER02
10498	Polymets mine plan... [should] fix the inaccurate water data used in the model and redo the water model	WR003, WR189
10500	... it is my opinion that the few hundred jobs and monetary gain for a corporation is not worth the perpetual damage and pollution nonferrous mining will cause to Minnesota's environment. … Our fresh water is our most Important and valuable resource.	SO01, WR115, WR195
Sender Name (Submission ID)	Chris Bremer (43566)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Chris Bremer (43566)	
15498	This is not a long-term jobs program. It only delays the need for development of good, new jobs in that part of the state. … this mine would damage the tourism business, including hunting and fishing, reducing long-term jobs in the region and our sense of being connected as Minnesotans by our commitment to our beautiful land and clean, productive waters. The proposed mine is a bad deal for Minnesota, even economically. As someone who is very concerned about the future of middle-class jobs in this state, I urge you to take a pass on this flash-in-the-pan.	SO02
15500	This is not a safe plan. The plan does not seem to adequately address the consequences of failures of primary water protection mechanisms. Numerous disasters in the US and elsewhere have shown that these systems cannot be trusted to behave as promised, or even as designed.	PD01
15508	There are no examples of good environmental outcomes related to copper-nickel mining. The checkered history of environmental care on the part of PolyMet's parent company has been terrible. They have not lived up to their promises and they do not inspire trust.	FIN01
Sender Name (Submission ID)	Chris Chiappari (16972)	
11028	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Chris Commers (57229)	
17175	How do we sustain water treatment for 200 years? 500 years? Who will pay for this?	FIN01
Sender Name (Submission ID)	Chris Dahlberg (18175)	
13380	I fear that this process is becoming unreasonably lengthy and burdensome. It has taken longer to get a permit for mining on the Iron Range than it took us to get a man to the moon.	PER20
13381	We need to unleash America's great workforce, including such people as our building and trades out there and jobless today… Let's get jobs going in Minnesota.	SO10
Sender Name (Submission ID)	Chris Engel (42831)	
7331	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US Dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range.	SO10
7331	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US Dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range.	SO10
Sender Name (Submission ID)	Chris Enger (18294)	
12474	For the greater good of Minnesota, including the propagation of new jobs and a more vital northern Minnesota economy, we are absolutely in favor of proceeding with the PolyMet project.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Chris Enger (18294)	
12475	Minnesota needs to start generating our own jobs and generating our own new economy, and revitalizing that northern part of Minnesota.	SO10
Sender Name (Submission ID)	chris fastner (15405)	
606	The proximity to the federally-protected Boundary Waters Wilderness makes this project clearly and simply too risky.	WILD02
Sender Name (Submission ID)	Chris Fleege (47663)	
7886	I feel this SDEIS lays the proper groundwork for developing an environmentally and economically sustainable project and I wholeheartedly support it.	NEPA16
Sender Name (Submission ID)	Chris Gordon (19962)	
1557	I oppose the development of the NorthMet Mining Project. The potential impact on waters that flow into the Boundary Waters Canoe Area as well as into Lake Superior, one of the largest bodies of fresh water is too large to risk.	WR111
1558	We cannot risk this incredibly valuable fresh water for a mere 360 temporary jobs. The jobs are here until the mining company depletes all the metals and moves on to the next one.	SO01
Sender Name (Submission ID)	Chris Haenisch (58104)	
20016	This proposed project does not sound safe with the 500 year hitch to contain the pollution...I think Polymet will declare bankruptcy and walk away from any responsibility like they have in the past.	FIN01
Sender Name (Submission ID)	Chris Heesch (54186)	
17195	the mining project… can also potentially take away camping and canoeing areas. Being an outdoorsy person I would hate for it to damage or take away any of that because those are things I love to do when it’s nice.	LU06
Sender Name (Submission ID)	Chris Heeter (38266)	
11300	We are looking at hundreds of years … of recovery needed in order to re-gain the water quality that we now have. This is not something we can risk, not a resource that we can replace in any way.	WR195
11301	the lure of jobs is strong, the needs are great. And, the jobs that would be created are not from a long view. Not from a place that is sustainable, even for mining in the long run.	SO02
11302	Help us stand for something that looks beyond a few decades and on into preserving a treasured area of wilderness that may not ever recover from this meddling	WILD02
Sender Name (Submission ID)	Chris Lian (15450)	
663	The fact that waste water will need to be treated indefinitely(forever) to avoid polluting our waters is a very scary proposition.	WR035, WR129

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Chris Lian (15450)	
665	This is a bad deal for minnesota … Polymet plans on processing the metals in another state costing jobs in minnesota.	SO02
666	This project threatens tourism and property values in the region.	SO02
668	Calcium could leech into [Lake Vermilion] via numerous waterways tied to the mine allowing calcium levels to increase to a level that zebra mussels could possibly thrive.	AQ17
669	All of this water flows into the St. Louis River watershed and into Lake Superior poisoning the water I and tens of thousands of other people drink.	WR042
670	Th risk of an environmental catastrophe vs. the creation of a couple hundred jobs is a risk minnesota can't afford.	SO01
Sender Name (Submission ID)	Chris Lish (48504)	
7798	The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public interest. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest. ...	LAN01
7812	The watershed of the proposed mine contains three Important Bird Areas (IBAs) which would be directly impacted by the mining, and the flow of contaminants into the watershed of the St. Louis River. These IBAs are home to more than 250 species of rare and common birds, including Belted Kingfishers, Hooded Mergansers, Common Terns, Common Loons, and many others.	WI01, WI02
7814	Calculate how long treatment is needed. The Minnesota Department of Natural Resources (DNR) needs to evaluate how long active water treatment will be necessary to deal with pollution after this mine is closed. Information in the SDEIS suggests centuries of pollution will occur from this mine.Consider alternatives that could reduce environmental impacts. The SDEIS must evaluate alternatives such as lining the waste rock storage areas and tailings disposal basin to reduce leakage of toxin-laden waters into surface and groundwater.Plan for accidents. PolyMet provides no plan to manage common accidents, spills, leaks, or mechanical failures that may occur. The SDEIS must include contingency planning for intense rainfall events and other factors which may render the water treatment system ineffective.Fix problems in water impact analysis. The proposed mine plan uses inaccurate and incomplete information in the model for water quality impacts, which likely under-represents the extent of water pollution.	ALT13, PD03, PD22
7817	However, the NorthMet mining project SDEIS provides no information about how much water treatment would cost, what will be included in the costs, and how taxpayers will be protected from paying for environmental liabilities, such as the environmental clean-up after the mining company leaves (which, given the mining industry's history, seems inevitable). The public deserves to know the costs and risks up-front.	FIN01, FIN05
Sender Name (Submission ID)	Chris McGreevy (46853)	
8617	The main one of course is that there is a connection from the Polymet project to the Boundary Waters Canoe Area Wilderness as Langley Creek flows through the Dunka River to the Kawishiwi and on to Birch Lake.	WR024, WR081, WR111, WR175
8618	Water monitoring and remediation at Langley Creek is not mentioned in the study. The fact that this has been missed, intentionally or unintentionally, call in to question quality of the entire SDEIS.	WR081, WR139
8619	The connection to the BWCAW watershed should also mean increased federal scrutiny of the project.	WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Chris McGreevy (46853)	
8620	The Hundred Mile Swamp which is proposed to be exchanged for is an important wetland supporting wildlife and plant life. The various parcels proposed to be exchanged for the Hundred Mile Swamp are not the same quality of environment or even equivalent wetland. Therefore if the proposed exchange were to go forward, as project runoff flows into the wetland, the result would be an overall degradation of the environment in Minnesota.	WET19
8621	The portion of the SDEIS that considers air quality impacts considers only direct effects of air quality from the mining project from grinding and tailings pile dust. It does not consider the effect of power generation needed to operate the plant in this area and what effect that would have on the Superior National Forest. Certainly the amount of power needed to operate this project for Polymet and for expected use of excess processing capacity by Twin Metals would far exceed anything needed for the current population of the area and would have a negative impact on the Superior National Forest and the health of the population	AIR02
8622	The portion of the study that addresses reclamation states that is “uncertain how long” water treatment would be needed but that modeling shows that at 500 years of treatment, water quality would be within acceptable levels. The section also says that Polymet “would be held accountable”. Later the SDEIS explains, without details, that financial assurance instruments would be created. There are several problems with the lack of specificity in this section.	FIN01, FIN05, FIN06
8623	There are currently no financial institutions capable of guarantees extending to 500 years.	FIN01, FIN08
8624	Polymet could legally declare bankruptcy at any point in time and could no longer be held accountable in any way.	FIN01
8625	Given that the current length of time needed for remediation is unknown, how can any financial assurance be made that could cover any unexpected increase in the amount of time needed for remediation and take into account Polymet’s ability to declare bankruptcy and walk away, leaving the taxpayers of Minnesota to pay for clean up.	FIN01
8626	Unusual Weather Events. The report fails to consider the increasing likelihood of unusual weather events including large volume rainfalls, high winds equivalent to the 1999 blow down, as well as extreme winter temperatures, all of which could cause equipment failures, water runoff surges, and retaining wall failures.	PD22
8627	Comparative Studies. The SDEIS fails to study the project in the context of other sulfide copper/nickel mines and the overall historical environmental impact as well as the general regulatory compliance history of the companies involved, including companies who are Polymet investors. If permits are issued, will we see a constant battle to enforce regulations, will variances be sought?	PER23
8628	The SDEIS is prepared only as it relates to the Polymet project. It is widely understood that the excess processing capacity at the Polymet site is intended to be used in relation to other projects, including the Twin Metals project. The effects of the expected increased processing at the site if Twin Metals is operational should be studied now.	CU02, CU04
16645	The map in the study does not seem to accurately reflect the Hundred Mile Swamp. It does not show the full dimensions of the area and the drainage through Langley Creek...Polymet project to the Boundary Waters Canoe Area Wilderness as Langley Creek flows through the Dunka River to the Kawishiwi and on to Birch Lake.	WET19
Sender Name (Submission ID)	Chris Mortenson (7065)	
467	I am continually dismayed that our intelligent and technologically savvy society still holds to arcane mineral extraction techniques. Why is there no one in this debate saying we need to develop and implement different mining practices instead of making small changes to outdated techniques?	ALT16

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Chris Mortenson (7065)	
468	should be willing to invest in the research and development necessary to extract the ores in an innovative and environmentally safe manner. Doesn't this also add R & D jobs as well?	ALT16
Sender Name (Submission ID)	Chris Nelson (35947)	
11294	It is not acceptable to allow this mining for PolyMet Mining Corporation. Just another accident waiting to happen. When our water is polluted we have to then attempt to clean it in order to make it potable.	WR037, WR070
Sender Name (Submission ID)	chris nordstrom (41784)	
3270	The people of minn will be on the hook for to long, I am unwilling to saddle my grandchildren with this mess and neither should you .	FIN10
Sender Name (Submission ID)	Chris Norman (54819)	
18439	mining companies can’t guarantee containment and safety for 20 years let alone 200 years. Don’t jeopardize our clean water.	WR115
Sender Name (Submission ID)	Chris O'Brien (47310)	
11545	I find it absurd and irrational that the mining interests can even responsibly suggest their company will be around twice as long as United States history to date, that they will pay a bill for 500 years or that their technology and the landscape will even last that long	FIN01
14139	Then there is the small problem of handing down knowledge of where the water is that is hazardous and that perpetually threatens the country's largest freshwater source and how to treat it for 500 years	PD03
14140	The reason these companies want in and in Minnesota is motivated by price and supply. The price for copper, nickel and other precious minerals is high because these are growing more scarce. But these prices are not going anywhere but up the longer into the future we look…I argue that we should wait. Its not going anywhere. The longer we wait, the more its worth.	NEPA03
14141	The longer we wait the better we will be able to gauge whether our most valuable resource may not yet be our water. Lots of folks out of state are already asking about if we want to sell some and as time goes on and more and more people live on the planet, water is growing more scarce, privatized and valuable. I'm not implying or advocating that we sell our water, just that before we waste it we take into consideration its future value.	NEPA03
Sender Name (Submission ID)	chris raynr (10703)	
579	I think the State has done a good job in vetting this proposal and now it is time to let the company proceed.	SO10
Sender Name (Submission ID)	Chris Robinson (39220)	
6038	While the true One Hundred Mile Swamp is over 10 miles long and drains out of its east end to the BWCA, PolyMet’s environmental impact statement maps draw a much smaller swamp less than 6 miles long that cuts off the eastern portion of the swamp, creating the illusion that the mine and BWCA are not connected.	WR024, WR080, WR081, WR111, WR175

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Chris Spenningsby (18129)	
3447	The regulating agencies at PolyMet identified an improvement in the process, tested and implemented this new design and now they're able to reduce the projected sulfate level in the wastewater discharge to less than 10 milligrams per liter, which by the way, is 25 percent -- 25 times less than the standard required for discharging water.	WR190
3448	The second reason I support the PolyMet Project is that mining minerals in our state under our very strict regulatory control is the ethical thing to do….If the PolyMet Project were not to advance, the world-wide demand for copper that fuels our improvement in the quality of life will still be filled but not under the strict and open environmental review process we're seeing here tonight.	NEPA05
3449	...I support the PolyMet Project for the economic benefits documented in this study by the University of Minnesota-Duluth referenced in the environmental impact statement.	SO10
Sender Name (Submission ID)	Chris Swensen (42726)	
14362	Our planet, our water, our trees, our animals (and we humans are creatures here) are too important to sacrifice for short term profit.	VEG10, WI13
Sender Name (Submission ID)	Chris Timm-Hughes (44060)	
7662	I believe the land [in the project area] should be preserved.	LU04
Sender Name (Submission ID)	Chris Vreeland (5996)	
1522	We need to move forward with precious mining, these are metals we use every day and we need to mine them in a environmentally friendly way… Polymet will do it the right way and this EIS proves that.	NEPA05
1526	I believe the co-agencies have done a very complete job on the EIS.	NEPA16
Sender Name (Submission ID)	Chris Waltz (18242)	
13621	I'm wondering, and I'm not fully sure about the process, but I'm wondering why the MPCA is not involved in that process, and specifically were they excluded from that process? And then the other agency that I was surprised wasn't involved in that process was the US Fish & Wildlife Service, so I'm wondering why those two organizations weren't in that draft EIS report.	PER36
13710	I'm wondering what assurances they could provide where tailings and other pollutants from the copper-nickel mine would not flow into the Boundary Waters Canoe Area?	WILD01
13711	And then a follow-up to that is if the potential would exist that pollutants could run into there, could we have assurances through the financial assurances mechanism to properly fund those pollutants, if they do discharge into the Boundary Waters Canoe Area?	FIN05
Sender Name (Submission ID)	Christey Sharpshair (41617)	
2126	After what I have learned of the effects this project will inevitably have on the environment--and eventually the people--the negative consequences far outweigh any positive benefits on the economy the project might have.	SO01
Sender Name (Submission ID)	Christian Nelson (37313)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Christian Nelson (37313)	
16319	Not only is this just outright wrong, it's likely not feasible that the money will exist to cleanup something whose value was cashed in 480 years ago.	FIN01
16320	1 generation of jobs is not worth 19 generations (500 years) of clean-up efforts.	SO01
Sender Name (Submission ID)	Christiana Wilke (54844)	
18951	PolyMet's tailings will be deposited on top of the old LTV tailings basin, which has been leaking for years.	WR070
18952	The land PolyMet would receive in exchange encompasses 53% of "One Hundred MileSwamp" approx .. 3,028 acres rated by the DNR as high in biodiversity.	WET23
18953	PolyMet plans to create 360 permanent jobs, 1,000 construction jobs for a period of 20 years. Union jobs? Fair paying jobs? Jobs for Minnesotans? Effects on logging, growing recreation and tourism or independent manufacturers and businesses?	SO10
Sender Name (Submission ID)	Christie Jearmey (18339)	
2522	it [SDEIS] doesn't soften the impact the project will have on the communities and on the families, and especially the educational programs throughout northern Minnesota.	SO02
14620	The PolyMet project will provide substantial additional funding to our area's educational programs, which will help the whole state. PolyMet has already been engaged in helping set forth various educational programs for the last five years.	SO10
Sender Name (Submission ID)	Christie Milczanowski (58020)	
19856	Please extend the no comment period to 180 days.	NEPA07
19857	I support the no action alternative!	NEPA15
Sender Name (Submission ID)	Christie Nelson (54818)	
18421	I don’t believe that politics should have a place in determining the future of our wetlands. I see this as selling our environment, pure and simple.	LAN01
Sender Name (Submission ID)	Christina Bellert (47001)	
13140	Why is one cultures lively hood more important then the others. Native Americans rely on wild rice to supplement their lively hood whether they collect the rice and us it at home or sell it to generate income why is their way to make money not as important and miners? Because there are more miners?	CR01
13141	Wild rice is a delicate plant and will be impacted by the smallest change in its environment.	VEG04
16466	Manoomin (wild rice) is recognized as a significant resource for Minnesota's tribes, access to which is protected by the Treaty of 1854. Even low levels of sulfates are proven to affect wild rice stands,	WR156

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Christina Bellert (47001)	
16468	Since sulfate levels in wild rice beds downstream of the proposed mine already exceed the standard, the proposal must demonstrate it "would have an acceptably high probability of not increasing sulfate concentrations in these areas" (p. 5-5). The mine plan does not meet this test.	WR149, WR162
16469	The SDEIS is contradictory, on the one hand relying on mechanical water treatment for hundreds of years in order to seemingly meet the sulfate standard, but also describing possible passive treatments that may be developed that would seasonally violate the protective sulfate standards. The EIS should eliminate that contradiction.	PD03
Sender Name (Submission ID)	Christina Diver (57204)	
17097	I find the SDEIS faulty and inadequate because the proposed plan does NOT protect Minnesota taxpayers.	SO02
Sender Name (Submission ID)	Christina Erickson (51605)	
3621	Sulfide mining threatens the areas of Minnesota that I love most; wetlands, rivers, lakes and streams across the Arrowhead Region. Even our fabulous Lake Superior and the Boundary Waters Canoe Area Wilderness.	WET24, WILD02
3622	The industry needed to extract the ore creates garbage, and the jobs it creates aren't sustainable over generations. At that point, we won't have our tourism to turn to either.	SO02
12432	The industry needed to extract the ore creates garbage, and the jobs it creates aren't sustainable over generations. At that point, we won't have our tourism to turn to either.	SO02
13915	Sulfide mining threatens the areas of Minnesota that I love most; wetlands, rivers, lakes and streams across the Arrowhead Region. Even our fabulous Lake Superior and the Boundary Waters Canoe Area Wilderness. Acids and heavy metal contamination pollute waters.	WET24, WILD02
Sender Name (Submission ID)	Christina Klein (44142)	
14556	The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data.	WR003, WR071
14557	A DNR Hydrology memo shows that the average flow of the Partridge River is 1.5 CFS, while the GoldSim model uses a 0.5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS.	WR003, WR004
14558	If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment.	WR003, WR091, WR106
14559	the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions.	WR065, WR173, WR177, WR189
14560	Redo the GoldSim water model using assumptions based on adequate and accurate field data… Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013…	WR003, WR165, WR189
14562	Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity	WR003

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Christina Klein (44142)	
14564	Recalculate and rewrite sections of the SDEIS based on the [baseflow revised] GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance	FIN08, WR003, WR189
Sender Name (Submission ID)	Christina Petty Krauz (42840)	
14717	I accept the fact the heavy metals of coal and iron ore help produce energy and steel very important to my life and the nation:	SO10
14717	I accept the fact that heavy metals of coal and iron ord help produce energy and steel very important to my life and the nation. What has produced this letter is the fieerence in the chemicals and waste from open-pit sulfide mining. I remember the problems in the South American Amazon area and I felt shame for our part by U.S. Companies, but having this ugly multi-generalational threat in my area of the world is nightmarish. The reasons to pursue the mine smell like greed. Please do not let this spoil my special part of my world.	PD26, SO10
Sender Name (Submission ID)	Christina Sand (45456)	
9382	We should not be risking the beauty and purity of the BWCA and the water that sustains many people residing there.	WILD02
15720	The project presents unacceptable environmental risks and should not be allowed.	PER35
Sender Name (Submission ID)	Christine (39344)	
12812	This would be good for the Iron Range, by creating jobs so people could stay and work here. We believe this could be done without hurting the environment	SO10
Sender Name (Submission ID)	Christine Beckwith (16399)	
10806	I also urge the SDEIS to fully address the long term financial plan to treat water in perpetuity as well as incorporate a cost benefit analysis which takes into account irreversible impacts to the BWCA.	FIN01, FIN05, SO07
Sender Name (Submission ID)	Christine Cole (11542)	
17146	EIS, or no EIS, the proposed mining project is a perpetuation of an unsustainable system of politics, economics, and lifeways. I have no amount of trust that the guidelines set forth in the EIS will be followed, that the land and people of Northeastern MN is truly respected or considered in this process.	NEPA15
17146	EIS, or no EIS, the proposed mining project is a perpetuation of an unsustainable system of politics, economics, and lifeways. I have no amount of trust that the guidelines set forth in the EIS will be followed, that the land and people of Northeastern MN is truly respected or considered in this process.	NEPA15
Sender Name (Submission ID)	Christine Frank (43524)	
9401	With acid mine drainage expected to be virtually in perpetuity…the price tag for water treatment will be practically insurmoutable…Once a mine is exhausted, the usual behavior of most mininng companies is to file bankruptcy, then cut and run without so much as a by your leave, leaving taxpayers to foot the bill.	FIN01, FIN05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Christine Frank (43524)	
9403	Mining 32,00 tons of rock per day for twenty years is bound to have a cumulative effect on the acidity of ground & surface waters.	WR151
11131	The lack of health impacts in the [SDEIS] document from exposure to toxic heavy metal contamination, the inhalation of mesothelioma-causing asbestos fibers, the drinking of acidic water, and breathing fugitive dust and other forms of air pollution is inexcusable. All of these are unacceptable risks which no one should have to bear--either mine workers or those living in surrounding communities or on tribal lands.	HU04
11132	Given that the chemical body burden of the average adult in industrialized society is some 250 chemical compounds, no one can afford further contamination of their mind/body. This is especially true for children, who suffer even higher concentrations...For the sake of human health now and in the future, there should be no hard-rock, metallic sulfide mining in Minnesota whatsoever.	HU03
15083	Clearly, mining of any sort is a highly energy- and carbon intensive industry especially when it is powered by filthy fossil fuels. Jobs from such an enterprise can hardly be called green.	PD39
Sender Name (Submission ID)	Christine Huff (38904)	
5407	Please protect Lake Superior. You have influence that most of us do not. Please use that influence to help protect the future for our children, and their children.	SO02
Sender Name (Submission ID)	Christine Oliver (5908)	
8043	How are we considering letting any company, ... brand new company with no formal experience in this type of mining, start a project that we already know, ..., would need 500 years of follow up? Who will pay the price if we cannot miraculously keep this company solvent and in charge of this for the next half millienium?	FIN01
10479	Our northern lakes and forests are the most invaluable resource we have in this state, this proposal has a high, high risk of contaminating these significantly… Incidents such as what just occurred on West Virginia's Elk River might be a reminder to us of the potential for things to go array, and again, this situation is even at its onset problematic.	WR023
Sender Name (Submission ID)	Christopher Apriori-Mendoza (41154)	
9199	As a student of Economics, I understand your reasoning, but think you logic in pursuing the mining project do not take the natural aesthetic and environmental resource is will at the expense of.	LU04
Sender Name (Submission ID)	Christopher Berger (54529)	
19050	I'm interested in learning about existing copper mines, their environmental impact statemetns and how successfully each has avoided environmental pollution. I believe this background should be included in the PolyMet EIS as it is representative of actual and likely outcomes.	PD26
Sender Name (Submission ID)	Christopher Carlson (15749)	
12013	I am concerned about the long term effects of the mining on our water quality, while only providing a few jobs over a short period of time.	SO01
12015	I am worried when I hear that there will be 100 to 500 years of necessary water tratment after the mining stops. There does not seem to be any proposal to set aside money to pay for this, and how much will it cost.	FIN01, FIN05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Christopher Carlson (15749)	
12017	As a property owner on the St. Louis River I am concerned with the effects on the land that I have spend so much time on planting trees.	LU03
Sender Name (Submission ID)	Christopher Childs (38645)	
11885	Minnesota is contemplating the permitting of a mining facility that not only puts both its immediate and regional environment at demonstrated risk -- no sulfide-mining operation anywhere having succeeded in demonstrating that it could operate without eventually causing acidic discharge -- but which all by itself, as stated in the Polymet SDEIS, is estimated to increase the state's annual combined direct and indirect output of greenhouse gases by nearly half of one percent….	PD26
11889	…the seemingly casual, neatly rounded estimate (10,000 mtpy of CO2e; Table 5.2.7-8) given for terrestrial carbon loss. The potential loss is much higher, and it should be quantified in detail under a worst-case scenario.	AIR01
11890	values for kg of CO2 directly released onsite per kg of copper produced that run as high as 10 to 1...Polymet estimates an output of 36,000 tons…of copper annually from the proposed mine; a precautionary approach would use the highest demonstrated value for emissions, yielding a figure of up to some 327,000 tonnes of direct onsite CO2 releases per year, compared to the SDEIS value of 196,341 mtpy (Table 5.2.7-8).	AIR01
11891	Do we need a continuous output of copper? Of course we do -- ironically, on one level, to continue the advance of clean energy technologies which rely on a steady supply of this metal. What we do not need is copper produced in ways that undermine a core intent of clean energy-production, and energy efficiency, methods: vastly reducing our output of GHGs.	NEPA06
11892	No facility that threatens to add such a significant burden of CO2 and CO2-equivalent emissions to an already overburdened atmosphere should be permitted in this state -- or in any other location, anywhere.	AIR01
Sender Name (Submission ID)	Christopher Delp (7733)	
74	Health issues including air born mercury and asbestos fibers were not seriously evaluated with the first draft EIS and not with this supplemental draft either.	AIR03, AIR05
75	Groundwater flow from the pit into the underlying aquifier are not adequately addressed in terms of both hydrology studies and planned monitoring of local wells in the event the mine proceeds.	WR087, WR089, WR139
Sender Name (Submission ID)	Christopher Stauthammer DVM (44608)	
12071	I request that the DNR look into identifying methods to ensure that the mining companies will pay for the 500 years of estimated clean up.	FIN01
12073	I also request that the DNR analyze the environmental impacts on wild rice, and threatened species (moose, lynx, fishers and loons).	VEG04, WI01
12074	As part of this analysis, the DNR needs to look at what impacts would happen if there is a major spill of contaminated water into the surrounding watershed. What would this spill do the fragile waterfowl population?	WI07, WR202
12075	What is the projected loss of tourism income when the mine opens and if there is environmental contamination?	SO02
Sender Name (Submission ID)	Chuck Corliss (18284)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Chuck Corliss (18284)	
4119	My concern is that there is a discrepancy between the number of years that we see on the modeling of 200 or 500 years, but I don't understand why they can't do testing of the ground materials to a level where they can tell us more definitively if we are dealing with a pollution containment for 60 years or 80 years, or if in fact it could be for 500 years.	PD29, WR035
Sender Name (Submission ID)	Chuck Dixon (17334)	
1971	I implore you to take a stand, against allowing the mining companies, anywhere near, any waterway, tributary, steam connected to or running into a Boundary Water Area Lake Or Waterway.	WR111, WR195
2097	The residue left behind by copper mining seeps into the water, kills plant life, fish & wildlife.	VEG06
Sender Name (Submission ID)	Chuck Engel (42832)	
7332	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US Dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range.	SO10
Sender Name (Submission ID)	Chuck Fitzer (47368)	
11457	It provides relatively few jobs for a couple of decades, which will not rejuvenate the economy in the area. In the meantime, the pollution will wreck the environment and not be cleaned up till long after our grandkids are gone.	SO01
Sender Name (Submission ID)	Chuck LeGros (45349)	
12800	Revise the SDEIS to address Minnesota Rules 6132.3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free."	PER04
12801	Extend the water pollution model and account for changing water tables and fractured bedrock.	WR011, WR012, WR036, WR061, WR099, WR168, WR169
12802	Demand that Polymet and Glencore produce documentation about the numbers of local jobs they expect to produce; to describe how they will train and protect Minnesota laborers, how they will protect existing economies (wild rice, winter and summer tourism, fishing) that depend on clean water, silence, low light pollution; to describe methods for enhancing sense of community rather than creating tension and hostility that we see over and over in communities (most recently in our neighbor North Dakota) where new mining industry disrupts and does extensive damage even while providing jobs to a relatively small number of local workers.	SO04
12803	Demand that Polymet describe and include local jobs produced by the ongoing provision of water safety. Demand that the financial assurance includes funds for those important jobs.	FIN01
12805	Demand that the financial assurance is based on realistic predictions based on accurate worst case water table models and fractured bedrock; that Glencore and other large investors are named and held responsible for the financial assurance for 1) mine clean up; 2) water quality maintenance over the projected 500 years of necessary monitoring and treatment; 3) for other environmental disruptions that will occur and for accidents and inevitable problems that were not anticipated in the SDEIS.	FIN01, FIN02, FIN05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Chuck Nelson (9590)	
1130	As an alternative to mining sulfide rock we could establish a better jobs program by fostering a metals recovery operation that would mine valuable metals from our electronics trash. Engage the electronics manufacturers in the processing, for they certainly know where the metals are to be found in the devices they have made. Locate this facility away from vulnerable water resources.	NEPA06
13592	Twenty years of jobs for a few followed by centuries of danger or worse. We would be fools to permit this exploitation.	SO01
13593	As an alternative to sulfide rock mining, we could establish a better jobs program by fostering a metals resource recovery operation that would mine valuable metals from our electronics trash, engage the electronics manufacturers in the processing for they certainly know where the metals are to be found in the devices they have made.	NEPA06
Sender Name (Submission ID)	Chuck Spindler (11624)	
7396	Mining is Minnesota Money and money there’s not enough of	SO02
7396	Mining is Minnesota Money and money there’s not enough of	SO02
Sender Name (Submission ID)	Chuck Viren (58163)	
19951	No one would be willing to take responsibility for the effects of their actions 500 years in the future.Yet somehow, PolyMet seems willing to take actions that will impact the environment for at least 500 years. Are they willing to guarantee the results at their actions for the next 500 years? Is the state?This project is [ILLEGIBLE] inaccurate, [ILLEGIBLE] beyond belief.	FIN01
Sender Name (Submission ID)	Chuck Zeugner (43704)	
11928	There are individuals far more competent than I that have repeatedly addressed the inadequacy of the SDEIS economic impact analysis, the failure to address the consequences of creating a mechanism that will produce a permanent source of pollution in important watersheds, and absence of contingency planning in the event of accidents or unanticipated system failures.	WR130
11932	Further complicating the economic analysis is that the positive economic impact of the mining will be temporary within the region while the costs will be long term. At the same time, the abundance of wealth derived from the copper extraction will be taken away from Minnesota to benefit companies and individuals elsewhere.	SO01
11934	assuming that there will be no accidents, system failures, or unintended consequences should be a fatal flaw in any analysis. Any list of these things would be very long, and the economic consequences would be uncountable.	PD22
11935	A third significant issue is that of financial responsibility. Even the most ardent supporters of the PolyMet project acknowledge that there will be environmental impacts, and the SDEIS purports to describe the remediation efforts that will be made to mitigate the damage from those impacts.	FIN01
15673	Further the SDEIS does not adequately account for opportunity costs for displaced activity, or for the value of intangible, but significant items such as tribal rights to hunt, fish, and gather.	SO04
15674	the Arrowhead Region is an incredible treasure in its own right. While it is easy to focus on the value of the copper below ground, it is even easier to ignore the value of clean air and water. As easy as it is for the people that live in the North Woods to undervalue these resources, it is even easier for outsiders.	WILD02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Chuck Zeugner (43704)	
15675	three important unanswered questions. The first question is what constitutes remediation or restoration. It won't be possible to eliminate the pollution or to put the rock back. The second question is whether the ultimate cost of those mitigation efforts can be estimated, and the third question is whether PolyMet or a successor company will even be around to perform the remediation or restoration.	PD01
Sender Name (Submission ID)	Cindy & Tom Edberg (6427)	
1072	This also will greatly benefit the peoples of St. Louis county financially in many ways in a area that has greatly needed it for a long time.	SO10
9499	I believe Polymet has put together a great plan that far surpasses any previous mining plan to protect the environment ever seen in Minnesota in the past!!	NEPA16
9516	Minnesota really needs this mine for the economic benefits it will bring to the people of the Hoyt lakes area and also to the State as a whole. Not only will good paying full time jobs with livable wages be created but also many more jobs that will pop up to support this new (already existing mine)! The economic boost for this part of Minnesota this mine will create has been sorely needed for many years!!!	SO10
Sender Name (Submission ID)	Cindy Ilg (46880)	
8320	Please do not let SDEIS do any mining in the Superior National Forest.Please save our wetlands, bogs, and swamps from being destroyed by pollution due to open-pit mines. We do not want contamination of ground water or our lakes and rivers.	LAN01
8323	SDEIS is inadequate and should not be mining in a fragile eco system.	NEPA15
Sender Name (Submission ID)	Cindy Oberg-Hauser (41879)	
2127	The long terms dangers of this project far outweigh the short term financial gains. We need to maintain the incredible jewel that is Lake Superior and the Boundary Waters.	SO01
Sender Name (Submission ID)	Cindy Strong (28360)	
14733	As a youth I recall my first time seeing the northern lights in the BWCA and discovering what the word awesome actually means. We need these areas and so do our future generations. I ask you to make a decision respectful of what our children deserve from us. Please be a good steward to this beautiful planet.	WILD02
Sender Name (Submission ID)	Cindy Swanson (41799)	
6370	Since it is simply a fact that the mining of this ore will result in sulfuric acid draining into the waters of northeastern Minnesota it is impossible for us to believe that most Minnesotans would support this mine for the short term economic benefit of a relative handful.The waters of northeastern Minnesota, in particular, have a special place in our hearts and to willfully permit their degradation is woeful governance and the abandonment of the expressed interests of the vast majority of Minnesotans.	SO01, WR001, WR195
Sender Name (Submission ID)	Cindy Thomas (47030)	
10630	I may not know you but I do understand how damaging this mine IS going to be to the ecology in the river and surrounding the river.	WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	City of Aurora (54709)	
17751	the metals that Poly Met will mine are essential for daily life- copper, nickel, cobalt, platinum, palladium and gold - found in countless products, including cell phones, computers, joint replacements, medical treatments and devices, wind turbines and catalytic converters….	PD28
17752	the combination of strict Minnesota regulations and Poly Met's commitment tomining in a way that protects the environment will serve as a global template for responsible, ethical and successful mining practices….	PD28
17753	the proposed mining and processing operation will create 360 direct jobs and over 600 indirect jobs in St. Louis County alone; and...it is anticipated that the Poly Met Mining project will require 2 million hours of labor during its construction phase; and ... Poly Met Mining will contribute millions of dollars to local cities, school districts and the State though net proceed taxes, occupation taxes, and sales tax….	SO10
Sender Name (Submission ID)	City of Chisholm (54639)	
18024	the metals that PolyMet will mine are essential for daily life -copper, nickel,cobalt, platinum, palladium and gold - found in countless products, including cell phones, computers, joint replacements, medical treatments and devices, wind turbines and catalytic converters….	PD28
18025	the combination of strict Minnesota regulations and PolyMet's commitment tomining in a way that protects the environment will serve as a global template for responsible, ethical and successful mining practices….	PER34
18026	the proposed mining and processing operation will create 360 direct jobs and over 600 indirect jobs in St. Louis County alone; and… it is anticipated that the Poly Met Mining project will require 2 million hours oflabor during its construction phase; and … Poly Met Mining will contribute millions of dollars to local cities, school districts and the State through net proceed taxes, occupation taxes, and sales tax;	SO10
Sender Name (Submission ID)	City of Ely (42902)	
18616	WHEREAS, the metals that PolyMet will mine are essential for daily life - ,copper, nickel, cobalt, platinum, palladium and gold- found in countless products, including cell phones, computers, joint replacements, medical treatments and devices, wind turbines and catalytic converters;	NEPA05
18618	WHEREAS, the combination of strict Minnesota regulations and PolyMet' scommitment to mining in a way that protects the environment will serve as a global template for responsible, ethical and successful mining practices	PER34
18619	WHEREAS, the proposed mining and processing operation will create 360 directjobs and over 600 indirect jobs in St. Louis County alone;	SO10
18622	WHEREAS, PolyMet Mining will contribute millions of dollars to local cities,school districts and the State though net proceed taxes, occupation taxes, and sales tax	SO10
Sender Name (Submission ID)	City of Eveleth (42910)	
19105	the metals that PolyMet will mine are essential for daily life - copper, nickel,cobalt, platinum, palladium and gold - found in countless products, including cell phones, computers, joint replacements, medical treatments and devices, wind turbines and catalytic converters; and	NEPA05
19106	the combination of strict Minnesota regulations and PolyMet's commitment tomining in a way that protects the environment will serve as a global template for responsible, ethical and successful mining practices; and	PER34
19107	the proposed mining and processing operation will create 360 direct jobs and over 600 indirect jobs in St. Louis County alone; and	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	City of Eveleth (42910)	
19108	it is anticipated that the PolyMet Mining project will require 2 million hours oflabor during its construction phase; and	SO10
19109	PolyMet Mining will contribute millions of dollars to local cities, school districtsand the State though net proceed taxes, occupation taxes, and sales tax.	SO10
Sender Name (Submission ID)	City of Mountain Iron (40523)	
12127	The metals that PolyMet will mine are essential for daily life like copper, nickel, cobalt, platinum, palladium nad gold are found in countelss products, including cell phones, computers, joint replacements, medical treatments and devices, wind turbines and catalytic converters.	NEPA05
12128	The combination of strict Minnesota regulations and PolyMet's commitment to mining in a way that protects the environment wills serve as a global template for responsible, ethical and successful mining practices.	PD28
12130	The propsed mining and processing operation will create 360 direct jobs and over 600 indirect jobs in St. Louis County alone. ...PolyMet will contribute millions of dollars to local cities, school districts and the State through net proceed taxes, occupation taxes, and sales tax.	SO10
Sender Name (Submission ID)	City of Virginia (42520)	
15509	the PolyMet project will create approximately 400 full-time, long-term jobs in Northeastern Minnesota, which will also generate hundreds of spinoff jobs that will provide a huge economic benefit to Minnesota, including the City of Virginia; and ….will contribute millions of dollars to local cities, school districts and the State of Minnesota through various taxes and royalties;	SO10
15510	It is anticipated that the Poly Met project will contribute millions of dollars to local cities, school districts and the State of Minnesota through various taxes and royalties;	SO10
15511	Poly Met has demonstrated that they can develop the critical metals and meet the strict environmental standards that are required in the State of Minnesota to protect the air, water and land;	PER34
15512	The Poly Met project will be reusing a brownfield site and existing infrastructure, which will minimize the disturbance of wetlands;	WET25
15513	The City of Virginia understands the need to buy locally and the PolyMet project will produce several metals that are not currently mined within the United States;	NEPA05, SO10
15516	Whereas, the Poly Met Project will reuse and recycle all water during operation, eliminating any discharge to surface water;	WR190
15517	WHEREAS, the Poly Met Project will not require any additional tailing disposal area beyond those already developed at the Erie plant site;	PD30
15518	WHEREAS, the Poly Met Project wetland disturbance area has been significantly reduced and will be replaced as required by Minnesota Statute;	WET25
15519	WHEREAS, the Poly Met Project will manage and treat all wastes as determined appropriate through the environmental review process; andWHEREAS, the company has stated intent to utilize the best mining and reclamation practices, coupled with clean and energy efficient metal recovery processing that does not include heap leaching or smelting;	HAZ02
Sender Name (Submission ID)	CJ Feist (44605)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	CJ Feist (44605)	
12062	This mine is creeping in on one of Minnesota's landmark jewels and if we allow it to be followed through, we'll be facing not only a loss of biodiversity and ecosystems but a loss of one of our vital minnesotan organs	PD01
15628	This mine would sit at the prime spot for the pollution to run off into the waters and pollute this 'protected' area.	WR111
Sender Name (Submission ID)	CJ Jacobson (43582)	
12303	do not let PolyMet pollute so much valuable, fragile land and water. For short-term economic gain and jobs that will not last long and a support infrastructure that will be time-stamped even as it's being built - the cost in the environmental impact and devastation is far too high.	SO01
Sender Name (Submission ID)	Claire Barnett (14050)	
10723	It is vital to have long term planning and delegatedresponsibilities for cleanup that can not be avoided when mining is finished.	FIN01
Sender Name (Submission ID)	Claire Gerhard (4894)	
1926	The PolyMet plan … is a horrible misstep in the management of the unique resource of this area- fresh, clean water and all that lives in and around it.	HU01, WR017, WR115
19557	The PolyMet plan is a tragedy in the making. It is an action the area will never recover from even if no accidents occur (which seems highly unlikely). It is a horrible misstep in the management of the unique resource of this area- fresh, clean water and all that lives in and around it.	WR111
19558	Why don’t we see clean freshwater as the precious resource it is? It isn’t monetized like sulfide but I am sure people around the world -some who don’t even have access to clean drinking water- value it more. Do I really need to remind anyone that water, sunlight, and oxygen are the gist of life on this planet? Resources that as human population increases become more measureable as they become more scarce. Now is the time when ecosystems like the BWCA require even more protection not compromise.	WR111
Sender Name (Submission ID)	Claire Nelson (48604)	
13325	The Duluth Complex will be situated on a 27 square mile swath of land which was supposedly protected as part of the Superior National Forest.How can that be undermined?	LAN02
16761	By boasting that this project will bring in more jobs and economic revenue, and more the PolyMet Mining company has circumvented the very blockades meant to purposefully keep them out. Sulfide mining causes damage that is extensive and practically irreversible, PolyMet itself has stated that the clean-up process could take up to 500 years.	SO02
Sender Name (Submission ID)	Clara Groenhoff (40159)	
6184	Everyone thinks about the jobs that [PolyMet] will generate, so we can't stop progress. But do progress and jobs need to harm the envionment?	SO02
Sender Name (Submission ID)	Clarence Malick (47407)	
10275	I am writing to express skepticism that mining which requires hundreds of years of cleanup can possibly succeed...How the size of a sufficient set aside cleanup fund can possibly be determined through, what tens or hundreds, of economic boom-bust cycles eludes me….	FIN05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Clarence Malick (47407)	
17579	The BWCAW is a national treasure for all the citizens, not to be irreversibly exploited for a few hundred local jobs.	WILD02
Sender Name (Submission ID)	Clarissa Ellis (40643)	
6549	I am very concerned about the pollution of our waters, and the lasting impact this will have on the people, economy and environment long after the mine operation has closed down.	HU01
14256	I understand that jobs are greatly needed in northern Minnesota. But I do not think that sacrificing the quality of our water and all that will impact for the short term economic gain is worth the price we will all have to pay.	SO01
14257	Given their history, I do not believe that the assurances of the mining companies are valid.	FIN01
Sender Name (Submission ID)	Clark Gantzer (44209)	
11690	Sulfide minings potential for pollution is tied to the presence of water (wetlands), and for that reason it has usually been done in arid climates. Even in dry areas, the sulfide mining has still created severe pollution. The likelihood that sulfide mining can be done in northeastern Minnesota's wetland ecosystem without polluting lakes, rivers, and streams is highly improbable.	WET24, WR023, WR112
11693	to ensure proper reclamation and water treatment is done there must be continuous treatment for decades, even if PolyMet goes out of business, at a probable and unnecessary cost to the public.	FIN01, FIN10
Sender Name (Submission ID)	Claudia Engeland (41791)	
3279	There should be no trade offs - jobs vs the unique water rich environment that is Minnesota. (…) I noticed that PolyMet references "hundreds" of jobs. This mine would have a LIMITED lifespan! A significant portion of Northern Minnesota's economy is tied to tourism that is centered around our clean rivers and lakes - the rights of these Minnesotans should not be threatened.	SO01
3283	The mere possibility that Lake Superior could be threatened by pollution from this mine should be enough for denial of this proposal! (…) PolyMet's 2013 SDEIS certainly does NOT guarantee that [contamination] can't or won't happen here! 200-500 years of potential damage to Minnesotans' health and water quality is an unconscionable risk!	WR111, WR115, WR195
Sender Name (Submission ID)	Claudia Gibson (40866)	
13982	Remember you are entrusted with our resources. No one owns them No one has the right to destroy them. Please don't pollute with this terrible project.	SO01
Sender Name (Submission ID)	Clay and Amy Wenner (21244)	
877	the introduction of this type of mining would irreparably hurt tourism in the region	SO02
889	The environmental impacts of the project are just too great, and I worry that the state will be left picking up the bill for clean-up.	FIN01, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Clay and Amy Wenner (21244)	
891	I would love to see more research and incentives to develop "knowledge clusters" in the region instead [of the NorthMet Project]. Some research I contributed to in graduate school explains the concept, "HYPERLINK "http://www.hhh.umn.edu/centers/slp/economic_development/documents/rkc_MnSCU.pdf"Rural Knowledge Clusters: Implications for Minnesota Colleges and Universities."	ALT16
892	The environmental impacts of the project are just too great, and I worry that … the water… of the region will be irreversibly damaged	CU11
893	The environmental impacts of the project are just too great, and I worry that … the …wildlife of the region will be irreversibly damaged	WI13
Sender Name (Submission ID)	Clayton Sankey (39359)	
6228	Though the mine would bring money and jobs to Minnesota, the risk of disaster is too great to allow this mine. Any incident that damages the reputation of our state as a pristine vacation destination will cost more than we could ever gain from this mine.	SO01
Sender Name (Submission ID)	Clifford Fenton Martin (57187)	
18653	Mining does nothing but fuel consumerism, kill miners and communities and kills the environment. We cannot continue to mine or start a new one.	SO02
20029	When we extract materials in an unhealthy and unbalanced way from the land, we extract the dignity of the humans who we not only impacted by the poison of this mining but also the workers who have to do it…Jobs are never worth destruction, hurt and pain.	SO01
20030	When we extract materials in an unhealthy and unbalanced way from the land, we extract the dignity of the humans who we not only impacted by the poison of this mining but also the workers who have to do it...Jobs are never worth destruction, hurt and pain.	SO01
Sender Name (Submission ID)	Clifford Hansen (14219)	
8027	Barring that, financial assurance should be required for the full cost of the hundreds of years of water treatment that may be needed.	FIN05
Sender Name (Submission ID)	Clifford Kashtan MD (37723)	
16333	The risks posed by this mine to water quality, the health of Minnesotans and the BWCA ecosystem are too severe to allow this project to move forward.	HU03
Sender Name (Submission ID)	Clifford Moyes (31289)	
14003	The mining companies have a history of making promises they can't keep in order to get the permits they need. And when they are later identified as the source of pollution, they place the blame on everyone and everything except themselves.Solve the problem before it exists. Don't grant the permits!	PER35
Sender Name (Submission ID)	Clint Jurgens (42839)	
14708	According to Business Week2, by 2030 nearly half the world will inhabit areas with severe water stress. Copper may improve our lives, but water is essential for life. Is the ore more important than our water?	WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Clint Jurgens (42839)	
14708	According to Business Week2, by 2030 nearly half the world will inhabit areas with severe water stress. Copper may improve our lives, but water is essential for life. Is the ore more important than our water?	WR111
14709	The SDEIS addresses water quality but completely fails to address the fact that water is a natural resource with inherent economic value.	SO01, WR195
14709	The SDEIS addresses water quality but completely fails to address the fact that water is a natural resource with inherent economic value.	SO01
14710	Water has an enormous economic impact on northeast Minnesota and as a resource to the world. Water is desperately needed in many areas of the US and the world. Why would you not consider uses of all the resources? Why place water on a lower needs level and merely consider it as a resource for mining ore?	WR195
14710	Water has an enormous economic impact on northeast Minnesota and as a resource to the world. Water is desperately needed in many areas of the US and the world. Why would you not consider uses of all the resources? Why place water on a lower needs level and merely consider it as a resource for mining ore?	WR195
14711	The Environmental Protection Agency should open its aperture of concern and address water as a resource with economic value. It is more than a necessary element of wild rice production and a critical element to outdoor recreation. Water quality must be maintained and treated as a natural resource with its own inherent economic value. The financial assurance required from Poly Met must include payment for the economic value of the water should it be damaged.	FIN05, SO02
14711	The Environmental Protection Agency should open its aperture of concern and address water as a resource with economic value. It is more than a necessary element of wild rice production and a critical element to outdoor recreation. Water quality must be maintained and treated as a natural resource with its own inherent economic value. The financial assurance required from Poly Met must include payment for the economic value of the water should it be damaged.	SO02
14712	This analysis shows that water is a renewable resource that is considerably more valuable than the copper nickel ore.PolyMet Investor's Presentation of June 20134 provides production and value numbers. It does not provide the mineral rights, financial assurance, nor reclamation costs, but presents low capital and operating costs with annual earnings before interest, taxes, depreciation and amortization (EBITDA) of $217MM...Glencore has invested $118MM into PolyMet.http:/ fwww.polymetmining.com/wp-content/uploads/2013/02/PLM-Investor-Presentation-2013-06.pdf shows an internal rate of return (IRR) of 30.6% for a very lucrative venture, projecting to deliver in excess of $4B over the twenty-year life of the project.Estimated Value of the Lake Water in Northeast MinnesotaEstimated acres of water for the lakes in Cook, Itasca, Lake, and St. Louis counties is 275,169 acres.Assumptions:Average depth is 20 feet.Price per acre-foot of water is $1,500.Therefore the value of the water is: (acres) x (depth) x (price)= $8,255,070,000.With continuous natural replenishment and sustainability, this value can be extended twenty years to match the mining operations, for a value of $165,101,400,000.Estimated Value of the Duluth Complex for Copper-Nickel PGEAssumption:• Polymet is representative of proposed Duluth Complex mining.• Twenty years of mining.Determine the value per ton of ore from Polymet investor presentation:• 32,000 tons per day times 365 = 11,700,000 tons per year• Annual EBIDTA divided by number of tons mined equals value per ton:Polymet projected annual EBITDA = $2	FIN04, SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Clint Jurgens (42839)	
14712	This analysis shows that water is a renewable resource that is considerably more valuable than the copper nickel ore….PolyMet and The Value of Its Sulfide Mining ProjectPolyMet is a Canadian company traded on the Toronto and New York exchanges, planning on selling our minerals, most likely to China through an exclusive agreement with Glencore AG, located in Baar, Switzerland3• As we pondered over the SDEIS we wondered just how did Polymet obtain the mineral rights and what is the economic value to PolyMet? PolyMet's numbers are considered representative and used to estimate the copper /nickel mining value of the Duluth Complex. The following slide is from Polymet's investor presentation:• Production rate - first 5 years32.000 Ions of ore per day72 million pounds of copper per year15 million pounds of nickel per year106,000 oz combined precious metals per year• Low Capital and Operating Costs$312 million initial capital costsCopper cash cost $1.05/lb (co-product basis)Based on 2008 DFS Update• Robust EconomicsAfter tax IRR: 30.6%Annual EBITDk $217 millionBased on 2008 DFS UpdateLME Metal Prices -US$Average - 3 months to 3.31.2013 2008 DFS UpdateCopper3.60 /lb 7,937 /t2.90/lbNickel7.85 /lb 17,306/t12.20/lbCobalt11.92 /lb 26;179 /t23.50/lbPalladium740 oz320/ozPlatinum1,634/oz1,230/ozGold1,630/oz635/ozPolyMet Investor's Presentation of June 20134 provides production and value numbers. It does not provide the mineral rights, financial assurance, nor reclamation costs, but presents low capital and operating costs with annual earnings before interest, taxes, depreciation and amortization (EBITDA) of$217MM. It also3Glencore has invested $118MM into PolyMet4 http:/ fwww.polymetmining.com/wp-content/uploads/2013/02/PLM-Investor-Presentation-2013-06.pdfshows an internal rate of return (IRR) of 30.6% for a very lucrative venture, projecting to deliver in excess of $4B over the twenty-year life of the project.The Duluth complex in northeast Minnesota has received the most attention and is estimated to contain four billion tons of copper-nickel ores. PolyMet has stated that the Duluth complex is number two in the world for deposits of copper, and it is number three in the world for nickel. However, their presentation also shows the low quality of the ore. Less than 1% of bulk ore produces the copper, nickel, etc. generating over 99% waste in addition to the overburden. This equates to over 31,000 tons of waste every day, presenting a significant threat to the water.It is difficult to reconcile the fact that the first two companies investigating sulfide mining are not US companies, but foreign companies set to mine the ore, take the profits out of the country, and ship the ore to China. Where is the value to Minnesota in that? How can that be worth the small number of jobs that only last a single generation? If sulfide mining is permitted, it should at least be a critical part of a US strategic plan to maintain our leadership position in the world….Estimated Value of the Lake Water in Northeast MinnesotaEstimated acres of water for the lakes in Cook, Itasca, Lake, and St. Louis counties is275,169 acres.Assumptions:Average depth is 20 feet.Price per acre-foot of water is $1,500.Therefore the value of the water is: (acres) x (depth) x (price)= $8,255,070,000.With continuous natural replenishment and sustainability, this value can be extended twenty years to match the mining operations, for a value of $165,101,400,000.Estimated Value of the Duluth Complex for Copper-Nickel PGEAssumption:• Polymet is representative of proposed Duluth Complex mining.• Twenty years of mining.Determine the value per ton of ore from Polymet investor presentation:• 32,000 tons per day times 365 = 11,700,000 tons per year• Annual EBIDTA divided by number of tons mined equals value perton:Polymet projected annual EBITDA = $2	SO04
14713	PolyMet's sulfide mine will be near both groundwater and surface water resources that present an elevated potential for acid drainage or contaminant leachings. Kuipers and Maest studies show:• 85% of the mines near surface water with elevated potential for add drainage orcontaminant leaching exceeded water quality standards• 93% of the mines near groundwater with elevated potential for acid drainage orcontaminant leaching exceeded water quality standards.• Of the sites that did develop add drainage, 89% predicted that they would not.	WR023
14713	PolyMet's sulfide mine will be near both groundwater and surface water resources that present an elevated potential for acid drainage or contaminant leachings. Kuipers and Maest studies show:• 85% of the mines near surface water with elevated potential for add drainage or contaminant leaching exceeded water quality standards• 93% of the mines near groundwater with elevated potential for acid drainage or contaminant leaching exceeded water quality standards.• Of the sites that did develop add drainage, 89% predicted that they would not.	WR023

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Clint Jurgens (42839)	
14715	The current price of metals to be produced from sulfide mining make this venture profitable. The problem is the history of sulfide mining companies that start with the goal of being environmentally friendly but in the end all sulfide mines in water dominant areas are polluters, leaving the taxpayers the cost and task of cleaning up.The terrible history of sulfide mining continues from one mine to the next and is why the DNR must insist that the financial assurance from PolyMet includes payment for the economic value of the water as a natural resource with inherent value.	FIN01, FIN05, FIN08, FIN10
14715	The current price of metals to be produced from sulfide mining make this venture profitable. The problem is the history of sulfide mining companies that start with the goal of being environmentally friendly but in the end all sulfide mines in water dominant areas are polluters, leaving the taxpayers the cost and task of cleaning up. The terrible history of sulfide mining continues from one mine to the next and is why the DNR must insist that the financial assurance from PolyMet includes payment for the economic value of the water as a natural resource with inherent value.	FIN01, FIN05, FIN08, FIN10
14716	So, why mine and take the chance of destroying such a vast natural resource, the industries it supports, the value of lake property, and the tax base? This is a case where the minerals are more valuable staying right where they are, protecting and maintaining a globally strategic resource.	SO01
14716	So, why mine and take the chance of destroying such a vast natural resource, the industries it supports, the value of lake property, and the tax base? This is a case where the minerals are more valuable staying right where they are, protecting and maintaining a globally strategic resource.	SO01
19413	PolyMet is a linchpin project that if approved will lead to other mines.	CU04
19413	PolyMet is a linchpin project that if approved will lead to other mines.	CU04
19414	PolyMet is a Canadian company traded on the Toronto and New York exchanges, planning on selling our minerals, most likely to China through an exclusive agreement with Glencore AG, located in Baar, Switzerland.	FIN04
19415	Less than 1% of bulk ore produces the copper, nickel, etc. generating over 99% waste in addition to the overburden. This equates to over 31,000 tons of waste every day, presenting a significant threat to the water.	WR107
19415	Less than 1% of bulk ore produces the copper, nickel, etc. generating over 99% waste in addition to the overburden. This equates to over 31,000 tons of waste every day, presenting a significant threat to the water.	WR107, WR108
19416	It is difficult to reconcile the fact that the first two companies investigating sulfide mining are not US companies, but foreign companies set to mine the ore, take the profits out of the country, and ship the ore to China. Where is the value to Minnesota in that? How can that be worth the small number of jobs that only last a single generation?	SO06
19416	It is difficult to reconcile the fact that the first two companies investigating sulfide mining are not US companies, but foreign companies set to mine the ore, take the profits out of the country, and ship the ore to China. Where is the value to Minnesota in that? How can that be worth the small number of jobs that only last a single generation?	SO06
19417	Poly Met is the linchpin project enabling other sulfide mining projects in northeastern Minnesota that, based upon the history of sulfide mining, have the potential of endangering all the waters of northeastern Minnesota.	CU04
19417	Poly Met is the linchpin project enabling other sulfide mining projects in northeastern Minnesota that, based upon the history of sulfide mining, have the potential of endangering all the waters of northeastern Minnesota.	CU04
19418	what is the inherent value of the endangered water (not counting the services and tourism money enabled by the water resource)?	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Clint Jurgens (42839)	
19418	what is the inherent value of the endangered water (not counting the services and tourism money enabled by the water resource)?	SO01
19419	And, what is the impact on residential and commercial property surface rights [of sulfide mining]?	SO03
19419	And, what is the impact on residential and commercial property surface rights [of sulfide mining]?	SO03
19420	The estimated value of the water in northeastern Minnesota is significantly more than the estimated value of the Duluth Complex copper nickel mining operations.	SO01
19420	The estimated value of the water in northeastern Minnesota is significantly more than the estimated value of the Duluth Complex copper nickel mining operations.	SO01
19421	If it is polluted with mercury, sulfuric acid, heavy metals, etc. as a result of sulfide mining, then the value of this natural resource is zero unless the contaminants are removed. And, of course lake homes and resorts are significantly reduced in value. With a reduction in the value of lake property the tax receipts of these counties will also drop significantly. With polluted water the tourism industry will go away.	WR107, WR108
19421	If it is polluted with mercury, sulfuric acid, heavy metals, etc. as a result of sulfide mining, then the value of this natural resource is zero unless the contaminants are removed. And, of course lake homes and resorts are significantly reduced in value. With a reduction in the value of lake property the tax receipts of these counties will also drop significantly. With polluted water the tourism industry will go away.	WR108
Sender Name (Submission ID)	Clyde Erickson (54155)	
16047	We do not believe the environment with its lakes and rivers could ever be protected from this mining project.	WR195
Sender Name (Submission ID)	Cole Christenson (45547)	
11573	The Land Exchange serves only the private interest of a foreign corporation, not the public interest. The Land Exchange won't unify ownership of federal lands.	LAN07
11574	PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swampland and the Partridge River headwaters for its open-pit sulfide mine	WET19
11576	The PolyMet mine plan would destroy 2,775 acres of habitat for moose	WI02
11578	Eleven endangered or threatened species, including lynx, would be further impacted	WI01
11579	Even more water and energy (generating 707,000 metric tons of carbon dioxide each year) will be used in processing; leaving us with even more waste that will need to be managed for 500 years. This is in direct opposition to Minnesota's goal of reducing greenhouse gas emission by 30% by 2025	AIR01
11581	The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres in total due to air and water pollution	WET24
Sender Name (Submission ID)	Colin Walker (23997)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Colin Walker (23997)	
9960	I have some major concerns regarding the SDEIS and specifically, the water model, which is at the foundation of the entire SDEIS (…) The specific miscalculations are related to the amount of water that flows through the mine site at the headwaters of one of the tributaries of the St. Louis River, the Partridge River. A misjudgment in math could potentially result in catastrophic, irreversible impact on the watershed.	WR003
16311	I demand that the DNR addresses this issue, with the highest expectation that the water model within the SDEIS will contain accurate data prior to any further decisions are made. Because of the fundamental flaw in calculation, the SDEIS is fundamentally inadequate and unacceptable.	WR003
16312	From the beginning, we've been told to "trust the science." Well, until a mining company can prove that sulfide mining can be completed and not harm a watershed, this is the wrong place with too much at risk.	PD01
Sender Name (Submission ID)	Colleen Bonniwell (11538)	
2487	This land is sacred to us. This is Anishinabe AKI (Ojibwe land!)	CR01
2487	This land is sacred to us. This is Anishinabe AKI (Ojibwe land!)	CR01
2488	All lands in Minnesota are ceded lands. TREATY Lands and you can not claim them for minerals. And you are all in default of prior free informed consent goverence. And in violation of TREATY LAW. Native people were finally recognized in 1978 as having a right to Religion and Sacred Items – the land water and forest and habitat.	CR01
2488	All lands in Minnesota are ceded lands. TREATY Lands and you can not claim them for minerals. And you are all in default of prior free informed consent goverence. And in violation of TREATY LAW. Native people were finally recognized in 1978 as having a right to Religion and Sacred Items – the land water and forest and habitat.	CR01
7430	Duluth has not seen this much activity here in awhile, But it is not the whole voting populous. You need a 75% yes vote from all voters to permit any rights removed or changed. And the forest service, army corp, USDA, states DNR – National Forest Foundation are not the people.	PER01
7430	Duluth has not seen this much activity here in awhile, But it is not the whole voting populous. You need a 75% yes vote from all voters to permit any rights removed or changed. And the forest service, army corp, USDA, states DNR – National Forest Foundation are not the people.	PER01
18996	These mining companies go bankrupt and fail to provide damage deposits up front or consider the true cost and in some states have left the citizens of said states with hundreds of millions of dollars in liability.	FIN01
18997	The Polymet project you know I am sure is the front line of many more mining projects threatening the entire watershed which exceeds one third of the north American Continent.	CU04
18998	Polymet's base flow out of the proposed pit is wrong and has been underestimated by hundreds of percentage points and the real base flow would cause great damages in the hydrology.	WR086, WR087
18999	The huge use of acreage by Polymet's mine proposal in The Superior National Forest would cause huge acreage losses in the high biodiversity permaculture and mature forest and wetland flood plains acreages.	WILD02
19000	By Treaty and The Supreme Lay of the Land, this mine's siting is illegal.	CR01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Colleen Bonniwell (11538)	
19001	These treaties are "The Supreme Law of the Land" and siting this mine in the SNF would be a violation of law, trust, and good faith against the Indians. It would also violate the #1 Minnesota State Law, the claimed law of the Northwest Ordinance.	WILD02
19002	The Supreme Law of the Land …guarentees subsistance rights defend through time by the 1st Nation's Ojibwe.	CR01
19003	The land trade deal in Polymet's minding project is illegal as the Superior National Forest Foundation of the US Congress mission statement demands protection of these said forests.	LAN02
Sender Name (Submission ID)	Colleen Fisher (21640)	
10112	I love Northern Minnesota and want the people there to have a legacy of great paying jobs and the economy that will flourish due to Polymet.	SO10
Sender Name (Submission ID)	Colleen LeBlanc (40868)	
13981	In addition, I believe ALL Minnesotans want our waters totally protected! We voted for the Legacy Amendment. We VALUE keeping our water clean. It is too precious to destroy as the proposed mine plan will do.	WR115
Sender Name (Submission ID)	Colleen Lund (47775)	
8268	I am very concerned for the potential sulfate pollution of this area and its impact on human and animal health…Has there been an accurate assessment of how this mining proposal would further affect the well-being of the local residents and animals living in this area?	HU03, WI04
8278	If the model is incorrect, and there is more water flowing through the site than it assumes, the polluted water from pits and waste rock will move more easily through the soil, and reach lakes and rivers more quickly. The water could also carry more pollutants than the PolyMet model predicts.	WR087
8282	I am particularly concerned also for the loss of thousands of acres of critical habitat for our legendary moose inhabiting this territory which would be negatively affected by the PolyMet proposal.	WI02
8290	The issue of PolyMet mining also appears to present yet another threat to [the Native American] way of life by ignoring the impact on their sacred connection to both the moose population as well as to...Minnesota Wild Rice...polluted sulfate waters released into the watershed will undoubtedly have a negative effect on wild rice crops in the northland.	CR01
8292	The PolyMet operation would undoubtedly consume enormous amounts of dirty coal energy, which flies in the face of Minnesota's goal to seriously reduce carbon emissions. …Please address this vital issue of the PolyMet plan utilizing clean energy resources versus traditional coal sourced electricity.	AIR01
8311	Minnesota law requires that a closed mine site be cleaned up and remain maintenance-free!...Please provide accurate information and assurances that we know how long this pollution will be affecting the northland territories in any way connected with this mining proposal…Please fix the Polymet plan to recognize and hold accountable the Glencore commodities group as a responsible party for permitting.	PER04
8319	The potential costs of hundreds of years of clean-up and treatment for any major toxic disaster either leaking or dumped into our treasured waterways in the northland would obviously be enormous…Please have detailed in the Polymet plan a clear and concise plan for financial and time-period assurances that would protect Minnesota taxpayers from having to incur this enormous and expensive challenge.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Colleen Lund (47775)	
8324	The proposal includes destroying nearly 1,000 acres of our valuable peat bogs…It is also unclear to me just how these wetlands will actually be replaced. Please address the issues of wetland protection and replacement in the PolyMet plan.	WET17
11200	I understand that the PolyMet water model significantly understates the amount of water flowing in the nearby Partridge River. If this information is wrong, predictions about water pollution are in question. If the model is incorrect, and there is more water flowing through the site than it assumes, the polluted water from pits and waste rock will move more easily through the soil, and reach lakes and rivers more quickly. The water could also carry more pollutants than the PolyMet model predicts.	WR003, WR004, WR091
Sender Name (Submission ID)	Colles B. Larkin (45604)	
11222	The sulphuric acid & toxic metals produced by this type of mining are the result of exposure of this rock to air & water. This contamination happens wherever such mining exists and has always - with no exceptions - polluted surrounding waters.	WR001, WR023
11226	This particular site is in a water-rich environment and, as such, facilitates/accelerates the seepage of pollutants (sulfide, heavy metals) due to the open-pit mining process.	PD01
11228	The PolyMet site is within the confines of the Superior National Forest (public land). Federal law prohibits open-pit mining within national forests/parks.	LAN02
11233	Since federal law prohibits mining in national parks, a "land exchange" of some 6000 acres has been proposed as an equal exchange for the land & water that will be polluted by PolyMet's mine. This is not an equal exchange.	LAN02, LAN03
11234	National parks/forests are set aside as recreational areas for humans to enjoy Nature as well as habitat refuges for flora and fauna. The reason for setting aside large tracts of land is to provide an extensive natural habitat; a mine in the middle of such an area cannot be compensated by token land elsewhere.	WILD02
11261	The DNR, as presently set up, has a conflict of interest relating to mining decisions. By federal statute the DNR is mandated both to regulate and promote mining on public lands ~ and, in its promotion capacity, to maximize the royalties collected for any mining on state land. Promotion and regulation are two different jobs; one government agency should not be responsibly for both. The EPA should be given the regulatory responsibility ~ for the sake of citizen's health and, of course, the ecological impact.	NEPA18
11266	The DNR would compromise our water resources for copper when, per "the Institute of Scrap Recycling Industries, ... copper scrap now provides half of the annual U.S. demand for that metal and the U.S. provides 23% of the world supply of recovered copper"???	NEPA06
11268	The 500 year certainty of polluted water that will compromise the St. Louis River and others that spill into Lake Superior is, I think, too high a price to pay for the small amount of copper and the huge amount of polluting waste.	SO01
11275	I'd be willing to wager that mothers will not want their family members to canoe on waters contaminated with sulphuric acid, mercury, heavy metals, lead…	LU06
15902	A recent article (January 27, 3014) in the Star Tribune noted, as has the WaterLegacy organization, that 99% of the rock from which the mined metals are extracted would be waste. - Last Monday (March 3, 2014) the Star Tribune ran an article: "Duluth tires new view on tourism" and, next page, "Duluth: Not just a pretty view." This article announces the city's effort to expand tourists' awareness of the city's surrounding attractions. These include... "several places to launch canoes and kayaks ON THE WIDE AND SCENIC ST. LOUIS RIVER."	LU04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Colles Larkin (58119)	
19952	No open pit [ILLEGIBLE], it's my understanding has ever left a clear site. 500- years worth of pollution – Polymet has not, in SDEIS, has not put forth contingency plan for inevitable problems – leaks, from water pollution. The possibility of major contamination of the watershed that spills into the Great Lakes is too important to allow to happen...the risk is too great...EPA regulates and [ILLEGIBLE] for oversight need be augmented if we are to survice	PD11
19953	No open pit [mine], it's my understanding has ever left a clear site.	PD26
19963	Polymet's history is not stellar. Oversight is something they have shown [ILLEGIBLE] to not [ILLEGIBLE] with regularity.	PER02
Sender Name (Submission ID)	Collin Motschke (21152)	
10233	Though supporters claim that it will produce large quantities of precious metals (copper, cobalt, and nickel), the NorthMet mine will have destructive ecological and economic impacts.	SO02
10235	Besides its ecological and economic consequences, the NorthMet mine would have harmful impacts on my recreational and spiritual life.	LU06
10239	[C]onstruction and operation of the mine could disrupt the natural serenity of the area, which, in turn, would negatively influence ecotourism, a significant contributor to the region's economy.	SO02
10999	Besides its ecological and economic consequences, the NorthMet mine would have harmful impacts on my recreational and spiritual life.	LU06
15778	Though supporters claim that it will produce large quantities of precious metals (copper, cobalt, and nickel), the NorthMet mine will have destructive ecological and economic impacts.	CU11
15779	The most threatening of these adverse effects is the potential for Acid Mine Drainage, a phenomenon in which sulfide ores become exposed to air and moisture, undergo a chemical reaction forming sulfuric acid, and leach into surface water and the aquifer. This process decreases pH levels, thus destroying many aquatic ecosystems and contaminating drinking water.	WR113
15780	The NorthMet mine will also have dampening effects on the economy. The Draft Environmental Impact Statement (DEIS), a federal document projecting the ecological consequences of business proposals, estimates clean-up costs of over $44.6 million, to complete clean-up tasks including land reclamation and acid remediation.	SO04
15781	Besides its ecological and economic consequences, the NorthMet mine would have harmful impacts on my recreational and spiritual life.	LU06
16243	The most threatening of these adverse effects is the potential for Acid Mine Drainage, a phenomenon in which sulfide ores become exposed to air and moisture, undergo a chemical reaction forming sulfuric acid, and leach into surface water and the aquifer.	WR001
16244	The Draft Environmental Impact Statement (DEIS), a federal document projecting the ecological consequences of business proposals, estimates clean-up costs of over $44.6 million, to complete clean-up tasks including land reclamation and acid remediation.	FIN05
16245	Destruction of this blissful refuge [BWCAW], an inevitable result of the NorthMet mine, would be absolutely devastating to me and the thousands of other people who enjoy the BWCAW each year.	WILD02
16246	If passed, these bills would set a precedent for selling public lands to private corporations and undermine the National Environmental Policy Act.	LAN02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Collin Motschke (21152)	
17001	The most threatening of these adverse effects is the potential for Acid Mine Drainage, a phenomenon in which sulfide ores become exposed to air and moisture, undergo a chemical reaction forming sulfuric acid, and leach into surface water and the aquifer. This process decreases pH levels, thus destroying many aquatic ecosystems and contaminating drinking water.	PD15
17002	The Draft Environmental Impact Statement (DEIS), a federal document projecting the ecological consequences of business proposals, estimates clean-up costs of over $44.6 million, to complete clean-up tasks including land reclamation and acid remediation. In addition, construction and operation of the mine could disrupt the natural serenity of the area, which, in turn, would negatively influence ecotourism, a significant contributor to the region's economy.	SO01
Sender Name (Submission ID)	Collin S. Mackey (44553)	
11789	I feel that Alternative B does not really accomplish anything, as all it really does is reduce the amount of land being exchanged between the NorthMet Project area and federal lands. It does not put further restrictions on waste and toxin management, so does not reduce any of the affects caused by the mine. I feel that if a different, more effective alternative cannot be made, no action should be taken, in order to protect the plants, wildlife, and local tribes at risk.	ALT23
11793	In the NorthMet Project Proposed Action, they state that 90% of the ground and surface runoff ... will be treated. But that still leaves 10% untreated water …..that can seep into the ground or runoff into the Embarrass River, St. Louis River, and other streams and lakes nearby.. could cause significant water quality degradation throughout the area, possibly disrupting fragile aquatic ecosystems nearby.	AQ05
11796	It also concerns me that 912.5 acres of wetlands will be directly affected and 6,498.1-7,350.7 acres of wetlands will be indirectly affected by this plan. Wetlands are a very important part of the environment that play a vital role in the purification of water.	WET24
11798	Another concern is the 4,016.3 acres of vegetation and wildlife habitat that will be reduced. Eleven special concern plant species will be directly or indirectly affected by this plan, which would only endanger them even further, and could disrupt the balance of the local ecosystem.	VEG01, VEG03, WI02
11799	It could also lead to the decrease of the local Canadian lynx population and other species, such as wolves. These are special status species, and any action that can threaten their habitat and endanger their population should be looked at with some scrutiny.	WI01, WI02
11800	This mine will have adverse effects on the Mesabe Widjiu (Laurentian Divide) and other local sites, and could potentially harm1854 Treaty resources. This could harm the local Native American population and increase their living costs.	SO02
15293	They also state that a side effect would be an increase of aluminum and lead amounts entering into tributary streams… Aluminum and lead can be very toxic,	HAZ03
Sender Name (Submission ID)	Colvin Loken (54127)	
16002	Please consider possible water contamination.	WR111
Sender Name (Submission ID)	Community of St Martin (54722)	
18625	We are concerned that there exists no substantial evidence or analysis of how climate change, including severe storms, tornados, and downpours can be modeled and anticipated in order to minimize pollution from the mine entering into our water, land and air.	AIR01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Community of St Martin (54722)	
18640	We are concerned that the costs of remediation are neither included nor estimated in the SDEIS.We are additionally concerned thatcenturies from now, no one will bear the burden of remediation and cleanup, but that the pollution will go unabated.	FIN01, FIN05, FIN13
18643	We are concerned that the positions of our Native brothers and sisters will not be respected. For far too long Native peoples have lost their lands, homes, means of livelihood, and their very voice to the dominant culture.	SO02
Sender Name (Submission ID)	Compudyne (54710)	
18399	If approved, the project will have a significant, positive impact onMinnesota's economy and will ensure our communities can safely maintain our modern standard of living.	SO10
18403	we sincerely support the project and trust both PolyMet and the State andFederal agencies to ensure the mining process is safe, low-impact and carefully regulated .	PER34
18405	The proposed 20-year project will create $720 million in wages and benefits and $10.3 billion in economic benefit to St. Louis County. It will also create more than 600 jobs. According to the United States Bureau of Labor Statistics,St. Louis County has an unemployment rate of 6.1%, higher than the state average of 4.8%. Our county desperately needs the jobs to support local families and sustain our communities. These fulfilling, challenging job opportunities will help keep educated, talented young professionals in our area, something our communities have struggled with for over a decade.	SO10
18414	In addition, PolyMet will be a domestic supply of critical metals needed in electricity, cell phones, computers and other essential products. Without a steady supply of those metals, companies like Compudyne would not exist andour 74 employees would have to fight for stable, profitable employment elsewhere.	SO10
Sender Name (Submission ID)	Coni Erickson (11551)	
2516	It will create many jobs for the Iron Range, help our schools, and I believe PolyMet will give us a better future for our communities!	SO10
2516	It will create many jobs for the Iron Range, help our schools, and I believe PolyMet will give us a better future for our communities!	SO10
Sender Name (Submission ID)	Conn Mattfield (42552)	
17048	I think that this SDEIS will sufficiently cover the problems that come up with the site and environmental concerns.	NEPA16
17049	The actual permit will cover this site and make polymet abide by MN laws.	PER34
19604	I would like to show my support of the Polymet, Northmet project near Hoyt Lakes!! We need a safe and viable means to support econnomic growth in this region and with the states help I believe this is 100% possible!	SO10
Sender Name (Submission ID)	Connie Grundhofer (3656)	
440	The people of the United States needs for quality water and land are more important than money.	SO01, WR115, WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Connie Lanphear (43277)	
11769	my main concern is the potential to contaminate the Embarrass and Partridge Rivers, which flow into the St. Louis River and then Lake Superior. The plan to contain pollutants sounds weak….	WR111
11771	I have a very hard time believing any company would be around in the next 200-500 years to oversee the required and promised containment.	FIN01
15784	I don't like the precedent this mine would set for the many other mining projects waiting in the wings.	PER07
15785	I love our state's water resources especially, and want my teenage girls (and all Minnesotans and visitors) to continue canoeing the BWCA and to have the opportunity to share it with their own kids someday.	WILD02
Sender Name (Submission ID)	Connie Lehr (43796)	
11805	It is my belief that the MN DNR and ERM have acted as proponents of this project, rather than in unbiased roles protecting the best interests of the residents of the state of Minnesota.	NEPA18
11807	The access to information was frustrating at best, and included a maze of different resources available in different ways. Transparent, it was not.	NEPA07
11808	I also question the amount and location of wetlands used in remediation. They are outside the Lake Superior watershed and the amount less than most believe is an adequate replacement.	WET03
11810	I believe the state of Minnesota deserves to put this project to rest and concentrate on mining that does not come at such a risk. If the copper is so valuable, we should keep it safe, just like the water.	SO01
11811	Lining the pockets of foreign investors at the risk of our environment is not worth 350 jobs on the iron range. It is time for the people who choose to live there to realize that Minnesota's heyday of mining was just that. You cannot expect to do the same job your grandfather did today anywhere. Jobs evolve over time for everyone, unless they are sustainable like fishing and farming.	SO01
11812	I also believe your decision to not extend the comment period was wrong. Polymet had years and millions of dollars, along with data provided by those protecting our resources to create their case. The residents of MN got 90 days to digest it and comment.	NEPA07
Sender Name (Submission ID)	Connie Wanner (54655)	
17967	I am frustrated to see that the 90 day extension of the environmental review document was not granted.	NEPA07
17968	I would think 19,000 comments would indicate a strong question to the safety to our environment from this mining.	GEN01
Sender Name (Submission ID)	Connor McComas (38389)	
13655	As an environmental scientist that specializes in water quality, I believe that mining, tourism, and good environmental quality can coexist.	SO10
Sender Name (Submission ID)	Conrad Gill (3657)	
540	Please reconsider the environmental impact that could possibly occur (and generally does), if their mining project is permitted	PER06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Conrad Gill (3657)	
541	It seems to me that all mining projects, whether it be for oil, minerals or whatever, end up with some sort of catastrophic consequence. There is always an unforeseen event used as an excuse when the catastrophe occurs.	PD22
545	The jobs created are not worth the eventual costs. I'm sure that there are plenty of other industries that could be located in this area without the possibility of environmental endangerment.	SO01
Sender Name (Submission ID)	Conservation Minnesota (42942)	
12007	Will Minnesota's water stay safe and clean?....the water data used to model the pollution risk from PolyMet is insufficient…a DNR hydrologist pointed out that…the amount of water flowing in the Partridge River was incorrect and needed to be revised ..the DNR should have this data reviewed by an independent hydrologist…run new models, and conduct additional research.	WR052, WR071, WR086, WR091, WR189
12012	Are there safeguards in place for when things go wrong?....[the SDEIS] fails to address contingency plans for likely malfunctions like pipeline breakages or downtime of water treatment facilities requiring extended maintenance or repairs.	WR130
12018	The omission of a comprehensive Health Impact Assessment for this project [is troubling]…medical professionals from Northern Minnesota pointed out that the PolyMet project is expected to increase Minnosotan's exposure to five out of ten chemicals the World Health Organization lists as major concerns for public health. Mercury, arsenic, lead, asbestos and air pollution are all potential byproducts of this form of mining…the Minnesota Department of Health needs to be included as the project is evaluated to ensure that potential threats to public health are addressed.	HU01
12022	Will the company leave the site clean and maintenance-free?...Given the confustion around this issue that has been created by conflicting statements from the mining company, state officials, and the SDEIS reference documents, anything less than a science based estimate of the duration of pollution mitigation that can be shared with the public will be inadequate.	PD01
12031	Will Minnesota's taxpayers be protected? ... Minnesotans are ill equipped to determine the amount of potential risk, because the spectrum of potential costs is so wide…The range in time expected to be needed to achieve maintenance free status is anywhere between ten years…to greater than 500 years…This leaves Minnesota's taxpayers potentially on the hook for anywhere between $235 million and in excess of $3 billion.	FIN01, FIN10
Sender Name (Submission ID)	Cook County Coalition of Lake Associations (38695)	
14661	the hydrological models used to predict hydrological events attendant to both extraction and refining have been found to be inadequate as the geology of the Virginia formation--the source of the metals to be mined--is not fully understood….	WR007, WR026, WR105
14665	the SDEIS does not directly state the source or quantity of water to be diverted for use in the refining process. It does speak to drawdown on both the Embarrass and Partridge rivers but how much and for how long is not stated….	WR182
14666	examples of non-ferrous mining cited in the SDEIS are those of mines located in the dryer, water-poor areas of the U.S. and are therefore of questionable value in assessing how best to protect existing water resources….	PD26
14667	critical computer modeling of runoff from tailings piles into nearby waters has been shown to be inaccurate and underestimated….	WR105
14668	it is unrealistic to expect that water treatment projected to last some 200 to 500 years--durations calculated by PolyMet--can actually be accomplished….	PD03
14669	pit lakes are to be lined with a product guaranteed for only 20 years while the lakes will exist in perpetuity.	PD35

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Cook County Coalition of Lake Associations (38695)	
14671	financial assurance "deposited" by PolyMet before mining begins cannot realistically cover the unknown cost of reclamation and water clean-up.	FIN05
14672	The waters of the state of Minnesota are a far more valuable resource than the minerals to be mined.	SO01
Sender Name (Submission ID)	Coralee Thilges (44993)	
7004	This project is such a short term mine in the first place. 40 years is not long-term for job seekers. Is it worth building a home in a place that will loose all it's boom in 40 fast years?	SO02
7007	Mining absolutely will pollute the ground and water with toxic materials that have been known to cause cancer.	HU03, WR115
17309	Waiting for the right technology that can extract without polluting is very worth it.	NEPA03
17310	The land holds so much value, let alone beauty.	LU04
Sender Name (Submission ID)	Corey Wipper (3713)	
12347	[boundary waters] has been preserved for a long time, and I wish it were kept that way.	WILD02
Sender Name (Submission ID)	Cori Mattke (20956)	
1862	Wondering if written comments must be received by March 13 at 4:30 PM, or postmarked by March 13?	RFI01
Sender Name (Submission ID)	Corie Ekholm (9607)	
222	The SDEIS is good but I would like to have more explanation on the model used to predict the number of years of water treatment.	WR036
1137	Polymet has a well thought out plan to minimize and mitigate the environmental impacts associated with copper-nickel mining in Northern Minnesota. We need all the minerals Polymet will mine, they are essential to live in our society.	PD28
1138	I would much rather mine them here, where we will do it in an environmentally friendly manor, than in some other country with no regulation that will pour the pollutants into the air and water. We are already seeing the effects of Chinese factories air pollution in the US.	ALT16
Sender Name (Submission ID)	Correy Merritt (3072)	
567	I suggest that it is by conducting mining in countries like the United States who have systems of laws and regulations in place that protect workers and the environment. By having mines here we can keep control of how they are operated and have accountability.	PD28
Sender Name (Submission ID)	Corryl Jeske (18514)	
13402	The well being of all living things is in jeopardy with this inaccurate and incomplete SDEIS document.	NEPA15

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Corryl Jeske (18514)	
13403	A few low paying jobs in the area will never compensate for generations of contamination to our environment.	SO01
13740	A few low paying jobs in the area will never compensate for generations of contamination to our environment.	SO01
Sender Name (Submission ID)	Council of Carpenters (54724)	
18644	The thoroughness and detail ofthe SDEIS encourages me that Minnesota canset an example for extracting mineral wealth, creating jobs and doing so in a safe and responsible manner that ensures our natural resources are protected for future generations of Minnesotans.	NEPA16
18645	Mining of the vast copper, nickel, palladium and other ore deposits on the proposedPoly Met site will provide beneficial tax revenue for the state, jobs for hard-hit workers,and will help preserve the way oflife and culture of the Iron Range.	SO10
18647	The project, itself, lies in a different watershed than the Boundary Waters Canoe Area Wilderness and any seepage would have to travel over 150 miles to reach Lake Superior.	WR190
18649	The plant and mine would have to meet all of the same compliance standards at the original sites as similar current operations that sit right on the lake. Further, the plan for turning the pits into wetlands and a lake will be a useful and environmentally-conscious reclamation of these lands and will return the area to a natural look.	WR190
18650	The minerals that will be mined at the site are essential for emerging technologies and inthe production of green, renewable energy sources. The demand for these mineralscontinues to grow and therefore it is a certainty that they will be mined.	SO10
18652	The project's compliance monitoring would be an ongoing process and would continue toensure that the state's strict regulations were adhered to and that our natural resources areprotected.	PER34
18654	I am confident that the required financial assurances will shieldtax payers from having to foot the bill if anything should go wrong.	FIN16
Sender Name (Submission ID)	Courtney Kerns (47171)	
8525	I am originally from West Virginia where we have so many dead rivers and creeks due to acid mine drainage...The short-term gains (the vast majority of which will go to out-of-state shareholders) are absolutely not worth the risk to our state’s clean and living waters.	PER35
Sender Name (Submission ID)	Craig A Swenson (19921)	
1508	Our State, especially Northern MN, needs jobs and this project (future projects) can bring economic vitality into the communities where the young generations have been forced to leave.	SO10
Sender Name (Submission ID)	Craig Andrew Anttila (11522)	
2474	Royalty’s to state, jobs at site, spin off jobs related to project are a big (+) to people of the surrounding community’s; schools townships etc. will also benefit.	SO10
2474	Royalty’s to state, jobs at site, spin off jobs related to project are a big (+) to people of the surrounding community’s; schools townships etc. will also benefit.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Craig Blacklock (6233)	
1169	Tourism has been, and could sustainably continue to be a stable, long-term employer in northern Minnesota. I'm very concerned we might be sacrificing these sustainable jobs in favor of a short-term boost in employment from mining.	SO02
1170	...mine companies may go out of business far sooner than the need to mitigate mine pollution, sticking tax payers with clean up costs.	FIN01
1171	….the PolyMet proposal is the need to actively manage the waste for hundreds of years.	PD03
1174	Actively treating water through reverse osmosis creates the spectrum of huge amounts of electricity into the foreseeable future. Climate change is an imminent threat to the planet.	AIR01
12497	The idea of allowing mining to go forth in the name of jobs, when it would leave 500 year's worth of polluted water, and threaten the BWCAW is unthinkable to me.	SO01, WR111, WR115, WR195
12499	I also feel the climate change impacts of the total mining cycle need to be considered. How much Co2 would be emitted during the mining and the 500 years of ACTIVE treatment of the polluted water?	AIR01
13822	Today's mining technology does not appear to be able to guarantee protection of the environment any more than that of decades ago.	SO01
13823	Perhaps decades from now, technology will allow them to be safely extracted (they will be worth more then, than now anyway), but if not, they should never be mined.	ALT16
Sender Name (Submission ID)	Craig Bowron (43992)	
14931	I believe their are multiple problems--among them tax structure, water quality, lack of a health impact assessment, water quality issues--and so I would ask that you not allow the mine to be built as described in the current plan.	GEN03
14932	When the nickel and copper are gone, they will shift to loss prevention--by either loosely following clean up agreements or by abandoning them altogether, thereby forcing them into the courts (whichever option minimizes the losses would be the preferred option). That's not a judgment statement, that's how capitalism works. Bankruptcy is also a tried-and-true method for minimizing losses.	FIN01
14933	I would ask you to fix the Polymet mine plan by hammering out a detailed plan that provides solid financial assurances to the current owners of the nickel and copper: Minnesotans.	FIN10
Sender Name (Submission ID)	Craig Johnson (18071)	
3185	I believe we can set a new standard of mineral extraction that will be used as an example for generations to come. And hopefully without eight and a half years of prior scoping and evaluation.	PD28
3186	It should be understood that determination to not allow a proposed mine also involves risk. We risk allowing someone else of lower standards than ours to gain an advantage in the precious metal market.	NEPA03
Sender Name (Submission ID)	Craig Olson (18368)	
14673	This project will produce a lot of jobs. Not only construction jobs...There is 360 full-time mining positions. And there's more than 600 related jobs that will be produced. That will produce good-paying jobs for the families that are very much needed.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Craig Prudhomme (45438)	
15707	PolyMet is proposing to create a mine that will further destroy wetlands and put at risk watersheds that include Lake Superior.	WET24, WR111, WR112
15708	This mine should not be permitted. The potential costs are too great for the potential short-term gains. And these gains will be short-termed by comparison to the costs.	PER35
15710	We think copper and nickel are valuable resources, but when we look at the one most important resource to life, fresh water, we are only now beginning to realize that it is the number one, most important resource. Clean water is finite.	WR195
Sender Name (Submission ID)	Craig R. Miller (3491)	
223	It is very problematic that PolyMet's details about a financial assurance or a "damage deposit" the company provides are not outlined in this revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuries of costly water treatment, or how the public will be protected from liability	FIN01, FIN05, FIN10
227	not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Also, every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated.	WR070
229	the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions	WR044, WR149, WR172, WR173, WR174, WR189
231	The proposed mine plan does not leave the site clean and maintenance free […]Who will be paying for all of this after the mine is closed in just 20 years?	FIN01
Sender Name (Submission ID)	Craig R. QualeyFisher (17340)	
1972	I implore you to take a stand, against allowing the mining companies, anywhere near, any waterway, tributary, steam connected to or running into a Boundary Water Area Lake Or Waterway.	WR111, WR195
2098	The residue left behind by copper mining seeps into the water, kills plant life, fish and wildlife.	VEG06
Sender Name (Submission ID)	Craig Spry (42770)	
6680	Polymet, the Minnesota Department of Natural Resources, the United States Forest Service, the United States Army Corps of Engineers, the Minnesota and Federal Pollution Control Agencies, and many other entities have these engineers, scientists, biologist, professors, specialists, and technicians to research, study, model, engineer, and design this project. In fact, they have done [this] to death, over a decade, to protect the environment and get this right. The information and the contents of the SDEIS prove this.	PER34
6682	This is a project that will once again kick start the East Iron Range and encourage future opportunities for the entire Iron Range and surrounding areas. We are all here on the Iron Range because of mining, period.	SO10
Sender Name (Submission ID)	craig zlimen (15451)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	craig zlimen (15451)	
671	While I appreciate the need for livable wage jobs in this generally depressed economic area, it seems the risk of wide-spread, long-term contamination of the area's water-supply far outweighs any potential benefit of a few hundred, relatively short-term jobs.	SO01
672	Currently, tourism is the one of the largest sources of jobs and revenue in and around the Iron Range. Given the tourism industry is driven almost entirely by the area's lakes, streams, and outdoor recreation opportunities, it seems absurd to consider any large-scale plan that would place those invaluable natural resources at risk.	SO02
675	It is not worth risking large-scale harm to the environment and established tourism industry for the prospect a relatively small number of jobs expected to be created by PolyMet.	SO01
1902	I sincerely hope the DNR will advocate for the long-term health of Minnesota's environment, water, and tourism and deny PolyMet's permit to mine in Northeast Minnesota.	PER35
Sender Name (Submission ID)	craigaparsons (41998)	
2636	The location of the proposed mine is identified throughout the document as being on the Iron range, implying that it is part of the Biwabik iron formation. However I've read reports that contradict this and place this mine location in the sufide-bearing rock of the Duluth formation.	PD31
2637	There has not been quantitative accounting of the many environmental effects on the economic outlook. Full and part time jobs have been lumped together in the analysis. Also the economic benefits of mining should be compared to a no-mining scenario.	SO04
2638	It is paramount that the technical plan for mine cleanup and water treatment be beyond reasonable question especially in light of the location of this mine so close to pristine wilderness such as the BWCAW, and Lake Superior. The SDEIS as it exists now does not meet that requirement.	PD01
2639	In the last week, it has been announced that the MPCA will soon release new standards for sulfate release into waters that are capable of growing wild rice... Because these new standards, this proposal should be delayed for further consideration until it has addressed compliance with these new rules.	PER10, WR152
2640	The report indicates unacceptably high levels of sulfide in discharge water for hundreds of years after mining ceases, yet none of the projections actually show safe levels being reached for the hundreds of years over which the models were run. How can a decision to permit be discussed without a timeframe identified where active and costly water treatment such as reverse osmosis are no longer required?	PER04, WR038
2669	Are the assumptions underpinning the studies of potential pollution caused by hydrologic and geologic activity consistent with this misclassification [of the mine being located on the Duluth formation instead of the Biwabik iron formation]?	WR007, WR087
2670	Minnesota law 6132.3200, 6d, states that financial assurance for mine cleanup must be provided by the mine owner. I am only asking that this law be followed, and that full details of the economic aspects of the cleanup need to be addressed now, as part of this SDEIS.	FIN01, FIN13, FIN14
Sender Name (Submission ID)	Crystal Waters (11638)	
3324	The PolyMet SDEIS is still inadequate. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells.	HU04, WR041
3325	The PolyMet SDEIS is still inadequate. It doesn’t explore the alternatives that could reduce PolyMet’s destruction of wetlands.	WET20

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Crystal Waters (11638)	
3326	The PolyMet SDEIS is still inadequate. It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish.	MERC02, MERC10
3327	The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin.	WET24
3328	Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children.	AQ05, WR107, WR108, WR156, WR158
3329	PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity".	PD03
Sender Name (Submission ID)	ctok (21718)	
9484	Fact: We hear that Polymet is reluctant to put money into a trust fund for cleanup. Question: Can they be trusted to be responsible for long term water control and reclamation?	FIN01, FIN08
Sender Name (Submission ID)	Curt Bush (9838)	
311	I have so very little faith that Polymet, or any mining corporation, would be trustworthy partners in understanding the critical value of water conservation and environmental protection and doing what they say they will.	WR128
313	My real hope is that the Army Corps will work with the tribal agencies.	CR06
315	My hope is that the whole darn project will be evaluated as too risky, in too sensitive an area, and should be abandoned.	PD01
1188	My real hope is that the Army Corps will work with the tribal agencies.	CR06
1396	I gotta ask you to demand a renewed environmental review based upon accurate water flow measurements at the Polymet site.	WR003
3608	As a downstream resident on the Whiteface River near Cotton, Minnesota, and because I have been learning about sulphide ore bodies once uncovered, I gotta ask you to demand a renewed environmental review based upon accurate water flow measurements at the Polymet site.	WR003
7383	I gotta ask you to demand a renewed environmental review based upon accurate water flow measurements.	WR003
7384	My hope is that the whole darn project will be evaluated as too risky, in too sensitive an area, and should be abandoned.	SO02
7385	I have so very little faith that the Minnesota DNR will look at the project from the standpoint of the critical value of water conservation and environmental protection.	PER06
14728	I gotta ask you to demand a renewed environmental review based upon accurate water flow measurements.	WR003
16235	I have so very little faith that the Minnesota DNR will look at the project from the standpoint of the critical value of water conservation and environmental protection.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Curt McNamara (7722)	
60	Mining in such a sensitive area is not compatible with our values and presents substantial risk to air and water quality	AIR11
821	…mine would destroy wetlands which we and our wildlife desperately need.	WET24
Sender Name (Submission ID)	Curt Steinerbraun (18148)	
3586	We build products that make electricity and deliver it to your homes and your businesses. We need copper and other critical metals to build our products.	NEPA05
Sender Name (Submission ID)	Curt Thompson (38488)	
15936	The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations.	PER34
15937	In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out… This model demonstrates that PolyMet's plans comply with Minnesota's laws.	WR190
15938	We cannot afford to miss this job opportunity.	SO10
15939	Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands.	PER34
Sender Name (Submission ID)	Curtis Martinson (42773)	
6716	They can't guarantee anything for 100 years, to say nothing about 400 plus years. They'll end up having all the money, and we'll end up having all the problems.	FIN01
Sender Name (Submission ID)	Cyndy Klinksiek (4219)	
9805	The proposed copper-nickel mine may bring money into communities in the short term, but when the metals have been extracted, tax-payers will be left holding the clean-up bill.	SO01
10206	Our precious pure supplies of water are the envy of the world. We need to safeguard them for future generations.	WR195
Sender Name (Submission ID)	Cynthia A & Russell K Hobbie (42800)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Cynthia A & Russell K Hobbie (42800)	
6955	We Minnesotans are not used to hard rock mining, and many of us do not appreciate how harmful the sulfuric acid from the tailings will be. We need to recognize the fact that grinding the rock into small particles increases the surface area exposed to water. For example, rock 1 00 meters on a side, when ground to the size of baby powder (1 0 micrometers) will have increased its surface area by a factor of 10 million. We have already seen this in "mine slime," in our taconite mines, but it does not leach acid. Slime from the proposed mine would leach sulfuric acid. The acid will be spread to places where it will do damage by the water that is already flowing through the existing tailings basin.	PD01, WR001
6955	We Minnesotans are not used to hard rock mining, and many of us do not appreciate how harmful the sulfuric acid from the tailings will be. We need to recognize the fact that grinding the rock into small particles increases the surface area exposed to water. For example, rock 1 00 meters on a side, when ground to the size of baby powder (1 0 micrometers) will have increased its surface area by a factor of 10 million. We have already seen this in "mine slime," in our taconite mines, but it does not leach acid. Slime from the proposed mine would leach sulfuric acid. The acid will be spread to places where it will do damage by the water that is already flowing through the existing tailings basin.	AQ05, PD03, WR156, WR158
6959	The number of new jobs that is projected is actually small compared to the number of existing mine jobs in the Arrowhead….The profits will go to people outside Minnesota, and probably in other countries. The profits from tourism remain in the community.	SO06
6959	The number of new jobs that is projected is actually small compared to the number of existing mine jobs in the Arrowhead….The profits will go to people outside Minnesota, and probably in other countries. The profits from tourism remain in the community.	SO02, SO06
6961	The short term effects will include excessive noise from drilling and blasting.	VEG03, VEG05
6961	The short term effects will include excessive noise from drilling and blasting.	N05
Sender Name (Submission ID)	Cynthia Hobbie (21541)	
1293	grinding the rock into small particles increases the surface area exposed to water. … Slime from the proposed mine would leach sulfuric acid. The acid will be spread to places where it will do damage by the water that is already flowing through the existing tailings basin.	WR001, WR108
1296	The number of new jobs that is projected [for the NorthMet Project] is actually small compared to the number of existing mine jobs in the Arrowhead.	SO06
1298	The short term effects [of the NorthMet Project] will include excessive noise from drilling and blasting.	N05
2019	The profits will go to people outside Minnesota, and probably in other countries. The profits from tourism remain in the community.	SO06
Sender Name (Submission ID)	Cynthia Lee (14677)	
13785	PolyMet has a horrible plan which will make them rich, and then they'll duck out on taking care of their mess	FIN01
Sender Name (Submission ID)	D Becker (17540)	
1982	With the limited environmental impact I fully support the approval of permits for this mine.	PER34
Sender Name (Submission ID)	D Borgmann (46963)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	D Borgmann (46963)	
16657	The U.S. Forest Service does not allow strip mines on Federal land within the Superior National Forest where this proposed mine would be located. I feel it is wrong to do this land exchange to basically get around the intent of this law and it is not in the public's interest.	LAN02
16658	Sulfide mining has a track record of water contamination caused by acid mine drainage. In particular water rich areas are most vulnerable such as in the Superior National Forest where this Polymet mine is proposed. Even lower sulfide content can be quite toxic when there is a lot of waste rock which is the case for this proposed mine.	WR189
16659	Many if not most owners of mines declare bankruptcy leaving taxpayers with the cleanup costs which run into the millions of dollars.	PD25
16660	Acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. The SDEIS has admitted treatment of water would require 200- 500 years or more.This is basically perpetual treatment. This violates Minnesota Rule (6132-3200)	FIN14, PER04, WR035
Sender Name (Submission ID)	D K (9657)	
1361	the NorthMet Supplemental Draft Environmental Impact Statement should be deemed complete in every respect.. This project should proceed to permitting without delay	NEPA16
1362	It will also allow many of the legacy issues that exit due to past mining activities to be addressed by PolyMet in a technically sound manner in a shorter timeframe.	PD28
Sender Name (Submission ID)	D Ross (58144)	
19889	...the strategic mining industry of Northeastern Minnesota will generate thousands of new jobs for our region. As well...will have a positive impact on local tax revenue and education funding.... PolyMet has spent more than $1.2 million doing business with Duluth companies in 2013. We recognize that, once PolyMet receives its permits, several more Duluth area businesses will provide services and product to the Polymet Project. The positive economic impact of PolyMet will exponentially grow when construction and mining begin.	SO10
19962	PolyMet, will utilize advanced technology to meet rigorous environmental standards established by the United States Environmental Protection Agency and the State of Minnesota to ensure protection of human and environmental health.	GEN02
Sender Name (Submission ID)	D V Sandstrom (42559)	
17056	For years this Nation has been concerned with becoming “energy independent”... Why not the same sentiment re: “metals independence”?	NEPA05
17057	To the extent that we find ourselves dependent upon foreign supplies of these resources, are we not simply shifting at much higher environmental cost (and social & economic cost I might add) the liability to countries who do not have policies in place designed to protect the environment?	SO02
17058	That many of these other countries are unwilling to invest in technologies & infrastructure designed to utilize resources without regard for the environment should be obvious… By refusing to move forward with projects such as Polymet, we in effect do more damage to the environment globally and are subsidizing atrocious policies where concern for the environment takes a back seat and stringent environmental measures are paid lip service at best.	NEPA05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	D V Sandstrom (42559)	
17059	Furthermore, refusing to utilize resources given the protections and processes we have in place is irresponsible economically and socially. Not only are wages and benefits lost to N.E., MN and our state generally but, as alluded to previously, our refusal to responsibly mine these resources means that we are subsidizing entities who, as demonstrated by their wanton disregard for the environment, obviously have little regard for economic or social stewardship.	SO06
Sender Name (Submission ID)	dagmar romano (42447)	
6785	The SDEIS is incomplete because inportant issues, such as environmental assurances, are not adequately addressed.	PD01
6786	there is inadequate data to make an informed decision about the 500 year time frame that is being proposed for water treatment from the operation.In addition, how can any state agency agree to a 500 year time frame for water treatment/monitoring?	PD03
13699	The PolyMet SDEIS isn't a plan. It is an experiment that would put Minnesota's clean water at risk for hundreds of years, as stated in the document. The document doesn't provide the basic information to support its predictions.	SO01
13700	How much polluted wastewater is going back and forth through nine miles of pipes? What is the total volume of wastewater in tailings and processing residue? Just how polluted is the wastewater and waste rock piles, pits, sump ponds, the tailings basin and the hydrometallic waste dump?	PD15, PD30, PD36
13701	we can't estimate what would happen if PolyMet's unrealistic assumptions, not based on data by the way, don't come true. The project -- the SDEIS admits that the project is an experiment. On page after page it says that in the event that modeling shows violations of water quality, PolyMet will adaptively manage the problem. How does "adaptive management" as a plan sound to you?	PD05
13702	can someone help me understand how on earth we, as Minnesotans, wouldeven consider a project that threatens to pollute our water for hundreds of years?	WR195
Sender Name (Submission ID)	Daisy Dominguez (54221)	
17343	Environmental impact statements show that water from mines will have toxic levels of metals after 500 years. Of course it does not have to be that way. This is all preventable.	WR115
17344	I have noticed that your map is incorrect. I am sure that you are well aware of this. Giving false information and leaving out very import information is not okay. I am asking for you to redo your map correctly and show the correct length of the swap.	PD38
17345	I also find it necessary for a hydraulic conductivity test to see how much the swap and the mines could effect the boundary waters. Also there must be a water test in the boundary waters to make sure there is no chemicals in it.	WR090, WR111
17346	The boundary waters are very important and special because they are pure and clean, not too many places are left like that. You do not have the right as well as any other person to contaminate the boundary waters. You can not take your own selfish decisions and harm our environment	LU04
Sender Name (Submission ID)	Dakota Hoska (39812)	
7328	Jobs for 200 people for 20 years? For what? Loss of rice beds, loss of wildlife habitat, loss of water security and the loss of fragile, pristine ecosystems?	SO01, VEG10, WI13, WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dale & Lynie Shimmin (44631)	
12227	The long term affects on the land and water of this area would be disastrous.	WR115
Sender Name (Submission ID)	Dale Gustafosn (28767)	
10926	The records are clear, the mining industry has a terrible record of pollution and note standing behind their statement of taking care of problems.	FIN01
10928	There is no proof that they can contain the pollution from this mining practice and only proof that they will not keep promises to protect the value of clean water and the species that thrive in that water. Once some pollution gets in the water flowing to Lake Superior it will be impossible to clean it out.	WR017, WR018, WR070, WR111
Sender Name (Submission ID)	Dale Hegfors (42799)	
6939	I approve of Polymet mining project near Aurora. I believe that the DNR, U.S. Corps of Engineers and forest service along with the EPA, have enough information to start this project. I am sure that tall agencies, Clean Air Act, SDIES, will be watching so that Polymet mining does the right thing with our environment.	NEPA16
Sender Name (Submission ID)	Dale Hintsala (9283)	
864	Build the capacity in the United States were it can be environmentally controlled----do not submit to building the capacity in a foreign nation were we only experience the environmental pollution from unregulated processes.	NEPA05
Sender Name (Submission ID)	Dale Johnson (10205)	
371	The beauty and quality of Northern Minnesota is too valuable to risk for a few jobs that will end up costing the citizens of Minnesota multiple times their value in damages and clean-up.	SO01
13798	A toxic release of chemicals/acids wold be devastating and take several lifetimes to remediate. The cost would be born by the residents and visitors who cherish the land and the citizens of the state in dollar terms. The mining industry is renowned for filing bankruptcy and walking away whenever there is an incident they guaranteed would never happen	FIN10
Sender Name (Submission ID)	Dale Lockwood (43574)	
9938	copper sulfate….. as a herbicide,pesticide,fishicide etc.. Can be deadly at very low levels….. Levels may even be lower than the levels Wild Rice can tolerate. Also any acidification of the water will cause soluable mercury levels to rise and work into the food chain,causing levels in fish to rise,which recomendations for people to eat are already very limited in the area	VEG04, WR001, WR113, WR156
Sender Name (Submission ID)	Dale Long (18101)	
13467	This is not just about the construction jobs and building this project, but it is also about the long-term jobs to run the plant, as well as the spin-off jobs and positive effects to our area communities.	SO10
Sender Name (Submission ID)	Dale Olson (4166)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dale Olson (4166)	
9860	the four legged brothers and sisters don't even use money but like the two-legged they need water to live. there are alternatives to destroying eleven percent of the fresh water of the world….	WI01
Sender Name (Submission ID)	Dale Swanson (20020)	
14466	I think that exploration for minerals and mining can be done in a manner that would not be detrimental to our environment. I am an environmentalist, but I also see the need to put people to work.	NEPA05
Sender Name (Submission ID)	Dan Allosso (40139)	
15310	given Glencore Xstrata's well-documented irresponsibility as a long-term steward of the environment, I think any claims the corporation makes about its commitment to multi-decade or even centuries-long containment of environmental externalities should be treated as nonsense. To put this in the plainest English possible, Glencore Xstrata intends to treat northern Minnesota as a third-world resource provider and waste sink.	PD01
15311	I live in northern Minnesota, and I have no doubt that given a thorough understanding of the issues, none of my neighbors would willingly trade our environment for a short-term solution to economic problems that could be solved in a variety of ways that wouldn't involve making our home unlivable.	SO01
Sender Name (Submission ID)	Dan Anderson (38624)	
14067	We have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough.	NEPA16
14068	In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time.	WR190
14069	The model used to calculate the alleged economic benefits of the mine takes into account the costs to the environment and the displacement of other economic activity. Tribal rights to hunt, fish, and gather under the 1854 Treaty will not be adversely affected; nothing is the same as it was when the treaty was signed.	SO10
14070	PolyMet's planned mine layout minimizes impacts to wetlands, and its reclamation and mitigation plans will replace the wetlands that are lost due to mining. In fact, PolyMet will restore and protect more wetlands than it impacts.	WET25
14071	PolyMet will have dramatic, positive socioeconomic impacts to a region that has been built on mining. This project is located in an area that supports mining and the jobs it will bring.	SO10
14072	The land exchange with the U.S. Forest Service will open up new public recreational opportunities for all Minnesotans.	LU01
Sender Name (Submission ID)	Dan Burnett (41570)	
6369	It is simply foolish to ask a company to provide water treatment for the area for a length of time that is over three centuries. If the contaminated water is projected to be undrinkable for longer than white people have been politically organized in a meaningful way then we should not allow the water a chance to be contaminated in the first place. It is irresponsible to expect anyone to be obligated for such a period of time.	WR037

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dan Carn (18110)	
13474	We have a great opportunity here. This is a world-class resource. And I think this is a stepping-off point that has an awful lot of merit...This is already an industrial site. We already have a huge facility there. We're using the existing tailings basin. And we have the railroad infrastructure in there. The only thing we're doing is moving the pit area	SO10
Sender Name (Submission ID)	Dan Cooke (6426)	
1071	I do not believe the few jobs that this will bring to the state is worth the potential of long standing envirionmental impact.	SO01
Sender Name (Submission ID)	DAN DEMARINO (21971)	
3303	The seemingly never ending long term assurances voiced by those opposing the mine may be able to be resolved by the requirement to have long term bond assurance.	FIN08
3304	The hard points are that families will be able to survive with a great quality of life if they are allowed to have an income. The mine will provide that. The community will be able to grow economically.	SO10
Sender Name (Submission ID)	Dan Dimick (57969)	
19876	The economic gains are outweighed by long term environmental risks.	SO01
Sender Name (Submission ID)	Dan G. Eischens (7524)	
780	I think that the environment would be better off after the sulfides are no longer exposed to the effects of climate after the reclamation work is done.	PD05
781	This is just the type of mining project this state needs to boost the economy and school aids it delivers, along with jobs and a supply source of much needed copper.	SO10
Sender Name (Submission ID)	Dan Harp (42532)	
2443	What better place to do this project? Everything we do has an impact, and we should make our impact as small as possible. Being this is already an industrial site, this is about as good as it gets. There's already a huge facility and a tailings basin that can be re-used.	SO10
2444	We need these metals and PolyMet can mine them, while having a plan in place to reduce the probability of risk. If you want to eliminate all risk, you can't do anything and will have nothing.	PD28
15576	If we don't develop an industry with a world-class resource here, we can expect to be extorted by a place that can provide the metals we need – and that would be a huge cost.	NEPA05
15579	about the long-term costs of monitoring… they'll have to keep monitoring, but that's not very expensive. Costs will be minimal.	FIN17
15580	My opinion is that when the mined rock is first exposed, there will be a lot of [water] treatment needed. And that may be the case for 15 to 20 years. But after that, the likelihood of any deterioration of rock will drop off exponentially. After a time, I have to believe it will be simply standard levels of constituents in the water – as if the mine had never happened. Sure, they'll have to keep monitoring, but that's not very expensive. Costs will be minimal.	WR190

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dan Houle (3641)	
427	20 years of destruction for a few labor jobs and exporting our "precious metals" with a 500 hundred year price tag just doesn't make sense. The time is not right... we should save it for the future generations when it means more than just a few jobs.	SO01
11758	THE TIME IS JUST NOT RIGHT AND THERE IS NO PROVEN SYSTEM AT THIS TIME TO MINE COPPER NICKEL WITHOUT POLLUTION! … We have one of the worlds largest supply of fresh water. Any degree of pollution is incomprehensible for a few jobs.	SO02, WR115, WR128
Sender Name (Submission ID)	Dan Humay (18062)	
3169	I think my initial concerns were triggered by reading that copper mining has never been conducted anywhere in the world without producing grave pollution of water resources in the mining area.	WR023
3170	I'm especially concerned about the contamination of mercury from the mining operation. Northeast Minnesota already has a serious problem with mercury. And the Minnesota Pollution Control Agency has listed a number of water, rivers, lakes, and streams in this area as impaired with methalized mercury found in fish tissue. So there are some warnings about eating levels of fish beyond a certain point.	MERC02
3171	Any increase in the level of mercury in the water table, whether it be in a stream, river, lake or aquifer is not acceptable. And I don't see where they can give any assurance that this will be done.	MERC01
3173	To date I think they've tested 1,465 children and they found their bodies are contaminated with mercury poisoning. And yet we're going to allow a mining company to create a situation that will only exacerbate this. I think that's unconscionable. For 360 jobs for 20 years that's an embarrassment that we will perpetuate a widespread health problem to that end.	SO01
3432	Right now, today, as we sit here, in this watershed, the Minnesota Pollution Control Agency has classified dozens of strange rivers and lakes as impaired. What would make them impaired? Levels of mercury above what are considered to be safe. Methylized mercury appearing in fish tissue.	MERC01
3437	Sixteen million gallons of water this year, the next year, the next year, the next year, the next year. How much mercury is that? The EIS really falls short in dealing with mercury, and I think behooves you to hold them accountable. …We cannot put at risk children who are innocent residents the way we are now. 1,675 kids have been tested positive [for elevated levels of mercury] so far, and I think that's unconscionable --in the name of jobs or minerals or anything else.	MERC03
Sender Name (Submission ID)	Dan Iler (17693)	
1984	With a projected mine life of twenty years and a projected water clean up of the mine site for a minimum of 200 years and 500 years at the plant site the risk to reward is skewed to the way too risky side!	SO01, WR037, WR195
1985	It is impossible to account for all the variables [such as] floods, cracks in bedrock allowing seepage to ground water, plants and roots tearing into a possible synthetic cover over the tailings pile ... inevitable mechanical breakdowns, leaks or breaks in piping used to move waste water, human error, or.....?	FIN05
1986	it is unrealistic to think there is a magic formula to get a monetary number for 200 - 500 years of water clean up and reclamation. … there is not a company out there that has a track record of being in business for 500 years. It seems inevitable that eventually Minnesotans will be on the hook to cover the cost of clean up.	FIN01, FIN05, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dan Iler (17693)	
1987	Once all the valuable minerals are extracted from the mine site and it is no longer profitable they will close up shop and file bankruptcy to evade clean up cost.	FIN01
2117	The track record of mining companies abandoning mine sites that are no longer profitable is long. The EPA has designated many of these sites as "superfund" sites, leaving tax payers to shoulder the cost of cleanup (if clean up is even possible at all	FIN10
2118	…twenty years worth of jobs mining the precious metals is not worth hundreds of years of environmentally disastrous clean up!!!	SO01
Sender Name (Submission ID)	Dan Iverson (19944)	
1548	The DNR and the Corp of Engineers and to a lesser extent the US Forest Service has no issues with the potential impact of sulfide mining to the recreational treasure Minnesota posses and has, until recently, protected from the grasping hands of logging and mining interests.	LU06
14840	Obviously, the deal was in the bag as it always had been and the DNR was just going through the motions, a little dance all government agencies must do to appease the public with a show of democracy. Your actions and others in government who have been tasked with preserving Minnesota's legacy of clean water and quality of life have failed us.	NEPA15
19502	Twenty years of promised prosperity for a few is a poor exchange for an eternity of poisoned lakes and streams.	SO01
Sender Name (Submission ID)	Dan Jobin (45242)	
9064	The MPCA told me there would be damage to the liners, holes and punctures so some highly acid waste would seep directly into the ground and would not be appropriately treated. I am also questioning the viability of these liners over the long run of 50 to 100 years, especially when it will be constantly exposed to an acidic environment.	WR127
9066	High levels of lead and aluminum due to the overall mitigation process of treating this water have not been addressed	WR064
9075	After attending this open house I did not walk away with the confidence or complete certainty there would not be significant impact on the water in this area.	WR115
Sender Name (Submission ID)	Dan Johnson (19966)	
1560	In spite of the EIS there have never been a documented metals operation like this that has not led to surface and ground water pollution surrounding the mines.	WR023
1561	In spite of the EIS there have never been a documented metals operation like this that has not led to surface and ground water pollution surrounding the mines.	PD26
Sender Name (Submission ID)	Dan La Vigne (18244)	
13627	My first one is 200 years of water-pollution treatment from the mine site and 500 years of pollution seeping from the pit is not a viable solution to prevent an environmental catastrophe.	WR195
13628	Balanced against some 250 to 300 jobs for an estimated 20 years of employment is not an equitable deal for Minnesota residents.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dan La Vigne (18244)	
13630	Even current tailing ponds leak, for example, the one at Minntac. It has been out of compliance for years. How is PolyMet going to do better?	PD07
13632	Putting money aside in a fund is not feasible, especially for 200 to 500 years. Who can predict the cost? Besides, human nature being what it is, the probability of that fund remaining untouched is next to nil. I can easily imagine it being raided to reduce taxes or for something else.	FIN01, FIN05, FIN08
Sender Name (Submission ID)	Dan Nelson (38401)	
9619	20 years of mining is not enough to pay for hundreds of years of pollution risk and monitoring when the company could easily renege on its pledges by selling it's assets or opting for bankruptcy in the case of a disaster.	FIN01, FIN11
13765	Water Pollution - there are no sulfide mining operations that have not had problems and I do not believe PolyMet has shown that they will prevent any major pollution problems. The tailings and mine waste are reactive for too long a time period to take this lightly.	WR001, WR023, WR035
13766	Precedence setting - there will be other permit requests and if this first permit is put through without it being bullet proof then other companies will use that as the benchmark. So even if Polymet, by some stroke of luck, does everything right and does not have an issue, other companies may have issues that they can't handle. So Polymet, as the first one down the pipe, needs to be conservative in their projections and promises and liberal in funding for all the risks now and for hundreds of years.	PER07
13767	Job Outlook - Any pollution problems from this project will negatively impact the tourism industry jobs for far more than the 20 years of mining jobs.	SO02
13768	Thank you for your time and consideration and the very professionally run public meetings on this topic.	NEPA17
Sender Name (Submission ID)	Dan Parsow (57507)	
19503	I feel strongly that they have put together an excellent team of professionals and that this project will meet and exceed all environmental standards. In addition this project will bring much needed jobs and tax revenue to the area.	SO10
Sender Name (Submission ID)	Dan Petrella (40134)	
15302	Water in Northeastern Minnesota doesn't soak into soil because the soil is primarily rock. Water simply runs through the rocks and directly into the rivers. We found good solutions regarding the mining of taconite and I'm sure we can find a good ecological solution to copper-nickel mining if we deal with the honest facts. I urge we find other ways then is currently proposed to dispose of the water tailings from the copper-nickel mining.	ALT13
Sender Name (Submission ID)	Dan Steinhacker (52226)	
12957	the history of copper sulfide mining repeatedly shows a short window of increased employment and a certain future management of contaminates that remain long after the economic benefits and Polymet have gone.	SO01
12958	The lackluster initial proposal by Polymet is indication that any mining in Minnesota will be business as usual and business as usual with copper sulfide mining has a short window of benefit, generations worth of contamination and local communities and states left to deal with the mess.	FIN01, FIN10
Sender Name (Submission ID)	Dan Sullivan (11327)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dan Sullivan (11327)	
803	The Polymet proposal does not sufficiently address the amount of money that should be set aside for environmental degradation. The mining industry has a long history of declaring bankruptcy and leaving taxpayers with the bill.	FIN01, FIN05, FIN10
805	The risks of this project are so much higher than the reward and I am opposed to it.	SO01
Sender Name (Submission ID)	Dan Turpening (58161)	
19918	I am very much opposed to the Polymet mine. The environmental risks are too great in my opinion.	GT01
Sender Name (Submission ID)	Dan Waters (18123)	
13504	All these things point to the fact that Ely and the entire East Range needs mining. This is what the range was built on. This is what will sustain Ely and the rest of the range is mining. We can have both. We can have mining. We can have clean water. We can have tourism. There's no reason not to have any of those.	SO10
Sender Name (Submission ID)	Dana Harth (50549)	
11007	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards.	WR023, WR060, WR181, WR182, WR195
13294	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies.	WR023, WR060, WR181, WR182, WR195
13920	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards.	WR023, WR060, WR181, WR182, WR195
Sender Name (Submission ID)	Dana L Jackson (54916)	
19325	The prospect of allowing potential long term damage to lake Superior and St. louis River waters which flow into the lake --just for a short twenty years of copper and nickel extraction-is extremely serious. We cannot get this wrong.	WR111
19326	The water quality model in the SDEIS predicts that the Northmet Project water quality effects would not exceed the evaluation criteria at the P90 level except for aluminum and lead. These projections do not seem to take extreme weather events over a long period of time into consideration.	WR057, WR176, WR180
19327	My main concern with the SDEIS is the inadequate plan for dealing with financial assurances that will only be covered in the negotiations referred to as the Permit to Mine, which will be handled by the Minnesota DNR. The SDEIS does not provide enough information on financial assurances to confirm that amounts, timing, and safety are going to be met, over the long haul. A very thorough initial discussion is needed in the SDEIS.	FIN05, FIN13
19328	Also, the DNR Division of lands & Minerals is the only authority for protecting Minnesota taxpayers and Minnesota natural resources from the consequences of inadequate financial assurances. DNR by virtue of its mission charge is a conflicted agency. The State of MN directs the DNR to "develop" these mineral resources in addition to the charge that the development meets environmentally acceptable outcomes. We have considerable history in MN that DNR has not always enforced regulations it is charged to enforce.	FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dana L Jackson (54916)	
19329	No number of calculations could result in an adequate financial assurance for 500 years. Allowing a project design in the SDEIS that accepts 200-500 years of post operation treatment is not acceptable. However, that post operation monitoring should be paid for by Polymet for as long as is needed.	FIN01, FIN05, FIN11
19330	North Met should be required to complete the reclamation, and remainder treatment phase of the mine in no more than 10-15 years after mining is done. The SDEIS should require such project design and build financial assurances on that basis. Allowing up to a decade a for post mining obligations are reasonable.	FIN05
Sender Name (Submission ID)	Dana Lansky (43508)	
8078	unless the PolyMet NorthMet SDEIS bases all of its conclusions about the next five hundred years on the assumption that our climate situation is likely to be significantly changed for the worse, it is not taking reality into consideration.	AIR01
8081	Even if some governments hold up well under the environmental stresses to come, it seems extremely unlikely that all governments and systems that exist today will still exist five hundred years from now or even one hundred years from now.	SO02
8085	if humans don’t survive the coming changes (and aren’t around to continue water treatment schemes), that doesn’t mean that no animals will. Shouldn’t we be doing what we can to give as many life forms as possible a fighting chance for survival?	WI06, WR128
16100	please make sure the PolyMet NorthMet SDEIS explicitly states the assumptions about Minnesota’s climate, economy, society, water security, food security, and political system for the next five hundred years; upon which its conclusions depend. And please require that every one of those assumptions is backed up with strong evidence that those assumptions can be dependably relied upon for the next five hundred years.	PD29
16101	Any sulfide mining proposal that doesn’t address and plan for the reality that our climate situation will deteriorate is not addressing everything it should.	PD22
16102	Considering that some governments may collapse and climate-harming shipping and air travel could get banned, any scenario that involves the on-going need for any materials and technologies whatsoever that are not easily and completely obtainable locally should be dismissed without any further consideration.	PD22
16103	Do PolyMet’s water treatment plans require continuing access for hundreds of years to materials that are not easily obtainable locally? Will it be possible for Minnesotans to assemble such water treatment mechanisms themselves even if they no longer have access to sophisticated technology? Will local communities have access to everything they need to clean up all water pollution that occurs if mistakes are made or disasters happen?	WR035, WR128
16106	It is well known that clean water will become increasingly scarce. And no amount of money could possibly make up for anything that could decrease the likelihood that surviving Minnesotans have access to sufficient healthy water to drink and healthy food to eat.	SO01
16107	it is unreasonable for Minnesota Department of Natural Resources officials to accept mining proposals that could further undermine the human rights of Minnesotans based on such hopes alone.	PER35
16108	Please make sure the PolyMet NorthMet SDEIS provides comprehensive plans for the full range of possible disaster and failure scenarios that could take place over the next five hundred years, and explains how all of those possible scenarios could be addressed with local materials, by local people experiencing environmentally stressful circumstances, without the aid of a monetary system, and without the aid of sophisticated technology.	PD22

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dana McCarthy (44298)	
10590	There are also insufficient economic guarantees to address pollution issues in the event that the company goes bankrupt.	FIN01
10592	The studies done to support the PolyMet mine project have been deeply flawed and do not adequately protect our environment.	NEPA15
Sender Name (Submission ID)	D'Andre Wilson (54216)	
17669	Sulfur pollutes water sulfuric acid. And it decreases they're PH. And fish die because of the acid that goes in the water and it effects the fish.	WR001, WR113
17671	[Mining] can also mess up our trees for sight-seeing.	LU04
Sender Name (Submission ID)	Danette Vassilopoulos (39497)	
7836	The SDEIS for the Poly Met Mining Project is flawed and does not guarantee that sulfide mining can be done in Minnesota without seriously harming water and habitat.	NEPA08
7841	It seems an absurd assumption that water treatment for hundreds of years is a reasonable expectation… The major impact to the water shed is too complicated to know what the outcome will be in all scenarios.	WR195
7845	There are no models for replacing the types of habitats that will be detroyed [by the NorthMet mining project].	VEG03, VEG05
13433	The major impact to the water shed is too complicated to know what the outcome will be in all scenarios.	WR189
Sender Name (Submission ID)	Daniel Belgum-Blad (36347)	
3778	I am convinced that Polymet's and Twin Metals' plan will not keep our BWCA and surrounding rivers and lakes (watersheds) safe.	WILD02
3779	The sulfuric acid produced by this kind of mining is known to leach into rock and dissolve compounds that are toxic and that can then leach into waters -- impacting birds, fish, amphibians, and the whole web of life!	WI04, WR001
3780	Polymet's mine would destroy 1000 acres of irretrievable wetlands. We already have lost most of our wetlands in Minnesota. We can't afford to lose more.	WET24
13733	I realize jobs are important. But,the long-term risks [of the PolyMet mine] do not justify the short-term "gains" -- for anyone!	SO01
Sender Name (Submission ID)	Daniel Berg (50540)	
16976	Why give jobs to China, this is a global economy, use your heads and let mining be a part of the economy.	SO10
Sender Name (Submission ID)	Daniel Butler (6194)	
1181	I would also like to make the point that the public input for the process is somewhat unproductive and at times unreasonable. Rather than open all of this public opinion why doean't the DNR simply have the best prefessionla is a field determine if the mining is reasonable and allow the operation to proceed.	NEPA11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Daniel Drehmel (39602)	
6662	mining has historically put strain on the surrounding communities via the boom/bust cycle that tends to follow an influx of capital and workers in mining towns/areas.	SO02
13481	As northern MN is a beautiful and wild area that houses countless treasures that are uniquely ours and of great importance to the ecosystems that comprise northern MN, allowing potentially harmful mining practices to be used in advance of a full exploration of all options and a full report of the environmental consequences within that range would be irresponsible.	NEPA01
13482	Open pit mining is an abhorrently destructive practice that leaves landscapes irreparably damaged...fight for the health of MN's gateway to the north as our voice in a position to be heard.	LU04
Sender Name (Submission ID)	Daniel E Pearson (11609)	
3292	Poly-met, the unrighteous, will sit here and lie to you stating that there mine is for the people when in fact there mine is only good for the profit of a select few that have taken a path away from god, away from love, as they now put profit and power over the lives of others..	SO02
3292	Poly-met, the unrighteous, will sit here and lie to you stating that there mine is for the people when in fact there mine is only good for the profit of a select few that have taken a path away from god, away from love, as they now put profit and power over the lives of others..	SO02
Sender Name (Submission ID)	Daniel Engelhart (39271)	
7189	Sulfide mining cannot be done responsibly and The studies have already shown that.	PER35
12691	The proof is that no sulfide mine can escape the terrible pollutin that comes from this. The Jobs argument is also false given that mechanization has changed the way mining is done.	SO01
Sender Name (Submission ID)	Daniel H Mundt (54769)	
19764	No one knows how the migration of water will actually occur in this large area… a number of critical issues do not have answers or that the information, such as water, is incorrect.	WR063, WR072, WR143, WR146, WR147
19765	The amount and nature of the contamination and pollution of the ground water, the water in lakes and streams, and the wetlands in this large area will be because of the release of the adverse material by the proposed PolyMet mining process this is at best a "guestimation"… no one is able to tell us what will actually happen and how much it is going to cost for any type of remediation that will be effective or not nor do we know not just what treatment will be used, also involved for how long and how large	PD01
19766	Further, the destruction of flora and fauna and contamination of the water is permanent and is not reversible. No amount of money will restore what has been lost… We know that we have had major problems with frogs because of water contamination since the frogs are appearing with a great number of abnormalities or disappearing totally… We have had stream pollution of trout and salmon and lake pollutions of walleye, northern, bass, and pan fish for a variety of reasons we never anticipated and still do not understand.	VEG06, WI04
19767	We know that many other operations will want licensing to do what PolyMet wants to do in the same and contiguous areas relative to mining of the same minerals and metals that PolyMet wants to mine. Overload will be the obvious result.	CU04
19768	Creation of jobs is a viable concern. However, this cannot justify "selling our heritage for a mess of pottage".	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Daniel Hollenhorst (40765)	
10577	The scale of the proposal is so overwhelming and the technology so unproven that it appears that a failure is all too possible - and at what cost?	PD32
14169	We know that water is so mobile that any failure will lead to immediate leakage. Minnesota is known for its 10,000 lakes. We cannot accept the potential of seriously polluting pristine areas.	WR070, WR126
14170	How can you assure that precious Minnesota water and land resources will be preserved and protected?	GEN01
Sender Name (Submission ID)	Daniel J. Peters (38636)	
11870	the risks to MN water quality, at a time when potable water is becoming more scarce and valuable, is too great.	WR111
11873	I do not trust PolyMet or its parent corporation, and suspect they will simply declare bankruptcy and walk away with their profits, leaving the taxpayers of the state to foot the bill for potentially centuries of water pollution mitigation.	FIN01
11874	All that risk for 5 years of jobs for a few hundred people?	SO01
Sender Name (Submission ID)	Daniel Merfeld (57367)	
19605	This project will not only provide MUCH NEEDED jobs both now and in the future, but will also create many off-shoot jobs in the process.	SO10
19606	When it comes to the impact on the environment, all I ask is that the state of MN keep a close eye on how the plant is being run, as you do with all the current mines in the state. Continue to monitor what the mines put back into the environment and regulate it as you have been.	PER35
19607	Between mining and logging, these two jobs are the life-blood of Northern MN. We need these jobs or else our communities will quickly die out. Even Ely is not able to survive on toursim alone in our current economy. WE NEED MINING IN MN.	SO10
Sender Name (Submission ID)	Daniel Mettner (47063)	
16276	the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever.	WR115
16277	In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science.	WR003
16280	The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health.	MERC02, WR041, WR115, WR189
16281	The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streams.	WR003

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Daniel Mettner (47063)	
16283	The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge.	WR017
16289	The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures.	WR012
16291	The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility.	PD17, WR067
16292	The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards… This project would violate water quality standards for generations to come.	WR189, WR202
Sender Name (Submission ID)	Daniel Moran (58023)	
19834	Any times we destroy wet lands we add co2 to the atmosphere and this causes global warming	AIR01
19858	I support the no action alternative.	NEPA15
Sender Name (Submission ID)	Daniel Olson (21186)	
2013	Our scientific capabilities are great, but we are simply not smart enough to know if this plan, this experiment with our northern environment, is worth the risks that it presents.	SO01
16295	There could be unforeseen damages and costs that will have to be borne by our very distant descendants.	FIN10
16297	This current situation, alone, makes prediction models for what will occur 200 to 500 years from now much less reliable. We do not have the knowledge that we need to implement this plan at this time.	FIN08
Sender Name (Submission ID)	Daniel Otterstrom (11252)	
747	I have been following the progress of Polymet Mining and believe that they are going to be careful with the environmental issues so that the mining does not impact the land and wildlife in a negative way.	PD28
1499	They already have the resources to process the ores from mining and with them using the reverse osmosis to make sure that there are no residues left in the water to pollute the environment,	PD28
Sender Name (Submission ID)	Daniel Pauly (42966)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Daniel Pauly (42966)	
7804	The SDEIS assessment of Tailings Basin mercury contamination conditions is fraught with systematic data integrity problems that include mathematical errors in key formulas, improper selection of data sets, and suspected sample collection errors...These flaws have resulted in SDEIS drafters reaching the erroneous conclusion that Tailings Basin mercury seepage will meet Great Lakes Initiative standards of 1.3 ng/L.	MERC04
7810	As detailed in the attached comments, the present plan for the NorthMet Tailings Basin is to reuse LTV's60 year old unlined tailings basin that contains decades of heavy mercury loadings.	MERC20
15103	The errors and omissions in the Tailings Basin dataset have permeated the SDEIS and its supporting reports, resulting in incorrect fundamental conclusions as to current and future mercury discharges at the Tailings Basin and Waste Water Treatment Plant. In particular, the Tailings Basin and Waste Water Treatment Plant as proposed are likely to significantly increase total mercury, and especially methylmercury, loading in the Embarrass River watershed.	MERC04, MERC23
15104	In view of the data integrity issues and improper mercury discharge conclusions, the NorthMet SDEIS should review previously discarded Tailings Basin alternatives.	ALT21
15108	Of particular note are errors in the calculation for average water quality at the Tailings Basin...the preparers of the SDEIS failed to appreciate that some of their data was in the units "ng/L", and some of it was in the units "ug/L"... This failure resulted in large errors in a key SDEIS summary of mercury contamination, which incorrectly states that the majority of water seepage sites were below the Great Lakes initiative mercury level, when in fact most of these sites were actually above the Great Lakes Initiative level.	MERC04
15109	improper subsets of data: ...the SDEIS repeatedly considered only data that would show favorable mercury levels, while ignoring data to the contrary.	MERC04
15111	The Tailings Basin has four active NPDES monitoring locations that are positioned to intercept Tailings Basin seepage. ...Inexplicably, the SDEIS relies almost exclusively only on data from one of these discharge locations – the one that appears to show seepage below 1.3 ng/L. All three of the other discharge locations, including one that is better positioned relative to the likely flow of NorthMet discharges, were essentially ignored. The result is an improperly skewed assessment that mercury levels will be lower than 1.3 ng/L. Correction of this error shows mercury discharges above 1.3 ng/L.	MERC04
15112	a comprehensive review of mercury seepage data collected over time at the Tailings Basin also shows that Tailings Basin seepage will exceed Great Lakes Initiative mercury levels of 1.3 ng/L. Despite the availability of this information, it is essentially ignored in the SDEIS.	MERC04
15113	The SDEIS also relies upon a faulty mercury sequestration test that predicts remarkably low mercury levels in Tailings Basin seepage, while ignoring a superior test that does not predict significant sequestration. Specifically, the SDEIS gives great weight to a very flawed 8 hour experiment with NorthMet tailings in a flask, while never even mentioning in the SDEIS a much more comprehensive test prepared for the NorthMet site that showed mercury levels are likely to be significantly above Great Lakes Initiative standards.	MERC04
15115	The SDEIS includes an "Assessment of Existing Pond Water and Groundwater Quality at the Tailings Basin" that shows mercury seepage at nearly six times the Great Lakes standard for mercury discharges. This result is inexplicably not discussed further in the SDEIS.	MERC06, MERC20
15116	Mercury assessment errors lead to faulty WWTP design and pilot testing, as well as a defective containment system, both of which will likely lead to significant methylmercury discharges into the Embarrass River watershed	MERC04, MERC15

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Daniel Pauly (42966)	
15117	A combination of errors and faulty analysis cause the SDEIS to erroneously conclude that Tailings Basin mercury discharges will be below 1.3 ng/L... [This leads] to notable flaws: 1) failure to design and test a Waste Water Treatment Plant (WWTP) that will adequately determine viability of mercury removal; and 2) design of a discharge capture system that incorporates a wetland that will receive the majority of the mercury and sulfate from the Tailings Basin, and which will meaningful increase mercury contaminationin the Embarrass River watershed.	MERC04, MERC15, MERC23
15118	The WWTP will use reverse osmosis to remove contamination from Tailings Basin seepage. The SDEIS discusses a pilot test for the WWTP that was conducted in 2012. Unfortunately, the WWTP pilot test never evaluated mercury removal using reverse osmosis….The report states that maybe as little as 20 percent, or maybe as much as 99 percent, of mercury might be removed...Even then, according to the SDEIS documents, removal of methylmercury does not appear possible using the planned WWTP design.	MERC15
15119	the NorthMet site has an inadequate mercury assessment that lead to animproperly designed pilot test, which results in tremendous uncertainty about whether PolyMet will be able to adequately remove mercury from Tailings Basin seepage and WWTP inflows.	MERC15
15120	The SDEIS seeks to address these concerns with a proposed “adaptive engineering” approach for the WWTP design and operation. An “adaptive engineering” approach is inconsistent with best practices in the literature for removal of contaminants using reverse osmosis, because each location and system has unique problems and challenges...By approaching critical issues and long term challenges with an adaptive engineering approach, the NorthMet project risks decades of uncertainty, contaminant release violations, and unforeseen costs	PD03
15121	the currently proposed NorthMet Tailings Basin has been modified since the DEIS to create a containment system outside of the Tailings Basin. Thecontainment system will include an up to 160 acre wetland that will be receiving the mercury and sulfate laden waters from the combined LTV/NorthMet tailings... The NorthMet project’s own model data shows in great detail that most mercury and sulfate will be delivered directly to this wetland, and not to the containment system drains. Contemporary research…shows that this wetland, with its mixture of mercury, sulfate, and organic matter, is a prime environment for methylation of mercury.	MERC09
15122	recent research by government investigators in Minnesota in the lastfew years has shown shockingly high levels of methylmercury in wetlands, including methylmercury spikes at the toe of taconite tailing basins. The SDEIS never asks what will happen to that methylmercury. It is likely that some of it is going to be carried to the WWTP, but as the WWTP pilottest itself reports, there is no plan for removing it….Current research shows it will be absorbed by everything from mosquitos to earthworms, and will then travel up the food chain throughout the Embarrass River watershed.	MERC02, MERC09, MERC15
15123	Tailing Basin Alternatives were Prematurely and Improperly Eliminated...the present plan for the NorthMet Tailings Basin is to reuse LTV’s 60 year old unlined tailings basin that contains decades of heavy mercury loadings. The existing LTV tailings basin has been drying out since 2001, and seepage volumes have declined. As noted in the SDEIS with reference to the No Action Alternative, the LTV tailings basin should continue to dry out in coming years, with a concurrent drop in contaminated discharges.	ALT10
15124	...two alternatives, at a minimum, should have been considered more thoroughly to see if they could have avoided the problems of perching a new unlined basin on top of an old unlined basin: either (a) putting a liner between the basins; or (b) locating the new basin somewhere other than on top of an old unlined basin. Both of these alternatives offer significant improvements in regards to preventing release of mercury from the existing LTV tailings basin, avoid the interaction of seepage water between two different types of tailings, and allow for what will likely be a significantly less complex and less expensive waste water treatment facility...I believe these alternatives were prematurely dismissed because DEIS and SDEIS preparers overlooked the fact that that mercury contamination would be an issue	ALT10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Daniel Pauly (42966)	
15125	it will be too late in 10 or 20 years, once the Tailings Basin has been filled, tofind out that there might have been a better and cheaper way. Should the "adaptive engineering" approach to the WWTP prove unworkable for long term water treatment, it will be too late…to segregate the NorthMet tailings and LTV tailings.	PD07
Sender Name (Submission ID)	Daniel Schutte (11618)	
2299	The final destination for the metals produced by this mine should be determined.If we as a country are concerned about losing our status as a global super power, we should not be extracting and providing the resources that other countries are limited by so they can continue their growth. This project makes PolyMet rich in the short-term, and bleeds our country of valuable resources.	PD25, SO02
2299	The final destination for the metals produced by this mine should be determined.If we as a country are concerned about losing our status as a global super power, we should not be extracting and providing the resources that other countries are limited by so they can continue their growth. This project makes PolyMet rich in the short-term, and bleeds our country of valuable resources.	PD25
Sender Name (Submission ID)	Daniel Telin (19528)	
13446	I would just like to go on record that I believe the EIS… is insufficient in that the project introduces sulfites and other contaminants into an essentially uncontaminated environment and a partially compromised St. Louis River watershed.	WR010, WR107, WR109
13447	And finally, there is no long-range plan for the treatment of the tailings and the sulfide wastewater whose treatment would run into centuries.	PD03
Sender Name (Submission ID)	Daniel W McLaughlin (54811)	
18345	I oppose the approval of the Polymet mine…[because of] the requirement for wastewater treatment for 500 years after the mine closes. How can an accurate cost for such treatment possibly be calculated…?	FIN05
Sender Name (Submission ID)	Daniel Zachman (44881)	
8138	The plan to mitigate waste-water run off is not adequate.	WR130
17098	It is irresponsible to expect our grandchildren to continue to clean the waste-water from our jobs project.	SO01
Sender Name (Submission ID)	Daniel Ziegler (30041)	
10988	I hope someone other than taxpayers will pay for the clean up future mining operations.	FIN01
Sender Name (Submission ID)	Danielle Cabrera (41695)	
2163	The gravity of losses that would be incurred as a result of the mine are much greater than the economic benefits.	SO01
Sender Name (Submission ID)	danielle henjum (52316)	
10801	I believe that use of water for hundreds of years to clean up the mining is too precious of a resouce for our people.	WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	danielle henjum (52316)	
10803	If a mining is allowed try it on a scale that is only 25% of what Polymet is currently proposing for 20 years. Use this as a way to both compromise with business and environmental interests and as a way to study the impact of such mining in MN.	ALT13
Sender Name (Submission ID)	Danielle Lake Diver (39466)	
7172	My husband is a member of the Fond du Lac Band of Lake Superior Chippewa and he is concerned for the future of wild rice, which is a culturally important food as well as a means of economic and nutritional support for many people on Fond du Lac Reservation and throughout the Arrowhead region. If waste from open pit mining gets into wild rice beds the wild rice will die off.	VEG04
7183	If the waste [from the NorthMet mining project] reaches our ground water, we will have to leave our home.	WR041
13346	My husband is a member of the Fond du Lac Band of Lake Superior Chippewa and he is concerned for the future of wild rice, which is a culturally important food as well as a means of economic and nutritional support for many people on Fond du Lac Reservation and throughout the Arrowhead region. If waste from open pit mining gets into wild rice beds the wild rice will die off.	VEG04
Sender Name (Submission ID)	Danielle Sveiven (54205)	
17639	I am against building a mine up north, sulfide mining is one of the dirtiest mining types. Sulfide mining is 99% waste. The boundary waters has some of the purest watersheds, where people LOVE to go camping and canoeing. I personally love going camping up there and enjoy how clean and beautiful it is.	LU06
Sender Name (Submission ID)	Danielle Taylor (20033)	
1679	The proposed Polymet mine promises 300 jobs for 20 years. But it also calls for up to 500 years of monitoring and clean-up. This equation does not add up to development—it is simply extraction.	SO01
Sender Name (Submission ID)	Darlene Coffman (16990)	
11031	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Darlene Eckert (42930)	
9809	The value of water in the future will increase as the population grows and competition for water increases...Will there be enough water to fill this pit and all the others that will need groundwater and surface water to fill their mine pits? … By using these water resources in this manner are we lessening water availability for other purposes specifically recharge of lakes and rivers regionally?	WR181, WR182
9812	Who will own the billions of gallons of water that will be mined to fill the mine pit? .NorthMet ownership will mean they can sell it to the highest bidder...The water in the pit should remain waters of the State so that Minnesota can benefit from its resource and determine how it should be used. At a minimum, Minnesota needs to tax this resource so that a portion of the value is returned to the State.	PER03
9818	This mine pit [NorthMet] will always be a dangerous lake. There will be narrow shore land with steep drop-offs. … during filling, the benches will be the only shore. …This will be unsafe for children especially. The access will require continual work to allow boats and people to use it safely. So it is unlikely to become a good recreational lake.	LU06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Darlene Eckert (42930)	
9822	The proposal is to cover [the Category 1 Stockpile] with grasses for vegetation... the grass will require continual maintenance into perpetuity…it will be difficult to maintain grass on that slope as it is designed to drain water. With only 18" of soil to grow grass, the grass will be continually dry during the growing season and will need fertilization and water to maintain the grass. It will require periodic mowing or burning to maintain the cover. It will really look like a weed patch with erosion 10 stories high. Visually unappealing.	VEG05
9823	The Category 1 stockpile, as I recall will be 280 feet tall and over a mile long. It will be covered with a 40 mil cover, and 18 inches of soil. This will be about the height of a 28 story building. In this relatively flat area, it will be visible for quite a distance. It will be the size of a Butte and appear like a Mayan temple with the stepped sides...Not a pretty sight.	LU04
9825	The new butte will block the wind in addition to acting as a visual barrier. I'm uncertain of the effects of reduced wind on the climate but expect that it will create a microclimate downwind of the category 1 stockpile…This will further impact the wetlands in that area, warming the water and changing the vegetation types.	VEG07
9826	The purpose of the synthetic cover [on the Category 1 stockpile] is to reduce infiltration of rainwater thus reducing leaching of undesirable mineral into groundwater or runoff.... As time goes on the permeability of the cover will increase allowing more leaching to occur and contamination to seep into ground and surface waters. By the time this occurs, NorthMet will be long gone so it will be up to the State to manage...This does not meet the legal requirements of no maintenance for closed facilities.	PER04, WR127
9829	Longterm category 1 pile options:…NorthMet should backfill this material back in the mine pit…When they have completed excavation of the first mining pit, they can transport the category 1 material back to the pit in the empty trucks as they return to the pit. Some of the category 1 pile can remain and be used for closure of the ponds.	ALT03, ALT06
9831	Longterm category 1 pile options: …Perhaps the stockpile could be constructed in a more natural way to simulate a mountain for a future ski area. Another option would be to use the top for wind towers, although I find this visually poor it may be beneficial to surrounding communities or Allete.	ALT06
9833	The DEIS underestimated the cumulative impacts to native habitats in this region. The entire iron range, a band of land from Grand Rapids to nearly the Boundry Waters, has suffered near total destruction of the native habitat. The destruction of habitat is not from one action but a continuing series of actions including mining, urbanization and settlement among others.	CU17
9837	The property transfer portion of this proposal is truly absurd from the public point of view...In the NFS accounting system, as long as it has the same percentage of land under its jurisdiction, the trade is good. However, … these wetlands created soon after the last ice age cannot be compared to several chunks of property in different watersheds. There is no comparison between the natural wetlands in biodiversity and productive habitat no matter how thorough the restoration is.	LAN03
9838	The iron range development has formed an almost complete barrier to wildlife movement along its length. The DEIS has identified corridors used for wild life movement, several of which are in the vicinity of either the plant site or mine pit. Through the NorthMet proposal, the corridors will be further narrowed and reduced or lengthened.	WI03
14465	The transfer of the property should not be approved as the proposed transfer properties are a great distance from the mine location proposal, ecologically of less value and fragmented compared to the proposed mine site. Mitigation rules specify that replacement land be in the same watershed.	LAN03, LAN06
Sender Name (Submission ID)	Darlene Haus (42865)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Darlene Haus (42865)	
8892	Our pristine wilderness and fresh water system are too high a price to pay for short-term gain [from the PolyMet project]. We should recognize a greater value in the long-term health of our citizens by protecting our environment, promoting more recycling and seeking sustainable long-term investments.	SO02, WILD02
8892	Our pristine wilderness and fresh water system are too high a price to pay for short-term gain [from the PolyMet project]. We should recognize a greater value in the long-term health of our citizens by protecting our environment, promoting more recycling and seeking sustainable long-term investments.	WILD02
18101	How can we put a price on the most beautiful, unspoiled part of our state?	SO01
18101	How can we put a price on the most beautiful, unspoiled part of our state?	SO01
Sender Name (Submission ID)	Darlene Jackson (42537)	
15589	PolyMet has gone above & beyond all necessary environmental studies & it is time to move on & get started. We need our young people to move back for good paying jobs. They buy & build houses, buy cars, furniture, gas, food, etc. They have kids to fill our schools again. Spin off jobs & businesses will survive.	SO10
Sender Name (Submission ID)	Darrell and Delores White (57243)	
17367	There is a high risk of pollution to our water, land and wild life.	WI04
17368	Tourism will be ruined for years in this area.	SO02
17369	Cleanup is expensive; they should have “billions” in a cleanup fund which no one can use except what it’s intended for.	FIN01, FIN05, FIN08
Sender Name (Submission ID)	Darrell Godbout (18073)	
13269	how many small towns there are who would love to have a project like this built in their small town to bring up their community, their schools, small businesses, and all of us that have had kids have to send them off somewhere else to go to work. Here's an opportunity we can have our kids stay right here, Hoyt Lakes, Aurora, the Iron Range, and get a job and stay here. I think that's very important.	SO10
13271	Here, we got a company that's going to do it clean. We won't have to import this stuff no more. We can sell it right here in Northern Minnesota.	SO10
Sender Name (Submission ID)	Darren Froehle (54641)	
18016	According to the Minnesota Department of Revenue, in 2011 tourism in Northeastern Minnesota generated over 700 million dollars and provided private sector employment to 16,000 people. Any denigration of our natural resources would put this money at risk.	SO02
18018	Polymet's mining plan is an unproven process, proposed by a junior mining company with no current operation to evaluate. They offer us only theoretical models with no real world testing.	PD23

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Darren Froehle (54641)	
18019	Demanding full financial assurance in the form of a full bond against potential cleanup costs should be a minimum requirement before proceeding with any new, high-risk mining; however, even that would still not safeguard our waters from contamination.	FIN08
Sender Name (Submission ID)	Dave Cicmil (6190)	
1054	With the time, research, and money that has been invested towards this project and Polymet's commitment to the environment, providing well-paying jobs and tax revenue, while providing the metals so badly needed to improve our quality of life.	SO10
Sender Name (Submission ID)	Dave Clapper (17001)	
1640	When an opportunity like PolyMet comes around to mine the world's largest cooper reserves, we owe it to the region to create hundreds if not thousands, of jobs … Our economy could use a boost in that region	SO10
2086	I for one believe that PolyMet Mining would operate the mine responsibly and protect the long-term environmental concerns.	PD28
Sender Name (Submission ID)	Dave Crawford (38374)	
11210	The PolyMet SDEIS fails to acknowledge the Tribal Cooperating Agencies' position that there will be a need for containment or treatment of contamination from mine waste, mine pit, and tailings pile in perpetuity. Require the SDEIS to be redone to include this testimony and an objectively substantiated response from PolyMet.	WR035
11213	The PolyMet SDEIS does not adequately substantiate PolyMet's claim that 99.37 percent of the seepage from the tailings pile will be captured and that no contaminants will seep from the mine waste rock pile. Require the SDEIS to be redone to provide verifiable substantiation of claims of protection of surface waters from contamination.	WR018, WR020, WR021, WR070
11214	Damage to wetlands surrounding the project site and direct destruction of 913 acres of wetlands by the project are inadequately mitigated. The majority of mitigation for direct destruction will take place outside the Lake Superior Basin and therefore does not mitigate the impact of the project on the Lake Superior Basin. There is no plan to replace most of the indirectly damaged wetlands which will likely be compromised in the area surrounding the project. Deny the Section 404 wetlands destruction permit and require a reassessment in the SDEIS of likely impacts to surrounding wetlands outside the project footprint.	COE01, COE02
11216	The PolyMet SDEIS does not adequately assess the potential impacts of contaminant seepage through existing bedrock fractures and through additional fractures which may result from routine blasting operations at the mine pit. Require the SDEIS be redone to accurately address these impacts.	WR012, WR016
11217	The PolyMet Land Exchange would result in net losses of thousands of acres of high biodiversity plant communities, floodplains, and mature forest. Deny the land exchange in both of its two proposed alternatives.	VEG02, VEG03
11219	The PolyMet SDEIS lacks a health risk assessment which sufficiently addresses likely impacts to PolyMet workers' health and the effects of airborne and seepage contaminants on drinking water wells, surface waters and their human-consumable resources of fish and wild rice, and on aquatic and terrestrial wildlife throughout the watershed, including threatened and special concern species. Require a health risk assessment.	HU04, VEG04, VEG06, WI04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dave Crawford (38374)	
11221	The PolyMet SDEIS fails to explore alternatives such as comparing an underground mining alternative with the proposed open pit mine; placing waste rock back into the pit; placing liners under the waste rock pile and tailings piles; or implementing engineering solutions to reduce water drainage away from Partridge River Watershed wetlands and streams. Require a new SDEIS which documents these alternatives and compares them with the current proposal.	ALT06, ALT07
11223	Deny PolyMet a mining permit until all of these inadequacies are corrected with well-substantiated data and with guaranteed measures to negate adverse impacts for the entire expected duration of the problem.* This is of particular importance because the precedent which is set in allowing a hard rock mining permit in sulfide-bearing rock will set the bar for any subsequent applications for similar mining.	PER35
11229	Mining companies are temporary entities, but the PolyMet proposal creates a permanent problem. Regulatory oversight is not sufficient unless it guarantees that the party initiating a proposal will take, and be held to, all of the responsibilities for all costs and damages, present and future, which may arise as a result of implementing the proposal. If the initiating party can't make this guarantee, the proposal should be denied.	PER03
Sender Name (Submission ID)	Dave Ethier (43337)	
11237	The PolyMet NorthMet SDEIS contains inadequate analysis of risks to the citizens and taxpayers of Minnesota and the impact this project will have on water quality.	HU01
11238	There has not been enough research and analysis to identify the impact of a 100 or 500 year flood on containment systems and the site in general.	PD22
15588	Conduct a impact assessment for potential historic flooding for the PolyMet project, and include the results of the assessment in the EIS.	NEPA05
Sender Name (Submission ID)	Dave Gaddie (6605)	
1090	...move forward with jobs and materials that will help drive the economic environment for all of us who operate a business in NE Minnesota.	SO10
1198	I would like you to approve the permits necessary for PolyMet to proceed to construction. This project has been thoroughly vetted as it should be, but it should not be held to higher standards than any other mining project currently operating in NE Minnesota.	PER34
Sender Name (Submission ID)	Dave Gibbens (38453)	
13616	Unlike tourism, mining actually creates wealth. To the extent that deleterious effects are minimized, it's a good thing for northeastern Minnesota and the state as a whole.	SO10
Sender Name (Submission ID)	Dave H (9486)	
176	Are you ready to accept the increased risk of water pollution within two of the last, nearly pristine, water sheds that are likely needed in the future	WR111
177	Can you in good conscious, allow a 2% increase of CO2 levels when we know it increases climate temperatures	AIR01
178	Are you content permitting foreign investors to benefit by pilfering through our remaining prime state’s forest land for a few million dollars and a few dozen jobs	PER02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dave H (9486)	
947	Indications are that of Polymet's estimated 350 jobs only about 75 would involve local resources.	SO06
Sender Name (Submission ID)	dave hunsche (7623)	
28	if there is any research into the presence of asbestos or similar fibers in the soils or rocks at the proposed mine site	AIR03
29	If any of these fibers are present what are the implications for worker and the surrounding populations health	AIR03
Sender Name (Submission ID)	Dave Kotula (42545)	
15614	The MPCA & MDNR have looked over and examined this project for years & years, they are OK with it. Only the Tribal Agencies seem to be against it. The Tribal arguments are skewed. In my opinion they would never be for ANY mine or plant. This project will be good for the environment & great for northern Minnesota.	NEPA16
Sender Name (Submission ID)	Dave Lacey (3246)	
197	The short term jobs do not compare to the degradation left over when they are gone.	SO01
Sender Name (Submission ID)	Dave Laliberte (43063)	
11495	Northeastern Minnesota's history, though, should caution us that in all likelihood, any mining proposal for the region is likely to feed another boom-bust economic cycle simply because the extraction of minerals from northern Minnesota is inextricably linked to the broader society's demand for that mineral—a trend that cannot be accurately predicted decades into the future.	SO02
11497	…whether PolyMet's operations continue for a portion of two decades or beyond it, a private company cannot be expected to endure—and financially ensure the environmental health of the area it impacts—for centuries.	FIN01
Sender Name (Submission ID)	Dave LaZella (7152)	
491	Poly Met will provide many jobs for the local economy along with generating a substantial amount of tax revenue for the state.	SO02
677	I believe that the supplemental draft EIS has thoroughly looked at and addressed all environmental concerns.	NEPA16
Sender Name (Submission ID)	Dave Leitzke (44909)	
8263	this mine will have a devastating effect on the environment of the immediate landscape….	SO02
8266	[This project will] poison the drinking water of local residents.	HU03, WR041
8269	This mine might provide short-term profit for its owners and share holder.. it will also wreak havoc with the surrounding countryside as well.	SO01
17110	The beauty of our state must be preserved.	LU04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dave Lislegard (44276)	
12768	PolyMet represents an opportunity to create hundreds of direct jobs supporting families on the East Range, as well as thousands of additional jobs statewide….What better way to stand up for environmental and economic justice than to create mining jobs in a state with some of the strictest environmental regulation in the world and labor and safety laws designed to protect workers.	NEPA05
14874	PolyMet's reverse osmosis water treatment design is well tested and used in many applications today.	PD28
14875	The Minnesota Department of Natural Resources is a respected agency responsible for determining that the PolyMet project will meet our state's strict standards. They along with the EPA and Army Corps of Engineers have been deeply involved with the evaluation of the state of the art technologies that will be used by PolyMet.	PER34
Sender Name (Submission ID)	Dave Mills (45008)	
17290	Mining is not a economically sustainable industry. Sometimes a boost to an economy can help revitalize a community, but if there is significant potential harm it would seem a dangerous wager	SO01
17291	I would suggest minimizing the environmental risk of the area from a safety standpoint….	GEN01
17292	I would suggest minimizing the environmental risk of the area from … a financial standpoint, if bankruptcy occurs….	FIN01
17293	The Polymet project would potentially improve the economy for less than a lifetime, yet the potential hazards will last for much longer than a lifetime, much longer than Minnesota has been a state, and much longer than any living thing in our State.	SO01
17295	The EIS of the project does not sufficiently cover our interests. There is too little evidence supporting the project, especially considering the real potential harms.	PD01
Sender Name (Submission ID)	Dave Redelman (43605)	
12517	You could make EIS easier to follow by including all relevant information in the document and not refer back to SDEIS or DEAS. Also, when the EIS is released, the List of References should include links to those references with the references stored and easily accessible on the DNR website. Users of the website should be able to download these reference files….	NEPA07
12534	How many tons of rock will be used as a unit to segregate the rock into different categories? Within this unit, how much mixing will there be of rock from the different categories?	PD15
12537	The approximate and inferred faults in and adjacent to the mining operation are shown Figure 16. Cumulative Area of Vibration Impacts from the Tribal Cooperating Agencies Cumulative Effects Analysis on page 2074 of the SDEIS. These faults need to be specifically investigated to address possible groundwater issues. Also, I think the blasting effects on these faults needs to be specifically addressed.	N05
15676	I feel the comment period for the EIS should be 180 days. The comment period for the SDEIS should have been longer than 90 days due to the complexity of the document and the modeling used in the document.	NEPA07
15677	There have also been many mining companies going bankrupt with inadequate financial assurances resulting in taxpayers paying for the cleanup. … Detailed financial assurance calculations with the associated risk analysis need to be completed for the EIS. This risk analysis is crucial in the EIS and any decision to proceed forward to the permitting process is dependent on this risk analysis.	FIN01, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dave Redelman (43605)	
15678	My primary concerns involve addressing long term water quality issues. Sulfide mining has a generally poor record leaving long term water pollution after closing the mines. I am sure the proposals for these polluting mines also looked good on paper but still resulted in long term pollution problems.	WR023
15679	What is typical of [the permitting] process as the SDEIS is for the first sulfide mine in Minnesota? Also, forgive me but it seems absurd that more detailed engineering and analysis of risks would only be completed during permitting. Again, the engineering design and the risk analysis are both crucial in the EIS. Any decision to proceed forward to the permitting process is dependent on this risk analysis.	PER03
15680	Spatial variability and spatial statistics of sulfides and other possible pollutants within the rock in the pit area not adequately addressed.	PD15
15681	Given the spatial variability of sulfides in the pit rock, is it even possible to separate the rock into categories for permanent storage? I do not see the spatial statistics on the variability of sulfides in the pit rock in the SDEIS.	PD15
15682	Waste Rock Categorization Properties Table 3.2-8 lists the percentages of Total Waste Rock Mass listed for each category. Where are the statistics that describe the variability and accuracy of these estimates?...How does the sulfide in the pit rock vary spatial based on your current drill samples?... How can you be confident that the waste rock can even be separated into the categories throughout the mining process without these spatial statistics?...How will you assure that rock form the different waste rock categories will be kept separate?	PD15
15683	I do not see where any specific astronomical or ecological light pollution issues are addressed as described in the thematic response: “This topic is discussed in Sections 5.2.11 and 5.3.11 of the SDEIS.”	PD01
15684	the cumulative effects from increased development and population need to be addressed. The State needs to develop best practices to address these topics and then include the best practices in development projects. Local zoning ordinances will only begin to adequately address these issues with leadership from the State.	CU15
15685	The night sky is one of the draws to the BWCA. All the proposed mining operations as well as other industrial and residential development near the BWCA would increase light pollution with a negative impact on viewing the night sky.	WILD02
15686	The effects of ecological light pollution are much more difficult to understand and to remedy. According to Bogard and other researchers, there is increasing evidence of negative effects on bats and migrating birds as well as nocturnal vertebrates and invertebrates.	WI01, WI04
15687	There are cumulative, long term effects from ecological and astronomical light pollution from increasing development and population. The DNR needs to develop best practices for both ecological and astronomical light pollution. These best practices need to be part of the PolyMet EIS.	PD01
Sender Name (Submission ID)	Dave Salo (18085)	
3211	Now, in conclusion, we know these metals are not readily available on the surface, but we need to extract them from the ground, and we need to do this to maintain the current manufacturing of these drugs and these products.	NEPA05
Sender Name (Submission ID)	Dave Sandstrom (9560)	
971	Polymet is utilizing environmentally friendly technologies designed to mine resources without abusing the environment - technologies that simply were not previously available.	PD28

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dave Sandstrom (9560)	
972	Polymet is utilizing environmentally friendly technologies designed to mine resources without abusing the environment - technologies that simply were not previously available.	ALT24
Sender Name (Submission ID)	Dave Semerad (18158)	
13256	We believe this project will infuse economic vitality into the communities... Not only will meaningful projects be created across a wide spectrum of careers, but confidence and faith in Minnesota industry will be uplifted finding its way into communities, schools, and families. For every $1 million of investment, 28,500 jobs are projected. We urge that this project proceed without further delay.	SO10
Sender Name (Submission ID)	Dave Worshek (42566)	
17065	As a city councilor I feel it will help bring much needed jobs into the range. I feel it will also bring in other business's to our area which could also add jobs. Besides new jobs to our area I believe this will also be a real shot in the arm to our existing businesses. I also hope that this will bring new families to area with young children which will be a boost to our schools.	SO10
17066	I do feel the land exchange with the Forest Service is a positive proposal. The Forest Service is basically trading out of an area that has been right in the middle of taconite mining. They will be receiving land such as the Hay Lake area that has many acres of wetlands, is wooded and has little access. I believe that it is stated that there would be a net gain of approximately 70 acres of wetlands.	LAN11
17067	As far as water resources I do feel that with the restrictions places on Polymet that the water quality in existing stream/drainages would end up cleaner than what is now coming out of the old LTV tailings basins. I believe the main concerns would be sulfate and mercury and with the treatment planned it shows that concentrations would actually lower. The great lakes initiative discharge standard for mercury is 1.3 ng/L which is hard to make without doing anything to our water.	WR190
17068	Under the socioeconomics section it states that there will be no effect under the no action alternative. I do no believe that is correct. I believe that if we do not get some type of new industry up in this area we will lost businesses. Our local small businesses have been barely getting by and if we do not see something positive in the near future there will be some that will have to close their doors.	SO04, SO10
17069	Under wilderness it also states that no action has no effects. I also disagree with this statement because Polymet will bring new families to the area that may be looking for an out experience. This could mean more visitors to the BWCA, and more tourists to our area using our recreations facilities.	LU06
17070	I would rather have the mining happen here under our rules and regulations rather than in some far off area where we do not get any of the benefits but do get some of the adverse effects.	NEPA05
Sender Name (Submission ID)	Dave Zins (45274)	
9167	The only way the public could ever utilize the mine site for recreation would be by trespassing. This is the reason I believe the land exchange with the U.S. Forest makes sense. This land exchange would open up lands that have been privately held, for the general public to use and enjoy for generations.	LU01
9169	I believe that the technology exists for this project to move forward now and start a new generation of mining with sustainable jobs for years to come.	SO10
Sender Name (Submission ID)	davec (19912)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	davec (19912)	
1503	The government agencies are doing a wonderful job insuring the mining companies currently running are following the rules and leaving the environment as good as or better than the original terrain.	NEPA16
Sender Name (Submission ID)	David (7736)	
842	After observing Polymet Minings efforts over the past several years and carefully reviewing the recent SDEIS, I feel the company has met the environmental requirements and should be issued a permit to proceed.	PER34
8362	This type of mining has never been done without polluting the surrounding area.	PER35
8363	The owners of the companies proposing the mining project are foreign owned, and almost impossible to go after once problems arise.	FIN04
8364	The taxpayers will be on the hook for the reverse osmosis mitigation. Estimates show that we will have to provide mitigation for at least 500 years. The average corporation like Polymet has a much shorter lifespan. They will be sold or go out of business, and we will be left holding the bag. There is no way the companies can make enough money to build the infrastructure to change public opinion, start up the mine, pay salaries, buy equipment, ship and process the ore, close the mine, and treat the ground water forever.	FIN01, FIN10, FIN11
8366	These proposals always wildly inflate the number of jobs that will be created.	SO04
16734	You can see (the inability to trust regulating entities) when you look at the DNR website which does not mention the flaws in the water model, which I believe underestimated the river flow rate on purpose.	WR003
19883	For everything that will happen, pollution, environmental degradation, it will be MN taxpayers footing this bill. This mine will cost Minnesotans more [ILLEGIBLE] it pumps into our economy.	FIN01
19885	No Mine has ever successfully run without major environmental effects. For everything that will happen, pollution, environmental degradation, it will be MN taxpayers footing this bill. This mine will cost Minnesotans more [ILLEGIBLE] it pumps into our economy.	PD26
19924	I know firsthand how valuable this resource is to the resort owners to tourists. This industry is a proven, reliable economic engine for northern Minnesota. To risk losing and [ILLEGIBLE] damaging this precious resource in favor of Polymet CEO's and 300 employees is absolutely not worth it.	SO01, SO02
20032	No mine has ever successfully run without major environmental effects	PD26, SO01
Sender Name (Submission ID)	David & Alison Edgerton (46933)	
10861	I urge the State of Minnesota to deny the permits and leases for the nonferrous mining proposed by PolyMet. It has too many risks to our environment-- the flora and fauna of the area including the people who live or recreate in the region.	VEG10, WI13
10862	There are too many unknowns about the process, the heavy metals that may be released, and the cleanup and reclamation required for years and years after the actual mining.	PD01
10863	Please protect our northern forests and lakes, our world-reknowned recreational area, and the people who live there.	LU06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David & Ardis Eide (42718)	
14336	Minnesota's top natural resource is clean water. With the Boundary Waters lakes and Lake Superior we have a resource that can't be matched in the country. However, that resource is fragile and the biggest enemy is pollution.There are no examples of open pit copper mining in the world that haven't caused destruction or displacement of the ground water. In our case, that destruction would also include surface water, our greatest resource.	WR023
14337	We know the demand for copper and other metals won't dry up and the value of the ore will certainly appreciate. It's also very likely that earth-friendly means of extracting the metals will be developed in the future. What would it hurt to save a known valuable resource until it's safe to extract it? Imagine the value if Minnesota had saved some of our high-grade iron ore.	PD32
14338	We need to be sensible stewards of our resources. We can't accept short-term gains in exchange for long-term harm to our most valuable asset.	SO01
Sender Name (Submission ID)	David A and Dianne K Kuiti (42876)	
9004	Our country needs the minerals located in northern Minnesota. It is great that PolyMet has stepped forward to invest capital and take the risk involved in this project. As a bonus we will get jobs in Minnesota, we will export the product and receive cash, primarily from outside Minnesota.	NEPA01
9004	Our country needs the minerals located in northern Minnesota. It is great that PolyMet has stepped forward to invest capital and take the risk involved in this project. As a bonus we will get jobs in Minnesota, we will export the product and receive cash, primarily from outside Minnesota. This is a win, win situation for all Minnesota residents.	NEPA01, SO10
18049	The State of Minnesota has an excellent reputation and laws to protect the environment and should not be compared with other countries/areas and policies in effect years ago.	PER44
18049	The State of Minnesota has an excellent reputation and laws to protect the environment and should not be compared with other countries/areas and policies in effect years ago.	PER44
18051	The State of Minnesota is investing ~ billion dollars in a stadium for the Minnesota Vikings to keep jobs in Minnesota. This stadium may last 500 years and will require maintenance during the useful life and then will be torn down . The State of Minnesota did not require a reserve for the demolition. PolyMetonly wants approval from the State to proceed with the project.	FIN16
18051	The State of Minnesota is investing ~ billion dollars in a stadium for the Minnesota Vikings to keep jobs in Minnesota. This stadium may last 500 years and will require maintenance during the useful life and then will be torn down . The State of Minnesota did not require a reserve for the demolition. PolyMetonly wants approval from the State to proceed with the project.	FIN16
Sender Name (Submission ID)	David Alexander (47598)	
7258	A reputable third-party insurer, such as Lloyd's of London, must be found.	FIN08
7260	I'm not confident the proposed PolyMet mine would avoid polluting Minnesota's water.	WR115
17184	We have plenty of copper to recycle already.	NEPA06
Sender Name (Submission ID)	David Aquilina (45421)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David Aquilina (45421)	
11348	What is the environmental impact of a threefold increase in the volume of ore dug up – at the PolyMet mine and at other mines that would need to be opened to supply their processing facility?	SO04
Sender Name (Submission ID)	David Arbeit (42935)	
9846	The right decision hinges on the trade-off between a reasonable expectation of economic benefit over a short twenty-year period in exchange for an unreasonable expectation that mitigation will prevent incalculable and irreversible environmental damages, economic costs and human health issues that will be felt by generations.	SO01
9855	[The SDEIS is inadequate because of] inadequate assessments of long-term risks, a bias towards “best-case” scenarios that convey a false sense of prospects for mitigating risks … and the absence of compelling evidence that technologies needed for reducing long-term risks to acceptable levels will be capable of achieving that outcome.	HU01
9861	PolyMet has depicted scenarios that might possibly be effective, but sulfide mining has never been undertaken in Minnesota and there is more than ample evidence that sulfide mining elsewhere has caused extensive damage to the environment, economy and public health.	HU03
9863	The benefits promised by the project, principally jobs for residents of northeast Minnesota are important. But are new mining jobs to be added by crippling or destroying a viable recreational industry and the development of businesses and sectors that do not endanger the unique resources in Northeast Minnesota?	LU06
9865	For a fraction of the expenditures that will be needed to attempt to make this project safe, the State should consider investing in infrastructure that supports a high-tech but green economy in the Northeast, such as high-speed broadband, entrepreneurial start-ups, and education and training.	SO02
9870	I urge you to reject the PolyMet NorthMet SDEIS as inadequate and, further, to reject all attempts to open the State to open pit sulfide mining unless and until the capacity to totally eliminate the risks of environmental impacts of such activities have been demonstrated using proven methods and technologies during the full life-cycle of mining, maintenance and mitigation elsewhere.	NEPA15
14498	[The SDEIS is inadequate because of] a complete failure to analyze risks to on-site workers, the absence of a Health Risk Assessment of the effects of toxic pollutants on people and habitat downstream	HU04
14499	[PolyMet's plan for] closure and post-closure maintenance “if or when proven effective” for a period that PolyMet acknowledges “would last for an unknown duration.” This last sentence is telling: what if no effective method exists for putting the genie back into the bottle when a toxic contaminant is leeched or released – especially once operations have ended.	PD06
14500	If the SDEIS were an academic exercise, it would probably deserve an A-plus. Yet, the assumptions made and scenarios used to demonstrate a low-risk result defy what we already know – even under “blue sky” conditions, risk cannot be reduced to zero.	PER23
14501	what about the cost of a highly improbable scenario should it occur? Can it really be measured and who, if not the public, will end up paying for it? Must we forget the results of catastrophic failures such as Fukushima, Exxon/Valdez or Deepwater Horizon?	FIN01, FIN05
Sender Name (Submission ID)	David B. Edgette (46258)	
8860	Please DO NOT issue a mining permit to PolyMet. The St. Louis River and Lake Superior already have too much pollution flowing into them as aresult of past and present industries. Potential additional pollution fromPolyMet should not be allowed. In fact, more clean up of all fresh watershould begin ASAP.	CU11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David B. Edgette (46258)	
8862	The copper concentration in the ore body that PolyMet plans to mine is of such low concentrate that a large amount of material will need to be removed for a very small return of copper.	PD30
8865	The destruction of forest and pollution producedfor 100's of years is not worth 15-25 years of mining jobs.	SO01
8867	Sure it might be profitable for corporations like Minnesota Power to sell more electricity produced from their polluting coal burning power plants. This also would not be good for the environment.	PD39
8870	A land exchange does not replace the location and original forest as wasintended when it was set aside for the future. Recreational land is oneof Minnesota's largest long term assets.	LU01
8871	Please DO NOT issue a permit to allow PolyMet to profit for a shortterm by shipping their copper to China, leaving Minnesota with anotherpolluting hole in the ground.	SO01
Sender Name (Submission ID)	David Bergerud (42720)	
9896	Water contamination treatment would need to remain in operation for up to 500 years. We need to ask what does this mean? What would happen if treatment were interrupted or stopped? What would happen if the treatment facility infrastructure failed or was damaged?	PD04, WR144, WR202
9897	Five hundred years would make PolyMet the oldest business in America. I find it difficult to believe they would be there for us 500 years from now for a 20 year project today.	FIN01
9898	How much bonding will be required to service such a long term problem? How do you factor inflation for 500 years?	FIN05, FIN08
9899	If water treatment were abandoned, what would be the environmental repercussions? What would be done if this company failed or was sold or cannot uphold its obligations? If the environmental obligations were dumped on the state or federal government, how much money will the taxpayer have to shell out?	FIN01, WR037
9900	If mining is our economic lifeline, why are there so many derelict buildings and homes scattered around the range towns? What will these towns look like after the operation halts? Will we be faced with a surplus of structures, facilities, and homes when the bust occurs 20 years from now?	SO02
9901	How does PolyMet address the economic equation of an enviable end to the operation? Will they pay for unemployment, re-education training or relocation expenses? How do you weigh the trade-off of a 20 year environmentally controversial private venture against the protection of our unique and fragile environment?	FIN01
Sender Name (Submission ID)	David Brown (42119)	
2169	Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health.	HU03
2170	The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates -- which increase mercury in the food chain -- will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks.	MERC20

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David Brown (42119)	
2171	The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution.	HU01
2172	The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health.	HU01
3262	reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health.	HU03
3266	The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates -- which increase mercury in the food chain -- will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks.	MERC20
3267	The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution.	HU01
3268	The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant.	HU04
3269	Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources.	MERC16
3271	Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health	HU01
3272	Complete the mercury TMDL study of the St. Louis River before finalizing the PolyMet SDEIS or issuing any permits for the PolyMet sulfide mine project.	MERC22
12314	I'm just against the mining just simply because of the 500-year exposure and what it would mean to the wetlands and the water there.	WR195
12316	I think ultimately that's all going to come to be billed to the taxpayers.	FIN10
12318	I would rather use that money to create other programs for the people that would essentially benefit from this.	SO02
12319	We should use less copper and all sorts of industrial products. And I don't think the fact that people aren't yet ready to give up copper is a reason to create more mines for copper.	NEPA06
16620	The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer.	AIR10
16621	The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage.	HU01
16622	The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary.	HU06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David Brown (42119)	
16624	The SDEIS arbitrarily denies effects of water pollution on the St. Louis River.	WR111
16625	The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence.	SO04
16627	Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured.	MERC20
16630	Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution.	AIR05
16632	[Include] Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public.	AIR07
16634	[Include] Assessment of cumulative cancer and non-cancer risks from existing and additional sources of toxic chemicals, such as manganese, arsenic, lead and nickel, applying the most protective health risk analysis.	HU02
16635	[Include] Assessment of all risks using a 70-year "lifetime" for exposures.	HU06
16637	[Include] Assessment of cumulative risks of multiple chemicals and exposure routes (drinking water, fish, wild rice) on infants, children and the elderly.	HU02
Sender Name (Submission ID)	david burrow (47221)	
8848	We fish, swim, canoe, Kayak, sail, bike ride, camp and cross country ski. Clean water is critical to everyone in Northern Minnesota that enjoys these activities.	LU06
9067	This area has a great many lakes and includes two watersheds... These watersheds represent a substantial amount of the fresh water reservoir on the planet... It is for this reason, I believe, that copper mining should not be introduced into Minnesota.	WR111, WR115
9072	Oxidization of sulfide bearing waste rock resulting from extraction and processing will create sulfate. Sulfate contact with surface or groundwater, accidental or otherwise, results in acidification of the water. Lakes and wetlands in NE Minnesota are very sensitive to changes in ph. Small changes effectively "poison" the the water and will kill fish and wildlife.	WI04, WR001
9078	The Northeastern area of Minnesota, currently being considered for the NorthMet project, is a unique land and water resource. So unique that a significant portion of the area has been designated as a National Wilderness Area (BWCAW). As a result, there are limits placed on the area with respect to how it can be used with the intent of preserving it for the long term. Copper/heavy metal mining will put the BWCAWin jeopardy.	WILD02
9085	Studies have shown that there is a great deal of copper in the earth's crust distributed around the planet; enough to last thousands of years at current rates of use. In addition, we continue to increase our recycling rates for essential minerals.	ALT09, ALT16

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	david burrow (47221)	
9089	The SDEIS acknowledges that the environmental impact of untreated waste rock and water as a result of the NorthMet project could be serious and perhaps devastating. As such, multiple treatment and containment techniques detailed in the SDEIS will be employed to manage the threat of environmental damage. However, despite best efforts at protection, every existing copper mine has caused significant environment damage. Worse still is that the possibility for damage exists not just during the mines operation but for many, perhaps hundreds of years into the future.	WR023, WR115, WR195
9177	In an anticipation of the possible future cleanup costs, there are suggestions, not detailed in the SDEIS, of a surety bond or some financial instrument that sets aside monies to pay for ongoing management/treatment of the mine's waste products. Given that few corporations remain in business for hundreds of years, including those involved in mining or backing bonds, how then can Minnesotans be assured that we collectively will not be responsible for future cleanup/ treatment costs associated with copper mining?	FIN01, FIN08
Sender Name (Submission ID)	David Carlson (11539)	
2489	The precious resources of water, particularly, along with forest and wildlife, are irreplaceable and are worth far more than any short-term profits to be gained by sulfide mining. The safeguards promised do not and cannot outweigh the severe risks and environmental degradation that would likely ensue from this proposed operation.	SO01
2489	The precious resources of water, particularly, along with forest and wildlife, are irreplaceable and are worth far more than any short-term profits to be gained by sulfide mining. The safeguards promised do not and cannot outweigh the severe risks and environmental degradation that would likely ensue from this proposed operation.	SO01
12840	There are hundreds of reasons to say no to this mine. Reasons for it? Maybe a couple hundred non union jobs for 20 years. The risk to the waterways of this state are just not worth it. The costs the taxpayers will end up picking up to clean up their mess when they leave will be endless.	SO01
Sender Name (Submission ID)	David Cartwright (42793)	
6878	I believe it is short sighted with the lure of economic benefit of the expense of long term environmental impact. Most concerned about the impact on water quality.	SO01
Sender Name (Submission ID)	David Christenson (47994)	
12908	PolyMet-and other mining operations that will surely follow whatever precedent you set-are more than likely, long term, to turn the region into another abandoned 'Copper Country' - chronically polluted, chronically depressed, decaying and depopulated.	SO02
16196	No copper-sulfide mine has ever operated without polluting its environment. Not one. Ever. What is in the history of the backers of PolyMet, or their plans, to make us think they're the exception? Nothing.	PD26
16198	Sure, the PolyMet mine will bring money and profit - mostly for the mine execs and investors of course - but PolyMet -and other mining operations that will surely follow whatever precedent you set - are more than likely, long term, to turn the region into another abandoned 'Copper Country' - chronically polluted, chronically depressed, decaying and depopulated.	SO02
Sender Name (Submission ID)	David D Cameron (57224)	
17172	There is no justification to mine low grade sulfide for the benefit of a few and ruin the environment for generations to come.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David D. Thomas (10318)	
501	If there is a significant chance of environmental destruction and human health hazards, this project can not be worth the projected modest short-term economic gains, for a small number of people, many of whom are not Minnesotans and will not be affected directly by the destruction and hazards.	SO01
Sender Name (Submission ID)	David Davison (44816)	
7747	If the company falls short on its obligations, Minnesota should be able to shut it down.	FIN01
7748	The company should be required to create an escrow account for damage repair that is acceptable to most Minnesotans.	FIN01
7749	The corporation has little incentive to fix any damage it causes.	FIN01
Sender Name (Submission ID)	David Donch (39907)	
14290	Hundreds of thousands of Minnesotans like myself vacation near this area every year and support the local economies with our tourist dollars. I myself have family that lives in the area and do not wish to have their ecosystem harmed for the sake of a few thousand jobs that one day will be replaced with massive clean-ups that cannot leave the ecosytem nearly as pristeen as it is now.	SO02
Sender Name (Submission ID)	david evans (52263)	
10697	There is…reason to believe that some of the toxins that will enter our waters [from the Project] will be nuerotoxins. While these will potentially effect children as yet unborn one of the decisions you are making is if you should risk the future intelligence and health of our grandchildren for a few jobs and the short term profits for a few shareholders.	SO01
12076	The permit request in front of you is disguised with assurances that a clean up program will be adequate, funded and carried out	FIN01
Sender Name (Submission ID)	David Flessner (31822)	
13850	No matter what PolyMet says about their environmental practices, they will inflict severe damage on the area and bring a significant level of toxicity to a pristine area. This outweighs the benefit of any jobs that might be created.	SO01
Sender Name (Submission ID)	David Frame (11358)	
2004	there will be acid based runoff and leaching for up to 500 years. That tells me that the process was not done properly.	WR001, WR035
2005	The DNR should require the mining company to mix their ‘waste’ with a substance that is similar in consistency to the ‘waste’ and in a quantity that will neutralize the ‘waste’ so that any runoff or leachate will be have a pH that will not degrade the environment.	WR027
Sender Name (Submission ID)	David Franseen (6185)	
1165	I support moving this project forward to the Final EIS and ROD	NEPA16

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David Franseen (6185)	
1167	It appears reasonably certain that this project can move forward without undue or significant impact on the environment. Or it may even have positive outcomes for the site and surrounding ecosystems.	PD28
Sender Name (Submission ID)	David Freeman (18312)	
4236	The SDEIS is wholly inadequate to provide definitive information about the total cost of [water treatment to remove toxic pollutants and the maintenance and monitoring of water treatment], the mechanisms for providing for or requiring for payment and ensuring payment of such costs.	FIN01, FIN05, FIN11
4237	And the socioeconomic costs to the people in Minnesota and the nation when it seem likely that the mechanisms for ensuring payment are insufficient or failed entirely.	SO02
4238	The SDEIS acknowledges that toxic water pollution from mine sites, tailings piles, and waste piles will require treatment for a very long time. The mechanical water treatment is part of the model proposed to action for 200 years at mine site, 500 years at the plant site.	WR037
4243	Indeed a major flaw in the project is the cost of engineering, designing, planning, building, and maintaining the water treatment is unknowable. Any project for which the cost of water treatment is unknowable, but according to the project proposer will be in the billions of dollars, should not be considered for approval by the state.	FIN05
13032	It is irrational to believe that any water treatment facility or corporation will last for hundreds of years, but any financial institution or instrument can provide credible guarantee for hundreds of years and that there will be no catastrophic failure by humans or equipment over hundreds of years.	FIN01, FIN08
Sender Name (Submission ID)	David French (10803)	
619	I have been most impressed with the professional approach of the Company to systematically dealing with the very valid concerns of the environmental lobby, particularly with the subject of water pollution.	PD28
620	On the positive side, the mine clearly contains large quantities of very valuable minerals which will benefit the whole community and the country, and the creation of hundreds of well paid jobs in an economically deprived area could only be a major boon.	SO10
1490	As a professional engineer, I applaud the Company's reverse osmosis solution,	PD28
Sender Name (Submission ID)	David G Nelson (54896)	
18835	Poisoned water that can't be reversed and then [PolyMet, Twin Metals, and others] leave not caring about the destruction.	GEN01
18836	Short-term jobs are far outweighed by lost jobs, lost tourism, environment destruction, human health, and even death.	SO01
Sender Name (Submission ID)	David Garelick (39464)	
13397	Credible science corroborates the extreme environmental risks of these operations. Those that purport to tell a different story are bought and paid for by mining dollars and lobbying.	SO02
Sender Name (Submission ID)	David Givers (45537)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David Givers (45537)	
11530	As you know, the scientific method requires a testable hypothesis. This condition is missing from the SDEIS.	NEPA15
11541	Climate scientists are clear that climate change is on us and will continue to escalate over what was the Cenozoic Era. This is borne out by the following statement and shows that the SDEIS is seriously flawed:	AIR01
11543	Geoscientists can estimate the probability on an earthquake on the Laurentian shield	GT05
15796	If this study [Continuation of Existing Conditions Scenario model] subsumes these modeled climate changes within the SWM (Gold Sim) models, then the written report needs to spell them out in the narrative so that the citizens of Minnesota, and the rest of the United States, can read the results.	PD29
Sender Name (Submission ID)	David Greene (23427)	
13976	Sulfide mining can destroy wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. This area is home to a wide variety of animal and plant life and sould continue to supply clean water to the lakes. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred.	VEG06
Sender Name (Submission ID)	David H Hopper (54759)	
19213	The major loss of wetlands, primarily bogs, that cannot be replaced. The SEIS already makes it clear that wetland “restorations” will not take place in the Lake Superior watershed and are highly unlikely to replace bogs. The wetlands at the site have been rated as “having high wetland quality.” How can they possibly be “replaced?”	WET03, WET05
19215	Predictions of chemical pollution, not just from sulfate and its acceleration of toxic mercury conversions, but also heavy metals like nickel and aluminum that kills fish.	AQ05
19216	The long term need to clean up water from pollutants, possibly for 200 years. How can that be assured, especially with more mines ready to ask for permits in that are?	WR035
19218	The questionable suggestion that a company, that plans to mine the proposed site for 20 years, could possibly provide “financial assurance” to cover the expensive costs of water treatment for 200 years or more into the future. And can such treatment truly control all the sorts of pollutants that will come from the mine site? The SEIS predicts the company will excavate 307 million tons of bedrock in 20 years, at 70,000 tons per day.	FIN01
19222	We are concerned that a lot of the proposed PolyMet site area has been designated by MN DNR as “Sites of High Biodiversity Significance” and support eleven state-listed species of plants. Destruction of such an area cannot be rectified, not justified.	VEG01, VEG02
Sender Name (Submission ID)	David Hopper (43037)	
17162	We are concerned about: 1)The major loss of wetlands, primarily bogs, that cannot be replaced. The SEIS already makes it clear that wetland "restorations" will not take place in the Lake Superior watershed and are highly unlikely to replace bogs. The wetlands at the site have been rated as "having high wetland quality." How can they possibly be replaced?	WET03, WET04, WET05
17163	We are concerned about: 2) Predictions of chemical pollution, not just from sulfate and its acceleration of toxic mercury conversions, but also heavy metals like nickel and aluminum, that kills fish.	MERC08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David Hopper (43037)	
17164	We are concerned about: 3) The long term need to clean up water from pollutants, possibly for 200 years. How can that be assured	WR070
17165	We are concerned about: 4) The questionable suggestion that a company, that plans to mine the proposed site for 20 years, could possibly provide "financial assurance" to cover the expensive costs of water treatment for 200 years or more into the future.	FIN01
17166	…can such [long-term watertreatment] truly control all the sorts of pollutants that will come from the mine site? The SEIS predicts the company will excavate 307 million tons of bedrock in 20 years, at 70,000 tons per day.	WR128
17167	We are concerned that a lot of the proposed PolyMet site area has been designated by MN DNR as "Sites of High Biodiversity Significance" and support eleven state-listed species of plants. Destruction of such an area cannot be rectified, nor justified.	VEG01, VEG02
17168	…create metal recycling facilities and hire people to work on recovering the metals we need.	ALT09, ALT16
Sender Name (Submission ID)	David J Bombich (42849)	
9375	Iron Ore, Copper, Nickel and other precious metals are essential elements that are required for the manufacturing of critical products including cell phones, wind turbines, electric car batteries, and many other items that people around the world use every day.	NEPA01, NEPA05
9375	Iron Ore, Copper, Nickel and other precious metals are essential elements that are required for the manufacturing of critical products including cell phones, wind turbines, electric car batteries, and many other items that people around the world use every day.	NEPA01
9378	Minnesota is incredibly fortunate to have some of the largest deposits of these precious metals in the world located in an area that has already set up for mining activity. Mining these deposits in a responsible way represents the largest economic opportunity for the NE MN region and the state of MN since iron ore was discovered here, bringing construction and operation jobs that pay enough to support families, provide high quality health care and the retirement security of a pension.	NEPA01, SO10
9378	Minnesota is incredibly fortunate to have some of the largest deposits of these precious metals in the world located in an area that has already set up for mining activity. Mining these deposits in a responsible way represents the largest economic opportunity for the NE MN region and the state of MN since iron ore was discovered here, bringing construction and operation jobs that pay enough to support families, provide high quality health care and the retirement security of a pension.	NEPA01
9379	Mining these metals in Minnesota is the green option because we have a long history of mining responsibly, and we have the most protective environmental regulations in the world for permitting new mines and the alternative to mining in Minnesota is to mine in places that have none of our safeguards.	PER34
9379	If these metals are not mined in Minnesota, they will continue to be mined in places around the world that have little to no environmental regulations whatsoever, causing massive pollution to the earth…Mining these metals in Minnesota is the green option because we have a long history of mining responsibly, and we have the most protective environmental regulations in the world for permitting new mines and the alternative to mining in Minnesota is to mine in places that have none of our safeguards.	NEPA05, PER34
9380	Minnesota taxpayers are fully protected by the toughest financial assurance laws in the nation, laws that leave control over this process completely in the hands of the experts at the DNR, and in which the companies are faced with one decision-either accept the conditions of financial assurance or do not accept and receive no permit.	FIN16, FIN17

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David J Bombich (42849)	
9380	Minnesota taxpayers are fully protected by the toughest financial assurance laws in the nation, laws that leave control over this process completely in the hands of the experts at the DNR, and in which the companies are faced with one decision-either accept the conditions of financial assurance or do not accept and receive no permit.	FIN16, FIN17
9381	The United Steelworkers Local 6115 supports iron ore, copper, nickel and other precious metal mining projects in Northeast Minnesota as long as the rigorous and nation-leading process in our state of permitting new mines is followed, and our union has faith that the experts and professionals in our state and federal agencies, most of whom are proud members of AFSCME or MAPE, will carry out this process and ultimately determine whether or not projects can meet our tough environmental and financial assurance standards.	NEPA16, PER34
9381	The United Steelworkers Local 6115 supports iron ore, copper, nickel and other precious metal mining projects in Northeast Minnesota as long as the rigorous and nation-leading process in our state of permitting new mines is followed, and our union has faith that the experts and professionals in our state and federal agencies, most of whom are proud members of AFSCME or MAPE, will carry out this process and ultimately determine whether or not projects can meet our tough environmental and financial assurance standards.	PER34
18293	If these metals are not mined in Minnesota, they will be mined in placesaround the world that offer no safety protections to workers, where children are routinely put in danger by being forced to work in these unsafe conditions, and where workers are exploited by being paid inhumane wages that do not allow them to feed their families….	NEPA05
18293	If these metals are not mined in Minnesota, they will be mined in placesaround the world that offer no safety protections to workers, where children are routinely put in danger by being forced to work in these unsafe conditions, and where workers are exploited by being paid inhumane wages that do not allow them to feed their families….	NEPA05
Sender Name (Submission ID)	David J Hampton (54541)	
19175	Please take extreme care while assessing the environmental impact of the PolyMet mining project. Constantly keep in mind that you are dealing with an extractive project of limited duration that, in all probability, have centuries of environmental impacts.	SO01
Sender Name (Submission ID)	David J McMillan (54487)	
18015	I believe the regulators charged with investigating and developing a record regarding PolyMet's plans for mining and processing the NmihMet Deposit ores east and north of Hoyt Lakes, MN have done an exceptionally thorough andcomprehensive job.	NEPA16
Sender Name (Submission ID)	David J. McMillan (40758)	
14306	I believe the regulators charged with investigating and developing a record regarding PolyMet's plans for mining and processing the NorthMet Deposit ores east and north of Hoyt Lakes, MN have done an exceptionally thorough and comprehensive job.	NEPA16
14307	I feel that it is critically important to highlight the resources and infrastructure we have here in NE Minnesota that will enable us to responsibly and effectively support expansion of mining in our region should PolyMet's Permit to Mine be issued by the DNR -- which I believe it should.	NEPA16
14308	I daresay that no place in the world is better able to assure that the strategic minerals needed for today's technologically and energy savvy world will be extracted with more care for the environment than right here in northeastern Minnesota.	NEPA05
Sender Name (Submission ID)	David K Wickstrom (54705)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David K Wickstrom (54705)	
17765	It seems to me that the goal should be complete containment of mining waste and associated water and dissolved metals with no long-term waste management costs when the mining is done.	PD09, PD35
17766	The allure of reverse osmosis in water treatment together with an impervious membrane is that it offers at least some technology for a long-term solution to acid mine runoff, even if it is never-ending. It is not satisfactory because environmental threats are only delayed, and who will pay for long-term maintenance is not determined.	FIN01
17767	Minnesota is at a competitive disadvantage because of ourwet climate, the problem with water seeping through tailings, and long-term sulfuric acid and dissolved metal mine runoff. What can go wrong with copper mining in moist places is well illustrated by the Berkley pit in Butte, Montana, or the Elizabeth mine in Vermont, both federal Superfund sites.	WR008, WR023, WR107, WR180
17768	PolyMet has clearly spent little effort at finiding a better acid mine runoff solution.	ALT13
17769	In the context of centuries, a polymer will not work [for watse rock disposal] because it will break down. The East pit should remain separated by solid Duluth Complex rock. Rather than ending with a revegetated bog, the pit should be designed with a low mound on top to shed water and be revegetated, and not allow percolation down into the pit. Otherwise it will have the same outcome as the Flambeau mine. The objective should be to eliminate water circulation into the pit, within the pit, and out of the pit.	ALT06, ALT13
17770	The level of mercury (and methylmercury) is already so high in Lake Superior that the Minnesota Department of Health has issued advisories about human fish consumption. … The discussion should be about how to remove dissolved metals in Lake Superior harmful to human health, not about absorbing additional threats. Public policy regarding power plant and other emissions of mercury has significantly reduced the amount of new mercury pollution going into the lake, but it is still increasing (see Minnesota Sea Grant).	PER11
17771	In the SDEIS study area, "background" is already a compromised concept, particularly as regards the effects of sulfur dioxide (S02) , a primary smokestack effluent. After decades, how can it not increase dissolved metals. How can it not effect wild rice in Minnesota?	WR203
17772	If a better copper mine waste disposal solution is not found, the trade-off between copper mining benefits and further damage to the waters ofthe State is not worth it.	SO01
Sender Name (Submission ID)	David K. Nelson (47595)	
7180	[T]his state has a lot to offer everyone...Water recreation for one, camping, fishing, hunting, tour guides, lodges for people to get away from the big city life. No one can predict the out come for the generations to come	LU06
Sender Name (Submission ID)	David Kane (18309)	
4166	Sulfide plus oxygen equals sulfuric acid just like one plus one equals two. So we're talking about -- I don't know -- thousands, millions of tons of sulfides baking in the sun, water. Everybody knows how much it rains in Minnesota.	HAZ03
4167	I grew up close to the Embarrass River in Lakeland and chain of lakes, close to Bass Lake, which is a spring-fed lake. I'm curious what kind of study has been done with the underwater type studies of this kind of mining and fracturing of rock formation like this.	WR011
12795	I don't think it's wise to mine toxic material on top of a (inaudible) that straddles the continental divide.	PD08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David Kane (18309)	
12797	Polluting your environment for 20 years' worth the jobs and then taking care of that water for 500 years -- a number pulled out arbitrarily -- to me I don't know who is going to be paying for it. I think it's going to be dumped on the taxpayers.	FIN01, FIN10
Sender Name (Submission ID)	David Kozlak (14933)	
332	Like the tailings that polluted Lake Superior in the past, I hope that we have learned what is safe and what is not to our waters.	WR023
336	Growing up my father taught me how to respect the land ... I too would like to teach my young son those same lessons in that environment, please do not allow PolyMet to endanger that opportunity	GEN01
338	What can we do when the pollution spreads? … And who will pay for the damages..to our fisheries, to our woodland animals and hunting, to our wild rice, timber and other current resource based sports, business and industries?	FIN01
340	Will fishing and hunting licences drop? Will permits into the boundary waters drop? Will tourism falter? Or will irreversible damage be done.	LU06
Sender Name (Submission ID)	David Kremer (47027)	
10623	As a union member myself, I value good jobs, but not at the expense of this {BWCA}Minnesota/national/international treasure.	SO01
Sender Name (Submission ID)	David Krings (7628)	
826	Since the area is already impacted by previous mining activity, this is our chance to recover more metallic ore and to fund a true rehabilitation of the land so our grandchildren will find it in a better condition.	PD28
Sender Name (Submission ID)	David L. Ivonen (53223)	
15343	I would love nothing more than to see good paying jobs…However, NOT at this expense	SO02
Sender Name (Submission ID)	David Langfeld (43343)	
11654	I believe that the Polymet project be given full approval by the State of Minnesota agencies involved for permitting. I believe enough scrutiny has been applied to the project by all of the agencies involved over the many years that it has been waiting, not to mention the vast amount of money spent by the company to address the environmental concerns of those special interest groups who, I believe, don't have valid argument against the project.	PER34
11655	[the Aurora and Hoyt Lakes communities] have waited far too long for the day that good paying jobs would return to the former LTV site that once sustained a good quality of life… I have observed the closures of schools and businesses, as well as the losses of the various civic organizations that made for an enjoyable upbringing in these communities.	SO10
Sender Name (Submission ID)	David Lankinen (39241)	
12577	the few jobs that it would create is not worth the environmental costs that would occur and create scars on the landscape forever.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David Lasecke (3429)	
8666	Does the tourism industry in the region benefit? Some businesses in the tourism industry are already experiencing a decline in business because of test-drilling sites located nearby...What will happen to the tournism industry once sulfide mining begins production?	SO02
9596	Do the taxpayers of Minnesota benefit? Does the state benefit?PolyMet and other companies seeking to mine in the region are not Minnesota companies, nor are they even U.S. companies!	SO06
9598	Do the locals in the region who are pro-mining really have the chance to benefit as much as they are being promised? PolyMet's operation is estimated to provide a few hundred jobs only, and only for 20-some years. How many locals can realistically expect employment? Do we really want to trade a few hundred temporary jobs for 500 years of cleanup?	SO01
9600	Do the property owners in the region benefit? I'm one of those property owners, and I pay a small fortune each year in property taxes that help support the region. I view my own property, and the region as a whole, as a JEWEL, as a LEGACY to pass on to the generations that follow me. I do not want to see this jewel poisoned by poorly managed sufide mining!	LU06
13410	The Boundary Waters and other lakes and parks in the region draw thousands of visitors each year from around the country and around the world. Some businesses in the tourism industry are already experiencing a decline in business because of test-drilling sites located nearby, What will happen to the tournism industry once sulfide mining begins production?	SO02
13411	PolyMet's operation is estimated to provide a few hundred jobs only, and only for 20-some years. How many locals can realistically expect employment? Do we really want to trade a few hundred temporary jobs for 500 years of cleanup?	SO01
13412	Do the property owners in the region benefit? I do not want to see this jewel poisoned by poorly managed sufide mining!	SO01
Sender Name (Submission ID)	David Litsenberger (38778)	
4889	As a "threatened" species, it is of concern to the DNR to see that this species [lynx] is successful in reproducing and able to forage for food. However, the proposed Polymet project would add on to the fence-like barrier the Iron Range mines present to lynx and other mammals in this region.	WI01, WI03
4890	In times of food shortages they will migrate as much as 250 miles (Kurta's Mammals of the Great Lakes Region). The mining activities of the Iron Range, a rather vast disturbed area, therefore, acts to restrict the movements of lynx.	WI03
4891	Also, the fact that Polymet has never had a mine and doesn't have the financial resources for assurances in case of (and they will occur) environmental mishaps, well, this project should not be allowed to go forward.	FIN01
16789	Should the Polymet project win approval it is easy to see that more projects of this type will then be approved to where this barrier will extend from Grand Rapids to the Boundary Waters.	CU04
Sender Name (Submission ID)	David M Windseth (47697)	
7956	This mine has a strong potential to pollute northern Minnesota waterways, including areas of the Boundary Waters and Lake Superior, and is not worth the risk to the wilds of northern Minnesota, which many people depend on for tourism to make a living.	WILD02
7957	Most of the money used to mine will not remain in MN, and if the tailings dam does leak many times the company will take the money and declare bankruptcy to avoid having to pay for cleanup costs, putting the responsibility unfairly on the citizens of MN.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David M Windseth (47697)	
7959	50 years of jobs is not worth the 500+ years of monitoring and risks it puts on one of the cleanest water systems in the world.	SO01
11117	These types of mines have a bad track record in wet environments like Minnesota, and should not be allowed to compromise the state we all live in and enjoy.	PD26
Sender Name (Submission ID)	David Maki (39035)	
10182	As an engineer, I am fully aware that there is not a single case study documenting Sulfide mining that did not lead to long lasting watershed pollution involving increased acidity and heavy metal contamination.	WR023
10184	PolyMet is a new company with no mining experience or track record of responsible pollution management.	PD23
10185	However, the track record of PolyMet's parent corporation Glencore is riddled with environmental disasters, labor violations, and human rights abuses around the world.	PD23
10186	I strongly urge you to consider the history of Sulfide mining in general, and Glencore's record of environmental stewardship when considering this issue.	PER02
10187	I have deep reservations concerning the effects Sulfide mining will have on the natural and cultural resources of the Partridge and Embarrass Rivers. Both rivers contain significant wild rice resources. Wild Rice is a traditional cultural property of the Anishanabe people.	CR01, CR05, WR158
10189	Heavy Metal contamination, both real and perceived, will have a negative impact on this traditional resource [wild rice] for the next 200 to 500 years.	VEG04
10191	I strongly urge you to reject PolyMet's shortsighted plan for polluting Minnesota's public waters.	WR195
10193	Short-term profits do not justify centuries of pollution.	SO01
Sender Name (Submission ID)	David Mccue (31504)	
14004	My god, this is an area where motor boats are restricted. How is it even posible that a proposal like this even gets drawn up on paper. If industrialists had their way the whole world would be a turned over waste land. Between oil, sulfer, and fracking this country is under attack. Leave the forrests alone !!!!!	WILD02
Sender Name (Submission ID)	David Mcmillan (18350)	
14634	I want to say to the lead agencies and the DNR that the roles you have been charged with, you have done a thorough and comprehensive job in looking at this and applying the stringent standards in regard to the state's applicable laws, and that the SDEIS and the EIS is accurate, comprehensive and complete.	NEPA16
Sender Name (Submission ID)	David Miller (40832)	
10157	the SDEIS fails to consider a range of common sense risks by making rosy and unsupported projections concerning water capture and treatment, wetland mitigation, air pollution and other side effects of a massive, industrial mining zone in the heart of the Superior National Forest.	AIR11, WR017, WR018, WR128, WR202

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David Miller (40832)	
10158	The NorthMet Project will contribute additional sulfate to the groundwater from tailings basin water that is not captured and treated, water that seeps through fractures in the mine pit walls and stockpile infiltration and run-off.	WR010, WR011, WR070, WR087, WR088, WR107, WR108, WR173
10159	Every year, 11 million gallons of polluted seepage from the tailings basin and 5 million gallons from the mine site will enter groundwater and the environment without being treated.	WR070
10160	All of the PolyMet predictions regarding discharge from the mine pits and waste rock piles...are made without considering the effects of documented fractures at these sites on discharge to groundwater and surface water. Groundwater contamination from the previous mining activities is still an issue near the LTV tailings basin and mine pits.	GT01
10162	PolyMet's favorable water modeling is also based on groundwater base flow data that now appears to have significantly underestimated the likely speed and volume of water flow and resulting sulfate discharge around the mine and processing plant.	WR003
10163	The water infiltration rate is lower than the design targets for engineered controls at landfills, has never been observed in any known wetland system, and accounts for only five percent of precipitation falling at the site.	WR126, WR165
10165	Even the most reasonably foreseeable problems at the site, including pipeline breaks, dam or slope collapse and problems with waste water treatment go unaddressed in the SDEIS.	WR131, WR132
10167	Design for the 100-year storm also fails to account for the current state of our climate and is insufficient.	WR180
10262	PolyMet's discharge would also release arsenic, lead and manganese into the groundwater. These effects must be studied and addressed in the SDEIS.	WR107, WR108
10265	Although PolyMet's testing indicates that its waste rock leaches mercury at more than four times the water quality standard, it proposes not to conduct an analysis of the amount of mercury that will enter the watershed.	MERC16
10272	the sulfate discharges will have adverse effects on wild rice…The proposed engineering controls for the PolyMet mine will not assure wild rice water quality standards are met.	VEG04, WR156
10278	No substantive data indicates that reverse osmosis will work to fully meet water quality standards.	WR143
10282	Even if it were conceivable that PolyMet could monitor and maintain this site to current water quality standards for hundreds of years-which is a simply unbelievable claim- this would not be in compliance with Minnesota law that requires the mine to be left maintenance free at closure.	PER04
10285	To establish this mine would destroy 1,741 acres of high quality ecosystem, including 912 acres of high quality wetlands , with a rich diversity of native plants and provide a wide range of ecosystem services such as reducing the severity of floods, water filtration, carbon sequestration and habitat.	WET24
10287	Yet the proposed exchange of wetland proposed by PolyMet would include sites two-thirds of which are located outside the Lake Superior watershed and would fail to provide in-watershed benefits previously provided by the destroyed wetlands.	WET03, WET15
10290	can pollution be controlled for hundreds of years? The SDEIS weakly attempts to address the mechanical and hydrological aspects of this question, but they are incomplete without addressing how much money will it take to assure Minnesota water quality standards are maintained (without variance) in the face of pollution that is perpetual, without Minnesota taxpayer assistance?	FIN05, WR037, WR128

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David Miller (40832)	
10292	The SDEIS makes no effort to consider alternative means to reduce the harm this project would visit upon our Minnesota environment. These could include underground mining, liners under the permanent waste rock pile and the permanent tailings basin, returning waste rock to the west pit to reclaim wetlands and introducing reverse osmosis in year one at the mine site to treat and release water on site and reduce indirect wetlands destruction. Under Minnesota law, economic considerations alone do not justify rejection of alternatives.	ALT01, ALT03, ALT07, ALT10
17358	Engineering controls that are planned for the mine must function perfectly for hundreds of years to meet applicable water standards. The assumed performance of these critical water capture systems in the SDEIS is over 90% effectiveness. This assumption is neither reasonable nor realistic.	PD03
Sender Name (Submission ID)	David Miranowski (6253)	
10544	We cherish our beautiful lakes and are all very afraid that if PolyMet fails to be thorough/convincing in their pre-planning efforts, they will be even more reckless in their physical treatment of our land.	LU06
Sender Name (Submission ID)	David Moen (36338)	
10009	The study of potential health effects has been inadequate and I am VERY concerned that 10% of infants born in St. Louis County have mercury toxicity today and this project will likely put more citizens at risk.	HU01
10012	The SEDIS study has several deficiencies including inaccurate assumptions about seepage of toxic metals into surface and ground water. Health impacts include complex neurological changes that are irreversible.	WR070
12052	The study of potential health effects has been inadequate and I am VERY concerned that 10% of infants born in St. Louis County have mercury toxicity today and this project will likely put more citizens at risk.	HU01
12053	The SEDIS study has several deficiencies including inaccurate assumptions about seepage of toxic metals into surface and ground water. Health impacts include complex neurological changes that are irreversible.	HU01, WR070
Sender Name (Submission ID)	David Oliver (38390)	
14681	The SDEIS provides more than adequate coverage of the NorthMet Mining Project and Land Exchange. …[The coverage extends] beyond the scope of MEPA and NEPA statutes and criteria. This project should be allowed to proceed to the EIS phase.	PER34
14682	I will trust in the existent laws and statues of the State of Minnesota along with attendant Federal regulations, and the regulatory oversight they bring.	PER34
Sender Name (Submission ID)	David Olson (18142)	
13562	We have a need for these metals in our modern lives. They are integral in winter events, electric and hybrid cars, solar panels, and a host of other important technologies and uses. Now is the time to mine them here in Minnesota.	NEPA05
13563	We have reached a point where an important decision needs to be made based on sound science, and to be true to the process set forth by state and federal law. We have confidence in that process. We applaud the DNR and other agencies for the ample time -- twice what the law calls for -- for interested parties to review and provide feedback on the environmental review.	NEPA16

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David Olson (18142)	
13564	Their investment will return billions of dollars with economic benefits to Minnesota. An estimated 300 million in new local and state tax revenues, and an estimated $900 million in new federal tax revenues.	SO10
13565	This project will diversify our economy and create hundreds of jobs that can support families and sustain communities. An economic impact that will be felt not only on the Iron Range but throughout the state, which is why the Minnesota Chamber of Commerce and so many local chambers and their members support this project.	SO10
Sender Name (Submission ID)	David Passmore (13875)	
138	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for	WR035, WR128, WR143
139	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
140	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	David Plotnicky (54664)	
17907	The wetlands mitigation is does not address the watershed of concern.	WET03
17908	The mining industry does not have sterling record for following through on their contract obligations. The community's dependence on mining should show them that it's short sighted, yes they need work, but once the resource is exhausted (profitable recovery), what's going to replace the next economic boom? Something the corporation didn't describe was the proposed wage schedule for the employee's, what are they proposing?	SO01
Sender Name (Submission ID)	David R Gadbaw (54728)	
18741	Water implications are nothing short of scary when sulfite ore is exposed to water when water is in the form of swamps, rivers and lakes everywhere in the mine location being considered.	WR111
18742	It is impossible to keep the ore or tailing accumulation isolated from water in northern eastern Minnesota. "This is not to mention acid rock dissolves toxic heavy metals, lead, zinc, cooper and mercury allowing them to enter surfaces and ground water."	WR107, WR108
Sender Name (Submission ID)	David R Gregorich (54888)	
18811	The ground water will be polluted on both sides of the Laurentian Divide by PolyMet and Twin Metals.	GEN01
Sender Name (Submission ID)	David R Witte (42846)	
8489	I also believe that the "economic impact" of the proposed mining project should be ignored in the EIS and SDEIS review process because it shifts the focus to the politically charged issue of "jobs" in an economically depressed area of the State at the expense of a rational objective scientific analysis of the environmental impact of allowing the proposed mining project.	SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David R Witte (42846)	
8489	I also believe that the "economic impact" of the proposed mining project should be ignored in the EIS and SDEIS review process because it shifts the focus to the politically charged issue of "jobs" in an economically depressed area of the State at the expense of a rational objective scientific analysis of the environmental impact of allowing the proposed mining project.	SO04
8494	If the "Economic Impact" is a consideration [in the SDEIS], then that impact should be evaluated in terms of both "a best-case scenario" and "a worst-case scenario" over the course of various time periods (e.g. immediate/construction period, plant life/20 years, long term/50-1 00+ years). In a best-case scenario, the mining project would generate construction jobs, mining jobs, and revenues for the State and local economy without any permanent damage to the environmental. In a worst-case scenario, the mining project generates fewer jobs for Minnesotans, significantly less revenue for the State and local economy than anticipated, the plant and tailings leach sulfuric acid, mercury, and other hazardous hi-products into the ground water, surface water, and tributaries to Lake Superior, the plant is abandoned in one form or another to avoid liability for pollution, the EPA classifies the entire area as superfund site, and the tax payers get stuck with a bill of $200+ Million to close, clean up, test, and treat the water for the next 100 years or longer, assuming our State and this Country still exist.	SO04
8494	If the "Economic Impact" is a consideration [in the SDEIS], then that impact should be evaluated in terms of both "a best-case scenario" and "a worst-case scenario" over the course of various time periods (e.g. immediate/construction period, plant life/20 years, long term/50-1 00+ years). In a best-case scenario, the mining project would generate construction jobs, mining jobs, and revenues for the State and local economy without any permanent damage to the environmental. In a worst-case scenario, the mining project generates fewer jobs for Minnesotans, significantly less revenue for the State and local economy than anticipated, the plant and tailings leach sulfuric acid, mercury, and other hazardous hi-products into the ground water, surface water, and tributaries to Lake Superior, the plant is abandoned in one form or another to avoid liability for pollution, the EPA classifies the entire area as superfund site, and the tax payers get stuck with a bill of $200+ Million to close, clean up, test, and treat the water for the next 100 years or longer, assuming our State and this Country still exist.	SO04
8508	My primary concern with respect to this mining project is: (1) The protection of our water resources; (2) The prevention of pollution to our water resources; (3) The prompt abatement and cleanup of any pollution to our water resources by the mining project	WR129
8508	My primary concern with respect to this mining project is: (1) The protection of our water resources; (2) The prevention of pollution to our water resources; (3) The prompt abatement and cleanup of any pollution to our water resources by the mining project	WR129
8513	My primary concern with respect to this mining project is:(4) The provision of adequate financial assurances by PolyMet to the State of Minnesota to pay for the cost of prompt abatement and cleanup of any pollution to our water resources before, during, and after the mine is in operation...Assume the worst case scenario in all phases of the proposed mining project and prepare for those outcomes in the review and approval process by imposing strict standards with low thresholds and require sufficient financial assurance to protect our natural resources and the taxpayers from another environmental disaster	FIN01
8513	My primary concern with respect to this mining project is:(4) The provision of adequate financial assurances by PolyMet to the State of Minnesota to pay for the cost of prompt abatement and cleanup of any pollution to our water resources before, during, and after the mine is in operation...Assume the worst case scenario in all phases of the proposed mining project and prepare for those outcomes in the review and approval process by imposing strict standards with low thresholds and require sufficient financial assurance to protect our natural resources and the taxpayers from another environmental disaster	FIN01
18324	(1) I would like to commend the DNR for the information posted and published on this issue on the DNR website. The quantity, quality, and variety of the information compiled and presented in various formats is truly impressive and greatly appreciated; (2) I found the video presentations posted on thewebsite to be particularly helpful in understanding the size, scope, and context of the proposed mining project.	GEN02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David R Witte (42846)	
18324	(1) I would like to commend the DNR for the information posted and published on this issue on the DNR website. The quantity, quality, and variety of the information compiled and presented in various formats is truly impressive and greatly appreciated; (2) I found the video presentations posted on thewebsite to be particularly helpful in understanding the size, scope, and context of the proposed mining project.	GEN02
18328	my primary concerns involve the protection and preservation of our water resources. … we have had periods of drought throughout history and in the last 10 years we have started to see signs of stress on our water resources from drought, pollution, over use, etc. We have seen significantdeclines in some lake levels (e.g. White Bear Lake and Prior Lake for example), we have had some private and public wells dry up, and we have seen the emergence and spread of numerous invasive species in our lakes, rivers, and streams. … The wise management of our water resources begins with the protection of our wetlands and watersheds and continues to our lakes and ground water.	WR077
18328	my primary concerns involve the protection and preservation of our water resources. … we have had periods of drought throughout history and in the last 10 years we have started to see signs of stress on our water resources from drought, pollution, over use, etc. We have seen significantdeclines in some lake levels (e.g. White Bear Lake and Prior Lake for example), we have had some private and public wells dry up, and we have seen the emergence and spread of numerous invasive species in our lakes, rivers, and streams. … The wise management of our water resources begins with the protection of our wetlands and watersheds and continues to our lakes and ground water.	WR077
18329	I am not questioning the veracity or integrity of the representatives of Poly Met with respect to the information they have provided to our State ortheir intent to run the mine in an environmentally safe and responsible manner but I am questioning our ability as human beings to critically and objectively collect, present, and analyze the pertinent information in an unbiased manner, particularly when there are very large amounts of money at stake.	NEPA09
18329	I am not questioning the veracity or integrity of the representatives of Poly Met with respect to the information they have provided to our State ortheir intent to run the mine in an environmentally safe and responsible manner but I am questioning our ability as human beings to critically and objectively collect, present, and analyze the pertinent information in an unbiased manner, particularly when there are very large amounts of money at stake.	NEPA09
18330	the cost of cleaning up these super fund sites is astronomical and for the most part, falls directly on the taxpayers, which means the sites do not get cleaned up until the EPA has sufficient funds to pay for the clean up. I hate to lace my comments with proverbial wisdom but "An ounce of prevention is worth a pound of cure." Please, do not put Minnesota in this situation.	FIN10
18330	the cost of cleaning up these super fund sites is astronomical and for the most part, falls directly on the taxpayers, which means the sites do not get cleaned up until the EPA has sufficient funds to pay for the clean up. I hate to lace my comments with proverbial wisdom but "An ounce of prevention is worth a pound of cure." Please, do not put Minnesota in this situation.	FIN05, FIN10
18331	Assume the worst case scenario in all phases of the proposed mining project and prepare for those outcomes in the review and approval processby imposing strict standards with low thresholds and require sufficient fmancial assurance to protect our natural resources and the taxpayers from another environmental disaster.	NEPA09
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Sender Name (Submission ID)	David Rannetsberger (47110)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David Rannetsberger (47110)	
11251	The enormous amount of effort and study that went into this SDEIS is mind boggling. Spending over 8 years and $100 million dollars to prove that you can run a mine in a safe manner should be commended by Polymet.	NEPA16
11258	I feel they have taken all necessary steps to comply with the state and federal standards and will continue to do so into the future. I also feel that this project, once operational, will attract more intense scrutiny by State and Federal agencies, environmental watchdog groups, and the local communities, which will further strengthen the environmental stewardship that Polymet has committed to, and continues to show throughout this process.	PER34
11260	I trust that our State and Federal agencies have followed the permitting process to a tee, and that your review and involvement in this process will produce a mining permit that will ensure all aspects of the environment are protected.	PER34
11263	We cannot produce the much wanted green energy without the copper, nickel, and other precious metals in our world. We also cannot import these metals from other parts of the world without knowing that they were produced with more environmental impact to the environment.	NEPA05
Sender Name (Submission ID)	David Reisenweber (46436)	
8956	A major omission in the NorthMet SDEIS that particularly concerns me is the affects of weather extremes. A lightning strike or a windstorm could destroy equipment used to move polluted material to the right place at the right time. Is there a backup plan? How will the mountains of sulfide ore be successfully contained when catastrophic precipitation events occur?	PD22
8959	The NorthMet SDEIS lacks plans for accidents and emergencies that will happen, when something goes wrong with ponds, pipes, pumps, filters, etc. needed for water treatment.	PD22
8964	The bedrock of northeastern Minnesota has many cracks and water will probably move differently depending on amounts of precipitation received. Is there flexibility in the SDEIS to find what is moving where? I could not find it.	WR010
8966	Does the state of Minnesota have maps of the complete hydrology of the Duluth Complex where this mining is proposed?	RFI01
Sender Name (Submission ID)	David Robert Ott (18249)	
13666	I feel like it hasn’t been proven beyond a reasonable doubt that the water quality issues will be adequately addressed. Therefore, I think the risks are too high, and I think it would spoil a great treasure of our state, being the water quality of the whole drainage ultimately going to Lake Superior.	SO01
Sender Name (Submission ID)	David Ross (11617)	
3300	It did so because the board understands how the strategic mining industry in Northeastern Minnesota will generate thousands of new jobs for our region. As well, the board appreciates how strategic metals mining will have a positive impact on local tax revenue and education funding.	SO10
3300	It did so because the board understands how the strategic mining industry in Northeastern Minnesota will generate thousands of new jobs for our region. As well, the board appreciates how strategic metals mining will have a positive impact on local tax revenue and education funding.	SO10
3301	The [Duluth Chamber of Commerce] board realizes how mining companies operating in Northeast Minnesota, such as PolyMet, will utilize advanced technology to protect our environment. We understand PolyMet and other companies will be required to meet Minnesota's rigorous environmental standards to ensure that our air and water quality standards are protected.	PER34

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David Ross (11617)	
3301	The board realizes how mining companies operating in Northeast Minnesota, such as PolyMet, will utilize advanced technology to protect our environment. We understand PolyMet and other companies will be required to meet Minnesota's rigorous environmental standards to ensure that our air and water quality standards are protected.	PER34
7354	The Duluth Area Chamber of Commerce supports the emerging strategic metals mining industry in Northeastern Minnesota. The Chamber's board of directors passed a formal resolution, illustrating this support, on May 28, 2013.... the board understands how the strategic mining industry in Northeastern Minnesota will generate thousands of new jobs for our region.	SO10
7354	The Duluth Area Chamber of Commerce supports the emerging strategic metals mining industry in Northeastern Minnesota. The Chamber's board of directors passed a formal resolution, illustrating this support, on May 28, 2013.... the board understands how the strategic mining industry in Northeastern Minnesota will generate thousands of new jobs for our region.	SO10
7357	The Chamber [of Commerce]'s board also recognizes and appreciates how members of our Chamber have already benefited from the planning phase of the PolyMet project...Barr Engineering is doing much of PolyMet's environmental work. Additionally, Krech Ojard is providing engineering support to PolyMet. In fact, PolyMet spent more than $1.2 million doing business with Duluth companies in 2013.	SO10
7357	The Chamber [of Commerce]'s board also recognizes and appreciates how members of our Chamber have already benefited from the planning phase of the PolyMet project...Barr Engineering is doing much of PolyMet's environmental work. Additionally, Krech Ojard is providing engineering support to PolyMet. In fact, PolyMet spent more than $1.2 million doing business with Duluth companies in 2013.	SO10
7358	[the Duluth Chamber of Commerce] recognize that once PolyMet receives its permits, several more Duluth area businesses will provide services and product to the Polymet Project. The positive economic impact of PolyMet will exponentially grow when construction and mining begin.	SO10
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7359	the Duluth Area Chamber of Commerce stands in support of the emerging strategic metals mining in beautiful Northeast Minnesota. The PolyMet Project is the most immediate example of this mining. Therefore, the Chamber's board respectfully encourages the decision makers empowered with determining PolyMet's future to allow this needed project to proceed.	PER34
7359	the Duluth Area Chamber of Commerce stands in support of the emerging strategic metals mining in beautiful Northeast Minnesota. The PolyMet Project is the most immediate example of this mining. Therefore, the Chamber's board respectfully encourages the decision makers empowered with determining PolyMet's future to allow this needed project to proceed.	PER34
Sender Name (Submission ID)	David Schluchter (47510)	
17637	I am very much against the PolyMet mine, and the connection between many interconnected watershed districts, and the topography of Northern Minnesota - is too precious to chance.	WR195
Sender Name (Submission ID)	David Steinhorst (54715)	
18498	I feel it will provide trerrendous opportunities for the people of Mnnesota without endangering our environment. The provision of jobs for the people of Minnesota and the associated economic benefits as well as the tax benefits for the state are of the greatest irrportance for our future.	SO10
Sender Name (Submission ID)	David Stever (41747)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David Stever (41747)	
3263	The five hundred years of water pollution with heavy metals after the mine is something that neither this corporation nor the state are geared towards dealing with.	WR037
3264	Jobs at this price are not a bargain we need to strike. Not for a measly twenty years of jobs.	SO01
Sender Name (Submission ID)	David Tomasoni (18107)	
3353	PolyMet is an open-pit mine, which will provide 500 to a thousand construction jobs, 366 direct jobs and over 700 spin-off jobs. Some people say it is not worth it. Well, tell the people of Aurora and Hoyt Lakes that these jobs aren't worth it and see what kind of reaction you get. Tell the people of the Iron Range that mining jobs aren't necessary and see what kind of answer you get. Try to even imagine living on the Iron Range without mining. The entire area would be a huge ghost town.	SO10
3354	PolyMet is mining. This is not sulfide mining, this is precious metals mining. These will be conflict-free metals. In other words, no ten-year-old kids will be employed at 50 cents per day, no wars will be fought to overthrow regimes. But rather, we will have an environmentally considerate mine in a region where mining has existed and provided for our economy for over 125 years.	NEPA05
Sender Name (Submission ID)	David Tomassoni (18167)	
13334	Mining is the Iron Range's economy. PolyMet is mining. 500 to 1,000 construction jobs, 366 direct jobs, over 700 spinoff jobs.	SO10
13336	Our green economy demands copper, nickle, platinum, palladium, gold, and more. There are four tons of copper in a windmill. There is copper and precious metals in solar panels, computers, electric cars, medical devices, catalytic converters, TVs, and, yes, broadband. ... There are 39 different minerals in that cell phone. Every one of them must be mined.	NEPA05
13340	do we want to continue outsourcing jobs, importing pollution, and buying our minerals from countries in a constant state of conflict… or do we want to have great-paying, environmentally friendly jobs on the Iron Range with all the benefits to go along with them to develop a domestic source of precious metals to advance our green economy? The choice is clear, it's PolyMet.	SO10
14656	This is a good document. This is a document that has been scrutinized and gone over and over. Wetlands have been mitigated. There will be no acid drain off that has not already been decided.	WET25
Sender Name (Submission ID)	David Welch (18262)	
13715	My substantive comment is a comprehensive analysis of water flow cannot be done. Climate change is progressing so rapidly that it is not possible to predict with accuracy the extent of pollutant migration into the hydrological system. Mitigation must be planned from the basis that passive water treatment is not applicable due to the inability to accurately project rainfall and to accurately project future rainfall and climate change.	WR196
Sender Name (Submission ID)	David Williams (39370)	
6275	Copper/heavy metal mining will put the BWCAWin jeopardy. This area has a great many lakes and includes two watersheds, one emptying into the Hudson Bay and the other into the Great Lakes. These watersheds represent a substantial amount of the fresh water reservoir on the planet.	WR024, WR081, WR111
6279	Sulfate contact with surface or groundwater, accidental or otherwise, results in acidification of thewater. Lakes and wetlands in NE Minnesota are very sensitive tochanges in ph. Small changes effectively "poison" the the water and will kill fish and wildlife.	WI04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	David Williams (39370)	
6288	... multiple treatment and containment techniques detailed in the SDEIS will be employed to manage the threat of environmental damage. However, despite best efforts at protection, every existing copper mine has causedsignificant environment damage.	PD26
6310	In an anticipation of the possible future cleanup costs, there are suggestions, not detailed in the SDEIS, of a surety bond or some financial instrument that sets aside monies to pay for ongoing management/treatment of the mine's waste products. Given that few corporations remain in business for hundreds of years, including those involved in mining or backing bonds, how then can Minnesotans be assured that we collectively will not be responsible for future cleanup/ treatment costs associated with copper mining?	FIN01, FIN08, FIN10
6313	We should increase our recycling efforts and/or mine copper in areas where there is less freshwater than in the "land of 10,000 lakes."	ALT09, ALT16
Sender Name (Submission ID)	David Yount (11647)	
2356	My comment concerns the Reverse Osmosis (RO) process for removing sulfate from the waste water so that the discharge water from the RO process contains lower sulfate levels. I have not seen any discussion in the SDEIS as to the disposal of the high-sulfate water that is left behind (filtered out).	WR115, WR195
2356	My comment concerns the Reverse Osmosis (RO) process for removing sulfate from the waste water so that the discharge water from the RO process contains lower sulfate levels. I have not seen any discussion in the SDEIS as to the disposal of the high-sulfate water that is left behind (filtered out).	WR145, WR147
Sender Name (Submission ID)	David Zelinsky (58166)	
19915	I am a professional engineer in metallurgical engineering. My review of the PolyMet draft EIS and SEIS is that the report...appears as a thorough evaluation of the project, potential impacts, and how to mitigate the impacts has been completed. They will use the best available technology to create an effective operation.	NEPA16
Sender Name (Submission ID)	Dawn Demaske (40205)	
6645	Our state's water, environment, animal habitat and public health are more important and precious than an international company profiting from this proposed mine.	WI02
Sender Name (Submission ID)	Dawn Donahue (54519)	
18740	Please be very careful about the decisions you make about the Polymet Mine in the Northern Lakes Region. Our vacation there last year was a wonderful memory and we'd love to return to see the unspoiled beauty again.	WILD02
Sender Name (Submission ID)	Dawn Drouillard (9637)	
240	The SDEIS greatly underestimates groundwater flow rates. Real and accurate numbers are needed to predict the actual pollution and seepage from mine pits and the actual size of waste rock piles to be added to the Partridge River watershed.	WR003, WR071, WR086, WR087, WR088
241	There are no contingency plans outlined for expected accidents that occur at all mines of this type,mishaps such as pipeline spills, accidental releases, failures of water collection and treatmentsystems, tailings basin failure and extreme rain events, like the one in 2012, are not covered in their plan.	PD22

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dawn Drouillard (9637)	
243	200 or 300 jobs compared to over 245,000 jobs in the tourism industry seems like a very bad trade.	SO01
1350	Details about financial assurance — a “damage deposit” the company provides — are not providedin the revised mine plan. The public does not know how much 500 years of water treatment willcost. According to Grand Portage Water Quality Specialist Margaret Watkins, this number could be in the 100 billion dollar range, a figure she calculated using the mining company's own financial assurance formula. The SDEIS does not address how the company will be held responsible for centuries of costly watertreatment — or how the public will be protected from liability.	FIN01, FIN05, FIN10
1352	During operations, over 6.2 million gallons of polluted water a day will need to be treated. The mineplan does not describe what will happen if the water treatment plants break down.	PD22
1353	The plan for at least 500 years of active water treatment violates Minnesota Rules (6132.3200) thatcall for the mine to be left maintenance free at closure.	PD02
1354	526 acres and over 167 million tons of reactive waste rock would be left on the surface.Surrounding this would be a system to collect contaminated seepage that must be monitored andmaintained for hundreds of years or longer. A plastic sheet placed over the waste rock pile wouldrequire annual maintenance, repairing of erosion, and removal of deep-rooted woody plants thatmight perforate the synthetic material.	WR127
1356	A pit “lake” and tailings basin pond would be left whose water levels would need to be maintained through pumping toprevent contaminated overspills into the nearby Partridge River and the Embarrass River. I don't believe that PolyMet will see this situation through for 500 years or more.	WR037, WR129
Sender Name (Submission ID)	Dawn Hofstrand (14649)	
8875	How will Polymet prevent polluting Minnesota's waters if weexperience a massive storm with substantial, torrential rain such as that experienced by Duluth within the last two years? What is the contingency plan to protect our waters?	PD22, WR130, WR202
13781	Before allowing sulfide mining by Polymet in this area, the citizens of Minnesota deserve certain assurances from Polymet regarding the safety of its mining plan. At the very least, these assurances should include contingency plans for protecting Minnesota's waters when the best-case scenarios envisioned by Polymet's plan do not occur.	PD22
13783	2.The Polymet mine plan requires continuous water treatment at variouswastewater treatment plants. How will Polymet prevent polluting Minnesota's waters if the wastewater treatment plants breakdown? What is the contingency plan to protect our waters?	PD22
13784	3.The Polymet mine plan envisions the use of massive tailings basinsfor the waste rock. How will Polymet prevent polluting Minnesota'swaters if the tailings basins leak? What is the contingency plan to protect our waters?	PD11
Sender Name (Submission ID)	Dawn Trexel (39255)	
12624	Just because there is a company interested in mining our minerals doesn't mean now is the best time to do so… Perhaps in the future we will have more sustainable methods for extracting such minerals.	SO02
Sender Name (Submission ID)	Dean & Peggy Erzar (44366)	
10380	The governing bodies did a great job on the SDEIS and should continue making changes and watching out for us as the process goes on.	NEPA16

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dean Borgeson (50080)	
13023	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Dean Erickson (18385)	
2892	The addition of potential sulfuric acid drainage into the St. Louis River Watershed, which is the largest watershed in the United States, flowing into the largest body of fresh water on earth seems unacceptable.	WR111, WR195
2896	I also just want to point out that we base our predictions of water flow on the past. What we're seeing in the future is not the same as what we've seen in the past. We have minimal understanding at the revolution we need of climate change impacts in our watershed. And the flush scenarios are likely inadequate.	WR180
2898	the MEPA and the other organizations that are collaborating to do this, ...we expect to spend $420 million cleaning up our mess in the area of concern. .... …it seems contradictory I guess I would say to be spending that much money to be cleaning up something when we're not tending to the 11 headwaters.	SO02
2899	we are a ceded territory. And we have a lot of things that we need to take care of on behalf of the original people on this land.	CR01
Sender Name (Submission ID)	Dean Flugstad (15811)	
911	How will retention dams hold back sulfide and toxic metals for hundreds of years.	WR132
912	Mining of all kinds has a very poor long term record in environmental integrity. It is get in, extract, get out and let the people pay for the clean up and mourn their lost environs.	FIN01
2008	A 2200 page document perhaps was intentionally made so long it could hide all sorts of sins.	NEPA07
Sender Name (Submission ID)	Deanna Erickson (20103)	
1733	The Polymet Draft EIS does not make any mention of the Area of Concern or the Beneficial Use Impairments, nor does it adequately address how these impairments might be mitigated in the event that sulfuric acid enters the water column of the St. Louis River.	WR012, WR130
1734	I am not in favor of this proposal and believe that on behalf of the largest US river entering the largest freshwater lake in the world, we are internationally obligated to deny permits for the Polymet operation.	PER35
Sender Name (Submission ID)	Deanna Greene (42529)	
15561	This area was established in part by mining – giving many people in this area jobs. The beauty of the area – land, water, animals, and air – reflects many positives of how, through the mining across the Range, it has stood strong. Mining brings jobs – jobs bring a community security with economic stability. The "earth" WILL survive and, more importantly, people will have the means to earn a living and financially independent.	SO10
Sender Name (Submission ID)	Deanne Roquet (43827)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Deanne Roquet (43827)	
15944	PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions... The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution.	AIR01
15945	The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed.	WET13
16068	The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient.	WR057, WR080, WR176
16069	PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk.	PD22, WR130, WR132, WR180
16070	the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing problems. The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure.	FIN01, FIN05, FIN08
16071	The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period.	FIN13
16073	If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety.	PER07
16075	Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota.	AIR01, VEG03
Sender Name (Submission ID)	Deb Brinkman (19960)	
1556	The SDEIS is inadequate; it does not provide any reassurance that this mining will not result in irreparable harm to the watery environment in our Arrowhead. PolyMet’s proposed mine threatens our clean water and public health.	HU03, WR115
14220	500 years of pollution is unacceptable.	FIN10
Sender Name (Submission ID)	Deb Bryant (45866)	
10258	I am vehemently opposed to the prospect of a copper sulfide mine being developed in Minnesota for many reasons to include the poor track record of the Glencore corporation, the risk to habitat and water quality, and the direct disruption such activity would create next to a wilderness area.	WILD02, WR023
10260	The estimated gain of a limited number of jobs for a mere 20 years is not worth the huge risk of damage done that will last potentially for centuries.	SO01
10261	There is huge weakness in the environmental draft statement pertaining to water quality, and based on the unsuccessful track record of preventing environmental damage as demonstrated through other such mines, there can be no assurance that the proposed mine will be any different.	WR023

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Debbie (7726)	
61	this EIS should not be accepted and/or approved until a long-term (20 year minimum) research project be conducted in Minnesota on the accumulated effects of mercury on children and women.	SO04
72	Since there has never been a sulfide ore mine in the world that has not polluted and has not left a polluted site for taxpayers to bare the burden to live with and try and clean up; why does the DNR and the state of Minnesota think that proposed Polymet project will be any different?	WR023
73	The MNDNR and MPCA must require that any and all wetlands that are impacted be replaced within St. Louis County and must be replaced by preserving 100 acres of existing natural wetlands to every 1 acre of wetlands that will be impacted.	WET03, WET04
834	This project will significantly increase mercury pollution.	GEN01
835	This project will adversely effect the Partridge River watershed and the St. Louis watershed by eliminating over 900 acres of pristine wetlands and by the potential for contaminating this watershed with sulfide ore runoff. This watershed is part of the Lake Superior watershed and the Great Lakes watershed.	WET24, WR111
Sender Name (Submission ID)	Debbie Engel (42833)	
7333	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US Dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range.	SO10
7333	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US Dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range.	NEPA16, SO10
Sender Name (Submission ID)	Debbie Thompson (40828)	
13999	I have lived in Minnesota my whole life and "Northern Minnesota" is our treasure. PolyMet will never be able to guarantee it won't be ruined.	WILD02
Sender Name (Submission ID)	Debbie Tilman (54666)	
17898	I believe that Polymet Mining will and can do everything in their power to run a good business, provide jobs, act accordingly with the State of MN, DNR and other environmental agencies. They've been in the news and public eye way too long not too!	PER34
Sender Name (Submission ID)	Debby and David Ortman (54685)	
17865	We would rather see government efforts put towards recycling and reusing the already valuable minerals we have in circulation than trying to eke out the minute amounts found in the hard rock of Northern Minnesota.	NEPA06
Sender Name (Submission ID)	Deborah (42918)	
11385	The SDEIS assumes that all the water that needs to be treated will be collected, contained, and treated, and no contaminated water will escape. Such optimism is naïve and foolhardy—leaks, spills, etc., from containment systems must be anticipated and prepared for with measures that will immediately be triggered to prevent the water from reaching groundwater, wetlands, streams and rivers.	WR130

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Deborah (42918)	
11388	The SDEIS assumes that the bedrock under the mine and plant sites is solid and will not allow seepage and runoff to flow into groundwater and elsewhere. This is a faulty assumption. The bedrock in this vicinity has multiple faults, fractures and fissures, through which water will flow to unknown locations.	WR012
11426	PolyMet also states that its mine will operate for up to 20 years, but it will leave behind millions of gallons of polluted water for hundreds of years. Polymet states that it will be able to capture all of this contaminated water and treat it for as long as is needed, which is likely to be hundreds of years ... If treatment ends before the pollutants are removed, copper, lead, and sulfates will impact the Embarrass, Partridge and St. Louis River watersheds and Lake Superior for centuries.	WR035, WR115
11432	...membrane liners and geosynthetic covers that are intended to prevent precipitation from percolating through the waste rock and tailings into the environment, WILL eventually leak—they have not been shown to last for hundreds of years without cracking or breaking, or being damaged by erosion, growth of roots, shifting or settling of the ground, or other factors that should be expected. This means that contaminated water collected in pits lined with membrane liners WILL eventually leak into the environment…Polymet has not shown that its lining and barrier systems will completely function for the hundreds of years needed.	WR127, WR138
11434	The modeling used to estimate the speed and quantity of groundwater flowing through the site is flawed and leads to a conclusion that underestimates the quantity of pollutants that will reach nearby rivers, as well as the speed with which they will arrive in the rivers. ...The groundwater movement model should be re-done, using much more realistic baseflow averages plus scenarios in which large amounts of precipitation occur in a short period of time.	WR003, WR189
11437	It is simply too risky to move forward with the SDEIS and PolyMet project without clear understanding of the underground faults and fractures that could transmit contaminated water to places unknown….In addition, the effects of repeated blasting on underground rock formations, and these faults and fractures, is unknown—it's certainly possible that they will become larger or more numerous, changing the flowage of contaminated water	WR010, WR016
11442	Retracting contaminated/acidified water—the SDEIS does not explain how damage can be retracted. If leakage occurs, or worse, a spill, how can the acidified water be pulled back? It can't—it proceeds downstream, and down into groundwater,...leaching dangerous heavy metals and mercury into the environment. ... Is there a proven way of restoring the surface and groundwater to its normal Ph? The SDEIS does not adequately address this topic and therefore is inadequate.	WR001, WR130
11459	Contingency plans should be prepared and in place before mining operations start, that address both foreseeable problems and unanticipated events.Foreseeable problems include accidents, unusual storms, and failure of man-made systems. … I submit that even more extreme weather events than the Duluth flood must be anticipated and adequately planned for. The SDEIS does not include sufficient assurance of contingency plans to protect the environment in the event of both foreseeable and unforeseen catastrophes.	WR057, WR077, WR176, WR180, WR193, WR197
11462	The rock at the PolyMet mine site contains amphibole ("asbestos-like") fibers that have been linked to mesothelioma. Both the effects of airborne particulate on health and the effects of ingesting airborne copper, mercury, etc. on human and animal health should be analyzed before PolyMet's proposal can proceed.	HU05
11470	The current SDEIS does not provide adequate information on….The costs of contingency plans ... for both foreseeable events and for the worst scenarios. These include the costs of monitoring to immediately identify leaks, spills, breaks, etc…...The cost of financial assurance to protect Minnesotans…..The actual costs of monitoring, maintaining, and replacing treatment equipment over many decades or even centuries…...The costs of long-term maintenance and management of wetland mitigation sites in addition to the mine and plant sites. In addition, the costs of retracting damage should be factored in	FIN05, FIN11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Deborah (42918)	
11491	The SDEIS must include the details of how the contaminated water that seeps or spills will be neutralized before it causes damage to flora and fauna and leaches heavy metals including mercury into the watershed.	WI04, WR130
11499	financial assurance must cover the costs of contingency mitigation measures (MInn. Rule 6132.1200) if engineering controls become unable to ensure compliance with applicable water quality standards. The SDEIS states that contingency mitigation measures would not be initially included in the financial assurance package (5-215). This is foolhardy—failure or inadequacy should be anticipated as reasonably likely, and the costs of repairing or replacing the controls as well as costs of mitigating damage that occurs before completion of the repair or replacement should be built into the financial assurance required.	PER03
11528	Ongoing and recent studies are showing the devastating impact of sulfates on wild rice. ...PolyMet claims that it can meet the current sulfate standards, but its promise does not address the ... [sulfate accumulation from] untreated, contaminated water that will seep or flow from the sites. .... In addition, PolyMet's assertion that it will meet current sulfate standards assumes that all the engineering controls, including the seepage capture system, the cap and liner system, the discharge controls, as well as the wastewater treatment system will all function perfectly for hundreds of years.	WR070, WR127, WR128, WR156, WR159
11534	The SDEIS …[does not] consider the potential cumulative environmental impacts of current mining activity as well as new exploration and potential mining and processing throughout the region. Rather, it restricts the cumulative effects assessment area (CEAA) to the Embarrass and Partridge River watersheds, and does not even include the St. Louis River or Lake Superior. The impacts on Northern Minnesota the entire Great Lakes basin should be evaluated.	CU01, CU02
11539	Current mining interests seek variances, and current regulatory agencies often allow them, without public notice or comment. The validity of PolyMet's assurances and the validity of the SDEIS's analysis are both undermined if at some date PolyMet or its successor(s) seeks variances and the regulatory agency grants them…. What assurance do we Minnesotans have that variances or exemptions won't be granted to PolyMet (or its successor) in the future? The SDEIS doesn't provide sufficient assurance that monitoring and enforcement of requirements will be strong and vigilant over the hundreds of years needed	PER06
17437	The potential for severe environmental damage from this kind of mining, never done before in Minnesota, is huge. While we all hope sulfide mining can be done in this water-rich environment without damage, experience throughout the world shows otherwise.	WR023
17438	The SDEIS does not adequately address the measures that will be required to be in place in the event of accident or failure of water containment, transport, or treatment systems.	WR130
17439	significant amounts of untreated water—which is contaminated to some degree despite PolyMet's assertions—will seep into the environment, completely by-passing any preventive efforts. The SDEIS does not adequately recognize this as a concern.	WR107, WR108
17440	Despite PolyMet's promise to contain all contaminated water, its own mine plan shows that millions of gallons of polluted water will seep off site, untreated, during usual operations. Flooding events and other catastrophes will exacerbate the damage. The SDEIS must address how the millions of gallons of untreated water will be kept from flowing into the Partridge and Embarrass Rivers, to the St. Louis River and ultimately into Lake Superior.	WR070, WR107, WR108, WR111, WR130, WR202
17441	PolyMet has not shown that runoff and/or seepage from the permanent waste rock pile and the tailings piles will be prevented adequately. It doesn't even propose that liners be installed under all the tailings piles and waste rock. PolyMet proposes to store tailings in the former LTV tailings basin, on top of tailings that are already leaching contaminated water.	WR070, WR127

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Deborah (42918)	
17443	The process of extracting the copper and other minerals from the rock will require the waste rock to be ground into a fine powder, some of which is likely to escape into the air and become a risk to humans and animals. In addition, additional material is likely to become airborne during transit of the waste rock to storage areas. The particulate itself is likely to be harmful to air-breathing animals, and the contents of the particulate, including copper and mercury, could be harmful as well to human and animal health.	AIR04
17446	The waste rock will leach mercury at more than 4 times the water quality standard (according to PolyMet's humidity cell testing). ... PolyMet states that "insufficient data" prevents it from modeling the amount of mercury that will enter the rivers. However, the SDEIS itself states that PolyMet will "increase mercury concentrations in the Embarrass River as well as some nearby lakes... the City of Hoyt Lakes' municipal drinking water is downstream from PolyMet's waste piles. ... 1 out of 10 infants in Minnesota's Lake Superior Region already are born with unsafe levels of mercury in their blood. Adding greater mercury concentration to the watershed will increase the danger to humans. PolyMet should not be allowed to proceed	WR158
17448	The SDEIS also is inadequate regarding the financial assurance required to protect the state of Minnesota and its taxpayers. No one should bear the costs of clean-up of any environmental damage other than the companies and people profiting from the mining. Minnesotans should be absolutely guaranteed that, if there is any environmental damage, resources in sufficient amounts have been set aside up front to cover all the costs of remediating the damage, or better yet, retracting it.	FIN01, FIN10
17449	The SDEIS should address the means to "reclaim" the water that's been acidified, the plants and animals killed off, the surface water and groundwater restored to pre-damage levels of water quality. The SDEIS should address these means, and the costs to implement them.	FIN11
17450	Long-term financial assurance must be adequate and safely protected from being diverted to other uses, so that it is available if and when it is needed. ...The need for water treatment will continue...for decades and perhaps centuries…. PolyMet asserts that it "does not need to know" the length of time for which reclamation costs should be estimated, but that PolyMet will provide whatever is needed. … How can the amount of needed financial assurance be calculated if one critical factor—the length of time for which it is needed—is unknown? How can the state be assured that the financial assurance will cover the costs, if we don't know how long those costs will last, and therefore can't know the total costs?	FIN01, FIN05, FIN08
17452	The financial assurance must be enough to protect Minnesota taxpayers, long after the mine ceases operations and, likely, long after PolyMet and its successors are gone. This includes protection from bankruptcy or dissolution—of PolyMet and of any other financial backing of the enterprise-- that would leave Minnesotans liable for any costs. The risks of the entire enterprise should be entirely on the company, its partners and investors…. The SDEIS is inadequate—it does not provide nearly enough information with which to estimate the anticipated reclamation costs, and it doesn't provide a financial assurance plan that will remain viable for 500 years, or that accounts for unanticipated liabilities, or that anticipates the inability of third parties to pay.	FIN01, FIN02, FIN05, FIN10
17454	The DNR asserts that further information on financial assurance is not required until the Nonferrous Permit to Mine stage of the process, and therefore is not required in the SDEIS. While this position may technically be correct under the current state of Minnesota's laws and rules governing the process, it does not adequately protect Minnesota's taxpayers, and therefore is a shirking of the DNR's duty to carry out its responsibilities. See Minn. Stat. Sec. 116D.04, subd.6.... The DNR and other lead agencies have the opportunity—and the responsibility—to ensure that this critical component of the PolyMet proposal is open for full public disclosure and ability to comment at the SDEIS stage.	FIN13, FIN14
17455	There are ... several concerns related to the economic impact of the PolyMet proposal:oThe boom-and-bust cycle of most mining means any economic improvement will be short-lived.OMost of the profits will go to stockholders and investors located elsewhere. ONon-mining jobs associated with more sustained economic activity (such as recreation and tourism) will likely be lost and not recoverable long after the mine closes.OMany of the jobs will not be long-term, full-time jobs for Minnesotans. OMany of the more highly skilled jobs will go to people who come to the area temporarily and send their incomes back to their permanent residences.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Deborah (42918)	
17458	PolyMet predicts about 360 direct jobs and 330 indirect jobs in the local area during operations. It doesn't specify that each is a full-time permanent job, nor that the jobs would all employ local residents. ...Construction is ...expected to at least "marginally reduce the unemployment rate" in the study area. ... Upon closure of the mining operations, far fewer people would be employed, the remaining jobs being in closure and reclamation activities. P. 5-499. So few jobs,, for such a comparatively short period of time, are not worth the risk to the ecosystem of the St. Louis River watershed and Lake Superior.	SO01
17459	While the SDEIS acknowledges that mining activities typically follow a boom-bust cycle, it does not analyze the aftermath of the "bust", including the impact of the loss of jobs on the economy. It states that the boom-and-bust phenomenon was not modeled "because the duration cannot be predicted." p. 5-496. The SDEIS simply says that unemployment will increase, and goes no further….The SDEIS should thoroughly assess its impact, to present a complete picture of PolyMet's environmental impact.	SO02
17460	the SDEIS barely mentions the loss of jobs in non-mining activities. While acknowledging that an indirect effect on tourism and recreation might occur due to noise, dust, water pollution and other disturbance, it does not estimate the loss of recreation and tourism-related jobs in the area or examine the effects of the loss of those jobs. The displacement of other economic activity, including jobs and income related to hunting, fishing, eco-tourism, outdoor recreation, and the destruction of habitat for many species is ignored.The SDEIS is inadequate.	SO02
17461	The land exchange proposed by PolyMet would circumvent federal law by taking 6,700 acres in the Superior National Forest that are now protected from strip mining under the Weeks Act, and exchanging them for private lands acquired by PolyMet. The only reason for the land exchange is to remove it from Superior National Forest and federal protection from mining. I oppose this land exchange—it will take protected land and submit it to devastating strip mining.	LAN02
17464	The SDEIS states that the comments and supporting documentation submitted by the Tribal Cooperating Agencies have not been verified or validated and examination of the points they make is being "deferred." P. 8-20. The reader is simply referred to Appendix C. This approach does not give the public the opportunity to know and comment on the lead agencies' analysis of the Tribal Cooperating Agencies' assertions.	NEPA12
Sender Name (Submission ID)	Deborah A Ramos (54528)	
19046	If Canada is own by the Queen of Enland and that Enland rejects exports from the USA pertaining to international laws… Then we have the right to stop the company from Canada coming here and destroying MN.	PER35
Sender Name (Submission ID)	Deborah Cheek (32765)	
13830	There are things in our lives and in the world that are much more valuable and precious than money. The National Forest lands near the Boundary Waters Canoe Area Wilderness and Lake Superior are considered by some to be one of the most beautiful wilderness areas in the world...My heart aches that some corporation thinks that it is right/moral to seek permission to put an open pit sulfide mine on this land.	SO01
Sender Name (Submission ID)	Deborah Crocker (50717)	
11009	It seems to me the costs are TOO great just for a few jobs.	SO01
13131	If this goes through it will COST US big time!!! It will destroy our great north woods, animal life, AND the money from tourism!!! It will also cost us money to clean up!!! It will probably never really be clean or will we have our great north woods ever again, at least in my life time. It seems to me the costs are TOO great just for a few jobs.	SO02, WI13

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Deborah Crocker (50717)	
13132	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies.	WR023, WR060, WR181, WR182, WR195
13425	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies.	WR023, WR060, WR181, WR182, WR195
13427	If this goes through it will COST US big time!!! It will destroy our great north woods, animal life, AND the money from tourism!!! It will also cost us money to clean up!!! It will probably never really be clean or will we have our great north woods ever again, at least in my life time. It seems to me the costs are TOO great just for a few jobs.	SO01
Sender Name (Submission ID)	Deborah Gibbons (43573)	
11243	My presence and my vote will always be against destruction of the native forest in any way.	VEG03
11246	Reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health.	HU03
Sender Name (Submission ID)	Deborah Huskins (18232)	
13582	PolyMet says that they can capture all of the contaminated water on site and treat it before it's released into the environment. Their own mine plan shows they will have millions of gallons of polluted water that will seep offsite untreated. PolyMet will be collecting some of the water in pits lined with membrane -- membrane liners. These liners will eventually leak. What will happen if we have a flood event like the Duluth flood event?	WR070, WR127
13583	Contingency plans are important. No one has explained how the damage can be retracted once it occurs. If leakage occurs, or worse, a spill, how can the acidified water be pulled back? It can't. It proceeds downstream and down into the groundwater killing plants, fish and all aquatic life it contacts, leaching dangerous heavy metals and mercury into the environment.	PD22
13584	Reclamation costs are used to determine what the financial assurance is that will be required. But how can we give a dollar value to the damage once it's occurred? Financial assurance must be enough to protect Minnesota taxpayers in the future; long after the mining company is gone. Protection from bankruptcy is important, also, because Minnesotans otherwise would be left liable for any costs.	FIN05, FIN10
13585	It [the SDEIS] doesn't provide a financial assurance plan that will remain viable for 500 years and account for all unanticipated liability. How can it? How can a corporate entity be held accountable for these costs over centuries? The answer is get all costs up front. But we really don't know what the costs of the water treatment monitoring maintenance and repair for decades and even centuries are.	FIN01, FIN05
13586	Another reason the SDEIS is inadequate is that the economic analysis is not complete. What jobs really will go to Minnesotans and which ones will go to non-Minnesota, non-U.S. employees? What about the jobs that are displaced or disappear when the mining starts, and what about those jobs that disappear afterwards? A cost-benefit analysis is needed. When the mine closes, there will be costs due to the impact of lost jobs, unemployment and other societal costs. The SDEIS does not take these into account.	SO06
13587	Displacement of other economic activities should be part of the cost-benefit analysis, including activities associated with hunting, fishing, ecotourism and outdoor recreation.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Deborah Huskins (18232)	
17960	The SDEIS assumes that all the water that needs to be treated will becollected, contained, and treated, and no contaminated water will escape.(…) The SDEIS does not adequately address the measures that will be required to be in place in the event of accident or failure of water containment, transport, or treatment systems. In addition, significant amounts of untreated water-which~ contaminated to some degree despite PolyMet's assertions-will seep into the environment, completely by-passing any preventive efforts.	WR070, WR129, WR130, WR131
17961	If treatment ends before the pollutants are removed, copper, lead, and sulfates will impact the Embarrass, Partridge and St. Louis River watershedsand Lake Superior for centuries. Despite PolyMet's promise to contain all contaminated water, its own mine plan shows that millions of gallons of polluted water will seep off site, untreated, during usual operations. Flooding events and other catastrophes will exacerbate the damage. The SDEIS must address how the millions of gallons of untreated water will be kept from flowing into the Partridge and Embarrass Rivers, to the St. Louis Riverand ultimately into Lake Superior.	WR037, WR070, WR202
17962	PolyMet has not shown that runoff and/or seepage from the permanent waste rock pile and the tailings piles will be prevented adequately. (…) Polymet has not shown that its lining and barrier systems will completely function forthe hundreds of years needed.	WR127, WR128
17963	The modeling used to estimate the speed and quantity of groundwater flowing through the site is flawed and leads to a conclusion that underestimates the quantity of pollutants that will reach nearby rivers, as well as the speed with which they will arrive in the rivers.	WR009
17964	The SDEIS assumes that the bedrock under the mine and plant sites is solid and will not allow seepage and runoff to flow into groundwater and elsewhere. This is a faulty assumption. The bedrock in this vicinity has multiple faults, fractures and fissures, through which water will flow to unknown locations. (Data sources: several studies by Miller, J.D, Jr. and Severson, M.J., 2005 Bedrock geology of Babbitt quadrangles, Minnesota Geological Survey Miscellaneous Map series M-100-150, and Jirsa, M.A., et al, Bedrock geologic map of Minnesota: Minnesota Geological Survey State Map Series 5-21) .	WR012
17965	Retracting contaminated/acidified water-the SDEIS does not explain how damage can be retracted. If leakage occurs, or worse, a spill, how can the acidified water be pulled back? It can't-it proceeds downstream, and down into groundwater, killing the plants, fish, and all aquatic life it contacts, leachingdangerous heavy metals and mercury into the environment.	PD22
17966	The process of extracting the copper and other minerals from the rock will require the waste rock to be ground into a fine powder, some of which is likely to escape into the air and become a risk to humans and animals.	AIR07
17969	The SDEIS also is inadequate regarding the financial assurance required to protect the state of Minnesota and its taxpayers.(…) The current SDEIS does not provide adequate information on 1) the reasonably anticipated costs offoreseeable problems, 2) the costs of currently unforeseen events, and 3) the duration of remediation efforts. Much more information is needed to determine the amount of financial assurance that the state should require before ranting any permissions to mining interests to proceed.	FIN05, FIN06, FIN10
17973	o The boom-and-bust cycle of most mining means any economic improvement will be short-lived.O Most of the profits will go to stockholders and investors located elsewhere.O Non-mining jobs associated with more sustained economic activity (such as recreation andtourism) will likely be lost and not recoverable long after the mine closes.O Many of the jobs will not be long-term, full-time jobs for Minnesotans.O Many of the more highly skilled jobs will go to people who come to the area temporarily andsend their incomes back to their permanent residences.	SO02
17974	The land exchange proposed by PolyMet would circumvent federal law by taking 6,700 acres in the Superior National Forest that are now protected from strip mining under the Weeks Act, and exchanging them for private lands acquired by PolyMet.	LAN02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Deborah Huskins (18232)	
17975	Ongoing and recent studies are showing the devastating impact of sulfates on wild rice. (…) PolyMet claims that it can meet the current sulfate standards, but its promise does not address the untreated, contaminated water that will seep or flow from the sites. The SDEIS is inadequate because it does not address the sulfate accumulation from untreated contaminated water.	WR070, WR127, WR128, WR150, WR156, WR159
17976	The SDEIS states that the comments and supporting documentation submitted by the Tribal Cooperating Agencies have not been verified or validated and examination of the points they make is being "deferred." P. 8-20. The reader is simply referred to Appendix C. This approach does not give the public the opportunity to know and comment on the lead agencies' analysis of the Tribal Cooperating Agencies' assertions.	CR06
17979	The SDEIS considers only the PolyMet proposal, not the other sulfide mining exploration efforts already underway in Northern Minnesota in anticipation of developing mines. Neither does it consider the potential cumulative evironmental impacts of current mining activity as well as new exploration andpotential mining and processing throughout the region.	CU02
17980	The SDEIS doesn't provide sufficient assurance that monitoring and enforcement of requirements will be strong and vigilant over the hundreds of years needed, and is inadequate in this respect.	PER06
Sender Name (Submission ID)	Deborah J Rasmussen (42740)	
12041	The mine site in question is now part of the Superior National Forest and a land swap is proposed with the Forest Service. What land would be exchanged for the proposed mining site and how would this affect the plants, wildlife, and overall well-being of the Superior National Forest?	VEG01, VEG03, WI01
12042	PolyMet proposes to add processing waste from the new plant to an existing tailings basin that is currently leaking polluted water. How will this leakage be corrected in order to fully protect groundwater and the environment?	PD10, WR105
12044	[Water] treatment would be required at the mine site for a minimum of 200 years and at the plant site for a minimum of 500 years. Five hundred years is far longer than the US has even been a country. What entity can guarantee being around to provide the required water treatment for that length of time? Who will be held responsible – essentially forever -- to guarantee the water treatment required as a result of this mining activity?	PD24
12047	The Partridge and Embarrass Rivers both run in close proximity to the proposed mine site before flowing into the St. Louis River. The St. Louis River then flows into Lake Superior. Lake Superior is the largest source of fresh water in the country... Exactly how will Lake Superior water be protected from potential pollution resulting from this mining activity?	WR111
12048	No sulfide mine has ever operated without polluting its nearby waters. PolyMet says it has technology to prevent this. What is their proof for this claim and what scientific organization that is uninvolved with PolyMet's proposal can substantiate that proof?	PD26, WR023
12049	The EPA says that the hardrock (including sulfide) mining industry is the largest toxic-waste producing industry in the US. How would the DNR justify bringing this source of toxic waste to northern Minnesota?	HAZ03
12050	How will the nearby Boundary Waters wilderness area be protected from the pollution generated by this proposed mine -- including noise pollution.	N02
Sender Name (Submission ID)	Deborah Kleese (42542)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Deborah Kleese (42542)	
6812	Data used to generate predictions must be as accurate as possible, otherwise the model has little validity (Garbage In-Garbage Out, or GIGO). As pointed out in the memos submitted by Coleman and others, there is significant lack of agreement between the low baseflow predicted by the surface water model (XPSWMM) and baseflows measured in the field and by continuous stream gauging. A major tenet of modeling is that computer simulations are discredited if phenomena have not been field tested and do not reflect actual conditions.	WR003
13490	Uncertainties related to long time delays and the future…One factor is the intrinsic delays between the period at which human activity actually creates environmental harm and the point at which the damage becomes visible.	FIN05, FIN08, WR044, WR049, WR172, WR173, WR174
15597	After reviewing the information in Chapter 8 and specifically the five letters and memos contained in the hydrology section of Appendix C of the SDEIS, I contend that the modeling assumptions are so questionable that the predictions presented in the SDEIS provide serious challenges to prediction of a critical economic component: future mitigation and remediation costs.	MERC20, WR005, WR035, WR037, WR126, WR189, WR195
15598	there is significant lack of agreement between the low baseflow predicted by the surface water model (XPSWMM) and baseflows measured in the field and by continuous stream gauging. A major tenet of modeling is that computer simulations are discredited if phenomena have not been field tested and do not reflect actual conditions.A.The great discrepancy between the modeled Partridge River baseflow level just east of the mine site. At 0.42 cubic feet per second(cfs) and actual measured baseflow, at 5.0 cfs is too great, even accounting for some assumptions made in the model.B.The same problem occurs in the GoldSim model in predicting water quality at the mine site. Goldsim did a poor job in predicting current ground and surface water quality, in some cases mis-predicting water quality by more than 400%. Since accurate prediction of cunent water quality is an easier task than predicting future water quality, given increased levels of uncertainty of input variables in the future, the Goldsim model is a bad choice for predicting future water quality, which was its purpose in the SDEIS. Poor confidence in data input in the model makes model error too great.	WR003, WR044, WR047, WR086, WR111, WR130
15600	Failure to adequately take into account environmental costs as well as benefits is a serious flaw in the economic analysis in chapter 4.	SO07
15601	There is too much uncertainty in predicting future costs: Minnesota has existed as a state for 156 years, since 1858. The origins of our present federal system date from 1776, a period less than half of the 500-period estimate of maintenance. Predicting both costs and certainties about corporate liability become problematic when such future timeframes are involved.	FIN01, FIN05
15602	It can take long periods of time -sometimes decades - for pollutants to seep into acquifers and contaminate water supplies. Gardner and Stern explain how these future consequences not only temporarily mask the severity of pollution but that remediation measures in the future may come too late to fix the damage that is already in place or require sums that are far greater than was predicted in the original cost estimates.	PD03
15603	The inability of the hydrological models to match present field conditions and the inability to simulate current ground and surface water quality makes model error too great.	WR044, WR049, WR108, WR117, WR172, WR173, WR174
15604	As Chapter 8 and Appendix C of the SDEIS point out, the models used to predict environmental risks are seriously flawed, leading to serious modeling errors that therefore underestimate potential environmental risks and then seriously underestimate future costs for remediation. The most reasonable risk management strategy at this time is to take NO ACTION.	PD03, PD04, WR189
Sender Name (Submission ID)	Deborah Morse (54508)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Deborah Morse (54508)	
18771	I do not support PolyMet's mining project or turst the mine to give fair information about the environmental impact on the BWCAW and Rainy Lake watershed.	GEN03
Sender Name (Submission ID)	Deborah Robinson (58142)	
19912	Hardrock mining history in other U.S. states has proven that hardrock mining companies usually declare bankruptcy long before mine site cleanup is done leaving tax payers, such as myself, paying for the long-term cleanup costs - there is no reason to believe that PolyMet would or could do better	FIN01
19998	The risk to water quality is far too great (sulfuric acid pollution for many years, perhaps centuries, into the future) for the limited number of jobs (350) that would result over such a limited time (20 years)	SO01
20008	There are many less risky ways (both financially and environmentally) to revitalize the economy of northern Minnesota without copper/nickel mining	SO01
Sender Name (Submission ID)	Deborah Webster (28650)	
14481	My main concerns are …sufficient funds being set aside to clean up the mess after PolyMet has stripped the earth of anything valuable. History has shown that other mining interests have simply declared bankruptcy to avoid paying clean up costs.	FIN01
14483	My main concerns are irreparable environmental damage and lack of a good plan to prevent accidents….	PD22
14484	The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public interest.	LAN01
Sender Name (Submission ID)	Debra Cless (18117)	
3380	…and I have especially paid attention to Chapter 8 and Appendix C. And in there there are scientific studies. And the ones I found most compelling were the five letters and memos contained in the hydrology section of Appendix C.	WR189
3381	…and I would also call attention to the fact that it's PolyMet's modeling itself that has contained 200-year and 500-year outcomes. However, the model water quality at 500 years is only the point at which the water doesn't get worse. The predictions in these models create serious challenges to prediction of critical economic components.	WR037, WR038
3384	Future mitigation and remediation costs. Risk assessment cannot be separated from risk management. Therefore, critical flaws, present in the assessment of risks, will lead to critical flaws in estimations of future costs. …the major tenent of the model is that computer simulations are discredited if the things you are looking at have not been tested and do not reflect adequate field conditions. The surface water model failed to do that.	WR003, WR056, WR071, WR086, WR091
Sender Name (Submission ID)	Debra Frasier (22723)	
13963	Jobs? We trade all this for jobs that will last at best 20 years, and the bulk of the profits will be exported. It does not make sense to open the flood gates of permits to the dangers of this kind of mining.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Debra Frasier (22723)	
13964	But let us at least have a fair idea of the health dangers, not brush this under the rug for after the fact….Please do not proceed with this mining effort without the health assessment.	HU01
19955	Now, water is the gold. Minnesota has a chance to keep its gold....Don't sell to the short sighted job – protect the gold – we cannot sign up for a "plan" that counts on 500 years of cleanup for a job today. The math does not work.	SO01
Sender Name (Submission ID)	Debrah Billmeier (18270)	
13891	I've never been able to find the words to adequately express the value that the wilderness has on, from as far as I can tell, everyone that has ever been there..I think if everyone could have the amazing experience that the peace and freedom nature provides, they would agree it is stupid and reckless to open mines that would endanger this rare and interesting environment.	WILD02
13892	I find the history of the Polymet/Swiss owner's mining company's practices extremely disturbing…they have never proven that they can prevent the extremely toxic waste and the sulfuric acid from entering into the surrounding environment.	PD23
13893	With fresh water being the most valuable resource, this mining project, it is like the worst location for it to be a test site. It is near Lake Superior, the largest freshwater source in the world. It seems like a pretty stupid place to just see if it is not going to do it.	WR111
Sender Name (Submission ID)	Debsonstage (10358)	
1456	I am concerned about the sulfide mining that is proposed on the range due to the great risk of our ecology from Babbit through The Great Lakes.	WR115
Sender Name (Submission ID)	Dee Ray (57424)	
19610	MINNESOTA NEEDS THESE JOBS AND IT WILL HELP THE STATE IMMENSELY	SO10
Sender Name (Submission ID)	Deja White (54213)	
17659	The wilderness is a very historic place being open since 1978. What about the future generations?	WILD02
17660	Your polluting the waters with sulfuric acids making the pH go down. Which means no more fishing for the people who love to do so.	LU06
17661	Digging this mine will [contaminate] the waters. Ruining the habitat of the animals around it and in the waters. … Building this mine will polute multiple lakes and rivers.	WR115
Sender Name (Submission ID)	Denise Perry (58039)	
19835	Explore more options for disposal!	ALT09
Sender Name (Submission ID)	Denise Wunderlich (31534)	
14005	Allowing sulfide mining to begin would pose a threat to wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness, as has been demonstrated by the heavy metal contamination that has polluted waters in all other places where sulfide ore mining has occurred.	WET24, WILD02, WR023, WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Denise Wunderlich (31534)	
14006	This proposed project has major potential negative impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, and harm to wildlife.	HU03, WET24
14007	Allowing PolyMet to build an open pit sulfide mine, using a Federal land exchange that includes protected Superior National Forest land is not in the public interest.	LAN01
Sender Name (Submission ID)	Dennis Dietzel (3099)	
144	there would need to be water remediation for 200 to 500 years[…]The United States as a country is just over 200 years old, and, to my knowledge there are no corporations that have ever existed nearly that long.[…] We have no idea how many resources would be required 100's of years from now to handle such a situation.	WR037
Sender Name (Submission ID)	Dennis Dunphy (50934)	
13304	How does the DNR plan to forecast the value of a human life lost due to pollution from the mine?	FIN05
13307	How can they predict the success of technology never used in the Boundary Waters area?	PD32
16278	Poly Met has not money to do what they keep promising along with the DNR to do. Poly Met is a Canadian company with not legal or moral ties to Minnesota or the U.S. The only source of money for them is the American citizens	FIN01, FIN02, FIN04
16279	Once that water is polluted it is no good anymore. You wouldn't be able to drink it or swim in it. You wouldn't be able to fish it. So, nobody comes to Minnesota anymore to fish or camp. Because politicians set on their duffs and let it happen. The Chamber of Commerce and their buddies wanted the jobs. I can't see any future or benefit here at a Poly Met Mine.	SO01
16282	How many mines will open up [as a result of this mine being approved]?	CU04
16284	How can Poly Met open a mine when they have not money to do so?	FIN01
16285	Why would we let a Canadian mining company like Poly Met open a mine in Minnesota since they have no ties to the United States?	PD23
16286	Have they looked at the pollution of other mines and told the public the truth about the pollution from these other mines?	PD26
16287	Why has the DNR used numbers given them by Poly Met without doing their own analysis?	PER06
16288	How can they not look at the action needed when pollution takes place which it will? What are the actions that will take place when a river is polluted?	WR195
Sender Name (Submission ID)	Dennis Falk (39977)	
6260	As I read the SDEIS and understand state statutes and regulations, this project will not meet the allowable standards for water quality. The mining activity will last perhaps 30 years, but the need to treat water to bring it to an allowable standards will likely last 200-500 years.	WR115
Sender Name (Submission ID)	Dennis Ferche (43089)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dennis Ferche (43089)	
14802	... a ton of typical high tech equipment contains much more gold and other resource material than does several tons of related ores. I contend we need to get at reclamation in a proper manner...I propose that before any mining might be provided for that Reclamation of related resources be done and evidenced near the 100% level.	NEPA06
Sender Name (Submission ID)	Dennis Good (38576)	
9710	Also, any land exchange has to consist of equally valued land. But 5 out of the 6 non-federal tracts involved in the exchange have severed mineral rights. So how does this resolve all these conflicts?	LAN04
14028	the Co-lead Agencies have identified a preferred alternative and it’s not the No Action Alternative.	ALT22
14030	…To say that the Underground Mining Alternative is not “economically viable” means either that the Co-lead Agencies have looked at PolyMet’s books or that Polymet wrote the position paper. I think that the authors of this “position paper” should share their financial acumen with Brad Moore and other Polymet officers so that they can answer questions posed by the MN Legislature.	ALT01
14031	This section says that financial assurance would consist of “surety bonds, irrevocable letters of credit, cash and cash equivalents, trust funds and insurance policies or a combination thereof"… This is all worthless paper backed up by even more worthless paper with not a tangible asset to be seen. Polymet’s stockholders and controlling interests (Glencore, Exstrata) have their exit strategies all worked out.	FIN01, FIN08
19257	Section 1.3, page 142, Purpose and Need. It is amazing how the Co-lead Agencies purpose and need statements dovetail so precisely with Poly Met's. There is no essential difference between them. This section looks and sounds as if it were written by PolyMet's lawyers and consultants. But on page 2112, in response to a comment made by the GLIFWC is this: "The Co-lead Agencies developed this language for insertion in the SDEIS." Well, how cozy is this. And there's nothing in the Co-lead Agencies statements about "public interest", "conservation of natural resources", clean air, clean water, wetlands conservation, fish and wildlife, etc. PolyMet couldn't have done a better job writing this.	NEPA02
19258	Again, keeping in mind Section 1.3, it's obvious the Co-lead Agencies have identified a preferred alternative and it's not the No Action Alternative.	ALT21
19260	First, the Co-lead Agencies prepare Purpose and Need statements that repudiate everything that they allegedly stand for and then they prepare position papers for PolyMet dismissing the Underground Mining Alternative and at the same time pretending that they have not identified a preferred alternative. To say that the Underground Mining Alternative is not "economically viable" means either that the Co-lead Agencies have looked at PolyMet's books or that Polymet wrote the position paper. I think that the authors of this " position paper" should share their financial acumen with Brad Moore and other Polymet officers so that they can answer questions posedby the MN Legislature.	ALT01
19262	All throughout the SDEIS, whenever the Land Exchange Connected Action is discussed, are statements about "quality of titles", "complexity of titles", "risk of conflict", "high risk federal lands", "low risk non-federal lands", "instant conflict", "re-unify the severed mineral estates" and" The USFS needs toresolve this fundamental conflict" etc. etc. What conflicts? What the USFS needs to do is to manage these lands in the public interest.	LAN04
19264	In Section 1.4.3 page 145: "The Forest Supervisor may complete anexchange only after a determination is made that the public interest will be well served". Also, any land exchange has to consist of equally valued land. But 4 out of the 5 non-federal tracts involved in the exchange have severed mineral rights. So how does this resolve all these conflicts? These statements are nothing but lawyerese, seemingly written by and for the benefit of Polymet and their controlling interests (Glencore, Exstrata et al).	LAN03, LAN04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dennis Good (38576)	
19267	Section 5.2.3.3.2, Wetland Mitigation, page 1220 says that: "Most of the wetlands that would be affected by the NorthMet Proposed Action would be of pre-European settlement condition and rate at the highest Floristic Quality Assessment levels for these plant communities in Minnesota. MNRAMvegetative diversity/integrity ratings would be "exceptional" for these pre-European settlement condition wetlands". This is the federal land. Elsewhere in this section is a narrative describing the efforts expended by state, county and federal entities to accommodate Polymet' s wishes. So I have a question:If I, a private citizen with little money wanted to develop property containing exceptional pre-European settlement wetlands, would state and federal "Regulatory Agencies" marshal all their resources to study, analyze, negotiate and search all over the state for suitable mitigation sites for me? I think not They even allowed Polymet to veto criteria provide by the State of Minnesota for restoring wetlands on state lands. All you need is enough money to have your wishes granted.	COE01
19271	Speaking about the No Action Alternative, under the No Action Alternative, there will be a 1% decrease in wetlands but the exceptional pre-European settlement wetlands will be preserved. Also there will be a 2% increase in deep water area-213.1 acre increase in management area allocations-228.6 acre increase in acreage in the SNF-229.2 acre increase in public water lakes-11.7 mile increase in shoreline-48.9 acre increase in wild rice beds-227.2 acre increase in GAP land cover types-213.1 acre increase in landscape ecosystems-227.2 acre increase in key habitat types-Wetland resources decrease slightly but again, the exceptional pre-European settlement wetlands will be preserved-No change in special status wildlife species-Increase of surface water featuresSo how is the Land Exchange Proposed Action in the public interest? It's not This is all about private interests and money.	ALT13, ALT14
19275	Section 3.2.2.4 of the SDEIS deals with, however briefly, "Financial Assurance". Considering the 200-500 year timelines of this project (200-500 years being the only way for the models to work), you would have thought that this section would have something more to say. This section seems to have been written by Polymet lawyers and consultants with the attitude that nobody should be concerned. The first thing to keep in mind about the state's fmancial assurance laws is that they are laws and rules and not enshrined in the Minnesota Constitution and therefore can be amended, altered and/or legislated away at any time and for any reason. This section says that financial assurance would consist of "surety bonds, irrevocable letters of credit, cash and cash equivalents, trust funds and insurance policies or acombination thereof."	FIN01, FIN08, FIN14
19276	There actually is a tangible asset available though: the minerals in the ground. So here's my plan: the state pays someone to do the mining but instead of the minerals winding up in China, the state stockpiles them and sells them as needed to pay the clean-up costs.	ALT13
Sender Name (Submission ID)	Dennis Hansen (57516)	
19504	the extra air emissions from processing can be mitigated with today's technology, it will not cost too much more.	AIR11
19505	Sulfide runoff can be reduced with proper mine contouring, wastewater treatment (even something as simple as limestone treatments).	PD34
19506	the abandoned mine pits can contoured properly and be turned into new lakes, lake homes and property tax revenue.	SO10
19507	These mines are future lakes.	LU07
19508	Even though I am a proponent of mining in northern MN, I do recognize, in the past, mining companies have taken MN's resources, siphoned the profits away from MN, declared bankruptcy and left a mess behind. Today's mining industry should come out with short term and long term plans to alleviate these concerns and gain public support.	FIN01
19509	In short, most everyone agrees that northern MN needs the industry and nobody wants mining to leave our water and habitat degraded, but with today's technology, we can turn the future abandoned mines into lakes and recreational assets.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	dennis kaleta (40838)	
10303	The very process proposed to treat the toxic wastes is in question. Doesn't it border on insanity to talk about treating mining wastes for hundreds of years?	PD03
10304	The health effects of this project, unearthing toxins and exposing these to air and water are unknown, and this has not been addressed in the EIS. …Some of these concerns are mercury, toxic metals, arsenic, and asbestos-like fibers.	HU01
10306	A Health Impact Assessment should be required and it is surprising that this hasn't been done. We should know how many lives will be affected by these environmental toxins, and the sociological and economic costs.	HU01
10307	It is unknown how this project will affect wild rice, hence our water quality and our quality of life in Minnesota, where water is our life.	WR157
10309	How will this development affect the tenuous moose population? Thousands of acres of wetlands and moose habitat will be destroyed, with an impact that reaches beyond this immediate development. Critical Canada lynx habitat will be lost, as well.	WI01, WI02
10312	but this activity would have an impact far beyond the immediate area. One generation of good jobs is not worth twenty generations of pollution and health risks.	SO01
14584	while this development, like any of this scale and investment, would provide good-paying jobs in my part of the state, I see this mine as doing much more harm than good.	SO01
14585	It is not required in this EIS, but considering the scope of this project and the pervasive pollution it will create, the technology and costs of containing and remediation of this pollution for hundreds of years MUST be part of this permitting process.	FIN05
Sender Name (Submission ID)	Dennis Kittock (21459)	
1449	[PolyMet] will figure out a way to leave us with a big mess.	FIN01
1450	We are also very concerned about water contamination [from the NorthMet Project].	WR195
Sender Name (Submission ID)	DENNIS NELSON (28040)	
10995	The destruction of fish and wildlife habitat from polluted lakes and rivers, contaminated drinking water, huge cleanup costs...and "hundred-year recovery" make ANY (AND ALL) OPEN-PIT SULFIDE MINING JUST TOO 'TOXIC' AND 'HAZARDOUS' FOR THAT REGION.	SO01
16713	Lake Superior--a vast freshwater resource unique among the Great Lakes--and the millions of acres of wildlands, about 1,000 pristine lakes and streams, and around 1,500 miles of canoe routes within the Boundary Waters Canoe Area Wilderness MUST BE PROTECTED FROM THE PROPOSED OPEN-PIT SULFIDE MINE!	WILD02
16716	the federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open-pit sulfide mine is NOT IN THE PUBLIC INTEREST--AND SHOULD NOT BE ALLOWED!	LAN01
16717	I have really serious concerns about this project's potential impacts on that region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife species/populations (like the threatened Lynx and declining Moose populations), and the cumulative impacts from open-pit sulfide mining.	WI01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dennis Szymialis (18326)	
2382	I want to assure people that there will be downstream victims of the sulfide mine runoff that will occur at PolyMet.	WR111, WR115
2384	the liners are called geo liners because they're merely packed down on dirt of some sort. The reverse osmosis procedure that's being promised won't filter out arsenic, which is… at a neutral level. Filter out another carcinogen, nickel sulfate. And these will get into our drinking water downstream and the downstream consumers of that water will be the victims	WR127, WR143
2385	And when this case comes before (inaudible) I want you to all look at the decisions being made by the court and make sure that they follow the Federal Land Management Policy Act and require all mitigation rather than what is economically beneficial to the mining companies.	LAN02
2386	I want to talk about jobs. This is isn't a job promoter, this is a job killer. First of all, we've been asked and we are currently subsidizing PolyMet to the tune of 12 percent (inaudible)	SO02
8967	Allowing only 90 days for public comment for this project is inadequate to fully vet objections to the project which PolyMet and lead agencies have allegedly spent tens of millions of dollars and more than 9 years.	NEPA07
8977	The lead agencies are being paid to provide an SDEIS that will be permitted. This payment conflicts with their permitting and monitoring responsibilities. For them the permitting of PolyMet is nothing less than employment featherbedding.	NEPA18
8978	[The agencies] have an pecuniary interest in permitting PolyMet including the promotion of future projects that will go through licensing and which they will have to monitor. The agencies are denying cumulative impacts because they want to hide their own misconduct.	NEPA18
8979	Why should we have to tolerate "evaluation criteria" that they created in the first place. Is every watershed available for contamination of "evaluation criteria."	PER06
8983	Future monitoring and the filling in of some very substantial gaps of the SDEIS will be left to these lead agencies that have contracted with PolyMet to act on their behalf. These agencies have already in the DEIS written an EIS that was rejected by the EPA.	GEN03
9009	The MDNR that told us that the DEIS would protect us is going to be the agency that will be paid to monitor compliance.They will present us with test results that are self serving.	PER06
9013	What is the deal with putting the filtrate from the mechanical treatment in "licensed landfills." This simply delays the release of toxins like thousands of tons of arsenic into the environment.	PD04
9016	Reliance on sorption or absorption of arsenic by iron compounds currently is not taking place in the tailings basin or at the mine site. Releases of arsenic and other heavy metals should be expected to lead to death and disability downstream.	WR049, WR050, WR058
9023	Present and past subsidies to PolyMet … contribute to a violation of the National Land Management Policy Act.	PER26
9027	This SDEIS conspires to violate the Weeks Act, Clean Water Act, Clean Air Act, and a number of other laws.	PER26
9030	The failure to utilize more costly measures to mitigate environmental degradation to attain cost savings on the basis that the project cannot proceed without these cost savings also calls into question the merit of the project under the National Land Management Policy. These include inadequate liners, the failure to utilize the underground mining alternative and a number of other measures including many failed to be disclosed by the SDEIS which violates due process legal notice requirements.	PER26

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dennis Szymialis (18326)	
9032	The SDEIS does not require PolyMet to bolt, wire, and shotcrete the pit walls to inhibit the migration of water and pollutants in and out of the pit as was done by Kennicot at its Flambeau Mine. This would have an additional benefit if done simultaneously with mining of inhibiting the collapse of the pit wall of the type that occurred in Utah at a Kennicot Mine in 2012. It is more essential that it be done by PolyMet because of the weaker wet rock.	PD15
9034	The SDEIS simply shifts, as indicated on 5-211 and 212, toxic materials around or fails to specify actual measures to be taken.	WR128
9041	I was disappointed that there was no uniformed member of the corps of engineers… at the Duluth hearing to answer questions.	NEPA11
9049	The "cutoff wall placed into existing surficial deposits" indicated at 3-117 will be inadequate and the modeling indicating that 90%of runoff water will be collected is irrelevant. In order to collect 90% the wall would need to project below the originally placed as loose taillings fill down to bedrock, all fractures in the bedrock would need to be sealed off hold a great deal of water pressure, have the drain tile at the bottom of the wall which is standard foundation engineering, and the wall would have to be extended to the east side of the tailings basin.	PD07
9053	the iron tailings do not sequester mercury any better than any other soil. Elemental mercury is currently not leaching out of the tailings basin because lower levels have had the mercury scoured out through the introduction of sulfates running through them. Mercury is at higher than normal environmental levels in the surface areas of the tailings basin as a result of the absence of sulfates. Once the sulfates are again introduced at the top this mercury will methylate and flow out at higher levels than normal. Water discharge through the lower levels with sulfates will be redirected through the basin increasing the release of methylated mercury currently unexposed in the basin formation at these lower levels.	MERC06
9055	The " WWTF is now proposed to be upgraded to a RO process during closure to manage sulfate concentrations in the effluent " described at p. ES-24 is inadequate. It is unacceptable that toxins other than sulfates that will not be captured by RO including carcinogens Nickel Sulfate and Arsenic III shall be allowed to flow unimpeded. It is unacceptable that sulfates will be left untreated at any time… The amount of water going into the WWTF will overwhelm any treatment facility that could be built. The amount of water going into the system is dramatically understated.	PD03
9058	"Bentonite would be incorporated into the exposed outer side-slopes of the Tailings Basin as it would be built up to create a barrier that would limit oxidation. This limiting of oxygen transfer would reduce pollutants generated from the Tailings Basin." The pollutants will not be reduced. Their introduction into the environment will merely be delayed. Further more limited limitation of oxygenation is part of the formula for mercury methylization. Eventually exposure and oxygen reaction will occur.	PD08
9065	The Economic Impacts of mining only include allegedly positive impacts and fail to state the negative cumulative economic and social impacts of mining? ES-41Since the SDEIS puts in issue the economic impact of the PoltMet project it is necessary that the authors specify the basis for and underlying assumptions made in determining the following at ES-40. "Federal, state, and local taxes would total an estimated $80 million annually. During operations, there would be approximately $231 million per year in direct value added through wages and rents and $332 million per year in direct output related to the value of the extracted minerals. As with employment, these direct economic contributions would create indirect and induced contributions, estimated at $99 million in value added and $182 million in output."	SO04
9068	is the portion of $231 attributable to wages based on the unlikely prospect of a union mine?	SO04
9071	It is my recollection that it was reported back in April of 2008 that the PolyMet power rate agreement would cause our power rate to increase by more than 10% or roughly 1-5 billion dollars over the 20 year life of the mine.	PD39
9076	"Post-reclamation activities would include monitoring and maintenance of reclamation and water quality until the various facility features were deemed environmentally acceptable, in a self-sustaining and stable condition." p.3-59 -environmentally acceptable to who?	PD24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dennis Szymialis (18326)	
9080	["]-at applicable groundwater and surface water compliance points.["]p.3-59-compliance limited to selective points is not compliance.	PER09
9088	"would be collected and treated at the WWTF. Treated water would be pumped to the Tailings Basin at the Plant Site."p.3-53. and taillings basin water will be pumped to the WWTP(at the plant site). This process fails to allow for the discharge of any water to the environment? It makes no sense to refilter the water already filtered. This is included because there is no intent to do it.	PD04
9094	"The sludge waste would be disposed of off-site in a solid waste landfill until the Hydrometallurgical Plant became operational (see Section 3.2.2.3). When available, sludge waste would be filtered and moved by truck along the Transportation and Utility Corridor and introduced to the autoclave in the Hydrometallurgical Plant to recover metals or placed directly into the Hydrometallurgical Residue Facility (see Section 3.2.2.3.7)" P. 3-53.-It is planned that the toxins that are captured will be allowed to merely leach out in an uncontrolled environment. These toxins will leach out as a result of incomplete neutralization.	PD17, PD19
9098	["]collector-potassium amyl xanthate 3-100, 1,171 tons per year["](p.3-102)-dumped with tailings-this should not be allowed	PD08
9100	"The purpose of the alternatives process is to allow for the identification and consideration of other reasonable alternative means to achieve the project Purpose and Need and that could also improve environmental and/or socioeconomic benefits."-Does the alternatives process include releasing PolyMet from environmental regulation and financial assurance to achieve the so called project purpose and need and socioeconomic benefits?	ALT21
9103	"Economic feasibility – Each alternative was assessed as to whether it could meet economic and financial requirements to construct and operate the proposed project, including whether the cost of implementing the alternative would be economically feasible to meet the Purpose and Need."-This type of catagorical analysis systematically discredits the whole SDEIS process and violates the Federal Land Management Policy Act.	NEPA02
9122	two items from p.3-152 [regarding the cost of backfilling the west pit] violate the Federal Land Management policy act and call into question the merits of the PolyMet project.	ALT03
9182	Standards delineated as part of Forest Plan in 157-159 are superseded by Weeks Act Legislation and particularly as such mining is fundamentally inconsistent with the Forest and as such the lands exchanged are not protected by the Weeks Act and are not in effect an arms length transaction as proposed.	LAN02, LAN04
9183	Lake County Tract 2 lands are tainted by a MEPA violation in that they violate due process by not be properly identified as a connected action and are misidentified as being legally owned by PolyMet. The Colead agency come to the SDEIS with unclean hands in facilitating a violation of the law which should bring into question their impartiality.	LAN09
9184	"no off-site contamination has been documented." p. 4-17. This is misleading. What is the consent decree for.	HAZ05
9189	p. 4-24 "(d) Appropriation and use of surface water from lakes of less than 500 acres in surface area must be discouraged." -Colby Lake only has 517 acres.	WR181
9190	"Colby Lake, which is used for domestic consumption by the City of Hoyt Lakes, is designated as Classes 1B (treated with simple chlorination for domestic consumption)"-contaminating this lake puts an unfair burden on taxpayer in health care costs for the unwary water consumer of Colby Lake.	WR043
9194	the SDEIS fails to identify the state regulations that will be violated when the flow of the Partridge River is induced to flow through one or more of the mine pits and the river course is altered.	PER09

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dennis Szymialis (18326)	
9203	"The specific capacity tests conducted in two wells indicated that the upper portion of the Virginia Formation is more permeable than the lower portion (Barr 2007b). This is attributed to the increased amount of fractures and joints in the bedrock closer to the surface. Overall, groundwater flow within the bedrock units is thought to be primarily through fractures and other secondary porosity features because the rocks have low primary hydraulic conductivity. Near the ground surface, groundwater in the bedrock is thought to be hydraulically connected with the overlying surficial aquifers, resulting in similar flow directions (Barr 2007d). "-The rock that we are concerned about running from the fractures forming and radiating out from the Partridge River are not in the Duluth Complex, See figure p.3-35.-The SDEIS is using the Duluth Complex as the basis for non-permeability in the bedrock.	WR087
9206	P.4-45 "One exploration borehole at the Minnamax prospect encountered groundwater at a depth of 1,390 ft in the Duluth Complex that flowed for a period of 6 days, indicating the potential presence of over-pressured groundwater in the bedrock (Barr 1976)."-It won't take very many pressurized flows to drain that Partridge River, divert it's flow, and fill the mine that will need to be pumped. The Minnamax mine was so wet at all times that visitors while hearing the noise of constant pumping had to where hip boots!	WR023, WR087
9208	"Tests using wells that penetrate through the surficial zone, however, found much higher average hydraulic conductivity, with values similar to the Biwabik Formation aquifer (see Table 4.2.2-5)."- The zone where the surficial deposit meets bedrock is a primary zone of water conductivity generally in hydrology.	WR011
9211	"Tests using wells that penetrate through the surficial zone, however, found much higher average hydraulic conductivity, with values similar to the Biwabik Formation aquifer (see Table 4.2.2-5)."-this higher conductivity found conflicts with the general SDEIS claim of lack of conductivity upon which MODFLOW and GoldSimm projections were based.	WR011
9217	"Tests using wells that penetrate through the surficial zone, however, found much higher average hydraulic conductivity, with values similar to the Biwabik Formation aquifer (see Table 4.2.2-5)."-This study also reported that the upper 200 to 300 ft of the Duluth Complex formation appeared to be fractured and jointed more extensively than at greater depths, so that the upper portion of the bedrock should have greater hydraulic conductivity and thus better hydraulic connectivity than deeper bedrock. p.4-46 to 4-47.	WR011, WR012
9220	"Tests using wells that penetrate through the surficial zone, however, found much higher average hydraulic conductivity, with values similar to the Biwabik Formation aquifer (see Table 4.2.2-5)."-Blasting will exacerbate and open fractures	WR016
9221	p.4-53"The metals exceeding groundwater evaluation criteria in the surficial aquifer probably reflect natural conditions because there is no record of any historic activities at the Mine Site that could have contributed these constituents. - how about the effect of the drill exploration?	WR203
9223	p.4-60"exceedances of arsenic and nickel water quality standards were detected.(in background water sampling)."-this is an indication that drill exploration has an environmental impacts contrary to representations made by one or more co-lead agencies or it should be a warning sign of the high levels of arsenic in the mineral deposit.	WR203
9225	p.4-60"Groundwater Use -There are no existing domestic wells between the Mine Site and the Partridge River. However, there are several MDNR water appropriation permits in effect for mine pit dewatering that affect the Mine Site, including the Northshore Mine permit (Permit 1982-2097). The permit authorizes Northshore Mining Company to withdraw up to 36,000 gpm (80 cubic ft per second [cfs]), of which a maximum of 13,000 gpm (29 cfs) can be discharged to the Partridge River, a maximum of 12,000 gpm (27 cfs) can be discharged to Langley Creek, and a maximum of 11,000 gpm (25 cfs) can be discharged to Unnamed Creek." -Is this permit being transferred? Does it have to go to the tailings basin? Are these permits an indication of what is to be expected in terms of discharges from the PolyMet pit?	WR051

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
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9226	"The only consistent exceedance of water quality standards was dissolved oxygen near the headwaters of the Partridge River (SW-002,"-this fact will have serious ramifications for the mine plan when this water flows into the pit that the SDEIS plans to flood on the assumption that the flooding will suppress the re-activity through the denial of oxygen of the pit face rock and category 2,3, and 4 waste rock.	WR029
9229	p.4-86"Colby Lake is on the Minnesota 303(d) TMDL List because of mercury concentrations in fish tissue, but is not included in Minnesota's regional mercury TMDL because the mercury concentrations in the fish are considered too high to be returned to Minnesota's mercury water quality standard. p.4-86"-but this water will be used to augment stream flows around the tailings basin and increase mercury levels in the Embarrass River and concentrations of mercury downstream to Lake Superior in violation of the Great Lakes Initiative.	MERC22
9232	p.4-95"soil borings into the surficial till identified the composition as layers of clay and sand, plus cobbles and boulders that prevented recovery of an intact sample (Pint and Dehler 2009). Near the toe of the Tailings Basin, average depth to bedrock is approximately 25 ft, as reported in site boring logs (Barr"-this is the environment in which the co-lead agencies think that a below ground containment wall can capture 90% of tailings basin water-fat chance.	WR018
9249	Constituent readings for the Partridge River, Embarass River, and especially for the tailings basin down gradient are of limited value outside of the context of contemporaneous rainfall effecting dilution. Readings for surficial Rivers and Lakes-Concentrations at low water levels are the real indicator of the health of a well, river, or reservoir lake when concentrations are highest and plant and aquatic life mortality are greatest and sometimes absolute resulting in dead rivers because once everything is killed there is no life to regenerate.	WR081
9251	The hydrology on pages 4-149 to 4-151 overstate the homogeneity of the mine site surficial aquifer and are irrelevant to what is going to happen when the homogeneous portion removed from the underlying fractured bedrock along the stream bed is removed. These fractures are the vehicle for surface drainage to the larger river fracture when the mine side fractures are breached by the mine excavation the water table will follow these fractures into the mine and because of the lower hydrolic resistance will drain more area more readily including the surficial water on the opposite side of the river. River flow will follow the path of least resistance and associated erosion and be redirected naturally through the pit area.	WR011, WR012, WR061, WR081, WR087, WR090, WR099, WR169, WR179
9253	"although a few individual samples within the Partridge River Watershed exceeded surface water quality evaluation criteria, overall in-stream water quality meets state water quality standards"...-this phenomena also ivites manipulation of sampling data. For example, a high baseline could be established for a stream by sampling in low water levels and after impacted by a new project sampling would be conducted at high levels to indicate compliance when results show baseline levels.	WR109
9254	"Upper Partridge River sampling sites were indicative of a warmwater stream populated by typical warmwater species, including gamefish such as northern pike and yellow perch (see Table 4.2.6-4)."-the presence of warmwater species where trout would be expected is an indication of the warming impact that mining has on stream ecosystems and the PolyMet will exacerbate this situation as indicated for Wyman Creek:	AQ15
9256	p.4-255Compare directions and other indications for distances as given elsewhere in the SDEIS. Some distances and directions within the SDEIS appear to be inacurate.	N01
9257	the SDEIS fails to asses additional break up of large animal migratory ability broken up by mining and mines going from southwest to northeast?	WI03
9258	"Cooperating agencies have not participated in production or endorsement of any components of the EIS or the NorthMet Project."-it doesn't appear that way especially when PolyMet is paying the agencies, has had access to the agencies to lobby the contents of the EIS for 9 years, the public is left with 90 days to respond, the agencies are allowing a EIS that is vague and ambiguous to proceed, and one EIS prepared by the cooperating agencies has already been determined to be rated by the EPA Environmentally Unsatisfactory-Inadequate Information. This SDEIS continues to be a product of the evasiveness of the last DEIS.	NEPA18

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dennis Szymialis (18326)	
9623	p.4-314(public access) "There are access points to the NorthMet Project area, however, via a Forest Service road, the Partridge" -the gating off of the forest service road is a Forest Service NEPA violation.	LU01
9624	p.4-315The study area for socioeconomics extends beyond the area of direct potential project effects to include all of Cook, Lake, and St. Louis counties (see Figure 4.2.10-1). -this is arbitrary because the cultural results of the socioeconomic are not fairly addressed	SO04
9625	p.4-319"represented by the loss of so many iron industry jobs”-This statement is taken out of context and in fact a complete and accurate reading of Powers is that these jobs were consolidated by the industry due to efficiencies. The whole of the report by powers should be up for consideration in order for it to provide a fair context.	SO04
9626	p.4-325-26-factors not included by Powers include tax policy which promotes mining, the MP PolyMet power utility agreement, the IRRRB which administers most of the funds indicated on p.4-332 and funnels public tax money back into mining arbitrarily, increased health care costs mining areas, displacement of agricultural jobs at the expense of mining, etc.-why is no LQ value analyzed for long term job losses in regional agriculture due to pollution from mining and at the expense of mining pollution?	SO04
9627	p4-326 -mining has displaced the potential for additional tourism. It is misleading to say they exist harmoniously	SO02
9628	p.4-340"Grand Portage’s subsistence fish consumption averages 144 grams/day, five times higher than the MPCA assumed fish consumption rate of 30 grams/day. Fond du Lac’s subsistence fish consumption is on average 60 grams/day, two times higher than the MPCA assumed fish consumption rate (ERM 2012). The effects of mercury bioaccumulation on subsistence activity are discussed in Section 5.2.10.2.6."-mining has a disproportionate impact on the poor and minorities.	SO02
9629	Government ownership of large tracts of land for the benefit of mining contributes to an evasion of property tax payments and contributes to homelessness by resticting access to land for residential building.	SO03
9630	p.4-349…[Scenic Integrity Objective designation for the Mine Site] is an arbitrary characterization of the mine site which has nothing on it	LU05
9631	-Furthermore the existence of an old mine site does not preclude land of park-like character adjacent to it. For example, p.4-359 Lake Vermilion State Park is 16 miles northwest of the NorthMet Project area (see Figure 4.2.12-1), on the eastern shores of Lake Vermilion adjacent to Soudan Underground Mine State Park.	WILD03
9632	p.4-361-reading hazardous waste reference on this page, nickel, arsenic, mercury, et.al. currently locked in the mineral formation meet the definition of hazardous waste.	HAZ02
9633	p.4-371"leaking and failure of LTVSMC discharge pipes."-Are these the pipes exiting at the embarass river that I have pictures of? Are they going to plug these to catch and treat 90% of the run-off the tailings basin. Plugging these will add such hydrostatic pressure to the tailings basin that it will collapse.	GT03
9634	p.4-383"To facilitate the expedited consolidation of the in-place LTVSMC tailings, wick drains would be installed within the Emergency Basin. This would reduce drainage path lengths and increase the drainage ability in the LTVSMC tailings and underlying compressed peat. "-it appears that the tailings basin had these wick drains built into it.	PD07
9635	p.4-384"she4ar strengths will increase if installed wick drains are unsuccessful."-with what consequence?	GT11
9637	p.4-395Tract 1 is an old dump site.	HAZ05

Alphabetical by sender's first name

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9638	p.5-7"In this SDEIS, non-mechanical treatment systems are not described in detail because the NorthMet Project Proposed Action is based on mechanical treatment only."-Why isn't the mechanical treatment described then?-Why aren't modeling parameters and protocol described?	WR137, WR143
9640	p.5-8", but mass balance modeling and analog data from other natural lakes and mine pit lakes in northeastern Minnesota suggest"-not a relevant premise from which to draw a conclusion indicating the lack of foundational reliability in the modeling.	MERC04
9643	"that the mercury concentration in the West Pit Lake, the source of the only surface water discharge at the Mine Site, would stabilize at approximately 0.9 ng/L. There would also be mercury in the tailings, although about 92 percent of the mercury in the ore is predicted to remain in the ore concentrate and the mercury concentration in seepage from the Tailings Basin is expected to be less than the standard. The WWTF and the WWTP would be designed to meet the 1.3 ng/L mercury standard for its effluent."-you mean the WWTF and WWTP haven't been designed yet?	WR147
9644	"Overall, the NorthMet Project Proposed Action is predicted to increase mercury loadings in the Embarrass River, but decrease mercury loadings in the Partridge River. The net effect of these changes would be an overall reduction in mercury loadings to the downstream St. Louis River. "-you mean mercury would be reduced in the Partridge River merely because it has a mercury and sulfate emitting mine next to it?	MERC18, MERC23
9646	p.5-9What is the AWMP-list of contaminants on p.5-9 incomplete.	WR038
9659	"Natural (unaffected) groundwater concentrations for beryllium, manganese,and thallium (bedrock unit only) at the Mine Site and beryllium and manganese at the Plant Site are greater than secondary drinking water standards and/or the HRL (see Table 5.2.2-2)...-Natural/unaffected at the plant site indicate post mining impacts whereas "bedrock unit only" at the mine site indicates a sample taken somewhere in drilled/disturbed rock. This is an attorney's analysis for purpose of deception and not anyone's reasonable interpretation of natural or unaffected. Neither does the fact that these reading were found at other mine sites on the iron range make them background levels. Just because it is found in isolated disturbed areas doesn't mean that it is a natural origin.-thallium is a serious poison and indications of it should be of serious concern for proceeding with mining its use has been banned by presidential order 11643 in 1972.	WR072, WR090
9660	p.5-11-recent studies on the health effects of arsenic would dictate a stricter than 10 parts per billion standard.	PER29
9661	p.5-13"Hydrologic evaluation criteria include a comparison of proposed hydrologic changes with both existing natural conditions and historic hydrologic alterations from permitted mining practices,"-is this a comparison with this actual sulfide ore body or some arbitrarily picked iron mine.	PD27
9663	there is no MODFLOW recognition of the pipes that are draining the area around the Plant site. Is the water in these pipes considered ground water or surficial water? There is just no recognition or mention of these drainage pipes.	WR056, WR093
9681	p.5-51"chemical reactions, including mineral precipitation and surface adsorption, would limit the concentration of many contaminants in non-acidic waste-rock effluent and thus would reduce the rate at which contaminants were released; and"-precipitation would not "limit the concentration of soluble contaminants like arsenic, nickel compounds, and concurrently methylated mercury, the mercury and arsenic generally bound with the sulfide in the pyrite which allow them to become reactive quicker. Pyrite was observed to be a prominent feature at the Minnamax mine within a few miles of the NorthMet mine site.	WR038
9685	p.5-54"the rate of oxidation and constituent release was estimated from studies of seepage release measured in Dunka Mine rock, which is a nearby source of waste rock with similar chemical composition"-if Dunka Pit mine rock were similar the adjacent rock would be readily accessible and being mined for sulfide ores.	PD27

Alphabetical by sender's first name

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Sender Name (Submission ID)	Dennis Szymialis (18326)	
9690	p.5-55Table 5.2.2-14 is just an attempt to confuse by using some kind of alternative terms for solubility and ground filtration.	WR201
9691	p.5-55 "four solutes are assumed to be attenuated by adsorption in the aquifer: arsenic, antimony, copper, and nickel."-for arsenic this statement fails to differentiate between Arsenic V isotope which is arsenic at a lower PH state and Arsenic III Isotope which is the same arsenic at a more neutral state. This EIS projects inconsistent scenarios in assuming a lower PH but not the type of arsenic which is exhibited at that PH level.-the modeling also fails in that it is unable to explain already existing exceedances previously noted as being observed for arsenic at the mine site.	WR025, WR058
9692	p. 5-57GoldSim as manipulated explains nothing relevant, reliable, or valid.	WR189
9693	"Table 3.2-13Sulfuric Acid 1,500 tons per yearHydrochloric Acid 3,590 tons per yearLiquid Sulfur Dioxide 1,433 tons per year…-regarding tailings geochemistry we need to start with the fact that the SDEIS is telling us that the tailings basin is going to have some potential for acid mine drainage.	WR150
9734	-The range between .12 and .14 percent sulfur according to the EIS indicates that there is some probability that the tailings themselves will produce acid mine drainage. This disregards the effect of the process water which will be added. The SDEIS can hide the treatment process from us but it appears that it is heavily reliant on some sort of ion exchange as there is an indication that large amounts of limestone will be used.	WR027, WR143
9746	The SDEIS starts by disregarding the hydrostatic effects of the headcreated by digging the pit. When the pit is dug, the large amount of water surrounding the pit will want to drain into the pit, even with the soil conditions the SDEIS claims exists above bedrock... The SDEIS tells us that the surficial water flow follows the fractures and that these fractures have associated fractures radiating out from them. This will create drainage into the pit. This drainage into the pit will be more pronounced on the north wall where this water will divert the Partridge River through these fissures and keep the north Virginia formation wall flowing with contaminants that will have to be pumped out to accommodate mining operations.	WR179
9748	-this leach-aid water will be pumped to the WWTF and run through lime to neutralize it but no system exists where the lime will not get coated will the sulfide metals that are precipitated out and fail to continue to neutralize the acidic water it is intended to neutralize. This process will lead to higher than the .06 to .14 percent Sulfur that the SDEIS indicates will be a base level for the tailings and increase the chances that at least at times the tailings basin will become acidified at a level above the .12 level indicated for acidic conditions.	WR001, WR143, WR146
9753	The reverse osmosis, even if the filters stay unplugged and a suitable disposal is found for the filtrate, is not designed or expected to filter out ions that are smaller than water molecules and highly soluble in water. Toxic heavy metals like arsenic, nickel, and methyl mercury will flow unimpeded to Lake Superior and beyond in the solution created.	WR111, WR143
9757	P.5-62The fact that the modeling failed to measure predicted, "concentrations of several solutes, including many metals."doesn't necessarily mean that the non empirical measurements were understated by the model or that there were "additional attenuation effects." It probably is more likely that the data fed into the model was invalid or that it is just a bad model. Why should we give credibility to a modeling that has no proven track record of reliability?	WR049, WR050
9759	p.5-63"NorthMet Project Proposed Action contaminant release parameters are based on a combination of laboratory tests and water quality observations at similar tailings facilities in northern Minnesota."-again, this is not a valid comparison.	WR030

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9787	-it seems a fairy tail that it could be conservatively assumed that a wall made of compacted dirt would hold back an average of 25 feet of ground water, that a trench could be dug to be tucked around boulders 25 feet down in the ground, that the ground water would flow uphill as indicated in Figure 3.2-28, or that there is even a remote chance of in any way modeling this result...and they still don't explain the pipes draining away from the tailings basin into the Embarass River or what will be done with those. I know it doesn't take 300 years for water to travel 3.25 miles through a pipe. I would say maybe an hour.	PD04
9789	p.5-77"This P90 threshold generally equates to a reasonable worst-case scenario and has been adopted for other mining NEPA documents where probabilistic modeling was used (e.g., Idaho Cobalt Project [USFS 2009b]). "-use for one solute hardly give the modeling any basis for reliability or validity, this is flimsy.	WR110, WR192
9790	p.5-79"Filtered sludge from the chemical precipitation process would be sent off site for disposal or stored at the Hydrometallurgical Residue Facility. The reject concentrate stream from the WWTP would be transported to the WWTF via rail tank cars where it would be added to the West Equalization Basin." -this procedure simply delays discharge of contaminants to the environment.	PD03
9791	p.3-115"A pond would be maintained within the Hydrometallurgical Residue Facility so that the solids in the slurry would settle out, while the majority of the liquid would be recovered by a pump system and returned to the plant for reuse."-with all the mixed materials going into the Hydrometalurgical Residue Facility how is any of it of good enough quality for reuse. Why are so many materials consumed on p.3-312 if they are capable of being recycled. This is another misleading aspect of this SDEIS.	PD18
9792	p.5-80"The WWTP would be constructed south of the Tailings Basin near the coarse crusher and would include an RO unit designed to achieve less than 9 mg/L sulfate in effluent, as well as all other applicable water quality standards."-the RO needs to be designed before permitting and if what is the sulfate level in the 10%+ that escapes the tailings basin containment. Won't it exceed the 10 parts per million sulfate standard?	WR143
9793	p.5-81What is the West Equalization Basin?	PD04
9794	p.5-82"Once the Hydrometallurgical Residue Facility is reclaimed"-This cannot be reclaimed. It will in theory (if all goes as represented by PolyMet) contain the consumables on Table 3.2-13, treatment sludge from the WWTF, ect. How does PolyMet really expect to be able to determine if this is leaking in a timely manner?	PD20
9795	WWTF will be inadequate to treat pit runoff to be discharged into the Partridge River. It will contain exceedances for mercury, carcinogenic nickel compounds, arsenic, and other toxins.	WR143
9798	"Surface runoff would be routed away from the mine pits using a combination of existing and new ditches (see Figure 5.2.2-15)."-This will cause contaminants to run into the Partridge River as 20 years of contaminant mining dust from blasting will have accumulated and be subject to erosion into these ditches and the river.	WR025, WR151, WR174, WR191
9802	p.5-83"The typical discharge rate from the WWTF is predicted to be 285 gpm."-this amount underestimates the amount of flow as it disregards the unintended redirected flow of the Partridge River through the pits. This redirected flow would be exacerbated if the north pit wall were to collapse during mining. The rock composing the pit walls is wet rock which is more brittle than dry rock(as I explained in my DEIS comments) added to this will be a shearing effect between the Virginia, Duluth, and underlying rock formations.	WR179

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9807	p.5-89"distillation crystallization unit to eliminate the liquid reject stream. The moist waste solids from this system would be disposed of off site."-googling distillation crystallization does not identify any existing technology by that name. Again, solids should not be disposed of offsite where PolyMet would escape responsibility for their monitoring and release.-the pilot testing has no more foundation for reliability than the modeling.	PD03
9847	you cannot just "Despite the difference in pit depths," as indicated in the SDEIS. The difference between the height of the water which is at the surface above the PolyMet mine and the bottom of the mine is the "head." The higher the head the more the pressure pushing it down. The depth of the mine relative to the water is everything.	WR119
9848	"The proposed Category 1 Stockpile groundwater containment system, which is tied into bedrock, would minimize effects of pit drawdown on these waterbodies."-the addition of the stockpile material after the construction of the containment system is likely to be like putting a rock on a sponge and the containment system will burst like a water balloon	WR017
9851	p.5-98"1.25 inches of spilled material over a 2,000-m2 area."-the amount and effect of this spillage is underestimated as this is highly reactive rock and inadequate precautions against spillage are indicated.	WR151
9854	p.5-102"The GoldSim modeling assumes, however, that a small volume of leachate would seep through tears/flaws in the geomembrane liner, reaches the groundwater table, and follows what is referred to as the Ore Surge Pile Flow path, ultimately discharging to the Partridge River."-GoldSim modeling is only as good as the data fed into it if it works at all. Goldsim modeling is of questionable reliability as indicated in this SDEIS.	WR126
9856	However, it is agreed that tears will form in the liner and reactive water will run off and not be caught. SDEIS projections have failed to recognize pit water which will lead to more saturated ore in this and stockpile 2/3 which will cause more extensive tearing due to the additional weight and lead to more highly reactive waste water flowing untreated into the Partridge River. The solution to this problem is for PolyMet to use a more durable liner.	PD15
9858	p.21(polyMet 2013gAWMP)"Effluent concentrations used as inputs to the GoldSim water model are based on the PWQTs and the overall Project water management strategy."-PWQT stands for preliminary water quality targets-some of the assessments will be made based on "information from process equipment vendors related to hydraulic and chemical treatment performance." It is unlikely that accurate information will come from a sales pitch by a vendor which is how this SDEIS seems to be weighted.	WR147
9859	It is impossible from the SDEIS to make the modeling predictions given in pages 5-94 to 5-150 plus as the Goldsim results are only based on PolyMet targets which may or may not be achievable. Whether or not these targets are achievable needs to be part of the foundation for this SDEIS. This foundation is failing like that of the DEIS.	WR147, WR189
9862	sorption occurs in very limited conditions and sorption minerals are likely going to have to accommodate overwhelming amounts of arsenic and other metals subject to sorption. I believe the leachates from the above ranged 41 to 4,868 times the ten parts per billion standard. Even a small percentage of leachate escaping the PolyMet site will cause exceedences.	WR107, WR108, WR109
9866	pilot testing referred to fails to identify treatment conditions, assumptions made in the testing, types of arsenic oxidized or not, As V or As III, therefor it lacks notice and fails to provide a basis for comment.	WR143
9868	p.5-157-any leakage in the hydrometallurgical facility would be disastrous and irreparable once the process started. More information is needed on the types of liners proposed.	PD17

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9869	p.5-158-Again, are the pipes draining from the direction of the tailings basin being considered as ground water or surface water. These pipes would be assumed to drain at a different rate. What is the drainage rate attributable to these buried pipes?	WR093
9871	p.5-159-the ground water containment system that it is claimed will collect 100 percent of ground water needs to be further explained. Under the conditions previously described in this SDEIS that is just not remotely physically possible.	WR017
9872	p.5-160 already oxidized and precipitated nickel and arsenic would erode and flow out with water regardless of PH because of it's ionized solubility.	WR001
9875	p.5-161-humidity cell testing result are not reflective of actual conditions.	WR034
9876	If at closure there is going to be a liner/bentonite layer installed under the pond, the area under the liner will dry out under some conditions unless the pond liner is leaking. Either the pond is saturated or it is leaking oxygenated water. This is a prime condition according to DNR Bavin and Berndt studies for methylization of mercury.	WR057
9878	The thickness and effective hydraulic conductivity of the bentonite layer would be designed to achieve a pond seepage flux of 6.5 in/yr or less. - sounds precarious given different weather conditions and specificity for performance.	WR057
9879	p.5-165-because of the limited conditions in which sorption occurs the slowing of these solutes is exaggerated.-travel times lack foundation, e.g.,free flowing water does not take hundreds of years to flow.	WR058
9880	p.5-178-Colby Lake water is higher in sulfates than existing flows from the existing tributary stream water and will result in damage to downstream wild rice beds.	WR124
9883	p.5-182-seems to be telling us that the WWTP is expected not to work.	WR059
9884	p.5-183-raising the level of arsenic to 10 parts per billion from the tailings basin is unacceptable. This combined with cumulative impacts downstream, existing levels of arsenic in the St. Louis River, and the combined health effects of arsenic with other increases in other solutes is a deadly cocktail for people drinking water out of Lake Superior. Furthermore, the 10 ppb is only a PolyMet target which we cannot expect to be enforced by the agencies under the weight of special interest pressure.	WR042, WR109
9885	p.5-188Table 5.2.2-47 is misleading because it uses sulfate levels based on Barr and not DNR readings for Colby Lake water which were higher and because it includes Spring Mine Creek water	WR149
9886	p.5-201-202-mercury concentrations in reactive waste rock will be much higher. In this rock stratification will occur with sulfide erodedmercury methylizing in solution and stratifying. Results shown in lab testing will not carry over into natural conditions and are not applicable.	MERC01
9887	p.5-202"The West Pit, like seepage/head water lakes (e.g., lakes with no significant inflowing streams),"-not true/disputed. There will be Partridge River high oxygen inflow through rock fractures and sub-surficial erosion.-furthermore, it is not relevant to compare a sulfide ore body to head water lakes or a select number of pit lakes.	WR088, WR179

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dennis Szymialis (18326)	
9889	Not only will mercury not be sequestered in the tailings, mercury that has been sequestered by lack of contact with sulfates will be reactivated with the addition of sulfate laced tailings during the operation of the mine.... PolyMet given its methodology in disregarding the methylization of mercury and overestimation of sorption makes it's fabricated model appear to be unreliable. Given the mines footprint relative to the size of the Partridge River watershed, at best assuming the validity of the PolyMet Modeling, any benefit to filtering the small amount of background existing run-off from the footprint of the mine and surfaces to be treated would be negligble and beyond detection. The fact of the "natural runoff (with a total mercury concentration of 3.6 ng/L)" is so high merely reflects the environmental impact that exploration drilling has had on the site, contradicts PolyMet's sequestration theory	WR158
9890	p.5-208-the effect of DEIS changes including containment systems won't work as previously indicated.-the results of the Bavin and Berndt study is misrepresented. The study actually indicated that higher sulfate levels eventually dilute, travel downstream and methylate mercury.	MERC08
9891	p5-210-because the Embarrass River system is more than double the size of the Partridge River system the 3% increase in the Embarrass and the 5% increase in the Partridge will result in a net increase in mercury.	MERC23
9892	-SDEIS neglects a discussion of the augmentation water from Colby Lake which MPCA testing from 1976-2007 showed mercury of 190 ng/L (p.4-88) while the Embarrass river only has 4 ng/L (p.4-123). All the tailings basin surficial seeps show less than 4 ng/L (p.4-129). This is an increase of more than 45 times the amount of mercury being put into the Embarrass River tributaries.	WR125
9893	This 20 year Colby Lake stream augmentation would seriously contaminate fish in the Embarrass River watershed for a generation in the downstream Embarrass River and increase mercury in the Lake Superior Watershed. PolyMet will be taking current cleaner runoff from the LTV tailings basin and replacing it with much higher mercury contaminated water. Even though this water would also flow in the St. Louis River a net increase will occur because the dillution effect of the alleged cleaner tailings basin water will be removed. This is a clear violation if the Great Lakes Initiative Law.	WR125
9894	Colby Lake water is warmed by the nearby Minnesota Power Laskin plant (p4-85). The warmer water will increase the solubility of the metals in the river system and form an environment that will serve as a catalyst more conducive to oxidizing metals and methylating mercury.	WR043, WR046
10030	p.5-211 to 222-plans for future efforts should not be allowed. these efforts depend on DNR or MPCA enforcement which, based on historical enforcement of environmental protections and laws should be expected not to occur. Furthermore, the agencies paid participation in The EIS process gives them a vested interest in its success, the failure of which they will have an inherent propensity to deny.	PER06
10032	the Aitkin and Hinkley sites will not compensate for wetlands lost in the St. Louis River watershed. Wetlands need to be retained and justly deserve to be retained to provide environmental filtering effect, retention of water for flood control, et.	WET03
10033	the Zim site is already wet and serves the functions of a wetland. Calling the Zim site a wetland or flooding it with more water serves no wetland purposes. I have walked the area composing the Burns sod farm as one of their customers.	WET06
10035	none of the given [wetland mitigation] sites should be qualified as mitigation.	WET06
10036	p.5-225-a key component of the adaptive management plan should be to identify additional compensatory wetlands in advance that would actually serve an additional wetland function within the St. Louis River watershed to compensate for wetlands lost in the St. Louis River watershed.	WET02
10042	p.5-223-243-indirect wetland effects need to be assessed for evaporation resulting from loss of vegetation cover these should include ombrotrophic wetlands.	WET08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dennis Szymialis (18326)	
10047	p.5-243-Analog mine sites are dissimilar to PolyMet because as previously indicated. The water table at PolyMet maintains a higher elevation and puts the water under more pressure to flow farther. Rather than restrict the area of drainage the Partridge River expands the zone because it is within the zone of bedrock fractures which the surficial water flow follows as indicated elsewhere in this SDEIS. All wetlands to the Northwest, North, and Northeast will run into the PolyMet mine pit. Drawdown will occur following the Partridge River beyond the 10,000 foot boundary until pumping from the pit augments and restores the river flow downstream of the pits.	WET08, WET10
10048	p.5-239-277-disregarded in this analysis are the cumulative effects of evaperation drawdown from defoliated ground, accelerated defoliation from drying, dusting, the toxic effects of toxic dust or watering, increase runoff from dry defoliated ground, and draw down from the mine pit on vegetation.	WET18
10050	evidence of erosion that should be expected to continue from PolyMet seepage. This eroded ground should not be expected to support a containment wall or boulders reinforcing the base of the tailings basin.	GT01, GT03
10052	p.5-291-Indirect wetland impact will occur at the plant site from evaporation caused by the trampling of vegetation.	WET08
10058	p.5-298water losses in the watersheds of the tributary creeks are underestimated because they do not account for water flowing through drainage pipes running from tailings basin drainage area to Embarrass River(draw down and intensification of contaminants). If containment system catches 90% of water there will be a shortage of more than 20%. This 20% augmentation from Colby Lake will lead to heightened levels of mercury in the first 20 years and after 40 years in addition to the more extensive augmentation occurring in years 20-40 as indicated previously in these comments in violation of the Great Lakes Initiative Law.	WR125, WR184
10063	p.5-318-State and Federal governments want mitigation on private lands because they plan to continue the degradation of wetland environments on their own lands in violation of state and federal laws.	NEPA15
10065	it is incorrect to characterize ditched peat lands as adversely effected. These lands could be utilized as productive farmlands. These lands have diminished value because of the pollution of the St. Louis River that has diminished the regional agricultural economy.	WET24
10066	mining should replace lost wetlands destroyed by mining. The intent of the law is not to make agricultural perpetually subservient to mining. Furthermore, replacing wetlands lost to mining does not functionally compare when replacing them with agricultural lands.	WET05
10067	p.5-339-discussion of reclamation is a joke. When have any of the co-lead agencies ever reclaimed a mine in Minnesota.	PD09, PD35
10126	p.5-341-the characterization of the loss of state lands of significant high biodiversity of less than one percent as not being a large percentage decline is a subjective, biased, reckless, and slippery slope characterization of these losses.	VEG02
10148	p.5-343as with all the cover systems in the project root systems from tree growth will eventually penetrate the cover and subject the underlying soils to oxidization reaction. As with any of the stated mitigation measures effects are only delayed.	VEG05
10164	the status of the Floating Marsh Marigold should be upgraded to endangered and this (PolyMet mine site) habitat protected.	VEG01
10166	draw down as indicated earlier in these comments will wipe out this 8% population of [the marsh marigold].	VEG01
10168	it needs to be determined if this is a genetically isolated variety of Marsh Marigold to avoid extinction of the species.	VEG01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dennis Szymialis (18326)	
10170	the Floating Marsh Marigold is listed as endangered in Wisconsin where there is only one known population.	VEG01
10171	p.5-373-mercury effects on the sensitive wildlife listed will be intensified by the release of the high mercury Colby Lake augmentation water as indicated earlier in these comments.	WI04
10172	The presence of the mine causes the disruption of the migration corridors and ability of a variety of larger species due to the chain of Mesabi Range mining from east to west. Although this has been made a concern of natives in the area little has been done to dispel what they have learned. Moose populations are declining to critical levels. Additional arsenic deposition in the Partridge and Embarrass Rivers will damage the health of aquatic animals, and moose as aquatic grazers as arsenic is known to be absorbed into aquatic plants. Small levels of poisoning have serious effects in an already fragile life of a wild animal.	WI01, WI03, WI04
10180	exceedences of arsenic and mercury have been observed in Colby Lake water and should be expected to increase in frequency in the future and in augmentation. No consumption of any amount of walleyes, as has been the history of Colby Lake, will be recommended for fish in lakes downstream of the tailings basin in the Embarrass watershed. Warmed augmentation water from Colby Lake will kill off colder water fish along with other effects that need to be further researched.	AQ05, AQ11, AQ15
10181	second creek augmentation should also be expected to increase in warming, arsenic and mercury.	AQ05, AQ15
10183	p.5-394-under the no action alternative Colby Lake augmentation would not occur. Benefits of tourism and cleaner environment would accrue.	SO02
10350	the PolyMet project will emit more than 10 tons of HAP in amphibole fibers.	AIR03
10351	no relevant BACT demonstration is attainable.	AIR13
10353	as indicated on page 5-531 there are sources of hydrogen sulfide gas that should be added or considered alone as exceeding the 10 ton HAP or 25 ton HAP cumulative standard. Potassium amyl xanthate will be converted to some extent to hydrogen sulfide gas as indicated with a total potential conversion of 1075 tons per year with the only requirement for conversion being heat and moisture.	AIR10
10376	[F]ugitive lime dust needs to be treated as hazardous waste.	AIR10
10379	[E]ven though it will not directly emit green house gas it will indirectly generate green house gasses and contribute to hazing in the boundary waters through its usage of power generated from Minnesota Power which will exceed 100,000 tons per year. The lack of attainment in the boundary waters should require PolyMet to be treated as if it were in a non-attainment area and a general conformity determination should be required.	AIR02
10383	[T]hese sources [amphibole fobers,hydrogen sulfide gas, fugitive lime dust, greenhouse gasses] and other should qualify PolyMet as a major source emitter. Relevant, reliable, and valid modeling needs to be conducted for these sources.	AIR09
10385	"At the Mine Site, emissions were estimated for material handling sources associated with excavation, portable crushing and screening operations, blast hole drilling, use of unpaved roads, and vehicle exhaust."-it appears that modeling was based on PolyMet fabricated and self-serving data.	AIR10
10387	"Model inputs for these sources were provided by the MPCA"-these should be determined to be not credible."-the MPCA has refused to enforce the CAA and other law against mining and power companies supplying power to mining companies	AIR09

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dennis Szymialis (18326)	
10388	"Per MPCA guidance, the MESOPUFF II algorithm and secondary particulate formation were not used in the PM10 increment consumption evaluation."-this breach of protocol invalidates the modeling.	AIR09
10390	"Since the two receptor grids represent two separate AOCs, the maximum concentrations are not additive"-this is a misapplication of the Clean Air Act.	AIR09
10393	p.5-395 to 417-the modeling described is meaningless without information forming a basis for the inputs and violate due process notice. Are these models based PolyMet target inputs as in the water modeling.-air quality modeling provided herein violates due process and is incomprehensible.	AIR09
10397	It has been proven that air pollutants inhibit the ability of pollinators to find food and pollinate plants ...This will have an impact on the ability of the Floating Marsh Marigold to survive as a species.	VEG07
10402	p.5-557"similar industry standards and other large tailings dams in Minnesota. "-it is improper to use this as a standard for this project as tailings basins in the past have failed by design	GT02
10403	[Tailings basin] design criteria are unconstitutionally vague and based on invalid imputs.	GT13
10405	[I]nputs used for the geotechnical stability of the tailings basin are inadequately explained and based in terms of methodology for selection, reliability or validity of selection.	GT13
10406	[T]he peat soil forming the base for the rock buttress, when subjected to hydraulic erosion from sepage or lack thereof from the containment wall will not support it. The rock buttress is expected to slide through the area of the containment wall.	GT03
10413	p.5-569 The peat earth foundation for this structure is inadequate to allow it to retain its shape and structural integrity. This will result in liner failure.	GT10, GT12
10418	p.5-575"Liquefaction analysis was not applicable and not performed because the material proposed in the constructed dams would be well-compacted and the Hydrometallurgical Residue Facility liner system would limit leakage through the dams."-these assumptions are made in error.	GT11
10420	If Lake County has approved or entered into an agreement or contract with PolyMet for the sale of lands to PolyMet in furtherance and assistance of PolyMet's NorthMet project through the environmental review process, it is prohibited from doing so by state and federal law restricting government action or approval prior to completion of the environmental review process.	LAN09
10421	St. Louis County entered into a Wetland Restoration Agreement with PolyMet dated February 7, 2006 and was subsequently sued in Minnesota District Court. District Court Judge Heather Sweetland ruled in favor of the plaintiffs , Wetlands Action Group, motion for plaintiffs summary judgment granted. Further, the court held that a contract is the same as a permit and proceeded to void the agreement and associated actions, because it was a violation of MN Rules part 4410.3100. See Wetlands Action Group, et al., Plaintiffs vs. St. Louis County, et al., Defendants April 17th, 2007. Lake County's entering into an land sale agreement with PolyMet is a discretionary contract and, thus, a permit under Minnesota rules.	LAN09
10433	The USFS must address whether the Lake County Lands are part of an illegal action and if so, remove them from consideration in PolyMet's proposed land exchange.	LAN09
10434	The zone of impact for PolyMet extends beyond the State of Minnesota to other states and foreign countries. Wisconsin will be impacted through the arsenic and heavy metal poisoning of the drinking water of Superior, WI and other Lake Superior south shore communities that obtain their drinking water from Lake Superior.	CU06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dennis Szymialis (18326)	
10441	Current water quality monitoring is not only compromised by a conflict of interest, it is inadequate in scope and current arsenic levels seem to be unavailable to the public in the water quality reporting that exists for Superior drinking water.	WR072
10443	The PolyMet Mine and Plant will emit toxic waters that will harm waterfowl. Of particular harm will be the Hydrometallurgical Residue Facility. Contact with hydrometallurgical pond water will likely cause imminent death to unsuspecting waterfowl protected under international treaty (Migratory Bird Treaty Act) for the benefit of Wisconsin citizens.	WI01, WI04
10469	The hazing from power generation to supply PolyMet will have negative effects on other migratory species including the Monarch Butterfly which is also protected under law.	WI01
10473	PolyMet will violate the Clean Water Act which will diminish the quality of other water uses in the State of Wisconsin along with the quality and quantity of resources such as wild rice and fish which will absorb harmful to human health heavy metals like mercury and arsenic.	MERC01, MERC03
10475	Furthermore, the PolyMet land exchange involves the disposition of a national resource objectionable to Wisconsin citizens.	CU06
10486	It is enlightening that the SDEIS allows PolyMet to phrase legal pollution discharge standards and allow them the base modeling on their own targets. Is it just coincidental that the targets coincide with legal requirements? The transparency here of the fraud attempted to be perpetrated by the SDEIS on the public is that the co-lead agency don't intend to require PolyMet to make or keep any promises.	NEPA18
10487	The co-lead agency foresee in have foreseen in advance that they would provide a vague and ambiguous SDEIS to avoid criticism when the pretext of a plan cannot be implemented.	NEPA15
10488	The SDEIS disregards the cumulative impacts of SDEIS and permitting resulting from issuing a permit based on this SDEIS.	CU11
10610	The largest impact is the dilution of standards created in the SDEIS. From here on other permit seekers will have the expectation and will probably be required to be treated the same as PolyMet.	PER35
10644	[The SDEIS] should be expected to violate the Clean Air Act, Clean Water Act, Weeks Act, NEPA, MEPA Federal Land Management Policy Act, and other statutory law. It violates Federal and State of Minnesota Constitution in terms of Equal Protection of the laws, Due Process, and other provisions.	PER26
12262	Allowing only 90 days for public comment for this project is inadequate to fully vet objections to the project which PolyMet and lead agencies have allegedly spent tens of millions of dollars and more than 9 years	NEPA07
12411	Reliance on sorption or absorption of arsenic by iron compounds currently is not taking place in the tailings basin or at the mine site. Releases of arsenic and other heavy metals should be expected to lead to death and disability downstream.	HU03
12422	Present and past subsidies to PolyMet including public historical public ownership to allow PolyMet to avoid paying past property taxes, the Minnesota policy (which exists in no other state)to server mineral interests which devalues land and passes the tax burden of land ownership and cost of government services off on non-mining supported businesses, drilling subsidies paid for by the state of Minnesota, millions of dollars of public money not fully publicly disclosed by the IRRRB granted directly to PolyMet, the failure to adequately and in advance require financial assurance and the pollution subsidy which will destroy other valuable public resources and cause other businesses and the public to subsidize PolyMet with higher health care costs, the diminution or public recreational and tourism opportunities, etc, all contribute to a violation of the National Land Management Policy Act.	FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dennis Szymialis (18326)	
12429	This SDEIS conspires to violate the Weeks Act, Clean Water Act, Clean Air Act, and a number of other laws.	PER26
12440	It is known given the DNR Bavin and Berndt studies that mercury from mining and power generation upon which mining is dependent contribute elemental mercury to Lake Superior and sulfates that serve to methylate that mercury and make it biologically available to fish in Lake Superior poisoning and weakening those fish.	MERC02
12443	P.3-140 "Economic feasibility - Each alternative was assessed as to whether it could meet economic and financial requirements to construct and operate the proposed project, including whether the cost of implementing the alternative would be economically feasible to meet the Purpose and Need."-This type of catagorical analysis systematically discredits the whole SDEIS process and violates the Federal Land Management Policy Act.	SO04
12450	"Colby Lake, which is used for domestic consumption by the City of Hoyt Lakes, is designated as Classes 1B (treated with simple chlorination for domestic consumption)"-contaminating this lake puts an unfair burden on taxpayer in health care costs for the unwary water consumer of Colby Lake.	SO02
17712	The arsenic standard in particular is unreasonably low as it was the standard adopted from that set by the World Health Organization at a time when detection technology was limited and as a result was set at 10 parts per billion. We should not be threatened by claims that PolyMet will meet government standard that are third world at the outset. The primary obligation of the lead agency is to protect public health and any cutting corners or exception to that rule is a violation of their social contract with individual citizens	WR110
17713	What is the deal with putting the filtrate from the mechanical treatment in "licensed landfills." This simply delays the release of toxins like thousands of tons of arsenic into the environment.	GEN01
17714	The failure to utilize more costly measures to mitigate environmental degradation to attain cost savings on the basis that the project cannot proceed without these cost savings also calls into question the merit of the project under the National Land Management Policy. These include inadequate liners, the failure to utilize the underground mining alternative and a number of other measures including many failed to be disclosed by the SDEIS which violates due process legal notice requirements.	ALT01
17715	The SDEIS does not require PolyMet to bolt, wire, and shotcrete the pit walls to inhibit the migration of water and pollutants in and out of the pit as was done by Kennicot at its Flambeau Mine. This would have an additional benefit if done simultaneously with mining of inhibiting the collapse of the pit wall of the type that occurred in Utah at a Kennicot Mine in 2012. It is more essential that it be done by PolyMet because of the weaker wet rock. ...The collapse of a pit wall would be welcomed by PolyMet as a justification for a mine expansion…. The failure of PolyMet to bolt and shotcrete pit walls does not even follow "usual and customary" mine operating standards in the area.	WR173
17716	In the DEIS the EPA issued a finding of EU-3 (Environmentally Unsatisfactory - Inadequate Information). The SDEIS simply shifts, as indicated on 5-211 and 212, toxic materials around or fails to specify actual measures to be taken. The SDEIS should be viewed in the context of the burden set by the EPA-EU-3 rating.	GEN03
17717	... the tailings basin by design will not sequester toxic materials as represented. The "cutoff wall placed into existing surficial deposits" indicated at 3-117 will be inadequate and the modeling indicating that 90%of runoff water will be collected is irrelevant. In order to collect 90% the wall would need to project below the originally placed as loose taillings fill down to bedrock, all fractures in the bedrock would need to be sealed off hold a great deal of water pressure, have the drain tile at the bottom of the wall which is standard foundation engineering, and the wall would have to be extended to the east side of the tailings basin.	PD07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dennis Szymialis (18326)	
17718	...the iron tailings do not sequester mercury any better than any other soil. Elemental mercury is currently not leaching out of the tailings basin because lower levels have had the mercury scoured out through the introduction of sulfates running through them. Mercury is at higher than normal environmental levels in the surface areas of the tailings basin as a result of the absence of sulfates. Once the sulfates are again introduced at the top this mercury will methylate and flow out at higher levels than normal. Water discharge through the lower levels with sulfates will be redirected through the basin increasing the release of methylated mercury currently unexposed in the basin formation at these lower levels. …The claim made on p. ES-36 that somehow the mere presence of the PolyMet mine is going to reduce mercury in the Partridge river is simply bizarre	MERC06
17719	The " WWTF is now proposed to be upgraded to a RO process during closure to manage sulfate concentrations in the effluent " described at p. ES-24 is inadequate. It is unacceptable that toxins other than sulfates that will not be captured by RO including carcinogens Nickel Sulfate and Arsenic III shall be allowed to flow unimpeded. It is unacceptable that sulfates will be left untreated at any time.	WR143, WR147
17720	The amount of water going into the WWTF will overwhelm any treatment facility that could be built. The amount of water going into the system is dramatically understated.	WR148
17721	The following statement made on page 3-4 of the SDEIS represents the type of misleading information that mining companies provide to deceive the public. "Bentonite would be incorporated into the exposed outer side-slopes of the Tailings Basin as it would be built up to create a barrier that would limit oxidation. This limiting of oxygen transfer would reduce pollutants generated from the Tailings Basin." The pollutants will not be reduced. Their introduction into the environment will merely be delayed.	WR023, WR107
17722	The Economic Impacts of mining only include allegedly positive impacts and fail to state the negative cumulative economic and social impacts of mining? ES-41	SO04
17723	... it is necessary that the authors [of the SDEIS] specify the basis for and underlying assumptions made in determining the following at ES-40. "Federal, state, and local taxes would total an estimated $80 million annually. During operations, there would be approximately $231 million per year in direct value added through wages and rents and $332 million per year in direct output related to the value of the extracted minerals. As with employment, these direct economic contributions would create indirect and induced contributions, estimated at $99 million in value added and $182 million in output." -For Example, is the portion of $231 attributable to wages based on the unlikely prospect of a union mine?	SO04
17724	The WWTF really is a sham which is revealed when one considers process water: "would be collected and treated at the WWTF. Treated water would be pumped to the Tailings Basin at the Plant Site."p.3-53. and taillings basin water will be pumped to the WWTP(at the plant site). This process fails to allow for the discharge of any water to the environment? It makes no sense to refilter the water already filtered.	WR143
17725	"The sludge waste would be disposed of off-site in a solid waste landfill until the Hydrometallurgical Plant became operational (see Section 3.2.2.3). When available, sludge waste would be filtered and moved by truck along the Transportation and Utility Corridor and introduced to the autoclave in the Hydrometallurgical Plant to recover metals or placed directly into the Hydrometallurgical Residue Facility (see Section 3.2.2.3.7)" P. 3-53.-It is planned that the toxins that are captured will be allowed to merely leach out in an uncontrolled environment. These toxins will leach out as a result of incomplete neutralization.	PD18
17726	Toxic to fish-collector-potassium amyl xanthate 3-100, 1,171 tons per year(p.3-102)-dumped with tailings-this should not be allowed	AQ05
17728	Standards delineated as part of Forest Plan in 157-159 are superseded by Weeks Act Legislation and particularly as such mining is fundamentally inconsistent with the Forest and as such the lands exchanged are not protected by the Weeks Act and are not in effect an arms length transaction as proposed.	LAN02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Denny FitzPatrick (7377)	
737	The possibility of water contamination for hundreds of years is not worth the risk	WR128
740	We taxpayers could be left with the burden of cleanup, after Polymet is long gone.	FIN10
Sender Name (Submission ID)	Derrick Passe (44876)	
8095	Given the existing mercury impairments and the likelihood of fish to pass between Embarrass Lake and Embarrass River, I would ask that the Polymet proposal be revised to demonstrate NO increase in mercury to any receiving water.	MERC02
Sender Name (Submission ID)	Devin Vosdingh (54356)	
18200	Some advantages to PolyMet Mining are a better economy. And, it will provide Minnesotans with more jobs. Some disadvantages are that it could seriously damage the environment and Minnesota's amazing wild animals. Waste could run off into the mighty Mississippi.	SO10
18201	Will all the waste from the sites affect the people? Will people with seasonal and environmental allergies to dust be affected?	HU03
18202	even though the project does not take place on reservation land it still affects all Native Americans	CR01
18203	Is this the best thing for Minnesota? And, if not, how can you improve the situation so we get the maximum amount of use out of the deal?	NEPA02
18204	One of my questions is why did PolyMet pick the state Minnesota? Why did they pick Northern Minnesota? Is that where the maximum amount of ore is?	NEPA03
Sender Name (Submission ID)	Diana (43368)	
11760	Minnesota is blessed with water. THAT is a valuable resource. Just because it is not a resource to be “owned” by a for-profit company it is not a resource to be wasted on the environmental disaster proposed by PolyMet.	SO02
Sender Name (Submission ID)	Diana Anshakov (23151)	
13974	Northern MN and the BWCA are one of few unspoiled wilderness areas left. Please protect them for future generations to enjoy as I have.	WILD02
Sender Name (Submission ID)	Diana Moore (57333)	
18489	I would -- I don't think that the underground mining has been examined thoroughly. It has not been looked at as a choice; an alternative. And I think that there needs to be a study for that.	ALT01
18490	I am wondering about the number of jobs that it actually does create. The number that would be at the beginning of the project, when the infrastructure and when all of it is getting actually built, and then the mining. But after the initial operations get started, is there going to be a great difference in the number of jobs? I sort of foresee that perhaps there will be a lot of jobs at first, and then when the operation gets going normally, that there will be a lot fewer jobs.	SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Diana Moore (57333)	
18491	after it does close, or it is closed, who is going to be taking care of the land and the water that will be exposed and potentially polluting? After the closing of the plant, I am concerned about the length of time that the purification is going to be necessary. I have read that it could be up to 500 years, 200 or 500 years (indicating). And who would be responsible for this? Who would actually be accountable or who would actually take care of it? Who is taking care of it	FIN01, FIN08
18493	I am concerned about how long these mines will actually -- this mine that we are coming here tonight for would actually be operating, in the whole scheme of things.	PD30
Sender Name (Submission ID)	Diane (3655)	
428	Sulfide mining has never been done without environmental consequences… There are no metals more precious that our water and we owe it to future generations to protect it at all costs.	WR195
429	Many of us up here depend on tourism for our livelihood. People from all over the country come here for the peace and tranquility that are found in it's woods and waters. Are their needs less important than that of large corporations that are only interested in how much money they can make?	SO02
430	Should Native Americans be asked to risk continued wild rice harvests? Wild rice requires clean water to grow, a mining accident could destroy that crop.	VEG04, WR156
11307	The PolyMet mine plan should be altered to include greater protection and replacement of wetlands.	WET24
11308	I would like the DNR to provide in greater detail and with more accuracy the length of time that water polluted by the Poly Met mine will need to be treated	WR036
11310	I would like the DNR to further analyze the effect of Polymet's plan on the Canada Lynx.	WI01
15623	Another way that PolyMet would affect the environment would be using a large amount of electricity, more than likely from dirty coal power plants in Minnesota. In keeping with Minnesota's goal to reduce carbon emissions, the PolyMet mine plan should be required to use clean energy.	ALT13, PD39
15624	The effect on human health from the PolyMet mine should be considered with a health impact assessment that would be included in the PolyMet mine plan. Many hazards could directly affect public health due to exposure to arsenic, mercury, and asbestos-like fibers. Mercury, for example, would be emitted from the plant and increase the about of mercury in the water, in the fish, and in the diets of Minnesotans relying on fish in their diets.	HU01
15625	Minnesota's state grain, Wild Rice, is put at risk and should be better protected in the PolyMet plan. As an important resource in Minnesota, and particularly for Minnesota's native people, the rice beds downstream of the mine would be affected and water there might not meet the state's wild rice sulfate standard.	VEG04, WR157, WR159, WR162
Sender Name (Submission ID)	Diane Anderson (45427)	
11362	I have monitored the public meetings and discussions and I am deeply concerned that the state is more interested in short term job growth over the long-term negative effects from the mine on our water quality	SO01
11366	The proposed mine plan does not keep Minnesota's water safe and clean.	WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Diane Anderson (45427)	
11367	The proposed mine plan does not put safeguards in place for when things go wrong. There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills.	PD22
11377	Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan.	FIN08
15629	No mining company, especially PolyMet, could ever provide enough financial resources to clean up ANY site for hundreds of years.	FIN01
15630	Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated.	WR070
15631	The plan for at least 500 years of active water treatment violates Minnesota Rules (6132.3200) that call for the mine to be left maintenance free at closure.	PER04
Sender Name (Submission ID)	Diane Beckett (25429)	
15131	If approved the mine will pollute Lake Superior, threaten our clean water and wildlands, and endanger public health for generations to come.	GEN03
Sender Name (Submission ID)	Diane Bublitz (40081)	
6983	We need safe drinking water for human, animal and plant life. The need to do long term - 200 to 500 year- water treatment is not a realistic for us.	WR115
Sender Name (Submission ID)	Diane Dickey (54697)	
17789	The SDEIS is chock full of inadequacies. The wetland destruction and water pollution issues alone scare my family and I. Not to mention the lack of research on airborne particulates that could contaminate our clean air with asbestos fibers and an assortment of chemicals	GEN03
17790	How have they possibly convinced us that 500 years of water treatment is a viable solution to the myriad problems that will plague our precious waters?	PD03
17792	We are not against jobs, not even against mining. We just don't understand how this has gotten so complicated. Does the earth need more Copper-Nickel etc? Sounds like we'll be exporting these metals to China. Sounds like they have plenty. Sounds like a bad deal. Are these short lived jobs so vital? What about jobs to recycle all the valuable metals we throw away?	SO06
17793	Regardless ofthose issues, if this does go ahead, why not take the time to explore other, perhaps safer ways of proceeding. Research different kinds of liners; look at open pit vs. underground mining. Look at an effective way to deal with dust and micro fibers that will undoubtedly enter our lungs and drinking water.	ALT01
Sender Name (Submission ID)	Diane Dinndorf Friebe (38997)	
17658	There is not enough proof that damage will not be done permanently to the watershed here in northern MN and certainly not enough proof that Polymet will escrow enough money to take care of the problems the citizens of MN will face for the next 100, 200, several hundred years.	FIN01, FIN05, FIN10
Sender Name (Submission ID)	Diane J Peterson (54489)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Diane J Peterson (54489)	
18022	Polymet's predictions of water pollution rely on unsubstantiated assumptions that no pollution will seep from the 526-acre mine site waste rock pile into the 1 00 Mile Swamp. Polymet claims that pumps on the edge of the tailings pile will capture 99.37 percent of the polluting seepage.	WR018, WR167
18023	As reported by J. R. Kuipers et al., in Comparison of Predicted and Actual Water Quality at Hardrock Mines (2006). every time sulfide mining has been tried in a water-rich environment, it has resulted in contamination of surface and/or ground water with sulfates and toxic metals.	REF01
Sender Name (Submission ID)	Diane Krueger-Pirnat (6437)	
1074	Polymet will help create jobs that can support a family so that our children do not have to move away as soon as they are out of High School or College. Local businesses need a boost to their bottom line…	SO10
1194	I believe that the environmental review process has been going on too long and that the supplemental draft EIS has solutions to the impacts on the air, water, or land.	NEPA16
1195	The land post-closure documentation shows that the land will be reclaimed to protect the natural resources.	PD28
Sender Name (Submission ID)	Diane Loeffler (44962)	
8468	There is insufficient sensitivity analysis of the groundwater modeling.	WR189
Sender Name (Submission ID)	Diane M Cole (57231)	
17178	These folks are not even from our country and will have even less interest in preserving our land and waters.	SO06
Sender Name (Submission ID)	Diane Mason (19926)	
1516	Even though it feels like legislators and the powers that be are willing to sacrifice our water and one of the only wild areas left in the Midwest, I think it is unthinkable that it is even being considered based on the water issues at hand.	WR115
Sender Name (Submission ID)	Diane Michel (2935)	
12323	Even if contamination abates after the estimated five or so centuries, it is obvious that the flora and fauna we now treasure will not stage a miraculous return. We need the clean waters and all which they support.	VEG06
13849	Who will profit and by how much? Polymet would appear to be yet another code word for short-term profit serving mindless greed.	FIN01, FIN10
17008	Who will profit and by how much? Polymet would appear to be yet another code word for short-term profit serving mindless greed.	SO01
Sender Name (Submission ID)	Diane Mundt (37946)	
9961	It is the wrong project for an area so dependent on clean water throughout that watershed.	WET24
13723	Contaminating that water will harm all living things in that beautiful part of our state, including humans.	HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Diane Mundt (37946)	
13725	If we can make sure our state remains beautiful and healthy people will want to live and work here. That is what will keep us prosperous in the future.	SO02
Sender Name (Submission ID)	Diane Peterson (47371)	
12389	Polymet claims that pumps on the edge of the tailings pile will capture 99.37 percent of the polluting seepage. The DNR should require solid evidence that 99.37 percent of Polymet's toxins will be prevented from contaminating our environment. As reported by J. R. Kuipers et al., in Comparison of Predicted and Actual Water Quality at Hardrock Mines (2006), every time sulfide mining has been tried in a water-rich environment, it has resulted in contamination of surface and/or ground water with sulfates and toxic metals.	WR018, WR023
Sender Name (Submission ID)	Diane Skoog (54514)	
18744	It is federal land and to me that means that any swap should benefit at a federal level. The way I see it, [the proposed exchange] does not belefir the federal tax payer. It only leaves the federal tax payer on the hook for a new superfund site….	LAN01
Sender Name (Submission ID)	Diane Steen-Hinderlie (52209)	
12942	First, regarding water resources, a federal website shows that there will be connections/flow to the Boundary Waters Canoe Area, which will jeopardize this invaluable state and indeed national treasure. There will be mine "acid drainage" that will leave lakes, rivers, and streams without most living creatures.	AQ08, WR011, WR113
12944	Mining pulls water from areas, so a thousand acres of wetlands at the mine site will be lost.	WET24
12946	So, secondly, wildlife is affected. Birds, fish, moose, even lynx, etc., are poisoned. Their habitat is threatened, changed beyond their evolutionary capacity to adapt.	WI01, WI02
12947	Of course there's human life threatened, with increased cancer rates, etc.	HU05
12948	Plus, the end of operations finds a devolving of responsibility from companies to the taxpayers, private to public. This happened right next door in So. Dakota, where a mine went bankrupt and the state had to request Superfund status.	FIN01
16223	No sulfide mine has ever operated without producing polluted drainage. 2/3 of attempted remedies fail.	PD26
Sender Name (Submission ID)	Dianne Ensign (16507)	
2031	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for--information that is necessary to evaluate the environmental effects of this proposal.	FIN01
2032	… sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
2033	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dianne Rowse (58046)	
19854	focus on reclaiming copper from used electronics, homes, etc.	NEPA06
Sender Name (Submission ID)	Dianne Swanson (16516)	
1565	We cannot sanction the continued destruction of our wetlands and waterways.	WET24
Sender Name (Submission ID)	Dick Bottorff (38062)	
13716	The information from Polymet's own studies say that the cleanup of the water alone will take centuries. The earth will however never be the same. Polymet touts a new process that is supposedly safer. Frankly, why should we trust them? The fact remains that no project of this scope and scale can be conducted without massive environmental damage.	PD01, PD23
13717	To be contemplating this [environmentally risky project located] on the edge of our most pristine and sensitive natural wilderness is highly irresponsible...All of this beauty and splendor could be jeopardized for the sake of a few temporary jobs.	SO01
Sender Name (Submission ID)	Dick Hock (5972)	
1957	[PolyMet] are abiding by all imposed governmental standards currently in existence.	PER34
1958	It is time to move ahead on this venture to provide the needed jobs and materials for our ever expanding society.	SO10
Sender Name (Submission ID)	Dick Houck (2259)	
560	the safety measures that the company will take in this venture I am convinced that they are all that are available at this time and will protect the environment as much as is possible at this time.	PD28
561	…if more protective measures become known in the future they will also be used as they become available.	PER06
13689	I believe that PolyMet has outlined a very reasonable approach to this effort and should be allowed to proceed with its plan. It cannot, nor can anyone guarantee what will happen in the future, but it seems to me that all precautions are being taken that can be taken within what is known at this time.	PD28
13690	[I] am greatly enthused about the possibility for employment for the region as well as the need for the minerals that it contains	SO10
Sender Name (Submission ID)	Dick Webber (18064)	
3178	And from what I understand, 70 percent of the rock being mined is low in sulfate and can't produce pollution.	PD28
12746	If this job is going to be monitored by the DNR, Corps of Engineers, EPA, or other agencies, then I don't see any reason why the job shouldn't go through. If it can be done safely, correctly, and everybody is on board with it getting done the right way, I really, really don't have any problem with it getting done and moving forward, as long as it is monitored.	PER34

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dick Webber (18064)	
13250	And I'm confident that the DNR, the pollution control agency, the US Forest Service, Army Corps of Engineers, and other experts have done their research and will make sure the project does not hurt the environment.	NEPA16
Sender Name (Submission ID)	dickkrueger (3471)	
649	It will harm water quality and degrade wetlands for hundreds of years.	WET24, WR035
Sender Name (Submission ID)	Dirk and Kathryn Hanson (52588)	
15341	At a minimum - extend review period.	NEPA06
Sender Name (Submission ID)	Dirk Hanson (49828)	
15651	The PolyMet NorthMet sulfide mine will pollute wetlands in the Partridge River watershed of the Lake Superior Basin.	WET24
Sender Name (Submission ID)	Dixon Shelstad (47034)	
10933	The most contentious issues, those involving effects on the local and regional watersheds, have been addressed in the plan and mitigations appear to be in place to safeguard against potential problems.	WR190
Sender Name (Submission ID)	DJK Alexander (39199)	
6024	I’m concerned about the fact that the water may need treatment for two to five hundred years. Thinking back to several hundred years ago, I can’t imagine much that would remain the same in such a huge time frame, so I’m dubious.	PD03
14646	I’ve read that other copper mining companies have simply gone out of business when it’s time for cleaning up, and such costs are hard to predict, if you consider all damage there could be to the upper Minnesota biome.	FIN01
14647	I’m concerned about the environmental impact on what I consider one of the most precious resources we have in Minnesota: Clean water in abundance.Our land up north has a river running through the corner of it, a river that comes out of the Boundary Waters, passing through several lakes on the way to us.	WR111
14648	I don’t think the worry for me is the Polymet project, which on first reading doesn’t sound so bad. The point for me is the precedent it sets for what might follow. I would proceed very cautiously, if at all.	PER07
14651	I went to a commission hearing about all this, some years ago, and I was disappointed in the attitude shown toward small private landowners. It seemed at first blush to be a chummy, business-first club meeting there, rubber-stamping things in the public’s name that had already been decided by mining enthusiasts.	NEPA18
14653	I have witnessed countless life forms using this river and its tributaries, from brook trout to baby moose to abundant insect life. There is a tremendous diversity of bird life….	WI01
14655	Torrential rain could swamp a tailings basin, overrun its banks or destroy it completely, releasing poisons into adjacent waters.	WR057, WR077, WR180, WR193

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	djordet@q.com (9472)	
940	Is a performance bond going to be required of the company? 2. How is it going to be determined that the bond will be sufficient to cover the cost of clean up?3. Can the fund be used to clean up spills or damage as they occur? If so how is the fund going to be refreshed?4. How is the bond going to be protected from government changing its use designation and reassigning the money for other projects in the state? 5. What is to keep the fund in place for 500 years or until the site is deemed safe?6. Who is going to administer the fund and be responsible for its use? 7. Is the bond going to be invested to make interest as it sits in place?8. If a bond is required, how is it going to keep pace with the rising cost of construction costs as the years go on?	FIN01, FIN05, FIN08
941	Who is going to be responsible for monitoring the site? 10. What powers will the monitors have to deal with immediate problems that will arise?11. What is going to happen to the tailings in the pond after they reach saturation of sulfates?12. How is the water seeping through the tailings and into the bedrock cracks and pores going to be monitored?13. As a suggestion, would it be safer for all concerned to build a concrete table on which the tailings could be placed so that the sulfides and sulfates could be better treated and controlled? 14 How are the emissions on the stacks going to be controlled? 15 Who is going to monitor them and be responsible to see that they are being held within the EPA limits?16. If effects are seen in the environment (effects on the water, plant and animal life) around the mine site, who will be responsible for applying corrective action and how will the effects be monitored measuring the water leaving the site and air off the stacks?	PER04
Sender Name (Submission ID)	Don & Tess Uzelac (15775)	
833	The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations.	PER34
836	I'd also like to address some misinformation ... It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a long time [200-500 years]. It also shows the project will still meet water quality standards even that far out.	WR190
837	This [groundwater flow] model demonstrates that PolyMet's plans comply with Minnesota's laws.	WR190
838	We cannot afford to miss this job opportunity.	SO10
839	Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands.	NEPA16
Sender Name (Submission ID)	Don Arnosti (11523)	
2475	I oppose the proposed land exchange for two reasons:1.It is not necessary for mining access to the ore body. Surface mining is prohibited – but underground mining could be allowed and is much less destructive to natural resources. If it's not economic now, then the mining can wait until it is.2.No mineral rights come with the land. What will stop this exchange-game happening again?	LAN02, LAN04
Sender Name (Submission ID)	Don Brown (43076)	
10022	The SDEIS does not seem to... adequately address issues concerning the health and safety of human resources ... What substances will be released into the air, water or otherwise and what effect will that have on human (and non-human organisms)?	HU01
10023	The DSEIS does not appear to address the effects of releasing heavy metals brands other than mercury into the environment. There appears to be no doubt that certain other heavy-metal released into the environment including but not limited to magnesium.	WR108

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Don Brown (43076)	
15337	Minnesota law is clear that clean up/reclamation after mining activity cannot be perpetual…. the SDEIS does not and apparently cannot indicate when the proposed cleanup with end. Absent an end date, any proposed cleanup must be presumed to be perpetual	PER04
15338	the materials used in allegedly protecting the environment, eg., liner of the mine waste storage pit would need to last forever (perpetually) in order to protect the water resource. Similar concerns exist with respect to other processes (reverse osmosis) and materials such as containment pits. What proof is there that these processes and materials will last until cleanup is finished (perpetual)?	WR127
15339	There appears to be no real cost-benefit analysis, or cumulative effects analysis, for the total cumulative impact area – in both the Lake Superior and Rainy River Watersheds.	SO01
Sender Name (Submission ID)	don hilligoss (38208)	
8957	I would like to mine this area and provide the State with the profit they will get from the land they have.	SO10
Sender Name (Submission ID)	Don Janes (21690)	
10113	One many things about the SDEIS that concerns me is that underground mining and subsequent underground disposal of tailing was not considered. Even tho it may be more costly, it would help to mitigate sulfide pollution and would save many acres of wetlands from being converted into tailings ponds	ALT06, ALT10
10114	I am also concerned about effects of inevitable sulfate pollution of wild rice waters. Wild rice is a part of the culture of native Americans, and should be protected.	CR01
Sender Name (Submission ID)	Don Klegstad (42543)	
15605	We need jobs! We need to keep working class families up here for our schools.	SO10
Sender Name (Submission ID)	Don Markwardt (41018)	
7494	I believe the DNR has done an excellent job in evaluating the Polyment mining proposal and included restrictions and regulations to make it an environmentally safe operations.	NEPA16
Sender Name (Submission ID)	Don Mitchell (44476)	
10634	Until mining in sulfur bearing rock complexs can be assured without degrading the water quality of this watershed the permit should not be issued.	WR111, WR195
10637	The information I have seen regarding PolyMet's proposed plan to mine precious metals from this mineral deposit which contain sulfides has not addressed all legitimate science based concerns regarding long term impacts to an aquatic resource which is both unique and irreplaceable.	WR071, WR113
10638	I am for economic development but not at the expense of this essential ecosystem.	SO01
11628	Treatment of tailings wastewater and waste piles for perpetuity at the headwaters of the Lake Superior watershed is illogical and impractical even if it was successful for the 1st time in the history of sulfide mining. The proximity to the Hudson Bay watershed to the north and the potential to devistate the headwaters of the St. Louis River make this mining project's risks unacceptable.	PD03, WR035, WR081, WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Don Mitchell (44476)	
11630	New basewater groundwater flow studies indicate incorrect science to support the project were included in the PolyMet SDEIS permit. Impacts to residential wells from tailing seepage must be studied in light of the incorrect data for groundwater and surface flow rates.	WR003, WR041
11633	Sulfide mining impacts on the health of plantlife, wildlife and fisheries for subsistance lifestyles and the health of those diverse biological communities must be adequately accessed before permitting is allowed.	VEG06, WI04, WI09
11634	This project is not about jobs versus the environment. It comes down to an independant unbiased scientific assessment which assures Minnesotans and all citizens on both sides of the border in the Lake Superior watershed that our treasured irreplaceable water will not be polluted long after PolyMet is gone.	WR195
Sender Name (Submission ID)	Don Olson (57334)	
18484	I think all we got to do is get it going. Because, you know, tailings basin, they say it is going to hurt the wildlife. Well, I've counted between 50 and 100 deer on the tailings basin a night. The moose are out there. It is all full of wildlife. And in the fall, there is thousands of geese out there. So where is the pollution coming from? You know, wildlife is smarter than we are. The tailings basin is full of walleyes. You can catch one every time you cast	WI01
18486	we have been mining this country for 100 and some years and it is basically the only industry there is. I was just thinking, you know, half of these towns wouldn't even be here and it is just hard to picture what the country would be like without the mining.	SO10
Sender Name (Submission ID)	Don Pietrick (45271)	
11218	I strongly advocate that the decision on whether to allow hard rock mining by PolyMet be solely based on the most rigorous possible scientific analysis of potential environmental impact. The DNR should make this determination independent of political influence.	NEPA18
Sender Name (Submission ID)	Don Vasatka (29715)	
13866	I don't see any way that the pollution from this mine can be contained for 500 years. Even if it could, we should not put the cost of this on future generations.	SO01
Sender Name (Submission ID)	Don Yerhot (39918)	
11100	Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness.	WR111
11102	Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred.	WR023
11104	I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining.	WET24, WI01
11106	The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public interest.	LAN01
11108	The proposed mine poses unacceptable risks to our waters and communities.	WR111, WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Don Yerhot (39918)	
11110	I ask that the comment period be extended to 180 days, and I support the No Action Alternative.	NEPA07
Sender Name (Submission ID)	Donald Arnosti (18328)	
2393	It's clear that the deal being offered by this proposal is anti-clean water, anti-habitat, anti-fish	GEN01
2394	It is inconceivable that we could consider 20 years' worth of jobs... and to pass along a legacy of hundreds and hundreds of years of water treatment and the costs associated with that in the hope that we're not polluting our great-grandchildren's waters.	SO01
2396	The particular SDEIS is insufficient and should be rejected because it does not provide information on the water treatment plant or how that will be paid for...And there are no details in this SDEIS that would explain how this magic water treatment system is going to be paid for 2, 3, 400 years from now	FIN01, WR128, WR143
2397	the proposal to mitigate headwaters (inaudible), specifically the headwaters of the St. Louis River, only concerns the 912 acres that are directly impacted by either excavation or filling. However, in the document is information on more than ten square miles of additional wetlands that are going to be either partially drained or poisoned by toxic materials that flow off the railcars and off the mine site.And the proposal simply calls for monitoring, and if necessary in the future mitigation.	WET01
2475	I oppose the proposed land exchange for two reasons:1.It is not necessary for mining access to the ore body. Surface mining is prohibited – but underground mining could be allowed and is much less destructive to natural resources. If it's not economic now, then the mining can wait until it is.2.No mineral rights come with the land. What will stop this exchange-game happening again?	LAN02, LAN04
15659	the Minnesota Department of Natural Resources added [northern goshawk (Accipiter gentilis) and Boreal Owl (Aegolius funereus)] to the list of Special Concern species in August, 2013 [which contradicts the SDEIS].	WI01
15665	Considering the specialized requirements and rarity of this species in Minnesota, the only state east of the Rockies where nesting has been confirmed, the Determination in 5.2.6.3 that, "The Proposed Action and Alternative B may impact individuals but are not likely to cause a trend to federal listing or loss of viability for boreal owl" does not acknowledge the precarious status of this species in Minnesota.	WI01
Sender Name (Submission ID)	Donald Barstad (22173)	
3345	The economic benefit to the area is well certified by many of the comments both in the review and by public comments. (…) As a resident of the Iron Range, I look forward to this project (and future ones) providing an economic and environmental boost to the area.	SO10
3346	The land exchange and wetland are reasonable for the area intended for the project.	WET25
3347	Future effects on wildlife and plant life are not adverse to the environment of the area.	WILD03
3348	The design of the mining and plant operations are well thought out. Some new processes have covered many previous questions in regards to water and waste.	GT15
3350	The proposed Reclamation and Financial Assurance add to the feasibility of the return to "mother nature" of an acceptable result.	FIN17
Sender Name (Submission ID)	Donald C Myntti (54745)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Donald C Myntti (54745)	
19100	I wish to point out that the rules for current mining activity are very much morestringent than those in the past. The future operations will be monitored by atleast six (6) major governmental agencies to assure compliance with currentexisting rules and regulations.	PER34
Sender Name (Submission ID)	Donald Chambers (21581)	
10106	We cannot afford to miss this job opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands.	SO10
Sender Name (Submission ID)	Donald L Stewart (54494)	
18100	The major concern is the implications for Minnesota taxpayers of long-term costs of cleanup, mitigation and treatment 200 to 500 years in the future.	FIN01
18102	The NorthMet SDEIS seems to understate the potential harmful environmental impacts associated with this Project.	NEPA09
18103	Proponents of the Project are overstating the beneficial local economic and jobcreation impacts. There are presently 350 good job openings in Thief RiverFalls, probably a couple hundred more in the rest of Northwest Minnesota andeven more in North Dakota.	SO01
18105	Approval and acceptance of the North Met SDEIS and issuance of permits toPolyMet will open the floodgates for approval of similar mining projects andfarther ranging impacts into other areas of the State.	PER07
18106	PolyMet has no mining experience and PolyMet and its financial backer,Glencore, are both foreign companies which restricts legal indemnification	PD23
Sender Name (Submission ID)	Donald Myers (48953)	
12977	It is not right to have a short term benefit for a few at the cost of a long term cost to many, including the children to multiple generations of those getting a short term gain.	SO02
Sender Name (Submission ID)	Donald Nelson (41470)	
9329	Today I learned that there has been no evaluation of the impact on the on-site workers. Considering the toxicity of the substances, this seems a grave oversight at the start. As a minimum, there should be a detailed evaluation of the health effects of the on-site workers and their families…Health effects on the general population are also important ….	HU04
9330	I also object to not having liners for the waste pits. This is a known fractured area and we have more and more evidence that the sulfides cause ;problems for the plants (such as the wild rice) and animals.	PD15, WR156
14299	Health effects on the general population are also important and should be taken in to account.	HU03
Sender Name (Submission ID)	Donald R Fosnacht (11556)	
2518	It will be incumbent on MN and federal agencies to ensure compliance to the final permits once they are agreed to by the various jurisdictions and the company, but the outline of how this action will be undertaken appears to be adequate and comprehensive to assure both a sustainable and clean water condition and provide for economic development that will benefit the local economy and region.	PER34

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Donald R Fosnacht (11556)	
2518	It will be incumbent on MN and federal agencies to ensure compliance to the final permits once they are agreed to by the various jurisdictions and the company, but the outline of how this action will be undertaken appears to be adequate and comprehensive to assure both a sustainable and clean water condition and provide for economic development that will benefit the local economy and region.	PER34
Sender Name (Submission ID)	Donella Kubiak (57223)	
17171	We should do a better job of re-claiming metals/minerals through recycling.	ALT09, ALT16
Sender Name (Submission ID)	Donna (38492)	
13577	The long-term run-off pollution threat to our unique water resources is just too great to take a chance.	WR195
13578	The possibility of hundreds of years to reclaim potential damage is a frightening prospect to pass on to future generations.	PD01
13579	[The project would create] several hundred jobs that themselves aren't for certain sustainable in the long term.	SO02
Sender Name (Submission ID)	Donna & Neil Berglund (10720)	
10757	How can we justify 25-30 years of mining vs. 500+ years of treatment--more like forever!!! No matter how much money we throw at cleaning the area, it will never be what it is now.	FIN10
Sender Name (Submission ID)	Donna and Allan Butler (50042)	
13005	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Donna Anderson (17256)	
12819	I am highly skeptical that PolyMet's emission figures are credible	AIR10
12820	I am highly skeptical that PolyMet's ...monetary clean-up guarantee is calculable with any certainty, or that they wouldn't" hit and run" after five years, declare bankruptcy and leave taxpayers to clean up the mess.	FIN01, FIN05
14732	Minnesota's passage of the Legacy Act speaks volumes. Keep polluters out of our state and keep Minnesota exceptional.	PER35
Sender Name (Submission ID)	Donna Arbaugh (43211)	
11564	Short term employment and economic benefits have little value when compared with the spectacular ecosystem of northeastern Minnesota. The risk is much too high with too many unanswered questions.	SO01
Sender Name (Submission ID)	Donna Belvin (42107)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Donna Belvin (42107)	
2160	The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public interest.	LAN01
Sender Name (Submission ID)	Donna Ceglar (16118)	
9666	This proposed mine is too close to the BWCA, the risks are too high and there are too many unanswered questions.	WILD02
11063	…I understand the importance of supporting mining operations as a source of economic stability. However, I also recognize the much bigger importance of protecting the environment of Northern Minnesota.	SO01
Sender Name (Submission ID)	Donna Henry (15992)	
1107	I Ask that you extend the public comment period for the proposed PolyMet Mine. The current 90 day comment period is not enough time. Due to the size, complexity and difficulty in reviewing the SDEIS - 180 days is needed to adequately review the proposal.	NEPA07
1109	The PolyMet project proposes a land exchange of 6,700 acres of federal land within the Superior National Forest. … According to current federal law, it is illegal to strip mine land acquired under the Weeks Act for watershed protection.	LAN02
1112	The modeling done by PolyMet stopped at year 200 (at the mine site) and year 500 (at the plant site) because that was the point at which it became clear that water quality would not get worse. However, the modeled water quality at 500 years does not come close to meeting water quality standards.	PER04
1113	No back-up plan if Reverse Osmosis doesn't work for water treatment.	WR128
1115	Hardrock mining carries the potential for asbestos-like minerals to be releasedin water effluent or air emissions. The PolyMet environmental review process does not adequately address their effects on human health as this is alreadyan emerging concern in northern Minnesota.	AIR03
1116	“Mitigation” for the [wetland] direct impacts will occur primarily outside of the St. Louis River/Lake Superior watershed, in an area to the south that is unlikely to support comparable ecosystems and cannot replace the lost functions to the St. Louis River system	WET03
1117	The proposed mine is harmful to wildlife, threatening home ranges of endangered lynx, wolf, as well as moose which are dramatically declining in the state.	WI01
1119	PolyMet mine could spell life or death for critical habitats and the birds that live there … More than 300 bird species spend at least part of their year in Minnesota and three Important Bird Areas would be especially vulnerable. These include winter habitats for Great Gray Owls and breeding habitat for dozens of neotropical songbird species. At particular risk are water-dependent bird species, including Belted Kingfisher, Common Loon, Goldeneye, Red-breasted Merganser, Hooded Merganser, Common Tern, American Bittern, and Least Bittern.	WI01, WI02
1120	this mining operation would ooze toxic pollution into the region’s waterways for as long as 500 years.	WR115
Sender Name (Submission ID)	Donna Johnson (37952)	
13722	The value of our clean water far exceeds any mineral value now or in the future. Its not worth the risk.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Donna Magrina (12525)	
86	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for	WR035, WR128, WR143
87	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
88	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
1666	The SDEIS proposes no mitigation for the indirect wetland impacts.	WET01
Sender Name (Submission ID)	Donna Rautiola (42804)	
7021	The Polymet proposal is wrong in so many ways, polluting our water-ways and destroying our environment for more than 500 years; for what? 350 (possible) jobs?	SO01, WR115
Sender Name (Submission ID)	Doran Whitledge (11639)	
3330	We have no right to damage and destroy the health and beauty of our natural world for jobs.	SO01
3330	We have no right to damage and destroy the health and beauty of our natural world for jobs.	SO01
Sender Name (Submission ID)	Doretta Reisenweber (11612)	
2287	"compared to existing conditions"? Are measurements of the water quality being taken throughout the site area before, on a monthly basis during processing, immediately after a catastrophic weather event, and for the months of the many years following closure? If not, why not?	WR021, WR039, WR071
2288	ES 37 [Executive Summary page 37] notes that because the Boundary Waters and Waters of the Voyageurs National Park are in a different watershed they will not be affected by the NorthMet Project. No, but other mining proposals await that watershed and then that watershed would be affected, wouldn't it? Back to the NorthMet influence. The St. Louis River is, has been and certainly would be affected by NorthMet activity. When the SDEIS omits that statement, it implies all will be well. It is not well.	FIN02, FIN04
2288	ES 37 [Executive Summary page 37] notes that because the Boundary Waters and Waters of the Voyageurs National Park are in a different watershed they will not be affected by the NorthMet Project. No, but other mining proposals await that watershed and then that watershed would be affected, wouldn't it? Back to the NorthMet influence. The St. Louis River is, has been and certainly would be affected by NorthMet activity. When the SDEIS omits that statement, it implies all will be well. It is not well.	CU01, CU04
2289	ES 38 [Executive Summary Page 38] is about wetlands. I quote "Permit conditions would likely include an adaptive management plan to account for any additional effect that may be identified during annual monitoring and reporting." Annual monitoring?! As before, why not monitor water quality before, monthly during, immediately after a catastrophic weather event, and for the months of the many years following closure?	COE02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Doretta Reisenweber (11612)	
2289	ES 38 [Executive Summary Page 38] is about wetlands. I quote "Permit conditions would likely include an adaptive management plan to account for any additional effect that may be identified during annual monitoring and reporting." Annual monitoring?! As before, why not monitor water quality before, monthly during, immediately after a catastrophic weather event, and for the months of the many years following closure?	COE02
7327	Page 36 [of Executive Summary] states "Nearly all contact or process water at the NorthMet Project area would be treated at the Mine Site WWTF or Plant Site WWTP before release to the environment….." "nearly all"? What about seepage to wetlands in and around the sites? What about seepage through the fractures in the rocks? Will this be measured? If so how often? Monthly? If not, why not? Water moves.	WET24, WR070, WR090
7329	Page 36 [of Executive Summary] states "the North Met Project Proposed action is not predicted to result in any significant change to the groundwater and surface water flows when compared to existing conditions.""compared to existing conditions"? Are measurements of the water quality being taken throughout the site area before, on a monthly basis during processing, immediately after a catastrophic weather event, and for the months of the many years following closure? If not, why not?	PER35, WR004, WR071, WR139, WR185, WR195
7339	The St. Louis River is, has been and certainly would be affected by NorthMet activity. ….The St. Louis River estuary is still not cleaned up. What about the water quality in the St. Louis River watershed? It flows into Lake Superior which holds 10% of the world's precious fresh water. Can we afford to risk contaminating that water source? I think not.	WR111
7341	do not risk contaminating our water with an ill-designed experiment. Those metals will still be there, if it can ever be proven safe for the environment.	WR195
7341	do not risk contaminating our water with an ill-designed experiment. Those metals will still be there, if it can ever be proven safe for the environment.	WR195
Sender Name (Submission ID)	Dori Arnett (54540)	
19174	Please preserve our sacred environment & this sacred place! Stop mining. Your short-term gain is not worth such costs.	SO01
Sender Name (Submission ID)	Dorie Gallagher (11)	
347	Copper dust [from open pit mining] is a killer.	AIR11
348	No job is sacred when you are dead [due to job-related illness].	SO01
13967	80 to 90 percent of rocks moved in the PolyMet mine will be toxic. This toxicity will last from 200 to 500 years.	PD15
13968	We cannot afford to have our beautiful northern area be destroyed for the few jobs. I understand they need jobs, but jobs should have been provided, and can be provided, without destroying our northern section of Minnesota.	SO01
Sender Name (Submission ID)	Dorie Reisenweber (16076)	
1212	the proposed NorthMet sulfide mine could contaminate water from its site in the Duluth Complex all the way to Lake Superior which contains ten percent (10%) of the world’s fresh water.	WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dorie Reisenweber (16076)	
1214	Diminished water supplies due to severe drought, rising consumption due to population increases and industrial needs are becoming more common throughout Minnesota.	WR188
1215	With so many areas in Minnesota currently experiencing water shortages it makes no sense to risk contaminating groundwater in the Duluth Complex ... Consider, too, that the proposed NorthMet mining operation would use 6.2 MILLION gallons of water per day.	PER12
1216	Please consider the cumulative impact of even more sulfide mining… other still larger sulfide mines would apply for permits and argue their right to mine citing NorthMet's precedence. … That would lead to more water contamination and groundwater draw downs and shortages in the future, wouldn't it?	CU04
1217	We must protect and save what water remains and use it for human beings, not for industry.	WR195
1218	If NorthMet were permitted, contaminated surface drainage from NorthMet would run into the Partridge River, then into the St. Louis River and from there into Lake Superior.	WR111
1221	Sulfide mining, even in dry land areas has caused ground and surface water contamination lasting for hundreds of years. The Duluth Complex is a water- rich area, thus it is even more susceptible to water contamination.	WR115
1222	Are the people, much less regulatory agencies, guaranteed that someone will be around to treat the contamination virtually forever? I know of no such assurance or guarantee.	PER06
1223	11 (eleven) million gallons of contaminated seepage from the tailings basin would enter the groundwater each year, and another 5 (five) million gallons from the mine site would seep untreated into the groundwater each year. What of the impact of the millions of gallons of untreated contaminant that would enter the ground water on a yearly basis accumulating throughout the years?	WR107, WR108
1226	Given the large scale of the proposed NorthMet operation and the water-rich environment of the Duluth Complex…massive contamination of groundwater and surface waters could be expected, if the engineering were flawed or, if any unforeseen accident or disaster were to occur.	WR128, WR129
1227	Fractures are found at the NorthMet mine and the plant site which would transport contamination. The mining blasts themselves would break up hundreds of tons of rock every two or three days, adding to the number of fractures through which contaminated water would be able to flow.	WR011, WR012, WR016
1229	Based on the above MERA [116B.01] and these comments, I consider that it is not in the public interest to endanger water vital to present or future generations...I urge the regulatory agencies to reject the NorthMet SDEIS and to refuse any permits submitted by the NorthMet sulfide mining company.	PER35
2026	I urge the regulatory agencies to please reject the NorthMet SDEIS and deny any permits which could harm Minnesota's water quality and supply for many future generations.	PER35
10038	Improve monitoring practices…..to ensure maintaining strict water quality standards. Monitoring wetlands for contamination requires: monitoring stations be located in areas where leaks and run-off might be expected,monitoring stations be located at closer and more frequent intervals, than the SDEIS proposes; monitoring of all stations to be MONTHLY at least, not merely, as the SDEIS says, 'at least annually;' enough, technically-trained regulatory AGENCY staff, not company staff, to do the monitoring job.	PER06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dorie Reisenweber (16076)	
10049	The state should require of any mining company(ies) a contingency fund available during any of the mine's various operations. This contingency fund would be in addition to the financial assurances already mandated upon closure, as mentioned in the SDEIS. The contingency fund should be sufficient to pay for all monitoring expenses, for whatever technical training is needed for monitoring staff, for any remediation as agreed upon between the affected residents, mining employees and the regulatory agencies, and for mining-incurred medical expenses of the mining or regulatory agency employees or area residents, as well as for emergency events whether due to natural disaster or mining leaks, mining accidents or any mining situation which poses harm to people and the environment.	FIN05, FIN07, FIN11
10056	Contingency funds to pay for the monitoring staff should be assessed to the mining company(ies) and placed in the state's coffers before any such mining were permitted. Furthermore, thpse monies should be obligated to cover the entire cost of monitoring and therefore suject to increased funding levels as determined by the monitoring agency(ies).	FIN11
10057	Monitoring and reporting on a) city and residential wells in the Duluth Complex and b) of drainage areas surrouding the mine's entire working and storage areas for contaminants which result from sulfide mining (such as arsenic, asbestos-like fibers, cadmium, lead, magnesium, mercury, and nickel, and to name only a few). These should be required to be monitored and reported on a monthly basis by a sufficient number of properly trained STATE AGENCY staff.	WR039
10061	The health of mine employees, as well as the health of residents within a pre-determined area of the mining facilities should be monitored at least once before mining begins...The cost of any ailments or illnesses attributable to the effects of mining should be borne by the mining company(ies) through a state-held contingency fund	HU04
10673	I write to urge an extension of the public comment period for the NorthMet SDEIS.	NEPA07
10676	[T]he SDEIS took over two years of work by agencies and experts. Lay people need time to analyze such a lengthy document dealing with a project which the SDEIS indicates could require five hundred (500) years water treatment. The project's many impacts to water, air and life in northeastern Minnesota demand serious, thoughtful and objective analysis by both the public and by government agencies.	NEPA07
14464	The cost of any ailments or illnesses attributable to the effects of mining should be borne by the mining company(ies) through a state-held contingency fund provided for by the mining company(ies) involved.	FIN01
15912	No one wants a project that dumps toxic tailings into our waters. Please reject the NorthMet SDEIS.	WR195
15913	Surely...you would think Minnesota's environmental laws will protect the water, but no. Permit after permit and variance after variance have been granted to taconite mines which continue to pollute raising sulfide, manganese and mercury levels above the accepted standards. And that is before sulfide mining has been allowed to start up.	PER06
Sender Name (Submission ID)	Doris Bandel (41790)	
3276	My family has a cabin in Voyagers National Park. The last 4 generations of our family have joyously spent time at the cabin. I want the next 4 generations to have the same envirnment available to them.	LU06
13972	I am particularly alarmed by the possibility of sulfide mining in Minnesota. Although the PolyMet mine watershed drains into Lake Superior, the Twin Metals Mine would drain into Voyager National Park.	WILD02
Sender Name (Submission ID)	Doris Lawson Gerdes (36778)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Doris Lawson Gerdes (36778)	
7816	Fragmentation of directly and indirectly affected wetlands was not adequately analyzed. The SDEIS treatment of wetland mitigation and wetland monitoring is also inadequate. It does not specify the type, location, and acreages of replacement wetlands, which should be located within the St.Louis River watershed and provide equivalent wetland values and ecosystem services. To adequately evaluate wetland composition, structure and function, affected wetlands should be classified to MN DNR Native Plant Community (NPC) Classification System type.	WET02, WET03, WET07, WET21
7819	There is no mitigation for the 698.2 acres of imperiled or vulnerable native plant communities destroyed as a result of the proposed project. Replacement acres for these native plant communities should be within the same watershed. Reclamation objectives that simply state “rapidly establish [vegetation]” are not adequate, and do not address the restoration of native plant communities. Furthermore, it is not possible to restore areas to a “natural state” when the area is now underlain with toxic waste rock.	VEG02, VEG05
7825	The SDEIS no action alternative should be selected because the proposed project will require long-term water treatment and monitoring. MN Rule 6132.3200 requires that, to receive a permit to mine, the permittee must be able to close the mine in such a way that it is, among other things, maintenance free. Furthermore, it unrealistic to expect a commitment of centuries of water treatment and monitoring.	PER04
7837	The SDEIS fails to adequately disclose the environmental consequences of the proposed project on biodiversity and ecosystem function. The SDEIS inappropriately analyzes the effects on Minnesota DNR Sites of Biodiversity Significance and fails to analyze the effects of the project on other biodiversity areas within the Laurentian Uplands subsection and the St. Louis River watershed. Fragmentation of biodiversity areas directly or indirectly affected by the proposed project was also not analyzed.	VEG02, WI02
7843	Environmental consequences of the proposed project on many of the biodiversity areas, even those close to the proposed project area were not analyzed (most notably the MN DNR Headwaters Site, the Sand Lake Peatlands Scientific and Natural Area, and the USFS Big Lake candidateResearch Natural Area).	VEG02
7855	The UMD economic impact analysis (EIA) used by the SDEIS to determine the socio- economic consequences of the proposed project misapplies standard EIA methodology, resulting in an economic analysis of the proposed project that is flawed from the outset. A socio- economic analysis that includes an aggregation of economic, environmental and community measures that support a healthy, sustainable economy (such as those described in the Minnesota Genuine Progress Indicator) is needed to adequately analyze the socio-economic costs and benefits of the proposed project. The EIA (and therefore the SDEIS) grossly exaggerates the short-term impacts, provides no comparison to potential employment impacts that might result from investments in other forms of economic development, and fails to compare the modeled short-term impacts in the context of associated long and short-term negative environmental, economic and fiscal costs of the proposed project and other non-ferrous mining proposals in the region.	SO04
8102	The proposed project is located within lands covered by 1854 Treaty with northeastern Minnesota Ojibwe people. The 1854 Treaty requires the federal government to protect tribal rights to hunt, fish and gather wild rice. The SDEIS fails to adequately address the environmental, cultural and economic costs of the proposed project on native peoples based on these treaty rights.	CR01
8123	Information presented on existing fractures, and the potential for increased fracturing that may result from continuous blasting at depth, is incomplete or non-existent. The proximity of the proposed project, especially the north side of the mine site, to the Laurentian Divide and the potential for leakage of polluted groundwater into the Rainy River Headwaters watershed was not addressed in the SDEIS.	WR010, WR012, WR016, WR071, WR085
8129	it is also critical to understanding the effects of the proposed project, for the SDEIS to include groundwater transport analysis on mercury.	MERC11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Doris Lawson Gerdes (36778)	
8149	The SDEIS fails to adequately analyze the direct and indirect effects of the proposed project on the ability of the Superior National Forest (SNF) to meet federal mandates for the management of National Forest Lands. Therefore, the SNF must conclude that the proposed project does not serve the public interest.	LAN01, WILD01
8163	The SDEIS is flawed in that it fails to adequately address financial assurance requirements. Because of the enormous costs involved and an industry track record where taxpayers are left with the costs of clean up, it is critical that the SDEIS elucidate the terms of financial assurance requirements and provide a vetted estimate of the cost. Financial assurance analysis should be thorough and adjusted for inflation over time. Who will be liable should Polymet become insolvent? How will financial assurances remain viable for 500 or years or more?	FIN01, FIN05, FIN08, FIN10
8176	The SDEIS fails to adequately address the need (and cost to the taxpayers) for specialized disaster-response strategies associated with the failure of containment or treatment facilities due to unforeseen events and “unanticipated liabilities”.	FIN01, FIN10, PD22, PER03
8187	The effects of extreme weather events (fires, floods, drought) occurring with increasing frequency and intensity, should be factored into hydrologic models, pollution predictions, pollution transport models, treatment plans and monitoring.	WR180, WR189
8190	The SDEIS failed to adequately incorporate the effects of climate change in their analyses of the environmental consequences of the proposed project…The SDEIS failed to adequately address the carbon footprint of the proposed project and its’ effects on the states’ carbon budget.	AIR01
8198	The length of time that the public has to review the SDEIS is insufficient. An additional 90 days would allow the public a reasonable comment period.	NEPA07
12665	Forest Stewardship Council standards require the identification of high conservation value forest for the certification of managed forest lands in Minnesota.	VEG03
12669	misapplies standard EIA methodology…Hjerpe, Evan and Spencer Phillips 2013. A Review of “The economic impact of ferrous and non-ferrous mining on the State of Minnesota and the Arrowhead Region.” http://www.nmworg.org/wp-content/uploads/2013/08/Phillips_Hjerpe_UMD_Review_FINAL_2013_12_30.pdf	REF01
12674	The analysis is also inadequate…. Minnesota Planning – Environmental Quality Board, 2000. Smart Signals: An Assessment of Progress Indicators. http://www.gda.state.mn.us/pdf/2000/eqb/measure.pdf	REF01
12787	The proposed project lies within the proclamation boundaries of the Superior National Forest (SNF). Whereas, the Weeks Actof March 1, 1911 does not allow open-pit mining on National Forest Lands in order to protect the watersheds of navigable streams, it stands to reason that the proposed project should be prohibited within the proclamation boundaries of the SNF.	LAN02
12789	The land exchange does not mitigate the fact that the proposed project still lies within the SNF and does not relieve the Forest Service of their responsibilities for “the protection of the watersheds of navigable streams” mandated by the Weeks Act [PUBLIC-NO. 435.] [H. R. 11798]. These land exchanges render the SNF incapable of meeting not only this mandate but many of the management obligations set forth in the SNF Land and Resource Management Plan (2004).	LAN02
12869	The destruction and degradation of wetlands proposed by the project will present unacceptable risks to water quality and ecosystem services in the headwaters region of the St. Louis River watershed. Therefore, a USACE Section 404 Wetland Destruction Permit should not be issued for the proposed project.	WET24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Doris Lawson Gerdes (36778)	
14479	In addition to those wetlands directly lost by the proposed project, the SDEIS should mitigate for all wetlands that will be lost or degraded by the indirect effects of groundwater drawdown, dust deposition, ore spillage during transport, stockpile leakage, etc.	WET24
14497	Furthermore, the SDEIS fails to disclose and factor into the analysis the losses associated with the disparities in tax revenue from the erosion of the mining production tax (especially relative to the value of ore) and production tax "rebates" back to the mining industry. Lost revenue could be calculated by updating the production tax, applying a minimum tax on the value of the ore and/or collecting an income tax on corporate profits on par with other countries. The analysis also mixes apples and oranges by aggregating predicted economic benefits from ferrous and non-ferrous mining.	SO05
16524	Direct loss of wetlands at the mine and processing site, degradation and loss wetlands along the waste rock transportation route, and hydrologic and water quality changes downstream from the project area would result in unacceptable losses of the ecosystem services that these wetlands provide, such as water regulation, water purification and nutrient cycling. Therefore, a USACE Section 404 Wetland Destruction Permit should not be issued for the proposed project.	COE03
16526	Wetland mitigation plans and vegetation rehabilitation plans are grossly inadequate.	WET01, WET04
16533	The information presented in the SDEIS is inadequate to address the environmental effects of the proposed project on groundwater. Groundwater mapping is incomplete for this part of the state. The proximity of the proposed project, especially the north side of the mine site, to the Laurentian Divide and the potential for leakage of polluted groundwater into the Rainy River Headwaters watershed was not addressed in the SDEIS.	WR061, WR080, WR087, WR099, WR135, WR168, WR169
Sender Name (Submission ID)	Dorothea Diver (11355)	
264	To issue a go-ahead permit to a mining plan that so endangers - for 100s of years - our most precious resource - clean water - is an abdication or your department's mission to protect and do no harm to our environment.	WR115, WR195
1634	… the SDEIS as proposed by the DNR is very inadequate in failing to offer a plan that leaves the site clean and maintenance free.	NEPA09
1635	In addition, the water modeling that involves the ongoing protection of the Partridge and Embarrass Rivers has been recently proven very off - by a factor of four in some cases.	WR003
12712	I would ask that there be more studies and surveys done regarding the impact upon native plant communities identified by the MN Biological Survey by the proposed Polymet mine.	VEG02
12716	Today I want to point out that this mining plan completely disregards Minnesota Rules (6132.3200) that require the mine to be left maintenance free at closure of the plant.	PER04
12718	The SDEIS will require at least 500 years of active water treatment.	PD03
12719	The results of the studies showing the need for unimaginably long monitoring – clearly beyond the reasonable life of Polymet – highlights the unfeasibility of this kind of mining within Minnesota's clean water standards.	PER35, WR035
12720	I don't see provisions in the SDEIS for worker safety regarding the inevitable massive airborne contamination and dust emissions during the proposed Polymet mining operation. There is inadequate information concerning the long term effects of these contaminants on workers or the community. I ask that more studies be done in this regard as well as more safety precautions put in place for workers.	AIR09

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dorothea Diver (11355)	
12754	You cannot simply base the swap on acreage exchange – each wetland is complex in their functions within a specific site and I see no analysis offered which gives us adequate information about any of the specific wetlands sites involved in the 'swap.'	WET14
12756	Plus, there has been no mapping of the water flowage on the entire mining area – what the contaminated water will actually do underground is at present an unknown.	WR135
12757	You cannot simply base the swap on acreage exchange – each wetland is complex in their functions within a specific site and I see no analysis offered which gives us adequate information about any of the specific wetlands sites involved in the 'swap.'	WET14
12758	Plus, there has been no mapping of the water flowage on the entire mining area – what the contaminated water will actually do underground is at present an unknown.	WR135
12759	And since this site drains into streams that eventually flow into the St. Louis River – Which has only recently had major detoxification issues – and then to the impt. Body of Lake Superior – we should not move ahead with this project and land swap until more scientific information is available.	NEPA09
14426	The SDEIS is insufficient and should not be approved….The SDEIS must be redone to analyze the alternative of a completely lined tailings basin, which should avoid wetlands or streams.	ALT10
14427	These tailings are toxic as admitted and will be located next to the old LTV dump, which was built to admit leaking. Since there is no liner under the proposed Polymet tailings basin, we know that there will be leakage there as well – into ground water sources and streams.	WR117, WR133
14534	I call this plan economically unsound because Polymet has entirely skirted the issue of how the centuries-long "clean-up" (which they admit to) will be funded. The plan is entirely inadequate on this point and it will surely fall on the taxpayers' shoulders. This is not in the public interest.	FIN10
14535	The SDEIS wholly omits specific plans for inevitable accidents or catastrophic crises. Other industries dealing with hazardous materials are required to submit such plans. Why not Polymet? Their residues are definitely hazardous – hence the 500 year necessity of monitoring water associated with this mine. It seems to be a completely cavalier attitude of Polymet on behalf of safety of both workers and the environment.	PD22, PD29
19194	It is so important that we get the standards for the projected Polymet undertaking set at levels that will set the bar for many mining projects which will surely follow. I therefore ask that the 18 areas cited as "Major Differences of Opinion" by the tribal co-operating agencies be addressed and corrected in the final EIS.	CR05, CR06
Sender Name (Submission ID)	Dorothy Dolezal (50062)	
13017	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Dorothy Nordness (40640)	
6274	I have often visited northeast Minnesota for its beauty, its clean waters, and the life-changing experience of canoeing in the Boundary Waters…I am very concerned that this area be protected from any intrusion that could potentially disrupt this pristine area.	WILD02
6278	The long-term implications of PolyMet mining operation's water protection seem impossible to actually fulfill for the duration needed to assure that the water is not polluted with harmful chemicals.	FIN08, WR129, WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Doug Buell (23304)	
14894	The fact that PolyMet will reuse an existing plant and brownfield site in an area of the state that has seen continuos mining and processing for over 100 years is a positive in that a minimum of "new lands" will be disturbed.	PD28
14895	This mine and processing operation will provide well paying and full time employment, that is at a premium. I do not believe that "tourism" jobs will be adversely affect. For the most part unaffected jobs are minimum wage and part time. Those are jobs for students and second incomes and are not family supporting.	SO10
Sender Name (Submission ID)	Doug Christy (57338)	
18441	we have, you know, the best and the brightest right here in Minnesota on our staff, as far as the DNR, the Forest Service, the Corps of Engineers, the University of Minnesota that have been studying this. And if people don't trust the information we are getting from them, who will they ever trust?	NEPA16
18442	People -- people have to work to live up here and this is one way they can do it. We need the jobs.	SO10
Sender Name (Submission ID)	Doug Connell (18370)	
14675	I just want to make a point that the economic impact of this project is not restricted to the Iron Range. It affects all of Minnesota. It affects the region. The jobs that are created directly and indirectly are going to benefit the whole region.	SO10
Sender Name (Submission ID)	Doug Halverson (40524)	
14264	I believe Polymet is doing all the right things to make their operation environmentally safe. I am very confident that there will be no pollution of any streams, rivers or lakes including the Boundary Waters.	PD28
14265	Even though some people feel that copper-nickel mining pollutes lakes and streams, I beg to differ as I grew up in Coniston, Ontario which is in the Sudbury Nickel belt. Even with 3 smelters running in the 1960’s and 1970’s there were no lakes or streams or rivers that were polluted by mining and smelting sulphide ores	WR190
Sender Name (Submission ID)	Doug Hildenbrand (19940)	
1517	We are fully in support of proceeding with the project as proposed! Congrats to the agencies who have played a vital role in developing controls and measures that address environmental concerns.	NEPA16
Sender Name (Submission ID)	Doug Lande (57346)	
18404	I am requesting that the executives in charge of approving or disapproving the DEIS will take the "no-action alternative," as stated in the executive summary, on Page 43, and that no land exchange of public property be allowed to create a mining operation for private financial gain.	LAN01
18407	the DEIS doesn't take into account uncontrolled Co2 emissions, such as that generated by the electric plant used by the mining operation. I don't think this is accounted for in the edition which says that the Co2 emissions are minor and not a major emission source. So, I would like to see all controlled and uncontrolled Co2 emissions related to the mining operation be listed.	AIR05
18409	I don't believe that the DEIS explains who does the monitoring of potential pollution sites, who pays for the monitoring, and where the public can access in an easy manner the monitoring results.	PD24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Doug Lande (57346)	
18410	I do not believe that, as stated in the DEIS, that reclaimed wetlands should serve for mitigation lands, as they will never again be as productive as they were before they were reclaimed.	COE01
18411	don't believe that the 90th percentile discussion of probable pollution levels related to water is appropriate and I believe the modeling to be flawed as described in the dissenting opinion of the tribes.	WR192, WR193
Sender Name (Submission ID)	Douglas DeNio (42794)	
6896	Hard rock mining and surface/ground water contamination are not mutually exclusive. Recent and historical evidence of water contamination associated with hard rock mining in the Rocky Mountain West is prevalent and damaging….	WR023
6901	The take-away from the Summitville mine disaster as relates to the proposed PolyMet Mine are many, but the most prominent are 1)requiring an adequate performance bond and 2) ensuring design parameters meet present day climate conditions. As a registered professional engineer, I would state that the minimum performance bond requirement for the proposed Polymet Mine be in the range of $500 -$800 million dollars. Likewise in ever changing climate, all treatment, wastewater collection, storm water collection and containment facilities need to be designed for a 28 inch rainfall event over a 36 hour period to prevent mine contaminants from being discharged to ground or surface waters. …Meaningful water modeling results require the input of rainfall events of this magnitude to insure prediction accuracy which translate into design parameters for all aspects of the mining facility and processes. Hard performance requirements such as these must be included as part of the Draft EIS for the proposed PloyMet mine….The Draft EIS does not sufficiently identify cumulative effects of future mining operations in conjunction with the PolyMet proposal. ...what happens to the mining permit after the NEPA process plays out and the permit is issued. Will PolyMet transfer the permit to another domestic, Canadian or Chinese firm for considerable remuneration? This possibility requires that the EIS address anychange/transfer maneuver so that all health, life safety and environmental provisions are ironclad and can be enforced wherever the final permit lands.	PER03
6908	Job projections on these types of natural resource extraction projects can be highly variable. I would estimate far less than half of the 350 jobs projected in the EIS will become available to existing Iron Range residents. Based on my observations with the gas extraction industry, top management, professional, mid level management and mining technicians will come from out of country or out of state. A significant amount of trade jobs will also be filled by non-resident employees. …The draft EIS needs to identify net job creation for Iron Range residents after factoring in job losses from other existing local economies….Certainly the metal commodity has speculative component to it as would any commodity (copper is down in price for the past several months).	SO06
6909	The proposed PolyMet mining project will also jeopardize other sustainable economies that already provide existing jobs such as tourism, recreation, hunting, fishing, canoeing, etc.	LU06
Sender Name (Submission ID)	Douglas Gregor (54857)	
19331	The best way to truly secure [financial assurance]... is to create a pool of funds that is: (i) held and "owned" by the State; (ii) is not "owned" in any way by the NorthMet site operators; and (iii) which is irrevocably available and committed to cover reclamation costs. The State also must secure the right to enter upon the production lands and perform any and all required remediationactions. To fully pre-fund such a "trust" fund would be prohibitively expensive for a start-up company such as is envisioned at the NorthMet site. A more realistic approach would be to require some pre-funding of such a "trust" fund, supplemented by more traditional forms of financial assurances for the balance of the initial projected reclamation costs.	FIN01, FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Douglas Gregor (54857)	
19333	To fully fund the projected reclamation obligations over time, the State might wish to consider a modified form of the Taconite Economic Development Fund program contained in Minnesota Statutes Section 298.227. That program sets aside a portion (31 cents per ton) of the production taxes levied by the State against the producer entity to be available for the partial funding of capitalimprovement projects. In the case of the ...NorthMet project, a similar portion of the production taxes collected by the State from its ore production could be placed each production year into a "Reclamation Fund" ...to ensure that funds would be available for use by the State when and if the producer entitycould not fund needed reclamation costs.	FIN01, FIN08
19334	The critical challenge of the [financial assurance] proposal would be structure the fund in such a way that no portion of those trust funds would ever be subject to the claims of any bankruptcy court or creditors of the producer entity. The fund would always be "as good as gold" and available to ensure that the State would not inherit any reclamation expenses	FIN01, FIN08
19335	there should be a "Citizens Advisory Council" ("CAC") established by special legislation that exists from the day that the initial permits are issued and continues ... until any and all site remediation work is completed ... While the State does have ... the responsibility for enforcing environmental regulations, history suggests that, over the course of time, adequate funding and staffing for such enforcement efforts may diminish, the regulators may become too accommodating and sympathetic to the interests of the producer, and the regulating agencies may be torn between the State's desire to promote economic activity, employment and tax revenues, and its equally significant obligation to protect the State's natural environment.	PER06, PER24
19336	... representatives [of the proposed "Citizens Advisory Council" could be drawn from the ranks of many of the same organizations that have… participated in the environmental review process- such as representatives of the local tourism industry, native American tribes, commercial fishing interests, natural environmental advocacy groups, water quality advocacy groups (from all potentially affected watersheds), and similar groups.	NEPA08
19337	To be and remain effective, the [proposed "Citizens Advisory Council"] CAC would have to have an assured and adequate budget ... [and] would have authority and perhaps even a mandate to employ professional engineers and environmental specialists, accountable only to the CAC, to monitor the site activities. It would be absolutely critical that the CAC have inspecting engineers on site during the construction and installation … of all of the required environmental regulation facilities and equipment	PD24
Sender Name (Submission ID)	Douglas Kuehl (44549)	
11768	There exists at least one assessment that … needs to be considered before mining should be permitted… whether or not there exists sufficient need for the amount of copper and nickel expected to be mined when considering the current and future developments in replacement products, i.e. will the new technologies that have been developed using carbon nano-fiber for electronics, building materials, etc. rapidly replace the need for even small amounts of new sources of copper and nickel, thus resulting in rapidly making the mining operation unprofitable.	NEPA03
11772	This may be reviewed on the internet in, among other sources, at HYPERLINK "http://www.mining.com"www.mining.com by looking at discussions of the research results of Cambridge University, or simply searching for applications of carbon nanofibers on the internet.	REF01
Sender Name (Submission ID)	Douglas P Fulton (54727)	
18716	The environmental review process has been long and very expensive, but the SDEIS demonstrates that PolyMet will help meet our nation's demand for copper, nickel, platinum, palladium, gold and cobalt, put Northeastern Minnesotans back to work and ensure the protection of our precious natural resources.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Douglas P Fulton (54727)	
18717	As described in chapter 5 of the SDEIS, PolyMet's NorthMet project would generate as many as 500 direct jobs during peak construction and 360 direct jobs during operations. The direct jobs would generate additional indirect and induced employment of 332 during construction-phase and 631 additionaloperations phase jobs. These jobs, as well as the estimated $80 million annually in federal, state and local taxes, are very important to the future ofthe Iron Range and Minnesota.	SO06
Sender Name (Submission ID)	Douglas Wood (45685)	
12855	I am opposed to the proposed PolyMet & Twin Metals mine operation in NE Minnesota….Because of the location of the minerals, all within igneous and metamorphic bedrock billions of years old and laced with fractures, the chances of acid contamination are high…A waste water treatment program that will need to be in place and stringently monitored and overseen for a period of at least 500 years… [high potential impact to water due to] location of these and other mining proposals is at the head of two great watersheds - St. Lawrence Seaway (including of course incredibly valuable and highly sensitive Lake Superior and the other Great Lake and Hudson's Bay.	WR001, WR010, WR111, WR198
12856	economic benefits of tourism alone in the area - the Boundary Waters alone is visited by 140,000 visitors a year on multi- day trips - dwarf these potential [socioeconomic] benefits in the short term, but more importantly in the long term.	SO02
Sender Name (Submission ID)	Drake Best (54334)	
16892	The disadvantages overpower the advantages. The copper-sulfute mining process could boost Minnesota's economy, but we can find other ways to boost the economy. The effect on the environment is not good. Although PolyMet is planning to minimize or possibly avoid the effects, they can't stop everything that could happen.	SO01
16894	The Ojibwe people would lose part of the sacred Mesabe Widjiu. It is not fair to take away even one inch of their sacred land. Many Indian tribes throughout the country have lost most or all of its land. Taking away even more of their land is unethical.	CR03, CR05
16895	PolyMet should not mine in the region is, the effect it would have on endangered species. One endangered species in particular would be the Canada Lynx. The Canada Lynx are struggling to sustain a population in Minnesota and mining would only exacerbate the situation.	WI01
17402	If the project does take place, 913 acres of wetlands would be permanently lost. I understand that PolyMet plans to recreate some of these wetlands after the mining is done, but they will not be able to replenish the valuable home of organisms and many animals.	WET05
17405	Mining in this region would also harm the St. Louis River. As many people know, the St. Louis River flows into Lake Superior. There is already a lot of pollutants in the lake, and polluting a river that flows into the lake would only make things worse.	WR111
Sender Name (Submission ID)	Dressel (54853)	
19061	…sulfite rock oxidizes…to create sulfuric acid...Sulfuric acid in ground water will cause leaching of heavy metals such as mercury from rocks further contaminating the water. These are unavoidable consequences of this type of mining. The proposed mine will require decades or perhaps centuries of wastewater monitoring and treatment...This is an intolerable length of time.	WR115
19063	…climate change has enhanced the likelihood of extreme precipitation events which can quickly overwhelm efforts to contain mine run-off.	WR180
19066	The proposed sulfate remediation process has not been adequately tested under the sensitive conditions prevalent in northern Minnesota…The mineral resources in the State are not going anywhere. The metals can be extracted later, safer, when the technology has been clearly proven.	PD32

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Drew Johnson (58113)	
19968	Some significant questions are left unanswered, including:How long will the mine need to be maintained? The study mentions 500 or more years. That sounds an awful lot like forever or we don't know to me.How much will maintenance cost? Maintaining a complex and polluted site forever would cost quite a lot, I assume.Who will pay the maintenance cost? I don't believe Polymet will be around forever so I can only assume that means Minnesotans will pay for it. Mining operations are expected to last 20 years, according to the study. After the 20 year boom what support will there ber for communities that will face the mining bust? Who will pay for and provide this support?	FIN01
Sender Name (Submission ID)	Duana Arvola (42515)	
15443	The new type of mining is already proven to work fine, even as the water is concerned.	PD28, WR190
Sender Name (Submission ID)	Duane Bieber (11533)	
2572	There is no map which shows an overview of the Lorentnen Devide or hight of land deviding the north from south water sheds or the [ILLEGIBLE] to St. Louis water sheds. You should have a large map at the next info meeting.	VEG02
2572	There is no map which shows an overview of the Lorentnen Devide or hight of land deviding the north from south water sheds or the [ILLEGIBLE] to St. Louis water sheds. You should have a large map at the next info meeting.	VEG02
Sender Name (Submission ID)	Duane Godbout (42528)	
3802	We trust the science behind this project and need the jobs.	NEPA16
Sender Name (Submission ID)	Duane J Lunda (57227)	
17174	My biggest concern is who is overseeing the project? Is it the same person who was in charge of the BP oil spill as reported in the news?	PD24
Sender Name (Submission ID)	Duane Larry Gerlovich (54480)	
17527	It seems like the pollution and runoff are or would cause some problems in surrounding area of Polymet. I think we would be better off with some type of manufacturing jobs that would not pollute the area up there.	SO01
Sender Name (Submission ID)	Duane R Schmidt (54831)	
18611	We need to…use this mining to increase the work force and extra tax base in this State. Money from outside the U.S. is good for our country if we use good common sense.	SO10
Sender Name (Submission ID)	Duane Sickmann (39582)	
6145	Clean water is what Minnesotans want as they passed the Clean Water Legacy Act "overwhelmingly" - these funds are not to clean up activities such as PolyMet's that never should be allowed to start without full measures to insure our waters are clean well into the future.	PER35
Sender Name (Submission ID)	Duluth Seaway Port Authority (19913)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Duluth Seaway Port Authority (19913)	
10016	PolyMet plans to invest $475 million in its proposed NorthMet Project, a project that will provide a domestice supply of critical metals needed in products and processes essential to daily life and, in doing so, will create over 300 jobs and generate tax revenues that will benefit regional and statewide economic growth and development	SO10
14443	The NorthMet project has been designed to resuse a brownfield site and existing mine infastructure, minimizing disturbance of wetlands and utilizing multiple safeguards to protect the environment	LU07
14450	With regard to PloyMet, we trust that in releasing a Supplemental Draft Environmental Impact Statement (SDEIS), the Minnesota Department of Natural Resources working in tandem with other state and federal agencies, has determined that the NorthMet Project meets their rigorous review process and state and federal environmental protection standards	NEPA16
14458	The startup of the proposed NorthMet Project opens up the potential for handling of new cargos through the multi-modal Port of Duluth-Superior, which leverages additional opportunities for domestic and international trade	SO10
14462	The Duluth Seaway Port Authority Board of Commissioners hereby offers this Resolution of Support for PolyMet Mining Corp. and the adequacy of the NorthMet Project SDEIS; supports the project moving to the next phase of environmental permitting; and commits to continue its efforts to support mining in northeastern Minnesota, value-added manufacturing, and opportunities for multi-modal cargo handling through the Port of Duluth Superior.	PER34
Sender Name (Submission ID)	Duncan Storlie (52563)	
15354	no one can adequately plan for a 500 or 1,000 year flood event which is more and more possible!	PD22
Sender Name (Submission ID)	Dureti Doto (54222)	
16726	The SDEIS incorrectly drew the one hundred mile swamp in the SDEIS maps. I also learned that the mine site is just south of the one hundred mile swamp that drains to the boundary waters. I am writing to you today because first of all people do notice the error on the SDEIS maps, because people really do care about the one hundred mile map and the boundary waters. And because it is not okay for the SDEIS to draw the map incorrectly.	PD38
17354	It is also not okay for the mines to contaminate the boundary waters. The boundary waters are important because they are clean and there are only a few of those left. We need to leave clean water for our future generations.	WR111
Sender Name (Submission ID)	Dustin Bower (40623)	
6258	If the tachonite seepage is already exceeding water quality standards for the holding ponds, and the Polyment things (sic) the solution is to add even more pollution to the mix and create a few more massive holding ponds, and then use an unproven reverse osmosis system in an attempt to decontaminate the water…	PD03, PD10
Sender Name (Submission ID)	Dustin Rosemark (3631)	
667	Should there be any damage to this area it would be long-lasting and potentially crippling to an already fragile eco-system.	WR115
Sender Name (Submission ID)	Dwayne (38429)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dwayne (38429)	
13638	The 500 years of water monitoring is also misleading. Is this a made up number? And technology keeps advancing. The water may very well be better than it is today.	WR190
13639	The 20 years of work they keep bringing up is not true. The permit would be good for 20 years, Then they would apply for another permit.	SO06
Sender Name (Submission ID)	Dwayne Trulsen (30273)	
13853	There needs to be be ways to mine without the severe secondary effects to our health and especially the health of our children!	HU03
Sender Name (Submission ID)	Dwight and Ann Ericsson (10753)	
10780	I have, over the years traveled most parts of the Boundary Waters and much of the Quetico. It would be tragic to pollute those beautiful waters, as the PolyMet-proposed mine would almost certainly do.	WILD02
10782	Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota.	WR195
10786	This project would violate water quality standards for generations to come.	PER09
13401	Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come.	WR195
16975	This project would violate water quality standards for generations to come.	WR195
Sender Name (Submission ID)	Dwight Rabuse (58140)	
19976	The environmental plan PolyMet has proposed appears detailed and comprehensive and should assure the public that this important project is environmentally responsible and sound.	NEPA16
Sender Name (Submission ID)	Dwight Smith (6269)	
10567	What is under consideration is a question that will have an impact on the land and water for literally centuries. Shouldn't this justify taking a few additional months of analysis and research before leaping into action? Additionally, is it really wise to consider something as momentous as this in the months leading up to national and state election? Certainly nobody can be so naive as to think there are no political ramifications to this matter.	NEPA03
10571	The Iron Range has endured decades of economic difficulties. While everyone would like to see a revival of that region's economy, some additional time taken to get it "right" isn't going make that great a difference. If the decisions are rushed, generations of Minnesotans may be paying the consequences of hasty action.	SO04
Sender Name (Submission ID)	Dyces (21482)	
1467	What good is the promise of a few jobs when the water becomes contaminated? What happens to the numerous tourist and recreation jobs that rely on clean water and undamaged wilderness?	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Dyces (21482)	
1468	PolyMet will not be around for the next 250 – 500 years to make good on their "promise" to protect the water.	FIN01
1469	When the sulfide mining process sees sulfide and life giving water interacting, sulfuric acid is produced on a very large scale... As the acid dissolves the rock, heavy metals are released. Heavy metals no longer trapped in rock become yet another, real and present danger to humans, fish, birds, plants and other wildlife.	WI04, WR001
Sender Name (Submission ID)	Dyke Williams (10693)	
575	That only about 90 jobs will go to local northern Minnesota residents - the rest to out-of-state experts in various arcane skills related to this most dangerous mining plan.	SO06
576	It is clear to most of us that the Arrowhead will be far better off economically if left relatively clean - land untrammeled, water unpolluted, air unburdened with particulates, roads unclogged with huge, dangerous and impeding traffic, sound left quiet without the roar of Diesel and shock impact of drills and explosives.	SO02
577	No planning has been made for unintended consequences, nor for unexpected events.	PD22
578	Please, please listen to all of us who are saying 20 years' profits for 500 years pollution is going "too far".	SO01
Sender Name (Submission ID)	E H Hanson (42741)	
12063	Jobs sound good – but don't let this overshadow the 'RIGHT" decision.Many of us don't sit in on close door meetings. ... We are still paying for the 3M pollution damage.	SO01
Sender Name (Submission ID)	E Lane-Getaz (45643)	
12852	while jobs are important, Polymet project is expected to create 360 jobs…after experts in the mining field are brought to the site, this will creat only about 90 local hires.	SO06
15927	I am concerned about pollution left for hundreds of years, the technology required to preserve the safety of our water is not adequate…	WR115, WR128
Sender Name (Submission ID)	Eben Spencer (39496)	
7663	While I understand the need for meaningful employment in the region, the potential environmental degradation inherent with such mining must be avoided at all costs.	SO01
7832	I urge the Minnesota DNR, MPCA, and the USA EPA to require the strictest of standards and to protect our national heritage – our waters, forests, and wetlands – first and foremost. I do not feel that Polymet has provided such assurances yet, and strongly feel that permits should not be issued at this point, nor should permits be issued until further studies and guarantees are in place and 100% foolproof.	PER35
Sender Name (Submission ID)	Ed Verzal (45275)	
9170	I do not want to see sulfuric acid waste from this project destroy the wetlands, rivers, streams, and trees in the Superior National Forest and Boundary Waters Canoe Area	WET24, WR024, WR081, WR090, WR111, WR175

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ed Verzal (45275)	
9171	Tourism is an important and viable industry in this part of the state and should not be compromised by a risky mining project.	SO02
9172	We as a state cannot afford to clean up this pollution for hundreds of years.	FIN01
14197	there is no way to ensure that Polymet will be able or willing to pay for restoration of land/water areas destroyed by pollution.	FIN01
Sender Name (Submission ID)	Edi Thorstensson (20051)	
1698	My concern centers on the potential for irreversible damage to the environment, water polution, industrialization and limited access to a large natural area, and economic loss for residents of the area due to lost recreational revenue.	LU06
Sender Name (Submission ID)	Edith deGroot (41700)	
2164	I can't believe the State of Minnesota would want to be in jeapordy for the endless "clean water" problems that would be generated for a period of 500 years!	WR195
Sender Name (Submission ID)	Edith S. Glass-Englund (19977)	
1616	I have seen what mining operations do to our northern wilderness. I believe that if the people of that area are conflicted about the mines presence, that they have a more definitive opinion about the impact of this mine on their livelihoods.	SO02
Sender Name (Submission ID)	Edmund Kelley (14818)	
8886	Is it feasible that adequate financial safeguards from a long-termfinancially solvent and viable a source can be maintained throughout the longer of the two following periods: (i) in which active water treatment is required, or (ii) in which there is a realistic risk of pollution of groundwater?	FIN01
13794	What is the period of time in which active water treatment will berequired to keep area water, including groundwater, safe and clean to standards required of areas bordering federal protected wilderness areas?	PD03, WR036
13800	What is the risk that polluted seepage will occur from the tailingsbasin into the groundwater, without the seepage first being treated?	PD03, WR018
13801	The nation has been surprised by the lack of emergency/contingencyplans in place to prevent environment damage from foreseeable risks in the off-shore oil drilling industry and in the mining industry. Has adequate contingency/worst case/emergency planning has been done around such an event occurring at Polymet's facilities.	GT15
Sender Name (Submission ID)	Edward A Alto (54706)	
17763	My concern with the non-ferrous mine proposed for the East Range is thepossible EMP exposure to a new generation of miners. As a former Erie/LTVworker, myself and many others who worked around the dusty operation nowsuffer pleural abnormalities or worse as the latency period from exposure toonset of symptoms is decades long.	HU03
17764	Nowhere have I seen [the health of the mine workers] being addressed in the permitting process for PolyMet, although they will mine the same area we previously did. This should be a "RIGHT TO KNOW" issue for any worker involved in mining operations in this area.	HAZ05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Edward Pajunen (41270)	
9312	The region, the state, the US and the world will all benefit economically and environmentally.	SO04
Sender Name (Submission ID)	Edwin Wintermute (27592)	
14740	Unless there is an over-riding need for the sulfides that would be produced, this proposal should be rejected. The need for untrammeled natural spaces should take precedence.	SO01
Sender Name (Submission ID)	Edwina Hertzberg (6160)	
1050	ask that the possibility of Polymet Mining Corp. mining in this region be fully and thoroughly studied, that no permit be granted until such studies are complete, and then only if Polymet can assure an escrow account that would pay for cleanup for the 500 years that the region would be affected.	FIN01, FIN05
1052	Short-term jobs that risk long -term pollution would be a short-sided and foolish decision, risking the beauty of this precious part of the globe.	SO01
1053	It is impossible for Polymet to assure that no accident can happen, no mistake made that would jeopardize the safety and beauty of this corner of the earth.	PD01
Sender Name (Submission ID)	Edwyna Bergh (11527)	
17107	The loss [in delaying] is the more spent in getting permits the more the expenses can be deducted by the company when the profits come rolling in.	PER20
17107	The loss [in delaying] is the more spent in getting permits the more the expenses can be deducted by the company when the profits come rolling in.	PER20
Sender Name (Submission ID)	Eh Ku Soe Tun Baw (42927)	
9758	More importantly, though, the project presents unacceptable environmental risks to people, animals, and to the both the current habitat and the water supply that may spread throughout Minnesota.	HU03
9761	This contaminated rock will multiply and combined with all the snow and rain that falls in northern MN, it will be impossible to contain these dangerous pollutants.	WR017, WR018
9762	Despite plans for “reverse osmosis” and a complex system of controls that includes ditches, dikes, and ponds, it is very doubtful that all that all the engineering in this world can and will prevent the toxins from spreading and leaking into the water supply.	WR130, WR158
9763	Building of this hazardous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years.	WR115
9764	Any economic development that may be gained by the community is not worth endangering clean water and habitat in the entire Lake Superior basin.	SO01
9765	If approved, this first-ever sulfide mine in Minnesota threatens to poison a very large area of northern MN with hazardous toxins and it would open the door for future mines that would endanger the Boundary Waters wilderness.	CU11
Sender Name (Submission ID)	Eileen Anderson (39738)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Eileen Anderson (39738)	
7100	Please keep our waters clean and this area pristine. ... This area deserves to be kept special for Minnesotans and any that want to experience the beauty of this spot on earth. The highest good would be to preserve this area for the generations to come.	LU06
Sender Name (Submission ID)	Eileen Molitor (57166)	
18697	The probability of poison going into the water is way too dangerous to our environment. It is never ok to ruin our water. It is way too important to our health.	WR107, WR108
Sender Name (Submission ID)	Elaine Brown (9575)	
211	Approval or not, they will at some point fold the tent and move on, leaving another generation of Iron Rangers looking for sustainable employment.	SO02
213	Polymet is not here to help the people of the Iron Range find sustainable employment, nor is it their goal to build the local economy. They are corporation with world wide corporate interests and investments.	SO10
1122	I do agree that mining is destructive to the environment, but I can not see clearly that Polymet can promise less destruction.	PD01
1123	Mining is an economy build on a boom to bust cycle.	SO02
1124	A classic example of science gone wrong is what is currently happening in Washington state at the Hanford Nuclear Waste Treatment Site. It is leaking, an unbelievable amount of money has been and continues to be spent, the Governor of Washington is seeking a fix, and a resolution is not forth coming. I do not believe it was the intention of anyone in the Pacific Northwest to contaminate the Columbia River Gorge, but that is what they are left with some seventy years after the construction of the site. It makes me wonder how predictions upwards of 500 years could possibly seem reliable?	PD03
Sender Name (Submission ID)	Elaine Kaeter (54800)	
18143	Moose, Lynx, and Wild Rice. Analysis of the impact on animals, their habitat, and wild rice beds is lacking in PolyMet's statement.	VEG04, WI01, WI02
18144	Minnesota law requires that a closed mine site be "maintenance free," but PolyMet's mine plan calls for 500+ years of water treatment.	PER04
18145	Mining companies often declare bankruptcy and walk away from closed,polluting mines. Minnesota law requires a damage deposit that is supposed to cover cleanup and pollution costs, but PolyMet's mine plan includes no details about the damage deposit.	FIN01, FIN08
18146	DNR hydrology data show that the PolyMet water model significantly understates the amount of water flow in the area, which makes Poly Met's pollution and cleanup estimates inaccurate.	WR003
18147	Poly Met would emit dangerous amounts of mercury every year, as would the coal plants supplying power to the mine.	MERC01
18148	Carbon emissions would dramatically increase due to the increase in coal power, in opposition to Minnesota's stated goal to reduce carbon emissions.	AIR01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Elaine Kaeter (54800)	
18149	PolyMet would destroy valuable wetlands. The land swap they proposeunderstates the amount of wetlands that would be destroyed. The land swap PolyMet proposes would be far away from the mine site so is not an equitable or equivalent swap.	WET14
18150	PolyMet's statement has not addressed potential health threats in the near aswell as distant future.	HU01
Sender Name (Submission ID)	Elaine Loeffler (11353)	
268	500 Years of monitoring is not a realistic plan.	PD01
270	Jobs for a short time will not balance out the extreme risk current mining operations pose to the area. It would be cheaper to pay those workers for twenty years to stay home and not take on the mining risk.	SO01
1631	The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands and waterways.	NEPA15
1632	A realistic plan would lay out years to mine, years to close down the mine, and years to monitor the plan, with a timeline completed within a human lifetime. That would be a plan that could be considered for permitting responsibly by today's agencies.	PER35
1633	Please reject the PolyMet SDEIS and deny permits. The known risks are too great.	PER35
Sender Name (Submission ID)	Elaine Skrentner (40099)	
6462	Do not risk Minnesota's water for the next 500 years for a 50 years of economic development.	WR195
Sender Name (Submission ID)	Elaine Swanson (31590)	
14009	At the core of our efforts lies the belief that the land and wildlife deserve our reverence and respect. I see a violation of both when an open pit sulfide mine is proposed on National Forest lands near the Boundary Waters Canoe Area Wilderness and Lake Superior.	WILD02
Sender Name (Submission ID)	Elaine Thrune (6230)	
10542	NO AMOUNT of "progress" or "economic advancement" or "more jobs" or corporate gain, or more tax revenue is worth the price of polluting our land and water, destroying wetlands, poisoning our children (and adults, and livestock, and pets, and wildlife), killing fish, poisoning rivers and groundwater used for drinking water and irrigation, and negatively affecting our entire food chain and living habitat in this part of our beautiful and otherwise mostly healthy state. We all live downstream.	SO01
Sender Name (Submission ID)	Elanne Palcich (42959)	
7500	The Land Exchange bypasses the most important obligation of the U.S. Forest Service, which is that of protecting the surface area of land purchased under the Weeks Act.	LAN02
7513	The SDEIS claims that PolyMet's water treatment (Waste Water Treatment Facility) will actually reduce sulfate and mercury loads within the Partridge and Embarrass Rivers. This conclusion unrealistically assumes that mercury and sulfates will not travel further in the watershed, and that water treatment will be 100% fail-proof.	WR129, WR144, WR158

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Elanne Palcich (42959)	
7515	In addition to underground water flow patterns, due to fractured bedrock, there is also some question about water drainage regarding the 100 Mile Swamp. According to 2011 lidar data, it appears there are actually man-made dikes that decide the water movement between the Rainy and Lake Superior watersheds.... More accurate mapping is needed.	WR071, WR080
15025	The Forest Service omitted an underground mine option as the only legal alternative; because it was omitted, the plan was never analyzed. As a result, the Forest Service has wasted tax payer money and agency time on the preparation of an open pit proposal that cannot meet the obligations belonging to the Forest Service.	ALT01
15026	The rationale for choosing the proposed parcels to be exchanged fails to demonstrate that this would be an equal exchange.	LAN03
15027	The Forest Service fails to adequately analyze the loss of wetlands and Aquatic Resources of National Importance (ARNI). The loss of wetlands in acreage would be significant and the quality of the wetlands irreplaceable.	WET19
15028	The Forest Service fails to adequately analyze the loss of wildlife, bird and migratory bird habitat, and the loss of wildlife corridors. Of great concern is the lack of analysis on impacts to threatened or endangered wildlife species or Regional Forester Sensitive Species (RFSS) of plants.	VEG01, WI01, WI02, WI03
15029	the concept of a land exchange as put forth by the Forest Service presents a precedence that would greatly facilitate the opening of a sulfide mine district in what is now Superior National Forest. The Forest Service is thus removing itself from its over-riding obligation to the citizens of this state and nation, in which land was put aside in order to protect the watershed and preserve the natural quality and character of the land for all generations.	LAN02
15030	The Forest Service also fails to adequately analyze the economic impact of copper-nickel sulfide mining in northeast Minnesota, by neglecting to analyze the costs of degradation to the environment over a time frame of 500 years or more, and by not considering the loss of current and potential jobs that are based on a clean environment.	SO01
15037	the Forest Service has neglected to adequately analyze cumulative impacts to the Forest, including continued mineral exploration, taconite mine expansion, and potential copper-nickel mining proposals from Teck Cominco and Twin Metals. The Forest Service has failed to fulfill its obligations to protect and preserve our public lands according to Federal law, including the National Environmental Policy Act (NEPA). The land exchange violates the Weeks Act of March 1, 1911, the Federal Land Policy and Management Act of 1976, and the Federal Land Exchange Facilitation Act of 1988	NEPA04
15038	Various land exchanges that are being considered must also be disclosed in the SDEIS and how they may impact the potential environmental impacts related to the PolyMet project. This includes the proposed School Trust Lands – Boundary Waters land exchange.	CU08
15040	On Mar 12, 2014 Rep. Richard Nolan [D-MN8] introduced H.R. 4220: To authorize the exchange of certain Federal land and non-Federal land in the State of Minnesota. This land exchange must be included in the PolyMet NorthMet environmental review. ...This land exchange ...must undergo citizen scrutiny.	CU08
15043	cumulative effects that include existing and already permitted taconite expansion must be included in sulfate and mercury impacts...potential PolyMet expansion as outlined in the Edison Report, and additional potential copper-nickel mining, as evidenced by bulk sampling by Teck Cominco and a pre-feasibility study by Twin Metals, must be included in mercury/sulfate impacts	CU02
15044	air-borne mercury impacts must be analyzed	AIR05
15045	existing pollution in the St. Louis River watershed must be incorporated into the data	CU01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Elanne Palcich (42959)	
15051	existing evidence from sulfate-wild rice studies, which proves that there is a sulfate-sulfide connection that impairs the growth of wild rice, must be incorporated into the data	VEG04, WR152
15053	waste water treatment plans must include alternatives	ALT13, WR035
15054	mitigation plans for leaking or broken pipes... [and] extreme water events must be included along with seasonal changes in water loads and normal storm events.	WR131
15058	Further analysis is required, especially regarding a major storm event, that could spill polluted water into the Rainy River watershed, as well as the St. Louis River watershed. When past mining activity (LTV) has changed the water flow and altered land forms so dramatically, it is negligent to omit the potential impacts of the NorthMet project on water flow patterns and the travel distances of potential mine water contamination.	WR057, WR077, WR085, WR180
15060	a health impact analysis [is missing from the SDEIS]	HU01
15061	an economic analysis that considers negative impacts due to loss of clean water resources for health and recreation [is missing from the SDEIS]	SO04
15062	climate impacts resulting from the loss of carbon sequestration due to loss of forests and wetlands …[and] greenhouse gas emissions due to energy consumption and diesel fuels [are missing from the SDEIS]	AIR01
15063	safety hazards due to transport or spilling of chemicals used in flotation processes or in the hydromet [are missing from the SDEIS]	PD22, PD36
15064	loss of wildlife habitat and corridors and impacts to endangered, threatened, or species of concern [are missing from the SDEIS]	WI01, WI02, WI03
15065	adequate cumulative analysis to the region of all mining impacts [is missing from the SDEIS]	CU18
15066	we do not know enough about bedrock fractures and ground water flow to determine the full scope of pollution that would result from sulfide mining	WR012
15067	Water treatment analysis, as prepared by ERM, states that water treatment will be needed at the mine site for at least 200 years and the plant site for 500 years. ... Obviously, the necessity for this kind of long-term treatment means that this mine plan should not be permitted.	WR035
15068	The Treaty of 1854 guarantees Minnesota's native populations hunting, fishing, and subsistence rights on Ceded Territories. Due to the impacts to water, wild rice, fish, and game, the concerns of the Tribal Nations should be enough to shelve the PolyMet project.	PER08
Sender Name (Submission ID)	Eleanor & John P Yackel (42807)	
7064	We urge your agency to deny permits that would allow this mine to be developed, in consideration of the long-term harm to the environment of that sensitive wetlands area, as well as to knowledge of the history of harm that abandoned mine development has caused.	COE03
Sender Name (Submission ID)	Eleanor Wagner (54692)	
17813	I am strongly opposed to the PolyMet Mining Project because of the detrimental effect on our state, especially the Boundary Waters Canoe Area and our beautiful northern Minnesota.	WILD02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Eleanor Wagner (54692)	
17815	Although the project would create jobs, I think it would cost jobs in terms of tourism, and the damage to our water, fish, wild rice and climate would totally outweigh any possible benefit.	SO01
19824	The jobs gained are not worth the damage.	SO01
19827	if the project goes through, tourism jobs would be lost	SO01
19871	Even though it would create some jobs, the damage to our environment more than offsets the benefit of the jobs.	SO02
Sender Name (Submission ID)	Elena Willmot (45104)	
7582	While the number of resources affected [water quantity, air quality, wetlands, and vegetation] may seem small, their impacts are overwhelmingly important in the regional and global climate.	AIR01
7588	Air quality, especially, does not have simple local effects but can affect neighboring communities, states, or countries. Not to mention that increases in CO2 emissions on the order of 200,000 metric tons per year is the last thing this planet needs.	AIR07
7591	The mining technology is outdated and no longer suited for this environment if we hope to maintain the beauty of our national parks.	LU04
16759	Many people in Wisconsin speak about northern Minnesota as their sacred place: the place to which they retreat to find peace, comfort, and pleasure. I, personally, have not yet been to northern Minnesota, but I would hate my first trip to include dirty water, foul air, and no wildlife	WILD02
Sender Name (Submission ID)	Eleni Johnson (54532)	
19058	Please think about the cost, payoff & benefit. Worth the cost is the land and the water, the benefit is jobs and the payoff is both you getting to say you’ve created jobs and you making money. Let’s think creatively in 2014., THERE ARE OTHER WAYS TO CREATE JOBS.	SO01
Sender Name (Submission ID)	Eleonora Lesar (42548)	
15616	The EIS more than supports the fact they can do the mining & extracting in an environmentally sensitive manner. It’s time for the permitting process to move forward.	PER34
Sender Name (Submission ID)	Elexus Garcia (54223)	
16731	The mere fact that even considering mining near any pure water, untouched by chemicals and etc, is the most degrading consideration to those who care, who just want to protect the land and the water surrounding/in the boundary waters.	WR195
17355	those who are pushing the mining in the BWCA are Are blatantly putting false images of the swamp that the mining would lead into. The fact is they're falsifying facts by removing from view of citizens the connected creek of lanely to the BWCA .Only allowing you to see the river to lake superior, And people believe this!. There are two connecting waterways through the swamp;lanely creek connected to BWCA and partridge river that connects to lake superior.	PD38
17356	And i think in order to justify that this won't affect the BWCA is to then place two water wells in the swamp and in Langley creek to test the transportation of dye in the run off. Then we should have a answer of how this will affect the people on the side BWCCA and the BWCA.	WR081

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Eli Bissonett (45195)	
9001	Please describe a realistic and enduring legal framework for financial assurance that would render damage deposits bankruptcy-proof. What is the agreed definition of "bankruptcy-proof", among Polymet and all involved agencies	FIN03
9003	Please include more qualitative modeling of the effects of the proposed action on mercury in fish, flora, and fauna.	VEG06, WI04
9005	Please conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS	HU01
15515	Please address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink.	MERC20
15522	Please redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity. Please don't let the SDEIS wording underestimate the possible magnitude of ground water base flow unpredictabilities, especially those incurred by seasonal fluctuations of water levels.	WR003, WR065, WR071, WR177
15524	Please provide detailed descriptions or modeling of how PolyMet mining operations could strain existing health and social service infrastructure.	HU01
Sender Name (Submission ID)	Eli Riesgraf (54351)	
17629	The disadvantages though are not so obvious, people just think about what we will get from the mine and not what we will create from this. We will create pollution, as in bad air quality. The air we breathe to live, is going to get ruined, even if it's just a little bit, it will get ruined.	SO02
17631	In northern Minnesota [there are] a lot of cultural resources. The company would expand and ruin some of the cultural sites up there. They would ruin the sites with dust, smoke, and other air pollutants.	CR02, CR05
17632	The one good thing this company is doing is the land exchange. I think this is the good thing because they are giving back what they take and use. What I mean by that is that you are using like 6,500 acres for the mining, and in return you guys are buying around 6,500 acres and giving it to the public. Now that is a good way to give land back to the public.	LAN11
18178	I think the people up there agree with me when I say the pollution will affect their breathing. All the dust, smoke, and air chemicals will maybe cause diseases to people breathing the air pollutants. No matter how well you try to hold in the pollutants, some will always escape into the air.	HU03
Sender Name (Submission ID)	Elias Anoszko (44798)	
12832	This mine is short sighted and would permanently impair the environmental quality of one of the most biologically rich areas of Minnesota.	VEG02
12833	Sulfide mining has never been shown to not pollute and we can expect to be dealing with the pollution from Polymet long after Polymet has gone bankrupt. Who pays for pollution? we the tax payers of MN will be paying for it, not the mining company.	FIN01
12834	The lakes of the BWCAW already have high levels of mercury pollution, making the fish in some lakes unsafe for human consumption. Polymet must not be allowed to add to the mercury load of these already threatened water bodies.	MERC02, MERC23
12835	Furthermore Polymet there is a good chance that Polymet would leach acid mine drainage into area lakes and streams that have inherently low buffering capacity. This could make much of the affected areas unsuitable for growing wild rice.	VEG04
16436	The mine plan inaccurately describes wild rice waters, understating the area that supports stands of wild rice.	VEG04, WR154

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Elias Anoszko (44798)	
16437	Millions of gallons of untreated polluted water will escape every year, and the mine plan predicts an increased chance that water exceeding the sulfate standard will be released at times, years after closure.	WR070, WR156, WR158
Sender Name (Submission ID)	elise kyllo (20231)	
1812	We must consider the long term costs of these open pit mines; the costs of the pollution of an undetermined area for an undetermined time. It seems obvious that the risks far outweigh the potential benefits of this project.	SO01
1813	Who will be responsible for the long term management of the water and area polluted by this mine? Of course the company and its investors should be, but we know the company will try to weasel out of any clean up and long term pollution management.	FIN01
1814	If we could see the financial and societal costs of pollution seeping through bedrock, into lakes, wetlands, the atmosphere, fish, birds and finally into our bodies, we would obviously stand up and say no.	AIR11
7378	From close inspection upon the SDEIS, it seems their study is based upon tests that stretch the truth or conveniently have performed their tests so that outcomes are falsely positive.	NEPA09
7379	We must consider the long term costs of these open pit mines...Who will be responsible for the long term management of the water and area polluted by this mine? They have structed their corporation in a way that "legally" enables them to escape responsibility. The major investor of this project, Glencoe, a Swiss owned company has a long history of illegal activity.	FIN01
7380	If we could see the financial and societal costs of pollution seeping through bedrock, into lakes, wetlands, the atmosphere, fish, birds and finally into our bodies, we would obviously stand up and say no.	SO02
7381	Please reject the Poly-Met SDEIS and deny permits that would allow open pit sulfide mines.	PER35
7382	Please extend the comment period to allow the public fair time to investigate and comment upon the topic.	NEPA07
7918	The fact that water can be sipped from a BWCA lake, that wild rice can be harvested, is invaluable and this is at stake! People travel from around the world to experience the rare purity and silence of this wilderness.	WILD02
7920	Considering the impact of this project, it is logical to extend the comment period from 90 days to 180 days or more.	NEPA07
7932	What would we sacrifice even an acre for the short term impact of a few jobs and a bump in the economy when we know the benefits (if there are any) would be temporary and the negative consequences would certainly be passed onto countless future generations?	SO01
9006	There has never been a mining project that hasn't polluted. There is also a long list of previous mining projects that have failed to meet environmental standards, leaving the area polluted and sticking the local government and its taxpayers to pay for cleanup, or more likely, to live with the pollution because cleanup is too expensive and often not even possible. We must consider the long term costs of these open pit mines; the costs of the pollution of an undetermined area for an undetermined time.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	elise kyllo (20231)	
9006	From close inspection upon the SDEIS, it seems their study is based upon tests that stretch the truth or conveniently have performed their tests so that outcomes are falsely positive. There has never been a mining project that hasn't polluted. There is also a long list of previous mining projects that have failed to meet environmental standards, leaving the area polluted and sticking the local government and its taxpayers to pay for cleanup, or more likely, to live with the pollution because cleanup is too expensive and often not even possible. We must consider the long term costs of these open pit mines; the costs of the pollution of an undetermined area for an undetermined time. It seems obvious that the risks far outweigh the potential benefits of this project.	FIN01, NEPA01
9434	Why would we sacrifice even an acre for the short term impact of a few jobs and a bump in the economy when we know the benefits (if there are any) would be temporary and the negative consequences would certainly be passed onto countless future generations?	SO01
9434	Why would we sacrifice even an acre for the short term impact of a few jobs and a bump in the economy when we know the benefits (if there are any) would be temporary and the negative consequences would certainly be passed onto countless future generations?	SO01
9435	Who will be responsible for the long term management of the water and area polluted by this mine? Of course the company and its investors should be, but we know the company will try to weasel out of any clean up and long term pollution management. They have structured their corporation in a way that "legally" enables them to escape responsibility. The major investor of this project, Glencoe, a Swiss owned company has a long history of illegal activity. Responsible mining and cleanup is not in their for profit interest.	FIN01
9435	Who will be responsible for the long term management of the water and area polluted by this mine? Of course the company and its investors should be, but we know the company will try to weasel out of any clean up and long term pollution management. They have structured their corporation in a way that "legally" enables them to escape responsibility. The major investor of this project, Glencoe, a Swiss owned company has a long history of illegal activity. Responsible mining and cleanup is not in their for profit interest.	FIN01
9436	If we could see the future, the choice would be clear. 526 acres of land on the edge of the BWCAWA turned upside down, 167 million tons of waste rock covered by black plastic, supposedly enclosed in a waste treatment system, that requires continuous monitoring and maintenance for centuries to contain the toxins, which is realistically impossible. Hundreds of miles of dusty roads traveled by loud and smelly, polluting trucks, noise, light pollution. These mines are nothing like the Taconite mines of the past.	CU11
9436	If we could see the future, the choice would be clear. 526 acres of land on the edge of the BWCAWA turned upside down, 167 million tons of waste rock covered by black plastic, supposedly enclosed in a waste treatment system, that requires continuous monitoring and maintenance for centuries to contain the toxins, which is realistically impossible. Hundreds of miles of dusty roads traveled by loud and smelly, polluting trucks, noise, light pollution. These mines are nothing like the Taconite mines of the past.	CU11
9437	If we could see the financial and societal costs of pollution seeping through bedrock, into lakes, wetlands, the atmosphere, fish, birds and finally into our bodies, we would obviously stand up and say no.	FIN10
9437	If we could see the financial and societal costs of pollution seeping through bedrock, into lakes, wetlands, the atmosphere, fish, birds and finally into our bodies, we would obviously stand up and say no.	FIN10
9440	It would be negligent of us to not question and thoroughly study the claims made by the company in the SDEIS report. Considering the impact of this project, it is logical to extend the comment period from 90 days to 180 days or more. Please extend the comment period to allow the public fair time to investigate and comment upon the topic.	NEPA07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	elise kyllo (20231)	
9440	It would be negligent of us to not question and thoroughly study the claims made by the company in the SDEIS report. Considering the impact of this project, it is logical to extend the comment period from 90 days to 180 days or more. Please extend the comment period to allow the public fair time to investigate and comment upon the topic.	NEPA07
9442	The fact that water can be sipped from a BWCA lake, that wild rice can be harvested, is invaluable and this is at stake! People travel from around the world to experience the rare purity and silence of this wilderness.	WILD02
9442	The fact that water can be sipped from a BWCA lake, that wild rice can be harvested, is invaluable and this is at stake! People travel from around the world to experience the rare purity and silence of this wilderness.	WILD02
9443	Please protect our waters, the people that live here and the beauty that makes this one of Minnesota's favorite places to visit.	LU06
9443	Please protect our waters, the people that live here and the beauty that makes this one of Minnesota's favorite places to visit.	LU06
11098	There is also a long list of previous mining projects that have failed to meet environmental standards, leaving the area polluted and sticking the local government and its taxpayers to pay for clean up, or more likely, to live with the pollution because clean up is too expensive and often not even possible.	FIN01
11099	It seems obvious that the risks far outweigh the potential benefits of this project. Why would we sacrifice even an acre for the short term impact of a few jobs and a bump in the economy when we know the benefits (if there are any) would be temporary and the negative consequences would certainly be passed onto countless future generations?	SO01
11101	Who will be responsible for the long term management of the water and area polluted by this mine? Of course the company and its investors should be, but we know the company will try to weasel out of any clean up and long term pollution management.	PER02
11107	167 million tons of waste rock covered by black plastic, supposedly enclosed in a waste treatment system, that requires continuous monitoring and maintenance for centuries to contain the toxins, which is realistically impossible.	PD01
11109	It is not our duty to mine these minerals and we are not forced to accept the environmental damage.	GEN01
15361	526 acres of land on the edge of the BWCAWA turned upside down, 167 million tons of waste rock covered by black plastic, supposedly enclosed in a waste treatment system, that requires continuous monitoring and maintenance for centuries to contain the toxins, which is realistically impossible.	PD01
15362	Hundreds of miles of dusty roads traveled by loud and smelly, polluting trucks, noise, light pollution.	N01
16020	Why would we sacrifice even an acre for the short term impact of a few jobs and a bump in the economy when we know the benefits (if there are any) would be temporary and the negative consequences would certainly be passed onto countless future generations?	SO01
16037	Hundreds of miles of dusty roads traveled by loud and smelly, polluting trucks, noise, light pollution.	AIR07
16042	526 acres of land on the edge of the BWCAWA turned upside down, 167 million tons of waste rock covered by black plastic, supposedly enclosed in a waste treatment system, that requires continuous monitoring and maintenance for centuries to contain the toxins, which is realistically impossible.	WILD02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	elise kyllo (20231)	
16046	It would be negligent of us to not question and thoroughly study the claims made by the company in the SDEIS report. Considering the impact of this project, it is logical to extend the comment period from 90 days to 180 days or more. Please extend the comment period to allow the public fair time to investigate and comment upon the topic.	NEPA07
16055	The fact that water can be sipped from a BWCA lake, that wild rice can be harvested, is invaluable and this is at stake! People travel from around the world to experience the rare purity and silence of this wilderness.	WR156
Sender Name (Submission ID)	Elisee J. Angoran (45858)	
10231	I am writing to request the immediate termination of PolyMet's project to implement the first open-pit copper-nickel mine in an area comprised of wetlands and water ways that could lead to the possible contamination of the Boundary Waters and Lake Superior.	WET24
10240	…sulfide oxides will release heavy metals in the ground and the water bodies around the mine. Decades after the mine has been closed, those heavy metals will remain in the soil and the water. That will be the same water in which many organisms have found their habitat, the same water used to grow our crops, and the same that will eventually be used for human consumption.	HU03
10248	The birds, fish, mammals, all part of the food chain, will be contaminated [by heavy metals], and contaminate the organisms that prey upon them.	AQ05
10251	Alternatives to open-pit mining do exist, such as hydrometallurgy. A leach liquor solution is used to extract the precious metal. An extractant is then used to extract the metal out of the solution then purified for use. This process will not generate millions of tons of rock waste, cheaper and more environmentally friendly than the traditional mining processes that cause a lot of pollution.	ALT19
10254	… the pollution that will be caused by the mine will take far too much time and resources to clean up. There are benefits to this mining pit, namely the much needed copper. However, the cascade of drastic consequences the pollution will bring, leading up to health issues in human populations. For these reasons, I strongly urge you to put a stop to this project.	HU03
Sender Name (Submission ID)	Eliza Schrader (9617)	
15004	the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever… This project would violate water quality standards for generations to come.	WR195
15005	the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science.	WR003
15006	The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health.	MERC02, WR041, WR115, WR189
15009	The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge.	WR017, WR018, WR022

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Eliza Schrader (9617)	
15012	The SDEIS must be redone to assess the impacts of slope and dam failure at the mine site waste rock piles and the tailings piles, instead of just assuming that no failure can happen. (SDEIS, p. 5-546). PolyMet's tailings would be placed on top of huge, leaky and unstable existing tailings piles.	GT07, GT15
15355	The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streams.	WR003
15356	The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures.	WR012
15357	The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards.	WR189, WR202
Sender Name (Submission ID)	Elizabeth A. Phyle (43954)	
6884	The benefits of job creation and mineral access are simply not outweighed by the heavy [environmental] costs. ...The estimated 500 years of water clean up that will be necessary if this project is approved, far out ways the short term benefit.	SO01
6893	[PolyMet] should not be able to generate these [environmental] externalities in Minnesota and leave with the bulk of the profit.	FIN01
Sender Name (Submission ID)	Elizabeth Ann Fryberger (57138)	
16830	Water is vital to life and Minnesota must protect this dwindling vital resource.	WR195
Sender Name (Submission ID)	Elizabeth Bartlett (43416)	
15563	The people whose health would be most impacted are the miners and their families, probably for generations to come, the local indigenous population, and first and foremost women and children, including fetal health. Even small doses of mercury, methylmercuy, lead, arsenic at critical moments of fetal development will cause irreversible damage to internal organs, spinal development, and brain development.	HU03
15566	Would the owners of Polymet be willing to have the pregnant women among their loved ones be exposed to the toxins that will be released in this mining project? I say, that they themselves must be willing to live here, drink this water, breathe this air. This is a multinational corporation which has no stake in the local population.	HU03
Sender Name (Submission ID)	Elizabeth Bauchanan (14954)	
341	What is the purpose of a flourishing economy, when there is no environment left?	SO01
342	No matter how much forest regeneration you do, you can never 100% restore the damage that could be done.	VEG03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Elizabeth Cerny (16731)	
10726	What effect will a 6-foot rise in sea level from global warming have on Lake Superior's level, and on the mine area? What happens to all the toxic runoff if the mine is flooded?	WR180, WR202
10731	Is all the water from those ten square miles of wetlands that will be "dewatered" going to run into the mine pit? Eleven point four square miles (the dewatered 10 plus the 1.4 of the mine itself) of prime wetlands is a lot of frogs, baby fish, herons and egrets, ducks, etc killed or made homeless.	WET24
10733	Can it be economically feasible, with constant water seepage and expensive water treatment necessary for 500 years?	FIN05
14701	[The proposed project] also threatens the entire economy of the region, which depends heavily on tourism, hunting and fishing and guide services for canoe trips into these waterways.	SO02
14702	Fishing will certainly end when the fish are no longer safe to eat, if the fish manage to survive in the polluted water.	AQ05
14703	he mining company admits that the wastewater would need treatment for at least 500 years! Will they be there treating it 500 years into the future? ...we know what the acidic, poisonous runoff water will be doing throughout that half-millenium: continuing to pollute everything downstream of the played-out mine.	FIN01
14704	Doesn't an "open pit" mine automatically mean cutting down and digging up a large area of forest?	PD30
14705	The noise pollution of the forest silence alone would scare off every animal for miles around.	N04
Sender Name (Submission ID)	Elizabeth Dokken (16886)	
11016	•The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Elizabeth E Watson (46596)	
9179	No sulfide mine has ever operated without polluting nearby waters- and the rivers near the PolyMet mining proposed area flow into Lake Superior and are dangerously close to the BWCA. I can't see how these waters would not be affected and contaminated by the sulfide mining.	WR023, WR024, WR090, WR111, WR175
9180	PolyMet's model even shows that there will be need for water treatment of 500 years in order to fully decontaminate the water.	PD03
9181	Water is something that we are proud of in Minnesota, and I would hate to see that pride destroyed for 20 years of sulfide mining.	WR195
Sender Name (Submission ID)	Elizabeth Frost (57164)	
18699	Please don’t be short-sighted and approved mining that will compromise the BWCA. BWCA will bring in jobs to North Minnesota for a thousand years.	SO02
Sender Name (Submission ID)	Elizabeth Heck (42896)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Elizabeth Heck (42896)	
9230	We are also concerned about the amount of loss to wetlands. The wetlands involved are biologically of high value and contain critical habitat for important plant and wildlife species. Proposed wetland replacements are inadequate. The SDEIS does not sufficiently address this issue.	WET05
9231	Additional habitat loss is also a concern for rare and endangered species. These species are far too valuable for their destruction or harm due to short-term gains	WI01, WI02
9233	A detailed plan of financial assurance protecting Minnesota citizens is also significantly lacking. Please do not allow the burden up clean to unfairly be placed on taxpayers.	FIN10
18364	The SDEIS does not provide adequate data with any certainty to show how this project would avoid such a situation [pollution to surface and groundwater].	WR071, WR130
18371	the SDEIS contains water model data in conflict with DNR hydrology data, in particular for water flowing into the Partridge River. This information needs to be analyzed further to determine more accurate outcomes of the project.	WR003, WR091
18373	The SDEIS also does not provide sufficient modeling to determine how long treatment of polluted water will be necessary. Treatment of water could potentially be required indefinitely and needs further analysis.	WR036
18374	sufficient backup for any failure in water treatment systems has not been demonstrated.	PD03
18379	. The wetlands involved are biologically of high value and contain critical habitat for important plant and wildlife species. Proposed wetland replacements are inadequate. The SDEIS does not sufficiently address this issue.	WET05
18382	Additional habitat loss is also a concern for rare and endangered species.	WI01, WI02
Sender Name (Submission ID)	Elizabeth Hulstrand (54678)	
17868	I believe that the state of Minnesota should protect the natural resources and the beautiful, few protected areas we still have left. The new mine will definitely cause major damage to our environment.	WILD02
17871	The question is only the extent of the damage and how many millions or billions it will cost to cleanup and yet even after that it won't be the same.	FIN05
17872	Please protect the state of Minnesota and the sustainable jobs provided by people visiting beautiful natural areas in our state!	SO02
Sender Name (Submission ID)	Elizabeth LePlatt (54713)	
18483	One of the things which concerns me most is permanent water pollution. I do not think it is good enough to base such important decisions on "probabilistic simulations," or computer models, of the effects ofPolyMet's mining activities on water quality.	WR189
18485	The SDEIS states there will be water pollution and loss of wetlands. I do not understand why this would be okay for Minnesotans.	WET24
18487	I am very concerned about other effects of the mining project onthe environmental balance of northern Minnesota.	CU11
18488	The long term economic impact of this project is also a big concern of mine. Would the clean up cost the State more than the economic gains of the project?	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Elizabeth Maus (39867)	
14276	This mine sends us in the wrong direction for caring for our state and it's beautiful lands, which belong to ALL Minnesotans. I hiked in Superior National Forest last year and I don't want it to be the last time.	LU06
Sender Name (Submission ID)	Elizabeth Olson (58032)	
19839	A state that prides itself in its lakes - the PolyMets Toxic Sulfide Mine will DEFINETLY endanger this resource.	GEN01
Sender Name (Submission ID)	Elizabeth Plummer (16222)	
10152	PolyMet should have a plan to reasonably clean up the water before they are allowed to proceed.	WR130, WR143
Sender Name (Submission ID)	Elizabeth Sivertson (42863)	
8873	My overall concern about the SDEIS is that it fails to show to how toxins will be kept out of the water systems leading to Lake Superior. The water "treatment" and collection systems under rock waste piles being managed by pumps at the end of 2 mile long rock piles 25 stories high seem inadequate to keep leaching toxins from entering the water ways. With the many possibilities and probabilities that those systems could fail in their goal to prevent water pollution, I believe that PolyMet's plan is inadequate. Planning to pile sulfide bearing tailings on an old LTV pit storage area (originally meant for iron tailings to drain into streams) is irresponsible.	WR021, WR111
8877	What bothers me is the unfounded claims by PolyMet to be able to collect the rain run off for treatment in a wetland rich area, to somehow "contain" the toxins and then treat them sufficiently with pumps and treatment systems that would need to be in place for as much as 200-500 years.	WR195
9398	Their models and graphs showing that the toxins will increase as these tailings piles age- leaching more toxins by many times as much in about 40 years' time .... and long after companies could be held accountable	FIN01
9406	All of the floods and accidents that could occur, and the fact that the SDEIS is inadequate in addressing such probable accidents or floods… [with no] sufficient safeguards in case of flooding, or accidents or spills addressed in the SDEIS.	PD22
9407	There are fractures in the earth below the PolyMet site, and new fractures would no doubt be created by the several times a week mine blasting.	WR012, WR016
9408	I don't believe PolyMet's plan to build a 5 mile long cement wall to bed rock would be sufficient to "hold" toxins from leaching into water systems. I can't imagine how the geological evidence showing such a water rich landscape could possibly kept out of harm's way during such an enormous mining operation.	WR018, WR019
9409	I have trouble believing that 32,000 tons of waste rock produced every day, hauled in trucks, dumped on wetlands- every day for 20 or so years, will not have ample opportunity to leach devastating amounts of sulfide content, mercury, cobalt etc.	WET24
9410	PolyMet's SDEIS shows more "hopeful" predictions of water flow than are even realistic. Since the water flow data in the models used by PolyMet are now shown to be inaccurate, I have less faith in claims of "safe levels of toxins" to be emitted by PolyMet's mine operation.	WR003, WR189
9411	PolyMet has not shown us a feasible or plausible way to both mine copper/nickel, and keep the water from getting contaminated.	PD23

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Elizabeth Sivertson (42863)	
9412	Already we have exceeded standards of water quality in mercury and sulfates in the St. Louis River, and I believe it is absolutely irresponsible to open the gate for one more mining operation- to tolerate any more mercury, no matter if it abides by current laws. PolyMet, no matter if it complies with the law, WILL add to the mercury content that already exists in the St Louis River and Lake Superior...The StLouis River still has high enough mercury content to issue health warnings of fish consumption.	WR109, WR111
9415	In Minnesota the other mining operations have hardly been held accountable to clean up their act, and the former LTV site that PolyMet will use already and still exceeds water quality standards based on the old mining operation.	WR023, WR070
9418	The Fond du Lac Tribes have been constantly having to bring lawsuits to keep the iron mining companies in compliance, or to try and get them to clean up their act already .... and this is at a very high cost to a community that has very little financial infrastructure to keep having to fight these mining corporations in order to force compliance.	CR01
9420	I have grave concerns over the loss of wetlands, the loss of wildlife corridor, the already dwindling moose population which would no doubt be impacted even further by loss of the many acres of habitat as outlined in PolyMet’s SDEIS.	WET24, WI01, WI02, WI03
18108	I believe that PolyMet's plan is inadequate. Planning to pile sulfide bearing tailings on an old LTV pit storage area (originally meant for iron tailings to drain into streams) is irresponsible. What bothers me is the unfounded claims by PolyMet to be able to collect the rain run off for treatment in a wetland rich area, to somehow "contain" the toxins and then treat them sufficiently with pumps and treatment systems that would need to be in place for as much as 200-500 years, their models and graphs showing that the toxins will increase as these tailings piles age- leaching more toxins by many times as much in about 40 years time	GT01, WR018, WR131
18109	There are not sufficient safeguards in case of flooding, or accidents or spillsaddressed in the SDEIS. PolyMet's SDEIS shows more "hopeful" predictions of water flow than are even realistic.	PD22
18110	Since the water flow data in the models used by PolyMet are now shown to be inaccurate, I have less faith in claims of "safe levels of toxins" to be emitted by PolyMet's mine operation. PolyMet has not shown us a feasible or plausible way to both mine copper/nickel, and keep the water from getting contaminated. Already we have exceeded standards of water quality in mercury and sulfates in the St. Louis River, and I believe it is absolutely irresponsible to open the gate for one more mining operation- to tolerateany more mercury, no matter if it abides by current laws.	WR003, WR109
18111	The Fond du Lac Tribes have been constantly having to bring lawsuits to keep the iron mining companies in compliance, or to try and get them to clean up their act already .... and this is at a FEB 2 2014 very high cost to a community that has very little financial infrastructure to keep having to fight these mining corporations in order to force compliance.	SO02
18113	According to the Minnesota Environmental Rights Act, each person is entitled by right to the protection, preservations and enhancement of air, water, land, and other natural resources. I have grave concerns over the loss of wetlands, the loss of wildlife corridor, the already dwindling moose population which would no doubt be impacted even further by loss of the many acres of habitat as outlined in PolyMet's SDEIS.	WI05
Sender Name (Submission ID)	Elizabeth Swarthout (25002)	
15128	[Lake Superior] is one of the few fresh water lakes that still has relatively clear water, relatively non-toxic fish and wildlife that is not seen in other areas of the country and that is threatened by environmental pollution. Please consider the long-term health of the region in preference to a short-term economic gain.	HU03
Sender Name (Submission ID)	Elizabeth Treher (11633)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Elizabeth Treher (11633)	
2319	p11 Exec Summary: When and how (and who) will do the research to prove that a transition from mechanical to non-mechanical treatment (of water) is/will be safe and effective? What proof do you have of the accuracy of the simulation modeling potential pollution	PD06, PD24, WR137, WR189
2319	p11 Exec Summary: When and how (and who) will do the research to prove that a transition from mechanical to non-mechanical treatment (of water) is/will be safe and effective? What proof do you have of the accuracy of the simulation modeling potential pollution	WR112, WR120
2320	Pg 24: This project projects 200 y (mine site) 500 y (plant site) required for treatment, maintenance, and monitoring. This indicates a very long term costly pollution issue in the best case. In a wetlands environment that created as the mine is backfilled and flooded- these simulations are likely to be quite wrong.	PD01
2320	Pg 24: This project projects 200 y (mine site) 500 y (plant site) required for treatment, maintenance, and monitoring. This indicates a very long term costly pollution issue in the best case. In a wetlands environment that created as the mine is backfilled and flooded- these simulations are likely to be quite wrong.	PD01
2321	What contingencies and what costs are estimated and acquired up front so that taxpayers whose properties lose value and others are protected?	PER06, WR039
2321	What contingencies and what costs are estimated and acquired up front so that taxpayers whose properties lose value and others are protected?	FIN05, FIN10
2322	"Polymet would monitor environmental conditions to ensure…meet all goals set in the permits"Polymet should not do this. It should be done by an external organization*. I have proof that Polymet has lied about water (usage) in the S. Kawishawi- why should we believe them about anything.	PD24
2322	"Polymet would monitor environmental conditions to ensure…meet all goals set in the permits"Polymet should not do this. It should be done by an external organization*. I have proof that Polymet has lied about water (usage) in the S. Kawishawi- why should we believe them about anything.	PD24
Sender Name (Submission ID)	Elizabeth Urban (54518)	
19406	the cutting of the forest at the North Met project critically jeopardizes the water rich, boreal habitat of northeastern Minnesota.	VEG03
19407	This mining is known to destroy wetland habitat in perpetuity. Scientific evaluation states that wetland restoration is ineffective.	WET24
19408	The SDEIS is flawed.	NEPA15
19409	Lake Superior, precious fresh water lake, is downstream of the Poly Met project and will be affected by pollutants from mine runoff.	WR111
19410	More than 85% [of lakes in MN] officially were impaired. Sulfide mining will further impair the water--ground, lakes, rivers, marsh, bogs, and ponds in this water rich area of our planet.	WR107, WR108, WR109
Sender Name (Submission ID)	Elizabeth Vance (30256)	
13855	Lake Superior is one of the most beautiful and natural places left in our province. It is a place where there is still a home forcomment period be extended to 180 days, and I support the animals we love. It is a place we can go to and get back to a peaceful, healthy environment. Don't destroy such a beautiful spot	LU06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Elizabeth Yoder (37881)	
13728	Mining for precious metals in this water-rich environment could destroy it….	WR115
13729	Polymet's proposed NorthMet mine project should not be permitted because the risk to the environment is so great. The SDEIS admits this and proposes to deal with the results, but I, along with many others, do not believe either that it can be done or that Polymet has the financial resources to do it.	FIN01
Sender Name (Submission ID)	Ellen Brown (9539)	
184	Please don't risk the environmental health of northern Minnesota and Lake Superior by permitting sulfide mining in the region	PER35
Sender Name (Submission ID)	Ellen E Shelhon (57242)	
17366	I am strongly opposed to the Polymet project because there has never been copper nickel mine operation that has not significantly and permanently damaged our precious environment.	PER35
Sender Name (Submission ID)	Ellen Hawkins (11560)	
3235	It would be great if you guys could extend the comment period. I am really struggling trying to get thru it – and then the understanding!	NEPA07
3235	It would be great if you guys could extend the comment period. I am really struggling trying to get thru it – and then the understanding!	NEPA07
7506	The document says that 912.5 acres of wetlands located within the NorthMet Project area would be permanently destroyed	WET24
7508	Yet it turns out that the document's flow modeling is faulty. According to the DNR, the average flow of the Partridge River is 1.5 cubic feet per second (CFS), while the SDEIS model uses a 0.5 CFS average flow (…) water will travel through bedrock (…) It is just wishful thinking to assume that water movement through bedrock is 0.	WR003
7514	The SDEIS improperly discounts the important of mercury pollution (…) and even plans not to evaluate it as one of the constituents discharged into the Partridge and Embarrass Rivers (…) All waters potentially impacted by the PolyMet operation already exceed water quality standards for mercury (…)	MERC04, MERC16
7516	The north-south movement of many species across the Iron Range has long been difficult, and this new project would destroy one viable corridor.	WI03
7519	Copper, nickel, mercury and others will be constituents of the dust riding from the mine site (…) There would also be significant local deposition, with as much as ¼ of its settling directly on adjacent rivers and streams.	AIR09
7522	An operation that would generate new greenhouse gas emissions amounting to nearly .5% of all of the state's emissions, with arguably insignificant benefits, should not be permitted.	AIR01
7530	The SDEIS includes no plans for dealing with the kinds of failures and mishaps that routinely occur in mining operations. And because the provisions regarding financial assurance are so plainly inadequate, the SDEIS does not tell us how the costs of responding to such failures will be covered. This has huge implications for how much it will cost to maintain all the systems necessary to handle the contaminated water – for perpetuity.	FIN01, FIN05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ellen Hawkins (11560)	
7531	But it looks to me as if the entire proposed action, if carried out, would be in violation of the Minnesota Environmental Rights Law.	PER35
18713	The document fails to analyze the cumulative impact of similar deals involving transfers of public lands and access to minerals to the mining and drilling extraction industry across the nation.	CU10
18714	The SDEIS does not show that the transfer of 6,650 acres of the Superior National Forest (SNF) to NorthMet is in the public interest. It does show that the exchange would not be good for the health of the land USFS is entrusted to care for. With the possible exception of the MacFarland Lake parcel, which the SNF would acquire, there does not appear to be any benefit to the Forest or the public.	LAN01
18720	Wetlands that would be harmed or destoryed by the PolyMet mine are part of the headwaters of Lake Superior, and recognized by many peole and by the EPA as being water resources of national and interanational importance. The USACE should deny the Section 404 Clean Water Act Permit that would allow wetlands destruction in the Superior National Forest.	WET19
18722	I find nothing in the document that adequately addresses what these permanent losses [of biodiverse wetlands] would mean to the ecosystem, and to us.	WET05
19449	The PolyMet SDEIS should include a documentation of the time and money the Superior National Forest has-invested in this exchange over the past decade and show how that weighs against impacts to ecosystem components and benefits/losses to the public…	LAN01
19450	…the document's flow modeling is faulty…the water modeling needs to match conditions in the real world.	WR058, WR071, WR086, WR087, WR088, WR091, WR092, WR093, WR096, WR098
19451	The complex hydrologic system underlying and surrounding the operations sites is not aedquately described in the document or its technical reports…	WR023, WR071, WR087, WR098
19452	The technical content of the SDEIS, the Water Modeling Data Package, and other supporting information, is extremely hard for an ordinary citizen like me to understand, but it looks like the writers juggled factors so that the end result would be a rosy picture of no significant impact.	NEPA07
19453	Questionable strategies include using the natural presence of a substance in the environement (such as aluminum) to allow or ignore discharge of this substance by PolyMet; siting evaluation points along the Partridge River in such a way that no exceedance of standards can be shown; failing to site evaluation points were they are clearly called for; using the varying degre of "hardness" of the water to mask its discharge (such as lead).	WR064, WR071, WR072, WR083, WR107, WR108, WR177
19454	The SDEIS improperly discounts the importance of mercury pollution that would be generated by the project.	MERC17
19455	Polymet must analyze the amounts of mercury that would enter both the Partridge and the Embarrass Rivers.	MERC16
19456	Wetlands lost or degraded by the project will no longer function to bind up mercury as they do now; as far as I can tell that deterioration of an important ecosystem function has not been analyzed, as it should be.	MERC09, WET07
19459	The SDEIS projection that the project will not increase sulfate levels is supported only by the faulty water flow models…The SDEIS should analyze impact to these resources [St. Louis River Watershed, wild rice, and fish] across a realistic rance of discharge levels for sulfates and mercury.	AQ05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ellen Hawkins (11560)	
19461	…the SDEIS must analyze alternatives that could reduce wetland loss and water pollution.	ALT06, ALT13
19464	I don't believe the DSEIS examines how the project would impact existing transportation corridors and their current users, or potential new routes…	SO04
19466	Light pollution…obliteration of countless features of the night sky…should be analyzed.	LU04
19468	It seems shortsighted to fail to study the likelihood that this mine would produce the same dangerous fibers [asbestos-like] found in nearby mines that have caused such misery and expense.	HU01
19470	…the provisions regarding financial assurance are so plainly inadequate…	FIN08
19473	The SDEIS provides no details on the impacts to water quality, wildlife, or human health if the water treatement system ceases operations at some time during the 500+ years during which the polluted water is being discharged.	HU03, WI04
19476	[The SDEIS] lacks basic information as to the costs of various treatement, containment, abatement, and mitigation measures…The lack of analysis of the likelihood of unforseen problems…contributes to the failure of the SDEIS to provide what is needed.	FIN05, FIN11
19478	Please revise the SDEIS so that it shows calculations used to reach specific estimates of costs of closure and perpetual treatments, and how funds will be held so that they are available across the decades and in the case of bankruptcies.	FIN01, FIN05
19481	Please revise the document to include a detailed cost/benefit analysis that includes costs such as the loss of jobs associated with tourism and a healthy environment; declining quality of life in our region leading to depressed real estate values; taxpayer subsidies for the industry in the form of infrastructure development and tax breaks.	SO02
19485	Tribal rights to hunt, fish, and gather under the 1854 Authority would be impacted by the proposed action, and these must be included in a cost/benefit analysis as well.	CR01
19489	It looks to me as if the entire proposed action, if carried out, would be in violation of the Minnesota Environmental Rights Law.	PER35
Sender Name (Submission ID)	Ellen Jones (46066)	
14573	Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules [6132.3200] requiring that mines be "maintenance free" at closure… The [NorthMet] mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule.	PER04, WR035
14576	Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment.	WR036
14577	Revise the SDEIS to address Minnesota Rules 6132.3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free."	PER04
14579	How will wildlife survive with polluted water?	WI04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ellen Jones (46066)	
14581	Who cares if there were jobs in this decade if the area is toxic in the next decade? The benefits of a few hundred jobs are simply just not worth these costs.	SO01
Sender Name (Submission ID)	Ellen Lease (47780)	
8643	If it is true that this effort will produce only 90 highly technical jobs that locals will likely not be prepared to fill, it does not significantly decrease levels of unemployment in that county.	SO02
8645	If the estimates that water quality could be negatively impacted for as long as 500 years is accurate, there is no benefit to Minnesotans for allowing this to proceed. There is, in fact, great detriment.	WR195
Sender Name (Submission ID)	Ellen Mork (43105)	
10088	This mine would destroy over 900 acres of high quality wetlands and indirectly harm up to 8,264 acres… It is my understanding that there has been no plan produced for the mitigation of the loss of these wetlands, according to Minnesota law.	WET01, WET04
10091	I have also learned that PolyMet plans to use the existing unlined tailings basin used for iron ore to hold the tailings from the sulfide ores. This is a plan for distribution of the sulfuric acid into the local streams, lakes and underground water supplies. It would be dangerous for those living within the range of these waters, as well as the fauna and flora in the vicinity.	WR060, WR108
10092	Since there are rivers near the mine and plant sites that flow into the St. Louis River, it is obvious that these rivers will all be polluted with acid mine drainage [and]… the St. Louis River is already heavily polluted.	WR109, WR111
10094	Regardless of the inflated figures provided by PolyMet for new jobs in the region, experts know that the numbers are more like 350-400, many of whom would be “imported” from Canada and other regions…The number of jobs available to Minnesotans of the Range will be minimal.	SO06
10117	I understand that this SDEIS still does not contain financial assurances of funding to cover the 200-500 years of required clean-up that will continue to be needed to ensure that Minnesota taxpayers are not left holding the bag.	FIN01
10118	Geologists have reported the existence of underground fractures that could increase in number by the blasting that would occur to break up the sulfide ores. Each fracture would have the possibility of transporting pollution into the ground water. I can see no mitigation from this problem	WR016
11406	[PolyMet] must be required to line that [existing tailings] basin!	PD10
11418	Minnesotans are recommended not to eat more than a certain number of fish caught in these waters due to the level of contamination. Adding more cannot help the situation!	MERC02
11424	the PCA has postponed their decision on sulfate levels in wild rice waters. I have no idea how this decision might impact the conclusions of the DNR, but I would suggest that when standards are still undecided, decisions pertaining to those standards ought not be concluded.	WR164
11429	The Arrowhead and surrounding areas have had remarkable success with tourism, an economic sector which would certainly decrease as mining increases. Tourists don’t want to come and fish and hunt in areas with declining water quality and increasing pollution.	SO02
Sender Name (Submission ID)	Ellen Nore (29076)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ellen Nore (29076)	
10978	We need to think of the future and not to bow to corporations seeking immediate profit at the long run of great costs to our nation. Pollution from sulfide mining is very harsh and TREATMENT for this pollution would have to last for 500 years.	SO01
10979	We must NOT SUPPORT sulfide mining near this region, which houses supplies of clean, precious water for future generations.	WR195
Sender Name (Submission ID)	Ellen Peterson (47457)	
17879	My main concerns with the Poly Met NorthMet SDEIS are with the issue of protecting our water. As a citizen of the state of Minnesota who recognizes the significance of our geographic location – our proximity to an incredible source of fresh water, not to mention our Boundary Waters Canoe Area Wilderness, it is entirely unacceptable that my government – in this instance the DNR who is responsible for completing the environmental review process as well as for issuing the permits, would even consider taking such a massive risk without knowing for certain the outcomes.	WR195
Sender Name (Submission ID)	Ellen Root (43074)	
10011	Tribal hydrologists and MDNR staff have determined that the base flow rate of water in the Partridge River is two to three times higher than the number used in the SDEIS. The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed.	WR003
10013	Minnesota Rules 6132.3200 requires that the mine site must be maintenance-free at closure, but the PolyMet mining plan calls for at least 500 years of active water treatment.	PER04
10014	The SDEIS also fails to assess the impacts of possible slope and dam failure at the mine site waste rock piles and the tailings piles. The SDEIS must be redone to include assessments of possible pollution and other impacts resulting from failures at either of these sites.	GT07, GT15
10015	The SDEIS does not discuss the impact of the loss of jobs when the price of copper declines and mining becomes unprofitable, although it acknowledges that such job loss is inevitable:. ... The SDEIS must be redone to assess the cost of unemployment benefits and other social services, increased crime rates, and other societal costs associated with volatility in employment at the mine.	SO04
15412	The SDEIS provides no details on the impacts to water quality, wildlife, or human health if the water treatment system ceases operations at some time during the 500+ years during which the polluted water is being discharged.	WI04, WR128, WR129
15413	The SDEIS must be redone to include detailed financial assurances of how Polymet will continue to monitor and maintain its water treatment system over this 500-year span.	FIN01
Sender Name (Submission ID)	Ellen Thomas (38600)	
14059	The proposed copper/nickel sulfide mine… is virtually certain to pollute vast areas of wetlands--wetlands which are disappearing all over the country, and with them important habitat, water filtration, and other ecological services.	WET24
14060	…the history of this industry is one of making big messes, declaring bankruptcy, and then letting the taxpayers take on the clean-up bill.	FIN01
Sender Name (Submission ID)	Elli King (18310)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Elli King (18310)	
4172	My understanding is that any significant increase in sulfates in our water will inhibit the growth of wild rice.	VEG04
4173	And that sulfates are a key component in the accumulation of you mercury in fish.	MERC02
4175	While the EIS does speak to this issue as being controlling sulfate, the EIS is incomplete. At best I feel that further hydrological research and more developed refined filtration systems need to be explored.	WR143
4177	Also, I have intimate information that the base flow of the Partridge River was miscalculated for this EIS. And I don't think there's been time to investigate that yet, but I would ask of you that you investigate that, please.	WR003
12810	Fish and wild rice and ducks who live on rice as they migrate in the fall are food staples of my family as well as that of many others in my community. I have a real founded fear of not being available to us anymore.	SO02
Sender Name (Submission ID)	Ellie Hofman (4347)	
1804	I am concerned about the sulfide mining polluting our lakes … There have been no sulfide mining attempts that have not polluted water systems.	WR023
1805	the cleanup could be left to all the taxpayers. Companies like Polymet have reputations of running out of money on the mining then leaving the cleanup to the taxpayers.	FIN01
1806	To me ruining our water systems and ecosystem is not worth the temporary jobs and metals	SO01
Sender Name (Submission ID)	elliot (46507)	
9121	I have also been an ardent fan and user of the Boundary Waters, camping and canoeing for over 40 years. I see no evidence that this project will change the nature of the surrounding area.	PD28
9123	I feel the benefits of this project are enormous. I have friends and relatives that live in the area, and they are all wholeheartedly behind the project. These are people who have been involved in mining in the area for generations, but are also a part of the land and want it to remain clean. They don't feel that there's a risk that they will have their backyards polluted.	SO04
Sender Name (Submission ID)	Ellyn L Wiens (58078)	
19868	There has never been a non-polluting copper/nickel mine such as Polymet proposes.	PD26
Sender Name (Submission ID)	Elsie Dyke (31855)	
13847	We need to save [the Great Lakes] from being contaminated by mining. It is not worth the sacrifice of our lakes so that a large company can earn a lot of money.	SO01
Sender Name (Submission ID)	Elton Brown (15535)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Elton Brown (15535)	
696	The Minnesota Environmental Rights Act states that economic considerations alone cannot justify the destruction of our precious natural resources. Clearly the PolyMet plan will result in environmental destruction and degradation (loss of valuable wetlands, loss of an important wildlife corridor, the huge amount of electrical energy needed, and the seemingly-inevitable long-term leakage of heavy metals and toxic water).	NEPA09
698	Where are the company's assurances of wage levels and benefits? Should there not be a realistic analysis of how many jobs will be offered to Iron Rangers ...? Further, is there any way to hold PolyMet (and its parent corporation) legally obliged to fulfill its promised local hires and wage levels?	SO06
702	If we permit this industry ..., should we not raise the meager percent of taxes they will return to the state? ... It makes no sense to sell off these world-class non-renewable resources so cheaply.	SO04
704	Will PolyMet be willing to set aside enough money to completely pay for the monitoring of containment barriers, the quick repair of leaks caused, say, by some unexpected flood or earthquake of the century, the maintenance (and eventual replacement) of reverse osmosis installations, etc?	FIN05, FIN11
705	Should not the public be told now how this huge sum of money will be paid and held safely in escrow for future maintenance and clean-up? Why is the SDEIS so vague on this critical and thorny issue? Any short-term financial benefits to Minnesotans will be more than negated in the long run if clean-up costs fall yet again on taxpayers.	FIN01, FIN10
707	I also wonder if there is a way to hold the parent corporation legally responsible for future clean-up costs once the PolyMet subsidiary declares bankruptcy or simply dissolves when the North Met project is no longer profitable?	FIN01
708	The PolyMet PDEIS is inadequate in its failure to include an analysis of the costs of this mining proposal to the local economy. Is there a realistic estimate of lost income from tourism, fishing and hunting licenses, etc, should a large hunk of the Superior National Forest be lost to heavy industry?	SO02
709	Also, what protections and compensations are in place for the well water and air quality of the rural Babbitt and Embarrass homes which are just a few miles north of the project? Will the mining corporation have the requirement and the assets to purchase private properties whose value and livability are compromised by the PolyMet operations?	SO03
710	Does the SDEIS adequately disclose how much fuel will be burned by the huge shovels, trucks, and machinery used in the extraction, crushing, and transportation systems? Are the emissions of these vehicles added into assessment of the impact of the project to our air quality and haze? ... does the SDEIS include adequate safeguards for the transportation and storage of gas and oil (as well as any other toxic agents used in the mining process)?	AIR10
711	Similarly, does this SDEIS adequately factor in the extra emissions put into our atmosphere by the power plants which must produce the huge electrical energy demand of the project?	AIR02
714	Given that many children on the North Shore already have higher than average mercury levels, how can we allow the PolyMet plan to be so vague on the amount of mercury they will be adding to the environment?	SO01
716	Given the recent revelation that the Partridge River actually carries a much larger average flow than the numbers used in the SDEIS modeling, should not the company at the very least redo its environmental impact predictions by using more accurate data?	WR003
718	should not the SDEIS include more details on what will happen when natural water levels are high? Specifically, when the mine experiences torrential rains ..., can we be assured … that PolyMet has a foolproof plan to avoid all unwanted discharges during the ever-more-frequent "storms of the century"?	WR057, WR077, WR180, WR193

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Elton Brown (15535)	
719	what assurances are in place to guarantee that budgets for timely monitoring will not be lowered but rather be raised to cover adequately the increased need of government regulation?	PER03
720	What assurances do we citizens have that, should violations occur during the NorthMet project, the regulatory agencies will act quickly to shut down the mine until the problems are fixed (rather than issuing variances to allow the violations to continue)?	PER06
723	in the long run the increasing noise, traffic, haze, and escaping toxins will make this area less attractive, leading to a loss of population. … Economic and population gains due to copper/nickel mining will be short-lived at best. How is it in our self-interest to put our growing diverse NE Minnesota economy at risk for the sake of the boom-and-bust extraction of non-renewable natural resources?	SO01
1903	This huge new kind of mining in Minnesota will require more site inspections and testing, by the DNR and other regulatory agencies. In this time when many politicians want to trim government taxation and spending, what assurances are in place to guarantee that budgets for timely monitoring will not be lowered but rather be raised to cover adequately the increased need of government regulation?	PER03
1904	What assurances do we citizens have that, should violations occur during the NorthMet project, the regulatory agencies will act quickly to shut down the mine until the problems are fixed (rather than issuing variances to allow the violations to continue)?	PER03
1905	As a very concerned property owner and tax payer of NE Minnesota, I ask you to not risk citizens' long-term health and investments for the sake of uncertain short-term financial gains. Please reject the PolyMet SDEIS.	SO01
Sender Name (Submission ID)	Elwood & Bonnie Swanson (42777)	
6733	...acid rain and toxic metals could pollute rivers and groundwater for hundreds of years. …bad water quality due to seepage from the mining operation site, acid mine drainage	WR115
6737	... bad water quality due to seepage from the mining operation site, acid mine drainage etc to the St. Louis River and surrounding areas affecting wild rice which is especially important to the Native Americans, negatives for the wild life population, i.e., moose, lynx, deer, etc., asbestos like materials released to the water and air affecting human beings and destruction of wetlands and surrounding areas.	VEG04, VEG06, WET24, WI01
Sender Name (Submission ID)	Elyse Dornhecker (4285)	
10743	The economic development [PolyMet] will bring, while paving the way as the benchmark for clean, environmentally friendly mining, shows that collaboration is key to moving our state forward as an economic, industrial, and conservationist leader in the US.	SO10
Sender Name (Submission ID)	Emily Barter (44108)	
8013	[PolyMet plans] to mine for a short period of time, but in so doing cause nearly irreparable damage to a critical environment...I understand that the creation of jobs is very important right now, but the environmental and monetary cost of this project is not worth it.	SO01
14904	The massive funds that would be necessary to clean up the environment in the wake of this mining could even be used to much greater effect on public works projects to employ Minnesotans in more productive ways!	FIN10
Sender Name (Submission ID)	Emily Brown (36464)	
3801	PolyMet's open pit form of copper/sulfide mining involves destroying hundreds of acres of wetlands in the Partridge River headwaters.	WET24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Emily Brown (36464)	
3803	The US EPA notes that these wetlands may qualify as "aquatic resources of a national importance". That designation would require a higher level of protection than is currently planned.	WET19
3804	Since PolyMet's mine plan did not consider any alternatives to reduce wetland destruction and water pollution, it is doubtful that any such solutions would be found.	WET20
3805	Any plan such as PolyMet's needs to take a more serious approach to accommodate extreme weather and inform the public on how they will prevent torrential rainfall from bursting dams and overflowing waste storage basins.	GT02
3806	an environmental impact statement that is responsible to future generations of Minnesotans needs to take into account the big picture of climate change and the long-term effects of adding an intensive industrial operation to our already-endangered waters, forests, and air.	AIR01, WR115, WR180
14259	The increase in CO2 parts per million pertains to the larger amounts of electrical energy that this kind of mining requires…In addition, the fuel used by the huge trucks and heavy equipment proposed would add even more CO2 to the air we breathe. PolyMet's project should be postponed until we have energy sources that are not dependent on coal and gas.	AIR01
14260	There is already an issue of haze in the BWCAW. The problem of clean energy needs to be solved before PolyMet adds to the current level of pollution. The SDEIS needs to address this aspect of the project's environmental impact.	AIR01
Sender Name (Submission ID)	Emily Dayton Slowinski (54566)	
18967	I am very concerned about the effects of the proposed PolyMet mine on our environment. No matter how you slice it there will be destruction of acres & acres of wilderness to begin with and extensive lasting negative effects for years afterward.	WILD02
Sender Name (Submission ID)	Emily Gardner (14972)	
13808	There has never been a sulfide mine that has not polluted its surrounding environment. Now Polymet wants to bring this dangerous type of mine to Minnesota. Sulfide mining has never before been conducted in the state of Minnesota and after review of the SEIS it must be concluded that this risky project cannot be conducted in a safe and trustworthy manner.	WR023, WR195
Sender Name (Submission ID)	emily gherity (15251)	
395	I find it beyond belief that Minnesota is contemplating such a disastrous mining scheme when all of our waters and natural resources are under siege from zebra mussels in Mille Lac and Superior to Asian carp moving up river to moose die-off due to global warming.	WI01
396	This mine would be planted on top of the Superior watershed, a body of water already damaged by earlier economic exploitation.	WR107, WR108
397	350 jobs would not justify this failure of stewardship nor would 35,000 jobs. At any rate, the alleged jobs are temporary and, as always when the job argument is used, it is a fig leaf for the millions, conceivably billions of dollars which will flow into the pockets of foreign investors and perhaps a few adroit members of the iron range mafia.	SO01
398	I know this thing will go forward and I know there will be a catastrophe and that taxpayers will pay for it	FIN10
Sender Name (Submission ID)	Emily M Brown (54671)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Emily M Brown (54671)	
17885	PolyMet's open pit form of copper/sulfide mining involves destroying hundreds of acres of wetlands in the Partridge River headwaters. Most of these wooded wetlands are of high quality and are key to providing mitigation for flooding, food for fish downstream, and maintaining water quality downstream. Also, these wetlands are an important habitat for waterfowl, moose and other wildlife. The US EPA notes that these wetlands may qualify as "aquatic resources of a national importance". That designation would iequire a higher level of protection than is currently planned.	WET19
17886	Thousands more [wetland] acres would be indirectly harmed by air and water pollution and by the redirecting of water that is needed to support wetlands.PolyMet does not plan to include compensation for these thousands of acres that would be indirectly harmed. Their "wait and see" approach means agencies may or may not mitigate later.	WET01
17887	Since PolyMet's mine plan did not consider any alternatives to reduce wetland destruction and water pollution, it is doubtful that any such solutions would be found.	ALT06, ALT13
17888	All reputable climate scientists tell us that extreme weather, long periods of drought, and events such as Duluth's dramatic flooding two years ago are the new normal. Therefore, I submit that new public policy should place an ever higher value on clean water, which is our greatest natural resource here in northern Minnesota. Any plan such as PolyMet's needs to take a more serious approach to accommodate extreme weather and inform the public on how they will prevent torrential rainfall from bursting dams and overflowing waste storage basins.	WR077
17889	we must stop the growing reality of climate change. The increase inC02 parts per million pertains to the larger amounts of electrical energy that this kind of mining requires. At this point that energy source would be mostly coal. In addition, the fuel used by the huge trucks and heavy equipment proposed would add even more C02 to the air we breathe. PolyMet's project should be postponed until we have energy sources that are not dependent on coal and gas.	AIR02
17890	There is already an issue of haze in the BWCAW. The problem of clean energyneeds to be solved before PolyMet adds to the current level of pollution. The SDEIS needs to address this aspect of the project's environmental impact.	CU11
17891	an environmental impact statement that is responsible to future generations of Minnesotans needs to take into account the big picture of climate change and the long-term effects of adding an intensive industrial operation to our alreadyendangered waters, forests, and air.	PD22
Sender Name (Submission ID)	Emily M. Kindelspire (43132)	
15859	Too many decisions are made with only the short term benefits in mind- economic gains, increased employment etc. What about the children who will be born in 25 years? 50 years? 75 years? 200 years? What will be left for them? What do we want to leave for them to ensure their success and survival?	SO01
Sender Name (Submission ID)	Emily Mashuga (51502)	
13180	Metals like: copper and nickel, etc. are notoriously good materials for recycling and they maintain their integrity very well, even after being recycled many times. That option (recycling) should be the one we all start turning to, to get these metals Polymet (and manufacturers) want. Instead of constantly digging up virgin materials, when we already have the materials needed (to make a lot of things) wasting away in landfills.	NEPA06
13183	I love the Boundary Waters and the wildness and purity it represents, and I'd hate to see that ruined that so we can make more iPHONES and cheap electronics. Some things are just more important than other things in life, and safe clean lasting water is much more important than making more DVD players and cell phones.	WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Emily Mashuga (51502)	
13698	Metals like: copper and nickel, etc. are notoriously good materials for recycling and they maintain their integrity very well, even after being recycled many times. That option (recycling) should be the one we all start turning to, to get these metals Polymet (and manufacturers) want. Instead of constantly digging up virgin materials, when we already have the materials needed (to make a lot of things) wasting away in landfills.	NEPA06
Sender Name (Submission ID)	Emily Onello (47643)	
14629	The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine.	HU01
14631	Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health.	HU01
Sender Name (Submission ID)	Emily or Ken Steil (10712)	
583	The mining company is not mentioned as having any responsibility for this though it is likely the company will not exist at that point.	FIN01
584	Page 5-7 goes on to say there will then be a 200 to 500 year period that some sort of treatment will need to continue. That is too big a window and too long a time period to lay out at this point. It suggests that what will happen is not known and will be determined and addressed as the years roll along.	PD03, WR035
1473	The way to proceed at this point would seem to be to dump category one tailings into the west pit as is being done with east pit.	PD15
1474	But page 5-6 also says a certain mechanical treatment process will only be used the first forty years, what happens after that is not made clear except to say treatment would shift to some non-mechanical form to be determined at that time with no definitive statement that mechanical treatment will not be needed longer.	PD06
1476	It suggests the technology is not in existence yet. It is likely the project will proceed in the future as mining techniques catch up.	PD32
Sender Name (Submission ID)	Emily Ostercamp (14944)	
265	As a result the companies that are suppose to manage the cleanup go bankrupt. The taxpayers may be stuck paying for the what wasn't taken care of.	FIN01
266	Knowing copper mining has a chance of increasing it [risk of cancer] is a definite red flag and should not be pursued.	HU05
267	The copper mines will produce water that will harm and could even put some what of an end to this tradition [wild rice harvesting].	CR01, WR156
Sender Name (Submission ID)	Emily Swanson (16170)	
9728	The mining company suggests that the PolyMet mine will be an economic benefit for Minnesota, and they could not be more wrong. Mining companies have historically left citizens with the clean up after the company has extracted its profit.	FIN10
Sender Name (Submission ID)	Emily Wartman (11637)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Emily Wartman (11637)	
2330	A few people will get rich from this mining venture. A lot of people, and the environment we love, will pay a great deal.	SO02
2330	A few people will get rich from this mining venture. A lot of people, and the environment we love, will pay a great deal.	SO02
Sender Name (Submission ID)	Emily Wilkie (54214)	
17662	[The mine would be] in the boundary waters which should remain UNHARMED.	WILD02
17663	This [mine] remove wetlands and harm the animals and wildlife here.	WET24
17664	I believe it will do more harm to the environment than good. This is very clean pure water that would be polluted and wasted. We already have a water shortage in our lives today and since I am a part of the generation of the future, I do not want my water supply to be polluted.	SO02
Sender Name (Submission ID)	Emma Liedtke (54226)	
16742	The SDEIS maps are incorrect. When Poly-met redrew the maps, they left out half of the whole 100 mile swamp. Because of this incorrect modification the BWCA has been left completely unprotected from the acid mine drainage. A correct environmental impact statement with correct geography is required. I would like the maps in the SDEIS (Supplemental Draft Environment Impact Statement) to be re-drawn and corrected. I would like the percolation rate in the swamp to be measured also.	PD38
17360	Governor Dayton needs to talk to the MN DNR and address the task at hand. He needs to make the MN DNR do their job correctly and provide a geographically correct environmental impact statement that has correct financial information, the whole 100 mile swamp and other missing geography, correct hydrology studies, and water pollution modeling data that will tell how long it would take for toxic metal concentrations to reach safe levels without requiring any reverse osmosis.	NEPA08
Sender Name (Submission ID)	Emma Marshall (54195)	
17730	I am concerned for the condition of the boundary waters after the mining project. These waters are the purest waters that we have and they are the perfect destination for camping and canoeing. People from all over the US come to enjoy the boundary waters. There are so many things that are going to negatively affect the boundary waters and animals near this area. 99% waste is ridiculous and it is not worth mining for the 1%. You will directly be killing many animals, fish, and polluting the beautiful waters	WILD02
Sender Name (Submission ID)	Emmett Doyle (43814)	
10559	because the mechanization of mining has reduced the number of jobs that the industry creates as well as lead to a workforce that tends to be more non-local and thus less stimulating to the economy, and because the environmental impacts of this mine could harm the tourism and recreation industries that are northern MN's inevitable future, this mine is economically the wrong choice for Minnesotan workers.	SO02
10562	the mine is roundly opposed by the indigenous community for its potential impacts on manoomin and the wider north woods ecosystem, and the wishes of the indigenous community should bear a degree of special consideration given the historical context of our state.	VEG04
Sender Name (Submission ID)	Emmett Ramstad (10763)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Emmett Ramstad (10763)	
613	I am not at all convinced that the short term goal of mining is at all worth the inevitable pollution it will cause.	SO01
616	Nor am I convinced that PolyMet will be able to reverse the damage to water and land to it's original healthy state.	WR115
617	I am afraid the pollution will inevitably enter the near by Embarrass River and Partridge River which flows into the St. Louis River that then flows into Lake Superior.	WR111
Sender Name (Submission ID)	Emmy White (20147)	
1739	I simply can not understand how the DNR could stand by a consider copper mining in our watershed area. To contaminate the waters for our generations to come is unthinkable.	WR115
Sender Name (Submission ID)	Emrys Stramer (18192)	
4009	The PolyMet project would increase arsenic in Colby Lake by 38.5 percent. That is the drinking water for Hoyt Lakes.	WR043, WR123
4010	Arsenic also accumulates in fish and wild rice. Low-income people who fish and rice for food have the most cumulative risk	VEG04
4011	The SDEIS must be redone to make a cumulative assessment of arsenic and cancer risks for people in Hoyt Lakes, including people who rely on fish and rice for food.	HU01
4014	the EIS must analyze fully the impact of the PolyMet proposal on any animal or plant species relevant to any tribal property.	CR01, CR06
13428	The proposed mine is located within the 1854 Treaty on Ceded Territory, and three sovereign nations retain, never gave away, their hunting, fishing, gathering rights. Under federal case law, these rights are for the welfare and well-being of tribes, and federal caselaw provides that the ceded land must remain productive for the exercise of those rights.	CR01
Sender Name (Submission ID)	Environmental Law & Policy Center (42967)	
5908	Because of the many significant impacts from the proposed project and flaws in the SDEIS, the Minnesota Department of Natural Resources, U.S. Army Corps of Engineers and U.S. Forest Service should deny PolyMet's state mining and Clean Water Act Section 404 wetlands permit requests and the proposed land exchange.	PER35
5910	The Minnesota Department of Natural Resources, U.S. Army Corps of Engineers and U.S. Forest Service should choose the No Action Alternative and deny the requested permits and land exchange.	PER35
5911	At the very least, the agencies must update the SDEIS with required analysis that was not included and correct other significant flaws identified in the comment process before the agencies make a decision on the proposed mine.	NEPA04
5912	Water Quality. The SDEIS and mining plan do not reasonably assure that the mine will not result in significant, irreversible water pollution. The SDEIS and mining plan model mechanical or potentially other types of water treatment as being required for at least 200 years at the mine site and at least 500 years at the plant site to prevent sulfate and other water pollution to watersheds connected to Lake Superior…. No plan is presented that reasonably assures that water treatment will be possible and effective for the stated hundreds of years at a minimum.	WR035

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Environmental Law & Policy Center (42967)	
5913	Because of long timeframes that remain unknown, there is similarly no meaningful demonstration that mine closure and reclamation will actually be possible. It is simply not reasonable to determine – as the SDEIS does – that there are no significant sulfate and mercury water quality impacts from the proposed mine when the proposed treatment is not demonstrated as effective, when the water treatment relies on models that are projecting up to 500 years into the future and when significant impacts are almost certain if the proposed treatment is not effective for hundreds of years.	WR035, WR128, WR129, WR196
5914	The agencies should deny the project on these water quality impacts alone. It is unreasonable to approve a project that requires fully functioning water quality treatment for hundreds of years into the future to avoid serious harm to Lake Superior and the watersheds adjacent to the mine. Approval on these terms would constitute arbitrary and capricious agency action.	PER35
5915	The SDEIS' Cumulative Effects assessment is incomplete because it fails to include an analysis of the cumulative impacts of regional mining affecting Lake Superior... The SDEIS's Cumulative Effects assessment includes only mining and similar projects in Northern Minnesota. At 6-15; Table 6-1. However, there are a number other current and reasonably foreseeable mines near Lake Superior in Wisconsin and Michigan's Upper Peninsula. For example, large-scale existing and proposed mines include the Penokee Mine in Wisconsin, the Empire and Tilden Mines near Marquette, Michigan and the Eagle Mine in Michigan. These mines' cumulative impacts on Lake Superior and the watersheds on which it depends must be analyzed before the agencies can determine that there are no significant cumulative effects to Lake Superior.	CU18
5916	The SDEIS' Alternatives analysis is too narrow...the SDEIS considers only one alternative other than the No Action Alternative, and that alternative is just the same proposed mine, but with a smaller land exchang acreage…Considering just one marginally different alternative is too narrow of an alternatives range to satisfy NEPA and MEPA. The SDEIS should consider additional reasonable proposed alternatives, such as an alternative analyzing an underground mining proposal and an alternative requiring back-filling the mining pits with waste-rock after closure.	ALT01, ALT03
5917	The PolyMet mine would cause serious harm to the Endangered Canada lynx and the SDEIS fails to analyze impacts to Minnesota's moose population.	WI01
5918	The mine and its related activities would also further increase the fragmentation of remaining Canada lynx habitat. However, the SDEIS fails to include alternatives that would mitigate impacts, such as alternatives minimizing new roads and traffic increases in Canada lynx habitat.	WI02, WI10
5919	[T]he SDEIS' moose analysis does not meaningfully address how PolyMet's proposal will impact moose or moose habitat. The MDNR should insist on a thorough, specific analysis for this iconic Minnesota species before it issues any mining permits.	WI01, WI02
Sender Name (Submission ID)	eric baldus (42219)	
6686	This is an extremely dirty process and a very disruptive method of mining. The tailings that are produced are full of toxic elements.	HAZ03
6691	The number of jobs created is negligible...It is extremely short sighted to think that the jobs created would be worth the [environmental] risk.	SO01
6693	To believe that the state will be able to escrow enough money for 200+ years of water cleanup is ridiculous	FIN05, FIN08
6695	what if there is a release, what happens to the jobs that are created by fishing/recreation in the area	SO04
Sender Name (Submission ID)	Eric Erkkila (46278)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Eric Erkkila (46278)	
8901	As a native of Northern Minnesota I have lived with and seen the economic booms and busts. A project of this type will stabilize the economy.	SO10
8902	Adding this operation to the area will provide the following to the economy:- Much needed construction jobs to build the new mine and rehabilitate the existing processing plant.- Increased sales activity for suppliers of construction commodities and services.- Increased sales for mining vendors for supplies during the mine operation. This will provide 2 jobs for every job at the mine.- Provide additional revenue for the state and local economies.- Long term employment for both miners and suppliers.- The national economy needs these raw materials to provide for the necessities and luxuries of life.	SO10
8903	On the environmental side of the issue:- The re- use of an existing processing facility and tailings basin.- Stringent controls in place for protection of the environment.	PD28
Sender Name (Submission ID)	Eric G. Galush (21393)	
1103	This (mine)would actually help the overall world environment. Instead of importing copper and other precious metals from countries that do not practice safe and clean mining techniques, we would supply our own manufacturing organizations with materials from a miner that will practice safe and clean mining procedures.	NEPA05
1228	Polymet is utilizing an old processing plant that was just "rusting away" in the wilderness.	PD28
1230	The Polymet situation is an opportunity to "buck the trend" of losing high paying, stable jobs from the north	SO10
1240	Polymet has been working to get permits for close to a decade now. It should never take that long, in any situation, to get the approval or disapproval to do something.	PER20
Sender Name (Submission ID)	Eric Haefner (7175)	
682	Polymet, along with all the government agencies that provided input, have shown in the SDEIS that the proposed mining operations will not negatively impact the State of Minnesota.	NEPA16
Sender Name (Submission ID)	eric hendrickson (39182)	
12286	Three hundred fifty jobs for 20 years is not worth the risk	SO01
12287	A foreign company whose stock share price hovers around a dollar is a fool’s bet for long term accountability. It is not the company but citizens who will be dealing with PolyMet’s toxic legacy	FIN10
12292	We are told that new technology will obviate [problems such as poor water quality as a result of mining]. As I understand the data, this confidence in “new technology” is misplaced. As we perform our due diligence in vetting the assurances of the companies, we will be well served to err on the side of caution.	PD32
Sender Name (Submission ID)	Eric J. Simso (58151)	
19913	Has there been a jobs trade-off analysis, mining/construction vs recreation/construction. As a Minneapolis resident and lake County taxpayer and summer resident, the relative jobs and revenue contribution of no-residents doesn’t seem to be accounted for.	SO07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Eric Kemp (44836)	
7986	I don't believe [the EIS] deals with ground water contamination to the extend that is necessary to protect this precious resource.	WR107, WR108, WR130
8009	[Materials produced by PolyMet] should read that they think they can capture up to 90% of surface water because this mine proposal is really a scientific experiment.	WR018
8011	Even if the mine were able to capture 90% of it's waste water from entering the ground water supply, the remaining 10% entering ground water represents hundreds of millions of gallons of contaminated water entering the aquifer.	WR107, WR108, WR129
8014	As bad as it would be for the proposed mine to contaminate surface and run-off waters surrounding the PolyMet mine site, it would truly be a tragedy to let hundreds of millions of gallons of water with toxic fibers and heavy metals contaminate our most precious resource, our ground water.	WR107, WR108
Sender Name (Submission ID)	Eric Larson (9900)	
13123	It is critical that you responsibly reject the inaccurate PolyMet NorthMet SDEIS and acknowledge that PolyMet's open-pit sulfide mine plan would have enduring negative environmental impacts on surface and ground water quality past the lives of your great great great grandchildren...In absolute fact, the PolyMet SDEIS and the PolyMet sulfide mine plan still represent unacceptable risk to the incredible current and future asset of clean water that the world will value incredibly highly until well past the lives of your great great great grandchildren.	WR195
13429	In absolute fact, the PolyMet SDEIS and the PolyMet sulfide mine plan still represent unacceptable risk to the incredible current and future asset of clean water that the world will value incredibly highly until well past the lives of your great great great grandchildren. To take any risk with this, much less a high risk, demands your action to reject it.	SO01
13430	You must act to protect the environment from the money and political pressure that should not influence a thorough scientific assessment and conclusion. Your actions will have more long term impact that virtually any decision facing the state.	NEPA18
Sender Name (Submission ID)	Eric Morrison (18177)	
3958	The wetland that PolyMet is seeking a permanent discharge into is called the 100-mile Swamp….It is an inconvenient fact that the authors of the Environmental Impact Statement simply do not want recognized that mining waste will flow to the Boundary Waters by way of the 100-mile Swamp and the Dunka River.	WR081
3959	Worse than just having the statement about the delineation of the 100-mile Swamp, they redo the maps of the 100-mile Swamp solely as to omit the part of the swamp that drains to the Dunka River. (Inaudible) this appears on page 472 of the SDEIS and at least five other maps.	WR080
3963	No baseline water testing was done in Langley Creek or in the Dunka River or any other part of the Boundary Waters Watershed. And nor would any testing be done if mining were allowed. This leaves the Dunka River and the BWCA completely and utterly unprotected.	WR081
3964	At a minimum I'm requesting Governor Dayton compel a bonded public review period of 180 days for this SDEIS; and compel a subsequent SDEIS, which has the correct geographical features in it and requires water testing for the Dunka River and the Boundary Waters.	NEPA07
8758	Mention of both the One Hundred Mile Swamp and the Dunka River as it relates to hydrology of the mine site is completely absent from the SDEIS and may be intended to obscure the impact of the proposed mining on the BWCAW wilderness area.	WR080, WR081

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Eric Morrison (18177)	
8759	Reverse osmosis its likely to be completely impractical because of short membrane lifetimes...other maintenance issues… non mechanical treatment methods proposed for the 200 to 500 year treatment are not only unproven, they do not exist today.	FIN05
10596	The safety of the Boundary Waters Canoe Area from mine drainage that will be created by PolyMet's proposed NorthMet mine has not been established. The [SDEIS] …makes no adequate statement about whether water discharged from the mine site can possibly enter the [BWCA] Wilderness …Without a definitive statement and data about mine waste and the BWCA, the NorthMet Project SDEIS is inadequate.	WR081
10620	The proposed mine site is just south of and uphill from a wetland area named the One Hundred Mile Swamp which drains to both the Saint Louis River watershed and the Rainy Lake (BWCA) watershed. Because the mine site drains to the One Hundred Mile Swamp and the One Hundred Mile Swamp is geographically connected to the BWCA, the mine cannot possibly be isolated geographically from the BWCA. Hydrologically, the SDEIS includes no hydraulic conductivity testing for the One Hundred Mile Swamp which would indicate the extent to which the mine is hydrologically isolated from the BWCA.	WET19, WR024, WR071, WR080, WR081, WR111
10648	In US Government maps, the One Hundred Mile Swamp is a 10.4 mile long depression straddling the Laurentian Divide that drains to both the Partridge River which is a tributary to the St. Louis River and Langley Creek which is a tributary to the Rainy Lake (BWCA) watershed. Groundwater contours for the swamp are easterly descending towards Langley Creek which promotes movement of mine waste to the BWCA watershed while the closer proximity of the mine to the Partridge River drainage site would minimize flow to the BWCA… Estimating the proportion of mine waste that flows to the two watersheds requires lateral hydraulic conductivity testing in the One Hundred Mile Swamp. Over the time scale that mine site drainage will leach pollutants and furthermore considering likely excursions in weather and water levels, flow to the BWCA is almost certainly not zero.	WET19, WR024, WR071, WR080, WR081, WR111, WR175
10671	Not only does the environmental impact study fail to properly consider hydrology around the mine site, it includes incorrect information. A misleading statement was inserted into the Wetlands Section (4.3.3) of the SDEIS late in the drafting process regarding the unavailability of geographical information for the One Hundred Mile Swamp. The statement "however, no delineated boundary exists for the One Hundred Mile Swamp" on page 4-429 is false. Delineated boundaries for the One Hundred Mile Swamp do exist and are available at http://www.nationalatlas.gov/streamer"www.nationalatlas.gov/streamer [2].	WET19
10689	[SDEIS] maps represent the One Hundred Mile Swamp in a way that is contradictory to the US National Atlas. The portion of the One Hundred Mile Swamp that drains to the BWCA watershed is missing in SDEIS maps. Contradictory maps in the SDEIS support the implication that seepage of mine waste water to the BWCA watershed will not occur. In SDEIS maps, the One Hundred Mile Swamp is depicted as a 5.5 mile long body of water that exists only on the St. Louis River watershed side of the Laurentian divide as compared to the 10.4 mile long wetland in the National Atlas that exists as a depression straddling the divide and drains to both the St. Louis River and Rainy Lake Watersheds. The first incorrect map of the SDEIS appears as Figure 4.2.3-1 and there are at least five others. The periphery of the One Hundred Mile Swamp in SDEIS maps was marked with a dashed aqua colored line on a green satellite image background making it difficult to see, and the fact that geographical coordinates were also not provided makes it challenging to compare SDEIS maps to existing maps. It is a concern that the authors of the SDEIS appear to have intentionally obscured map features in support of the misrepresentation that mine waste water will not flow to the BWCA.	WET19, WR080, WR081, WR175
10698	On the basis of the re-drawn maps, attention has been diverted from the Boundary Waters. No baseline water testing was done in Langley Creek, the Dunka River or anywhere else in the Rainy Lake watershed nor would any water testing be done if mining were allowed. Absence of water testing in the Rainy Lake watershed leaves the BWCA and Quetico completely unprotected.Before permitting can move forward, addenda to the SDEIS are required including correct watershed mapping, hydraulic conductivity testing in the One Hundred Mile Swamp, water quality testing for the BWCA watershed, and a correct and unambiguous statement about the impact of the proposed mine on BWCA water quality.	WR024, WR071, WR080, WR081, WR111, WR175

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Eric Morrison (18177)	
11804	it is a serious concern that PolyMet lacks the assets required to provide a level of financial assurance commensurate with the scope of the proposed project. The need to carefully manage financial assurance for mining is greatly exacerbated for the NorthMet project by PolyMet's finances, ownership, and the extreme risk to the environment from sulfide ore mining.	FIN01
13203	The proposed mine site is uphill from a body of water (One Hundred Mile Swamp) that straddles the Laurentian divide and feeds both the St. Louis River and Rainy Lake (via the Dunka River) watersheds. Mention of both the One Hundred Mile Swamp and the Dunka River as it relates to hydrology of the mine site is completely absent from the SDEIS and may be intended to obscure the impact of the proposed mining on the BWCAW wilderness area.	WR175
13205	The waste water treatment discussion is inadequate. Reverse osmosis its likely to be completely impractical because of short membrane lifetimes and other maintenance issues and the non mechanical treatment methods proposed for the 200 to 500 year treatment are not only unproven, they do not exist today.	PD03
15294	For the Minnesota Department of Natural Resources to negotiate financial assurance with PolyMet without public or legislative oversight is a severe violation of the public trus..	PER03
Sender Name (Submission ID)	Eric Norberg (54778)	
19490	PolyMet is a tremendous opportunity for Minnesota to be a key supplier to the renewable field. My experience with Minnesota's mining industry throughout my career is that we have the science, technology, and the ethic to produce these metals safely and without harm to our natural environment.	SO10
19491	clearly we have stronger regulation and safeguards than any other mining district in the world .	PER34
19492	The Range needs good stable jobs which lead to good stable Minnesotans. PolyMet's economic impacts as described in the SDEIS are good for the Range and good for Minnesota.	SO10
Sender Name (Submission ID)	Eric R & Carlson Bong (11537)	
2573	•Polymet's environmental review admitted that clean-up would require 500+ years of H2O treatment. Will any mining company or its profits still be around to pay for this??	FIN01
2573	•Polymet's environmental review admitted that clean-up would require 500+ years of H2O treatment. Will any mining company or its profits still be around to pay for this??	FIN01
2574	•With clean water becoming a dwindling resource globally, I support the choice to protect our waters, especially from the threat of such detrimental and long-lasting consequences, and in exchange for such a short-term solution.	WR195
2574	•With clean water becoming a dwindling resource globally, I support the choice to protect our waters, especially from the threat of such detrimental and long-lasting consequences, and in exchange for such a short-term solution.	WR195
7426	•H2O is the MOST ESSENTIAL RESOURCE for life, and a 76% KILL rate is not remotely good odds.We all depend on the flora and fauna that will likely be indefinitely destroyed if sulfide mining is allowed in our globally historic and pristine waters.	VEG03, VEG06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Eric R & Carlson Bong (11537)	
7426	•H2O is the MOST ESSENTIAL RESOURCE for life, and a 76% KILL rate is not remotely good odds.We all depend on the flora and fauna that will likely be indefinitely destroyed if sulfide mining is allowed in our globally historic and pristine waters.	HU01, WR195
13528	•The proposed mining operation MIGHT create jobs on the Iron Range for 20 years +/-	SO06
13528	•The proposed mining operation MIGHT create jobs on the Iron Range for 20 years +/-	SO06
17124	•76% of sulfide mines to date have dramatically damaged surrounding waters and ecosystems.•Of those offending mines, 90% filed for bankruptcy upon being mandated to pay for their clean-up costs.•The smallest figure from the above statement was $40 million. Those cases not paid for by the offending mine landed on tax payers.	FIN01, WR023
17124	•76% of sulfide mines to date have dramatically damaged surrounding waters and ecosystems.•Of those offending mines, 90% filed for bankruptcy upon being mandated to pay for their clean-up costs.•The smallest figure from the above statement was $40 million. Those cases not paid for by the offending mine landed on tax payers.	WR086, WR091
Sender Name (Submission ID)	Eric Viken (44982)	
6963	The mining should only be allowed if it can be shown that the water and air quality off the land used to mine is not impacted long after the corporation that mined the land ceases to exist.	AIR11, WR037
6969	A method for mining must be first found to prevent the dangerous contaminants from leaking out and dispersing off of the mine site and not to rely on continuous filtering and maintenance of water flowing off site.	AIR11
6973	We are essentially taking a piece of land and converting it to a contaminated waste dump that won't be useable for other purposes for many generations….	LU01
6982	The mining should only be allowed if an endowment fund of enough funds is able to be setup before mining commences to ensure that the site cleaning and containment system can be maintained for perpetuity until the site is longer a source of pollution (i.e., 500+ years).	FIN01, FIN08
6984	The lost tax revenue and utility of the land after the mine ceases to operate needs to be considered because it will become a liability once the mine is used up and is no longer useable and long term will be a drag on the local economies.	SO02
Sender Name (Submission ID)	Eric Willms (7061)	
463	In light of today's exposure of the DNR's ignorance of accurate water flow analysis, I have difficulty trusting the other data compiled in the SDEIS. The DNR should go back to the drawing board to analyze water flow in a model that includes predictions for climate change as well.	AIR01, WR003, WR077, WR086, WR180
464	Another major concern I have is the lack of consideration for the type of construction materials to be used for piping sulfate-containing water 7 miles between mine and plant. Nobody from the DNR at the recent Aurora public informational session could tell me anything about pipe construction. What happens when the temperature drops to -50 F?	PD36
465	Finally, how can anyone predict the financial responsibility required to continue monitoring and treating pollution for 200 and 500 years?	FIN01, FIN05, FIN11
466	It appears that you are more interested in corporate profit that environmental protection.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Erica Ann Allen (57146)	
16841	The benefit to the Polymet Company does not outweigh the damage the company's practices cause to the public.	SO01
Sender Name (Submission ID)	Erica Johnson (10136)	
344	Allowing them to mine puts the taxpayer a risk for millions, if not billions, of dollars in cleanup funds for decade after decade.	FIN10
1431	I am opposed to the PolyMet Mining, Inc. project and feel that it is a bad investment for Minnesota and urge the DNR to forgo the permitting process.	PER35
Sender Name (Submission ID)	Erica TenBroek (12062)	
50	PolyMet would emit 707,342 metric tons of carbon dioxide into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions.	AIR01
55	This is an open pit mine. More people could be exposed than were ever exposed in history to such particulates [amphibole mineral fibers].	HU05
56	Those who have estimated losses have given a huge range in values for the area of wetlands to be affected. As with all estimates of costs, these losses have undoubtedly been underestimated.	WET24
57	If this proposal goes forward, which I would hope it won't, Plan B seems more acceptable, leaving some surrounding habitat.	ALT13
58	PolyMet should absolutely be required replace wetlands of the same caliber (of those lost).	WET05
59	IF the watershed is redirected, the company should be required to physically move sensitive species.	VEG01
62	Relocate waters and base sediments/peat from the wetlands to be excavated. These would contain numerous micro & macro invertebrates that would otherwise be destroyed and lost.	AQ20
63	Move/replant critical trees, forbs, grasses, mosses from this habitat to the redirected watershed.	VEG01
64	Use wildlife specialists to move/relocate as many fish, amphibians, reptiles and other vertebrate species that will otherwise be destroyed (those in and out of the water) as possible.	WI01
65	PolyMet should insure the new wetlands will support the same complexity of species.	WET05
66	If in the same watershed, relocation of wetlands should NOT be to an area where future mining is predicted or downstream of the polluted waters that will be produced by the mining operation.	WET03
67	The relocated wetland should NOT displace other sensitive habitat.	WET05
1520	Not only is 200-500 years of environmental distress enough to make a decision, but the fact that we will put increasing stress on an already shrinking area of natural habitat.	PD29

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Erica TenBroek (12062)	
1521	It is certainly true that we all use products that require minerals obtained from mining. Nevertheless, the location of this mine and the potentially large environmental impact should make this an obvious choice.	GEN01
9850	As the world continues to grow, and demand for materials grows, we will continue to push the natural world into smaller and smaller spaces. In the end this will undoubtedly harm our way of life.	HU03
18507	Poly Met will not only dig up nearly 1,000 acres of high (biological) value peat bogs, but it will seriously damage a large part of the 100 Mile Swamp, a critical habitat for many plants and animals. This wetland has been designated an Area of High Biodiversity Significance in the Minnesota Biological Survey. … The damage is almost always more than we can predict, and the suffering to individual animals has been glossed over or completely ignored. So much is unseen and subtle that we cannot calculate the true cost until the damage is done. We can't get back the organisms from these key habitats once they become extinct, and it goes without saying that such areas of high biodiversity are the most critical to preserve.	WET19
18509	I don't think copper and/or nickel are the limiting materials in cell phones and many green technologies. The same "green" products are dependent upon more limited supplies of scarce rare earth metals. These markets are typically private and so amounts available are not widely known. These rare earth (different from precious) metals are primarily mined in other parts of the world (e.g. China) and it's my understanding that we will run out of these long before copper and nickel supplies are gone.	NEPA03
18510	Although green energy and other forms of energy rely on mined minerals, it is oxymoronic if a "green" technology ultimately creates more ecological damage and/or pollution than it prevents. Do we take into account the true costs mining when considering what is "green?" Something seems wrong ourcost/benefit analysis.	SO01
18511	There is no debate that copper is currently used in mnay products, but does it need to be?	NEPA15
18517	This is an open pit mine. More people could be exposed than were ever exposed in history to such particulates. Andy serious health effects on humans will take years to manifest, and the mining company will be difficult to hold accountable.	HU03
18520	The public is assuming MN regulates so well it will prevent long term damage to the environment. This is extremely short sighted and part of the reason there are so few speaking in opposition.	PER06
18522	Reverse osmosis is misleadingly presented by PolyMet to be our answer to preventing perpetual pollution. Reverse osmosis on a large scale is incredibly expensive and requires four or more (sometimes many more) gallons of water for every clean gallon produced. Even if Poly Met is able to pay, will thiswater be available as climate change progresses? The filters alone will require continual maintenance and the waste produced requires removal, treatment, and/or storage, or, as has been done by other mining companies, will the watershed end up being the dumping ground? Is this a cost effective, economically viable and truly non-polluting solution over the long haul?	PD03
18524	Require Poly Met to pay more for the biological loss. Know that the new wetlands will not reduplicate the biodiversity of those to be destroyed or contaminated unless the wetlands are completely transplanted to the new areas. There is very high value in biodiversity and the current plan does not require enough ofPolyMet.	FIN11, WET05
18527	Require Poly Met to insure the replacements won't require 100 years to become true wetlands. Significant supplemental help will be required to achieve even close to the biological service the current wetlands are providing for Minnesota. PolyMet should not only restore but should support unbiased research to measure biological status ofthe surrounding areas during and following mining.	COE01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Erica TenBroek (12062)	
18529	Wildlife specialists could be asked to move/relocate fish, amphibians, reptiles and other vertebrate species that will otherwise be destroyed. Especially the threatened, endangered or species of special concern that are not mobile (enough) to leave the area.	WI01
18534	Does MN want a start-up company, however wonderful the financiall backing, to use this mine as a learning experience?	PD23
18536	this project does not have Mionnesota's best interests in mind but instead the interests of parent investors outside of the U.S. The project will leave Minnesotans less of what it once was and saddled with long term clean-up debts.	SO02
18538	There is absolutely no guarentee that PolyMet will put their profits back into Minnesota beyond some local jobs and whatever else is required of them.	FIN01
Sender Name (Submission ID)	Erich Wunderlich (16150)	
9694	No amount of up front, accrual or set aside can restore a destroyed watershed. There is no such thing as a fail-safe 500 year plan.	WR037, WR129
Sender Name (Submission ID)	ericksongary (44906)	
8174	The risk of permanent damage to the environment is not worth the price of shipping Minnesota copper to China. The resulting jobs are a blink of an eye compared to centuries of poisoned waters.	SO01
17108	How many businesses last 500 years? When Hennepin Paper went broke the taxpayers paid for the cleanup in Little Falls and the odds on 500 years of follow up is unrealistic.	FIN01
Sender Name (Submission ID)	Erik (40074)	
6922	I am unwilling to risk the health of those [lakes, waterways, and aquatic life in pristine wilderness] areas on the basis of reports that assume flawless operation of an industry that cannot demonstrate such perfection at any other location and where the only stated benefit is 350 jobs.	WILD02
6931	What recourse do we have if it becomes evident that the operation of the mine is not in accordance with predictions associated with minimal environmental impact?	PER06
6935	What guarantee do we have that this company or its investors will honor any promise to pay for future cleanup? If the assumption is that little cleanup will be needed, how is the amount of money set aside by the company determined?	FIN01
6938	Will it be written into the permit that projected levels of pollution must be realized or the permit will be revoked?	PER06
6941	How will the levels of pollution be monitored, both on site to assure that contaminants are not escaping and elsewhere to be ensure that nearby water and aquatic life is not affected?	AQ30, WR141
6947	Why isn't underground mining part of the proposal? Isn't open pit mining inherently more risky to the environment?	ALT01
6950	Will the company pay for all monitoring and testing performed by state and national environmental agencies?	FIN01, FIN11
6956	If it is admitted that the process creates water that should not be reintroduced into the environment "as-is", how will the DNR monitor and assure state residents that absolutely no untreated water is escaping into the environment without treatment?	WR070, WR139

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Erik (40074)	
6967	If untreated water is found to be entering the environment, will the permit be revoked and mining operations ceased?	PER06
16363	What happens if the amount of pollution is demonstrated to be greater than predicted - will additional money be required from the company in the present to pay for the greater than predicted cleanup?	FIN01
16365	PolyMet owns the mineral rights, but I have read that the US Forest service considers surface mining to be illegal in this area. I do not agree that swapping land is a reasonable solution to this issue.	LAN02
Sender Name (Submission ID)	Erik and Larissa Mottl (44189)	
11886	If there are no plans for Polymet to treat the contaminated water there should be NO mine at this time.	PD05, WR070, WR143, WR195
11888	This mine would provide short term employment opportunities for a few residents. It is simply not worth the risk to ruin another park of Minnesota's natural heritage for short term extraction and financial gains to an industrial interest.	SO01
Sender Name (Submission ID)	Erik Erie (42525)	
15533	I trust the process with the EIS in determining how the Polymet project can go forward in a responsible manner. The process however has been frustrating to watch as the time and money involved to get to this point has been excessive.	PER20
Sender Name (Submission ID)	Erik Hinderlie (28150)	
16704	[I] am terrified at the havoc it would do to the marvelous jewel that is the Boundary Waters Canoe Area Wilderness, and what it could do to Lake Superior if leaks and drainage got out of control.	WR111
16707	I am sure as decision makers you have seen Glencore's terrible history, though handsome profits because environmental destruction, topsoil depletion and freshwater contamination is never calculated in GDP or economic indexes. But you will feel its terrible power if sulfide mining contaminates the North Woods, in polluted lakes, rivers and streams, massive deforestation and habitat fragmenting, reduced employment in tourism, outfitting, recreational hunting and angling and second home properties--it will be chaos for short-term economic goodness for one company, not the area.	SO01
16709	Let us not give away one of Minnesota's most critical assets---a billion dollar tourism, recreational and private property industry to one quick burst of mining metals.	SO02
Sender Name (Submission ID)	Erik R. (58139)	
19937	In the end it comes down to this, the project as laid out in the SDEIS poses far too many risks and brings little in the way of benefits to the state and to the regions.	SO01
19939	It is clear from the report that [the West Equalization] basin will receive the “reject concentrate” from the plant that takes pollution from the tailings. What isn’t clear in the SDEIS is exactly how polluted this basin will be.	WR175

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Erik R. (58139)	
19954	Not only does the SDEIS fail to describe the predicted levels of pollution in this basin, it offers little in the way of contingency plans for what would happen in the results of a catastrophic weather event. The extent of their existing contingency plan is that any overflow from this basin would simply flow into the mine pits, which are in no way designed to deal with the high levels of concentrated pollution present in the basin.	PD22
Sender Name (Submission ID)	Erik Riesenberg (18229)	
13567	What isn't clear in the SDEIS is exactly how polluted this basin [West Equalization Basin] will be. The only document that offers any indication as to these figures is the 2012 Mine Site Wastewater Treatment Design Plan, and this plan is neither listed nor referenced in the SDEIS…it [the plan] offers little in the way of contingency plans for what would happen in the results of a catastrophic weather event.	WR173, WR176
13568	We have seen over and over how these projects can go bad and then we the taxpayers are left to clean up the mess...it is that these corporations are corrupt and not bound by the legal framework that individuals are bound by. They purposefully structure themselves legally so as to minimize or outright avoid any liability in the event that anything goes wrong. There is no reasonto believe that PolyMet or its investors would be any different. Therefore, there are no conditions or restrictions you could place on this project that these companies couldn't find a way out of, and that is why I ask you to reject the SDEIS.	FIN01, FIN03, FIN10
Sender Name (Submission ID)	Erik Simonson (43130)	
15860	My particular concern is with the future quality of the river and the estuary with respect to excessive mercury content. Currently, there remains a fish consumption advisory in effect for game fish taken from the river and estuary.	MERC02
15861	MPCA is in the midst of a multi-year effort to determine, through science, why these mercury levels remain unusually high, especially given the reduction in airborne emissions over the past years. While it is unknown what the end result of this study will reveal, it should at the very least be considered as you review this proposal for compliance.	MERC01
15862	I understand you must consider current law, but it is entirely possible that the mercury standard may change in the near future. I ask you to consider the possibility that the proposal may have to be adjusted to a lesser discharge of mercury, and can the proposal be adjusted to meet that in the future?	PER06
Sender Name (Submission ID)	Erika Carls (45153)	
8417	I would like to know what amount of water pollution from the PolyMet mine would cause our already poor quality water to change to unhealthy and to unpotable water.	PD03
8419	Is the current water quality in the area linked to problems such as cancer or other health issues?	HU05
8424	What health problems could be caused by the chemicals used in the mining process?	HU01
8426	Would pregnant mothers be more strongly impacted by water quality problems?	HU03
8429	Would the increased rate of mercury pollution in the Embarrass river effect any people or other organisms? How would the levels change in the case of a small leak, or in the case of a large leak?	MERC02
8433	How much leaching is predicted from this mine?	PD03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Erika Carls (45153)	
8439	What is the probability of having a mining accident like the one in Virginia which cause the water to be completely undrinkable?	HU03
8442	How would the health of the workers in the mine be impacted by the air pollutants they will be exposed to while they are working, including mercury pollution?	HU03
8444	How would such air pollution effect the people in the towns near the mining operation?	HU03
8447	If the speed with which copper is extracted is slowed down, could workers keep their jobs for a longer period of time, and could this reduce the pollution rates and possibly the impact of pollution?	ALT13
8449	How many jobs will be provided as a result of the need to monitor the environmental impacts on the project area?	SO10
8452	What emergency equipment is needed for clean up in the case of an accidental large scale leaking or other pollution event? Will this equipment be stored in an area that is easy to access in an emergency? Will personnel be trained on how to operate such equipment?	HAZ06
8453	Is there a guarantee that the quality of water will be monitored on an hourly basis? If not, how frequently will the water quality be monitored?	PD05
8456	How much will water treatment cost in the worst case scenario?	ALT01
8459	Since the treatment of the water will need to continue for up to 500 years, how will we guarantee that there is enough money to keep treating the water?	FIN01
8461	Will a substantial enough portion of the profits be set aside for clean up efforts, especially in the case of a major mining pollution accident? Will this money be kept in a place where it can not be removed for other purposes in the case that the company goes bankrupt?	FIN01, FIN08
8466	How is climate change likely to impact the PolyMet mine? Will the predicted increased intensity of storms cause any difficulties in keeping the mining area safe? I am especially concerned about increased flooding events	WR077
8467	Are there plans in place for natural disasters such as earthquakes, or for the possibility of tornadoes up here?	GT12
8474	I have questions about the impact of the PolyMet mine on the ecosystems in the area as well.[Such as] How will the leaching from mine tailings impact the photoplankton, zooplankton and larger aquatic organisms in the area?	AQ06
8492	Does the land exchange mean the USFS will acquire additional lands in another location? Will the quality of the ecosystem on these lands be comparable to the quality on the land being lost?	LAN03, LAN06
8493	Would the proposed railroad increase the number of animal deaths in the area? Could a large animal, such as a deer, derail a train? What would the impact of a train crash on the area be?	WI03
8495	These are my thoughts about air pollution. [Such as] I support the anti-idle program that is being considered. I believe this would not only reduce the air pollution caused by the project, but could also save the company money. Is it possible for the company to invest in wind energy and/or solar energy?	AIR14
8498	Water quantity and quality concerns. [Such as]Water is being dumped into two different rivers. Does this increase the environmental impact because the water is in two rivers, or is the solution to pollution dilution?	WR197

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Erika Carls (45153)	
8503	Land Restoration. [Such as]When the land used by PolyMet is reseeded at the end of the project, would there be a less severe impact on the environment if only native plants were reseeded in the area?	WET06
8507	What measures can be taken during the project to make the PolyMet company more environmentally friendly and cost effective, such as the use of green roofs on buildings, strongly insulated windows and programmable thermostats?	NEPA08
8509	Culture. Will the native people who have the right to hunt, fish and gather on certain parts of the proposed PolyMet project area be able to have these rights on the lands which are being involved in the land exchange, and would such lands provide these people with access to comparable quantities of resources?	CR01
8514	Land Exchange. I don't understand how federal land can be exchanged for the land that will be mined. Isn't federal land already publically owned?	LAN02
15428	Can large mammals, such as lynx, be trapped and re-located to decrease possible population drops? Can other animals be relocated, especially the 7 state listed species?	WI01
15429	Can plants be re-located? How can we make sure that the number of ETSC plant species does not decrease?	VEG01
15431	Will any chemicals be used to control the presence of invasive species that may appear in the land that is being restored, and how would these damage the environment?	VEG05
15432	If there is an environmental disaster caused by the mine, will an additional land exchange take place to help compensate for the damaged land?	LAN02
15434	Could any type of natural disaster cause the watershed area around the proposed PolyMet mine to shift such that the water impacted by the mine would enter the boundry waters canoe area?	WR035, WR081, WR090
15435	How will this project impact the monarch butterfly population in the area? Monarch butterflies are rapidly declining and every disruption in the population of this migratory species can spell disaster.	WI01
15436	Many species depend on wetlands for survival. Since acres of wetlands are being destroyed or impacted by this project, will new protected wetlands be provided in the land exchange and/or will new wetlands be created on the exchanged land? Also, for the wetlands created near the project area, will these be of compromised quality due to the leaching from mine tailings?	WET14, WET15
Sender Name (Submission ID)	Erika Sitz (43330)	
11844	Does process plan capture all polluted water? What about accidents, extreme weather events, or if things just don't go as planned? Treatment plan length needs more documentation.	WR035, WR130, WR180
15745	There are innaccurate and incomplete data in water modeling, e.g. Partridge River.	WR003, WR052, WR071, WR086, WR091
15746	Destroys 1000 acres of prime peat lands, including 100 Mile Swamp.Destroys another 6000 acres of wetlands by changing water flow.Replacement elsewhere is not adequate!	WET24
15747	Minnesota Power's dirtiest coal plants [will power the mining operations], carbon dioxide and mercury.The boreal forest is extremely vulnerable to climate change.	AIR01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Erika Sitz (43330)	
15748	Glencore's long history of environmental pollution, NOT TRUSTWORTHY.More detailed discussion of financial assurance needed to protect taxpayers.	FIN01
Sender Name (Submission ID)	Erin DeWitt (57142)	
16839	Mining – the PolyMet project would be environmentally irresponsible – jeopardizing the quality of water not only for our region, but the whole state as this region is a major watershed!	WR111
Sender Name (Submission ID)	Erin Goetz (17165)	
1752	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards.	WR023, WR060, WR181, WR182, WR195
16978	The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures.	WR012
Sender Name (Submission ID)	Erin Jordahl Redlin (47449)	
17595	you aren't dealing with financial assurance in the SDEIS, but I think we need answers now about who will pay for the inevitable pollution that occurs, when the companies behind this project no longer exist. Future generations of Minnesotans will be on the hook for those costs - generations that didn't have any input into this decision.	FIN01
17596	With such a poor record of operation in every other place it has been done, why do we think the pollution won't happen here? And why do we believe that the PolyMet corporation and its investors will be around to clean up the pollution?	PD26
17597	the SDEIS is inadequate and the proposed mine plan, as well as the proposed exchange of 6,650 acres of Superior National Forest lands, would have unacceptable environmental impacts.	NEPA09
Sender Name (Submission ID)	Erin Manning (47894)	
11309	The PolyMet project would harm moose further due to loss of habitat and habitat fragmentation. It will be in a key area of moose habitat types.	WI02
11312	Moose are also a large draw for tourists to the northern Minnesota woods. Lack of tourists, which this mine would have a huge impact on in many ways, will harm our economy greatly.	SO02
11315	The SDEIS should analyze alternatives to reduce loss of lynx habitat.	WI10
13530	The PolyMet project would harm moose further due to loss of habitat and habitat fragmentation.	WI02
13553	Another animal that will be greatly affected is the Canada lynx. … Having 200 or fewer lynx in Minnesota currently, we should be doing everything we can to protect these amazing northern Minnesota animals. The SDEIS should analyze alternatives to reduce loss of lynx habitat.	WI01, WI10
13554	It is our job to protect irreplaceable wetlands, fresh water and wild life habitat resources in the Lake Superior Basin for generations to come.	PER35

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Erin Manning (47894)	
16202	Lack of tourists, which this mine would have a huge impact on in many ways, will harm our economy greatly. Many of our local businesses rely on the tourist economy.	SO02
Sender Name (Submission ID)	Erin Ramberg (45597)	
12809	Adding a hazardous practice mine to strip a few mineral for a 20 year duration seem senseless when considering the potential to damage the quickly diminishing clean fresh water we prize and the outdoors I've personally used and loved for 40 years of my 46 years of life.	SO01
Sender Name (Submission ID)	Ernest and Beth Cutting (54476)	
17560	The SEIS already makes it clear that wetland "restorations" will not take plance in the Lake Superior watershed and are highly unlikely to replace bogs. The wetlands at the site have been rated as "having high wetland quality." How can they possilby be "replaced"?	WET03, WET05
17562	chemical pollution, not just from sulfate and its acceleration of toxic mercury conversions, but also heavy metals like nickel and aluminum…kills fish.	AQ05
17563	The long term need to clean up ater from pollutants, possibly for 200years. How can that be assured, especially with mor mines ready to ask for permits in that area?	FIN01
17567	can such [post-closure water] treamtment truly control all the sorts of pollutatnts that will come from the mine site? The SEIS predicts the company will excavate 307 million tons of bedrock in 20 years, at 70,000 tons per day.	PD04
17570	We are concerned that a lot of the proposed PolyMet site area has been designated by MN DNR as "Sites of High Biodiversity Significance" and support eleven state-listed species of plants. Destruction of such an area cannot be rectified, nor justified.	VEG01, VEG02
17571	There are other ways [besides mining] to secrue jobs in this fragile and uniques are of Minnesota than this. One suggestion is to create metal recycling facilities and hire people to work on recovering the metals we need.	NEPA06
Sender Name (Submission ID)	Ernesto Luna (58015)	
19851	Our natural resources are too beautiful to risk.	LU04
Sender Name (Submission ID)	erossow@gustavus.edu (41685)	
2161	This project may create jobs and provide resources that are valuable to other industries. Although once the job is completed the only people that will be gaining income will be the companies that continue to get money off the land. The jobs will only last 20 about years then after that people will be back to were they where.	SO02
2162	Also, from the negative impacts there will be health problems	HU03
15224	Please do not allow the PolyMet mining to happen. I do not believe that this project will benefit the community or the environment in a positive way that would continue over time. Yes, there are pros and cons to this however, in the end the negative effects are much more prominent then the positive ones.	CU11
Sender Name (Submission ID)	Espoir DelMain (16488)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Espoir DelMain (16488)	
1536	sulfide mining in Minnesota ... will destroy the many watersheds that encompass our state	WR111
Sender Name (Submission ID)	Esther Hope (47977)	
14192	The SDEIS does not give any reasonable assurance that...environmental damage [from tailings leakage] can be addressed.	WR132
Sender Name (Submission ID)	Esther Ouray (20070)	
14463	The modeling results provided in the SDEIS show that PolyMet and the DNR simply did not look beyond 500 years. The fact that the SDEIS does not say when the mine pit and tailings basin will stop polluting our water is a major and apparently intentional failure that needs to be corrected by the DNR. Please run the models - or require PolyMet to run the models - long enough to show when pollution of our water by PolyMet's mine would cease.	WR038
14527	PolyMet assumes the proposed expensive and complicated water treatment system will continue to operate effectively for long, long after the mining has stopped. It should be expected that mechanical systems like pumps, filters and pipes will eventually fail. In a 2007 report, an organization called Earthworks analyzed the records of 14 modern copper mines in five states found that 100% of these mines experienced pipeline spills or other accidental releases. 92% had failures of water collection and treatment systems that resulted in releases of contaminated mine seepage that significantly impacted water quality.	WR021, WR023, WR131
14528	Polymet's SDEIS lacks contingency plans for predictable failures in the proposed piping, pumping, and filtration equipment.	PD22
14529	By assuming that a complicated water treatment system will function indefinitely without fail, the SDEIS has failed to take the hard look required at the proposed PolyMet sulfide mine.	NEPA14
14530	the existing tailings basin is already leaking millions of gallons of untreated water, yet the chemical composition of that large volume of leaking water has not been tested and characterized. The failure to test and account for known leaks of untreated tailings basin water from the existing LTV Steel tailings basin is another major problem with the SDEIS.	WR023, WR070, WR071
14531	the tailings basin and the dam holding it back from flowing downstream are recognized to be unstable. If the tailings basin dam were to fail, vast quantities of contaminated tailings, sulfates, and heavy metals would be released into the headwaters of the St. Louis River… The failure of the SDEIS to fully consider the potential for - and the consequences of - a tailings dam failure is a deadly flaw in the SDEIS.	PD22
14532	The SDEIS states that building an underground mine would have "significant environmental benefits" compared to an open-pit mine. However, the PolyMet SDEIS rejects underground mining, stating that in today's market conditions, underground mining is not considered economically feasible. The minerals will be there if and when the market prices are high enough to mine them right. Not fully considering the underground alternative is a major flaw in the SDEIS.	ALT01
14533	Long after the mining has stopped, PolyMet would pose an ongoing risk to fresh water… PolyMet should not be permitted unless, when the proposed mining stops, the groundwater and surface water is left in a clean condition, and surrounding streams, rivers, and Lake Superior are safe from risk of sulfide mine pollution.	WR037
Sender Name (Submission ID)	Ethelyn Kaim (11575)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ethelyn Kaim (11575)	
2227	I don't believe this mining company will "clean up it's mess".I don't believe in the taxpayer "footing the bill There needs to be a lot of money 'up front' to pay for clean up.	PER10, WR160
2227	I don't believe this mining company will "clean up it's mess".I don't believe in the taxpayer "footing the bill There needs to be a lot of money 'up front' to pay for clean up.	FIN01, FIN05, FIN10
3245	The comment period is too short – it's in the middle of winter. The comment period needs to be extended.	NEPA07
3245	The comment period is too short – it's in the middle of winter. The comment period needs to be extended.	NEPA07
10653	I know many miners in this area are pro-union workers, I hope this project will respect the worker's right to organize and be part of a union.	SO06
10695	The profits from the industry must be kept in banks in the U.S… This corporation must not be allowed to bank their profits overseas.	PER02
10696	They must have a 'super fund' of their own to clean up the pollution that will be present…the fund must be in place before they are allowed to begin.	FIN01
Sender Name (Submission ID)	Etta Bartholdi (57183)	
18658	Please don't destroy the boundary waters. I love them very much and I feel mining for coal will [ILLEGIBLE] destroy the natural beauty and eco health of the BWCA.	WILD02
Sender Name (Submission ID)	Eunice Lindberg Milbrath (54505)	
18779	Please, please don't let us destroy this sacred space which will certainly happen if the Mining Interests who you know care for ONE thing. I am sure you have viewed the tailings and depleted land from used mines. That will happen here !	SO01
Sender Name (Submission ID)	Evan Faltesek (54477)	
17473	I have reviewed a few sections of the SDEIS and found that there is no provision to monitor mercury pollutants that could be present in the water that is returned to the environment.	MERC01
Sender Name (Submission ID)	Evans Connelly, Jr. (4708)	
1872	[The NorthMet Project would]… produce products to help build this country.	SO10
Sender Name (Submission ID)	Eve Glidden (43216)	
15828	the information regarding the potential impacts on wild life including fauna and flora is lacking more observent details including the pathways for moose, the breeding grounds for links, the extince of sun-dews (A rare medicine plant) in the proposed mine location.	VEG01, WI01, WI03
15829	I believe that saying clean up needs to happen for more than the amount of time the mine will be run is dangrous grounds and there is no proof that poly met, glencore or any other investors would stick around for long enough to clean up any thing.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Eve Glidden (43216)	
15830	There is also the issue of the tribal rights to the land.	CR01
15831	the fact that it is in the national forest should be enough to stop this plan before it starts.	WILD02
15832	another thing lacking in the seis it the real details about what would happen if we took out that much of our current carbon sink.	WET13
Sender Name (Submission ID)	Evelyn Stillwell (39814)	
7344	Sulfide mining may have a short-term economic benefit for Minnesota but at what cost? There is clearly an environmental price to pay in the short-term but there is also there very real potential that this could turn into a massive environmental problem in the long term as a consequent of toxic metal release and Acid Mine Drainage. This possibility should not be understated - it would negate any initial financial benefit that Minnesota would experience and could leave the environment damaged for hundreds of years.	SO01
Sender Name (Submission ID)	Eville Gorham (42824)	
7301	It seems to me extremely likely that given the present state of knowledge, and more especially our lack of knowledge as to how the hydrology of northern Minnesota is bound to change in the future as the climate changes, the effects of such mining upon aquatic and wetland ecosystems cannot be modeled satisfactorily a century and more from now.	WET24, WR196
7301	It seems to me extremely likely that given the present state of knowledge, and more especially our lack of knowledge as to how the hydrology of northern Minnesota is bound to change in the future as the climate changes, the effects of such mining upon aquatic and wetland ecosystems cannot be modeled satisfactorily a century and more from now.	PD22, WET24, WR196
7302	Adequate financial and other plans to take care of possible effects cannot be guaranteed with real confidence for a similar length of time, during which the security of the mine site, waste rock pile, tailings basin and wastewater treatment plants would have to be assured. This is so especially if-- as I am given to understand-- contingency plans are not already in place for accidents…	FIN01
7302	Adequate financial and other plans to take care of possible effects cannot be guaranteed with real confidence for a similar length of time, during which the security of the mine site, waste rock pile, tailings basin and wastewater treatment plants would have to be assured. This is so especially if-- as I am given to understand-- contingency plans are not already in place for accidents, of the kind to be expected with such a large, complexoperation because they have occurred elsewhere in similar situations.	FIN01, FIN08, PD22
18240	If accepted, [this project] would open the way for such mining even closer to our treasured BWCA.	CU04
18240	If accepted, [this project] would open the way for such mining even closer to our treasured BWCA.	CU04
Sender Name (Submission ID)	eyesoftheworld . (44175)	
9421	I believe with copper sulfide mining in the BWCA watershed, there will be grave environmental impacts to the fragile ecosystem, flora and fauna.	VEG06
14896	The jobs are in no way worth destroying this treasure of nature. Mining is boom and bust and once they extract the resources of the area and possibly destroy the local environment, our children, grandchildren and beyond will inherit the legacy.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	eyesoftheworld . (44175)	
14897	I think it's a terrible idea to allow this. I really hope future generations can enjoy and benefit from this vital, unique and beautiful wilderness.	WILD02
Sender Name (Submission ID)	F Jeff Verito (3564)	
248	PLEASE SEND THE REQUESTED INFORMATION. THIRD REQUEST	RFI01
550	What I require are large scale maps of the land exchange parcels, with contours, contour interval, and water features. I'd also like to know the vegetation composition and age of the trees on each parcel. Please make clear which are currently Federal versus private.	LAN06
775	I need to quickly be able to reference maps of what's to be exchanged and what's to be obtained with contours, water features, composition of the parcels (type and age of vegetation) and contour intervals. I've dealt with Ottawa and Hiawatha NFs for twenty years, and have camped Superior NF, and all the above has made me extremely distrustful. Your failure to provide obviously-needed maps only heightens this distrust. I cannot imagine why you'd refuse to provide this information unless you're trying to hide something. For the third time--PLEASE PROVIDE THE REQUESTED INFORMATION AND ONLY THE REQUESTED INFORMATION.	LAN06
2007	I can only assume that the land to be sacrificed is worth more than the land that will be exchanged for public use.	LAN03
7227	What I require are large scale maps of the land exchange parcels, with contours, contour interval, and water features. I'd also like to know the vegetation composition and age of the trees on each parcel. Please make clear which are currently Federal versus private.	VEG09
Sender Name (Submission ID)	Fay Simer (58150)	
19914	How will mine clean-up be guaranteed and paid for after the mine closes? I am concerned this is not adequately addressed by the SDEIS process.	FIN01
Sender Name (Submission ID)	Fern Peterson (3669)	
650	The proposed PolyMet project in the watershed of Lake Superior will destroy or permanently degrade thousands of acres of high-quality wetlands and cause permanent water pollution with sulfuric acid and toxic metals.	WET24, WR115
651	Treatment would be required for at least 500 years, but more likely thousands of years.	PD01
655	Polymet's Supplemental Draft Environmental Impact Statement is inadequate in its response to these concerns. In February 2010, the EPA gave PolyMet's Draft Environmental Impact Statement (DEIS) the lowest possible score. After almost four years, PolyMet is back with a Supplemental Draft Environmental Impact Statement (SDEIS). Despite the length of time taken to prepare the SDEIS, it fails to describe the staggering environmental, economic, and social costs of the project.	NEPA09
694	We are strongly opposed to the State of Minnesota allowing PolyMet to begin production of any sort of mining near our pristine BWCA and feel it would be short-sighted and immoral to trade a few hundred relatively short term mining jobs for the future of our health and the health of our planet.	SO01
695	New technologies should be supported/discovered to reduce the need for copper and other minerals for our cell phones, computers, ipads, cars and other devices which are driving this "need" for sulfide mining.	NEPA06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Fione (54180)	
16423	I have never been to the boundary waters but I have only ever heard wonderful things about the experiences people have while they are there. During the speech some very valid points were brought up about how mining should not be allowed in the boundary waters area such as how it will pollute the area which is known well for camping and lots of wild life.	LU06
16424	Also it is a pure watershed which is a great resource to have, especially so close to home. I do believe mining should not be allowed in this nature sanctuary.	WR195
Sender Name (Submission ID)	Flannery Delaney (15756)	
12066	…the economic gain is not worth the incredible risk to fresh water resources and land in northeastern Minnesota. … A copper mine will bring a limited number of jobs for a limited number of years risking the natural resources the people of this state have depended on for their livelihoods and enjoyment.	SO01
Sender Name (Submission ID)	Florence Marks (46077)	
10710	The project will provide some employment but the land will be raped in the process. The long term effects of the mining appear to be devastating. Until some satisfactory method of preventing contaminants from entering the water system, this is a no go from my perspective.	WR115, WR195
Sender Name (Submission ID)	flynn karen (39536)	
6297	If the company declares bankruptcy at some point, there will be insufficient funds to clean up any mess.	FIN01
13541	I don't think we can count on a business to have environmental safety as its primary concern.	SO01
Sender Name (Submission ID)	Fond du Lac Band (42920)	
2768	The Land Exchange Proposed Action, as described in the SDEIS, serves to confirm our conerns for permanent, unmitigated impacts to treaty resoruces in the 1854 Ceded Territory. The Band submitted commetns on the Feasibility Analysis… including: A full consideration of the fair market value and future use of the federal land in the proposed PolyMet Land Exchange would recognize a private windfall instead of an equal exchange, in violation of federal statutes, rules and policies. …The Band is also concerned that most of the non-federal land proposed in the PolyMet Land Exchange has a divided mineral estate. Divided ownership raises uncertainties about future benefits that that the non-federal surface could afford to the public, further diminishing the value of the non-federal lands, and is not consistent with Forest Service Conveyance policy (36 CFR 254.15)…..Further, any proposed federal land exchange that is not consistent with forest resource management plans must be rejected under 36 C.F.R. 254.3….The Band expects that the U.S. Forest Service, in facilitating the PolyMet Land Exchange, would coordinate with the policies expressed in our plans to protect natural resources on the Reservation and in the Ceded Territories. … The Band is extremely concerned about the loss of high quality, even exceptional, wetlands within the federal estate, without sufficient information to understand whether the proposed non-federal parcels provide equivalent functions and values. Access to treaty-protected resources is of prime importance to Band members. Loss of access to or use of public lands within the Ceded Territory can significantly impact exercise of treaty rights, and this issue should be thoroughly evaluated in the SDEIS process.	COOP01, LAN03, LAN04, LAN05, WET14
2782	Wetlands also function as thermal refuge for moose when summertime temperatures exceed 14oC, the point at which moose become thermally stressed, and wetlands provide an important forage resource for moose during the open water season.	COOP01, WI01, WI02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Fond du Lac Band (42920)	
2788	In the co-lead agency evaluation of the underground mining alternative, the North Met Deposit is described as a "low- to medium-grade mineral resource" which is somewhat at odds with its description as "one of the largest untapped deposits of copper and nickel, and other precious metals" or "world class resource" as it is represented throughout the SDEIS and in continual media coverage. From the SDEIS, we are not able to determine whether mining this mineral deposit in accordance with environmental standards will be profitable enough to provide adequate environmental protections and financial assurance.	COOP01, PD25
2799	while the co-lead agencies stipulate in the SDEIS that PolyMet will bear liability through financial assurance[legacy contamination at LTV], it is troubling to see that apparently, they will not be required to complete remedial activities until closure, many decades from now	COOP01, LU02
2845	The mass balance does not take into account seepage from the saturated overburden at the OSLA, or the load of mercury from Colby Lake stream augmentation. Given the known concentrations of mercury in Colby Lake, which consistently exceed the GLI standard, this mitigation measure is clearly not permittable as a discharge that would contribute to an existing water quality exceedance.	COOP01, MERC20
2856	Hunting pressure has been ruled out as a major contributing factor to population-level declines, but the appearance of holding a hunt does not sit well with the public, so the DNR, 1854 Treaty Authority and Fond du Lac all closed the 2013 moose season.	COOP01, WI01
2860	The Band's consistently expressed concerns for potential air quality impacts from the Proposed Project (a new source of mercury, visibility in a Class 1 airshed, fugitive dust impacts to terrestrial and aquatic resources, asbestos-like mineral fibers) from the Proposed Project remain largely unaddressed in the SDEIS.	AIR08, COOP01
2878	the Plant Site multi-pathway cancer risk for a farmer was found to be equal to the MDH additional lifetime cancer risk guidance level of 1E-05. Although this level is considered "guidance" and not a regulatory action level, the Band believes this value clearly indicates the potential for adverse health effects. The same result was found for the off-site worker inhalation additional lifetime cancer risk. The major drivers for these endpoints were cobalt, nickel, and dioxins (farmers only). Exposure to nickel has been linked with increased risk of lung cancer, cardiovascular disease, neurological and developmental deficits, and high blood pressure.	COOP01, HU05
2879	As shown in SDEIS Table 6.2-22, cumulative inhalation risks for non-cancer chronic and non-cancer acute effects from both the facility and existing sources are equal to the incremental acute risk guideline value of 1. This shows that the predicted impacts of NorthMet, when added to the toxic releases already prevalent in the area, have reached the level where health authorities begin to be concerned about cancer risks.	COOP01, HU05
2897	Cumulative effects result in a relentless, unmitigated diminishment of treaty resources and access to those resources. Yet across virtually all resource categories, the SDEIS predicts that there will be no adverse impacts….; this conclusion then enables the co-leads to determine 'no cumulative effects' from the project and the land exchange. ….over the course of the DEIS and SDEIS processes that support our misgivings for this circular logic. We presented a substantial alternative analysis of cumulative effects from the NorthMet Project Proposed Action as part of our commenting during the preliminary SDEIS review.	COOP01, CU11, CU12
2905	The Band's comments on the 2009 DEIS related to impacts to the 1854 Ceded Territory stand.	COOP01, NEPA12
2906	The Band's comments on the 2009 DEIS related to environmental justice impacts still stand.	COOP01, SO09
2907	The Band's comments on the 2009 DEIS related to climate change impacts still stand.	COOP01, NEPA12

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Fond du Lac Band (42920)	
2909	The Band also shares concerns communicated by the Bois Forte Tribal Historic Preservation Officer: Mesabe Widjiu is correctly identified as a sacred landform, but needs to be considered in its entirety (see attached map as an example). The segment encountered within the project area is small, but integral to the property. Adverse affects to any portion impact the entire feature.	COOP01, CR02, CR05
3102	Multiple mine plan alternatives exist that could provide mitigation for or prevent long-term environmental damage... •paste or dry tailings disposal to reduce the project footprint and use less water (decrease risk of surface and groundwater pollution); •perpetual pumping of the west pit to prevent a pit lake from forming (protect surface and groundwater); •back-filling all waste rock into the east, central and west mine pits (reduce the mine foot print at closure, reduce contaminant runoff to surface and groundwater, reduce volume of water requiring perpetual treatment, restore mine site wetlands); •provide reverse osmosis treatment at the mine site immediately rather than waiting until year 40 (augment water loss in adjacent high quality wetlands in the Partridge River watershed), and; •underground mining (multiple environmental benefits).	ALT03, ALT04, ALT06, COOP01
3105	The Fond du Lac Band of Lake Superior Chippewa conducted meetings in February 2011 to discuss past and current traditional uses by the Band of the area in the NorthMet project. It was expected from the beginning that the distance between the NorthMet area and the Fond du Lac Reservation would reduce the chances of documenting specific use of the area by Fond du Lac Band members.	COOP01, CR01, CR05, CR06
8240	a comment I've been struggling to articulate, regarding how the ash dump is proposed to be dealt with under the proposed project; like many other issues in the SDEIS, it seems to be getting kicked down the road for future permitting discussions. But if the plant site model has been constructed to not incorporate the ash dump (which is full of toxics), when in fact it does, this is another significant potential source of contaminant loading that is not accounted for in the water modeling and water quality predictions.	WR028
16321	you might re-consider extending the comment period to allow all of us the time we need to truly understand how the models have informed environmental impact predictions.	NEPA07
16322	At literally the eleventh hour of a 90-day public comment period, we just shouldn't be trying to figure out basic model construction, source loads, and water quality impacts; it should be clear in the SDEIS.	PD29
19571	The NEPA "hard look" requires agencies to "exercise a degree of skepticism in dealing with self-serving statements from the prime beneficiary of a project" when analyzing alternatives. Contrary to the explicit requirements of the Council on Environmental Quality (CEQ) rules, the SDEIS does not evaluate or examine in any substantive way potentially viable Project alternatives. Even the no action alternative is lacking in detail and analysis. Tribal cooperating agencies identified this deficiency in the DEIS, consistently brought it forward for discussions throughout the SDEIS process, and US EPA cited the lack of alternatives as a factor when issuing an EU-3 rating for the DEIS.	ALT14, ALT21, COOP01
19573	Although the SDEIS was revised to reflect the Project proponent's preferred action, the only alternative analyzed in any detail concerns simply the acreage of the proposed land exchange. This is not consistent with the CEQ regulations that require federal agencies to identify an agency-preferred alternative in a draft EIS. Yet the SDEIS states "At this time, the Co-lead Agencies have not identified a preferred alternative, and for the USACE, Appendix B of 33 CFR Part 325 supersedes the CEQ requirement to identify an agency-preferred alternative."	ALT21, ALT23, COOP01
19575	There is no evaluation or identification in the SDEIS of the 'least environmentally damaging practicable alternative' ("LEDPA") as required before approving a CWA §404 wetlands permit.	COE04, COOP01

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Comment ID	Comment Text	Theme Codes
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19577	A fundamental operational component of the Proponent's preferred alternative analysis described in the SDEIS is to deposit their reactive slurry tailings on top of existing taconite tailings in an unlined basin that is currently required, under a Consent Decree, to remediate seepage that has already polluted the nearby ground and surface waters. The SDEIS analysis assumes a tailings basin seepage capture rate of 95% – a performance efficiency that has not been demonstrated anywhere in the US, nor is it feasible since the tailings basin was constructed (per standard Minnesota ferrous mining practices) without a liner. There is an existing seepage capture system installed at SD026 as a requirement of the Consent Decree, yet it has proven to be so ineffective that Cliffs Erie LLC (the responsible party) has proposed building an additional dam and capture system further downstream.	COOP01, GT02, PD12, WR020, WR117
19578	Dewatered or paste tailings placed on a liner and covered could substantially minimize the mass and concentration of pollutants reaching the Embarrass River watershed wetlands and the Embarrass River. This is a modern mine waste management technique used by many mines in the US and around the world, yet it has never been evaluated as an alternative for this project. "Converting to paste tailings technology from conventional slurry tailings at most mines makes sense, both environmentally and economically. Paste tailings use less water, require less land, do not require engineered containment dams, generate less acid and contaminants, reduce long-term costs and allow for early reclamation. Slurry tailings use and discharge large volumes of water, require dust control measures, require large land areas and containment dams for disposal, and create contaminated water that must be captured and treated."	ALT10, ALT16, COOP01
19580	The State of New Mexico, Office of Natural Resource Trustee, requires perpetual pumping of the mine pits to prevent formation of a pit lake at the Chino and Tyrone copper mines, specifically for the protection of groundwater. The experience of numerous western mines discharging plumes of polluted water into the bedrock aquifer from leaking mine pits, tailings basins and waste rock piles, highlights a predictable problem that is not only difficult but expensive to fix. By requiring perpetual pumping [alternative not considered in the SDEIS] of the mine pit, the regulatory agencies would minimize leakage of contaminated water into the surrounding bedrock aquifer, and thereby protect groundwater that the State of Minnesota is required to protect as source of drinking water.	ALT04, COOP01
19581	In the 2009 DEIS, the co-lead agencies maintained that all waste rock should be considered reactive. SDEIS Table 3.2-8, Waste Rock Characterization Properties , acknowledges that the Category 1 waste rock (rock that is <0.12% sulfur), which constitutes 70% of the volume of waste rock, has a "low potential to generate acid, but may leach metals." Back-filling all of the mine pits with all of the waste rock would reduce the final surface footprint of the mine at closure, and make possible 526 acres of wetland restoration where the Category 1 stockpile is now proposed to be stored in perpetuity. This alternative would prevent the need for a permanent separate seepage capture system around an unlined waste rock pile, as proposed in the preferred alternative, which would have to perform at an above-optimum capture rate in perpetuity to comply with Minnesota Water Quality Standards ("MN WQS"). Capping and re-vegetating the mine pits after backfilling with waste rock would prevent deep infiltration of precipitation and reduce mobilization of toxic metals.	ALT06, COOP01
19582	The SDEIS inexplicably removes the stockpile liner described in the 2009 DEIS for Category 1/2 waste rock in the current project proposed action. From Table 3.2-16 Comparison of DEIS and SDEIS NorthMet Project Proposed Action: DEIS: Category 1 and 2 waste rock would be stored in a permanent lined/covered stockpile (Category 1/2 Stockpile) north of the west pit (years 1-11) SDEIS: Category 1 waste rock mined from years 1-13 would be stored in an unlined, permanent stockpile north of the West Pit. The stockpile would have a geomembrane cover system at completion and surface water and groundwater collection system would encompass the entire stockpile and direct water to the Mine Site WWTF. If not backfilled, the Category 1 waste rock stockpile must be lined.	ALT07, ALT13, COOP01
19583	However, combining the two alternatives of perpetual pumping and backfilling the Category 1 waste rock pile would substantially reduce the risk of polluting groundwater and wetlands in the Partridge River watershed.	ALT04, ALT06, COOP01

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19584	The Minnesota Department of Natural Resources (DNR) and US Army Corps of Engineers (USACE) superficially evaluated and subsequently dismissed underground mining as an alternative to the proposed open pit Project for the 2009 DEIS. The co-lead agencies eliminated this alternative from further evaluation because it would have had "a significantly reduced rate of operation that would not be considered economically feasible, and, therefore, would not meet the Purpose and Need of the Project." Tribal cooperating agencies urged the co-lead agencies, now including the US Forest Service (USFS), to do a more robust analysis of the underground mining alternative for the SDEIS, but the co-lead agencies did not "exercise a degree of skepticism in dealing with self-serving statements from the prime beneficiary of a project" when analyzing this alternative. This alternative was eliminated by the Project proponent based purely on an economic decision that underground mining would not be as profitable as open pit mining. The co-lead agencies claim that "it was not possible to undertake a quantitative, side-by-side assessment of the underground mining alternative." An underground mine would have a reduced mining rate and life of mine, employed fewer workers for a shorter period of time, and reduced state and local tax revenues. Although the underground mining alternative would offer substantial environmental benefits (significantly less wetland destruction, less mine-generated waste, less groundwater and surface water pollution generated and requiring treatment and control, less reclamation and closure activities, less nuisance and reactive dust to be controlled, less noise and vibration impacts, less visual impacts), the economic and intrinsic value of those benefits are not even estimated. In addition, an underground mine project would not require a federal land exchange, resulting in lower start-up costs and avoiding the permanent loss of high quality resources (as discussed in later comments on Land Exchange impacts). Based upon an incomplete analysis of the benefits of an underground mine, the co-lead agencies determined that this alternative would result in reduced socioeconomic benefits, and; "PolyMet would not move forward with an unprofitable project, thus any potential environmental or socioeconomic benefits associated with this alternative are moot."	ALT01, COOP01
19585	The co-lead agencies determined that underground mining was considered technically feasible, but concluded that "PolyMet is a private sector and for-profit company, the value of the saleable material would need to provide sufficient income to cover operating cost (which includes, but is not limited to, the cost of mining, processing, transportation, and waste management), capital cost (to build and sustain facilities), an adequate return to investors, reclamation, and closure costs and taxes. An underground mining project would leave most of the NorthMet Deposit unmined because of its low metal value relative to the cost of mining and mineral processing. Other material would have to be left in place for safety reasons, to prevent collapse." Therefore, "the Co-lead Agencies found that while underground mining is technically feasible, available, and would offer significant environmental benefits over the proposed NorthMet Project, it would not be economically feasible and would not meet the Purpose and Need. Since the underground mining alternative would not meet all of the screening criteria, it is not considered to be a reasonable alternative. Therefore, the underground mining alternative was eliminated from further evaluation in the SDEIS." The SDEIS does not contain the appropriate level of detail required to eliminate this alternative. The conclusion that underground mining is neither viable nor preferable remains substantially unjustified, despite repeated requests by the tribal cooperating agencies for further analysis.	ALT01, COOP01
19587	The Project Proponent, without considering the economics of perpetual treatment, the purchase of thousands of acres of land for the federal land exchange, direct and indirect wetland mitigation costs, etc., concludes in their economic analysis that underground mining is "[n]ot economically viable" while simultaneously claiming that backfilling the west pit would create encumbrances not allowed in their mineral lease due to mineral resources located below the west pit that could only be accessed through underground mining. This is not the appropriate rigor in a cost-benefit analysis for thoroughly evaluating an EIS alternative. The CEQ regulations require that, where a cost-benefit analysis is "relevant to the choice among environmentally different alternatives," there are a variety of additional requirements, including "analysis of un-quantified environmental impacts, values, and amenities," in addition to other CEQ alternatives rules.	ALT01, ALT03, COOP01

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19588	As already argued in the Tribal Position, significant additional study of the underground mining alternative is mandated, and the SDEIS offers no new discussion of the reasons for rejecting the alternative. The economic viability of an underground mine depends on a variety of factors including ore grade, market prices, cost of tailings management, and waste rock disposal. A study of this particular deposit was performed by the prior owner of the site, US Steel, which actually recommended underground mining. PolyMet is well aware of this study, given that the company included it in a filing with the Securities and Exchange Commission in 2003. In fact, by examining geologic cross-sections showing the distribution of ore by depth, it appears that there are substantial ore reserves at depths that likely could not be accessed by the proposed open-pit mine.	ALT01, COOP01
19589	The environmental costs of open-pit mining and the requisite wetland mitigation and above-ground disposal of tailings and waste rock are immense. These environmental costs, combined with the most current understanding of deposit ore grades, reasonably potential metals prices, and the costs associated with perpetual treatment must all be evaluated to determine the feasibility of this alternative.	ALT01, COOP01
19594	Even the No Action Alternative analysis is deficient: nder the NorthMet Project No Action Alternative, the NorthMet Project Proposed Action would not occur. The consideration of a No Action Alternative is required to be evaluated in the SDEIS in accordance with NEPA and MEPA. If the NorthMet Project Proposed Action is not approved, the Mine Site would be returned to pre-exploration conditions under the requirements of exploration approvals to reclaim surface disturbance associated with exploratory and development drilling activities. Other existing surface uses would be allowed to continue consistent with the Forest Plan. No further upgrades or new segments would be constructed along the existing power transmission line, railroad, or Dunka Road, which would continue to be used by their private owners.At the brownfield Plant Site, Cliffs Erie would continue to complete closure and reclamation activities as specified under state permits and plans and the Cliffs Erie Consent Decree. This would include completing activities for the localized affected areas under the Minnesota Voluntary Investigation and Cleanup (VIC) Program, removal of the former Plant Site building, and management of seepage at the Tailings Basin embankment. This evaluation must also acknowledge that there would be no direct disturbance of over 900 acres of high quality wetlands, thousands more wetland acres that would not be indirectly affected, no loss of high quality forested uplands, no further diminishment of wildlife habitat, no permanent loss of treaty resources under the land exchange, no cumulative effects to resources and environmental quality. In fact, water quality should improve substantially under the No Action Alternative, as the Cliffs Erie Consent Decree requires that the closed tailings basin ultimately achieves compliance with MN WQS.	ALT14, COOP01, WR108
19595	The SDEIS is approach to considering less environmentally degrading alternatives is fundamentally inadequate. CEQ rules require that the EIS "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public." The SDEIS must be revised to fully evaluate reasonable alternatives in the SDEIS, including identifying the federal agency preferred alternative and the LEDPA.	ALT20, COOP01
19597	The Land Exchange Proposed Action, as described in the SDEIS, serves to confirm our concerns for permanent, unmitigated impacts to treaty resources in the 1854 Ceded Territory.	COOP01, LAN05
19599	The Land Exchange Proposed Action does not meet the need of the Bands in the 1854 Ceded Territory. It results in a permanent loss of 382 acres, does not protect fish and wildlife habitat within the Mine Site, does not protect important cultural resources such as wild rice beds, historic trails, and a substantial portion of the Mesabi Widjiu, does not protect the Embarrass, Partridge or St. Louis River watersheds, does not consolidate mineral interests in the private parcels that would be conveyed to the federal estate, does not promote multiple-use values, or fulfill public needs.	COOP01, LAN05
19600	maintaining public land ownership is critical for the exercise of treaty rights. There are 382 acres of Lake County land proposed for the land exchange (Tract 2). This means a net loss, through the exchange, of publicly accessible land for band members exercising their treaty rights.	COOP01, LAN05

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Comment ID	Comment Text	Theme Codes
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19601	The Forest Service should consider exchange for private lands only in order to maintain - or better yet, increase - the total public land acreage within the 1854 Ceded Territory.	COOP01, LAN05
19603	This language and description [SDEIS 3.1.2, Land Exchange Overview] is misleading; it downplays the largely undisturbed nature and ecological and biodiversity significance of most of the contiguous lands (i.e., the Hundred Mile Swamp, St. Louis River Headwaters Site).	COOP01, LAN06, VEG02
19611	Of the approximately 6,025 acres of MBS Sites of High Biodiversity Significance under the Land Exchange Proposed Action, nearly 2,000 acres of coniferous bog wetlands will be lost to the federal estate and therefore effectively to the Bands, if the Land Exchange Proposed Action is implemented. This is significant because many tribally harvested resources are only available in coniferous bogs (e.g. cranberries, soft-leaved blueberries, sweet flag), and mitigation for coniferous bogs is simply not feasible.	COOP01, CR01, WET05
19612	The exchange of thousands of acres of high quality wetlands and forests containing some of the few remaining wildlife corridors in northeastern Minnesota available to the Bands to exercise reserved 1854 Treaty rights, for lands that have moderate diversity is inconsistent with fiduciary responsibilities that are shared by all federal agencies.	COOP01, CR01, LAN05
19613	The SDEIS attempts to diminish the significance of the loss of these high quality lands by stating "Given the existing lack of overland public access and actual use of the federal lands, as well as historic use of this area for mineral exploration (see Section 4.2.9), the Land Exchange Proposed Action represents little to no change in the actual level of recent or current use of the federal lands." In fact, historic trails connect what is now Beaver Bay with Lake Vermillion. These trails "are associated with the lives of persons significant in our past" including John Beargrease, Peter Gagnon, and Alec Posey. In more recent history, Bois Forte Band members used a sugarbush near the plant site and harvested wild rice in the Embarrass River near the LTVSMC tailings basin.	COOP01, CR04
19614	The SDEIS does not provide adequate discussion of the adverse effects of the proposed land exchange on wetlands and headwater streams within the St. Louis River watershed/Lake Superior Basin, where the loss of first-order headwaters streams, second-order streams and wetlands have the potential to significantly adversely impact downstream water quality, fisheries, and wildlife that are important to the Bands. The Land Exchange Proposed Action would relinquish water resources within the Lake Superior basin for wetlands and surface water resources outside the Lake Superior basin and the St. Louis River watershed, although still within the 1854 Ceded Territory. Federal lands include 4,164 acres of wetlands within the Lake Superior basin; non-federal lands contain 4,669 acres of wetlands, of which only 373 acres are within the Lake Superior Basin, demonstrating there would be a permanent loss of 3,791 acres of federally managed wetlands within the Lake Superior Basin. It is well known that wetlands play an important role in protecting the quality and condition of downstream waters by retaining floodwaters, sediment, nutrients, and other pollutants. Wetlands also function as thermal refuge for moose when summertime temperatures exceed 14oC, the point at which moose become thermally stressed, and wetlands provide an important forage resource for moose during the open water season.	AQ29, COOP01, CR01, WET14, WR114
19615	the SDEIS concedes that the land exchange will cause irretrievable losses of resources for the Bands	COOP01, CR01
19616	the wild rice waters in Tract 1 are already accessible to the Bands via the Pike River; adding Tract 1 to the federal estate does not provide additional wild rice harvesting opportunities to Band members in the 1854 Ceded Territories even though it would add an additional 126 acres of wild rice beds to the federal estate.	COOP01, LAN05, WR155
19617	This is the essential argument against Alternative B, from the Bands' perspective. The additional lands would essentially be permanently removed from tribal access, habitat and resources would be degraded, and there would be no compensation via conveyance of lands to the federal estate.	COOP01, LAN05

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19618	The desire to resolve "conflict" between the USFS and the Project proponent, whose goal to develop an open pit mine is barred due to deed restrictions on the federal estate, should not prevail over the federal fiduciary responsibility to the Bands. The potential for more roads and hiking trails may provide more access to the public, but does nothing to promote habitat diversity and long-term ecosystem sustainability that are requirements for the preservation of tribal usufructuary rights. Although the Land Exchange Proposed Action may increase acreage in the federal estate, the countervailing permanent loss of critical wildlife corridors, high quality and diverse land and water resources that would result is simply not in the public interest.	COOP01, LAN05
19619	federal land exchanges are discretionary, and federal agencies cannot approve permits that will have impacts to treaty resources without additional evaluation and mitigation. No mitigation has been identified in the SDEIS for this permanent loss of lands and resources (natural and cultural) to the 1854 Ceded Territory. The public interest determination must include a specific finding that "The intended use of the conveyed Federal land will not substantially conflict with established management objectives on adjacent Federal lands, including Indian Trust lands" (36 C.F.R. 254.3(b)(2)(ii)). This threshold has not been met, and the Fond du Lac Band objects to the implementation of the Land Exchange Proposed Action.	COOP01, CR01, LAN05
19620	in the SDEIS, no detail is provided regarding the estimated amount of financial assurance that would be sufficient for reclamation, closure, mitigation, and remediation of adverse effects from the Project... , the SDEIS provides neither a timeline nor a discussion regarding financial assurance for the existing contamination associated with previous mining activities at the site.	COOP01, FIN05
19621	The financial assurance costs for long-term treatment identified in the SDEIS range from $3.5 to $6 million, but appears to be an estimate for monitoring activities only without any long-term wastewater treatment costs.	COOP01, FIN05
19622	The cursory estimate of financial assurance provides little detail about how the cost estimates were derived. Instead, specific discussions about the scale and appropriate instruments for financial assurance have been postponed until the permitting phase of this Project. This approach fundamentally contradicts federal and state environmental policy and the SDEIS must be revised, with significant additional study, to appropriately evaluate closure, mitigation, reclamation, and perpetual treatment cost estimates.	COOP01, FIN13
19623	Long-term treatment of contaminated water; consistency with maintenance-free closure goals: The SDEIS lists the sulfur concentrations of Project waste rock ranging between 0.01 - 5.0% with an average mass-weighted concentration of 0.15%. The Virginia Formation has the highest concentrations of sulfur at 0.4 - 5.0%, and the Duluth Complex 0.13 – 0.6% sulfur. These concentrations are at least equal to, or in some instances significantly higher than the Zortman-Landusky mine waste rock (0.2% sulfur) that requires perpetual wastewater treatment. Just as Zortman-Landusky predicted for their mine project, PolyMet has suggested that "most (70%) of the NorthMet waste rock would be the low-sulfur, non-acid-generating" and will never cause acid mine drainage. Yet the SDEIS speaks to the need for at least centuries of wastewater treatment at both the Mine Site and Plant Site: "Once the West Pit is full (approximately year 40), discharge of treated water from the WWTF to the West Pit would be terminated. The WWTF would be upgraded to RO and include evaporator/crystalizers to convert the RO reject concentrate to residual solids, which would be disposed of at appropriate off-site facilities."…Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site"...Mechanical water treatment is part of the modeled NorthMet Project Proposed Action for the duration of the simulations (200 years at the Mine Site, and 500 years at the Plant Site). The duration of the simulations was determined based on capturing the highest predicted concentrations of the modeled NorthMet Project Proposed Action. It is uncertain how long the NorthMet Project Proposed Action would require water treatment, but it is expected to be long term; actual treatment requirements would be based on measured, rather than modeled, NorthMet Project water quality performance, as determined through monitoring requirements."The tribal cooperating agencies have provided substantial evidence that the modeling for the NorthMet Project Proposed Action potentially underestimates those "highest predicted concentrations." This will affect both volumes of water requiring treatment and duration of the need for mechanical treatment.	COOP01, PD03, WR056

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19624	After refill, the West Pit water level would be controlled by pumping to the WWTF to prevent surface water overflow from the pit lake. However, release of pit lake water to the West Pit Surficial Flowpath would continue. The WWTF would also receive low flow rates from the Category 1 Stockpile groundwater containment system. The WWTF effluent would be discharged into a tributary channel that flows into the Partridge River at the location shown on Figure 5.2.2-15. Mine site: The WWTF would continue to operate during long-term closure, treating excess water from the West Pit and discharging the effluent to the small Partridge River tributary. The typical discharge rate from the WWTF is predicted to be 285 gpm. The water balance model predicts periodic temporary higher treatment/discharge rates to account for conditions when the freeboard in the pit becomes too small. By pumping pit lake water to the WWTF, the pit water level would be managed to always provide sufficient freeboard to absorb extreme precipitation events without overflowing. The estimated discharge for this condition is 570 gpm. In the water balance model, the occasional switch to the “high” treatment flow pushes the long-term average discharge rate to 290 gpm. Plant Site: During long-term closure, the WWTP would continue to treat water collected by the Tailings Basin containment systems. Some of the treated effluent would be used for flow augmentation to Unnamed Creek, Mud Lake Creek, Trimble Creek, and Second Creek. It is predicted that Colby Lake water would no longer be needed for augmentation (Barr 2013a). Tailings seepage bypassing the containment system (approximately 19.4 gpm) would continue to enter the North, Northwest, and West Surficial flowpaths, and migrate slowly toward the Embarrass River. By year 200 in closure, which reflects when effects would have peaked and would be decreasing, the WWTF would be discharging and all groundwater contaminant loads would have reached the Partridge River (except negligible contributions from the bedrock flowpaths). Whatever the long-term goals to transition to non-mechanical treatment, this acknowledges a minimum of 200 years of operation of the WWTF. It is clear that the NorthMet Project Proposed Action would require long term treatment of water at both the Plant and Mine Sites. The minimum duration of this treatment is on the order of centuries, but the SDEIS does not provide an estimate of when mechanical treatment would no longer be needed to meet MN WQS. Therefore, as provided in multiple comments on the preliminary SDEIS, Fond du Lac conservatively assumes that water treatment for the proposed PolyMet mine is perpetual and the SDEIS should be clear on this issue.	COOP01, WR035, WR036
19625	However, instead of clarifying this factor, it appears that the co-lead agencies are attempting to minimize the significance of the necessity for long term/perpetual treatment by using vague and confusing language in the SDEIS. The specific language describing long term water treatment has changed during the development of the document, even though the model results have not. The co-lead agencies use creative wording to obscure the results of the modeling; this is misdirection at best and highly inappropriate for the co-lead agencies to present to the public.	COOP01, NEPA09, WR035

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19626	In addition to water treatment, there will also need to be a substantial investment in long-term or perpetual operation, maintenance and replacement of other environmental controls for the Project, including seepage capture and pumping at multiple locations at both the mine site and plant site, repair and replacement of liners, managing appropriate stream augmentation and Tailings Basin pond elevation, and pumping, treating, and disposal of seepage from the HRF: The Tailings Basin pond would primarily receive solute loadings from the tailings, treated Mine Site process water (primarily during years 1 to 11, and possibly through year 20, depending on the NorthMet Project Proposed Action water budget), and captured seepage from the groundwater containment system. The Tailings Basin pond, in turn, would become a primary source of contaminants as its water seeps into the tailings. Therefore, the composition of the Tailings Basin pond, which would be a permanent feature of the Tailings Basin, would be an important component in the quality of water that would be discharged from the Tailings Basin. Thus, PolyMet proposes to use the WWTP to treat the pond water during reclamation, and as necessary during closure, to maintain the design water level and prevent overflow. The presence of the pond in closure would provide benefits as it would create a saturated layer that would permanently reduce the oxygen flux and associated solute release in the underlying tailings. The groundwater containment system would continue to operate during reclamation and closure, although in those phases, the seepage could not be reused as process water, but would be treated at the WWTP and used to accelerate filling of the West Pit (during reclamation) and for streamflow augmentation (during closure). Although it is designed to capture all of the Tailings Basin seepage, the groundwater containment system is assumed to capture 90 percent of the groundwater flow that approaches the system (PolyMet 2013g). During reclamation, all WWTP effluent would be used to help flood the West Pit; therefore, during this phase, all augmentation water would come from Colby Lake (approximately 1,600 gpm). In closure, it is expected that effluent from the WWTP alone (estimated at approximately 2,000 gpm) would be sufficient to meet the minimum flow augmentation requirements of the tributaries without requiring additional water from Colby Lake.	COOP01, PER03, WR035, WR037
19627	The Tailings Basin pond would primarily receive solute loadings from the tailings, treated Mine Site process water (primarily during years 1 to 11, and possibly through year 20, depending on the NorthMet Project Proposed Action water budget), and captured seepage from the groundwater containment system. The Tailings Basin pond, in turn, would become a primary source of contaminants as its water seeps into the tailings. Therefore, the composition of the Tailings Basin pond, which would be a permanent feature of the Tailings Basin, would be an important component in the quality of water that would be discharged from the Tailings Basin. Thus, PolyMet proposes to use the WWTP to treat the pond water during reclamation, and as necessary during closure, to maintain the design water level and prevent overflow. The presence of the pond in closure would provide benefits as it would create a saturated layer that would permanently reduce the oxygen flux and associated solute release in the underlying tailings. The groundwater containment system would continue to operate during reclamation and closure, although in those phases, the seepage could not be reused as process water, but would be treated at the WWTP and used to accelerate filling of the West Pit (during reclamation) and for streamflow augmentation (during closure). Although it is designed to capture all of the Tailings Basin seepage, the groundwater containment system is assumed to capture 90 percent of the groundwater flow that approaches the system (PolyMet 2013g). During reclamation, all WWTP effluent would be used to help flood the West Pit; therefore, during this phase, all augmentation water would come from Colby Lake (approximately 1,600 gpm). In closure, it is expected that effluent from the WWTP alone (estimated at approximately 2,000 gpm) would be sufficient to meet the minimum flow augmentation requirements of the tributaries without requiring additional water from Colby Lake. These statements indicate the need for perpetual WWTP operation, if for no other reason than needing clean water for stream augmentation, which will be required in perpetuity to compensate for the hydrologic impacts of the Tailings Basin.	COOP01, WR035, WR037, WR124

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19628	The rate of drainage would decrease over time as the pore water within the hydrometallurgical residue is collected and removed. Once the entire facility is closed, the volume of water from the drainage collection systems would decline. In the long term, the volume of water requiring treatment would decline to the point that the remaining reclamation activity may consist of periodic pumping of remaining drainage into tank trucks for transportation, treatment, and disposal, as appropriate, and of inspection of the closed cells to verify integrity of the reclamation systems...The water quality of both mine pits, however, is predicted to improve over time as the pits become flooded, thereby effectively eliminating oxidation of the pit walls, the primary source of solutes, except for the upper few feet where water levels may fluctuate. Figures 5.2.2-37, 5.2.2-38, and 5.2.2-39 show how the water quality in the West Pit is predicted to improve over time for three representative solutes: cobalt, nickel, and sulfate. It is expected that eventually the solute concentrations in the pits would stabilize to more or less steady-state values, although the timeframe for this would likely be greater than 200 years as indicated by Figures 5.2.2-37 to 5.2.2-39, which show solute concentrations continuing to decrease at year 200, although still above water quality standards. These predicted improvements in water quality suggest that the WWTF may not need to operate permanently, but that at some point, non-mechanical treatment systems may be sufficient to meet water quality standards. The SDEIS frequently states the long-term goal is to transition to non-mechanical treatment, but there is little evidence to suggest that current treatment technologies can consistently treat large volumes of water to meet WQS.	COOP01, PD06, WR137
19629	Furthermore, constructed wetlands would require substantial acreage to handle the volume of wastewater that will perpetually be collected, and do not function well in our cold climate for at least half of the year (when vegetation is not actively growing). They are not likely to be able to treat wastewater sufficiently to consistently meet water quality standards, including the wild rice sulfate criterion. But perhaps most the most significant factor to consider for the likelihood of successfully transitioning is that non-mechanical treatment, at least at the Mine Site, necessitates the seasonal application of the wild rice sulfate criterion: "…However, the non-mechanical system will be designed to discharge only during a portion of the year, to comply with the seasonal discharge criterion for wild rice downstream of the Mine Site. The design of the West Pit Overflow Non-Mechanical Treatment System is based on a discharge period of two months, September and October."	COOP01, WR137, WR153
19630	"However, the non-mechanical system will be designed to discharge only during a portion of the year, to comply with the seasonal discharge criterion for wild rice downstream of the Mine Site. The design of the West Pit Overflow Non-Mechanical Treatment System is based on a discharge period of two months, September and October." As described in the AWMP, this type of non-mechanical treatment system cannot meet the 10mg/l sulfate criterion. At this time, the continued implementation of the seasonal application of that criterion is highly questionable as recent research conducted by the University of Minnesota on behalf of the MPCA indicates excess sulfate loading is detrimental to wild rice regardless of the time of year.	COOP01, WR137, WR153
19631	The SDEIS requires substantially more public transparency and less equivocation on what is arguably one of the most fundamental issues at stake for this project: how long will the company be required to flawlessly operate and maintain expensive mechanical treatment to comply with MN WQS? Clearly there are other engineering controls and management actions that will absolutely have to flawlessly operate and require maintenance in perpetuity (seepage collection, liners, pumps, waste rock stockpile cover systems, waste disposal, stream augmentation, Tailings Basin pond elevation management). This singular issue has significant repercussions for the public interest determinations and the scale of required financial assurance.	COOP01, PD03, WR036
19632	The SDEIS identifies 29 Areas of Concern (AOCs) that are now PolyMet's legal responsibility, but still does not provide the necessary clarity about the status of remedial investigations and/or actions necessary to clean up the contamination that occurred over decades of taconite mining and processing.	COOP01, HAZ05
19633	The SDEIS does not provide sufficient information for the public to understand whether the NorthMet Project Proposed Action will be required to remediate these and other AOCs before commencing project operations, or be allowed to defer remediation until closure. It is not clear in the SDEIS how the Voluntary Investigation and Cleanup ("VIC") program requirements will be applied to PolyMet	COOP01, HAZ05

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19634	Cliffs Erie (now Cliffs Natural Resources) was party to a Consent Decree and approved work plan(s) with MPCA regarding their remedial responsibilities, but there is little information in the SDEIS for the public to be assured regarding the need for PolyMet to enter into a legally binding agreement and develop approvable work plans to address their responsibilities.	ALT14, COOP01
19635	It seems reasonable to expect PolyMet to clean up all legacy contamination as quickly as possible; in fact, remedial actions should be integrated with the 'refurbishing' actions they plan to do to re-tool the taconite processing facilities to accommodate their processing needs.	COOP01, HAZ05
19636	the public may not realize that the actual cleanup of LTV's legacy contamination may be deferred until reclamation and closure of the NorthMet Project. This timeline is not acceptable, and the SDEIS should not be vague about the pace of fulfilling remedial requirements.	COOP01, HAZ05
19637	Inadequate hydrologic and geochemical characterizations using all existing data; insufficient new data to support modeling and assumptions. Many of the deficiencies in site characterization and water modeling from the 2009 DEIS persist in the 2013 SDEIS despite some new data collection (not all of which was used) and new modeling (using unrealistic or unsupported assumptions and neglecting to consider critical features). As detailed in extensive comments submitted by tribal cooperating agencies to the co-lead agencies over the past seven years, water quality analyses for the Partridge and Embarrass Rivers are inadequate. Water modeling results, whether deterministic (DEIS) or in the form of probability distributions (SDEIS) are based on flawed understanding of hydrology at both the mine site and plant site. One example of this flawed understanding is the error in baseflow calculations, which is carried forward in the MODFLOW hydrologic modeling. At the mine site, MODFLOW under-predicts the amount of water that would flow into the mine pits and thus under-predicts the amount of water treatment needed for both short and long term closure. At the plant site, the MODFLOW model is constructed in a way that is not representative of the site's physical conditions and therefore yields results that are not logical.	COOP01, WR011, WR058, WR060, WR071, WR093, WR103, WR176, WR179
19638	"Hard rock mining affects fresh water through heavy use of water in processing ore, and through water pollution from discharged mine effluent and seepage from tailings and waste rock impoundments." Acid mine drainage ("AMD") is one of the greatest environmental liabilities associated with mining, especially in pristine, water-rich environments like the Project mine site, that have economically and ecologically valuable natural resources. There are no hard rock surface mines that exist today that can demonstrate that AMD can be stopped once it occurs on a large scale. Inaccurate pre-mining characterization and interpretation often results in a failure to recognize or predict impacts to water quality and aquatic life. Evidence from literature and field observations suggests that permitting large scale surface mining in sulfide-hosted rock with the expectation that no degradation of surface water will result due to acid generation imparts a substantial and unquantifiable risk to water quality and fisheries. In a report comparing predicted and actual water quality at hard rock mines, two types of characterization failures were identified that led to differences between the predicted water quality in EIS documents and the actual water quality either during or after mining began. These included: (1) insufficient or inaccurate characterization of the hydrology. The authors reported primary causes of hydrologic characterization failures as overestimations of dilution, lack of hydrological characterization, overestimations of discharge volumes, and underestimations of storm size. (2) insufficient or inaccurate geochemical characterization of the proposed mine. The primary causes of geochemical characterization failures were identified as lack of adequate geochemical characterization, in terms of sample representativeness and sample adequacy. The primary causes of mitigation failures were that mitigation measures were not identified, were inadequate, or were not implemented; waste rock mixing and segregation was not effective; liners leaked; tailings were spilled; or embankments failed, and land application discharge was not effective. The NorthMet Project Proposed Action, as defined in the SDEIS includes all of these characterization failures.	COOP01, PD01, WR128
19639	The Project overestimates dilution of polluted water by underestimating baseflow in the bedrock surficial aquifer at both the mine and plant sites.	COOP01, WR165

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Fond du Lac Band (42920)	
19640	A fundamental lack of hydrologic characterization enables PolyMet to reach a fictitious conclusion that there will be no water pollution resulting from the Project. No bedrock monitoring wells were installed near the tailings basin. The number of groundwater samples used to model the Mine Site included three or more samples from each of 23 monitoring wells in the surficial aquifer (a 24th well was dry after the first sampling, so it only provided a single sample). Of these, 12 were new monitoring wells installed in the surficial aquifer in 2012, yet data collected from them was not used to model and predict potential impacts to water surrounding the Project. Storage coefficients used to model the entire Plant site area are not consistent with any peer reviewed scientific literature.	COOP01, WR071, WR095
19641	The hydrology model that was applied used outdated data collected at a significant distance from the site. The Project XP-SWMM model is based on a stream gauging station for the Partridge River that is seventeen miles from the mine site and the data from that station are twenty years old ; and stream gauging data for the Embarrass River that is based in data that is more than fifty years old from eleven miles downstream. Therefore, the results are highly unlikely to be representative of current conditions at the mine or plant site. This baseline hydrologic data deficiency has been carried forward from the 2009 DEIS, despite ample time and opportunity to collect sufficient new hydrologic data.	COOP01, WR003, WR071, WR086, WR091, WR175
19642	Underestimation of storm size and frequency is a serious problem for capture and treatment of polluted water from the Category 1 waste rock stockpile and tailings basin, tailings basin stability, and stormwater run-off from the Overburden Storage and Layout Area (OSLA). Project estimates were based on one-hundred-year storm events. Before recognition of climate change impacts, this would have been a reasonable assumption. Now, storm severity and frequency suggest that what was previously considered a one-hundred-year storm event may occur once every ten years.	COOP01, GT15, WR077, WR180
19643	Many mitigation measures were not identified or evaluated using the required NEPA “hard look”. Those mitigation measures that have been identified and carried forward as the Proposed Project are inadequate, especially the tailings basin seepage capture system. The tailings basin is unlined, and the seepage capture system has not been designed to collect any seepage from the east side of the tailings basin. This flow path for project pollutants to reach surface and ground water has not been addressed at all. The waste rock mixing and segregation has not been demonstrated to be effective at other similar projects. Liner leakage rates are very optimistically estimated using solid waste landfill average leakage rates (lined solid waste landfills are much smaller).	COOP01, NEPA14, WR054, WR126
19644	There are no predictions or contingency plans addressing the potential for tailings piped from the processing plant to the tailings basin could be spilled, or that tailings embankments may fail. The Hydrometallurgical Residue Facility (HRF) is proposed to be constructed in an area that is currently under water, and has a prominent historic drainage channel that has not been accounted for in project design or water modeling.	COOP01, WR066, WR131, WR132
19645	Project baseline data used for both the Mine Site and the Tailings Basin are still insufficient, even though this deficiency was highly criticized by many commenters on the 2009 DEIS. A comparison of hydrologic data that was collected for two other projects in the region demonstrates that the PolyMet project is data-poor in the area of basic hydrology, much less mitigation.	COOP01, WR023, WR071
19646	there is no explanation for the failure to use pre-mining flow and sulfate data available through DNR fisheries reports to determine potential water quality and quantity impacts, or cumulative effects to flow and water quality in the Embarrass, Partridge, or St. Louis Rivers. In fact, decades-old flow data (1942 – 1964) was used instead of recently collected data in the Embarrass River watershed even though that historic flow data precedes any mining. Surface water and groundwater quality and quantity data collected for the Minnamax Project, LTVSMC Dunka Pit, and the VIC program were listed in SDEIS, but largely ignored in water quality and quantity predictions.	COOP01, WR003, WR023, WR071, WR175
19647	Extensive experience from other hard rock mines and their faulty predictions of water quality impacts should compel the co-lead agencies to recognize the need for significant improvements to the modeling evaluations.	COOP01, PD26, WR023, WR071, WR189

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Fond du Lac Band (42920)	
19648	Inadequate water quality impacts analysis. From SDEIS 5.2.2, Water Resources: With the proposed design modifications and engineering controls, the water quality model predicts that the NorthMet Project Proposed Action would not cause or increase the magnitude of an exceedance of the groundwater and surface water quality evaluation criteria at the P90 level for any of 28 solutes at 29 groundwater or surface water evaluation locations within the Partridge River and Embarrass River watersheds, with two exceptions: Aluminum...Lead…Evidently, the public is expected to uncritically accept the project proponent's assertion that a 700-ft deep open pit sulfide mine, a 526-acre permanent reactive waste rock stockpile, a pit lake requiring water treatment in perpetuity, a tailings basin that has already contaminated ground and surface water that now will host reactive sulfide tailings, and a permanent hazardous waste facility constructed within a wetland, will collectively result in only two exceedances of water quality standards – and they are not even directly attributable to the Project Proposed Action! This stunning conclusion is a result of flawed modeling assumptions (baseflow, hydraulic connectivity, etc.), dubious decisions on data usage (omitting 'outliers', concentration caps, etc.), fuzzy compliance thresholds, and inordinate reliance on engineering controls that must perform flawlessly, most of them in perpetuity.	COOP01, WR003, WR056, WR071, WR072, WR082, WR128, WR129
19649	Surface water quality remains insufficiently characterized or left uncharacterized, and the defects in analysis are profound in this area.	COOP01, WR003, WR017, WR018, WR021, WR115
19650	There have not been any water samples collected from lakes in proximity to the tailings basin (Hiekkilla, Mud, Kaunonen, or Hay Lakes) to determine if the pollutants found in the surface and groundwater at the existing tailings basin have caused contamination of those waterbodies.	COOP01, WR064, WR075, WR109, WR197
19651	The monitoring wells that do exist near the tailings basin have concentrations of pollutants including iron, sulfate, manganese, aluminum, and fluoride that exceeded drinking water standards. But because of the limited distribution of monitoring wells, the extent of the existing contaminant plume is not known. No bedrock monitoring wells have been drilled in the vicinity of the tailings basin. However, domestic wells near the northern property line show substantial contamination of the groundwater aquifer.	COOP01, HU03, WR008, WR064
19652	Regardless, modeling of PolyMet contaminants at the tailings basin did not take existing pollutant concentrations into account, and pretends that existing contamination is an acceptable "baseline" from which only new contamination should be measured.	COOP01, WR082, WR109
19653	The assumption that 93% of the seepage from the tailings basin can be captured is unrealistic. Tribes requested the co-lead agencies or their contractor to provide any references for the 90% or greater capture efficiency rate they were confident could be achieved; they were not able to provide a single example from anywhere in the world.	COOP01, WR018
19654	The primary purpose of the seepage capture at the Proposed Project is to achieve compliance with MN WQS, but it is not likely to be successful, based upon limited but relevant regional experience.	COOP01, WR018, WR020
19655	On pages 5-121 and 5-158, the SDEIS maintains that the seepage collection system installed at the south side of the existing tailings basin has "essentially eliminated the flow of Tailings Basin seepage into Second Creek". This statement is clearly not supported by the facts. PolyMet and the state regulatory agencies are fully aware that that this seepage pumpback system is not nearly as effective as claimed in the SDEIS.	COOP01, WR101, WR117
19656	There is simply no evidence to support the rosy scenario that PolyMet will be able to capture 97% of the shallow seepage and 90% of the deep seepage from an unlined, purposefully 'leaky' tailings basin, despite the co-lead agencies' assurances. The SDEIS must be revised to accurately describe the ineffectiveness of the current seepage collection system, and the need for a redesigned system or additional mitigation must be clearly stated. The SDEIS must evaluate the impacts of polluted tailings basin seepage to Second Creek and the Partridge River.	COOP01, PD08, WR018, WR117, WR118, WR133

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Sender Name (Submission ID)	Fond du Lac Band (42920)	
19658	The SDEIS claims that construction of a groundwater containment system along the north, northwest and west sides of its unlined tailings basin "would capture virtually all of the Tailings Basin seepage presently flowing in those directions to restore water quality" (SDEIS p. 5-174). Without even a single bedrock monitoring well installed to confirm or deny this assumption, the SDEIS maintains that this is prediction is "conservative", because the modeling done by PolyMet assumes that bedrock hydraulic conductivity is "negligible" (SDEIS, pp. 5-68 - 5-69). Disturbingly, the tailings basin model uses storage coefficients that are not found anywhere in peer reviewed scientific literature.	COOP01, PD08, WR008, WR018, WR071, WR095, WR099
19659	The storage coefficient incorporated in the plant site model (including the tailings basin) for bedrock is 0.20, and for the surficial deposits 0.0002 (SDEIS p.5-41), suggesting that the bedrock contains several orders of magnitude more water than the surficial deposits.	COOP01, WR095
19660	the modeled hydraulic conductivity and/or modeled storage coefficients cannot be relied upon to estimate the amount of seepage that will bypass the seepage capture system, or the amount of time before seepage upwells to surface waters in adjacent wetlands and the Embarrass River, where MN WQS must be met.	COOP01, WR019, WR128
19661	Another major deficiency in the plant site model is that seepage capture at the flotation tailings basin, as modeled with MODFLOW and GoldSim, does not account for any seepage out of the east side of the basin. SDEIS Figure 3.2-27, that indicates continuous bedrock on the east side of the tailings basin, is incorrect and must be corrected.	COOP01, WR054
19662	The modeling approach used by PolyMet has placed an artificial and unrealistic no-flow boundary on the east side of the tailings basin, when a critical evaluation of hydraulic head clearly shows the potential for substantial groundwater movement to east. Because of this this flawed assumption, there has been no contaminant transport modeling or water quality impacts analysis for seepage leaving the east side of the tailings basin.	COOP01, WR054, WR102
19663	Also, according to the plant site surficial geology and depth to bedrock figures , the thickest layer of glacial till for the entire Proposed Project occurs around the tailings basin, representing, essentially, the biggest "pipe" for conducting contaminated tailings basin seepage to downgradient wetlands and eventually the Embarrass River. Tribal agency re-analysis using MODFLOW for the east side of the tailings basin reveals that this is likely the most significant discharge area for the entire tailings basin.	COOP01, WR093
19664	The SDEIS maintains that mine pit dewatering impacts will be very limited or non-existent based on an assumption carried forward from the DEIS that there is little or no connection between the bedrock and surficial aquifers. This assumption is based solely on an unsupported "professional opinion," when in fact there is ample evidence that there may be substantial connection between the bedrock and surficial aquifers. Such a connection indicates that dewatering the mine pits could cause significant drawdown of the water table in the surficial aquifer, potentially dewatering wetlands and ephemeral streams.	COOP01, WR010, WR012, WR013
19665	Both tritium and unionized ammonia are classic indicators for a strong connection with surface water...Unionized ammonia and tritium in the deep boreholes suggest that travel time of contaminants through bedrock fractures will be on the order of decades, not the hundreds or thousands of years that are assumed in the SDEIS.	COOP01, NEPA09, WR010, WR013
19667	The lack of fracture and fault analysis is a major deficiency of this SDEIS.	COOP01, WR007, WR008, WR012, WR013
19668	predicted water quality impacts and ineffective mitigation methods referenced in the [Copper-Nickel] Study were ignored when the technical documents and SDEIS were drafted for PolyMet.	COOP01, WR023, WR203
19669	The SDEIS also diminishes the lessons learned from the Dunka Pit, located on the former LTVSMC site approximately five miles north and east of the PolyMet Project mine site.	COOP01, WR023

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19670	The SDEIS has not adequately evaluated the potential for impacting drinking water sources, and it is clear from the state regulatory agencies' uncertainties about the frequency, volume, and water quality of other mine discharges (i.e., the Peter Mitchell Pit) even while regulated under permits, that this issue remains a significant deficiency in the SDEIS analysis.	COOP01, WR041, WR042, WR110, WR154
19671	The tribal cooperating agencies have consistently raised concerns about reactive dust and ore fines along the Transportation and Utility Corridor, and potential for water quality impacts to the three streams and wetlands that are crossed within the corridor. Yet these concerns have been repeatedly kicked back and forth between the Air IAP and Water Quality IAP work groups, with neither group ultimately resolving the information and risk analysis gap. The end result of this 'oversight' in the SDEIS is that no consideration, discussion, or proposed management of this potential water and wetland quality impact is provided for the public to review.	COOP01, WET11, WR151
19672	It is unacceptable to dismiss the likely water quality impacts of twenty years of ore spillage and dust/fine deposition with a casual statement and zero analysis. It is especially disheartening to the tribal cooperating agencies that have attempted to elevate this issue for so many years, that the co-leads have been completely unwilling to consider giving it the analysis it requires, or to even provide examples from other sulfide mines where this has not proven to be a concern.	COOP01, WET11, WR023, WR151
19673	Regardless of the 'footprint' of the equalization basins, the liner leakage estimate of 5 gallons per acre per day (gpad) is not consistent with what we have found in the literature for the maximum allowable, or "Action Leak Rate", above which a leak must be found and repaired.	COOP01, WR126
19674	The Band has consistently raised concerns for the NorthMet Project potential to increase mercury concentrations in fish within the St. Louis River watershed, where we exercise water quality jurisdiction, and within the 1854 Ceded Territory where Band members can exercise treaty fishing rights.	AQ05, COOP01
19675	There has not been significant "ground-truthing" of mercury deposition rates that were used in the modeling assessment. Tribal cooperating agencies note that no studies have been conducted within this region of active mining to determine why fish tissue mercury concentrations are so high if the local sources mainly emit 'non-locally polluting' forms of mercury.	AQ28, COOP01
19676	The Band concurs with the letter recently signed by 19 Duluth health care professionals expressing concerns that the SDEIS fails to define the human health effects of increased mercury emissions, exposure to asbestos-like mineral fibers, and arsenic.	COOP01, HU01, HU02, HU07
19677	The SDEIS states that the current fish tissue concentrations in the five local lakes that were studied result in Hazard Quotients (HQs) that exceed 1 (page 6-63), but gives no further information. The Cumulative Impacts Analysis, Local Mercury Deposition and Bioaccumulation in Fish (July 2012) (Barr report) showed modeled contributions from both the Mesabi Nugget LDSP and PolyMet; this information should be included in the SDEIS for public review. The Barr report provides the actual HQs, rather than just saying "they exceed 1". The SDEIS should state clearly that in one case, the existing HQ equals 46.2, which is 46 times as high as the number where action is recommended. This is an unacceptable situation.	AQ03, COOP01
19678	The SDEIS does not provide any rationale for more mercury to be added to a system that is already so high in mercury, but rather only suggests that the TMDL should take care of this.	COOP01, MERC22
19679	The background site-specific analyses and data presented in the SDEIS for total mercury and methylmercury in surface and groundwater is not sufficient to adequately describe existing conditions or evaluate the potential for impact due to changes in hydrology and water quality as a result of the NorthMet Proposed Project.	COOP01, MERC02
19680	There is very little methylmercury data included in the analysis for any waterbodies, and there is no sediment mercury or methylmercury data used to evaluate and understanding existing conditions. For the data that is presented, there are numerous inconsistencies in reporting limits and method detection limits, casting doubt on data quality and its utility for critical analysis of project impacts.	COOP01, MERC04

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19681	The SDEIS also fails to evaluate other scientifically documented factors that affect mercury methylation and bioaccumulation. The SDEIS approach to evaluating mercury impacts of the Proposed Project avoids addressing complex but well-studied environmental processes by modeling, and instead relies upon an incomplete mercury mass balance to predict future conditions. It superficially references some of the large body of literature related to sulfate, pH, dissolved organic carbon, iron, and microbial activity, but in some cases erroneously interprets it.	COOP01, MERC13
19682	Given the lack of confidence in predicted seepage capture rates, Tailings Basin seepage is another source that has been greatly underestimated in the SDEIS analysis.	COOP01, PD08, WR018, WR021
19683	The SDEIS evaluation of mercury impacts is deficient, and the conclusion of no mercury impacts downstream in the St. Louis River watershed is not supported by the information presented. This issue remains a significant impact to reservation and treaty resources.	COOP01, MERC19
19684	recent research does not support seasonal-only restrictions on sulfate loading. There is no time of year when high sulfate discharges do not result in the generation of highly toxic sulfide in the sediments, and consequently, no time of year when wild rice is not susceptible to high sulfate.	COOP01, WR153, WR154
19685	The wild rice sulfate standard must apply throughout the Embarrass River watershed.	COOP01, WR154
19686	The scant remaining stands[of wild rice] in the upper reaches [of the Embarrass River] have already been severely impacted by previous mining disturbances and continued releases of high-sulfate water, and are in need of restoration.	COOP01, PER10, WR154, WR157
19687	The NorthMet Project Proposed Action must meet MN WQS, including the sulfate criterion to protect wild rice.	COOP01, PER10, WR153, WR154
19688	We consider the high probability of continued degradation of remaining wild rice stands in the Partridge and Embarrass River watersheds as a result of the NorthMet Project to be an unacceptable environmental impact.	COOP01, PER10, WR156, WR157
19689	The SDEIS does not adequately discuss impacts to traditional uses such as hunting and trapping, nor does it adequately discuss impacts to traditional game and furbearer populations. This is a major discrepancy in these documents as healthy wildlife populations, particularly game and furbearer species, and access to them is critical for the exercise of treaty rights for tribal members.	COOP01, CR01
19690	Fond du Lac's comments on the DEIS regarding the existing wildlife corridors are still applicable: they are fundamentally inadequate to maintain habitat connectivity across the heavily disturbed Mesabi Iron Range. As evidenced from aerial photographs, they're narrow and often heavily intruded upon by roads, utility corridors, mine pits and urban development. These features serve as barriers to many kinds of wildlife. While the existing corridors may function well enough for large, mobile species like deer or wolves, they are inadequate for smaller, less mobile species	COOP01, WI03, WI04
19691	The SDEIS concedes that increasing development of urban areas alongside the corridors will render some of the existing corridors less suitable for wildlife in the future. Increased urban development and associated transportation and utility infrastructure should be expected if the project provides the economic benefits stated in the SDEIS. Yet there is no mitigation proposed or even evaluated in the SDEIS for this environmental impact.	COOP01, WI03, WI04
19692	The Band specifically requests that state and federal regulatory agencies work with the tribal agencies to establish dedicated and protected wildlife corridors and enhance reclamation of existing mine lands to mitigate wildlife impacts within the 1854 Ceded Territory.	COOP01, WI03
19693	from the Band's perspective, perhaps the most significant deficiency in the SDEIS analysis of wildlife impacts is its failure to critically analyze potential impacts to moose.	COOP01, WI03

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Sender Name (Submission ID)	Fond du Lac Band (42920)	
19694	The tribal cooperating agencies have consistently raised impacts to moose as an issue of critical importance throughout the DEIS, SDEIS, Section 106 consultation, and 'sieve list' meeting processes. It is not acceptable to defer full consideration of this culturally significant species until the FEIS. We have valid concerns about the project's impact on moose habitat at a time when their population is crashing, and they should be addressed immediately.	COOP01, CR03
19695	the Band's concern for project impacts to moose is not simply potential effects to hunting zones and seasons; we are gravely concerned about protecting sustainable moose populations for future generations	COOP01, WI03
19696	This discussion [in the SDEIS] contains substantially outdated information regarding sturgeon reintroduction, both in the St. Louis River estuary and upstream of the Minnesota Power dams on the Fond du Lac Reservation.	AQ02, COOP01
19697	Uncontrolled contaminant loading from existing mine facilities, along with elevated constituents from the Proposed Project, have the potential to affect the successful establishment of a sustainable lake sturgeon fishery throughout the St. Louis River. This potential impact should be fully evaluated in the SDEIS.	AQ02, COOP01
19698	The SDEIS states that the property boundaries at both the Plant Site and Mine Site are used to define the maximum extent of NorthMet air impacts that would have the potential to affect historic properties, because the project is predicted to meet ambient air quality standards at those boundaries. The Band asserts that these property boundaries cannot arbitrarily be used for acid dust and metal deposition boundaries because there are no ambient air quality standards for these pollutants.	AIR04, AIR08, COOP01, WR151
19700	it is inappropriate to use areas that show compliance with ambient air quality standards to show "no effects from dust and metal deposition", because ambient air quality and impacts caused by deposition are two separate concepts.	AIR04, COOP01, WR151
19701	it is simply not true that "modeling does not indicate potential effects on historic properties from dust deposition". Figure 4.2.9-4 shows areas where the Fugitive Dust Area of Potential Effect extends outside both the Plant and Mine Sites.	AIR04, COOP01, WR151
19702	The SDEIS states that modeled annual dust deposition rates were compared to an "annual effects-level deposition rate" (background) of 365 g/m2/yr. This same "annual effects-level deposition rate" was given in the PSDEIS in May of 2013, but without providing a reference for how this number was derived.	AIR04, COOP01, WR151
19703	direct physical effects of mineral dusts on vegetation can be seen at a surface load of 7 g/m2 and chemical effects of reactive materials can be seen at 2 g/m2 . These levels indicate that the proposed "impact" level of 365 g/m2/yr may be too high.	AIR04, COOP01
19704	Further, as the Band commented on the PSDEIS, the modeled deposition rates do not include the effects of contamination from other sources, such as pit leaks and seepage, nor are cumulative impacts from all of these sources included in Chapter 6.	COOP01, CU12
19705	The SDEIS statement that "all of the receptor nodes with the highest model-estimated deposition rates were located within the ambient air boundary" is incorrect, especially given that the following paragraph contradicts this statement by saying "of the 234 acres of wetlands, (that could be potentially indirectly affected) 228 acres would be located within the Mine Site ambient air boundary". While only 3% of the affected acres are outside of the boundary, these two statements should be reconciled. This same comment was made by the Band previously while reviewing the PSDEIS. The inaccuracy serves to diminish consideration of any impacts.	AIR05, COOP01
19706	SDEIS Figure 5.2.3-22 depicts receptors outside the plant site that are predicted to receive dust deposition rates higher than 50% of background. Since the SDEIS asserts that only those areas receiving deposition greater than 100% of background will be affected, it is unclear why Figure 5.2.3-22 shows areas receiving more than 50% of this value.	COOP01, WET18

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Fond du Lac Band (42920)	
19707	SDEIS Figure 5.2.3-23 depicts receptors outside the plant site that are predicted to receive metal deposition rates higher than 100% of background, but there is no discussion regarding monitoring or management actions to quantify or mitigate affects. Other SDEIS text is confusing or contradictory; from SDEIS 5-302: "all receptors have model-estimated dust deposition of 50% or less of the effects-level background of 365 g/m2/yr", but the very next sentence states "At the Plant Site, there would be two locations showing model-estimated deposition rates greater than 100% of background deposition". Later in the same paragraph "…the modeling only indicated those areas that had deposition rates greater than 100% of background deposition". It appears as though one statement may address dust deposition and the other metals deposition, but this is unclear.	COOP01, WET18
19708	The SDEIS discussion on fugitive dust is quite often confusing. There should be clarification between when the text is referring to sulfide dust and when it is talking about metallic dust. The text apparently switches between the two without explanation. Also, the text is not clear which air emissions sources were modeled with regard to fugitive dust.	AIR12, COOP01, WR151
19709	From the SDEIS, "90% of the receptor nodes with the highest model-estimated deposition rates are located within the ambient air quality boundary". As the Band has commented before, this is impossible to verify, as no map of the location of the receptor nodes has been included. Also, 90% of the area predicted to be impacted does not lie within the ambient air quality boundary; it appears to be only about 60% contained to the ambient air quality boundary (SDEIS Figure 5.2.3-22).	AIR05, COOP01
19710	the co-lead's only 'mitigation' for fugitive sulfide dust is recommending future wetlands monitoring.	COOP01, WET18
19711	the Proposed Project suggests water spraying for areas of fugitive dust release during dry periods as mitigation. In the case of dust that may have high acidic content, this would be a poor choice for management action, as the addition of water to the dust would likely create or accelerate toxic run-off.	COOP01, WET18, WR151
19712	The Band does not agree with the statement that "no significant reactive airborne fugitive dust from the rail transport is expected". The SDEIS minimizes the potential adverse impacts from constant rail corridor spillage during the life of the mine project by claiming "Any spillage of the ore fines is expected to be within 2 meters of the rail line, along the path". The Band is concerned with the effect of any spillage on water run-off, as has been seen with other mines in the US	COOP01, WR151
19713	There are other invalid and/or inconsistent statements throughout the SDEIS related to air quality. The SDEIS states "The Northmet Project area has been designated by the USEPA as attainment for all air quality pollutants". To be clear, attainment designations for the new short-term standards for NOx and SO2 have not yet been completed for the State of Minnesota. Also, 90% control efficiency is assumed for haul roads at the Mine Site, but only 80% control is assumed for unpaved roads at the Plant Site.	AIR12, COOP01
19714	The Band has continually questioned the Page 5-411 states that "The modeling results for the Mine Site receptors…indicate that the highest modeled 24-hour H2H PM-10 concentration was 27 ug/m3 for the year 8 operating scenario and 29 ug/m3 for the year 13 operating scenario". Yet the 29 ug/m3 result not shown in Table 5.2.7-11, even though this value is nearly the PM-10 24-hour increment limit (30 ug/m3).	AIR12, COOP01
19716	From Table 6.2-22, cumulative inhalation risks for cancer are four times greater than the guideline of 1E-05. Although much of this risk comes from existing facilities, this number indicates that the area cannot sustain pollution that adds to what is already there without compromising health.	COOP01, HU05
19717	The Band has also continued to raise concerns for amphibole fibers, and what we perceive as insufficient analysis in the SDEIS. According to the SDEIS, the BACT-like fine particulate controls will control the release of more than "99.9% of amphibole fibers that are emitted from controlled sources", not "99.9% of fibers in the ore". The second statement is incorrect, because some sources of fibers from the ore are uncontrolled, like blasting operations, or are unable to be controlled up to 99.9%, like haul roads, tailings, crushing and screening, and stockpiles.	AIR03, COOP01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Fond du Lac Band (42920)	
19718	The SDEIS states that the Biwabik Iron Formation (which has been found to contain amphibole fibers) slopes under the Duluth Complex at the Mine Site, coming within 100 feet of the area that is planned to be mined. The Band's previous comments regarding unexamined hydrological connections between geologic layers or formations are also applicable in this instance. With fractured bedrock present, that could establish a hydrological connection, and 100 feet would be an insufficient barrier.	COOP01, PD21, WR012, WR107
19719	The SDEIS maintains that the Minnesota Department of Health has reported that males within the area of the taconite mining and milling industry had more than two times the mesothelioma rate than the rest of the state. Actually, the report from the epidemiologic study of Minnesota iron mine workers states that it is three times the rate found in the rest of the state.	COOP01, HU05
19720	Page 5-443 The SDEIS assures that ambient air monitoring for amphibole fibers would be conducted following facility start-up. While no schedule of frequency or duration for amphibole fibers monitoring has been proposed in the SDEIS, the Band continues to assert, as we have throughout the environmental review process, that monitoring will need to continue over the life of the mine, as no one can predict when fibers might be contacted and released.	AIR03, COOP01
19722	The tribal cooperating agencies were not permitted to participate in the Geotechnical Stability IAP workgroup, so we are at a disadvantage for understanding how some of the profound geotechnical stability risks identified for the PolyMet project as defined in the 2009 DEIS were resolved for the 2013 SDEIS.	COOP01, GT14
19723	we do not share PolyMet's confidence in being able to virtually eliminate leakage to groundwater from any type of containment system. Some leakage must always be assumed, and given the site-specific conditions for the proposed location of the HRF, the risk for highly contaminated seepage to exit the HRF and flow to wetlands in the Embarrass River watershed.	COOP01, WET12
19724	[A] 'natural low point in the topography' is an open water wetland (as prominently displayed in the left photograph on the cover of the SDEIS) with distinct natural drainage channels .	COOP01, WET17
19725	The SDEIS simply does not address the potential lack of integrity or risk of failure when constructing a hazardous waste facility within a wetland. Assumptions about hydraulic head being removed from the lower liner are not reassuring when the lower liner (geosynthetic clay) has been installed within a wetland and natural drainage ravine.	COOP01, PD18, WR126
19726	The potential for substantial volumes of seepage flowing from the Tailings Basin to the HRF has not been addressed in the SDEIS; this represents a potential structural hazard.	COOP01, GT11, WR066
19727	But we have no assurance that the HRF is designed to structurally withstand thousands of gallons per day of Tailings Basin seepage along the dikes that do not have seepage capture features installed.	COOP01, GT11
19728	the co-lead agencies' approach to predicting indirect impacts to wetlands and their resulting conclusions, [is] an overly simplistic method based upon a flawed concept of hydrology at the mine site.	COOP01, WET08
19729	The purpose of an EIS is to be "forward looking" by predicting potential impacts and adequate mitigation for those impacts; this SDEIS is deficient in that respect. The USACE has not yet developed a monitoring plan to assess after-the-fact Project impacts to wetlands, but maintains that will be the way to best determine and mitigate indirect wetland impacts. The Band is not aware of any previous instance for which the USACE St. Paul District Office has required reasonably foreseeable indirect wetland impacts to be later mitigated as direct effects based upon monitoring.	COE02, COOP01, WET02
19730	Given the persistent major differences of opinion between the co-lead agencies and the tribal cooperating agencies, the Band specifically requests that financial assurance for potential indirect wetland effects and monitoring be secured.	COOP01, FIN03

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Fond du Lac Band (42920)	
19731	Nearly 2,000 acres of coniferous bog wetlands will be directly impacted by mine pit(s) and stockpiles, or indirectly impacted due to drawdown and/or pollution. This is particularly significant to the Band because many tribally harvested resources are only available in coniferous bogs, and restoration of coniferous bogs is a very difficult and long process that has extremely low success rates.	COOP01, WET13
19732	The proposed mitigation plan is inadequate; it allows for the vast majority of mitigation and/or restoration credits to come from outside the Partridge, Embarrass, and St. Louis River watersheds. There is no justifiable reason to permit out-of-watershed mitigation when in-watershed opportunities still exist…	COOP01, WET03
19733	The Band objects to the approval of any further out-of-watershed mitigation credits or restoration for impacts to irreplaceable high quality aquatic resources of national importance, which include all remaining unimpacted wetlands within the St. Louis River watershed/Lake Superior Basin.	COOP01, WET03
19734	Tribal cooperating agencies believe the CEA for land use should encompass the 1854 Ceded Territory, as the signatory Bands have lost access to substantial portions of the 1854 CT and the resources within.	COOP01, CU01
19735	The tribal cooperating agencies believe the water quality and hydrologic cumulative effects analysis should incorporate the entire St. Louis River watershed. This watershed has experienced substantial historic, current and proposed expanded mining activities, as well as other industrial, agricultural and urban development. In addition to the direct surface water and wetland impacts (loss and/or degradation) from these activities, nearly half of the watershed has experienced hydrologic alteration from extensive ditching.	COOP01, CU01
19736	Tribal cooperating agencies consider a 216,300 acre area bounded by the St Louis River, Lake Superior, Lake Vermilion and the Beaver Bay to Vermilion Trail to be a Tribal Historic District, and the pertinent area for consideration of cumulative effects to cultural resources.	COOP01, CR03, CR04
19737	The tribal cooperating agencies' review of the water modeling data packages for the NorthMet Project Proposed Action led to our conclusion that GoldSim did not accurately predict existing conditions, and cannot be relied upon to accurately predict future project conditions.	COOP01, WR044, WR045, WR049
19738	While any individual mine may not have significant impacts on plants, wildlife or the landscape, the cumulative impacts of thousands of acres of habitat loss and degradation correspond to a legitimate, significant concern for treaty-protected resources and access to them.	COOP01, CU11
19739	General reluctance to share information with non-Band members is often prevalent [at NorthMet Project meetings] as well as cultural restrictions on who (inside and outside the Band) can legitimately and safely be trusted with sensitive information.	COOP01, NEPA14
19740	The Area of Potential Effect (APE) for cultural resources divided the project into two separate sections surrounding the proposed mine site and the proposed plant site should be revised. "Figure 4.2.9-1, Cultural Resource Analysis-Area of Potential Effect" needs only to have the two areas joined to compose an APE that reflects an undertaking as defined in Section 106 of the National Historic Preservation Act of 1966...])." An APE that encompasses the Mine and Plant sites and surrounding area affected by operations would better describe the undertaking for cultural resource investigations.	COOP01, CR02
19741	The Beaver Bay to Lake Vermilion Trail requires further clarification...There has been no rigorous attempt to research the BBLVT by the Bands or Lead Agencies, although the Superior National Forest Heritage Program reviewed the GLO plats and conducted field investigations on SNF land. Additional fieldwork should be conducted in the spring or fall when ephemeral features such as foot trails are less easily concealed by vegetation and more easily discerned.	COOP01, CR04
19742	The proximity of the plant site to the Sugarbush and the cumulative effects of dust on leaves, trees and understory flora have not been examined in detail and their long term effects may well be detrimental to vegetation, other than maples, that comprise the Sugarbush."	COOP01, CR02, CR03, CR05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Fond du Lac Band (42920)	
19743	The SDEIS must be revised to fully evaluate reasonable alternatives in the SDEIS, including identifying the federal agency preferred alternative and the LEDPA.	ALT20, COE04, COOP01
19744	No mitigation has been identified in the SDEIS for this permanent loss of lands and resources (natural and cultural) to the 1854 Ceded Territory. The public interest determination must include a specific finding that "The intended use of the conveyed Federal land will not substantially conflict with established management objectives on adjacent Federal lands, including Indian Trust lands" (36 C.F.R. 254.3(b)(2)(ii)). This threshold has not been met, and the Fond du Lac Band objects to the implementation of the Land Exchange Proposed Action.	COOP01, CR01, LAN05
19745	The SDEIS must be revised, with significant additional study, to appropriately evaluate closure, mitigation, reclamation, and perpetual treatment cost estimates. The SDEIS requires substantially more public transparency and less equivocation on what is arguably one of the most fundamental issues at stake for this project: perpetual treatment.	COOP01, FIN06, PER03, WR035, WR037
19746	The SDEIS does not provide sufficient information for the public to understand whether the NorthMet Project Proposed Action will be required to remediate these and other AOCs before commencing project operations, or be allowed to defer remediation until closure.	COOP01, HAZ05
19747	Based upon our extensive evaluation of the SDEIS and supporting technical documents, we conclude that there will undoubtedly be significant and unmitigated impacts to natural and cultural resources that the tribal cooperating agencies have consistently elevated to the attention of the co-lead agencies. There will be significant and unmitigated tribal resource losses within the 1854 Ceded Territory and the Lake Superior basin, including the St. Louis River watershed. The NorthMet Project Proposed Action and Land Exchange Proposed Action would decrease the amount of land available for public access and use, and would decrease portions of the 1854 Ceded Territory available for use by the Bands…There is a demonstrated need for significant improvements to the modeling evaluations. The lack of fracture and fault analysis is also major deficiency of this SDEIS.	COOP01, WR012
19748	Based upon our extensive evaluation of the SDEIS and supporting technical documents, we conclude that there will undoubtedly be significant and unmitigated impacts to natural and cultural resources that the tribal cooperating agencies have consistently elevated to the attention of the co-lead agencies. There will be significant and unmitigated tribal resource losses within the 1854 Ceded Territory and the Lake Superior basin, including the St. Louis River watershed. The NorthMet Project Proposed Action and Land Exchange Proposed Action would decrease the amount of land available for public access and use, and would decrease portions of the 1854 Ceded Territory available for use by the Bands…We consider the high probability of continued degradation of remaining wild rice stands in the Partridge and Embarrass River watersheds as a result of the NorthMet Project to be an unacceptable environmental impact.	COOP01, WR115, WR157
19749	The SDEIS evaluation of mercury impacts is deficient, and the conclusion of no mercury impacts downstream in the St. Louis River watershed is not supported by the information presented.	COOP01, MERC19
19750	We consider the high probability of continued degradation of remaining wild rice stands in the Partridge and Embarrass River watersheds as a result of the NorthMet Project to be an unacceptable environmental impact.	COOP01, PER10
19751	The most significant deficiency in the SDEIS analysis of wildlife impacts is its failure to critically analyze potential impacts to moose.	COOP01, WI01
19752	Uncontrolled contaminant loading from existing mine facilities, along with elevated constituents from the Proposed Project, have the potential to affect the successful establishment of a sustainable lake sturgeon fishery throughout the St. Louis River. This potential impact should be fully evaluated in the SDEIS.	AQ02, COOP01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Fond du Lac Band (42920)	
19753	A cumulative analysis of fibers expected from the site along with fibers currently being emitted from other sources should be performed. Human health risk assessments should be expanded to include scenarios of worker exposure to amphibole fibers. Fugitive dust impacts must be evaluated for human health and environmental impacts.	AIR03, COOP01, HU04
19754	The SDEIS simply does not address the potential lack of integrity or risk of failure when constructing a hazardous waste facility within a wetland.	COOP01, GT07, GT15
19756	The Band specifically requests that financial assurance for potential indirect wetland effects and monitoring be secured.	COOP01, FIN03
19757	The Band objects to the approval of any further out-of-watershed mitigation credits or restoration for impacts to irreplaceable high quality aquatic resources of national importance, which include all remaining unimpacted wetlands within the St. Louis River watershed/Lake Superior Basin.	COOP01, WET03, WET14
19758	Tribal cooperating agencies believe the CEAA for land use should encompass the 1854 Ceded Territory, as the signatory Bands have lost access to substantial portions of the 1854 CT and the resources within.	COOP01, CU01
19759	The tribal cooperating agencies believe the water quality and hydrologic cumulative effects analysis should incorporate the entire St. Louis River watershed.	COOP01, CU01
19760	Tribal cooperating agencies consider a 216,300 acre area bounded by the St Louis River, Lake Superior, Lake Vermilion and the Beaver Bay to Vermilion Trail to be a Tribal Historic District, and the pertinent area for consideration of cumulative effects to cultural resources.	COOP01, CR03, CR04
Sender Name (Submission ID)	Forrest Johnson (11570)	
2218	Great concerns about the amount of water needed for the operation. The tailings basin to be used IS made of freshwater-groundwater. I still haven't seen an accurate measure of just how many gallons of water – raw water demand – will be needed.	WR182
2218	Great concerns about the amount of water needed for the operation. The tailings basin to be used IS made of freshwater-groundwater. I still haven't seen an accurate measure of just how many gallons of water – raw water demand – will be needed.	WR182
2219	who will be in charge of testing the site, testing the water that has been reclaimed or contained. Who will that be 50-100-200-500 years from now? A public agency? A private contractor paid in perpetuity?	PD24, WR039, WR090
2219	who will be in charge of testing the site, testing the water that has been reclaimed or contained. Who will that be 50-100-200-500 years from now? A public agency? A private contractor paid in perpetuity?	WR105, WR056
14353	sulfate levels in the basin plus added sulfide is a great concern.	GEN01
14353	sulfate levels in the basin plus added sulfide is a great concern.	GEN01
Sender Name (Submission ID)	Forrest Petersen (42938)	
9918	the MODFLOW water quality models used predict ...that two water constituents, aluminum (Al) and, lead (Pb) will exceed applicable environmental evaluation criteria…research has shown that elevated Al concentrations can negatively impact aquatic life...Pb can be absorbed into plants and game animals near mining operations...This has the potential to be a problem for the native Bands people who hunt and fish in the surrounding area	AQ05, AQ07

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Forrest Petersen (42938)	
9921	the 90 percentile probability used in the water quality models is below established scientific standard for modeling water quality standards. Most statistical models, including those for the MODFLOW modeling program, and the Regional Water Authorities use the 95 percentile probability threshold for making predictions in order to ensure accuracy. The 95% probability ensures greater confidence in the statistical results and equates to a 5% chance of the water quality standards being exceeded (Crabtree et al. 1987).	WR192
9922	1,741.1 acres of Minnesota Biological Survey Sites of High Biodiversity Significance, 698.2 acres of vulnerable native plant communities, 2 acres of secure vegetation, and 912.5 acres of USFS wetlands would be lost or directly affected by the NorthMet Project. Although there are no federally listed plant species in the area, 11 state-listed species would be impacted due to their position on and near the proposed mining location.	VEG01, VEG02, WET24
9924	The impact [of the PolyMet mine] to the surrounding environment could be even larger as mine drainage has been shown to exert chemical and physical stressors on the surrounding environment causing loss of diversity and reduced aquatic life.	AQ05
9925	In addition to loss in diversity, mine drainage, especially aluminum oxide, has been shown to significantly reduce algal biomass in nearby streams (Niyogi et a. 2002).	VEG06
9926	Records exist of historically high lynx in Minnesota; however, they experienced a decline during the 1900s due to hunting and are currently in the recovery stages. Research has determined that extensive contiguous habitat is necessary for viable lynx population to occur. The inclusion of the land exchange aspect helps alleviate some of the effects of reduced habitat for wildlife. However, with the allowance of selective logging on the newly acquired land, many of the state-listed animals that require extensive habitats, such as the Canadian lynx and gray wolf, are unlikely to persist in the fragmented areas proposed in the land exchange (Ruggiero et al. 1999).	WI01, WI02
9929	I know that economic development is necessary to create jobs and provide raw materials for societal needs, I simply suggest using the best availably scientific methods for determination of the environmental consequences, and utilizing all available resources to mitigate negative impacts. Issues such low statistical thresholds on water quality models, effects of mine seepage, and the destruction of critical habitat should be addressed more thoroughly before the NorthMet Project is allowed to continue.	SO04
Sender Name (Submission ID)	Fort JK (47327)	
12186	The Supplemental Draft Environmental Impact Statement fails to adequately address the negative impact of the proposed copper sulfide mine. [Acid Mine Drainage and heavy metal contamination] would pollute and ruin the St. Louis River and watershed from it's northernmost regions all the way to Lake Superior… as well as all the groundwater in its wake, groundwater that we citizens rely on to be safe and healthy to drink. For Duluth, or any cities/towns who get their drinking water from Lake Superior, it would be a negative impact as well.	HU03
16701	we must also mention the terrible, direct devastating effect the pollution from the mine would cause concerning wildlife and birds who use the St Louis River and Lake Superior to drink from and obtain food from. I include the Embarrass River and any other body(ies) of water that would be harmed by the mine as well, such as the lake that is over the presumed deposit.	AQ05
16746	It would pollute and ruin the wild and beautiful St. Louis River and watershed from it's northernmost regions all the way to Lake Superior, which is another body of water that would be so negatively impacted as well as all the groundwater in its wake, groundwater that we citizens rely on to be safe and healthy to drink.	WR042, WR081
16747	For Duluth, or any cities/towns who get their drinking water from Lake Superior, it would be a negative impact as well.	WR011, WR041

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Fort JK (47327)	
16748	But, we must also mention the terrible, direct devastating effect the pollution from the mine would cause concerning wildlife and birds who use the St. Louis River and Lake Superior to drink from and obtain food from. I include the Embarrass River and any other body(ies) of water that would be harmed by the mine as well, such as the lake that is over the presumed deposit.	WI04
Sender Name (Submission ID)	Fran Brinkman (13360)	
116	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for	WR035, WR128, WR143
117	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
118	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	Frank Blume (38365)	
13660	This is a very environmentally friendly mine proposal. We need good paying jobs. We need the platinum group metals.	SO10
Sender Name (Submission ID)	Frank Frederickson (18100)	
3228	I believe this [the Land Exchange] is a win-win for our region and that it enables enhanced recreational opportunities for the public, while enabling the extraction of minerals in an environmentally sound manner.	LAN11
13466	I wanted to state my appreciation for the efforts of the permitting agencies and of PolyMet to work together in a diligent environmental review process that identifies necessary protections for our shared environment, while enabling the economic extraction of materials and minerals that we all use in our daily lives; in our phones, homes and cars.	SO10
Sender Name (Submission ID)	Frank Gardner (57979)	
19860	Minnesota cannot be expected to treat polluted water for 500 years. PolyMet cannot be trusted to clean up this mess.	NEPA15
Sender Name (Submission ID)	Frank Hansen (17017)	
11033	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Frank Jossi (11268)	
793	The Audubon Society and others have suggested Polymet look at underground mining instead of open pit. I don't see that as an option in the EIS. Why not? It would cost Polymet more to mine copper nickel but the environmental damage would be far less.	ALT01
795	The land exchange basically a fraud. The mining rights are not clear at all in the swap -- so those lands could be mined someday too.	LAN04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Frank Jossi (11268)	
1590	We have one of the largest concentrations of fresh water in the world, both in our interior lakes and with Lake Superior. This seems far valuabIe to the country than copper nickel, especially in time when droughts have impacted different parts of the country for at least the last two decades due to global warming. This legacy is worth preserving and this mine, and others proposed, would like end it	SO02
1591	I find it hard to imagine the monitoring of water for 500 years. Copper nickel mining has an atrocious international record so I would certainly plan on necessity for long-term monitoring. The chance for pollution due to heavy rainfall, poor planning, breached liners and unforeseen weather events seems likely. Where is the mitigation plan for worse-case scenarios?	PD22
1593	What are the details of the proposed water treatment systems?	PD03
1594	Who will pay for five centuries of monitoring? If Polymet goes under, what is the liability to the taxpayer?	FIN01, FIN10, FIN11
1595	How much will Polymet put up annually to pay for cleanup in case of a disaster?	FIN05
1596	Are you going to correct the inaccurate water flow model?	WR003, WR086, WR091
1597	Will there be more work on the impact to wetlands? Seems under-represented.	WET24
1598	There is significant habitat loss not well documented in the report.	VEG03
1599	Finally, Polymet is a small company, frankly not all that well capitalized to take on such an enormous undertaking. It is not Kennecott. I fear any kind of even minor disaster will likely put it out of business, or it may decide to put itself out of business. Of course, the taxpayer will be left with the environmental and financial damage of such a result.	FIN01, FIN02, FIN10
Sender Name (Submission ID)	Frank Korpi (54645)	
18000	Water is our most precious resource. I am 75 years old and feel copper nickel mining would be bad for our states water.	WR195
Sender Name (Submission ID)	Frank Moe (788)	
45	This draft of the Polymet EIS is still "inadaquate" being based upon the assumption that the pollution from the mine can and will be processed for 500 years.	PD03
Sender Name (Submission ID)	Frank Trapanese (50584)	
11909	The effect of PolyMet's likely pollution would devastate the now vital fishing and tourism industries of northeastern MN for generations. The prospect of a limited number of jobs for a limited period of time would be more than offset by the collapse of fishing, tourism, seasonal residencies	SO01
12486	The effect of PolyMet's likely pollution would devastate the now vital fishing and tourism industries of northeastern MN for generations. The prospect of a limited number of jobs for a limited period of time would be more than offset by the collapse of fishing, tourism, seasonal residencies etc. etc. etc.	SO01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Frank Trapanese (50584)	
13344	It is the duty and ethical responsibility of the EPA, DNR, the Corp and other governmental agencies to protect ordinary citizens and the environment. I ask that you fulfill this duty by not letting PolyMet get by with a poor quality assessment based on unrealistic data.	NEPA15
13345	The effect of PolyMet's likely pollution would devastate the now vital fishing and tourism industries of northeastern MN for generations. The prospect of a limited number of jobs for a limited period of time would be more than offset by the collapse of fishing, tourism, seasonal residencies etc. etc. etc., not to mention future decades of cleanup costs that PolyMet would undoubtedly shrink from and leave to the tax payers!	SO02
16085	[There would be] future decades of cleanup costs that PolyMet would undoubtedly shrink from and leave to the tax payers!	FIN01
Sender Name (Submission ID)	Frank Verderame (4294)	
1799	Please don't let a foreign entity … leave the taxpayers holding the bag for generations.	FIN04
1885	[The NorthMet Project will have] short-term monetary gain which probably will not even provide a high percentage of benefit to Minnesota	SO02
1888	Far more money can be made in the long run by keeping the area wild and pristine and focusing on smaller projects with less negative effect	ALT13
Sender Name (Submission ID)	Frank Wood (20193)	
1781	We think the time has come to plan for sustainable employment rather than relying on jobs in mining which have a limited duration. We are disappointed that anyone is ready to risk the health of the entire region for a few hundred jobs.	SO01
15197	Previous mining has already done damage. Consider the pollution of the St. Louis River. Look at the isolated instances of damage where sulfide bearing ores have been mined. We do not believe there is a “safe” way to manage the poisonous residue from such mining. Concentrating the poison using the filtration process proposed does not solve the problem. Consider the history of Butte MT, particularly the Berkeley Pit. What responsible person would place such a pool of poison in the midst of a network of lakes and streams? Just recently we have seen a tank leakage in West Virginia and a slurry dam failure in Georgia. In the first case, the corporation involved sought protection in bankruptcy—a move that is not unusual for firms in a tight place. Promises do not last when the profits are gone.	FIN01
Sender Name (Submission ID)	Fred Hickox (30296)	
12878	Sulfide mining can not be performed safely without causing long term pollution and environmental damage.	PD01
12879	In the long term the tax payers will be paying for this mine with lost tourism jobs, health care costs, and clean-up costs. It would be more cost effective for the tax payers to pay the mining companies millions to just go away.	FIN10
13988	The Federal land exchange of protected Superior National Forest land is not in the public interest.	LAN01
Sender Name (Submission ID)	Fred Rogers (58043)	
19881	What is very clear is that the jobs are relatively short term - 10-20 years - and the environmental risk and degradation are very long term - 100-500 yrs.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Fred Rogers (58043)	
19893	50% of the US copper comes from recycling. We are recycling less than half of what is thrown away. We should be mining the waste we have created and are creating – not destroying more of the planet to create, ultimately, more waste.	NEPA06
19895	99% of the material mind will be waste, creating unrealistic and immense, perpetual liabilities.	PD01
19928	I oppose the proposed project and urge the State of Minnesota to reject it. Jobs are important, and so is the environment...We should be mining the waste we have created and are creating – not destroying more of the planet to create, ultimately, more waste. These new jobs will also disappear and when they do, what will remain?	SO01
Sender Name (Submission ID)	Fred Schumacher (52278)	
10711	The mining period is too short, the number of jobs created too small, the experience of the company in mining non-existent, the possibility of damage too great, and the remediation period too long.	SO01
Sender Name (Submission ID)	Fred Thompson (45317)	
12245	Then there's mine site monitoring for possibly up to 500 years for water that will potentially contain life threatening amounts of asbestos-like fibers and be too acidic to release into the environment!	AIR03, WR035, WR107, WR108, WR141
12248	And Polymet funding? Who is it kidding? Years will pass: given a few bankruptcies and America will have another taxpayer-supported Superfund site.	FIN01
12251	other concerns such as dirty coal-based energy, potential mercury pollution, wetland destruction and tax discrepancies will ultimately create a long term burden for all of Minnesota's residents:	GEN03
12253	if these mines are permitted, we will create the potential for long term harm to the health of our citizens and the destruction of some of our nation's most pristine environments.	HU01
15578	Glencore is the world's largest commodities company and one of the world's largest global mining companies. Unfortunately for Minnesota, however, it also has a long history of environmental pollution, human rights violations and anti-labor practices. Are we asking Glencore to be the responsible party? Given its history, is this a company that Minnesota can trust?	PER02
Sender Name (Submission ID)	Freddy Bear (47562)	
7118	I am opposed to the [project] because I believe the environmental risks and future financial costs out way near term economic benefits. Instead I think the state should fund research to develop new mining technologies that are environmentally safer and less intrusive.	SO01
Sender Name (Submission ID)	Frederic Boger (11536)	
2486	We need the work. We have to way the jobs against environmental impact. We need the work.	SO10
2486	We need the work. We have to way the jobs against environmental impact. We need the work.	SO10
Sender Name (Submission ID)	Frederick K Campbell (54784)	

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Frederick K Campbell (54784)	
19386	The discussions of environmental consequences in several sections of Chapter 5 are incomplete because they do not adequately consider catastrophic weather- and/or climate-related events, such as flooding, wind- and electrical storms.	AIR01
19387	The SDEIS does not provide adequate contingency plans for catastrophic natural events or for catastrophic human-caused events (e.g., train derailments or accidents).	PD22
19388	Chapter 3 mentions the potential need for post-closure water treatment for up to 200 years at the mine site and up to 500 years at the plant site. Other chapters and sections of the SDEIS should discuss the potential implications and repercussions of such an extended period of post-closure water treatment.	NEPA05
19389	The discussion of saline groundwater on page 5-113 and 114 concludes that the risk of encountering saline water is low. However, this is based on evidence from 12 monitoring wells, which represent only a very small portion of the total project area. Based on the scope and nature of the proposed actions at the Mine Site, and based on published information about the nature of the Duluth Complex and other formations of Keweenawan age, it seems probable that saline groundwater will be encountered.	WR078
19390	Section 4.2.2 .1.3, which discusses wild rice, is incomplete, because it does not sufficiently discuss the potential impacts of the Proposed Project on wild rice, the Ojibwe community or wildlife.	VEG04, WI01
19391	The SDEIS uses modeling to predict water quality impacts, and does not use any empirical data to evaluate these potential impacts. The SDEIS should be updated with information from the latest studies by the Minnesota Pollution Control Agency and other researchers.	WR023, WR073
Sender Name (Submission ID)	Freds Gmail (6712)	
1104	Where is the money coming from in order to support the operations that prevent any negative environmental impact for the next 200-500 years? Is there going to be a reserve set up in order to support monetarily the operations that prevent any negative environmental impact for the next 200-500 years? Who is responsible in supporting the operations, and watch-dogging the operations, that prevent any negative environmental impact for the next 200-500 years?	FIN01, FIN08
1300	…all monies need to be placed into a non-accessible reserve (non-accessible by any present or future State Governments) that will support all environmental operations for the next 200-500 years.	FIN08
Sender Name (Submission ID)	Freshwater Future (42995)	
9144	...the Supplemental Draft Environmental Impact Statement suggests centuries of pollution may occur from this mine. The MDNR, however, has stated it did not evaluate how long polluted water may need treatment. Knowing how long pollution may occur is a fundamental part of evaluating environmental impacts. We request that you re-run the water analysis to provide such estimates.	WR036
9148	The Water Impact Analysis if Faulty and Needs to be Fixed. The proposed mine plan uses inaccurate and incomplete information in the model for water quality impacts. As such, this flawed model likely under-represents the amount of water pollution and how far and fast it spreads.	WR189
9151	The mining company has provided no plan for dealing with common accidents, spills, leaks, or mechanical failures that occur at mines of this type... The SDEIS needs to include contingency planning for the most likely mishaps.	PD22

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Freshwater Future (42995)	
9152	...we ask that you include information regarding financial assurances as part of the document...The NorthMet proposed mine plan provides no information about the expenses of water treatment, what will be included in the costs, and how taxpayers will be protected from potentially paying for environmental clean-up the mining company leaves behind.	FIN01, FIN05, FIN10, FIN13
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
4883	A mine plan that anticipates creating centuries of water pollution does not sufficiently protect Minnesota's waters. The SDEIS must more fully examine mine design alternatives, such as the Underground Mine Alternative and the West Pit Backfilling Alternative, that could reduce pollution risks.	ALT01, ALT03, ALT06
4884	The SDEIS should clearly state that active water treatment will be needed for at least 200 years at the Mine Site and for at least 500 years at the Plant Site,or give a revised measured length of treatment time needed, instead of vague references to "it is expected to be long term."	PD03
4885	the SDEIS should include graphs and other depictions of water quality data, similar to what is found in the water modeling data packages. These graphs are ways to help the public understand the information, and they should not exclusively reside in technical data packages that most of the public will never read.	PD03
4886	The SDEIS needs to contain a full and accurate accounting of the amount of uncaptured polluted water that is expected to seep from mine and plant site features. The water model needs to be corrected and re-run with accurate information about baseflow and bedrock fractures, and revised results for pollution seepage and travel times clearly presented.	WR003, WR168
4888	The SDEIS does not present information about what is in the polluted water that is sent for treatment at the Mine and Plant sites. … Also missing is information about the make-up of Tailings Basin water, Hydrometallurgical Facility water and contents, the content of the waste sludge andsolids, and the make-up of Reject Concentrate that is transported from the Plant Site to the Mine Site by rail car….The SDEIS should analyze and state how long active water treatment is needed and what the makeup and concentration levels are of all water on the Mine and Plant sites, including water collected for treatment, water after treatment, water that is expected to escape capture, contents of the mine pits, the Tailings Basin and Hydrometallurgical Residue Facility, waste solids and sludges, and the Reject Concentrate.	PD03, WR035, WR037, WR128, WR147
4892	The SDEIS does not consistently characterize the pollution risks from Category 1 waste rock. Table 3.2-8 on page 3-45, Waste Rock Categorization Properties, identifies Category 1 waste rock as having the "low potential to generate acid." But in Table 3.2-2, Key Phases and Activities (Mine Site) on page 3-17, Category 1 waste rock is identified as "non-acid-generating waste rock." Page 5-52 states that Category 1 waste rock "would not produce acidic leachate." …The acid generating potential of all waste rock should be accurately and consistently characterized throughout the SDEIS and should include its potential to leach metals and sulfates, given that waste rock pollution is not limited to acidic conditions.	PD15
4893	The SDEIS notes that the concentrations of certain contaminants in the pits are expected to exceed water quality standards but, without any supporting data, the SDEIS suggests that the need for water treatment may cease. … The SDEIS should remove statements that are not supported by data or other information. If solute levels do not decline to below water quality standards, the SDEIS should not suggest that the need for water treatment may cease. Any discussions of non-mechanical water treatment effectiveness need to be based on information and evidence from case studies, and not on hopeful but unsupported projections.	WR035, WR137

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
4894	But Section 3.2.2.1.8 does not describe anything about the Treated WaterPipeline. The figures in the SDEIS do not appear to depict the treated water pipelines running into or out of the plant site. … All treated and non-treated water conveyances should be fully described and portrayed in figures in the SDEIS. Pipeline failures and breaks are among the common mishaps at mines of this type, with associated risks of spreading contaminated water. The SDEIS needs to fully describe and depict these features for the public to better evaluate the proposed project.	PD22, PD38
4895	The SDEIS does not present water quality information in a transparent fashion. Many graphs, charts, and tables that could help explain information are either missing completely, or found in technical data packages and supporting documents to the SDEIS, but not in the SDEIS itself.… there is no graph showing what is in the water before treatment and what the concentration levels look like over time. There is no chart that compares pollution levels in pre and post-treatment water. There is no table that shows what the contents of the Hydrometallurgical Residue Facility are, a basin thatis double lined for safety. … The SDEIS should include graphs, tables, charts and other depictions of water quality data to help the public understand the information. We suggest: contents and concentrations of contaminated water over time, side-by-side comparisons of pre and post treated water, contents of mine pits, Tailings Basin, Hydrometallurgical Residue Facility, and the Reject Concentrate.	WR063
4896	The SDEIS needs to describe [the] chemical make-up of pit and nearby well dewatering water. It should describe how treatment methods will address any constituents of concern. And the SDEIS should re-evaluate the volume of dewatering water anticipated, and how it might manage a situation where the volume exceeds the need for mine processes.	PD03
4898	The SDEIS fails to describe and analyze a significant mitigation measure that is briefly discussed in the Water Modeling documents but referred to only obliquely and with no details in the SDEIS (pg. 5-102). … The failure to describe this mitigation plan in the SDEIS is a significant omission. The SDEISneeds to fully explain this plan, analyze the potential for this to desaturate the backfill, and account for potential impacts.	WR130
4899	the baseflow numbers used in the model for basic site surface water flow hydrology at the Mine Site are lower than measured data suggest for the site….The SDEIS used modeled estimates of baseflow rather than measured values from flow gaging stations nearby. … The SDEIS must present a substantially revised water model that has corrected the fatal flawsfound in the current version. … The SDEIS should reconsider if the GoldSim model is the appropriate model for assessing this project's impacts. ... The model should be re-calibrated with targets based on observed baseflow numbers and new water level data from newly installed mine site wells.	WR003
4901	In modeling water quality impacts, the SDEIS makes the assumption that the Duluth Complex and the bedrock at the Mine and Plant Sites are not fractured. … If the U.S. EPA and others are correct about the presence of fractures, the SDEIS has made a critically flawed assumption about the permeability of the site, with potentially disastrous pollution transport implications. … In addition, the SDEIS does not examine the potential for blasting activities at the minesite to create new fractures and pathways for contaminated water to move off site.… The degree of bedrock fracturing should be more thoroughly analyzed and this information incorporated into re-running the water model for more accurate results on pollution transport from all mine and plant contaminant sources.	WR010, WR016, WR087
4903	the SDEIS uses a higher evaluation criteria for these constituents [beryllium, manganese and thallium] than the U.S. EPA's maximum contaminant levels or the State's Health Risk Limit (SDEIS 5-11 to 5-12). … The SDEIS should either provide evidence to support using elevated levels of beryllium, manganese and thallium as naturally occurring, or adjust the water model to use evaluation criteria set at Minnesota's water quality standards.	PD29

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
4905	The SDEIS uses a P90 Criterion to determine if water evaluation criteria are being met. … But the SDEIS notes that this is not equivalent to howwater quality-based effluent limits (WQBELs) would be developed for National Pollution Discharge Elimination System (NPDES) permitting (SDEIS 5-77). … It would make more sense and make for better understanding of the project's impacts, if the SDEIS used the same evaluation method as will be required in permitting. …The SDEIS should use the same water quality based effluent limits as will be used in NPDES permitting to enable the public to understand and evaluate impacts.	PER06
4907	After about 60 years from the onset of mining, sulfates reach the Partridge River at concentrations that exceed the legal standard. This occurs at year 60 if the West Pit's re-filling is assisted by pumping water into it. If the West Pit is allowed to refill on its own, sulfates reach the Partridge River at about year 75, also in concentrations exceeding the standard. The SDEIS predicts the project would cause no significant effects.	WR115
4908	Copper concentrations reaching the Partridge River would also exceed the water quality standard "by large amounts after 60 to 80 years" (Myers 2014). The SDEIS predicts the project would have no significant effects.	WR171
4909	PolyMet has underestimated recharge rates by three to five times what is to be expected. "Higher recharge rates lead to higher conductivity…" (Myers 2014).	WR003, WR052, WR091
4910	Dewatering rates in the East and West Pits would be about twice that predicted by PolyMet due to higher recharge and conductivity. Higher dewatering rates have the potential to impact river flows and wetlands far more than have been predicted in the SDEIS. "Based on the simulation herein, the Partridge River reach above the confluence with the South Partridge River is most at risk from dewatering and that risk continues for years during reclamation and closure if the pit refills naturally" (Myers 2014).	WR086, WR087, WR088, WR171
4911	During some periods, drainage from the Category 1 Stockpile would flow north to the Partridge River, and not solely toward the West Pit as the SDEIS predicts. This is significant, in that the SDEIS counts on contaminants flowing from the Category 1 Stockpile to the West Pit and through waste water treatment as a way of containing pollution.	WR089
4912	During reclamation, the East Pit water would be pumped, treated to bring sulfate levels down to 250 mg/L, and then redistributed to the East Pit, all while supposedly keeping the backfill waste rock in the East Pit saturated. Dr. Myers questions the ability to successfully do this. ... The effort would likely cause large areas of the backfill to become desaturated. Pumping may even facilitate the movement of oxygen and moisture through the backfill, conditions involved in the development of acid mine drainage. "PolyMet assumes it can work without presenting a design or model" (Myers 2014).	WR088
4915	PolyMet should provide a list of mines for which GoldSim has been used to simulate contaminant transport. … The PolyMet GoldSim model contains "inaccuracies with the parameters, the assumptions, the conceptual model, and even the equations used in the model to solve the transport. It indicates the overall results are inaccurate and probably give a false sense of security" (Myers 2014).	WR189
4916	The assumption of a lack of bedrock fractures is incorrect, demonstrated even by PolyMet's own data. Dr. Myers points out that the low conductivity values arrived at by PolyMet are the result of extremely low values for three wells pulling the mean in a direction that suggests a low conductivity, while 9 of the wells showed higher conductivity values. "…it would be better to consider that 70% of the site had bedrock K greater than 0.1 ft/d" (Myers 2014). … A 30-day pump test conducted to assess the connection between the bedrock andsurficial aquifers was done on well P-2, the well with the second lowest conductivity value. Had this test been done on any one of the 9 wells showing higher conductivity, results may have been different. "This is far too little data with which to assume little connection between the bedrock and surficial aquifers" (Myers 2014).	WR009

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
4923	"PolyMet relies on perfect engineering to limit the seepage rates through three waste stockpiles, an ore surge pile, and the tailings impoundment" (Myers 2014). … "If their many modeling assumptions do not fully manifest or their engineering designs do not work as well as expected…this load will reach the river and cause the project to exceed many standards" (Myers 2014).	WR128
4924	In its analyses, PolyMet frequently uses mean values for model inputs, resulting in an underestimation of the potential environmental impacts. … In addition, PolyMet's modeling places limits or "concentration caps" on theconcentrations leached from mined wastes. This approach results in the high end of potential contaminant concentrations being excluded from consideration in the model (Maest 2014). And the model assumes that "essentially all contaminants will be adsorbed or otherwise removed as mine-affected waters travel along prescribed flowpaths to receptors" (Maest 2014). ...Given the alack of site-specific information on these factors that affectcontaminant adsorption along potential groundwater flowpaths, a modeling run with no adsorption should be conducted and included in the modeling results presented in the FSEIS" (Maest 2014).	WR058, WR060, WR173
4928	The evaluation of mercury impacts in the SDEIS is critically inadequate…No claims should be made about mercury reductions, increases, stabilizing levels, travel times, impacts to wildlife without data and information to support those claims. The SDEIS should include analysis of potential mercury sources that have not been addressed, including all constructed wetlands, the West Pit, and the Overburden Storage and Laydown Area. Mercury air emissions must be evaluated from the generation of electricity for the proposedproject and from mining vehicles and equipment.	AIR05, MERC04, MERC17, MERC21
4930	Mercury was excluded from evaluation in the GoldSim water quality modeling…. The failure to model a contaminant of major concern for this proposed project is a significant shortcoming of the SDEIS. Even more troubling is that even without this evaluation and without evidence, the SDEIS claims mercury contamination will not be an issue for the proposed mine. … With limited understanding of the mechanisms affecting mercury methylation and bioaccumulation, the SDEIS cannot and should not make claims about the project reducing mercury loadings in the St. Louis River. … The St. Louis River is acknowledged to have a complex and unique mercury dynamic that is the subject of ongoing research. This should be recognized in the SDEIS and assertions about the NorthMet project's mercury impacts should be supported with relevant data. The agencies overseeing the NorthMet proposed mine need to insist on the collection of more data before drawing conclusions about mercury's impact on the watershed.	MERC04, MERC13
4933	The SDEIS assumes that mercury will be "sequestered in the LTVSMC tailings," with the Tailings Basin acting like a sink for mercury (SDEIS 5-205). GLIFWC scientists highlight a number of flaws with this assumption… The SDEIS must include data to support the claim that the Tailings Basin would function as a mercury sink. The evaluation should answer questions that include: Are there conditions under which the tailings would shift from a sink to a source of mercury? Is the mercury permanently and irreversibly adsorbed to the tailings? Are there data to support the claim that 95 percent of the mercury is expected to be adsorbed to the tailings and hydrometallurgical residue?	MERC06
4934	The SDEIS...suggests that the impacts from increasing mercury loadings in the Embarrass River can be overlooked because loadings in the Partridge River are expected to decrease. ... If any of these conditions are not met[i.e., a nearly perfect polluted water capture system, and the uninterruptedtreatment of contaminated water for centuries], the amount of mercury contamination could be significantly higher. The potential for this should be examined. … Mercury loadings to the Embarrass River from the proposed NorthMet project should be fully disclosed, the impacts fully evaluated, and mitigation measures proposed.	MERC16, MERC18
4939	The SDEIS fails to assess or properly evaluate potential mercury issues to wildlife. The Wildlife Section and the Aquatic Species Section of the SDEIS do not review mercury contamination impacts to species that could consume mercury contaminated food sources. … Stating that risks may exist to wildlife does not fulfill the obligation of the SDEIS to fully evaluate the threats and propose mitigations. … The SDEIS needs to include evaluation of impacts to wildlife and aquatic life from mercury contamination. All mine features should be fully assessed for their potential to contaminatewildlife. Mitigation responses should be provided.	WI01, WI04

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
4940	Mercury impacts to the Partridge River are inconsistently characterized in the SDEIS, creating confusion about what the likely impacts may be. … The mercury impacts to the Partridge River and the wildlife that use it should be consistently and accurately reflected in the SDEIS.	MERC04, MERC23
4942	Mine and Plant Site Water Data Packages show sulfate concentrations in mine and plant water far above water quality standards hundreds of years after the mine closes. High sulfate concentrations can stimulate the methylation of mercury in the environment. Given that the SDEIS acknowledges significant amounts of polluted seepage will escape capture and treatment, the SDEIS cannot assume that mercury deposition ceases at closure. … Descriptions of mercury contamination risks beyond the life of the mine should be fully and accurately described, and supporting data provided.	MERC17
4945	Unclear in the SDEIS is what would trigger the decision to add underdrains and the feasibility of adding them if the need arises. What if circumstances occur that cause the groundwater to be more elevated than when the stockpile liner system was being built? The SDEIS is not clear how this would be managed to ensure ground and surface waters are not impacted. … Triggers for potential changes to designs to collect and manage polluted drainage at the mine site should be outlined in the SDEIS. Why or how underdrains would be added to certain stockpiles should be fully described.	PD03, WR130
4947	The plan in the SDEIS calls for creating a cutoff wall around the Category 1 Waste Rock Pile…. The SDEIS does not describe how or why this determination would be made. What are the differences in capture efficacy? This information should be provided. … The SDEIS states that performance modeling was done that showed a greater than 90 percent efficacy in the capture rate with this system (SDEIS 3-46). The SDEIS does not indicate if this was ever field-tested. No supporting data is given for the efficacy of such a system at another mine or similar structure. Nor does the SDEIS describe a contingency plan for if the containment system does not capture 90 percent of polluted drainage. This information is necessary to properly evaluate the potential effectiveness of a major pollution-control engineered design for the mine. … The Category 1 Stockpile Containment System should be field tested at an appropriate scale toassess the efficacy of this vital pollution control system. Results should be fully described in the SDEIS. Examples of the use of this method at mines or other operations at a similar scale should be found and their success rates described. Contingency plans should be developed for scenarios of water capture that are less than 90 percent, and these plans outlined in the SDEIS.	PD15, PD22
4948	The failure of the SDEIS to account for these fractures means the bedrock is more permeable than PolyMet's model has accounted for, and that the Category 1 collection system will likely not experience a 90 percent efficacy for water capture. This would result in a much greater transport ofpollution than the SDEIS has anticipated. …The SDEIS should include a re-worked water model that assumes the presence of bedrock fractures and fully analyzes what this means for the transport of polluted water off-site.	WR010
4950	The SDEIS has little information about the process to separate the different waste rock types into their appropriate stockpiles. Any mistakes made with this process have potential for pollution risks. … However, the SDEIS does not describe this waste rock management plan that is critical to reducing water pollution risks. … The Rock and Overburden Management Plan should be described in the SDEIS. So too should the SDEIS describe the waste rock separation process.	PD15, PD35
4952	the waste rock piles may also represent a fugitive dust source of contamination to surrounding waters and lands. … Waste rock fugitive dust should be analyzed to ensure it is not a hazard or threat to human healthor the environment. The SDEIS should contain a plan for managing waste rock fugitive dust if it is determined that this is a pollution risk.	PD15, PD35

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
4953	too few samples were analyzed in characterizing the waste rock for the volume of waste that is predicted to be generated. … Proper characterization of waste rock is essential for identifying reactivity potential and for managing the rock to limit its pollution risks. … The SDEIS characterization of Category 1 Waste Rock as not acid generating could be wrong. … The SDEIS should reanalyze the characterization of waste rock and provide supporting evidence for its findings.	PD15
4954	The SDEIS states that while groundwater has been impacted by the existing tailings basin, the data suggest that the concentrations of the pollutants are not increasing or decreasing (SDEIS 4-111). … It is unknown if concentrations have increased or decreased over the past nine years.A full and current understanding of existing pollution issues at the Tailings Basin is essential given that PolyMet plans to add additional waste to the basin with additional seepage of contaminants expected. … New data measuring existing contamination at the LTV Tailings Basin should be collected andthe results fully described in the SDEIS.	PD10, WR071
4957	the NorthMet plan calls for developing a pollution containment system that would involve the construction of a cutoff wall down to bedrock to divert and collect drainage from the Tailings Basin. … The SDEIS does not indicate if this was ever field-tested. … The Tailings Basin Containment System should befield-tested at an appropriate scale to assess the efficacy of this vital pollution control system. Results should be fully described in the SDEIS. Examples of the use of this method at tailings basins at other operations should be found and their success rates described. Contingency plans should be developed for scenarios of water capture that are less than 90 percent, and these plansshould be outlined in the SDEIS.	PD13, WR018, WR023
4962	These are modeled assumptions [100 percent effectivess surface seepage capture and 90 percent for groundwater seepage] that seem to lack field-testing and that do not take into account bedrock fractures or containment system failures or inadequacies. This is an example of the SDEIS making assertions about low probability of water quality impacts without providing supporting data. The SDEIS should provide supporting data from similar engineering designs at other mines that have proven efficiency rates of 90 to 100 percent. …The SDEIS should include a re-worked water model that assumes the presence of bedrock fractures and fully analyzes what this means for the transport of polluted water off-site.	WR008, WR019
4963	The SDEIS also makes unsupported assertions about the engineered design of the Tailings Basin. … The SDEIS should provide supporting evidence that a pond at the Tailings Basin will reduce the oxygen flux and associated solute release in the underlying tailings. It should describe the depth of the pond and how wind action will not introduce oxygen to the system.	PD08
4964	The SDEIS describes a plan at closure to try to limit downward seepage from the Tailings Basin…. Yet the SDEIS does not describe if this technique has been applied elsewhere and with what success. This is an important plan to limit water pollution, but the SDEIS does not show it can work or has worked elsewhere. … Supporting evidence needs to be provided in the SDEIS about the functioning of the bentonite layer that will be added to the Tailings Basin at closure. Examples of this application and its success rate at other tailings basins should be provided.	PD07
4965	The design for the Tailings Basin calls for the construction of a channel should storm events or other issues risk water escaping the basin. ... Yet details about this channel are not provided in the SDEIS. The public does not know the capacity of the overflow channel or if it is intended to be lined. If it is an unlined channel, what measures will be in place to prevent contaminated seepage from escaping the channel? Has such a method been used at other mines and with what success rates? … The SDEIS needs to contain more information about the emergency channel for the Tailings Basin, how it would function, and how seepage of contaminated waters would be prevented from this feature.	PD07
4966	The SDEIS calls for Hydrometallurgical Residue Facility to be double-lined to protect water quality. … The SDEIS should clearly state that “long-term” likely means centuries of management, given the results of the modeling as revealed in the Plant Site Water Data Packages. … The SDEIS needs to clearly state how long water collection systems and monitoring will be required based on modeling results.	PD29

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
4967	The need to double line the Hydrometallurgical Residue Facility is because the contents of this basin are expected to contain high concentrations of contaminants. The SDEIS starts to describe a contingency plan for unexpected issues with the facility, but then fails to address the issues in a meaningful way…. … The SDEIS needs to develop and fully describe contingency plans for all components of theTailings Basin and Hydrometallurgical Residue Facility. Scenarios should be developed looking at impacts of capture rates less than 90 percent. Capture rate expectations need to be supported with data and examples from other mine operations.	PD08, PD09, PD11, PD17
4970	ore spillage and the release of ore fines [from being transported via open rail cars over a route that crosses wetlands and three creeks] pose significant water quality threats to water systems along this route. Fallen ore and fugitive dust have the potential to contaminate wetlands and soilsalong the rail line, leading to acid drainage and metal leaching in nearby water bodies. … But these designs are not adequate to ensure spillage does not occur. ...The SDEIS provides no supporting data to show the centerline loading method will adequately contain spillage.… While the SDEIS calls for monitoring of spillage along the rail line, this too is an inadequate response given that contamination will have already occurred. … The risk of widespread and localized contamination from ore spillage and fugitive dust during uncontained rail transport is unacceptable and avoidable. The SDEIS needs to include a transport plan that calls for enclosed rail cars. The Rail Transfer Hopper and rail car loading conveyor and platform should be in an enclosed structure.	PD36
4972	there is also the potential for spills from transporting Reject Concentrate by rail tank cars and from transporting waste sludge and solids by truck along the corridor's roadway. … The SDEIS does not discuss the possibility of accidents, derailments, or spills that could result in the contents of these transports being released into the surrounding environment. Nor does the SDEIS describe safeguards to deal with this possibility or any plan for how to manage potential spills. … The SDEIS does not describe how the rail line will be safely shared between the cars transporting ore and the tank cars transporting Reject Concentrate. … The SDEIS needs to describe how the transportation corridor will be shared between the cars transporting ore and the tank cars transporting Reject Concentrate. The SDEIS needs to disclose the contents of the Reject Concentrate and the sludge and solid wastes, and give the concentration levels of the contents. It should provide a contingency plan for managing spills and accidents from the transportation of Reject Concentrate and sludge and solid wastes. The SDEIS should include modeled impacts of the distribution of fugitive dust.	PD36
4979	Increases in constituent loadings to the area's water systems should be evaluated for their impacts when combined with existing and foreseeable future contributions from other sources. The Twin Metals project should be included in this evaluation. Water quality models need to be re-run with corrections made to faulty assumptions (see Friends' comments about Major Flaws with the Water Model, Section I.E.) and the cumulative effects re-evaluated using the new results. Cumulative effects analysis for water resources should include the St. Louis River and should include areas north and east of the NorthMet proposed project. The relationship betweenthe development of the NorthMet project and the development of other mining projects should be analyzed and discussed in the SDEIS.	CU01, CU02
4983	The SDEIS needs to thoroughly review the RO technology and how it intends to address the project's issue of contaminated water. The SDEIS does not provide the information or level of confidence that the public needs about this critically important technology that is central to managing pollution. The SDEIS needs to give detailed examination that shows how this has been applied successfully elsewhere and how it will avoid the problems encountered elsewhere. Without such detailed examination, the entire ability of the project to manage polluted water is called into question. The SDEIS needs to describe if and how the treatment process and RO can manage water issues in addition to sulfate, such as hardness, TDS, and specific conductance. All the issues identified in the Barr memo [May 31, 2011] must be explained.	PD03
4997	The SDEIS needs to address all of the engineering design problems of the Category 1 Stockpile system identified in the experts' reports [attachments to the Friends' submission].	PD15
5001	The SDEIS needs to address all of the engineering design problems of the Tailings Basin collection system identified in Dr. Malusis' report.	PD07

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
5002	The SDEIS should take into account the many geotechnical stability concerns identified in the Chambers and Levit report and implement the recommendations to ensure engineered designs that provide stability and protection. … Dynamic modeling should be performed for both the Tailings Basin and the Hydrometallurgical Residue Facility.	GT02, GT11
5003	The SDEIS needs to address all of the engineering design problems of the Hydrometallurgical Residue Facility collection system identified in Dr. Malusis' report. The SDEIS should describe a rigorous construction quality assurance process that includes continuous observation during installation. The SDEIS should include an electrical leak detection system for the liners.	PD17, PD19
5004	The SDEIS needs to address all of the engineering design problems of the Category 2/3 and 4 Stockpile liners identified in Dr. Malusis' report and the Chambers and Levit report. The SDEIS should include a rigorous construction quality assurance process that incorporates the elements in both the Malusis and Chambers/Levit reports. The maximum allowable hydraulic conductivity for the Category 2/3 stockpile liner should match that for Category 4.	PD15
5005	The SDEIS should include a full Reclamation Plan that provides details about goals, methods, financial surety, reclamation techniques that have been demonstrated, and timing of activities. ... The reclamation plan must include a plan to address the oversteepening of the Cell 2W embankments and the associated seepage. Chambers and Levit make other reclamation activityrecommendations that should be included in the SDEIS including characterization of waste disposed of in the East Pit, evaluation of abandoned pipelines, and a tracking system for hazardous materials to ensure appropriate disposal and compliance with laws. In addition, the Reclamation Plan should describe the water balance desired for the pits post-closure. The SDEIS should contain details about wetlands construction.	PD35
5007	the acid generating potential for the project has been under-reported…. The SDEIS must re-examine the potential for all waste rock to generate acid and other leachate. It should incorporate the recommendation by Dr. Maest to backfill all the waste rock, including Category 1 wastes. The SDEIS should accurately portray data that indicate the acid generating potential of waste rock.	PD15, WR001, WR088
5010	The SDEIS must contain descriptions of the most likely unplanned events, such as pipeline breaks, spills, failure of treatment or collection systems, mechanical problems, liner and cover failures. The SDEIS also needs to outline responses to these types of events. … The public needs to see this response plan in order to assess the range of environmental impacts that may occur. … The SDEIS needs to include supporting evidence for the success of responses at managing unplanned events, including examples from other mines. … probabilistic modeling should be expanded to include assumptions that liners and containment systems work poorly. "Instead of 99% capture, they should test what occurs with as little as 10% captured. Also they should consider what occurs if the capture fails for a given period of time" (Myers 2014). He suggest modeling explore what happens if the cutoff wall and pump systems do not perform as designed.	PD22
5011	Minnesota should not approve a mine plan that cannot comply with Minnesota's existing laws [Minnesota Rules 6132.3200, Minnesota Rules 6132.4800, Minnesota Rules 6132.1300, Minnesota Rules 6132.1200, Minnesota Rules 6132.1100]. The SDEIS describes a mine that, as presently conceived, could not comply with Minnesota's Rules for nonferrous mining. The SDEIS should include a revised mine plan that can meet these laws.	PD02
5034	The PolyMet project anticipates centuries of water treatment and the SDEIS should include the necessary financial assurance calculations for the public to assess risks and impacts. The financial assurance disclosures should include closure costs, estimated bond amounts needed for each closure and reclamation activity, and how the bonds should be modified should additional temporary, long-term, or perpetual treatment and/or remediation needs be determined during operations. Disclosed information should include capital replacement costs and frequencies and assumptions on interest rates.	FIN05, FIN08, FIN13

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
5035	Financial assurance calculations need to include the costs of unexpected events, accidents, developing pollution problems, and the staffing needed to maintain equipment and manage the site. ... Calculations of financial assurance need to include funding for contingencies such as an increased rate of release of metal contamination. … Financial assurance costs should include the number of employees necessary to maintain the plant and mine sites for the centuries of management activities that are anticipated. The SDEIS must include detailed information about financial assurance with transparency about what the estimates include. The SDEIS should indicate that the calculations and estimates have all been reviewed and verified by the Co-lead Agencies. Calculations initially should be based on predicted worst-case scenarios until operational data can prove conditions to the contrary. Because the interest and return on investment rates can result in financial assurance variations that are hundreds of millions of dollars different, the SDEIS must make the assumptions and calculations available for comment. Financial assurance calculations should include mitigating indirect wetland impacts and should be fully described in the SDEIS.	FIN05, FIN08, FIN11
5036	the SDEIS provides no meaningful consideration as required by law of alternative means to achieve the project Purpose and Need. … Serious evaluation is only give to an alternative that would convey fewer acres in the land exchange, and the No Action Alternative. … The SDEIS fails to show adequate evaluation of two other proposed alternatives that are feasible and offer the potential for reducing environmental impacts. Limiting the scope of alternative evaluation to the No Action Alternative and a minor change in the land exchange does not meet the legal requirement for alternative evaluation.	ALT14, ALT23
5041	The SDEIS acknowledges these potentially significant environmental benefits from an underground mine: ...An underground mine would alsoeliminate the need for a land exchange with the U.S. Forest Service and allow the landscape to continue to be available for public use. … the SDEIS dismisses the underground alternative without any further examination…. The economic feasibility was evaluated using a model called InfoMine. Neither theSDEIS nor the Underground Mining Alternative Assessment provide details of this model or its assumptions. Nor is it clear that the Co-lead Agencies reviewed the model and its assumptions. It appears the co-lead agencies have accepted PolyMet's assertion without verification that an underground mine is not economically feasible. … GLIFWC notes that the co-leads have not included in their analysis that an underground mine would not require a $4 million land exchange with the Forest Service, and that the alternative would also provide economic benefits from wetlands that would no longer need to be destroyed with the creation of an open pit mine. Additionally, an underground mine could provide economic benefits by potentially not requiring perpetual water treatment and maintenance (SDEIS, Appendix C, GLIFWC Comments, Underground Mine and West Pit Backfill Alternatives). … This alternative deserves full analysis in the EIS. An underground mine is technically feasible and offers the potential for economic benefits and significant environmental benefits. This alternative deserves full analysis in the EIS. … Details about the economic modeling and the model's assumptions for the Underground Mine Alternative should be given to the Co-lead Agencies, thoroughly reviewed by the agencies, and described in the SDEIS for the public. The evaluation must include reviewing the economic benefits that would transpire from not doing the land exchange, from not destroying the wetlands, and any changes in the need for long-term water treatment. A metals cost sensitivity analysis should be included in the evaluation of the Underground Alternative to verify that the option is not economical with higher metals prices.	ALT01, ALT02
5053	Backfilling the West Pit with the Category 1 waste rock has been proposed as a method to help limit water pollution risks. … The SDEIS must fully evaluate the benefits of backfilling the West Pit. The evaluation should not include arguments or assertions that have no evidence or information to support them. Claims about needing longer water treatment with this alternative must be supported with evidence or be dropped. If this assertion is retained, it must be applied in an evaluation of backfilling the East/Central Pits as well. The SDEIS needs to include a complete evaluation of the water quality impacts from the Backfill Alternative in the GoldSim modeling. It should include detailed cost/saving estimates for longterm water treatment and maintenance under a backfilled condition.	ALT03

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Comment ID	Comment Text	Theme Codes
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5060	As the SDEIS acknowledges, "The majority of wetlands that would be affected by the NorthMet Project Proposed Action would be 'difficult to replace' (coniferous bog, open bog, coniferous swamp, and hardwood swamp)'" (SDEIS 5-313). But the SDEIS does not fully disclose how unique these wetlands are. … The industrialization of this area would be an irrevocable loss to the State of Minnesota. Habitat fragmentation, loss of biological diversity, loss of representative habitats types, and climate change are threats to Minnesota's natural resources that only make sites like the 100 Mile Swamp more valuable. ...The SDEIS should acknowledge the high quality habitat that this proposed mine would destroy and that these wetlands are irreplaceable. Their value and loss should be placed in a statewide and regional context within the EIS.	WET05
5063	The SDEIS does not provide an adequate mitigation and replacement plan for the significant wetlands losses that are expected. … The SDEIS should acknowledge that its replacement plan cannot compensate for the loss of centuries-old peatlands and their unique functions. … Mitigation of indirect wetland impacts is not even described in the SDEIS. In addition, it is unclear where the compensatory wetlands might even be found [for both direct and indirect]. … The SDEIS fails to describe what this adaptive management plan might include. The absence of information leads to worries that many impacted wetlands may never be compensated. … the U.S. Army Corps of Engineers (USACE) has not yet made a determination about the wetlands compensation ratios required for the project. This is also information important to have in the EIS to evaluate the environmental impacts of this proposed project. … The SDEIS should include a mitigation plan for both direct and indirect wetlands. It should include analysis of possible compensatory wetlands for direct and indirect wetlands. A framework should be described for how any additional effects to wetlands may be mitigated. Wetlands compensation ratios need to be included in the SDEIS. The SDEIS should also analyze the wetland identified in Dr. Glaser's report as a possible mitigation site and explain any reasons to exclude it as an option.	WET01, WET02, WET04, WET05, WET06
5067	The SDEIS uses no hydrologic data to support that the wetlands are "perched" and disconnected from interaction with groundwater. This is important because if a connection exists, the potential for mine dewatering to create greater wetland impacts exists. No data were collected at the site to show that all the ombrotrophic wetlands on site are perched and would remain perched under mine induced drawdown conditions.… The SDEIS should use hydrologic data to characterize the wetlands and identify groundwater connections with the wetlands. The SDEIS should address all the issues identified in Dr. Glaser's report and use the scientifically supported methods he describes for wetland characterization. Hydraulic testing needs to be conducted at the Tailings Basin and this information shared in the SDEIS.	WET10
5068	In the analysis of impacts, the SDEIS relies on an "analog" method…. Analog information can be useful, but it should not be the sole source of assessing impacts. … The SDEIS should use hydrologic data to characterize the wetlands and identify groundwater connections with the wetlands. The SDEIS should address all of the issues identified in Dr. Glaser's report, and use water level measurement tests to assess the connectivity with groundwater. Analog data from other mines should be used as supporting information but not the sole source of information.	WET08
5070	The SDEIS does not give a detailed analysis of potential indirect wetland impacts. ... The SDEIS should contain a much fuller evaluation of drawdowns and their impacts. … The SDEIS needs to contain a more complete evaluation of indirect wetland impacts, drawdowns, and impacts to river baseflows and riparian wetlands. The recommendations made in Dr. Glaser's report for monitoring wetland impacts from the mine operations should be incorporated in the SDEIS.	WET07, WET10
5071	The SDEIS should more thoroughly examine the potential impacts from fugitive dust on wetlands. The SDEIS should include an evaluation of the transport of solutes during the spring snowmelt flush.	WET11
5072	the mine would severely impact a area known as the 100 Mile Swamp which has been identified as an area of high biological significance. … The SDEIS should examine and describe how it justifies the destruction of an area of high biological significance and the loss of rare plant species associated with this project. The State of Minnesota should provide an explanation to the public of why areas of biological significance are identified and species are placed on our threatened and rare species lists, if they are not to be protected even when on public lands.	VEG01, VEG02

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Comment ID	Comment Text	Theme Codes
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5075	The SDEIS should include the USFWS findings of the Biological Assessment and the Biological Opinion for lynx impacts. The EIS is incomplete without it.	WI11
5077	The SDEIS states that while the project would decrease critical lynx habitat, restoration of the mine area after operations might provide habitat once more. But the mine area is expected to remain fenced-off and highly polluted for centuries. It is unlikely that the area would be suitable for lynx for a very long time. The SDEIS needs to provide a restoration plan to support any claims that the area could be made suitable for lynx again. I[n] addition, the SDEIS does not consider alternatives like the West Pit Backfill and Underground Mine Alternative that may help limit impacts to lynx habitat. … The SDEIS should include a full evaluation of alternatives, such as underground mining, thatwould disturb less of the area and impact lynx and other wildlife habitat less.The SDEIS should include a restoration plan for lynx habitat once operations cease, with realistic evaluations about the restoration capacity for parts fenced-off and contaminated.	WI02, WI10
5081	Mining activities would destroy about 1,454 acres of suitable lynx habitat, and the proposed land exchange would result in further loss of lynx habitat within identified LAUs. While the federal lands within LAU 12 comprise 6,500 acres, the non-federal parcels combined only equal 2,149 acres within LAUs. This represents a total loss of 4,752 acres within LAUs. Tract 1 proposed for the exchange is not located within an LAU at all (SDEIS 5-629 and 5-630). … The SDEIS should insist that a land exchange include acquiring enough acres within lynx LAUs to equal the losses of acres in LAU 12.	WI02
5083	These statements are in contradiction with findings in the Draft Biological Assessment (BA) by the USFWS. … The SDEIS should acknowledge the use of roads by lynx, use this information to fully evaluate the risk of vehicular collisions, and provide estimates of the amount of collision deaths anticipated. The SDEIS should also consider and describe mitigation measures such as underpasses and fencing to reduce the collision risk to lynx.	WI01, WI10, WI11
5086	The SDEIS needs to correctly describe the Canada lynx as a Minnesota Species of Special Concern. The SDEIS should present all relevant lynx surveys and show that the best available information has been used in assessments of impacts rather than relying on incomplete or outdated information. Included in the SDEIS should be a table and map revealing the locations of lynx tracks, sightings, scat, or kills between 2000 and 2014.	WI01
5089	The SDEIS makes almost no mention of the project's impact on moose populations and moose habitat, despite the state's alarming moose population decline. … The SDEIS provides no data or survey information to support the claim that the loss of habitat would not impact the species population numbers. The SDEIS does not appear to include any analysis of the project's impacts on this species. The SDEIS fails to even note that the moose on August 19, 2013, was designated a State Species of Special Concern. The alarming declines in this species population, even before its recent designation, should have been reason for the SDEIS to include a full evaluation of the project's potential impacts on this species. … The SDEIS should include a full evaluation of the project's impacts to moose populations and moose habitat. Statements about the likelihood of impacts must be supported by data. The SDEIS should eliminate references to moose as regionally "common" as the status has changed to a Species of Special Concern.	WI01, WI02
5090	The loss of Corridor17 and restricted use of Corridor 16 due to the NorthMet project should…be acknowledged as a significant loss in the SDEIS.In addition to the loss of these Wildlife Corridors, the SDEIS should, but does not, evaluate the project in light of impacts that may have occurred to the other 13 corridors. … A Biological Assessment and consultation with the USFWS must be conducted to assess impacts to wildlife travel corridors. The SDEIS must analyze the loss of Corridors 16 and 17 with the loss of other regional corridors as part of its assessment.	WI03, WI11

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5096	Contaminated mine pits and the Tailings Basin present a risk to wildlife, especially waterfowl, that may attempt to use the area. Other risks to wildlife come from exposure to mine contaminated waters off-site. … But the SDEIS does not describe a plan to discourage wildlife use of contaminated areas. The SDEIS also fails to adequately address the mercury contamination of nearby waters, ...But the SDEIS concludes that the proposed project will not adversely impact wildlife. … The SDEIS should include a plan to discourage the use of mine pits and the Tailings Basin by wildlife.The SDEIS should more adequately assess and mitigate potential mercury pollution issues..	WI04
5097	Particularly at risk is the plant species Floating marsh marigold… The NorthMet project would directly impact, destroy, about 8 percent of its Minnesota population (SDEIS 5-350 and 5-346). This constitutes a risk to the entire population of this plant in Minnesota. Neat spike-rush (Eleocharis nitida) is another rare plant species threatened by the project. …The project puts entire populations of some of these rare plants at risk. … The SDEIS must examine the potential risk to entire populations of state-listed rare plant species, and assess if this complies with Minnesota's endangered species law. … The SDEIS should examine how this loss would be mitigated.	VEG01
5099	The SDEIS fails to acknowledge the risk to wild rice from sulfate drainage…. ... The NorthMet project's sulfate drainage will be adding additional loads to a watershed already impacting wild rice. This must be acknowledged and more thoroughly analyzed in the SDEIS.	VEG04, WR156, WR157
5100	The use of non-native invasive species to reclaim the mine site is unnecessary and irresponsible with respect to the wide-scale problem of non-native species in Minnesota, and the efforts to contain their spread by federal and state agencies. … The SDEIS should include a requirement that non-native plants will not be used in reclamation activities or for temporarily stabilizing disturbed areas. Only the use of native, non-invasive species should be permitted.	VEG05
5102	The recommendations of both the Climate Change Advisory Group and the Terrestrial Carbon Sequestration Initiative should be heeded, and no significant losses to the state's peatlands should be permitted. The SDEIS should clearly identify this project as significant contributor to Minnesota's statewide carbon emissions. The SDEIS needs to include a thorough narrative discussion of the amount of carbon expected to be released from the loss of peatlands and the statewide consequences. The SDEIS should also acknowledge that wetland mitigation will not replace the carbon sequestering abilities lost with the destruction of the 100 Mile Swamp peatlands.	WET13
5103	It is irresponsible for the SDEIS to fail to incorporate an analysis and discussion of the climate change impacts from greenhouse gas emissions that include the contribution from power generation. … In addition, the lifetime greenhouse gas emissions for the project have been significantly underestimated. … The SDEIS must include analysis of the project's expected greenhouse gas emissions both on a yearly and life-time basis – and this analysis must include indirect contributions from the generation of electricity. It is not adequate to say that 15 metric tons or more of greenhouse gasemissions cannot be analyzed for climate change impacts. A full written narrative of the climate change impacts from emissions that include power generation must be included in the SDEIS. Estimates of emissions must be based on the need to generate power for centuries to operate the two water treatment facilities. The climate change impacts of this proposed project should be described in terms of what it contributes to state, regional and national carbon emissions.	AIR02
5105	The SDEIS gives contradictory information, citing high levels of visibility impairing emissions and the expected failure of Minnesota to meet Regional Haze reducing goals, while at the same time asserting the project will have no impacts on Class I area visibility. The SDEIS must be corrected and should provide a full explanation for any assertion that Class I areas will not beimpacted. Analysis of visibility impacts must include the emissions from power plants supplying energy to the project. The SDEIS should explain why conclusions differ from those in the 2009 DEIS. The SDEIS needs to explain how visibility improvements will occur in light of the state not on target to meet Regional Haze goals.	AIR08

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5107	The SDEIS also fails to adequately evaluate the cumulative effects on air quality of the NorthMet project when combined with foreseeable projects. Not included in the analysis are the impacts from on-going and future hardrock mineral exploration in and near the Superior National Forest. The nonferrous mine project by Twin Metals, one that is in an advanced stage of development, was not evaluated for its impacts to air quality and visibility. …Cumulative effects analysis must include all reasonably foreseeable projects, including the Twin Metals project and on-going and expected exploration. The SDEIS needs to provide mitigation measures and show how they achieve the goal of reducing this project's air quality and visibility impacts.	AIR07
5109	The SDEIS describes a voluntary anti-idle program for the operation mine vehicles, trucks, equipment and rail transportation. The SDEIS should insist on a commitment from the company to an anti-idle approach to maximize the reduction of Nox and SO2 emissions. … The SDEIS should include a firm commitment from the mining company to and anti-idle program for its own vehicles and equipment as well as for outside delivery vehicles.	AIR07
5115	The SDEIS should describe the total amount of mercury in the process stream and that the autoclave scrubber waste will be disposed in the Hydrometallurgical Residue Facility. The potential for this mercury to be a pollution risk must be examined. Autoclave mercury emissions should be monitored more frequently than once a year. The SDEIS should contain a monitoring plan that allows for statistically reliable data on the autoclave mercury emissions.	AIR05
5117	The SDEIS analysis of the range of potential impacts to human communities, economies, cultures and health is incomplete. The analysis largely focuses on employment benefits, with no attention to negative socioeconomic impacts that can occur with mining and with changes to communities. When the SDEIS does identify potential negative impacts, it fails to analyze or mitigate the social, economic and cultural impacts. ... The SDEIS must contain a full evaluation of the socioeconomic impacts from this project.	SO04
5118	The SDEIS needs to include a more robust analysis of social, economic, cultural and health impacts from the proposed project. This section of the EIS is extremely incomplete. The SDEIS needs to fully analyze the impacts to subsistence users, recreationists, outdoor-related businesses, band members, and children from expected mercury contamination in fish. Impacts should be fully described and mitigation plans provided. The potential for bioaccumulation in fish to continue after the mine closes should be fully described and mitigation plans provided.	SO04
5119	The SDEIS needs to fully analyze and describe impacts to water quality and quantity for Colby Lake. Management approaches of arsenic and other contaminant levels should be based on supporting information. The cumulative impact of additional contaminants to Colby Lake need to be analyzed and described in the SDEIS. Potential impacts to the lake and the City of HoytLakes should be fully assessed should water quality or quantity issues occur. Mitigation plans should be described for scenarios in which exceedances or water quantity issues occur.	WR024, WR043, WR046, WR056, WR140
5120	The NorthMet SDEIS does not adequately examine the risks to worker safety and public health from asbestos-like fibers found in the ore at the mine site. … The SDEIS does not provide information to support the assertion that a 9percent amphibole fiber content should be considered "small" and of little concern. Additional data or studies are needed to know if this percentage represents a minimal health risk or a significant health risk. … The SDEIS should include a formal health assessment of the risks to workers at the NorthMet mine from amphibole fibers. The assessment should analyze asbestos-like fibers smaller than 5 microns in length. The SDEIS should include details of the air monitoring at the mine and plant site and in nearby communities, and describe contingency plans to address the risk to public health and worker safety if asbestos-like fibers are detected during construction, operation, closure and post-closure.	HU04
5122	The SDEIS should include an HIA [Human Health Assessment] to review the scope of impacts possible to the human communities affected by the proposed mine.	HU01

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5124	the report by Edison Investment Research Limited, which relied on data and information that PolyMet provided, suggests that a major job-creating component of the project may never happen. The Edison report indicates that Phase II, the development of the autoclave process to produce nickel precipitate, is likely to not take place. … The SDEIS needs to explore the option of Phase II of the project not taking place and what this would mean to the beneficial impacts expected for the project.	SO04
5126	The SDEIS presents confusing and potentially inaccurate information about mining tax revenue that can be expected from the NorthMet project. Particularly confusing is the discrepancy between the 2009 DEIS information on estimates of federal and state and local taxes anticipated to be paid by the mining company and the current SDEIS. No explanations are provided forthese differences and no changes in the project that could account for the differences are obvious. … The SDEIS needs to present a more clear and consistent picture about expected tax revenue. Any differences from the 2009 DEIS should be explained. An explanation of where the $64 million comes from is needed. Without a clearer and consistent portrayal of the information, the public cannot have confidence in these revenue expectations.	SO04
5139	The SDEIS describes an exchange without supporting evidence that it is in the public's best interest [due to]...Failure to Meet USFS Exchange Objectives... The SDEIS indicates that benefit of the land exchange for the public and the Superior National Forest is that: "The Land Exchange Proposed Action represents a transfer of surface rights…to eliminate the conflict between federal surface and private mineral estate" (SDEIS 5-577) But this land exchange fails to accomplish this goal. … While the NorthMet exchange would eliminate the mine site from federal ownership, thus divesting the public of lands with a split estate, the proposed new lands that would be acquired also have split estates. Of the five tracts of lands considered for acquisition, four have split estates (SDEIS 3-163). Four of the five tracts fail to meet the Forest Service objective of reuniting mineral and surface rights. Future mining on these lands cannot be ruled out as possible, and thus the public could be acquiring lands that carry the risk of future land-use conflicts.… Claims that the project consolidates mineral and surface rights should be dropped, as the majority of the acquired parcels do not meet this criteria.	LAN01
5142	The roles and responsibilities should be clear. But the SDEIS includes Purpose and Need statements from the agencies that suggest some of the Co-leads may be confused about their roles and responsibilities regarding this project. … These [SDEIS Purpose and Need] statements [for each of the agency Co-leads] suggest the agencies have confused their roles and responsibilities with that of the mining company's. This is extremely troubling. The public relies on these agencies to impartially evaluate the mine project, to fully examine potential environmental impacts without bias. The public does not expect the Co-lead Agencies to review the proposed mine project with the same goals as PolyMet Mining Company. Indeed, the Co-lead Agencies have been tasked with very different responsibilities. It is alarming that these mandates are not readily apparent in the way the Co-lead Agencies have characterized their roles in this SDEIS.	NEPA02
5145	The Category 1 Stockpile cutoff wall is not constructed at first around the west end of the stockpile. Why is this? If the plan is to wait until Year 11 of the project when that stockpile footprint is complete, what is the plan for collecting and managing the drainage off the west end of the growing stockpile in Years 1-11?	PD15
5146	The SDEIS contains no discussion about the network of pipelines conveying untreated and treated water. How many miles of pipelines are there? What are the contingency plans for breaks/damage to the pipelines? The SDEIS does not describe information about pipeline layout, engineering, or the pumps needed to push the water to various mine and plant locations.	PD04
5147	Water is conveyed between the Mine and Plant Sites via a pipeline. Treated water will be moved from the Mine Site WWTF to the Tailings Basin, and in turn, water from the Plant Site may be moved to the Mine Site to help flood the West Pit. Are there two pipelines along the corridor between the sites, or a single pipeline that must provide multiple functions?	WR131

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5148	The SDEIS notes that, "The design of the WWTF is based on the predicted water loads and constituents modeling (see Section 5.2.2)" (SDEIS 3-52). But a read of Section 5.2.2 provides no information about what that constituent make-up is, nor does any other part of the SDEIS.	PD29, WR143
5150	If the reverse osmosis (RO) is not being added until Year 40, how are sulfates being removed before then? Some may be removed through the chemical filtration, but this won't remove down to a level that meets the standard. Is the "treated water" (but not gone through RO) being sent to the Tailings Basin and it is assumed that sulfates will be dealt with by either being deposited in the Tailings Basin or getting treated again in the RO system at the Plant Site? If so, does this mean the "treated water" flowing in the pipelines from the Mine Site to the Plant Site is high in sulfates? And what is the contingency plan if this pipeline breaks??	WR131, WR143, WR144, WR147
5152	Why doesn't the WWTP at the Plant site include the evaporator/crystalizers to convert the RO to reject concentrate? Why transport it to the Mine Site?	PD07
5153	The SDEIS describes contingencies for a power outage at the Plant processing site: "In the event of a power failure, all process fluids would be contained within the concentrate dewatering and storage building and recycled to the process when power is restored" (SDEIS 3-101). But similar statements are lacking for the WWTF and WWTP. What happens in the event of a power outage at these facilities?	PD22
5154	The SDEIS provides a list of hazardous materials the project would use in construction, operation an closure phases of the project (Table 5.2.13-1; SDEIS 5-528). But the SDEIS does not specify how these various chemicals exit the NorthMet operations, if they leave the system via water, air, solid waste, or remain stored in tailings waste. If they remain on site, is there risk that they could seep into the surrounding waters through uncollected seepage? What is the plan for addressing such an occurrence? More information is necessary about these hazardous materials in the SDEIS.	HAZ01
5185	The SDEIS should include an analysis of adding water containment systems to the East Pit, with the necessary adaptation to the wastewater treatment facility to handle this additional water treatment.	WR088, WR143
5186	The SDEIS needs to be clear if it is the WWTP or the WWTF that is intended to treat East Pit water, and if it is the WWTP a full description of the process for piping the water needs to be included. The SDEIS needs to reveal if pumping rates will go higher than 1,750 gpm and provide details of that rate and how the backfill will remain saturated under such pumping conditions. The SDEIS should include examples of mines that have used this rinse method and had success at bringing sulfate levels to 250 mg/L.	PD29
5194	Particular attention should be given to reevaluating claims that the discharge of sulfates and metals will not impact wetlands and will not exceed water quality standards.	WET11, WR112, WR120
5388	In screening for alternatives, one criteria used is whether an alternative can "meet the Purpose and Need for the project" (SDEIS 3-140). But the SDEIS is not clear what the project Purpose and Need is. The SDEIS provides an Applicant's Purpose and Need, and it provides Co-lead Agencies' statements of Purpose and Need. It does not say which of these is used to screen for alternatives. … The SDEIS needs to be clear about what the project Purpose and Need is for use in screening alternatives.	NEPA02
5389	The SDEIS should cease using the "minerals encumbrance" issue in its evaluation and rejection of the backfill alternative. It is not the responsibility of the regulatory agencies or the Minnesota public to provide potential future projects with access at the expense of useful alternatives to this current proposed project. The SDEIS must include real and meaningful evaluations of all alternatives and not limit the scope of alternatives to those that are simply what the applicant prefers.	ALT06
5391	The SDEIS should include financial assurance for indirect wetlands mitigation and should describe this fully.	FIN11

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
5392	The SDEIS should seek to replace wetlands within the affected watershed. If appropriate acreage cannot be located, the SDEIS should clearly acknowledge that these wetland functions are permanently being lost within the affected watershed. The SDEIS needs to contain a discussion of what cumulative wetlands impacts this has within northeastern Minnesota and at a state level.	WET03, WET05, WET18
5394	The SDEIS is inconsistent about the intent to apply the wild rice sulfate standard seasonally. … GLIFWC scientists disagree with the concept of a seasonal application of the standard, citing a lack of evidence or scientific basis for doing so. Research has not shown that the wild rice seed avoids impact from high sulfate levels while it is dormant. The SDEIS should be clear and consistent that the project would not apply a sulfate standard seasonally. … The SDEIS must contain language that clearly indicates Minnesota's sulfate standard of 10 mg/L is scientifically defensible and will be applied for the NorthMet project. The SDEIS should insist that the standard is applied all year and not seasonally.	WR153
5395	Designation of wild rice waters applicable to the NorthMet project should include historic information from elders and should not exclude waters where wild rice once grew but due to human-caused sulfate levels no longer exist. Wild rice at low densities also provides important food to wildlife, and so low-density wild rice waters should also be included for application of the standard for this project.	WR154
5396	The SDEIS is also lacking in analysis of the cumulative effects of additional amphibole fiber exposure in the area. Given that rates of mesothelioma on the Iron Range are already high, the SDEIS should evaluate what the additional release of these fibers could mean for human health.	HU05
5402	When the Minnesota DNR's purpose and need in the SDEIS is exactly that of the mining company's, it appears that the agency is no longer performing its legally mandated role to evaluate the project for its ability to be "consistent with sound natural resource conservation and management principles." …When the USACE's purpose and need in the SDEIS is exactly that of the mining company's it appears that the agency is no longer performing its legally mandated role to evaluate the project for its ability to cause only minimal adverse environmental impacts. … Also confusing and troubling is that the SDEIS is not clear which of the Purpose and Need statements represents the overall Purpose and Need for the project. ...The statements of Purpose and Need by the USACE and the Minnesota DNR in the SDEIS are inappropriate and undermine the public's confidence in the impartiality of the Agencies and the performance of their legal mandates. The SDEIS should include statements that reflect the legal requirements of each agency and reflect an impartial review of the environmental impacts of the proposed project. The SDEIS should be clear what the "project Purpose and Need" is.	NEPA02
5981	the SDEIS for the PolyMet proposal fails to meet any of the four clean water principles and fails to match the commitment made by Mining Minnesota to adhere to these principles. We also believe the state and federal Co-lead Agencies reviewing this project can and must make substantial changes to the SDEIS so that they too can comply with these clean water principles.	PER09
5983	Given this level of risk and the failure of the mine design to meet basic clean water principles, the Friends cannot support the PolyMet project as proposed. We recommend the Co-lead Agencies either select the "No Action Alternative" for this project, or make substantial revisions to the design of the proposed mine and re-submit for public review.	PER35
5988	Approving a mine that leaves future generations with significant pollutionproblems for hundreds of years is not responsible stewardship of our natural resources, and the Minnesota Department of Natural Resources (Minnesota DNR) should reject any mine proposal that has this as part of its design.	PER35

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
5990	The SDEIS does not clearly nor fully present information to the public about the water quality impacts expected with the proposed NorthMet project Despite more than 2,000 pages of information, the document lacks key information, does not present information clearly, presents sometimes inconsistent information, and fails to answer critical water quality questions. In an Environmental Impact Statement of this type, the public wants to know the answers to questions such as: How long water treatment is needed, what is in the polluted water before treatment, what is in the water after treatment, and how effective is the water treatment? However, the SDEIS does not contain this fundamental information.	WR035, WR036, WR060, WR063, WR146, WR176
5991	Explanations in the SDEIS and agency statements have often made it confusing to know what the Minnesota DNR intended to model.	WR189
5992	According to the Minnesota DNR, the agency did not ask or try to answer a fundamental question that the public wants and needs to know: How long will water treatment be necessary? This is a key question that an environmental impact statement should examine and seek to answer. Understanding environmental impacts and crafting financial assurance decisions depend on analyzing this question.	WR035, WR036
6005	The SDEIS describes the potential to transition to “non-mechanical water treatment” at some undefined time in the future. However, the SDEIS provides no documentation, case studies, or data to support the feasibility of non-mechanical treatment successfully working for the volumes of water anticipated. The SDEIS has a responsibility to present evidence that methods of water treatment can successfully operate to protect human health and the environment. .. The SDEIS should provide documentation and supporting data for the use of non-mechanical water treatment or eliminate the idea from consideration.	PD06
6015	This proposal appears to be critical to the reclamation plan, but it is not explained, analyzed, or presented in the SDEIS. In over 2,000 pages in the SDEIS, the only reference to this plan is this vague sentence about the East Pit and the Waste Water Treatment Plant (WWTP):	PD09, PD35
6019	Dr. Maest also identifies problems with the “Monte Carlo” simulations that were run in the model: “Monte Carlo simulations used in the water quality model do not simulate the timing or characteristics of natural processes or the potential environmental consequences of the interaction of these processes with mined materials” (Maest 2014). This is a troubling issue, given how much of the SDEIS evaluated impacts relies on a model that simulates natural processes and interactions.	WR189
6020	Dr. Miller’s report (see attached) also highlights issues with the modeling that have likely underestimated water quality impacts. “The SDEIS for the PolyMet mine, and accompanying documents have uncertainty estimates for sulfate release, and they utilize the 90-95% confidence estimates for sulfate release. This same type of Monte Carlo simulations have been completed for many mines in Nevada, but are still wrong by sometimes over an order of magnitude, primarily a result of utilizing an incorrect basic conceptual model. I believe that this is the case for the East and West pits of the PolyMet mine” (Miller 2014). He also notes regarding the modeling for the West Pit and the cone of depression that will form, “I believe that the physical model proposed for the PolyMet West Pit Lake to be fundamentally incorrect, and certainly not consistent with pit lakes formed in gold bearing deposits in Nevada” (Miller 2014).	WR088, WR149, WR171, WR173
6023	The SDEIS should incorporate the issues identified in the Minnesota DNR’s own memo identifying incorrect flow numbers, and collect the additional data needed to calculate a more accurate flow.	WR003
6041	The SDEIS should examine mercury impacts if polluted water collection systems fail to meet capture expectations (perhaps assess various capture rate scenarios) and if water treatment is interrupted or functions at a lower than expected rate.	WR017, WR022, WR067
6042	The SDEIS should revisit the analysis of flow level fluctuations in the Partridge River and more thoroughly examine the potential for drying and re-wetting cycles to release mercury.	WR112

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6052	The design should include the use of a geosynthetic barrier in the wall, and the use of geomembranes with a low-permeability, soil-bentonite backfill. The maximum hydraulic conductivity of the cutoff wall should be adjusted in the SDEIS to a much lower threshold of 10-6 to 10-7 cm/s.	PD07
6053	Modeling needs to be re-run to include scenarios under which the efficiency of the groundwater collection system diminishes over time due to clogging, and a response plan needs to be identified to address this.	WR017, WR018, WR021
6054	The design must include keying the cutoff wall into bedrock to prevent underseepage, and the cover system slope should be adjusted to 2 to 5 percent.	PD07, PD15
6055	The SDEIS should describe the plan for the Category 1 Stockpile liners to degrade and how this will be addressed and financed in the future.	PD16
6056	The SDEIS should evaluate backfilling the West Pit with the Category 1 waste rock, to avoid pollution issues associated with degrading liners.	PD15
6057	“Overall, the long term stability of the wasterock deposited in the pits and covered with water is a much lower long-term risk than leaving it on the surface with a plastic sheet over it” (Miller 2014).	PD15
6058	The design plan needs to commit to maintaining the inward gradient essential for the functioning of the system. The minimum depth of the keyed cutoff wall should be described.	PD08
6059	The SDEIS needs to consistently describe the thickness of the bentonite-amended layers on the tailings waste.	GT08
6060	The SDEIS should include bench-scale tests to determine the percentage of bentonite necessary to form an effective oxygen barrier.	PD07
6061	The SDEIS needs to present evidence to show that a greater than or equal to 90 percent saturation level would be maintained in the long-term for the waste cover system. And case study evidence of the bentonite seal application method for the Tailings Basin pond must be demonstrated as working for similar projects.	PD07
6062	The SDEIS should explore the option of draining the pond before applying the bentonite seal, or explain why this option is not considered.	PD07
6063	Underlying original ground and taconite waste should be removed from beneath the Hydrometallurgical Residue Facility and an engineered stable baseinstalled.	PD19
6064	Additionally, the Co-lead Agencies need to insist that any planned expansions from the West Pit be incorporated into this environmental review process for evaluation as a connected action.	PD30
6080	The SDEIS states that a 2006 survey of the Mines Site and nearby area showed “no lynx were identified” (SDEIS 5-365). But the USFWS Draft BA disagrees, and notes, “Tracks and scat of three female lynx were identified during the survey within the study area, concentrated in areas approximately 5 miles east and south of the Mine Site…” (USFWS November 2013).	WI01, WI11
6081	The Draft BA also describes a lynx survey conducted 12 miles northeast of the Mine Site for the Birch Lake Project and Maturi Project for Franconia Minerals that discovered several lynx using the area based on scat and tracks. This survey is not mentioned in the SDEIS.	WI01, WI11

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6083	The SDEIS also incorrectly states that the Canada lynx is not on the state's Endangered, Threatened and Species of Special Concern list (ETSC). "However the species is not listed as an ETSC species in Minnesota…" (SDEIS 4-201). This statement is inaccurate. On August 19, 2013, the species was placed on the list of Minnesota's Species of Special Concern. The SDEIS should accurately portray the state and federal status of this species for the public's full assessment of risks to its well-being from this project.	WI01
6086	In addition, the project would result in the degradation of 698 acres of black spruce-Jack pine woodlands, systems which are considered "imperiled -vulnerable" by the Minnesota Biological Survey. The impacts would represent a 20 percent loss of this forest type within the Laurentian Uplands. … The impacts to vulnerable forest communities must be more thoroughly described and their loss evaluated at a state-wide level. The SDEIS should examine how this loss would be mitigated.	VEG02, VEG03
6087	PolyMet's job projections may be inaccurate due to the influence of mechanization. … The analysis of jobs over the life of this project needs to incorporate the likelihood of foreseeable technology replacing human labor. … The analysis of jobs over the life of this project needs to incorporate the likelihood of foreseeable technology replacing human labor.	SO04
6088	Confusing and Misleading Information About Where The Jobs Come From… The SDEIS should present clear information about direct and indirect job expectations and where these jobs would be expected to come from geographically. Direct and indirect jobs should be presented separately, preferably in table format.	SO04
6089	No Transparency on the Kinds of Jobs… The 2009 DEIS provided information about the kinds of jobs the project was expected to create (e.g. management, mine operations, mine technical, railroad operations, plant operations). But the SDEIS provides no such information. … The SDEIS needs to include a table similar to Table 4.10-13 on page 4.10-18 in the 2009 DEIS that shows the types and numbers of jobs expected to be created from the project.	SO04
6090	No Information About Jobs at Key Phases…The SDEIS fails to transparently describe employment expectations over the life of the mine. …The SDEIS should include a table similar to Table 3.2-2 on page 3-17, Key Phases and Activities (Mine Site), that describes expected employment at both Mine and Plant Sites at key phases of the project.	SO04
6091	Confusing Information about Jobs After Closure… The SDEIS does not provide a percentage expectation of numbers that would need to leave the area or be seeking alternative employment locally. This is important to know to fully assess the socioeconomic impacts to the community once mining has ceased. In addition, the SDEIS does not assess how many employees will be needed to conduct the long-term post-closure work of running the treatment facilities, maintaining pipelines and collection systems, pumps and waste rock piles, the long-term maintenance that is going to be needed for centuries.	SO04
6092	Failure to Meet USFS Forest Plan Goals...The SDEIS fails to demonstrate that the Forest Plan' goals can be met with this exchange. … The SDEIS must document how the proposal meets both USFS land exchange objectives and the Superior National Forest's Forest Plan Goals and Objectives. …The public should be fully informed that a land exchange will result in an actual loss of wetlands in Minnesota. Indirect impacts need to be more fully characterized. …The SDEIS needs to explore the significance of not mitigating the wetlands losses within the same geographic area, with the same wetland type, and how the wetland mitigation plan would affect greenhouse gas emissions. …The SDEIS needs to examine how the [land] exchange helps it meet the Forest Plan Goal of providing a variety of uses, values, products and services for present and future generations by managing within the capability of sustainable ecosystems, in light of climate change issues associated with this proposal. The SDEIS should fully analyze the potential negative impacts to communities, employment, and the economies of the area from the loss of the federal lands and this project. It must evaluate the region's reliance on environmental amenities such as tourism and recreation. This assessment should include the potential impacts from scenarios that include water contamination that could extend into the watershed.	LAN04

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6093	The [Land] Exchange and Climate Change...The [land] exchange will result in operations that will emit carbon in significant amounts. ... The SDEIS should be clear that the exchange will result in a loss of carbon sequestering environments. The SDEIS should address how this exchange addresses the recommendations of both the Climate Change Advisory Group and the Terrestrial Carbon Sequestration Initiative.	AIR01
6094	If analysis of alternatives relies on the Purpose and Need statements of the Co-lead Agencies, it is all the more vital that their statements reflect the legal mission mandates and not the objectives of a mining company.	NEPA02
6097	The engineering design and planning to calculate detailed financial assurance is available at the point a project reaches the Draft EIS stage. For a company to reach this stage without having this information available, and without having performed this calculation internally, would be fiscally irresponsible to the company's shareholders and board of directors. … A detailed financial surety calculation, based on the project as proposed by the applicant, should be presented in the SDEIS.	FIN05, FIN13
6098	An initial calculation of a financial surety must necessarily be based on worst-case water quality predictions – until operational data can prove conditions to the contrary.	FIN05
6099	The high transfer rate both with the haul trucks dumping to the hopper, and the conveyor loading the rail cars, will generate a significant amount of dust in the vicinity, and in the predominant downwind direction of the Rail Transfer Hopper. And, since the rail cars are open-top, there will be an accumulation of dust along the rail corridor between the mine and mill. … The Rail Transfer Hopper and rail car loading conveyor and platform should be in an enclosed structure, and the rail cars fitted with a top that would limit the loss of ore-dust along the rail line between the mine and mill.	AIR07
6100	A cutoff wall would be constructed to enclose the Category 1 waste rock pile to prevent metals leaching contaminants from reaching groundwater. … A permeability of 1x10-6 [cm/sec] or less should be the goal of the cutoff walls for the Category 1 waste rock and the tailings cutoff wall.	PD16
6101	Geosynthetic clay barriers can significantly increase the effectiveness of a cutoff wall, but it is not clear exactly what would trigger the use of this barrier. And, if installed, the barrier is likely to decrease the permeability of the section of the cutoff wall significantly over sections that do not have the barrier. It would be more consistent to use a barrier for the entire wall, or not at all. Recommendation: More definition needs to be provided in when a geosynthetic clay barrier would be employed.	PD07
6103	In Table 3.2-9 Summary of the Stockpile Liners and Covers (SDEIS, p 3-51) the liners that will be employed for the 3 categories of waste rock and the ore surge pile are described. The Category 2/3 Stockpile liner: "12-inch compacted (1x10-5 cm/s) subgrade overlaid by 80-mil LLDPE geomembrane, covered by a 24-inch overliner drainage layer." The other liners have (1x10-6 cm/s) subgrades. Even though the effective permeability of the total liner system is governed by the permeability of the 80-mil LLDPE geomembrane, since 1x10-6 cm/s is essentially the minimum standard for a liner, for sake of standardization the Category 2/3 Stockpile liner should also have a 1x10-6 cm/s subgrade. Recommendation: For standardization, both on the project and with most other liners, all liners made of natural materials should have a permeability of 1x10-6 or lower.	PD15
6104	"...The concentrate is expected to be 8 percent to 10 percent moisture, which is not expected to generate dust during loading." (SDEIS, p 3-116) … Concentrate ALWAYS creates dust at some point. If the rail cars are loaded in an enclosed building, this should limit the escape of dust to the environment, but to assume that dust will not occur, or that there will no leakage of small amounts of concentrate along the transportation corridor, would be an oversight.	AIR10

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6105	An example of a reclamation plan with an appropriate level of planning detail and cost estimates is the Pogo Project Reclamation and Closure Plan, December 2002. The document is available digitally through the Alaska Department of Natural Resources, Anchorage, AK, and was is titled the Final Environmental Impact Statement, Pogo Gold Mine Project, USEPA, Region 10, September, 2003.	FIN05
6106	A “preliminary” reclamation closure cost estimate is presented in SDEIS Table 3.2-15 Preliminary Cost Estimate for Closure (SDEIS, p 3-138). However, this "preliminary closure cost estimate" is not supported by calculations and/or detailed information. … In order to develop a ballpark estimate of the financial surety that might be required for the NorthMet project, CSP2 developed a Net Present Value (NPV) spreadsheet to estimate the NPV of the long-term costs. Table 2 [see full comment letter for table]: Assumptions for NorthMet Net Present Value Calculations, contains a list of the basic assumptions made for this model. … The spreadsheet calculations are most sensitive to variation in the Real Interest Rate. This means that long term management of the financial surety corpus is very important, and that uncontrollable variations in the Real Interest Rate could significantly impact the corpus if it remains low for a significant period of time. … Recommendation: Because the interest and return on investment rates, and the operating costs, can make hundreds of millions of dollars difference in the financial surety required for the NorthMet mine, these assumptions/calculations should be made available for comment in the SDEIS.	FIN05, FIN08, FIN13
6107	In a discussion of the 2W tailings cell, it is noted: “…in Cell 2W, rapid construction in later years of development resulted in oversteepened dams on all sides of Cell 2W. Some seepage has occurred from the dam in this and other areas along the dam embankments. Other points along the dam embankments have been subject to erosion of the perimeter dam due to the leaking and failure of LTVSMC discharge pipes, and from the natural geomorphological processes such as melting snow, precipitation runoff, soil creep, wind erosion and others.” (SDEIS, p 4-371) There is no indication that this issue will be addressed as a part of reclamation. Recommendation: A plan to address the oversteepening of the embankments of Cell 2W should be included in the closure/reclamation plan.	GT09
6108	Water alone can help suppress dust but for roads and similar flat wind-erosive surfaces it is recommended that calcium or magnesium chloride or similar suppression enhancer be required in the water used for dust suppression to extend the durability of the treatments. The Air Quality Management Plan similarly calls for “water and/or MPCA approved dust suppressants” Recommendation: Unless there is a compelling environmental or safety reason, water (or snow) should not be used alone as a dust suppressant and instead magnesium chloride or similar suppression enhancer should be added to water to enhance dust suppression. Recommendation: The mine should investigate and, where appropriate, mitigate reports of airborne dust that come from any entity, whether a mine employee or observer off the minesite.	AIR07
6110	Annual averages are convenient for permitting purposes but it will be critical as part of the air quality permitting process and during mine monitoring to ensure that short-term air quality criteria are not exceeded. Recommendation: The mine’s air quality permit and air monitoring protocol should ensure that short term and peak air quality conditions are measured, representative, and reported to the public and regulatory agencies to ensure that short-term peaks, whether or not they violate standards, are considered as part of air quality degradation.	AIR13
6113	the Mine Plan should review and analyze the reactivity of fugitive dust from waste rock sources (piles, handling, transport, etc.). If this review and analysis indicates the potential for degraded air quality or the potential for fugitive dust to contaminate lands or waters it travels to, then the regulatory agencies should take appropriate steps to halt such fugitive dust. Recommendation: Waste Rock fugitive dust should be reviewed and analyzed to ensure that it does not pose a special hazard or threat to human health or the environment (beyond the typical opacity or other visual considerations).	AIR10
6135	Recommendation: The SDEIS should detail PolyMet’s actual commitment to an anti-idling program that maximizes reduction of vehicle-based NOx and SO2 emissions while accommodating mine-based requirements for productivity and safety.	AIR07

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6136	It is important to know how much mercury is in the system, where it is going, and how stable it will be in its final form. This information should be disclosed in the SDEIS, and not buried in technical documents. The scrubber mercury waste will be placed in the hydrometallurgical tailings facility, but this is not mentioned in SDEIS, only in the reference documents. This is significant process step and should be discussed in the SDEIS. Recommendation: There should be a discussion in the SDEIS of the total amount of mercury in the process stream (bulk tailings, hydrometallurgical tailings, or autoclave scrubber waste), and where the autoclave scrubber waste will be disposed.	AIR05
6140	Once a year measurements will not provide enough data to ensure statistically reliable measurements of the efficiency of the mercury capture systems. Recommendation: In order to ensure that the mercury capture systems on the autoclaves are functioning as designed, a monitoring scheme should be required that will provide statistically reliable data on the autoclave mercury emissions.	AIR05
6146	Recommendation: The SDEIS should include noise contour maps depicting offsite noise contours from mine activities (including transportation to and within the site) and cumulative noise impacts [particularly to federal and state recreational lands].	N03
6152	1. Tonality. Tonal noises which have a narrow sound frequency, such as the whine of an electric motor or an electric saw. A tonal audibility or annoyance factor may be calculated by comparing the tone level to the level of the surrounding spectral components.2. Low Frequencies. Low frequency noise emits from machinery, all forms of transport and turbulence, turbines, exhaust gas, compressors, etc., and can travel greater distance than audible noises. Low frequency noise may cause notable human disturbances even when the decibel level (the sound pressure level) is below 30 dBA.3. Fluctuating Noise. Fluctuating or intermittent sounds are inconsistent in time and/or duration. Examples include generators or machinery operated in cycles, etc. Fluctuating noise has been shown to increase the annoying aspects/annoyance factor of the noise (notably when compared to average sound levels).4. Impulsive sounds. Impulsive sounds are brief, abrupt noises that can cause startling effects that cause greater annoyance levels than may be expected from just measuring the sound level. Animpulsive sound at mine sites would be blasting noises, but could also include metal on metal, rock on rock, or rock on metal noise (such as dumping rock from a loader onto a transport truck, railcar, or rock pile).Recommendation: In addition to decibel (volume) impacts, the SDEIS should consider the potential for impacts from tonality, low frequency noises, fluctuating noise, and impulsive sounds. The focus should consider the Boundary Waters recreation areas but could also consider other land uses around the mine site.	N06
6165	The PSHA [Probabilistic Seismic Hazard Analysis] should have used the Maximum Credible Earthquake (MCE) as the design earthquake. … Since a tailings dam must stand in perpetuity, the design earthquake should be equivalent to the Maximum Credible Earthquake. … If the MCE/10,000-year event is used for the analysis of the 2,475-year event, the horizontal acceleration (horizontal g-force the dam is subject to) will increase significantly.	GT05
6171	Probabilistic determination for the size of the largest earthquake is appropriate, but the assumption of 100 miles for nearfield is going to make the horizontal acceleration used to design the dam lower than what it should be. … probabilistic methods are the more conservative way to determine the magnitude of a Maximum Credible Earthquake for dam analysis. For tailings dams the most conservative choice for the location of the Maximum Credible Earthquake would be what is sometimes referred to as a 'floating earthquake' on an undiscovered fault that passes very near the site of the dam. This is a way of recognizing that we do not know the present, future, and even the past locations of significant faulting, and associated earthquakes. The conservative choice for a Maximum Design Earthquake would be a Maximum Credible Earthquake that ruptures the ground surface on which the dam is built.	GT05

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6179	Dynamic analysis is the most rigorous method of evaluating dam survivability under seismic loading. Typically a dynamic analysis will use finite element or finite difference programs such as TARA (Finn et al 1986), FLAC (Itasca Group 2002), or PLAXIS (PlaxisBV 2002) in which dynamic response, pore-pressure development, and deformations can be fully coupled. These tailings dams must contain this material in perpetuity. If not, the cost of collecting spillage due to an earthquake-related failure, and rebuilding the containment structure, would be many millions of today's dollars. … If these containment structures are going to be built, the assumptions used to check the design should be conservative, and the models the best available.	GT02, GT05
6185	the geotechnical analysis of the dam should be conservative, and as with the bulk tailings dam, dynamic modeling should be performed. In addition, it is proposed that the hydrometallurgical facility be placed on a residual layer of taconite tailings. Even if this material will be "well-compacted" it would be safer to remove the original peat and silty sand/gravel, and the taconite tailings and slimes, and replacing this material with compacted fill, so that the hydrometallurgical facility is built on a well prepared and verifiably stable base. This is the conservative approach. Recommendation: The underlying original ground and the taconite waste should be removed from underneath the hydrometallurgical tailings facility, an engineered stable base installed, and dynamic modeling performed on the hydrometallurgical dam.	GT11
6189	The table [Table 2 in Appendix B Underground Mining] is fine as far as it goes, but there is no discussion of the sensitivity to change in metals prices. For example, what if the price of gold increased $500/oz. or copper increased $0.50/lb (both reasonable assumptions), how would that affect the net extracted metal value? Would this make the underground mine economic? If so, then an evaluation of an underground mine as an alternative would be warranted. Recommendation: A metals cost sensitivity analysis should be added to the Underground Mining Alternative Assessment to verify that the underground option is not economical with higher metals prices.	ALT01, ALT06
6199	Recommendation: All wastes that could be disposed in any pit, and the pits themselves, should be characterized to ensure that there will not be regular or seasonal contamination directly or indirectly to surface or ground waters.	WR071
6200	Recommendation: All pipelines proposed for abandonment in place should be evaluated to ensure that their residual contents will not cause contamination and that their presence cannot facilitate connectivity between otherwise isolated bodies of surface and/or ground water, whether constant or intermittent.	PD09, PD35
6201	Recommendation: The Reclamation Plan should expressly state the applicable federal and state laws, regulations, and rules that apply and that will be complied with in the testing, handling, storage, and disposal of all hazardous, toxic, nuclear, and related materials and wastes. Recommendation: The Reclamation Plan should require a tracking system that demonstrates that materials are actually disposed-of according to the Reclamation Plan and applicable laws. The tracking system should include not only affirmation but documentation that certifies proper materials disposal.	PD09, PD35
6217	The Reclamation Plan should more clearly predict the water balance desired in the East and West Pits and the conditions that could impair it from being achieved...Recommendation: The Reclamation Plan should ensure that water management in both the East and West pits do not require long term volumetric management until they reach their steady-state/full/overflow condition. The Reclamation Plan should ensure that specific goals for pit pools are established and achieved.	PD35, WR173
6222	Recommendation: The Reclamation Plan should provide sufficient detail about wetlands construction and associated decision-making processes to allow regulatory agencies and the public to reasonably understand what is likely to happen and what criteria will be employed to determine reclamation success, and what steps will be taken in the even that reclamation does not achieve established criteria.	PD09, PD35
6224	Recommendation: The Reclamation Plan should establish specific fencing goals to ensure that the barriers proposed in the Mine Plan will achieve an appropriate, reasonably achievable barrier to access by people, including children, and wildlife.	PD35

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
6226	Recommendation: The Reclamation Plan should plan for measures to allow animals to expressly rescue themselves should they fall into the pits or excavated channel between them. This should also include predicting the impacts and express protections for both terrestrial wildlife and birds that may land on contaminated waters. If contaminated waters present a reasonable threat to animals then additional measures should be committed-to and employed (such as hazing or surface netting for birds) to ensure that the pits do not become wildlife death traps.	WI04
6287	Recommendation: The Reclamation Plan should establish clear, measurable erosion goals including success criteria(such as less than x-feet of rilling per y-area and no erosion wider or deeper than z-inches) and responses to failure to meet those reclamation criteria, including but not limited to treatment protocols; long-term protection from postreclamation disturbances; timeframes over which success will be measured and how criteria failure or re-treatment activities will re-start timeframes, etc.	PD09, PD35
6303	The Reclamation Plan should predict the likely compaction caused by the waste rock and overburden piles and thereby calculate the necessary treatments needed to return them to productivity. The reference to scarification may not reach the depth of compaction without additional measures. The Reclamation Plan therefore should model/predict compaction rates and depths and commit to ensuring that reclamation activities reverse this compaction. The Reclamation Plan should further commit to adequate testing and removal of contaminated soils to a 'clean' depth (depth at which contamination no longer exists) below the waste rock and overburden piles. This will be particularly important for the Class 1 waste rock but should apply to all materials that contain contaminants. Finally the Reclamation Plan should establish wetland function goals that will be achieved...Recommendation: Constructed wetlands should be not be presumed successful for any footprint until they are constructed and successfully functioning, at the desired type and level, for at least 5-10 years. The Reclamation Plan should establish wetland size/volume and function goals that will be achieved. The commitment to try to re-establish buried wetlands should to be substantive and measurable, not simply a 'commitment to try.'	PD35
6319	Recommendation: The Reclamation Plan should specify in detail the wetlands reclamation and restoration (and wetlands 'replacement') activities that will occur. It should further establish specific goals and standards that will be met, and establish specific responses to goals that are not met. Finally, it should establish the criteria to be used to determine that it is not possible or practicable to restore on-site wetlands so that the regulatory agencies and public can know in advance just what will happen and how decisions will be made.	PD09, PD35
6320	Recommendation: The Reclamation Plan should commit to removing all waste rock and overburden pile facilities and all underlying materials that are contaminated or contain contaminated materials.	PD35
6322	Recommendation: All reclamation plans should be subject to full public and regulatory review prior to permitting and establish clear success criteria and responses to failure to meet those reclamation criteria. This should include, but not be limited to, plan-specific goals, objective criteria for each goal, timeframes over which success will be measured and how criteria failure or re-treatment activities should re-start timeframes, etc. Recommendation: The reclamation plans should be reviewed and updated on a regular schedule, such as every 5 years, which will allow regulatory agencies and the public to monitor and predict reclamation success and issues and also allow for appropriate bond recalculation.	PD01
6323	Recommendation: The Reclamation Plan should identify clear revegetation goals and methods, including revegetation standards, timetables, etc.	VEG05
6324	Recommendation: The Reclamation Plan should comprehensively identify all roads and clearly state how they will be reclaimed, including their short term and long term uses (or lack thereof).	PD36

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Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
6330	the Reclamation Plan should establish specific requirements for soils. This includes, but should not be limited to, pH, fertility, microbial biota, ratios of: sand/silt/clay, and nutrient cycles, such as for nitrogen and organic matter. Prior to mining, and based on pre-mine conditions, the Reclamation Plan should characterize the existing soils to guide the standards for post-mine soils. Specific topsoil requirements should be established to ensure that all growth media is suitable and will maximize the potential for revegetation success. … Recommendation: All soil material should be salvaged, stored, accounted for, and distributed to maximize revegetation potential.	VEG05
6331	Recommendation: The Reclamation Plan should establish general criteria and guidance to ensure that materials placement where topsoil is replaced does not allow small size materials to be placed on materials that have much larger size particles. Where this could happen, an interlayer of mid-size materials should be placed between them.	PD09, PD35
6335	To preserve soil integrity (including organic materials, microbes such as mycorrhizae, promote aeration, reduce weed introduction, and reduce erosion, the Reclamation Plan should identify specific steps that it commits to employ to establishing 'nurse' crops on the topsoil salvage piles. These plants should be consistent with, and not compete, with the planned postmine revegetation, especially agricultural seeding/planting. Recommendation: The Plan should develop detailed topsoil salvage and storage plans to ensure that the maximum amount of materials is salvaged for reclamation. These materials should be stored to maximize soil health and reclamation efforts. To ensure that all viable growth media is salvaged, characterization of materials should include field observation and not solely rely on a 'standardized' depth measurement.	VEG05
6343	Recommendation: Inspection of reclamation at all sites should be based on a decreasing schedule of frequency that begins with a monthly or every-other-month schedule and reduces to quarterly after one year and semi-annually after two years of each inspection schedule without the need for remedial actions. If remedial actions are required then the inspection schedule should re-start for that site.	PD09, PD35
6344	Recommendation: Establish clear noxious species/weed criteria, including the lowest amount of weeds that will trigger treatment and the highest allowable percentage of noxious weeds that will be allowed for bond reduction/release.Recommendation: Establish minimum percentage vegetative cover goals of at least 50% after three years and 80% for five years before determining "success" or allowing relevant bond release.Recommendation: Establish clear alpha and beta diversity requirements for vegetative cover. Recommendation: Revegetation success should be measured no sooner than five years after revegetation goals have been met - without additional treatments or activities. If additional treatments or activities are undertaken, the 5-year clock should restart to ensure that revegetation and long-term plant establishment has actually occurred.	VEG05
6345	Recommendation. A weed-prevention program should be developed and implemented. At a minimum, this plan should include, but not necessarily be limited to: Certification of weed-free seed; Processes to prevent weed introduction (such as washing vehicles entering the site); Weed-response plan identifying how weeds will be controlled if they do come to the site.	VEG05
6346	Recommendation. Contaminant release and incident reporting structures should require that the company provide environmental data and reports to the public. There should be full transparency and the company should commit to informing the public and government about any unplanned or unpermitted releases as soon as it becomes known - not just during the regular document/reporting cycle. Annual or even quarterly reports do not adequately address the public's right to know about problems at the mine. These are essential for good operating procedures and public trust.	PD24
6558	The number of samples of NorthMet Project material in the waste characterization program is inadequate for the volume of wastes predicted to result from mining.	PD15

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6559	Assumptions about the lack of or delay in acid generation and the lack of substantial metal/contaminant leaching are poorly substantiated and conflict with actual results. The SDEIS and associated documents declare that Category 1 wastes will "never" generate acid. Given operational realities and existing characterization results, this seems like a poor assumption and does not consider the potential to leach other contaminants, including those added by mining.	PD15, WR025
6560	Category 4 and some Category 2/3 wastes will likely go acidic more quickly than predicted in the model. If this is the case, submerging them in the pit may not be an effective management strategy.	PD15, PD35, WR029
6561	The SDEIS and associated documents do not discuss or even mention the need to dewater the area around the pits (using pumping wells) during mining. Dewatering wells will likely be required – not just sumps in the pits themselves – and no plans are in evidence for the treatment of pumped dewatering water during operation. At a minimum, the dewatering water is expected to have elevated concentrations of ammonia, nitrate, and sulfate and will require treatment. The treatment pilot tests assumed dewatering water would have nearbackground levels of nitrate and ammonia, so the effectiveness of the methods for removal of these constituents under mining conditions is not known.	PD03, WR013
6563	The Category 1 wastes are the only wastes that will remain on the surface in perpetuity. No liner is proposed for the facility, and the mine plan assumes that seepage collection and treatment will no longer be necessary at some unspecified time after mine closure. The leaching results for this waste category and the closely associated Category 2/3 wastes, and the likelihood that small differences in percent sulfur can readily be separated, suggest that releases from the pile could be more problematic than assumed in the SDEIS. Category 1 wastes will likely include wastes currently designated as Category 2/3 wastes, which will leach higher concentrations of contaminants.	PD15, WR017, WR134
6567	The modeling approach uses Monte Carlo simulations, which in theory cover a wide range of possible inputs and outcomes. However, because of limits placed on concentrations leached from the wastes and mined materials and the use of averages, the high end of potential contaminant concentrations has been excluded from consideration in the model.	WR026, WR060, WR173
6568	Monte Carlo simulations used in the water quality model do not simulate the timing or characteristics of natural processes or the potential environmental consequences of the interaction of these processes with mined materials.	WR189
6570	The model assumes that essentially all contaminants will be adsorbed or otherwise removed as mine-affected waters travel along prescribed flowpaths to receptors. The model does not simulate natural processes that could cause elevated concentrations of mine-related contaminants to reach groundwater or surface water resources, including flushes of leached contaminants during early snowmelt or other hydrologic events or movement along preferential pathways.	WR058, WR173
6572	Given the uncertainties in modeling, it is likely that mercury loads could increase to the Embarrass River (as stated in the SDEIS, p. 5-8) and the Partridge watershed. At a minimum, an independent review of potential mercury loadings and a nondegradation demonstration should be completed as part of the Supplemental Final Environmental Impact Statement (SFEIS).	MERC23
6573	The use of RO treatment during closure allows for more protective targets. It strikes me as odd that the better, more expensive, and more operationally difficult treatment methodology would be applied after the mine closes. … a contingency should be included for discharge of treated water during operation that meets the most stringent water quality standards and criteria.	WR143
6576	According to the SDEIS (Chapters 2 and 4) and the Water Management Plans (Polymet Mining, 2013b), groundwater and surface runoff flowing into the pits during mining will be collected in sumps and transported to the waste water treatment facility … There is no mention of dewatering using wells around the pits. Without dewatering wells, the degree of hydrologic control outside the pit is uncertain. Even with dewatering wells, mine water capture is uncertain because of the fractured nature of the bedrock.	WR010

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Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
6581	The Pilot Testing Report (Barr Engineering Company, 2013) does not address removal of nitrate or ammonia and lists no treatment targets for these parameters. The water used for testing of the treatment process had very low nitrate and ammonia concentrations (generally at or below detection), and the testing program therefore did not adequately investigate removal of these constituents. Additional treatment pilot tests should be conducted to evaluate the removal of nitrate and ammonia at reasonable expected concentrations (at least 100 mg/L as N of each).	WR013
6585	The work plan also states: Fractured bedrock, such as is found at the mine site, is inherently difficult to simulate and predict even when extensive hydrogeologic data is available, which is not the case for the mine site.Even with this admission of large uncertainty, there is no contingency plan for pumping of groundwater surrounding the pit or for discharge to surface water if volumes exceed those needed or able to be stored.	WR130
6587	The mine water balance should be recalculated with the volume of dewatering water from pumped groundwater wells included. An estimate of dewatering water quality and a plan for treatment of dewatering waters should also be included in the SFEIS. Figures showing the volumes of water for each component of the water balance, under low stream flow/groundwater elevation and high stream flow/groundwater elevation conditions should be included in the main body of the SFEIS.	WR181, WR182
6592	It is important that the water balance issue, especially whether discharge of treated water will be needed during operation, be sorted out before the SFEIS is completed. If discharge is required during operation, at a minimum, a contingency NPDES permit will be required well before mining begins.	WR182
6593	Polymet Mining repeatedly makes the argument that stratigraphic units within the deposit, and even within the Duluth Formation as a whole, are so similar in terms of their environmental behavior that distinctions should not be made … This may be true based on geology, but they do not have the waste characterization information to reliably back up these statements in terms of environmental behavior.	WR025
6594	Based on the acknowledged difficulty in excluding material from higher-sulfur waste categories and the uncertainty associated with the leaching characteristics of any waste category, it is reasonable to assume that leachate concentrations from the Category 1 and other stockpiles could be higher than predicted. If this is the case, the environmental protection of groundwater, surface water, and aquatic biota relies on the optimal functioning of the engineered mitigation measures.	WR127, WR128, WR134, WR173, WR178
6595	Seasonal flushing of contaminants from the waste rock piles and the pit walls should be evaluated in terms of concentrations generated in leachate and the effects on downgradient groundwater and surface water, using concentrations and flows that reflect observed and predicted seasonal flows and concentrations.	WR173
6596	Large Table 3 in the Polymet Mining (2013a) shows that most release rates for non-acidic conditions in waste rock were derived from HCT data. However, in the main body of this document (p. 54), it states that non-acidic release rates for Category 1 and 2/3 wastes and ore are instead based on %S values in solid samples. If this is the case, and it should be clarified in the FSEIS, it means that sulfate release rates for all Category 1 waste rock are based on an approach that ignores measured solution concentrations of sulfate in laboratory or field leach tests.	WR025
6597	Additional runs of the water quality model should be conducted for the FSEIS that capture the higher range of laboratory and field sulfate concentrations, especially for Category 1 waste rock simulations.	WR026
6599	Using a linear regression, the R2 values for Category 1 and 2/3 waste rock are only 0.60 and 0.34, respectively. Polymet then applies a fixed-zero intercept, and the R2 values increase to 0.89 and 0.81, respectively. This approach yields an average release rate for all non-acidic Category 1 and 2/3 wastes and ignores higher sulfate release rates that would produce higher sulfate concentrations. This averaging approach also ignores initial flushes of sulfate, which occur over and over again under field conditions (see SRK Consulting, 2007, p. 12).	WR025

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Comment ID	Comment Text	Theme Codes
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6601	The poor correlation (without adjustment) and lack of inclusion of higher values suggest that the approach used to estimate sulfate release rates would underpredict maximum sulfate concentrations for Category 1 and 2/3 wastes and should not be used.	WR025
6603	Polymet Mining (2013a, Section 8.1) goes on to discuss a complex set of approaches for calculating release rates for constituents other than sulfate. These approaches are summarized in Large Table 3 and include using the following: for copper - the Cu:S ratio from aqua regia results; for nickel in Category 1 wastes- the Ni:S ratio from Category 4 aqua regia results and the Ni:Mg ratio in olivine from microprobe results; and for zinc - the Zn:Mg ratio in aqua regia results. The multitude of approaches for generating model release rates in different waste categories seems enormously unnecessary, generates confusion, and lacks transparency. Some of the approaches also seem scientifically indefensible.	WR025
6604	Even more importantly, I could find no convincing evidence was presented regarding why the Ni:S ratio in solid Category 4 waste rock is relevant to the Ni release into solution from Category 1 waste rock, whether Ni occurs primarily in olivine, or why ratios (e.g., Ni/S, Ni/Mg) are the appropriate measure to use to estimate nickel release. The inputs to the water quality model should be recalculated in a way that honors the available field and laboratory leachate information and avoids using ratios of constituents in solids that have not been shown to predict environmental behavior.	WR025
6606	The pH-dependent concentration caps for acidic and non-acidic Duluth Category 2/3, 4, and ore samples mimic the 95th percentile and maximum values for the AMAX pile leachate and seem to be reasonably conservative (see Polymet Mining, 2013a, Large Tables 4, 13, and 14). However, the caps proposed for Category 1 waste rock are not conservative enough because they assume that pH values in the leachate will only go as low as pH 7	WR001
6607	To better reflect the measured and likely pH conditions of Cateogry 1 stockpile leachate, pH-dependent concentration caps should use AMAX pile leachate concentrations for pH values between 6.0 or 6.5 and pH 7.5.	WR033
6608	Polymet Mining (2013a) “proves” that submerging wastes will stop the oxidation of sulfide minerals and the associated release of contaminants using equations (Polymet Mining, 2013a, p. 117). A better approach would be to conduct laboratory column tests that submerge already-acidic NorthMet or Duluth Complex rocks and evaluate the effect of subaqueous conditions on contaminant release.	WR025
6609	A more conservative scenario should be run in the model that does not include adsorption along flowpaths. As discussed in Section 4.1.2 of these comments, a scenario should also be run that includes seasonal flushing of contaminants from waste piles and pit walls to downgradient groundwater and surface water.	WR058, WR173
6611	Polymet should provide a concise summary of the changes in characterization approaches and model input values over time and state clearly which results were finally used to estimate water quality in the model. The original geochemical and water quality data should be presented on the MDNR website in a user-friendly electronic format, with transparent information on the sources of all data.	WR025, WR189
6612	An independent review of potential mercury loadings and a nondegradation demonstration should be completed as part of the Supplemental Final Environmental Impact Statement (SFEIS).	MERC23
6613	All treated effluent during all phases of mining should meet the most stringent applicable water quality evaluation criteria for the NorthMet Project. Water with project-relevant nitrate and ammonia concentrations should be tested for treatment. A plan for treatment and discharge of dewatering water during operation should be in place in the SFEIS.	WR013, WR115
6614	The mine water balance should be clearly spelled out with volumes of water generated at the mine site and needed at the plant site – under low streamflow/groundwater elevation and high streamflow/groundwater elevation conditions at different points in the mine life. The estimates should include ranges that consider the need to pump groundwater around the pits and the effects of changing climate.	WR056, WR060, WR181, WR182

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
6615	Category 1 wastes should be lined or backfilled into the West Pit upon closure.	PD15
6616	Submerged column tests should be conducted on Category 2/3 and 4 wastes that have gone acidic, and the results should be used to evaluate the effectiveness of submerging wastes in the pit.	PD15, WR025
6618	The manipulations that occur to leachate chemistry to get it into the model are opaque at best. A clearly written explanation should be provided that takes the reader through an example for one or two contaminants of concern (e.g., copper or nickel), for all waste rock/ore categories, under non-acidic and acidic conditions, that includes: (1) Initial concentrations, based on the release rates or method(s) used (some will be a function of pH); (2) concentrations after applying the four scale-up factors (water contact, particle size, temperature, and acidity); and (3) actual input values used in the model representing waste rock leachate concentrations.	WR025
6619	Release rates should be based on field or laboratory HCT measurements rather than on complicated combinations of solid and solution values.	WR025
6620	Factors of safety could be included relatively easily to ensure that potential environmental effects are not being underestimated.	NEPA14
6621	The pH-dependent concentration caps for Category 1 wastes should use AMAX pile leachate concentrations for pH values between 6.0 or 6.5 and pH 7.5.	WR025
6622	Scale-up factors for Category 4 wastes should be re-evaluated.	WR025
6623	Time to onset of acidic conditions for at least Category 4 wastes should be re-evaluated.	WR025
6624	The model should be re-run with more protective assumptions, including an assumption of no adsorption along flowpaths and seasonal flushing of contaminants from waste rock and pit walls. A scenario should also be run that considers transport along a preferential flowpath to surface water. Model results should also include the pH in the pit, along flowpaths, and in the Partridge River.	WR056, WR173
6643	The appearance of fen indicator species (e.g. northern white cedar Thuja occidentalis), bog birch ((Betula pumila var. glandulifera), balsam fir (Abies balasamea), alder (Alnus sp.), and willow (Salix) in the coniferous bog type at the NorthMet site clearly indicates that these peatlands are minerotrophic fens and not ombrotrophic bogs. … This distinction between ombrotophic and minerotrophic peatlands is important since this ombrotrophy was used to evaluate the vulnerability of the NorthMet wetlands to mining activities.	WET09
6646	The datasets that supports the NorthMet wetland classification does not allow an explicit critique of whether the wetlands within this site are ombrotophic bogs or minerotrophic fens. These data should have been reported for well defined vegetation plots so it would be possible to discern actual plant assemblages, the relative abundance of all species, and the linkage of species assemblages to surface water chemistry. The surface water chemistry from each vegetation plot should have been analyzed with a pH meter and major cations particularly Ca.	WET09
6647	Perched recharge mounds are likely to occur within wetlands of the NorthMet site but no convincing evidence is provided to support their presence. A convincing test would be water level measurements in piezometer nests installed above and below the hydraulic confining layers that demonstrate the existence of a perched water table mound. It should be kept in mind that water levels will quickly respond to precipitation events in any piezometer installed within an unconfined aquifer. It should also be kept in mind that, the magnitude of the pumping tests performed for the EIS is probably orders of magnitude lower than that of actual mine dewatering operations.	WR071, WR120

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
6648	Wetlands in recharge zones (areas where surface waters move downward and recharge the underlying groundwater system) would be much less vulnerable to contaminant plumes transported through groundwater flow systems. However, all wetlands within the study area could still be vulnerable to contamination transported by runoff during the flush of spring runoff. This source of contamination would be greatest after winters with a deep winter snowpack and an abrupt spring thaw.	WET24
6651	I think we are missing a golden opportunity to preserve and restore one of the most outstanding peatland complexes in northwestern Minnesota. This wetland complex is found in the Saint Louis River watershed and has been previously disturbed by drainage ditches, roadways, and a railroad crossing. However, it contains excellent examples of raised bogs, the most outstanding patterned fen in northeastern Minnesota, and populations of several rare, endangered or threatened plant species including Carex exilis, Rhynchospora fusca, Xyris montana, and Juncus stygius. Moreover, the site is presently tax-forfeit land and can be purchased, restored, and donated to the Minnesota DNR to be operated as a Scientific and Natural Area. The peatlands within this tract are more comparable to those of the NorthMet site with the principal exception of their larger size.	WET03
6652	The wetlands within the NorthMet site should be monitored by repeat sampling of permanent plots that are laid out prior to the onset of mine development. I would suggest using standardized relevé plots (100 m2 for nonforested sites and 400 m2 for forested sites) following the procedures described by Glaser et al. (1981; 1990) and adopted by the County Biological Survey of the Minnesota Department of Natural Resources. The vegetation within these plots needs to be documented prior to the onset of mine development in order to provide baseline data for evaluating any future changes that may be produced by mining operations. All species within the plot need to be identified (not just the dominant species) and assigned a semi-quantitative or quantitative measure of abundance and dispersion. In each plot water samples should be collected from the peat surface (if there is standing water) or shallow pits. These samples should be analyzed according to standardized procedures. It is strongly recommended that pH measurements should be made at the time of sampling or the end of each sampling day with a pH meter that has been calibrated with appropriate pH buffers. The water samples should then be filtered and acidified for analysis of cations (but not anions). In addition to the metals and anions most likely to be contaminants from mining operations these measurements also need to include Ca.	WET22
6657	I think the EIS statement would have been a much stronger document with respect to the wetland section if the vegetation data was also presented for relevé plots or randomized grid of sample points	WET24
6659	I would also highly recommend some data on peat depths (which can be quickly compiled with a probe). The periodic re-sampling of these plots would provide the best and most cost-efficient indicator for major impacts of mining operations on the wetlands in the NorthMet site.	WET09
6661	Please explain how a perched recharge mound could develop over a sandy textured aquifer. This statement does not seem reasonable according to the description of perched recharge mounds in Todd & Mays (2004)	WR120
6663	Surface flow laterally across the wetland complexes is negligible because of the flat slopes and surface roughness [What about during the flush of spring snowmelt when the winter snow pack melts? The meltwaters must drain downslope … What about during the flush of spring snowmelt when the ground is still partially frozen?]	WR148
6665	Have any perched water tables been documented by hydraulic head measurements from nests of piezometers?	WR071, WR120
6666	But there could still be significant infiltration and solute transport over time through both the peat strata and the silty sand. There is a difference between slow rates of flow and no flow.	WR107, WR108

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
6669	What was the pH and Ca concentrations of the surface waters in these peatlands? A raised bog, which is ombrotophic (solely nourished by rain) has a pH less than 4.2 and Ca concentrations less than 2 mg/l. In Minnesota raised bogs have surface waters with a very narrow range in pH (3.6-4.2), whereas the pH range for fens (4.3-7.3) barely extends into the basic range of the pH scale. Even rain water is typically acidic in Minnesota with a pH of about 5.0-5.6 (MPCA). Given the small size of the peatlands in the NorthMet site and the absence of any evidence that these peat deposits are mounded (with interior elevations higher than their margins) it appears that these peatlands are mostly poor fens (pH range of 4.3-4.8 and Ca concentrations of 3-8 mg/l) or even rich fens (pH 5.2-6.7).	WET09
6670	Even though the hydraulic conductivity of the peat can be several orders of magnitude higher in the near-surface peat (acrotelm) than in deeper layers (catotelm) there could still be significant lateral or vertical flow and solute transport within the deeper peat. The assumption of "perched" conditions needs to be verified by profiles of porewater chemistry and more detailed profiles for hydraulic head	WR120
6671	Vertical seepage losses from wetlands without peat soils would only have the potential to occur in isolated areas of contiguous, high hydraulic conductivity bedrock faults and fracture zones located under isolated areas of high hydraulic conductivity glacial till and aligned with wetlands containing high hydraulic conductivity soils (Barr 2010d; Barr 2011j).[What about wetlands underlain by sandy textured aquifers?]	WET10
6677	I have not seen any definitive evidence presented that true "ombrotophic" raised bogs occur within the NorthMet site	WET09
6678	A pumping and isotope test conducted in 2006 indicated that the groundwater pumped during a 30-day pump test was derived from aquifer recharge rather than surface water seepage from surface water features such as the Northshore Mine Pit or wetlands. … [What isotopes were used as tracers? Tritium? I would like to see their data if it is available].	RFI01
6681	Water levels in piezometers installed in unconfined aquifers should respond rapidly to precipitation events regardless of whether they are located in zones of recharge, discharge or lateral flow.]	WR021, WR071
6683	Evapotranspirational losses would be limited by the xeromorphic features of the conifer trees and ericaceous shrubs	WET24
6684	If the peatland has balsam fir and more than the occasional tamarack it is probably not a true ombrotophic (raised) bog … Northern white cedar never grows in a true raised bog! This species is a calciphile (calcium-loving plant) and is considered an indicator of an extremelyrich fen in Minnesota; The so-called swamp birch (Betula pumila var. glandulifera?) is also a fen indicator species and never grows in the true raised bog … This community seems typicalof a fen	WET09
6685	There seems to be confusion regarding the relationship of ombrotrophic raised bogs to groundwater flow systems. Siegel and Glaser and their co-workers have repeatedly published direct evidence that raised bogs (in addition to fens) are directly connected to groundwater flow systems in the underlying mineral sediments both in large peat basins (Siegel & Glaser 1987, Siegel et al, 1995; Glaser et al. 1990, 1997; 2004ab, 2006) and smaller peatlands (McNamara et al 1992). These publications demonstrate that peatland development (to bog or fen) is determined by the local hydrogeologic setting rather than surface processes as suggested here (e.g. see Glaser et al 1997, 2004b, 2006). Ombrotophic raised bogs can therefore be susceptible to alterations of groundwater flow and solute transport as was demonstrated in the Lost River bog-fen complex in northern Minnesota (Glaser et al 1990 but also see Siegel et al. 1995). In addition, this report does not provide direct evidence for the occurrence of ombrotrophic raised bogs within the NorthMet site. The EIS needs to specify that some peatlands at this site have the following features: 1) are in fact mounded (i.e. raised) 2) contain no fen indicators 3) have surface waters with a pH less than 4.2 and Ca less than 2 mg/l Otherwise a discerning reader might assume that the conifer bog class represents poor fens.	WET09

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Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
6688	Juncus stygius is a fen indicator species and never occurs on an ombrotophic bog. It is characteristic of poor-fens located around the marginal fringes of raised bogs and poor fen water tracks. (see Glaser 1992bc). It is widespread across the boreal region of North America but usually in very small and highly localized disjunct populations.	VEG01, VEG09
6689	These peatlands are clearly minerotrophic fens and not ombrotrophic bogs. Alders, swamp birch, catails etc are fen indicator species and in fact alders are most abundant at peatland margins (laggs) or in non-peat wetlands. In addition: willows (Salix), marsh cinquefoil (Potentilla fruticosa?) are restricted to minerotrophic fens. Poor fens with high cover of Sphagnum are common across northern Minnesota and elsewhere.	WET09
6690	The description of the "conifer bog" class [on Tract 1] includes fen indicator species and therefore represents ether a poor or rich fen forest or a mixture of a raised bog with the poor fen plant assemblages along its margins. The fen indicator species listed are alders, bog birch, catails and other taxa (Iris and raspberry). The presence of Sphagnum, black spruce and shrubs of the Ericaceae is not indicative of a raised bog because these species have broad ecological tolerances and can be dominants in both bogs and fens. The wording of this paragraph may be misleading since the aerial photograph of this area presented in Figure 4.3.2-1 (Tract 1 Hay Lake Lands) contains a wetland in sections #17 and 20 that has the radiating forest patterns typical of a raised bog that may have been burned in part. However this polygon is classified as conifer swamp in Figure 4.3.3-3. … Figures 4.3.2-3 Tract 2 Lake County North Lands and Track 3 Wolf Lands 1. The landscape in this aerial photograph is marked by flutes (or drumlins) with wetlands in intervening flutes (sections 34, 35 and 3 and 2) However, the wetlands marked are probably swamp forests and not bogs. Fig 4.3.2-4 Wolf Lands 2 (looks like conifer swamp.....not a bog.	WET17
6697	How can an earlier section of the s EIS be so certain that fracture-flow through fractures, joints, or other discontinuities in the bedrock is not likely to be important within the study area? These data are suggestive that such features may affect the hydrology of the wetlands within the NorthMet site.	WR010
6705	Unless the bogs were in fact perched (which is probable but not supported by data included within this memorandum) they would still be connected to underlying groundwater flow systems and could be affected by drawdown.	WET09
6708	The NorthMet EIS does not provide reliable criteria for separating ombrotrophic bogs from minerotrophic fens. The key criteria for distinguishing bogs are a) landform type (surface elevations are always higher toward the interior of a peat deposit than at the peatland margins), b) the absence of fen indicator species, c) surface waters with a pH = 4.2 and Ca concentrations =2 mg/l. In contrast, several fen indicator species (e.g. alder, willow, bog birch etc) were listed as components of the "coniferous bog" type within the NorthMet site. The report seems to rely on high cover values for Sphagnum and black spruce, which can characterize poor fens as well as bogs. In addition, it should be kept in mind that most fens have acidic surface waters but fen waters consistently have a pH higher than 4.2 (typically 4.3-6.8 for poor to rich fens). If the authors of this report wish to lump raised bogs and poor fens within the same class they should say so explicitly and not make erroneous inferences about hydrology such as ombrotrophy. The scientific literature is very explicit about this matter and they can check some of the references at the end of this critique.	WET09
6712	Dust deposition could have potential impact on both ombrotophic bogs and minerotrophic fens depending on the chemical and mineralogical composition of the dust.....either as acidifying agents (in fens) or by the supply of inorganic solutes and nutrients (bogs). Also, overland transport of solutes derived from dust is possible during the flush of spring snowmelt.	WET11
6723	This assumption would only be valid if the bogs in question were perched recharge mounds (which is not documented within this EIS). Otherwise ombrotophic bogs would be connected to groundwater flow systems and responsive to transient and long-term changes in the hydrology of the watershed.	WET09
6732	What are multiple analog impact zones?	WET10

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
6734	Groundwater drawdown would be expected to have a greater effect on smaller than larger wetlands.	WET10
6736	Another potential impact to consider is the effect of trace metals (e.g. Ni, Mb etc) on nitrogen fixation and methanogenesis since Ni and Mb are key components of the enzymes regulating the N and CH4 cycles in anoxic peat profiles!	AIR01
6740	over longer timescales (e.g. decades) the effect of solute transport could be significant. (e.g. see Siegel, D.I., A.S. Reeve, P.H. Glaser and E. Romanowicz. 1995. Climate-driven flushing of pore water in humified peat . Nature 374: 531-533)	REF01
6746	Figure 5.3.1-1 Tracts 1, 2 and 3 Roads Tract 1 - Hay Lake LandsThe northeastern boundary of this tract cuts across the crest of a well developed raised bog (=radiating forest patterns)	WET17
6761	The authors of this [Eggers 2011 memorandum] report did not consult the scientific literature on this important subject and therefore reached erroneous conclusions on both the criteria for distinguishing ombrotophic (i.e. solely rain nourished) from minerotrophic (nourished by both rain and waters that have percolated through mineral soil) peatlands and the status of peatlands within the NorthMet site.	WET09
6763	In retrospect, the members of the wetland working group should have consulted the scientific literature on northern peatlands in Minnesota as well as the treatment of the acid peatland system in the Minnesota Department of Natural Resources (2003). Field Guide to the Native Plant Communities of Minnesota. The Laurentian Mixed Forest Province. Ecological Land Classification Program, Minnesota County Biological Program, MNDNR, Saint Paul,MN pp. 215-221. This treatment defines the pH range of raised bogs as less than 4.2 and also explicitly states that bogs are recognized by the absence of fen indicator species.	REF01, WET09
6768	Given the uncertainties with respect to sampling (with regard to both the vegetation and the water chemistry) I would strongly recommend re-doing the ground surveys using standardized procedures for both the vegetation and water chemistry) if the distinction between bogs and fens sensu stricto are important for the NorthMet EIS. At best, the occurrence of these fen indicator species and pH values well within the range typical of rich fens should raise red flags about the use of ombrotrophy in this [Eggers 2011 memorandum] report.	WET09
6780	It is important to consider whether the simplifications required in Goldsim are accurate and true to the hydrology of the site. … They ignore the uncertainty that arises due to scale. … The modeling therefore uses K values that are too small.	WR087, WR096, WR189
6787	This reviewer has reviewed many environmental documents for mining projects all over the country and somewhat globally and has never seen the [GoldSim] model used. To justify the claim of wide use, Polymet should provide an extensive list of mines on which Goldsim has been used to simulate contaminant transport.	WR189
6789	The [GoldSim] model fails the transparency requirement because it is proprietary and it is not possible to review or run the model without purchasing the model platform. Without this capability, it is not possible for the public to independently test Polymet's assumptions.	WR189
6793	most of Polymet's discussion does not distinguish among the hydrology and its Goldsim implementation. Polymet treats the bedrock as far more impermeable that it actually is, and that is based on their pump test data. … Only three of the twelve observed Ks are less than the geometric mean, with one being just 0.01 ft/d less than it. Well P-1 was essentially dry, but the data resulted in a 0.0024 ft/d value which controlled the geometric mean and essentially drives discussion of bedrock being non-conductive.	WR168
6806	There is a need for better information regarding vertical gradients and the connection between the surficial and bedrock aquifers. … For modeling, Polymet has not justified their assumptions of no connection among aquifers.	WR058, WR061, WR071, WR167

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
6808	Polymet should model a scenario w/o continued discharge from PMP because it dilutes some constituents and causes some to have exceedences even without this project.	WR006
6809	Baseflow for the Partridge River may be incorrectly estimated. … Polymet estimates river flow based on a distribution of monthly flows at SW006 as shown in Table 5---13 (p 127). A problem with this scheme is that it is a random selection by month without regard to the previous month. A dry month could follow a wet month, which is unrealistic. The model then distributes the SW006 flow to other evaluation points according to area draining to them and the year of mining.	WR003
6910	Recharge rates for the watershed have been underestimated. … It is common to set recharge equal to river baseflow so the error comes in how baseflow is estimated. … Polymet simply set baseflow equal to the lowest 30---day flow in this watershed. … Myers (2014, Part 1) reestimated recharge for both Partridge and Embarrass River watershed and found that Polymet underestimated it by three to five times. … The recharge rates should be reestimated considering the above and Myers (2014). Everything in the model that depends on the recharge rate should be reestimated, including the basic groundwater model used to estimate Goldsim parameters.	WR171, WR189
6913	Polymet should address whether there should be pathways north to the river. None of the model pathways discharge north even though there is a groundwater divide under the Cat 1 stockpile in pre-mining conditions.	WR071, WR089
6918	The flow calculations rely on an assumption that the surficial aquifer is 5-m thick rather than on reality that the piezometric surface along “an aquifer receiving recharge is parabolic in shape” (Id.). In other words, they have assumed constant thickness where in reality the thickness is not constant. Polymet also ignores the actual variability in thickness caused by the actual depth to bedrock ranging to almost 20 m, as seen in Large Figures 4 through 10.	WR058, WR167
6926	The GoldSim modeling also uses K values randomly chosen for each 1-d flow path; it is unclear whether there is a separate value for each flowpath during each simulation.	WR058, WR167
6928	GoldSim constructs flowpaths using adjacent cells and models the water balance simultaneously among each cell. It apparently utilizes one K for the entire flowpath. This assumption violates any realistic conceptual model of flow in the aquifers by ignoring heterogeneities. The K could vary along the flow path but the modeling as proposed here fails to account for that. If possible, the GoldSim modeling should use different K estimates for each cell but they should be selected with spatial correlation considered.	WR058, WR167
6929	The process of dispersion in the Goldsim model, by instantaneously spreading contaminant through a cell, differs from actual dispersion by which contaminants disperse continuously through the entire domain. If the time step used in Goldsim is significantly shorter than the time normally required for contaminant to disperse over that distance, it may be moving contaminant too quickly which would dilute the contaminant.	WR058
6930	the lateral and vertical dispersion is usually 0.2 and 0.1 times the longitudinal dispersion. This excessive horizontal dispersion dilutes the contaminant along its pathway more than would be estimated with standard transport equations (Fetter 1999). This would inappropriately dilute the estimated concentration for contaminants arriving at the monitoring points or the river.	WR058
6936	A necessary conclusion is that the assumptions about the engineering, geochemistry, the hydrology, and the geological conceptualization combine to provide predictions suggesting that the project will not degrade waters.	WR190
6940	Rather the model assumes that all water entering the stockpile during a year also exits it. … By not considering storage, the model does not allow water to accumulate so that large amounts could seep all at once. … the model also ignores the potential additional seepage that would occur during subsequent wet months. … The assumption could limit the effect of high precipitation years, when leftover storage from the preceding year combines with infiltration during the current year to cause a larger of water reaching the liner or containment system.	WR173

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
6954	The method for modeling evapotranspiration (ET) from bare and reclaimed stockpiles does not appear to be correct). … The better way to model this would be to select an ET proportion from the observations using the sample rather than population standard deviation.	WR175
6964	Polymet (2013) assumes that discharge into groundwater begins when the water level rises above the bedrock into the surficial aquifer. … Polymet should complete a more realistic analysis of flow from the West Pit into the groundwater. … Inflow to and from the pits should be determined as a function of depth using MODFLOW and then adjusted for uncertainty based on a probability distribution. The basis for this distribution should be described.	WR168, WR179
6966	most of the load simulated by Polymet to be in the lower river is already there, with the WWTF load representing only a few percent of the total load at SW006. The load simulated as contributed by the mine is on the order of tonnes per year or only a few percent of the natural load. River concentrations are very near the background groundwater concentrations which are shown below. Again this reflects the fact that natural conditions control the simulated concentrations in Polymet's modeling.	WR175
6974	The lack of mine-induced SO4 in the river occurs even though the mine adds very significant SO4 loads to the system. Considering the East Pit only, over 30,000 tones are added during year 11 from backfilling category 4 waste rock. By year 22, over 50,000 tones have been added just to the East Pit from various sources as shown in Figure 1-01-24.1. This load obviously does not reach the river, so the question is where does it go?	WR060, WR150
6979	[PolyMet's] modeling assumes the caps will work perfectly, but it is important to question what must be done to make the assumption realistic. The addition of lime/limestone and proper mixing would have to occur during the initial backfill. Inadequate mixing could result in volumes of waste with much higher SO4 concentrations.	PD29, PD34, WR027, WR127
6986	[PolyMet's] estimated SO4 loading to the East Pit beyond year 20 does not include any WWTF return flow or a load from the backfilled waste rock (Figure I-01.24.2 below). This means they are accounting for no load from any water added to the pit to keep it saturated but they are assuming the pit remains saturated so there is no continued oxidation. It appears therefore that Polymet is missing two large components of load to the East Pit.	WR173
6992	Essentially, [PolyMet] assume and model that the combination of pumping from the WWTF and the percolation of meteoric water would counter the pumping of 1750 gpm and allow the backfill to remain saturated. Polymet presents no plan as to how this would work in practice even though it underpins their modeling.	WR173
6996	Myers (2014) simulated a pump and treat scenario for the East Pit and found that concentrations at various points in the backfill would be highly variable and in some areas would exceed the target even 100 years after the end of mining.	WR171
6998	Polymet appears to rely on the pit being a sink that prevents constituents from flowing into surrounding groundwater. Because they are keeping the pit full of water even while pumping from it, there may be gradients allowing flow from the pit to the surrounding groundwater. Polymet should describe at some place in the SDEIS how this would work in practice and consider what could happen if it does not work.	WR173
7006	Sorption as modeled by Polymet is the primary factor preventing Cu from reaching the river (Myers 2014). Polymet's model treats Cu sorption as deterministic, meaning they do not examine any scenario except for full sorption. They do not model any of the factors which could affect sorption, such as pH, contact time, or the relative particle surface areas. As found by Myers (2014), if sorption does not occur or occurs in a much smaller amount, Cu will reach the river at rates which could violate the standard. In addition to the engineering features, Polymet's assumed sorption essentially prevents any Cu from the mine from reaching the river. They have not justified that this will occur nor test what could occur if their assumptions are wrong.	WR058

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Comment ID	Comment Text	Theme Codes
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7044	The model assumes that all waste rock covers, liners, and containment systems will work perfectly. The probability distributions do not account for substantial failures. If the seepage through one or more stockpiles is double that planned, there would be substantially higher load reaching the rivers.	WR127, WR138
7046	The model assumes sorption for four contaminants, including copper, which causes the model to predict that effectively none of the contaminant reaches the river. This sorption occurs even though the high background load continues to flow to and discharge into the river.	WR058
7048	The model assumes that plans to keep backfilled waste in the East Pit saturated during operations and to pump and treat it during reclamation will prevent all contaminants from escaping the pit and reaching the river. This is a very optimistic. Polymet should analyze a scenario which does not rely on this assumption.	WR029, WR089
7049	The modeling does not consider two loads to the East Pit – the load from pumping water from the WWTF to the pit to keep it saturated during reclamation and the load caused by oxidation of backfill if perfectly saturated conditions are not maintained.	WR173
7050	Pumping the West Pit full of water causes a mound which allows water and contaminant load to escape and flow from the pit to downgradient groundwater.	WR173
7053	The agencies should consider how the realistic modeling completed by Myers (2014) differed from Polymet's and give particular consideration as to whether Polymet's modeling was physically realistic. The agencies should further consider that Polymet's modeling includes assumptions that prevent much of the transport that may actually occur. The agencies should ultimately reject the results of Polymet's modeling and require them to complete more physically and conceptually realistic models	WR189
7060	West Pit Backfill was rejected without substantial argument or technical analysis because they claim it would not offer substantial environmental benefits (p 3-151). … Recommendation: Polymet should give the West Pit backfill option a thorough evaluation with the Goldsim model so that there could be a comparison of concentrations with and without backfill.	ALT03
7071	They also note there are "additional mineral resources in the West Pit that would effectively be lost if the pit was" backfilled (p 3-149). … Recommendation: Discuss the difficulties associated with pumping out a pit lake, and treating the water, to recover ore at the bottom of the pit. Consider these difficulties in discussion and decision as to whether to consider this as an option.	ALT03
7075	Polymet has not prepared a mining and reclamation plan (p 3-5), so the exact timing of activities must be considered imprecise; this applies in particular to the water quality modeling as presented throughout the SDEIS. Recommendation: Acknowledge that the times for various management activities during reclamation and closure are approximate because the reclamation plan has not been prepared.	PD09, PD35
7080	The conductivity values (Table 4.2.2-5) are provided in a not-useful way. Without knowing the number of samples, simply providing a range and a geometric mean is not meaningful. It would be better for the table to simply list all observations especially since they range over several orders of magnitude. … The SDEIS overstates the roll of gouge in filling the faults in the areas (p 4-45). … Recommendation: The analysis that relies on low permeability bedrock just under the till should be reconsidered and potentially redone. Additional fracture analysis should be completed to better consider the potential for fractures or faults being connected to more distant resources.	WR011, WR012, WR014, WR071, WR087, WR099, WR168
7091	Recommendation: Recalibrate the MODFLOW model based on higher recharge which would yield more realistic conductivity parameters (see comments elsewhere).	WR086, WR091, WR165
7096	The SDEIS claims there is very little transport in the bedrock flowpaths, primarily because of its "very low bulk conductivity" (p 5-53). … Recommendation: Consider a much higher range of bedrock conductivity in the Goldsim modeling.	WR061, WR168

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
7107	The description of how they determine the P90 value from a Goldsim run, described in the third paragraph of p 5-77, appears wrong. Recommendation: Describe the processing of model output to obtain the P90 value correctly.	WR192
7108	There is controversy over the estimate and use of baseflow on the two rivers draining the project site. … It is not proper, however, to assume the 30-day low flow equals the average basinwide recharge in this watershed because it is not possible to assume the entire watershed is contributing during baseflow conditions. The baseflow may be recharge but only from a portion of the watershed. By setting recharge equal to the 30-day low flow, Polymet's recharge estimate was about 0.8 in/y, which is not correct because it is based on only a small portion of the watershed contributing baseflow. … Recommendation: Polymet should reconsider their recharge estimate for modeling based on Myers (2014a and b) and recalibrate the MODFLOW model based on that correct recharge value.	WR003, WR052, WR086, WR091, WR165
7124	The predicted relative rates of groundwater inflow from bedrock and surficial aquifer (p 5-114) are based on very incomplete knowledge of conditions at depth which would control inflow from depth, including of saline groundwater. Recommendation: Polymet should establish a series of deep groundwater monitoring wells, screened at locations in the 500 feet below the pit bottom, to assess both changes in head and water quality. There should be continuous electrical conductivity monitoring so that salinity changes can be quickly detected.	WR007, WR071, WR078
7130	Recommendation: Reconsider the modeling of the surface water quality considering the comments in this review, Myers (2014 a and b), and the review documents prepared by Ann Maest, Glenn Miller, Dave Chambers, and Mike Malusis.	WR189
7137	Recommendation: The SDEIS should describe both the groundwater monitoring system and better describe how the contingency plans could actually work. They should demonstrate with their MODFLOW model that pumpback or other groundwater treatment can work. They should demonstrate using Goldsim that they can actually time the groundwater discharges to surface water so as they can actually increase the WWTF discharges for dilution.	WR139
7139	Surface water quality on the Embarrass River will change as a result of the project, though Polymet claims no standards will be violated. … Recommendation: The SDEIS should discuss why the WWTP cannot treat the water so that degradation to the river will not occur.	WR064
7140	Recommendation: In cases where the natural background exceeds published standards, the project should not be permitted to cause any increase in concentrations or further degradation of the resource. This means any discharge (seepage) much have a lower concentration than natural so that the net effect is dilution.	WR059, WR064, WR082
7150	Polymet suggests it will stabilize in the West Pit Lake at 0.9 ng/l, or slightly below the standard. They indicate the load to the Embarrass River will increase due to seepage from the tailings but that reductions in the Partridge R will offset the increase for the St Louis watershed as a whole. They also claim that 92% of the Hg in the tails will remain there; this claim must be considered. Recommendation: Polymet should better justify the claim that 92% of the mercury will remain in the tails.	MERC06
7160	The SDEIS essentially argues that the MODFLOW---predicted drawdown is inaccurate (p 5-92). If that is correct, that drawdown estimates from MODFLOW are inaccurate, then dewatering estimates are also inaccurate. Recommendation: The SDEIS should acknowledge there is a large uncertainty in the estimated dewatering, and provide an estimated range of dewatering rates.	WR179
7162	Recommendation: The SDEIS should identify what the dewatering water will be used for or whether it will simply be discharged. Unless there is a water quality problem, the dewatering water should be reused onsite.	WR181
7165	Myers (2014) demonstrated that the groundwater discharge could be decreased much more than predicted in the SDEIS, therefore the predictions in the SDEIS are likely wrong. Recommendation: Use the MODFLOW model to predict decreases in the discharge to the river or to predict water drawn from the tributaries or wetlands which could reduce river flow.	WR086

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Comment ID	Comment Text	Theme Codes
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7167	The SDEIS claims the analogue model was based on pit lake recovery measurements, not on actual dewatering results (p 5-92). This renders the results suspect so they should not be used in the SDEIS. Recommendation: The MODFLOW results for drawdown should be included in the SDEIS, either to supplement or replace the analogue discussion.	WR071, WR119, WR171, WR179
7171	Recommendation: Polymet should run their MODFLOW model in steady state mode with the water level in the pits controlled at the proposed levels. Polymet should also disclose in the SDEIS that maintaining the water level below the natural levels will require pumping/diversions from the pits essentially forever; this would include a requirement to treat the water.	WR105
7181	The description of the reduction in seepage to the Embarrass River watershed during closure is very misleading – it claims there will be a reduction from the estimated current rate of 2020 gpm to 1320 gpm but that since the groundwater containment system remains in place there will be only 21 gpm of seepage bypassing the containment (p 5-160). It is therefore inaccurate to claim that 1320 gpm will reach the watershed. Recommendation: Change the discussion of tailings seepage to acknowledge that the containment system prevents seepage from reaching the watershed.	WR018
7182	Recommendation: The SDEIS should describe the flow augmentation in Embarrass River better so that its effectiveness can be considered and the proposal can be assessed as to whether it will cause the wetlands to dry.	WR112, WR183
7196	The wetlands receive minimal runoff because the soil texture allows rapid infiltration, but the interaction between the surficial and bedrock aquifers is assumed to be insignificant (p 4-149). The SDEIS bases this idea on a reference to Siegel and Ericson, but their interpretation is wrong. … These extensive fractures would enhance a connection between the bedrock and surficial aquifers, not render it insignificant. The SDEIS assumes there is little connection throughout, but is incorrect. See also Myers (2014a). … The SDEIS suggests that wetland hydrology monitoring would be conducted only during the operations phase. This is not correct because pit lake development will draw water from the wetlands far beyond the end of dewatering. This applies whether the Polymet pumps the pit full, as described, or whether it fills naturally, as analyzed by Myers (2014a). … The SDEIS has also not adequately considered the hydraulic connections between the wetlands and underlying aquifers. Recommendation: The agencies should require Polymet to install shallow piezometers near and at distance from the mine site to consider whether there is a layer separating the surface from the aquifers.	WET22
7217	Recommendation: Polymet should expand their probabilistic modeling to include results assuming the liners/containment systems work poorly. Instead of 99% capture, they should test what occurs with as little as 10% captured. Also, they should consider what occurs if the capture fails for a given time period; this would be the equivalent of considering what would occur if a significant slug of contaminants escapes for a reasonable time period.	WR022, WR202
7223	Recommendation: The modeling should include a flowpath north from the Cat 1 stockpile to the Partridge River. The flow path might be temporary, only existing early during operations and later during closure. Polymet should use their MODFLOW model to assess these time periods. See Myers (2014a).	WR089
7225	Recommendation: Transport from the tailings should be modeled with two potential failures. The first is that the cutoff wall and/or pump system does not perform as designed. The modeling should consider the potential for the pump system to fail temporarily. The second is that the bedrock underlying the tailings could have higher conductivity than assumed for this modeling.	WR019, WR104, WR131

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7229	SDEIS Figure 5.2.2-3 … This is the wrong way of modeling the cutoff wall because the thickness of the model cell would control the conductance through the cell. … The variable size of the DRAIN cells might also affect the modeled ability to remove water because the conductance could be set equal to the product of the long length of the cell and modeled conductivity, a value which could artificially increase the model's ability to remove water. Recommendation: The cutoff wall should be simulated using the horizontal flow barrier package in MODFLOW. The DRAIN cell conductance should be set specifically avoiding the potential problems outlined herein.	WR088, WR093, WR100
7230	Recommendation: The temporary stockpiles should be simulated assuming the liner performs poorly to set a bound on the potential contamination. The MODFLOW model should be used to test assumptions that seepage from the Cat 4 stockpile will flow to the East Pit.	WR022, WR171
7232	Recommendation: Polymet should run a scenario wherein the concentration caps do not apply, because they depend on the correct addition of amendments to control the pH in the pit. Adding amendments after backfilling is complete is very difficult.	WR033
7235	Recommendation: The SDEIS should compare the pros and cons of pumping the West Pit full with a clear explanation of why they are doing it. It could be considered an alternative mine plan.	ALT03, ALT04
7237	Recommendation: The SDEIS should include a discussion about how the water quality of temporary runoff ponds, such as pond PW-OSLA, will be monitored. This would include frequency of sampling and constituents to be sampled.	PD05
7241	Recommendation: Provide evidence in the form of peer-reviewed studies or other assurances that bentonite amendments and covers can prevent the entry of oxygen to underlying material. This should prove that it will work essentially in perpetuity since that is the claim being made by Polymet and relied on by the agencies.	WR057
7245	Recommendation: Polymet should redo the modeling to accurately account for flow among subareas and use the amended bottom seepage rates for inflow to the Goldsim modeling.	WR057
7252	The evaluation threshold for water quality has been chosen to be the P90 value, or 90% exceedence (p ES-35). This means that 90% of the simulated results were less than this value. However, the SDEIS describes it as there being "at least a 90 percent probability that a constituent would not exceed water quality evaluation criteria" (p 5-7). This requires the huge caveat that it applies only if all of the conceptualizations of flow and transport are accurate and all of the probability distributions are accurate. Recommendation: The SDEIS should not call the P90 value the value for which there is a 90% chance it will not be exceeded without adding "based on the assumption of the modeling".	WR192
7254	Recommendation: The agencies should require detailed monitoring of the water levels in the shallow aquifers to provide advance warning of any impacts as they are occurring or before they affect the water level on the surface.	PER17
7256	Flow changes due to the project could cause concentration evaluation criteria to be exceeded but the water quality modeling (Polymet 2013a and b) does not simulate changes in flows due to the project. Recommendation: If it is not being done, the concentration modeling should account for decreased flow in the river and streams.	WR047, WR148
7261	The assumptions are essentially the problem with this SDEIS. … Very little consideration is given to what could occur when something goes significantly wrong, as it inevitably does. This SDEIS does not consider the full range of potential problems that could occur at this site, especially considering that the design features must operate as designed in perpetuity. It does not adequately disclose the potential range in water quality and water quantity impacts that could result from this project over the next 200 to 500 year and beyond.	PD01

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7432	While the sulfide content is not high in much of the waste rock, the buffering capacity is also very low and the release of metals and sulfuric acid will be substantial, as recognized in the SDEIS. Most of the mitigation measures rely on very large water collection and treatment processes that are unparalleled in modern mines. While the treatment technology (e.g. reverse osmosis treatment) has been shown to be effective in much smaller treatment facilities, it has not, to my knowledge, been utilized on such a grand scale and certainly not for centuries, as is projected in the SDEIS.	WR001, WR128, WR143
7437	Particularly for the East Pit, the plan to rinse and withdraw the expected highly contaminated water from the pore spaces in the waste rock is untested, and very likely to fail due to the extreme difficulty of efficiently rinsing rock that has been added to the pit.	WR171, WR173
7451	Both from the refilled East Pit and the West Pit Lake, sulfate and metals loading is very likely to exceed the groundwater standards of the State of Minnesota. This plume of contaminated water will migrate long distances and potentially be a source of contamination to groundwater and surface water for centuries.	WR107, WR109, WR115
7453	Also, as discussed by others (see the Maest comments), the water from the East Pit will almost certainly contain large amounts of nitrate and ammonia from the blasting activities from residues of ANFO(ammonium nitrate-fuel oil). Removal of these substances is largely untested.	WR013, WR032
7472	The water quality in the ultimate West Pit Lake is estimated to contain 800 mg/L sulfate (range of 500-1200 mg/L). The basis for this estimate is on rinsing of wall rock that has been exposed to air. The actual concentration is likely to be considerably higher, and is likely to approach gypsum (calcium sulfate) saturation (probably supersaturation), similar to what is found in almost all pit lakes in Nevada. Concentrations of sulfate can vary from about 500 mg/L to over 3000 mg/L, depending on conditions at the specific site (see attached Nevada Division of Environmental Protection file in Appendix 1 that provides limited data on some of the Nevada pit lakes).	WR141
7473	Modeling of pit lake water quality has typically assumed that sulfate will come from wall rock oxidation very near the surface of the pit lake, as is apparently the case for the West and East pits. This so-called “rind” model neglects what actually happens when a cone of depression is created as water is pumped (or flows into the pit) to lower the groundwater table to the bottom of the pit. The water is replaced by air that is brought into the cone of depression created by removal of water; the result is oxidation of sulfides that are present in the large volume of rock distant from the actual pit faces. Concentrations of sulfate present in the water draining into the pit are effectively impossible to predict, since there have been no estimates made of sulfides in the rock surrounding the pit that will exist in the dewatered cone of depression.	WR173
7475	This issue is fundamentally important to both the refilled East Pit and the West Pit Lake. If sulfate concentrations are much higher than predicted, the water treatment requirements and sludge production will be much higher than expected and the cost requirements (via bonding and long-term treatment expectations) also much higher.	WR176
7483	A second aspect of this type of oxidation is that sulfate concentrations will be elevated far into the future, since rinsing of those surfaces will continue until the entire cone of depression is rinsed, and would include any gypsum that may have precipitated in the aerated pores where sulfides had been oxidized, and the solid gypsum redissolved. Thus, the concentration of sulfate in the pit lakes remains highly uncertain, although they are likely to be much higher than the concentrations predicted. No discussion of this source of sulfate and contaminants was presented.	WR001
7484	This same type of Monte Carlo simulations have been completed for many mines in Nevada, but are still wrong by sometimes over an order of magnitude, primarily a result of utilizing an incorrect basic conceptual model. I believe that this is the case for the East and West pits of the Polymet mine.	WR088
7491	Removal and treatment of water at a rate of 300 gal/min thus is unlikely to result in sufficient dilution of the contaminants (particularly sulfate) for a much longer period than predicted. Instead of 200 years to dilute the pit lake to approximately 35 mg/L (Fig. 6-61 in the Water Modeling Data Package – Mine Site), the time frame could be much longer, and prolong treatment for additional centuries.	WR035, WR037

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
7492	The water treatment plan has the term "adaptive management" in several sections, and the data on which to base adaptive management decisions should involve groundwater monitoring at various distances down gradient from the East and West pits. For example groundwater monitoring wells should be established 5, 20 and 100 meters from the expected groundwater flow path.	PD22
7510	The SDEIS should thoroughly evaluate the alternative of putting all of the Category 1 Waste material into the East Pit, or potentially, the West pit, or a combination of the various pits. Leaving the reactive rock on the surface provides an in perpetuity water treatment requirement, and a very likely long term management problem when the plastic liners degrade.	ALT13
7520	The arguments that it will increase water treatment needs if deposited in the East Pit (section 3.2.3 in the SDEIS) and the remaining rock in the West Pit have some level of validity; however, once the Category 1 waste material is submerged, oxidation processes will largely stop, and the water treatment required for the East Pit will be temporarily increased, but over the long term (centuries) the water treatment requirements will be much less, and limit the threat that reactive rock drainage will have on surface and groundwater.	WR035
7534	Treating a huge volume of water to discharge standards using membrane processes is more expensive than moving the previously mined rock out of a pit by conventional methods. In fact, remining of a rock-filled pit is probably more likely than pumping and treating a pit lake full of water.	ALT03
7562	Bonding and long-term water treatment estimates are major environmental issues. No estimates of bonding for reclamation and long-term water treatment and management were provided, and this is a major deficit of the analysis presented in the DSEIS. … Thus, those discussions on the long-term closure costs should have been part of the environmental analysis. These should include the costs for long-term treatment, the cost of repairing the covering on the Category 1 Stockpile (if not put back in the pits), and the replacement/upgrading of the various water treatment facilities every 50-75 years. The discount rate(s) to be used for the estimate of treatment funds should also be included, since the ultimate water treatment and management of the facility will directly depend on the funds that are generated and available in the centuries ahead, assuming that a functioning society still exists.	FIN05, FIN08, FIN13
7574	any passive biological system can[not] reliably allow a walk away solution from any site, for two reasons. First, biological treatment is highly variable, depending on a variety of conditions, including temperature, flow, contaminant load, and treatment objectives. Second, while sulfate concentrations can be reduced, I am not aware of any single passive (no pumping or added reagents) system that is sustainable over the long term. These systems may start out working well, but the treatment efficacy drops off after weeks to months of operating. The available organic reducing sources are simply consumed, and those systems plug rapidly with metal sulfides and microbial mass. The plugging is observed in effectively every completely passive biological system of which I am aware. None of these systems that I have observed can reduce sulfate to under 30 mg/L.	WR137
7581	some of the treated water [from the WWTF] will be used to flood the pits to reduce further sulfide oxidation. This treated water will come from a variety of sources, including the east pit water that has rinsed off acids and metals from the oxidized rock. Thus, it is likely that the sulfate loadings will generally be above 2000 mg/L and potentially much higher. … I was unable to locate any data that indicated that sulfate could be reduced from 2000-3000 mg/L to 250 mg/L using this approach. I seriously doubt that sulfate can be reduced by this amount, and in the absence of any scalable data for a continuous process, the MDNR should assume that it cannot. … So how is the water in the East Pit going to be treated during mining of the West Pit, and how much will be treated during the latter half of mining the West Pit? … The contaminant load in the water in the East Pit will be very high, and a portion of this water is likely to penetrate the pit wall surface and be delivered to groundwater	WR147

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7587	Essentially no mention is made (at least that I could find) of where the thousands of tons of precipitated sludge will be deposited, other than it will be moved offsite. This is a serious deficiency of the SDEIS, since the precipitated sludge is a major component of the water treatment process, and this sludge contains contaminants that are water soluble and will readily leach in the Minnesota climate. At a minimum, the following questions should be answered? a. What is the expected contaminant load in the waste? While this will vary, depending on the type of sludge that is generated, some general description should be required for each type of waste transported off site. b. What is the legal characterization of the waste - will it be accepted by municipal waste repositories? c. How much will be generated each year, and what is the total amount expected over the long-term? d. How will it be transported? e. What specific sites will accept the waste? What is their capacity and what are the design characteristics of those facilities? Are there agreements in place at sites that will accept the sludge waste?	WR145
7595	While [chloride is] not particularly toxic, it will increase the total dissolved solids concentration, and with sulfate (and the associated cation) combined together will present a total dissolved solids concentration that is potentially greater than 300 mg/L. How is chloride being used (calcium chloride or hydrochloric acid) and can it be eliminated?	WR002
7607	Rinsing the East Pit refilled pit is going to be a major problem. To my knowledge, a refilled pit has never been completely rinsed, and will threaten groundwater from the initial period when waste rock is submerged in the East Pit, but even more so when the groundwater table rebounds and the hydrologic gradient towards groundwater is re-established. If water is removed from the base of the refilled pit, treated and released back into the refilled pit, this will indeed reduce concentrations. However, the expectation that the sulfate concentrations will be reduced to less than 250 mg/L is overly optimistic. … At the least, a thorough monitoring plan should be developed that requires collection of water samples at various distances from the refilled pit and at regular time intervals. If the rinsing is unsuccessful, as I expect, and contaminants exceed maximum allowed concentrations, how will the MDNR respond to this groundwater degradation?	WR090, WR147, WR173
7610	While the water collected during the period when the pit is deepened and water pumped to maintain a dry pit, the reference to how the water will be collected is unclear. … If the pit dewatering calculations are incorrect, the volume of water needed to be removed could substantially exceed the capacity of the needs for mining and milling, and would need to be discharged. Sulfate, ammonia and nitrate (as well as other contaminants) could be in higher concentrations than the discharge limits and exceed the capacity of the treatment system to handle the contaminated water. While this possibility is admittedly speculative, the volumes of water that will be pumped appear low, and if the dewatering rate is 2-3 times higher, the water treatment, as proposed, will not be sufficient to manage this water, as well as the volumes indicated in the SDEIS.	WR147, WR176, WR179
7760	Three methods yielded substantially different annual recharge estimates for the study area. Reconstruction of baseflow yielded 7 and 12 cm/y for the Partridge and Embarrass River watershed, respectively. Regional regression yielded the highest values ranging from 24.2 to 30.3 cm/y for the area. The water table fluctuation method yielded about 23 cm/y. Polymet had estimated basinwide (for the Partridge River watershed) recharge to be just over 2 cm/y (Polymet 2013a) or 1.7 cm/y (Barr 2008b) primarily based on the average annual 30-day low flow at the Partridge River above Hoyt Lakes gage for the entire watershed. Barr (2012) broke it down further to 4.6 cm/y for till and 0.9 cm/y for wetland areas, although their maps do not show where they applied these values. The much higher recharge estimates completed herein using three different methods indicates that the recharge estimated by Polymet is too low. Polymet's error was to assume that the entire 67,000 acre basin would be contributing recharge to baseflow during low flow periods at the end of the winter season.	WR003, WR052, WR062, WR165

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7781	The purpose of this [numerical flow] modeling effort is to provide a different independent assessment of flow and transport in the area. It provides an alternative explanation to the modeling proposed by Polymet. In addition to the differences caused by recharge rates, this model differs from those of Polymet by including both the mine site and plant site and the two watersheds in which they lie, the Partridge River and Embarrass River (Figure 1). At the plant site, the model includes estimated seepage from the tailings impoundment. At the mine site, the model simulates pit development including dewatering, backfill, and pit lake development under two scenarios, natural pit lake filling and induced pumpage. … The strategy is to develop a numerical model that accurately represents the flow and transport through the system and compare the conceptualization with Polymet's. Additionally, this model is used to test the effect of varying Polymet's parameter and seepage assumptions.	WR062, WR171
7803	The final SSR was slightly higher than 330, so the MODFLOW-2000 automated calibration decreased the variation by about 13 percent. The mean residual was essentially zero and the scaled standard deviation and absolute mean were 0.04 and 0.03 of the head range of 53.97 m (Table 3 [see full comment letter]). The means by layer cluster near zero. The only tendency observed in the residuals is a slight tendency for the observed groundwater levels to be higher than simulated at higher elevations for all model layers (Figure 12). The simulated groundwater levels and potentiometric surfaces reflect that groundwater flows away from the ridges toward the river discharge points, as expected (Figures 13 through 15 for layers 1 through 3, respectively). There is no obvious spatial trend in the residuals except for a slight under prediction of groundwater level near the Partridge River in layer 1 east of the mine site (Figures 12 through 15). This may have been due to the river being several meters lower than the nearby ground surface.	WR062, WR171
7813	One reason that calibrated K values (Table 2 [see full comment letter]) increased from their starting values could be scale. Model cells represent a much large volume than the pump or core tests used for some of the cited estimates (Schulz-Makuch et al. 1999). A cell would represent a full range of fractures which pass the majority of flow in fractured bedrock. Studies have consistently shown that model parameters can be up to several orders of magnitude higher than other estimates (Schulze-Makuch et al. 1999; Garven 1995; Bredehoeft et al. 1992).	WR062, WR087, WR099, WR171
7838	The model achieved water balance with outflow, to DRAINs and the GHB, being within 0.0026% of the inflow, all of which is by recharge. The discharge from the Embarrass River watershed was about 2% higher than the recharge to that basin because the calibrated groundwater divide was a small distance south of the topographic divide which diverted a small amount of recharge from the Partridge watershed. The Partridge and South Partridge River (reaches 5 and 6) received most of the discharge from the Partridge River watershed (Figure 16 [see full comment letter]) and the Embarrass River (reach 10) had most discharge from that watershed.	WR062, WR171
7946	[The groundwater flow model's] substantive differences with the Polymet modeling are primarily the higher recharge which led to higher bedrock conductivity estimates. The transient calibration used in this model development, but not Polymet's, estimated storage coefficients to be significantly lower than had been used by Polymet. Lower storage coefficients mean that less water will be released for a given change in groundwater levels. If the project involved pumping a set amount, this model would predict more drawdown and more distant impacts. Because the goal of dewatering is to lower the groundwater level to a target level, this model will predict that less water would be removed than as simulated by Polymet. However, the higher bedrock conductivity will draw water from further away thereby expanding a zone of impacts. This could increase the reach from which groundwater discharge to the river will be decreased, thereby increasing the impacts on the river. The higher bedrock conductivity and higher recharge could cause a higher contaminant load to reach the rivers especially through advection. However, higher recharge could dilute the contaminants so that exceedences are rarer. Because of the complexities of the mine site development, it is not possible to have more specific expectations of the differing parameters will affect the model results.	WR062, WR086, WR171
8135	Much of the discharge lost to the [Partridge] river apparently occurs south of the minesite. The recovery (Figure 14 [see full comment letter]) occurs along the path of natural groundwater flow, which is also followed by the contaminants as will be discussed in the next section. The pit naturally begins to overflow, as described above, at about year 87 (from the start of mining, at rim elevation c 480 m amsl) (Figure 12). A long-term surface outflow occurs in about 8 years (year 95 from the start of mining).	WR062, WR086, WR171

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8152	The amount of discharge from the pit lake into bedrock is significant equaling about two-fifths of the flow into the bedrock to the south and about four-fifths of the flow into the bedrock to the west. This reflects the higher bedrock conductivity discussed in Part 1 and calibrated in Part 2 and also indicates that Polymet's (2013c) assumption of extremely low bedrock conductivity may have biased the bedrock flow estimate.	WR009
8165	Variable nearby sources and sinks as found near the mine site complicate the solving of the transport equation. It specifically can cause numerical dispersion and oscillations which can cause the concentration in areas to actually go negative, a physical impossibility (Konikow 2011, Herrara and Valocchi 2006). This does not cause problems with mass balance and the results remain accurate (meaning the solution is not affected by the negative concentrations) away from the affected areas (Konikow 2011), but the simulation of negative concentrations is disconcerting. The primary means of eliminating the problem is to decrease concentration time steps or change the dispersion coefficient.	WR171
8226	There are two primary differences between the modeling completed herein and the proposed project and modeling of that project (Polymet 2013c). First, this model does not simulate the cap on the concentrations which could result if Polymet adequately controls the pH in the East Pit. … The simulated concentration in the East Pit exceeds Polymet's cap by two to three orders of magnitude (Figure 32) but should be considered representative of the SO4 modeled as stored in the pit and not an actual concentration that could be measured in the field. … Second, this model does not simulate pumping from the East Pit which probably allows the overall load in the system to reach the river as in Figure 44. The results should possibly be considered what would happen if Polymet does not actually pump back from the East Pit for up to 38 years (Polymet 2013c) or if it is only marginally effective.	WR171, WR173
8341	The simulations of seepage from the tailings impoundment demonstrate why Polymet (2013d) predicts there will be no increases in load to the Embarrass River caused by their project. Their modeling assumes that their engineering will reduce seepage rates from 1 to 10% of the existing rate. Comparison of the 1/10th and 1/100th seepage rates with the full seepage rate demonstrates just how much less load enters the environment with these assumptions. Assuming that sorption occurs decreases the load to the environment even more. If the seepage controls fail in anyway, the load reaching the river would likely be much higher.	WR018, WR129
8343	The simplistic modeling completed by Polymet (2013d) ignores important transport properties by basing transport through deeper layers only on the lower flow rates. Dispersion into deeper layers will increase the concentrations so that the load flowing toward the river will increase.	WR010
8345	Groundwater levels downgradient from the tails are reduced because of the decreased seepage and will likely negatively affect wetlands.	WR056, WR093
8378	The primary conceptualization difference is the estimated recharge being higher than estimated by Polymet as described in Part 1. Higher recharge rates lead to higher conductivity values as described in Part 2. This model was calibrated to a given rate (Part 2) which cannot be tested in long-term simulations because either extensive drawdown or mounding would result and make the results unrealistic and render any comparison not useful. Qualitatively, higher conductivity allows flow and contaminants to pass faster, the effects of drawdown to spread further, an increased connectivity between surficial and bedrock aquifers, and more dewatering effects on the rivers and possibly the wetlands.	WR003, WR062, WR171
8386	The dewatering predicted by the model developed herein is about twice that predicted by Polymet due to the higher recharge and conductivity. … This model simulates more dewatering effects on the river because it simulates more of a connection between bedrock and surficial aquifer, based on their being more recharge flowing through the system. … Based on the simulation herein, the Partridge River reach above the confluence with the S Partridge River is most at risk from dewatering and that risk continues for years during reclamation and closure if the pit refills naturally. Pumping the pit full (the "with pumping" scenario) allows the discharge to the river to return to pre-mining rates within about 10 years, when the pit is full.	WR171

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8388	A potentially larger difference in flow paths is the delineation between the surficial and bedrock aquifers. Polymet treats them as completely separate but the transport modeling herein allows constituents to disperse vertically among layers because the bedrock herein is more conductive. Groundwater and contaminants may be simulated herein to flow more rapidly and at a higher flux through bedrock that estimated by Polymet.	WR168, WR171
8395	The plume moving north and west from the tails [in the author's model] disperses horizontally more widely than allowed in the Polymet modeling.	WR062, WR171
8396	The general differences between concentrations simulated herein and in the Polymet model are that herein groundwater reaching the river has concentrations that exceed standards after 60 or 80 years whereas Polymet's simulations of SO4 and copper is mostly a horizontal line meaning the project would cause no significant effects.	WR171
8398	Polymet relies on perfect engineering to limit the seepage rates through three waste stockpiles, an ore surge pile, and the tailings impoundment. … Polymet must also pump from the East Pit and treat all of the porewater that has high constituent concentrations; they must prevent essentially all of it from escaping. … While pumping this water, they claim they will keep the backfill submerged to prevent further oxidation. Considering that the required pumpage vastly exceeds the rate required to dewater the pit, this seems infeasible. … Polymet assumes it can work without even presenting a design or model.	WR128, WR173
8400	The simulations showed that SO4 concentrations in portions of the pit did not reach the target for 110 years after the cessation of operations. The efficacy of this pump and treat plan is critical to Polymet's overall project plans but the modeling and discussion herein indicate it will probably not work.	WR089, WR128, WR173
8402	Another major assumption regarding copper (and three other constituents), Polymet assumes that sorption will occur. This essentially prevents all copper loading in the groundwater from reaching the river. Without sorption, as shown above, copper will exceed standards within 60 to 80 years depending on the pit recovery.	WR058, WR167
8406	Polymet's plan to pump water into the West Pit to hasten pit lake recovery causes major differences with a natural pit recovery scheme. Pumping has the effect of changing gradients which cause contaminant loads to reach the river more quickly. Pumping also adds very significant loads to the groundwater system on the west end of the mine site for SO4 (and is the primary source of load for many other constituents because the bulk of the water is from the tailings impoundment). If their many modeling assumptions do not fully manifest or their engineering designs do not work as well as expected, as modeled herein, this load will reach the river and cause the project to exceed many standards.	WR173, WR177
8648	No commitments are made regarding the nature of the soil materials that will comprise the [groundwater containment system] wall, and no details are provided regarding the proposed construction method, other than that the soil material will be compacted.	PD04
8650	it is unclear whether or not a geosynthetic barrier will be used in the [groundwater containment system] wall and, if so, what type of geosynthetic barrier will be used and whether or not the geosynthetic barrier will be used in conjunction with soil (i.e., a composite barrier).	PD04
8651	The absence of such commitments [in the groundwater containment system] and details is problematic, as the options proposed are not commonly employed for long-term containment of contaminated groundwater and do not have a strong track record of success in these applications. The materials and construction method need to be specified and thoroughly described.	PD04

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Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
8653	the phrase "geosynthetic clay barrier" is used in the SDEIS, implying that this barrier would be a geosynthetic clay liner (GCL) rather than a conventional geomembrane. However, there is no readily available evidence in the literature indicating that geosynthetic barriers other than geomembranes have been used in vertical barriers. Also, research indicates that walls containing a geomembrane alone (as opposed to a composite wall containing a geomembrane and a low-permeability, soil-bentonite backfill) are not likely to be effective for controlling underseepage, even if the geomembrane is placed in direct contact with the confining unit at the bottom of the aquifer	PD07, PD15
8654	Compelling evidence needs to be provided that demonstrates the viability of a compacted soil or geosynthetic wall in lieu of the widely used and well proven soil-bentonite slurry trench method. This demonstration should include valid references/web links to relevant case studies and must address the following construction issues: (a) how trench stability will be maintained during construction; (b) how the soil material will be processed and placed to ensure that the wall is homogeneous, meets the design hydraulic conductivity, and is free of high-permeability defects; and (c) how the geosynthetic barrier (presumably a geomembrane), if used, would be installed to ensure the integrity of the panels/interlocks and adequate control of underseepage.	PD07
8658	The maximum allowable hydraulic conductivity of 10-5 cm/s for the cutoff wall is 10 to 100 times higher than the typical hydraulic conductivity requirement for vertical barriers used in long-term hydraulic control or geoenvironmental containment applications (10-6 to 10-7 cm/s...). If constructed at 10-5 cm/s, the wall likely would be ineffective as a long-term barrier unless a sufficient inward head difference is maintained continuously to prevent outward advective transport and adequately reduce outward diffusive flux of miscible contaminants in the groundwater.	PD07, PD15
8660	there does not appear to be a commitment to maintaining a particular minimum gradient at all locations along the wall, and the cross-sectional schematics … indicate that an inward gradient will not be maintained on the south side of the stockpile adjacent to the West Pit. The model simulations also do not appear to consider the possibility that the efficiency of the groundwater collection system could be diminished over time	PD15, WR021, WR133
8662	PolyMet should commit to maintaining a particular magnitude of inward gradient or head difference across the wall, to ensure that the containment system functions as intended based on consideration of both advection and diffusion as viable transport mechanisms for contaminants leached from the waste rock.	PD15, WR021
8663	a soil-bentonite slurry wall, with a maximum hydraulic conductivity no greater than 10-6 cm/s, should be employed for this containment system (as appears to be the case for the vertical barrier to be employed around the tailings basin). A maximum hydraulic conductivity of 10-6 cm/s is a reasonable design criterion for a soil-bentonite backfill, as backfill hydraulic conductivities of 10-6 to 10-8 cm/s are easily achievable for a wide range of native soil compositions.	PD07
8671	The groundwater modeling assumes that no groundwater from outside the containment area will be captured by the containment system … However, there is no indication in the text of the SDEIS or other project documents that the wall will be keyed into the underlying bedrock. Likewise, schematics showing the conceptual cross section of the containment system (i.e., Figures 3.2-11 and 3.2-16 in the SDEIS …) indicate that the wall will not be keyed into the bedrock, but rather will terminate at the top of the bedrock.	WR019
8676	The key is one of the most important aspects of cutoff wall design, and specifications generally call for a minimum depth of key (typically 3 ft, or deeper in fractured bedrock) into the lower confining bed to ensure an adequate seal that minimizes underseepage ... Without a proper key, significant underseepage could occur, either into the containment area or out of the containment area (i.e., at locations where an inward gradient is not maintained). The text and schematics should be revised to reflect an appropriate minimum depth of the key into the bedrock.	PD07, WR019
8677	Although the minimum required thickness of the cutoff wall is not explicitly stated in the text of the SDEIS, the groundwater flow model assumes a wall thickness of five feet. Therefore, the thickness of the constructed wall should be at least five feet. Please confirm.	PD16

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8678	According to the Adaptive Water Management Plan … a minimum surface slope of 1.0 % is proposed for the final cover system. The justification provided for such a flat slope is insufficient. … The surface slope must be sufficient to promote runoff and minimize ponding of water on the cover surface, thereby minimizing infiltration.	PD04
8679	It is unlikely that a loosely compacted vegetation layer can be sloped uniformly at 1 % without creating areas where ponding will occur. Indeed, solid waste landfill covers typically are designed to have a minimum inclination of 2 to 5 %, after accounting for settlement …, to promote runoff and minimize ponding … Based on this consideration, the minimum cover slope should be at least 2 %.	PD04
8680	Also, monitoring and maintenance provisions should be included in the closure plan to repair localized areas of grade reversal or subsidence.	PD09, PD35
8683	PolyMet should commit to (a) maintaining a particular magnitude of inward gradient or head difference across the [TB groundwater containment system] wall, to ensure that the containment system functions as intended based on consideration of both advection and diffusion as viable transport mechanisms for contaminants released from the tailings, and (b) establishing a minimum depth of the key into the underlying bedrock. Regarding the latter, there is a mention in the SDEIS that the wall will be keyed into bedrock, but the minimum depth of the key is not specified. Also, schematics in the SDEIS and … indicate that the wall will be constructed to the top of the bedrock, but will not penetrate into the bedrock.	PD07, WR019, WR021
8684	According to Attachment C of [Water Management Plan - Plant], a thickness of one foot was specified for the slurry wall in the groundwater flow model simulations. While a thickness of one foot is conservative from a modeling standpoint, a wall this thin will be too difficult to construct and backfill properly	PD08, WR019
8686	Thus, in addition to being imprudent from a technical standpoint, construction of a 1-ftthick wall likely would not result in significant cost savings relative to a 3-ft-thick wall. As such, a wall thickness of three feet is highly recommended, which would be consistent with conventional practice and provide a factor of safety from a groundwater flow perspective.	PD07, WR019
8688	There appear to be inconsistencies between the SDEIS and [Flotation Tailings Management Plan] regarding the thickness and embedded depth of the bentonite-amended layers to be installed on the dam raises. According to page 5-162 of the SDEIS, PolyMet proposes to cover the embankments with a 12-inch-thick bentonite-amended soil layer, followed by an 18-inch-thick vegetated soil cover. However, page 33 of [Flotation Tailings Management Plan] states that the bentonite-amended layer will be 18 inches thick and overlain by a 30-inch vegetated layer. These differences need to be resolved.	PD07
8690	The design criteria for the bentonite-amended layers need to be defined. For example, what design hydraulic conductivity and moisture retention characteristics will be required for these layers to function effectively as oxygen and water infiltration barriers?	PD07
8691	The likelihood that a uniform barrier with low hydraulic conductivity could be created by amending predominantly coarse tailings with only 3 % granular bentonite is small, as many of the flow paths within the barrier will likely be devoid of bentonite. … Bench-scale tests need to be performed using materials with gradations representative of those anticipated for the bentonite-amended layers to determine the percentage of bentonite required to meet the relevant design criteria	PD07
8694	On page 5-162 of the SDEIS, the text states that the objective of the two-layer cover systems is to maintain the bentonite-amended layer at or above 90 percent saturation so that the layer would operate as an effective oxygen barrier. However, no evidence is presented in [Flotation Tailings Management Plan] to show that a saturation = 90% would be maintained in this layer over the long term. Unsaturated flow modeling is needed to evaluate the potential for changes in saturation of the bentonite-amended layers over time.	PD07, PD08

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8696	In addition to evaluating the potential for loss of saturation, PolyMet needs to address the potential for the hydraulic and moisture retention properties of the bentonite-amended soil layers to change over time due to development of soil structure caused by wet-dry cycling and other pedogenic processes, most notably freeze-thaw cycling and plant root penetration. Root penetration likely will occur after some period of time, and there is no evidence provided to support the suggestion by PolyMet in [Flotation Tailings Management Plan] that adding 3 % granular bentonite will provide adequate protection against root penetration. Likewise, there is no evidence provided to indicate that an 18-inch (or even 30-inch) vegetated layer will provide adequate protection against freeze-thaw cycling.	PD08
8697	What field performance benchmarks and associated monitoring methods will be employed to demonstrate that the bentonite-amended layers function as intended over time?	PD09
8700	Three possible methods are proposed for creating a bentonite seal at the bottom of the tailings pond, viz. (1) subaqueous broadcasting of bentonite pellets or bentonite-coated sand; (2) in-situ mixing (with bentonite injection) from a barge; and (3) subaqueous placement of a GCL. … these proposed options are, at best, experimental. Although it is noted that PolyMet proposes a field demonstration to prove the efficacy of the chosen method, case-study evidence should be provided to indicate that these methods (particularly the broadcasting and in-situ mixing methods) have been implemented successfully on similar projects.	PD07
8702	PolyMet should explain why alternatives that involve draining the pond prior to installation of the bottom seal are not being considered as potentially more prudent options relative to the subaqueous installation methods.	ALT10, ALT13
8704	The GCL hydraulic conductivity reported by the manufacturer should not be assumed to be representative of the field hydraulic conductivity. If a GCL is to be placed on the tailings pond bottom, the selected GCL should be subjected to laboratory testing (ASTM D6766) with the pond water to determine the expected hydraulic conductivity in the field. Likewise, the hydraulic conductivity of a broadcast bentonite layer or in-situ mixed bentonite layer to the pond water should be verified by laboratory or field testing.	PD07
8710	The values of compression index (Cc) and swell index (Cs) for the LTVSMC tailings, peat, and residue that were used to determine the analogous parameters ? and ? for the MCC model do not appear to have been reported in the SDEIS or the relevant data package [Geotechnical Data Package – Vol 2]. Please report these values along with the calculations producing the values of ? and ? for these materials as given in Table 4.2 of [Geotechnical Data Package – Vol 2]. The values ? = 0.05 and ? = 0.01 seem too low for fine tailings and slimes.	GT13
8714	According to the SDEIS and [Geotechnical Data Package – Vol 2], the settlement analysis for the subgrade yielded a maximum strain of 0.20 % in the liner system. However, the LTVSMC tailings appear to have been modeled in the settlement analysis as homogeneous, with a single value of ? and ? used in the analysis for the tailings and slimes. The assumption of homogeneity needs to be further justified. While this assumption may yield conservative estimates of total settlement, it is not clear that this approach would yield conservative values of differential settlement and strain in the geosynthetic layers.	GT11, GT12
8722	Consolidation test results for the LTVSMC tailings do not appear to have been included in [Geotechnical Data Package – Vol 2]. How many consolidation tests have been performed on the tailings/slimes? Have multiple consolidation tests been performed on samples collected at various locations and depths within the footprint of the proposed disposal facility? If so, how much variability in the compressibility parameters is evident? Have any analyses been performed to demonstrate that material variability in the tailings does not lead to greater differential settlement and strain in the liner?	GT11, GT12
8724	The potential for spreading and separation of the GCL panel overlaps due to the anticipated settlement of the subgrade and elongation of the liner needs to be addressed in the geotechnical analysis.	GT10, GT12

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
8727	The computed factors of safety presented in the SDEIS for slope stability along the interfaces of the various liner system components for the HRF (Table 5.2.14-5, page 5-576) are based on values of interface friction angle reported in the literature. Citations and references for the sources in which these values are reported should be provided.	GT12
8730	Also, although PolyMet proposes project-specific interface shear testing if the anticipated material types change, geosynthetic-geosynthetic and geosynthetic-soil interface friction angles vary among different geosynthetic products of the same type. Site-specific and material specific tests should be performed for final design	GT10, GT12
8734	A slope "on the order of 1.0 percent" is proposed for the top of the cover system [Residue Management Plan]. As mentioned previously for the Category 1 waste rock stockpile cover (see Comment 5 above), landfill covers typically are designed to have a minimum inclination of 2 to 5 %, after accounting for settlement, to minimize ponding while also promoting runoff and minimizing erosion … A minimum cover slope of least 2 %, after accounting for residue settlement caused by placement of the gradefill and cover, is recommended.	GT04
8742	PolyMet should commit to employing a rigorous CQA [Construction Quality Assurance] program that includes continuous observation during installation, nondestructive testing of all seams, periodic collection and testing of seam samples for shear and peel strength, and elimination of wrinkles. In addition to the routine CQA practices … electrical leak detection should be considered as part of the CQA program for the geomembrane installations.	GT10, GT12
8748	PolyMet should commit to employing a rigorous CQA [Construction Quality Assurance] program for geomembrane installation that includes continuous observation during installation, nondestructive testing of all seams, periodic collection and testing of seam samples for shear and peel strength, elimination of wrinkles, and possibly electrical leak detection (highly recommended…). Otherwise, the predicted leakage rates, which are based on a 90th percentile frequency of only 4 defects per acre, may grossly underestimate the true leakage through the liners.	GT10, GT12
8750	There do not appear to be any provisions in the liner design to protect against puncture of the geomembrane in the liner system. Will any restrictions be imposed on the maximum size and angularity of the drainage layer material (proposed to be crushed rock or gravel) or soil liner material? Such restrictions should be considered, along with installation of a cushion geotextile between the geomembrane and drainage layer, to minimize the potential for defects created after the geomembrane is covered	PD07, PD15
8752	Although PolyMet is correct that the composite liner systems proposed for these stockpiles are similar to those used for modern heap leach facilities, a maximum hydraulic conductivity of 10-6 cm/s is generally recommended for the compacted soil component of heap leach pad liners … While this is indeed the case for the Category 4 stockpile, a maximum hydraulic conductivity of 10-5 cm/s is prescribed for the Category 2/3 stockpile liner. This difference in the two designs seems arbitrary and is not well justified.	GT10
11587	[Request 30-day extension of comment period]…I am emailing you with a big concern about our attempts to get geochemistry leachate data and other relevant water data from the MN DNR regarding PolyMet. I am hoping you might work with Brenda to urge the MN DNR to grant a 30-day extension to the comment period, and that the DNR would be encouraged to fully share the data that has been requested repeatedly	NEPA07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Boundary Waters (42984)	
11592	]Requesting 30 day extension to comment period] MCEA requested technical documents of the DNR were not provided in a timely fashion. The first document: "Wetland Impact Assessment Technical Memorandum - Appendix B" was requested from the DNR on January 23, 2014. MCEA did not receive a copy of it until February 24, 2014. This technical memo was the sole basis for the sensitivity analysis that determined the extent of the potential indirect wetland impacts that could occur as a result of groundwater drawdown.... The second document, PolyMet 2013k, was cited 14 times in Chapter 5 of the SDEIS and should have been included on the SDEIS reference disk but was not. This document provided data on potential indirect impacts that may occur as a result of the augmentation of Second Creek. MCEA requested the data from the DNR on February 20, 2104, and received it on February 24, 2014. The delay in receiving these documents resulted in delays to our technical expert's review of the information.	NEPA07
11598	MCEA made several requests for [geochemistry leacheate] documents that were cited in reference documents. The path has finally led to documents from 2007, which MCEA requested. The database MCEA received this week is incomplete and has many empty cells in the Excel spreadsheet. Many of the missing cells appear that they would have contained leachate concentrations above water quality standards. For example, a plot of nickel concentrations in one document shows a great many samples of test pile leachate to be above the 10 mg/L for Ni. But in the database that accompanied it, only six samples with concentrations above that limit are shown. Most of the entries in the database are filled with "#N/A." It seems odd that the higher values for Nickel are missing. This occurs for many constituents - not just Nickel. We still need a database with all the entries included.	WR071
11604	[Requesting more time to review] MCEA and Friends of the Boundary Water Wilderness have hired experts to support review of documents. Issue with the SDEIS because the information used to analyze the geochemistry of the project has changed in significant ways over time. Some of the changes have included changing the approach to characterizing the waste, the inputs to the water quality model, and grouping and cutoff values for reactive waste. When the data were finally received, the concentrations were in 89 individual spreadsheets rather than in a single database which would have facilitated the separation of the samples according to waste category.	NEPA07
11608	our experts have identified a significant mitigation measure that is discussed in the Water Modeling documents but referred to only obliquely and with no details in the SDEIS (pg. 5-102). The proposal includes pumping water from the East Pit backfill for treatment in the WWTF. PolyMet proposes pumping water at 1750 gpm during years 22-31. Not only is 1750 gpm a large volume of water to be treated, it may imperil the ability of the East Pit to remain saturated. If the East Pit is not saturated, it no longer offers the benefits of subaqueous disposal. Pumping this volume of water from the pit may risk exposing it to air, causing reactivity. This proposal appears to be critical to the reclamation plan, but it is not explained, analyzed, or presented in the SDEIS. Our experts need time to evaluate if this proposal is feasible.	WR088
14295	Overall, the long term stability of the waste rock deposited in the pits and covered with water is a much lower long-term risk that leaving it on the surface with a plastic sheet over it.	ALT06, ALT07
Sender Name (Submission ID)	Friends of the Cloquet Valley State Forest (42926)	
9677	Friends of the Cloquet Valley State Forest requests that Minnesota Department of Natural Resources (DNR) reject the Supplemental Draft Environmental Impact Statement (SDEIS) for the NorthMet Mining Project, it is incomplete and inadequate.	NEPA15
9682	Nanofibers, including asbestos like ultrafine particles, will be generated during mine blasting and will be moved through transportation of materials and during their storage into the air.	AIR03
9684	The particles [asbestos like ultrafine particles] pose a threat to health.	HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Cloquet Valley State Forest (42926)	
9688	The St. Louis River has more mercury than is acceptable, and both mercury and sulfide, capable of making the mercury more bioavailable will be added to the river as a result of this project.	MERC18
9701	Already "Contaminant levels in fish exceed state standards for mercury and polychlorinated biphenyls in Minnesota and Wisconsin at levels greater than other areas due to legacy contaminants, it is an area of concern due to elevated mercury. " (Philippe Grandjean, available in PMC Jan 1, 2012.)	MERC02, REF01
9703	This project [NorthMet] would allow more [mercury] contamination to go into at least one river which is a tributary of the St. Louis River and that is unacceptable.	MERC23
9705	There will be measurable economic benefit lost to the region, state, nation and world by harm done to humans from waste that will be produced by this project, negating its value to society.	SO01
9715	In particular the Fond du Lac Tribe located at the Fond du Lac Reservation will experience greater impact due to the fact that the residents there rely on the fish from the St. Louis River.	AQ05
9716	Additionally there is risk that the wild rice not only is harmed in its growth by sulfates, but that it holds heavy metals and can pass them on to those who eat the rice.	VEG04
9717	Small amounts of mercury can be very harmful. " Loss of cognitive skills reduces children's academic and economic attainments and has substantial long-term economic effects on societies. Thus, each loss of one IQ point has been estimated to decrease average lifetime earnings capacity by about €12 000 or US$18 000 in 2008 currencies."	MERC03
9719	Land Exchange – the exchange proposed is being undertaken to allow uses the deed specifically bars and which would be illegal under the laws as they exist today without the exchange.	LAN02
9720	The [land] exchange serves one purpose – to allow a forbidden use which use will be harmful to the forest and to the people and to the State and Nation.	LAN02
9723	The Forest Service acquired the lands which PolyMet wants to strip mine under the Weeks Act which the Forest Service publicly described in this manner in 2011.	NEPA03
9725	The deed (attached) specifies that the land may be mined but that it must be left relatively intact and that all mine waste must be removed within 6 months.	REF01
9726	The Forest Service has proposed a land exchange which will strip the applicable laws away and make the lands vulnerable to strip mining.	LAN02
9731	The headwater streams will be harmed, the forest will be harmed and the residents, animals and plants endangered by this project.	GEN01
9732	It is not in the best interests of the forest or Minnesota or the people of the US or even the Forest Service to allow this land exchange.	LAN01
9735	Ultimate use of the PolyMet project site differs from what is proposed in this EIS, it is widely discussed in the press and in investment materials that PolyMet plans to expand their operation shortly after being permitted.	PD30

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Friends of the Cloquet Valley State Forest (42926)	
9737	Other mines have indicated their intent to utilize the Polymet plant and or the nearby area, including Twin Metals which identifies plans to put waste not far from Polymet, south of the Laurentian Divide in the Lake Superior Watershed, in their planned mining project.	CU02
9738	Additionally it has become clear that there is a need for a comprehensive review of economic development in the Arrowhead with planning that includes the voices of the citizens is called for , with an that involves the communities and assessment of cumulative economic, social and ecosystem impacts.	SO04
9743	Much of the project will generate enormous amounts of pollution and PolyMet plans to use various methods to capture the pollution and to repair the damage it does, yet its business plan doesn’t show where it will get the money to do so.	FIN01
18718	we request that the United States Army Corps of Engineers deny the Section 404 permit due to the unacceptable adverse impacts to thousands of acres of wetlands	COE03
18721	This project would allow more [mercury] contamination to go into at least one river which is a tributary of the St. Louis River and that is unacceptable.	MERC23
18723	There will be measurable economic benefit lost to the region, state, nation and world by harm done to humans from waste that will be produced by this project, negating its value to society.	SO02
18724	the Fond du Lac Tribe located at the Fond du Lac Reservation will experience greater impact due to the fact that the residents there rely on the fish from the St. Louis River. Additionally there is risk that the wild rice not only is harmed in its growth by sulfates, but that it holds heavy metals and can pass them on to those who eat the rice.	SO02
18725	the exchange proposed is being undertaken to allow uses the deed specifically bars and which would be illegal under the laws as they exist today without the exchange. The exchange serves one purpose- to allow a forbidden use which use will be harmful to the forest and to the people and to the State and Nation.	LAN02
18726	The Forest Service acquired the lands which PolyMet wants to strip mine under the Weeks Act which the Forest Service publicly described in this manner in 2011. The deed (attached) specifies that the land may be mined but that it must be left relatively intact and that all mine waste must be removed within 6months. The Forest Service has proposed a land exchange which will strip the applicable laws away and make the lands vulnerable to strip mining. This was not why the US bought the land and it should not be allowed to happen.	LAN02
18728	Ultimate use of the PolyMet project site differs from what is proposed in this EIS, it is widely discussed in the press and in investment materials that PolyMet plans to expand their operation shortly after being permitted.	PD30
18731	Much of the project will generate enormous amounts of pollution and PolyMet plans to use various methods to capture the pollution and to repair the damage it does, yet its business plan doesn't show where it will get the money to do so.	FIN01
18738	Either the project includes the enormously costly water treatment andthat treatment's energy demands must be accounted for along with all the other costs or the plan doesn't include the water treatment and the pollution the project will generate should be calculated without it.	FIN05
18739	How can a project that would not even consider underground mining because it is not a financially viable option take on an enormously expensive treatment means without showing that is possible.	ALT01
Sender Name (Submission ID)	Front Desk (17365)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Front Desk (17365)	
1973	I implore you to take a stand, against allowing the mining companies, anywhere near, any waterway, tributary, steam connected to or running into a Boundary Water Area Lake Or Waterway.	WR111, WR195
2099	The residue left behind by copper mining seeps into the water, kills plant life, fish and wildlife.	VEG06
Sender Name (Submission ID)	Gabe Ernst (43803)	
11815	The amount of damage that this will to the watersheds and their associated recreation and tourism does not add to a good decision to bring a mine here.	LU06
11817	Please push back against this corporate interest that will inevitably lead to further poverty in our region just like the last time mining collapsed. We have moved beyond this economically and there is no reason to regress back again.	SO02
Sender Name (Submission ID)	Gael Zembal (15406)	
618	Based on the assumptions and unscientific data in the SDEIS regarding water quality and pollutants, I am urging a rejection of this plan.	WR025, WR072, WR073, WR189
622	[This project] is a type of mining that is completely different from the taconite mining conducted in northern Minnesota. Therefore, any comparisons made between these two types of mining should not be used in the analysis.	PD27
624	Of most concern however, is the inaccurate models used in the SDEIS to calculate groundwater base flow. … The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump.	PD29, WR003, WR010, WR012, WR061, WR165, WR168
628	Though the SDEIS proposes reclamation of affected wetlands, the formation of peat, which can take decades, is not mentioned. There is also no plan to account for the 7,351 acres of wetlands that would be indirectly harmed by this operation.	WET01, WET05
629	PolyMet's predictions of water pollution rely on unsubstantiated assumptions that no pollution will seep from the 526-acre permanent mine site waste rock pile into the 100 Mile Swamp, and that pumps on the edge of the 2-mile-wide tailings pile will capture 99.37 percent of the seepage.	PD29, WR017
631	The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no real-world support, and should not be used to promote this plan.	PD07, WR018
635	The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions and inaccurate information.	WR189, WR202
636	This project would violate water quality standards for generations to come.	PER09
1894	Please reject the PolyMet NorthMet SDEIS as inadequate, and acknowledge that the open-pit sulfide mine plan would have unacceptable and far reaching environmental impacts.	NEPA09
1896	Please reject the SDEIS on the basis of unacceptable environmental damage to wetlands and water quality in northern Minnesota.	NEPA09, WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gael Zembal (15406)	
12763	Of most concern however, is the inaccurate models used in the SDEIS to calculate groundwater base flow. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump.	WR003, WR012
12764	The mine site is located on high value peatlands that cannot be replaced. Though the SDEIS proposes reclamation of affected wetlands, the formation of peat, which can take decades, is not mentioned. There is also no plan to account for the 7,351 acres of wetlands that would be indirectly harmed by this operation.	WET01, WET05
12765	PolyMet's predictions of water pollution rely on unsubstantiated assumptions that no pollution will seep from the 526-acre permanent mine site waste rock pile into the 100 Mile Swamp, and that pumps on the edge of the 2-mile-wide tailings pile will capture 99.37 percent of the seepage. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no real-world support, and should not be used to promote this plan.	WR018, WR167
Sender Name (Submission ID)	Gaelynn Lea (5933)	
1929	I also believe that it is our duty to alleviate suffering whenever possible, in this case, suffering from the future harm and disease caused by toxins that will almost certainly be released by this proposed PolyMet mine.	PD01
1930	We loan PolyMet our land for 20 years, less than one generation's time, and they will leave it polluted for 500 years? That means over 16 generations of future Minnesotans would be affected by pollution caused by the PolyMet Mine!	WR037, WR195
1931	Mining by-products such as arsenic, manganese and thallium, have been shown to increase the risk of cancer and other illnesses in humans. Make no mistake, there WILL be disease created by this mine.	HU03
1932	Experts who have studied other mining projects across the country said even those that start with financial safeguards can end up costing taxpayers millions of dollars. … Another study says that water treatment would cost between $3.5 and $6 million per year after the mine closes. Northern Minnesota cannot afford to foot that bill. Not for one year, not for 500 years.	FIN10
1933	Maurices is soon expanding its corporate office, and they're slotted to create 600 jobs right here in Duluth. PolyMet will only create 360 full-time jobs, with HUGE liabilities attached. Let's focus on industries with less risk and more jobs.	SO02
Sender Name (Submission ID)	GaiaTrading (20110)	
15013	long term consequences presently unknown.	GEN01
Sender Name (Submission ID)	Gail Gilliland (21539)	
1282	In the information I have gleaned from the SDEIS for the Polymet project, I do not see a clear protection of wetlands. The destruction of large acreage on the site plus the water table drawdown will have a negative impact on the ecosystem.	WET10, WET23
Sender Name (Submission ID)	Gail Gray (26481)	
15248	The federal land give-away to a mining company is not in the public's interest, it is not in the interest of wildlife, it is not in the interest of keeping our Great Lakes clean and fresh.	LAN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gail J. Harty (6215)	
1057	It would be short term financial gain for a relative few, compared to the long term gain, on several levels, for countless individuals and businesses for the countless generations to come	SO01
Sender Name (Submission ID)	Gail Jacobson (40090)	
6454	Please take the following actions:1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action	ALT01, ALT03, ALT06
Sender Name (Submission ID)	Gail Matthews (11591)	
2250	They [mining companies] came in with lots of money to push their agenda, convince people they will do no harm, but they always leave when the mines dry up and they leave a big mess for others to clean up.	FIN01
2250	They [mining companies] came in with lots of money to push their agenda, convince people they will do no harm, but they always leave when the mines dry up and they leave a big mess for others to clean up.	FIN01
3251	hey will destroy our water, our land, our recreational areas, and the jobs will be short term, causing another economic depression when they leave. Our environment is more important than profits for a few.	SO01
3251	hey will destroy our water, our land, our recreational areas, and the jobs will be short term, causing another economic depression when they leave. Our environment is more important than profits for a few.	SO01
Sender Name (Submission ID)	Gail Roberts (54491)	
18040	The short-term financial gain of a Canadian mining company should not trump the long-term stake that all of us have in protecting our natural resources for future generations.	SO01
18041	The proposed PolyMet/NorthMet project would take over 6,700 acres of public land in the Superior National Forest. Although the SDEIS provides an analysis of the land exchange it does not acknowledge the full impact on tribal rights, plant and animal habitat, and public assets.	WILD01
18043	The area of the proposed mining project is home to several endangeredor threatened animal and plant species and also provides a natural corridor for birds and other forms of wildlife from the south of Lake Superior to the areas north and beyond.	VEG01, WI01, WI03
18045	The construction of the mine will destroy thousands of acres of wetlands, mainly high quality bogs that provide habitat for a number of species and also purify the water, regulate the water flow and sequester carbon, which reduces climate change.	WET13
18047	The discharges from the mine pit and waste rock piles, seepages from the tailings basin and overflow from the uncovered flooded mine pit after closure are likely to pollute local ground water and water in the Partridge and Embarrass Rivers as well as downstream in the St. Louis River which empties into Lake Superior.	WR107, WR108, WR111
18050	Sulfate, manganese, and aluminum discharges from the existing LTV tailings are already in serious violation of water quality standards.	WR109

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gail Roberts (54491)	
18052	The acidity in the discharges and seepages will reduce the viability of wild rice beds that are downstream and that are used by Native Americans as well as being an important source of food for waterfowL	CR01
18054	The PolyMet/NorthMet project will lead to increased acidity of streams and rivers, especially the Partridge River which flows into the St. Louis River. (…) The acidity leads to increased methylation of mercury, which is known to harm fish, and other aquatic forms of life. This will lead to increased fish consumption advisories and have a direct impact on fishing, recreational opportunities, tourism, treaty rights and human health.	WR113
18056	Several endangered or threatened species will be impacted by this project including but not limited to the wood turtle, black sand shell mussel and the floating marsh marigold. The project is proposed to be located in habitat currently inhabited by Canada lynx, a threatened species, and moose, a species of special concern.	VEG01, WI01
18058	The proposed PolyMet/NorthMet project would impact thousands of acres of forest and wetlands that will not be available for other uses for generations even with reclamation.	LU06
18059	Serious contamination of the ground and water due to acid rock and mine drainage will impact areas far removed from the mine and tailings basin sites. After closure the flooded mine pit will be a large body of water butwill not be available for any recreational purpose and will be harmful to waterfowl that land there.	WR141
18060	The economic benefit of this project has been over-estimated by PolyMet and its promoters because the short-term gain of 200 to 400 jobs has to be balanced against the loss of jobs and revenue for the state from recreation, tourism and related activities over a much longer period of time.	SO01
18062	The SDEIS does not provide specifics regarding financial assurances from PolyMet.	FIN01, FIN08
18064	PolyMet has yet to provide a scientifically-valid plan to mitigate the disasterous long-term environmental effects of their proposed sulfide mining project.	NEPA14
18512	Although the SDEIS provides an analysis of the land exchange it does not acknowledge the full impact on tribal rights, plant and animal habitat, and public assets.	CR01
18514	The proposed replacement wetlands are not of comparable quality and are not even in the same St. Louis River watershed.	LAN03
18516	The scattered parcels of land being proposed as an exchange are not an adequate replacement for the high-quality habitat that would be lost.	WI02
18518	The discharges from the mine pit and waste rock piles, seepages from the tailings basin and overflow from the uncovered flooded mine pit after closure are likely to pollute local ground water and water in the Partridge and Embarrass Rivers as well as downstream in the St. Louis River which empties into Lake Superior.	WR107, WR108, WR111
18523	The surface aquifers to the north of the tailings basin are already saturated bycontaminated water from the old LTV tailings. This means that there will be little or no dilution of the polluted groundwater from additional rainwater and that more polluted water will be added to the same area by putting PolyMet’s tailing slurry on top of the old LTV tailings.	WR059
18525	Sulfate, manganese, and aluminum discharges from the existing LTV tailings are already in serious violation of water quality standards. PolyMet claims that the discharges of these known pollutants from their tailings will be removed through as yet untested methods in a project of this size and duration.	PD10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gail Roberts (54491)	
18531	The acidity in the discharges and seepages will reduce the viability of wild rice beds that are downstream and that are used by Native Americans as well as being an important source of food for waterfowl. This pollution will continue for decades and even hundreds of years as now acknowledged in the current Poly Met/North Met SDEIS. The Department of Natural Resources should not allow the mining companies to evade their responsibilities for clean water resouces in this way.	CR01
18537	The acidity [from leaching of rock in the mine pits] leads to increased methylation of mercury, which is known to harm fish, and other aquatic forms of life. This will lead to increased fish consumption advisories and have a direct impact on fishing, recreational opportunities, tourism, treaty rights and human health.	CR01
18540	Because the area of the proposed open pit mining operation is much larger than what would be required for an underground mine, much more wildlife habitat would be destroyed for the project as proposed.	WI02, WI10
18593	Endangered, threatened and protected species must be conserved. The impact of the proposed PolyMet project on fish and wildlife populations is not acceptable.	AQ05
18597	The proposed PolyMet/NorthMet project would impact thousands of acres of forest and wetlands that will not be available for other uses for generations even with reclamation.	LU06
18598	The economic benefit of this project has been over-estimated by PolyMet and its promoters because the short-term gain of 200 to 400 jobs has to be balanced against the loss of jobs and revenue for the state from recreation, tourism and related activities over a much longer period of time.	SO02
18599	A foreign corporation should not be allowed to extract Minnesota's natural resource, send it overseas for production and leave Minnesota taxpayers with the pollution, waste and long-term expense of reclamation and cleanup.	SO02
18601	The SDEIS does not provide specifics regarding financial assurances from PolyMet.	FIN08
18603	PolyMet's assests and resources do not appear adequate for the estimated $200 million or more that would be needed for cleanup and remediation over the next decades, let alone over the next 500 years.	FIN01
18604	Minnesota's financial assurance statutes must be strengthened to protect taxpayers and citizens of the state.	FIN10, FIN14
18607	Despite the opportunity to re-do the DEIS and the three years of additional work and considerable expense, PolyMet has yet to provide a scientifically-valid plan to mitigate the disasterous long-term environmental effects of their proposed sulfide mining project.	PD01
18610	A Health Impact Asssessmen (HIA) should be conducted on a project of this magnitude with such serious long-term health effects.	HU01
Sender Name (Submission ID)	Gail Rosenquist (50059)	
13014	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Gale Havrilla (40492)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gale Havrilla (40492)	
14312	I live near Silver Bay and a number of the once fishable streams have been reduced to fowl smelling drainage ditches void of the once healthy aquatic system due to leachate from the taconite settling ponds. I fish the St. Louis River and Lake Superior and do not want to see additional pollution entering them.	AQ06, WR113
14313	2/3 of North Shore children have already been shown to have harmful [mercury] levels in their systems. The problem should not knowingly be allowed to worsen.	MERC03
Sender Name (Submission ID)	Galiena Anderson-Lind (49987)	
12989	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Garret T Wright (44963)	
17126	I'm afraid if another region mines these minerals, tight restrictions, regulation and watchdogs will be less existent in those regions – resulting in a greater risk for environmental loss, employee exploitation, business mis-management. If these precious metals are mined in Minnesota, a very strident-progressive state; the commonwealth would keep a close watch on the company PolyMet which will pressurize them into making responsible business decisions when it comes to preserving the environment.	SO10
Sender Name (Submission ID)	Garrett Ferderber (22744)	
12481	I would like to know that the people of Minnesota actually stand to gain more than a polluted hole in the ground in the long term and that our leaders are fulfilling their obligations to our future and not acting irresponsibly for short term gain.	GEN01
12860	I would like to hear relatively easy to understand information about how the NorthMet site is or is not actually proceeding in accordance with state and federal laws.	PER06
Sender Name (Submission ID)	Garrett Labarre (15536)	
728	I can see how the copper mining would be good, but it could end up polluting the Great Lakes and possibly kill many aquatic animals.	AQ05
729	[Copper mining] also could take over 500 year to clean up the mess.	WR189
730	It is also possible that [copper mining] could pollute the Boundary Waters area, where many people love to fish and vacation. If the fish get polluted and then are caught and eaten, could it be a threat to the people eating the polluted fish?	HU01
731	I realize that mining could provide jobs and produce the state a lot of money. The mining could provide the needy, jobless and help many families in the area.	SO10
732	When sulfide ores are exposed to air and water, sulfuric acid is made, which causes the leaching of potentially toxic heavy metals and the release of sulfates.	WR001
733	If acid mine drainage and sulfate contamination are not properly controlled at these mines, the damage to fish and wildlife, and possibly human health, in Lake Superior will likely be irreversible.	WI04, WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Garry Budolfson (10417)	
542	YOU SHOW NO DATA FOR A EPIC RAIN EVENT.	PD22
Sender Name (Submission ID)	Garry Leaf (58121)	
19944	Minnesota has some of the most responsible environmental permitting standards in the United States. They are far better than so many places in the world, where these critical metals, like copper and nickel, are currently coming from	GEN02, PER34
Sender Name (Submission ID)	GARY (3234)	
196	Moreover, the cost of treatment for 500 years cannot be calculated with any reasonable certainty. How can we expect a company, or a bonding company, or even a state held escrow fund to be available in 500 years.	FIN01, FIN05
585	The expected contamination and water treatment requirement for 500 years cannot be seen as a reasonable trade- off for jobs, and even prosperity, for only 20 years.	SO01
587	How can we expect a company, or a bonding company, or even a state held escrow fund to be available in 500 years.	FIN01
Sender Name (Submission ID)	Gary & Lois Travis (36628)	
3819	So much death will occur if the nearby waters are poisoned or the surrounding land is poisoned, how can you repair or replace that.	GEN01
Sender Name (Submission ID)	Gary Anderson (46956)	
10799	PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act!... The "compensation" wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact….• Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses.• Deny the PolyMet Section 404 permit unless all “compensation” mitigation for wetlands is provided within the Lake Superior Basin.	COE01, COE02, WET01, WET03, WET19, WET23
10800	Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species.	WI02
10802	Wetlands at the PolyMet mine site also bind up mercury, so it doesn’t get into downstream fish and harm the brain development of our children who eat St. Louis River and Lake Superior fish.	MERC09
10804	Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance….Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance.• Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS.	WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gary Anderson (46956)	
10805	• Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions.	COE03
10807	The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. …The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed…. Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered:1. Underground mining, looking at the full ore deposit and PolyMet's real costs;2. Putting a liner under the Category 1 waste rock stockpile;3. Placing all tailings on a new completely lined facility;4. Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres;5. Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands.	ALT01, ALT06, ALT07, ALT10
Sender Name (Submission ID)	Gary Boelhower (44854)	
10141	wetlands [affected by the proposed Project] are irreplaceable…The significant function that the wetlands play in this region would be lost to both plant life, animal life, and the natural processes related to purification, sedimentation, and natural water regulation.	WET24
10143	[Polymet's] plan to purify the water is inadequate. Reverse osmosis systems need to be significantly expanded. It is ridiculous to make the assumption that there will not be significant leakage and seepage in several directions.	WR143
10150	With the immense amount of blasting in the area, it is likely that significant rock fractures will occur. PolyMet has not substantiated its claims that nearly all seepage could be captured by pumps at one end of the 2-mile wide tailings basin. Fractures already known to exist at the PolyMet mine and plant site would transport pollution. There is geological evidence to suggest that seepage must be treated in several locations, and there must be back-up systems in the event of failure.	WR010, WR012, WR016, WR018, WR090, WR144
10154	The PolyMet project would degrade Minnesota surface water quality, increasing arsenic by 55% and copper by two-thirds; more than doubling concentrations of lead, antimony and selenium, and increasing levels of cobalt to 300% and nickel to 500% of "no action" levels. These effects are unacceptable.	WR108
14171	[The] old LTV basin already violates water quality standards. The SDEIS does not adequately address leach out from this basin.	WR070, WR105
14173	PolyMet's 526-acre permanent, unlined Category 1 waste rock pile would be less protective than its old proposal, which would have provided lined stockpiles for long-term waste heaps.	WR017
14174	we must seriously ask the question whether or not it is environmentally responsible to propose a mining process in a water-rich environment that will require water purification systems to operate effectively for 100 or 200 or 300 or 400 years	WR035
14175	seepage and run-off would affect wild rice growth--a sacred food for tribal members of the region	VEG04
14176	seepage would make its way to Lake Superior and raise the mercury level in fish which when eaten raises the level of mercury in humans.	MERC03
14177	Polymet's own analysis allows 1506 micrograms per liter (ug/L) criterion of manganese at the plant which is 15 times higher than the health risk limit set by the Minnesota Health Department to prevent brain damage in infants, children and adults.	HU05

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gary Boelhower (44854)	
14179	The PolyMet project would increase arsenic in Colby Lake drinking water by 38.5 %, causing higher cancer risks than the level proscribed under Minnesota's cancer risk rule. The PolyMet project would degrade Minnesota surface water quality, increasing arsenic by 55% and copper by two-thirds; more than doubling concentrations of lead, antimony and selenium, and increasing levels of cobalt to 300% and nickel to 500% of "no action" levels.	HU05
Sender Name (Submission ID)	Gary Burt (7)	
300	[Polymet corporation should] guarantee that they would hold themselves financially accountable for any problem or hardship they created.	FIN01
306	The Polymet corporation… want[s] to create jobs, and create a small amount of wealth for a few people, and create a large amount of wealth for an even smaller group of people. They also want to make people in this area dependent on them for the jobs they create, and the money it will, supposedly, bring to the area, but this will only be true for as long as the mine also makes them extremely wealthy.	SO06
343	the CEO and board of Polymet will, as much as possible, try to keep themselves isolated from any of the consequences that result from their economic intentions and decisions.	FIN01
346	if we are to make any kind of rational decisions about this corporation, and their business proposition, we need to get to the full truth, and not just the part that makes them look good, such as the jobs they boast will be created.	SO04
1550	what is the carbon footprint of the [NorthMet Project]	AIR01
17754	How much carbon will be emitted in the process of mining? How much carbon will be emitted from the vehicles of the people going to work everyday?	AIR01
17755	How many roads, and how much infrastructure will have to be created, repaired, and maintained to keep everything functional for the next 20 years?	PD36
Sender Name (Submission ID)	Gary Clements (16502)	
1539	I believe the propoosal also would be in clear violation of Section 404 of the Clean Water Act, because of the total imbalance of the wetlands acreage that Polymet's operation would destroy, and also because I cannot find any definitive study of the relative assessed valuation of the two parcels.	WET14
1540	[The SDEIS is unclear about] water treatment, both from the current LTV plant tailings pit ... and the area where the sludge ... from the reverse osmosis process is to be dumped.	WR145
1541	the ground water flowage in the area [is unclear] ... Let's see an actual physical study of what waters are down there and where they feed. Do they feed the [surface waters or drinking water sources]?	WR007, WR071, WR135
1542	[It is inaccurate to use] a computer model [for reverse osmosis] rather than hard actual experience somewhere to extrapolate that this process will actually work on this massive scale across this massive time period … [and the Flambeau mine example does not give] confidence that this kind of system will actually work	WR023, WR143
1546	as a Minnesota taxpayer ... I am appalled that there is not a more complete explanation of the financial assurances needed to guarantee that the costs of centuries of treatment and/or cleanup will not fall on Minnesotans.	FIN01, FIN03, FIN05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gary Clements (16502)	
1547	It seems incredibly irresponsible to put off the discussion of financial assurances until later in the permitting process	PER03
1551	I see no figures about the cost of constant monitoring and operating the filters and pumps and equipment that will be needed ... Parts will fail and wear out and need to be replaced.	WR128
1552	Why is there no inclusion of potential weather disaster related potential for spillage, and the cleanup costs from that? The experience just two years ago in Duluth, and the flooding elsewhere due to increasing weather extremes MUST be taking into account.	FIN05
1554	I realize [weather disaster cleanup costs] is difficult math, and perhaps is overbearingly expensive to contemplate … And that expense should be clearly identified, even if it is extreme, and be done in a bonded way whereby the necessary income is guaranteed.	FIN05, FIN08
1555	Minnesota's current financial assurances law, and the current Polymet proposal using it is totally inadquate.	FIN14
1564	On balance, the risks and dangers … are much greater than the short-term gains.	SO01
2030	It is clear to me that the original legislation that created the Superior National Forest recognized the undesirable nature of mining for sulfide bearing ores. The proposed exchange clearly violates the intent of that legislation, if not the letter of it.	LAN02
3439	The first [concern] is the question of the proposed land exchange. It is clear to me that the original legislation that created the Superior National Forest recognized the undesirable nature of mining for sulfide bearing ores. The proposed exchange clearly violates the intent of that legislation, if not the letter of it.	LAN02
3440	The second major question that has not been answered for me is the question of water treatment, both from the current LTV plant tailings pit, which is already known to be leaking, and the area where the sludge that is to eventually be captured from the reverse osmosis process is to be dumped. In fact, it seems inconclusive just where that sludge, which contains an even more highly toxic mix of pollutants, will wind up. Is it to be in some off-site landfill, where it poses even more untreated harmful potential, or is it to be in the area shown on the map near the mine site itself?	WR145
3441	A third major question is the one of the reverse osmosis procedure itself. I know that this procedure has been used on small scales to take particulate matter out of drinking water, but to use, again, a computer model rather than hard actual experience somewhere to extrapolate that this process will actually work on this massive scale across this massive time period totally stretches the imagination. The Flambeau mine in Wisconsin that is cited as an example is known to have been in violation at several points during its operation, and does not give us the scale of experience we need in order to have confidence that this kind of system will actually work in an operation the size of which Polymet contemplates.	WR023, WR128, WR143
3442	Finally, as a Minnesota taxpayer and grandfather of two who will be around long after the proposed operation is finished, I am appalled that there is not a more complete explanation of the financial assurances needed to guarantee that the costs of centuries of treatment and/or cleanup will not fall on Minnesotans.	FIN01, FIN10
3443	On balance, this project proclaims to promote employment in Minnesota, some as short term as the construction of the plant, some for a few years longer, and it proposes to reap millions and millions for the mining companies who are already committed to selling the copper to China for a number of years. On balance, the risks and dangers to the long term health of the forest, the waters of the Lake Superior watershed, and the creatures who live there, including the human creatures, are much greater than the short-term gains.	WI13, WR111, WR115

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gary Clements (16502)	
16255	I believe that the proposal also would be in clear violation of Section 404 of the Clean Water Act, because of the total imbalance of the wetlands acreage that Polymet's operation would destroy, and also because I cannot find any definitive study of the relative assessed valuation of the two parcels. I believe that such a valuation is required as part of any land exchange. Therefore I believe that it would be wrong, if not illegal, for the Forest Service to go ahead with this exchange as proposed.	WET14
16256	[Mining sludge] is the worst of the worst, and the plan for its long term treatment protection is very unclear.	PD01
16257	Even worse is the totally inadequate study of the ground water flowage in the area. The Minnesota Geological Survey studies show fracturing beneath the mine and plant site areas that go well beyond what is stated by Polymet, and to use only "computer models" as a definitive statement of how much leakage there might be out the bottom of the system, and exactly where that groundwater flows, is pretty much ridiculous. Let's see an actual physical study of what waters are down there and where they feed. Do they feed the Partridge River? Do they supply Colby Lake, a source of city water for Hoyt Lakes? Do these ground waters supply a number of area rural wells? The Polymet estimations include millions of gallons that will escape treatment. Just how much magnesium, mercury, and arsenic will end up being leached from the earth as these waters flow into that ground water?	WR011, WR012, WR041, WR043, WR061, WR070, WR071, WR087, WR099, WR107, WR108, WR168, WR169
Sender Name (Submission ID)	Gary Duggleby (46209)	
8854	To build its mine, PolyMet proposes to directly destroy 913 acres of high quality headwater wetlands and indirectly harm up to an additional 7,351 acres of headwaters wetlands due to air pollution, water pollution, and water diversions. These wetlands are in the headwaters of the Partridge River, an important tributary to the St. Louis River and ultimately Lake Superior.	WET24
8856	Most absurdly, PolyMet's plan includes NO replacement of any indirect wetland losses.	WET01
16161	To build its mine, PolyMet proposes to directly destroy 913 acres of high quality headwater wetlands and indirectly harm up to an additional 7,351 acres of headwaters wetlands…Most absurdly, PolyMet's plan includes NO replacement of any indirect wetland losses.	COE02
16162	There are many, many, many more different industries that would bring a lot more jobs, that would not compromise on the Nation's finest canoeing and camping wildlife areas.	SO02
Sender Name (Submission ID)	Gary Fifield (46920)	
10825	We cannot afford the risk that is inherent in this project. … The people living in the area, many of them, see jobs and livelihood resulting from the project. I do not think the number of jobs or the time they will last is adequate to justify the risk involved. We must not let the large absentee corporations make our future for us if it is too risky for those living here.	SO01
Sender Name (Submission ID)	Gary Geisler (39356)	
12841	Clean water will become an increasingly rare resource for the future generations that survive. Do you really think they'll be able to maintain another poisonous legacy of our short sighted folly for many centuries to come without the equipment and know-how to do so?	FIN08, WR195
Sender Name (Submission ID)	Gary Glass (43015)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gary Glass (43015)	
11725	The Land Exchange facilitates the project's implementation and permanentconversion of the forest and wetland areas into unusable waste lands of toxic drainage generating waste rock piles, a pit-lake lagoon which could become a chemo-stratified, toxicwater waterfowl trap, and a pit-filled with millions of tons of reactive sulfide-containing rock capable of generating millions of pounds of toxic chemical concentrations….The land exchange should not be done unless and until the major flaws in the project design are remedied and the land surface area is entirely planned…to be reclaimed for future productive uses.	LAN01
11728	The West Pit lake most certainly will become stratified with a chemoclineand/or themocline.. When that happens, oxygen will be depleted from the bottom waters and toxic metal concentrations and toxic gasses including hydrogen sulfide will be generated and will seep into adjacent water aquifers, and, over time, move off site into tributaries of the Saint Louis River. The East Pit burial site could also become major source of toxic metals, acid reactants, and toxic gas including hydrogen sulfide, through both chemical and bioticmechanisms, and similarly pollute surface and ground waters. All bore holes, wall and bottom fissures, cracks and crevasses must be sealed against water escape through pit walls and bottom surfaces as a precaution to limit seepage out of the pits.	WR002, WR173
11732	The first chapter sets out eleven major "constituents of interest" (pages 1-19-20) for the proposed project. Many more constituents are needed to properly deal with the actual and potential impacts from 355 million tons of mined rock	NEPA14
11736	Mercury as a major "constituent of interest" is covered in four of the elevenbullets: Hazardous Air Pollutants, Mercury, mercury compounds (Hg), Metals/Metaloids, and Methylmercury. With this emphasis, however, the quality of the data presented to document and evaluate the impacts is majorly flawed and lacking. Sampling protocols providing adequate numbers of samples to represent 355 million tons are inadequate. Specific details of what has been done are incomplete, lacking documentation, lacking certified sample analysis, lacking normal reporting of quality assurance checks and controls,and are unacceptable for scientific use and administrative evaluation.	AIR10
11738	Testing methodology for rock sample analysis appears to be flawed, preventing accurate results from being obtained due to inadequate quality control and quality assurance procedures, see SRK 2007b. The data set reported in Appendix D.4 pg 419 omits lines of data, reagent blank data omitted, and omits certified sample analysis data...ICP-MS mercury analysis show 20 samples out of 92 have mercury at 1 ppm with the rest at < 1 ppm. These data have a mean of 0.6 ppm Hg using half the detection limit to represent the less than values. The mean is 0.22 ppm Hg using zero for the blank values….If the 92 samples are representative of the 533 M tons mined, and the mercury content 0.22 ppm Hg, then the annual total quantity of mercury mined would be 7,810 pounds per yr, or 21.4 pounds Hg per day. These estimated values are substantially larger than those sighted in the various chapters. In order to resolve this difference, more careful work and quality assured analysis must be done on the saved splits of samples to quantify the mercury content accurately for the 92 rock samples selected to represent the 355 million tons of ore and waste rock to be mined. Mercury levels and hazards from mercury exposure are significantly understated in the present SD EIS and DEIS, and must be corrected.	MERC04
11745	Sulfide sulfur is also acted on by natural bacteria Acidithiobacillus ferrooxidans…. which lives in pyrite deposits, and is capable ofmetabolizing iron and sulfur, and producing sulfuric acid …. This natural process seems to have been ignored in the recommended testing protocol and study results omitted in this SD EIS. Sulfide sulfur once oxidized by abiotic or biotic processes is soluble, acidic, and can move long distances in surface and ground water aquifers. In contact with stream and lake sediments oxidized sulfur is converted back to sulfide sulfur forming solid metal sulfides and dissolved, gaseous hydrogen sulfide which is as toxic as cyanide to aquatic plants…and to aquatic animals.	HAZ01
11748	Because millions of tons of sulfur compounds are being proposed to beprocessed, a common, neutral, and gaseous form of sulfur, hydrogen sulfide, should be identified as a constituent of interest because of its roll in the processing of the ore, and its toxicity and probable contributions the aquifers of the proposed project site. Modeling work should have included anoxic conditions and the parameters controlling sulfide sulfur reactivity, especially where hydrogen sulfide is stable and will be present.	AIR10

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gary Glass (43015)	
11751	The existing LTVSMC Tailings Basin is an important component of theproposed project and should be identified as a significant constituent of interest for several important reasons: ...the existing tailings basin is build on peat soil and is not stable and leaks into the ground water aquifer requiring a yet-to-be proven "slurry-wall" sealed to bedrock to prevent ground water leakage necessary if reactive sulfide mine tailings are deposited as well. This "slurry wall" is a major undertaking and has not been proven or shown to be cost effective;	WR018
11763	the responsible party for the LTVSMC tailings basin should be required to deal with the existing problems and final closure and recovery of the tailings basis area for productive future uses, and not used to deposit sulfide tailings which most likely will create an acid-generating source of sulfuric acid increasing the leaching of toxic metals from BOTH sulfide mineral tailings and LTVSMC taconite tailings, causing environmental pollution.	LU02
16760	If worse case conditions were to develop, toxic metal concentrations and toxic gasses including hydrogen sulfide would seep into surface and ground water aquifers of tributaries to the Saint Louis River polluting the river and waters of Lake Superior. No recovery plans are presented for the most impacted land areas, and no provisions are provided to protect against any probable or worse-case water pollution scenarios. Proper plans to address probablescenarios and related resources must be provided.	NEPA05
16763	Modeling and mass inventory results in various chapters of this SD EIS aresignificantly flawed by the omission of mercury and mercury compounds, oxygen and anoxia, sulfide-metal complexes, hydrogen sulfide, and the resultant impacts in the mathematical modeling and inventory of all mercury- and sulfide- containing components. Mercury is one of the most studied elements and data are available for modeling in the samefashion that other metals of less know character are modeled.	MERC04, MERC11, MERC13
16768	The lack of quality data pertaining to the mercury content of the ore and waste rock also pertains to the other solid earth and soil components of the proposed project. In the absence of quality assured mercury data, little can be concluded with confidence.	MERC04
16769	The leach-testing methodology for rock sample leaching treatment appears tobe seriously flawed and resultant sampling could underestimate volatile mercury and mercury compounds because the air-drying steps used during 6 days of every 7 days of each treatment cycle in the test procedure. There is no indication that precautions were taken to assure mercury analyte was not being lost during the 6 days of air drying cycles used in the "humidity test" procedure. Mercury compounds are known to sublime and have a positivevapor pressure that would facilitate their volitalization and loss from the solid sample surfaces during the air-drying and air-humidifying cycles (CRC Handbook of Chemistry and Physics, 69th Edition, 1989 CRC Press, pg. D-194)…. Post leach-test solid samples should be analyzed for mercury depletion to confirm mercury content change.	MERC04
16774	Post-test sample analysis were not conducted to determine the "depletion" ofconstituents or the degree of reactive sulfide consumed during the leach testing, as provided for in the test protocol. The need for this is especially true for the reactive components of the solids to validate the extent of the reaction process that occurred during the time period of the tests, and to confirm possible mechanisms of dissolution. Measurements of chemical oxygendemand on the solids before and after the leach testing should be done to determine the degree of reactive sulfide "depletion." Without actual measurements of post-test solids indicating the degree of element "depletion," no time predictions can be made. (SRK 2007b, pg 97).	WR001, WR025, WR034
16777	The "humidity test" leaching chamber conditions simulate rock pile air-rainexposures, and do not simulate in-lake or in-ground saturated conditions. Because of this the results are "procedure specific" and not meaningful other than qualitative predictions... None of the leach-testing solid sample conditions impose anoxic conditions or biotic exposure expected to be present in the East-pit disposal volume, or in the West-pit lake under probable stratified conditions (Aquatic Chemistry W. Stumm & J. Morgan, 3rd Ed., Wiley-Interscience 1996, 1022 pp.)	WR002, WR034, WR173

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gary Glass (43015)	
16778	Assessments for impacts of mercury emissions are understated because localwashout and dry deposition uptake due to foliar uptake by plants and trees seemingly were not considered…The original estimate of emissions understated the amount of mercury in both the total mass of rock being mined and the amounts processed.	MERC17
16779	Measurements of sulfide reactivity including chemical oxygen demand are mostly missing from the characterization studies and leachate studies used for impact analyses. Sulfide sulfur is the single most abundant reactive constituent, millions of tons, and should be evaluated from this perspective. Sulfide sulfur reactivity influences most all of the dissolution processes that can cause environmental concern and harm. Yet no measures of reactivity have been elevated to a "constituent of interest." Sulfide sulfur reacts with oxygen in air producing sulfuric acid which mobilizes metals to toxic concentrations and can adversely affect fish and aquatic life.	WR060
16782	Metals/Metaloids also omitted Selenium, Manganese, and Iron, all of whichplay important rolls in assessing toxic exposure and responses of the proposed project, and should also be included in the significant "Constituents of Interest."	WR204
16783	Hazardous Substances and Hazardous Waste Generation. These omittedconstituents of interest are conspicuous by their absence in chapter one; denied in section 4.2.13, but admitted to in section 5.2.13. There is no specific approved disposal site identified for the permanent disposal of hazardous wastes generated as described in section 5.2.13. Clearly this is a major omission and must be corrected in detail for each and every hazardous waste created. Hazardous Wastes are omitted as a primary focus and must beadded because of high levels of toxic metals and cancer causing materials present in the ore, tailings, and waste rock, including mineral fibers, dust containing high levels of nickel, chromium, and arsenic exceeding levels mandated protective controls.	HAZ03
16784	The existing LTVSMC Tailings Basin is an important component of theproposed project and should be identified as a significant constituent of interest for several important reasons:...the known hazards from toxic dust generated from moving and building dams from LTVSMC tailings which are known to contain hazardous asbestiform mineral fibers should be avoided,	PD10
16785	The potential future recovery of residual mineral resources from NorthMettailings must be protected and maintained for re-processing to recover residual metals expected to be in the tailings (Ni, 510; Cu, 547; Cr, 310; Zn, 548; Mn, 1400; all ppm), uncontaminated by mixing with LTVSMC tailings. NorthMet tailings require a more secure and leak-proof basin, and should not be located in an area of uncertain dam stability or where aquifers are connected or at risk. The NorthMet tailings basins should be kept isolated intheir own specifically designed enclosure to assure all possible future acid and toxic generation of sulfuric acid and resultant metal mobilization including gaseous emissions are permanently captured to prevent any possible exposure outside of secured containment areas. Other safer, proper, more controllable and less hazardous options must be found and evaluated.	ALT10
16786	Mining 355 millions of rock in 300.000 ton blocks, blasting through layers of minerals and non-minerals with explosives using an open pit approach will undoubtedly mix small amounts of high sulfide inclusions with rock categorized as "waste." Tests of mixtures of small amounts reactive minerals with waste rock were not done but the expectation is that small quantities of reactive minerals will dominate and determine the chemistry of the pore water, and result in higher than expected metal and acid concentrations in, and from, the waste rock storage areas than are predicted from tests of lower reactivity rocks. The resultant drainage and runoff must be completely collected and treated everywhere mined reactive solids are deposited and stored exposed to air and precipitation, including areas where dust will collect along the haul roads and tracks. Tests show reactive sulfides are capable of acid formation for centuries(SRK 2007b, pg 97) and must be treated with appropriate caution to prevent structural and environmental damage by minimizing any possibility of exposure.	PD15
Sender Name (Submission ID)	Gary H Johnson (16241)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gary H Johnson (16241)	
10316	I believe we should demand more accountability from PolyMet before approving the mine.	FIN01
Sender Name (Submission ID)	Gary Horning (22374)	
3422	the state should realize that PolyMet will hire the best attorneys available to negotiate clean up and water treatment costs. So should the state. If we simply reley on DNR regulators, we will lose. We need to go outside and hire very aggressive and skilled negotiators that will watch out for the taxpayer.	FIN09, FIN10, FIN13
Sender Name (Submission ID)	Gary Huss (43450)	
15711	Northeastern Minnesota, and the BWCAW in particular contain some of the greatest natural places not only in Minnesota, but in the entire nation. Clean air, beautiful forests, and magnificent lakes and streams with high water quality are why people live in this state and why countless numbers of people want to visit here.	WILD02
15712	People don't visit Minnesota and spend their tourist dollars so that they can see how wonderful the open-pit mines are. … The NorthMet deposits are located on National Forest System (NFS) lands. NFS land by definition is co-owned by all of the people of the USA, not just Minnesotans. Therefore, this is a decision that can not exclude what is in the best interests of ALL stakeholders involved (not just the less than 2000 people of northeast MN that might get jobs).	SO02
15713	According to the NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) 'it is uncertain how long the NorthMet Project Proposed Action would require water treatment, but it is expected to be a very long time'. The 'models' estimate that the water at the mine site will have to be mechanically treated for a minimum of 200 years and at the plant site for a minimum of 500 years (of which you will not be demanding the money to pay for the 500 years of water treatment up front and placed into an escrow account prior to starting the project).	WR035, WR036
15714	Your number one priority for all of the stakeholders in the state of Minnesota should be to protect the high quality forests, air and magnificent water resources of this region and state. What you are proposing to do is to sell out these things out for a minute percentage of the population of this state for a meager 2000 jobs. The estimated 2013 population in Minnesota is 5,420,380. That is .0004 of the jobs in the state.	SO06
15715	On 3/12/2014, the MPCA was supposed to recommend new standards for sulfate emissions for the protection of the wild rice crop in Minnesota. … But, they stated that until they analyze the actual data more thoroughly and more scientists look at it they aren't willing to make any conclusions or set any new standards at this time.	WR164
Sender Name (Submission ID)	Gary Johnson (43719)	
11940	The PolyMet mine will provide a few good jobs for 20 years, or so, and then it will leave behind 500 years of devastation. It would be impossible to escrow enough money to deal with that aftermath.	FIN10
15092	it would be absolute insanity to permit something which will leave behind such a huge need for toxic cleanup. Not to mention all the issues that are more important than money--such as the health issues this mine will cause in the while it’s in operation.	HU03
Sender Name (Submission ID)	Gary Maciejewski (20075)	
1708	I believe that any sulfide mining in Northeastern Minnesota will not only destroy surface [water] in the area including Lake Superior, but it will also destroy much of the ground water in that area.	WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gary Maciejewski (20075)	
1721	It seems very foolish to put at risk thousands of jobs related to the recreational economy including all the related jobs for a few hundred temporary jobs provided by the sulfide mining project.	SO01
1722	The Polymet mine will require over $500,000,000 of reclamation treatment at the Plant Site and over $200,000,000 at the Mine Site… Polymet should be required to set aside at a minimum the above mentioned amount of funds or no mining permit should be issued.	FIN05
1724	Inaccurate pre-mining characterization and interpretation often results in a failure to predict impacts to water quality and aquatic life.	WR023, WR071
1725	The word "Moose" does not appear at all in the SDEIS cumulative effects analysis, despite consistent concerns raised by tribal cooperating agency staff to co-lead agency staff during the environmental review process. As of August 19, 2013, moose are now listed as a MNDNR species of concern.	WI01
15007	many people have retired in Northeastern Minnesota because of the pristine surface water including good ground water for their wells and the related recreational opportunities. Thousands of more jobs have been created in many areas that are the result of numerous people retiring or having a cabin in Northeastern Minnesota.	SO01
15008	MN Rule 6132.3200 does not allow perpetual treatment: "To receive a permit to mine, the permittee must be able to close the mine in such a way that it is stable, free of hazards, minimizes hydrologic impact and release of substances, and is maintenance free."	PER04
15010	Heavy metal leaching is one of the greatest environmental liabilities associated with mining, especially in pristine environments like the Project mine site, that have economically and ecologically valuable natural resources (Reclamation Research Group (Bozeman, MT) for USFWS Anchorage, Alaska, "Acid Mine Drainage and Effects on Fish Health and Ecology: A Review" (2004), Ex. G.)	SO01
Sender Name (Submission ID)	Gary Markfort (38207)	
13694	This mine threatens our most important resource, fresh water!	WR195
13696	To often we hold the company responsible, but companies have an automatic out, they change leadership, they go bankrupt, they just cease to exist. We need to hold the individual's responsible and throw away the corporate veil.	FIN01
13697	More jobs will be lost in the end than are gained by this mine.	SO01
Sender Name (Submission ID)	Gary Robinson (54750)	
19160	Our water is the areas crown jewel. We cannot take this chance of harming it.	WR195
19162	Let us protect our water and land not just for ourselves and our children but for the fish and loons.	AQ05
Sender Name (Submission ID)	Gary Zarling (16206)	
9824	approval for this mine should only be considered for a safe ore extraction process and a different waste treatment process that would render the waste materials inert so there is no need for ongoing maintenance of water treatment systems.	ALT09, ALT13
Sender Name (Submission ID)	Gavin Danfelt-Martin (21383)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gavin Danfelt-Martin (21383)	
1097	even though the mining will create jobs that doesn't mean that our workers should be subjected to making our groundwater less drinkable. Money and economy are important but at what price?	SO01, WR041, WR115
3433	I believe even though the mining will create jobs that doesn't mean that our workers should be subjected to making our groundwater less drinkable.	SO01
Sender Name (Submission ID)	Gay Trachsel (6085)	
1150	I do not see any reference to health risjs to mine workers and surrounding communities to lifetime exposures. Please include in the SDEIS the risk…. For at least 70 years…not 30 years as the SDEIS p 5-4210426.	HU04
1151	…the idea that this mine can be 99% sure the seepage will be contained and decontaminated and will flow in a certain direction….The SDEIS needs to prepare a statement with an alternative water model and the impact of the seepage that will most likely occur and what contaminants will be in this seepage.	WR017, WR018, WR189
1152	300 jobs for 20 years is not a good trade for 500 years of irreversible water contamination.	SO01
2412	I do not see any reference to the major health risks to mining districts and surrounding communities to lifetime exposures. Please, I ask you to include in the SDEIS the risk for workers and the surrounding communities for at least 70 years, as Minnesota uses for guidelines, not for 35 years, as the SDEIS does on Page 5421-426.	HU01
2413	Also, the projected healthcare costs to the State of Minnesota should be included in this statement and they are not.	SO04
2414	the idea that this mine can be 99 percent sure that seepage will be contained and decontaminated and will flow in a certain direction, north, is not a fact, but it is an assumption. The SDEIS needs to prepare a statement with alternative water models and the impact of the seepage that most likely will occur and what contaminants will be in the seepage.	WR019, WR022, WR060, WR089
2415	This mine is an experiment. The material that is presented in this SDEIS has never occurred in copper-nickel mining anywhere else and it is imperative that alternatives will be looked at that will protect the streams that feed the three watersheds.	WR023
2416	300 jobs for 20 years is not a good trade for 500 years of irreversible water contamination.	SO01
Sender Name (Submission ID)	Gayathri Ramanathan (38605)	
14061	I am very concerned about 1)Mercury pollution besides others like manganese, lead and aluminum in water and the fish population	MERC02
14062	I am very concerned about … 2) air pollution resulting from all the mining-related activities - diesel, asbestos-like fibers, nickel and other particulates which are carcinogenic.	AIR11
Sender Name (Submission ID)	Gayl Gustafson (42506)	
15398	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies.	WR023, WR060, WR181, WR182, WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gayle VanGuilder (43737)	
11780	I also believe from an economic standpoint, that expediting the current processes so Polymet could begin construction immediately would bring a desperately needed, immediate economic boost to the Iron Range….	SO10
15088	I have reviewed the SDEIS for the Polymet Project, and fully approve of the proposed processes and mitigation systems as well as the science used in designing them, and ultimately constructing them.	PD28
Sender Name (Submission ID)	Gene (3437)	
212	The assurance money that is supposed to be set aside to clear up the pollution and damage caused by mining, won't be there for pollution clean up and restoration of the pristine treasure. Like the tobacco settlement money that was for stop smoking campaigns and to help people quit smoking, the legislature will use that assurance money for other purposes.	FIN08
647	How will they even start to clean up the pollution this will cause to the ground water?	WR090
648	Like the tobacco settlement money that was for stop smoking campaigns and to help people quit smoking, the legislature will use that assurance money for other purposes.	FIN08
Sender Name (Submission ID)	Gene Betts (18091)	
3222	One of the other reasons I think PolyMet will do this is because they're going to spend between $400 million and $500 million before they make a nickel. If they don't do their environmental work, they will be shut down and somebody's going to lose $400 million or someplace along that.	NEPA16
13908	think it's really important to not just look at the environmental impact statement for what it is. It's really important to look at the regulatory agencies that are going to enforce what PolyMet says it's going to do. Because I truthfully don't trust PolyMet…But I do trust these regulatory organizations.	NEPA16
13909	So I support PolyMet. I support their good jobs. Part of the quality of life in this area is good jobs. Good paying jobs. Part of the tourist industry survives because I'm here in the winter to pay for going to the restaurant and going to those other places.	SO10
Sender Name (Submission ID)	Gene Champagne (45593)	
12829	As a Special Education Teacher and Consultant I am keenly aware of the link between heavy metals and learning difficulties in children. I am also aware of the increased risk of cancer from living in the mining ranges of the Upper Great Lakes / Lake Superior Region. We cannot afford to recklessly go forward for a quick economic fix that will not only cost millions and possibly billions of dollars down the road in remedial education and menial job skill training due to health impacts on the central nervous system.	HU03
15898	PLEASE, conduct a Health Impact Assessment before moving forward with this or similar future projects. Best practices net best results.	HU01
Sender Name (Submission ID)	Gene Christenson (39260)	
5510	There is no real need, except profit motive, to create tailing ponds that need decades to treat. Why isn't the water treated in real time like other industries? Why are the tailings not put to beneficial use at some other location instead of creating an environmental nightmare that everyone knows PolyMet will eventually walk away from? If proper operations are not financially viable for PolyMet then they should not be doing this project.	NEPA01, WR037

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gene Fowler (46418)	
8937	Water combines with the sulfides to produce sulfuric acid. Large quantities of sulfuric acid can not be contained over long periods of time. That is an indisputable fact and all one has to know to reject PolyMet's permit application. It doesn't matter what is in their Environment Impact Statement - it is all smoke and mirrors to maintain the fiction that copper mining can be done environmentally safely. It can't.	PD01
8947	The pdf file for PolyMet's annual report can be found here: http://www.polymetmining.com/#	REF01
16115	There has never been a copper mine anywhere in the world, ever, in any environmentother than a total desert, that did not leach sulfuric acid into the groundwater. It hasnever been done and can not be done.	WR023
16116	Minnesota should ban all copper/nickel/sulfide mining in the state unless and until it has beenproven to be environmentally safe somewhere else. We should not be wasting time andmoney evaluating meaningless Environment Impact Statements. Meaningless, because theyare offered in support of something that can not be done.	PER25
16117	More specific to PolyMet, why would one ever consider granting a mining permitto a company which has no competency in mining?	PER35
16118	The long term environmental damage that will occur far outweighs thewhatever benefits copper/nickel mining brings to the area in terms of jobs and tax revenues.	SO01
Sender Name (Submission ID)	Gene Smith (38909)	
5501	The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative.	GT14
Sender Name (Submission ID)	Geoff Lynn (15975)	
13777	While jobs and the economy are important, resource extraction provides temporary benefits, typically at long term cost to the environment and to many who will never benefit from the economic impact.	SO01
Sender Name (Submission ID)	Geoffrey Gates (18338)	
2521	This [proposed action] has a toxic waste, which has to be cared for almost as long as this continent has been around.	PD01
Sender Name (Submission ID)	george crolick (43222)	
15824	environment is worth more than economic benefits.	SO01
Sender Name (Submission ID)	George Halvorson (6285)	
10576	Don't put your faith in PolyMet's willingness or ability to satisfy future claims in the event that something goes wrong. A brief survey of pollution litigation should inform you that even where states are able to claw back compensation for environmental pollution, they spend an enormous amount of money doing so and the return rarely reflects the damage done.	FIN01
Sender Name (Submission ID)	George Lah (6601)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	George Lah (6601)	
1088	Polymet can and will provide essential metals to the global economy and will do so in an environmentally conscious fashion.	SO10
Sender Name (Submission ID)	George R. Dunn (42992)	
8981	The shortened public comment period should be extended to at least the customary length of time... Information has come out since the release of the draft EIS calling into question issues of hydrology assumptions, effectiveness of the reverse osmosis process, and the plan for future water treatment. These issues are of such significance that meaningful public input can only be achieved through an extension of the current comment deadline.	NEPA07
15220	The applicant's failure to explain the plan for long-term water treatment is a fatal defect in the proposal...all parties agree that water treatment will be needed for essentially an indefinite period of time (e.g., 500+ years). It is sobering to think that the State of Minnesota would even contemplate relying on a corporation to treat water for 500+ years in connection with a mining project that is scheduled to last 20 years.	COE04
15221	...there are no legally binding mechanisms to get a commitment from PolyMet ... to treat the water for the length of time that will be necessary. The inevitable conclusion is that the financial responsibility for treating the impacted water will fall on the shoulders of the taxpayers of the State of Minnesota	FIN10
15222	...the EIS fails to outline what sort of financial assurances and security PolyMet would be required to post in order to go forward with the project. I would submit that there are no financial assurances or security that PolyMet could offer that could possibly balance out the future cost of water treatment and, more importantly, the future cost of remediation that would be required in the case of an environmental disaster.	FIN01
15223	...independent experts call into question the effectiveness of the reverse osmosis process proposed by the applicant. The technology... for water purification is untested on the type of scale that is proposed for this project. Questions have arisen regarding the ability of the applicant to ramp up the technology to the level that would be necessary to process the vast quantities of water that will need to be treated. ... As it stands now, the information provided by the application is insufficient to support the EIS.	WR143
15225	...The EIS fails to explain how the project will meet the statutory requirement regarding wild rice water quality standards... wild rice is symbolic of our water quality and the health of aquatic ecosystems and riparian communities.	VEG04, WR163
15226	Minnesota statute requires the practical alternatives must be vigorously explored and objectively evaluated. Alternatives to the proposed land exchange and consideration of the possibility of underground mining as opposed to open pit mining were not explored in the EIS.	ALT01, ALT21
15227	The EIS is incomplete in its representation as to who is really going to run the proposed project and how it will be done….PolyMet has never operated a mine before and it is totally dependent on its largest investor, Glencore, for money and industry advice. ... Glencore has a history of causing environmental catastrophes around the world	PER02
15228	The PolyMet proposal will ... add unwanted mercury to the ecosystem. Already 1 in 10 Minnesota newborns in the Lake Superior basin are born with unsafe levels of mercury in their blood, according to the Minnesota Department of Health.	HU03
15229	The coal that will be used to power this very energy intensive proposal is a dirty energy source from the standpoint of carbon pollution, mercury emissions, particulate emissions, and acid rain. The consequences of the combined effect of all of this additional pollution have not been adequately considered in the EIS.	AIR07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	George R. Dunn (42992)	
15230	PolyMet's proposal will degrade over a thousand acres of high-quality wetlands... [in] the 100-Mile Swamp. It is a critical habitat to both plants and animals. ...The EIS does not recognize the fact that the 100-Mile Swamp flows into the Boundary Waters and, therefore, is another example of the inadequate nature of the EIS.	WET19, WR024, WR080, WR081, WR111, WR167
15231	The failure of the EIS to consider the cumulative effect of the proposed project and the many other projects on the drawing board makes the EIS inadequate…. The only way the state can make effective decisions regarding the viability and safety of sulfite mining is to ... calculate the cumulative effects of all the proposed projects.	CU02
15232	Sulfite mining has never successfully been done anywhere in the world without causing widespread pollution in the immediate ecosystems…Minnesota should not even be considering permitting activities such as this until after it has been proven safe at other locations that have similar environmental characteristics. ...Please do not make northern Minnesota, the Lake Superior watershed, and the Boundary Waters watershed guinea pigs	PD26, WR023
15233	Minnesota statutes require that a closed mine site needs to be "maintenance free." PolyMet cannot satisfy this statutory obligation. Accordingly, under Minnesota law this proposal must be rejected...The statute was enacted for good reason – the people of Minnesota should not have to clean up mines exploited and abandoned by corporations.	PER04
15234	The thought that Minnesota would endanger such fragile ecosystems a... with the promise of 20 years of a limited number of jobs I think is an example of misplaced priorities. We need sustainable economic development in northeast Minnesota...the state would be much better served in attempting to diversify the economy away from another type of mining.	SO01
Sender Name (Submission ID)	George Rounds (28780)	
10934	It would be criminal, in my opinion, to permit any mining of resources in the region that would contaminate, and eventually kill, this national treadure, So please do not allow the PolyMet Mining Corp. NorthMet mining project Supplemental to operate anywhere near [the Boundary Waters Area].	WILD02
Sender Name (Submission ID)	George W Miller (54558)	
18964	PolyMet Mining Corp a Canadian Co has never actually operated a mine.(…) Do not permit the damage which will take over 2000 years and for 20 years of mining?	SO01
Sender Name (Submission ID)	George Withbroe (43048)	
12255	It appears that this mine will be a major source of pollution, particularly to water. How can we develop a mine which will be a major source of toxic pollutants for hundreds of years	WR115
12256	I doubt that a mining company whose primary goal is financial gain willbe as careful as is required when dealing with a product that offers so manyopportunities to produce destructive, long lasting, toxic pollutants.	SO02
17494	How can we develop a mine... which will has a high probability of becoming afinancial burden to the taxpayers for decades after the owners of the mine have made their profits and left the state.	FIN10
Sender Name (Submission ID)	George Wollenburg (31663)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	George Wollenburg (31663)	
13084	It is short sighted to risk long term damage to a pristine area that presently is heavy into tourism.	SO02
Sender Name (Submission ID)	George Young (42915)	
9520	PolyMet's NorthMet Project has already provided a positive economic impact to the area and has given many communities hope as a source of good jobs.	SO10
9526	The combination of Minnesota's regulations and PolyMet's commitment to mining in a way that protects the environment will serve as a template for sustainable, ethical and successful mining practices in Minnesota.	PER34
9529	PolyMet has put a solid project proposal in place and it has been reviewed and modified by scientists and environmental specialists working for both the State of Minnesota and the Federal Government. The NorthMet Project is sound and has mitigation measures in place to address the Project's environmental impact.	NEPA16
9531	PolyMet has addressed all potential issues associated with the Supplemental Draft EIS, including all of those brought forward by State and Federal officials, employees and their consultants throughout the process.	NEPA16
9532	PolyMet has been working with regulators for nearly 10 years to ensure compliance.	PER34
9533	Any issues or concerns that were discovered during the EIS have been addressed in the Supplemental Draft EIS.	NEPA16
9536	The NorthMet Project will bring high-paying jobs to an area of the State that needs the long term work and continued economic development. The NorthMet Project will be a significant contributor to the economic impact of northern Minnesota.	SO10
Sender Name (Submission ID)	Georgia Anderson (57930)	
19831	This mine abuts the Boundary Area, which is known and appreciated worldwide	WILD02
Sender Name (Submission ID)	georgiana anderson (41795)	
3285	PolyMet is going to put up enough money to deal with this degradation for the next 500 years?I doubt that that can be accomplished.	FIN01
3286	Wild Rice requires clean water and sulfide will kill the rice if it invades the Wild Rice wetlands.	WR156
3287	The Boundary Waters are visited by Americans and Europeans.This tourism brings money to the state.	SO02
3288	The Environmental Review process needs to be extended. The period allowed is too short.	NEPA07
3289	I have heard that the EPA gave the PolyMet EIS a failing grade (…) The permit should be denied.	PER35
10173	The very idea that you could get PolyMet to be responsible in 500 years for the degradation that will follow that mine, is ridiculous and obscene.	FIN01
10174	The areas that support Wild Rice culture will be affected and may never be reversed if sulfide is allowed to invade those Wild Rice wetlands.	VEG04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	georgiana anderson (41795)	
10175	Sulfide mining will have other more insidious results,Sulfuric Acid.	HAZ03
10176	There is another treasure that will be threatened [by NorthMet],a national park, that draws in people from all over the country and Europe,The Boundary Waters.	WILD02
10178	Those [Boundary Waters] are vulnerable to acid drainage and toxic metal as are indeed,the Wild Rice growing areas, and the water supply for communities around the proposed mine.	WR111, WR156, WR158
10179	The Environmental Review process should be lengthened.	NEPA07
11901	we will lose a uniquely Minnesota treasure not to mention the damage that the Native Americans would sustain to their history and legacy.	SO02
11902	jobs.Well, lot of jobs will be created for people cleaning up this mess forever and ever.Is that the way we want o develop jobs?	SO01
18559	The areas that support Wild Rice culture will be affected and may never be reversed if sulfide is allowed to invade those Wild Rice wetlands. So we will lose a uniquely Minnesota treasure not to mention the damage that the NativeAmericans would sustain to their history and legacy.	CR01
18563	There is another treasure that will be threatened, a national parkthat draws in people from all over the country and Europe, TheBoundary Waters. Those lake are vulnerable.	WR111
18565	The Environmental Review process should be lengthened. This is toocomplicated an issue to be hurried along. You need to take the time toevaluate.	NEPA06
18571	There are very few pros to this plan. Only one that I canthink of and that is jobs. Well, lot of jobs will be created for peoplecleaning up this mess forever and ever. Is that the way we want todevelop jobs?! hardly think so.	SO02
18575	Why did the EPA give the Poly Met EISa failing grade? Why is Minnesota not paying attention? Why is theMinnesota Environmental Review board complicit in this process?	NEPA14
Sender Name (Submission ID)	Gerald Brown (19915)	
1506	I support the PolyMet Project. My concerns for environmental protection have been satisfied.	NEPA16
Sender Name (Submission ID)	Gerald Casey (54118)	
15980	I believe they will leave ground water polluted for a millenium and the state will be stuck with the cleanup bill.	WR195
Sender Name (Submission ID)	Gerald Erickson (54119)	
15981	the environmental review process has NOT been sound and thorough.	NEPA09
15982	The state and federal regulators will NOT ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations.	PER06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gerald Krueger (54125)	
15995	I believe the environmental review process has NOT been sound and thorough.	NEPA09
15996	The state and federal regulators will NOT ensure that PolyMet's project design, and its controls and measures will NOT address potential environmental impacts and will NOT meet all state and federal regulations.	PER06
Sender Name (Submission ID)	Gerald L Sundberg (57210)	
17139	Until it can be proven that no run off will be done, I'd say no to mining.	PER18
17140	We need these minerals and the jobs they create, but at whose expense? Either fix the problem or chance our life styles.	SO01
Sender Name (Submission ID)	Gerald Robert Arnebeck (54886)	
18793	Copper nickel sulfide mining as proposed is too dangerous to our beautiful N.E. MN water quality.	WR195
Sender Name (Submission ID)	Gerald S Stiff (42734)	
14408	Recent Minnesota Public Radio discussions explained the potential for release of sulfide chemicals as a result of mining these metals. These MPR discussions clarified the "500 year" estimate for possible environmental danger. My second source is a retired chemist and friend who points to continuing sulfide and arsenic pollution from old mines (old technology) in South Dakota and Arizona.	PD01
Sender Name (Submission ID)	Geraldine Davidson (57349)	
18383	They said that this pollution being created is a new type of pollution to this area. According to the studies, they say it's in compliance. My concern is the accumulation or the cumulative effect of all of these different pollutions that are in compliance, but added together, what types of health complications are there? Especially since it is new, they just probably don't know yet.	CU15
18384	There is a study out of Canada that methylmercury, a byproduct of mining, is in our streams. They have now made a link that it suppresses your body's natural ability to break down plaque. And so now they are finding that methylmercury is contributing to cardiovascular disease because of the plaque not being able to be broken down. So what responsibility will the company have when they do make this link in the future, 50 years from now, when they make a link of the different health problems that are created by this new pollution?	MERC03
18388	The mineral rights, how much are they paying? The mineral rights that they are mining? Because they are going to be destroying that land. How much are they going to be making in the open market versus how many union jobs will there be for the total number of jobs that are created? How many of those are going to be union wages, with benefits, compared to their profits?	SO04
18390	My concern, too, is the quality of the air. They claim that they are going to be cleaning it, but are they going to have natural ways to clean up the land? Other than the usual methods of pollution control, such as probably having filters and that kind of stuff. But what other efforts or measures will they take to help clean the air and clean the water from all of this? Like planting more trees.	AIR01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Geraldine Davidson (57349)	
18391	I know they say they will have containment measures in place, in reservoirs, and all of their safety containment, but who is responsible 50 years from now when it breaks down and all of that pollution is brought out into the environment? Who is going to be paying for that? Who is going to be paying for the health complications that people just don't know are there? Like mesothelioma, they didn't know about it back when those minors were working. Now, is the mining company paying for their health or is it the government; us, the taxpayers?	FIN01, FIN10
18392	some of the land that they want to mine is next to the Boundary Waters Canoe Area. I oppose this Land Exchange because it will ruin that pristine area.	WILD02
Sender Name (Submission ID)	geri (44087)	
14911	Take a look at the Cuyuna Iron Range in Crosby MN which is now a state recreation area. The mining started here in the early 1900 and ended in 1985, and is now a state recreation area with Trout fishing, boating, canoeing, and Mountain Biking. If the mining industry could do there job and leave us this wonderful rec area with old and outdated technology just think what we can do today.	SO10
Sender Name (Submission ID)	geri Jensen (20205)	
12467	As a major retirement destination with an ever increasing tourism industry northern Minnesota depends on a sustained natural environment with exceptional fresh water quality which is in direct conflict with the proposed mining. Creating the mine itself would first destroy thousands of acres of living plant and animal life and jeopardize the fresh water system which supports all life. There is no acceptable land trade or replacement of such destroyed communities.	SO02, VEG10, WI13
13948	PolyMet would have a few decades at best and would begin and end leaving a wake of destruction. There is no proven, safe and lasting containment method nor treatment, and there are always mishaps, accidents, acts of God, and mistakes made. The cost of any is far greater than the benefits. Money can't fix it.	SO01
Sender Name (Submission ID)	Geri Wellems (39317)	
8045	Our environment is more important than jobs.	SO02
8047	the mining companies will take what they want and leave us with environmental damage that will be with us for eternity.	FIN01
Sender Name (Submission ID)	Germain Walseth (45182)	
8885	The mining companies WILL pollute our water, air and land.	GEN03
8982	And mining companies will get out of paying for all the damage they have done.	FIN01
Sender Name (Submission ID)	Gerri Williams (18330)	
2402	It is very troubling the proposed mine located on one of the state's most sensitive and environmental rich areas of wetlands is an open-pit mine. PolyMet (inaudible) natural resources has rejected the approach of an underground mine	ALT01
2403	The mine site itself would destroy 913 acres of wetlands and endanger more than 7,000 plus acres of surrounding wetlands.	WET24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gerri Williams (18330)	
2404	it is a given the open-pit mining method that PolyMet proposes will harm wetlands. I ask the co-leading agencies to take into account that just five years ago the citizens of this state voluntarily agreed to raise their own taxes to fund a 25-year effort to enhance, protect, and restore water quality in Minnesota. Preserving wetlands must be considered crucial to this goal.	WET24
8535	The proposed Northmet mine site itself destroys 913 acres of wetlands and endangers 7,000 plus acres of surrounding wetlands. But the SDEIS suggests that Poly Met will have to replace only 27 acres that suffer this loss. Another resource of hunting and sustenance that cannot be put to productive use. Gone- or at least impaired - possibly forever	WET01, WET04
8535	The proposed Northmet mine site itself destroys 913 acres of wetlands and endangers 7,000 plus acres of surrounding wetlands. But the SDEIS suggests that Poly Met will have to replace only 27 acres that suffer this loss. Another resource of hunting and sustenance that cannot be put to productive use. Gone- or at least impaired - possibly forever	CU01, CU18, WET01
8537	They should take into account that just 5 years ago the citizens of this state voluntarily agreed to raise their own taxes to fund a 25-year effort to "enhance, protect, and restore" water quality in Minnesota. A sulfide mining project of the complexity, magnitude and duration proposed puts this goal at risk and is NOT in the public interest. Therefore, I respectfully submit that unless and until all the pertinent deficiencies and omissions in the SDEIS have been fully addressed the wetlands destruction permit (that is, Section 404), for the Northmet project be denied.	PER35, WET14
8537	They should take into account that just 5 years ago the citizens of this state voluntarily agreed to raise their own taxes to fund a 25-year effort to "enhance, protect, and restore" water quality in Minnesota. Preserving wetlands must be considered crucial to this goal. A sulfide mining project of the complexity, magnitude and duration proposed puts this goal at risk and is NOT in the public interest. Therefore, I respectfully submit that unless and until all the pertinent deficiencies and omissions in the SDEIS have been fully addressed the wetlands destruction permit (that is, Section 404), for the Northmet project be denied.	PER35, WET14
12296	To me it comes down to the extensive – and potentially permanent – damage to wetlands, watersheds, animal habitat and human health that such a mine (like all other copper mines) would inflict. This is balanced against the possibility of a handful of comparatively short-term jobs and the efficacy of an untested mining conglomerate operate to avoid this damage.	SO01
12298	reverse osmosis and other improved technologies remain unproven at the scale and duration required for industrial mining. In the case of Minnesota, copper mining situated in sensitive wetlands would add to the potential disaster.	WET24, WR112, WR143
13906	What I would add is that we really have to accept what PolyMet says on faith, because PolyMet has never operated a copper mine before. That's right. A fledging untested company is going to experiment with the health and safety of our water as part of its learning curve.	PD23
14804	I recognize the benefits of the tools and technologies of modem life that are enabled by exploitation of natural resources, including that of mining.But having said that, the public interest demands that a mining operation must prove it is appropriate to the terrain and location and that it can minimize risk to the natural habitat and to human communities.	WI02
14804	I recognize the benefits of the tools and technologies of modem life that are enabled by exploitation of natural resources, including that of mining.But having said that, the public interest demands that a mining operation must prove it is appropriate to the terrain and location and that it can minimize risk to the natural habitat and to human communities.	WI02
18283	Wetlands cannot be "made whole" once they are impaired. They can, however, be damaged, altered, even erased in this method of sulfide mining. Reclamation can never fully restore their functions. This damage is PERMANENT.	WET05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gerri Williams (18330)	
18283	Wetlands cannot be "made whole" once they are impaired. They can, however, be damaged, altered, even erased in this method of sulfide mining. Reclamation can never fully restore their functions. This damage is PERMANENT.	WET05
18954	the proposed structures to contain toxic substances are inadequate. Fractures are already known to exist at the proposed Poly Met mine and plantsite would transport pollution. Blast vibrations would cause more rock fractures and permit further leaking.	PD07
18955	The EIS presents a fantasy world in which it operates in perpetual optimal conditions. It claims to be able to capture 99% of the seepage from its huge tailings pile, something no other known copper mine has achieved...Polymet has never operated a copper mine before. Its calculations are pure conjecture.	PD23
18956	it is a given that the mining method Polymet proposes will destroy wetlands. Just 5 years ago the citizens of this state voluntarily agreed to raise their owntaxes to fund a 25-year effort to "enhance, protect, and restore" water quality in Minnesota. Preserving wetlands and their crucial role in our northernecosystem/watershed must be considered crucial to this goal...A sulfide mining project of the complexity, magnitude and duration proposed puts this goal at risk and is NOT in the public interest.	WET24
19586	I have concluded that validity of the scientific projections of the project is deficient. The assumptions about the mine is based on the work of a consulting company, Barr Engineering, that was hired and paid for by Polymet. Where was the independent research and review of its findings?...The research carried out by the Great Lakes Indian Fish and Wildlife Commission, which is unfortunately segregated to an appendix of the SDEIS, contradicts the Barr conclusions and contains 18 major points of contention. It cites numerous points on which the conclusions are based on deficient modeling.It is unacceptable that the scientific findings of the Commission are not reflected in the body ofthe SDEIS.	NEPA12, NEPA15
19590	... it's clear that the NorthMet project would be very water intensive… But --how much water will be used? And for long will treatment continue? We're not told. Additionally, recent research has confirmed that the Polymet water use estimates were incorrect.	WR181, WR182
19591	Where, in this SDEIS, is the basic information about how much toxic wastewater is going to flow back and forth over 9 miles of pipes?	WR181, WR182
19592	what is extent of pollution in the waste rock piles and pits and tailings basin and the waste dump? Will the so-called mitigation measures address this adequately?	HAZ05
19593	the estimates on how long mitigation and monitoring protocols would have to be in place keeps morphing - from perpetuity, to 500 years, to an indeterminate amount of time. On what fact-basis were these shifting timelines calculated and recalibrated?	PD03
Sender Name (Submission ID)	Gerrit Crouse (7135)	
471	1,000 acres of high-quality wetlands would be eliminated in the region, which has already lost many 1000s of acres of wetlands to iron ore & taconite mining.	WET24
472	The region of the proposed mine is now home to dramatically declning lynx & moose. The sdEIS vaguely acknowledges the mine would "adversely impact" 4,000 acres of wildlife habitat, which is critical lynx habitat. It barely mentions moose, except to acknowledge the mine "will affect moose individuals." Affect, as in extirpate.	WI01, WI02
473	Lakes & streams near & downstream of the mine site already violate state water-quality standards. To meet standards for sulfates, mercury, & other chemical poisons & pollutants, the sdEIS acknowledges PolyMet would need to mechanically treat its wastewater for 500 years. But it doesn't explain just how PolyMet can assure funds will be available for 100s of years after the mine has closed.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gerrit Crouse (7135)	
474	The proposed mine site is on Superior National Forest. The Forest Service recognizes that open-pit mines are prohibited here. But it is proposing to exchange these lands to allow the open-pit mine to proceed. It has provided no information to demonstrate that this is in the public interest.	LAN01
Sender Name (Submission ID)	Gerry Gingles (39745)	
7122	The Boundary Waters are a state and national treasure please don't sacrifice them for the almighty dollar.	WILD02
Sender Name (Submission ID)	Gerry Snyder (54635)	
18037	The fundamental issue for considering permits should not initially be jobs or environment issues, but the very basics: financial wherewithal, demonstratedsuccess to implement large-scale projects, and the reputation of the applicant.	PER02
18037	The fundamental issue for considering permits should not initially be jobs or environment issues, but the very basics: financial wherewithal, demonstratedsuccess to implement large-scale projects, and the reputation of the applicant.	PER02
18039	No other financial source is likely to provide the substantial capital PolyMet needs without Glencore's permission or guarantee. Glencore owns a significantportion of PolyMet's common stock, warrants, and debt. It has contracted for the first five years of PolyMefs production and has representation on PolyMet's Board of Directors and management.	FIN01
18039	No other financial source is likely to provide the substantial capital PolyMet needs without Glencore's permission or guarantee. Glencore owns a significantportion of PolyMet's common stock, warrants, and debt. It has contracted for the first five years of PolyMefs production and has representation on PolyMet's Board of Directors and management.	FIN01
18638	Minnesota's potential tax revenue may never materialize from PolyMet....Glencore can control the profit margins on PolyMet's copper production. Its copper's selling price can be minimized to the extent that PolyMet generates little, or no, taxable income, and revenue to Minnesota's is reduced or eliminated accordingly.	SO02
18662	The production of PolyMet's copper ore can be sold through Glencore's huge trading operations to one of Glencore's many controlled companies located in a low tax haven jurisdiction. The copper can then be resold at a higher market price to an end user in another country. This sequence would enable Glencore to generate a high net profit margin…[resulting in] higher after-tax profits for Glencore due to the absence or reduction of the tax payments to the State of Minnesota…A member firm of Grant Thornton International, a respected global accounting organization, ...[stated] that improper inter-company transactions by a Glencore subsidiary deprived one government of …millions of dollars in lost revenue.	SO06
18670	The Governor, legislators, and agencies of the State of Minnesota should be held accountable for their fiduciary and trust responsibilities if they do not thoroughly investigate the legal, financial and reputation of PolyMet's parent company Glencore. The many red flags surrounding Glencore Xstrata's conduct must not be ignored	SO02
18989	PolyMet cannot provide realistic financial assurance as requiredunder Minnesota State law.	FIN01
18989	PolyMet cannot provide realistic financial assurance as requiredunder Minnesota State law.	FIN01
18990	It is irresponsible for the State to knowingly issue valuablepermits to companies without the capacity, experience, or financialwherewithal to establish a viable mining operation or do not have thecapability to deal with industrial or environmental accidents.	PER02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gerry Snyder (54635)	
18990	It is irresponsible for the State to knowingly issue valuablepermits to companies without the capacity, experience, or financialwherewithal to establish a viable mining operation or do not have thecapability to deal with industrial or environmental accidents.	PER02
18991	However, Poly met's lack of financial wherewithal and thebarriers to enforcement against Glencore eliminate any comfort thatcompensation will be available should these financial assurances turnout to be inadequate, or that monetary penalties could be enforcedthrough .S. courts or by .S. regulators.	FIN01
18991	However, Poly met's lack of financial wherewithal and thebarriers to enforcement against Glencore eliminate any comfort thatcompensation will be available should these financial assurances turnout to be inadequate, or that monetary penalties could be enforcedthrough .S. courts or by .S. regulators.	FIN01
18992	The mining of copper potentially impinges on Minnesota'snatural resources, infrastructure and human health.	HU02
18992	The mining of copper potentially impinges on Minnesota'snatural resources, infrastructure and human health.	HU02
18993	PolyMet is not competent to receive sulfide mining permits.1. It has no mining experience.2. It does not have the financial capacity to start and develop a copper mine.3. The present management does not have control of its future.	FIN01
18993	PolyMet is not competent to receive sulfide mining permits.1. It has no mining experience.2. It does not have the financial capacity to start and develop a copper mine.3. The present management does not have control of its future.	FIN01
18994	Glencore Xstrata pic controls Poly Met. It holds PolyMefs present and future purse strings. This makes PolyMet's financial future uncertain. On its own, Poly Met will be hard pressed to even buy one multi-million dollar modern dump truck at the current rate it is burning through its present cash position. Perhaps more importantly, Glencore's control over PolyMefs operations calls into question PolyMet's ability to provide reliable testimony about how mining will be conducted under the required permits.	FIN01, PER02
18994	Glencore Xstrata pic controls Poly Met. It holds PolyMefs present and future purse strings. This makes PolyMet's financial future uncertain.	FIN01
18995	In reality, it is Glen core that is the beneficiary of the permits, not PolyMet, and therefore Glencore should be the applicant and be subject to legal recourse by the state of Minnesota for any failures to comply with thepermits or other violations of law.	PER02
18995	In reality, it is Glen core that is the beneficiary of the permits, not PolyMet, and therefore Glencore should be the applicant and be subject to legal recourse by the state of Minnesota for any failures to comply with thepermits or other violations of law.	PER02
19181	PolyMet is not competent to receive sulfide mining permits. 1. It has no mining experience. 2. It does not have the financial capacity to start and develop a copper mine. 3. The present management does not have control of its future.	PER02
19186	The fundamental issue for considering permits should not initially be jobs or environment issues, but the very basics: financial wherewithal, demonstratedsuccess to implement large-scale projects, and the reputation of the applicant.	PER02
Sender Name (Submission ID)	Gerry Willmar Chamber of Commerce (54636)	
18032	Minnesota has a proud mining tradition that has created thousands of jobs and billions of dollars in economic activity for our residents. The North met project is a vital continuation of that heritage and will provide positive impacts not only for Northeastern Minnesota, but across the state as well.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gerry Willmar Chamber of Commerce (54636)	
18033	Minnesota has a proven record of applying innovative approaches to mineral extraction. Our mining history has provided regulatory agencies with the expertise to vigilantly protect Northern Minnesota's precious and fragile natural splendors by enforcing some of the toughest mining regulations in the world. We understand the apprehension of some that this project will have consequences for the environment, but the rapid advances in technology and methods used in mining mitigate these risks. We have confidence that our state agencies have both the expertise and capacity necessary to ensurethose consequences are mitigated.	PER34
Sender Name (Submission ID)	Gib Ahlstrand (47507)	
17603	I completely agree with [my state representative's] concerns [regarding finanacial assurance] and urge that they be given serious consideration before this project is approved or even allowed to go ahead into the Permit to Mine phase.	FIN08
Sender Name (Submission ID)	Gil Baldich (18356)	
2539	At the LTV tailings basin, manganese is far above Minnesota's health risk limit, but that is also expected to increase by 45 percent (phonetic)...Lead (phonetic) in drinking water is known can cause brain damage. Manganese can cause neurological damage and reduce IQ in children. (Reading.)	HU03
2540	The SDEIS must be redone to analyze any impact from the tailings basin groundwater of the wells my family and friends drink from. Why has there not been an analysis of the pollution of the drinking water of the Minnesota citizens just downstream from the tailings basin? What is protecting the water that my family and friends and daughter drink from year-round and day after day.	WR040, WR041, WR059, WR064, WR142
14640	I would like to start off by saying this is not a project, it is an experiment. It has never been done in Minnesota.	PD32
Sender Name (Submission ID)	Giminon Nahgahnub (11597)	
2259	The most recent EIS is inadequate because it is based on flawed data regarding the water flow from the Partridge River on a magnitude of 3X.	WR003
2259	The most recent EIS is inadequate because it is based on flawed data regarding the water flow from the Partridge River on a magnitude of 3X.	WR003
Sender Name (Submission ID)	Gina Everett (44868)	
8071	[The SDEIS] does not adequately look at reducing impacts to wetlands by considering underground mining vs. open pit mining.	ALT01, ALT06
8072	What evidence is there that the proposed treatment of contaminated water by reverse osmosis actually works on projects of this scale?	WR143
8073	The water treatment process is not specific enough. What are the plans for the toxic sludge generated by reverse osmosis? How is the reverse osmosis system guaranteed to keep up with the quantity and continuous supply of contaminated water?	WR143, WR145
8074	The proposed wetland reclamation and regeneration would not equal the high quality wetlands that the mine will destroy.	WET05
8075	What are the effects on human health, especially in the unborn and very young, of exposure to the pollutants emitted into the air and water, especially as these pollutants accumulate to higher levels?	AIR07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gina Everett (44868)	
8076	What insurance is there against underground drinking water contamination and what procedures will be followed to clean up any contamination that occurs?	WR042
8077	As abundant clean water becomes more scarce world-wide and thus more valuable, this resource should be weighted higher for impact considerations the farther the timeline of impacts goes into the future.	NEPA03
8079	What are the health risks to employees who are exposed to sulfide mining conditions?	HU04
8082	What is the potential for soil contamination away from the mine site and what health risks are present for people who come into contact with this soil, especially for those growing their own food?	HU01
8083	The Superior National Forest is a national asset and the proposed land exchange is not adequate compensation for U.S. citizens.	LAN03
8084	How will the survival and reintroduction of rare species found in the disturbed wetlands be assured after mine closure?	WI01
8087	Adequate funding is not guaranteed in the event of any environmental accidents while the mine is still operating or for the extensive period of water treatment needed after the mine closes.	FIN01
Sender Name (Submission ID)	Gina Holje (38539)	
9678	Any environmental impact assessment ... that fails to comprehensively analyze the issue of "financial assurance" in the context of addressing pollution remediation / treatment work for up to the 500-year period ...is a completely inadequate review.	FIN08
Sender Name (Submission ID)	Gina McKenzie (5676)	
14324	PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied.	CU11
14326	Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining.	WET24
14327	The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat -- much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals."	WI01, WI02
14384	a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed.	FIN01
14385	According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different? The SDEIS supplies no answers.	PD01
14386	the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public interest.	LAN01, LAN02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gina McKenzie (5676)	
14387	the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts -- and so it should be rejected.	PER35
Sender Name (Submission ID)	Ginner Ruddy (43062)	
11502	Please protect this incredible place [BWCA] by not supporting the PolyMet proposal.	WILD02
Sender Name (Submission ID)	Ginny (43087)	
14803	Please get in with the permitting process and allow our area to gain hundreds of jobs so that our children can also live in this area. It shouldn't have to be just a retirement community or for tourism. Please put people to work.	SO10
Sender Name (Submission ID)	Ginny Knapp (552)	
409	prevent acid mine drainage from polluting our waters	WR115
411	save us the huge future taxpayer costs of trying to cleanup the mess.	FIN01
Sender Name (Submission ID)	glen helgeson (9797)	
293	Trading 200-500 years worth of mining pollution for only 20 years worth of jobs is irresponsible.	SO01
294	The EIS doesn't provide details on how PolyMet would pay for water treatment.	FIN01
295	Acid mine drainage could potentially seep into the fractured bedrock allowing contaminated water to seep through and reemerge outside the mine site.	WR010, WR012, WR029, WR173
1389	It doesn't provide details on how state officials can be sure the required financial guarantees will be there to adequately treat the water for centuries to come.	FIN01, FIN08
1392	No one knows if PolyMet will be able to capture all the contaminated water. Even though they plan to treat the water with a reverse osmosis process, they wont know for sure whether they can capture all the water at the mine site and at the tailings basin.	WR017, WR018
19909	Furthermore, they won't know enough about potential contaminants until PolyMet begins unearthing and monitoring their impact. It would be too late for the public to stop the project if this were to happen.	PD05
19910	Furthermore, treatment costs could exist forever....PolyMet environmental study is inconclusive on water treatment. The EIS only covers the 20-year plan and is only specific about how much area would be mined and how much waste would be generated. The EIS doesn't provide details on how PolyMet would pay for water treatment It doesn't provide details on how state officials can be sure the required financial guarantees will be there to adequately treat the water for centuries to come.The DNR and PolyMet is not really sure how long will water treatment will be needed. Even the PolyMet officials say it's very uncertain.	FIN01
20020	Trading 200-500 years worth of mining pollution for only 20 years worth of jobs is irresponsible...Do we really want to treat water pollution at a mine that has been closed for centuries just for 20 years of operations and 400 jobs?	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Glenn A Partick (42774)	
6714	To me, the environment and the supply of critical metals are the crucial keys to this project. However, a person cannot ignore the economic benefit of this project. The creation of jobs benefits this region, the state and the country.	SO10
Sender Name (Submission ID)	glenn guntenspergen (20831)	
1854	The potential environmental damage and the enormous cost of protecting the environment outweigh the 200 or so jobs and the value of the minerals to be extracted.	SO01
1855	It is virtually impossible to estimate the cost of 200-500 YEARS of containing the sulfate and other toxins and treating the water; no amount of assurance bonding or trust fund will be enough to cover the risk of failure of the protective measures.	FIN01, FIN05
1856	We do not know whether the rock to be mined contains gunnerite, a mineral that is known to cause mesothelioma and one that the state has gone to great lengths to prevent becoming airborne. This alone is a huge risk.	HU05
1857	The integrity of our fresh water and our Minnesota culture that is based on clean fresh water and healthy watersheds for our quality of life cannot be put at risk.	WR115
16208	This mine will be in the Lake Superior watershed and has the potential to poison wild rice beds in our waterways and lakes. Recent studies have shown that 10 ug/L or more cause wild rice to decline in viable seed production and the growth is damaged.	WR152, WR156, WR160
16211	We cannot risk this important cultural and economic resource [wild rice], as well as the riverine and riparian wetlands that might be damaged by sulfide containing water.	WR115, WR156
16212	As much as we all use the metals that Polymet would generate in our technology, we cannot afford to risk so much costly and long-lasting environmental damage for a few years of jobs.	SO01
16213	We need to find alternatives to the metals required for technology - let's encourage such innovation in our state instead of ruining our natural resources for what is becoming old technology.	NEPA01
Sender Name (Submission ID)	Glenn Oliver (54536)	
19171	Our fresh water is to important to risk. All the water up there will reach Superior sometime.	WR111
Sender Name (Submission ID)	Gloria C Walters (11636)	
2329	We need to look at this issue for the long term, not just short term jobs that aren't going to last.	SO01
2329	We need to look at this issue for the long term, not just short term jobs that aren't going to last.	SO01
8267	Every time this type of mining has been allowed to go forward, it has wreaked havoc on the environment and for countless years to come. The pollution will harm our environment, wildlife, children our children's children.	GEN03
8267	Every time this type of mining has been allowed to go forward, it has wreaked havoc on the environment and for countless years to come. The pollution will harm our environment, wildlife, children our children's children.	GEN03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gloria Jacobs (40097)	
6458	if this proposed mine is completed then you can bet your bottom dollar that chemicals will leeche and the whole site will be impacted and useless.	WR115
15935	It just isn't worth the riskt in the long term as a mine in the short term will poison the environment for generations to follow.	SO01
Sender Name (Submission ID)	Gloria Nugent (35664)	
11282	If you give permission for a SULFIDE mine to opperate in ANY PORTION OF THE GREAT LAKES,YOU ARE BASICALLY POISONING THE LARGEST SOURCE OF FRESH WATER IN THE WORLD! CAN YOU DRINK IT??? NO!WILL IT KILL THE WILDLIFE THAT DEPEND ON A FRESH WATER SUPPLY? YES!!! WILL THE CITIES,THAT DEPEND ON A FRESH WATER SUPPLY WITHER AND DIE? YES!	WI04
Sender Name (Submission ID)	Glory-June Greiff (31837)	
13848	I see nothing that assures me that [pollution from sulfide ore mining] will not happen should this project go forward.	PD01
Sender Name (Submission ID)	Gordon H Kimball (44085)	
7750	The SDEIS does not fully or adequately describe or project the cost of…Reclamation and Closure…Fixed Engineering Controls…Annual Post-closure Monitoring and Maintenance for the 200 to 500 year monitoring period…Contingency Mitigation [and] Transition From Mechanical to Non-Mechanical Water Treatment methods	PD01, PD06, PD22
7751	Due to the serious consequences and long term exposure described in this proposal we believe the SDEIS must fully address the potential for PolyMet to cease existence and performance of financial obligations.	FIN05
7754	What potential failures or problems exist for long term maintenance and environmental protection? If they happen, what will be the mitigation and correction required?	PD22
7755	What is the annual cost of Monitoring and Maintenance for the years after mine closure? Who will pay for it if and when PolyMet no longer exists?	FIN01, FIN05, FIN11
7758	What is the annual projected cost per year in the time period 50 – 500 years expressed in 2014 dollars? What assumptions about inflation and economic conditions [are made]?	FIN05, FIN08
7761	Who will pay for shortfalls in long term Monitoring and Maintenance funding?	FIN01, FIN11
15036	The ability of PolyMet Corporation to perform this large scale project or meet the long term financial commitments called for is not proven. PolyMet has no record of successful mining. The average life of a multi-national corporation engaged in large scale business is estimated to be 40 – 50 years. It cannot be assumed they can or will perform the expanded, difficult and long term commitments described in the SDEIS.	FIN01
15039	What legal and financial obligations exist for the permitting agencies and governmental bodies that participated in this SDEIS and / or approved permits? What process exists for securing binding commitments now for financial participation in the 200 – 500 year period of exposure? If none, we believe this is a valid reason for not approving this SDEIS according to State law and regulations.	PER03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gordon H Kimball (44085)	
15041	Will the State of Minnesota be liable to cover shortfalls in long term Monitoring and Maintenance funding? What percentage? What is the potential cost expressed in 2014 dollars? What is the likelihood the State will be able to and be willing to cover costs for the critical long term Maintenance and Monitoring time period?	FIN01, FIN08
15042	Will St. Louis County, the cities of Aurora and Hoyt Lakes be asked to help cover shortfalls in long term Monitoring and Maintenance funding if needed? What percentage? What is the potential cost expressed in 2014 dollars? What is the likelihood they will be able to and be willing to cover costs for this time period. What mechanisms can be put place that obligates these governmental bodies to participate in funding long term Maintenance and Monitoring/	FIN01, FIN08
Sender Name (Submission ID)	Gordon Larsen (54140)	
16036	they will say anything to make money, and will be gone before trouble comes. Make Polymet board members personally responsible for clean up, I bet they will not trust the finding.	FIN01
Sender Name (Submission ID)	Gordon Murdock (38758)	
16771	I also urge you to do everything possible to create environmentally safe jobs in NE Minnesota. Unfortunately the PolyMet mine does not meet this criterion.	SO01
Sender Name (Submission ID)	Gordon Shetter (58060)	
19874	It isn't worth the risk of our resources for corporate profits.	SO01
Sender Name (Submission ID)	Gordon Sirvio (11329)	
831	So we have a dual problem. With the diversion of water to the mining process, plans need to be made for how the surrounding land will be affected. Plus drain fields, dams and erosion controls need to be modified for the increase in periodic severe weather.	WR057, WR081, WR176
1605	The PolyMet environmental standards needs to reflect the fact that our climate is changing. Climate at the mining site will become more extreme. Generally, it is projected, there will be lower natural precipitation but there will also be more frequent severe storms. Holding ponds need to be managed for not just a single 100 year storm using the climate standard from the 20th Century but the more likely event of this type of storm occurring 2 or more times in the same period of time.	PD22
Sender Name (Submission ID)	Gordy Grundeen (21583)	
14218	Blue Sky Sciences, Inc. proposes using solar hydrogen to convert the sulfide mineral tailings at the Polymet mine site into hydrogen sulfide, H2S. The pure gaseous hydrogen sulfide has a commercial value and the inert residue, free of sulfur, will pose no environmental liability.	ALT17
Sender Name (Submission ID)	Gordy Meier (38594)	
9940	The acid runoff and ground water contamination would devastate lakes , rivers , the BWCA and Lake Superior.	WR111
14054	We in Minnesota are blessed with a pristine wilderness area of Northeast Minnesota and the BWCA which truly sets us apart from anything in the lower 48 states--- is that worth risking?	WILD02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gordy Meier (38594)	
14055	Copper and nickel are currently in the limelight due to high prices, demand and availability…when the U.S. becomes be high cost producer, and they lose the demand for their product, then watch the mining companies pack up and leave with no regard to what is left or happens to the jobs, environment or economy in the Northeast.	FIN01, FIN08
14056	If this sulfide mining proposal goes through we stand a huge risk of ground and surface water contamination which would render our lakes and wells not usable. With that our property which we poured over 30 years of time, money, sweat and tears into would be worthless.	WR041, WR115
16313	It is apparent to us, that under the quest to create jobs and for a questionable long term economic gain, there is a willingness to risk the environment , not be concerned for MN citizens and Northeast residents, ignore the devastating impact to existing Northeast tourism, real estate markets and the wild rice industry.	SO01
16314	The acid runoff and ground water contamination would devastate lakes , rivers , the BWCA and Lake Superior.	WR111
16315	We in Minnesota are blessed with a pristine wilderness area of Northeast Minnesota and the BWCA which truly sets us apart from anything in the lower 48 states--- is that worth risking?	WILD02
16316	The Eagles Nest Lakes Chain of 4 lakes, are pristine wilderness spring fed lakes. If this sulfide mining proposal goes through we stand a huge risk of ground and surface water contamination which would render our lakes and wells not usable. With that our property which we poured over 30 years of time, money, sweat and tears into would be worthless.	PER12
Sender Name (Submission ID)	Grace A. Nelson (43470)	
15554	I can see where you see the sulfide mining benefiting our state with the use of its minerals and providing jobs, but I do no see how those benefits outweigh the long term negative effects of the sulfide mining. … I also am not very fond of the negative effects of sulfide mining in terms of pollution of the land and its natural resources.	SO01
15555	As a homegrown Minnesotan, it is hard for me to think that the beautiful landscape of Minnesota will be dug up in order to make room for these mines.	LU04
Sender Name (Submission ID)	Grace Christenson (39773)	
6800	The PolyMet sulfide mining would harm animals, the food chain and nature. The 11 endangered species population would decrease even greater than it currently is because of pollution and loss of habitat. Both lynx and moose are endangered and are protected by the Endangered Species Act.	VEG01, WI01, WI02, WI04
6803	Unique wetlands would be harmed by PolyMet’s mine.	WET24
14249	PolyMet ...will leave us with hundreds of years of clean up, impacting human health. Babies born on the north shore already have a high mercury level from iron ore mining and a even higher level would occur from sulfide mining.	HU03
14250	Tourism is a big part in northern Minnesota jobs, if mining were to occur people would stop visiting.	SO02
Sender Name (Submission ID)	grace e palmer (14970)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	grace e palmer (14970)	
345	Pure water, clean air, and viable soil are our only true wealth. The proposed PolyMet mine threatens all these, thus threatening the health of generations to come.	AIR11, WR195
349	The mine could close after 20 years, providing only one generation with jobs	SO02
350	the monitoring of the watershed will need to go on for hundreds of years, becoming the responsibility of countless generations.	FIN01, WR035
351	The mining company could declare bankruptcy at any time, leaving financial guarantees unmet and taxpayers to pay for necessary closure, clean-ups and endless future monitoring.	FIN01
352	The risks so far outweigh the possible benefits that no guarantees of money are adequate.	FIN10
Sender Name (Submission ID)	Grace Geier (1772)	
594	Moving forward with sulfide mining in a region where we don't understand ground water and where some of the largest fresh water reserves are located is pure insanity.	WR071
595	Sulfide mines have historically been environmental disasters, and when mining companies disappear, it is left to the state and the federal government to do the clean up	FIN01
Sender Name (Submission ID)	Grace Heitkamp (37178)	
15921	NO, NO, NO, NO, NO, NO, NO to PolyMet. I do not trust that they have the best interests of the state of MN and especially its people at heart. How can we gamble with our natural beauty and life-sustaining water?	WR195
Sender Name (Submission ID)	Grace Kelly (46938)	
10664	It is a mining that is heavily polluted with heavy metals and sulfates. Storage is simply done in open pits, open to the weather, open to seepage. Even the company's own models show pollution with expensive treatment for 500 years or more.	PD01
10665	Once pollution gets into the underground aquifer, there is no undoing it. Our rivers will carry the pollution all over. … Minnesota wants to lose those 360 jobs, because the cost of losing safe drinking water is way too high.	WR115, WR195
10667	Please consider raising my income taxes now for green projects instead of having me pay more for clean water forever. It will cost me much less.	SO02
Sender Name (Submission ID)	Grace Lanasa (15341)	
477	The acidity from these mines could destroy aquatic life, people catch fish for food and without it they could starve. Also, fishing is one of the greatest pass times Minnesotans take part in, without the fish it just wouldn't be the same. Animal life is important and deserves to be preserved and the slaughter of thousands of fish by pollution can take away from many families.	AQ05, AQ08
481	Native American tribes have a tradition of growing and picking wild rice. Also, wild rice has a very large economic value aside from cultural value. … if we decide to build the mind the sulfate would cause harm to wild rice and possibly destroy a tradition. The tribes could lose something valuable to their culture	CR01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Grace Lanasa (15341)	
484	the Copper Mine were built it would be right by the Boundary Waters. … the pollution will run through very important and cherished national parks. The Boundary Waters are beloved by Minnesota and if the water and air become polluted we could loose them.	WILD02
Sender Name (Submission ID)	Grace Sheely (45039)	
7129	Any mining error or contamination would damage and impact tourism and the MN quality of life.	SO02
7132	I also do not believe that the company behind the operations will be solvent and financially able to manage any mishap or its contamination costs.	FIN01
16794	I believe that water resouces are too scare and this project is an unnnecessary risk to the MN waters. The MN waters that would be affected are entirely upstream from everyone in the state.	WR024, WR111, WR158, WR159
Sender Name (Submission ID)	Graham Murdock (33503)	
12280	Sulfide mining in and of itself may not be considered dangerous in many areas. However, when such action is taken in an area, any area, close to one of our most precious natural resources, fresh water, it must not be permitted.	WR195
Sender Name (Submission ID)	Grand Portage Band (42994)	
2362	Regardless of the time taken to prepare it, the Band is reissuing many of the same comments on the SDEIS that it has issued on the last DEIS calling for basic evaluation of Project impacts and application of wellestablished CEQ standards for EIS preparation, and incorporates all those comments byreference here. See Band's Cmts. on DEIS at Ex. A (Band's Cmts. on June 2008 PDEIS) and Ex. B (Band's Cmts. on Jan. 2009 PDEIS).	COOP01, NEPA12
2364	the co-lead agencies have refused to extend the 90-day comment period on the SDEIS, despite repeated requests.	COOP01, NEPA07
2365	The SDEIS does not take the required "hard look" at all the environmental consequences of the Project, including polluting surface and groundwater resources and drying up or inundating thousands of acres of wetlands in the 1854 Ceded Territory.	COOP01, NEPA14
2366	The lead agencies must significantly supplement the SDEIS [with study of the adverse effects and determination of possible mitigation measures] and provide a full opportunity for agency and public review before issuing a final EIS.	COOP01, NEPA09
2372	In the SDEIS's evaluation of the underground mining alternative, the North Met Deposit is characterized as a "low- to medium-grade mineral resource," a far cry from the "one of the largest untapped deposits of copper and nickel, and other precious metals" or "world class resource" that is repeated throughout the SDEIS and in media coverage. The distinction is critical, as mining must provide sufficient profit to cover costs for adequate environmental protections and financial assurance.	COOP01, PD25
2373	The financial assurance for long-term treatment presented in the SDEIS, ranging from $3.5 to 6 million appears to be an estimate for monitoring activities only, without any long-term wastewater treatment costs.	COOP01, FIN05
2374	Perpetual operation and maintenance of mechanical wastewater treatment is an additional cost that must be represented in the estimate of financial assurance.	COOP01, FIN05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Grand Portage Band (42994)	
2375	The cursory estimate of financial assurance in the SDEIS provides little detail about how the dollar amount was derived. Instead, discussions have been postponed for the permitting phase of this Project. This approach fundamentally contradicts federal and state environmental policy and the SDEIS must be revised, with significant additional study, to appropriately evaluate closure, mitigation, reclamation, and perpetual treatment cost estimates.	COOP01, FIN13
2377	Although the SDEIS was revised to reflect the Project proponents' preferred action, still, the only alternative analyzed in any detail concerns the acreage of the proposed land exchange. This failure is a serious violation of NEPA and must be remedied before the SDEIS can be finalized.	ALT20, COOP01
2389	Colby Lake water is also proposed for stream augmentation. However, because Colby Lake water exceeds WQS for many pollutants including mercury, it would also need to be RO-treated before being used for augmentation.	COOP01, WR124, WR125, WR184
2391	In order to ensure compliance with Minnesota WQS, and based on the Projects own modeling, adequate financial assurance must be set aside to maintain and operate perpetual RO treatment at both the mine and plant sites.	COOP01, FIN05, FIN06
2395	While the use of RO is encouraged, further analysis and application is needed.	COOP01, WR143
2399	The conclusion that underground mining is not viable, or preferable, remains substantially unjustified, despite repeated requests for further analysis… As the Band already argued in the Tribal Position, significant additional study of the underground mining alternative is mandated, and the SDEIS offers no new discussion of the reasons for rejecting the alternative.	ALT01, COOP01
2422	Exchanging thousands of acres of diverse, high-quality land--land with some of the few remaining large game corridors in northeastern Minnesota that are available to the Bands to exercise reserved 1854 Treaty rights--for lands that have moderate diversity and lack big-game corridors is inconsistent with the fiduciary responsibilities that are shared by all federal agencies.	COOP01, CR01, WI02, WI03
2655	It is well known that wetlands play an important role in the condition of downstream waters by retaining floodwaters, sediment, nutrients, and other pollutants, thereby benefitting the quality of downstream waters.	COOP01, WET24
2656	Wetlands may also function as thermal refuge for moose whensummertime temperatures exceed 14 o C, the point at which moose become thermally stressed. Additionally, wetlands with aquatic vegetation provide an important forage resource for moose during the open-water season.	COOP01, WI01, WI02
2658	[The SDEIS (Pg 5-643)] underestimates the impacts [to aquatic species due to the decrease of first-order streams to the federal estate]. While greater diversity is desirable, protection of headwater streams is critical because they powerfully influence both the character and functions of downstream waters. Headwater streams transport vegetation, woody debris, organic matter, macroinvertebrates, and other organisms downstream, while providing spawning areas for brook trout. Headwaters provide most of the water to rivers, which in turn provides temperature mitigation and oxygenation which are necessary for healthy fish communities.	AQ29, COOP01
2660	the loss of critical wildlife corridors, along with high quality and diverse land and water resources, directly connects the federal regulatory agencies' trust responsibilities to the Bands. The land exchange, and the Project, cannot proceed where they require the agencies to approve permits that will have impacts to treaty resources without additional evaluation and mitigation.	COOP01, CR01
2686	Also ignored [in the design of the Project] was experience with the Dunka Pit, located on the old LTVSMC site approximately five miles north and east of the PolyMet Project mine site.	COOP01, PD26

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Grand Portage Band (42994)	
2689	The cumulative public information regarding risks to area hydrology from mining the PolyMet site cannot be dismissed by inserting extrapolated data in place of measured data, or by cherry-picking measured data. Impacts to surface waters, groundwater, and wetlands for a project of this size and complexity demand a scientific, data-driven approach, rather than one based on opinion and selectively used data.	COOP01, WR072, WR073
2694	Some of the wetlands that will be directly and indirectly impacted at the mine site are part of the 100 Mile Swamp, identified by a United States Fisheries Service biologist in 1997 as “lacking ecosystem representation in protected areas.”	COOP01, WET19
2697	The decision to use an analogue method came from the Wetlands Impact Assessment Planning work group process, in spite of Tribal Cooperating Agency objections. These objections include: (1) the PolyMet proposed mine pit will be hundreds of feet deeper than any of the “analogue” mine pits;	COOP01, WET08
2700	In response to the Co-Lead Agencies desire to use only analogue data to determine the Project dewatering effects, GLIFWC provided an independent analysis using information from other mine pits located on the Mesabi Range…The only substantial changes in GLIFWC’s method of analogue assessment were to use all available drawdown data for the Mesabi Iron Range, and to not automatically exclude wetlands classified as ombrotrophic from being considered impacted by drawdown…All analogue data must be used to estimate wetland impacts, and additional hydrologic data collected from the mine site should be required.	COOP01, WET08
2701	The CWA does not allow a permit when there are practicable alternatives that would have fewer adverse effects, when the Project would lead to a violation of state water quality standards, or when a permit would cause or contribute to significant degradation of waters of the United States.	COE03, COOP01
2702	An agency-preferred alternative must be provided in addition to the LEDPA’s before wetland impacts resulting from the Project can adequately be assessed, and before a 404 permit can be issued.	COE04, COOP01
2707	During the EIS scoping process for the Project, the Co-Leads failed to ever identify any cumulative impact issues associated with cultural resources, and Tribal Cooperating Agencies were not invited to participate in scoping. The Band’s and other Tribal Cooperating Agencies’ comments on the June 2008 PDEIS, the 2009 CPDEIS, and the 2009 DEIS detailed the nature of these substantial cumulative impacts and the need for further analysis, and areforced to do so yet again here.	COOP01, CR03
2713	This omission [the SDEIS does not determine climate change implications of the proposed Project] undermines even the MNDNR’s own work. The MNDNR’s Moose Advisory Committee, which studies the decline of the moose population in northeastern Minnesota, has recommended preserving wetlands as sanctuaries for moose from heat stress related to climate change.	COOP01, WI01, WI02
2715	a substantial moose population has been identified in the mine site area by aerial and ground surveys. Moose are likely to be impacted by the disturbance of two of the few wildlife corridors remaining along the Mesabi Range, not to mention by the massive wetland impacts of this project…There is no basis to dispute that the Project will have cumulative effects on the moose herd and Tribal harvest in the 1854 Ceded Territory. At a time when moose populations in Minnesota are declining, this analysis is particularly important and should have been done as part of this SDEIS.	COOP01, WI01, WI02, WI03, WI09
2721	The cumulative impacts assessment deficiencies identified above and within Appendix C are not exhaustive. Instead, they are solely an attempt to illustrate the incredible lack of cumulative effects analysis in the SDEIS. Profound revision is needed to this section.	COOP01, CU12
2723	Additionally, the lead agencies must consult with any tribes that attach “religious or cultural significance to historic properties that may be affected by an undertaking,” regardless of the location of the historic property.	COOP01, CR06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Grand Portage Band (42994)	
2729	Mesabe Widjiu is correctly identified as a sacred landform but needs to be considered in its entirety instead of looking at only the area within the Project. The segment that is within the project area is small, but vital to the property. Adverse effects to any portion of the Mesabe Widjiu will negatively impact the entire feature.	COOP01, CR02, CR05
2738	Any increase of methylmercury bioavailability in the Embarrass River, Partridge River, or St. Louis River watersheds constitutes a significant adverse impact to a critical trust resource [(subsistence fisheries)]. Not only must this impact be fully evaluated, but it must be fully mitigated	COOP01, CR01
2742	Wild rice waters are not only protected under the 1854 Treaty but under Minnesota State law. Given the obviousness of the threatened impact to such wild rice beds, additional analysis and mitigation must be included throughout the SDEIS.	COOP01, WR156, WR157
2745	The Project will certainly do nothing to aid in the recovery of moose and is likely to reduce available habitat, impact travel corridors, and increase greenhouse gases. Impacts on moose and habitat are impacts on the Band's cultural resources and must be analyzed as such in the SDEIS.	COOP01, WI01, WI02, WI03, WI09
2746	The APE for the Project was not determined until August 11, 2009, after tribal cooperators insisted upon it, and tribal consultation is ongoing. Since 2009, the size of the APE has been significantly diminished to the point of being the Project permitted area and nothing more.	COOP01, CR02, CR06
3039	the land exchange will cause irretrievable losses of resources for the Bands [including loss of the land itself, SDEIS pg 7-10]… Further, the SDEIS provides that the land exchange proposal could have direct and indirect effects on tribal cultural resources by creating noise, impeding access to area that are traditionally or culturally important to the bands and affecting species of importance to the Bands.	COOP01, CR01, CR05
3098	[The decision to use an analogue method came from the Wetlands Impact Assessment Planning work group process, in spite of Tribal Cooperating Agency objections. These objections include:] (2) PolyMet mine pit walls will be crystalline and sedimentary bedrock versus the analogue mine pits in sedimentary bedrock only;	COOP01, WET08
3099	[The decision to use an analogue method came from the Wetlands Impact Assessment Planning work group process, in spite of Tribal Cooperating Agency objections. These objections include:] (3) data collected from the site would be relatively inexpensive and should be used to inform impact assessment;	COOP01, WET08
3100	[The decision to use an analogue method came from the Wetlands Impact Assessment Planning work group process, in spite of Tribal Cooperating Agency objections. These objections include:] (4) relying on only a partial set of available "analogue" data as the source of information to estimate dewatering impacts is selective and not scientifically robust.	COOP01, WET08
3112	The SDEIS also does not provide any rationale for more mercury to be added to a system that is already so high in mercury, only suggesting that a future TMDL should take care of the problem. A more through cumulative effects analysis is required for mercury and the appropriate spatial scale for considering cumulative impacts includes the entire St. Louis River watershed.	COOP01, MERC10, MERC22
3117	While the incremental risk [of mercury loading] from the Project may be small, the existing risk is large and has not yet been addressed through a total maximum daily load ("TMDL") or other reduction program.	COOP01, MERC22
9007	In the SDEIS, there is no discussion regarding the type of financial assurance that would be used. No detail is provided regarding the estimated amount of financial assurance that would be sufficient for reclamation, closure, mitigation, and remediation of adverse effects from the Project. Even though the MNDNR has stated that PolyMet financial assurance will include clean-up costs for contamination resulting from LTVSMC operations, the SDEIS provides no discussion regarding financial assurance for the existing contamination associated with previous mining activities at the site.	COOP01, FIN01, FIN05, FIN08, FIN11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Grand Portage Band (42994)	
9008	Mining need not be synonymous with pollution: "In the right place – and withconscientious companies, new technologies and good planning –many of the potential impacts are avoidable. In fact, most mine pollution arises from negligence, not necessity." The NEPA "hard look" requires agencies to "exercise a degree of skepticism in dealing with self-serving statements from the prime beneficiary of a project" when analyzing alternatives.The SDEIS does not evaluate or examine Project alternatives in any substantive way; even the no-action alternative is lacking in detail and analysis. Instead, the SDEIS states:Consistent with the CEQ regulations, the federal Co-lead Agencies are required toidentify an agency-preferred alternative in a DEIS, if one exists, and in the FEISunless another law prohibits the expression of such a preference. At this time, theCo-lead Agencies have not identified a preferred alternative, and for the USACE,Appendix B of 33 CFR Part 325 supersedes the CEQ requirement to identify anagency-preferred alternative.Part 57(4) of 33 C.F.R. Part 325 at Appendix B, NEPA Implementation, only states:Alternatives. See 40 CFR 1502.14. The Corps is neither an opponent nor a proponent of the applicant's proposal; therefore, the applicant's final proposal will be identified as the "applicant's preferred alternative" in the final EIS. Decision options available to the district engineer, which embrace all of the applicant's alternatives, are issue the permit, issue with modifications or conditions or deny the permit.To the extent this limits USACE's obligation to identify an agency-preferred alternative, which is not clear, nothing there limits the USFS's obligation to do so. Moreover, Part 57(4) of Appendix B does require that "reasonable alternatives" must be considered in detail, along with "geographic alternatives, e.g., changes in location and other site specific variables, and functional alternatives, e.g., project substitutes and design modifications."The Band has long cited this defect in its comments,21 and EPA cited the lack ofalternatives as a factor when issuing an EU-3 rating for the DEIS. Although the SDEIS wasrevised to reflect the Project proponents' preferred action, still, the only alternative analyzed in any detail concerns the acreage of the proposed land exchange. This failure is a serious violation of NEPA and must be remedied before the SDEIS can be finalized.	ALT01, ALT03, ALT14, COOP01
9011	No effort was made to discuss or evaluate the least environmentally damaging practicable alternative ("LEDPA") required before rendering a Clean Water Act Section 404 Permit.	COE04, COOP01
9014	The SDEIS failed to substantively consider many alternatives that may providemitigation for, or prevent long-term environmental damage. Some of these alternatives include: paste tailings to reduce the project footprint and use less water thus decreasing risk of water pollution; perpetual pumping of the mine pit to prevent a pit lake from forming and by doing so protecting groundwater; back-filling waste rock into the east, central, and west mine pits to reduce the mine foot print and restore wetlands; engineered liners; providing reverse osmosis treatment at the mine site beginning in year one of operations to augment water loss in nearby high quality wetlands in the Partridge River watershed; and underground mining.	ALT01, ALT04, ALT06, ALT10, ALT13, COOP01
9020	The SDEIS summarily dismissed the possibility of backfilling:The opportunity to reclaim wetlands and vegetation at the Category 1 Stockpile footprint area would be the only measurable environmental benefit offered by backfilling the Category 1 Stockpile into the West Pit. However, because of the temporal effect that the stockpile would have, those effects would be required to be mitigated regardless of future backfilling or not. Furthermore, the potential environmental benefit is moot or outweighed because encumbrance is not allowed in PolyMet's private mineral leases and because the costs associated with backfilling, additional water treatment (rates), and encumbrance compensation determined in revised lease agreements may affect the ability of PolyMet to secure financing (MDNR et al. 2013b). As such, the option to backfill the West Pit was eliminated from further consideration in the SDEIS. Back-filling all of the mine pits with waste rock would reduce the surface footprint of the mine and make possible 526 acres of wetland restoration where the Category 1 stockpile is now proposed to be stored without a liner in perpetuity.	ALT03, ALT06, COOP01
9022	Engineered liners for the Category 1 Waste rock Stockpile and the Overburden Storage Layout Area ("OSLA") would ensure that seepage would not migrate into fractures below the storage facilities and increase the effectiveness of seepage capture...If the Category 1 Stockpile were lined, seepage capture efficiency would increase and less water carrying pollution would migrate from the pile into the fractures below the storage area thereby protecting groundwater.	COOP01, PD16

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Grand Portage Band (42994)	
9025	RO-treated water should be used to augment stream flow at both the plantsite and mine site. Colby Lake water should not be used for stream augmentation unless it is RO-treated first. RO will not cause waters in the vicinity of the plant site to comply with WQS due to low seepage capture efficiency at the tailings basin.	COOP01, WR018, WR124, WR184
9029	The MNDNR and USACE considered underground mining as an alternative to the proposed open pit(s) for the DEIS in 2009, but eliminated it because it would have had "a significantly reduced rate of operation that would not be considered economically feasible, and, therefore, would not meet the Purpose and Need of the Project." Even though underground mining was reconsidered for the SDEIS, the Co-Lead Agencies did not "exercise a degree of skepticism in dealing with self-serving statements from the prime beneficiary of a project" when analyzing alternatives. The Project proponent eliminated the alternative based solely on an economic decision that underground mining would not be as profitable as open pit mining. The co-leads state that "it was not possible to undertake a quantitative, side-by-side assessment of the underground mining alternative."37An underground mine would have a reduced mining rate and life of mine, employed fewer workers for a shorter period of time, and reduced state and local tax revenues. Conversely, although the underground mining alternative would offer environmental benefits, the SDEIS includes no economic analysis of those benefits. Still, the Co-Lead Agencies determined that underground mining would result in reduced socioeconomic benefits, and "PolyMet would not move forward with an unprofitable project, thus any potential environmental or socioeconomic benefits associated with this alternative are moot."	ALT06, COOP01
9031	Although underground mining was considered technically feasible, the Co-Leads provided that:PolyMet is a private sector and for-profit company, the value of the saleable material would need to provide sufficient income to cover operating cost (which includes, but is not limited to, the cost of mining, processing, transportation, and waste management), capital cost (to build and sustain facilities), an adequate return to investors, reclamation, and closure costs and taxes. Using underground mining would result in most of the NorthMet Deposit left unmined because of its low metal value (i.e., less value than the cost of mining and mineral processing). Other material would have to be left in place for safety reasons, to prevent collapse. Therefore:…the Co-lead Agencies found that while underground mining is technically feasible, available, and would offer significant environmental benefits over the proposed NorthMet Project, it would not be economically feasible and would not meet the Purpose and Need. Since the underground mining alternative would not meet all of the screening criteria, it is not considered to be a reasonable alternative. Therefore, the underground mining alternative was eliminated from further evaluation in the SDEIS.In no way does this constitute an appropriate level of detail. The conclusion that underground mining is not viable, or preferable, remains substantially unjustified, despite repeated requests for further analysis. Without considering the economics of perpetual treatment the economic analysis provided by the Project proponent concludes that underground mining is "[n]ot economically viable," while simultaneously claiming that backfilling the west pit would create encumbrances not allowed in their lease due to minerals located below the west pit that can only be accessed through underground mining. This is not the appropriate use of a cost-benefit analysis for purposes of analyzing an EIS alternative. The CEQ regulations require that, where a cost-benefit analysis is "relevant to the choice among environmentally different alternatives," there are a variety of additional requirements, including "analysis of un-quantified environmental impacts, values, and amenities,"42 in addition to other CEQ alternatives rules.	ALT01, COOP01
9033	Additionally, the SDEIS does not provide adequate discussion of the adverse effects of the proposed land exchange on wetlands and headwater streams within the St. Louis River	COOP01, WET14
9036	The SDEIS attempts to diminish the significance of the loss of these high-quality lands by stating that "[g]iven the existing lack of overland public access and actual use of the federal lands, as well as historic use of this area for mineral exploration (see Section 4.2.9), the Land Exchange Proposed Action represents little to no change in the actual level of recent or current use of the federal lands." In fact, historic trails key to both the exercise of treaty rights and of historic significance connect what is now Beaver Bay with Lake Vermillion.	COOP01, CR05
9037	data collected specifically for the Project was selectively used, with several well and surface water monitoring stations' data completely excluded from the water quality models used to predict Project impacts.	COOP01, WR008, WR071, WR072

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Grand Portage Band (42994)	
9046	The baseflow rate predicted by XPSWMM is three times lower than flow data indicates, and implies recharge to the groundwater system from precipitation that is not consistent with published literature.	COOP01, WR003, WR175
9051	the SDEIS indicates that mine pit dewatering impacts will be very limited ornon-existent based on the assumption that there is little or no connection between the bedrock and surficial aquifers. This assumption is not supported by the data used to characterize mine site hydrology; instead, it is based on an unsupported “professional opinion.”	COOP01, WR010, WR012
9052	data indicates that the PolyMet mine site is already hydrologically connected to the Peter Mitchell Pit through fractures.	COOP01, WR010, WR011, WR012, WR013, WR061, WR071, WR087, WR099, WR168, WR169
9054	the SDEIS entirely skirts the question of overall impacts on the groundwater aquifer from putting an already-contaminated [tailings basin] site back into production...Blasting and shoveling ore will increase both the number of fractures and the connectivity of fractures potentially increasing baseflow and pit leakage into the bedrock layers below the bottom of the pit	COOP01, WR016, WR030, WR060, WR071
9056	A comparison of hydrologic data that was collected for two other projects in the region demonstrates that the PolyMet project is data-poor in the area of basic hydrology, much less mitigation. Moreover, given the utility of the many existing studies of area hydrology, it is perplexing that the preparers have continually refused to use them, even as tribal cooperating agencies have repeatedly requested that they be used.	COOP01, WR023, WR071
9059	The proponent’s claim that 90 percent of the seepage from this tailings basin can be captured is unrealistic...Tribes requested any example of the “90 percent or better” capture efficiency rate to be provided by the Co-Lead Agencies, but they were not able to provide a single example anywhere in the world. Actual examples in northeastern Minnesota, from U.S. Steel Minntac126 and the LTVSMC tailings basin seep SD0026 (the very tailings basin PolyMet proposes to re-use), demonstrate capture rates of less than 60 percent.	COOP01, WR017, WR018, WR020
9062	Contrary to SDEIS claims, all of the seepage from SD026 is not being captured and therefore must be considered further in the SDEIS and project modeling.	COOP01, WR117
9063	The SDEIS provides that construction of a groundwater containment system... “would capture virtually all of the Tailings Basin seepage"…without installing a single monitoring well in the bedrock to test this assumption...the SDEIS’s conclusion that the method would be effective essentially is unsupported.	COOP01, WR010, WR018, WR061, WR071, WR079, WR090, WR099, WR108
9069	the tailings basin model uses storage coefficients that are not found anywhere in peer-reviewed scientific literature...this model simulates a bedrock storage tank where lots of water goes in and virtually nothing comes out. Because this is not possible, these modeled hydraulic conductivity and/or modeled storage coefficients cannot reliably estimate the amount of seepage that will bypass the seepage capture system, nor the amount of time before seepage upwells in nearby wetlands or in the Embarrass River.	COOP01, WR018, WR019, WR093, WR095, WR097
9073	Without any examples worldwide of such high seepage capture efficiency, the SDEIS alleges that [the slurry wall] is a fail-safe method of seepage collection able to collect 97 percent of the surficial aquifer seepage and 90 percent of the deep seepage through bedrock, and that no polluted water will seep from the tailings basin on the east side because bedrock conductivity is very low and the bedrock storage coefficient very high.	COOP01, WR019, WR020, WR102

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9074	"Semi-analytical flowpaths" for the tailings basin have been constrained in the Modflow model so that water cannot seep out of the east side of the tailings basin. However, winding underneath the east side of the tailings basin is a bedrock valley that used to be the headwaters of Trimble Creek…More water likely flows out of the east side of the tailings basin than does out the southern toe at monitoring site SD026. Therefore, without constructing the slurry wall containment system around the east end of the tailings basin, hundreds of gallons per minute of polluted water will drain into the Embarrass River watershed.	COOP01, WR102, WR104, WR133
9077	Even though the PolyMet project proposes to use a double-liner to prevent leakage from the [HRF], head pressure from the existing seeps and springs at this site mean that the liners, even installed perfectly will not last long before rupturing.	COOP01, PD17
9081	20 feet of pit wall will never be submerged and as such constitutes a perpetual source of mine related contaminants. Because of continued inputs from the stockpiles, the tailings basins, and the pit walls, the pit lake could exceed surface water quality standards for thousands of years.	COOP01, WR035, WR036, WR173
9083	As stated previously, many mitigation measures were not identified in the SDEIS, including the LEDPAs, nor are they evaluated using the required NEPA "hard look." There is no agency-preferred alternative identified in the SDEIS either. Combined, this makes it exceptionally difficult, and meaningless, to provide any input on the 404 permit or the corresponding 401 certification.	COE04, COOP01
9091	There has been no analysis of the 1854 Ceded Territory as a discrete area of impact. The Band continues to ask that it be included. Tribal Cooperating Agencies believe the Cumulative Effects Analysis for land use should encompass the 1854 Ceded Territory	COOP01, PER08
9093	Tribal Cooperating Agencies consider a 216,300 acre area bounded by the St. Louis River, Lake Superior, Lake Vermilion and the Beaver Bay to Vermilion Trail to be a Tribal Historic District, and the pertinent area for consideration of cumulative effects to cultural resources.	COOP01, CR04
9097	The SDEIS also fails to analyze cumulative effects on water quality and quantity. The relevant spatial scale for water quality and hydrologic cumulative effects analysis is the entire St. Louis River watershed.	COOP01, CU01
9101	Also missing is cumulative-impacts analysis of culturally-important plant and animal species that are listed as "Species of Concern."..There is no basis to dispute that the Project will have cumulative effects on the moose herd and Tribal harvest in the 1854 Ceded Territory. At a time when moose populations in Minnesota are declining, this analysis is particularly important and should have been done as part of this SDEIS.	COOP01, WI03
9104	The Cumulative Effects Assessment Area defined by the Co-Leads for impacts to aquatic species is overly limited. It includes only the Partridge and Embarrass Rivers...The appropriate spatial scale for considering cumulative impacts to aquatic species is the entire St. Louis River watershed and Lake Superior Basin.	AQ26, COOP01
9105	The SDEIS states that the current fish tissue concentration in five local lakes results in Hazard Quotients ("HQs") that exceed 1, but gives no further information...In fact, Barr Engineering's July 2012 "Cumulative Impacts Analysis, Local Deposition and Bioaccumulation in Fish" showed modeled contributions from both the Mesabi Nugget Large Scale Demonstration Plant ("LDSP") on the site and PolyMet. And the Barr report further provides the actual HQs, rather than just saying "they exceed 1."...This information should be explicitly included in the SDEIS for public review.	COOP01, MERC02
9107	Meeting ambient noise standards is a different question than assessing impacts. Impacts should be fully characterized and contour maps showing overlapping noise pollution from different projects provided. Without this information, it is not possible to review the cumulative impacts of noise.	COOP01, N03
9109	The cumulative risk analysis of transportation of hazardous materials has not been analyzed. This should include rail car spills, pipeline ruptures, and truck transport accidents.	COOP01, HAZ06

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9111	Post-closure impacts should also be included in the cumulative effects analysis because some mine features (e.g., pit lakes) would become permanent features of the landscape.	COOP01, CU16
9115	A key piece of the work that still has not been completed, despite some progress, is the traditional cultural property (“TCP”) studies...Anappropriate investigation of the Project site using this standard, and in cooperation with all involved THPOs, must be performed and properly documented. As noted in the chapter, consultation is underway on this topic, but is far from complete.	COOP01, CR05, CR06
9117	The SDEIS must include language to the effect that the Band continues to take the position that the Ceded Territory is itself a TCP and does not agree with the USACE’s determination that it is not.	COOP01, CR02, CR05, CR06
9120	The Project Area of Potential Effect (“APE”) for cultural resources is divided into two separate sections surrounding the proposed mine site and the proposed plant site. These areas do not encompass the true extent of the APE...Until the cumulative effects analysis of the Project is better represented, the agency preferred alternative is defined, and the LEDPAs identified, it is premature to delineate the APE.	COOP01, CR02, CR03
9124	the Beaver Bay to Lake Vermilion Trail (“BBLVT”)... is “associated with the lives of persons significant in our past"...To date, the BBLVT has not been fully researched or rigorously field-verified within the project area. Additional fieldwork should be conducted in the spring or fall when ephemeral features such as foot trails are less easily concealed by vegetation and more easily discerned.	COOP01, CR05
9132	The Band fundamentally disagrees with any seasonal sulfate release in wild rice waters, whether now or later. There is no scientific basis for stating that seed is not affected by high sulfate levels while it lays dormant over the winter, or that the effects of high-sulfate water would not remain or continue into the summer.	COOP01, VEG04, WR152, WR153, WR157
9135	There still has not yet been sufficient evaluation of Band member use of vegetation and other usufructuary resources in the APE, and there is no permissible basis to omit such evaluation where the USACE and other federal permitting agencies have a trust responsibility to the Band to maintain treaty resources in the 1854 Ceded Territory.	COOP01, CR01
9138	in the SDEIS Socioeconomics chapter, none of the issues identified [in Executive Order 12898] Executive Order have been addressed...It is theBand’s position that any impacts to natural resources will disproportionately affect tribes due to their subsistence consumption of wild rice, fish, and other wildlife, and gathering of traditional plants and medicines within the 1854 Ceded Territory.	COOP01, SO09
17731	the tailings basin seepage capture rate of 90 percent assumed in the preferred alternative has not been demonstrated anywhere in the U.S. and is simply not possible because the tailings basin was built without a liner.	COOP01, PD08, WR018
17732	In fact, at the Project site, the existing seepage capture system that was installed as a requirement of the Cliffs Erie Consent Decree for SD026 is so ineffective that Cliffs Erie is proposing to build an additional dam and capture system further downstream. Therefore, paste tailings placed on a liner and covered could have a profound, minimizing effect on pollution reaching the Embarrass River watershed wetlands and the Embarrass River. The SDEIS does not even mention this modern technique used by many mines in U.S. and around the world, without justification: Converting to paste tailings technology from conventional slurry tailings at most mines makes sense both environmentally and economically. Paste tailings use less water; require less land; do not require engineered containment dams; generate less acid and contaminants; reduce long-term costs and allow for early reclamation. Slurry tailings use and discharge large volumes of water, require dust control measures, require large land areas and containment dams for disposal, and create contaminated water that must be captured and treated.	ALT06, ALT16, COOP01

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17733	Perpetual pumping of the mine pits to prevent formation of a pit lake is required by the State of New Mexico, Office of Natural Resource Trustee, for the Chino and Tyrone copper mines expressly to protect groundwater and waterfowl.29 Numerous western mines have discharged plumes of polluted water into the bedrock aquifer from leaking mine pits, tailings basins and waste rock piles, a problem that is not only difficult but expensive to fix. Requiring perpetual pump out of the mine pit would minimize leakage of contaminated water into the surrounding bedrock aquifer thereby protecting groundwater that the State is required to protect as source of drinking water.	ALT04, COOP01
17734	This alternative would prevent the need for a separate seepage capture system around an unlined waste rock pile, as proposed in the preferred alternative, that would have to work at an above optimum capture rate in perpetuity. Capping and re-vegetating the mine pits after backfilling with waste rock would prevent deep infiltration of precipitation. In combination, perpetual pumping and backfilling the Category 1 waste rock pile would substantially reduce the risk of polluting groundwater and wetlands in the Partridge River watershed.	ALT04, ALT06, ALT13, COOP01
17735	The OSLA will contain peat that has sequestered mercury. When water flows through the OSLA the seepage will transport some of the mercury from the peat.	COOP01, MERC24
17736	As the Project is currently proposed, after operations, the mine site wastewater treatment plant will be converted to RO to treat the west mine pit lake and Category 1 stockpile seepage for discharge to the west pit outlet creek that flows into the Partridge River. An alternative that was not considered in the SDEIS would use RO at the plant site to begin with to treat storm water, mine infiltration, and waste rock pile seepage. Using RO treated water for stream and wetland water augmentation in the Partridge River watershed would provide mitigation for the some of the adverse effects of mine pit dewatering.	ALT13, COOP01
17737	As the Band already argued in the Tribal Position, significant additional study of theunderground mining alternative is mandated, and the SDEIS offers no new discussion of the reasons for rejecting the alternative. The economic viability of an underground mine depends on a variety of factors including ore grade, market prices, cost of tailings, and waste rock disposal. A study of this particular deposit was performed by the prior owner of the site, U.S. Steel, which actually recommended underground mining.43 PolyMet is well aware of this study, given that the company included it in a 2003 filing with the Securities and Exchange Commission. In fact, by examining cross-sections showing the distribution of ore by depth,45 it appears that there are substantial ore reserves at depths that likely could not be accessed by the proposed open-pit mine. The ecological costs of open-pit mining and above-ground disposal of tailings and waste rock are immense. This ecological cost, combined with the most current understanding of deposit ore grades and reasonably possible metals prices, and the costs associated with perpetual treatment must be evaluated to determine the viability of [the underground] alternative.	ALT01, COOP01
17738	the SDEIS does not disclose appraisal information [for the Land Exchange]	COOP01, LAN03
17739	Of the approximately 6,025 acres of MCBS Sites of High Biodiversity Significance under the Land Exchange Proposed Action,51 nearly 2,000 acres of coniferous bog wetlands will be lost to the federal estate, and therefore effectively lost to the Bands, if the proposed land exchange takes place. This is significant because many tribally harvested resources are only available inconiferous bogs (e.g. cranberries, labrador tea, creeping snowberry), and restoration of coniferous bogs is a very difficult and long process that has extremely low success rates.	COOP01, CR01, WET05, WET14
17740	The proposed action land exchange would trade water resources within the Lake Superior Basin for wetlands and surface water outside the Lake Superior Basin [resulting in] a loss of 3,791 acres of federally-managed wetlands within the Lake Superior Basin under the proposed exchange.	COOP01, WET15

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17741	Furthermore, the SDEIS acknowledges that the Land Exchange Proposed Action would create a "net increase of third-order streams and decrease in first- and second-order streams which would likely add more habitat diversity to the Superior National Forest." But the SDEIS underestimates the impact of this increase: "Headwater streams are the smallest parts of river and stream networks, but make up the majority of river miles in the United States. Many headwater streams have been lost or altered due to human activities … and this can impact species and water quality downstream." The SDEIS states that the decrease of first-order streams to the federal estate would "slightly reduce the amount of available spawning habitat for some aquatic species as headwater streams provide specialized spawning habitat for some species." Again, this underestimates the impacts. While greater diversity is desirable, protection of headwater streams is critical because they powerfully influence both the character and functions of downstream waters. Headwater streams transport vegetation, woody debris, organic matter, macroinvertebrates, and other organisms downstream, while providing spawning areas for brook trout. Headwaters provide most of the water to rivers, which in turn provides temperature mitigation and oxygenation which are necessary for healthy fish communities.	COOP01, WR114
17742	The SDEIS also erroneously concludes that no known cultural resources exist on the nonfederal lands, despite impacts to wild rice waters, and the proposed exchange will not sufficiently compensate for the loss. The Land Exchange Proposed Action would result in additional wild rice beds by the acquisition of Tract 1. Tract 1 contains Little Rice Lake, which supports a continuous population of wild rice. Wild rice also grows along the Pike River south of Little Rice Lake and in isolated populations on Hay Lake. The wild rice waters in Tract 1 are accessible to the Bands via the Pike River. Therefore, adding Tract 1 to the federal estate does not provide additional wild rice harvesting opportunities to Band members in the 1854 Ceded Territory.	COOP01, LAN05, VEG08, WR155
17743	It is commonly acknowledged that "[w]ater has been called 'mining's most common casualty'.... Mining affects fresh water through heavy use of water in processing ore, and through water pollution from discharged mine effluent and seepage from tailings and waste rock impoundments." Acid mine drainage ("AMD") is one of the greatest environmental liabilities associated with mining, especially in pristine environments like the Project mine site, that have economically and ecologically valuable natural resources. There are no hardrock surface mines that exist today that can demonstrate that AMD can be stopped once it occurs on a large scale. Inaccurate pre-mining characterization and interpretation often results in a failure to recognize or predict impacts to water quality and aquatic life. Evidence from literature and field observations suggests that permitting large scale surface mining in sulfide-hosted rock with the expectation that no degradation of surface water will result due to acid generation imparts a substantial and unquantifiable risk to water quality and fisheries. In a report comparing predicted and actual water quality at hardrock mines, there were two types of characterization failures that were key to explaining differences between the predicted water quality in EIS documents and the actual water quality either during or after mining began. These included: 1. Insufficient or inaccurate characterization of the hydrology: The authors reported primary causes of hydrologic characterization failures as overestimations of dilution, lack of hydrological characterization, overestimations of discharge volumes, and underestimations of storm size. 2. Insufficient or inaccurate geochemical characterization of the proposed mine: The primary causes of geochemical characterization failures were identified as lack of adequate geochemical characterization, in terms of sample representativeness and sample adequacy. The primary causes of mitigation failures were that mitigation measures were not identified, were inadequate, or were not implemented; waste rock mixing and segregation was not effective; liners leaked; tailings were spilled; or embankments failed, and land application discharge was not effective. The SDEIS suffers from all of these characterization failures. An egregious lack of hydrologic characterization allows PolyMet to pretend that there will be no water pollution resulting from the Project. In fact, the SDEIS arbitrarily concludes water quality will actually improve as a result of the Project. The following is a short list of the problems with water modeling in the SDEIS.	AQ12, COOP01, WR071, WR126, WR128, WR134, WR136

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17744	Moreover, data collected specifically for the Project was selectively used, with several well and surface water monitoring stations' data completely excluded from the water quality models used to predict Project impacts. Specifically, all data collected from groundwater monitoring wells GW008 (13 sampling events), GW009 (12 sampling events), and GW010 (9 sampling events), were excluded from the models. These monitoring wells are northeast and north of the tailings basin between the tailings basin and the Embarrass River. Furthermore, none of the nine surface water quality sampling events collected at PM 11, a sampling station on unnamed creek located northwest of the tailings basin half-way between the tailings basin and the Embarrass River, were used in the Projects models. Also excluded from the models were data from nine sampling events collected at Station PM 12.1 in the Embarrass River upstream of the tailings basins. Instead, the model includes 53 sampling events in the Embarrass River at PM-13.85 PM- 13 is 7.3 river miles downstream of the northwest corner of the tailings basin, and 16.2 river miles from monitoring location PM-12.2 - long past the first water quality compliance points in the Embarrass River.	COOP01, WR072, WR076
17745	An additional problem is that the models intended to predict impacts from the Project were not calibrated to existing water quality in Colby Lake. Most of the data used to represent Colby Lake in the model was extrapolated from sampling sites well upstream in the Partridge River.	COOP01, WR046
17746	Despite this selective use of water modeling data, the SDEIS claims "[t]he NorthMet Project Proposed Action is also not predicted to result in any significant changes to groundwater and surface water flows when compared to existing conditions." To achieve this prediction, the hydrologic models for the Project were built using modeled inputs rather than actual measurements or estimates from scientific literature. This makes the Project models unable to accurately characterize groundwater flow direction, water tables, potentiometric surface in the aquifers, fluxes to rivers and streams drawdown mounding impacts to the water tables or surface waters, or to predict water quality impacts. The models for the Project must be re-calibrated using all available measured data and scientifically credible basic model inputs.	COOP01, WR056, WR071, WR086, WR105
17747	Chapter 5 of the SDEIS acknowledges that "[t]he NorthMet Project Proposed Action would have the potential to affect groundwater and surface water hydrology and quality in both the Partridge River and Embarrass River watersheds." However, the hydrology model that was developed to determine Project impacts relied on outdated data collected too far from the site. Because the Project proponent was not required to install stream gauges at the site, they used a model (XP-SWMM) to extrapolate baseflow far upstream from where the data was collected to the areas where the proposed mine pit(s) and tailings basin would be located. The extrapolated baseflow used twenty-year-old stream gauging data collected seventeen miles downstream of the mine site in the Partridge River, and stream gauging data that is more than fifty years old collected eleven miles downstream of the plant site in the Embarrass River... Therefore, the results are highly unlikely to be representative of current conditions at the mine or plant site.	COOP01, WR003, WR052, WR071, WR073, WR086, WR091
17748	During subzero temperatures January 25-26 and February 15-16, 2011, the minimum baseflow measured by the MNDNR in the Partridge River at the point nearest the proposed mine pits was of 3.4 cubic feet per second (cfs). Values calculated by staff from Great Lakes Indian Fish and Wildlife Commission ("GLIFWC") and MNDNR from low flow stream gauge data in the Partridge River ranged from 1.2 to 1.8 cfs, while the XP-SWMM model predicted a baseflow of 0.5 cfs.Not only is the Project modeled baseflow inconsistent with published literature, none of the measured data supports the baseflow predicted by XP-SWMM at SW003 of 0.5 cfs. XPSWMM's extrapolation of unrealistically low baseflows was used to calibrate the MODFLOW model and therefore influences virtually all aspects of the Project water quality and quantity characterization and impact prediction, including: groundwater flow rates and pit inflow, dewatering impacts to the rivers and wetlands, water treatment needs, contaminant transport times and concentrations, and contaminant dilution. Higher baseflows in the Partridge River indicate that the wetlands and river are connected to the groundwater aquifer, that mine pit inflow will be greater; and that groundwater will travel through the aquifer will occur at a much faster rate. During subzero temperatures January 25-26 and February 15-16, 2011, the minimum baseflow measured by the MNDNR four miles south of the LTVSMC tailings basin 13.9 to 15 cfs in the Embarrass River. Model estimated the average annual baseflow for the Embarrass River, based on data more than 50 years old, at 8.7 cfs.	COOP01, WR003, WR004, WR091

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17749	Surface water quality at the Project remains insufficiently characterized or left uncharacterized, and the defects in analysis in this area are profound. The limited data the SDEIS uses indicates that surface waters have already been adversely impacted by mining activity--which should give rise to more scrutiny, not less. Contaminant transport modeling suggests that the Project will cause manganese, aluminum, and sulfate to exceed Minnesota Water Quality Standards ("MN WQS"). Mercury, sulfate, and specific conductance have already exceeded surface water criteria in surface water samples collected near the tailings basin at nearby Area Pit 5, and mercury and aluminum exceed surface water criteria in the Partridge River downstream of Colby Lake. Aluminum, iron, manganese, and mercury all exceed MN WQS in Colby Lake. Contaminants from the Project will likely contribute additional loading to these existing exceedences of MN WQS in the Embarrass River, Colby Lake, and the Partridge River. And, as a result of the Project, it appears that arsenic will exceed drinking water standards in Colby Lake. No water samples have been collected from lakes near the tailings basin (including Hiekkilla, Mud, Kaunonen, or Hay Lakes) to determine if the pollutants found in the surface and groundwater at the existing tailings basin have caused contamination of those waterbodies. The SDEIS even acknowledges current exceedences: "…the existing LTVSMC Tailings Basin is not lined and currently releases seepage with elevated concentrations of sulfate, TDS, and hardness, among other constituents." It just does not propose any effective means of remediating them.	COOP01, WR064, WR075, WR109, WR123, WR197
17800	The Band is profoundly concerned at the preparers' refusal to consider past state agency experience with this site that had disastrous consequences for water quality. The Band has located an MPCA document from the Minnamax Exploration Project, a test shaft drilled into the Duluth Complex, the rock formation where the mine would be sited, by AMAX Corporation in the 1970s, approximately three miles from the Project mine site. This document states that water was encountered 147 feet below the surface infiltrating into the test shaft at approximately 14 gallons per minute and identified another potentially water bearing fracture zone at 900 feet below the surface. This means that the volume of bedrock groundwater that may be encountered by the Project mine pit has been vastly underestimated.	COOP01, WR007
17802	Other MPCA documents detail an unexpected saline water discharge that resulted as part of the AMAX Exploration Project from a water pocket 1,391 feet below the surface. The large quantities of saline water discharged, as much as 275 gallons per minute to Langley Creek, killed much of the vegetation en route. Data show severe impacts to wetlands in the vicinity of the project. Water from stockpiles that were minuscule in comparison to the stockpiles proposed for the PolyMet Project drained water with very high concentrations of nickel, cobalt, copper, zinc, and sulfate, and discharged that water into Langley Creek and the Partridge River. The project polluted streams, groundwater, and a large wetland complex in its vicinity in order for the MNDNR to study potential impacts and mitigation strategies for non-ferrous mining. Yet the data collected from the AMAX project was not used to predict water quality or wetlands impacts presented in the PolyMet SDEIS.	COOP01, WR007

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17807	Also ignored was experience with the Dunka Pit, located on the old LTVSMC site approximately five miles north and east of the PolyMet Project mine site. In the Dunka Pit, LTVSMC contacted the Duluth Complex and the Virginia Formation while mining for taconite in the Biwabik Iron Formation. By 1991, LTVSMC had removed about 50 million tons of Duluth Complex material from the Dunka pit and placed it in "gabbro" stockpiles. Monitoring of the drainage from these stockpiles beginning in 1976 revealed a decrease in pH and an increase in trace metals. Copper and nickel concentrations as high as 1.7 and 40 mg/l respectively were observed in seepage/run-off from the Duluth Complex waste rock stockpiles and pH was observed as low as 5.0 at seep 1 between 1976 and 1980.157 Most of the seepage from waste rock piles at the Dunka site was discharged to Bob's Bay in Birch Lake via Unnamed Creek. A 1976-1977 study of trace metals in Bob's Bay found that concentrations of copper, nickel, cobalt, and zinc in the water of the Bay were higher than regional average concentrations and decreased with distance from the mouth of Unnamed Creek. Additionally, it was determined that Unnamed Creek contributed more than 90 percent of the trace metals to Bob's Bay load. The October 2001 NPDES permit for this discharge expired in 2005 and another variance request is expected. The 2001 Dunka mine area permit has a variance provision allowing toxic pollutants to exceed the final acute value. A Waste Water Treatment Facility ("WWTF") located at the site has been inactive because Cliffs Erie, LLC, the owner after LTVSMC, declared bankruptcy and claims it is simply too expensive to continue running. Unfortunately, the passive wetland treatment system did not function well enough to remove nickel and copper in waters still discharging from the mine pit and stockpiles to a concentration that comports to comply with Minnesota WQS, and was rebuilt in 2010. Unfortunately, by 2012, copper, nickel, zinc, sulfate, and hardness concentrations from the treatment wetlands discharges (SD 8 and SD 9), were exceeding WQS. In accordance with aConsent Decree with the MPCA, Cliffs Erie is required to submit a plan for compliance with toxicity final concentration limits at SD008 and SD009 without a variance. Water quality impacts from prospecting and mining operations that have contacted the Duluth Complex are well known to the MNDNR and MPCA. The State of Minnesota spent $4.3 million over three years in the late 1970s to produce the Regional Copper-Nickel Study, a 5-volume compilation of technical information regarding the potential impacts of copper-nickel mining in the Duluth Complex. Nevertheless, predicted water quality impacts and ineffective mitigation methods referenced in the Study were ignored when the technical documents and SDEIS were drafted for PolyMet. Therefore, water quality impacts have likely been underestimated and the mitigations proposed may not be effective.	COOP01, CU06, WR023
17811	Similarly, the Mining Simulation Project (funded in part by a Minnesota Legislative appropriation of $185,000 to the MNDNR and MPCA) was a cooperative study to identify and resolve environmental issues associated with non-ferrous mining and to anticipate industry and government data needs to address those issues before commercial development occurred in Minnesota. The study clearly identified those state ground and surface water quality regulations that would apply to copper-nickel mining operations in Minnesota, including applying the 10 mg/l sulfate criterion to effluent discharges where wild rice is present, and prioritized nondegradation of both surface and groundwater and protection of groundwater as a drinking water source, and rejected using natural wetlands for mine effluent treatment ("as a toxic metals dumping ground").	COOP01, WR110, WR154
17812	Finally, the SDEIS lists the sulfur concentrations of Project waste rock ranging between 0.01-5.0% with an average mass-weighted concentration of 0.15%. The Virginia Formation has the highest concentrations of sulfur 0.4 - 5.0%, and the Duluth Complex 0.13 – 0.6% sulfur. These concentrations are much higher than in Montana's Zortman-Landusky Mine waste rock (0.2% sulfur)170 that has required perpetual wastewater treatment. And, like Zortman-Landusky, the Project proponent has suggested that "most (70 percent) of the NorthMet waste rock would be the low-sulfur, non-acid-generating" and will never cause acid mine drainage. However, the north wall of the east pit is composed of the Virginia Formation meaning that it will be exposed to both air and water and will likely contribute a substantial load of sulfate and metals to mine pit water.	COOP01, WR173
17867	The USACE has not developed a monitoring plan to assess after-the-fact Project impacts to wetlands, but claims that will be the way to best determine and mitigate indirect wetland impacts...So the SDEIS simply lacks sufficient detail even to comply with NEPA, and contains much less detail than is required to permit sufficient evaluation of potential wetland impacts.	COE02, COOP01
17870	the mitigation measures that the SDEIS does identify are inadequate as towetlands, just as they are for purposes of water modeling.	COOP01, WET01, WET04

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Sender Name (Submission ID)	Grand Portage Band (42994)	
17873	The SDEIS's failure to properly model and mitigate seepage and baseflow rates could result in profound impacts on wetlands…The decision to use ananalogue method came from the Wetlands Impact Assessment Planning work group process, in spite of Tribal Cooperating Agency objections...Without a quantitative assessment of the mine-related drawdown of the regional watertable, there is no mechanism to develop an adequate indirect impact assessment method for wetlands.	COOP01, WR071, WR120
17874	the Co-Lead Agencies suggest ombrotrophic bogs...have no connection to groundwater, and therefore assume that drawdown will not affect these wetlands. But data supports at least a partial connection between ombrotrophic wetlands and groundwater...a vertical hydrologic connection between ombrotrophic wetlands and the surficial aquifer is likely and the extent of the hydrologic connection should be investigated.	COOP01, WET09, WR058, WR071, WR166, WR167, WR177
17875	Despite specific and repeated requests from tribal cooperating agencies, the Co-Leads did not elect to utilize a tool developed in 2011 by the EPA in cooperation with tribes, Applying Cumulative Impact Analysis Tools to Tribes and Tribal Lands, in order to discern potential cumulative effects to resources important to the tribes who retain usufructuary rights within the 1854 Ceded Territory.	COOP01, CU03
17877	The SDEIS failed to take into account most of the issues cited [in Appendix C of the SDEIS].	COOP01, CU12
17899	It is reasonably foreseeable that an additional 3,000 acres of wetlands within the watershed will be directly impacted by proposed new mining projects and expansions that are in active permitting and/or environmental review: the Project, U.S. Steel Minntac mine expansion; U.S. Steel Keetac expansion; United Taconite Tailings Basin 3 construction; and Cliffs Erie's mine pit expansion.	COOP01, CU02
17900	The SDEIS also fails to adequately analyze cumulative impacts to the water quality of the Partridge and Embarrass Rivers, much less the St. Louis River.	COOP01, WR024
17901	In fact, in Colby Lake (the community water supply for the City of Hoyt Lakes), aluminum, iron, copper, and mercury concentrations already exceed Minnesota WQS. Modeled concentrations of arsenic also exceed Minnesota WQS. This existing, large number of water-quality exceedences and the suite of constituents, particularly trace metals, that exceed WQS not only confirm the total lack of remediation for the previous mining activities at the LTVSMC site, but demonstrate the importance of evaluating the cumulative losses to water quality. Community drinking water wells, wetland degradation resulting from dewatering, and pollution of community and private drinking water aquifers by previous mining activity must be assessed throughout the St. Louis River watershed as part of this Project, as well as for all the other mining projects currently underway.	COOP01, WR042
17903	The SDEIS does not determine climate change implications of the proposed Project. But the Project has proposed the largest direct wetland fill ever permitted in this region and would disturb extensive areas of peat, which is known to be an important carbon and methane sink. Wetlands in general are recognized as important carbon sinks and areas where wildlife seeks refuge as the climate warms. Nevertheless, to date, virtually all required wetland mitigation for mining impacts has been implemented out of the basin, representing a permanent loss of high quality ecological resources and functions. This omission undermines even the MNDNR's own work. The MNDNR's Moose Advisory Committee, which studies the decline of the moose population in northeastern Minnesota, has recommended preserving wetlands as sanctuaries for moose from heat stress related to climate change.	COOP01, WR077, WR180
17905	Furthermore, underestimation of storm size and frequency is a serious problem for capture and treatment of polluted water from the Category 1 wasterock pile and tailings basin, tailings basin stability, storm water run-off from the Overburden Storage and Layout Area ("OSLA"), and mine pit dewatering. Storm size and frequency is known to be changing. These and other cumulative effects of climate change must be addressed.	AIR01, COOP01, WR180

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Grand Portage Band (42994)	
17916	Section 106 consultation between the USACE and Tribes is ongoing. Therefore, despite significant changes through recent, increased consultation with tribal cooperators, the Cultural Resources chapter of the SDEIS is still incomplete, and the requirements of the National Historic Preservation Act (“NHPA”)200 have not yet been fulfilled. The Project cannot proceed until they are.	COOP01, CR06
17919	Where, as here, there are historic properties affected, then there is anentirely separate level of adverse-effects assessment that must be performed, again in coordination with consulting agencies.207 In light of these rules, and as the chapter itself acknowledges, it is apparent that far more consultation and site work must be done to comply with Section 106.	COOP01, CR03
17925	The Bands remain skeptical of the Co-Lead Agencies’ claim that there will be no adverse effect to the Spring Lake Mine Sugarbush from the Project. Indirect effects, through dust deposition and unauthorized collection of historic objects, are anticipated because the sugarbush is situated immediately adjacent to the proposed plant site.	COOP01, CR02, CR05
17929	The three properties would benefit from additional investigation. The sugarbush has not been formally recorded. The trail has been adequately documented within the SNF proposed land exchange, but requires additional survey in the upland areas of the project area. Mesabe Widjiu should be considered in its entirety. All three should be formally nominated to the National Register of Historic Places.	COOP01, CR02, CR05
17932	The Project is predicted to increase mercury loadings in the Embarrass River, but decrease mercury loadings in the Partridge River: Treated effluent would be used to augment flow in several Embarrass River tributary streams and Second Creek in the Partridge River watershed that would otherwise experience reduced flow because of the groundwater containment system. Additional water for flow augmentation in the nearby tributaries would be pumped from Colby Lake at periods during mine operations and reclamation. On the face of it, stream augmentation mitigation seems like a good idea. Unfortunately, Colby Lake water has high mercury concentrations that exceed the Minnesota WQS for wildlife. Colby Lake water used for augmentation will add mercury to the Embarrass River watershed both directly and indirectly by drying and re-wetting peat.	COOP01, MERC12, WR184
17933	High mercury concentrations in fish is a significant concern in the Embarrass River now, and mercury will only increase if the Project is allowed to use Colby Lake water for stream augmentation.	COOP01, MERC02, WR184
17934	Dewatering peatlands will also amplify water table fluctuations because peat has high water storage capacity and releases water more slowly than other surficial deposits. Drying and re-wetting peat will increase mercury methylation and release. Peatlands store methane and carbon that will be released into the environment when overburden is removed from the mine pits or during periods of dewatering. This is important in the context of subsistence fisheries and climate change because the temperature of water directly affects the oxygen content and defines what fish can survive. Mercury is also known to bioaccumulate in fish at a faster rate in warmer water.	AQ16, AQ28, COOP01, WET03, WR086
17935	Several lakes and the Partridge River watershed are likely to be negatively affected, which will impact fish species and thus the Band’s 1854 Treaty rights to harvest fish in those water bodies. The SDEIS as written fails to mitigate the costs to fisheries and wildlife species that are protected under the 1854 Treaty...Treaty-reserved fishing rights cannot be fully exercised when fish consumption must be restricted for health reasons to one or two meals per week.	COOP01, CR01
17937	The SDEIS does not adequately address the potential impacts to Band members of a significant increase in mercury in fish harvested both on-Reservation and in Ceded Territory waters...Yet the SDEIS offers no mitigation for these known losses. The SDEIS must be revised to include sufficient analysis and mitigation.	COOP01, CR01
17939	Minnesota’s mercury TMDL process will not adequately address the fishconsumption impairment in these waterbodies, and any new discharges that would result in further degradation to waters with an existing water quality impairment are not be legally permitable under the CWA.	COOP01, MERC11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Grand Portage Band (42994)	
17940	The cumulative effects of invasive species, mining, and Project effects on sturgeon must be considered and the SDEIS revised.	AQ02, AQ26, COOP01
17944	Although the permitted area is significantly disturbed and will be for the foreseeable future, the closure and reclamation plans will have a significant effect on native vegetation as it is reintroduced. The prevalence of invasive, non-native species and their ability to outcompete native plants in disturbed areas, coupled with PolyMet's plan to introduce non-native and invasive species to this area, would result in significant impacts to cultural resources that have not been discussed in the SDEIS.	COOP01, VEG09
17945	While the SDEIS provides that displaced wildlife will face increased competition for resources, no mention is made whether the displaced animals may cause populations in adjoining territory to approach or exceed carrying capacity. The SDEIS fails to assess cumulative effects of wildlife population changes, not only in the project area, but the entire region.	COOP01, WI05
17948	the value of natural resources maintained in good condition is simply not represented in the SDEIS. Nor is the economic value of clean water provided or assessed.	COOP01, SO04
17949	The SDEIS also speculates that the tribes will benefit economically from the Project through additional visitation to Band-operated Casinos, but provides no data to back up the statement: "Increased employment and income associated with the NorthMet Project Proposed Action could increase visitation and revenues at [area tribal gaming] facilities." This statement is entirely unsupported by any market analysis and must be deleted from the socioeconomic assessment of the Project.	COOP01, EDIT01
20089	after an agency preferred alternative and the LEDPAs are identified, the USACE should re-notice the 404 permit and MPCA should re-notice the 401 certification.	COE04, COOP01
Sender Name (Submission ID)	Grand Rapids Area Chamber of Commerce (22390)	
3427	Our Chamber has had a formal resolution in place supporting the PolyMet Project since August, 2007. The reasons we passed this resolution were varied, but included things you've already heard about like positive economic impact, jobs, tax money for the State of Minnesota and funding for schools.	SO10
3429	Today the world needs the precious metals that we have under our feet.	NEPA05
3431	We support the draft EIS and the Supplemental Draft EIS and believe that it provides a sound foundation for the company to seek and obtain the needed permits to operate.	PER34
3593	we have a State policy that calls for responsible extraction of our mineral resources and strong laws and processes in place to ensure that we protect people and the environment when we mine.	PER34
Sender Name (Submission ID)	Grant Johnson (18225)	
2189	I believe that this mining is a threat to the environment and to our water supply.	WR195
2190	The environmental threats to our water supply puts risks -- health risks to our towns up north and moreover, even puts at risk the tourism industry up north.	HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Grant Johnson (18225)	
2191	I am disappointed that most of the profits from the mining won't stay in Northern Minnesota or even Minnesota. As we talked about PolyMet, it's not from Minnesota or even the United States.	SO06
Sender Name (Submission ID)	grant k (15471)	
690	As a child i frequently visited much of the wilderness on the range and would like it to stay as just that, wilderness. I would like to see northeast minnesota to remain pristine and untouched by industrial pollution so my children will be able to experience the wonder of our pristine lakes and rivers and our great forests.	WILD02
Sender Name (Submission ID)	Grant Thrall (10727)	
592	The proposed mining endangers my children, the BWCAW and guarantees Minnesota will be on the hook to pay for the perpetual cleanup of a project that would give a small number of people jobs, and little revenue for the state.	WR037, WR111, WR195
699	Mining for these metals is not in anyone's interest, other than those who would profit financially, foreign or local, in the short term. Our environment is far too precious to even consider damaging our nation's, or Canada's, watersheds in the short term.	SO01
887	500 to 2,000 years of pollution management for the short term gain is unconscionable.	PD01
1172	The SDEIS must be redone, properly, which will provide legal justification for rejecting the sulfide ore mining plan.	NEPA15
1173	Minnesota will be on the hook to pay for the perpetual cleanup of a project that would give a small number of people jobs, and little revenue for the state.	SO01
1485	Please reject the PolyMet NorthMet SDEIS as inadequate.The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health.	NEPA09
3589	The proposed mining endangers my children, the BWCAW and guarantees Minnesota will be on the hook to pay for the perpetual cleanup of a project that would give a small number of people jobs, and little revenue for the state.	WILD02
8915	Any land swap would be one that would diminish the concept of national forests, especially in favor of a commercial interest. It is also inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value.	LAN01
13814	It is also inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value.	LAN03
16979	The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health.	HU01, MERC02, WR041, WR115, WR189
Sender Name (Submission ID)	Grant Wesley Anderson (57252)	
17383	The cumulative effects analysis area must include the St. Louis River. The EIS limits the area to the Partridge and Embarrass River watersheds. This decision was not scientifically supported.	CU01
19495	All sulfate protected to enter the river from approved new projects should be used in the estimate even if those projects are not yet [ILLEGIBLE]	CU02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Grant Wesley Anderson (57252)	
19496	The DNR should use the new data from the John Pastor research in setting a lower standard for sulfate impact on wildrice.	VEG04, WR152
Sender Name (Submission ID)	Great Lakes Indian Fish and Wildlife Commission (42952)	
2924	In the SDEIS or supporting documents, there is no discussion of tailings pond water exiting the basin into this topographically closed area. There is no accounting for contaminants moving eastward, and there is no description of their possible impact on receiving ground or surface waters.	COOP01, WR054, WR057
2925	Because of the no-flow boundaries, the model output files (Northmet Model Files DVD, BARR July 2012) show extremely unrealistic groundwater heads in the aquifer surrounding the east side of the FTB.	COOP01, WR093, WR097
2950	Staff continue to believe that the underground mine and west pit backfill alternatives have not been properly explored given the environmental benefits they could bring to the project. Our comments stand as detailed in Appendix C.	ALT03, COOP01
2951	In addition, there are a number of alternatives that the SDEIS fails to explore. These include paste backfill, immediate operation of the RO treatment facility at the mine site, etc. Additional details are found in the comments submitted by the Fond du Lac Band.	ALT06, COOP01
2952	Unfortunately the SDEIS has no serious analysis of a No Action Alternative. Section 5.2.2.4 is less than 1 page long and gives a very general and hypothetical discussion. It in no way represents a serious analysis of a No Action Alternative.The SDEIS needs to have modeling of a No Action Alternative	ALT14, COOP01
2953	The concerns regarding the cumulative effects analysis have not been resolved. The information provided in Appendix C is still applicable to the SDEIS.	COOP01, CU12
2959	The ACOE and Forest Service's position in the SDEIS is that these items can addressed at a later time by the Minnesota Department of Natural Resources in the review of future mining permits. This action is an ill-conceived attempt to abdicate their federal trust responsibility to protect the habitats that support treaty harvests. Despite their attempts, the ACOE and Forest Service cannot delegate their federal trust responsibility to protect habitats that sustain treaty harvests to state of Minnesota when it undertakes the process of permitting the mine.	COOP01, CR01
2961	The superficial estimate of financial assurance provides inadequate detail as to how any of the cost estimates were developed. The DEIS provided a discussion about the options for financial assurance instruments however any substantial discussion of costs and assumptions on the metrics were not provided and instead postponed until the permitting phase of this Project.	COOP01, FIN05, FIN08
2963	The Executive Summary fails to provide: 1) an estimated cost for reclamation, 2) an estimated cost for post-closure maintenance and water treatment, 3) any realistic estimate as to the length of time that post-closure maintenance and water treatment would be required, or 4) information as to how financial assurance instruments would be structured to ensure the costs of post-closure maintenance and water treatment are paid for an uncertain amount of time and for which models indicate would be longer than 200 years at the mine site and 500 years at the plant site.	COOP01, FIN05, FIN06, FIN08
2964	The SDEIS Executive Summary failed to provide either an estimated cost of reclamation or an estimated cost for post-closure maintenance and water treatment.	COOP01, FIN05
2965	The Executive Summary also failed to explain how financial assurance instruments can be established to cover the cost of reclamation and post-closure maintenance and water treatment costs if "it is uncertain how long the NorthMet Project Proposed Action would require water treatment4".	COOP01, FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Great Lakes Indian Fish and Wildlife Commission (42952)	
2966	The SDEIS provides a listing of items for which costs must be included in the financial assurance instrument (i.e. demolition of all structures and remediation of sites [fencing the perimeters, sloping and seeding the overburden, constructing outlet structures, removing culverts, etc]) yet fails to provide any estimated costs or the basis for these costs.	COOP01, FIN05
2967	The SDEIS notes, PolyMet would ensure that the financial assurance amount is established as a function of at least three main variables: 1) extent of surface disturbance and potential releases from waste storage facilities, 2) reclamation and long-term care standards (including mechanical water treatment), and 3) reasonable assessment of the costs to execute the Contingency Reclamation Plan. The SDEIS provides no discussion as to how these variables are likely to impact overall costs of the financial assurance instrument and how large the variance of cost estimates are likely	COOP01, FIN05, FIN08
2968	The costs provided in Table 3.2-15 provide no basis for their estimation or other assumptions. The SDIES failed to provide detailed costs for the physical closure and reclamation of the mine site that will need to be covered by Financial Assurance Instruments – a detailed discussion as to how much money will be needed from financial assurance instruments and when.	COOP01, FIN05, FIN08
2969	Cost to be covered by Financial Assurance need to include detailed information and cover the following areas: 1) interim operations and maintenance for agencies when a company declares bankruptcy and leaves the site, 2) water management and treatment, 3) removal of hazardous wastes and substances, 4) demolition, removal and disposal of facilities and equipment, 5) earthwork (sloping, backfill, grading), 6) revegetation,7) long-term operations and maintenance, 8) Monitoring costs, 9) detailed inflation estimates, 9) provide a cash flow analysis, and 10) detail assumptions in the determination of risk and uncertainty.	COOP01, FIN03, FIN05
2970	In addition to providing detailed cost estimation, the final EIS needs to clearly identify and communicate assumptions regarding inflation rates, rates of return, contingencies, and labor rates. Closure and maintenance costs will need to be covered years into the future, so a net present value must be included in the final EIS.	COOP01, FIN05, FIN08
2971	The SDEIS provides a listing of contingencies that may have to be covered by financial instruments… Unfortunately the SDEIS provides no discussion as to any of the costs of the contingencies that are identified. The SDEIS also fails to discuss how financial instruments would be structured to meet those contingencies or the assumptions made by PolyMet to ensure an adequate stream of revenue is available to meet closure and maintenance costs	COOP01, FIN05, FIN08
2973	The SDEIS notes, PolyMet may cancel financial assurance only upon approval by the MDNR after it is replaced by an alternative mechanism or after being released (in whole or in part) from financial assurance. The SDEIS fails to discuss any federal oversight of this process and how the federal government will meet its trust responsibility in protecting habitats that support off-reservation treaty harvests.	COOP01, CR01
3049	Depending on the exact placement of the drain cells, the modified modeling [glifwc conducted] resulted in an estimate of 588 to 847 gpm of flow through the east berm of the basin. This flow is on a scale similar to the flow predicted for the south berm discharge at SD026 (570 gpm, RS13B Draft-01; or 540 gpm, Polymet 2013j). That the predicted discharges at the south berm and at the east berm are similar is logical because both areas are underlain by bedrock valleys filled with high conductivity surficial deposits. In the context of the predicted total discharge from the FTB at year 20 (3340 gpm, RS13B; or 3230 gpm, Polymet 2013j) the 588-847 gpm prediction suggests that approximately 1/5 of the FTB water would exit through the east berm.	COOP01, WR102
3054	NorthMet water management plan version 2 states that the south side seepage capture facility is already operational. The SDEIS further states that the system is operating effectively and capturing all seepage out of the south end of the facility. This statement is factuallyincorrect.	COOP01, WR117

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Great Lakes Indian Fish and Wildlife Commission (42952)	
3055	The SDEIS discusses Cliffs Erie site, identifies 62 Areas of Concern (AOC's), and discusses PolyMets role in site remediation. The SDEIS failed to provide any information as to cost estimates for addressing the legal requirements for mitigating the AOC's as identified. This information is needed to ascertain if the proposed project would further contaminant AOC's and increase clean-up/remediation costs.	COOP01, HAZ05
12501	The importance of baseflow in understanding site hydrogeology is hard to overstate. Unfortunately, the quality of flow data collected at the Polymet site is poor and fraught with uncertainty. Because there has not been a Polymet stream gage at the site and Northshore pit dewatering has occurred into the Partridge at varying and uncertain times, all flow data from the site is suspect. Simple upstream, at-site, and downstream flow measurement would have provided higher quality data but was never collected by the applicant nor required by the state.	COOP01, WR003
12502	The mine site water modeling data package very clearly states (SDEIS reference Polymet 2013i, pg 123 & 133) that the 1 cfs added to Goldsim modeling was to account for constituents added to the Partridge by pit dewatering from Northshore; It is not relevant to baseflow calculations nor is it relevant to determination of aquifer conductivity or groundwater travel times.	COOP01, WR005
12504	Polymet Modeling of Flow from the Basin:Polymet modeling with MODFLOW (RS13 Attachment A-6 2007; RS13B Attachment A-6 2008; Polymet 2013j Attachment A 2011), for the FTB has prevented any discharge of basin water to the east by erecting a no-flow boundary at the surface of the berm and at the ground surface. This no-flow boundary is an artificial construct that has no basis in reality. In reality, flow to the east will be controlled by the relative head pressures and the conductivity of the materials in the FTB, beneath the FTB and in the berms.	COOP01, WR093
12510	Geology Beneath the East Berm:Examination of the geologic data for the site indicates that the east berm of the FTB sits on a bedrock valley filled with surficial material that is 25 to 50 feet deep. The bedrock valleyunder the east berm is the historical stream channel for Trimble Creek prior to the creation of the current tailings basins (Figure 1). The thickness of the surficial material under the east berm is indicated as 25 to 50 feet in the depth to bedrock map of the SDEIS Figure 4.2.2.-12 (Figure 2) and in the depth to bedrock map MN Geological Survey M-126.The distribution of bedrock under the FTB has been represented in 2 ways during Polymet MODFLOW modeling. Technical document RS13 of Nov. 16, 2007 Attachment A-6 Fig. 4-2 showed bedrock in the 2007 MODFLOW model as extending under the eastern quarter of the tailings basin. In technical document RS13b of Sept. 8, 2008 Attachment A-6 Fig. 4-7h, bedrock in the 2008 model did not extend under the basin but rather showed the basin to be underlain with surficial material. The text of RS13b, section 4.6.1 of Attachment A-6 states: "The location of the bedrock hills that flank the Tailings Basin to the east and south were updated. The location of the bedrock hills is used in the model to define the extent of the low hydraulic conductivity zone that represents the bedrock. Because the footprint of theTailings Basin – Mitigation Design is closer to these hills on the southeast side of the footprint than was the footprint for the proposed design, it was important to get the location of these hills as accurate as possible. The location of the bedrock hills wasdefined using information from the Minnesota Geological Survey's map M-164. The resulting zones of hydraulic conductivity can be seen on Figure 4-7."The extent of the tailings basin footprint represented in RS13b is the same extent as currently proposed in the SDEIS. However, evaluation of flow from the basin using MODFLOW and Goldsim appears to have fallen back to the 2007 representation of the basin footprint and of the underlying bedrock (see GLIFWC comment re: SDEIS modeling and mitigation basin design).	COOP01, WR094

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Great Lakes Indian Fish and Wildlife Commission (42952)	
12520	Conceptual Model of East Berm:A conceptual diagram of the east berm is provided below. The head difference between the top of the basin (~1720 ft), the head pressures expected in the surficial deposits below the center of the basin (1700 ft; RS13b, 2008), and the head pressure at the toe of the basin (1660 ft) will push water toward the toe of the east berm. The 25-50 feet of surficial deposits in the bedrock valley under the east berm will conduct water under the east berm and beyond.Revised MODFLOW Modeling of Discharge from East Berm: In order to investigate the approximate magnitude of discharge that would exit the east berm of the FTB, we conducted modified MODFLOW modeling of basin flows in year 20 of the project. To simulate the basin but without the no-flow boundary imposed in previous Polymet modeling, we used the 2008 Polymet MODFLOW model (RS13B Draft-01), with the sole modification being the placement of model drain cells at the east berm. The original 2008 model predicted flows of 3340 gpm from the basins, 570 of which was predicted to flow to the seepage barrier on the south side of the basins (SD026) but no flow to the east because of the no-flow boundary instituted in that model (RS13B Draft-01). Our placement of drain cells in the east berm area of the MODFLOW model enabled water to move east from the berm, rather than reverse flow to the north, west and south as was dictated by the no-flow boundary. The use of drain cells at the east berm to allow eastward movement of water is an identical approach as that implemented by Polymet for the south berm of the tailings basin where the discharge to SD026 is modeled by drain cells. Depending on the exact placement of the drain cells, the modified modeling resulted in an estimate of 588 to 847 gpm of flow through the east berm of the basin. This flow is on a scale similar to the flow predicted for the south berm discharge at SD026 (570 gpm, RS13B Draft-01; or 540 gpm, Polymet 2013j). That the predicted discharges at the south berm and at the east berm are similar is logical because both areas are underlain by bedrock valleys filled with high conductivity surficial deposits. In the context of the predicted total discharge from the FTB at year 20 (3340 gpm, RS13B; or 3230 gpm, Polymet 2013j) the 588-847 gpm prediction suggests that approximately 1/5 of the FTB water would exit through the east berm.Implication of Faulty Modeling of Discharge to the East:At least three problems arise from the current situation of SDEIS modeling of the FTB with a no-flow boundary on the east and inaccurate representation of bedrock: 1) There is no contaminant transport modeling or evaluation of the water leaving the east side of the basin. Without substantial engineering to remove the water, a lake toward the 1680 foot contour would form (Figure 4) until water spilled toward Spring Mine Lake. The Flotation Tailings Management Plan (Polymet 2013m, page16) discusses the need for a drainage swale to release stormwater from the topographically closed area to the east of cell 1E. In the SDEIS or supporting documents, there is no discussion of tailings pond water exiting the basin into this topographically closed area. There is no accounting for contaminants moving eastward, and there is no description of their possible impact on receiving ground or surface waters. 2) There are potential receiving surface waters near to the east berm; wetlands at the toe of the east berm, Spring Mine Lake & Spring Mine Creek to the east, and wetlands and an unnamed creek to the north of the proposed drainage swale. 3) The Polymet MODFLOW modeling was designed to prevent any water from leaving the east side of the basin by establishing no-flow boundaries on that side of the model. Because of the noflow boundaries, the model output files (Northmet Model Files DVD, BARR July 2012) show extremely unrealistic groundwater heads in the aquifer surrounding the east side of	COOP01, WR054, WR056, WR102, WR105

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Great Lakes Indian Fish and Wildlife Commission (42952)	
12525	SDEIS MODFLOW Modeling Appears to be of Fatally Flawed and Discarded Tailings Basin Design. Modeling in the SDEIS appears to be of a Flotation Tailings Basin (FTB) design that was discarded several years ago and does not model the currently proposed basin design. The 2007 FTB design, that is modeled in Attachment A (2011) of Polymet 2013j, was deemed to be "fatally flawed" by the MNDNR (Mitigation Table, Arkley email of 2008/12/09) and was replaced by the "mitigation" design developed in 2008. GLIFWC staff have posed a series of questions to the lead agencies regarding the modeling for water quantity and flow direction at the FTB. ERM has provided a series of written responses to those questions. The 2014-03-10 Response 4 from ERM re: the Plant Site MODFLOW modeling identified Attachment A of the Water Modeling Data package of March 2013 (SDEIS reference Polymet 2013j) as the documentation of the tailings basin flow modeling for the SDEIS. Careful examination of the scant information in the above referenced Attachment A (2011) indicates that the modeling done in 2011 for that attachment was not of the FTB as currently proposed. The footprint modeled for attachment A is the footprint of an early FTB proposal from 2007 (Figure 5) that was supplanted by the FTB design developed during the "Mitigation Options" process of 2008. The 2008 mitigation FTB design (Figure 6) is the current design footprint assumed in the text of the SDEIS (SDEIS Fig. 3.2-23). In addition to using a discarded FTB design footprint, the modeling in Attachment A also used a crude representation of bedrock that was supplanted by a more refined bedrock representation during the modeling of the 2008 mitigation design (RS13B Draft-01, 2008). The diagrams and model files supporting Appendix A (2011) further demonstrate that the modeled footprint is of the 2007 fatally flawed FTB design (see footprints in layer 1 of 2007 (Figure 7) and 2011(Figure 8) models, attached), instead of the mitigation basin design (see footprint in layer 1 of 2008 model, (Figure 9)). The rejected basin design had a smaller footprint and did not extend as far to the south and south-east. Unlike the current design, the rejected design did not cover the ash disposal site in the south-east end of the FTB. It appears that the SDEIS Goldsim (water quality) modeling is based on MODFLOW (water quantity) modeling of an old FTB design that was deemed fatally flawed and is not modeling the currently proposed FTB design.	COOP01, WR094, WR098

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Great Lakes Indian Fish and Wildlife Commission (42952)	
12541	Perpetual Water TreatmentThe proposed Polymet project would require long term treatment of water at both the plant and mine sites. This treatment would be needed for centuries but the lead agencies have not required that the applicant provide an estimate of when treatment would no longer be needed. Therefore, as articulated in Chapter C, GLIFWC staff maintain that water treatment for the proposed Polymet mine is perpetual.GLIFWC staff are gravely concerned that the lead agencies are attempting to minimize the issue of perpetual/long term treatment by using vague and confusing language in the SDEIS. In addition, the language the lead agencies have used has changed during the development of the document even though the model results have not.The SDEIS states on page 5-7: “Mechanical water treatment is part of the modeled NorthMet Project Proposed Action for the duration of the simulations (200 years at the Mine Site, and 500 years at the Plant Site). The duration of the simulations was determined based on capturing the highest predicted concentrations of the modeled NorthMet Project Proposed Action. It is uncertain how long the NorthMet Project Proposed Action would require water treatment, but it is expected to be long term; actual treatment requirements would be based on measured, rather than modeled, NorthMet Project water quality performance, as determined through monitoring requirements.” (Emphasis added)In response to comments on the PSDEIS (Comment GLIFWC1) the Co-Lead agency disposition states: “Modeling predicts that treatment activities will be a minimum 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long-term, these time frames are not necessarily perpetual. The owning company would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions are met” (Appendix C SDEIS) (Emphasis added)It is impossible to reconcile these 2 statements. We agree that the duration of simulations were based on capturing the highest predicted concentrations of the modeled action. However, those concentrations require water treatment to avoid violating water quality standards. This treatment is at minimum 200 years at the mine site and 500 years at the plant site. As the lead agencies indicate, these time estimates are only minimums and there is no information that points to a time when water treatment would not be needed. Finally, while the maximum contaminant plume is predicted to occur at the 200 and 500 year mark for the mine and plant sites respectively, this does not mean that contaminants immediately drop to zero. The reduction would be gradual and perhaps last for another few centuries. In addition the SDEIS states on page 5-56: “The attenuation effect resulting from sorption is significant enough that arsenic, copper, and nickel are not predicted to travel from source areas to any evaluation locations or the Partridge River within the 200 year model simulation period (Barr 2013f). Analytical calculations suggest that the travel times for these solutes would be in the order of thousands of years."This statement suggests that water treatment activities would be required far beyond the 200 year time frame at the mine site and would be on the order of thousands of years. Therefore, the only logical conclusion is that water treatment is perpetual at this project.It is also important to note that, in the response to GLIFWC comments on the PSDEIS, the lead agencies acknowledge monitoring and maintenance requirements during the same 200 (mine site) and 500 (plant site) year timeframe.The SDEIS requires substantially more transparency on one of the most fundamental issues at stake for this project. The fundamental question is: how long will the company be required to operate and maintain expensive mechanical treatment to meet water quality standards? This singular issue has significant repercussions for the public interest determination	COOP01, FIN05, WR035, WR036, WR037

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Great Lakes Indian Fish and Wildlife Commission (42952)	
12544	Indirect Wetland Impacts.The methods used in the analysis of indirect wetland impacts in the SDEIS are essentially the same as the 2009 DEIS. GLIFWC staff reiterate the comments we have provided in the past that the method is overly simplistic, based on a flawed conceptual understanding of hydrology at the mine site and inadequate for the NEPA process of a large scale sulfide mine.The SDEIS has underestimated baseflow at the mine site. The entire conceptual model of perched wetlands with hydrology that is completely decoupled from groundwater was supported by the use of unrealistically low baseflow numbers. Now that the applicants XP-SWMM model has been discredited and that it is obvious that the movement of groundwater at the mine site is 3 times greater than the SDEIS indicates, the assumption that wetlands will not be impacted by groundwater drawdown should be abandoned. The higher baseflow numbers support the independent analysis of indirect wetland impacts provided by the tribal cooperating agencies in Appendix C.The lead agencies have also based their analysis on the Bog Memo prepared by the Army Corps of Engineers (Eggers, Steve (2011) MEMORANDUM SUBJECT: Distinguishing Between Bogs That Are Entirely Precipitation Driven Versus Those with Some Degree of Mineral Inputs from Groundwater and/or Surface Water Runoff). This memo uses plant community information to determine the degree of hydrologic connectivity between a wetland and groundwater. The conclusions in the memo are appropriate for a system that is not experiencing depressurization of the aquifer (drawdown). However, when mine induced drawdown occurs, new downward pressure gradients are created. Whittington and Price documented that these downward hydrologic gradients can in fact dewater wetlands that are entirely surface water dependent under normal conditions (Whittington, PN and JS Price, The effects of water table drawdown (as a surrogate for climate change) on the hydrology of a fen peatland, Canada.) HYDROLOGICAL PROCESSES, 20(17), 3589-3600. 2006). The bog memo is not an assessment of the hydrologic conditions of wetlands in a dewatered state but rather an assessment of surface hydrology under normal conditions. The indirect wetland impact analysis should be performed using realistic hydrologic assumptions and appropriate mitigation should be required.	COOP01, WET08, WR003, WR175

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Great Lakes Indian Fish and Wildlife Commission (42952)	
12566	Seepage Capture Efficiency. As detailed in comments submitted to the lead agencies for the 2009 DEIS and for the current SDEIS, water quality analyses for the Partridge and Embarrass Rivers are inadequate. The results, be they deterministic (DEIS) or in the form of probability distributions (SDEIS) are based on a flawed understanding of hydrology at both mine site and plant site. This flawed understanding, reflected most prominently in the errors in baseflow calculations, is carried forward to the MODFLOW hydrologic modeling. At the mine site MODFLOW under-predicts the amount of water that would flow into the mine pits and thus under-predicts the amount of water treatment needed for both short and long term closure. At the plant site, the MODFLOW model is constructed in a way that is not representative of reality and therefore yields results that are not logical. The lead agencies appear to disregard these problems because there is faith that the seepage capture and treatment systems will work at over 90% effectiveness for centuries. The SDEIS claims of long term compliance with applicable water quality standards depend entirely on this leap of faith. On conference calls scheduled to discuss these issues, the lead agency consultants have stated that the effectiveness of the capture systems have not been questioned and the lead agencies have not been able to provide any references that would support their position. We suggest that there are substantial reasons for skepticism regarding capture efficiency for the flotation tailings basin, hydrometallurgical tailings basin, and category 1 stockpile seepage capture systems. This skepticism is based on available literature and the performance of other facilities in the immediate vicinity. The EPA conducted an analysis of the effectiveness of seepage capture systems (Evaluation of Subsurface Engineered Barriers at Waster Sites, United States Environmental Protection Agency (EPA), 1998). This analysis looked at capture systems at 36 facilities and evaluated their effectiveness based on the performance requirements at each site. It is difficult to extrapolate the results of this analysis to the Polymet setting because a) the required effectiveness varied from facility to facility; b) the way in which effectiveness was measured was different (i.e. water quality improvements downstream versus change in hydrologic head pressure) and c) data collection varied between facilities. Despite these difficulties, the report indicates that 10% of the reviewed containment systems failed to meet the desired performance objectives and required corrective action. An additional 19% of the evaluated facilities did not have sufficient data to conclude whether the containment system was operating successfully or not. Furthermore, there is no information on the effectiveness of any of these facilities at timeframes remotely comparable to the needs at Polymet. In the EPA report, long term is considered 30 years whereas the water capture needs at Polymet are perpetual for the flotation tailings basin, category 1 stockpile and hydrometallurgical tailings basin. Finally, none of the facilities in the study are as large as the one proposed at Polymet. At the tailings basin, Polymet has proposed to install a seepage collection system around the north and west sides of the facility. The scale of this engineering control is extensive. It would be approximately 5 miles long and would have to be keyed to bedrock that is 25 to 50 feet below ground surface. The most likely pathway for leakage at this barrier will be in the vicinity of the key with bedrock (EPA 1998). This feature, and the similar containment system at the Category 1 waste rock stockpile are assumed to capture 93% of water leaving the facilities for an indeterminate period of time. As previously stated, there is no scientific justification for this number. The only examples we are able to identify at this time suggest capture rates that are lower. In t	COOP01, WR003, WR009, WR010, WR013, WR018, WR019, WR020, WR099, WR117, WR123
12568	Summary for Seepage Capture Comments.The prediction of water quality standard compliance for this proposed project hinges on the perfect operation of the water capture systems. The reliance on this engineered containment system that uses overly optimistic capture rates and must function in perpetuity is not scientifically supported and therefore is not appropriate for the SDEIS. The water quality and quantity impacts at both plant site and mine site should be remodeled by using a range of capture efficiencies. We suggest 60%, 70%, 80% capture rates be modeled for the tailings basin and category 1 stockpile. Water quality values for each of these capture rates should be reported. This will allow the public and decision makes to have a realistic picture of the risk and uncertainty for this project. Seepage capture at the flotation tailings basin does not account for seepage out of the east side of the basin. The seepage capture system should be expanded to account for this expected discharge. A MODFLOW model was developed to assess the amount of seepage that would flow out of the basin. As detailed in GLIFWC comments, that model is designed in a way that does not conform to reality and therefore the results are unreliable.	COOP01, WR017, WR018, WR022, WR035, WR093, WR129, WR133

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Great Lakes Indian Fish and Wildlife Commission (42952)	
12573	Ability of Goldsim to Accurately Predict Contaminant Concentrations:We remain concerned about the inability of Goldsim to accurately predict current and future contaminant concentrations. This is particularly troubling in the lower Partridge River (e.g. SW005) and in Colby Lake where Goldsim predictions of current conditions appear to be inaccurate. In recent conversations with the lead agencies and ERM, there has been agreement that the modeling in the SDEIS does not accurately capture the environmental conditions at Colby Lake. Additional modeling of this waterbody is needed to assess impacts of the proposed project and to evaluate the suitability of Colby Lake water for use in augmenting the flow of other waterbodies. In addition, the discrepancies between modeled and observed data at SW005 should be addressed in detail.	COOP01, WR049
12575	The SDEIS does not adequately address mercury concerns.	COOP01, MERC01
12580	Wild Rice Standard. The concerns over the MPCA's interpretations and recommendations regarding the wild rice sulfate standard have not been resolved. The information provided in Appendix C is still applicable to the SDEIS. In addition, staff believe that water quality modeling underestimates the amount of sulfate at points of compliance. Even with this problem, contaminant modeling suggests that the sulfate standard will be violated in the Partridge River points of compliance approximately 10% of the time. While this may meet the lead agencies arbitrary evaluation criteria (standard met 90% of the time) it certainly is not enough to warrant the issuance of an NPDES permit. At the Embarrass River the standard is already exceeded at the point of compliance because of historic contamination from the tailings basin and the area 5 pits. It is not clear if the capture system around the tailings basin will function well enough to allow the standard to be met.	COOP01, WR152, WR153, WR154
12601	Impacts from Rail Car Spillage. The concerns regarding the hydrologic impacts of sulfide ore dust spillage along the rail corridor have not been resolved. The information provided in Appendix C is still applicable to the SDEIS.	COOP01, PD07, WR151
12602	Loss of High Biodiversity Significance Values Sites. The concerns regarding the loss of high biodiversity sites such as the 100 mile swamp, Lynx and Moose habitat and remaining wildlife corridors have not been resolved. The information provided in Appendix C is still applicable to the SDEIS.	COOP01, WI04, WR080
12604	The Supplemental Draft Environmental Impact Statement (SDEIS) NorthMet Mining Project and Land Exchange failed to adequately address closure and maintenance costs and length of time for post-closure treatment in the context of financial assurance requirements.	COOP01, FIN05
12605	Within the 54 pages of Executive Summary only a single paragraph addresses the issue of financial assurance as noted below:	COOP01, FIN08
12607	The SDEIS failed to clearly state how the State of Minnesota will determine the maximum bond requirements,	COOP01, FIN05
15020	In determination of baseflow, all GLIFWC's calculations have excluded Northshore pumping from the calculation. The Dec. 17th MNDNR memo (Attachment A) also picked a period when pumping for Northshore pit dewatering was not occurring so as to calculate true baseflow. The 1 cfs added to GoldSim modeling of the Partridge, mentioned in various DNR documents, is irrelevant to the calculation of baseflow and does not solve the modeling problems in XP-SWMM, MODFLOW and by extension GoldSim. Some of the implications of incorrect baseflow are highlighted on page 114 of the water modeling data package (March 2013), in our memo of 2012-03-02, and in GLIFWC's baseflow summary of 2014-02-13 (Attachments B, C, and D respectively).	COOP01, WR052

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Great Lakes Indian Fish and Wildlife Commission (42952)	
15021	Because the implications of baseflow are substantial when it comes to a basic understanding of the mine site hydrogeology, all modeling of flow and by extension contaminant transport must be re-calibrated to the higher baseflow numbers indicated by GLIFWC's analysis of 2013-07-02 (Attachment E) and DNR's 2013-12-17 analysis (Attachment A). Page 114 of the mine site Water Modeling Data Package makes it clear that re-calibration of the MODFLOW model generates new conductivity values that are then fed into Goldsim. It states: "The revised model calibration resulted in different optimized values for the horizontal hydraulic conductivity of the surficial aquifer and bedrock, which are used to establish the distribution of values used for the probabilistic groundwater flow path modeling (Section 5.2.3.1)." It is also clear that higher hydraulic conductivities for the aquifers result in faster contaminant transport to points of evaluation.	COOP01, WR003
15022	Although baseflow assumptions have significant effects on Goldsim modeling, the implication of re-calibrating the MODFLOW model go beyond the conductivities used in the GoldSim modeling. Higher baseflows imply higher conductivities that imply faster and greater groundwater flow rates. This affects:1) The amount of water expected to flow into the mine pit as it is excavated.2) The amount of drawdown of Partridge River flow that can be expected due to pit dewatering.3) The amount of wetland dewatering that can be expected due to pit dewatering.Given the uncertainty in baseflow numbers due to the poor quality flow data, it is reasonable to re-calibrate the MODFLOW model to a range of values that included the previously assumed baseflow and the newer, higher baseflow numbers.	COOP01, WR003, WR086, WR094, WR098, WR165, WR166
15023	Discharge From East Berm of Flotation Tailings Basin:Significance:The contaminant transport analysis at the Flotation Tailings Basin (FTB) does not include any accounting for discharge through the east berm of the basin. There are 3 reasons why discharge through the east berm will be enough to cause environmental concern:1) the flow distance between the final FTB pond in cell 1E and the exterior of the east berm is relatively short compared to flow distances from the pond to the north and west berms (SDEIS Figure 3.2-29).2) the east berm is underlain with 25-50 feet of conductive surficial material (SDEIS Figure 4.2.2.-12 and Figure 2 below).3) the basin pond level is 1720 ft, the land elevation east of the basin is 1660 ft (Lidar data: http://www.mngeo.state.mn.us/chouse/elevation/lidar.html). The elevation difference between the pond and the adjacent land surface is substantial; 1720 ft - 1660 ft = 60 ft.	COOP01, WR054
15024	Discharge From East Berm of Flotation Tailings Basin:Significance:Because there has been no prediction of discharge from the east side of the FTB, there was no flow path established or contaminant transport analyzed in the easterly direction. The SDEIS is completely devoid of any mention or analysis of flow from the basin toward the east. Receiving waters for the contaminated discharge would be wetlands adjacent to the basin, Spring Mine Lake, Spring Mine Creek and wetlands to the north if a proposed storm water drainage swale is constructed.	COOP01, WR054
Sender Name (Submission ID)	Great Northern Solar (43595)	
12503	The mine plan inaccurately describes wild rice waters, understating the area that supports stands of wild rice.	VEG04, WR154
15467	the mine plan claims to reduce sulfates, but that assumes that expensive water treatment will continue for hundreds of years. Millions of gallons of untreated polluted water will escape every year, and the mine plan predicts an increased chance that water exceeding the sulfate standard will be released at times, years after closure.	PD03
15469	The company’s own computer models show that hundreds of years after the mine closes, water seeping into groundwater and flowing into streams and rivers at the site will be polluted with heavy metals and sulfates. Unless all of this water is captured and treated, the mine will pollute surrounding waters.	WR115, WR128
15472	Minnesota law requires that a closed mine site be “maintenance free,” but PolyMet’s mine plan calls for hundreds of years of monitoring and expensive water treatment. Worse, these models don’t even show that the pollution stops after 500 years. They just stopped modeling at 500 years. In other words, the pollution could go on for even longer.	WR037, WR195

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Great Northern Solar (43595)	
15474	PolyMet would be a huge consumer of electricity, much of it coming from the dirtiest coal power plants in Minnesota. PolyMet's electricity supplier, Minnesota Power, got 85% of their power from coal in 2013.	AIR02, PD39
15480	The tax estimates in the PolyMet mine plan lack detail, are full of discrepancies and contain [un]explained changes. From one draft of the mine plan to the next the estimated taxes jumped 500% without explanation. This is important, since the state taxes that would apply to a copper-nickel sulfide mine have never been used before.	FIN05
15483	The copper-nickel mining industry is exempt from several state and local taxes, such as property tax and corporate income tax, and has its own unique tax structure. Therefore, the State of Minnesota should confirm these tax estimates, and not just rely on the company to provide them.	SO04
Sender Name (Submission ID)	Greg Allen (18106)	
3349	PolyMet mining will bring in new jobs, which will bring in new families. School enrollments and our ability to add teachers, class offerings and new technology will increase as a result.	SO10
13472	Many districts have been forced into short-term borrowing to cover costs. Schools on the range do not receive property tax from the mines. They receive a taconite tax, when the mines are producing. This extra funding helps, but it is not stable funding.PolyMet mining will bring in new jobs, which will bring in new families.	SO10
Sender Name (Submission ID)	Greg bastien (43115)	
11700	At the financial hearing conducted by the House it was clear that the review process for possible catastrophic events only takes in short term events. The failure of a holding pond or undetected ground water infiltration could leave the state with liabilities that extend to other states and Canada with only sufficient funds to handle short term plugging of holes. The $2-4 billion down payment in a trust fund would be difficult to administer and with successors likely for the company in the future distributing any excess at the end of the period when the material from the mine is safe would be problematical.	FIN01, FIN05, FIN08
11704	the reuse of the old mine facilities is economically prudent for the company the difference in sulfide mining and taconite mining is considerable and the safety net for water resources is and would be insufficient. All ponding would have to meet a 300-500 year impermeabillity standard. All processing would have to be contained with no release to outside air and water.	PD27, WR195
11707	While not impossible these safeguards would drive the cost so high that the promised 20 year window of production would close much sooner the short term gain would be that much less with fewer jobs and less payroll.	SO02
Sender Name (Submission ID)	Greg Benedict (26618)	
15253	The more forest/protected land that goes to these giant excavations, the more pollution and disruption of natural processes will occur. … Many push the idea of money over everything. Its never about the everyday people who make connections, memories, and above all harmony with the land.	SO01
15254	I would feel deeply disappointed if I witnessed any more significant damage to the places I love to visit like Superior National Forest and BWCAW. They aren't just places to go, they are places that facilitate spiritual growth and understanding. Places that are relaxing, slow, peaceful, and calm. The experiences of complete wilderness are beyond anything in a book.	WILD02
Sender Name (Submission ID)	Greg Boom (6198)	

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Greg Boom (6198)	
1056	This project will create tax money which every state needs. It will provide jobs for a area that is not over flowing with employment	SO10
1186	Minnesota has strong environmental laws - Polyment will be environmentally responsible. The environment safety will be covered by Minnesota laws.	PER34
Sender Name (Submission ID)	Greg Chester (51269)	
3603	The Land Exchange sacrifices our sacred lands to a foreign corporation, not for the public interest.	CR01
3604	It will endanger both a valuable watershed and Lake Superior, one of the larges fresh water lakes in the world. Its diminution or loss resulting from this and several other existing and proposed mines would be a global tragedy.	WR111
3605	Rejecting the PolyMet SDEIS as inadequate, the proposed PolyMet sulfide mine, and Land Exchange would be for the long term benefit of those of us living in the region. The dangers far outweigh the benefits.	AIR11
9980	This is one of the last areas left where a person can sink a 25 foot well and drink sweet clean water. Please do not poison this area like others have done with so much of the rest of it.	WR041
9981	Mercury is just one threat to our environment and health…The threat to humans is very real as well as eagles and osprey.	WI04
9982	The cost benefit ratio shows that we may lose far more than we gain from the mine. What tourist would want to leave an urban environment to come to a contaminated rural area?	SO01
12507	The Land Exchange sacrifices our sacred lands to a foreign corporation, not for the public interest. The Land Exchange won’t unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining.	LAN04
12508	It will endanger both a valuable watershed and Lake Superior, one of the larges fresh water lakes in the world.	WR111
12512	Rejecting the PolyMet SDEIS as inadequate, the proposed PolyMet sulfide mine, and Land Exchange would be for the long term benefit of those of us living in the region.	SO10
12514	The dangers far outweigh the benefits. We live here for the clean air, soils and water and the health of our future generations. And we honor our treaties with the Ojibwe Nation	AIR11
16203	[Lake Superior's] pristine waters are far more valuable than the momentary gains of a temporary mine.	SO01
Sender Name (Submission ID)	Greg Jackson (43688)	
11913	I am a supporter of extraction and manufacturing jobs, especially in economically depressed areas, however, I am not convinced that the proposal as it stands now will guarantee that a) negative environmental impacts will be avoided, and b) that jobs created will last and profits from the extracted minerals will stay in Minnesota.	SO01
11914	I am concerned that the analysis has not fully included the economic benefits of the landscape as is - including the recreational use, bequest, and existence value so many Minnesotans and Americans place on the Boundary Waters.	SO04

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Greg Korelich (17613)	
2102	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for--information that is necessary to evaluate the environmental effects of this proposal.	FIN08, PD03, WR035, WR128
2103	More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering.	WET24
2104	…sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
2105	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	Greg Pittelli (57539)	
19510	Berkeley Pit. Learn from it. Don’t destroy this beautiful place forever. Minnesota is smarter than that.	WR023
Sender Name (Submission ID)	Greg Solberg (1)	
1	Please read this: http://pub.epsilon.slu.se/1874/1/Kappan_Avhandling_nr_08.88.pdf	REF01
2	From a stockpile duration how long is temporary?	PD15
3	Research shows that within 3 months - acid mine drainage starts to occur. Might be 30 years in a test tube, but in the wild - it can start in 30 days.	WR001, WR034
4	Could you provide us with examples of where this so-called technology [water capture, containment, and treatment systems] is being used successfully in other sulfide mining operations around the world?	WR020, WR023
5	How much will it cost to treat the water for upwards of 500 years, and who will pay for it? We all understand that as soon as the mining companies are finished extracting - they are gone.	FIN01, FIN05
8582	Any reasonable human can see that the amount, length of time, and obvious monetary obligation of water treatment is enough to say no, not yet, to non-ferrous mining. Not to mention it's very clear that RO won't work. PolyMet says it will. Fair enough, show us examples please.	PD03, WR023, WR037, WR128
8582	Any reasonable human can see that the amount, length of time, and obvious monetary obligation of water treatment is enough to say no, not yet, to non-ferrous mining. Not to mention it's very clear that RO won't work. PolyMet says it will. Fair enough, show us examples please.	FIN16, FIN17
8583	It just absolutely boggles my mind that you would even consider this type of mining at this time. Someday? Sure. When the technology has come far enough to guarantee it can be done without causing harm to the environment, and with minimal damage to the landscape. That clearly is not the case which exists today… FYI: the metals aren't going anywhere.	NEPA03, PD32
8583	It just absolutely boggles my mind that you would even consider this type of mining at this time. Someday? Sure. When the technology has come far enough to guarantee it can be done without causing harm to the environment, and with minimal damage to the landscape. That clearly is not the case which exists today… FYI: the metals aren't going anywhere.	PD32

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Greg Solberg (1)	
12967	I do not believe the technology exists to do this without causing environmental damage. If it does, mining companies would be using it.	WR128, WR195
12968	It's my sincerest belief that, contrary to you and the mining companies, these mining operations will produce acid rock drainage.	WR001
12971	Please read this: http://pub.epsilon.slu.se/1874/1/Kappan_Avhandling_nr_08.88.pdf	REF01
13925	If I'm not mistaken, the first failed EIS draft said that the sulphur content was 4%. And at the time, they tried to tell us that 4% was considered low. It is not, and now the concentrations seemed to have changed. Can you explain?	PD30
18139	it's very clear that RO won't work. PolyMet says it will. Fair enough, show usexamples please.	PD03
18139	it's very clear that RO won't work. PolyMet says it will. Fair enough, show usexamples please.	PD03
18141	The government also needs to come to its senses and take away the DNR'sresponsibility of either the promotion of mining or the protection of the environment. Certainly doesn't take a rocket scientist to realize that the same entity cannot possibly do both.	PER42
18141	The government also needs to come to its senses and take away the DNR'sresponsibility of either the promotion of mining or the protection of the environment. Certainly doesn't take a rocket scientist to realize that the same entity cannot possibly do both.	PER42
Sender Name (Submission ID)	Greg Swanson (38431)	
13629	While a boost to our economy is always tempting, any long term adverse environment impacts will certainly vastly overshadow any short term economic benefits. Our healthy natural environment is our legacy to our successors, not our bankbooks.	SO01
13631	The SDEIS for the Poly Met Mining Project is flawed and does not guarantee that sulfide mining can be done in Minnesota without seriously harming water and habitat.	PD29
Sender Name (Submission ID)	Greg T. Lehman, MD (42914)	
9496	We [health professionals] are concerned that the proposed PolyMet NorthMet copper-nickel mine project could have significant adverse impacts on human health as a result of pollutants released to air, surface water and drinking water.	HU03
9498	We [health professionals] also believe that the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (“PolyMet SDEIS”) fails to adequately assess important risks to human health from the pollutants that would be released from this project.	HU01
9500	We [health professionals] would respectfully request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks of the proposal.	HU01
9501	We would further request that, in revising the PolyMet SDEIS, a comprehensive Health Impact Assessment (HIA) be prepared under the guidance of the Minnesota Department of Health.	HU01
9503	Mercury contamination of fish and impacts on neurotoxicity in the developing fetus as well as in infants, children and adults is a significant public health concern in Minnesota.	MERC03

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Greg T. Lehman, MD (42914)	
9505	The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood.	MERC03
9506	We are aware that many of the bodies of water downstream of the proposed PolyMet mine and plant are legally impaired due to mercury in fish tissue.	MERC02
9507	The lower reaches of the St. Louis River, where the estuary for Lake Superior fish is located, contains a particularly high level of mercury.	MERC19
9508	We also know that other mine facilities release both mercury and the sulfates that increase bioaccumulation of methylmercury.	MERC20
9509	Reviewing the PolyMet SDEIS, we believe that the information on mercury releases and the potential for mercury bioaccumulation is insufficient.	MERC20
9511	he SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of pollutants or of hydrologic changes on mercury bioaccumulation.	MERC20
9512	The SDEIS does not provide evidence to justify its claims about collection and containment of mercury and sulfates.	MERC15
9513	We would further request that the PolyMet SDEIS be determined inadequate pending supplementation to include a Health Impact Assessment, under the direction of the Minnesota Health Department.	HU01
9514	An HIA would integrate human health into the environmental review for the PolyMet NorthMet proposal, allow consideration of mitigation measures, and involve the community in planning for the project.	HU01
Sender Name (Submission ID)	Greg Tiburzi (11631)	
2313	The Polymet mine wastewater is in the Lake Superior watershed; polluted waters from the mine will affect this watershed and Lake Superior for years to come	WR111
2313	The Polymet mine wastewater is in the Lake Superior watershed; polluted waters from the mine will affect this watershed and Lake Superior for years to come	WR111
2314	This mine will clear the path for other mines, and will surely affect the Hudson Bay watershed and the pristine land and waters of the BWCA.	WILD02
2314	This mine will clear the path for other mines, and will surely affect the Hudson Bay watershed and the pristine land and waters of the BWCA.	WILD02
8185	Northern Minnesota has a one-of-a-kind wilderness setting that cannot be found elsewhere. It is a source of health and inspiration for us all. We should not squander it.	WILD02
8185	Northern Minnesota has a one-of-a-kind wilderness setting that cannot be found elsewhere. It is a source of health and inspiration for us all. We should not squander it.	WILD02
Sender Name (Submission ID)	Gregg Hoffman (54122)	
15985	PolyMet should be required to make a cash deposit to the state in the amount necessary to pay for any environmental problems they create, this deposit may be refunded when all risks to the environment have passed (I believe this is estimated to be in 200 to 500 years).	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gregg Wiitala (9289)	
84	The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed.	WR003, WR086
85	The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number.	PD04
89	The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump.	WR010, WR061, WR069, WR168
91	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site	FIN01, FIN10
93	The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats.	WR189, WR202
Sender Name (Submission ID)	Gregory and Mary Johnson (39301)	
8673	There are too many risks, too few rewards, too many unproved assumptions, too little data on long-term damage, and poor judgement on damage that is admitted will take place.	SO01
8687	The massive amount of waste rock containing sufides (to extract the small percentage of copper and nickel present) will form pollution that would need to be treated for between 200-500 years or more…no one has a good grasp of exactly how long this would take of if the treatments would succeed on this scale and for this time frame, let alone how much it would cost or who would end up paying for it.	FIN05
8689	The damage to wetlands in a water rich area is a matter of anyone's guess. The ides that the company could replace these wetlands somewhere else, thus minimizing the damage is ludicrous. Where this has been done on much smaller scales, it has proven to be inadequate and will do nothing to aid the area in question.	WET24
8698	Digging such a huge hole could quite likely drain water out of the surrounding areas, with the attendant negative results on all kinds of wildlife, flora, fauna and the current ecosystem that has developed over hundreds and thousands of years.	VEG07, WI06, WR179
8709	Northern Minnesota is the site of three major watersheds. Why would we want to risk polluting this precious resource? In the future, clean water could be Minnesota's most important resource.	WR111
8712	All rock contains fissures, the proposed lining will be subject to heavy equipment damage, acid can leak through to ground water, etc. What would happen in an extreme weather event, such as excessive rain?	GT10, GT12, WR012, WR127
8713	Inadequate research has been done related to the flow and movement of water in the area, the effect on the Partridge River, St. Louis River and ultimately its flow into Lake Superior.	WR003, WR024, WR042, WR081, WR111, WR158, WR159
8715	Other areas where there is inadequate research on potential harm include the sulfate concentration effects on wild rice beds	VEG04, VEG06
8716	Other areas where there is inadequate research on potential harm include the…mesothelioma effects on workers and public health…	HU04
8717	Other areas where there is inadequate research on potential harm include the… increased mercury pollution on public health…	HU01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gregory and Mary Johnson (39301)	
8718	Other areas where there is inadequate research on potential harm include… increased greenhouse gas emissions from using coal-generated electricity.	AIR01
8728	Historically, mining companies have been unreliable partners. PolyMet is the "junior" company and has never operated a mine before. The "major" company is Glencore, one of the largest international mining companies with a long history of environmental pollution…	SO02
Sender Name (Submission ID)	Gregory B. Gregory (31738)	
11991	A decision in favor of PolyMet's proposal would open a floodgate of more sulfide mining in a large area near Lake Superior and surrounding the Boundary Waters Wilderness -- considered by some as one of the most beautiful wilderness areas in the world.	WILD02
13852	If approved, the mine will pollute Lake Superior, threaten our clean water and wild lands, and endanger public health for generations to come.	HU03, WR111, WR115
Sender Name (Submission ID)	Gregory Garmer (39735)	
7054	If one sulfide mining operation is allowed, then all others will demand equal treatment under the law. If each company digs for twenty years and then leaves behind a source of pollution that will have to be monitored and managed well into the future, pretty soon mining scars and environmental watch areas will sprout all over Northeastern MN. There is no sure way to manage the results once the Pandora of sulfide mining is let loose.	PER07
12974	If one sulfide mining operation is allowed, then all others will demand equal treatment under the law. If each company digs for twenty years and then leaves behind a source of pollution that will have to be monitored and managed well into the future, pretty soon mining scars and environmental watch areas will sprout all over Northeastern MN.	CU04
Sender Name (Submission ID)	Gregory Johnson (17713)	
1990	Reverse osmosis has three streams: plant feed stream and in this case, per miningtruth.org's web site, this is 6.5 million gallons a day; plant discharge stream which in this case would be less than 10 ppm sulfate discharge from the plant; and the reject stream which in this case would be 10-15 percent of the feed stream. This reject stream of 700,000 or so gallons per day would contain 98 to 99 percent of the feed sulfates. My concern is in how the reject stream is treated and whether this concentration effect over the life of the mine is being evaluated.	PD03, WR143
1991	The professors talked about the ability of the wetlands to diminish and treat the waste [discharge]. What is the proof of this? … Absorbent systems have a finite capacity and I am concerned that this has not been addressed in a scientific way. My understanding from the presentation is that the flow rate used in the study is significantly lower than the actual flow rate at the site.	WR137
1992	The aquifer is very shallow, 20-60 feet, and digging several very large 700 foot deep pits has got to have an effect on the wetlands. I was dismayed by the assumption that this was not a factor that needed to be addressed. I think this project would impact far more than 900 acres of wetlands.	WET24
Sender Name (Submission ID)	Gregory M Anderson (54556)	
18963	The risks are too great to the environment. I fear the clean up operations will offset any profits.	SO01
Sender Name (Submission ID)	Gregory N Rautell (57208)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gregory N Rautell (57208)	
17121	Only thing this is going to benefit is the politician's pocket books…. And when they are done making their millions of dollars they will pull out and leave the taxpayers to clean their mess up.	FIN01, FIN10
17122	This mining is going to pollute the land and waters so my grandkids will not enjoy what I have.	WR107, WR108, WR115
Sender Name (Submission ID)	Gregory P Elstad (42724)	
14358	opinion it is time to move ahead on this project by selecting a Preferred Alternative, publishing a FEIS, and issuing the permits required for mining. In my opinion the "Proposed Connected Actions" is the best alternative and should be the alternative selected for implementation. It is a better alternative, in my opinion, than "Proposed Connected Actions, Alternative B" because "Proposed Connected Actions" causes more federal acres to be exchanged and thus, more "blocking up" of federal lands.	LAN11
14359	But it is a fact: copper is a strategic mineral, and we do NOT produce within the boundaries of the USA all of the copper for our national defense: any student of mankind's history will assure you that as long as there is a USA, we will be embroiled in wars – some big wars, some small wars, some popular wars, some unpopular wars. That being our situation, the day will surely come that we will be grateful that we have a Polymet mine to help win a war	NEPA05
14815	when Northmet is up and running it will produce 72,000,000 pounds (36,000 tons) of essentially pure copper annually, and 15,000,000 pounds (7,500 tons) of essentially pure nickel annually. Thus, the Northmet mine will produce 36,000 tons / 2,000,000 tons = 1.8% of our annual need for copper in the United States, and 7,500 tons / 200,000 tons = 3.8% of our annual need for nickel in the United States. Ms. Knutson also mentioned that Northmet will annually produce 105,000 troy ounces (6,625 pounds) of gold and other precious metals.	SO10
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14816	On the other hand, if the Northmet mine proposal is not approved, I would expect that that would be the end of any possibility of mining copper and nickel in Minnesota in the foreseeable future. What investor would want to invest millions of dollars over a 10 year period only to hear NO at the end?	SO10
14816	On the other hand, if the Northmet mine proposal is not approved, I would expect that that would be the end of any possibility of mining copper and nickel in Minnesota in the foreseeable future. What investor would want to invest millions of dollars over a 10 year period only to hear NO at the end?	SO10
14817	1.Copper and Nickel are minerals necessary for our national defense.2.Approving the Northmet mine will lead to other copper / nickel mines in Minnesota. The output of all of the possible copper / nickel mines in Minnesota (including Northmet) will be a significant amount, an amount both critical to our national defense, and also critical to the local economy.	SO10
14817	1.Copper and Nickel are minerals necessary for our national defense.2.Approving the Northmet mine will lead to other copper / nickel mines in Minnesota. The output of all of the possible copper / nickel mines in Minnesota (including Northmet) will be a significant amount, an amount both critical to our national defense, and also critical to the local economy.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gregory P Elstad (42724)	
14818	3.It would be unfair to Polymet to deny them the opportunity to mine and thus “prove their case” because the denial would be judging / convicting Polymet on the basis of what some other companies have done. However, we should use the bad experiences by other companies to improve the Northmet permits so mistakes are not repeated.	PER31
14818	3.It would be unfair to Polymet to deny them the opportunity to mine and thus “prove their case” because the denial would be judging / convicting Polymet on the basis of what some other companies have done. However, we should use the bad experiences by other companies to improve the Northmet permits so mistakes are not repeated.	PER31
18332	the copper miners in Congo -- one of our biggest foreign sources of copper -- are treated as virtual slaves. I wonder how many of the environmentalists opposing Northmet know that they are therefore, in effect, supporting slavery in other countries?	NEPA05
18332	the copper miners in Congo -- one of our biggest foreign sources of copper -- are treated as virtual slaves. I wonder how many of the environmentalists opposing Northmet know that they are therefore, in effect, supporting slavery in other countries?	NEPA05
18335	We cannot ignore the bad experiences of the past, of course. But rather than punishing Polymet for bad eperiences the did not do and thus could not control or avoid, we should use these bad experiences to improve the permits for the Northmet mine to make sure we do not repeat experiences of the past.	PER31
18335	We cannot ignore the bad experiences of the past, of course. But rather than punishing Polymet for bad eperiences the did not do and thus could not control or avoid, we should use these bad experiences to improve the permits for the Northmet mine to make sure we do not repeat experiences of the past.	PER31
18337	the enviornmentalists demand that Polymet mine without causing ANY negative impacts -- do a perfect job, in other words. That is not only unfair, it is a goal that is impossible to meet.	NEPA05
18337	the enviornmentalists demand that Polymet mine without causing ANY negative impacts -- do a perfect job, in other words. That is not only unfair, it is a goal that is impossible to meet.	NEPA05
Sender Name (Submission ID)	Greta Bergstrom (46344)	
8913	I am writing to request that you revise the draft EIS to address Minnesota Rules 6132.3200, clarifying to the public how the post-closure activities described in the mine plan are consistent with the mandate that the mine site be “maintenance free” upon its closing. It is my understanding that existing data in the water management plan supporting the SDEIS show that sulfates and metals will dramatically exceed water quality standards for hundreds of years after closure.	PER04
8914	As we know, releasing sulfuric acid into our water supply will taint it. The reverse osmosis water treatment that will be required for hundreds of years appears (to me) to be in conflict with Minnesota Rules requiring that mines be "maintenance free" at closure, bringing the project truly to a close without harm to our environment or excessive costs to state taxpayers. Please show how exactly PolyMet’s North Met mining project would meet applicable water quality standards upon completion/closure given these Rules.	PER04
Sender Name (Submission ID)	Gretchen (45407)	
12807	The mining companies quickly disappear when the profits are gone and leave the ravaged environment for the taxpayers to clean up.	FIN01
12808	One has to look at the taconite mines past to realize the horrendous impact a copper mine would have on our state jewel-the boundary waters.	WR023

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gretchen Amis (11514)	
2464	Yes we need economic development to add to the thousands of tourism related jobs we have. PolyMet's "360" jobs for 20 years is not good enough. The jobs must be jobs for locals. The tourist industry supplys those jobs.	SO02
2464	Yes we need economic development to add to the thousands of tourism related jobs we have. PolyMet's "360" jobs for 20 years is not good enough. The jobs must be jobs for locals. The tourist industry supplys those jobs.	SO02
2465	I also am worried about the continued reclamation costs. We can't see into the future. I am afraid that statewide, we tax payers will be paying Polymet's bills.	FIN10
2465	I also am worried about the continued reclamation costs. We can't see into the future. I am afraid that statewide, we tax payers will be paying Polymet's bills.	FIN10
2466	Any accident or leakage could destroy the environment – kill wildlife & drainage wild rice. The mine is a threat to the heritage of Minnesota.	VEG04, WI04, WR071, WR156
2466	Any accident or leakage could destroy the environment – kill wildlife & drainage wild rice. The mine is a threat to the heritage of Minnesota.	VEG03, VEG01
19493	One important inclusion should be all of the mine's financial backers, not just Polymet. Glencore and any other company should be held accountable in all financial assurance for cleanup and accidents.	FIN02
Sender Name (Submission ID)	Griffin Henjum (44607)	
12065	I believe this mine will have negative effects for generations to come. The hundreds of years of clean up and adverse effects on the environment is not worth the short term economic benefits.	SO01
Sender Name (Submission ID)	Gus & Glenda Fisker (47276)	
9288	I am concerned with the long term safety of the water… There needs to be very long term, perhaps indefinite, water protection.	FIN01
9290	The BWCA should be protected at all costs. Once damaged or altered, it can never be replaced.	WILD02
Sender Name (Submission ID)	Gwen Myers (58129)	
20001	The SDEIS is inadequate and inaccurate and confusing. How can it be that all their science cannot predict how long water treatment would be required?	NEPA14
Sender Name (Submission ID)	Gwen S Myers (11596)	
2258	PolyMet's humidity cell testing indicate that its waste rock leaches mercury at more than four times the water quality standard, yet PolyMet purposes not to conduct an analysis of the amount of mercury that will enter the Partridge River from leakage from waste rock stockpiles and mine pits.	MERC20
2258	PolyMet's humidity cell testing indicate that its waste rock leaches mercury at more than four times the water quality standard, yet PolyMet purposes not to conduct an analysis of the amount of mercury that will enter the Partridge River from leakage from waste rock stockpiles and mine pits.	MERC20

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Gwen Updegraff (42871)	
8970	The proposed EIS does not provide adequate safegards or resources for treatment of polluted water. There is no way the company can provide for 500 years of water treatment, and even if they did what they promised there would still be large quantities of polluted water released untreated.	WR037, WR070
8970	The proposed EIS does not provide adequate safegards or resources for treatment of polluted water. There is no way the company can provide for 500 years of water treatment, and even if they did what they promised there would still be large quantities of polluted water released untreated.	WR086, WR105
8971	PolyMet will destroy over 1,000 acres of wetlands that are a crucial part of maintaining clean water and a healthy ecosystem in northern Minnesota. The EIS does not provide for replacement of these wetlands.	WET04
8971	PolyMet will destroy over 1,000 acres of wetlands that are a crucial part of maintaining clean water and a healthy ecosystem in northern Minnesota. The EIS does not provide for replacement of these wetlands.	WET01, WET04
8972	PolyMet will emity mercury pollution in the course of [ILLEGIBLE] operations as well as through huge consumptions of power from coal burning plants. The EIS does not address how to minimize or mitigate the total mercury Polymet will be puffing in our water.	AIR02, MERC16
8972	PolyMet will emit mercury pollution in the course of its operations as well as through huge consumptions of power from coal burning plants. The EIS does not address how to minimize or mitigate the total mercury Polymet will be puffing in our water.	AIR02, MERC16
8974	Northeastern Minnesota, and in particular the BWCA area, is so far a uniquely wild and unpolluted area…The BWCA draws visitors from all over the world. Allowing Polymet to proceed with its proposed mine would leave a place that looks like Flint, Michigan, where nobody wants to live and nobody wants to visit.	WILD02
8974	Northeastern Minnesota, and in particular the BWCA area, is so far a uniquely wild and unpolluted area…The BWCA draws visitors from all over the world. Allowing Polymet to proceed with its proposed mine would leave a place that looks like Flint, Michigan, where nobody wants to live and nobody wants to visit.	SO02, WILD02
8976	I am also concerned about the inevitable impact on human health [resulting from PolyMet mine].	HU03
8976	I am also concerned about the inevitable impact on human health [resulting from PolyMet mine].	HU03
8980	The PolyMet mine would provide employment for a few in the region for a few years, then leave it polluted and devastated.	SO01
8980	The PolyMet mine would provide employment for a few in the region for a few years, then leave it polluted and devastated.	SO01, SO02
Sender Name (Submission ID)	Gwendolyn Danfelt-Martin (21520)	
1255	I find the SDEIS inadequate, and the project should not proceed. (…) the PolyMet project as it stands would have many more negative impacts than positive	SO01
1261	My main concern is the impact on climate change that mining's greenhouse gases have.(…..)PolyMet would be responsible for 0.44% of Minnesota's greenhouse gas emissions, while only employing approximately .012% of its workers.1[footnote:1 Statistic from Jane Reyer of Northeastern Minnesotans for Wilderness]	AIR01
14213	Mining sends pollutants into the ground water that linger for centuries, and PolyMet has unrealistic plans for containing, cleansing, and monitoring those pollutants for the next 500 year.	FIN11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	H B Bloomer (42848)	
8567	I have briefly reviewed the highlights of the recent SDEIS, and I am convinced that the management of the company is totally committed to putting their proposed mine into production in an ecologically-responsible manner.	PD28
8567	I have briefly reviewed the highlights of the recent SDEIS, and I am convinced that the management of the company is totally committed to putting their proposed mine into production in an ecologically-responsible manner.	PD28
Sender Name (Submission ID)	Haddie Hadachek (40155)	
6156	Will we jepordize our water quality for short term money?	SO01
Sender Name (Submission ID)	Hallie Finucane (47088)	
11404	What real financial protection does the State of Minnesota have for all of the clean up that will be required? Also, since PolyMet is a Canadian company, how easily can any obligations be enforced?	FIN01
16553	Too often, the mining companies go bankrupt and/or just walk away from the mine and the state has no recourse for restitution. The financial responsibility for the clean up is borne by the state and taxpayers, and in the case of Arizona, the state has not had the financial resources to restore the area that was mined. What financial guarantees does Minnesota have so this does not happen to the state of Minnesota and our taxpayers?	FIN01
16558	This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin.	WR111, WR115
16561	It is clear that the main concern of PolyMet is the profits that can be obtained, and the Range wants jobs, even though the jobs are relatively short term. Lake Superior and the Boundary Waters area should not be irreversibly compromised and sustain long term damage to satisfy corporate profits. The high risk of irreversible and long term (500 year) damage to our beautiful wilderness areas cannot be sacrificed or justified for short term jobs and corporate profits.	SO01
16562	What real financial protection does the State of Minnesota have for all of the clean up that will be required? Also, since PolyMet is a Canadian company, how easily can any obligations be enforced?	FIN01
Sender Name (Submission ID)	Hanna Hindt (44369)	
10392	Having the mining site located outside of the boundary waters creates a strong case for the degradation inside the reserve.Run-off of chemicals is expected to occur.	WILD02
10394	People travel from far across Minnesota and other states to visit and breath the fresh, not as polluted air. Being disrupted by this mining site will change the opinions of many negatively.	AIR11
Sender Name (Submission ID)	Hannah (44577)	
11806	I also don't believe the company when they say that they will clean up the mess and pay for ecological damage. Most of the companies that "claim" they will clean up usually file bankruptcy and leaves the next generation to clean up their mess.	FIN01
Sender Name (Submission ID)	Hannah Jents (54342)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Hannah Jents (54342)	
17451	I think that PolyMet Mining has a good plan in place. I think that this copper-sulfate mining process will benefit Minnesota. Some of the advantages that there will be are more jobs open for people for mining and mechanics. It could bring more businesses over, opportunities and industries too.	SO10
17592	Water and air pollution could be a problem if they are not treated right. Also some of the chemicals could harm the environment around the area too.	GEN01
17593	It could affect cultural resources by stunting the growth of the wild rice if not treat properly, same with the runoff water and rivers.	CR01
Sender Name (Submission ID)	Hannah Maertz (43835)	
11852	Even the company acknowledges the large amount of water pollution that will occur for hundreds of years after the mining takes place.	PD01, WR115
14950	As a Minnesotan, I am proud of our states abundant water supply and our ability to ensure it's quailty. I believe this mine would greatly jeporadize that.	GEN01
17406	The proposed mine plan does not keep Minnesota’s water safe and clean. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated.	WR070
Sender Name (Submission ID)	Hannah Miller (45113)	
7644	There is no way that a few decades of questionable profit are worth a future of waste and pollution.	SO01
16740	Who has ever lived five hundred years?...What company has ever lived so long, to clean up the wreckage it has wrought?	FIN01
Sender Name (Submission ID)	Hans Olsen (57543)	
19539	The SDEIS section on Cumulative Effects must include some high level analysis of the impact of multiple copper / nickel mines processing their ores in this immediate vicinity, and of PolyMet processing larger volumes for longer periods. There needs to be some conceptual analysis of the impact on these headwaters of multiple copper / nickel mines operating there for a hundred years.	CU13
19540	a specific analysis needs to be done of Twin Metals processing their ores using excess processing capacity at this same site. That possibility is too real and too imminent to be excluded from your analysis. At a bare minimum this EIS needs to identify one backup site for an additional tailings basin and needs to update the impact on the local hydrology assuming a doubling of the projected volume of ores processed in this same time frame. That analysis needs to consider refilling the West Pit at twice the forecast rate.	CU02
19541	The assessment of cumulative effects should not be limited to known specific planned mining in this area. The analysis needs to be expanded to consider the effect of a deliberate decision by the State of Minnesota to permit copper / nickel mining anywhere in the Duluth Complex, but restrict processing of such ores to the St Louis River drainage only.	CU13
19542	the SDEIS is the right place to begin assessing how the hydrology in the headwaters of the St. Louis River drainage would be impacted by concentrating all copper / nickel ore processing here and keeping it completely out of the Kawishiwi River drainage.	CU13
19543	The SDEIS should make a global assessment of the relative risk of mining this ore vs. processing the ore.	SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Hans Olsen (57543)	
19544	The Forest Service needs to consider precisely how the land exchange would be impacted by multiple mining companies processing ores in this same area. In particular they need to assess potential areas for additional tailings basins and storage stockpiles on what is currently Federal Land in these same headwaters.	CU10
19545	The hydrology projections need to be modeled considering the possibility of extreme rain fall events in the immediate vicinity of the plant. The model needs to be run assuming 1 inch of rain per hour for 24 hours immediately over the tailings basin.	WR077
19547	The SDEIS needs to include an analysis of a catastrophic failure of the containment systems for the NorthMet tailings basin.	WR202
19548	The SDEIS and the Army Corps of Engineers need to identify secondary and even tertiary containment areas that would be publicly funded in anticipation of failures of the corporate financed primary containment systems. This needs to include an analysis of various dams and dikes in the immediate vicinity of the plant and further downstream in the St Louis River system designed to contain spills that escape the plant area and that also manage extreme storm runoff efficiently.	WR130
19549	An alternative needs to be identified for using water from Colby Lake for ore processing in the event that use of such lake water is denied or withdrawn later. In particular, the efficacy of various proposed provisions to capture and retain spring snow melt for ore processing need to be assessed in the event no water from Colby Lake can be used.	ALT12
19551	The SDEIS needs to identify an alternative water supply for Hoyt Lakes in the event the current source is adversely impacted.	WR140
19552	The SDEIS needs to consider using solar panel arrays designed and equipped to channel and collect rainwater, as a supplementary cover to cap the tailings basin slopes and beaches, over class 2, 3, and 4 temporary stock piles, and over the Hydrometallurgical Residue Facility during active processing. Floating arrays could even be considered over the tailings pond.	ALT13
19553	The SDEIS should address potential threats to wild rice waters the same way wetlands are treated, i.e., as candidates for compensatory mitigation. . The SDEIS would be substantively improved by simply assuming a fixed acreage of wild rice needs to be replaced just as wet lands are replaced.	WR155
19554	Two new roads need to be built at public expense to carry employee traffic to and from this massive work area that eventually will house multiple mining operations here… Both these road beds could become part of the dike system designed for the proposed Embarrass River containment area.	PD36
19555	Each relevant map in the SDEIS needs to have an overlay showing the location of the Laurentian Divide.	PD38
19556	It seems self evident that Colby Lake cannot be the sole source of processing water for multiple mines operating in this same area, and The Whiteface Reservoir cannot be the sole source of municipal water for a community in the direct line of impact from any catastrophic failures at these plant sites, though the proposals contained here for the Partridge River may well address the latter concern.	WR140
Sender Name (Submission ID)	Harlan (43962)	
7042	The likelihood of a breakdown in PolyMet's proposed operations is great, and the consequences to the environment would be disastrous, especially in this fragile and water-rich part of the Lake Superior watershed.	PD22
7043	The short-term economic benefits of the mine would not be worth the price of the potential long-term harm.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Harlan (43962)	
14938	The SDEIS tells us that water pollution and other environmental harms can be prevented or contained for 20 years of mining operations and hundreds of years thereafter . . . If [nothing unexpected happens during that time]... But unforeseen things do happen; in the real world, unexpected events should be expected; and hundreds of years is a very long time	PD22
Sender Name (Submission ID)	Harold Dziuk (44383)	
10442	All I want is to make sure that any sulfide mines opened in NorthernMinnesota are safe, clean, and don't leave taxpayers with a bill.	FIN10
Sender Name (Submission ID)	Harold J Noyes (43218)	
15827	There is confusion in the public media about the impacts related to the potential for ground water or surface water contamination or a potential need for an extended, undefined term of mechanical treatment. It is my understanding that extensive lab leaching tests and related modelling have been conducted that address and resolve these issues, but I do not believe this has been made adequately clear to the public, since this remains a commonly cited objection and most people cannot reasonably understand a 2300 page technical document. I recommend in your approval of the project that you provide some better summary of this collection of issues.	PD03, WR035, WR190
Sender Name (Submission ID)	Harold Nordin (43066)	
9994	The current SDEIS does not address the use of alternative methods for mining sulfide bearing ores that would reduce the impact on the environment—e.g. underground or subsurface mining operations which could significantly reduce adverse impact on the ecologically sensitive surface area and reduce the likelihood of water contaminants in the watershed.	ALT06
9995	The current SDEIS does not address the consequences of long terms exposure to water borne and airborne contaminants for individuals living and working within area which will be impacted by open-pit mining operations…	HU04
9997	The current SDEI does not adequately address the ability of ...(PolyMet) to provide the necessary financial assurances that site remediation issue can be addressed long-term	FIN01
15422	The current SDEIS does not adequately address the issue of water quality relative to the reproduction of wild rice in waters adjacent to mining operations. Current guidelines for water quality should be enforced as currently written and allowances for seasonal variations should not be allowed.	VEG04, WR153
Sender Name (Submission ID)	Harriet Liedtke (14622)	
1684	It makes economic sense to not burden our children with 500 years of pollution.	FIN10
Sender Name (Submission ID)	Harriet M Liedtke (20992)	
16221	Minnesota is known for its natural resources. Let’s not risk our future. It’s not worth it.	SO01
Sender Name (Submission ID)	Harry Melander (18140)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Harry Melander (18140)	
13561	We believe that the applicant has provided to our state and our national agencies all that has been asked for and more. We believe that the agencies, the DNR, are state agencies and others that we all support and trust addressed all that Minnesota wants, which is a safe and clean mining process for minerals that everyone in this room depends upon.	NEPA16
Sender Name (Submission ID)	Harvey Hyatt (54551)	
18959	…the model is based on a drought year. This severely underestimates the amount of sulfides that will enter the environment.	WR165
Sender Name (Submission ID)	Heather Day (15754)	
12043	Would like to [see the] SDEIS address concerns outlined by the hydrologist who spoke about the inaccuracy of the maps and turn off from the 100 mile swamp (proposed wetland exchange acerge).	WET19
12045	The SDEIS is incomplete and does not fully address the impact of the mine on water quality for Hoyt Lakes and it's greater watershed.	WR043, WR111
17044	[I] Would also like to see SDEIS address spills, tailings contaiminating water, and other unforseen issues/emergencies.	PD11, PD22
Sender Name (Submission ID)	Heather Friedli (7163)	
522	I feel that 500 years of potential pollution to our lakes and rivers is too much of a risk to take.	PD04, WR195
523	For the outdoor tourism industry we do have, and for the health and lives of the people who live and work in the surrounding area. We need sustainable industry up there	SO02
526	I don't want to live near a Superfund site which we just let happen in some of the most scenic and pure places in the world. Who will be paying for the perpetual clean up of these mines and tailing basins? While the mining companies say they will, 500 years of pollution is longer than we can expect those companies to stay in business, or stockpile enough money to take care of their mess.Polymet has yet to detail how they will financially pay for perpetual cleanup.	FIN01
528	We should not pollute the water we all drink and play in. What about the heritage we leave to our children? I want them to have the same opportunities to fish clean waters and collect wild rice that we have.	WR156, WR195
Sender Name (Submission ID)	Heather Lehtinen (39116)	
5173	*Arsenic is rated by the U.S. Environmental Protection Agency as a Class A carcinogen. That means it causes cancer in human beings. Colby Lake provides drinking water for the city of Hoyt Lakes. It already has high arsenic levels.	HU05
13296	*Arsenic is rated by the U.S. Environmental Protection Agency as a Class A carcinogen. That means it causes cancer in human beings. Colby Lake provides drinking water for the city of Hoyt Lakes. It already has high arsenic levels.*The SDEIS says that the PolyMet sulfide mine projet will increase arsenic in Colby Lake by 38.5% (SDEIS, p. 5-145)	WR123
13299	In addition to arsenic in their drinking water, people in Hoyt Lakes would ingest arsenic by eating local fish or wild rice. Low income people who fish and rice for food would have the most cumulative risk. The Food and Drug Administration recently tested rice for arsenic and found Minnesota wild rice has 6 micrograms per liter of arsenic.	SO09, WR123, WR156

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Heather Lehtinen (39116)	
17683	*In addition to arsenic in their drinking water, people in Hoyt Lakes would ingest arsenic by eating local fish or wild rice. Low income people who fish and rice for food would have the most cumulative risk.	AQ05
Sender Name (Submission ID)	Heather Macdonald (30924)	
13071	Yes- they say they have safety standards and rules and laws in place to preventpollution. That is no guarantee.	PER06
13998	They dangle before us that jobs will be created by this mining. Whywould we want jobs that don;t even last as long as the pollution this mining will create.	SO01
Sender Name (Submission ID)	Heather Meier (20234)	
1821	It is both naïve & dangerous to think Sulfide Mining will just "fit right in" to Northern Minnesota & create jobs with no negative consequences to the environment and existing economy! I'm in favor of job creation but not at the expense of everything else (e.g. water! & existing jobs). Everything comes with a cost, and the true cost of sulfide mining is far too high.	SO01
1822	This proposal risks our water, air, and the overall environmental health of the region.	AIR11
1824	There will also be 24 hour mining noise & infrastructure stress (impacting residents and visitors).	N01
1825	have we really come to the point in the American Economy that we need to choose between clean water and jobs?	SO01
7665	I am not fundamentally against mining; however, I am strongly against Sulfide Mining and this Proposal. Therefore, I respectfully urge you to reject this proposal and to not grant permits.	PER35
7666	Don't allow the destruction of the Lake Superior Basin's environment and existing economy.	SO02
7669	It is both naïve & dangerous to think Sulfide Mining will just "fit right in" to Northern Minnesota & create jobs with no negative consequences to the environment and existing economy!	SO02
7671	The impact difference between Sulfide & Iron Ore mining is drastic, but this is not being discussed enough!	PD27
7672	There is no real life evidence PolyMet's plan will work. Their proposal is not fact based, but rather theory and speculation. We need real, practical application PROOF this has been done (in a similar climate & scale) without destruction! Not "theories on paper" or "controlled tests or	PD32
7676	Also, important to note, once PolyMet gets the "ok", smaller mining companies will flood the area. Once this happens, it will be the end of a national treasure.	CU04
7677	PolyMet themselves predict only 25% would be local hires. We all know this means far less than 25% & these will be lower level roles.	SO06
7680	Tourism/Hunting/Fishing… will be negatively impacted by the damage to waterways & change in landscape.	SO02
7687	The [real estate] market in this region is not recovering like the rest of the country because, obviously, no one is buying land that could be ruined by mining.	SO03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Heather Meier (20234)	
7689	The Wild Rice Industry will be destroyed (because of contaminated water).	VEG04
7690	The proposed PolyMet Land Exchange (required) would affect the Tribal rights and interests of the several bands of Chippewa & Ojibwa.	CR01
7696	There is nothing in this proposal that factually supports this will be a safe mine.	PD01
12321	When Sulfide ore comes in to contact with air & water (keep in mind, these mines are almost always below the water line), sulfuric acid is generated. This acidic run off mixes with other heavy metals and thus creates acid mine drainage. This leaches in to ground water, lakes, streams etc. + pollutes the air.	AIR10, WR001
12327	In addition, there is the decimated landscape that results from Open Pit mining (which this will be). Lush northern forests will turn in to barren craters filled with acid drainage. There will also be 24 hour mining noise & infrastructure stress (impacting residents and visitors). All this damage will obviously negatively impact wildlife, human-life and the existing economy. Tourism/Hunting/Fishing are currently the main industries. They will be negatively impacted by the damage to waterways & change in landscape	SO02
12330	The proposed PolyMet Land Exchange (required) would affect the Tribal rights and interests of the several bands of Chippewa & Ojibwa. The Wild Rice Industry will be destroyed (because of contaminated water).	CR01
12331	Our Ely property is at the heart of what could become a Sulfide mine. Their land/home/dream will be destroyed, their investment lost and the pristine lake we love will be contaminated.	LU06
12579	The scientific facts are clear + Sulfide mining's current state & history are consistent & clear: This type of mining is destructive to the environment. There is nothing in this proposal to prove otherwise.	PD26
12586	When Sulfide ore comes in to contact with air & water (keep in mind, these mines are almost always below the water line), sulfuric acid is generated. · This acidic run off mixes with other heavy metals and thus creates acid mine drainage. This leaches in to ground water, lakes, streams etc. + pollutes the air.. This is dangerous for people (as well as wildlife).	HU03
12590	As a result of the Flambeau site, Wisconsin has issued a moratorium requiring sulfide mining companies to prove that sulfide mining has successfully been done elsewhere, without causing water pollution, before the allowance of mines there.	PER35
12594	There is no real life evidence PolyMet's plan will work. Their proposal is not fact based, but rather theory and speculation. We need real, practical application PROOF this has been done (in a similar climate & scale) without destruction! Not "theories on paper" or "controlled tests or models". Let's not just believe the Mining Companies (that have a long history of poor stewardship, integrity and accountability).	PD26
12596	In addition, there is the decimated landscape that results from Open Pit mining (which this will be). Lush northern forests will turn in to barren craters filled with acid drainage. … All this damage will obviously negatively impact wildlife, human-life and the existing economy.	SO02
12600	The Wild Rice Industry will be destroyed (because of contaminated water).	WR156
12603	The proposed PolyMet Land Exchange (required) would affect the Tribal rights and interests of the several bands of Chippewa & Ojibwa.	LAN05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Heather Meier (20234)	
12606	Our Ely property is at the heart of what could become a Sulfide mine. Their land/home/dream will be destroyed, their investment lost and the pristine lake we love will be contaminated. Make no mistake; this will be the outcome as it has been with all large scale sulfide mines to date. I know my family's story is not unique; however, the financial, emotional and economic impact to area land owners (like us) is being completely ignored.	LU06
15392	When Sulfide ore comes in to contact with air & water (keep in mind, these mines are almost always below the water line), sulfuric acid is generated. This acidic run off mixes with other heavy metals and thus creates acid mine drainage. This leaches in to ground water, lakes, streams etc. + pollutes the air.. This is dangerous for people (as well as wildlife). The mine craters fill with water (rain + ground water) and mix with the mines acid drainage creating Acid Lakes-This kills the wildlife that unwittingly land in, or drink from, these "acid drainage lakes".	WR001
15393	In addition, there is the decimated landscape that results from Open Pit mining (which this will be). Lush northern forests will turn in to barren craters filled with acid drainage.	LU04
15394	There will also be 24 hour mining noise & infrastructure stress (impacting residents and visitors).	N01
16090	When Sulfide ore comes in to contact with air & water (keep in mind, these mines are almost always below the water line), sulfuric acid is generated. This acidic run off mixes with other heavy metals and thus creates acid mine drainage. This leaches in to ground water, lakes, streams etc. + pollutes the air.. This is dangerous for people (as well as wildlife). The mine craters fill with water (rain + ground water) and mix with the mines acid drainage creating Acid Lakes-This kills the wildlife that unwittingly land in, or drink from, these "acid drainage lakes".	WI04, WR001
16092	Also, important to note, once PolyMet gets the "ok", smaller mining companies will flood the area.	CU04
16093	In addition, there is the decimated landscape that results from Open Pit mining (which this will be). Lush northern forests will turn in to barren craters filled with acid drainage.	LU04
16094	PolyMet themselves predict only 25% would be local hires. We all know this means far less than 25% & these will be lower level roles.	SO06
16095	Tourism/Hunting/Fishing are currently the main industries. They will be negatively impacted by the damage to waterways & change in landscape. Not to mention, landowners, whose property will be destroyed, will no longer spend time or money in the region.	SO02
16096	The Real Estate Market is already basically dead because of this threat. The market in this region is not recovering like the rest of the country because, obviously, no one is buying land that could be ruined by mining. No one will invest in this region as long as Sulfide Mining is being proposed.	SO03
16097	The Wild Rice Industry will be destroyed (because of contaminated water).	WR156
16098	The proposed PolyMet Land Exchange (required) would affect the Tribal rights and interests of the several bands of Chippewa & Ojibwa.	LAN05
16099	Yes, unemployment in the region needs to be addressed. However, not at the expense of our water, air and already existing jobs!	AIR11
16495	I'm in favor of job creation but not at the expense of everything else (e.g. water! & existing jobs). … Have we really come to the point in the American Economy that we need to choose between clean water and jobs? This proposal risks our water, air, and the overall environmental health of the region.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Heather Meier (20234)	
16496	The impact difference between Sulfide & Iron Ore mining is drastic, but this is not being discussed enough! … However, I'm concerned most Minnesotans believe this is just the same as the Iron Ore mining done in Northern MN for generations!	PD27
16497	Also, important to note, once PolyMet gets the "ok", smaller mining companies will flood the area. Once this happens, it will be the end of a national treasure. If we open "Pandora's Box" with this "experiment", there will be consequences that no amount of time OR $ will be able to fix. This is not something we'll be able to come back from….	CU04
16498	There will also be 24 hour mining noise & infrastructure stress (impacting residents and visitors).	N01
16499	Tourism/Hunting/Fishing are currently the main industries. They will be negatively impacted by the damage to waterways & change in landscape. Not to mention, landowners, whose property will be destroyed, will no longer spend time or money in the region.	SO02
16500	The Real Estate Market is already basically dead because of this threat. The market in this region is not recovering like the rest of the country because, obviously, no one is buying land that could be ruined by mining. No one will invest in this region as long as Sulfide Mining is being proposed.	SO03
16501	Ely and the surrounding area will no longer be a destination to buy cabins/lake homes. The dream of owning a lake home in Ely will become the dream to own a lake home elsewhere.	LU06
16502	Please demand real-life PROOF, not just a few "tests & models". Don't allow the BWCA to be another failed sulfide mining "experiment". The area is far too valuable to risk!	PD32
Sender Name (Submission ID)	Heather Simso (54135)	
16031	why [do] they think this will be the one mine without environmental consequences	PD26
Sender Name (Submission ID)	Heidi Jindrich (29233)	
13871	I have seen the type of society that accompanies resource extraction economies: severe local poverty, extreme corruption in government, brutal ignorance and its militant defense. The time had come for a different vision, just to survive. … Others see it and are willing to defend the land if you are not. We need water to live.	SO02
Sender Name (Submission ID)	Heidi Takala (48639)	
13328	People in these areas rely on the natural wildlife and natural resources in this area, I am sure that do not want to see their lives and their childrens' lives threatened by the destruction that would impact the area.	SO02
Sender Name (Submission ID)	Heidi VanGuilder (44554)	
11801	I also believe from an economic standpoint, that expediting the current processes so Polymet could begin construction immediately would bring a desperately needed, immediate economic boost to the Iron Range…..	SO10
Sender Name (Submission ID)	Heinecke (9576)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Heinecke (9576)	
214	I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining.	WET24, WI01
1126	The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public interest.	LAN01
1127	The proposed mine poses unacceptable risks to our waters and communities	HU03, WR195
1128	I ask that the comment period be extended to 180 days, and I support the No Action Alternative.	NEPA07
Sender Name (Submission ID)	Helen Elizabeth Proechel (42803)	
7014	4.Also I would like to ask, “Is sulfide mining for copper and nickel a good business decision?”a.Are there cheaper, less environmentally damaging ways to extract copper and nickel?b.Is the demand for new copper and nickel strong enough to merit risking Lake Superior, the Mississippi River watershed, and the aquifers underneath, not to mention surface soils?	ALT16
7017	2.The tensions between the needs of business/labor vs protecting pristine nature are very real;3.I would like to take the pollution that once a fragile ecosystem an watershed are damaged it is difficult, if not impossible, to put “Humpty-Dumpty together again”;	SO01
Sender Name (Submission ID)	helen forsythe (3115)	
570	… people living around this region would be detrimentally affected by any sulfuric acid released into watersheds as a byproduct of the proposed Polymet mine. To endanger the health of this sacred ecosystem for the benefit of corporate interests is to devalue the health of the people and other creatures that inhabit this region.	HU01
571	I recognize that this mine will create over 300 jobs for 20 years, which is a social benefit of the mines that I do not want to discredit.	SO10
18651	I believe the perceived economic benefits of these mines will be short-lived and will benefit only a few people so the dangers posed by these mines are entirely more significant than the benefits.	SO02
19935	I understand the significant economic opportunities offered by these new sulfide mining operations, but I believe the consequences to be for too dangerous for the economic argument to be valid. The potential water, soil, and air pollution effects from these mines pose major threats to the health of people in Minnesota. Our citizen’s health will be compromised by this mine, and even those who receive the economic benefits will either be living away from the wastes created, or they will be experiencing the toxic qualities of mining for the period of time that they are employed in the mines. The use of the products received from those mines are not worth compromising our health in the form of our water, soil, air, co2 levels, etc.	HU03, SO01
Sender Name (Submission ID)	helen frigo (17665)	
2112	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for--information that is necessary to evaluate the environmental effects of this proposal.	FIN01, WR035, WR128
2113	More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts.	WET01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	helen frigo (17665)	
2114	...sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
2115	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	HELEN J SPRY (6128)	
1043	Why would or should the state risk this next to one of the most pristine and valuable water sheds in the state: BWCA and Lake Superior.	WR111
1044	Can it really ever be repaired if a problem occurs. If mining is allowed, and if correction is needed it should be funded as a HUGE (multiple BILLIONS) bond or escrow. When your document shows mitigation needs to allow 500 years on the Mining companies, make sure it's the mining pocket books NOT the MN or US taxpayers on the hook.	FIN01, FIN05, FIN10
Sender Name (Submission ID)	Helen Mercer-Taylor (57193)	
17079	…pristine natural areas like the waters threatened by this project.	WR111
Sender Name (Submission ID)	Helen Sievers (43350)	
16126	the seepages of toxic chemicals such as mercury and all of the sulfides into the watershed will cause big problems for generations to come.	WR195
16127	once in the environment these metals could be converted to organometallic compounds which are extremely toxic at even lower concentrations than the inorganic form, the sulfides for example. Methylation of such compounds, which can occur in natural environments, increases their capacity to cross the blood/brain barrier causing all types of neurological problems as well as genetic anomalies.	HU03
16128	Are they willing to pay a “carbon tax” on all of the carbon dioxide it releases? Are they willing to put a cap on their profits and invest the rest into the community from which they are taking the minerals? Are they willing to invest a significant portion of the monetary gains towards researching methods of preventing and/or reversing the effects of the pollution caused by their mining techniques? … Would PolyMet be willing to install solar power or wind power along the roads to the mining site?	PD01
16129	ould they be willing to dedicate a certain percentage of their employee’s time to community volunteering? Or are they just going to give short term employment to a few people and then leave.	SO01
16130	What happens if [PolyMet is sold and] the [mitigation] responsibility is transferred to another company that is even more removed from our state? Will even more of the monetary benefits leave Minnesota? Would that company be even less concerned about the damage they can do to the environment? Would they be required to live up to the promises made by PolyMet, weak as they are?	FIN01
16131	there seemed to be no long term employment in the planning. Is this company going to guarantee there will be jobs for even twenty years? Even if there is employment for that length of time, what happens when the minerals are all extracted from the ground? Why not invest in real careers that will last longer.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Helen Sievers (43350)	
16132	One fact that was brought up several times was we all use electronics and other products that require the very minerals found in the deposits in questions. Certainly there is truth to this but I have to wonder if we truly have done enough to streamline the needs. For example, a considerable amount of materials are sent to China for recycling. Instead of using fuel to ship them to China why not establish recycling facilities in those buildings from previous mining efforts that are no longer being used thus keeping the recycled metals here in this country and again provide some jobs to those who need them.	NEPA06
Sender Name (Submission ID)	Helmut Maier (10239)	
384	Unless PolyMet is forced to fully finance the long-term clean-up of the proposed leaching sites while they operate the mine, the long-term protection of the ground water and environmental waster sources will eventually fall to the public sector, either through bankruptcy or off-shoring of the operating company.	FIN01
1768	After reading that Glencore is a 25% owner of the intended mine and a likely operator, I was concerned about ethical issues reported about Glencore in the news and on the internet	PD23
1769	To assure that any [heavy metal or sulfur] contamination is caught in real time ..., effluent and off-gases should be controlled in real time with data sent immediately on-line and automatically to a government authority as soon as the allowed discharge limits are exceeded.	AIR13, WR039
1771	the PolyMet mine has to fund verifiably ongoing insurance that will pay for any longterm clean-up of water from the mine operation. It has to be assured that the owner or operator of the mine cannot declare bankruptcy or go off-shore … The tax payer should not have to pay for any of the long-term consequences of this mine operation.	FIN01
2096	… cleaning up a heavy metal spill is very difficult, time consuming and costly and does major damage to the environment.	WR037
19902	Concern about control of discharge from mine. It is not sufficient to control discharge level of pollutants on an infrequent basis. Instead, there has to be real fine control for metals and pollutant gases to assure no inadvertent pollution happens due to mechanical failures or human error.	WR063
Sender Name (Submission ID)	Henry Illegible (11566)	
2210	I feel the numbers Polymet has given are suspect. There is no 3rd party research in the area. It is quite possible all the analysis is based on faulty numbers from Polymet	NEPA15
2210	I feel the numbers Polymet has given are suspect. There is no 3rd party research in the area. It is quite possible all the analysis is based on faulty numbers from Polymet	NEPA15
Sender Name (Submission ID)	Henry J. Sandri (42919)	
9544	The NorthMet Project has already provided a positive economic impact to the region and has given many communities hope as a source of good jobs for a considerable time.	SO10
9545	We believe that the NorthMet Project is respectful of the great tradition of mining in northern Minnesota while at the same time continuing to improve on the various mining processes and results.	PD28
9547	PolyMet has gone to incredible lengths to satisfy the regulations and the law.	PER34

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Henry J. Sandri (42919)	
9549	It is time for the Minnesota DNR to grant a positive Record of Decision for the Supplemental Draft EIS and allow PolyMet to move into the permitting stage.	NEPA16
9550	The combination of Minnesota's regulations and PolyMet's commitment to mining copper, nickel and precious metals in a way that protects the environment will serve as a global template for sustainable, ethical and successful mining practices, in Minnesota, the United States and overseas.	PD28
9553	PolyMet has put a solid project proposal in place and it has been reviewed and modified by scientists and environmental specialists working for both the State of Minnesota and the Federal Government for a number of years.	PER34
9554	The NorthMet Project as proposed by PolyMet is sound and has mitigation measures in place to address the Project's environmental impact.	PD28
9557	PolyMet has addressed all potential issues associated with the SDEIS, including all of those brought forward by State and Federal officials, employees and their consultants throughout the process.	NEPA16
9559	PolyMet has been working with regulators for nearly 10 years to ensure compliance.	PER34
9560	Any issues or concerns that were discovered during the EIS have been addressed in the SDEIS.	NEPA16
9561	The SDEIS is a clear reflection of PolyMet's and the agencies' work to develop a successful copper-nickel-precious metals mine and mill operation to the Iron Range.	NEPA16
9563	The NorthMet Project will bring high-paying jobs to an area of the State that needs the long term work and continued economic development.	SO10
9564	The NorthMet Project will be a significant contributor to the economic impact of northern Minnesota and will be an important benefit the State.	FIN16
Sender Name (Submission ID)	Henry Koski (11582)	
2241	I have concern about the release of radioactive minerals as U and others. If present I have concern about the amount to be released. I have concern about the release and amount of heavy metals from the operation. I would like to see a projection on this.	HAZ03
2241	I have concern about the release of radioactive minerals as U and others. If present I have concern about the amount to be released. I have concern about the release and amount of heavy metals from the operation. I would like to see a projection on this.	HAZ03
Sender Name (Submission ID)	Henry Moore (7496)	
24	What happens when the systems designed to stop the seepage, drainage, and discharge fail to operate as described in the SDEIS	WR128
25	will Minnesota's own Department of Health regulations regarding limits for manganese be upheld	HU03
26	what will be the effect of the toxicity of the plant on the workers	HU04
778	it will destroy nearly 1000 acres of wetlands and probably nearly 8,000 additional acres, all in violation the EPA which requires that a project that destroys wetlands not be approved if pollution would violate the Clean Water Act. This applies to the "Section 404 Permit" as well as the SDEIS.	COE03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Henry Mott (28605)	
10896	I am aghast that those charged with the protection of Minnesota's environment, especially Lake Superior, would accept a "reclamation" plan from PolyMet that would require treatment of mining-contaminated water for hundreds of years post mine closure - perhaps in perpetuity.	PD09, PD35, WR111, WR115
10897	I would hope that the officials in command of this permit application would stand firm that mining should leave no legacy environmental problems with which to deal post closure.	PER06
10898	Those wishing to profit from the mining operations undoubtedly claim that such a guarantee cannot be made - that such a remediation plan cannot be set in place.	PD09, PD35
10899	It may be expensive, but in order to partake in Minnesota's subsurface mineral natural resources, PolyMet (or any other mining company wishing to do so) must be prepared to shoulder the true cost of extracting the minerals from the Earth.	FIN01
10900	Do not say "NO" to mining itself; say "NO" to mining when associated reclamation plans will leave legacy environmental problems.	PD09, PD35
10901	Please don't concentrate on the amount of the bond that PolyMet will set forth - whatever is decided, it will not be sufficient. Rather, concentrate on a requirement that the mining operations will leave no new legacy environmental problems.	FIN01
11720	I find this reclamation plan to provide grossly inadequate assurance of long-term protection of critical ecosystems and surface waters. The proposed necessity to maintain monitoring and treatment systems for seepage from the tailings basin and category 1 waste rock storage pile for 200 to 500 years post mine closure is preposterous.	PD09, PD35, WR035
11721	the proposed necessity, in perpetuity, to maintain the vegetative covers to prevent growth of trees and woody plants on the tailings basin, hydrometallurgical pit and category 1 waste rock pile caps is unthinkable.	PD09, PD16, PD35
11734	PolyMet's predictions suggest a period of up to 500 years during which mechanical treatment of tailings seepage would likely be necessary. PolyMet would not be around to perform this treatment, which if discontinued for any reason, would put sensitive ecosystems and water resources at significant risk. Generations well beyond ours would bear the ultimate brunt of these un-reclaimed tailings as would the ecosystems which undoubtedly would be adversely affected by this activity. This portion of the reclamation plan should be rejected as it provides wholly insufficient protection of water resources and the environment.	FIN01, WR037, WR128
11741	PolyMet should be directed to devise a means to accelerate the sulfide to sulfate reaction of the tailings during active mining and a short, well-defined, period thereafter, thus eliminating the reactivity of the tailings and providing the potential for alternative uses...Bench- and pilot-scale testing should be initiated if the literature does not yield sufficient information for system design… the best time for this to occur is during active mining when human and plant resources to deal with this side stream are present and abundant. Additionally, the tailings already existing in the tailings basin, if reactive, could be treated by the same methodology.	ALT06
11744	The discussions relative to the tailings basin refer to a probable maximum precipitation event. In such a case, the tailings dam could be breached and significant quantities of tailings carried downstream. The DNR should direct PolyMet to examine this potential happenstance in detail and to devise methodologies that would absolutely prevent breach or washout of the tailings containment in the event that a PMP event would occur.	GT05
11749	PolyMet plans simply to dewater and cover the contents of the hydrometallurgy pit, thinking that the double geomembrane liner beneath and a geomembrane cap over the pit contents would be sufficient to isolate the wastes therein in perpetuity.	PD17

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Henry Mott (28605)	
11750	The [hydrometallurgy pit] cap system probably would work for the first fifty years post-closure when efforts to prevent growth of woody plants and trees would remain effective. However, eventually, this program, necessarily carried out by "others" would fail. Trees would take root, tree roots would find their way into the subsurface and eventually the ability of the proposed geomembrane cap to prevent infiltration of water into the hydrometallurgical wastes would be compromised. Water would infiltrate into the hydrometallurgical wastes and produce leachate, which must then be captured necessitating treatment. All this would occur well after the means to provide such treatment would have been de-commissioned.	PD17, PD20
11764	The best means to provide for protection of critical ecosystems and water resources is to deal with the hydrometallurgical wastes during the mining and early post-closure period.	ALT09
11765	PolyMet should be sent back to the drawing board to determine how it will eliminate the need for long-term, above-ground, isolation/storage of the currently-proposed "witches' brew" of hydrometallurgical wastes. Perhaps means to recover valuable metals and to convert perceived wastes into usable by-products can be devised. PolyMet's plan for reclamation of the hydrometallurgical pit falls short of necessary, long-term protection of critical ecosystems and water resources.	PD17, PD19, PD20
11766	PolyMet's plan would leave category 1 waste rock in an unlined pile with a ground water collection system in place to capture leachate for monitoring and treatment. PolyMet is betting that the category 1 waste rock will be non-reactive. Realistically, perfect separation of reactive from non-reactive waste rock is impossible. Certainly, there will be hot spots in the proposed category 1 waste rock pile. This plan sets up the probable scenario that active (cutoff trenches and pumps) collection of seepage would be required in perpetuity.	PD16
11926	PolyMet's predictions suggest that mechanical treatment of seepage would be required for a period of 200 years post-closure.	WR128
11929	[The geomembrane cap system] design would serve merely to delay the inevitable conversion of sulfide to sulfate. Required maintenance (in perpetuity) of the cap system would involve vigilant action to prevent growth of deep-rooted brush and trees on the cap. This maintenance activity ultimately would fail, roots would penetrate the geomembrane liner and the contents of the pile would be subjected to infiltrating rain water and oxygen intrusion. Acidic seepage containing metals would again emanate from the rock pile long after any means to treat such drainage would have been de-commissioned. PolyMet's category 1 waste rock pile reclamation plan fails to provide adequate protection of sensitive ecosystems and water resources.	PD16, PD35
11930	PolyMet plans that category 2-4 waste rock be backfilled into the East and Central Pits and submerged as the pits fill, eventually underlying a wetland. The idea is that the resultant conditions will be anoxic (likely even anaerobic) and that the sulfide to sulfate reaction then will not occur. This portion of the plan does contain some correct thinking. However, PolyMet has not fully considered the potential for migration of ground water through and oxygen (or other electron acceptors) into the backfilled material. No mention of engineering the backfill to provide sure isolation of sulfide minerals from oxygen is made. While not a huge red flag, the plans to fill the East and Central Pits with waste rock could use some additional consideration leading to assurance that sulfide minerals will be properly isolated.	WR029, WR071
11933	The objective of the long-term reclamation process should be the absolute, complete prevention, in perpetuity of the oxidation of sulfides contained in reactive waste rock.	WR001, WR111
11936	The discussions within the SDEIS mention the implementation of corrective action, "...depending upon monitoring results." Certainly, by the time a problem with waste rock that has been backfilled is identified via monitoring, all that can be addressed are the symptoms of the problem. PolyMet should be directed to develop a means to ensure that oxidation of backfilled sulfide-containing waste rock will never occur.	PD15

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Henry Mott (28605)	
11948	slowly biodegradable electron donor materials, more thermodynamically preferred than sulfide, could be incorporated into the [East/central pits] backfill to scavenge electron acceptors such as oxygen and nitrate entering the backfilled pits. This would ensure that chemoheterotrophic bacteria would prevail over the chemoautotrophic bacteria responsible for conversion of sulfide to sulfate.	MERC06
11953	It is evident that PolyMet has no real plan regarding the reclamation of the West pit other than to let it fill and leave the responsibility, in virtual perpetuity, to others to monitor and treat the water that would emanate thereafter. In the absence of well-conceived plans to isolate reactive surfaces of the West Pit from oxygen, the proposed reclamation plan is absolutely unacceptable. PolyMet's plan that others monitor and treat as long as deemed necessary is absolutely ludicrous.	PD35
11956	Backfilling of the West Pit with category 1 waste rock has been suggested previously and rejected by PolyMet mostly on financial grounds, summarized [in]… section 3.2.3.4.2 of the SDEIS… In short, PolyMet's reluctance to backfill the West Pit is entirely financial... If the economics ofmining coupled with effective reclamation are not sufficiently positive forPolyMet to obtain financing for the project, perhaps the project is indeed noteconomically beneficial.	ALT03
11969	Backfilling of the West Pit is key to the effective full reclamation of the mine and plant sites. The sulfide rock that is currently (in the absence of mining) present in the subsurface poses no adverse environmental consequences.	PD28
11983	PolyMet's proposed plan would leave reactive tailings (both new and legacy from previous activity), hydrometallurgical wastes, and category 1 waste rock (likely with significant reactivity) on the surface, eventually exposed to oxygen and infiltration leading to production of acidic, metal-laden leachate.	PD10, PD15, PD20, WR029
11985	Treatment of seepage (leachate) would be required for centuries after completion of mining activities.	WR035
11986	These deposits of mining spoils would be permanent scars on the environment and would require attention (by entities other than PolyMet) in perpetuity to ensure against significant degradation of local ecosystems and regional water resources.	FIN01
11988	PolyMet's plan would leave the reactive surfaces of the West Pit in contact with water that would flood the pit. Water would overflow and necessarily be mechanically treated perhaps in perpetuity.	WR173
11996	As currently envisioned, once PolyMet's financial gain has been realized, others would be left to deal with legacy wastes left behind by a short-sighted reclamation plan, for which minimization of financial outlay seems to certainly be a major driver. The plan for reclamation, as currently constituted, should be rejected, and hence, a permit to mine should be withheld, until such time as a suitable reclamation plan has been devised and presented.	FIN01, FIN11
12001	When the ore body has been exhausted, all the mine workers have moved on to other pursuits, and all the profits associated with extraction of the metals from the Earth have been realized by the mining companies comprising PolyMet, the mine and plant sites must be directly left in a condition compatible with the unique environment of Northeastern Minnesota.	PD01
12034	I urge the Minnesota DNR to direct PolyMet back to the drawing board to develop an environmentally sound reclamation plan that does not leave our posterity the responsibility to deal with the symptoms of the ugly mess that results from conventional practices applied in sulfide rock mining	PD01
12598	The proposed necessity to maintain monitoring and treatment systems for seepage from the tailings basin and category 1 waste rock storage pile for 200 to 500 years post mine closure is preposterous.	WR035

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Henry Mott (28605)	
12609	The best means to provide for protection of critical ecosystems and water resources is to deal with the hydrometallurgical wastes during the mining and early post-closure period. The hydrometallurgical pit as proposed would be a catch-all for many processing byproducts. Once mixed, the options for recovery of saleable metals and other constituents become quite limited. PolyMet should be sent back to the drawing board to determine how it will eliminate the need for long-term, above-ground, isolation/storage of the currently-proposed "witches' brew" of hydrometallurgical wastes.	PD19
12611	The hydrometallurgical pit as proposed would be a catch-all for many processing byproducts. Once mixed, the options for recovery of saleable metals and other constituents become quite limited. PolyMet should be sent back to the drawing board to determine how it will eliminate the need for long-term, above-ground, isolation/storage of the currently-proposed "witches' brew" of hydrometallurgical wastes. Certainly, there will be hot spots in the proposed category 1 waste rock pile. This plan sets up the probable scenario that active (cutoff trenches andpumps) collection of seepage would be required in perpetuity.	ALT09
12615	PolyMet plans that category 2-4 waste rock be backfilled into the East and Central Pits and submerged as the pits fill, eventually underlying a wetland. However, PolyMet has not fully considered the potential for migration of ground water through and oxygen (or other electron acceptors) into the backfilled material. No mention of engineering the backfill to provide sure isolation of sulfide minerals from oxygen is made.	WR029
12772	East/Central pits:PolyMet should be directed to develop a means to ensure that oxidation of backfilled sulfide-containing waste rock will never occur. For example, slowly biodegradable electron donor materials, more thermodynamically preferred than sulfide, could be incorporated into the backfill to scavenge electron acceptors such as oxygen and nitrate entering the backfilled pits. This would ensure that chemoheterotrophic bacteria would prevail over the chemoautotrophic bacteria responsible for conversion of sulfide to sulfate. Further, means to reduce the permeability (hydraulic conductivity) of the backfilled materials could be included in the design such that ground water migration through and oxygen intrusion into the backfill would occur at rates sufficiently small to be effectively zero. Oxidation of sulfide to sulfate could then be virtually completely prevented.	PD15
12775	West pit: In the absence of well-conceived plans to isolate reactive surfaces of the West Pit from oxygen, the proposed reclamation plan is absolutely unacceptable. PolyMet's plan that others monitor and treat as long as deemed necessary is absolutely ludicrous.	PD35
14296	The proposed [reclamation] plan would simply allow the West Pit to fill without measures to isolate the reactive walls from oxygen. The pit would subsequently overflow requiring treatment (perhaps in perpetuity) of emanating water.	WR038, WR173
16467	The hydrometallurgical pit as proposed would be a catch-all for manyprocessing byproducts. Once mixed, the options for recovery of saleable metals and other constituents become quite limited.	PD18
16490	means to reduce the permeability (hydraulic conductivity) of the [East/central pits] backfilled materials could be included in the design such that ground water migration through and oxygen intrusion into the backfill would occur at rates sufficiently small to be effectively zero. Oxidation of sulfide to sulfate could then be virtually completely prevented.	PD15
16492	Prior to issuance of mining permits, the DNR should require that PolyMet ensure that the sulfides contained in the reactive waste rock, backfilled into the mined pits will never be oxidized.	PER28
16608	Why should Minnesota's taxpayers now and in virtual perpetuity be the scapegoats for PolyMet's profits, to be gained in trade for significant expenditure of future resources and for the probability of significant degradation of key water resources of the State.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Henry Mott (28605)	
16616	Category 1-4 waste rock, PolyMet's tailings (treated to reduce reactivity), legacy tailings present on the site, bentonite, lime, perhaps even stabilized hydrometallurgical wastes, and slowly biodegradable electron donor materials could be combined into a backfill system sufficiently inaccessible to oxygen such that water treatment more than a few years post-closure would be unnecessary. The resultant reclaimed site would have no legacy footprints from the mining activity other that engineered wetlands and perhaps an engineered lake, were excavated materials of insufficient volume to fill all pits. In contrast to mining of sulfide rock in mountainous regions, where high-walls are virtually impossible to isolate from atmospheric oxygen, the proposed mine site would involve 100% below grade excavation. Then, the site offers the opportunity for reclamation to a level nearly commensurate with the pre-mining condition, leaving no legacy wastes on the Earth's surface to spoil the environment for future generations.	ALT06, ALT09, ALT10
17092	the proposed necessity, in perpetuity, to maintain the vegetative covers to prevent growth of trees and woody plants on the tailings basin, hydrometallurgical pit and category 1 waste rock pile caps is unthinkable	PD16
17115	PolyMet's plan calls for a geomembrane cap system to isolate the pile from infiltrating precipitation and atmospheric oxygen... this design would serve merely to delay the inevitable conversion of sulfide to sulfate... maintenance activity ultimately would fail, roots would penetrate the geomembrane liner and the contents of the pile would be subjected to infiltrating rain water and oxygen intrusion. Acidic seepage containing metals would again emanate from the rock pile long after any means to treat such drainage would have been de-commissioned.	WR127
17985	The proposed necessity, in perpetuity, to maintain the vegetative covers to prevent growth of trees and woody plants on the tailings basin, hydrometallurgical pit and category 1 waste rock pile caps is unthinkable. The proposed plan would simply allow the West Pit to fill without measures to isolate the reactive walls from oxygen. The pit would subsequently overflow requiring treatment (perhaps in perpetuity) of emanating water. This portion of the plan is unconscionable.	GEN03
17986	PolyMet proposes to cap the unlined tailings basin with bentonite layers. This action is intended to limit the entry of oxygen into the materials contained therein. The inevitable oxidation of sulfide to sulfate would merely be delayed beyond the time frame of mining operations. Then, post-closure, over time the sulfide to sulfate reaction would occur, creating acid seepage containing leached metals.	GEN01
17987	The acidic seepage water from the un-lined basin would necessarily be collected and treated well after active mining operations cease, until the entire quantity of sulfide contained in the tailings would be converted to sulfate. PolyMet's predictions suggest a period of up to 500 years during which mechanical treatment of tailings seepage would likely be necessary. PolyMet would not be around to perform this treatment, which if discontinued for any reason, would put sensitive ecosystems and water resources at significant risk.Generations well beyond ours would bear the ultimate brunt of these un-reclaimed tailings as would the ecosystems which undoubtedly would be adversely affected by this activity. This portion of the reclamation plan should be rejected as it provides wholly insufficient protection of water resources and the environment.	WR035, WR037, WR115
17991	It would seem prudent to devise a methodology, alternate to PolyMet's proposed "mining business as usual" approach for the tailings basin. PolyMet should be directed to devise a means to accelerate the sulfide to sulfate reaction of the tailings during active mining and a short, well-defined, period thereafter, thus eliminating the reactivity of the tailings and providing the potential for alternative uses. A large body of existing scientific literature addresses the characteristics and behavior of sulfide-oxidizing bacteria. Means to contact tailings with oxygen and other reactants in the presence of sulfide oxidizing bacteria to produce the acid and release metals prior to placement in the tailings pile should be devised. Bench- and pilot-scale testing should be initiated if the literature does not yield sufficient information for system design. Since acids will inevitably be created and metals thereby leached from tailings, the best time for this to occur is during active mining when human and plant resources to deal with this side stream are present and abundant. Additionally, the tailings already existing in the tailings basin, if reactive, could be treated by the same methodology to all but guarantee that tailings would pose no future risk for production of acid.	ALT10, ALT13, ALT17

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Henry Mott (28605)	
18013	The discussions relative to the tailings basin refer to a probable maximum precipitation event. In such a case, the tailings dam could be breached and significant quantities of tailings carried downstream.The DNR should direct PolyMet to examine this potential happenstance in detail and to devise methodologies that would absolutely prevent breach or washout of the tailings containment in the event that a PMP event would occur. Although, as stated in the SDEIS, such an event is highly unlikely, should it occur irreparable damage would be inflicted upon the downstream ecosystems and water resources. Suggesting that a breach or washout is highly unlikely does not offer the sufficient protection that should be afforded the natural ecosystems of the region. As long as the legacy tailings from previous mining activity and those generated by the NorthMet proposal would remain on the Earth's surface danger exists that a catastrophic event could breach the tailings basin dams and permanently degrade downstream ecosystems and water resources.	PD11
18017	PolyMet plans simply to dewater and cover the contents of the hydrometallurgy pit, thinking that the double geomembrane liner beneath and a geomembrane cap over the pit contents would be sufficient to isolate the wastes therein in perpetuity. The cap system probably would work for the first fifty years post-closure when efforts to prevent growth of woody plants and trees would remain effective.However, eventually, this program, necessarily carried out by "others"would fail. Trees would take root, tree roots would find their way into the subsurface and eventually the ability of the proposed geomembrane cap to prevent infiltration of water into the hydrometallurgical wastes would be compromised. Water would infiltrate into the hydrometallurgical wastes and produce leachate, which must then be captured necessitating treatment. All this would occur well after the means to provide such treatment would have been de-commissioned.	WR099, WR127
18031	In short, PolyMet's reluctance to backfill the West Pit is entirely financial. Lip service has been paid to the real evaluation of the alternative. The cost of doing the reclamation job right, in PolyMet's view, is simply too high. Why should Minnesota's taxpayers now and in virtual perpetuity be the scapegoats for PolyMet's profits, to be gained in trade for significant expenditure of future resources and for the probability of significant degradation of key water resources of the State. If the economics of mining coupled with effective reclamation are not sufficiently positive for PolyMet to obtain financing for the project, perhaps the project is indeed not economically beneficial.	SO02
18034	Certainly PolyMet's engineers (either those currently retained or others who could be retained in the future) could custom design the backfill for the East/Central and West Pits to provide quite satisfactory isolation from the atmosphere. Category 1-4 waste rock, PolyMet's tailings (treated to reduce reactivity), legacy tailings present on the site, bentonite, lime, perhaps even stabilized hydrometallurgical wastes, and slowly biodegradable electron donor materials could be combined into a backfill system sufficiently inaccessible to oxygen such that water treatment more than a few years post-closure would be unnecessary. The resultant reclaimed site would have no legacy footprints from the mining activity other that engineered wetlands and perhaps an engineered lake, were excavated materials of insufficient volume to fill all pits.	ALT06, ALT10, ALT13, ALT17
Sender Name (Submission ID)	Henry O Moore (42756)	
14452	[The mine project] will destroy nearly 1000 acres of wetlands and probably nearly 8,000 additional acres, all in violation the EPA which requires that a project that destroys wetlands not be approved if pollution would violate the Clean Water Act. This applies to the "Section 404 Permit" as well as the SDEIS. Poly-Met admits water pollution at the site. How doesPoly-Met respond to this concern, and will the EPA rule be enforced?	COE03
14453	will Minnesota's own Department of Health regulations regarding limits for manganese be upheld? The current limit set by Poly-Met of 1506 micrograms per liter for manganese is fifteen times higher than the health limit set by the Health Department. Why? How will this be corrected since it induces brain damage in humans of all ages?	HU03
14454	what will be the effect of the toxicity of the plant on the workers? Will Poly- Met cover their health liabilities or leave it to Minnesota and the federal government to cover the long term costs? Why is nothing regarding worker health liabilities addressed in the SDEIS statement? Why is this glaring omission allowed?	HU04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Henry O Moore (42756)	
14455	why is a project potentially allowed which will pollute the agricultural, fishing, wildlife, and drinking water for thousands of people in the northeastern Minnesota area and in the Lake Superior basin into perpetuity?	WI04
14456	Why should a most valuable tourist and vacation land for much of the Midwest be sacrificed for a few short lived high-tech jobs, a valuable product to be shipped overseas, and profits be provided to corporations located elsewhere around?	SO01
Sender Name (Submission ID)	Henry Reich (10226)	
373	I am worried that the environmental impacts of such a mine are far too great and risky to be worth permitting the mine - in particular, the mine has great potential to seriously pollute the water in the Lake Superior watershed, especially in the long term, which has downstream effects on countless other states, provinces, and ultimately the Atlantic ocean.	SO01, WR111, WR115
374	I URGE YOU to protect our water and DO NOT ALLOW THE DEVELOPMENT OF A SULFIDE MINING INDUSTRY in Minnesota.	WR115
Sender Name (Submission ID)	Herb Smith (18383)	
14724	I'm not for this. Few jobs. You know, you guys want to pollute the water -- these guys that want to use these chemicals, drink a gallon of that water in front of us and see how safe it is. Is it that safe? Are you guaranteeing that water is safe once they mix it in with that other water? It doesn't run one way.	SO01
Sender Name (Submission ID)	Heyward Nash (2665)	
16441	Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness.	WET24
16442	Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred.	WR023
16443	I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining… The proposed mine poses unacceptable risks to our waters and communities.	WR115
16444	The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public interest.	LAN01
16445	I ask that the comment period be extended to 180 days…	NEPA06
Sender Name (Submission ID)	Hillary Peterson (18318)	
4261	Water from open mines and processing plants will be contaminated with heavy levels of sulfide. PolyMet initially stated they would capture all the contaminated water on site and treat it before it was released. However, their own plan now shows that millions of gallons of polluted water will seep off the site before any treatment can be done.	WR070

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Hillary Peterson (18318)	
4263	Minnesota law requires that sulfide mines be maintenance free at closure. This means a mine site cannot be ongoing with pollution when it is closed. The wastewater generated by sulfide mining is the source of dangerous pollution that by at least one mining company's own acknowledgement will be toxic for thousands of years.	PER04
9070	Trading 500 years of water pollution and immeasurable damage to the pristine environment of Northeastern Minnesota for a mere 20 years of mediocre jobs is desperately irresponsible.	SO01
9079	I ask the DNR to ensure financial assurance is in place for both a natural disaster and for the necessary treatment after the mine is closed…I also ask that this money is guaranteed to be easily accessed in full by the taxpayers of Minnesota when it is needed.	FIN10
9086	I ask the DNR to require extensive studies to explore the possible health risks for both works and the general public before this project is discussed any further.	HU04
9092	[T]here have been many legitimate concerns raised regarding: increased levels of mercury in animals, especially fish, destroyed habit for the rapidly diminishing moose population, the destruction of rare and pristine peat lands...and the destruction to wild rice plants. I ask the DNR to require extensive studies regarding how the mine will affect the destruction of these and other wildlife in the area before this project is considered any further.	AQ05, VEG03, VEG04, WI02, WI04
15208	Minnesota does not have a perfect track record, by any means, for regulating now existing taconite mines. ... Sulfide mining poses far more opportunities for environmental harm than taconite mining. If we are not able to fully regulate lower risk taconite mining, why should Minnesotans believe our governing agencies will be able to regular sulfide mining any more effectively? … mining is extremely unpredictable and therefore particularly difficult to regulate.	PER06
15209	Especially given the fact there has never been a sulfide mine that has operated successfully and not polluted groundwater and negatively affected the ecology of the region where operation occurred, we should not be considering bringing this type of a project to one of the most water rich regions of the nation.	WR023, WR195
15210	I ask the DNR to require PolyMet to completely re-work their study of water flow in the area and new water modeling data be provided before this project is considered any further.	WR071
15211	I ask the DNR to not allow PolyMet to leave a mine behind that would require any type of maintenance or water pollution treatment.	PD01
15212	it would be truly helpful if discussion could be encouraged to talk about new ways to generate revenue in the area. For example, it is known there is a great deal of copper in this country that could be recycled and reused. I think it would be phenomenal if Northern Minnesota was known for a state of the art recycling plant for copper and other high demand metals.	ALT09, ALT16
15213	If this mine is built and operated as proposed, the Minnesota that we know andlove would be gone. Forever. Future generations will not be able to enjoy the absolute flawless wilderness that people from around the country and the world travel to experience. We owe it not only to ourselves but to generations and generation of Minnesotans to come to protect this sacred place.	WILD02
15214	I truly appreciate all the time and energy the DNR has put into this process thus far and I know everyone involved will continue to work tirelessly until the process is complete.	NEPA16
Sender Name (Submission ID)	Holle Brian (7146)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Holle Brian (7146)	
485	I'm very concerned about what will happen after 20 years of mining.	PD01
487	I'm amazed that anyone could seriously consider this proposed mining operation knowing that the water will have to be monitored for up to "500 years"?	WR195
Sender Name (Submission ID)	Holly Check (44596)	
11835	Despite PolyMet's claim that they'll be around in that time to continuously fund the treatment, if we're being honest, how many companies alive and well 500 years ago are still here today?	FIN01
Sender Name (Submission ID)	Holly Nelson (58030)	
19842	The proposal is short sighted and will put the natural resources of our state at undue risk of harm.	GEN01
Sender Name (Submission ID)	Hope Flanagan (18160)	
13310	We got to have clean water, clean food, clean places to go to get ourselves clean or we're going to have sickness.	HU03
Sender Name (Submission ID)	Horovitz (54891)	
18824	Please protect the water quality and wildlife in N. Minnesota. The PolyMet plan does not have nearly the financial protection for these priceless resources that is needed.	WI13
18825	What if there's a waste spill or inclement weather? How is PolyMet insuring damages will be repaired?	PD22
18826	What's to stop [PolyMet] from going bankrupt and leaving a devastated landscape?	FIN01
Sender Name (Submission ID)	Howard Heath (54792)	
18021	I am very concerned about the impact Polymet will have on our Hoyt Lakes drinking water, obtained from Colby Lake. As Hoyt Lakes (population 2020) only has a class 1-B clorination system (7050-0470 Minn. Surface Water Rules), any changes in water quality from industrial water discharges will grossly affect the health of Hoyt Lakes citizens...Colby Lake is already highly impacted from former mining in the area, as well as the Minnesota Power Plant additions to the lake	WR123
18027	Mercury methylation & sulfate reactions plus aluminum, arsenic, etc. are all now potential health hazards to our citizenry.	HU03
18028	Regarding water monitoring, Vol I- pg. 3-45, year 40, the Reverse Osmosis will be upgraded to sulfate concentrations of less than 10 mg./L. With the present amount of sulfate and mercury, in Colby Lake, why wait for the "upgrade" to 40 years?	WR143
18029	No mining company on the Iron Range has lasted for 200-500 years (projected water monitoring time). All have declared banluuptcy, after they were finished!	FIN01
18030	Nothing is stated in the SDEIS on the particulars, or details regarding type of equipment or cost of the RO process, proposed. ... Pg. 3-52 states that a RO process would be added to the WWTF at closure. Again, why not at the beginning of water discharge?	WR143

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Howard Heath (54792)	
18042	Regarding the West Pit, Pg. 3-72 Reject concentrate would be "evaporated & solids disposed of off site." Where?! Pg. 3-63 Rail Transfer Demo.- acids and leachates to be placed in the West Pit. Pg. 3-65-the Partridge River in 20 years gets the sulfate concentrations after the RO upgrade?! Water will be clean, for years to come?!	WR143, WR145
18044	Pg. 3-72 According to the Gold Sim P90 model -200 years for monitoring? Polymet will monitor and maintain the water management for 200 years? Really?! This is not probable in today's mining world and way too costly!!	FIN01
18046	Water Sample Areas-Vol. I, Fig. 4.2.6-2 Map. The monitor spot, LCY-1 should be moved to "Un-named Creek" entry point into Colby Lake. Also samples should be taken where "Un-named Stream" enters the lake. Not a diluted sample out in the lake!!...Pg.5-219 States that only one location for Colby and one location for Whitewater Lake will be sampled during non-frozen conditions under the Monitoring Plan. This is not sufficient scientific sampling!	WR021, WR039, WR071, WR090, WR139, WR141
18053	Vol I, 3-112 Lists the extensive caustic materials that will be brought to the plant site, via rail and tanker truck. Nothing seems to be recorded as to retaining berms, railroad rails to be inspected, hazmat training for local fireman, etc- no secondary containment info? This plus 2-6000 gallon gasoline storage tanks on site,- with all drainage in area to the Partridge River & Colby Lake (Pg. 4-46).	HAZ01
18055	Drawing Raw Water, Pg. 3-114, from Colby Lake to plant site, "if needed"(Late Aug. the P. River is very low.) will concentrate all contaminates in the Hoyt Lakes water source.	WR181
18057	Emergency Overflow-from Tailings Pond, Pg. 3-117 to go to Partridge River, will be checked for contaminates and by pass? Where is the inspection info?	WR070
18063	Polymet should truthfully present some interesting enviromnental problems for the future. There is a difference between the SDEIS theory write up, and the actual operations on site. We have found this to be true, over the yearswith other evironmental problems and mining considerations.	NEPA09
18065	lf Polymet fails to meet their projections, and causes an environmental problem, the 2020 people in Hoyt Lakes will have their drinking water, bath and dish washing water, and clothes washing water, compromised!!	WR043
18068	Hoyt Lakes... will be economically stressed if property values drop, because of water problems caused by mistakes in mining. One must remember that public non- renewable resources are being utilized for corporate profit and what the cost my be, for future generations. Jobs are not our only consideration.	SO03
Sender Name (Submission ID)	Howard Markus (18367)	
2547	Taconite mining does not use sulfuric acid. This mine will...It is ugly. It kills things. It is not what you want up here. It is going to seriously degrade the water resources up here.	PD27, WR025, WR195
2549	Right now the land proposed to be traded comes with the surface rights but not mineral rights. ... The EIS says all of these things are invaluable. Well, they're not valuable until they become valuable. I believe the Forest Service should reject the land trade and do it right by demanding both the surface rights and the mineral rights for all the lands traded or we're going to be in this circle where we have to go through all this again.	LAN04
2552	Really soon after the mine starts there is going to be discharges to impaired waters. .. This is going to be in ecosystems forever. It's going start out with no drainage and no pollution, and really soon there's going to be pollution, there's going permanent problems. … There is just not enough limestone. It's all taconite.	WR109

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Howard Markus (18367)	
2553	we are trading upland valuable forest land and they are going to be traded for shrub forest wetlands. Not a fair trade.	WET14
18314	Pg. ES-11: "It is uncertain how long the NorthMet Project Proposed Action would require water treatment, but it is expected to be long term." The need for perpetual wastewater treatment and perpetual financial assurance can not be overstated.	FIN01
18315	Pg. ES-23,24: "… the waste rock in the temporary Category 2/3 and 4 stockpiles would be moved into the East Pit for subaqueous disposal…Eventually, all of the Category 2/3 and 4 waste rock would be moved to the combined East Central Pit…" Considering this pit is unlined, why is this the preferred method and why isn't this going to result in polluted ground and surface water in perpetuity?	WR029
18316	Pg. ES-31: "...All of the non-federa llands except Tract 4 have severed mineral and surface ownership, which means that the mineral resources would not be acquired with the surface…" The U.S. Forest Service must deny this permit until both surface and mineral rights are non-severedwith the lands being traded.	LAN04
18317	Pg. ES-36: "The NorthMet Project Proposed Action is predicted to increase mercury loadings in the Embarrass River Watershed but decrease mercury loadings in the Partridge River…." Even if this "net effect" assertion is true, the Clean Water Act does not allow "trades" wherein one water body that already has increased mercury suffers increases in mercury while an offset isproposed in another river. Increased mercury can not be allowed in the Embarrass River.	WR109
18320	The only testing of the plan to use RO that I know of was based on inputting relatively clean water into the RO facility; this "test" does not come close to simulating the relatively dirty input that will exist during mining…Running an RO system at full mine scale with a less than drinking water-equivalent source water will be extremely daunting and expensive; consistently meeting water quality standards will be very challenging. The SDEIS must be revised to include a far more robust explanation of how this RO system will meet water quality standards.	PD03
18321	Comparing Tables 4.3.3-4, Pg. 4-447 with Table 4.3 .4-1, Pg. 4-465:It appears higher value lowland coniferous forests in the proposed mine area are being replaced with lower value coniferous swamp forests; this SDEIS must be rejected until an even trade of forest resources is proposed.	LAN03
18323	Pg. 5-103, Figure 5.2.2-18: "Mine Site GoldSim Model version 5 East Pit Backfill Pore Water Sulfate Concentration Based on P50 Inputs." The lower backfill pore water curve in red reaches an asymptote of approximately 250 mg/L, wellabove the WQS, at year 200; an example of the perpetual treatment needs and perpetual financial assurance needs. The SDEIS must be revised to state explicitly the perpetual need for treatment and that impact on financial assurance.	FIN01, FIN08
18326	Pg. 5-201: "Mercury was not included in the GoldSim model, as insufficient data and a general lack of definitive understanding of mercury dynamics prevented modeling mercury like tne other solutes…"This section discusses mercury from only a water-concentration perspective; the potential effects of the NorthMet Project Proposed Action on the bioaccumulation of methylmercury in fish are discussed in Section 5.2.6.This is bogus reasoning; it is likely that there are far more mercury data than many of the parameters that were modeled. This SDEIS must be rejected until mercury is modeled by GOLDSIM for both the Embarrass and Partridge Rivers.	MERC13
18334	Pg. 5-202: "...data suggest that mercury present in rainfall or released by sulfide oxidation is typically adsorbed by other minerals present in the mine waste rock…" Because the mercury is adsorbed and not absorbed, several important issues come into play: [1] adsorption sites fill and, once filled, mercury will flow through the system unimpeded, and [2] adsorption sites are unstable- conditions such as changes in pH could cause a significant 'dump' ofmercury from the adsorption sites, causing significant down-gradient pollution.	MERC20
18336	Both the Embarrass River (04010201-579, impaired for a poor fish community] and Embarrass Lake [69-0496-00, impaired for mercury in fish tissue] are on the MPCA draft 2014 List of Impaired Waters. Increased mercury can not be allowed in the Embarrass River or Embarrass Lake.	WR109

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Howard Markus (18367)	
18338	In early 1990's, as staff of MPCA, I was the lead and coordinated the development of the Chapter 7050 Wetland Water Quality Standards. One guiding principle was that avoidance of wetland impacts was the preferred option. In this SDEIS, there are no realistic 'avoidance' option, such as anunderground mine alternative that minimized and greatly avoided the massive amount of wetland loss proposed in this SDEIS. As such, this SDEIS must be rejected by the U.S. Army Corps of Engineers and the MPCA as failing the requirements of the Clean Water Act and Minnesota Rules 7050.0186.	ALT01, ALT13
18341	Pg. 5-373: "...Specific species such as loons, osprey, mink, and otter may be affected [by mercury exposure]…eagles may be less likely to be affected by mercury." There is no mention of loons in Section 5.2.6.2, as inferred from the PolyMet section above. It is disappointedly disingenuous to discuss at length eagles with less sensitivity to mercury and ignore the state bird -loons - that are known to be highly sensitive. The SDEIS must be withdrawn and rewritten to focus on mercury-sensitive wildlife, such as loons and mink, instead of relatively mercury-insensitive wildlife.	WI04
18342	There are no real alternatives in this SDEIS. As such the SDEIS must be rejected. An example of a real aternative would be to have an alternative in which all the pits lined, and then compare the improvements in water quality to the additional costs associated with lining all the pits.	ALT06
Sender Name (Submission ID)	Howard Miller (21974)	
3307	This project will provide thousands of well-paid jobs and will help to provide North America with an inexpensive supply of copper and nickel plus ancillary precious metals.	SO10
Sender Name (Submission ID)	Hser Hoo (54189)	
17207	The sulfuric acid will reduce the pH level and kill all the fishes. We won't get to fish in the river anymore.	AQ08, AQ12
17210	20 years…That's a long time to have to live through those loud machines.	N01
Sender Name (Submission ID)	Hudson Mohawk Bird Club (20761)	
16163	More than 900 acres of wetlands will be directly destroyed by the mine, and an additional ten square miles of wetlands will be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts.	AIR09, WET01
16164	In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05, WI02, WI04
16165	The mine will threaten fish-eating birds like Belted Kingfishers, Common Loons, and Hooded Mergansers. Birds in need of conservation, such as the Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl, will lose suitable habitat if the mine is developed as proposed.	WI01, WI02
16166	The SDEIS is insufficient because it does not include a long-term water treatment plan, which is imperative to evaluate the environmental effects of this proposal.	WR035
Sender Name (Submission ID)	Humphrey Kearns (3703)	
12345	Until it can be demonstrated that no contaminated water can leave the site, either in run-off or under ground, I can't support this type of mining in an area like the Arrowhead.	WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Humphrey Kearns (3703)	
17004	Until it can be demonstrated that no contaminated water can leave the site, either in run-off or under ground, I can't support this type of mining in an area like the Arrowhead. Once you mess up a place it is pretty much messed up forever.	WR195
Sender Name (Submission ID)	Hunter Maughan (46034)	
10615	Also because there are ecosystems, and this mining could endanger them. Or possibly destroy them for good.	NEPA15
Sender Name (Submission ID)	Ian Kimmer (18320)	
4267	...I would like to see a more complete delineation of how we are going to pay for the water treatment facility that will be required to run perpetually in order to make sure that the water discharged from the site is not polluting our Northern Minnesota rivers, lakes, groundwater included.	FIN05
4268	So I respectfully request that we have the financial assurance piece, how we're going to pay for the long-term water treatment at the facility, included in the SDEIS process so that the public can participate, see how it's going to be paid for and come away with a reasonable assurance that if we are going to do this project that at some point the taxpayers are not going to liable for hundreds of years of water treatment.	FIN01, FIN05, FIN13
4269	As it is right now there doesn't appear to be any analysis behind the tax figures that are presented. In the original draft it was something in the neighborhood of 1.5 million. It is now 16 million. And as far as I understand it, the DNR did not do a tax analysis of the project.	FIN05
4271	Finally, there seemed to be some current conditions that are in the EIS that do not match what the actual monitoring stations read. And I would like to see that resolved. Because as we were looking at the future modeling, the models have never been accurate; however, they are good guidances and some of the current conditions anticipated by the model conflict with what we see at actual monitoring stations in the field.	PD29
12500	My first request, respectful request, of the co-lead agencies is that at over 2100 pages this document is an overwhelming conglomeration of information. And a lot of it is very difficult for a layperson or even many experts to understand. I first of all respect your request that we extend it from 90 days to 180 days for people to take in that information and review and provide comments.	NEPA07
Sender Name (Submission ID)	Ian Wunder (19514)	
13282	The claim in the SDEIS is that PolyMet will decrease mercury and sulfate pollution in nearby waterways and will do this by operating water treatment systems that have not been detailed.	WR128, WR143
13283	The treatment plant designs have not been outlined in detail in this document, and this industry has a zero percent success record at containing waste toxins. Because of this detail, the SDEIS is insufficient and should not be approved. It does not provide this important information.	PD08
13284	Five centuries of water treatment will need to be paid for either by the mining company or by Minnesota taxpayers. These individuals in either case will be the future generations of Minnesotans and US citizens. They will be left with a legacy of pollution and wastewater that will need to be cleaned continually for more than half a millennium.	FIN01
13286	The mining industry as a whole is responsible for the largest and most costly environmental cleanups in our nation, and a large percentage of Superfund sites are the legacy of sulfide ore mining specifically. We do not need this legacy added to our Minnesota tax burden for so many future generations.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ian Wunder (19514)	
13288	the economic possibility of extracting the ore in an underground mine has not been fully explored…the SDEIS should not be approved based on the fact that this method of mitigating and avoiding environmental degradation has not been explored.	ALT01
13289	The entire 3,014-acre mine site is classified as high biodiversity significance and houses endangered, threatened and special-concern plant species, as well as used habitat by many rare and important bird species, as well as other rare and important Minnesota wildlife. There is not sufficient action outlined in the SDEIS to mitigate the disturbance of this specific, very important ecosystem habitat.	VEG01, VEG02, VEG03, WI01, WI02
13301	The SDEIS is insufficient and should not be approved on the basis that the proposed wetland mitigation will only cover 912 and a half acres of wetland impact by the PolyMet operation. Ten additional square miles or more of wetlands as well as surrounding area are projected to be indirectly impacted by drainage, decrease in water level and the addition of toxic materials in the form of blown dust.	WET01
13302	There is absolutely no monitoring plan that will be able to mitigate damage immediately.	WET24
13303	Additionally, any damage that does occur will be occurring on bogs and coniferous swamps that are extremely difficult to restore and are ecologically sensitive and very important.	WET05
Sender Name (Submission ID)	Iana Studelska (57272)	
17415	I am unwilling to trade 20 years of “jobs” for a future of sulfide pollution and the compromise of the Lake Superior Basin.	SO01
Sender Name (Submission ID)	IBEW294 (7607)	
792	The PolyMet project is an Important part of northeastern Minnesota's economic future. As an Iron Ranger I am confident that this project will provide us with long term jobs.That is good paying jobs not minimum wage jobs	SO10
794	The environmental review process has been lengthy and thorough. The supplemental draft EIS addresses the potential environmental impacts and how to mitigate them.	NEPA16
797	I also think that by letting PolyMet mine with the controls that have been put in place will clean up a brown area the old LTV mining sight.	PD28
798	We can control the pollution here but we have no control in other countries.So if we don't mine here, There will just be more uncontrolled pollution in other parts of the world which still affects us here.We should be using our recourses and controlling the environment.	ALT16
Sender Name (Submission ID)	Ida DeLisi (10088)	
333	No mining has been proven to be safe, all mining destroys at least some part of the environment, and water is a resource we can't waste.	WR023
334	No mining has been proven to be safe, …The risk to human health is too high.	SO01
335	I question the estimate, because I don't believe it takes everything into consideration, particularly when it will be us, the taxpayers of Minnesota footing the bill for the cleanup, and trying to live with the destruction of not only our business but the loss of a pristine national public area for at least 500 years.	FIN01, FIN05
Sender Name (Submission ID)	Igra Jamari (54191)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Igra Jamari (54191)	
17217	I think you should not mine there because you can find or make copper and nickel at other places.	NEPA09
17218	Also it will harm and destroy animals, environment and also other state near MN.	WI04
Sender Name (Submission ID)	Illegible (42838)	
14697	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range. We need this for Minnesota jobs and development! I encourage a permit to be granted for this endeavor.	SO10
14697	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range. We need this for Minnesota jobs and development! I encourage a permit to be granted for this endeavor.	SO10
19344	One, concern I have is of the failure of the infrastructure over the verylong life of the project and need for water control. The membranes being proposed for use have not been tested in reallife conditions to determine how they will hold up over a long time span. Also, the materials used for the pumps, indeed all the gaskets, sealants, wiring, joint compounds and such have unknown life spans and dependability. Most of these materials have not been in use in conditions such as these and for time periods as long.	WR129
19345	Another concern I have is that some of the information in the SDEIS has been provided by data from PolyMet itself. I have read reports of some of their data being in contradiction to data being provided by independent groups studying the isssues. One example of this is amount of water flowage, believed to be very underreported by studies done that Nancy Schuldt was involved in.	WR071, WR189
19346	The last concern I will state ... is that some of the fact and figures are based on computer models which are not taking into account weather events, climate change, forest fires and such.	PD22
19347	I can not understand taking these huge environmental risks for a few hundred short term jobs to make money for a multinational corporation which will ship the copper mostly overseas.	SO01
19348	many years of copper are already stockpiled for use so what is the rush to build this mine with the risks involved.	NEPA03
Sender Name (Submission ID)	Illegible, George (58002)	
19875	The cost to our future are not balanced with the short-term benefits that will be provided to private investors.	SO01
Sender Name (Submission ID)	Illegible, Terry (58110)	
20017	This seems like a short-sighted project that could be very detrimental for our environment. There does not seem to be a reasonable plan for all the harm that could ensure. No one will be responsible for 500 years.	FIN01, GT01
Sender Name (Submission ID)	Ilze Mueller (16278)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ilze Mueller (16278)	
10484	Instead [of the PolyMet Mining project] we should be working to further develop local jobs in the tourist industry on the North Shore decent jobs that do not jeopardize our precious environment.	SO02
Sender Name (Submission ID)	Ingdal, Leisha (14886)	
1775	The people of Minnesota deserve better than a short term employment gain at the cost of polluted water for 200 years!	SO01
Sender Name (Submission ID)	Iris Sinai (14184)	
14314	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for--information that is necessary to evaluate the environmental effects of this proposal.	WR035
14315	More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts.	WET01
14316	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons.	WI01, WI02, WI04
14317	four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	Irv Berlin (30614)	
13996	To my knowledge sulfide mining has never been done without polluting the environment. Doing it in an area that could contaminate Lake Superior and the famed Boundary Waters Canoe Area seems to be the height of folly. Risking Superiors waters, the recreational economy of the area, public health, and the environment in general is not worth the profits to the company that proposes this disaster.	SO01, WR111
Sender Name (Submission ID)	Isaac Anderson (42511)	
1823	One idea that I suggest is to examine the viability of opening a precious metal recycling plant that would preserve the environment, provide needed metals, and provide jobs and industry.	ALT09
15410	We as a nation need to grow and expand, and a project like this is a step in the right direction. We need to keep the great Midwest GREAT and supply jobs and livable wages to the hard working people of this great region/nation.	SO10
15411	As far as environmental impact is concerned; this is the 21st century. We have the tools, intel, technology, know-how, and man power to safely and cleanly build and run this mine in a efficient and environmentally friendly manner.	PD28
Sender Name (Submission ID)	Ivan Zenker (11271)	
799	I just don't feel some jobs in the short run justify the danger to the watershed areas that surround the site.	SO01
1600	And I believe that asking for a company to promise stewardship many, many years into the future to treat the water long after the profits are gone is just not something we should count on.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ivy Wright (54555)	
18962	Sulfide mining has been shown to be toxic to the environment. Financial gain for foreign or American companies is a shameful reason to destroy our world.	SO01
Sender Name (Submission ID)	J Brophy (39412)	
7218	The supposed short term gain via jobs would be a small scale, short term boost at best. And the jobs would be grossly outweighed by the risk of water pollution and contamination that will continue for centuries after the mining is completed.	SO01, WR115
7221	PolyMet may sign on to promise clean up, but companies go bankrupt all the time, so what financial guarantees will there be to make sure the clean ups actually occur?	FIN01
Sender Name (Submission ID)	J Cherveny (16517)	
1572	I can hardly believe that anyone would want to risk our precious clean water for any job or mine or promise of money.	SO01
2035	Yet people in our state are willing to risk our fresh water for a generation of jobs with the promise of a clean up if the inevitable contamination occurs.	SO01
2036	Please deny the permits they are requesting. It’s not just for me that I am asking this. It’s for my children and grandchildren as well. They deserve the same clean water that we have enjoyed and have a right to---yes, a right to.	PER35
Sender Name (Submission ID)	J Kolstad (47773)	
8144	This [project] will create a minute number of jobs considering the area, the number who need jobs and the jobs projected even by the proponents. Plus there is no guarantee that any area people will get these jobs or what they will be paid.	SO02
8148	The study by PolyMet states that the sites will be polluted for 500 years...Who will be here for 500 years to manage this?...the Financiers, stockholders, parent corporations or those receiving any benefits from this project should be [held] permanently responsible until total recovery and liability is satisfied.	FIN01
8151	There is a world full of these and other metals, that could be recycled but are not. If recycling got the same tax breaks [as] mining, there would be an abundan[ce] of these metals and others. Recycling would not pollute the environment or put a region at risk of disaster.	NEPA06
11175	75% of current jobs in the area are non-mining. These jobs are based on Lakes and Woods and prestine environment. Ironically, the PolyMet type mining could very likely cause permenant job loss.	SO02
Sender Name (Submission ID)	J Patrick Kegley (18171)	
13356	The ecology must come first. We cannot restore the ecology. You cannot restore things once they're damaged.	PD01
13358	We can reclaim and reuse copper. 24 percent of the copper of the world comes from reclaiming it. We don't have to continually mine it and rip apart the earth to do it.	NEPA06
Sender Name (Submission ID)	J Van Dyne (58162)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	J Van Dyne (58162)	
20024	We need to think about the 7th generation and what we may be leaving behind. As a society, we tend to be shortsighted. Jobs for 20 years! Sure they worth the travesty, wrecked on our environment which will impact us economically, physical – both health wise and topographically.	SO01
Sender Name (Submission ID)	J. Alvey (41852)	
14096	This mine is an entirely different type of operation and has different environmental impacts than iron mining does. The risks are too great.	PD27
Sender Name (Submission ID)	Jace Carlson (57139)	
16833	Sulfide mining in other states has been extremely detrimental to the water around the mines and in an area like the Superior National Forest with valuable peatlands, this kind of pollution would be unacceptable.	WR023
16834	The fact that there are no safeguards for when things go wrong makes this plan even scarier.	PD01
Sender Name (Submission ID)	Jaci Christenson (47458)	
10532	PolyMet and the SDEIS do not acknowledge the true cost of the proposed PolyMet sulfide mine. PolyMet is a lean deposit of copper-nickel, therefore, 99% of what is dug out of the ground will be waste. For that 1% gain in metal, the true cost will be unfathomable. The toxic extraction process will be energy and water intensive (releasing 200,000 metric tons of carbon dioxide). Even more water and energy (generating 707,000 metric tons of carbon dioxide each year) will be used in processing; leaving us with even more waste that will need to be managed for 500 years. This is in direct opposition to Minnesota's goal of reducing greenhouse gas emission by 30% by 2025.	SO02
10535	Lastly, it can no longer be ignored that fresh water is a precious resource and must be treated as such	WR195
Sender Name (Submission ID)	Jack and Rhoda Liebo (4146)	
871	the decision to move forward past this ridiculous review shows a sense of panic on the part of the officials in government to produce(in the short term), good economic growth.	SO01
872	Externalizing toxic water soluble poisons, which are currently well insulated from doing us harm, into this glorious region of Minnesota, shows a complete absence of understanding.	WR111
948	they will extract our wealth, freeing deadly polluting poisons that will contaminate our environment, kill the fish and the precious watershed, leaving us, some time within the next 500 years to cover the cost of cleanup.	FIN01
949	[The NorthMet Project will negatively impact] land values... and the budding conservationists tourist industry.	SO02
1519	No matter what the industry suggests, there are no big breakthroughs that will suddenly make this type of mining safe for the local watershed.	PD32
Sender Name (Submission ID)	Jack Brunell (15964)	
952	I feel the current State regulations adequately safeguard the Northern Minnesota environment.	PER34

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jack Carrick (21543)	
1310	Some of the obvious possible failures of even a good plan [re: Proposed Action] are: 1. a 1 00 year weather event and the whole area overflows.	WR057, WR077, WR180, WR193
1312	[Some of the obvious possible failures of even a good plan [re: Proposed Action] are:] ... 3.heavy equipment throws up dust, in the summer the wind is usually out of the south blowing toxins directly into the BWCA (the fish already have high mercury levels from coal plant dust hundreds of miles away).	AIR09
1315	[Some of the obvious possible failures of even a good plan [re: Proposed Action] are:] … [what happes if] 4. a tornado hits and blows the waste all over the place. 5. a dam fails 6. a containment membrane fails 7. a reverse osmoses filter fails 8. a pipe breaks 9. a rail car or truck derails 10. engineering miscalculation … 12. worker error [causes impact]	PD22
1318	[Some of the obvious possible failures of even a good plan [re: Proposed Action] are:] …11. bankruptcy and bond to cover bankruptcy fails (500 years is a long time)	FIN01, FIN08
1935	[Some of the obvious possible failures of even a good plan [re: Proposed Action] are:] …2. the area is mostly rock but there could be crevasses where contaminated water can slowly leach.	WR012
12260	there has never been a sulfide type mining operation that has not polluted. PoliMet spent years and a ton of money on trying to get EPA approval and can't even get it correct on paper?! How in the world would they be able to do it for real? And take care of the upkeep?	GT14
12264	Some of the obvious possible failures of even a good plan are; ...a 100 year weather event and the whole area overflows...a tornado hits and blows the waste all over the place...a dam fails... a containment membrane fails...a reverse osmoses filter fails...a pipe breaks...a rail car or truck derails... engineering miscalculation	PD22, WR202
12265	the area is mostly rock but there could be crevasses where contaminated water can slowly leach.	WR012
12266	heavy equipment throws up dust, in the summer the wind is usually out of the south blowing toxins directly into the BWCA (the fish already have high mercury levels from coal plant dust hundreds of miles away).	AIR05
12273	[One] obvious possible [failure] of even a good plan [is]...bankruptcy and bond to cover bankruptcy fails (500 years is a long time)	FIN01
13731	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN13
14597	I attended the meeting last week and saw how important jobs are to the miners and the tax base of the area but please, think of the future.	SO02
14598	2.The area is mostly rock but there could be crevasses where contaminated water can slowly leach.	WR012
14599	3.Heavy equipment throws up dust, in the summer the wind is usually out of the south blowing toxins directly into the BWCA (the fish already have high mercury levels from coal plant dust hundreds of miles away).	AIR08
14600	We’re already limited to how much fish (probably the healthiest food known to man) we can eat from Minnesota lakes. Help clean the lakes and drinking water, don’t make things worse.	AQ11
Sender Name (Submission ID)	Jack Fulton (54790)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jack Fulton (54790)	
17998	The risk to the BWCA, a protected and mostly unspoiled wilderness …and the threat to our fresh water is too great.	WILD02
18001	…Polymet preduicts that 500 years of water quality mitigation will be needed for …a 20 year project. To think that a 500 year plan for anything, let alone a feat as complex as water mitigation can be effective is foolhardy and …arrogant.	WR115
18005	Further reason to deny Polymet a mining permit are the recent revelations in the Star Tribune of the damage that taconite mining has done to the stands of wild rice due to the release of sulfates in waterways. …I took from the article that redemption of these stands is possible. But I doubt if that will remain true if Polymet is granted its desired permit.	VEG04, WR156
Sender Name (Submission ID)	Jack Furry (11158)	
674	The reward far outweighs the risk. It would open up hundreds of new jobs and it would provide us with metals that we need in our everyday life.	SO01
676	The open pit mine they are hoping to construct would most likely pollute the area's watershed, which is all of the water under the ground, which in turn, could end up reaching the Boundary Waters.	WR111
679	For one, based on an unbiased article I read, the estimated amount of ore underneath the northern regions of Minnesota totals out at well over one trillion dollars. That would really benefit the state financially.	SO10
685	Another reason they should go forward with mining is because it would open up a multitude of new jobs for the unemployed residents of Minnesota, mainly those that live in northern Minnesota, where jobs are scarce.	SO10
1570	Once these toxins reach the lakes in the region the fish are sure to die.	AQ05
1571	The company also hasn't assured us that they will leave the area in good condition when they are done.	FIN01
Sender Name (Submission ID)	Jack Huhta (18081)	
3204	We've made [PolyMet] -- we put them through a lot more than the average corporation would ever think of going through. The cost, the frustrations and the delays are unbelievable...I can't imagine nine years what they've gone through trying to get this process forward. Our schools, our streets, our roads, we need something. We need a tax base so we can provide an education for our kids.	SO10
Sender Name (Submission ID)	Jack Hwinta (58109)	
19995	The Polymet Project will not only benefit northern Minnesota. It will provide resources and raw materials for manufacturing which will benefit the entire state of Minnesota	SO10
Sender Name (Submission ID)	Jack Parker (38261)	
13673	They have led the opposition up paths where they have little to worry about, and they withhold most of the information which they would rather not bring to light. For that reason we must insist on seeing all of the basic information, not what they want the public to see…Provide all the geological information needed for an independent evaluation of underground mining.	ALT01, PD30
13769	If, for example, they cannot give us absolute assurance that Lake Superior will not be harmed - then there should be no mining.	WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jack Parker (38261)	
13770	Demand too financial assurance that all damage will be remediated.	FIN08
13771	Keep in mind their multi-billion dollar reasons for being and trust them as far as you can throw them. Check their social and environmental records.	SO02
16686	I suspect that the MN ore could be mined selectively underground, so ameliorating many problems with the environment, but I see that PolyMet dismisses the possibility, essentially "Because I say so". We cannot correct them because they will not disclose details of geology. Part of their plan.	ALT01
16687	I submit that we, the people, cannot and should not accept PolyMet statements unless we can confirm them via original data.	PD23
16688	As a demonstration of good faith how about them submitting all known facts about the "orebody" (which it is NOT until factors including environment are satisfied) to a worthy mining group for evaluation.	PD30
16690	I see nobody working on remediation of open pits to end up with enhanced landscapes. That is not impossible.	PD01
16691	I would encourage your leaders to INSIST that PolyMet share the basic data - not their doctored versions. And not make any more moves until your requirements are satisfied.	NEPA15
Sender Name (Submission ID)	Jack S Sneve (57237)	
17326	I am voicing my concern for the destruction of 913 acres of irreplaceable wetlands along with another 7,350 acres in the St. Louis River watershed that would be affected (SDEIS, p 5-224).	WET24
17331	This mine and its water if allowed to proceed, will effect all living things “down stream” in the Lake Superior basin. This area of northern Minnesota that is so very water rich could very quickly be polluted. All ecosystems are interconnected. Mining harm to this area will effect the whole environment,	GEN01
17340	every sulfide mine has had a 100% failure rate. Untreated seepage forever for all living beings.	GEN01
Sender Name (Submission ID)	Jack Treher (11634)	
2323	I would like to know how you consider 10g/min of untreated water released insignificant <5% total mine site water releases is significant.	WR149, WR157
2324	Land Exchange with the Forest Service should not be accelerated, the process should be completed in full, this is close to a 10 year process for others	LAN10
2325	Where has Polymet proved they can do this type of mining safely & without pollution?	PD23
2326	What happens when we have a storm like they blow down in the Boundary Waters and Canada a few years back. How will such an event impact this mining and pollution?	PD22
2327	What happens in 40, 50, 100…years when PolyMet is not around?	PD24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jack Treher (11634)	
8232	Land Exchange with the Forest Service should not be accelerated, the process should be completed in full, this is close to a 10 year process for others.	LAN10
8236	Where has Polymet proved they can do this type of mining safely & without pollution?	PD23
Sender Name (Submission ID)	Jacki Fisher (54497)	
18124	…to believe it [water treatement using reverse osmosis] could be done without some major problem, for 200 years is totally unrealistic. How can anyone guarantee something for 200 years? How much money has to be set aside for the clean-up? What if the company goes bankrupt? What about deep seepage? What about unforseen weather events? (…) 360 jobs for 20 years, 200 years of clean up? Please let's not take chances with the water - by far the most valuable resource on the planet.	FIN01, FIN05, FIN10
Sender Name (Submission ID)	Jaco Conway (57960)	
19850	I am also infuriated that these companies have eventual mineral rights underneath my land.	LU02
Sender Name (Submission ID)	Jacob Crawford (9604)	
221	Approving such a project would put wildlife and human health at risk as well as the good reputation of the state of Minnesota.	WI13
1135	... not least among them being the Boundary Waters Wilderness, which this mine will almost undoubtedly affect adversely.	WR111
Sender Name (Submission ID)	Jacob E Davis (47064)	
10947	The environmental impact survey is based on the iron range and its geology, where as the actual mine site is entering into the Duluth Complex. This misrepresentation of the geological implications of the proposed mining site is misleading to the public. Further, it is flawed science.	PD31
10949	Stop letting corporations extract wealth from our lands only to leave us with pools of toxic waters for 500 years.	WR195
10950	Recreation is far more important to northeastern Minnesota than mining.	LU06
Sender Name (Submission ID)	Jacob Kjome (50308)	
11005	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards.	WR023, WR060, WR181, WR182, WR195
12569	[The PolyMet] project would decimate Minnesota's fresh water for hundreds of years.	WR115
12570	...how many companies do you know that are till around for cleanup after even 100 years, let alone 50, 25 or 10. If it'll be cheaper for them to go bust, then that's what they'll do ...They'll take their short-term money and run leaving us with a long term costly, disastrous, mess.	FIN01
16210	how many companies do you know that are till around for cleanup after even 100 years, let alone 50, 25 or 10. If it'll be cheaper for them to go bust, then that's what they'll do and you know it. They'll take their short-term money and run leaving us with a long term costly, disastrous, mess.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jacque Lively (39700)	
6416	PROTECT THE PEOPLE OVER CORPORATE GREED AND FINANCIAL TERRORIST, please~	SO02
Sender Name (Submission ID)	Jake Giefers (54183)	
16435	Building this mine will pollute the beautiful waters and put people in danger. Sure it may create jobs, but the negative impacts such as waste and pollution will weight those out.	SO01
Sender Name (Submission ID)	Jake H (11362)	
261	I believe that the responsibility for such costs should rest entirely on the company- a responsibility which cannot be realized given the indefinite nature of the environmental impact.	FIN01
1641	Also, I believe the increased demand for Coal-generated electricity, as a result of new mining operations such as this, would be a step backwards in the direction our state should be heading. We should instead be looking for ways to reduce our energy needs and diversifying our energy sources away from coal.	AIR01
1642	n June 2012, the region I live in (Duluth area) experienced a historic flood, the likes of which I had not thought possible. The St. Louis river saw peak flows of 56,000 cubic feet per second, 40% higher than the previous record. What would the consequences be if such an extreme precipitation event (10 in+) were to occur in the region of the proposed site, either during or after mining operations? Would the tailings basin overflow and contaminate flood waters? How would a situation like that be managed if the power went out, as would likely to be the case in such a scenario? Would the waste water pump and treatment facility still be operational?	PD22
Sender Name (Submission ID)	Jalene Betts (47705)	
8056	It is in our interest to preserve the attractiveness of our wilderness and parks not only for our own enjoyment, but also for the enjoyment of visitors to our area. Tourists as well as locals seek out our area as a haven a multitude of outdoor activities, including (but not limited to), hunting, camping, canoeing, and fishing. Our robust and constantly expanding tourist economy depends upon [these visitors].	SO02
8057	The economic impacts of losing the robust recreation and tourism industry we have so carefully constructed would be catastrophic. In this way, we depend upon the natural beauty healthy environment of the Arrowhead region for our jobs.	SO02
8062	It is not logical to jeopardize over 18,000 jobs in our recreation and tourism industry in order to provide a few hundred people jobs in a destructive sulfide mine that will only turn a profit for 30 years, and...will require cleanup of the pollution by sulfuric acid and heavy metals it causes to our water for over 500 years.	SO01
8064	[T]he SDEIS provides no credible information or details about the actual cost or viability of monitoring a pollution cleanup project for such an extensive period of time.	FIN05, FIN11
8068	Risk of mercury poisoning would prevent local people from eating the fish they catch and thus decrease locals' food self-sufficiency, forcing us to rely more on imported food.	MERC02
11138	The health of our regional economy depends upon its diversity. What threatens our environment also threatens our economy.	SO02
11143	According to Minnesota Rules 6132.3200, at the time of its closure the mine site must be maintenance-free. The PolyMet plan for 500 years of cleanup…breaks this rule	PER04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jalene Betts (47705)	
11146	The PolyMet plan for 500 years of cleanup…shows its face as an unscientific and haphazard, shoddy attempt to pull the wool over the eyes of the public with the utterly unrealistic expectation that PolyMet could be held accountable over such an absurdly long period of time. I cannot think of a single institution that has lasted that long.	PD01
11150	The PolyMet project should not be allowed to proceed because of the already blatant attempts to cover up and hide the negative impacts of an extremely destructive project. The neutrality the SDEIS is compromised and it should therefore be rejected and thrown out.	NEPA15
Sender Name (Submission ID)	James A Ahrens (41863)	
16450	Those of us who love the boundary waters and the many species of wildlife and especially birds fear that proposals such as this will bring long term losses that cannot be justified by short term profits.	SO01
Sender Name (Submission ID)	James A Seme (42561)	
6924	Mines Gone Wrong: AMD Acid Mine Drainage and Toxic (poisonous) metals from modern mines using the latest technology. The waste cannot be harnessed from destroying pollution in the air, water and ground. Do we want this to destroy our beautiful area of trees, lakes and water?	AIR11, WR023, WR115, WR195
Sender Name (Submission ID)	James Ahrlin (54884)	
19598	The big argument against Polymet seems to be the sulfur residues leaching into ground and surface waters. Has anyone considered shipping the sulfur away from here to someplace like North Dakota? Farmers there could use it to neutralize certain soils that tend to be very alkaline.	ALT09
Sender Name (Submission ID)	James Amato (36348)	
3783	[Copper mining, as proposed by PolyMet] carries increased risks to the environment which in my opinion have not been adequately addressed.	NEPA09
13734	The waterways of northern Minnesota are a priceless asset. They have enriched our lives for countless generations and should be passed on unspoiled to future generations. A comparative handful of jobs for a few decades do not justify the immense risk involved.	SO01
Sender Name (Submission ID)	James Amundsen (38826)	
5059	From our point of view, the danger is so catastrophic that there is no way we would want this area's unique beauty to be risked for generations, much less for our generation.	LU04
Sender Name (Submission ID)	James Barrett (38809)	
4949	Is it possible to capture 100 percent of the water on site so there would be no water pollution? What about seepage underground?	WR118
4951	Is the Polymet proposal the sole project or the tip of the iceberg of several such projects in the greenstone geologic formation under consideration by mining companies and the government?	CU04
4971	Are there other mineral mining projects under consideration north of Babbitt that would result in polluted water flowing north into the Boundary Waters Canoe Area and Canada?	CU02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	James Barrett (38809)	
16999	The question is whether we'll sacrifice one of the primary pure water resource systems of Northeastern Minnesota and North America in exchange for temporary jobs.	SO01
Sender Name (Submission ID)	James Beaty (38357)	
13663	I 100% support responsible mining in this area. I want to see healthy young families grow and prosper here like I did. Tourism never did and especially with the creation of "Disney Woods" never will provide livable wage jobs.	SO10
Sender Name (Submission ID)	James Beaumont (57461)	
19513	I believe the PolyMet Mining project should proceed. The PolyMet Mining water quality study, the Superior National Forests bio. Assessment and evaluation as well as the United States Army Corp of Engineers have done an extensive review of the proposed project and long-term effects.	NEPA16
Sender Name (Submission ID)	James Borden (9311)	
103	This mining deal doesn't really present viable, sustainable jobs and may only last 20 years whereas the potential for pollution may be up to 500 years.	SO01
412	It will only go for 20 years, with a minimum of jobs, especially compared to the jobs we get from sustainable tourism in Ely area	SO01
413	[It will] produce sulfuric acid in all the waters it drains to including Lake Superior, the largest supply of fresh water in the US.	WR111
921	With two major watersheds that could potentially spreading sulfuric acid into Lake Superior and the Hudson Bay.	WR081
Sender Name (Submission ID)	James Bussa (6316)	
1069	Say no to mining in the BWCA. A handful of jobs is not worth 100's of years of pollution.	SO01
Sender Name (Submission ID)	James Cunningham (33549)	
12322	This mining activity will pollute one of our nation's largest bodies of fresh water. Not a good idea unless you want to poison Americans.	HU03
Sender Name (Submission ID)	James David Cole (57232)	
17179	The costs to clean up the problems left behind far exceed the profits taken!	SO01
Sender Name (Submission ID)	James Denman (43645)	
12563	Polymet will emit 46 lbs of mercury/ year that will cause harm to visitors to the BWCA and local residents.	MERC03
12565	It will destroy Moose and lynx habitats	WI02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	James Denman (43645)	
12571	The project will affect over 1000 acres of valuable wet lands.	WET24
12572	The project does not seem to benefit the local residents nor the citizens of Minnesota. The risk to the area is high compared to the benefit of the project is low for Minnesota overall.	SO01
15105	The risk of Sulfide pollution is high.	WR111
Sender Name (Submission ID)	James Everest (51507)	
13189	As a lifelong resident of the state of minnesota, one of the things I hold most dear is the Boundary Waters Canoe Area and North Shore of Lake Superior…Please do not put short term profits ahead of invaluable, irreplaceable natural habitats that so many of us cherish and rely on to help define who we are as minnesotans.	WILD02
13661	Please do not put short term profits ahead of invaluable, irreplaceable natural habitats that so many of us cherish and rely on to help define who we are as minnesotans.	SO01
Sender Name (Submission ID)	James Farrells (42781)	
6755	Our forests and waters have provided much enjoyment over those years, but I fear the corporations have an eye on our forest land, not to enjoy it or preserve it, but just for the profits that will make destroying it! Poly Met Mining Corporation would destroy our forests and pollute our waters without seeing the beauty in front of their eyes, but seeing only profits…Poly Met Mining Corporation is backed by the Glencore company. They do not have a good track record in the mining field.	LU06
6758	•When the water is polluted and would remain so for hundreds of years, how can you determine the liability cost to fix the environment? Who will control or have the responsibility for the money, the state or Poly Met?•Who is responsible for the reclamation of the forest when mining is over? Will money be set aside for the restoration?•Who would be responsible to oversee or check on the Poly Met mining operation? How often would inspections be done and how thorough would they be?•If the mine did pollute, could this whole operation be shut down for good without question? Would Poly Met be responsible for land reclamation at this time?•What type of roads would be necessary and how much of the forest would that consume?	FIN01, FIN05, FIN08, WR037, WR128
6762	What study was done to determine the amount of damage to the water quality and to any possible endangered species eliminated by the pollution?	WI01, WI04
6764	•Would the workers be provided with a living wage, and how many of them would be local?	SO04
6765	•Could the wind blow dust that contains contaminants over a large area?•What kind of pollutants would be airborne and how would that affect the towns people living down wind?•What are the health risks to people exposed to the dust? How about the workers exposure? Would there be money set aside for treatment of health problems occurring because of this?	AIR09
Sender Name (Submission ID)	James Fournier (14988)	
8912	In addition, since Polymet broadcasts the relatively few number of long term jobs available to current residents of the area, I would like you to address the following... How many outdoor recreational and tourist oriented businesses will be threatened...How many jobs may thus be lost?...How will property values be negatively affected?	SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	James Fournier (14988)	
13809	How many outdoor recreational and tourist oriented businesses will be threatened by the many mine that will come on board, along with the pollution they will cause?	SO02
13810	How many jobs may thus be lost (in the recreation industry due to the mine)	SO04
13811	How will property values be negatively affected ? (As some already have because of the proximity of drilling?	SO03
13812	How will the ability to sell a home or cabin nearby to mining operations be affected?	SO03
Sender Name (Submission ID)	James Grindeland (52516)	
15345	this type of mining will make clean water more valuable than the minerals mined.	WR195
Sender Name (Submission ID)	James H Brutger (42792)	
6876	we hope the current beautiful environment surrounding the cabin will remain long after we pass on. I wish I could put my full trust in the science involved and in our elected officials who will finally make the decision to accept the mining plans or to reject it.	LU06
6877	…I would like to see another job source materialize so that the lure of twenty years of work doesn't blindside us into accepting what could be a long term bad pollution of the waters.	SO01
Sender Name (Submission ID)	James H Juntti (11574)	
14178	As a life long northern Minnesota resident I am concerned about this type of mining will have on our state's watershed. I am not confident that this form of mining, no matter how meticulously engineered, will safely protect our water resources which forms the backbone of our state.	WR115
14178	As a life long northern Minnesota resident I am concerned about this type of mining will have on our state's watershed. I am not confident that this form of mining, no matter how meticulously engineered, will safely protect our water resources which forms the backbone of our state.	WR115, WR195
Sender Name (Submission ID)	James H. Stout (21542)	
1304	The negative impacts of sulfide mining on the quality of water, air, soil and plant life are exceptionally well documented in the literature. All14 ofthe currently active sulfide mines in the U.S. have suffered some level of environmental damage with remediation costs in some cases amounting tomany millions of dollars (Gestring, B., 2012, www.earthworksaction.org/files/publications/Porphyry Copper_Mines_Track-Record.pdf).	REF01
2009	all ofthe currently operating sulfide mines in the U.S. went through an EIS process where "promises" of no pollution were made. All have failed to somedegree. … it not a matter of "if' we are going to see environmental pollution in the proposed Polymet operation, but rather "when" it will be.	PD01, PD26
2010	The ...risk in Minnesota [from the NorthMet Project] will be to the flourishingrecreation industry centered on the BWCA and Superior National Forest. The economic benefits of this use of our resource is guaranteed in perpetuity in contrast to proposed mining operations in that area.	SO02
Sender Name (Submission ID)	James Hacking (9551)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	James Hacking (9551)	
190	This is a great project with huge economic impact for all of northern Minnesota. Tax revenues for the state, job creation, and much needed resource for all.	SO10
Sender Name (Submission ID)	James Hall (15382)	
14611	The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices.	PD23
14612	The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site.	FIN02
14613	Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs.	FIN02
14614	[The Co-Leads should] Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet.	PD23
14615	[The Co-Leads should] Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate.	FIN02
14616	[The Co-Leads should] Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine.	PER02
Sender Name (Submission ID)	James Hanske (11272)	
800	This mine would significantly degrade the water quality of the boundary waters lakes and lakes in the surrounding area.	WR111
801	It is our job as Minnesotan citizens to protect arguably the most precious natural resource in Minnesota which is our lakes and more specifically the boundary waters. It would be an outright greed driven crime for SNF lands to be exchanged to a mining company.	SO02
8356	The EIS should state how the mine's production will be transported to customers. Whether by rail, ship, truck, or pipeline, the method and route of shipment is important as shipping corridors may be greatly impacted by an increase and concentration of shipping traffic along the corridors to be used.	PD37
Sender Name (Submission ID)	James Hilgemann (39166)	
12268	The sulfide mining is yet another example of the root-hog-or-die mentality behind the smoke-and-mirrors of this country's resources/energy conundrum.I think it's time to leave the 19th century mindset behind. This is the 21st century! It's time to evolve.	SO02
Sender Name (Submission ID)	James J Drost (58091)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	James J Drost (58091)	
19960	Poly-Met hopes that by overdramatizing a few positives, namely jobs and the economy, the many flaws and omissions in this document will be missed by the many review boards...This document has been studied and been found to be misleading, missing information, and fails to speak to many issues including health. It is not an acceptable document on which to ba8e public trust for the future of Minnesota's people.	GT01, SO01
20015	This project will deeply and adversely impact the lands of several Native American bands in the area... They want the land that was returned to them by treaty, because it is sacred to them. This land is their "green grass of home", and yet this company wants to destroy it forevermore by polluting it with toxic waste water.	CR01
Sender Name (Submission ID)	James King (39802)	
14266	I am keenly aware of the potential devastation and resultant economic and quality of life issues that can result from mining abuses. I truly believe that the PolyMet project has long term negative impact for Minnesota.	SO01
Sender Name (Submission ID)	James Korthals (57348)	
18393	We are thoroughly convinced that through the collaborative efforts of all of the agencies and PolyMet that the EIS has brought forth everything that will be of benefit and/or detriment to the environment.	NEPA16
18395	we firmly believe that PolyMet is a responsible mining company and they will be taking care of the environment for a very long time to come.	FIN16
Sender Name (Submission ID)	james koschak (43565)	
9385	Many even refer to the Mine Site as being a “brown field”. Wrong again. The PolyMet NorthMet Mine would be in our lands of the Superior National Forest in the middle of one of the most valuable wetlands in all of northern Minnesota, the 100 Mile Swamp.	WET19
9388	PolyMet would result in the largest destruction of wetlands in the history of our state. PolyMet needs 6,650.2 acres of land that, we the people of Minnesota, own in the Superior National Forest, with some 913 acres being of very high quality, irreplaceable wetlands in the St. Louis River watershed….This wetland area has been named an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the U.S. EPA has stated that it is likely an Aquatic Resource of National Importance because of the high level of biodiversity.	VEG02
9390	[The open pit mine would cause] utter destruction of Minnesota’s largest tract of high-quality wetlands with more than 4,000 acres of wildlife habitat degraded, including two square miles of critical habitat for the Lynx and important habitat for our dwindling moose population.	WI02
9397	How does the USFS think that the creation of a land exchange that goes directly against the 1911 Week’s Act will serve the Public Interest?	LAN02
9417	Will the proposed benefits of the projected mining operations significantly outweigh the risks and harms to the environment, to population health and the economy? There is no comprehensive analysis in this SDEIS that incorporates short-term, moderate-term, long-term and very long-term (hundreds of years) estimates of costs and benefits.	SO01
9428	[James Skurla's “The Economic Impact of Ferrous and Non-Ferrous Mining”] is seriously flawed [and not intended to be a specific cost/benefit analysis for this project]. And, for it to be reflective of the basis for the fabricated “need” for sulfide mining in northern Minnesota is unconscionable. The model used fails to address numerous factors…	SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	james koschak (43565)	
9493	Failure to raise this issue of past history of AMD drainage in the SDEIS raises serious questions about the commitment of PolyMet, the MPCA, and other responsible agencies for protecting our environment and health both during and after mining operations. [Regulatory agencies have allowed mining companies in] northeastern Minnesota to operate without being in compliance with environmental regulations and standards; to have variances from water quality standards; and/or be in violation of permits designed to prevent aquatic toxicity.	PER06
9495	There is no Financial Assurance plan provided. This is an integral part of the EIS proposal; yet, lead agencies do not currently require it until after the EIS is approved. No public comment period for the public to weigh in on this crucial piece of the PolyMet NorthMet Sulfide Mine Proposal.	FIN13
9502	"Adaptive Management Techniques"... is an interesting new terminology used throughout the SDEIS, but one that is most evasive… The SDEIS provides no factual assurance or details (only vague references and the need for "adaptive management techniques") on the impacts to water quality, wildlife or human health if the treatment system fails or if there is a breakdown, which is inevitable....There are reasonable foreseeable problems that may arise in this project that would adversely impact waste water treatment and tailings management which are not reviewed.	PD01, WR130
9515	Lead agencies need to restore the comment period before proceeding further with the review process. The SDEIS says that PolyMet estimates initial closure costs of up to $200 million and annual maintenance costs of $6 million which are far lower than estimates from the Grand Portage Band of Ojibway that calculated that at the onset the financial assurances should be $90.5 billion, at a minimum… Public comment would help inform the issues [and clarify discrepancies]… Why is there no public comment period in place for financial assurances?	NEPA07
14086	The PolyMet North Met Mine proposal SDEIS is filled with flawed data, inaccurate information, omissions of pertinent information and is overwhelming complex by design. It is inappropriately long at 2,169 pages, confusing to read, with many leading and unsubstantiated statements… Lack of evidence-based explanations for key conclusions is problematic.	NEPA07
14087	there are no reasons given why other alternatives that could reduce pollution and impacts on wetlands were not analyzed.	ALT13
14088	Details of models used to project pollutant estimates are often lacking and the basic assumptions and data inputs for models inadequate.	AIR07
14089	PolyMet's proposed mine is not on the Iron Range.PolyMet's SDEIS states:"The NorthMet Project area, including the Mine Site, Plant Site, and connecting infrastructure, would be in St. Louis County, Minnesota, and situated at the eastern end of the Mesabi Iron Range."… the NorthMet Mine site has been misrepresented as being on the Iron Range, instead on in the Superior National Forest in the disseminated copper, nickel, sulfide bearing fractured rock of the Duluth Complex.	PD31
14092	in exchange for this irreplaceable wetland… We, the people of Minnesota, will receive five non-contiguous pieces of land in Cook, Lake, and St. Louis Counties. These lands are simply a fraction of the value of the lands we would be virtually giving away to PolyMet Corporation for their Mine Site.	LAN03
14094	Why doesn't the SDEIS include a Cost/Benefit Analysis or Cumulative Effects Analysis for the total cumulative impact area of not only the Lake Superior Watershed, but also the Rainy River Watershed?	CU01, SO07
14097	The SDEIS does not indicate whether wages paid to mine employees will stay in Minnesota or whether they will primarily be transient employees, such as those in North Dakota. What fraction of wages paid to mine employees will stay in Minnesota?	SO06
14098	The SDEIS does not investigate the loss of jobs when the price of copper declines and mining is less profitable, but it does state that job loss is inevitable: "Mining-related employment is volatile and fluctuates from year to year due to the market price of commodities being extracted." SDEIS, 4-325---4-326. What will be the cost of unemployment benefits, health care, and other social services?	SO06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	james koschak (43565)	
14099	[The SDEIS does not indicate]… What will be the cost of increased crime rates, and other societal costs associated with volatility in employment? What is the cost of social upheaval to nearby communities?	SO06
14100	[The SDEIS does not indicate]… What will be the cost for public infrastructure?	SO04
14104	The [Skurla] model used to calculate the alleged economic benefits doesn't take into account the costs of degradation to the environment [including loss of clean air and water, wilderness lands, and wetlands]. Short-term; moderate-term and long-term (into perpetuity)?	SO04
14105	[The Skurla model referenced in the SDEIS does not indicate]… What will be the costs of displacement of other economic activity, incompatible with mining?	SO04
14106	[The Skurla model referenced in the SDEIS does not indicate]… What will be the impacts and cost on tribal rights to hunt, fish, and gather under the 1854 Treaty?	CR01
14107	[The Skurla model referenced in the SDEIS does not indicate]… What would be the cost to the tourism industry for loss of business due to sulfide mining and its incompatibility with the recreational industry that needs clean air, clean water, and an intact wilderness for enjoyment of visitors to the area?	SO02
14108	[The Skurla model referenced in the SDEIS does not indicate]… What would be the cost of lost recreational opportunities on wilderness lands?	SO04
14110	[The Skurla model referenced in the SDEIS does not indicate]… What will be the cost of depressed real estate values for landowners due to mining? … What will be the done to offset the loss of real estate value for landowners due to mining?	SO03
14111	[The Skurla model referenced in the SDEIS does not indicate]… What will be the cost of the unpredictable influx and outflow of mine employees?	SO04
14112	[The Skurla model referenced in the SDEIS does not indicate]… What would be the cost of perpetual clean-up that the public would be required to bear when the financial assurances go bust?	FIN05
14114	How does the USFS think the destruction of some 913 acres of prime wetlands and thousands of acres of Superior National Forest will serve the Public Interest?	LAN01
14115	How does the USFS think that replacing a Lake District, with the potential to be inclusive of the Boundary Waters Canoe Area, with a Mining District to be in the Public Interest?	LU01
14116	How does the USFS think that benefiting a multinational sulfide mining company through the removal of strip mining protections will serve the Public Interest?	NEPA04
14117	How does the USFS think that setting precedence for ease of land exchange with foreign mining companies to eliminate the "conflict" between the mineral and surface estates will serve the Public Interest?	NEPA04
14118	Sulfide mines are among the most toxic and worst polluting mines in the entire world. (Dartmouth, 2010, 2012; A Mining Truth, 2012; Qu 2012)	REF01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	james koschak (43565)	
14119	Historically, everywhere on the Earth where this type of mining has occurred, heavy metal pollution and acid mine drainage is a result. Nowhere in the SDEIS was there any acknowledgement of this fact. Nor was there any data substantiating that the proposed PolyMet Mining Corporation's North Met mining project would be unique in preventing what history tells us happens at each and every sulfide mine site, and will occur at the PolyMet site.	PD26, WR023
14120	How will this venture in Minnesota's water rich environment be done in such a unique manner, as to guarantee no pollution to our waters?	WR070, WR130, WR195
14125	PolyMet's proposed mine plan will pollute the Boundary Waters Canoe Area Wilderness.	WILD02
14126	How can it be in the Public Interest to accept this SDEIS's proposal of ongoing toxic pollution to our water rich environment, or to accept the agencies present and foreseeable continued lack of enforcement of regulations and standards as related to the mining industry?	PER06
14127	There is little, if any, information in the SDEIS that provides for contingency planning [if something goes wrong].	PD22
14130	Why is there no plan in the SDEIS for a 500-year storm, and other such disasters and/or accidents?	PD22
14132	Why are the same valid reasons to involve the public with comments related to the EIS not also critical to the public's involvement and comments for the 'permit to mine' process? This is illogical and raises more questions as to the validity, fairness, transparency, and credibility of the entire decision- making process.	PER01
14134	The SDEIS provides no credible information about the cost of monitoring, maintaining, and replacing equipment needed to treat polluted water for 500 years or more. No details are revealed about the nature of guarantees of a financial assurance scheme that would remain viable for 500 years or more…	FIN01, FIN05, FIN11
14136	The SDEIS admits that water pollution will last up to 500 years, or basically, into perpetuity, yet the financial assurance section is an exercise in generalities. Actual cost of water treatment, monitoring, maintenance, repair, and reclamation is unknowable.	FIN01, FIN05, FIN11
15983	there are no reasons given why other alternatives that could reduce pollution and impacts on wetlands were not analyzed. Why is that?	ALT13
15984	The PolyMet North Met Mine proposal SDEIS is filled with flawed data, inaccurate information, omissions of pertinent information and is overwhelming complex by design. It is inappropriately long at 2,169 pages, confusing to read, with many leading and unsubstantiated statements.	NEPA07
15986	Details of models used to project pollutant estimates are often lacking and the basic assumptions and data inputs for models inadequate. Lack of evidence-based explanations for key conclusions is problematic.	PD29
15987	If permitted, PolyMet NorthMet Mine, along with Twin Metals Minnesota and other such toxic sulfide mines "waiting in the wings" would effectively turn our lakes recreational district into a mining district devoid of a beautiful wilderness landscape, solitude, wildlife, including the iconic moose, clean water, clean air, and peace and quiet.	LU04
15988	It is quite evident as to why the NorthMet Mine site has been resoundingly misrepresented as being on the Iron Range, instead on in the Superior National Forest in the disseminated copper, nickel, sulfide bearing fractured rock of the Duluth Complex. It is easier to sell this "bag of goods" to the public when it is described as being on the Iron Range, which has been mined for over a century.	PD31
15990	Many even refer to the Mine Site as being a "brown field". Wrong again. The PolyMet NorthMet Mine would be in our lands of the Superior National Forest in the middle of one of the most valuable wetlands in all of northern Minnesota, the 100 Mile Swamp.	WET19

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	james koschak (43565)	
15991	If the PolyMet proposal is permitted, it would result in the largest destruction of wetlands in the history of our state. For it to happen, PolyMet needs 6,650.2 acres of land that, we the people of Minnesota, own in the Superior National Forest, with some 913 acres being of very high quality, irreplaceable wetlands in the St. Louis River watershed.	WET23
15992	This priceless wetland area has been named an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the U.S. EPA has stated that it is likely an Aquatic Resource of National Importance because of the high level of biodiversity.	VEG02
15993	We, the people of Minnesota, will receive five non-contiguous pieces of land in Cook, Lake, and St. Louis Counties. These lands are simply a fraction of the value of the lands we would be virtually giving away to PolyMet Corporation for their Mine Site.	LAN03
15994	he 600-700 foot deep, open pit mine comes with a plan to remove more than 530 tons of ore and waste rock, causing utter destruction of Minnesota's largest tract of high-quality wetlands with more than 4,000 acres of wildlife habitat degraded, including two square miles of critical habitat for the Lynx and important habitat for our dwindling moose population.	WET23, WI01, WI02
16000	Why doesn't the SDEIS include a Cost/Benefit Analysis or Cumulative Effects Analysis for the total cumulative impact area of not only the Lake Superior Watershed, but also the Rainy River Watershed?	CU01, SO07
16001	By inaccurately placing PolyMet's NorthMet Mine on the Iron Range, the entire SDEIS is skewed. This is not even the same geological formation. The public has been basically lied to that this Mine Proposal is on the Iron Range.	PD31
16004	How does the USFS think the destruction of some 913 acres of prime wetlands and thousands of acres of Superior National Forest will serve the Public Interest?	LAN01
16005	How does the USFS think that replacing a Lake District, with the potential to be inclusive of the Boundary Waters Canoe Area, with a Mining District to be in the Public Interest?	LAN01
16006	How does the USFS think that the creation of a land exchange that goes directly against the 1911 Week's Act will serve the Public Interest?	LAN01
16007	How does the USFS think that benefiting a multinational sulfide mining company through the removal of strip mining protections will serve the Public Interest?	LAN01
16008	How does the USFS think that setting precedence for ease of land exchange with foreign mining companies to eliminate the "conflict" between the mineral and surface estates will serve the Public Interest?	LAN01
16009	Will the proposed benefits of the projected mining operations significantly outweigh the risks and harms to the environment, to population health and the economy? There is no comprehensive analysis in this SDEIS that incorporates short-term, moderate-term, long-term and very long-term (hundreds of years) estimates of costs and benefits. Why?	SO01
16011	there are only a total of 427 new mining jobs projected in the copper-nickel sector by 2016. And, most of the projected 1,000 temporary construction jobs will last less than two years. The indirect, or spin off jobs from the copper-nickel sector, which mining boosters have also touted as high-paying is false.	SO01
16012	These mining advocates … have literally exaggerated the economic benefits of sulfide mining to the region and our state. … with its limited economic benefits, [the project] would be too controversial for mining boosters to push upon the proponents of a healthy natural environment.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	james koschak (43565)	
16013	The SDEIS does not indicate whether wages paid to mine employees will stay in Minnesota or whether they will primarily be transient employees, such as those in North Dakota. What fraction of wages paid to mine employees will stay in Minnesota?	SO06
16014	The SDEIS does not investigate the loss of jobs when the price of copper declines and mining is less profitable, but it does state that job loss is inevitable: "Mining-related employment is volatile and fluctuates from year to year due to the market price of commodities being extracted." SDEIS, 4-325---4-326. What will be the cost of unemployment benefits, health care, and other social services?	SO04
16015	What will be the cost of increased crime rates, and other societal costs associated with volatility in employment? What is the cost of social upheaval to nearby communities?	SO04
16016	What will be the cost for public infrastructure?	SO04
16017	The model used to calculate the alleged economic benefits doesn't take into account the costs of degradation to the environment. Short-term; moderate-term and long-term (into perpetuity)? What will be the cost of the loss of our clean water? The loss of our clean air? The loss of our wilderness lands? The loss of the 100 mile swamp and our wetlands?	SO04
16018	What will be the costs of displacement of other economic activity, incompatible with mining?	SO04
16019	What will be the impacts and cost on tribal rights to hunt, fish, and gather under the 1854 Treaty?	CR01
16021	What would be the cost to the tourism industry for loss of business due to sulfide mining and its incompatibility with the recreational industry that needs clean air, clean water, and an intact wilderness for enjoyment of visitors to the area?	SO02
16022	What would be the cost of lost recreational opportunities on wilderness lands?	SO04
16023	What will be the cost of depressed real estate values for landowners due to mining? Presently, real estate values have plummeted for properties near exploratory drill sites. What will be the done to offset the loss of real estate value for landowners due to mining?	SO03
16024	What will be the cost of the unpredictable influx and outflow of mine employees?	SO04
16025	What would be the cost of perpetual clean-up that the public would be required to bear when the financial assurances go bust?	FIN01
16026	Do we want more of what the Iron Range presently is? Why don't our regional politicians work toward other sustainable industries to improve the economy of this area?	NEPA02
16027	Why did the clients for the Skurla study only request a Benefits Analysis of this Project?	SO04
16029	everywhere on the Earth where this type of mining has occurred, heavy metal pollution and acid mine drainage is a result. Nowhere in the SDEIS was there any acknowledgement of this fact. Nor was there any data substantiating that the proposed PolyMet Mining Corporation's North Met mining project would be unique in preventing what history tells us happens at each and every sulfide mine site, and will occur at the PolyMet site.	PD26
16030	How will this venture in Minnesota's water rich environment be done in such a unique manner, as to guarantee no pollution to our waters?	PD03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	james koschak (43565)	
16034	Dunka is closed, so why are there operational permits with variances given by the MPCA? Why is the MPCA giving Cliffs Natural Resources a permit to pollute?	PER06
16043	Dunka should be designated a Superfund Site. Furthermore, Langley Creek exits the 100 Mile Swamp and drains into Dunka River which flows into Birch Lake, and onward into the BWCA via the South Kawishiwi River. ...PolyMet's proposed mine plan will pollute the Boundary Waters Canoe Area Wilderness.	WR024, WR080, WR081, WR111, WR175
16045	Why doesn't the SDEIS, with modern technology and knowledge, address these two Minnesota sites which continue to have AMD runoff into our watersheds, threatening the health of our birds, our wildlife, our wells, and ultimately our human health? … Failure to raise this issue of past history of AMD drainage in the SDEIS raises serious questions about the commitment of PolyMet, the MPCA, and other responsible agencies for protecting our environment and health both during and after mining operations.	PD01
16048	I have no confidence or reason to believe that our agencies will enforce our so-called strong environmental standards as related to the PolyMet project given their past history … as well as allowing every taconite mine in northeastern Minnesota to operate without being in compliance with environmental regulations and standards; to have variances from water quality standards; and/or be in violation of permits designed to prevent aquatic toxicity.	PER06
16050	How can it be in the Public Interest to accept this SDEIS's proposal of ongoing toxic pollution to our water rich environment, or to accept the agencies present and foreseeable continued lack of enforcement of regulations and standards as related to the mining industry?	PER06
16051	Minnesotans have the right to protections of these natural resources. … How can a sulfide mine be permitted if it causes destruction of our natural resources?	NEPA02
16053	There is little, if any, information in the SDEIS that provides for contingency planning.	PD22
16056	"Adaptive Management Techniques". ... It is a new way to frame: Let's see how things go and experiment with what might work if we run into an "unforeseen circumstance". This is not good enough for Minnesotans who treasure our clean waters and our 10,000 lakes. There are reasonable foreseeable problems that may arise in this project that would adversely impact waste water treatment and tailings management which are not reviewed. Daily operations are planned to treat some 6.2 million gallons of polluted water daily. Broken pipes, human error causing accidents, equipment malfunction, and severe weather related disasters.	PD22, WR130
16057	Why is there no plan in the SDEIS for a 500-year storm, and other such disasters and/or accidents?	PD22
16058	To be told by the agencies, and specifically by Jess Richards, "that emergency planning also will be included in the mine's permitting" is irresponsible and inadequate, as there will be no opportunity for public comments at that step in the process.	PD22
16060	There is no Financial Assurance plan provided. This is an integral part of the EIS proposal; yet, lead agencies do not currently require it until after the EIS is approved. No public comment period for the public to weigh in on this crucial piece of the PolyMet NorthMet Sulfide Mine Proposal.	FIN13
16063	Why are the same valid reasons to involve the public with comments related to the EIS not also critical to the public's involvement and comments for the 'permit to mine' process? … This is illogical and raises more questions as to the validity, fairness, transparency, and credibility of the entire decision- making process.	PER01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	james koschak (43565)	
16064	The SDEIS provides no credible information about the cost of monitoring, maintaining, and replacing equipment needed to treat polluted water for 500 years or more. No details are revealed about the nature of guarantees of a financial assurance scheme that would remain viable for 500 years or more, yet it does acknowledge the possibility of events such as "unanticipated liabilities" and "failure or limitations on the ability of third parties to pay." ...Actual cost of water treatment, monitoring, maintenance, repair, and reclamation is unknowable. How can the DNR and the Governor possible make an informed decision unless the gaps are filled and the public has the opportunity to review the project in its totality?	FIN05, FIN11, FIN13
16066	Lead agencies need to restore the comment period before proceeding further with the review process. The SDEIS says that PolyMet estimates initial closure costs of up to $200 million and annual maintenance costs of $6 million which are far lower than estimates from the Grand Portage Band of Ojibway that calculated that at the onset the financial assurances should be $90.5 billion, at a minimum. The Band concluded that PolyMet's numbers are vastly below the actual amounts required. Why are there such glaring discrepancies? Public comment would help inform the issues.	NEPA07
Sender Name (Submission ID)	James Lynskey (40527)	
14311	We would like to be kept informed about NorthMet Mining Project. Our address is 41916 248th Place McGregor Min. 55760. Thank you. Jane Dietl and James Lynskey	RFI01
16307	Contaminating our ground water is a high price to pay for a relatively few local jobs.	WR115
16308	Also, we tax payers should not be the ones to pay for cleanup.	FIN10
Sender Name (Submission ID)	james mccluskey (709)	
439	The DNR is not a very good steward of our natural resources and systematically is destroying our forests with... destruction of the ground itself with this purposed mining project.	VEG03
1619	As a Minnesotan and a person who loves our public lands, I think we should protect them at all costs and stop the progress of this mine. Think of our kids. lets not destroy another piece of this great land.	LU06
Sender Name (Submission ID)	James Melander (57165)	
18698	Minnesota law required mined out areas to be left "maintenance free." The EIS statement explains that the mined out area will required 500 years of maintenance and water treatment. It is obvious that we do not have the technology to do this project safely.	PER04
Sender Name (Submission ID)	James Moran (6083)	
1062	…support PolyMet Mining and believe they will build and operate a mine that complies with all regulations and protects the environment.	PD28
Sender Name (Submission ID)	James Nessa (54770)	
19282	the amount of water contaminated by sulferic acid and dissolved metlas which will need to be cleaned under normal conditions has been grreatly underestimated	PD05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	James Nessa (54770)	
19285	There are no plans in the SDEIS for extreme rainfalls such as June 2012 when 10 inches fell in Duluth	PD22
19289	The plan proposes cleaning contaminants from our waters for 200 to 500 years. I know of no way to meaningfully calculate the cost of acid and heavy metal mitigation for those periods of time. I believe there have been no calculations made public so they could be evaluated.	FIN05
19291	I know of nothing to prevent the owners of the mine, who do not live in Minnesota, from closing it down and letting Polymet go into bankruptcy as was done by the original owners of Tulsequah Chief mine in Canada	PER02
19293	The current operating costs of water treatment for the Canadian [Tulsequah] mine are four times the estimates made by the new owners.. They are still not in compliance with their water treatment permits	PD26
19294	As a citizen of Minnesota and part owner of the natural resources, I feel the DNR should require that the sulfuric acid and other heavy metals must be separated from the runoff and groundwater and exported out of state.	GEN01
19303	The public deserves to see a complete document which includes full financial assumptions and calculations as well as proof it meets the state law [to leave the site] "clean and maintenance free"	FIN14
Sender Name (Submission ID)	James Nygard (54509)	
18759	The current situation is not a national emergency with most if not all the profits going to an international company delivering copper to China. The long term legacy costs to the state and possibly the nation will be diminishedpristine wilderness, degraded water lasting perhaps hundreds of years, human health and health expenses over short and long term intervals, recovery at the bust of the cycle with over extended schools, hospital, government infrastructure, roads and supporting businesses, homes withsignificantly reduced income to support.	SO06
18761	Human health concerns by exposure to metallic sulfides (Copper, Arsenic, Methyl Mercury, lead sulfuric acid) in drinking water, in food, by contact with contaminated soil. This concern is short and long term Examples of food may include mercury levels from fish, possibly arsenic from wild rice, etc.	HU03
18762	Wildlife health concerns including birds….	WI04
18763	Incidental failure of a liner or catastrophic event (tornado, flooding, explosion) causing major leakage over a large area. A small example may be a failure of a containment pond along the North shore of Lake Superior a number of years back.	PD11
18764	Impact on Wild Rice, fishing and hunting as related to treaties and cultu re with Native Americans.	CR01
18766	Impact of acid rain on forests and plants including not only the mining but also the massive amount of energy required to be provided by older coal fired electric utilities to support mining. Estimated by U of M to be 47 trillion BTU over 20 years. This information is not included in thestudy so far.	VEG06
18767	From an environmental perspective there have been no successful metal sulfide mine operations and closures without releases of toxic materials without significant releases of toxic materials to air, water and land. Wisconsin law denies approval of any metal sulfide mining permits until a successful, environmental mine operation has been demonstrated. All interlocking companies should be cosigning responsibility for clean up, remediation andrestitution for all environmental damages and health related issues.	PER02, PER25

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	James Nygard (54509)	
18768	The US Forest Service and the Minnesota DNR have denied access or to supply information related to studies completed on the lands proposed to be swapped between POLYMET and the US Forest Service other than to say the work was done by contractors paid for by POLYMET. No explanation was given for not providing what should be public information.	NEPA14
18769	The amount of water used in the mining operation . sources of water (well, creek, lake), treatment of contaminated water (technique used), timing of treatment, where disposal would occur, if treatment is in more than one location or method specify all individually.	WR143, WR145
18770	Noise and traffic concerns for all living or traveling in the area. Does proposed mining operation run 24 hours a day ?	N01
Sender Name (Submission ID)	James P. Bremer (36682)	
7674	If the project is approved, a fund should be created as the mining is completed to reverse any harm to the environment.	FIN08
Sender Name (Submission ID)	James Poole (57241)	
17365	any mining company that is moved to Minnesota [ILLEGIBLE] should be faced to escrow any and all cleanup costs paying forward/or 500 years. This should be done in the forms of a 100 million dollar fund that advances by 10% each year starting with the first day of production. If they don’t need to do any damage, then after 500 years the company gets the money.	FIN01, FIN05, FIN08
Sender Name (Submission ID)	James R Bester (57203)	
17095	If this mine pollutes Birch Lake and the Kawishiwi River it flows right into the BWCA and up through Canada. If it pollutes the Cloquet and St. Louis River it flows into Lake Superior.	WR111
17096	If this mine pollutes Birch Lake and the Kawishiwi River it flows right into the BWCA and up through Canada. If it pollutes the Cloquet and St. Louis River it flows into Lake Superior. Has anyone thought to ask the citizens of Canada and the Great Lakes states what they think of this acid mining? Let’s hear what their thoughts are.	CU06
Sender Name (Submission ID)	James Rodriguez (44302)	
10329	Sulfide mining produces toxic waste that could irreversibly damage Minnesota’s fragile lakes, rivers and natural resources.	WR115
Sender Name (Submission ID)	James Rolfe (57150)	
16844	he long term consequences and the potential for irreversible damage far outweigh any short-term gain	SO01
Sender Name (Submission ID)	James Schulzetenberg (36539)	
10021	Given the history of the indirect effects of mining on wetlands, PolyMet should be required to come up with wetlands replacement in advance for all likely wetlands losses.	WET01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	James Schulzetenberg (36539)	
13778	The SDEIS also states that an additional 7,350 acres or more of wetlands could be destroyed because of air and water pollution resulting from taking water from the mine site to the tailings pile and changing the water patterns at the existing old LTV tailings site. However, according to the SDEIS, PolyMet will only have to replace about 27 acres, not the full amount of 7,350 acres!	WET04
Sender Name (Submission ID)	James Seme (42561)	
2569	Is a junior mining company headquartered in VanCouver, Canada. They have never operated a mine before. Backed by the Swiss Company GLENCORE 20% and has Exclusive Agreement to sell the Mine Metals on the Global Market.	PD23
Sender Name (Submission ID)	James Stout (43053)	
17504	sulfide mining is a dirty activity. It's just inherent to the business. In everyoperation I am aware of, there is or has been significant environmental pollution. The negative impacts of sulfide mining on the quality of water, air, soil and plant life are exceptionally well documented in the literature.	VEG06
17505	The... risk in Minnesota will be to the flourishing recreation industry centered on the BWCA and Superior National Forest. The economic benefits of this use of our resource is guaranteed in perpetuity in contrast to proposed mining operations in that area. I believe strongly that mining is not the best use of our resources in N. Minnesota.	SO02
Sender Name (Submission ID)	James Thompson (52440)	
17033	The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility.	PD17
Sender Name (Submission ID)	James Vigliotti (38983)	
17654	Hello. I would like to comment that a federal-level review should be done of the proposed PolyMet mine's SDEIS particularly regarding the incorrect maps as seen on http://www.bwcasulfidemining.org/mine-site-drainage-to-bwca/ .	WR080
Sender Name (Submission ID)	James W Larson (54867)	
19355	I have major concerns with long-term wastewater discharges from the mine site…The water residues from the Polymet mine could impact one of our largest freshwater systems in the world; Lake Superior and the Great Lakes.	WR111
19356	Due to well-documented climate changes, I have concerns with exceptionallocalized rainfall events (such as the Duluth 10 inch rain event of June 20, 2012) over whelming the proposed water treatment plants located both at the mine site and the processing plant. Past weather data on 50 and 100 year storms may no longer be reliable in predicting the probability and frequency of such weather events. Knowing the final discharge water into the St. Louis River Watershed will need to be treated into perpetuity, will capacity to do so adequately under extreme weather events be constructed into the treatment system?	WR077, WR180
Sender Name (Submission ID)	James Watson (18113)	
13477	we need jobs. We have so many of our young people that have left the area...There's no one with family that I can think of that is capable of supporting a family on $10-an-hour wage. It looks like PolyMet is going to be one good payer of good wages and benefits. They already have a facility that is pretty much already built.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jami Halder (11557)	
2519	It is known that it will directly impact the moose habitat and that the MN moose is a species of concern. It has not been addressed in the EIS and has been an area of public concern since the first proposal.	WI01, WI02
18363	That's my concern...the polluted water spreading further than they are saying it is going to.	WR010, WR081
Sender Name (Submission ID)	Jamie Bartzen (38038)	
13720	Please do not give approval to them, too much is'unknown	GEN01
Sender Name (Submission ID)	Jamison Tessneer (43744)	
11792	One concern that has not been addressed is the adequacy of Minnesota law to protect landowners that could potentially have their land polluted by sulfide mines. The Minnesota Environmental Rights Act exempts permitted projects like the Northmet project from private causes of action from landowners whose groundwater or surface water may become contaminated. Will causes of action under public/private nuisance laws give landowners adequate recourse if their property is damaged? Will causes of action couched in theories of negligence or trespass give landowners adequate recourse if their property is damaged?	PER35
15085	What if that land [contaminated by mining] is a resort or business and the owner loses business? What recourse will they have?	SO03
Sender Name (Submission ID)	Jan Greenfield (43965)	
14937	The days of digging up the earth for quick-term gain should be OVER! There's NO CONTEST between a few short-term jobs & the 500-year-predicted clean-up schedule for Minnesota's blessed natural resources.	SO01
Sender Name (Submission ID)	Jan Kaeter (43694)	
10938	PolyMet is only a shell company and will file bankruptcy as soon as the minerals are extracted, then it will be up to the tax payer to pay for the clean up costs. They say reverse osmosis is their plan to clean up the waste, they estimate it will cost 6 million dollars per year: If the clean up lasts 500 years we are looking at 3 billion and that is not including inflation, PolyMet must agrees to put up 3 billion dollars + inflation up front to protect us the tax payers.	FIN01, FIN05, FIN08, FIN10
10942	I also do not agree with the wetland swaps the current wetland, draining wetland in one part of the state and digging a pothole in another does not replace a wetland and it's value to a watershed and the wildlife that depends on it.	WET05
10943	And speaking of wildlife our moose population has been stressed and been in decline in the last decade, we can ill afford to remove any more habitat from it's range.	WI01, WI02
10953	There is no way I can see that they can totally seal off the waste in our water rich environment when sulfide based mining in the drier western states have all ended up being environment disasters requiring us the tax payer to clean up the mess.	WR017, WR018, WR020, WR070
10958	The potential cost to Minnesota tax payers and the natural environment is just to high and the SDEIS doesn't address the problems adequately.	NEPA15
10959	From what I understand the Minnesota rule 6132.3200 requires all mines to be maintainence free opon closure, and PolyMet doesn't even come close to meeting that rule.	PER04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jan Karon (20031)	
1669	The length of time Polymet itself says the toxic waste will have to be monitored - 200-500 years, violates current Minnesota law requiring such waste to be permanently disposed of before an operation closes.	PD02
1670	Who will monitor the toxic waste when Polymet no longer exists? The State of Minnesota at taxpayer expense? Furthermore, how could Polymet possibly give financial assurance for such a long- term operation? The duration of the toxic waste is an amazingly difficult environmental threat.	FIN01
Sender Name (Submission ID)	Jan Korby (34508)	
13249	Our water will be all that's left because of draught everywhere. Please please do not allow this until there's a more ecologically safe way to mine it.	WR195
Sender Name (Submission ID)	Jan Saecker (7057)	
518	What we need is not more mining of copper and nickel, but more clean water preservation. Every life form requires water. There is no life form that requires copper or nickel mining.	WR195
Sender Name (Submission ID)	Jan Swart (39537)	
13539	We have seen these promises from mining companies before. There is no way they can avoid damage to our pristine environment in the Lake Superior basin.	WR023
Sender Name (Submission ID)	Jane A Dolter (54525)	
18727	PolyMet needs to be responsible for all clean-up operations—from day one of their operations to eternity plus.	FIN01
Sender Name (Submission ID)	Jane Ament (18281)	
4114	My interpretation of this open-pit mining process is that sulfuric acid will then be introduced into the air. These airborne toxins will then travel whichever way the wind blows...This will pose tremendously hazardous health risks to all inhabitants and visitors to the Arrowhead region.	HU03
4115	...can the DNR/PolyMet unequivocally promise me that our drinking water (from underground aquifers) will remain completely safe?	WR041
4116	can the DNR/PolyMet unequivocally promise …that our air quality (which also impacts our topography and surface water) will remain safe and not deteriorate if this mining goes forward?	AIR11
13980	…Each summer I feed approximately 250 hummingbirds who nest in and around my property… I equate these little birds to the canaries sent into mines in days of yore. They are environmental barometers. If they die from bad drinking water, so will we. It would translate into the loss of many species.	WI01
Sender Name (Submission ID)	Jane Amundson (18292)	
12329	I believe that the mining company needs to prove that this process of cleanup will be safe and effective. They need to put the money upfront for the cleanup, so that we are not expecting that they can have the money for 500 years.	FIN01
Sender Name (Submission ID)	Jane Armstrong (45106)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jane Armstrong (45106)	
7599	I have particular concerns about the unsubstantiated assumptions like the percent of seepage collection at the tailings basin.	WR018
16755	there has been insufficient time for adequate independent evaluation.	NEPA07
16756	I am very concerned about the potential impact of these threats on the BWCA.	WILD02
Sender Name (Submission ID)	Jane Ball (4134)	
862	The gains are temporary; the damage is forever	SO01
865	PolyMet admits that water pollution by sulfuric acid and heavy metals will last for at least 500 years.	WR037, WR059, WR107
866	Annually, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated.	WR070, WR108
867	Annually, 5 million gallons of polluted seepage from the mine site will enter groundwater without being treated.	WR070, WR107
868	The computer model used by PolyMet may understate the actual pollution impact, because it has been shown to be inaccurate in representing current conditions for water quality around the mine site	WR049
Sender Name (Submission ID)	Jane C (39896)	
6943	What financial assurance has been guaranteed for industrial accidents, such as a waste water line break, rail car derailment and waste spill. It is not possible to make a realistic financial guarantee reaching out 500 years	FIN03
6948	Much of the information I heard at the meetings was alarming, and if the copper/nickel mining project is allowed, our precious natural resources of clean water, specialized wetlands, habitats for aquatic species, wild rice and animals are in the path of destruction that cannot be undone.	VEG10, WR115
14283	It is not known what path the toxic seepage will take. Who and what will it affect.	HAZ01
14284	Holes in the models. Many of the questions asked of the MDNR at the hearing on February 11, 2014 received a response of “We don’t know” or “The model doesn’t account for that”. It is not enough to only require PolyMet to answer questions that they pose. The MDNR must think through this project and demand answers to every eventuality.	WR189
14285	Is there a safer way to mine? The hurry here is of financial nature only. ... If we wait for a safer mining practice to be developed, we could have our cake and eat it too - by getting the metals, and keeping clean water.	ALT16
14286	All the benefit analysis for jobs is based on a 20 year operation of the mine, but that is the maximum number of years of operation. There is nothing to say that the mine won’t shut down earlier. Would you be considering this proposal at all if the projected jobs were only for 5, 10 or 15 years?	SO02
14287	PolyMet sent Brad Moore, Executive Vice President to speak for the company at the financial assurance hearing. When asked simple questions about the company’s financial statement, Mr. Moore claimed he didn't know about the financial statement…PolyMet hid from the questions, and offered no answers or assurances of their own.	FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jane C (39896)	
14288	Wetlands cannot be created to be the same diversity of conditions or organisms of the original wetland. A land swap is ill-advised, as the precious wetland cannot be recreated.	WET14
14289	The water models are flawed and in dispute. They need to be redone.	WR189
Sender Name (Submission ID)	Jane Christensen (43068)	
15418	I disagree with how the current (Supplemental) Draft EIS disregards the concerns of the Fond du Lac and Grand Portage Tribal Governments, the 1854 Treaty Authority, and the Great Lakes Indian Fish and Wildlife Commission (the four formal representatives of tribal interests) relegating those concerns to Appendix C and responding to each concern as a MDO "Major Difference of Opinion."	SO04
15419	I also ask that the map/ boundaries of the One Hundred Mile Swamp be clarified.	PD38
Sender Name (Submission ID)	Jane Clements (40994)	
7448	I am writing to express my concern over the North Met DEIS, particularly the lack of information concerning the monitoring of the effluent.	PD05
7452	Minnesota water is going to be more valuable than gold, copper a n d nickel.	WR195
7454	We have no assurance that this mining operation will contain their run off in safe and long term, non polluting ways.	PD01, WR017, WR018
Sender Name (Submission ID)	Jane Eloise Whitledge (57151)	
16845	PolyMet should not be allowed to get their mine just because they've already spent millions of dollars	NEPA15
16850	PolyMet's - and the public's – short-sighted vision on profits overlook our long-term needs. Life cannot survive without water.	SO01
16851	We can live without gold, copper, nickel. We must look to recycling for our metal needs.	NEPA06
18696	Before the state approves any mining project – such as this sulfide mine proposed by PolyMet – it should be able to point to a mine somewhere in the world where its safety and maintenance-free closure are an example. It cannot.	PER35
18700	We can't afford to sell tomorrow for today. We have no right to sell our children's future. PolyMet is about to commit a crime against nature and humanity. They have admitted their mine will leave contaminated water for 500 years!	SO02
18702	This mine is unconstitutional. Minnesota law clearly states that a mine must be left maintenance-free when closed. PolyMet, meanwhile, says the water, after mining, will have to be treated for at least 200 years! How could anything be less "maintenance-free"?	PER04
18705	PolyMet has not clearly stated how they would great our waters to ensure drinkability, safety for fish, wild rice, etc. Or how they will keep treatment facilities in place for 200 years or more, or how they will [pay] for them.	WR128
18706	If this mine – God forbid – should be approved, it should not come without a strict "damage deposit" required of PolyMet, to insure that taxpayers will not be burdened with the (very likely – the admitted) clean-up, which will cost in the millions and millions of dollars over centuries!	FIN01, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jane Eloise Whitledge (57151)	
18708	If an individual caused our water supply to have to be treated for 200 years, polluting it willfully, we would call him a terrorist and imprison him. PolyMet will be doing exactly the same, and yet will be rewarded with enormous gain, at the public's expense and detriment to health.	SO02
18711	With clean water sources dwindling the world over, it is very foolish to destroy one of the last remaining large areas of unpolluted water. Scientists predict future wars will be fought over drinking water. Do we really want to destroy a commodity that will be – and I believe really is now – more valuable than gold.	SO02
Sender Name (Submission ID)	Jane Gilbert-Howard (9615)	
1139	I do NOT believe the EIS addresses the long-term environment effects of this proposed copper/nickel mine.	NEPA09
1140	What a tragedy for PolyMet to put a mining operation so close to the BWCAW—the only remaining wilderness of its type on the planet—especially when the forecast for "handling contaminated water" is estimated to be 200-500 years—OMG how can the permitting agencies even consider such an insult to the environment.	WILD02
Sender Name (Submission ID)	Jane H Kulas (54805)	
18160	I don't believe that [PolyMet] will capture the contaminated water (a day rarely goes by that we don't hear about a leakage or spill…).	WR018, WR019
18161	The idea of filtering this water for 200-500 years is insane!	WR195
18162	Allowing PolyMet to destroy 900 acres of wetlands is... insane! The idea of "creating" new, replacement wetlands is just plain stupid!	WET24
Sender Name (Submission ID)	jane johnson (39232)	
5455	I do not believe that they will ever be able to prove that there will not be pollution of the waters that are so important to this area.	WR195
5457	Jobs are important but cannot take precedence over preserving our clean water resources!	SO01
5458	There are so many endangered species in this area. So many times in the past we have allowed industry to take priority over preservation. This time lets make a different decision - lets learn from the past.	VEG01
Sender Name (Submission ID)	Jane Koschak (42544)	
2555	…the copper and nickel deposits, which are proposed to be mined, are located within the Duluth Complex, which is not on the Iron Range.	PD31
2561	Heavy metal leaching is one of the greatest environmental liabilities associated with mining,….How is the SDEIS going to address this environmental liability?	PD01
2562	Metals, such as manganese at the tailings pile...arsenic at the tailing pile...arsenic in Colby Lake drinking water...How is the SDEIS going to prevent this dire situation to our waters from occurring; to preventing human health risks of cancer and other diseases and ailments?	HU01, WR123, WR130
2563	Under the Minnesota Environmental Policy Act 116D.04 Subd.6...The proposed PolyMet plan will seriously degrade the quality of our environment. How will the SDEIS address this?	AIR11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jane Koschak (42544)	
2564	This proposed sulfide mine project features requiring perpetual maintenance and monitoring, which is in violation of MN Rule 6132.3200, is absurd and unachievable, as it requires this to go on for centuries. It should not be allowed. How will the SDEIS attempt to counteract this?	FIN14
3110	One being that mining would totally occur on the Iron Range where typically iron and taconite mining have occurred. However, the copper and nickel deposits, which are proposed to be mined, are located within the Duluth Complex, which is not on the Iron Range.	PD27, PD31
3120	Birch Lake would be negatively impacted by this mine plan….There are resorts, house boat businesses, campgrounds, cabins and homes dotting the shoreline of Birch Lake. There are vast areas of forest, wildlife habitat, treaty-protected resources within the 1854 ceded territory and cultural sites…	LU06
3122	Most, if not all, will be impacted and permanently degraded by noise pollution and air pollution from the proposed sulfide mine.	N01
3127	Perception of noise, air, water pollution and degradation of the wilderness land in the minds of the travelers will negatively impact their decision to recreate in the Arrowhead region of Minnesota; therefore, economic loss for tourism.	SO02
3129	Figure 5.2-8.2 of the SDEIS illustrates air blast contours from the blasting at the mine site. This documentation is flawed and inaccurate. It does not take into account impacts to residents that do live on Birch Lake near the proposed mine site, to recreational sites to the Birch Lake pine forest just outside of Babbitt with biking and hiking trails, and to the 14 federal camp sites on Birch Lake	N02
3130	Wind blown dust particles containing sulfite compounds that are emitted from mining and beneficiation activities could contaminate wetlands, lakes, and streams near the project site and could cause harm to the species of concern that have been found in this area and to animals that depend on these foods or these plants for foods….These wind blown dust particles could be hazardous to human health of those living in the region of the proposed NorthMet. How is the SDEIS going to address this concern?	VEG07, WI04
3132	Under the Weeks Act, open-pit mining is not allowed on federal land. But instead of rejecting this proposed mine the United States Forest Service is proposing a land exchange so that their consideration of the surface land is eliminated. These lands and these waters that are proposed to be exchanged to PolyMet by the USFS belong to all the citizens of this country. This is wrong. This is our land, our wetlands, our water. This should not be allowed. Why is the Weeks Act not being enforced?	LAN02
3133	Heavy metal leaching is one of the greatest environmental liabilities associated with mining, especially in pristine environments like the project mine site that have economically and ecologically available natural resources….Metal, such as manganese, at the tailings pile will have 15 times more manganese per liter than the limit set by the Minnesota Department of Health to prevent brain damage in infants, children, and adults. There will be an increase of arsenic at the tailings pile by up to 417 percent. An increase in arsenic in Colby Lake drinking water by 38.5 percent, which would increase the risk of cancer for Hoyt Lake residents above the level of concern in Minnesota's cancer risk rule.	HU05
3139	Perpetual treatment. Minnesota rule 6132.3200 does not allow perpetual treatment. …A, the PolyMet SDEIS states that long-term -- meaning greater than 500 years at plant site and greater than 200 years at the mine site -- treatment of wastewater is needed, which means the site will not be maintenance tree at closure….B, 526 acres of lands covered by more than 167 million tons of waste rock would be covered by a plastic sheet and surrounded by a system that would supposedly by collect contaminated seepage. All would require monitoring and maintenance constantly for hundreds of years to fix leaks, repair perforations, and remove deep rooted plants….C, a mining pit lake would require pumping to prevent the toxic brew of acid and heavy metals from spilling into the nearby Partridge River and the tailings basin pond would require pumping to prevent spillage into the tributary of the Embarrass River….And finally D, the polluted water collection system, which includes miles of pipes, would require monitoring and maintenance for centuries	PER04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jane Koschak (42544)	
3142	This SDEIS proposal is not in the public's best interest. It is inadequate, contains falsehoods, and omissions related to moose, mercury, and other concerns….What is the reason that important concerns related to moose and their habitat and mercury as related to aquatic species and human health were not fully addressed in the SDEIS?	WI01
6836	Most if not all, will be impacted and permanently degraded by noise pollution and air pollution from the proposed sulfide mine. I have 1500+ resort guests each season, and when they boat, fish, canoe, kayak, picnic, and swim on Birch Lake, they do so with the expectation of listening to the loons and watching eagles, fishing in peaceful coves, and picnicking on islands studded with pine trees and a canopy of clean air. Instead, with this plan, my guests, and most who live and recreate on Birch Lake, will be receptors for mine noise and air pollution. [Figure 5.2-8.2] does not take into account impacts to residents that DO live on Birch Lake near the proposed mine site, to recreational sites, to the Birch Lake Pine Forest, just outside of Babbitt, with biking and hiking trails, and the 14 federal campsites on Birch Lake...no mention of the privately owned recreational tourism businesses based on Birch Lake.	N01
6838	Perception of noise, air, water pollution and degradation of the wilderness lands in the minds of the traveler will negatively impact their decision to recreate in the Arrowhead region of Minnesota	SO02
6840	Figure 5.2-8.2 of the SDEIS illustrates air blast contours from the blasting at the mine site. This documentation is flawed and inaccurate. It does not take into account impacts to residents that DO live on Birch Lake near the proposed mine site, to recreational sites, to the Birch Lake Pine Forest, just outside of Babbitt, with biking and hiking trails, and the 14 federal campsites on Birch Lake. It is important to remember, that noise and air pollution have no barriers, not matter how many charts and tables may be drawn up to state otherwise. Why was documentation related to the aforementioned items not included in the SDEIS?	N02
6841	Wind-blown dust particles containing sulfate compounds that are emitted from mining and beneficiation activities could contaminate wetlands, lakes, and streams near the project site and could cause harm to the Species of Concern that have been found in this area and to animals that depend on these plants for food. These wind-blown dust particles could be hazardous to human health of those living in the region of the proposed NorthMet Mine.	AIR10, HU03, WET24, WI01, WI04
6843	This Environmental Rights Act [MN Environmental Rights Act 116B.01] gives its citizens the right to protection of our land, our water, our air and our natural resources. How can this proposed mine plan move forward when it will degrade and destroy air, water, land and other natural resources within our state?	PER35
6847	In return for this possible land exchange …with the tradeoff of destroying the forested land that belongs to us, perpetual water pollution, and increased human health risks, including increased neurological damage to our children from mercury pollution.	GEN03
6848	There will be an increase of arsenic at the tailing pile by up to 417%; and increase in arsenic in Colby Lake drinking water by 38.5%, which would increase the risk of cancer for Hoyt Lakes residents above the level of concern in MN's cancer risk rule.	HU05
9035	This SDEIS fails to adequately address the human risks of exposure via air, water, soil, skin contact, and food consumption, to increased emissions of highly toxic chemicals and metals including: iron, copper, arsenic, mercury, lead, cadmium, chromium, cobalt, zinc, manganese, aluminum, thallium, asbestos like fibers, radon, fine particulate matter; silica, sulfate, diesel exhaust, among others, which acting singly or in combination with synergistic effects have been shown to cause disease, death and impaired quality of life in humans.	HU01
9043	There are no data regarding the toxicity of toxic pollutants for vulnerable citizens, including the unborn, children, the aged, those with chronic diseases, the immunosuppressed individuals, all of whom will likely be exposed to PolyMet pollutants.	HU01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jane Koschak (42544)	
9045	Fine particle air pollution increases morbidity and mortality and reduction of such pollution improves life expectancy…It is the cumulative effects of air pollutants and toxic chemicals in water, soil, and food, predict the likelihood of human disease. I found no estimates of such cumulative effects in the SDEIS.	AIR07
9048	The heavy metals arsenic, nickel-chromium and other toxicants such as fine particles, silica, and diesel exhaust among others cause lung and other cancers in workers and the general population…[T]o what extent will the PolyMet mining add to this chemical burden and risks to health?	HU04
9943	PolyMet would also destroy thousands of acres of very high-quality, irreplaceable wetlands, (the largest destruction of wetlands in the state of Minnesota).	WET23
9944	To create the Mine Site, our public lands within the Superior National Forest of Minnesota would be traded by the U.S. Forest Service for lands in Cook, St. Louis, and Lake County that are non-contiguous with a fraction of the value of the lands we, the people, would be virtually giving away to PolyMet Corporation for their Mine Site.	LAN03, LAN06
9945	This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin.	WR111, WR115
11637	PolyMet's water treatment system provides no details for what happens in the event of catastrophic accidents or failure of the system to operate over the 500+ years during which polluted water is being discharged… Scientific studies suggest that this facility must be designed for the 500-year storm, because the 1980's 500-year storm is now occurring almost as often as the 100-year storm.	PD22
11644	[The SDEIS has a] Lack of information regarding mercury contamination of fish and ultimately methymercury in humans. This area, home to 6 operating taconite mines, already has an alarming concentration of mercury and other pollutants far exceeding the regulatory standards.	MERC02
11646	[The SDEIS has a] Lack of alternatives to the probable permanent destruction of some 8,263 acres of wetlands, with some 913 acres being of very high quality irreplaceable wetlands in the St. Louis River watershed.	ALT13, ALT23
11653	This 600-700 foot deep, open pit mine comes with a plan to remove more than 530 million tons of ore and waster rock, causing utter destruction of MN largest tract of high-quality wetlands with more than 4,000 acres of wildlife habitat degraded, including two square miles of critical habitat for the Lynx and an important habitat for our dwindling moose population. Mines presently in operation have created a significant barrier for wildlife migration with only 18 narrow corridors within the Range to move from north to south.	WI02, WI03
11656	The proposed PolyMet mine site is located in the Superior National Forest. Under the Weeks Act, open pit mining is not allowed on federal land.	NEPA04
11659	Metals, such as manganese at the tailings pile that will have 15 times more manganese per liter than the limit set by the Minnesota Department of Health to prevent brain damage in infants, children and adults. There will be an increase of arsenic at the tailing pile by up to 417%; and increase in arsenic in Colby Lake drinking water by 38.5%, which would increase the risk of cancer for Hoyt Lakes residents above the level of concern in MN's cancer risk rule.	HU12, WR043, WR204
11661	Mining cannot be permitted if it causes destruction of our natural resources. PolyMet's proposed sulfide mine threatens Minnesota's clean water and public health. Under MN Environmental Policy Act 116D.04 Subd.6: "Economic considerations alone shall not justify such conduct." This proposal is not in the Public Interest.	GEN03
11662	I endorse the "No Action Alternative" because I believe that this DEIS is a testament to falsehoods, omissions, and claims without fact.	NEPA15

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jane Koschak (42544)	
11663	Nothing in this DEIS demonstrates that we need the copper or the jobs.	PER35
13227	Furthermore there is no mention of the privately owned recreational tourism businesses based on Birch Lake for decades.There are three resorts, a canoe outfitter, two houseboat businesses, and one campground that will be sound and air receptors of the proposed NorthMet Mine. It only mentions the federal camp area.	SO02
13365	Not only will there be 500 years… of water pollution from sulfuric acid and heavy metals…not all of the polluted water will be captured for treatment. Some 11 million gallons, annually, of polluted seepage from the tailings basin will enter our groundwater without treatment. And, further some 5 million gallons of polluted seepage from the mine site will enter groundwater without being treated.	WR070, WR117, WR156
13368	PolyMet's water treatment system provides no details for what happens in the event of catastrophic accidents or failure …The SDEIS provides no assurance or details on the impacts to water quality, wildlife or human health if the treatment system fails or if there is a breakdown, which is inevitable.	PD22, PD29
13369	Lack of information regarding mercury contamination of fish and ultimately methymercury in humans. This area, home to 6 operating taconite mines, already has an alarming concentration of mercury and other pollutants far exceeding the regulatory standards.	MERC02, MERC03
13372	There is no plan to compensate for thousands of acres of wetlands that would be "indirectly" harmed. These wetlands have been named an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the U.S. EPA has stated that it is likely an Aquatic resource of National Importance ...In return for this area that includes black spruce, cedar, and tamarack wetland, and also includes a lake, the Yelp Creek, and the Partridge River flowing through it, we the people" will receive five non-contiguous pieces of land in Cook, Lake, and St. Louis Counties. These lands are simply a fraction of the value of the lands we would be virtually giving away to PolyMet Corporation for their Mine Site.	WET19
13374	Mines presently in operation have created a significant barrier for wildlife migration with only 18 narrow corridors within the Range to move from north to south. PM would further degrade what is a marginal, but important corridor for our wildlife.	WI03
13375	The proposed PolyMet mine site is located in the Superior National Forest. Under the Weeks Act, open pit mining is not allowed on federal land. These lands and these waters that are proposed to be exchanged to PolyMet by the USFS belong to all the citizens of this country. But instead of rejecting this proposed mine, the USFS is proposing a land exchange so that their consideration of the surface land is eliminated.	LAN02
13376	MN Environmental Rights Act 116B.01 states:"The legislature finds and declares that each person is entitled by right to the protection, preservation, and enhancement of air, water, land, and other natural resources located within the state and that each person has the responsibility to contribute to the protection, preservation, and enhancement thereof.In return for this possible land exchange with the federal government, PM plans to destroy the land that belongs to the Public, and forevermore, into perpetuity, pollute our waters with mercury, acid mine drainage and other heavy metals.	PER35
13378	Metals, such as manganese at the tailings pile that will have 15 times more manganese per liter than the limit set by the Minnesota Department of Health to prevent brain damage in infants, children and adults. There will be an increase of arsenic at the tailing pile by up to 417%; and increase in arsenic in Colby Lake drinking water by 38.5%, which would increase the risk of cancer for Hoyt Lakes residents above the level of concern in MN's cancer risk rule.	HU05
13379	Under MN Environmental Policy Act 116D.04 Subd.6: "Economic considerations alone shall not justify such conduct." Nothing in this DEIS demonstrates that we need the copper or the jobs.	PER35

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jane Koschak (42544)	
15017	If approved, this first-ever sulfide mine in Minnesota would open the door for multiple sulfide mining companies, "waiting in the wings", that would endanger the Boundary Waters Canoe Area Wilderness (BWCAW).	CU04
15018	We have two tourism recreational businesses (resort and canoe outfitting). We are threatened by the advent of turning our Lake District into a Mining District....from turning a vibrant Wilderness area into a dead and barren Minefield of toxic destruction, not only to the landscape, but to our most valuable resource....our WATER.	SO02
15562	There are no data presented to indicate how the PolyMet proposed sulfide mine operation will prevent leaching into the environment and intake into the body of heavy metals which are among the key promoters of oxidative stress in humans that promote metal-induced and metal enhanced formation of free radicals in the body with resulting toxicity and carcinogenicity.	HU01
15569	Reproductive pathology: is caused by metals and toxic chemicals commonly found in sulfide mining operations. Such chemicals cause damage or death to human embryos and fetuses, neurological damage in the fetal and neonate brain; recently researchers at Harvard have discovered the association of air pollution with Autism Spectrum Disorder (ASD) in a major study (>320 cases and >22,000 control subjects) of the perinatal exposure to metals lead, manganese, mercury, and diesel exhaust and other pollutants.There is no mention in the SDEIS of potential risks to pregnant women regarding reproductive pathology.	HU01
15606	The proposed mine site is in the Superior National Forest. Birch Lake is part of the Duluth Complex area and is located in the Superior National Forest. Birch Lake would be negatively impacted by this mine plan.	WILD02
15607	Under the Weeks Act, open pit mining is not allowed on federal land. But instead of rejecting this proposed mine, the USFS is proposing a land exchange so that their consideration of the surface land is eliminated. These lands and these waters that are proposed to be exchanged to PolyMet by the USFS belong to all the citizens of this country.	LAN02
15608	Under the Minnesota Environmental Policy Act 116D.04 Subd.6:"No state action significantly affecting the quality of the environment shall be allowed, nor shall any permit and natural resources management and development be granted, where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resources located within the state, so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land, and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct."The proposed PolyMet plan will seriously degrade the quality of our environment. How will the SDEIS address this?	PER35
15609	Minnesota Rule 6132.3200 does not allow perpetual treatment: "to receive a permit to mine, the permittee must be able to close the mine in such a way that it is stable, free of hazards, minimizes hydrologic impact and release of substances, and is maintenance free."	PER04
15610	The PolyMet SDEIS states that "long-term" (>500 years at the Plant Site and >200 years at the Mine Site) treatment of wastewater is needed which means the site will not be maintenance free at closure.	PER04
15611	526 acres of land, covered by more than 167 million tons of waste rock, would be covered by a plastic sheet and surrounded by a system that would supposedly collect contaminated seepage. All would require monitoring and maintenance constantly for hundreds of years to fix leaks, repair perforations, and remove deep-rooted plants.	PD01
15612	A mining pit "lake" would require pumping to prevent the toxic brew of acid and heavy metals from spilling into the nearby Partridge River, and a tailings basin pond would require pumping to prevent spillage into the tributaries of the Embarrass River. The polluted water collection system, which includes miles of pipes, would require monitoring and maintenance for centuries.	WR037, WR131

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jane Koschak (42544)	
15613	This SDEIS proposal is not in the public's best interest. It is inadequate, contains falsehoods, and omissions related to moose, mercury and other concerns. The word "moose" does not appear at all in the SDEIS cumulative effects analysis. What is the reason that important concerns related to moose and their habitat and mercury, as related to aquatic species and human health, were not fully addressed in the SDEIS?	WI01, WI02, WI08
16087	Not only will there be 500 years, or basically into perpetuity, of water pollution from sulfuric acid and heavy metals, as indicated by PMet's own DEIS, but in addition, not all of the polluted water will be captured for treatment… What would be the long-term effects of the release of this untreated water to your health, your neighbor's health, and the health of the land and nearby lake?	HU01, WR064, WR107, WR108, WR177
16088	PolyMet's computer model may actually understate the actual pollution impacts, because it has been shown to be inaccurate in representing current conditions for water quality by the mine site.	WR049
16089	The SDEIS provides no assurance or details on the impacts to water quality, wildlife or human health if the [water] treatment system fails or if there is a breakdown, which is inevitable.	WI07, WI13, WR129, WR141
16138	There is no plan to compensate for thousands of acres of wetlands that would be "indirectly" harmed. These are not lands on the Iron Range, as the SDEIS falsely states. These are lands in the Superior National Forest...the public's land… These wetlands have been named an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the U.S. EPA has stated that it is likely an Aquatic resource of National Importance because of the high level of biodiversity.	WET01
16140	In return for this area that includes black spruce, cedar, and tamarack wetland, and also includes a lake, the Yelp Creek, and the Partridge River flowing through it, "we the people" will receive five non-contiguous pieces of land in Cook, Lake, and St. Louis Counties. These lands are simply a fraction of the value of the lands we would be virtually giving away to PolyMet Corporation for their Mine Site.	LAN03
16175	These lands and these waters that are proposed to be exchanged to PolyMet by the USFS belong to all the citizens of this country. But instead of rejecting this proposed mine, the USFS is proposing a land exchange so that their consideration of the surface land is eliminated. This is wrong. This is public land.	LAN04
Sender Name (Submission ID)	Jane L Soukup (54834)	
18679	Yes, we need jobs, but we shouldn't be forced to accept the contamination of our lakes & streams. Our groundwater is precious -- once it is poisoned we will never get it back.	WR115
18683	500 years of site management & clean-up? …That's a tremendous price to pay for the capital gains of a few wealthy (& in some cases, foreign) investors.	SO02
Sender Name (Submission ID)	jane piepgras (47417)	
17584	We have read the proposal carefully yet are left with the genuine concern that long term environmental protection expecially for the area waters, can not be assured. Our fears are substantiated by the fact that there is no existing sulfide mine, even the most contemporary such as Flambeau in Wisconsin, which have not ultimately caused leakage of toxic metals and sulfuric acid into the water table and surrounding earth.	PD01
17585	Northeastern Minnesota's precious natural resources must not be jeopardized for future generations by approval of mining which is based on unproven technology, false premises and self serving promises from an industry with such a terrible track record worldwide.	SO02
Sender Name (Submission ID)	Jane Sullivan (43215)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jane Sullivan (43215)	
15833	The long lasting impact on our beautiful state's environment is NOT worth 300 jobs. … Rather, lets create jobs by putting those folks to work on our infrastructure...roads; bridges etc.	SO01
15834	I do not trust that they will be able to keep the percentages of sulfite low enough to be dismissed. … These are people's lives we are talking about destroying, along with our ground water, if this project is allowed to continue.	WR149
Sender Name (Submission ID)	Jane Whiteledge (11640)	
3331	that once the mining is done the water will have to be treated for at least 200 years.	PD03
6993	All we need to know ... is the Polymet itself has said: that once the mining is done the water will have to be treated for at least 200 years. The lack of common sense, and stupidity of it all is breathtaking, that we'd even consider fouling our own water forever.	HU01, WR195
Sender Name (Submission ID)	Jane Whitledge (11640)	
3331	that once the mining is done the water will have to be treated for at least 200 years.	PD03
6993	All we need to know ... is the Polymet itself has said: that once the mining is done the water will have to be treated for at least 200 years. The lack of common sense, and stupidity of it all is breathtaking, that we'd even consider fouling our own water forever.	WR115, WR195
13039	All we need to know about this mining proposal is what PolyMet itself has said, that once the mining is done the water will have to be treated for at least 200 years.	WR035
Sender Name (Submission ID)	Janet Anderson (35147)	
13047	PolyMet's destructive and polluting open pit sulfide mine is NOT good for the public health.	HU03
Sender Name (Submission ID)	Janet Brown (38837)	
5076	As an avid user of the BWCA and the beautiful natural areas of Northern Minnesota, I urge you to reject the proposed PolyMet mine.	WILD02
5079	Too often we see they companies claim that they have taken every precaution, only to find out later that they have cut every corner and we are left with millions or billions in clean up efforts that not only become the burden of the taxpayer, but leave us with a destroyed ecosystem.	SO02
Sender Name (Submission ID)	Janet C Hubbell (54795)	
18086	I object to the proposed mine because it...does not have safeguards in place for expected mishap [and] does not leave the site clean & maintenance free	PER04
18087	I object to the proposed mine because it does not keep Minnesota's water safe & clean	WR107, WR108
18094	I object to the proposed mine because it …does not provide financial assurance to MN taxpayers about how much the treatment of polluted [sic] will cost them -- what their liability is.	FIN01, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Janet Diehl (40386)	
9393	Water is needed for Life & is therefore of far more value that all the ore that can be mined.	WR195
Sender Name (Submission ID)	Janet Draper (42821)	
7284	I am writing to ask you to reject the PolyMet NorthMet SDEIS because it is inadequate. The calulations are optimistic and do not accurately predict the enviornmental impacts of the proposed open-pit sulfide mine. The model used to predict impacts to water quality is flawed. And there are no contingency plans for expected accidents at such mines such as pipeline spills, accidental releases, failures of water collection and treatment systems and tailings basin failure….500 years of pollution – or more – are. Our water is one of our most important resources, and this will become truer as water shortages increase worldwide. We in thie part of Minnesota will go from being in an enviable position to being in an unenviable one.	WR115, WR128, WR129, WR130, WR131, WR132
7284	The model used to predict impacts to water quality is flawed. And there are no contingency plans for expected accidents at such mines such as pipeline spills, accidental releases, failures of water collection and treatment systems and tailings basin failure….500 years of pollution – or more – are. Out water is one of our most important resources, and this will become even truer as water shortages increase worldwide.	WR115, WR128, WR129, WR130, WR131, WR132
7286	The necessity for at least 500 years of active water treatment should be a red flag to us all. Who will be conducting the treatment and where will the money come from? The revised plan does not give details about financial assurance – about how much Polymet will pay and whether that will be enough. The state of Minnesota and its taxpayers will undoubtedly pay the bill.	FIN01, FIN05
7286	The necessity for at least 500 years of active water treatment should be a red flag to us all. Who will be conducting the treatment and where will the money come from? The revised plan does not give details about financial assurance – about how much Polymet will pay and whether that will be enough.	FIN01
Sender Name (Submission ID)	Janet Frigstad (16888)	
11018	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Janet Johnson (44768)	
7269	500+ years of treating polluted water... should be enough to open our eyes and say no. Water is our most precious resource and in a world where potable water is scarce and disappearing why are we endangering one of our last great supplies of clean water (this watershed goes into Lake Superior)	WR115
Sender Name (Submission ID)	Janet Magree (11590)	
2248	The threat of bio accumulation from release of sulfides to air and water, and the drying of wetlands, will add to the incidence of neurotoxicity that causes damage to the brains of developing fetuses.	MERC03
2249	Adding more permanent waste rock to the existing, already leaking LTV pile, will exacerbate bio accumulation of mercury for future generations.	MERC20
Sender Name (Submission ID)	Janet Neville (3745)	
9657	It must be proven absolutely safe before any permits are release[d].	PER06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Janet Neville (3745)	
17005	t is our responsibility to see that it is protected. This means practicing the "precautionary principle" when making decisions that can irrevocably damage our planet. It must be proven beyond a shadow of a doubt that sulfide mining will not degrade the environment or tip the ecological balance.	SO01
Sender Name (Submission ID)	Janet Petri (43102)	
11074	… I am very concerned about the effects of the sulfide runoff into the watershed. Northern Minnesota and the BWCA are VERY watery environments.	WR111
11076	The reverse osmosis water filtration seems pretty cool, but it has not been tested on this scale. What happens when (not if) there is a 10 inch rain on the site? Who will be maintaining the reverse osmosis system in 500 years - 480 years after the mine shuts down? A giant barrier is needed, down to bedrock, to keep the untreated, polluted water from flowing down stream. In 500 years, who will be maintaining this barrier? For that manner, who will be maintaining and funding the barrier in 50 years, or 100?	PD03, WR023, WR128, WR143, WR144
11077	Why not require an underground mine, which would present fewer risks to water resources? … The company says that copper prices are not high enough to make underground mining pay. However, I think it is worth it to wait to mine until it can be done right. The copper will still be there.	ALT01, ALT06
11079	What happens when the former LTV Steel?s tailings basin, which was developed in the 1950's, fails after sulfide-bearing tailings are dumped on top of it?	PD10
11082	I have seen places polluted with mine tailings. I don't want northern minnesota to go that route. Clean water is essential for life.	WR195
Sender Name (Submission ID)	Janet Spring (9987)	
324	Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever	NEPA09, WR115
497	…PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever.Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion.	WR003, WR115
500	Neither the SDEIS nor the sulfide mine project are based on good science.	NEPA09
503	The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streams.	WR003
504	The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS.	WR058, WR064, WR177
513	The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump.	WR010, WR061, WR099, WR168

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Janet Spring (9987)	
514	The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards	WR189, WR202
551	Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever.	WR195
915	The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish	WR189
917	[The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on]... Human health	SO04
918	The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge.	WR017
1400	Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science.	WR003
1401	The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures:•The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streams.•The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS.•The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge.•The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures.The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards.Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come.	WR003, WR010, WR018, WR019, WR064, WR111, WR177, WR189
Sender Name (Submission ID)	Janet Werner (43687)	
11911	the people trying to convince us to put the mine in Minnesota are already including in their proposal the funds for a clean up. If that isn't an indictment of the situation, I don't know what is.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Janet Werner (43687)	
11912	Installing a copper-nickel mine near Hoyt Lakes and Babbitt in northeastern Minnesota will result in environmental damage to the clean water in the area. If it doesn't happen in our lifetimes, it will eventually.	WR111
Sender Name (Submission ID)	janets8340@comcast.net (16159)	
1460	Please, please pay attention to what happened in Spain [aquifer]. You know very well that this will also happen here despite their assurances that it will not.	WR023
2027	The wetlands that will be completely wiped out at these proposed mining sites will most definitely affect our wildlife and birds.	WET24, WI02
Sender Name (Submission ID)	Janice Conklin (10045)	
330	Nowhere on the planet has copper-nickle mining been done without destroying water resourses.	WR023
1403	Do we actually believe that the mining company has detailed plans for clean up when pollution occurs. And do we actually believe that effective mitigation measures will remain in place for 200 to 500 years.	PD05
Sender Name (Submission ID)	Janice Greenfield (14759)	
13789	The Superior National Forest was established for the purposeful protection of our fabulous Minnesota natural resources.	WILD02
13791	what will be the long-term damage to our water resources & who would pay for this damage?!?	FIN01
Sender Name (Submission ID)	Janice M Koski (57175)	
18676	If one looks at the mine and all the drawbacks, ruined lakes and rivers forever and short-term jobs. If what this (the mine) has ruined will never come back, and if we step back and really look at our planet and see what’s happening we should be ashamed.	SO02
Sender Name (Submission ID)	Janice Myers (58130)	
19916	I am concerned that copper and sulfide nickel mining in MN will cause...Polluted water...Loss of wetlands...Imports on wildlife...Climate change – more global warming...Loss of clean [ILLEGIBLE] in Boundary WatersLet us	GEN03
19969	Spend our time and work on alternative energy like solar and wind...Give construction workers jobs in environmentally friendly job	ALT16
Sender Name (Submission ID)	Janice Peterson (45781)	
16352	We should not even have a discussion about messing around with the polymet mining proposals: a stable water future is not a sure thing. It is a mistake to think that mining should trump our Minnesota jewels: clear and pure water.	WR195
Sender Name (Submission ID)	Jaquelyn Blanco (54175)	
16397	It will pollute our water were gonna have sulfuric acid are PH will go down	WR001

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jaquelyn Blanco (54175)	
16398	[It will] kill the animals and insect that actually help the envirement.	WI01
16399	The world don't need more that's why they invented recycling for we can' do no more harm in the world I gess people just don't get that we have to protect what growns in the world for that we can still be living there so many other places were you can get copper, metal and other minerals pleas don't destroy our home the land of 10 thousand lakes we need our lakes and we need animals.	NEPA15
Sender Name (Submission ID)	Jared Yakk (54539)	
19173	Please keep the BWCA as is. 20 years of job creation isn't worth the hundreds of years of disaster this will cause. Use your mind not your wallet.	SO01
Sender Name (Submission ID)	Jason Carr (43562)	
8164	I encourage the MN DNR to carefully balance the short term benefits and localized economic impact of this mine against its potential long term harm to our state's citizens and brand.	SO01
Sender Name (Submission ID)	Jason Etten (10295)	
482	Do we really have a concept of the length of time and the cost involved in this cleanup effort? This could be two to three times longer than this state has been in existence.	PD25
483	Those who argue about the positives this will bring to the economy are looking only at the short term. Twenty years of mine work doesn't even provide jobs for a career for a miner. That would be half a career and then we would be back to start with an environmental disaster waiting to happen. This is not a sustainable or wise way to provide jobs and a future for those living in the Iron Range.	SO01
Sender Name (Submission ID)	Jason Finley (5925)	
1927	Mining creates the possibility to poison a Minnesota water supply.	WR195
1928	Therefore, mining permits should not be issued.	PER35
Sender Name (Submission ID)	Jason Fisher (7617)	
804	I am conviced that PolyMet's NorthMet project can be done in an environmentally friendly manner. The SDEIS is a detailed, independent review; federal, state and tribal agencies shaped the development of the draft EIS, which was written by an independent, third party. I believe this is a sound process. The environmental review process has been lengthy and thorough; the supplemental draft EIS addresses potential environmental impacts and how to mitigate them. The public can be confident that the draft EIS offers regulators the information they need to issue permits so that PolyMet can operate in a way that protects natural resources.	NEPA16
Sender Name (Submission ID)	Jason George (18180)	
13398	I believe that we can have these jobs and protect the environment.... I keep hearing about 300 jobs. Nobody is talking about 2 million construction hours, which is what it's going to take to build this project. …we're talking about a stadium-sized project in Northern Minnesota that is desperate for jobs.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jason Loos (21962)	
3299	They have sufficiently addressed the environmental concerns and will provide much needed jobs to the area.	SO10
Sender Name (Submission ID)	Jason Rabuck (28860)	
10946	We need to be thinking about recycling, re-using, and reclaiming metals- not sulfide mining	ALT09, ALT16
Sender Name (Submission ID)	Jason Wall (37232)	
16110	The preservation of clean water and wilderness will provide a greater economic stimulus to the state and local areas than mining.	SO02
16296	To keep us healthy we need clean air and water, sulfide mining does not meet that goal.	AIR11
16299	My worry is that if we dig a large, likely toxic, hole in our Minnesota backyard and a large multinational firm quickly opens a new copper mine in Chile or Mexico and provides copper at a fraction of the price; our mine is shuttered until the next perceived demand and then what?	FIN08
Sender Name (Submission ID)	Jay & Mary B Newcomb (42707)	
8594	PolyMet's own documents show that the boost to the area's economy from 20 years of mining would be followed by hundreds of years of environmental problems. All other sulfide mines have resulted in contamination of ground water sources.	WR195
8595	This is a threat, especially in Northern Minnesota, to ground water, wetlands, rivers and lakes.	WR111, WR115
8596	This mine would harm wild rice, fishing and drinking water. It is not worth the risk.	VEG04, VEG06, WR113, WR156
Sender Name (Submission ID)	Jay Dregni (19978)	
1618	Considering the weight of the information and evidence to date, I do not think mining for copper and nickel should go forward. Actually the water in our state is truly our treasure - the land of sky blue water.	WR195
1656	I am not in favor of copper nickel mining in Minnesota at this time due to lack of environmentally successful mining of this sort, plus the years it might take to rectify the water pollution and environment of our state.	WR195
14846	the following ideas and conditions must be considered: A. A trust fund with at least two parts; first, a multimillion dollar initial contribution (non refundable), and second an annual addition to the trust fund equal to ten percent of some measure such as revenue, tons of copper/nickel removed, etc.	FIN05, FIN08
14847	the following ideas and conditions must be considered:…Sixty percent of the jobs at all levels to be held by Minnesotans, and 90% by US citizens.	SO06
14850	the following ideas and conditions must be considered:… E. No special tax breaks to be provided.	SO04
Sender Name (Submission ID)	Jay Eidem (39468)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jay Eidem (39468)	
7224	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards.	WR023, WR060, WR181, WR182, WR195
13277	My wife and I were seriously considering purchasing land close to the mine site, we will not invest in a future in this area if short-sighted proposals like this threaten the water quality and the environment.	SO02
13278	Hundreds of jobs you say, this pales in comparison to the number of jobs that BWCA, Lake superior and its tributaries provide in the form of recreation.Poison the water and poison the future investment in the region.	SO01
13279	When Polymet closes their doors, files for bankruptcy and leaves their tailing ponds and rock piles Minnesotans will pay to clean it up	FIN01
13419	Hundreds of jobs you say, this pales in comparison to the number of jobs that BWCA, Lake superior and its tributaries provide in the form of recreation. Poison the water and poison the future investment in the region.	SO02
13420	Who will clean up the mess? When Polymet closes their doors, files for bankruptcy and leaves their tailing ponds and rock piles Minnesotans will pay to clean it up.	FIN01
13422	This issue seriously concerns me and my family's future use of the Arrowhead region for recreation...his is the only draw to the northshore and we as Minnesotans should feverishly protect our remaining natural resources.	LU06
16964	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies.	WR023, WR060, WR181, WR182, WR195
16965	The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards.	WR189, WR202
Sender Name (Submission ID)	Jay Haapala (9562)	
200	Evidence that the plan misrepresents the boundary of wetlands and tributaries flowing into the BWCA and other protected lands needs to be investigated.	WET19, WR080, WR081
201	The plan should include analysis of underlying bedrock and it's ability to protect groundwater from pollution.	WR007, WR008, WR010, WR061
202	Potential conflict with the 1854 Treaty with the Chippewa regarding pollution of reservation lands needs to be investigated.	CR01
203	Long term pollution mitigation and financial accountability plans are not sufficient.	FIN05, FIN11
973	The Land Exchange proposal is not an equal or fair tradeoff.	LAN03
Sender Name (Submission ID)	Jay Lehman (18099)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jay Lehman (18099)	
3226	I would like to ask the DNR to make an official statement as to whether or not this claim of 500 years of required waste water treatment post-closure in the SDEIS is in the SDEIS or is it not?	PD03
3227	PolyMet, before mining begins, funds must be set aside to cover the entire cost of the closure and the reclamation. The Minnesota DNR determines the amount to be set aside and the company does not get the funds back until all closure and reclamation is complete.	FIN07
13465	With that being said, I believe we have to put our trust in the experienced scientists and engineers of the lead agencies to determine if this mining project can be done safely. If this project can meet the environmental and financial requirements, then we must allow PolyMet to move forward with this project. Not doing so would be an injustice to the people in Minnesota, especially here on the Iron Range, as we have one of the world's largest deposits of strategic metals.	SO10
Sender Name (Submission ID)	Jay Newcomb (18362)	
2541	And they [Ojibwe] have brought up three bands, the Net Lake, Grand Portage, and Fond du Lac band have drawn up a list of 18 disputes that they have with the EIS. ... And what I would suggest is that before this mine is considered further or goes forward we need to listen to the people who know how to treat this land the right way and sustainably and resolve all these 18 issues	NEPA12
7233	The very fact that thousands of people have commented on the SDEIS shows how inadequate it is.	NEPA09
7236	We fear for our environment and for the future of our clean water.	WR195
11368	We fear for our environment and for the future of our clean water.	WR195
13265	The very fact that thousands of people have commented on the SDEIS shows how inadequate it is.	NEPA15
Sender Name (Submission ID)	Jay Rich (37880)	
16372	I'm sending my views on opening the boundary waters for more destructive mining: please don't. They are a unique natural resource that can't be replaced or cleaned.	WR195
Sender Name (Submission ID)	Jay Strachota (39959)	
7792	I do not believe that PolyMet can safeguard Minnesota's ground water and protect it for 500 years.	WR035
7802	It is ... beyond belief that people exist who think they can calculate the environmental and financial risks and requirements for possibly 500 years…	FIN05, FIN10
11128	Further more I believe it should be a requirement that when a mining company finishes mining that the site should be cleaned up and left maintenance free. That's the only possible way taxpayers can be protected and even then PolyMet could default before the end of the mining. We can not strap this clean up burden on future generations who will gain nothing from the efforts after the site is mined.	FIN10
Sender Name (Submission ID)	JAY STROHMAIER (11982)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	JAY STROHMAIER (11982)	
1644	…the proposed PolyMet mine represents a grossly sub-optimal trade-off from a risk/return perspective. I understand it could create 350-400 jobs for perhaps a 20 year period; maybe a few more jobs, possibly a few less; maybe a few more years, but perhaps a few less. Commodity prices are volatile and the economic and regulatory environment associated with mining profitability can change quickly and unexpectedly.	SO01
1645	what may our grandchildren and great, great grandchildren (and beyond) potentially be facing 100 or 200 or 500 years from now, when the lakes have been contaminated with sulfuric acid and no one even knows what a Walleye is because our lakes don't support any aquatic life anymore?	AQ08, WR195
1646	When well water could be tainted and unsafe for drinking	WR041
1647	And when the costs associated with the clean-up could overwhelm the ability of local communities (or even the state) to bear the financial burden.	FIN01
Sender Name (Submission ID)	Jaymes G Hubbell (54796)	
18098	Toxic metals & sulfates into our environment + 500-year commitments of maintenance are ridiculously risky for any state to take on. We should not do this to our grandchildren.	GEN01
Sender Name (Submission ID)	Jayne (47693)	
7936	If we have to put money a side for more then a month then it to harmful to all to move forward	FIN05
Sender Name (Submission ID)	Jayne Fingerman Johnson (6451)	
1079	PolyMet would create polluted water requiring expensive treatment for 500 years after they stop mining, and millions of gallons of untreated, polluted water would seep from the site every year into groundwater and nearby rivers.	WR037
1081	PolyMet’s plan fails to plan for contingencies like pipeline breakages and extreme weather events.	FIN05
1082	PolyMet’s mine plan doesn’t provide details about how to calculate an adequate damage deposit to protect taxpayers from the cost of 500 years of cleanup and maintenance.	FIN01, FIN05, FIN10
Sender Name (Submission ID)	Jayne O'Connor (54510)	
18758	If I see a toddler, I think of the 7th Generation….we own them better, a cleaner guardianship than we inherited. Please do not allow anymore mining in Minnesota.	SO02
Sender Name (Submission ID)	Jean Beccone (20892)	
1860	The SDEIS is inadequate; it does not provide any reassurance that this mining will not result in irreparable harm to the watery environment in our Arrowhead.	WR115, WR130
1861	PolyMet’s proposed mine threatens our clean water and public health.	HU03, WR195
Sender Name (Submission ID)	Jean Bergerson (4716)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jean Bergerson (4716)	
1877	there is [not] yet a good method of [water, in particular sulfate] treatment that well not lead to long-term serious negative effects.	WR128, WR145
1878	I [do not] believe any amount of money held in escrow for reclamation well be enough to suffice for future needs. We are not sure what they well be nor do we know costs of treatment 150-200 years from now.	FIN01, FIN05
1880	[sedge/wet meadows, coniferous bogs, and open bogs] are of significant importance on their filtration and hydrologic values to the area in which they occur.	WET24
1881	Moose are quickly disappearing in NE MN. Wetlands provide a food source for moose and are an important habitat component.	WI01, WI02
1882	I request you deny Polymet permits to continue on with their project due to impacts on water quality, wetlands that are difficult to mitigate and replace and the impacts on water quality and animal habitat resulting from their destruction.	PER35, WET24, WR195
1955	in order to have water that meets release standards for sulfate levels treatment would need to take place anywhere from 200 years to perpetuity.	WR035
1956	It states in the wetland section 912.5 acres of wetlands would be directly affected and between 6,498 and 7,350 indirectly affected... these wetland types [sedge/wet meadows and both coniferous and open bogs] develop over 100s of years and the likelihood of mitigating them with like wetlands is unlikely.	WET24
Sender Name (Submission ID)	Jean Christopherson (19079)	
15650	I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this.	NEPA07
15652	Please… consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014. PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't… reasonable.	NEPA10
15654	[More time to comment and to prepare for public meetings is needed because:] The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents.	NEPA07
15655	[More time to comment and to prepare for public meetings is needed because:] The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying.	NEPA07
15656	[More time to comment and to prepare for public meetings is needed because:] The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed.	NEPA07
15657	[More time to comment and to prepare for public meetings is needed because:] No data is provided to support the level of financial assurance proposed.	NEPA07
15660	The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase.	MERC02, MERC20

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jean Christopherson (19079)	
15663	[More time to comment and to prepare for public meetings is needed because:] The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense?	NEPA07
15666	[More time to comment and to prepare for public meetings is needed because:] The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings.	NEPA07
15671	Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions.	NEPA07
Sender Name (Submission ID)	Jean Greenwood (9616)	
1329	I understand treatment will be required at the mine for 200 years and at the plant site for 500 years.All this for a mine that lasts 20 years, creates few jobs, and puts our land, water, air, health at risk.	PD01, WR115
Sender Name (Submission ID)	Jean Johnson (57174)	
18685	Minnesota has clean water and beautiful clean lakes. Why would we permit a company to ruin all our water. They say it will bring more jobs. We need more jobs, but we need clean water to survive. Any mining that will harm our water is not wanted in Minnesota.	SO02
Sender Name (Submission ID)	Jean Oberle (43120)	
15875	I am strongly opposed to the Polymet mine project in the Babbitt/Hoyt Lakes area due to the long term environmental ramifications.	GEN01
Sender Name (Submission ID)	Jean Watson (19789)	
15703	I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for -- information that is necessary to decision-makers.	WR035
15704	PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota.	WI02
15705	sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons.	WI01, WI02, WI04
15724	four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	Jeanette Curphy (19893)	
1497	For the few hundred jobs offered for this project, that would last approximately 20 years, the damage appears to outweigh the benefits.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jeanette Curphy (19893)	
14835	It bothers us that Polymet is not an American Company but a Canadian company. Do they really care about our environment?	PD23
14836	The history of copper/nickel mining companies is that they do their mining, file bankruptsy, and leave the citizens to pay for the clean up, and their is no known way to clean up sulphur material in the water.	PD01
Sender Name (Submission ID)	Jeanette Trushsess (18247)	
13650	Even with the best technology and state-of-the-art methods for capturing sulfide, eventually, perhaps several generations from now, those chemicals will leach into the watershed and Lake Superior. The mining company is not going to take responsibility, even if it still exists as an entity 100 years from now. And even if it were to take responsibility, it would not be possible to reverse the damage.	PD01
13651	No amount of money would compensate the people relying on Lake Superior for their potable water. Fresh water is going to be a necessary condition for quality of life in Minnesota, long after the miners and the minerals have come and gone.	FIN05
Sender Name (Submission ID)	Jeanine Allen (43706)	
15399	Minnesota has only been a State for 156 years, and to commit future generations to this amount of supervision, and resultant costs, is absolutely irresponsible. In addition, I have yet to find any such pollution control measures that actually work in the real world.	FIN01
15401	It has been noted in news articles that copper mining will expose and release into the environment sulfate, mercury, possibly asbestos-like particles, and other toxic metals into the water, and possible the air. … To prevent such pollution from happening, we are told that extraordinary pollution control prevention measures must be implemented, and sustained, for a period of at least 500 years.This is absolutely mind-boggleing to me that we would even consider approving a project that gives us 20 years of mining and jobs, in return for more than 500 years of State oversight and maintenance of the mine site.	PD01
15402	Minnesota is known world wide for our Minnesota grown wild rice. Native Americans have been harvesting wild rice for centuries, and will probably continue to do so, "if" we don't ruin the environment which is necessary for its continued survival. As far as I can tell, we have not fully determined the "safe" level sulfides in the water which will allow for the sustainability of our wild rice crop. I feel we should not endanger wild rice production in our State in return for 20 years of copper mining; it just doesn't make sense.	WR156
15403	We've been trying to reduce mercury levels in Minnesota waters for years. Every summer I hear reports that people should limit their fish intake to so many fish per week due to mercury contamination. And now, we're to consider increasing adding more mercury to Minnesota waters, in return for 20 years of copper mining. Once again, this doesn't make sense.	MERC02, MERC22
15404	I imagine people in Duluth and many other communities and individuals up and down the North Shore who obtained their water from Lake Superior had been subjected to [asbestos fiber] contamination [due to mining in the area] for years before it was discovered. I also imagine it will be years before the direct negative impact on public health this pollution has, and will, cause. For years I have wondered what will be the eventual impact this will have on my family. People should not have to worry about problems like this.	HU03
15405	Our government's, including the DNR, primary objective should be protecting Minnesotans and our environment, not catering to foreign corporations.	PER02
15406	I don't want to see the Minnesota environment getting ruined to provide 20 years of profits to a corporation and then get stuck with the cost of cleaning up the mess for the next 500 years; it just doesn't make sense.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jeanine Center (31247)	
14001	Lake Superior's waters were seriously contaminated by the taconite tailings that mining companies dumped into it. This pollution was a threat to both marine and human life until an international effort stopped the dumping. So why would we even consider authorizing a new and similarly dangerous threat to the Lake Superior and the beloved Boundary Waters Wilderness?	WILD02
Sender Name (Submission ID)	Jeanne Ford (57219)	
17159	What are the plans for environmental responsibility (ie – keeping the surrounding land and water ways preserved and clean)?	PD24
Sender Name (Submission ID)	Jeanne M Wesley (57182)	
18659	Minnesota’s clean waters and wilderness areas have provided our state with ample economic benefits for decades, and they form the backbone of our healthful way of life that attracts people from around the world. These assets of ours will continue to serve us if we don’t ruin them for short-term gain.	SO02
Sender Name (Submission ID)	Jeanne Thoreson (39535)	
6294	I think it is absurd to embark on a mining operation that gives a few hundred workers 20 years of employment and [then] saddles the state with centuries of cleanup.	FIN10
6296	It is also absurd to risk the health of the Boundary Waters, which is Minnesota’s greatest gem.	WILD02, WR111
13542	it is absurd to allow an out-of-state company to rape our land and carry the profits away.	SO06
Sender Name (Submission ID)	Jeannie Rustad (10735)	
593	I also believe that by allowing sulfide mining to start up in order to provide mining jobs, we will ultimately destroy out tourist industry jobs in Northern Minnesota because of the damage caused by mining for copper. Polymet is at best a short sighted, short term fix for our state.	SO02
1489	I am strongly against allowing PolyMet or any sulfide mining in Minnesota because: I believe the toxic waste caused by this type of mining will cause irreperable harm to our environment.	WR195
Sender Name (Submission ID)	Jeff (4563)	
1847	This [Project] is going to be a huge boon to the area, and the state, with the additional jobs and tax revenues.	SO10
1848	Minnesota has some of the toughest mine pollution laws in the country, and this is an area that has been mined for well over 100 years without it turning into a wasteland.	PER34
1938	The project will not pollute the boundary waters (not even the rightwatershed) and even the watersheds that it does lead to, are also safe because mining can be done safely.	WILD03
Sender Name (Submission ID)	JEFF ANDERSON (43336)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	JEFF ANDERSON (43336)	
11378	The mining of these strategic and precious metals will generate significant economic activity, creating hundreds of jobs that can support families and sustain communities.	SO10
11380	Having grown up on the Iron Range, I know all too well that we need jobs for young people and copper-nickel mining will provide our young people with multiple opportunities for challenging and exciting careers.	SO10
11383	I trust the multiple State and Federal Agencies involved in preparing the document. Minnesotans trust the DNR to study copper-nickel mining and keep our communities safe. The environmental review process has been lengthy and thorough; the supplemental draft EIS addresses potential environmental impacts and how to mitigate them.	NEPA16
Sender Name (Submission ID)	Jeff Backlund (39596)	
6352	I do not believe the mining industry at this time has an economically affordable way to treat tailings of this process. If they prepaid 100 years of treatment which is estimated at 5 million each year then I would say yes lets do it. But from a business standpoint how can any business profit and be able to support the economics of treating waste at this cost into the future.	FIN01
12924	I do not believe the mining industry at this time has an economically affordable way to treat tailings of this process. If they prepaid 100 years of treatment which is estimated at 5 million each year then I would say yes lets do it. But from a business standpoint how can any business profit and be able to support the economics of treating waste at this cost into the future.	FIN01
Sender Name (Submission ID)	Jeff Busse (44068)	
7729	I feel strongly there is a lack of detail regarding the risk analysis in the document that would allow me to fully understand the consequences of the proposed action … I would urge the agencies to conduct a more thorough, detailed, and complete risk analysis to be included in the EIS.	PD01
7732	I do not feel the question of financial assurance has been adequately addressed for post-closure, especially given the high likelihood that perpetual treatment is needed. There is absolutely no historical examples of mining in MN that suggests PolyMet will be able to provide the necessary monitoring and funding	FIN01
7735	PolyMet’s mine plan doesn’t provide details about how to calculate an adequate damage deposit to protect taxpayers from the cost of 500 years of cleanup and maintenance.	FIN05, FIN10
7736	The plan includes inadequate contingencies for disaster events like pipeline breakages and extreme weather events	PD22
Sender Name (Submission ID)	Jeff Conrod (15264)	
400	It is absurd to jeopardize the safety of drinking water for 500+ years in order to get, at best, 20 years of jobs.	SO01, WR115
401	And who will pay for the cleanup if Polymet doesn't have the money to do so, as has happened so many times in the past with other mines? Why should we believe that Polymet can do it this time when nobody has before?	FIN01
13776	Are we willing to sacrifice our environment over the long-term in order to receive the short-term benefits from the mine?	SO01
Sender Name (Submission ID)	jeff durfee (38127)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	jeff durfee (38127)	
8802	Because of the water rich environment, why not use under ground mining methods. This might help with the water run off problems.	ALT06
Sender Name (Submission ID)	Jeff Evans (46072)	
10566	I am opposed to the plan to mine copper nickel in Northeastern Minnesota [because of the] lack of transparency on the financial assurance calculations. Not providing the assumptions or contingencies is short sighted. I realize this by law is to be part of the permitting process but the DNR and other agencies should've realize the lack of faith citizens would have in this process and provided that information.	FIN13
10570	I am opposed to the plan to mine copper nickel in Northeastern Minnesota [because of the] lack of a mercury/sulfate standard for wild rice. How can the state make a wise decision if the rules for sulfate standards haven't been decided on yet or updated?	HAZ01
10572	What are the health risks from this type of mining? Has it been studied?	HU01
10574	How much of the technology has been tested in the field rather in the laboratory? Reverse osmosis operates differently in a controlled environment of the lab.	PD32, WR143
10578	What is the cost to the state and local communities on the infrastructure? Crime will increase so will heavy loads on highways. Is this considered? How this project will be taxed has not been determined. Let's solve that problem first.	SO04
10580	What are the costs of 200 to 500 years of pollution compared to twenty years of a few jobs?	SO01
10583	Modeling should be revised. The new information on water flows indicate that the models are incorrect and need to be substantially revised. The state should make an informed decision with the best information possible, not a hurried political one.	WR003
Sender Name (Submission ID)	Jeff Hanson (44301)	
11840	The Dunka Pit of Erie LTV Mining… is a prime example of the sulfate and acid mine drainage problems that can result from any type of mining where sulfide ores such as copper sulfide or iron sulfide (pyrite) are present. … To this day seepage from this site is treated before being discharged into Birch Lake, and it still exceeds some contaminate limits.	PD01, WR023
11842	I am extremely well impressed by the level of concern and the depth of the review that has been conducted by the PolyMet SDEIS process. This is exactly the type of review that is needed to rationally anticipate and mitigate the environmental impacts that could happen.	NEPA16
11847	With reverse osmosis PolyMet should be able to meet the stringent standards for sulfate discharges. ... It is important that the PolyMet project proceeds with all the appropriate precautions to meet all standards, but also to continue the studies and research to learn about how we can do mining with the absolute minimum of impact on the natural environment.	PER34, WR190
11848	We can debate until we are blue in the face whether, or not, all of the data and technologies presented in the PolyMet SDEIS is all correct or valid. But we know that it was put together with the best minds and talents available today. We should consider this expert analysis and proceed in the least risk manner possible.	NEPA16
15015	I am further impressed and pleased that the MPCA through their water permits and the SDEIS process have required that PolyMet and Erie evaluate methods for the reduction of sulfates, sulfides and dissolved metals in mining impacted water discharges.	GEN02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jeff Hanson (44301)	
15016	I believe that it is absolutely essential to proceed with the SDEIS process. It has been conducted seriously and in great depth. It mandates on-going monitoring and testing to learn the most and assure that it keeps on track. It is hard to imagine a better situation and scenario for learning and proving out how we can develop these types of mining in an environmental responsible manner.	PD28
Sender Name (Submission ID)	Jeff Heikkinen (38105)	
13712	A few hundred jobs and 20 years of work compared to 500 years of possible ecological impact doesn't make sense	SO01
Sender Name (Submission ID)	Jeff Iisakka (18333)	
13910	I'm very confident that with today's high technology, strict environmental regulations that the PolyMet mining facility will be highly successful and we'll be enjoying the fruits of their labor for many years.	SO10
Sender Name (Submission ID)	Jeff Lentsch (42150)	
6371	Due to the economic gain, and environmentally friendly procedures, mining in Minnesota should stay… So let us keep those good paying jobs here in Minnesota. There have been plenty of health impact study's done on the poor, and their not as healthy when compared to the wealthy. Wealth is the only thing we can invest in the technology that make these procedures more environmentally friendly.	SO10
Sender Name (Submission ID)	Jeff Mogush (38466)	
13764	If this were just about economic benefits, it would be difficult to argue against permitting Polymet's proposed mine. The fact that this process has never been done safely along with the need to treat the polluted water for 500 years, should make any thoughtful person skeptical. The fact that the SDEIS assumes that nothing will go wrong is not defensible. The risk to the abundant water in the area makes this project a poor choice for our State.	SO01, WR195
Sender Name (Submission ID)	Jeff Pearson (45063)	
7546	How can you PLAN to pollute a pristine area like this with 500 years of pollution?	PD01, WR195
7549	What company will be around in 500 years?	FIN01
16776	Don't do this to the BWCA….	WILD02
Sender Name (Submission ID)	Jeff Rupp (40743)	
14041	how can a company and the DNR be certain waste water won't find hidden cracks and fissures at the mine site and perculate to unexpected areas contaminating lakes or groundwater in unforseen locations, making water treatment very difficult? Also, during the mining process and after how would they handle water treatment if for example they had another very intense prolonged rain event with record setting amounts of rain in short period of time like what occurred last summer??	WR010, WR011, WR057, WR180, WR193
14042	I want to mention that not all mining results in a economic boost for the surronding communities!...most economic benefits occur mainly in the early stages of mine construction-- not as much during mine operation!!	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jeff Rupp (40743)	
14043	I am afraid if this type of mining is allowed here, it will open the door for the next mine planed just south of Ely Minnesota -- even bigger mistake!!	PER07
Sender Name (Submission ID)	Jeff Scharlau (46027)	
10423	Nothing that comes out of that mine is as important as fresh water and the unspoiled beauty of the Superior National Forest. Cancel plans for the mine.	WILD02
Sender Name (Submission ID)	Jeff Soderstrom (45165)	
8733	EIS makes clear that treatment of contaminated water will be perpetual (arbitrarily defined as 200 or 500 years)…EIS should state how the treatment mechanisms will be maintained for hundreds of years.	WR128, WR143, WR144, WR148
8736	Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. Mitigation plans for these seepages must be accounted for.	WR070
8740	There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills.	WR130
15453	It does not state how long geomembrane covers and liners will last, how they will be replaced and what replacement will cost. It doesn't state how long the equipment doing the treatment is projected to last and how it will be replaced when it fails. It doesn't state how Polymet will maintain the physical plant after operations. In general, it doesn't provide adequate information for the public, voters and regulating agencies to evaluate whether Polymet will be able to treat contaminated water as projected.	PD09, PD35
15454	Polymet having ... no present financial capacity to develop and maintain a copper mine and because it is clear to any business person that control of their decisions and ultimate operations would fall to the established mining entities that would ultimately fund the operations, why is Minnesota not requiring the controlling company or companies from making the commitments required of such a massive mining operation?	FIN01
15456	The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment? ... It would be reasonable to expect some reasonable mitigation plans for these events.	WR144
15457	While the area will benefit from increased economic activity, a move to sulfide mining at this time is highly likely to significantly degrade what makes this area of Minnesota such a popular destination.	LU04
Sender Name (Submission ID)	Jeff Sullivan (9960)	
323	I support the Polymet project because I am involved with advances being made in the waste water treatment industry and believe that there are effective, practical, and environmentally responsible developments available that will help meet the needs of this project now and far into the future.	PD28, WR190
Sender Name (Submission ID)	Jeff Treptau (54878)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jeff Treptau (54878)	
19546	I am looking for a response related to the fault tolerance and backupcontingencies if something goes wrong in the system, to prevent non-treatedwater from escaping the site. For example, an approximately 5 mile long tailings impoundment wall, also known as a cutoff wall or slurry wall is proposed on the site. There is a reasonable concern that with the slurry walls that are this large, it is necessary to ask, "How can PolyMet guarantee that the project will successfully be able to anchor that slurry wall in bedrock along that whole perimeter?"	PD22
19550	It is also possible that the bedrock could fracture beneath the [slurry] wall during installation, which could allow untreated water to seep through.	WR019
19559	the SDEIS mentions pumping a large volume of water from one of themine pits during reclamation but does not provide supporting documentation.What happens if the pit goes dry, exposing it to air and making the rock reactive and therefore a potential threat to the environment?	WR202
19562	...please provide examples of reverse osmosis (RO) systems that have beenintegrated into mining waste water treatment at the same large scale ofimplementation as is being proposed for the North Met project. While RO is aproven technology, how can the citizens and taxpayers of Minnesota be certain that the membranes used in RO are protected for the duration of treatment needed (which could be decades or centuries)? These membranes, which are subject to fouling and scale build up and abrasion, can break down fairly quickly. What is the guarantee that this will be monitored and treated for the duration of proposed actions at the site? What is the backup plan if the RO system fails in the future?	PD03
19563	There are several alternatives that should be considered and evaluated in thePolyMet mine that have been simply discarded. These include whether thePolyMet proposal could operate as an underground mine instead of an open pit, and whether all of the waste rock created by PolyMet should be backfilled into the mine pits after closure.	ALT01, ALT03, ALT06
19567	...the necessary financial assurances needed by the State of Minnesota have not been detailed. The plan commits Minnesota to many years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance, a"damage deposit" the company provides, are not outlined in the revised mineplan. The public does not know what the duration of water treatment will be, how much it will cost, how the company will be held responsible for potentiallycenturies of costly water treatment, or how the public will be protected fromliability.	FIN01, FIN05, FIN10
Sender Name (Submission ID)	Jeff Wilson (17081)	
2087	If you want to create jobs, start extracting valuable materials from our waste streams. People throw old appliances into the trash, and they go into a landfill. To make their new appliances, we go mine more copper, iron, nickle, chrome, etc.	NEPA06
3445	We've managed to keep the Arrowhead pristine up till now. Why even take a chance of destroying it?	WILD02
3466	If you want to create jobs, start extracting valuable materials from our waste streams [instead of mining].	ALT09, ALT16
Sender Name (Submission ID)	Jeffery Kane (36458)	
11560	PolyMet would dig up nearly 1,000 acres of high value peat bogs, part of the 100 Mile Swamp, a critical habitat for many plants and animals. This wetland is designated an Area of High Biodiversity Significance by the Minnesota Biological Survey.	VEG02, WET19, WI02
11563	... over 6,000 acres of wetlands could be damaged or destroyed by PolyMet changing the water flow…PolyMet is required to replace lost wetlands, but they understate the area of wetlands they would affect, they fail to replace the unique habitat offered by peat bogs, and they propose replacements that are far from the mine site.	WET01, WET03, WET05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jeffrey Brown (11335)	
276	The negative economic impact on property values and tourism could far outweigh any economic benefits.	SO01
1615	The proposed economic and employment benefits are small (if they truly exist at all) in comparison to the economic cost and the high probability of damage to the environment in the region.	SO01
1617	The state's taxpayers are likely to bear the burden of mitigating the negative environmental impact of the Polymet project for generations to come. This is an unfair burden to be placed upon our children and grandchildren and their children and grandchildren.	FIN10
Sender Name (Submission ID)	Jeffrey Bryan (14491)	
155	The money that the mining company puts up for clean up would quickly be expended.	FIN05
156	There will be plenty of problems that will cause heavy metals and other wastes sulfides/sulfuric acid etc to get into either surface or underground sources of water.	WR115
1743	The brief economic gain for the area is far outweighed by the cost of clean up and the time that this site will have to be cared for into the future.	SO01
1745	Flooding such as happened to Duluth recently or seismic activity could easily cause the containment to fail.	PD11, PD22
Sender Name (Submission ID)	Jeffrey D. Rome, M.D. (7347)	
7	the modeling (MODFLOW, XP-SWMM, GoldSim) used to predict the hydrologic and water quality effects of the mining for the next 200 – 500 years cannot, with an acceptable degree of accuracy, incorporate the effects of climate change on precipitation in the arrowhead region of northern Minnesota.	WR077, WR180
8	Thus the statement that the "water quality model predicts that the NorthMet Project Proposed Action would not cause or increase the magnitude of an exceedance of the groundwater and surface water evaluation criteria at the P90 level …" [ES-35] is inaccurate and untenable.	WR049, WR115
692	The deluge in the Duluth area of June 19/20, 2012, was unprecedented and exceeded the capacities of both natural and man-made systems for managing it. A storm water runoff event of similar or greater magnitude at the mine site creates an unacceptable risk of environmental contamination in a large surrounding area.	PD22
Sender Name (Submission ID)	Jeffrey Grosscup (18402)	
9947	The investment in Minnesota and the small 10-year projection of jobs/mining is insufficient compared to the unknown costs to the environment.	SO01
10756	The investment in Minnesota and the small 10-year projection of jobs/mining is insufficient compared to the unknown costs to the environment...Planning for the short term needs to be discarded in favor of a sustainable long term approach. If the mining were to exhausted the deposits after ten years, where would the city of Ely look like with another shut down industry?	SO01
11002	The investment in Minnesota and the small 10-year projection of jobs/mining is insufficient compared to the unknown costs to the environment.	SO01
13248	Planning for the short term needs to be discarded in favor of a sustainable long term approach. If the mining were to exhausted the deposits after ten years, where would the city of Ely look like with another shut down industry?	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jeffrey Iverson (47003)	
13129	Since childhood I have spent summers and winters in the Ely area as one of hundreds of thousands of annual visitors who pour millions of dollars into the area's outdoor tourism economy--clearly among the most dominant sectors of the regional economy….which would be directly impacted by any pollution from the proposed Franconia Mine.	SO02
13130	I ask that…every possible assurance that Polynet will pay for the cleanup necessary, and for the economic losses the region's outdoor tourism industry will suffer.	FIN01
16470	it is likely that I will not be able to teach my son to fish in these same beautiful lakes, because as we know, past sulfide mining elsewhere has resulted in acid mine drainage causing extensive and expensive damage to water quality and the environment.	WR001, WR195
16471	I cannot understand why we would risk potentially catastrophic pollution in exchange for the short-term profits that could be earned from exploiting these lands for their limited mineral resources.	SO01
Sender Name (Submission ID)	Jeffrey Kolnick (40018)	
6329	It's not worth it. The answer is conservation and investment in a sustainable economy.	SO02
Sender Name (Submission ID)	Jeffrey L Cerar (6630)	
1202	I feel this is an extremely thorough document. No stone was left unturned. The amount of time, money, and effort put into this is incredible. I firmly support the project and believe that it can, and will, be done in the safest way to the surrounding lands, air, and water.	NEPA16
1203	let’s finally move forward and issue the permits.	PER34
Sender Name (Submission ID)	Jeffrey Lyon (47196)	
10714	As a resident of Duluth, I do not look forward to having our watershed contaminated mine run-off.The history of these mines is problematic, as they often leave behind a legacy of pollution once the mine is closed down.	WR023
10717	Clearly, more jobs are needed in the region. But extractive industries do not make for long-term economic health in small communities, which has been shown over and over again in case studies.	SO02
16916	The PolyMet mine proposal threatens to upset what ecological balance we have remaining here in the north part of the state.	CU11
Sender Name (Submission ID)	Jeffrey R Jukich (46403)	
8932	I think this is an appropriate use of this land and I believe the economic impact is greatly needed in this area of St. Louis County.	LU07
Sender Name (Submission ID)	Jen Olson (44615)	
12078	If Polymet can't prepare adequate environmental documents, how will they treat our public lands?	PD01
12080	it's heartbreaking to think that areas which continue to provide so much recreation, enjoyment, and food and clean water for my family and other Minnesotans could be irreparably damaged by an industry that knows and cares little about the area it may destroy.	GEN03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jen Y (6)	
22	The few jobs are not worth the environmental impact.	SO01
314	I [do] not trust a company to say they would do this maintenance (or pay for it) for the duration	FIN01, FIN11
Sender Name (Submission ID)	Jenn Pontinen (6069)	
1190	...PolyMet will have a great economic impact. In addition to providing employment, it will also cause existing small businesses to expand to meet increased demand for their products and services. New business creation is likely, as well, as new products or services are needed to support precious metal mining.	SO10
1254	The environmental review process has been lengthy and thorough; the supplemental draft EIS addresses potential environmental impacts and how to mitigate them.	NEPA16
Sender Name (Submission ID)	Jenn Young (54902)	
17750	The earth doesn't belong to 360 people who could potentially benefit from jobs with PolyMet. It belongs to us all!	SO02
Sender Name (Submission ID)	Jenna Grove (18275)	
4087	We know that sulfide mining has a significant impact on our environment and with such a water intensive area, that waste rock, when it is exposed to air and water, yields that sulfuric acid, which will produce that harmful pollution. And according to PolyMet's own reports, this pollution will last a minimum of 200 years at the mine site and 500 at the plant site.	HAZ03, WR001, WR138
Sender Name (Submission ID)	Jenna Spicer (14928)	
8906	Even with all the preventative measures PolyMet pledges they will take to protect this wilderness, accidents are inevitable and will still happen. Run off and polluted water seepage will destroy this land and wildlife for many generations to come.	WILD02
13807	It is a shame to hear that this proposal of allowing sulfide mining to take place near the Boundary Waters Canoe Area Wilderness (BWCAW) is actually being considered. The negative effects on the environment from sulfide mining are unavoidable, and with research we know that sulfide mining will damage and pollute the pristine wilderness of the BWCAW.	WILD02
Sender Name (Submission ID)	Jenni OLink (45100)	
7570	The SDEIS for the Poly Met Mining Project is flawed and does not guarantee that sulfide mining can be done in Minnesota without seriously harming water and habitat.	WR115, WR195
Sender Name (Submission ID)	Jennifer Adams (50039)	
12993	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Jennifer Austin (14)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jennifer Austin (14)	
392	According to a DNR press release, the supplemental draft of the Environmental Impact Statement for Polymet's NorthMet project will be released on the federal register today. I've been searching the register this morning and have not been able to find the draft. Would you be able to direct me to where I can find it?	RFI01
Sender Name (Submission ID)	Jennifer Gross (44056)	
7627	I worked up north in Ely a resort where I was first exposed to the idea of mining for precious metal...we could hear that mining that was happening ¾ of a mile or more away!	N02
15046	The waters in that area are all connected. I think it's a huge gamble to take mining in such an environment where a mistake is not only colossal and can potentially harm waters that go into Lake Superior and also into Canada, but any mistake would also be very expensive.	WR111
15047	In the event that the water becomes contaminated, I highly doubt Polymet is going to see the treatment of the water through for the next 500 years. Inevitably, the burden will fall on the tax payers or possibly even go without being treated.	FIN01, FIN10
15048	500 years of water treatment, potentially ruined the lynx and moose habitat, and wild rice patties – is this worth 15 or 20 years of jobs? I'm not convinced.	SO01
15049	I might be more inclined to the idea of mining in such a sensitive area if Polymet instead considered underground mining, but it sounds like the plan is to use open pit mining….	ALT01
Sender Name (Submission ID)	Jennifer Jewell Thomas (10280)	
387	The long-term risk to water quality from the proposed PolyMet mining is enormous and the potential benefit is very small.	SO01, WR111, WR195
475	The pristine waters are essential to the appeal of the area for the vital tourist industry that supports visitors like me. The long-term risk to water quality from the proposed PolyMet mining is enormous and the potential benefit is very small. The few mining-related jobs that would go to Minnesotans would be quickly offset by the devastation in the tourist industry that would result from long-term contamination of the watershed.	SO01, WR195
1452	The few mining-related jobs that would go to Minnesotans would be quickly offset by the devastation in the tourist industry that would result from long-term contamination of the watershed.	SO01
19978	The few mining-related jobs that would go to Minnesotans would be quickly offset by the devastation in the tourist industry that would result from long-term contamination of the watershed.	SO01, SO02
19985	The long-term risk to water quality from the proposed PolyMet mining is enormous and the potential benefit is very small.... Only small errors in the water-flow models could lead to the destruction of the wilderness. The potential gain is small and the risk is enormous.	SO01
Sender Name (Submission ID)	Jennifer Lund (14922)	
258	The estimated $10 billion in estimated impact over the twenty years of the project (study by UMD) will help the region to flourish. This growth and sustainability will help families create a stable base for a successful and happy life in our state.	SO10
Sender Name (Submission ID)	Jennifer Lynch (57222)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jennifer Lynch (57222)	
17169	The "technology" to prevent polluting our waters are not new and have not proven to be safe.	PER35
17170	We have the largest source of fresh water in our hands to protect for our children and grandchildren – please do not risk contaminating it.	WR195
Sender Name (Submission ID)	jennifer p (49991)	
12987	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Jennifer Pearson (4222)	
12519	I have grave concerns about not only the long term health and environmental impacts of this mining to our region, but also the socioeconomic realities this may bring	HU03
12521	Will Minnesota's water stay safe and clean? PolyMet claims it will, but there is NO track record with sulfide mining that allows us to believe this. PolyMet would create polluted water requiring expensive treatment for 500+ years after they stop mining, and leave millions of gallons of untreated, polluted water that could seep from the site every year into the groundwater and nearby rivers.	WR023, WR037, WR070, WR195
12523	I also have grave concerns about the long-term health impacts this mine will impart… The proposed mines will release toxins that will inevitably eventually make their way into our ecosystem.	HU03
12527	The bottom line is that we would trade a healthy ecosystem of air, water, fish, deer, etc. from this region that our children and grandchildren deserve to have, for a couple decades of mining.	SO01
12528	I would like to comment on the long term socioeconomic impact that mining would have. I agree that there would be short term gain, although from all of the sources I've read, it would be much less than PolyMet would like us to believe. Many of the highest paid jobs will go to outsiders from around the world that will be brought in to "teach" us how to do this type of mining. Even PolyMet's initial job predictions have been repeatedly scaled back.	SO06
12530	On top of this, if one looks at similar mines elsewhere in the country, one see's a pattern of fluctuating employment even when mines are operating. Northern Minnesota relies on pristine wilderness to support its current economy… Sulfide mining would put all of this economic backbone at risk for the potential of short term, volatile gain.	SO02
13143	We are well aware from sulfide mines elsewhere on the planet that metal contaminants that result from sulfide mines can be extremely unsafe for human health at certain exposure levels. Arsenic, manganese, thallium and others are known carcinogenic compounds. Other contaminants such as mercury, copper, lead, cadmium, selenium, zink and nickel also have other known deleterious effects on health. PolyMet SDEIS admits that metals will seep out of the mine pits, waste rock piles and pollution sump ponds on the mine site through the superficial groundwater flow.	HU03
13144	The SDEIS also states that most of the wetlands in these mine site flowpaths are affected by the groundwater, so that contaminant pollution could well up at any time.	WET10
13146	We know that sulfates that are discharged from sulfide mining operations when sulfides are oxidized. Sulfates have been shown to facilitate turning non-toxic forms of mercury into toxic forms- the process known as mercury methylation. We all know that this form of mercury is a bioaccumulative toxin. It does not break down in our environment or in our bodies, as it makes it's way into our food chain.	MERC08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jennifer Pearson (4222)	
13147	Methyl mercury is toxic to the brain and kidneys, and can cause known impairment in reproduction, growth, neuro-development, and learning abilities. We know that those most sensitive to the effects of methyl mercury are developing fetuses and newborns. In a health study of newborn babies in the Lake Superior Basin collected from 2007-2011, the MN Dept. of Health found 8% of tested newborns had mercury levels above the safe dose limit for methylmercury as set by the EPA. We also know that mining is the largest source of mercury contamination to the Lake Superior Basin. In a region already affected by mercury contamination, sulfide mining will inevitably contribute to the toxicity, and affect the health of our future generations. The PolyMet SDEIS doesn't tell us how much mercury pollution will be seeping out of the PolyMet tailings into superficial water flowpaths right next to the huge new tailings piles.	MERC03, MERC17
13149	The SDEIS has several tables and charts that show predicted pollution from PolyMet tailings before the pollution gets diluted from other sources. (see Table 5.2.2-38, 5.2.2-42, and 5.2.2-43) There are other metals that show huge increases over existing conditions but there are no listings in any of these charts or tables for mercury.	MERC06
13152	What is PolyMet trying to hide? Mercury contamination is already one of our biggest concerns in this region. The SDEIS is inadequate in revealing how much mercury seeping out of mine pits, waste rock pile, and liners to surface water flowpaths starting at year one of the mining process. The SDEIS must be redone to reveal how much mercury will be released directly or indirectly form the mine site into surface waters. The developing brains of our babies and children in this region depend on this.	HU01
13153	It has also become evident that the water model at the heart of PolyMet's SDEIS is flawed. How could this even be considered marginally acceptable within an environmental review document? As people of this region, we demand that accurate water flow data be obtained. The SDEIS does not provide this. ALL of these contaminants mentioned above and the reality of how they will insidiously seep into our water, our environment and eventually our bodies need to be based on accurate, accountable science. The health of future generations depends on this.	HU03, WR003, WR165, WR189
13158	There are grossly sub-standard safeguards in place in the SDEIS to assure that our water can be kept safe for the centuries that it will take to rid this region of all of the contaminants exposed from this type of mining process. I've addressed above the day to day insidious seepage that is unaccounted for. But what also happens in the case of natural disasters such as the recent flood? What happens if there's equipment failure in the treatment plant? What happens when there's malfunction that allows leakage of toxic contaminants into the surrounding water-rich watershed? If water treatment is going to be required for centuries, we had better have accurate, accountable plans for all of the "accidents" that will inevitably occur.	PD22, WR130
13163	As a regulatory agency, your responsibility is to assure that each and every contaminant has been accurately and effectively accounted for by PolyMet...And included in this, we need detailed accountability for all of the unpredictable ways that these contaminants can leak into our environment through natural or mechanical mishaps. It is unfathomable to me that as a state and region, we are willing to gamble on the future of our natural environment and clean water. As much as many of us would like to open our arms to the jobs this would create for our region, the SDEIS is woefully inadequate in assuring us that our region will be safe from the toxic affects of mining.	HAZ01
14588	We are well aware from sulfide mines elsewhere on the planet that metal contaminants that result from sulfide mines can be extremely unsafe for human health at certain exposure levels. Arsenic, manganese, thallium and others are known carcinogenic compounds. Other contaminants such as mercury, copper, lead, cadmium, selenium, zink and nickel also have other known deleterious effects on health. PolyMet SDEIS admits that metals will seep out of the mine pits, waste rock piles and pollution sump ponds on the mine site through the superficial groundwater flow.	HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jennifer Pearson (4222)	
14589	The SDEIS also states that most of the wetlands in these mine site flowpaths are affected by the groundwater, so that contaminant pollution could well up at any time. I could write a 10 page letter exploring the deleterious effects on health of each of these contaminants, but let's choose one to look at as an example- mercury. We know that sulfates that are discharged from sulfide mining operations when sulfides are oxidized. Sulfates have been shown to facilitate turning non-toxic forms of mercury into toxic forms the process known as mercury methylation. We all know that this form of mercury is a bioaccumulative toxin. It does not break down in our environment or in our bodies, as it makes it's way into our food chain…. We also know that mining is the largest source of mercury contamination to the Lake Superior Basin. In a region already affected by mercury contamination, sulfide mining will inevitably contribute to the toxicity, and affect the health of our future generations. The PolyMet SDEIS doesn't tell us how much mercury pollution will be seeping out of the PolyMet tailings into superficial water flowpaths right next to the huge new tailings piles.	HU03, WR120, WR158, WR189
14590	Mercury contamination is already one of our biggest concerns in this region. The SDEIS is inadequate in revealing how much mercury seeping out of mine pits, waste rock pile, and liners to surface water flow paths starting at year one of the mining process. The SDEIS must be redone to reveal how much mercury will be released directly or indirectly form the mine site into surface waters. The developing brains of our babies and children in this region depend on this.	MERC20
14591	It has also become evident that the water model at the heart of PolyMet's SDEIS is flawed.How could this even be considered marginally acceptable within an environmental review document? As people of this region, we demand that accurate water flow data be obtained. The SDEIS does not provide this. ALL of these contaminants mentioned above and the reality of how they will insidiously seep into our water, our environment and eventually our bodies need to be based on accurate, accountable science.	WR003, WR165, WR189
14592	Lastly, there are grossly sub-standard safeguards in place in the SDEIS to assure that our water can be kept safe for the centuries that it will take to rid this region of all of the contaminants exposed from this type of mining process. I've addressed above the day to day insidious seepage that is unaccounted for. But what also happens in the case of natural disasters such as the recent flood? What happens if there's equipment failure in the treatment plant? What happens when there's malfunction that allows leakage of toxic contaminants into the surrounding water-rich watershed? If water treatment is going to be required for centuries, we had better have accurate, accountable plans for all of the "accidents" that will inevitably occur.	FIN05, WR130
14593	As much as many of us would like to open our arms to the jobs this would create for our region, the SDEIS is woefully inadequate in assuring us that our region will be safe from the toxic affects of mining.	SO01
Sender Name (Submission ID)	Jennifer Schultz (41050)	
8649	There are more than twenty sites in the Duluth Complex that are designated as potential mining operations. Any review of the environmental impact of mining should require assessment of the impact of all of the projects together, not piecemeal analysis of one project at a time.	CU15
8652	There should be no change to our allowable limits for water quality.	PER16
8655	To allow them [allowable water limits] to be significantly altered -- by as much as 28 times more allowable pollution -- in response to political and financial pressure is not acceptable.	PER29
8661	It is my understanding that the techniques planned for water purification are incapable of reaching required water standards today, much less complying to those standards for hundreds of years in the future.	FIN01, WR128, WR143

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jennifer Schultz (41050)	
8665	In addition...rational assessment requires evaluation of pollution by many other potential contaminants that are being ignored. This includes not only mercury, arsenic, and other chemical pollutants, but also both air and water pollution with small mineral fibers.	AIR10
8667	Financial guarantees should require indemnification not just for the estimated minimum $450 million cost for closing the project, but for potential costs of chronic or catastrophic failures of safety systems.	FIN05
8674	The legislature should pass laws to ensure this [indemnification], requiring bonding guarantees in the billions of dollars. Mining companies [PolyMet] should be held responsible or not be allowed to operate.	FIN01, FIN14
8681	Good quality on-going monitoring and assessment of [NorthMet's] environmental impact and pollution will be critical from day one until hundreds of years in the future, in order to assure public safety.	PER06
8695	To provide [on-going monitoring and assessment of NorthMet]...we will need to hire many trained technicians and invest in scientific instruments to perform continuous monitoring on an independent basis. Funds to pay for this should come from taxes on the mining operations themselves, and should not be passed off to general taxpayers. These new taxes should be passed by the legislature to pay for independent monitoring now and for centuries to come.	FIN01, FIN10, FIN11, FIN14
8699	...new mining should include a comprehensive, unbiased economic cost-benefit analysis. Benefits of new jobs created [by NorthMet] and new taxes generated must be weighed against the costs of pollution and costs to existing businesses and residents, including the impact on the recreation and tourism industry.	SO04
8708	Safety elsewhere is not sufficient; we need our own guarantees, standards, and monitoring, some of them scientifically specific to Northeastern Minnesota.	PER06
Sender Name (Submission ID)	Jennifer Stattelman (19891)	
1492	We are worried that the thirst for new jobs on the Iron Range and the desire for tax revenues is driving this with little regard for the burden the natural environment and the taxpayers of Minnesota and, possibly, the United States, might have to bear in the coming years, decades, centuries.	SO02
1493	We canoe, wild rice, and fish and are concerned that the possible increase of sulfates in the St. Louis watershed will impact these activities.	WR156
Sender Name (Submission ID)	Jenny Brude (42820)	
7276	How much should the state need to protect taxpayers? That is, how large should a fund be? This is a great unknown. $500 million, a billion? What could 500 years of impacted waters really cost us? The two figures I previously mentioned seem, in that context, abysmally small. Corporations that have polluted the environment have long gone out of business as a mechanism to escape the costs of reparation. What we have here is 20 years, at most, of local employment (and how much would actually be local is uncertain) against 500 years of devastated, contaminated waters, and all the losses that come with that.	FIN01, FIN05, FIN10
7276	How much should the state need to protect taxpayers? That is, how large should a fund be? This is a great unknown. $500 million, a billion? What could 500 years of impacted waters really cost us? The two figures I previously mentioned seem, in that context, abysmally small. Corporations that have polluted the environment have long gone out of business as a mechanism to escape the costs of reparation. What we have here is 20 years, at most, of local employment (and how much would actually be local is uncertain) against 500 years of devastated, contaminated waters, and all the losses that come with that. In its totality, that represents a clear argument against a permit in itself	FIN01, FIN05, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jenny Brude (42820)	
18231	as lead agency, public comments I fear are all window dressing. Given the DNR's background, the permit has likely already been approved. We who oppose never stood a chance.	NEPA15
18231	as lead agency, public comments I fear are all window dressing. Given the DNR's background, the permit has likely already been approved. We who oppose never stood a chance.	NEPA15
18234	We're only slowly passing beyond the first decade of the new century that dragged its feet on automobile fuel efficiency. We realize there is a global environmental problem on many fronts, yet we drag our feet in all attempts to mitigate the antecedents. Let's address them. Let's put our time and effort into making the need for all the things we use up, less, and less, first.	NEPA06
18234	We're only slowly passing beyond the first decade of the new century that dragged its feet on automobile fuel efficiency. We realize there is a global environmental problem on many fronts, yet we drag our feet in all attempts to mitigate the antecedents. Let's address them. Let's put our time and effort into making the need for all the things we use up, less, and less, first.	NEPA06
Sender Name (Submission ID)	Jenny Kedward (58115)	
19900	Based on the EIS, I cannot support a mining operation that would leave the state or federal government liable for actions of one business. Water quality is evolving constantly.	FIN01
19901	China is the main consumer of copper – more that all other countries put together. I do not feel we need to destroy our land, air, and water to feed Asian growth.	FIN04
19942	Lead pollution is stated as inevitability with this plan. We know for certain the health and environmental risks associated with lead and mercury.	HU02
20023	We have also not exhausted our recycling efforts for copper. As a recycling educator, I see firsthand what precious metals we send to the landfill.	NEPA06
Sender Name (Submission ID)	Jenny Putnam (39101)	
12095	The reason I am so concerned about this [NorthMet], in spite of poly met saying that they would be responsible, is that the financial assurances need to remain in place for an extreme amount of time.	FIN01
12096	Financial assurances that need to be in place for 200 to 500 years have not ever been proven.	FIN01
12098	The land swap between the forest service and poly met in my mind needs to have its own separate review.	LAN10
12100	The related jobs, as well as construction jobs, taxes and other benefits this tourism economy and vacation home industry brings to the state is sustainable and can be grown.	SO10
12102	I do not believe that the current tourism economy and vacation home industry could flourish side by side with the nonferrous mining economy which brings pollution and greater industrialization to this unique part of our country.	SO02
12107	Plan to account for the destruction of moose habitat as well as other natural habitat for the Canadian lynx	WI02
12108	Plan should call for a detailed plan for financial assurances that protect current and future taxpayers	FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jenny Putnam (39101)	
12111	Plan should accurately assess health risks to the public	HU01
12112	Address the risks of mercury pollution for our children as well as future generations	MERC03
12114	Plan should improve wetland protection and replacements	WET04
12117	Provide Minnesotans with accurate information about how long polluted waters will require treatment	WR036
12118	Glencore must be recognized as a responsible party for permitting because of its ties with PolyMet	PER02
12119	Fix the inaccurate water data used in the model and redo the water model	WR003, WR189
Sender Name (Submission ID)	Jensen Ronald J (44754)	
7455	My hope is that the DNR will continue to protect our natural resources for the use of all Minnesota citizens, rather than allowing the environment to be destroyed for the benefit of a Canadian corporation and a few hundred jobs.	SO02
7459	the SDEIS is seriously flawed in its water flow models, estimates of habitat destruction, and cost/risk models for environmental clean-up.	WR086, WR091, WR092, WR093, WR105
7460	I sympathize with the workers in NE Minnesota who need jobs, but I don't think their employment in a boom-and-bust industry like mining is worth the cost to the other 5 million Minnesotans and the entire country, for generations to come.	SO02
7464	I urge you to think of the greater good of all Minnesotans, our precious natural resources, and generations to come, and not give in to short term economic interests.	SO01
7465	I expect the DNR to demand an EIS that is accurate and comprehensive. The current SDEIS does not meet the standards I expect for Minnesota.	NEPA15
Sender Name (Submission ID)	Jeremiah Boe (50099)	
13034	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Jeremy Beck (43075)	
10017	500 year cleanup - Who is going to be maintaining this cleanup operation, especially when Polymet or Glencore are no longer in business?	FIN01
10018	We've had several 1,000 year floods in the last few years. What happens in the event that the containment basin is overflows or is otherwise breached?	GT15
15340	Flawed Water Study - The water modeling was done using water flow data from a time with historically low water levels. I feel more representative data should be used to assess the full impact.	WR003
Sender Name (Submission ID)	Jeremy Reichenberger (9477)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jeremy Reichenberger (9477)	
943	People ask, can we trust PolyMet? It's not PolyMet we need to trust. It is Glencore Xstrata, the primary owner of PolyMet, which [reportedly] will buy the rest of PolyMet once all the permits are in place. So, who is Glencore Xstrata?	PER02
944	Glencore Xstrata has run up a long list of labor and environmental abuses, including 58 mining fatalities between 2008 and 2010, over twice the number reported by any other mining company over that period.Just in 2012, their environmental and labor record includes dumping raw acid in waterways in the Congo, failure to provide a vapor barrier to keep an acid mist from descending on 3,000 people in Zambia, utilizing child labor as young as 10 years old in mines in Congo, and causing environmental damage at its McArthur River mine in Australia.	PER02
Sender Name (Submission ID)	Jeremy Swanson (39363)	
13070	My wife and I are already researching other states to move to that value natural resources and human life and wildlife more than money. We'll be prepared to move when and if these mines are approved, it will be disheartening, but we literally and physically and mentally cannot support such disdain for the wildlife and nature of this state and country.	SO02
13072	We've seen programs where PolyMet 'claims' they're environmentally safe and have cleaned up their act. They say they'll implement cleaning acts to help with ground water contamination [a clear admission of fault in and of itself] once their new mining facilities are opened…	FIN08
Sender Name (Submission ID)	Jerome (54733)	
18838	There is already concern about the level of carcinogens and minerals that cause nervous tissue damage around Lake Superior. The proposed mining will release more of these minerals into both air and water. These by-products of sulfide mining have not been adequately studied. They will enter our natural systems for hundreds of years.	WR107, WR108, WR111, WR115
18839	Although the SDEIS acknowledges that 912 acres of wetlands will be directly destroyed by the mining digging and another 7, 413 acres will be impacted so that lm1d exchange must be arranged, the proposed "mitigation" replacement land is not the same fragile ecosystem which is at the proposed PolyMet site. The Minnesota Biological Survey has termed the land at the proposed mining site to be vulnerable and of "high biological diversity." It is clear that life forms in this fragile area will not survive and will be lost forever.	WET15
Sender Name (Submission ID)	Jerome A Challman (42763)	
14520	The PolyMet SDEIS "health risk assessment" doesn't include any analysis of the effects of the project on on-site workers. This is completely unacceptable. To not have competent analysis of the effects on the actual people that do the work on-site is unconscionable. These will be the people most directly involved.	HU04
14521	SDEIS p. 5-438 to 439 show that PolyMet ore and wastes will include asbestos-like fibers. Approximately 9% of the fibers in ore, tailings, and process water are amphibole fibers and about 2% of the waste rock minerals are serpentine.In the U of M study, Northshore workers in the crushing process had particle exposures over the safe exposure limit. PolyMet SDEIS says they'll take air exhaust from the crushing plant and vent it back into the plant to reduce heating costs. The study shows the danger of this plan.	AIR03
Sender Name (Submission ID)	Jerome Ekre (57560)	
19560	If the local and State-Federal governments allow the Poly-Met mining project the investors and the employees will benefit.	SO10
19561	The land exchange sounds to be a reasonable action.	LAN11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jerri Ann Walseth (54150)	
16041	I think it will lead to pollution that no one will want to pay to clean up.	FIN01
Sender Name (Submission ID)	Jerritt Johnston (44701)	
7431	The models used to predict water flow are inaccurate and do not match actual rate of water flowing from the site.	WR003, WR052, WR086, WR091, WR105
7439	no amount of financial assurance that a company will be willing to pay will cover the costs of maintaining this site in perpetuity.	FIN01
7440	Minnesota state law requires that closed mines be maintenance free. Two hundred years of water treatment at one location and 500 years of treatment at the other do not meet that requirement.	PER04
7442	There is not enough attention paid to cumulative effects of this project in relation with past iron and taconite mining in the area.. cumulative effects need to be addressed in relation to other copper-nickel mining projects moving forward in this region of the state.	CU02
7443	[The socioeconomic-section] was prepared using an IMPLAN model, which has been shown to overestimate the impact of new economic activity.	SO04
7445	the document states that employment will only be increased by about one percent in the region. This is not a compelling reason to move forward with a project that will cause this much damage.	SO02
7450	To destroy[the Superior National Forest and the woods in northeastern Minnesota] to mine for possibly 20 years is failing the DNR's mission to manage our resources and is in direct conflict with the Forest Service's responsibility to manage the forest for multiple uses.	LAN01
Sender Name (Submission ID)	Jerry & Nancy Irsfeld (42783)	
6772	We fear water contamination in the form of nitric acid will leach from this mining site and make its way to Lake Superior.	WR111
Sender Name (Submission ID)	jerry and Shirlee maertens (45301)	
9176	True natural areas are becoming less and less and what often replaces them are the scars and contaminations left on the land for future generations to deal with.	LU06
9178	the 300-400 permanent jobs that this mining project provides for only 20 years is a small number in the long-term scheme of things. It really is not worth the uncertainty and cost of possible consequences to the waters and land in that area at this time.	SO01
9187	I am concerned that this process of chemical extraction in order to separate copper and other metals from the sulfide rock material requires vast amounts of water that have the potential of polluting or contaminating surface and ground water quality.	WR156
9192	Another problematic finding regarding water after the SDEIS was released in December 2013 is the the discrepancy in the water flow under and near the proposed Poly Met copper mine in the area north of Hoyt Lakes. So what does this new info do the the models using different hydrological input	WR003, WR004, WR091
9195	there is a certain amount of risk and that most likely some pollution, leaching, contamination of surrounding environment will occur.	WR129

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	jerry and Shirlee maertens (45301)	
9201	What health effects will additional mercury, lead, exposure to asbestos-like fibers, etc. have on air quality and area waters and regional downstream waters?	AIR10, WR025
9202	WILD RICE concerns - Has the final and definitive answers to questions regarding the higher sulfate effects on wild rice been satisfactorily resolved?	VEG04
9204	MAINTENANCE AND CLEAN-UP BY POLYMET THAT THEY (OR ANY FUTURE NEW OWNER(S) WILL BE FOREVER LIABLE AND ACCOUNTABLE FOR ANY CLEAN-UP OR TOTAL DAMAGE COSTS TO THE ENVIRONMENT INTO PERPETUITY must be a part of the permitting and mining agreement.	FIN01
15571	Just how great is this “demand” at this time? It seems that there could be a possible ALTERNATIVE to mining at this time also. Before we mine our deposits here in Minnesota with an unproven method of copper sulfide mining, we should consider and make an honest attempt to recycle these same metals from the electronics that we as Americans so readily discard.	NEPA06
15572	The fact that evidently no where on earth has copper sulfide mining been benign to the environment should not go unheeded.	GEN01
15573	To bury Categories 2/3 and 4 waste rock in an subaqueous pond is not much of a disposal solution. So you slow down oxidation. It is somewhat parallel to storing spent radioactive rods underground.	PD15
Sender Name (Submission ID)	Jerry Fruetel (45684)	
12854	I urge each and every regulator on this project to gather your courage, remind yourself of what’s at stake, and do your utmost to protect Minnesota's environment and minimize its financial exposure.	SO02
Sender Name (Submission ID)	Jerry Fryberger (18191)	
13424	I am embracing the PolyMet project in my backyard … They have done their due diligence. They rolled up their sleeves, rolled up their socks, and made sure that we're going to have a continuation of clean water, clean air and clean skies.	NEPA16
Sender Name (Submission ID)	Jerry Groeneveld (4335)	
1801	[There were] a lot of details missing from the report [including]…the chemistry, material balance, energy balance and control strategy throughout the entire operation. … Each part of the entire operation should have a detailed material balance of all inputs and outputs including physical and energy inputs and outputs.	PD29
1802	there might be waste streams that can be a valuable byproduct of these operations. Byproducts can be additional revenue and eliminate the possibility of these products being slowly leached into the water or vented to the air.	ALT09
1803	Another item that could be valuable [in the SDEIS] is a comparison to ferrous mining that has been done successfully for many years. How do the waste streams compare, how are they handled and what have been the problems.	PD27
Sender Name (Submission ID)	Jerry Hallead (29940)	
10987	This is an egregious attack on the human, animal and environmental state of this region of the United States and will very certainly have destructive effects that will never be reversible.	NEPA15

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jerry Hallead (29940)	
13865	Please keep these States and the wilderness areas, that most certainly will be affected, in the pristine condition that is now enjoyed, so that it can be enjoyed for generations to come.	WILD02
Sender Name (Submission ID)	Jerry Kahlert (51581)	
3619	The known -- and unknown -- hazards of sulfide mining demand that any permit granted for mining in Minnesota be conditioned on a posted bond sufficient to cover the costs of mitigating any and all of those hazards.	FIN01, FIN08
Sender Name (Submission ID)	Jerry Pederson (9747)	
288	in support of the project that will provide jobs for union families at the PolyMet North Project in Northern Minnesota.	SO10
Sender Name (Submission ID)	Jerry Stahnke (54877)	
19400	I am concerned that there has not been enough data collected to determine if the wild rice, which is so valuable a resource to the health and welfare of the Ojibwe community will be protected as the evaluation appears to be based on modeling only.	VEG04
19401	I am concerned that the tailings basins leak.	WR126, WR132
19402	While the Supplemental Environmental Impact Statement says the chances of encountering saline water is low, I believe that there is a very good chance that it will be encountered.	WR078
19403	I am concerned that there is not enough financial assurance to address the mine post closure and that the State of Minnesota will be left paying for the clean-up costs, especially if the price of copper fluctuates downward.	FIN01, FIN08, FIN10
19404	I am concerned that the people who will profit most from mining these resources out of Minnesota do not live in Minnesota or even the United States.	SO06
19405	I am concerned that DNR does not have the expertise to properly evaluate the impacts of this mine on the resources of Minnesota.	PER43
Sender Name (Submission ID)	Jerry Witte (7707)	
827	I propose a moratorium on the Polymet mining process until a working reverse osmosis water treatment can be installed at the worst polluting ferrous tailing pit or mine. This will prove the technology works, the cost of the technology, and the cost of the hundreds of years of filtering that will be needed. If the watershed shows improvement, then the cleaner waterways will be able to accommodate the add planned runoff of the Polymet mine.	PER25
829	The current ferrous mining has old mine and current mines tailings that produce acid runoff into ground water, streams and rivers. The level of this runoff is at or beyond the level that nature can naturally clean it up	WR001
830	…the Polymet mine will also allow a degree of acid seepage into a water system that is already at or beyond its pollution max.	WR001, WR109
Sender Name (Submission ID)	Jesse Bearheart (39576)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jesse Bearheart (39576)	
6839	As a wild rice harvester and a First Nations person who depends on subsistence living I am most concerned about the legacy that sulfide mining… would leave behind.	CU11
Sender Name (Submission ID)	Jesse Peterson (18133)	
3456	The PolyMet SDEIS artificially limited cumulative-effects discussion of water quality to just the Partridge and Embarrass Rivers. The St. Louis River was left out completely. This cuts out anyone who be fishes or eats fish caught downstream in the St. Louis River and Lake Superior and ignores the impacts on the Fond du Lac Tribal Waters.	WR159
3457	The PolyMet Project would increase mercury in the Embarrass River and could increase mercury methylation near the mine site, as well. Increases in mercury or sulfates at PolyMet could increase mercury in the fish in the St. Louis River.	MERC02
13510	I'd like to just speak to Glencore a little bit. I think it's highly inappropriate to do business with a company that's manufactured famines as a way of doing speculative trading to inflate the price of food and they've also been implemented sitting on ore to inflate the value. And so they're a criminal organization. They're invested in PolyMet and I think it's highly inappropriate to be working with them	SO02
13511	Both existing LTV tailing seeps and the other mine discharges flowing into the St. Louis River also carry high levels of specific conductance which the EPA has found can be toxic to fish. Tribal research shows that specific conductance is the water chemistry signature for mining discharge that can take more than 100 miles to dissipate.	WR064
13512	Cumulative analysis of water quality impacts in the SDEIS must include the St. Louis River and must specifically analyze impacts on mercury contamination of fish and impacts of specific conductance levels on fish.	AQ14, MERC02
Sender Name (Submission ID)	Jessica Eberl (57353)	
18362	The EIS should be redone to make a cumulative assessment of arsenic exposure and cancer risks for people in Hoyt Lakes, including formula fed infants and people who rely on fish and wild rice for food.	HU02
Sender Name (Submission ID)	Jessica Gardner (57980)	
19830	I am worried about the impacts this project will have on moose, lynx, & other animals.	WI01
Sender Name (Submission ID)	Jessica Hemmer (43079)	
14992	I have worked and enjoyed our great woods and waters at a canoe outfitter located just outside of the Boundary Waters…I feel the boom then bust that would be created by this mining proposal is not worth the harm it would ultimately cause to some our unique plants and animals.	SO01
Sender Name (Submission ID)	Jessica L. Ostrov (9326)	
926	Why would we invite something like that to take place at the headwaters of 20% of the world's freshwater?	WR111
930	it still allows 10% of the sulfuric-acid laden water to escape into the waterways. That is unacceptable.	WR018
Sender Name (Submission ID)	Jessica Langevin (18272)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jessica Langevin (18272)	
13897	I just think there are things more important than jobs. It is only for 20 years, and the environment, I mean that's forever.	SO01
Sender Name (Submission ID)	Jessica Ley (58174)	
20033	Acid mine drainage will drastically lower the pH of our waters, potentially changing the community of life that resides in our northern lakes and rivers.	WR001
20034	Erosion accompanies the deforestation that will be unavoidable. This increases the turbidity of nearby waters, reducing photosynthesis and oxygen levels, also detrimental to life in our aquatic ecosystems.	VEG07
20035	In a part of our state that receives a large part of its revenue from ecotourism, 20 years of mining and the temporary jobs it will bring is not worth lifetimes of water pollution and destruction of natural environments.	SO01
20036	The copper and nickel this mine would produce is such a low grade that they need to remove an incredible amount of rock to make it worth it. This will scar the land beyond recognition, in the most beautiful part of our state.	LU04
20037	The stored tailings can contaminate the groundwater, and communities would have nowhere else to turnfor their water.	HU03
Sender Name (Submission ID)	Jessica Martinez (41763)	
15364	It is going to destroy more liveliness than will be created and it is a solution that corporations and companies are using just to create a simple solution for the NOW, not for the future.	SO01
Sender Name (Submission ID)	Jessica Rocheleau (9359)	
13727	•The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Jessica Stein Diamond (13)	
390	It is … unacceptable for the state of Minnesota to approve the PolyMet mining plan for 500 years of treatment of polluted water to be left behind from 20 years of mining.	WR115
391	There is absolutely no economic good worth poisoning this beautiful, essential and priceless resource for so many generations to come.	SO01
Sender Name (Submission ID)	Jessica Straczowski (44819)	
7767	the main reason I am opposing this kind of mining is the dangers it poses to our clean water.	WR115
7768	Why would anyone knowingly risk our water quality - our meaning it affects all of us and our future generations.	WR195
7771	Who are the ones who will make sure that clean-up is done appropriately in a hundred years?	PER04
Sender Name (Submission ID)	Jessie Kruchowski (38176)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jessie Kruchowski (38176)	
13703	If Polymet opens their doors we anticipate we will employ anywhere from 20-30 employees, that is 20-30 families right here in our community that will be supported by just one small business.	SO10
Sender Name (Submission ID)	jfalk (3276)	
9	... the (SDEIS) document is too complex and lengthy for me to make an informed analysis based on my own knowledge.	NEPA07
10	any jobs for Minnesotans (created by this Project) are temporary.	SO02
11	the bulk of the profits (from this Project) will flow out of the local economy.	SO06
12	the “toxic legacy of damaged waterways” (from the Project) will remain permanently here in Minnesota.	WR115, WR195
13	there is zero evidence to back up the claim that sulfide mining can be done without causing devastating watershed pollution.	WR023
14	Only if and until, the mining industry has a demonstrated track record that it has the means and the willingness to invest the effort and the capital necessary to mitigate all present and future environmental costs, the benefits of the mine cannot possibly outweigh the damages to Minnesota’s water resources, resources that may require treatment for more years into the future than can be accurately predicted.	SO01, WR023, WR115, WR195
19572	To be frank, the document is too complex and lengthy for me to make an informed analysis based on my own knowledge.	NEPA07
19574	...any jobs for Minnesotans are temporary, the bulk of the profits will flow out of the local economy, and the “toxic legacy of damaged waterways” will remain permanently here in Minnesota.	SO01
19576	“Mining without harm” and “environmentally safe mining” have been promised, but there is zero evidence to back up the claim that sulfide mining can be done without causing devastating watershed pollution. In fact, mining of sulfide-metal ore has never been accomplished without causing eventual acid-metal leachate pollution of ground and surface waters. As a result, Wisconsin wisely placed a moratorium on sulfide mining operations in 1997, until it could be demonstrated that such a mine would not pollute the water.	WR195
19579	The construction of [the PolyMet] mine...violates the Precautionary Principle: “if an action or policy has a suspected risk of causing harm to the public or to the environment ... the burden of proof that it is not harmful falls on those taking an action.” Only if and until, the mining industry has a demonstrated track record that it has the means and the willingness to invest the effort and the capital necessary to mitigate all present and future environmental costs, the benefits of the mine cannot possibly outweigh the damages to Minnesota’s water resources	NEPA09
Sender Name (Submission ID)	jgust350@yahoo.com (38485)	
13597	The iron ore mines won't last forever -let's get something new going on up here.	SO02
Sender Name (Submission ID)	Jill Alisa Holmen (57262)	
17399	The proposed mining is a massive invasion to the landscape and wildlife, not to mention a permanent damage for very short-term gain.	SO01
Sender Name (Submission ID)	Jill Boogren (48849)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jill Boogren (48849)	
12950	Polymet's own study that says water from the mine site would need 500 (500, not a typo) years (YEARS, also not a typo) of treatment...There is absolutely no way to guarantee Polymet will be around that long to pay for it.	FIN01
12951	We have an incredible array of wildlife here in Minnesota -- bear, bald eagles, loons, lynx, moose -- including the largest population of wolves in the lower 48. And we want to tamper with their drinking water?	WI01
Sender Name (Submission ID)	Jill Eisenberg (18264)	
13718	Water is one of our most precious resources...but even I know that when you mine for copper sulfide, it mixes with the oxygenation in the air to turn to sulfate, which in turn mixes with water, and you get sulfuric acid. This is acid rain.	WR001
13719	I know there is a need for jobs in Minnesota, but 500 years of jobs cleaning up the environment are not what we need.	SO01
Sender Name (Submission ID)	Jill F Blooston (44516)	
10657	Please think of the next generations, they do not need any more super sights to clean up, find another way for people to be employed.	PD01
Sender Name (Submission ID)	jill faulknr (16960)	
11024	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Jill Holmen (39144)	
5453	People travel here from across the globe to take in one of the last places of pristine, unspoiled wilderness. The mining proposal and EIS simply do not account for all the unexpected and prolonged issues that will occur, and will subsist. If its jobs we seek, let's consider jobs in greener energy and tourism, the true reasons why people proudly call Minnesota home and why visitors keep coming back.	SO10
12535	Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come.	WR195
Sender Name (Submission ID)	Jill Lyman (47258)	
9246	No matter what regulations are in place or how much money is set aside, the inevitable byproducts of sulfide mining promise to include sulfur-dioxide emissions, acid rain, millions of tons of solid toxic waste, and the slow leaching of chemicals from tailings into surface water and ground water.	HAZ03
9247	Glencore, the Swiss mining and commodities trading giant funding PolyMet, has a history of polluting the areas that it operates mines in. They have also been involved in corruption and human rights violations.	SO02
9248	We need to find jobs for our state that are sustainable and environmentally sound.	SO02
Sender Name (Submission ID)	Jill Marette (43267)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jill Marette (43267)	
15786	Prevent the pollution before it happens, putting money in a fund for clean-up isn't going to solve the problem. Once you have pollution, the environment will never go back to what it was.	FIN10
15787	Don't let them mine until they can prevent the pollution. ...Jobs are important, I grew up on the Iron Range, but you can never turn back time.	SO01
Sender Name (Submission ID)	Jill Radman (3386)	
645	These mines always have terrible pollution and it lasts up to 500 years.	WR023
Sender Name (Submission ID)	Jillian Tjosvold (54774)	
19457	I support copper/nickel and other precious metal mining projects in Northeast Minnesota because of the thorough and rigorous state and federal process that is required for permitting new mines. I have faith that the experts andprofessionals in our state and federal agencies and believe that the SDEIS adequately analyzes PolyMet's project.	NEPA16
19458	This project is both pro-environment and pro-jobs. Copper/nickel mining can be done in a way that protects the environmental and provides jobs.	NEPA02
19460	If these metals are not mined in Minnesota, they will be mined in places around the world that offer no safety protections to workers, where children are routinely put in danger by being forced to work in these unsafe conditions, and where workers are exploited by being paid very low wages that do not allow them to feed their families.	NEPA05
19462	The detailed analysis in the SDEIS shows that PolyMet will meet or exceed standards to protect human health and the environment. The analysis also points out the significant economic benefits that the project will create.	NEPA16
Sender Name (Submission ID)	Jim Atkinson (18115)	
3369	And [the SDEIS]'s based on what I think are very conservative assumptions. I think we're really looking at a worst-case scenario in the predictions that are made. And reality provides a comprehensive and understandable analysis of the issues which it should after 10 years of development.	NEPA16
13495	And what I know about it is they always without fail have been very cautious and deliberate and really spent the time and energy necessary to make sure that things were the way they were supposed to be.	NEPA16
Sender Name (Submission ID)	Jim Baratto (4482)	
1834	I would like to … make this process move forward in an effort to get this mine up and running to provide jobs in Minnesota and boost the overall economy.	SO10
Sender Name (Submission ID)	Jim Barott (45596)	
15901	I believe the shipping of the mine tailings by rail to northwest Minnesota should be thoroughly analyzed for its economic and environmental benefit. ...The benefit of shipping the sulfur laden rock to northwestern Minnesota would be due to the calcareous / higher pH / high cation exchange capacity nature of the soils in that area. The soils in northwestern Minnesota a high buffering capacity, compared to a low buffering capacity / lower pH soil in its current northeastern Minnesota location.	ALT10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jim Butcher (48163)	
12094	We are also being assured that steps will be taken in the way of "financial assurances" to ensure that Minnesotan taxpayers will be not held liable for environmental clean up. I am not sure how that statement can be made with any clear conscience when the negative impacts resulting from only 20 years of mining is expected to require hundreds of years of mitigation action.	FIN10
12105	The Polymet project should not be approved until some form of methodical and acknowledged risk assessment such as a fully detailed FMEA is performed and made public. This exercise should include local citizens and environmentalists as well as sulfide mining experts	NEPA15
12109	Today's financial "penalties" for environmental damage obviously do not work. Minnesota should develop special criminal penalties for failure to comply with permitted effluent discharges for such major and long-term projects as the proposed Polymet project.	PER06
12113	As scientific knowledge continues to develop and our understanding of the interaction between released chemicals and humans and the environment improves, permitted standards should be regularly updated and incorporated into Polymet operating requirements	PER06
17323	Polymet has not managed any mining operations, let alone a sulfide mining operation. Others who have, have by all accounts, left in their wake monumental clean up problems, the mitigation of which in many cases will end up being funded by taxpayers for generations to come. We are getting all too familiar with the plot for this movie, the privatization of profits, and the socialization of losses.	FIN01
17324	... it doesn't matter what promises and guarantees Polymet makes. With the best of intentions there WILL be serious mishaps. ... We MUST have in place an independent oversight organization with real teeth, really big teeth. We cannot rely on industry to police itself and do the right thing...One suggestion I have is that Minnesota law surrounding environmental damage be revised, such that evidence showing that adequate steps to minimize environmental damage were either not taken or were ignored become CRIMINAL offences, and, if proven, will result in significant jail sentences.	NEPA15
17325	In the engineering world, there are many techniques that have been developed to minimize risk and uncover potential sources of failure... One such widely established technique is known as "Failure Modes and Effects Analysis," or FMEA ... it would seem prudent to insist on completing and publishing such analyses on all aspects of the proposed Polymet project. ... This [would] provide evidence to the general public that there has been serious and deliberative efforts to failsafe the project, [and] provide a framework for developing "financial assurances." … "Adaptive Management" ... is not in my opinion a demonstration of adequate planning to address future as yet unidentified problems. This is MBA speak for we did a lousy job of planning and we will figure it out on the fly as we go along.	FIN05, FIN08, FIN12
17328	Minnesota needs to insist that… we will have an independent authority with adequate powers to oversee all activities which might occur at the Polymet or similar operations should they be approved, and that this authority has the power to shut down operations which have the potential to harm worker or community safety, or cause unpermitted environmental damage. And along with this cessation in operations, this body should have the necessary resources available to immediately authorize and begin any necessary mitigation measures at Polymet's expense.	PER24
17330	approval for the Polymet project should only be given if …There is a well-demonstrated need for the minerals that will be recovered during the planned mining operation.	NEPA02
17332	approval for the Polymet project should only be given if …The projected economic benefit exceeds the cost of long term effluent treatment and any costs associated with future "environmental events".	SO01
17333	approval for the Polymet project should only be given if …All long term treatment and contingency expenses will be at the expense of Polymet and its investors or successors, and will not be presented to future Minnesota or Federal taxpayers.	FIN01
Sender Name (Submission ID)	Jim Cashman (42811)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jim Cashman (42811)	
7127	I would like the following issues addressed before approval is granted for the project:1.Where does the 100 mile swamp drain? Does it drain into the BWCAW? What plans are in place to prevent pollution from going into the BWCA?...4.As we all know, catastrophes happen. What plans are in place if we get a 500 year rain? If a pump fails?	PD22, PD38
7131	I would like the following issues addressed before approval is granted for the project:...2.There is talk of a land swap with Northmet draining wetlands at the site and swapping other wetlands are the wetlands the state is receiving the same quality?	WET14
7135	I would like the following issues addressed before approval is granted for the project:...3.No[r]thmet will be burning coal to power the plant. What type of scrubbers will be used to minimize the CO2 going into the atmosphere?	AIR01
14425	I have read numerous articles online and in the Star Tribune about the proposed Polymet mine and cannot fathom the idea of having to mitigate water pollution for 200 plus years. Our lakes and rivers area cherished treasure here in Minnesota.	WR195
Sender Name (Submission ID)	Jim Ferstle (43373)	
12282	If some company proposed drilling under Lexington Pkwy, for example to bring out some precious metal resource there and tried to justify it based on “creating jobs,” or mining the product in the US rather than having some other country grab the profits from this exercise it would be dead on arrival, as they say about doomed legislation in the legislature.	SO02
12285	any company promising to pay “costs” of cleanup is something goes wrong is akin to the proverbial huckster joke about selling somebody worthless swampland in South Florida.	FIN01
Sender Name (Submission ID)	Jim Fitzpatrick (58094)	
19999	The SDEIS does not reveal the levels of contamination that will be placed into the HRF nor does it admit that this highly toxic dump will leak, even if it is lined.	HAZ02
20000	The SDEIS is full of holes.	NEPA09
20003	The SDEIS says there are no fractures of underground bedrock at the site. I saw a map built by Minnesota History Society that shows the site is riddled with fractures...These fractures will allow onsite pollution to get into the ground water.	WR010
20026	Wetland impacts are unacceptable. 913 acres of direct loss, 7531 acres of indirect impact = 8264 acres of wetland damage. The study of hydrology at the site is inadequate. There is an under estimate of the Partridge ground water base flow. It should be 200 to 300% higher. This is the largest Wetlands destruction project ever proposed in the U.S Army Corps of Engineers Region.	WET23
Sender Name (Submission ID)	Jim Foti (43495)	
15540	Unlike the desperately poor areas of the United States and the world that embrace extraction projects, Minnesota is fortunate to have the choice to invest in its future in more econonically and environmentally sustainable ways. Let us not conduct this massive science experiment in our beautiful north woods.	NEPA15
15541	I ask that the comment period be extended to 180 days….	NEPA07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jim Foti (43495)	
15542	One need only be the most casual student of business or history to understand the likelihood of a corporation following through on an environmental responsibility (such as treating the water flowing toward the Great Lakes) for more than a few years after its profits have been made.	FIN01
Sender Name (Submission ID)	Jim Houlihan (18087)	
3215	Based on the mining industry's record of environmental improvement over the years and process changes and all of our aligned interest in both living here and working here, we should move forward with confidence that all members of our community, both industry and environmental communities, will operate and can support PolyMet in a responsible and ever-improving manner.	NEPA16
Sender Name (Submission ID)	Jim Howitt (36518)	
9954	we do know from it that PolyMet is planning over 500 years of pollution for 20 years of mine operation. This is unacceptable. The mine should not be permitted unless much greater pollution controls are planned for.	PD01
Sender Name (Submission ID)	Jim Hussman (1773)	
531	It appears to me that the land offered by PolyMet in exchange is of higher quality than the land they will be acquiring adjacent to the NorthMet property. The exchange does not have any significant negative effects on the Superior National Forest.	LAN11
Sender Name (Submission ID)	Jim Koepke (7156)	
493	Rather than use the tailing ponds, which leak, why not use one of the open taconite pits, which are below ground level. This will keep the sulfur below ground level and will not runoff onto surrounding land.	ALT10
Sender Name (Submission ID)	Jim Kultala (47836)	
17334	environment is worth more then the damage caused my mining the minerals	SO01
Sender Name (Submission ID)	jim lassi (46627)	
9185	I am convinced that these companies have developed the technology, such as reverse osmossis that will insure a safe operation.	PD28
9188	Base on the SDEIS, I am confident that the impacts to the land, air, and water will be minimal.	PD28
9191	he economic benfit of such a development far outweigh any potential negative affects. PolyMet can mine these minerals in an environmentally sound manner that creates hundreds of jobs that can support families that will hopefully locate to my community to booster our economy.	SO10
9196	PolyMet can operate safely. Approve the permit. We need to strengthen our economy in our locat communities and across the state.	SO10
Sender Name (Submission ID)	Jim Melander (54663)	
17909	PolyMet is a sham set up by larger companies so that when the polluted mess is left to the citizens of Minnesota, they can file bankruptcy and walk away.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jim Melander (54663)	
17910	Minnesota Power is the biggest carbon polluter in northern Minnesota. They make tons of money burning fossil fuels to make electricity. PolyMet would provide them the opportunity to make money and to increase their rate of pollution.	PD39
Sender Name (Submission ID)	jim or bev (5960)	
1952	I cannot believe the delay in granting a permit, [and] eight or more years and millions of dollars spent	PER34
1953	we in northern Minnesota need the jobs and tax revenue that this project would provide.	SO10
Sender Name (Submission ID)	Jim Sandy Wolfe (15349)	
511	My review of the Full SDEIS did not find anything that addresses the issue of enforcement actions for violations of environmental quality standards and criteria. ... A clear plan of actions … are equally critical to maintaining a focus on safe operations. I did not find any wording in the SDEIS that would trigger the shut down of mining operations in the event that environmental quality standards are violated.	PER06
557	The fact that some corporate entity might be liable for remediation costs will be cold comfort once damage is done, and those costs may not be sufficient to deter poor oversight of operations.	FIN05
558	This form of copper mining will generate waste that is much more toxic than existing iron mines	PD27
559	I ask that Minnesotans' concerns for our shared environment be taken more seriously than I find them to be in this SDEIS. ... If this new kind of mining is permitted, then the consequences of harming the environmental need to be clearly stated.	PER06
562	the outsized chance of environmental damage from this form of mining during operation and long after mining stops and the subsequent damage to the existing tourism economy almost guarantees that the costs to Minnesotans will outweigh the benefits.	SO01
Sender Name (Submission ID)	Jim Satterstrom (20112)	
1736	The area needs jobs and this project will bring jobs that will allow family's to stay in the area.	SO10
Sender Name (Submission ID)	jim sulerud (43083)	
14988	The land exchange ... is a forfeiture of the public wealth and right. In this document there is no public purpose stated for the land exchanges, per se. Further, while your Executive Summary states a foundation for prohibiting this project as proposed, "allowing private surface mining would be inconsistent with USFS legal mandates for acquiring and managing these lands," there is no guarantee that the exchanged lands will be managed by these same mandates.	LAN02
14989	There is no rationale proposed in the EIS that there is an obligation ...on the part of the public, or its government, to yield anything that it holds, in the face of a private mineral rights ownership. ...The State should hold to a position of NO risk taken on by the citizens and its government. Instead, the document details mitigation of risk, and weak discussions of probability and extenuations, that gives evidence that public risk is assumed.	LAN02
Sender Name (Submission ID)	Jim Suttie (20052)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jim Suttie (20052)	
1699	Who knows whether they will pay enough to cover the costs of clean-up? No one knows how long it would take or how much it will cost? I don't trust that they won't just mine for 20 years, then shut the operation down and we will be responsible for dealing with the aftermath.	FIN01, FIN05
Sender Name (Submission ID)	JIM VOYTILLA (43028)	
13827	Pollution prevention at the crushed rock refuse dumpsite will require: trucking the refuse out of the BWCAW Lake Superior area; selecting an area that is not flawed by geologic features; or construction of a dumpsite that is lined with clay, then plastic or a liner.	ALT13
13835	The SDEIS did not consider the MDNR scoping report that outlined the need for exploring alternative dumpsites. There was no mention of consideration of alternative dumpsites. Why were alternative dumpsites not considered and evaluated?	ALT09, ALT10, ALT13
13838	There are geological flaws in choosing the old LTV tailings basin dumpsite including: underground fractures that allow groundwater to flow unimpeded; the MGS notes existing fractures in the bedrock under the LTV site. Given the predicted water seepage erosional forces, and blasting forces, the fractures will utimately expand; and considering the 500-year timeframe, leakage from the existing dumpsite and future contribution, there is sure to be future migration and dispersment of pollutants. The LTV tailings basin already leaks.	PD10, WR010, WR012, WR016
13841	Please explain why there is no dumpsite pit lining or grouting proposed.	PD15
Sender Name (Submission ID)	Jim Welch (18063)	
3175	And we need people, young people for schools, to keep the area active, to appreciate the area, and being able to go out and fish and do all the things that are fun to do here. We need new jobs to support our community like Hoyt Lakes, Aurora, Embarrass, Ely, Biwabik, Virginia, Mountain Iron, Palo, Gilbert, Markham, Eveleth, and the west range.	SO10
Sender Name (Submission ID)	jim wilson (15327)	
469	Our children and future generations will never be able to restore the consequential damage to the landscape, rivers and lakes of this state.	LU06
Sender Name (Submission ID)	Jim Young (14978)	
353	The additional, living wage jobs combined with economic impact to the region can not be replicated in this area.	SO02
354	I believe that the Polymet Group has met and surpassed all regulations and guidelines put before them.	PER34
Sender Name (Submission ID)	Jim/Janet (44114)	
15031	I am requesting that there be no action taken on the SDEIS for the NorthMet (Polymet project) for the following reasons:The long time frame of up to 500 years for the monitoring of the project and the unknowns of the effect of climate change on the hydrology of the region.	WR195, WR196
15032	sulfide mining is new to Minnesota. There is no good proven technology or long term model to prove that the environmental protection technology will work as described.	PD32
15033	the SDEIS grossly underestimates the amount of water that will flow through the 4.5 square mile site that is unlined and where water seepage through the site. The barriers to bedrock can crack and leak. This alone should disqualify the project.	WR003, WR126

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jim/Janet (44114)	
15034	The SDEIS contains no credible information about the actual cost of monitoring, maintaining, and replacing the equipment needed to treat polluted water for 500 years or more. It provides no details about the nature or guarantees of a financial assurance scheme that would remain viable for 500 years, yet it does acknowledge, disturbingly, the possibility of events such as "unanticipated liabilities" and "failure or limitations on the ability of third parties to pay." It does not attempt to explain how a corporate entity could realistically be held accountable over such an absurdly long period of time.	PD22, PD25
15035	even though the SDEIS admits that water pollution will last for a minimum of 500 years, its financial assurance section is an exercise in generalities. The actual cost of water treatment, monitoring, maintenance, repair, and reclamation is completely unknowable. … The Grand Portage Band of Ojibway concluded that PolyMet's numbers are vastly below the actual amounts required. The Grand Portage Band calculates that the minimum amount that should be set aside for financial assurance at the outset, assuming a 3% return on the amount, is $90.5 billion.	FIN05, FIN08, FIN11
Sender Name (Submission ID)	jkohnen (46934)	
10864	The Polymet mine could continue to pollute our waterways long, long, long after any benefit is garnered from the mine. There is NO WAY to guarantee the waterways of Minnesota won't be polluted long after the mine has closed and Polymet no longer exists.	WR115
10865	The number of sustainable jobs is minimal as compared to the long term expense. It is very short sited thinking to allow this mine.	SO01
Sender Name (Submission ID)	Jo Morse (38596)	
14057	My husband and I are both tech workers who have chosen to relocate to and live in Minnesota because of the wonderful outdoor recreation opportunities in the Arrowhead region…I think that the state of Minnesota will lose people like us if Polymet Mining is allowed to pollute the BWCA and that will ultimately affect the state's ability to attract and keep educated people	WILD02
Sender Name (Submission ID)	Joan Beard (54849)	
19020	What company/corporation/business concern has a track record of keeping its promises 500 years?...Especially after what they've wanted has been taken/exploited/utilized for company gains.	FIN01
19023	…you would allow [mining] …for 20 to 50 jobs? Lasting 20 years? Have you forgotten that tourism is the main economic engine of Northeastern Minnesota?	SO02
19024	…you would allow a mining practice with the potential to ruin groundwater -- which runs laterally for miles underground! -- …Have you forgotten …that our watershed is Lake Superior? -- One of the largest fresh water bodies in North America on a planet where only 1 to 3% of water is non-saline?	WR111
19028	Why is it okay for Polymet to extract minerals using a process you know will contaminate freshwater systems for many years to come…for copper which can be recycled?	NEPA06
Sender Name (Submission ID)	Joan Christensen (9287)	
13721	•The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Joan Gunderson-Palmer (10541)	
555	I wish to urge you to reject the PolyMet NorthMet SDEIS on the grounds that the project is likely to cause irreparable damage to our cultural and natural resources as well as result in violations to the treaty that the US made with the Chippewa Bands of Ojibwe people.	CR01, CR05
572	damage may be done to Wild Rice Harvests which would have a detrimental effect on the Ojibwe and many other Minnesotans.	CR01
573	While I appreciate the actions PolyMet proposes to mitigate the potential harm that may be done by the project, I do not believe they are substantial enough to truly prevent or account for the damage that could continue for hundreds of years and more after the project closes.	PD01
Sender Name (Submission ID)	Joan Mork (58027)	
19853	We live right near the (truly) Great Lake. There are no benefits greater than its beauty & wholesomeness. Do not let sulfide ore mining compromise this treasure.	LU04
Sender Name (Submission ID)	Joan Osgood (58035)	
19828	It will leak. Loss of Tourist Economy	SO02
Sender Name (Submission ID)	Joan Scully (43988)	
7117	Our precious wetlands, our rivers and streams, will be adversely affected by mercury, arsenic, and other toxic metals….	WET24
7174	it may be necessary for the animals, fish and birds to be instructed on how to keep away from the huge toxic 'ponds' that will require monitoring for the next "500 years" (as far as the company's report would go) or, more likely, forever.	WI04
7179	Tourism would suffer if this mining operation were approved. The number of jobs related to tourism is much higher than are jobs related to mining. … A few hundred jobs for 20 years sounds good to Minnesotans who need to support their families, but there are other ways to create better well-paying jobs for the northern part of our state.	SO02
15057	Native populations' tribal rights would be violated if this mining project goes ahead, and their cultural practices and economic livelihoods would be seriously compromised; some would be terminated.	CR01
15059	We count on the DNR to protect the state from perpetrators of dangerous money-making schemes that will harm our state.	PER03
Sender Name (Submission ID)	Joan Sutliff (44053)	
15052	I ask that you deny the proposed plan from going through and agree that much more work is need to determine a smarter course of action.	PD01
Sender Name (Submission ID)	Joanie Davis (42957)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Joanie Davis (42957)	
7185	The SDEIS should be rejected for its ... failure to include ...the affected Tribes who ceded the territory to the United States by treaty in 1854.... The Tribes and their technical representative The Great Lakes Indian Fish and Wildlife Commission (GLIFWC) should have been included while developing the scoping document. Had these entities been at the table the underlying testing of current conditions at the LTV site and surrounding waters would have been more rigorous, far-reaching and complete... [and] a completely different look would have been given to the overall scope of the investigation and to the Underground Mining, and No Action Alternatives.	SO04
7188	Wouldn't a closed underground mine offer less risk to this water rich area? Polymet says if they mine underground they won't return enough profit. But…did [Polymet] dd in to the cost the number of water treatment plants, pipelines, liners, constant landscaping and re-landscaping to try to keep out unwanted plants in the 'restoration' areas they will have to build and maintain over the 500 years that they will have to be monitoring on this 6000 plus acre site? How can this be a true comparison, if these costs are not factored in?	ALT01
7193	The SDEIS should be rejected because the additional load of another 4.6 pounds per year of mercury to an area encompassing the Great Lakes Basin can not be tolerated by already compromised water, waterways, and natural areas, and people	MERC08
7197	This proposed land use will require "we the People" to monitor the contamination and treatment of our water in perpetuity...Do the State of Minnesota, the MDNR, the MPCA and other entities that will have to monitor, and monitor the monitors for a "minimum of 500 years" make enough money to cover this monitoring?	FIN01, FIN05, FIN11
7246	It appears from provided maps, that the proposed PolyMet "mine site" is but one of many copper nickel deposits in the Duluth Complex. The deposits stretch all the way up the edge of Superior National Forest, into the forest and up to the Boundary Waters Canoe Area Wilderness, suggesting that watersheds on either side of the nearby Laurentian Divide will be affected… Reject the SDEIS because it does not contemplate the entire scope of environmental disturbances and far-reaching potential disturbances of other mining actions.	CU02, CU04
7253	The EPA Rejected the first draft of the EIS. This draft should be Rejected as well, because it fails to address financial assurances. PolyMet has stated it was not able to obtain Insurance; it is too new a company. Much of PolyMet's start up money is apparently from a deep-pocketed private Swiss company called GLENCORE.	FIN02
7257	Chapter three mentions off-site disposal of residual solids more than once. What does this mean? Where is this "off-site" located? Not in the glossary. Reject the SDEIS.	WR145
7259	As the Tribal Cooperating Agencies point out, in Appendix C, "inadequate information on current water quality and base flow, makes future water quality impossible to predict." The assumptions made for the groundwater quality are based on models that were repeatedly called into question by the Tribal cooperating agencies. Why were the tests and models not re-run using the Tribal/GLIFWC mode, and also as requested at the Dunka Road site?	WR003, WR052, WR071, WR086, WR091
7262	Why are the waters, swamps and marshes, and soils along the eight-mile shipping route NOT being carefully tested, and their current quality included in the permit? Monitoring after the fact does not give you a base model	PER09, WR071
7264	An underground mine, if a mine is to be contemplated for permitting would be the only possible option.	ALT01
14967	The SDEIS should be rejected because it condones re-use of an old leaking, existing basin without first emptying it, lining it and putting in collection facilities so that leaking water can be sent to the on-site water treatment facility	PD07, PD10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Joanie Davis (42957)	
14968	…deliberately adding mercury to our already degraded resources is inconscionable. The U.S. Forest Service and the MDNR should Reject the SDEIS because it seems bad practice, if not illegal, to destroy or contaminate a property that "we the people" purchased for the safe use by all for generations to come.	MERC22
14969	The Proposed Action will include the destruction of high quality forest and wetlands, and the 100-mile swamp, and because the 100-mile swamp (though not depicted as such in the SDEIS) actually straddles the Laurentian Divide, polluted water will flow south to the St. Louis River and Lake Superior but north as well to the Boundary Water Canoe Area Wilderness (BWCAW).	WILD02
14970	The U.S. Forest Service and the MPCA and the USACE should reject the land exchange, and the permits as a bad deal for "we the People"...Could PolyMet and the USFS really believe that exchanging tiny parcels of land scattered throughout the Superior National Forest "eliminates (the) conflict between PolyMet's desire to surface mine, and the United States citizens' rights, and the USFS' rights to the administration of the NFS land?	LAN04
14971	...at what cost to the land and water... does this exchange and permitting come at? What PolyMet proposes in return for this "right" that they desire and need seems to pale in comparison to the riches they will obtain and the damage they will inflict, the cost of which will be born by all who remain when the mine is closed.	LAN01
14972	With all the potential mine sites all within Ceded Territory and it appears, mainly within the Superior National Forest, why was the Underground option given such short shrift?	ALT01
14973	What happens if something goes wrong even in the early years? Is PolyMet going to declare bankruptcy and stick the rest of us with the bill?	FIN01, FIN10
14974	Of the remaining existing tailings basins leftover from Cliffs Erie and LTVSMC do any of those tailings have the potential to continue contaminating the water? ...Those "Cells" or tailings basins were built many years ago...how can you justify PolyMet using those "Cells" for even their Category 1 waste? Shouldn't they at the very least, be emptied and lined? Reject the SDEIS for failing to address this additional pollution waiting to happen.	PD10, WR023, WR070, WR126
14975	I particularly feel that disrupting such a large contiguous wetland such as the 100-mile Swamp with its calcareous fens violates Minnesota Statutes 103G.223 of the Minnesota Wetlands Conservation Act, and Minnesota Statutes 84.0895 because of Minnesota's endangered species law. The MDNR should reject the SDEIS on these grounds	WET19
14978	...the Tribes uncovered a 2007 document that "Further [documents] the high quality and ecological function of this landscape in 'An Evaluation of the Ecological Significance of the Headwaters Site, Northern Superior Uplands Ecological Land Classification System Section; Laurentian Uplands Subsection Lake and St. Louis Counties, Minnesota, March 2007: "The headwaters Site straddles the continental divide, with water from the Site flowing both east through the Great Lakes to the Atlantic Ocean and north to the Arctic Ocean….The Site is the headwaters of four rivers: Stony River, Dunka River, South Branch Partridge River, and the St. Louis River, which is the second largest tributary to Lake Superior…"	REF01
14980	Losing and not replacing with like kind within the same watershed is too big a loss for this watershed, and potentially other watersheds. Water comes out from everywhere in the Swamp.	WET03
Sender Name (Submission ID)	JoAnn Huss (3454)	
12338	Not only would the area surrounding the mine sites be affected, the water sheds far beyond will be adversely damaged for a long time after the mining is done.	WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	JoAnn Huss (3454)	
12339	My family and many other MN families are very worried about the human health risks that you are entertaining.	HU03
12340	This type of mining will put arsenic, manganese and other contaminants in their drinking water and muercury contamination will happen to the fish in the watershed and most likely far beyond, even into Lake Superior!!!!	AQ05
12341	The research has shown that more than 8,000 acres of irreplaceable wetlands in the St. Louis watershed will be impaired or destroyed IF you say yes!	WET24
13414	Not only would the area surrounding the mine sites be affected, the water sheds far beyond will be adversely damaged for a long time after the mining is done.	WR111
13415	This type of mining will put arsenic, manganese and other contaminants in their drinking water and muercury contamination will happen to the fish in the watershed and most likely far beyond, even into Lake Superior!!!!	WR042, WR107, WR111, WR158
16985	Why would you even consider a business venture that has a 100% rate of environmental destruction to the state of MN?	SO01
Sender Name (Submission ID)	Joanna Schlegelmilch (36350)	
3784	The overwhelming point is that the stakes are too high and the sacrifice is too great.	SO01
3786	Diminishing the quality of life for the next 500 years for the economical benefit of one lifetime sounds completely ludicrous!	SO01
Sender Name (Submission ID)	Joanne & Larry Spears (42725)	
14360	The sulfur pollution is long-term and devastating to the environment. The promised mining jobs are few, short-term and phantom. The copper extracted is very small. The benefits to Minnesota will be minimal	SO06
14361	The mining company is likely to disappear in bankruptcy leaving no protection against the long-term environmental destruction.	FIN01
Sender Name (Submission ID)	Joanne Iskierta (42753)	
14441	As someone who enjoys the outdoors and the beauty that Minnesota has to offer, I am concerned about the long term repercussions of PolyMet plan in copper mining. The lakes, rivers, and waterways help to make Minnesota what it is for all people who live here. I urge caution and future risk-benefit discussion before going ahead.	LU06, WR115
Sender Name (Submission ID)	Joanne Kalnitz (38718)	
4518	PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota.	WI02
4519	...sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream.	AQ05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Joanne Kalnitz (38718)	
4520	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	Joanne M Engel (42834)	
7334	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US Dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range.	SO10
7334	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US Dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range.	NEPA16, SO10
Sender Name (Submission ID)	Joanne Smith (43302)	
11360	Many years ago, I drove with my family through Ontario Canada and was shocked to see the devastation to the environment for several miles surrounding one of these mines…You know very well that we are looking at this kind of destruction of you approve this mine proposal, and there will be destruction that wouldn't be fixed from at least 500 years.	PER35
11363	[My husband and I know] the negative impact that this would have on our famous clear water sources plus the northern Minnesota woods and habitat.	WR111
11666	Not only would [this mine] be destructive to the lives of the people that make this area their home, it would literally decimate the tourism industry along the North Shore and over in the BWCA.	SO02
11672	Our lakes and rivers would be irreparably harmed, as would Lake Superior itself…the source of drinking water for many thousands of people.	WR111
15577	The jobs that we are talking about do not have that kind of economic impact. Yes, there would be construction jobs...but only for a while. As for the miners, as many as want to work, there are jobs already available in the iron mining industry. This is a short term vision for a LONG TERM PROBLEM!Please listen to the conscience of the people on this one. This is not simply a tree-hugger issue! This is the future water quality issue for the State of Minnesota and Wisconsin and also Canada.	SO02
Sender Name (Submission ID)	Jodi Broadwell (11260)	
757	I have invested thousands of dollars into my home and I fear that if our waterways become poisoned I will be forced to move and if the proposed mining project turns the Northland into a wasteland and poisons the Minnesota waterways, I imagine no one will want to purchase my home.	WR115
Sender Name (Submission ID)	Jodie Prohaska (40777)	
10660	I strongly believe the PolyMet mining proposal requires more time in order to sift through issues regarding the maps……The topographic maps are not accurate.	PD38
10687	However, I am not convinced that this pollution can be contained.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jodie Prohaska (40777)	
10691	The sulfuric acid will most certainly drain into pristine watersheds. I urge the DNR and stakeholders to look more closely at these maps and require more time to investigate their accuracy.	WR001, WR080
Sender Name (Submission ID)	Joe Adler (40131)	
15299	Areas around and near to the BWCAW need to be protected at all costs.	WILD02
15300	All the mining company has to do is declare bankruptcy when they have extracted the majority of the minerals from a site, and all future clean up, if it can even be remediated, becomes the responsibility of taxpayers. This is wrong.	PD01
15301	Minimally, any mining company wanting to mine an area should be forced to put in place an escrow of a minimum of 10% of the value of the deposit in order to have funds available for cleanup. Letting them proceed with a permit, using bad data, is negligence on the part of our public servants.	FIN01
Sender Name (Submission ID)	Joe Baltich (18314)	
13042	Ely won't survive on tourism alone. Tourism is one slice of the pie. Another slice of the pie, from what I see in Ely, is mining. It may be a big slice of the pie, it may not. It depends on how you want to look at it, because all businesses wax and wane. They come and go. Mining will have its peaks and lows. So does tourism.	SO02
13044	I want to see mining on the Iron Range. I want to see the opportunity for the people on the Iron Range to have jobs that aren't just tourism.	SO10
13048	We've had oh, many, many years now for mining technology to increase over the years and improve. And I believe in the year 2014 that we have the capability to actually function as an ecologically sound mining institution or area or region.	SO10
13150	Modern mining tech will provide for an eco-sound operation at Polymet along with all the permitting/oversight by MDNR and agencies..	NEPA16
Sender Name (Submission ID)	Joe Begich (18315)	
13057	There's nothing wrong with mining and providing jobs if we do it the right way. And from what I can follow and what is clear to me, this company is planning to do it the right way.	SO10
Sender Name (Submission ID)	Joe Cherra (14999)	
355	Has anybody researched or even thought to investigat the use of fumerole biotics as a tool for mitigating the sulfur problem associated with sulfide mining? I'm thinking of the deep sea organisms that break down the SO2 and CO3 into oxygen and nutrients to live off of.	ALT17
441	360 full time mining jobs + 600 related jobs for 20 years is going to create almost 1,000 unemployed 40 & 50 year olds in 20 years in an area that has been hard hit, for years, with scarce job opportunities and higher than the state average unemployment numbers.	SO02
442	Even if other mining companies move into the area in the next few years, will they be able to absorb Polymets' unemployed? Will Polymet be paying enough in unemployment compensation taxes to cover these large numbers?	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Joe Cherra (14999)	
448	Polymet proposes to ... provide $720 million in wages and benefits to 360 full time employees over a 20 year period. …$500 million of that projection will go to construction. Subtract that from the $720 million and the number is closer to $220 million. $30,000 in wages looks good until you start deducting the benefits they promise. It doesn't take much to make that good looking job a "slightly better than a poverty level" job for a provider of a family of four.	SO06
450	No corporation ... can guarantee being around that long [200-500 years]. We have to assume that the taxpayers are going to be footing the bill for a clean-up project ranging from $700 million to $3 billion … The EPA estimates the total cleanup cost would exceed $50 billion.	FIN01, FIN05, FIN10
451	Polymet has a bad reputation in South Africa and South America. They tend to leave messes behind just like U.S. Steel, Reserve MIning and LTV. Can we trust them to live up to any of their promises?	FIN01
Sender Name (Submission ID)	Joe Feidt (47259)	
9255	Can you guarantee the pollution from this mine will not reach streams, rivers, and Lake Superior? ...Superior is the cleanest of the Great Lakes. It is our jewel to protect.	GEN01
Sender Name (Submission ID)	Joe Folio (7678)	
816	…the SDEIS provides more than adequate coverage of the NorthMet Mining Project and Land Exchange. Water quality, air quality, cumulative effects, closure, etc. are extensively analyzed and studied in the SDEIS beyond the MEPA and NEPA statutes and criteria.	NEPA16
Sender Name (Submission ID)	Joe Hochevar (42535)	
2446	I hope the project goes forward with great care taken for the H2O and wild rice.	AQ05, WR107, WR108, WR156, WR157, WR158, WR190
Sender Name (Submission ID)	Joe Knaeble (40871)	
10337	Would you please identify the toxicity or danger levels of the 15 million tons of waste rock, the11.3 million tons of tailings and 313,000 tons of residues? What are the time estimates of how long these 3 outputs would need to be monitored in the designed storage ponds, pits or piles before they would not create pollution problems that would exceed environmental standards if they escape from the pits, piles or storage ponds?	WR035, WR036, WR038, WR060
10341	How would the financial assurances be structured to cover failures that exceed environmental standards while PolyMet is still mining, if they occur decades or centuries after PolyMet has closed the mine or if PolyMet has gone out of business?	FIN01
10347	Is it possible and even probable that to extract metals in a safe, environmentally responsible manner at some point becomes in contradiction with extracting them in an economically feasible manner? To leave it up to PolyMet to define the extent practicable of balancing what could easily be opposing criteria does not seem to be in the public interest nor does it provide protection for the environment in the Cloquet Watershed and for Lake Superior.	SO01
10357	Mitigation measures are designed to avoid or minimize environmental effects to the extent practicable. Does the State of MN or any other governmental body have a say in defining the extent practicable?	PD24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Joe Knaeble (40871)	
10361	How is PolyMet's proposal different from past sulfide mining operations that have become a liability to the public and have done damage to the environment?	FIN01
10363	Problems that exceed environmental standards will occur and when they do it should be solely PolyMets responsibility to clean them up and restore the environment to its original state, or as close as possible as determined by outside sources.	FIN01
10366	How is PolyMet's proposal able to insure their storage piles, ponds and pits will not fail in extreme weather situations?	WR202
10369	The proposed mine is projected to run for approximately 20 years and yet the danger of the by waste created from this project will remain in the area for centuries with the potential of causing serious pollution problems to the entire watershed which includes Lake Superior. If any of the other similar mines being planned in the BWCA/Quetico watershed are permitted and start to operate these dangerous waste products will remain as potential pollution problems for centuries in this international treasure.	WR111, WR115
10395	The Poly Met mine is proposing to operate in an area that is extremely fragile to the very byproduct created and stored, on site, for centuries by PolyMet. It is unacceptable to permit a mine that creates pollution that is extremely harmful to the ecosystem especially when the soil and subsoil of the area are not prone to containment of water borne pollutants.	PER35
10400	Alternative strategies that would create more jobs and permanent jobs by increasing the reuse and recycling of our current stock of copper, nickel, platinum and other semi precious metals from the metals that have already been mined and processed.	NEPA06
13966	Due to the past track record of sulfide mining it seems only reasonable to deny a permit to PolyMet since that track record shows environmental damage occurs and the responsibility of clean ends up being paid for by the public.	PER35
16641	Mitigating pollution problems after they happen is always only partially effective. If there is a pollution incident then damage is bound to occur that cannot be corrected. Mitigation only lessons the damage.	PD01
16642	I did not find adequate research or justification to warrant granting a permit. There was no analysis of need other than a simple statement alluding to the need for copper, nickel and platinum by the world market. There was no mention of the current stock of these metals and if it would be adequate to meet the needs of the world market by alternative strategies that are less environmentally harmful.	NEPA06
Sender Name (Submission ID)	Joe Magda (44273)	
11959	We need the jobs, we need the business, I'm in favor of mining	SO10
12051	I'm in favor. We need the jobs, we need the business	SO10
Sender Name (Submission ID)	Joe Martin (54196)	
17231	Sure this would create jobs, but it would just be temporary and would cause major pollution our lakes and rivers.	SO01
Sender Name (Submission ID)	Joe May (10012)	
8066	When Polymet has pulled everthing out of the ground or it's proven to be a huge polluter, they probably file bankruptcy as so many mining operations have done in the past. WHO will pay for it???	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Joe May (10012)	
9948	When Polymet has pulled everthing out of the ground or it's proven to be a huge polluter, they probably file bankruptcy as so many mining operations have done in the past. If it even could even be cleaned up, WHO will pay for it???	FIN01
10593	Who will pay for the clean up when Polymet has exhausted the resource, then files bankruptcy????	FIN01
16977	When Polymet has pulled everthing out of the ground or it's proven to be a huge polluter, they probably file bankruptcy as so many mining operations have done in the past. If it even could even be cleaned up, WHO will pay for it??? MY answer...the state, us!	FIN01
Sender Name (Submission ID)	Joe Nasvik (42894)	
9209	The report calls out a 200 year monitoring period after the mining effort is through. That's simply not possible, hardly any company lasts that long and it wouldn't be realistic to think that an adequate amount of money would be deposited to cover any future problem.	FIN05
9214	But aside from that, sulfur compounds are particularly dangerous because they can easily become airborne, quickly becoming sulfuric acid—harmful to humans, flora and fauna.	VEG06
Sender Name (Submission ID)	Joe Nelson (43816)	
10568	Sure there are negatives to the environment but what about our economy and the jobs that we are giving away.	SO10
14954	As far as the global environmental impact, most countries have much worse environmental regulations and will cause a larger impact to the environment if they produce these metals.	PER34
Sender Name (Submission ID)	Joe Padden (44704)	
7231	Dust is sure a problem in mines what dust control for sulfides	AIR07
Sender Name (Submission ID)	Joe Quincy (58138)	
20004	The single point that this is a 500 year agreement along makes it an impossible decision for us to make; there are concerns for the next 20 years as regards water, air and soil quality – how could Polymet possibly believe themselves competent to predict/mitigate effects for the next 500 years?	FIN01
Sender Name (Submission ID)	Joe Scherer (18118)	
13496	I fully believe that our government agencies will make sure this area will remain intact and pure.	NEPA16
13497	We can having mining. We can have tourism.	SO10
Sender Name (Submission ID)	Joel (41727)	
3240	Jobs come and go. Our planet does not. This mine would set a negative precedent for our state.	SO01
Sender Name (Submission ID)	Joel Bryan (14923)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Joel Bryan (14923)	
259	I do not believe current mining techniques can safely remove the copper and nickel without causing great harm to the environment.	PD32
Sender Name (Submission ID)	Joel Hoffman (44764)	
7652	Based on the NorthMet SDEIS, the proposed project would result in large-scale disruption and degradation of forested wetlands in the headwaters of the St. Louis River.	WET24
7659	The project also represents a serious threat for heavy metal leaching into surrounding ground and possibly surface waters to an area that is already recognized by the state for persistent mercury pollution.	MERC16
7682	the project will severely impact about 6,000 acres and potentially impact about 20,000 acres of wetlands, including pristine wetlands and high-value forested wetlands whose functionality could be severed degraded by changes in hydrology associated with the mining operations.	WET24
7683	the mitigation target is far less (<2,000 acres), and would not necessarily restore the lost functionality to headwater streams or to the St. Louis River watershed.	WR114
7694	The resultant changes in hydrology and ecological function of these wetlands represent a significant impact to the watershed, and would add to the cumulative stress placed on the St. Louis River.	WET24
7698	The wetland loss is unacceptable at this scale, especially in light of the large expense committed by the federal and state government to restore wetlands in the lower reaches of the St. Louis River.	COE01
7706	As the executive summary notes, mercury pollution in the St. Louis River is of particular concern and potentially represents a serious public health threat.	HU03
7720	[The water quality] models are reliant on two critical assumptions: a lack of groundwater leaching from the pit and tailings basin, and successful water treatment. It seems likely that at least one failure in the applied technologies will occur during the operational period of the mine. This potential is not evaluated in the SDEIS.	PD29, WR010, WR128, WR129
7722	the mine pit will require a large load of electrical power, likely causing an increase in power generation in the region. Presuming the power will come from a coal-fired power plant, this would likely add to the atmospheric mercury loadings to the region.	AIR02
7725	the SDEIS details substantial environmental impact to the region but fails to adequately consider the full effect of these impacts.	NEPA15
7738	the executive summary presents an oversimplification of the environmental impact of the mine	GEN01
Sender Name (Submission ID)	Joel K Hoelz (54890)	
18823	I am against sulfide mining in our beautiful northeastern Minnesota lands. I believe likelyhood of permanent damage to our lands are great! We should avoid opting for quick gains opposed to long time damage.	SO01
Sender Name (Submission ID)	Joel Mamedov (17330)	
1970	Yes, [this project] will create some jobs. But, the people who earned some money will spend that money to their cancer treatment or treatment of their children.	HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Joel Roberts (42887)	
17620	...no explanation is given for the choice of [the] particular values of hydraulic conductivity for the cutoff walls [in the SDEIS].	PD29
17621	PolyMet is modeling only a best---case scenario, because it does not allow for the possibility of less than optimal performance of the cutoff wall. It is unrealistic not to plan for other contingencies.	PD29, WR130
17622	It would appear, however, that many of the recommendations in EM 1110---2---1901 have been disregarded in the SDEIS and the references.	PD07
17624	Difficulties posed by the local geology, and the failure to follow the guidelines in the USACE Engineer Manual are likely to significantly reduce the percentage of tailings basin seepage that could be captured by the proposed Flotation Tailings Basin cutoff wall. The modeling of water quality in the Embarrass River watershed should take this situation into account by incorporating a probabilistic approach, using a wide range of seepage capture percentages.	PD07, PD08, PD29
17625	As a more feasible alternative, the modeling of water quality in the Embarrass River watershed must be redone under more realistic assumptions. This would involve a probabilistic approach. In particular, the assumptions about the seepage capture rate must be adjusted to cover a sufficiently wide range of assumed seepage capture rates…the modeled range of groundwater seepage capture rates should extend downward…perhaps to 35% or 40%. If the modeling is set up so that the seepage capture rate is not an input variable, then there must be a sufficiently robust probabilistic modeling of the variables that determine the seepage capture rate.	PD29, WR022
17626	The MinnTac tailings basin experience indicates that the modeled range of groundwater seepage capture rates should extend downward at least to 50%. In order to have a more complete picture, the range should extend somewhat further downward, perhaps to 35% or 40%.	PD03
17627	If the modeling is set up so that the seepage capture rate is not an input variable, then there must be a sufficiently robust probabilistic modeling of the variables that determine the seepage capture rate.	PD03
17628	A computer simulation of a natural process or engineering design cannot be expected to produce realistic results if it is based on unrealistic assumptions. The modeling process that is used must be based on assumptions that can be verified, and the modeling must include a range of values for each parameter that is wide enough to be realistic.	PD29
17630	PolyMet claims that 100% of the surface seepage will be collected. This is an unrealistic claim, and there is hardly any explanation at all relating to their plan for doing this	PD03, WR017, WR018, WR021
17633	Therefore, the SDEIS groundwater modeling must be re---done in order to provide estimates of the probable exceedances for individual pollutants.	PD03, WR059, WR060, WR173, WR177
17634	It is likely that the increase in predicted surface water pollution also would be quite substantial under more realistic assumptions. Therefore the SDEIS surface water modeling also must be re---done to reflect a range of values for the escape of surface seepage.	PD03, WR056, WR093
17635	Since the water quality modeling was based on unrealistic assumptions, it needs to be redone with the assumption that important parameters – especially the hydraulic conductivity of the slurry wall – are probabilistic parameters rather than determinate parameters.	PD29
17636	The range of values for the hydraulic conductivity of the slurry wall must reflect actual site conditions, including accurate information about the geology of the site. Realistic allowances also should be incorporated relating to the escape of surface seepage, to provide a more complete picture of the effects of Tailings Basin seepage.	PD07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Joel Roberts (42887)	
18369	In the case of the Flotation Tailings Basin, the claimed value of the hydraulic conductivity for the cutoff wall is smaller than the average value cited (in Table 3-1 of PolyMet 2013f, Att. C) for the nearby surficial deposits by a factor of 2x1o-s (or 0.00002)...no explanation is given for the choice of theseparticular values of hydraulic conductivity for the cutoff walls.	WR072
18378	[there are] several sources of uncertainty in the performance of the slurry wall, and therefore in the overall performance of the seepage containment system. Accordingly some form of probabilistic modeling should be used instead.	WR022
18385	PolyMet's assumption of the capture of nearly all seepage may have been necessary in order for the modeling to show compliance with water quality standards, and conceivably could be an unstated explanation as to why the modeling was deterministic rather than probabilistic.	WR022
18386	The bedrock is granite. This effectively rules out the possibility of keying the slurry wall into the bedrock.The presence of the boulder-rich Rainy Lobe till under the surface also presents difficulties for slurry wall construction. In particular, if a large boulder is encountered during the excavation, it could prevent the trench from even reaching the bedrock.	PD07
18387	Since everyone agrees that boulders and cobbles are present at the Mine Site and also at the Plant Site, it is not dear why PoiyMet now has chosen to follow a slurry wall approach which they rejected in 2007.	PD07
18389	There are discrepancies among the various descriptions of this construction in the SDEIDS and the relevant references. These should have been resolved before the SDEIS was released.	EDIT01
Sender Name (Submission ID)	Joel Vlaminck (40742)	
6676	I don't want our state's water sources being polluted for generations to come. Without a plan in place for proper clean-up, I'm concerned of the irreversible damage that will be done to the surrounding ecological systems.	HU01, WR115, WR195
14045	For the benefit of current and future Minnesota residents, please insist on a more thorough plan for keeping the waters safe and clean. If it isn't possible or feasible to keep the waters clean with this mining project, then it shouldn't be done.	NEPA15
Sender Name (Submission ID)	Joel Weisberg (45191)	
11195	It is especially unrealistic to expect that the polluted water flowing from the site will be environmentally monitored and treated "in perpetuity," or even "for 500 years," which would be required according to numerous studies (e.g. DNR Fish and Wildlife).	WR037, WR129
11197	The SDEIS environmental study suggests a number of practices that would be harmful to the environment, including dumping the enormous amount of wastes into unlined pits that would leach dangerous chemicals into the water, harming streams, wetlands, and fisheries; while containing insufficient detail in other cases to determine whether or not the proposed practices would be harmful.	AQ05
Sender Name (Submission ID)	Johann Chemin (9752)	
292	500 years of pollution legacy is not worth 20 years of labor	SO01
1380	Who will foot the bill for the 500y of cleanup when the company folds (because it will, like everything): Minnesotans!	FIN01
1381	There is more money and jobs to create by promoting tourism than by polluting. Also, who will want to visit the area if it is polluted, what are going to do the people working off tourism?	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Johannes Donaubauer (46097)	
10793	…everybody who trusts polymet should consider the fact that as fast this company appeared to make that amazing deal, as fast it will disappear if it comes to cleaning up the mess…	FIN01
Sender Name (Submission ID)	John (36772)	
14412	Exposing sulfides in a moist environment produces acids, which acids in the water, besides being polluting in and of themselves, also leach heavy metals from the surrounding rock, which poisonous metallic compounds also enter the runoff waters. And the process continues as long as the exposure remains. i.e. for at least centuries, until all exposed material has been fully extracted.	WR001
14413	Containment [of acid runoff and heavy metals leaching in sulfide mining], even for relatively short time spans is difficult and expensive, if not impossible, and over the many years of continued hazard the possibility of continuous containment is merely wishful thinking.	FIN01, WR037
Sender Name (Submission ID)	John & Betsy Flaten (24)	
1779	We believe the ecological and environmental degradation from Polymet's Northmet mine, were it to be permitted and operate, would become pervasive throughout Northeast Minnesota, not just within the St. Louis River watershed.	CU11
1780	We have grave concerns with fugitive releases into the air of particulate from the vast waste rock the mining operations would produce which, in turn, will result in increased acid rain emanating from the mine sites in all directions.	AIR10
1782	We believe remediation of this environmental impact is not adequately addressed in the SDEIS.	PD29
1788	the references above to 500 years of needed water table remediation is simply using Polymet's time frame… the needed remediation would be perpetual. The SDEIS does not explain how these remediation costs can be determined and secured.	FIN01, FIN05
1790	the net value of the copper, nickel and other minerals at the time of extraction from the proposed Northmet mine can never be great enough to pay for the cost of perpetual remediation.	FIN01, FIN05
1811	Undeveloped cooper and nickel resources exist elsewhere in the world in arid and semi arid environments. The copper and nickel resources in Northeast Minnesota's water rich environment may be needed some day, but, we believe, not for the foreseeable future	NEPA03
Sender Name (Submission ID)	John & Debbie Woerheide (10407)	
532	We certainly hope that ore processing at the Polymet mine site is not part of the plans, because no matter how much scrubbing of the air takes place, the prevention of air pollution is impossible.,	AIR11
534	If there is even the remote possibility of water pollution as a result of the Polymet open pit metals mine, we are totally opposed to such a development.	WR195
538	The creation of jobs, and economic influence of such a development is so far over shadowed by the possibility of water or air pollution that the development can not be allowed to proceed. There is just too much at stake here in the Arrowhead Country.	SO01
Sender Name (Submission ID)	John A Gruber (42859)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John A Gruber (42859)	
8837	I'm sure many citizens are expressing disapproval of the obvious threat [from the Polymet project] to our water and boreal woodland environment. The leaching of mercury from waste rock that is far beyond our water quality standard; the questionable scientific calculations of water movement carrying sulfates; the inconceivable amount of years that contaminated water must be treated by an expensive mechanical process; the enormous potential loss of wetlands (how is that 'mitigated'?) which naturally help keep the ground water, and Lake Superior, 'clean'...these are	MERC20, PER26, WET05, WET24, WI02, WI03, WR005, WR035, WR126, WR189, WR195
8837	I'm sure many citizens are expressing disapproval of the obvious threat [from the Polymet project] to our water... The leaching of mercury from waste rock that is far beyond our water quality standard; the questionable scientific calculations of water movement carrying sulfates; the inconceivable amount of years that contaminated water must be treated by an expensive mechanical process..these are serious issues.	MERC20, WR005, WR035, WR126, WR189, WR195
8842	The State of Minnesota has declared a pro-active sentiment and established greenhouse gas reduction goals for 2015 and 2025…It is calculated that Polymet would contribute 0.44% of our state's greenhouse gas emissions in exchange for employing approximately 0.012% of Minnesota's workforce (assuming the jobs promised to Minnesotans actually are given to Minnesotans). How does 'permitting' this industry comply with our state’s stated goals, goals which are already unlikely to be met?	AIR01, PER32
8842	The State of Minnesota has declared a pro-active sentiment and established greenhouse gas reduction goals for 2015 and 2025…It is calculated that Polymet would contribute 0.44% of our state's greenhouse gas emissions in exchange for employing approximately 0.012% of Minnesota's workforce (assuming the jobs promised to Minnesotans actually are given to Minnesotans). How does 'permitting' this industry comply with our state’s stated goals, goals which are already unlikely to be met?	AIR01
Sender Name (Submission ID)	John and Barb Bottger (42277)	
6921	The [environmental] cost is just too great.	SO02
14255	This proposition is neither environmentally or financially feasible. It is a huge wake up call to Minnesota to support U.S. companies that are engaged in technology using renewable resources.	NEPA15
Sender Name (Submission ID)	John and Karen Legenhausen (40804)	
14013	Encourage recycling electronics to get the minerals we need for our greedy lifestyle and save our waters.	NEPA06
Sender Name (Submission ID)	John and Kay Buzza (4782)	
1893	Any such mining for which the clean-up might take hundreds of years is unacceptable.	WR195
Sender Name (Submission ID)	John and Patricia Telfer (54841)	
18947	I cant remember any mining project that didn't require the tax payers to pay for the cleanup after the goodies were gone….Who will be around for 100-500 years to maintain the site? Experience says tells us it won't be PolyMet mining.	FIN01, FIN10
Sender Name (Submission ID)	John And Robin (43557)	
15521	I'm not sure that all angles have been explored, such as effects on our health, particularly cancer.	HU01, HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John And Robin (43557)	
15523	I am worried about the toxic pollution (sulfuric acid) that the mine will create and the long-term effects of this pollution, such as the ongoing costs to generations of Minnesotans for its clean-up, as well as the damage to the animals and plants in the area.	VEG06
15525	I think it is a foolish way to use our resources in this way, since tourism is a huge industry for northern Minnesota. Destroying natural resources for only 350 jobs doesn't seem wise. The relatively small number of jobs created does not off set the 200 plus years of toxic run off and clean up that will need to be done to mitigate the damage th emine will do.	SO02
15526	What about water quality to nearby rivers and eventually to Lake Superior?	WR111
Sender Name (Submission ID)	John Anderson (15726)	
11419	I believe that the MN PCA, EPA, and USACE should not issue water quality permits. It is not proveable that impacts to water quality can be avoided or mediated should Polymet mine be developed.	GEN01
11422	The principle that a given project should not proceed because of potentially adverse public health issues applies in this case	HU03
Sender Name (Submission ID)	John Badger (15644)	
11231	How will the tailing pond protect ducks from landing on it?	WI01, WI04
11239	The study indicates no nesting eagles but a local person who lives there says there is. Is there endangered plants or animals living there?	WI01
11242	I don't see any plan for tailing pond failure. Needs to be addressed.	WR132
11244	Also put in EIS about planned expansion limits due to existing site limitations and address new mines accumulative effects.	CU02
Sender Name (Submission ID)	John Becker (43589)	
12441	What is the breakdown of the cost analysis used to arrive at the figure of $200 million for the 200 to 500 year (perpetuity) water monitoring and treatment cost? The DNR will also need to explain how they are going to manage those funds for "perpetuity".	FIN01, FIN05
12444	Since this project is a site renovation, becoming a mining operation, and reverting to a site remediation, why is there no mention of any effort to achieve a LEED certification? Not only would LEED certification demonstrate a commitment to the environment, it would serve as an example of how the mining industry and environmentalists can work together in a non-adversarial relationship.	PD39
15486	Going forward, the Partridge River analysis should be redone prior to any permitting process. Without it, that oversight may be indicative of the way the entire project will be managed.	WR003
15487	Current climate models indicate a warming climate trend; what criteria will be used to address the remediation of the landscape, not just when the mining project is finished and shutdown in 20 or 25 years, but so the landscape plantings are viable at the at 50 year mark and beyond?	PD22
15488	If severe drought were to affect the region during the time span of the mining project, depleting the available water resources required, what is the secondary resource and how does that affect the existing treatment plan? ...Conversely, how is excessive groundwater runoff to be managed in the event of two consecutive years of exceptional snowfall with one 500 year rain deluge in between?	WR180, WR181, WR188

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Becker (43589)	
15489	Why has no effort been made to incorporating solar and/or wind energy produced on site, as well as a minimum requirement for the use of Minnesota produced bio-diesel?	PD39
15490	Since the MPCA announced yesterday, March 12, that further studies and analysis are necessary before new sulfate standards can be applied, it would be in everyone's best interest to delay the permitting process for the PolyMet project until those standards are enacted, so that PolyMet can alter their manufacturing processes accordingly.	PER10
Sender Name (Submission ID)	John Brainard (40096)	
6457	1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment.2) Revise the SDEIS to address Minnesota Rules 6132.3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free."	PER04
Sender Name (Submission ID)	John Buschette (18230)	
13573	it's really short-sighted to try to create 50 to 100 jobs or even a couple hundred jobs that will last for 20 years and then destroy the environment to the point where it loses thousands of jobs in the tourism industry, destroying fishing, camping, hunting, other kinds of tourism activities, so that thousands of jobs there will be destroyed for 500 years,	SO01
13574	and the mining companies have had the same track record everywhere they've been where they set up a subsidiary, give most of the money to their overseas parent companies, and then when they're close to the end of the mine, they spin it off as an independent company, that company declares bankruptcy and the people who live there are stuck with hundreds of years of bills in the billions of dollars trying to pay for the cleanup.	FIN03
Sender Name (Submission ID)	john case (40118)	
16366	I am opposed to the proposed PolyMet because of the risks to the lake Superior watershed.	WR111
Sender Name (Submission ID)	John Clifford (2101)	
104	[How do we know] how much it might cost to carry out 500 years of remediation in the interconnected waterways of Northern Minnesota?	FIN01, FIN05
Sender Name (Submission ID)	John Coleman (GLIFWC) (48559)	
16540	It appears that the SDEIS Goldsim modeling is based on MODFLOW modeling of an old basin design that was deemed fatally flawed and is not modeling of the currently proposed basin design.	WR094
16541	Careful examination of the scant information in the above referenced Attachment A (2011) indicates that the modeling done in 2011 for that attachment was not of the basin as currently proposed. The footprint modeled for attachment A is the footprint of an early basin proposal from 2007 (2007 basin footprint attached) that was supplanted by the basin design developed during the "Mitigation Options" process of 2008.	WR094
Sender Name (Submission ID)	John Crampton (39091)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Crampton (39091)	
12092	The constant alteration of drought and flood conditions caused by climate change in Minnesota could put strains on the whole water treatment process which wasn't even taken into account in the SDEIS's water modeling (which didn't even taken into account the seasonality of flows in the rivers, streams, wetlands and groundwater) The model which put the flow of the Partridge River at 1/3rd of its actual flow is not fit to be the basis for predicting needs to treat water pollution under climate change scenarios for the next 500 years!	WR003, WR077, WR091, WR148, WR176, WR180, WR196
12629	Almost all of the examples of technologies that PolyMet provides are from dry climate hard rock mining in Utah, Arizona and Montana. There are no actual real life examples of sulfide mining being done in an environmentally-safe manner in water-rich environments.	WR023
12634	The PolyMet SDEIS does not provide any contingency planning for catastrophic occurrences, other than mantras about “adaptive management.” What will PolyMet do if there’s a 10”-12” in three hour rainfall like there was in Duluth on June 19-20, 2012? What will they do when this overwhelms the pumps and pipelines and treatment facilities and floods the tailings ponds?	WR202
12636	What will PolyMet do if there is a prolonged drought? Or a straight line wind storm as there was in the region in July, 1999 with winds in excess of over 90 mph that knocks out power to the site or damages water treatment facilities?	WR202
12639	The PolyMet project will be a huge generator of carbon emissions from fossil fuel sources, thus hampering Minnesota’s efforts cut harmful greenhouse gas emissions. By destroying or degrading thousands of acres of wetlands and forests, the PolyMet project will decrease the significant carbon sequestration that these valuable forests and wetlands provide.	AIR01
12644	The PolyMet SDEIS does not adequately consider alternatives to open pit sulfide mining such as underground mining. It doesn’t adequately consider the alternative of backfilling the open pit to benefit long term water quality.	ALT06
12645	Why is there no formal public health impact assessment being done by the Minnesota Dept. of Health for this project?	HU01
12648	PolyMet’s claims that no asbestos-like fibers will be released are unproven. These fibers, over long periods of exposure, cause mesothelioma, a form of fatal lung cancer that is very common on the Iron Range because of the releases of these fibers from other mines in the area. The cumulative effect of the PolyMet mining project will be to add more releases of these fibers into the air and water of the region.	AIR03
12673	The so-called economic benefits of PolyMet sulfide mining project are exaggerated and the costs grossly undervalued in the SDEIS.... The main question that the SDEIS does not address, is what negative impacts will sulfide mining in Northeast Minnesota have on tourism, on small businesses, on service and/or tech industry employment, new business formations, and on the future economic diversity and sustainability of the NE Minnesota area?	SO02
17182	The surface water flow calculations for the Partridge River underestimate the baseflow conditions by a factor of 3. This is a fatal flaw since the computer model calculations of water flow are at the heart of hydrological estimates of the flow through the mine, tailings ponds, pipelines, water treatment facilities. Will PolyMet need to make the water treatment facilities bigger? Will they have to treat the water for 1,000 years or 2,000 years or forever? We can’t tell because all the calculations are derived from a water flow model based on inaccurate data. The SDEIS should be completely redone or rejected for that reason alone.	WR165
17183	PolyMet is proposing to mine for twenty years and then leave to the next 20 generations of Minnesotans the task of keeping its ...technologies running at a high levels of performance (and without any financial assurances) in order to ward off disastrous acid mine pollution dumping into the Partridge, Embarrass, and St. Louis Rivers and ultimately Lake Superior, the world’s largest body of fresh water. The risk of this is far too high. For this reason alone, the PolyMet project should be rejected.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Crampton (39091)	
17185	Mark Seeley…member of the DNR Working Group on Climate and Ecology predicts that the Boundary Waters area will be an oak savannah biome by the end of the 21st century. This unprecedented change in rainfall and climate caused by greenhouse gases will result in a large probable increase in severe weather events ---- floods, droughts, more severe storms, increased fracturing of bedrock caused by deeper and more frequent freeze-thaw cycles. How will this affect PolyMet's proposed liners and slurry walls and other engineered controls in the mine and tailings ponds that may already be inadequate to the task of sealing off the seepage and leaching of toxic pollution into the many fractures and fissures in the rock formations underlying Northeast Minnesota?	WR128, WR180
17186	The PolyMet project will destroy 1,000 acres of high quality, high biodiversity wetlands. PolyMet's open pit will totally destroy a pristine, high value wetland... The proposed mitigation is restoring old sod farm fields in Aitken County to make old ditches "swampier." ... these so-called "restored wetlands" will not adequately replace the function and value of the destroyed real wetlands, and they will be in another watershed. PolyMet will also indirectly impact another 6,000 acres of high quality wetlands that will be seriously degraded through hydrological changes and pollution. ...the Army Corps of Engineers should require equivalent mitigation in acreage, location, function and value of both direct and indirect wetland impacts	WET01, WET03, WET05
17187	The PolyMet SDEIS does not adequately address the harm that will be done to wild rice throughout the region even with the proposed engineered controls. To comply with the wild rice sulfate standards all engineering controls that capture and treat water will have to function perfectly for hundreds of years, which is neither reasonable nor realistic.	VEG04, WR115, WR157
17188	How many of the 360 operating jobs will there be if the 2nd PolyMet processing plant is not built? Of these remaining 300 or so jobs, how many will be full-time and how many will be seasonal? How many will be decent, benefits-paying jobs?...If the history of mining is any guide, automation will chew away at any operating jobs there are in 2017 so there will be half that number in a matter of 10 years	SO01
17189	The SDEIS predicts that the PolyMet project will increase overall employment in NE Minnesota by 1% But how many jobs and small businesses will be destroyed or not created because of negative perceptions of people who might want to come to the area but are turned away because of sulfide mining's terrible impact on the natural environment and livability of the area?	SO01
17190	areas that are dependent on mining and other extractive industries have higher unemployment, a higher degree of socio-economic problems, and lower quality of life than non-boom-or-bust regions. ...it is a battle between the old, dying, largely-automated mining economy vs. the new economy based on sustainable, livable communities.	SO01
17191	The Financial Assurance section of the PolyMet SDEIS is a very short exercise in double-talk and deception that fools no-one except those who are willing to be fooled. PolyMet is going to talk about financial assurances only at the time of permitting once it has passed environmental review? Nonsense!!!	FIN01
Sender Name (Submission ID)	John Doberstein (18364)	
2542	And I would please ask that we reevaluate the 500 years of proposed water treatment needs to be addressed. And it is not adequate. It says that it will happen. It does not say how that will be funded, how it will be paid for...I feel that should be part of this supplemental draft so that the public, the potential entity that will shoulder the responsibility of this cleanup, the public, that we have a chance to comment directly on what the plan is and the cost. How much is this going to cost? What is the dollar amount? How can we do it?	FIN01, FIN05, FIN08, FIN13
2543	And there is also no contingency plans outlined for expected accidents that occur at all mines of this type. Mishaps such as pipeline spills and accidental releases, failures of water collection, and treatment systems, tailings and basin failure.	PD22, WR130

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Doberstein (18364)	
14662	During operations 6.2 million gallons of polluted water a day will be treated. The mining plan does not describe what will happen if the water treatment plants break down. And I would like to see more addressed in that realm.	PD22
Sender Name (Submission ID)	John Dregni (42874)	
8998	The water resources of our state have an unimaginable value both in am monetary sense and to the health and lives of Minnesotans. I suspect that if we decided to sell life sustaining water in large quantities, the value would make copper and nickel mining pale by comparison. To protect that natural resource will require care. Mining appears to pollute the natural water resources of Minnesota.	WR195
8998	The water resources of our state have an unimaginable value both in am monetary sense and to the health and lives of Minnesotans. I suspect that if we decided to sell life sustaining water in large quantities, the value would make copper and nickel mining pale by comparison. To protect that natural resource will require care. Mining appears to pollute the natural water resources of Minnesota.	SO01, WR195
18067	Mining appears to pollute the natural water resources ofMinnesota.	WR107, WR108
18067	Mining appears to pollute the natural water resources ofMinnesota.	FIN16, FIN17
Sender Name (Submission ID)	John Eckfeldt (39757)	
6430	In my mind, there is no question that sulfide mining will bring great risks to the water quality and lands in northeast Minnesota.	HU01, WR195
6431	In my mind there will be associated risk to the health of those living in the area and those downstream in the watershed	HU03
6432	PolyMet's pollution mitigation proposals are vague and very well may not work as planned.	PD01
6433	I believe that the only way to assure containment of this potential pollution is to require PolyMet to put funds in escrow or supply bonds for potential cleanup costs. I am not a mining engineer, but from what I've read the annual operating costs for some of the proposed water purification systems (reverse osmosis) might be several million dollars per years and cleanup costs should a containment system malfunction could run in to tens of billions of dollars.	FIN01, FIN05
6434	If PolyMet want to mine in Minnesota, [this] will clearly put Minnesotans at risk if their containment schemes fail to work as expected	HU07
6436	If PolyMet want to mine in Minnesota…require them to provide concrete financial assurances before they start, not after they pollute the groundwater and watershed and "skip town."	FIN01
8317	PolyMet's pollution mitigation proposals are vague and very well may not work as planned.	PD01
8322	I believe that the only way to assure containment of this potential pollution is to require PolyMet to put funds in escrow or supply bonds for potential cleanup costs.	FIN01, FIN08
11558	I am a professor of Laboratory Medicine and Pathology at the University of Minnesota in Minneapolis, I also own a home in Isabella, Lake County, MN… there is no question that sulfide mining will bring great risks to the water quality and lands [and health impacts] in northeast Minnesota.	HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Eckfeldt (39757)	
11562	I believe that the only way to assure containment of this potential pollution is to require PolyMet to put funds in escrow or supply bonds for potential cleanup costs... If PolyMet want to mine in Minnesota, which will clearly put Minnesotans at risk if their containment schemes fail to work as expected, require them to provide concrete financial assurances before they start, not after they pollute the groundwater and watershed and "skip town."	FIN01, FIN08, FIN10
16318	there is no question that sulfide mining will bring great risks to the water quality and lands in northeast Minnesota. In my mind there will be associated risk to the health of those living in the area and those downstream in the watershed….	HU03
Sender Name (Submission ID)	John Engel (42835)	
7335	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US Dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range.	SO10
7335	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US Dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range.	NEPA16, SO10
Sender Name (Submission ID)	John F Miller (47618)	
7267	[The project] will provide a much needed economic impact to the Iron Range communities.	SO10
Sender Name (Submission ID)	John F Wetzel (42872)	
14868	The NorthMet Project affects at least 6,600 acres including mature forest, floodplain and wetlands. Will the lost acreage be replaced with equal quality lands? If not, will North Met be required to compensate the Forest Service for any loss of biodiversity that is not equally replaced? The SDEIS does not adequately address habitat and forestry losses, subsequent impacts and compensation. It needs to be considerably strengthened in these areas.	VEG03, WET14, WI02
14869	Direst wetland losses are over 900 acres with another 7,000 likely to be impacted as a result of interference with water flows or pollution. However, I understand that only the 900 acres are being compensated or replaced and most of these replacements will be outside the affected watersheds. Are the 900 acres being replaced with comparable wetlands? Why isn't compensation being proposed for the other 7,000 acres?	WET01, WET03, WET05
14870	As a biologist who has worked with wetlands and waterfowl, I know how difficult it is to replace wetland losses with equal quality wetlands and the effects of wetland losses when replacement does not occur within the watershed. 1 find that the SDEIS does not adequately address wetland losses/replacements from a quality standpoint nor the total affects to the watersheds with most replacements being planned for outside the impacted basins. Until these lapses are corrected, the 404 permit should not be approved.	COE03, WET03, WET05
14871	In addition the MNDNR needs to provide the citizens of Minnesota a reasonable assessment of the full impact that are likely to occur with approval of this mine and plant. The North Met proposal will only be the start of applications as other similar deposits are scattered through this area.	PER07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John F Wetzel (42872)	
18075	The NorthMet Project affects at least 6,600 acres including mature forest, floodplain and wetlands. Will the lost acreage be replaced with equal quality lands? If not, will North Met be required to compensate the Forest Service for any loss of biodiversity that is not equally replaced? The SDEIS does not adequately address habitat and forestry losses, subsequent impacts and compensation. It needs to be considerably strengthened in these areas.	NEPA08
18077	Direst wetland losses are over 900 acres with another 7,000 likely to be impacted as a result of interference with water flows or poltution. However, I understand that only the 900 acres are being compensated or replaced and most of these replacements will be outside the affected watersheds. Are the 900 acres being replaced with comparable wetlands? Why isn't compensation being proposed for the other 7,000 acres?	WET01, WET03, WET05
18080	I know how difficult it is to replace wetland losses with equal quality wetlands and the affects of wetland losses when replacement does not occur within the watershed. 1 find that the SDEIS does not adequately address wetland losses/replacements from a quality standpoint nor the total affects to the watersheds with most replacements being planned for outside the impacted basins. Until these lapses are corrected, the 404 permit should not beapproved.	COE01
18081	In addition the MNDNR needs to provide the citizens of Minnesota a reasonable assessment ofthe full impact that are likely to occur with approval of this mine and plant. The North Met proposal will only be the start of applications as other similar deposits are scattered through this area.	CU04
18083	I find it hard to believe that seepage from the tailings piles won't far exceed that predicted in the SDEIS. The tailings and overburden will need treatment for 200 years or more. What entity will be responsible to oversee such treatment? Should permits be granted for any project when such unrealisticoversight is needed?	PD08
Sender Name (Submission ID)	John Fedo (18092)	
3224	Terms like financial assurance and 200-year modeling are misstating the true nature of the project and are meant to be a distraction away from the orderly analysis are engaging in.	FIN16
13462	My whole point tonight is to speak in favor of the moving the PolyMet Project forward and to advocate based on the science and the facts that can make this project viable and not be deterred by well-funded opponents that are ironically funded, in some cases, by the wealth created by the very industry they now claim they oppose.	NEPA16
Sender Name (Submission ID)	John Finnegan (42797)	
6917	One area of concern is the federally protected Canada lynx. They say it wouldn’t be afford by their operation on page ES-42. But on page ES-39 they say it may be affected by localized direct decrease and fragmentation of designated critical habitat. I find this a contradiction and a very vague statement.	WI01, WI02
Sender Name (Submission ID)	John Flaten (11144)	
11017	the Mine and Project facilities, if constructed, operated and closed as outlined in the SDEIS, would, to an unacceptable extent, pollute our environment and quite possibly damage human health of those working there and residing in the Partridge River and Embarrass River watersheds and derivatively the downstream St. Louis River watershed... and in time the purity of Lake Superior and beyond.	HU03
11034	the “No Action Alternative” outlined in the SDEIS should be selected by MDNR, the US Forrest Service and the Army Core of Engineers (hereinafter, the “Co-Leads”), unless the Project can be restructured and re-engineered to substantially eliminate the resulting environmental and human health risks which, I believe, the SDEIS materially understates.	NEPA09

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Flaten (11144)	
11038	The SDEIS essentially describes all of the water containment systems that will be utilized in connection with the Project the same way and to the same 90% modeling standard. Read as a whole the language "greater than" should be disregarded. It is clear that the standard of "capture" for waste water treatment and environmental protection is 90%.	WR018
11039	is it all right and safe enough, in light of the hoped for returns to the people and communities of Northeast Minnesota, the State of Minnesota and the United States that 10% of the waste water from the PolyMet Project will escape capture into the environment? I think not. I can't escape the simple equation that over the expected 20-year Project life before closure, the 90% capture rate is just like operating the Mine and Project facilities for two (2) years without any waste water containment or treatment whatsoever.	WR070
11040	Of course, the relevant period is not just the 20 years that the Project will produce the sought after copper, nickel and other non-ferrous metals. The 10% release will continue in perpetuity, albeit with very gradually less pollutants should PolyMet's mechanical Reverse Osmosis ("RO") and non-mechanical filtering systems actually prove to be effective (though nothing on this scale has ever been done in connection with any non-ferrous sulfide hard rock mine anywhere in the world).	WR023, WR035
11044	What is perhaps even more disturbing is the recent public admission by a MDNR environmental review official that the flow rates of the Partridge and Embarrass Rivers, on which PolyMet's waste water containment modeling is based, may understate the flow rates by a factor of two to three (i.e., 200 to 300%). One of the tribal commentators suggests that the error may be as high as a factor of five or 500%. News reports suggest that the Co-Leads have been aware of this modeling error for a period of years.	WR003
11045	The engineered waste water containment systems are clearly among the most important environmental and human health protection systems required of the PolyMet Project. The waste water capture efficiency, in my opinion, should be as close to zero tolerance as can be engineered. A 10% escape factor is simply way too dangerous. If substantially 100% of all of the Project's waste water cannot be contained, treated and neutralized, the Co-Leads should select the No Action Alternative.	WR018, WR022
11046	the Co-Leads have already concluded that the substantially safer underground mine alternative is not reasonably economically feasible (though it apparently may be just 20 miles to the north in connection with the proposed Twin Metals project).	ALT01
11047	The possible flow rate error may mean that the 90/10 modeling standard is also incorrect and that a greater percentage of the Project's waste water, without re-engineering and re-modeling, can be expected to escape, thereby exasperating the environmental and human health risks to a woefully dangerous and unacceptable level. On this basis alone the Co-Leads cannot consider the SDEIS as presently written the basis for a final EIS.	WR003, WR018
11048	"Adaptive management" to monitored exceedences to which the SDEIS so often refers, will not suffice.	WR130
11049	As is the case with many other pollutants dealt with in the SDEIS, it concludes that "it is not expected" that fugitive dust releases will violate any Minnesota or federal water quality, air emission or visibility standards.	AIR10
11050	Notwithstanding the PolyMet Fugitive Dust Containment Plan (any real explanation of which does not appear to be set forth in the SDEIS), in my mind it defies credulity that the cumulative effects of these fugitive dust releases will not violate applicable standards at any time, from time to time or often.	AIR10
11051	At page 3-117 the SDEIS refers to probable maximum precipitation (PMP) rainfall events, but there are many other weather events which cannot be adequately accounted for by modeling (witness the derecho blow down storm in and around the BWCAW in 1999, the other squall, straight-line, wild fire and sustained high velocity winds we are now experiencing with climate change and tornadic and seismic events which most certainly will strike the Project site over time).	PD29

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Flaten (11144)	
11052	Whether water and air quality standards are actually violated does not mean that there will be no adverse environmental and human health impacts from the Project's fugitive dust releases. Depending on the particulate size and weight of the dust swept into the air, disposition may be within the Project boundary, into the Watershed rivers or carried by the wind in all directions many, even hundreds of miles of miles away.	AIR11
11053	Fugitive dust releases are already occasionally a problem from the operations of the taconite mines near the PolyMet Project area.	AIR10
11054	The fugitive dust releases from the PolyMet Project would be additive. The sulfides in the dust may result in harmful acid rain and/or acid drainage, including the formation of methyl mercury. Over time the adverse effects may well change our environment and lead to a panoply of respiratory and other human health problems. Here again the least offensive alternative is the No Action Alternative.	AIR10
11055	I have also reviewed the "Major Differences of Opinion" or "MDOs" expressed by some or all of the Tribes and other Cooperating Agencies in Chapter 8 of the SDEIS...In almost all cases I find the corresponding Co-Lead Response to be inadequate or not believable, especially where the Co-Leads say that monitored exceedences can be dealt with after the fact through adaptive management actions that could be taken.	NEPA12
11056	The Project combined actions described in the SDEIS have appropriately evolved from inputs by the Cooperating Agencies, with the advice of the USEPA and prior public comments to the Co-Leads. To a great extent the extended EIS period results from the complexity of attempting to undertake a sulfide hard rock mining project in the midst of a water rich environment where, in my opinion, just as with the Pebble Mine in Alaska, it should never be undertaken or even considered.	NEPA15
11057	The impatience of those awaiting the hoped for enhanced socio-economic development the Project would allegedly bring, be they local residents, municipal officials or the MDNR charged with maximizing the return on the States' natural resources, is quite understandable...PolyMet and Glencore have been and are the pacing factors. They appear to be seeking to design, construct, operate and close the Project at the lowest possible cost for the greatest profit and with inadequate regard for the environment and human health.	SO02
11058	This is not to say that the SDEIS is a complete failure or that the attempted Project is not a virtuous objective. They can perhaps be saved, but not without a great deal more re-engineering, re-modeling and effort by PolyMet and Glencore and the good faith and patience of the Co-Leads, all to fashion a final EIS that will protect and enhance the interests of the State and all of its citizens.	NEPA15
11059	I have no quarrel with the number of direct and indirect construction and Project operating jobs generally described in the SDEIS, except to say that the numbers pale in comparison to the diversified economy jobs added in the Arrowhead since iron ore and taconite mining started to decline in the 1960s. By some estimates that number may exceed 25,000, exclusive of many other direct and indirect tourism jobs, offsetting the loss of mining jobs to a very substantial extent.	SO02
11060	What I do quarrel with, however, whatever the numbers of PolyMet mining jobs described in the SDEIS, is that the numbers are not immediate, nor are they constant throughout the 23-year construction and Project operating life.	SO02
11061	Just as it takes far fewer miners to produce a ton of taconite today than it did 20 years ago, it will take far fewer and fewer PolyMet miners to produce a ton of constituent mineral products over the life of the Project. These jobs are not the permanent career path jobs portrayed by PolyMet in the SDEIS. Moreover, the SDEIS does not address PolyMet's commitment, if any, to retrain the miners it will lay off as miner productivity marches inevitably along.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Flaten (11144)	
11062	Most of the folks testifying at the SDEIS public hearings clearly believe PolyMet would hire most of its workers from the several communities located within daily commuting distance of the Project boundary, but this is not actually what the SDEIS says. Rather it says that PolyMet expects to hire a majority of its workers from within the Arrowhead region. Most of the Arrowhead is beyond a reasonable daily commute which means these folks will be disappointed. Moreover, it's not at all clear that most of the pool of potential workers within the nearby communities even have or will be able to acquire the necessary job skills and qualifications to be hired by PolyMet or the suppliers and providers to the Project.	SO06
11066	The SDEIS does not set forth the proposition of some non-ferrous mining proponents that tourism cannot support survival of the communities in Northeast Minnesota. However, the SDEIS does say that non-ferrous mining is not expected to adversely impact tourism in Northeast Minnesota. This is a disingenuous position, because all past mining history shows us that mining tends to become dominant where it is established to the detriment of a diversified local economy, in this case significantly including tourism.	SO02
11067	[E]ven more disingenuous is the assertion in the SDEIS that at the end of the 20-year Project productive life when job numbers fall toward zero and many of the workers must leave the area to look for work elsewhere, the tourism industry supported by the magnet retirement community will be on hand to step in to moderate the socio-economic adverse impacts to the mining communities.	SO02
11068	Many of my environmental concerns could be addressed by pursuing the underground mine alternative which could avoid many of the adverse impacts in the Watersheds. But since PolyMet and the Co-Leads have determined that this alternative is not reasonably economically feasible and must be eliminated from further consideration, I will not discuss it further except to say that, if engineered and developed properly, it might well be preferable to many opponents of the PolyMet Project as contemplated in the SDEIS.	ALT01, ALT06
11075	The SDEIS describes in some detail the reclamation and remediation procedures required of PolyMet before and after Project closure and estimates the costs thereof from $125 million to $200 million +. One tribal commentator estimates the same costs to be as high as $86 billion over the extended period that PolyMet and its successors will need to remain active. Just as I believe $86 billion is a vast overstatement, I believe the SDEIS in all likelihood significantly understates the true costs in today's dollars.	FIN05
11078	PolyMet and Glencore will have received most of their profits from the Project before their reclamation and remediation responsibilities even begin.	FIN01
11080	[R]eclamation and remediation costs are likely to approach the total profits realized from the PolyMet Project. That tells me that there is no way PolyMet or any successor can afford to perform as described in the SDEIS.	FIN01
11083	[C]onstruction of the much vaunted RO addendum to the Waste Water Treatment Plant is deferred to year 20 at the start of Project closure even though it could be well utilized much earlier. By possibly understating the water flow factor noted above, PolyMet is better able to defer the cost of the RO addendum for the full life of the Project.	PD03
11084	The SDEIS never says who will do the monitoring and reporting required by the SDEIS during and after the life of the Project, but it appears to me that these tasks will be performed by or on behalf of PolyMet, not the Co-Leads who will simply review and perhaps act upon or penalize exceedences.	PD24
11085	The SDEIS describes the required financial assurance instruments only in a general way, stating that the specific amounts and instruments will only be appropriately determined in the Project permitting process.	FIN08
11086	[T]he means by which discharge of PolyMet or its successors in bankruptcy might be avoided is not explained in the SDEIS. Perhaps it should be, at least in general terms.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Flaten (11144)	
11087	among the risks which must be addressed by the financial assurance instruments is the "failure of the mining company". This is the only such reference I noted in the SDEIS. All other references are to PolyMet as the mining company. ...the public can not trust in continuity of PolyMet management over time, because it is likely to change with ownership of the PolyMet Project assets. It is good that the SDEIS has identified this risk, but it should be developed to clarify for the proponents what the Co-Leads may understand to be the case.	FIN01
11089	PolyMet is a publicly owned corporation with an active trading market in its stock. The cost of build out and operation of the Mine and the Project facilities will require substantial additional public investment. It is unlikely that the required investment can be obtained without one or more public offerings...I frankly don't see how PolyMet can fashion a prospectus and registration statement for its required financing in compliance with applicable state and federal securities laws on a basis consistent with the SDEIS, and vice versa.	FIN14
11091	Should Polymet stock significantly decline in value, as it most certainly will at some near point to any such public offering, plaintiffs' lawyers will be lined up to sue for alleged damages for misrepresentations in the prospectus and registration statement. PolyMet and Glencore, if it can be found within federal jurisdiction, will be defendants, together with any other affiliate control persons who can be identified. Though sovereign immunities may apply, plaintiffs' counsel may well argue that the Co-Leads, by virtue of the final EIS and permitting of the Project, are proper defendants in such civil actions.	FIN03
11092	Please select the No Action Alternative so that our non-ferrous minerals in Northeast Minnesota can remain in the ground and our environment protected for the centuries it will take before, if ever, the United States needs them strategically.	ALT14
Sender Name (Submission ID)	John Gappa (40282)	
9696	The point of the matter is that given the significant length of time that remediation will be required, estimating the upfront investment needed to fund the remediation is highly uncertain and very small differences in assumptions have a dramatic impact on the total funding required. Moreover, the detail behind PolyMet's estimates must be disclosed in the final EIS in order for the public to assess the viability of remediation and necessary financial assurance.	FIN05, FIN08, FIN13
14147	I have struggled to figure out how the numbers can work with a model that has 20 years of benefits and hundreds of years of costs. My conclusion is that the only way the PolyMet model works is to inflate the benefits, underestimate the costs and shift the risks to someone else.	SO01
14149	What I also found is that the financial assurance model is highly sensitive to very small changes in inputs. For example, · A $1 million increase in annual operating costs results in a $37 million or 13% increase in the future value of funding required· A one percentage point decrease in the reinvestment or discount rate used results in a $83 million or 30% increase in the future value of funding required.· A half a percentage point increase in the inflation rate results in a $71 million increase or a 25% increase in funding required.	FIN05, FIN08
14154	Since Glencore is the primary beneficiary of this mine, they should be named on all permits and be directly liable to the State of Minnesota for all future remediation.	PER02
14156	My request to the scientists reviewing this project is to be wary of overestimated benefits and underestimated costs and risks. Once PolyMet and Glencore exposes the sulfur laden ore to the elements, Minnesota does not want to be facing our own "too big to fail" scenario, at tremendous cost to our taxpayers and to our environment.	FIN10
Sender Name (Submission ID)	John Green (16120)	
1238	Who would be responsible for this judgment [deeming facility features environmentally acceptable]? The Co-Lead Agencies (or their successors)?	PD24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Green (16120)	
1239	Will the final design and permits receive public review?	PD24
1256	Such potential expansion of mining [beyond the planned NorthMet pits] would be addressed in Chapter 6, Cumulative Effects.	CU02
1258	Why separate Categories for 2 and 3? Will they be mixed, or segregated, and why (in each case)?	PD15
1259	Why is there a need to capture the drainage from Cat. 1 stockpile if it is so low in S? Why else was the 0.12%S cutoff established? ... If the cutoff value were reduced to 0.10%S, would this eliminate the "necessity" to capture and treat seepage? Lowering the cutoff value to 0.10%S would increase the size of the Category 2/3 stockpile, but if no permanent capture and treatment is required wouldn't this dramatically lower the long-term post-closure costs?	PD15, WR134
1260	What is the experimental evidence for the long-term integrity of the geomembranes used in the waste rock stockpiles for Cats 2,3,4?	GT10
1262	Would peat beneath the [pit rim] dikes present stability problems?	GT06
1263	The WWTF would include "equalization and treatment basins/ponds". What is "equalization"? This facility is to be maintained "as long as necessary", including possibly adding to its capabilities if found necessary (perhaps including reverse osmosis, RO). Question: Hundreds of years?	PD04, WR032
1270	Reject concentrate from the WWTF to be evaporated/crystallized and disposed of offsite. Needs explanation: Where? How? By whom? Moving a pollutant elsewhere doesn't eliminate it.	PD03
1273	Water Management I recommend overdesigning for extreme weather/climate events or conditions (drought, 200 year precipitation event, snowmelt).	PD22
1278	Reclamation and Closure. Recommend: lime or limestone should (not "could") be added to East Pit as it is backfilled with Cat. 2,3,4 waste rock to help neutralize pore water.	ALT06
1279	West Pit: Question: Where is the rationale for flooding to a pond? No liner or bentonite? Won't the water react with mineralized pit wall rock? What is the predicted water quality of this water over time? Such pit lakes in other mining districts with sulfide mineralization are often highly acidic and toxic.	PD03, PD15, WR002, WR088, WR173
1281	Category 1: well-engineered cap with local soils, vegetation, and geomembrane to lessen infiltration – but hazard of long-term succession to forest in this climate, with deep roots that could penetrate geomembrane. Needs a discussion! Question: What is the risk associated with such root penetration over centuries? PolyMet plan is to cut woody vegetation in perpetuity, apparently! This issue needs to be investigated at depth.	VEG05
1284	Water Management (p. 3-72): "When all reclamation activities required by the Permit to Mine are completed, a Request for Release . . . would be submitted." By whom? In yr 2200?	PER13
1289	Post-closure activities "PolyMet has committed to conduct demonstration projects during the Life of Mine and Reclamation phases (total of est. 40 years) to establish non-mechanical water treatment systems to be used at the Mine Site." Comment: They should have started long ago! How will this commitment be enforced?	PD06, WR137
1292	Table 3.2-11. Why does the Concentrate dewatering output (660 stpd) equal the input? No dewatering after all?	PD03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Green (16120)	
1299	Table 3.2-12. Several chemicals will be used in the Flotation process that might be deleterious or dangerous if released to the environment (e.g. Flotation Collector (PAX), Frother (MCBC and DF250), Flocculant (MagnaFlox10), and Gangue Depressant (CMC). Questions: Where will these chemicals end up? In the tailings? Will there be release to the Embarrass River watershed? What is the toxicity of these materials?	PD03, WR030
1301	Tailings Management: Rock buttresses along north tailings basin dam seem much too small to be effective for stability. Comment: Re-do stability modeling?	GT03
1302	Hydrometallurgical process Comment: Description of process incomplete. How would the Au/PGE recovery produce a sulfide precipitate from the leach residue thickener overflow? How would the Cu concentrate be precipitated as sulfide?	PD21
1303	Table 3.2-13. Question: what will be the fate of the potentially noxious chemicals Sulfuric and Hydrochloric acids, liquid SO2, and Sodium Hydrosulfide? Same question as for flotation chemicals above.	HAZ01
1305	Hydrometallurgical Residue Facility Reclamation (p. 3-130)- Dewatering sounds complicated and difficult ... Questions: Slime? How will this be dealt with?	PD18
1306	Reclamation and Long-term Closure Management ... Revegetation also includes yearly mowing “or as needed”. Again, rationale for no woody succession? For 200 years?	VEG05
1307	Hydrometallurgical Residue Facility Reclamation ... Inspection for plugged inlet structures and piping systems (p. 3-131) also perpetual?	PD20
1311	West Pit Backfill ... Several arguments presented for not backfilling, but others not explained ... The economic factors (potential inaccessibility of mineral value; cost of moving waste rock for fill) seem to have trumped others.	ALT03
1313	[Silicate minerals would help neutralize some acid] Question: then why collect and treat seepage?	PD03
1314	Question. Is it the [MPCA standard] SO4 limit not the acidity that requires long-term treatment?	PD03
1322	Post-closure non-mechanical treatments … are “considered a long-term goal for closure”, and therefore should be thoroughly described and discussed well ahead of time (in the EIS).	PD06, WR137
1328	Question: does this also mean that the SO4 standard is the limit driving the whole seepage treatment plan? What dilution factor (from tributaries) is valid for the St. Louis River between the Embarrass River and Fond du Lac Reservation? And river rice beds upstream from the Reservation?	WR035, WR060
1331	Surface Waters. Hydrology ... What baseline information is available on “existing aquatic ecology”? It’s impossible to judge this “requirement” without known present conditions baseline.	AQ01, WR071
1349	Groundwater Hydrologic Modeling ... Question: Did anyone examine the miles of bedrock drillcore or core logs thereof for fractures?	WR014
1355	Surface water Hydrologic Modeling One input factor is a “rainfall database” (p. 5-45). Questions: How long-term is this? How sensitive is the model? Does it consider 200 years? Climate change? In Table 5.2.2-13, only the 20-year annual low and high flows are modeled. This EIS should be valid for MUCH longer.	WR071, WR077

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Green (16120)	
1358	NorthMet Waste Rock Geochemistry. PolyMet claims that "Within the pit walls the blasting effects (om fracture permeability) are limited in terms of lateral extent and do not have much effect on solute transport in bedrock". Question: What actual measurements support this statement? Any data – or a hunch?	WR167
1370	"Category 1 waste rock . . . is predicted to never generate acidic leachate" Question: Then why collect and treat drainage/seepage from the Cat. 1 waste rock and tailings?	PD15, WR134
1371	Question: Where would this material [Virginia Formation rock] be encountered in these pits? Virginia Formation not found on the pit cross-section diagrams. Would it be inclusions in the Duluth Complex? Would it be combined with Cat. 4 waste rock and disposed of in the East Pit, or how? Why isn't it simply included in Waste Rock Category 4?	PD15, PD31
1375	PolyMet states that "not all sulfide sulfur has the same potential for release" Explain, including management implications.	WR001
1378	On p. 5-54 the concept of "concentration caps" is introduced, on the basis apparently of empirical field and lab observations and relied on to minimize solute loadings of effluent in the modeling calculations. Question: what is the theoretical basis or rationale for such "concentration caps"? Is it a valid concept on which to base environmental standards?	WR033
1383	"...four solutes are assumed to be attenuated by adsorption in the aquifer: As, Sb, Cu, and Ni." … Question: Do the media through which these leachates pass never become saturated in these solutes? This seems unlikely. Therefore how can this adsorption process be counted on to act on the long term of this project?	WR058, WR167
1387	Modeling predicted much higher solute loads for many components than observed empirically, apparently due to adsorption, and models were adjusted correspondingly by "calibration factors" (fudge factors) to produce results closer to those measured. Comment: This should be explainable scientifically.	WR030, WR050, WR060
1388	Questions: What is the rationale for the size of the pond on top of the tailings? What is the basis for the rates of recharge given in Table 5.2.2-17? This certainly would be seasonably variable. Have weather/climate extremes been taken into account? Global warming? What is the "closure beach" as opposed to the others?	PD08, PD11, WR057, WR180
1393	Question: isn't [probabalistic modeling for contaminant transport] a big loophole for future enforcement? Of course, it also could be economically beneficial if long-term experience shows permit requirements to be stricter than necessary to maintain water quality. Can we trust Agencies to enforce the permits?	PER37
1399	What is [the West Equalization Basin]? What is its function?	PD04
1402	East, East-Central Pit to be flooded so waste rock and pit walls are water-saturated, reducing acid production. Questions: What will be the oxygen content of this flooding water? Won't it be at least initially oxidized as it contacts waste rock and pit walls? This will generate acid immediately. What do experiments show for this with time? How will the pore water in the pit be kept from diffusion or replacement by lateral infiltration of more oxygenated groundwater, thus continuing acidification?	WR029
1404	Will there be no surface overflow [in West Pit flooding]? ... Will there be no attempt to minimize reaction with wallrock sulfides? What predictions have been made for water quality in this unlined pond in mineralized rock? ... Add limestone? Bentonite?	WR027
1405	What modeling has been done for water balance in the Tailings Basin? Will pond require augmentation during drought? If so, where from? Or is this not important? If so, why not?	WR056, WR057

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Green (16120)	
1406	Possible modification of dikes and surface water flows [at Mine Site] "as necessary". Question: As necessary according to whom? Could high pumping rates of excess West Pit water exceed capacity of the WWTF?	PD04, WR148
1407	Using the "MN-fiber" definition would be a highly conservative standard, since in my experience the great majority of particles likely to cleave with that aspect ratio in igneous rocks such as the Duluth Complex would be hornblende, the most common amphibole and one that is not implicated in health issues (see list on p. 5-436-437).	AIR03
1408	Considering the intensive sampling that has been done of the rocks proposed to be mined, by drill core and for bulk metallurgical testing, the amphiboles should have been – and must be – identified to evaluate their potential carcinogenicity. Then any necessity for treatment could be better evaluated.	AIR03
1409	Again, a "small fraction of <2.5 micrometer fibers have been identified as amphibole" from flotation pilot testing. These should have been identified as to amphibole type. Questions: a) What is PSD (p. 5-440)? b) (last line p. 5-441) " . . . wet and minimize wind erosion."	AIR03
1411	What is the long-term (100 year, 300 yr) empirical basis for such [geomembrane] specifications, under saturated, in-ground conditions? Of course, great care must be taken in laying down these geomembranes to prevent punctures and local strains.	GT10
1412	what is the angle of repose for each [Category 1 Stockpile] lift? How is it to be determined for modeling/planning? Empirical observation during construction? Long-term stability?	GT04
1413	Stability analyses of stockpile cross-sections "indicated that all sections analyzed met the minimum required Factors of Safety". Question: What Factors of Safety are required?	GT04
1414	[Would the DNR] only monitor the waste cover [during monitoring/maintenance]? Not the face/flanks?	GT09
1415	[A Factor of Safety of 1.1 minimum for materials deemed subject to liquefaction] seems much too low!	GT02
1416	Will these small-looking [North and South slope] rock buttresses be large enough to confidently maintain stability post-closure? Where would the LTV tailings to be used in adding to the dams come from? The adjacent W cell?	GT03, GT08
1417	Modeling results for Factor of Safety during construction and long-term closure are given in Table 5.2.14-1; they appear adequate.	GT04
1418	Potential for this extreme hazard [liquefaction] was evaluated under various scenarios, showing that the "design would meet the minimum Factors of Safety deemed acceptable by the Co-Lead agencies" (see Tables 5.2.14-3, 5.2.14-4) However, those minimum Factors of Safety seem dangerously low to this reviewer.	GT02
1419	since these [NorthMet Project Proposed Action] tailings are supposed to be non-acid-forming, why is it necessary to keep them water saturated [in long-term closure]?	WR057
1420	Dam safety reports should be done more often than every 5 years.	PER21
1422	Actual possible physical modifications to the Tailings Basin in case of a problem are not described.	GT07
1423	Preparation includes installation of a granular drainage layer and wick drains, then temporary loading with imported material (What kind? Where from?) to compact the substrate and increase stability.	GT08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Green (16120)	
1424	Design Cross-sections … show waste to be underlain by potentially unstable saturated LTV slimes and fine tailings and peat	GT01
1425	Differential compaction would stress the liner system, but modeled strain would fall "within acceptable limits of most geosynthetics." (p. 5-575) Comment: need better assurance than this.	GT10
1427	Liquefaction analysis was not performed. Question: what is the strength of the HRF residue/waste? Might it not be at risk of liquefaction?	GT11
1430	Again, will the synthetic geomembrane and geocomposite drainage net deteriorate over the long term? With what effects on the Factors of Safety?	GT12
1440	The discussion of potential cumulative effects assumes the successful implementation of the best management practices and mitigation measures discussed throughout this SDEIS . . . " (p. 6-2). Comment: This is a too-restrictive definition	CU05
1442	Although the mineral resource projects listed here have not developed to the public proposal or scoping stage, a great deal of drilling, sample analysis and other exploratory work and engineering studies have been invested in many of them, and proposed development is likely within the active period (40 years?) of the NorthMet Project. At the least, this Chapter [Chapter 6] should show on maps the mineral holdings of each of the eleven companies or projects mentioned under Speculative Actions.	CU02
1443	This discussion appears to limit the CEAA to projects "located within the portion of the Mesabi Iron Range encompassed by St. Louis County (see Figure 6.2.2-1)" (p. 6-14-5) Since the NorthMet Project is geologically contained within the Duluth Complex, not the Iron Range, this is an illogical limitation.	CU01
1444	clearly the CEAA should also cover the area south and east of the Iron Range underlain by the Duluth Complex (outside of the BWCAW), and would include, for instance, the Twin Metals, Teck, Cardero, and Encampment projects.	CU01
1445	The farther-afield Kennecott Tamarack and Cooperative Mineral resources projects, located in Aitkin and Crow Wing Counties, would not appear to be spatially related to NorthMet. And the Cumulative Effects also clearly extend all the way down the main stem of the St. Louis River to St. Louis Bay.	CU01, CU02
1451	more analysis should be done on the surface impacts of underground mining versus the open pit plan. The benefits of underground mining may not be as great as claimed	ALT01
1453	[Regarding west pit backfill alternative] Where would this material (especially the water) be disposed of? Again, wouldn't this water be degraded (acidified to some extent) by contact with mineralized rock? What would be the water quality impacts to the receiving stream (Partridge R.)?	ALT03
1454	While adaptive management is essential, it depends on a high level of trust. Such actions could be necessitated well after the Closure period, and thus come under the responsibility of the State through Financial Assurance funding.	FIN01, FIN05
6866	[The authors] do not provide a map of the Sites of Biodiversity Significance or any detail on the criteria for the different levels of biodiversity significance. The omission of a map and criteria must be rectified in the final EIS.	VEG02
6867	Proposed mitigations for biodiversity loss should be part of this environmental impact study in accordance with the policies in Minn. Statutes 116D.02, Subd. 2.	WI01
17594	The NorthMet SDEIS PolyMet Mining Inc. Project fails miserably in analysis, alternatives and mitigation for most environmental issues raised in this document as will be documented in the myriad of public responses.	ALT21

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Green (16120)	
17605	The Land Exchange for the federal ownership at the mine site for other non-federal lands within the Superior National Forest (SNF) only compensates for the acreage of federally managed land lost. It does nothing to mitigate the actual loss of biodiversity function at the landscape scale.	LAN03
17606	Although biodiversity is not a USFS assessment requirement, the state of Minnesota, as a partner in this SDEIS, is not precluded from assessing the loss of biodiversity and wetland ecological function in this SDEIS, and should do so under the policies of the Environmental Policy Act.	VEG02, WI02
17607	Also mitigations for biodiversity loss are not even explored in any meaningful way, for example, through more protected public land, either federal or state, in designated areas like parks, scientific and natural areas, or wildlife management areas.	ALT13, VEG02
17608	Because substantive information about financial assurance was not covered in this SDEIS and was put off until the permitting process, the regulatory agencies must make the decisions about the amount and type of financial instrument needed in a transparent and accountable way. That means adequate public notice to all interested parties, particularly those that took the time to offer meaningful comments to this SDEIS, by establishing an electronic database of these interested commentators and giving them the opportunity to be on a timely notification list for all permitting steps.	FIN13
17609	...Polymet, a Canadian company, has no mining experience and their capital assets do not show any capacity to fund needed financial assurance. For these reasons, their largest shareholder, Glencore Xstrata, who ultimately controls PolyMet operations, must also be a permit holder for state and federal permits for the PolyMet NorthMet project.	FIN01, FIN02
Sender Name (Submission ID)	John Grillo (12959)	
106	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for	WR035, WR128, WR143
107	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
108	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	John Gustafson (47365)	
11402	the lifetime of the negative environmental impacts for the proposedmine far exceeds the economic viability of the mine	SO01
11408	no human or mechanical method exists to guarantee treatment of themine's pollution for the time beyond the economic viability of the mine. How does one guarantee that people four hundred years in the future will even know how to operate the water treatment systems, let alone will be able to afford to do so	FIN01
11411	the majority of the economic benefits of the proposed mine are shortterm and will flow out of the State, going to entities that have no interest or personal investment in Minnesota's livelihood.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Gustafson (47365)	
11413	If Minnesota is to have a long term sustainable economy, Minnesotaneeds to promote and emphasize potentially sustainable businesses like tourism, forestry and forest products, agriculture, renewable energy resources, and valued-added manufacturing rather than the short term extractive mining of low-valued bulk minerals. The viability of sustainable businesses will be negatively affected by the proposed Polymet mine.	SO02
Sender Name (Submission ID)	John Hadesty (57573)	
19564	Delaying projects like this could risk the availability of a qualified workforce. As coal mines continue to downsize, qualified miners are retiring or being retrained to take other career positions thus leaving projects like PolyMet to be forced to hire un-qualified, inexperienced miners.	SO10
19565	It will create a much needed boom to Minnesota's economy as miner's such as myself flock to your state seeking employment.	SO10
Sender Name (Submission ID)	John Haleeska (58105)	
19896	A [ILLEGIBLE] the people of Minnesota will have to deal with an unknowable cost for centuries vs a few jobs for a couple decades. The state would be crazy to allow this.	SO01
Sender Name (Submission ID)	John Harrington (16277)	
10477	I wonder if the federal agencies, especially USEPA, will be able to find the SDEIS adequate since it does not appear responsive to their prior review comments on inclusion of financial assurance adequacy.	FIN13
Sender Name (Submission ID)	John Helland (42941)	
11987	I'm worried about the number of wetland acres that will be permanently disturbed, as well as their biological quality. Significant wetland acreage is of unique quality in the state that simply can't be recreated by wetland replacement elsewhere.	WET07
11992	Because of acid mine drainage from an above-ground mine, and the resulting leaching of sulfides and sulfate into the water and air, I have a real concern that there isn't adequate watershed protection from these releases and subsequent pollution.	AIR09, WR128, WR129
11993	Geological studies in the area have shown that there is fractured rock, which could allow mercury pollution to be an eventual serious concern.	WR012
14509	The overall public health concerns with this type of mining, unprecedented in Minnesota, simply are not addressed in any serious or comprehensive manner. Our state Health Department already has identified northeast Minnesota as having a higher degree of health concern, especially for small children and vulnerable adults.	HU01
14510	Why couldn't this mine be an underground one?	ALT01
14511	There are just too many serious risks for Minnesota to approve this DSEIS in the march to issuing permits to mine.	PER35
Sender Name (Submission ID)	John Herbst (33031)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Herbst (33031)	
12179	Learn from the [historic mining legacy in Wisconsin]. This tailings pile would rupture its containment device before 100 years elapsed after mining operations ceased, and the company, would be long gone and difficult to get remedies in court. This sulfide mine will present long-term contamination issues...we don't need another failed attempt at siting a sulfide mine which will only give minimal assist to the local economy but will damage the region's long term economic stability due soil/groundwater pollution, impacts to recreational activity and environmental ruin.	SO02, WR023
Sender Name (Submission ID)	John Herold (42751)	
14438	Please consider the dangers posed by any sulfide mining in northeast Minnesota – the environmental damages and the lost tourism jobs.	SO01
14439	the cost of trying to keep the waters clean would be a financial hardship to taxpayers.	FIN10
14440	Fugitive dust emissions from Polymet's proposed mining will not be contained, and they will not be prevented. These emissions pose serious health issues, something that Polymet will cause and will ignore.	HU03
18958	Polymet's proposed mining will cost the citizens of Minnesota tremendous financial resources. For 500 years? How long do you think Polymet will pay for 500 years of water treatment?	FIN01, FIN10
Sender Name (Submission ID)	John Ingham (7765)	
850	Even with the best technology and state of the art methods for capturing sulfide. eventually, perhaps several generations from now, those chemicals will leach into the watershed and Lake Superior. The mining company is not going to take responsibility, even if it still exists as an entity, 100 years from now. And, even if it were to take responsibility, it would not be possible reverse the damage. No amount of money would compensate the people relying on Lake Superior for their potable water.	WR111, WR115
Sender Name (Submission ID)	John Ipsen (40880)	
10640	most of the money generated [by the mining operatins] will go to foreign investors whose environmental records are lamentable, that when the mines are exhausted there will be no more mining jobs, that the resources will largely be sent to overseas markets, and that the mining operations will be very energy intensive and are likely to pollute the environment and pose a risk to human health in workers as well as civilians in local and distant communities.	SO06
10646	Even if able to comply with the 10 mg/L sulfate standard, because of the huge volumes of water the process will produce, operations will actually discharge hundreds of tons of sulfate annually to the St Louis watershed. This will result in methylation of mercury in the St Louis that will bioaccumulate in fish of the estuary and in Lake Superior. ...The SDEIS is deficient in addressing this physical and biochemical reality.	MERC02, MERC08, MERC10
10651	PolyMet does not have a good enough plan in place to control dispersal of these [Amphibole] fibers from multiple fugitive sites. The SDEIS does not specify the actual amount of fiber that will be released and indicates the true risk to mine workers and those affected by the plume cannot be adequately assessed.	HU04
10654	During the lifetime of Polymet's proposed operations and cleanup there is a very real threat of major flooding occurring and causing overflows that could result in catastrophic exceedence of expected discharges. How has engineering dealt with the potential for what we know as a 500-year flood?	WR057, WR077, WR180, WR193
10658	And what of the potential for contaminating deeper aquifers, considering both natural faults and those created by the mining process?	WR012

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Ipsen (40880)	
14574	Having reviewed the PolyMet SDEIS I am left with the impression there are many uncertainties and a very real potential for Polymet (and the other planned mines waiting in the wings) to harm to the land and the public. ... The SDEIS in many places essentially directs the reader to have faith in what the co-lead agencies (CLAs) have concluded without providing adequate concrete and believable science to back the conclusions.	PD01
14578	has the engineering dealt with the possibility of serious drought? Having waste rock stored under water is one of the means proposed to limit the production of toxic leachate. The process intends to draw water from the surrounding wetland to keep the waste rock submerged. What would happen if water became so scarce there wasn't enough available to maintain coverage? Then what if flooding followed this?	WR077
14580	What I glean overall from reading the SDEIS is that the science behind Polymet's plans is imperfect and not adequately tested, and the real effects of going ahead with the proposed mine are not predictable enough for such a high-risk proposal. It is apparent from the presentation and language in the SDEIS that the CLAs have chosen to accept models that predict what they (the CLAs) hope to be the outcomes so the mine can proceed.	PD29
14582	The SDEIS points to a 90% confidence interval as an industrial standard. 90% certainty means 10% uncertainty. I am surprised to see such a low set of the bar, particularly when an error on the other side could cause a calamity that would be impossible to control and when so much taxpayer money is at risk (monetary assurance doesn't cover unforeseen disasters).	FIN08, FIN10
14583	I'd love to see an industry established in northern Minnesota that would provide quality long-term employment. I also appreciate there is a great demand for copper in the world. Currently the SDEIS does not show that we have developed the ability to mine hardrock metals without harm in this setting.	SO01
Sender Name (Submission ID)	John J Weber (54717)	
18508	Many profoundly-important questions have been raised about 1) the proposed mine itself, 2) waste-rock stockpiles and 3) tailings basin. Before "the genie is let out of the bottle", so to speak, wiser answers are needed than are currently available from applicant, DNR or mining industry. I contend that the gravity of the many unknown consequences at this point in time in 2014 heavily argue against granting a favorable E.I.S. conclusion at this time.	NEPA09
Sender Name (Submission ID)	JOHN KENNEDY (44317)	
10354	We stand to lose the beauty of the area, the wildlife, the health of the watershed, the clean air, and the ability of Tribal Nations to carry out their guaranteed rights to hunting, fishing, and gathering wild rice in the region.	LU06
11403	Simply stated, water is precious. As demand for drinking water increases due to population growth, global warming, and loss of other clean water sources, it would be unconscionable to put this source of clean and abundant water at risk.	WR195
15716	Think about it: Who at the United States Forest Service is authorized to "swap" our public land with mining companies?	LAN02
15717	These lands in the Superior National Forest were purchased under the Weeks Act of 1900 in order to preserve watersheds. Open pit mining is forbidden on such lands. To open these lands to sulfide mining would be a betrayal of the public trust and is clearly illegal.	LAN02
15718	Although they were forced to cede their lands to the invading miners and loggers, the native populations are guaranteed hunting, fishing, and subsistence rights on Ceded Territories. When we look at the impacts sulfide mining would likely have on wild rice, fish, and game, we can clearly see that these guarantees are meaningless.	CR01
Sender Name (Submission ID)	John Klein (16018)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Klein (16018)	
1131	When or where do we see the $ set aside for the environmental insurance?	FIN05, FIN08
Sender Name (Submission ID)	John Landgraf (18163)	
13320	most of the profits of PolyMet will go to people not in Minnesota...I would be more inclined ... if the money, actually the real profits the mining, went to Minnesota.	SO06
Sender Name (Submission ID)	John Lhotka (43080)	
14991	Our lakes and rivers are arguably one of our single most important assets, not only from a quality of life perspective, but also because tourism is a significant economic driver for northern Minnesota. I also am a property owner on a lake in the Ely area, so the decisions on the Polymet project may directly impact me, if it negatively impacts the watershed that flows through my lake.	SO01
Sender Name (Submission ID)	John Lindroos (48758)	
13349	No amount of financial profit (for companies, company executives or or hired employees) justifies or offsets the potential long term damage "sulfide mining " could have on the Northeast Minnesota environment. Any related Mining Process must be proven to be safe for employees, residents and the Environment.	SO01
Sender Name (Submission ID)	John Lowen (41715)	
3179	I think that to allow sulfide mining and its attendent pollution so very near the greatest source of freshwater in North America, virtually atop the tributaries to the few remaining wilderness areas in the upper midwest for the benefit of giant corporations and a fewhundred jobs is completly insane!	SO02
Sender Name (Submission ID)	John Lundquist (39413)	
7228	This is classic short-term thinking, i.e. we will have jobs now and for a relatively short time and risk one on the country’s most amazing natural areas for future generations.	SO01
Sender Name (Submission ID)	John M Ek (52481)	
17034	The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility.	PD17
Sender Name (Submission ID)	John M Roth (54492)	
18072	The PolyMet/NorthMet Sulfide Mining proposal, if allowed to proceed, would cause significant harm to our natural resources. It would reduce outdoor recreation opportunities and it would provide commercial benefits to veryfew at the expense of substantial losses to our sustainable quality of life. It violates the very essence of the Minnesota DNR's mission.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John M Roth (54492)	
18074	The proposed mine, furthermore, is in a highly valuable and ecologically significant region. It has nearly 1 ,000 acres of wetlands, thousands of acres of mature forest lands, and habitat for rare and threatened species, including the Canadian Lynx.(…) They are not for us to use at the expense of our children, or at the expense of future generations. And they certainly must notbe exploited by a few, the 350 or so workers for 20 or so years and a foreign corporation, at the expense of the rest of the state for generations to come.	SO01
18076	The proposal calls for the creation of a permanent two-mile wide waste rock and tailings pile filled with highly toxic manganese, arsenic, lead and mercury. In addition to the extreme risk of leakage of those toxins into the groundwater and air, the tailings pile and surrounding area will become an inhospitable wasteland, unsuitable for any outdoor recreation activities forgenerations.	WR126, WR195
18079	It must be further stated that PolyMet/NorthMet has not stated how it, much less future generations, will pay for the necessary water pollution treatment, which could be required for 200 to 500 years.(…) They have no plans for long-term pollution treatment, and they don't have the funds, and never will, to cover the costs.	FIN01, FIN05
18082	The Minnesota DNR cannot gamble with our natural resources or our future. It cannot subject our children and future generations to a polluted landscape and the costs for treating it. The DNA has a legal and moral imperative to protect our resources.	SO01
Sender Name (Submission ID)	John Mischke (42458)	
6797	There has to be other ways to help Northern Minnesota economically [other than the PolyMet project.]	SO02
Sender Name (Submission ID)	John Mugford (38629)	
9955	I do not think it is in the best interest for the citizens of Minnesota tobe responsible for future tax burden as a result of cleanup costs forpollution that will result from poly mets project...Financial assurances that need to be in place for 200 to 500 years have not ever been proven.	FIN01
9956	There is some discrepancy as to the amount of water being released from theproject. I would believe the tolerances were put into the model for a goodreason therefore it would make sense that the correct numbers be put in andthe model be rerun.	WR086, WR093, WR105, WR178, WR183, WR189
14073	The land swap between the forest service and poly met in my mind needs tohave its own separate review... The use of the national forest hasrestrictions put on it for a reason. We need to respect that and not put theneeds of a corporation ahead of the rights of the citizens of the UnitedStates.	LAN10
14074	I believe this harm will not only come to the earth but also would be damaging to the already established tourism environment of that area. This includes businesses as well as cabin owners… I do not believe that the current tourism economy and vacation home industry could flourish side by side with the nonferrous mining economy which brings pollution and greater industrialization to this unique part of our country.	SO02
14075	[The mine plan should] account for the destruction of moose habitat as well as other natural habitat for the Canadian lynx	WI02
14076	[The mine plan] should call for a detailed plan for financial assurances thatprotect current and future taxpayers	FIN10
14077	[The mine plan] should accurately assess health risks to the public	HU01
14078	[The mine plan should] address the risks of mercury pollution for our children as well as future generations	MERC03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Mugford (38629)	
14079	[The mine plan] should improve wetland protection and replacements	WET04
14080	[The mine plan should] provide Minnesotans with accurate information about how long polluted waters will require treatment	WR035
14081	Glencore must be recognized as a responsible party for permittingbecause of its ties with PolyMet	PER02
14082	Fix the inaccurate water data used in the model and redo the watermodel	WR003, WR189
14083	the few hundred jobs and monetary gain for a corporation is not worth the perpetual damage and pollution nonferrous mining will cause to Minnesota's environment.	SO01
14084	Our fresh water in Minnesota is the envy of many areas of the United States. Why on earth would we want to take any chances that it could be compromised. Our fresh water is our most Important and valuable resource.	WR195
Sender Name (Submission ID)	John Munter (41920)	
2520	The problem is that the mine becomes a superfund site requiring perpetual treatment for the run-off of antimony (similar to arsenic), sulfates, and heavy metals. DNR admits that the Mine Site will require water treatment for more than two hundred years and the Plant Site will require water treatment for more than five hundred years.	WR035
2576	The DNR seems more interested in preserving Polymet’s profit margin than discussing what should be a fundamental requirement of a study: the worst case scenario.	PER35
2577	It is a telling signal of the bias of the DNR that we do not know what the IRR would be for underground mining and the West Pit Back-fill option. Underground mining would have significant benefits such as no need to pay four million dollars in a land exchange, no need to destroy a wetland, and no need for perpetual maintenance.	ALT01
2578	It isn’t clear why DNR isn’t requiring Polymet to choose one of the underground or underwater sequestration options if this project is going to be done at all.	ALT01, ALT06
2579	It is difficult to see how all the tremendous rock blasting on the site won’t widen old cracks in the bedrock and open up new ones for toxic leachate to begin gradually seeping into the aquifer and beyond.	WR016
2580	The argument is that Northern Minnesota has always been an industrial area with some water pollution and some air pollution and we have to accept it for good paying jobs…	SO10
2581	Do we really want a good-paying job so badly in Northern Minnesota that we are willing to destroy the very reason why we are here? Is this something we can brag to our children about? Is this a job where we will lay awake worrying at night about the effect on our neighbors and our progeny?	SO01
3212	One of the problems, for example, is the DNR should require PolyMet to buy, not lease, the mineral rights for the south -- the west pit so that it can be back filled from that 20-story tailing pile and so it can be under water, then, when the financial assurance collapses at some point.	FIN08
3213	And the peak pollution won't happen in the sulfur mining -- sulfide mining for 500 years and then there's the downside of the Bell Curve after that. So it's in perpetuity, basically.	PD03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Munter (41920)	
3214	You cannot guarantee financial instruments for 500 years or a thousand years in perpetuity. It's going to cost $3-and-a-half billion -- $3-and-a-half million to $6 million a year for two water-treatment plants. That comes out to $1-and-a-half to $3 billion over 500 years, and of course, we're looking at 1,000 years.	FIN01, FIN05
13460	I'll be darned if I want my kids to work on a 500-acre, 20-story slag pile, superfund toxic waste site straddling the continental divide on wetlands surrounded by rivers over an aquifer at the headwaters of the St. Louis River Basin. I think this project is going to fail	SO01
16551	Even if the forty-six lbs a year of airborne mercury PolyMet creates during the twenty year mine is not judged to be a burden on a region where one in ten babies born already has too high a mercury level—there is a problem.	AIR04, MERC03
16556	Even if all the plastic is replaced regularly over the five hundred acre site, and all the leachate is collected from the twenty story tall reactive waste rock, and the pipe leaks are repaired quickly, and a fund is established by PolyMet to fund the two water treatment plants that will cost between three and a half to six million dollars a year—there is a problem.	FIN05
16560	Even if the estimated minimum sixteen million gallons of escaped toxic seepage a year into the ground and surface waters isn't considered a problem—there is still a problem.	WR113
16565	PolyMet seems to be thinking of spending something on the order of two hundred million dollars that would probably be set aside in some kind of a trust fund. Taking the high end of cost estimates by the DNR of six million dollars a year this would run out in about 40 years depending on how much interest was garnered.	FIN05, FIN08
16568	The biggest part of the problem is that to think that any funding mechanism could be guaranteed for perpetuity or even a good way towards it is insane.	FIN01
16576	Tribal experts have suggested design changes that would reduce potential toxicity exposure. One idea would be to require underground mining.	ALT01
16578	Tribal experts have suggested design changes that would reduce potential toxicity exposure...The other idea is called the West Pit Back-fill. This is also more expensive but the twenty-story tall and least reactive Category 1 rock pile would be completely back-filled into the West Pit which would then fill with water. This literally entombs the rock under water and away from the oxygen source of the atmosphere that it needs to become reactive.	ALT03
16580	DNR is hoping the fractures in the granite are small enough to prevent much leachate flow but they cannot know this because they do not have an adequate study and they cannot know what the future blasting will open up.	WR007, WR012, WR016
16581	If PolyMet can demonstrate that all the doom-and-gloomers were totally wrong in a short time frame and there has been no major pollution in the first two decades then they might push to open up more mine sites or others might and rent out the PolyMet processing facility.	CU04
16582	It is crystal clear, now, that we cannot trust the DNR to produce an unbiased study that looks for the most environmentally-friendly mining alternative, that is receptive to Tribal input, that looks out for the future of local residents, and that is even grounded in reality in proposing perpetual waste treatment.	NEPA15
16681	This is a nutty 'plan' when you are polluting ground water forever and presuming that financial instruments will be around in perpetuity to save downstream residents from perpetual pollution and that the cost of these financial instruments will never in perpetuity negate the value of the ore being mined for a few decades.	FIN05, FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	john Oertel (42889)	
9141	PolyMet has addressed all potential issues associated with the Supplemental Draft EIS, including all of those brought forward by State and Federal officials, employees and their consultants throughout the process. PolyMet has been working with regulators for nearly 10 years to ensure compliance.	NEPA16
9145	PolyMet's NorthMet Project has already provided a positive economic impact to the area and has given many communities hope as a source of good jobs.	SO10
9149	The NorthMet Project is sound and has mitigation measures in place to address the Project's environmental impact.	PD28
17646	The NorthMet Project will bring high-paying jobs to an area of the State that needs the long term work and continued economic development. The NorthMet Project will be a significant contributor to the economic impact of northern Minnesota.	SO02
Sender Name (Submission ID)	John P. Gorski (38866)	
5376	The Minnesota DNR, our Governor, State Representatives, Senators, and Congressmen have all committed themselves to the highest degree of environmental scrutiny…Questions persist about dust and particulates(asbestos like)drifting into the BWCAW.	AIR03
5377	Questions about the accuracy of aquifer mapping and water migration persist.	WR071
5378	Lastly there is great public doubt that contaminated waters can be contained for the many years needed to protect our cherished waters.	GEN01
Sender Name (Submission ID)	John Paulson (9632)	
1347	I support the SDEIS for Polymet's NorthMet Project and expect (as with all permits to operate within the State of Minnesota) there will be adequate requirements for operational controls that greatly limit the possibility of operational or accidental pollution	PER34
1348	I believe we are leading again with the NorthMet SDEIS, the process for public input, and the ongoing open and honest dialogue related to precious metals mining in Minnesota and the need for environmental protections.	NEPA16
Sender Name (Submission ID)	John PERKINS (10490)	
553	Get the real data and make an informed decision that is best for the environment AND the fiscal health of MN.	SO04, WR071
1149	Get the real data and make an informed decision that is best for the environment AND the fiscal health of MN.	SO04
16290	Get the real data and make an informed decision that is best for the environment AND the fiscal health of MN.	SO04
Sender Name (Submission ID)	John Plumadore (42731)	
14392	After reviewing the information from the recent draft mine plan, I have no confidence that the Polymet company can keep the surrounding watershed safe from pollution caused by the mine.	WR115
Sender Name (Submission ID)	John Pugh (9343)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Pugh (9343)	
128	PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever.	WR035
131	The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health.	PD29
132	The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed.	WR003
133	The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands.	WR064
135	The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number.	WR018, WR022
136	The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump	WR010, WR061, WR069, WR168
137	It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards.	WR038, WR071, WR110, WR130
1175	Why must we support the small communities through a short-term effort (20 years or less) of copper-nickel mining, which will result in long-term loss of environment (200 years or more)?	SO01
1176	This will impact not only the pristine waters of northern Minnesota but, over time, may impact our water quality down the Mississippi River basin.	WR111
1177	Northern Minnesotans are anxious for jobs and delusional over the possibility of mining and construction jobs. Polymet is promising high-paying jobs, but how many folks who live up there will actually be hired?	SO06
1178	Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever.	WR107, WR108
1180	The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts.	NEPA09
1182	The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streams.	WR003
1184	The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS.	WR120
1185	The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures.	PD29

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Pugh (9343)	
14725	The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge.	WR018, WR022
14726	The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards.	NEPA07
14727	Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science.	WR003
Sender Name (Submission ID)	John Quimby (41314)	
9315	Please use the utmost caution in approving any mineral extraction that would compromise either water resources or other environmental factors.	WR195
Sender Name (Submission ID)	John Reynolds (47520)	
7061	The [groundwater flow] model uses a base flow estimate which significantly underestimates flow. As a result, the model likely underestimates the amount of sulfates and heavy metals carried to the Partridge River and Lake Superior.	WR003
7077	Water channels which is what fractured bedrock is need to be closed to prevent the outward migration of heavy metal laden water…The fractures need to be sealed or the entire basin needs to be lined with peat in adequate thickness to adsorb the heavy metals to prevent their migration from the site.	PD04, WR090
7082	Adequate monitoring and mitigation procedures need to be in place and ready to go if monitoring shows migration from the site. That will require an ironclad financial commitment that is lacking on this project.	FIN01, FIN08
7095	Monitoring must be part of the permitting process. The permit must require a robust monitoring plan with financial assurances to fund it.	PER06
7097	The public should be afforded an additional 30 days to take into account the new information.	NEPA07
7102	If mineral rights are severed from USFS land swap the project needs to assume that mining will occur on those lands and that needs to be included in this permitting process instead of permitting this as a stand alone project.	LAN04
Sender Name (Submission ID)	John Roth (42900)	
10121	The proposed land exchange is totally flawed for at least two other reasons. First, land exchanges can only occur legally if the lands obtained by the Forest Service are in the public interest and their appraised value equals or exceeds the federal land being transferred.	LAN01, LAN03
12911	… land exchanges can only occur legally if the lands obtained by the Forest Service are in the public interest and their appraised value equals or exceeds the federal land being transferred. A land exchange, in fact, should not even be considered until a full "Yellow Book" appraisal of the lands have been completed and furnished to the public.	LAN03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Roth (42900)	
13018	"Land exchanges can only occur legally if the lands obtained by the forest service are in the public interest and the appraised value equals or exceeds the federal land being transferred.	LAN03
13030	A full "yellow book" appraisal of the lands must be completed and furnished to the public	LAN03
17294	I am asking you to reject the proposed exchange of 6,650 acres of Superior National Forest land for the PolyMet/NorthMet sulfide mine project. Sulfide mining has never been done anywhere in the world without causing significant water pollution... The mission of the Forest Service is to "sustain the health, diversity and productivity of the Nation's forests and grasslands to meet the needs of present and future generations." That is your charge as Supervisor of the National Forest. Exchanging land to allow a sulfide mine within the boundaries of Superior National Forest...would be a direct violation of the Forest Service's mission.	LAN02
17296	The needs of some people for the next 20 years cannot be given greater value or preference over the needs of the future. …the needs of... the country as a whole always should be given greater consideration. I think that the founders of the Forest Service all believed the same, since it is inherent in the reason for establishing and maintaining the National Forests.	LAN01
17297	...even if the appraised "fair market" values for the lands are comparable, the land PolyMet/NorthMet is offering is of insufficient ecological value. The 6,650 acres of federal land PolyMet/NorthMet is seeking is a single block of land that includes over 2,000 acres of mature forest and approximately 1,000 acres of irreplaceable wetlands. ... The federal land also has critical wildlife habitat for moose and Canadian Lynx, and several other threatened species…. The land PolyMet/NorthMet is offering, on the other hand, is scattered in various parts of the forest. It lacks the ecological and management value of a large continuous tract of land. It has split mineral rights, mostly immature forest, and it lacks the valuable wetlands and rich biodiversity of the federal land.	LAN03, LAN04
19009	Proponents of the PolyMet/NorthMet mine have claimed that the mine will bring needed jobs for the next 20 or so years, but that is only a short term benefit, and one that is limited only to a relatively modest number of individuals in Northeastern Minnesota.	SO01
19010	…the land PolyMet/NorthMet is offering is of insufficient ecological value. The 6,650 acres of federal land PolyMet/NorthMet is seeking is a single block of land that includes over 2,000 acres of mature forest and approximately 1,000 acres of irreplaceable wetlands. Those wetlands are vital to the water quality of the entire watershed, which includes large areas of Superior National Forest and flows into Lake Superior.	LAN03, WET14
19011	As you know, Section 404 authorizes the Administrator to deny a permit to discharge dredged or filled material into a watershed if it will cause "unacceptable adverse effect on municipal water supplies, shell fish beds and fishing areas (including spawning and breeding areas), wildlife, or recreation areas." The proposed PolyMet/NorthMet mine will have all of those adverse effects for potentially 100s of years	COE03
19012	It also must be stated that PolyMet/NorthMet's SDEIS is fundamentally flawed because it fails to provide alternatives that would eliminate or reduce the adverse impact on the wetlands. It doesn't offer ways to restore or clean up the mine site, and it fails to offer adequate mitigation or compensation for the lost wetlands within the Lake Superior basin.	WET01, WET03, WET20
19013	[PolyMet will] directly destroy 913 acres of highly valuable wetlands in the Partridge River headwaters and 100 Mile Swamp, and indirectly harm over 7,000 acres of nearby wetlands due to air and water pollution from the mine's waste rock and tailings pile;	WET24
19014	[PolyMet will] cause highly toxic mercury that is currently bound up in the wetlands at the proposed mine site to be released into the waterway, harming all fish in the watershed and any person who eats such fish, particularly young children;	MERC02, MERC03
19015	[PolyMet will] produce at the mine's tailing site 1,506 micrograms of manganese per liter, which is 15 times higher than the health risk limit set by the Minnesota Department of Health to prevent brain damage for humans;	HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Roth (42900)	
19016	[PolyMet will] increase arsenic at the tailing site by up to 417% and as much as 38.5% in Colby Lake drinking water, greatly increasing the risk of cancer for all nearby residents;	HU12
19017	[PolyMet will] destroy over 6,000 acres of vital habitat for moose, Canadian Lynx and other threatened species;	WI02
19018	[PolyMet will] create a permanent wasteland at the mine site and tailing pile - a toxic no-man's land unfit for humans and animals for generations to come; and	LU06
19019	[PolyMet will] produce a toxic unlined Category 1 waste rock pile that will have to be monitored for pollution seepage for hundreds of years with no plan or funding for such monitoring, and no funds for any pollution cleanup should the pollution occur.	WR128, WR129
19021	The proposal calls for the creation of a permanent two-mile wide waste rock and tailings pile filled with highly toxic manganese, arsenic, lead and mercury. In addition to the extreme risk of leakage of those toxins into the groundwater and air, the tailings pile and surrounding area will become an inhospitable wasteland, unsuitable for any outdoor recreation activities for generations	LU06
19022	The proposed mine, furthermore, is in a highly valuable and ecologically significant region. It has nearly 1,000 acres of wetlands, thousands of acres of mature forest lands, and habitat for rare and threatened species, including the Canadian Lynx. (…) They are not for us to use at the expense of our children, or at the expense of future generations. And they certainly must not be exploited by a few, the 350 or so workers for 20 or so years and a foreign corporation, at the expense of the rest of the state for generations to come.	SO01
Sender Name (Submission ID)	John Rust (40151)	
6126	A PolyMet mine site (and other future copper, nickel, sulfur mine sites) may leak toxic pollutants into the watershed. Consequently damaging and/or destroying the recreational opportunities for thousands of people, and damaging or destroying the habitat and environment for 1000's of species living in the area.	HU01, WR115
6128	I am not against mining these precious metals – because we all use them in vehicles, and electronic devices. However, I believe that there are less sensitive locations to be extracting these metals from the earth.	ALT16
6132	I believe that those responsible for making the decisions on the PolyMet mine cannot reasonably assure the public that the site will not be leaking pollution into the environment for 200 – 500 years.	PD01
6134	[Periods of political unrest:] During such periods, will maintenance of mining ponds, tailings, dikes be ongoing?	PD01
16446	A PolyMet mine site (and other future copper, nickel, sulfur mine sites) may leak toxic pollutants into the watershed. Consequently damaging and/or destroying the recreational opportunities for thousands of people, and damaging or destroying the habitat and environment for 1000's of species living in the area.	WR111, WR115
16447	I am not against mining these precious metals – because we all use them in vehicles, and electronic devices. However, I believe that there are less sensitive locations to be extracting these metals form the earth.	NEPA03
16448	I believe that those responsible for making the decisions on the PolyMet mine cannot reasonably assure the public that the site will not be leaking pollution into the environment for 200 – 500 years.	PD01
16449	During such periods, will maintenance of mining ponds, tailings, dikes be ongoing?	PD24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Sayres (39766)	
6744	The jobs it creates for the time the mine will be operating are far less important the the jobs the tourism industry creates.	SO01
Sender Name (Submission ID)	John Schmitt (46242)	
16248	The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur.	AIR05
16250	Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink.	MERC06
16251	Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project	AIR05
16253	Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site.	MERC08, MERC21
16254	Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft.	AQ25
Sender Name (Submission ID)	John Seymour-Anderson (47637)	
7658	How will the costs of site management and pollution remediation be handled when the proposal shows no concrete and lasting plan for Financial Assurance? Particularly, what happens if Polymet goes out of business before the 200-500 years of water filtration and other pollution control measures have been fulfilled?	FIN01
7660	How can an estimated millions of gallons of untreated polluted water per year, if not fully captured and held in ponds and piping, be considered safe?	WR070
7661	What calculations have been made for air pollution from the extraction of mineral-laden rock? The particulates created and borne into the air have the potential to affect workers and neighboring communities.	HU03
7664	What provisions have been made to fully control the effects of seepage into local aquifers of groundwater, rain and snowmelt when mixed with particulates, sulfide and heavy metals exposed at the mining site during extraction?	WR017, WR018, WR093, WR130
Sender Name (Submission ID)	John Skolte (32638)	
12040	The potential economic boost from mining jobs is touted. Ask the people who make their living in the mines in the Sudbury region of Ontario, Canada and take their vacations in the Thunder Bay area of Ontario what they think about the environmental impact of mining.	SO02
Sender Name (Submission ID)	john sorensen (41022)	
7502	Polymet has never operated a mine before and is backed by Glencore Xstara which has a history of Environmental breaches resulting in fines.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	john sorensen (41022)	
7503	My information sources tell me that there is no known copper nickel mines in similar environments that have operated without pollution.	PD26
7507	Mining companies often declare bankruptcy leaving tax payers to cover costs of Environmental Disasters and only 350 jobs are expected after construction.	FIN01, FIN10
13936	Please stop and take another look at alternatives, i.e. underground mines.	ALT06
Sender Name (Submission ID)	John Strange (58154)	
19903	Despite any assurances to the contrary, we know that this company will not be around to deal with the aftermath of their profiteering. Who will pay?	FIN01
19904	Every time, to my knowledge, this kind of mining has been done there has been pollution. That fact combined with the location in such close proximity to the finest lake country wilderness in the world is unacceptable.	PD26
Sender Name (Submission ID)	John Sundstrom (57251)	
17380	As sulfide mining has yet to be demonstrated that it can be done in an environmentally safe manner – Minnesota should wait until Polymet or other mining companies prove that they can do so by a mine in a less sensitive area.	PER35
Sender Name (Submission ID)	John Sweeney (18122)	
13503	I would like to see PolyMet come in and give our youth and our natives here an opportunity to choose to leave if they want to, to go out and find an education, employment in other areas, experience the world but not have to leave.	SO10
Sender Name (Submission ID)	john syverud (42068)	
2089	[I urge you to] develop and enforce a truly comprehensive set of regulations (along with an escrow) which will ensure when (not if) environmental damage occurs as a result of the mining, it is remediated on PolyMet's dime.	FIN01, FIN14
2090	I urge you to make sure when damage is done, it is fully PolyMet's revenue which will pay for complete remediatio of that damage.	FIN01
Sender Name (Submission ID)	john szarke (36837)	
8725	Not enough funds put in a Trust to offset the likely litigation that could run into trillions and trillions of dollars!...Future mining ownership and their responsibility to inherit fines, clean up and paying for the physical and environmental harm caused by Polymet	FIN01, FIN05, FIN08
8735	The proposal does not include the impact to the environment and health of people, fish, wild rice, etc. that in addition to the Polymet site there are about 20 other sites on the "drawing board".	VEG04
Sender Name (Submission ID)	John Tonsager (9552)	
191	If and when the process is developed to deal with the runoff and contaminants it will be worth rethinking but at the present time I say stop the process and deny the permit	PD01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	John Tonsager (9552)	
957	The risk of permanent damage to voiceless flora and fauna without even considering the harm to humans and tourism is beyond the ability of industry or government to mitigate.	SO02, VEG10, WI13
Sender Name (Submission ID)	John Tourville (58159)	
19911	Go forward with Polymet and sustain employers and employment in Minnesota.	SO10
Sender Name (Submission ID)	John Velie (39338)	
6112	300 jobs is not worth the potential for long term damage to the fragile ecosystem in the Arrowhead region.	SO01
12814	300 jobs is not worth the potential for long term damage to the fragile ecosystem in the Arrowhead region.	SO01
Sender Name (Submission ID)	John W. Vennewitz (43332)	
11323	I [am] concerned that PolyMet's mine plan lacks a comprehensive consideration of chemical contamination of fish and its impact of wetlands also the contamination of drinking water.	AQ25, WR041, WR115
11325	The health of current and future resident's ride on getting this analysis done completely and competently.	HU03
Sender Name (Submission ID)	John Wensman (46274)	
8874	Not only is the science bad, but the provisions for long term clean up are financially inadequate as well.	FIN05, FIN08
Sender Name (Submission ID)	John Wetrosky (42844)	
8412	I don't want [the NorthMet Mining] operation to turn into a Klondike like situation whereby the pristine environment is jeopardized by irreversible damage.	NEPA09
8412	I don't want this [NorthMet mining] operation to turn into a Klondike like situation whereby the pristine environment is jeopardized by irreversible damage. … My wife and I take a number of trips to that area of Minnesota during the year and it is a treasure too valuable to lose.	LU06, NEPA09
18277	I am also distrustful of companies manipulating data in order to get aproject in place. Recently I have read several news releases that tend to leadme to believe that some data that has been presented by the company is skewed in favor of the mining company. One such report is on the water flows in the area, which in a recent Duluth news article pointed out a great discrepancy between the company's and the tribe's findings.	NEPA09
18277	I am also distrustful of companies manipulating data in order to get aproject in place. Recently I have read several news releases that tend to leadme to believe that some data that has been presented by the company is skewed in favor of the mining company. One such report is on the water flows in the area, which in a recent Duluth news article pointed out a great discrepancy between the company's and the tribe's findings.	NEPA09
Sender Name (Submission ID)	John Wild (36421)	
3795	While the area is already been mined and industrialized, there is no guarantee that toxic runoff will not affect other areas that are not now polluted.	WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Johnathan Eisenberg (18138)	
3465	Send it back and get it right. And don't advance this project until all of those flaws have been fixed and we have an environmental impact statement that actually accurately assesses the impact of this project.	NEPA15
13559	Now we have a Supplemental Draft Environmental Impact Statement only to find out that the water quality model is inherently flawed. It's going to have to be redone again. So the water quality model was a base for a lot of the other aspects of the Draft Environmental Impact Statement. If that has to be redone, then a lot of other (inaudible) has to be redone.	WR003
13560	We're looking here at the potential for 500 years of water quality treatment, which in my mind, and I think in the mind of the law, is essentially permanent pollution to Minnesota that would require to be treated permanently.	WR035
Sender Name (Submission ID)	Johnna Hyde (19003)	
14339	I live in the heart of the experimental drilling area and the new SDEIS is important to me, but to date I have only made it through about 150 pages. I support the Water Legacy request as follows. Please give us more time!!	NEPA07
19522	I would first like to comment on the style of the SDEIS itself. I find it tedious to read, with what seems to be irrelevant data (4.2.2.1 on precipitation and air temperature has as its most recent data records from 1986, although with climate change, more recent records are more relevant and are easily available); reference errors (4-29 refers the reader to section 4.3.6.4 which could not be found); unjustified assumptions (eg. that the water flow model is accurate); confusing presentation of facts (eg. 4-17 4 contains apparently contradictory statements about the presence of invasive species and needs to be read many times to figure out just what each sentence refers to); vague statements (eg.S-538, and many other references to contaminants being shipped off site, but no indication as to where that would be and the impact in that location and necessity for future monitoring); inadequate consideration of important factors (eg. human health issues for employees and the general public residing in the area); misleading wording (eg. using "constituents" instead of"toxins," "contaminants" or "pollutants"); and unnecessary complexity (4-45 to 4 7 is incomprehensible). I am giving only one example of each, but it is easy to find many more. My first concern for a revision is that it be shorter, accurate, specific, consistent, and relevant so that it can fulfill its purpose to "inform the public and decision makers of the proposed actions ... " Such a long document as this does little to inform the public and decision makers as most people do not have the time to read it all. I find the "Fact Sheets" provided by the D NR that theoretically summarize the contents to be so biased in favor of the project as to be worthless.	NEPA07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Johnna Hyde (19003)	
19524	This proposal exchanges High Biodiversity sites as identified by the Minnesota County Biological Survey (MCBS), which are rare in the state of Minnesota and already severely diminished by development and industry, and which include 53% of the 100-Mile Swamp and hundreds of acres of jack pine/black spruce, an imperiled ecosystem in Minnesota struggling with effects of climate change. This exchange is not in keeping with good environmental stewardship or with the 2004 Forest Plan for Superior National Forest (SNF). The exchanged land may have an equal value for real estate, but that does not address its value as an ecosystem. A strip mall would have a high real estate value, but it's not what the USFS is designed to protect and manage. Real estate value is not an adequate measure of the value of land. A revised EIS should find more relevant and quantifiable measurements to compare land exchanges, perhaps something like the percentage of the total of equivalent land types in the state, as identified by the MCBS. The DNR has put a lot of effort into the MCBS; it should use this information for this kind of assessment to a much larger degree. The exchange also diminishes an already highly restricted wildlife corridor, and is likely to impact moose and lynx populations as well as amphibians that now use this for their reproductive spring migrations. Mitigations suggested in the SDEIS are inadequate, given the extensive nature of existing mines and the expansions in mining activity currently planned and permitted. The final EIS needs to consider the combined activity of this project along with other sulfide ore mining proposals and the current expansion of iron mining activity. Since the proposed land exchange involves important watersheds, I believe it may also violate the Weeks Act of 1911. Creating tailing dumps on wetlands and upper waterways that feed major rivers and Lake Superior does not seem in keeping with this law. (Since the index does not list the Weeks Act and I haven't yet found any references to it, I'm unsure if the SDEIS addresses this.) The destruction and likely degradation of thousands of acres of wetlands is also unacceptable and will be a result of this land exchange. The transfer of other wetlands to public jurisdiction for conservation is not adequate justification for the destruction and contamination of existing healthy wetlands that are now in use by waterfowl and other wildlife, and home to protected and threatened species. Those species are not going to move to the transferred area. More likely many will simply die off or experience reproductive failure. The final EIS and Section #404 need to address provisions of the Weekds Act and consider other alternatives that do not have such a severe impact on wetlands.	LAN03, VEG02, WET14, WI01, WI02, WI03
19525	I can not be certain of this from reading relevant sections in the SDEIS, but it seems to me that one of the ways the proposal plans to replace impacted wetlands is to put soil on top of the original wetland rea that will be destroyed during production, and replant it with some wetland species. It is not possible for humans to recreate a wetland ecosystem. Cattails do not a wetland make. Wetlands are not well understood even now by scientists who have devoted their lives to studying them, but there is a general recognition of their complex, interactive components and their importance in preventing flooding and otherwise contributing to things humans value. Hence the Wetland Conservation Act. I find the wetland management proposals in the SDEIS to be in violation of Minnesota's laws, at least in spirit if not in absolute fact. … The final EIS needs to include a way to eliminate this wholesale destruction of wetlands.	COE01
19526	The model used for predicting groundwater contamination is completely inadequate. If even the ACE found it inadequate for their contribution to the SDEIS, it must be seriously flawed as I believe the DNR has acknowledged. It does not predict even the current conditions, and severely understates likely water flowage at sites during operations. It most certainly doesn't allow for the extreme weather events that the area has been experiencing recently – heavy spring melt-off and torrential rains. … as I understand it the model accounts for only 5% of the current precipitation at the site.	WR049, WR057, WR176, WR180
19527	The need for water treatment after mine closure is in violation of the law as well, which specifies that a mine must be "maintenance free" at closure. There seems to be a step down from the DEIS in groundwater protection with the unlined Category 1 tailings pit, which had plans to be lined in the previous EIS. The final EIS needs to include linings for all waste storage.	WR037

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Johnna Hyde (19003)	
19528	The assumption that the bedrock will not fracture further with all the blasting and drilling is unsupportable. Resulting leakage into groundwater, local wells and water supplies is not addressed in the SDEIS, and thorough analysis of current drinking water supplies, including wells, has not been done. A revision needs to include the possibility of bedrock fracture and the impacts that would have, take into account the greater depth of mining activities than past activity, and include the possibility of contaminated water reaching local drinking water supplies and the Rainy River Watershed.	WR010, WR016, WR040, WR041
19529	The likelihood of failure of the water containment structures is not addressed, nor is there a plan for managing such an event, which is essentially inevitable giving the long-term duration of contaminated water. The recent occurences of newsworthy environmental disasters involving unexpected spills and subsequent contamination of drinking water point to the need for including such events in an EIS, in more detail than the table that indicates probability is low and passes on responsibility to local fire and emergency responders and the state.	PD22
19530	The revised EIS needs to address how it will pay for clean-up without putting the burden on Minnesota taxpayers.	FIN01, FIN10
19531	The SDEIS is short on dealing with contaminant levels that exceed standards. History of mining in this area, including current exploration, suggests variances could be issued to permit the higher levels. There is not mention of the impact when this happens, and no suggestion that such variances would not be provided. Although standards and enforcement procedures may be set during the permitting process, they need to be addressed more thoroughly in a revised EIS, as they are critical to determining likely environmental impacts. I would suggest standards that reflect current Minnesota law, no variances, and a requirement that mining operations be stopped while maintaining payroll for any violations, with no legal recourse that could delay fixing a problem immediately.	PER06
19532	Mercury contamination is one of the most serious issues in the Lake Superior watershed, with international implications on human health. Already there is excessive mercury in the blood of 10% of newborns in the St Louis River area. Adding mercury directly (even in “very small” quantities) and adding acid to the water, wich will leach existing mercury from the rocks, will exacerbate an already serious problem.	MERC03, MERC22
19533	Since leakage at the mine site is alrady exceeding water quality standards for sulfates, it would be in the best interest of the citizens of Minnesota to clean this up before production starts, partly to insure that it can be done, and partly to forego court claims on the part of mining companies that they have not worsened the situation. … The revised EIS should include an alternative that brings water quality up to the Minnesota standard before new construction is done.	WR109
19534	There seems to be a large section of the Partridge River that is unmonitored. It lies between the place where potentially contaminated water enters the river and a place just downstream of a source of clean water, a small tributary stream. With this, the contaminants will be diluted and no monitoring of this stretch that is most polluted will occur. A revised EIS should include monitoring of this stretch so that corrections can be made before the polluted water reaches the tributary stream.	WR039
19535	The contention that no contaminated water will reach the Boundary Waters, or cross over the divide between the Lake Superior Basin and the Rainy River Basin, is inaccurate. … The environmental consequences are not addressed in the SDEIS, since such an occurrence is not even considered. It could result from fracturing, flooding, or an accidental breach of dams and dikes, and most certainly will occur within the centuries that contaminants must be managed.	PD38
19536	The Next Generation Energy Act of 2007 has as its goal of total GHG Emissions of 32 million CO2-equivalent metric tons per year. According to the SDEIS this single project will produce 707, 342 CO2-equivalent metric tons per year, that is 2.2% of the state’s total! This project at best is going to contribute a small fraction of one percent to the state’s GDP, employment and tax base. … The project could end up costing the state taxpayers dearly.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Johnna Hyde (19003)	
19537	Recycling copper and other metals that the project proposes to mine uses much less energy than this kind of mining and processing. The next EIS should justify the impacts of mining versus recycling to meet the copper demands of the market, or include a recycling plant as one of the alternative actions. … There is no mention of incorporating solar power, wind generation, or geothermal energy to mitigate the enormous energy demands this project will require. … The next EIS must contain their plans to use renewable energy sources for at least their offices and other non-production buildings.	ALT16
19538	Given the current ability of mining operations to manage the pollutants, a reasonable alternative is to revisit sulfide ore mining in 100 years if new technology has provided better ways to extract the minerals without such a high risk of contaminating our precious waters and degrading wetlands and human health.	ALT16
Sender Name (Submission ID)	Jolane Sundstrom (57273)	
17417	copper nickel mining uses large volumes of H2O and brings up toxic waste from in the earth. … if sales of copper go down and the plant has to shut down temporarily the toxic runoff can continue to pollute the waterway – ground water, streams and lakes.	WR111
17418	[copper nickel mining] smells terrible	AIR10
17419	I feel we just have too great a risk here being the beginning of the clean water source for the nation and the quality of life we have come to enjoy here in MN.	SO01
Sender Name (Submission ID)	Jon (45619)	
15905	Despoiling our priceless ground and surface water, destroying wetlands and other wildlife habitat, and ruining natural beauty in return for mere metals is almost more than I can comprehend.	WET24, WI02
Sender Name (Submission ID)	Jon and Kia Blumenthal (21375)	
992	Until a virtually guaranteed method arises to protect water, this proven-damaging mining method is not appropriate given its proximity to vital water resources, such as the Boundary Waters and Lake Superior	WR111
1410	the risks to water--which may wind up being the more precious resource in the earth in the future--outweigh the potential short-term economic benefit [of the NorthMet Project].	SO01
Sender Name (Submission ID)	Jon Lee (47561)	
7106	This area is too good to destroy for short-term economic gain.	SO01
Sender Name (Submission ID)	Jon Marcaccini (47179)	
8800	This country needs its own precious metals… This will be a showplace mine for the world, with hundreds of jobs just for protecting the environment.	NEPA01
Sender Name (Submission ID)	Jon Read (44886)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jon Read (44886)	
8140	Despoiling our priceless ground and surface water, destroying wetlands and other wildlife habitat, and ruining natural beauty in return for mere metals is almost more than I can comprehend.	SO01
17104	[Our land is being] squeezed by increasing populations and demand from extractive industries, industries which have a long history of exploiting people and the environment, making themselves and their investors wealthy, then moving on and leaving residents and taxpayers across the country to clean up and pay for their messes.	FIN01
Sender Name (Submission ID)	Jon Shern (43693)	
11919	I would like to see a job breakdown for the PolyMet mine to understand what jobs will be in state vs. out of state, and what pay range each job would have.	SO06
11920	I would like to see more thorough evaluation of the Sulfuric Acid Polution. What is value of our water resource vs. benefits of the PolyMet mine.	WR001
11921	The computer model seems to make various assumptions around current conditions.	WR049
11922	What happens when failure occurs?	PD22
Sender Name (Submission ID)	Jonathan Fribley (43309)	
15775	There is simply no precedent for maintenance of toxins for any time span remotely close to the one proposed here - 200-500 years. To make projections that far out can simply not be justified scientifically without enormous error bars. … In short, there is simply far too little knowledge to make an informed decision about the risks and costs for the time span that this mine would remain a danger.	PD01
15776	Despite the best efforts of the DNR, it is entirely possible that time will reveal errors in thinking. This is all the more likely because of the timespan involved. In this instance, the consequence of failure is pollution of the Lake Superior watershed - too high a price for such little gain for anybody except a few Polymet stockholders.	GEN01
15777	As you are undoubtedly aware, this proposal is almost certainly to be the first of many more, should it be approved. Because of that, it cannot be accurately considered in isolation. The consequences of approval include enabling mining across northern Minnesota, including into the BWCA drainage. The EIS should properly consider the environmental costs of that larger condition of mining across the north of Minnesota.	CU04
Sender Name (Submission ID)	Jonathan Homans (47294)	
12864	This comment letter is submitted on behalf of the undersigned doctors, nurses and other health professionals. We are concerned that the proposed PolyMet NorthMet copper-nickel mine project could have significant adverse impacts on human health as a result of pollutants released to air, surface water and drinking water.	HU03
12865	Reviewing the PolyMet SDEIS, we believe that the information on mercury releases and the potential for mercury bioaccumulation is insufficient. The SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of pollutants or of hydrologic changes on mercury bioaccumulation. The SDEIS does not provide evidence to justify its claims about collection and containment of mercury and sulfates.	MERC16, MERC20

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Jonathan Homans (47294)	
12866	We would respectfully request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks of the proposal. We would further request that, in revising the PolyMet SDEIS, a comprehensive Health Impact Assessment (HIA) be prepared under the guidance of the Minnesota Department of Health	HU01
12868	The PolyMet SDEIS also provides an insufficient analysis of the human health risks of other pollutants, such as neurologic morbidity resulting from manganese and lead release; and carcinogenic effects of air emissions of diesel, asbestos-like fibers, nickel and other particulates, and of arsenic releases to water.	HU01
16927	We also believe that the PolyMet NorthMet Supplemental Draft Environmental Impact Statement ("PolyMet SDEIS") fails to adequately assess important risks to human health from the pollutants that would be released from this project. The absence of any professionals from the Minnesota Department of Health from the List of Preparers of the PolyMet SDEIS is particularly troubling.	PD29
Sender Name (Submission ID)	Jonathan Lindfors (57221)	
17160	I'm concerned about long term water pollution at the site and how its mitigation will be funded. How can we guarantee the costs will be paid for by the corporate interests that have profited by the ore extraction – for over 200 years.	FIN01
17161	Also, what will be the long term impact of polluted water runoff that is not captured by the mitigation process.	WR156
Sender Name (Submission ID)	Jordan Johnson (43385)	
15568	I understand the need for more jobs in the Arrowhead region, but something unsustainable and not permanent should not be put over something that will forever be here if we continue to manage and sustain its virginity. Jobs are temporary, land is forever.	SO01
15570	Please do not allow mining in the BWCA region.	WILD02
Sender Name (Submission ID)	Jordan Wente (18189)	
13421	This is not a Minnesota company, ...and it is not in [their] economic self-interest to reinvest this money into our local economy	SO06
13423	... it's not in [PolyMet's] economic self-interest to clean up this mess for 500 years.	FIN01
Sender Name (Submission ID)	Joseph Afrhein (18187)	
13417	... the jobs that people have been talking about... a couple of hundred jobs. That's really nothing on the large scope.	SO02
Sender Name (Submission ID)	Joseph Bauer (40763)	
10557	The technology proposed is not sufficiently proven for the proposed project.	PD32
10573	After review of the information on the Poly-met proposed project/mine I support denying a permit to the company and all involved. I am a stock holder in ALLETE and feel the economic benefit is not sufficient to take the risk to our Minnesota environment.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Joseph Cook (39324)	
12777	As an avid canoer of the Boundary Waters and northern Minnesota for the past 30 years, I urge you to listen to the voice of the people, follow the science, and think about those Minnesotans who have gone before and who have left a sustainable legacy for all….	WILD02
Sender Name (Submission ID)	Joseph Mitchell (46955)	
10503	As a Federally protected Wilderness Area, the BWCAW belongs to all the people of the United States as a very special area of particular significance and value, AS A WILDERNESS AREA. It is not the dumping ground for the likely consequences of mining operations that will almost certainly significantly degrade the wilderness.	WILD02
10504	The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility.	WR067
Sender Name (Submission ID)	Joseph Pratte (54201)	
17253	Although I see the economic benefits of this mine and the boost it will bring to the local economy. There are no words to describe my utter disgust and disappointment for the proposed construction of this mine. Since I was in seventh grade I have been visiting the boundary waters every summer. As I have gotten older my love for the outdoors has grown as has my admiration for the north shore	SO01
17256	I cannot go back to the places that I love in twenty years with my children and see the kind of degradation that this mine will create.	SO01
Sender Name (Submission ID)	Joseph W. Hejny (6078)	
1019	He has looked at the EIS and believes that reverse osmosis is the best method to treat mine discharge water and that there will not be a down stream impact to Minnesota waters.	PD28, WR190
1020	I am a PolyMet investor and proud my investment will provide quality jobs for future generations of Minnesotans.	SO10
1058	What better place than the former LTV property for a new open pit mining operation. The roads, utilities, RR, water, mill, crusher and tailing basins are all ready to be used again.	PD28
Sender Name (Submission ID)	Joseph Wenzel (50011)	
12984	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Joseph Wilson (54217)	
17672	Think about all the buisnesses you could potentally ruin. All the people you could end up putting out of a job. Or even the homes you would wreck. You may believe the ecosystem will rebuild itself, which is true but take into consideration how long that would take.	SO02
17673	I do not think you should build a mine near the boundary waters. They should be preserved people love to go there.	WILD02
Sender Name (Submission ID)	Josh Capistrant (16143)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Josh Capistrant (16143)	
11139	[The proposed project] compromises one of our great natural resources over the long term for a small benefit in the short term.	SO01
11140	No doubt Minnesota will be left with final financial responsibility for 500 years of clean up.	FIN10
Sender Name (Submission ID)	Josh G (42973)	
7961	the proposal is to have PolyMet collect only 90% of the water seepage from the tailings basin and treat the water at a Waste Water Treatment Facility (WWTF) at the Mine Site. Why was 90% of the water seepage used as the basis? Why wouldn't this rate to be higher? Why should any seepage into the environment be accepted?	WR018
7963	During construction and mine operation, an open pit proposal would remove wetlands and other parts of the ecosystem. Once mining ends after approximately 20 years, part of the reclamation process is that PolyMet would restore parts of the Mine and Plant Sites and the surrounding ecosystem to native habitat. Why wait until mining ends? …This would then be approximately 20 years that the ecosystem is not active in removing and/or filtering out environmental contaminants, i.e. CO2, Nox, and Sox.	WET13
7968	…the proposal is to backfill the East Pit with category 2 – 4 waste rock (highest in sulfide concentration). With the idea that this will mitigate sulfates and metals from entering the environment. Why is backfilling the East Pit and then flooding it a consideration for the highest sulfide content waste rock? Is there an alternative disposal process that is better? It seems as though there's a high risk in backfilling and flooding the East and Central Pit (once merged) for environment contamination and ecosystem damage.	PD15
7973	Mercury emissions to the air are estimated to be 4.6 lbs./year from the plant site; emissions are estimated at less than 1.0 lb. /year from the mine site. How far can this mercury spread throughout the environment via air transmissions? Has there been any computer modeling to predict where and how much this mercury may concentrate? This would add mercury emissions to the surrounding environment that are currently not present in this area; how large of an area may be impacted?	AIR05
7975	Would PolyMet monitor air quality before and during operations to understand if there's a difference? Would dust/particulate matter be regulated?	AIR13
7977	Are there other potential air pollutants not noted in the SDEIS? The nearby Northshore mine has fibrous (similar to asbestos) like materials within the rock formation. Does the rock that would be mined here contain asbestos like materials?	AIR03
7981	For lack of better terms, what is the total carbon footprint of the NorthMet project? By carbon footprint, I mean everything from electricity needs, furnace, vehicle fuel and emissions, etc	AIR01
7983	Regarding mercury in the water, it is stated for the Embarrass River there's a potential increase by 0.6 ng/L, while decreasing mercury concentrations in the Partridge River by 1.2 ng/L...Why would there be any allowed increase, whether there is a net decrease downstream? Are the tributaries to the St. Louis River not important by themselves? What impact would the increase of the Embarrass River have on fish, wildlife and humans?	MERC18, MERC22
7985	Within the SDEIS, I have not been able to find how much of an increase of [Lead and Aluminum] will be introduced into the watershed. What is the increase of these metals into the watershed	WR060, WR064

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Josh G (42973)	
15127	PolyMet will be responsible for monitoring and measuring of air and water quality to ensure compliance to all environmental standards. Will there be oversight from government agencies, such as the Minnesota Pollution Control Agency (MPCA), Minnesota Environmental Protection Agency (MNEPA), or others? Will there be random sampling of water and air within the direct area of the Mine Site, Pit Site, and surrounding areas to guarantee compliance?	AIR13
15129	Even with the proposed Land Exchange, there would be a net loss of wetlands, river habitat, forests, and plant life within the state of Minnesota. Currently the land in the proposed Land Exchange is doing the same, but we still also have the land at the Mine site as a functional wetland. To compensate for the net loss, PolyMet should actively restore displaced habitat even if they help fund restoration elsewhere in the NE portion of the state.	LAN06
15132	...up until the time which the East Pit would be backfilled, the proposal is to store category 2 – 4 waste rock on liners. What is the potential impact of these high concentration sulfides interacting with the oxygen in the atmosphere throughout this time? Is the only impact that there can be seepage through the waste rock via water and then it would be caught by the liner(s)? Also, the category 1 waste rock should be stored on liners to alleviate any seepage.	PD04, PD15, PD16
15133	How would the different category waste rock be separated successfully at the Mine Site? What are the environmental consequences if they are not properly separated?	PD15
15136	When mining operations end, the status of the mine site would be that the East and Central Pits would have been backfilled with category 2 – 4 waste rock then flooded. The West Pit would then be flooded creating a pit lake. What is the risk that there will be seepage from the interior of the pit(s) to the ground water? The SDEIS is not clear if there is a risk of aquifer contamination post mining. Is there a risk for aquifer contamination from the seepage of polluted water, sulfates, and/or metals from the pit(s) or pit lake once active mining ends? What is the risk of acid mine seepage?	WR173
15137	When looking at the Berkeley Pit in Butte, it seems as though the flooded pit is now a toxic waste area with water contamination concerns, etc… How will the NorthMet project be different once mining ceases onsite? I understand that there will be a WWTF at both the Plant and Mine sites, but is there a similar risk that this may end up similar to the Berkeley Pit?	PD26
15138	Why is Best Available Control Technology (BACT) or Maximum Achievable Control Technology (MACT) not required for the NorthMet project? This is one of the only in the foreseeable future that doesn't require it.	NEPA08
15139	Within the SDEIS there is also discussion that there may be an increase in sulfate levels within the local watershed. What are the impacts of increased sulfates on fish, wildlife, and humans? Again, why should the public opt to allow increased contaminant levels in the watershed? This needs to be quantified in the SDEIS and the potential impacts.	WR108, WR149
15140	How long would the WWTF need to operate at the Mine and Pit Sites? Will the Financial Assurance fully cover this duration? The taxpayers must not be liable to cover any aspect of the mining activities.	FIN05, FIN06
15141	Water is proposed to be piped between the Mine Site and Plant Site via a pipeline along the utility corridor, how will spills and leakages be avoided and prevented?	WR131
15142	What is the risk that Ammonia compounds pollute the land and waters from blasting agents used during this mining proposal?	WR013
15143	Has the United States Environmental Protection Agency (USEPA) reviewed the contents and potential impacts of this SDEIS under the Clean Water Act?	PER14

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Josh G (42973)	
15144	Who owns the mineral rights below the lands that PolyMet proposes to be exchanged for the United States Forest Service (USFS) lands? Would the USFS also have mineral rights on the lands acquired in a proposed land exchange? Is there a future potential, if the proposed land exchange occurs, but PolyMet (or other) owns the mineral rights that there may be future mining proposal(s) on the exchanged lands?	LAN04
15145	During and up until the time which the East Pit would be backfilled, the proposal is to store category 2 – 4 waste rock on liners. While the category 1 waste rock would be covered with a geomembrane. It seems as though it would be very advantageous to cover the category 2 – 4 waste rock pile in addition to placing it on liners. This could help minimize the sulfides from oxygen exposure within rain, snow, and other water sources. Has this been considered?	PD04, PD15, PD16
15146	Has underground mining been considered? Why is only open pit discuss within the SDEIS? Shouldn't we look at all possible options to ensure no or the very least intrusive environmental impact?	ALT01
15147	In my review of the SDEIS I have not seen any data discussing how floods or other acts of nature will not impact this project. The SDEIS does not include how floods and other acts of nature will be included to avoid catastrophic tailings dike breaches or other problems that would have significant environmental impacts.	WR202
15152	The SDEIS lacks a detailed monitoring plan for air and water quality and a detailed analysis of what adaptive actions could be undertaken if various assumptions are incorrect. The SDEIS should examine the environmental consequences of several scenarios by continually monitoring these parameters.	AQ30
15154	Alternatives to an open pit mine are not thoroughly investigated nor discuss in this SDEIS. All methods of mineral extraction should be reviewed for everyone to clearly understand which poses the least risk.	ALT21
15155	Detailed information surrounding the financial assurance of this project must be included. The SDEIS does not contain enough of the details or facts.	FIN08
15156	Waste water treatment plans must be studied to completely understand the duration required. Please incorporate this into the SDEIS.	WR035, WR128
Sender Name (Submission ID)	Josh Hoban (47023)	
10922	The clean up moneys is always about a 1000th of what is actually needed. The pollution fines are just drops in the bucket, never even making them change their practices.	FIN05
10923	O yeah and all that about the jobs and community, of course this will be the usual boom and bust. 20 good years of a couple thousand jobs and forever in bad years and billions in cleanup after Polymet makes their money and moves on. … I don't know why people would even consider 20 years of money for a private company, vs endless years of tourism to a beautiful place and money going directly into the economy and forever making it stronger.	SO02
10924	Those resources most likely will not even benefit the US, just sell them to the highest bidder, polymet cares nothing about Minnesota or the US for that matter.	FIN04
Sender Name (Submission ID)	Josh Northey (47038)	
10939	It [the Project] has a small footprint, and is using relatively safe low impact technologies, compared to what was done over the past century on the iron range. Moreover, much of that previously mined land is now used recreationally.	PD28

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Josh Northey (47038)	
10944	There is only so much copper and nickel in the world, and eventually humanity will extract this patch of it, as well as the Manganese under Emily, MN. When just depends on how quickly scarcity drives up the value of the resources, and how quickly technology drives down the cost of extraction and environmental remediation.	NEPA03
Sender Name (Submission ID)	Josh Sarver (54354)	
18188	It could also cause a decrease of 11 different plant species in the area.	VEG01
18189	it could make more jobs, and it could help with our mineral capacity, but I still think that wildlife is more ii11portant	WI01
18190	Copper-sulfate can kill roots, bacteria, plants, and other organic thii1gs.	VEG06
18191	If anything goes wrong, then lots of animals could die.	WI04
18192	Copper-sulfate could also affect tl1e water, killing many organisms, in the water and otherwise.	WR107, WR108, WR115
18193	Certain cultural resources can be affected. The Mesabe Wid) iu (or Laurentian Divide) would be affected, and Beaver Bay would also be affected. Areas given to the Bands, (multiple Native American Tribes), would be affected.	CR01, CR05
18194	I do not agree with tl1e land exchange offers. It occurs in a National Forest, which should be left alone. It also only benefits one company.	LAN01
18195	If something went wrong, and the lands were polluted, then it could cost my family a lot of money to help the state clean it up.	SO02
Sender Name (Submission ID)	Josh Skelton (18145)	
3580	The first relates to the executive summary and whether water quality standards could be met with this project, and that mechanical water treatment as part of the model of the PolyMet proposed action for the duration of the simulations in 200 years for the mine site and 500 years for the plant site. The intent of the statement and the modeling was not to predict the actual duration of water treatment but rather to determine the impacts of water quality at key points in the watershed over stated periods of time in the model. 200 and 500 years, respectively. The outcome of the model actually is stating that water quality standards will be met well into the future, not defining the timeframe for treatment.	PD28
3581	A second area of address relates to the recent measured deviation in water quality models for the Partridge River….nstead of distracting from the validity of the model of the sulfate, more credence should be given to the sensitivity analysis done with the model. Simulations were run with flow as lower in the basin than 0.5 and as high as 2.4 CFS, and they still showed water quality standards will be met.	WR003, WR091
Sender Name (Submission ID)	Josh Williams (43103)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Josh Williams (43103)	
10083	In order to adequately evaluate the potential impacts of the proposed project, the SDEIS needs to consider the financial feasibility of remedial activities at and around the mine site. As the project proposer will, of course, be financially responsible for the remedial activities, the SDEIS therefore needs to evaluate whether or not NET profits from the mine (eg. after all capital, laboor, operating expenses etc. are covered) will be sufficient to cover remedial costs, and how the required financial assurances for remdial activities will be structured.To be adequate, this analysis needs to consider a wide range of scenarios for mine output, metal prices, and start-up and operational contigency costs. The analysis also needs to consider, in sufficient detail to allow evalution of feasibility, the mechanism by which suffiicient funds for remediation will be held (or access to sufficient funding otherwise secured), how continued access to sufficient funds to covers costs of remediation over time will be ensured (given the potential for hundreds of years of remedial costs), how and at what rate funds will be set aside during the projected 20-year operational life of the mine, and how this last relates to projected profit during the period of mine operation.	FIN01, FIN05, FIN08
11583	As the project proposer will, of course, be financially responsible for the remedial activities, the SDEIS therefore needs to evaluate whether or not NET profits from the mine (eg. after all capital, laboor, operating expenses etc. are covered) will be sufficient to cover remedial costs.	FIN01
16141	The analysis [of remedial activites] also needs to consider in sufficient detail to allow evalution of feasibility the mechanism by which suffiicient funds for remediation will be held (or access to sufficient funding otherwise secured), how continued access to sufficient funds to covers costs of remediation over time will be ensured (given the potential for hundreds of years of remedial costs), how and at what rate funds will be set aside during the projected 20-year operational life of the mine, and how this last relates to projected profit during the period of mine operation.	FIN01, FIN05, FIN08
17779	The mine will operate for 20 years, and the impacts to water coming of the site will last 100s. Any evaluation of the potential environmental impacts of the proposed project needs to include consideration of how control of these impacts will be paid for when the mine--and the company that wants to develop it--is long gone.	FIN01
17781	An EIS that fails to consider costs of mitigation--in the form of engineering controls for site remediation and short and long term water quality treatment--as a function of projected project profits would not acheive the statuatory purpose of environmental review to inform permitting. As part of permitting once environmental review is completed, permitting agencies will need to ensure that sufficient financial assurances are in place to cover the cost of mitigation measures identified by the EIS. Such considerations will be of sufficient complexity that they will be impossible to adequately evaluate during a time-constrained permitting process without a thorough analysis, as outlined above, during environmental review.	FIN11
Sender Name (Submission ID)	Joshua Borchardt (44359)	
10362	The sort of community fostered by a materialistic desire for Earth's minerals is not the kind of community that such a beautiful and pristine place deserves.	SO02
10365	It would be quite the contradiction to have one of the most pristine and protected wilderness areas on the planet, surrounded with a perimeter of mining. That is NOT the message to be sending to our young people.	CU04
14824	I am strictly apposed to new mining operations near the BWCAW in northern MN. The area is home to the richest wildlife in MN, and major parts of the upper US. The uniqueness of the clean water, solitude, and low populations helps to improve the habitat there, as well as the overall impact in the area.	WILD02
Sender Name (Submission ID)	Joshua Sparber (18253)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Joshua Sparber (18253)	
13677	This project is not going to impact the entire -- as the mayor of Hoyt Lakes indicated, empty region, economically-depressed region. Another comment was the entire population of, you know, Tower, Ely, Virginia, Biwabik, the major Iron Range cities, would not currently reach the capacity of the Excel. Well, 400 jobs isn't going to make an impact on such a diverse problem.	SO06
13679	The company is a Canadian company. The majority of the profits will leave the state in terms of reinvestment. Yes, you would have short-term environmental -- excuse me, economic improvement for a very limited amount of people,	SO06
13680	I would make is that if you added up, my assumption is of the average wage, if every one of those 400 workers made on average $75,000 a year, you still would get less money over a 20-year period of time, gross, than it's going to cost to build the Vikings stadium.	SO06
Sender Name (Submission ID)	josie nelson (45166)	
8744	I am very concerned that the SDEIS is flawed, and that this project will seriously harm water that we all must have to live	WR071, WR189
8745	I am also saddened that it will destroy a beautiful resource in our state and habitat for animals.	WI02
8746	Native people will also likely be harmed, since wild rice is sensitive to sulfur	VEG04
8747	The jobs created by this project will be temporary, but the project will harm generations to come.	SO01
Sender Name (Submission ID)	Josie Winship (10761)	
610	I am not at all convinced that the short term goal of mining is at all worth the inevitable pollution it will cause.	SO01
611	Nor am I convinced that that PolyMet will be able to reverse the damage to water and land to it's original healthy state.	WR115
Sender Name (Submission ID)	Journey Roberge (15453)	
678	sulfide mining for copper should not be allowed in Minnesota because ... PolyMet, has never operated a mine before. They are going to use unproven techniques to extract the copper from the ground.	PD23
683	When it rains on sulfide ore waste, sulfuric acid is produced ... [and] can contaminate lakes, rivers, and groundwater but also harm human life, aquatic life, wildlife and damage whole ecosystems.	WI04, WR001
684	mining companies often abandon their mines and leave the cleanup to taxpayers. Even though Minnesota requires companies to provide financial assurances for the cleanup, many mining companies go bankrupt	FIN01
Sender Name (Submission ID)	Joy Barth (28695)	
10916	they give the figure of 500 yers before the water would be salvaged again and that is likely questionable since we don't have a period of time that length to presenty prove that. At this rate we won't have any pristine water and we'll all depend on the expensive process of desalination.	WR035, WR037
Sender Name (Submission ID)	Joy Schochet (46208)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Joy Schochet (46208)	
8780	According to Gavin Mudd (International Journal of Sustainable Development, 2013), the price of copper has steadily declined since 1900. He states in an email to the journal Science: "The critical issues already constraining the copper industry are social, environmental and economic issues. Any process intended to extract a kilogram of metal locked in a ton of rock buried hundreds of meters down invariably raises issues of energy, water consumption, pollution, and local community concerns. And such environmental and societal constraints are getting stronger" (Science, 343:722-724, 2014).	REF01
8812	Thus, the consequences of copper mining in an environmentally-sensitive and economically-fragile area are such as to preclude such mining activities, particularly in a downward-trending market for the metal. Under such circumstances, copper mines are a risky investment, and mining companies could well close or fail to undertake remediation and restoration as promised, leaving the mining site environmentally compromised at best or destroyed ecologically.	SO02
8813	The Superior National Forest (SNF) covers 3.9 million acres, of which over 445,000 acres are water, some 2,000 lakes and rivers and more than 2,000 miles of streams. It is a national treasure in that, while it is only 0.2% of the contiguous USA land mass, it is home to a disproportionately large fraction of the US's fauna and flora. In addition, it hosts a great number and variety of transient species and provides them with sustenance, shelter, and breeding areas. Moreover, the diversity of landforms in the SNF, compared to its area, is unmatched. The impact of mining on the Superior National Forest and the Boundary Waters, as well as the Quetico Park and Lake Superior, would be substantial and detrimental. The environmental degradation, water and air pollution, the local, national and worldwide impacts of this proposal have been neither adequately appreciated nor discussed in the PolyMet SDEIS.	VEG02, WI02
8815	One of the major impacts of the PolyMet mine would be on wetlands, of which nearly 1000 acres would be completely destroyed. While PolyMet states that they will convert other (distant) areas to wetlands, it has been established by many scientific studies that such "restitution" wetlands are not at all the same as natural wetlands. They are much less biodiverse and provide much less habitat, nutrition and water services than natural wetlands. Therefore, no amount of reconstitution will suffice to replace the destroyed wetlands. Moreover, the new "wetlands" will be in entirely different areas from the ones lost. For these and other reasons, the Section 404 permit for wetlands should be denied.	COE01, WET03, WET09
8819	Degradation of water quality will be inevitable, substantial and in perpetuity. The SDEIS itself acknowledges that the water effluents and leakage from the mine site, tailings pit and processing will be polluted by heavy metals, sulfur-containing compounds and other toxic chemicals, and that remediation of water will be required in perpetuity. Water quality impairment and the discharge of pollutants into the water will have immediate, as well as long-lasting, effects on wildlife, recreation, wild rice, vegetation and humans in the entire area of the watershed.	WR115
8820	The SDEIS does not adequately address how PolyMet will cope with these issues, even for its stated period of 200 to 500 years of necessary remediation. What will be the costs of such remediation to the company, to the taxpayer, and to the environment?	PD01, PD25
8822	Since mining companies often close after a mining project is completed, no amount of assurance from the company about financial responsibility for remediation in the long term guarantees that the company will actually take such responsibility until the mine site is satisfactorily restored. That there are hundreds of Superfund sites in this country which are being treated with taxpayer funds (many billions of dollars), one has little confidence in PolyMet's assurances.	FIN01
8823	The proposed mine would have a great impact on wildlife, concerns which are inadequately dealt with in the SDEIS. The proposed mining area is one of high biodiversity, habitat which would be completely destroyed by the mine. The negative impact on migration, breeding, and well-being of wildlife would be significant over a very large area of forest, beyond the immediate mine and tailings sites.	WI01, WI02
8824	The plant community of a large area would also be degraded. The mine would fragment the forest.	VEG03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Joy Schochet (46208)	
8825	The mine would fragment the forest. The negative consequences of fragmentation have been well-documented in many scientific studies. The damage to the fragile ecosystems of northern Minnesota would be incalculable. Any discussion of the significance and protracted effects of mining activity on the ecology of the area is minimized in the SDEIS.	VEG03
8828	The social consequences of mining activities would also be significant. Most of these issues are not addressed in the SDEIS. Among the problems which attend mining - which attracts transient workers not rooted nor invested in the area - are an increase in alcohol consumption (and bars), drug usage, prostitution, conflicts with residents, sharp increases in rental and food prices. One article documenting the negative social effects of resource extraction is “This is your town on fracking”, by Elizabeth Royte, in On Earth, June, 2013.	SO04
8829	The detrimental effects of heavy metals on human health are well-documented. The proposed mine would release significant amounts of mercury, arsenic, and lead, as well as sulfuric acid and other sulfur compounds, into air and water. These pollutants are highly toxic, and have been implicated in neurological conditions and many other diseases. I	HU03
8831	In addition, there would be emission into the air of particulate matter, such as asbestos fibers and dust, which can lead to serious lung disease. Sulfuric acid itself is dangerous in that it lowers the pH of water (affecting all aquatic organisms) and it releases mercury from rock in a form which is easily absorbed by these organisms.	AIR03, WR001
8832	The proposal by PolyMet to exchange high-quality contiguous wetlands and forest land in the SNF for a variety of scattered and poorer-quality land elsewhere is unsound. No such exchange should be countenanced because of the disproportionality of the exchange. The proposed mining area is of much greater ecological value than the land for which it would be exchanged.	LAN03
8834	The rationale for mining and prospecting in the Superior National Forest appears to be i) as a source of (scarce) minerals in a relatively accessible site and ii) as a source of profit (albeit short-term) for companies and employed individuals. There would certainly be no long-term benefit for the local economy, particularly when one considers that many property owners would leave the area rather than exist with the noise, pollution and loss of natural values which would ensue. These residents provide a significant economic benefit to the communities in this area.	SO02
8835	It would also seem that little or no profit would redound to the American public, which in fact owns the SNF [Superior National Forest].	SO06
8836	Rather than continuing on the heedless path of mineral exploration, it would seem wise to consider the rationale for abstaining from mineral development within the SNF and near designated wilderness areas. We need to consider alternatives to mining rather than continuing our reckless “development” of formerly untrammeled regions. For instance, we should develop recycling programs for minerals, support research to find alternatives to the use of rare metals, and energetically promote conservation of these metals.	ALT09, ALT16
8840	As frequent visitors to the BWCAW, our opportunities for a wilderness experience (the main impetus for buying property here) would be greatly diminished by the actions proposed in PolyMet SDEIS.	WILD02
8843	Additionally, the value of our property would undoubtedly be affected adversely by the possibility of extensive metallic sulfide mining in the area.	SO03
8844	As we see it, the noise and pollution generated by mining activities, the heavy traffic, and the potential damage to water and land will affect not only property values but also the present excellent quality of our experience in northern Minnesota, which is due in very large part to the relatively pristine environment of the Superior National Forest and the BWCAW.	SO02
8845	We regard the current SDEIS as inadequate and insufficient to support PolyMet’s claims that it could mine without significant and permanent damage to the northern Minnesota ecosystem.	PD01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Joy Schochet (46208)	
8852	The SDEIS fails to deal with many of the critical issues in the proposals for mineral exploration near the Boundary Waters, particularly noise, degradation of air and water quality, loss of solitude and wilderness qualities, and loss or degradation of habitat for critical species, both plant and animal.	PD01
Sender Name (Submission ID)	Joyce Blomquist (41789)	
3275	It is crucial to protect Lake Superior, the watershed and Superior National Forest from toxic pollution.	WR111
Sender Name (Submission ID)	Joyce Harrington (33155)	
12165	I would like their children to be able to have their wilderness trips in northern Minnesota, too, as generations of the family have. However, I am concerned that that might not happen if sulfide mining is done in the area.	WILD02
Sender Name (Submission ID)	Joyce Klees (54484)	
17989	PolyMet's humidity cell testing indicates that mercury will leach from waste rock at more than four times the water quality standard. PolyMet proposes not to conduct an analysis of the amount of mercury that will enter either the Partridge or the Embarrass River from leakage from waste rock, disturbed peat, mine pits, or tailings. An analysis was done for 28 other constituents, many of which have nowhere near the potential for impacts that mercury does. Why is this analysis not being done?	MERC20
17993	The 90-day period is insufficient time for the public to study, analyze, and comment on such a complex document.	NEPA07
17995	The mine would destroy at least 1, 700 acres of ecosystems, including precious wetlands, which provide habitat for many wildlife species. These lands are located within the Superior National Forest and the land exchange proposed would not be of equal value.	LAN03
17996	The PolyMet Project will have an irreversible effect on the environment and will negatively impact many people's economic livelihood and aesthetic enjoyment of nature. It is not worth the risk for the short term and limited benefits of sulphur mining.	SO01
Sender Name (Submission ID)	Jspence3 (21986)	
3311	I support the PolyMet Mining project in Minnesota. It will (…) provide numerous jobs.	SO10
Sender Name (Submission ID)	Juan M (54224)	
16733	The map [in the EIS] should be carefully looked at, and re-examined because there is a creek connected to the swamp that leads to the boundary waters, and it will pollute the water and diminish the cleanliness of it.	PD38
17357	The water should be tested to make sure that if this event were to happen, we would be able to fight it. Therefore, this should all be looked at and reviewed so we don’t have to face this in the future.	WR021, WR080
Sender Name (Submission ID)	Juanita Nelson (47514)	
11277	I agree with the Northland Doctors, They say sulfide mining releases toxic pollutants known to cause dangerous health effects like cancer, lung and heart disease.	HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Juanita Nelson (47514)	
11281	I have read [Polymet] will be here for 20 years but it will take 50 years to clean up. That is not worth it!!!	SO01
Sender Name (Submission ID)	Judi (44357)	
14832	Minnesota would be “penny wise and pound foolish” to give up so much for a couple hundred jobs for 20 years. ...We’re ready to pollute the Boundary Waters, of which there is no other place on the planet like it, for a few hundred jobs?	SO01
14833	It’s not worth the risk involved when PolyMet packs their bags and moves on to rape and pillage another wilderness area, leaving Minnesota taxpayers with the cost of cleaning up their mess.	FIN01
14834	This mining has NEVER been done without leaving toxic waste in river, streams and lakes EVER.	WR023
Sender Name (Submission ID)	Judi Mikolai (45145)	
9721	PolyMet should have to show proof that the mining can be done without contaminating the site [where] the minerals are, the millions of gallons of water that would have to be used to extract the target products, and the storage ponds that would be used to try to hold the water until it can be cleaned.	PER06, WR128
16729	Until we have the technology to truly contain water, we cannot produce contaminated waters that endanger our ecosystems, groundwater and surface waters.	PD32
16730	Other mining sites where the same processes are used are described as a "moon-scape." We love to go to northern MN. We love to camp, canoe and recreate in the quiet and beauty of the wilderness. But, I have to say, if the wilderness WERE to be damaged, we would not be visiting there like we do now.	LU04
16732	there is a surplus of copper and some other substances that are to be mined by PolyMet in Northern MN. The company would greatly, because of the high prices they could get for the minerals and metals, but the price of MN's wilderness is too high a price. The company is not even MN-based - most of the money would follow the company. There would be some taxes paid to MN, but the profits would go to another country. There would be some local jobs, but are the locals going to land the jobs.	SO01
Sender Name (Submission ID)	Judie Carlson (57949)	
19861	There is already evidence that privately held land is being destroyed and the owners are suffering the effects of the noise and pollution.	NEPA15
Sender Name (Submission ID)	Judith Derauf (54673)	
17880	In the short term the promise of jobs is attractive, but in the long term the environment will be irreversibly degraded. A finite number of jobs would be created for a limited number of years by the mine, with the big beneficiary being the PolyMet Corporation. Currently many businesses and jobs are dependent on tourism. … I believe the economy, in the long run, will be negatively impacted by mining projects that are not environmentally sound.	SO01
17881	People visit the BWCA and the North Shore largely because of the pristine wilderness and natural beauty the area has to offer. The proposed minewould be located close to these national treasures and share the same water shed.	WILD02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Judith Derauf (54673)	
17882	most importantly we all need clean water and this is perhaps our area's greatest natural resource. To put our fresh water at risk is incomprehensible.	WR195
17883	The health impacts and management problems of contaminated water are issues that PolyMet will walk away from and leave for local residents to grapple with for generations.	FIN01
17884	The industry must bear the burden of proof that they will not leave an environmental disaster in the wake of their operation.	NEPA15
Sender Name (Submission ID)	Judith Krause (16077)	
11041	Our water is a valuable resource and we cannot afford to play Russian Roulette with it for 500 or more years. To saddle future generations with the burden of clean-up from this ill thought out and risky mining scheme is criminal.	FIN10
11042	I want to keep Minnesota's valuable water resources safe and clean for future generations of humans and wildlife.	WR195
Sender Name (Submission ID)	Judith M Swenson (54703)	
17780	NO-ONE can mine sulfide rock without releasing sulfur and sulfuric acid into theenvironment.	GEN01
17782	It is absurd to even suggest that the water from mining would have to be treated for hundreds of years. Nothing is treated that long in this world. Who would pay? Certainly not the mining company that has never mined anything and would be long gone in a few decades. The taxpayers of Minnesota would have to continue treating the water for centuries. NO!	FIN01, FIN10
17783	It is simply wrong to allow this company to proceed any farther with their plans when they have not demonstrated an understanding of the complexity of the problems and have no viable solutions for the ecology disaster awaiting us if they are allowed to mine.	PER35
17784	The rock is not going anywhere - let it be until it can be SAFELY mined. It is the STATE OF MINNESOTA'S mineral wealth, not the international mining companies.	ALT16
Sender Name (Submission ID)	Judith Martell (15778)	
13707	In order for [the] … mine to run safely there would have to be a cash deposit of 100 billion and maybe there would be enough to do a partial cleanup of what they will walk away from after they make their profit.	FIN05
Sender Name (Submission ID)	Judith Screaton (39556)	
6699	How many of the 350 proposed jobs would be filled by local residents rather than specialists brought in to run the mine?	SO06
6700	What has been proposed by the mining company to control pollution in the area?	PD01
6701	Who would pay for the cleanup [of releases and pollution]?	FIN01
6702	[PolyMet is] run by a foreign company and financed by another foreign company. How is it possible to hold them responsible for the massive pollution that will result from their venture?	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Judith Screaton (39556)	
6704	We must preserve [our safe unpolluted water], or it will quickly disappear.	WR195
6707	How many tourists will [the project] displace, and what would be the effect of massive pollution on our tourist industry?	SO02
13532	How is it possible to sacrifice many, many acres of precious National forest for a commercial venture of questionable benefit to Minnesotans?	SO01
Sender Name (Submission ID)	Judith Sweno (11629)	
7416	Our community needs the jobs and we have family members waiting to get a job. ... I don't want my family members and neighbors to have to leave this area for work elsewhere. When they can have jobs here. We are a smart people and if something comes up we will fix it.	SO10
7416	Our community needs the jobs and we have family members waiting to get a job. ... I don't want my family members and neighbors to have to leave this area for work elsewhere. When they can have jobs here. We are a smart people and if something comes up we will fix it.	SO10
Sender Name (Submission ID)	Judith Zetting (29956)	
13864	THIS GREED to squeeze any and all of anything from the world around us HAS TO STOP, OR THERE WILL BE NOTHING LEFT	SO01
Sender Name (Submission ID)	Judy Ament (16668)	
1573	I would like to go on record Not to allow this for the sake of preserving the water resources ... it would be a short term benefit but there are too many concerns for the long term survival and preservation of water.	SO01
2039	I have been reading pro's and con's- it would be a short term benefit but there are too many concerns for the long term survival and preservation of water.	SO01
Sender Name (Submission ID)	Judy Baxter (45412)	
11220	The idea of putting tailings and waste heaps in an unlined tailings basin, designed in the 1950's on top of streams IN ORDER TO LEAK, is totally ridiculous. Of course it would leak acid,sulfate, and toxic metal processing waste. They say for 500 years.	WR070, WR115
15626	How can you propose destroying 900+ acres of irreplaceable wetlands and damaging 7000 without looking into alternatives? These wetlands protect and maintain the area waters, and replacements outside the watershed will not do.	WET20
15627	Fish in the area already contaminated with mercury so that consumption warnings are issued. Adding more sulfide mining pollutants will make this worse, and is unacceptable.	AQ12, AQ28
Sender Name (Submission ID)	Judy Bjork (44579)	
11816	We realize the issue of jobs has been put forth as a reason to operate this mine but we believe that PolyMet will do more to diminish, rather than enhance the overall quality of life ….	SO01
Sender Name (Submission ID)	Judy Busse (47493)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Judy Busse (47493)	
11252	There are two critical reasons why my husband and I are opposed to giving PolyMet what it wants: first, there is no way PolyMet can assure citizens there won't be grave environmental consequences somewhere down the line and while there might be some jobs created for a time, that number could pale in comparison to damage done to people as well as to the land….	SO02
11255	if we don't want PolyMet's project we don't have any reason to want them to receive financial assistance on any level.	FIN10
Sender Name (Submission ID)	Judy Galbraith (9558)	
192	This mine will pollute not only Minnesota waters, but the relatively pristine watersof Lake Superior.	WR111
193	There's no way PolyMet can contain or effectively treat contaminatedwater, which would remain polluted for hundreds of years.	WR037, WR129
194	In addition, the PolyMet mine would have a serious long term negative impact ona large part of the Superior National Forest which is the largest designated ImportantBird Area in Minnesota.	WI02
960	It (PolyMet) would also destroy 900 acres (or more) of wetlands with toxiccontamination.	WET24
961	Arguments have been made that we need more and more copper, nickel andmercury. But the absolute truth is that with more comprehensive recycling efforts the demand for these minerals would seriously diminish. Also, manyjobs could be created if we developed more recycling programs.	ALT09, ALT16
14048	The short-term job gains are not worth the long-term and permanent environmental damage this mine would cause.	SO01
Sender Name (Submission ID)	Judy Gribbin (31877)	
12016	WE ALREADY HAVE POUTION IN THE GREAT LAKES WHY WOULD WE ADD TO IT BY ALLOWING THE POLYMET'S MINE COMPANY TO OPEN AND DIG A MINE NEXT O THE PROTECTED AREAS AROUND SUPERIOR NATIONAL FOREST, AND HAVE THERE DRAINAGE...FLOW INTO…OUR WHOLE WATER SYSTEMS THAT LEADS TO OHIO AND MISSISSIPPI RIVER SHEDS THEN DOWN TO THE GOLF AND OUT TO THE ALANTIC.	CU06
Sender Name (Submission ID)	Judy Kreag (47536)	
12417	Polymet’s open-pit sulfide mine plan...will pollute the largest freshwater lake in the world, possibly forever!...We all deserve clean, fresh water. This earth is all we have. When the water is no longer drinkable, then what?	WR111
12421	It may bring a few jobs to the area for a few decades but will leave us an unheard of problem for anywhere from 300-500 years or more	SO01
Sender Name (Submission ID)	Judy Lane (38437)	
11129	Will [PolyMet] invest in CLEAN-UP AND RECOPVERY PROGRAMS should they arise?	FIN01
11130	[Companies like PolyMet] strip the land and contaminate the water. But the people want to have a job, so they say nothing.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Judy Lane (38437)	
13626	Our natural resources is the crown jewel we have. Not those in the ground you cannot see, but the hills, the forest, the lakes, the forest animals, but mostly the people who make this state great.	GEN03
Sender Name (Submission ID)	Judy Ostendorff (54747)	
19124	The proposed Poly Met mine should not go forward because the SDEIS, which is seriously flawed, has not shown that mining of precious metals in rocks with sulfide can be done safely in this environment, without serious watercontamination and destruction to wetlands and habitat.	NEPA09
19125	Recent DNR documents agree that the water flow model of the current SDEIS is Inaccurate. This calls into question many of the forecasted impacts to water quality, wetlands, and rare habitats. With more water moving through the site,polluted water from pits and waste rock will more easily and quickly reach lakes and rivers. It is thus likely that more area will be polluted, and that the pollution will be greater than anticipated.	WR052, WR060, WR071, WR091, WR173
19129	The SDEIS seriously underestimates the destruction of wetlands, and has an almost "fantastical" proposal for mitigation. The size of the potential wetland destruction (up to 6000 acres) is breathtaking. Much of the modeling wasbased on inaccurate water flows, so more wetlands would likely be destroyed. Secondly, bogs and coniferous swamps which will be affected, are extremely difficult to restore.	WET04, WET07
19131	the land swap is not a swap of equal value.	LAN03
19134	Habitat destruction is also not adequately addressed. In addition to the issue of more water flow than expected destroying more wetlands than expected, the number of trucks going back and forth, the 24/7 noise and vibrations ofrunning the plant and the mine will disrupt habitat.	N01
19135	The assumed performance of water capture systems in the SDEIS is of 90% or greater. This high level of performance is not realistic. Engineering controls include the seepage capture system at the flotation tailings basin, the cap and liner system and the hydrometallurgical tailings basin, and the discharge control feature for the west pit lake. Failure or under-performance of any of these features will result in water quality impacts that are not described in the SDEIS.	WR018
19136	How can we know we can treat polluted water for several hundreds of years, let alone into "perpetuity"?	WR035
Sender Name (Submission ID)	Judy Urban (28951)	
13873	My family has fond memories of many camping trips to the Boundary Waters area. To think that our state is willing to irrevocably change the pristine nature of this very special area for the benefit of a multinational corporation whose only goal is profits is unconscionable.	WILD02
13874	No government entity has the right to make decisions that would negatively affect the health, and economic well-being of people for the next 500 years. Do not approve this threat to our state's greatest natural asset.	SO01
Sender Name (Submission ID)	Judy Young (52182)	
13350	Strong safeguards are in place in the event anything goes wrong – for centuries in the future	FIN08
13351	Mining companies must leave the site maintenance free in accordance with existing MN mining rules.	PER04
16231	BWCAW waters remain safe and clean; potential impact on health and safety of residents and visitors be studied.	WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Judy Young (52182)	
16232	This eco climate and geography is precious to the well- being of future generations; wilderness cannot be replaced with museums of what used to be.	WILD02
16233	we do not have sufficient information to guarantee environmental protections to land and water safety for wildlife and people.	PD01
Sender Name (Submission ID)	Jukka Kukkonen (863)	
46	The Talvivaara mine was opened in Finland in 2008. It turned out to be an environmental disaster and the company is now facing bankruptcy[…]The environmental disaster was caused by waste water and treatment pond leaks in 2012 and 2013.	PD26
479	When we think about the heavy downpours and flooding that Duluth experienced last summer, there is no (financially sustainable) way to build levies that could handle that kind of extra stress.	FIN05
Sender Name (Submission ID)	Julaine Heit (20162)	
1740	Polymet's proposed mine threatens our clean water and public health.	HU03, WR195
Sender Name (Submission ID)	Julia Billmeier (18268)	
13888	20 years of mining is not worth 500 years of cleaning up and 500 years of nobody being able to use it or have fun or do anything there.	SO01
Sender Name (Submission ID)	Julia Hupperts (49595)	
12325	I do not want even the slim posibility of our great state's water being poluted.	WR195
Sender Name (Submission ID)	Julia Kleppin (23409)	
12176	The PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement is clearly a threat to the water quality and environmental status of large natural areas PLUS Lake Superior.	WR111
12177	Open pit mining is the most environmentally destructive form of mining and considering that this impacts a large part of a NATIONAL PARK, how can any such permission be given to this project?	WILD02
Sender Name (Submission ID)	Julia Kloehn (47429)	
12215	I don't believe it is morally right to destroy irreplaceable natural beauty, clean water, wild rice areas, and animal habitat for the sake of temporary profits. Nor can it be economically right either taxpayer funded cleanup for hundreds of years is just as shortsighted.	SO01
16725	The Polymet mine would reach the end of its useful life within my lifetime, and I think it's unfair that my generation as well as many generations to come would have to suffer the negative consequences of sulfide mining. Minnesota has a lot to lose [from this Project] in terms of precious cultural and natural resources, and it is not in the interest of the people in our state to make such a sacrifice.	SO01
16727	It's seen over and over again that even when people assure/expect systems to work, systems fail, and when considering the pristine natural resources of our state, this [Project] isn't a risk we should be willing to take.	PD01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Julia Kloehn (47429)	
16752	I don't believe it is morally right to destroy irreplaceable natural beauty, clean water, wild rice areas, and animal habitat for the sake of temporary profits. Nor can it be economically right either- taxpayer funded cleanup for hundreds of years is just as shortsighted.	SO01
Sender Name (Submission ID)	Julia Nelson (41455)	
9326	My overall concerns is with the possible contamination of the groundwater ...The tailings are destined for unlined pits, including using an existing pit that is known to leak. This is the part of the drainage into Lake Superior. The Great Lakes represent 20% of the fresh water in the world.	PD08, PD10
9327	There has been a recent study (University of MN at Duluth was involved) that shows even low levels of sulfides have a notable and long-term effect on wild rice.	VEG04, WR156
9328	One of the predicted effects [of climate change] is a greater frequency of severe rains. The SDEIS does not address this…..	AIR01
14225	The tailings are destined for unlined pits, including using an existing pit that is known to leak. That doesn't just create the possibility of leaking, it essentially guarantees it.	PD07, PD10
14297	Climate change is happening. Even aside from the cause, it's happening and there is going to be continuing change through the century and beyond. One of the predicted effects is a greater frequency of severe rains. The SDEIS does not address this…	AIR01
14298	Better control in any case of the tailings and drainage from them. Line the pits, start the reverse osmosis immediately, and impose a significant fine if the standards are not met.	PD03, PD15, PD24
Sender Name (Submission ID)	Julia Valero (48202)	
2201	Polymet does not have a plan for mediating environmental disasters if they occur	PD22
2202	If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects	WR156
2203	The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future.	FIN10
2204	Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years	WR035, WR070
2266	Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill.	PD23
2273	[The NorthMet Project] not worth the [environmental] risks	SO01
Sender Name (Submission ID)	Julia Wilber (39678)	
7367	I am concerned that the supplemental draft environmental impact statement is inadequate and the proposed mine plan would have unacceptable environmental impacts.	NEPA09

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Julia Wilber (39678)	
7368	I am also concerned that the proposed economic good that will come of the mine won't be seen by the communities that so hope for it... it is very likely that most of the jobs will be filled by professionals from overseas. This does not allow for economic prosperity to come to the communities in Northern Minnesota, and it also endangers another source of income for the community--the Boundary Waters…[The PolyMet mine] endangers the economy of those who depend on tourism.	SO06
7369	the [Boundary] Waters that are already at risk from invasive species and climate change will face another threat, and it... endangers the environment that both wildlife and humans need	WR111
14150	People from all over the state, country, and world enjoy the Boundary Waters. This protected wilderness area is a great pride of the State and a resource that should not be treated lightly.	WILD02
Sender Name (Submission ID)	Julian Sellers (43024)	
12485	The habitat requirements of [the northern goshawk and Boreal Owl] are similar, and the proposed mine would affect them similarly. The Supplemental Draft Environmental Impact Statement does not adequately address the status and outlook for these species in Minnesota.	WI01, WI02
12490	Section 4.2.5.1.2, Species of Greatest Conservation Need, of the SDEIS contains the following:Mature upland and lowland forest is the most common habitat type at the NorthMet Project area (primarily at the Mine Site). Section 4.2.4 provides a more detailed discussion of vegetation cover and habitat types. Northern goshawk, spruce grouse, black-backed woodpecker, and boreal owl were observed in these forests (ENSR 2005). These species represent a group that generally requires large forested blocks and/or minimal human intrusion.	WI01, WI02
12493	Section 4.2.5.1.3, Regional Forester Sensitive Species, misstates the status of northern goshawk and boreal owl in Minnesota. That section states:Four of these RFSS species are state-listed ETSC species (i.e., gray wolf, bald eagle, wood turtle, and eastern heather vole) and are discussed above. Seven other species are on the SGCN list and are discussed by habitat type in Table 4.2.5-1. These species include the boreal owl …And: The northern goshawk (Accipiter gentilis) is not federally or state-listed….In fact, the Minnesota Department of Natural Resources added both species to the list of Special Concern species in August, 2013.	WI01
12630	Audubon Minnesota believes that the Northern Goshawk should be listed as Threatened. Listing this species on the Special Concern list, as proposed by the DNR, does not properly reflect the current status of this bird and will not provide an appropriate degree of protection to ensure its future in the state.	WI01
12633	Audubon Minnesota believes that the Boreal Owl should be listed as Threatened. The proposal by the DNR to list this species as Special Concern does not adequately address the needs of this species in the State nor ensure its survival. It is reasonable to believe that this species has never occurred in high numbers in the State, and the decline in numbers over the past decade indicates that the population is in danger of becoming Endangered.	WI01
12635	With such a low population in Minnesota, and requiring such large tracts of mature and old upland forest within larger areas of other forest types, it is clear that projects such as the proposed NorthMet mine (which would actually destroy land on which northern goshawks have nested in recent years per 5.2.6.2, Biological Evaluation for the Proposed NorthMet Mining Project and Land Exchange) could push the northern goshawk toward Endangered status in Minnesota.	WI01, WI02
12638	The Determination in 5.2.6.2 (“The Proposed Action and Alternative B may impact individuals but are not likely to cause a trend to federal listing or loss of viability for northern goshawk.”) does not acknowledge the precarious status of this species [northern goshawk] in Minnesota.	WI01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Julian Sellers (43024)	
12641	Section 5.2.6.3 of the Biological Evaluation for the Proposed NorthMet Mining Project and Land Exchange states: "East of the Rocky Mountains, breeding by boreal owls has only been confirmed in Minnesota and primarily in northeastern Minnesota."	WI01
12642	Section 5.2.6.3 concludes that: There should be no cumulative effects to individual boreal owls from the Project, but there would be a cumulative loss of potential boreal owl habitat. About 640 acres of mature lowland coniferous forest and upland deciduous forest habitat that could be used by this species on the federal lands would be directly affected by the Project.The conclusion that there would be no cumulative effects to individual boreal owls is derived from the lack of any detections of the species on the project's federal lands.	WI01, WI02
12643	Considering the specialized requirements and rarity of this species in Minnesota, the only state east of the Rockies where nesting has been confirmed, the Determination in 5.2.6.3 that, "The Proposed Action and Alternative B may impact individuals but are not likely to cause a trend to federal listing or loss of viability for boreal owl" does not acknowledge the precarious status of this species in Minnesota.	WI01
16998	… there is strong evidence suggesting that large patches of mature forests are very important to the Northern Goshawk. This habitat is currently in decline in Minnesota, and recent land management decisions are likely to exacerbate this slide.	WI02
Sender Name (Submission ID)	Julie & Brigg Backer (33924)	
14023	It's not worth the risk for 360 jobs.	SO01
Sender Name (Submission ID)	Julie A. Vennewitz (43952)	
6873	The negative environmental impact [of this project] will long outlast the temporary boost to the economy. It threatens to do permanent damage to Minnesota's recreation and tourism industries. Recreation and tourism could continue to provide jobs for decades to come, much longer than the proposed mining jobs.	SO01
14939	If the project causes long-lasting damage to our natural resources, especially our water, the tourism and recreation industries could be destroyed.	SO02
14940	companies come and go, and the promises a company makes disappear when it goes out of business or changes ownership. In the meantime the state, its people and wildlife will suffer the consequences for decades or even centuries to come.	FIN01
Sender Name (Submission ID)	Julie Cahoy (39689)	
7375	My first concern would be the details of the proposed water treatment systems, specifically is there a system that has been tested that is capable of handling six million gallons a day? Have they tested the systems, how about a back up system, if they have to switch to a back up, can it handle six million gallons a day? How long will the system last, and what are the plans to replace it at regular intervals. What are the contingency plans for mishaps such as pipeline spills, accidental releases, and failures of water collection and treatment systems.	PD03
7376	I would expect at a minimum Minnesota taxpayers are protected. What are the financial safeguards that are proposed. What happens when the company goes out of business, either bankrupt or closed because its useful life has ended. Are they putting up earnest money, if so what percent of the typical cleanup are they putting up, who is going to manage the funds and safeguard them for the general public? Are they buying insurance policies, if so how do we know they will be around in 100 or 200 years?	FIN01, FIN08, FIN10
7377	What is being proposed could potentially and negatively effect one of Minnesota's most precious resources, water.	WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Julie Cahoy (39689)	
14165	…how this water treatment system is going to be paid for, and maintained and monitored for up to five centuries. The mining industry is responsible for the largest and cost costly environmental clean-ups in our nation.	FIN01
Sender Name (Submission ID)	Julie Greenwood (16265)	
10445	No job is worth 500 plus years of unknown, possibly irreversible, damage to the environment and its inhabitants.	SO01
Sender Name (Submission ID)	Julie Howard (40723)	
6656	Despite what proponents of the copper-nickel mines say, creating new mines within 50 miles of Ely would be extremely detrimental to our local economy. The mines will not only be an eyesore, they will also increase rail and truck traffic, which would negatively affect tourism in the area.	SO02
6658	The noise from drilling and moving material destroys the wilderness experience on the southern end of the Wilderness area near Spruce Road and Birch Lake.	N02
6660	Most importantly, there is no evidence that our most precious resource, the interconnected system of pristine waterways, will adequately be protected. Acid mine drainage in our waters is unacceptable. Sulfide-bearing rock brought to the surface will turn into sulfuric acid and leach into our waterways, resulting in irreparable damage to our biotic community.	WR115
Sender Name (Submission ID)	JULIE HURLBUT (41054)	
13939	There is too much at stake to allow Polymet to despoil the land and water of Minnesota. Many people aredependent on well water in the proposed area,and if, as in many other parts of the nation, the wells become toxic, how will they ever be restored?	WR041
13940	[t]he most basic requirements for human health, clean water and clean air, are being sacrificed in the name of profit and a relatively small number of jobs. When will we begin to take seriously the needs of future generations for these resources. What's the sense of having a job if it means ravaging and polluting the environment which in term leads to the damaging of your children's and your grandchildren's health.	SO01
Sender Name (Submission ID)	Julie Jeatran (38729)	
4539	3) The people who are being affected should have a say in over 6,000 acres being given away and traded for what parcels of land. Will they be accessible to us, useable by us for recreation, hunting and fishing, as valuable as what is being traded away, etc.?	LU01
4540	4) A separate environmental impact statement by law needs to be done investigating the impacts of this exchange. I have the right to see this and comment on it.	NEPA13
4543	An independent geological study shows fault lines directly below the (unlined) tailings basins. This means that the amount of seepage that PolyMet estimates has to be inaccurate. I would like to see more studies about this.	WR010, WR011, WR012, WR099
4544	No studies have been done on the impact of arsenic, mercury, nor asbestos-like fibers that will be a by-product of this open-pit mine on human or animal health. Already endangered moose populate this area.	MERC03, WI04
16762	2) It would violate Federal statutes and laws to create a windfall of profits for a private company, while causing harm to the resources and wildlife in the area. You cannot put a price on this land.	LAN02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Julie Jeatran (38729)	
16764	[The SDEIS] doesn't analyze the effect of pollution our Northland's most precious resource: WATER. What are the mine's effects on drinking water, surrounding wetlands and/or the rivers and streams we love to fish from (not to mention the contamination of the fish we then eat from them)	AQ06
16765	Stating that pollution from the mine would need to be treated for 500+ years and saying that they would responsibly do this is pure science fiction. Where would the money come from and where are the guarantees.	FIN01
Sender Name (Submission ID)	Julie Klassen (58006)	
19849	Wild Rice, fish, & all living creatures need clean water not polluted water from the mine for 500 years.	GEN03
Sender Name (Submission ID)	Julie Lochowski-Haney (47223)	
16618	PolyMet's study of the impact of their proposed mine states that water from the mine site will need at least 500 years of treatment.	WR035, WR189
16745	What sane person would believe that a modern company could provide 500 years of protection for Minnesota's waters?	WR037
Sender Name (Submission ID)	Julie MacRae (16976)	
11030	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Julie Nester (21381)	
14188	The consequences of our decisions on sulfide mining are guaranteed to affect Minnesotans for at least 500 years. This project is a PONZI SCHEME in which we are all unwilling investors. It uses BORROWED capital, (the fresh water and other natural resources that do not belong to us), and invests them in a risky scheme with the promise of payoff that is too good to be true.	SO01
14189	No sulfide mine has ever operated without polluting its nearby waters. In addition, sulfide mining has never been tested in such a water-rich environment as Minnesota's boundary waters.(…) Polymet can't guarantee that the Partridge River and Embarrass River, which run adjacent to the site and join the St. Louis River on its way to Lake Superior, won't be polluted with acid mine run-off. In addition, DNR hydrology data shows that the SDEIS significantly understates the amount of water flowing in the nearby Partridge River. We should not base approval of the plan on this faulty model.	WR003, WR023
14193	We need to choose better alternatives for our hard earned dollars and precious natural resources. All Minnesotans need to rally around people in Northern Minnesota who need good, safe, healthy jobs. We need training in those communities to prepare people for jobs that provide a sustainable future, instead of obsolete, dirty, wasteful, and short-lived jobs in an industry that is declining. Minnesotans should be investing in sustainable industries and an economy that builds rather than devastates our communities.	NEPA01
Sender Name (Submission ID)	Julie O'Leary (42934)	
8471	I share concerns specifically about the inadequacy of the assessment of full impacts to wetlands	WET24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Julie O'Leary (42934)	
8473	that I share concerns specifically about the...complete lack of information about long term costs for treatment of contaminated water from the site and how they will be paid for	FIN05
8475	I share concerns specifically about … the lack of any information addressing cumulative impacts of mining projects contemplated for the area and the impact this will have on the St. Louis River and Lake Superior. This is particularly concerning with regard to the potential for mercury emissions to the air and water in light of the already elevated levels of mercury in all waters in this part of the state.	AIR05
8485	I urge the DNR…to acknowledge that the negative impacts of this mine on our air, water, health, and to the taxpayers of the state are unacceptable and to stop this project from going forward.	HU03
Sender Name (Submission ID)	Julie Varichak (21406)	
1219	the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough.	NEPA16
1220	The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations.	PER34
1225	PolyMet will be held to the same high standard where the people and the environment will be protected. … Developing these mineral resources in Minnesota, where we hold a high standard for safety and environmental behavior, ensures that the minerals are extracted responsibly.	PD28
Sender Name (Submission ID)	Julie Viken (47654)	
7668	Lake Superior would be ruined by this mining.	GT01
7670	[T]his proposal does not pose any money for after they mine, and that is very important.	FIN01
7675	[I]f this proposal is approved then other similar mining proposal[s] would most likely be fast tracked and the next one would ruin the BWCA, one of the most visited natural areas in the world.	WILD02
Sender Name (Submission ID)	Juliette Wilson (57887)	
19825	Please don't let short-term views override long-term costs.	SO01
Sender Name (Submission ID)	June Stewart (54806)	
18291	The Minnesota League of Women Voters has determined, after considerable research on this project, that the SDEIS does not provide any reassurance that this mining will not result in irreparable harm to the watery environment in the Arrowhead.	WR107, WR108, WR115
18295	Poly Met is a junior mining company headquartered in Vancouver, Canada.It has never operated a mine before and is backed financially by the Swiss company Glencore Xstrata. Glencore has a record of massive tax evasion in third world countries. Glencore has suffered dozens of fatalities and been subject to six-figure fines for environmental breaches - 2008-2010.	SO02
18297	The mine site would be on land that is now part of the Superior National Forest that is comprised of high quality peat lands...It would destroy over 900 acres of high quality wetlands and indirectly harm another 7,300 acres .	WET24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	June Stewart (54806)	
18298	The company proposes to excavate three enormous pits up to 696 feet deep and transport the ore to an old, dormant taconite processing plant 8 miles away that would be refurbished. Waste rock would be stored next to the pits in large, 20-story high piles covering 526 acres. Processing waste from the plant (tailings) would be added to an existing, unlined tailings basin that iscurrently leaking polluted water and violating water quality standards.	WR070, WR107, WR108, WR109
18299	The Partridge and Embarrass Rivers are adjacent to the mine and plant sites, respectively, and flow into the St. Louis River and then into Lake Superior. Fractures known to exist at both sites would transport pollution into ground water. Blasting would occur every 2-3 days, breaking 200,000-300,000 tons of rock per blast and causing further fractures.	WR012, WR016
18300	Sulfates and mercury released from the proposed mine would increase mercury contamination of fish, already a problem in the area. Already, one in ten infants in northeast Minnesota is born w/ excessive mercury levels.	MERC02
18301	Sulfide mining threatens our remaining stands of natural wild rice in the St. Louis River. The sulfate standard for wild rice is 10 mg/liter, a standard the waste water from the mine could not meet.	VEG04, WR143, WR159, WR162
18303	The mine will impact over 4000 acres of prime wildlife habitat and impair wildlife movement through the area.	WI02, WI03
18304	Processing the ore would increase Minnesota's greenhouse gas emissions significantly.	AIR04
Sender Name (Submission ID)	Justin Dzelzkalns (23218)	
13975	I understand that opening a new mine means new jobs and money, but the BWCA is already a large tourist draw and supports the local and state economy.There seems to be limited upside with significant potential downside; fiscally and ethically it doesn't seem like it's worth the risk.	SO02
Sender Name (Submission ID)	Justin Hockensmith (6039)	
1531	I ask the DNR, state legislators, and the governor to impose extremely harsh financial penalties on PolyMet if, for whatever reason, environmental destruction occurs	PER03
1532	I want PolyMet to put their money where their mouth is and allow massive financial penalties to occur if the mine does eventually leak sulfur into our state's water	PER03
Sender Name (Submission ID)	Justin M Anderson (57253)	
17386	Regardless of what the project may be, anything backed and primarily invested in by Glencore or any group involved in anti-union, anti-worker, anti-human rights should and must be opposed. No workforce, including here in the MN northland, should be subject to the exploitations of Polymet and this industry.	SO02
Sender Name (Submission ID)	Justine Pliska (58136)	
19987	The negative impacts on human health through water and heavy metal toxins will cost much more than the short-term benefits the jobs will provide.	HU03, SO01
Sender Name (Submission ID)	K Smith (53557)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	K Smith (53557)	
15344	Companies w/many more years of experience mining still walk away from mines they can't afford or don't know how to clean up!	FIN01, FIN08, FIN10
Sender Name (Submission ID)	K Theiss (39871)	
14277	As a teen, I first experienced the purity of the Boundary Waters and found out what a gorgeous heritage we share with Canada. My 6 children have also experienced this beauty...We are native Minnesotans and do NOT want such mining and its negativity to ruin what we have helped preserve…	WILD02
Sender Name (Submission ID)	K Weller (29792)	
10985	If approved the mine will pollute Lake Superior, threaten our clean water & wildlands, and endanger public health for generations to come.	WR111, WR115
10986	A decision in favor of PolyMet's proposal would open a floodgate for more sulfide mining in a large area near Lake Superior and surrounding the Boundary Waters Wilderness -- considered by some as one of the most beautiful wilderness areas in the world.	PER07
Sender Name (Submission ID)	K.M. Greenwood (15723)	
13821	If you need a fiscal reason not to allow our wilderness to be raped, think of our state's placement as an eco-tourism destination. Which image do we want to project, and to what audience do we wish to appeal?	SO02
Sender Name (Submission ID)	Kaare Melby (44984)	
17416	I am concerned that the PolyMet open-pit sulfide mine would damage the wild rice that naturally grows in the Partridge River watershed.	WR156
17420	I am also concerned that the PolyMet open-pit sulfide mine would increase Methylmercury contamination of fish all the way to the St. Louis River estuary resulting from mercury and sulfate pollution and impacts to wetlands.	MERC02, MERC09
17421	I am also concerned about the long-term cost of water treatment that will be left to the public at the rate of $3,600,000 - $6,000,000 per year for the next 200 – 500 years. This is a huge expense that should not be left to the public and future generations.	FIN01, FIN10
17423	The PolyMet PSDEIS doesn't study impacts that could affect mercury contamination of fish in the St. Louis River estuary, let alone impacts to habitats and tribal resources in the region. A collative effects analysis of mining should be done before the PolyMet SDEIS gets finalized. That would permit us to know the consequences before opening up Minnesota's Northeast to a sulfide mining district.	MERC10, MERC24
17424	Cumlative analysis of water quality impacts in the SDEIS must include the St. Louis River and must specifically analyze impacts on mercury contamination of fish and impacts of specific conductance levels on fish.	MERC02, MERC10
Sender Name (Submission ID)	Kacie Carlson (44179)	
15383	Minnesota law requires that sulfide mines be maintenance free at closure. Leaders of the DNR, uphold your responsibility to create a sustainable quality of life and deny PolyMet's proposal to mine until they can ensure that the entire site be maintenance free at closure.	PER04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kacie Carlson (44179)	
15384	the current leaders of the DNR uphold their responsibility to carry out these agendas which have been established in the absence of a singular biased event such as this PolyMet proposal, go through numerous government and public layers of review and approval, and are created with purpose - purpose to be utilized and defended in situations like this. Defend the DNR, your, Strategic Conservation Agenda by not allowing vagueness and future uncertainties in PolyMet's promises to be conservation-focused.	NEPA15
15385	stop this cycle of history repeating itself for our future generations by denying PolyMet's proposal to mine until there is absolutely no vagueness or uncertainty, and that all possible situations and unexpected events have established procedure that maintain the responsibilities set forth under the original permitted actions.	PD01
15386	damage to wetlands surrounding the project site and direct destruction of 913 acres of wetlands by the project are inadequately mitigated. The majority of mitigation for direct destruction will take place outside the Lake Superior Basin and therefore does not mitigate the impact of the project on the Lake Superior Basin.	WET03
15387	Deny the Section 404 wetlands destruction permit and require a reassessment in the SDEIS of likely impacts to surrounding wetlands outside the project footprint.	COE05
15388	he SDEIS also fails to explore alternatives such as comparing an underground mining alternative with the proposed open pit mine; placing waste rock back into the pit; placing liners under the waste rock pile and tailings piles; or implementing engineering solutions to reduce water drainage away from Partridge River Watershed wetlands and streams. … Require an SDEIS which documents these alternatives and compares them with the current proposal for eliminating water contamination of any kind.	ALT01, ALT03, ALT07, ALT10
15389	The PolyMet SDEIS lacks a health risk assessment which sufficiently addresses likely impacts and effects of airborne and seepage contaminants on drinking water wells, surface waters and human-consumable resources of fish and wild rice, and on aquatic and terrestrial wildlife throughout the watershed, including threatened and special concern species. Leaders of the DNR, demand that PolyMet include a health risk assessment that adequately demonstrates their project will have no health impacts on Minnesota residents, fish and wildlife.	HU01
15390	Deny PolyMet a mining permit until all of its inadequacies are corrected with well-substantiated data and with guaranteed measures to negate adverse impacts for the entire expected duration of the problem.	NEPA09
15391	The precedent that you set in allowing a hard rock mining permit in sulfide-bearing rock will set the bar for any subsequent applications for similar mining. Insufficient regulatory attention to human and environmental safety will not only be a failure of your responsibility to Minnesota, but to those looking at your actions as a model across the United States.	PER07
Sender Name (Submission ID)	Kahsha Hyde (36412)	
8880	[My family] drink directly from the lake that borders our property...our food is mostly grown on our own land or harvested out of the woods around our home... the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system. My food source will be extinguished if this happens.	WR042, WR141
8890	[My family] drink directly from the lake that borders our property...our food is mostly grown on our own land or harvested out of the woods around our home… the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system. My food source will be extinguished if this happens.	WR042, WR141

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kahsha Hyde (36412)	
8895	[My family] drink directly from the lake that borders our property...our food is mostly grown on our own land or harvested out of the woods around our home… the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system. My food source will be extinguished if this happens.	WR042, WR141
8924	[My family] drink directly from the lake that borders our property...our food is mostly grown on our own land or harvested out of the woods around our home… the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system. My food source will be extinguished if this happens.	WR042, WR141
8925	[T]he moose population is facing huge depletion. These animals are dying, and although they are being studied to find out why, further stress on their natural habitat could potentially push them over toward endangered.	WI01, WI02
8933	[My family] drink directly from the lake that borders our property...our food is mostly grown on our own land or harvested out of the woods around our home… the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system. My food source will be extinguished if this happens.	WR042, WR141
8969	[My family] drink directly from the lake that borders our property...our food is mostly grown on our own land or harvested out of the woods around our home… the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system. My food source will be extinguished if this happens.	WR042, WR141
9116	[My family] drink directly from the lake that borders our property...our food is mostly grown on our own land or harvested out of the woods around our home… the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system. My food source will be extinguished if this happens.	WR042, WR141
10471	My family doesn't buy past or rice, we harvest wild rice. Animals, which we hunt and eat, depend upon the water too. This and the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system. My food source will be extinguished if this happens….	SO02
10482	The minerals are not going anywhere - I urge you to move towards further - non bias- research.The development of new, less destructive mining techniques could be just around the corner. Someday the minerals will be safely accessible, then we will be able to have clean water, protected environments and mining. Until then, put the safety of our land, water, and natural systems above that of consumerism and capitalism.	NEPA03
11116	My family lives well below the poverty line, but we always have plenty to eat. ...We afford all we need to because our food is mostly grown on our own land or harvested out of the woods around our home. Our vegetable garden needs water, and durning the dry weeks, when we are not able to collect rain water, we haul water from the lake. ... My family doesn't buy past or rice, we harvest wild rice. Animals, which we hunt and eat, depend upon the water too. This and the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system. My food source will be extinguished if this happens…	SO09, WR156
11120	the effects of copper sulfate mining are potentially, significantly, vastly more detrimental than those of pit mining...The development of new, less destructive mining techniques could be just around the corner. Someday the minerals will be safely accessible, then we will be able to have clean water, protected environments and mining.	PD27
11122	Perhaps the threat of human health is enough to direct attention to the severe need of a study done in greater depths about all aspects of this proposal.	HU01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kahsha Hyde (36412)	
11345	... the moose population is facing huge depletion. These animals are dying, and although they are being studied to find out why, further stress on their natural habitat could potentially push them over toward endangered. Another species, facing endangered status because of human development is a shame to say the least, but to put our own goals … ahead of a unique species is unforgivable.	WI01, WI02
12894	[My family] drink directly from the lake that borders our property… This and the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system.	WR042, WR141
12897	[T]he moose population is in the midst of a huge depletion. These animals are dying, and although they are being studied to find out why, further stress on their natural habitat could potentially push them over toward endangered.	WI01, WI02
12898	How do we know that this mine will not cause an increase in sick, poisoned or deformed people? Perhaps the threat of human health is enough to direct attention to the severe need of a study done in greater depths about all aspects of this proposal.	HU01
12900	My peers who are pro mining at the time being say that they will have jobs and the town will thrive again. I believe this is true - for about half the population for maybe 50 years. Then the town will fail again, just like Ely did when the Sedan mine closed	SO02
14234	500 years is a long time. The USA has only been established for half of that. How can the treatment of the mine be assured when people have forgotten and the copper has long since been used up. Revolutions, climate changes, falls of empires may happen before the mine site is no longer in need of treatment. That time line is too unstable to be realistic.	FIN01
14695	Once I can be assured that the water systems are 100% free of being potentially polluted, I too will support the mine. Until then, I live in fear that someday I will not be able to feed my family or spend my life in the area I have chosen. ...put the safety of our land, water, and natural systems above that of consumerism and capitalism.	SO01
14696	to put our own goals, which will not be affected negatively by waiting 5 to 30 years (other than different people get rich), ahead of a unique species [(e.g., moose, lynx, wolf)] is unforgivable.	SO01
14698	How do we know that this mine will not cause an increase in sick, poisoned or deformed people? Perhaps the threat of human health is enough to direct attention to the severe need of a study done in greater depths about all aspects of this proposal.	HU01
16081	Taconite or iron ore mining are in a completely different category than copper sulfate mining...copper sulfate mining [is] potentially, significantly, vastly more detrimental than those of pit mining.	PD27
16082	Someday the minerals will be safely accessible, then we will be able to have clean water, protected environments and mining. Until then, put the safety of our land, water, and natural systems above that of consumerism and capitalism.	NEPA03
16083	[After mine closure,] instead of imaginative locals turning my beautiful town into a center for the arts and a hub for wilderness exploration, we will have no wilderness to explore, because our impatience pushed us to mine unsafely, with out adequate research and preparedness.	SO02
Sender Name (Submission ID)	Kai` Hoffman (4288)	
1873	there have been no known sulfide mines that haven't polluted water systems.	WR023
1874	Others [lakes] will be harmed as well, and no tourists will want to come to northern Minnesota to see polluted lakes… The lakes will no longer be safe to … swim in.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kai` Hoffman (4288)	
1876	If sulfide mining starts, all those lakes [in and around the Boundary Waters] ... will eventually be polluted. After many years Lake Superior will be polluted as well…. The lakes will no longer be safe to drink.	WILD02
Sender Name (Submission ID)	Kaia Anderson (44603)	
12057	This mine will destroy an area, leave harmful pollutants, and create an unfit environment for the animals living around the area.	PD01
12058	Even if it brings slight economic benefit do you really think Polynet will remain relevant and support the clean up for 200-500 years?	FIN01
Sender Name (Submission ID)	Kaia Knutson (42754)	
14442	I am opposed to the proposed sulfide copper mine. I want our Minnesota wetlands to be protected from pollution. I want our wild rice lakes to thrive without threatening the water quality or fluctuating water levels that may be caused by this copper mining.	WR115, WR195
14444	I ask you to deny the land exchange and preserve the current Superior National Forest for wild life habitat and human low-impact recreation.	LU06, WI02
14445	Please stop this Polymet project and Section 404 Permit. We need to prevent further pollution and destruction of Minnesota's precious wetlands.	COE03
Sender Name (Submission ID)	Kaia Lindquist (54534)	
19067	The mining will inevitably negatively effect the MN environment far into the future. Forever effecting the pH and polluting the waters.	WR115
19068	The plans for protecting this pollution are not complete enough to be a safeguard. If the mining were to continue and pollute there are not concrete plans of who would be responsible nor sufficient safeguards to fix what would go wrong.	FIN01
Sender Name (Submission ID)	Kaia Svien (54650)	
17981	Clearly, the people of northern MN want and need jobs. This very real need, of an urgent short term nature, seems to be blinding folks to long term destruction and the drying up of most jobs that will happen after construction is completed. Can we not. as a state. Be creative enough to look at the issue of what kind of environmentally-friendly jobs can be brought to the Range? It sounds to me like the fiscal investment needed to do so will be far less than what we all pay for damages to the environment, tourism, and naturalbeauty, that can never be restored, only contained.	SO02
19991	The PolyMet mine sounds too destructive of our natural resources to be allowed to go through. Let's put attention to brining in jobs for the Iron Range that are not detrimental to the environment.	GT01
Sender Name (Submission ID)	Kaija Ornes (44587)	
11827	I can say that it is to dense with resources and beauty to ruin it for an economics gain for about 20 years. The consequeses far out live the economic gain.	SO01
11828	Do we really think that this company will be around to make sure the clean up is up to par, in 500 years?	FIN01
Sender Name (Submission ID)	Kaitlyn Culver (54336)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kaitlyn Culver (54336)	
17315	[The mine] would affect the Ojibwe people. They are native to the land and1don't think it's fair for them to take their land away. It would also affect the Beaver Bay which could possibly ruin their habitat. Like they said in the fact sheet of cultural resources, is they are not sure whether or not it would affect animals.	CR01
17559	This land exchange would gain a lot of things such as: 2 plant species, vegetation, 9 additional plant species, etc. I think it's cool how they would gain so many things, but there are also a lot of things that they would lose. Something big that we would lose is 11 plant species. They would also lose about 1,000 acres of floodplains which they aren't super worried about.	VEG01, VEG03
17561	The Ojibwe people had the land for a long time and that's their land to have. I would decrease about 1,000 acres in different spots and let the Ojibwe people stay on their land.	CR01
Sender Name (Submission ID)	Kane Jeffery And Melissa Rust (18241)	
13619	We are against this because we purchased this property in the effort to wipe off our carbon footprint for what we use, and we feel that the actions taken by the mine undermine our personal beliefs in that area, and they outweigh -- our beliefs outweigh the proposed economic input to that area compared to the saving of the natural environment.	SO02
Sender Name (Submission ID)	Karen & Kalen Johnson (11571)	
2220	Perpetual pollution at the Mine Site and Plant Site (estimated at a minimum of 200 to 500 years) this is totally unacceptable	WR035
2222	We do not want our children and grandchildren’s health compromised.	HU03
3241	There is not a sulfide mine in existence which has not negatively impacted the environment.We do not want Minnesota to become a huge future superfund clean-up site at taxpayer expense.	PD26
14355	Perpetual pollution at the Mine Site and Plant Site (estimated at a minimum of 200 to 500 years) this is totally unacceptable. A few, limited jobs are not worth centuries of environmental degradation.	FIN01
Sender Name (Submission ID)	Karen B Holden (42721)	
9904	Who will positively insure for 500 years that State and Federal regulations are being followed in terms of preventing environmental and ecological degradation to some of the last near-wilderness quality areas in the UnitedStates?	PER06
Sender Name (Submission ID)	Karen Bell-Brugger (41961)	
2158	the company will conveniently declare bankruptcy when it comes time to pay for the damage it has created. Then our children will get to pay for the horrible mess left behind.	FIN01
12880	There is a lot of talk about PolyMet having to have a fund for future clean-up of our water. What I imagine is the reality of the situation- after PolyMet has retrieved all it can from our land, it will go bankrupt to avoid having to pay for 500 years of polluted water clean-up.	WR037
12881	Then, Minnesotans in the future will have the opportunity of paying endlessly to do the clean-up work themselves, or they learn to live with a devastated landscape	LU06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Karen Cedarmoon (47300)	
16929	We see the proposed 500 year damage to the environment as absurd. Our Nation is less than 500 years old. There is not a company that has lasted that length of time yet you are considering allowing this mining company to do that kind of damage with their assurance they will clean it up. (…) no amount of money can really reasonably guarantee the clean up and safety of the earth and its people.	FIN01
16930	The small number of jobs dangled before our eyes does not come anywhere close to the jobs that will be lost due to the loss of environment that no doubt will occur	SO01
Sender Name (Submission ID)	Karen Gardner (57981)	
19844	Toxic sulfates will destroy Minnesota's streams, river, and watersheds.	GEN01
Sender Name (Submission ID)	Karen Graham (38865)	
5355	The plan is flawed, vague handling of data and specifications, and oblique assurances of PolyMet being a good partner in a 500+ year environmental disaster.	PD01
5356	I respectfully request that the MNDNR and PolyMet answer the questions raised by the Fond du Lac tribe of Chippewa, Water Legacy organization, and the Audubon society to their satisfaction.	CR06
5358	Write a concentration range of sulfide contamination in water treated through the reverse osmosis plant to provide clean water: - specification on the reverse osmosis system for handling the waste water; - purity of treated water in holding water.	WR143
5359	Recalculate the number of reverse osmosis systems needed to handle water purification treatment.	WR143
5360	Rewrite to require water treatment facilities be built before mining commences…Proposal stipulates that facilities won't be built for 40 years after the mining process begins. As the mine is expected to operate for about 30 years. It is also only designated to handle the mine's intentional surface water discharge.	WR143
5361	Develop program to treat seepage from mine pits, waste rock, and tailings piles to be treated to produce clean water. The contaminants will not decrease. Be sure to check the plan for these details using real numbers from outside non-mining expert sources such as environmental experts studying hydrology.	WR035, WR070, WR143
5362	Rewrite to be in high risk Category specification for permanent 526 acre, 25 story waste rock piles generated by the mining process.	PD16
5363	Rewrite to be in high risk Category specification for pile tailings on old LTV tailings site also unlined. The 1950s tailings dump site were built on top of streams to allow water to drain through the tailings. Surface and groundwater seepage at these sites currently violate water quality standards.	WR054, WR070
5364	Rewrite to be in high risk Category specification for sulfate and mercury levels. Sulfate increases methyl mercury formation. Our waters are already at high risk doesn't mean that no control is acceptable.	MERC08
5365	Rewrite specification for manganese to meet level set by MN Dept. of Health to prevent brain damage in infants, children, and adults. Current specification of 1506 micrograms/L in the tailings. This spec is 15x higher limit than set by the MN D of Health to prevent brain damage in infants, children, and adults.	WR110, WR123

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Karen Graham (38865)	
5366	Rewrite specification for arsenic output to meet level set by Minnesota's cancer risk rule. Current specification allows arsenic contamination at the tailings to increase by 417% resulting in 38.5% allowable increase for water at Colby Lake used for drinking by Hoyt Lake residents.	WR110, WR123
5367	Rewrite specification for surface water quality to meet MN water quality standards for toxic pollution in the wetlands. Proposal allows overall degradation of Minnesota surface water quality near the mine and tailings significantly below set standards.	WR112
5368	Rewrite specification to identify volume of clean water used for mining processes. No estimate of clean water tonnage used in mining process and replaced with contaminated water	WR056, WR181
5369	Rewrite proposal including detailed analyses and detailed information on mitigation to allow study of other water quality and quantity issues. USA EPA commented on lack of detailed analyses and detailed information on mitigation prevent the analyses of other water quality and water quantity issues.	WR130
5370	Undergo reevaluation of fractures and fissures using current geologic data including the report from US Geological Survey (2000-2010), MN Geologic survey, and Fond du Lac tribe of the Chippewa.	WR010, WR011, WR014, WR087, WR168, WR169
5371	Assess rock fractures due to blast vibrations at the mine site. No assessment of blast vibrations effects at mine site in proposal.	WR016
5372	Reevaluate rock conductivity for specific areas that are more sensitive such as at fissures, and fractures. Proposal only averages rock conductivity entire area.	WR010
5374	Reevaluate mine process using underground extraction which would greatly reduce forest, rare habitat, and wetland losses. The cost of maintaining water quality facilities and safeguards for 500+ years may offset the initial cost of underground mining.	ALT01, ALT13
5375	Reevaluate land exchange for loss of high biological and biodiversity significant land as classified by the MN Biological Survey. The proposal describes the impacts of their land usage as too small to consider significant for the 3014 acre mine site.	VEG02
7779	PolyMet's proposal to mine low grade ore by open pit as the only option for the company's economic advantage. Rejecting the SDEIS proposal doesn't necessarily stop bring jobs to the state only bringing jobs by the option favored by PolyMet.	SO01
10495	A DNR Hydrology memo shows that the average flow of the Partridge River is 1.5 CFS, while the GoldSim model uses a 0.5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS.	WR003
10501	The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility.	WR067
10511	Rewrite to require water treatment facilities be built before mining commences. Proposal stipulates that facilities won't be built for 40 years after the mining process begins. As the mine is expected to operate for about 30 years -- this action is too little too late.	PD03, WR143
10513	Rewrite proposal defining how the centuries of operations, maintenance, monitoring, and reconstruction of water treatment facilities will be handled and financed. No details are provided in proposal addressing these issues.	PD09, PD35

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Karen Graham (38865)	
10522	Rewrite the specifications for the following to meet acceptable environmental protection as determined by state agencies, state and federal laws, and state and federal standards: a. Rewrite to be in high risk Category specification for permanent 526 acre, 25 story waste rock piles generated by the mining process….b. Rewrite to be in high risk Category specification for 2 mile wide tailing piles also unlined….c. Rewrite to be in high risk Category specification for pile tailings on old LTV tailings site also unlined. …d. Rewrite to be in high risk Category specification for sulfate and mercury levels…e. Rewrite specification for manganese to meet level set by MN Dept.of Health to prevent brain damage in infants, children, and adults….f. Rewrite specification for arsenic output to meet level set by Minnesota's cancer risk rule….g. Rewrite specification for surface water quality to meet MN water quality standards for toxic pollution in the wetlands…h. Rewrite specification to identify volume of clean water used for mining processes.	PD03, PD07, PD08, PD11, PD16
10531	Undergo reevaluation of fractures and fissures using current geologic data… Assess rock fractures due to blast vibrations at the mine site. Reevaluate rock conductivity for specific areas that are more sensitive such as at fissures, and fractures.	WR010, WR011, WR012, WR014, WR016, WR071, WR087, WR090, WR099, WR168, WR169, WR179
10534	Reevaluate mine process using underground extraction which would greatly reduce forest, rare habitat, and wetland losses.	ALT01, ALT13
10537	Reevaluate land exchange for loss of high biological and biodiversity significant land as classified by the MN Biological Survey.The proposal describes the impacts of their land usage as too small to consider significant for the 3014 acre mine site.	WI02
10586	If [Polymet] won't accept responsibility for producing a quality report, what makes you think they "plan" to do anything different when operating the mine?...Think of this again, it will take maintaining environmental processing of tons of waste spread out over acres, twice the age of country and then some….	FIN01
11506	The option for underground mining must be considered because the open pit mine has not been projected.	ALT01, ALT06
13331	The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1.5 CFS, while the GoldSim model uses a 0.5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area.	WR003
13332	If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment	FIN05
13335	Write a concentration range of sulfide contamination in water treated through the reverse osmosis plant to provide clean water:- specification on the reverse osmosis system for handling the waste water- purity of treated water in holding water.	WR143
13341	Rewrite the specifications for the following to meet acceptable environmental protection as determined by state agencies, state and federal laws, and state and federal standards: a. Rewrite to be in high risk Category specification for permanent 526 acre, 25 story waste rock piles generated by the mining process….b. Rewrite to be in high risk Category specification for 2 mile wide tailing piles also unlined….c. Rewrite to be in high risk Category specification for pile tailings on old LTV tailings site also unlined. …d. Rewrite to be in high risk Category specification for sulfate and mercury levels…e. Rewrite specification for manganese to meet level set by MN Dept.of Health to prevent brain damage in infants, children, and adults….f. Rewrite specification for arsenic output to meet level set by Minnesota's cancer risk rule….g. Rewrite specification for surface water quality to meet MN water quality standards for toxic pollution in the wetlands…h. Rewrite specification to identify volume of clean water used for mining processes.	PD29

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Karen Graham (38865)	
13342	Reevaluate mine process using underground extraction which would greatly reduce forest, rare habitat, and wetland losses.The cost of maintaining water quality facilities and safeguards for500+ years may offset the initial cost of underground mining.	ALT01, ALT06
16931	the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions… Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity	WR065
16932	Redo the GoldSim water model using assumptions based on adequate and accurate field data	WR056, WR071, WR167
16933	Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013	WR165
16934	Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance	WR003, WR189
16935	Recalculate the number of reverse osmosis systems needed to handle water purification treatment.	PD03
16936	Rewrite to require water treatment facilities be built before mining commences. Proposal stipulates that facilities won't be built for 40 years after the mining process begins. As the mine is expected to operate for about 30 years -- this action is too little too late. It is also only designated to handle the mine's intentional surface water discharge.	PD03
16937	Rewrite proposal defining how the centuries of operations, maintenance, monitoring, and reconstruction of water treatment facilities will be handled and financed. No details are provided in proposal addressing these issues.	PD03, PD09, PD35
16938	Develop program to treat seepage from mine pits, waste rock, and tailings piles to be treated to produce clean water. The contaminants will not decrease.	PD04
16939	Undergo reevaluation of fractures and fissures using current geologic data including the report from US Geological Survey (2000-2010), MN Geologic survey, and Fond du Lac tribe of the Chippewa. Proposal assumes no fractures under waste holding site and peat bed will never leak.	PD15
16940	Assess rock fractures due to blast vibrations at the mine site. No assessment of blast vibrations effects at mine site in proposal.	WR016
16941	Reevaluate rock conductivity for specific areas that are more sensitive such as at fissures, and fractures. Proposal only averages rock conductivity entire area.	PD15
16942	Reevaluate land exchange for loss of high biological and biodiversity significant land as classified by the MN Biological Survey. The proposal describes the impacts of their land usage as too small to consider significant for the 3014 acre mine site.	VEG02
16951	Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come.	WR195
16952	I respectfully request that the MNDNR and PolyMet answer the questions raised by the Fond du Lac tribe of Chippewa, Water Legacy organization, and the Audubon society to their satisfaction.	NEPA11
16953	The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data.	WR071, WR086, WR091

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Karen Graham (38865)	
16954	If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment.	WR003, WR091
16955	the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions… Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity	WR065, WR173, WR177, WR189
16956	Redo the GoldSim water model using assumptions based on adequate and accurate field data	WR071, WR189
16957	Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013	WR003, WR086, WR091
16958	Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance	WR180
16959	Write a concentration range of sulfide contamination in water treated through the reverse osmosis plant to provide clean water:- specification on the reverse osmosis system for handling the waste water- purity of treated water in holding water.	WR063, WR143, WR147
16960	Recalculate the number of reverse osmosis systems needed to handle water purification treatment.	PD03
16961	Develop program to treat seepage from mine pits, waste rock, and tailings piles to be treated to produce clean water. The contaminants will not decrease.	PD04
16962	Assess rock fractures due to blast vibrations at the mine site. No assessment of blast vibrations effects at mine site in proposal.	WR016
16963	Reevaluate rock conductivity for specific areas that are more sensitive such as at fissures, and fractures. Proposal only averages rock conductivity entire area.	WR010, WR011, WR012, WR014, WR071, WR087, WR090, WR099, WR168, WR169, WR179
17131	Rewrite proposal defining how the centuries of operations, maintenance, monitoring, and reconstruction of water treatment facilities will be handled and financed.	FIN01, FIN11
17685	Write a concentration range of sulfide contamination in water treated through the reverse osmosis plant to provide clean water:- specification on the reverse osmosis system for handling the waste water- purity of treated water in holding water.	PD03
17686	Recalculate the number of reverse osmosis systems needed to handle water purification treatment.	WR143
17687	Rewrite to require water treatment facilities be built before mining commences. Proposal stipulates that facilities won't be built for 40 years after the mining process begins. As the mine is expected to operate for about 30 years -- this action is too little too late. It is also only designated to handle the mine's intentional surface water discharge.	PD03
17688	Rewrite proposal defining how the centuries of operations, maintenance, monitoring, and reconstruction of water treatment facilities will be handled and financed.	FIN01, FIN11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Karen Graham (38865)	
17689	Develop program to treat seepage from mine pits, waste rock, and tailings piles to be treated to produce clean water. Be sure to check the plan for these details using real numbers from outside non-mining expert sources such as environmental experts studying hydrology. We have many of these experts in this state alone.	WR035, WR070, WR143
17690	Rewrite to be in high risk Category specification for permanent 526 acre, 25 story waste rock piles generated by the mining process.	PD16
17691	Rewrite to be in high risk Category specification for 2 mile wide tailing piles also unlined.	PD07
17692	Rewrite to be in high risk Category specification for pile tailings on old LTV tailings site also unlined. The 1950s tailings dump site were built on top of streams to allow water to drain through the tailings. Surface and groundwater seepage at these sites currently violate water quality standards.	PD07, PD08
17693	Rewrite to be in high risk Category specification for sulfate and mercury levels. Sulfate increases methyl mercury formation.	PD11
17694	Rewrite specification for manganese to meet level set by MN Dept. of Health to prevent brain damage in infants, children, and adults. Current specification of 1506 micrograms/L in the tailings. This spec is 15x higher limit than set by the MN D of Health to prevent brain damage in infants, children, and adults.	HU03
17695	Rewrite specification for arsenic output to meet level set by Minnesota's cancer risk rule. Current specification allows arsenic contamination at the tailings to increase by 417% resulting in 38.5% allowable increase for water at Colby Lake used for drinking by Hoyt Lake residents.	HU03
17696	Rewrite specification for surface water quality to meet MN water quality standards for toxic pollution in the wetlands. Proposal allows overall degradation of Minnesota surface water quality near the mine and tailings significantly below set standards.	PD03
17697	Rewrite specification to identify volume of clean water used for mining processes. No estimate of clean water tonnage used in mining process and replaced with contaminated water	PD30
17698	Rewrite proposal including detailed analyses and detailed information on mitigation to allow study of other water quality and quantity issues.	WR023, WR042, WR128, WR130
17699	Undergo reevaluation of fractures and fissures using current geologic data including the report from US Geological Survey (2000-2010), MN Geologic survey, and Fond du Lac tribe of the Chippewa. Proposal assumes no fractures under waste holding site and peat bed will never leak.	WR012
17700	Assess rock fractures due to blast vibrations at the mine site. No assessment of blast vibrations effects at mine site in proposal.	WR016
17701	Reevaluate rock conductivity for specific areas that are more sensitive such as at fissures, and fractures.	WR007, WR008
17702	Reevaluate mine process using underground extraction which would greatly reduce forest, rare habitat, and wetland losses.	ALT01, ALT13
17703	Reevaluate land exchange for loss of high biological and biodiversity significant land as classified by the MN Biological Survey.	VEG02
19037	The option for underground mining must be considered because the overall cost of the open pit mine has not been projected. PolyMet has considered initial costs only. PolyMet has their profits as prime consideration. They are not partners with the state of Minnesota.	ALT01
Sender Name (Submission ID)	karen heegaard (21214)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	karen heegaard (21214)	
12418	What is the plan for catching and monitoring all water exposed to sulfide tailings for 500 years given fractured bedrock and fluctuating water tables? How does a mine that needs hundreds of years of monitoring comply with Minnesota law that requires mines to be maintenance free at closure?	WR037, WR090, WR130
12425	The financial assurance and contingency plans are inadequate for what we know will be needed let alone what we cannot foresee at this moment.	FIN05
Sender Name (Submission ID)	Karen Johnson (39701)	
6426	I grieve that we are so enamored of business and money that we will risk ruining these waterways and woods that cannot be redeemed after businesses ruin them.	SO02
12954	I grieve that we are so enamored of business and money that we will risk ruining these waterways and woods that cannot be redeemed after businesses ruin them.	SO02
14020	Please don't ruin the water and woods in order for some company to make money. There are things in this world that aren't replaceable and once water, air, and land have been poisoned there is no way back. Surely our next generations deserve to have their inheritance protected.	WILD02
Sender Name (Submission ID)	Karen L Dingle (48645)	
12811	A quick review of the XStrata labor and environmental history in the more than 100 copper mines they own world-wide shows that we cannot [be trusted]. They routinely violate laws and standards with impunity and seem to be large enough that they are not held responsible for their actions.	PD23
Sender Name (Submission ID)	Karen Lackner (10854)	
12461	Plus I found a statement about eagles in and around the proposed mine site that was a complete fallacy. They obviously were 'not' looking up.My husband and I have seen with our own eyes eagles maturing. That is changing from their brown head to white heads. Hence, there are obviously nests. The same goes for osprey. And I would like to add eagles [do] live, hunt, fish, etc... around small lakes. The report stated "that they are found around large bodies of water so eagles will not be affected." This simply is not true.	WI01
Sender Name (Submission ID)	Karen Ladner (9328)	
932	the unknown impact to the land, wildlife and BWCA as a whole is to risky given the facts as they state them to be.	WI13
Sender Name (Submission ID)	Karen Main (57170)	
18693	Please do not permit PolyMet as the pioneer in sulfide mining. The company's lack of experience is a red fla[g] for its ability to cleanup, to insure proper pollution controls in the process. Surely the abysmal rating on its initial EPA proposal gives sufficient cause to turn down the application.	NEPA15
Sender Name (Submission ID)	Karen Pearson (42757)	
14459	Its as if we are selling our "soul" – our pristine environment and water supply for a very short-term gain in jobs – 20 years compared to hundreds of years of treating waste water!!!	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Karen Pearson (42757)	
14460	Polymet could be gone in 20 years, or less, and MN will have a massive pollution issue to deal with. Will those jobs even be for our existing MN people?	FIN10
Sender Name (Submission ID)	Karen Ringsrud (39277)	
7204	sulfide mining of this sort has never been done safely, without environmental damage, anywhere in the world.	SO01
Sender Name (Submission ID)	Karen Stady (57179)	
18667	I strongly believe that the BWCA needs to be preserved and protected for the enjoyment of all people, now and for future generations. Mining near this area isn't worth the risk of contaminating it.	WILD02
18669	If there is mining in the watershed, contaminants will be washed into the bodies of water. Please put the environment ahead of profits.	SO02
Sender Name (Submission ID)	Karen Thompson (35164)	
13052	And, the possibility of a few jobs being prevented doesn't equal hundreds of thousands of people losing their natural resources which were purposely saved for their enjoyment and healthy living.	SO01
Sender Name (Submission ID)	Karen Williams (45874)	
10267	Nonferrous sulfide mining with its consistent historical record of pollution and SDEIS projected 500 years of water cleanup should never be seriously considered. … This kind of mining has never been successfully nonpolluting in similar environments. A brief Internet search reveals numerous lawsuits against mining companies for environmental damage, water pollution, and human health issues.	HU03, WR023, WR115
10271	…sulfuric acid pollution is toxic to aquatic ecosystems...Dangerous contamination of water is inevitable which would destroy wetlands, pollute underground water, rivers, and lakes, and endanger fish and animal habitat. The current decline of the moose population may be related to water issues.	AQ08
10273	Of course, human health would be in jeopardy.	HU03
10277	Loss of tourism dollars would negatively impact the economy when the recreational opportunities and beauty are lost due to sulfide mining.	SO02
10279	...only 25% of the proposed 360 permanent jobs would be local hires. Much is in jeopardy for only 90 jobs. Little financial security has been provided by NorthMet for the inevitable clean up - expected to be more than 500 years worth! It appears that taxpayers…would be responsible for the burden of cleanup at astronomical expense. Other states now require hundreds of billions of dollars to he held for reclamation and clean up.	FIN01
Sender Name (Submission ID)	Kari Block (44300)	
11849	I do not want this in our water supply. Nothing is 100% safe. This could cause severe ecological consequences.	WR195
Sender Name (Submission ID)	Kari G Wenger (54516)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kari G Wenger (54516)	
19178	My first concern is around the ability for the MDNR to secure the compensatorymeasures for the detrimental aspects of this mining project.	FIN01
19180	Even if Polymet did bring 300 jobs at $50,000 a year to StLouis County for the 16 years of the project that would be $300 million…We have an estimate of environmental costs up to $160 million for the first 16 years followed by $3.5-6M a year there after for a estimated minimum of200 years so that is $1.360 billion (yes, that's a "B" for "Billion").	SO07
19182	The environmental methods for minimizing the water pollution have not been used before and are un-tested in real life situations. There is a real possibility that the clean up could cost substantially more. How can the MNDNR secure this need? What if clean up costs more than Polymet made on it's mining? Or even the worth of the whole company?	FIN05
19183	Financially how is the MNDNR going to get a company to put aside and continue to pay for their environmental impact when the people and the company are long gone and the environmental costs are hard to estimate?	FIN01, FIN05
19184	How is the MNDNR going to guarantee that the next 17 generations of people (taxpayers) are not going to be paying for the mess Poly Met leaves behind?	FIN01
19185	in no way is there enough money put aside by Poly Met to pay for the decades-- and even centuries-- of clean-up it will require.	FIN05
Sender Name (Submission ID)	Kari Jacobson (38849)	
5127	I am deeply concerned by the modeling results in the SDEIS that show water must be treated in perpetuity to prevent the St. Louis, Partridge, and Embarrass Rivers from becoming heavily polluted by copper, lead, sulfate, aluminum, and other pollutants.	WR115
5128	However, NEPA documents such as the SDEIS for PolyMet have repeatedly shown that they are not reliable in predicting water quality problems (Maest and Kuipers, 2005 Predicting Water Quality at Hardrock Mines).	WR023
5129	This is glaringly clear in PolyMet's SDEIS, as it was recently discovered that the models predicting flow rates and hydrology in the Partridge River are deeply flawed. The claim in the SDEIS that no water quality exceedances will occur during or after mining is based on this flawed model, and so any predictions about water quality and quantity based on these models must now be ruled out as false. The groundwater models in the SDEIS are also flawed and seem to claim that no impacts will occur outside the area of permitted action.	PD29, WR003
5130	The Minnesota Pollution Control Agency's track record in regulating taconite mines on the Iron Range is not good, and it is likely that there will be little political will to enforce regulations when PolyMet begins to have its own water quality exceedances.	PER06
5132	Water treatment for centuries has never been done, and the probability of such long-term water treatment being successful is highly unlikely. To propose such a thing as a matter of course is deeply immoral and saddles future generations with a terrible burden.	WR128, WR195
5134	PolyMet and mines like it are allowed to dump toxic tailings and overburden into streams and wetlands because of two mining loopholes in the Clean Water Act. I support the National Wildlife Federation's call to the EPA and the US Army Corps of Engineers to close these two loopholes through a rule change.	PER09
5138	The Clean Water Act's "waste treatment system exclusion" should apply only to manmade waters and the definition of "fill" should be amended to exclude waste disposal.	PER09

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kari Jacobson (38849)	
5141	PolyMet downplays the direct and cumulative impacts the mine will have on the landscape. Losses will include 1,741 acres of Minnesota Biological Survey sites of High Biodiversity Significance; 698 acres of Jack pine/black spruce forest, which are considered imperiled/vulnerable in Minnesota; 912 acres of high quality wetlands; and portions of one of only twelve known populations of floating marsh marigold in the state.	VEG01, VEG02, VEG03
5143	PolyMet's operations will constitute a significant barrier to wildlife migration, and the wetlands lost will both release the carbon stored in these systems and prevent future carbon sequestration.	WET13, WI03
5149	The loss of both land and access for band members from the Bois Forte, Grand Portage, and Fond du Lac Bands is of deep concern. Not only will access to these areas be lost, but as the surrounding natural systems become degraded, the fish, game and wild rice resources will continue decline.	VEG04
5151	The Iron Range and surrounding areas support a strong economy based on tourism, hunting and fishing, and enjoyment of high-quality natural resources. We should be in a mindset of preserving these natural resources, not discussing ways to degrade them for the sake of extractive industry and the short-term (20 years) economic impacts that PolyMet claims will come with the construction of a mine.	SO01
Sender Name (Submission ID)	Kari Sealund (34650)	
13252	Also in the Penokee Range Mining done by GTAC, rocks containing asbestos form minerals have been found causing much alarm about mining in that area.I have grave concerns about these project's potential impacts on our region's natural resources and public health…	HU03
Sender Name (Submission ID)	Karin Winegar (10751)	
8052	The mine will have tragic environmental impacts on surface and ground water quality for hundreds of years, if not forever.	WR115
10766	It seems to me that it would be saner, safer, cleaner and cheaper to use state funds to employ all these willing workers in green or at least neutral jobs than to allow the destruction of our north country water. Jobs, certainly, are a priority, but not short term and not at this cost.	SO02
10768	The mine would be in our Superior National Forest lands--how can the state consider allowing public lands to be exploited (and certainly polluted, possibly permanently) for private investor profit?	LAN02
12254	I learned that the numbers used for stream flow were hugely underestimated by the company and the first Environmental Impact Statement therefore got a failure grade by the EPA.	WR003
19940	It would be wise and more economical both the short and long term to provide good jobs (using state funds of necessary) than to expect or trust a mining company to provide well paying, long term significant numbers of jobs in northern Minnesota.	SO01
19956	Our northern water and Superior National Forrest should stay protected and intact. It is a public resource, not a site for corporate exploitation and profit of international investors.	GT01
Sender Name (Submission ID)	Karl Koenig (1942)	
102	mining activities are not consistent with the [US Forest Service] management objectives	CU09
Sender Name (Submission ID)	Karla (44815)	
7745	I do not believe this can be done without serious harm to water quality, wetlands and wildlife habitat.	WET24, WI02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Karla Faith (40168)	
6280	Mapping done by the PolyMet miss represent the boundary of the 100 mile swamp implying that the drainage of the swamp is in one the direction only and away from the boundary waters. In the maps drawn in the US government atlas www.nationalatlas.gov/streamer the 100 mile swamp flows into two watershed areas. One of which drains to the boundary waters.This contradiction in mapping presents evidence that danger to the boundary waters is being under reported in the environmental impact statement .	WET19, WR024, WR080, WR081, WR175
6291	At a minimum plans for hydrologic testing before operations and continual monitoring of water during mining operations flowing from the swamp in both directions is nessasary…Lacking this basic protection PolyMets proposal is deficient for clear assessment of the danger to the water flowing to the boundary waters.	WR071, WR080, WR081, WR139, WR167
Sender Name (Submission ID)	karlene plante Jim Etzel (44897)	
8173	This new proposal should not be considered as it will cause a significant amount of damage to many acres of wild habitat for many creatures, both terrestrial and aquatic.	WI01, WI02
17106	Tell the mining company to start mining the many dumps throughout the United states for the metals they seek. There should be plenty of it there.	NEPA06
Sender Name (Submission ID)	Karol Gresser (54642)	
18012	The biggest loss to me will be the enjoyment, beyond a dollar vlue, of our wilderness and the birds, fish, animals, plants and trees on the polluted land and water.	WILD02
18014	The consequences…to our people if this pollution is allowed, may be economic loss, loss of property values, physical health, mental health, and morale. We will also have economic losses to the state and our people from the loss of tourism and summer residents.	SO01
Sender Name (Submission ID)	Kate Crowley (6112)	
1038	The owners of this proposed mine can offer us all the assurances in the world that they will be good stewards and guarantee us that the pollution created by the dangerous chemicals created by and used in this mining process will not impact or impair our waters. There WILL be pollution and it WILL make its way into our waters, whether surface or underground. The studies have shown that these polluted waters would have to be treated for hundreds of years.	WR035
1039	This proposed mining project will give short term financial gain to an international company and some residents of the region, but the overall benefit will be far, far less than the overall negative impact.	SO01
1083	The studies have shown that these polluted waters would have to be treated for hundreds of years. Who of us alive today can guarantee that people in the future will have the funds or ability to sustain this sort of mitigation?	FIN01
Sender Name (Submission ID)	Kate Fitzgerald (44597)	
11841	I believe the project's risks to human health ...One of my top concerns is mercury.Having attended a very detailed and well-supported presentation by NE Minnesotans for Wilderness advocate Jane Reyer and former State Representative Frank Moe in Grand Marais on Feb. 19, everything I learned leads me to the conclusion that the PolyMet SDEIS analysis of mercury risks is misleading and inadequate. I learned that impact of lead, aluminum, and manganese in water causes damage to the human brain. That air emissions of nickel and other particulates, diesel, and asbestos-like fibers can lead to cancer, as can arsenic.	HU01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kate Fitzgerald (44597)	
11843	I am alarmed that there is no reference in the SDEIS to potential human harm--notably our most vulnerable community members: infants, children and elderly people. Additionally, the SDEIS does not asses worker at-site risks or residential well risks. Its lifetime risk assessment of 30 to 40 years is half what it should be.	HU01
11845	The SDEIS does not take into account the effect of toxic pollutants when accumulated in fish, game, and wild rice--notably the effects these toxins have on high-level consumers of these products, including regional tribal members, low-income families, hunters, fishermen, and countless children and elderly people.	SO04
15296	That air emissions of nickel and other particulates, diesel, and asbestos-like fibers can lead to cancer, as can arsenic.	AIR07
Sender Name (Submission ID)	Kate Flynn-Kitzmann (22678)	
3435	There is no way this company will be in existence to cover cleanup costs and the money they set aside will not be enough.	FIN01
3436	Many businesses in that area depend on tourism; pollution of the area would cause them to fail.	SO02
14889	Due to the unavoidable pollution effects of sulfide mining and high environmental and monetary costs I strongly urge Minnesota to say NO to this mine.	GEN01
Sender Name (Submission ID)	Kate Mahonen (54348)	
17614	The Copper-Sulfate Mining is a big project and I don't think it will benefit Minnesota enough to make it worth the tune, land, and money that it would take to go through with the mining. Yes, it would create jobs in Northern Minnesota, but is that really the only positive thing that will come out of all this? We use all of this land to create jobs in Northern Minnesota and it’s not like the jobs will be there forever. They will be filled for the 20 year span when the mining will take place but after that it will be back to square one with 13,000 acres of land destroyed from mining.	SO06
17615	The Polymet Mining will have a large effect on the cultural resources being that there are four or five locations that would be affected from this mining process.	CR05
17616	The Land Exchange is another big problem I see coming from the mining. The company PolyMet, would like to use a bunch of public land as well as gain private land. I don' t think it makes one bit of sense to lose a bunch of public land so that a company can mine it, and then leave it as a piece of crap that will never be the same agan1. This mining would affect me in major ways. We use this land and its what makes Minnesota, Minnesota.	LAN01
17684	[Because of my exposure to this project] now I realize how many dumb things could happen to our state without the voices of our local citizens being heard.	GEN03
Sender Name (Submission ID)	Kate Smith (58152)	
20028	What seems to be missing in the EIS is an accounting for the flow of money both as future costs and benefits. Without that information, it is impossible to know if the project is viable and environmentally sound.	SO07
Sender Name (Submission ID)	Kate Winsor (44051)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kate Winsor (44051)	
7589	I am especially concerned about the impact such a mine will have on resident, nesting, and migratory birds.	WI01
7601	I am also concerned about the impact to the Superior National Forest.	WILD02
Sender Name (Submission ID)	Kate Zimmerman (54360)	
18220	the proposed project could affect the endangered or threatened species that live in this area. They could be affected by the noise, traffic or vibrations caused to their habitats by the projects. Their habitats could also be destroyed or removed by the construction of the mine. They could also be affected by water pollution or changes in the quality of the water or the air caused by the waste products of the proposed mine.	WI01, WI02, WI04, WI05
18221	Another reason that I do not support the project is the effect it could have on the Ojibwa that live in this area. The waste products from the project could affect the animals and plants in that area. Some resources that they use could be affected as a result of the proposed project. The proposed project could also affect other cultural resources that are located in or near the area of the project.	SO02
18222	the project will affect the quality of the water in that area. ...The project could add to the water Mercury that might be present in waste materials. Metals could also be released that will affect organism in the water even if it is a low concentration of the metals. It could also add sulfate to the water from the chemical reactions of the waste products. This sulfate could affect the growth and viability of wild rice that is grown on the rivers.	WR107, WR108, WR156
18223	The proposed project could also affect the wild rice that is grown downstream of the site for the project. Wild rice is an important environmental resource of Minnesota and also has a cultural significance to the Ojibwa people of Minnesota.	CR01
Sender Name (Submission ID)	Katelyn Soukkala (15080)	
366	Sulfuric acid will lead to the production of toxic heavy metals in water. This will lead to the methylation of mercury. Methylmercury is the kind that accumulates in fish which can put humans in danger of having mercury toxicity.	HU03
375	Another reason that I disagree with letting PolyMet mine in Minnesota is ... Cutting down the forest would not only kill many plants and animals, it also would destroy peatlands.	VEG03
376	The final reason that I oppose mining near Babbitt and Hoyt lakes, Minnesota, is because the mine would only be open for twenty years and there would be over five hundred years of environmental damage.	WR115
379	It seems like a huge habitat loss for such little gain.	VEG03
383	If [PolyMet] were to figure out a way to protect the environment, I would reconsider my opinion. Too much of our ecosystem is at risk with the current mining plan.	PD01
1816	Sulfide mining has a few benefits, however I believe the detrimental impact it will have on our environment outweighs all of the potential gains.	SO01
Sender Name (Submission ID)	Katharine Rauk (52349)	
17014	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies	WR060, WR181, WR182, WR189, WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Katherine D. Doerr (19984)	
1620	I am shocked that the state of Minnesota is considering this proposal in light of evidence that this project threatens the quality of a major water shed and would create serious air pollution in a highly valued tourist area.	AIR11
1621	Please consider the value of our state's public health, especially the air and water resources, which would be prohibitively costly to rectify, if damaged.	HU01
1622	The long term costs to our northern communities with the loss of safe drinking, bathing water and breathable air cannot be overlooked. The idea that providing jobs is worth such a trade off is ludicrous and very short sighted	SO01
Sender Name (Submission ID)	Katherine Doyle (41813)	
2040	If this does become mechanically and financially feasible, please make sure the mining companies are able to pay for the substantial costs of dealing with the pollution. The unmeasurable and unpredictable long term costs should not be shifted to the tax payers.	FIN01
2041	Although mining jobs are important to Northern Minnesota, a healthy habitat for humans, animals, and plants is certainly more important.	SO02
15423	the Minnesota DNR's first job should be to do no harm and protect the environment.	PER35
15424	the risk is very real and should not be tolerated by an agency with the responsibility of protecting our precious environmental resources. Pollution is not progress, and jobs which pollute the environment are not blessings.	SO01
Sender Name (Submission ID)	Katherine G Lewis (54807)	
18310	The pollution could go on for years, maybe hundreds of years, into the future counting the public to be taxed for cleanup	FIN01, FIN10
Sender Name (Submission ID)	Katherine G. Lewis (39022)	
4989	Please do not let centuries of environmental damage occur in exchange for brief commercial gain. We should be recycling our copper rather than selling it abroad and doing unnecessary mining here.	NEPA06
Sender Name (Submission ID)	Katherine G. Pohlman (43022)	
9562	the biggest damage to the environment would be allowing PolyMet Mining, Inc. to tear down more than 6,000 acres of federally protected land to further its profits. The proposed land exchange with the United States Forest Service does not meet the same standards the other enhancements in the new draft were held up to. PolyMet should not request a land exchange for some of the surrounding forest. The mine would make do without the land swap, and there is no reason to remove part of a natural forest when there is plenty of land to be developed around the proposed sight that does not belong to the forest.	LAN01
9567	NorthMet itself is located in the St. Louis River watershed, so although the project would not directly contaminate Lake Superior, it would aid the lowering of the water quality in the St. Louis River watershed, which eventually leads to Lake Superior. Practices at the mine would lead to an increased level of minerals and metals in the lake and in the river and its surrounding watershed.	WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Katherine G. Pohlman (43022)	
9568	Once Mercury gets into the water, it would be ingested by fish and other animals living there and eventually ingested by humans who eat the food produced by Lake Superior and the St. Louis River. Bioaccumulation would occur and the human population in Minnesota and surrounding areas that rely on food from the Lake Superior area would eventually be affected as well. Major plans to prevent this situation from occurring should be a prerequisite to allowing the mine to be built in the first place.	MERC02, MERC03
9569	By constantly digging for more natural resources, topsoil would have to be removed, the amount of runoff would increase and the stability of the soil would decrease in surrounding areas.	GT15
9570	... it would take years for the soil to be in the correct condition for trees to once again grow there after PolyMet Mining, Inc. has collected all the "usable" resources it could find. ... PolyMet should develop a plan to restore the land to proper uses before being allowed to use it for the company's own purposes...there should be an effort made to restore the land usability instead of leaving it as a barren wasteland once there is nothing else to be mined	VEG05
9576	Deforesting this area in order to mine it for its natural resources would reduce the air quality of the region and the surrounding ones.	AIR01, VEG03
9577	The NorthMet mine would produce toxins such as sulfur dioxide, nitrogen oxides, greenhouse gases, particulate matter and dust.	VEG07
9579	Although foliage cannot help extract harmful particulate matter and dust from the air, it can contribute some protection from the other three emissions [sulfur dioxide, nitrogen oxides, greenhouse gases] from the mine. Without the trees, no matter what plans are put in place to reduce the emission of toxins, the amount will always be greater than if the trees were never cut down in the first place.	VEG07
9580	There are other alternatives to the proposed plan ...One possibility is that PolyMet Mining, Inc. does not build NorthMet or has a land exchange in the area at all and has its plan rejected completely. This would leave the land the way it is now and have no detrimental effects on the surrounding environment. It would hurt the economy that would get a boost from the jobs offered at the mine, but those jobs can be made up somewhere else.	SO02
9590	…there are already mines in the area of the future NorthMet one, so the detrimental actions of this mine would build upon those of the already existing ones. This is not a problem of creating the first mine in the area, but creating yet another one.	CU04
9591	The stress another mine in the area will put on the environment is already big enough without the stress of deforesting more than 6,000 acres of forest that could otherwise attempt to offset the detrimental effects the mine will have on the environment. Accept the building of the mine, but not the deforestation of the Superior National Forest.	LAN01
Sender Name (Submission ID)	katherine lewis (41821)	
2043	Please do not let centuries of environmental damage occur in exchange for brief commercial gain. We should be recycling our copper rather than selling it abroad and doing some unnecessary mining here.	PD01
2045	Please do not allow centuries of environmental damage to occur in exchange for short-term personal gain. We need to recycle copper, not sell it overseas, and not mine it unnecessarily here. This mine will create some temporary jobs but cause enormous damage on public lands.	SO01
Sender Name (Submission ID)	Katherine McClure (58125)	
19894	500+ years of pollution is too long for so few jobs and so little money	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Katherine McClure (58125)	
20025	We would save money by funding 350 jobs instead of paying for clean up later. Let's find 350 green jobs or environmental jobs up north.	SO01
Sender Name (Submission ID)	Katherine Taylor (11265)	
2001	A large copper mine would boost the economy in the state of Minnesota, but a huge concern is the impact of polluted runoff on waterways in the area. This is the reason I believe an open-pit copper mine should not be built.	WR195
2002	The chemical byproducts of copper mining, such as sulfuric acid, run into nearby rivers and wetlands. This can cause major environmental issues with the Boundary Waters Canoe Area Wilderness, and the St. Louis River, which flows directly into Lake Superior.	WET24
2003	Sulfuric acid runoff can kill many important species of fish, and indirectly alter the food chain by reducing food availability for birds and other mammals.	AQ08, WR001, WR113
Sender Name (Submission ID)	Kathie Cerra (41804)	
2037	Sulfide mining of this sort has never been done safely, without environmental damage, anywhere in the world.	PD26
12021	The extensive pollution of groundwater, surface water, and Lake Superior is too great a cost for jobs that would last only 20 years.	SO01
12023	The mining and extraction process would result in contaiminated water that requires treatment for 200-500 years.	WR035
Sender Name (Submission ID)	kathleen (44390)	
10451	We also do not see adequate information about the impacts on wildlife, including moose and lynx… There should be more research about these effects.	WI01
10453	This is a public health concern. Already the babies of this watershed have 10 times higher mercury levels. Aluminum and lead levels would increase.	HU03
10454	The EIS also states that stockpile waste rock with a higher potential for harmful chemical reactions will be put into a mine pit and submerged under water. And how can they say that this won't get into our watershed and groundwater?	WR002, WR090
10457	Another grave concern mentioned in the EIS are the levels of sulfates in the Embarrass and Partridge Rivers... The Polymet EIS stated that sulfate could be released…How can they state that the sulfate levels will not increase?	WR064, WR177
10463	Also on the economic impact, we work at a tourism business very close to the proposed Polymet... Have you really checked out how much tourism exists by sulfide mines?	SO02
10465	It has been shown that this mining has by products of arsenic and thallium which have been linked to increased risk of cancer. We…do not want our water contaminated and Polymet has not proven that it will not be.	HU05
10466	There are many statements about computer models…The DNR itself has a report confirming what tribal scientists have said for years that the actual rate of ground water base flow is 200-300% higher than in the SDEIS.	PD29
10470	The history of sulfide mining is filled with companies going bankrupt or lacking financial resources to respond to pollution.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	kathleen (44390)	
10472	Regarding Economic Impact, Minnesota law states that sulfide mines be maintenance free at closure. This company has not indicated that it will guarantee that it will be in business this long or that it will pay for the maintenance/clean up for any pollution.	FIN01, FIN14
Sender Name (Submission ID)	Kathleen A Portugue (54898)	
18848	Protect and keep our drinking water, fish and wildlife habitat clean from all mining pollutants such as sulfuric acid from PolyMet.	AQ05
Sender Name (Submission ID)	Kathleen Brown (34910)	
13266	Glencor Xstrata is ready to buy out Polymet company and take over. They are known worldwide for their poor quality in care of the environment. They have poured acid directly into the rivers of Africa and Peru is filing lawsuits against them for their destructive policies.	FIN02
13268	When these toxins reach the air, they will leach into the ground water and int the local rivers, streams and water sources. Minnesota is the home of the Mississippi and of the largest fresh water lake in the world, Lake Superior. Both of these bodies would become contaminated forever.	WR151
Sender Name (Submission ID)	Kathleen Bryant (57217)	
17155	We are concerned that the water for our home will be polluted and the streams and ponds will be negatively impacted. How can homeowners in the area be assured of water quality and what recourse will we have if the water is polluted?	WR041, WR111
Sender Name (Submission ID)	Kathleen Groh (41878)	
16474	Copper mining is even MORE devastating and the years of pollution doesn't begin to justify short-term job gains. It just isn't worth it once the mines are depleted and the waste is left behind for generations.	SO01
Sender Name (Submission ID)	Kathleen Hamill (35862)	
11291	It is unconscionable to risk irreparable damage to the Boundary Waters region and Lake Superior. Any short-term economic benefit is eclipsed by the possibility of the devastating long-term consequences that may be suffered by our children and our children's children.	WILD02
Sender Name (Submission ID)	Kathleen Hills (47084)	
10700	the destruction to the landscape will be heartbreaking.	LU04
10704	the trade-off of twenty years of a few mining jobs for hundreds of years of pollution of sensitive habitats and a permanent ugly blot on the landscape is not worth the risk.	SO01
Sender Name (Submission ID)	Kathleen J Eggers (54785)	
19501	Although I have compassion for all the unemployed workers who possibly could find jobs with Polymet, I think we have to look at the long-term effects of such an endeavor on our state, our water ways, our drinking H2O, the future for our children. I am totally against sulfide mining in our state.	SO01
Sender Name (Submission ID)	Kathleen Jones (38959)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kathleen Jones (38959)	
17647	DO WE NEED COPPER? WHAT ABOUT FIBER OPTICS?	NEPA01
Sender Name (Submission ID)	Kathleen M. Sullivan (42282)	
6927	The poses too much of a danger of contaminating the precious waters and watershed of the area that is our one last hope of unspoiled wilderness.	WR195
Sender Name (Submission ID)	Kathleen McGee (58126)	
20031	Why...would anyone agree to risk polluting this amazing wilderness area in order to realize short-term profits that benefit a multi-national company- Glencoe? Would the state really prefer to have jobs in the short term but a polluted landscape in the long run?The negatives are just too great	SO01
Sender Name (Submission ID)	Kathleen Miller (43035)	
12617	The Polymet SDEIS does not contain any analysis of the health effects for workers or adults and children who would be working and living in close proximity to the proposed mining site. It does not address the health effects on community members who would have chronic exposure to polluted air, to polluted drinking water or in the fish caught for personal consumption.	HU04
12619	…[mine] workers (especially those of child bearing age) will need protection from the harmful effects from toxic metal exposure on their unborn and future children. Women who are exposed to toxic metals before, during or after pregnancy pass high levels of metals through their bodies to their unborn children during critical stages of brain development and through breast milk to their infants. Children's brains are very susceptible to the effects of toxic metals.	HU04
12620	Communities who drink from this watershed need ongoing treatment and reliable monitoring of the water quality and their health to ensure that the people of Minnesota will not suffer long term health problems. Who will provide financial assurance for the long term health care needs of children and their parents? What if Range cities and lake front property owners can no longer use their wells for drinking water? Who will bear the cost of providing clean water to residents and property owners?	HU01, SO07
12623	The Polymet proposal does not address the runoff from the waste piles that will directly enter into the watershed. This is a major omission in their plan.	WR173
12625	An adequate SDEIS plan would also provide for the long term treatment and care of individuals and families exposed to toxic metals in the workplace and the community.	HU04
13937	I expect that these meetings will be very well attended and not likely to accurately reflect the interest by residents unless more opportunities are offered. Three meetings is ridiculously few for this important issue.	NEPA10
17145	I am writing comments today out of my concern for the very real negative health effects on workers and the community that would occur if this mining project is permitted. Noticeably absent from the review of this proposal is an Environmental Health Assessment. It is well documented in health care and industry literature that heavy metal exposure poses long term health risks to men, women and children.	HU03
17147	I have witnessed firsthand the irreversible harm to the nervous system caused by exposure to toxic metals. These conditions are disabling and irreversible. Exposure to toxic metals either as a worker, a community member or as a vulnerable member of our society (our children and our elderly) will cause chronic disabling illnesses and cognitive decline.	HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kathleen Miller (43035)	
17148	The current situation for many lakes in the area that function in the watershed is that there are already high levels of mercury in them. This is unacceptable. The current standards need to be enforced before any new mining activity should be considered.	MERC01
17156	The expertise of the Minnesota Department of Health and the University of Minnesota School of Public Health seems to have been overlooked as a resource in developing this proposed plan. Their input is vitally important to assess and measure the effects of the proposed mining project on the health of Minnesotans well before this plan is finalized.	HU01
17157	This PolyMET SDEIS proposal lacks a review of Health Assessment Risks needed to protect the health of Minnesotans.	HU01
17158	This PolyMET SDEIS proposal … lacks an adequate plan to safely treat water from production and the waste that will be stored near the watershed.	WR128
Sender Name (Submission ID)	Kathleen Peippo (54701)	
17785	Please do not allow the health and wellbeing of the future generations to be put in jeopardy for short term gain.	SO01
17786	Copper nickel mining puts our most precious natural resource, water, at risk.	WR195
Sender Name (Submission ID)	Kathleen Smith (52560)	
15353	put Cat. 1 waste rock in a pit	ALT03
Sender Name (Submission ID)	Kathleen Sullivan (42855)	
8585	I have been reading and attending meetings to find out my information about PolyMet's intention and methods. I just do not see how they can prevent polluting and destroying the watershed of the BWCAW lakes and Lake Superior.	GEN01
8585	I have been reading and attending meetings to find out my information about PolyMet's intention and methods. I just do not see how they can prevent polluting and destroying the watershed of the BWCAW lakes and Lake Superior.	WR111, WR130
8586	PolyMet and probably other companies in the future, seek to mine copper, nickel, and other metals from sulfide-bearing ores… [exposing] hundreds of millions of tons of sulfide-bearing rock to air and water, resulting in the release of great quantities of sulfuric acid, sulfates, and heavy metals, including mercury, into groundwater and surface waters. And all of this for only 1% of saleable metal!	SO01
8586	PolyMet and probably other companies in the future, seek to mine copper, nickel, and other metals from sulfide-bearing ores… [exposing] hundreds of millions of tons of sulfide-bearing rock to air and water, resulting in the release of great quantities of sulfuric acid, sulfates, and heavy metals, including mercury, into groundwater and surface waters. And all of this for only 1% of saleable metal!	SO01
8588	The mines would completely destroy at least 1, 7 41 acres of high quality ecosystems which provide habitat for many wildlife species including Canada lynx, wolves, and moose.; 698 acres of Jackpine/black spruce forest would be lost; 912 acres of high quality wetlands would be destroyed... I realize that PolyMet has to put up financial assurance to mitigate any damage done. But mitigation will not restore what has been lost. Once the wetlands and wildlife are gone, they're gone!	PD01, WI02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kathleen Sullivan (42855)	
8588	The mines would completely destroy at least 1, 7 41 acres of high quality ecosystems which provide habitat for many wildlife species including Canada lynx, wolves, and moose.; 698 acres of Jackpine/black spruce forest would be lost; 912 acres of high quality wetlands would be destroyed... I realize that PolyMet has to put up financial assurance to mitigate any damage done. But mitigation will not restore what has been lost. Once the wetlands and wildlife are gone, they're gone!	VEG02, WET05, WI02
8589	The PolyMet sulfide mine plan would give us waste rock piles, mine pits, and tailings waste that would leak and seep pollutions into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children.	PD01
8589	The PolyMet sulfide mine plan would give us waste rock piles, mine pits, and tailings waste that would leak and seep pollutions into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children.	PD01
18135	698 acres of Jackpinejblack spruce forest would be lost; 912 acres of high quality wetlands would be destroyed. Is it worth 1% of saleable metal?!	SO02
18135	698 acres of Jackpinejblack spruce forest would be lost; 912 acres of high quality wetlands would be destroyed. Is it worth 1% of saleable metal?!	SO02
18136	I realize that PolyMet has to put up financial assurance to mitigate any damage done. But mitigation will not restore what has been lost. Once the wetlands and wildlife are gone, they're gone! Once the watershed is polluted, it's done!	FIN11
18136	I realize that PolyMet has to put up financial assurance to mitigate any damage done. But mitigation will not restore what has been lost. Once the wetlands and wildlife are gone, they're gone! Once the watershed is polluted, it's done!	FIN11
18137	I do not want to offer this up so a corporation, whose parent company is not even part of the United States, can make money on the 1% while we are left with 99% waste.	SO02
18137	I do not want to offer this up so a corporation, whose parent company is not even part of the United States, can make money on the 1% while we are left with 99% waste.	SO02
Sender Name (Submission ID)	Kathleen Zweber (45003)	
7034	I believe that the risks to the Northern Minnesota ecosystem and to our State's economy are not worth taking.	WI13
17306	there is too much potential for mining profit to come at the expense of existing livelihoods and cost more in the long run… especially if Minnesota's taxpayers end up with a bill for cleaning up after the mine closes.	SO01
17307	Minnesota's unique environmental and natural resources are priceless and should be preserved for generations to come.	GEN01
Sender Name (Submission ID)	Kathryn Hanson (40941)	
7685	[Text from SDEIS] "Duration of simulations 200 years at Mine site; 500 years at Plant site" - Expecting companies (especially those having significant foreign , non-US investors/backers) to be present and actively montoring conditions over this amount of time is questionable.	PD01, WR035
7713	[Text from SDEIS] "It is uncertain how long the NorthMet Project Proposed Action would require water treatment, but it is expected to be long term..." - The long-term monitoring will also be highly dependent upon the integrity of regulatory agencies, which are continually under attack by well-funded commercial entities. Given the delays in making a decision regarding the sulfate standard in the State, despite science supporting existing regulatory guidelines brings into question the resilience and strength of the regulatory agencies.	PER04, WR035

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kathryn Hanson (40941)	
7887	[Text from SDEIS] "533 million tons of waste rock and ore would be removed from the NorthMet Deposit. This includes a total of 225 million tons of ore and 308 million tons of waste rock." - There are no examples of open pit mining of this nature and scale that have not produced environmental degradation and pollution.	PD26
7891	[Text from SDEIS] "After mining planned at the East Pit ends by year 11, the waste rock in the temporary Category 2/3 and 4 stockpiles would bemoved into the East Pit for subaqueous disposal" - Reactive waste material will be stored temporarily –concern about length of time before preferred method can be implemented. In the interim—how closely monitored will these temporary waste rock sites be by the State?	HAZ01
7892	permits and regulations are only as good as the regulatory environment and agencies that will be responsible. In economic downturns, budgets for such activities commonly are reduced. Upfront financial funds sufficient to cover unforeseen or poorly modeled negative consequences should be built into any permits.	FIN05, FIN08
7896	[Text from SDEIS] "...Tailings Basin as it is built up to create a barrier that would limit oxidation of sulfide minerals. This limiting of oxygen transfer would reduce pollutants generated from the Tailings Basin." - Terms such as 'would limit' and 'would reduce' do not indicate how much oxidation and transfer of pollutants will not be prevented.	PD07
7902	[Text from SDEIS] "Based on the results...would not exceed applicable environmental evaluation criteria except for two water constituents as a side effect of the project." - [should read] Would exceed applicable environmental evaluation criteria for two water constituants.	EDIT01
7905	[Text from SDEIS] "Therefore, the increase in the magnitude of the aluminum exceedance at these Plant Site evaluation locations is not attributable to process water from the NorthMet Project Proposed Action." - Increased aluminum is still a by-product of the planned NorthMet activities.	PD08
7913	[Text from SDEIS] "The engineering controls would not result in significant changes to sulfate concentrations in the Partridge River, but would significantly decrease sulfate concentrations in the Embarrass River" - It is my understanding from media coverage that input parameters for flow in the Partridge River may be incorrect in the model. Therefore, this statement may be based on incorrect modeling parameters.	WR165
7917	[Text from SDEIS] "Actual compensatory ratios determined during permitting may vary from these assumptions. The determination of final mitigation... would be determined by the agencies during wetland permitting." - There seems to be a lot of pressure on the EPA and other regulatory agencies to make regulations less onerous for materials deemed to have Strategic importance. Why should we believe that protection of wetlands will not be endangered by these acts and mining pressures?	COE02
7921	[Text from SDEIS] "At this time, the Co-lead Agencies have not identified a preferred alternative, and for the USACE, Appendix B of 33 CFR Part 325 supersedes the CEQ requirement to identify an agency-preferred" - It is not clear exactly what Appendix B of 33 CFR Part 325 says about selection of a preferred altenative.	ALT06
7924	Fig 3.2-28: Conceptual diagram-Tailings Basin Groundwater Containment - What is the basis for assuming no fracture flow in bedrock? Why is it assumed that all of the blasting will not have some impact on the underlying fracture flow system at the site? There will be potential release of pollutants into bedrock at the mine site and likely within the Tailings Pond areas.	WR011, WR012, WR016
7953	[Text from SDEIS] "Post-reclamation activities would include monitoring and maintenance of reclamation and water quality until the various facility features were deemed environmentally acceptable, in a s elf-sustaining and stable condition." - Statements that make promises of monitoring and maintenance into the future are vague promises. What is the true expectation of Polymet being a viable entitiy that will have the incentive to pay out for decades to tens of decades after plant closure?...how will recyling and substitutes for such metals impact the financial stability of the company in charge of post-closure.	FIN01, FIN11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kathryn Hanson (40941)	
8041	[Text from SDEIS] "Early in the residue dewatering process, access to the residue surface may be somewhat difficult due to its fine-grained characteristics" - What are consequences of poor access at this stage if problems arise?	PD18
8050	[Text from SDEIS] "...at least 90 percent of seepage from the Tailings Basin and either return it to the tailings pond for reuse or treat it for discharge. In closure, all of the captured seepage would be delivered to the WWTP for treatment prior to discharge to surface water" - What about the other 10 percent of seepage? What about fracture flow in bedrock? Has this been factored into the seepage assessment?	WR010, WR018, WR090, WR108
8058	[Text from SDEIS] "...However, implementation of non-mechanical systems is considered a long-term goal for closure." - The public is being asked to take PolyMet's word that they will be an economically viable entity who will implement appropriate but not defined long-term passive systems.	FIN01
8067	[Text from SDEIS] "The magnitude of deviation from existing conditions, based on XP-SWMM modeling, in the mean values of the hydrologic parameters helps determine the degree of potential effect on stream ecology..." - Please confirm that the input parameters for streamflow in the Partridge River are correct. If reported values are higher than modeled, how can I believe the model outputs?	WR003
8069	Meteoric input parameter - As noted above, if questionable values are used as inputs, how can you trust probabilistic results. At a miniumum the public should have an opportunity to review sensitivity results showing the impact of different input parameters if in fact the range in river flow estimates are not adequately parameterized in the model.	WR022, WR175
8070	Table 5.2.2.7 - Calibration of MODFLOW model - How would changes in estimated flow within the Partridge River affect the calibration of MODFLOW model . What would be the effect of using a range of values for bedrock rather than just one	WR003, WR052, WR086, WR087, WR091, WR179
8080	Table 5.2.2-11 - [Text from SDEIS] "Uncertain inputs are hydraulic conductivity and net meteoric recharge." - Are P(50) values appropriately conservative?	WR189
8089	[Text from SDEIS] "A description of the XP-SWMM model for the Mine Site is provided in the Mine Site Water Modeling Data Package (PolyMet 2013j)." As noted above—it is not sufficient for the SDEIS to conclude that values the DNR says are reasonable for surface flow would not make a difference in the final analysis. Best estimates should be used if the study seeke to claim the P(90) results are valid.	WR003
8093	Table 5.2.2-13 [Text from SDEIS] "Uncertain input with triangular distribution. Minimum, mode, and maximum values, respectively." - Please justify use of a triangular distribution. From the three parameter values, it would appear that a mean value may be significantly skewed from the mode. Is this technically defensible?	WR189
8106	500 Monte Carlo simulations - What is the general standard of practice regarding number of realizations needed for critical projects? %00 simulations doesn't seem to be adequate.	SO04
8112	[Text from SDEIS] "Transitions to the nonmechanical treatment systems would begin after the performance of the non-mechanical treatment methods have been proven." - Why are we supposed to assume that If nonmechancial treatment systems are not yet proven will be reliable?	PD06
8120	[Text from SDEIS] "Modeling of aquifer response at the Canisteo site using MODFLOW resulted in differences between simulated and measured water levels ranging from +28 ft to -4 ft (reference USGS Report 02-4198)... Therefore, it was concluded that it was not reasonable to attempt to quantify drawdown at the Mine Site using the MODFLOW model." - Given the heterogeneity of conditions at the site and at the Canisteo site, why is it reasonable to assume that the Canisteo site is a good analogy.	WR086, WR179

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kathryn Hanson (40941)	
8132	[Text from SDEIS] "The initial arrival of West Pit solutes at the Partridge River would occur at about year 90, and peak concentrations in groundwater discharging to the river would occur at about year 160." - We are being asked to assume that PolyMet will still be an entitiy capable of monitoring the mine closure in 160 years. There should be sufficient financial vehicles in place such that the State and taxpayers will not be left holding the bag for these costs.	FIN01, FIN10
8142	[Text from SDEIS] "There are concerns that the presence of the NorthMet Project Proposed Action could reduce housing demand (and thus housing value) in the study area..."- The potential development of sulfide mining has already had the effect of diminishing market interest in lake front property that might be impacted by mining. The SDEIS downplays this effect. The potential tax revenues cited in the SDEIS would be offset by the reduction in lake-front property values regionally. As a property owner I have already seen the impact of proposed mining on prime lake front on lakes that may potentially be impacted by future mining.	SO03
8146	[Text from SDEIS, App A - WR4A] "Quantitative modeling of methylmercury is beyond the scope of the SDEIS, due to the inherent complexity of the fate and transport of methylmercury in the environment..." - At what stage of the permitting will quantification of this potential hazard be considered. Given the potential profits expected from this 'world class' ore body—cost should not be a factor in providing sufficient quantitative modeling.	PER11
8179	[Text from SDEIS, App B] "While low-confidence mineralization is known to extend along the strike beyond the proposed open pit outline, this material has not been evaluated in detail, there is no mine plan for it, and it is not included as part of the proposed NorthMet Project…" - This suggests that PolyMet is not making an effort to adequately evaluate the underground option.	ALT01, ALT06
8181	[Text from SDEIS, App C] "Neither the direct field observations (minimum of 3.4 cfs) nor the values calculated from the DNR rating curve, support the baseflow predicted by XP-SWMM at SW003 of 0.51 cfs..." - As a scientist/consultant working familiar with probabilistic modeling, it is not always clear what the end result of incorrect input parameters to a model may be. It would seem prudent to provide the public with a reanalysis of the modeling results prior to approval of this EIS.	WR003
8209	[Text from SDEIS, App C] "The hydrologic models for the Polymet mine site have been calibrated to targets that under-represent true baseflow. Models should be calibrated to a strong set of observational data. Construction of the site's basic hydrologic model to unrealistically low baseflows has ramifications for all the flow and contaminant modeling at the site." - If as news reports suggest, these alternative parameters have not been incorporated into the model, I am concerned that schedule may have been given precedence over good science and accuracy.	WR003
17361	The public was not given sufficient time to digest the very long document.	NEPA07
17362	Input parameters going into the various numerical models may not reflect the true range of uncertainty and hence the results of the modeling may not accurately represent the hazaRd It would seem that additional analyses or sensitivity studies are warrented to show that the model results are sound.	WR189
17363	The economic downsides of sulfide mining-impact on recreational property value, tourism, short-term negative impacts on communities of transient workers-are not adequately accounted for.	SO01
17364	There is no reason to assume that the State of Minnesota will not be left paying for the pollution that will ultimately ensue. I am not willing to bank on yet unproven mitigation measures and non-mechanical post-closure promises.	FIN10
Sender Name (Submission ID)	Kathryn Iverson (4614)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kathryn Iverson (4614)	
13916	Facts tell us that NO MINE CAN BE BUILT OR OPERATED WITHOUT SIGNIFICANT ENVIRONMENTAL DAMAGE. What facts? For one example----look at this list of mine reclamation projects just in Montana alone (see thislink): http://www.deq.mt.gov/AbandonedMines/CurrentProjects.mcpx	REF01
13917	It is clear that pulling the profits out cannot justify the environmental costs that inevitably occur from the harm done.	SO01
Sender Name (Submission ID)	Kathryn Larson (43256)	
15791	I have reviewed the SDEIS and believe that while it is not perfect, it is a detailed, thoughtful consideration of environmental, social and economic impacts of the project. I believe the SDEIS shows a need for the project and shows that it can be done successfully, minimizing impact to the environment. I trust the process and I trust the State and Federal Agencies that will be granting permits for the project.	NEPA16
15792	I am impressed that PolyMet will use and existing Brownfields site and reuse existing infrastructure.	PD28
15793	Based on my review of the SDEIS, I am convinced that PolyMet will provide a needed service (producing metals that are in demand) in an environmentally responsible manner that will also generate a positive economic effect on Minnesota and the entire United States.	SO10
Sender Name (Submission ID)	Kathryn M Stingl (43097)	
14759	I have grave concerns about preserving the St Louis watershed from any contamination from the results of copper mining. The habitats are pristine. The water all leads to our "Big Lake" Superior. I also have concerns about the effects of closure of the mine on our water sources .	WR111, WR115
Sender Name (Submission ID)	Kathryn Marschalk (40748)	
14172	Lets get moving . The people are desperate for decent paying jobs.	SO10
Sender Name (Submission ID)	Kathryn Mensing (57266)	
17407	I would like to see specific research on the impact on women’s health, specifically on breast cancer and toxin deposit in mammal glands.	HU02
17408	I also would like also a report that takes into consideration the rights, needs, and health effects on Native American Reservations and communities.	CR01
Sender Name (Submission ID)	Kathryn Stoneman (41036)	
7527	The cost of potential damage to the wetlands, wildlife and habitat to wildlife is a real possibility.	WET24, WI01, WI02
7533	In addition, there are far reaching problems with impact on human life and quality of water and soil damage for miles and miles, should there be leakages or inability to handle waste products.	WR070, WR111
7538	I understand that the products gained are important to all of our lives but the risks are too great.	SO01
13938	I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for -- information that is necessary to decision-makers.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kathryn Yetter (54218)	
17674	Please do not approve the copper mine so that future generations can enjoy the wilderness like I have. Any amount of degradation or habitat loss is too high a price to pay	WILD02
17675	The proposed copper mine would produce 99% waste, far too high a price to pay for the pine trees. It could pollute one of the purest watersheds in the area, far too high a price to pay for the fish. The degradation of the environment would diminish future revenues from ecotourism. Far too high a price to pay for short term, dirty, unsustainable jobs.	SO01
Sender Name (Submission ID)	Kathy Alvig (19999)	
1627	We know there is significant damage to the earth, ground water, and also wildlife habitat that comes from the greed mining operations bring. There is no such thing as real recovery from this.	WI02
1655	Do we want that area looking like a huge open sore?	LU04
14844	All of the mining companies profits will go to South America on the backs of the people who live up near Hoyt Lakes. South American companies and share holders will profit on the backs of our childrens safety and good health.	PD25
14845	This area that makes northern Mn a tourist destination will suffer from air and water pollution, congestion from transportation of the ore, and company controls and bullying.	SO02
Sender Name (Submission ID)	Kathy Burkett (52195)	
12931	Acid mine drainage can stick around for more than a millennium. Many sulfide mining companies have failed to provide financially for dealing with this long lasting pollution and then go belly up. As a taxpayer I am not willing to be responsible for the liability of clean up.	FIN01
12932	In early 2010 the EPA gave the rating of Environmentally Unsatisfactory and Inadequate for this project plan PolyMet set forth and I am leery that the standards even come close to protecting our waters and environment for the long term.	NEPA08
12933	It is disturbing that there were no contingency plans included with their proposal for accidents from failures of collection and treatment systems, tailings basin failure, accidental releases, etc. Where is the plan regarding treatment of the water should a plant break down and what is the plan for where the toxic polluted water will go when this inevitably happens?	WR130
12935	200 years, 500 years and 1000's of years of treating the toxic pollution created by this mine is a long term commitment with long term consequences ...consequences that we would be forcing upon our future generations.	FIN08, FIN10
16225	With something so obviously needed to safeguard environmental safety, yet not included in their proposal, I see no indication that PolyMet is committed to clean mining. I find this of grave concern especially when the waste water treatment plant located off site would need to run for the next 200 years and a long 500 years for the water treatment plant on site.	PD03
Sender Name (Submission ID)	Kathy Glover (39405)	
13184	Hoping that long term values (healthy waters, wilderness, respect for the land) will weigh greater than short term goals (money, money, money).	SO01
Sender Name (Submission ID)	Kathy Holander (18243)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kathy Holander (18243)	
13622	I would like to know how much fresh water, both ground and underground this project is scheduled to use. I am not aware of anywhere in the SDEIS where the amount is specified. With climate change coming, there will be areas of drought and areas of heavier-than-normal rainfall that quickly run off. In a drought year, will there be enough water for people and animals to use for drinking water? Will the streams still flow? Will the stream-fed lakes dry up? Will the mining company be able to take all they want even in a drought year?	WR181, WR182, WR188
13623	By law, an appraisal [for the land exc hange] must be done on the land being lost in the Superior National Forest, and on the new land that will be exchanged to make sure that the new land is worth at least 75 percent of the value of the land being given up...What kind of people are we that we do this to the native people of our land. The forest service should disclose to us, the public, all land appraisal information now and extend the comment period so we the taxpayers can comment on this land-exchange issue.	LAN03
13624	On the current land, the state owns the mineral rights. The new lands have split mineral rights. There are no covenants to prevent mining. The land exchange proposed by PolyMet should be rejected since it’s not in the public interest. PolyMet must find land where the public owns the mineral rights. No split mineral leases to sell off.	LAN04
13625	And the swap is not equal. We will have a net loss of over 6,000 acres of lands with high biodiversity. We will have a net loss of over 2,000 acres of mature forests and be given less mature forests in exchange. We will lose over 1,400 acres of flood plains. The exchange should be denied as we, the taxpayers, end up with a lot less.	LAN03
Sender Name (Submission ID)	Kathy Hollander (18228)	
2194	I would like to know how much fresh water, both ground and underground, this project is scheduled to use.	WR181, WR182
2195	Will the mining company be able to take all the water they want, even in a drought year.	WR188
2196	Also, I'm concerned about the land exchange. By law, an appraisal must be done on the land being given up in the Superior National Forest, and on the new land that will be exchanged to make sure that the new land is worth at least 75 percent of the value of the lands being given up. We the people of Minnesota own that land now, although it belonged to the native people before the European settlers. The native people retained their rights to hunting, fishing and gathering on this land and now even that will be taken from them.	CR01
2197	The forest service should disclose to the public all land appraisal information now and extend the comment period so we taxpayers can comment on this land exchange issue. On the current land, the state owns the surface minerals rights. The new lands have split mineral rights. There are no covenants to prevent mining. The PolyMet must find land where the public owns the mineral rights. No mineral leases to sell off.	LAN03, LAN04
2198	It's [land exchange] not in the public interest.	LAN01
Sender Name (Submission ID)	Kathy Iverson (18274)	
13901	And so the thought that there are countless lakes and rivers that could be contaminated just, you know, to me is No. 1. That is something so precious that we cannot put a dollar figure on that. It is about heritage.	SO01
Sender Name (Submission ID)	Kathy Kahn (47661)	
7883	All the plans for cleaning up the pollution caused by mining can never make nature as it was before.	NEPA15

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kathy Magnuson (42969)	
15126	i understand the need for good jobs. I also know that jobs come and go but when clean water and virgin land goes, it is gone. Forever. I also understand the vibrant tourism industry in northern Minnesota and would not want to jeopardize that as well.	SO01
Sender Name (Submission ID)	Kathy Ogle (46728)	
9261	We are concerned that the proposed PolyMet NorthMet copper-nickel mine project could have significant adverse impacts on human health as a result of pollutants released to air, surface water and drinking water.	HU03
9262	We also believe that the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (“PolyMet SDEIS”) fails to adequately assess important risks to human health from the pollutants that would be released from this project. The absence of any professionals from the Minnesota Department of Health from the List of Preparers of the PolyMet SDEIS is particularly troubling.	HU01
9263	We would respectfully request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks of the proposal. We would further request that, in revising the PolyMet SDEIS, a comprehensive Health Impact Assessment (HIA) be prepared under the guidance of the Minnesota Department of Health.	HU01
9265	We are aware that many of the bodies of water downstream of the proposed PolyMet mine and plant are legally impaired due to mercury in fish tissue. The lower reaches of the St. Louis River, where the estuary for Lake Superior fish is located, contains a particularly high level of mercury. We also know that other mine facilities release both mercury and the sulfates that increase bioaccumulation of methylmercury.	MERC02
9266	Reviewing the PolyMet SDEIS, we believe that the information on mercury releases and the potential for mercury bioaccumulation is insufficient. The SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of pollutants or of hydrologic changes on mercury bioaccumulation. The SDEIS does not provide evidence to justify its claims about collection and containment of mercury and sulfates.	MERC20
9268	The PolyMet SDEIS also provides an insufficient analysis of the human health risks of other pollutants, such as neurologic morbidity resulting from manganese and lead release; and carcinogenic effects of air emissions of diesel, asbestos-like fibers, nickel and other particulates, and of arsenic releases to water.	HU01
9269	The PolyMet SDEIS fails to analyze health risks to workers who would work on-site at the PolyMet mine or plant and fails to assess impacts of tailings groundwater seepage on nearby residential sites.	HU04
9270	The PolyMet SDEIS does not discuss impacts of exposures to vulnerable populations, such as infants, children, the elderly and persons who rely for subsistence on fish, wild rice or game species where pollutants may bioaccumulate.	HU01
9275	For these reasons, we would first request that the PolyMet SDEIS be revised to provide more complete information on mercury and sulfate emissions, deposition, and seepage from various sources, and the potential conversion to and bioaccumulation of methylmercury resulting from releases to the environment and hydrological changes from the proposed PolyMet project.	MERC16, MERC20

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kathy Ogle (46728)	
9278	We would further request that the PolyMet SDEIS be determined inadequate pending supplementation to include a Health Impact Assessment, under the direction of the Minnesota Health Department. This Health Impact Assessment should include at least the following:1. Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges based on reliable toxicity and epidemiology data.2. Assessment of potential health impacts on residential wells from tailings seepage.3. Health impact assessment for on-site workers at both the PolyMet mine and plant.4. Assessment of cumulative mercury risks, including hazard levels in bodies of water that are already impaired for mercury in fish and risks posed by mercury concentration downstream in the St. Louis River.5. Assessment of cumulative cancer and non-cancer risks from existing and additional sources of toxic chemicals, such as manganese, arsenic, lead and nickel, applying the most protective health risk analysis and an appropriate "lifetime" for exposure.6. Assessment of cumulative risks of multiple chemicals and exposure routes on vulnerable populations, including infants, children, the elderly and populations who have higher rates of consumption of affected foods, such as fish and wild rice	HU01
9279	HIAs are a tool used in the environmental review process. Environmental Impact Statements, such as the PolyMet SDEIS, are required by the National Environmental Policy Act to contain analysis of impacts on human health. However, human health is subordinated to environmental impacts, is addressed in a piecemeal fashion, and there is no examination of the social determinants of health in the SDEIS. An HIA would integrate human health into the environmental review for the PolyMet NorthMet proposal, allow consideration of mitigation measures, and involve the community in planning for the project.	HU01
Sender Name (Submission ID)	Kathy Sidles (9678)	
281	I'm against allowing the mining because the acid conctration of the waste water is too high and persists too long.	WR001, WR115, WR195
1364	Wildlife is sensitive to acid level, and the potential for destroying the water-dependant wildlife is too great.	WI04
1365	There is no way the company can guarantee they will pay for what the public - including other private companies - can loose.	FIN01
Sender Name (Submission ID)	Kathy Thonvold (41494)	
9331	I am opposed to such an operation in that area and am gravely concerned in regard to the effect on not only the pristine Boundary Waters Canoe Area, a national treasure to be sure, but all water in the area and the safeguarding of that area for the generations who follow us.	WILD02
9332	From what I have read, PolyMet does not seem to be able to give 100% guarantees that money will be there for the cleanup after the mining has ended…	FIN01
Sender Name (Submission ID)	Katie Feterl (41039)	
7553	20 years of jobs is not worth lifetimes of a destroyed environment that presently largely contributes to the tourism industry of Northern Minnesota.	SO01
7555	The construction of this mine will only expedite the implementation of future mines in the area, accelerating environmental degradation.	CU04
7556	Tourism will most likely tank if the area is unhealthy and unsafe.	SO02
7559	The mine is not the only option for providing jobs. It does not mean the end of Ely if it is not constructed.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Katie Feterl (41039)	
7565	However, it [Northmet Mine] could put Ely in a much worse position in a few decades should there be large health consequences and/or reduced tourism due to acidic water supply that destroys the life system around it.	SO02, WI04
Sender Name (Submission ID)	Katie Fournier (58097)	
19981	The limited number of jobs provided by this project for a limited number of years is not a valid trade for the prospect of another economic bust in NE Minn when the mining is finished. We have seen the boom/bust cycle too often from extractive industries in this part of the state. When you add the prospect of remediating, pollution for centuries (when our Republic itself is only ca 230 years old), it seems clear that we in Minn and elsewhere in the world should focus on reuse and recycling of needed materials, rather than putting our waters and landscape at risk.	SO01
Sender Name (Submission ID)	Katie Haws (42882)	
6815	the water would need to be treated for as many as 200 years in the future for the Mine site, and 500 years for the Plant site. There are not enough economic safeguards to prevent the company from bankruptcy and the possibility that they could not guarantee this continue expensive active water treatment regime for the number of years necessary,	FIN01
6816	I am very concerned with protecting the clean water currently flowing in the Partride River and Yelp Creek (located only feet from the storage pond), and the Embarrass River, as well as down stream concerns for the entire St. Louis watershed	WR081
6818	Although the XP swim and gold sim [models] were used, these are not accurate predators of potential pollutant inputs into these riverine systems. The potential for overflow during large storm events such as recently happened in Duluth for example, were not part of these model calculations.	WR193
6820	Although [wetland] mitigation is described and revegetation mentioned, these types of plant communities cannot be restored. Restoration as mentioned is not an adequate mitigation strategy for the large scale destruction of these unique plant communities; the conifer bog, shrub swamp, conifer swamp, and shallow and deep marsh, and open bogs communities.	WET05
6825	The impacts on [terrestrial and aquatic] threatened and endangered species to be affected by the project is vastly under represented.	WI01
6827	Mercury can be released into the environment from wetland drainage...potential impacts in terms of human life and reduced quality of life are immeasurable, should these toxins bioaccumulate in species such as game fish within the Rabbitt, Embarrass and St. Louis river systems.	HU03
16988	the estimates of costs of [water] treatment are not particularly accurate.	FIN05
16990	I do not believe that seepage was adequately modeled.	WR019
16991	sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream.	AQ05
16993	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons.	WI01
16994	Species of Greatest Conservation Need including the Ruffed Grouse, Spruce Grouse, and Black-backed Woodpecker also will be impacted by their habitat being destroyed by the creation of the mine.	WI01, WI02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Katie Haws (42882)	
16995	Fish and mollusk species found in the above mentioned waterways will also be impacted potentially by added pollutant loads from the mining operation, potentially due to catastrophic spills, seepage or other impacts not measured in the model.	AQ05
16996	I feel that the entire ET species review should be redone because of the new species listed in August known to be in the project area that were not part of the EIS as submitted.	WI01
16997	The species associated with aquatic habitats such as molluscs, birds and fish have the potential to be seriously impacted by the increased pollutant loads that will inevitably find their way into the aquatic systems	AQ05
Sender Name (Submission ID)	Katie Heitzig (54621)	
18641	Wetlands that would be harmed or destroyed by the Poly Met mine are water resources of national and international importance.	WET19
18642	The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site.The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in ·the Partridge River watershed.	ALT01, ALT13
Sender Name (Submission ID)	Katie Krikorian (11585)	
2245	It appears there will be NO treatment at all for water that seeps from mine pits.	WR173
2245	It appears there will be NO treatment at all for water that seeps from mine pits.	WR173
11955	I don’t understand how this project can be approved before the “reverse osmosis” treatment system is installed. I read it won’t be installed until 40 years from now. That’s 20 years after the mine is closed.	WR143
11955	I don’t understand how this project can be approved before the “reverse osmosis” treatment system is installed. I read it won’t be installed until 40 years from now. That’s 20 years after the mine is closed – since it will only be operational for 20 years – according to Polymet.	WR143
11981	I don’t believe they have proved they will be able to afford to clean up the pollution if they are allowed to mine.	FIN01
11981	I don’t believe they have proved they will be able to afford to clean up the pollution if they are allowed to mine.	FIN01
18309	I don't believe [PolyMet has] met the burden of proof that they will operate [the mine] without harming the environment permanantly.	NEPA15
18309	I don't believe [PolyMet has] met the burden of proof that they will operate [the mine] without harming the environment permanantly.	NEPA15
18311	I don't believe they have proved they will be able to afford to clean up the pollution if they are allowed to mine. We only have their word--no proof!	FIN01
18311	I don't believe they have proved they will be able to afford to clean up the pollution if they are allowed to mine. We only have their word--no proof!	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Katie Krikorian (11585)	
18312	We don't NEED copper for millions of new cell phones. People just WANT these products based on marketing. The residents of MN are being taken advantage of!!!	NEPA15
18312	We don't NEED copper for millions of new cell phones. People just WANT these products based on marketing. The residents of MN are being taken advantage of!!!	NEPA15
18313	The air pollution will be great regardless of how much they pollute the water and destroy the habitat for people and anumals.	AIR13
18313	The air pollution will be great regardless of how much they pollute the water and destroy the habitat for people and anumals.	AIR13
Sender Name (Submission ID)	Katie Weddle Langer (39529)	
13445	We can't afford to damage the natural resources that we need in order to live healthy lives.	HU03
Sender Name (Submission ID)	Katie Williams (42732)	
14393	I am opposed to the PolyMet Mine project. Damage to the watershed form water pollution will be extreme.	WR195
14394	Lake Superior and the {ILLEGIBLE] is some of the very best wilderness environmental left in our state and is valued by people all over the country and the planet. Please don't let it be ruined!	WILD02
Sender Name (Submission ID)	Katja M Coppetto (54546)	
19190	I know that the natural resources may be available in a finite amount but I'm concerned for the infinite resource of human social, creative capital. The level of pollution over multiple generations will put human life in great danger.	HU03
Sender Name (Submission ID)	Katrine Antolak (43805)	
11825	[The mine] will create a lot of jobs and help our economy a great deal. We need to be less dependent on others for natural resources.	SO10
Sender Name (Submission ID)	Katy Kennedy (9737)	
286	Please do not allow the Polymet Mine to happen. Doing so will pollute nearby waters for years to come.	WR195
287	It will also destroy the natural beauty of the area with large pits, and piles of excavated waste material.	LU04
Sender Name (Submission ID)	Kay Beams (22892)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kay Beams (22892)	
13970	Their proposal contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. It is time for these analysis to look at the implications to humans... The health of all Minnesotans is at stake here--so a health impact assessment for the PolyMet project needs to be done and the results included in the EIS. The time for leaving out essential studies and information is over. We are tired of incomplete impact studies being done on human and environmental health effects. It is time to start worrying about the health of the citizens of the state of MN. The HIA needs to include an analysis of the social determinants of health.	HU01
Sender Name (Submission ID)	Kay Erickson (41880)	
2128	The SDEIS is inadequate and doesn't provide any assurance that it won't be harmful to northern Minnesota. Any project that would require treating water for 200-500 years should be rejected out of hand because there is absolutely no guarantee that this will be done.	FIN01
2129	This kind of mining has resulted in contamination of surface and or ground water with heavy metals and sulfates all over the world. PolyMet tailings will be added to an existing tailings basin that is already leaking polluted water.	WR023, WR070
2130	It will destroy bogs, tamarack swamps and degrade 7,300 acres of wetlands. It will leak polluted water into the St. Louis River and eventually into Lake Superior.	WET24, WR111, WR115
16475	It isn't worth 500 years of cleanup for 20 years of mining.	SO01
16476	I would be somewhat more confident about the project if the companies that pollute our air, water and land would actually pay for the clean up they promise when these projects are approved…The track record is abysmal.	FIN01
16477	The cumulative effect of all these projects needs to be considered, especially because it is inevitable that, like pipeline projects, once they get their "foot in the door," they will want to expand and destroy more our forests, waterways and lakes.	CU04
Sender Name (Submission ID)	Kay Kieval (58005)	
19855	MN regularly ships copper to China in the form of old alternators & motors which China recycles for use in tech mfg. Instead of mining we could do this here.	NEPA06
Sender Name (Submission ID)	Kay Kurt-Jankofsky (42755)	
14447	Especially of worry is the question of the sensitive nature of the water sources and our dependence on the continued quality of it for us and those who will come after us. The Clean Water Act is precisely in place for protecting our waters and should be upheld and honored.Every time so far, as I understand, mining of sulfide [ILLEGIBLE] has been tried in a water sensitive environment, it has resulted in surface and/or ground water contamination by sulfates and heavy metals.	WR023, WR070, WR195
14449	Mining is projected to last 20 years, but who is going to be responsible for monitoring and control of the water quality for this time, 200 years, and 500 years out? I believe concrete, reliable and proven procedures need to be in place for any pollution due to PolyMet et al to even think of mining activity in Minnesota.	FIN01
Sender Name (Submission ID)	Kay Nelson (605)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kay Nelson (605)	
418	Keeping the water supply clean is too big of a risk for the State of MN to take.	WR128
Sender Name (Submission ID)	Kayellen Taylor (47142)	
12862	This project should not go forward unless a third-party insurer, such as Lloyd's of London, can befound. The simple fact is, if a third-party private entity will not take on PolyMet, the state shouldn't.	FIN08
15760	The source cited is "Foth 2013." I've looked at the Foth memocited in the SDEIS. The Minnesota DNR has simply copied information from PolyMet's hired consultant without confirming or fact-checking their work. If the Minnesota DNR and its co-lead agencies are unable to fact-check the work they presented on financial assurance, how are we to expect that they are capable of the adequately protecting the citizens of Minnesota?	FIN08, FIN09
15767	This project shouldn't go forwardwithout robust public debate, and the opportunity for legislativehearings, if what we can expect is a paragraph from the DNR in thePermit to Mine phase. You must ensure that the public, includingfinancial experts and those elected to represent the citizens ofMinnesota, have a chance to weigh in on financial assurance	NEPA03
Sender Name (Submission ID)	Keelin Kane (58114)	
19983	The long term pollution is unacceptable. The "assurances" are more than inadequate – they're ludicrous. To imagine that twenty years of jobs is enough to offset permanent destruction of an irreplaceable landscape! The international conglomerate will reap the money and the benefits and leave a mess behind. Boom, then bust. Northern Minnesota has a thriving tourist industry. People come from all over the world to enjoy it. Don't sell it out. It's a world treasure.	SO01, SO02
Sender Name (Submission ID)	Keith A Haglin (57145)	
16840	I don't think we should permit this mine as clean-up will cost more than the value of the ore...Taxpayers should not get stuck at the end of the mining	FIN10
Sender Name (Submission ID)	Keith Goetzman (43201)	
11548	I urge the DNR to require that the PolyMet EIS include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate, and to require that any permit to mine for PolyMet include Glencore.	FIN02
11549	We simply do not have enough information yet, and this comment period is closing before key pieces of information are even in hand.	NEPA07
11551	To begin with, the SDEIS is overly long and inaccessible as a document to encourage public comment. … it at once presents an abundance of data and a dearth of basic, understandable information.	NEPA07
11552	The SDEIS does not address exactly how long water treatment will be needed at the mine site, instead presenting a theoretical 500-year model that has done little except to sow public confusion about the actual duration of treatment.	PD03

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Keith Goetzman (43201)	
11553	The SDEIS uses a flawed model for the amount of contaminated water flowing from the mine site, meaning the project's planned treatment plants may have to process larger volumes of water than expected. The document describes long-term reverse osmosis water treatment that is yet unproven at the scale, use, and time frame proposed.	WR143, WR148
11554	The SDEIS does not describe adequate safeguards against worst-case scenarios that could compromise the integrity the waste and water retention and treatment systems.	WR130, WR131, WR202
11556	The SDEIS also describes an unacceptable amount of wetlands loss. Mining at the site would destroy approximately 1,500 acres of wetlands, one of the largest wetlands destructions ever permitted by the Army Corps of Engineers.	COE03, WET23
16180	Financial assurances of Polymet's long-term commitment to cleanup and mitigation are key to the proposed project's environmental impact, and yet the public has been asked to let the DNR and Polymet work out financial assurance details after the comment period is closed. The current financial "assurances" outlined in the SDEIS are wholly insubstantial and not assuring to this citizen.	FIN13
16181	the SDEIS does not account for or even mention Glencore, which will own the first five years of minerals from the proposed NorthMet mine.	PD23
Sender Name (Submission ID)	Keith Haas (58103)	
19922	I believe the study was done complete and with the best [information] available.	NEPA16
Sender Name (Submission ID)	Keith Jentoft (40992)	
6851	I believe that the study is flawed and unfairly promotes the interests of the mining industry.	NEPA15
6854	Specifically, the company proposes to excavate three enormous pits up to 696 feet deep.	PD30
6856	Waste rock would be stored next to the pits in 20-story high piles covering 526 acres.	PD15
6859	The mine will destroy 900 acres of high quality wetlands, e.g., coniferous bogs and tamarack swamps, and impact an additional 7,000 acres.	WET24
6860	The mine has a projected lifespan of 20 years; polluted water must be treated for 500 years.	WR035
6861	Leaking polluted water will flow into tributaries of the St. Louis River and finally into Lake Superior.	WR070, WR111
6863	I strongly object to the impact the Sulfate releases will have on the wild rice in the drainage area.	VEG04, WR156
Sender Name (Submission ID)	Keith Laken (18231)	
13580	What I would like to see, if any mining permits are approved, that the mining company provide a surety bond for 10 times the estimated reclamation -- cost of the reclamation project, so 10 times... So the idea is that the companies that are granted these permits cannot just create a shell corporation, issue their dividends to their investors and then walk away from the public.	FIN01, FIN05, FIN08

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Keith Laken (18231)	
13581	The second thing is that those people that are responsible for approving the -- the project and for running the project, that violation of any federal or state law is a capital offense, not just a minor offense. That individuals and corporations are held accountable from a capital standpoint; in other words, these are severe crimes against humanity.	PER06
Sender Name (Submission ID)	Keith Morris (54817)	
18348	Mining in general is an unsustainable industry. There exists a finite, nonrenewable mineral deposit, and when that is gone, so are the jobs. Even though these jobs may last 20 years, the infrastructure of the area has to expand to accommodate this temporary work force. When the mine closes, the government will have to be the safety net for all these mining families	SO02
18413	... it will be the people who do not profit from this in any way that will be paying for this for the next 500 years, not only financially, but esthetically and environmentally as well...Minnesotans will be saddled with a 500 year liability and no guarantee that the destruction and pollution won't be forced on generations to come. How can you guarantee anything for that time period?	FIN01, FIN10
Sender Name (Submission ID)	Keith Nelson (42733)	
14395	The metals that PolyMet is proposing to mine are essential to our way of life. Minnesota, with its strict state and federal regulations, long history of mining, and a shuttered facility waiting to be recycled, is the best place to do this mining.	PER34
14396	I also want people of northeastern Minnesota to earn a living in a part of our state that needs well-paying jobs – careers that will support families and communities. Mining currently makes up 30% of the economy and miners are some of the highest paid workers in the state.	SO10
14398	I particularly like the following statement from the SDEIS: "The NorthMet Project Proposed Action would not directly, indirectly, or cumulatively affect the water quality of these areas (BWCAW and Voyageurs National Park)."	AIR08
14399	The air emissions from the operation will be minimal. The process PolyMet will use does not generate hazardous waste and, in fact, can be used to create a useful product out of waste material.	AIR14
Sender Name (Submission ID)	Kel (43696)	
11923	I don't believe there are enough safety measures in place to adequately protect our wetlands and groundwater sources.	WR128, WR130
15097	Too many companies continue to dump their waste into nearby lakes and wetlands because of loopholes in current regulations. I fear this will end up just the same and cause catastrophic damage to our northern wilderness.	PER35
Sender Name (Submission ID)	Kellen Giblette (44378)	
10430	I feel that the mine will have extremely detrimental effects on the Boundary Waters Wilderness Area… I do not feel that any amount of jobs for any amount of time is worth the possible (and in my opinion inevitable) destruction of such a special piece of land.	WILD02
10432	I personally do not feel that it is reasonable to say that you will be financially stable to oversee the mine for 500 years, or even that you as an entity will exist in 500 years.	FIN01
Sender Name (Submission ID)	Kellen Roberts (1774)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kellen Roberts (1774)	
537	I am deeply concerned about the environmental impacts of this mining project. I see in the report that Minnesota will be committing itself to treating the water at the site for at least 500 years.	PD03
539	We cannot know how much this will cost and who will manage such a long term project.	FIN01, FIN05
543	I strongly appose this project unless there is a way to clean it up within a reasonable amount of time after the closure of the mine.	PD01
Sender Name (Submission ID)	Kelley (47708)	
8096	I am afraid the pollution will inevitably enter the near by Embarrass River and Partridge River which flows into the St. Louis River that then flows into Lake Superior.	WR111
8098	I am not at all convinced that the short term goal of mining is at all worth the inevitable pollution it will cause. Nor am I convinced that PolyMet will be able to reverse the damage to water and land to it's original healthy state.	SO01
Sender Name (Submission ID)	Kelli Danger (1775)	
596	[The NorthMet Project would impact] the pristine lakes and streams that bring tourism to this beautiful area!	SO02
Sender Name (Submission ID)	Kelly Andrle (17344)	
12822	Please reject the PolyMet NorthMet SDEIS as inadequate because open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality	WR195
12823	Please reject the PolyMet NorthMet SDEIS as inadequate because open-pit sulfide mine plan would have unacceptable ... impacts [on] human & animal life.	HU03
16974	SDEIS as inadequate because open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality, and impacts human & animal life.	SO01
Sender Name (Submission ID)	Kelly Hickey (3633)	
423	The idea that a mining company could destroy the health of our most valuable resource (water, not copper/nickel/other metals) indefinitely (though they only admit to a 500 year issue) for the sake of temporary jobs and revenue is sickening.	WR115
425	The jobs and money the mine once brought to Butte are but a distant memory, but the "pit of death"… remains, threatening to spill into the water table as its acid bath continues to rise. Polymet will almost certainly leave devastation in its wake, as every hard-rock mine in the United States has before it.	WR023, WR195
885	but the "pit of death" (in 1995, a flock of over 300 migrating snow geese landed in the Berkeley Pit and died from internal sores resulting from exposure to the lethal waters) remains, threatening to spill into the water table as its acid bath continues to rise. Polymet will almost certainly leave devastation in its wake, as every hard-rock mine in the United States has before it.	WR107
Sender Name (Submission ID)	Kelly Rogers (39608)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kelly Rogers (39608)	
6672	The potential short term gain is absolutely not worth the long term pain of what this mining will do to our environment and the health of our communities, both physical and financial.	SO01
Sender Name (Submission ID)	Kelly Strebig (9314)	
923	I agree with the EIS that this is a low-sulfur deposit. I have read the executive summary of the EIS and I find it thorough and that it addresses all the environmental Issues.	NEPA16
925	The dangers posed by environmentalists can and do exist in countries with no laws concerning the environment, and problems may have existed 60 years ago when the United States had few regulations.	PER44
19931	I strongly support the NorthMet Project because mining and the environment can co exist in Minnesota.	GEN02
Sender Name (Submission ID)	Kelly Weber (6787)	
1125	I am very disappointed in the State of Minnesota and the continuous roadblocks and delays that they allow to prevent a company like PolyMet from bringing to this State many jobs and tax dollars for both now and future generations.	SO10
1309	The NIMBY thought process that continues to force these metals to be mined in other parts of the world where there are no environmental regulations at all, does not make any sense in today's world.	NEPA05
Sender Name (Submission ID)	Kelsey L. Reisdorph (43960)	
7033	Based on PolyMet’s own report on the consequences of open pit sulfide mining, it will take centuries to fix the damage for only around 20 years of mining.	PD01
7035	My proposal is that if PolyMet wants to do this project, they should establish a trust fund of an amount established and decided on by a third party and governed by the state, the purpose for which would be to pay for the damage that they are inflicting.	FIN01, FIN07, FIN08
Sender Name (Submission ID)	ken chastain (47040)	
16514	200 years of pollution to keep track of? It's absurd to think you would want to get involved in that kind of responsibility.	PD24
16515	200 years of pollution to keep track of? It's absurd to think you would want to get involved in that kind of responsibility.	PD24
Sender Name (Submission ID)	Ken Chervenak (46961)	
10809	How could any of the responsible elected officials in the state of Minnesota ever consider putting the Crown Jewel [BWCAW] of your state at jeopardy…There are not many areas of wilderness beauty left in this country let alone in this state where people can go to escape the routines of their urban lives to refresh themselves physically and spiritually in this wonderful area known as the Boundary Waters Canoe Area Wilderness.	WILD02
Sender Name (Submission ID)	Ken Engelhart (40936)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ken Engelhart (40936)	
7592	Toxic pollution has happened at every sulfide mine site in the world to date, including the Flambeau mine site near Ladysmith, Wisconsin. Other sulfide mine sites have been declared Superfund sites. With this type of record, it is extremely doubtful that the outcome would be different for [the NorthMet Mining Project in] Minnesota, even though we are all "above average"	PD26
7597	By comparison, this mine would leave a legacy of millions of gallons of polluted water for hundreds of years in one of the more water-rich areas of the world. Sulfide mining would require measures to "treat" this polluted water for up to 500 years or more. It is unlikely that PolyMet and other current mining companies will exist in 100 years, and unimaginable that they will exist in 500 years. However, it is likely that Minnesota taxpayers will exist, and will ultimately will be the ones left to pay for the cleanup, if possible, of the toxic mess that is left behind after the mining companies are long gone. Other states with sulfide mines have been saddled with billions of dollars in clean-up costs.	FIN01, FIN05, FIN10, WR037, WR115
13927	In summary, sulfide mining is a highly toxic process that has caused pollution at every sulfide mine site in the world. It is a type of mining that has never been done in Minnesota and that would leave a toxic legacy of millions of gallons of polluted water in one of the most unique and precious water regions of the world. The short term "benefits" of mining do not outweigh the disastrous long-term consequences to our pristine northeastern Minnesota waters and land. I urge you to resist the allure of short-term "gain" for what ultimately will be long-term pain that Minnesotans will deeply regret.	SO01
Sender Name (Submission ID)	Ken Halfmann (35232)	
14090	While I haven't yet been to the Boundary Waters Wilderness, I have visited a number of other beautiful sites on the Lake Superior shoreline from the Apostle Islands to Tahquomenon Falls, and can't imagine subjecting any of these places to the degradation that this mining project would bring.	WILD02
Sender Name (Submission ID)	Ken Hanson (37145)	
15918	I understand the industrial need for copper and nickel and the significance of job creation but I find it difficult to accept that either of those issues should take precedence over the preservation of our natural environment-particularly water quality.	SO01
15919	I don't find in all the literature I've read (for and against the project) any suggestion Polymet or any other mining operation can even begin to assure the beautiful lakes region of northern Minnesota won't be significantly, negatively altered by their sulfide mining operations.	WR023
Sender Name (Submission ID)	Ken Illegible (57279)	
16072	Acid Mine Drainage (AMD) and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred.	WR023
16074	I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality.	WR111
16076	I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including:...loss of wetlands	WET24
16077	I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including:...harm to wildlife such as lynx and moose	WI01
16079	I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including:…cumulative impacts from mining.	CU11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ken Illegible (57279)	
16080	I am concerned that a decision around jobs will outweigh the potential impact on the environment. Concerns around the impact on the environment should be a priority.	SO01
Sender Name (Submission ID)	Ken Kaseforth (48088)	
12093	All of these long-term risks for about 20 years of mining...When you also factor in the inevitable and long-term off-setting losses to neighboring recreational business, this proposal becomes absurd on its face. It is not one that will benefit Minnesota or US citizens in the long-term.	SO01
13234	This project would present unacceptable risks to Minnesotans well into the future, in terms of health, environmental contamination and financial liability.	HU03
13235	All of these long-term risks for about 20 years of mining by a Canadian company funded primarily by a Swiss commodities trading firm, and whose chief customer will be China? When you also factor in the inevitable and long-term off-setting losses to neighboring recreational business, this proposal becomes absurd on its face. It is not one that will benefit Minnesota or US citizens in the long-term.	SO01
16194	us tax-payers will be left holding an empty but foul bag if this mine is permitted.	FIN10
Sender Name (Submission ID)	Ken Klein (21257)	
933	Please consider health risks associated with the proposedPolymet mining operation. I am requesting that you confer with our Mn. Dept of Health and the MPCA in your deliberations, and commission independent research to evaluate human habitat (eg. health) consequences from mining residues. This is just one very troubling report re: heavy mining in South America.http://www.worstpolluted.org/projects_reports/display/89	HU01
1276	I am very concerned that sulfide mining poses unacceptable risks to "human habitat" in the form of long term health risks from cumulative residues & byproducts (Including methylmercury) which can infiltrate the water supply, food chain, air emissions... I implore you to commission independent studies to evaluate these risks, to incorporate already known research findings in your deliberations and permitting process, and to very carefully weigh the costs in human terms (as well as financial burden) if health damage ensues from these operations. Reliance upon industry's own studies and assurances has shown time and again to be myopic.	PER06
1487	Posting of bonds (no matter the amount) might guarantee some degree of comfort to those contemplating monitoring costs, clean up costs, etc., but willnot begin to cover the actual medical, legal, economic, and emotional toll if the health of current and future generations (in Minnesota, & in the surrounding area, eg. Lake Superior region) is imperiled ordamaged.	FIN05, FIN08, FIN11
1692	I believe from reading the SDEIS that assessment of plausible neurotoxic risks associated with the Polymet project(s) has been inadequate.	HU01
1693	Methyl-mercury contaminants can migrate into water, soil, and air, and their cumulative effects need to be evaluated in the context of other likely discharges (e.g. other approved mines, industry discharges, ambient poluution, baseline levels of neurotoxins in Lake Superior watershed, etc.)	MERC10, MERC20
1694	No bond or financial guarantee will begin to cover health related sequelae if neurotoxic damage ensues. No mitigation, monitoring, abatement, restoration, reclamation processes and funding can address permanent neurological damage that residues from sulfide mining are known to occasion.	HU03
1695	The economic benefits to the region and state are paltry when they are viewed in juxtaposition to public health risks lasting centuries into the future.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ken Klein (21257)	
8314	Pleae involve the CDC & other reputable experts toprovide you an independent analysis of these risksbefore approving any mining permits. This is the only responsible course, given the long term cumulative risks to human habitat associated with heavy metal mining.	HU01
10824	No increased risk of neurotoxic exposure to future generations of children in Minnesota & in the surrounding sulfide mining watershed can be deemed acceptable. …Please involve the CDC & other health experts to provide you an independent analysis of these risks before approving any mining permits. This is the only responsible course, given long term cumulative risks to human habitat associated with heavy metal mining.	HU01
13985	Regulators in Minnesota need to base their decisions upon worst case scenarios, not upon political pressures, or upon incomplete (at best) projections from vested interests which minimize long term risks to our state and future generations.	PER35
13986	Human habitat (e.g. health risks) must be foremost in your analysis, relying upon independent comprehensive studies from multiple impartial and knowledgeable experts….	HU01
14838	Industry reassurances mean little when "accidents" happen. Do more than due diligence to keep this type of tragedy from happening in our great state.	PD22
18860	I believe that several independent analyses (by respected experts) must underpin the SDEIS, and that the models thus far presented have relied too much upon industry data and statements.	NEPA15
18862	Methyl-mercury contaminants, as you know, can migrate into water, soil, air.Their cumulative effects can only be evaluated in the context of other likely discharges (e.g. other approved mines, industry discharges, ambient pollution, baseline levels of neurotoxins in the Lake Superior watershed, etc.)	MERC10
18863	No bond or financial guarantee will begin to cover health related costs if neurotoxic damage ensues. No mitigation, monitoring, abatement, restoration, reclamation processes and funding can address permanent neurological damage caused by residues associated with sulfide mining.	FIN05, FIN10
18871	The economic benefits to the region and state are paltry when juxtaposed withpublic health risks lasting long into the future. (Needless to add, tourism will declinesignificantly if any "accidents" do occur, given the current pristine nature and allure ofthis unique wilderness area.)	SO01
18875	Thank you for your attention and consideration. I would appreciate an acknowledgement of this comment, and a copy of the final summary report.	RFI01
Sender Name (Submission ID)	Ken Swanson (37456)	
16326	From all the information I've seen to date poly-met does not have a firm plan for keeping run off with in limits and they for sure cannot explain what or how to do it in the future.	WR129, WR130
16327	WE want GOOD JOBS BUT NOT TO RUIN OUR STATE AND OR OUR WATER SUPPLY FOR GENERATIONS!	SO01
Sender Name (Submission ID)	Ken Wainionpaa (36814)	
8705	Overly strict laws on mining and manufacturing have forced many American producers to out-source to another country. The MPCA is one of the causes of companies out-sourcing their manufacturing to other countries. The USA cannot survive if all of our products are out-sourced.	NEPA05
Sender Name (Submission ID)	Kendell Corbett (39087)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kendell Corbett (39087)	
10256	I have no concerns that the project would be done safely and adhere to the strict regulations and standards set forth by the State of Minnesota.	PER34
10257	I commend the agencies on the due diligence they have shown in the years of research and testing - it is time now to move forward based on the sound science and facts of the project.	NEPA16
Sender Name (Submission ID)	Kendra Roedl (57196)	
17084	Mining there or near there poses too great a risk to one of the most pristine fresh bodies of water in the world, and the people that live there.	WR111
Sender Name (Submission ID)	Kenneth Eckstein (19823)	
1384	Land Exchange: The DEIS does not adequately address all the biological and land use issues with the land exchange. Additional information on the natural heritage and timber resources of the exchange lands need to be gathered. The public is best served if the public gains much more public land than it gives up. The exchange ratio should be at least 2 to 1 and of high quality parcels.	LAN03, LAN05
1390	No made-made structure can be designed to last forever at this time, so at some point in the future the tailings storage facility will be compromised. At some time in the future the people of Minnesota will have to pay for and clean up the failing tailings storage facility.	FIN05, FIN10
1394	Large amounts of money put aside today for future remediation will fall short of what is really needed. Millions of dollars today will equate to pennies in the distant future.	FIN05
1395	Think about the trade off of these few jobs and tax money compared to the value of tourism in this area.	SO02
Sender Name (Submission ID)	Kenneth Engelhart (54786)	
19357	Toxic pollution has happened at every sulfide mine site in the world to date... With this type of record, it is extremely doubtful that the outcome would be different for Minnesota, even though we are all"above average".	PD26
19358	It is unlikely that PolyMet and other current mining companies will exist in 100 years, and unimaginable that they will exist in 500 years. However, it is likely that Minnesota taxpayers will exist, and will ultimately be the ones left to pay for the cleanup, if possible, of the toxic mess that is left behind after the mining companies are long gone.	FIN01, FIN10
19359	The highly toxic process of sulfide mining has great potential to destroy [northern Minnesota's] waters, as well as the tourism trade, native cultural heritage and wild rice that exist because of these precious waters.	SO02, VEG04
19360	The short term "benefits" of mining do not outweigh the disastrous long-term consequences to our pristine northeastern Minnesota waters and land.	SO01
Sender Name (Submission ID)	kenneth jensen (7469)	
774	I believe it (PolyMet) will bring many good paying jobs to an area that could use them.	SO10
Sender Name (Submission ID)	Kenneth Nelson (49551)	
12491	Compromising the quality of the water in the Saint Louis River and Lake Superior water shed is not responsible management of our environment.	LU06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kenneth Nelson (49551)	
12494	Although the example of the costly Silver Bay on land tailings pond was better than direct disposal into Lake Superior, it is far from an environmental friendly solution. Sulfide mining presents its own added water treatment problems with even greater costs and challenges which we must solve before we open the flood gates to not only PolyMet but all the other mining operations waiting on the sidelines.	WR023
16303	Compromising the quality of the water in the Saint Louis River and Lake Superior water shed is not responsible management of our environment.	WR111, WR195
16305	A single limited scope sulfide mining operation similar to some of the taconite pilot plants might be something to consider for the first ten years of operation before allowing for full scale operation. Then if careful monitoring of all problems shows that indeed this mining is feasible and environmentally responsible, full scale operation can be considered.	ALT06
16306	Any suggestion that the water treatment from the current taconite plants is acceptable and is an example of responsible mining is simply a sad commentary to our intelligence.	WR023
16310	A single limited scope sulfide mining operation similar to some of the taconite pilot plants might be something to consider for the first ten years of operation before allowing for full scale operation. Then if careful monitoring of all problems shows that indeed this mining is feasible and environmentally responsible, full scale operation can be considered.	ALT06
Sender Name (Submission ID)	Kenneth Rosemark (11254)	
750	I implore you to take a stand, against allowing the mining companies, anywhere near, any waterway, tributary, steam connected to or running into a Boundary Water Area Lake Or Waterway.	WR111
753	Something's are worth more than money! The peaceful, pristine, soulful wilderness area, called the BWCA is one of them!!	SO02
1577	The residue left behind by copper mining seeps into the water, kills plant life, fish & wildlife.	WI04
3232	They [Mining Companies] are for profit organizations and once they are given the green light, they will destroy this Pristine Wilderness Area [BWCAW].	WILD02
Sender Name (Submission ID)	Kenny Bollis (38926)	
16854	The reason I am so concerned about this, in spite of poly met saying that they would be responsible, is that the financial assurances need to remain in place for an extreme amount of time. Financial assurances that need to be in place for 200 to 500 years have not ever been proven. Have there ever been any financial assurance vehicles that have been tested or proven effective for 500 years?	FIN01
16855	The land swap between the forest service and poly met in my mind needs to have its own separate review. The proper amount of time needs to be allotted to this important piece of poly mets project. It cannot be lumped together and hurried through.	LAN10
16856	There is some discrepancy as to the amount of water being released from the project. I would believe the tolerances were put into the model for a good reason therefore it would make sense that the correct numbers be put in and the model be rerun. This is an important part of the EIS. In order to protect our citizens it is only responsible to redo the calculations and do a revision of the model.	WR086, WR093, WR178, WR183, WR189
16857	I do not believe that the current tourism economy and vacation home industry could flourish side by side with the nonferrous mining economy which brings pollution and greater industrialization to this unique part of our country.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kenny Bollis (38926)	
16858	The following are items I would like the DNR to fix in PolyMets mine plan: Plan to account for the destruction of moose habitat as well as other natural habitat for the Canadian lynx	WI02
16859	The following are items I would like the DNR to fix in PolyMets mine plan: Plan should accurately assess health risks to the public	HU02
16860	The following are items I would like the DNR to fix in PolyMets mine plan: Address the risks of mercury pollution for our children as well as future generations	MERC03
16861	The following are items I would like the DNR to fix in PolyMets mine plan: Plan should improve wetland protection and replacements	WET04
16862	The following are items I would like the DNR to fix in PolyMets mine plan: Provide Minnesotans with accurate information about how long polluted waters will require treatment	WR038
16863	The following are items I would like the DNR to fix in PolyMets mine plan: Glencore must be recognized as a responsible party for permitting because of its ties with PolyMet	FIN01
16864	The following are items I would like the DNR to fix in PolyMets mine plan: Fix the inaccurate water data used in the model and redo the water model	WR003, WR086, WR093, WR189
16865	In conclusion it is my opinion that the few hundred jobs and monetary gain for a corporation is not worth the perpetual damage and pollution nonferrous mining will cause to Minnesota's environment.	SO01
Sender Name (Submission ID)	Kent L Kaiser (10701)	
8841	I am satisfied with the NorthMet SDEIS—especially with the responses provided in Chapter 8 to concerns over impact on the Embarrass and Partridge Rivers—and I believe our state should progress toward the new era of mining and prosperity for northeastern Minnesota.	PD28
Sender Name (Submission ID)	Kent Merkey (3447)	
12336	The proposed PolyMet mine would likely bring temporary short-time financial gain to the area, but the area also benefits greatly from tourist dollars and supports many outfitting businesses; these smaller local businesses, which otherwise might last decades, could well be jeopardized, and when the mine pulls out when it's work is done, would leave both its employees and the local environment (including economic and natural) in an overall weakened condition.	SO02
12337	Thinking critically, this project does not make long-term sense either economically or environmentally.	SO01
13413	The proposed PolyMet mine would likely bring temporary short-time financial gain to the area, but the area also benefits greatly from tourist dollars and supports many outfitting businesses; these smaller local businesses, which otherwise might last decades, could well be jeopardized……..	SO02
Sender Name (Submission ID)	Kent Newman (39914)	
14292	All sulfide mines so far, have leaked some acid, into there waterways	WR023

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kent Scheer (7706)	
818	This is not the time for intelligent people to permit another massive extraction process risking lasting environmental degradation.	PER35
Sender Name (Submission ID)	Kent Simon (44067)	
7723	Despite the application of the best modeling tools science has to offer, there is no consensus on the rate of climate change over the next fifty years, let alone five hundred. Simply stated, water flows cannot be predicted with reliable accuracy.	WR196
7724	well-considered contingency plans and replacement plans are critical. The lack of such plans in your report is glaring in its omission….	PD22
12308	It's hard to believe that allowing copper sulfide mining is even being considered, given the following:the public hearing period 90 days;but the clean-up period may be up to 500 years!!!	PD01
12309	only 300+ mining jobs will be created; but how many more jobs rely on tourism, based on the natural beauty of the place, will be lost!!	SO02
13455	only 300+ mining jobs will be created;but how many more jobs rely on tourism, based on the natural beauty of the place, will be lost!!!	SO02
15157	there will be a serious detrimental environmental impact when failure occurs. And we're not just talking about one mine here; this decision will be precedent-setting and if the Polyment venture is approved, the gate will be open. How many more mines will we be saddled with maintaining for 500 years?	CU04
15158	The time will come when the right proposal is made and we will recognize it as such. It will be a proposal that offers considerable economic benefits for all Minnesotans and preserves the environment, Minnesota's most precious natural resource. This is not that this proposal and this is not the time.	PD25
Sender Name (Submission ID)	Kenzie (54346)	
17610	This will affect cultural resources. A segment of the Mesabe Widjiu known as a sacred place to the Ojibwe people, occurs within the project area so it would be affected. A segment of the Beaver Bay to Lake Vermilion Trail, It also exists within the project area so it would be affected. The Project is also located on land that was awarded to the U.S by the Bands under the 1854 Treaty. The Bands reserved the right to hunt, fish, and gather on these lands. Resources like fish, plants, and animals might be affected by the project.	CR01, CR05
17680	I think that this land exchange is ok. I think that the land that was public that would become private is unfair. I don't know what the public uses the land for , but for example: if I walked my dogs through this public land every day and then all of a sudden they built and mining project on it I wouldn't be happy. This project will not affect me. I think that this is for a good cause and if it needs to happen, it should. I just think that the land exchange should be more fair to the public.	LAN03
17681	The advantages to this would be that there would be less unemployment, and better lives for many Minnesotans. But there would also be some disadvantages; there is always a risk of population considering how close the mining project would be tho many rivers, lakes, and wildlife.	SO01
17682	I think that the PolyMet Mining has a very good plan in place. I think that it is well thought out, I also think that they have planned every aspect of the project out very thoroughly. I think that this copper-sulfate mining process will definitely benefit Minnesota in some ways.	PD28
Sender Name (Submission ID)	Keri Lynn Igo (54501)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Keri Lynn Igo (54501)	
19043	I am concerned that I don't see mention in the SDEIS of linings for the tailings basin or mine pit, other than bentonite in a small area of the tailings basin. (I can 't imagine that bentonite would make a longlasting seal- seems like it would break down, erode away, or slide down fairly soon.) It seems likely that any lining material would eventually break down over time, allowing water with heavy concentrations of metals to seep out.	PD07, PD15
19044	[In the SDEIS, I] didn't find any protections in place to keep water from seeping through the ground from the mine pits and tailings basin. This seeping water would pollute both groundwater and/or surface water.	PD04
19045	The SDEIS should include provisions to prevent contaminated water from seeping out of the tailings basin, mine pit, and anywhere else on the premises that contaminated water stands. These provisions should include liners and plans for monitoring the condition of the liners and repairing/replacing them as they break down.	PD04
19047	If Poly Met is creating water that will be contaminated for the next 500 years, they need to have a plan in place to contain that water when natural and man-made disasters happen.	FIN01, FIN11
19048	The SDEIS should include a plan to collect runoff in case of extreme rainfall that causes flash flooding, prolonged rainfall that temporarily (or permanently) raises the water table, and spring rain that falls before the ground thaws (causing runoff to abandon its normal courses).	WR202
19049	The SDEIS should include measures to protect our groundwater, nearby rivers, and nearby wetlands if there is an earthquake...before the NorthMet project should be allowed to produce contaminated water, a plan needs to be in place to deal with the water for its entire lifespan.	PD22
19051	[Reverse osmosis] systems rely on electricity, and to my knowledge, can't function without electricity. Poly Met should have a plan in place to protect water in the case of an extended power outagewhether due to war, vandalism, terrorism, or massive infrastructure failure.	FIN05
19052	Any of the mine's premises, facilities, or equipment could also certainly be damaged by forest fire, tornado, lightning strike, collapse due to excessive weight of snow, ice storms, or other factors. The SDEIS should include analysis of the potential ways these forces of nature or manmade disasters could affect mine operations, safety, and potential for pollution, and adequate contingency plans to mitigate these risks.	PD22
19055	It is not acceptable for the SDEIS to be written with best-case-scenario language. The planned methods and SDEIS document should be revised to rely on redundant systems to protect our water quality and other environmental factors.	PD03
19056	Our economy here and the quality of life I enjoy are built on accessibility to clean water, vibrant plant and animal populations, and beautiful natural scenery.	SO02
Sender Name (Submission ID)	Kerry Carter (54117)	
15979	A few dollars of profit to corporation isn't worth destroying our water resources.	SO02
Sender Name (Submission ID)	kerry martineau (40040)	
15247	The science as I believe proves there is no safe or environmental safe and sound way to for this mine like mining in Minnesota has been boom and bust no lasting good impact very few jobs no long term good for our water both ground and lakes and streams our lands or the creatures we share them with I vote yes for the life the future of all creatures and No vote for this mine..	SO01
Sender Name (Submission ID)	Kerry Waschke Collie (42759)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kerry Waschke Collie (42759)	
14512	My family has successfully owned and operated an Auto Dealership in Virginia, MN for over 30 years. We certainly understand the economics of our local region, and the positive effects Polymet will have.My business won't necessarily serve PolyMet directly, but my business will be enhanced by the additional economic activity – construction workers, vendors, employees – that will come about as a result of the project. My community will be stronger because of that economic activity; frankly, the whole state will benefit.	SO01
Sender Name (Submission ID)	Kevin (43027)	
12692	The SDEIS does not include a study of the costs to existing industries in the State of Minnesota, most importantly, tourism in the NE portion of the state….Tourism supports 20,000+ jobs in NE Minnesota. If this mine pollutes and impacts the region in a negative way, how will those jobs and revenue be affected? When people decide they don't want to vacation in and around both water and air pollution how many jobs will be lost and how much money will the State of MN lose in revenue?	SO02
12694	The SDEIS does not take into account health risks to people living in the area of the mine. NE Minnesota already has a higher cancer rate than any other part of the state. The SDEIS needs to identify these risks and potential mitigations. Health risks arise from both air and water pollution at the site and processing plant.	HU01
12695	What precautions are in place in the event of a 100 year rain or flood on the mine site and processing plant?	WR202
12696	How accurate is the flow model for the Partridge River? Reports are that it is underestimating actual water flow by 3 times. The entire model needs to be re-run over the course of many years in both below average, normal, and above average rain/snow fall years. How can Polymet put forth accurate pollution data when they don't even know the water flow in the primary discharge river?	WR003, WR077
12697	What proof is there in the SDEIS that earthen walls dug down to bedrock to contain the tailings piles water runoff will hold?	PD07
12700	In the event that Polymet declares bankruptcy who is financially responsible for the 200-500 years of clean up? What inflation factor was used in the calculation of yearly estimated costs? How can Polymet propose clean- up costs of three and a half to six million dollars per year will stay the same for each of the next 200-500 years? Inflation alone will multiply those numbers and costs. SDEIS needs to include information on financial assurances. This should not be handled at the permitting stage.	FIN01, FIN05, FIN08, FIN13
12701	Polymet should exchange the same quality of wetland for the amount that they are destroying. If this cannot be done, then the SDEIS needs to be revised and a new plan needs to be made. An acre for acre exchange is not right, as the 100 year wetland is a unique wetland and cannot be replaced once dug out of the Earth.	WET14
12702	The SDEIS does not accurately study the flow of water leaving the mine site. There is some flow ultimately leading into Birch Lake and into the BWCA that needs to be examined and included in the SDEIS.	WR081
17022	What is the projected ground seepage and how will Polymet propose to handle that form of water pollution exiting the tailings piles into underground aquifers? SDEIS does not answer this.	WR059, WR060
17024	Where has reverse osmosis been used on this grand of a scale (3 million gallons per day) to treat water tainted in sulfuric acid? What assurances does the public have that this will work? Where in the SDEIS does it state the back-up plan in case of catastrophic damage to this system? Reverse osmosis…[has] never proved successful on this type of scale. I need hard proof that this will work, not just assurances from Polymet executives.	WR143, WR144

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kevin (43027)	
17025	What maintenance costs are foreseen with the rubber liner under the 20 stories of tailings that will be piled up on it at the mine site? The SDEIS does not take into account failure of this rubber liner. Where has this particular liner been used before on this scale, and where has it proved successful? What assurances that the liner will hold up over 200-500 years of Earth movements?	GT12
17032	I would like my kids to experience the BWCA and Lake Superior where they can swim in the water and eat the fish. NE Minnesota is the crown jewel of the state. Let's not ruin it. There is a place for sulfide mining, but just not in the Land of 10,000 Lakes.	LU06
Sender Name (Submission ID)	Kevin G Olsen (9307)	
919	To have this area ruined by sulfuric waste polluting our waterways and land is unthinkable	WR001, WR115
920	Do we really want to have 500 years of cleanup and pollution destroying the last pristine place in Minnesota.	PD03
Sender Name (Submission ID)	Kevin Heaslip (46316)	
8908	Regarding the comment period for the Polymet EIS, I believe that the upcoming deadline for comment will unsatisfactorily limit input. Such an important issue as sulfide mining in our area needs to be fully examined; setting an arbitrary comment deadline only serves to rush an agenda.	NEPA07
8968	Regarding the comment period for the Polymet EIS, I believe that the upcoming deadline for comment will unsatisfactorily limit input. Such an important issue as sulfide mining in our area needs to be fully examined; setting an arbitrary comment deadline only serves to rush an agenda.	NEPA07
9136	Regarding the comment period for the Polymet EIS, I believe that the upcoming deadline for comment will unsatisfactorly limit input. Such an important issue as sulfide mining in our area needs to be fully examined; setting an arbitrary comment deadline only serves to rush an agenda.	NEPA07
Sender Name (Submission ID)	Kevin Johnson (16328)	
1481	This is a huge opportunity for Minnesota and studies have been completed by Polymet as to not to harm the water.	NEPA16
Sender Name (Submission ID)	Kevin Jones (57345)	
18412	I think more important than the jobs and the revenue, and the taxes, and the money side of things, I think it is a great opportunity to really show how things can be done right.	SO10
18415	I think it is important for Minnesota, as well as the United States, to show environmental stewardship by bringing leading edge technologies to the mining process.	PER34
Sender Name (Submission ID)	Kevin Jorgenson (38471)	
9662	By knowingly allowing an environmental impact statement to use information on water flow that is incorrect and inaccurate, and if the DNR allows that information to be used moving forward, FRAUD is being committed… Their impact statement is knowingly false and inaccurate regarding water flow information that was used to determine potentials for pollution. If they are incorrect in a basic measurement like water flow, what more complex items in their report are also inaccurate?	WR003
13601	We should not mortgage the next 5 generations futures for the potential of a few hundred people to have jobs for 20 years.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kevin Jorgenson (38471)	
13602	What is PolyMet going to do? They are going to pull the minerals out, make a ton of money and then leave. The state really isn't going to benefit, and the long-term costs of trying to prevent our precious waters from being polluted cannot be quantified by experts.	FIN01
13604	Our waters will become polluted, and then not only will the state be burdened with the costs of trying to clean up the water, but that area will lose its beauty and revenue generator - tourism.	SO01
Sender Name (Submission ID)	Kevin Lee (47244)	
16924	Don't let the North Shore environment be destroyed by mining that is almost guaranteed to pollute the ground water	WR107
Sender Name (Submission ID)	Kevin Oak (15444)	
661	It is appalling that PolyMet would wantonly cause egregious harm to critical environmental systems and habitat for the sake of short-term profits.	VEG03
662	The toxins and poisons they are intending to spew into the environment with callous disregard for life will still be killing long after they are gone	AIR11, WR035, WR041
Sender Name (Submission ID)	Kevin OHalloran (6038)	
1530	There is no need to risk any environmental degradation of this part of the state	WR115
Sender Name (Submission ID)	Kevin ORourke (43072)	
10003	Regarding...the proposed sulfide mine and tailing to be stored at the south east corner of 100 mile swamp..the map that is currently being used by SDEIS, and when superimposed on an accurate map of the area … The SDEIS map shows a part of the marsh area that is much smaller than the actual area, and also shows a flowage under the bridge to the swamp and a flowage out of the swamp. There is no real flowage out of the swamp, as the swamp is continuous into the BWCA.That is the cover up.	WR024, WR080, WR081, WR111, WR120, WR167, WR175
15415	...once water is acidified by even a small amount, it will no longer sustain trout fisheries. With sulfide runoff going into hundred mile swamp, the chemicals will eventually reach the boundary waters, and the trout habitat destroyed all the way.	AQ08
Sender Name (Submission ID)	Kevin Piron (690)	
422	I very much support our efforts to prevent pollution of all types and to maintain the purity of our water and other natural resources. However, when we say that we don't want a project like Polymet to happen in our back yard, we are, in effect, saying that we want it to happen elsewhere where it won't be our concern. To me, elsewhere means many places in the world where people and their environment have little or no protections from mining and industrial practices that would never be permitted in our country.	ALT16
Sender Name (Submission ID)	Kevin Swanberg (40822)	
10136	The temporary jobs that the mine will create will destroy many permanent jobs the tourism industry and farming industry give our state.	SO02
Sender Name (Submission ID)	Kevin Viken (43110)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kevin Viken (43110)	
10169	I do not see anywhere within the SDEIS ... a survey of the microbiota currently present in the ecosystem and how those organisms will respond to the potential levels of leachate from the tailings ponds.	AQ01
11640	The water in the tailings ponds will be highly toxic without regard to the eventual pH of the water.	WR057
11643	Because the tailings are created from pulverized rock which has had its surface area increased infinitely and exposed to air/water, even slow rates of leaching will result in toxic levels of heavy metals/sulfides that will harm native flora, fauna, microbiota that are all critical for the proper functioning of the local ecosystem.	VEG06
11645	the magnitude of time the toxic water within the tailings ponds has to be determined. At some point it will escape because nothing can be contained in perpetuity.	WR057, WR128
11647	Financial assurance needs to be addressed and well laid out with adequate resources and adequate protections…To have adequate funds 2 things are necessary: a. Ensure adequate funds given different scenarios for the long term economic possibilities. B. Adequate protections of the money that is set aside is critical and requires that how it is handled must enshrined in the constitution.	FIN05, FIN08
11657	Waste from the NorthMet project that is leached in the water will be forever toxic because it doesn't have the advantage of radioactive decay that nuclear waste has.	WR070
11658	I would like it to be considered that the mine be required to be underground below the water table and the waste be used to backfill the mined tunnels. In my view we currently have the technology for this to be done safely for the very long-term.	ALT06
Sender Name (Submission ID)	Khang Le (54225)	
16736	I don't know is it illegal if you changing the map and information that provide for the contruction. The map that the polymet company providing is wrong, absolutely wrong, they had been rewriting the map of the swap where the mine, are going to be place on.	PD38
17359	The mining company dumping their rock into a swpp that having sulfite init and when sulfite meet with water they'll produce sulfuride acid that can make a huge damage the impact of the environmental that can change the ecosysterm of living species inthere.	AQ08, AQ12
Sender Name (Submission ID)	Kiersten Wilson (54359)	
18216	the amount of endangered wildlife is horrendous. If there is any chance, which there is, of destroying or affecting this wildlife, the project should come to an immediate hault. We cannot afford to risk losing any wildlife.	WI01
18217	what about the endangered mammals, reptiles and birds? What will they do during this project? Even if it doesn't directly affect the animals, the sound, water pollution and deposition of dust will surely affect their lives.	N04
18218	I also realize that you plan to plant more wildlife and trees at the site after the mining is over, but what about those twenty years when the animals may be deprived of their homes? What happens when they drink polluted water? As I have said before, we cannot risk the lives of these innocent animals over one mining site in Minnesota.	VEG05, WI02, WI04
18219	As you can see, it would be a great loss not to have this wonderful mining site in Minnesota, but the lives of the wildlife should come first. The lives of these creatures are at great risk, and it would be silly not to disengage this mining project.	WI01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kim Christensen (57953)	
19864	I am concerned about what by-products will be left after this mining is done. I do not trust the plans to clean up the mess.	PD01
Sender Name (Submission ID)	Kim Keelor (11577)	
2230	Wetlands: It appears that 57 percent of the wetlands in the project area will be directly affected and permanently lost. A better goal to shoot for should be well under 50 percent permanently lost at the site. Why not make it 30 percent permanently lost	WET07
2230	Wetlands: It appears that 57 percent of the wetlands in the project area will be directly affected and permanently lost. A better goal to shoot for should be well under 50 percent permanently lost at the site. Why not make it 30 percent permanently lost	WET07
2231	Land Exchange: I think citizens of Mn deserve photographs/film footage of these areas that will be exchanged….Minnesotans deserve to see what these exchanges look like.	LU01
2231	Land Exchange: I think citizens of Mn deserve photographs/film footage of these areas that will be exchanged….Minnesotans deserve to see what these exchanges look like.	LU01
2232	In regards to Threatened and Endangered Species: The statement on Fact Sheet 13 that PolyMet would restore certain disturbed lands and could potentially create new habitat though the process could take decades	PD03, PD01, WR035, WR070
2232	In regards to Threatened and Endangered Species: The statement on Fact Sheet 13 that PolyMet would restore certain disturbed lands and could potentially create new habitat though the process could take decades	VEG03, VEG05
2233	In addition, you are guaranteeing 10-20 years of the tailing ponds containing the contaminants but not beyond that. A better guarantee would be 200 years for me. If the technology is not presently at a stage where you can secure contaminated waters for longer than 20 years, I think that the scientists, engineers, biologists, need more time to study the current mining practices and develop new technology to maintain the contaminents	CU04, CU01
2233	In addition, you are guaranteeing 10-20 years of the tailing ponds containing the contaminants but not beyond that. A better guarantee would be 200 years for me. If the technology is not presently at a stage where you can secure contaminated waters for longer than 20 years, I think that the scientists, engineers, biologists, need more time to study the current mining practices and develop new technology to maintain the contaminents	WR057, WR128
2234	Cultural Resources: I think it is wrong to affect the segment Mesabe Widjiu and that the fish, plants and animals are affected.	CR01, CR05
2234	Cultural Resources: I think it is wrong to affect the segment Mesabe Widjiu and that the fish, plants and animals are affected.	VEG04, WR157
7762	Water Quality: I am concerned about the increase of aluminum and lead in the waters north of the tailings basin noted “As a Side Effect" If the technology is not presently at a stage where you can secure contaminated waters for longer than 20 years, I think ...need more time to study the current mining practices and develop new technology to maintain the contaminents.	MERC20, WR005, WR035, WR126, WR189, WR195
7762	Water Quality: I am concerned about the increase of aluminum and lead in the waters north of the tailings basin noted “As a Side Effect" If the technology is not presently at a stage where you can secure contaminated waters for longer than 20 years, I think ...need more time to study the current mining practices and develop new technology to maintain the contaminents.	WR059, WR064, WR082
Sender Name (Submission ID)	Kim Schroeder (18285)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kim Schroeder (18285)	
14019	What if they go out of business? What is our... guaranty that this mess will be cleaned up if they don't make it to the 40-year mark or the 500-year mark? What is the plan to keep this out of the taxpayers' hands?	FIN01
Sender Name (Submission ID)	Kim Wolff (41267)	
9309	The eventual loss of jobs from the environmental desecration of our lakes that tourists fish, loss of wildlife that bring people to our area to view, will outweigh the temporary increase in jobs to the area.	SO01
9310	Projected rises in Mercury levels are not specified. Please ask the questions and demand answers for the what ifs for worse case environmental disasters.	MERC01
9311	The environmental impact statement is inaccurate as to poor test sites relating to the rivers that feed our lakes.	WR003, WR081
Sender Name (Submission ID)	kim wood (44681)	
7119	The economic plans to ensure ongoing water quality and mine maintenance after the mine has shut down, are, in my mind, flawed.	FIN08, WR037
7126	The health impacts are unclear.	HU01
Sender Name (Submission ID)	Kimberly E Olson (57178)	
18672	Please don’t take our Freedom of Nature away from us. We fish, swim, plant gardens, go hunting, hiking, and go camping. People come for vacations as well. The woodlands are great for getting away.	LU06
18673	Don’t let the corporation’s pressure you. Do what you know is right. Please leave our 10,000 lakes alone.	SO02
Sender Name (Submission ID)	Kimberly Miller (44875)	
8088	The plan PolyMet has put forward to deal with contaminated waste water is NOT adequate. … Please deny PolyMet a mining permit and ask them to develop a better plan for dealing with waste water.	WR128, WR195
8092	I don't want to have to explain to my children that it was "good for the economy" when they see our most unique and valuable ecosystem harmed for generations.	SO02
Sender Name (Submission ID)	Kira Church (57185)	
18656	The health of the BWCA and surrounding area is really important part of not only visitors who come to camp, but also Native American culture and all types of ecosystems. It is important that we protect these ecosystems and cultures.	SO02
Sender Name (Submission ID)	Kirby (44497)	
10643	I believe this Polymet Mine can take place at a later time when environmental processes and abatement procedures are improved.	PD32
10645	I don’t believe Polymet can make a case that there is a shortage of Copper or Nickel that necessitates any mining to be conducted now or near term	NEPA03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kirby (44497)	
10647	I never see anything published in local newspapers or voiced on the radio as to what the mines do to meet NAAQS & Clean Water Act requirements.	PER35
10649	Lead & mercury will be leached into the land, air & water.	AIR05, MERC20, WR070
Sender Name (Submission ID)	Kirk Haldorson (18369)	
14674	I don't want to be dependent on China or another world. Everybody that took us down here today used copper. Everybody that has a phone has copper. Where are we going to get this from? Our country – our state and our country needs to be independent. So give them a chance.	SO10
Sender Name (Submission ID)	Kirsten Anne (11515)	
2467	The jobs will only last twenty or so years but the cleanup could last more than 500.	FIN10
Sender Name (Submission ID)	Kirstin van den Berg (47081)	
11224	My biggest concern with a copper nickel mine is the potential for contamination of our natural water systems. I understand that a potential water contamination analysis was done, but that it did not reflect the appropriate depths of drilling/mining and its effects on the surrounding water tables. Water tables are infinitely connected...I am worried that if a contamination situation should occur, that it could be dangerous. I do not believe that Polymet could control the contamination even if they had the financial resources to do it.	WR037, WR071
11225	More and more of our population (especially young people) are getting sick with cancers and other body systems disorders. Everything that we put into our air, soil and water contributes to our well-being. A copper-nickel mine that has so many risk factors is not an industry that will contribute to a healthy living environment in our state.	HU03
11227	Copper-nickel mining may seem like a good short-term solution for local jobs, but is not a good long-term solution for a state where we pride ourselves on our clean air and clean water.	SO01
Sender Name (Submission ID)	Kit Richardson (54827)	
18543	I am very concerned about the potential negative impact on...the other business which creates many more jobs in this region than the 350 jobs touted by Polymet; the tourism industry, which could disappear with the potential destruction of the Boundary Waters, the St Louis River watershed, and other protected wilderness areas in this state.	SO02
18545	the evidence included in the Polymet SDEIS suggests very clearly that there are still too many unanswered questions and concerns for you to permit this project, and any others like it, to move forward.	NEPA09
18546	I urge you to reject the Polymet application and to rather encourage job creation by protecting our natural resources and promoting environmental tourism in the area.	SO02
18547	if you feel strongly that we need more copper and nickel, perhaps you could support a greater degree of recycling of all our existing machines and devices which contain those metals.	ALT09, ALT16
Sender Name (Submission ID)	Kitura Main (44399)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kitura Main (44399)	
10606	The water modeling needs to be reworked.	WR189
10608	This WILL compromise our health and State.	HU03
Sender Name (Submission ID)	Kiyrie Abernethy (44367)	
10382	The proposed mine's economic boons would be short-lived compared to the environmental degradation caused.	SO01
10386	This project would threaten the Boundary Waters Wilderness Area, the crown jewel of our beautiful state.	WILD02
14963	The project is estimated to create 50-100 jobs, but these jobs would be cyclical, causing an initial boom and then a bust for the workers. The environmental impacts could last 500 years longer than the jobs.	SO01
Sender Name (Submission ID)	Kjen Fromberg (42526)	
15534	I have full faith in the DNR And EIS on clean production. Get the permits going!!!	PER34
Sender Name (Submission ID)	kkelnberger (20883)	
1859	We have been studying the proposals and feel that the money that is being set aside for clean-up is not sufficient. The mine will fail. The taxpayers will get the bill.	FIN05, FIN10
Sender Name (Submission ID)	kkenned2@d.umn.edu (40252)	
9525	There is no guarantee, and no proof of even one of these copper mining sites has ever left the mining site able to regrow vegetation, much less enhance, restore or improve our environment.	VEG05
9528	In 2008, Minnesota's voters passed the Clean Water, Land and Legacy Amendment (Legacy Amendment) to the Minnesota Constitution to: protect drinking water sources; to protect, enhance, and restore wetlands, prairies, forests, and fish, game, and wildlife habitat; to preserve arts and cultural heritage; to support parks and trails; and to protect, enhance, and restore lakes, rivers, streams, and groundwater.	PER35
9530	This copper is a want more than a need.	NEPA06
14135	We need to be the state that refused to allow the destruction of our wetlands, forests and lakes for the short term gain of a few jobs and large financial gains for foreign corporations.	SO01
Sender Name (Submission ID)	klarstrom (44825)	
7774	The SDEIS does not aedequately take into account bedrock fault lines, which could channel unknown quantities of compromised water in unclear directions.	WR010
7775	The capture of polluted water is not necessarily as effective as the SDEIS portrays. The SDEIS should be re-done with a more realistic number.	WR017, WR018

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	klarstrom (44825)	
7777	With polluted water needing treatment far, far into the future, a proper financial assurance for funding for this activity must be part of the plan. This must include inflation calculations with a generous margin for error.	FIN01
7778	I believe that baseline water flowage data used as a basis for the SDEIS is grossly underestimated. The SDEIS must be re-done with flow rates closer to real-life and worse-case numbers.	WR003
7780	The human cost to innocents is not adequately reflected in the SDEIS.	HU01
7801	An escrow account large enough to attempt to compensate harmed persons, individually or collectively, whether for medical consequences, loss of tourist trade, or other unforseen harms, needs to be included. It might be needed for 500 years, and should include monies to help defray legal costs so harmed individuals can obtain justice.	FIN01, FIN05
Sender Name (Submission ID)	Kolleen Kennedy (18345)	
2528	How many jobs are going to be displaced?...Minnesota alone spent 11 billion dollars in outdoor recreation, and that brought in over eight million just in state and local taxes. No one has addressed those jobs that are going away because we are going to have this horrible mine.	SO04
14626	I mean this legacy tax that we voted in was to protect our waters and not to allow them to be destroyed. I don't want to be a state that 50 years from now puts a fence around it, like I think our neighbors are going to have to.	WR195
Sender Name (Submission ID)	Kory Koch (16987)	
1638	I believe the job creation of good paying positions outweighs the environmental impact by a long shot. I also believe the state of Minnesota needs the economical boost	SO01
Sender Name (Submission ID)	Kris Emly (39779)	
14252	Tourism is so important to MN. The last thing we need is another source of pollution. Please do not let this business destroy our waters and land.	SO02
Sender Name (Submission ID)	Kris Peterson (43731)	
11776	One of our most precious commodities is water and with the way things are going clear water and air are getting more and more important everyday. For the DNR to be even considering a mining project such as this is not only short sighted, it is wrong.	AIR11
Sender Name (Submission ID)	Kris Simonson (47777)	
11248	I am frightened about the potential (perhaps certain) destruction to my home if companies like Polymet move in to expand on toxic and dangerous mining practices, all for the sake of economic gain.	SO02
Sender Name (Submission ID)	Krishna Woerheide (43612)	
12547	In the history of mining, there has not been one case of a sulfide mine that did not contaminate the area waters, sometimes for hundreds of years after the process. To set about mining in a watershed which empties into one of the world's largest bodies of fresh water is very risky.	WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Krishna Woerheide (43612)	
12549	Polymet has not shown that they can mine safely in this area, history and documents have shown that they have not done so before. The rock piles will need to be treated for 500 years after mining is complete.Are they willing to make that financial deposit before mining commences?	FIN01
15106	I don't believe sulfide mining is a viable undertaking in Minnesota's Northland, nor do I believe the companies involved are entirely honest about the economic gains and the destruction they will cause here.	SO01
Sender Name (Submission ID)	Krista Weiland (54358)	
18210	This project would damage Minnesota natural resources such as lakes, forests, and wild rice production. … Another negative effect of this mining is water contamination. If this happened, you may have a whole city without water. It could possibly affect a larger region as well.	WR043, WR111, WR156
18211	It would also affect historic and cultural icons that are crucial to Minnesota.	CR05
18212	This project also could affect wild rice production. Minnesota distributes much of America's wild rice.	VEG04
18213	This proposed project could cause long term unsettlement for animals and for the local residents.	LU06
18214	The pollution could even affect all of Minnesota residents.	AIR09
18215	I think that there very few short term advantages and many long term disadvantages.	SO01
Sender Name (Submission ID)	Kristan A Wegerson (38584)	
9724	MN Rule 6132.3200 does not allow perpetual treatment and a reasonable person would conclude that the proposed action would entail perpetual treatment. The proposed project cannot legally proceed.	PER04
9727	PolyMet has proposed an Adaptive Water Management Plan (AWMP) that identifies additional measures the firm could take if necessary to prevent any exceedances of water quality standards.”...the details of the “Adaptive Water Management Plan” are not in the SDEIS.The SDEIS is deficient.	PD22
9729	I am skeptical of Minnesota’s regulatory agencies when they can grant variances on permits so that mining companies can evade “Minnesota’s tough environmental regulations”. The P90 threshold means that 10% of the time the concentration of solutes including metals, would be higher.	WR192
9733	It is false to compare the modeled water quality conditions to current conditions because they (current conditions) are in violation of current water quality standards. Current conditions should be cleaned up before more pollution is added to the waters.	WR051, WR108
9736	“Correction factor(s)” and “calibration factors” had to be applied. 5-62 The details of the models and the “fudge factors” are not given in the SDEIS. The SDEIS is incomplete and deficient.	WR050
9741	David Blowes, an expert on liners used in mining ... stated that, “All liners leak”. It takes an average of 8 years before this happens.” These stockpiles will be open to the air and on liners for more than 8 years before they are placed subaqueously. "Seepage through liner would enter the underlying groundwater system”…There is likely to be acid mine drainage from these stockpiles.	PD15, WR127

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kristan A Wegerson (38584)	
9749	The tracts of land that are proposed for transfer are small ... and don't compare to the size and quality of the lands that would be transferred. Tract 1 has hazardous waste material on premises, ... and was logged in the past 60 years and has immature forest. Tracts 2, 3 and 4 have limited accessibility. ... have outstanding mineral subsurface rights. Because the land exchange involves the transfer of unequal valued land, it is in violation of the FLPMA.	LAN03, LAN04
9766	Mercury deposition would degrade the water resources of the Partridge and Embarrass River watersheds in violation of Minnesota law.	MERC23
9771	Figure 5.2.2-53 shows that annual maximum concentration of sulfate in the Embarrass River downstream of the PolyMet Plant site would be well over 100 mg/L for the 200 year modeling period. 5-200 This would be in violation of Minnesota's wild rice standard.	WR162
9774	GLIFWC notes... for example the cumulative effects section for the Partridge River, the test states all water evaluation criteria would be met, though water quality standards would be exceeded for several constituents."The proposed project does not meet water quality standards.	WR107, WR109
9796	The wetlands to replace those at the Mine Site would be out-of-kind and off-site and are significantly inferior to those being lost. Because the land exchange is not in compliance with EO 11990, it can not proceed.	WET04, WET14, WET15
9797	The data in Table 5.2.7-14 indicate that calculated visibility impacts greater than 5 or 10 percent could occur at some point within the BWCAW on a small number of days each year." 5-415 This would appear to be in violation of the Class I airspace protections.	AIR08
9801	I have serious doubts about the geotechnical stability of putting millions of tons of material on the aged and deficient current tailings basin...the geotechnical stability of the stockpiles and liners is still unknown...The SDEIS is incomplete and deficient	GT01, GT04, GT10
9803	The omission of financial assurance from the SDEIS is a fatal flaw...Does financial assurance cover the cost of a major environmental disaster during mining if the company can't afford to pay? Will the public pay?...If you assume that the post-closure period would be 480 years (500 years at the Plant Site-20 years of closure) you get $2.256 billion dollars ($4.7 x 480). And these estimates are in 2014 dollars! This is inconceivable! Read SUPERFUND SITE.	FIN01, FIN13
9806	"Cancer risk from monitored background air concentrations (3E-05) is greater than the incremental cancer risk guideline value of 1E-05, thus cumulative risk is also above this value." 6-88 This is saying that Polymet will be hazardous to your health.	HU05
14036	…the solution to pollution is dilution, and we don't have any other plans to contain this. Without a plan to prevent this acid mine drainage in the first place, and without a plan for "adaptive water management" if it does occur, the SDEIS is deficient.	WR130
14037	If the XP-SWMM and GoldSim models are inaccurate, the entire water quality evaluation is unreliable and should be rejected. …the model used by PolyMet underestimated low flows during winter by as much as a factor of five in many cases…DNR hydrologist Mike Liljegren said it is "more than likely" that a new water quality model will need to be developed before a final version of the SDEIS can be issued. And new modeling on water quality could well impact other results in the study, requiring new runs of the other models in the SDEIS. "	WR003
14039	[non-native invasive] plants should not be used for revegetation	VEG05
14040	Destroying [Canada lynx] habitat in LAU 12 or causing a decrease in its quality or quantity would be in violation of the ESA as enforced by the USFWS.	WI02, WI11
14044	The PolyMet Proposed Action has not determined how it will safeguard...protected resources [that are important to Ojibwe culture]. The SDEIS is deficient.	CR01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kristan A Wegerson (38584)	
14047	The Land Exchange … represents an exchange of access to natural resources expressed in treaties made between the United States and Bands of Ojibwe Indians in the 19th century…On the whole, given the inferior quality of the lands proposed to be transferred to the USFS, and the loss of the superior quality lands with their unique resources to be transferred to PolyMet, I believe this action will blaze a new segment on the "trail of the broken treaties" and would be illegal.	CR01
14049	I do not have faith that the Minnesota regulatory agencies will have the will to enforce environmental regulations given that it has been 13 years since LTVSMC went bankrupt and its legacy pollution hasn't been cleaned up. Add to this the Dunka Mine which is causing acid-mine drainage into Bob Bay in Birch Lake (20 years after closure). The INCO Site is causing acid-mine drainage off the Spruce Road (40 years after only 10,000 tons of ore were mined). PolyMet has the makings to cause the worst environmental disaster in Minnesota history.	PER06
14050	For the DEIS in 2009, mercury emissions were regulated such that there could not be new source emissions of mercury unless there was a corresponding decrease in mercury at another emission source. It appears that the regulations were revised by MPCA in 2012 so that these new emissions would be allowed. Another example of "regulatory flexibility".	MERC01
14051	"...the potential exists for the release of amphibole mineral fibers from the proposed operations, which could pose a potential health risk of uncertain magnitude."…The SDEIS treatment of the asbestos risk is incomplete and the SDEIS is deficient.	AIR03
Sender Name (Submission ID)	Kristen Damberg (15753)	
12038	Far too high to risk to the only land and water we have to do copper/nickel mining in Northern MN. Jobs NOT worth polluting ruining our beautiful state!	SO01
Sender Name (Submission ID)	Kristen Meyer (39259)	
5509	Hundreds of years (500 according to PolyMet) of monitoring and treatment don't justify the short term jobs/resource use gain! PLEASE take the responsible LONG VIEW and make a stand for the State of Minnesota - today and tomorrow!	SO01
10976	WATER is Minnesota's greatest asset and will be the resource most valued in the years ahead; the mines will come, extract, and go, providing relatively short term benefit and long-term negative environmental impact.	SO01
10977	Let us be patient and wait until we have extraction technology that can TRULY guarantee no negative environmental impact.	ALT16
13875	Certainly job creation is important, but not at the high cost of threatened water quality for generations to come!	WR115
Sender Name (Submission ID)	Kristin Eggerling (22522)	
9957	The risk far outweighs the potential benefit. Jobs are important, but few real, long-term jobs will be created…Creating jobs that are not sustainable is shortsighted and a waste of our precious resources.	SO01
9958	Our health and the health of the earth will very likely be negatively impacted. Our ground water, our surface water, our boundary waters are far too critical to gamble.	HU03
Sender Name (Submission ID)	Kristin Foster (43213)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kristin Foster (43213)	
16149	While many of the families who have earned their living from mining are categorically supportive of any mining venture, others recognize that corporate profit from exploiting natural resources does not necessarily coincide with the interests of human health, economic and social justice, and community well-being.	SO01
16150	major questions remain in the areas of … equitable land exchange	LAN03
16151	major questions remain in the areas of … levels of toxins including carcinogens in water	WR042
16152	major questions remain in the areas of … effect in the health of infants and children	HU01
16153	major questions remain in the areas of … damage to endangered, threatened, and special concern plant and wildlife species, including our already declining moose population	VEG01, WI01
16154	major questions remain in the areas of … the effects of the introduction of non-native species in reclamation efforts	VEG05
16155	major questions remain in the areas of … legality of authorizing an operation where clean-up will be ongoing	COE04
16156	major questions remain in the areas of … possible negative effects of this mining on other sectors of the local economy	SO06
16157	a gain of 300 or so jobs and their spin-off economic gains for the next 20 years, given the above unanswered questions and risks, does not constitute this stewardship.	SO01
Sender Name (Submission ID)	kristin palmer (4566)	
1850	The destruction that will happen ... would destroy not only the livelihoods for the people that live there but also the tourism industry and all the money that brings to the area.	SO02
1851	The promise of jobs to the area is not permanent, but the pollution will be. The risk of this mining does not out way the benefits.	SO01
Sender Name (Submission ID)	Kristin Wharton (45170)	
8768	The impact of sulfide, mercury, and other byproducts of sulfide mining on human health have not been adequately addressed in this process.	HU01
8771	The potential threat that the polymet mine poses to human health is not a risk that I accept.	HU03
Sender Name (Submission ID)	Kristin White (9848)	
316	EIS is not clear on how long pollution control, reclamation and water treatment will take after the mining operations cease.	PD05
317	I am gravely concerned about initiating a multi-million dollar project which will have a centuries-long impact on Minnesotans without hard, concrete facts regarding the potential harm to water and river flow in the region.	WR038, WR128

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kristin White (9848)	
318	I am concerned the EIS itself contains flawed and/or inaccurate data concerning the effect the mine will have on the Partridge River flow. Recent developments have shown the DNR has admitted that estimates of the proposed mine's impact on the river are nearly three times too low.	WR003, WR086, WR091
319	Third, I believe that the costs of the mine greatly outweigh the benefits and am concerned the DNR did not conduct a proper cost-benefits analysis.	SO01
320	If PolyMet is not around to restore water and forests, who will pay for this? I believe that until we can answer that with certainty we should nove move forward with this plan.	FIN01
321	I would request the DNR take the No Action Alternative wherein the NorthMet project is not implemented and no land transfer takes place because: (1) the parties cannot concretely determine how long the environemental damage will last; (2) the EIS contains flawed river flow data; (3) the costs greatly outweigh any limited benefits; (4) PolyMet cannot guarantee it will be in existence for the duration of the environmental restoration; and (5) PolyMet has not posted a bond to ensure funds are avilable for pollution problems and mine reclamation.	ALT01
1398	I would propose that PolyMet post a bond, estimated in the amount of $500 million in order to provide financial assurances that it will be able to pay for the long-term water treatment and that, even if the company goes out of business, it will continue its commitment to the state of Minnesota. Absent a bond in an amount that would cover any environmental degridation and subsequent litigation, I would recommend not moving forward with the planned project.	FIN01, FIN08
Sender Name (Submission ID)	Kristina Pogorelc (42087)	
2018	the SDEIS is insufficient … because it is lacking vital information about long-term water treatment and how it will be paid for -- information that is necessary to decision-makers.	FIN01
2020	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
2021	Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk.	SO01
Sender Name (Submission ID)	Kristina Smitten (44371)	
10404	We cannot continue to favor short-lived economic gains compared to long-lived environmental fragility; as the real long-term economic costs are almost incalculable.	SO01
10407	The lack of clarity in long-term environmental and human impacts as well as lack of full analysis of alternatives,leaves large gaps in ability to provide a solid decision. A decision to approve is not acceptable.	HU01
10415	Deny PolyMet a state permit to mine.	PER35
10416	Reject the SDEIS as inadequate and the PolyMet project as environmentally harmful.	GEN01
Sender Name (Submission ID)	Kristine M. Maurer (43335)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kristine M. Maurer (43335)	
11344	Minnesota is home to so many beautiful ecosystems and places that are treasured by millions of people and I feel it is only just that these ecosystems are protected and preserved so that future generations of Minnesotans can enjoy and observe them in the same condition and capacity as we do today.	LU06
11347	Evidence from peer-reviewed research and the environmental consequences observed in states where sulfide mining has been employed, strongly suggest that allowing this type of mining operation to exist in the same watershed as some of Minnesota's most valued wilderness areas and sensitive ecosystems will be catastrophic to the legacy and condition of these areas.	WR023, WR195
11354	Many of the lakes in Northern Minnesota, including Lake Superior and those in the Boundary Waters, have low alkalinity and therefore have a low buffering capacity against changes in pH. When pH decreases (becomes more acidic), say as a result of sulfuric acid in mining effluence, calcium carbonate becomes less available and the solubility of silica is reduced.	WR001, WR111
11359	These consequences of increased acidity can reduce the viability and success of biota such and snails and clams which need calcium carbonate to build their shells, and to diatoms which need silica to build cell walls. Studies have demonstrated that waters acidified by acid mining drainage (AMD) can cause complete changes in the community composition of diatoms. Diatoms are a main primary producer in oligotrophic (low primary production) systems and alterations in their community composition could cascade into issues and changes throughout the food web.	AQ08, AQ21
11364	Because water bodies in northern Minnesota are oligotrophic and often have long water residency times, the influences of mining contaminants can be long-lasting. Decomposition and growth is slow in these systems which can equate to more accumulation of toxins in sediments and increased bioaccumulation of toxins in the tissues of animals such as fish. These consequences could impact the fishing industry and the health of those who consume fish (e.g., humans, birds, other wildlife) from areas exposed to AMD.	AQ08, AQ21
11369	Wetlands are like ecological kidneys; filtering and decomposing contaminants and retaining sediments that could otherwise end up in streams, rivers, and groundwater. As a result, they play an invaluable role in the condition and safety of municipal water. Removing over 1,000 acres of wetlands for mining would reduce key habitat for migratory birds and would be detrimental to water quality in the surrounding watershed.	WET24, WI02
11372	I recognize there is potential for job development with the success of sulfide mining. However, its economic return is short term. Like hydraulic fracking, sulfide mining is unsustainable and in the end will leave in its wake irreversible and costly destruction.	SO01
11373	I urge you to think of the billions of dollars the wilderness areas and ecosystems in northeast Minnesota are worth, not only for their tourism and industry value, but for the ecosystem services they provide (e.g., mitigating floods, cleaning ground and surface waters, providing critical habitat), and the intrinsic value they have.	SO02
11375	Please love this state as much as I do and refuse to let sulfide mining rape the integrity and condition of the irreplaceable habitat and wilderness areas in northeast Minnesota.	WILD02
Sender Name (Submission ID)	Kristine Mosher (54488)	
18020	I have reviewed a few sections of the SDEIS and found that there is no provision to monitor Mercury pollutants that could be present in the water that is returned to the enviromnent.	MERC16, MERC17
Sender Name (Submission ID)	Kristine Norton (46911)	
10822	I understand that this company has little experience, is not focused on Minnesota and keeping the area free of contamination, but is instead happy to dig up the land near our pristine wilderness and lakes.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kristine Norton (46911)	
10823	I read, today, in the Star Tribune that PolyMet has a poor environmental and human rights record and has an agreement to sell copper concentrate to China. …This is NOT a good move for the State of Minnesota!	SO02
Sender Name (Submission ID)	Kristine Osbakken (18381)	
2858	PolyMet claims that this increase in mercury to the Embarrass River won't affect mercury in fish in the St. Louis River because of the water treatment plant that will operate when the mine is closed and the west pit is flooded. Referring to SDEIS page 5-8. However, it will be 40 years until the treatment plant kicks in. What about all the mercury pollution within that 40 years? The fish are not fit to eat in the already heavily polluted lower St. Louis River.	MERC02
2864	the PolyMet SDEIS does not adequately address [mercury] effect the lower St. Louis River.	MERC19
2869	The PolyMet SDEIS should not be finalized, nor the project approved, until a full study of the TDML of mercury in the St. Louis River proves that PolyMet increased mercury loadings will not increase fish contamination.	MERC22
3206	How much polluted wastewater is going back and forth through nine miles of pipes? What is the total volume wastewater in the tailings and the processing residue? Just how polluted is the wastewater and waste rock piles in the pits, pump ponds, tailings basin and the hydro-metallic waste dump? These answers are missing.	PD15, PD30, PD36
3207	Once pollution is in the groundwater, it will be too late to fix. It will affect the Partridge, Embarrass, it will affect the whole entire St. Louis watershed	WR115
Sender Name (Submission ID)	Kristine Vesley (43225)	
15820	All in all, I believe that the risks and wetland losses outweigh the possible (and short-term) economic benefits.	SO01
15821	The wetlands and waterways that would be lost and/or contaminated are precious to everyone in Minnesota.	WET24
15822	There is no way PolyMet could provide financial assurances sufficient for a real disaster, and we all know real disasters can and do happen. Some disasters cannot be cleaned up with dollar bills.	FIN01
15823	I have learned enough to worry about the water issues, including any potential mercury and other pollution of the treasure that is Lake Superior.	WR111
Sender Name (Submission ID)	Kristy M O Neill (11606)	
3257	The amount of efforts gone into mining could be put into something much more susstainable…so that seven generations into the future wouldn’t question our value of their life.	SO02
3257	The amount of efforts gone into mining could be put into something much more susstainable…so that seven generations into the future wouldn’t question our value of their life.	SO02
14244	It doesn’t seem as though it would ever be a question, the risk of dammage to our environment and water shed is too great…if one had no safe water to drink, they would then realize how presious every drop is.	WR041, WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kristy M O Neill (11606)	
14244	It doesn't seem as though it would ever be a question, the risk of dammage to our environment and water shed is too great…if one had no safe water to drink, they would then realize how presious every drop is.	WR115, WR195
Sender Name (Submission ID)	Kurt (43702)	
11924	I am not convinced that the SDEIS adequately considered alternatives to the project as designed. The option of an underground mine needs more consideration.	ALT06
11925	The SDEIS did not demonstrate that the technology proposed to prevent acid mine drainage will work at scale and over the many decades necessary to protect Minnesota' s water quality.	WR129
15095	[The SDEIS did not] demonstrate that the funding will be available to implement that technology over the next several centuries.	FIN01
Sender Name (Submission ID)	Kurt Seaberg (44647)	
12241	The number of jobs generated will be small and temporary and the risk of irreparable damage to Minnesota's environment will be enormous.	SO01
Sender Name (Submission ID)	Kurt Wetzel (54911)	
19236	This document fails to place the prospective mine within a larger historical, economic, and environmental perspective--the big picture (tbp)--necessary for comprehensive understanding and evaluation of its proposals; without such contextual broadening the document is reduced to a mere roster of data. Indeed, the SDEIS itself eschews any such contextual analysis (p. 6-1, "It is not possible, however .... .. ").	CU14
19245	The primary failing of the SDEIS is that, seen from a broader perspective, it is internally inconsistent, reflecting a larger social schizophrenia wherein we demand both economic growth and a functional environment. Because the planet is already overpopulated and over-engineered, environmental impact must inescapably accelerate as function of economic growth. The proposed mine is but an increment in both these latter processes.	SO04
19246	At some scale the costs of growth outweighs the benefits and additional economic expansion becomes irrational: we end up poorer rather than richer, worse off rather than better off. This is happening because many costs are not being internalized, primarily, though not exclusively, environmental.	SO01
19256	Polymet, besides its main business focus of concentrating various metals from low grade ores, is additionally mandated to concentrate and contain a host of substances from its waste streams. In order to do this it must disperse something else, i.e. create and release a compensatory high-entropy flow into the environment. Thisstream in turn is chosen so as to avoid regulation: atmospheric carbon. Technology can thus shift the specific form of compensatory entropy, but not its required (by the second law of thermodynamics) amount. Until we throttle the rate of atmospheric carbonization to that which nature can cycle it, we will not be serious about impact control; we don't do that because in an industrial society based on fossil fuels, as that would stop growth. The SDEIS simply trades one form of impact for another, it does not reduce its quantity,and transforms it to a form that is not as localized and not as immediate. Carbon dioxide is transparent and therefore out of sight.	AIR01
19259	The SDEIS has a glaring omission: enforcement of the conditions of the permit. The entire document is strewn with verbs in the future, subjunctive, and intentional verb tenses--what Polymet will do, how they would respond, and what actions they will take to address changing conditions. Promises being cheap, actions and solutions being expensive, enforcement is critical.	PER06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kurt Wetzel (54911)	
19261	The land trade proposal is the primary failing of the SDEIS with respect to enforcement; in our society property endows the owner with power. Owners have dominion over their land. Once the surface property is traded away the SDEIS will become only so much meaningless paper, and the mine site will be immediately fenced, gated, and guarded (fgg). A split estate gives wtp leverage; a united estate reduces public inspectors and regulators to either guest or trespasser status. This is forewarned by language of the SDEIS in reference to areas of the project now owned by Polymet, stressing that it is private property (pp.4-166, 4-314, 4-350, 5-513).	LAN04
19263	There still ought be a fence and a gate for security and safety considerations, but the guardhouse must be staffed by a public employee. Polymet will still own the minerals, but the mine must remain property of wtp. If mining is inconsistent with the management goals of the USFS, then management of the the mine site lands ought be transferred a more appropriate federal agency, say, the Environmental Protection Agency. In any case, the federal government would have to be reimbursed either in land or money for the surface degradation inherent to such a mine.	LAN04, PD30
19265	The regulating personnel would have to have an office or trailer on site, and be staffed by a rotating team of specialists, from construction inspectors, hydrologists, air quality specialists, to environmental chemists. They would be intimately familiar with the permit conditions and see that they are being fulfilled. Their reports, photos, and videos would be put on-line weekly so that wtp could be satisfied that our property interests are being upheld. Unrestricted access to the privately owned plant site and transport route by the inspection staff would have to be guaranteed as a condition of Polymet using public land at the mine site. This inspection team would be public employees and all their expenses would be paid from public funds, with both reimbursed by Polymet.	PER24
19272	The SDEIS must also require a financial assurance package, not only for shutdown and cleanup (after the company has extracted and sold their subsurface mineral property and can leave), but also for construction and operation. This gives wtp leverage which private companies respect: each permit violation would result in, for instance, a per-diem fine until the violation is corrected. At mine closure Polymet would re-coop all funds remaining in escrow. Thus there would be two financial assurance accounts, both fully funded, before any mining activity begins.	FIN05, FIN08
19277	The Cumulative Effects portion of the SDEIS not only fails, but fails spectacularly. The directive is to consider "reasonably foreseeable future actions" in the region. The joint preparers must be in need of strong corrective lenses if they cannot foresee as a direct consequence of the acceptance of this proposal a flood of subsequent sulfide mines in Northeast Minnesota. Approval of the SDEIS would be but a starting-gun trigger for a northern Minnesota copper-nickel rush. The cumulative environmental degradation would be disastrous.	CU04
19283	If wtp and our representative agencies were serious about environmental protection, we would, in lieu of outright rejection, cap-and-trade this type of mining: we would put up for auction one and only one (the cap) right-to-mine permit (rtmp) for sulfide mining. This would be the single and only such rtmp let. Any person, any company, or any organization could bid on the permit. Once the high bidder paid the winning bid price, the permit would become their property, which they could sell (the trade), lease, exercise, or hold indefinitely without exercising their rtm. Once a company acquired the rtmp, through either auction or subsequent purchase, and exercised that right to mine(subject, of course, to all regulations and standards within the permit), both the permit and the mine would have to stay in the same estate--until the mine was closed and successfully re-claimed according to permit prescription, including a specified post-closure span. Then and only then could the rtmp be re-exercised, sold, leased, or held.	NEPA01
19286	In lieu of a cap-and-trade scheme, the regulatory agencies ought minimally issue a moratorium on any subsequent mine once an initial permit has been granted. Granting of subsequent permits would depend upon the land stewardship success of the initial mining and closure operation. Thus the first sulfide mine would be an environmental test-case. For a host of economic efficiency considerations, this is a much less desirable option than cap-and-trade.	NEPA01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kurt Wetzel (54911)	
19292	The minutia within the land trade scheme was largely a smoke-screen for the central issue: what is the final environmental loss, not whether or not the land trade balances with respect to land types, functions or value. Nature doesn't care to which estate it belongs, or whether it is public or private. These are but scribblings in a county ledger. The SDEIS should have included a concise summary of how much of the planet's ecosystem would be destroyed and compromised if this proposal is realized. In addition it should have given the global rates of such destruction so that the public could better understand that this unsustainable global trend just is the cumulative effect of such incremental impact as in the proposal.	LAN01
19299	The SDEIS omits a whole class of external costs, namely the social costs associated with the potential industrialization of northeast Minnesota. Indeed the Socioeconomics (p.S-493) portion of the document shows how slippery and subjective the whole concept of cost actually is; what is one person's benefit is another's cost. For a large portion of the residents of the Minnesota Arrowhead the reason they choose to live there is the relatively undeveloped quality of the environment. More people, more jobs jobs jobs, more roads, more traffic, more extraction, more commerce, man camps, rising crime ..... these represent what many of the current residents would have to give up, not what is gained. Ely, Minn. as Williston, N.D. I see no provision in the SDEIS which outlines a system of shunting money from the pockets of the beneficiaries of this new industry--mine employees, investors/owners, support businesses, etc.—into the pockets of those who bear the social costs.	SO04
19301	The title history of Tract 2 of the land exchange seems odd, even suspicious. Its title was in the public domain (Lake County), passed into the private domain by purchase, and then is to be used in exchange for public lands (p. 4-396). So what was once public becomes public again to offset loss of Federal land to Polymet. The purchase of county land by Lake Forest Enterprise, Inc. should have been detailed and made transparent in the SDEIS. Was this by auction as is usually required? or by backroom deal? What gives?	LAN04
19302	As the three lead agencies "have jointly prepared the SDEIS" (opening sentence of the COVER SHEET), how can it be that these same agencies that will issue the critical Record of Decision? So, they will be determining the adequacy of their own work? Is not approval a foregone conclusion? Who designed this arrangement? In any case, it is unacceptable. It would inspire much more confidence if an independent agency (the EPA for instance) or an independent committee appointed by Governor Dayton made the final decision to accept or reject the proposal.	NEPA08
19304	The several sections of the SDEIS dealing with GHG emissions are confusing and contorted. First it is noted that the annual GHGe emissions are under the USEPA threshold (Table 5.2.7-7), but we later are told that the threshold is not a limit, but rather would simply require BACT for these emissions (p. 5-429). So apparently Polymet will not be required to apply such technologies to its GHG emission sources. This is further egregious since the limit, 1.0 x 10^5 tpy, is arbitrarily applied to "stationary sources" only; if all the Polymet sources are totaled, they are nearly double the threshold (table 5.2.7-8). But still would be of no consequence, since the threshold is not a cap. The threshold is toothless, even silly. And if the indirect sources are totaled, the threshold is exceeded by a factor of over 7, with the same non-effect. The SDEIS is a permit to spew GHGs without limit and with the nod of our regulatory agencies, and thereby with the permission of all citizens. This ought be simply and directly stated.	AIR13
19305	But since the GHG emission rate totals are so enormous, the SDEIS attempts a rear-guard apology in the form of minimizing the numbers by comparison to state, national, and global rates: .44%, .01 %, and .0014% respectively. Note first that these would be hypothetical additions to the respective base rates. The Northmet Project would emit GHGs at a rate of nearly one half of one percent of the whole rest of the state! Just this one mine!	AIR01
19306	Why aren't some other emission comparisons listed? For instance, how many units of GHGe are emitted per unit value produced by this mine? and then give the number of units of GHGe/GDP for comparison.	AIR01
19307	These GHG numbers are especially troublesome given the (albeit, denied) likelihood of a half dozen or more of such new mines. Because these likely mines are not considered, the cumulative numbers are not "done".	AIR01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kurt Wetzel (54911)	
19308	Given the volume of the SDEIS, its most notable success is the effective limiton serious and thoughtful commentary by the abbreviated time allowed for its reading, for subsequent deliberation, and comment writing.	NEPA07
Sender Name (Submission ID)	Kyle Crocker (20189)	
9510	The PolyMet SDEIS does not begin to properly evaluate risk, much less plan for an array of potential and very long-term failures. It must be withdrawn and completely re-envisioned, not simply redrafted.	PD01
Sender Name (Submission ID)	Kyle Lindy (47620)	
7427	I must say three months is an insufficient period of time for the public to be able to digest this information and submit informed opinions on this proposal.	NEPA07
7428	The SDEIS should have an underground mine option, the lack there of renders should render this SDEIS inadequate.	ALT01
7434	According to the SDEIS plumes of toxic water with sulfate concentrations as high as 19.6 m/L...will be sent into the partridge river during mine closure along with any other toxic pollutants present in the mine pit lakes. We now know that any level of Sulfates is detrimental to the growth and seed production of wild rice, and the State Standard is 10 m/L.	VEG04, WR162
7436	This Project proposes the largest permitted wetland destruction ever in Minnesota's history.	WET23
7441	PolyMet should redo the water flow study for which most all of the important data concerning the treatment and travel time of mine wastewater, and contact water on the site is dependent upon even if our policy makers aren't going to demand it.	WR025
7447	[Polymet should] give us some indication how many years these toxic mine pits and the tailings basin will have to be treated.	PD07
7457	[Polymet should] fund a study to see how this mine may impact sustainable jobs in nature based tourism that already exist with in St. Louis and Lake County, as well as how the county is going to deal with the increased infrastructure, and public services demands this mine will have…	SO04
7461	PolyMet should fund the research to answer these questions that could lead to serious and long lasting public health issues that Minnesota families would be left paying the price for.	HU01
7466	[Polymet should] lay out detailed plans for how they are going to deal with normal accidents, equipment failures, environmental anomalies like torrential rain falls, or unexpected major leaks in the water containment systems and liners that may occur during the Centuries long life of the mine including post closure.	PD22
7471	It is short sighted and a violation of public trust to approve a mine that may very well cost taxpayers millions of dollars to clean up, has unknown public health impacts, has unknown impacts on a vibrant tourism industry, has very real and measurable impacts on clean water, air, and wetland resources.	FIN10
Sender Name (Submission ID)	Kyle R. Crocker (23928)	
10308	Much of [the SDEIS'] data on the hydrology of the sensitive areas concerned is outdated and/or misconstructed. This is especially true of the proposal to dump tailings from the mining process on top of the former LTV Steel's tailings basin, which was built in the 1950s on top of three streams, and was designed to leak.	WR071

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kyle R. Crocker (23928)	
10310	There is also general inattention to contingency planning for a number of very possible failures that could have devastating effects on the whole of the St. Louis River watershed, as well as related one and Lake Superior itself.	PD22, WR130
13111	The Supplemental Draft EIS for the PolyMet proposal for the sulfide mining operation based in Hoyt Lake is very deeply flawed…This is especially true of the proposal to dump tailings from the mining process on top of the former LTV Steel's tailings basin, which was built in the 1950s on top of three streams, and was designed to leak.	WR070
13112	There is also general inattention to contingency planning for a number of very possible failures that could have devastating effects on the whole of the St. Louis River watershed, as well as related one and Lake Superior itself.	WR130
13113	The PolyMet SDEIS does not begin to properly evaluate risk, much less plan for an array of potential and very long-term failures.	PD22
Sender Name (Submission ID)	Kyle Richard Kopp (43021)	
12392	The first concern I have with the whole process of the mining operation is the runoff from the entire site and piles of earth that would be taken from the mining site...There are many streams and rivers around the proposed mining site. The runoff from the mining operation as a whole will affect all of these waterways in a negative way.	WR174
12399	The amount of air pollution from the mining operation while in operation will be immense. The air pollution from blasting and the dust from everyday activities of the mining process will get contaminated dust and dirt partials in the air and will affect the streams and wildlife for miles surrounding the mining area.	AIR11
12401	… the amount of fossil fuels burn will put major stress on the air quality not only around the mining site but also for many miles around and will increase of greenhouse gasses.	AIR01
12402	One problem that will come after the mining operation is finished is the erosion and degradation of the soil used to fill the pits while there is no vegetation. This will allow for quickened runoff and will still have dangerous pollutants in it.	GT09
12403	Another concern about the reclamation of the land after the mining is over is that the land will never be able to fully recover. It wont be able to produce the same amount of biodiversity as it did originally.	WI02
16966	... mining of this area is clearly going to have an adverse affect on the local wildlife in the area. First the clearing of the trees and other vegetation is a major burden of the natural habitat of the animal life…. mining will cause animals to have to change the current location and the noise and vibrations produced would be putting a stress on their life. this stress will make them have to change there habits and may affect the entire population of a specific species.	WI01, WI02, WI05
Sender Name (Submission ID)	Kyle Strohmaier (44471)	
10969	The idea of endangering one of the most important freshwater sources on our planet by approving the NorthMet mine proposal is dubious at best.	WR115
10970	The first possibility for avoiding environmental havoc is for PolyMet to monitor the NorthMet site and actively prevent any acid mine drainage.	PD01
10971	It is nothing short of ludicrous to think that, hundreds of years from now, either PolyMet or Glencore Xstrata will not only exist but also take responsibility for an area from which they've long since squeezed their last profits.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Kyle Strohmaier (44471)	
10973	[The second possibility for avoiding environmental havoc is]...PolyMet leaves the NorthMet site with a sound infrastructure to passively prevent acid mine drainage	PD03
10974	This brings us to the final way to avoid polluting the water of Northern Minnesota – do not approve the NorthMet mine proposal	WR195
10975	Additionally, I urge the DNR not to be swayed by those who think only of the benefits over the next two decades, when the negative impacts of the proposed NorthMet mine would last for centuries.	SO01
Sender Name (Submission ID)	Kyra Quillen (11343)	
271	We will only get 20 years of mining out of this area and it will ruin a great deal of our water.	WR115
1629	Even though the PolyMet Company will provide jobs for 20 years to many people, the taxpayers will be responsible for cleaning up mining sight. This will cost the taxpayers billions of dollars which would force our economy into a recessio	FIN10
1630	…copper mining will ruin 26 square miles of our beautiful forests. Copper mining will pressure Minnesota to tear down this area and we have already lost plenty of our forests. We will not only be tearing down 26 square miles of our illustrious forests, but much more to build homes for the miners.	VEG03
Sender Name (Submission ID)	L J (45046)	
7161	The polymet proposal would be terrible for the environment and would contaminate our most precious resource--WATER!	WR111
7164	Forget the short-term profits and think about the enormous expense of trying to somewhat reverse the damage in years to come.	SO01
Sender Name (Submission ID)	L.L. Kauffman (13363)	
113	The SDEIS is insufficient and should NOT be approved because it is lacking vital information about long-term water treatment and how it will be funded	WR035, WR128, WR143
114	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
115	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	Lake Superior Binational Forum (54762)	
19238	As US Co-Chair for the Lake Superior Binational Forum, and on behalf of our members and Canadian CoChair, Mr Jay Eingold of Thunder Bay, ON, I am submitting for your consideration the enclosed document "Responsible Mining in the Lake Superior Basin." … Our website, www.superiorforum.org has become a prime source for citizen stakeholder information.	REF01
Sender Name (Submission ID)	LaMont Johnson (47635)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	LaMont Johnson (47635)	
7656	[I] feel like the mining could open up more job opportunities and could be very beneficial.	SO10
Sender Name (Submission ID)	Lance Groth (45639)	
12846	Opposed to sulfide mining in Minnesota. 300 jobs is not worth trashing the ecosystem.	SO01
12847	Centuries of waste water treatment, 200-500 years worth. Long after everyone involved today is dead, future generations will be left holding the bag for a polluted mess, and what recourse will they have? None at all.	WR037
12848	Polymet says they will build a five mile cutoff wall anchored in bedrock to contain water that flows through the tailings. [Polymet's plan] can not guarantee there will be no fractures anywhere in the bedrock or the wall, before, during or after construction [to contain the contaminant]	WR019
12849	[No financial guarantees]. At a recent legislative hearing, talk of financial guarantees amounted to vague hand waving about financial instruments and an admonition that "this will be addressed during permitting."	FIN08, FIN13
12850	benefits do not stay in Minnesota. PolyMet is a Canadian company that has never operated a mine (!) and that's where the profits will go. Glencore is a Swiss company with commitments to sell copper to China, and that's where the copper will go. Minnesota gets some crumbs in exchange for trashing its environment.	SO06
12851	8) In terms of resource extraction, the mine simply isn't needed. The ore deposits are not even in the top 10. The world will have plenty of metals without Minnesota's ore.	NEPA02
Sender Name (Submission ID)	Lance Johnson (18227)	
2192	I would like to state that in my opinion, this -- is that the SDEIS is more than sufficient and it is time to expedite the final EIS in preparation for this project.	NEPA16
2193	PolyMet will provide fantastic opportunities on the Iron Range by providing great-paying jobs for their direct-hire employees and -- and not just those 320 jobs, but -- and employees of Iron Range contractors and engineering firms, vendors, and other support industries. PolyMet will also generate millions of dollars in taxes for the State of Minnesota, and more importantly, millions of dollars that will go directly to the school districts and improving educational opportunities for our children.	SO10
Sender Name (Submission ID)	Lance Kupka (18097)	
3225	It is estimated that PolyMet will pay 15 million dollars in state taxes annually, once mining begins. …this money will help provide more programs for our schools, more technology for our schools, and ultimately more opportunities once -- for the children once they graduate.	SO10
13464	We know that the mine can operate safely and that PolyMet has committed to monitoring and treating the water for as long as need be. What is the decision? This mine will be safe. It will generate great income for the local workforce, and as I have outlined in detail above, it will have a tremendous positive impact on our schools and on our children for decades to come.	SO10
Sender Name (Submission ID)	Larry (9503)	
180	The SDEIS does not address any contingencies for possible problems for the next 200 years at the mine site and the next 500 years at the tailings pond.	PD22

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Larry (9503)	
951	this SDEIS assumes these sites will be superfund sites, paid for by the taxpayers in the future, since no company in existence today can predict they will be in business 40 years from now, much less 200 to 500 years.	FIN01
Sender Name (Submission ID)	Larry A. Stone (4289)	
1791	The supplemental draft EIS does not give adequate assurances either that the mining itself could be carried on without environmental damage, or that the site could be reclaimed in a way that would guarantee long term stability and environmental integrity.	PD01
1818	I do not believe that the short term gains of extracting the minerals would justify the potential for permanent, long term damage to the natural resources that are the backbone of Minnesota's economy.	SO01
Sender Name (Submission ID)	Larry and Val Johnson (17301)	
1968	According to Minnesota Administrative Rules 6132.3200 CLOSURE AND POSTCLOSURE MAINTENANCE. … How can 200 to 500 years of water treatment be considered maintenance free?	PER04
1969	Please protect Minnesota's water, our most important resource and deny permits for this proposal.	PER35
Sender Name (Submission ID)	Larry Bogolub (18280)	
13978	...The beauty and peacefulness of the lakes, rivers and forests [in the BWCA] on which I traveled are unmatched by anything else I've experienced in my 16 years. I sincerely hope that the future visitors will be able to experience the BWCA in the same way. It is because of this hope that I am against the proposed copper-nickel mining in northeastern Minnesota.	WILD02
13979	The potential for harm to the BWCA is too high. It would be shameful to risk the eternal well-being of a national treasure for a short-term economic expansion.	WILD02
Sender Name (Submission ID)	Larry Dolphin (45336)	
12794	This is what concerns me most about the Polymet proposal is the need for Polymet to treat the water for at least 500 years and provide the financial wherewithal to accomplish it. It is not realistic and in fact it is ludicrous to expect that to be accomplished.	WR035
Sender Name (Submission ID)	Larry Hennis (6706)	
1294	Please - no mining is necessary. We need to stop selling out our futures to short sighted, short term profit interests. The environment is just too important to allow a project like this.	SO01
Sender Name (Submission ID)	Larry Hylton (17246)	
9989	To destroy such a precious and diverse plant community that has taken thousands of years to form, in a time before mans influence on the land, can never be replaced.	VEG03
Sender Name (Submission ID)	Larry J Ronning (11616)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Larry J Ronning (11616)	
2297	What will the concentration of sulfates be in the containment basins?	WR057
2297	What will the concentration of sulfates be in the containment basins?	WR057
2298	When a breach occures, and it will, how will the catistrophic release be delt with	PD11
2298	When a breach occures, and it will, how will the catistrophic release be delt with	PD11
Sender Name (Submission ID)	Larry Kraemer (11583)	
2242	Please do not allow any restoration work in Sax-Zim Bog. The bog is doing fine and doesn't need help!	WET06
2242	Please do not allow any restoration work in Sax-Zim Bog. The bog is doing fine and doesn't need help!	WET06
3247	It is totally rediculous to think that this project will end up any less than a disaster. Look at western Montana. Their streams are poluted forever – not just 500 years!	PD01
3247	It is totally rediculous to think that this project will end up any less than a disaster. Look at western Montana. Their streams are poluted forever – not just 500 years!	PD01
Sender Name (Submission ID)	Larry Krohn (39539)	
6301	after reading the ESS reports & all of the steps PolyMet has taken to ensure no water contamination, safe holding ponds & safe mining practices, I feel they have gone above & beyond!	PD28
6302	I am now in Full Support of this project, for jobs, MN growth, revenue, even a kickback will go to MN schools (Land Use Trust /PSF from the founding of MN 1858).	SO10
7871	… having read the documentation as outlined in the SDEIS, it is my professional opinion we can be assured the impacts to the air, water and land will be minimal, and most likely superior to the existing ecology.	LU07
7885	This SDEIS demonstrates PolyMet can develop this resource in a sustainable manner with logical, engineered solutions proposed for any potential impacts.	PD28
7890	PolyMet will generate millions of dollars in local and state taxes for the support of our communities and educational institutions. The result of this project will contribute to the state and local economy at this time when we need jobs and a sustainable economic growth.	SO10
7894	This project, using the existing infrastructure and land is the ultimate in recycling! I am impressed by the extraordinary precautions proposed by PolyMet such as proven reverse osmosis technology and look forward to having them in our community.	PD28
7895	I am confident the professional team assembled by PolyMet will provide financial assurance to cover all required closure costs.	FIN16
Sender Name (Submission ID)	Larry OConnell (15302)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Larry OConnell (15302)	
436	I am convinced they have the technology, financial means, and moral intentions to properly operate safely the proposed mine!!	FIN16
437	the "Range" ... needs the economic input that Polymet will provide. The jobs that polymet provides are only the beginning of the job growth for this area. The housing market will benefit as well as retailand the list goes on	SO10
438	Polymet has in my opinion gone above and beyond ... to insure safe clean nontoxic mining. Besides the fact that they are willing to put money in an escrow account in case that any emergency may arise.	FIN16
Sender Name (Submission ID)	Larry Penk (54128)	
16003	I do not support nor do I believe the review process has been sound.	NEPA09
Sender Name (Submission ID)	Larry Popovich (7630)	
807	The money paid out in taxes and fees will support this treatment, along with millions of dollars for the communities and schools in our state. Let us not forget the jobs that will come with it, along with spin-off jobs resulting in mining; these communities desperately need help, as they have suffered with declines in many areas for years.	SO10
808	We have the perfect opportunity to have a business come in to a brownfield site, prepare the site and do treatment on it for years to come.	PD28
Sender Name (Submission ID)	larry ronning (40845)	
13987	We have heard of the problems with sulfates and there longterm affects on our watersheds. I have heard nothing of all the other chemicals that are required to extract metals from the tailings?...What other chemicals will be used and therefor added to our water!!	PD30, WR045, WR107, WR108
Sender Name (Submission ID)	Larry Smith (37868)	
9113	PolyMet does not commit to the number of jobs available for local people.	SO04
9119	PolyMet fails to plan for inevitable accidents and failures – Pipeline spills, accidental releases, failure of water collection and treatment infrastructure and tailings basins failures are virtual certainties. There are no details in the PolyMet plan how to deal with these situations.	HAZ01
9128	Inadequate comment period - Please increase the length of the comment period for the SDEIS from 90 days to 180 days.	NEPA07
16367	…to do this type of mining here so near to the Boundary Water is risky at best. Why would we take a chance of permanently polluting this wonderful ecosystem?	WILD02
16368	It is virtually impossible to prevent seepage from the mine and tailings. Perhaps millions of gallons of seepage from tailings and the mine site itself will enter ground water without being treated.	WR070
16369	PolyMet admits that water pollution by sulfuric acid will last for at least 500 years. The Gutenberg printing press was invented 500 years ago. The United States of America is 238 years old. How can we possibly plan for pollution that will last over 500 years?	WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Larry Smith (37868)	
16370	Those of us that have property on the area lakes will likely suffer decline in property values. We have planned retirement on White Iron Lake for 25 years and have recently built a new home here. Polluted waters will make our property and home undesirable. And the attraction of the Boundary Waters will decline.	WILD02
Sender Name (Submission ID)	Larry Wannebo (37902)	
13772	The preponderance of evidence in the PolyMet case, both scientific and social evidence, proves that the vast majority of the informed citizens in Minnesota do not want to risk the long-term quality of their water and related eco-systems for a few hundred short-term jobs.	SO01
13773	Everything else discussed in this search for a solution is nothing but smoke to confuse the issue. If approved, PolyMet will be followed by applications for more exploitation of our natural resources in the name of jobs. This is the REAL cumulative impact of a PolyMet mine…We urge MDNR to deny the permit to mine and all of the other permits associated with this project.	PER35
Sender Name (Submission ID)	Larry Werner (16197)	
9786	Short term jobs and profit generation versus long term environmental damage is not a good deal for Minnesota.	SO01
Sender Name (Submission ID)	Larry Zelenz (10724)	
589	I would suggest that Polymet be required to fund an independent group that includes representatives from the DNR, USFS, USACE, MPCA and citizens representing environmental groups with interest in the region acting jointly, to monitor the project on a full time basis in perpetuity.	FIN01
1484	…it seems to me that what may be critical is how effectively Polymet's performance is monitored with regard to the safeguards they intend to put in place. Woefully underfunded government agencies, constrained by bureaucracy with weak punitive powers may be ineffective in assuring that the stated standards are met. I would suggest that Polymet be required to fund an independent group that includes representatives from the DNR, USFS, USACE, MPCA and citizens representing environmental groups with interest in the region acting jointly, to monitor the project on a full time basis in perpetuity. This entity should have the power to curtail or shut down operations and have standing with regard to directing punitive measures if Polymet fails to meet stated environmental safeguards.	PER24
Sender Name (Submission ID)	Larry-bob Roberts (43139)	
15857	The potential benefits in terms of a small number of jobs over a short range of time and extracted minerals versus the long-term impact of pollution is not worthwhile.	SO01
15858	I hope you will carefully examine the issues of whether the estimates of 90% of the water being captured are at all accurate and experimentally verifiable, or are just plugging in the required numbers to come to the desired result.	WR018
Sender Name (Submission ID)	Laska Nygaard (43233)	
16133	There is no way to guarantee that PolyMet would complete 200 to 500 years of necessary cleanup. There is no way to be certain 200/500 years in the future the extent of the damages that would need to be assessed and addressed.	FIN01
16134	A national forest is intended to be protected. Treating it in a way such that it is harmed for ten to 50 generations puts unacceptable burdens on those generations….	WILD02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Laska Nygaard (43233)	
16135	Forcing 500 years' of Minnesotans to suffer for the decision of making money now over a period of a mere 20 years - ONE generation - is illogical.	SO01
16136	Money is good. I do not begrudge PolyMet it's wanting to make money. I begrudge it wanting to make money in such an inherently dangerous fashion, in an area of vulnerable environment, in an industry in which the history of cleanup is poor, such that states in which such mines exist/have existed before (and so suffer from pollution, particularly water pollution) have suffered from the pollution AND companies have failed to pay for and ensure the cleanups.	FIN01
16137	All cleanup costs - those for the 200 and 500 year durations - should be paid by PolyMet up front. If this is not feasible for PolyMet, then Polymet should understand that the plan is not feasible. Note in addition that the costs of clean up are often underestimated, particularly given the impossibility of knowing actual damages to be addressed and actual inflation 200/500 years in the future.	FIN01, FIN05
16139	Contractual obligations, laws and regulations to ensure environmental protection/clean up only go so far. We should not bet 500 years of our environmental quality of contractual, legal and regulatory provisions hopefully being met. This project is too big an too dangerous to approve it based on betting that we know all that could go wrong over 500 years.	GT14
Sender Name (Submission ID)	Laura and Mr. Neal Deaton (40138)	
15306	he most precious and life-giving commodity that we have on the planet is water. No amount of rationalizing can prove that this proposed project will bring about more benefits than irreparable damage.S	GEN01
Sender Name (Submission ID)	Laura B Melander (54740)	
18880	It will bring water pollution and tax payer cost.	WR037
Sender Name (Submission ID)	Laura Berglund (44483)	
11295	Summitville Gold Mine, Colorado The company filed for bankruptcy, leaving cleanup costs to the public. Zortman Landusky Mine, Montana In 1998, the company abandoned the site and filed for bankruptcy. After several lawsuits against the mining company and its creditors following the company's bankruptcy, Montana's taxpayers are still liable for anywhere from $8 million to $90 million. Gilt Edge Mine, South Dakota The parent company, Dakota Mining, went bankrupt and abandoned the mine in 1999 with only a $6 million bond in place, an amount insufficient to cover water treatment for even a single year. Please ensure that Minnesota taxpayers are not left with a similar burden as a result of the PolyMet project.	FIN01
11303	In order to adequately protect public health and provide adequate water treatment for mine runoff, it is absolutely critical to have accurate data regarding speed, quantity, and direction of water flow. Basing a water flow model on data gathered during one atypical year is neither responsible nor defensible. Without an accurate estimate of water flow, there is no way to provide for adequate water runoff treatment.	WR003, WR052, WR071, WR081, WR086, WR091
11329	Given the track record of smaller, similar mines elsewhere in the U.S., and the fact that the mining companies went bankrupt and left state taxpayers the bill for perpetual remediation and abatement, I am not confident that PolyMet will be able to meet its obligations under Minnesota law.	FIN01
12818	Nobody wants to wonder whether living downwind of a mine means having to breathe carcinogens. Air doesn't respect political boundaries like state lines or national borders….	AIR11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Laura Berglund (44483)	
12828	I am particularly concerned about the public health effects of contaminants that will be generated by the PolyMet project. Sulfates, sulfides, mercury and methyl mercury, and asbestos fibers are not things I want in my groundwater or surface water, the air I breathe, or the food I eat.	HU03
Sender Name (Submission ID)	Laura Carrero (30211)	
13856	It is my understanding that there is potential for contamination to occur for the next 500 years and I don't think it is realistic for us to believe we can prevent any water pollution from occurring over such a long period of time.	WR037, WR128
13857	I have read that PolyMet believes that it will have sufficient safeguards in place to prevent contamination; however, I do not have confidence that this the case.	FIN01
13858	I read that the jobs created by this project will last for 20 years. That seems great now but, if you look at the big picture, I do not believe it is worth the risk.	SO01
Sender Name (Submission ID)	Laura Dahl Popkes (41069)	
13943	The very FACT that sulfide mining produces corrosive acid destruction to our lands and waters should be enough reason to say NO to PolyMet.	WR001, WR195
13944	eed, Birch Lake is clean and clear and, using only a modest filtration system, perfectly safe to drink. The fact that water contaminated by sulfide mining will require treatment for as many as 200 to 500 years makes it abundantly clear to me that only a few will ‘benefit’ from the economic ramifications of PolyMet’s industry, but we ALL will pay the environment price	FIN01
Sender Name (Submission ID)	Laura Gauger (57355)	
18436	If a mine as small as the Flambeau Mine, promoted as a state-of-the art model mine and designated as successfully reclaimed could cause this much groundwater pollution, what will happen at the much larger mine proposed by PolyMet for Minnesota’s Arrowhead Region?	WR023
Sender Name (Submission ID)	Laura Grangaard (15993)	
13779	It just seems so shortsighted to cause such an enormous blight on such an amazing resource for the short-term good of a relative few.	SO01
13780	Trusting a company to provide cleanup for the next hundreds of years is tenuous at best. Economic growth is important to consider, but at what expense over the next short term period of time (20 years seems to be the popular number), when that expense could impact us far beyond what we can see?	FIN01
Sender Name (Submission ID)	Laura Hedlund (43850)	
11861	How can we with open eyes and a full heart even consider something SO RECKLESS as the polymet proposal which will pollute for more than 500 years?	PD01
11862	The pollution from the polymet proposal is likely to impact fishing and hunting rights - the true sustainable economy.	LU06
14944	The need for jobs is based on economic system which we can change. … We do not have to sacrifice our environment for temporary and PERCEIVED economy gains. Let's start doing the hard work to fight for a just working economic system.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Laura L. Hagen (45686)	
13019	Economically, the PolyMet mining would create many jobs for local citizens. This is an incredibly valuable reason to establish the mining operation. Citizens of Northern Minnesota need jobs and there would be $332 million made per year from the extracted minerals. Although these are significant short-term benefits they are outweighed by the long-term costs.	SO01
13025	NorthMet mine operation should not be built in Superior National Forest. Consider more alternatives. Is there a site around the same area that would not affect Lake Superior or other water bodies? An underground mine may have less impact on the streams and rivers and would preserve the natural wetlands.	ALT01
15928	First, the amount of wetlands that would be destroyed is incredibly significant and would affect the organisms that inhabit them.	WET24
15929	Many species such as the lynx, bald eagle, gray wolf, eastern heather vole, wood turtle, yellow rail and many more could be affected by the mining.	WI01
15930	Aquatic organisms that find their home in the streams and rivers connected to the wetland would most likely be adversely affected with the change in streamflow, loss of connectivity of the streams and the poor water quality.	AQ05, AQ24
15931	Another concern is the affect on the water quality in the area. There are already high levels of mercury in fish tissue without mining operations. The copper-nickel is locked in to the rock with sulfides. When sulfide comes into contact with oxygen, it produces sulfuric acid and releases soluble metals including mercury, iron, copper and nickel. This would increase the already high levels of mercury in the water.	WR001
15932	I am mainly concerned with the effects that the copper-nickel mining would have on wildlife habitat, native species of the area, nature of the land, and water quality.	WI01, WI02
Sender Name (Submission ID)	Laura Millberg (40882)	
13960	Economic development that threatens tourism and many of our natural resources is not a good decision for the state of MN.	SO02
Sender Name (Submission ID)	Laura Platcek (40095)	
6456	1) Redo the GoldSim water model using assumptions based on adequate and accurate field data2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 20133) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity	WR003, WR058, WR065, WR071, WR091, WR189
Sender Name (Submission ID)	Laura Salyards-Fryberger Mullen (57271)	
17413	Dislike anything that requires 500 years of environmental cleanup for not many MN jobs over not many years by comparison	SO01
17414	Also think that human ingenuity will find a better way to mine Minnesota's copper in the future that will be better for all – Protect our water please .	PD32, WR195
Sender Name (Submission ID)	Laura Smith (48377)	
12893	We can't allow bad assumptions in something this important to our environment or economy.	GEN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Laura Stramer (58153)	
19891	100% of sulfide mining operations in the U.S. have violated water quality standards and are currently the costliest to the U.S. Taxpayer of all superfund liability, estimated by the EPA at between 20-54 billion dollars.	PD26
19898	according to Federal Land Management policy, National Forest Management policy, and National Environmental policy, full consultation with affected sovereign tribal governments is required for consensus on matters concerning tribal nations.	CR06
19927	I oppose the permanent loss of our water quality in the most important fresh water resource on the planet, The Great Lakes. This project would impact Lake Superior, the largest fresh water lake in the world by surface area, and impact the St. Louis River watershed, its largest tributary and home to multiple species of fish.	GT01
19989	The PolyMet mine and tailings would also increase mercury levels in the downstream reservation waters of the du Lac nation and places where the Grand Portage people fish.	MERC24
19992	The PolyMet open pit mine would interfere with...treaty rights by ceding surface rights of tribal lands into corporate hands and polluting tribal lands and waters of the Anishinaabe.	CR01
20013	This mine would destroy more than 1300 acres of high value wetlands and convert more than 6,650 acres of what are now public and tribal lands to private mining company property. Drinking water would be subject to toxic levels of mercury, arsenic and manganese. The mine would produce high concentrations of sulfuric acid and result in acid mine drainage, leeching chemicals out of rock which are toxic to water, ecosystems and toxic to wild rice.	GEN03
Sender Name (Submission ID)	Laura Wolden (46192)	
8838	Minnesotans are in opposition to this mining project because it will damage the very important and limited public resource of water	WR195
10491	This project would violate water quality standards for generations to come.	WR195
Sender Name (Submission ID)	Laura-Christina Cobb (26314)	
10450	PolyMet's open pit sulfide mine: it promises to ruin this extraordinary natural area.	WILD02
Sender Name (Submission ID)	Laureen Guyer (16567)	
13922	The mines PolyMet proposes are not conducive to [a clean environment and would impact the air we breathe, the water we drink, the foods we grow, and the fish and game animals who thrive here].	GEN01
16301	There is nothing more important or precious to living things than a clean environment. Minnesota's forests and farmland are important not only to those of us who live and work here, they are important to our country, indeed the world, to provide wild places to visit and oxygen to the atmosphere.The mines PolyMet proposes are not conducive to any of the above.	GEN03
Sender Name (Submission ID)	Laurel Hyvonen (11565)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Laurel Hyvonen (11565)	
3238	As a citizen and human being dedicated to the health and well being of sustaining life not only in my community, but on the planet I am strongly opposed to the projected plan. It is time to wake up to a value system that is not centered around the American dollar as a means of attaining health, wealth, and happiness.	SO02
3238	As a citizen and human being dedicated to the health and well being of sustaining life not only in my community, but on the planet I am strongly opposed to the projected plan. It is time to wake up to a value system that is not centered around the American dollar as a means of attaining health, wealth, and happiness.	SO02
Sender Name (Submission ID)	Lauren Lederle (9606)	
1136	The polymet mine risks the safety of drinking water for northern parts of the state indefinitely.	WR042, WR115
Sender Name (Submission ID)	Lauren Satterlee (41007)	
7463	We must protect its [Northern Minnesota's] integrity from contamination that may take hundreds of years to reverse, if it is possible to reverse at all.	FIN05, FIN08
7468	The backbone of Northern Minnesota's beauty and economy is the integrity of its environment.	SO02
13932	The backbone of Northern Minnesota's beauty and economy is the integrity of its environment. We must protect its integrity from contamination that may take hundreds of years to reverse, if it is possible to reverse at all.	FIN05, FIN08
16970	We must protect its integrity from contamination that may take hundreds of years to reverse, if it is possible to reverse at all.	SO01
Sender Name (Submission ID)	Laurence Risser (39815)	
6361	For 350 jobs we are willing to sell the environmental integrity of the BWCA.	SO01
Sender Name (Submission ID)	Laurentian Chamber of Commerce (54763)	
19240	the metals that PolyMet will mine are essential for daily life - copper, nickel, cobalt, platinum, palladium and gold - found in countless products including: medical treatments, joint replacements, cell phones, computers, wind turbines and catalytic converters	PD28
19241	the combination of strict Minnesota regulations and PolyMet's commitment to mining in a way that protects the environment will serve as a global template for responsible, ethical and successful mining practices	PER34
19242	the proposed mining and processing operation will create 360 direct jobs and over 600 indirect jobs in St. Louis County alone and WHEREAS, it is anticipated that the PolyMet Mining project will require two million hours of labor during its construction phase and WHEREAS, PolyMet Mining will contribute millions of dollars to local cities, school districts and the State of Minnesota through net proceed taxes, occupation taxes, and sales tax	SO10
19243	it is stated within the Minnesota Department of Natural Resources, United States Army Corps of Engineers, and the United States Forest Service's supplemental draft environmental impact statement (SDEIS) document, "The SDEIS has thoroughly evaluated water quality impacts, and has shown the project will not cause an exceedance of aquatic life water quality standards."	WR190

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Laurice Jamieson (47431)	
17590	I have serious concerns about the inadequate Financial assurance and the careless disregard for potential disastrous environmental effects. ...Legislator Kahn has brought up the need for a third party insurer.	FIN01, FIN08
17591	The proposal is sorely lacking in [discussion of financial assuraces and ptential disastrous environmental effects], it's inadequacies are dangerous. Please do not proceed with such a poorly thought out proposal. You owe further examination of these issues to the citizens of Minnesota	PER03
Sender Name (Submission ID)	Laurie Bailey (42715)	
14330	We're talking about 300 jobs for 20 years with ~500 years (or more?) of water treatment required. Based on the water samples taken at PolyMet's model mine site, we should expect that not all water contamination will be prevented. It is absurd -- short term benefits for some, with very long term consequences for many, many more.	SO01
14331	it is not fair to push this cost on to future generations. Our kids and their kids and their kids….will pay for centuries to come, or the water will go untreated. Neither is acceptable.	GEN01
14332	Taxpayers in other states are paying millions of dollars to clean up streams and rivers at other copper mining sites across the country.	FIN10
Sender Name (Submission ID)	Lawrence A Martin (54486)	
18006	Although the economic conditions of NorthEast Minnesota merit attention and support from all Minnesotans, those needs are not well addressed by the proposed mine, which will generate a very modest number of good paying jobs at the expense of its natural resources in creating a Sudbury-type area of desolation.	SO01
18007	Incomplete/Inadequate Plans For Handling Reverse Osmosis Brine.(…) The reverse osmosis technology has not been demonstrated to be capable of handling the magnitude or duration of the treatment required to handle the waste dump. In particular, the reverse osmosis process will generate a brine from its operation. The current Supplemental Draft Environmental Impact Statement for the Poly Met North Met sulfide mine appears to dismiss concerns about the disposal of the brine, without quantifying the amount of the brine over time, by indicating that it would be transported offsite, to an undisclosed location, using an undisclosed method of transportation, to that presumably contract disposal facility.	WR143, WR145
18009	Ill-Suited Location for Sulfide Mining. (…) Sulfide mining appears to be viable in dry areas such as Arizona, but the exposure as proposed of the bedrock bearing dispersed low quantities of ore to air and to the abundant surface and ground water of NorthEast Minnesota can only be accomplished with technologies that are currently undeveloped or, if developed, have never been utilized to handle the size of the proposed project and the duration of thepollution threat already documented.	PD26
Sender Name (Submission ID)	Lawrence Aho (54718)	
18513	We have trusted the DNR and the MPCA thus far to keep our water and air clean. I don't understand why we don't trust them now. I understand that this is a new type of mining but I believe that it has been thoroughly checked out. We need new industry on the Mesabi and Vermilion Iron Ranges that keeps the environment safe. The roadblocks that we have put on Polymet Mining and other nonferrous mining companies I believe have gone overboard.	PER34
Sender Name (Submission ID)	Lawrence Eisinger (42500)	
7373	What assurance can this company give us for the next 500 years that water in 3 different watersheds will be safe for the next 500 years?	WR035

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lawrence F Eisinger (42864)	
8887	What assurance can [PolyMet] give us for the next 500 years that water in 3 different water sheds will be safe for the next 500 years? We have an absolute moral obligation to protect our state's and community's and neighboring county's most precious resource- WATER. We need to protect this natural resource for our children, grandchildren, and great grandchildren and those for the next 7 generations.	WR071, WR058
8887	What assurance can [PolyMet] give us for the next 500 years that water in 3 different water sheds will be safe for the next 500 years? We have an absolute moral obligation to protect our state's and community's and neighboring county's most precious resource- WATER. We need to protect this natural resource for our children, grandchildren, and great grandchildren and those for the next 7 generations.	FIN01, WR035, WR195
Sender Name (Submission ID)	Lawrence L Johnson (11572)	
7702	Please ... deny a Section 404 permit for the PolyMet project. Section 404 of the Clean Water Act provides protection of wetlands that are integral and essential for the protection of our aquifers that supply our ground waters for municipal water supplies and private wells.	COE03
7702	Please ... deny a Section 404 permit for the PolyMet project. Section 404 of the Clean Water Act provides protection of wetlands that are integral and essential for the protection of our aquifers that supply our ground waters for municipal water supplies and private wells.	COE03
Sender Name (Submission ID)	Lawrence Morgan (58025)	
19838	this toxic mine would take our minerals for export and leave the rest of us with the financial burden	FIN01
Sender Name (Submission ID)	Lawrence Spears (57609)	
19369	The sulfur pollution is long-term and devastating to the environment.	AQ28
19370	The promised mining jobs are few, short-term and phantom. The copper extracted is very small. The benefits to Minnesota will be minimal.	SO01
19371	The mining company is likely to disappear in bankruptcy leaving no protection against the long-term environmental destruction.	FIN01
19372	There is no demonstrated significant national resource interest in this mining in Minnesota.	GEN03
Sender Name (Submission ID)	Lawrence Thompson (11894)	
38	More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering.	WET24
39	The Supplemental Draft Environmental Impact Statement (SDEIS) proposes NO mitigation for the indirect wetland impacts.	WET01
40	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will damage the aquatic organisms and habitats downstream to Lake Superior.	AQ05
41	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed:BLACK-BACKED WOODPECKER, SPRUCE GROUSE, NORTHERN GOSHAWK AND BOREAL OWL.	WI01, WI02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	LBO (3638)	
8001	Your job is to protect MN's natural resources. In this state, clean water & air are your main jobs.	AIR11
8003	The mining proposed in Northeast MN will almost certainly pollute our water- likely for 500 years. This must not happen.	WR115, WR195
8005	The minerals aren't going anywhere, let us wait to extract them when it can be done with No harm to our clean environment.	SO02
Sender Name (Submission ID)	Leah Robshaw (20202)	
1785	I am thankful that the USFS does not believe that the mineral estate gives PolyMet the right to surface mine NFS land to access the minerals below. I believe national lands should be used to support the long term interests of the plants, animals and people of the United States. The proposed Copper-Nickel mine does not achieve this goal.	LAN02
1787	I am concerned about the destruction of wetland habitat within the Embarrass River and Partridge River watersheds which will disrupt the plants and animals who live there.	WET24
1789	I am also extremely wary of the so called financial assurances that PolyMet would set aside to mitigate futher environmental destruction. The amount of funds needed to clean up a mine site and/or prevent intense pollution is not a known amount.	FIN05
Sender Name (Submission ID)	Leah Rogne (43366)	
11756	I do not believe that the risk to the environment, particularly to the water in the region, is justified. … The natural resources in this region are too precious and the health of humans and animals too much at risk.	HU03, WR195
15574	I have not seen evidence that the company has the capacity to monitor and remediate the problems that are expected to occur for centuries to come.	PD23
Sender Name (Submission ID)	Leah Stroup (41559)	
6353	Please do not ruin this treasure all for just a short term goal	SO01
Sender Name (Submission ID)	Lee Ann Landstrom (16124)	
11065	I am tired of the environment and the FUTURE being compromised in the name of current JOBS.	SO02
15342	I'm tired of permanently destroying & poisoning the environment in the name of JOBS.	GEN01
Sender Name (Submission ID)	Lee Beaty (48019)	
12081	The most important resource on earth is WATER. We need clean water to survive. It is also the "crown jewel" of our state. Do not allow anything to jeopardize our most precious resource.	WR195
12085	We must think in terms of the long-run, not the short-sited monetary gains which will help only a small handful of MN residents for a short while. And then "poof" we'll be left with devastation on many fronts: our land, our pristine water, our tourism industry (long-term income), and our great Northern Sanctuary.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lee George Aide (44083)	
7742	I am requesting that the PolyMet Mining Project be stopped because of the great environmental cost.	SO02
Sender Name (Submission ID)	lee k anderson (4367)	
1826	The 300 or 400 good paying jobs for 20 years is a terrible trade for long term pollution exposure we face.	SO01
1909	The Range needs to realize that it’s major resource is the adventure people have in visiting the Wilderness and not another Pit.	LU06
1910	the world does not need any more copper and other metal that will be recovered.	ALT09, ALT16
Sender Name (Submission ID)	Lee Kaplan (48708)	
12816	Despite their repeated insistence that mining has been done safely in Minnesota for years .. they are doing everything they can to bypass these regulations with a completely untested technology that is nothing like the mining practices that have been used in the state before.	PD32, WR023
16772	This technology threatens our water supply..While sulfide mining has never been tried in Minnesota, its history in other parts of the country is clear -- acid mining byproducts and heavy metal contamination have polluted waters in all other places where sulfide ore mining techniques have been used.	WR023
Sender Name (Submission ID)	Lee Keeley (16179)	
9754	Thy tout JOBS. They plan under 400 jobs. A large percentage of those will be management and administration personnel from other areas.	SO02
11472	What is the track record for Poly[m]et ? What is the track record of this Swiss company that owns them ?	PD23
11475	This is a planned DUMP on current and future generations of taxpayer...I'll guess the net jobs for a few years would not be close to the cost to taxpayer output for ongoing hundreds of years.	FIN10
Sender Name (Submission ID)	Lee Schatschneider (616)	
37	the future costs of mitigation seem WAY undervalued and are so far in the future	FIN11
Sender Name (Submission ID)	Leh Leh Win (54235)	
16812	The map on the PolyMet Mine set is wrong. The map mislead the public so they don’t know about how dangerous it can be and their children lives. They need to fix the map and give people the right information.	PD38
Sender Name (Submission ID)	Leila Jindeel (52398)	
13220	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies.	WR023, WR060, WR181, WR182, WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Len & Mimi Jennings (21834)	
9555	The proposed Poly Met mine should not go forward because the SDEIS, which is seriously flawed, has not shown that mining of precious metals in rocks with sulfide can be done safely in this environment, without serious water contamination and destruction to wetlands and habitat.	PD01
9556	Recent DNR documents agree that the water flow model of the current SDEIS is inaccurate. This calls into question many of the forecasted impacts to water quality, wetlands, and rare habitats. With more water moving through the site, polluted water from pits and waste rock will more easily and quickly reach lakes and rivers. It is thus likely that more area will be polluted, and that the pollution will be greater than anticipated.	WR003, WR165
9583	The SDEIS seriously underestimates the destruction of wetlands, and has an almost “fantastical” proposal for mitigation. The size of the potential wetland destruction (up to 6000 acres) is breathtaking. Much of the modeling was based on inaccurate water flows, so more wetlands would likely be destroyed.	WET04, WET07
9603	[B]ogs and coniferous swamps which will be affected, are extremely difficult to restore. Do we actually know it can be done?	WET05
9605	[T]he land swap is not a swap of equal value.	LAN03
9606	Habitat destruction is also not adequately addressed. In addition to the issue of more water flow than expected destroying more wetlands than expected, the number of trucks going back and forth, the 24/7 noise and vibrations of running the plant and the mine will disrupt habitat.	WI02, WI05
9608	The assumed performance of water capture systems in the SDEIS is of 90% or greater. This high level of performance is not realistic. Engineering controls include the seepage capture system at the flotation tailings basin, the cap and liner system and the hydrometallurgical tailings basin, and the discharge control feature for the west pit lake. Failure or under-performance of any of these features will result in water quality impacts that are not described in the SDEIS.	WR018, WR129
9610	How can we know we can treat polluted water for several hundreds of years, let alone into “perpetuity”? Think of how much change occurs in our lives in just 50 years, let alone 500! The assumption that human constructed water capture and treatment facilities will last 100 years is not believable. Do we seriously think Poly Met is going to be around 300, or 500 years from now?	WR037, WR129
9613	False Assumption: We’ve studied this for so long that we know enough and should just get going. Actually, the opposite is true. If Poly Met were able to mine without problems, their project would have been approved years ago.	NEPA15
Sender Name (Submission ID)	Len Anderson (19512)	
13246	Cumulative impact is mandated by NEPA, and I think the attempts at cumulative impact were not adequate to what NEPA policy demands.	CU14
13258	Cumulative impact for sulfate and methylation of mercury I think is one of the biggest weaknesses of the document. The cumulative impact is calculated and discussed for the Partridge River and the Embarrass River and then stops at the mouth of each of those rivers, and it appears that the authors think that the movement of sulfate stops at the mouth of those rivers, but in fact, it continues all the way down the St. Louis River to the estuary, and the modeling for cumulative impact of sulfate on methylation of mercury needs to be done all the way down to the estuary.	MERC10
13259	[The St. Louis River] is listed under 303(D) of the Clean Water Act as impaired from mercury, and our children are being born with dangerous levels of mercury in their cord blood. There is no TMDL yet for the St. Louis River, even though it has been a work in progress for 16 years.	MERC22
13260	The MPCA said in February of 2013 that we do not know enough to do a mercury TMDL for this watershed, but now as I read the SDEIS, they claim that we know enough about mercury in this watershed to permit this mine which will be generating mercury and sulfate.	MERC22

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Len Anderson (19512)	
13262	The mercury TMDL is scheduled for the Embarrass chain of lakes for 2015. If permitting cannot wait, if we have to permit it now, then the adaptive water management plan has to be changed so that it can accommodate recommendation from those TMDLs.	MERC22
13263	Cumulative mercury impacts were addressed in the EIS but there was no accommodation made for the recommendations that would come out of the TMDLs, and that change has to be made in the adaptive water management plan.	MERC22
13264	A permit must not grandfather in mercury and sulfate releases that then compromise those TMDLs.	PER10, PER11
13267	The State of Minnesota Legislature allocated funding for two years of study of sulfate impact on wild rice. Those two years are coming to an end now. The Wild Rice Research Team will be doing a review of study results and preliminary recommendation from the last two years of research in the spring of 2014. ... Sometime this spring, we should get those results, and our 90 days are going to be up. So I am asking for an extension of the comment period, and I'm just giving that one example of additional research that is coming...after the comment period is over.	NEPA07, WR164
Sender Name (Submission ID)	Len Jennings (40091)	
6455	Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health.	HU01
13633	How will this company guarantee our lakes and waters for the next 500 years?	FIN01
Sender Name (Submission ID)	Lena K Gardner (58099)	
19920	I believe that it is an error to base a decision that will have such big impacts on a flawed water study. I encourage the MNDNR to consider the impacts of long term pollution.	NEPA14, SO01
19972	That cost isn’t worth the short-term employment gains, especially at a time when the company PolyMet is showing signs of economic instability and historically when mining companies go bankrupt.	SO01
Sender Name (Submission ID)	Leo Babeu (42517)	
2429	Compiling 2169 pages of text, figures and references is no assurance that this document has adequately addressed what will happen over the operation or aftermath of this mine.	NEPA07
2643	That process [of forming sulfuric acid] is very tough to manage once underway, and that is the source of the concern over the likely disturbance of aquatic systems and the water quality and health effects some of us think are paramount in looking at this mine's impacts 20, 50, and hundreds of years from today.	WR001
2644	Water quality problems [from the Project would] extend way beyond the site of the mine and plant.	WR111
2648	On pages 2049-2050 of the new Polymet SDEIS, the Tribal CooperatingAgencies Cumulative Effects analysis points out multiple discrepancies that make the case that the Goldsim model can't accurately predict existing conditions, and so cannot be relied upon to predict future project conditions.	WR044, WR045, WR047, WR048, WR115, WR195
2649	We can attempt to intervene, to have active post-closure treatment, but how successfully, at what cost and for how long are questions largely left unclear despite all the words we've dedicated to this project.	FIN05, FIN01, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Leo Babeu (42517)	
2650	The present interactions of environmental conditions producing methylmercury in the key Lake superior tributaries like the St. Louis R. must be much better understood, and yet the SDEIS asserts that the NorthMet Project Proposed Action would not exceed applicable environmental evaluation criteria.	MERC19
2652	It would be a public service if someone would direct me to the SDEIS page or Polymet process publication that demonstrates and verifies that 20 years of intense ming and the modest benefits that it shares with our local economy will not be prelude to twenty generations of a tainted water legacy.	SO01
3737	Once built and operated at full-scale and closed to active mining, there is no standard, permit condition, corporate or individual's good faith effort that can pre-empt the physical chemical cascade of events that acid mine drainage brings.	WR001, WR070, WR090, WR115
6720	The discharged sulfate and metals will be in stream water in the Partridge, and St.Louis rivers, eventually reaching the Great Lake to which they flow… There are concerns for nearby drinking water supplies like Colby Lake.	WR043, WR111
6721	There may well be impacts to ground water from seepage through the lined waste piles and substrate. And there may be run-off into surrounding wetlands.	WR126
6722	The discharged sulfate and metals...And there may be run-off into surrounding wetlands	WET24
6724	Elevated arsenic and other metals could present serious risks to human health, while increasing the already higher levels of sulfate in the St. Louis watershed will harm our wild rice beds and very possibly increase the formation of toxic methylmercury, which accumulates in the food web.	PD01, VEG04, VEG06, WR001, WR004, WR071, WR139, WR185
6726	Two years ago, the MDH found alarmingly elevated levels of mercury in the blood of 10% of infants living near Lake Superior. Methylmercyry, the form our bodies accumulate is produce in the water sediment interface of rivers like the St. Louis by microbes. Increasing levels of sulfates leads to increased production of methylmercury.	MERC03
6920	Given that at least 30% of Minnesotans have very poor internet service, i.e. no broadband, the process of reviewing and responding to the SDEIS is a greater burden for many outside the Metro areas. I am very disappointed in the co-lead agencies' resistance to extending the comment period, and the holding of the three public hearing so soon after the release of the SDEIS.	NEPA07
6934	What are the metrics and feedback built into the next stage of environmental review that could give weight to public perception of future mine related externalized financial and environmental costs, such that additional supporting materials should be made public, or further studies and revision and ground-truthing of models required?	FIN08
6942	A realistic review needs to consider the risk/benefit factors applicable to the complex systems required to align and perform as described over a 200-500 year post mine period….	SO04
6960	The assessment of exposures and risks from fiber (amphibole, asbestos-like) emissions from blasting and from crushing, transport and disposal of rock and tailings must be better quantified…….This evaluation of health risk is essential for area residents, and mine employees in particular.	AIR03
6965	The XP-SWMM model underestimates surface water flow hydrology at the mine site for predicting base flow in the Partridge River catchment. … The GoldSim tool doesn't predict baseline concentrations of various parameters in both the Embarrass and the Partridge Rivers	WR003, WR044, WR045, WR049, WR165

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Leo Babeu (42517)	
6970	the release, distribution, metabolism, and ecological fate of mercury in the wetlands, ground water, and surface waters that include not just the Partridge and Embarrass rivers, but also the St. Louis (which has a TMDL for Hg) and the Lake Superior Basin is not addressed to most observers' satisfaction.	MERC19
6994	The SDEIS does not address the loss of and degradation to critical moose habitat, or the likely dramatic impact on moose migration and life stages from the actual mine area industrial disturbances. … A similar issue exists regarding assessment of impacts to lynx.	WI01, WI02, WI03
6999	The wetland destruction and replacement proposed in this SDEIS and the USACE 404 Plan may meet technical legal requirements. However, ecological functions of the large, intact, and unique boreal wetland to be destroyed at the mine site will not be replaced…..The USFS-Polymet land exchange provides for new national forest lands purchased in isolated patches that don't simulate the current intact block of large forested wetland.	COE03
7005	Specific analysis of the economic costs that should be weighed alongside the projected economic income and revenue the to public treasury which this project brings. Are opportunity costs addressed? Are the prospects considered, and quantitative estimates made, of the degree to which new heavy industrial zone activities that this and future sulfide-copper-nickel mines require will reduce investment opportunities for "green" tourism, recreation ,or other less landscape- intensive and more long-lived, sustainable businesses?	SO04
7016	Future environmental assessments should consider whether a more sustainable option should be first evaluated, that being the value-added domestic recycling of such commonly used metals as copper and nickel.	NEPA06
15446	First off I must urge you to give you citizens more time to digest, discuss, research and respond intelligently to this mountain of technicality. Ninety days to comment and three hearings held within the the first seven weeks of the SDEIS release is not enough.	NEPA07
15447	Studying the past performance and the scope of past problems resulting from comparable mines may prove to better predictors of what to expect from copper nickel mines in sulfide ore bodies. This is crucial for those of us who understand that our region's future water, air, wildlife and human communities will be affected by not only this mine but by the cumulative impacts of the mining district some leaders envision for the Duluth Complex.	CU04, PD26
15448	We have no adequate local prototype of the mining and mineral extraction step from which to study all the waste handling and subsequent mine drainage and water treatment factors that will play out over time. The reason for all the concern is the sheer volume of what we are challenging our very fallible human business and engineering capacity to manage in just this one mie: over 400 billion pounds of ore, and 800 billion pounds of waste rock. Over a trillion pounds of material removed, NOT INCLUDUING surface vegetation and soil. If the ore alone has just 1% elemental sulfur by weight, there would be over 2 million tons of sulfur disturbed (without considering the waste rock) and moved from its stable underground state to processing and storage on the surface where it is highly susceptible to oxidation by air water and microbial action to form sulfuric acid.	HAZ01, PD30
15450	The SDEIS considers these concens in a time frame that is longer than our country has existed. Clearly, we need modeling tools for water flow and acid mine drainage generation for more than the short run. Ideally, we'd create and use a valid predictor to track concentrations and volumes and distribution of possible contaminants on site and in the receiving streams and other hydrologic compartments like wetlands and ground water. We would need to apply this model to the hundreds of acres of process facilities and waste stockpiles and run those projections out for centuries after the mine is closed and the active treatment facilities are closed.	WR189

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Leo Babeu (42517)	
15451	The original 2009 DEIS was judged inadequate because it showed that the project will exceed water quality standards because of discharges during the life of mining and long-term, including the post-closure period. Any conclusion in the new SDEIS that the project is acceptable has to be based on improvements in proposed waste handling, treatment, and prevention of acid mine drainage generation. The effectiveness of those modifications would then need to be verified through the predictions of models that can be tested and validated against known conditions.	WR021
15461	We know that our existing iron mines in non-sulfide ore bodies have already created water quality problems that include wild rice dead zones, and mercury levels of concern. Without conclusive evidence to the contrary, we have to look to the past performance of similar mines and scope of pollution problens that the discharges from existing and past mines in sulfide ore bodies have created.	WR158
15463	On page 2064 The Tribal Cooperative Agencies point out that a lack of scientific information is explicitly stated throughout the PSDEIS and is what led the Minnesota Pollution Control Agency (MPCA) early this year to delay the establishment of a St. Louis River TMDL until further mercury cycling data could be collected. I'm left to conclude that the science isn't there to say that this mine is fine or in the end any safer in our water rich environment than previous sulfide ore body mines, even if you can find scientists who publicly assert that it does.	MERC22
16111	I do not mean to say that any lead agency’s employees willfully produced an overly optimistic or inadequate document, rather that a host of factors led to a collective process and product that portrays an unprecedented project and proponent, whose outcome is fraught with risk and uncertainty, as technically and ecologically tenable for the proposed project area.	NEPA15
16113	How will you weigh the validity of those most frequently and intensely expressed concerns as you move forward? Reliance on reference in the thematic responses to the section and page where an issue is addressed becomes, at some threshold of expressed public concern, an insufficient response to a broadly perceived weakness in the evaluation of the project. What are the metrics and feedback built into the next stage of environmental review that could give weight to public perception of future mine related externalized financial and environmental costs, such that additional supporting materials should be made public, or further studies and revision and ground-truthing of models required?	NEPA11
16114	all the quantitative analysis, modeling, and efforts to reconcile the mining operations and post-closure activities with appropriate regulatory frames, are actually not contingencies that the co-lead agencies can know or anticipate with any confidence in evaluating the project. It calls into question the point of the review, since all terms of the analysis that the co-lead agencies have labored over for years are subject to arbitrary revision by the proponent at any time. Is there any provision for re-opening of the impact statement process should such changes in plan affect the input data for any of a number of predictions or other assumptions that lead to the current SDEIS conclusions?	NEPA15
16119	The risk of an increase in arsenic levels in the Colby Lake drinking water supply for Hoyt Lakes is remarkable and demands analysis of the costs and steps adequate to prevent such damage to the public resource and risk to public health.	HU01
16120	Does the document consider volatilization of mercury from blasting or from aqueous flotation processing media or heat stages like autoclaving? The directing of mercury releases away from adjacent water systems may lead to mercury increases elsewhere in the air shed that must be accounted for.	MERC16, MERC17
16121	methylation of mercury all the way downstream to Lake Superior is given inadequate consideration, largely based on a conclusion that sulfate levels will not exceed standards during operations or post-closure.	MERC19
16122	a lack of scientific information is explicitly stated throughout the SDEIS and is what led the Minnesota Pollution Control Agency in 2013 to delay the establishment of a St. Louis River TMDL for mercury until further mercury cycling data could be collected. This conservative approach would seem to be warrant for review and permitting of the NorthMet Mine.	MERC04, MERC22

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Leo Babeu (42517)	
16123	A high number of water quality-dependent wild rice beds that may be affected from the main stem of the St. Louis all the way up to the already sulfate-impaired (regardless of technical distinction) sections of the Embarrass River. That prospect should require the SDEIS to be expanded to address the concerns relevant under the provisions applicable in the 1854 treaty ceded territory.	CU01
16124	The impact to cultural and historical assets of the Ojibway bands will be far more substantial than the document anticipates. Legal action in pursuit of the tribes' interests will almost certainly be necessary to seek sufficient attention to these constitutionally secured interests.	SO02
16125	The SDEIS does not use an adequate method to assess surface and ground water hydrology disruptions surrounding the mine, nor does it reference data adequate to developing a better analysis such as the cooperating agencies have encouraged to be done.	WR007, WR008, WR071, WR086, WR093
16597	I want to see considerably more analysis of the details of the greenhouse gas emissions impact of all the activities, from electrical to mechanical to long-term treatment systems of the 200 plus year horizon of all activities related to the project.	AIR01
16599	I would like to see better details and more complete impact analysis on the health risks from the following: fugitive air emissions of dust and asbestos-like fibers, the exposure profiles for workers and residents of the area… evaluation of the cancer risk from the exposures to fibers, dust, nickel, and other contaminants expected to arise from the mine activity. … the risk to drinking water from priority pollutants like arsenic and other minerals (e.g. manganese), both in local surface waters such as Colby Lake, and in ground water susceptible to mine and waste rock pad and tailings pond leaks and seepage ... the risk of both new sources of mercury and the prospects for increased mobilization of mercury already in the receiving waters, e.g. the Embarrass River, the Partridge River, the St. Louis River, and the Lake Superior Basin. That mobilization can be expected to involve both increased methylation of historical loads of mercury and new mercury inputs, as well as bioaccumulation by migrating and resident fish species.	HU02
16600	I would like to have the authors justify the use of active treatment processes for resolving potential contamination over the 200-500 year horizon. This is in direct conflict with stated statutory provisions for permitting a mine project.	PD02
16601	I object to the replacement of intact functioning wetlands with less diverse and healthy wetlands within the watershed and find the replacement of over 2/3 of the acreage of wetlands outside the Lake Superior basin to be of very low functional ecological benefit. Additionally, the 5,000 plus acres that will be indirectly impacted by redirection of ground water and other impacts are not subject to replacement or a mitigation plan in the SDEIS.	WET03, WET05
16602	The land exhange with USFS provides fragmented tracts, does not maintain the value of public assets, gives us public land with severed mineral rights and thus poor protections, and comes nowhere near replacing the ecological functions lost in the St. Louis River Watershed.	LAN04, LAN07
16603	I find the use of a water quality model that can't predict current WQ parameters to be highly problematic. Please beef up and redo the application of the GoldSim if necessary.	WR049
16604	Accurate groundwater flow rates are crucial to realistically predict pollution and seepage from PolyMet's mine pits and waste rock piles to the Partridge River. As I understand it, the XPSWMM model underestimates by at least three-fold the volume and rate of flow across the relevant site terrain.	WR086
16605	Please amend the SDEIS to adequately enumerate fully the direct and indirect potential losses to hunting, fishing, and gathering rights, as well as access to culturally sensitive areas, for the tribal members who have reserved these rights in the territory ceded in the 1854 Treaty.	SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Leo Babeu (42517)	
16606	Much more needs to be done to understand the effectiveness, reliability, and operational challenges and limitations of the reverse osmosis treatment system. The analysis needs to consider treatment regimes envisioned post closure. … It is critical as well to validate that the hydraulic network will bring close to 100 % of the waste water into contact with the R.O. membranes in order to realize the treatment efficiency optimistically projected.	WR128, WR143
16607	Clearly the citizens of this state needed more time, a longer comment period, in which to contemplate what the release of this SDEIS means. This case takes more time than the typical EIS process to try to comprehend the essence of a project that's cloaked in a massive volume of detail and reference material that is very difficult for the average citizen to verify, critically analyze, and reach a definitive opinion about.	NEPA07
Sender Name (Submission ID)	leo gross (6606)	
1091	I have family and friends that live on the range and they could use the good paying jobs in that area and we all know the state can use the extra revenue.	SO10
1199	I believe the SDEIS is complete and gives regulators what they need to give polymet the permits to move forward.	PER34
Sender Name (Submission ID)	Leo Trunt (54618)	
18104	At its February 13, 2014 meeting, a motion was made, seconded, and following discussion was approved for WMMPB to submit this letter indicating WMMPB support of the proposed Polymet project as described in the SDEIS.	PD28
Sender Name (Submission ID)	Leonard Anderson (47782)	
8670	[Polymet has] no data to show a complete year long surface water sulfate-porewater sulfide mass balance to support such a high sulfate release after the growing season [of wild rice]. They must be forced to meet the wild rice sulfate standard of 10 mg/L at a minimum, at all times.	WR153
8693	Sulfate levels below 10 mg/L produced sulfide concentrations between 150 and 300 [µg/L]. The EPA National Recommended Water Quality Criteria for sulfide is only 2 [µg/L]…the SDEIS has to be expanded to include an analysis of the impact of their sulfate releases on the success and reproduction of local fauna as well as wild rice.	AQ12
8703	[W]e know that the same sulfate reducing bacteria that produce the toxic sulfide also methylate mercury and that moves through the food web from invertebrates to vertebrates to man at ever increasing levels of toxicity.	HU03
11283	EPA [announced] that they have dropped their approval of the Mesabi Nugget variance [which would] allow them to store high sulfate waters during the summer growing season and then dump high sulfate loadings in the fall. The PolyMet proposal submits on page 5-216 of the SDEIS that they will use the same seasonality approach for their release of sulfate to waters used for the production of wild rice. They have no data to show a complete year long surface water sulfate-porewater sulfide mass balance to support such a high sulfate release after the growing season.	WR153
11287	the SDEIS has to be expanded to include an analysis of the impact of their sulfate releases on the success and reproduction of local fauna as well as wild rice.	VEG04, WI04
11536	They have no data to show a complete year long surface water sulfate-porewater sulfide mass balance to support such a high sulfate release after the growing season. They must be forced to meet the wild rice sulfate standard of 10 mg/L at a minimum, at all times.	WR153
11540	Now that we are relating sulfate to sulfide, we need to look at the impacts to freshwater fauna as well.	AQ12

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Leonard Anderson (47782)	
11544	So from what we now know, the SDEIS has to be expanded to include an analysis of the impact of their sulfate releases on the success and reproduction of local fauna as well as wild rice.	VEG04, WI01
Sender Name (Submission ID)	Leonard Madsen (9818)	
15371	the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever.	WR115
15372	the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science.	WR003
15375	The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts.	GEN03
15377	The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streams.	WR003
15378	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies.	WR023, WR189
15395	The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge.	WR017, WR018
15396	The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures.	WR012
15397	The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards.	WR189, WR202
15407	This project would violate water quality standards for generations to come.	WR109, WR195
Sender Name (Submission ID)	Leonard Major (45027)	
17285	address the issues of 1) the long-term need for protection from the toxic material in the crushed and pulverized mining wastes produced by the proposed PolyMet mine and 2) the degree of effectiveness of their proposed system for keeping the entirety of the wastes produced over the lifetime of the mine separated from and completely sealed off from the natural environment over the time-period the wastes will remain toxic.	PD35

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Leonard Major (45027)	
17286	Putting the viability and environmental safety of a great portion of northern Minnesota at risk for a period of 200 to 500 years or longer is a moral and ethical responsibility that tens of thousands of Minnesotans like myself believe absolutely overrides the economic benefits of 20 years or so of operating the PolyMet mine.	SO01
17287	Please consider the very serious likelihood that the approval of the PolyMet mine will require between 200 to 500+ years, or between 10 to 25+ generations, of scrupulous, 100% effective large-scale environmental protection to keep huge areas of northern Minnesota ground water free from highly toxic pollutants.	PD01
Sender Name (Submission ID)	Les Herman (44368)	
10389	I know that between the State and the companies they will do a fantastic job to protect the environment, and as the mining is going on and after, access to hunting and fishing areas will be improved.	LU07
10391	The people need the jobs, and the State needs the Tax revenue.	SO10
Sender Name (Submission ID)	Leslie Amundson (3607)	
414	ALL previous mines like this proposed one have had failures, with toxic chemicals leaking into the water supply - 100% failure rate.	WR195
Sender Name (Submission ID)	Leslie Davis (44929)	
17335	I thoroughly reviewed how PolyMet proposes to prevent damage to our valuable waters, and wild rice resources, for hundreds of years with gizillions of dollars, and I won't dignify the absurdity of their proposal with a comment.	PD01
17336	There is no question that discharges from sulfide mining, will over time, negatively affect the quality of the surrounding waters, and the wild rice contained therein that is an integral part of Minnesota's heritage.	WR156
17337	PolyMet says the people want copper, as if there's not enough copper available from around the world.	NEPA03
17338	Now the multitude of companies waiting in the wings for PolyMet to clear the way for them so they can also please the people with gobs of copper, enlisted their union allies and their connections, the school leaders destined to get a piece of the action, and all their political friends, union buddies, and relatives who will get jobs.	CU04
17339	when PolyMet breaks open the sulfide rock and crushes it to obtain the copper for the people, there will be sulfuric acid to the air, acidic wastewater to surrounding water bodies, gobs of asbestos for the workers to breathe and take home nightly on their clothing.	HU03
Sender Name (Submission ID)	Lester Haveri (40165)	
6244	Polymet is way to slopply to trust the prime wildlife habitat , the moose ,deer herds ,large fish in the old abanboned ore pits,and the birds from the eagles ,partridge, ducks, geese and many kinds of small birds.	WI01, WI02, WI04
6246	With the more dangerous chemicals ,needed for polymet to extract the metals thay want , would poison the water supply of the whole state.	WR111, WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lester Haveri (40165)	
6247	thay [PolyMet] don't plan to pay any cleanup for the mess thay will cause to the habitat, all the wild habitat will die,the groung water will be poisoned for five houndred years may be forever.	PD01
Sender Name (Submission ID)	Levi Hurley (6308)	
1189	I believe Polymet have met every requirement to make this a viable and safe project!	PD28
1191	It has been at least 6 years of work, with all requirements being addressed and resolved.	NEPA16
1192	I would not support the permitting approvals if I thought this had been a rushed and potentially flawed process. On the contrary, it has been a long and well managed one.	PER34
1193	The local area can certainly use the employment opportunities in these trying times.	SO10
Sender Name (Submission ID)	Lila&Virg Boehland (14595)	
161	Has PolyMet done this type, sulfide mining, of extraction before? Does PolyMet have a track record? How long have the primary 20 executives for PolyMet been working together?What other mines has PolyMet worked with? What other mining operations have the people in charge of PolyMet worked for? How have those other mining operations done?Is there a track record for the type of mining that PolyMet is proposing? Where has PolyMet operated, successfully, in the past? Who are PolyMet's environmental protection employees? Where have PolyMet's environmental protection employees been employee most recently? What other mining companies have PolyMet's environmental protection employees worked at over the past 20 years?	PD23
Sender Name (Submission ID)	Lily (54194)	
17223	the mine ... does not guarantee any longterm jobs and will destroy the already striving economy and culture up there.	SO01
17612	The environmental effects of this mine seem as if they would be devastating and permanent, Impacting the state for hundreds of years. It seems extremely unlikely that it would be possible for Polymet to continue the water rehabilitation for the two-hundred plus years that would be needed.	WR128
17613	Yet another thing that I was appalled to see, was that the mining might prevent the control of Invasive species, while so many native ones would be destroyed. Another major concern of mine was that there seemed to be a pretty large amount of the Superior National Forest that would be destroyed once the mining was done.	VEG02, VEG05
18163	Although the jobs the project promises would be good for Minnesota, likely quite a few would temporary jobs, and it seems like there wouldn't be very many permanent jobs. So the jobs wouldn't really be very beneficial to the state if they are just temporary.	SO06
18164	I was sad to see that the plan for this mining includes the complete destruction of nine hundred and thirteen acres of wetlands. Especially since wetlands hold so many of our native plant and animal species.	WET24
18165	I was also sad to see that the plan included the possible destruction of several already endangered species and eleven different plants, since wildlife means so much in Minnesota.	VEG01, WI01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lily (54194)	
18166	the value of these minerals will only increase over time, since I believe this is true I think that the mining should be halted until Polymet can come up with a plan that significantly decreases the harmful lasting effects.	NEPA03
18167	I was appalled and alarmed that the plan included some possibly harmful and lasting air pollution that would be incredibly hard to undo in the future.	AIR01
Sender Name (Submission ID)	Lin Hipp (39350)	
12838	Due to the problems with the draft mine plan...I believe the mine should not be built as described.	NEPA15
Sender Name (Submission ID)	Linda & Michael Sweno (11630)	
7417	We need jobs! Polymet has fulfilled the necessary requirements in preparation to start mining while also being responsible in following environmental laws. …We want this project to move forward to improve the lives of our families.	SO10
7417	We need jobs! Polymet has fulfilled the necessary requirements in preparation to start mining while also being responsible in following environmental laws. …We want this project to move forward to improve the lives of our families.	SO10
Sender Name (Submission ID)	Linda A Forsland (20058)	
1701	20 years of jobs is not worth potentially ruining our water for 200-500 years.	SO01
Sender Name (Submission ID)	Linda and Ed Hendrickson (57260)	
17395	1.If this project goes ahead, then in subsequent years even lower grade [ILLEGIBLE] of ore will be targeted with even more dire consequences.	CU02, PD30
17396	2.The state doesn’t even make taconite plants meet all their environmental standards which is bad enough already.	PER06
17397	3.Once the environment is destroyed for a few short term jobs, you can’t get it back.	SO01
Sender Name (Submission ID)	Linda Dehrer-Wendt (43855)	
14942	We understand the need for jobs, but the potential downsides of an environmental disaster are just too great.	SO01
Sender Name (Submission ID)	Linda Dietz Fredlund (54787)	
17984	Recreation is a precious economic resource for Minnesota. Rural/outstate Minnesota depends on waterways/recreation for its economy….Save our waterways!	SO02
Sender Name (Submission ID)	Linda Forcier (7055)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Linda Forcier (7055)	
455	...it [the Project] will bring 300 jobs for 20 years to the area. This is very shortsighted compared to the hundreds of years of possible pollution. After 20 years the area will not only be possibly devastated by pollution but also be more destitute of jobs than now. Especially if the mining decreases tourism.	SO01
456	The risks to trees, wild rice, animals, birds, and even people cannot be ignored.	VEG10, WI13
457	With the global threats related to earth warming, this is not the right time to add to the problems.	AIR01
Sender Name (Submission ID)	Linda Glaser (42798)	
12761	The SDEIS admits that every year over 5 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated.	WR070
13953	No amount of clean up money can restore the loss and contamination of ground and surface waters, along with the loss of forests, wetlands, and wildlife.	VEG03, WET24, WI01, WR070
13954	Land dominated by leaching mine waste rock piles, tailings basins, and open pits is no longer usable	LU06
14428	I am very concerned with the proposed Land Exchange. The Federal US Army Corp of Engineers Mitigation rules require that compensatory mitigation replaces the lost wetlands within the same 8 {ILLEGIBLE] hydrological unit code, HUC. Yet the Polymet plan does not compensate for wetlands destruction at the Polymet site, or do the same job and serve the same habitat and the same streams.	WET03, WET15
14429	On page 327, chapter 5 of SDEIS, 68% of the wetlands replacement acres are outside the Lake Superior basin and 72% of the “credits” are outside the Lake Superior basin. That is NOT right!Please make sure that Polymet’s plan is redone so that it compensates properly for the loss and injury – wetlands in Lake Superior basin.	COE01
14430	I am very concerned that there are no contingency plans outlined for expected accidents that occur at all mines of this type such as pipeline spills, accidental releases, failures of water collection and treatment systems, and tailings basin failure.An emergency plan must be developed and articulated so that the public can see that the company can and will respond to a crisis.	PD22
14431	…the mining proposal…is an irresponsible plan that allows 11 million gallons of polluted seepage from the tailings basin to enter groundwater and the environment without being treated.	WR070, WR117
18957	I am very concerned that the SDEIS states that 200-500 years of clean up will be required. Yet the MN Rule 6132.3200 does not allow perpetual treatment. It requires that once a mine is closed, it must be maintenance free	PER04
Sender Name (Submission ID)	Linda Hendrickson (54139)	
16035	If this project goes ahead, it will pave the way to mine even lower grade ore bodies causing even more damage.	CU04
Sender Name (Submission ID)	Linda Herron (43058)	
11467	I am concerned about the loss of high-quality wetlands in exchange for moderate and low-quality wetlands in the land exchange….some 6,000+ acres will be adversely affected …by the NorthMet Mine.	WET14

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Linda Herron (43058)	
11471	How are carbon releases from impacted wetlands measured?	AIR01
11473	How can we allow for such a large loss of wildlife habitat and the negative impact on wildlife travel corridors?	WI02, WI03
11476	Where is the data on the effects on migratory bird species?	WI01, WI11
11477	I have difficulty understanding how MN Rule 6132.3200 can allow for a perpetual water treatment following a mine closing. It seems to be a matter of semantics whether it is called "long term" or perpetual: 500 years says perpetuity to me.	PER04
11479	…what are the contingency plans for accidents …[including] pipeline spills, failure of water treatment systems, accidental releases of contaminated water and tailiings basin failures. What about the known fractures and faults in the area of the tailings basin? Contingency plans need to be detailed in the SDEIS so that the citizens of Minnesota have all pertinent information before permitting begins.	WR012, WR129, WR130, WR131
11480	… when the risks to the environment over hundreds if not thousands of years are weighed against the relatively short term and unimpressive economic gains, it is clear that the public will not benefit.	SO01
12612	I ask that a 90- day extension be made for comments on the SDEIS and the Section 404 wetlands permit.	NEPA07
12613	information on geological conditions such as earth fractures under tailings pits is missing	WR010
12614	data on carbon losses due to destruction of wetlands is missing	WET13
12616	water flow data on the Partidge River has been questioned by the tribal community and therefore this data needs to be re-examined by the USACE	WR003
12998	I am concerned about the loss of high-quality wetlands in exchange for moderate and low-quality wetlands in the land exchange.	WET14
13000	How are carbon releases from impacted wetlands measured?	AIR01
13002	How can we allow for such a large loss of wildlife habitat and the negative impact on wildlife travel corridors? Where is the data on the effects on migratory bird species?	WI01, WI02, WI03
13003	I have difficulty understanding how MN Rule 6132.3200 can allow for aperpetual water treatment following a mine closing. It seems to be a matter of semantics whether it is called "long term" or perpetual: 500 years says perpetuity to me.	PER04
13004	what are the contingency plans for accidents which occur at most mines of thistype? ...Contingency plans need to be detailed in the SDEIS so that the citizens of Minnesota have all pertinent information before permitting begins.	PER06
13006	What about the known fractures and faults in the area of the tailings basin?	WR012
13007	when the risks to the environment over hundreds if not thousands of yearsare weighed against the relatively short term and unimpressive economic gains, it is clear that the public will not benefit.	SO01
16309	the SDEIS is extraordinarily long...it is complicated and difficult for a non-scientific person to understand; it appears to be written for the scientific community rather than the general public	NEPA07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Linda Huhn (42499)	
7207	Research and experience show the proposed mining operation would probably poison our groundwater forever.	WR023, WR071
7208	I'm a regular consumer of hand harvested Minnesota wild rice, which I understand cannot grow in water with elevated sulfate levels.	VEG04
7371	This type of pollution will also have a negative effect on tourism and fishing, making an additionally an economic issue.	SO02
7372	I hear that recent news of internal DNR documents show serious flaws in the research on this project, leading me to question whether any research was based on sound science.	NEPA15
8847	Research and experience show the proposed [PolyMet] mining operation would probably poison our groundwater forever.	WR115
8847	Research and experience show the proposed [PolyMet] mining operation would probably poison our groundwater forever.	WR115
8849	I'm a regular consumer of hand harvested Minnesota wild rice, which I understand cannot grow in water with elevated sulfate levels [resulting from the Polyment project].	WI03, WI02, WI01, WI11
8849	I'm a regular consumer of hand harvested Minnesota wild rice, which I understand cannot grow in water with elevated sulfate levels [resulting from the Polyment project].	VEG04, WR156
8851	This type of pollution [resulting from PolyMet project] would also have a negative effect on tourism and fishing, making it additionally an economic issue.	SO02
8851	This type of pollution [resulting from PolyMet project] would also have a negative effect on tourism and fishing, making it additionally an economic issue.	SO02
8853	I hear that recent news of internal DNR documents show serious flaws in the research on this project, leading me to question whether any research was based on sound science.	WR003
8853	I hear that recent news of internal DNR documents show serious flaws in the research on this project, leading me to question whether any research was based on sound science.	WR003
8855	I'm not too excited about elevated mercury levels in children either [resulting for the PolyMet project].	MERC03
8855	I'm not too excited about elevated mercury levels in children either [resulting for the PolyMet project].	MERC03
15360	I'm not too excited about elevated mercury levels in children either.	MERC03
17507	Research and experience show the proposed mining operation would probably poison our groundwater forever.	WR023, WR071
17508	I'm a regular consumer of hand harvested Minnesota wild rice, which I understand cannot grow in water with elevated sulfate levels	VEG04, WR156
17509	I'm not too excited about elevated mercury levels in children	MERC03
17510	This type of pollution would also have a negative effect on tourism and fishing, making it additionally an economic issue.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Linda Johnson (15390)	
13816	I believe it is in the best interest of our State and the Country to say no; or at least not until you can prove a more successful mitigation for this project.	PD01
Sender Name (Submission ID)	Linda Laumb (45949)	
10377	The proposal made by PolyMet, if approved, opens the door to mining all along Birch Lake, South Kawishiwi and other areas on north to the BWCA. We have seen the devastation that copper/nickel mining has caused in areas such as Sudbury, Ontario, Canada and how a community suffers when left to clean up the waste of companies who have no interest in the area once they have taken from it what they want. We do not feel that any precautions PolyMet is proposing will be adequate to prevent devastation to the land and waterways as well as the economy in our beautiful area.	WILD02
10381	... if there is the slightest chance that waters will be polluted the fishing guides, resorts and outfitters will lose much more revenue than the region will gain from the few hundred permanent jobs PolyMet is proposing for the area.	SO01
10384	Had we known of the proposed copper/nickel mining eleven years ago, we would not have chosen this area to build our cabin. Real estate values could suffer dramatically, which will affect the tax base for waterfront properties in the region as well as homes and businesses in the cities in these regions.	SO03
10398	If the drinking water is affected, that will add even more devastation to the area.	WR041
10401	the effects from noise and air pollution [need to be considered]. With the amount of mining that is proposed, this type of pollution is inevitable to an area where people come to enjoy clean air and peaceful quiet days.	N01
Sender Name (Submission ID)	Linda Malick (39296)	
7239	The Boundary Waters Canoe Area Wilderness is America's most visited wilderness area and one of the oldest designated wilderness areas in the nation. Despite what proponents of the copper-nickel mines say, creating new mines within 50 miles of Ely would be extremely detrimental to our local economy.	SO02
7243	The mines will not only be an eyesore, they will also increase rail and truck traffic, which would negatively affect tourism in the area. The noise from drilling and moving material destroys the wilderness experience on the southern end of the Wilderness area near Spruce Road and Birch Lake.	SO02, WILD02
7249	Most importantly, there is no evidence that our most precious resource, the interconnected system of pristine waterways, will adequately be protected. Acid mine drainage in our waters is unacceptable.	WR111, WR115
7251	Sulfide-bearing rock brought to the surface will turn into sulfuric acid and leach into our waterways, resulting in irreparable damage to our biotic community.	WR001, WR113
12830	The noise from drilling and moving material destroys the wilderness experience on the southern end of the Wilderness area near Spruce Road and Birch Lake.	N02
Sender Name (Submission ID)	Linda Ronchetti (12736)	
98	It [the SDEIS] doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells.	SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Linda Ronchetti (12736)	
100	It [the SDEIS] doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish.	CU11
101	It [the SDEIS] doesn't explore alternatives that could reduce PolyMet's destruction of wetlands.	WET20
1709	Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children.	VEG04, VEG06
1710	The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish.	NEPA15
1711	Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity."	WR035
Sender Name (Submission ID)	Linda Rossin (27586)	
14741	What can be so important about this mine's harvestings that we are willing to pollute our land and the water we drink again and again?	SO01
Sender Name (Submission ID)	Linda Sexton (40877)	
13965	People as well as wildlife depend on clean water; once ruined, we may spend decades getting it cleaned--if ever it happens at all in our children's lifetimes.	WR115
Sender Name (Submission ID)	Linda Spyhalski (40041)	
6710	The state will have to spend taxpayers money to clean up the mess made by this mine!	FIN10
Sender Name (Submission ID)	Linda Stephan (29364)	
9352	The area in question [the Boundary Waters Area] attracts many tourists and sportsmen to your state. Birders too, and I am one. We spend a lot of money there. This is a long-term benefit to you and it will cease if the area is defiled.	LU06
Sender Name (Submission ID)	Linda Tyssen (10739)	
601	PolyMet would be -- no, will be -- vital to the future of the Mesabi Iron Range.	SO10
Sender Name (Submission ID)	Linda Unsworth (42088)	
2023	the SDEIS is insufficient … because it is lacking vital information about long-term water treatment and how it will be paid for -- information that is necessary to decision-makers.	FIN01
2024	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Linda Unsworth (42088)	
2025	Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk.	SO01
Sender Name (Submission ID)	Linda Uscola (9600)	
1134	No one seems to be emphasizing that in MN the environment IS also an industry....it's called tourism. Why risk this major industry, which affects thousands of small businesses and individuals, to aid a private, big business?	SO02
Sender Name (Submission ID)	Linda Wiig (42939)	
9930	First, one of the greatest resources we have is the water. Many wetlands will be destroyed and supposedly relocated. Now many know that there has never been a recreated wetland that does the work of a natural wetland. 913 acres of wetlands are to be destroyed not to mention many other acres that will be impacted by this type of mine.	WET24
9933	Do the mining entities...know where all the water goes as it makes its way through the watershed? Blasting will occur creating cracks and fissures with the potential to add to the pollution load. Seepage will occur too—it can't be stopped. Mercury contamination already is at a higher level in the St. Louis River and Duluth wants to clean up more of the St. Louis River—how can this happen?	MERC19, WR010, WR016, WR105, WR158
9935	I also understand that Colby Lake water most likely will be impacted due to contamination from arsenic. Hoyt Lakes residents will be exposed to levels above Minnesota guidelines for cancer...Who will supply water to those people whose wells may be compromised due to contamination?	HU03, WR041, WR043
9936	If these minerals are to be mined, can not the impact be mitigated by having an underground mine? The SDEIS says it is feasible, just less money to be made, fewer jobs, and less length of time to be open. But there are environmental benefits!	ALT01
9937	I am very worried about the cumulative effects of all the proposed mining that different companies want to do in Minnesota especially around Lake Superior.	CU04
14502	What about the Sax Zim Bog?? What about the toxic effects on this important ecosystem?? Who in their right mind thinks that when this area is polluted that it could be cleaned up or replaced?	WET06
14503	I understand that some of their waste rock will be placed on top of the LTV tailings that are in an unlined pit which is allowing pollution to enter the water now.	WR173
14504	Why not create a better recycling system for all of our electronics and capture some of these precious metals. It would put people to work.	ALT09, ALT16
14505	Will our legislature require adequate monetary assurances for cleanup costs—how does one set a number on loss of habitat, and possible health problems of humans for many, many, many years to come? Will the state be tied up in legal battles for years to come too?	FIN05
Sender Name (Submission ID)	LindaMay Patterson (37204)	
15922	Why our state would let PolyMet mine in high quality wetland habitat only proves that at little money and a few jobs is more important than our long term concern for the environment.	SO01
15923	This mine would be in the largest designated Important Bird Area in Minnesota. Why would you risk destroying this area?	WI02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	LindaMay Patterson (37204)	
15924	Also consider that all the chemicals and toxic metals such as mercury, copper and nickel that would be unleashed into our environment affecting the aquatic organisms and habitats downstream.	AQ05
15925	The food chain would be disrupted, birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons.	WI01
Sender Name (Submission ID)	Lindsay Dean (11549)	
2508	What are the details of the proposed water treatment systems?	PD03, PD04
2508	What are the details of the proposed water treatment systems?	WR128, WR130
2509	How will up to 500 years of water treatment be paid for?	FIN01
2509	How will up to 500 years of water treatment be paid for?	FIN01
2510	What will be done to protect and replace significant habitats and species?	VEG01, VEG03
2510	What will be done to protect and replace significant habitats and species?	WR001, WR115
2511	What will be done to assure that wetland impacts will be replaced before the effects are noticed by monitoring?	COE02
2511	What will be done to assure that wetland impacts will be replaced before the effects are noticed by monitoring?	COE02
Sender Name (Submission ID)	Lindsay Sovil (4055)	
848	Copper mining absolutely does not belong in this water-rich area. The pollution generated by the mine would cause damage for over 500 years, or forever!	WR035
849	The few short term jobs created by this project in no way compensate the state of Minnesota for the loss of one of the most beautiful wilderness areas in the country. For centuries into the future, the people of this state will be regretting what this generation did in the name of a brief period of profits.	SO01
Sender Name (Submission ID)	Linne Jensen (47517)	
11335	I am concerned about the damage such mining has historically done to the landscape and to the health of area residents.	HU03
11337	I am concerned about the pollution that is left behind for hundreds of years after mining ceases, especially water pollution. Northern Minnesota is the site of 3 major watersheds... I am concerned that the proposal under consideration from PolyMet for a facility in the Hoyt Lakes area will cause unmitigated damage, and that it will be followed by other such proposals from other corporations which will cause additional damage	WR115, WR198
11339	I support jobs in northern Minnesota that are sustainable to all life in the area, and I encourage the Minnesota Department of Natural Resources to take a leadership role is promoting sustainable industry.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Linne Jensen (47517)	
17982	I am concerned about the pollution that is left behind for hundreds of years after mining ceases, especially water pollution. Northern Minnesota is the site of 3 major watersheds. We and many states downstream from us need fresh clean water.	WR107, WR108, WR111
17983	I am concerned about the damage such mining has historically done to the landscape and to the health of area residents.	HU03
Sender Name (Submission ID)	Linnea Mohn (46301)	
13658	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies.	WR023, WR060, WR181, WR182, WR195
Sender Name (Submission ID)	Lisa (54331)	
16824	I think that having the mining start will benefit Minnesota's economy, but will it benefit our wildlife? Who knows, maybe it will affect more things than you know. Some of the advantages would be that it will be a big moneymaker, it will supply many jobs, and it will help our economy. Some disadvantages will be the wildlife, pollution, and nature in general will be affected.	SO10
16825	The cultural resources in the area will be affected. Mostly the historic and cultural resources.	CR05
17377	There will also be a lot of noise, dust, visual obstructions, and access restrictions to certain areas. People may not like that who live near to the area.	N01
Sender Name (Submission ID)	Lisa Boulay (48119)	
11346	I have not seen the estimate of how much money PolyMet would have to escrow to clean up the site . How do you estimate how much it would take to monitor for 500 years ?	FIN01, FIN05
11350	The health risks of the mine have not been adequately study. We need to know the cancer risks.	HU01
11352	It has not been shown that this will bring high numbers of long term jobs. The risk to the environment is not worth the few jobs it would provide	SO01
11357	Deny PolyMet permits till they prove that it can be done safely. The wetlands of Minnesota are no place for an experiment	PD32
13239	I have not seen the estimate of how much money PolyMet would have to escrow to clean up the site . How do you estimate how much it would take to monitor for 500 years ?	FIN05, FIN11
13240	The health risks of the mine have not been adequately study. We need to know the cancer risks.	HU01
13241	It has not been shown that this will bring high numbers of long term jobs. The risk to the environment is not worth the few jobs it would provide " this is not your grandfather's iron mine ".	SO01
Sender Name (Submission ID)	Lisa Coons (16965)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lisa Coons (16965)	
11027	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Lisa Luttinen (2075)	
556	keeping our water safe for 20 years let alone 500.	WR115, WR195
Sender Name (Submission ID)	Lisa Proechel (42817)	
7184	Polymet started the planning/permitting process before the economic slow-down, but now the demand for new copper is not so great, and it could be adequately met by greater effort to recycle used copper….Is there a "Plan B" to mine platinum and gold if copper does not generate the expected revenue? The so-called PGE's (platinum group elements) are more toxic to mine, gold sometimes using cyanide for it.	SO02
7192	Do treaties with Native-American sovereign nations take precedence over other U.S. laws?	PER08
7194	Members of my family and I have vacationed along the North Shore of Lake Superior, once on Isle Royale, and have canoed in the BWCA many summers. The Polymet project admits they will be mining "low to medium grade copper", with tons of waste and huge open pits (scars) on the landscape which will require large (estimated) quantities of water, possible requiring clean- up for hundreds of years.	WILD02
Sender Name (Submission ID)	Lisa Pugh (21449)	
1246	Even though the mines will not be located within the BWCAW, their proposed locations have the potential to cause irreversible harm to the surrounding watershed(s)	WR111
14203	I am asking for the best possible collection and analysis of data from unbiased sources about how this mining operation could impact our environment and thus, our quality of life.	NEPA09
Sender Name (Submission ID)	Lisa Wersal (6147)	
1048	by their own admission, Polymet's system will allow millions of gallons of untreated wastewater, with heavy metals and acid, into our surface and groundwaters. Eventually, this water may make its way even to Lake Superior.	WR070, WR111
1049	Are we prepared, not only for the cleanup costs, but for the inevitable lawsuits that we will face, from residents and businesses, and possibly other states surrounding Lake Superior? We just don't know how bad the damage will be..	FIN10
14418	The relationship between two front-page stories needs to be underscore ("Divisive copper mine draws full house and strong views," and "Climate risk is critical, U.N. Warns," 1/17/14).	REF01
14419	When we analyze the copper mine proposal, there is at least one highly volatile variable that should put us on high alert -- climate change. Already, our state has seen torrential rains and flooding, rivaling and surpassing historical records (as one instance, think of Duluth a couple years ago). How would severe flooding affect the proposed cleanup operations at the mining site? Would facilities be overrun, releasing polluted water in massive quantities? Might the cleanup facilities be rendered inoperable?	AIR01
17892	PolyMet's open-pit sulfide mine would impact as much as 8,000 acres of high quality wetlands. These wetlands ensure clean water and protect fishing in the St. Louis River and Lake Superior. This would be the largest permitted destruction of wetlands in Minnesota history.	WET23

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lisa Wersal (6147)	
17893	PolyMet's sulfide mine would create a permanent waste rock heap of 168,000,000 tons and dump 228,000,000 tons of tailings on top of a tailings basin that is already leaking and violating water quality standards.	WR070
17894	Pollutants from PolyMet's waste rock heaps, mine pits and tailings dump are likely to seep, leak and propagate through fractures in rock. These pollutants include arsenic, lead, manganese and mercury, which harm human health, as well as sulfates and metals that are toxic to wild rice or aquatic species.	WR070, WR107, WR108, WR126
17895	Pollutants at the PolyMet mine site and tailings dump would exceed water quality standards for 500 hundred years if not eternity.	WR035, WR144
17896	PolyMet is suggesting that it will treat some of its mining pollution essentially forever - using untested technology.	PD32
17897	Glencore, a global commodities giant with a record of environmental, financial, and human and workerrights violations, now owns about 34.9% of PolyMet and is likely to own more. In its merger with Xstrata, Glencore committed to provide copper concentrate to China for the next 8 years. Metals and profits would go abroad, leaving pollution for local communities.Benefits to the community? PolyMet claims it would hire a few hundred local residents at the mine. The mine is currently proposed to operate for 20 years. This will be followed by an eternity of pollution.	SO06
19374	It's ludicrous to suggest that water can be contained well enough for over 500 years to make this project safe.	WR128, WR129
19375	There’s no precedent anywhere of a mining company being able to capture all the contaminated water and treat it properly, least of all a company like PolyMet that has never operated a mine before.	PD26
Sender Name (Submission ID)	Liz Nordling (21227)	
907	I believe that our water is our most precious resource in Minnesota and this mine would do irreparable harm to it.	WR115
Sender Name (Submission ID)	Liz White (14406)	
13742	Clean water and natural lands are not something that can be replaced, and every loss needs to be viewed as cumulative	CU11
13743	Please consider the long term effects, and weigh these relatively short-term benefits against the permanent losses that will occur	PER35
Sender Name (Submission ID)	lizz (46924)	
10827	While we might all want to assume that Minnesota is water-rich and that our state has no issues with water-quality or quantity, that is simply not true. The threats to our water that are part and parcel of the PolyMet proposal are real. We ask that this proposal be denied and that further investigation be ordered.	WR195
Sender Name (Submission ID)	LK Woodruff (35700)	
11285	Sulfide mining has never been done in Minnesota. Why? Because it threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness.-->There goes tourism!	SO02
Sender Name (Submission ID)	Lloyd Hansen (47784)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lloyd Hansen (47784)	
8721	Polymet is proposing a sulfide mine in one of the most water-rich environments on the planet, that would impact the most-visited wilderness area in the country, the BWCA, and the largest (by area) freshwater lake in the world. The proposed mine would increase levels of arsenic, copper, lead, antimony, selenium, cobalt and nickel in surface waters to proscribed levels.	WR024, WR071, WR081, WR111, WR175
8723	Polymet does not adequately address the subterranean hydrology of the area which has a number of geologic faults.	WR012
8732	Polymet's SDEIS presents a view of their operations that considers no contingency plans for accidents in the mining process or for extreme weather events.	PD22
11297	I realize there is pressure to push through economic development, which tends to be of short-term benefit. Your missions, which include human and habitat health and sustainability, call for a long-term view. I call on you to be true to your missions and reject the SDEIS and the mine.	SO04
11723	The proposed mine would increase levels of arsenic, copper, lead, antimony, selenium, cobalt and nickel in surface waters to proscribed levels.	WR107, WR108
11727	Polymet does not adequately address the subterranean hydrology of the area which has a number of geologic faults.	WR012
11733	Polymet's SDEIS presents a view of their operations that considers no contingency plans for accidents in the mining process or for extreme weather events. The data show that extreme weather events are occurring with increasing frequency….	PD22
15896	I realize there is pressure to push through economic development, which tends to be of short-term benefit. Your missions, which include human and habitat health and sustainability, call for a long-term view. I call on you to be true to your missions and reject the SDEIS and the mine.	SO01
15897	I appreciate the incalculable value of pristine waters and land. I know your jobs are not easy, but I trust you to recognize that the greater economic value lies in tourism that allows thousand of people to experience these crown jewels of northern Minnesota. And that value requires protecting the wellbeing of this special region.	SO01
Sender Name (Submission ID)	Lloyd Hoeft (18215)	
2177	Minnesota has some of the nation's strongest environmental laws and financial assurance regulations. Combining these strict standards with the lengthy and thorough environmental review process will ensure the copper-nickel mining will be done right. PolyMet's a resourceful project.	PER34
2178	This project will employ 360 people, create 600 more spinoff jobs and over the next 20 years, generate 721 in wages and benefits, in addition, there will be $10.3 billion in economic benefits to St. Louis County, as well as $300 million in local and state tax revenue, and $900 million in the federal tax revenue. That's a lot money that we can reinvest into our state. Let's use this opportunity to build a stronger sustainable industry that will allow future generations to grow and prosper in the Iron Range for generations to come.	SO10
2179	The economic opportunities that copper-nickel mining brings is exactly what our state needs to both jobs and mine the minerals we use in our daily lives.	SO10
Sender Name (Submission ID)	Lloyd Schallberg (47619)	
7419	The gamble of maintaining a fresh water supply in Northeast Minnesota is too great to allow the mining of copper-nickel here. Purifying polluted water for hundreds of years is not part of a sustainable industry and does not make common sense.	WR035
Sender Name (Submission ID)	Logan Olson (54349)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Logan Olson (54349)	
18169	I know that the mining project would create jobs and a potentially stronger economy for Minnesota, but what will we be left with after the twenty years? We'll be left with people who no longer have jobs, and one of the state's treasured natural habitats left nearly destroyed.	SO06
18170	the current land exchange offers wouldn't be able to make up for this loss of land and habitat for Minnesota's beloved wildlife.	LAN01
18171	Not only could wildlife on land be affected, but also the wildlife of surrounding lakes, rivers, and streams. The waterways of this state are important to all of its citizens and we all want to ensure that they are kept safe from pollution and harmful chemicals that could create potentially deadly chemical reactions.	AQ06
18172	There are also many sites of cultural importance to Minnesotans that could be at risk by the mining project. The three identified sites are The Sugarbush, Beaver Bay to Lake Vermilion Trail, and Mesabe Widjiu which is sacred to the Ojibwe people. Losing these lands would be a huge loss for the people of the area. Also, there are several historical sites in the area. We should try to protect these important sites instead of putting them at risk.	CR05
18173	mercury that rubs off when the ore comes into contact can pollute water, killing fish and vegetation.	MERC02
Sender Name (Submission ID)	Loi Kemp (44092)	
14906	The threat of sulfide water pollution, the unique and nearly everlasting concern of acid drainage from metal mining and the waste rock it leaves behind, will multiply in its impacts on the region’s waters, beginning with how it increases mercury in the food chain.	WR001, WR113
14907	A promise to “control” or “capture” [seepage] is meaningless. We need precise information on untreated versus treated levels, and detailed scientific information on how the capture takes place, and where residues end up.	PD04
14908	The SDEIS apparently halved the normal 70-year “lifetime” used for cancer analyses to 30 or 40 years, and I urge you to investigate and correct that assumption.	HU06
14909	Is the social and economic benefit large enough to justify an acceptable amount of environment harm? My prediction is that a couple of decades of modest numbers of jobs will never justify the environmental and human health tragedies left behind after hundreds of years.	SO01
14910	My second major concern with the SDEIS Is that it fails to carry out a full analysis of a range of alternatives. … Significant alterations in activity or scope or mitigation should be fully disclosed and analyzed as to their impact on all aspects of the project. The “Do Nothing” alternative, to not build a mine at all, is to always be included and compared to the impacts of the proposal.	ALT21
Sender Name (Submission ID)	Lois Braun (6191)	
9343	Even if we could manage this seepage in the present, there is no way that any human being alive today can guarantee continued management that far in the future.	FIN01
10524	I find it astounding that a copper sulfide mine of the type proposed by PolyMet is even being considered in a part of the country dominated by wetlands. Copper sulfide mining has never been carried out safely in wet ecosystems.	WET24
Sender Name (Submission ID)	Lois I Hamilton (54889)	
18816	Water is a basic for all life -- human and non-human. It is not an unlimited resource. We cannot afford to pollute the Boundary Waters.	PER12

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lois I Hamilton (54889)	
18817	Trying to restore the [Boundary Waters] area after mining is not a good idea economically.	SO01
Sender Name (Submission ID)	Lois Norrgard (16101)	
1231	I am asking for an extension to the comment period on the Polymet Northmet SDEIS. March is fast approaching and I find that reading 2000 + pages - and trying to understand all that this project means to Minnesotans, it time consuming.	NEPA07
1232	This project has far-reaching implications for the future of Minnesota, our arrowhead region, and I need to understand better the economics of a short term and very destructive extraction process	SO04
1233	Please extend the timeframe for Minnesotans to understand this project. We really need at least double the time that has been given so far.	NEPA07
15946	I believe that the SDEIS has shown that this project should not move forward, there are many instances of missing, inadequate, and even false information contained within this document….	NEPA15
15947	what is included has proven that this project is too great a risk to our waters, wildlife, air, environment and local communities to move forward and must be denied.	PD01
15948	I urge the United States Army Corps of Engineers (Corps) to deny the Section 404 permit due to the unacceptable adverse impacts to thousands of acres of wetlands and inadequate replacement plans.	COE03
15949	We are using up the planet and cannot continue down this path. Projects, like this one, that bring far more costs, impacts, and destruction than they do value to us and future generations should be stopped.	PER35
15950	We need to have foresight and create jobs yes, but make sure these jobs are good jobs, livable wage jobs, and HEALTHY jobs.	SO06
15951	500 years of increasing risk and threat to peak and then maybe start to dissipate at the 500 year mark to continue to pollute for another 500 years and probably beyond. This fact alone should be all that it takes to deny this project. And yet, we continue to discuss this !?	PD01
15952	The mercury, lead, arsenic, copper, nickel and other toxic metals that escape from the mining site and any water collection and treatment process will affect aquatic life and accumulate in birds and people who eat the fish or wild rice found in the river. This risk of toxic aquatic pollution will last for centuries.	WR115
15953	We also have no information within the SDEIS about what pollutants and at what concentrations PolyMet will be addressing in the captured waters or how this “magical” reverse osmosis is supposed to work and be trusted to keep the discharged water within state standards.	PD03
15954	The SDEIS is inadequate due to the fact that climate change was not analyzed.	PD22
15955	the pit itself is a source of toxic runoff that will not be captured and treated. This area will fill with groundwater, rain and snow. Increasing “100 year” rainfall events will occur more consistently due to our changing climate. There is no way that PolyMet would have been able to address the amount of water that fell during the recent Duluth flood that washed out roads and bridges.	WR077, WR173, WR176, WR180
15956	The land exchange does not protect the public trust or public land values – the proposed new land parcels (yes multiple parcels not a contiguous large patch of habitat like what we would be losing) the Forest Service would receive under this agreement are also “severed”, the public citizens will not have the mineral rights under these new lands.	LAN04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lois Norrgard (16101)	
15957	This project is far too great a risk for some of Minnesota's most precious wildlife and still natural places – many places that are on the national radar as outstanding places to vacation and visit.	LU06
15958	The mine will destroy 900 acres of high quality wetlands, e.g., rare coniferous bogs and tamarack swamps, and degrade an additional 7,300 acres of wetlands – perhaps the largest wetland loss in MN history.	WET23
15959	leaking polluted water will impact the Superior National Forest, the Sax-Zim Bog, the Saint Louis River Estuary, the BWCA …, and one of a few remaining natural wildlife corridors – these corridors are extremely important as safe movement zones for our wildlife.	WI03, WI04
15960	Sulfate releases will exceed the state standard for wild rice and will likely eliminate wild rice in the St. Louis River and its tributaries.	VEG04, WR162
15961	[The "Special Concern"] listing should trigger analysis of PolymMet's impact on moose habitat, but that analysis is lacking. Thousands of acres of moose habitat would be destroyed at the PolyMet mine site, and moose have been observed there. Protecting moose is a particular concern for tribal members, and there is no analysis of the cumulative impact on moose from the PolyMet project and other habitat disruptions.	WI01, WI02
15962	the PolyMet mine plan fails to analyze the cumulative impact on lynx from the proposal and other nearby projects. The mine plan also fails to consider ways to mitigate the risk to lynx from road traffic.	WI01, WI08
15963	overly optimistic assumptions falsify the entire document and allow the entire document to show the most minimal of impact – though incredible even in what is admitted to - that could possibly be to water, wildlife and human health. All of this is false and unrealistic – flawing the whole analysis.	GT14
15964	Lack of alternatives! – the SDEIS does not do an adequate (actually any, Really – which is federally required) alternatives analysis.	ALT23
15965	The SDEIS avoids discussion of the detailed performance of the proposed active water treatment systems. The lack of information about design and expected performance, operational effectiveness, and contingency plans for water treatment when the plants are down for maintenance, repairs or replacement is critical.	WR131, WR143, WR148, WR176
15966	The SDEIS avoids analysis of possible failure scenarios for tailings dams and waste rock stockpiles that will become permanent landscape features. These will fail – the public needs our agencies to do a realistic analysis of these failures and what action(s) would be taken to address this.	PD11
15967	Acid Mine Drainage – the full analysis and the impact of this on our water world of northern MN. The fact that nowhere in the world has this type of mining been done without toxic impacts to water is not clearly laid out for us	PD26
15968	The human health and safety impacts are completely missing from the SDEIS and must be addressed. One of which is PolyMet would produce mineral dust smaller than what is regulated and has been studied. … Mercury and other toxic leaching to human health should also be realistically analyzed.	HU01
15969	The 11 other companies waiting in the wings for additional mines (are well known and not speculative) should be addressed in a cumulative impacts analysis. This is completely missing in this SDEIS and should be addressed.	CU02, CU04
15970	Missing is an analysis regarding the impacts to local communities through loss of existing jobs – tourism and recreation is a substantial and growing component of the regional economy generating over $825 million in economic output and nearly 15,000 full-time equivalent jobs in 2011. These are the types of jobs that are healthy, and could exist in perpetuity IF WE DO NOT DESTROY THE ENVIRONMENT.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lois Norrgard (16101)	
15971	Missing is an analysis of the impact to local property owners and property values. Plus the loss of opportunities to these local landowners to selling their lands in future if they would like to see their properties remain clean and provide wildlife habitat and a healthy place to live. No one wants to live near Acid Mine Drainage.	SO03
15972	The SDEIS must address mercury pollution impacts to our children.	MERC03
15973	The PolyMet mine plan also increases mercury in the Embarrass River, and sulfate pollution from the site could increase methyl mercury, the form of mercury most dangerous to people.	HU03
15974	The water data is inaccurate – the SDEIS must redo the water model in PolyMet's mine plan.	WR003
15975	Financial assurance information to safeguard future taxpayers from financial liability is lacking in detail and provides no basis for the few figures cited in the SDEIS. The SDEIS must include a full analysis of the future costs, who would be responsible, and how this will be covered so that the citizens of Minnesota are assured they will not be caught with having to pay the inevitable clean-up bill.	FIN01, FIN05, FIN10
Sender Name (Submission ID)	Lois Peschel (54749)	
19151	I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations.	PER34
19153	The PolyMet project would be a positive influence on economic development and employment in Northern Minnesota.	SO10
Sender Name (Submission ID)	Lois Quam (27456)	
3530	I believe that the Supplemental Draft Environmental Impact Statement is not adequate to address the potential harm to our northern Minnesota watery environment, and I encourage you to reject it.	NEPA15
Sender Name (Submission ID)	Lois Roskoski (15963)	
929	WHEREAS, the combination of strict Minnesota regulations and PolyMet's commitment to mining in a way that protects the environment will serve as a global template for responsible, ethical and successful mining practices;	PER34
939	WHEREAS, the proposed mining and processing operation will create 360 direct jobs and over 600 indirect jobs in St. Louis County alone; ... it is anticipated that the PolyMet Mining project will require 2 million hours of labor during its construction phase; and … will contribute millions of dollars to local cities, school districts and the State though net proceed taxes, occupation taxes, and sales tax	SO10
950	the metals that PolyMet will mine are essential for daily life – copper, nickel, cobalt, platinum, palladium and gold – found in countless products, including cell phones, computers, joint replacements, medical treatments and devices, wind turbines and catalytic converters;	NEPA05
7346	the metals that PolyMet will mine are essential for daily life- copper, nickel, cobalt, platinum, palladium and gold- found in countless products, including cell phones, computers, joint replacements, medical treatments and devices, wind turbines and catalytic converters	NEPA05
7346	the metals that PolyMet will mine are essential for daily life- copper, nickel, cobalt, platinum, palladium and gold- found in countless products, including cell phones, computers, joint replacements, medical treatments and devices, wind turbines and catalytic converters	NEPA05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lois Roskoski (15963)	
13842	the proposed mining and processing operation will create 360 direct jobs and over 600 indirect jobs in St. Louis County alone; and ...it is anticipated that the Poly Met Mining project will require 2 million hours of labor during its construction phase	SO10
13842	the proposed mining and processing operation will create 360 direct jobs and over 600 indirect jobs in St. Louis County alone; and ...it is anticipated that the Poly Met Mining project will require 2 million hours of labor during its construction phase	SO10
13843	Poly Met Mining will contribute millions of dollars to local cities, school districts and the State though net proceed taxes, occupation taxes, and sales tax	SO10
13843	Poly Met Mining will contribute millions of dollars to local cities, school districts and the State though net proceed taxes, occupation taxes, and sales tax	SO10
18276	the City Council of the City of Virginia dtrongly supports the Poly Met Mining NorthMet Project.	GEN02
18276	the City Council of the City of Virginia dtrongly supports the Poly Met Mining NorthMet Project.	GEN02
Sender Name (Submission ID)	Lois Schadewald (17363)	
9996	The proposed SDEIS does not mention the destruction of moose habitat...The loss of this habitat will be irreplaceable to the moose and will place additional pressure on these animals which are already at such high risk for survival here in Minnesota.	WI02
9998	If this plan goes through workers and people living in the area will be put at risk for developing mesothelioma. Those working and living in this area will be exposed to asbestos like fibers that are known to exist in these rocks.	HU05
12750	The proposed site is in a peat bog which is an irreplaceable wetland and I'm concerned about the loss of this wetland and the potential damage to the water surrounding it.	WET05
12755	how can Polymet be certain that they will be able to protect the environment in the event of another "500 year" flood like the one that just occured in this area. ...the Polymet proposal to protect the surrounding water is to place their waste in plastic lined pits and then put barriers to groundwater seepage (if I understand right, this means clay) around it. How is this going to protect anything in the event of torrential rains?	WR202
15215	You can write anything on paper and state that you have all sorts of contingency plans, but the day to day operations themselves are already toxic enough - how can it be environmentally responsible to extract and grind 1000 pounds of rock for every 3 to 4 pounds of mineral that will be eventually sold….	PD22, PD30
15216	A wetland is about the only natural habitat that could effectively mitigate the damage done by a torrential rain event - and that is exactly what is being put up for destruction with this mining proposal.	WET24
15217	Peat is the precursor to coal, so I believe that the concern of a toxic spill similar to what happened in Tennessee and North Carolina is valid. … Lake Superior is the largest fresh water lake in North America and it needs to be protected from harm. A breach in the containment of the tailings, like that which occurred in Tennesse and North Carolina would certainly result in devastation to Lake Superior.	WR111, WR202

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lois Schadewald (17363)	
15218	The idea that anyone could create or restore a peat bog on some other site is laughable. … I didn't see a mention of the moose in this factsheet, but they will also lose habitat if this land exchange goes through, and they are already so threatened that the DNR won't allow a hunting season on them as there has been in past years. While there might be an argument in favor of the replacement land also providing habitat, that argument would prove meaningless for the northern long-eared bat, the wood turtle and the eastern heather vole that would all lose their lives for this project and who don't have the ability to run out of the way, as you might argue for a lynx, wolf or moose.	WI02
15219	this proposed mine is unacceptable because of the destruction of wetlands and wildlife habitat that would occur.	WET24, WI02
Sender Name (Submission ID)	Lora Wichser (45467)	
11435	We would respectfully request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks of the proposal	HU01
11436	We would further request that, in revising the PolyMet SDEIS, a comprehensive Health Impact Assessment (HIA) be prepared under the guidance of the Minnesota Department of Health	HU01
11441	Assessment of cumulative mercury risks, including hazard levels in bodies of water that are already impaired for mercury in fish and risks posed by mercury concentration downstream in the St. Louis River.	MERC10
11449	Assessment of cumulative cancer and non-cancer risks from existing and additional sources of toxic chemicals, such as manganese, arsenic, lead and nickel, applying the most protective health risk analysis and an appropriate “lifetime” for exposure.	HU05
11453	Assessment of cumulative risks of multiple chemicals and exposure routes on vulnerable populations, including infants, children, the elderly and populations who have higher rates of consumption of affected foods, such as fish and wild rice.	AQ08
11454	Assessment of cumulative risks of multiple chemicals and exposure routes on vulnerable populations, including infants, children, the elderly and populations who have higher rates of consumption of affected foods, such as fish and wild rice.	HU01
15728	We are concerned that the proposed PolyMet NorthMet copper-nickel mine project could have significant adverse impacts on human health as a result of pollutants released to air, surface water and drinking water. … The absence of any professionals from the Minnesota Department of Health from the List of Preparers of the PolyMet SDEIS is particularly troubling.	HU03
15729	HIAs are a tool used in the environmental review process. Environmental Impact Statements, such as the PolyMet SDEIS, are required by the National Environmental Policy Act to contain analysis of impacts on human health. However, human health is subordinated to environmental impacts, is addressed in a piecemeal fashion, and there is no examination of the social determinants of health in the SDEIS.	HU01
Sender Name (Submission ID)	Loree Kalliainen (42453)	
6790	The proximity to both the Boundary Waters and to Lake Superior mean that the risk benefit ratio needs to lean heavily to benefit over risk.	WR111
6791	The benefits: a relatively small # of jobs for a few decades, maximum, benefit to the mining company's profit. The risks:contamination of 10% of the world's fresh water, long term risk and need for active management (for longer than the US has been a nation), damage to a heritage site. This will not help the residents in the region and has unacceptable risk of harm.	SO01
Sender Name (Submission ID)	Lori Johnson (3573)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lori Johnson (3573)	
408	Our water quality must not be jeopardized for a few mining jobs. The BWCA and Lake Superior are more important than the mining and the jobs it will bring.	SO01
410	This interest leads me to object to mining that has even a chance of harming our environment and water quality!	WR195
1063	It would greatly benefit an international company, permanently scare the landscape, provide only a few jobs for a short time, and forever destroy Minnesota's water quality.	SO01
1065	There are just no proven and time tested methods to treat the amount of acid that needs to be processed over such a long period of time. Once the water quality is gone, no amount of money and "insurance" from PolyMet will bring it back.	WR128
1066	The few jobs that it would bring to the Ely area would be drastically over shadowed by the NEGATVE impact the PolyMet Mining operation would have on Minnesota, Lake Superior, the Boundary Waters Canoe Area Wilderness and surrounding area lakes. Please do not jeopardize our water quality for a short 20-30 year gain.	SO01
Sender Name (Submission ID)	Lori Olinger (45007)	
17298	A wild rice-sulfate study was recently released that could result in a change in the state's current level of 10 parts per million sulfate in waters that hold wild rice stands. I think the permit should not be issued to PolyMet until the decision is made regarding current limits and whether or not they should be updated.	PER10
17299	An organization other than PolyMet should also have responsibility for monitoring groundwater and surface water so that any problems be identified and mitigated as soon possible. If PolyMet does a good job monitoring, that is great but a separate group should also verify since so much is at stake with this project.	PD24
17300	The Wild Rice Fact sheet also stated that the PolyMet project would be expected to increase [sulfate] concentrations in the Partridge River but only by .1 percent over existing levels. The current level in the Partridge River is currently above the required limit. PolyMet should not be allowed to contribute to the problem with the Partridge River even if it is expected to be a small amount.	WR083, WR149, WR158, WR159, WR162
17301	The tribe has sovereign authority, under the Clean Water Act, to protect its wild rice from mining pollution. This project should not move forward if there is going to be any negative impact on wild rice.	PER08
17302	Before approving the PolyMet permit, the DNR should take a field trip to Butte to see first-hand the result of copper mining. Talk to the residents of Butte. Ask about the long-term financial impact it has had. They certainly never expected anything like that to happen there. I would hate to have something similar happen in Minnesota.	SO04
17303	The PolyMet site is in a water rich part of the country that is subjected to freeze and thaw conditions. This will cause extreme challenges to be able to prevent pollution.	WR198
17304	I am a concerned Minnesotan who wants to ensure that we don't overestimate the benefits of this project and underestimate the potential problems.	SO04
Sender Name (Submission ID)	Lori Rosenthal (30769)	
13065	And while Republicans believe that clean up responsibility is nothing to address it is of the utmost importance to have those discussions now rather than dump millions of dollars on to the tax payer.	FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lori Rosenthal (30769)	
13067	We depend on you to protect our waters and uphold the laws/regulations already in place to do so.	PER06
Sender Name (Submission ID)	Lorraine E Johnson (57239)	
17341	Expect bankruptcy at end of PolyMet operations. It's what they do, put it on the people of the state to clean things up!	FIN01, FIN10
Sender Name (Submission ID)	Lorraine Norrgard (11605)	
2275	Please uphold the LAMP – Zero discharge into Lake Superior!Please abide by the Lake Superior Binational Forum's Responsible Mining recommendations.	PER27
2275	Please uphold the LAMP – Zero discharge into Lake Superior!Please abide by the Lake Superior Binational Forum's Responsible Mining recommendations.	PER27
2276	Please identify other copper sulfate mining projects that have not had serious environmental negative impacts	PD26
2276	Please identify other copper sulfate mining projects that have not had serious environmental negative impacts	PD26
2277	360 jobs from Polymet is negligible compared to other job creation in clean industries like Cirrus, tourism, electronics, etc.	SO01
2277	360 jobs from Polymet is negligible compared to other job creation in clean industries like Cirrus, tourism, electronics, etc.	SO01
2278	Do NOT lower standards of pollution for wild rice	FIN05, FIN01
2278	Do NOT lower standards of pollution for wild rice	PER10, WR160
3256	2.Please abide by the Lake Superior Binational Forum's Responsible Mining recommendations.	ALT15
3256	2.Please abide by the Lake Superior Binational Forum's Responsible Mining recommendations.	ALT15
Sender Name (Submission ID)	Lorraine Redig (39242)	
5493	This republic of the people recognizes that ALL people are created with equal rights. The PolyMet SDEIS proposal to come in to take our water that we can't live without to extract one of our natural resources for their short term profit, leaving environmental devastation behind when they have what they came for- - deserves a RAPID and FIRM "NO" answer.	SO10
5494	Our government is supposed to serve the people. EACH person who lives in the area for the next 500 years is your concern. PolyMet SDEIS doesn't care about the people rights. Profits are their priority. . In a government of JUSTICE for the PEOPLE, that means a swift NO to their request to destroy our natural resources we need to live.	SO10
Sender Name (Submission ID)	Lory Fedo (18182)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lory Fedo (18182)	
13406	... I have spent much of my life praying for the day we can safely mine while protecting our environment so that we can rebuild our communities.…I trust the science behind the SDEIS and many thousands of hours of research that have gone into it...With the jobs that this project could provide many would learn a trade, would work and feed their families, and contribute to a community.	SO10
Sender Name (Submission ID)	Lou Ferreri (4534)	
1838	What current jobs could be lost as a result of environmental changes? For instance, will tourism be disrupted by changes in land use and traffic in the region? What is the potential economic impact of a percentage decrease in tourism?	SO04
1839	What other livelihoods could decline as a result of changes in lands and waters? For instance, could fisheries decline?	SO04
1840	Could wild rice stands decrease? If so, to what extent?	VEG04, WR157
1841	What is the estimated cost of building and maintaining the public infrastructure to support this project? For example, who builds roads and pays for maintenance? Who pays for public services to support workers and families moving to the area? What, if any, portion of this expense has PolyMet been asked to cover?	SO04
1842	What, if any, guarantee has PolyMet made to ensure that Minnesotans will be hired for mining work? Will they be union workers? What will be the wage differential between the highest paid executives and the lowest paid workers?	SO04
1843	Before granting any permits will the State of Minnesota make its own estimate of financial reassurance? And if so, will it be more in line with the Grand Portage Band of Ojibwe's estimate of $90.5 billion set aside at the outset?	FIN05, FIN07
1844	Why would the State of Minnesota assume the risk of permitting a hard-rock mine when not a single one has ever operated without gross pollution? What is the specific cost/benefit analysis?	PER35
1845	Minnesota Rules require the site to be maintenance-free at closure. Does this mean PolyMet will be keeping the mine open for at least 500 years. What company—national or international—has been around for at least 500 years?	PD02, WR037
1846	How can financial assurance exist if a company no longer exists? What laws, international and national, might prevent PolyMet from going bankrupt, closing its doors, or otherwise failing to meet the terms of this agreement?	FIN01, FIN04
Sender Name (Submission ID)	Louis Asher (19878)	
1491	Benefits to the community? PolyMet claims it would hire a few hundred local residents at the mine. The mine is currently proposed to operate for 20 years. This will be followed by an eternity of pollution.	SO01
13695	What I want to say is that it is absolutely insanity to assume that we can trade a few hundred jobs over twenty years for an eternity of pollution, and that's what it is going to be.	SO01
14826	PolyMet's open-pit sulfide mine would impact as much as 8,000 acres…This would be the largest permitted destruction of wetlands in Minnesota history.	WET23
14827	PolyMet's sulfide mine would create a permanent waste rock heap of 168,000,000 tons and dump 228,000,000 tons of tailings on top of a tailings basin that is already leaking and violating water quality standards.	WR070

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Louis Asher (19878)	
14828	Pollutants from PolyMet's waste rock heaps, mine pits and tailings dump are likely to seep, leak and propagate through fractures in rock. These pollutants include arsenic, lead, manganese and mercury, which harm human health, as well as sulfates and metals that are toxic to wild rice or aquatic species.	PD03
14829	Pollutants at the PolyMet mine site and tailings dump would exceed water quality standards for 500 hundred years if not eternity.	WR115
14830	PolyMet is suggesting that it will treat some of its mining pollution essentially forever – using untested technology.	PD32
14831	Glencore, a global commodities giant with a record of environmental, financial, and human and worker rights violations, now owns about 34.9% of PolyMet and is likely to own more. In its merger with Xstrata, Glencore committed to provide copper concentrate to China for the next 8 years. Metals and profits would go abroad, leaving pollution for local communities.	PD23
Sender Name (Submission ID)	Louis B Asher (42847)	
8796	Sulfide mining has always led to extensive pollution and costs to taxpayers.We do not need this situation in Minnesota. Please reject the PolyMet proposal. It is full of holes and poor conclusions.	FIN10
8796	Sulfide mining has always led to extensive pollution and costs to taxpayers.We do not need this situation in Minnesota. Please reject the PolyMet proposal. It is full of holes and poor conclusions.	FIN10
18695	The history of sulfide mining is one of toxic environmental degradation. There is no evidence that sulfide mining can be done without great environmental damage – especially in a water-rich area such as NE Minnesota.	PD26
Sender Name (Submission ID)	Louis Hilgemann (27340)	
3522	the SDEIS doesn't take into account the cumulative effects of all the sulfide ore mining proposals and expansions of mines in the area.	CU02
3523	the model used for analyzing the impact on water quality is completely erroneous. This model doesn't use the actual hydrology of the area. it is based on a much lower water quantity than truly exists, and does not account for major rain events which are sure to continue into the future (recent Duluth flood).	WR003, WR180
Sender Name (Submission ID)	Luann LaValley (15794)	
886	I want to express my confidence in your agency to thoroughly evaluate the project and its ability to mitigate potential environmental impacts. I believe the environmental review process has been sound and thorough.	NEPA16
888	The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations.	PER34
894	It is commendable that the [groundwater flow] modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time [200-500 years]. It also shows the project will still meet water quality standards even that far out – all the more reason to support it.	PER34, WR190

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Luann LaValley (15794)	
895	This [groundwater flow] model demonstrates that PolyMet's plans comply with Minnesota's laws – some of the strictest environmental regulations in the country.	PER34
898	This is an economic opportunity right below our feet that will benefit the state's economy for future generations. PolyMet will … generate significant economic activity, expanding and diversifying our economy and creating hundreds of jobs that can support families and sustain communities.	SO10
901	This project would mean 2 million construction hours, 360 full-time mining jobs and more than 600 related jobs – jobs that our state needs.	SO10
903	Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands.	PER34
904	Based on my review and the level of detail included in the draft EIS it appears that a thorough evaluation of the project and potential impacts has been completed.	NEPA16
906	I see the value of adding these jobs into our region.	SO10
Sender Name (Submission ID)	Lucas Lundgren (43732)	
11777	There is no company in the world that will be held to such strict environmental standards. Let PolyMet be the model for the rest of the world.	PER34
Sender Name (Submission ID)	Lucas Runquist (54353)	
18184	this company has an excellent plan in place. It would benefit our state of Minnesota in several ways. It would be the first one in our state as well.	PD28
18185	this project could help our economy, and Northern Minnesota's water supply.	SO10
18186	If we went on through with this project, many natural resources, such as forests, lakes, etc. This would include the land that the Ojibwe people consider sacred.	CR01
Sender Name (Submission ID)	Lucia Reid (44638)	
12230	There are very, very few jobs created and possibly 200+ years of cleanup!	SO01
12231	EVERYONE who visits Minnesota as well as residents will be exposed to the contamination created.	HU01
Sender Name (Submission ID)	Lucinda West (57201)	
17090	Water's precious, we shouldn't hurt it.	WR107, WR108
Sender Name (Submission ID)	Lucy Knoll (49934)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lucy Knoll (49934)	
16914	the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever.	WR115
16915	In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science.	WR003, WR086, WR091
16917	The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health.	AQ01
16918	The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures.	WR012
16919	The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down.	WR202
16920	The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs	WR003, WR091, WR165
16921	The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge.	WR017
16922	The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards… This project would violate water quality standards for generations to come.	WR189, WR202
Sender Name (Submission ID)	Lucy Sedgwick (19529)	
13448	For instance, PolyMet claims to have made minimized -- claims to have minimized destruction of wetlands in their mining plan. They basically say, "This is the best thing we've got." However, an underground mine would actually disturb far fewer acres to access the ore in the headwaters of the St. Louis River.	ALT01
13449	. I don't think that it fully protects and replaces loss of significant habitats and species. For instance, the entire 3,013-acre mine site had been classified by the Minnesota Biological Survey as of high biodiversity significance. So basically, there are two state-endangered, two state-threatened and seven state-special concern plant species that are actually found on the mine site. So six regional forester-sensitive species -- and what that basically means is they're a federal forest plant species of concern.	VEG01, VEG02
Sender Name (Submission ID)	Lucy Soderstrom (44629)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lucy Soderstrom (44629)	
12778	The EIS does not state how long the geomembrane covers and membranes will last, how they will be replaced and what replacement will cost. Neither does it state how long the equipment doing the treatment will last or how that will be replaced	FIN05
12782	The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuries of costly water treatment, or how the public will be protected from liability….why isn't Minnesota requiring that the controlling company to make the commitments needed for such a massive mining operation?	PER03
12784	not all polluted water can be captured and sent for treatment. Mitigation plans for these seepages must be accounted for.	WR130
12790	Minnesota law (MN environmental Rights Act) states that "economic considerations alone shall not justify" conduct that is likely to cause significant impairment to the environment….Initiation of this project or other similar ones will likely … drive down residential property values.	SO01
12791	While the area will benefit from increased economic activity, a move to sulfide mining at this time ... will likely negatively impact tourism	WILD02
12793	10, 20, 50 or 100 years from now, perhaps there will be scientifically and experientially proven mechanisms to extract these minerals with much lower risk to our environment and the related tourism and recreation benefits of the region.	ALT16
15914	There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills.	PD22, PD36
15916	Glencore Xstrata will be among the primary beneficiaries of permits granted and as such should be the applicant and be subject to legal recourse by the state of MN for any failures to comply with the permits or other violations of law.	PER02
Sender Name (Submission ID)	Luis Ortega (43987)	
7088	The short-term benefit to the few entities with economic interests in this issue should hold no weight over the right for Minnesotans to keep their environment sustainable and clean.	SO01
7089	[PolyMet] should be obligated to establish a trust fund (handled by an independent third party and mediated by the state government) to assure that Polymet will act with the highest integrity in their part of stewardship for the environment.	FIN01, FIN08
Sender Name (Submission ID)	Luke Christenson (47295)	
14190	Please don't take a risk at permanently damaging our beautiful natural resoruces in Minnesota - it is an advantage we have in the state that will increase in value over time. It wil reamain a powerful tourism draw int he years ahead.	SO02
Sender Name (Submission ID)	Luke Jacobs (38716)	
4511	PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota.	WI13
4513	In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream.	AQ05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Luke Jacobs (38716)	
4514	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	Luke Johnson (39438)	
7692	No other agency, person, or organization has had the time to check whether or not the 200 year model is accurate and sufficient. A 90 day public comment period is too short.	NEPA07
7701	The shapefiles in the SDEIS used to delineate the supposed USGS 100 mile swamp are not correctly georeferenced nor do the UTMs of the waypoints match those any other literature on this 100 mile swamp area. Thus DNR should correct its swamp delineation in order to more precisely predict the potential swamp impacts.	PD38, WR080
7708	I encourage new job growth. As a fish biologist and GIS technician I may be eligible to gain employment from this Polymet project, though very unlikely due to the small number of projected jobs created. The type of boom bust development this project embodies is part of the reason my generation suffers a 26% unemployment rate. I would rather pay more taxes now, on the little income I make, to fund sustainable economic development in Northeast Minnesota.	SO02
12717	360 jobs is not an adequate amount for any project, for me to consider it beneficial for my age group. A small fraction of the 360 will be Minnesotan jobs.	SO01
12722	One of the full force aspects of the Environmental Impact Statement should be exercising... The full 180-day review process.	NEPA07
13213	Minnesota is dramatically changing because of climate change and this project will contribute to the root of the problem: greenhouse gas emissions.	AIR01
Sender Name (Submission ID)	Luke Laaveg (6334)	
10581	Since when, though, has Minnesota ever been one to act on immediate financial impulse by way of throwing the health of it's people, environment, and pride by the wayside…Please understand the depth of disaster this permit can create for centuries to come.	HU03
Sender Name (Submission ID)	Luke Peterson (6076)	
1018	This approach balances responsibility to the environment we all enjoy and job creation and economic growth.	SO10
Sender Name (Submission ID)	Lura Wilson (21029)	
1864	If this project goes through it will destroy this beautiful wilderness that we enjoy and need, including jobs! This area depends highly on tourism.	SO02
1865	Tourism in this area will last a life time where the mining project, if allowed, will only provide temporary jobs and potentially ruin the landscape FOREVER.	SO02
1866	SDEIS admits that PolyMet would directly destroy thousands of acres of wetlands in the Superior National forest not to mention our drinking water, wildlife, including moose whose population is already at risk, birds, fish, and eventually even our big Lake Superior.	WET24, WI01, WR042, WR111, WR112

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lura Wilson (21029)	
12676	This area depends highly on tourism. My husband and I run a small lodging business and a Bed and Breakfast where people come from all over the world to enjoy. If Polymet is allowed to mine it will destroy our business and many others. Tourism in this area will last a life time where the mining project, if allowed, will only provide temporary jobs and potentially ruin the landscape FOREVER.	SO02
12678	I have heard the plans for clean up but that will cost our children and grandchild dearly and realistically there is no guarantee that the destruction caused by mining can be cleaned up.	FIN01
12679	SDEIS admits that PolyMet would directly destroy thousands of acres of wetlands in the Superior National forest not to mention our drinking water, wildlife, including moose whose population is already at risk, birds, fish, and eventually even our big Lake Superior	WI01
16224	I personal believe we will lose the beauty for ever along with many jobs if this project comes to fruition.	SO01
Sender Name (Submission ID)	Lydia Kulesov (15414)	
13817	A handful of local jobs for a relatively short amount of time is just not worth the long-term consequences of environmental devastation and threat to all life	PER35
Sender Name (Submission ID)	Lydia Morken (50018)	
12981	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Lydia Neus (54197)	
17233	Though this may bring jobs to the area (for a time) and may increase the amount of metals, at what cost is this happening to my world?... If this area is changed astronomically and the jobs produced may not last.	SO01
17235	The beginning of this sulfuric mining will degrade not only the water supply, but also the tourism that the area often depends on.	WR107, WR108
Sender Name (Submission ID)	Lyle Bradley (18168)	
3886	Sulfide mining brings sulfuric acid. Have you ever tried swimming in sulfuric acid? Now not only sulfuric acid but also from sulfide mining we get a lot of other good ones, like a little mercury and a little so on.	WR001
Sender Name (Submission ID)	Lyle Salmi (15241)	
386	To consider trading 20 years of jobs for 500 years or more of pollution is not acceptable	WR115, WR195
388	The so -called assurances from the DNR for the parent company to provide....what specifically are they?... So who then pays? Us ...the taxpayers, to clean up the mess, if it can even be restored.	FIN01
389	I own a cabin on Bear Island Lake that has been in my family since 1962. I do not wish to see this area become a corporate wasteland.	LU06
Sender Name (Submission ID)	Lyn Yount (46868)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lyn Yount (46868)	
8612	Please do not authorize PolyMet's draft mine plan. There is too much at stake to accept a plan that does not take into account, and will damage the health of Minnesotan citizens, will cause damage to already stressed Lynx and Moose populations as well as other wildlife, and will poison and destroy wetlands, forest and our water table. We don't want more air and water pollution, and even if PolyMet does manage to provide so called "safeguards" against large scale mercury or asbestos disasters, no mine is able to cause no pollution.	SO02
8613	Every water source, table, creek, lake, pond, and wetland in the area of the mine will be affected, with wide reaching effects to the aquifer. Whether from direct pollution and chemical runoff or spills, or poisoned by the chemicals in the air from the machines and mining extraction processes, Minnesota's water will be harmed, and the people, animals and plants that depend on it as well.	WR111, WR115
8614	PolyMet will make a great deal of money, share a comparatively small amount with their "new employees," and leave Minnesota scarred, dirty, with centuries of cleanup, especially water treatment, untold health issues, and with all the bills.	SO02
Sender Name (Submission ID)	Lynda Fedeler (38129)	
14545	The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project.	AIR01
14546	The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0.5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025.	AIR01
14547	Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan.	AIR01
14548	Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation.	PD39
14549	Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project.	ALT13
14550	Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project.	ALT13
Sender Name (Submission ID)	Lynda Haemig (41660)	
2154	Maybe denying this permit will force the mining companies to research alternative methods of extracting the metals.	PD32
Sender Name (Submission ID)	Lynda McDonnell (39771)	
6798	And there's a great risk that the damage and cost of clean-up could far exceed the value of several dozen jobs for 20 years.	SO01
14247	Sulfide mining releases acid and heavy metals that harm aquatic plants, fish and waterfowl.	WR001, WR113

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lynda McDonnell (39771)	
14248	I recognize that northeastern Minnesota badly needs good jobs for its people and communities. But increased spending for high-speed internet service and other strategic investments seems far wiser and more productive than authorizing a mining project that could endanger our water, forests, animals and people.	SO01
Sender Name (Submission ID)	Lynda Withbroe (54776)	
19477	Only 360 jobs will be created while hundreds of years of damage will result.	SO01
19479	I am writing to ask you to reject the PolyMet mine's proposal / mine in one of our state's greatest natural resources, the BWCA.	WILD02
Sender Name (Submission ID)	Lynden Gerdes (36800)	
8638	NorthMet would emit 4.6 pounds of mercury into the air from their operations every year, and the coal power they rely on would add even more. The NorthMet mine plan also increases mercury in the Embarrass River, and sulfate pollution from the site could increase methylmercury, the form of mercury most dangerous to people. (Mining Truth).	AIR02, MERC08
8647	Maybe it is simple; just have PolyMet assure you they will restore the landscape as they received it. Give them maybe 100 years. Ecosystem function, biological diversity, aquatic life, and species composition at least as good as they inherited it. I am not talking about spreading a clover mix on a wetlands tailings pile and calling it restored.	VEG03, VEG05
8656	Some Tribal and GLIFWC analyses and concerns do not appear to be fully valued or addressed in the SDEIS (Chapter 8 and Appendix C), including mercury levels, water models, manoomin (wild rice) standards, wetlands, waterfowl concerns, etc.	VEG04, WET24, WI04, WR115, WR160, WR189
8664	If more time would have been granted for public review I may have been able to provide a more detailed response.	NEPA07
12377	Fractures in the bedrock are highly likely to currently exist in the project area or potentially result from mining activities. We can't trust a dated bedrock study on this critical issue when the consequences of being wrong in the analysis allows contaminated waters to move deeply through the bedrock and aquifers to the Rainy River watershed and local water tables.	WR011, WR012, WR014, WR016, WR061, WR071, WR085, WR087, WR090, WR099, WR168, WR169
12378	The NorthMet water model assumes that there is little groundwater moving through the site. The result is that the model shows water moving very slowly, and pollutants sticking to soil instead of moving with the water. DNR hydrology data show that the NorthMet water model significantly understates the amount of water flowing in the nearby Partridge River.	WR003
12382	There are many acres of assorted uplands and wetlands within the project area recognized and mapped as having Biological Significance (Minnesota Biological Survey), including the 100 Mile Swamp. Some of the native plant communities in the project area are considered rare or of special concern in the state. Rare species are present including a significant, large population of Floating marsh marigold (Caltha natans) with habitat and populations to be destroyed.	VEG01, VEG02
12383	Moose, lynx and other species and their habitats will be will be impacted.	WI01, WI02
12384	Waterflow and water quality will be greatly altered in the landscape and will negatively affect many more wetlands, uplands and waters in the greater area than currently acknowledged in the SDEIS). Current acreages stated below are likely underestimated.	PD03, WET10, WET24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lynden Gerdes (36800)	
12390	The NorthMet mine plan also increases mercury in the Embarrass River, and sulfate pollution from the site could increase methylmercury, the form of mercury most dangerous to people. (Mining Truth).	MERC23
12391	NorthMet would emit 707,342 metric tons of carbon dioxide into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025. Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota" (Mining Truth).	AIR02
12404	As noted earlier, there is no dollar amount that can substitute for the existing, ecologically functioning landscape that would be lost and degraded if these SNF lands are lost and the mining project proceeds. My point being, regardless of what you ask of PolyMet, in the end you are not likely to get it. Whether it is fully restored ecosystems or lump sums of money to treat water in an otherwise devastated landscape future generations will pay the price.	SO01
12413	Some Tribal and GLIFWC analyses and concerns do not appear to be fully valued or addressed in the SDEIS (Chapter 8 and Appendix C), including mercury levels, water models, manoomin (wild rice) standards, wetlands, waterfowl concerns, etc. I don't understand the specifics of 1854 Treaty or the rights of the Fond Du Lac Reservation downstream of the proposed mine but destroying and degrading their tribal lands and way of life truly concerns me.	CR01
13928	All the lighting associated with this project will have significant impacts to not only residents but all those global citizens that will lose this local opportunity to have an experience that is becoming quite rare.	LU06
13929	Earth tremor – For the lack of another term, I am using this referring to how the earth shakes and windows rattle when the earth's bedrock is being blasted. This is currently happening as a result of the Harris Lake quarry and I suspect the Babbitt mines. This issue needs to be further addressed for I feel the impacts are much more distant from the mines than what is currently being acknowledged. The social, economic (including land values, property values, etc.) and environmental effects of this needs further assessment and publicly addressed.	N05
13930	I also request the long-term psychological effects of light pollution (especially to those that have lost dark skies in their living environments) and the psychological effects of human caused earth tremor receive full attention, discussion and disclosure relative to the short and long term effects of this project. Conversely, I request the long-term benefits of the dark skies in this part of Minnesota are assessed for their contributions to society and our economy.	LU04, SO04
14567	I would have more to comment on if more time had been allowed for public SDEIS review.	NEPA07
14881	I believe the Superior National Forest (SNF) wants to steward our National Forest lands and would also be interested in acquiring industrial owned lands that would potentially complement the Forests long term forest management and conservation goals. Pursue some of these acres for acquisition if at all possible but don't trade away a core portion of our Forest to accomplish it.	LAN06, WILD03
14913	Minnesota law requires that a closed mine site be "maintenance free." It is clearly presented in the SDEIS that water pollution will be long term, likely for hundreds or more years and likely require active treatment. One can't assume that passive treatment will become a reality, if so, it likely won't occur before environmental damage has already occurred and becomes widespread.	PER04, WR137

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lynden Gerdes (36800)	
16507	The United States Forest Service (USFS) should not allow for the permanent destruction and degradation of hundreds - thousands of acres of our National Forests lands and waters…One can analytically isolate these Forest lands from all other lands and waters in the area but we know they are all critically connected and complement each other and function as a whole, especially when assessing biological biodiversity, climate change, and ecosystem health at various scales…"Land Exchange" is very misleading. Our National Forest lands would be traded to industry and allowed to be permanently destroyed.	LAN01
16509	The Bureau of Land Management has very different goals and objectives regarding both surface resources and mineral extraction (as observed on BLM lands in our southwestern states) and their management approaches and practices should not supersede the long established ecosystem goals the SNF has tried to achieve balancing the values of forest, wildlife and recreation.	PER26
16512	The NorthMet water model assumes that there is little groundwater moving through the site. The result is that the model shows water moving very slowly, and pollutants sticking to soil instead of moving with the water. DNR hydrology data show that the NorthMet water model significantly understates the amount of water flowing in the nearby Partridge River. If this information is wrong, predictions about water pollution are in question. If the model is incorrect, and there is more water flowing through the site than it assumes, the polluted water from pits and waste rock will move more easily through the soil, and reach lakes and rivers more quickly. The water could also carry more pollutants than the NorthMet model predicts.	WR003, WR005, WR006, WR165
16513	when so much is at long term environmental risk, they provide not much more than a best guess. … Questions centered around the inaccuracies of the water model place serious doubt on the validity of the entire analysis.	PD29
16517	It is bewildering that the SDEIS can generally state the air, water and noise levels resulting from this project and their cumulative effects are acceptable.	CU11
16518	Levels of energy consumption and contributions to climate change are unacceptable.	AIR01
Sender Name (Submission ID)	Lynette Peterson (54490)	
18035	The long term health effects of allowing the mining proposed by Polymet are substantial. More research is needed as well as more answers.	HU01, HU03
Sender Name (Submission ID)	Lynn Boggie (54694)	
17799	Sulfide mines ALWAYS pollute. Sulfide mines ALWAYS end up costing the tax payers. After the mining is done "they" ALWAYS mysteriously go bankrupt and can't pay the costs for clean up which takes FOREVER.	FIN01
17801	you know the facts of why the Poly Met SDEIS is inadequate. It doesn't analyze the effect on pollution; on workers health; on drinking water; and there are the arsenic and mercury issues.	HU01
17803	We live downstream from the proposed PolyMet project. Will our water "change" in my lifetime? How many years will it take, do you tb.i.nf, before we can't drink our precious water?	WR036
17804	Yes, jobs are important, but not at the cost of the eternal and irrefutable damage to our lands and waters. Not at the cost of our health. We who live in this area are the ones who will pay dearly.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lynn Boggie (54694)	
17806	I have lost faith in the MDNR and USFS. I've seen too many decisions that are made for monetary gain rather than environmental propriety. And there is a long history where federal agencies short-change the taxpayers to allow mining. I am asking these agencies to bring it back around and do the right thing. … Don't allow Poly Met a state permit to mine.	PER35
17808	Reject the SDEIS as inadequate and the PolyMet project as environmentally harmful.	NEPA09
Sender Name (Submission ID)	Lynn Clark Pegg (11541)	
2493	Those of us who live on this freshwater spit [Park Point] of land are acutely aware of the water that surrounds us – St. Louis River which brings the water from the north into the Duluth harbor, and ultimately into Lake Superior, which contains 10% of all the fresh water on the earth. This water is a precious resource and is essential to the health of our ecosystem.	WR195
2493	Those of us who live on this freshwater spit [Park Point] of land are acutely aware of the water that surrounds us – St. Louis River which brings the water from the north into the Duluth harbor, and ultimately into Lake Superior, which contains 10% of all the fresh water on the earth. This water is a precious resource and is essential to the health of our ecosystem.	WR195
2494	…the PolyMet SDEIS cumulative analysis of water quality impacts is inadequate in determining whether the PolyMet mine is environmentally harmful. The SDEIS has an artificially limited scope, focusing on just the Partridge and Embarrass Rivers, and excluding the St. Louis River.	CU01
2494	…the PolyMet SDEIS cumulative analysis of water quality impacts is inadequate in determining whether the PolyMet mine is environmentally harmful. The SDEIS has an artificially limited scope, focusing on just the Partridge and Embarrass Rivers, and excluding the St. Louis River.	CU01
2495	The PolyMet Project would increase mercury in the Embarrass River and could increase mercury methylation near the mine site as well. Increases in mercury or sulfates at PolyMet could increase mercury in fish in the St. Louis River. Both existing LTV tailings seeps and other mine discharges flowing into the St. Louis River also carry high levels of specific conductance, which the EPA has found can be toxic to fish. Furthermore, Tribal research shows that specific conductance is a water chemistry "signature" for mining discharge that can take more than 100 miles to dissipate.	MERC02
2495	The PolyMet Project would increase mercury in the Embarrass River and could increase mercury methylation near the mine site as well. Increases in mercury or sulfates at PolyMet could increase mercury in fish in the St. Louis River. Both existing LTV tailings seeps and other mine discharges flowing into the St. Louis River also carry high levels of specific conductance, which the EPA has found can be toxic to fish. Furthermore, Tribal research shows that specific conductance is a water chemistry "signature" for mining discharge that can take more than 100 miles to dissipate.	MERC02
2496	There needs to be a specific analysis of the impacts on mercury contamination of fish and the specific conductance levels on fish on all rivers and waterways of the Lake Superior basin, all the way down on the St. Louis River, through the Fond du Lac tribal water, to Lake Superior. The fish are the "canary" in this mining project: as the fish go, so go the watershed and the ecosystem. We all are affected and we all need to be engaged in protecting our precious waters.	MERC02
2496	There needs to be a specific analysis of the impacts on mercury contamination of fish and the specific conductance levels on fish on all rivers and waterways of the Lake Superior basin, all the way down on the St. Louis River, through the Fond du Lac tribal water, to Lake Superior. The fish are the "canary" in this mining project: as the fish go, so go the watershed and the ecosystem. We all are affected and we all need to be engaged in protecting our precious waters.	MERC02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Lynn Erkelenz (21783)	
9527	Hi -This is Lynn with Midwest Radio in Hibbing - can someone contact me? 263-7531	RFI01
Sender Name (Submission ID)	Lynn Evenson (3524)	
232	nowhere in the world, at no time, in no way, has acid mine drainage been successfully contained long term. It cannot be done; this has been proven beyond any doubt.	PD26
233	This type of mine waste cannot be contained. It is that simple and that black-and-white. The companies involved in sulfide mining know this; that's why they dissolve, go bankrupt (they say) or otherwise disappear when things look like they're about to go wrong. That way, they can never be held accountable (read, made to pay to clean up their mess) for the widely documented disasters they leave behind when they close their mines.	FIN01
2159	The runoff can be made safe, but this would require spending a great deal of money. If this money is not on the table before permits are issued, it will not appear.	FIN01
Sender Name (Submission ID)	Lynn Glesne (41701)	
2165	When we think of what Minnesota was 500 years ago, committing to 500 years in the future sounds unbelievable.	WR195
Sender Name (Submission ID)	lynn grano (11238)	
689	And yet the proposed PolyMet project assumes a level of “financial assurance” stability going forward over the next 500 years that has never existed in history, or for even much shorter durations of time.	FIN01
697	Given that the SDEIS concludes that it is possible that mechanical water treatment might well be needed “for the duration of 200 years at the mine site and 500 years at the plant site” what possible “financial assurance” as r	FIN01
725	Given the course of history, how could anyone likely conclude that PolyMet (or any provider of its ‘financial assurance’) will be around in fifty years, let alone 500, to provide ‘adaptive management’ or has sufficiently pre-paid someone else to adequately address its on-going into the distant future mess and ensuing environmental liabilities?	FIN01
1574	The SDEIS is woefully deficient in failing to comprehensively address this issue (financial assurance) now.	FIN13
1575	Why then does PolyMet get to profit on this State’s copper-nickel deposits (at least for 20 years) when the State’s subsequent twenty-four generations (next 480 years) will likely get left holding the bag for environmental liabilities the mining company creates and leaves behind?	FIN10
1576	If one wants to quickly grasp the inherent absurdity of the proposed project, all that’s required is to ask a simple question, namely--‘what financial assurance instruments in operation in the year 1514 still function today?’ Answer, none.	FIN01, FIN08
Sender Name (Submission ID)	Lynn Voss (6020)	
1527	The jobs are necessary, our economy needs it	SO10
1528	I have full confidence in the DNR's ability to do the research and monitor	NEPA16

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	LynnAnne Vesper (38810)	
4977	My primary concern is in the area of economic impacts, mainly in the area of financial assurance. Polymet routinely cites figures indicating how much they have spent so far on the permitting process, as if this number should justify the issuance of a permit. The DNR and other agencies have a responsibility to see to it that issues are addressed during the planning phase; otherwise no permit should be issued, regardless of the amount Polymet has spent on analysis.	FIN08
17011	Further, regarding the proposed land exchange, the Forest Supervisor bears the responsibility for determining if the proposed land exchange benefits the public. The Forest Supervisor must make the determination that the land exchange is for the express purpose of directly furthering the financial interests of private and foreign economic interests and is clearly NOT in the public interest.	LAN01
17017	These wetlands created for the purpose of the wetland crediting system are by far inferior to those created over many hundreds if not thousands of years by natural processes. The artificiality of the wetland crediting system must be taken into consideration when determining the quality and quantity of wetlands to be exchanged for wetlands permanently destroyed or disabled by mining processes.	WET04
Sender Name (Submission ID)	Lynne Markus (54810)	
18346	I am especially concerned that the state is considering a land trade of lowland coniferous forest for lesser value coniferous swamp forest which is not an even trade and therefore, not in the best interest of the public.	LAN03
Sender Name (Submission ID)	M Negus (47383)	
10188	[EIS] does not go into the detail necessary to answer critical questions of sulfide run-off and potential long term effects on the aquatic environment (wild rice, invertebrate, fish and wildlife).	VEG04, WI01
10190	At the very least this company under the supervision of the MNDNR needs answer the critical and unanswered questions on sulfide mining and potential for sulfide runoff posed by the chemical and ecological experts.	WR115
10196	[EIS] needs to expand on the contingency plans which are vague in the EIS, should an unforeseen event such as a train derailment, extreme precipitation event, or explosion occurs.	PD22, PD36
10198	Details need to be shared with the public on what process and how much funding will be set aside to address the long term clean up after this main development occurs and the mine is no longer operating and the company has either been sold, dismantled or gone into bankruptcy.	FIN01
10199	Allowing the Poly-met mine with only the information provided in the EIS appears to be another example of short sighted gains vs long term detrimental consequences. I hope you look out for future generations, not just the short term job gains that will only last 15-20 years at the most.	SO01
Sender Name (Submission ID)	M.T. Mason (43081)	
15334	We should not trade the unpredictable economic viability of copper/nickel mining for our current tourism trade which is based on Minnesota's water-economy.	SO02
Sender Name (Submission ID)	Mac Meade (39336)	
12806	As protectors of all Minnesota resources, we should wait until we are as close to 100% sure as we can be that the operation will cause no environmental harm. Technology will catch up to this, and there will be cost-effective mining techniques that will provide proven safeguards. If we demand absolute proof, the value of the resource and potential for profit will drive the research and technology until absolute proof is achieved.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mac Meade (39336)	
12815	As protectors of all Minnesota resources, we should wait until we are as close to 100% sure as we can be that the operation will cause no environmental harm. Technology will catch up to this, and there will be cost-effective mining techniques that will provide proven safeguards.	SO10
Sender Name (Submission ID)	Maddy Greeley (54184)	
16852	Your killing the fish because of the pollutes H2O with sulfuric acid (PH).	AQ08
16853	Your taking away fishing and tourism when will make it lose money.	SO02
17638	[PolyMet] is going to build this mine then get what you want in 200um years then leave a huge environmental problem.	SO02
Sender Name (Submission ID)	Madeline Baird (21507)	
1475	Water quality in MN is too important to take a risk [with the NorthMet Project].	WR111, WR195
1478	Environmentally Unsatisfactory (EU) indicates that our review has identified adverse environmental impacts that are of sufficient magnitude that the EPA believes the proposed action must not proceed.Why ask for a study to just ignore it?	NEPA15
Sender Name (Submission ID)	Madeline Gardner (57982)	
19879	This project will pollute our valuable water resources & cause hundreds of yrs of cleanup. The risk is not worth it.	SO01
Sender Name (Submission ID)	Madeline Seveland (9799)	
12978	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Madelyn (47657)	
7734	[This area's] degradation is not worth the benefits this project proposes.	SO01
15878	I will not stand for the destruction of an environment that means so much to me, my family, and many other Minnesotans. This land has been the backdrop of countless family vacations and memories for me. Its degradation is not worth the benefits this project proposes.	SO01
Sender Name (Submission ID)	Madelyn Larsin (43069)	
15417	The Boundary Waters of Minnesota is a treasured part of our state. Part of its value lies in the beauty of its untouched nature. I will not stand for the destruction of an environment that means so much to me, my family, and many other Minnesotans. This land has been the backdrop of countless family vacations and memories for me. Its degradation is not worth the benefits this project proposes.	WILD02
Sender Name (Submission ID)	Madison Kolbow (15240)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Madison Kolbow (15240)	
1205	If Polymet starts mining in northern Minnesota there are many potential threats to humans, fish, birds, and wetlands. ... Overall, mining in this area could have a very drastic effect on wildlife, animal habitat, and human health.	GEN03
1206	Mining by-products like arsenic, manganese, and thallium have been shown to increase the risk of cancer to humans.	AIR10
1207	Mining is done below the water table, so it is easy for groundwater to become polluted. When groundwater becomes polluted it can lead to drinking water also being contaminated.	WR041
1208	the recovery process will take a long time. If mining takes place the process to recover the land and water could take decades.	PD03
1209	If the land gets disturbed PolyMet plans to re-seed with native plant species, where they could, but some non-native species may be used.	VEG05
1210	A popular travel destination, The Boundary Waters,...could be affected by Polymet mining. The Boundary Waters are very close to where the mining could potentially take place. … Mining in this area could ruin the place that families and friends have gathered to enjoy for years.	WILD02
1211	Since the mines would be so close to this travel destination water pollution would be a huge threat to the Boundary Waters.	WR111
1817	Overall, mining in this area could have a very drastic effect on wildlife, animal habitat, and human health.	HU03, WI01, WI02
Sender Name (Submission ID)	Maggie Nelson (47988)	
17347	Further more after inflation of 500 years, the money put aside would not be enough to cover the cost of the regulation and clean up for that period of time.	FIN08
Sender Name (Submission ID)	Magree Melvyn (15288)	
421	Compare this with PolyMet's assets of $93,215,000 and liabilities of $136,920,000. … Will they have the means to pay for any damages they might cause? How long will it be before they have sufficient revenue to balance the books? How would $132,000 or even $93,215,000 provide for cleanup after the mine was closed up, even for a year much less 200 to 500 years?	WR037
Sender Name (Submission ID)	Mahyar Sorour (54542)	
19176	It pains me to see such a beautiful place destroyed by greed and pollution. Please help preserve this peaceful and captivating land of nature! Creating more jobs isn’t worth destroying the land, please save it!	LU04
Sender Name (Submission ID)	Maija Schaefer (14071)	
145	I feel that the Supplemental Draft Environmental Impact Statement(SDEIS) lacks vital information about long-term water treatment, and how this treatment will be funded.	WR035, WR128, WR143
146	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
Sender Name (Submission ID)	Maja Black (45921)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Maja Black (45921)	
10326	if we look back to the SDEIS, we can find beyond a reasonable doubt cause to postpone the mine. It is one thing to trust the DNR to identify the potential impacts of the mine, it is another thing to trust the DNR to interpret this information adequately, in a way that keeps us, as the residents and caretakers of this land, safe.	NEPA08
10331	Those who are speaking in defense of the Boundary Waters are not only concerned about the aesthetic beauty of a wilderness area. If the toxic water projected to be treated for upwards of 500 years were to be released in an accident, it not only would destroy the Boundary Waters, but it would destroy the watershed that we all rely on to have good, clean water. In the coming years, having potable water is going to become a more expensive problem, and the resource that the lakes of Minnesota provide is invaluable to protect.	WILD02
10334	…the wilderness of the Boundary Waters has helped to create an entire economy based upon eco-tourism and the people who visit Northern Minnesota every year in search for a wilderness experience. If that wilderness were to be contaminated, who would come to visit it and support the businesses that exist on tourist profits?	SO02
10338	the SDEIS states some very scary predictions….wouldn't it be safer and more beneficial to wait until we have a foolproof method of extracting the material without endangering our watershed?... I don't believe that the intended procedures of this mine are safe.	PD32, WR195
Sender Name (Submission ID)	Malcolm McCutcheon (7682)	
817	Chancing a long term contamination of Lake Superior, the largest fresh water source in the country for a 20 year mining project seems illogical. Because of its size and volume the Lake cannot cleanse itself of contamination the way shallower Great Lakes can.	WR111
Sender Name (Submission ID)	Mandy Marshall (42551)	
6870	I DO NOT support the mining project. It seems it will disrupt the wildlife (those whose species are threatened and not) & possible watersheds more that it could benefit with temporary jobs. If (like 75% of other companies) water control fails, it could cost the wildlife and taxpayers greatly to try and fix the issue.	FIN01, SO01, WI01
Sender Name (Submission ID)	Mao Vang (54232)	
16805	The environmental Impact Statement also should that there are high levels of toxic in the water after the mining. That'll stay for about 500 years and will cost billions of dollars to clean up and which is impossible because when sulfuric acid gest into the water it can't be removed. So it'll just keep flowing down the streams and lakes. Which will kill off many species of plants and animals.	WR001, WR113
16806	the map that was done that [shows] the drainage at the mining not affecting other lakes and streams in the marsh. From this view, people would mine in okay. But it actually not because the map is wrong which can fool more who don't know the natural lakes.	PD38
Sender Name (Submission ID)	Mao Vue (54233)	
16808	The map in the environmental impact statement is wrong. PolyMet people drew maps of the one hundred mile swamp; their map compared with the U.S. National Atlas shows that the PolyMet has left out half of the swamp. They are immorally lying just to get jobs and it is affecting the BWCA in a very negative way.	PD38

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mao Vue (54233)	
16809	The BWCA is left unprotected from acid mine drainage. A place with water so pure like the BWCA being polluted would be very sad and I don't want that to happen because once it is polluted it'll be impossible to recover. In order to protect the BWCA I'll need your help. Possible solutions to fix this issue are: correct the maps that PolyMet has created, test the water in Langley Creek to make sure there's no pollution seeping through the swamp.	WR080, WR081, WR111
Sender Name (Submission ID)	Marc Fink (18321)	
4125	… Minnesota law requires that mines leave an area maintenance free at the time of closure. The PolyMet Mine, however, mechanical water treatment would be needed for more than 200 years at the mine site and over 500 years at the plant site, which would be in violation of state law.	PER04
4126	The Clean Water Act does not allow permits to be issued where a discharge can cause or contribute to water quality violations. The areas downstream of the proposed site are already in violation of water quality standards; and, therefore, no more pollution can be allowed.	PER09
4127	The Clean Water Act sets forth a pretty straightforward program where you first clean up existing pollution before you can allow further pollution. And up there there is already mercury and sulfate pollution.	PER09
4129	Under the National Environmental Policy Act agencies are required to look at the cumulative impacts of the projects. As we all know, there's a lot of mining projects up there that have already had significant impacts on the area and downstream into the St. Louis River Watershed. I believe the limited impact analysis under NEPA needs to include the St. Louis Watershed to encompass all this pollution.	CU01
12826	Unfortunately the EIS is completely silent as to how PolyMet would fund the hundreds of years of mitigation repair and maintenance for the hundreds of years of pollution control.	FIN05, FIN11
12827	The National Environmental Policy Act Limited Impact Analysis for Moose completely does not mention the species whatsoever. That's a glaring defect in the analysis. Research shows moose are declining dramatically across the state and yet they are not even mentioned.	WI01
Sender Name (Submission ID)	Marc McLennan (57623)	
19376	We need Polymet to get the mining industry back where it used to be.	GEN02
Sender Name (Submission ID)	Marci Hoff (47066)	
11183	We believe that the PolyMet project could destroy or severely damage irreplaceable wetlands in the St. Louis River watershed.	WET24
11184	The fish habitat, natural wild rice, and tribal resources are threatened by PolyMet.	VEG04
11186	We are very concerned that this project would be harmful to drinking water supplies and put human health at risk due to increased arsenic and other contaminants. ...The pollution and need for pollution treatment are major concerns...We are aware of the fact that sulfide mines located in water-rich environments, like Minnesota, have polluted surface or groundwater with acid drainage and/or toxic metals.	WR041, WR140, WR142
11187	We are very concerned that this project would be harmful to drinking water supplies and put human health at risk due to increased arsenic and other contaminants.	HU03
Sender Name (Submission ID)	Marco Good (42922)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Marco Good (42922)	
9601	Even if…sulfates and sulfides somehow do not mix with oxygen (as PolyMet's EIS contends they will magically be isolated from it in the surface waters and aquifers after they leave the tailings ponds through overflow or leakage through liners that inevitably leak) these sulfur bearing compounds will surely methylate mercury wherever they reside in wetlands, compounding the mercury poisoning our waterways and all the aquatic life that lives in our watershed downstream from the proposed site.	AQ12, AQ28
9602	PolyMet's promise to contain and treat with reverse osmosis the trillions of gallons of pure water they will contaminate (not may… nor could…) our surface waters and aquifers for thousands, not hundreds of years-- is nothing but a lie, like all the mining company lies that have gone before it.	WR035, WR128
9604	Like all mining companies before them… PolyMet will not honor their obligation to do anything past the date they close their operations and declare bankruptcy, as they have always done.	FIN01
9612	There is no way to ever clean up or remediate disasters like this, and if our government permits them, they will have only themselves to blame for accepting the bribes these conglomerates have given them, whether they come under the table, or with the complicity of the "Citizens United" decision by the Roberts Court, in the form of "PAC contributions".	NEPA18
9614	the Treaties our forebears made with the original human beings of this beautiful bountiful State are promises we ought to keep, which we have never done. It is illegal, unlawful, and immoral to further deny Anishinabe ("Ojibwa") and Dakota ("Sioux") people their rights to hunt and gather unpolluted fish, wildlife, medicinal plants, and Manoomin ("wild rice") in the ceded territories, a denial and an abrogation of those treaties which antedate and supersede all subsequent legal and local manipulations of the legislature (who seems only to regard the corporate agenda) which such mining will surely accelerate.	PER08
9618	Dear officials of the DNR, I ask only that you re-examine your mission statement which says to Protect, Conserve, Manage and Regulate, NOT to exploit or advocate for the institution of extractive resource colonies by multinational corporations. I ask that you consider the value of resources we have and enjoy, the living, breathing Land, Water, and Air, which are too limited to consider ruining them forever for short term profit	NEPA15
Sender Name (Submission ID)	Marcus Imes (40098)	
6459	I know the Iron range needs jobs, but this project will only provide jobs for around 20 years and will leave us with cleanup for centuries.	SO01
6460	Polymet has a decent plan for containing the acidic and heavy metal waste, but few things in life go perfectly to plan... my concern about the mitigation plan; if any little thing goes wrong, a lot of toxic water or slurry will be released into a nearly pristine watershed, which is irreversible. I believe the cleanup plan calls for 200-400 years of water treatment.	WR132
6461	I encourage the DNR to deny the permit, or get a very very substantial up front payment to ensure the future health of our environment (a larger payment than currently proposed).	FIN08
Sender Name (Submission ID)	Maren Anderson (41275)	
9313	There are not enough jobs that will be created to validate the absolute destruction of our natural resources.	SO01
Sender Name (Submission ID)	Margaret (18125)	
3430	Mining brings economic opportunity to places like the Arrowhead, Hoyt Lakes. The opportunities for a quality of life here that is too often only available in the largest cities. (Inaudible) tremendous opportunity to create high quality employment for people living a high quality of life here.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Margaret (18125)	
13505	(Inaudible) after the professional and public review of the PolyMet EIS through this process I am a confident state and federal agencies (inaudible) and confident because I know our agencies carry out regulatory responsibilities competently and thoroughly and with the highest integrity.	NEPA16
Sender Name (Submission ID)	Margaret a. Gillen (39916)	
14293	I have lived in the Twin Cities for 23 years and I love the beautiful lakes, trees, wildlife, and clean air. My family has camped in the Boundary Waters and experienced its beauty and peacefulness. We cannot afford to have this resource polluted by mining companies who lamely promote job growth but are really counting profits.	WILD02
Sender Name (Submission ID)	Margaret A. Redmond (39221)	
6046	There are several issues in the SDEIS that leave me very concerned regarding its basic usefulness as a tool to even assess the CURRENT status of the areas to be mined and to be utilized for waste rock disposal and for treatment ponds. Those insufficiences lead me to real disbelief about its valid use as a predictive instrument for future conditions once mining actually begins.	PD01
6047	C. Although the DNR (in its other divisions, eg Forestry) does acknowledge the reality of climate change, this SDEIS and the models it is built on barely acknowledge any possible impacts. Clearly, there ARE some climate change impacts which would need advance contingency planning to avoid environmental contamination.	AIR01
6050	D. Previous mining in Minnesota–ie, taconite–has had to take measures to protect the population from harmful fibers released in mining and milling. Specifically, asbestiform minerals are found in some of the rock bodies. There is not much discussion of this potential hazard.	HU01
6071	The Water Quality modeling for the mine area is NOT based on the actual MEASURED flows in the Partridge River. Flows measured by the DNR exist, but the model vastly understates (underestimates) the amount coming in as groundwater… Yet, there is no data presented (and to our knowledge, very little was collected) during the 3 years between EIS's. Why not? The need for data could not have come as a surprise. Why should the SDEIS model be taken seriously if the data needed was not collected?	PD29
6073	The largest extreme rainfall event provided for in the model is 4.1-5.2 inches (25 year & 100 year probability events)... What difference would a real-world event of between 6-10 inches make for the contingency plans?...with 3 more years of global and regional climate observations, modeling, and statistics available–the failure to address drought impacts on a sensitive and water-dependent system for mitigating pollution flow stocks is utterly inexplicable.	PD29
6076	…there remain unanswered questions about air quality issues–ie, the content of the rock and and tailings dust that will result from mining, milling, and chemical treatment to extract the ore.	AIR10
6084	The permitting process should be able to proceed from an SDEIS that will give the agencies charged with protecting Minnesota's air, land, and water resources a scientific and legal position of comprehensiveness and strength.	PER34
6085	And, if harm occurs which was ignored in the SDEIS–or was much greater than the sketchy contingency plans could mitigate, we could be looking at legal battles and expenses beyond belief–especially considering the monumental financial resources of PolyMet's major foreign investor, Glencore Xstrata.	PER03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Margaret A. Redmond (39221)	
13756	The underlying science is supposed to be the basis for mitigation efforts for mining impacts and for contingency planning for a range of complicating (and foreseeable) situations that might arise. When the science, modeling, and serious degree of omitted factors is at the substandard level of this SDEIS report, a decision to allow mining to take place can become a very grim forecast for serious resultant environmental and/or health problems. Further analysis of several issues is essential to be able to avoid them or plan for realistic and effective solutions.	NEPA09
13759	C. Time Span for Treatment. The plans for the mitigation/amelioration measures required to run for 200-500 years are simply not credible. What history is there of pollution containment on this scale for even 100 years? What kind of funds would have to be in reserve to even handle a 50-year "insurance" against the citizens of Minnesota picking up the tab for an extractive industry that digs & runs? Or digs and declares bankruptcy?	FIN01
13760	I also assume that any finding from a regulatory agency which would require changes in operations or temporary shutdowns would immediately be met by an attempt by the mine to get a court-issued injunction blocking those consequences, and whatever violation would continue while bureaucracies haggle it out. Such an ongoing event would have potential to produce major damage to the surrounding environment. Does anyone really believe that the mine would cease operations to fix a problem?	PER06
13761	Mining jobs, while welcome, cannot come at the expense of the environment in Northern Minnesota. The point is not to degrade nor sacrifice the environmental qualities that fuel the more lucrative tourist industry. If credible protections to reduce or eliminate the risk to the resource (ie, the water, air, land, and natural beauty) cannot be assured–guaranteed, even–then everybody (except for PolyMet and its foreign investors) loses.	SO01
13762	G. Setting a Precedent. Because, as we all know, the PolyMet application is only the first of many coming applications for mining permits, this application (and of course the EIS supporting it) have to be exemplary. Any sloppiness or overlooked or weakly planned items/issues/studies in this application (and EIS and permitting process) will, obviously, set a precedent.	PER07
13763	Legal challenges are already mounting to the sulfate limits that are in place to protect Minnesota's wild rice. Basing permitting on this inadequate EIS will most certainly embroil Minnesota agencies in unprecedented levels of litigation and acrimony.	PER10
Sender Name (Submission ID)	Margaret Ann Nelson (47080)	
11215	This is way too dangerous, with way too many unknowns, for our state to risk the future health of our lands for relatively short-term gain. Many more jobs would eventually be lost as we lose the wilderness we are so fortunate to be the stewards of.	SO01
Sender Name (Submission ID)	Margaret Bujold (42762)	
14516	The PolyMet SDEIS...doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells	HU04, WR041
14517	The PolyMet SDEIS...doesn't explore alternatives that could reduce PolyMet's destruction of wetlands.	WET20
14518	The PolyMet SDEIS...doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish.	AQ28
14519	PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity."	PD01
Sender Name (Submission ID)	Margaret Fait (43598)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Margaret Fait (43598)	
15110	Environmental potential disaster and Ethically corrupt	GEN01
Sender Name (Submission ID)	Margaret Haapoja (7767)	
79	Our precious northwoods and BWCA are too valuable to risk no matter how many jobs this company promises.	SO01
858	We don't want our pure water polluted. If the PolyMet process is safe, why can't they prove it by building a pilot plant that will show everyone they can safely mine these metals?	ALT06
Sender Name (Submission ID)	Margaret Hayden (54913)	
19315	A few years of monetary profit for some stacked against hundreds of years of large scale destruction for all does not balance. There is no evidence or information that substantiates sulfide mining is a moral choice.	SO01
Sender Name (Submission ID)	Margaret Jewell (42539)	
15593	We need the copper & nickel and we need jobs. Tell the environmentalists to put their $'s in a fund called technology instead of giving it to the lawyers. Their $'s will help buy the fix. Put the problem out to the country and pay the kids who come up with the answer.	SO10
Sender Name (Submission ID)	Margaret Jo Anderson (54885)	
18782	…PolyMet has not provided enough assurances to the public for the long term environmental damages that will incur from their mining operations.	FIN01
18784	[PolyMet gets] the minerals in trade for 15-20 years worth of jobs (for a finite # of people); the citizens of Minnesota are ultimately left with the cleanup of the waters and land for hundreds of years. Not a balanced equation!	SO01
Sender Name (Submission ID)	Margaret Kirtley-Sternberg (10380)	
516	Given the track record of the mining industry, there is no reason to believe this mining will be accomplished without destroying water quality, even if the technology exists to do so.	WR195
Sender Name (Submission ID)	Margaret Nelson (30186)	
10989	Allowing PolyMet Mining to pollute Lake Superior, the upper lake in the Great Lakes flow, would mean severe degradation of water quality, with consequent threats to human health all along the watershed.	HU03
Sender Name (Submission ID)	Margaret O'Loughlin (3472)	
652	the toxic and lasting effects of water pollution	WR001, WR115
653	the absence of long range planning for inevitable accidents and system failures	PD22
656	the tax burden	FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Margaret Sears (40980)	
6655	I care deeply about the condition of waters in every single state that our birds use; whether they live in or are migrating through, Minnesota. I feel that this project is just going to be a slow death for all birds.	WI01
Sender Name (Submission ID)	margaret sorensen (11926)	
13615	The DNR should be committed to protecting our natural resources. Whatis more anatural resource than water?	GEN01
Sender Name (Submission ID)	Margaret Thilmany (16104)	
9658	I, like many, would like to see the wonderful job opportunities come to northern Minnesota, however not at the expense of long-term devastation of our beautiful wilderness, especially the surface and underground water supply.	SO01
Sender Name (Submission ID)	Margaret Wilcox Browning (54901)	
19219	I would like to know how PolyMet is addressing the problem of our already diminishing moose population. How will the large expanse of land being mined effect the moose population in Minnesota?	WI01
Sender Name (Submission ID)	Marge Danielson (40827)	
14000	Look at the issue for the LONG TERM. We will need water in the future more than we need jobs now.	SO01
Sender Name (Submission ID)	Margi Preus (41128)	
9770	Active water treatment needed for a minimum of five hundred years. Who is going to keep up with that? Who is going to pay for it?	FIN01, WR128
9776	The mine plan doesn't explain what will happen if the water treatment plants break down. What happens if there are failures in any area of the process? What about accidents, mishaps, unforeseen weather events (like the flood in Duluth in 2012?	WR144, WR202
9782	With a devastated watershed and environment in an area that relies largely on tourism, how many jobs will be lost? Will those who lose their jobs because of the loss of tourism be given jobs doing the clean up? Who will be paying for that? Who is going to pay for any clean up?	FIN01
14210	The likely leaching of this highly toxic sulfur into the surrounding lakes and streams would severely damage the ecology of our area. Elevated sulfur levels would decimate fish populations and reduce or eliminate other aquatic species.	AQ12
14211	The EIS states a need to monitor and repair the holding ponds for at least 500 years! Clearly, no current corporation will likely be around 500 years from now Even the posting of bonds or setting up trust accounts would be unlikely to stop the dispersing of this very toxic pollutant.	FIN01, FIN08
18501	Five hundred years? Active water treatment will be needed for a minimum of five hundred years? Who is going to keep up with that? Who is going to pay for it?	FIN01
18503	Even with treatment, polluted seepage from the tailings will leach into the ground water and our precious watershed. I understand that we are talking about millions of gallons of untreated, polluted seepage draining into our ground water, our streams and lakes. This is wildly unacceptable.	WR070, WR108

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Margi Preus (41128)	
18504	The mine plan doesn't explain what will happen if the water treatment plants break down. What happens if there are failures in any area of the process? What about accidents, mishaps, unforeseen weather events (like the flood in Duluth in 2012) which seem to happen more and more frequently around the world?	PD22, WR131
18505	There is a concern about jobs in the area, and I appreciate that people want to work. But if we think ahead to what could (and seems likely to) happen in the coming years, with a devastated watershed and environment in an area that relies largely on tourism, how many jobs will be lost? In the case of polluted and defiled waterways, many, many more jobs will be lost than we ever gained from this mine.	SO06
18506	Who is going to pay for the clean up? I fear our children and grandchildren and many generations after that will pay for it, with both their money and their health.	FIN01, FIN10
Sender Name (Submission ID)	Margie Ritter (9416)	
171	Instead I see this as an opportunity to show the world that this substance can be safely mined, that it will be a world-class model for environmental compliance and will provide increased technological breakthroughs for the future generations.	PD28
Sender Name (Submission ID)	Margit Johnson (21439)	
1241	The land exchange circumvents federal law that protects national forests and watersheds therein.	LAN02
1243	PolyMet’s proposal includes clean-up and monitoring for hundreds of years, which defies logic, financial responsibility and good stewardship	FIN08, FIN11
1244	Yes, we need more copper and other valuable metals. But Minnesota ranks quite low on a national scale of valuable metal reserves. Much larger copper mines elsewhere currently produce and will continue to produce much more product than this mine will ever yield in its 20-30 year life span	NEPA15
1245	Air emissions and water effluent from such a project would include sulfates and asbestos-like materials that will seep or stray far from the proposed project site and have long-lasting consequences…[impacting] not only the flora and fauna of the entire area, but also the employees, their families and other residents and visitors to this precious part of our state.	AIR03
1432	The impact of the mining operation on surface and ground waters … will be significant.	WR115
1433	[The impact of the mining operation on]… wildlife, … and sensitive habitats will be significant.	WI01, WI02
1434	[The impact of the mining operation on] … air quality … will be significant.	AIR11
Sender Name (Submission ID)	Margot Monson (18208)	
4067	Section 404 of the Clean Water Act and the Wetland Conservation Act … states that, "There shall be no net loss in quality, quantity or biological diversity in Minnesota's existing wetlands." The supplemental EIS states that in addition to a 912 wetland acres destroyed directly at the PolyMet NorthMet site, there will be an additional 7,000-some acres destroyed indirectly from the effects of air and water pollution.	WET24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Margot Monson (18208)	
4068	…any wetland compensation should occur within the same watershed and include the St. Louis River watershed at the Lake Superior Basin. According to Chapter 5 in the Supplemental EIS, 68 percent of the wetland replacement areas are outside the Lake Superior Basin, 72 percent of the credits are off. The Supplemental EIS only commits to replacement of 26.9 acres out of the over 7,000 acres. These losses will mean that the very serious destruction of peatlands found in this ecosystem, and these take hundreds, thousands of years, sometimes, to develop.	WET03
4073	…as scientists responsible for making these decisions to ask, to the future of our variable wetlands, how can you in good conscience allow the destruction of thousands of wetlands knowing they are truly irreplaceable? If this kind of destruction is permitted, it will be not based on real science, but wishful thinking	WET24
11481	The BWCA and Lake Superior watersheds attract thousands of visitors…every year, …and provide valuable economic resources to northern communities. The destruction that this mining will bring will certainly mean fewer people attracted to this region, and 20 years of jobs, is a poor excuse for permanent loss of such valuable wilderness	SO02
11486	My other concerns involve the potential impacts on healthy stands of wild rice growing in the St. Louis River that will eventually be reached by the tributaries containing the sulfuric acid drainage…What assures me or the Native Americans that there will be adequate protection for the remaining stands of wild rice still growing in these rivers?	VEG04, WR156
11488	If the idea that perpetual treatment of water contaminated by the sulfuric acid produced by the mining processes may be necessary for centuries is not outrageous enough to stop you dead in your tracks and cause you to reject it, the very fact that the financial assurances will not be stated publicly until the permitting process begins is disingenuous and an insult to Minnesotans.	FIN13
11489	I am most disturbed by the inevitable loss of wetlands, so critical to the function of aquatic ecosystems…The fact that the pan calls for the "replacement" of the destroyed wetlands with land far removed and in different counties, much apparently in previously drained and farmed land, is ludicrous from a scientific perspective.	WET03
13441	In order for an agency to determine wetlands to use for replacement, they must have data that documents the biodiversity of these lands, and having done wetlands research, I know that Minnesota does not have any comprehensive inventories of such diversity	WET06
15449	The Wetland Conservation Act states that there be "no net loss in quantity, quality and biological diversity" for the land chosed to replace the destroyed wetlands. Where are the biological inventories of all the critical species of wetland plants, animals, fungi, etc. that would have to be used to determine equal biological diversity? …Just because our agencies may be able to legally get by with such artificial wetland replacements; does not mean that it is the ethical or right thing to do.	COE01
19057	If the idea that perpetual treatment of water contaminated by the sulfuric acid produced by the mining processes may be necessary for centuries is not outrageous enough to stop you dead in your tracks and cause you to veto it,	WR195
19059	the very fact that the financial assurances will not be stated publicly until thepermitting process begins is disingenuous and an insult to Minnesotans.	FIN13
19060	The fact that 80% of sulfide mining operations in the U.S. have closed with massive environmental degradation, all have left water pollution behind, and some filed for bankruptcy leaving taxpayers to foot the bill.	SO01
19062	For these reasons and that PolyMet has never operated a sulfide mine, is owned by foreign companies, and Glencore has horrific environmental and financial track records in foreign countries, should be more than enoughevidence for Minnesotans to reject this type of mining and this company at the outset.	PER02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Margot Monson (18208)	
19065	How in the world as a scientist can you accept and approve of any activities that result in the permanent destruction of thousands of acres of valuable and irreplaceable wetlands? … You know as well as I do that even if the natural waters enter the land again it will be hundreds of years before it functions as it originally evolved, nor will it be the same in quality and biodiversity as the destroyed wetlands. There may be a plan to increase the acreage of the "replaced" land, but increasing it does not justify it because it is different land in a different habitat ecologically, and is an insulting mollification.	WET05
19074	Where are the biological inventories of all the critical species of wetland plants, animals, fungi, that would have to be used to determine equal biologicaldiversity? … There is no way to judge the biodiversity of wetland organisms well enough to state that two regions are equal, without extensive detailed analyses by qualified biologists.	AQ01
19079	My other concerns involve the potential impacts of healthy stands of wild rice growing in the St. Louis River that will eventually be reached by the tributaries containing the sulfuric acid drainage. There have previously been many miles of wild rice destroyed in the St. Louis River by ferrous/taconite mine drainage and somehow, no one has taken responsibility for this. What assures me or the Native Americans that there will be adequate protection for the wild rice still growing in these rivers? At least our legal system and recent research has protected and affirmed the 10mg/L sulfate standards that are currently in place.	VEG04, WR159, WR162
19082	The destruction that this mining will bring will certainly mean fewer people attracted to this region, and 20 years of jobs, is a poor excuse for permanent loss of such valuable wilderness.	WILD02
Sender Name (Submission ID)	Maria E. May (45714)	
13059	The number of jobs temporarily created are not enough to justify ruining the watershed, one of our most vital and irreplaceable resources.	SO01
16355	Foreign mining interests and big money should not determine how we manage public land in Minnesota.	NEPA15
16356	There's no amount of compensation that would be enough for the kind of damage this kind of mining could cause.	FIN05
16357	The SDEIS report released to the public failed to report accurately on the inadequacy of collection pumps to catch all or most of surface and ground water waste,.	WR017, WR018
16358	The same report made no mention of the geologic fractures under the tailings basin itself.	WR012
Sender Name (Submission ID)	Maria Freund (38376)	
9595	I am not in favor of a plan that would: Elevate aluminum and lead levels in our water	WR064
9597	I recognize that implementing the proposed plan would create jobs and positively impact the greater Minnesota economy; however, I believe that PolyMet can produce a better project plan for this mining initiative, one that involves less environmental damage/risk, does not threaten our state's defining clean fresh water characteristic, and does not require 500 years of water treatment post-mining operations.	PD01
Sender Name (Submission ID)	Maria M. Pierz (45525)	
11516	The impact will endanger the aquatic plants, fish, vegetation, and wildlife	VEG01, WI01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Maria M. Pierz (45525)	
11520	Water Quality is certainly an issue for continuation of legal rights to the Native Americans	WR156
15759	Water Quality is certainly an issue for continuation of legal rights to the Native Americans in the area especially concerning hunting, fishing and wild ricing, in accordance with the Treaty of 1854.	CR01
15761	90% of the area mined will only bring 10% of the copper, and the rest is sulfide and other dangerous minerals (i.e. mercury).	MERC01
15762	Over the years there can be a cummulative effect on the surrounding waters and habitats. Reclaiming the area will be impossible even over the 500 year plan.	CU11
15765	By 2040, the 350 jobs that are gained in the short run will be gone for future generations. Money matters, but the focus should be on the long term and not be part of short term gains.	SO01
Sender Name (Submission ID)	Marian Gordin (13628)	
8017	Please choose clean water and a healthy environment for all of us by denying PolyMet's proposal to mine sulfide ore at the headwaters of the St. Louis River, which will damage the watershed all the way to Lake Superior.	WR111
8018	This operation will destroy wetlands directly and contaminate air, water, and soil over a large area.	WET24
Sender Name (Submission ID)	Marian Puglisi (54145)	
16040	[The SDEIS] fails to define the human health oeffects of increased mercury emissions, exposure to asbesdos-like mineral fibers and arsenic.	HU01
Sender Name (Submission ID)	Marian Van Dellen (14580)	
13744	We need clean water much more than we need minerals	NEPA06
Sender Name (Submission ID)	Marie Beckner (35908)	
11293	I am so sad to hear that you are now taking steps that will risk and possibly spoil the natural beauty of this exotic and beautiful place. It is irreplaceable. … All of the surrounding regions were also beautiful and fragile so that I was thankful that they were relatively isolated. This is a part of our world that needs protection.	LU04
Sender Name (Submission ID)	Marie Leven (36145)	
11299	our Great Lakes are polluted enough as it is and there is a warning about eating any fish caught there already. A lotos us get our drinking water from the Great Lakes so what is your plan when we can no longer drink the water?	AQ05
Sender Name (Submission ID)	Marilyn Andersen (46203)	
8298	open pit operations that permanently scar the earth and destroy our forests and habitat.	VEG03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Marilyn Andersen (46203)	
8299	acid run-off--which can't be assured for 500 years, no matter what price.	FIN01
8300	habitat destruction for native plants and animals	VEG02, WI02
8303	pollution, such as sulfates in our wetlands, which become toxic to plants and animals, and production of mercury methylate, which further poisons aquatic life	VEG06, WET24, WI04
8304	further infringement of Indian rights on legally ceded territories, including hunting and ricing activities	CR01
8306	"streamlining" public processes such as hearings, etc. to make it easier for wealthy corporations to pull off huge projects such as this without having to deal with public opinion.	NEPA11
Sender Name (Submission ID)	Marilyn Berling (27169)	
15267	We wonder why you would ever consider an open pit sulfide mine on National Forests Land. Doesn't this land belong to all of us? Aren't you the people who are responsible for protecting our interest? Allowing a multinational corporation access to make a profit on "our" forest land is not in our best interest as it seriously negatively effects the environment, particularly the wilderness areas and Lake Superior.	LU01
Sender Name (Submission ID)	Marilyn J Benson (54569)	
18969	…let’s not trade clean water in perpetuity for 300+ jobs—for 20 years	SO01
Sender Name (Submission ID)	Marilyn Magnuson (16163)	
11208	STUDIES never really come back with the full disclosure that one in good faith hopes for. We could site locations as well as citizens that were given assurance upfront, only later to be apologized to because "mistakes" were made.	PD01
Sender Name (Submission ID)	Marilyn Rahn (41712)	
14095	My hope is that we err on the side of caution whenever it comes to the environment. We need to demand high standards for mining to protect our water.	PER03
Sender Name (Submission ID)	Marjorie Pitz (11328)	
806	All in all, the concept of creating a sealed basin sounds appealing, but there will always be seams and wrinkles, improper applications, and weather struggles, and a perfect seal is not possible. Nor is a sealed basin's life span going to be long enough to deal with the toxin life above.	PD17
Sender Name (Submission ID)	Marjorie Savage (18905)	
1252	I have a strong and personal interest in sustaining water quality and preserving the natural environment along the river.	WR195
1253	I have a strong and personal interest in sustaining water quality and preserving the natural environment along the river.	WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Marjorie Savage (18905)	
14729	Please increase the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS). I would like time to review and consider this plan, but the length of the document requires more than 90 days for the average citizen to read this complex plan.	NEPA07
14730	Please increase the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS). I would like time to review and consider this plan, but the length of the document requires more than 90 days for the average citizen to read this complex plan.	NEPA07
Sender Name (Submission ID)	Mark (20826)	
1833	I do not believe that PolyMet is capitalized to the point that if groundwater contamination happened, they would be able to provide long term protection to the citizens of MN.	FIN01
16204	Fresh water is a valuable resource in and of itself, much more than nonferrous metals in MN. The risk of environmental damage is great, the likelihood that PolyMet will not be able to adequately address the issue is also great	WR115, WR195
16205	…any amount of money that is required to be set aside must be indexed for inflation, so $100M determined to be sufficient today will grow as the costs for the eventual clean up grow. This amount must be revised on an annual basis with the State on MN holding the money in escrow.	FIN05, FIN08
Sender Name (Submission ID)	Mark A. Kaprelian (47622)	
7512	Polymet has no demonstrable capacity to establish or sustain a viable mining operation.	PER02
7548	[T]he Co-lead Agencies appear to assume that Polymet will continue as a going concern at least for decades and perhaps much longer, without incorporating the substantial possibility and potential consequences should the business fail much earlier. Such a premature failure...should be considered explicitly in the SDEIS.	FIN03
7571	[I]f Polymet fails to meet [financial assurance] requirements because it ceases operations due to business failure, an environmental accident or for some other reason, the financial assurance instruments then in place, if any, might be insufficient to cover the costs of reclamation...Potential sources and amounts of other funding should be identified should this contingency occur.	FIN01
Sender Name (Submission ID)	Mark A. Snidarich (43842)	
11856	I'm very familliar with, and have faith in, the proposed reverse osmosis water treatment technology and believe that if any further water treatment would become necessary that simple ozonation of discharged water in holding ponds would complete the process to comply with even the strictest water quality standards.	WR190
11859	We cannot afford to miss this job opportunity.	SO10
14946	The same ozonation technics [for water] hold true for air quallity.	AIR11
14947	Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands.	PER34
Sender Name (Submission ID)	Mark Anderson (45617)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mark Anderson (45617)	
11702	Every sulfide mine ever operated has polluted the water around it. There will be pollution. This is acknowledged in the EIS. Polymet claims it can control the amount of contamination. It cannot , however, control nature for 500 years. The massive rain event of 2012 should teach us even greater respect for nature.	PD26, WR023, WR180
11705	No amount of economic gain is worth the risk to perhaps Minnesota's greatest resource, clean water.	SO01
13393	Every sulfide mine ever operated has polluted the water around it. There will be pollution.	WR195
13394	Polymet claims it can control the amount of contamination. It cannot , however, control nature for 500 years. The massive rain event of 2012 should teach us even greater respect for nature.	PD22
13395	No amount of economic gain is worth the risk to perhaps Minnesota's greatest resource, clean water.	SO01
Sender Name (Submission ID)	Mark Arneson (44235)	
11311	Proposing the creation of a new environmental problem that demands treatment for so very long cannot rely on a high tech solution. There are too many things to go wrong, both things thought of and those not yet imagined. There needs to be a proven, effective low tech solution that will clean up the fallout of this mining operation.	PD32
14883	An extraordinary request to create an environmental problem for Minnesota to deal with into perpetuity requires an extraordinary demand - the mining and exposure of this acid producing rock is permitted only if it can be treated in a proven, low tech, fail safe manner without continual human input. The SDEIS needs to include this fail safe treatment option.	PD32
Sender Name (Submission ID)	Mark B (47108)	
11241	My greatest worries concern the long term harmful environment impacts that such mining will cause. These fears are due to the companies reported lack of experience in this type of mining and it’s troublesome history of implementing adequate environment protections.	PD23
11245	I’m suggesting waiting, hopefully until better pollution controls exist to ensure that these precious natural resources remain available for future generations.	PER35
Sender Name (Submission ID)	Mark Bakk (18210)	
13442	Whether it's wind energy, solar energy or battery storage, it takes precious metals mined from the earth to capture renewable energy and make it work. If we're opposed to taking these resources out of the ground to meet renewable energy mandates and expand alternative options, is the outcome truly clean or green.	NEPA05
13443	it morally acceptable to allow mining for precious metals elsewhere where we can't verify the environmental outcomes? … When we transfer this demand, it's like burying our heads in the sand. If you have a Smart Phone in your pocket right now --	NEPA05
Sender Name (Submission ID)	Mark Baldwin (42147)	
3282	This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin.	WR111, WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mark Bauerly (10752)	
607	I support the project 100%. I know that the mine be environmentally safe. It will have a huge positive economic impact on Minnesota and the U.S.	SO10
Sender Name (Submission ID)	Mark Brice (37026)	
15910	I believe that Polymet will provide immense economic benefits to the state of MN, especially the iron range region.	SO10
15911	However, Twin Cities residents have no right to impose unnecessary environmental restrictions to this project. Doing so only prevents financial benefits to families living on the iron range.	PER34
Sender Name (Submission ID)	Mark Brown (4785)	
1897	The very nature of bringing sulfide ore to the surface where it reacts with water and oxygen is very harmful to the surroundings. This action results in the formation of sulfuric acid and the leaching of harmful heavy metals and other harmful substances into the ground water and the surface water shed.	WR001
1898	Since close to 99% of the sulfide ore is considered waste and is left behind on the surface and is not hauled away to be used, that leaves a very huge amount of material on the surface to cause environmental issues for centuries to come.	PD01
1899	What will [watershed pollution] do to the fisheries in the two watersheds? Minor changes in the ph of the surface waters will disrupt reproduction.	AQ05, AQ08, WR113
1901	The environmental impact from iron mining is immensely less than that of sulfide mining. … We cannot live with the immense potential damage that sulfide mining can cause to the environment.	PD27
Sender Name (Submission ID)	Mark C Wihriala (11642)	
2336	I do not believe that the SDEIS is sufficient cumulative analysis of water quality impacts from PolyMet mining.	GEN01
2336	I do not believe that the SDEIS is sufficient cumulative analysis of water quality impacts from PolyMet mining.	GEN01
2337	The section 404 permit should be denied because PolyMet’s discharge would violate water quality standards, destroy animal and fish habitats, and threaten natural resources for centuries to come.	COE03
2337	The section 404 permit should be denied because PolyMet’s discharge would violate water quality standards, destroy animal and fish habitats, and threaten natural resources for centuries to come.	COE03
4264	But I do not believe that the SDEIS is a sufficient, cumulative assessment of the water quality impact from PolyMet Mining. I am requesting the state and Minnesota to deny the wetlands destruction permit, Section 404 Permit to be denied since PolyMet's discharge would violate water quality standards, destroy animal and fish habitat, and threaten national resources for centuries to come.	AQ26
8529	I am requesting that the State of Minnesota Public agencies reject the SDEIS as Inadequate and the Polymet Project as Environmentally HARMFUL!!	NEPA09
8529	I am requesting that the State of Minnesota Public agencies reject the SDEIS as Inadequate and the Polymet Project as Environmentally HARMFUL!!	NEPA09

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mark Calabria (16065)	
11037	How we could even consider approving this mine is beyond logic. Please do not allow it to be built as planned.	GEN01
Sender Name (Submission ID)	Mark Catron (39541)	
6338	[It is a bad idea to combine] the exposure and deposition of sulfide rock in a wet environment [with] a fragile watershed ... Leaching of acids for generations to come, hoping that technology will somehow prevail.	WR001, WR128
13537	Please don't sacrifice the priceless legacy of a pristine North Country for a few million in taxes and twenty years of jobs.	SO01
13538	our "partner" in this boondoggle, for the next several hundred years, is to be Glencore, one of the world's most notorious polluters ever. Why would we think this would end well?	FIN01
16780	This is a shockingly bad idea: combining the exposure and deposition of sulfide rock, in a wet environment, located in a fragile watershed, to cause leaching of acids for generations to come, hoping that technology will somehow prevail.	PD04
Sender Name (Submission ID)	Mark D Jackson (42538)	
15590	I am… a member of the Biwabik City Council and realize the effect PolyMet will have on our Economic Development in the city.	SO10
15591	I believe that more than enough time & money has been spent on EIS & it is time to go in the permitting phase so construction can begin.	PER34
Sender Name (Submission ID)	Mark D. Dickinson (43046)	
12210	I do not believe the "BENEFITS" outweigh the "COSTS". ...While there is copper-nickel, this is NOT the only valuable resource. As a citizen of Minnesota and user of the BWCA and other northern MN areas, I do not believe the "costs", to the environment and the tax payers for the 200 to 500 years after mine closure, are warranted….The copper-nickel will not be used in MN, or the US, and therefore will not directly benefit MN.	SO01
12211	Short term benefits of relatively few jobs do not outweigh long term costs of pollutant monitoring and clean up. (Are we that optimistic to think a mining company will provide financial support for 200 to 500 years? That is not optimistic, it is "dumb"- no company is going to last that long nor provide the financial resources for that time period!)	FIN10
12212	The copper-nickel is not needed, we can derive what is needed from recycling.	ALT09, ALT16
12213	PolyMet has NO documented contingency plans for accidents/disasters.	PD22
Sender Name (Submission ID)	Mark E. Vesley (43462)	
15557	Will PolyMet, a mere shell company, be responsible for guarding against these inevitable events for the next 500 years? What financial assurance for disaster mitigation can PolyMet possibly provide that would cover such an immense period of time? What assurances has the DHR confirmed thus far to pay for mitigation of even the “normal” amount of acid and heavy-metal environmental damage in ensuing years that sulfide mining always produces?	FIN01, FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mark E. Vesley (43462)	
15558	[Regarding the contigency plan] What exactly does the phrase "appropriate response actions" mean? Why are the Flotation Tailings Management Plan's disaster provisions not covered more fully in the SDEIS?	PD22
15559	As "100-" and "500-year" floods begin to occur every few years in northern Minnesota, it is clear that extreme weather could cause failures in treatment systems that enable pollutant release from mine tailing pits far in excess of any rosy PolyMet projections.	WR057, WR077, WR180, WR193
Sender Name (Submission ID)	Mark Engebretson (47124)	
12857	we have not seen a financial proposal for future protection and recovery from someone that we can refer to or endorse.	FIN01
16629	It is hard for us to compare effectively a clear near-term benefit (Jobs!, usually), against a foggy long-term detriment, even, in the case of hard rock mining, with plenty of past examples of cases where the scales have been poorly calibrated.	SO01
Sender Name (Submission ID)	mark gibson (22294)	
3352	Risks are too high for the potential rewards.	SO01
Sender Name (Submission ID)	Mark Haider (28725)	
10918	Why would the state of Minnesota assume the full risk of cleaning up Poly Met mine site: Poly Met or another business entity which could own the mine site in the future would surely walk away from the massive undetermined liabilities.	FIN01
10919	Poly Met isn't even committed to start cleaning up the mine site until after the mine site would be closed.	PD09, PD35
10920	What water would Minnesota be cleaning up with a reverse osmosis plant proposed for the site; polluted well water or/and polluted surface water????	WR143
10921	An undermined amount of jobs for an undetermined amount of years??? We would be better off to building a water bottling plant to produce water to ship to California for 500 years!	SO02
12705	I have to know that [PolyMet] can be trusted. Okay. Which we are talking 550 years here. You know, 500 years. How about one year? We are not even going to be sure that they are going to have it a year after it opens.	FIN01, FIN08
13124	Poly Met isn't even committed to start cleaning up the mine site until after the mine site would be closed. What water would Minnesota be cleaning up with a reverse osmosis plant proposed for the site; polluted well water or/and polluted surface water????	WR041, WR143
16971	Why would the state of Minnesota assume the full risk of cleaning up Poly Met mine site: Poly Met or another business entity which could own the mine site in the future would surely walk away from the massive undetermined liabilities.	FIN01
16972	An undermined amount of jobs for an undetermined amount of years??? We would be better off to building a water bottling plant to produce water to ship to California for 500 years!	SO06
Sender Name (Submission ID)	Mark Hall (42993)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mark Hall (42993)	
8999	The development of billions of dollars worth of necessary metals contained in the Polymet project, will provide high paying and rewarding union jobs directly and for the associated industries located in northern Minnesota…Compare that to the diminishing tourism industry where employment is house-keeping /service oriented, at limited wages and is typically seasonal.	SO10
15235	Minnesota and its people have greatly benefited from iron mining for over 100 years and copper nickel mining may be even more beneficial….The failing economic conditions of communities in northern Minnesota need to be addressed in order to allow our young people to remain in the communities they grew up in and not have to migrate out of state to find rewarding employment.	SO10
15236	The review of the Polymet project should include an overall evaluation of the economic impact. That should include the economic consequence of driving mineral resource development out of the country...The elevated cost of importing our metals from other countries, the loss of wages, unemployment and other social programs costs for those that would have otherwise been employed, should be included in the overall decision	SO04
15237	The [economic] review should also evaluate the revenues generated for the government and in particular for our educational institutions...A thriving mining industry would be a substantial source of revenue to the state to help prevent cuts to social and other programs.	SO10
15238	The evaluation should also consider the legal consequences of prohibiting the development of very valuable private mineral rights on the Polymet and other lands in the Duluth Complex... [This would deny] private parties the benefits of their properties	SO04
Sender Name (Submission ID)	Mark Harris (22931)	
12167	If approved the mine will pollute the largest of our Great Lakes, Lake Superior, threaten local clean water and wildlands, and endanger public health for generations to come.	HU03
Sender Name (Submission ID)	Mark Haugland, MD (45856)	
10192	We are concerned that the proposed PolyMet NorthMet copper-nickel mine project could have significant adverse impacts on human health as a result of pollutants released to air, surface water and drinking water.	HU01
10195	We also believe that the [PolyMet SDEIS] fails to adequately assess important risks to human health from the pollutants that would be released from this project. The absence of any professionals from the Minnesota Department of Health from the List of Preparers of the PolyMet SDEIS is particularly troubling.	HU01
10200	We ...request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks of the proposal [and that] a comprehensive Health Impact Assessment (HIA) be prepared under the guidance of the Minnesota Department of Health.	HU01
10202	Mercury contamination of fish and impacts on neurotoxicity in the developing fetus as well as in infants, children and adults is a significant public health concern in Minnesota…1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. ... many of the bodies of water downstream of the proposed PolyMet mine and plant are legally impaired due to mercury in fish tissue. The lower reaches of the St. Louis River...contains a particularly high level of mercury. We also know that other mine facilities release both mercury and the sulfates that increase bioaccumulation of methylmercury.	HU03
10204	…we believe that the information on mercury releases and the potential for mercury bioaccumulation is insufficient. The SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of pollutants or of hydrologic changes on mercury bioaccumulation. The SDEIS does not provide evidence to justify its claims about collection and containment of mercury and sulfates.	MERC16, MERC20

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mark Haugland, MD (45856)	
10207	The PolyMet SDEIS also provides an insufficient analysis of the human health risks of other pollutants, such as neurologic morbidity resulting from manganese and lead release; and carcinogenic effects of air emissions of diesel, asbestos-like fibers, nickel and other particulates, and of arsenic releases to water.	HU01
10208	The PolyMet SDEIS fails to analyze health risks to workers who would work on-site at the PolyMet mine or plant	HU04
10211	The PolyMet SDEIS fails to ... assess impacts of tailings groundwater seepage on nearby residential [wells].	HU01, WR041, WR064
10212	The PolyMet SDEIS does not discuss impacts of exposures to vulnerable populations, such as infants, children, the elderly and persons who rely for subsistence on fish, wild rice or game species where pollutants may bioaccumulate.	HU03, VEG04, WI04, WI09
10213	we would first request that the PolyMet SDEIS be revised to provide more complete information on mercury and sulfate emissions, deposition, and seepage from various sources, and the potential conversion to and bioaccumulation of methylmercury resulting from releases to the environment and hydrological changes from the proposed PolyMet project.	MERC08, WR197
10214	We would further request that the PolyMet SDEIS be determined inadequate pending supplementation to include a Health Impact Assessment, under the direction of the Minnesota Health Department.	HU01
10215	This Health Impact Assessment should include [a] description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges based on reliable toxicity and epidemiology data.	HU01
10216	This Health Impact Assessment should include [an] assessment of potential health impacts on residential wells from tailings seepage.	HU01, WR010, WR041
10218	[A] Health Impact Assessment should [be conducted] for on-site workers at both the PolyMet mine and plant.	HU04
10219	This Health Impact Assessment should include [an] assessment of cumulative mercury risks, including hazard levels in bodies of water that are already impaired for mercury in fish and risks posed by mercury concentration downstream in the St. Louis River.	HU01
10221	This Health Impact Assessment should include [an] assessment of cumulative cancer and non-cancer risks from existing and additional sources of toxic chemicals, such as manganese, arsenic, lead and nickel, applying the most protective health risk analysis and an appropriate "lifetime" for exposure.	HU01
10223	This Health Impact Assessment should include [an] assessment of cumulative risks of multiple chemicals and exposure routes on vulnerable populations, including infants, children, the elderly and populations who have higher rates of consumption of affected foods, such as fish and wild rice.	HU01
10224	Environmental Impact Statements...are required by the National Environmental Policy Act to contain analysis of impacts on human health. However, human health is subordinated to environmental impacts, is addressed in a piecemeal fashion, and there is no examination of the social determinants of health in the SDEIS. [A Health Impact Assessment] would integrate human health into the environmental review for the PolyMet NorthMet proposal, allow consideration of mitigation measures, and involve the community in planning for the project.	HU01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mark Haugland, MD (45856)	
10226	The State of Alaska has adopted [Health Impact Assessments] as a best practice for environmental review of mining and natural resource extraction proposals, and has established procedures and a toolkit for conducting an HIA in that context. The U.S. Centers for Disease Control and Prevention also has a number of resources for integrating HIAs into the environmental review process. In Minnesota, HIAs have also been conducted as part of projects such as the Central Corridor LRT in the Twin Cities. In addition, Blue Cross and Blue Shield Minnesota recently has announced they would be interested in funding HIA's for the state.	HU01
Sender Name (Submission ID)	Mark Imsdahl (9640)	
253	Please, do not let them mine until they have the technology to immediately, cleanly, and completely dispose of the waste products.	PD32
582	I have no faith in ANY proposed system that is required to monitor and safeguard the waste for 500+ years.	PD29
1359	I have no faith in ANY proposed system that is required to monitor and safeguard the waste for 500+ years. A year of two… maybe, but 500 years. Seriously? If indeed, that it what is required, that is ridiculous, and we all know it. Frankly, I'd like to know what incentives Polymet will have to maintain an abandoned mine 400 years after any person who benefitted from it or had anything to do with it is dead! I saw a sign last night that read "500 Years Ago, Martin Luther Was a Catholic". Sarcastic, but it makes another good point.	PD01, PD29
1470	Please, do not let them mine until they have the technology to immediately, cleanly, and completely dispose of the waste products.	PD32
Sender Name (Submission ID)	Mark Larson (43023)	
12427	The $3.5 to $6.0 million level of anticipated annual long-term costs after Polymet closures does not encompass major contingent events. This low level does not meet the reasonableness test of an informed citizen or third-party expert analyst – such as an insurance actuary, or financial risk manager.	FIN05
12435	Intelligent decision-making must take into account the experience of the industry, and not rely only on models that can't fully describe what would happen around Polymer's proposed facilities…The record of the copper-nickel industry is one of contamination consistently exceeding their permits and technologies. This empirical track record should be weighed heavily by DNR relative to the prospective models and plans in the PolyMet SDEIS.	PER35
12446	Unlike in many western states, the proposed mining area in NE Minnesota is water-intensive, and feeds into Lake Superior and potentially the pristine BWCA Wilderness and border lakes.	WR111
12452	The standards used for the PolyMet Projects will set the precedent. Approval would accelerate the additional copper-nickel projects. They could expand the mining footprint, proliferate groundwater and surface water exposure, and multiply water and air impacts. Hence, there is a need for a generic EIS for copper nickel and precious metal mining, such as those carried out by the Environmental Quality Board for Forest Management (1994) and for Animal Agriculture (2002).	CU19
12453	FINANCIAL ASSURANCES DO NOT ENCOMPASS ALL RISKS: Unlike the State of Minnesota, the responsible corporate entities, Polymet and Glencore, will not exist in perpetuity….that entities such as Polymet are designed as shells to execute a project and deflect long-term financial risk. Glencore may not exist in fifty years…any financial assurance plan should name Glencore and its successors and shareholders as responsible.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mark Larson (43023)	
12454	DNR has stated that financial assurance could be adjusted annually. That reactive approach does not seem adequate given the magnitude of risks and potential impacts. If major watersheds were poisoned on a significant scale, damage could escalate and severely compromise the quality of life and outdoor recreation competiveness of the region. Such contingencies might overwhelm any corrective plan.	FIN05, FIN08
12456	It is not clear that they [Minnesota's strong environmental laws] provide protection from tragic impacts of very long-term unpredicted contingencies and cumulative impacts of multiple copper-nickel mining installations.	CU11
16980	UNACCEPTABLE RISK THAT GOES BEYOND MODELS AND SDEIS: Models used for understanding water and toxins' interactions with natural systems and built infrastructure are useful, but they are tools. ...They cannot fully predict contingent events such as infiltration through fractured bedrock or 100- or 500-year rainfall events. Storm events in Minnesota and the country have frequently exceeded existing climate models and infrastructure designs in recent years, causing catastrophic failures	WR180
16984	...technologies as reverse osmosis have limits. The SDEIS states that reverse osmosis will only treat part of the contaminants from the Polymet facility – not water going into the containment basin. My understanding is that reverse osmosis that has not solved water pollution issues at Minnesota taconite mines.	WR143
16987	PUBLIC AGENCIES MUST THINK STRATEGICALLY AND RECOGNIZE LONG-TERM CUMULATIVE IMPACTS...Additional non-ferrous mining projects are in pending. Effective stewardship requires that we plan beyond single cases, anticipate emerging long-term developments and risks, and hold all players accountable for end outcomes.	CU02
16989	the financial assurance approach in the SDEIS does not include the following contingencies:?All forms of long-term seepage from pits and basins into groundwater.?Events such as overflows from catastrophic storms or infrastructure failures.?Direct damages and highly challenging if not impossible containment or remediation of wells, lakes, wildlife and forests in the region from unforeseen groundwater or surface water contamination beyond the PolyMet site.?Economic damage to residents, recreational property owners, cities, and industries in the region from unforeseen contaminated groundwater or surface water flows into local or eventually into major watersheds (St. Louis River, Kawishiwi River, Rainy River, etc.) and iconic lakes (Lake Superior, BWCAW, border lakes).	FIN11
Sender Name (Submission ID)	Mark Lauderbaugh (42909)	
7805	There is nothing requiring the State of Minnesota to allow the development of the copper veins in northern Minnesota at all, especially at the insistence of the Polymet Corporation or any other developer.	PER35
7808	There is a major difference in the value of job salaries (limited to a 20 year time span for the mine) versus the life time environmental value of this area.	SO01
7815	Approval of the present proposal from Polymet opens the door for fairly automatic approval of the Twin Metals proposal in the BWCA watershed.	CU04
7818	Recently the EPA moved to curb the development of the Pebble Mine in the Bristol Bay area of Alaska due to "ample reason to believe that the Pebble Mine would likely have significant and irreversible negative impacts" on the Bristol Bay watershed. The same potential impacts exist with the proposal by Polymet for their open pit copper mine in the Babbitt area involving the Lake Superior watershed and eventually the BWCA watershed.	WR023, WR071
7820	The very stated requirement for extended (50, 100, 200 years) waste water treatment on this project speaks to the recognition by Polymet and our MPCA that there will be negative impacts on our environment.	WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mark Lauderbaugh (42909)	
7824	Any environmental study needs to include all future impacts for a fully developed copper mining industry in northern Minnesota. It [environmental study] needs to address future proposed mines in the BWCA watershed, such as Twin Metals.	CU02
7829	Nowhere has an open pit copper mine such as the proposed NorthMet Mining Project (Polymet) been successfully operated without polluting the environment and costing taxpayers millions of dollars to clean up.	FIN01, FIN10
7831	The mining of copper - sulfide mining is not like the environmental impact created by iron ore mining in northern Minnesota.	PD27
7833	The EIS does not address the smell which will be created by "sulfur" laden waste water in the open pits and rivers.	AIR10
7834	The EIS does not address the modeling problem on the base water flows.	WR003
8861	The EIS does not address the modeling problem on the base water flows. This needs to be address so a more accurate picture of the environmental problems can be identified and addressed.	WR003
8869	our environmental leaders [forestry service, MPCA and DNR] will be making a decision as to whether to create potentially one or several potential Superfund sites in northern Minnesota or not. Nowhere has an open pit copper mine such as the proposed NorthMet Mining Project (Polymet) been successfully operated without polluting the environment and costing taxpayers millions of dollars to clean up.	FIN01
15202	What does the State or the region stand to gain? Improved regional economy due to 350 permanent mining jobs, not all filled by local residents? What about the job loss created in the recreational industry serving the BWCA?	SO02
15203	[The potential for significant and irreversible negative] impacts exist with the proposal by Polymet for their open pit copper mine...The very stated requirement for extended (50, 100, 200 years) waste water treatment on this project speaks to the recognition by Polymet and our MPCA that there will be negative impacts on our environment. Why would Minnesota move forward with these risks?	COE04
15204	Has there been any discussion about preventing the mining of copper in the BWCA watershed? Recent denial to extent comment period seems to indicate a rush to get this important decision behind us. Any environmental study needs to include all future impacts for a fully developed copper mining industry in northern Minnesota. It needs to address future proposed mines in the BWCA watershed, such as Twin Metals. Permitting Polymet opens the door which cannot be shut.	CU18
15205	Polymet has never developed a copper mine of any type according to comments provided at the Duluth hearings. Should we not as a State require proven experience and track record on such an important issue for Minnesota?	PD23
Sender Name (Submission ID)	Mark Lundberg (6625)	
1093	If the Polymet mining goes through, there should be aggressive measures created to police the air, water, and land issues. Measures that will shut down the mining operation, if there is evidence of any possible breaches in Polymet's assurances.	PER06
1094	I could get into the jobs, the local and state taxes, the future of our children, Polymet's being a good custodian	SO10
1200	I believe Polymet corportation's due diligence has been over and above. I believe their plans on keeping the mining and run-off areas environmentally safe are legitimate.	PD28
1201	I also believe that Minnesota's checks and balances and Polymet's pro-activeness will make this venture work.	PD28

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mark Luttinen (689)	
42	[There is not] adequate funding set aside to cover the 200 to 500 years of waste water cleaning, monitoring. This will eventually fall into the hands of the state when the cost overruns what is set aside and the mining companies have provided what they can afford to cover without going bankrupt. It looks like a planned superfund cleanup site is the result of this mine.	FIN11
43	There isn't enough information about how [the holding pond] would hold up to huge rainfalls and sudden flooding conditions[…]There is no secondary capture in place and if a overflow or breach occurred, it would flow into the St. Louis River watershed.	PD11
44	Not enough information on the reverse osmosis process to clean the water. The idea is great but it will require a huge amount of energy to run this type of system. Is this within the ability of the local power grid? Are they going to create electricity onsite to power this? Has this been tested on the scale that will allow them to profitably process the volume of ore that is planned?	PD03, PD39
Sender Name (Submission ID)	Mark Lystig (18245)	
13634	It's not just a matter of there being minerals up there. There are minerals up there, true, but there are other aesthetic features of the area that do not occur anywhere else, and we need, as a community, as a country, as a world, to protect the earth, and this the time to do it.	SO02
Sender Name (Submission ID)	Mark Moehlenbrock (43025)	
12657	Minnesota laws governing mine permitting expressly forbid granting a permit to any project that requires perpetual water treatment. By Polymet's own calculations, their waste water would require water treatment for at least 500 years; their models didn't calculate what would happen after that. Surely this is in violation of Minnesota's mine permitting laws.	PER04
12661	The SDEIS vaguely references non-mechanical [waste water] treatment, but doesn't explain what that treatment method might be or when it will be able to be employed.	PD06
12681	Mercury loading in the Embarrass River is expected to increase. The Embarrass River watershed is already impaired by excess mercury in fish tissue. The SDEIS justifies this by saying that, because mercury loading to the Partridge River will decrease, the net effect is less mercury in the Saint Louis River…Because of the existing impairment for excess mercury in fish tissue, any project that anticipates adding further mercury to the Embarrass River should not be deemed acceptable.	MERC22
12688	The document [SDEIS] contains two critically important pieces of information: 1) Polymet really has no idea how long their waste rock piles and tailings basins will leach toxic water, and 2) They have no idea how they will treat that water non-mechanically after mine closure.	WR035
17000	Polymet claims to be very concerned with post-reclamation water quality, but in 50 years, when there is no more money to be made, who is going to make them accountable? 500 years is longer than any of us can fathom, and the idea that Polymet will be on site for half a millennium, diligently maintaining their waste water treatment facility, is absurd.	FIN01
17003	[Regarding] the uncertainty of the mathematical models Polymet used...Their calculations were off by factors of "approximately 2 to 4" and they simply applied a linear "calibration factor" without having any idea what caused the discrepancy. They assumed the mistake was of a simple factor of 2 or 4, but what if this factor varies exponentially with some other independent variable? They admit that the discrepancy is "not completely accounted for." When I combine this with the much-publicized mistake in the Partridge River base flow rate model, I have very little confidence in any of their water quality conclusions.	WR049, WR060
Sender Name (Submission ID)	Mark Morrissey (747)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mark Morrissey (747)	
445	Very concerned about endangering water table [with the NorthMet Project] for generations to come	WR070, WR195
446	Come back with better technology in 50 years.	ALT16
447	This is reckless dangerous planning to go ahead with unproven technology.	PD32
Sender Name (Submission ID)	Mark N. Lazar (14785)	
1767	We are risking an environmental catastrophe that would destroy a wilderness treasure. There is no reason to trust PolyMet will continue to protect the BWCAW.	WILD02
Sender Name (Submission ID)	Mark Pelham (1379)	
48	The wastewater treatment may need to continue for hundreds of years, so the estimate of $3.5-6 million annually is meaningless. How much will treatment cost in 100 years? 200 years?	FIN01, FIN05
49	[There is a] lack of consideration for underground mining as an alternative	ALT01
498	I don't see any room for errors, accidents, spills, etc., yet there will almost certainly be unplanned events during a project of this size and duration. The environmental risk seems much higher than the document admits to.	PD22
Sender Name (Submission ID)	Mark Phillips (18221)	
2182	I believe the agencies, both state and federal, should find the SDEIS adequate and move forward with permitting.	SO10
2183	I also observed that PolyMet has worked diligently to respond to both the State Federal agencies to ensure a project meets all of Minnesota's and federal environmental standards. I was also comforted that PolyMet was proposing to use proven technology to remove any contaminants before returning collected and processed water to the environment. I also appreciated that PolyMet was willing to meet the state's somewhat arbitrary wild rice standards.	PD28
Sender Name (Submission ID)	Mark R. Brown (3163)	
621	I am impressed and confident that the preparations and precautions proposed by PolyMet through processes like reverse osmosis will protect the environment today and well into the future.	PD28
19602	I believe that PolyMet will provide real living wage jobs for residents of the area, support education, local charities and initiatives, youth activities and opportunities all the while safely and responsibly mining important metals that are essential to the local; and global economy.	SO10
Sender Name (Submission ID)	Mark Raulston (33238)	
12203	I greatly appreciate the ecological, economic, and recreational value of the lakes. Even from a strictly business perspective, when you put a proper value on these services that the lakes provide, keeping sulfide mining is the right thing to do.	SO10
Sender Name (Submission ID)	Mark Rieder (11341)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mark Rieder (11341)	
272	The short term economic benefits do not outweigh the long term environmental cost.	SO01
Sender Name (Submission ID)	Mark Roalson (57340)	
18433	my main concern is if the regulating agencies, like the MPCA and the Minnesota DNR cannot make Cliffs Natural Resources clean this up before PolyMet, how are they going to regulate PolyMet, that is going to be a lot bigger operation?	PER06
18435	Another thing that concerns me about the PolyMet mine is that there doesn't appear to be any emergency plans in case of catastrophic events, like heavy rainfall, heavy winds that might damage or cause leaking in tailings ponds or in any treatment plants.	PD22
18437	there is going to be large containers of chemicals stored, like sulfuric acid and other chemicals to process the mine ore. And these things need to be bermed and contained, and there needs to be emergency plans in case some of those break, from whatever cause it might be.	PD22
18438	Minnesota has a law on the books stating that when you sink a hole in the ground, like exploratory drilling, to take ore samples out in the form of a core, that these exploratory holes have to be grouted, cemented from the bottom to the top to prevent cross aquifer contamination. But the Minnesota Department of Health has issued a waiver to the exploratory drilling companies that they don't have to grout these holes for ten years. So, one of my concerns is if they are giving waivers now and making exceptions, what other exceptions are they going to make in the mining process if things don't go according to plan?	PER06
19608	One factor that I couldn't find addressed in the latest PolyMet SDEIS is the issue of mitigating the results of natural disasters. While dealing with the acid water, heavy metals, waste rock and other concerns are listed, none take into account of what emergency efforts would take effect if there was a major flood... if you check the records at the MPCA, you will find that an already existing stockpile of copper-nickel ore stored within a berm (set aside by the former LTV mine on what is now Polymet) has several times had acid drainage wash over its walls and into tributaries going north to Birch Lake.	HAZ01
19609	Flooding ...should definitely be considered in the emergency plans to contain waste and untreated water of all types.	HAZ01
Sender Name (Submission ID)	Mark S Jensen (54521)	
18736	PolyMet has not proven that they can contain or dispose of the waste rock and other materials associated with the mining process.	PD15, PD23
Sender Name (Submission ID)	Mark S Roalson (42805)	
7032	After asking DNR, Forest Service, and Army Corps of Engineer staff, no one could tell me for sure if there is an established data baseline of just exactly what the biological makeup of the PolyMet watershed is. I didn’t see it in the SDEIS. This would include all freshwater zoo plankton, invertebrates, plants, minnows, fish, and insects. This baseline should be checked on a regular basis for comparison (if mining is permitted) and checked for indication of die-offs or population changes and absorption of all pollutants, especially heavy metals. WICOLA has done this in Ely for the White Iron Chain of Lakes, and it should be done for the PolyMet Project	VEG09
7037	The base water flow table used by PolyMet (page 4-67) apparently underestimates low flows during winter. Real data needs to be obtained, not estimations. …There is no mention of containing leakage into the water table from the bottom of the mining [pit] itself….The PolyMet SDEIS does not address these essential issues [ground water treatment/reuse]…	WR003, WR130

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mark S Roalson (42805)	
7056	IF THE GOVERNING AGENCIES (DNR & MPCA) CANNOT MAKE TWO CORPORATIONS [Cliff's Natural Resources and LTV at nearby Dunka Mine, northeast of the proposed NorthMet Complex] MITIGATE POLLUTION SEEPAGE OVER A FIVE-DECADE PERIOD, THEN THE REFULATING AGENCIES WILL NOT MAKE ANY OTHER MINING CORPORATION ACT ACCORDING TO LAWS AND REGULATIONS, EITHER.	SO02
19826	I did not see emergency mitigation plans for spillages or bursting of tanks of mining chemicals like sulfuric acid and other solutions….Flood overflows of tailings ponds are not addressed at PolyMet. PolyMet's SDEIS does not provide for its own hazmat team/contingency plans from what I can see. A man-made or natural disaster needs to be planned for.	PD22
Sender Name (Submission ID)	Mark Sanstead (18301)	
12731	We are kind of weighing our heritage of natural resources, the water, the air, versus a short-term perspective of 300 jobs for a 20-year period by a company looking to start their very first mining operation.	SO01
15752	I am very concerned about denigrating our water resources for decades ahead for the short term benefit of mining. I fear the costs will far out way the benefits to our state and our natural resources.	SO01
15753	I see few examples of successful copper mine reclamation. Please make sure we will not be paying a cost for generations.	FIN01
Sender Name (Submission ID)	Mark Schoenecker (19958)	
1553	I am for the mining so jobs can be created	SO10
Sender Name (Submission ID)	Mark Skelton (18078)	
3192	...it is my hope that the powers to be will look at this and will weigh, proportionately, the socioeconomic impacts to the science of this project….Imagine, if you will, two million man hours of construction, $82 million of new federal, state and local taxes, $232 million of direct wages,... $330-plus million a year in direct output or the value of the metals coming out of the ground… the $99 million in indirect wages, or the $182 million in indirect output. It's time to do this project right, it's time to do this project now, and it's time to do this project here.	SO10
13230	The socioeconomic impacts: ...two million man hours of construction, $82 million of new federal, state and local taxes, $232 million of direct wages, and so forth. $330-plus million a year in direct output or the value of the metals coming out of the ground. That doesn't count the indirect -- the $99 million in indirect wages, or the $182 million in indirect output. It's time to do this project right, it's time to do this project now, and it's time to do this project here.	SO10
Sender Name (Submission ID)	Mark Snyder (58067)	
19829	I'm very concerned about the loss of wetlands that would resort from the PolyMet mine as well as the risk this places on nearby water resources.	WET15
Sender Name (Submission ID)	Mark Sutich (18358)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mark Sutich (18358)	
14650	When we look at this project, I have 300 jobs for 20 years, that's not true. It could be thousands of jobs for centuries. There are standards being set here. And in the true fashion of Minnesota, we're setting 14 the mining standards. We're setting cutting-edge technology that is going to pass through the world.	SO10
Sender Name (Submission ID)	Mark Trumper (45775)	
16353	The amount of time to treat the water is unreasonable, costly and unproven.	WR037, WR128, WR195
16354	Importantly as well, the big promise, getting some to buy into this project, is the prospect of jobs in an economically depressed area. This is a short sighted advantage. The jobs are few and short lived.	SO01
Sender Name (Submission ID)	mark voorhees (38872)	
5379	Ask a question of Polymet "how many mines have been mined/on-going with the Polymet name"? What is their track record?	PD23
Sender Name (Submission ID)	Mark Weis (3385)	
208	There has never been a successful mine of this type that the mining company has not filed for bankruptcy prior to the mine being successfully closed.	PD26
Sender Name (Submission ID)	Mark Wihriala (14845)	
328	I don't want my great great great great great [x5] grandchildren to still be paying for the clean up .	FIN01, FIN10
329	Please wait until a time when technology catches up to leave the land as it was before mining.	PD32
13370	I'm concerned about the water quality of Minnesota's rivers, streams and lakes. I fish in these waters, I drink these waters, and I swim in these waters. I do not want them to be polluted, and I do not believe that the SDEIS is a sufficient cumulative analysis of water quality impact from PolyMet Mining.	WR111
13371	I am requesting that the State and Minnesota deny the wetlands destruction permit. The Section 404 permit should be denied because PolyMet's discharge would violate water quality standards, destroy animal and fish habitats and threaten natural resources for centuries to come.	COE03, WR115
13921	In closing , I ask you to take a personal interest in protecting us from corporate interest in the short term and provide us long lasting water quality that we all can live with.	SO01
Sender Name (Submission ID)	Markus (Blom) Dandy (57255)	
17389	Lake Superior and the BWCA are at least as important to Minnesotans (& humans as well as other animals – that require clean water to live) Short term employment is nothing compared to the long term loss(es).	SO01
Sender Name (Submission ID)	Marlene Voita (18234)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Marlene Voita (18234)	
13588	300 jobs to have environmental effect for 300 to 500 years when we won't be here and the company won't be here and how long will the company last? Twenty years at most? I really think that this has to be rethought, especially with the state-of-the-art now where PolyMet has never had a facility like this before, and none of the plants that currently exist can show that they have no environmental effect.	SO01
13591	I just don't think that it's appropriate to trade our future for 300 jobs and ruination of our land by the Boundary Waters or in the northern part of the state.	SO01
Sender Name (Submission ID)	Marroquin, Illegible (58123)	
20014	This project is not worth the potential environmental impacts and risks...This mine will poison our drinking water, negatively affect wildlife and raise greenhouse gases as well as ruin our beautiful boundary waters.	GEN03
Sender Name (Submission ID)	Martha Brummitt (18298)	
12709	Using wilderness travel as an avenue for educating others, I earn a living by leading youth in the Boundary Waters, teaching watershed education and exposing people to the pristine resources we have left. If this goes negatively, it could negatively affect my job security.	SO02
Sender Name (Submission ID)	Martha Cleveland (38449)	
13617	The pollution concerns are monumental! The proposed solutions are ludicrous.	PD01
Sender Name (Submission ID)	Martha Henrickson (54859)	
19339	[The PolyMet] project would create 360 stable jobs and an additional two million or more hours of labor by skilled construction tradespeople required to build the facility.	SO10
19340	The members of the Northwest Minnesota Construction Liaison Committee believe that the Poly Met project promises both economic opportunity and protection for our environment. All residents of Northern Minnesota will derive economic benefit from the project.	SO10
19349	The company has pledged to take environmental protection measures that will ensure we can have sound economic advancement while protecting the natural resources and environment ...The PolyMet project promises botheconomic opportunity and protection for our environment.	SO10
Sender Name (Submission ID)	Martha M Ritter (57270)	
17410	Why would we sacrifice our land, fresh waters (eventually including Lake Superior) for 100's (at least 500 years) with no proof (data) indicating this can be done without system pollution?	WR128
17411	Where is the proof that initiating companies can and will afford and carry out appropriate remediation	FIN01
17412	and how do the people who live here (along with other life forms that are to be protected under EPA dictates) do for potable H2O in the meantime over our future 100's of years?	PER12
Sender Name (Submission ID)	Martha Morse (43721)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Martha Morse (43721)	
12653	The statistical model which was used to determine the mine's environmental impact is flawed in that it does not take into account the worst case scenario but only outcomes with the greatest probabilities. Consequently, the SDEIS underestimates the potential human, environmental, and remediation costs….	NEPA08
15091	The probable scenarios in the NorthMet/PolyMet SDEIS do not account for less frequent but certainly occurring real events, such as Duluth's recent 500-year flood which could cause an overflow of the tailings ponds. The tailings ponds and mining and mitigation plans in the NorthMet/PolyMet proposal do not adequately protect the public or the environment against the effects of such infrequent but certainly occurring events.	WR057, WR077, WR180, WR193
Sender Name (Submission ID)	Martha Roberts (43118)	
16584	We need to recognize that not only our economic well-being and sustainability, but also human survival, depends on protecting and restoring the natural environment and the biological systems that create and maintain life. Minnesota is part of a global ecosystem and climate, and we will not exist as a species without this ecosystem remaining in balance.	SO01
16585	There is no level of "financial assurance" that PolyMet can give Minnesota that will assure the ongoing LONG TERM protection of northern Minnesota's wetlands, Superior Forest land, surface water and ground water quality, and the protection of threatened wildlife that depend on these natural habitats.	FIN11
16586	Humans exposed to mining ground water pollutants face serious long-term health risks, and we have already seen (and should have learned from) the increased Mesothelioma Cancer risk for miners exposed to toxic air quality in mining work sites in northern Minnesota.	HU03
16588	the proposed plan for water treatment of surface waters does not address the very high risk of polluting ground water, especially when you consider what the plan is for "reclamation." The DNR's description of PolyMet supposedly "reclaiming" its buried waste by covering it with a plastic membrane, filling up the mining pits with back water and then topping them off with a "reclaimed wetland" is science fiction! This is a ground water disaster waiting to happen.	WR067, WR195
16589	The proposed plan does NOT comply with the Superior Forest Land and Resource Management Plan! Locating a highly-polluting mine site that will produce 20 years (probably more) of unimaginable amounts of sulfate, heavy metals and mercury run off from stock pits, mining pits and tailings basins, as well as wipe out over 6,000 acres of natural wetlands and forests and make our rivers, streams, Lake Superior and ground water toxic, does not protect valuable ecosystems!	LAN04
16590	Exchanging multiple parcels of private land for a large tract of publicly-owned Superior National Forest Land is NOT "in the long-term public interest of the people of Minnesota," or of the other wildlife and living organisms that also rightfully reside in our state. ...Nor does this proposed mine "consolidate federal ownership." How does excavating over 6,000 acres of preserved forest and wetlands in a trade for MULTIPLE scattered parcel sites of private land (some of which has to still be restored to a natural wetland state) in any way provide "consolidation" of lands, or protect large enough habitat tracts that wildlife can actually survive and live in an undisturbed ecosystem?	LAN01, LAN04
16592	So, the BIG QUESTION is: Will Minnesota will just continue the escalation of land development and disturbance, splitting up wild lands into smaller and smaller parcels due to human population pressures and intensive pit mining financial interests, and other resource removal, until we have no wild lands left?	SO04
Sender Name (Submission ID)	Martin and Teresa Theobald (44682)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Martin and Teresa Theobald (44682)	
7146	PolyMet has not shown that they can protect the environment adequately.	PD01
7149	They continually try to cloud the topic of environmental protection with talks of new jobs.	SO04
Sender Name (Submission ID)	Martin Cooney (45167)	
8754	When Polymet is gone, by their own admission, they will have left an environmental mess that will cost millions to clean up. There is no mention of where the clean-up money will come from	FIN01
8760	the State's recreation and tourist industry crippled, and the local communities hurting once again from boom and bust mining.	SO02
8761	Require a very conservative level of financial assurance escrowed up-front	FIN05, FIN08
8762	As we know, Polymet will poison these waters as an inevitable by-product of its mining and leaching process.	WR111
8764	Polymet is proposing to create jobs in Minnesota for a maximum of twenty years, at best.	SO02
8767	Polymet claims that they can limit the spread of the poison by employing revolutionary new technologies to mitigate the risk of environmental damage. As I understand, these new mitigating technologies are unproven. Minnesota should not be the laboratory in which Polymet finds out if these technologies work or not.	WR128, WR143
Sender Name (Submission ID)	martin dahlke (21517)	
14551	The financial assurance section of the SDEIS is inadequate and needs to be changed to reflect details about how much money would be required to pay for cleanup and in what form it would be held.	FIN05, FIN08, FIN13
14552	Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs in the current draft	FIN05
14553	Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for hundreds of years of water treatment	FIN01, FIN08
14554	Identify other responsible parties (e.g. major investors like Glencore) that will be held responsible for long-term cleanup should PolyMet go bankrupt or be unable to meet their obligations	FIN01
14555	Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation for the what would constitute adequate treatment	FIN05
Sender Name (Submission ID)	Martin Dietl (36727)	
14403	The BWCA is far too precious a resource to risk to a company and an industry that has a long history of polluting and ruining the environment.	SO01
Sender Name (Submission ID)	Martin Makinen (9309)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Martin Makinen (9309)	
13724	•The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Martin Rigney (45420)	
11319	Given the value of this natural wonder I can imaging no justifiable reason not to require specific testing to confirm that water discharged from the mine site does not and indeed cannot enter the BWCA and I see no indication of this plan in the SDEIS	WR024, WR071, WR081, WR111, WR175
Sender Name (Submission ID)	Martin Running (18325)	
13905	This is a tremendous opportunity for the state of Minnesota and local people. I don't think we should let this go. And I don't think that we should have that much land tied up just so a few people can paddle canoes around.	SO10
Sender Name (Submission ID)	Martin von Euw (43030)	
12478	Even with the best intensions and plans, accidents can occur. ...If there are any releases of sulfuric acid to the soil, surface water and/or groundwater, then long-term significant environmental clean-up will be needed.	WR202
17039	PolyMet has absolutely zero experience in operating a copper nickel mine. I believe that the MN DNR should not allow a company to undertake such a huge mining operation without a record showing that they are a qualified company to safely operate the proposed NorthMet mine.	PER02
17040	Glencore should be identified as the lead company in this effort. PolyMet does not have the resources to provide financial assurance for environmental clean-up.	FIN01
17041	I am concerned that if the PolyMet mining EIS is approved by the MN DNR and mining permits are issued that it will allow copper nickel mining to proceed in other areas of the state, such as near the Boundary Waters Wilderness Canoe Area. The MN DNR should be very aware of how their decision on the NorthMet mining project will affect other proposed mining plans in the state.	PER07
17042	This project does not reflect the MN DNRs mission statement: "...to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life."...Based on the fact that sulfide mining has never been conducted without negative environmental impact, the proposed NorthMet mine is not expected to create a sustainable quality of life within the area of Hoyt Lakes and the Lake Superior watershed.	PER40
Sender Name (Submission ID)	Marty Seifert (11620)	
2300	One question 0 a 500 year water mitigation issue has been discussed. My understanding is that this is a grossly exaggerated number.Can you please give more exact clarification for water clean-up?	PD03, WR036
7388	A 500-year water mitigation issue has been discussed. My understanding is that this is a grossly exaggerated number. Can you please give more exact clarification for water clean-up?	WR036
Sender Name (Submission ID)	marv schuety (45557)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	marv schuety (45557)	
15895	should not be built anywhere that would impact any wildlife in the state of minnesota or any other state . The wildlife has sufferd greatly just from home builders ,not to mention other busnesses that are built in wildlife areas . The declineing moose population should speak for itself in this matter without any input from the public ,unless your goul is to make the moose and other animals exstinct in minnesota .	WI01
Sender Name (Submission ID)	Mary Alice Harvey (42760)	
14513	The length of time that polluted water will need to be treated (200 years and 500 years) appears to far exceed the time that their company will be around to pay for any costs in excess of estimates.	FIN01
14514	Water is our most precious resource, -- most necessary for life. Are we gambling with it? Water is a scarce resource, that is likely to prove more valuable than precious metals.	WR195
Sender Name (Submission ID)	Mary Amundson (44204)	
11681	corporations promise to clean up the messes that they create and often it is done partially or not at all … Sometimes tax payers bear the cost of whatever cleanup must be done.	FIN01
11683	there is the issue of health related problems from pollution which can be permanent and sometimes fatal.	HU03
11684	None of the benefits from this mining can ever offset the detriments to health or pollution of the environment, locally or globally, and the effects on wildlife.	SO01
13383	Once land, water, air and wildlife are destroyed, they never are completely be pristine any more and the dangers from the pollution go on for a long, long time.	VEG10
13386	Also, there is the issue of health related problems from pollution which can be permanent and sometimes fatal.	HU03
13387	None of the benefits from this mining can ever offset the detriments to health or pollution of the environment, locally or globally, and the effects on wildlife	SO01
Sender Name (Submission ID)	Mary Anderson (43860)	
6872	[I am concerned about the] negative impact that [this project] would have on the environment.	LU06
Sender Name (Submission ID)	Mary Ann Lundquist (38699)	
11898	Though a few hundred jobs for up to twenty years would be important in the short term it makes no sense to risk the disastrous pollution for up to 500 years... We need long lasting jobs here in Minnesota in industries that are forward looking and do not destroy our land and water.	SO01
11899	I cannot get over the admitted fact that there has NEVER been a copper nickel sulfide mine that has not leaked. We need to protect our land and water.	WR023
Sender Name (Submission ID)	Mary Arps Thompson (18786)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mary Arps Thompson (18786)	
9949	Again PolyMet has prepared an SDEIS with flawed data & inaccurate information.	NEPA09
10677	Again PolyMet has prepared an SDEIS with flawed data & inaccurate information. If they can't get this right, how will they protect the most precious resource we have, our water.	WR071, WR072, WR189
11698	Economics...what will be the cost of cleanup & who will pay? A shell corporation with no real assets?	FIN01
11947	Again PolyMet has prepared an SDEIS with flawed data & inaccurate information. If they can't get this right, how will they protect the most precious resource we have, our water.	NEPA15
13391	Sometimes the best management is leaving resources where they are. Especially when removing them means damaging an even more valuable resource, our clean water.	SO01
13392	Economics...what will be the cost of cleanup & who will pay? A shell corporation with no real assets?	FIN01, FIN02, FIN05
14245	Sometimes the best management is leaving resources where they are. Especially when removing them means damaging an even more valuable resource, our clean water.	NEPA06
Sender Name (Submission ID)	Mary Bjorngjeld (30266)	
10994	This mining that is proposed is a dirty deal that threatens the health of watersheds and eco-systems for miles around the proposed site.	WR111
13854	Just say NO it is not worth the threat to natural resources(includingwildlife) and public health!Say NO to big business.Say NO to pollution.Say NO to sulfide mining in MN.	SO01
Sender Name (Submission ID)	Mary Boranian (54850)	
19031	coal burning plants will potentially supply the electricity needed to extractmetals on our Iron Range. Coal pollutes the air, land, and water.	AIR01
19034	Water moves. Containment walls leak and break. Look at the history ofmining in wet places. You can look to the poisons in liquid form that have contaminated the Danube River, West Virginia, South Carolina.	WR023
19035	State Auditor, Rebecca Otto, knows numbers. She knows that Minnesota taxpayers will be footing the bill for years for all troubles caused by this gargantuan [PolyMet] project.	FIN10
Sender Name (Submission ID)	Mary C Kaeter (54760)	
19224	Moose, Lynx, and Wild Rice. Analysis of the impact on animals, their habitat, and wild rice beds is lacking in PolyMet's statement.	VEG04, WI01, WI02
19226	Centuries of Water Treatment Required and Tax Burden. Minnesota law requires that a closed mine site be "maintenance free," but PolyMet's mine plan calls for 500+ years of water treatment. Mining companies often declare bankruptcy and walk away from closed, polluting mines. Minnesota law requires a damage deposit that is supposed to cover cleanup and pollution costs, but PolyMet's mine plan includes no details about the damage deposit.	FIN01, FIN10, FIN14

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mary C Kaeter (54760)	
19228	Glencore, currently 25% owner of Poly Met, has a long history of environmental pollution, human rights violations, and anti-labor practices.	PER02
19229	Water Data Errors. DNR hydrology data show that the PolyMet water model significantly understates the amount of water flow in the area, which makes PolyMet's pollution and cleanup estimates inaccurate.	WR052, WR091
19231	Mercury and Air Pollution. Poly Met would emit dangerous amounts of mercury every year, as would the coal plants supplying power to the mine. Carbon emissions would dramatically increase due to the increase in coal power, in opposition to Minnesota's stated goal to reduce carbon emissions.	AIR02
19232	Wetlands. PolyMet would destroy valuable wetlands. The land swap they propose understates the amount of wetlands that would be destroyed. The land swap PolyMet proposes would be far away from the mine site so is not an equitable or equivalent swap.	LAN06, WET14
19233	Health Impact. PolyMet's statement has not addressed potential health threats in the near as well as distant future.	HU01
Sender Name (Submission ID)	Mary Campbell (52225)	
16219	While there may be some positives in terms of jobs for a few people, the long term effects are likely to be devastating.	SO01
Sender Name (Submission ID)	Mary Cunningham (44305)	
10332	I believe the environmental impact statement is inadequate, and I ask you to suspend any decision about the Draft EIS until these problems have been corrected.	NEPA15
10333	I disagree with the way the current (Supplemental) Draft EIS disregards the concerns of the Fond du Lac and Grand Portage Tribal Governments, the 1854 Treaty Authority, and the Great Lakes Indian Fish and Wildlife Commission.	CR01, CR06
10336	the PolyMet review process used incorrect maps in the environmental impact statement that give the impression that mine waste is geographically isolated from the BWCA watershed when it is not. The maps used include incorrect outlines of the One Hundred Mile Swamp which is downhill from the mine site and will collect acid and heavy metal laced run off from the mine.	WR024, WR080, WR081, WR111, WR175
Sender Name (Submission ID)	Mary Davis (50088)	
13029	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Mary Dickson (44537)	
10078	[Polymet] cannot guarantee that they will be around for the next 500 years. Our water, our wildlife is our most valuable resource and we cannot put it in further danger.	WI01, WR115
Sender Name (Submission ID)	Mary Disch (18266)	
13881	At this point I am not in favor because my concern primarily is pollution affecting the watershed for Lake Superior and especially the wild rice area in that sense. And I'm concerned about whether the assurance will be enough to clean up, because the pollution is inevitable.	WR111, WR156

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mary Disch (18266)	
13882	I'm concerned whether PolyMet is -- I know it is a new company, but it is funded by other companies' money, and what their track record has been.	PD23
13883	My concern, too, is that opening this area to copper sulfide mining might open it up to more of that, and what the cumulative effects might be, and my concerns of the cumulative effects on the people that live nearby and the water quality of the Hoyt Lakes, which I think is pretty close.	CU04
13884	I would just like to see more concern and overseeing what -- my question is when PolyMet says they are going to do this, how often does that happen? And is there a way of assuring that that happens?	PD22
13885	And my concern, too, that wild rice, when I talk to people, it moves around, so it is not like you can say this specific area has wild rice. So it is essential that the area has clean water so that wild rice can move to where it needs to move.	WR154
13886	And I heard that the mercury is more up, and fish, with the higher sulfate levels, and so that's part of my concern, whether those levels will be safe enough for fish.	MERC02
Sender Name (Submission ID)	Mary Dosch (19508)	
2853	The SDEIS says on pages 5 through 377 that impacts on moose will be discussed in the cultural resources section 5.2.9. However, neither in that culture resources section nor in the cumulative impact section mention even one word about moose.	WI01
9087	I respectfully ask that ALTERNATIVES to the open pit mine, specifically an UNDERGROUND MINE, be studied. Since PolyMet has acknowledged that an underground mine could access copper and nickel, and since an underground mine would be far less destructive to the habitats of wildlife species in impacted areas.	ALT06
14814	The PolyMet project would harm moose due to habitat, fragmentation, and loss...Moose are important to the Indian bands under treaties and (inaudible)...The PolyMet SDEIS is inadequate in that it needs to be redone to reflect the cultural affects of loss of moose habitat at the PolyMet mine site and also the cumulative adverse impacts on the endangered moose.	WI01, WI02, WI09
16339	For example, moose are already in substantial decline and the habitat loss thatwould inevitably occur if PolyMet were to mine would expedite further losses for our priceless moose population.	WI01, WI02
16340	In addition, many species of birds whose homes would be in harm's way, e.g., birds in the St. Louis River Estuary like Common Loons, Hooded Mergansers and Belted Kingfishers, need to be considered when weighing the pros and cons of this proposed mining project.	WI01
16341	PolyMet's plan for an open pit mine would directly destroy more than 900 acres of wetlands and could indirectly destroy more than 7,351 additional acres of wetlands in the Partridge and Embarrass River watersheds due to pollution and changes in hydrology.	WET10
16342	The proposed wetland mitigation only covers the 912.5 acres of direct wetland impacts. Therefore, the more than ten miles of additional wetlands projected to be "indirectly" impacted by water drawdowns and toxic materials will likely be permanently harmed as the bogs and coniferous swamps in harm's way are extremely difficult to restore. Thus the SDEIS, by not addressing the impacts on these "indirectly" impacted wetlands, is INADEQUATE in that respect.	WET01
16343	Also, where pollution from the mine pits, mine wastes and tailings piles seeps up from surface ground water flow to wetlands, it is virtually certain that PolyMet's discharge would violate water quality standards.	WR064, WR070
16344	Furthermore, PolyMet's excavation and thus changing hydrology in wetlands would increase mercury loading to wetlands and streams and increase mercury bioaccumulation in fish, thus putting human health at risk.	HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mary Dosch (19508)	
16347	Given that PolyMet's own mine plan admits that millions of gallons of polluted water will seep off site, uncaptured and untreated, and that this will continue for hundreds of years, I have to ask how we can even consider giving PolyMet the green light.	WR195
16348	…by giving PolyMet the go-ahead, we would be getting 20 years worth of mining jobs (SHORT-TERM GAIN) while incurring at least 500 years of pollution and perpetual water treatment (LONG-TERM LOSS). Furthermore, perpetual water treatment is not maintenance free.	PER04, SO01
16350	Currently the region that would be impacted by the PolyMet mine is a haven for tourists, fishermen, and outdoor enthusiasts like me... By giving PolyMet the green light and thus setting a precedent for numerous other mining companies to follow suit, the seeds of our own destruction as a place of retreat and purity and sanity will be sown.	WILD02
16351	Furthermore, the SDEIS should be rejected as it gives no detailed information as to how 500 years of water treatment will be paid for.	FIN01
Sender Name (Submission ID)	Mary E. Dosch (10336)	
9347	On page after page it says that in the event that modeling shows violations of water quality, PolyMet will "adaptively manage" the problem. Once pollution is in groundwater it is TOO LATE to fix.	WR130
10684	The SDEIS doesn't provide even the most basic information to support its predictions. How much polluted wastewater would be going back and forth through nine miles of pipes? What is the total volume of wastewater in tailings and processing residue? Just how polluted is the wastewater in waste rock piles, pits, sump ponds, the tailings basin and the hydrometallic waste dump?Without this basic information, we can't estimate what would happen if PolyMet's almost perfect assumptions - not based on anything in the real world - don't come true.	PD03, PD15, PD30, PD36, WR057, WR060, WR182, WR189
10694	Access to clean water should be the birthright of all - humans and non-humans alike. We have no right to jeopardize that birthright.	WR195
Sender Name (Submission ID)	Mary Ellen Kremposky (22900)	
12164	Lake Superior retains water for about 200 years. Any mining waste inputs would last for centuries.	WR111
13971	Also, tourism is a big source of income and should be protected not damaged by mining operations.	SO02
Sender Name (Submission ID)	Mary Everest (44551)	
11775	The PolyMet mine would violate the 1854 Treaty between the United States and Minnesota Ojibwe bands. This treaty guarantees the right to hunt, fish, and gather in the location of the proposed mine. The land must remain intact, including the animals and plants that the Ojibwe hunt, fish, and gather.	CR01
11781	However, the proposed mine would destroy wetlands and habitat for animals and plants fundamental to Ojibwe life.	VEG03, WI02, WI09
11783	In addition to habitat destruction and removal, the proposed mine would generate unacceptable levels of mercury and sulfuric acid contamination in the watershed, subsequently turning food into poison.	MERC02
Sender Name (Submission ID)	Mary Gallet (42507)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mary Gallet (42507)	
15400	The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility.	HAZ02
Sender Name (Submission ID)	Mary Gover (40969)	
8358	[The SDEIS] fails to give appropriate weight to the fact that every copper/nickel sulfide mine located in a watery environment has resulted in contamination of surface and/or ground water.	WR023
8367	I understand (from the program on MPR) that large piles of tailings remain from past PolyMet mining, and that the effluent from these tailings fails to meet MN water standards. Accordingly, I urge the DNR to require that PolyMet clean up the existing tailings before it is allowed to generate any more.	HAZ01
Sender Name (Submission ID)	Mary Haltvick (47379)	
12281	I believe that PolyMet's plan for sulfide mining does not sufficiently address its potential to do irreversible damage to the environment and the health of the people who live and work in the communities that would be affected.	HU03
12293	My first concern refers to the permitting required by Section 404 of the Clean Water Act. The wetlands proposed for destruction are priceless and form part of a broader biotic system. The 913 acres to be destroyed and the additional over 7000 acres at risk of being degraded by subsequent air and water pollution from the mining operations represent an unprecedented loss of wetlands for Minnesota.	COE03
12299	The SDEIS does not factor the real value of the lost ecosystem into its calculations. Land has value but so do nature and natural processes. The science of economics rarely makes this kind of calculation.	SO04
12305	The historical record… shows that sulfide mining in a water-rich environment has historically resulted in surface and ground water pollution with toxins that are harmful to human life. I don't believe the SDEIS sufficiently addresses the risks of this kind of mining in a water-rich environment.	HU01, WR023
17876	On paper the plan to replace these precious wetlands might look like a fair "exchange" if one is just counting acreage and size, but what is lost is an acuatic ecosystem of rivers, creeks, streams, ponds, swamps, land and vegetation that provide habitat for wildlife and maintain the quality of the watershed. Can the lands offered in the land exchange proposal really compensate for a lost ecosystem, especially if those lands are outside the affected watershed?	LAN03
17878	This area is rich in water but unfortunately many of the bodies of water in the area are already identified by the MPCA as "impaired waters" due to elevated levels of mercury. This, therefore, is a proposal to mine in an already compromised area that mining will put at further risk. The water quality models used by PolyMet are guesses and assumptions about how mining might affect the water, but they are unsubstantiated and without evidence.	WR158, WR189
Sender Name (Submission ID)	Mary Halvorson (44630)	
15926	I am not at all convinced in plans for clean up and oversight	PD01
Sender Name (Submission ID)	Mary Heise (46594)	
9154	I have serious concerns and doubt that adequate funding will be available to address any accidents or incidents that occur during mine operations and especially after the mine closes. Secured funding also needs to be available for the lengthy water treatment process after mine closure.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mary Heise (46594)	
9155	How is the funding guaranteed to be there even hundreds of years after mine operations cease?	FIN01
9156	It is important to have all of the necessary funds readily available throughout the entire water treatment period of 500+ years so that clean-up costs do not become a burden on Minnesotan residents.	FIN01
9157	How is inflation and any unforeseen complications of treatment being calculated into Polymet's closure costs? How can a person predict the value of the dollar that far in the future?	FIN05, FIN08
9158	It does not adequately look at reducing impacts to wetlands by considering underground mining vs. open pit mining. Economic feasibility is not supposed to be the primary factor for alternative methods in an EIS.	ALT01, ALT06
9160	What evidence is there that the proposed treatment of contaminated water by reverse osmosis actually works on projects of this scale?The water treatment process is not specific enough. What are the plans for the toxic sludge generated by reverse osmosis? How is the reverse osmosis system guaranteed to keep up with the quantity and continuous supply of contaminated water?	PD03
9161	The proposed wetland reclamation and regeneration would not equal the high quality wetlands that the mine will destroy.	WET05
9162	What are the effects on human health, especially in the unborn and very young, of exposure to the pollutants emitted into the air and water, especially as these pollutants accumulate to higher levels?	HU01
9165	What insurance is there against underground drinking water contamination and what procedures will be followed to clean up any contamination that occurs?	HU01
9166	As abundant clean water becomes more scarce world-wide and thus more valuable, this resource should be weighted higher for impact considerations the farther the timeline of impacts goes into the future. For example, clean water is likely to be more economically and environmentally valuable 100 years from now than it is today, therefore, any long term negative impacts done now should be assessed as more harmful than is currently considered.	WR195
9168	What are the health risks to employees who are exposed to sulfide mining conditions?	HU04
9173	What is the potential for soil contamination away from the mine site and what health risks are present for people who come into contact with this soil, especially for those growing their own food?	HU01
9174	The Superior National Forest is a national asset and the proposed land exchange is not adequate compensation for U.S. citizens.	LAN03
9175	How will the survival and reintroduction of rare species found in the disturbed wetlands be assured after mine closure?	WI01
Sender Name (Submission ID)	Mary Helen Stephens (38874)	
5381	Since we know that water continues to flow downstream forever till it reaches oceans, how can we protect those, especially children who live downstream from this proposed mine from the Mercury that will follow the waterways out of Minn. There must be some way to collect the chemical before it leaves the mine site, forever, not in a land based ground storage pit.	PD15

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mary Helen Stephens (38874)	
5382	DNR has a big job ahead of them. So many protections to human health, wildlife protections, environmental health protections, taxpayer protections, CleanWater Act Protections, Wild rice protections, etc.Don't think a few jobs are worth it? Stop the PolyMet mine before it causes damage to Minnesota.	SO02
12121	Ii would look more favorably toward the project of the proposed PolyMet if I could see a plan which considers the wildlife of Northern Minnesota. So far I do not see a reasonable plan to offer protection to the Moose population in Northern Minnesota.	WI01
12129	This mine in Northern Minnesota will use an inordinate amount of coal for powering the high use of electricity needed for their operations… Please ask DNR to require PolyMet to find a better source of power and leave the coal industry out of the picture.	PD39
12131	Up here water resources is a big issue = the possibility of the mining efforts to contaminate our waters and using an inordinate amount of available water.	WR111
Sender Name (Submission ID)	Mary Holm (39873)	
14278	This mine will break forever the beauty of our North Woods, one of our most valuable industries in tourism and forestry products.	SO02
Sender Name (Submission ID)	Mary Jane Nelson (54897)	
18840	In consideration of the fact that there has never been a successful sulfide mining operation ever, it is preposterous that the DNR and our elected officials would allow PolyMet and/or any company to proceed with untested and unproven sulfide mining methods in the State of Minnesota.	PD26
18842	No amount of money or jobs could possibly offset or compensate for the value of our precious citizenry and ecosystem. Who we are and the environment we have are priceless!	SO01
Sender Name (Submission ID)	Mary Jo Kingston (35689)	
11284	With the history of desecration of our clean forests, lakes and rivers perpetrated by mining companies, it is not unreasonable to wonder what the hurry is in opening this mine? A delay of 10 or 20 years before undertaking this project would allow development and proof that they have indeed found ways to mine these elements safely and without damage to the environment.	PD32
Sender Name (Submission ID)	mary Jo straub (39886)	
14280	Those who live in the horrible drought conditions of the west know how extremely valuable water is, especially clean pristine water such asours. Why on earth would we want to sully and poison our water gem.	WR115, WR195
14281	No amount of jobs are worth ruining, or even risking the ruin of, ourprecious natural resource. The Boundary Waters---one of the wondersof the world. Invaluable. Lake Superior--an even greater possession. Why risk it?	WR115
14282	If people need jobs give them jobs through rebuilding ourinfrastructure and installing renewable energy. That could happeneasily and quickly if the political will exists.	NEPA02
Sender Name (Submission ID)	Mary Judd (36629)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mary Judd (36629)	
11125	Enough covering up has happened in various "schemes" for pushing through projects that hurt people, the earth, environment, and air that people are not so easily scammed as before. What the mining company says will not happen and what actually will happen are two different outcomes.	HU03
11127	Studies on the factors affecting humans needs to be studied. More studies by environmental protectors need to be done and provided to the public without the results being altered.	HU01
Sender Name (Submission ID)	Mary Kamps (27394)	
14749	It means quick profit for PolyMet and polluted waters across a wide swathe of Minnesota. We need to live within our means.	SO01
Sender Name (Submission ID)	Mary Kanut (11250)	
735	this proposed site or any site for that matter for mining is basically game over for our climate, for our Boundry Waters, our drinking water, air quality and the list goes on and on	AIR11
Sender Name (Submission ID)	Mary Klausen (37780)	
13730	Dirty energy is not the answer to our energy problems. Wind and solar would create as many or more jobs for Americans and keep our air and water clean while keeping us in clean energy for the long haul - longer than 20 - 30 years AND no clean up to worry about saving billions of dollars in clean up and future health care costs to Minnesotans and the fish and wildlife (some of us eat fish and venison).	SO01
Sender Name (Submission ID)	Mary Lagaard (38280)	
13671	the hundred mile swamp which has been purported to be a filter for the run off from the holding ponds.This fragile ecosystem will be compromised by even low levels of uranium, radium, and radon. Additionally ground water supplies may be polluted by the listed materials. Minnesota's identity has been clean water. We loose not only an ecosystem, but a way of hunting, fishing, skiing, sledding, skating, kayaking which is part of our culture.	SO01
Sender Name (Submission ID)	mary lawry (30511)	
12882	Have the company's methods of extracting content and proper handling of waste been reviewed? and their proposed response to any "accidental" discharge of same? the effect of said discharge on the environment? the cost to surrounding communities? Are the above in a written contract with a sizable monetary deposit (non-withdrawable) to begin cleanup of "accidental"discharges?	FIN01
12883	Have you considered the drift of pollutants into the waters of the entire Great Lakes?	CU06
Sender Name (Submission ID)	Mary Lein (39545)	
6341	Please do not begin the slow destruction of these beautiful wetlands, rivers, lakes, and streams in Minnesota...Reconsider your plans and leave this pristine beauty in tact.	LU04
Sender Name (Submission ID)	Mary Linden (16048)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mary Linden (16048)	
9540	The short term gains for a few will not be worth the long term losses for the many more who may suffer from the consequences of this mining operation.	SO01
11565	The company says they will have a long wall to contain waste water down to the bedrock. Walls develop cracks over time. It has always happened and will happen again.	WR019
11566	Early in the debate about the mine the company reported that they would create new wetlands to make up for the ones they destroy during their project. To me it seems unlikely that a man-made wetland will ever truly replicate a natural wetland. Each place has its own unique mix of substrate, water chemistry, micro-organisms, plant and animal life.	WET05
15804	To build such a mine near the Boundary Waters Canoe Area will bring additional development to the doorstep of an important Wilderness Area, degrading its pristine nature.	WILD02
15826	In addition, the Native American people who rightly claim the authority to harvest wild rice, should not find lakes and waters that sustain them now, polluted by increased sulfides due to copper mining.	CR01
15835	While copper is used in industry and even in the plumbing of many homes in Minnesota, how much copper from the Northmet mine will be needed or used by Minnesotans? Polymet is a Canadian company with big contracts with China.	PD25
Sender Name (Submission ID)	Mary Lou Salawater (45115)	
8354	Lots of money has recently been spent in efforts to clean up the St. Louis river, why would we now allow a mining company to pollute it some more….	WR111
16735	Only a few will profit and we will all lose our natural resources.	SO01
Sender Name (Submission ID)	Mary M Anderson (57932)	
19840	I am gravely concerned about irreversible damage to our amazing water RICH environment.	GEN01
Sender Name (Submission ID)	Mary Manns (43695)	
15098	Please don't allow Polymet to mine and destroy our beautiful north woods.	WILD02
Sender Name (Submission ID)	Mary Mcgilligan (11592)	
2251	Listen to those of us opposed to polluting our Arrowhead Region for the next 500 plus years. No amount of money put aside by the mine companies can assure safe handling of processes that have never been done safely ANYWHERE!	PD24, PD06, WR137, WR189
2251	Listen to those of us opposed to polluting our Arrowhead Region for the next 500 plus years. No amount of money put aside by the mine companies can assure safe handling of processes that have never been done safely ANYWHERE!	FIN01, FIN05
3252	A few jobs for a few people for 20 short years is not a fair exchange for destroying our ground and surface waters for ever.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mary Mcgilligan (11592)	
3252	A few jobs for a few people for 20 short years is not a fair exchange for destroying our ground and surface waters for ever.	SO01
Sender Name (Submission ID)	Mary Ness (11598)	
2260	Can the biodiversity and quality of wetlands that have been reclaimed in the land exchange be reproduced? Can they be of equal ecological value?	WET14
2260	Can the biodiversity and quality of wetlands that have been reclaimed in the land exchange be reproduced? Can they be of equal ecological value?	WET14
2261	I am bothered by changes made to Minnesota environmental standards that have made it easier for this project to move forward, while at the same time saying the mining should be done here because of our strict standards.	PD01
2261	I am bothered by changes made to Minnesota environmental standards that have made it easier for this project to move forward, while at the same time saying the mining should be done here because of our strict standards.	PD01
Sender Name (Submission ID)	Mary P Disch (44956)	
9369	I have concerns about the pollution of waters where wild rice grows. Since wild rice moves around and does not stay in one area, it is crucial to protect the waters in areas beyond where wild rice is presently growing. Who will monitor these waters?	VEG04, WR139, WR154, WR157
9371	I am concern about the present pollution in the former taconite mine area where Poly Met plans to mine. Will there be clean up of the site before Poly Met would be allowed to startup? Who pays for the cleanup?	PD10
9372	Are holding ponds for tailings and debris of Poly Met's mining lined underneath to prevent leaching into the groundwater?...How often are covers replaced as they deteriate over time. Is there plans for replacement of covers?	PD07, WR127, WR138
9373	Is the present plan to use reverse osmosis to clean the runoff a viable process? Has it been used and shown to prevent toxins and pollutants from entering water from the mining area? If the reverse osmosis process is put in place and fails to keep runoff within water quality standards, are there alternative methods to clean the runoff?	WR023, WR143, WR144
9374	Will enough money be collected from Poly Met to pay for the continuing cleanup of pollution of the water in the area and for how long? Who will pay these costs if Poly Met fails to? Will taxpayers pay for poor planning of cleanup costs?	FIN01, FIN05, FIN10
9376	How accurate are models that project cleanup processes. Is there an ongoing monitoring that corrects the models to represent the reality of the pollution being created?	PD29
9377	Will the surrounding residents be exposed to air pollution from the dust created by the mining and extraction process?	AIR07
17318	Can there be more aggressive ways to recycle the many minerals that are thrown into landfills every day in Minnesota, before mining for more minerals!	NEPA06
17319	I am afraid allowing Poly Met's planned mining operation will open new mines closer to the Boundary Waters area, a very sensitive area needing high water quality. I am not in favor of mining in the Boundary Waters watershed.	WILD02
17321	Is there accurate monitoring of runoff and water in the area to check pollution levels. Who monitors? Self monitoring by some companies has not always been up to standards. Will Poly Met self monitor or is there monitoring by outside reliable sources?	WR139

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mary P Disch (44956)	
17322	How thorough is the regulatory process in Minnesota? Is this type of monitoring water quality in regards to mining already in place in Minnesota and has it been able to prevent water pollution from exceeding standards and reduce pollution that exceeds standards?	PER30
Sender Name (Submission ID)	mary q mccallum (44958)	
8336	While I understand the economic boon it could create, I feel that this is very short sighted.	SO02
8339	With any sulfide mine there is risk of...acid mine drainage. Sulfide mining in water-intensive areas has never been done without contaminating surrounding waters. … Groundwater would be contaminated in the mining process, the question is how badly and for how long. Pollution from acid mine drainage can persist indefinitely….	WR107, WR108, WR115
17125	One of the best things about living in this state is it's natural beauty, our access to natural resources for living, for recreation.	LU04
Sender Name (Submission ID)	Mary Rose Fillip (38891)	
5401	Please carefully consider the world you are gifting to future generations. I tremendously enjoy seeing wildlife & the opportunity to get out into nature. With 500 years of toxic runoff, how would that be possible? The earth & its creatures are a gift, we are duty-bound to do our very best to protect it.	LU06
5403	Please join me in the fight to keep these [the Boundary waters] pristine & do not fall under the spell of big mining business.	WILD02
Sender Name (Submission ID)	Mary Ruch (6547)	
10599	I am very concerned about mining where spills and runoff can flow into Lake Superior or its tributaries.	WR111
Sender Name (Submission ID)	Mary Scott (58148)	
20011	there is a complete lack of backup plans if there are accidents polluting the environment with these heavy metals.	PD22
Sender Name (Submission ID)	Mary Slattery (45240)	
9060	I suggest that PolyMet put in escrow the full amount of money it would take to do their 500 years of water clean up by reverse osmosis ,before they are able to get a permit to make the hugh profits they expect to make from the mine.	FIN01
9061	20 years of jobs are not more important than our water..	SO01
Sender Name (Submission ID)	Mary St. Michael (49434)	
16879	Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health.	HU03
16880	Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish.	AQ12, AQ28

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mary St. Michael (49434)	
16881	The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks.	MERC20, WR158, WR197
16883	The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution.	HU02
16884	The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant.	HU04
16885	The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage.	WR041
16886	The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary.	HU06
16887	The SDEIS arbitrarily denies effects of water pollution on the St Louis River.	WR111
16889	The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence.	SO01
16890	Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence.	SO01
16891	Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources.	WR158
16893	Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured.	WR018, WR022
16896	Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution.	AIR05
16897	Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including:… Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public.	HU01
16898	[The EIS should include a Health Risk Assessment that incorporates an] Assessment of potential impacts on residential wells from tailings seepage.	WR041
16899	[The EIS should include a Health Risk Assessment that incorporates a] Health risk assessment for on-site workers at both the PolyMet mine and plant.	HU04
16900	[The EIS should include a Health Risk Assessment that incorporates an] Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury in fish.	HU01, MERC03, MERC10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mary St. Michael (49434)	
16901	[The EIS should include a Health Risk Assessment that incorporates an] Assessment of cumulative cancer and non-cancer risks from existing and additional sources of toxic chemicals, such as manganese, arsenic, lead and nickel, applying the most protective health risk analysis.	HU01
16902	[The EIS should include a Health Risk Assessment that incorporates an] Assessment of all risks using a 70-year “lifetime” for exposures.	HU06
16903	[The EIS should include a Health Risk Assessment that incorporates an] Assessment of cumulative risks of multiple chemicals and exposure routes (drinking water, fish, wild rice) on infants, children and the elderly.	HU02
16904	[The EIS should include a Health Risk Assessment that incorporates an] Assessment of cumulative risk of toxic chemicals (mercury, arsenic) in fish, game, and wild rice on persons who rely on fishing, hunting and gathering for subsistence.	HU02
16905	[The EIS should include a Health Risk Assessment that incorporates an] Assessment of cumulative risk of methylmercury contamination of fish in the St Louis River and estuary for Lake Superior.	AQ28
16906	Complete the mercury TMDL study of the St Louis River before finalizing the PolyMet SDEIS or issuing any permits for the PolyMet sulfide mine project.	MERC22
16907	The PolyMet SDEIS is an inadequate assessment of human health impacts and the PolyMet sulfide mine and mine wastes proposal poses an unacceptable risk to the health of fetuses, infants, children and adults in Minnesota.	HU03
16908	The Minnesota Health Department found 1 out of 10 infants in Minnesota’s Lake Superior Region are born with unsafe levels of mercury in their blood.	HU02
Sender Name (Submission ID)	Mary Suelflow (43966)	
14936	My daughter lives in northern Minnesota and my husband and I enjoy getting back to nature when we go to visit her. She also rices in the area. …It would be a shame to lose this natural and healthy food to mining. I am amazed that destoying this area is even being considered.	WILD02
Sender Name (Submission ID)	Mary Tambornino (37814)	
16334	We have no examples of copper/nickel sulfide mine in a water rich environment that did not result in contaminated surface and ground water.	WR023
16335	350 jobs, many of them for specialists brought in to run the mines, is not enough to allow a "rape of the landscape".	SO01
19309	I find it hard to believe that any of this fits with DNR's Mission statement: "toconserve and manage the state's natural resources, provide outdoor recreation opportunities and ... provide commercial uses .... in a way that creates a sustainable quality of life" and to "manage .... and sustain healthy waterways and ground water resources" . In fact, I am certain that the proposal of PolyMet meets none of these.	PER40
19310	350 jobs, many of them for specialists brought in to run the mines, is not enough to allow a "rape of the landscape".	SO01
19311	We have no examples of copper/nickel sulfide mine in a water rich environment that did not result in contaminated surface and ground water.	PD26
Sender Name (Submission ID)	Mary Texer (39023)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mary Texer (39023)	
5000	The request to allow sulfide mining in the Boundary Waters and Lake Superior Watersheds flies in the face of logic, documented environmental disasters and the science around this practice. We must not allow our environment and our water to be destroyed by this practice.	WR195
10636	If sulfide mining is allowed to go forward it is not a matter of if but when the disaster will happen.	PD01
14014	By looking only short term we would ultimately destroy some of Minnesota's greatest assets.	SO01
Sender Name (Submission ID)	Mary Trippler (10359)	
512	My two major concerns are, first, the lack of real cost benefit analysis and, second, the lack of a definitive answer on who will pay the costs of clean up over the 500 years remediation will be necessary.	FIN01, SO07
515	As I understand it, remediation will be necessary for up to 500 years. What sums will be escrowed to cover those costs? What responsibilities will the mining companies have in perpetuity to care for the mess they leave behind?	FIN01, FIN05
Sender Name (Submission ID)	Mary Voight (20878)	
1858	Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever.	WR195
16215	Neither the SDEIS nor the sulfide mine project are based on good science.	NEPA15
16217	The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health.	HU01, MERC02, WR041, WR115, WR189
16218	This project would violate water quality standards for generations to come.	WR195
Sender Name (Submission ID)	Mary White (46152)	
10618	Duluth MN area have raised questions about the added chemicals into our air, soil, water and fish and how they may impact the quality of health for an entire region of the state. I don't believe the impact statement adequately addresses these concerns nor does it specify who will treat the polluted water and for how long.	HU01
16214	This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin.	WR111, WR115
Sender Name (Submission ID)	mary wilm (10406)	
524	I think this assurance needs to be created as a state water trust fund which will generate interest or which goes into something like our state's general fund.	FIN08
525	It reeks of pandering to the international mining companies at the expense our precious resource, a basic human necessity, water.	WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	mary wilm (10406)	
527	These proposed nonferrous mining practices will create sulfates and acid drainage, as well as open the door to a myriad of greedy land and water exploiters. They are far too risky to exchange for the estimated 350 jobs.	SO01
1459	SDEIS does not require the absolutely essential step which is to make absolutely certain that the nonferrous mining companies pay the costs of ongoing and final cleanup up front, before any more steps authorizing their mining leases, facilities etc. It's too easy for them to liquidate through bankruptcy after the fact after ruining our water, Lake Superior and the BWCA lakes and rivers among other things	FIN01
Sender Name (Submission ID)	Mary Wolszon (46187)	
8101	I am opposed to the Polymet proposal for many reasons, primarily because it seems a poor trade off for a project with a 20 year life span verses a project that could harm a precious natural resource for possibly hundreds of years.	PD01
8104	It's not even primarily an American venture. This Canadian company, with Swiss backing, will be hard to go after if things go wrong. Company chair, Tolry Hayward, has a particularly bad history to be making proposals from.	FIN04
8115	The proceeds from the waste tailings are to be placed in bins that I understand are already leaking. Even if not true, the potential for that in the future is very great.	PD10
8117	This project endangers many rivers as well, including Partridge and the Embarrass Rivers.	WR115
8118	The E.P.A. review of Polyment described it as inadequate and unacceptable.	NEPA14
8119	As a Minnesotan who goes to Ely often, I like what I see of how they are promoting eco-tourism. I believe many more jobs can be created in the long term if we have healthy forests and pure water ways. The Boundary Waters area is a national treasure. People come from all over to be in this environment which will become more of a treasure as the years go by, unless, by short sightedness, we fall for projects such as Polymet's, the Northmet Project and Twin Metals, LLC.	SO02
Sender Name (Submission ID)	maryc (19908)	
1502	we value clean water and healthy air in all parts of this state…and scientists and geologists have noted that the PolyMet company can in no way guarantee the health and protection of the resources in northern Minnesota...The trade-offs are not worth it…to us or our future generations.	AIR11
Sender Name (Submission ID)	marycarols2 . (43212)	
11567	Our northern Minnesota legislators and those supporting sulfide mining do not seem to seriously consider the implications of sulfide mining and its effects on the waters of Minnesota, a state that is known for its "10,000 Lakes." Our lakes, rivers, and streams define us. Will we show the rest of the world the protection of our waters comes first?	WR195
11568	Rep. Tom Rukavina was mistaken when he said, "This is a policy issue and not something for citizens to decide." Who has more right to decide than the citizens of Minnesota?	PER45
11570	Mining may provide some short-term jobs, but it can also drive away creative professionals and knowledge workers, destroy entrepreneurial culture, diminish quality of life and damage long-term economic vitality	SO01
11571	Why not wait until sulfide mining can be proven safe and done without damaging our waters?	PD32

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	marycarols2 . (43212)	
11572	There would be 500 years of cleanup. Who will pay for that? … Just imagine, in the year 2540, PolyMet is still standing by, guarding the water supply! It is far more likely, though, that after mine is no longer producing maximum profit, or maybe a little while after that, PolyMet, or its parent corporation, Glencore, will tire of pumping water and will just abandon the mine. We have a name for orphan mines like this — Superfund sites.	FIN01
11743	The path of pollution will flow into Basswood Lake, damaging a world-class fisheries and exposing humans to the toxic effects of methymercury.	MERC02
11761	One effect of mining has been the corresponding removal of other employment options. When the minerals are gone, the mines close, and there is little reason for other businesses to locate in areas stripped of a landscape that draws people to a community. Mining is the only option, but without minerals that option no longer exists either.	SO02
15788	Sulfide mining will not bring stability. The minerals are finite. When they are gone the mining areas will again be left struggling to find viable options. And this time our lakes will need perpetual treatment for acid and toxic heavy metals. Is this what we want for future generations?	WR195
15789	Let us assume for a moment that PolyMet manages against the odds — and they are really long odds — to contain all the sulfuric acid that it produces during mine operation. What happens when the mine closes?	PD01
15790	If Freedom Industries, the Department of Homeland Security and other government entities can't keep track of one storage tank in West Virginia for less than a quarter century, how are we going to keep track of a toxic site on Lake Superior for five centuries?	GT10
15892	today, Ely has seen an upswing in industries based on the natural beauty (Boundary Waters and Superior NF) including manufacturing, a large increase in summer home development with its associated construction jobs and ongoing service jobs and support of main street businesses...But the big problem is sulfide-ore mining. If current prospecting and mining holdings are developed, the Northwoods will be surrounded by a massive industrial mining district. The forests would be transformed and lost forever. No sulfide-ore mine has avoided extensive toxic pollution to waters, and the Northwoods is a high risk area for water pollution.	SO02
15894	Is mining inevitable? I think not. These are low grade deposits and are dependent on high prices and low costs. If China slows down, the numbers won't work unless the costs drop dramatically. The trend is for recycling (at least 1/3 of every product). All of this is the reason I say our Northwoods area is too valuable to gamble on the most toxic form of mining with little return and a lot of cost to us.	NEPA06
Sender Name (Submission ID)	marylougofcfp@aol.com (43230)	
15817	THIS CORPORATION HAS NO ALLEGIANCE TO OUR STATE, AND AS A MULTINATIONAL WILL TAKE ITS PROFITS AND LEAVE US WITH THE RECLAMATION.	FIN01
15818	I FIND IT IRONIC THAT WE ARE SPENDING MILLIONS OF DOLLARS IN RESTORING OUR POLLUTED WATERS, WHILE CONTEMPLATING A COPPER SULFATE MINE IN NORTHERN MINNESOTA. THE MINE HAS THE POTENTIAL TO DESTROY EFFORTS THAT ARE BEING UNDERTAKEN AT THIS TIME	NEPA15
15819	WE WOULD BETTER OFF RECYCLING THE TONS OF PRECIOUS METALS THAT ARE BEING DUMPED IN LANDFILLS; AND IN THE PROCESS EMPLOYING PEOPLE IN AN INDUSTRY THAT RECLAIMS RATHER THAN ADDS TO THE DEVASTATION OF OUR ENVIRONMENT.	NEPA06
Sender Name (Submission ID)	Mason and Gwen Myers (45918)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mason and Gwen Myers (45918)	
10284	Fissures in the bed rock that may open to the aquifer are incompletely and inaccurately mapped; better data is reported to be available from Canadian maps. I ASK that the SDEIS include accurate fissure mapping.	WR007, WR008
10286	Reusing Storage Site: Sulfide process tailings will be stored on an existing taconite tailings site that is known already to be leaking to the environment. Sulfide leakage should be expected.	HAZ01
10288	I attended the meeting in St. Paul and saw the diagram of the proposed system of sealing the bottom of a storage basin. The diagram showed a subterranean geomembrane intended to prevent leakage down to the aquifer and another geomembrane covering the pile to prevent rain from entering it. Very little made by man has survived 200 years and I doubt these membranes have been so tested. The cover is available for replacement but the underground one is not. The protection intended seems inadequate. I ASK that the SDEIS include consideration of leakage control with a punctured underground membrane.	PD17, WR127
10291	I understand the SDEIS does not address the possible failure of storage site containment methods, whereas the history of containing dangerous materials is a litany of failure… Failure should be expected at this site sometime in 200 years, if not during actual operations. I ASK that the SDEIS Consider modes of failure and demonstrate capability to respond so as to protect the environment.	PD22
10294	Model Flaw: The design model makes assumptions that seem intended to deliver the desired result, for instance, that 90% of drainage from storage basins will be captured and delivered to a treatment facility. This would require that underground piping would be installed and maintained so as not to fail in 200 years. It seems an overoptimistic assumption. … I ASK that the SDEIS include the costs of repairing/replacing the system piping at 30 year intervals to account for breakage due to settlement of the piles.	WR131
10298	Reverse Osmosis: … I learned that the product stream is about 10% of the input, the concentrated 90% discard stream presents disposal problems, the input stream must be pumped through the separation membrane at high pressure, that the membranes are fragile and require frequent replacement. I ASK that the SDEIS be expanded to include a line item-by-line item estimate of facility maintenance costs, including at least 3% inflation, for the 200 year period and that the proposed method of disposing of the 90% concentrated sludge stream residue be identified. Simply trucking it off-site is not adequate description.	PD03
10301	.. the SDEIS does not address control of fugitive, mineral dust from the mining operation or from the various transport operations involving ore and tailings. I would expect the wind-blown dust from sulfide ore and tailings to acidify the surrounding area and lakes … I ASK that the SDEIS be extended to assess the expected damage to lakes and forests from fugitive dust.	VEG07
10314	The SDEIS admits to some pollution of the Partridge and Embarrass Rivers but the extent of it is calculated from a flawed model; the press reported that the rate of underground water transfer was erroneously measured. Combined with the overoptimistic assumptions for success of control of acid mine drainage the rate of stream pollution cannot be correct. I ASK that the SDEIS be revised to study accurately the stream pollution possible from the site.	WR003, WR189
10317	Putting a mine on top of a wetland will destroy a large and nationally important one. The concept of mitigating the loss by developing a wetland elsewhere is politically expedient but I doubt the hydrological feasibility of it. … I ASK that the SDEIS designate the location of the mitigating wetland and include a hydrological report of its feasibility. And, it must be in the same watershed.	WET03, WET06, WET19

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mason and Gwen Myers (45918)	
10321	Another problem with a wetland-located mine is that the upwelling water is moved upward by a long-established pressure gradient. Putting a mine on top of it will not shut off that pressure gradient; and digging a 600 foot hole there will reduce the resistance against which the gradient must work. I would expect that the result would be a mine filled with water; which will need to be dewatered continuously; and the pumps will deliver the water to the nearest stream. But the water has been exposed to the sulfide bearing ore so it is now a contributor to acid mine drainage. And the aquifer is drained. And I would expect that the 600 foot hole would act as a drain sump for any ground water in the area. The effect would be to dewater the entire area and kill life in the receiving stream. I ASK that the SDEIS be extended to assess the effect of the mine on the aquifer and surrounding ground water.	WR086, WR120, WR171, WR179
10323	Water is Minnesota's most important commodity. … it seems a poor idea to introduce sulfide mining into the wettest, most interconnected region of a state that sits at the headwaters of much of the continent and then proceed to open mine pits and build processing plants that will surely contaminate land and water in perpetuity.	WR195
Sender Name (Submission ID)	Mason C and Gwen S Myers (21552)	
10074	(…), the proposed project, located in the Lake Superior watershed, will destroy or degrade thousands of acres of high-quality wetlands and cause permanent water pollution with sulfuric acid and toxic wastes.	WR001, WR115
10076	(…) the PolyMet Project would completely destroy 912 acres of wetlands, 65% of which the DNR describes as high-quality.(…) the SDEIS admits that an additional 7,351 acres of wetlands would be degraded due to air and water pollution, mine dewatering and diverting water from wetlands.(…)The wetlands that would be destroyed or harmed by the PolyMet mine are water resources of national and international importance. Though the environmental review process should propose alternatives, nothing is suggested to reduce impacts to wetlands in the SDEIS.(…) There is no mitigation for the indirect wetland destruction and 2/3 of the replacement wetlands are outside the Lake Superior watershed.	WET01, WET03, WET19, WET20
Sender Name (Submission ID)	Mason C Myers (58131)	
19964	Protective measures consists of products and equipment made by man which we are asked to believe will serve for hundreds of years. In face nothing man-made has lasted 500 years, most have crumbled in less than 200	PD01
19967	Review of the EIS shows that the supporting technology is based on incomplete mineral data and inaccurate water modeling data	NEPA14
19990	The Polymet Mine Proposal threatens water purity of northeastern Minnesota and paves the way for additional mine proposals waiting off stage.	CU04
Sender Name (Submission ID)	Mathews Hollinshead (28646)	
10914	Launching sulfuric acid into northern MN aquifers and watersheds is self-evidently stupid and immoral on any number of grounds that are being well-documented by qualified parties.	WR195
14699	Minnesota's tourism industry and general health apparently count for nothing against a few unions who know the mining jobs probably won't even be union jobs, and shell mining companies that have nothing else to do with MN.	SO02
14700	There will be no positive jobs, union or otherwise, in the giant superfund site this will become. The only work will be monitoring and vainly trying to make things appear as if the damages can be cleaned up. All the rest of us schmucks will have to show is our escalating tax bills and the far-off memory of a time when you could actually use the water in northern MN.	SO03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Matt Anderson (43122)	
15872	It just seems that 20 years of employment is not worth basically permanent damage to an important part of this state.	SO01
15873	Any contamination of the surface or groundwater in northern Minnesota has the potential to spread and include areas far from the mining site.	WR111
15874	Glencore has a history of lack of concern for human rights, as well as environmental protection. A little searching quickly turns up a number of disturbing articles about Glencore projects in places like Columbia, Bolivia, Zambia, Ecuador, and the Democratic Republic of the Congo.	FIN02
Sender Name (Submission ID)	Matt Goodman (14483)	
1741	I believe that the costs far outweigh the benefits. The aesthetic toll cannot be measured and the economic benefits are negligible.	LU04
1742	So what if 500 people have decent paying jobs for 20 years. When the jig is up, they'll find themselves jobless in a economically depressed wasteland.	SO01
Sender Name (Submission ID)	Matt Jones (21)	
393	I do not want to see Minnesota turn into a state that permanently destroys its beautiful wilderness for short lived economic benefit.	SO01
Sender Name (Submission ID)	Matt Lauseng (40236)	
14131	I can see [the mine] being a good thing for the people and businesses in the area. Some sacrifices will be made yes, but they are minimal when the size of the payoff for the area are taken into account.	SO10
14133	Please don’t allow influence from groups outside the area or ones in areas that this will not affect to put a stop to a greatly needed expansion of mining on the iron range.	NEPA16
Sender Name (Submission ID)	Matt Mlinar (38879)	
5386	I've worked at mining operations in Minnesota and copper-nickel-sulfide research and I believe mining this reserve IS in Minnesota's best interest.	SO10
Sender Name (Submission ID)	Matt Schmitt (58147)	
19892	20 years of mining with 500 years of monitoring is an unrealistic thought.	PD01
19947	Never has there been a copper/nickel mine anywhere in the world that has not polluted water...The mine would be located 20 miles upstream from the largest fresh water lake in the world	PD26, SO01, SO02
20019	Threat to thousands of jobs in the recreational and tourist industry over the next 200 years,for a handful of 20 year mining jobs.	SO01
Sender Name (Submission ID)	Matt Straw (3474)	
9636	Mining companies: NEVER hire as many people as they say they will, and the jobs are impermanent, creating a future unemployment problem.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Matt Straw (3474)	
9639	Mining companies: NEVER clean up after themselves, leaving a toxic, deadly mess for taxpayers to deal with for decades--sometimes centuries... Expecting Minnesota to keep those chemicals from poisoning an entire region for 500 years is nothing short of absurd.	FIN01, FIN10
9641	Mining companies: NEVER aid tourism in the states or local areas where they are allowed to mine.	SO02
9642	Mining companies: NEVER find less invasive or less toxic methods to mine, always opting for larger equipment, fewer employees, faster methods, and a much wider impact in terms of carbon footprints and environmental destruction--that's what they call "progress."	NEPA15
13416	[Mining companies] NEVER hire as many people as they say they will, and the jobs are impermanent, creating a future unemployment problem.	SO02
13418	[Mining companies] NEVER end up having a positive effect on any economies, local or otherwise, in the long run.	SO02
16032	I do nto believe the potential for 500 years of poisoned water, ruined tourism, destroyed habitat, and ravaged state and local economies is a good trade for any benefits from any mine.	SO01
16986	[Mining Companies] NEVER clean up after themselves, leaving a toxic, deadly mess for taxpayers to deal with for decades--sometimes centuries.	FIN01
Sender Name (Submission ID)	matt tuccitto (47428)	
17587	Our state has a valuable resource located beneath the surface (copper, nickel, platinum, etc) and its our job to extract it as environmentally friendly and responsible as possible. Polymet mining will ensure that is done.	PD28
17588	Its time to make MN great again and attract tax paying families and corporations from other states similar to what North Dakota has accomplished in the last 10 years.	SO10
17589	issue Polymet a permit. I love the outdoors and have visited the BWCA 30+ times... this mine plan will NOT harm the water in northern MN.	WR190
Sender Name (Submission ID)	Matt Tyler (18354)	
2536	If you look at Appendix C, it is about 250 or 200 pages of the tribe saying all of the things that are wrong with the EIS, based on science and citations with their own models. Now, if we are going to say that that [SDEIS] is adequate, and we have that much dissent, then that is purely illogical and ridiculous	NEPA12
2537	And I think one thing that doesn't get talked about a lot, you know, is the mesothelioma and the increased risk of heart attack and stroke, you know, that a lot of people have experienced. And that is not really reflected in here [SDEIS] very well.	HU01
2538	I will just point out, the way they analyzed the wetlands impact on this thing is kind of ridiculous. I am friends with a professional hydrologist and he has told me time and time again, if you want to look at a wetlands study, you have to do a hydrological study, do a pump test, you have to do a laser test. They didn't do that. Why?	WET08
3208	…one thing I'd want to focus on is that something that's not been talked about is that this SDEIS, if you actually work through it, didn't have any analysis of worker safety in there.	HU04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Matt Tyler (18354)	
3209	...I think we have to look at this critically and one of the reasons they might not have put worker safety in there is because their own data in the SDEIS, page 5 -- 439 -- to 4 – 438 to 439, points out that about nine percent of the ore tailing and process water have those asbestos-like fibers in them, and you know, they didn't really look at what's that going to go to folks in the plant. They didn't really look at what the air treatment mechanisms are going to be.	HU04
14636	very rarely do you see an EIS that has its own chapter where the agencies say, "We disagree with this, we disagree with this, we disagree with this." If you look at Appendix C, it is about 250 or 200 pages of the tribe saying all of the things that are wrong with the EIS, based on science and citations with their own models.Now, if we are going to say that that is adequate, and we have that much dissent, then that is purely illogical and ridiculous.	NEPA12
14637	And I think one thing that doesn't get talked about a lot, you know, is the mesothelioma and the increased risk of heart attack and stroke, you know, that a lot of people have experienced. And that is not really reflected in here very well.	HU01
14638	No other EIS has this little mention in it to workers' safety.	HU04
14639	the way they analyzed the wetlands impact on this thing is kind of ridiculous. I am friends with a professional hydrologist and he has told me time and time again, if you want to look at a wetlands study, you have to do a hydrological study, do a pump test, you have to do a laser test. They didn't do that. Why? Because they were lazy. They wanted to rush to get this done, and now it is still incomplete.	WET08
18349	To protect taxpayers from bearing the cost of long term treatment, a portion of the financial assurance required by the State of Minnesota should be set aside to create a non-refundable trust fund dedicated solely to paying for the operations and maintenance of long term treatment.	FIN01, FIN08, FIN10
18350	Although the NorthMet SDEIS gives estimates of $3.5-$6 million annually for post-closure operations and maintenance (O&M) (SDEIS, pg. 3-138), the source of these estimates is not documented.	FIN05
18351	The annual long-term operating and maintenance post-closure cost estimates in the PolyMet SDEIS are significantly lower than the lowest estimates calculated from published estimates for similar reverse osmosis plants on the LTV property… Independent estimates of long-term annual O&M post-closure costs range from $6.1 to $10.6 million.	FIN05
18352	Stochastic simulation of volatile investment returns and inflation rates show that the minimum beginning balance for the Long Term Treatment Fund required to ensure water treatment for 500 years after closure is $333 million, and quite possibly $500 million or more.	FIN05, FIN08
18353	Lacking specific, detailed treatment water treatment plant plans specific to the NorthMet Project, there is still considerable uncertainty about annual long-term treatment costs.	FIN05
18355	The SDEIS also fails to include an estimate of a financial assurance funds for accidents, natural disasters, and other unforeseen events.	FIN05
18356	Not including additional contingency funds, the total financial assurance package should be at least $383-$700 million.	FIN05
18358	The NorthMet FEIS and permit applications should include financial assurance trust funds requirements for long-term treatment based on probabilistic analysis of investment return and inflation volatility similar to that presented here.	FIN05, FIN08
18359	Future probabilistic financial analyses should ideally use alpha-stable or other nonnormal distributions.	FIN05, FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Matt Tyler (18354)	
18360	Future probabilistic financial analyses should use longer investment return and inflation rate time series to improve the fit of statistical distributions.	FIN08
Sender Name (Submission ID)	Matt Zimmerman (54361)	
18224	I think that PolyMet Mining has a great plan for the reduction of environmental side effects and the output of ore. They appear to be trying to limit cultural and environmental damage through engineering.	PD28
18225	This mining would greatly benefit our state. It would create numerous jobs and help boost our economy. It would offer a lot of potential for future copper mines and would be one of the most productive.	SO10
18226	This will have a 1ninimal impact on cultural resources in the area. It might affect a segment of the Mesabi Widjiu. Other than that it wouldn't affect important cultural resources that are valuable to America.	CR07
18227	The land exchange offers seem fair. They appear to trade the same amount of land between both groups. The offers would add to the Superior Forest. They would also add to PolyMet's mines.	LAN11
Sender Name (Submission ID)	Matthew Davidson (6011)	
1523	Trading a generations worth of jobs for 5 generations of clean up and monitoring seems foolis	SO01
Sender Name (Submission ID)	Matthew Hennen (44007)	
7540	there is a severe lack of fisheries and aquatic organism related information and data collected in the document.	AQ01
7545	Information [is] in some cases outdated and unconfirmed (e.g., assessing aquatic vegetation using aerial photographs) and does little to address potential impacts on aquatic organisms.	AQ02
7547	Sensitive aquatic indicator species should be identified and monitored on much more frequent basis in order to make inferences about potential impacts.	AQ18
7550	Massive amounts of research including fish behavior, recruitment, growth, mortality, etc. needs to be done on waters potentially affected by this project.	AQ01
Sender Name (Submission ID)	Matthew J Eckman (54524)	
18729	Have a balanced SCIENCE (i.e., geology, chemistry, hydrology, ENGINEERS) group travel to several active copper/nickel mining sites of PolyMet (or their “parent” company) to review for current or residual problems with sulfides/pollution.	PER24
18730	If PolyMet is a subsidiary and declares bankruptcy, then who pays cleanup?	FIN01
Sender Name (Submission ID)	Matthew Kilibarda (44121)	
8100	I don’t understand why we would take such a big risk polluting [the fresh water of Minnesota,] considering that [fresh water] is going to be even more valuable and hard to come by in the future.	WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Matthew Kilibarda (44121)	
14899	I keep hearing how we should do this mining here because we will do it right. Even if that were the case, and I'm not confident it is, to do it right will cost more, meaning the copper/nickel will cost more leading to issues we have had with other mining industries.	SO01
14900	The long term effects of this type of mining are of major concern. Not only to the beauty of this land, but to the impact on game hunting and again water quality which will likely impact fishing, swimming and other water activities.	LU06
14901	With the amount of jobs this project is promising to create...it just does not make sense that for such few jobs we would take such a big risk with a much more important recreational industry and a fresh water system that will be a valuable resource in the near future.	SO01
Sender Name (Submission ID)	Matthew Mcdonough (39334)	
12804	Minnesota greatest natural resource, and source of tourism revenue is the clean and pristine waters of the BWCA, and lake Superior. Any propose minning that slightly poses a danger to that is not worth doing.	SO02
Sender Name (Submission ID)	Matthew Ott (19919)	
1507	The risks of the Polymet mine outweigh the benefits.	SO01
Sender Name (Submission ID)	Matthew Straw (40712)	
14180	500 years ago we didn't even have steam engines. Columbus had just discovered America. And you want us to monitor extremely deadly water pollution for that period of time? Ridiculous.	PD03
14181	500 years of diligence and expense that will obviously fail raises the bar dramatically on what mining operations are expecting the populace to accept, and the costs they are forcing us to bear so they can become instantaneously wealthy.	FIN01
14182	These jobs won't last a generation. Can't be passed on to children. One generation of economic boon for 500 years of diligence, expense, deadly pollution, lost tourism, lost drinking water, and lost habitat?	SO01
Sender Name (Submission ID)	Matthew Webster (44283)	
11966	I believe the positive short-term fiscal impact from a 20-year operation is significantly outweighed by what I understand to be the exponentially longer period of remediation and environmental impact.	SO01
11967	I am concerned that, even with the best intentions, PolyMet may not be available to continue monitoring and funding these remediations in 50 years or 100 years, and that therefore the cost of this would fall either on Minnesota taxpayers or on this fragile yet beautiful environment itself	FIN01
Sender Name (Submission ID)	Maura Dilley (40668)	
6590	Minnesota's identity, heritage and future is water. Growing up in Norther MN, my family's drinking water came directly from a pump in the lake. The proposed PolyMet mine means that never again will members of my family have the same connection to Nature.	WR195
Sender Name (Submission ID)	Maureen Johnson (43006)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Maureen Johnson (43006)	
11533	A response to preventing release of such substances is to use a Hydrometallurgical Residue Facility (HRF), a large scale storage facility (SDEIS pp. 5-545, 569) to control disposed waste from the HP, waste sludge from Waste Water Treatment Facility at the Mine Site either directly or after processing through the HP, HP spill wastes that cannot be reintroduced to the HP, and other mine and plant wastes that require similar isolation from the environment….The SDEIS should develop alternatives to the current disposal system. One alternative to develop is a facility in which the waste is dried and permanently stabilized for disposal, either during operations or at closure. In this scenario, a waste-draining and treatment facility might route HP process waste water to a lower-elevation surficial impoundment for recycling to the HP. HRF contains hazardous waste and must be regulated appropriately Residue waste in the HRF has the potential to acidify and leach metals.	ALT09
11535	The SDEIS p. 5-545 declares "no significant adverse effects from the proposed use or generation of hazardous wastes by the NorthMet Project Proposed Action" but provides little data, evidence and commitment to demonstrate that the long term, perpetual containment of the wastes will not fail….I believe this facility is a hazardous waste facility based on:...- The gypsum sludge at PolyMet met the TCLP test, but the all wastes have not been tested for lethality and the process water is basic, with high chlorides…- By understanding that the purpose of the WWTF is to filter out metals and other constituents that prevent compliance with NPDES requirements, we can use our judgment that the waste sludge has potential to be hazardous….Unlike the hydrometallurgical wastes that were tested by TCLP for hazardous characteristic, the hydrometallurgical process waste water anticipated for full production was not [tested] during pilot tests (SRK, RS33/RS65 Hydrometallurgical Residue Characterization and Water Quality Model, February 21, 2007, Appendix B, p. 3...Although TCLP (EPA 1311) tests for the hazardous waste corrosivity characteristic on each of the solid form residues and their combination indicated these were not hazardous (SRK RS33/RS65, 2007, p. 23), the hydrometallurgical process waste water was not [TCLP] tested, and no indication of required testing of these wastes for the Minnesota lethality characteristic was found in the supporting documents….The SDEIS does not propose treating the residue in the HRF. However, "there is potential for acid generation to exceed neutralizing capacity in the long term, therefore lime or limestone will be blended with the Residue prior to disposal in the lined HRF." (PolyMet, Residue Management Plan V. 2, December 14, 2012, p. 6). This will be a giant experiment using theoretical calculations for the volume of limestone to mix in with the residue, with some risk of failure….The HP process is said to "extract and isolate platinum group metals (PGM), precious metals, and base metals" (SDEIS, p. 3-107), but this list of products is inconsistent with the products from this process described elsewhere as gold/PGM product, copper concentrate product, and Nickel/Cobalt product (SDEIS Fig, 3.2-26, p. 3-109). The processes producing each of these sets of products require different chemicals, so it is important to be clear about which products will be produced, using which chemicals….The SDEIS must discuss the fate and risks of impacts of remnants of thickeners, flocculants, explosives, and such, some of which might cause impact different from their elemental makeup. Whether the waste is deposited in the HRF or in the FTB, at the stockpiles and the mine pits, all are subject to risks of release in the long term future because the wastes are not stable, and water and weather will cause wear on the covers.	AQ27, HAZ02, PD17, PD18

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Maureen Johnson (43006)	
11537	No one in the List of Preparers shows RCRA solid and hazardous waste training…Listing the permits and their functions in the SDEIS is a way to provide the information. The list should include which permits cover which wastes, especially wastes presenting risks that meet or come close to the Minnesota definition of hazardous waste. If PolyMet will need a Hazardous Waste Generator's License, this should also be listed, even if the waste is exempt from other parts of chapter 7045. A large operation such as this often has its own industrial waste landfill. If PolyMet will have one or will continue to use SW-619, the permit should also be listed...The proposed location violates the location standards….The SDEIS avoids the requirement to provide information prepared for the NPDES and SDS and RCRA permitting that is required by Minn. Stat. 4410.2300 CONTENT OF EIS...The SDEIS completely ignores the narrative state standards, which are more difficult and complex than meeting the chemical numbers….The proposed location of the HRF does not comply with Minn. R. 7001 with the location requirements for hazardous waste at 7045.0538 LANDFILLS….The SDEIS text is insufficiently referenced, which meant we must search through the text pages of multiple reference documents listed at the end to find information about a particular subject in 2 full CDs (disks) of reference content amounting to 50,000 to 80,000 pages. Some references contained important references that were not included. This is an enormous amount of wasted time on the part of the reviewers and is a major reason we complained we need more time. There are many SDEIS statements that are not cited to references where references are available. This purposely makes it difficult to find references that apply to confirm the veracity of the statements. The index is usually useless. For example there is no entry for Waste Water Treatment Facility….PolyMet needs to make a statement of commitment in the SDEIS as to what it will do and what it might do to create a basis for the Record of Decision and for special appropriate conditions to be placed in its permits.	HAZ01, PER09, PER12
11546	the surface impoundment on closure will require maintenance that is not adequately planned or financed...- the lack of sufficient cover replacement plan and financing.- uncertainties in the production, and risk to environment when mismanaged, especially if not maintained and the cover not replaced- maintenance and replacement must be conducted into perpetuity, raising concern about the stability of the company over hundreds of years….The SDEIS must discuss the permanency of the Hydrometallurgical Residue Facility [HRF] and the perpetual nature of maintenance required, in contrast to the time over which the HRF is modeled….Financial Assurance should require annual contributions to a closure/maintenance and post-closure maintenance escrow funds during the 20 years of operation, with each year including provision for 1/20th of the total amount of maintenance costs for 500 years. Notwithstanding the current rules on financial insurance, this would be the only way to guarantee the proposer pays for these costs.The SDEIS must include a plan of sufficient detail for post-reclamation repair/ replacement/ other action in the case that the bottom liner composite system fails as indicated by quantity of leachate or HRF monitoring wells data.The SDEIS cost estimates must include post-reclamation periodic replacement of the cover liner and action costs in the case of bottom liner composite system failure.	FIN01, FIN05, FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Maureen Johnson (43006)	
11547	I believe this facility is a hazardous waste facility based on:- EPA's determination that liquids in a surface impoundment represents a hazardous waste stream, - a surface impoundment is governed only under the hazardous waste rules in Minnesota,the surface impoundment on closure will require maintenance that is not adequately planned or financed,- the site risk to ground water is very high. The rosy projections for a mostly compliant discharge are hardly believable, mostly because the cost will be very high, but also because PolyMet has lowered the quality of the product it will produce by selling concentrates of mixed products rather than separating out each metal, likely reducing its projected income. (see the ground water section below.)- that the surface impoundment contains the unstable natrojarosite, which will dissolve and cause acidity in a domino effect; that the cover is not planned for replacement in a reasonable amount of time. - the lack of a monitoring plan including wells...The SDEIS underestimates the impacts of the project on ground water by orders of magnitude for some parameters by improperly assessing impact using criteria that are not all risk criteria…. Provide the documentation for [maintaining surface flows]. Maintaining existing aquatic ecology is not only providing water, it is providing the minerals, nutrients and conditions that the aquatic ecological organisms require….The SDEIS does not acknowledge that the lower geomembrane liner has the similar chances of structural flaws as either the upper geomembrane or the cover geomembrane. Leaks can happen in any of the liners, some, perhaps most, because of accidental flaws in installation. The enhanced clay liner beneath the lowest membrane will slow leakage but may not stop it, especially if the residue is ionic and/or acidifying and changing the form of some of the wastes to mobilize.	AQ24, HAZ02, PD17, WR001, WR060, WR064, WR107, WR108, WR126, WR127, WR138, WR142, WR185
11550	The [Hydrometallurgical Residue Facility] HRF may contain .7 to 1.5 tons of mercury….Another unknown is mercury, which has much lacking data, it was not a parameter analyzed on a standard basis, it was not included in modeling and it should have been. The affected downstream receiving waters are mercury impaired. Mercury is included in Table 5-2 Elemental Composition of Residues for each residue and the combination at .11 ppm (SRK, RS33/RS65), which, based on only this information, would be almost .7 ton mercury if the full 6,170,000 tons of residue are produced….The SDEIS p. proposes no action on mercury in discharges, asserting they will meet the standard of 1.3 ng/l Hg. The standards must not be exceeded therefore the effluent limit should be set at less than the standard of 1.3 ng/l Hg, a level that will ensure the standard will not be exceeded….7052.0220 requires that the NPDES permit contain WQBELs for GLI pollutants that exceed standards in fish tissue (below). This means if PolyMet intends to discharge to a water body with the mercury fish tissue level already exceeding the standard, each facility including PolyMet that discharges to the water body must assume it has reasonable potential to cause or contribute to excursion above a water quality standard or criterion….The SDEIS should include: HRF leakage in the water modeling including mercury; a discussion of mercury speciation versus changes in the HRF should acid conditions develop; [and] a discussion increased risk of mercury release to ground water should the aging liner(s) fail.	MERC01, MERC04, MERC13, MERC14
11555	3.2.2.3.4 Ore crushing and grinding buildings emission control systems are planned to meet or exceed the particulate emission standard required of new sources at taconite plants. That particulates are not taconite particulates and the grind is smaller than taconite likely makes this standard insufficient. The SDEIS should address these differences from taconite emissions….The SDEIS must acknowledge that this project will produce heavy metal particulates subject to OSHA & MSHA worker exposure standards, such as Ni, which has been identified as cancer-causing at specific concentrations and particulate size.NEPA requires that impacts to the human environment be evaluated. The impacts of the heavy metal nature of particulates should be described for human and environmental receptors both outside and inside the buildings, both when well managed and when mismanaged.	AIR10, HU01, HU04
12698	Section 5.2.13 of the SDEIS states, "If present, other hazardous or potentially hazardous materials or wastes will be characterized, managed, and disposed of or recycled per the Hazardous Materials Management Plan (to be completed), which will follow requirements of Minnesota Rules, Chapter 7045: Hazardous Waste. This is implies that, if operators think that wastes might be hazardous then they will test. This is not sufficient.	HAZ01
12706	This is a proposed mine in a mostly wet place, much different from almost all other non-ferrous mines located in dry areas with little to no water to worry about contaminating….Location standards are listed at Facility standards 7045.0460: No facility may be established or constructed in a location where the topography , geology , hydrology , or soil is unsuitable for the protection of the ground water and the surface water.	PER12

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Maureen Johnson (43006)	
12711	PoyMet should develop an alternative to disposing of the hydrometallurgical waste on site; such as hauling the waste to an off-site industrial or hazardous waste disposal site. The discussion should include determinations of whether an industrial waste disposal site would accept the waste and whether a hazardous waste disposal site would accept the waste, and the appropriate comparisons of risk, cost, and other factors among all three alternatives.	ALT09
12715	The SDEIS has no mention of lime included in the residues as treatment. The volume of lime that would be needed would have to be sufficient to contact any acid water formed from jarosite decomposition at the site where the acid was formed...The total volume of the treatment lime or hydrated lime must be stated and assure the volume can be accommodated in the 6,400,000 cu yd capacity of the HRF.	PD18
12728	If the hydrometallurgical process waste water is determined to be hazardous, it cannot be exempted from compliance with 7045 due to recycling because the surface impoundment system is not totally enclosed.	HAZ02
12733	Other wastes proposed for disposal in the HRF are likely hazardous and need testing, including the reject concentrate hazardous wastes, and sludge from the WWTF.Each new waste proposed for disposal in the HRF must be tested for composition, determined whether hazardous waste or not, and evaluated for compatibility with the existing combination of wastes.	HAZ02
12738	With regard to surface impoundment and preventing dike failure, hazardous waste rules state, "In ensuring structural integrity, it must not be presumed that the liner system will function without leakage during the active life of the unit." (7045.0532 Subp. 3. E.) Actually, "minor amounts of leakage to groundwater" are expected (PolyMet, Geotechnical Data Package Vol. 2 - Hydrometallurgical Residue Facility V. 3, October 12, 2012, p. 8).	HAZ01
12744	PolyMet presents Minnesota with a dilemma on assuring long-term financial stability for long-term maintenance. Currently accepted financing tools can disappear when the company bankrupts	FIN01, FIN08
12747	The SDEIS underestimates the impacts of the project on ground water by orders of magnitude for some parameters by improperly assessing impact using criteria that are not all risk criteria	WR071, WR110, WR177
16503	Ten other copper-nickel-platinum group deposits will be mined eventually if this project proceeds to operations. The people of our state have a right to be informed about the cumulative effects of these mines before any decision is made for an individual mine....A separate cumulative EIS analysis on these eleven similar copper-nickel-platinum group deposits is necessary before a Record of Decision and permits are issued for PolyMet….This data is needed before we proceed further with PolyMet.	CU04, CU19
16583	Of the potential violations listed at 7045.0538 for hazardous waste landfills, the proposed HRF is located 1) where degraded wetlands are present and also over tailings on top of peat where wetlands once existed; 2) where the topography, geology , hydrology , or soil is unsuitable for the protection of the ground water and the surface water including proximity to lakes, streams, or ponds, bedrock; value as drinking water supply, ground water flow patterns related to recharge to aquifers for drinking water.	WR069
16587	identified faults, including a formerly inferred fault [run] through the HRF location …. All of these faults in the Plant site and nearby cannot be ignored and should be thoroughly analyzed for integrity, fractures, weakness and effects on the faults and other faults, permanent structures, and plant infrastructure should any size of movement occur. The uncertainty around these faults puts at risk the integrity of the hazardous waste disposal facility.	GT11, WR008, WR012, WR067
16591	The text should discuss the potential for weak occurrences [of earthquakes] and the effect of a small shift in the area of the HRF on the liners especially when they age and weaken, and cause leakage not controlled by the leakage collection system.	GT12

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Maureen Johnson (43006)	
16609	HRF location and management of wastes does not meet requirements of MN law, facility should be relocated	PER12
16617	The liquid process water will pond over the settled wastes in the surface impoundment and be reused in the HP. The surface impoundment is open to any wildlife, swans, ducks, other birds, rodents, or flying butterflies and insects. The characteristics of the waste water is likely to be a risk to these biota. Note some individual chemicals are common but in high concentrations: high salt concentrations will dehydrate; magnesium sulfate will have a laxative effect; hydrochloric acid and sulfuric acid will burn; we do not know what the combined impact this would be on wildlife. ...Appropriate tests would be the lethality hazardous waste characteristic and the Whole Effluent Toxicity.	WI04
16631	the SDEIS does not propose a well system to monitor ground water for HRF leakage to the ground water. Any leakage would be unlikely to be detected because there are no monitoring wells in a monitoring plan specific to the HRF. The SDEIS does not include a contingency plan and cost estimates for liner failure.	PD18
16636	Liner leakage must be evaluated for changes in acidity, pH, and quantification of leachate water quality characteristics including but not limited to metals, so that appropriate action can be taken if the content of the HRF is acidifying and enabling release of contaminants.Liner leakage is dismissed as negligible and not included in models, but in the post-reclamation period leakage is much more likely.	PD18
16640	...hazardous waste rules state, "it must not be presumed that the liner system will function without leakage during the active life of the unit." (7045.0532 Subp. 3. E.) The hazardous waste rules is the only location where governance of a surface impoundment is found. Disposal of waste under 7035 does not allow liquids. One might conclude that a surface impoundment containing waste including sludge from non-sewage waste water treatment is a hazardous waste facility in Minnesota, and this would be appropriate.	PER12
16643	The SDEIS should provide examples of liner provider warranties and installer warranties, and discuss what other mines do to provide for replacement of the HRF liners. This will provide an idea of what site specific life these liners have, and a basis for estimate of replacement costs. It will also provide a better basis on which to consider stabilization of the waste as an alternative, during operations, at closure, or when the lower liner system needs replacement.	PD18
16650	SDEIS p. 5-201 dismisses mercury in groundwater, but at a release rate of 5-7 ng/L mercury for about 500 grams of rock, exposure of mercury increases exponentially when the total amount of rock surface from mining is exposed. ...- The SDEIS must address not only the results but also the inadequacies of the tests that it says supports the dismissal of mercury in groundwater with an uncertainty analysis.	MERC04
16654	The ground water evaluation points provided at SDEIS Fig. 5.2.2-4 may be appropriate to model potential effects, but they are not appropriate as monitoring points to identify surficial ground water pollution. If the property boundary or a receiving surface water is used as a pollute-up-to-boundary, the ground water of property beyond or the receiving water will be affected. It will have been too late before it gets to other properties or a receiving surface water.	WR039
16655	Minn. R. 7060 does not permit the concept of allowing dilution of ground water contamination until it gets to a property boundary. …additional groundwater monitoring points should also be located at points where early detection and cost-conservative control of contamination is still reasonably possible.	PER09
16656	Ground water monitoring points must be located at points at a sufficient distance before the property boundary or before the river so that the responsible mining company can mitigate pollution before it impairs other persons' uses of the ground water that begin at the property boundary or before it discharges to a surface water.	WR039

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Maureen Johnson (43006)	
16661	…instead of followthrough with Health-Based values identified in the cited Rules as appropriate working with risk to human receptors, the SDEIS continues to use only the available HRLs and MCLs. ...The SDEIS should use risk-based data and evaluation criteria. For example, the human receptor data for Mercury is .00053 ng/l since this water will eventually emerge as surface water that escapes through the containment system to methylmercury-impaired waters.	WR010
16667	When residential wells are reflecting contaminants that could be related to the tailing basin, it is logical that SDEIS must provide evidence (tracer tests?) that there are no connections to other residential wells and ground water beyond the mine limit – before the underwater disposal option is approved and a full pit provides the head to push meromictic waters into fracture conduits horizontally or downward to the major drinking water aquifer	WR010, WR012, WR039, WR041, WR056, WR064, WR071, WR087, WR090, WR142, WR168
16676	I see no indication that this SDEIS estimate considers inflation, which if we reasonably assume based on past inflation 1970 to 2014 doubles the costs at least about every 30 to 50 years	FIN05, FIN08
16678	the SDEIS neglect to discuss risks in the long term for all activities at the project, such as but not limited to underwater disposal in which a long term probability is meromixus, the ponds liners at the Waste Water Treatment Facility that will also have leakage, underliners and covers for stockpiles that will need maintenance and replacement, the Floatation Tailings Basin and stockpile seepage containment systems…The SDEIS must discuss the NEPA-required risk considerations that may lead to violations of ground water and surface water criteria.	GT01
16679	I am not convinced that the SDEIS proposals are sufficient to protect groundwater and surface water against a pot pourri of mineral processing wastes, waste water treatment sludges, miscellaneous wastes, and more than a ton and a half of mercury in an area where both anthropogenically affected and pristine surficial groundwater and wetlands headwater to streams and lakes that are already mercury impaired.	WR109, WR130
Sender Name (Submission ID)	Maureen Keogh (12417)	
77	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for	WR035, WR128, WR143
78	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
1654	The SDEIS proposes no mitigation for the indirect wetland impacts.	WET01
Sender Name (Submission ID)	Maureen Lahiff (13569)	
119	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for	WR035, WR128, WR143
120	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
121	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	Maureen Skelly (18258)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Maureen Skelly (18258)	
13704	I wanted to suggest that perhaps we come up with a plan where some of the 350 or 500 people that might apply for the jobs the mine is offering would consider creating some other jobs for themselves connected to the tourism industry; the fishing, the hunting, the canoeing, where people that go up there could commit to supporting them.	SO06
13705	We in Minnesota have a responsibility to protect the water, the land of 10,000 lakes, the source of the largest river in the North American continent and home to the largest freshwater lake in the world.	SO01
Sender Name (Submission ID)	Maury Aaseng (18068)	
3184	… I don't know why we aren't opening a recycling plant that takes these millions of tons of precious metals in electronics and using them that way.	ALT09, ALT16
15408	I would like to hear people talk about solutions that take into account the economic need of the people in the region who stand to benefit from the mine while protecting against environmental damage and long term costs that many in the state object to.	SO06
15409	One idea that I suggest is to examine the viability of opening a precious metal recycling plant that would preserve the environment, provide needed metals, and provide jobs and industry. According to a recent publication by the Smithsonian Institute, there is an estimated 40 million tons of electronic waste generated annually that contain the metals we could use for these purposes. Consider what other solutions we could come up with if we work together instead of becoming polarized.	NEPA06
Sender Name (Submission ID)	Max Jodeit (2718)	
11903	[revise project to include] new technology that would allow recovery within two years, when any mining stops	PD32
11904	[revise project so] sufficient money is deposited in an account controlled by the State of Minnesota DNR (for example) to ENSURE that the technology works and that recovery is essentially complete after two years, whereupon some of the deposit would be returned to the miners; half the original deposit if recovery is ACTUALLY complete, and an appropriate amount kept back temporarily to check the last steps. Otherwise, the whole amount would be used to complete the recovery work. Penalties large enough to make the mining company think their project through for the long term should be agreed to by the company.	FIN05, FIN07
17006	DOUBLY sufficient money is deposited in an account controlled by the State of Minnesota DNR (for example) to ENSURE that the technology works and that recovery is essentially complete after two years, whereupon some of the deposit would be returned to the miners; half the original deposit if recovery is ACTUALLY complete, and an appropriate amount kept back temporarily to check the last steps. Otherwise, the whole amount would be used to complete the recovery work.	FIN08
17007	Penalties large enough to make the mining company think their project through for the long term should be agreed to by the company.	FIN01, FIN08
Sender Name (Submission ID)	Maxene Linehan (9692)	
15358	the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever.	WR115
15359	the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science.	WR003

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Maxene Linehan (9692)	
15363	Minnesota's interconnected water table, lakes, rivers, streams and watersheds (including Lake Superior) are too precious to the future of Minnesota to allow feckless exploitation. Sulfide producing mines are better managed in dry regions.	SO01
15365	The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streams.	WR003
15366	The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards.	PD03
Sender Name (Submission ID)	Maxwell Helmberger (57259)	
17393	This project threatens to destroy wetlands, pollute our waters, and kill our wild rice stands.	WET24
17394	The loss of these ecological and cultural resources is not worth the metal from the ground, especially if the pollution remains here in the state long after the last speck of ore is carted away.	SO01
Sender Name (Submission ID)	McLaughlins (6527)	
1086	The Iron Range needs an economic boost and Polymet will have a huge positive impact in our area of the state.	SO10
Sender Name (Submission ID)	Megan McGuire (44862)	
8059	While the standard processes may call for detailed risk analysis during a later stage of permitting, that would provide inadequate opportunity for the public to review and comment on the risk analysis. I would implore the agencies to conduct and thorough, detailed, and complete risk analysis to be included in the EIS to allow the public to comment on the analysis.	NEPA08
8060	A risk analysis is needed for many areas of the EIS and should be added [i.e., for:] potential impacts to water quality, habitat, and human health. I suggest that the risk assessment should follow the principles used by the Corps of Engineers for risk analysis. The analysis should include all potential avenues for harm to public health, environmental resources, and workers...These risks should then be described based on the likelihood of each risk occurring, the consequences, and the response.	HU01
Sender Name (Submission ID)	megan williamson (28957)	
13872	Please DO NOT endanger Lake Superior!!! How can protecting our largest body of fresh water not be a top priority?	WR111
Sender Name (Submission ID)	Meghan Ihfe (54341)	
17447	[The PolyMet mine is] going to benefit us it is also going to give us some disadvantages. If we do this project, we will be getting rid of some waste that is found in our earth. I think that the plan that they have right now would work out perfectly fine. I think it will also help Minnesota by, getting rid of our wastes and also earning more money for the copper-sulfate.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mehgan Blair (11534)	
2484	Why are only local environmental impacts considered in the EIS, when the commodities (i.e. metals mined) are traded on a global market. For example, does this project, mined in an area with a functioning elective government and strong environmental and labor regulations, has the potential (through the use of hydrometallurgy) to offset global emissions from smelters by displacing in the marketplace metals delivered by mining/smelting elsewhere in the world? Would the development of hydrometallurgy, in general, drive technological improvements that could help curb global emissions from mines?	PD33
2484	Why are only local environmental impacts considered in the EIS, when the commodities (i.e. metals mined) are traded on a global market. For example, does this project, mined in an area with a functioning elective government and strong environmental and labor regulations, has the potential (through the use of hydrometallurgy) to offset global emissions from smelters by displacing in the marketplace metals delivered by mining/smelting elsewhere in the world? Would the development of hydrometallurgy, in general, drive technological improvements that could help curb global emissions from mines?	PD33
Sender Name (Submission ID)	Mel Lahr (46052)	
10543	Levels of contamination, acidity and corrosion that will result from the waste which would go into the HRF (hydrometallurgical residue facility) are not revealed in this report. We know that the waste will be hazardous though and therefore the site should be regulated as a hazardous waste landfill. Storage and disposal of such waste requires a separate permit in Minnesota. (Minn. Stat. 116.06, subd. 11)	HAZ02
10546	Minnesota rules protect water quality and human health by requiring that wastes must be solidified and stabilized after closure so they won't leak but PolyMet is proposing to use various types of liners including Geomembrane (which is known to degrade over time) and leave the waste in a toxic pond. PolyMet must be required to specify all HRF wastes and plan to treat their wastes as hazardous.	HAZ02, WR067
10553	The EIS states, "adaptive management would be implemented , if necessary, to protect the environment for the long term." … What if something happens in 40 years? Or 100 years? It is unlikely PolyMet still be around to practice this adaptive management? Other industries with similar risks, such as offshore drilling and nuclear industries, must include a Safety Emergency Management System (SEMS). PolyMet should also be required to layout safety precautions for possible scenarios instead of just saying we will use "adaptive management" when the time comes.	FIN01
Sender Name (Submission ID)	Melanie Erickson (52294)	
10739	The risk to ruining this precious area and even more precious water out weighs the benefits by far.	SO01
16983	The damage to water [from the NorthMet Project] m[a]y be devastating and last for hundreds of years.	WR071, WR115
Sender Name (Submission ID)	Melanie Lahr (18322)	
2363	Levels of contamination, acidity, that will result from the waste which would go into the HRF are not revealed in this report... the site should be regulated as a hazardous waste landfill.Storage and disposal of such waste requires a separate permit from Minnesota.	PD17
2367	Minnesota rules protect water quality and human health by requiring that waste must be solidified and stabilized after closure. So they won't be. But PolyMet is proposing to use various types of liners, including the geomembrane, which is known to degrade over time and leave the waste in a toxic pond.	PD02, PD15
2368	PolyMet must be required to specify all HRF waste and plan to treat their waste as hazardous.	HAZ02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Melanie Lahr (18322)	
2371	What is "adaptive management"? What if something happens in 40 or 100 years? It is unlikely PolyMet will still be around to practice this adaptive management…Other industries...must include a safety and emergency management system...PolyMet should also be required to layout safety precautions for possible scenarios instead of just saying, "We will use adaptive management when it happens."	PD22
Sender Name (Submission ID)	Melanie Peterson-Nafziger (40559)	
14309	the exchange of protected wilderness lands in tracts 3, 4 and 5 increase the risk of pollution in the Boundary Waters Wilderness Area, the most pristine waters we have in Minnesota. Of course, the proposed PolyMet sites also endanger Lake Superior and the rivers that flow into it in that region of Minnesota.	WR111
14310	The trade off to create short-term jobs and tax revenue in Minnesota by permanently damaging our land; endangering our most precious wilderness areas; potentially endangering our human health and our resources due to acid mine drainage, sulfates pollution, and mercury and other heavy metals release; and exposing our region to unforeseen but somewhat predictable long-term impacts of the mine is not worth it.	SO01
Sender Name (Submission ID)	Melinda Suelflow (43590)	
15688	It is wrong to assume that the PolyMet tailings site has no potential to transport pollution through fracures. Existing tailings seepage already exceeds groundwater standards. In addition, on the LTV site, adjacent to the tailings, the SDEIS has documented that Area of Concern #8 has a plume of pollution propagating through fractures. (SDEIS, p. 4-12).	WR168
15689	Another problem is the lack of analysis of tailings seepage to residential wells. The SDEIS reports that there are 27 residential wells downstream of the tailings basin, before the Embarrass River. Some of these drinking water wells already have high levels of toxic metals (SDEIS chapter 4, page 403-411).	WR041
15690	I am also concerned about sulfates being released from the mine site and impacting the already impaired wild rice waters and fish in the St. Louis River.	WR158
15691	PolyMet also doesn't tell us how much mercury pollution will be seeping out of the PolyMetoverburden, tailings into surficial waters flowpaths right next to the huge new tailings piles.	MERC20
15692	The SDEIS should be redone to reveal how much mercury will be released directly or indirectly from the mine site into surface waters, and to show how much mercury seeps out of mine pits, waste rock pile, and liners to surface water flowpaths starting at year one and to identify the first place that mine site surface groundwater reaches the surface.	MERC16, MERC20
15693	The PolyMet SDEIS should not be finalized or the project approved until a mercury TMDL study in the St. Louis proves that PolyMet's increased mercury loadings won't increase fish contamination.	MERC22
15694	the SDEIS should be redone to use the best scientific data available and model PolyMet's mercury bioaccumulation effects.	MERC02, MERC04
15695	The SDEIS doesn't disclose cancer risks to on-site workers, but it should. The SDEIS should analyze particles and fibers in the air inside the crushing plant, not just outside the property boundary. And it must explain cancer risks intelligibly, assess on-site worker risk and recalculate cancer risks with a 70-year, not a 30-year lifetime. The SDEIS currently says that 30 years is a "lifetime" for cancer exposures, although both EPA and MN use 70 years. With this tweak, the total cancer risk at the property line for the mine and the plant is just exactly at MN's cancer limit (SDEIS pps. 5-421, 5-424, 5-426). Too convenient.	HU05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Melissa Engel (42836)	
7336	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US Dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range.	SO10
7336	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US Dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range.	NEPA16, SO10
Sender Name (Submission ID)	Melissa Harry (52262)	
10688	My primary concern with the PolyMet sulfide mining is the lack of 100% surety over the longterm environmental and water quality repercussions.	WR195
10692	Sure a few hundred jobs for a few decades would come from this mining, perhaps more if other projects are approved, but the bulk of the money won't go to northern Minnesota. It will go to companies like PolyMet.	SO06
12056	the cost of swapping land with the Superior Natural Forest should take into account the value of the minerals and other resources PolyMet expects to extract.	LAN04
Sender Name (Submission ID)	Melissa Hodnik (18217)	
2180	This [PolyMet] means jobs for the many communities that are starved for work, done the right way, and an opportunity for the Iron Range to share the legacy that the Twin Cities offers so many of us today.	SO10
Sender Name (Submission ID)	Melissa Jansen (38222)	
9441	I am concerned with the lack of a defined and dedicated funding source (one that is set up by the mining company, and not affected by future financial hardships the company may experience) for the treatment of sulfate- and other pollutant-laden wastewater / runoff from the mining operation.	FIN01, FIN08
9444	The natural forests and wetlands that will be destroyed are not replaceable. Nonnative and potentially invasive plants are already turning up at many of the drill core test sites that are increasingly scattered through the forests of this part of the state.	WET24
13682	Leaving [the decision about finanacial assurance] for the permitting process seems like a young couple deciding to have children but waiting until a few months after their child is born to figure out how/if they can financially afford to raise a family.	PER03
13686	I understand that if the decision is made to go forward with this mining project that natural habitats will have to be destroyed. I could better accept this fact if their true value was represented in the cost side of the mining equation.	SO01
13687	I am concerned that we too easily buy into assurances from the mining industry that things like this can be done in an environmentally friendly manner. There has never been a mine that has not polluted, nor a oil field that has not polluted despite the same sort of environmental assurances.	PD01, PD25
13688	Leaving the minerals in the ground now is not a defacto moratorium on this type of mining; it may actually be the best way to keep our future options open, both environmentally, and economically.	NEPA03
Sender Name (Submission ID)	Melissa Weisser (57274)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Melissa Weisser (57274)	
17422	The decision to mine – pollute – this region or any other, belong to the PEOPLE who live and work in the region.	SO02
Sender Name (Submission ID)	Melody Exsted (36793)	
14876	Our concerns are about the wild life and water quality of the river and ground water if and when something goes wrong our land will be useless and not worth anything.	WI01, WR115
Sender Name (Submission ID)	mercy myers (14526)	
158	I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for	WR035, WR128, WR143
159	sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream.	AQ05
160	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
6774	WE DON'T NEED PROFITS FROM POLLUTERS LIKE [Polymet]!!	SO02
Sender Name (Submission ID)	Meredith Kolar (30448)	
13991	the Boundary Waters Canoe Area Wilderness… is one of the few true wilderness areas of its type left. Its natural resources are crucial to the balance of the entire region, a natural balance which affects us humans, too! This precious wilderness area especially means so much to those of us who have spent time in it and observed its natural riches.I would be devastated to see any of this area be poisoned and destroyed by corporate interests	WILD02
Sender Name (Submission ID)	Meredith Lorig (44882)	
10965	The proposed waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. All of these are a concern especially the toxic metals and the effect bioaccumlation could have in people.	HU03
10972	I ask that you investigate further the PolyMet SDEIS and look closely at permits for the waste water discharge. I ask that written into the permit is that water quality is held to Minnesota standards. That if the water quality dose not meet standards that the mining has to stop until the water quality meets state standards.	PER06
Sender Name (Submission ID)	Meredith Sommers (16492)	
1537	Tourism, which is a sustainable industry, would be drastically impacted	SO02
1538	Glencore has a record of environmental disasters, plus irresponsible safety standards. PolyMet has no track record of operating mines like the ones proposed in Minnesota.	PD23

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Meredith Sommers (16492)	
2029	And I have a suggestion to address the need for employment in the Arrowhead region. Instead of mining for copper, nickel and other metals, the state of Minnesota could jump-start a facility for reclaiming and recycling metals from existing electronic devices, rather than sending them to China and Winnipeg.	NEPA06
7321	Glencore has a record of environmental disasters, plus irresponsible safety standards. Poly Met has no track record of operating mines like the ones proposed in Minnesota.	PER02
18259	In the 1960s, I was involved in a study of Taconite mining in the Arrowhead region of Minnesota. The resulting report believed that this mining could be done without extensive harm to the land and water. We believed that the company, Minntac, and the DNR would oversee water quality standards. We believed that hundreds of people would be employed for decades and their quality of life would improve.We were wrong!	PD27
18260	Instead of mining for copper, nickel and other metals, the state of Ylinnesota could jump-start a facility for reclaiming and recycling metals from existing electronic devices, rather than sending them to China and Winnipeg.	NEPA06
18262	The Arrowhead is a treasure for millions of folks who live and travel there. The pristine nature would be destroyed by the noise, the truck traffic, the dynamite, polluted waters and disrupted land. Tourism, which is a sustainable industry, would be drastically impacted.	WILD02
Sender Name (Submission ID)	Merle G and Mary C Wovcha (54657)	
17950	shouldn't the proposal incorporate the safest possible method of extractingthese minerals, e.g., underground mining rather than surface, so as to lessen contaminating runoff?	ALT01
17951	in keeping with current State of Minnesota requirements (DNR Rule6132.3200), shouldn't runoff remediation be completed upon cessation of mining, rather than the decades and perhaps even centuries of treatment anticipated by PolyMet to be needed?	PD02
17952	even if continuing remediation after mine closure were deemed acceptable,how can it ever be possible to accurately determine the level of funding needed to be set aside for such an indeterminate effort?	FIN05
17953	What can possibly be the downside of postponing extraction of these mineralsuntil it can be done safely? The minerals aren't going anywhere and will surely be exploited when technology to safely do so exists. Until then, we have a moral obligation to proceed cautiously so as not to leave an environmentally-degraded Northeastern Minnesota behind for our future generations.	NEPA03
Sender Name (Submission ID)	Merv & Suzanne- Joy Curran (39298)	
7265	Northern Minnesota is NOT the area in which to provide mining rights to an outside corporation that cannot possibly provide provide adequate stewardship for the water and environment in this area.	WET24
7268	We do think jobs are important and we will support jobs in Northern Minnesota that are sustainable to all life in that area. We urge Minnesota to take leadership in promoting sustainable industry. This should not include copper-nickel mining in Northern Minnesota.	SO02
Sender Name (Submission ID)	Mettameyer (44533)	
10077	I am opposed to Polymet's plan for pollution management. The very idea that [Polymet] can be responsible and held accountable for centuries into the future is crazy.Minnesotan [taxpayers] will bear the practical and ongoing financial costs of this venture	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	mia schillace nelson (43958)	
6897	Saying that this will be the first copper sulfide mine that won't contaminate the watershed and pollute the air is unacceptable.	AIR11, WR023
6898	the fact that there is currently a global surplus of copper and nickel right now tells me that the risk isn't worth the reward. … I know people on the range need jobs but this will not change the economy on the range based on the number of jobs it would create. This is also not a typical range project so it is very likely that many of the jobs created wouldn't be filled by locals.	NEPA06, SO01
6953	[PolyMet] will not be able to guarantee 200-500 years of financing for monitoring and treating the water at both the plant and mine sites.	FIN01
7023	[The PolyMet mining project] would destroy thousands of acres of habitat used by threatened moose and lynx	WI02
7026	PolyMet’s mine plan lacks analysis of human health impacts from mercury and asbestos-like fibers	HU01
7028	PolyMet’s studies contain inaccurate water data that need to be corrected	WR003, WR052, WR086, WR091, WR189
15653	I have yet to see an economic impact statement that wasn't created by the company itself in a best case scenario sensibility.	NEPA15
Sender Name (Submission ID)	Micah Elder (30814)	
13997	At some point, we as a people (Americans) have to stop thinking about the short term and start thinking long term, i.e., what type of future environment are we leaving for our children and their children. Profit has got to take a back seat some time, and those who argue only for profit are (of course) arguing for their own profit and no one else's.	SO01
Sender Name (Submission ID)	Michael (46936)	
10866	I am for this project. The state has mined extensively in this area for a hundred years. We have learned lots about mitigation and it seems, in this case there is a good plan for control of pollution. The country needs these metals.	NEPA05
Sender Name (Submission ID)	Michael Ander (28920)	
10954	The hydrology of this region is a complex and interconnected system of surface and groundwater that cannot help but be impacted by the proposed mine.	WR107, WR108, WR111
Sender Name (Submission ID)	Michael Anderson (5971)	
10485	In addition, the hydrology of the watershed in the Mininesota Iron Range is remarkably vulnerable to the same kind of perpetual pollution described in the Pebble Mine EPA report [which rejected the proposal to mine the area].	WR023
Sender Name (Submission ID)	Michael Asuma (42516)	
15445	Science has proven a safe way to mine these precious metals. This process will be implemented in this new mine. PPE has the protection necessary to keep workers safe. This is not 1950 open pit mining. PolyMet wants to follow all laws and regulations. They know that the possible profits and probable profits are well worth not cutting corners in environmental and worker safety.	PD28, SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael Barrett (48153)	
17511	Is it possible to capture 100 percent of the water on sire so there would be no water pollution? What about seepage underground?	WR118
17512	Is the Polymet proposal the sole project or the tip of the iceberg of several such problems in the greenstone geologic formation under consideration by mining companies and the government? …Are there other mineral mining projects under consideration north of Babbitt that would result in polluted water flowing north to the Boundary Waters Canoe Area and Canada?	CU04
17513	History shows that mining in the western states have left a trail of desolation with operating firms gouging the earth, then declaring bankruptcy and leaving the cleanup bill to taxpayers.	FIN01
Sender Name (Submission ID)	Michael Beauchaine (11526)	
2477	I hunt and fish. This project is not going to just put the waste in Lake Superior. We need these jobs so this area can grow and prosper for years to come.	SO10
2477	I hunt and fish. This project is not going to just put the waste in Lake Superior. We need these jobs so this area can grow and prosper for years to come.	SO10
2478	Will there be concern for pollution? Yes. But there are check and rules and restrictions to help eliminate these.	PER34
2478	Will there be concern for pollution? Yes. But there are check and rules and restrictions to help eliminate these.	PER34
17105	We need these jobs so this area can grow and prosper for years to come. The jobs and economy are more important now.	SO10
17105	We need these jobs so this area can grow and prosper for years to come. The jobs and economy are more important now.	SO10
Sender Name (Submission ID)	Michael D. Anderson (37676)	
9017	Would 60 more days for review have disrupted your timeline?	NEPA07
Sender Name (Submission ID)	Michael D. McNally (40448)	
10509	I am concerned with the questionable assumptions about base-flows in the Partridge River that were recently reported in the Star Tribune but which according to SDEIS 8.3 have been of concern to Anishinaabe stakeholders for some time. …a more cautious set of assumptions would model a very different set of potential deleterious impacts on downstream water quality, and natural resources like wild rice, and on wild rice as a cultural resource.	WR003
10517	In addition to freighted decisions at the assumptions level producing the anticipated effects of the proposed alternative, I join the tribal entities in their concern that the Cumulative Effects Analysis Area/CEAA has been too narrowly drawn, and in the doing excludes the St. Louis River.	CU01
10521	The value of the natural and cultural resources in this broader downstream watershed [St. Louis River] is too high to exclude from the deeper level of analysis, and it is clear to me from other research on NEPA and NHPA Sec. 106 analyses, that such choices in the EIS process, quite apart from the effects analysis itself, set parameters conducive to the proposed alternative and underestimate the reach of the potentially harm.	CR01, CR02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael D. McNally (40448)	
10525	In my view Northmet propoonents have underestimated the likely costs of securing the state-mandated water quality standards on the waters involving wild rice….	FIN11
10533	The 1854 Treaty of LaPointe guarantees usufruct rights to the Minnesota tribes in ceded territories, not only on public lands but on all lands in the ceded territories.	PER08
10536	[The proposed NorthMet mine site] lies entirely within this ceded territory, and while clearly there has been evident consultation with the tribes, it is also clear that their concerns are plainly sequestered and "managed" in the "MDO" section of the SDEIS Chapter 8 in a manner not consistent with federal obligations to the tribes.	CR01
10538	For example, as is recorded in the letter at Appendix C, p 89 ff of the SDEIS, the Fond du Lac, Grand Portage Tribes, the GLIFWC, and the 1854 Treaty Authority were diligent in their participation in the but were ultimately rebuffed in their concern that the Cumulative Effects Analysis did not extend as it reasonably might to the St. Louis River watershed	CR03, CR06
10539	Despite the tribes' diligent consultation and considerable expenditure toward that consultation of resources for study, the co-lead agencies did not follow the best practices – indeed did not even use – the EPA's 2011 best practices tool, Applying Cumulative Impact Analysis Tools to Tribes and Tribal Lands, in the work.	CU03
10550	In my research, I have seen evidence aplenty…to reduce tribal consultation to a perfunctory exchange of ideas, and to understate or under-examine the effects on cultural resources, or natural resources that are also cultural resources.	CR01, CR05, CR06
10555	The scoping for the EIS review did not identifyany cumulative impact issues on the identified cultural resources, but the tribes were not invited to participate in that scoping process.	CR03, CR06
10558	I believe that a proper orientation…cannot reduce to MDOs such concerns of the tribes, the 1854 Treaty Authority, and the GLIFWC on the scope and reach of cumulative effects impact, cultural resource impact, especially when there is science provided by the tribes and tribal agencies that specifically contends with the assumptions and models retained by the SDEIS.	CR01, CR03, CR05, CR06
14587	[I am concerned] that the SDEIS, in relegating the well reasoned, well-substantiated concerns of the Fond du Lac and Grand Portage tribes, the GLIFWC, and the 1854 Treaty Authority to "Major Differences of Opinion" and mere Appendix C without changing the geographic or conceptual parameters of the effect analysis itself is not only unwise; it is not in keeping with the federal obligation to the tribes.	NEPA12
14594	as a taxpayer, I do not want to be underwriting the cleanup of contaminated waters over time of choices that were ultimately injudicious because based on assumptions tending toward best case, rather than worse case, scenarios.	FIN10
14595	I am concerned with numerous turns of phrase in the SDEIS and broader analytical frames guiding it that dramatically understate the significance of tribal claims involved. To be sure the SDEIS dutifully identifies what it references (and in my view dismissively so) as MDOs, major differences of opinion. In places, the SDEIS language presume incorrect understandings of treaty law, including the potential reach of Anishinaabe claims to wild rice and other affected species in the land in question.	CR01
Sender Name (Submission ID)	Michael Dahl (18372)	
2566	The Sturgeon have already left this area once due to contamination and over fishing by non-native people. The moose are also becoming more and more rare. We do not want to see history repeat itself. The risk is unmeasurable.	WI01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael Dahl (18372)	
2567	The potential profits of mining to be made by few and enjoyed by few will never outweigh the proven risks to unmeasurable amounts of people, water, plants, and animals	SO01
Sender Name (Submission ID)	Michael E Kaszynski (10238)	
381	Mining operations in general never clean up the mess that they leave in their wake. It is not economically feasible to do so.	FIN01
382	The iron range itself is an unsightly mess and we don't need another environmental catastrophe for hundreds of years in the future for the sake of a few jobs.	SO01
Sender Name (Submission ID)	Michael Fisch (17715)	
13212	Are a few years of jobs and profits worth hundreds of years of pollution that translates into generations of children who will never know what its like to have a big trout or walleye on their fishing line and who will never know what its like to taste one of those fish or to drink directly from the lakes of the BWCA? Is it worth it?	SO01
Sender Name (Submission ID)	michael fritsche (46952)	
10678	We all can look at what happens to mines eventually, they contaminate the area around it.	PD26
Sender Name (Submission ID)	Michael Gallagher (5947)	
1949	A mining operation that would require centuries of water clean up should be enough of a deterrent by itself without even mentioning the open pit mine scar that would be left behind for millennia.	PD01, WR115
1950	What happens when PolyMet goes bankrupt and leaves behind a unfathomable mess which can NEVER be cleaned-up?	FIN01
1996	It is unbelievable to us that anyone would want to risk our precious north woods, including the BWCA, and the greatest lake in the world, Lake Superior, to the incredible dangers this mining operation would present.	WR111
Sender Name (Submission ID)	Michael Garbisch (54143)	
16039	20 years of jobs for 200 years of on-going monitoring and remediation? This is crazy.	SO01
Sender Name (Submission ID)	Michael Gorman (29636)	
10981	This scheme endangers natural resources and public health in northern Minnesota and the Lake Superior region.	HU03
10982	The risks it poses to water quality, habitat, and wildlife (including populations of lynx and Moose as well as spawning grounds for several species of fish) are simply too great.	WI13
10983	Sulfide mining…poses a grave threat to Lake Superior and the Boundary Water Canoe Area as well as the wetlands, rivers, lakes and streams surrounding (and feeding into) these natural wonders.	WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael Hamilton (42531)	
6775	I would like to see company and oversight agencies spot check homeowner private wells occasionally to ensure no toxins have entered the waterway. My advice would be you sample prior to establish a base to work off. I would even volunteer my well, if it was deemed viable to the primary area of concern.	MERC02, MERC10, WR039
Sender Name (Submission ID)	Michael Hentley (3237)	
20085	We as Minnesotans oppose the mining of sulfide for foreign profit.	FIN04
20086	This mining process will scar the earth and salinate our freshwater system...it will also destroy its value as drinking water.	WR041
20087	[the Project will] affect the recreational value of the Boundary Waters and the Superior Basin	WILD02
20088	The economical value of the mining is only temporary, while the environmental affects well be permanent.	SO01
Sender Name (Submission ID)	Michael Hostetler (4642)	
1869	this project will create much needed jobs in the region, provide tax revenues for the state, bring investment dollars into the state, and it will provide opportunities for educated young people to find fulfilling, challenging employment in MN	SO10
1870	So based on the documentation in the SDEIS and the commitments made by PolyMet [such as employing reverse osmosis technology and advanced emission-control devices on mining equipment], I am confident that impacts to the air, water or land will be minimal	AIR14
Sender Name (Submission ID)	Michael Hughes (43502)	
7958	The EIR statistical model used to determine its environmental impact admittedly (per its staff drafters) does not take into account the less-frequent but certainly occurring devastating scenarios. It is a sham. All of the draft EIR's models only contemplate the most likely environmental impacts and not the less frequently occurring events (but it should include the more remote events which will occur in the longer time periods during which the project's risks will still be present).	PD22, PD29
15537	Please do not trade short-term gains for long-term costs. Do not exchange public land for damaged quality of life of life in the state's future.	SO01
Sender Name (Submission ID)	Michael J Husnik (3064)	
615	…these kinds of new protections for water and air will be more than sufficient to protect the lands under proposed mining companies sites.	PD28
Sender Name (Submission ID)	Michael J Kieffer (54802)	
18155	It the time is right, and the technology can deliver all promises, I believe this "Project" could transform & rejuvenate a large portion of our state and extend this prosperity far beyond our state's boundaries.	SO10
Sender Name (Submission ID)	Michael Jordan (7408)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael Jordan (7408)	
760	my question is this : can the DNR and the state of Minnesota state unequivocally that our lakes, rivers and wildlife will not be harmed by this short sighted business proposition? The answer is clearly no.	WR115
764	By contrast, with sulfide mining the chemical processes are not inert, they are very chemically reactive and very harmful to our watershed.	WR195
766	The benefit to risk ratio of this proposal, minimal jobs and deleterious environmental impact, does not justify approval of this mining process in Minnesota.	SO01
Sender Name (Submission ID)	Michael Kahn (12453)	
81	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for	WR035, WR128, WR143
82	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
83	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
1664	More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts.	WET01
Sender Name (Submission ID)	Michael Killian (39015)	
4944	Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health	HU03
Sender Name (Submission ID)	Michael Kinzer (5988)	
1965	We hike, fish, ski, and watch nature [at our cabin]. I would not feel safe doing this if the Polymet proposal is approved in any form.	LU06
1966	How many hundreds or thousands of lakes and streams are you willing to destroy in order to create a few hundred jobs for a decade or two? In 50 years, when Polymet and all the others are long gone, either bankrupt, merged, swallowed up, or just mining elsewhere, and we are left with the sinking leaching pools of filthy nasty chemicals, who will remember the small bump in economic activity?	FIN01
Sender Name (Submission ID)	Michael Kohout (43077)	
15335	Given the extremely long maintenance period to protect the area from runoff, as well as the lack of any positive track record by this company in this type of operation the risk seems to high and the reward of only 300 long-term jobs seems too low this operation should be denied or delayed.	SO01
15336	Until the long term effects of their techniques and technologies can be determined (hopefully elsewhere), any report that attempts to define it is based only on conjecture and should not be considered sufficient enough to be used as the basis of this activity.	PD32
Sender Name (Submission ID)	Michael Koppey (18344)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael Koppey (18344)	
2524	There have been no studies on the plant sites' subterranean water migration and whether mining elements and contaminants would be carried through these frackings (phonetic) throughout our fresh water aquifers and our systems.	WR008, WR061, WR099
2525	It is hard to imagine that adding deadly chemicals, like lead and mercury, into the St. Louis watershed will have no effect on our wildlife and our people. We already have a high level of mercury in the St. Louis River. Should we be adding more contaminants without a proper study?	WR109, WR158
2526	EIS 24, paragraph three, it states that this facility will be capped and double-mined for 500 years for toxicity. This is longer than the State of Minnesota has existed.No known studies have shown that a manmade structure can stand for this duration of time, or especially 500 years, especially when we (inaudible) and biodegrade.	PD01
2527	EIS 24, paragraph three, also states that, "Adaptive measures will be implemented, if necessary, to protect the environment for the long term."This statement acknowledges that the system may fail as designed and is an uncontrolled experiment. That means that we, the taxpayers, will be responsible for the costs of any failure and that our fresh water and all that depend on it will be threatened.	FIN05, FIN10
Sender Name (Submission ID)	Michael Koppy (11581)	
2237	According to the SDEIS, the proposed mine depth is approximately 700 ft. There has been no study of the plant sites sub-terrain water migration and whether mining effluents and contaminates would be carried through these fractures to other fresh water aquifers or systems.	WR010
2237	According to the SDEIS, the proposed mine depth is approximately 700 ft. There has been no study of the plant sites sub-terrain water migration and whether mining effluents and contaminates would be carried through these fractures to other fresh water aquifers or systems.	WR010
2238	EIS-36, paragraph 2 states stormwater run-off will include lead above the acceptable levels. Also in EIS-36, paragraph 5 states that the project would increase the mercury content in the Embarrass River. Finally, EIS-39 paragraph 4 states that species would not be affected by all this infiltration. It is hard to imagine that adding deadly chemicals like lead and mercury in the St. Louis watershed will have no effect on our wildlife and people.	WI04
2238	EIS-36, paragraph 2 states stormwater run-off will include lead above the acceptable levels. Also in EIS-36, paragraph 5 states that the project would increase the mercury content in the Embarrass River. Finally, EIS-39 paragraph 4 states that species would not be affected by all this infiltration. It is hard to imagine that adding deadly chemicals like lead and mercury in the St. Louis watershed will have no effect on our wildlife and people.	WI04
2239	EIS-24 paragraph 3 states that the Residue Facility will be capped and double-lined for the 500 years of toxicity…. No known studies have shown that a man made structure can withstand for the duration of time or at best 500 years especially when it's made of concrete or a geo-membrane, which will crack and biodegrade	PD17
2239	EIS-24 paragraph 3 states that the Residue Facility will be capped and double-lined for the 500 years of toxicity…. No known studies have shown that a man made structure can withstand for the duration of time or at best 500 years especially when it's made of concrete or a geo-membrane, which will crack and biodegrade	PD17
2240	EIS-24 paragraph 3 also states that "adaptive management would be implemented, if necessary, to protect the environment for the long term". This statement acknowledges that the system may fail as designed and is an uncontrolled experiment. That means that we, the taxpayers, will be responsible for the cost of any failure and that our fresh water and all that depend on it will be threatened.	FIN05, FIN10, FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael Koppy (11581)	
2240	EIS-24 paragraph 3 also states that "adaptive management would be implemented, if necessary, to protect the environment for the long term". This statement acknowledges that the system may fail as designed and is an uncontrolled experiment. That means that we, the taxpayers, will be responsible for the cost of any failure and that our fresh water and all that depend on it will be threatened.	FIN05, FIN08, FIN10
14208	Recently, PolyMet's Vice President Brad Moore, at a House committee hearing was questioned whether PolyMet had adequate financial assets to cover the long range environmental problems that would or could occur when the mine closes down. Moore was asked:" What is the true value of PolyMet's assets?" Moore replied that he didn't know. Also, the annual report shows that PolyMet has less than $10 million in cash. This would not be even a fraction of what is needed according to the company's own report.	FIN01
14208	Recently, PolyMet's Vice President Brad Moore, at a House committee hearing was questioned whether PolyMet had adequate financial assets to cover the long range environmental problems that would or could occur when the mine closes down. Moore was asked:" What is the true value of PolyMet's assets?" Moore replied that he didn't know. Also, the annual report shows that PolyMet has less than $10 million in cash. This would not be even a fraction of what is needed according to the company's own report.	FIN01
14209	Even PolyMet's own figures show they will need $200 million for the closing and $6 million for every year thereafter. How do you figure the cost for Perpetuity? This would leave us, the tax payers of Minnesota holding the bill. The PolyMet financials are inadequate. Please reject the PolyMet mine project.	WET03, WET15
14209	Even PolyMet's own figures show they will need $200 million for the closing and $6 million for every year thereafter. How do you figure the cost for Perpetuity? This would leave us, the tax payers of Minnesota holding the bill. The PolyMet financials are inadequate. Please reject the PolyMet mine project.	FIN01, FIN05, FIN10
14373	My understanding is that 99% of the rock mined will be waste and will go back into the ground as powder. This waste rock bears sulfides which will produce sulfuric acid when exposed to air and water.	PD15
14374	Other pollution will also rise such as mercury, lead, arsenic, and others. We live in Minnesota, the land of 10,000 lakes (more like 13,000) and next to the biggest fresh water lake in the world, Lake Superior. We also have the water rich environment of the BWCA. I do not want to take a chance of losing these unbelievable resources.	WR111
14375	This waste rock will have to be monitored 24/7 for 500 years. Who will pay for this? How will a cost be set when even our State Auditor, Rebecca Otto, cannot come up with a cost?	FIN01
14376	I realize that the lure of jobs is pushing this mining project. But this project will last 20 years at best. Do we want to risk one of the state's top nature resources (water) and the tourism that goes with it?	SO01
14377	Glencore has an agreement with Xstrata which states that the minerals out of PolyMet will go to China for the next five years. That means any value added to the minerals will occur not here, but in China. Glencore is also a 200 billion dollar company. That makes its revenues much larger than the state of Minnesota.	SO06
14378	What happens when the state has environmental problems? How will the state of Minnesota stand up to the goliath lawyers of Glencore in court? This will cost the tax payer more than we can ever hope to get out of this project.	FIN10
14568	99% of the rock mines will be waste. Other waste sites of copper-nickel operations have had large pollution problems. This waste rock bears sulfides, which will produce sulfuric acid when exposed to air and water. PolyMet states that their new technology will prevent pollution. This new technology has not been proven on an industrial scale.	AIR11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael Koppy (11581)	
14569	This waste rock will have to be monitored for 500 years. Who will pay for this? How will an accurate cost be determined when even our State Auditor, Rebecca Otto, cannot figure the cost?	FIN01, FIN05, FIN11
14570	I realize that the lure of jobs is pushing this mining project. But this project will last 20 years at best. Do we want to risk one of the state's top nature resources (water) and the tourism that goes with it? There are four times as many jobs in tourism as in mining. We take for granted the abundance of our fresh water. According to the World Health Organization over one-fifth of the 1.6 billion people face economic water shortages. Water scarcity has been growing at almost twice the rate of the world's population. With the existing climate change scenario, almost half of the world's population will be living in water stressed areas by 2030 according to the World Health Organization. In another 20 years water may be as valuable as oil.	SO01
14571	Glencore is also a 200 billion dollar company. That makes its revenues much larger than Minnesota's. What happens when the state has environmental problems? How will the state of Minnesota standup to the goliath lawyers of Glencore in court? This will cost the tax payer more than we can ever hope to get out of this project.	FIN01, FIN10
14572	PolyMet is a Shell Corporation of Glencore, a Swiss company with an abysmal environmental record. Xstrata, a Chinese company, in is partnership with Gelncore. Glencore has an agreement with Xstrata which states that the mineral out of PolyMet will go to China for the next five years.	SO06
18002	PolyMet will not even consider underground mining which could avoid much of the environmental damage that this open pit will cause. The SDEIS doesn't suggest any alternatives to reducing impacts on wetlands at the mine site.	ALT01, ALT13
18003	As much as 913 acres will be directly destroyed and 7,350 acres impacted with water and air pollution, and diverting water from these wetlands according to the SDEIS from PolyMet. The high value wetlands in the 100 Mile Swamp has not be touched for thousands of years and will undoubtedly have a negativeimpacted on wildlife. This could be the biggest wetlands loss ever proposed.	WET23
18004	It is clear that PolyMet is a Shell company and will declare bankruptcy when the mining is done and their officials are not being honest with us. Even PolyMet's own figures show they will need $200 million for the closing and $6 million for every year thereafter. How do you figure the cost for Perpetuity? This would leave us, the tax payers of Minnesota holding the bill.	FIN01, FIN02, FIN05, FIN10
Sender Name (Submission ID)	Michael L Karels (6631)	
1096	Environmentalists want solar and wind energy and various other energy alternatives but don't take into account where the guts of these products come from or what minerals are used. If you are an environmentalist but you are ok with these minerals coming from China or elsewhere but don't care how they extract it they you are a hypocrite.	ALT16
Sender Name (Submission ID)	Michael Larmee (32791)	
13829	Please do not harm Lake Superior and all the waters down flow from the lake.	WR111
Sender Name (Submission ID)	Michael Latvala (38422)	
13642	The depth and breadth of study in relation to the NorthMet project has been well conducted and thorough…The project will set new benchmarks for safely extracting and processing these minerals, and should become the new benchmark for copper-nickel mining worldwide.	PD28

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael Latvala (38422)	
13643	I believe that the NorthMet project can be permitted in a way that thoroughly addresses potential environmental impacts while putting a vast, untapped natural resource to greatly beneficial use. This project will provide minerals that are unquestionably necessary for the existence of modern humans, and of critical importance for the future of "green" economies.	SO10
Sender Name (Submission ID)	Michael Lieberman (11372)	
12552	The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project.	AIR01
12553	The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0.5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025. Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan.	AIR01
Sender Name (Submission ID)	Michael Line (47163)	
8415	Lets get people to work… lets have the mine here and benefit from the jobs and the economic impact for our state.	SO10
8421	It's a fact that these metals will be mined someplace in the world if we don't open this mine. It is almost assured that it will be done with less environmental regulation if that happens in another country.	NEPA05
Sender Name (Submission ID)	Michael McCormick (43224)	
11575	The effects on workers' health and drinking water are not addressed.	HU04
16142	The PolyMet mine would destroy thousands of acres of wetlands, create an immense and permanent industrial mining district in Minnesota's uniquely beautiful and most environmentally sensitive areas, and create a burden of environmental damage of mine dumps, pits, tailings ponds and acid runoff that would blight the landscape for generations and generations, and probably forever.	PD01
16144	Local economies built on mining are boom and bust economies. First, the claimed short-term economic benefits of mining are dubious. PolyMet's claims of job creation deserve skepticism, as automation on the mines reduces the number of jobs, produces short-term low skill jobs, or requires workers with special skills from outside Minnesota. Then invariably the bust comes - relative to the lasting burden of damage, that bust comes in the very short term of 5 or 10 or 20 years. And the bust then endures in the form of impaired communities that people do not want to live in.	SO06
16145	The essential impossibility of capturing acid runoff from the equivalent of thousands of football fields of waste rock has not been addressed - PolyMet's assumptions about seepage are woefully lacking. The effects of runoff on subsurface water flows, about which there is inadequate information and which may well go toward the BWCAW side of the watershed, are not addressed.	WR019, WR070, WR167
16146	The disruption to our national forest lands are not in any way addressed through the proposed land swap, which is a laughably inadequate measure to address the physical damage of the proposed mine. The loss of wetlands, which are ever more rare in Minnesota due to agricultural practices, drainage tiling in fields, urban development and the like, is not addressed. Toxic pollution, in the form of mercury contamination and other heavy metals, is a threat that calls for the highest possible scrutiny.	LU01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael McCormick (43224)	
16147	PolyMet also appeals to the demand for copper and other metals: undeniably there is demand, but this needs to be dealt with through recycling and more efficient use of those metals, and through locating mines in places that are less vulnerable than our water-rich environment.	NEPA06
16148	The debate should not, however, be about a cleaner mine, or a better permit. Please do not permit hard rock mining, which is one of the most polluting of all industrial activities even when it is done in desert environments, to come into our profoundly vulnerable water environment of northern Minnesota and create irreversible, permanent damage.	PER35
Sender Name (Submission ID)	Michael McKenna (11007)	
15462	The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes.	PER08
15464	The Land Exchange serves only the private interest of a foreign corporation, not the public interest.	LAN01
15465	The Land Exchange won’t unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining.	LAN04
15466	The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. This includes a net loss of 6,026 acres of areas with high biodiversity; 2,030 acres of mature forest – replaced by 2,000 acres of immature forest; 1,400 acres of floodplains and losses of 11 endangered or threatened species.	VEG01, VEG02, VEG03
15468	The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade.	VEG03
15470	The PolyMet sulfide mine would reduce lynx habitat by two square miles, kill individual lynx, and impact 2 out of 13 remaining small corridors for wildlife to travel across the Arrowhead region.	WI01, WI02, WI03
15473	The PolyMet sulfide mine plan would also destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which dropped precipitously by 35% from 2012 to 2013. Yet, the SDEIS contains no analysis of impacts on moose from the PolyMet project.	WI01, WI02
15475	The SDEIS’ analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St. Louis River and tribal resources.	CR01, WR115, WR189
15477	Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government’s fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice.	CR01
15491	Reject PolyMet’s proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines	LAN04
15493	Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value.	LAN01
15494	Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes.	VEG08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael McKenna (11007)	
15495	Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish.	GEN03
15497	Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes.	PER08
15499	The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands.	FIN11, VEG03, WET05
15502	The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at taxpayer expense.	LU01
15504	The SDEIS fails to analyze alternatives, including underground mining, that could reduce impacts on lynx, moose, and other species that are threatened, endangered or of significance to tribes.	ALT01, ALT10
15505	The SDEIS fails to study cumulative adverse impacts on moose of the PolyMet project and other activities that destroy habitat and increase global climate change.	WI01
15506	The SDEIS fails to provide a cumulative analysis of impacts to clean water, plants and mammals that are significant to tribes and protected under treaties, throughout the tribal Ceded Territories in the Lake Superior Basin.	VEG08
Sender Name (Submission ID)	Michael Mlinar (9483)	
174	I believe the project will minimally impact the environment and should proceed.	PD28
Sender Name (Submission ID)	Michael Moore (52292)	
10725	Why do we have to mine this resource right now? Why don't we wait till they have the technology to leave no clean up?	NEPA03
10728	I think this [NorthMet] mine is a bad idea [in] such a water rich environment. Where contamination could be so easy and potentially disastrous.	WR195
Sender Name (Submission ID)	Michael Noble (16246)	
10330	I am a believer in engineering and technology and I know that industrial economies need metals, but I do not see any good answers from the proponents that they have engineering solutions to seemingly intractable long-term problems of water management.	WR128
Sender Name (Submission ID)	Michael Okerstrom (21470)	
1247	I question the effectiveness of the drainage of mercury into Birch lake, and that effect on the fish & wildlife, from the taconite mining in the past that has not been effectively dealt with over the years.	CU18
1248	I question and wonder about the accuracy of the information in the SDEIS, and … I question the sulfate, metals and mercury discharge containment and possible pollution to the land and waters in that area of our state	WR195
1249	I questions the direct and indirect impact that sulfide mining will have on the nearby wetlands, lakes, water table, and ultimately water shed.	WET24, WR115, WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael Okerstrom (21470)	
1461	I question the financial commitment of ... assurance to clean up the [possible pollution on land and water] they will make in the future… We must require them to put up greater sums of money to ensure their honesty and truth, so they don't walk away with the profits and leave the tax payers with the clean up.	FIN01, FIN05, FIN10
8916	Heavy Metal rock piles, rained on, make pollution. Heavy metal rock piles rained on create water pollution for many years.	WR130
8918	The Polymet proposal must provide details on financial assurance that the pollution they create they can take care of properly.	FIN01
8919	Sulphide mining will create huge amounts of waste rock.	GEN01
8921	There is no rush to start such a high risk operation. The rocks have been there a long time. They are not going anywhere.	NEPA01
8922	The science and analysis of the Polymet proposal must be done correctly. Because the downside, the risk factor to the water, is too great.	WR189
8926	The time period of polluting too long. The methods and techniques are not proven. Polymet has never operated a mine before. The lead agencies must require any potential sulfide mining operators to demonstrate a successful sulphide mining facility. Based on the information, and lack of information provided by Polymet I do not believe Polymet can operate its proposed facility without damaging the surrounding water, nor take care of the waste rock and tailings for the hundred some years required.	PER35, WR115, WR129
8927	Another point no one is talking about is the amount of coal that will be burned in 20 years of operation. This should be calculated and be a considerationof this proposal.	PD39
8928	Polymet has little to lose and privatized profits to gain. The State of Minnesota and its water has much to lose. Let the minerals stay in the grounduntil they can be safely harvested. It appears they will only go up in value.	NEPA01
8930	The lead agencies should reject the Polymet project as environmentally harmful.The lead agencies should not allow Polymet a state permit to mine.	PER35
8931	The lead agencies should not allow any sulphide mining operations until the operator has a proven facility and provides proper financial assurance.	FIN01
Sender Name (Submission ID)	Michael Overend (6027)	
9339	In contrast, Lake Superior, the single largest body of fresh water on the face of the planet stands at potential risk of becoming adversely affected for generations of future citizens.	WR111
10507	If [Lake Superior], or its neighboring watersheds, are damaged by this mining operation, the costs to reverse the damage will dwarf the potential economic benefits to the region.	SO01
10508	These potential environmental costs should be borne by the individuals that seek to profit from the mining. However, the mining industry has a history that does not inspire confidence in carrying out this responsibility...Due to the risk for centuries of potential work necessary to address the potential damage, there is no conceivable way that PolyMet can guarantee that they will address any and all damage that results from their mine.	FIN01, FIN08
Sender Name (Submission ID)	Michael P Savage (42761)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael P Savage (42761)	
14515	I'm writing to ask you to not permit the PolyMet mine until ALL questions regarding water safety in the Lake Superior Basin are answered with more scientific certainty….PolyMet's suggestion that the likelihood of water pollution at the site will be in the 0.63 percentile region relies on mere conjecture that pumps around the tailings ponds and piles will be efficient, reliable, and sustainable for…how long? a few decades? A hundred years? A thousand years? Well, pumps fail and employees neglect maintenance.	WR021, WR036, WR195
Sender Name (Submission ID)	Michael P. Carlin (19974)	
1563	I am in opposition of the mine due to copper cobalt mines history of pollution. I also think that past performance is a direct indication of future output. .. it would be a poor decision to jeopardize the water quality.	WR195
16328	The idea of testing the water quality for 500 years is quite daunting considering the benefit of jobs in the short-term.	SO01
16329	Currently we are using fresh water at a rate faster than aquifers can replenish, and to threaten the little amount of clean fresh water we have would be detrimental. We would be doing irrevocable damage to our ecosystems, threatening wildlife as well as industry centered around a healthy environment.	WI01
Sender Name (Submission ID)	Michael Patchin (10069)	
10845	It is my opinion that the PolyMet project has been analyzed and studied extensively by the various government bodies with expertise to provide the necessary safeguards.	NEPA16
10847	My opinion is that the Iron Range area needs the economic stimulus that would be provided by the PolyMet project, together with the various spinoff industries.	SO10
10849	The project will also contribute an economic benefit to the remaining portions of the State of Minnesota and to our country in providing jobs, tax revenues, and positively affecting this country's balance of trade.	SO10
10850	I believe that the environmental safeguards that will be required by the governmental agencies will be designed to protect our environment, and will certainly be a lot stronger than any environmental safeguards established in foreign countries.	PER34
10851	I believe that environmental concerns and economic benefits should be balanced so as to provide well paying jobs with fringe benefits, tax revenues, and necessary minerals that will be consumed in our country and elsewhere, while providing more than reasonable environmental safeguards.	SO06
10854	it is my request that the Minnesota Department of Natural Resources, the US Army Corps of Engineers, and the US Forest Service, complete their review of the environmental impact statement, and their review of this project as a whole, and that permits be issued promptly, so that this overdue project may continue to the construction phase and the operation phase.	NEPA16
Sender Name (Submission ID)	michael PRIEST (38898)	
5405	The project presents acceptable environmental risks and should be allowed. This sulfide mining operation IS needed for the future of America.If approved, this first-ever sulfide mine in Minnesota would open the door for future mines . For all these reasons, I urge you to accept the PolyMet mine.	SO10
Sender Name (Submission ID)	Michael R Boyd (57235)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael R Boyd (57235)	
17180	However, how can any corp put aside money to treat water for the next 200-500 years for a mining operation that will last 30-40 years? How do you invest that money over that time period?	FIN01
17181	We need mining jobs for at least 2 reasons: 1. Minerals needed for our industry coming from inside the US (national defense) 2. Jobs for Americans.	SO10
Sender Name (Submission ID)	Michael R. Huber (20182)	
1773	Major points of concern harvested from the document revolve around the centuries long period during which remediation will be required as a consequence of planned mining operations, and the speculative nature of the proposed remediation measures.	PD03
1774	The ultimate costs in human terms alone will far exceed whatever employment/economic benefits might be realized in the next few decades.	SO01
15196	The sustained pollution from proposed operations can, over a five century period, be expected to escape. To pursue such an operation at the headwaters of some of the largest freshwater reserves in North America strikes me as the height of folly.	WR129
Sender Name (Submission ID)	Michael Rentz (43123)	
10296	Also, as units considered to be of “High Biodiversity Significance” they cannot simply be swapped out with less significant examples of the same habitat that are, by definition, of lesser ecological integrity.	VEG02
10297	Several of the proposed re-vegetation species are known to be invasive, and simply co-planting with native species and hoping the natives win out is unacceptable.	VEG05
10299	No mention is made, however, of the impact on [lynx] of increased noise. If the animal is “spooked” by the mining noise, the effectively lost habitat could be greater than that which is simply within the direct footprint of the mine.	WI05
15863	[There is] a fundamental misunderstanding of what a site of “High Biodiversity Significance” means. These sites are identified as areas that are among the best examples of the habitat in the state. It is not meaningful to compare these habitats with others in other parts of the state, as they do not perform the same ecological function.	WI02
15864	I was pleased to see the effect of noise on wildlife considered. However I would like to see this concern married with the noise level maps from previous sections to determine the total possible habitat loss, or lower use of habitat by mobile species such as the lynx, eagle, and other birds.	N04
15869	Little mention is made of moose in the wildlife section. What affect would the increased noise have on moose in the surrounding Forest? ... Given the decline in moose in Minnesota, any action which impacts this species needs to be approached with caution. I would like to see some effort made to address noise and vehicle/rail impacts on this animal.	WI01, WI05
15870	The list of possible SGCN does include the heather vole, but does not include 3 other SGCN mammals that may inhabit the region: 1) Microtus chrotorrhinus, 2) Mustela nivalis, 3) Sorex fumeus. The DNR does sample small mammals in the area of the mine (John Erb) and while none of us have captured these species near the mine, an absence of proof is not proof of absence.	WI01
Sender Name (Submission ID)	Michael Ripberger (27520)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael Ripberger (27520)	
14744	How many citizens, industries, farms and how much wildlife, water sources and acres of soil would this adversely affect, not just in Minnesota but neighborning states as well?	PD01
Sender Name (Submission ID)	Michael Rota (14905)	
13806	Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats.	WI13, WR115
Sender Name (Submission ID)	Michael Saima (9663)	
1363	I hope you make the right decision and decide against this project and the potential damage it would do to the water system, that should not be overlooked.	WR195
Sender Name (Submission ID)	Michael Schelmeske (54829)	
18549	The treatment of waste water for 200 to 500 years is incredible. The United States of America is about 237 years old. How can you possibly believe that this company will be around long enough to take responsibility for the long term treatment of the mine site and waste rock site!	FIN01
18551	Wetland mitigation in same watershed has not been followed. You treat our wetland areas as wastelands of no value	WET03
18552	Loss of wildlife corridors with the completed mine and waste rock treatment area and additional roads and infrastructure concern me.	WI03
18553	More light, noise and air pollution will result with this operation.	N01
18554	No study of mercury impacts to Partridge or Embarrass Rivers	MERC02
18561	I have no confidence in this company to take care of this site for 2 to 5 centuries, it will end up in the laps of the Minnesota tax payers. Once the mine is closed it will only be a matter of time till it ends up as a superfund site.	FIN01, FIN10
18567	Windborne dust with fibers from the waste rock will end up in the air downwind of the site. If I have heard correctly the existing taconite waste rock piles on the site are twenty stories high and two and one half miles square. Will the waste rock from the Polymet mine be placed on top of his site? If so this will make this site more exposed to the wind. The prevailing winds in this area are west, northwest, blowing this fiber laden dust towards Beaver Bay, Silver Bay, Isabella, Finland Little Marais, Schroder, Toffe, Lutsen, Grand Marais, Houland, and Grand Portage. Will there be monitoring of these communities for health related problems for 200 to 500 years! Would this company be responsible for this?	AIR03
18568	If the Polymet mine is allowed to go ahead this just opens the rest of Northeast Minnesota to other mine sites that will be right up against the BWCAW and in that watershed. How will all of these mine operations affect the water quality of this area?	CU02, CU04
18569	What effect will this have on local businesses that count on this area to be clean and quiet.	SO04
18572	I am tired of the state using the case that we need to mine these site's to fund our schools, it comes at too high a price... I would gladly pay more money for my child's education given the potential for future health risks that could result from this operation.	SO02
18580	I feel that MNDNR has been heavily influenced by Polymet and their lobbying. The MNDNR is responsible to protect our resources as well as generate income for the state, but I question there protection of resources on this issue.	NEPA18

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michael Smith (2859)	
563	… why hasn't the DNR requested a more detailed financial assurance analysis?	FIN08
566	If I understand the report correctly, the reclamation process would consist of a need to monitor and treat the water for a minimum of 200 years at the mining site and 500 years at the processing facility.	PD05, PD09, PD35
9853	Why hasn't the DNR requested a more detailed financial assurance analysis? How these amounts were determined for example?	FIN05
14333	New mining opportunities provide critical jobs for Iron Rangers....” I will acknowledge there is an ever-increasing demand for metals like copper and the benefits of tax revenues can't be ignored. However, these are hardly justifications to move forward with a plan that says next to nothing about the financial assurance of this proposed mining operation.	FIN10
14334	If I understand the report correctly, the reclamation process would consist of a need to monitor and treat the water for a minimum of 200 years at the mining site and 500 years at the processing facility. Even if the high end cost-estimate of $200 million were adequate to complete the reclamation process. 500 years is unimaginable!	WR035
14335	PolyMet's proposed mine is not Minnesota's typical mine, but a new toxic producing mine. The long term environmental impact for the state of Minnesota could be catastrophic, leading to the impairment of wetlands and aquatic ecosystems, toxic pollution of drinking water, ground and surface water. Mercury contamination of fish and threats to endangered species.	WI04
Sender Name (Submission ID)	Michael Stoos (47166)	
8434	Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats	WI01, WI02, WI04
8438	Polymet will be long gone before they have to account for any of the damage done to our state.	FIN01
Sender Name (Submission ID)	Michael Vanderford (19802)	
1341	I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for -- information that is necessary to decision-makers.	FIN08, PD03
1344	Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk.	SO01
Sender Name (Submission ID)	Michael W Youngquist (57247)	
17374	The actual and potential damage to our environment will be significant and long term regardless of their EIS.	GEN01
17375	We cannot trade a few short term jobs for our beautiful and healthy northern Minnesota.	SO01
Sender Name (Submission ID)	Michele Bevis (47198)	
11525	I do not believe that PolyMet will be the first, or one of the first, companies to operate a sulfide mine without creating dangerous pollution. They apparently have a questionable reputation in other parts of the world. What' in it for them to care about our community??	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michele Bevis (47198)	
11532	If it's true that we only recycle 25% of available copper, why not create a copper recycling industry in northern Minnesota?	ALT09, ALT16
14964	PolyMet should not be permitted unless, when the proposed mining stops, the groundwater and surface water is left in a clean condition, and surrounding streams, rivers, and Lake Superior are safe from risk of sulfide mine pollution.	PER04
16923	… I believe it is short-sighted and unsustainable to want jobs for a mere 20 years, then to have your children and grandchildren, and their children's children, deal with eternal water pollution that will affect them, even harm them, and possibly destroy or at least seriously alter, the environment that they profess to love. Not to mention the rest of the citizens of Minnesota who will be paying the taxes for eternal clean up.	SO01
Sender Name (Submission ID)	Michele Gonyea (52366)	
17023	The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility.	PD17
Sender Name (Submission ID)	Michele Jimenez (52439)	
17031	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies.	WR023, WR060, WR181, WR182, WR195
Sender Name (Submission ID)	Michelle Duhant (43489)	
15543	This operation may compromise the water, as the tailing's basin seeps into the ground water and could go in every direction.	WR103
Sender Name (Submission ID)	Michelle Javorina (41746)	
3259	My son now owns the cabin [on Birch Lake] and if this project proceeds we know that the lake and surrounding environment will be negatively changed forever.	LU06
3260	I cannot imagine our wonderful Minnesota north woods being sacrificed for a few years of jobs.	SO01
3261	There is no company that is going to make the pledge and follow through with the financial resources to protect our land and water for us and future generations.	FIN01
Sender Name (Submission ID)	Michelle Loseke (38512)	
13575	From what I've read, the companies and people involved either have dismal records on safety or have no record at all as this is their first foray into this kind of mining.	PD23
Sender Name (Submission ID)	Michelle Raskovich (19526)	
13437	I am greatly concerned about the water quality impact and what will happen over the years after PolyMet leaves. I feel that over 20 years of mining and we have to spend over 500 years with contamination that will be leaking continuously into our water.	WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Michelle Raskovich (19526)	
13942	There is no guarantee of containment, there is no follow-up on how they're going to pay for all that, and when we're talking about our environment and our children and the generations to come, the 20 years of mining is a small, ridiculous suggestion	SO01
Sender Name (Submission ID)	Mick (44373)	
10422	In conclusion your mine will only hurt people, the economy, and most importantly the land and water surrounding our beautiful state	SO03
Sender Name (Submission ID)	Miguel Bordayo (54176)	
16400	The reason why you shouldn't drill for copper and nickel is because all the rocks and dirt has sulfuric acid and you are going to wash that into a river, and all that water will turn yellow and kill so much water life.	WR203
16401	And the TNT you are going to use, to make a 20 story building and a length of 5 football field you are going to kill everything.	WI13
16402	All that damage is going to hurt the environment. It's never gonna come too life, its gonna stay dead forever.	WI04
Sender Name (Submission ID)	Mikayla Rue (54352)	
18179	Some advantages are that it would upgrade utilities, roads, and railroads. It could also benefit the economy! The project could make 18,000 tons of nickel/copper hydroxide, 113,000 tons of copper concentrate, 32,000 tons of ore, and 500 tons of PGE precipitate each year. In some ways this can be bad, but for our growing economy we need to collect this stuff for manufacturing	SO10
18180	there are some disadvantages with this project. There is land-clearing, which can be hard on the environment. We need to protect the land, it helps us in several ways. If the land is cleared this could allow erosion to happen without the trees there to protect the earth.	VEG03
18181	This project could also affect cultural resources. The land is important to the Indian people for hunting, fishing, and planting.	CR01, CR05
18182	People also, don't like the noise, dust, earth-moving, vibration, visual obstruction, and excavation.	N01
18183	The land exchanges would make sense. It would involve the transfer of 6,650.2 acres of federal lands from public to private ownership, and up to 6,722.5 acres of land to private to public ownership. But this would depend upon the results of the environmental analysis and federal real estate appraisals.	LAN11
Sender Name (Submission ID)	Mike (4268)	
10679	PolyMet has done their research. They have systems in place that not only will meet or exceed standards for environmental protection, but they may actually set the bar higher for other mining companies to keep our natural resources intact.	PD28
10681	The local job creation is directly obvious. The indirect job creation this country will see by having the combination of cheaper energy alternatives, as well as the domestic resources mined by PolyMet for building and retooling American companies will be impressive.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mike (4268)	
10683	Next of course is the economic impact that this mine will have on the communities involved. It is no secret the mine itself will be great asset to both the local area as well as the state of Minnesota. But the impact this project will have in the country will also be established as we see industries moving back to the United States from overseas. Our energy landscape has dramatically improved in the last couple years and because of that, interest in investing in America is returning. Resources found at the PolyMet site are required for America to rebuild and grow.	SO10
10712	With the permit approval, we will see; improved job markets and decreased unemployment, increased tax revenues, more conscientious partners in the mining sector, better advances in water purification, and understanding of the mining resource requirements needed in all industries.	SO10
10721	Reverse osmosis is clearly a winning technology that will win the hearts of all living creatures in the area, including humans.	WR190
Sender Name (Submission ID)	Mike Bergh (11528)	
2480	Per EIS Review, I feel that the safety requirements have been fully met. The jobs created by Polymet will be a huge economic boost to the northern MN economy. Thus must go through.	SO10
2480	Per EIS Review, I feel that the safety requirements have been fully met. The jobs created by Polymet will be a huge economic boost to the northern MN economy. Thus must go through.	SO10
10428	when they bury the waste ore, they can ad limestone to neutralize the sulfate acid if there is a problem. Maybe this should be standard practice to help insure limiting potential pollution run off.	HAZ01
Sender Name (Submission ID)	Mike Carr (40062)	
6904	Trading 500 years worth of mining pollution for 20 years worth of jobs is irresponsible	SO01
Sender Name (Submission ID)	Mike Filipczak (11553)	
2517	All the job it can employ for a lot of people for many of years.	SO10
2517	All the job it can employ for a lot of people for many of years.	SO10
Sender Name (Submission ID)	Mike Garramone (19509)	
14819	feel that this reverse osmosis creates a pretty toxic sludge or byproduct from the filtration of the water, and they're going to bury it, and three years later, they're going to rebury it in an on-site double-lined area.	WR145
14820	they should have a shutdown clause, and the reason why I'm saying this is because a lot of these companies, it's easier to pay a fine than it is to fix a problem, so if the permit has a shutdown clause, like three violations and you're done until they fix it, that's what I believe should be instilled here somewhere.	FIN01
Sender Name (Submission ID)	Mike Geisdorf (4011)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mike Geisdorf (4011)	
724	In the past 40 years, I have seen the promise of numerous "big" projects come and go with the potential of hundreds or even thousands of jobs come and go right with them…Besides the wood products industry, the only reliable economic development in Northern Minnesota was in the mining industry. They would come, plan, study and then build, with hundreds or thousands of jobs that came directly from the project.	SO10
726	With the recent release of the SDEIS, the issues once troubling both residents and environmentalist alike have been addressed. The studies and engineering completed by the US Army Corps of Engineers, Minnesota Pollution Control Agency, Minnesota DNR, Barr Engineering, ERM and others have finally addressed the numerous water effluent issues of the active mine site.	NEPA16
758	The studies completed by Polymet Mining with the reverse osmosis systems answers the water quality problems with a system that's quite simple.	PD28, WR190
759	The money Polymet will be setting aside address's the legacy water issues for generations to come.	FIN16
769	This project and the resulting economic boom that comes with it, represents far more that just a few hundred jobs, it represents vibrant thriving communities with local business districts bustling! It represents modern environmentally friendly sewer systems and potable water treatment systems in our towns on par with the best in the state. It represents residents and travelers driving on clean new intact streets with modern storm sewer systems that direct heavy rains and runoff into proper drainage systems that don't overflow our sewage plants. It represents school systems with modern amenities' of fiber optics, high tech computer systems and modern science departments. But most important, our kids have hope! They have hope that remaining in our area will not lead to poverty on their part to remain up north, their home! They have hope that they will be able to raise families on incomes that will afford them a decent standard of living. That having a large family won't penalize them allowing them to remain around parents and grand parents. That our schools will again become revitalized with children of people who have chose to stay up north for the clean air and water.	SO10
Sender Name (Submission ID)	Mike Higgins (42534)	
15583	I feel all the regulations will keep the pollution in check and this is far too great of an opportunity of progress to pass up. The amount of jobs and economical growth is unfathomable.	PER34, SO10
15584	The amount of jobs and economical growth is unfathomable.	SO10
15585	I am an outdoorsmen and fully support a clean environment and I believe Polymet would be able to maintain the best of both worlds both in making a living and supporting a family as well as keeping my hunting/fishing environment safe.	LU07
Sender Name (Submission ID)	Mike Johnson (18109)	
3356	Minnesota and the United States of America have a process for approving projects such as this. PolyMet has gone to incredible lengths to satisfy the regulations and the law. It is time for the DNR and other agencies to create a positive decision (inaudible) will allow the benefits of the project to be one step closer to reality for the individual businesses and communities for Minnesota and the United States.	NEPA16
Sender Name (Submission ID)	Mike Klein (39444)	
7839	... I propose that a trust fund be established by the mining interest, in an amount determined by a third party assessor, and to be administered by the state, to set aside adequate funds to cover potential environmental impacts over the entire span of project - and subsequent impact - upon the land and waters of the project area.	FIN01, FIN07, FIN08

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mike Klein (39444)	
13293	Having reviewed the SDEIS, and the significant environmental impacts of the proposed project, I am concerned that the potential environmental risks and economic, environmental, and social costs associated with the project outweigh the potential economic benefit.	SO01
Sender Name (Submission ID)	Mike Kuitu (6270)	
1059	There is no identification of the specific environmental hazards present to the workers working at the Northmet Minesite, let alone the levels of toxicity.	PD29
1060	There is no mention of asbestos or asbestos like fibers becoming airborne.	AIR03
1061	There is no mention of how Polymet will protect these workers from that plus arsenic, mercury, and sulfuric acid. There is no mention of the cumulative effects of these hazards on workers health.	HU04
1187	I ask that you reject the Polymet SDEIS and deny permits to Polymet to proceed with their Northmet Mine.	PER35
2912	the construction workers that work at PolyMet will have good paying jobs. But that's where it ends. We don't know what PolyMet is going to pay their lowest paid workers.	SO04
2913	The SDEIS does not recognize some of these environmental -- these economic environmental hazards that are going to drawdown the rest of The Range and Northeastern Minnesota….There are no agreements for PolyMet to be a union mine...But if you start getting all these mines together and they're paying $11 an hour, what kind of impact is that going to be to the union mines..What is the lowest wage you're [PolyMet] going to pay?	SO04
Sender Name (Submission ID)	Mike Larson (58120)	
19917	I am fully supportive of the Polymet Project. I firmly believe that mining can be undertaken in a fashion that is not harmful to our environment. We need jobs that pay liveable wages.	NEPA05, SO10
Sender Name (Submission ID)	Mike Lein (45324)	
13009	I am suspicious of this proposal that allow a mining technique that has a proven track record of failure and pollution to operate in Minnesota, to be operated by a company with no previous experience, and to be operated with no specific backup or contingence plans.	PER35
13012	Even for a seasoned professional such as myself, there is too much to absorb and comment on during a 90 [day] comment period….Where's the documentation of consideration of worst case scenarios?	NEPA07
13013	offer details on financial assurance, even if not legally needed now	FIN08, FIN13
13016	show us that State employees have done their homework on an immense project that has no proven track record other than failure, operated by a foreign company with no operational experience, that will need care and maintenance for 500 years or more.	SO04
Sender Name (Submission ID)	Mike Link (6126)	
1040	The location of these proposed mines raises the immediate concern for two of our regions greatest resources – the Boundary Waters Canoe Area – and Lake Superior.	WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mike Link (6126)	
1041	The impact of the mine will have a positive economic impact for the community in the short run, however, let's be clear – these are International companies and as we know the laborers do not get the majority of earnings.	SO01
1042	These companies have no concern, no commitment to our resources – they simply see profit. But profit for the mines actually means loss to the state and nation. Our resources will be diminished and our state and federal taxes will be required for the infinite treatment of their wastes.	FIN01
Sender Name (Submission ID)	mike love & jeanine kelley (41359)	
9318	PolyMet proposes to create 913 acres of destroyed wetlands, but manmade wetlands never have nearly the biodiversity of natural ones that have developed over hundreds of years. In addition, there is no plan to repair damage from pollution & reduced water flow to several thousand acres of other wetlands	WET05
9319	Lake Superior is the most vulnerable of the great lake to pollution because of its cold temperature and lessened ability to clean itself. The Lake Superior Basin needs more wetlands, not less. Sulfide mining has never been done before in water abundant areas without causing pollution. We don't believe that the cumulative effects analysis area was large enough. Along with the Partridge and Embarrass Rivers, the St. Louis River should be studied for the cumulative effects from the proposed NorthMet mine.	WET18, WR023, WR024
9320	Minnesota Rule 6132.3200 states that a mine must be maintenance free when it is shut down. The timeframe for treating the water from the mining site and the tailings site is several centuries. How can this plan comply with state law and how can it be taken seriously?	PER04
9321	We are troubled that the local Minnesota Indian tribes disagree with many of the findings in the SDEIS. The rights of Native Americans should not be impeded to live off of their lands without serious concerns about the water quality for drinking, fishing and wild rice harvesting.	CR01
9322	We don't believe that the alternative of an underground mine was fully studied.	ALT06
Sender Name (Submission ID)	Mike Lundstrom (6136)	
1095	I take solace in the fact that Minnesota has some of the most stringent policies in the nation regarding the permitting of mining.	PER34
Sender Name (Submission ID)	Mike Maleska (19525)	
14369	What I want to know is what entity will have the authority, or more specifically, the courage to call a halt to this mine when a disaster occurs? Who will tell the workers in their communities that it's all over? What politician wants that responsibility? Is it going to be the Forest Service? Is it going to be the DNR? Is it going to be the U.S. Army Corps of Engineers?	NEPA02
14370	What magnitude of disaster will it take to have this mining process stopped and halted and repaired forever? Is a little poison for a little while okay? Is a little poison for a long time okay? Is a lot of poison for a little while okay?	PD22
14371	What magnitude of disaster does it take to make people realize that this is a permanent change to the ecology and the environment?	GEN01
Sender Name (Submission ID)	Mike Malling (52314)	
10797	I'm concerned about the long term impacts of the project. Noise, water pollution, long term contingency plans if the project fails, the endangered lynx, and the fact that this type of mining has never been done without impacts to water are concerns.	PD22

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mike Markell (16202)	
1463	There is no scientific evidence that the waters of the BWCAW will be protected and preserved under this proposal … I'm not convinced that the cleanup projected to take maybe 500 years (hard to comprehend) is even viable.	WR035, WR111
1464	how can we ensure that there are enough funds to first, protect Minnesota's treasured lands and waters and second, if the proposed project is approved that there will be enough dollars to for protection in the short term and clean up longterm.	FIN05
1465	If we need 300 jobs in Northern Minnesota let's have the Legislature approve a CCC type project (with corresponding funding) of good paying jobs rather than use that as an argument to approve this project. Give the IRRRB the funds and have conservation related jobs created.	SO06
Sender Name (Submission ID)	Mike McGill (39236)	
16662	Local property values will be negatively impacted by this project under any and all circumstances. If disaster occurs, and the groundwater and lakes are poisoned, property owners will see the value of their real estate become all but worthless.	SO01
16664	The PolyMet proposal does not adequately address how the inevitable damage will be corrected and paid for. … How does PolyMet intend to compensate property owners for the loss in value of their land?	FIN01
16665	We have a right to enjoy our property without having the water in our well and / or the lakes being poisoned for the sake of corporate profits.	SO01
Sender Name (Submission ID)	Mike Menzel (43033)	
12576	Habitat losses from this [land exchange] include over 6000 acres scored as “high biological diversity”, and 1400 acres of floodplains, home to 11 rare species and known habitat for the Moose and Canada Lynx.	VEG01, VEG02, WI02
12583	What are the details of the proposed water treatment systems?Claims in the SDEIS that mercury and sulfate pollution will decrease in nearbywaterways as a result of mining are dependent in large part on operation of water treatment system(s) that are not detailed.	WR035, WR137, WR143
12585	No details are provided as to how the centuries of operations, maintenance, monitoring, and reconstruction of water treatment facilities will be paid for. What financial institution has ever lasted even one century, much less five?	FIN01
12589	Why was an underground mine, which would greatly reduce forest, rare habitat and wetland losses eliminated from consideration as a alternative action due to present economics, alone?...an underground mine would disturb many fewer acres to access the ore in the headwaters of the St. Louis River.	ALT01, ALT06
12591	What is going to be done to correct the inaccurate water flow model that underestimates the amount of water exposed to toxic pollution at the mine site, and that also underrepresents the impact to wetlands in the area?	WR003
13898	However, I feel that we need to explore other job opportunities for the folks up north because this mine has great potential for being an environmental catastrophe.	SO01
13899	And I understand that there has never been a sulfide mine in a water intensive area ever before that has not resulted in contamination or pollution to our waters.	WR023
13900	One point I have not seen brought up is, that I feel needs to be addressed in the EIS, is the high likelihood of catastrophic climate events. And I am referring to the fact that we have already had four one thousand year floods since 2004 in the State of Minnesota. We have seen massive winds, with terrific blow downs up in northern Minnesota, leaving the potential for epic fires.	WR180

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mike Menzel (43033)	
17127	Climate change will greatly affect this project, yet climate change was not even considered in the SDEIS. The project is highly dependent on water. Whether we have a climate that produces too much water or too little water - either way, this important reality must be factored into the statement.	WR180
17128	The proposed US Forest Service land exchange must be rejected: it is not in the public interest. The lands offered in trades do not include mineral rights- setting up future mining conflicts. The existing law prohibiting surface mining in the Poly Met area (Weeks Act) will not apply for nearly all of the traded lands - weakening protections for our national forest.	LAN02, LAN04
17130	The proposed wetland mitigation only covers the 912.5 acres of direct wetland impacts. The Section 404 wetland permit must be rejected. With more than ten square miles of additional wetlands projected to be “indirectly” impacted by water drawdowns and toxic materials, what will be done to assure that wetland impacts will be replaced before these effects are noticed by monitoring? Bogs and coniferous swamps of the sort likely to be affected are extremely difficult to restore. It is insufficient to propose a monitoring plan - with any replacement to be determined in the future. (SDEIS 5.2.3.3.4)	WET01, WET02
17132	The entire 3014 acre mine site has been classified by the Minnesota Biological Survey as of “High Biodiversity Significance”. Two state endangered, two state threatened and seven state special concern plant species have been found on the mine site. Six “Regional Foresters Sensitive Species” (federal forest plant species of concern) are found on the mine site. (SDEIS Section 4 pp 173- 188) The SDEIS generally describes the impacts as too small to consider significant. (SDEIS Section 5 pp 339-354).	VEG01, VEG02
17135	the inaccuracy of the water model...throws into question assumptions about future mercury levels in the Partridge and St. Louis Rivers.	MERC11
Sender Name (Submission ID)	Mike Neaton (17576)	
9355	The [SDEIS] has many failures: 1)to address the correct flow of base water, 2)specify the under water crevices that will allow water to flow in pathways that are sited as clay, 3)show the correct flow to the 100 mile swamp feeding eventually to the WCA	HU01, WR003, WR010, WR011, WR012, WR024, WR052, WR061, WR071, WR080, WR081, WR090, WR091, WR111, WR167, WR175
9356	[T]he purposed operation is expecting a public monitoring for 500 years and counting!! No business enters a contract with liabilities that extend for a time period of this length.	PD01
12824	The [SDEIS] fails to address the health regarding the working conditions.	HU04
12825	If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness.	WILD02
Sender Name (Submission ID)	Mike Perala (18105)	
13471	I speak tonight in support of the review process managed by the Minnesota DNR. Some people think it a long process. I think that the length of the process has been dictated appropriately by the complexity of the project and the robustness of the area mine site.	NEPA16
Sender Name (Submission ID)	Mike Schrage (45109)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mike Schrage (45109)	
7614	The lead agencies should at least give full consideration to the costs and benefits of extracting this ore by other means including underground mining.	ALT01
7615	I don't feel the SDEIS adequately considered the costs and benefits of alternatives (including not doing the project at all) to open pit mining.	ALT20
7616	I don't believe the SDEIS has provided adequate financial assurances the residents of Minnesota won't be stuck with clean up and reclamation costs following the mine's closure.	FIN01
7621	The proposed land exchange should not include 382 acres of Lake County land. This represents a net loss of public land opened for hunting, fishing, trapping and other forms of outdoor recreation. … No part of this or future mining projects should result in a decrease of public lands.	LAN06
7624	The SDEIS does not adequately discuss impacts to outdoor recreational pursuits such as hunting and trapping nor does it adequately discuss impacts to traditional game and furbearer populations. This is a major discrepancy in these documents as healthy wildlife populations of all species, not just rare or sensitive ones, is critical for many residents and visitors to northeast Minnesota.	WI09
7626	The existing wildlife corridors are inadequate to maintain connectivity across the Iron Range. … The SDEIS admits increasing development of urban areas alongside the corridors will render some of the existing corridors less suitable for wildlife in the future. Increased urban development and associated transportation and utility infrastructure should be expected if the project provides the economic benefits stated in the SDEIS. This issue should be mitigated before NorthMet or additional mine development goes forward through the establishment of dedicated and protected wildlife corridors and the reclamation of existing mine land.	WI03
7628	As more mines are developed, fish and wildlife populations are going to increasingly suffer negative impacts either through direct loss of habitat or indirectly through disturbance.	WI01, WI02
7633	There should be a mine reclamation aspect to this project and all mining projects going forward. There is no apparent reclamation aspect of existing mine lands to this project and this is also a discrepancy of this SDEIS.	PD09, PD35
7638	nor does [NorthMet] offer sufficient assurance that the economic costs of cleanup and monitoring following closure are adequate and won't have to be picked up by taxpayers.	FIN01
16968	The greatest natural resources we have are our abundant public lands, clean water and healthy populations of fish and wildlife. These resources have both economic and intrinsic value and properly cared for they are infinitely renewable. They should not be put at risk for comparatively short term profits.	SO01
17009	Simply exchanging private land for public land isn't enough. The only way to begin to counter balance this loss is to reclaim existing mine lands and work to reestablish public access and healthy fish and wildlife populations on them.	LAN01
Sender Name (Submission ID)	Mike Zicus (42908)	
10138	an underground mine should not have been eliminated from consideration as an alternative action. It seems to have been dismissed solely due to present economics (e.g., Table 8.1 MDO #5, Appendix C pp. 43 - 46). (…) An underground mine would certainly destroy many fewer acres of natural habitat, having a lower cost associated with habitat destruction.	ALT01, ALT06
10140	Two state endangered, two state threatened and seven state special concern plant species have been found in the immediate vicinity of the proposed mine site. The SDEIS generally describes the impacts as too small to consider significant (SDEIS Section 5 pp. 339 – 354.)	VEG01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mike Zicus (42908)	
10142	The proposed wetland mitigation for the open pit mine covers only 900 acres of wetlands directly impacted by the operation. Yet between 6,500 and 7,350 acres of additional wetlands are projected to be "indirectly" affected by water loss and/or accumulation of toxic materials. What will be done to assure that the full ecological function of these wetland will be restored or replaced? Many of these wetlands will be bogs and coniferous swamps which are extremely difficult to restore or replace	WET01
10146	Discussion of the possible impacts to stream flow are also inadequate. Page 39 of the Executive Summary has misleading statements regarding flows of water into the Embarrass River. (…) What would happen if we actually experienced a severe drought on top of the acknowledged dewatering that is proposed? (…) The consequences of long-term de-watering of tributary streams (especially effects on temperature regimes) must be included and assessed as an impact. Descriptions of mitigations are needed to address the dewatering that the SDEIS acknowledges would occur.	WR048, WR130, WR138, WR180, WR182, WR188
10151	The document acknowledges that the proposed mine site would generate contaminated runoff for 200 years and that the proposed processing site will contaminate runoff for 500 years. (…) What mining company is going to operate for even 200 years? The risks to our water resources are just too great and PolyMet's assurances too problematic to take a chance with this level of future contamination without more specific description of the remediation (and associated costs) that will be undertaken.	FIN01, FIN05
10161	The SDEIS also states that the "….potential exists for the release of amphibole mineral fibers from the proposed operations which could pose a potential public health risk of uncertain magnitude." Medical professionals (http://www.duluthnewstribune.com/event/article/id/292659/group/Outdoors/) recently identified these asbestos-like fibers as a significant potential for risk to human health that must be addressed by the SDEIS. Effective mitigation measures for air-borne amphibole mineral fibers and the costs associated with these measures must be included in the SDEIS.	AIR03
19089	There are also Major Differences in Opinion regarding the stream base flows modelled in the analysis (Appendix C, Subsection 1) that need to be better resolved. These modelled values have a critical effect on estimated concentrations of contaminant in the watershed and leave unanswered questions regarding the consequences to water quality. Discrepancies in the hydrologic models must be resolved.	WR003
19097	there is insufficient information regarding how PolyMet proposes to conduct water treatment such that mercury and sulfate levels might be reduced in the affected streams and wetlands. In fact, information in the SDEIS suggests that these contaminants might increase.	MERC15, MERC23
Sender Name (Submission ID)	mikem28 (39660)	
7365	I don't want MN to end of looking like Detroit.	LU04
13652	The financial benefits are a deciding factor in my opinion to approve. You just need to make sure the environmental factors are accounted for. As long as the company can take responsibility for their actions, the economy needs a boost in jobs and tax revenue.	FIN16
Sender Name (Submission ID)	miles holets (21979)	
3309	I support the development primarily for two reasons: … 1. Our country is stronger when we do not need to rely on foreign countries for our infrastructure minerals and materials.	NEPA05
3310	I support the development primarily for two reasons: (…) 2. Economic strength jobs and taxes will provide.	SO10
Sender Name (Submission ID)	Miles Kramer (41828)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Miles Kramer (41828)	
15444	•The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility.	PD17, WR067
Sender Name (Submission ID)	Mimi Jennings (10715)	
1482	I'll focus on its parent company. Most galling: while PolyMet has never operated a mine anywhere, it's owned primarily a known quantity with an abysmal environmental, ethical and labor record: the Swiss international commodities and mining giant (50% of all mines worldwide), GlencoreXstrata. Glencore was originally called the Marc Rich Company (charged with tax evasion, accused of doing business with Iran during the hostage crisis, pardoned by President Clinton right before he left office – that Marc Rich). Now Tony Hayward is chairman of Glencore's Board of Directors. He's the guy who was running BP at the time of the Deepwater Horizon oil spill. Remember that he botched the handling of the fire and then attended a yacht race while oil polluted the Gulf, announcing that he "wanted his life back?" That Tony Hayward. Some Glencore history:· BBC investigation accusing Glencore of dumping copper refinery acid into a river in the Democratic Republic of Congo· more than a million dollars in environmental fines worldwide since 2010· 500,000 Euro Belgian court fine in a corruption case· various contracts with Iran during sanctions· named the number one most difficult company to do business with by an international coalition of environmentalists· Glencore subsidiary fined for violating copper trading rules. Why do we even want these guys in our state, let alone undertaking such delicate operations in our pristine waters? It's like letting a known child molester babysit your own kid. Not wise. Wrong. Bad decision.	PER02
13959	This is an exceedingly risky proposal with little upside, which is reason enough to distrust estimates provided by PolyMet without independent state verification. In addition, its parent company's checkered history and that of its board chair demand extra vigilance.	PD01
14212	The Supplemental Draft Environmental Impact Statement (SDEIS) is insufficient and should not be approved because, among many reasons, it lacks vital information about centuries-long water treatment and how it might be assured--information that is necessary to evaluate the environmental effects of this proposal.	WR036
Sender Name (Submission ID)	Minh Cat Thai (54229)	
16798	Environment is very important. To able to live a healthy life, we need a fresh environment and clean water to survive. The Poly Met Mine needs to test the water's quality to make sure the water is still fresh and clean. Pollution in water not only affects the fish and small animals. It is also affected our life negatively.	WR115, WR195
Sender Name (Submission ID)	Mining Minnesota (42956)	
12663	The Proposed Project Will Have No Impact on the Boundary Waters Canoe Area. The SDEIS clearly points out, BWCA and Voyageurs National Park are located in a different watershed than the NorthMet Project area, and lie 20 miles and 50 miles away, respectively. The NorthMet Project Proposed Action would not directly, indirectly, or cumulatively affect the water quality of these areas.	CU20
12664	The Proposed Project Will Not Create Acid Rock Drainage. Almost all the water PolyMet's NorthMet project will manage on its property is in the pH neutral range, including all the water in the tailings basin, the mine pit, and water from the largest and only permanent stockpile on the mine site. The small portion of waste rock will be returned to the open pit during reclamation and it will be covered by water, no longer able to generate acid.	WR190

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Mining Minnesota (42956)	
12666	Sulfate and Mercury Standards Will Be Met by the Proposed Project. The project will meet the strict Minnesota standard for wild rice waters, and the project will meet the Great Lakes mercury standard of 1.3 nanograms per liter. The SDEIS makes very clear that there will be a net decrease in both sulfate and mercury loadings as a result of this project. The water will not be hazardous and will be swimmable and fishable water.	WR161
12671	The Proposed Water Treatment Works...the water control and treatment methods proposed in the PolyMet NorthMet project work. The extensive monitoring and modeling demonstrate that, regardless of flow rate, and regardless of length of treatment needed, the project will always be in compliance with water quality standards.	WR190
12677	Financial Assurance is More Than Adequately Discussed in the SDEIS...Financial Assurance that covers all costs related to closure and post closure maintenance are clearly required in Minnesota statute and rule before a permit to mine can be issued. Financial assurance is properly addressed during the permit to mine stage of permitting.	PER03
12680	The proposed Land Exchange will exchange certain lands in the Superior National Forest (SNF) for equivalent value non-federal lands that will be provided by PolyMet. The SDEIS provides adequate support for the conclusion that this Land Exchange is consistent with the management of the SNF and governing Land Exchange requirements.	LAN11
12685	Agencies Should Move Quickly to Publish a Final EIS and Proceed to Permitting. The SDEIS is comprehensive and adequately addresses all potential impacts...The SDEIS identifies how all impacts will be mitigated, and the project will be in compliance with all air and water quality standards.	NEPA16
14965	Jobs and Economic Development Resulting from the PolyMet NorthMet Project are Essential to Minnesota's Future...The PolyMet NorthMet project will provide the following economic impact:•$720 million in wages and benefits•$10.3 billion in economic benefit to St. Louis County•$300 million in new local and state tax revenues estimated•$900 million in new federal tax revenues estimated•$500 million in capital construction approximately, requiring 2 million construction hours•360 full-time jobs in the mining operation•600 plus related indirect jobs	SO10
14966	PolyMet NorthMet project will produce copper, nickel, platinum, palladium, cobalt, and gold. All of these metals are essential to our economy, and metals that we are import dependent for a significant percent of our domestic consumption.	SO10
Sender Name (Submission ID)	Minnesota Center for Environmental Advocacy (MCEA) (52185)	
5614	In the SDEIS, waste rock is defined as the rock "without economic value that surrounds ore." However, MCEA does not agree with this definition. Waste rock is better defined as rock surrounding ore from which any metals or other minerals cannot be economically processed.	PD15
5615	PolyMet's model predicts that this structure would collect over 90 percent of the seepage. However, PolyMet's modeling assumes that no water will flow into the bedrock. The success of this collection system depends upon zero fracturing in the bedrock, the efficacy of construction of the barrier, and the ongoing operation of the pumps inside the barrier to prevent overflow.	WR018, WR021, WR099, WR131
5616	The water that would need to be collected and treated at both the plant site and the mine site after closure (Year 40 and beyond) would include at least 22 metals. PolyMet predicts that some of these metals will be present at levels that exceed water quality standards, including arsenic, cobalt, copper, nickel, zinc and sulfate. Many of these constituents are toxic to aquatic life and can pose a public health threat.	WR109
5617	PolyMet constructed a water quality model to run for 200 years at the mine site and 500 years at the plant site. At the end of the duration of the model, pollutants in the water are still high, in some cases many times the applicable state water quality standard.	WR035, WR037

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Minnesota Center for Environmental Advocacy (MCEA) (52185)	
5618	Figures 1 and 2 [of water quality modeling in full comment letter] demonstrate that copper and sulfate persist at high levels in the Year 200, and do not appear to be on a downward trend. Figures 3 and 4 only extend out to Year 80 – PolyMet did not produce graphs showing constituents through Year 500, although the model extended for that period.	WR035
5619	There is substantial uncertainty surrounding the length and type of water treatment that may be required at this mine after closure. In MCEA's opinion, such uncertainty means that, from a policy perspective, water treatment must be considered to be perpetual.	WR035
5620	The SDEIS also states that development and implementation of "non-mechanical" water treatment systems would be part of the long-term activities at the site. To date, PolyMet has not proven a successful "non-mechanical" water quality treatment strategy.	WR137
5621	The SDEIS does not examine any Action Alternatives as to the mine plan. There is an alternative to the land exchange, although this alternative appears to be aimed more at achieving Forest Service Management objectives, as opposed to offering any particular environmental benefits.	ALT06
5623	Overall, the NorthMet SDEIS does not take the "hard look" required by law. Rather, much of the information provided is encyclopedic, describing ways in which the Project purports to fit within various regulatory regimes. In many areas the SDEIS lacks real assessment of the environmental and health impacts resulting from the Project. It assumes that all mitigation measures perform perfectly, not merely for the 20-year life of the mine, but for hundreds of years afterwards. This is simply not a supportable assumption, and the SDEIS fails to evaluate both the effectiveness of mitigation measures, and the impacts in the event that they fail.	NEPA09
5624	As discussed, below, MCEA has identified substantial inadequacies in the SDEIS. As a result of these inadequacies, it is not sufficient for the co-lead agencies to merely prepare a Final EIS. The Co-Lead Agencies must first submit a revised Draft EIS for public review and comment. MCEA urges the Co-Lead Agencies to require additional evaluation of environmental effects consistent with these comments prior to publishing a final EIS for the NorthMet Project.	NEPA15
5625	If the state does not obtain adequate financial assurance to pay for that maintenance and water quality treatment, than the prediction in the SDEIS that the project has minimal environmental impacts will be flatly incorrect. … Minnesota law requires that an EIS "shall identify those measures that could reasonably eliminate or minimize any adverse environmental, economic, employment, or sociological effects of the proposed project." Similarly, under federal law, an EIS must include a discussion of "means to mitigate adverse environmental impacts…" ...Financial assurance is a mitigation measure designed to avoid the impacts altogether because adequate financial resources must be available in order for many of the other mitigation measures – such as water collection and treatment – to stay in place after closure.	PER03
5628	Additionally, financial assurance must be included in the EIS because the potential impact on Minnesota taxpayers is the type of economic and sociological effect that falls within the ambit of MEPA and NEPA.	FIN13
5629	Finally, the inclusion of information regarding financial assurance is critical to allow the public to fully understand and assess the effectiveness of reclamation and closure activities.	FIN13
5630	Including financial assurance information in an Environmental Impact Statement is becoming standard practice, especially for mining operations that are reasonably anticipated to require long-term water treatment. (See attached letters from EPA, Region 9, and Region 10, concerning mining operations in which the EPA sought financial assurance information as part of the environmental review process.)	FIN13

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Minnesota Center for Environmental Advocacy (MCEA) (52185)	
5631	Indeed, while the Co-Lead Agencies state that financial assurance is "typically made available at the permitting stage," it is unclear what the basis of this "typicality" might be, since federal EIS commonly do include financial assurance (Chambers p. 5). One example of reclamation plan with an appropriate level of planning detail and cost estimates is the Pogo Project in Alaska (Chambers p. 6). Another example, cited by U.S. EPA in its comments on the NorthMet DEIS in 2010, is the Idaho Cobalt Mine.	FIN13
5632	The Co-Lead Agencies have not provided a sufficient basis or explanation for being unable to estimate financial assurance requirements associated with reclamation at the SDEIS stage. If the adequate "level of engineering design and planning" is not available for financial assurance purposes, how is it available for determining the extent of significant environmental impacts of the project, whether during operation, reclamation or closure? The SDEIS offers no reasonable distinction between the amount of design detail required for financial assurance and the amount of design detail to evaluate the project's environmental impacts.	FIN05
5633	Complete financial assurance analysis and projections must include not only the final cost estimates, but also all supporting calculations.	FIN05
5634	The Co-Lead Agencies Must Explain Why They Have Included The Projections of PolyMet's Consultant, Foth Engineering, In The Document, If It Is Not Possible To Make Financial Assurance Calculations At This Stage. … for a company to bring a project to this stage without having performed some internal calculations related to financial assurance would be fiscally irresponsible to the company's shareholders and board of directors … Yet, the co-lead agencies expect the public to take on potential liability without similar information. The public is owed at least as much as PolyMet's shareholders and board of directors. The calculations underlying the numbers in Table 3.2-15 in the SDEIS should be disclosed to the public, or similar calculations made by the Co-Lead Agencies.	FIN05
5635	While DNR has insisted that financial assurance may not be calculated at this phase (a proposition with which MCEA disagrees), that should not prevent the Co-Lead Agencies from including information that is not dependent upon whether the details of the proposal are finalized, including the discount rate.	FIN05, FIN08, FIN13
5636	There are five options typically mentioned in associated with financial assurance: trust funds; surety bonds; letters of credit; certificates of deposit; and insurance policies. (Thometz, p. 1). Of these, only trust funds meet the statutory requirements [MR 6132.1200] and are likely available and economical for PolyMet.	FIN08
5637	No third-party guarantee instrument, whether it be a bank letter of credit, a surety bond, or an insurance policy, can meet the requirement in Minnesota's rules that the instrument not be "dischargeable through bankruptcy," … First, banks, sureties, and insurers can go bankrupt themselves. … Second, bankruptcy courts can and do release non-debtor guarantors from liability for a bankrupt debtor's obligations, using their broad injunctive power under 11 U.S.C. sec. 105, which authorizes the court to issue "any order, process, or judgment that is necessary or appropriate to carry out the provisions" of the U.S. Bankruptcy Code.	FIN01, FIN03, FIN08
5638	It is also not clear that an insurance policy, surety bond or even Letter of Credit meets the requirement that "the funds will be available and made payable to the commissioner when needed." … If the insurance company or bank perceives a weakness in the state's claim to collect on the instrument or contract, or the circumstances that require the state to step in on cleanup at the site do not precisely match the contractual language that obligates the insurer or bank to pay out, then a contractual dispute may ensue and the state may not have immediate access to the money.	FIN08
5639	Letters of credit, surety bonds, insurance policies, or perhaps hybrid instruments could offer a form of reinsurance to back up trust funds created for reclamation, contingency response, and long-term water quality treatment. Similarly, corporate guarantees (by parents, affiliates, or financiers) and periodic financial tests can bolster a financial assurance arrangement. They simply cannot be a substitute for a trust fund arrangement, the only mechanism that meets the rule's requirements.	FIN08

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Minnesota Center for Environmental Advocacy (MCEA) (52185)	
5640	no investment is truly "risk-free," especially over the time frames contemplated by the state in the SDEIS. (Thometz, p. 1-2). Major banks and insurance companies fail, and governments default on debt. Indeed, it is impossible to even assess the credit-worthiness of an institution over 200 years. (Thometz p. 2). Moreover, it unlikely that financial instruments other than a trust fund would be economical, assuming they are even available. … Thus, only U.S. Treasury Bonds, held in a trust fund by the state, offers the security required by Minnesota Rules.	FIN03, FIN08
5641	MCEA strongly urges the state to set a value for financial assurance obligations and require PolyMet to show that it could meet that obligation as early in the process as possible. The state should not simply assume that a variety of financing options are available to PolyMet.	FIN07
5642	Federal NEPA regulations state that an agency may use information submitted by an applicant in an EIS, but "[t]he agency shall independently evaluate the information submitted and shall be responsible for its accuracy." … In this case, the Co-Lead Agencies have merely reprinted a range of reclamation costs and post-closure costs directly from a memo produced by Foth Engineering, PolyMet's consultant. … MCEA must presume that DNR has never asked PolyMet's consultant to "show its work" on how it arrived at the numbers in Table 3.2-15. Thus, the agencies have not "independently evaluate[d]" the information in Table 3.2-15, nor have they "verified" that work is acceptable.	FIN05, PER03
5643	First, it violates Minnesota Rule 6132.3200, promulgated by the MDNR in 1992. … [The] "objective" of closure for the NorthMet mine is not to close the area so that it is maintenance free, as prescribed by Minnesota Rule 6132.3200. Rather, it is to "provide mechanical or non-mechanical treatment for as long as necessary to meet regulatory standards at applicable groundwater and surface water compliance points." Indeed, this objective is precisely the opposite of the regulatory requirement.	PER04
5644	MDNR cannot force PolyMet to fulfill the legal obligations necessary for it or its Canadian parent to continue to exist as a corporation. Nor can it require PolyMet to hold any amount of assets within the corporation that could potentially be available to pay for long-term water quality treatment, let alone penalties for failure to perform any cleanup activities at the site. Keeping PolyMet on the Permit to Mine will not change the fate – financial or otherwise - of the NorthMet site after closure.	PER02
5647	An agency may not disregard an alternative merely because it does not offer a complete solution to the problem. As discussed below, the SDEIS failed to meet the requirements of NEPA by failing to adequately evaluate reasonable alternatives to the NorthMet Project, including the West Pit Backfill Alternative, and the Underground Mine Alternative.	ALT20
5649	In addition, MCEA proposes a new alternative that has not previously been considered based on the expert analysis of the water quality model – allowing the West Pit to refill without pumping.	ALT05
5650	The Co-Lead Agencies' conclusion that the underground mine alternative is not economically feasible is based on an economic assessment performed by Foth, a PolyMet Consultant. However, as noted by Dr. Chambers, the economic assessment performed does not analyze the sensitivity of the assessment to changes in metals prices. (Chambers p. 18). Underground mining may well be economically in the future with an increase in metals prices and refinement in the processing technology costs. (Chambers p. 18). … MCEA also notes that an underground mine may still fulfill this purpose, even if the project is delayed until mineral prices rise.	ALT01
5651	Under Minnesota law, an alternative in the EIS process cannot be rejected solely due to financial considerations. The Minnesota Environmental Policy Act (MEPA), under which this environmental review is conducted, and the Minnesota Environmental Rights Act (MERA) both prohibit projects that cause or are likely to cause pollution, impairment or destruction of Minnesota's environment where feasible and prudent alternatives exist. … In other words, an alternative cannot be rejected merely on the basis of cost.	ALT21

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Minnesota Center for Environmental Advocacy (MCEA) (52185)	
5652	Appendix B of the SDEIS notes that the Underground Mine Alternative would result in fewer socioeconomic benefits because it would reduce the life of the mine, as well as tax benefits. MCEA notes that the tax benefits described in the SDEIS are unsupported; therefore it is difficult if not impossible to quantify this potential drawback without further information about projected tax revenues.	ALT01
5653	The Co-Lead Agencies screened and rejected the West Pit Backfill alternative, in part because the agencies concluded that it did not provide significant environmental benefits as compared to the project, and in part because of economic infeasibility. In fact, the Co-Lead Agencies have identified merely speculative reasons why the West Pit Backfill would not provide environmental benefits. The Co-Lead Agencies did not ask PolyMet to any water quality monitoring or projects associated with backfilling the pit, detailed cost/savings estimates, or projected configurations of shallow-water wetlands that may be feasible. MCEA agrees that these are steps more appropriately associated with the consideration of an alternative in the SDEIS, rather than a screening process. However, MCEA contends that the Co-Lead Agencies' conclusions regarding the West Pit Backfill were premature, and full consideration of the West Pit Backfill as an alternative in the SDEIS is warranted.	ALT03
5654	even though the Category 1 stockpile would still impact wetlands in the short-term as a temporary stockpile, removing the stockpile provides an excellent opportunity to reclaim a large portion of the site after closure.The Co-Lead Agencies note that wetland restoration at the removed Category 1 stockpile site would not provide PolyMet with wetlands credits. … While wetlands restoration in 20 years at the site may not provide a financial benefit to PolyMet because it already had to mitigate wetlands losses, it will still provide an environmental benefit.	ALT13
5659	Additionally, the conclusion that PolyMet will not gain wetlands credits from the restoration at the removed Category 1 stockpile site may not be correct. Wetlands restoration at the site may well provide PolyMet with needed wetlands credits for indirect wetlands impacts at closure. … Rather than require mitigation in advance, PolyMet proposes to monitor for wetlands impacts and mitigate as needed. While MCEA has concerns about this approach … it may well be that PolyMet will need additional credits at closure due to continued indirect impacts on wetlands, and the acres under the removed Category 1 stockpile will provide a good opportunity for in-watershed restoration.	ALT06
5661	The Co-Lead Agencies conclusion that a West Pit Backfill would increase constituent loading to groundwater fails to compare any increase in constituent loading from subaqueous disposal to the constituent loading from the Category 1 stockpile, left on the site into perpetuity. In other words, while subaqueous disposal of the Category 1 stockpile may increase constituent loading in the West Pit, it will also eliminate a source of pollution on the site (Myers SDEIS Review, p. 1-2).	ALT03
5663	A West Pit Backfill alternative may provide advantages for water quality. … The Co-Lead Agencies may contend that the Category 1 stockpile is not a source of pollution because of the Category 1 Waste Rock Stockpile Groundwater Containment System and Cover. … If the Category 1 Stockpile Containment system does not perform as designed, the seepage will travel to the West Pit. The seepage from the Category 1 Stockpile will have extremely high contaminant levels. Sulfate in the stockpile drainage, for instance, is projected to be anywhere between 2,500,000 and 4,000,000 ug/l.	ALT03
5665	A West Pit Backfill alternative may provide advantages for water quality. .. It may well be that Category 2,3 or 4 rock will be inadvertently stored in the Category 1 stockpile due to limitations in sorting technology (Maest p. 14). However, constituent loading from the Category 1 rock stored subaqueously in the West Pit may be less because the material will no longer be exposed to oxygen. (Maest p. 14)(Miller p. 5).	ALT03
5667	A West Pit Backfill alternative may provide advantages for water quality. … A complete analysis of whether the West Pit Backfill Alternative improves water quality must compare the effects of loading from the Category 1 stockpile to the effects of subaqueous storage.	ALT03
5669	The West Pit Backfill Alternative may provide other benefits. … MCEA agrees that the reclamation, from an aesthetic standpoint, has been successful [at the Flambeau Mine]. Removal of the Category 1 stockpile may provide similar results at the PolyMet site.	ALT03

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Sender Name (Submission ID)	Minnesota Center for Environmental Advocacy (MCEA) (52185)	
5671	PolyMet has not provided evidence of encumbrance of mineral leases. PolyMet must support its claim by providing contractual agreements or other evidence. PolyMet must also provide some evidence that this pit could ever be remined, which would be quite unusual. (Miller p. 5). Nor is it clear that backfilling the pit imposes additional encumbrances beyond filling the pit with water. (Miller p. 5). It would already need to be dewatered because it would become a pit lake; under the West Pit Backfill Alternative, it would also need to be excavated (Myers SDEIS Review p. 2). In either case, substantial expense will need to be incurred if the mineral rights adjacent to or beneath the West Pit were to be accessed. (Miller p. 5) … The Co-Lead Agencies must provide additional support for the claim that there is a difference in encumbrance of the leases between a pit lake and a backfilled pit lake.	ALT03
5673	The West Pit Backfill Alternative may also reduce costs post-closure. For instance, it would eliminate the cost of maintaining the geomembrane over Category 1 stockpile, as well as the Category 1 Containment system, including pumps. It may reduce or even eliminate the need for wastewater treatment at the mine site.	ALT03
5675	The Co-Lead Agencies seem to agree with PolyMet that the West Pit Backfill alternative may "affect the ability of the Project Proposer to secure financing for the action, thus rendering it economically infeasible." First, this statement is extremely speculative.… The Co-Lead Agencies should require additional support for this claim. Second, financial viability alone is not a valid reason to reject an Alternative in an EIS. … Third, the West Pit Backfill may result in decreased water treatment needed over time, actually decreasing costs. … Thus, if the cost of backfilling the West Pit increases the capital costs, but decreases the bond that PolyMet must offer as financial assurance, the West Pit Backfill alternative may, in fact, be a net reduction in costs of the project, or at least increase costs less than is assumed.	ALT03
5676	Dr. Myers has found that West Pit pumping causes water quality exceedances between years 20 and 40 because it forces water through the surficial aquifer north, into Yelp Creek. Discharges into Yelp Creek would include uncollected runoff from the Category 1 stockpile. This can be avoided by allowing the West Pit to refill naturally.	ALT05
5679	Allowing the West Pit to refill without pumping may also cause a decrease in flow to the Partridge River because the West Pit will draw water from a larger area, and for longer, than if it is pumped full. However, it is not clear how significant this impact is. Also, PolyMet may be able to mitigate this impact by supplementing flow in the Partridge with discharge from the WWTP.	ALT05
5681	The Land Exchange alternative does not appear to fulfill the requirements of NEPA. … The land exchange alternative does not appear to offer any environmental benefits. According to the SDEIS, it was included because some commenters raised the question of whether fewer federal lands need to be exchanged early during the scoping process. … Land Exchange Proposed Action and Land Exchange Alternative B, it does not discuss whether federal ownership is more or less likely to be protective of those resources. Indeed, it appears that the purpose of the Land Exchange Proposed Action is to fulfill the purposes of the Forest Service planning goals, such as avoiding land fragmentation. And while the US Forest Service is free to pursue its own goals and interests, it is not clear that this particular alternative meets the purposes of an Alternative as defined by NEPA. If this alternative provides environmental benefits, those benefits should be identified in the SDEIS. Otherwise, this should not be considered an alternative for the purposes of the SDEIS.	ALT23
5683	In order to determine the potential for significant environmental effects, the water quality models compare the effects of the project to a Continuation of Existing Conditions scenario. The SDEIS acknowledges that additional management and mitigation would take place under the No Action Alternative. Yet it fails to take this into account when evaluating the environmental effects of the project under its water quality model	ALT14

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Sender Name (Submission ID)	Minnesota Center for Environmental Advocacy (MCEA) (52185)	
5685	The SDEIS fails to evaluate the potential effectiveness of mitigation measures. Instead, it assumes that mitigation measures perform perfectly for hundreds of years. … The PolyMet SDEIS is replete with mitigation measures; however it fails to address the potential effectiveness of those mitigation measures….The point here isn't that the Co-Lead Agencies haven't adequately described the mitigation measures. It is that the Co-Lead Agencies haven't adequately evaluated their effectiveness. The SDEIS simply makes conclusory statements about the effectiveness of mitigation measures. … MCEA emphasizes that the effectiveness of any mitigation measure that will need to last for decades or centuries after closure should be considered uncertain, and the impacts of failure analyzed.	PD01
5689	NEPA therefore suggests that an agency must attempt to quantify the risk of environmental harm from a reasonably foreseeable accident. An accident that occurs with some frequency may be called 'reasonably foreseeable'; its occurrence is a matter of probability and risk, but it is a known risk. ...The SDEIS's failure to address accident risks in this case is unique. In other industries, and in other mining projects, a probabilistic accident assessment is a routine procedure, one that is vital to reasoned and informed decisionmaking. It is, in other words, central to the very heart of NEPA. ...The environmental assessment of the PolyMet proposal – in contrast - does not contain any analysis of the probabilities of accidents occurring at the mining site or with the facility's equipment, past or future. This failure is a clear violation of NEPA.	PD22
5690	Compliance with NEPA requires an assessment of the environmental harm resulting from a tailings pond failure ... The assessment of environmental harm from accidents is an undertaking that must be completed by all federal agencies ... Any agency that fails to consider accident risks falls short of the "hard look" required by NEPA, and the failure to consider similar risks in the context of a mining operation is therefore a clear violation of NEPA.	GT15
5693	The risks of accidents can be clearly identified with specificity, and the individual risks are significant enough that a decisionmaker of reasonable prudence would certainly take them into account in making a decision on the proposed project. … Indeed, the failure of the SDEIS to consider the environmental impacts from accidents occurring in connection with the PolyMet proposal is all the more surprising considering the risk of such accidents is so high. ...The risks of accident occurrence at the PolyMet site, clearly, can be specified and quantified with some degree of reliability. Clear case law establishes that failure to take into account the environmental impacts of the occurrence of such accidents is a violation of NEPA.	PD22
5695	an EIS, to avoid falling into the same trap as so many EISs for sulfide mines have before, must take into account the possibility that mitigation measures will not be as effective as predicted. The SDEIS for the PolyMet project fails this test. ...MCEA is not asking the co-lead agencies to consider worst-case scenarios, a requirement that no longer exists under federal rules. Rather, MCEA is asking the co-lead agencies to consider scenarios that are reasonably foreseeable and are more likely to occur because of the state and federal action under consideration.	PD01, PD22
5697	The EPA recently released an assessment of the potential impacts of a proposed mining project on the salmon ecosystems of Bristol Bay, Alaska (hereinafter "Bristol Bay Report"). … this analysis does a thorough job of analyzing reasonably foreseeable problems at a mine site in a way that is instructive for an EIS such as this one.	WR023, WR074
5699	The SDEIS must analyze the probability and impacts of a WWTF failure, including (a) potential problems that arise during operation, resulting in discharges that do not meet water quality standards, and (b) abandonment of treatment after closure. … wastewater treatment could fail during operations, or it could fail after operations. … A failure after operations has a different implication because it may be that there is no longer an entity to hold responsible, and the costs will be borne by the state. Recovery of costs or damages is extremely unlikely. If the state does not or will not provide the funds to address failure after operations, the impact on the environment will be unabated.	FIN01, FIN05, WR144, WR202

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Sender Name (Submission ID)	Minnesota Center for Environmental Advocacy (MCEA) (52185)	
5702	The SDEIS must analyze the probability and impact of an unexpected release of untreated tailings or wastewater from the tailings basin. … The most pertinent for PolyMet might be the North Fork scenario, in which the tailings impoundment at the Nixon Fork Mine overtopped. … A series of unforeseen, but not unlikely, events led to the release of 34,200 gallons of tailings basin water. … Thus, the Bristol Bay Report acknowledges the potential failure and analyzes the potential impact. In contrast, the PolyMet SDEIS does not address overtopping or accidental release from the tailings basin at all.	WR202
5703	The SDEIS must analyze the probability and impact potential aquatic toxicity impact of an accidentally release of chemicals and untreated water at the site. ...In contrast, the PolyMet SDEIS contains a list of hazardous materials used on the site but this list only covers human health impacts from chemicals. The SDEIS does not, at any point, address aquatic toxicity or impacts to aquatic life from chemicals or other constituents in the tailings basin leachate or water leaving the mine site. Nor does the SDEIS address any scenario in which additional constituents are released inadvertently, and what the potential impacts might be.	AQ22
5707	The SDEIS must analyze the probability and impact of a tailings dam failure. …MCEA suggests that the SDEIS examine not only the probability of such a [tailings dam] failure, but also the potential impacts were it to occur, rather than ignoring potential impacts. … A risk cannot be mitigated to zero. Tailings basin dam failures, while still low probability, are common enough, and severe enough, to warrant further discussion.	WR132
5708	The SDEIS must analyze the probability and impact of a pipeline failure at the mine site. … It is possible, and recommended, to assign the probability of pipeline failure based on the type and length of pipeline at the site. While the probabilities are likely higher at the Bristol Bay site due to the length of pipeline, the impacts may be no less severe at the PolyMet site and should be addressed.	PD22
5710	While the SDEIS describes extensive mitigation measures to avoid such scenarios, it makes no effort to identify mitigation measures built into the project to decrease the impacts of such failures. Such mitigation measures may include, for example, capture ponds and barriers to prevent materials from pipeline breaks or tailings spills from entering nearby surface waters; a consideration of alternate locations for pipelines, as well as a list of situations in which the mine would slow or cease operation in order to avoid additional impacts. Proper contingency planning requires foresight, which is lacking in the SDEIS.	PD01, PD22
5714	The water quality model also demonstrates how heavily the SDEIS predictions rely on the engineered solutions of liner systems for the wasterock stockpiles, slurry walls and pumps around the Category 1 wasterock stockpile and tailings basin, and wastewater treatment of millions of gallons of water per day. It demonstrates, therefore, the need for the SDEIS to consider the possibility that these systems will fail or will not perform as expected, resulting in a scenario that has not been considered by the water quality model or any other part of the SDEIS	WR021, WR127, WR128, WR144, WR202
5715	the Co-Lead Agencies did not require PolyMet to consider the stochastic modeling capabilities of MODFLOW and MT3DMS (the transport module available for use with MODFLOW). PolyMet never compared any of these qualities to the most widely used publicly available model, MODFLOW. Nor does PolyMet provide any support for its statement that GoldSim is “widely used in the industry.”	WR193
5716	The Co-Lead Agencies have not demonstrated why a publicly available model, such as MODFLOW, which was used in the initial DEIS in 2009, is not adequate and more accepted to characterize the water quality and quantity at the PolyMet site. Dr. Myers … found it not only adequate to the task, but superior in some ways because GoldSim required oversimplification in other areas, such as dispersivity (Myers Water Quality Review p. 11), the length of time steps (Myers Water Quality Review p. 11), and use of a one-dimensional flowpath (Myers Water Quality Review p. 24). Use of a publicly available model, such as MODFLOW, rather than a proprietary one, would have made review and analysis of the PolyMet model far easier for the public.	WR193

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5717	The calculated conductivity for both surficial aquifers and the bedrock is too low. The GoldSim model ignores the uncertainty in their conductivity parameters related to scale. … PolyMet also assigned a K value based on a geometric mean that was much too low.	WR167, WR168
5718	The model assumes that the Peter Mitchell Pit is dewatering, but this is not a natural background condition. If the discharge does not continue, it may significantly change the predictions of the model. PolyMet should model a scenario without continued discharge from the Peter Mitchell Pit.	WR024
5720	The baseflow in the Partridge River is calculated incorrectly, and may be too low. The baseflow used by PolyMet in its model does not consider the variability in annual 30-day low flows, does not accurately consider the impacts of the Peter Mitchell Pit dewatering, and does not consider mine dewatering impacts on the river's baseflow.	WR003
5722	The calculated recharge rate for the entire watershed is too low. Recharge is a significant input that drives the results of the model. When calculating recharge, PolyMet used the 30-day low flow in the watershed, but the 30-day low flow in this watershed took place at a time when most water is frozen, and groundwater is depleted (Myers Water Quality Review p. 5-6). The recharge therefore does not consider recharge for the entire watershed. Dr. Myers conducted his own estimate of the recharge and found that the recharge rate is three to five times too low.	WR052, WR062, WR091
5723	The model does not consider pathways north to Yelp Creek. The groundwater contours show a divide under the proposed location of the Category 1 stockpile, suggesting that some water from this site could travel north, yet the PolyMet model does not address this possibility	WR081, WR089, WR167
5724	The PolyMet model assumes constant thickness in the surficial aquifer, while the thickness is in fact not constant. (Myers Water Quality Review p. 9). The PolyMet model also assumes constant conductivity (k) along flowpaths, which is not realistic.	WR023, WR058, WR167
5725	Dispersivity is unrealistic, with lateral dispersion greater than longitudinal dispersion, when in reality lateral and vertical dispersion are a fraction of longitudinal dispersion. This results in greater dilution of contaminants along the pathway to surface water that may be unrealistic.	WR058, WR061, WR062, WR167
5727	The model assumes that seepage that enters the wasterock stockpiles is not stored but travels through immediately. However, in reality it could be stored, resulting in larger discharges of contaminated water in some years.	WR173
5728	PolyMet's model assumes that bedrock is impervious. This is not only incorrect based on the actual pump test results (Myers Water Quality Review, p. 3), but it leads to inaccurate results. For instance, pumping into the West Pit may increase loads to groundwater through the bedrock, but PolyMet's model would not reflect it because it allows almost no discharge until the level of the water rises above the bedrock into the surficial aquifer, which is not correct	WR087
5730	PolyMet's mine plan results in over 50,000 tons of sulfate added to the East Pit by the time mining operations have ceased, most of it between years 10 and 20. Yet, the modeling shows that almost none of it ever leaves the East Pit. In fact, PolyMet's model limits the concentration of sulfate in the East Pit water at 2600 mg/l based on its "concentration caps," discussed further in Section 10 of MCEA's comments. In reality, the sulfate concentrations could be much higher. (Miller, p. 2-3). PolyMet's water model assumes that the pH of the East Pit porewater can be effectively controlled, but PolyMet fails to demonstrate this.	WR029, WR033
5731	PolyMet's model has extremely high sorption values for Cu, As, Sb and Ni that may not be justified. This is another example of a large load of constituents that does not travel to surface waters, according to PolyMet, but simply remains in the East and West Pits. However, sorption is highly depending upon other factors, such as pH, contact time, or surface area of particles. (Maest, p. 26) If the sorption factor is not correct, Cu and other constituents may reach the river in concentrations and loads much higher than predicted.	WR167

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5733	The strategy of using a Monte Carlo simulation is designed to test a range of scenarios. But the Monte Carlo simulation only works if the conceptual model is correct and the inputs represent a reasonable range. …The limitations of PolyMet's model are significant, and cannot be corrected merely by applying the Monte Carlo approach to account for a range of inputs. The entire model must be reconsidered and rerun to address these concerns.	WR189
5734	The SDEIS does not adequately describe, let alone support, PolyMet's plan to pump and treat pore water from the backfilled East Pit during reclamation. … Neither the SDEIS nor the reference documents make any effort to establish whether it is realistic or feasible to pump at such a high rate. Nor do they include description of significant details of this proposal, such as how PolyMet plans to return water to the East Pit to maintain saturation.	WR171, WR173
5735	First, it may not be possible to pump water at that rate from a backfilled pit due to conductivity of the pit and surrounding bedrock. … The SDEIS must contain an analysis of whether it is even possible to pump water at that rate from the East Pit when backfilled.	WR088
5736	The entire purpose of the East Pit backfill is to achieve subaqueous disposal of the most reactive rock (Category 2, 3 and 4). When water is removed at that rate, however, the contents of the pit may not remain saturated. … water that is added back into a backfilled pit will choose preferential flowpaths and some areas may remain unsaturated.	WR088
5737	the East Pit may not remain a sink during this time due to the pumping. Dr. Myers's model shows that loads may reach the river from the East Pit over time, even during pumping. ...MCEA experts have not identified any instance where rinsing of a pit was successfully achieved in the manner in which PolyMet proposes. (Miller p. 8). While it may reduce pollutants over time, it is highly unlikely that PolyMet will be able to achieve its goal of bringing the concentration of sulfate in the East Pit down to 250 mg/l. (Miller p. 8).	WR171, WR173
5738	The SDEIS should (1) provide evidence that pumping the East Pit is feasible; (2) take the pumping into account in its modeling to determine whether the East Pit may be discharging groundwater during pumping; (3) provide evidence, either through examples or modeling, that the rock in the East Pit can remain saturated; and (4) consider the possibility that it will not remain saturated, and make plans for addressing impacts to groundwater that would result, as well as, considering the likelihood that pumping and treating the water for a much longer period of time.	WR023, WR088, WR171
5739	Dr. Myers … three methods yielded different results, but the three estimates confirmed that PolyMet's estimate is much too low. (Myers Groundwater Model p. 1-16). Dr. Myers concluded that the baseflow method was most accurate, but used a different approach to account for the errors in PolyMet's model	WR003, WR165
5740	For sulfate, Dr. Myers' model shows that contaminated water from the pit starts moving north toward Yelp Creek, a tributary of the Partridge River, between Years 11 and 14. (Myers Groundwater Model, p. 3-30). By Year 20, the sulfate concentration in that branch of the river may exceed 30 mg/l. (Myers Part 3, p. 3-32). On the south side of the mine site, sulfate levels are likely to exceed the water quality standard for sulfate between years 50 and 80. (Myers Groundwater Model, p. 3-34, 3-35. Concentrations at the Partridge River may be as high as 80 mg/l by Year 100.	WR089, WR167, WR171
5741	For copper, Dr. Myers's model shows that it advances more slowly than sulfate but still ultimately reaches the Partridge River before the modeling run is complete. By year 133, water quality standards for copper, which is toxic to aquatic life, will be exceeded over a significant stretch of the Partridge River south of the mine site. ...Thus, Dr. Myers' model demonstrates that over time, water quality impacts are likely even if PolyMet's engineered solutions do perform perfectly. As Dr. Myers points out, if the seepage rates from the stockpiles and other features are higher than those estimated by PolyMet, the concentrations of pollutants that reach surface water are likely to be higher, and reach surface water faster. Myers Part 3, p. 3-44.…	WR171

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5742	Dr. Myers's work at the plant site demonstrates that (1) even small defects in the slurry wall may make a significant difference; and (2) the water quality model may underestimate the volume and concentration of pollutants traveling to the Embarrass River due to its over-simplified	WR019, WR189
5743	PolyMet's Water Modeling Uses A High Sorption Factor That Strongly Influences The Outcome Of Its Model And May Not Be Justified.PolyMet's water quality model concludes, rather surprising, that building a copper mine on the Partridge River will lower copper concentrations in the river. ...Although some adsorption may occur, it may not be a significant factor if the water travels along a bedrock flow path or a preferential flow path in sedimentary or unconsolidated material. …A conservative approach would be to run the model without adsorption along flowpaths.	WR010, WR011, WR012, WR014, WR058, WR071, WR087, WR090, WR099, WR167, WR168, WR169, WR179
5744	The SDEIS Likely Underestimates Impacts On Wild Rice. Recent studies completed by Drs. John Pastor and Amy Myrbo at the University of Minnesota-Duluth confirm that wild rice is unlikely to thrive at concentrations above 10 mg/l. As shown above, the SDEIS, which relies upon PolyMet's water quality model, likely underestimates the sulfate concentrations in nearby surface waters	WR064, WR124, WR149, WR152, WR160, WR162, WR177
5745	In order to ensure that wild rice is protected in the immediate receiving waters and downstream, the SDEIS must assume that all waters surrounding the PolyMet site are wild rice waters. …First, they [recommendations from MPCA] are based on limited information. For instance, the upper Partridge was not identified as a water used for production of wild rice based solely on aerial photos. Other designations were based on surveys performed by the company. Additional information may come to light about the presence of wild rice in the waters around the PolyMet site prior to permitting. …Second, they are based on information collected over a limited time period. … Simply because wild rice was not present in the one, two or three years surveyed does not mean that these are not wild rice waters, as defined by the regulation. …Third, the definition of "waters used for the production of wild rice" is under review at MPCA. … Even if the rule-making process is not complete at the time that this project would be permitted, it would be complete shortly thereafter and would be applicable to all waters, including the receiving waters around the PolyMet site. Thus, the SDEIS should not rely on a preliminary draft recommendation from MPCA based on incomplete knowledge. ...The SDEIS must, therefore, assume that all waters around the PolyMet site are wild rice waters.	WR152, WR154
5750	It [water model] generally assumes that there is an impermeable barrier between the surficial aquifer and the bedrock. This assumption is likely inaccurate, and may result in significant inaccuracies in the conclusions of the water model. Water may flow through the bedrock, despite the SDEIS conclusion that gouges are filled, which is based on a literature review and not an adequate fracture analysis. There may also be fracture connections between the pit and the Biwabik Formation,… The water quality model should be reworked to include the possibility of bedrock permeability and fractures.	WR010, WR011, WR012, WR014, WR071, WR087, WR090, WR099, WR168, WR169, WR179
5751	PolyMet does not have sufficient information to conclude that saline water will not be drawn into the mine site. … PolyMet should establish a series of deep groundwater monitoring wells below the pit bottom. These wells should include continuous electrical conductivity monitoring to detect salinity changes.	WR071, WR078
5752	The PolyMet Site Would Need Far More Monitoring In Order To Implement Proposed Adaptive Water Management Strategies. While the SDEIS lacks contingency planning, as discussed in Section 6, it does include what it called adaptive management strategies. … However, this strategy for adaptive management only works with a robust monitoring system.	WR130, WR139

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5753	MCEA's primary concern here is that the SDEIS and supporting documentation provide scant detail on the design and implementation of this containment system, yet relies heavily upon the success of this containment system in its water modeling. In order to PolyMet to conclude in its water model that this system will capture between 93 and 99 percent of groundwater, PolyMet must commit to design specifications to ensure that it matches the assumptions of the model. Yet the SDEIS fails to commit to soil materials that be effective (Malusis Comment 1, 3), is unclear about whether a liner will be used (Malusis Comment 2), fails to commit to the level of hydraulic conductivity necessary for such a barrier to be effective (Malusis Comment 4), and does not specify whether the cutoff wall will be keyed into the bedrock, a necessary condition to prevent underseepage	WR017, WR093, WR133
5754	In addition, the Category 1 Cover slope of merely 1.0% may permit ponding and do not meet the industry standard of 2-5% slope to promote runoff and minimize ponding	PD15
5755	The SDEIS Lacks Sufficient Detail On The Tailings Basin Groundwater Containment System. … as with the Category 1 stockpile containment system, the SDEIS fails to commit to maintaining a particular magnitude of inward gradient or head difference across the wall, or establishing a minimum depth of the key into underlying bedrock (Malusis Comment 8). Nor does the schematic suggest any key at all. These are critical design elements that the SDEIS should specify.	WR021
5756	If the bedrock is more fractured than assumed, the bedrock may have higher conductivity and slurry wall may capture less of the seepage. The SDEIS should consider this possibility.	WR019
5757	While the PolyMet 2013f (Water Management Plan – Plant) states that open trenching may be used where "subsurface obstructions" are encountered, it is nevertheless very difficult to ensure uniform conductivity , and obstructions that don't disrupt the construction process may nevertheless disrupt the conductivity and uniformity of the slurry wall material. Second, such a method does not appear to involve any key into underlying bedrock, which means that the cutoff wall will not prevent underseepage.The in situ method would only involve digging down to bedrock, not keying into bedrock.	PD07, WR019
5758	the SDEIS and supporting documentation lack details necessary to ensure that the bentonite-amended barriers will operate as designed. In particular, it is unlikely that PolyMet proposes to add enough bentonite to create a uniform barrier. (Malusis Comment 12). In addition, it is unclear that the bentonite layers can stay saturated over time as required to remain effective. … In addition, these appear to be novel strategies for limiting oxidation at a tailings basin. (Malusis Comment 16). The SDEIS should discuss whether these strategies have been deployed elsewhere, and whether PolyMet or DNR has information about the success of other efforts.	PD07
5759	The materials contained within the HRF may be among the most dangerous on the site. Yet the discussion of potential environmental impacts from the HRF earns four sentences in the SDEIS, culminating with this dismissive statement: … The SDEIS and supporting materials do not sufficiently address settling and consolidation of materials under the HRF … PolyMet should commit to rigorous construction quality assurance procedures to increase the likelihood that its optimistic assumptions are put into practice	PD19

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5760	Even though these liners are temporary, rather than permanent, it is extremely important that they function as proposed. … as with other structures, the SDEIS makes highly optimistic assumptions about the performance of these liners. PolyMet should commit to rigorous construction quality assurance procedures, or PolyMet's assumptions about the very low leakage rate may vastly underestimate true leakage through these [stockpile] liners … In addition, these liners are placed on soil, and waste rock is placed on top. Waste rock is irregular in shape and may easily puncture the liner. The SDEIS should describe procedures that will place restrictions on the waste rock to decrease the chances of defects in the liner after it is laid down … Finally, the recommended hydraulic conductivity of 10-6 should be prescribed for both the Category 4 and Category 2/3 liner. There is no justification for a higher conductivity around the Category 2/3 stockpile	GT10
5761	Therefore, it is insufficient for the SDEIS to describe merely how these systems will perform at installation, and assume that this will remain true for the decades or centuries following closure. Rather, the SDEIS must analyze the longevity of these installations, as well as the maintenance required to achieve that longevity. … Therefore, the SDEIS should provide both the expected longevity of all systems described herein … as well as the maintenance activities required to achieve that longevity. Finally, the SDEIS should address the environmental impacts that may arise if these systems do not perform as predicted.	PD22
5762	While reverse osmosis (RO) treatment has been successfully implemented in many locations, … this system must be closely monitored for potential problems due to scale and longevity.	WR143
5763	Dr. Miller points out that the Category 1 Stockpile will likely generate and release sulfates and potentially sulfuric acid for timeframes well beyond our limited experience. … The SDEIS should acknowledge that treatment will most likely be required for long after the 200-500 year time frame described in the SDEIS.	WR035
5764	The SDEIS must provide a solid basis for its assumption that these sulfate concentrations are achievable without RO, such as a pilot project or successful operations at another facility. The SDEIS should consider the possibility that sulfate concentrations could be quite high in the influent, up to 2000-3000 mg/l.	WR023, WR137, WR143, WR147
5765	West Pit Lake water quality may be much worse than predicted. The SDEIS must consider this possibility in its analysis. … If sulfate levels are much higher than predicted, the result will be that treatment will be required for much longer than predicted. Groundwater discharge could also be considerably more contaminated.	WR035, WR038, WR173
5766	The SDEIS should analyze the experience of RO at the Eagle Mine, and determine whether there are lessons to be learned from that could improve the wastewater treatment strategy for the NorthMet project. ...The SDEIS should (1) analyze the problems at the Eagle Mine to determine whether there are lessons to be learned from its experience; and (2) take into account the possibility that the WWTP will not meet water quality targets for unforeseen reasons.	WR023, WR143
5767	PolyMet has not taken a sufficient number of samples to adequately characterize the wasterock (Maest, p. 10). PolyMet also performed almost no acid-based accounting (ABA) analyses, which would provide additional information about whether the rock samples are acid-forming.	WR025
5768	PolyMet only modeled average conditions, but its model does not consider scenarios in which the concentrations of pollution leaching from the mine features are significantly higher than the average.	WR026, WR060, WR126

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5769	PolyMet has taken a convoluted and confusing approach to its geochemistry calculations… PolyMet must (1) provide a complete explanation for its approach, for instance by choosing a constituent and explaining their entire process for calculating geochemistry inputs; and (2) provide a justification for its convoluted and seemingly inconsistent approach. …MCEA recommends that the entire geochemistry approach be re-examined and more fully explained before the FEIS.	WR025
5770	The fault lies squarely with the Co-Lead Agencies, who should have included all geochemistry data with the SDEIS and reference documents. MCEA should not have been forced to make multiple requests to obtain multiple datasets that may, or may not, constitute the entire universe of relevant data. The Co-Lead Agencies' approach was not transparent, as is required by federal law.	NEPA07
5771	In response to MCEA's request for additional time to evaluate the geochemistry data, some of which was not received until less than 10 days from the comment deadline, the Co-Lead-Agency heads responded that the 90 comment period already reflects their "recognition that the SDEIS is a complex document," but that the "comment period is not designed to provide for extensive independent analyses of the project's technical documents in addition to the SDEIS." ...The Co-Agencies' characterization of the purpose of the comment period is not correct, and its denial of extra time, which would have cost the Co-Lead Agencies little or nothing, was not justified. ..The notion that the comment period is for review of the SDEIS alone, and that the technical documents referenced in the SDEIS are not part of that review, is absurd. The SDEIS and the citations upon which it relies are inseparable. ..MCEA should not have had to spend six weeks of the comment period requesting that data , which was omitted from the SDEIS documents and instead relegated to obscure footnotes and stored in an incomplete and hard-to-use fashion.	NEPA07
5772	First, the number of samples in the waste characterization program is inadequate for the volume of wastes predicted to result from mining. (Maest, p. 10). Dr. Maest reports that this among the fewest samples she has seen among approximately 200 mining EISs, and does not conform with the recommendations of the GARD Guide.	WR025
5773	Second, assumptions about lack of acid generation or delay in acid generation and lack of substantially metal/contaminant leaching are poorly substantiated and conflict with actual results.No traditional acid-based accounting (ABA) analyses was conducted, and almost all ABA results may well have shown that all samples were potentially acid-generating. … As a result, the SDEIS cannot rule out the possibility that all wastes, including Category 1 wasterock, may be acid-generating, even within the 20 years of the mining operation.	WR025
5774	Third, the SDEIS does not address the collection and treatment of dewatering around the pits during mining. … PolyMet's wastewater treatment strategy does not appear to treat the process water for nitrate and ammonium.The SDEIS should consider the possibility that dewatering will need to take place, adding water to the total to be treated. It should also consider the possibility that ammonium and nitrate will be present, and will need to be removed from the process water.	WR013
5775	Fourth, releases from the Category 1 stockpile would likely be more polluted than predicted because PolyMet will not be able to sort the wasterock by category without error.	WR134, WR173
5776	Fifth, the modeling approach ignores the results of field and lab tests. PolyMet ignores circumstances that could result in acidic conditions and/or significant metals leaching from the mine features and stockpiles by eliminating test results with pH values below 6 from cnosideration	WR025
5777	Sixth, PolyMet negates the advantage of the Monte Carlo approach by using a high adsorption factor that prevents contaminants from moving along flowpaths.	WR167
5778	the SDEIS may have overestimated the time before the onset of acidic conditions in the Category 2/3 and 4 wasterock stockpiles, and ore.	WR071

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5779	The SDEIS Should Consider Other Forms Of Construction Than Upstream Construction, Which Poses The Highest Risk For Seismic And Static Failure Of Tailings Dams.PolyMet likely chose this this method because it is the least-expensive dam construction approach. But it is susceptible to failure during earthquakes. PolyMet should consider other methods of dam construction. (	GT01
5780	Dr. Chambers suggests several ways in which the geotechnical analysis could be improved, including:(1) Use of a Maximum Credible Earthquake scenario, as opposed to a 2,475-year return seismic event;(2) An overly generous assumption about the mean distance to the nearfield earthquake;(3) The lack of dynamic modeling in the evaluation of dam stability. (Chambers p. 14-15).Similarly, the hydrometallurgical residue facility (HRF) should be placed on compacted fill, rather than original soil and taconite waste.	GT05
5781	the SDEIS fails to address the safe transport and disposal of the materials recovered from the process/contact water at the site as part of the wastewater treatment process. … Thus, at a minimum, for the first few years of operation and all of reclamation in to the “long term,” the filtered sludge will need to go “offsite.” The AWMP also states that the residual solids from the WWTF will be sent to “offsite disposal” during the “long term.” ...The transportation and disposal of these waste streams is a direct effect of the proposed action and must be analyzed in the SDEIS.	WR145
5782	None of these waste streams – the filtered sludge from the WWTF, the residual solids from the WWTF, the residual solids from the WWTP, or the pore water from the HRF – receive any attention in the SDEIS or the reference documents. … The SDEIS should provide a profile of these [WWTF, WWTP, HRF] waste streams – what constituents they contain, in what concentrations, and the dangers those constituents pose to the environment or human health.	WR068, WR145, WR146
5783	Both transportation and disposal involve risks that must be analyzed in the SDEIS… Disposal risks include ground and surface water contamination from a landfill or treatment facility. The risks would depend, in part, on the location of the facility, which is why the SDEIS should identify potential options with specificity….there remains the possibility that there is no facility in the state that would accept this [waste] material. If that is the case, PolyMet would be forced to come up with other options that may significantly increase costs, not mention increased environmental and human health risks if the other options involve longer shipping times, for instance.	WR145
5784	The SDEIS fails to examine risks associated with shipping the reject concentrate from the WWTP to the WWTF via “rail tank car.”…There is no analysis of the contaminants in the reject concentrate, spills that would occur inevitably as a result of transferring the material to and from the rail tank car, more catastrophic spills that could occur accidentally, or the impacts of those spills on human health, groundwater, surface water, vegetation, or other natural resources. These are direct effects of the proposed action and must be included in the SDEIS.	HAZ01, WR145
5785	The SDEIS must analyze the “fate” of each of these chemicals [in Table 5.2.13-1] – how they are used, and when and how they leave the site, if they do, in what volumes or concentrations, and the risks they may pose.	HAZ01
5786	nowhere in the entire Environmental Consequences chapter are the environmental consequences of the loss of wetlands that may be aquatic resources of national importance (or any quality of wetlands) described. This is a significant omission.	WET19
5787	the SDEIS contains no discussion on the significance of the loss of wetland functions and acres. This determination should be based both the context and intensity of the impact to wetlands.	WET07

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5788	Use of a conceptual ecological model is a well-accepted, scientifically defensible method that can also be used to develop a long-term monitoring program to assess indirect impacts to wetlands. … This type of analysis, supported by the research already completed on the potential direct and indirect wetland impacts and new, more detailed analysis would improve the usefulness of the information presented in the SDEIS and would be consistent with the requirements of both NEPA and MEPA. Documenting the environmental effects in both a graphic and narrative format, methods central to conceptual ecological model, would improve the communication of the science and analysis and would ensure that readers are aware of the “issues that are truly significant to the actions in question." As the SDEIS is written now, it would be impossible for a member of the public to review the document and receive an answer to the question: what are the environmental effects of the loss of 900 acres of wetlands to the St. Louis River watershed?	WET02, WET03
5789	If the Co-Lead-Agencies are relying on mitigation to reduce the environmental consequences of the permanent loss of wetlands, it is not clear in the SDEIS how that proposed mitigation sites would replace loss of wetland acreage and function within the St. Louis River watershed (especially considering the majority of the replacement would occur outside the watershed).Unless it is clear what functional losses at the NorthMet site and to the greater St. Louis River watershed...Simply put, without knowing the impacts to the affected environment resulting from the direct loss of over 900 acres of wetlands and the indirect loss of thousands of acres of wetlands, no one can ensure the proposed replacement will mitigate the effects.	WET01, WET03
5790	Of the three wetland mitigation site proposed by PolyMet, two are located out of the project’s watershed and would fail to provide in-watershed ecosystem functions such as terrestrial and aquatic habitat, water quality and water storage.	WET03
5791	A total of 56% (509.1 acres) of the proposed direct wetland impacts would occur to coniferous bog wetlands, yet no in-kind mitigation for the loss of these unique wetland plant communities is proposed.	WET05
5795	If the primary target for the Zim site is a forested wetland community, the statement that “[t]he majority of the credits would be in-kind mitigation and nearly one-half of the credits would be from within the NorthMet Project area” is false. This information must be corrected in the SDEIS and it should be clear to the public that the target wetland plant community at the Zim site is not coniferous bog but forested wetland. … If bog wetland restoration is determined to be impracticable at the Zim site, the SDEIS should clearly state that the coniferous bog wetland impacts at the NorthMet site would NOT be replaced in kind, and the replacement ratio should be adjusted accordingly.	WET04
5798	MCEA requests that the replacement ratio for the mitigation of the loss of high quality wetlands, and difficult to replace forested and bog wetland plant communities be set at a minimum of 2:1 (and not reduced below 2:1)to account for the high potential for temporal and functional loss of those difficult to replace wetland plant communities that are high functioning wetland plant communities.	WET04
5799	MCEA asks the Lead Agencies to require PolyMet to continue to investigate in-watershed mitigation options for mitigation opportunities that would almost certainly be needed to mitigate for the loss of wetland functions that are likely to occur as a result of indirect effects to wetlands.	WET03
5800	Since no wetland bank is being developed by PolyMet, no “excess wetland mitigation credits” would be available. Permittee responsible mitigation sites do not generate credits. The sites serve only to produce the compensatory mitigation required by a condition of a permit or wetland replacement plan.	WET04
5802	In-watershed wetland mitigation opportunities for the indirect wetland effects should be identified and proposed in the final EIS. If additional large scale mitigation sites cannot be located for the mitigation of the direct effects of the potential NorthMet project, additional actions such as wildlife corridor preservation and water quality projects within the St. Louis River watershed should be considered to off-set the adverse and significant loss of in-watershed wetland functions.	WET01, WET03

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5804	Based on PolyMet's unknown success with rehabilitating bog and forested wetland a community (or any type of permittee responsible mitigation) necessitates the need for long-term financial assurance to provide a level of certainty that wetland mitigation will be provided and accomplished as proposed in their wetland mitigation plans.The requirement for financial assurance would be consistent with both state and federal rules.	FIN11
5805	In order to ensure that enough funds are available to improve an unsuccessful wetland mitigation project, Co-Lead-Agencies should require a financial assurance that covers remediation costs at the three identified wetland mitigation sites and any additional sites that are added, including: costs for surveys; project re-design and engineering, site construction and planting, monitoring and maintenance, remedial work and other contingencies (e.g. extreme weather or berm failure), and legal and administrative tasks. This amount should be based on submitted bids by contractors and consultants capable of doing the above tasks and include an adjustment for inflation and increasing costs. … Another alternative for costing a financial assurance would be to use credit prices charged by mitigation banks for similar types of compensation in the same watershed, including an adjustment for inflation. The DNR and Corps should ensure that the money remains set aside during the time that the project may be determined unsuccessful. To do this, the bulk of the funds should only be released after all wetland mitigation performance milestones are met.	FIN05, FIN08, FIN11
5807	MCEA believes that many of the bog wetlands may have been misclassified. The DNR Field Guide to the Native Plant Communities of Northeastern Minnesota, which is used by DNR biological survey staff to classify wetlands in northeastern Minnesota, separates bogs from fens by the absence of fen indicator species. Further, scientific literature distinguishes ombrotophic bogs from minerotrophic fens on the presence or absence of fen indicator species and different ranges in surface water chemistry. Neither of these well accepted and in one case, agency developed, approaches were used to distinguish between ombrotophic and minerotrophic bogs. MCEA requests that the bog wetlands within the affect environment be re-evaluated using the methods identified in the report "Supplemental Draft Environmental Impact Statement March 2014 Report on wetland components of the EIS" submitted by Paul Glaser…MCEA also requests that if this re-evaluation results in changes in the classification of bogs, the indirect effects analysis be rerun.	WET09
5809	The SDEIS should use the same classification method used by the County Biological Survey scientists and peer reviewed indicators of ombrotophic bogs in classifying wetland plant communities. Our concerns and recommendations on this topic are addressed in the attached "Supplemental Draft Environmental Impact Statement March 2014 Report on wetland components of the EIS" by Paul Glaser,	WET21
5810	The site specific wetland plant community data collected is very minimal…. Since very little baseline hydrology and vegetation monitoring has occurred, future indirect wetland impacts to misidentified bogs would go unnoticed and unmitigated. …Relying on a two-day site visit of the bog wetlands and on the data collected in to support wetland delineation will not provide the detail needed to track changes in site-specific wetland plant communities and hydrology. Lack of vegetative plot data across the areas where indirect wetland impacts are possible make it impossible to scientifically track changes in the plant communities. Reliance on wetland vegetation data collected for the purposes of a wetland delineation is a unreliable and non-repeatable method for detecting indirect effects to wetlands.The susceptibility of correctly identified ombrotophic bogs to indirect impacts is also underrepresented and failure to monitor these sites for indirect effects, if the project is permitted, would likely result in significant unidentified and unmitigated impacts to high quality wetlands.	WET09

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5814	A comprehensive monitoring plan for all the wetlands within the affected environment should also be developed. …Since many of the conclusions made in the SDEIS regarding indirect wetland impacts were made without comprehensive site specific data, PolyMet should be required to monitor all wetlands, including ombrotrophic bogs, for changes in hydrology and wetland plant diversity, assemblage and peat depth. This should be done using a scientifically accepted and easily repeatable method such as relevé plots or randomized grid of sample points. No monitoring of ombrotrophic wetlands is proposed. This is a significant oversight. … MCEA agrees that if the NorthMet project is permitted, monitoring of hydrology, water chemistry and vegetation would be the best method for documenting change. However, identifying change without sufficient baseline data or comprehensive monitoring data is impossible.	WET02, WET22
5816	The SDEIS points to the Section 404 permit application for detail on how indirect wetland impacts would be determined and when mitigation would occur, yet the information in the 404 permit application is extremely limited and does not provide assurance that significant impacts to wetlands will be mitigated in a timely manner.	COE02
5818	the indirect monitoring plan should require vegetation plot observations every other growing season by a botanist with experience in identifying peatland plants. Reporting to a regulatory agency should also be required within four months of the observed change, to allow for timely mitigative actions (adaptive management or wetland mitigation). All wetland mitigation should occur within 1 growing season of the observed change. Monitoring should continue for the life of the mine at all locations, even if indirect effects have been mitigated to ensure that the completed mitigation projects offset the eventual loss of wetland function and area. The results of this comprehensive long-term monitoring of indirect impacts should be shared with the public to allow for the development of improved datasets and information supporting indirect impact analyses at mine sites surrounded by wetland resources.	WET02, WET22
5820	The 404 permit application has an inadequately describes at what point regulatory agencies will determine that an indirect impact has occurred. …how, once an indirect effect is observed at a monitoring point, will indirect impacts to wetlands beyond that monitoring point will be determined? If no baseline data exists on wetlands further out from the observed indirect exists, how would changes be observed and mitigation required?	COE02
5822	Second, only three reference wetlands are proposed for the seven distinct wetland plant communities that would be impacted as a result of the NorthMet project. … It is not stated in the SDEIS, wetlands data package (PolyMet 2013q) or the 404 permit application what plant communities the reference wetlands are. … Neither the SDEIS nor the 404 permit application provides an explanation why the reverence sites chosen would accurately represent the range of wetlands that may be indirectly impacted by the NorthMet project. In addition, two of the three reference wetlands will not have background or pre-project data to compare the post-project hydrologic monitoring against.… MCEA requests that additional reference sites be located.	COE02
5823	No mention on the potential loss of a specific quality or type of wetland is made and how that may affect the needed wetland mitigation. The SDEIS should clearly state what quality of wetlands may be affected by indirect effects and how observed loss of function or quality will be mitigated, taking into account that many of the wetlands susceptible to indirect impacts are difficult to replace wetland plant communities.	WET01, WET05

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5826	The SDEIS contains inadequate analysis of the cumulative effects of wetland loss. The outdated list of reasonably foreseeable projects does not account for projects which have been proposed, planned or permitted in the last four years. … Further, no mining or road improvement projects that would impact wetlands were identified. Northshore Mining Company has proposed to impact wetlands south of their existing pit. This information can be found in their existing state Permit to Mine. Those wetland impacts have not been permitted and should be included in the cumulative impacts analysis.upgrades to roads not within the mine boundary would be necessary to accommodate additional traffic. Yet no projects have been identified in the cumulative impacts analysis, even though it is highly likely that St. Louis County and local road authorities have identified the need and extent of future road upgrades and realignments. MCEA believes that information on reasonably foreseeable projects should have been requested and or updated between the completion of the Draft EIS (DEIS) and the SDEIS. MECA requests that the cumulative effects analysis for wetlands be updated to address those projects which may have been developed since the competition of the DEIS.	WET18
5828	The SDEIS fails to take a hard look at the potential socioeconomic consequences of the NorthMet Project by focusing exclusively on the beneficial effects of the Project by focusing on jobs and tax revenue. Because the SDEIS fails to recognize potentially significant negative impacts on socioeconomics from the Project beyond a potential housing shortage, the SDEIS does not identify any mitigation measures which would address potential negative socioeconomic impacts from the Project. The failure of the SDEIS to analyze the potential negative socioeconomic impacts associated with the Project is a serious shortcoming of the SDEIS.	SO04
5831	the SDEIS fails to recognize the socioeconomic risks associated with the impact on other employment sectors as a result of the environmental degradation and destruction accompanying the Project. Specifically, the NorthMet project and the reasonably foreseeable development of additional sulfide mines in the region creates a significant risk to sustainable economies in Northeaster Minnesota that rely on wilderness, recreational and access to unspoiled public lands. In addition, the lifestyle and economies of tribal communities, from wild rice harvesting and reliance on other cultural and natural resources, are also threatened as a result of the NorthMet Project and reasonably foreseeable sulfide mining activity in the region.	SO04
5834	The SDEIS also fails to recognize the socioeconomic benefit associated with tourism from maintaining wildlife habitat and wildlife corridors, which ensure that populations of endangered species are maintained or increased. … While many of these jobs may not be directly affected by mining operations, the SDEIS makes no effort to determine whether any of these jobs or associated revenue would be affected.	SO02
5841	the SDEIS for the Project cannot rely upon the operation of the RES to accomplish state policy on GHG emissions…the SDEIS fails to analyze a green power alternative under which the Project would run on low- or no-carbon electricity, thereby minimizing the Project's biggest single source of emissions. The SDEIS does discuss methods of increasing efficiency of vehicles and equipment on site, but none that address switching from coal to green power. Coal-fired electricity is the only form of generation that is mentioned. Consequently, the SDEIS ignores an opportunity to use widely available, existing technology to reduce or eliminate the biggest source of GHG emissions, simply by changing the way the power used by the Project is produced….The failure to analyze and discuss a wind energy option is unfortunate,...Moreover, even the assertion that the Project must use Minnesota Power is not entirely correct.	PD39
5843	The SDEIS must analyze, as an indirect impact, whether increased demand will change Minnesota Power's baseload, and prolong the life of one of its coal plants.	PD39

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5929	This analysis establishes that the increased copper smelting caused by the removal of copper ore at the PolyMet mine is a reasonably foreseeable impact that should be addressed in the SDEIS. … Copper smelting is clearly certain to occur; for without it the copper precipitate is worthless as an industrial commodity….The smelting of PolyMet's copper precipitate is therefore also an incremental impact, in that the smelting will continue to occur even if PolyMet's mine is rejected, but the addition of their ore will cause an incremental increase in the amount of precipitate being smelted overall.	PD33
5930	the Co-Lead Agencies can and must refine this analysis by requiring PolyMet or Glencore to reveal known or likely locations where the copper precipitate from the PolyMet mine would be smelted.	PD33
5931	Although the SDEIS does not specify where the copper concentrates will go, the issue of adverse environmental effects from smelting the Polymet output is a matter of 'how much,' not 'if.' The environmental difference between two smelters, in other words, will be a matter of quantity, not quality….the environmental impacts of smelting are well-known and must be addressed in the SDEIS.	PD33
5932	The SDEIS must analyze potential air emission impacts from smelting. The type of smelting that would take place after Glencore takes possession of the ore concentrate produced at the NorthMet site is a significant source of air pollutants, including sulfur dioxide, particulate matter, mercury and dioxins….These emissions have a significant social, economic, and environmental cost.	AIR10
5933	The SDEIS must analyze the impacts of water and soil contamination from copper smelting...Wastewater from the smelting process typically contains toxic metal compounds, oil and organic material. … There is also considerable evidence that leaching from the slag waste piles at smelting facilities may "extract and concentrate soluble radioactive materials" that can then be introduced into drinking water supplies.	WR055
5934	the SDEIS should nevertheless analyze the potential impacts of additional transportation of the copper and nickel concentrates to smelters. … The SDEIS should address potential transportation modes (rail, truck, freighter) as well as potential routes over land and water….At a minimum, where information about a potential environmental impact is incomplete and cannot be obtained, the RGU must include, by law, the following information in the EIS: A. A statement that the information is incomplete or unavailable and a brief explanation of why it is lacking; B. An explanation of the relevance of the lacking information to evaluation of potentially significant environmental impacts and their mitigation and to a reasoned choice among alternatives; C. A brief summary of existing credible scientific evidence that is relevant to evaluating the potential significant environmental impacts; and D. The RGU's evaluation of such impacts from the project and its alternatives based upon theoretical approaches or research methods generally accepted in the scientific community.	PD33, PD37
5935	the project is proposed to impact over 8,000 acres of designated critical habitat for the Canada lynx, habitat that contains features essential to the conservation of a threatened species. In spite of these facts, the SDEIS does not accurately disclose the potential effects to the Canada lynx and the significance of those effects to the survival of the species.	WI01, WI02
5936	Using the 2009 Minnesota population estimate of 200 Canada lynx, 20 individual lynx located within 18 square miles of the project site equates to 10% of all the lynx in the state. This is a significant number of Canada lynx concentrated in an 18 square mile area and should not be considered "low."	WI01
5937	the EIS should provide a table and map displaying the locations of known and reported lynx tracks, sightings, scat, dens and deaths (incidental or other) between 2000-2014 within a 58 square mile area (the home territory of a male lynx) of the NorthMet site. The data used should be collected from from multiple sources including: the Natural Resources Research Institute's Canada lynx project, USFWS, USFS, National Park Service, DNR, PolyMet and Tribes.	WI01

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5938	the NorthMet project would generate 1,734.9 miles of vehicle traffic between the mine and plant sites daily. It is unclear how that information equates the number of vehicles and trains along the transportation corridor and the number of trips those modes of transportation would take. The type of vehicle also makes a difference in the likelihood of a driver seeing and avoiding a lynx on the roadway or tracks, yet the traffic information is presented in tons. It would make sense to also present traffic information as the projected numbers of passenger vehicles, fuel trucks, haul trucks, etc that would travel the transportation corridor daily. There is also no description if there are times of day that when traffic would be more concentrated.	WI01
5939	The SDEIS Does Not Provide Mitigation Commitments That Could Reduce Significant And Adverse Effects On Canada Lynx That Would Occur As A Result Of The NorthMet Project. Due to the size of mining trucks, it is doubtful they will see, or be able to stop in time if a lynx crosses the road in front of the truck. The SDEIS states “there is the potential for incidental take as a result of the of vehicle collisions with lynx,” there yet there is no discussion in the on possible mitigative actions to avoid the harm, harassment or take of a lynx that could occur as a result of the NorthMet project. This is not consistent with the requirements of both NEPA and MEPA.… MCEA requests that the SDEIS more accurately disclose the potential environmental impacts to the Canada lynx that could occur as a result of the proposed NorthMet project, including “[m]eans to mitigate adverse environmental impacts….MCEA believes that actions that may mitigate the potential adverse impact to the lynx should be identified, thoroughly discussed and included in the NorthMet project’s design	WI01
5940	In many instances, the information presented in the DBA differs from the information presented in the SDEIS. MCEA requests that these discrepancies be corrected and the potential effects to the Canada lynx should be accurately, clearly and thoroughly disclosed. At a bare minimum, the information presented in the SDEIS should not contradict information presented in a final BA or potentially, the final Biological Opinion prepared by the US Fish and Wildlife Service (USFWS).	WI01, WI11
5941	The draft BA states … ENSR (2006) concluded that at least three lynx resided near the Mine Site." However, the SDEIS states that "...no lynx were identified during the ENSR 2006 surveys."	WI01, WI11
5942	the SDIES makes incorrect conclusions on the research completed by Dr. Ron Moen and Lauren Terwilliger at the Center for Water and the Environment at the University of Minnesota- Duluth. Although it is correct that lynx do not rely on roads for travel, lynx use of roads or proximity to roads is well documented.	WI01
5943	MCEA believes that the risk factors of lynx take discussed in the SDEIS should match the factors addressed in the DEA [should be DBA - Draft Biological Assessment] and that the analysis on the potential effects to the Canada lynx should summarize the same information that is presented in the DEA.	WI01, WI11
5944	MCEA requests that a new wildlife corridor study be completed to update the outdated 2006 or 2009 corridor studies. This re-evaluation the wildlife corridors should also address each corridors value and functionality and potential impacts in the foreseeable future (e.g. transportation projects or mining related expansions). Without this new analysis, the Co-Lead-Agencies would be relying on outdated data to determine the effects to Canada lynx and other species that rely on wildlife corridors to access habitat, prey, mates and refugia between features north and south of the Iron Range. These comments also apply to the “Wildlife Corridors” section of Chapter 6, Cumulative Effects which relied on out-of-date and incomplete reasonably foreseeable projects identification that has not been updated since 2009.	WI03

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5945	the SDEIS contains inadequate analysis of the cumulative effects of habitat fragmentation on Canada lynx.The outdated wildlife corridor analysis was the only source of reasonably foreseeable projects and did not account for planned transportation projects under the jurisdiction of the St. Louis County Highway Department, the Minnesota Department of Transportation, the Forest Service or cities within the scope of review.….MCEA requests that the cumulative effects analysis for the Canada lynx and other wildlife species be updated to address those projects which have been proposed within the last five years. Sources of data MCEA would expect to be consulted include: state and federal agencies, Tribes, local government, counties, mining companies, local zoning and water plans, economic development plans and permitting records.	WI02, WI08
5946	PolyMet's Future Expansion Plans Are A Phased And Connected Action.PolyMet's plans for this site are not limited to the 20-year proposal included in the SDEIS….A financial report commissioned by PolyMet and based on information provided by PolyMet has predicted that PolyMet will submit permit applications for expansion within six months after permitting….DNR may not simply ignore this evidence merely because PolyMet's proposal to DNR is for a 20-year project. Perhaps PolyMet has assured the Co-Lead Agencies that they have no plans for expansion beyond a 20-year mine, but PolyMet appears to be telling its investors otherwise. It is an error for the agency to accept the project proposer's statements without independent evaluation.	PD30
5947	the SDEIS must evaluate whether the wetlands restoration projects, which are highly undeveloped at this time, will require 404 permits. If they do, they must be included in this SDEIS as connected actions.	COE10
5948	the SDEIS inexplicably provides a cumulative impact analysis for the NorthMet project (Ch. 6.2) and then separate cumulative impact analysis for the Land Exchange (Ch. 6.3). The segregation results in an inadequate cumulative impact analysis because it does not do what NEPA and MEPA require...The failure to look at the connected actions in one cumulative impact analysis is clearly contrary to the purpose of NEPA/MEPA's requirement for an assessment of the cumulative impact on resources.	CU15
5949	SDEIS must consider all other "actions" not just "projects." The SDEIS has to consider the direct and indirect effects of past, current, and reasonably foreseeable future actions in its cumulative impacts analysis…the SDEIS appears to limit its consideration of effects from other "actions" only to effects from "projects." Table 6.2-1 contains a list of projects. The SDEIS does not explain why it has been so limited.	CU07
5950	Other sulfide mining actions have been inappropriately excluded. The list of projects considered excludes all other activities related to sulfide mining, both those activities that are current and on-going and those that are reasonably foreseeable. The failure of the SDEIS to provide a thorough consideration of such activities is a major inadequacy.	CU02
5951	The cumulative impacts analysis makes no mention of direct and indirect effects from widespread exploration and prospecting activities across the relevant area. … The direct and indirect effects of prospecting were evaluated in an EIS conducted by the Forest Service. At a minimum, the environmental effects identified in that EIS need to be incorporated into the SDEIS's cumulative impacts analysis. … The State has also issued leases for sulfide mining exploration and prospecting. … Clearly there are direct and indirect effects from the exploration resulting from DNR's lease sale and those effects must be evaluated as part of the cumulative effects for this SDEIS.	CU02
5952	Polymet's proposal is the first in what will be a long line of proposals to come, should it be permitted. The failure to address the precedent setting nature of this decision has led to an inadequate EIS. The impacts of multiple other proposals will have on Minnesota's natural resources are an indirect effect of the decision to allow Polymet's proposal to move forward.The Agencies have not explained why this indirect impact – one that is obvious to anyone engaged in this process – has been completely ignored.	CU04

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5953	In addition, the SDEIS identifies but then excludes from its analysis other sulfide mining projects that are reasonably foreseeable, including the Twin Metals project, and the Teck Mesaba project. Exclusion of these other projects makes the cumulative impacts analysis in the SDEIS inadequate….At a minimum the Agencies have not explained why such projects are not reasonably foreseeable. Even if specific project details are not yet available, sufficient information shows that the projects are reasonably foreseeable. Plans do not have to be so far along as to "constitute actual proposals" to conclude that a project under current consideration is a "reasonably foreseeable future action."	CU02
5955	Foth Engineering, Barr Engineering, And Other PolyMet Consultants Must Execute A Disclosure Statement Specifying That They Have No Financial Or Other Interest In The Outcome Of The Project. These statements should be reproduced in the SDEIS or made readily available to the public….Reprinting statements from private consultants without verification is an abdication of the Co-Lead Agencies' duties in any event.	NEPA18
5956	The Purpose and Need Statement does not reflect DNR's statutory and regulatory responsibilities. … MDNR's Purpose and Need statement should include its statutory mandate to regulate mining operations and control adverse environmental effects. … MDNR is tasked with promoting mineral extraction and exploration to diversify Minnesota's mineral economy, not to fulfill global demand.	NEPA02
5957	MDNR [and USACE] provides no support for its proposed Purpose and Need Statement, lending support to the No Action Alternative...to show that the extraction is necessary, MDNR [and USACE] must, at a minimum, make a showing that such extraction is necessary. Nowhere does MDNR [and USACE] demonstrate that there is a domestic or global shortage of copper, nickel or other metals to be produced at this mine.	NEPA02
5958	An overly narrow Purpose and Need Statement does not meet the requirements of NEPA and MEPA…it is a violation of NEPA to define the agency's purpose and need in unreasonably narrow terms. If the agency constricts the definition of the project's purpose and thereby excludes what truly are reasonable alternatives, the EIS cannot fulfill its role. Nor can the agency satisfy the Act.	NEPA01
5959	Even within MDNR's [and USACE's] inappropriately narrow Purpose and Need, MDNR [and USACE] should have considered other more sustainable means of meeting that need. MDNR [and USACE] should have considered other alternative means of achieving the goal of meeting domestic and global demand. In particular, the SDEIS should consider whether (1) increased recycling of copper and other metals and (2) increased conservation efforts would also meet the need defined by the agency for this project.	NEPA01
5961	The SDEIS should analyze the human health impacts of decreased water quality in Colby Lake….The SDEIS states that as a result of the NorthMet project, increases in several contaminants would increase for Colby Lake. … Arsenic is a carcinogen, and it may well be that increased arsenic exposure, even within the water quality standard, may have an impact on the health of residents of Hoyt Lakes. The same may be true of the other constituents that are predicted to increase in the water body. Any human health impacts must be put into context of the potential problems with the mine	HU01
5962	While the SDEIS occasionally mentions that there are human health concerns related to air emissions, it contains no rigorous, comprehensive analysis of human health impacts. Nor may the SDEIS ignore potential impacts to human health by relying on mitigation measures, as discussed in Section 6. A Health Impact Assessment or similar approach is required under NEPA and would greatly improve the analysis in the SDEIS.	HU01
7304	In the case of PolyMet, the criteria for achieving financial assurance and the instruments available are limited. We believe only one option, U.S. government Treasury securities held within a trust fund under the complete control of the MDNR, meets the objectives outlined in Minnesota's Rules.	FIN08

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7306	U.S. bonds carry less risk than any other security issued because the full faith and credit of the government stands behind these securities and, hence, the full taxing power of the U.S. No other security issued in the U.S. can make this same claim. No security issued by any bank or insurance company has the taxing authority of the U.S. government supporting its repayment. … If the intent of Minnesota Rules (Chapter 6132) is to provide sufficient funds with minimal investment risk to meet PolyMet's estimated closure and reclamation costs up to 200 years into the future, only U.S. government bonds will meet the definition of a risk-free investment. No other issuer will protect Minnesota taxpayers from PolyMet's environmental risk.	FIN03, FIN08
7308	Banks and insurance companies do not meet the definition of risk-free and are inefficient from an economic perspective. The only remaining financial instrument option is a bankruptcy-proof trust dedicated to MDNR. It alone achieves four of the five criteria of the Minnesota Rules	FIN03, FIN08
7309	More independent technical analysis and confirmation of PolyMet's assumptions must be done to determine this amount. Given PolyMet's current estimate, satisfying financial assurance will require hundreds of millions of dollars. Several alternatives for meeting the requirements of financial assurance are outlined in Minnesota Rules. In this case, only U.S. government Treasury securities held within a bankruptcy-proof trust fund under the complete control of the MDNR meets the objectives outlined in Minnesota's Rules and protects the Minnesota taxpayer. Only U.S. Treasury securities are risk-free and introducing unnecessary third-parties entails fees which makes the economics of the net investment rate of return inefficient and impractical.	FIN03, FIN05, FIN08
9363	this definition [of ore] is unclear. It seems to imply that all rock containing metals will be "economically extracted," when in reality much of the waste rock contains metals as well, but in amounts too small to be considered economical by PolyMet. Thus, the definition provided above is clearer.	PD30
9364	While MDNR and PolyMet officials have attempted to disclaim this language [200/500 years] in later drafts, MCEA believes that this language in fact represented the zenith of clarity in describing the water model, while later attempts have fueled confusion and fallen short in helping the public understand precisely what the model's purpose and results are. Indeed, PolyMet and MDNR officials have, at times, suggested that the modeling results are not correct, and that water treatment will not be required for nearly as long as their own model demonstrates. Regardless of the reasons why PolyMet and DNR chose to run a modeling scenario for 200 years at the mine site and 500 years at the plant site, the water quality predictions are unequivocal. At the end of those time periods, the water in the mine features – the mine pit and the tailings basin – still do not meet water quality standards, and cannot be released without some sort of treatment.	WR035
9365	The Department of Natural Resources contends that it need not address financial assurance in the SDEIS. Therefore, the SDEIS does not contain any final estimates on how much financial assurance must be provided, nor does it provide information on the specific financial instrument (such as a bond or surety) that might be required. … The SDEIS does not provide a total number that might be required for financial assurance, but it does provide a few preliminary cost estimates. … These numbers come from PolyMet's consultant, Foth Engineering. Neither DNR nor Foth have provided any information regarding the underlying assumptions or calculations that may have gone into this number, and DNR does not provide any of its own estimates.	FIN05, FIN08, FIN13
9366	Regions 9 and 10 have far more experience with mining operations and reclamation costs than Region 5, and it is appropriate to turn to them for guidance on inclusion of financial assurance at the EIS stage.	PER03
9367	when PolyMet was asked by Minnesota legislators to "show its work" at a hearing on financial assurance on February 11, 2014, PolyMet refused that request as well. Thus, PolyMet has kept its calculations concealed from the public as well as the Co-Lead Agencies.	FIN05

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9368	The Co-Lead Agencies did not question these assumptions and their consistency with Minnesota law. In fact, if PolyMet and MDNR's statements in the media are to believed, the Co-Lead Agencies have yet to require PolyMet to answer a fundamental question: How long will water quality treatment be required at the NorthMet site after closure?	WR036
9370	Finally, it should be noted that the Co-Lead Agencies ultimately changed their mind, and concluded that there would be no additional constituent loading to the surficial aquifer and Partridge River as a result of the West Pit Backfill. ...The current purpose of pumping in the West Pit is not to decrease constituent concentration; it is avoid overflow.However, this purpose could be changed if constituent loads were higher in the West Pit, and pumping increased, to avoid environmental impacts.	ALT03
9384	Finally, a total failure after operations (abandonment) is a scenario that must be explored. ...In any event, the Co-Lead Agencies' failure to address the possibility that monitoring and maintenance will cease at this site at some point is best described as hubris, assuming prescience about future conditions that no human can have. And it constitutes a failure to address the potential impacts of this project under NEPA and MEPA.	PD22
9399	The geochemistry approach in the SDEIS is complicated and opaque. Yet this analysis underpins the oft-stated claim that there will be no acid mine drainage at the NorthMet Mine. The SDEIS should clarify the approach used for geochemistry analysis, including the use of humidity cell tests (HCT) and the calculation of concentration caps. ...While the Co-Lead Agencies have stated with confidence that the NorthMet Mine would not produce AMD, the data on which this claim is based is far less clear.	WR025, WR033
9400	The Co-Lead Agencies omitted the results of many lab and field tests from consideration by using "concentration caps" and averages. The Co-Lead Agencies should fully consider the results from the HCT and field tests that they disregarded in the SDEIS. The use of the concept of "concentration caps" and average values in the SDEIS distorts the results, does not capture the heterogeneity of the rock or seasonal variability, and likely underestimates the environmental impacts. ...Even more concerning, in some cases the Co-Lead Agencies and PolyMet257 have disregarded results from HCT and field tests altogether. PolyMet and its consultants used two methods that tended to eliminate the more damning results from consideration. First, PolyMet used the concept of "concentration caps," ...Second, Barr Engineering used average values that do not consider the wide range of variability in field and laboratory tests.	WR033, WR034, WR071
9405	Ordinarily, geochemistry data, including all HCT and field test results, would be included as an attachment to the SDEIS or reference documents. ...Instead, MCEA had to make multiple document requests, and MCEA experts and staff are still not confident that we have obtained all relevant data. The Waste Characterization Data Package, one of the reference documents to the SDEIS, includes only summaries, not the actual results (Maest, p. 2). MCEA requested the documents referenced in the WCDA, but some of the data was missing. Another data request resulted in the remaining data. ...As seen in the attached documents, MCEA made specific requests to the Co-Lead Agencies asking for additional time given the difficulty in obtaining geochemistry documents	RFI01
9416	MCEA asks that you fully and clearly disclose the environmental impacts of the direct and indirect loss of wetlands and assess the significance of those impacts prior to assuming that the proposed mitigation measures would eliminate those impacts. This request is the only scientifically defensible environmental impact analysis approach and is required by both the NEPA and MEPA.	WET07
9422	In addition, pre-project monitoring locations only include three reference wetlands to document the natural hydrologic fluctuations in wetlands that would not be affected by the NorthMet project. Additional reference wetlands that represent the wide variance of wetland plant communities, chemistry and hydrologic regimes would be necessary to effectively correlate the natural fluctuations of wetlands outside of the NorthMet site with wetlands that may be affected by the NorthMet project.	WET22

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Sender Name (Submission ID)	Minnesota Center for Environmental Advocacy (MCEA) (52185)	
9907	The NorthMet SDEIS must include a fair and balanced evaluation of the socioeconomic benefits and risks associated with the NorthMet Project, including the reasonably foreseeable impact from unemployment associated with the well-established boom and bust cycle of the mining industry. In addition, the SDEIS must also provide an analysis of the potential negative impacts from the Project on the tourist industry and sustainable economies in Northeastern Minnesota and include a discussion of mitigation measures which would be available to address the negative socioeconomic impacts from the Project.	SO04
9908	The SDEIS also fails to consider alternatives for electricity consumption which would significantly affect the project's impact on the environment. Consideration of alternative energy sources should be a major component of the EIS given the enormous variation in environmental impacts between different sources. See	AIR02
9909	the SDIES does not address the indirect effects of additional vehicles on the road outside of the project area. Many of the routes employees take to get to the mine could result in an increased potential of a lynx being hit and killed. A daily increase of thousands of vehicles on roads to the NorthMet site is not an insignificant or immeasurable indirect effect. MCEA believes the SDEIS should provide a discussion on the increased traffic on local roadways could affect lynx.	WI01, WI03
9912	past biological assessments completed by Federal agencies in Minnesota and biological opinions completed by the USFWS have identified road and train traffic as major potential effects to lynx. However, the SDEIS glosses over these effects and does not disclose the significance of traffic (vehicle or rail) on the lynx….Multiple times in the Chaper 5 discussion in the SDEIS the potential for incidental take along the roadway is noted. However, no detail on why roadways or train tracks at the NorthMet could result in the harm, harassment or take of lynx is described or how lynx use roadways or train tracks for travel.	WI01, WI03
9915	The SDEIS's cumulative effects analysis is inadequate for several reasons, including but not limited to the following, which are discussed in more detail below:? The SDEIS fails to analyze the cumulative impacts of the direct and indirect effects of the proposed mine and proposed land exchange together;? The SDEIS inappropriately excludes several reasonably foreseeable actions from the analysis.	CU02, CU03
10004	MCEA expects that the co-lead agencies will respond to each of Dr. Chambers's and Mr. Thometz's comments individually on all topics, just as it would any submission from the public…MCEA incorporates these reports by reference and expects the Co-Lead Agencies to respond to those reports separately as part of the record.…MCEA expects DNR to respond to all comments in Dr. Miller's report as part of the public record…. MCEA hereby incorporates this report by reference, and expects the Co-Lead Agencies to respond to Dr. Maest's report as part of the record…MCEA expects DNR to respond to all comments in Dr. Glaser's report as part of the public record.	NEPA11
10006	The financial assurance analysis must contain, at minimum, the following:? Calculation of maximum amounts needed to address reasonably foreseeable problems and accidents, with detail on how those estimates were made;? Calculation of amounts needed to address reasonably foreseeable contingencies (using list from Bristol Bay report discussed in Section 6.0 as a starting point);? Determination of discount rates and inflation rates, and sources used to set those figures;? Analysis of project proponent's financial ability to pay for reclamation, including long-term water quality treatment, and to provide adequate financial assurance prior to receiving a permit to mine; and? A thorough analysis of forms of financial assurance that will be acceptable under Minnesota law. Trust funds held for the sole benefit of the State of Minnesota must cover the entire amount needed, with instruments such as surety bonds, letters of credit, or insurance only usable as backups.	FIN05, FIN08, FIN12
10007	The agencies should assess the probability and impact of each of those kinds of accidents occurring, and also make a holistic assessment of accident risk at the mine.	PD22

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Sender Name (Submission ID)	Minnesota Center for Environmental Advocacy (MCEA) (52185)	
10008	In addition, the Co-Lead Agencies should reevaluate their estimates of environmental impacts in light of previous experience with mining project environmental impact statements, particularly the chronic underestimation of negative water quality impacts.	WR023
10010	Finally, the agencies should not assume that there will be no errors in categorizing the waste rock, and should assess the consequences of reasonably foreseeable mistakes.	PD15, PD22
Sender Name (Submission ID)	Minnesota COLA (38649)	
9962	the hydrological models used to predict hydrological events attendant to both extraction and refining are inadequate as the geology of the Virginia formation-the source of the metals to be mined-is not fully understood….	WR007, WR026, WR105
9963	it clearly states that it is not feasible to replace all affected wetlands through compensatory mitigation thus is contrary to both state and federal regulations….	WET01, WET04
9964	does not directly state the source or quantity of water to be diverted for use in the refining process; (It does speak to drawdown on both the Embarrass and Partridge rivers but how much and for how long is not stated.)	WR086, WR182
9965	critical computer modeling of runoff from tailings piles into nearby waters has shown to be inaccurate and underestimated;	WR056, WR060
9969	proposes unrealistic expectations that water treatment, projected/calculated by PolyMet to last some 200 to 500 years in duration, can actually be accomplished; … and proposing that pit lakes are to be lined with a product guaranteed for only 20 years while the contained contaminate will exist in perpetuity.	FIN01
16680	There is no question that the waters of the state of Minnesota are a more valuable resource to the state than are the few minerals that could be mined for a relatively short period. PolyMet has not shown that it can effectively mitigate the risk to water quality and habitat that its proposed operation will create, nearly into perpetuity.	SO01, WR115
16682	it does not present sufficient evidence that lakes, rivers, streams, aquifers and wetlands would be protected during and after mining….	PD01
16684	examples of non-ferrous mining cited and used as comparables are those of mines located in the dryer, water poor areas of the U.S. and are therefore of questionable value in assessing how best to protect existing water resources….	PD26
16685	The wetland-rich area at the top of two continental watersheds is simply not a location where an operation like this should be allowed.	WET14
Sender Name (Submission ID)	Minnesota Department of Health (42933)	
3563	The forces that created the fracture pattern in Lake and Cook counties would have also affected the Duluth Complex in St. Louis County, suggesting that local- to regional-scale fractures could be present and may act as possible conduits for higher rates of groundwater flow in the Precambrian bedrock. These fractures were not taken into account in the SDEIS. It would therefore be more conservative to assume higher flow rates when modeling groundwater and contaminant transport for this project… Assume higher flow rates for groundwater and contaminant transport modeling to account for local- to regional-scale fractures within the Duluth Complex.	WR009, WR012, WR087

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Minnesota Department of Health (42933)	
3637	In most cases, either the federal MCL or the Minnesota Health Risk Limit (HRL) is selected, but higher SDEIS evaluation criteria were chosen for beryllium, manganese and thallium "…based on background water quality". Although manganese exceeded the federal MCL of 50 µg/L in most samples, Table 4.2.2-6 in the SDEIS indicates most of the groundwater samples collected near the proposed Mine Site were near or below the state Risk Assessment Advice (RAA) levels of 100 µg/L for infants and 300 µg/L for children and adults. MDH recommends the RAA values be used as the groundwater evaluation criterion for manganese…Use 100 µg/L for infants and 300 µg/L for children and adults as the groundwater evaluation criterion for manganese.	EDIT01
3638	[T]he detections of beryllium near the proposed Mine Site indicate background concentrations in the aquifers are generally below the federal MCL of 0.4 µg/L and only slightly above the MDH HRL of 0.08 µg/L. MDH recommends the HRL be used as the groundwater evaluation criterion, as beryllium concentrations in the Plant Site flow paths are also predicted to exceed the HRL in areas where domestic wells are present…Use 0.08 µg/L as the groundwater evaluation criterion for beryllium.	EDIT01
3646	Clarify inconsistencies between field leaching test results and modeling predictions that indicate no change in groundwater quality compared to existing conditions with no exceedances of groundwater evaluation criteria.	WR023, WR025
3690	An HIA on the project could provide additional health information for policy makers in determining how to balance health and citizens' concerns with economic benefits of the project. An HIA could be scaled according to available resources and still answer some of the health questions posed by the community. An HIA could provide recommendations to policy makers to support possible positive health outcomes and to mitigate or prevent possible negative health outcomes to improve the public's health and to inform zoning, permitting, monitoring, and reclamation policies…Consider preparation of a Health Impact Assessment.	HU01
12376	Groundwater discharge from the Mine Site to the Partridge River could impact the Hoyt Lake drinking water supply (via Colby Lake) and alter geochemical conditions that affect mercury availability to fish, creating another potential human exposure pathway. Therefore, conservative modeling of potential impacts to the river that incorporate all possible contaminant sources is critical.	HU03, WR024, WR042, WR043, WR046, WR125, WR158
12379	The SDEIS does not adequately address possible impacts of groundwater contamination on local domestic wells. A thorough inventory and baseline water quality assessment of existing wells should be conducted prior to the initiation of any mining activities so that any future degradation of drinking water quality related to mining activities can be identified and remediated.	WR040, WR041
12380	Air quality modeling for crystalline silica in the SDEIS is based on predicted PM10 and PM2.5 emissions. However, when discussing the toxicity of crystalline silica, the real concern is with respirable crystalline silica particles with a diameter of 4 micrometers (4 µm or 4 microns) or smaller, also referred to as PM4...PM2.5 measurements may underestimate health risks from crystalline silica exposures. MDH has established a chronic Health Based Value (HBV) of 3 µg/m3 for respirable PM4 crystalline silica and recommends using this as a screening value for assessing potential health risks associated with respirable crystalline silica.	AIR04, AIR10
12381	Table 5.2.7-8 in the SDEIS indicates that the NorthMet project will result in 196,341 metric tons per year (mtpy) direct and 511,000 mtpy indirect greenhouse gas (GHG) emissions...MDH recommends that all projects in Minnesota evaluate options for reducing GHG emissions, through energy conservation and use of renewable energy sources, to limit contributions to climate change and help achieve Minnesota's GHG emissions reduction targets	AIR01, AIR10

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Sender Name (Submission ID)	Minnesota Department of Health (42933)	
14478	The proposed groundwater monitoring network for the Embarrass River Watershed (SDEIS Table 5.2.2-54) includes only the existing monitoring wells installed around the Tailings Basin, which apparently are the wells shown in SDEIS Figure 4.2.2-13. Construction details for these wells are not included in the SDEIS and only two have records in the Minnesota County Well Index (CWI) (GW006, UN 625042; GW008, UN 625044)...[The Minnesota Department of Health] recommends that additional monitoring wells be installed within the bedrock aquifer to evaluate potential impacts to this aquifer.	PD05, WR079
14480	the SDEIS estimates that over 90% of seepage from the Category 1 Stockpile will be captured by the groundwater containment system with the remaining 10% following the groundwater flow to the West Pit where the water will be cycled through the Waste Water Treatment Facility (WWTF). However, the west end of the stockpile is located on a groundwater "high" (Fig. 4.2.2-5 in the SDEIS) from which some of the flow may be to the north and northeast and could discharge to Yelp Creek and then the Partridge River. This needs to be accounted for in the evaluation of potential migration of contaminants to groundwater and surface water and planning of the Mine Site groundwater monitoring network.	WR017, WR089, WR167
14482	the SDEIS notes that the national primary drinking water standards for copper and lead are treatment-based, "at-the-tap" values for public water supplies and not "in situ" groundwater values. Therefore, the SDEIS proposes that the secondary Maximum Contaminant Level (sMCL) of 1,000 µg/L for copper be used as the groundwater evaluation criterion. This value is protective only for acute health effects resulting from short-term, high level exposures and is not considered protective for infants, children, or other sensitive individuals. MDH is currently evaluating its advice for copper in drinking water. In the interim, MDH recommends that 300 µg/L be used as the groundwater evaluation criterion for the NorthMet project, as this appears to be protective for infants, children, and other sensitive individuals	HU14, WR110
14485	Given the presence of domestic water supply wells near the site, MDH recommends the national primary drinking water standard of 15 µg/L be used as a groundwater evaluation criterion in monitoring near the site.	PER29, WR110
14487	Table 4.2.2-24 of the SDEIS indicates higher manganese concentrations downgradient of the existing LTV Steel Mining Company Tailings Basin, but this simply suggests contamination of the surficial and bedrock aquifers from previous activities at this site that need to be considered in evaluating impacts to groundwater, not background concentrations for the aquifers. This is important as the maximum 90th percentile probability (P90) concentrations predicted in the 500-year model simulation suggests manganese concentrations in the groundwater in all of the flow paths from the Plant Site will exceed the MDH RAAs, including areas where domestic wells are present (Table 5.2.2-38 in the SDEIS).	PER29
14489	Seepage from the Category 2/3 and 4 waste rock stockpiles and Ore Surge Piles primarily will be captured by leachate collection systems and treated, but some will reach the groundwater along with seepage from the mine pits, WWTF equalization basins and Overburden Storage and Laydown Area and eventually discharge to the Partridge River (Table 5.2.2-26 of the SDEIS). Table 5.2.2-22 of the SDEIS suggests that this will result in little, if any, change in groundwater quality compared to the continued existing conditions and that none of the groundwater evaluation criteria will be exceeded... This seems inconsistent with field leaching test results on locally sourced Duluth Complex Gabbro	WR023
14490	Several untreated wastewater streams from the Plant Site appear to be directed to the Mine Site during the early phases of reclamation. These include untreated seepage from the Tailings Basin, blended with seepage that has passed through the Waste Water Treatment Plant (WWTP), which is to be discharged to the West Pit to accelerate its flooding…No information is provided regarding likely contaminant concentrations in these wastewater streams, so it is not clear how their possible contribution to groundwater contamination was evaluated.	WR173
14491	It is also unclear how constituent leaching was accounted for during the period while the pits are being flooded during the reclamation phase. Table 5.2.2-19 of the SDEIS seems to suggest the oxidation will occur before flooding, but … fluctuating water levels result in conditions more conducive to acid mine drainage and metal leaching than full exposure to oxygen. The flooding of each pit will take approximately 20 years during which time it is likely water levels will fluctuate within the pits.	WR173

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Minnesota Department of Health (42933)	
14492	it is not clear whether the waste rock from the stockpiles will simply be deposited in the East Pit in year 11 and remain partly exposed for 20 years while the water rises around it, or if the placement of the waste rock will occur in stages to ensure the rock is either still on the stockpile liner (and leachate is collected and treated) or entirely submerged within the pit to minimize acid production and metal leaching.	WR029
14493	On p. 5-104, the SDEIS indicates that once flooded, groundwater inflow to the pits will limit the exposure of the wall rock to oxygen. However, no dissolved oxygen data was presented in Section 4 of the report. Has it been measured?	WR002, WR029
14494	Our assessment shows that there were no well records in CWI between the mine site and the Partridge River. However, Figure 1 (attached) shows that 19 located and eight unlocated wells with records currently within CWI met our search criteria for the area between the Plant Site and the Embarrass River, and by inference could be impacted by this mining activity…[and] there may be unlocated wells in the area that pre-date the Minnesota state Well Code in either of the modeled zones. These wells that pre-date the code would need to be inventoried, located and input into CWI. Any unused and unsealed wells found during the inventory could be conduits through which a contaminant plume could more quickly propagate, and therefore would need to be sealed as per current Well Code by the parcel owner, possibly with PolyMet Mining, Inc.'s assistance. Also, PolyMet Mining, Inc. should take every opportunity to collect baseline samples for any new wells that might be drilled in the area.	WR040, WR078, WR079
14495	Sample analytes and frequency of resampling are two aspects for which MDH would like to be consulted if permitting for the project moves forward. MDH is also interested in accessing the baseline data results archive and would ask to be included in those discussions as well.	GT04, WR039, WR142
14496	Water Supply Contingency Planning: The city of Hoyt Lakes relies upon Colby Lake as its drinking water source... in the event of unanticipated water quality degradation of Colby Lake related to the proposed mining activities...PolyMet Mining, Inc., as the owner and operator of the NorthMet mine, should assist with water supply contingency planning for the city. This contingency plan should address ongoing water quality and quantity monitoring and set up protocols for gradually changing conditions and emergencies, should they occur.	WR043, WR140
Sender Name (Submission ID)	Minnesota Environmental Partnership (18173)	
3948	The 90-day comment period is simply inadequate for the public to really understand this project...Without 180 days this process is flawed.	NEPA07
3951	There is a complete lack of backup plans from if something goes wrong with the tailings piles and basins, the pumps, the pipelines, the filters of the water system that needs to operate for hundreds of years.	PD22, WR090, WR130, WR131
3953	…the SDEIS relies on unreliable water modeling, including the flow of water that will be treated and the time frame for continued cleanup of the water from the mining.	PD29, WR035, WR063, WR147, WR189
14810	reuests an extenstion of the NorthMet Supplemental Draft Environmental Impact Statemetn (SDEIS) comment period, from the current 90 days to 180 days.	NEPA07
14811	The SDEIS is overly long...The SDEIS is complex and substantive conflicts are unresolved…The SDIES is not written by or for laypersons…Critical information in thousands of pages of references is not publicly available	NEPA07
14812	The SDEIS cumulative effects assessment is insufficient..Tribal cooperating agenices emphasized the need for a more thorough cumulative effects assessment of mining on Lake Superior Basin resources.	CU18

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Minnesota Environmental Partnership (18173)	
17498	Minnesota Environmental Partnership requests an extension of the NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) comment period, from the current 90 days to 180 days. We also request that the co-lead agencies reschedule the public meetings for later in the comment period. At very least, a single additional publjc hearing should be scheduled toward the end of this extended comment period, in May 2014, to allow citizens to base their comments on a more·thorough examination of the SDEIS.	NEPA07
17499	An extension of the comment period is required [because]: …The SDEIS is overly long The document is 2200 pages long. Commissioner Tom Landwehr, at the December 6, 2013 press event, urged Minnesotans to take a "hard look" at it. An individual would have to read 25 pages a day before the end of the comment period to read the entire document and make informeddecisions…Additional time is required for adequate review by any individual.	NEPA07
17500	An extension of the comment period is required [because]: … The SDEIS is complex and substantive conflicts are unresolved . The SDEIS encompasses multiple projects, including the mine plant, the mine site, a tailings pond, a land exchange, transportation between the sites, financial assurance and offsite wetlands replacement projects. The document also contains substantive dissenting views, the Major Differences of Opinion documented extensively in Chapter 8.	NEPA07
17501	An extension of the comment period is required [because]: … The SDEIS is not written by or for laypersons…. The current document is not readily understandable, clear or concise. As written, it excludes many members of society from meaningfully participating in its review. Time is required for technical experts and communications experts to fully understand the material and make it accessible for a broader range of audiences.	NEPA07
17502	An extension of the comment period is required [because]: ...Critical information in thousands of pages of references is not publicly available.The public cannot meaningfully analyze and evaluate the co-lead agencies' conclusions about the impacts of the mine without also evaluating the underlying references. Since these have not been provided to the public, it will take additional time for organizations and individuals to. Request the supporting documents, read, understand and disseminate these critical references.	NEPA07
17503	An extension of the comment period is required [because]: ...The SDEIS Cumulative Effects Assessment is insufficient. Tribal cooperating agencies emphasized the need for a more thorough cumulative effects assessment of mining on Lake Superior Basin resources. The undersigned groups and manyothers recently asked EPA Region 5 to engage in a new, broader analysis of the impacts of mining on Lake Superior and the Great Lakes.	NEPA07
18984	Thousands of acres of moose habitat would be destroyed at the PolyMet mine site, and moose have been observed there.	WI01, WI02
18985	PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. PolyMet would dig up nearly 1,000 acres of high value peat bogs, part of the 100 Mile Swamp, a critical habitat for many plants and animals. This wetland is designated an Area of High Biodiversity Significance by the Minnesota Biological Survey.	WET19, WET23
18986	The Poly Met operation will be a huge contributor of greenhouse gasses. Emissions from PolyMet would increase Minnesota's annual statewide emissions by 0.44%. All this when Minnesota has set a goal of reducing Minnesota's greenhouse gas emissions 30% from 2005 levels by 2025.	AIR01
18987	PolyMet would emit 4.6 pounds of mercury into the air from their operations everyyear, and the coal power they rely on would add even more. Water and air pollution from mine pits, waste rock and tailings piles and PolyMet's excavation and changing hydrology in wetlands would increase mercury loading to wetlands and streams and increase mercury bioaccumulation in fish, putting human health at risk. The PolyMet mine plan also increases mercury in the Embarrass River, and sulfate pollution from the site could increase methylmercury, the form of mercury mostdangerous to people.	MERC02, MERC08, MERC09, MERC23

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Minnesota Environmental Partnership (18173)	
19076	It is clear that the 90-day comment period was too short for adequate review of the complex SDEIS documents. When the comment period stops prematurely on March 13, important public comment will be absent from the record. As a result, the entire SDEIS process is inadequate and therefore the Final EIS should not be determined to be adequate.	NEPA07
19077	The SDEIS is overly long. The document is 2200 pages long… An individual would have to read 25 pages a day before the end of the comment period to read the entire document and make informed decisions. The Executive Summary alone is 58 pages. Additional time is required for adequate review by any individual.	NEPA07
19080	The SDEIS is multifaceted. The SDEIS encompasses multiple projects, including the mine plant, the mine site, a tailings pond, a land exchange, transportation between the sites, financial assurance and offsite wetlands replacement projects [which should require an extension to the comment period].	NEPA07
19081	The document also contains dissenting views, the Major Differences of Opinion documented extensively in Chapter 8.	NEPA12
19083	The SDEIS is not written by or for laypersons...The current document is not readily understandable, clear or concise. As written it excludes many members of society from meaningfully participating in its review. This technical and complex SDEIS will, unfortunately, likely not be rewritten to be readily understandable. Therefore, more time is required for both technical expertsand communications experts to fully understand the material and make it accessible for a broader range of audiences.	NEPA07
19084	The public cannot meaningfully analyze and evaluate the co-lead agencies' conclusions about the impacts of the mine without also evaluating the underlying documentation. This will take additional time both for organizations and individuals to request the supporting documents, to read and understand them, and to disseminate them to the interested public.	NEPA07
19085	The SDEIS does not include ongoing Cumulative Effects Assessment...An extended comment period will allow the NorthMet project to be understood andanalyzed in a broader context.	NEPA06
19086	MDNR's December 2013 assessments of Partridge River base flow pertinent tomine site recharge and pollution transport was acknowledged by the MDNR inlate January 2014 to diverge from the base flow used for modeling in theSDEIS.	WR004
19087	Basic infonnation on water balance and water chemistry is missing from boththe SDEIS and from documents referenced in the SDEIS. Additional time mayhave allowed agencies to provide the missing information in time for publicreview.	NEPA07
19088	Basic information on mine site and tailings site geological conditions, includingbut not limited to fractures, is missing from the SDEIS or inaccurate. Additionaltime may have allowed agencies to provide the missing information in time forpublic review.	WR007, WR008
19090	Basic information on constituents in and management of reject concentrate,filtered sludge and Hydrometallurgical Residue Facility waste is missing fromboth the SDEIS and from documents referenced in the SDEIS. Additional timemay have allowed agencies to provide the missing information in time for publicreview.	WR066, WR143, WR145, WR146
19092	Basic information on mercury in ore, waste rock, tailings, peat, process water,tailings pore water, liner leaks and groundwater flow paths is missing from boththe SDEIS and from documents referenced in the SDEIS. Additional time may have allowed agencies to provide the missing information in time for publicreview.	MERC06, MERC16, MERC20, MERC21

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Minnesota Environmental Partnership (18173)	
19094	Citizens who testified at the public hearings had just five weeks to review theSDEIS and prepare their testimony. Those that did refer to the SDEIS madestatements such as: "I haven't read the whole thing but I did look at theexecutive summary." "I can't understand this myself, but. .. " "I trust theagencies that developed this." Blind trust in governmental agencies shortcircuits the public review process.	NEPA07
19095	A number of professional conservation organizations, despite having access tothe preliminary documents and significant staff resources and contractedexperts, will not be able to meet the deadline. Flaws in the SDEIS are burieddeeply and have required detailed analysis just to identify, leaving inadequatetime to frame comments. This will leave detailed and important commentsunheard.	NEPA07
19098	As a result of the Co-Lead Agencies' refusal to extend the comment period, the public review of the SDEIS is lacking in the depth and comprehensiveness essential to a project as complex as this. Therefore, the Final EIS cannot be considered to be adequate and must be rejected.	NEPA07
19101	Minnesotans favor requiring that when a mine is closed, it be left in a condition where it will not pose an ongoing threat to water quality. This mine, as described in theSDEIS, clearly does pose an ongoing threat.	FIN14
19103	The overall environmental review process has had some serious flaws. The Poly Met SDEIS compares no alternatives other than two sizes of land exchange. It does not compare an underground mining alternative or avoiding a permanent waste rock pile by putting waste rock back into the west pit. It doesn't analyze alternatives like a liner under the permanent waste rock pile, a liner under the tailings piles, or ways to reduce water drained away from Partridge River watershed wetlands and streams.	ALT01, ALT03, ALT06, ALT07, ALT23
19110	Cumulative impacts of the PolyMet project and other existing and expanding mines would impair wild rice, fish and aquatic ecosystems and violate the treaty rights of Indian tribes to hunt, fish and gather in Superior National Forest lands ceded to the United States.	AQ10, AQ27, CU11
19111	The company's own computer models show that hundreds of years after the mine closes, water seeping into groundwater and flowing into streams and rivers at the site will be polluted with heavy metals and sulfates. Unless all of this water is captured and treated, the mine will pollute surrounding waters.	WR107, WR108, WR111, WR115
19112	Minnesota law requires that a closed mine site be "maintenance free," but PolyMet's mine plan calls for hundreds of years of monitoring and expensive water treatment. Worse, these models don't demonstrate that the pollution stops after 500 years. The modeling simply ends at 500 years.	FIN14, WR037, WR195
19113	PolyMet's predictions regarding water pollution rely on unsubstantiated assumptions that no pollution will seep from the 526-acre permanent mine site waste rock pile into the 100 Mile Swamp, and that pumps on the edge of the 2-mile-wide tailings pile will capture 99.3 7 percent of the seepage.	WR010, WR018, WR060, WR080, WR167, WR175
19114	The SDEIS is flawed because it does not provide accurate information about how long polluted water will require treatment.	WR035
19115	The SDEIS is flawed because the Poly Met mine plan does not take into account the destruction of moose habitat.	WI02
19116	Protecting moose is a particular concern for tribal members, and there is no analysis of the cumulative impact on moose from the Poly Met project and other habitat disruptions.	WI09
19117	PolyMet is required to replace lost wetlands, but they understate the area of wetlands they would affect, they fail to replace the unique habitat offered by peat bogs, and they propose replacements that are far from the mine site.The SDEIS is flawed because the mine plan needs improved wetland protection and replacement.	WET05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Minnesota Environmental Partnership (18173)	
19119	The SDEIS is flawed because the mine plan counteracts Minnesota's stated carbon emissions reduction goals. The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution.	AIR01
19121	The SDEIS is flawed because the mine plan increases the risks of mercury pollution/or Minnesota children.	MERC03
19122	It is clear that the 90-day comment period was too short for adequate review of the complex SDEIS documents. When the comment period stops prematurely on March 13, important public comment will be absent from the record. As a result, the entire SDEIS process is inadequate and therefore the Final EIS should not be determined to be adequate.	NEPA07
19123	Some critical background documents, such as the Wetland Impact Assessment Technical Memorandum -Appendix B, were not made available until February 24, 2014, less than three weeks before the end of the comment period.	NEPA07
19126	During the course of the 90-day comment period, substantive issues with the PolyMet SDEIS became apparent, each of which could have been addressed by a longer comment period. We learned that the water models in the document didn't match with current conditions on the ground, not to mention the mine area after it's impacted. Researchers found that basic information on water balance, water chemistry, geological conditions of the mine site, and potential pollutants was missing.	NEPA07
19127	The SDEIS is flawed because the public review of the SDEIS is lacking in the depth and comprehensiveness essential to a project as complex as this.	NEPA07
19128	PolyMet's SDEIS is not accurate and must be redone.	NEPA15
19130	PolyMet's plan threatens the waters of northeastern Minnesota and must be rejected.	WR107, WR108
19133	Unless there are very substantial changes to the SDEIS, the final EIS will fail to reach the minimum standard needed to be deemed adequate.	NEPA09
Sender Name (Submission ID)	Minnesota Geological Survey (43014)	
3721	The current conceptual models in the SDEIS characterize the Duluth Complex and Giants Range Batholith bedrock as bulk masses of rock with low, uniform permeability. Although this type of characterization is sometimes deemed sufficient for some purposes, … it has well known deficiencies when applied to numerical modelling of smaller-scale sites, especially for predicting solute transport. Instead, the development of conceptual models that employ techniques whereby discrete fractures or fracture zones are more fully considered, results in improved prediction of solute transport, including better estimates of travel times, and recognition of variation in flow directions and discrete pathways in three dimensions.	WR194
3770	The data collected thus far from the proposed NorthMet Mine Site and Plant Site/Tailings Basin area are not sufficient to recognize the kinds of hydrogeologic features known to be characteristic of other crystalline bedrock settings on the Canadian Shield… Nor are the data sufficient to adequately support the simpler conceptual model currently depicted in the SDEIS.	WR008, WR009, WR011, WR012, WR014, WR019, WR056, WR061, WR071, WR087, WR097, WR098, WR168, WR169, WR170

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Minnesota Geological Survey (43014)	
3782	The SDEIS conceptual model for the Mine Site could be much better supported. First, inferences about the likelihood of extensive fractures of hydraulic significance in the Duluth complex are based on the incorrect premise of insufficient post-emplacement tectonic activity to generate such features in the region.	WR008, WR009, WR011, WR012, WR014, WR019, WR056, WR061, WR071, WR087, WR097, WR098, WR168, WR169, WR170
3785	No subsurface hydrogeologic information was collected from the Giants Range Batholith, which underlies the Plant Site/Tailings Basin area. Instead, the hydrogeologic characterization of the Giants Range Batholith relies on a number of general observations and inferences based on geologic context… The SDEIS would be considerably improved by providing stronger support for the conceptual model of the Giants Range Batholith...	WR072, WR168
3990	Improving the quality of the conceptual model will lead to improved prediction of potential impacts to groundwater, engineering of containment systems, and design of monitoring systems.	WR071
4000	Characterization of fractures at the Mine Site is based largely on inferences drawn from geologic context.	WR007, WR010
4002	[The SDEIS conceptual model for the Mine Site could be much better supported.]… Second, the manner in which data were collected at the Mine Site, especially the use of long open hole intervals for hydraulic testing and water sampling, is insufficient to test the hypothesis that extensive high transmissivity fractures or fractured zones are absent…Scale effect is also a factor. Boreholes are less likely to intercept hydraulically active fractures than the proposed pit walls. This also should be discussed as part of the SDEIS.	WR012, WR071, WR087, WR168, WR169, WR179
4003	Information from outside of the Mine Site area appears to be inconsistent with the SDEIS suggestion that densely fractured uppermost bedrock has been removed by glacial scouring in the area. A site-specific example is a well-known contamination site in a younger Midcontinent Rift intrusive complex near Finland Minnesota where abundant fractures in the uppermost 100 feet of bedrock serve as fast-flow groundwater conduits (e.g. Harza Engineering Company, 1999)… specific capacity data from Duluth Complex water wells ((County Well Index (CWI)) in northeastern Minnesota also are suggestive of enhanced fracturing in uppermost bedrock.	WR011
4018	Improved understanding of the hydrogeologic system in the Duluth Complex at the Mine site could be achieved by the acquisition of hydraulic and water chemistry data at much more discrete intervals. This would include testing and sampling of boreholes with shorter open hole intervals at variable depths (e.g. “nested” wells) and/or discrete interval packer testing and water sampling of long open holes... The hydraulic and water chemistry information from these discrete intervals in a number of boreholes would ultimately lead to an improved conceptual model for the prediction of solute transport.	WR071
4020	The use of the Duluth Complex as a hydrogeologic analogue is difficult to support. The Giants Range Batholith is Archean in age, more than 1.5 billion years older than the Duluth Complex, and therefore the assumption that the two units have similar stress, weathering, and erosional histories is not valid.	WR194
4027	Hydraulic and water chemistry data from discrete intervals in shallow (<50 feet) bedrock conditions [at the Plant Site/Tailings Basin area] would be particularly useful to test the inference of a no-flow boundary. Bedrock groundwater chemistry could be particularly useful at this site, because constituents derived from past activities at the existing Tailings Basin may serve as a tracer to better understand solute transport through the bedrock. Such constituents have already been recognized in groundwater sampled from unconsolidated sediment in the area (SDEIS page 4-114).	WR008
Sender Name (Submission ID)	Minnesota Izaak Walton League (38074)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Minnesota Izaak Walton League (38074)	
4505	IWLA believes that a substantial amount of the work on this subject [financial assurance] needs to appear in the SDEIS... IWLA understands that the Permit to Mine process will include a good deal of negotiation around financial assurances, but IWLA also believes that a very thorough initial discussion is needed in the SDEIS...Deferring to the permit to mine process eliminates adequate opportunity for understanding the key elements involved in financial assurances.	FIN13
4506	IWLA states that the information provided by Foth Engineering to PolyMet, including the menu of financial alternatives and the possible closing cost at various time scenarios, is inadequate to enable a person reading the SDEIS to have enough information on financial assurances to confirm that amounts, timing, and safety are going to be met…nor does IWLA concede that DNR Division of Lands & Minerals is the only authority for protecting Minnesota taxpayers and Minnesota natural resources from the consequences of inadequate financial assurances.	FIN05, FIN10, FIN13
4507	Public access to important financial assurance information will be inadequate given a very high likelihood that the Permit to Mine process will include significant pressure to issue permits and focus on moving the project forward.	PER03
4508	DNR by virtue of its mission charge is a conflicted agency. The State of MN directs the DNR to "develop" these mineral resources in addition to the charge that the development meets environmentally acceptable outcomes.	PER42
4510	Foth Engineering scenarios in the SDEIS do not include any supporting assumptions used to drive their alternatives. Such info is very important to NGO groups like IWLA.	FIN05, FIN08
4512	North Met should be required to complete the reclamation, and remainder treatment phase of NorthMet in no more than 10-15 years after mining is done. The SDEIS should require such project design and build financial assurances on that basis. Allowing up to a decade and a half for post mining obligations are reasonable. Allowing a project design in the SDEIS that accepts 200-500 years of post operation treatment is not acceptable. IWLA understands and agrees however, that post operation monitoring paid for by Polymet is necessary for as long as is needed.	PD01
4517	3.1.1.7 Project closure overview. Comment: Who would be responsible for this judgment..[of how long monitoring and maintenance of reclamation and operation of mechanical water-treatment infrastructure is needed]? The Co-Lead Agencies or their successors?	PD24
4521	3.1.1.7 Project closure overview. “PolyMet would be held accountable [for] maintenance and monitoring required under permit and would not be released until all conditions have been met.” [To be guaranteed by Financial Assurance agreement.] Comment: A lot to take on faith.	FIN11
4522	3.2.2.5: Mining..Such potential expansion of mining [outside planned pits beyond the NorthMet Project due to known mineralization] should be addressed in Chapter 6, Cumulative Effects.	CU02, PD30
4523	3.2.2.1.7: Overburden and Waste Rock Management. Each of these three types [of overburden (unsaturated, peat, and saturated)] must be segregated in stockpiles since they will have different uses.	PD15
4524	3.2.2.1.7: Overburden and Waste Rock Management. Why separate Categories 2 and 3? Will they be mixed, or segregated, and why (in each case)? Why is there a need to capture the drainage from Cat. 1 stockpile if it is so low in S? Why else was the 0.12%S cutoff established? What experimental data support this value? If the cutoff value were reduced to 0.10%S, would this eliminate the “necessity” to capture and treat seepage? Lowering the cutoff value to 0.10%S would increase the size of the Category 2/3 stockpile, but if no permanent capture and treatment is required wouldn’t this dramatically lower the long-term post-closure costs? What is the experimental evidence for the long-term integrity of the geomembranes used in the waste rock stockpiles for Cats 2,3,4?	PD15
4525	Would peat beneath the dikes present stability problems?	GT01, GT06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Minnesota Izaak Walton League (38074)	
4527	This facility [Wastewater Treatment Facility] is to be maintained "as long as necessary", including possibly adding to its capabilities if found necessary (perhaps including reverse osmosis, RO). Question: Hundreds of years?	PD03
4529	3.2.2.1.8: Reject concentrate from the WWTF to be evaporated/crystallized and disposed of offsite. Needs explanation: Where? How? By whom? Moving a pollutant elsewhere doesn't eliminate it.	WR145
4530	3.2.2.1.9: Water Management. Recommend: overdesigning for extreme weather/climate events or conditions (drought, 200 year precipitation event, snowmelt).	PD22
4531	3.2.2.1.10: Reclamation and Closure…Recommend: lime or limestone should (not "could") be added to East Pit as it is backfilled with Cat. 2,3,4 waste rock to help neutralize pore water.	WR027
4532	West Pit: Question: Where is the rationale for flooding to a pond? No liner or bentonite? Won't the water react with mineralized pit wall rock? What is the predicted water quality of this water over time? Such pit lakes in other mining districts with sulfide mineralization are often highly acidic and toxic.	PD03, PD15, WR057
4533	Category 1: well-engineered cap with local soils, vegetation, and geomembrane to lessen infiltration – but hazard of long-term succession to forest in this climate, with deep roots that could penetrate geomembrane. Needs a discussion! Question: What is the risk associated with such root penetration over centuries? PolyMet plan is to cut woody vegetation in perpetuity, apparently! This issue needs to be investigated at depth.	PD16
4534	"PolyMet has committed to conduct demonstration projects during the Life of Mine and Reclamation phases (total of est. 40 years) to establish non-mechanical water treatment systems to be used at the Mine Site." Comment: They should have started long ago! How will this commitment be enforced?	PD06
4535	Table 3.2-12….here will these chemicals end up? In the tailings? Will there be release to the Embarrass River watershed? What is the toxicity of these materials?	PD03
4536	3.2.2.3.5: Tailings Management: Rock buttresses along north tailings basin dam seem much too small to be effective for stability. Comment: Re-do stability modeling?	GT03
4545	3.2.2.3.6: Hydrometallurgical process: Table 3.2-13. Question: what will be the fate of the potentially noxious chemicals Sulfuric and Hydrochloric acids, liquid SO2, and Sodium Hydrosulfide? Same question as for flotation chemicals above.	PD18
4546	3.2.2.3.10: Engineered water controls: Seepage interception systems would require pumps to route drainage to Tailings Basin or the WWTP. Comment: In perpetuity, apparently. A tall order.	PD03, PD07
4547	3.2.2.3.12: Reclamation and Long-term Closure Management: Hydrometallurgical Residue Facility Reclamation (p. 3-130) - Dewatering sounds complicated and difficult, including "early in the . . . process. Access to the residue surface may be somewhat difficult due to the fine-grained characteristics." Questions: Slime? How will this be dealt with? Revegetation also includes yearly mowing "or as needed". Again, rationale for no woody succession? For 200 years? Inspection for plugged inlet structures and piping systems (p. 3-131) also perpetual?	PD20
4548	3.2.3.4.2, West Pit Backfill...Several arguments presented for not backfilling, but others not explained: "It was determined [how?] that it would not offer substantial environmental or socioeconomic benefits." Comments: The economic factors (potential inaccessibility of mineral value; cost of moving waste rock for fill) seem to have trumped others.	ALT03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Minnesota Izaak Walton League (38074)	
4549	Duluth Complex waste rock is made mostly of silicate minerals, which "would help neutralize some acid generated by the sulfide minerals, such that the Category 1 stockpile and the Tailings Basin are predicted to remain at neutral pH." Question: Then why collect and treat seepage?	PD15
4550	Both Category 1 waste rock stockpile and Tailings to have a seepage containment and treatment system; discharge not to exceed the 10 mg/L SO4 standard. Cat. 1 stockpile also to be capped with geomembrane and vegetation to lessen infiltration. See above Question [Then why collect and treat seepage?]. Is it the SO4 limit, not the acidity, which requires long-term treatment?	WR035, WR134
4551	Post-closure non-mechanical treatments anticipated but not here specified might include "constructed wetlands, permeable reactive barriers, permeable sorptive barriers, and/or other technologies to be identified." Comment: These are "considered a long-term goal for closure", and therefore should be thoroughly described and discussed well ahead of time (in the EIS).	PD06
4552	Does this also mean that the SO4 standard is the limit driving the whole seepage treatment plan? What dilution factor (from tributaries) is valid for the St. Louis River between the Embarrass River and Fond du Lac Reservation?	PER22
4553	5.2.2.1.2 Surface Waters. Hydrology: The DNR "has recommended that maintaining surface flows within about +/- 20 percent of existing conditions in mining-affected streams should be a management objective where reasonably practical in order to maintain existing aquatic ecology". Questions: What baseline information is available on "existing aquatic ecology"? It's impossible to judge this "requirement" without known present conditions baseline.	WR071, WR185
4554	5.2.2.2.1 Groundwater Hydrologic Modeling:…Table 4.2.2-5 presents data from limited studies. Question: Did anyone examine the miles of bedrock drill core or core logs thereof for fractures?	WR014
4555	5.2.2.2.2 Surface water Hydrologic Modeling: One input factor is a "rainfall database" (p. 5-45). Questions: How long-term is this? How sensitive is the model? Does it consider 200 years? Climate change? In Table 5.2.2-13, only the 20-year annual low and high flows are modeled. This EIS should be valid for MUCH longer.	WR077, WR180
4556	5.2.2.2.3 Water Quality Modeling (GoldSim)NorthMet Waste Rock Geochemistry: PolyMet claims that "Within the pit walls the blasting effects [on fracture permeability] are limited in terms of lateral extent and do not have much effect on solute transport in bedrock". Question: What actual measurements support this statement? Any data – or a hunch?	WR016
4557	5.2.2.2.3 Water Quality Modeling (GoldSim)Claim (p. 5-51): the acid-generating sulfides in rock with <0.12%S would be "completely neutralized" by the basic components of the dominant silicate rock minerals during oxidation. "Category 1 waste rock . . . is predicted to never generate acidic leachate". This conclusion apparently comes from 4 years of experimental simulated weathering cycles, plus further testing and analyses. Question: Then why collect and treat drainage/seepage from the Cat. 1 waste rock and tailings?	WR134
4558	5.2.2.2.3 Water Quality Modeling (GoldSim)Virginia Formation rock contains high S (0.4-5.0%S) and is similar to Class 4 Waste Rock but predicted to "produce acidic leachate immediately upon weathering". Question: Where would this material be encountered in these pits? Virginia Formation is not found on the pit cross-section diagrams. Would it be combined with Cat. 4 waste rock and disposed of in the East Pit, or how? Why isn't it simply included in Waste Rock Category 4?	WR034
4559	PolyMet states that "not all sulfide sulfur has the same potential for release" Explain, including management implications.	PD15
4560	On p. 5-54 the concept of "concentration caps" is introduced, on the basis apparently of empirical field and lab observations and relied on to minimize solute loadings of effluent in the modeling calculations. Question: what is the theoretical basis or rationale for such "concentration caps"? Is it a valid concept on which to base environmental standards?	WR033

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4561	" . . . four solutes are assumed to be attenuated by adsorption in the aquifer: As, Sb, Cu, and Ni." Kd values from the literature are used to describe this attenuation. Questions: Do the media through which these leachates pass never become saturated in these solutes? This seems unlikely. Therefore how can this adsorption process be counted on to act on the long term of this project? What is the experience from the Dunka Pit waste rock experiment?	WR023, WR058, WR167
4563	LTV tailings (on which the NorthMet tailings are to be placed) contain carbonate minerals and produce a basic leachate in lab tests. Modeling predicted much higher solute loads for many components than observed empirically, apparently due to adsorption, and models were adjusted correspondingly by "calibration factors" [fudge factors] to produce results closer to those measured. Comment: This should be explainable scientifically.Questions: What is the rationale for the size of the pond on top of the tailings? What is the basis for the rates of recharge given in Table 5.2.2-17? This certainly would be seasonably variable. Have weather/climate extremes been taken into account? Global warming? What is the "closure beach" as opposed to the others?	WR050, WR057, WR060, WR065, WR180
4564	"Regarding the selection of the P90 threshold, "the Co-Lead Agencies also retain the flexibility to modify this evaluation criteria based on consideration of low-flow modeling analyses, site-specific factors, and model predictions in consideration of applicable permitting regulations and guidance" (p. 5-77). Question: Isn't this a big loophole for future enforcement? Of course, it also could be economically beneficial if long-term experience shows permit requirements to be stricter than necessary to maintain water quality. Can we trust Agencies to enforce the permits?	PER06, PER37
4565	5.2.2.3.1 Water Budget OverviewOperations (years 1-20):…What will be the oxygen content of this flooding water? Won't it be at least initially oxidized as it contacts waste rock and pit walls? This will generate acid immediately. What do experiments show for this with time? How will the pore water in the pit be kept from diffusion or replacement by lateral infiltration of more oxygenated groundwater, thus continuing acidification?	WR029, WR173
4566	5.2.2.3.1 Water Budget OverviewReclamation (yrs 20-40)...West Pit to be allowed to flood naturally. When level reaches top of bedrock, pit water would enter the surficial flowpath, migrating slowly towards the Partridge R. Questions: Will there be no surface overflow? [Next section calls for pumping excess to WWTP] Will there be no attempt to minimize reaction with wallrock sulfides? What predictions have been made for water quality in this unlined pond in mineralized rock? Many examples in other mining districts of such pit lakes becoming seriously acid and toxic. Add limestone? Bentonite?	WR027, WR088
4567	5.2.2.3.1 Water Budget OverviewReclamation (yrs 20-40)…Plant Site – Question: What modeling has been done for water balance in the Tailings Basin? Will pond require augmentation during drought? If so, where from? Or is this not important? If so, why not?	WR056, WR182, WR188
4568	5.2.2.3.1 Water Budget OverviewClosure (after 40 yrs)...Mine Site Continued (possible perpetual) monitoring of seepage; operation of WWTF with RO; disposal of solids offsite...; treated effluent released on surface to Partridge R drainage; pumping of excess West Pit water to WWTF. Possible modification of dikes and surface water flows "as necessary". Question: As necessary according to whom? Could high pumping rates of excess West Pit water exceed capacity of the WWTF?	WR128, WR130
4597	5.2.7.5.1 Environmental Consequences…Using the "MN-fiber" definition would be a highly conservative standard, since in my experience the great majority of particles likely to cleave with that aspect ratio in igneous rocks such as the Duluth Complex would be hornblende, the most common amphibole and one that is not implicated in health issues (see list on p. 5-436-437).	AIR03
4598	5.2.7.5.2 Evaluation Criteria: "However, amphibole minerals are present in the Duluth Complex and in close proximity to the NorthMet Deposit" (p. 5-440). Comment: Considering the intensive sampling that has been done of the rocks proposed to be mined, by drill core and for bulk metallurgical testing, the amphiboles should have been – and must be – identified to evaluate their potential carcinogenicity. Then any necessity for treatment could be better evaluated.	AIR03

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4599	5.2.7.5.3 North Met Project Proposed Action. Comment: Again, a "small fraction of <2.5 micrometer fibers have been identified as amphibole" from flotation pilot testing. These should have been identified as to amphibole type. Questions: (last line p. 5-441) " . . . Wet and minimize wind erosion."	AIR03
4601	5.2.14.2.1 Waste Rock Stockpiles. Design Criteria: Much depends on future PolyMet analysis of stockpile subgrade settlement including behavior of the stockpile liner system. These will depend on the physical characteristics of the materials used, especially the geomembranes as "determined from the manufacturer's specifications". Question: What is the long-term (100 year, 300 yr) empirical basis for such specifications, under saturated, in-ground conditions? Of course, great care must be taken in laying down these geomembranes to prevent punctures and local strains.	PD15
4602	5.2.14.2.1 Waste Rock Stockpiles. Design - Category 1 Stockpile - Questions: What is the angle of repose for each lift? How is it to be determined for modeling/planning? Empirical observation during construction? Long-term stability?	PD15
4603	5.2.14.2.1 Waste Rock Stockpiles. Category 2/3/4 Stockpile: PolyMet commits to investigate and test in the future appropriate stability relations and design. Stability analyses of stockpile cross-sections "indicated that all sections analyzed met the minimum required Factors of Safety". Question: What Factors of Safety are required?	GT04
4604	5.2.14.2.1 Waste Rock Stockpiles. Proposed Monitoring, Maintenance, and Mitigation. Plan requires continued monitoring and maintenance and adaptive management through the Life of the Mine and beyond "until the DNR determines that the cover is stable", with an annual compliance report. Some "excess" waste rock or overburden might be put in the West Pit. Question: Why only monitor the waste cover? Not the	PD15
4605	5.2.14.2.2 Tailings BasinDesign Criteria: Factors of Safety required are taken from State Rules, and adopted by NorthMet Geotechnical Modeling Work Plan: Factor of Safety of 1.5 for long-term (?), drained conditions; 1.3 for short-term (?), undrained conditions; and 1.1 minimum for materials deemed subject to liquefaction. This latter value seems much too low!	GT02
4607	5.2.14.2.2 Tailings BasinDesign: Plans use "upstream" method of building tailings disposal over LTV tailings, with drainage layers beneath the NorthMet tailings. Rock buttresses to be added at base of N and S slopes. Questions: Will these small-looking rock buttresses be large enough to confidently maintain stability post-closure? Where would the LTV tailings to be used in adding to the dams come from? The adjacent W cell?	GT03
4608	5.2.14.2.2 Tailings BasinExterior dam faces to be augmented with bentonite to lessen oxygen and water infiltration, and vegetated. Vegetation to be maintained in perpetuity in non-woody condition (!) Question: Again, is this necessary? Is it possible?	GT09
4609	5.2.14.2.2 Tailings BasinLong-term Closure Stability Conditions:…But since these tailings are supposed to be non-acid-forming, why is it necessary to keep them water saturated?	WR002, WR029, WR057
4610	5.2.14.2.2 Tailings BasinDam safety reports should be done more often than every 5 years.	PER21
4611	5.2.14.2.2 Tailings BasinProposed Maintenance and Mitigation: "Where monitoring or model updates indicate that the Factor of Safety . . . no longer meets design criteria, appropriate modifications to the Tailings Basin would be considered, modeled, and, if necessary, undertaken." "A Contingency Action Plan has been prepared." (p. 5-569) Actual possible physical modifications to the Tailings Basin in case of a problem are not described.	GT07

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4613	5.2.14.2.3 Hydrometallurgical Residue FacilityDesign: Site preparation includes installation of a granular drainage layer and wick drains, then temporary loading with imported material to compact the substrate and increase stability. Questions: What kind? Where from? To be mostly removed, and remainder used as more stable base for the HRF waste and liner system.Design Cross-sections. These show waste to be underlain by potentially unstable saturated LTV slimes and fine tailings and peat (see above Design element).	GT08, GT11
4614	5.2.14.2.3 Hydrometallurgical Residue FacilityStress Deformation and Strain in the Liner System: (see Design element above) HRF waste expected/modeled to compact/consolidate after basin is filled, producing a concave surface. Differential compaction would stress the liner system, but modeled strain would fall "within acceptable limits of most geosynthetics." (p. 5-575). Comment: Need better assurance than this.	GT12
4615	5.2.14.2.3 Hydrometallurgical Residue FacilityGlobal Slope Stability: "Analysis of the new [HRF] dams . . . at their greatest height (at year 20) resulted in a computed Factor of Safety for the ESSA of 2.32, which is greater than the "required" minimum of 1.5." (p. 5-575). Surface failures are not expected by the modeling. Liquefaction analysis was not performed. Question: What is the strength of the HRF residue/waste? Might it not be at risk of liquefaction?	GT11
4616	5.2.14.2.3 Hydrometallurgical Residue FacilityInfinite Slope Stability: Important that "the liner layers must not be allowed to slide relative to one another." (p. 5-575). Modeling of slope stability using material types, slope angle and predicted friction angle gives predicted Factor of Safety ranging from 1.56 to 1.86, above the minimum required of 1.5 (Table 5.2.14-5). Questions: Again, will the synthetic geomembrane and geocomposite drainage net deteriorate over the long term? With what effects on the Factors of Safety?	GT12
4617	6.2.1 Cumulative Effects Analysis Approach:..This is a too-restrictive definition [of reasonably foreseeable]	CU02
4618	6.2.3.2.2 Cumulative Effects Assessment Area – SpatialComments: This discussion appears to limit the CEAA to projects "located within the portion of the Mesabi Iron Range encompassed by St. Louis County (see Figure 6.2.2-1)" (p. 6-14-5) Since the NorthMet Project is geologically contained within the Duluth Complex, not the Iron Range, this is an illogical limitation. Although the Iron Range mines and extensions are obviously part of the picture, clearly the CEAA should also cover the area south and east of the Iron Range underlain by the Duluth Complex (outside of the BWCAW), and would include, for instance, the Twin Metals, Teck, Cardero, and Encampment projects. The farther-afield Kennecott Tamarack and Cooperative Mineral resources projects, located in Aitkin and Crow Wing Counties, would not appear to be spatially related to NorthMet. And the Cumulative Effects also clearly extend all the way down the main stem of the St. Louis River to St. Louis Bay.	CU01, CU05
4619	Chapter 8, Major Differences of Opinion.#5, Underground Mining Alternative: Comments: The standard economic factors of fewer jobs for shorter time, and less resource extractable are mentioned in Appendix C, but more analysis should be done on the surface impacts of underground mining versus the open pit plan. The benefits of underground mining may not be as great as claimed…However, any decrease in disturbance of the natural surface by the underground alternative would be beneficial.	ALT01
4620	Chapter 8, Major Differences of Opinion.#6, West Pit Backfill: If mining were to resume adjacent to the West Pit at the end of the Project's 20 years, one could assume that the pit would have to be either pumped out (if left as a pond) or re-excavated (if backfilled and saturated). Question: Where would this material (especially the water) be disposed of? Again, wouldn't this water be degraded (acidified to some extent) by contact with mineralized rock? What would be the water quality impacts to the receiving stream (Partridge R.)?	ALT03, ALT06
4621	Chapter 8, Major Differences of Opinion.Other MDOs: Comments: For many of the MDOs (e.g. #1, 7, 8, 9, 13) the Co-Lead Agencies fall back on an adaptive management approach ("If the plan isn't working properly, we'll fix it"). While adaptive management is essential, it depends on a high level of trust. Such actions could be necessitated well after the Closure period, and thus come under the responsibility of the State through Financial Assurance funding.	FIN05

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4635	The discussion of methyl mercury is in my judgment, the most significant inadequacy of the PolyMet SDEIS and if the project were to be approved, would be one of the greatest threats of harm from the proposal.	MERC01
4636	The hundreds of acres of peat bogs that will be destroyed in this watershed by the proposed mine, means that hundreds of acres of mercury (Hg) sequestering surface will be permanently lost to the Lake Superior watershed…Therefore bog mitigation must be brought back to this watershed. The PolyMet proposal to replace this loss of wetlands with artificially constructed wetlands in Aitkin and Pine counties having disproportionately less peat bog surface and located in other watersheds, will result in substantial mercury impacts to the Lake Superior watershed. The Sax-Zim Bog wetland mitigation plan shows that there is more than enough wetland mitigation potential in the St. Louis River watershed. (1) Therefore their wetland mitigation proposal should be rejected or modified through the Section 404 permit process with USACE.	COE01
4637	what happens to this mercury-rich peat at the mine site when it is dug up and stockpiled?... The stockpile should be capped unless moved within one year. Such mitigation measures are not discussed in the SDEIS. The SDEIS suggests such a potential major problem with methyl mercury from the mine site. In PolyMet documents under Peatland Disruption we read, “NorthMet mine site would result in a nominally estimated increase of 7- 42% in export of methyl mercury from the watershed”. (2) This methyl mercury would be transported down the Partridge River to Colby Lake, both of which already have prohibitively high fish tissue mercury. Is this acceptable to the state and federal agencies involved?	MERC20
4638	The atmospheric Hg emissions from the proposed PolyMet mine and processing plant would contain three species of Hg: elemental Hg, ionic Hg, and Hg attached to particles. The ionic Hg and Hg attached to particles, which are the most chemically reactive, will be deposited locally and the local wind rose (DEIS Figure 4.6-1) shows that the prevailing winds will deposit those species disproportionately within the Lake Superior watershed. This is not what the Clean Water Act demands for the watershed. The Clean Water Act - Section 303 demands the implementation of a mercury TMDL that results in the delisting of waterbodies contaminated for fish tissue mercury. (3) Will the company have to buy “off sets” as defined by the State Mercury Implementation Plan, for any new mercury source?	MERC22
4640	Another mercury problem for these waterbodies that are already listed for fish tissue consumption advisories by the Minnesota Health Department (Colby Lake, Whitewater Reservoir and St Louis River) is the proposed water level fluctuations, due to drawdown at the Whitewater Reservoir...This SDEIS does not discuss all the reasonable design and operating strategies needed to reduce these draw downs. There needs to be an attempt to schedule the water releases and withdrawals of the three mining operations, one city and one power plant that use this river, to minimize sediment exposure and therefore methylation…(4) There needs to be a serious scientific attempt to quantify mercury methylation from water level fluctuations. That has not been done.	MERC20
4641	How will the EIS consider sulfate loading to floodplains, reservoirs and the estuary in the down river reaches where the potential sulfate loading will push concentrations towards and above 10 mg/L which is the wild rice standard and also push to levels that support higher rates of methylation?	WR156, WR162
4642	[St. Louis River estuary fishery] is where the excess sulfate from PolyMet may have its worst impact and it is not even mentioned in the SDEIS let alone analyzed to evaluate cumulative harms to natural resources. This is where sulfate levels are currently low enough so that often the lack of sulfate inhibits the sulfate-reducing bacteria that methylate mercury...Section 303(d) of the Clean Water Act demands that it be addressed...I maintain that it is a violation of the Clean Water Act to permit this mining proposal, knowing that the potential excess sulfate ions are likely to enhance methylation to the point that it would preclude the successful implementation of a mercury TMDL.	MERC01

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4643	There must be a discussion of the quantity of mercury added to these [treatment] systems from precipitation and the waste stream. All the ingredients are there for enhanced methylation in an artificially created and perpetually maintained wetland… Any of these proposed mines in water rich environments would be massive sulfate generators.(6) Will you add this discussion to the section Future Transition from Mechanical to Non-Mechanical Treatment Systems?	MERC15, WR137, WR146
4644	Currently, sulfate concentrations are often a limiting factor on mercury methylation and therefore on fish tissue mercury throughout Northeastern Minnesota…Five hundred years of sulfate loading would clearly increase fish tissue mercury and that is not acceptable in such high quality watersheds. (7) Is this acceptable to the MPCA?	MERC02, MERC08
4645	The SDEIS uses muddled modeling. The consultants have used reaches of the Partridge and Embarrass Rivers that are already badly polluted by excess sulfate, to evaluate the potential for methylation to occur...On page 6-30 we see the NorthMet sulfate load to the Partridge river averages out to 5 Kg/d and on page 6-32 the Embarrass loading of sulfate is 94 Kg/d. Do the math, that is over 79,000 pounds/y. What they should have modeled would have been impacts of all that sulfate on downstream wetland methylation where the sulfate concentration is below 8 mg/L. Such a place would be the Scanlon Dam in Cloquet at river mile 35, according to the DNR research by Lindgren and Shuldt, published in 2007...(8) Will there be any modeling of mercury methylation in these waters in the final EIS?	MERC13
4646	Most of our watersheds have a riparian flood plain that typically is inundated each spring and then the water slowly recedes...any sulfate added to this system [lowland swamps and forests] has the potential to enhance mercury methylation in the floodplain of over 100 miles of river. This issue must be addressed as indicated by the MPCA in "MPCA Strategy to Address Indirect Effects of Elevated Sulfate on Methylmercury Production and Phosphorus Availability" adopted 10-19-06.	MERC08
4647	That MPCA Strategy document defines "high risk" for mercury methylation as:…The important sentence "Rising water levels would introduce sulfate into the high-organic wetland matrix, followed by falling water levels that hydraulically deliver elevated MeHg and/or phosphate to the stream," is the perfect statement of modeling that must be done for the floodplains and multiple backwaters and bays of the entire watershed. It has not been done in this SDEIS. (9) Will that modeling be included in the final EIS?	MERC11
4648	[T]he St Louis River and estuary are such an exceptional sustainable resource that we have to make a better effort to protect it from this new even more dangerous form of mining. The SDEIS needs data and modeling to show the risks to this resource.	WR024, WR072, WR111
4649	[W]ould it ever be possible to complete a mercury TMDL that would get the St Louis River delisted for fish tissue mercury if a "no action" decision were made and the PolyMet project was rejected? The answer is yes, because the science is showing us that what is unique about the St Louis is the significance of anthropomorphic impacts…(10) How do you reconcile the sulfate releases from this mining activity, with the mandate from Sect 303(d) of the Clean Water Act, that a TMDL process should result in delisting these waterbodies for fish tissue mercury?	MERC22
4650	the mercury and sulfates produced by the PolyMet proposal and possible future mining proposals, must be considered in light of the cumulative impacts of mercury and sulfates of all the Iron Range tributaries to a watershed. That has not yet been done. (11) When will that be completed?	MERC10
4651	The current documents consider the area of interest to be limited to the Partridge and Embarrass River sub-watersheds. The area of interest for direct, indirect and cumulative impacts of sulfates on the aquatic resources in this watershed should be the St Louis River from river mile 179, and downstream to its mouth. That has not yet been done.	CU01

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4652	Finally, PolyMet has done an inadequate analysis of the impacts of the PolyMet project on mercury releases, mercury methylation, delisting of water bodies, wild rice and aquatic species. It has artificially limited its analysis of sulfate impacts to portions of the watershed that are already at excessive sulfate levels. (12) Given the requirements of the Clean Water Act for mercury delisting and the cumulative impacts of sulfates on wild rice and game fish, is it not likely that permitting the PolyMet project would violate water quality laws as well as irreversibly harm watersheds?	WR083, WR149, WR152, WR189
4653	Adequate modeling of sulfate impacts on the lower St Louis River will be possible now that we have the data from LCMR proposal #028-A3. At the present it appears that we have a choice, either perpetual water treatment for sulfate at the Partridge River or perpetual fish tissue consumption advisories for the St Louis River..You have chosen perpetual treatment (500 years). That of course is apparently the best choice, however it is a recipe for failure. No one really believes there will be the money or political will to continue the expensive Reverse Osmosis treatment for hundreds of years… (13) Will the EIS address all the issues that will occur when we as a society choose not to continue costly treatment? Shouldn't the EIS consider all likely possibilities, such as a failure to continue costly treatment?	WR037, WR129
4654	The SDEIS proposes to release high concentrations of sulfate to the watershed during the months of September and October assuming that those are not months when wild rice is susceptible to damage from sulfate...In the meantime it is premature to speculate that the sulfate released in September and October will have been consumed and dissipated from the sediments before germination in the spring…(14) Will the state enforce the 10 mg/L sulfate criterion to any new discharges to the Partridge River for the next 500 years?	WR153, WR160
4655	Will this study [Effects of Sulfate on the Biomass and Seed Production of Wild Rice" by Bradley Dewey and John Pastor, University of Duluth, December 20, 2009] be incorporated into the final EIS?	WR152
4656	In my judgment, as a professional biologist, the water velocity, sunlight and substrate were similar at all three sites. The big difference was sulfate, and that made all the difference. How valid is the Wild Rice Standard of 10 mg/L? Put your hip boots on and walk and observe those three miles and you will know. According to all the supporting documents from PolyMet, this was never done. (16) Will this deficiency in the SDEIS be corrected in the EIS?	WR152
4657	In Sources and Fate of Sulfate in NE Minnesota Watersheds, May 16, 2008, Travis Bavin and Mike Berndt say on page 13, "however, increased sulfate loading from mining could potentially have a negative impact on many wild rice beds in the area." According to NEPA, the area of concern for this project should extend down the estuary, where important stands still survive but could be even more threatened by the PolyMet releases. Adequate data, collecting and modeling have to be completed before this SDEIS can be called complete.	WR157
4658	The lead agencies working on the PolyMet EIS have been asked to do a cumulative analysis of the impact of sulfates on wild rice. That has not been done. Instead, the SDEIS has done individual sulfate analysis on the Partridge River by itself and the Embarrass River by itself. That is hardly cumulative. Based on the observations I have made, as well as guidance from the National CEQ, cumulative analysis must involve the St Louis River as well.	WR159
4659	With loading of sulfate projected to be as high as 5 Kg/d in the Partridge and 94 Kg/d in the Embarrass River which gives 79,497 pounds of sulfate loading per year at closure of the PolyMet operation, the area of influence will definitely extend a considerable distance down the St Louis River. In fact, because of the many other sources of anthropogenic sulfates along the St. Louis River, the "area of interest" for sulfates must go all the way down to Lake Superior. (17) Will this cumulative impact analysis be done before permits are issued?	WR111

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4660	The Schedule of Compliance, dated November 2007, between United States Steel Corporation and the Minnesota Pollution Control Agency, suggests appropriate boundaries for a detailed investigation and analysis in the PolyMet environmental review process. That Schedule stipulates that U.S. Steel shall model sulfate concentrations in the St Louis River and that "Modeling shall be done to the St Louis Bay." (18) Since the St Louis Bay is the site of well-documented decline in wild rice production, it only makes sense that PolyMet, the biggest sulfate generator proposed for this watershed, must be required to model cumulative sulfate impacts all the way to the Bay. Will that be done in the EIS?	CU01
4661	The remnant stands of wild rice in the Partridge, Embarrass and St Louis Rivers must be protected with enforcement of the Minnesota Wild Rice Standard. Detailed investigation correlating wild rice conditions with sulfate concentrations and modeling impacts of the PolyMet project on wild rice throughout the entire watershed to Lake Superior must be included in the SDEIS.	WR054, WR157
4662	To protect wild rice and avoid unnecessary methylation of mercury, that leachate [at closure] must be and can be collected and treated. The question of course is will it be treated for 500 years? Looking at the Minntac and Dunka and Nugget Plant sulfide releases, we know it will not be treated for 500 years.	WR035, WR156
4664	In this wet environment, the DNR, Army Corp and PolyMet have to explicitly outline what practices will be implemented to kill beavers that dam up flowages and build bank lodges in dikes and ditch banks. Also, the EIS should mention that control of beaver colonies will have to be done in perpetuity.	WI06
4665	Another beaver problem that was not discussed is the impact the beaver ponds have on mercury methylation and how we can legally control these beaver colonies…If the dams are left intact, the ponds will be methylation hotspots with organic carbon, low oxygen, mercury in sediments, sulfate reducing bacteria, and in this river, a surplus of sulfate from mines and tailings basins…However, if you decide to blow those dams you will get a rinsing of methylmercury as appeared to have happen on Second Creek...Beaver can find and obstruct even very subtle flows and could turn wetland treatment facilities into a methylation hotspot. (19) This problem will be around for hundreds of years, will it be addressed in the final EIS?	MERC20, WI06
4666	I would like to address the adequacy of the models used in the SDEIS, from the perspective of the data that is used as input...there seems to be a consistent weakness that reflects lack of rigor in actual field generated data...Two poorly chosen sampling sites missed an important indicator species [Ligumia recta] that could be threatened by this proposal and the alternative proposal. Mussels are sensitive to sulfate levels. Copper sulfate is widely used to kill mussels. When that doesn't work, calcium arsenate does. (20) With all the calcium and arsenic and copper and sulfate leaching out of this mine site, the EIS must address the impacts on Ligumia recta in the Partridge River, or it will be inadequate.	AQ06, AQ18
4668	Biomes are climate dependant. As climatic zones move, biomes move. The climatic underpinnings of our present biomes are shifting to the north. How does climate change relate to the PolyMet proposal? ...the "Federal Court Requires the Fish and Wildlife Service to Analyze Climate Change Effects during ESA consultations" and "Ninth Circuit Court Requires Climate Change Analysis during NEPA". I fail to find any reference in the SDEIS of the interaction of global climate change and movements of biomes, and especially how this proposal impacts wildlife corridors that are necessary for that movement.	AIR01
4669	That brings us to the analysis of corridors through which all the thousands of species associated with the Eastern Broadleaf Forest must move if it is going to replace the receding Boreal Forest…the SDEIS must address the cumulative effects on corridors for organisms that are much less mobile and there many of them...The SDEIS just plain doesn't do a cumulative corridor impact analysis for plant species...Because of all the proposed expansions on the Iron Range, a cumulative analysis of corridor impacts for a wide variety of impacted organisms is needed.	WI03
4670	Because of the disruption and fragmentation of wood turtle habitat by the PolyMet proposal, this threatened animal (listed as a RFSS by the USFS and listed ETSC species) will be prevented from moving into suitable habitat farther north as the climate warms.	WI01, WI02, WI03

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4672	We also read "a total of 94 acres of impacts are predicted in alder thicket communities"...If the wood turtle is going to respond to global climate change and move north, its movement could be blocked by a gigantic mining operation situated at the top of the most northerly watershed with wood turtles…The already severely impacted corridors 16 and 17 will be further "pinched off" by the PolyMet plant, mine and transportation corridor. In Sect. 6.2.3.2.3 we read that the project will consume 6,498 acres!	WI02, WI03
4673	These reasonable management strategies [of the St. Louis River Management Plan] must be addressed in the EIS.	PER35
4674	Of much greater importance is the myriad of other small vertebrates, invertebrates and plants with limited seed and spore dispersal that will have to make their way up this wet corridor as the climate warms and the Boreal Forest retreats. (23) The EIS must try to identify these species and design the proposal in such a way as to have the least obstruction to their access to the few remaining wildlife corridors through the Mesabi Range.	WI03
4675	The SDEIS uses an escape clause...known as the Adaptive Water Management Plan…what would be the options when the company is unable to ensure compliance with applicable water quality standards well after closure, when we lose the money and political will to continue to operate expensive WWT strategies?... It should be considered a very possible catastrophic failure of the plan... Will these horrible options be finally addressed in the FEIS?	WR130
4677	Perceived Benefits: Due to the restrictive and cumbersome access to the Federal lands at the NorthMet Project Site, the Izaak Walton League acknowledges the exchange would improve overall access for both USFS management activities, and for public use and enjoyment, should the USFS acquires these privately held lands as proposed in this exchange.	LAN11
4678	Perceived Benefits: The Izaak Walton League acknowledges a benefit is seen for the USFS in exchanging all of the Federal lands in the exchange proposal, as opposed to exchanging only those lands proposed for the mining footprint (see 3.3.3.2 Land Exchange Alternative B). Retention of the lands outside the mining footprint would result in increased management cost for the USFS, and these lands could potentially be degraded over time due the drift of large quantities of potential toxic dust and fumes produced in close proximately to the mine and processing plant.	LAN11
4679	Perceived Benefits: The Izaak Walton League acknowledges the lands involved in the exchange meet most of the Desired Condition criteria, as outlined in G-LA-2, Forest Plan, pgs. 51-52.	LAN11
4680	Perceived Benefits: The Izaak Walton League acknowledges that a reasonable effort is being proposed that would seek an even exchange of wetlands acres directly impacted by the mine, acre for acre, therefore no net loss of wetlands for the USFS estate, as specified in EO 11990 (see 3.3.1.1 Development of Land Exchange Proposal, pg.3-159, 4th para.).	LAN11
4681	Perceived Benefits: The Izaak Walton League acknowledges a benefit in receiving additional acres (72.3 acres based on GLO records, and 579.6 acres based on GIS analysis) of public land as a result of this exchange.	LAN11
4683	As stated in 3.3.2.1 para. 4, "The United States owns 181 acres of the mineral rights on lands that are not part of the NorthMet Project Proposed Action mine pits (see Figure 3.2-3)". The plan (see Figure 3.2-3) fails to identify where these lands are located. Figure 3.2-3 does however show two forties of USFS land within or partially within the proposed mining area, and it's unclear in the SDEIS report if the US will retain the mineral rights, and receive royalty payments for their use, or if the USFS is proposing to sell or exchange these mineral rights as part of the land exchange.	LAN04, LAN06

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Sender Name (Submission ID)	Minnesota Izaak Walton League (38074)	
4684	The SDEIS in 3.3.2.2 Non-Federal Lands Proposed for Exchange- para. 2, states that "PolyMet currently owns a portion of the non-federal lands proposed for exchange...And in para. 3, "There are no activities proposed on the non-federal lands...From this first statement, the Izaak Walton League believes there should be a detailed map, along with a table, listing mineral ownership or other encumbrances for each parcel (by Forty or Govt. Lot) in the exchange. The table should also indicate if mineral exploration has been done on each forty, and whether there appears to be any merchantable, recoverable minerals present.	LAN04
4685	saying there are "no activities proposed on the non-federal lands" is not the same as saying there is no potential for mining activities in the future on these lands. To avoid the possibility of going through another land exchange involving these same parcels in the future, and to protect the public interest, lands in the exchange should have little or no mineral mining potential, or if there is potential for future minerals development, the mineral rights on these private parcels should be included in the exchanged to the US. If it appears the mineral rights cannot be obtained, alternate lands containing the surface rights along with their intact mineral rights (consolidated ownership) should be offered, and those lands presently proposed in the SDEIS should be rejected as too risky.	LAN04
4686	Land Exchange Alternative B (3.3.3.2) …The Izaak Walton League proposes adding both Tracts 4 and 5 (192.1 total acres) to Alternative B to achieve a closer acre-for-acre exchange. Once appraisals are completed an evaluation can be made of the relative values, and adjustments can be made in the parcels each is offering, so they are as close as possible in appraised value. This would meet standards established by law (Sec. 206 a.).	ALT24
4687	A review of the environmental impacts including vegetation, shows obvious differences and in vegetative types, age class distributions, as well as major a disruption to the security for threatened plant communities, and species listed as ETSC (endangered, threatened or, of special concern)…It's assumed that this analysis includes areas withdrawn from timber harvesting such as the BWCAW, cRNA, etc., so this will distort the analysis significantly. Additional analysis using only acres available for timber management/harvesting should be done for the Final EIS, and that data should be displayed in table form and broken down by individual management units. Then a more critically analysis of these changes can be made…cover type changes in the proposed exchange will have little short or long term impact on overall timber market supply, nor will it serve as any economic stimulus, since both the Federal lands and the non-Federal lands were capable of contributing to the local wood basket, with neither in a "no-harvest" status and each having an equal opportunity for current and /or future harvests.	VEG01, VEG03
4688	A review of the truly unique forest components found on the Federal lands is much more concerning than a shift in cover types. There seems to be a somewhat callus lack of due regard for the eleven (11) ETSC species that will be lost, including 10 that are found nowhere else on the Superior National Forest, along with the loss of three imperiled or vulnerable native plant communities that also may be found nowhere else on the Forest, plus a 6100+ acre loss in sites ranked as MCBS High Biodiversity Sites…these losses would be significant to the Forest and the environment, and a serious reconsideration of this exchange is warranted. Even the loss of the MCBS site will results in a permanent loss, since a post-mining site, even following reclamation, will never be the same rich forest as the one it's attempts to replace.	VEG01, VEG02, VEG03
4702	The SDEIS fails to include sufficiently detailed information about the types of aggregates found, along with their estimated volumes and values, on each of the non-Federal tracts. The SDEIS has also left unresolved an largely unexplained the encumbrance questions in the titles of ownership for aggregate (sand, gravel, stone, etc) resources, as well as a reservations of timber rights in Tract 3...Information should be provided in a table in the Final EIS clarifying the types, and estimated volumes, and values of the aggregates, and it must settle the issue of ownership of all aggregates following the exchange. If aggregates are being reserved on any of the private parcels, this should be considered as a cause for rejecting a parcel prior to the exchange. If the USFS chooses to continue the exchange, and chooses to give up the rights to these aggregates in exchange for considerations in the land appraisal values, it should also then clarify in the Final EIS their position on the prohibition of "surface mining". Otherwise, management by the USFS of the surface estate will again be in conflict and subject yet again to another land exchange.	LAN03

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4703	There also needs to be a more detailed explanation than what is provided, concerning the reservation of timber rights in the title on Tract 3, in 5.3.1.2.5 pg. 5-586. This would seem to be at odds with both USFS management of the surface estate and the Weeks Law acquisition status, which will be transferred to the exchanged lands. If in fact the timber rights are being reserved and are unavailable for USFS management, this tract must be withdrawn from the exchange.	LAN04
4704	The Izaak Walton League also differs with the SDEIS conclusion dawn in 5.3.1.2.5 pg. 5-587 that the exchange will resolve the conflict "by exchanging the high-risk federal lands for predominantly low-risk non-federal lands. The non-federal lands are predominantly "moderate-risk", due to the fact that Tract 1, which comprises almost 70% of the acreage in the exchange, is considered at moderate-risk for both "conflict" and "quality of title".	LAN04
4705	Finally, in regards to title encumbrances, an issue that will need some study and resolution is the conflict between outstanding severed aggregate rights in the northeastern portion of Tract 1, and the plan to extend cRNA status to the Loka Lake cRNA, also located in the northeast corner of Tract 1. (See pg 5-586 2nd para. and pg 5-610 4th para.) Gravel extraction and a cRNA at the same location seem incompatible.	WILD01
4713	The rejection of alternative 3.3.3.3.6 Underground Mining Alternative fails to take into consideration language found in both the deed and the law during the acquisition, which transferred surface ownership of these lands to the Federal government... statements protecting and limiting damage to the surface estate, and the purposeful inclusion of language discussing underground mining, make it evident that the rights of the surface owner to enjoyment of the land and providing limitations under which the owner of the reservation (mineral rights) must abide in any and all types of operations when exercising their rights to the minerals found within, were central to the acquisition of these lands. Therefore, an open pit mine was considered incompatible with the rights of the surface owner, the Federal government. In order to exercise their mining rights, there can only be an underground mine.	LAN04
4717	EO 11990 specifies a "no net loss of wetlands" for compliance. While the USFS is balancing the wetland losses with gains within the Forest, the State of Minnesota would still lose a significant number of acres of high quality wetland at the proposed mining site… None of these indirect wetland loses are calculated in the land exchange, nor are there proposed wetland mitigations for these types of losses. So, Minnesota will still lose 7000 acres of wetlands, even after mitigation for the direct impacts. Indirect impacts must be addressed in the final EIS, to achieve a "no-net loss of wetlands", in both the exchange and in the wetland mitigation strategies[.]	WET14
4718	The Land Exchange fact sheet extols the benefits of this exchange with multiple [bullet points for various resources]...All of these resources already exist, and are serving the people of the State of Minnesota, so there is no real gain in this exchange for the citizens of the state...they should not be touted as a "Net increase", but should be viewed as an existing resource… Unfortunately, all of these natural resources are being viewed from inside the USFS silo, when a more appropriate view would be from the balcony, where the whole picture of Minnesota can be seen. The citizens of the state would be better served if the SDEIS dealt with the project's cumulative impacts resulting from this proposed land exchange.	LAN01
4720	Provisions of the Weeks Law, particularly Sec. 9 and 11, seem to impact the decision making in this exchange, but neither section are addressed in the SDEIS…This [Section 9] could be interpreted to say that the USFS as surface owner may establish and publish rules and regulations under which the subsurface owner must operate, and that all actions by the reserve owner must follow these rules and regulations. Clearly, the original intent of Congress in passing the Weeks Law was for these lands to be permanently reserved, held, and administered by the USFS. To do otherwise is to disregard the intent of the Law.	LAN02

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4721	As a Federal agency it is the responsibility of the USFS, the EPA and the USACE to uphold and protect all provisions of the Treaty of 1854...The land exchange would eliminate forever the potential use of the existing Federal lands for hunting and gathering, and exchanging the non-Federal lands for Federal lands, would still result in a loss of acreage on which to carry out these rights within the ceded Territory… Therefore, the Final EIS must address the issues stated here, such that the Final plan and its implementation do not infringe upon any of the rights of the Tribes.	CR01
4722	The SDEIS gives inadequate consideration to the "No Action Alternative" of the land exchange. The No Action Alternative must be reconsidered because: •The mining proposal as currently outlined in the SDEIS fails to meet multiple environmental regulations which would lead to destruction of the land and pollution of the waters for many centuries •It fails to protect the rights of the tribes as guaranteed in the Treaty of 1854 •There is inadequate review of human health impacts at the mine, in surrounding communities, and in the watersheds below the mine •There is inadequate review of cumulative impacts resulting from all previous and existing mines, and for all proposed mines that could be permitted over the next 10-15 years in this watershed •The economic analysis was biased by only modeling the benefits, with inadequate analysis of the practical projects costs •The intent of Congress in acquiring the lands within the Superior National Forest under the Weeks Law were to protect the waters and promote the growth of forests, in perpetuity •The exchange only marginally improves the conflict in the severed estates, and fails to fully resolve this conflict in the future because of uncertainties over aggregate rights on the non-federal lands •Overall, the sum of these failures constitutes a failure to meet the obligation by law, that the public benefit must be well served by the exchange	LAN01, LAN02, LAN05
4723	under the "Purpose and Needs Statements" 1.3.2, there are several references to "resolve this fundamental conflict", which we must assume is referencing the rights of the mineral estate and that of the surface estate. Under 3.1.2 it states "PolyMet leases the NorthMet Deposit's private subsurface rights. However, under the Weeks Act of 1911, the USFS is restricted from allowing, by decision (see 5 above), surface mining on Federal land, such as that purposed by PolyMet." It appears the "conflict" is a result of actions knowingly and intentionally taken by PolyMet that are in direct conflict with the long-standing decision by the USFS to protect their surface interests by not permitting surface mining. There is no discussion in the SDEIS of PolyMet choosing to relinquish its lease of the NorthMet site to resolve "the conflict".	NEPA04
4724	The Final EIS will need a thorough reconsideration of the "No Action Alternative" including an expanded discussion of the rejected underground option. Such an analysis should result in a more thorough examination of the economic services provided by the existing surface acres at the mine site…If accommodating the broader responsibilities the Co-lead agencies are charged with meeting under the Weeks Act, and, under the DNR mission statement, results in an unprofitable project currently, it may be best in the long run to defer development of the proposal until a date when the technology exists to accommodate return on equity in the marketplace, and, achieve the smaller footprint.	ALT14
4725	The main reason given for establishment of the Superior National Forest and the purchase of Federal lands through the Weeks Act was to protect the headwaters of the St. Louis River. The proposed land exchange and destruction of wetlands in these headwaters is a violation of the intended purpose of these Federal lands…As a result, our citizens will lose the watershed protection values that were intended by the establishment of the Superior National Forest…We question the validity and wisdom of this land exchange because it will nullify the protection of watershed values in the Partridge and Embarrass rivers; the lands obtained through the exchange may not be covered by the Weeks Act, and it will set a bad precedent that opens the door for future land exchanges.	LAN02
4726	The land exchange sets a bad precedent and it is unknown how many additional land exchanges may be needed for future mine proposals...We question the validity and wisdom of this land exchange because it will nullify the protection of watershed values in the Partridge and Embarrass rivers; the lands obtained through the exchange may not be covered by the Weeks Act, and it will set a bad precedent that opens the door for future land exchanges...Before the PolyMet exchange is approved, we would ask that the Superior National Forest evaluate how many more land exchanges may occur, and determine what the cumulative impacts would be upon watershed values and land ownership patterns in the Forest.	LAN02

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4727	Allowing the loss of so much forest and wetland cover in these headwaters and the potential impacts to their hydrology and water quality are counter-productive to the MN DNR's mission of long-term protection of the state's surface and groundwater resources...We ask that the DNR follow the recommendations of their own report and evaluate the PolyMet project in a watershed context...Based on the extent of forest and wetland destruction, the likely changes in groundwater hydrology, and the potential for water quality impacts, as documented in the SDEIS, it seems clear that the PolyMet project would not meet these standards for watershed protection.	WR195
4728	Too much wetland and stream area will be destroyed or impacted by this project to be considered an environmentally responsible mine...These wetlands are located in the headwaters of the Partridge and Embarrass rivers where they play an important role in maintaining the health of these watersheds. Many of the wetlands are acid peatlands that are perched above the shallow water table and depend upon precipitation rather that groundwater for their water supply. The functions and values of these types of wetlands are very difficult to mitigate or replace.	WET05
4729	It is evident from reading the SDEIS that the extent and severity of these indirect impacts are basically unknown and difficult to predict. The SDEIS says that it was not feasible to model the effects of mine dewatering on wetlands due to the complexity of the bed rock and soils at the mine site, and the wide variety of groundwater flow rates through these soils and fractured bedrock. As a result the indirect wetland impacts will have to be determined by monitoring after the mine is permitted. This leaves us with a huge question mark about the ultimate extent of wetland impacts that will result from the mine.	WET01
4732	The ecological quality of the stream and wetland complex that would be impacted by this project is very high and deserves the highest level of wetland mitigation...All of the above factors lead us to conclude that the diversity of wetland habitat and river systems found around the NorthMet project are providing significant ecosystem services. We believe that they should be considered a high-quality wetland complex, and should receive the highest level of protection and wetland mitigation possible.	WET24
4733	However, due to the large area and high quality of wetlands in the project area, we believe that the known wetland impacts are still far too great and the potential for unanticipated impacts is significant. We recommend that underground mining and the placing of as much of the reactive waste rock as possible back into the mineshafts be given serious consideration and evaluation in the Final EIS. This option should not be rejected solely on an economic basis...The underground mine option could substantially reduce the level of wetland and water quality impacts in the headwaters of the St. Louis River, and may eliminate or reduce the need for a land exchange.	ALT01, ALT13
4736	The proposed mitigation does not compensate for the loss of wetland functions and values in these headwaters…mitigation will occur outside of the St. Louis River watershed and fails to compensate for the watershed functions and values that will be lost in the Partridge and Embarrass rivers, which had been protected by the Weeks Act…Because of the high-quality of the wetlands on the Mine Site, the difficulty in restoring or creating bog and forested wetlands, and the lack of adequate mitigation within the impacted watersheds, we would ask that the Corp of Engineers require a mitigation ratio of 2:1 for mining impacts to these wetlands.	COE12
4737	analysis [of fugitive dust impacts on wetlands] seems too conservative and does not appear to consider the huge volumes of dust that would be released by blasting activities which would almost certainly cast a significant dust cloud downwind of the mine in the prevailing wind directions (NW and SE of the mine site). We would like to see a description and evaluation of how blasting activities might affect dusting of wetland vegetation in the Final EIS.	WET11
4738	The potential toxic effects of sulfur and heavy metals upon wetland vegetation from fugitive dust are not adequately considered or evaluated...The SDEIS also does not appear to consider the potential toxic effects that sulfur or heavy metals in the dust might have on wetland vegetation… We would like to see an analysis of this chemical impact upon wetland vegetation, and an explanation of the potential toxic impacts to vegetation by sulfur and heavy metal contamination from fugitive dust.	WET11

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4739	It is not accurate to use the natural range of variation of stream levels as a way to measure potential impacts to riparian wetlands from long-term water level changes caused by mining...We also question the analysis of the level of impacts expected to wetlands in the riparian zone of the Partridge River…Water levels can vary dramatically from spring highs to summer lows and can be nearly dry during droughts. Saying that the changes in average annual flow will be within this dramatic range of variation leaves us with little confidence that the abutting wetlands would not be significantly impacted.	WET08, WR183
4740	The failure of state agency regulation of iron and taconite mines to correct current pollution issues does not give us confidence that future problems with sulfide mines will be adequately addressed…This leaves us with little confidence that a new mine in the same general location with much larger quantities of reactive rock can be built and managed without causing significant damage to wetlands, water quality and the surrounding environment.	WR023
4742	Page 5-16 states, "Because the NorthMet Project area is located in the Lake Superior Basin…" The Great Lakes-St Lawrence River Basin Water Resources Compact (the GL Compact) applies. The GL Compact includes the St Louis River.	PER27
4743	SDEIS Executive Summary (ES) Page 39 "Four additional state-listed species -…" Does not include moose, recently listed as a species of Special Concern.	WI01
4744	Page 4-201 states on Canada Lynx, "…not listed as an ETSC species in Minnesota…" Lynx are listed as a species of Special Concern in MN.	WI01
4745	Page 4-204 lists Wood Turtle as "globally vulnerable" and "imperiled in MN". Wood Turtles are listed as Threatened in MN which confers special status for takings on them similar to that of Endangered Species. The St Louis River and its tributaries provide some of the most important nesting sites and populations of Wood Turtles in the state.	WI01, WI02
4746	Page 4-207 lists Black-backed Woodpecker, Boreal Owl and Spruce Grouse as Species of Greatest Conservation Need (SGCN) in MN. All are dependent on mature coniferous forest.	WI01, WI02
4747	Page 4-212 mentions that the LTVSMC Tailings Basin attracts waterfowl, loons, etc but makes no mention of the ingestion of contaminants as an issue for these birds or other predators consuming them that are higher on the food chain.	WI04
4751	Since many of these plants are state-listed as endangered, threatened or special concern due to their rare status it seems implausible that removal of even 1 percent of their known populations could possibly be considered as sustainable resource management. It constitutes a "taking" under state law, and is completely unacceptable. Simply stating that these are small populations or that other populations may be located elsewhere in the future is no guarantee of their continued existence on the landscape and is a loss of natural resources to the people of MN for generations.	VEG01
4752	SDEIS Executive Summary (ES) Page 35 states, "The NorthMet Project Mine Site drains to the Partridge River and the Plant Site drains to the Embarrass River. Both rivers are tributaries to the St Louis River, which flows to Lake Superior." The GL Compact language on protecting these finite resources applies here as well.	PER27
4753	Page ES-37 Several of these wetland types make up critical habitat for several of the ETSC wildlife species mentioned in the Wildlife portions of the SDEIS. A mitigation ratio of more than 2:1 should be used for replacement of these state and federal resources.	WET04
4754	Page ES-50 states, "4,016.3-acre decrease in vegetation and wildlife habitat in the NorthMet Project area." and "Wildlife corridors at and adjacent to the NorthMet Project area would be affected through the reduction of access to these corridors." In light of increasing climate change stressors on these already rare populations, reducing the ability for these organisms to migrate through actual individual animal movement or plant seeding and genetic distribution is an unacceptable loss to our state's natural heritage.	WI03

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4755	Page 4-46 states, "…approximately 90 percent of the wetlands within the Mine Site are ombrotrophic…. Again, these types make up critical habitat components for some of the ETSC species listed in the Wildlife portions of the SDEIS and will either be completely eliminated by the proposed action or adversely impacted directly or indirectly through hydrologic impacts (water level fluctuation and ground and surface water contamination).	WI02, WI06
4756	Page 4-133 states, "Further downstream, most of the St Louis River is also listed for "mercury in fish tissue" impairment…" There is no mention of limiting the further contributions of mercury to the system and the implication seems to be that the rivers are already impaired so any additional mercury loading is not a problem. This is unacceptable.	MERC02
4768	These mitigation projects [Aitkin, Hunckley, Zim] assume that permitting agencies will allow "restoration" and "preservation" credit for "restoring" and "protecting" coniferous bog and swamp that are already functioning as wetland communities.	WET04
4769	Page 5-320 describes the site near Floodwood that was originally proposed for wetlands mitigation efforts and credits but later dropped for several reasons. This site is similar to the proposed mitigation site at Zim… There has been no change in the level of peat mining operations or the forest practice of tree-topping in St Louis County since that time so why would mitigation credit be given for the proposed Zim site with similar vegetation, plant community and resource use history?	WET06
4770	Again, the implication is that only a small percentage of these state-listed rare plants and "imperiled" communities will be impacted through this project and that other populations, "may be found" at some unspecified point and place in the future. Baseless, illogical rationalization for destroying these state and federal resources.	VEG01
4771	The SDEIS goes on to describe that there will be a decrease to the federal estate of 6,142.7 acres of areas High Biodiversity Significance and an increase of 767.9 acres in areas of Moderate Biodiversity Significance. By their definition, areas of High Biodiversity Significance are "the best of the rest" and areas of Moderate Biodiversity Significance are "the best of what's left". Why should the citizens of MN settle for "what's left" at the expense of some of the best?	VEG02
4772	The document goes onto describe the impacts of the proposed project on area natural resources (wildlife, native plants and plant communities) and generally minimizes the impacts to these finite, rare, imperiled, and diverse organisms and habitats. These are public resources as well as important habitat elements that "will be permanently lost". Coniferous bogs and swamps, as well as shrub swamps, are critical habitat components for moose (calving, thermal cover and feeding areas) and several other ETSC and SGCN species. These plant community types are almost impossible to re-create through mitigation techniques. The areas of Biodiversity Significance are just that. They cannot be recreated or restored in our lifetimes or even our grandchildren's lifetimes. These losses to our water resources and natural heritage, as proposed, are unacceptable and must be mitigated at the highest levels or this project should not proceed to permitting.	PD01
4773	In the review and discussion of the present SDEIS, Izaak Walton League is encouraged that the SDEIS is improved. New subjects are added. Adaptive management has potential merit. However as noted, many significant mitigations remain unclear. Izaak Walton League does appreciate the hard work involved in the SDEIS. Three public meetings have been well conducted and well attended. Passionate and well-informed comments have been offered. Friends and neighbors with very different perspectives have conducted themselves admirably on average. There is a good deal of information in the SDEIS. However, we believe that there is more work to be done before the NorthMet SDEIS becomes final.	NEPA15, NEPA17
4775	Our overall conclusion is that the SDEIS for NorthMet is significantly deficient in meeting its assessment, environmental disclosure and public trust responsibilities.	NEPA09

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4776	Slope Stability: Modeling results for Factor of Safety during construction and long-term closure are given in Table 5.2.14-1; they appear adequate.Liquefaction: Potential for this extreme hazard was evaluated under various scenarios, showing that the "design would meet the minimum Factors of Safety deemed acceptable by the Co-Lead agencies" (see Tables 5.2.14-3, 5.2.14-4) However, those minimum Factors of Safety seem dangerously low to this reviewer.	GT02
5106	MN DNR Director of Lands & Minerals has recently testified before the House Environment, Natural Resources, and Agriculture Committee (2-11-14) that it is in a position to successfully regulate PolyMet, secure adequate financial assurances, etc. We have good reason to doubt the confidence represented by MN DNR on that day and believe it is a critically important issue.	PER06
5137	5.2.14.2.2 Tailings BasinLiquefaction: Potential for this extreme hazard was evaluated under various scenarios, showing that the "design would meet the minimum Factors of Safety deemed acceptable by the Co-Lead agencies" (see Tables 5.2.14-3, 5.2.14-4) However, those minimum Factors of Safety seem dangerously low to this reviewer.	GT02
5140	6.2.2.1.21 Speculative Actions: Comment: Although the mineral resource projects listed here have not developed to the public proposal or scoping stage, a great deal of drilling, sample analysis and other exploratory work and engineering studies have been invested in many of them, and proposed development is likely within the active period (40 years?) of the NorthMet Project. At the least, this Chapter should show on maps the mineral holdings of each of the eleven companies or projects mentioned under Speculative Actions.	CU02
5155	All of the new sulfate produced in the proposed mine waste heaps, tailings basin, sulfuric acid mist and acid rain, has to go somewhere. Of course, it is headed downstream to river reaches and associated wetlands that are lower in sulfates…That is correctable and PolyMet can either exacerbate the problem and push the sulfate impact all the way to Lake Superior or improve the situation, depending on how long they treat or don't treat their leachate.	WR036, WR111
5181	As mentioned earlier, the SDEIS proposes to release high sulfate loading during the months of September and October when in fact, the MPCA is in the process right now of determining when sulfate releases do actually raise the sediment sulfide levels such that it damages wild rice roots.	PER10, WR152
5188	Under the Law (The Act of March 1, 1911 aka the Weeks Law) the lands were purchased with appropriations allocated for the express and stated purpose of "protection of the watershed of navigable streams, and … for the acquisition of lands for the purpose of conserving the navigability of navigable rivers." These monies were spent with the chief intent of protecting the waters and the timber within the watershed. While subsequent revisions to the original law (16 U.S.C. 516) have been written to permit land exchanges of Weeks Law lands "When the public interests will be benefitted…", it is easy to see that this proposed exchange fails that test, because it negatively impacts the very waters the Law was passed to protect, and would lead to both public health and the environmental harm lasting for hundreds of years or longer. Therefore this exchange does not benefit the public and must be reconsidered.	LAN02
5189	Page 4-210 mentions moose declines and low populations but does not discuss the implications of habitat loss particularly summer and winter thermal cover provided by mature conifer forest and forested wetlands.	WI01, WI02
5350	These [SDEIS wetland impact] numbers clearly suggest that a substantial area of additional wetland impacts can be expected beyond that destroyed by construction. And if the SDEIS has underestimated the assessment of impact, the additional wetland loss could be huge.	WET24
5351	Also, since suitable wetland mitigation has not been found for these watersheds, we would ask that the regulators request that PolyMet use measures in addition to wetland mitigation to replace the lost watershed values. This could include measures such as water retention ponds, shore land buffers, and other "green" technology to collect and store runoff in these watersheds.	COE01

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Sender Name (Submission ID)	Minnesota Izaak Walton League (38074)	
5352	We are concerned that this language is too vague and does not provide enough assurance that mitigation for indirect impacts would actually occur.	WET01
5353	From information contained in the SDEIS it seems likely that at a minimum another 500 or more acres of wetland are likely to be significantly affected by so called “indirect” impacts. We would like to see up-front wetland mitigation be required for these additional impacts or at least a demonstration in the Final EIS that sites have been identified and secured where this mitigation could take place when needed.	WET01
5354	We would encourage the regulatory agencies to focus wetland mitigation efforts to wetlands that have been completely or significantly drained, or significantly modified by agricultural practices….We would like to see an independent agency, such as BWSR, be given the task of monitoring and determining the mitigation required for these mining projects.	COE01, COE06
Sender Name (Submission ID)	Minnesota Nurses Association (40485)	
5462	The co-lead agencies should conduct and include a health impact assessment (HIA) in the Environmental Impact Statement to fully analyze the public health implications of PolyMet's proposed mine… A HIA would integrate human health into the environmental review for the PolyMet NorthMet proposal, allow consideration of mitigation measures, and involve the community in planning for the project.	HU01
5862	The PolyMet NorthMet Supplemental Draft Environmental ImpactStatement (SDEIS) contains inadequate analysis of the impacts onpublic health from the proposal.	HU01
5865	The [requested] HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health.	HU01
Sender Name (Submission ID)	Minnesota Power (42892)	
10045	there’s not a better place to develop a responsible mining project in MN or across the US, in that the minerals of interest in the PolyMet project will be mined within a historic mining district near old Mesabi, between the mining communities of Hoyt Lakes and Babbitt, MN.	LU07
10069	I know first-hand how critical, quality mining, maintenance and spin off jobs are to the East Range economy. They provide basic living essentials for hundreds of families and I look forward to the prospect of job creation that PolyMet brings.	SO10
18279	The sophisticated modeling and engineered solutions proposed by the agencies and the Company, in my professional judgment, will enable PolyMet to perform at or beyond the stringent state and federal requirements to protect water quality on all fronts.	PER34
18280	In fact, overall, the project will reduce background concentrations of sulfates and mercury, not increase them.	WR190
18281	I have reviewed the proposed land swap proposal in the SDEIS and found it to be a sensible means to improve the compatibility of the land uses.	LU01
18284	Moreover, the high quality metals that NorthMet will produce represent important new, domestic sources of ESSENTIAL copper, nickel and other precious metals that fuel modern life.	NEPA05
18287	I would like to compliment the cooperating agencies and lead agencies for their high quality work in engaging the public and other interested stakeholders. I personally believe 90 days is more than enough time to properly review, consider points of view and submit comments into the SDEIS process.	NEPA17

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Minnesota Power (42892)	
18973	The sophisticated modeling and engineered solutions proposed by the agencies and the Company, in my professional judgment, will enable PolyMet to perform at or beyond the stringent state and federal requirements to protect water quality on all fronts. In fact, overall, the project will reduce background concentrations of sulfates and mercury, not increase them.	PER34
18974	Further, there's not a better place to develop a responsible mining projectin MN or across the US, in that the minerals of interest in the PolyMetproject will be mined within a historic mining district near old Mesabi,between the mining communities of Hoyt Lakes and Babbitt, MN.	PD28
18975	Moreover, the high quality metals that N orthMet will produce representimportant new, domestic sources of ESSENTIAL copper, nickel and otherprecious metals that fuel modern life.	SO10
18976	Through the SDEIS's sound science and downstream permitting, we canand will develop sources of new domestic metals while creating VITALemployment families rely upon to have open and equal access to theregion's precious cultural, scientific and recreational treasures!	SO10
18977	The process has been rigorous and thorough.	NEPA16
18978	Just as the iron ore mined during the 19th, 20th and now the 21st centuries was the key to many critical elements of society, the non-ferrous metals to be mined at PolyMet will be used for electrical components, cell phones, computers, and catalytic converters-products critical to all of us inthe 21st century and beyond.	NEPA02
Sender Name (Submission ID)	Missy Bailey (43597)	
15114	Please help us preserve the waters in the BWCA. There is no other place like it in the United States and my hope is it will continue to be enjoyed in its pristine state by many generations to come.	WILD02
Sender Name (Submission ID)	Mitch Gunderson-Palmer (10754)	
608	My major concern with this proposal is the possible impacts on groundwater.	WR107, WR108
609	Any short-term economic gain from the mine would be worthless to us if it contaminated our water and environment.	SO01
Sender Name (Submission ID)	Mitchell Brunfelt (43580)	
12301	I believe that the Polymet draft EIS demonstrates and proves that the science is there to proceed forward with this very worthwhile project and that it can be done while at the same time protecting the local environment.	NEPA16
15134	the site of Polymet's proposed processing facilities (utilizing the former LTV property), and the area surrounding those facilities, already is an existing brownfield, industrial site. Polymet's proposed project will put that site back into a productive use and a use which (with modern day advancements in technology, science and engineering) will likely be more environmentally sound than the existing state of that site.	PD28
Sender Name (Submission ID)	MK (39679)	
7370	[This Project] will give many people jobs & help our local, state & federal economy. Also I read there is a kickback to MN schools fund with the use of the land!	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	MK Smith MD (50005)	
12985	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	mlanger@goldengate.net (44518)	
10659	Please do not allow mining in the BWCA. It is a fragile environment and will suffer under this kind of mining	WILD02
Sender Name (Submission ID)	MN Chamber of Commerce (42906)	
5515	…the modeling time frame of 200-500 years should be clarified that it was used directly for modeling and not for actual water treatment at the proposed project.	WR035
6309	It is the view of the Minnesota Chamber of Commerce that the SDEIS is complete and should be deemed adequate. All issues that are of concern, including air emissions, water quality and quantity, wetlands, and financial assurance among others have been adequately addressed in the document. The information is accurate, environmental impacts that have been identified and are adequately addressed or have been properly mitigated and all reasonable alternatives have been analyzed.	NEPA16
Sender Name (Submission ID)	Molly BARTZEN (47092)	
16566	The damage this mine could cause could last until my great grand children's generation. The costs outweigh the benefits. PolyMet will no be creating long-term jobs for Minnesotans or benefiting the communities they could potentially destroy.	SO01
Sender Name (Submission ID)	Molly Bugamelli (35573)	
11278	Threats to the Great Lakes impact not only my home state of Michigan but all of the surrounding states. So much depends upon maintaining the health and integrity of these waters for tourism, the enjoyment of future generations and the surrounding ecosystem.	LU06
11280	The implications of so much that is done in the name of profit to our waterways is only beginning to be understood. I have watched throughout my lifetime as beaches, lakes and rivers have become unsafe for swimming, their fish unsafe for eating and the environment toxic to the wildlife that have become dependent upon us for their future survival.	WI04
Sender Name (Submission ID)	Molly Johnston (45875)	
10280	I have not seen evidence that PolyMet will be able to responsibly (Financially or environmentally deal with "accidents" that will happen whether true bizarre accidents, or acts of human negligence.	FIN01
Sender Name (Submission ID)	Molly Streiff (54838)	
18818	Because sulfide mining creates acid mine drainage, countless bodies of water including our beautiful Lake Superior will be negatively affected.	WR001, WR023, WR111
18821	[Acid mine drainage will] kill the natural wildlife and plants, ...[and] will increase the risk of cancer & other illnesses for us humans.	HU03, VEG06, WI04
18822	Since [the sulfide mining and acid mine drainage] is close to tourist attractions, it will impact the economy	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Monaya (40726)	
6664	How can a few hundred jobs for 20 or so years compare at all to 500 years of pollution? UWe should be encouraging green energy industries and getting jobs related to those up to the people on the range rather than risking our most precious resource – our water …	WR115
Sender Name (Submission ID)	Morgan Ekmark (46013)	
10409	I full heartily support Polymet. Here are a few reasons why; 1. Increase in Jobs.	SO10
10414	I full heartily support Polymet. Here are a few reasons why; 2. Polymet has worked hard in improving its environmental impact. (Environmental Impact Statement (EIS), DNR, 2013)…. 3. Polymet plans on "refurbishing" the land that will be mined after the project is completed.	NEPA16
Sender Name (Submission ID)	morgii.muraski@yahoo.com (44290)	
12769	The people of Minnesota have no assurance that Polymet will even be in operation hundreds of years into the future (when the clean up would still be occuring).	FIN01
12770	Polymet has no experience dealing with mines of this sort, and building a mine of this magnitude as a "test run" could have devastating consequences. ...The domineering nature of the proposal is in itself alarming, and Polymet's horridly evident lack of experience does nothing to quell the fears of those who will be impacted by it for hundreds of years to come.	PD23
14872	this mine is essentially an assurance that the Boundary Waters, Minnesota's ecological crown jewel, will be urbanized or destroyed in part.	WILD02
14873	It is clear that Polymet will glean an incredible profit from the mine, but it must be realized that this compay boom comes at the expense of stability in neighboring rural communities. …Polymet is preying earnestly on those that are less economically established, and this portrays a devastating lack of propriety on the part of the company.	SO02
Sender Name (Submission ID)	Moriah Ulbricht (54355)	
18196	How does this affect the BWCA? This is my main concern about the mining and it's how I knew about it in the first place. ... we all know that harmful toxins can be carried away from the mining site by streams or rivers. So, in thinking that the worst will happen, does the site affect the BWCA in any way shape or form?	WILD01
18197	Does the mining site affect any other water bodies?	WR111
18198	Do the mine's benefits outweigh the disadvantages? … I feel as though after the 20 or so years of mining; in addition to the 18 mos. of preparation, it would leave about 6,700 acres of land stripped and demolished. Including 913 acres of wetlands that would be permanently lost. That sounds like an awful lot of lost land and it leaves me to wonder, is it worth it?	SO01
18199	I am also pleased that PolyMet wants to minimize their effect on cultural resources.	CR07
Sender Name (Submission ID)	mose Picard (6162)	
11999	I am worried about our ecosystems, wildlife will be greatly impacted	WI01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	mose Picard (6162)	
13676	Wildlife is not something for us to look at and think it is pleasant, and sacrifice it for short term profit, for short-term jobs.	SO01
13681	I am worried that Polymet will poison our waters, our animals, our plants, which has been food and medicine for countless generations.	VEG06
Sender Name (Submission ID)	Muriel (43561)	
8159	The everlasting detriment far outweighs the prospect of any (fleetingly) happy corporation stockholders and the temporary jobs	SO01
Sender Name (Submission ID)	Myra Arnold (4070)	
851	I think we should not go ahead with this project until Polymet comes up with a better plan to monitor and maintain the toxic seepage caused by the mine. So far the mine plan requires an absurd and unachievable level of monitoring and maintenance for many centuries to come.	PD03
852	Taxpayers could be left with enormous clean-up costs, polluted water and land and economic disaster.	FIN10
854	The natural resources in the watershed of Lake Superior are too precious of a national treasure to jeopardize their well-being for centuries to come.	CU01
Sender Name (Submission ID)	Myra Theimer (47655)	
7681	I am concerned that the PolyMet SDEIS does not reveal the effects of fibers in the rock at the Mine Site. If these fibers are toxic and are dug up and released into the air it could pose a significant health risk to Minnesotans that breathe the air either locally or carried in the wind.	AIR03
7684	I can't see how the project can estimate and protect various pollutants, such as mercury, from eventually negatively affecting the ground water.	WR056, WR125, WR158, WR189
7688	I think this project and the other projects that are being proposed combined will certainly have a negative effect to human health.	HU03
Sender Name (Submission ID)	Myrl Moran (58024)	
19872	I think the risks far outweigh the benefits.	SO01
Sender Name (Submission ID)	n. w. hyslop (44312)	
14861	while we may only get a few decades-worth of commercial benefit from the mine, minnesotans may be dealing with environmental consequences ranging from water contamination and species dislocation for hundreds of years.	SO01
Sender Name (Submission ID)	nalco (39268)	
7134	The effects of sulphite mining and the potential for polluting the lakes, rivers, underground water tables and the wild rice beds in our state worries many of us.	VEG04, VEG06, WR156

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	nalco (39268)	
7158	The concerns of many people that I have talked with are that too often officials and agencies have assured us that all the safeguards and sure fired protections are in place on projects such as this. However, we have come to realize that through the use of official variances, oversights and just human error the environment has been degraded and compromised.	PER06
7168	I believe it is time that we consider the environmental impact of this type of mining, weighing the short term unsustainable gains as opposed to becoming true stewards of our environment.	SO01
Sender Name (Submission ID)	Name Illegible (54123)	
15989	All this just so someone with lots already can get more?	SO02
Sender Name (Submission ID)	Nan Corliss (2757)	
12294	I don't care how much money a company would put aside for clean up. This does not do anything for clean water and land, a healthy environment or a bright future for tourism or businesses which have to reside and make a living in a damaged area for years.	PD25
13454	[The Boundary Waters] area is a treasure to our state and country and a mine that will pollute the waters and land for years, a mine where accidents WILL happen and leaching WILL take place and polluted waters will stand and seep and damage for many years is unthinkable.	WILD02, WR111, WR129
13846	The area is a treasure to our state and country and a mine that will pollute the waters and land for years, a mine where accidents WILL happen and leaching WILL take place and polluted waters will stand and seep and damage for many years is unthinkable.	WR070, WR115, WR195
Sender Name (Submission ID)	Nan Langevin (17876)	
1994	does anyone actually think that a company entity will last [500 years]? And if they did, that they would cheerfully and willingly pay to clean up their putrid, toxic mess for such an unimaginably long time frame?	FIN01
1995	People in Northern Minnesota do need good work with liveable wages, but this is not a good solution.	SO02
2123	The possible environmental issues that may plague our beautiful and beloved natural areas for years to come - for the sake a 'blink of the eye' 20+ year job producer - is ridiculous.	SO01, WR115, WR195
2124	The mere fact that 500 years is even mentioned as a possible time frame for remediation and clean up processes is a dead give away that the project is completely and absurdly unrealistic.	PD03, WR195
Sender Name (Submission ID)	Nan Lightner (46124)	
10817	We must think Long term consequences so our children's children will not be grappling with sad and irretrievable outcomes. Good water is "gold", scarce and a necessity for the World. Please do not let your decisions jeopardize its future.	WR195
Sender Name (Submission ID)	Nan Snyder (42562)	
6933	Another concern is that a portion of sulfuric toxic water will not be contained in the mining process. The non-captured portion will seep into the atmosphere as acid rain. This migration of pollutants will threaten, for many future decades, municipal water systems, wells, lakes, and rivers. The mobility of these non-contained pollutants is without restraint.	WR107, WR108, WR111, WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nan Snyder (42562)	
17060	Today's modern mining operations are automates with unmanned, driverless trucks, trains, and drills, reducing the instances of exposure to death in the mines. The results are an increase in safety, reduction of contact with health hazards, and improved productivity.	HU03
17061	The implementation of automated, robotic mining allows operation of mines from remote locations. So it may be that Duluth or Minneapolis will get the high paying jobs generated from Ely's mining operations and not the local population.	SO06
17062	Although the safety of mine personnel and equipment emissions reduction should be improved by automation, we are likely to get increased pollution from the coal fired utilities supplying enormous amount of electricity for the mines' processing facilities.	AIR02
17063	One important issue in the mining controversy is the method of taxing the mining companies. The present method for iron ore, created in 1941, is called the "production tax". The regulations for this taxing system are antiquated and complex. The do not appear easily applicable to a company mining multiple minerals consisting of copper, nickel, cobalt, platinum and gold. And if history is any guide, we will get decreasing production taxes in what is likely to be an inflationary economy. Most of the billions of dollars will go to foreign companies and they will also be shipping this wealth abroad with little return for Minnesota citizens.	SO06
Sender Name (Submission ID)	nan stevenson (7164)	
530	Yes, it creates jobs, but only in the short-term and it will pollute the watershed for hundreds of years. Not a good trade-off. We have the ability to recycle old minerals and use renewable sources for energy.	SO01
681	We have the ability to recycle old minerals and use renewable sources for energy.	ALT16
Sender Name (Submission ID)	nanakay@unitelc.com (39824)	
6907	If MN DNR approves this project, it will be authorizing acid mine drainage which includes cancer causing heavy metals to enter the pristine environment of Minnesota.	HU07
6923	[The SDEIS] does not indicate a contingency plan for mechanical break-downs in the complicated filtration system that Poly-Met proposed to treat wastewater, even though it would have to operate for centuries. There are no contingency plans for the smallest or biggest failure of this complex mechanical system of pumps, pipelines and filters...This plan also does not assess the impact of more frequent heavy rain on operations which is likely to happen due to climate change.	PD22, WR128, WR130, WR131
14272	According to Poly-Mets own data, the mine would be in operation for approximately 20 years, but would generate toxic water pollution in the headwaters of the Lake Superior basin potentially over 500 years. This demonstrates an unconscionable disregard for our environment, water resources, wildlife and human health of MN citizens.	WR115
14273	The mining company will likely go bankrupt after it has left it's distruction to our precious environment, and leave the cost of the clean-up to Minnesotan's for the next 500 years or more.	FIN01
14274	This plant which will be coal fired, will add to greenhouse gases and have negative impact on climate change.	AIR01
14275	The health effects of copper mining have not been adequately addressed in the Poly-Met environmental review. There will be increased mercury emissions, exposure to asbestos like mineral fibers and arsenic. The World Health Organization has listed 5 or the 10 chemicals used in this process project of majoy public health concern.	HU01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nancy and Jim Ellis (42858)	
8826	My daughter, Lara Wilson and her husband, Andy Fisher, bought land in two places there… It's called the National Forest Lodge. The fact that any mining close to them would have a terrible impact on their livelihood is obvious. Please check the website of these two businesses and see how close they are to where Polymet and Twin Metals want to mine.	SO02
8826	My daughter, Lara Wilson and her husband, Andy Fisher, bought land in two places there… It's called the National Forest Lodge. The fact that any mining close to them would have a terrible impact on their livelihood is obvious. Please check the website of these two businesses and see how close they are to where Polymet and Twin Metals want to mine.	SO02
8827	My heart has always been with the beauty and wonder of the forests of Northern Minnesota... The forest would be ruined, the wetlands not only gone but what is left would be polluted and toxic [as a result Polymet Mining project].	VEG03, VEG06
8827	My heart has always been with the beauty and wonder of the forests of Northern Minnesota... The forest would be ruined, the wetlands not only gone but what is left would be polluted and toxic [as a result Polymet Mining project].	VEG03, VEG06
8830	There are other ways to promote jobs [than mining] – there are other ways to get copper one being by recycling.	SO02
8830	There are other ways to promote jobs [than mining] – there are other ways to get copper one being by recycling.	NEPA06, SO02
Sender Name (Submission ID)	nancy atzen (44940)	
8293	I am concerned that underwater storage of the most toxic category 2/3 and 4 stockpiles will lead to groundwater contamination and potential surface contamination.	HAZ01, WR115, WR172
8294	Once [toxic] material is disposed of in this manner it will be impossible to mitigate any unforeseen consequences.	HAZ03
17327	If this disposal method is to be followed it must be done with an extremely high level of analysis of the surrounding and underlying rock, any rock fracturing, and hydrologic conditions in and near the pit.	WR007
17329	If necessary any potential toxic migration must be prevented by sealing or encapsulating the waste mass. If this isn't possible, alternative above ground disposal methods that confine these toxics would need to be evaluated before the project proceeds. Would a benzoate seal on the walls be possible or useful. Perhaps fine grained layers between the more and less toxic wastes would also protect the pond above from seepage of toxics into the surface waters.	ALT07, ALT10, ALT13
Sender Name (Submission ID)	Nancy Brown (18288)	
14024	There is a long history of mining companies declaring bankruptcy to avoid the cleanup of their sites.	FIN01
Sender Name (Submission ID)	Nancy Carpenter (991)	
486	The environmental risks and costs are far too great to even come close to balancing out the jobs and boost to the northern Minnesota economy. The mining jobs will mean very little when, not if, but when the contaminated water begins to show its effects. The tourism and hospitality industries of the northland, not to mention the life in the northern wilderness, cannot cope with the inevitable environmental disaster that a mine like this would create.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nancy Carpenter (991)	
488	Any project that relies on several hundred years of continuous water treatment should not be given a moment's consideration.	PD03
Sender Name (Submission ID)	Nancy Dowling (36801)	
8669	The SDEIS is insufficient…It does not provide important information, such as the details of the proposed water treatment systems or how the centuries of operations, maintenance, monitoring and reconstruction of water treatment facilities will be paid for.	FIN01, FIN05, WR128, WR143
Sender Name (Submission ID)	Nancy Ellis (38713)	
16391	I care about jobs, of course, but not mining sulfide ore in the Boundary Waters watershed and the Lake Superior watershed.	WR111, WR115
Sender Name (Submission ID)	Nancy Gibson (18336)	
2417	The geological complexity of northeastern Minnesota lacks a high level of investigation, execution me, and testing to achieve stringent management of potential contaminants.	WR071
2419	the monitoring for potential contaminant releases will be difficult or ineffective, yet needs to be examined	PD05
2420	lack of effective groundwater maps above the bedrock need to be assessed to better understand the distribution of aquifer and non-aquifer sediments.	WR071
11240	Polymet needs to address the sulfate standards and how they will comply to protect the existing stands of water bodies that were previously documented stands present within a water body dating back to November 28, 1975. The SDEIS lack this compliance issue.	WR154
14618	there needs to be a development of approximate containment of monitoring systems.	PD01
19897	A critical omission of the SDEIS is the study of moose and the impact on its population dynamics. The initial Polymet project proposes to drain 93 wetlands in moose habitat. Where will those wetlands be replaced? The trade-off in wetlands may or more likely not aid our dwindling moose population...The SDEIS does not mention Minnesota's latest designation of moose as a species of special concern: a species that has been decreasing in alarming numbers	WI01
19941	Lack of effective groundwater maps above the bedrock needs to be assessed to better understand the distribution of aquifer and non-aquifer sediment types. In summa this is a complex system and must be mapped as effectively as possible. This includes the subsurface areas if containment of contaminants and meaningful monitoring are to be achieved.Therefore, I advocate for additional work to characterize these systems.	WR135
19979	The geologic complexity of northeastern Minnesota lacks a high level of investigation and testing to achieve stringent management of potential contaminants.	WR099
20007	The work to date doesn't address fractures in the subsurface areas and their effects to an adequate level...There are no robust characterizations of those fractures at mine and processing sites.	WR099
20009	There are no guarantees that there will not be an unforeseen mishap.	AQ22
Sender Name (Submission ID)	Nancy Graham Rich (38430)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nancy Graham Rich (38430)	
13635	I have been going to the BWCA off and on for many years, and I can't believe that mining as described will in any way NOT affect the BWCA area, the water and the future for that area.	WILD02
13636	The small amount of jobs that would occur with the mining for the short period of time that they are mining does not seem like a good balance for the state and nation in this area. There is also NO confirmation that the people getting the jobs would be from the northern area of Minnesota at all.	SO01
13637	Even if they set aside a billion dollars for clean-up of the area after the mining, it will no longer be the pristine area that it is now. You can't take back what you destroy in nature! We want to preserve that area for our grandchildren and beyond, so that they can learn to appreciate and enjoy what a national treasure that is there.	WILD02
Sender Name (Submission ID)	Nancy Hauer (14806)	
13793	No number of mining jobs are worth 500+ years of water pollution in Minnesota.	SO01
Sender Name (Submission ID)	Nancy L Eisinger (54726)	
18712	I think the risks are not worth the price of compromising the land and lakes near the BWCA. There is no way Poly Met can guarantee clean water, soil and air for us and our future generations.	SO01
18715	The potential scope for pollution from this proposed mining operation is mind-boggling. The proposed site is precariously close to some of ourstate's most pristine area for leisure and tourism- the BWCA.	CU11
Sender Name (Submission ID)	nancy lt rosenbower (47667)	
17272	the short-term fix to the economic difficulties on "the range" will not give lasting value to the area. and, on top of that, it will leave the area less able to support the tourism and small niche businesses already active in the area.	SO02
Sender Name (Submission ID)	Nancy Mcready (18124)	
3426	"It's never been done before." "All copper-nickel mines pollute." [Environmental groups] have become extreme preservation groups against economic development. These preservation groups refuse to acknowledge advances in mining technology instead of embracing new technology and working with PolyMet and others…The environmental community should be ashamed of themselves. They should be embracing new technology and working together to make this project happen.	SO10
7480	[M]ining these strategic metals here in Minnesota, where there are strict environmental regulations, is a matter of national security!...We believe the new technology is available and PolyMet...will be able to aid the Pentagon with recovery of these precious metals and make the United State strategic metal independent.	NEPA05
10641	We believe the SDEIS prepared by the three agencies is a good document and addresses environmental issues thoroughly.	NEPA16
10642	There are several precious metal mines that are operating today, or which have operated recently, without harm to the surrounding environment.	GEN02
Sender Name (Submission ID)	nancy miller (47483)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	nancy miller (47483)	
17601	I am for responsible mining, and the proposed mine will further pollute our waters. I know 2 men who died from cancer within the past 9 months who lived in Aurora. In my own neighborhood near Eveleth, 5 people within a 3 block radius have died from various cancers and another 5 others who have had cancer / or tumors including myself twice, who are surviving.	HU05
17602	Please listen to us- these decisions are irreversible in our lifetime, have little economic benefit, and definitely have a heavy financial and health cost that seriously outweighs the economic benefit. Please listen to reason!	SO01
Sender Name (Submission ID)	Nancy Norr (47282)	
9293	The three public events were very well managed and provided the public with incredible resources. The web site information, fact sheets and videos have also raised the bar on how projects of complex and often controversial nature should be handled.	NEPA17
9294	A significant economic base for this region is and will remain mining. The growth of this industry is critical to the long term success of the region and will support a way of life for generations to come… As the public comment period for the project's Supplemental Draft Environmental Impact Statement (SDEIS) comes to a close, we are one step closer to bringing 360 full-time mining jobs to the Range and more than 600 spinoff jobs in other industries.	SO10
9295	Every development – from new office buildings to housing developments to airports to the highways that bring vacationers to northern Minnesota – impacts the landscape… Our former mines are now lakes that enhance our environment and by bringing mining companies and communities together, the Laurentian Vision Partnership guides future land use after mining closure.	LU07
9296	Copper-nickel mining will provide millions of dollars in local and state taxes to support our communities and educational systems and will create a domestic source for metals essential to our quality of life.	SO10
9297	Our state has some of the strictest environmental regulations in the country, and the environmental review process for the NorthMet project has been sound and thorough.	PER34
9299	Keeping jobs here and doing mining the right way is arguably the real definition of economic and environmental justice. It would be irresponsible to import these metals from countries that do not have strict environmental standards when Minnesota has the opportunity to mine responsibly.	SO10
14635	I see the no-action alternative.The "no-action alternative" is a death sentence for the communities of the east Iron Range. I don't know how you quantify empty storefronts and classrooms and boarded up houses. I don't know how you quantify families moving away.	SO10
Sender Name (Submission ID)	Nancy Pius (6178)	
1153	The SDEIS contains no cost/benefit analysis of the PolyMet mine.	SO04
1154	The SDEIS does not say whether wages paid to mine employees will stay in Minnesota or whether they will go primarily to transient employees who will spend only a fraction of their income in Minnesota.	SO04
1155	The SDEIS does not discuss the impact of the loss of jobs when the price of copper declines and mining becomes unprofitable	SO04
1156	The SDEIS fails to assess the cost of unemployment benefits and other social services, increased crime rates, and other societal costs associated with volatility in employment.	SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nancy Pius (6178)	
1157	The model used to calculate the alleged economic benefits of the mine does not take into account the costs to the environment; the displacement of other economic activity, including among other things tribal rights to hunt, fish, and gather under the 1854 Treaty; the infrastructure, government, and social service costs resulting from the mining; and the consequences of the unpredictable influx and outflow of mine employees.	SO04
1158	What would be the costs for public infrastructure, lost opportunities to engage in other economic activities incompatible with mining, depressed real estate values, lost recreational opportunities, social upheaval, and perpetual clean-up that the public would be required to bear?	SO04
1159	PolyMet admits that water pollution by sulfuric acid and heavy metals will last for at least 500 years.Not all of the polluted water will be captured for treatment.	WR021
1160	The SDEIS fails to adequately assess the long-term impacts of the pollution resulting from the release of this untreated water.	WR070
1161	The SDEIS fails to provide contingency plans for the kinds of failures and mishaps that routinely occur in mining operations.	PD22
1162	Pipeline spills, accidental releases, failure of water collection and treatment infrastructure, and tailings basins failures are virtual certainties.	PD22
1163	The SDEIS provides no details on the impacts to water quality, wildlife, or human health if the water treatment system ceases operations at some time during the 500+ years during which the polluted water is being discharged.	HU01, WR060, WR130
1164	Minnesota Rules 6132.3200 requires that the site must be maintenance-free at closure, but the PolyMet mining plan calls for at least 500 years of active water treatment.	PD02
1166	The SDEIS contains no credible information about the actual cost of monitoring, maintaining, and replacing the equipment needed to treat polluted water for 500 years or more. It provides no details about the nature or guarantees of a financial assurance scheme that would remain viable for 500 years	FIN01, FIN05, FIN11
1168	Finally, even though the SDEIS admits that water pollution will last for a minimum of 500 years, its financial assurance section is an exercise in generalities. The actual cost of water treatment, monitoring, maintenance, repair, and reclamation is completely unknowable. The SDEIS says that PolyMet estimates initial closure costs of up to $200 million, with post-closure monitoring and maintenance costs of up to $6 million annually.	FIN01, FIN05, FIN11
Sender Name (Submission ID)	Nancy Sampson (57214)	
17150	Let clean water be our legacy – not toxic pollution from mining!NO to PolyMet's 20 years of mining @ the headwaters of the St. Louis River – NO to 500 years of toxic runoff.	WR195
Sender Name (Submission ID)	Nancy Schultz (40897)	
6696	All the proposed methods in this SDEIS [to preform extraction of sulfide containing metals safely] are not new, and if they were, testing them in a highly sensitive wetland and environmentally rich native wild rice ecosystem sounds like a really bad idea. The consequences of polluting our water, with its highly varied flow patterns and rates system, is too great for the short term gains of a mining economy.	VEG04, VEG06, WET24
6703	Why doesn't the [SDEIS] require that the 939 acres of wetland being destroyed, at the very least be replaced with wetlands that do the same job and serve the same habitat and the same streams. It doesn't deliver this hence destroying 68% of the wetlands by not having them associated with the Lake Superior Basin at all.	WET03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nancy Schultz (40897)	
6706	The SDEIS admits that the sulfide mine will directly destroy 913 acres of wetlands. It then says that as much as another 7,351 acres of wetlands could be lost due to pollution and changes to water patterns in the mina dn tailings site. Why aren't there alternatives provided in the SDEIS to avoid or minimize this wetlands loss?	WET20
6715	PolyMet sulfide mine tailings will be stored on top of the old, already leaking, LTV tailings dump. This site is an unlined pile about two miles across set on top of peat and streams. It was built for taconite, not for sulfide mining, at a time when they wanted tailings piles to leak so they would be less unstable. There will be no liner under the new sulfide mine tailings. This tailings pile will need to be treated forever, how do you put a cost and sureties on forever?	FIN05, FIN11
6717	When flooding occurs during the 10 and 100-year rains, why isn't there a plan or indication of impacts for how the waste area will impact the waters when this massive acres of waste storage is flooded?	WR130
6725	The tailings basin is proposed to be completely unlined, there is no indication that fractures beneath the tailings site would transport pollutants, which is completely unrealistic…Existing tailings seepage already exceeds groundwater standards. In addition, on the LTV site, adjacent to the tailings, the SDEIS has documented that Area of Concern #8 has plume of pollution propagating through fractures. How did PolyMet arrive at the assumption that seepage will not happen through these fractures?	WR010, WR012, WR070
6728	Why isn't there an analysis done on the levels of manganese and lead that will in all likelihood make their way into the drinking water wells? Levels downstream of the tailings basin already indicate they have high levels of toxic metals. What will happen when we introduce a tailings pile? How does this risk get managed without some sort of analysis and benchmarking?	WR204
6743	The SDEIS claims that PolyMets sulfide mine pits, waste rock piles and tailings won't significantly increase water pollution. But to make that claim, PolyMet assumes waste rock piles won't seep to the 100 Mile Swamp, that there are no fractures under waste rock or under tailings or in mine pits and that a few pumps can collect more than 99% of the seeps from huge tailings dump. There isn't a mine on the the planet that works this way	PD03, WR007, WR008, WR010, WR012, WR019, WR020, WR080, WR167
6745	Why are there no predictive amounts of mercury pollutions that will be coming from the PolyMet tailings in the SDEIS?	MERC20
6747	The potential greenhouse gas emissions from the PolyMet sulfide mine and processing facility are staggering. It is stated that 7,07efw metric tons per year will occur.	AIR01
6748	The fact that no cumulative effects analysis of mining has been done is another indication of how disconnected this SDEIS is in dealing with how integrated ecosystems function. How does PolyMet plan on dealing with the impact of mercury contamination of fish in the St. Louis River estuary, and the habitats and tribal resources in the region?	CR01, CR03
10436	The consequences of polluting our water, with its highly varied flow patterns and rates system, is too great for the short term gains of a mining economy.	SO01
10444	Why doesn't the statement require that the 939 acres of wetland being destroyed, at the very least be replaced with wetlands that do the same job and serve the same habitat and the same streams.	WET05
10446	The SDEIS admits that the sulfide mine will directly destroy 913 acres of wetlands. It then says that as much as another 7,351 acres of wetlands could be lost due to pollution and changes to water patterns in the mina dn tailings site. Why aren't there alternatives provided in the SDEIS to avoid or minimize this wetlands loss?	WET20

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nancy Schultz (40897)	
10447	When flooding occurs during the 10 and 100-year rains, why isn't there a plan or indication of impacts for how the waste area will impact the waters when this massive acres of waste storage is flooded?	WR130
10448	There will be no liner under the new sulfide mine tailings. This tailings pile will need to be treated forever, how do you put a cost and sureties on forever?	FIN05, FIN08
10458	on the LTV site, adjacent to the tailings, the SDEIS has documented that Area of Concern #8 has plume of pollution propagating through fractures. How did PolyMet arrive at the assumption that seepage will not happen through these fractures?	WR010
10461	Why isn't there an analysis done on the levels of manganese and lead that will in all likelihood make their way into the drinking water wells? ... How does this risk get managed without some sort of analysis and benchmarking?	WR142
10464	Why are there no predictive amounts of mercury pollutions that will be coming from the PolyMet tailings in the SDEIS?	MERC20
10467	How does PolyMet plan on dealing with the impact of mercury contamination of fish in the St. Louis River estuary, and the habitats and tribal resources in the region?	AQ05, WI02
10552	All the proposed methods in this SDEIS are not new, and if they were, testing them in a highly sensitive wetland and environmentally rich native wild rice ecosystem sounds like a really bad idea. The consequences of polluting our water, with its highly varied flow patterns and rates system, is too great for the short term gains of a mining economy.	SO01, WR070
10560	Why doesn't the statement require that the 939 acres of wetland being destroyed, at the very least be replaced with wetlands that do the same job and serve the same habitat and the same streams.	WET05
10563	Why aren't there alternatives provided in the SDEIS to avoid or minimize this wetlands loss?	WET20
10565	When flooding occurs during the 10 and 100-year rains, why isn't there a plan or indication of impacts for how the waste area will impact the waters when this massive acres of waste storage is flooded?	WR130
10569	There will be no liner under the new sulfide mine tailings. This tailings pile will need to be treated forever, how do you put a cost and sureties on forever?	FIN01
10575	The tailings basin is proposed to be completely unlined, there is no indication that fractures beneath the tailings site would transport pollutants, which is completely unrealistic....How did PolyMet arrive at the assumption that seepage will not happen through these fractures?	WR010
10579	Why isn't there an analysis done on the levels of manganese and lead that will in all likelihood make their way into the drinking water wells?..What will happen when we introduce a tailings pile? How does this risk get managed without some sort of analysis and benchmarking?	WR142
10584	Every copper-nickel mine has created acid mine drainage and/or toxic metals pollution. Somehow the SDEIS team decided PolyMet mystical powers to claim that there system will work perfectly – forever.	WR023
10587	Why are there no predictive amounts of mercury pollutions that will be coming from the PolyMet tailings in the SDEIS?	MERC20
10591	The potential greenhouse gas emissions from the PolyMet sulfide mine and processing facility are staggering. What measures are bring another level of damage to our environed on a path of sustainable alternatives?	AIR01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nancy Schultz (40897)	
10598	The fact that no cumulative effects analysis of mining has been done is another indication of how disconnected this SDEIS is in dealing with how integrated ecosystems function. How does PolyMet plan on dealing with the impact of mercury contamination of fish in the St. Louis River estuary, and the habitats and tribal resources in the region?	MERC10
16611	Ultimately a sustainable business practice is a closed loop systems that has no waste/pollution.… To move us in this direction, we should not be taking risks that have irreparable damage and depend on quality control processes that must be in place forever.	PER04
16612	Every copper-nickel mine has created acid mine drainage and/or toxic metals pollution. Somehow the SDEIS team decided PolyMet mystical powers to claim that there system will work perfectly – forever.	PD29
16613	There isn't a mine on the the planet that works [the way PolyMet describes it will], does the DNR really believe this claim?	PD26
16614	The potential greenhouse gas emissions from the PolyMet sulfide mine and processing facility are staggering. It is stated that 7,07efw metric tons per year will occur. As mentioned in my introduction, this is not a sustainable business proposition, quite the opposite. What measures are bring another level of damage to our environed on a path of sustainable alternatives?	AIR01
16615	The fact that no cumulative effects analysis of mining has been done is another indication of how disconnected this SDEIS is in dealing with how integrated ecosystems function.	NEPA04
16992	PolyMet assumes waste rock piles won't seep to the 100 Mile Swamp, that there are no fractures under waste rock or under tailings or in mine pits and that a few pumps can collect more than 99% of the seeps from huge tailings dump.	WR010, WR011, WR012, WR017, WR018, WR019, WR023, WR060, WR061, WR071, WR080, WR087, WR090, WR099, WR108, WR167, WR168, WR169, WR175
Sender Name (Submission ID)	Nancy Songer (39187)	
12335	If you approve a faulty water model, inaccurate water flow assumptions, and all the other problems inherent in the PolyMet NorthMet SDEIS, you will be sentencing current and future humans (not just Minnesotans!) to a legacy of poisoning in the foundation of all life, water.	WR015
Sender Name (Submission ID)	Nancy Youngdahl (10790)	
8634	I am also concerned about the Moose population impact and the effect on wild rice production.	VEG04, WI01
Sender Name (Submission ID)	Natalie Duncan (44813)	
7311	[The mining project is certain to create] the destruction of the habitats of Minnesota's wildlife	WI02
7312	[The mining project is certain to create] irreversible and indisputable damage to the nearby water sources	WR115
7314	They also say that many jobs will be reared. In reality, it is only around 350 jobs and in the long-run these jobs are not solutions to the job crisis.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Natalie Fine (48187)	
14400	Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years.	WR035, WR070
14402	Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill.	PD22
14420	If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects.	WR156
14421	The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks…	FIN10
Sender Name (Submission ID)	Natalie Griffith (58102)	
19938	Inadequate mitigation designation for controlling solute concentrations above class 2135.	AQ13
19966	Replacement Wetlands have not been demonstrated to be of equal quality to original for support of vertebrae and invertebrate life and effect on water quality, run off, and re-charging water table – regardless of replacement credits.	WET05
19971	Sustained reduced stream flows do not have the same impact on aquatic life, [ILLEGIBLE] envisions, and wildlife causing them a seasonal fluctuations.	WR065
Sender Name (Submission ID)	Natalie Hoidal (47018)	
10903	As you are well aware, sulfates and sulfides are incredibly toxic under the proper conditions, primarily in wetlands. If anything were to go wrong with this project as sulfides were to leak faster or in greater quantities than expected, the surrounding habitats would be forever lost. Sulfides are directly toxic to the arenchyma tissue of aquatic plants like wild rice.	WR001, WR156
10905	In addition, while the project will inevitably create jobs, the wild rice in its proximity also supports the livelihoods and cultural identity of hundreds of individuals. If this company impacts the wild rice, will the jobs be worth it?	CR01
10907	Secondly, the EPA estimates that Americans only recycle 25% of their electronics. This means that as we stand currently, there is no need to mine these metals. We already have abundant metals in our homes and in landfills. Before mining, why don't we set up better recycling programs (which would create jobs) and prove that we actually know how to use our resources before exploiting our fragile ecosystems for more?	NEPA06
10908	In addition, the fact that Polymet has asked the state to reconsider the sulfide standard, which has been universally accepted in the scientific community since John Moyle's discovery of sulfide toxicity in wetlands in the 1930s and 40s, begs the question of whether or not it is truly in Polymet's best interest to follow our state's standards.	AQ13
10909	Minnesota has great regulations, but Polymet does not. Their subsidiary Glencore has a horrible human rights record as well as a poor environmental record. The company has no financial incentives to invest in keeping Minnesota clean and beautiful, to employ local workers, or to keep the money generated in our communities.	SO02
16711	Polymet admits in its plan that 1600 acres of wetlands will be impaired by the process, which will lead to the destruction of current habitat, but will also allow more invasive species to take hold, which will have impacts far beyond the 1600 acres.	WET24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Natalie Holdal (18186)	
3986	There is a need for these metals. But these metals already exist. The EPA estimates that only 25 percent of our electronics are actually recycled. And so it seems a little bit wasteful that we are continuing to mine for more when we haven't figured out how to use the ones that we already have.	ALT09, ALT16
3987	...wild rice is incredibly fragile. And if anything goes wrong with this proposal, the wild rice that brought people to Northern Minnesota in the first place, and that continues to sustain the livelihood and the cultures of thousands, maybe hundreds, of people, if that is destroyed, then this project is completely disastrous.	VEG04
Sender Name (Submission ID)	Natalie Obee (9619)	
230	The economic sustainability of our natural environment and the tourism dollars that that environment makes possible should take precedent over any potential, short-term gains from the mine.	SO01
1332	The other issues notwithstanding, the potential 500-year clean up and the undetermined nature of who pays for that clean up, are reason enough to not green light this project.	FIN01
Sender Name (Submission ID)	Natalie Steen (39911)	
14291	The Boundary Waters is an exceptionally rare place and this mine could have irreversible consequences on one of the most unique places in Minnesota.	WILD02
Sender Name (Submission ID)	Nathan Anderson (10885)	
8646	Aquifers can be affected when climate change is accurately assessed particularly when observed under a worst case scenario basis.Please analyze the impact of mining under the conditions of flood and drought…	WR180
13775	the same worst case scenario basis as is adopted by the EPA for the purposes of public safety and prevention of exposure to lead [should be applied to the Project].	HU01
Sender Name (Submission ID)	Nathan Keller (38824)	
16831	Their are other ways to create jobs and make money don't do it while destroying something we will not be able to recreate.	SO01
Sender Name (Submission ID)	Nathan Mielke (1777)	
12484	What are the tax benefits of sulfide mining?	SO04
12487	And what about the 300 jobs PolyMet suggests we'll get in return? Even under the rosiest scenario, total mine payroll over 20 years would be a small fraction of the $2.8 billion cost of treating pollution for 500 years. Who is going to pay that $2.8 billion? It hardly seems likely that the $150 million financial assurance bond PolyMet has proposed would even come close.	SO01
12488	The corporation stands to profit if PolyMet is permitted; shouldn't it also be responsible for the cost of cleaning up the mess left behind if things go wrong?	FIN01
12489	Minnesota taxpayers would be saddled with the aftermath virtually forever. We need more financial transparency on this issue -- and fast.	FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nathan Mielke (1777)	
13788	the long-awaited Supplemental Draft Environmental Impact Statement has now been released that could lead to the permitting of Minnesota's first copper-nickel mine, an industry the Environmental Protection Agency has pegged as one of the nation's most polluting.	PER35
13790	PolyMet acknowledges its mine wastes would generate pollution for 500 years.Its long-term treatment plan calls for two reverse-osmosis plants. The Barr report indicates these plants would cost about $20 million each to build and $2 million each per year to operate over a 20-year lifespan. If both plants ran 500 years, operation and replacement costs would total $2.8 billion.That $2.8 billion is just a portion of the true cost of a site generating polluted water for centuries. The Barr report on PolyMet's water treatment doesn't include monitoring expenses and disregards future escalating costs. It does suggest a contingency cost should be included (for technical failures, clean-up of seepage, etc.). So the final tab is likely to be many times the $2.8 billion. (Water-quality scientists with the Grand Portage tribe calculate PolyMet clean-up at $90billion.)	FIN05, FIN08, FIN11, WR037
13795	Because PolyMet has no assets other than the mine, if the deep-pocket parent company is not included on the permits, Minnesota will have no access to assets other than an abandoned, polluted mine site. Glencore Xstrata, PolyMet's "strategic partner," owns nearly a third of the company's stock and the first five years of metals if PolyMet is permitted. Glencore is a multibillion-dollar Swiss corporation chaired by former BP CEO Tony Hayward, whose environmental record is infamous around the world. The corporation stands to profit if PolyMet is permitted; shouldn't it also be responsible for the cost of cleaning up the mess left behind if things go wrong?	FIN01, FIN02
13797	Otherwise our grandkids will be left wondering why we let foreign mining investors take such huge advantage of "Minnesota nice" at the expense of countless generations to come.	SO06
Sender Name (Submission ID)	Nathan Peters (9538)	
182	New water modeling is absolutely necessary	WR086, WR093, WR105, WR106, WR189
183	500 years of monitoring and water treatment are ridiculous burdens for the state to take on.	WR115, WR128
955	The head of the parent company that owns PolyMet is Tony Hayward, the former head of BP. He is the chairman of CompactGTL. He was at the helm when BP committed the largest crime against the Earth and against humanity as its Deepwater Horizon rig burst into flames and spewed oil for months.In short, PolyMet cannot be trusted.	PER02
Sender Name (Submission ID)	National Parks Conservation Association (42888)	
9024	Given the narrow view taken in the SDEIS of “reasonably foreseeable,” the SDEIS fails to include in its Cumulative Effects analysis 11 other projects by mining companies in the region… TMM must be considered in the cumulative effects analysis because of the geographic and temporal proximity to the NorthMet mine.	CU02
12110	The SDEIS should consider cumulative impacts on Lake Superior and the St. Louis River.	CU01
12166	The SDEIS fails to include in its Cumulative Effects analysis, 11 other projects by mining companies in the region. However, the analysis must be expanded to include consideration of some of these projects, particularly the proposed Twin Metals Minnesota (TMM) underground sulfide mine.	CU02
12174	The SDEIS essentially acknowledges there will be an increase of mercury and sulfate loadings to tributaries of the St. Louis River. The SDEIS should not rely on a series of offsets to exclude the St. Louis River, but instead it should undertake a thorough analysis of the negative impacts the project will have on the individual downstream lakes and tributaries to the St. Louis River and the resultant impacts to the river and lake.	WR024

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	National Parks Conservation Association (42888)	
12181	The NorthMet project will be contributing a new source of air pollution in an already degraded area. Given that none of the nearby impacted Class I areas are on track to meet regional haze visibility goals, and that violations of the one hour standards for nitrogen oxides (Nox) and sulfur dioxide (SO2) are shown in cumulative modeling, any new emission sources that contribute to these problems should be carefully considered, even if the predicted impacts are small.	AIR09
12182	The cumulative visibility analysis (Section 6.2.3.8.7) is out of date and should be updated. The SDEIS fails to account for the Federal Implementation Plan issued by the U.S. Environmental Protection Agency in 2013 for emissions from taconite facilities, and does not include available visibility data from 2011 for nearby Class I areas.	AIR08
Sender Name (Submission ID)	Ned Bouril (39710)	
6539	...the basic tenets of the current PolyMet Mine project and its inadequate SDEIS proposal beg credulity on an epic scale. Even if every proposed detail of every phase of this project were to be flawlessly implemented for even the first 100 years of the proposed 500, there cannot possibly be any reasonable belief that "we" could predict that the subsequent 400+ years of sulfide mining pollution remediation would continue without issues as planned	PD03
6540	...in the SDEIS, the lack of any substantive financial assurances designated for any toxic seepage which may escape the mine site boundaries or its intended storage facilities should be enough of a red flag to halt and abort this excursion into the absurd.	FIN13
6541	...just the logistics of this proposal alone are incredulous, as it has all of the earmarks of a classic "cut and run", in this case most likely realized by some form of an "unanticipated" bankruptcy, leaving not PolyMet, but the State's citizens to pick up the pieces financially	FIN01, FIN10
6542	... on a geo-political level, is it not possible that the bulk of the extraction profits will not only be leaving MN but most likely the USA as well, via the mufti-national PolyMet parent investor Glencore and its partner Xtrata? And after trading 20 years of temporary employment for 500 years of toxic remediation, who, ultimately will benefit from this arrangement?	SO06
6543	… to those who piously declare that it is our own techno-centric culture which is the primary force driving the need for further exploration and extraction of these minerals so necessary to make our electronic gadgets (gizmos) run well, I would ask them to review current metal recycling technologies and their ensuing economies as implemented in many industrialized countries as well as revisit the phenomenon of commodity stock piling and the boom & bust cycles created by international commodity price fluxuations.	NEPA06
6544	... the world of the "extraction industries" has for decades been awash in technical mishaps, catastrophic failures, and the willingness to violate multiple federal, state, provincial, and local safety/health codes and laws, often resulting in the permanent devastation of pristine lands and/or natural resources and the toxification and displacement of local populations.	SO01
6545	I would ask you deny approval of this particular mine as planned in the SDEIS and consider instituting a permanent moratorium on hard rock sulfide mining in the 3 watersheds of the MN Range area.	PER25
6880	Even if every proposed detail of every phase of this project were to be flawlessly implemented for even the first 100 years of the proposed 500, there cannot possibly be any reasonable belief that "we" could predict that the subsequent 400+ years of sulfide mining pollution remediation would continue without issues as planned.	PD01
6881	... in the SDEIS, the lack of any substantive financial assurances designated for any toxic seepage which may escape the mine site boundaries or its intended storage facilities should be enough of a red flag to halt and abort this excursion into the absurd.	FIN13

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ned Bouril (39710)	
6882	...the logistics of this proposal alone are incredulous, as it has all of the earmarks of a classic "cut and run", in this case most likely realized by some form of an "unanticipated" bankruptcy, leaving not PolyMet, but the State's citizens to pick up the pieces financially.	FIN01, FIN10
6883	... is it not possible that the bulk of the extraction profits will not only be leaving MN but most likely the USA as well, via the mufti-national PolyMet parent investor Glencore and its partner Xtrata? And after trading 20 years of temporary employment for 500 years of toxic remediation, who, ultimately will benefit from this arrangement?	SO06
6885	... to those who piously declare that it is our own techno-centric culture which is the primary force driving the need for further exploration and extraction of these minerals so necessary to make our electronic gadgets (gizmos) run well, I would ask them to review current metal recycling technologies and their ensuing economies as implemented in many industrialized countries as well as revisit the phenomenon of commodity stock piling and the boom & bust cycles created by international commodity price fluxuations.	NEPA06
6888	... the world of the "extraction industries" has for decades been awash in technical mishaps, catastrophic failures, and the willingness to violate multiple federal, state, provincial, and local safety/health codes and laws, often resulting in the permanent devastation of pristine lands and/or natural resources and the toxification and displacement of local populations.	SO02
6889	... why would the MNDNR be willing to approve this pristine watershed to be ground zero for what is clearly an ill-conceived and unproven "experiment" in post-peak mineral extraction technologies.	PD32
6891	I would ask you deny approval of this particular mine as planned in the SDEIS and consider instituting a permanent moratorium on hard rock sulfide mining in the 3 watersheds of the MN Range area.	PER25
13359	To reiterate the spirit of many comments from previous public forums, the basic tenets of the current PolyMet Mine project and its inadequate SDEIS proposal beg credulity on an epic scale.	NEPA15
13360	For example, in the SDEIS, the lack of any substantive financial assurances designated for any toxic seepage which may escape the mine site boundaries or its intended storage facilities should be enough of a red flag to halt and abort this excursion into the absurd.	FIN08
13363	And on a geo-political level, is it not possible that the bulk of the extraction profits will not only be leaving MN but most likely the USA as well, via the mufti-national PolyMet parent investor Glencore and its partner Xtrata	SO06
13366	And to those who piously declare that it is our own techno-centric culture which is the primary force driving the need for further exploration and extraction of these minerals so necessary to make our electronic gadgets (gizmos) run well, I would ask them to review current metal recycling technologies and their ensuing economies as implemented in many industrialized countries as well as revisit the phenomenon of commodity stock piling and the boom & bust cycles created by international commodity price fluxuations.	NEPA06
13367	Globally, the world of the "extraction industries" has for decades been awash in technical mishaps, catastrophic failures, and the willingness to violate multiple federal, state, provincial, and local safety/health codes and laws, often resulting in the permanent devastation of pristine lands and/or natural resources and the toxification and displacement of local populations.	PER35
14880	Since the proposed PolyMet mining techniques have never been successfully implemented anywhere else globally, why would the MNDNR be willing to approve this pristine watershed to be ground zero for what is clearly an ill-conceived and unproven "experiment" in post-peak mineral extraction technologies.	PD26
Sender Name (Submission ID)	Ned Gatzke (31952)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ned Gatzke (31952)	
13839	Mining pollution does not go away and compromises environmental quality for short term profits that do not benefit local communities.	SO01
13840	There is no evidence anywhere that sulfide host rock mining can be accomplished in an environmentally responsible manner. The minimum standard for Wisconsin metallic mineral mining in sulfide ore bodies is evidence of no pollution in ten years of operation and after ten years of abandonment. No permit applicant has been able to show evidence of either of these standards anywhere in North America.	PER35
Sender Name (Submission ID)	Nedra Nicholls (12203)	
8857	In that all water flows north there to the Canadian Border, and then on to Lake Superior...it will make a... will be the end of canoeing in that beautiful area.	LU06
Sender Name (Submission ID)	Neil Billington (23599)	
10281	We're not only talking about the dangerous effects of Sulfide mining and Acid Mine Drainage in Minnesota, we are also talking about the affects it will have on ALL Other Surrounding and Connecting Areas, like Michigan and Canada.	CU06
Sender Name (Submission ID)	Neil Gardner (40614)	
14263	Repair the errors & omissions. This is the precedent for perhaps many more . Take the time to do it right again. For as long as it takes. Plenty of poor stewardship worldwide as examples done wrong by same few multinational companies.	NEPA09
Sender Name (Submission ID)	Neil R Gardner (54548)	
19197	Sulfide mining has never worked without polluting. Why would we do this—particularly by a national treasure like the BWCA?	WILD02
Sender Name (Submission ID)	Nell Bartzen (44523)	
10771	Is the technology there to reap the benefits of Minnesota’s expansive mineral deposits while protecting the diverse but unique land of northern Minnesota? Based on the SDEIS, the answer remains no.	PD32
10775	Let’s wait for a proposal that can uphold the instant ideal of my generation. When the mine closes, after 20 years of operation, that should be the end of it.	PD01
10777	If the minerals are worth enough to the Swiss-based Glencore company and Canada's PolyMet, they should create the technology that allows instant purification of byproducts to a environmentally stable state.	PD32
10779	We cannot sign onto something where the detrimental effects and harm to the environment last longer the presence of the industry.	SO01
10785	10% of groundwater seepage that the company is saying they have no means, or no interest, in capturing, and that coming from a junior mining company that has never operated a mine before.	WR018
Sender Name (Submission ID)	Nels Ojard (7185)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nels Ojard (7185)	
544	it is my belief that the science of the study and its reflection on the natural environment and communities of the area reflect the best available science, engineering, and impact/benefit analysis available to the process.	PD28
Sender Name (Submission ID)	Nenagh O'Leary (54199)	
17248	The boundary waters are a beautiful area for family's and camp companies can go to enjoy the outdoors, it's a place to make memories, why build a mine and effect family bonding,	LU04
Sender Name (Submission ID)	New Progressive Alliance (3384)	
204	PolyMet would create polluted water requiring expensive treatment for hundreds of years after they stop mining, and millions of gallons of untreated, polluted water would seep from the site every year into groundwater and nearby rivers.	WR037, WR129
205	PolyMet's plan fails to plan for contingencies like pipeline breakages and extreme weather events. Experience has proven these are inevitable.	PD22
206	Will the company leave the site clean and maintenance free?	PD01
207	Will Minnesota taxpayers be protected? Again, absolutely not! This involves a trade of 20 years of mining for perhaps centuries of monitoring, treatment of polluted water, and site maintenance.	FIN01, FIN08, FIN10, FIN11
Sender Name (Submission ID)	Newood Gilk (7167)	
14998	The PolyMet SDEIS is still inadequate. It makes claims without facts behind them.	NEPA15
14999	[The PolyMet SDEIS is still inadequate.] It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells.	HU04
15000	[The PolyMet SDEIS is still inadequate.] It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands.	ALT13
15001	[The PolyMet SDEIS is still inadequate.] It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish.	AQ28
15002	The PolyMet sulfide mine… waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children.	HU03
Sender Name (Submission ID)	Nic Kramer (44374)	
10426	you say you will monitor the mine for about 200 - 500 years, where will this money come from?	FIN01
10427	One main reason is the risk you are putting towards harming the boundary waters, which are a huge aesthetic haven for both Minnesotans and people visiting Minnesota.	WILD02
Sender Name (Submission ID)	Nicholas Banovetz (47254)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nicholas Banovetz (47254)	
11531	Will our children be able to swim in Birch Lake if we keep the cabin? Will they be able to eat the fish they catch? Will we be able to drink the water coming out of the kitchen faucet?	WR081
16925	I know mining well and understand the "need" in the Arrowhead.However, I also understand that sulfide mining is drastically different than taconite mining, and that our waters are in jeopardy.	WR195
16926	I've seen very little in the news about the affect sulfide mining could have on area real estate. While my example is anecdotal, I believe it speaks volumes.	SO03
19187	From a nostalgic/family history AND real estate perspective, is the state confident that our cabin/Birch Lake are safe? How? I'm very concerned.	WR081
Sender Name (Submission ID)	Nicholas Bowlin (54543)	
19177	I'm writing because I think the BWCA is special and that the Poly Met mine poses a serious threat to the wilderness of Northern Minnesota. It is largely untouched by humans, and there are few places like that left.	WILD02
Sender Name (Submission ID)	Nicholas Eltgroth (43321)	
15751	The pollution [the PolyMet project] will generate will destroy our water and the surrounding land.	WR111
Sender Name (Submission ID)	Nicholas James Stephan (9569)	
209	Could you please explain how "capturing and treating affected water using mechanical and/or non-mechanical methods for as long as needed" will truly protect surface waters located near the site, and how far off site will monitoring take place?	WR035
1316	What type of vegetation will be planted in the reclamation areas and will it all be vegetation native to Minnesota?	VEG05
1317	How effective or what is the efficiency of the "covers" that will be used to protect water seepage from getting into the rock stockpiles, tailings basin, and hydrometallurgical residue facility?	PD04
1319	What is a hydrometallurgical residue facility?	PD18
1320	How will storm water be managed to prevent erosion and pollution flowing off site?	PD04, WR176
1321	What kinds of pollution, toxins or other harmful chemicals could potentially become released into the environment (please supply list)?	AIR10, WR025
1323	Regarding the destruction of wetlands, what is the approximate size in hectares that your company intends to destroy?8. How does your company intend to "establish new wetlands?"	WET04, WET07
1325	According to your financial assurance plan, you estimate that roughly $200 million will adequately compensate environmental contamination and the destruction of numerous ecosystems. How did your company determine $200 million would be adequate? What method did your company use to place a price on nature?	FIN05, FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nicholas James Stephan (9569)	
1326	Will you be mining in an aquifer or groundwater?13. How will the water be captured for treatment?14. What additional methods will your company employ to minimize hydrological impacts?	PD05
1327	Regarding erosion, in what quantities or volumes of sediment does your company anticipate could potentially contaminate surface water?	WR191
Sender Name (Submission ID)	Nicholas Lamon (11586)	
2246	It appears the plant will produce a lot of waste water which will need to be cleaned up for many years. How will this pollution be contained?	PD04, WR130
2246	It appears the plant will produce a lot of waste water which will need to be cleaned up for many years. How will this pollution be contained?	SO02, WR037, WR128, WR143, WR144
2247	Who will pay for accidents/clean-up? I believe in the end the tax payers will foot the bill for a company to profit.	FIN01, FIN10
2247	Who will pay for accidents/clean-up? I believe in the end the tax payers will foot the bill for a company to profit.	HU03, WR042, WR115, WR195
Sender Name (Submission ID)	Nicholas Larkins (38707)	
4470	PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to.	WR195
4471	Every year,11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated.	WR070
4473	Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions.	WR044, WR049, WR172, WR173, WR174
4475	There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills.	PD22
4476	During operations, over 6.2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down.	PD22
4477	The plan for at least 500 years of active water treatment violates Minnesota Rules (6132.3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure.	PER04
4478	Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much500 years of water treatment will cost, how the company will be held responsible for centuries of costly water treatment, or how the public will be protected from liability.	FIN01, FIN05
Sender Name (Submission ID)	Nicholas Legg (44013)	
7575	It is also important that we consider the costs of extraction and realize that our demand [for copper-nickel] must be met pragmatically. Certain landscapes, like those of northeast Minnesota, are too sensitive to the negative side effects of sulfide mines. The risks are just too great.	NEPA06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nicholas Legg (44013)	
7578	The enormous amount of money proposed to be held for future cleanup alone demonstrates the environmental risks. When compared to the relatively few jobs created, it is clear Minnesotans collectively stand to lose much more than they will gain from mining.	SO01
15055	I cherish the woods and waters of the northeastern Minnesota, a connection I know is shared by many around the world. But protecting some of our most prized landscapes is not only about those who know its value, it is about protecting the resource for those who have yet to discover it.	GEN01
15056	Your decision will set a precedent for sulfide mines proposed in northern Minnesota's future. Therefore, the burden of proof that mining will cause no lasting harm must be greatest now.	PER07
Sender Name (Submission ID)	Nicholas Loch (6102)	
1033	I understand the short term benefits for the economy and the jobs this project would provide, the long term effects will have a negative impact on the environment, and these negative effects far outweigh the positive ones.	SO01
1034	The perennial tourist dollars these natural wonders bring must not be put in jeopardy!!!	SO04
1035	Copper mining unleashes hazardous materials for hundreds or thousands of years and will pose a direct threat to the natural wonders, the tourism, and the economic viability of the region.	SO02
1036	If people need jobs, then lets find a way to get them jobs preserving the environment, rather than destroying it.	SO02
1037	Once the precious metal is gone we will have a cesspool that poisons the surrounding area, and no techniques for being careful or mitigating the leaching of hazardous material will be successful enough to prevent that from happening.	PD32
Sender Name (Submission ID)	Nicholas Olson (47352)	
12232	It brings me great concern to think that the Minnesota and the BWCA is going to be threatened by a short sighted mining project that uses job creation as its major selling point to our state. I can think of a lot of other places in which job creation would have a greater overall impact to our state and at the same time directly improve our environment.	SO01
12233	I want to make sure that Minnesota's waters, especially those of the BWCA are kept pristine and clean for their enjoyment and exploration.	WILD02
12239	Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats.	WR115
16943	On a related note, this is also a racial justice issue. The direct impact on wild rice should be enough to stop this project immediately.Let's not continue our legacy of racial injustice by destroying a sacred food source of our Ojibwa community.	CR01
Sender Name (Submission ID)	Nicholas Rowse (47831)	
12766	The proposed mine would cause severe degredation to NEMN & the BWCA.	WILD02
Sender Name (Submission ID)	Nicholas W Illegible (11567)	
2211	Never a clean mine site yet. No proof of any companies being able to do so in this country	PD26

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nicholas W Illegible (11567)	
2211	Never a clean mine site yet. No proof of any companies being able to do so in this country	PD26
2212	Waterways of our region are precious – Increasing the sulfide load on this large resource will degrade the habitat and it is then unrepairable	WR115, WR195
2212	Waterways of our region are precious – Increasing the sulfide load on this large resource will degrade the habitat and it is then unrepairable	WR154, WR156
2213	Cleaning this waste water for 100's of years is hard to believe when the use is projected for 20 years. No logical train exists with these thoughts	WR035
2213	Cleaning this waste water for 100's of years is hard to believe when the use is projected for 20 years. No logical train exists with these thoughts	WR035
3239	The health of our citizens is paramount. The health of our environment is our future. This type of mining does not fit into our good future.	SO02
3239	The health of our citizens is paramount. The health of our environment is our future. This type of mining does not fit into our good future.	SO02
Sender Name (Submission ID)	Nick Bougalis (10073)	
331	The project is necessary for our regional economy.	SO10
Sender Name (Submission ID)	Nick Boyd (3959)	
703	Based on a 2010 survey of U.S. miners' salaries, providing 360 jobs over 20 years would yield a total of about $275,000,000 in pay. The cost of cleanup to taxpayers of similar sulfide mines across the United States in several cases has surpassed 225 million dollars. The ecotourism that this region benefits from could also be negatively affected in the long run. With all these points considered, is the allure of the monetary benefits of sulfide mining still validated?	SO01
Sender Name (Submission ID)	Nick Loch (19969)	
1562	The locals that work on the job may benefit for a little while, however, in the long run this project will have a disastrous impact on the natural wonders that are the most important economic resource for Northern Minnesota.	SO01
Sender Name (Submission ID)	Nick Rowse (47703)	
7978	The SDEIS states that blasting noise, which is intermittent or non-continuous, is not included in the noise level estimates because mine-blasting is typically an instantaneous event only occurring during daytime periods. The impacts of any noise generated by the proposed project needs to be presented and analyzed in the SDEIS.	N05
7984	In 2013, the USFWS proposed the northern long-eared bat for listing as endangered under the ESA. As there is likely roosting habitat within the forested areas of the proposed mine site, the SDEIS should address impacts to this species...No information was provided in the SDEIS to make assessments about the impacts of the proposed project to northern long-eared bats.	WI01, WI02
7990	In the Economic Assessment of the Underground Mining Option, a 2012 report [concluded] that underground mining would not be economically feasible, [which] seemed only to be based on metal prices and similar operations elsewhere. No information was provided in the SDEIS that valued the impacts to recreation on USFS lands both at the project site and within the nearby federally designated wilderness area.	SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nick Rowse (47703)	
7999	The information regarding financial assurances for the proposed project are inadequate for the purposes of making any decisions regarding mine operations and closure in the SDEIS...The preliminary cost estimates for mine close do not appear to be based on actual data and the time frames used (up to 20 years) are conjecture.	FIN05
8007	Allowing private surface mining would be inconsistent with USFS legal mandates for acquiring and managing these lands. This legal issue must be resolved prior to the project being authorized by the USFS.	LAN02
8031	As the IRRRB is under control of the Minnesota Legislature, it is inconsistent with both the [NEPA] rules and [MEPA] rules that significant monetary resources have been put towards the [proposed land exchange and the] development of this proposed project by PolyMet prior to a Record of Decision by the USFS and the U.S. Army Corps of Engineers; along with the [MDNR].	NEPA08
11133	Canada lynx, which are currently listed as federally threatened under the Endangered Species Act (ESA), were documented in 2010 by the USFS and the U.S. Fish and Wildlife Service (USFWS) within the proposed mine site. Only the USFS was mentioned by the SDEIS.	WI01
11136	The BWCAW needs to be completed protected from any noise impacts, which would degrade the experience of wilderness travel.	N02
Sender Name (Submission ID)	Nick Voss (16254)	
1479	I want to see, right up front on the Polymet website, concrete, set dollar amounts of how much money they're putting down upfront to protect Minnesota's environment. This should be coupled with a set number of years they'll stay committed after the mining project concludes.	FIN01, FIN05
1480	Something else that would be beneficial would be a statement of their in-depth ecological understanding of the area. However this understanding mustn't simply come from a Polymet expert, but should be documented to be in cooperation with the DNR, the EPA and the MPCA.	VEG09
Sender Name (Submission ID)	Nick Wharton (45237)	
9039	The risk to water quality is too high no matter how much metal is in the ground.	WR111
9044	At the moment, the technology that the mining companies use has proven to make its shareholders rich and the local people and environment poorer afterwards.	SO02
9057	The jobs it creates will come and go as all the others have and they will lie to the workers about their safety and their families safety.	SO02
Sender Name (Submission ID)	Nickolas Felten (40201)	
6637	Yes, the mine will provide more jobs. However, I believe this is a very short sighted view. After all, cleaning up the poisoned waters of Norther MN will provide jobs too.	SO01
6638	I believe that such mining activities will put a great Minnesotan treasure, known as the Boundary Waters, in great jeopardy. Once ruined, these freshwater ecosystems cannot be brought back quickly and easily, if ever.	WILD02
6640	Please consider the long term effects that PolyMet will have before allowing them to mine and then regretting the decision for generations to come	CU15
Sender Name (Submission ID)	Nickolas Kelley (54865)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nickolas Kelley (54865)	
19353	The dangerous sulfide mining operation threatens to pollute Minnesota for five hundred years or longer…. The sulfuric acid will be extremely dangerous if it gets into our water system. ... Lake Superior will be polluted for five hundred years or longer with toxic waste.	WR111, WR115
Sender Name (Submission ID)	Nicktae Marroquin (54871)	
19398	I urge you to [reject] this mine, in the hopes that I will be able to let my children canoe and swim in the waters of Lake Superior. If this mine was accepted, our land and water would be polluted for at least 500 years	WR111, WR115
Sender Name (Submission ID)	Nicole Hall (54185)	
17317	The Boundary Waters is a beautiful place that has many tourists and it brings people from all around. The mine might make the waters dirty and not as beautiful.	SO02
Sender Name (Submission ID)	Nicole Hendrickson (19822)	
1382	I'm concerned about the wild rice and the fact that that area has a lot of water ways.	WR156
Sender Name (Submission ID)	Nicole Johnson (19924)	
1509	Polymet could potentially ruin the forests of the animals that inhabit in this area, we are already really low in moose numbers and with this proposed mining it could really effect numbers more.	WI01, WI02
1512	There are also health effects that will increase in this area in which we have a clean environment... We will be breathing in increased mercury emissions, have exposure to asbestos-like mineral fibers, lead, and arsenic from copper mining. I feel it would not be best to do this in Northeastern Minnesota	HU03
Sender Name (Submission ID)	Nicole Lindberg (9709)	
282	The proposed mine plan does not keep Minnesota's water safe and clean	WR115
283	There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills	PD22
1366	PolyMet NorthMet environmental impact statement, which, in my view, is inadequate and demonstrates unacceptable environmental impacts.	NEPA09
1367	… the model used to predict impacts to water quality significantly under-represent pollution risks and used inaccurate conditions for water quality surrounding the mine site, demonstrating an unreliability in accurately predicting future water conditions.	WR044, WR149, WR172, WR173, WR174
1368	The proposed mine plan does not protect Minnesota taxpayersThe plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about who will pay for and be responsible for it. It can be assumed, that it will end up being the taxpayer, as it is hard to imagine how the company could be held responsible for centuries of costly water treatment, or how the public will be protected from liability.	FIN01
1369	The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated.	PD03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nicole Nordman (54198)	
17239	This is a beautiful place and if you mine here you'll be taking away the beauty. Many people enjoy the boundary waters; mining here will make this place somewhere nobody wants to go.	LU04
17243	We can find other places to mined but we may not find another place as beautiful and as pure as the boundry waters.	SO01
Sender Name (Submission ID)	Nicole Sippola (57351)	
18365	I find it difficult to trust that [PolyMet] will be there for the next 500 plus years, funding cleanup that may or may not be complete inside that amount of time.	FIN01
18366	there are areas of pollution where [the SDEIS] clearly states the status is unknown or there has been, "no action to date." Is this something that we are willing to leave our descendants with?...By adding to the pollution with our planet, we will be the ones responsible for the destruction of our planet.	PD01
18367	As a Minnesota native, I have grown up enjoying the outdoors, swimming in our many lakes and streams, as many others have done. I want to be able to share this love for the environment we live in with my children and grandchildren and I want to see this passed down for many generations to come.	LU06
18368	To think that these precious resources are at risk of being lost in exchange for 20 years' worth of jobs and only 25 percent of them promised to local Minnesotans is heartbreaking to me. While I understand that times are tough right now for many people, the fears that I have heard expressed that without the mine, these towns will become ghost towns, will be inevitable if this mine is built. With the amount of pollution that it will cause in the water and the wetlands of these communities, it will be more devastating for years to come.	SO01
Sender Name (Submission ID)	Nicole Swensen (44604)	
12060	A beautiful Minnesotan area will be turned into a mine that can possibly pollute the boundary waters, a beautiful place where people can visit. Let's keep the mine away from the boundary waters because it is not needed	WILD02
Sender Name (Submission ID)	Nijah Williams (54215)	
17665	we the students of como park senior ask that you do not do this kind of mining and not pollut our water with sufferic acid.	WR195
17666	Many people like to go [to the Boundary Waters] to get away from there everyday lives.	LU06
17667	There are many different wildlife and if this [mine] goes through they will have no where to go….	WI01
17668	mineing will cause a lot of pollution in the environment as shown in other places….	PD26
Sender Name (Submission ID)	Nikki Crow (18120)	
3406	The reality today is sex trafficking is a mining issue and an environmental issue. How would PolyMet work to protect the vulnerable population of the communities they will be moving in? How will they help fund the organizations that work to help victims of trafficking and rape? How will they help to educate employees?	SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nikki Crowe (42932)	
11968	What's missing from the EIS is the socio-economic impacts of mining. …Specifically, I am talking about the rise in sex trafficking and the increased demand for services to the women and children who are victimized by this crime….There is also an increased need in these areas for an elevated response from law enforcement, and ... the need for housing will become an issue as these women/children affected will need affordable and safe housing.	SO04
11971	How will Polymet work to protect the vulnerable population of the communities you will be moving into [from sex trafficking]? How will you support the organizations that work with the victims of trafficking and rape? How will you help to educate your employees to report suspected trafficking going on around them?	SO04
11975	Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health.	HU01
11977	Polymet provides training sessions to bring awareness to why trafficking is a problem for your company, the towns near to your operations, and your employees….Polymet needs to have a working relationship with organizations such as local law enforcement, victim service agencies, and medical staff at the local hospitals to be trained in providing services to trafficking victims.	SO04
14477	Socio-economic impact statements of mining often do not include the impacts from the rise of trafficking in mining towns. Mining and sex trafficking of women is becoming the norm in North Dakota mining towns.	SO04
Sender Name (Submission ID)	Nikolas Bayuk (38118)	
13706	The Iron Range needs these jobs, the surrounding area's will benefit from the revinue, and the country will benefit from the resources.	SO10
13708	Polymet has passed the strong regulations set by all of their regulators and this should go straight to approval to start work.	PER34
Sender Name (Submission ID)	No Name Provided (11602)	
14236	•Every sulfide mine located in a water-rich environment, like Minnesota, has polluted surface or groundwater with acid drainage and/or toxic metals.	WR023
14236	•Every sulfide mine located in a water-rich environment, like Minnesota, has polluted surface or groundwater with acid drainage and/or toxic metals.	WR023
14237	•PolyMet project could destroy or impair more than 8,260 acres of irreplaceable wetlands in St. Louis River watershed.	WET24
14237	•PolyMet project could destroy or impair more than 8,260 acres of irreplaceable wetlands in St. Louis River watershed.	WET24
14238	•PolyMet project would create cumulative harm in Minnesota's Lake Superior basin-drinking water supplies, streams and rivers that are already vulnerable due to pollution from other mines.	CU18
14238	•PolyMet project would create cumulative harm in Minnesota's Lake Superior basin-drinking water supplies, streams and rivers that are already vulnerable due to pollution from other mines.	CU18

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	No Name Provided (11602)	
14239	•PolyMet project would leak and seep sulfates and heavy metals into surface water and groundwater from: Mine Site: Waste rock heaps, including a permanent 526-acre waste rock heap adjacent to the 100-Mile Swamp and flooded mine pits, Plant Site: 226 million tons of sulfide mine tailings placed on top of the old LTV leaking tailings basin. New tailings dumps with high acid, sulfate, and toxic metal processing wastes.	WR070
14239	•PolyMet project would leak and seep sulfates and heavy metals into surface water and groundwater from: Mine Site: Waste rock heaps, including a permanent 526-acre waste rock heap adjacent to the 100-Mile Swamp and flooded mine pits, Plant Site: 226 million tons of sulfide mine tailings placed on top of the old LTV leaking tailings basin. New tailings dumps with high acid, sulfate, and toxic metal processing wastes.	WR070
14240	•PolyMet puts human health at risk – increased arsenic, manganese and other contaminants in our drinking water and mercury contamination of fish (increased cancer, harm to the human brain).	HU03
14240	•PolyMet puts human health at risk – increased arsenic, manganese and other contaminants in our drinking water and mercury contamination of fish (increased cancer, harm to the human brain).	HU03
14241	•PolyMet threatens fish habitat, natural wild rice, tribal resources and a way of life based on the great outdoors.	CR01
14241	•PolyMet threatens fish habitat, natural wild rice, tribal resources and a way of life based on the great outdoors.	CR01
Sender Name (Submission ID)	Noah Filla (54338)	
17352	I think my biggest concern is your plan to borrow water from Colby Lake if there is a shortage. As stated in your facts document, shortfall in water requirements would be made up by withdrawing raw water from Colby Lake using an existing pump station and pipeline. What happens if there is a problem with the existing pump and pipeline? What happens if they break? How do you then make up the water shortage? What other source do you have as a back-up? I understand the computer models showed it the water requirements would effect the area, but there is no way this can be guaranteed. Colby Lake, as stated in the fact's document has many tributary streams. This project could have negative effects on all of them if there are any problems.	WR131, WR140, WR181
17353	My other big concern is how this project will effect the wetlands. At a minimum if damage, Polymet, is required to replace only 913 acres near, but not on the project site. Also, the document doesn't cover how the wildlife of the wetlands is affected. It only covers the seepage, waste rock, overburden stockpiles. In summary, it seems to only cover the fragmentation of the wetlands, not how it could actually hurt the wildlife of those wetlands.	WET04, WET05
17572	It first appears that many new jobs would be created and that everything possible would be done to protect the environment. However, upon reading the material, there is no solid documentation of how long the clean up after the project would last, exactly what it would entail, and what if there are more issues than are predetermined?	PD01
17573	I am for a project that will create jobs because I understand there is a great need for jobs in this state and all other states. However, I am not for destroying the environment without more documentation on how it will affect water quantity and quality.	SO02
Sender Name (Submission ID)	Noah Shavit-Lonstein (58149)	
19934	I think it is absurd to destroy five centuries of water for 360 jobs (or less) that will disappear quickly.	SO01
Sender Name (Submission ID)	Nora Nell Hamburge (40424)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nora Nell Hamburge (40424)	
14347	Wetlands have been decimated in Minnesota the past 5 years alone.312 square miles! These natural resources cannot be replaced easily, if at all. Time to protect them.	WET24
Sender Name (Submission ID)	Nora Smyth (16938)	
11021	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	norbert heimann (47174)	
8528	Elements of the proposal and the environmental safeguards involve monitoring waste and waste water for decades, perhaps centuries. The overall costs to monitor and/or treat waste products is not and cannot be realistically estimated.	FIN05, FIN11
Sender Name (Submission ID)	Norm Herron (21540)	
1286	Can the DNR be assured that any leakage of toxic chemicals into all land and waters adjacent to the mine site be monitored by either a third party or the DNR to be cleaned as soon as detected?Will Polymet be responsible for the cost of cleaning up all toxic discharges indefinitely?	FIN01
1287	Will the residents of Minnesota have first priority for the employment related to the construction and extraction process?Will the DNR be assured that tourism will not be adversely affected by the mining?	SO02, SO06
1288	WilI the DNR be assured that the natural attraction of the Boundary Waters Canoe Wilderness and adjacent lakes and rivers be protected from any degradation?	WILD02
1290	Will the DNR be assured that the wild rice areas will be protected from toxic chemicals?	WR156
11167	Can the DNR be assured that any leakage of toxic chemicals into all land and waters adjacent to the mine site be monitored by either a third party or the DNR to be cleaned as soon as detected?	WR039, WR139
11173	Will Polymet be responsible for the cost of cleaning up all toxic discharges indefinitely?	FIN01
11176	Will the residents of Minnesota have first priority for the employment related to the construction and extraction process?	SO06
11178	Will the DNR be assured that the natural attraction of the Boundary Waters Canoe Area Wilderness and adjacent lakes and rivers be protected from any degradation?	WILD01
11179	Will the DNR be assured that tourism will not be adversely affected by mining?	SO02
11182	Will the DNR be assured that the wild rice areas will be protected from toxic chemicals?	VEG04
11439	I do not support sulfide mining in an area so rich in clean waters. I understand the need for mineral exploration to meet the global demand for copper, but I am wary of mining in a fragile and vulnerable area such as northern Minnesota.	WR195
11443	Can the DNR be assured that any leakage of toxic chemicals into all land and waters adjacent to the mine site be monitored by either a third party or the DNR to be cleaned as soon as detected?	PER03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Norm Herron (21540)	
11444	Will Polymet be responsible for the cost of cleaning up all toxic discharges indefinitely?	FIN01
11446	Will the residents of Minnesota have first priority for the employment related to the construction and extraction process?	SO06
11447	Will the DNR be assured that the wild rice areas will be protected from toxic chemicals?	VEG04
11450	Will the DNR be assured that the natural attraction of the Boundary Waters Canoe Wilderness and adjacent lakes and rivers be protected from any degradation?	WILD02
11452	Will the DNR be assured that tourism will not be adversely affected by the mining?	SO02
Sender Name (Submission ID)	Norm Voorhees (18337)	
14619	PolyMet to me seems that they are proposing to do something responsibly from everything that I have been able to learn. And we have got the regulatory agencies here to make sure that that happens.	PER34
Sender Name (Submission ID)	North American Water Office (42903)	
19025	The current proposed copper---nickel mining boom would cause water pollution that would contaminate vast amounts of our sacred water in particular the St. Louis River system with heavy metals such as mercury, lead, arsenic, cadmium, selenium, zinc, cobalt, nickel and antimony, and would not be clean again for at least 500 years.	WR064, WR107, WR108
19027	Who pays for adverse impacts that will occur if PolyMet and others are allowed to cause this pollution? Has a bank account been established with the necessary funds deposited?	FIN01
19029	Water contamination would produce monetary and market share advantages for corporations such as Glencore/Polymet and would produce short---term economic benefits for its stakeholders and a limited number of employees, but not for the citizens of Minnesota for many generations to come, or Indigenous Peoples	SO01
19030	Yes, jobs provide benefits, but a few hundred jobs for 45 years versus the permanent loss of land use for close to a thousand acres of wetland and water contamination in perpetuity for all practical purposes is an extraordinarily bad exchange from a public interest perspective. Where is the analysis that compares jobs created by mining against jobs lost in tourism and recreation, and job-equivalence from subsistence living that are lost due to pollution?	SO01
19032	Destruction of wild rice habitat = no rice = irreparable harm to Anishinaabeg way of life and cultural impairment. (…) Wild rice is an identity food for Anishinaabeg Peoples and is revered as a sacred food.	CR01
19033	Wild rice beds within a) the land base projected for development in the Polymet Mine area and b) the surrounding watersheds that could be impacted by runoff from the mine must be identified and protected from contamination.	WR154
Sender Name (Submission ID)	Northeastern Minnesotans for Wilderness (42985)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Northeastern Minnesotans for Wilderness (42985)	
4092	The hard look that NEPA and MEPA require is not possible if the impacts of a project are not clearly stated, are hidden away in background materials, or are discounted in the text. NEPA and MEPA's primary purpose is also thwarted if the discussion of impacts is based on a model that uses inputs that do not reflect reality. The SDEIS uses all these methods to hide the potential impacts of this project from decision makers and the public.	NEPA14
4093	The primary error in modeling lies in the estimate of baseflow in the Partridge River, which is based on a flow gage seventeen miles downstream of the mine site. While models using data with this degree of uncertainty are sometimes accepted when no other information is available, in this case, enough flow data from further upstream was available to let the agencies know early on that the modeling approach would not accurately reflect the site.	WR003
4095	Because PolyMet calibrated other model parameters to erroneous flow data for the Partridge River, the hydraulic conductivity and recharge values likely significantly underestimate the rate at which groundwater flows through the site. See GLIFWC Memo, March 2, 2012, SDEIS App. C, Sub. 1.	WR003, WR052, WR086, WR091
4096	The Agencies must provide an explanation of changes that were made in response to the GLIFWC March 2, 2012 Memo and how those changes are reflected in the modeling and predictions presented in the SDEIS.	WR003
4097	The use of data known to be inaccurate for a key modeling parameter does not comply with NEPA , which requires accurate scientific analysis and integrity. 40 C.F.R. §§ 1500.1(b), 1502.24. Furthermore, the Agencies' response to GLIFWC's position does not meet the NEPA requirement that the Agencies consider and respond to "any responsible opposing view," id. § 1502.9(b), because that response ignores the underlying issue of the inherent inability of the model's approach to accurately reflect stream flow in a losing stream.	NEPA08, NEPA14, WR003, WR189
4098	In addition to the lack of clarity regarding hydraulic conductivity parameters, the SDEIS is unclear as to whether a range of values were used in the model, and if so, the range of possible outcomes on water quantity, both as inflow to the mine and as flow in the Partridge River. … in addition, the absence of a discussion of uncertainty is misleading to decision makers and the public, and violates NEPA.	WR189
4099	The predicted changes in stream flow at various monitoring points are given in Table 5.2.2-25, and the predicted inflow to the mine pits is given in Table 5.2.2-18. Unlike water quality predictions, there is no discussion of uncertainty and no discussion of the potential range of pit inflow or of stream flow impacts in the accompanying text for either issue.	WR086
4100	If the model cannot accurately predict the level of groundwater drawdown, how can the impacts on groundwater inputs to the Partridge River or the groundwater inflow to the mine be predicted with any certainty? Yet the SDEIS presents predictions for these parameters as if they were based on solid information.	WR086, WR179
4101	Adding to the problem in regard to river drawdown, the table showing the predicted drawdown to the Partridge River omits information for SW-003. This is a curious omission that does not seem to be reflected anywhere else in the document. In reviewing groundwater elevation contours found in Figure 4.2.2-5, SDEIS 4-49, it appears that groundwater at SW-003 slopes down-gradient to the east, despite the presence of the river. It thus seems likely that there is very little groundwater input from the east side of the river to balance the loss of groundwater to the East Pit during mining. … The SDEIS should provide both the modeled drawdown at SW-003, and an explanation of the area used for groundwater inputs to the river and how those inputs correlate with the groundwater elevation contour map.	WR179

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Northeastern Minnesotans for Wilderness (42985)	
4102	A review of both the predicted river drawdown and the predicted mine pit inflow is further hindered by a lack of references in the SDEIS text, or possibly the absence of anything other than raw data in the record to provide further explanation. … Significant drawdown of the Partridge River would be a significant environmental impact pursuant to NEPA and MEPA, and the inability to review the conclusions in the SDEIS is a significant flaw in the document.	WR086
4104	Because all surface discharges are planned to occur at the Tailings Basin during the life of the mine, the amount of inflow has significant implications for the Water Collection System and the amount of contaminated water escaping capture at the Tailings Basin.The amount of inflow is also likely to impact the amount of financial assurance that will be required.	WR019
4117	According to the SDEIS Executive Summary ... wastewater releases from the NorthMet Project "would not cause or increase the magnitude of an exceedance of the groundwater and surface water evaluation criteria at the P90 level for any of 28 solutes at 29 evaluation locations." ... the "29 evaluation locations" are placed in such a way that they do not assess some of the areas that are most likely to be impacted by the project. One of these areas is a three-mile (or longer) stretch of the Partridge River that is likely to receive discharges above water quality standards.	WR058, WR064, WR086, WR089, WR177
4118	The first "evaluation location" below SW-003 and the Category 2/3 Stockpile and East Pit flowpaths (SW-004) is located more than three miles downstream. As explained above, this stretch is unlikely to have a significant inflow of clean groundwater from east of the river, because the groundwater elevation drops moving east from the river… Thus both the modeling and the monitoring of water quality at SW-004 are unlikely to reflect the water quality of the stretch of the river most impacted by the Category 2/3 Stockpile and East Pit.	WR177
4120	Unfortunately, the table [Table 5.2.2-22] includes only the "Groundwater Evaluation Criterion" and does not reveal the surface water quality standards that actually apply at this point. Despite the clear availability of this information, nothing in the text reveals the fact that discharge to the Partridge River through the East Pit/Category 2/3 Flowpath at the P90 level is predicted to violate water quality standards for both aluminum and cobalt.	WR109, WR177
4123	the SDEIS should disclose that at the P90 level, groundwater in the West Pit flowpath is predicted to violate the surface water quality standard for cobalt (by a factor of 5) and lead at the point of discharge to the river. … Furthermore, as discussed below it is highly unlikely that mechanical treatment will continue until the point when groundwater outflow from the West Pit meets surface water quality standards.	WR038
4124	Figure 6-126 of the Water Modeling Data Package Vol. 1 (PolyMet Mining 2013i) indicates that the aluminum exceedance in the East Pit flow path would extend over a period of roughly 40 years. A figure that was included in the May 2013 internal review draft (Fig. 5.2.2-19 on page 5-89) (Ex. 16) but does not appear in the final SDEIS indicates that the cobalt exceedance would extend over a period of almost 100 years.	WR177
4128	SDEIS Table 5.2.2-22 under-predicts the level of contaminants in the East Pit flowpath at the earliest point of discharge to the river. … The modeling apparently assumed that SW-003 would not be impacted by polluted groundwater, but that the point just below it would. … The importance of this groundwater evaluation location lies in the fact that this is the closest downgradient point that the property line comes to any of the sources of contamination, and thus this is an important point at which to assess potential water quality impacts.	WR177
4131	What is unclear is why this point is not also used to assess surface water quality impacts, as the property line and the Partridge River meet at this point. The SDEIS does not clearly reveal where the solute concentrations shown in Table 5.2.2-22 would occur. However, Table 5.2.2-8 lists the various groundwater flow paths and the distance to where they meet the property line and the Partridge River, and Figure 5.2.2-4 indicates points of discharge of groundwater to the Partridge River and groundwater evaluation locations. According to Table 5.2.2-8, the distance to the property boundary from the Category 2/3 Stockpile is 140 meters, while the distance to the Partridge River is 955 meters. Yet the river is located at the only "groundwater evaluation location" shown on Figure 5.2.2-4.	WR177

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Northeastern Minnesotans for Wilderness (42985)	
4149	There seems to be very little information available on water quality at theproperty boundary for the East Pit flow path…the Water Modeling Data Package does include a graph for sulfate, Figure 6-69, PolyMet 2013i at 209. The maximum P90 sulfate level at the property boundary is shown as approximately 29 mg/L, while Table 5.2.2-22 shows the sulfate level at the river as 21.6 mg/L. But according to the map, the closest point to the property boundary and the river are the same. It thus appears that the scant information that does exist regarding water quality discharge to the Partridge River from the East Pit Flowpath significantly understates contaminant levels by overstating the distance the contaminated water will travel before it arrives at the river.	WR058, WR167, WR177
4158	In regard to copper, Large Figure 47 from the Water Modeling Data Package Vol. 1 (PolyMet 2013i) indicates that levels will range around 5 ug/L at the property boundary, while Table 5.2.2-22 gives a concentration figure of 3.4 ug/L for discharge to the river. Once again, because the closest distance to the property boundary and to the river is the same, it seems that Table 5.2.2-22 likely understates the level of copper discharging to the river...Based on these figures, we believe that the copper standard may be exceeded in addition to the aluminum and cobalt standards.	WR177
4165	the NorthMet project as proposed will, in fact, contribute aluminum to groundwater flows to the Embarrass River tributaries during the time that Colby Lake water is used to augment flows. See Water Modeling Data Package Vol. 2 (PolyMet 2013j). While this addition of aluminum may be small, and may even be less than the amount of aluminum that would have been added to groundwater under the continuation of existing conditions, aluminum from the NorthMet project will add to aluminum in downstream waters, thus contributing to the violation of the water quality standard.	WR082, WR177
4168	The SDEIS discussion of lead exceedances in Embarrass River tributary streams appears to be downright dishonest…The SDEIS does not tell us what the quality of the WWTP discharge will be, but apparently PolyMet expects to be allowed to discharge at the water quality standard based on the hardness of its discharge, see id. Table 5-17, i.e., 3.0 ug/L.	WR063, WR147
4169	Furthermore, the statement that lead in surface runoff shows a ten percent chance of exceeding the standard at any given time appears to be incorrect; Water Modeling Data Package Vol. 1 Figure 6-108 shows an exceedance probability of about five percent. If this was a discussion of lead levels in water from the NorthMet project, this five percent probability would be eliminated from discussion as being above the P90 probability level. If one hundred percent of modeled exceedances for natural runoff are included in the analysis, one hundred percent of the modeled exceedances for the Proposed Project should also be included.	WR110, WR189
4170	In any event, the highest lead concentration shown for natural runoff is 1.8 ug/L, at an approximately 99% probability level. Id. Fig. 6-108. This is significantly below the presumed level of the WWTP discharge and the maximum predicted lead levels in Embarrass River tributary creeks, which range as high as 3 ug/L. Table 5.2.2-32, SDEIS 5-183. In comparison, the highest predicted lead concentration in the creeks under the "continuation of existing conditions" scenario is 1.3 ug/L. The gist of the whole situation appears to be that PolyMet will discharge lead at a level just below the standard based on the hardness of its discharge, and that natural conditions will reduce the hardness of the water to the point where the lead exceeds the water quality standard. Blaming that scenario on natural runoff is disingenuous in the extreme.	WR059
4171	Under the Clean Water Act, the application of hardness-dependent water quality standards is based on the receiving water, and downstream standards must be met even where the hardness of the water varies. If downstream waters have a lower hardness level and thus a lower standard, pollutants in the discharge must be reduced to the point where they will meet the lower standard.	PER09
4174	The Minnesota Environmental Policy Act precludes the DNR and Minnesota Pollution Control Agency (MPCA) from issuing permits that would result in the pollution, impairment, or destruction of natural resources. Minn. Stat. §116D.04(6). Neither statute is limited to situations where the proposed activity violates some other environmental protection statute or regulation. Thus regardless of whether the predicted exceedances are deemed compliant with the Clean Water Act, they do not comply with Minnesota law.	PER09

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Northeastern Minnesotans for Wilderness (42985)	
4176	The Embarrass River is listed as impaired for Fishes Bioassessments…any increase in pollution that might contribute to the impairment cannot be permitted. The SDEIS provides no information about the impact of aluminum on aquatic organisms, and in regard to lead says only that "Effects on aquatic biota from the lead exceedance due to changes in hardness are not well-understood, but would likely increase the potential to adversely affect aquatic life." SDEIS 5-380. To comply with NEPA and MEPA, the SDEIS must provide substantially more information on the likely impacts of aluminum and lead exceedances on the aquatic community.	AQ07, AQ11, WR064
4179	The SDEIS fails to assess the impacts on any of these [Plant Site] tributary streams at the point where the water collection system, discharge water, and groundwater seeping from the Tailings Basin will first impact them. … All of these [evaluation points shown on Figure 5.2.2-6] points are significantly downstream of the point where the Tailings Basin currently impacts them (i.e., at their headwaters).	WR063, WR064, WR115, WR124
4181	the discussion on groundwater travel distances at the Plant Site does not disclose whether a range of values were used in modeling this critical parameter, nor what those values were. The SDEIS must explain what parameters and variables were used to obtain the predictions shown on Table 5.2.2-42, including the point or range of points at which contaminated groundwater is first presumed to release to surface water.	WR167
4182	The apparent idea seems to be that any water escaping the collection system would escape at the bottom of the barrier, and would move a significant distance before emerging at the surface. However, the SDEIS does not actually say this, or explain the barrier system sufficiently to support the hypothesis. Figure 3.2-28 shows a "Cutoff Wall," and the text directs the reader to the description of the Cutoff Wall for the Category 1 Waste Rock Stockpile, which it describes as "similar." In both places, details are scant as to what the wall will be made of; how it will be constructed; what the target permeability means in regards to leakage; how likely it is that PolyMet will achieve the target permeability at all locations of a four-mile, underground wall; and whether occasional breaches in the wall due to construction methods and materials may allow for significant escape of groundwater at locations that cannot be identified before they occur. Furthermore, neither discussion provides any citation to reference materials.	PD15, WR019
4183	Given the current conditions of completely saturated soils and standing water immediately below the basin, and these statements from the SDEIS, it seems likely that groundwater escaping the Collection System will discharge into fully saturated conditions, where it is likely to mix with water discharged to the surface in close proximity down-gradient of the Tailings Basin.	WR060
4186	The Water Modeling Data Package includes figures for only a few of theconstituents, which are listed here as examples. The predicted levels of all constituents in groundwater at the base of the Tailings Basin should be included in the SDEIS….The SDEIS needs to clarify the range of distances to where this water is predicted to mix with surface water, and provide adequateexplanation to support that range of distances….All surface water evaluation points presented in the SDEIS are located at or beyond the property line, which begs the question of how these points were chosen. Minnesota's surface waters must be protected regardless of their location on privateproperty.	WR059, WR064, WR177
4187	As for sulfate, although the 10 mg/L standard to protect wild rice is not being applied at this location, this sulfate is likely to be discharged to wetlands at a level that seems very likely to affect the methylation of mercury and resultant level of mercury in fish tissue.	MERC09
4191	For pollutants that are based on hardness, this [WWTP] discharge may meet the standard at the point of discharge but fail to do so once the hardness is diluted by rainwater and natural groundwater. This appears to be the situation for lead; because no analysis of the headwaters was done, no conclusion can be drawn regarding copper, which is also of concern.	WR082

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Northeastern Minnesotans for Wilderness (42985)	
4196	The Proposed Project will also have a significant impact on water quantity in the headwater streams…the document lacks clarity regarding the amount of water to be discharged [for augmentation], listing minimum requirements and maximum allowances, but providing no discussion of the degree to which the amount of water discharged is expected to maintain the hydrology of wetlands and streams immediately below the discharge point. See SDEIS Tables 5.2.2-40 and 5.2.2-41. Will the minimum required augmentation shown on Table 5.2.2-41 be increased if wetlands and stream flow disappear within the PolyMet property, or will an increase not be required until the flow at MCL-3, TC-1, or PM-11 drops below 80% of its historic flow? And will that 80% be measured in accordance with historic seasonal variation, or will it be based on average or low flow conditions regardless of the season?	WR183, WR185, WR186
4199	Finally, the SDEIS provides virtually no information on planned monitoring points. As discussed below, apparently no monitoring is planned for the tributary streams. The SDEIS must provide a plan for monitoring water quality and aquatic biota as well as flow in the Embarrass River tributaries, beginning at their historic sources.	PD05
4201	Although the SDEIS mentions air deposition as a potential source of metals and sulfur inputs to wetlands, the discussion provides no information about the amount of deposition other than a line delineating the boundary of the area within which deposition will be greater than 100% of background levels. The SDEIS provides no assessment of the impacts on water quality from the predicted amount of deposition...First, the SDEIS does not provide information on the amount of sulfur or metals that will be deposited within the "greater than 100% of background levels" line...Isopleth maps for copper and nickel deposition based on modeling to assess deposition...The type of information is crucial to an understanding of impacts, and must be provided in the NorthMet SDEIS.	WET11
4202	the rationale for using 100% of background level as a cutoff for impacts relates only to designing a monitoring plan. No scientifically valid support whatsoever is given for the assertion that there will be no impacts in areas where deposition is increased by less than 100% of background levels. Whatever its validity as a rough cut-off for monitoring, in regard to impacts this number is clearly arbitrary. Rather than providing a justification for using this cut-off, PolyMet needs to provide an explanation of the impacts on water quality at this level of deposition, and a discussion of why areas with less deposition will neither experience impacts themselves nor contribute to impacts downstream.	WET11
4211	The SDEIS must provide information on the deposition of specific metals and sulfur, especially those that are expected to be emitted in large amounts and/or to present a water quality problem due to other source pathways. The former includes copper, nickel, manganese, and sulfur. The latter includes these plus cadmium, cobalt, lead and zinc. Apparently neither cobalt nor zinc were included in the speciation assessment, yet they are present at higher levels in the emissions than some of the other metals that were included.	AIR10, WR151
4220	the SDEIS makes no predictions about the impacts of air deposition of either metals or sulfur on water quality. The entire point of the exercise is to assess whether this source of metals and sulfur to the environment will result in levels of metals or sulfur in wetlands that would contribute to water quality standard violations or otherwise contribute to environmental effects (such as increased mercury methylation, degradation of high quality waters, or toxicity to aquatic life or wildlife due to metals for which there are no numeric standards)...While we support monitoring to assess the impacts of air deposition should this Project go forward, the promise of monitoring cannot be used to circumvent the requirement that impacts be assessed before the project is approved.	AIR10, WR151
4224	The "100% deposition line" at the Plant Site covers an area of several square miles. SDEIS Figure 5.2.3-23. The area overlaps the headwaters of Second Creek. The statement that "No potential indirect wetland effects from fugitive dust to Second Creek would occur," SDEIS 5-302, is misleading, primarily because the discussion does not clearly separate impacts due to dust from impacts due to metals. The statement thus leads the reader to believe that there will be no impacts from air deposition on Second Creek. However, the SDEIS cites PolyMet 2013k, which states that metals deposition could have an impact on Second Creek (as opposed to dust, which according to this document, would not).	WET11, WR151

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Northeastern Minnesotans for Wilderness (42985)	
4228	SDEIS Figure 5.2.3-23, which pertains to metals, indicates that there would be effects on Second Creek. Furthermore, it appears from Figure 5.2.3-22 that there could be significant impacts from dust on Spring Mine Creek.	WET11, WR117, WR151
4233	The SDEIS evaluates impacts to groundwater at the property boundary in several locations at both the Mine Site and the Plant Site. It does not disclose the quality of groundwater that will be left at the Mine Site or the Tailings Basin throughout the centuries during which this pollution will continue. … The SDEIS makes no mention of this requirement [Minn. R. 7060.0500], and thus also does not explain whether or how the project will meet the requirement...While variances are available under the groundwater rules, see Minn. R. 7060.0900, the SDEIS says nothing about PolyMet applying for a variance, and provides no basis whatsoever for the use of the property line as a compliance boundary…. The MPCA has apparently been using property lines as compliance boundaries for groundwater contamination as a matter of standard practice, according to a personal communication with Richard Clark of MPCA on Januanry 11, 2014...the SDEIS must disclose the predicted quality of groundwater at the Mine Site during the proposed mining operations and after closure, including within the East Mine Pit porewater and below each of the mine features. The SDEIS must also disclose the predicted quality of groundwater within the Tailings Basin and immediately below the Tailings Basin Dams and other seepage locations.	PER06, PER09, WR038, WR060, WR109, WR173
4242	the SDEIS predicts a decrease of 1.2 grams in the annual mercury load to the Partridge River, and an increase of 0.6 gram to the Embarrass River, with a net decrease to the St. Louis River of 0.6 gram. The SDEIS does not say what was included in these estimated loads, nor does it explain that the increased load from the project's air emissions will be significantly greater than that 0.6 gram. The SDEIS assesses the increased load from emissions to five area lakes (ignoring the Partridge and Embarrass Rivers) and dismisses the increase as insignificant, in direct contradiction to the clear government policy that any increase in load to the Lake Superior basin must be considered significant.	AIR02, MERC04, MERC20, MERC23
4245	The SDEIS does not so much as mention the Lakewide Management Plan, and it certainly does not address the zero discharge and emission goal. While five pounds of mercury emissions may not seem like a large amount, it does impact the zero discharge goal and it will increase the load to local water bodies. In order to consider all relevant factors and take the required "hard look" at the anticipated environmental consequences, the SDEIS needs to disclose that the Proposed Project will not comply with the LaMP.	MERC01, PER27
4246	In addition, the assessment of mercury releases from the Proposed Project to the Partridge and Embarrass River (and beyond to the St. Louis River) omits mercury from a number of sources. In fact, the only inputs of mercury to the rivers that the SDEIS discloses seem to be those that are discharged from the Waste Water Treatment Plant and Waste Water Treatment Facility. The estimate of increased or decreased loading to the rivers leaves out mercury from air deposition, from leaching to groundwater, and from the transfer of Colby Lake water. When these sources are accounted for, the statement that overall, the project would decrease mercury loading to the Partridge River and to the downstream St. Louis River, e.g. SDEIS 5-8, is simply untrue.	MERC20, MERC23
4247	Despite indications from humidity cell tests that leachate from waste rock will have a mercury level of almost five times the surface water quality standard, PolyMet did not include mercury in its water quality model, and the SDEIS provides no estimate of the potential discharge of mercury from the stockpiles and pit lakes to the Partridge River via groundwater. … We were unable to find a more thorough description of the NTS lab tests or any quality assurance/quality control information in the record.	MERC04, MERC11, MERC20
4253	While we agree that the low-level mercury data from the humidity cell tests is insufficient, this factor was entirely within the Agencies and PolyMet's control. If the Agencies now want to plead insufficient data, at the very least NEPA regulations require them to explain why they were not able to obtain it, and to provide an evaluation of the potential for increased loading to the Partridge River "based upon theoretical approaches or research methods generally accepted in the scientific community." 40 C.F.R. § 1502.22(b)(4).	MERC06

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Sender Name (Submission ID)	Northeastern Minnesotans for Wilderness (42985)	
4260	[The SDEIS] states that the proposition that "taconite tailings appear to be a sink for mercury in full-scale actual tailings basins in northern Minnesota, at least similar to other media like soils . . . is supported by surface and groundwater monitoring around the existing LTVSMC Tailings Basin, which found mercury concentrations consistent with baseline levels (see Table 4.1-31), generally averaging less than 2.0 ng/L." SDEIS 5-202. This statement in regards to groundwater appears to be blatantly false. And an attempt to learn more from Table 4.1-31 was thwarted by the fact that there is no Table 4.1-31.	EDIT01
4262	the SDEIS defends the use of 1.1 ng/L [mercury] by reference to a bench study by NTS. SDEIS 5-206. The text provides a reference of NTS (2006), but no corresponding document can be found in the reference list. However, a description of the test is found in Appendix C of Barr 2007e (which we came across in search of something else)...The conclusion that NorthMet tailings will remove mercury from tailings basin water thus appears to be unfounded.	MERC06
4270	[The SDEIS requires] an analysis of mercury discharge to surface water from groundwater using a realistic estimate of mercury concentrations in groundwater leakage from the tailings basin.	MERC20
4278	Inputs to the West Pit mass balance from watershed run-off (from both undisturbed surfaces and from the East Pit) are estimated at 4 ng/L. Table 5.2.2-50, SDEIS 5-203. Despite the availability of an MPCA method for estimating mercury inputs from terrestrial deposition, which was actually used for the air emissions analysis for this project, this number was based on "the total mercury concentrations observed in the Partridge River (the recipient of watershed runoff under current conditions)." PolyMet 2013i at 313. Our understanding of the MPCA method is that it is based on mercury in deposition, one-quarter of which is estimated to enter surface water. While it is unclear how this would ultimately compare to the 4 ng/L for the volume used in the mass balance, the use of the concentration in the river as a proxy seems a poor substitute.	MERC12
4279	Inputs from the East Pit porewater are estimated at either 3 ng/L (as reported in the text of the Water Modeling Data Package, id., or 4 ng/L (as reported in Table 5.2.2-50). The text states that this is based on background groundwater concentrations. As discussed above, it appears that the waste rock (which will fill the East Pit) does leach mercury. Based on the humidity cell tests, a more appropriate value for East Pit porewater would be at least 6.5 ng/L.	MERC12
4290	To comply with NEPA, the SDEIS must provide an analysis of the deposition of mercury from air emissions for the rivers and their tributaries, and that analysis must include mercury emissions from the mine site. … At the mine site, all of the area within one kilometer of the ambient air boundary is within the Partridge River watershed. It thus seems likely that close to 100% of the 288 grams of mercury emissions would be deposited within the Partridge River watershed. If twenty-five percent of that mercury reaches surface water, it would amount to 72 grams of mercury. Even if half of it settles in areas where it would be routed to process water and the treatment facility, it would still be a significant amount of mercury, particularly when added to deposition from the Plant Site.	AIR05
4292	According to the analysis done for the lakes based on Plant emissions, between 3.76 and 15 grams of mercury would be added to Colby Lake through the Partridge River watershed and between 4.75 and 19.64 grams would be added to Wynne Lake through the Embarrass River watershed. Barr 2013k, App. F. It appears from Large Figure 7 of the same document that the numbers would be similar for the Partridge and Embarrass Rivers, respectively, because most of the watersheds flow to the rivers before entering the lakes. In other words, most of this mercury enters the rivers before it enters the lakes. The SDEIS needs to provide the same analysis for the rivers that it provides for the lakes. This analysis must also be applied to those tributary streams that would be more heavily impacted than the river as a whole.	WR064, WR177

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4293	The SDEIS must then include input from air deposition in the load analysis. The assessment of mercury load to the Partridge River predicts a net decrease from 24.2 to 23.0 grams per year; the assessment for the Embarrass River predicts a net increase from 22.3 to 22.9 grams per year. These figures apparently do not include deposition; what they do include can only be guessed. It is certainly not clear to the average reader that the largest source of mercury from the project has been left out of the equation entirely.	AIR05
4294	The cumulative impacts assessment points to the statewide TMDL to address this problem. SDEIS at 6-63. But the TMDL has been acknowledged as insufficient to address the problem in Northeastern Minnesota. When the TMDL has been completely implemented and a 93% reduction is achieved, Wynne Lake (for example) will still be subject to fish consumption advisories. If the NorthMet project were operating at that point, it would be contributing 17% of the load to Wynne Lake, which is clearly significant. Yet the same amount of mercury is now being dismissed as too small to contribute to the problem.	MERC22
4467	The SDEIS makes the remarkable statement that the contribution of mercury from Colby Lake makeup water at the Plant Site would be “minor.” SDEIS 5-205. ... Colby Lake is on the impaired waters list for mercury in fish tissue. ... PolyMet plans to release this water to headwater streams at a point where the current mercury levels average 1.0 to 1.2 ng/L. See SDEIS Tables 4.2.2-4 and 4.2.2-34. The change will mean that the streams no longer meet the water quality standard at their headwaters, and downstream exceedances will increase. Ultimately, the use of this water will increase the load to the Embarrass River between 3 and 6.5 grams per year, which is an increase of between 14 and 27 percent.The SDEIS is scant on information about mercury in Second Creek, but the discharge of Colby Lake water would increase the mercury exceedances there as well...discharge is at least regulated under state law.	MERC01
4472	Adding to the mix is a lack of information about the augmentation plan. The SDEIS provides a minimum and maximum release amount, but does not describe how the amount of release will be set or how it will change based on the project’s needs and/or impacts on wetlands and streams. If it is similar to other mining operations, it will fluctuate according to the needs of the project. If this is the case, another factor that increases mercury methylation will also be present, i.e., water level fluctuations.	WR112, WR183
4474	[The SDEIS] concludes that because the WWTP will limit sulfate in its discharge to 9 mg/L, sulfate “would not be expected to promote mercury methylation.” SDEIS 5-208. However, 9 mg/L is significantly above historic background levels, and the SDEIS cites nothing that indicates that a sulfate level of 9 mg/L does not promote mercury methylation. While the science is not yet definitive, it is entirely possible that 9 mg/L sulfate promotes mercury methylation as effectively as does 30 mg/L, and more effectively than does 100 mg/L. While the reduction in sulfate levels in discharges to the environment is overall a positive step, this does not negate the fact that sulfate discharges will continue to promote mercury methylation.	MERC08
4479	The initial stage of preparation for mining will involve stripping the vegetation and soil from the area to be mined. SDEIS 3-2. This material will contain sequestered mercury from historic precipitation and dry deposition. This is a particular concern in regards to the peat overburden, as peat is known to sequester mercury. The SDEIS does not seem to include an estimate of mercury releases from this source. … In general, the mass balance exercises do not consider the amount of mercury released from rock and other materials in assigning a value to process water concentrations. Rather, mercury concentration values are simply guesses based on current mercury levels in precipitation and (in some cases) groundwater, along with questionable assumptions regarding the adsorption capacity of tailings, rock, and soil.	MERC11, MERC20

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4481	Finally, PolyMet plans to use the overburden material for many construction and reclamation activities in many locations. See PolyMet 2012s at 26-30. Uses of unsaturated overburden and peat are not specified; the material would be available for any use in any location where soil or rock is needed. The potential mercury releases from this material must be assessed. Precipitation events and snowmelt are known to cause spikes in mercury levels in local streams, particularly in watersheds that are partially deforested. See MPCA, "An Assessment of Lake Superior Basin Tributaries" (2002) (Ex. 24), and E. M. Ruzycki , R. P. Axler , J. R. Henneck , N. R. Will & G. E. Host, "Estimating mercury concentrations and loads from four western Lake Superior watersheds using continuous in-stream turbidity monitoring," 14 Aquatic ecosystem 4:422 (2011) (Ex. 25). The potential increases of mercury from disturbed peat and other overburden materials during runoff events must be included in the SDEIS' assessment of mercury loads to tributary streams and the Partridge and Embarrass Rivers wherever this overburden material might be used.	MERC20, MERC21, REF01
4483	To a great extent, the SDEIS avoids discussion of potential impacts of theProposed Project by assuming that mitigation measures will be completely successful. In many situations, no support is provided for these assumptions. The SDEIS does not discuss the track record of the mining industry or the success rate of the chosen mitigation measures at other mines. The SDEIS thus does not take the requisite "hard look" at mitigation measures…The PolyMet SDEIS relies heavily on mitigation measures to meet water quality standards and otherwise reduce environmental impacts, with many of these measures needed for decades to hundreds of years. The SDEIS, however, lacks any discussion of the likely effectiveness of the chosen mitigation measures.	WR023, WR130
4484	the SDEIS lacks any discussion of the significant and irreversible environmental impacts that would occur if the chosen mitigation measures prove to be ineffective.	NEPA09
4490	the SDEIS estimates that closure of the mine would cost as much as $200 million, with postclosure monitoring and maintenance estimated at $3.5 million to $6 million per year. SDIES 3-138. … The SDEIS provides no meaningful discussion as to how these mitigation measures could possibly be fully funded and remain 100 percent effective for hundreds or even thousands of years after closure of the mine.	FIN01, FIN05
4501	we fail to see how a water collection and treatment system that would need to be operated and/or actively maintained for more than 500 years can meet the DNR Permit-to-Mine regulatory requirements concerning closure, continued oversight and financial assurance...Thus aside from the question of whether this situation may be permitted under applicable law, NEPA requires that theimpacts be disclosed in the SDEIS...Because it is reasonably foreseeable that water treatment will fail or end prematurely, and as a result untreated water will be discharged to the Partridge River, the Embarrass River, and their tributary streams, the SDEIS must disclose the quality of that water and the impacts on aquatic life and other resources should it occur.	PER04, WR037, WR202
4502	If the water collection and treatment systems do end prematurely, the impact on the Partridge, Embarrass, and St. Louis River systems would likely be catastrophic to fish, wildlife, and wild rice downstream, and possibly to the Hoyt Lakes water supply. … If the treatment facility ceases to operate, this water will overflow from the West Pit directly into surface water streams. … The water quality standard for cobalt is 5.0 ug/L; Figure 5.2.2-37 indicates that at year 200, the predicted P90 level for cobalt in the West Pit is about 30 ug/L, and at the P50 level is about 15 ug/L. The water quality standard for nickel is 52 ug/L at an assumed hardness of 100 mg/L; Figure 5.2-38 indicates that at year 200, the predicted P90 level for nickel in the West Pit is about 300 ug/L, and at the P50 level is close to 200 ug/L. Even at the P10 level, it appears that the pit lake water will not meet the nickel water quality standard by year 200.	WR141
4503	The water quality standard for copper at a hardness level of 100 is 9.3 ug/L; the predicted level in the West Pit water at year 200 ranges between 120 and 580 ug/L. Even at the P10 level, the predicted water quality is twelve times the standard. Perhaps even more troubling, the figure does not show any decline in copper levels over time. This is apparently because a concentration cap was applied in the modeling. We question the use of such a cap, particularly in this situation where the result is that the model gives no indication of the water quality trend over time. Taking the figure as it is presented, however, indicates that the West Pit water may indeed need to be treated to remove copper to eternity.	WR033, WR038

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4504	A series of figures in the Water Modeling Data Package Vol. 2 (PolyMet 2013j) show predicted concentrations of various constituents in seeps at the "toes" of the basin over 200 years; this is water that will be collected and treated under the mine plan, and will discharge to the environment if the collection and treatment system ends. First, note that some of these figures show that the water quality will be better after the addition of the NorthMet project tailings than it would be under "continuation of existing conditions." However, the continuation of existing conditions apparently does not account for dilution by rainwater, does not reflect the lower volume of discharge from the existing facility, and does not reflect any actions that Cliffs Erie (which is legally responsible for violations stemming from the existing tailings basin) must take to address the situation.	WR049, WR108
4509	Figure 6-34 of the Water Modeling Data Package Vol 2 (PolyMet 2013j) indicates that sulfate levels in the discharge from the north toe of the Tailings Basin will range between approximately 100 and 200 mg/L at year 200. At the northwest and west toes,the predicted range is between 200 and more than 400 mg/L. Id. Figures 6-38 and 6-42. The applicable water quality standard to protect wild rice is 10 mg/L. Much of the St. Louis River system is already heavily degraded in regards to sulfate levels and wild rice stands due to leakage and discharge from the mining industry, so the discharge of this water would add to an already intractable problem.	WR107, WR109, WR156
4515	Figure 6-35 indicates that lead levels at the north toe will range between about 15 and 22 ug/L; the surface water quality standard is 3.2 for a hardness level of 100 mg/L. Once again, the figure shows little potential for a decrease to below the water quality standard over the following centuries.	WR110
4516	As with the copper levels at the mine site, the predicted lead levels in seepage from the Tailings Basin appear to be relatively constant over time. This is also true of sulfate at some locations. PolyMet and the DNR have used 500 years as the minimum amount of time that the discharge is likely to need to be collected and treated. The reality appears to be that the need for treatment will extend far beyond 500 years, that in fact the need for treatment has no foreseeable end.	WR035
4526	The SDEIS analysis of water quality impacts appropriately provides a range of potential impacts based on the uncertainty of several parameters. unfortunately, there are many uncertainties that are not included in the analysis. Deterministic values (or a narrow range of values that does not reflect reality) are used for many parameters for which the value is in fact unknown. These include but are not limited to hydraulic conductivity and the effectiveness of water collection systems. These uncertainties must be disclosed, and the SDEIS must discuss what they mean in regard to impacts on water quality and quantity.	WR026
4528	The statement that the P90 level presents a "worst case" analysis of water quality, SDEIS 5-77, is simply untrue. The P90 level presents a "worst case" scenario if everything goes exactly as intended: if no mistakes were made in designs, calculations, or modeling inputs, if no mistakes are made in operations, if no larger-than-expected storms occur, etc. Presenting the P90 predictions as the worst that things would possibly be is a disservice to the public and to decision makers, both of whom will have to live with the consequences if anything goes wrong.	WR192
4537	Before permitting this type of mining in the state, the agencies must plainly and openly disclose the legacy of this industry in other parts of the country … Moreover, the SDEIS also fails to disclose the widespread pollution resulting from past and ongoing iron ore and taconite mining in this same region, and the MPCA's failure to effectively regulate these sites and enforce environmental laws.	PER06
4541	In several places, the SDEIS promises "adaptive management" to address any changes that become necessary due to errors in the SDEIS predictions. The need for some of these changes would not be known until long after the mine has closed and PolyMet Corporporation no longer exists. It seems unlikely that financial assurance will be in place to cover these adaptations.	FIN05

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4542	NEPA specifically requires that "information [be] available to public officials and citizens before decisions are made and before actions are taken." 40 C.F.R. § 1500.1(b). Because information concerning financial assurance is directly relevant to the reasonably foreseeable significant adverse impacts of the proposed mine, and is essential to a reasoned choice among alternatives, and because the overall cost of obtaining such information is not "exorbitant," NEPA requires the agencies to include this information in the SDEIS. 40 C.F.R. § 1502.22(a). Moreover, even if the agencies could demonstrate that detailed information concerning financial assurance cannot yet be obtained, the agencies are still required to include in the SDEIS a statement of the relevance of the incomplete or unavailable information to evaluating the impacts of the proposal, a summary of the information that is available, and the agency's evaluation of the potential impacts "based upon theoretical approaches or research methods generally accepted in the scientific community." 40 C.F.R. § 1502.22(b).	FIN05, FIN13
4596	According to PolyMet's reclamation proposal, during years 22 to 31, PolyMet proposes to pump water out of the East Pit backfill for treatment in the WWTF at 1750 gpm. See PolyMet 2013i at 154. This appears to contradict the information in the SDEIS regarding the East Pit. This is a large amount of water to be pumped and treated, and it appears that it could impact saturation of the waste rock in the East Pit backfill. The agencies must more adequately explain PolyMet's plans for the pumping of water at the East Pit at all phases of the mine project, including reclamation and postclosure. The additional discussion and analysis must address the feasibility and likelihood of success of PolyMet's proposal, and the impacts of the pumping on the waste rock that would be backfilled in the East Pit.	PD35
4606	the amount of drawdown in the Partridge River is likely to be underestimated due to inaccuracy in the modeling, and drawdown of the upper reaches of the Embarrass River tributaries has not been addressed at all. PolyMet apparently does plan to discharge water directly to the channel of Unnamed Creek to maintain its flow immediately below the tailings basin. However, the fate of this water is uncertain; drawdown of the water table may cause the stream to lose most of the augmented flow to groundwater. The entire upper reach of the creek is currently lined by riparian wetlands; it is unclear whether the proposed augmentation will be sufficient to support the wetlands as well as the creek flow. As with Trimble and Mud Lake Creeks, discussion of the augmentation plan does not disclose the likely impacts to hydrology in the first mile below the tailings basin. Finally, the SDEIS also does not disclose the predicted drawdown at SW-003 on the Partridge River.	WR004, WR086, WR183, WR186, WR187
4612	The SDEIS provides no details as to the flow augmentation regime, or at what point the decision would be made to increase the augmentation. However, the point must be made that a twenty percent reduction in low flow is in many cases not within the range of natural variation. Low flows occur when there is little or no precipitation. While in wetter years a higher water table may contribute more groundwater than in drier years, the assumption that a twenty percent drawdown in the baseflow of a stream is equivalent to a twenty percent variation in annual precipitation is a misuse of statistics.	WR185
4639	The SDEIS also does not provide any scientific reference for the proposition that a twenty percent reduction in the flow of a stream would not result in significant effects on the aquatic community. See 40 C.F.R. § 1502.24 (agencies "shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement"); Idaho Sporting Congress v. Thomas, 137 F.3d 1146, 1150 (9th Cir. 1998) ("NEPA requires that the public receive the underlying environmental data from which [an agency] expert derived her opinion"). The conclusion that augmenting flows to within twenty percent of current conditions is sufficient to protect aquatic life is thus unsubstantiated.	WR185

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4663	Based on the information that is available, the groundwater elevation contours shown on Fig. 4.2.2-6 are not believable at this location. First, according to the text the elevations were determined from water level measurements in fifteen wells, as shown on Fig. 4.2.2-13. SDEIS 4-99. Figure 4.2.2-13 indicates that there are no groundwater wells on the entire east side of the tailings basin, including not only the Spring Mine Creek watershed but the Mud Lake Creek watershed as well. The SDEIS provides no information as to the basis of the contour map in this entire area.Furthermore, some of the elevation contours cannot be correct. The highest surface elevation contour between Cell 1E and the Spring Mine Creek watershed shown on Figure 4.2.14-2 appears to be about 1635 feet AMSL (although the figure is admittedly incomplete and difficult-to-read). This line is located directly below the location of the planned outflow swale. The groundwater elevation shown on Figure 4.2.2-6 at the same location is between 1700 and 1725 feet AMSL. Obviously this is wrong. Also, the map shows Spring Mine Lake at an elevation of 1775 ft (assuming that the groundwater elevation is no higher than the lake surface), while reference websites give an elevation of approximately 1676 feet. See, e.g., www.geonames.org.	WR054, WR071, WR079
4667	The SDEIS is even more lacking in information on hydrology at the south end of the tailings basin ... No explanation is given as to why or how the surface features prevent groundwater seepage and movement through this area, and none of the figures provide enough detail to show how much of the area consists of bedrock outcrop or what the likely hydrological regime might be. It appears that no monitoring has been done in this area, see SDEIS Figure 4.2.2-13, and the groundwater elevation contour map is completely lacking in detail. See Figure 4.2.2-6. … The SDEIS states that “A cutoff berm and trench placed approximately 200 to 250 feet downstream of the seepage face would collect this seepage.” However, there is no figure illustrating either the placement or the construction of this berm and trench.	PD13, WR071, WR101, WR117
4671	According to the SDEIS, eighty percent of the Mine Site currently drains to the south, while twenty percent “drains north to the One Hundred Mile Swamp and the Partridge River or northeast to the Partridge River.” SDEIS 4-151. … [Figure 4.2.2-5] does not support an interpretation that water does not flow toward Yelp Creek from the stockpile area. … Whatever the rate of flow would be, the SDEIS and the modeling apparently assume that all of this flow will be toward the West Pit. The information provided does not support this assumption...It cannot be assumed based on the available information that this drainage will not impact wetlands and Yelp Creek.	WR071, WR088, WR089
4676	We agree with the GLIFWC position and incorporate the “GLIFWC Wetlands Attachment” by reference. This includes (but is not limited to) the points that:? Groundwater drawdown is likely to result in impacts on ombotrophic bogs, and these impacts must be included in the SDEIS.? Hydrogeological studies at the mine site are insufficient to support SDEIS assumptions regarding hydrological connections between groundwater and many of the wetlands.? Use of the Canisteo Pit as an analog must be adjusted to account for the difference in depth of the NorthMet pit, and this assessment must use relevant information from other mine pits.? The amount of acreage likely to be impacted, and the acreage likely to be severely or moderately impacted, are all higher than suggested in the SDEIS.? Significant drawdown of the Partridge River is possible, which would in turn impact riparian wetlands.? PolyMet needs to provide sufficient information to allow assessment of the quantity of wetlands that will be impacted.	WET10
4682	The SDEIS explains the use of MnRAM to assess wetland functions, including a list of factors used in the assessment. However, the wetland discussion does not provide information on which functions provided by the wetlands will be destroyed or degraded by this project. As a result, it is impossible to judge whether the functions that will be lost will be replaced by mitigation. The discussion of mitigation focuses only on the quality and type of wetland, and ignores function. … [Table 4.3.3-2, SDEIS 4-436] is from the reference document AECOM 2011a, which includes MnRAM documentation only for the Federal Lands outside of the Mine Site itself, which were apparently assessed separately from the Mine Site lands. We were unable to find MnRAM documentation for wetlands within the Mine Site, which of course is where the greatest impact will be.	WET21

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4690	Neither the impacts of mercury deposition in wetlands nor the addition of mercury to groundwater flow through wetlands is assessed in the SDEIS. The SDEIS does not include information on current mercury levels in water in the wetlands that would be impacted, particularly at the mine site, but the information that it does include indicates that wetlands almost certainly already violate the applicable mercury water quality standard of 1.3 ng/L. … Since the SDEIS assumes that changes in groundwater quality may effect wetland water quality, and since the groundwater will include mercury released from mining features, the only possible conclusion is that the project will add to mercury levels in the wetlands, which already exceed the water quality standard. … Mercury levels in wetland waters are also likely to increase due to mercury in fugitive dust and Plant emissions.	MERC01, MERC09
4691	The SDEIS must assess the total additional load of mercury to wetlands from all sources (air deposition, groundwater transport, and spillage) and the impact it will have both on the violations of the water quality standard and the mercury level in downstream fish. It should be noted that the 1.3 ng/L standard is set to protect wildlife that feed on fish and other aquatic life, and thus the assessment should not be limited to impacts on humans who eat fish from the downstream lakes.	MERC01, MERC09
4692	In addition to mercury, the Proposed Project would likely result in violations of other water quality standards in wetlands, due to both groundwater contamination and air deposition of sulfur and metals…The SDEIS does not fully describe its groundwater quality predictions in regards to the depth at which the pollution is likely to be found, whether the entire flow path is likely to be affected or whether we can expect a narrower plume of contamination, etc…In the absence of adequate rationale for the assumption that groundwater flowing from the mine features would not enter [minerotrophic] wetlands, it must be assumed that contamination would impact all wetlands that are hydrologically connected to groundwater in each flow path.	WET10, WR010, WR112, WR120, WR151
4693	Neither the SDEIS nor the Wetlands Data Package provides the water quality predictions for those locations, however; that information is found in Attachment J of the Water Modeling Data Package Vol. I (PolyMet 2013i). As explained above, the Class 2B standards apply to wetlands. The following table shows the approximate P90 predictions of groundwater quality at the Dunka Road for several flow paths, as compared to the Class 2B standards. Standards that vary based on hardness are given for a hardness of 100 mg/L. All values are ug/L. [see full comment letter for table, pg 57 of 157]...The values in the table above do not refer to the leachate from the various ources.Rather, they reflect very significant dilution by other groundwater. In fact, it is entirely unclear from the discussion in the SDEIS, the Water Modeling Data Package, and the Wetland Data Package that these values do not actually reflect	WR112, WR173, WR177
4694	We have particular concerns about pollutants (such as copper and nickel) for which predictions are based on concentration caps and adsorption rates. The leachate for these pollutants is expected to be extremely concentrated, and we do not believe that the predictions accurately reflect the potential for releases to groundwater and wetlands. The following table shows leachate levels, which are limited to those that are included in Attachment H of the Water Modeling Data Package Vol. 1 (PolyMet 2013i). Once again, all values shown are approximate P90 predictions in ug/L. Standards that vary based on hardness are given for a hardness of 100 mg/L. [see full comment letter for table, page 58 of 157]. It is clear from this table that the potential for water quality violations in wetlands surrounding the stockpiles and pits is significant. While the values given for the Category 1 Stockpile and the pit water are not as high as those for the temporary sources, some of the constituents will remain many times higher than the standard for more than 200 years, which was the extent of the modeling period.	WR058, WR064, WR112, WR166, WR167, WR177
4696	The PolyMet materials do not include predictions for seepage at the east side of the Tailings Basin, but predictions for water quality at the North, Northwest, West, and South toes indicate approximate water quality, shown in the following table. The values are approximate maximum P90 values, in ug/L. Values for standards that vary by hardness are given for a hardness of 100 mg/L. [see full comment letter for table, page 59 of 157]. See Water Modeling Data Package Vol. 2 (PolyMet 2013j), Attachment F. As is clear from this table, if sufficient water escapes collection the water quality standards will be exceeded in wetlands immediately below the tailings basin. This seems particularly inevitable on the east side, where seepage is likely to affect Spring Mine Creek as well as wetlands.	WET12, WR054, WR064, WR100, WR102, WR120

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4697	The SDEIS completely ignores the potential for degradation of plant and aquatic life due to the reduction of sulfate to sulfide within the wetland environment. Considering that several streams within the Plant Site are on the impaired waters list for Fishes and Macroinvertebrates Bioassessments, PolyMet and the Co-Lead agencies need to investigate the role of sulfate in the degradation of aquatic communities before permitting any additional releases.	AQ11, AQ12
4698	As with the metals, the SDEIS relies on attenuation and dilution in its predictions regarding sulfate levels in the Partridge and Embarrass Rivers. And as with the metals, the SDEIS does not disclose the levels of sulfate that will discharge to wetlands, far upstream of the surface water evaluation points. As with the metals, the SDEIS relies on a faulty model of the mine site and unrealistically optimistic predictions of the effectiveness of water collection to minimize the amount of contaminated water predicted to escape into groundwater and wetlands from the mine features. And finally, as with the metals, the SDEIS does not reveal the amount of sulfate that will enter the wetlands through air deposition.	WR017, WR019, WR020, WR021, WR058, WR089, WR120, WR126, WR127, WR151, WR167
4699	The maximum predicted P90 sulfate levels in the groundwater flow paths at the Dunka Road average between 20 and 60 mg/L. Maximum P90 levels in leachate from mine features is presented in the following table, with approximate values taken from the Water Modeling Data Package Vol. 1, Attachment J (PolyMet 2013i). [see full comment letter for table, page 62 of 157]. Sulfate in the Category 1 leachate is of particular concern, because it continues at this level beyond Year 200. Some unknown amount of this water is likely to discharge into the wetland immediately south of Yelp Creek; Yelp Creek itself is located about 1,000 feet from the foot of the stockpile.	WR060, WR071, WR081, WR115, WR120, WR167, WR173
4700	The wetlands cumulative effects discussion begins by including only the direct impacts of the Proposed Project. SDEIS 6-35. This exclusion of most of the impacts of the project is unexplained and unacceptable. If the rationale is that lost wetlands can be expected to reappear once the pits are filled, this is not acceptable. The impacts of forty years of wetland loss and degradation must be included in the cumulative impacts analysis, including the long-term effects of vegetative and other changes. The cumulative impacts requirement is not limited to permanent wetland loss. The analysis should not include the East Pit wetland or the West Pit in its calculations. These areas will not meet water quality standards, and the West Pit, at least, will be fenced. Water will be pumped from the West Pit in part to limit the amount of water flowing out to wetlands. Referring to the West Pit as “deep water habitat,” SDEIS 6-35, begs the question, habitat for what?	WET18
4701	In addition, the [cumulative wetlands] analysis does not include impacts from Northshore Mining. Northshore Mining estimates that its planned expansion will increase inflow to the Peter Mitchell Pit to 280 percent of its current inflow, Golder Assoc., Type II Virginia Formation Stockpile Plan (May 2, 2013) (Ex. 35). This amount of increase will surely have some impact on wetlands. Furthermore, it plans to completely eliminate 6,000 acres of the Partridge River watershed and discharge all pit water to the Rainy River watershed following closure. Northshore Mining Company, “Ultimate Pit Limit – Permit to Mine – December 2010” (April 12, 2013) (Ex. 36). This will also impact wetlands in the Partridge River watershed.	WET18
4706	In many cases, the conclusion that destruction of wetlands will have significant environmental impacts can be avoided by providing compensatory mitigation that addresses those impacts … most of the proposed mitigation is located in places where it cannot compensate for lost functions. The restoration of wetlands outside of the St. Louis River watershed cannot compensate for the loss of functions such as flood control, water storage to support river and stream base flows, and filtering of pollutants and particulates within the watershed...the SDEIS must provide an assessment of lost functions; that assessment must consider whether mitigation will occurwithin a geographic scope that would actually address those losses.	COE02, WET03
4707	The destruction of peat bogs will not only release mercury currently stored in peat, it will reduce the mercury sequestration capacity of the watershed, which is likely to have a continuing impact on mercury levels in rivers and streams, and thus on the level of mercury in fish tissue within the St. Louis River system. The loss of this capacity cannot be compensated for by increasing the capacity for mercury sequestration in another watershed (even if the creation of a peat bog were possible).	MERC20

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4708	the mine site provides habitat for a number of wildlife species that do not range as far south as the proposed [wetland] mitigation sites. Two of these are Canada lynx and moose. Moose in particular need wetlands for thermoregulation in summer, and with global warming that need is increasing. Northeastern Minnesota is increasingly becoming the last viable area within the Midwest for northern species as temperatures grow warmer, and many other species could be affected by the loss of habitat in this area. The restoration or rehabilitation of wetlands south of St. Louis County will not compensate for this loss.	WI01, WI02
4709	Another function that will be lost at the site is the loss of biodiversity, particularly in regards to black spruce/Jack pine forest, which is considered imperiled/vulnerable in Minnesota. This ecosystem is disappearing due to global warming, and any attempt to create this ecosystem is unlikely to be successful; that would be particularly true south of St. Louis County [at the wetland mitigation sites].	VEG02, VEG03
4710	the wetland fill would destroy one of the few known Minnesota populations of floating marsh marigold, which is state-listed as endangered and has been found only in St. Louis County. Restoring wetlands in the Aitkin and Hinckley [mitigation site] areas will not replace habitat for this rare plant.	VEG01, VEG03
4711	In addition to the direct destruction of 916 acres of wetlands, the SDEIS acknowledges that the proposed project would destroy or degrade thousands of additional acres. Neither the permit application nor the SDEIS provides a mitigation plan for this significant loss of wetlands. Instead, the SDEIS includes a promise to monitor, with no details regarding parameters, conditions that would trigger a need for additional mitigation, or description of what that additional mitigation would consist of. Without this information, the public (and decision makers) have to assume that an undisclosed amount of wetlands will simply be lost.	COE02, WET01, WET02
4714	What the SDEIS fails to explain is why these impacts [lynx habitat and wildlife corridors] would not violate the Endangered Species Act. … Even though the agencies have been analyzing this proposed mine for a number of years, the SDEIS states that ESA Section 7 consultation between the action agenciesand the U.S. Fish and Wildlife Service is still "ongoing and will continue throughout the EIS process." SDEIS 5-364. Pursuant to NEPA, the agencies should have waited to release the SDEIS for public comment until after ESA consultation was completed, to allow the concerned public to know the position of the expert wildlife agency regarding the impacts of the proposed mine on Canada lynx during the public comment period. See 40 C.F.R. §§ 1502.25(a), 1502.9(a). … The proposed mine would likely result in the "take" of Canada lynx, through the destruction of their critical habitat, vehicle and train collisions, and the continued loss and fragmentation of the few remaining wildlife corridors in the area. … there will undoubtedly be cumulative impacts to lynx and lynx habitat as a result of widespread mining, mineral exploration, and other activities in this region	WI01, WI02, WI03, WI11
4715	The SDEIS's analysis of the potential impacts of the mine proposal on moose and moose habitat, however, is almost nonexistent. In devoting only one sentence to the decline of the state's moose population, SDEIS 4-210, the SDEIS vastly understates the dramatic decrease in moose populations across Northern Minnesota. … The SDEIS also fails to recognize the critical importance of northeastern Minnesota for the remaining moose population in the state. …In failing to properly recognize the moose's dramatic decrease in population, the SDEIS' analysis of the potential environmental consequences to moose is also deficient…The agencies summarily conclude, however, that even though moose would be adversely affected through habitat loss and fragmentation, an adverse affect would be "not likely at the population level." Id. NEPA prohibits agencies from making such sweeping general statements without providing supporting data or analysis. Idaho Sporting Congress v. Thomas, 137 F.3d 1146, 1150 (9th Cir. 1998); 40 C.F.R. § 1502.24.	WI01, WI02

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4716	Moose are likely to be affected by the proposed NorthMet project in a number of ways that the SDEIS fails to sufficiently address or disclose. First, vehicle and train collisions have been recognized for decades as an important source of moose mortality. … [second] the presence of areas that provide a mosaic of habitat types within close proximity to each other may be an important component of moose survival in Minnesota. Although the Mine Site has apparently not been assessed on this basis, it appears from descriptions to provide such a mosaic of habitat types. Third, moose survival may also be affected by the expenditure of energy when startled by noise or to avoid areas affected by human activity. … Finally, the same impacts on wildlife corridors that will affect lynx will affect moose, in much the same way.	WI01, WI02, WI03, WI05
4719	the SDEIS analysis of the potential impacts to moose is even more deficient and problematic in the cumulative impacts analysis, where moose are not even mentioned.	WI01
4730	The SDEIS fails, however, to provide a detailed analysis of the environmental consequences to birds and wildlife that would result from the creation of a permanent, polluted pit lake at the Mine Site, and creation of a permanent tailings pond at the Plant Site.	WI01, WI04
4731	The SDEIS's failure to address the proposed mine's compliance with the MBTA [Migratory Bird Treaty Act], despite the proposed creation of a permanent 321 acre pit lake and the acknowledgment that migratory bird species may be adversely affected by this newly created "open water" habitat, violates NEPA and the MBTA.	WI04, WI11
4734	The SDEIS tells us that noise will impact wildlife, and that "Songbird populations have been shown to decrease with noise levels as low as 35dB." SDEIS 5-370. However, the SDEIS says nothing about the magnitude of the impacts. … [Figure 5.2.8-3] shows a remarkably large area within which songbirds could be affected. It indicates a circular area that appears to be about 20 miles in diameter. It thus appears that the project would affect more than 300 square miles of songbird habitat; if this is the case, the SDEIS needs to say so.	N04
4735	The SDEIS needs to provide an estimate of the acreage of wildlife habitat that will be degraded due to human noise and activity. The effect of noise, traffic, and other human activity in addition to the direct loss of habitat and the blockage of wildlife corridors needs to be addressed to give a complete picture of the impacts of this project on wildlife.	N04
4741	In its cumulative impacts analysis for wildlife, the SDEIS provides very general statements concerning some risk and impacts, which fall far short of the detailed analysis required by NEPA. … Absent a justification as to why more detailed and quantifiable information cannot be provided, these very general statements are insufficient and fail to comply with NEPA.	WI08
4750	As for the wolf, which until recently was designated as threatened with extinction under the ESA and remains a state species of concern, the SDEIS cumulative impacts analysis devotes only one sentence to potential impacts ... Clearly NEPA requires a more detailed analysis, or the cumulative impacts requirement is rendered meaningless.	WI01
4757	The SDEIS cumulative impacts analysis for wildlife also entirely fails to consider or address impacts of the widespread past, present, and reasonably foreseeable mineral exploration across the region. In May, 2012, the Forest Service completed an EIS for 29 federal hardrock mineral prospecting permits, which acknowledged impacts to wildlife including up to 163 miles of new roads, increased traffic volume, and the increased noise from drilling. While the mineral prospecting EIS was limited to an identified number of projects where the federal government owns the mineral rights, there are many additional mineral exploration projects within and near the Superior National Forest where the mineral rights are owned by private interests or the State. Additionally, the BLM is currently considering potential lease renewals for Twin Metals, which would result in additional exploration and other mining activities. And the Forest Service is in the process of preparing an Environmental Assessment of the impacts of the Twin Metals hydrogeological study. All of these projects will have impacts on wildlife, each of which may not be significant standing alone, but which are very likely to be significant in the aggregate. None of these projects, however, are considered in the SDEIS cumulative impacts analysis.	WI08

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4758	The SDEIS also fails to consider the cumulative impacts of the continued destruction of wetlands in this region, and the resulting impacts to wildlife. This is especially important due to the changes anticipated in the region from global climate change.	WI02
4759	What the SDEIS fails to provide, however, is any analysis as to what this anticipated continued decline in the few remaining travel corridors actually means for wildlife in the region. This is especially problematic for wide ranging species such as wolves, rapidly declining species such as moose, and already endangered species such as the Canada lynx.	WI03
4760	The SDEIS states that a "Take Permit" may be required for impacts to state-listed endangered and threatened species, and that mitigation may be required. As with indirect impacts to wetlands, the lack of a mitigation plan makes it impossible to judge what the impacts on these species will be. NEPA and MEPA both require that if mitigation is relied on to eliminate or lessen impacts, that mitigation and its likely efficacy must be described in the EIS.	VEG01
4761	The cumulative impacts assessment must identify the appropriate scope of review for each issue, and proceed accordingly. … The discussion of cumulative impacts to state-listed plant species needs to consider threats to the species throughout its range within the state. Without this information, it is impossible to know the full significance of the destruction of populations due to this project. For example, the project is predicted to impact eight percent of the known populations of floating marsh marigold in the state, i.e., it will impact one of only twelve populations. Table 5.2.4.3, SDEIS 5-346. To understand the significance of the loss or degradation of this population, we have to know the status of the other populations.	VEG08
4762	the SDEIS cumulative impacts analysis for a number of resources – including but not limited to water quality, wetlands, and wildlife - is inadequate and fails to comply with NEPA or MEPA. The SDEIS provides only general, mostly non-quantified analysis, which falls far short of the detail required.	CU14
4763	the SDEIS makes a number of fundamental mistakes in its cumulative impacts analysis, including failing to consider certain past, ongoing, and reasonably foreseeable actions. Table 6.2-1 lists the actions that the agencies considered. SDEIS, p. 6-7. Notably absent are the hundreds of exploratory drilling projects taking place in the same region on federal, state, and private lands.	CU02
4764	The SDEIS also fails to include consideration of the major expansion proposed at United Taconite. … As stated in our comments, the construction and utilization of tailings basin 3 at United Taconite would impact an additional 1,300 acres of wetlands and adjacent waterways in the St. Louis River watershed.	CU02
4765	The SDEIS further fails to address PolyMet's plans for future expansion and/or for the Plant Site to be utilized for future copper-nickel mining projects in this region. Because the plant will operate only at approximately one-third capacity for the proposed NorthMet project, its use for other projects is likely. … Of course the additional use of this Plant Site for expansions and other mining proposals would significantly increase the amount of waste that would be deposited into the tailings basin. This would also greatly increase the amount of vehicle and rail traffic and other disturbances in the immediate project area, impacting numerous resources.	CU02
4766	The SDEIS also fails to set forth the proper geographic scope for the cumulative impacts analysis, especially concerning the potential impacts to water, wetlands, and aquatics, where the agencies refuse to extend the scope of analysis to the entire St. Louis River watershed. There can be no dispute that past and ongoing mining and related activities have resulted in major, significant impacts to the St. Louis River watershed, all the way downstream to the estuary which is formally designated as an "Area of Concern."	CU01

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4767	This is an error that the SDEIS makes again and again, for virtually every type of impact. From the air deposition of mercury to area lakes, to ambient air pollution and regional haze, to the loss of critical habitat, to impacts on state-listed endangered plants, the SDEIS compares the level of impact from this project to the overall impact and deems the impacts from this project insignificant and thus not of concern, even in regards to the cumulative problem. The SDEIS must reveal the level of cumulative impact that all sources together have on impacted resources, and acknowledge that the Proposed Project would be one of many sources that together cause the impacts.	CU15
4812	The [regional haze] analysis must include all Class I areas that could be affected by the cumulative emissions of this and other projects. That would include at least Isle Royale. The analysis makes the further mistake of limiting the foreseeable projects that will have impacts on the Class I areas. The analysis must include all foreseeable projects that are likely to impact visibility in the Class I areas, regardless of where they are located. … Furthermore, the SDEIS does not include all foreseeable sources even within the study area. The list of included project on SDEIS p. 6-81 does not include mining lease exploration activity. Drilling and other exploration activity can be a significant contributor to haze, especially in winter.	AIR08
4813	The entire analysis of this issue is built on the faulty premise that if reductions are made from some sources, additions will be acceptable from other sources. The point of the haze regulations is to reduce pollutants that affect visibility and most importantly to make reasonable progress on improving visibility in all affected Class I areas such that natural visibility conditions are attained by 2064. The amount of reductions from other facilities is not the relevant number by which to measure the impacts of the Proposed Project. Rather, the impacts must be measured against the visibility targets for all affected Class I areas (including Isle Royale). If that target is unlikely to be met, the pollution from this project must be considered a contributor to a significant cumulative impact.	AIR08
4861	The analysis attempts to describe the current situation with the Regional Haze State Implementation Plan (SIP). SDEIS 6-78. It fails to note, however, that the plan has been challenged in court due to its lack of stringency, and may well be invalidated. Furthermore, the analysis does not tell us what the SIP, the EPA Federal Implementation Plan, the Cross-State Air Pollution Rule, and the litigation involving them mean for this project and its impacts on visibility. … the goals of the challenged SIP do not meet the requirement to meet natural conditions by 2064 and therefore there is no question that additional reductions will be necessary. It is inconceivable that the agencies could possibly find that the increase from the Proposed Project may be permitted under this scenario.	AIR08
4862	Remarkably, the entire cumulative impacts assessment never describes the actual impacts of haze on Class 1 area visibility, at current levels and at the levels we can expect based on the assessment of emissions levels. One can read the entire assessment and have no idea how much visibility has already been impacted in the national parks and wilderness areas, how much better or worse it will be with the projected reductions and increases, or how close that will come to pristine conditions. PolyMet and the agencies must model and discuss actual visibility impacts. Although emissions are a component of this analysis, emissions reductions do not result in a straight-line visibility impact, and cannot be used as a substitute for impacts on visibility itself.	AIR08
4863	we disagree that “PM10 emissions are not considered to be a concern for visibility impairment in the BWCAW or Voyageurs National Park,” SDEIS 6-83 (and we reiterate that other potentially affected Class I areas must be included in the analysis). It is alarming to learn that considering only the projects that the agencies deem foreseeable, and including reductions, a net increase in PM10 emissions is predicted; the SDEIS needs to provide more information on how this could affect haze and what it means in regard to regulatory requirements.	AIR08
4864	Paragraph 5 of the summary on SDEIS 6-86 is poorly worded, and needs to be clarified. “Based on current projections including the NorthMet Project Proposed Action, the reductions addressed in this section are not projected to be enough to meet the 2018 goal.” That much is clear. Does “The reductions would be enough to meet the 2012 goal” mean that they would be enough even if NorthMet was operating? If not, would the goal be met with the NorthMet project? And at what point in time would the goal be met? The year 2012 has already passed; has the goal in fact been met? If we have not yet met the 2012 goal, it is unclear how this project could be permitted.	AIR08

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4865	The NorthMet Proposed Project would emit 700 tons per year of particulate matter-10, SDEIS Table 5.2.7-5, which is quite a substantial amount of a pollutant with already existing impacts on human health. Yet the SDEIS completely fails to tell us about the health impacts of breathing PM10, or the degree to which the Proposed Project would add to existing levels.	AIR07
4866	Table 5.2.7-10 and Table 5.2.7-11, both at SDEIS 5-410, require explanation. The tables appear to include the same information for different purposes. However, although the SO2 and NO2 values are the same, the values for PM are very significantly reduced in Table 5.2.7-10, with no explanation. If this is due to the evaluation location (the property line for Table 5.2.7-10 and an undisclosed location for Table 5.2.7-10), the SDEIS needs to discuss the impacts of this level of particulate matter for workers at the site.	AIR07
4867	The SDEIS includes many pages of discussion about regulatory requirements and why the project will not violate them, but it gives no information whatsoever about the impacts of emissions of criteria pollutants from the Proposed Project on human health. While EIS requirements include a discussion of whether regulatory requirements will be met, that is not the primary point. The point is to describe environmental impacts, whether they are otherwise regulated or not. Regulatory standards are very often compromises that allow some amount of impact in order to accommodate industry. They are generally not cut-off points below which no impacts will occur.	AIR07
4868	While the figures do illustrate a shocking level of exceedances due to taconite facilities, it nonetheless also appears that the NorthMet project is likely to have some impact from the emission of NO2, as ambient levels approach the regulatory standard.Of particular concern is that the analysis completely omits discussion of particulate matter, apparently because it is not modeled to exceed the standard at any receptor. It does, however, come close, at 34 ug/m3 compared to the standard of 35 ug/m3. Particulate matter is likely to have an impact at this level, and it would be instructive to see a modeled receptor map showing where this impact would occur.	AIR07
4869	More generally, the entire cumulative impacts analysis for criteria pollutants is improperly limited to the grid around the site, rather than considering incremental additions to more regional problems. Most of the state of Minnesota has just experienced a health advisory warning from MPCA due to high levels of particulate matter. MPCA, “Eastern two-thirds of Minnesota placed under air pollution health alert” (March 7, 2014) (Ex. 52) accessed at http://www.pca.state.mn.us on March 8, 2014. We reiterate that it is alarming to learn that a net cumulative increase in PM10 emissions is predicted, even with planned reductions from any facilities. The SDEIS must disclose contributions from the Proposed Project to the projected increase, and what that means for human health both locally and in downwind areas.	AIR09
4870	One of the most problematic issues in regard to this and other new mining projects in Northern Minnesota is the impact on global climate change. The SDEIS reveals that this project would represent 0.44 percent of Minnesota’s greenhouse gas emissions. SDEIS 5-430. This is an enormous amount for one facility, especially a facility that intends to employ only about 0.012 percent of Minnesota workers.	AIR01
4871	The SDEIS states that Minnesota has established a greenhouse gas emissions reduction target of 15 percent by 2015. … It is absolutely unconscionable for the State of Minnesota to consider permitting the level of increase in emissions at issue here, in light of our commitments to global welfare.	AIR01

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4872	Although the SDEIS appears to include the loss of terrestrial carbon sequestration in its assessment of greenhouse gas emissions, the number used for this source of greenhouse gases is puzzling. A 2008 report to the DNR states, "A single acre of peatland contains, on average, 750 metric tons of C. Total emission of the carbon contained in just 1,000 acres of peatland would increase Minnesota's 2005 CO2 emissions by almost 2%." Anderson, Jim, et al., "The Potential for Terrestrial Carbon Sequestration in Minnesota" (February 2008) (Ex. 14). The total amount of terrestrial carbon loss reported in Table 5.2.7-9 of the SDEIS is 199,963. This would amount to a loss of 266 acres of peatland if no other losses were counted. However, the SDEIS states that "Most of the wetland vegetation present at the Mine site (69 percent) is indicative of acid peatland systems." It appears that significantly more than 266 acres of peatland will be destroyed. We thus question whether the protocols used to estimate greenhouse gas emissions underestimate impacts from the destruction of peatlands. Furthermore, the SDEIS does not discuss the important role these lands play in long term sequestration of carbon. The value of the lands for that purpose will be permanently lost; we cannot recreate this resource.	WET13
4873	Friends of the Boundary Waters Wilderness commented extensively on state policy in regards to peatlands in its scoping comments on the USFS land exchange … These state recommendations and policies and the inconsistency and impact of permitting the Proposed Project must be discussed in the SDEIS.	NEPA08
4877	The inventory of greenhouse gas emissions does not appear to include increased emissions from transportation to and from the mine and plant sites. This site is in a relatively remote location, and will necessitate a great deal of transportation of both materials and workers. SDEIS Table 3.2-13 lists shipments of various materials; the greenhouse gas emission impacts should be included for these shipments from their place of origin, not just from Duluth. In addition, the SDEIS assumes that workers will commute long distances for jobs at the site. This assumption also needs to be included in the assessment of greenhouse gas emissions.	AIR01
4878	In addition, some of the processing of these metals will be done in other locations. Earlier estimates of air emissions have been reduced due to this factor, in essence exporting the air pollution impacts to another location. In regards to global pollutants like greenhouse gases and mercury, these impacts must be included in the EIS for the project. The cumulative impacts of these emissions when added to other global sources of pollution will add to the impacts in Northeastern Minnesota just as they would if they were emitted locally. They will also add to the load affecting the entire planet regardless of the emission location.	AIR07
4879	At the very least, PolyMet, the Co-Lead Agencies, and the SDEIS need to consider an alternative energy source. All of the electric power for this project would come from burning coal.	AIR01
4880	In addition, according to the SDEIS, several alternatives that would decrease greenhouse gas emissions (albeit by minor amounts) were considered and rejected by PolyMet. SDEIS 5-433. At least one of the alternatives was rejected on the basis of cost alone; the reference document indicates that an electric tram system for haul trucks would not be considered unless it would be less expensive than diesel power, which emits more greenhouse gases. See Barr 2012s., Att. A. The Co-Lead Agencies need to consider these alternatives themselves, and include them in the SDEIS if they would provide environmental benefits. Under NEPA, the consideration of alternatives is not driven by what the project proposer is willing to do. The Co-Lead Agencies must examine the project objectively and independently to determine whether the applicant could do more to reduce environmental impacts, and must deny the necessary authorizations if they find that it could.	AIR01
4881	For almost every resource that will be impacted by the Proposed Project, the SDEIS fails to account for the impacts of climate change. … Providing a note of this while not stating what the actual effect of the changing climate will be, see SDEIS 5-430, is not sufficient to cover every issue in the SDEIS. For some of the resources at risk, it is at least predictable that the differences will be significant and that they will move in a particular direction...For these and other impacts with a foreseeable climate change component, the SDEIS must include this factor in its discussion of impacts.	AIR01

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4882	Both PolyMet and earlier investigators have found amphibole material in the area PolyMet seeks to mine. This amphibole can include fibers that produce health effects. Such fibers are also generated when the material is ground and processed as PolyMet plans to do. SDEIS Section 5.2.7.5 and its supporting documents try to explain this away, saying the fibers are not true asbestos and wouldn't cause health harms. In fact, the history of taconite mining in Minnesota and mining in other places proves that fibers deemed "not asbestos" by some experts can sicken and kill humans in large numbers. That is just what could happen if PolyMet is allowed to mine in the Duluth Complex.	HU05
4900	The Expert Statement of Steven J. Ring ... explains that as part of the Minnesota Environmental Quality Board's Regional Copper-Nickel Study, Mr Stevenson found amphibole fibers in the Duluth Complex – including from the Partridge River Intrusion, which PolyMet seeks to mine. … Stevenson's conclusion was that the Duluth Complex has 1/3 the fibers as the does the Biwabik. Id. at 5. Stevenson also notes the similarity of the formation of amphibole minerals in the Biwabik and Duluth Complex: both can have the same type of sharp, pointed crystals. … The information and opinions from Mr. Ring's statement must be disclosed and addressed in the Final EIS. An EIS must disclose and respond to "any responsible opposing view."	AIR03
4902	the University of Minnesota School of Public Health and the Natural Resources Research Institute (NRRI) presented findings from their ongoing Taconite Workers Health Study (Ex. 58). They found that in Iron Range Communities mesothelioma was present nearly 200% higher than expected. Ex. 58 at 5. Lung cancer was higher than expected by 20% and heart disease by 11%. Id. All three of these harms were elevated in each of four geologic zones of the Iron Range. Id. Furthermore, the study found that the iron mining worker population of northeastern Minnesota has elevated rates of death from all causes combined, all cancers combined, lung cancer, mesothelioma, and heart disease. If mining in the Duluth Complex might yield a third of this harvest of death and illness, the PolyMet proposal should be rejected.	HU05
4906	The [Barr Engineering, Fibers Data Related to the Processing of NorthMet Deposit Ore (June 2007) (Barr 2007m).] … Report argues the fibers that would be generated by mining the Duluth Complex would not be asbestiform, and thus would not harmful based on a review of fibers identified in its sampling and Stevenson's earlier work regarding the Duluth Complex. … the assertion in the PolyMet Fibers Report that EPA requires a 20:1 aspect ratio for a fiber to be deemed asbestos is flatly incorrect. EPA has specifically rejected an identical mining industry claim regarding El Dorado Hills, CA. The 20:1 aspect ratio used in the PolyMet Fibers Report, via the Wylie fibrosity index, should not be used as a determinant of the potential for health effects from a given fiber. In addition, the results from Libby and the Peter Mitchell Pit – where fibers that arguably fail a strict test of what constitutes asbestos still prove deadly – amply demonstrate that such narrow definitions are irrelevant to whether public health will be at risk.	HU05
4913	The companion argument in the PolyMet Fibers Report (as it was at Libby) is that the fibers are cleavage fragments, which are asserted to be not harmful. In fact, there is no basis for this assertion. … EPA, ATSDR, NIOSH, the American Thoracic Society and leading epidemiologists reject the claim that cleavage fragments cannot cause health effects. Research data also support the notion that small fibers can cause health effects. The Cook PMP Analysis (cited above) found that fibers splitting into smaller pieces can increase the potential for health risk. … Clearly if surface area is the key determinant of health effects – not aspect ratio alone or number of particles or surface chemistry – then elongated particles of varying size and aspect ratios can be harmful. As important, if surface area is the key determinant, whether a particle arrived at its shape by cleavage or some other mechanism is irrelevant.	AIR03

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4917	A report prepared for the Minnesota Department of Natural Resources and cited in the SDEIS provides support for the notion that short fibers can play an important role in creating disease. Environmental Resources Management, Amphibole Mineral Fiber Toxicological Literature Review 11-12 (March 2009) (ERM2009) [hereinafter MDNR Literature Review]. Citing three studies, the MDNR Literature Review states, "[o]ther studies that examined human tissues have found that the majority of asbestos fibers in mesothelial tissues were shorter than 5 µm in length, thus indicating the ability of shorter fibers to reach the tumor site, remain there, and as a consequence thereby implicating their role in the development of disease." Id. (citations omitted). The MDNR Literature Review also discusses a series of studies that found short fibers contributed to health effects.	HU05
4918	The PolyMet Fibers Report also cites old preliminary research from 2003 regarding an absence of health effects experienced by Minnesota taconite workers to suggest that no health harms should result from mining the Duluth Complex. PolyMet 2007m at 61. This science is outdated; as presented above, more recent data show elevated mesothelioma, lung cancer and heart disease and overall death rates for taconite workers. In fact, the health effects experienced by those workers rings an alarm bell for the prospect of mining in the Duluth Complex. The PolyMet Fibers Report also asserts that the low levels of fibers Barr Engineering found in samples taken from the Duluth Complex suggest no health harm is likely. Barr 2007m at 65. In fact, even very low levels of mineral fibers can cause substantial health effects.	HU05
4919	The SDEIS asserts that, "[t]he vast majority of potential emissions of MN-fibers for the NorthMet Project Proposed Action would occur from the ore crushing operations at the Plant Site, with minor potential emissions from the Tailings Basin and the Mine Site." SDEIS 5-441. The authority cited for this proposition is Barr Engineering, Emission Control Technology Review for NorthMet Project Mine Site (September 2007) (Barr2007o) [hereinafter Emission Control Report]. In fact, the Emission Control Report contains no such information. Instead, the report discusses various types of control measures. However, for many of the emission sources no mechanical control is proposed. … Thus, there is no basis in the record to believe mine workers won't be exposed to dust at the mine site, if the mine becomes active.	AIR03
4920	It is very troubling that PolyMet used the R.J Lee Group to analyze its samples for asbestos, and that the Co-Lead Agencies accepted this analysis for the SDEIS. This consulting firm consistently represents industry and, as noted above, EPA has demonstrated at Libby and El Dorado Hills how the firm uses inappropriate measures to analyze for asbestos. Further, the similarity between arguments found in the PolyMet Fibers Report and arguments used by the R.J. Lee Group – and rejected by EPA – at other mines undermines the credibility of the entire SDEIS fibers analysis.	AIR03
4921	The unusual preparation of the PolyMet flotation samples also raises credibility concerns. PolyMet's contractor ground the samples destined for the electron microscope with a mortar and pestle to an unspecified degree – something that neither of the cited test methods calls for. Ex. 52 at 13-14. As Mr. Ring points out, this extra grinding prevents the results from being compared with Stevenson's similar analysis. Id. Did the grinding remove fibers that PolyMet otherwise would have found? Was that the goal of the exercise? When important public health matters are involved, decision makers should be able to rely on information untainted by such concerns.	AIR03
4922	The discussion of fibers above indicates the need for an assessment of the potential impacts of the Proposed Project on the health of people who would work there. Leaving the protection of workers to OSHA regulation without providing them and the public with an explanation of the risks is a disservice to the entire community. In addition to fibers, it is apparent from the assessment of impacts on ambient air that working at the mine would pose health risks to workers. However, the assessment does not provide any information on air quality within the property line, so it is impossible to judge what the level of those impacts would be. The SDEIS should provide information about the ambient levels of pollutants for workers at various places within the Mine and Plant Sites, along with information about the health impacts of pollutants at those levels. A review of the health effects of particulate matter from the Journal of Toxicology is included as Exhibit 51.	HU04

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4925	The numbers drawn from the Economic Impacts Assessment (EIA) do not take account of known limitations of the IMPLAN model, thus inflating the likely economic effects. Some of these limitations are noted in the EIA report itself. BBER 2012 at 3-4. In addition, we are submitting a review of an industry-wide report that was written by the same team at the Labovitz School of Economics. Hjerpe, Evan, and Spencer Phillips, "A Review of 'The economic impact of ferrous and non-ferrous mining on the State of Minnesota and the Arrowhead Region,'" (Dec. 30, 2013) (Ex. 75).	SO04
4926	Despite the caveats included in the EIA, numbers from the report are stated in the SDEIS as if they are neither uncertain, nor inflated. … In particular, the addition of induced employment, output, and value added to the numbers is misleading. Without a discussion of other forms of economic development that might be expected if the mine were not to be build, the entire practice of adding induced effects will virtually always make the impacts appear greater than they actually will be. … To put it another way, if these jobs were not induced by the NorthMet project, at least some portion of them would be induced by other economic activity. The counting of induced effects assumes that if the NorthMet project did not happen, the local residents who would work there would either leave the area or remain unemployed. While this might be true for some, it is certainly not true for all. Even if the "Proposed Action could reduce unemployment in the study area by nearly one percent," SDEIS 5-501, it is highly unlikely that the unemployment rate would actually be one percent higher without the mine than it would be if the mine were operating.	SO04
4927	Furthermore, economic researchers and theorists note that dependence on resource extraction can inhibit other economic development. … The failure of the SDEIS to recognize that other economic development is more likely to occur if the NorthMet project does not proceed makes the project appear to be more important than it actually is to the local economy.	SO04
4929	The SDEIS also does not provide adequate information regarding the numbersthat it presents. … The SDEIS needs to provide specifics about these assumptions. For example, "profits" are included in the definition of "value added." The analysis does not tell us if this includes PolyMet shareholder profits. If it does, almost all of these profits will be leaving St. Louis County. It would be very helpful to all parties, whether they support this project or oppose it, to be able to compare the economic benefits that would remain in the county to those that would not. Similarly, "output" is defined to include "minerals and processed mineral products," virtually all of which would leave the county.	SO04
4931	The discussion of taxes should include a point of comparison, such as total Minnesota tax revenues for 2011. See SDEIS 5-503. It should also include information on the percentage of taxes paid by mining companies that go back to the mining industry, and the degree to which the project is supported by public services. With no assessment of the cost of this facility to the state in terms of such things as regulatory oversight, emergency services, state-funded research, public education about the dangers of eating fish, and cost savings stemming from the LTV bankruptcy, the tax amounts do not indicate the actual benefit to the public of the Proposed Project. Finally, the way in which these numbers are presented can strongly influence the impression they make. For example, estimated taxes for the project according to the EIA are $69 million annually, and according to PolyMet are $37 to $80 million annually. SDEIS 5-503. ... The Executive Summary takes it one step further: "Federal, state and local taxes would total estimated $80 million annually." The length of the SDEIS ensures that virtually no one will read beyond the Executive Summary or the initial material at the beginning of each section, and very few people will learn that taxes may be half of what is stated in the summaries. The SDEIS needs to do a better job of presenting an unbiased view of the project.	SO04
4932	Mirroring the way in which environmental impacts are presented, the economic assessment emphasizes positive effects and downplays negative ones. For example, the additional jobs are presented as a clear benefit, "reduc[ing] unemployment in the study area by nearly one percent," SDEIS 5-501. However, after closure, those jobs "account for less than one percent of the overall study area workforce . . . [and a]ny increase in study area unemployment during and after closure . . . would be minimal." Similarly, unemployment during a "bust" could be offset by "the diverse economy of the study area." SDEIS 5-496. A change in industrial productivity is not seen as a situation in which more local resources will be extracted with less local benefit, or as contributing to the ongoing decline in mining employment, but as "lessen[ing] the effect of booms and busts in mining communities." SDEIS 5-497.	SO04

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4935	The SDEIS notes that there may be economic costs of environmental degradation, but then conflates that factor with non-market values, which is an entirely different issue. We agree that a monetary value cannot be placed on clean water, clean air, and the continued presence of moose and wild rice in the state of Minnesota. However, these values are in addition to monetary costs of environmental degradation, such as the health care and lost productivity costs of air pollution, the cost of replacing subsistence fishing and hunting with other sources of protein, and the lost value of wild rice. While we recognize that NEPA regulations do not require a quantitative cost/benefit analysis, if economic benefits are quantified as they have been here, economic costs should also be quantified. Not providing comparable quantitative information on costs results in an inevitable bias and inflates the value of the project.	SO04
4936	[The SDEIS] goes on to suggest that workers will commute as far as 80 miles to work on construction. This is not a positive statement; in fact, it is one more reason why the permitting of the project would not be good public policy. Encouraging employment that has people driving this far (and emitting the corresponding amount of greenhouse gases and other pollutants) is exactly the opposite of what we need to be doing as a matter of public policy. State, federal, and local agencies should all be promoting employment situations that eliminate commuting, rather than promoting it as good for the economy.	AIR11
4937	It is unclear what is meant by the statement that "To account for some of these concerns, commodity prices in the IMPLAN model are generally conservative, compared to price trends." The IMPLAN model explicitly does not address production slowdowns or shutdowns. If it did, the appropriate comparison would not be to average prices, but to recent low prices, because slowdowns or shutdowns would come when prices fall below the average. The average price has not impact on slowdowns and shutdowns; if it did, this would not be a cyclical industry. The low prices for all of the metals are lower than the modeled price. SDEIS 5-496.	SO04
4938	The attitude in the SDEIS toward mine closure is truly remarkable. We have to guess that whoever wrote this section has never lived in a mining community when the mine shut down. The level of enthusiasm for this project in Hoyt Lakes is due in part to the difficulties the community has had since LTV closed. The cavalier assumption that people would simply move away when the mine closes defies belief, especially in light of the rosy picture painted of employing local people who are currently unemployed. The NorthMet mine would simply set the community up for another round of instability, kicking the need to build a sustainable economy down the road to the next generation along with the permanently polluted mine site. … Table 4.2.10-9 reveals that the entire Iron Range and every community in St. Louis County has a higher unemployment rate than either Lake or Cook Counties, which have no mines. While incomes are not as high in some non-mining communities, it is the lack of stability in employment that creates the larger problem.	SO02
4968	The stated purpose of the Proposed Project includes helping to "meet domestic and global demand by sale of these products to domestic and world markets." The Co-Lead agencies need to step back and consider whether these metals are actually needed, and whether increasing the supply of metals is actually in the public interest. The assumption that meeting consumer demand is positive and necessary, and that environmental degradation is a by-product that we have to live with, is threatening the viability of the planet. Themost positive public policy step that could be taken in this instance is to allow the price of copper and other metals to rise so that they would be recycled more and used less profligately.	NEPA06
4969	The alternatives analysis in the SDEIS violates NEPA and MEPA by (1) defining the purpose and need too narrowly in order to eliminate consideration of other reasonable alternatives; (2) failing to accurately describe the no action alternative; and (3) failing to include the consideration and comparison of reasonable alternatives, including the underground mine alternative and the west pit backfill alternative. …An agency may not define a project's purpose "so unreasonably narrow" as to make the EIS "a foreordained formality." City of Bridgeton v. Slater, 212 F.3d 448, 458 (8th Cir. 2000). … The Corps and DNR cannot simply adopt the applicant's stated purpose for a proposed action. … In doing so, the Corps and DNR have also failed to comply with their NEPA and MEPA obligations in accepting PolyMet's claim that there are no reasonable alternatives to PolyMet's proposed open-pit mine plan.	NEPA01

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4973	The alternative analysis also violates the Clean Water Act by failing to clearly demonstrate that the proposed action is the least environmentally damaging practicable alternative…The SDEIS includes a "no action" alternative, but its description and analysis of the no action alternative fails to meet NEPA and MEPA requirements. Pursuant to NEPA guidance provided by the Council on Environmental Quality, where the choice of "no action" for a proposed project would result in predictable actions by others, this consequence of the "no action" alternative should be included in the EIS. 46 Fed. Reg. 18026 (March 23, 1981). For PolyMet, the SDEIS briefly discloses that under the no action alternative, Cliffs Erie would be required to complete closure and reclamation activities as specified under state permits and the Cliffs Erie Consent Decree. SDEIS 3-142. However, the SDEIS fails to provide a description of the environmental outcomes once Cliffs Erie comes into full compliance with the Clean Water Act and state water quality standards.	ALT20
4974	Although the SDEIS does state that the "continuation of existing conditions" scenario used in modeling is not the same as the "no action" alternative, the no action alternative was not modeled, so the "continuation of existing conditions" is the only thing available with which to compare predicted impacts of the proposed alternative. This cannot help but confuse readers, and in any event does not comply with NEPA and MEPA requirements.	ALT14
4975	For PolyMet's NorthMet proposal, the agencies fail to include in the SDEIS any alternatives other than the mandatory no action alternative, in violation of NEPA and MEPA. Moreover, for two alternatives that it chose not to consider – an underground mine and the west pit backfill alternatives – the agencies fail to provide an adequate explanation, again in violation of NEPA and MEPA.	ALT03, ALT06, ALT15
4976	The agencies acknowledge that when compared to the proposed open-pit mine alternative, an underground mine alternative at this site would offer significant environmental benefits … The agencies further acknowledge that an underground mine is technically feasible at this site. Thus, the only reason provided for not including full consideration of an underground mine as a reasonable alternative within the SDEIS is economic feasibility. … The SDEIS does not sufficiently disclose what information was considered in determining that an underground mine at this site would not be economically feasible. The assessment does not disclose what costs were included, or how the timing of those costs affected the analysis.	ALT01
4978	What the SDEIS fails to provide but is needed for informed public comment and decisionmaking is a meaningful and understandable side-by-side comparison of the anticipated expenses and profits of an underground mine compared to an open-pit mine. This comparison must address and disclose all relevant factors, including the need for a land exchange, wetland mitigation, and long-term water treatment, maintenance, mitigation and monitoring.	ALT01, ALT06
4981	The SDEIS fails to provide sufficient explanation for not including thealternative of utilizing the West Pit for disposal of mining and processing waste. … One primary reason provided by the agencies as to why the West Pit Backfill alternative was not considered is "additional mineral resources in the West Pit . . . would be effectively lost if the pit was used for waste rock and/or tailings disposal." SDEIS 3-151.	ALT03
4982	If PolyMet intends to mine additional minerals from the West Pit, this must be analyzed now in the SDEIS for this mine proposal. Clearly additional mining in the same pit would be characterized under NEPA as connected, cumulative, and similar actions, all of which must be analyzed together in a single EIS. 40 C.F.R. § 1508.25. Similarly, if additional mining in the West Pit is foreseeable enough to preclude consideration of a reasonable alternative that would reduce environmental impacts, it is also reasonably foreseeable for the purpose of assessing the potential impacts of the current proposed action. See 40 C.F.R. § 1508.7 (defining "cumulative impacts" to include "reasonably foreseeable future actions"); 40 C.F.R. § 1508.8(b) (defining "indirect effects" to include effects that are later in time "but are still reasonably foreseeable").	ALT03

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4985	Another explanation for rejecting this alternative is that the West Pit would not be available for backfilling until the end of mining, and the Category 1 Stockpile would therefore still be required for the 20 year life of the proposed mine. SDEIS 3-151. This ignores the environmental mitigation that would be provided for the many hundreds of years following closure of the mine, when pollution from the Category 1 Stockpile is anticipated to continue. Indeed, the SDEIS acknowledges that the backfilling of the Category 1 Stockpile into the West Pit following closure of the mine would allow for reclamation of the affected surface footprint, including the potential to recreate wetlands areas and restore function. Id. Moreover, removal of the Category 1 Stockpile "would improve visual aesthetics." SDEIS 3-152.	ALT03
4988	Based on the cursory assessment of this potential alternative provided by the agencies, it is apparent that the West Pit Backfill alternative meets the purpose and need for the proposed action, is technically feasible, and is economically feasible. … The agencies rejected this alternative based on environmental impacts that have not been modeled or quantified, and thus cannot be compared with other alternatives.	ALT03, ALT06
4991	The SDEIS still fails to demonstrate that there are no practicable alternatives to the proposed action that would result in less adverse impacts to wetlands and the aquatic ecosystem. … A discussion of the presumption of practicable alternatives, and an analysis as to whether the proposed action is the least environmentally damaging practicable alternative, is absent from the SDEIS. The SDEIS thus fails to demonstrate that there are no practicable alternatives to any of the wetland fills that are proposed for permitting, and fails to demonstrate the absence of other less environmentally damaging alternatives, as required by the Section 404(b) Guidelines and the Clean Water Act. 40 C.F.R. § 230.10(a); 33 C.F.R. § 320.4(a)(2)(ii); Minn. R. 7050.0186(4).	ALT06, ALT13, ALT20
4998	The SDEIS states that the purpose of the Land Exchange is to "consolidate the surface and mineral ownership of the lands involved at the Mine Site." SDEIS 1-11. … At the outset, it is important to dispense with the notion that there is some "fundamental conflict" that must be resolved. No such conflict exists. If "the mineral rights that were reserved do not include the right to surface mine as proposed by PolyMet," then there is no conflict with not allowing that kind of mining to occur. … Other versions of the Secretary of Agriculture's rules and regulations for insertion into deeds conveying land to the United States support the fact that PolyMet's deed did not reserve the right to strip mine. … The 1937 rules and regulations demonstrate that the Forest Service was aware of and intended to allow "stripping" in that version of the Secretary of Agriculture's rules and regulations. The absence of similar language in PolyMet's deed indicates that the parties to that deed did not intend for strip mining to occur on these acquired Federal lands. … Rather than needlessly giving these lands to PolyMet so that it can destroy them through open pit surface mining, the Forest Service should follow the example that led to the Belville Mining case and protect these lands. … Beyond the case law on this matter, the Weeks Act itself contains the assumption that strip mining will not be permitted on Weeks Act lands. … As a special provision is included to allow purchase of lands with reservations when the reservation will not interfere with the use of the encumbered lands, it must be that the purchase of land with reservations that will interfere with the use of the encumbered lands is not authorized. In other words, if the deed allowed mining to interfere with the use of the land for timber and watershed protection, it would not have been accepted in the first place. The actual situation is that PolyMet is asserting a property right that it does not have, and the Forest Service is rolling over. Deeming the situation a "fundamental conflict" that must be resolved simply hides the fact that the Forest Service is letting a private corporation dictate what is done with public land when that corporation has no right to do so. Because there is no "fundamental conflict" that needs to be resolved, the Forest Service should withdraw the Land Exchange Proposed Action and continue managing the Federal lands for national forest purposes.	LAN02, LAN04
5037	The Land Exchange Proposed Action would establish a terrible precedent for the future of the Superior National Forest and other forests that mining companies would like to strip mine. It is unclear whether the Forest Service has ever before considered exchanging forest service lands with a corporation so that the corporation could strip mine those lands, particularly when the deed does not grant that right. According to documents obtained through a Freedom of Information Act (FOIA) request, it appears that actions such as the Land Exchange Proposed Action are at the least uncommon.	LAN02

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5038	As stated in the SDEIS Executive Summary, the purpose of the Proposed Action is to "resolve the conflict between the surface estate owned by the United States and the private mineral estate." SDEIS at ES-10. However, virtually all of the land that is proposed for exchange contains the same conflict. The Forest Service proposes to resolve a split estate by exchanging land for other land that also has a split estate. … Unless the current deeds contain clauses that protect the surface (and it appears that few of them do), the titles that the Forest Service receives will be inferior to the title that it holds now. It is extremely difficult to perceive how this will meet the need of resolving a conflict in the title to lands.	LAN04
5039	The Forest Service has no reason of its own to give up the land it is considering transferring to PolyMet, and no reason of its own to prefer the land that PolyMet would transfer to the Forest Service. The entire driver for this exchange is to give a private corporation the means to make as large a profit as possible. This is not a legitimate purpose for an exchange of national forest property, and the Forest Service should thus withdraw the Proposed Action.	LAN01
5043	Before the Forest Service may approve the Land Exchange Proposed Action, it must first make a "determination [] that the public interest will be well served." 36 C.F.R. § 254.3(b). … 16 U.S.C. § 521e permits the sale, exchange, or interchange of small parcels (40 acres or less) and road rights-of-way that are "substantially surrounded by lands not owned by the United States and which are no longer needed by the United States." Such authority is used to convey much smaller parcels of Federal land than the one at issue here.	LAN01
5047	The SDEIS states that seven "impact indicators" regarding land use were used to identify anticipated outcomes of the Land Exchange Proposed Action. SDEIS 5-577. … It is unclear why these seven factors were chosen or how they fit into the regulatory scheme described above. As a whole, the list seems to address ease of management of federal lands and resources. If that is the intention, however, it seems to have been lost in the SDEIS discussion, which does not include all of the regulatory factors listed above. In fact, we did not find an explicit discussion of the regulatory factors in the SDEIS. The SDEIS also does not specify how the seven impact indicators are weighted, or how they will be used. It is unclear whether the Forest Service intended them simply as criteria that the parcels offered by PolyMet had to meet before the exchange would be considered, or whether they are being weighed in the public interest balance. If they are being weighed in the public interest balance, it is unclear how the regulatory factors will be factored in.	LU01
5048	The factors do not make sense, however, as a list by which to compare the federal and non-federal lands. Using it in this way elevates a few factors of the public interest review above all others. Furthermore, it inappropriately elevates minor considerations regarding ease of management. For instance, the net change in boundary management that would result from the proposed land exchange is a reduction of 33.2 miles. SDEIS 5-580. This represents a net reduction of just 0.003%, and is statistically insignificant.	LU01
5050	Furthermore, the [federal] lands were most likely placed in the General Forest – Longer Rotation MA for a reason. It would be helpful to know what that reason is, and whether it will be served by a land exchange.	LU01
5062	The second factor the Forest Service must consider in its public interest determination is the needs of state and local residents and their economies. 36 C.F.R. § 254.3(b)(1). ...the SDEIS provides no support for the insinuation that these metals are needed.	LAN01
5066	In its consideration of the local community, the Forest Service must give special consideration to the needs of indigenous people in this area, particularly in light of the Federal government's duties as a trustee. … The impacts of mercury and sulfate pollution on both the health and the livelihood of native people in Northeastern Minnesota is unconscionable, and the Forest Service should not add to it by facilitating an open pit mine on what is currently Forest Service property.	CR01
5069	The SDEIS further states that there should be little to no employment impacts following closure of the proposed mine "given the relatively small number of jobs" that would be created by NorthMet Project Proposed Action. If any increase in unemployment after the mine closes would be minimal, any increase in employment from the mine would be minimal as well.	SO04

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5074	the Proposed Project would present long-term threats to local water quality should the Forest Service approve the proposed land exchange. Those threats will remain for centuries, and could have an extreme negative impact on local residents and their economy.	WR195
5080	Should the Forest Service approve the proposed land exchange, the NorthMet Project would destroy at least 912.5 acres of very high-quality wetlands, and would indirectly impact thousands more. These wetlands have been recognized by EPA as aquatic resources of national importance. … The compensatory mitigation plan has not yet been finalized, and is rife with problems. No compensatory mitigation has been identified for indirect impacts, and it is unclear whether such mitigation will be required. If this project is approved as it is currently proposed, the St. Louis River watershed will lose an enormous amount of wetlands. It defies belief that the Forest Service could believe that the minimal public benefit of this project could outweigh the destruction of this amount and quality of wetlands, particularly in conjunction with all of the other environmental impacts of the project. … Many of the factors identified in the EPA's 2010 comment letter remain unaddressed. The Forest Service has an independent duty to assess this wetland loss, pursuant to both NEPA and its public interest review. It cannot simply assume that mitigation for any impacts will be addressed by other agencies, when the mitigation plan and the amount of mitigation are far from clear. Rather than addressing impacts on floodplains and wetlands in the SDEIS, the Forest Service assumes that the impacts will be mitigated. SDEIS 5-595; 5-598. … Without the [wetland] mitigation and monitoring plans, it is impossible to judge what the impacts of the Proposed Project will be. This does not satisfy the Forest Service's present obligation to determine whether the "public interest will be well served" should the Forest Service approve the proposed land exchange, nor does it satisfy the obligation under NEPA to independently review the impacts of a proposed project.	LAN01, WET01, WET02, WET03, WET04, WET14, WET15, WET19
5085	As the Land Exchange section of the SDEIS focuses on acreage of wetlands in the federal estate, we again emphasize that transferring those parcels to the Forest Service would not increase wetland acreage or mitigate in any way for the wetland losses at the Mine Site. Furthermore, the wetlands at the Mine Site are far more contiguous and of higher overall quality than those scattered across the various parcels of the non-federal land.	WET14
5087	The Co-Lead Agencies must disclose the percentage of the non-Federal lands that contain coniferous bogs just as they did for the Federal lands. Coniferous bogs make up the majority of wetlands on the federal lands. By combining coniferous bogs and coniferous swamps on the non-federal parcels, the SDEIS obscures how many acres of coniferous bogs are potentially being lost to the federal estate due to the NorthMet Project and Land Exchange Proposed Actions.	WET17
5088	In addition to the public interest review, a land exchange that facilitates wetland destruction does not comply with the Forest Plan. The Forest Plan directs that "wetland impacts will be avoided whenever possible." USFS, Land and Resource Management Plan, Superior National Forest (USFS 2004b) at 2-15. It is clearly "possible" to avoid wetland impacts in this case since PolyMet's deed does not allow it to open-pit mine, and the Forest Service is not obligated to go forward with the land exchange. Land exchanges are "discretionary and voluntary real estate transaction[s] between the Federal government and a non-Federal party[.]" Forest Service Handbook 5409.13 § 31. Since the impacts to these wetlands are entirely avoidable, the Forest Service has an obligation to protect them rather than facilitating their destruction.	LAN04, WET16
5091	There is no question that the proposed project would destroy more than two square miles of federally-designated critical Canada lynx habitat, and despite wetland mitigation and a proposed land exchange, those two square miles will be a net loss in critical habitat. This loss would violate the Endangered Species Act, and this alone precludes the Forest Service from accepting the land exchange.	WI02, WI11
5092	We also note that the land exchange would result in a very significant loss of General Forest-Longer Rotation management area (MA). This is an area of High Biodiversity Importance; acreage of this quality will also be lost. It thus appears that the forest will lose biodiversity, and the value of biodiversity to wildlife.	VEG02, VEG03, WI02

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5093	Impacts to cultural resources from the Proposed Project would be extensive, and are important enough that the Forest Service should follow the wishes of the Tribes regarding impacts. The Forest Service must weigh this factor heavily in its public interest review, and must not facilitate a project that would further destroy resources that are so important to Tribes in the region.	CR05, CR06
5094	Regarding scenic integrity objectives (SIOs), the SDEIS states that it used SIO definitions in the Forest Plan for evaluating the Federal lands but used a 1995 Forest Service publication to evaluate the non-Federal lands. SDEIS 4-349. The discrepancy is not explained. The SDEIS needs to provide sufficient information to determine whether this difference could lead to inaccurate comparisons.	EDIT01
5095	Regarding impacts to wilderness, a Class I Visibility Analysis using Method 2 indicated that "visibility impacts greater than 5 to 10 percent could occur at some point within the BWCAW on a small number of days each year." SDEIS 5-415. The cumulative impacts of air pollution on visibility within the BWCAW are already substantial, and the State admits that its plan will not meet visibility goals. It is thus not in the public interest to facilitate the air emissions that will result from the Proposed Project. Impacts on Class I visibility are discussed above.	AIR08
5098	It is somewhat ironic that the Forest Service seems to be using the excuse of a lack of accessibility to justify disposing of land. Inaccessible land is of great value to wildlife, to the preservation of biodiversity, and for the maintenance of a clean and livable environment. These are all values the Forest Service should foster. We know of no other entity that is more appropriate as the owner and manager of inaccessible forest and wetlands than the U.S. Forest Service.	LU04
5101	Furthermore, the SDEIS admits that the acquisition of the widely scattered non-Federal parcels would have a "small" impact on recreation. We would argue that the effect would be imperceptible. On the other hand, the destruction of thousands of acres for an open pit mine, increased truck traffic, increased noise, air, and water pollution, among other impacts, could have a much larger impact on recreation. Overall, the impact on recreation is more likely to be negative than positive.	LU06
5104	In terms of policy, the Forest Service should primarily consolidate split estates in situations where the Forest Service consolidates its own holdings. The Forest Service should not be in the business of exchanging land that was acquired for national forest purposes in order to consolidate the surface and subsurface to benefit a private corporation. That may well serve PolyMet's interests, but it does not well serve the public interest. Moreover, the fact that the Forest Service would receive split estate lands in return demonstrates that the objective of consolidating estates would not be served. We have not been able to identify another land exchange situation in which the Forest Service made an administrative decision to accept split-estate land in an action whose stated purpose was to consolidate land holdings.	LAN04
5108	The SDEIS does not adequately describe the nature of the mineral estates underlying the Federal and non-Federal parcels proposed in the exchange. This is an important consideration because of the difference in the ability of the Forest Service to protect the surface estate depending on whether the mineral rights are "reserved" or "outstanding." This information should have been disclosed in the SDEIS, and must be disclosed before a decision is made regarding the land exchange. … it appears that most of the privately owned minerals underlying the Federal lands are reserved mineral rights while the mineral rights underlying the non-Federal lands include both reserved and outstanding mineral rights. Furthermore, it is unclear from many of the descriptions of the nonfederal tracts whether mineral rights are outstanding or reserved. Clear information must be disclosed in the EIS and factored into the public interest determination and the equal value determination.	LAN04
5110	First, the Forest Service must disclose how PolyMet plans to satisfy its mortgage [for Tract 1] at closing. In some situations, the Forest Service allows the reservation of timber rights in land exchanges as part of the financial arrangements. Under no circumstances should that happen in this case; any such factor of the proposed transaction must be considered in the EIS process.	LAN03

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5111	Second, the SDEIS must disclose whether the mineral rights underlying Tract 1 are reserved or outstanding. According to an earlier document in this process, 4,591 of 4,650 acres have private outstanding mineral ownership. This is simply not acceptable for the largest non-Federal parcel proposed in the exchange, regardless of whether the Forest Service believes there is a "low potential" for mineral extraction.	LAN04
5112	Furthermore, the SDEIS acknowledges the "potential for aggregate production from the northeastern corner of the tract [Tract 1] along the Pike River." More information is needed on what this means in regards to the outstanding mineral ownership. For instance, how much of the tract does "the northeastern corner" encompass? It is unclear from either the description of the tract or from state law whether aggregate would go with the surface estate or the mineral estate. … Thus it appears that on some portion of the Hay Lake lands, the Forest Service may not have the authority to prevent the mineral owner from destroying the surface for aggregate production. Again, it is an unacceptable exchange if this is the case.	LAN04
5113	Here we have a parcel [Tract 2] that apparently includes outstanding mineral rights that explicitly allows the owner to remove the surface. This cannot be considered a stronger title than the title to the Federal lands. … All of these factors weigh against a finding that exchange for this land well serves the public interest.	LAN04
5114	If Lake County approved or entered into an agreement or contract with PolyMet (or with third parties with the knowledge that the purpose was to further the PolyMet project) to assist PolyMet's NorthMet project in the environmental review process, this agreement or contract violated state law restricting government action or approval prior to completion of the environmental review process. Minnesota law requires that state agencies (including county governments) not take final action on a project prior to the completion of environmental review. Minn. Stat. § 116D.04(2b) and Minn. R. 4410.3100. Moreover, the law requires that an EIS be prepared early in the process and that the information and analysis developed in the EIS be used by the government to inform permitting or approval decisions related to the project or pieces of the project. Minn. Stat. § 116D.04(2a).	LAN09
5116	In considering the Land Exchange Proposed Action, the USFS must address whether the Lake County Lands were acquired in violation of Minnesota law and if so, remove them from consideration in the proposed land exchange.	LAN09
5121	[Tract 3] is subject to deed provisions that allow destruction of the surface by the mineral estate holder. The disclosure that "the title commitment review indicated that this represents a poor condition of title" is interesting, as the title condition is now considered "moderate." SDEIS Table 5.3.1-3. This statement provides no citation, and we were unable to find a "title commitment review" document in the SDEIS references. The Forest Service must disclose this document and explain why the title ratings have been upgraded. We suspect that a similar situation applies to other tracts; if so, this information must also be disclosed.	LAN04
5123	Regarding Wolf Lands 2, the SDEIS states that there is moderate potential for aggregate mining but that "the parcel's wetland areas and limited access may restrict this opportunity (Barr 2011c)." SDEIS 4-401 (emphasis added). We reiterate our observations for the Hay Lake lands on this point, and add that the right to "remove the surface" could very well be interpreted by a court to mean that the aggregate resources belong to the mineral estate.	LAN04
5125	There is not enough information to provide informed comments at this time regarding the Tract 4 and the public interest review. It is frustrating to find important pieces of information withheld until the Final EIS. The Forest Service must have all of the pertinent information in front of it before it makes a decision, and informed input from the public is an important component of that decision making process.	LAN03
5131	the Forest Service must disclose how PolyMet plans to satisfy this [Tract 5] mortgage in favor of Iron Range Resources at closing. Under no circumstances should the Forest Service allow PolyMet to reserve timber rights through the exchange as part of its plan to satisfy the mortgage. … If the Forest Service is unwilling to rely on and defend its rights under similar provisions in the title to the Federal lands, of what value are the provisions of this deed?	LAN04

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5133	According to the SDEIS, the construction phase is expected to cause "relatively few" employees to "permanently relocate to the study area, due to the short-term and transient nature of mine construction." SDEIS 5-504. During the operations phase, there would be "adequate housing to accommodate the influx of workers" due to the "small number of new residents[.]" SDEIS 5-505. Therefore, the proposed land exchange is not needed for an expansion of communities.	SO06
5135	The proposed land exchange does not promote multiple-use values. Rather, it promotes the single value of mining. The lands that would be acquired will not change from their current use as forested property, and none of them seem to be under any threat of conversion to other uses. Furthermore, the consideration of multiple uses has to be informed by the state or the forest as a whole. The Federal land is very valuable for wetland, wildlife, and water quality purposes.	LAN01
5136	Most disturbing is the fact that these Federal lands were acquired pursuant to the Weeks Act for national forest purposes, including watershed protection, and this project will inevitably result in significant degradation of streams and watersheds. … The Land Exchange Proposed Action would remove that protection at the time when the river needs it the most. In fact, this entire situation calls the purposes of the Weeks Act into question.What does it mean to protect watersheds and forest production if the lands are disposed of as soon as they are threatened?	LAN02
5144	We disagree that the Federal land meets this [G-LA-3] criteria. This is a large, solid block of property with only two small inholdings. It is adjacent to other Forest Service lands on two boundaries, and the exchange of this property would actually increase fragmentation of other adjacent national forest land in the south west corner. … If it were not for the PolyMet proposal, the Forest Service would not dream of calling this land "not valuable for National Forest System purposes." The land was identified as appropriate for an RNA site, and has been recognized by everyone involved as a very high quality, important ecosystem and wetland area.	LAN04
5156	The SDEIS applies the criteria of G-LA-2 to some of the lands that would be acquired. While the non-federal lands may meet the criteria, the difficulty is that they do not meet the criteria as well as does the land that is being given up.	LAN04
5157	While the project would temporarily contribute to the local economy, experience and history indicates that this will not amount to "economic growth" over the long term. Moreover, there is no evidence that the proposed mine would contribute to national defense. In fact, the SDEIS suggests that the minerals from the mine will be exported. SDEIS 1-11. Far from implementing D-MN-2, the Land Exchange Proposed Action would violate it, as this management objective directs the Forest Service not to promote mining, but to ensure that it is conducted in an environmentally sound manner.	LAN04
5158	D-AQ-2 states: New and modified industrial facilities do not degrade Forest resources or uses. Id. As explained above in these comments, the Proposed Project would result in conditions that do not meet these goals. Facilitating the project's air pollution by conducting a land exchange therefore does not comply with this aspect of the Forest Plan.	LAN04
5159	Finally, we note that the Forest Plan objective for Jack pine/black spruce forest is to restore it to historic levels, which involves a significant increase in acreage. Forest Plan 2-61. The Proposed Project would destroy 698 acres of this ecosystem, which would not be replaced by the non-Federal lands.	VEG02, VEG03
5165	The Forest Service must provide its assessment of the [land exchange] properties at issue here, so the public can determine whether these provisions [of the Federal Land Policy and Management Act] have been met. According to Forest Service regulation, "the findings and the supporting rationale [for a land exchange] shall be documented and made part of the administrative record." 36 C.F.R. § 254.3(b)(3). The appraisal is an absolutely essential "supporting rationale" for the proposed land exchange; the exchange could not go forward without documentation as to value in the record, and cannot go forward if the exchange is not equal. The Forest Service must provide this information with sufficient time for the public to review it before making a decision.	LAN03

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5167	The Co-Lead Agencies must "rigorously explore and objectively evaluate all reasonable alternatives." Id. at § 1502.14(a). The Co-Lead Agencies must also "include reasonable alternatives not within the jurisdiction of the lead agency." Id. at § 1502.14(c). The Forest Service considered just two alternatives to the Land Exchange Proposed Action. The first, the "no action" alternative, is required by 40 C.F.R. § 1502.14(d). The second, Alternative B, "was derived from the Mine Site Exchange Only Alternative" developed during scoping and "would convey fewer acres of federal land for fewer acres of non-federal land." SDEIS 3-166. … This does not satisfy the Forest Service's obligation to "rigorously explore and objectively evaluate all reasonable alternatives," including "reasonable alternatives not within the jurisdiction of the lead agency." The Forest Service must consider additional alternatives that have either been eliminated from further consideration or have not been considered at all.	ALT14, ALT23
5168	The SDEIS provides very little information about this suggested alternative [full exchange with restrictions], other than to state that it "is not substantially different from Alternative B … The SDEIS does not provide a delineation of the One Hundred Mile Swamp, particularly not one with an overlay of the two Land Exchange alternatives. However, very little of theswamp is located in the additional land that is included in the Proposed Action as opposed to Alternative B. See SDEIS Figure 3.3-2.	ALT14, ALT23
5169	The SDEIS provides very little information about this suggested alternative [full exchange with restrictions]…The Forest Service could perhaps think more creatively about restrictions and requirements that could be placed on mining to ameliorate some of the impacts. … As the holder of property rights that PolyMet must obtain in order to build a surface mine, the Forest Service has a significant amount of leverage that it could use to reduce the environmental impacts of this project.	ALT23
5170	One of the most disturbing things about the Land Exchange Proposed Action is that the lines have been drawn so that the Forest Service no longer owns riparian land along that portion of the Partridge River that is most likely to be affected by the proposed mine. The eastern "Mine Site" boundary does not extend to the river, but the land exchange proposal was structured to remove that stretch of the river from federal control. Land was also added to the Mine Site boundary south of the railroad track to the same effect – removing riparian land from federal control. See Figure 3.3-2. It is difficult to imagine that this was not deliberate, and we suspect that the reason is that the Forest Service did not want the headache of administering a polluted, degraded river. The SDEIS needs to include information about how the boundaries were drawn and why, and an explanation of the rationale for giving up these riparian lands. … Putting the riparian lands in the mine owner's hands is not likely to result in stewardship to prevent or address these impacts, and in fact the sketchy monitoring plan included in the SDEIS does not include monitoring of this stretch of the river. The difference in acreage between the Proposed Action and a Partridge River Alternative is not large, but it could make a significant difference to the river.The Forest Service should consider an alternative that leaves Partridge River riparian lands in federal ownership.	LAN06
5172	The Forest Service must consider an alternative that seeks appropriations from the Land and Water Conservation Fund (LWCF) to acquire the mineral rights underlying the Federal lands in the Land Exchange Proposed Action. This is the one alternative that would actually meet the purported purpose of this project, but was never considered. … The Forest Service is authorized to acquire "interests in land or waters" with monies from the Land and Water Conservation Fund. 16 U.S.C. § 460l-9(a)(1).	ALT23
5174	Minn. Stat. § 116D.04(6). Under this statutory requirement, the DNR must deny the permits required for this project if the environmental consequences outweigh the benefits. … Thus even if all other legal requirements are met, the three Co-Lead agencies must still consider whether harm to the environment outweighs the benefits of the project.	PER35
5176	Minnesotans are profoundly uncomfortable with the idea of creating a situation where contaminated water will need to be treated for centuries, with no predictable end date. Any benefits of the mine would accrue during a twenty-year period, with the detriments extending more than five hundred years into the future. … The agencies have no basis to believe that any financial instrument, including cash, would remain viable for hundreds of years. They have not named or described an instrument that has ever maintained its value over more than five hundred years.	FIN01, FIN08

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5177	This project would significantly increase greenhouse gas emissions. This factor alone should be the end of any consideration of permitting it.	AIR01
5178	Both mercury and sulfate levels will increase in the area wetlands, and this is where the greatest potential for harm exists. Furthermore, the increased load of mercury to the Embarrass River is strictly prohibited under the Clean Water Act.	PER10, PER11
5179	The probability of a spill (not an accident, but an accident that results in a release to the environment) is calculated as about 29%. This is deemed to be a “low” probability. SDEIS 5-537. … Thus we have a greater than fifty percent chance of a spill of hazardous material just in the area between Duluth and the NorthMet site. … Given the enormous impacts of many of these accidents, this risk is unacceptable.	HAZ06
5180	The local desire for a number of jobs that is insignificant in terms of the overall economy should not be given more consideration than either the long-term detriment to the economy or the many resources that would be destroyed or otherwise impacted by the project.	SO01
5464	Fifth, the SDEIS does not even mention the potential for contributions to waterquality impacts in the Partridge and Embarrass Rivers and tributary streams from air deposition.	AIR04, AIR05
5481	Finally, the SDEIS must disclose the predicted quality of surface water created by the Proposed Project. Water in the West Pit and the Tailings Basin is predicted to have elevated levels of many constituents. See Water Monitoring Data Package Vol. 1 and 2 (PolyMet 2013i and 2013j). Whether or not surface water quality standards apply to this water, the water has the potential to adversely impact wildlife, particularly birds. The predicted water quality thus must be considered and disclosed in the SDEIS.	WR107, WR141
5852	Agency has stated that water quality standards must be met at the “end of pipe,” before mixing with surface water. PolyMet 2013i at 7. This is the appropriate point for compliance for groundwater discharges as well, as the impact at the point of discharge is the same. If contaminants traveling through groundwater contribute to pollution of surface water, EPA and federal courts require a NPDES permit for the discharge. The EPA has stated that “the Agency interprets the Clean Water Act to apply to discharges of pollutants from a point source via ground water that has a direct hydrologic connection tosurface water.” 66 Fed. Reg. 2960, 3015, Jan. 12, 2001.	PER05, PER09
5854	Regarding sulfur, in the context of Class I areas….We understand that this is essentially a screening standard for Class I areas, with no legal effect at the Mine Site. However, it also indicates a level at which an increase in sulfur deposition can be considered not to be a problem for an ecosystem. In other words, while this level of deposition may not be relevant to permitting, it is relevant to environmental review. If vegetation, soils, and water could be impacted at a particular level of deposition in a National Park, they could be impacted by the same level in other high quality ecosystems.	AIR09
5855	The SDEIS does not say what the sulfur deposition level will be at any locationoutside of Class I areas. In fact, it discusses only the increase in metals, and tells us nothing about sulfur.	AIR07
5856	Currently we have no information on whether occasional exceedances orelevated levels may be due to atmospheric deposition, although as explained below, we do know that storm events result in elevated concentrations of mercury in Northern Minnesota streams. In any event, the available information does not indicate that deposition of metals – or sulfur -- can be dismissed as insignificant for the Partridge and Embarrass Rivers.	AIR05, WR151

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5857	The SDEIS also provides no reference or explanation for its apparent position that "a general lack of definitive understanding of mercury dynamics" prevents any prediction of increased loading to the Partridge River through releases to groundwater...The SDEIS needs to provide an explanation as to why such an analysis is not possible at this site. Furthermore, if the analysis truly is impossible, the SDEIS should err on the side of caution and estimate a load based on the humidity cell test leachate, rather than dismissing this mercury source altogether. The conclusion that "mercury released from waste rock and ore at the Mine Site is not expected to be a constituent of concern in groundwater seepage," SDEIS 5-202, is unsupported.	MERC04, MERC12, MERC16, MERC20
5858	The modeled length of time before untreated discharge would meet water quality standards is highly relevant information that must be revealed in the SDEIS. The fact that for some constituents the model indicates that water quality standards may never be met without treatment is absolutely critical to a reasoned decision, and to a determination of whether this project will reasonably be able to comply with other legal requirements. The actual quality of the water that will be released if treatment ends prematurely is just as critical, as is a discussion of what that water quality would mean for aquatic species, wildlife, wild rice, and human consumption. In the words of the CEQ regulations, this information is "essential to a reasoned choice among alternatives," and it is thus incumbent on the agencies to provide it in the SDEIS.	WR036, WR038
5859	The SDEIS needs to take a "hard look" at each of the mitigation measures that is relied on to reduce impacts, provide an objective assessment of the likely effectiveness of each mitigation measure, and provide a range of potential impacts that corresponds with the range of potential effectiveness. These assessments must be based on actual, real-world experience with the mitigation measures as used at other mines, rather than on the theoretical possibility that a measure could be 90 to 100 percent effective. If the measures have not been used enough to allow a real-world assessment of their effectiveness, the SDEIS must say so, and provide an assessment that includes the range of potential outcomes.	PD05
5860	These reports have been extensively peer-reviewed and presented at major conferences, including: U.S. EPA's Hardrock 2006 Conference in Tucson, Arizona; Society for Mining, Metallurgy, and Exploration's 2006 Annual Meeting in St. Louis; and the Mine Design, Operations and Closure Conference in Fairmont Hot Springs, Montana, also in 2006. These reports and their findings and conclusions must be fully and objectively disclosed and considered within the EIS for the PolyMet mine… Clearly there is a significant risk that the SDEIS assumptions that all mitigation measures would operate as planned, that monitoring and "adaptive management" would take care of any problems, and that environmental standards would be enforced will prove untrue, just as they have proven untrue in other parts of the country (regarding sulfide ore mining) and in Minnesota (regarding mining in general). The SDEIS must include an objective assessment of the likelihood of success of mitigation measures, and that assessment must take account of this relevant information.	FIN01, WR023, WR130
5861	Regardless of EPA's comments, the SDEIS' analysis and disclosure of the relevant issues involving financial assurance remains woefully inadequate. The critical importance of financial assurance for this proposed project – as recognized in EPA's earlier comments on the Draft EIS – has been repeatedly raised at the SDEIS public hearings, in the media, and even in a state legislative hearing that sought information beyond the very general discussion provided in the SDEIS. Moreover, the little information that is provided in the SDEIS demonstrates the compelling need for detailed financial assurance information, as it discloses that mechanical water treatment may be needed for at least 500 years, that initial closure costs will be as high as $200 million, and that annual monitoring and maintenance costs are estimated at $3.5 to $6 million. SDEIS 3-138.	FIN01, FIN05, FIN13
5863	Furthermore, if the reduction in baseflow is measured by an average or mean measurement over the course of several years, it can be expected to fall at the median in regards to precipitation. This would mean that a twenty percent reduction from that median represents a forty percent variation in precipitation. Finally, a permanent drop in baseflow of twenty percent is not equivalent to a baseflow that drops by twenty percent in drought years. NEPA requires agencies to consider means to mitigate adverse environmental impacts. 40 C.F.R. § 1502.16(h); see also 40 C.F.R. § 1502.14(f); 40 C.F.R. § 1505.2(c). Without more information on the flow augmentation plan, it is impossible to tell whether and to what degree the adverse impacts of this project on the headwaters of the Embarrass River tributaries will be mitigated.	WR185

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5864	Furthermore, the SDEIS provides virtually no information about monitoring or maintaining the variation in flow to maintain natural conditions. The statement that "Effects on the success of fish spawning in tributary streams would be addressed by maintenance of seasonal, bankfull flows over the life of the NorthMet Project Proposed Action," SEDIS 5-391, seems to be the only mention of maintaining seasonal variation in either watershed. Just how this will happen in light of the lack of a monitoring plan remains a mystery.	WR185, WR186
5866	We were unable to locate a mitigation plan for greater-than-expected drawdown in the flow of the Partridge River. The SDEIS seems to provide no information on the point at which action may need to be taken to avoid impacts. However, the plan does anticipate allowing baseflow to drop gradually by a predicted 4 to 7 percent during the first eleven years. SDEIS 5-381. At what point would a decision be made to augment or take some other action to protect the flow? If PolyMet would not be required to take action until the baseflow has dropped by twenty percent, that is unacceptable for the same reasons that apply to the Embarrass tributaries.	WR185, WR186
5867	the drawdown metric for the Partridge River would apparently be based on modeled rather than measured data. See SDEIS 5-381. The modeled data shows a significantly lower base flow than indicated by empirical measurements. If the drawdown metric is based on modeling data, the river will likely be drawn down far more than twenty percent before mitigation measures are required. The SDEIS should reveal the ultimate levels to which flow would be allowed to drop before mitigation is required.	WR003, WR086, WR130
5868	The scant information given on monitoring indicates the likelihood that whatever the loss of flow in either the Partridge River or the Embarrass tributaries, nothing is likely to be done about it. According to Table 5.2.2-53, SDEIS 5-219, flow monitoring for the Partridge River will be done "at/near SW-004a and SW-006." Monitoring at these locations is unlikely to reveal the impact on flows upstream. The greatest predicted drawdown to baseflows is at SW-004 (noting again that SW-003 was apparently not modeled). A reduction in flow at SW-002 is also predicted; this point is miles upstream from SW-004a. PolyMet must be required to monitor the flow at each of these locations, with a mitigation plan that reveals at what point action would be required, and what that action would be. Hydrology at the site is simply too uncertain to allow the conclusion that drawdown of the river will not be significant.	WR138, WR187
5869	The entire SDEIS is silent in regards to any impacts on or monitoring of Yelp Creek. As explained, it appears that this project will have an impact on the hydrology that supports Yelp Creek. This impact must be discussed in the SDEIS, and a monitoring and mitigation plan proposed to protect this creek.	WR186
5870	The apparent flow monitoring plan for the Embarrass River and its tributaries is even worse than that for the Partridge River. SDEIS Table 5.2.2-54 reveals that flow monitoring will occur "at/near PM-13 and PM-12." PM-12 is presumed to be upstream of any impacts, and PM-13 is four to five miles down-gradient of the tailings basin as the crow flies, and nowhere near any of the tributary streams. The SDEIS conclusions as to impacts on these streams are not believable in light of the apparent lack of any plan to monitor them. Nor would this situation be corrected by a decision to monitor the streams at the first evaluation points used in baseline monitoring and modeling. Each of these points occurs at or near the property line, which would still leave more than a mile stretch of each tributary stream unprotected. The SDEIS must provide an assessment of and a monitoring and mitigation plan for stream flow in the upper reaches of the Embarrass tributary streams.	WR071, WR139
5871	We were unable to locate a figure that shows proposed changes in topography at the tailings basin. These figures do not provide adequate support for the conclusory statements in the SDEIS that groundwater would not seep from the tailings basin to Spring Mine Creek or Second Creek and/or their upstream wetlands pursuant to the Proposed Project. See 40 C.F.R. § 1502.24.	WR054, WR117

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5872	The SDEIS states that no water will flow to the east from the Tailings Basin because of high bedrock. SDEIS 3-117 and 4-99. However, all of the information presented in the SDEIS shows a break in the high bedrock in the area that forms the headwaters of both Spring Mine and Mud Lake Creeks. The Depth to Bedrock Figure, SDEIS Fig. 4.2.2-15, indicates that the depth to bedrock at this location is actually greater than it is around the north and west sides of the Tailings Basin. Based on satellite imagery, see Exhibit 34, and the wetland delineation map, SDEIS Figure 4.2.3-1, this area appears to consist of a string of wetlands and open water. It is difficult to discern the direction of flow, although possibly the roads and railroad tracks that cross the area currently act as the surface watershed divide. The groundwater flow pattern in this area is simply unknown. The SDEIS must make clear why, after years of work on this proposal, such directly relevant information remains unavailable. 40 C.F.R. § 1502.22.	WR102
5873	While PolyMet may be able to direct surface flow into the constructed swale, the SDEIS provides no explanation of why groundwater seepage will not flow to Spring Mine Creek...To comply with NEPA and to demonstrate compliance with federal and state discharge requirements, the potential for discharge to Spring Mine Creek must be assessed and disclosed in the SDEIS using accurate mapping and real data.	WR054, WR102
5874	it appears from the groundwater contour map that water from the East Pit is likely to enter the Partridge River above SW-003. The SDEIS insinuates as much when it states, “The dike located north of the East Pit would remain in place to minimize mixing of the Partridge River flows with the East Pit water.” SDEIS 3-71. The text does not explain how the dike will prevent the outflow of groundwater in that direction, and the subject is not mentioned again in the assessment of impacts.	WR089, WR163, WR167
5875	the water quality impacts of the Proposed Project have not been assessed for this entire stretch of river – from Yelp Creek to SW-004. Rather, the model assumed that SW-003 would be unimpacted and that most groundwater inputs from the mine site would occur prior to SW-004. While this is valid for the purpose of comparing background water quality to impacted water quality at SW-004, it is not valid for assessing impacts on the rest of the river.	WR177
5876	The AECOM documents reference the document “Barr Engineering Company. 2007. Wetlands in the USFS Land Exchange Area. Memorandum dated 29 November 2007. Prepared for PolyMet Mining Company, Hoyt Lakes, Minnesota. Minneapolis, Minnesota.” This document does not seem to be included in the SDEIS reference material.	NEPA07
5877	Table 4.3.3-2 was apparently included in order to compare the functions of the lands that will be lost to the federal estate to functions that exist on the property that will be gained by the federal estate. The accompanying discussion does not actually assess the functions that will be lost to the Partridge and St. Louis River watersheds. Such an assessment must be included in the wetland impacts section of the SDEIS, accompanied by an assessment of the degree to which the loss of those functions will be replaced by the proposed mitigation.	WET17
5878	The SDEIS provides no quantitative predictions regarding water quality impacts in the wetlands. It does state an assumption that water quality will change, but it does not discuss the potential degree of change or the consequences of those changes. Instead, it promises “consideration in future monitoring.” SDEIS 5-283. Also, the SDEIS separately discusses air deposition, railroad spillage, and groundwater transport, but does not discuss the additive effect of pollution from all three sources. As explained below, significant changes in water quality are likely, to the point of violating water quality standards. These impacts must be disclosed and discussed in the SDEIS.	WET11

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5879	the level of water quality impacts in general as assessed in the SDEIS is based on a flawed model that most likely seriously underestimates the flow of groundwater. This underestimated flow could significantly affect the prediction of mercury increases in wetlands, particularly from the Overburden Stockpile and Laydown Area, the Category 1 Waste Rock Stockpile, and the East Pit. Similarly, the SDEIS is unrealistically optimistic about the amount of Tailings Basin seepage that will be collected, and the amount of mercury from that source is also likely to be greater than might be supposed based on the SDEIS.	MERC11, MERC20, WR018, WR019, WR052, WR054, WR058, WR060, WR061, WR064, WR087, WR090, WR091, WR099, WR108, WR158, WR165, WR179
5880	The SDEIS completely ignores potential impacts to the wetlands between the Category 1 Stockpile and Yelp Creek. If the water collection system is not 100 percent effective, Category 1 Stockpile leachate is likely to travel in that direction. East Pit porewater is also likely to travel north and east into adjacent wetlands. These areas need to be included in an assessment of water quality impacts on wetlands.	WR017, WR019, WR020, WR021, WR058, WR081, WR089, WR167, WR177
5881	the proposed PolyMet mine's direct and long-term destruction of two square miles of designated lynx critical habitat, along with the mine's adverse impacts to at least one of the few remaining travel corridors for lynx, would result in the "destruction or adverse modification" of critical habitat, which is prohibited by the ESA. 16 U.S.C. § 1536(a)(2). The conversion of the critical habitat at the Mine Site to an open-pit mine would destroy and adversely modify all of the primary constituent elements for Canada lynx identified by the U.S. Fish and Wildlife Service, including the destruction of boreal forest landscapes that support a mosaic of forest stages, sites for denning, and matrix habitat allowing for travel and habitat connectivity. See 74 Fed. Reg. 8616, 8638 (Feb. 25, 2009) (Final Rule designating Canada lynx critical habitat)…the SDEIS entirely fails to consider or address the impacts of the proposed mine project on lynx recovery. By significantly adding to the widespread cumulative impacts of mining projects and other development across this region, including contributing to the continuing decrease in available travel corridors, the proposed mine project is likely to appreciably contribute to the diminishment of the chances for the lynx population in this region to recover, and to be eventually taken off the list of threatened species. The SDEIS's failure to consider this fundamentally important factor concerning lynx violates NEPA and the ESA.	WI01, WI02, WI03, WI11
5882	The SDEIS's cumulative effects analysis for wildlife, for both the proposed mine and the proposed land exchange, entirely fails to even mention moose. SDEIS 6-50 to 59 and 6-122 to 126… The agencies' failure to address such a fundamentally important factor in the SDEIS violates NEPA. See Foundation for North Am. Wild Sheep v. U.S Dept. of Agric., 681 F.2d 1172, 1178 (9th Cir. 1982).	WI01
5883	Similarly, even though the SDEIS claims that the cumulative impacts analysis for wildlife is focused on potential losses to sensitive species and their habitat, including federally listed species, SDEIS 6-50, the cumulative impacts analysis for the proposed mine fails to mention or address Canada lynx. SDEIS 6-50 to 59. This is despite the likely presence of lynx in the area, its designation as a federally listed species under the ESA, and the formal designation of critical habitat for lynx across much of the region. As with moose, there will undoubtedly be cumulative impacts to lynx and lynx habitat as a result of widespread mining, mineral exploration, and other activities in this region, and the failure to address and disclose these cumulative impacts in the EIS violates NEPA.	WI01, WI02, WI11
5884	Remarkably, the SDEIS excludes any consideration of the Twin Metals proposal, claiming that it is a "speculative action." SDEIS 6-13. From its 8,800 square-foot headquarters in Ely that was constructed in 2011, to its 2014 "mid-prefeasibility" update, to its past and ongoing exploration throughout the region, to its proposed hydro-geologic study, and the ongoing consideration of the environmental impacts of its proposed lease renewals by the BLM, many components of the Twin Metals proposal are far beyond "speculative," and are instead ongoing or at least reasonably foreseeable.	CU02, CU07

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5885	Furthermore, the area of analysis and the sources that are considered should vary according to the nature of the resource and the impacts. The SDEIS cumulative impacts assessment names a certain set of sources, and then limits the analysis to contributions from those sources. This may be the current methodology used by the State of Minnesota, but it does not meet the requirements of federal law. Under the federal regulations, the cumulative impacts assessment must consider all sources, past, present, and future, that contribute to the impacts at issue. 40 C.F.R. § 1508.7. This requires a scope of analysis that will vary based on the impacts and resource that are being assessed.	CU03
5886	This improved and more detailed cumulative impacts analysis [developed by the Tribal Cooperating Agencies] must be carefully considered by the agencies and disclosed to the public in the final EIS.	CU12
5887	Nor should this facility be permitted if it will contribute to non-attainment of the 2018 goal...Even if mining and processing began before construction ended, it is highly unlikely that the primary sources of air emissions would be in operation before 2018. And even if they theoretically could be, not taking account of an immediately pending goal defies common sense.	AIR13
5888	PolyMet is now making the same arguments. It says the amount of true asbestos that can be found in the Duluth Complex is miniscule. It says only harmless cleavage fragments are involved. It is chilling that the same experts that defended W.R.Grace at Libby, Montana have been involved in preparing PolyMet's fibers analysis. Worse, PolyMet repeats some of the false claims these consultants have made at other sites – even though EPA has shown the claims to be incorrect.	AIR03
5889	The SDEIS also fails to acknowledge that under an underground mine alternative, a land exchange with Forest Service would no longer be needed to allow for a strip mine, and that therefore environmental sensitive areas such as the 100 Mile Swamp and lynx critical habitat, along with tribal historical and cultural resources, would remain in federal control. Moreover, because water quality and water quantity impacts would be reduced under the underground mine alternative, perpetual mechanical water treatment might not be necessary to meet water quality standards, as it would be for the open-pit mine alternative.	ALT01, ALT06
5890	We also note that these assessments [of the non-federal lands] were done by the same firm that did most of PolyMet's technical and scientific work. SDEIS at 5-578. We are not casting aspersion on Barr Engineering when we say that this firm has a conflict of interest and should not have been contracted for this work. This is simply a matter of professional standards and avoiding the possibility of unconscious bias.	LAN03
5891	We submit that the proposed land exchange does not promote opportunities for better management of Federal lands and resources. The land that will be lost is a large, unfragmented area of high biodiversity, with rare plants and hundreds of acres of high quality, pre-European condition wetlands. It is unclear why or how management needs to be improved over the manner in which this parcel has been managed until now. Once again, because the Forest Service has no real reason of its own to give up this land, there simply seems to be no need for "opportunities for better management." While we appreciate the use of the listed "indicators" to ensure that management opportunities will not in fact be less with the acquired lands, the way this exercise has been conducted is as a solution looking for a problem.	LAN07
5892	Furthermore, the local economic impacts of relying on mining for economicdevelopment are more likely to be negative than positive in the long term. The discussion of this issue above in the section on economic impacts is especially pertinent to the Forest Service's decision.	SO01
5893	The Land Exchange portion of the SDEIS focuses on losses to the federal estate; because the Forest Service is exchanging land for the Mine Site, those losses are minimized. But the public interest review is not limited to impacts on the federal estate; the question is, taking account of all the ramifications, would the public interest be well served. In addition, NEPA requires the Forest Service to consider all of the environmental impacts of its actions, which clearly include the impacts of the proposed mine.	LAN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Northeastern Minnesotans for Wilderness (42985)	
5894	Earlier sections of these comments explain the negative impacts of this project on waters and wetlands throughout the project area. These are all impacts of the Land Exchange Proposed Action, and should be considered in the public interest review. These impacts include increased mercury loads; increased sulfate in wetlands, which contributes to mercury methylation and the production of hydrogen sulfide; violations of the water quality standard for lead; and potential violatons of other water quality standards. In addition, the Proposed Project will impact hydrology.	LAN01
5895	The Forest Plan also states that "wetlands will be managed to prevent the reduction of their water quality, fish and wildlife habitat, and aesthetic values. Management actions will not reduce water quality within a wetland, or upstream or downstream of a wetland, unless restoration of natural conditions is the primary goal of the activity." USFS 2004b at 2-15. The Forest Service's "management action" here, the Land Exchange Proposed Action, will most certainly "reduce water quality within a wetland, or upstream or downstream of a wetland." As restoring natural conditions is not a goal of the activity – whether of the land exchange, or the mine – the Land Exchange Proposed Action does not conform to the Forest Plan, and must be withdrawn.	LAN04, WET16
5896	In addition, the federal lands appear to provide excellent moose habitat. The Superior National Forest is the last remaining refuge for moose in Minnesota, where the species is declining precipitously. The SDEIS barely mentions moose, and does not assess impacts of the Proposed Project on this species, which is listed as of special concern by the State of Minnesota. Finally, the project may have significant impacts on migratory birds; this issue has been insufficiently assessed.	WI01, WI02
5897	the exchange consolidates PolyMet's land interets, but does not consolidate the Forest Service land interests. In fact, as explained above, the Forest Service will have less right to limit mining on the new lands than it had on the old. This does not well serve the public interest.	LAN04
5898	the outcome of this transaction would be to decrease protection across the forest landscape (under all types of ownership) from the ravages of strip mining. Relatively few of the parcels will be subject to the restrictions that are present in the Federal land, and the restrictions on the Federal parcel will be lost. Few of the non-federal parcels will have restrictions added to the current deed; most of the land will be no more protected from strip mining under Forest Service ownership than it is under private or state ownership. This loss of protection of surface property and all of the benefits it provides to humans and other species does not well serve the public interest.	LAN04
5899	Many of the criteria under Priority 2 also apply more strongly to the federal than the non-federal lands. In particular, this land is environmentally sensitive and ecologically rare, and the wetlands are very valuable. In general, while the non-Federal lands may be wonderful properties that the Forest Service would be happy to have, that does not alter the fact that the Federal land is also a wonderful property that the Forest Service was happy to have up until now. This criteria may be appropriate to use strictly for the purpose of deciding whether the non-Federal lands would be acceptable, but that should not be allowed to spill over onto the question of whether the Federal lands are appropriate to dispose of in the first place.	LAN04
5900	The Forest Plan includes many other provisions that the SDEIS completelyignores.	LAN04
5901	Many of the watershed provisions [i.e. D-WS-1, D-WS-4, D-WS-5, D-WS-6, D-WS-13, O-WS-1] in the Forest Plan dictate against facilitating the NorthMet project.	LAN04
5902	the Land Exchange Proposed Action would not well serve the public interest because it is contrary to several additional federal policies. Exchanging this land would result in a project that would be counter to many important environmental objectives of the federal government. Most of these issues are discussed in more detail in other sections of these comments. They include:• The mercury Zero Discharge goal for the Lake Superior basin;• The "broader program" to restore and protect the Lake Superior basin;• Efforts to reduce greenhouse gas emissions;• Efforts to ensure that the federal and state governments (and taxpayers) are not left with clean-up costs for polluted mine sites;• Protection of potable water and of drinking water wells;• The reduction of haze in Class I areas.	LAN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Northeastern Minnesotans for Wilderness (42985)	
5903	Finally, it is particularly troublesome that the Forest Service is exchanging some of its acreage specifically to accommodate PolyMet's emissions. SDEIS at 3-173. One has to wonder whether the Forest Service would be giving up additional land if PolyMet was seeking higher emission limits. It is unclear what boundaries were changed on this basis, but it is particularly objectionable if the additional land includes the Partridge River, which will undoubtedly experience degradation from the deposition of air pollutants, an impact that is completely ignored in the SDEIS. At any rate, the policy of exchanging as much land as a polluter requires to attain ambient air quality standards at the property line surely does not well serve the public interest.	ALT23
5904	The agencies should honor the commitments the various governments aroundLake Superior made to the people of the Lake Superior basin, and deny authorizations based on the failure to meet the Zero Discharge goals of the Binational Program to Restore and Protect Lake Superior.	MERC01
5905	Rather than permitting hydrological changes and the addition of pollutantstressors (which could include air deposition as well as discharges) to an already impaired system, the agencies should be identifying stressors and addressing already existing sources of impairments. Permitting this project would fly in the face of the wisdom that underlies the Clean Water Act in regard to impaired waters.	PER09
5906	The Mine Site is part of the Superior National Forest, which is open to tribal members for exercise of their treaty rights. The Co-Lead Agencies apparently believe that land is fungible for this purpose; replace it with access to other lands, and there has been no loss. This rationale follows the patronizing attitude of this country's past, which has been devastating to native culture and interests. We suggest that it is the place of the Tribes – not the Co-Lead agencies – to determine whether the exchange of lands is acceptable in regards to the exercise of treaty rights. If in the Tribes' judgment it is not, the land should not be traded to a private entity.	LAN05
5907	The Proposed Project would also impact historical and cultural resources that are important to the Ojibway Tribes and people of this region. This alone should convince the agencies to refuse to allow PolyMet to strip mine this land.	CR05
Sender Name (Submission ID)	Northern Organizations (52184)	
5923	It is our concern that the cumulative impacts of current taconite mining, taconite expansion, mineral exploration, and proposed copper-nickel sulfide mining places the ecological balance of the lakes and wilderness region of northeastern Minnesota at risk.	CU11
5924	The opening of a sulfide mining district would displace existing jobs, and the potential for continued jobs that are based upon clean water and wilderness resources. Instead, we would be leaving future generations with a legacy of water contamination lasting for centuries.	SO02
5925	[Save Lake Superior Association was] formed in 1969 to stop the discharge of taconite tailings into Lake Superior by Reserve Mining Company. This waste material contains many of the same toxins such as mercury and asbestos fibers that would be generated by the mining and processing of sulfide ore by PolyMet Corporation as disclosed in their SDEIS on the NorthMet Mine. As stakeholders we are concerned about the potential destruction of natural habitat and the pollution of both air and water in the Lake Superior and its watershed that would be associated with this project.	AIR02, CU11, CU17, HU01
5926	Lake Superior and its watershed are downwind and downstream from current taconite and proposed sulfide mining both of which emit these toxic substances. Even now our members, friends and families, especially children, must limit their fish consumption due to the continuing pollution. Many are unaware of danger and continue to consume the fish. Other visitors to the local parks, streams, trails, shoreline and the lake itself, part of which Minnesota owns, are unknowingly exposed to these toxins. This is an ongoing environmental threat which would increase the pollution of the air we breathe and the water we drink.	HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Northern Organizations (52184)	
5927	[T]he proposed NorthMet Mining Project and Land Exchange would result in the permanent destruction of high quality wetlands and wildlife habitat, and long-term water and air pollution. The [Center for Biological Diversity], its staff, and its members and the interests of its staff and members would be significantly harmed and injured if the proposed project is approved and allowed to be implemented.	COE04, SO02
6003	Children born in our region already show high levels of mercury, this is terribly dangerous and we do not support allowing more sulfate – which is widely known to make mercury more bioavailable – into our waters. Rivers in our region are not responding to decreased airborne mercury with correlating decreases of mercury in the water. Children's intelligence and ability to communicate can be harmed by mercury exposure during development.	HU03, MERC03
6004	The Club's particular interest in this case and the issues which the case concerns stem from this proposed project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, and cumulative impacts from mining.	CU14
6862	The Cu-Ni Study also set up an air-sampling network in northeastern Minnesota. It consisted of 6 sites located around the expected area of Cu-Ni mining. Peter Ashbrook compiled a report in 1978, which provides the details of the sampling program, including an analysis of wind directions and fiber concentrations. ...This analysis shows that 1) the source of amphibole fibers in ambient air samples was probably the mines at the eastern end of the Biwabik Iron Formation (Peter Mitchel Pit and Dunka Pit), and/or 2) a taconite processing facility in Silver Bay. The PolyMet mine will be adding another source in the same area, which will add to the current fiber levels.	AIR03
6952	We know there are amphiboles in the Duluth Complex in variable amounts. The SDEIS is supposed to provide data and an assessment of PolyMet's proposed action. The TEM fiber analysis that was carried out by Barr is worthless for any quantitative assessment of the impact of amphibole fibers from PolyMet's processing. The SDEIS is deficient in providing that information.	AIR03
6957	Amphibole minerals are present in the Partridge River Intrusion, the ore that PolyMet will be mining… In the SDEIS, a mining map shows they will be mining in Unit 1, an area of abundant inclusions and local ultramafic layers… Although all researchers agree that the incidence of asbestos in the Partridge River Intrusion is probably low (from the Stevenson Thesis), Barr Engineering did find an asbestos fiber when they did their analysis.	AIR03
6962	Wind directions are important for ambient fiber levels in the region. Fiber concentrations are highest when the wind blows from the northeast part of the Biwabik Iron Formation, that is, from the mines. Fiber levels were lowest when the mine was shut down by a workers strike. Additional data from the Minnesota Pollution Control Agency (MPCA) samples for Babbitt should be investigated for impacts from the mine.	AIR03
6975	The comment period was too short for a full analysis, but at least one relatively recent data point has the amphibole fiber concentration in Babbitt at 11,957 fibers/cubic meter on August 10, 2008 (MPCA Sample number 200829402). The wind was blowing from the south directly from the Peter Mitchell Pit. Additional mining in this area will only exacerbate the ambient air problem.	AIR03
6977	Cumulative effects from NorthShore Mining's Peter Mitchell Pit should be considered.	CU02
6978	The tailings will contain amphibole fibers and should be considered as asbestos containing.	AIR03
6995	The TEM analyses performed to assess PolyMet's potential to generate harmful mineral fibers is tainted by additional grinding of the samples, and produced results that cannot be used for assessment of health impacts from mineral fibers.	HU01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Northern Organizations (52184)	
7310	The dose of fibers with an aspect ratio greater than three had the most explanatory power for tumorigenesis and in vitro response. Thus we cannot disregard short, thin fibers. The numbers of thin fibers of all lengths are a better predictor of carcinogenicity than the number of long fibers. Surface area may be as important as fiber length in assessing risk. Of course, long fibers have more surface area, thus length is highly correlated with surface area. However, short thin fibers might also be hazardous.	AIR03
15658	sulfide mining in all other regions of this country, as well as globally, has left behind a trail of Acid Mine Drainage or heavy metal contamination that can last for centuries. This contamination is especially hard to contain in water rich environments, such as those of northeastern Minnesota.	WR023
15662	It is already known that taconite mining is having an impact upon the St. Louis River watershed, which drains intoLake Superior. Lake Superior contains 10% of our nation's water supply. Because Lake Superior borders both theU.S. and Canada, any on-going pollution is a matter of international concern.	WR111
15670	The Polymet project would result in substantial pollution and requires significant human intervention for an indeterminate period oftime to keep that pollution from flowing into the water.At a time when our nation is spending millionsto clean up the St. Louis River it seems foolhardy at best to add any pollution upstream as it would do inat least one river as described in the SDEIS even if everything functions as well as hoped by planners.	WR035, WR037, WR107, WR108, WR111, WR115, WR128, WR129, WR158
Sender Name (Submission ID)	Novelett Jensen (39590)	
13483	Say NO to Polymet and say YES to a beautiful, healthy Minnesota for our generation and generations to come, PLEASE.	SO02
Sender Name (Submission ID)	Nurmi Family (5)	
249	I am appalled at the cost incurred by Polymet for a permit to provide jobs… it is the responsibility of our state DNR to give out or deny permits in a timely manner. … There should be no place for special interest groups or even guys like me.	PER20
303	it is the responsibility of our state DNR to give out or deny permits in a timely manner.	PER20
305	If the DNR does not believe Copper/Nickel Mining has more benefits than downs, pay Polymet back for the costs incurred and stop the whole thing.	SO01
Sender Name (Submission ID)	nursnews (7056)	
460	Please do not let Polymet or any other mining entity exploit one of the finite and few semi-pristine wilderness environments left in the country.	VEG10
461	Please consider what can and likely will go wrong in the plan to “contain” contaminated water for hundreds of years.	WR021, WR130
462	The environmental impact of this proposal on the lakes, the air, the sound and the sights in the Ely area will be devastating.	N01
Sender Name (Submission ID)	Nyla Lewis (16045)	
9521	I am very concerned with any mining that will affect water and/or air quality.	AIR11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Nyla Lewis (16045)	
11035	With all the news stories of spills and leaks into the water supply, I am very concerned of the possibility of that happening here.	WR070, WR202
Sender Name (Submission ID)	Oeljen Vicki (44636)	
12228	I believe we are trading short term financial advantages for irreversible environmental challenges for generations to come.	SO01
Sender Name (Submission ID)	Office of the Minnesota State Auditor (42929)	
3789	The financial risks to taxpayers from nonferrous mining are well documented. The United States Government Accountability Office (GAO) has issued a series of reports on the adequacy of financial assurances and hardrock mines, and found methods used to date inadequate… It is clear from both government and industry perspectives that Minnesota needs to proceed cautiously when it comes to protecting the taxpayers from having to assume any cleanup costs associated with the proposed mine.	FIN01, FIN08, FIN10
3793	The DNR is required to promote mining and regulate it at the same time. The promotion of mining is intended for the benefit of the taxpayers and should not in any way reduce or diminish protecting the taxpayers and their other valuable natural resources. Minnesota rules allow the Commissioner of the DNR to exercise discretion when determining the size and types of financial assurances that will be acceptable, with some guidance in the rules.	FIN03, FIN08
3794	In exercising the Commissioner's discretion, it is not acceptable to burden or degrade current or future generations of taxpayers. These risks should be taken into consideration when the Commissioner analyzes the financial assurances finally proposed.	FIN03, FIN08, FIN09
3797	Whether the financial assurance instrument is truly bankruptcy-proof may not be known until the judge issues the opinion. The very best legal experts with years of experience in corporate bankruptcy should be consulted when analyzing the details of any instrument. The financial risk with nonferrous mining is high and the taxpayers deserve nothing less than the best to represent them.	FIN01, FIN03, FIN08, FIN09
3808	financial assurance instruments are identified in the SDEIS, at page 3-139. Not all forms currently named in the SDEIS are necessarily bankruptcy-proof [i.e., surety bonds and trust funds]… Because Minnesota rules require the instruments be bankruptcy-proof, this information needs to be thoroughly, transparently, and satisfactorily addressed when determining if a surety bond will truly be bankruptcy-proof to protect the taxpayers… Unless the trust [fund] is irrevocable, it may not be bankruptcy-proof…	FIN01, FIN03, FIN08
3809	A Surety bond is obtained from an approved surety company guaranteeing that the obligation will be met. However, "[b]onding underwriters will not provide a surety bond if it is determined that a site will have long term pollutional discharges since it is clear that the bond will not be released."5 Another risk of bonds to the State and ultimately the taxpayers is that the Commissioner probably has little experience with them.	FIN01, FIN08, FIN09
3813	The DNR would need to monitor the [Irrevocable] letter of credit for the duration of the exposure to ensure that it has not expired. Another risk the Commissioner needs to consider and do further research on is what would happen if the bank that issued the letter of credit goes into receivership.	FIN01, FIN03, FIN08
3814	The above scenario falls into the "failure or limitations on the ability of third parties to pay reclamation costs" as identified on page 3-138, section 3.2.2.4.2 Financial Assurance Instruments. It is very probable that over the next 20 years, there will be more bank failures. The Commissioner needs to do further research to adequately assess the appropriateness and risks of this type of financial assurance instrument… PolyMet acknowledges these risks related to the financial markets in its financial statements…	FIN01, FIN03, FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Office of the Minnesota State Auditor (42929)	
3820	The risks related to cash and cash equivalents are low if the cash is within the custody and control of the State and is not available to pay creditors should a bankruptcy occur. This is a desirable form of assurance for the taxpayers.	FIN01, FIN03, FIN08
3821	One of the risks of a trust fund is the timing of funding required by the Commissioner. If the Commissioner allows a “payment plan” for PolyMet to fund the trust fund, there is a substantial risk to the taxpayers. If a trust fund is not fully funded and PolyMet goes bankrupt, or walks away because commodity prices drop, we have opened the ground, and water treatment will be required, but we will not have the funds to pay for it for the estimated 200-500 years. The burden then gets shifted onto the taxpayers.	FIN01, FIN03, FIN08, FIN09, FIN10
3822	There are risks for taxpayers associated with insurance policies, if PolyMet can even obtain one. The insurance company must be solvent. The insurance policy itself must be carefully reviewed by someone with sufficient expertise to verify it fully covers all anticipated claims. Use of an insurance instrument requires the DNR have an understanding of claims that should be made and the timing and procedures required to make them. The financial risk to government varies, depending on the specifics of the policy and the solvency of the insurance company.	FIN01, FIN08, FIN09
3823	Of particular concern are policies that are written by “captive” insurance companies, which are wholly-owned subsidiaries controlled by parent companies in existence to insure the parent company and its subsidiaries.	FIN01, FIN08
3824	In its Financial Statements for 2011, PolyMet identified a number of unanticipated risks and insurance exposures: [including that] PolyMet may not have adequate, if any insurance coverage for some business risks that could lead to economically harmful consequences to the Company.	FIN01, FIN08
3825	PolyMet is a Canadian “junior” company. It has never operated a mine, and has no experience mining. It has no track record, and has very few assets… There will be a greater chance of “unanticipated liabilities” with a Junior company (see 3.2.2.4.2 page 3-138 of the SDEIS). Because of this, the Commissioner should require a greater amount of financial assurances to adequately protect taxpayers from unanticipated liabilities.	FIN01, FIN02, FIN03, FIN09
3826	Glencore Xstrata is a major shareholder of PolyMet, giving it some control of the project. Glencore Xstrata is a large multinational mining company that does have assets from which to draw from if needed. If Glencore Xstrata could be put on the permit to mine for the project, their assets could provide some assurance to taxpayers.	PER02
3827	It is important to note that Minnesota’s surface and groundwater are valuable assets of the state...When determining the size of the assurances required, protection against degradation of other valuable commodities and resources is critical. Like the nonferrous minerals, this water belongs to all Minnesotans, and should be protected by larger assurances. This will help incent PolyMet to mine with care, and protect the taxpayers from being saddled with a large financial liability and/or degradation of a valuable commodity.	FIN05, FIN10
3830	The Commissioner is required to review the mine annually to see if assurance amounts need to be adjusted. This is acceptable to a point. There is great risk if the Commissioner, in “his discretion”, accepts only what PolyMet says they can afford, assuming the DNR can collect more later. The DNR has assured the public that they can pull permits from mining companies if they owe more in assurances and do not pay or have other violations. The risk with this approach is that it exposes the state and taxpayers to political will failure...Due to the political will risk, the Commissioner must get an adequate amount up front to protect taxpayers and not assume more can be secured later.	FIN01, FIN05, FIN08, FIN09
3831	In determining the size of assurances required, there is significant risk of settling for too little because of predictive failure. The ability of the Commissioner to determine how to calculate the cost for reclamation of the site is probably not a difficult task with the help of experts familiar with this type of work. However, the Commissioner’s or anyone’s ability to calculate the cost of water treatment for 500 years is probably impossible.	FIN05, FIN09, FIN13

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Office of the Minnesota State Auditor (42929)	
3832	the State does not have the expertise necessary on staff to adequately protect taxpayers when assessing the types of assurance instruments and the size and adequacy of the assurances or the legal language in the assurances. The Commissioner of the DNR should hire top outside financial, legal and scientific experts who practice regularly in their respective areas and who have experience with nonferrous mining, to represent the State and the taxpayers' interests to fully mitigate the risks described herein.	FIN05, FIN08, FIN09, FIN13
3932	The amount of oversight and enforcement effort needed by the DNR for the duration of a specific financial instrument should also be taken into account. Special expertise may also be needed.	FIN08, FIN09
3950	Some of the risks identified [in Form 20F PolyMet submitted to the SEC]..., i.e., environmental hazards and pit wall failures should be covered by the financial assurance… If these risks are not insurable, alternative financial assurance arrangements must be found, or the project should not proceed.	FIN08, FIN12
3955	The probability of predictive failure should raise serious ethical and financial questions about whether Minnesota should be entering into a project where short term benefits are realized, but the potential pollution from waste rock will be in our state hundreds or perhaps thousands of years.	SO01
Sender Name (Submission ID)	Oliver Garrison (39326)	
12788	I'm also of the belief that the short-term economic gain produced by mining will be lost many times over with long-term scarring of the countryside that we as Minnesotans hold to such high regard.	SO01
Sender Name (Submission ID)	Olivia (Vivi) Grieco (57172)	
18691	I am passionate about developing economic equity in an environmentally sustainable way. It is vital that we think beyond the next 20 years and think about clean water in our state for our children and grandchildren.	SO02
Sender Name (Submission ID)	Olivia Jane Riggins (57195)	
17081	the PolyMet mine would be a threat to future generations and current American Indian groups.	CR01
17082	Not only is it incredibly short-sighted to believe that PolyMet will continue the necessary cleanup,	FIN01
Sender Name (Submission ID)	Olivia Ridge (42557)	
6886	The most daunting portion of the EIS, to me, is the following from section 3.2.2.3.10 page 3-117: "Performance modeling of the containment systems performed by PolyMet and reviewed by the Co-leads provides strong evidence that the capture efficiency would be greater than 90 percent." Anything under 100% will pollute the waters, guaranteed. Over any period of time, this will have true serious and devastating affects that concern every Minnesotan.	WR038, WR115
6887	According to Minnesota State Law 6132.3200, a site must be maintenance free at closure. The infrastructure required to maintain the reverse osmosis process will, in all likelihood, require some maintenance over the length period needed to treat the water, be it 20 years after the mine closes or 500. I do not understand how this complies with state law.	PER04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Olivia Ridge (42557)	
17054	Additionally, I ask that financial assurances be included in the Final Draft of the Environmental Impact Study. The economic impacts to the area and the greater Minnesota cannot be fully understood without any knowledge of what PolyMet can offer us as financial assurances. I ask that this piece of the issue is studies and included now before the public accepts any part of the project.	FIN13
Sender Name (Submission ID)	omar (1819)	
597	northern MN needs the new jobs [the NorthMet Project would provide].	SO10
Sender Name (Submission ID)	Opel McCarthy (58124)	
19957	Our primary support system... is the sun, the earth, the water, and the plants and animals that live within its system. The Polymet sulfide mining project would critically damage three of [these] systems which we depend upon to survive.	GT01, SO01
Sender Name (Submission ID)	Oren Olson (46698)	
9212	Minnesota needs good paying jobs. We have plenty of minimum wage jobs	SO10
9215	the sdeis has been a very long and involved process. I trust the state and federal agencies have figured out a way to mine safely.	NEPA16
Sender Name (Submission ID)	Oscar Diaz (57186)	
18655	I hear the boundary water is a great place to go. Please save so I can go someday.	WILD02
Sender Name (Submission ID)	Owen (11262)	
1581	polymet mine should only get the go ahead if all lands currently proposed are given for the federal lands and under the condition that all federal lands revert back to federal ownership after the 20 year period and after polymet does land reclamation	LAN06
1582	also giving lands that already exist does not make up for destroying an equivalent amount of land, so polymet should have to pay an additional fee of 3,000 an acre to the dnr to make up for the destruction of habitat that will occure	VEG03
Sender Name (Submission ID)	Owner (46038)	
10435	…the risks in a human endeavor such as this is not worth the irreparable harm to our beloved Minnesota environment. Given the imperfect nature of all human projects, it is not IF but WHEN problems arise. Short-term gains will go mainly to the multinational corporations that champion this project, but the resultant problems will accrue to ordinary Minnesotans.	SO01
10439	[PolyMet's] main selling point seems to be jobs, but the best, and most, of these will go to professionals from around the globe.	SO06
Sender Name (Submission ID)	Owners Computer (10227)	
377	The accumulative affect from all the toxins is horrible beyond belief and I fail to approve of the surge in mining or drilling to increase profits when it is costing every individual in the country his life.	SO01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Owners Computer (10227)	
1446	… the project for mining heavy metals is a hazard to our health by negatively affecting the increase in pollutants in our envirronment. The metals themselves are toxic and the process that claims them with sulfuric acid is bad.	PD01
Sender Name (Submission ID)	P May (45536)	
15782	Sulfide mining brings with it a risk of acid mine drainage. This risk is particularly high in areas with lots of water, such as Superior National Forest. This pollution can last for anywhere from 2,500 to 10,000 years.	WR001, WR115
15783	This mine will only create around 360 jobs.	SO01
Sender Name (Submission ID)	Pa Yao Vue (54234)	
16810	The map in the environmental impact statement is wrong, They can't just redraw a map. Take a look at the map again. The polymet people left out 100 miles of the swamp. Governor Dayton needs to make the MN DNR do its job correctly. Use the correct map and measure the perculation of the water. They have to prove that the mine will NOT pollute the boundary waters. I don't want the boundary waters to be polluted for the next 500 years or so.	PD38
Sender Name (Submission ID)	Palmira Brummett (40741)	
6673	Please keep in mind that wetlands once destroyed take generations and more to redeem, if they are redeemable at all.	WET24
14046	As a nation, we cannot afford to poison the protected lands and waters that we have left for the personal gain of a few.	SO01
Sender Name (Submission ID)	Pam Backstrom (4272)	
10716	I would like to comment in support of the SDEIS for the proposed NorthMet mine. This has been studied and evaluated by several agencies of the State of Minnesota and the Federal Government. The proposal for a mine, as laid out in the SDEIS, meets the standards that are set by all the agencies involved.	NEPA16
10720	[The Land Exchange] will reclaim and add to state wetlands in exchange for the wetlands taken over by the mine. It results in a net gain in wetland acreage.	WET25
10722	The effect on water resources in the mine area, and in the Lake Superior basin has been thoroughly reviewed by the agencies involved, and has been deemed to be satisfactory. The proposed mine meets or exceeds the standards set in Minnesota state law and federal initiatives.	WR190
10724	The mine will meet air quality standards, as laid out in the SDEIS. It will not affect air quality in the BWCAW.	AIR14
10732	It is a logical re-use of a brownfield site in the plant location and in parts of the mine site, as well as existing rail lines.	PD28
10734	Approval of the proposed mine will create many direct jobs in the eastern end of the Iron Range, and will contribute many dollars in tax revenue to the State of Minnesota, the Federal government and to the local communities. In addition, indirect jobs will be created and the unemployment rate in Northeastern Minnesota will decline.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Pam Backstrom (4272)	
10735	There will be up-front monetary guarantees for the monitoring of water, air, wetlands, etc. after the mine closes. The mine closure plan is sufficient to maintain all the water quality standards that are now in place.	FIN16
10736	I would like to encourage the US Corps of Engineers, USFS, and the DNR to publish a final EIS in a timely manner. I also want to urge the Commissioner of the DNR to declare the EIS adequate, and everyone involved to move the permitting process forward.	NEPA16
Sender Name (Submission ID)	Pam Fischer, RN (34976)	
13281	Sulfur mines pollute EVERYTHING! They send toxins into the waters, the air and the land.	GEN03
Sender Name (Submission ID)	Pam Frink (17511)	
1976	[The SDEIS] does not provide details as how up to 500 years of operating, maintenance and monitoring will occur and be paid for water treatment facilities. … What will happen if Polymet and its backers decide they want to abandon this project in say 50 years? What guarantee is there that someone will continue to monitor and treat polluted waters for the remaining 450 years?	FIN01, FIN05, FIN11, WR035
1977	Another reason I feel the SDEIS should not be approved is the inaccurate water flow model that was used in the impact statement. This error causes many of the assumptions about future mercury levels to be questioned. This data must be corrected and resubmitted for further study by the public.	MERC11, WR003, WR086, WR091
1978	I did not see where any study was made of an underground mine instead of an open pit mine was considered. ... I believe an underground mine would be less destructive than the proposed open pit mine.	ALT01
1980	only some (912.5 acres) of the wetland affected is covered by the SDEIS. What about the more than ten square miles of other wetlands that are indirectly impacted by the toxic minerals and water use by this open pit mine? Bogs and swamps are very difficult to restore or rebuild.	WET01, WET05
1981	The area has been classified as a 'High Biodiversity Significance' area by the Minnesota Biological Survey and the SDEIS considers the impacts to be insignificant which I find impossible to believe. How can they claim over a dozen species of plants or animals as insignificant?	VEG02
Sender Name (Submission ID)	Pam Larson Nippolt (7181)	
535	I believe that the water sources in Minnesota, and the surrounding watershed, are being put at extreme risk.	WR111, WR115
536	There is no precedence for this being an effective approach and the long term maintenance suggested (500 years) is preposterous.	PD03
Sender Name (Submission ID)	Pam Leland (16707)	
2063	Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever.	WR071, WR107, WR108, WR195
2064	the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science.	WR003

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Pam Leland (16707)	
2065	The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health.	MERC02, WR041, WR115, WR189
2066	•The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures.	WR010, WR012
2067	•The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streams.	WR003
2068	•The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge.	HU03, WR020
2069	Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come.	NEPA09, WR195
Sender Name (Submission ID)	Pam McLaughlin (34221)	
13244	I have canoed in the Boundary Waters Wilderness Area, that whole area is so beautiful and absolutely irreplaceable. And the contamination of one area of these waterways will affect the whole region, not just that specific area in Minnesota.	WILD02, WR111
14025	We have got to start thinking of the larger picture when we make decisions and let the good of all living things for generations to come, guide our decisions, and not the desire for short term money gain.	SO01
Sender Name (Submission ID)	Pamela Arnold (39439)	
7726	An alternative use for the proposed mining site has not been considered, including economic and environmental projects for an alternative use. The "NO BUILD" alternative should be given its due position among the considerations.	ALT06
7753	The long term consequences of any undisclosed potential for error, contamination to ground water, ambient air pollution, dredging peat bogs cannot be measured against the very few proposed economic benefits to the local economy.	SO01
7763	A comprehensive EIS should include a state-wide economic and environmental overlay, with an alternative scenario for comparison. As it stands, the SDEIS truly benefits the applicant. It does not fulfill our expectations for a complete picture including alternatives. Because the consequences could be so costly to the environment region-wide, the SDEIS should be challenged, and if no revisions are offered to support an alternative, it should be rejected in perpetuity.	ALT01, ALT06
13221	All we have is hope that the DNR and State of Minnesota will have the courage to reject this proposal, against local enthusiasm for it. And, using it's lobbying effort, find an economic alternative for this region, which clearly needs an economic boost.	SO02
Sender Name (Submission ID)	Pamela M and Frederick J and Alexandra R Thompson (54691)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Pamela M and Frederick J and Alexandra R Thompson (54691)	
17819	"Jobs, jobs, jobs" is the hue and cry in favor of a copper-nickel mining boom.Environmentally and financially sustainable family businesses like ours are always wished for, but often not supported by policy. My family has spent a great deal of time, money, energy and education to start and maintain Giving Ground. We will be forced to close and move away in an atmosphere of mining noise, dust, heavy equipment on country roads, blasting and temporary population influx.	SO02
17820	Noone mentions the many long-term, sustainable economically viable over- the- longterm jobs, which will disappear, · coppe -nickel mining environment. Tourist lodges, resorts, dog-sled and skiing and other wilderness adventure 1rms, cannot hold against this onslaught of quick-buck, ·n-and-gone mmg	LU06
17822	What happens after in-and-then-gone mining operations? Planned bankruptcy, which is always built right into the lans of the mining companies.	FIN01
17824	Neither can potable water hold against such an amoral, if not outright immoral, corporate onslaught. Potable water is Minnesota's treasure. Th only water we have is that within our atmosphere's bubble. There is no more. Someone at the recent hearings asked, "Are we insane?" (to trade a possible 20 year mining boom for 500 years of drinking water??)	SO01, WR111
17825	The corporate owners of the minining companies will neve settle in our communities. They will come in by private plane an leave by private plane. The engineers will be brought in by the companies, under contract, and then they will leave. None ofthese mining companies have any long-term commitment to ANY of our communities in any way.	SO06
17827	Frank Ongaro says we should trust the environmental laws on the books, but what of all the recent1rain explosions, massive toxic storage tanks leaks into national waterways and drinking water reservoirs, coal ash avalanches? .. .. . Companies don't care what happens to communities m t e long run because they don't live in any of them; the state and federal governments are already overburdened and can't possibly oversee carefully enough.	SO02
17828	Recycle copper and nickel and rare earths and so any other resources from the dumps and landfills we already have. The Chinese are mining our landfills for much of their resource needs.	NEPA06
17829	Leave the copper and nickel in the ground here until a time when technology makes mining them safer. They won't go anywhere in the meantime.	ALT16
Sender Name (Submission ID)	Pamela Skaar (31784)	
13851	Water supply systems, personal and public, may be impacted, requiring more expense to process to meet regulatory standards.	WR041
Sender Name (Submission ID)	Pamela Thinesen (14735)	
1747	I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-- information that is necessary to decision-makers.	FIN01
1748	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
1749	I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St. Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk.	WI13

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Pamela Voigt (15616)	
15637	The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. [As you revise the SDEIS, please] require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project.	WI02
15638	Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635)… [As you revise the SDEIS, please] recognize the changed status of the moose as a species of "Special Concern"…	WI01
15639	despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose…	WI01, WI02
Sender Name (Submission ID)	Pat Rogowski (47794)	
11610	I believe the mine should not be built as described. It is our job to protect irreplaceable wetlands and fresh water resources in the Lake Superior Basin for generations to come	WET24
14151	Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters.	COE04
14153	Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality [including]: Underground mining, looking at the full ore deposit and PolyMet's real costs	ALT06
14155	Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality [including]: Putting a liner under the Category 1 waste rock stockpile;	ALT07, ALT10, ALT13
14157	Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality [including]: Placing all tailings on a new completely lined facility;	ALT10, ALT13
14158	Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality [including]: Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres;	ALT03, ALT06
14159	Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality [including]: Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands.	ALT13
14160	Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin.	COE01
14161	Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses.	COE01, COE02
14162	Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions.	COE03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Pat Rogowski (47794)	
14163	Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS.	ALT13
14164	Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance.	WET19, WR111, WR115
Sender Name (Submission ID)	Pat.Burow (12076)	
68	I am concerned, not only for the quality of water to be preserved	WR115
1648	So, you really want to take a chance that our groundwater and surface water will be polluted because of sulfide mining in one of out most pristine areas in Minnesota and an area that attracts people from all over the world?	WR115
1649	I am concerned, not only for the quality of water to be preserved, but also for the towns, most particularly Ely. Have you visited Wiliston, North Dakota or Dickenson, North Dakota?	SO02
Sender Name (Submission ID)	Patricia B Olson (54746)	
19118	I have to support the MN DNR, the USArmy corp of Engineers, and the US Forest Service. Their SDEIS for Poly Met's proposed copper-nickel mine in northeastern MN appears to be well thought out and it's disbursement to the public through the hearings and educational material provided. I have every confidence that; should there be a problem, Science and Research will be able to fix it before it becomes a disaster!	PER34
Sender Name (Submission ID)	Patricia B Penshorn (54821)	
18481	360 jobs for 20 years and then what? How about creating metal recycling facilities and hire people to work on recovering the metals we need?	SO02
Sender Name (Submission ID)	Patricia Bacon (30188)	
10990	At a time when CA, NV and many other areas are experiencing droughts and water pollution, why would there even be any consideration to allow such a polluting industry to put this risk and probable inevitability of contamination of such a priceless gift as Lake Superior and the entire Great Lakes ecosystem over the welfare of 20% of the population of the U.S.A.?	WR111, WR195
Sender Name (Submission ID)	patricia benson (15997)	
1121	On behalf of the moose ... NO to PolyMet. ... it is a simple proposition: Short-term (20 years)thinking vs. long-term action on behalf of future generations, human and non-human, the future of the watershed, the future of Mother Earth.	WI01
2022	Short-term (20 years)thinking vs. long-term action on behalf of future generations, human and non-human, the future of the watershed, the future of Mother Earth.	SO01
Sender Name (Submission ID)	Patricia Donnelly (40157)	
6161	we will be paying for hundreds of years of cleanup when the use for copper may be replaced with another product in a few years, just like has happened to so many other products that we used to use	FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Patricia Donnelly (40157)	
6162	Minnesotans have worked hard to preserve our natural resources and I don't want to see ll that work undone for a few hundred jobs.	SO01
Sender Name (Submission ID)	Patricia Feld (16189)	
11523	Our unique environment is too precious and too vulnerable to put in jeopardy for short-range benefits.	SO01
Sender Name (Submission ID)	patricia flynn (45595)	
11611	The wild rice paddies and the Native Americans are another reason not to proceed.	VEG04
15800	It sounds to me that PolyMet would come to Northern MN for approximately 20 years and put their profits from our minerals in a Swiss bank, and walk away, leaving behind up to approximately 500 years of destruction to our northern area.	SO01
15899	Twenty years of mining and 200 jobs at the mine aren't worth the devastation that will occur, at sometime, in the pristine area of MN where the mine will be located.	SO01
15900	NorthMet can file bankruptcy and be out of the picture and leave the potential clean up for all of us to pay for.	FIN01
Sender Name (Submission ID)	Patricia Gunderson (7121)	
470	The SDEIS is inadequate; it does not provide any reassurance that this mining will not result in irreparable harm to the watery environment in our Arrowhead.	NEPA09
Sender Name (Submission ID)	Patricia Hammel (44970)	
11159	Lake Superior is an exceptional freshwater resource of global importance for which we are responsible. The likelihood that the Polymet mine will result in sulfuric mine drainage, methylmercury pollution and asbestiform discharges into Lake Superior tributaries is an unacceptable risk.	WR111
11161	Polymet's prior environmental analysis was unacceptable to the EPA. The current SDEIS is also inadequate as it is based on unrealistic groundwater/hydrology models and assumptions about the capacity and integrity of tailings ponds.	WR057, WR058, WR086, WR087, WR088, WR089, WR093, WR095, WR096
11163	Mining is the primary source of mercury pollution in the Lake Superior region. The United States has both signed and ratified the Minimata Convention on mercury pollution pledging to limit new emissions of mercury and to clean up existing mercury sources. Allowing Polymet to obtain a mining permit without stringent safeguards to prevent mercury emissions violates our commitment to the Minimata convention.	PER11
11165	Last but not least the possible presence of asbestiform minerals in the mine area compels us to consider the health of the mine workers and local communities who, based on past experience, will bear the brunt of the release of asbestiform particles into the environment of the mine.	HU05
11166	Indigenous people living near the mine will be most heavily impacted because they live on their traditional lands and rely on wild rice and fish for food and cultural survival.	CU11
Sender Name (Submission ID)	Patricia Harlan-Marks (20062)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Patricia Harlan-Marks (20062)	
1702	The newest DEIS provides no assurance that this mining can be done without irreparable harm to the watery environment in our Arrowhead.	WR195
1703	Mining companies routinely declare bankruptcy as the mine is exhausted, leaving the taxpayers to pick up the tab for attempts to clean up the environment.	FIN01
1704	I seriously doubt that the mining can be done without toxic pollutants poisoning our fish, killing our wild rice and contaminating our ground water.	AQ05, WR156
1705	The mine will impact over 4000 acres of prime wildlife habitat and impair wildlife movement through the area.	WI02, WI03
1706	Processing the ore would increase Minnesota's greenhouse gas emissions significantly.	AIR01
1707	Our State must depend on wise stewardship to protect the environment and ensure that projects which may yield short-term gain will not result in long-term, irreversible damage to our forests, our land, our waterways, and our environment.	SO01
14862	Claims that sulfide mines have operated without violating water standards are based on mines located in deserts or mines that were exempted from ordinary water quality standards.	WR023
14863	PolyMet is a junior mining company headquartered in Vancouver, Canada. It has never operated a mine before and is backed financially by the Swiss company Glencore Xstrata. Glencore has a record of massive tax evasion in third world countries. Additionally, Glencore has suffered dozens of fatalities and been subject to six-figure fines for environmental breaches – 2008-2010.	PD23
14864	Sulfide mining threatens our remaining stands of natural wild rice in the St. Louis River. The sulfate standard for wild rice is 10 mg/liter, a standard the waste water from the mine could not meet.	WR143, WR159, WR162
Sender Name (Submission ID)	Patricia Hauser (7362)	
693	The current Supplemental Draft Environmental Impact Statement regarding PolyMet is inadequate. It provides no reassurance that this mining will not cause irreparable damage to our Minnesota waters for hundreds of years!	FIN08
825	leaking polluted water will get into the tributaries of the St. Louis River (thus threatening the wild rice) and eventually into Lake Superior! What about our fish and other aquatic life?	AQ05
Sender Name (Submission ID)	Patricia Johnson (52277)	
10703	The mining industry does not have a good track record in taking care of environmental concerns. I am concerned about air and water pollution and what happens in the future after the fresh water and clean air are so damaged and that it is unsafe to use.	AIR11
10706	What happens when some unexpected event occurs to further contaminate the environment and the money Polymet originally sets aside runs out?	FIN05
10707	I understand the local citizens would like to see the employment opportunities come to their communities and that those jobs would enhance the local economies but the long term cost is just too high.	SO02
10708	I would like to see some other industry locate in northern Minnesota that could provide jobs for the residents there.	NEPA15

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Patricia L. Feld (16183)	
9769	if PolyMet NorthMet SDEIS is not around in 500 years, who will be cleaning up for that generation of Minnesotans?	FIN01
Sender Name (Submission ID)	Patricia Markert (16791)	
1578	Are you sure that five hundred years is a proper window within which to return a forest to itself?	VEG03, VEG05
1579	Who would pay for the clean up once this company is no longer in business?How would you ensure the accountability of any owner of the property for such a long period?	FIN01
1580	How can you be sure that the ground water will not accelerate the flow of run off of contaminated water into rivers and lakes?	WR096, WR167
Sender Name (Submission ID)	Patricia Noble-Olson (39554)	
13533	Protecting our water protects the very essence of life that allows all of us to be healthy, provides for the environment, and for our food supply. The pollution caused by this proposed mine is serious and cannot be ignored	WR195
Sender Name (Submission ID)	Patricia Richard-Amato (43117)	
10247	Sulfate discharges in our wetlands could bring the levels of mercury in our fish up to dangerous levels. … One in 10 babies born in our area already has unsafe levels of mercury in its blood (please see the report by the Minnesota Health Department).	MERC02
13033	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
16593	Hoyt Lakes itself could have its drinking water made unsafe to due to the mine waste piles proposed by PolyMet.	WR181
16594	Huge areas of habitat for our wildlife would be threatened.	WI02
16595	A full study of health effects on humans from mercury and asbestos-like fibers from rock at the mine site has not been done. Much of it could eventually leach into Lake Superior and into many of our rivers and streams.	HU01
16596	We don't know what the cost of treatment of polluted water will be and for how many hundreds of years.	FIN05
Sender Name (Submission ID)	Patrick Anderson (15727)	
11425	The SDEIS is fundamentally flawed in that it does not provide any reasonable guidance as to the length (time) of the environmental impacts. Without such guidance and supporting documentation the SDEIS is incomplete. This issue is a core matter which must be addressed. Neglect of this issue in the SDEIS has lead to widespread public misunderstanding and confusion.	NEPA15
15269	In addition, there is no factual basis for the cost per year figures ($3.9 t0 $6 M) put forth by Polymet. This is a fundamental flaw since it deprives the public an opportunity to adequately and appropriately review the accuracy of those figures. This flaw along with the ambiguous calculations for length of water treatment make it impossible to determine adequate financial assurances. While financial assurances will also be part of the permitting process, the factual basis for those calculations should be determined during the EIS phase.	FIN05, FIN13

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Patrick Anderson (15727)	
15270	In addition, there is no factual basis for the cost per year figures ($3.9 t0 $6 M) put forth by Polymet. This is a fundamental flaw since it deprives the public an opportunity to adequately and appropriately review the accuracy of those figures. This flaw along with the ambiguous calculations for length of water treatment make it impossible to determine adequate financial assurances. While financial assurances will also be part of the permitting process, the factual basis for those calculations should be determined during the EIS phase.	FIN05, FIN13
Sender Name (Submission ID)	Patrick Byron (39917)	
7474	I have real fears that beyond the destruction of the environment, the people of Minnesota will be left with a clean-up bill and/or legal issues that would NOT be in the best interest of our state.	FIN10
7707	With a brother and sister-in-law having first hand knowledge of the mining related issues in the state of Montana and the HORRORS of corporate irresponsibility regarding water quality, I am unequivocally OPPOSED to this project.	WR195
7709	Even with promised jobs and development, the remote chance of tainting waters in the BWCA is too much of a risk to take.	SO01
7712	I have concerns about the data that exists on this project as well, in short, worst case scenarios have NOT been addressed.	NEPA15
7715	I have real fears that beyond the destruction of the environment, the people of Minnesota will be left with a clean-up bill and/or legal issues that would NOT be in the best interest of our state.	FIN10
14294	Even with promised jobs and development, the remote chance of tainting waters in the BWCA is too much of a risk to take.	WR111
Sender Name (Submission ID)	Patrick Chase (30098)	
13859	To create and leave a cleanup mess for the next ten generations is notright - simply not right. It is one thing to say we didn't know the side affects of abestoes or PCPs, but here we do know and there no way we can justifiie it.	HU03
16331	…the mining operation is to last twenty plus years and the reclamation period is hundreds of years. The persons involved in signing off will be long gone, legal issues of blame and cost will be in the courts for years.	FIN01
16332	…the recent experience of the DNR handling the clear violation of Lutzen Ski Resort pulling water from a trout stream demonstrates the DNR's conflict between preserving nature and economic realities. The DNR chose jobs over preserving the natural environment. We are at that same pivotal point.	SO01
Sender Name (Submission ID)	Patrick Cutshall (22054)	
3335	I have confidence in the state of Minnesota and Polymet that it will be mined in the right way for both job creation and the environment. If it is not mined here but somewhere else not only will those good paying jobs and the taxes go somewhere but the environment would actually be more polluted.	SO10
3336	Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands.	PER34
Sender Name (Submission ID)	Patrick Dehart (15755)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Patrick Dehart (15755)	
17045	I am the father of 3 and would gladly sacrifice a few fish to feed my family for the next 20 years.	SO10
Sender Name (Submission ID)	Patrick Drescich (15757)	
12077	In the impact study regarding the discharge into the Partridge River was underestimated.	WR165
12082	If the wastewater is so toxic it needs this treatment, the likelihood is that it will get into the environment prior to being treated.	WR090, WR128
17072	The wastewater would need to be treated for 300-500 years. The system to contain the water is likely to fail.	WR129
Sender Name (Submission ID)	Patrick Gibbons (44064)	
10588	while the employment opportunities arising from sulfide mining may be attractive in the short-term, in the long term the damage done would far outweigh these advantages and destroy the natural beauty that the local tourism industry depends on.	SO01
14922	The Boundary Waters are a treasure not only for Minnesota but for the rest of the world, and anything that damages the environment in this area is a bad idea.	WILD02
Sender Name (Submission ID)	Patrick Knight (42851)	
8569	PolyMet Northmet will destroy thousands of acres of wildlife habitat and wetlands. I believe that the short term gain for a select few is not worth the damage and disruption caused for numerous generations of humans, animals and plants to come. Money will always be available but the opportunities for these living beings to be healthy and enjoy their natural chosen habitat may not be.	SO01, WI02, WET24, WI13
8569	PolyMet Northmet will destroy thousands of acres of wildlife habitat and wetlands. I believe that the short term gain for a select few is not worth the damage and disruption caused for numerous generations of humans, animals and plants to come. Money will always be available but the opportunities for these living beings to be healthy and enjoy their natural chosen habitat may not be.	WET24, WI02, WI13
Sender Name (Submission ID)	Patrick Mulloy (43991)	
9360	The project threatens St. Louis River Basin, Partridge River, aquatic organisms and wildlife, wild rice, wetlands, groundwater, and ultimately, Lake Superior.	AQ05
15648	The Polymet Draft Plan is in large part science fiction, based on assumptions long into the future that are unverifiable. The facility will require environmental stewardship long into the future - long past the projected 500 years of water treatment discussed in the EIS. No corporation has lasted that long and few governments have.	PD01
15649	In general, despite all precautions, these mines do not have a good track record. A review of the historical record suggests that catastrophic failure is the normal state of affairs and that in the end, the tax payers usually end up holding the bag.	FIN01
Sender Name (Submission ID)	Patrick Murn (10698)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Patrick Murn (10698)	
10749	Copper-sulphide mining is way too contaminating to be considered in such a pristine and rare wilderness natural resource…There is just no way in good conscious I can recommend this type of mining in such a delicate and vulnerable ecosystem. Please don't destroy this wonderful national treasure by approving permits for such an environmental devastating type of hard rock mining.	WILD02
10750	Although we need and use the precious metals and we also need the jobs in the region, the environmental destruction that historically and inevitably happens every time this type of mining is performed is not worth the environmental cost.	SO01
10752	We all know that [mining] has and will destroy these precious lands and waters.	GEN03
Sender Name (Submission ID)	Patrick Witherow (43692)	
11915	Destruction of the BWCAW due to manmade toxic sulfide would be an unforgivable crime against nature and Minnesota.	WILD02
11916	The past article in the Star newspaper that Ely is dying because of the lack of jobs has been strongly refuted by most of the residents who also feel a great loss will ensue if this mining goes through.	SO02
11917	I've been told that there has never been a copper mining operation anywhere that has not resulted in a disaster to the environment. Can't we find another alternative? Some "clean" industry to start up there instead?	NEPA01
11918	I've also been told that PolyMet is owned by a Swedish company that has destroyed thousands of acres of Swedish landscape with their mining efforts. And you want to trust a foreign company with the health of the Minnesota environment?	PD23
15100	Think about the jobs and tourism lost to the Ely area if the BWCAW becomes polluted, or worse.	SO02
15101	The past article in the Star newspaper that Ely is dying because of the lack of jobs has been strongly refuted by most of the residents who also feel a great loss will ensue if this mining goes through.	SO01
Sender Name (Submission ID)	Patti Donaldson (16939)	
11022	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Patti Isaacs (9851)	
322	While we cannot ignore the need for employment in the region, I don't see how a twenty year supply of copper and nickel—and profit for a single company—balances five centuries of pollution of Minnesota's most precious resource, water.	SO01
Sender Name (Submission ID)	Patti Schuman (38514)	
14676	It is evident from the extent of time spent on the PolyMet SDEIS process, the range of state, tribal and federal agency involvement and the nature of the SDEIS content that the PolyMet project has been studied thoroughly from front to back end by a diverse set of regulators to understand its planned operations, its potential impacts and the establishment of needed safeguards and mitigations.	NEPA16

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Patti Schuman (38514)	
14677	the SDEIS shows that the project can be built and operated in an environmentally safe manner. The technology exists to mine non-ferrous minerals in the right way and the state has years of experience regulating mining. As well, the quality work done on the SDEIS to identify potential impacts and alternatives for mitigation provides the foundation for proper permit development.	PER34
14678	Minnesota also has substantial and clear financial assurance rules that will further help to ensure permits have the proper financial backing as they are issued. Given that this is the first non-ferrous project to be permitted, I applaud the DNR's decision to seek outside input to assist its process of determining appropriate financial assurance for the Polymet Project.	FIN16, FIN17
14679	[Mining's] economic and employment presence draws a very highly educated and highly skilled work force and it supports the presence of high quality educational facilities, teachers, community leaders and other people and experiences in Northeastern Minnesota. … Minnesota will benefit from mining's economic impact in terms of taxes and royalties and also the positive social and environmental impact of adding good jobs outside of the increasingly congested Metro area.	SO10
14680	The DEIS shows that we can competently take leadership and responsibility in Minnesota for regulating the production of non-ferrous minerals that all of us rely on to support our way of life	PER34
Sender Name (Submission ID)	Patty Flynn (10722)	
12236	Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come.	WR195
Sender Name (Submission ID)	Patty Lange (44858)	
8030	It has been brought to my attention that the maps outlining the drainage area around the proposed mine in the environmental study for the Polymet mine are incorrect.	EDIT01
8035	The fact that the incorrect maps outline the swamp with a dashed teal line on satellite maps with green backgrounds makes it extremely difficult to see. This discrepancy between the environmental impact statement maps and US government maps makes this environmental impact study inadequate.	EDIT01
Sender Name (Submission ID)	Patty Mac (43471)	
15549	Despite their best laid plans; what would happen if a truck with sulfuric acid overturned near the water? What about the weather? Horrible tornadoes? Another winter like this one (or two or three)? What about fires? What about human error?	PD22, PD36
15550	If any of the things that happened at their Mapani mine happen here it would be devastating--environmental problems, health hazards, death of miners. And that mine is just a small part of the trail of environmental hazards, human hardship and financial costs it leaves in the local communities it does "business" in.	FIN10, HU04
15551	Not too mention the big gaping hole the mining leaves in the earth--have you seen the pictures of current copper mines? They are horrid!	LU04
15552	If it's jobs you are trying to bring to that area of the state--there has got to be a better way. There are new (and green) technologies being developed all of the time--invest your time, effort and money into one of these technologies that can benefit all groups, now and in the future.	SO06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Patty Mac (43471)	
15553	who is paying for [other corporate environmental disasters] now -- in dollars, health and stress? Freedom Industries has filed chapter 11, so they will be minimizing their payouts--so it's not them; the weight of the crisis falls on the citizens, as it will when something happens at a copper mine in northern Minnesota.	FIN01
Sender Name (Submission ID)	Patty Moses (43017)	
11501	The SDEIS should identify all the currently foreseeable cumulative effects of sulfide mining in Northern Minnesota [and the entire Great Lakes basin] , so that citizens have the opportunity to evaluate each proposal within the larger context of the overall eco-system.	CU18
Sender Name (Submission ID)	Patty Moses and Tom Haller (43017)	
12191	A responsible plan must address how its systems will react to inevitable leaks, spills, accidents or other failures – indeed, the SDEIS seems foolhardy in its optimism and failure to plan for contingencies. … To fully assess the environmental impact of the mine, contingency planning for unexpected failure must be addressed up front and not wait until well into the permitting process.	HAZ01, PD22, WR130
12204	The mine plan shows that millions of gallons of polluted water will seep off site, untreated, during the 20 years of operation. The SDEIS does not address how this untreated water will be kept from flowing into the Partridge and Embarrass Rivers, to the St. Louis River and into Lake Superior. Excessive rainfall and flooding will only exacerbate this unaddressed problem.	WR070, WR107, WR128, WR130, WR156
12216	PolyMet has not adequately explained how runoff and seepage from the permanent waste rock pile and tailings piles will be prevented. It proposes to store tailings in the former LTV tailings basin, on top of tailings that are already leaching contaminated water. Where membrane liners and geosynthetic covers are used, there is no evidence showing that they will last for centuries. How is it possible to assure sufficient maintenance and monitoring over such a period of time?	PD16, WR017, WR018, WR090, WR127
12221	PolyMet's "base flow" underestimates the amount of water potentially flowing into the Partridge River a tributary of the St. Louis River, which flows into Lake Superior...The water model is based upon a single year's data.... Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Accurate groundwater flow rates are critical to any realistic prediction of pollution and seepage from PolyMet's mine pits and waste rock piles to the Partridge River. Baseflow must be recalculated after additional data is collected – PolyMet's assumptions and promises are all based upon a seriously flawed model and therefore must be rejected.	WR003, WR047
12224	PolyMet assumes that the bedrock under the mine will not allow seepage and runoff to flow into groundwater and elsewhere. However, the bedrock in this area has multiple faults, fractures and fissures, through which water will flow to unknown locations... the effects of repeated blasting on underground rock formations, and these faults and fractures, is unknown—it is certainly possible that they will become larger or more numerous, changing the flow patterns of contaminated water. It is simply too risky to move forward with the SDEIS and PolyMet project without clear understanding of the underground faults and fractures that could transmit contaminated water to places unknown.	WR010, WR012, WR016, WR120
12235	PolyMet does not explain, because it cannot, how polluted water could be retracted. If there is leakage or a spill of contaminated, acidified water, it goes into the watershed, seeps into the groundwater, killing plants, fish, leaching metals and mercury into the environment and endangering human health. What are reclamation costs – can water that has been acidified even be reclaimed? The SDEIS does not adequately address these questions.	HU03, PD03, PD09, PD35, VEG06, WI04, WR128, WR130

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Patty Moses and Tom Haller (43017)	
12297	sulfates have a known role in facilitating mercury methylation, a toxic form of mercury that may cause brain and kidney damage and bio-behavioral disorders in humans. The mercury level in fish in the lakes and rivers in the area is already a health concern and yet this proposal would almost certainly increase the health and safety risks posed by mercury concentrations. The SDEIS should include detailed and cumulative impacts of potential mercury increases in fish as related to the NorthMet project and other nearby pollution sources, including mercury methylation as well as discharge and emissions.	MERC02, MERC10
12307	PolyMet should be required to provide financial assurances in the SDEIS before any permitting process gets underway. Considering that it is taxpayers who will bear the burden in the future for inadequate financial assurances, the public should be able to examine and comment on a financial assurance plan.	FIN10, FIN13
12459	The boom-and-bust cycle of most mining means any economic improvement will be short-lived.. Construction is ...expected to “marginally reduce the unemployment rate” in the study area...many of the more highly skilled and technical jobs will most certainly go to people who come to the area temporarily and send their incomes back to their permanent residences. Upon closure of the mining operations, far fewer people would be employed, the remaining jobs being in closure and reclamation activities…In the end, relatively few jobs, created for a short period of time, is certainly not worth the massive risk to the ecosystem of the St. Louis River watershed and Lake Superior.	SO02
12463	While acknowledging that an indirect effect on tourism and recreation might occur due to noise, dust, water pollution and other disturbance, the SDEIS does not examine or estimate the loss of recreation and tourism-related jobs in the area or examine the effects of the loss of those jobs. The displacement of other economic activity, including jobs and income related to hunting, fishing, eco-tourism, outdoor recreation, and the destruction of habitat for many species is ignored. Of course, contamination of the waterways over time will deeply impact the tourism industry, property values. … Before the process moves forward, an entirely new analysis of the economic impact of PolyMet’s proposal in the context of both short-and long-term environmental, economic, and fiscal impacts must be undertaken.	SO04
12550	Sulfate pollution is detrimental to sustaining the growth of wild rice so important to Minnesota Tribal communities and other Minnesotans. …PolyMet claims that it can meet the current sulfate standards, but its promise does not address the untreated, contaminated water that will seep or flow from the sites...The SDEIS is inadequate because it does not address the sulfate accumulation from untreated contaminated water…. PolyMet’s assertion that it will meet current sulfate standards assumes that all the engineering controls, including the seepage capture system, the cap and liner system, the discharge controls, as well as the wastewater treatment system will all function perfectly for hundreds of years.	VEG04, WR128, WR156, WR157, WR160, WR162
12554	The SDEIS …ignores the potential cumulative environmental impacts of current mining activity, new exploration and potential mining and processing throughout the region. Rather, it restricts the cumulative effects assessment area (CEAA) to the Embarrass and Partridge River watersheds, and does not include the St. Louis River or Lake Superior.	CU01, CU02
16557	the proposed solutions to handling toxic contaminants have not been tested or proven to protect water quality, human health and wildlife. Considering the extreme risks, PolyMet’s projections are inadequate both in the protection of water quality initially and in the proposed remediation. Once sulfuric acid is released, the damage is done.	WR023, WR115, WR141, WR143
16559	While there are scattered comments throughout the SDEIS concerning potential effects on human health, the document is largely silent on this most profound danger of the proposed mine.	HU01
16579	The SDEIS considers only the PolyMet proposal, not the other sulfide mining exploration efforts already underway in Northern Minnesota in anticipation of developing mines. It ignores the potential cumulative environmental impacts of current mining activity, new exploration and potential mining and processing throughout the region. Rather, it restricts the cumulative effects assessment area (CEAA) to the Embarrass and Partridge River watersheds, and does not even include the St. Louis River or Lake Superior.	CU01, CU02, PER35

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Patty Moses and Tom Haller (43017)	
16799	Minnesota Statutes Section 116D.04, subd. 6, provides in part: "No state action … shall be allowed, nor shall any permit….be granted, where such action or permit…is likely to cause pollution, impairment, or destruction of the air, water, land, …so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other natural resources from pollution, impairment or destruction. Economic considerations alone shall not justify such conduct."…I submit that the SDEIS falls far short from meeting the above standards and permitting should not go forward.	PER35
16807	The SDEIS states that for 45 to 2000 years after closure of the mine, pollutants will be discharged into the Partridge River and exceed water quality standards for nickel, sulfate, cobalt, copper and mercury. The SDEIS acknowledges that rock liners may fail to contain contaminated drainage and liners may degrade with contaminated seepage expected to exceed standards for aluminum, antimony, arsenic, fluoride, iron, manganese, sulfate, dioxin, and perhaps beryllium and thallium. Aluminum may exceed water quality standards for 500 years. Concentration of such toxins in fish that can be eaten by humans presents major implications for human health.	HU03, WR107, WR127
16811	Given the projected pollution with these human toxins and the myriad of uncertainties surrounding long- term management of environmental pollution over hundreds of years, the SDEIS is highly deficient on the risks to public health. Before proceeding with the SDEIS, the lead agencies should consult with experts such at the Institute of Medicine, U.S. EPA, American Public Health Association, and other health science - based organizations to examine the implications of sulfide mining on human health, safety and well-being.	HU01
16814	Minnesotans should be absolutely assured that sufficient money has been set aside up front to cover all the costs of remediating the damage, or better yet, retracting it. The current SDEIS does not provide adequate information on 1) the reasonably anticipated costs of foreseeable problems, 2) the costs of currently unforeseen events, and 3) the duration of remediation efforts. Much more information is needed before granting any permission for mining interests to proceed.	FIN05
16815	Among factors that must be addressed are: •The costs of contingency plans, for foreseeable events and for the worst-case scenarios. These include the costs of monitoring to immediately identify leaks, spills, breaks, etc.	FIN05, FIN11
16817	Among factors that must be addressed are: •The cost of financial assurance to protect Minnesotans if PolyMet/Glencore and their investment backers go out of business or run into financial problems and cannot provide additional resources, as has happened repeatedly in the western United States.	FIN05
16818	Among factors that must be addressed are: •The actual costs of monitoring, maintaining, and replacing treatment equipment over many decades or even centuries.	FIN05, FIN11
16819	Among factors that must be addressed are: •The costs of long-term maintenance and management of wetland mitigation sites in addition to the mine and plant sites.	FIN05, FIN11
16820	Among factors that must be addressed are: •The costs of retracting damage. These costs are not addressed in the SDEIS. No one has explained how damage can be retracted. The SDEIS must include the details of how the contaminated water that seeps or spills will be neutralized before it causes damage to flora and fauna and leaches heavy metals including mercury into the watershed.	FIN05
16821	Lead agencies need to restore the public comment period before proceeding further with the review process. PolyMet's estimate of closure costs of $200 million and annual maintenance costs of $6 million are far lower than estimates of the Grand Portage Band of Ojibway that concluded the set-aside for financial assurance at the outset should be approximately $90.5 billion. Such glaring discrepancies must be reconciled and public comment would help inform the issues.	FIN05, FIN13

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Patty Moses and Tom Haller (43017)	
16822	The Weeks Act now protects the 6,700 acres in the Superior National Forest from strip mining. The exchange would take this land out from under the protection of the Weeks Act. The only reason for the land exchange is to remove it from Superior National Forest and federal protection from mining. I oppose this land exchange—it will take protected land and submit it to devastating strip mining which is absolutely contrary to the federal law's intent and longstanding public policy of this nation.	LAN02
16823	While the SDEIS acknowledges that mining activities typically follow a boom-bust cycle, it does not analyze the aftermath of the "bust," including the impact of the loss of jobs on the economy. ...The SDEIS simply says that unemployment will increase, and goes no further. ...The SDEIS should thoroughly assess its impact, to present a complete picture of PolyMet's environmental impact.	SO02
16827	Will viability of the [wild rice] plants be impaired? Will the wild rice be safe for human consumption? What is the evidence? The lead agencies should require more information and a detailed analysis.	VEG04
Sender Name (Submission ID)	Patty Murn (36627)	
3816	Glencore has a significant financial stake in the company, and has an exclusive agreement to sell the mine's metals on the global commodities market.	SO06
14270	Polymet has told you that the water will be polluted for 200-500 years. What kind of a statement is that? And what kind of a steward of natural resources would qualify it with consideration?	WR195
14271	What about the St. Lawrence river, the wild ricing that will disappear, and the pollution of Lake Superior. The Great Lakes comprise 1/5 of the worlds fresh water.	VEG04, VEG06, WR156
Sender Name (Submission ID)	Patty O'keefe (47692)	
12349	Why in the world are we doing this when only 25% of copper nickel products are recycled?Why should we risk polluting water at a time when climate change is causing the largest amount of global water scarcity since the existence of humans.	NEPA06
12511	There's no reason why we should be risking polluting water at a time when climate change is causing the largest amount of global water scarcity since the existence of humans.	WR180
Sender Name (Submission ID)	Paul J. Wotzka (43312)	
11794	The main reason given for establishment of the Superior National Forest and the purchase of Federal lands through the Weeks Act was to protect the headwaters of the St. Louis River. The proposed land exchange and destruction of wetlands in these headwaters is a violation of the intended purpose of these Federal lands.	LAN02
11797	The ecological quality of the stream and wetland complex that would be impacted … is very high and deserves the highest level of wetland mitigation. The proposed mitigation does not compensate for the loss of wetland functions and values in these headwaters.	WET05
11803	The potential toxic effects of sulfur and heavy metals upon wetland vegetation from fugitive dust and precipitation are not adequately considered or evaluated.	WET11
Sender Name (Submission ID)	Paul and Liz Buettner (9803)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul and Liz Buettner (9803)	
298	It is only reasonable to require that Polymet provide adequate financial assurance prior to the beginning of any permitting process.	FIN13
301	Permitting cannot proceed based on inaccurate predictions of water quality.	PER09
302	The cumulative effect of blasting ore, or vibration, has not been mentioned in the SDEIS, or even considered.	N04
304	The impacts of multiple envisioned future mining ventures should be expected to have a cumulative effect on the health of the sensitive ecosystems comprising the overall environment of northeastern Minnesota. This larger context must be an important consideration affecting the granting of any permits for Polymet's proposed action.	CU04
307	It is not reasonable to believe such accidents or unforeseen negative impacts cannot occur in connection with Polymet's proposed action.	PD01
308	Possible benefits to local, state, and national economies, as well as potential damages to the sensitive ecosystem within which this venture is proposed to occur, should be understood as considerations secondary to Polymet's primary interest.	SO01
309	Any assurances given either about future economic benefits or about limiting, preventing, or repairing future environmental damages can only be estimated, not proven.	PD25
310	I believe a choice must be made between any sulfide mining project and the health of the environment upon which we depend for the quality of our lives and the welfare of our local economies.	PD01
Sender Name (Submission ID)	Paul Arhur Fleming (54531)	
19053	This sulfide mining activity does irreparable damage to the water, wildlife and people living in the vicinity and outreaching areas. It always comes down to the bottom line. Making wealthy people wealthier, and besides they won't have to live here.	SO01
Sender Name (Submission ID)	Paul Bauer (43586)	
12306	I have full confidence that the Minnesota DNR, the U.S. Army Corp of Engineers, the U.S. Forest Service and all other involved agencies can, and will, provide the needed oversight and regulation to allow safe, successful mining of the NorthMet Mining Project.	NEPA16
15130	We need the minerals. We need the jobs. And, we need the project to be done correctly.	SO10
Sender Name (Submission ID)	Paul Benwell (4514)	
1835	I have reviewed the SDEIS and am confident that everything has been addressed to the best of everyone's ability and that the permitting process should take place	PER34
9888	I have followed Polymet Mining for a few years and after visiting the site and listening to and questioning management I am very confident in their ability to move forward in a safe and secure manner.	NEPA16
Sender Name (Submission ID)	Paul Doffing (45180)	
8772	The Environmental Impact Statement is deficient in that it inaccurately portrays the effects of the mine/ watershed on the 100 Miles Swamp Area.	WET19

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Doffing (45180)	
8773	Maximizing profits at the cost of human health and the environment is a short sighted, self serving choice	SO01
8775	If Polymet cannot give financial and scientific assurance that our environment will not be damaged by their mine, they should not be allowed to mine.	FIN05
Sender Name (Submission ID)	Paul Erdmann (41883)	
2131	Even if PolyMet “mitigates” or “replaces” wetlands that are destroyed or damaged by this proposed mining activity at a ratio of 1 acre wetland loss to 1.5 acres of wetland “creation,” studies and experience have shown that these newly created wetlands have only a portion of the biological and water quality value of the natural wetlands. The state of Minnesota, federal agencies, and local government units that regulate these activities do not have adequate staff, funding, or time to ensure that these mitigation wetlands provide as much value as the natural wetlands that took thousands of years to evolve.	COE01
2361	The SDEIS does not adequately address many of the environmental ramifications that would occur if the mine is approved, in a critical area of our country’s National Forest- the headwaters of a watershed that many people are working to address environmental damage that has already taken place.	CU11
16506	The SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures.	WET01, WET04, WET07
Sender Name (Submission ID)	Paul F. Tanghe (11242)	
727	Any potential benefits of this project, which will be largely captured by the PolyMet corporation, simply do not justify potential environmental impacts whose cost will be born by the residents of Minnesota as well as the surrounding US and Canadian regions.	SO01
Sender Name (Submission ID)	Paul Finsness (35444)	
13251	There is no guarantee that the PolyMet mine will be open for its projected twenty year life-span. The taxpayers of Minnesota will be required to protect the watershed for 500 years for a mine project that may not be viable for more than 5 years. Again, look to Arizona for the effect of fluctuating copper prices on the viability of copper mines controlled by foreign owners.	FIN08, FIN10
Sender Name (Submission ID)	Paul Forsman (57339)	
18440	everybody says, "Oh, save the wetlands," and it is okay for to save the wetlands, and, "The mining company is going to pay, it doesn't matter," but you are going to have to think about the big picture though. All of the extra carbon that was burned to satisfy a wetland that really wouldn't have been more affected anyways.	WET13
Sender Name (Submission ID)	Paul G Jorgensen (54522)	
18733	Are the citizens of Minnesota going to pay for cleanup after Polymet has left the state?	FIN01, FIN10
18734	When there is an accident, how is it going to be taken care of?	PD22
Sender Name (Submission ID)	Paul Harman (23436)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Harman (23436)	
13977	Do not let ANY company or organization pollute the land, water, or air of the Boundary Waters Wilderness Canoe Area.	WI13
Sender Name (Submission ID)	Paul Johnson (46930)	
10830	The Canadian company and their Swiss financiers have a poor environmental record.	LU06
10833	After the mine closes the site may well have to be monitored for generations until the threat of pollution will have passed.	PD01
16374	Recreational land is highly valued in Minnesota. Because of high natural runoff in the area the risk of major pollution would be high. If it happened I believe it is unlikely that any cleanup funds would be adequate to repair the damage.	LU06
Sender Name (Submission ID)	Paul Laasko (3787)	
12348	My family living in the Ely area over the years depended on the water and forest not just for recreation but for food on their table. When this area is disposed of for short term profit, that wonderful resource resource will be gone as well as the money.	SO01
13912	The enormous cost of (a doubtful) restoration and restitution will be borne by children not yet born for many generations.	SO01
Sender Name (Submission ID)	Paul Magee (42011)	
2062	We should never authorize a project that will require several generations of monitoring and clean-up.	FIN11
Sender Name (Submission ID)	Paul Martz (13948)	
1730	I do not believe for one second that the mining company will be around for the 200 years they say the waste water will need to be treated	WR037
Sender Name (Submission ID)	Paul Nasvik (42898)	
9235	Over 44,000,000 million tons of this waste would be considered toxic waste and another 6,200,000 volumetric tons would be considered highly toxic waste. All of this material, when exposed to air and humidity, will release toxic acids, lead, mercury, asbestos and other heavy metals.	HAZ03
18396	If any of this material [wasterock] leaches, seeps, or is allowed to be windblown to surrounding streams and rivers, degradation of the environment will occur.	WR107, WR126
Sender Name (Submission ID)	Paul Neimann (46135)	
8086	It is difficult to understand why we would put at risk our unique natural environment to create wealth for foreign corporations who will soon leave the state leaving the citizens with a permanent and ongoing mess to clean up.	PD01
16216	Every effort should be made to support a business environment which will create jobs, but not at the expense of our priceless natural inheritance.	SO01
Sender Name (Submission ID)	Paul Nelson (41962)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Nelson (41962)	
2152	The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that...during a typical year of operation the federal government would receive $17.3 million and the state and local governments would receive $14.5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4.10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503).	SO04
2153	Table 5.2.10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15.6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2.0 of the PSDEIS, Table 5.2.10-3 shows annual estimates of $3.12 million of state taxes and $12.8 million in federal taxes, increased by 500% to $15.6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet.	SO04
2155	the SDEIS [should be revised] to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies	SO04
2156	the SDEIS [should be revised] to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates.	SO04
5061	As a Minnesotan, I regularly travel to the Boundary Waters and northern Minnesota for camping, fishing, and outdoor activities. It would be a terribly short-sighted plan to risk one of the only truly natural environments that Minnesota has left for the sake of a few hundred jobs.	SO01
5064	To think of potentially ruining an environment, or at least making it a place that requires constant clean-up, for the next 500 years so that a business can make a profit is not a responsible use of our state's resources.	SO01
5065	[The PolyMet mine] would establish a dangerous precedent of allowing new mining interests into Minnesota nature.	CU04
7606	We as a state are not in a good position to trust that Polymet and its associates will be able to provide us with the environmental and financial assurances that we absolutely need to have before a permit to Mine is granted.	PER03
7619	Saying that this will be the first copper sulfide mine that won't contaminate the watershed and pollute the air is unacceptable.	AIR11
7622	There is little in this for the state of Minnesota or its workforce... it is very likely that many of the jobs created wouldn't be filled by locals.	SO06
7625	I think that they will not be able to guarantee 200-500 years of financing for monitoring and treating the water at both the plant and mine sites.	FIN01
7634	The only thing I would consider guaranteed by them as that they will maximize profits for their shareholders…Jobs will be kept at an absolute minimum.	SO06
7636	I have yet to see an economic impact statement that wasn't created by the company itself in a best case scenario sensibility.	SO02
7641	The PolyMet mine plan is riddled with problems that must be fixed: PolyMet would destroy thousands of acres of habitat used by threatened moose and lynx	WI02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Nelson (41962)	
7642	The PolyMet mine plan is riddled with problems that must be fixed: PolyMet's mine plan lacks analysis of human health impacts from mercury and asbestos-like fibers	HU01
7643	The PolyMet mine plan is riddled with problems that must be fixed: PolyMet's studies contain inaccurate water data that need to be corrected	WR189
7645	Right now it's not worth it. We need absolute guarantees that they will finance and clean up the mess that this WILL create.	FIN01
9389	There is little in this [project] for the state of Minnesota or its workforce. I know people on the range need jobs but this will not change the economy on the range based on the number of jobs it would create. This is also not a typical range project so it is very likely that many of the jobs created wouldn't be filled by locals.	SO02
9392	It is well known that Polymet has never operated a mine before but their largest shareholder Glencore has with a very bad history of contaminating the communities that it has mined. I think that they will not be able to guarantee 200-500 years of financing for monitoring and treating the water at both the plant and mine sites	FIN01
9394	PolyMet would destroy thousands of acres of habitat used by threatened moose and lynx.	WI02
9395	PolyMet's mine plan lacks analysis of human health impacts from mercury and asbestos-like fibers.	HU01
9396	PolyMet's studies contain inaccurate water data that need to be corrected.	WR003, WR086, WR091, WR189
16091	We as a state are not in a good position to trust that Polymet and its associates will be able to provide us with the environmental and financial assurances that we absolutely need to have before a permit to Mine is granted.	PER35
16230	The PolyMet mine plan is riddled with problems that must be fixed..PolyMet would require hundreds of years of expensive treatment of polluted water	WR115
16832	However, knowing that 500 years of water treatment will be needed makes [PolyMet's] proposal almost laughable.	WR195
Sender Name (Submission ID)	Paul Neslund (9715)	
285	The jobs created, and the product produced are both critical to the area and to the world.	SO10
Sender Name (Submission ID)	Paul R Iversen (54799)	
18142	there is absolutely no way Polymet or any other mining company can guarantee the physical structure of sulfide pollution control for hundred of years, or guarantee their corporate culture (and human nature) to keep pollution controls at 100% effectiveness for hundreds of years. The Elk River chemical spill in West Virginia and Duke Energys coal ash spill in North Carolinaare perfect examples of of what can happen years after physical structures begin to deteriorate and corporate culture refuses to embrace environmental stewardship.	GEN03
Sender Name (Submission ID)	Paul Roth (7046)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Roth (7046)	
453	Preserving and protecting Minnesota's natural environment is more important than the profits of a mining company.	SO01
454	Clearly, no one knows what will need to be done, and how many hundreds of years it will need to be done, to keep the witch's brew of effluent from poisoning water, soil, and air.	PD01
673	The mining company will cease to exist long before the site loses toxicity and the ability to ruin the environment. The state of Minnesota will be left with an environmental train wreck, and the citizens of the state will have no choice but to pay for containment and remediation.	FIN01
Sender Name (Submission ID)	Paul Sanford (22073)	
3341	The sooner we get the Polymet project going the sooner we are not dependent on foreign powers for our badly needed copper used In clean energy production.	NEPA05
Sender Name (Submission ID)	Paul Schlaefer (39726)	
7009	It is my opinion that mining in this area with present technology is risky to the water quality. Clean water is the states most important asset and we need to be assured that future generations can drink it safely.	WR128, WR195
7010	More work needs to be done on the environmental impact of storing poluted waste safely in this fragile area.	PD15
14888	Like any big corporation, Polymet's primary concern is profit for it's shareholders.	SO02
Sender Name (Submission ID)	Paul Schurke (18075)	
3187	Most prominently, I feel, are the graphs and tables, particularly those, if I might cite from the report, Table 4.2.2-9 and others that compare the flow into Partridge River with which they have projected through their computer modeling and it is fatally flawed and the DNR has acknowledged that and it's a significant serious error and how well this SDEIS is going to give us a picture of what's can become of the water quality in these lakes and streams in the future to come.	WR003, WR086, WR091
3188	Grand Portage Band and the Bois Forte Band, have been telling the scientists working on this project for years that the groundwater data on the flowage of the Partridge River is seriously flawed, that they're off.	WR003, WR086, WR091
16619	the PolyMet SDEIS is inadequate and… this destructive project must not proceed as currently proposed because of the 1) widespread and severe environmental damage inherent in the PolyMet project and 2) the failure of the SDEIS to include a cost/benefit analysis and specific provisions regarding amounts and sources of financial assurance.	SO01
16623	The SDEIS contains no cost/benefit analysis of the PolyMet mine.	SO01
16626	The SDEIS does not say whether wages paid to mine employees will stay inMinnesota or whether they will go primarily to transient employees who will spend only a fraction of their income in Minnesota.	SO06
16628	The SDEIS does not discuss the impact of the loss of jobs when the price of copper declines and mining becomes unprofitable, although it acknowledges that such job loss is inevitable: "Mining-related employment is volatileand fluctuates from year to year due to the market price of commodities being extracted." SDEIS, 4-325—4-326	SO02

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Schurke (18075)	
16633	The SDEIS fails to assess the cost of unemployment benefits and other social services, increased crime rates, and other societal costs associated with volatility in employment.	SO04
16638	The model used to calculate the alleged economic benefits of the mine does not take into account the costs to the environment; the displacement of other economic activity, including among other things tribal rights to hunt, fish, and gather under the 1854 Treaty; the infrastructure, government, and social service costs resulting from the mining; and the consequences of the unpredictable influx and outflow of mine employees.	SO01
16639	What would be the costs for public infrastructure, lost opportunities to engage in other economic activities incompatible with mining, depressed real estate values, lost recreational opportunities, social upheaval, and perpetual clean-up that the public would be required to bear.	SO01
16646	PolyMet admits that water pollution by sulfuric acid and heavy metals will last for at least 500 years.	WR037
16647	Not all of the polluted water will be captured for treatment. Annually, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated. -The SDEIS fails to adequately assess the long-term impacts of the pollution resulting from the release of this untreated water.	WR070
16648	The computer model used by PolyMet may understate the actual[water] pollution impact, because it has been shown to be inaccurate in representing current conditions for water quality around the mine site.	WR049
16649	The SDEIS fails to provide contingency plans for the kinds of failures and mishaps that routinely occur in mining operations. During operations, at least 6-2 million gallons of polluted water would need to be treated every day. Pipeline spills, accidental releases, failure of water collection and treatment infrastructure, and tailings basins failures are virtual certainties. And because the provisions regarding financial assurance are so plainly inadequate… the SDEIS does not tell us how the costs of responding to such failures will be covered.	FIN05
16651	The SDEIS provides no details on the impacts to water quality, wildlife, or human health if the water treatment system ceases operations at some time during the 500+ years during which the polluted water is being discharged.	HU03, WI04
16652	The Mine Plan Requires an Absurd and Unachievable Level of Monitoring and Maintenance for Many Centuries -Minnesota Rules 6132-3200 requires that the site must be maintenance-free at closure, but the PolyMet mining plan calls for at least 500 years of active water treatment.	PER04
16653	526 acres of land, covered by more than 167 million tons of waste rock, would be covered by a plastic sheet and surrounded by a system that would supposedly collect contaminated seepage. All would require monitoring and maintenance constantly for hundreds of years to fix leaks, repair perforations, and remove deep-rooted plants.	PD01
16663	A mining pit “lake” would require pumping to prevent the toxic brew of acid and heavy metals from spilling into the nearby Partridge River, and a tailings basin pond would require pumping to prevent spillage into tributaries of the Embarrass River.	WR037, WR131
16666	The polluted water collection system, which includes miles of pipes, would require monitoring and maintenance for centuries.	WR131
16668	The SDEIS contains no credible information about the actual cost of monitoring, maintaining, and replacing the equipment needed to treat polluted water for 500 years or more. It provides no details about the nature or guarantees of a financial assurance scheme that would remain viable for 500 years, yet it does acknowledge, disturbingly, the possibility of events such as “unanticipated liabilities” and “failure or limitations on the ability of third parties to pay.” It does not attempt to explain how a corporate entity could realistically be held accountable over such an absurdly long period of time.	FIN01, FIN05, FIN11

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Schurke (18075)	
16669	even though the SDEIS admits that water pollution will last for a minimum of 500 years, its financial assurance section is an exercise in generalities. The actual cost of water treatment, monitoring, maintenance, repair, and reclamation is completely unknowable.	FIN01, FIN05, FIN11
16670	The SDEIS says that PolyMet estimates initial closure costs of up to $200 million, with post-closure monitoring and maintenance costs of up to $6 million annually. The Grand Portage Band of Ojibway concluded that PolyMet's numbers are vastly below the actual amounts required. The Grand Portage Band calculates that the minimum amount that should be set aside for financial assurance at the outset, assuming a 3% return on the amount, is $90-5 billion.	FIN05
Sender Name (Submission ID)	Paul Stolen (54517)	
19189	The Final EIS should contain content that at least attempts to reassure both skeptics and projects proponents	NEPA15
19191	methodological defects in the SDEIS: Inconsistencies in clearly describing potential impacts should there be failure of controls.Many of the conclusions about potential impacts (or lack thereof) are based on esoteric models that conclude there will be no impact. The SDEIS authors seem to have then decided there is no need to describe what kind of impact is being avoided.	NEPA09
19192	methodological defects in the SDEIS: The SDEIS replaces proper impact analysis with a narrowed analysis geared to existing MPCA, COE, and DNR permit authorities and post-construction monitoring. It is proper and necessary to include detailed analysis of permit topics in the SDEIS. What is missing from this SDEIS, however, is adequate analysis of impacts not covered by permits.	NEPA05
19193	The use of ambient mercury/methyl mercury levels, fish mercury content, and fish consumption advisories as the main indicator of mercury impacts and mitigation of impacts rather than analyzing ecosystem/watershed factors potentially affected by the project.	MERC04
19195	SDEIS section on indirect impacts to wetlands narrows the wetland analysis to topics related to COE and DNR permitting authority over wetlands. This is spite of the overwhelming evidence that wetland disturbance can cause high mobilization of both new and legacy mercury into methyl mercury from wetlands. Some of the disturbance factors used in the wetland analysis are the very ones that can cause such mobilization, making the absence of an analysis of mercury methylation in the wetlands even more puzzling.	MERC09, MERC23
19196	There is a narrow focus on the influence of sulfate deposition on increases in methyl mercury mobilization rather than other factors such as water level and ecosystem effects. Such deposition can be controlled to some extent-within Minnesota that is-by MPCA permitting authority. This is another result of the narrow focus on permitting issues.	MERC08
19198	The SDEIS thus sets a poor example of how to address such a mine review. The narrow focus on permit topics hampers public access to key information in the review. Permit decisions are highly technical decisions based on models, deep technical knowledge, and so forth. The result is a public review document whose substantive content is nearly inaccessible.	NEPA07
19199	Reliance on post-construction monitoring to this degree has major problems.	PD01
19200	The Polymet SDEIS, with profound implications for its content, doesn't do an analysis of impacts for the 200+ time period. Instead, it says the project will be monitored and actions taken should impacts be detected. As mentioned, this method of "kicking the can down the road" greatly detracts from theproper EIS content, and may have legal problems.	PD01
19201	The very nature of the North Met project, and it's location in a very wet and sensitive environment, necessitates description of potential impacts during at least the 200 year period. A monitoring approach might be more defensible in a dry environment, but it raises enormous red flags in a wet environment.	PD01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Stolen (54517)	
19202	The use of modelling for highly important aspects of the impact analysis-such as those that can influence whether a project permit is granted-needs to be thoroughly explained in the final SEIS.	PD03
19203	The SDEIS should not rely on complex models that remain opaque to the public. There are major adverse consequences to public trust when this is the case.	NEPA07
19204	Inclusion of clear descriptions of all potential impacts of a mine such as this, based on what has happened elsewhere. This need is based on the fact that controls could fail, and is necessary for transparency for the public. These discussions are needed even though conclusions may be reached that the impacts are unlikely to happen.	NEPA09
19205	Inclusion of a description of whether failures of project controls can be controlled, and at least a rough estimate of costs of control.	FIN05
19206	[Include] A clear discussion of the degradation of modelled outcomes as time passes.	NEPA06
19207	[Include] A clear discussion of model assumptions, including what happens to conclusions if important assumptions are changed.	NEPA06
19208	An explanation of the factors that would pertain that would result in a permit denial, given the further information requested for permitting decisions. This description is needed, given the very high level of public and political interest in this project, and the need to transparency.	NEPA06
19209	[Include details of the following in the SDEIS:] Toxicity of Mercury. Mercury-and methyl mercury-is a very dangerous and toxic material that has caused and is causing more and more concern among governments around the world, including in the United States. It's sub-lethal costs are more and more understood, and economic costs have been estimated in loss of life-long earnings from people because of lowered IQ. It also causes sub-lethal effects in fish and wildlife that can lead to population effects.	MERC03
19210	[Include details of the following in the SDEIS:] Status of research on mercury. Scientific understanding of the biochemical/chemical/ecosystem processes that lead to effects in people, fish and wildlife has progressed to the point where there are a number of methods available to analyze mercury impacts in a water-rich environment-methods beyond and better than mercury content in fish. Also, inadequate literature reviews of mercury issues as seen in the SDEIS has contributed to erroneous conclusions, as noted in the specific comment section of this review.	MERC03, MERC04
19211	[Include details of the following in the SDEIS:] Relationship of new deposition of mercury and "legacy" mercury.	MERC04, MERC17
19212	[Include details of the following in the SDEIS:] Watershed/ecosystem approaches. Mercury/methylation processes are a function of the watershedand ecosystem, and "hot spots" for mercury are common. Analysis of impacts of mercury must use this approach.	MERC10
19214	[Include details of the following in the SDEIS:] Role of fluctuating water levels in mobilizing/de-mobilizing legacy or new-deposited mercury.	MERC11
19217	[Include details of the following in the SDEIS:] "Impoundment effects" on mercury methylation.	MERC10
19220	[Include details of the following in the SDEIS:] Climate change...This is because of the established relationship of drying and wetting of organic soils and sediments, and increased temperature causing increased methylation.	MERC20
19221	[Include details of the following in the SDEIS:] Mercury/mercury methylation relationship with sulfate and sulfate deposition. Addressing the potential for increased impacts from mercury involves more than controlling air emissions of sulfates. This point is made here because the SDEIS puts too much emphasis on such a strategy.	MERC08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Stolen (54517)	
19223	[Include details of the following in the SDEIS:] Significant-but qualified-findings about advantages of reducing sulfate in emission and other controls…Research needs to be focused on watershed differences, and on developing other program actions to reduce output of methyl mercury from legacy deposition are very much needed.	MERC08
19225	[Include details of the following in the SDEIS:] Cultural impacts, environmental justice, and differential impacts to Native Americans. As noted in Appendix A, these are important impacts that need more thoughtful consideration in the SDEIS. In addition, the FEIS needs to provide a summary of these issues so that others besides Native Americans can fully understand why cultural and consumption issues are so significant.	CR01, CR05
19227	Relying on methyl mercury content in fish-and consumption advisories-is an inadequate tool for addressing mercury impacts.	MERC02
19230	Bioaccumulation factors complicate other mitigation measures. As noted especially in Reference 17, Appendix A, river restoration, dam removal, and wetland restoration can mobilize methyl mercury in some situations.	MERC03
19234	Summary of water resources impacts, Page 5-8, mercury discussion. This section relies entirely on forecasts regarding mercury increases from the project based on mass balance and analog models of the specific mining facilities. This summary does not adequately describe potential impacts, based on the multitude of issues regarding off-site disturbances to rivers, wetlands, and downstream water resources as described in Appendix A.	MERC08
19235	Mercury evaluation criteria, p. 5-20 and 5-21. This criterion is based on an erroneous interpretation of the scientific literature regarding the relationship between ambient mercury content in streams and methyl mercury in fish.	MERC02
19237	Mercury section in water quality section, p. 5-201 to top of 5-207. (5.2.2.3.4). This discussion seriously understates the scientific understanding of mercury, methyl mercury, and impacts to people and fish and wildlife	MERC02, MERC03
19247	Comments on Section on "enhanced mercury methylation," and "mercury summary", pages 207-210 (7 comments.) This section of the SDEIS erroneously describes up-to-date scientific findings, and indeed even ignores other parts of the SDEIS.	MERC04
19248	First paragraph after "enhanced mercury methylation" p. 207: As noted, modelling does not equate with analyzing impacts. In this section of the SDEIS, there are four citations to mercury studies-but they are 23, 22, 22, and 15 years old. Leaving out all the recent studies again calls into question the objectivity of those preparing the SDEIS.	MERC04
19249	Second paragraph [after "enhanced mercury methylation" p. 207]: This paragraph notes that there are 6 factors that "appear" to influence mercurymethylation, and that the proposed action is expected to have little or no effect on "most of those things," but that two, sulfate concentrations and hydrologic conditions warrant further discussion. This paragraph is seriously deficient because all four of the other factors are applicable to this project,especially given the downstream and potential indirect wetland effects described in other parts of the SDEIS.	MERC02, MERC10
19250	Sulfate loadings, p. 5-207 to 5-209. The review of literature in the first paragraph in this section is not really wrong, but doesn't fully reflect the scientific literature, especially recent literature. The comprehensive approach in the 2012 book on mercury in the environment (Reference 1 in Appendix A)is much more appropriate.	MERC04
19251	Sulfate loadings, first full paragraph on p. 5-208. This paragraph contains an inadequate review of the scientific literature in reaching the conclusion that mercury methylation occurs primarily in wetlands rather than in stream channels, and that methyl mercury is flushed into streams during storm events.	MERC08

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Stolen (54517)	
19252	Sulfate loadings, reference to MPCA {2006), p. 5-208. This MPCA document is quoted in Reference #42 in Appendix A of these comments. This MPCA document refers primarily to sulfate permitting issues rather than impact assessment, and is also outdated in enough respects to question its utility for this EIS.	EDIT01
19253	Hydrologic changes and water level fluctuations, p. 5-210. This paragraph is woefully inadequate with respect to the scientific literature regarding water level fluctuations-it only says such fluctuations " ... probably accounts for some of the elevated methyl mercury concentrations observed in wetlandsduring releases from high flow events." "Probably?" See the numerous studies throughout Appendix a regarding impoundment effects, experiments adding water to wetlands, high flow events, etc.	MERC09
19254	Mercury summary. This statement is entirely inadequate because it claims negligible hydrologic changes, and confines itself to sulfate loading issues.	MERC11
19255	North Met project design changes and fixed engineering controls. (p. 5-21- to 5-212.) The SDEIS is not adequate with respect to the ability of these measures to control mercury/methyl mercury impacts.	MERC15
19266	The SDEIS needs to include the following in order to be adequate: An adequate analysis and assessment of mercury/methyl mercury issues	MERC02, MERC04
19268	[The SDEIS needs to include the following in order to be adequate:] An assessment of the effectiveness of these measures in controlling mercury/methyl mercury-as well as assessing whether any of the measures will exacerbate mercury problems	MERC06, MERC15, MERC21
19269	[The SDEIS needs to include the following in order to be adequate:] An assessment of the adequacy of these measures over the 200+ project life, and the ability of the measures to respond to unusually large and sudden precipitation events such as have been recently seen in Minnesota and in the project area. This needs to include a forecast of whether the features will handle changes caused by climate change.	FIN05
19270	Storm water ponds and stormwater runoff on any of the site. (in engineering/design controls, p.5-212, etc.) According to a number of studies, stormwater ponds are sources of methylation, especially if they use organic soils. They usually have such soils, because they enhance vegetation growth that that helps trap nutrients. There is therefore a conflict between the need to reduce methylation, and contain nutrients. This needs to be resolved in the SDEIS.	MERC20
19273	Since the SDEIS is deficient in providing an impact analysis of up-to-date research on mercury transport and methylation, including indirect effects of this project, these plans and designs need to be thoroughly looked at after thisanalysis is completed to determine whether they are adequate with respect to mercury impacts and prevention thereof.	MERC04, MERC10
19274	Page 5-223 says that" .... the proposed North Met Project Proposed Action would result in direct and indirect impacts to wetlands along the Transportation and Utility Corridor, at the Plant Site, and around the mine site (Area 1) and north of the plant site (Area 2.)" (my emphasis added.) The wetland section later goes on to describe potential impacts to wetland hydrology, and to drawdown of wetlands . Clearly, such effects can causemobilization of methyl mercury . This conflicts with other sections of the SDEIS	MERC09
19278	it is not acceptable to state that hydrologic and elevation effects on wetlands will be monitored after project construction, or that actions such as post-construction wetland mitigation should impacts become evident. (As is done on p. 5-273 which refers to the 404 wetlands permit.)	COE02
19279	there is an existing "tried and true" method of determining functional wetland damage and thus proper mitigation under 404 permit regulations and practices, and this is not the case with increased mercury impacts	COE01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Stolen (54517)	
19280	a finding of risk of export of new and legacy mercury from the large acreage (according to the SDEIS) of indirect wetland impacts may enter into the decision as to whether to permit the project at all and so needs a pre-project analysis.	COE02
19281	Indirect effects to wetlands in general. It is unclear as to whether this analysis took into account climate change in the 200+ year project life.	WET07
19284	Wetland re-establishment during reclamation period. Page 5-224 says that 102 acres of wetland will be re-established during reclamation, and that this is not part of the mitigation credits for direct impacts. According to many references in Appendix A, this part of the proposed plan is a red flagregarding a potential site for increased mercury methylation. Perhaps I am missing such a reference; however, the potential for methylation of mercury stored in this material needs to be assessed in the SDEIS, as well as any outlet for such a wetland.	MERC09, MERC20
19287	Pages 5-224 through 5-229 talk about the methods fordetermining indirect effects on wetlands. Six potential causes of indirect effects are discussed. Any of these could be causes for increased methylation of mercury that could lead to impacts downstream or to fish and wildlife species that are found in these wetlands. Especially significant are the hydrologic effects. However, water quality changes could also have an effect, should they increase methylation. The SDEIS needs to analyze the impacts of these causes of indirect effects with respect to potential for increasing mercury methylation, transport, and impacts to fish and wildlife.	MERC08
19288	Indirect effects on wetlands abutting Partridge River and four creeks. Page 5-228 refers to these 5 waterbodies. Page 5-273, however, says there will be no such indirect effects on the Partridge River because of augmented flows from the project will be within average flow (and stage) without the project. Page 5-299 refers to the other creeks, but reaches the same conclusion. The SDEIS needs to clarify if these conclusions are based on potential added drying out of adjacent wetlands and rewetting- since using averages can mask such events.	WET12
19290	Results of the analysis of effects to wetlands, Pp. 5-233 through 5-310. This extensive section of the SDEIS projects different likelihoods of both direct and indirect impacts to wetlands and lists six potential causes of indirect effects…The analysis does not mention mercury methylation effects even though all six causes of indirect effects could lead to increases in methylation and export from at least some of the wetlands to downstream waters. This could cause fish and wildlife impacts, and increase mercury levels in fish. Estimates are made as to acreages affected with low to high risk, two different methods of estimating impacts are used, and types of wetlands impacted are included.	AQ12
19295	Subsequent pages in the SDEIS go into permitting authorities responsibilities and jurisdictions with respect to direct and indirect impacts to wetlands. This discussion needs to be expanded to include authority regarding permit decisions and mitigation regarding mercury-both new deposition and outputs from legacy mercury in these wetlands. Note that there is an implication that there is some clarification of EPA authority regarding mercury.	PER11
19296	Sulfate deposition from dust. P. 5-302 indicates that 194 acres of wetlands will potentially be impacted by dust deposition that includes sulfates. The SDEIS needs to address whether this will result in increased mercury methylation, and what will be done to control such affects, should they occur.	WET11
19297	Wetland description in Volume I, wetlands description. This section begins on p. 4-135. This section needs to include an assessment of the sensitivity of these wetlands to mercury methylation and export, including newly deposited mercury and legacy mercury. This would include clear statements as to outlets of these wetland, there susceptibility to "bounce", and descriptions as to whether they are currently disturbed.	MERC09
19298	Cumulative effects downstream with respect to mercury. Pp. 6-18 and 6-29 appears to tie its conclusions regarding mercury to changes in sulfate loading. If so, this conclusion is not supported, since based on current science, there are other significant landscape factors-and potentially changes caused by the project-that increase mercury levels. The statement on p. 6-33, the conclusions summary regarding mercury, needs to be redone based onthe additional analysis recommended in these comments.	MERC10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Stolen (54517)	
19300	Other references to mercury in cumulative impact assessment. Pages 6-59 and 6-63 and 6-64 discuss mercury effects, including on fish. These statements are deeply flawed, in that they limit the discussion to sulfate deposition. In addition, p. 6-63 erroneously states that increased sulfate deposition causes a directly proportional increase in mercury in fish.	AQ28
Sender Name (Submission ID)	Paul T Mullen (57267)	
17409	There will be safer extraction methods in time if we still need these minerals.	PD32
Sender Name (Submission ID)	Paul Tine and Sherry Phillips (42883)	
6844	The water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions.	WR065
6845	Revise the NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment comply with Minnesota Rules requiring that mines be "maintenance free" at closure.	WR036
6846	Include a cumulative impacts analysis that examines the impact on moose, recognizes the changed status of the moose as a species of "Special Concern," and requires NorthMet to mitigate the habitat loss for the moose caused by the NorthMet project.	WI01, WI02
6850	Since sulfate levels in wild rice beds downstream of the proposed mine already exceed the standard, the proposal must demonstrate it "would have an acceptably high probability of not increasing sulfate concentrations in these areas" (p. 5-6). The mine plan does not meet this test	VEG04, WR024, WR083, WR109, WR158, WR162
6853	Conduct a health impact assessment for the NorthMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health.	HU01
6855	Require that the NorthMet SDEIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet.	PER02
6857	the review period for this document is inadequate...The SDEIS was released during the holidays when many people were on the road and commenting on this was not easily done. The public meetings were scheduled right away before most people really had time to look at this document and understand all the ramifications of what is being proposed.	NEPA07
17522	Considering the intention of the Weeks Act to protect watersheds, the exchange of this large, single 6,650 acre parcel of forests, floodplains and wetlands with high biodiversity for smaller, scattered parcels of non-federal lands should not be considered an equal exchange.	LAN02
17523	Acquiring lands in exchange to protect watersheds - such as the Hay Lake area - are important. But 6,000 plus acres in the Partridge River drainage- with functioning wetlands - should not be a candidate for exchange out of public ownership.	LAN01
17525	How can an equal exchange of lands be made without being able to compare the actual health of the systems being proposed for exchange?	LAN03
17526	Studies should be done of the water quality in areas proposed to substitute for the exchange lands in the Partridge River watershed.	WR199
17528	While smaller areas of high to moderate biodiversity may be gained, they do not compare to the intact, large area in question.	VEG02

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Tine and Sherry Phillips (42883)	
17529	Rankings should be provided for the lands proposed for exchange.	LAN03
17530	All appraisal information for the proposed land exchange should be disclosed.	LAN03
17531	The NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures.	WET04
17532	Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting.	WET20
17533	Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be.	WET07
17534	Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage.	FIN05, FIN08, FIN11
17535	Redo the GoldSim water model using assumptions based on adequate and accurate field data.	WR052, WR165, WR189
17536	Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013.	WR004
17537	Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance because of the issues with the model assumptions.	FIN05
17538	Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity.	WR065
17539	The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule [Minnesota Rule 6132.3200].	WR037
17540	Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS.	WR036
17541	Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment.	WR036
17542	Revise the SDEIS to address Minnesota Rules 6132.3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free."	PER04, WR036
17543	Despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS…The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Appendix C, Attachment 3, pp 45-46).	CR01, CR03
17544	The waste rock left behind at the Mine Site will create runoff with sulfate levels of 2,000 to 4,000 micrograms per liter after closure, 5 million gallons of which will escape untreated every year. The SDEIS predicts that many years after closure this could violate the sulfate standard to protect wild rice, requiring additional measures (5-142).	WR107

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Tine and Sherry Phillips (42883)	
17545	The SDEIS inadequately characterizes wild rice waters downstream of the PolyMet sites. The Great Lakes Indian Fish and Wildlife Council has provided additional wild rice sites other than those included in the SDEIS. The EIS should be revised to include these additional wild rice waters.	WR154
17546	The NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal.	HU01
17547	NorthMet's plan does not study any risks to on-site workers and does not include a Health Risk Assessment of the effects of mercury, manganese, lead, arsenic, and other pollutants on people living downstream.	HU02, HU04
17548	The SDEIS further acknowledges that there have been few studies of the risk from fibers of the size that would be created at the NorthMet mine and plant site. A health impact assessment (HIA) to fully analyze the public health implications of NorthMet's proposed mine should be done.	HU01
17549	The NorthMet project could affect human health in many ways. Some of these effects are direct – for example, exposure to air and water pollutants like mercury, asbestos-like fibers, manganese, and arsenic. Others are indirect, such as the impact on local communities from traffic accidents and strains on local health and social service infrastructure.	HU03
17550	Revise the SDEIS and conduct a formal health assessment of the risk to public health and worker safety from the amphibole fibers present in the ore at the NorthMet mine site. The SDEIS should specifically conduct a formal health assessment of the risks from asbestos-like fibers less than 5 microns in length	HU01
17551	Revise the SDEIS to provide details of the air monitoring at the mine and plant site and in nearby communities, and describe contingency plans to address the risk to public health and worker safety if asbestos-like fibers are detected during construction, operation, closure and post-closure.	AIR03
17552	The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site.	FIN01, FIN02
17553	The NorthMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs.	FIN01, FIN02
17554	Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate.	FIN01, FIN02
17555	Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine.	PER02
Sender Name (Submission ID)	Paul Underland (18165)	
3879	The amount of groundwater flow that has been added to the Partridge River this was originally measured at .5 cubic feet per second. New data now shows that (inaudible) between 1.3 and 1.6 cubic feet per second….this new data is not likely to change the assessment of the project relative to the project's ability to meet water-quality standards.	WR003
3881	The models were actually designed to determine the impacts to water quality at key reference points in the watershed, not the length of water treatment….and [the SDEIS] shows that even 500 years from now water-quality standards will be met.	PD28, WR190
Sender Name (Submission ID)	Paul Vonharnish (17020)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Vonharnish (17020)	
9946	It is obvious that the water tables in Minnesota and Wisconsin are both extremely vulnerable to pollutants spreading through ancient underground aquifers.	WR115
16973	It is also obvious that any profits derived by these environmentally exploitive enterprises, will never be seen by the citizens of Minnesota, much less the American people. These profits are leached out of our economy and go right into the coffers of international banking cartels.	SO01
Sender Name (Submission ID)	Paul Wagner (58170)	
19994	The PolyMet project represents an opportunity to not only help the state remain competitive, but to lead...This type of mining will help to broaden a state economy that has lost much of its technology diversity over the past generation. Not only will the mines be a source of critically-needed metals to growing and emerging industries; but they will also help to create jobs in a region that has struggled to contribute to the economy, but remains eager to do so...the economic development benefits derived far outweigh any of the concerns for negative outcomes, as the review makes clear. Minnesota needs to be aggressive with its economic development efforts given the relentless acceleration of a global technology market.	SO10
20018	This type of mining will help to broaden a state economy that has lost much of its technology diversity over the past generation. Not only will the mines be a source of critically-needed metals to growing and emerging industries; but they will also help to create jobs in a region that has struggled to contribute to the economy, but remains eager to do so...the economic development benefits derived far outweigh any of the concerns for negative outcomes, as the review makes clear.	SO10
Sender Name (Submission ID)	Paul Walker (11333)	
277	If PolyMet is allowed to sufide-mine, the aquifers and watersheds of the Ely area will be eternally polluted and thus, sadly cause the eventual demise of the BWCAW and the tourism industry.	WR081
1611	Although in and around Ely, the local support seems to running in favor of those who are willing to sacrifice Mother Earth in favor of 200-300 short term, twenty-year jobs many of which will be filled by non-Minnesotans, there are plenty of us that view this proposal for mining as a dangerous and foolhardy operation, especially when the usable yield is only 1%, leaving 99% as contaminated waste	SO01
1612	Nowhere on this planet has copper-nickel, sulfide mining been done without contaminating the waters.	WR023, WR195
1613	Glencore, a company headquartered in Switzerland funds Polymet. Glencore's history of world-wide wanton disregard for the environment and human rights atrocities, including child labor, are well documented. Does Minnesota want to get in bed with a company such as Glencore?	PER02
1614	I urge Governor Dayton, the Department of Natural Resources and the US Army Corps of Engineers to protect Minnesota's fresh water and the BWCAW by rejecting Polymet's proposal.	PER35
Sender Name (Submission ID)	Paul White (15792)	
883	Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands.	PER34
884	I have confidence in the DNR and believe the SDEIS process for PolyMet Mining’s proposed NorthMet project has been sound and thorough.	NEPA16
1906	The state and federal regulators will ensure that PolyMet’s project design, and its operations are legal and safe.	PER34

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paul Winslow (38250)	
13674	The proximity to the BWCA is one of my primary issues. I value the pristine environment of the BWCA above the temporary nature of the proposed mine	WILD02
13675	Twenty of years of mining will have long lasting effects on the environment of the BWCA as run off from the mine finds its way to the watershed, and adds acid to the water flowing to the BWCA. I want the BWCA to last forever, and the short term nature of 20 years of mining and 500 years of clean up.	SO01, WR111, WR195
Sender Name (Submission ID)	Paula Allmaras (7149)	
490	Acid mine drainage would pollute surrounding water. ADM's leach out heavy metals toxic to fish & humans. I am not willing to risk the boundary waters, Lake Superior or any ground water close to the proposed copper mine for a million jobs.	AQ08, SO01, WR001, WR113
Sender Name (Submission ID)	Paula and Jim Nessa (39797)	
6831	Will the mine owners be there to continue the clean up when the mine closes and there is no income from the copper ore?	FIN01
6832	We need to know how much income the state will receive in exchange for the ore.	SO04
Sender Name (Submission ID)	Paula Bidle (48479)	
7600	While PolyMet will provide a few jobs for a few years, the overall deal is that they will profit immensely from the project, while leaving the people of the state of Minnesota to deal with clean-up and healthcare costs due to water pollution for years after PolyMet is no longer in existence.	HU03
Sender Name (Submission ID)	Paula Gregg (4533)	
1836	I want specifics on how PolyMet will pay the costs of treatment in the centuries to come, for the residual rock and water contamination. ... Minnesota law prohibits permits to mines that require perpetual maintenance after closure.	FIN01, FIN14
1837	How many other mines will send their rock to be treated at this treatment plant? ... You can't be naïve enough to think they are putting all this money into the treatment plant to only treat the rock from one mine!	PD30
Sender Name (Submission ID)	Paula Kay Pettit (54552)	
18960	I feel our precious waters are too valuable to take any chances with unproven mining techniques.	WR195
Sender Name (Submission ID)	Paula Kwakenat (357)	
12115	This short term job promise is not worth the long term damage.	SO01
Sender Name (Submission ID)	Paula Nelson (47031)	
10932	The destruction of beautiful land and the years of pollution simply cannot be justified.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Paula Okerstrom (18952)	
14325	I'm writing to say that you need to extend the comment period for all of us Minnesotans that need MORE TIME to consider the destruction ahead of us. My cabin is located in your ground zero area, and because I work, and have a family, and other things in life to tend too, I need more time to study this complicated impact statement.	NEPA07
Sender Name (Submission ID)	Pauline Gowing (13150)	
109	I am highly concerned about this habitat being compromised.	VEG03
110	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
111	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	Pauline Laybourn (31676)	
14011	It is sickening to see what power corporations have to destroy our planet.All for PROFIT and GREED.	SO02
Sender Name (Submission ID)	Peder Otterson (14888)	
244	These examples [Sudbury, Ontario smelter and Silver Bay Reserve Mining tailings] should be more closely examined along with the base line data from the Regional Copper Nickel Study before the final decision is made.	WR023
245	the results and base line studies of the Regional Copper Nickel Study, Sudbury, and other sites in Wisconsin and Michigan where similar conditions might exist should all be used to help shape the monitoring that will be required as the project moves forward so that check points can be established to deal with unforeseen consequences	PD22, WR023
246	check points along with the required monitoring should be written into the permits to mine so that corrective actions can be taken whenever issues arise.	PER34
1786	My point in mentioning all of this is that there is a wealth of base line information that was gathered nearly 50 years ago that might help answer some of the questions that the current proposal to mine leave hanging. I would like some assurance that all the good work done on the Regional Copper Study was not in vain.	WR023
Sender Name (Submission ID)	Peg Apka (20037)	
1680	I do not understand how a mining company would have the resources to provide for clean up costs for 500 years.	FIN01
1681	How could we even think of having a project in Minnesota that would take a chance on polluting a third or more of the world's fresh water	WR111, WR115
Sender Name (Submission ID)	Peggy Knapp (46527)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Peggy Knapp (46527)	
9125	The proposal by Polymet puts water at risk, now and in the future.	WR111
9126	There is no good example anywhere on this planet of a facility such as the one proposed by Polymet that has not left a legacy of pollution behind.	WR023
9127	At a time when water resources are being depleted, when the state of MN is already struggling to reduce nitrogen, phosphorus, sediments and other system-wide pollutants, it is sheer lunacy to permit mining on this scale, and in such a fragile area.	WR195
Sender Name (Submission ID)	Peggy Trezona (7737)	
76	The fact that water treatment will need to continue for many years post-mining reflects the gravity of the risks to our watershed and the health of human beings.	WR035, WR129
843	I do not believe that increased jobs for a couple of decades can offset hundreds of years (maybe longer) of damage to the environment.	SO01
Sender Name (Submission ID)	Pehrson Lodge (36707)	
7686	To seriously consider the Polymet proposal, Polymet must be able to absolutely guarantee that they will not negatively impact our water resource, and I do not believe such a guarantee is possible.	FIN01, WR017, WR018, WR111, WR128
14405	I think it is very unwise to risk the well-being of many generations to come over 20 or 30 or 40 years of profits.	SO01
14406	To seriously consider the Polymet proposal, Polymet must be able to absolutely guarantee that they will not negatively impact our water resource, and I do not believe such a guarantee is possible.	FIN01
Sender Name (Submission ID)	Penny Cragun (11546)	
2500	In addition to an acute potential for Acid Mine Drainage and the discharge of heavy metals to the St. Louis watershed, the PolyMet mine would discharge sulfates at a level that would destroy wild rice stands downstream.	WR149, WR156
2500	In addition to an acute potential for Acid Mine Drainage and the discharge of heavy metals to the St. Louis watershed, the PolyMet mine would discharge sulfates at a level that would destroy wild rice stands downstream.	FIN05, FIN01
2501	Ongoing studies indicate that when sulfates convert to sulfides, they affect the growth of wild rice. I know that wild rice is important to my Ojibwe brothers and sisters in this region. Please keep our water pure and allow our future generations to maintain the wild ricing tradition.	CR01, WR149, WR156
2501	Ongoing studies indicate that when sulfates convert to sulfides, they affect the growth of wild rice. I know that wild rice is important to my Ojibwe brothers and sisters in this region. Please keep our water pure and allow our future generations to maintain the wild ricing tradition.	MERC04, MERC22
6610	Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Our water is far too precious. I want my grandchildren and future generations to be able to enjoy safe water	WR195
Sender Name (Submission ID)	Penny Fuller (37527)	
10540	those financially benefitting from the mining are never held accountable in a meaningful way (equal recompense when the inevitable contamination occurs).	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	pepe (45088)	
7554	Even a cursory review of the facts--and of history--show clearly that [NorthMet Mine] is likely to result in environmental catastrophe.	PD22
7557	And to take such a long term, high stakes gamble for so few jobs created? It is truly beyond comprehension. There are other states I would expect to cave to narrow private interests, veiled in supposed "job creation", but Minnesota is not one of them.	SO01
Sender Name (Submission ID)	Personal Gmail (41731)	
3253	As everybody knows, sulfide mining causes long lasting water pollution that can cause serious health problems.	HU03, WR023
3254	you might also know that tourism is the leading economic industry in our state. And people aren't vacationing here because of our dirty, polluted waters, but rather to escape the filth they probably live in in their home state.	SO02
Sender Name (Submission ID)	Pete Fleming (15412)	
637	It seems strange to me that we are spending—over the next 25yrs via the Legacy Amendment---about $2.0 billion on cleaning up impaired waters while at the same time we are planning on creating large volumes of polluted water near environmentally sensitive areas.	WR195
638	The water model used for the Polymet site appears to have serious questions regarding flow through the site especially the Partridge River. I am very concerned that serious flaws exist and that the model does a poor job of taking into account existing conditions.	WR003, WR086, WR091
639	Water treatment for 200 and 500yrs is proposed for the mine and plant site. I consider this forever and it gets out into an area where assumptions easily breakdown .	PD03, WR035
640	Financial assurance to provide for keeping the above water treatment going is estimated to be $3-6m/yr which suggests total costs in the billions which is in addition to one time mine/plant closing costs. This is serious money and needs to be cash controlled by a state agency. It needs to be addressed up front—now.	FIN13
643	Although not part of the EIS, it is important to be aware that there will be significant collateral environmental damage through the industrialization of large areas near the mine … and will be a significant negative effect on the environment.	LU03
Sender Name (Submission ID)	Pete Pellinen (40817)	
10133	As a resident of this region, owning land on the Embarrass River, and a frequent visitor to what is now known as the Boundary Waters Canoe Area Wilderness, I am concerned that these resources be protected. I believe they can.	WR111
14010	With the State requirements imposed in Minnesota, and developing techniques for mining, I trust that a system can and will be created that will successfully extract the metals, while protecting our waters and air.	PER34
Sender Name (Submission ID)	Pete Seng (39337)	
6111	We don't need a future "SuperFund" site in Minnesota. Northeast MN is blessed with pure clean water that flows north to Canada and east to Lake Superior and beyond, and I would like to keep it clean and safe for future generations.	WR195
Sender Name (Submission ID)	Pete Stauber (18111)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Pete Stauber (18111)	
3358	I'm tired of hearing the untruths from the anti-mining crowd that the water treatment will be required for 100 years and cost billions of dollars. From what I read in the SDEIS that is a gross exaggeration.On pages three and four of the SDEIS it states, "It is uncertain how long...It does not say, "treatment will be required for 500 years." It says "treatment will be determined using measured results." Which is the way the law is designed to responsibly handle it. Isn't that logical?	PD28, WR190
3359	The SDEIS shows that PolyMet built and operated a piling reverse osmosis water treatment plan to show that it can successfully treat the kind of water it will have on the project. The plan worked. It's proven technology that's been used in lots of other municipalities and industrial applications.	PD28
13475	PolyMet has been working with regulators for nearly 10 years to ensure compliance. Any holes that were discovered during the EIS have been addressed in the SDEIS. The SDEIS is a clear reflection of PolyMet's and the agency's work to develop a successful copper-nickel mine bringing an important investment to St. Louis County.	NEPA16
Sender Name (Submission ID)	Pete Wohlers (15001)	
356	If that [permitting] process is followed and a business provides all necessary information the permits should be approved. Polymet has gone above and beyond what they should have to.	PER34
Sender Name (Submission ID)	Peter Berridge (40615)	
6253	Bottom line, regardless of the specifics above, this type of mining is unsafe, detrimental to our ecology - which we value highly in Minnesota - and is not worth the small number of jobs that are produced for such a limited period of time.	SO01
Sender Name (Submission ID)	peter bormuth (43002)	
11415	Water that has contacted surfaces disturbed by mining operations (including the stockpiles) as well as seepage from the Tailings Basin would be captured in containment systems and treated at wastewater treatment facilities located at the Mine and Plant sites by treatment methods that have never previously been used on mining wastewater, nor is there demonstrable evidence that they will be effective.	WR128, WR143
11423	This proposed mine also fails to meet the standards set by Minnesota Rules 6132.2200 (Reactive Mine Waste) which states as policy that: “reactive mine waste shall be mined, disposed of, and reclaimed to prevent the release of substances that result in the adverse impacts on natural resources.” The rules further specify that the permit applications mining and reclamation maps must show “detailed drainage patterns for waters that may contact reactive mine wastes.” (Minn. Rules 6132.100, subpt 7(C)). Since the filed maps show Lake Superior is part of the drainage basin for this proposed mine, this permit must be denied.	PER35
11427	the Swiss Company Glencore has a significant financial stake in PolyMet and the proposed NorthMet mine...Glencore has been implicated in environmental disasters, labor violations, and human rights abuses around the globe	SO02
15278	Because this proposed mine (and other future sulfide mines) threaten Lake Superior, approval of this mine would violate the International Boundary Waters Treaty of 1909, the Great Lakes Charter of 1985, the Great Lakes Charter Annex of 2001, and the most recent regional water agreement, the Great Lakes Compact of 2005 which holds “As trustees of the Basin’s natural resources, the Great Lakes States and Provinces have a shared duty to protect, conserve, and manage the renewable but finite Waters of the Basin for the use, benefit and enjoyment of all their citizens, including generations yet to come.”	PER27

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	peter bormuth (43002)	
15279	The Public Trust Doctrine embodies the time honored concept that the State holds all navigable waters in trust for the public...The Minnesota Supreme Court has recognized the public trust doctrine in all navigable waters, including Lake Superior. The Minnesota Court has also declared that "[a] riparian owner's rights are qualified, restricted, and subordinate to the paramount rights of the public," which include such uses as "commercial navigation, the drawing of water for various private and public purposes, recreational activity, and similar water-connected uses." (see Nelson v. DeLong, 7 N.W.2d 342, 346 (Minn. 1942)).	PER35
15280	...the tailings and waste rock from this proposed mine will produce acidic discharge and metal-laden leachate that will irreparably damage the St. Louis River and turn Lake Superior into a large polluted tailings pond.	WR001, WR111
15281	16 communities draw their drinking water directly from Lake Superior...The drinking water of all these communities is threatened by this project. Minnesota has enacted a citizen suit provision that grants the right of a person to bring a lawsuit to protect the air, water and natural resources from pollution or impairment (see MINN. STAT. § 116.B.03 (1971) and this statutory provision will be used to stop this proposed mine.	PER04
15282	This proposed mine also fails to meet the standards set by Minnesota Rules 6132.2200 (Reactive Mine Waste) which states as policy that: "reactive mine waste shall be mined, disposed of, and reclaimed to prevent the release of substances that result in the adverse impacts on natural resources." The rules further specify that the permit applications mining and reclamation maps must show "detailed drainage patterns for waters that may contact reactive mine wastes." (Minn. Rules 6132.100, subpt 7(C)). Since the filed maps show Lake Superior is part of the drainage basin for this proposed mine, this permit must be denied.	PER04, WR060, WR071, WR081, WR111
15283	A basic tenet of the Minnesota Environmental Protection Act is to prohibit any governmental action, approval or permit of an activity that may cause significant harm to any part of the environment where there is a feasible or prudent alternative available. (see Minn. Stat. § 116.04(d), subd 6). Since there has never been a sulfide mine anywhere in the world that ha snot produced acid mine drainage and heavy metal contamination, a prudent alternative is not to allow mining in any drainage that flows into Lake Superior.	PER35
15284	The mine pit will overflow. The tailings basin will leak into surface water. The waste piles will leach into wetlands. This proposed mine will release fugitive dust, leachate, heavy metals, sulfide compounds, and unrecovered processing chemicals and other substances that irreparably harm wild rice, fish, and other natural resources and by statute this permit must be denied.	AQ05, WR151, WR156
15285	Minn. Rules 6132.3200 states that after closure a mine must be "maintenance free". ... But every other sulfide mine has been an ongoing source of pollution when it is closed…. [The flooded pit] will most certainly overflow into the Partridge River releasing contaminants into the St. Louis watershed and Lake Superior. Every year the U.S. Environmental Protection Agency tracks pollution releases in the United States. The Mining Industry has always been the largest source of pollution in the country since they started reporting discharges in 1998, releasing 41% of all polluted discharges	PER04, WR023, WR037
Sender Name (Submission ID)	Peter Branca (54165)	
16065	this company has no financial backbone to mine safe or for cleanup cost.	FIN01
18422	how can they meet the cost of a consequence, a negative consequence or pending lawsuits? Since this is a very risky and expensive operation and has inherent dangers over the years, I feel very uncomfortable having a company come in to -- since I am a stockholder in the State of Minnesota -- come into my state, with little or no financial reserves to back them up.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Peter Branca (54165)	
18423	In Minnesota, where PolyMet will be mining in a literal swamp, with literally no water table, and my feeling is the consequences will be severe to this, regardless of the amount of osmosis and filtration or holding ponds and pits. Fine metals will seep through the ground, into the water table, into the rivers, and eventually into Lake Superior	WR070, WR111
18425	Since I'm a stockholder in the State of Minnesota, I feel the consequences well outweigh the gain.	SO01
Sender Name (Submission ID)	Peter Brask (4778)	
1889	The copper and nickel resources in northern Minnesota are still a very important resource to our entire country	NEPA05
1890	Polymet would provide jobs and tax revenue with the copper/ nickel expansion and contribute, not deter from tax revenue.	SO10
1979	When Polymet gets to expand, we MUST ensure we have procedures in place to ensure they comply with our pollution guidelines.	PER06
Sender Name (Submission ID)	Peter D Doran (54725)	
18701	The hydrometallurgical separation process proposed by Polymet represents a much more environmentally acceptable method, and reflects the progress made by the global mining industry in response to environmentalconcerns associated with the mining and processing of metal sulfide minerals.	ALT24
18704	It is noteworthy that in addition to proposing reverse osmosis for discharge treatment, the Polymet SDEIS recommends considerable reduction of water discharge, primarily through the recycling of treated water back into their processing operations.	PD03
18707	After over 60 years of exploration in the Duluth Complex (Bear Creek Mining initiated drilling on the Minnamax site in the 1950's), the economics would seem to be favorable for Minnesota to finally capitalize on the potentialroyalties associated with mining development in the formation.	SO02
18709	There will no doubt be water resollfce impacts associated with any mine development in the Duluth Complex. However, what I feel has not been considered is the volume of flow both north and south of the Laurentian Divide, relative to the size of the proposed operations and their potential discharges.	WR087, WR099, WR181, WR182
Sender Name (Submission ID)	Peter Fleischacker (18236)	
13594	I'm really troubled by this because there appears to be no way that the public is assured that their response to the whole issue is even considered. I think it's a done deal and this is a farce, and I'm really troubled by that, and I hold the media and the politicians responsible for that,	NEPA11
Sender Name (Submission ID)	Peter Fleischhacker (58095)	
19923	I can't think of anything that is worse than this. 300? Jobs? And all the profits go where?	SO01
19965	Real Problems...Children born with pollution in their system.	GT01
Sender Name (Submission ID)	Peter Henry (54731)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Peter Henry (54731)	
18788	siting a sulfide operation amidst well-established public recreation areas crosses the threshold from poor public policy to profligate and ill-considered mismanagement of public resources.	LU06
18795	Any form of sulfide mining in highly aquatic and sensitive areas is a recipe for degradation, and likely, severe degradation.	WR107, WR108
18798	PolyMet's proposed North Met Project, siting a gigantic open-pit copper mine at the doorof Minnesota's wilderness, its environmental impacts, and unintended, indeed,unknowable environmental consequences, represents a savage reversal of Minnesota'slong-standing recreational strategy, will prove to be an unconscionable waste of publicmonies and rises to a violation of Minnesotan's basic trust in public leadership.	LU06
18801	Indeed, why have a, "Department of Natural Resources" at all, if natural resources arejudged but merely "equal" to pursuits like manufacturing or resource extraction?	PER42
18802	There are several areas in the current SDEIS that surpass the level of "acceptable risk" to the State's Public Trust regarding our lands and water.	NEPA15
18805	First, as you and MDNR staff are well aware, the biggest potential negative impact of sulfide-type mining is the risk of massive water pollution, brought on by exposure to oxygen of the underlying rock … because of these risksthat open pit copper mines are typically sited AWAY from dense water environments, not WITHIN them.	WR001, WR023
18812	The modeling conducted by your agency significantly underestimated stream flows in the Partridge River, thus leading to a severe underestimate in potential downstream damage from sulfide pollution.	WR003
18814	The bentonite soil curtain that is supposed to keep contaminated water from leaching and seeping beyond containment zones has not been adequately field tested in Minnesota's harsh northern climate, nor independently verified for integrity under analogous conditions.	WR057
18815	The likelihood of extreme storm events rupturing, overtopping and otherwise defeating NorthMet's containment strategy are dangerously high given the increased frequency of 500-year storms in the age of climate instability.	PD22
18819	A single accident involving such a large resource extraction site would likely result in tens of millions of dollars of clean up, and millions of dollars in forfeited revenue from tourism and job losses.	SO02
18820	I dispute such job estimates as wildly inflated, as they always are,and in this case, dramatic overestimate -- even leaving aside how many of the positions are sourced internal to PolyMet, with minimum benefit to the local economy.	SO01
18829	it does bring up a second unacceptable aspect to PolyMet's proposal: theindependent bonding requirement, or so called "financial assurances" required by the State of Minnesota…The ultimate and most important question is this: Will PolyMet itself ever have to use the profits they make at the North Met Facility to pay for the environmental degradation they cause?	FIN01, FIN08
18831	Due to this SDEIS's lack of investigation and discussion about the likelihood ofwidespread pollution, the State will require minimal financial assurance from PolyMet, leaving the citizens of Minnesota to essentially pay the balance between PolyMet's profits and the costs of its pollution.	FIN01, FIN10
Sender Name (Submission ID)	Peter Krause (11584)	
2243	500 years!!! even if it’s 200 yrs future generations will not be happy to be paying for nor working to clean up the mess that is most likely to be left behind. With the only social constant to be change they may very well not be able to maintain the clean up program nor systems.	FIN01, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Peter Krause (11584)	
2243	500 years!!! even if it's 200 yrs future generations will not be happy to be paying for nor working to clean up the mess that is most likely to be left behind. With the only social constant to be change they may very well not be able to maintain the clean up program nor systems.	FIN05, FIN10
2874	500 years. Even if it's only 200 years, future generations are not going to be pleased to be committed to cleaning up this mess.	PD01
3249	It's the Boundary Waters and the Great Northwoods, not a poker chip to lose.	WILD02
3249	It's the Boundary Waters and the Great Northwoods, not a poker chip to lose.	WILD02
14723	This is a great risk and the Boundary Waters we are gambling with. We are playing with high stakes for short-term gain. I strongly encourage rejection of this plan.	SO01
Sender Name (Submission ID)	Peter L. Gove (9618)	
228	I noticed on the Figure I map, there is a category for "national park" and a portion of Voyageurs National Park is noted on that map.However, Isle Royale National Park is not on the Lake Superior map and while several of the Apostle Islands are on this map, the Apostle Islands National Lakeshore is not noted.While the Grand Portage reservation is on the map, Grand Portage National Historic Site is not.I also question why the several state parks located on Lake Superior are not on this map….given the potential impact to Lake Superior from surface and groundwater sulfide pollution from this project, I suggest these designated federal and state protected areas be included	WILD01
Sender Name (Submission ID)	Peter M Leschak (42785)	
6795	However, should the project be permitted, I believe some modifications should be implemented. The West Pit backfill appears to have been rejected on the basis of future exploitation of mineral rights, that is, for the sake of law and politics, as opposed to environmental concerns. Properly backfilling the pit with waste rock would be a good means of mitigating potential ecosystem damage- as is planned for the other pit….Regarding the 1585 acres of wetlands that would be destroyed or severely compromised, and given the overall loss of Minnesota's wetlands over the past century due to various types of human activity, a project of this nature should be required to replace such acres at a 2 to 1 ration; in other words, PolyMet should be mandated to replace 3170 acres. If such is impractical in the local region, there are many other locales in the state where wetlands creation and /or rehabilitation would be welcome and beneficial….Unless I missed it, I see nothing about contingency plans for a rail accident … Over the course of 20 years, a railroad mishap is almost inevitable- for example, over the years there have been several such local episodes involving the rail transport of taconite. Is there a mitigation plan for that?	HAZ06, WET04, WI10
6799	Everyone admits the hazards implicit in mining and processing sulfide-bearing ore- that's why there's a 2000-page report. No one denies that such mines have caused severe, and essentially permanent, damage in places like Butte, Montana, Sudbury, Ontario, locations in Arizona, and all around the globe. There is no assurance the result will be different in NE Minnesota, and yet for a 20-year mine employing 360 people (an almost ephemeral project compared with the area's iron mines), its proposed that complicated and expensive monitoring and treatment processes must be in place and functioning for 200 to 500 years. Given the typical vagaries and unpredictability of politics, technology and human nature, it is highly unlikely that such a regime will be, or even can be, maintained. (For example, a hundred years ago the MNDNR didn't exist. Will it exist 200 years from now?)...most of the profits (benefits) of which will almost certainly leave the borders of Minnesota.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Peter M Leschak (42785)	
6802	the proposed Pebble Mine in the Bristol Bay region of Alaska has meant stiff opposition. An Alaska Congressman is opposing the project on the grounds that the health of a renewable resource (in that case, a salmon fishery) should trump the one-time extraction of dangerous sulfide ore. That should also pertain here in NE Minnesota: water, wetlands, and wild rice resources are more important, long term, than a temporary and destructive mining operation...Concerning the potential effects on water quality, on of the fact sheets that I picked up at the Aurora meeting[,] states that sulfate, copper, nickel, and mercury could be released. Based upon my experience in the fields of water treatment and natural resources, that should read will be released. Computer modeling was employed to determine a "90 percent probability" that no pollutants would cause an exceedance of the water quality criteria. Given the inherent assumptions that must be made in any modeling program, that seems highly overly optimistic. Furthermore, it's noted that "PolyMet would monitor water quality during operations, reclamation, and closure at water discharge points and downstream." … It's seems inadvisable to depend on the company to perform such a critical function, especially when it is potentially hurtful to their bottom line.	PD24, SO01, WR115, WR139, WR141, WR192
6807	The final product from the plant is presumably copper concentrate, mixed nickel/copper hydroxide, and PGE precipitate, in amounts of tens of thousands of tons per year. If I'm not mistaken, this is all reactive and hazardous material, and apparently will be transported from the region via railroad. T?	HAZ06
Sender Name (Submission ID)	Peter Mattson (38610)	
14065	Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk.	WI13, WR115
Sender Name (Submission ID)	Peter Mitchell (54814)	
18347	I am writing in opposition to copper-nickel mining proposed for the arrowhead region of northern Minnesota. The region, so beautiful, must be preserved for future generations free of harm by pollution that ALWAYS accompanies mining.	LU04
Sender Name (Submission ID)	Peter Molenda (44668)	
6944	creating a limited number of local jobs for a limited period of time, is not nearly enough to counterbalance the long term negative environmental impact such mining would have on that area.	SO01
6945	such mining would probably have a detrimental effect on the tourist trade that Northern Minnesota relies upon to help keep the area economically viable for those who currently live there.	SO02
Sender Name (Submission ID)	Peter Murphy (42475)	
7070	It would [be] extremely reckless to allow a mine such as this to threaten the pristine environment of the North Shore.	WR195
7073	There won't even be that many jobs in automated operations like this.	SO02
Sender Name (Submission ID)	Peter Oja (38356)	
13664	I know that area is in a great need for jobs and this provides that opportunity. I know that with mining there is negatives, but in this case I feel that the positives are what we should concentrate on.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Peter Pfarr (16080)	
11043	We need to have assurances in place to safeguard our environment. There needs to be contingencies and guaranteed funding to provide the resources needed to properly fund cleanup and monitoring.	FIN05, FIN11
Sender Name (Submission ID)	Peter Schurke (48121)	
12896	At the LTV tailings basin manganese is already far above Minnesota's health risk limit, but that is also expected to increase by 45 percent. All of this is in the SDEIS pg 169 of Chapter 5.	WR204
12899	Why has there not been an analysis of this dangerous pollution to the drinking wells of Minnesotan citizens just downstream from the tailings basin? What is protecting the water that my family, friends, and I drink, year round day after day?	WR041, WR042
17351	I am very concerned about the effects this proposed Copper Sulfide mining project will have on the waters near my home.(…) It is expected that lead in PolyMet's tailing basin seeps will be 5 times or more higher in groundwater than the levels currently are.	WR059
Sender Name (Submission ID)	Peter Seppanen (11621)	
3305	I am in full support of this project and all the jobs it will bring to the Iron Range. This project can and will be done safely with preserving the environment.	SO10
3305	I am in full support of this project and all the jobs it will bring to the Iron Range. This project can and will be done safely with preserving the environment.	SO10
Sender Name (Submission ID)	Peter Tanghe (10934)	
630	Any potential benefits of this project, which will be largely captured by the PolyMet corporation, simply do not justify potential environmental impacts whose cost will be borne by the residents of Minnesota as well as the surrounding US and Canadian regions.	SO01
632	I am concerned that the changes to air quality and the watershed do not seem to have enough safeguards to protect myself, my neighbors and our natural resources.	AIR11, WR128, WR130
19973	The content of the PolyMet SDEIS causes me extreme concern that the proposed project would add dramatically and catastrophically to pollution and habitat destruction in the already polluted and compromised area in which the project would take place, as well in the entire watershed, including the St. Louis River, its estuary, and the waters of Lake Superior. I believe the project would adversely affect worker health, human health in general, wildlife (including endangered lynx and threatened moose, among many others), and plan life (including wild rice sacred to native peoples – and a sensitive indicator species when it comes to water pollution).	GEN03
Sender Name (Submission ID)	Peter Thibault (54137)	
16033	I don't believe that PolyMet's project design and controls will keep the environment safe.	PD01
Sender Name (Submission ID)	Peter Thompson (54653)	
17977	The alternative of an underground mine has received inadequate consideration in the NorthMet SDEIS.	ALT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Peter Thompson (54653)	
17978	The only reason given for the failure to consider and explore the underground mine as an alternative was because an underground mine was not "economically feasible." SDEIS, Section 3 .2.3 .4.1. This rationale is invalid and directly contrary to the dictates of Minn. Stat. Sec. 116D.02, subd. 4.The SDEIS should be remanded to the Agencies for thorough legal consideration of the underground mine using rigorous exploration and objective evaluation of the alternative.	ALT01
Sender Name (Submission ID)	Peter Uzelac (54900)	
18857	I am against sulfide mining in MN because I do believe that long term pollution will still be problem with acid water and toxic metals in our water and no clean up effort will ever return the area back to its original state.	WR195
18858	Also noise will be a never ending problem.	N01
Sender Name (Submission ID)	pham thihoa (40879)	
13961	I'd like to express strong opposition to any mining permits in the vicinity of the BCWA…Minnesota is precious because of its waters…Please protect the waters and the living species that depend on waters, most of all us.	PER35
Sender Name (Submission ID)	pharmbw tds.net (46569)	
9134	I believe there is no way that PolyMet can mine for 25-35 years and then guarantee there will be funds available to cleanup any pollution spill up to 500 years in the future.	FIN01
Sender Name (Submission ID)	Phil Bergh (42706)	
8593	I never heard of a company cleaning up after themselves for 500 years. Has any company in the world ever lasted that long? This sounds like a bad deal.It'll be the taxpayer who will have this albatross wrapped around their necks.	FIN01
18804	PolyMet says it has a "reverse osmosis" that will solve all our problems. They aren't saying wha tit is or how it works nor does the media ask these key questions.	WR143
18807	[PolyMet] will get in, make their billions, and then get out or go defunct. Why should they be responsible? I've never heard of other Superfund sites taking such a long time to clean up. It'll be on the backs of the taxpayers.	FIN01, FIN10
Sender Name (Submission ID)	Phil Hogan (45263)	
9106	what happens to the pollutant contained in the final concentrate stream in which the total amount of pollutant has been concentrated but not reduced, . How is the concentrate stream processed? In what form will it be? How much will there be?	WR143, WR145
Sender Name (Submission ID)	Phil Larson (42998)	
9238	Purpose and Need: ...35% of apparent [copper] demand is met by imports...In the case of nickel...there is no domestic mine supply and our net import reliance is 49%. In the case of platinum and palladium, our net import reliance is 91% and 54%, respectively.	NEPA01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Phil Larson (42998)	
9239	Purpose and Need: As a matter of policy, the US government has promoted development of renewable energy technologies to promote energy security and reduce greenhouse gas emissions. As a general rule, renewable energy technologies are more intensive in their use of metals such as copper and nickel.	NEPA01
9241	Copper prices in 2012 were just under $8000 per metric tonne, giving the apparent 600,000 metric tonnes of net copper imports a value of around $4.8 billion. This accounted for little more than half a percent of the $735.3 billion trade deficit.	NEPA01
9242	...the NorthMet project is projected to produce 72 million pounds of copper, 15 million pounds of nickel, and 106,000 ounces of palladium, platinum, and gold per year... NorthMet will therefore meet only 5.5%, 6.2%, and 1.5% of our net import reliance on copper, nickel, and platinum group elements, respectively. The modest influence the NorthMet project will have on our import reliance for these critical minerals speaks ... to magnitude of our dependence...Even the relatively small increment of production NorthMet entails will measurably improve our trade deficit, increase economic activity, increase our diplomatic influence, and improve our national security.	NEPA01
9245	Geology of the Mine Site: The observation is made that “the surficial till is a heterogeneous and laterally discontinuous zone with a composition ranging from very dense clay to well-sorted sand.” This statement seems to use the term ‘heterogeneous’ to refer to the poor sorting and wide particle size range of what is likely a relatively homogeneous till. The lateral discontinuity in the till referred to in this case is likely its thickness, not its sedimentological heterogeneity. Here, and elsewhere in the document, well-defined, consistent, and judicious application of the terms ‘heterogeneous’ and ‘homogeneous’ when describing tills is advised.	EDIT01
9259	The analysis of greenhouse gas emissions for the NorthMet project apparently fails to consider the net positive effect on global greenhouse gas emissions reduction in import reliance for copper and nickel will produce.	AIR01
9271	Groundwater drawdown adjacent to the Canisteo Mine is cited as a predictive analog to groundwater drawdown adjacent to the Mine Site. This analog approach is likely to significantly overestimate the extent of pit drawdown [because of] the thicker drift and higher hydraulic conductivity bedrock at the Canisteo Mine site relative to the NorthMet Mine Site...A better analog ...may be drawdown associated with the Soudan Mine in Soudan Underground Mine State Park [which is] overlain by till similar in thickness and composition to that found at the NorthMet Mine Site.	WR023, WR119
9272	Reference is made on page 4-328 to the potential unreliability of employment and wage data reported by the U.S. Census Bureau data for 2009. It needs to be emphasized how anomalous mining employment in St. Louis County was during this year; the Minnesota iron mining industry produced the lowest amount of iron ore in 2009 since 1937...updating with more recent Census data is advisable.	SO04
9276	It is important to note that the Powers study was commissioned by two advocacy groups – Minnesota Center for Environmental Advocacy and the Sierra Club – with the specific intention of making an economic case against further mining development in Minnesota	SO04
13902	However, there is also an aspect of the need of the project...PolyMet is projected to produce -- just doing the calculations on my calculator, so correct me if I'm wrong; but they are projected to produce about 72 million pounds of copper a year. The number of people who have come into our country in the last 10 years, more than -- will more than consume the additional production that PolyMet will bring to the market.	NEPA05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Phil Larson (42998)	
15243	GlossaryThe glossary contains a number terms whose definition is inconsistent with standard usage. These include:Drift: Material such as sand, clay, gravel, and rocks transported and deposited by a glacier or glacial process.Glacial deposit: A collection of various-sized rocks and debris that is deposited by a glacier as it advances or recedes across a landscape. There are many types of deposits, including till, drift, erratics, and moraines. (Note: sediment deposits of glacial origin are termed ‘drift’, less commonly ‘glacial drift’. Erratics refers to individual clasts, while ‘moraines’ refer to a landform, not a sediment type.)Glacial till: Direct glacial deposits of rocks, gravel, or boulders that are unsorted and unstratified. (Note: all till is by definition glacial in origin; there is no need to include the modifier ‘glacial’.)Surficial glacial deposit: A collection of various sized rocks and debris deposited by glacial activity that is left on the earth’s surface after the glacier recedes. (Note: ‘surficial glacial deposit’ is not used in the text of the SDEIS.)Till: see Glacial tillThese definitions should be revised to conform to accepted usage. The following definitions are taken from the Glossary of Geology (5th Edition) :Drift A general term applied to all rock material (clay, silt, sand, gravel, boulders) transported by a glacier and deposited directly by or from the ice, or by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines, and stratified deposits that form outwash plains, eskers, kames, varves, fluvioglacial sediments, etc.Outwash Stratified detritus (chiefly sand and gravel) removed or "washed out" from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of an active glacier. The coarser material usually is deposited nearer to the ice.Till Dominantly unsorted and unstratified drift, generally unconsolidated, deposited directly by and underneath a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, and boulders ranging widely in size and shape. In addition to adapting these definitions, I recommend that the definition of ‘surficial aquifer’ be modified to indicate that the aquifer is hosted by unconsolidated sediment, including drift.	EDIT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Phil Larson (42998)	
15244	Notes on NomenclatureThe text of the SDEIS contains a number of inconsistent usages of terminology:•The text mentions 'glacial till' 33 times, and 'till' alone 29 times. 'Till' should be used in all cases.•The text mentions 'glacial drift' 6 times, and 'drift' alone 7 times. 'Drift' should be used in all these cases.•The glossary does not define 'outwash'. The text mentions 'glacial outwash' 5 times, and 'outwash alone 3 times. 'Outwash' should be used in all these cases.•The text uses the term 'surficial deposits' 25 times, although the term is not defined in the glossary. The usage suggests that this refers to all unconsolidated sediments lying above bedrock, including drift (till and outwash), peat, and other sediment.In a number of cases, usage of the term 'till' is confused or inconsistent:•Page 4-95 – "several soil borings into the surficial till identified the composition as layers of clay and sand, plus cobbles and boulders". In this case 'till' is the sediment type, and by definition contains particle sizes ranging from clay to boulders.•Page 4-151 – "The depth of soil and till overlying the bedrock".•Page 4-367 – "areas of glacial till (typically silty sand)". Either the sediment is till, or silty sand. By definition it cannot be both.•Page 4-376 - "native till material that ranges from clay to gravel". In this case 'till' is the sediment type and by definition contains particle sizes ranging from clay to gravel.In several instances, the term 'till soil' is used. Till is a sediment type. A soil may develop at the surface of a till deposit, however the entire thickness of the till is not soil. 'Till' alone suffices in these instances.In a number of other cases, convoluted sediment descriptions are given, when it is likely the sediment is simply till. In these cases, the non-specific and complex description gives the impression of extreme heterogeneity in sediment deposits, rather than a relatively homogeneous till deposit. For example:•Page 4-45 – "The overlying surficial sediments at the Mine Site are poorly sorted and range from very dense clay to well-sorted sand with boulders and cobbles". This sediment is highly likely to be simply till.The term 'overburden' as defined in the glossary appears to be inconsistently applied. Although it is defined as all unconsolidated sediment and waste rock overlying the mineral deposit, in most places it appears to refer to only the unconsolidated material overlying bedrock. For example:•Page 3-15 – "overburden and waste rock"•Page 3-17 – "overburden and waste rock"•Page 3-37 – "use of waste rock, overburden, and peat"In other cases, 'overburden' clearly refers to only the unconsolidated sediment overlying bedrock. For example:•Page 3-44 – "Three types of overburden are present at the site: unsaturated overburden, saturated overburden, and peat."The term 'soil' is not defined in the glossary. In most cases, the term is used in a manner referring to unconsolidated materials at the surface, containing organic matter, and capable of supporting life. In other cases, it appears to be used in a geotechnical sense, referring to unconsolidated sediment overlying bedrock, equivalent to usage of the term 'overburden'. In these cases, the term appears to be applied to the entire thickness of drift or till overlying bedrock, similar to usage of 'surficial deposits' noted above. For example, •Page 4-149 – "lateral flow that is either on the surface or within the subsurface soil." Soil used in this sense refers to either drift or the surficial aquifer.•Page 5-201 – "mercury stored in rock, soil, peat, and vegetation." Soil used in this sense refers to drift.•Page 5-227 – "The Mine Site contains localized heterogeneous vertical and horizontal hydraulic conductivities within each soil unit." Soil used in this sense refers to drift.A clear distinction need to be made between soil referring to the shallow surface layer containing or	EDIT01
15260	Note on usage of Unified Soils Classification System (ASTM D 2487-83)The USCS was used to describe unconsolidated sediments recovered from boreholes drilled in support of the NorthMet Project. It is important to note that this system is designed to best describe and name relatively well-sorted unconsolidated sediments with a unimodal particle size distribution. As such, poorly sorted sediments with potentially multimodal particle size distributions (e.g. till) are not well-described using this classification. Relatively minor changes in the relative proportions of clay-silt-sand-pebble-boulder may lead to application of multiple group symbols and the perception of significant heterogeneity within what is in actuality a relatively homogeneous till sequence. In cases where USGS group symbols and nomenclature are utilized in the SDEIS and supporting documents, it is advisable that sediment identified as till be explicitly name as such, e.g. GC (till).	EDIT01
15268	...extensive drilling by Duluth Metals and its joint venture Twin Metals Minnesota of the Maturi Deposit in the SKI has demonstrated ...no evidence of the extensive faulting and fracturing …[therefore] Groundwater flow within faulted and fractured bedrock is likely to be minimal at the NorthMet Project Mine and Plant sites.	WR190
Sender Name (Submission ID)	Phil Ledermann (10702)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Phil Ledermann (10702)	
590	How can an accurate prediction of long term impact be made when the science does not seem sound.	PD29
1466	Please reject the PolyMet NorthMet SDEIS as inadequate and require the study to be re-done with more realistic and recent data.	NEPA04
3606	Please reject the PolyMet NorthMet SDEIS as inadequate and require the study to be re-done with more realistic and recent data.	NEPA09
16236	I am very concerned that long term impacts are addressed now not 20-30 years from now. On the other hand I understand the need to gather materials for our industries and provide good jobs.	SO10
16237	the SDEIS does not sound well done. How can an accurate prediction of long term impact be made when the science does not seem sound.	PD01
Sender Name (Submission ID)	Phil Martens (42429)	
6769	Even with substantial 'protections' in place and 'allowable and non-harmful levels' of the pollution they will inevitably produce, it only takes one accident to damage the lake and surrounding areas for hundreds even thousands of years.	PD22
6770	It is in the welfare of all the animals, the health of the boundary waters and the ever growing tourism industry to that area that you block PolyMet!	SO02
16758	In a state known for its lakes we already have countless that are polluted and damaged by chemicals to an unacceptable level. PolyMet will do the same I have little doubt.	WR070
Sender Name (Submission ID)	Philip Hult (31985)	
12020	An open pit sulfide mine will release toxic metals into our rivers and groundwater for hundreds of years -- long after the products are spent and buried in landfills.	WR115
Sender Name (Submission ID)	Philip Spensley (40206)	
6650	Our water supply nationally and internatlonally is already under threat from pollution from all quarters. Let's not add to the problem yet again in the name of the economy or providing jobs.	SO02
Sender Name (Submission ID)	Philipp Gross (47269)	
9277	How much money do they put aside for the clean up and if any where are the estimates that this money is enough for the worst case scenario cleanup needs? What does long term water treatment mean, 10 yr, 50 yr, 500 yr?	FIN05
9280	Besides the point that I do not think that this is even close to the number of jobs that would justify the risk I would like to see what those jobs are, how well they are getting paid (each position)?	SO01
9281	If the argument is that we need these minerals for survival/ green energy etc. should we not figure out a way how Minnesotans profit the most of these minerals. And maybe this means that the operation should be run by a non-for profit company or even the state and all the theoretical "profit" should be put in a trust fund until clean up is completed.	FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Philipp Gross (47269)	
9282	I would like to propose that a decision like this (permit or not) should be made by the majority in a voting procedure. In addition to this we need to make sure that the voters are informed about pros and cons of the issue.	PER01
11580	My concern is that all this is just based on modelling software and does not state any real world experiences! Who ran those models and how reliable are they?	WR189
11582	How is Polymet held responsible to the long term water treatment?	FIN01
11585	Is it not true that Polymet has formed recently and actually has not earned any money yet and is likely to file bankruptcy after the proposed mine site closes (no more income)?	FIN01
Sender Name (Submission ID)	Phillip A Lermon (7447)	
772	This proposal is not economically feasible when the future costs are added to the picture.	SO07
Sender Name (Submission ID)	Pho Lay Thao (54207)	
17643	Mining near it will be bad because the water will be contaminated with acid and will kill all the animals there.	WR113
Sender Name (Submission ID)	Phyllis Annoni (54707)	
17756	It is discouraging to finef that governmental agencies which: we depend on to protect our waters are encouraging a sulfide mining project that will seep pollutants into the St. Louis River watershed, leading into Lake Superior.	GEN01
17757	This proposed mining project will require water treatment for hundreds of years in northern Minnesota, while giving the mining company tax breaks, at the expense of those living in this area. Our taxes should never be used to support a business that pollutes anything! !	SO02
17758	Folks in the area do surely need jobs, but this proposed sulfide mine is only offering 300+ jobs for about 20 years, and many of those jobs will be construction type, with the actual mining jobs being much lower as modern technology improves. It would be more useful to use tax dollars to help Minnesotans create businesses that are sustainable and would benefit the areas economy for many, many years to come.	SO01
17759	The proposed mining operation would also put asbestos-like materials into the air leading to exposure to cancer possibilities to employees and the local community. Has this been considered in your plans? Otherwise. a study of health risks needs to be required in the supplemental draft.	HU05
17760	It is also unclear who will pay for the ongoing testing and water treatment after the closure of the proposed PolyMet Mining Project. In the news we hear about mining sites failing and pollution ending up in communities fresh water supply. When this proposed mine closes, it would require up to 500 years of testing and water treatment. It is also a tremendous concern of mine that the taxpayers in Minnesota are going to be paying this entire bill. The long-term costs of this mine operation and closure must be added to the cost benefit analysis for the plan.	FIN01, FIN05, FIN10
17761	HAS ANYONE LOOKED INTO PUTTING THIS MINE UNDERGROUND!	ALT01
17762	PolyMets Sulfide Mine Project must be rejected and needs to be rewritten to include all of the negative long-term costs and health impacts from an open-pitsulfide mine.	NEPA08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Phyllis Mead (11593)	
3255	To sacrifice even the possibility of water degradation in exchange for a foreign company's opportunity to rake in money is idiocy. The "promise" of jobs is a poor trade for guaranteed environmental impact.	SO01, WR195
3255	To sacrifice even the possibility of water degradation in exchange for a foreign company's opportunity to rake in money is idiocy. The "promise" of jobs is a poor trade for guaranteed environmental impact.	VEG04, WI02, WR001, WR156
Sender Name (Submission ID)	Phyllis Saliin (45043)	
7145	I believe that [NorthMet Mine] will have an extremely detrimental and long lasting negative effect on the environment and to the overall health of people	HU03
7147	The pollution it would bring to land and water would affect many generations to come.	SO02, WR195
7151	The damage that would occur would far outweigh any jobs that would be generated. … Minnesota also brings in a substantial income from tourism and that would be in jeopardy.	SO01
7152	clean up of toxins would be a huge burden to bear financially.	FIN01
7159	We need to make sure that the health of the people and of the natural environment in our state are our priority.	HU03
Sender Name (Submission ID)	pieplace@boreal.org (47636)	
7657	Would you be able to tell me what permitting requirements would need to be changed in order to stop PolyMet and others from mining in Minnesota. Also, who would be able to make the changes (Legislature, a State government committee, DNR, local government?).	GEN01
Sender Name (Submission ID)	Piper Donlin (39572)	
6817	the universal rights of both human and non-human inhabitants [of Minnesota] are being trampled to serve the property/profit interests of the rich international corporations who have lied and bribed their way into "legal personhood" and political control in Minnesota.	SO02
13747	Polymet, Northmet and their cohorts will be long gone by the year 2040 or so, without intention or means to pay for the superfund site they leave behind for us...Superfund cleanup to the tune of billions of dollars for hundreds of years.	FIN01
13748	[The project will cause] Water pollution [and will have negative] Impacts to three watersheds.	WR111
13749	[The project will lead to] Loss of pristine wetlands and forest.	VEG03
13750	[The project will have negative] Impacts on wildlife.	WI01
13751	[The project will contribute to] Climate change due to carbon emissions.	AIR01
13752	[The project will cause] Serious health threats to people including cancers and respiratory ailments..Mercury poisoning- people who live in the Superior Basin are already exhibiting dangerous levels.	HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Piper Donlin (39572)	
13753	[The project will cause] Loss of public lands...Devastating aesthetic impacts...Loss of wilderness.	LU06
13754	[The project will result in] Loss of wilderness jobs- thousands of people depend on ecology and wilderness for their wages (compared to three hundred jobs that will last a couple of decades—and then where will theminers go when the last traces of mineral are gone?)	SO02
13755	A strange lack of any cost/benefit analysis [in the SDEIS] is a dangerous red flag.	SO01
Sender Name (Submission ID)	pmetcalf@tcq.net (12)	
33	If they are going to use water that feeds into Lake Vermilion for their production or manufacturing uses, that may reduce the lake level.	WR081
34	if the company removes water out of the aquifer (or river) and cleans it then puts it back in, my concern would be if they put back less than they took out.	WR185
299	In the Fall, Lake Vermilion level gets very low, and dangerous for boating in some areas. ... If water is removed from any of Lake Vermilions watershed, river sources, this may affect the level of the lake, and potentially very negatively in the Fall	WR081
Sender Name (Submission ID)	PolyMet (47832)	
3480	The third paragraph states that the United States Army Corps of Engineers (“USACE”) and the Minnesota Department of Natural Resources (“MDNR”) studied “the original NorthMet Project Proposed Action” between 2005 and 2009. Use of the defined term “NorthMet Project Proposed Action” in this context is confusing because the proposed action studied in the Draft EIS was substantially different than the proposed action being studied in the SDEIS. To avoid confusion over the nature of the alternatives studied in the two documents, PolyMet recommends changing the language to state that “Between 2005 and 2009, the USACE and MDNR evaluated PolyMet’s original mining proposal.”	EDIT01
3481	The terms “NorthMet Mining Project” and “Land Exchange,” rather than the defined terms “NorthMet Project Proposed Action” and “Land Exchange Proposed Action,” are used on these pages. To avoid confusion, PolyMet recommends consistent use of the defined terms.	EDIT01
3482	Under the heading “Cooperating Agencies,” the SDEIS describes USEPA’s responsibilities to review and comment on an EIS under Section 309 of the Clean Air Act. USEPA does this for all Environmental Impact Statements, even when it is not acting as a cooperating agency. USEPA has formally participated in the preparation of the current SDEIS as a cooperating agency, which is not the same thing as fulfilling its responsibilities under CAA Section 309. PolyMet recommends clarifying this point by adding a sentence to this paragraph that explicitly notes EPA’s status as a cooperating agency.	EDIT01
3528	The first sentence on this page indicates that completion of mining in the East Pit will occur in “approximately year 11” after the start of mining. By contrast, the first sentence in the paragraph following the three bullet points states that mining in the East Pit will end “by year 11” after the start of mining. The second statement is inaccurate. Mining in the East Pit will end approximately 11 years after mining, but not necessarily by year 11.	EDIT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3529	In the last paragraph of the Mining Operations Section on page ES-23, the SDEIS defines "process water" in connection with the Mine Site. On page ES-24, the SDEIS refers to "Plant Site process water." To clarify and define terms, page ES-23 should be changed to refer to "Mine Site process water," and "Plant Site process water" should be defined by adding a sentence (see bold text below) to the last paragraph of the Processing Operations Section on page ES-23:"Water seepage from the Tailings Basin would be collected by the groundwatercontainment system and sent to either the Tailings Basin pond or the Plant Site WWTP. All other water that is collected at the Plant Site, such as water used during processing, and water that contacts the plant site facilities (collectively referred to as Plant Site process water) will also be treated at the Plant Site WWTP. Treated water would be used to augment flows in the streams that would otherwise receive reduced flows because of the Tailings Basin groundwater containment system."	EDIT01
3531	PolyMet recommends that the Executive Summary explicitly state that aluminum concentrations in the water, or the lowering of the hardness caused by storm water, represent natural or background concentrations and/or are the result of natural processes, not process water from the NorthMet Project.	EDIT01
3532	The SDEIS indicates that the NorthMet Project could potentially "affect water quality by increasing solute concentrations above Class 2B (aquatic life) standards." This appears to refer to the aluminum and lead exceedances discussed earlier in the Executive Summary. As explained in Comment 6 above, PolyMet recommends that the Executive Summary explicitly state that any such exceedances would be the result of background and/or naturally occurring concentrations or processes, not process water from the NorthMet project.	EDIT01
3540	The second full paragraph beginning with the phrase "natural resources" does not accurately summarize the discussion of cultural resources in the SDEIS. PolyMet recommends that the paragraph be replaced with the following: "Cultural resources under NEPA can also include natural resources of cultural importance to the Bands. The Co-lead agencies have considered the effects of the Proposed Action on such resources, including 1854 Treaty resources, under NEPA. The Co-lead agencies have concluded that, while the Proposed Action has the potential to have effects on 1854 Treaty resources, construction and operation of the Proposed Action is not likely to significantly reduce overall availability of 1854 Treaty resources that are typically part of subsistence activities in the 1854 Ceded Territory."	EDIT01
3551	In Table 1, the Land Use effects of the Proposed Connected Actions are described in the first bullet point as "[n]o effects on land use that would require changes in ordinances or comprehensive forest plans." This language is confusing, given that the NorthMet Project Proposed Action would involve the construction of an open pit mine. PolyMet proposes changing this language to say: "Changes in land use would occur after the Land Exchange Proposed Action and would not require changes in ordinances or comprehensive forest plans."	EDIT01
3555	Although the co-lead agencies have concluded that a segment of the Beaver Bay to Lake Vermilion Trail is an eligible historic property, the SDEIS alternates between referring to the "BBLV Trail" and the "BBLV Trail Segment." To ensure consistency with the co-leads' eligibility determination, PolyMet recommends that the agencies consistently refer to the property as the "BBLV Trail Segment."This comment applies throughout all Cultural Resources sections in the SDEIS.	EDIT01
3556	PolyMet recommends that the section of the chart dealing with "Cultural Resources & Historic Properties" be referred to simply as "Cultural Resources" since that term is inclusive of historic properties.	EDIT01
3559	The second sentence in section 1.4.5, "Financial Assurance," explains that financial assurance instruments covering the estimated costs of reclamation must be submitted to and approved by the MDNR. As discussed elsewhere in the SDEIS, Minnesota nonferrous mining rules also require that that financial assurance estimates be updated annually. PolyMet recommends noting that fact here.	FIN01, FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3561	The first sentence in Section 2.3.2.2, "Revised Proposed Action and Alternatives," states that the NorthMet Project Proposed Action has "changed greatly since the release of the DEIS." The use of the phrase "changed greatly" is ambiguous. The modifications to the proposal studied in the DEIS are described in detail elsewhere in the SDEIS. PolyMet accordingly recommends revising the first sentence in Section 2.3.2.2 to read: "As a result of input from the public, Cooperating Agencies, and the Colead Agencies via the workgroups, and additional modeling and impact analyses, PolyMet's mining proposal has been modified since the release of the DEIS."	EDIT01
3564	The second bullet point in Section 2.4.2, "Adequacy Determination/Records ofDecision," states that the USACE will issue a ROD "[f]ollowing a 30-day comment period." Under NEPA, the 30-day period following issuance of a Final EIS is not a "comment period." Rather, under 40 C.F.R. § 1506.10(b), agencies are simply prohibited from making a decision on the proposed action until 90 days after publication of a notice of availability for a draft EIS, or 30 days after publication of a notice of availability for a final EIS. The Council on Environmental Quality regulations do not require agencies to solicit comments on the FEIS during this 30-day waiting period.	EDIT01
3567	The first bullet on this page does not specify which permits would be transferred to PolyMet. The Minnesota Pollution Control Agency has stated that the NPDES permit for the Tailings Basin would not be transferred. Instead, a new permit would be issued.	EDIT01
3568	The south seepage management system is not mentioned at all in this section. This is a relatively new engineering feature that was constructed as part of the Consent Decree. It should be listed as part of the existing infrastructure, since it is already in place.	PD13
3569	The fifth bullet on this page refers to temporary features that will be removed and reclaimed before or at closure, including roads. It is important to note, however, that not all of the roads will be removed or reclaimed, as some are needed for the post-closure period.	PD36
3570	The fourth bullet on this page refers to a "bentonite layer on top of the Tailings Basin to restrict oxygen and water infiltration with pond." PolyMet recommends clarifying that there is a bentonite layer on the outer dam slopes during construction and that, during closure, a bentonite layer will be added to the top of the Tailings Basin. As currently written, the reader may incorrectly assume that a bentonite layer will be added at construction, below the new tailings.	EDIT01
3572	Reclamation of the Category 1 Stockpile is scheduled to begin in Year 14. As currently written, reclamation of the Category 1 Stockpile is included only in Years 16-20. It should also be included in Years 11-16.	EDIT01
3575	The movement of waste rock from the Category 2/3 stockpile to the pit will be completed by the end of operations (Year 20). As currently written, the SDEIS incorrectly indicates that this activity will occur after year 20.	EDIT01
3576	The transmission lines are not shown correctly on these figures [Figures 3.2-5 through 3.2-9]. The figures should show a connection between the transmission line south of the Central Pit and the line south of the Category 1 stockpile.	EDIT01
3577	[On Figure 3.2-9] The process water piping from the Category 1 Stockpile should connect to the WWTF. The drainage from the Category 1 Stockpile Groundwater Containment System will be treated at the WWTF.	PD15
3579	This table [3.2-7] is titled "Key Characteristics of Overburden and Waste Rock Management." However, it does not include any information about overburden management. The Category 2/3 and 4 stockpiles will be used to store saturated overburden; however, there is no indication of this in these sections and the "Maximum Volume" listed for these stockpiles only includes the volume of waste rock, not the maximum volume of the stockpiles. The peat and unsaturated overburden will be stored in the Overburden Storage and Laydown Area (OSLA), which is also not included in this table. Recommend either changing the table title to "Key Characteristics of Waste Rock Management" or update the table to include maximum capacity of the stockpiles for overburden storage, as listed in the Rock and Overburden Management Plan (v5) Section 6.2 (Adaptive Management) and information about the OSLA.	PD15

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3584	The Category 1 Stockpile category [on Table 3.2-7] shows that the maximum footprint of 526 acres is reached in year 6. However, the Category 1 Stockpile will reach the maximum footprint of 526 acres in Year 21, after it is reclaimed for the cover. The stockpile footprint is 508 acres at the end of Year 6, when the footprint is built with slopes at an angle of repose. The stockpile is regraded to a 3.5:1 slope prior to placement of the stockpile cover, which makes the final footprint 526 acres in Year 21.	PD16
3585	The Phases of Development section for the Category 4 Stockpile category [on Table 3.2-7] shows waste from the Category 4 Stockpile being transferred to the East Pit in Years 11-20. However, the Category 4 Stockpile will be moved completely by Year 11 to allow for mining of the Central Pit to start that same year.	PD15
3587	The second paragraph on this page states that unsaturated overburden use would require MDNR approval. This is not accurate. Unsaturated overburden should not require approval from the MDNR.	EDIT01
3588	The fourth sentence of the third paragraph on this page should state: “Applications for saturated overburden would include those where water contacting the construction material would be collected or drained to the mine pits, where it would be placed back below the water table or above a membrane liner system.” There should be an ‘or’ in this sentence.	EDIT01
3590	For clarity, PolyMet suggests editing the second paragraph and the beginning of the third paragraph in this section as follows:“Figure 3.2-11 shows the containment system that would consist of a cutoff wall (a low permeability hydraulic barrier extending down to bedrock) combinedwith a drainage collection system surrounding the perimeter of the stockpile near its toe. The cutoff wall would have a hydraulic conductivity specification of no more than 1x10-5 centimeters per second (cm/sec).”	EDIT01
3591	In the first paragraph, the description of the Category 1 Stockpile groundwater containment system does not adequately describe the sumps. There are two sumps: one at the northeast corner and one on the south side, along the center of the stockpile. To more accurately describe the system, PolyMet recommends making the following changes: "From the sumps, it would be pumped to the WWTF.”	PD16
3592	The last sentence in the paragraph under the heading “Reclamation Planning” correctly states that PolyMet will submit an annual Contingency Reclamation Plan pursuant to Minnesota Rules 6132.1300. In the interest of completeness, the paragraph should also note that the rules require PolyMet to provide financial assurance sufficient to carry out that reclamation plan.	EDIT01
3594	The second paragraph inaccurately refers to disposal of material (remaining ore and sediment from ditches and process water ponds) in theWest Pit. This material would be disposed in the East Pit, as described in Section 2.1.2 of the Reclamation Plan (v3) (Rail Transfer Hopper).	EDIT01
3625	The fifth sentence of the second paragraph on this page refers to the overburden sloping as “height-to-vertical ratio of 2.5:1.” Height and vertical mean the same thing (i.e., both refer to the vertical plane). PolyMet suggests changing this to read either “horizontal-to-vertical” or “length-to-height”.	EDIT01
3626	On page 3-64, the SDEIS states: “The WWTF would be upgraded to include RO treatment to achieve an effluent with a sulfate concentration of less than 10 mg/L.”Similarly, the SDEIS states on page 3-123: “The WWTP would be constructed south of the Tailings Basin near the coarse-crusher and would include a RO unit designed to achieve a sulfate concentration of 10 mg/L in effluent. The design of the WWTP could be adjusted to accommodate varying influent streams and discharge requirements.”It is not clear when reading the two statements copied above that the water treatment goal for the effluent sulfate concentration of 10 mg/L is based on meeting the current 10 mg/L sulfate standard for waters used for the production of wild rice (Minnesota Rule 7050.0224, Class 4A water quality standard). To clarify, and because that standard is subject to adjustment, the statement “to achieve an effluent sulfate concentration that meets the sulfate standard for waters used for the production of wild rice” should be used instead of “to achieve an effluent with a sulfate concentration of less than 10 mg/L.”	EDIT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3627	The last sentence inaccurately states state the Category 4 Stockpile would be completely removed by year 12 to allow mining in the Central Pit. The Central Pit mining begins in Year 11, as stated earlier in the SDEIS (such as Table 3.2-4). Therefore, the Category 4 Stockpile would be completely removed by year 11.	EDIT01
3628	The second paragraph describes reclamation of the Ore Surge Pile as "…any remaining material would be relocated to the West Pit after operations cease." However, no material will be disposed of in the West Pit. As described in Section 7.2.2 of the Rock and Overburden Management Plan (v5), any material remaining in the Ore Surge Pile at the end of operations will be transported to the Process Plant for processing or disposed of in the East Pit.	EDIT01
3629	The fifth paragraph on this page, which lists all ponds that would be either filled or converted to wetlands, should include the Rail Transfer Hopper Pond.	EDIT01
3630	The fourth paragraph under the heading "Water Management" states that "[b]ased on the current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site . . . ." This statement is inaccurate and inconsistent with the discussion of the GoldSim water quality modeling elsewhere in the SDEIS.	EDIT01
3631	This section inaccurately describes both the existing Cliffs Erie railroad and Dunka Road as being "within the Transportation and Utility Corridor (see Figure 3.2-20)." Cliffs Erie railroad actually is not within the Transportation and Utility Corridor, as Figure 3.2-20 accurately shows.	PD36, PD38
3632	The bulleted list on this page should include construction of approximately 5,750-foot connecting track between the Cliffs Erie track and the existing PolyMet track that serves the Coarse Crusher Building at the Process Plant. This new track is accurately shown on Figure 3.2-20 as a new construction "Railroad Connection," but it is not described in this section's text.	PD36
3639	The SDEIS states: "Throughout operations, the average annual makeup water drawn from Colby Lake would vary between 20 and 810 gallons per minute (gpm), with an average annual demand of 275 gpm." These numbers are inaccurate. The sentence should be revised to show a variation between 120 and 860 gallons per minute (gpm), with an average annual demand of 320 gpm. This section should also acknowledge that additional Colby Lake water would be needed for stream augmentation.	EDIT01
3640	In the second full paragraph on this page, PolyMet recommends providing additional details on the probable maximum precipitation (PMP) to make it clear that the likelihood of the emergency overflow channel being used is extremely low. PolyMet suggests editing the text to read:"Pond elevation would be controlled by pumping any excess FTB pond water to the WWTP. An emergency overflow channel would be constructed as a backup means of controlling pond elevation, but discharge from the emergency overflow is not expected. The emergency overflow is provided for protection of the dams in the rare event that freeboard within the FTB is not sufficient to contain all stormwater. Such instances have the potential to occur in the event of a probable maximum precipitation (PMP) rainfall event or some fraction thereof. PMP rainfall events are rare and such an event has alow likelihood of being experienced during the life of the basin. The PMP does not have an assigned return period, but it is usually assumed by hydrologists to be on the order of 100 million to 10 billion years. Based on extrapolation of 72-hour rainfall depth data from US Weather Bureau-Office of Hydrology Technical Paper TP 49, and the assumed return period of the PMP of 100 million years, a 1/3 PMP event could occur roughly once in 1,000 years and a 2/3 PMP could occur once in 500,000 years. On this basis, even though there is a low likelihood of overflow, it is standard practice in dam design to accommodate even low probability overflows in a manner that protects the integrity of the dams. Given the low likelihood that there would ever be flow in the emergency overflow channel, it is not considered in the impact analysis."	EDIT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3641	The third paragraph in Section 3.2.2.3.12, "Reclamation and Long-term Closure Management," contains a list of "reclamation objectives" and "post-reclamation activities." These terms are not used consistently with the applicable Minnesota Rules. Under the non-ferrous rules, there are two distinct periods during reclamation: closure and post-closure. "Closure" is a "process" that begins when mining ceases, and ends when the reclamation standards identified in the reclamation plan have been achieved. Thus, while it may be reasonable to describe "reclamation objectives" for the NorthMetProject Proposed Action, it would be more accurate to indicate that these objectives will be achieved during the closure process. "Post-closure maintenance" activities are defined in the applicable rules as activities necessary to "sustain reclamation." Postclosure maintenance activities begin when the closure process is complete, and end when active reclamation (e.g., water treatment plants) is no longer necessary to sustain reclamation standards. Thus, the activities described in this paragraph as "postreclamation"are more accurately described as "post-closure maintenance activities."The same comment applies to text on page 3-137.	EDIT01
3645	The first sentence of the third paragraph in Section 3.2.2.4, "Financial Assurance," states that the engineering design and planning needed to calculate financial assurance "is typically made available during the permitting process and was not available at the time that this SDEIS was prepared." While this statement is generally accurate, it leaves a misleading impression that something is missing from the SDEIS. The paragraph should specify that NEPA and MEPA regulations do not require a discussion of financial assurance, and that PolyMet has voluntarily provided as much information as possible at the present time.	EDIT01
3648	The first sentence in the second full, non-bulleted paragraph on this page indicates that a final Reclamation Plan and Contingency Reclamation Cost Estimate will be based on studies "finalized through permitting (pursuant to the EIS process)." This reference to permitting pursuant to the EIS process is confusing and should be clarified. PolyMet is not certain what the SDEIS is trying to convey about the relationship between the permitting and EIS processes, but it should be noted that those are separate processes and that information gathered during the EIS process will be used when agencies make permitting decisions.	EDIT01
3675	Table 3.2-16 on page 3-147 provides a comparison of DEIS and SDEIS proposed actions. The table cell corresponding to the first row/first column of the table should state that "Category 1 and 2 waste rock would be stored in a permanent lined/ soilcovered stockpile (Category 1/2 Stockpile) north of the west pit (years 1-11)." This edit makes clear that the SDEIS proposed action (described in the second column of the table as including "a geomembrane cover system") will include a significantly improved cover system relative to the cover described in the DEIS.The third column of Table 3.2-16 should also acknowledge the other improvedoutcomes related to the addition of a geomembrane cover system to the Category 1 Stockpile. For example, the following additional bullet could be added to column three: "Substantial reduction of stockpile seepage volume that will need to be collected and treated at the WWTF and significant improvement in West Pit water quality in closure."	EDIT01
3677	General comment on all Cultural Resources Sections in Chapters 4, 5and 6The SDEIS often references consultation with the Bands and SHPO, but fails to include PolyMet in these references. When discussing consultation under Section 106 of the NHPA, PolyMet, as the project proponent, should be identified as a consulting party and should be included in the explanation of the Section 106 process. Examples of where PolyMet should be noted/included as a consulting party include: the third to last sentence on page 4-259 (Section 4.2.8.3); the last full sentence on page 4-262 (Section 4.2.9.2.1); the second to last sentence in Section 4.2.9.2.2 on page 4-263; the secondto last sentence in the second to last paragraph on page 4-264; the second to last paragraph on page 4-302; the last full paragraph on page 4-303; the third paragraph on page 4-555; the second and third paragraphs on page 5-479; the first full paragraph on page 5-482; the second to last full paragraph on page 5-483; the last paragraph on page 5-673; and the first paragraph on page 6-89.	EDIT01
3678	This table lists the mercury TMDL target date for Sabin Lake, Esquagama Lake, and Colby Lake as 2015. The target date for those water bodies is 2025. (source: MPCA 2013. Minnesota's Final 2012 TMDL List (Section 303(d) Impaired Waters List. List approved by USEPA, July 25, 2013).	EDIT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3679	The monitored mercury concentration at PM-13 (Embarrass River) is inaccurately stated as 4.0 ng/L. In fact, PolyMet's evaluation of the Plant Site at PM-13 used a background concentration of 3.1 ng/L. The same comment applies to Table 4.2.2-4, and the cumulative impact discussion at p. 6-33.	MERC04, MERC07
3683	The first two paragraphs of this section characterize the Tailings Basin mercury samples as "consistent with baseline levels." This is not consistent with the later conclusion that the Tailings Basin acts as a sink for mercury. Data from locations "in and near the existing LTVSMC Tailings Basin" is actually lower than concentrations observed in the Partridge River and Embarrass River.This same comment applies to the second paragraph under "Direct release of mercury to the Embarrass river watershed from the tailings basin" in Section 5.2.2.3.3 on page 5-205.	MERC06
3685	In the first sentence of the second paragraph, the order of Duluth Complex and Partridge River intrusion should be switched. The Partridge River intrusion is part of the Duluth Complex.	EDIT01
3686	In the second sentence of the second paragraph, the use of "Mesabi Iron Range" is misleading, as it could give the impression that the Duluth Complex is in direct contact with the Biwabik Iron Formation, which is not the case. PolyMet recommends listing a geologic unit (Virginia Formation) here, rather than the more vague term "Mesabi Iron Range." In addition to the cross-section shown on Figure 3.2-10, it would be helpful to include a plan view bedrock geology map to illustrate the geometric relationships between the various bedrock units.	EDIT01
3687	The second sentence of the second full paragraph states: "Based on limited MDNR well records within the NorthMet Project area, natural groundwater levels in the glacial till vary seasonally between 3 and 10 ft bgs." This sentence incorrectly states that the data is limited. Site-specific data on seasonal water level fluctuations is found in the Water Modeling Data Package Volume 1 – Mine Site (referenced in the SDEIS as PolyMet 2013i). PolyMet 2013i provides information on water level fluctuations observed in 24 wells completed in the glacial till at the Mine Site, some with over nine years of water level measurements. Water level fluctuation varies between wells, but the overall range observed in a single well is typically less than 4 ft.	EDIT01
3691	The range of dates cited in the bullets listed under "Baseline Groundwater Quality" is inconsistent with the groundwater data used for water quality modeling. For example, 2012 data from MW-05-02, MW-05-08, and MW-05-09 were used for the modeling. PolyMet recommends removing the dates from these bullets or revising the list so that range of dates is consistent with data used to develop Table 4.2.2-6.The range of dates for groundwater data used for the water quality modeling is as follows:-Three older wells in the surficial aquifer, sampled from March 2005 through June 2012.-21 newer wells in the surficial aquifer, installed in November 2011 – February 2012, sampled following installation through June 2012.-Five observation wells in the upper 100 ft of the bedrock, sampled from 2006 to 2010 (current SDEIS text is correct for this bullet).-Four large-diameter bedrock wells, sampled during aquifer testing in 2005 and 2006.	EDIT01
3692	It is not clear how the baseline values that are shown in Table 4.2.2-6, and used for comparison with the site-specific data, were selected. The Northeast MN baseline data appear to be derived only from the "unconfined buried Quaternary aquifer" category. However, the MPCA study also includes data for "buried Quaternary artesian aquifers" and "Quaternary water table aquifers." Either the range shown in Table 4.2.2-6 should reflect data from all Quaternary aquifers in the MPCA report or the Final EIS should provide an explanation as to why only a certain subset of data presented is provided.	EDIT01
3693	The first paragraph describes USGS gage 04015475 as the flow record most representative of the Project area. However, this section also should acknowledge the presence of the recently-installed (for Teck American) flow gage at the Dunka Road crossing near the southeast corner of the proposed Mine Site (monitoring location PM-3/SW003) and note that, while closer to the Mine Site, the short period of record is insufficient for use in the SDEIS. This gage also should be shown on Figure 4.2.2-1.	EDIT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3694	The first paragraph discusses why the use of the lowest expected baseflow is conservative with respect to impacts to surface waters. The paragraph should acknowledge that the use of a higher modeled baseflow would lead to higher recharge into groundwater, which would translate into faster solute transport times in groundwater (although not necessarily significantly varied peak concentrations). In addition, higher recharge would increase the expected groundwater inflow into the dewatered mine pits.	WR005
3695	In the first paragraph, the text describing existing upper Partridge River water quality should mention mercury and aluminum concentrations exceeding water quality standards. The text also describes dissolved oxygen at SW002 as the only consistent exceedences. PolyMet reads the term “consistent” as meaning that all samples at that location exceeded the standard, but that should be made more clear the text. The term “consistent exceedences” also appears in section 4.2.6.1.2 (page 4-220), and it should be used in the same way in that section.	EDIT01
3696	There are multiple inaccuracies in Table 4.2.2-14 that should be addressed:1. The average concentrations presented in Table 2.2.2-14 should include 2012 data. The 2012 data is included in Large Table 10 of theWater Modeling Data Package, Volume 1 – Mine Site v12.2. The number of samples at SW004a and SW004b in footnote 5 is incorrect and should also include 2012 samples. The 2012 data omitted from the number of samples is included in Large Table 10 of theWater Modeling Data Package, Volume 1 – Mine Site v12. The number of samples at SW004a and SW004b should be 12 samples for each location.3. The ranges of concentrations presented in Table 4.2.2-14 do not include the 2012 data and, therefore, may be inaccurate if maxima or minima occurred in 2012.4. The range provided for mercury concentrations (<0.0025 ng/L to 0 ng/L) is not accurate; mercury concentrations provided in theWater Modeling Data Package – Volume 1 Mine Site v10 range from <0.5 ng/L to 18.5 ng/L.	EDIT01
3697	Section 4.2.2.2.2, p. 4-77, Table 4.2.2-14, Section 4.2.2.2.2, p. 4-80, Table4.2.2-15, Section 4.2.2.2.2, p. 4-87, Table 4.2.2-18, Section 4.2.2.3.2, p. 4-123, Table 4.2.2-29, Section 4.2.2.3.2, p. 4-132, Table 4.2.2-35The minimum values in constituent concentration ranges shown in these tables are presented as less than half the minimum detection limit. Minimum concentrations (when not detected) should be presented consistently as either less than the minimum detection limit (e.g., “ < 10 mg/L”) or as a numeric value equal to half the minimum detection limit without a less than symbol (e.g., “ 5 mg/L”). If the latter approach is used, the footnotes should note that minimum values represent one half the detection limits.	EDIT01
3698	The third sentence of the fourth paragraph presents a recharge rate of 0.3 in/yr, which is inconsistent with the mean value of 0.61 in/yr used in the GoldSim model. As discussed in Sections 5.2.1.3.1 and 5.2.1.3.2 of this document, average net recharge in the Embarrass River watershed is estimated at 0.61 inches per year. A recharge rate of 0.3 in/yr represents the minimum value used in the GoldSim recharge distribution (PolyMet, 2013j; Section 5.2.1.3.2); however, it would be more appropriate to use the average value, rather than the minimum value, for the groundwater flow discussion in the SDEIS.	EDIT01
3699	Data for the Cell 1E pond should be included in this table. Cell 1E pond data are shown in Large Table 7 of the NorthMet Project Water Modeling Data Package, Volume 2 - Plant Site, Version 9, March 1, 2013.	EDIT01
3700	Regarding the first sentence, PM-13 is not “just downstream of the Heikkila Lake tributary.” It is more accurate to say PM-13 is downstream of the Unnamed Creek tributary.	EDIT01
3701	In the second sentence, it is unclear what “low flows” refers to. Based on the low flows presented in Table 4.2.2-27, PolyMet assumes the co-leads are referring to “baseflow.” This should be clarified.	EDIT01
3702	In the third paragraph, the text describing the number of samples collected at PM-12.2, PM-12.3, and PM-12.4 should include data from 2012 (2012 data appears to be included in subsequent Table 4.2.2-29). The 2012 data is included in Large Table 4 of the Water Modeling Data Package, Volume 2 – Plant Site v9.	EDIT01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3703	The row for PM-12 should reflect that data was collected in 2012 at this location.	EDIT01
3704	Data for PM-11 should not be presented in Table 4.2.2-34, which is titled "Summary of Surface Water Quality Monitoring Data for the Tailings Basin Surface Seeps." Monitoring location PM-11 is located downstream of the Tailings Basin on Unnamed Creek and is not representative of a seep. Data for PM-11 should be included in Table 4.2.2-35 (which includes tributary streams) instead.	EDIT01
3705	In the second to last sentence of the first full paragraph, it should be clarified that seepage and dead spruce trees are not a cause-and-effect relationship. There are many beaver dams in the area that likely play a role in the presence of dead spruce trees.	EDIT01
3706	The last sentence under "National Hierarchical Framework of Ecological Units" reads: "Inclusion of the One Hundred Mile Swamp would likely complete representation of prominent ELTs in LTA 212Le11." Polymet suggests clarifying by revising this sentence is to say: "The One Hundred Mile Swamp and the two other sites surveyed provide a complete representation of the prominent ELTs present within LTA 212Le11."	EDIT01
3707	Footnote 1 indicates it is a State standard, but the listed value is federal standard. The State 1-hr standard is 0.5 ppmv.	AIR12
3710	Regarding the entry for sulfur dioxide 3-hour, the table could be misunderstood as saying that the state and Federal secondary standard is 0.5. In fact, the state primary standard is 0.5, and state secondary state standards are as indicated by footnotes. This should be clarified in the "Standard Type" column and the footnotes.	AIR12
3711	The third sentence of the third paragraph suggests that PolyMet will submit a revised wetland permit application. In fact, PolyMet has already submitted a revised wetland permit application, which appears as "PolyMet 2013q. NorthMet Project Revised Wetland Permit Application, Version 1. Issued August 19, 2013" in the references.	EDIT01
3712	The first sentence of this section references three figures for the location of the Mine Site, in relation to Iron Lake and the Laurentian Divide. However, none of the figures show Iron Lake or the Laurentian Divide. The text should be revised to account for this or the figures should be edited to include Iron Lake. This issue occurs in other sections as well, such as the first sentence of Section 4.3.3.1.	EDIT01
3713	The third sentence of the first paragraph should cite the USACE memo (USACE, May 2013) in addition to the baseline wetland type evaluation.	EDIT01
3714	The first sentence of the third paragraph reads as though vegetation types are indicative of pre-settlement conditions. However, this is misleading, as there has been a significant amount of logging disturbance throughout the mine site.	EDIT01
3715	The new Minnesota ETSC list became effective (August 19, 2013). Botrychium pallidum (pale moonwort) is not a state-endangered species anymore. Botrychium rugulosum (St. Louis grapefern) and Eleocharis nitida (neat spikerush) are not state-threatened anymore. All three plant species are now special concern, which means they are not protected under Minnesota's Endangered and Threatened Species Statute (MN Statute 84.0895). Sparganium glomeratum (clustered bur reed) is not a special concern species anymore, and has been removed from the Minnesota ETSC list. The text and Table 4.2.4-4 should be revised to reflect the new Minnesota ETSC list.Changes should be made throughout Section 4.2.4.2.3, including the Species Life Histories discussion, to make the information current and accurate.	VEG01
3716	General comment in Sections 4.2.4, 4.3.4, 5.2.4 and 5.3.4 Scientific and common names are used inconsistently throughout these sections. PolyMet recommends using consistent terms throughout the document for clarity.	EDIT01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3717	On page 4-170, there continues to be an inconsistency between the first paragraph under "Habitat Types and the first sentence of the first paragraph under "Plant Community Surveys." The first paragraph under "Habitat Types" states that upland-conifer mixed forest types are among "the least represented cover types." This is further supported by Table 4.2.4-1, which shows upland conifer-deciduous mixed forest as <1% of the Mine Site acreage for cover types. However, under "Plant Community Surveys", the first sentence following Table 4.2.4-1 states that "the primary cover types at the Mine site are mixed pine-hardwood forests on the uplands." "Mixed pine-hardwood forest" is an "upland conifer-deciduous mixed forest cover type." PolyMet recommends resolving this inconsistency by using MIH data in the table, rather than GAP.	VEG09
3718	The first sentence of the second paragraph under "Invasive Non-native Plants" states that a survey was conducted on mine sites along the Mesabi Iron Range, and that "some species are currently present." The text should clarify where (i.e., the Mesabi Iron Range or on the NorthMet Mine Site) these species are present.	VEG09
3719	The first paragraph text states that no invasive species inventories have beenconducted within the Transportation and Utility Corridor. However, the paragraph later discusses field survey data. This could be confusing. The text should clarify that the field survey data discussed was not a quantitative survey (i.e., not an inventory), but rather is part of a broader ETSC and qualitative vegetation survey conducted by Barr.	VEG09
3720	The text on page 4-192 names three ETSC species in Transportation and Utility Corridor, but Table 4.2.4-7 only lists one of these species. This inconsistency should be resolved.	EDIT01
3722	General Comment to Sections 4.2.5, 4.3.5, 5.2.5, 5.3.5[:] PolyMet recommends either substituting the word "bat" for the term "Myotis" or adding "(bat)" after "Myotis."	EDIT01
3723	The Canada lynx is a Minnesota special concern species effective August 19, 2013.	WI01
3724	In the fifth paragraph, the statement that lynx critical habitat "includes most of northeastern Minnesota" is imprecise. PolyMet recommends adding the clarification that the USFWS designated critical habitat does not include most of the Iron Range.	EDIT01
3725	The last sentence of the third paragraph references "forest and brush habitats" but parenthetically cites MIHs 1 to 14. PolyMet believes the citation was intended to be MIHs 1 and 14.	EDIT01
3726	Regarding the last sentence of the third paragraph [(under Bald eagle heading)], there are no standing dead trees in the existing LTVSMC Tailings Basin.	EDIT01
3727	In the third paragraph, it should be noted that the northern Myotis (Myotis septentrionalis, Northern long-eared bat) was proposed as a federally listed endangered species by the USFWS on October 2, 2013.	WI01
3728	The second paragraph should reference Moose zone 3, not Moose zone 30.	EDIT01
3729	The fourth sentence of the second paragraph incorrectly states that the Tailings Basin is "unlikely to be heavily used by wildlife." The Tailings Basin is a local refuge for herds of deer, small mammals and wolves.	EDIT01
3730	The first sentence in the first paragraph references the Longnose, Wetlegs and Wyman creeks as surface water features in the Upper Partridge River Watershed. However, there is no discussion on these creeks or a reference to a previous discussion in the SDEIS. PolyMet recommends either providing a similar discussion of that provided for Mud Lake, Yelp Creek, and Second Creek on page 4-214 or explaining why such analysis is not provided.	EDIT01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3731	The second sentence uses the term “watershed” while the third sentence uses the term “larger watershed.” PolyMet suggests explaining the difference between a "watershed" and a "larger watershed."	EDIT01
3732	The first sentence of the third paragraph should be revised to add Yelp Creek to the list of streams where “no fish or macroinvertebrate community or habitat characteristics could be documented . . . .”	EDIT01
3733	The source of data for these stream surveys should be revised as “Source: Breneman 2005, Barr 2011b, and MPCA 2011c.” Barr 2011b is the source of the information for the PM sites.	EDIT01
3734	PolyMet recommends that the introductory paragraph state that the NHPA process is proceeding on a parallel path to the NEPA process, and that effects on cultural resources have also been considered and analyzed under NEPA.	EDIT01
3735	The last sentence of the introductory paragraph states: “Cooperating agencies have not participated in production or endorsement of any components of the EIS or the NorthMet Project.” This statement is not entirely accurate, since the tribes have participated in the production of components of the EIS relative to cultural resources as well as the Major Differences of Opinion. The EIS should describe the tribes’ participation in the development of the EIS.	EDIT01
3736	The second-to-last paragraph is unclear, both with respect to whether it is discussing groundwater and/or surface water, and with respect to how that discussion fits into the APE analysis. Figure 4.2.9-5, which is not referenced in this paragraph, is a groundwater quality APE, but most of the paragraph discusses surface water quality. PolyMet recommends revising this paragraph to explain how groundwater and surface water affect the APE.	EDIT01
3739	The discussion of the NorthMet Project’s impacts upon visual resources notes that tribal members exercise rights to hunt, fish, and gather on Superior National Forest lands near the Mine Site. However, it also states that “[t]he frequency with which tribal members exercise these rights in portions of Superior National Forest with views of the Mine Site is not known.” In particular because the Bands are cooperating agencies, they have had every opportunity to provide evidence of frequency. Accordingly, PolyMet recommends adjusting this language to state that “there is no evidence that tribal members regularly exercise their rights in this portion of the forest.”	CR01, CR05, CR06
3742	The term “Sensitive Fines” is used on the Figure, yet neither Geotechnical Data Package, Vol. 1, Version 4, nor preceding versions use the name “Sensitive Fines.” April 12, 2013 Geotechnical Data Package, Vol. 1, Version 4 uses the name “Fine Tailings/Slimes.” This material type is missing from the Legend on the lower left corner of Figure 4.2.14-3.	EDIT01
3746	Units and labels are missing from axes [of Figure 4.2.14-3] (e.g., elevation in feet amsl and distance in feet) and the dashed lines in the figures are not in the legend (layers of material).	EDIT01
3748	In the first full sentence [of Section 4.3.3.1.1, p. 4-434], floodplains should be clearly defined, and PolyMet recommends including a figure showing mapped floodplains with wetlands.	EDIT01
3752	The table combines coniferous bogs and coniferous swamps. PolyMet recommends separating these two wetland types here, in the same way that they are separated for discussions of the federal lands. This is also an issue in Tables 4.3.3-6, 4.3.3-8, 4.3.3-10, 4.3.3-12.	EDIT01
3754	The table contains inaccurate acreage for open bog and shallow marsh. Open bog should be 2.1 acres, and shallow marsh should be 84.1 acres. In addition, the third sentence under Table 4.3.3-6 should also be edited from: “Large bogs dominate much of the east-central portion of Tract 1” to the suggested “Shrub swamps dominate much of the east-central portion of Tract 1.” The current sentence is inaccurate because there are only 2 small bogs (2.1 acres total) on the Hay Lake parcel.	EDIT01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3755	The first sentence states that non-native invasive species on the federal lands are the same as the Mine Site because "they occupy the same area." This is not accurate. The Mine Site is smaller than the federal lands.	VEG09
3756	In footnote 2 [of Table 4.3.4-5], PolyMet suggests deleting the phrase "additional populations may be present in more marginal, secondary habitat that was not surveyed, or in wetter areas." There is no evidence (no survey) of additional populations in marginal, secondary habitat, and the SDEIS should make that clear.	EDIT01
3767	The second paragraph appears to suggest that there is a correlation between the acreage of a given MIH cover type and the likelihood that an RFSS species that prefers that cover type will actually be present. This is not entirely accurate. The paragraph fails to take into account other qualitative factors that influence the likelihood of an RFSS species being present. PolyMet recommends revising the paragraph to state that the presence of RFSS species would be further influenced by the quality of the habitat available, not just the quantity.	VEG09
3773	Sections 4.3.5.2.1 and 4.3.5.2.5[:] In both of these sections, there is a contradiction between text under "federal and state-listed species" and the text under "RFSS." The text under "federal and state-listed species" says that northern myotis and eastern pipistrelle are potentially present on Tracts 1 and 5. The text under "RFSS" states that only northern myotis is potentially present. This inconsistency should be resolved.	WI01
3775	This section [(4.3.5.2.1)] discusses "species of tribal concern." This is not a legal category. PolyMet recommends deleting this phrase.	EDIT01
3777	The first sentence in the second paragraph should be revised to read "Some of the non-federal lands… ." Not all of the non-federal lands have streams, creeks, rivers, or lakes on them.	EDIT01
3781	General Comment on all Land Exchange sections[:] The Land Exchange analysis must review FEMA floodplains. Therefore, the Land Exchange sections should define whether the floodplains are FEMA or non-FEMA. For example, the first sentence of the second paragraph in Section 4.3.6.2.1, p. 4-522, should be revised to read "approximately 376 acres of non-FEMA floodplain." This change should be reflected throughout the Land Exchange sections.	WET14
3791	This paragraph incorrectly compares Coyote Creek with Stony River. These are not comparable systems. The Stony River is a higher order, more diverse aquatic system than the first order, headwaters Coyote Creek. It cannot be assumed that the conclusions drawn from the studies for Stony River are applicable to Coyote Creek.	EDIT01
3796	The second paragraph is one sentence and cites "MIH 14." PolyMet recommends that this paragraph first provide some description of the MIH 14 before making the statement it currently contains.	EDIT01
3798	The first sentence of the second full paragraph states that the "groundwater containment system would capture at least 90 percent of seepage from the Tailings Basin." This is incorrect. The system will capture 100% of surface seepage and upwelled water, and at least 90% of seepage that remains as groundwater flow. Overall, 99% of seepage from both surface and groundwater will be captured. The sentence, as written, implies that the system will be less effective than it will be.	EDIT01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3807	The 4th paragraph states: "With the proposed design modifications and engineering controls, the water quality model predicts that the NorthMet Project Proposed Action would not cause or increase the magnitude of an exceedance of the groundwater and surface water quality evaluation criteria at the P90 level for any of 28 solutes at 29 groundwater or surface water evaluation locations within the Partridge River and Embarrass River watersheds…"PolyMet proposes the following language: "With the proposed design modifications and engineering controls, the water quality model predicts that the NorthMet Project Proposed Action would not cause or increase the magnitude of an exceedance of the groundwater and surface water quality evaluation criteria at the P90 level for any of the 27 solutes and mercury (further addressed below) at 29 groundwater or surface water evaluation locations within the Partridge River and Embarrass River watersheds…"	EDIT01
3817	The 3rd paragraph states: "Within the water quality modeling, estimated concentrations for these six metals are compared to hardness-based standards at each model evaluation location and each model time step to determine compliance with the evaluation criteria."PolyMet proposes the following language: "Within the water quality modeling, modeled concentrations for these six metals are compared to hardness-based standards at each model evaluation location and each model time step to determine compliance with the evaluation criteria."	EDIT01
3829	The 4th paragraph states "Methylmercury is much more of a problem than inorganic mercury, in that it can accumulate to concentrations of concern in the aquatic food chain, it is more bioavailable than inorganic mercury, and it can bioaccumulate in fish, wildlife, and humans." The term "problem" suggests a conclusion, when this sentence is actually describing concerns. PolyMet proposes the following language: "Methylmercury is more of a concern than inorganic mercury, in that it can accumulate to concentrations of concern in the aquatic food chain, it is more bioavailable than inorganic mercury, and it can bioaccumulate in fish, wildlife, and humans."	EDIT01
3833	The first sentence at the top of the page reads: "Research suggests that total mercury concentrations in streams and methylmercury content in fish are roughly proportional within individual watersheds (USGS 2010), such that, for example, a 5 percent increase in total mercury in water would be expected to result in about a 5 percent increase in mercury content in fish within that watershed."This sentence should be changed to clearly state that the potential incremental change in fish mercury concentration is an evaluation criterion and that MPCA's Mercury Risk Estimation Method (MMREM) was used to assess the potential changes in fish mercury concentrations in nearby lakes. The MMREM is a method that relies on empirical fish contamination data, combined with the principle of proportionality between mercury in fish and atmospheric deposition (MPCA 2006, MMREM guidance document).	EDIT01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3834	In the references section to the SDEIS, the USGS 2010 reference cited above links to the following web page: Some Ecosystems Will Respond to Reductions in Mercury Emissions. USGS July 29, 2010.1 The first sentence on this webpage states: "An international team of scientists investigating mercury cycling in an experimental watershed in Ontario, Canada, conclusively demonstrated at the ecosystem scale that changes in mercury loadings are expected to result in proportional or near proportional changes in mercury bioaccumulation in fish." PolyMet believes this conclusion of proportionality is not applicable to this project for at least three reasons.First, the cited website summarizes the results from a study referred to as the Mercury Experiment to Assess Atmospheric Loading in Canada and the United States (METAALICUS) study, which was conducted on a headwater lake, not in a stream. The METAALICUS study itself cites that runoff dominated lakes (flow through systems) would not respond the same as a precipitation-dominated headwater lakes (Harris et al., 2007). Because a stream can also be thought of as a flow through system, it will not respond in the same way to increases or decrease in atmospheric deposition as a precipitation-dominated headwater lake. In other words, for a run-off dominated lake (flow-through system), the contribution of ambient (pre-existing) mercury from the watershed to the lake is much greater than the contribution of new mercury to the water surface. The same would be true of a stream wherein the new mercury from atmospheric deposition would be minor compared to the contribution of ambient mercury. In addition, Minnesota's Statewide Mercury TMDL (MPCA 2007, Section 4.1) states that "… The primary source of mercury to the state's water bodies is atmospheric deposition, which is approximately uniform across the state. Mercury concentrations in fish, however, vary widely on both large and small scales. …". Nutrient loadings, hydrology, presence/absence of wetlands and other factors contribute to different fishmercury concentrations in lakes that are relatively close to each other. Therefore, using the concept of proportionality is expected to result in an overestimate of the potential incremental change in fish mercury concentrations due to an individual project's mercury air emissions as the concept of proportionality does not seem to be supported for individual streams or lakes based on the available data.Second, steady state was not reached during the 3 year METAALICUS study.Ghorpade (2010 thesis) identifies that 8 years after the study started, steady state was not reached and the researchers are not able to predict when steady state might be reached. Therefore, the assumption of proportionality based on the METAALICUS study is uncertain.Third, there are several USGS reports that indicate a relationship between filtered methyl mercury concentration in stream water and fish mercuryconcentration. However, likely because of the watershed specific factors affecting methylation of mercury, there is not a USGS report, 2010 or otherwise, that identifies a statistically significant relationship between total mercury in surface water and fish mercury concentrations.	MERC02
3835	Modeling results for location UC-1 are not presented in the SDEIS. Therefore, this location should not be shown in Figure 5.2.2-6 as a model evaluation location.	EDIT01
3836	The 3rd and 4th sentences of the first paragraph should be clarified to reflect that the Plant Site MODFLOW model was not calibrated to baseflow in the Embarrass River, nor was the model used to estimate baseflow.	EDIT01
3837	Regarding the last sentence on the page, the regional MODFLOW model calibration was not updated to the revised baseflow estimates from XP-SWMM. The Mine Site Water Modeling Data Package Attachment C provides: "The regional model calibration was not updated because the original calibration did not incorporate a baseflow estimate and previous sensitivity analysis indicated that the local-scale model results were not sensitive to the lateral boundary conditions that were defined by the regional model (Barr, 2007). Therefore, the perimeter boundary conditions for the local-scale model remained unchanged."	EDIT01
3838	The footnote on the "Specific yield" column of the table [(5.2.2-9)] only applies to the surficial deposits, not the entire column in the data table.	EDIT01
3842	The 1st paragraph states: "GoldSim was programmed with a suite of complex algorithms to estimate the release of contaminants from mine facilities (i.e., "sources") and their transport to groundwater and surface water evaluation locations." PolyMet suggests the following language: "GoldSim was programmed with a suite of algorithms to estimate the release of contaminants from mine facilities (i.e., "sources") and their transport to groundwater and surface water evaluation locations."	EDIT01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3846	The 1st paragraph states: "The onset of acidic pore water is also problematic, as these conditions cause the rate of sulfide oxidation to increase and the concentration of metals to increase as precipitates dissolve." PolyMet suggests the following revision: "The onset of acidic pore water is also of concern, as these conditions cause the rate of sulfide oxidation to increase and the concentration of metals to increase as precipitates dissolve."	EDIT01
3849	The bulleted list near the middle of the page provides slightly incorrect sulfide sulfur ranges for the waste rock classification criteria, as well as an incorrect reference for this information. The sulfide sulfur classification criteria for the categories of waste rock should be revised as follows:-Category 1 – sulfur content less than or equal to 0.12%.-Category 2 – sulfur content greater than 0.12% and less than or equal to 0.31%.-Category 3 – sulfur content greater than 0.31% and less than or equal to 0.60%.-Category 4 – sulfur content greater than 0.60%.Categories 2 and 3 are combined to produce Category 2/3 with sulfur content greater than 0.12% and less than or equal to 0.60%.This information can be found in Section 4.4.1 of the Waste Characterization Data Package v10 (PolyMet 2013)	EDIT01
3851	The first sentence of the last paragraph on page 5-53 states that "the GoldSim model simulates constituent release from waste rock based on assumptions that either extrapolate from conditions observed under field-scale weathering of similar rock (Category 1 waste rock) or in laboratory tests (Category 2, 3, and 4 waste rock, and ore)." This should be revised to indicate that constituent release for all categories of rock is based on data from laboratory tests. Constituent release rates for all categories of rock are estimated by applying a scaling factor to lab rates to account for likely differences between field and lab conditions. The scaling approach differs between Category 1 and the other categories of rock, but release rates for all categories of rock are based on laboratory data.	EDIT01
3853	The second paragraph states: "The 80 percent rate is used because seepage from the south side of Tailings Basin is likely higher than the flow contribution to Second Creek that would occur from the Basin footprint for natural ground conditions (i.e., if the Tailings Basin were not present)". This statement is not correct. The 80% is to limit the project impact on flow to +/- 20% of existing conditions, as is recommended by MDNR on Page 5-14.	EDIT01
3854	PolyMet suggests revising the third full paragraph as follows: "WWTP effluent that would be used remaining after flow augmentation to Second Creek would be discharged to the three Embarrass River tributaries (Unnamed, Trimble, and Mud Lake creeks), as partial or complete fulfillment of required augmentation to maintain downstream hydrology and wetland function in Second Creek and the three Embarrass River tributaries (Barr 2013a). Pumping from Colby Lake would be used to meet any remaining augmentation requirement."	EDIT01
3856	The second paragraph states: "Tailings seepage bypassing the containment system (approximately 19.4 gpm) would continue… ." On page 5-8 (Section 5.2.2) and in Table 5.2.2-36, the flow bypassing the containment system is said to be "about 21 gpm." PolyMet recommends revising for consistency.	EDIT01
3858	The active source period for the Category 4 Stockpile is incorrect. The stockpile will be removed during the development of the Central Pit and will be entirely removed by the end of Mine Year 11.	EDIT01
3860	The last full paragraph should acknowledge that the pH in the East Pit backfill will be monitored and adjusted by the addition of alkaline water from the WWTF as backfilling progresses in order to maintain circum-neutral conditions in the backfill pore water.	EDIT01
3861	The SDEIS states: "The quality of this aquifer inflow would reflect the quality of the pit lake water, which would gradually improve over time due to cycling through the WWTF." However, the West Pit water will not be cycled through the WWTF during reclamation. PolyMet suggest revising the text to: "The quality of this aquifer inflow would reflect the quality of the pit lake water, which would gradually improve over time due to the effectiveness of the reclamation activities at the site."	EDIT01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3867	The SDEIS states: "Cobalt was generally used to illustrate groundwater transport at the Mine Site because it is not attenuated and would enter the surficial flowpaths at concentrations higher than baseline groundwater." This statement is misleading. PolyMet suggests rewording to the following: "Cobalt was generally used to illustrate groundwater transport at the Mine Site because the model did not account for attenuation, and would enter the surficial flowpaths at concentrations higher than baseline groundwater."	EDIT01
3868	The first paragraph incorrectly states that flow augmentation must be at least 145 or 180 gpm, which is 80% of capture flow rate of the current south-side seepage. Table 5.2.2-40 shows 400 gpm, which is the correct rate for augmentation (see The Water Modeling Data Package – Volume 2 Plant Site v9). The same error is made in the last paragraph on Page 5-153 (Section 5.2.2.3.2).	EDIT01
3869	The first paragraph of this section only discusses quantities of seepage during closure and not operations. The paragraph below could be added to discuss these aspects during operation:"During operations, the Category 1 Stockpile would be uncovered. Infiltration would percolate to the bottom of the stockpile and be collected by the surrounding groundwater containment system. As the stockpile footprint is expanded, the total seepage during operations will increase up to a maximum annual flow of between 290 gpm and 440 gpm. Most of this seepage would be collected and sent to the WWTF for treatment; an estimated peak flow of 20 gpm to 30 gpm would pass below the containment system and be drawn by gravity into the dewatered West Pit."	EDIT01
3872	This table [(5.2.2-28)] is consistent with what was provided in the AWMP, but the corresponding text on Page 5-125 leaves the inaccurate impression that the effluent targets were what was modeled as effluent concentrations. The text should be modified to match the table.	EDIT01
3873	The use of the term "non-contact stormwater" in this table [(5.2.2-29)] and elsewhere in the text is somewhat confusing, as it seems to imply that this is water being managed by PolyMet. PolyMet recommends using the more appropriate term "unimpacted watershed runoff."	EDIT01
3874	The first paragraph on this page should acknowledge that there is a low probability for exceedances caused by the project.	EDIT01
3875	Unnamed Creek should be included in the discharge locations for the WWTP effluent. SD006 is the location for Unnamed Creek, not Second Creek. The table organization contradicts language found in the last paragraph of page 5-177, which states "augmentation flow to Unnamed Creek would be via a single discharge near the current SD006 discharge."	EDIT01
3876	The text states: "The rate at which contaminants would move through the groundwater would be the same as the groundwater seepage velocity downgradient of the containment system for all but four constituents (arsenic, antimony, copper, and nickel)." ... Because no attenuation values are used for the constituents – other than arsenic, antimony, copper, and nickel – the modeled rate of groundwater transport will be faster than the actual rate of transport in the ground. PolyMet recommends noting this fact in the text.	EDIT01
3878	The last sentence of the last paragraph states: "Transport of other non-attenuated solutes should be similar to lead, but the change in concentrations is not always as visually noticeable as it is for lead." This statement is misleading. Lead is the only solute of interest where loading to the environment is predicted to increase as a result of the project, which is why it is the only solute to show a visible concentration front moving through groundwater down gradient of the tailings basin. Thus, other solutes do not show a similar behavior as lead.	WR082
3880	The second to last paragraph states: "…the concentrations of these metals in the WWTP effluent would be significantly higher than the concentrations in the current Tailings Basin seepage…" This sentence should be revised to use the term "modeled concentrations…" The modeled effluent concentrations from the WWTP are higher than the values reported in pilot testing of the proposed treatment systems for the WWTP, but were selected to be near, and slightly below, the potential effluent limit for the modeled constituents to provide a conservative assessment of potential consequences related to downstream water quality. PolyMet also recommends making this adjustment in Table 5.2.2-47 on page 5-188.	EDIT01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
3882	The second to last paragraph states: "…the average aluminum concentration in the WWTP influent and effluent would be about 10 mg/L…" This should be 10 µg/L.	EDIT01
3883	The first paragraph following the bulleted list states: "This dilution effect is demonstrated by the increase in measured aluminum concentrations from upstream tributary locations (UC-1, TC-1, and MLC-3) to downstream locations (PM-11, PM-19, and MLC-2), where upstream locations would average less than 100 µg/L compared to downstream locations averaging about 142 µg/L." It is unclear whether this refers to observed or modeled conditions. The use of the term "measured" implies reference to actual, observed data, but stating that upstream locations "would average less than…" implies model results. It also is unclear whether the 100 µg/L and 142 µg/L figures are modeled or observed.	EDIT01
3884	There appears to be inconsistency in the chromium standard that is used in this chapter. The referenced pages state: "Among the six constituents with hardness-based evaluation criteria (cadmium, chromium (III), copper, lead, nickel, and zinc),…" and Table 5.2.2-4 lists chromium (III), as the evaluation criteria with a hardness based standard. However, later in the document, the standard for chromium (VI) is used in Tables 5.2.2-30 and 5.2.2-42 for example. Please clarify which standard was used for chromium, and why.	EDIT01
3885	The number of pit lakes should be 16, not 21 as reported in this table [(5.2.2-49)].	EDIT01
3887	The third paragraph states "…precipitation, which averages about 9.8 ng/L based on average volume-weighted mercury in precipitation as measured at the Marcell Experimental Forest deposition site in Itasca County (NADP 2013)." Barr's analysis, consistent with the table on the next page, is based on 13 ng/L deposition based on the Fernberg Road site. PolyMet recommends citing the Fernberg Road concentration of 13.2 ng/L instead of the Marcell concentration of 9.8 ng/L. This comment also applies to the SDEIS's cumulative impact discussion in the first paragraph of p. 6-31 and second paragraph of p. 6-33 (Section 6.2.3.3.4).	EDIT01
3888	The second full paragraph on page 5-204 states: "The NorthMet Project Proposed Action is predicted to result in a net decrease in mercury-loading to the Partridge River from 24.2 to 23.0 grams per year." The basis for these numbers is not indicated and not consistent with data provided by Barr 2012b. The loading memo indicated a net decrease from 12.1 to 10.8 grams per year.Similarly, the first paragraph on page 5-207 states: "The NorthMet Project Proposed Action is predicted to result in a net increase in mercury loading to the Embarrass River of up to 0.6 grams per year (from 22.3 to 22.9 grams per year), about a 3 percent increase." The loading memo indicated a net increase from 18.5 to 19.1 grams per year. These same comments also apply to pages 6-31 and 6-34 discussing cumulative impacts (Section 6.2.3.3.4).	MERC04
3889	The second bullet, when explaining the predicted increase in mercury loading to the Embarrass River, states: "Tailings Basin containment system, which would collect seepage from the Tailings Basin, with an estimated mercury concentration of 1.1 ng/L, and route it to the WWTP, which would discharge with an assumed mercury concentration of 1.3 ng/L, for a net increase of 0.2 ng/L of mercury as a result of wastewater treatment, which is a conservative assumption." PolyMet suggests explaining that the reason this is conservative is because the WWTP would reduce mercury concentrations, and any additional mercury removal from installing a greensand filter, are not accounted for.	EDIT01
3890	The SDEIS states: "Overall, mercury loadings are predicted to increase slightly in the Embarrass River (3 percent) as a result of the NorthMet Project Proposed Action, but would be offset by a larger decrease (5 percent) in the Partridge River, resulting in a net decrease in overall mercury loadings (0.6 grams per year) to the St. Louis River as a result of the NorthMet Project Proposed Action." The basis for these percentages is not indicated and not consistent with data provided (Barr, 2012b). According to the loading memo analysis, the increase at the Embarrass River would be 0.2% and the decreaseat the Partridge would be 0.9%. This comment also applies to page 6-18 in Section 6.2.3.3.4.	MERC18

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Comment ID	Comment Text	Theme Codes
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3891	The second bullet under NorthMet Project Proposed Action Design Changes states: "The location of the Category 4 Stockpile was shifted such that seepage would be captured in the Central Pit and East Pit and would minimize effects on surficial groundwater." The terminology and locations used here are confusing. PolyMet suggests the following instead: "The location of the Category 4 Stockpile was shifted such that water contacting the stockpile would be captured in the East Pit and would minimize effects on surficial groundwater."	EDIT01
3892	The sixth bullet states: "Refined Hydrometallurgical Flowsheet – A single (rather two) autoclave would be fed with nickel concentrate and produce copper concentrate produced with beneficiation refinements. The production of hydrometallurgical residue would be cut approximately in half with this design change. Residual copper would be recovered by cementation (contacting the leach solution with copper concentrate) to further upgrade the copper concentrate and to further reduce the production of hydrometallurgical residue." To be more precise, the last phrase should be changed to: "…, and to potentially further reduce the production of hydrometallurgical residue."	EDIT01
3893	The first bullet discusses subaqueous disposal of reactive waste rock, but it does not mention subaqueous disposal of some of the Category 1 waste rock. Although Category 1 waste rock is considered the least reactive waste rock, it should still be mentioned here.	EDIT01
3894	The fourth bullet discusses the use of side dump cars to haul ore and states: "Ore Transport – PolyMet proposes to use side-dump rail ore cars that would minimize ore spillage (PolyMet 2013c)." Side dump rail cars were proposed as part of the DEIS, as documented in DEIS Section 3.1.3; therefore, this is not a design change and should not be included in this section.	EDIT01
3906	The last bullet discusses the WWTP and states: "A WWTP would be added at the Plant Site to treat Tailing Basin seepage through operations." Treatment at the WWTP will not end at the end of operations. The WWTP will actually treat this water through operations and closure.	WR035
3907	The seventh bullet discusses the tailings basin containment system and refers to it as being "on the western, northern, and northeastern sides of the existing LTVSMC Tailings Basin." The containment system is not located along the northeastern side of the tailings basin; it is located on the western and northern sides of the tailings basin, as described appropriately on SDEIS Page 3-116 (under Engineering Water Controls).	EDIT01
3908	The first bullet, as part of a tabulation of fixed engineering controls, states: "Process water management, including pipes, pumps, and process water ponds that would be used to separate and control stormwater and process waters." This statement does not account for the fact that the process water ponds are lined. Accordingly, PolyMet recommends inserting "lined" before "process water ponds."	EDIT01
3909	The flow monitoring for stormwater has footnotes stating that flows would be monitored continuously. There are no pumps associated with this infrastructure, so continuous flow monitoring is not proposed for stormwater flows. Flows are proposed to be monitored on a monthly basis as specified in the Water Management Plan – Mine (v2) Section 5.2.	EDIT01
3910	table [5.2.2-53] includes water level monitoring for Whitewater Reservoir. This was not included in the Water Management Plan – Mine and has never been discussed with the agencies.	EDIT01
3911	The fourth bulleted item is misleading and should be clarified by changing the text in parentheses to say "within Area 1."	EDIT01
3912	The first paragraph states "The analog approach was based on similar mine settings (e.g., within the glacial till region)." PolyMet proposes the following revision: "The analog approach used observations of groundwater response adjacent to iron range mines characterized by moderate to high hydraulic conductivity glacial and fluvial deposits overlying lower hydraulic conductivity bedrock."	EDIT01
3913	The third sentence of the first full paragraph should be clarified by identifying the source and rationale behind using 675 square meters of watershed area per meter of track in the contributing watershed as the method for identifying potentially impacted wetlands.	EDIT01

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3914	In the second sentence of the third paragraph, it is an overstatement to suggest that wetlands represent pre-European settlement conditions, as the area was likely logged several times since settlement.	EDIT01
3915	The second bullet should read: "In-kind mitigation means the replacement of the impacted aquatic site with the same wetland plant community type." See USACE, 2009, II.D.3.	EDIT01
3916	The third bullet should read: "Out-of-kind mitigation means the replacement of an impacted aquatic site with a different wetland plant community type." See USACE, 2009, II.D.3.	EDIT01
3917	In the second paragraph, the rule citation is incorrect as is the interpretation of the rule. The second paragraph should read: "The Federal Mitigation Rule also states that "difficult-to-replace" aquatic resources include bogs (33 CFR 332.3(e)(3) and Preamble, page 19633). The majority of the wetlands that would be affected by the NorthMet Project Proposed Action would be "difficult-to-replace" (coniferous bog and open bog) (USACE 2013). The Federal Mitigation Rule includes a provision for a case-by-case determination of mitigation ratios higher than the minimum 1:1 where necessary to account for the difficulty of restoring or establishing the desired aquatic resource type and functions."	EDIT01
3918	The third sentence of the third paragraph is not supported by the data collected for the project. None of the wetlands proposed to be affected by the project were rated as having exceptional vegetative diversity/integrity ratings.	EDIT01
3919	The second to last sentence in the fourth paragraph should read: "For effects on wetlands with rare or exceptional functions or difficult-to-replace bogs, the USACE may require additional compensation in accordance with District Policy and the Federal Mitigation Rule."	EDIT01
3920	The first sentence of the second to last paragraph should read: "If none of these incentives are met, the minimum mitigation ratio required is 1.5:1."	EDIT01
3921	The third paragraph states that base compensation ratios could be increased to 2:1. There is not rationale or reference provided for this statement, which is not specifically stated in the District Policy or Federal Mitigation Rule.The same comment applies to page 5-316 and page 5-321.	EDIT01
3922	In the fourth paragraph, it is stated that Minnesota Rules 8420.0552 requires financial assurances to ensure successful wetland replacement. This provision only applies to wetland replacement that is not in advance. In addition, the local government unit may waive this requirement if it determines the financial assurance is not necessary to ensure wetland replacement.	FIN11
3923	The first paragraph states that because the compensatory wetland mitigation is planned in advance, that financial assurance would not be required under Section 404. This may not be true because the purpose is to ensure successful completion of the mitigation, and it may not be possible to determine success within one year of wetland mitigation construction.	FIN11
3924	The 6 rows [in Table 5.2.3-17] beginning with "<50%..." and "<80%..." are not relevant to the PolyMet project and could be removed in order to maintain clarity.	EDIT01
3925	The first paragraph after the list should read: "The financial assurance requirements would be part of the WCA permitting process for the NorthMet Project Proposed Action. Wetland replacement for the NorthMet Project Proposed Action is expected to be approved and constructed in advance of any authorized wetland effects (under the WCA approval) and, therefore, would not require financial assurance."	EDIT01

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Sender Name (Submission ID)	PolyMet (47832)	
3926	No reference is provided for the statements made in the fourth paragraph. Justification for why the wetland mitigation opportunities discussed in this paragraph were determined to not be practicable was provided in "Wetlands Mitigation Plan Supplement – Wetland Mitigation Planning and Siting Documentation," RS20T Draft-04, PolyMet, June 1, 2008. One additional difficulty with such wetland mitigation opportunities that was not discussed in the reference provided is the presence of severed mineral rights on many of those lands. In order to place restrictions on the land, as required for wetland mitigation, those mineral rights would need to be controlled.	EDIT01
3927	In the last paragraph, the third sentence should read: "The mitigation would be considered in advance if the initial phases of restoration on all of the proposed off-site wetland mitigation sites would be completed at least one full growing season in advance of the authorized wetland effects provided initial performance standards are met for which the mitigation would compensate." Also, in the last paragraph, 939.4 acres is stated with no reference. That number should be referenced to Tables 5.2.3-19 and 5.2.3-20 of the 404 permit application.	EDIT01
3928	In the fifth paragraph, the first sentence should read: "The minimum replacement ratio that would be allowed by the USACE is 1:1 (USACE, 2009) for those wetlands that would be replaced with the same wetland type, and at least one full growing season in advance of the authorized wetland effects provided initial performance standards are met; however, base compensation ratios could be increased to 2:1 (add reference) for effects on wetlands with rare or exceptional functions or difficult-to-replace bog wetlands."	EDIT01
3929	The first sentence in the last paragraph (before the bullet), should read: "Under the Minnesota WCA, the replacement ratio that would likely be allowed is 1.5:1, because the Aitkin Site wetlands are out of the NorthMet Project area watershed (see Tables 5.2.3-18 and 5.2.3-20)."	EDIT01
3930	The first sentence in the second paragraph should read: "The minimum replacement ratio that would be allowed by the USACE is 1:1 (USACE, 2009) for those wetlands that would be replaced with the same wetland type, and at least one full growing season in advance of the authorized wetland effects provided initial performance standards are met; however, base compensation ratios could be increased to 2:1 (add reference) for effects on wetlands with rare or exceptional functions or difficult-to-replace bog wetlands."	EDIT01
3931	The first sentence in the third paragraph should read: "Under the Minnesota WCA, the replacement ratio that would likely be allowed is 1.5:1, because the Hinckley Site wetlands are out of the NorthMet Project area watershed (see Tables 5.2.3-18 and 5.2.3-20)."	EDIT01
3933	The first sentence in the last paragraph should read: "The minimum replacement ratio that would be allowed by the USACE is 1:1 for those wetlands that are replaced with either the same wetland type, or at least one full growing season in advance of the authorized wetland effects provided initial performance standards are met; however base compensation ratios could be increased to 2:1 for effects on wetlands with rare or exceptional functions or difficult-to-replace bog wetlands."	EDIT01
3934	The first sentence on the page (continuing from the previous page) should read: "For low- to moderate-quality wetlands, the recommended base ratio of 1.5:1 would be reduced to 1.25:1 for in place and could be reduced to 1:1 if also either in-advance or in-kind."	EDIT01
3935	The section on the Zim Site does not include any description of restoration methods and sequencing, which is included in the descriptions for the Aitkin and Hinckley sites. See "Zim Sod Wetland Mitigation Site Wetland Mitigation Plan" (PolyMet, November 2011) for an appropriate description.	EDIT01
3936	A footnote should be added to the table [5.2.3-18] describing why there is 101.8 acres of on-site wetland mitigation shown in the second to last column but no associated wetland credits in the last column. Similarly, the same acreage is shown in the "On-Site (acres)" column, but no associated credits are shown in the "Total Credits" column.	EDIT01

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Sender Name (Submission ID)	PolyMet (47832)	
3937	The last paragraph states, "Approximately 72 percent of credits proposed would be located outside of the watershed." This statement is misleading because all of the proposed credits are above the minimum 1:1 replacement ratio. In fact, 48 percent of the proposed impacts are proposed to be replaced in-kind, in-place, and ahead of time. If the on-site wetland mitigation were factored in, approximately 56 percent of the wetland impacts would be replaced within the watershed.	EDIT01
3938	The last paragraph states that the Federal Mitigation Rule places additional emphasis on replacing coastal wetland losses within a coastal watershed. However, the Rule simply states that unavoidable wetland impacts within a coastal watershed should be replaced within a coastal watershed, where practicable. The Federal Mitigation Rule states that when sufficient bank credits are not available, permittee-responsible mitigation is the only option. It further states that, where practicable and likely to be successful and sustainable, permittee-responsible mitigation should be determined using the principles of a watershed approach (33 CFR 332.3 (b)(4)), which should be used to the extent appropriate and practicable. Therefore, the approach for compensatory mitigation for unavoidable wetland impacts within coastal watersheds appears to match the approach for wetland impacts in other watersheds.	COE01
3939	The numbers in the second sentence of the second paragraph are inaccurate. In this sentence, 7,350.7 acres should be 1,771.5 acres (based on Table 5.2.3-3; excluding the "no effect" acres) and 6,498.1 acres should be 587.1 acres (based on Table 5.2.3-4; excluding the "no effect" acres).	EDIT01
3940	In the third paragraph, the third sentence should read: "At The Mine Site, an additional 16 monitoring locations are proposed and are planned within all wetlands that have received effect factor ratings of 3, 4, or 5 near the North Met Project area features and in several wetland with effect factor ratings of 1 or 2 located throughout the areas of potential indirect wetland impacts." This is consistent with the information provided on page 5-336, second paragraph of the SDEIS.	EDIT01
3941	The last sentence of the first full paragraph states: "Indirect effects were estimated by comparing the proximity of the NorthMet Project area infrastructure footprints to existing natural features." Polymet suggests revising the text to read:"Vegetation communities can be affected by more than one of these types of indirect effects. For this reason, indirect effects on vegetation cannot be precisely quantified, as this would result in double-counting of vegetation community acreage where multiple indirect effects are manifested. The relative magnitude of indirect effects on vegetation communities can, however, be estimated. Typically, indirect effects are more likely to occur and/or are more likely to be evident in vegetation communities that are closer to Project components and other infrastructure (e.g., roads). Indirect effects tend to diminish with increasing distance from Project components and other infrastructure."	EDIT01
3942	In the discussion of the NorthMet Project's effects on culturally important plants, the SDEIS discusses wild rice but notes that that "a distinct list of plant species important to the Bands is not available." The Bands were cooperating agencies in preparation of the SDEIS, and accordingly had every opportunity to provide a distinct plant species list. If such a list is not available, PolyMet recommends stating that the Bands have not identified culturally important plants not already identified and discussed in the SDEIS.	EDIT01
3943	The text describes indirect effects as a certainty, when there is no basis for determining the likelihood and/or magnitude of indirect effects. Where the text makes statements such as "[Species name] may be indirectly affected by changes in hydrology", the word "potentially" should be inserted ("may potentially be indirectly affected ") to more accurately reflect the uncertainty over the likelihood and/or magnitude of indirect effects.	EDIT01
3944	The eighth sentence of the second paragraph states: "Disturbance-tolerant species may, in some cases, actually be disturbance-dependent." PolyMet recommends providing a citation for this claim or removing the sentence.	EDIT01
3945	The last sentence makes an assumption about how impacts to a state-listed species could be mitigated through the purchase of an unprotected site. PolyMet recommends noting in this section that appropriate, acceptable mitigation will be determined by the MDNR.	VEG01

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Comment ID	Comment Text	Theme Codes
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3946	The last sentence of the second paragraph assumes that the non-federal lands rank lower for biodiversity because no studies have been conducted to designate Sites of Biodiversity Significance and native vegetation communities. This is speculative and inconsistent with the data that demonstrate similarities in the cover types between the federal and non-federal lands. On that basis, it is reasonable to assume that, once the non-federal lands are surveyed, Sites of Biodiversity Significance will be designated, and native plant communities will be mapped.	VEG09
3947	In the second sentence of the eighth paragraph, it is misleading to state that "an average of 2,066 miles per day of vehicular traffic" would contribute to potential lynx impacts. The majority of those miles would be traveled within the pit/mine site and not along outside roads where lynx encounters would be far more likely.	EDIT01
3952	Second paragraph: The Transportation and Utility Corridor runs both parallel and perpendicular to the identified wildlife travel corridors.	EDIT01
3954	The last paragraph states: "Effects on aquatic biota from the lead exceedance due to changes in hardness are not well understood, but would likely increase the potential to adversely affect aquatic life." This statement does not acknowledge that the modeling results predict increased potential for a lead exceedance (due to the use of a probabilistic model); rather, the statement incorrectly implies that there will inevitably be a lead exceedance.	EDIT01
3956	In the second paragraph, it should be noted that most of the floodplain on the federal land is outside of the Project Area.	EDIT01
3957	The right-most table column heading should be renamed "Non-FEMA regulated floodplains." A column should be added for "FEMA-regulated floodplains." This comment also pertains to Table 5.3.3-7.	EDIT01
3960	Table 5.3.3-5[:] The subtotal for open bog on non-federal lands is not accurate. The number should be 7.1 acres.	EDIT01
3961	The second sentence of the third paragraph lists "lean ore" as a handled material. However, lean ore has been eliminated from the Mine Plan.	AIR13
3962	The last sentence of the third paragraph refers to the proposed monitors at the Mine Site as "ambient air quality monitors." This may be confusing because they are not intended to assess compliance with NAAQS/MAAQS, but to provide information for fugitive dust control. PolyMet suggests using "PM10 monitors" instead.	AIR12
3965	[In] Table 5.2.7-4… The Plant site emission totals include some double counting for natural gas and propane combustion emissions and do not reflect potential to emit or estimated actual emissions. The column heading (and text) using "Projected Controlled Emissions" may be confusing. PolyMet recommends using standard air permitting nomenclature: potential, actual, allowable, etc.	AIR12
3966	Table 5.2.7-6[:]… Plant site emissions are estimated actuals. The controlled potential would be more appropriate to compare to major source level. The Mine Site max single HAP emissions in table are for Mn. Max Plant +max Mine Site single HAP emissions are for Ni at 5 tpy. PolyMet suggests removing "…Prevention of Significant Deterioration-regulated…" from table title. Major source determination under NEAHAPS includes fugitive sources; PSD for non-listed source category does not.	AIR12
3967	The first two sentences of the first paragraph indicate that emissions in Table 5.2.7-7 are potential emissions. However, they are not for the Plant Site as these totals reflect some double counting for natural gas and propane combustion emissions (see Comment 204 above). Although the SDEIS distinguishes between potential and maximum potential emissions, it is not clear what the difference is. PolyMet suggests providing an explanation of the use of short tons in Table 5.2.7-7 and metric tons in Table 5.2.7-8.	AIR12
3968	[Regarding] Table 5.2.7-7[:]… Plant site emissions are not PTE or estimated actual emissions or proposed limited emissions.	AIR12

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3970	The bulleted items require revision. The Northshore Mine does not consume increment. It was included in the increment analysis in that it was considered and eliminated as an increment consuming source (constructed before applicable baseline dates). The same comment applies to the text on page 5-410.	AIR12
3976	In the second to last sentence, Polymet suggest clarifying that the other sources were also modeled at maximum emission rates to show the modeling essentially constituted worst case scenario.	AIR12
3977	The text implies that mobiles sources were modeled for Class II criteria pollutant modeling. However, they were not (per EPA guidance and the approved modeling protocol). They were included in AERA and Class I modeling.	AIR12
3979	In the third sentence of the first paragraph, the increment result of 18 µg/m^3 is for the cumulative analysis. The accurate result is 27 µg/m^3, as shown in table 5.2.7-11.	AIR09
3980	The first sentence of the second paragraph is incorrect. All sources were modeled together.	AIR09
3981	The second sentence in the first paragraph states that "…modeling analysis included the entire NorthMet Project area and nearby sources." The Plant Site results with nearby sources are in Chapter 6.	AIR09
3982	[In] Table 5.2.7-13… The figures for 2002 should be 0.001 and max 0.001.	AIR09
3983	[In] Table 5.2.7-22… "Inhalation only acute" and "chronic non-cancer HI" should be displayed with 1 significant figure – i.e. 1 not 1.0.	EDIT01
3984	In the second paragraph, PolyMet suggests noting that if metals are obtained from projects elsewhere, the projects are likely to be subject to much less overall environmental regulation.	AIR14
3988	In the last paragraph, the incremental risk at Wynne Lake for a recreational fisher should be as 0.07 in Plant Site AERA report, not 0.08.	EDIT01
3989	The third sentence of the first paragraph inaccurately states that H2SO4 was "screened out." The estimated risk was added to the other chemicals evaluated to obtain the total.	EDIT01
3991	The third sentence of the last paragraph lists "NO2 from natural gas combustion" as an acute risk driver. However, natural gas is not available at the Mine Site. Rather, NO2 is from diesel fuel combustion.	AIR12
3992	The sixth sentence of the first paragraph inaccurately states that H2SO4 was "screened out." The estimated risk was added to the other chemicals evaluated to obtain the total.	EDIT01
3993	The second sentence of the third paragraph inaccurately states that the risk assessment was refined by considering where maximum concentrations occur in space. The results were acceptable without this refinement.This comment also applies to text on page 5-426.	AIR09

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Comment ID	Comment Text	Theme Codes
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3994	The first paragraph in this section states: "The science, policy, and regulatory frameworks regarding GHGs are continually evolving and are often subject to differing interpretation. For the purposes of the SDEIS, the information presented below is intended to provide the current understanding through June 15, 2012 with subsequent information regarding climate change updated in the FEIS."PolyMet supports the SDEIS's stated intent to supplement the GHG analysis with recent analysis and developments on the topic of climate change and greenhouse gases. PolyMet believes two recent developments in particular warrant acknowledgement in the FEIS. The first is President Obama's directive to the EPA last summer to promulgate carbon pollution New Source Performance Standards (NSPS) for existing electric utility generating units by June of this year, adopt a final standard by June 2015 and require state implementation plans be submitted by June 2016. The second is the 2013 Minnesota law that will require Minnesota Power to generate at least 1.5% of its electricity through solar by 2020. These initiatives are expected to decreasethe amount of indirect, power-production-related greenhouse gas emissions by the utilities that are expected to supply electricity to the NorthMet Project.	AIR01
3995	The first sentence of the first paragraph says: "If, during permitting, it is determined that mitigation measures are necessary, the measures described in this section could be considered." However, most of the measures described are already an integral part of the proposed Project. PolyMet suggests deleting first sentence.	AIR13
3997	PolyMet recommends deleting the second to last sentence in the second to last paragraph on the page, which reads: "At the time this review was conducted, PM2.5 was not regulated under PSD and" at the beginning of the sentence and starting with "[T]he NorthMet Project Proposed Action is not subject to PSD…	AIR13
3998	In the second paragraph, PolyMet recommends adding a statement that PolyMet agreed to apply more rigorous dust control procedures for unpaved roads at the Mine Site to also reduce fugitive emissions.	AIR07
4006	The text in the above two sections [(i.e., Section 5.2.10.2.6, p. 5-509; Section 6.2.3.11, p. 6-101)] makes reference to a potential Environmental Justice (EJ) impact for Band members and other subsistence consumers of fish due to increased mercury concentrations and associated increases in mercury bioaccumulation in fish tissue. This conclusion is reportedly based on the analysis presented in Section 5.2.2.3.4 and relates specifically to the Embarrass River and downstream chain of lakes. Page 5-509 states:"Operations could affect individuals who consume fish harvested from nearby water bodies... (see Section 5.2.2.3.4)." The discussion in Section 5.2.2.3.4 states that there would be a slight increase of "up to 0.6 grams per year (from 22.3 to 22.9 grams per year), about a 3% increase." Although not directly referenced in Sections 5.2.10.2.6 or 6.2.3.11, text in the first paragraph on Page 5-21 is the only attempt in the document to correlate mercury concentrations in a water column to mercury content in fish. This is a critical connection if one attempts to suggest there is a potential EJ issue… PolyMet does not believe this relationship is substantiated by either site specific data or more general research presented in the literature. The statement that there is a potential EJ impact due to increased mercury concentrations and associated increases in mercury bioaccumulation in fish tissue is unsubstantiated by fact.	SO04
4007	The third full paragraph inaccurately states that PolyMet will be required to develop a risk management plan for HCl. Only HCl at a concentration of 37% or greater is subject per 40 CFR 68.130. PolyMet will be required to develop a risk management plan for liquid SO2.	HAZ01
4008	The third paragraph states: "Conceptual designs of the waste rock stockpiles, Tailings Basin, and Hydrometallurgical Residue Facility have been developed and shown by PolyMet, through an iterative design and model process, to meet the minimum safety factors and water quality criteria (see Section 5.2.2) acceptable to the Co-lead Agencies. PolyMet suggests changing the word 'conceptual' to 'preliminary'.	EDIT01
4012	The required and computed Slope Stability Factors of Safety for the stockpiles are not presented. Stockpile Slope Stability Safety Factors are reported in Tables 2, 3 and 4 of Attachment G of the May 29, 2012 Geotechnical Data Package, Vol. 3, Version 2.	GT04

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Sender Name (Submission ID)	PolyMet (47832)	
4015	The second bullet under Design Criteria states: "Factor of safety greater than or equal to 1.3 for short-term, undrained strength conditions for soils that are not prone to static liquefaction using undrained strength conditions." This sentence should be revised to indicate that this analysis does not include static liquefaction. Liquefaction is addressed subsequently.	EDIT01
4017	The second paragraph uses the phrase "bulk tailings." PolyMet recommends defining "bulk tailings" to limit potential confusion. LTVSMC Coarse Tailings are proposed for use in dam construction but since the Coarse Tailings may have occasional inclusions of fine tailings and slimes, the term "Bulk Tailings" has been used by PolyMet to describe the planned tailings borrow.The same comment applies to page 5-562, which states: "The proposed dams would be constructed from mechanically placed and compacted bulk tailings taken from the existing LTVSMC Tailings Basin as needed to produce the desired dam lift height and geometry. LTVSMC bulk tailings are currently defined as a mixture of tailings from the existing LTVSMC Tailings Basin."	EDIT01
4021	The eighth paragraph states: "As dams are constructed, exterior slopes would be covered with bentonite and vegetated. Upon reaching….." This statement is not completely accurate. On the exterior face of new dams, bentonite will be integrated into the near-surface layer of tailings. The dams will not be "covered with bentonite."	EDIT01
4022	The second sentence states: "The predicted Factor of Safety values for Cross Section F at various stages of development of the Tailings Basin are summarized in Table 5.2.14-1. All slope stability factors are designed to meet the factors of safety required by the NorthMet Geotechnical Modeling Work Plan (PolyMet 2013n, Attachment A)." It is more appropriate to say that the slope stability factors are designed to meet the "applicable requirements of Minnesota Rules 6115.0300 through 6115.0520 and the factors of safety required by the Co-Lead agencies in the NorthMet Geotechnical Modeling Work Plan (PolyMet 2013n, Attachment A)." The first paragraph under Design Criteria on p. 5-556 contains similar language.	EDIT01
4023	The third paragraph states: "Modeling was undertaken to predict the long-term stability of the Tailings Basin. As shown in Table 5.2.14-1 and Table 5.2.14-4, the long-term closure slope stability Factors of Safety are above the minimum value required under the Work Plan." It is more appropriate to say that the slope stability Factors of Safety "are above the minimum value deemed acceptable to the Co-lead Agencies and required under theWork Plan." There is similar language in the last paragraph on p. 5-566.	EDIT01
4024	The second paragraph states: "Where monitoring or model updates indicate that the Factor of Safety for the Tailings Basin no longer meets design criteria, appropriate modifications to the Tailings Basin would be considered, modeled, and, if necessary, undertaken." This sentence leaves doubt that prompt action will be taken if Factor of Safety values fall below design requirements. PolyMet recommends clarifying that mitigating measures will be explored and implemented as needed if at any time it is determined that Factor of Safety values have fallen below design requirements.	EDIT01
4025	The first paragraph states: "PolyMet took the steps listed below in order to demonstrate that the design of the Hydrometallurgical Residue Facility would meet the respective geotechnical requirements and would be in accordance with the NorthMet Geotechnical Modeling Work Plan (PolyMet 2013n, Attachment A):" PolyMet recommends revising the sentence to read: "PolyMet took the steps listed below in order to demonstrate that the design of the Hydrometallurgical Residue Facility would meet the Co-Lead Agencies respective geotechnical requirements and would be in accordance with the NorthMet Geotechnical Modeling Work Plan (PolyMet 2013n, Attachment A) which was reviewed by the Co-Lead Agencies."	EDIT01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
4026	The third item under the first paragraph states: "Developed seepage and stability models using Geo-Slope International, Inc. modeling software (i.e., SLOPE/W, SEEP/W and SIGMA/W as necessary) for maximum facility dam height with minimum and maximum pond elevation, and post-closure – cover effective with minimum pond elevation the maximum." The last phrase is poorly written and confusing. PolyMet suggests using the following revised text: "Developed seepage and global stability models using Geo-Slope International, Inc. modeling software (i.e., SLOPE/W, SEEP/W and SIGMA/W as necessary) for hydrometallurgical residue facility dam lifts 1, 2 and 3; each with maximum pond elevation, and an infinite stability model to analyze facility liner stability."	EDIT01
4028	The text describing the figure [5.2.14-6] (see paragraph under "Identification of Design Cross Section" on p. 5-571) makes reference to Node A. Yet, Node A is not shown in the figure. There also is a blue dashed line (presumably denoting the phreatic surface in surrounding materials) that is not defined in the figure legend nor is the dashed line labeled in the figure.	EDIT01
4029	This Section [(5.2.14.2.3)] does not clearly distinguish between (1) the settlement of the Hydrometallurgical Residue Facility (HRF) foundation materials and resulting movement of the HRF liner system and (2) future consolidation of the residue deposited within the HRF and resulting movement of the residue surface. PolyMet recommends more detail to provide clarification.	EDIT01
4030	The first paragraph states: "The results reported in Geotechnical Data Package Volume 2 Version 3 indicate that the proposed design of the Hydrometallurgical Residue Facility would meet all respective factors of safety as required (PolyMet 2012a). The modeling undertaken and results are summarized below." PolyMet suggests revising the statement to say that the design "would meet all of the Co-Lead agencies' respective factors of safety as required (PolyMet 2012a)."	EDIT01
4031	The first paragraph states: "Analysis of the new dams (i.e., those not supported by the existing LTVSMC Tailings Basin or natural topography) at their greatest height (at year 20) resulted in a computed Factor of Safety for the ESSA of 2.32, which is greater than the required minimum of 1.5." The sentence should be revised to state that the resulting Factor of Safety is "greater than the Co-Lead Agencies' required minimum of 1.5."	EDIT01
4032	The fourth sentence of the first paragraph states: "The minimum infinite slope stability safety factor for all Hydrometallurgical Residue Facility liner system components is 1.5." It would be more appropriate if the sentence was revised to read: "The Co-Lead Agencies' required minimum infinite slope stability safety factor for all…."	EDIT01
4033	The third sentence of the third paragraph incorrectly states that the "Land Exchange alternatives were not analyzed in the Biological Assessment." These alternatives were analyzed in the Biological Assessment (BA). This sentence should be revised to state "Land Exchange alternatives were analyzed in the Biological Assessment for the Proposed NorthMet Mining Project and Land Exchange (USACE and USFS November 2013)".	WI11
4034	The last sentence in this paragraph is inaccurate because Coyote Creek and Stony River on Tract 3-Wolf Lands are not comparable systems. The Stony River is a higher order, more diverse aquatic system than the first order, headwaters Coyote Creek. It cannot be assumed that the conclusions drawn from the studies for Stony River are applicable to Coyote Creek.	EDIT01
4036	The fifth paragraph states: "The only two reasonably foreseeable actions with the potential to significantly affect flow within the Partridge River and Embarrass River are the Mesaba Energy Project East Range Alternative Site and the Mesabi Mining Project, which would result in a net increase in Lower Partridge River flow as a result of pit dewatering for the foreseeable future." This statement seems to ignore the eventual closure of the Northshore Peter Mitchell Pit (which is recognized elsewhere in the SDEIS). When that pit begins filling, Northshore will stop dewatering discharge to the Upper Partridge River. This would be a net decrease in flow relative to existing and modeled conditions. This action is anticipated within the modeling period but is not incorporated into the GoldSim model because the actual date of when this change would be made is not known. However, the potential for no discharge from Northshore to the Partridge River was considered in the sensitivity analysis conducted for the Project.	EDIT01, WR024

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Comment ID	Comment Text	Theme Codes
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4042	Table 6.2-6 lists cumulative sulfate loadings to the Embarrass River by activity and includes NorthMet uncaptured groundwater seepage and NorthMet WWTF effluent. Table 6.2-6 does not include NorthMet augmentation flow from Colby Lake to Embarrass River tributaries. This source has a higher sulfate concentration than the WWTF effluent, and should be included in the Table.	WR124
4043	The introduction to Section 6.2.3.4, “Wetlands,” on page 6-34 states that the cumulative effects analysis “focuses on direct effects” on wetlands. Page 6-43 indicates that there will not be indirect cumulative effects on wetlands because water flows will not be changed. This discussion is in some tension with the effects analysis in Chapter 5, which anticipates the potential for some indirect effects on wetlands. PolyMet recommends referencing the discussion in Chapter 5 as part of the cumulative effects discussion.	EDIT01
4044	Regarding the third sentence of the third paragraph, no federally-listed plant species would be affected by the project because there are no federally-listed plant species in all of St. Louis or Lake Counties. PolyMet recommends re-phrasing the sentence to read, “No federally-listed plant species are known to occur on the NorthMet Project site.”	EDIT01
4045	The text states that least grapefern (Botrychium simplex) is most likely to occur in lowland deciduous cover types. However, least grapefern has a broader habitat range than the text implies. The MDNR Rare Species Guide provides: “Botrychium simplex var. simplex occurs primarily in open sites, including prairies, wetlands, and abandoned mine sites. Botrychium simplex var. tenebrosum prefers forest interiors, especially low moist spots in mesic hardwood forests” (Source: MDNR Rare Species Guide: Botrychium simplex).2The text also conflicts with Table 6.2-14, which lists both “Disturbed” and “lowland deciduous” as the likely habitat types. Finally, the section underestimates the range of least grapefern. The Preferred Plant Species Habitat column for least grapefern should include habitats other than lowland deciduous types, as discussed in the MDNR guide.2 Available at http://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=PPOPH010E0.	VEG01, VEG09
4046	In the final paragraph below Table 6.2-13, the qualifying statement regarding the lack of precision and the degree of uncertainty inherent in the evaluation methodology should be stated up front in Sections 4.2.4, 5.2.4 and 6.2.4.	EDIT01
4047	In the second sentence, it is unclear what is meant by “MDNR minerals division data” and how this data pertains to ETSC or RFSS plant species. PolyMet recommends clarifying and explaining why this data is used in this section, but not in Sections 4.2.4 or 5.2.4.	VEG09
4048	The last paragraph states that “forestry management offers a greater range of options for ETSC plants to co-exist with the practice, as it can mimic natural disturbances.” This statement seems to be based on the previous statement in Section 5.2.4.2.1, p. 5-348, that “Disturbance-tolerant species may, in some cases, actually be disturbancedependent.” As stated in a prior comment, PolyMet believes this statement is misleading and that it is inaccurate to suggest that ETSC plants favor and/or are increased by disturbance regimes.	EDIT01
4050	In the last sentence of the last paragraph, the increased percentage from the NorthMet Project Proposed Action alone should be 0.2 to 1.6 percent, not 0.2 to 1.8.	EDIT01
4051	PolyMet also recommends adding the following additional sentence at end of the paragraph at the top of the page: “This potential change is not likely statistically measureable and does not have any effect on the background fish Hg concentrations nor the current fish consumption advisories for the respective lakes."	EDIT01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
4052	In the first complete paragraph, the description of how the HQ is calculated does not reflect the calculations in the MMREM spreadsheet. To estimate the potential incremental HQ, the incremental methyl mercury exposure in mg/kg body weight per day and the reference dose are accounted for in the calculation. The derivation of the incremental HQ can be described as noted below:The incremental HQ calculation in the MMREM Spreadsheet uses the following methodology:-Incremental daily mercury consumed (mg) = estimated incremental increase in fish mercury due to the Project (mg/kg) x the amount of fish consumed (e.g. 0.142 kg for a subsistence fisher) -Incremental methylmercury exposure (mg/kg BW – day) = Incremental daily mercury consumed x 1.07945 / adult body weight (70 kg)-Incremental HQ = Incremental methylmercury exposure (mg/kg BW –day) / Reference Dose of 1.00E-04 mg HgCH3/kg bw-day (i.e., the ratio of the incremental methylmercury exposure divided by the reference dose in the same units).	EDIT01
4053	The cumulative emissions modeling includes NorthMet, so adding this result to the Project impacts includes some double counting of impacts. See also second to last sentence in paragraph under Section 6.2.3.8.4 header on p. 6-64. PolyMet suggests the following text changes and note additions to Table 6.2-19: [See PolyMet comment letter, page 66 of 70, Comment 258 for revised table]	AIR09
4054	Regarding the last sentence of the first paragraph, the cumulative analysis included both the Mesabi Nugget Large Scale Demonstration Plant and the Mesabi Mining Project.	AIR09
4055	[In] Table 6.2-22… The incremental result for Mesabi Nugget noncancer acute should be 0.03. The percentages at the bottom should be 9% for Cancer and 7% for Noncancer Chronic.	EDIT01
4057	Regarding the third sentence of the first paragraph, dry deposition, as well as wet deposition, was in the cumulative assessment.	AIR09
4058	PolyMet suggests editing the header of Point 4 to read:"15 percent of 2018 visibility impairment projected to be due to northeast Minnesota emissions and 70 percent of visibility impairment due to out of state emissions"	AIR08
4059	PolyMet suggests the last sentence of Point 4 be revised to read:"Emissions from Minnesota are the single largest contributor to regional haze and its own Class I areas; however, most of the visibility impairment in these areas is due to out of state emissions."	AIR08
4060	PolyMet recommends adding language to Item 5 that indicates national emission reductions are likely to drive further improvement of visibility in MN Class I areas.	AIR08
4061	The third paragraph under the heading “1854 Treaty Resources” states that the NorthMet Project Proposed Action could affect treaty resources through the bioaccumulation of mercury in fish tissue. This statement is inconsistent with the SDEIS’s evaluation of cumulative effects on aquatic resources, which states that there will not be a significant increase of mercury in fish tissue. Because the subjective belief that such an effect may occur does not qualify as an effect under NEPA, the statement on page 6-95 should be removed from the SDEIS.	EDIT01
4062	The statement on hazardous materials in Section 6.2.3.14 indicates that “there could be a small likelihood of cumulative effects associated with increased traffic carrying hazardous materials.” This is a mischaracterization of the potential cumulative effect. The sentence should state that the small increased risk associated with traffic carrying hazardous materials is not a significant cumulative effect.	HAZ06
4063	PolyMet recommends clarifying whether acres are reported in GLO or GIS throughout the entire [Land Exchange Proposed Action] section.	LAN06
4064	The text in the last paragraph is somewhat misleading by stating that there would be a decrease to MBS Sites of High and Moderate Biodiversity Significance. The nonfederal lands have not been surveyed for MBS sites yet. Therefore, you cannot accurately say that there would be a decrease; the surveys could potentially indicate that there would be an increase, or an even exchange.	VEG09

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
4066	The final sentence in Section 7.3.1 indicates that the federal lands contain certain natural resources that are "culturally important" to the Bands. While it is accurate that these resources would be lost if the NorthMet Project Proposed Action moves forward, it is also true, and should be noted, that there is no evidence of the Bands accessing any resources at the Mine Site.	EDIT01
4075	The third sentence in the third paragraph of Section 7.3.1, "Irreversible or Irretrievable Commitment of Resources," states that while cultural resources may be adversely affected, those effects would be "minimized through avoidance." Under Section 106 of the National Historic Preservation Act, avoidance is not the only means of addressing adverse effects on historic properties, including the cultural resources identified in the SDEIS. Agencies may also choose to adopt minimization or mitigation measures. Those options should also be recognized in this paragraph.	EDIT01
4076	The final sentence in the first paragraph of Section 7.3.3, "Unavoidable Adverse Effects," states that effects on water quality would remain after the implementation of mitigation measures. The paragraph should note that these effects would be minor, and not qualify as significant environmental effects.	EDIT01
4078	The first paragraph of Section 7.4, "PREFERRED ALTERNATIVE," states that CEQ regulations do not require agencies to select a preferred alternative in a Draft EIS like the SDEIS. The same paragraph states that the USACE's NEPA regulations (Appendix B of 33 C.F.R. Part 325) supersede the CEQ regulations' "requirement to identify an agency-preferred alternative." This description of these requirements is confusing. Neither the CEQ regulations nor the USACE regulations require the selection of a preferred alternative in the SDEIS.	EDIT01
4080	Appendix B, p. 1, 1.2 Assessment of Material[:] In the first sentence, "semi-qualitative" should be changed to "semi-quantitative."	EDIT01
4081	Appendix B, p. 4, 2.2 Availability[:] The last sentence of this section should be changed to: "Notwithstanding economic considerations the underground mining alternative is available at the NorthMet Deposit."	EDIT01
4082	Appendix B, p. 5, 2.4.1 Mineralization at the NorthMet Deposit[:] With respect to the bullet list of metal prices after the first paragraph, the referenced price for cobalt should be $17.69 per pound.	EDIT01
4083	Appendix B, p. 7, 2.4.2 Underground Mining Costs[:] In Table 2, the Pre-production Capital Costs ($ million) of 300 should be changed to 250. The Profit: Metal Value – Costs ($ million) of -$193 should be changed to -$192 and -$364 should be changed to -$314.	EDIT01
5357	in Table 4.2.4-2, it is unclear how two of the three species with the highest percent occurrence are estimated to be "uncommon" on the site, while three of the five species with the lowest percent occurrence are estimated to be "common" on the site. This inconsistency should be corrected or explained. The EIS should also explain how estimated abundance at the Mine Site was determined, since the text says that no inventories of non-native invasives were conducted.	VEG09
5384	PolyMet suggests revising the first sentence in the second full paragraph on page 5-6 to read: "…PolyMet proposes a containment system that would capture about 99 percent of seepage from the Tailings Basin…"	EDIT01
5390	The first sentence on page 5-54 states that for Category 1 rock, "…instead of using lab tests, the rate of oxidation and constituent release was estimated from studies of seepage release measured in Dunka Mine rock…. .". PolyMet suggests revising the first sentence to read "… instead of using lab tests, the rate of oxidation and constituent release in the field was estimated from lab release rates that were scaled using the results of studies of seepage release measured in Dunka Mine rock… ."	EDIT01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
5393	It is important to note that the Central Pit will not exist until after the Category 4 Stockpile has been decommissioned and the Category 4 waste rock has been relocated to the East Pit for subaqueous disposal. The most apparent benefit of relocating the Category 4 Stockpile as part of the Proposed Action Design Changes is that by locating the stockpile over an area that will be subsequently engulfed by the Central Pit, the overall area of surface disturbance (including vegetation, wetlands, etc) of the NorthMet project will be reduced.	EDIT01
5427	The second to last sentence should read: “Compensation proposed at the Aitkin Site would be expected to meet in-kind compensation, resulting in a compensation ratio for effects to wetlands with rare or exceptional functions or difficult-to-replace bogs of 1.75:1, and if in advance, the ratio would be reduced to 1.5:1.”	EDIT01
5432	The second to last sentence in the second paragraph should read: "Compensation proposed at the Hinckley Site would be expected to meet the in-kind incentive, resulting in a compensation ratio for effects to wetlands with rare or exceptional functions or difficult-to-replace bogs of 1.75:1, and if in-advance, the ratio would be reduced to 1.5:1.”	EDIT01
5434	The last full sentence on the page should read: “Compensation proposed for the Zim Site would be expected to meet both in-kind and in-place incentives, thereby reducing the compensation ratio for effects on wetlands with rare or exceptional functions or difficult-to-replace bogs from 2:1 to 1.5:1.”	EDIT01
5442	The relative magnitude of indirect effects on ETSC or RFSS species would vary between ETSC/RFSS species and between locations of individuals or populations of a given ETSC or RFSS species. The potential for indirect effects on ETSC or RFSs species cannot be quantified, but can be estimated. Typically, indirect effects are more likely to occur in ETSC or RFSS populations that are closer to Project components and other infrastructure (e.g., roads). Indirect effects on ETSC or RFSS species tend to diminish with increasing distance from Project components and other infrastructure.	VEG07
5963	Section 3.2.3 of the SDEIS would be improved if it better reflected the thoroughness of the Co-lead agencies’ alternatives review, including review that occurred during scoping and the 2009 DEIS.	ALT22
5967	instead of three action alternatives, the SDEIS contained just one action alternative—the NorthMet Project Proposed Action—which effectively combined the three alternatives studied in the 2009 DEIS, in addition to making other improvements and including a number of new mitigation measures.	ALT22
5968	The SDEIS also reconsidered in more detail certain alternatives that had been eliminated by the analysis in the 2009 DEIS. Those reconsidered alternatives included alternatives for a cover system on the Tailings Basin, one of which PolyMet ultimately adopted (SDEIS p.3-149); an underground mining alternative, which the SDEIS again rejected (id. p.3-150 & App. B); and a West Pit backfill alternative, which was likewise eliminated from further consideration (id. p.3-151).	ALT22
5969	the FSDD, 2009 DEIS and SDEIS contain a careful, thorough review of numerous alternatives to the NorthMet Project Proposed Action that fully satisfies the requirements of both NEPA and MEPA. It is unnecessary to discuss all the details of that review in the SDEIS.	ALT24
5970	PolyMet recommends explicitly referencing and incorporating into the SDEIS those portions of the FSDD and the 2009 DEIS that address alternatives. This should increase understanding of the iterative process of alternatives reviewthat the SDEIS already references in several places… these changes should also be reflected in the Executive Summary, which tends to focus on the SDEIS alternatives review process, without fully acknowledging the role played by alternatives review in the FSDD and the 2009 DEIS.	EDIT01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
5971	PolyMet recommends including an updated version of Table 3.2-4 from the 2009 DEIS somewhere in the Final EIS, either directly in the discussion of alternatives or as an appendix. This would provide context for the discussion of alternatives review and the elimination of alternatives that are not discussed as part of the SDEIS process… [these changes should also be reflected in the Executive Summary, which tends to focus on the SDEIS alternatives review process, without fully acknowledging the role played by alternatives review in the FSDD and the 2009 DEIS.]	EDIT01
5973	The SDEIS properly acknowledges that the U.S. Forest Service (USFS) decision on the Land Exchange Proposed Action must be based on applicable USFS standards. But the SDEIS could more clearly state that the Land Exchange Proposed Action can proceed if those standards are met, regardless of what happens with the NorthMet Project Proposed Action. Accordingly, consistent with the discussion in the 2009 Draft Environmental Impact Statement (DEIS), PolyMet recommends that the Final Environmental Impact Statement (Final EIS) clarify that the Land Exchange Proposed Action may occur independently of the NorthMet Project Proposed Action.	LAN08
5974	The Final EIS accordingly should clearly state that the Land Exchange Proposed Action can proceed entirely apart from the NorthMet Project Proposed Action, so long as the USFS determines that the land exchange is in the public interest and the regulations governing land exchanges are satisfied.	LAN08
5975	The Final EIS accordingly should clarify that the alternative of proceeding with the Land Exchange Proposed Action in the absence of the NorthMet Project Proposed Action was considered but eliminated from detailed analysis in the SDEIS because it is represented by the combination of “no action” on the NorthMet Project Proposed Action and Land Exchange Proposed Action Alternative A. This could be accomplished by adding a brief description of the Land Exchange Proposed Action as a “stand alone” action in Section 3.3.3.3. The alternative would not be eliminated as unreasonable, but rather it would not require further analysis because its impacts were already revealed and evaluated in the SDEIS detailed evaluation of other alternatives.	EDIT01
5976	the USFS “purpose and need” statement in the Final EIS should clearly state that the Land Exchange Proposed Action is intended to consolidate and enhance the functional boundaries of the Superior National Forest, improve public access to National Forest System lands, and implement the overall goals of the Forest Plan for the Superior National Forest. This language will expand on the SDEIS’s accurate statement that the USFS will observe the regulatory requirements for land exchanges.	NEPA04
5977	PolyMet further recommends adding to the front of the Final EIS a discussion of the regulations that require the USFS to ensure there is equalization of exchange values between the federal and non-federal lands, and more clearly linking these regulations with subsequent discussions of this topic in the record. In doing this, the USFS should make clear moving forward that Polymet intends to transfer all of the non-federal lands to the United States, whether they are needed for the Land Exchange Proposed Action exchange or not. At the same time, the USFS can highlight the possibility of a cash equalization if the offered non-Federal lands are deemed insufficient to provide an equal value exchange.	LAN03
5978	PolyMet recommends that the USFS ensure that the Executive Summary is updated to conform to any changes made in the Final EIS. The independent grounds for undertaking the Land Exchange Proposed Action should be particularly clear in the revised Executive Summary, because many readers likely will rely on the Executive Summary to understand the contents of the EIS.	EDIT01

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Comment ID	Comment Text	Theme Codes
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5979	Section 1.1.2, Land Exchange, uses the phrase "depending on the results of the environmental analysis and real estate appraisals" to mean that the USFS will comply with applicable regulations and Executive Order (EO) 11990 and 11988 to require equalization of exchange values for the federal and non-federal lands, both in terms of market value and acreage of wetlands. As the USFS is aware, Section 3.3.1.1 (among others) discusses the applicable regulations in 36 CFR Part 254 and EOs 11990 and 11988. Discussing these applicable orders and regulations in Section 1.1.2—when the Land Exchange Proposed Action is first introduced—and stating expressly that the USFS will require equalization of exchange values, would help to clarify subsequent uses of the phrase. In addition, modifying this phrase (each time it appears) to say something more along the lines of "depending on the results of the environmental analysis and real estate appraisals, and in order to ensure equalization of exchange," would also improve understanding of this issue.	LAN03
5980	Section 1.3, Purpose and Need, would be strengthened by a more robust discussion of the purpose of the Land Exchange Proposed Action, which clearly incorporates the relevant regulatory and public interest factors. While the discussion in Section 1.4.3, Land Exchange Requirements, identifies the regulatory and public interest factors that the ROD will need to address in determining whether the Land Exchange Proposed Action should go forward, it should be made clear that the phrase in Section 1.3.2.2, "meet desired conditions in the Superior National Forest Land and Resource Management Plan (Forest Plan)," includes the regulatory and public interest factors discussed later in Section 1.4.3. Thus, PolyMet would recommend the Final EIS specifically identify these factors in the initial discussion in Section 1.3, and include a cross-reference to the more detailed discussion in Section 1.4.3.	NEPA04
5982	the Final EIS should be clear that the land exchange will be justified under governing regulatory and public interest standards. Fundamentally, the Land Exchange Proposed Action will allow for the consolidation of lands within the Superior National Forest in a manner consistent with governing authorities. Section 1.3.2.1 accordingly should highlight this consolidation of lands as a primary purpose of the Land Exchange Proposed Action, instead of focusing on the elimination of the potential conflict.	LAN11
5984	In various places in Section 3.3, Land Exchange Proposed Action Detailed Description, PolyMet recommends clarifying that the Land Exchange Proposed Action may proceed even if the NorthMet Project Proposed Action does not.	LAN08
5985	The "Background" discussion in SDEIS Section 5.2.7.5.1 rightly recognizes that "[r]egulatory definitions for classifying fibers vary." In fact,Minnesota statutes and regulations do not define the term "amphibole mineral fibers." The description of "[t]he State of Minnesota's definition" of amphibole mineral fibers in the "Background" discussion appears instead to be a reference to the permit-specific definition of "fibers" included in Northshore Mining Company's Title V permit. That definition does not have general applicability. It is also important to note, as background, that neither the U.S. Environmental Protection Agency (EPA) nor the Minnesota Pollution Control Agency (MPCA) has ever promulgated an ambient air "fiber" standard, level or limit.	AIR12
5986	Although the SDEIS indicates that ERM conducted a literature review in 2009, it does not appear that review included the studies resulting from the 2003 International Symposium on the Health Hazard Evaluation of Fibrous Particulates Associated with Taconite and the Adjacent Duluth Complex (International Symposium). … The purpose of the International Symposium is highly relevant to much of the discussion in Section 5.2.7.5 of the SDEIS … The conclusion of these risk assessment scenarios was that "calculated risks were found to be trivial even after it was assumed that all mineral fibers were as carcinogenic as amphibole asbestos." Id…. Those studies, and that conclusion, are not adequately reflected in the SDEIS [see full comment letter for articles].	HU01
5987	[The International Symposium's] peer-reviewed analysis of the risks associated with ambient "fiber" emissions associated with the nearby Peter Mitchell Mine should be incorporated into the Final EIS's discussion of amphibole mineral fibers. For example, where the SDEIS mentions that the Peter Mitchell Mine and the Silver Bay processing plant have been "associated" with releases of amphibole mineral fibers (5-438), it should be noted that peer-reviewed risk assessments of those releases indicate that they present a trivial risk to human health.	AIR03

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5989	The SDEIS properly acknowledges the ongoing University of Minnesota-led Taconite Workers Health Study (TWHS), including its finding that worker mortality is primarily due to commercial asbestos exposure, rather than exposure to the minerals being mined. (5-439, 5-440).	AIR03
5993	Based on the evidence from the International Symposium and the TWHS, it is also accurate to state that, in the extremely unlikely event of an amphibole mineral fiber release, those fibers would present a trivial risk to human health.	AIR03
5994	The SDEIS appears to have used the Forest Service regulations as a model for its definition of a reasonably foreseeable action. PolyMet agrees with this approach and believes that the Forest Service regulations provide an accurate description of "reasonably foreseeable" that can be applied easily and understandably to the cumulative impact analysis for the NorthMet project.	CU20
5995	In several places throughout the Chapter 6, the SDEIS concludes that the NorthMet project will have "no cumulative impact" on a specific resource. However, the corresponding section evaluating that resource in Chapter 5 shows a small, but insignificant, impact. In these situations, it is confusing to state that the NorthMet project will have "no cumulative impact," which suggests that the project will not have any cumulative impact at all. Rather, it is more appropriate to state that the NorthMet project will not have a significant cumulative impact.	CU03
5996	on page 6-29, the SDEIS states that "[s]ince the NorthMet Project Proposed Action and other cumulative projects' contributions would not cause or increase an exceedance of the water quality evaluation criteria, cumulative effects are not expected." However, finding no exceedance is not technically the same as finding no impact. Here, it would be more accurate, and in keeping with the analysis in other parts of the SDEIS, to conclude that there would be no significant cumulative impact on water quality.	CU03
5997	the SDEIS concludes that there will be no cumulative impact on recreational and visual resources. It bases this conclusion on the fact that there are no significant cumulative impacts on individual specific resources that factor in to the assessment of recreational and visual resources (such as air quality, wetlands, etc.). The phrasing used implies that the co-leads have analyzed the effects on recreational and visual resources from impacts to these specific resources individually, rather than collectively. PolyMet suggests clarifying that the agencies have analyzed whether the impacts on these resources, although insignificant when considered individually, would have any impact on recreational and visual resources when combined and has concluded that there would be no significant impact.	EDIT01
5998	In Section 6.2.2, the SDEIS states that "[e]xisting conditions that may be related to past or present actions on the specific environmental resources are fully described in their respective section in Chapter 4 and the direct and indirect impacts of the NorthMet Proposed Action are described in Chapter 5." … PolyMet recommends providing references to the specific sections or subsections in Chapter 4 and Chapter 5 where the reader can find the basis for the conclusions made on each specific resource in Chapter 6. This relatively simple change will increase readability and make clear the basis of the conclusions in Chapter 6.	NEPA07
5999	The SDEIS should also use consistent language regarding the scope of the cumulative effects assessment areas throughout Chapter 6. On page 6-2, the SDEIS states: "For all resources, future temporal boundaries are the expected service life of the mining activities, including closure (years 20 to 40) and post-closure restoration (year 40 and beyond)." PolyMet recommends removing this sentence, which is not an accurate description of the temporal boundaries for all resources. Indeed, the very next sentence on page 6-2 rightly states that "temporal boundaries for each resource are defined within the respective resources' sections of this analysis." That sentence should remain as the sole, accurate explanation of temporal boundaries.	EDIT01
6000	PolyMet recommends, however, more clearly providing the basis for the geographic and temporal scope in each resource-specific section within Chapter 6.	CU05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
11134	The SDEIS includes ample information demonstrating that the Land Exchange Proposed Action independently satisfies applicable regulatory standards.	LAN11
11153	The statement of purpose and need should not suggest that the sole purpose of the Land Exchange Proposed Action is to avoid a disagreement over PolyMet's right to mine under its minerals lease.	NEPA03
11170	Polymet is committed to transferring all of the nonfederal lands to the United States under the Land Exchange Proposed Action for management within the Superior National Forest, regardless of the results of the analysis of equalization of the exchange. If the USFS determines that all of the non-federal lands are not needed for an equal exchange under the Land Exchange Proposed Action, PolyMet would transfer title on a voluntary basis. Conversely, if the non-federal lands are not sufficient for an equal exchange,Polymet would make a cash payment as authorized under governing regulations.	LAN03
11230	Section 1.3.2.2 should identify the fact that PolyMet does not agree with the USFS legal position. This could be done by cross-reference to the appropriate sections in the 2009 DEIS that discuss this issue in greater detail than the SDEIS. For example, a simple cross-cite to Section 1.3.2.2 of the 2009 DEIS would ensure that the reader is aware that additional information on this topic is contained in the 2009 DEIS. PolyMet notes that the SDEIS repeats the USFS position (i.e., that mining cannot occur within the Federal Lands) in many places; as a result, it would be appropriate to note that PolyMet does not agree in most of the places where this issue is described.	EDIT01
11324	The TWHS also contains several other findings that support the conclusion [in the SDEIS] that ambient "fiber" emissions pose no threat to the health and safety of mine workers or the general public:-Current workplace dust exposure levels—which by their nature would be higher than community ambient levels—are considered safe. Minnesota Taconite Workers Health Study: Annual Report to the Legislature, dated April 19, 2013 (TWHS 2013 Report), Executive Summary, p. 5; Minnesota TaconiteWorkers Health Study: Public Presentation,Mountain Iron,Minnesota, April 12, 2013 (TWHS 2013 Presentation), slide # 21.	AIR03
11326	The TWHS also contains several other findings that support the conclusion [in the SDEIS] that ambient "fiber" emissions pose no threat to the health and safety of mine workers or the general public:...-Mesothelioma and lung cancer rates among iron ore workers in Zone 4—the easternmost portion of the Iron Range, which includes the NorthMet Project area—are comparable to rates within the far western Zone 1. The highest rates for mesothelioma and lung cancer are found in Zone 2, which is also far west of the NorthMet Project, outside the Duluth Complex. TWHS 2013 Report, Section II, Table 4, p. 30; Section III, Tables 1 and 2.	HU08
11328	The TWHS also contains several other findings that support the conclusion [in the SDEIS] that ambient "fiber" emissions pose no threat to the health and safety of mine workers or the general public:...-A respiratory health study found no increased rates of mesothelioma or lung cancer among the spouses of iron ore workers. Because "spouses would likely have more exposure than those in the communities," this finding suggests "individuals living in the communities in close proximity to the mining operations would not be expected to have higher amounts of dust-related respiratory disease" TWHS 2013 Report, Section IV, p. 45 (Emphasis added). See also TWHS 2013 Presentation, slides # 20, 47.	HU08
11330	The TWHS also contains several other findings that support the conclusion [in the SDEIS] that ambient "fiber" emissions pose no threat to the health and safety of mine workers or the general public:...-Ambient air samples taken at five Mesabi Iron Range (MIR) communities, including Babbitt and Silver Bay, registered total particulate matter (TPM), PM10 and PM2.5 levels that averaged one-to-two orders of magnitude less than the applicable national or Minnesota ambient air quality standard for those pollutants. TWHS 2013 Report, Section V, pp. 50, 54; TWHS 2013 Presentation, slides #23, 65, 66. The community averages for TPM and PM2.5 are particularly significant because they remained one-to-two orders of magnitude below the applicable ambient air quality standards, even during active taconite processing or mining. TWHS 2013 Report, p. 54.	AIR03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	PolyMet (47832)	
11333	The TWHS also contains several other findings that support the conclusion [in the SDEIS] that ambient "fiber" emissions pose no threat to the health and safety of mine workers or the general public:...-Particulate levels (PM1, PM2.5, PM10 and TPM) increased slightly during plant or mine activity, but the increase was not statistically significant as compared to times of plant or mine inactivity. TWHS 2013 Report, p. 57; TWHS 2013 Presentation, slide #69.	AIR03
11336	The TWHS also contains several other findings that support the conclusion [in the SDEIS] that ambient "fiber" emissions pose no threat to the health and safety of mine workers or the general public:… -No asbestiform Elongate Mineral Particles have been identified to date in any of the MIR communities, including Babbitt and Silver Bay. TWHS 2013 Report, p. 57; TWHS 2013 Presentation, slide #65.	AIR03
11338	The TWHS also contains several other findings that support the conclusion [in the SDEIS] that ambient "fiber" emissions pose no threat to the health and safety of mine workers or the general public:… -Particulate matter concentrations in the MIR communities were comparable to those of the two northeast Minnesota background sites (Ely and Duluth), and were lower in all cases compared to concentrations in Minneapolis. TWHS 2013 Report, p. 56; TWHS 2013 Presentation, slides #23, 65.	AIR03
11351	PolyMet recommends removing from the Final EIS statements indicating that the "release of amphibole mineral fibers . . . Could propose a potential public health risk of uncertain magnitude" (SDEIS at 5-439) or that "there remains an uncertain level of potential health risk from airborne amphibole fibers for the NorthMet Project Prosed Action" (SDEIS 5-440). Those statements ignore the evidence discussed above. It would be more appropriate to state that the available scientific evidence, including the evidence from the International Symposium and the TWHS, indicates that amphibole fibers from the NorthMet Project will not present a significant risk to human health.	AIR03
11370	Section 6.2.2.1.21 (Speculative Actions) should reiterate that these actions have not been considered in the cumulative analysis because not enough information is available at this time to allow for meaningful consideration of impacts. In addition, the basis for the determination that each of these projects is speculative should be stated clearly. For example, where the SDEIS states that a company is proposing a project, it should also clearly state that either funding has not been procured or that an application has not yet been submitted to the relevant federal or state agencies.	CU02
11371	the criteria [defining reasonably foreseeable projects and speculative projects] should be applied consistently throughout the cumulative impacts. For example, the SDEIS states that the United Taconite expansion/Highway 53 relocation is a speculative action. However, the SDEIS also acknowledge that a DEIS for the relocation is expected in the next several months. Because the Highway 53 relocation appears to meet the "reasonably foreseeable" criteria, its impacts should be considered in the FEIS.	CU02
Sender Name (Submission ID)	Prospect Hill Friends (54689)	
17834	Although the mandate of the Minnesota Department of Natural Resources includes both protection and utilization of the diverse natural resources of this state, the highest priority should be protection. Once a natural resource is lost, restoration may be impossible. We are deeply concerned about the extent of damage that is likely to occur from extracting and processing this hazardous ore.	PER35
17835	The potential timeframe for post-closure maintenance is breathtaking. We reflect on the changes that have occurred in governance, commerce, society, and the environment of the US since 1814, the time span used in the model simulations at the mine site. It is illogical and unjustifiable to expect that treatment could be guaranteed over that time frame, even ignoring projected climate instability.	PD01
17836	We firmly believe and attest that clean water is more important to current and future human generations and the rest of creation than the metals that can be recovered. How can you approve a project that has a high probability of contaminating huge amounts of fresh water and the ecosystems this water supports?	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Prospect Hill Friends (54689)	
17837	We are concerned that approval of this proposed mine will set a precedent for permits to mine the many other ore bodies located in the Duluth Complex, extending into the Boundary Water Canoe Area watershed.	CU04
17839	Even iron and taconite mining of relatively innocuous ore have caused significant environmental damage; the current plan as described in the SDEIS to mine the far more hazardous copper-nickel ores is unacceptable.	PD27
17840	We also disagree with this project on the basis of equality, equity, and social justice. The parties involved should not be tempted to trade temporary benefits for the loss ofland that has cultural, spiritual, or historic significance to Native peoples.	SO02
17841	The employment projected by Poly Met for this project is not sustainable, and would draw many if not most employees from outside the region. In contrast, the more diversified activities that have been developed during the past two decades provide good incomes and a reasonable tax base. The regionneeds new, sustainable industries to support renewable energy, sustainable forest products, and other creative, non-extractive ventures.	SO06
Sender Name (Submission ID)	Protect our Manoomin (42976)	
4074	Although Mesabe Widjiu is addressed in the SDEIS, we feel that the SDEIS is inadequate in addressing the issues; namely, reserved treaty rights and the health and well-being of the tribes involved.	CR01
4077	tribal members can exercise their usufructuary rights outside the property lines of PolyMet, but can't exercise those rights within PolyMet's property lines.However, as the SDEIS indicates, the effects of PolyMet's mining operations will extend well beyond the operation sites, and affect both cultural and natural resources in the 1854 Treaty Area.	CR01, CR02, CR03
4084	Under NEPA, the human environment includes the natural and the physical (e.g., structures) environment, and the relationships of people to that environment. A NEPA review must address the cultural context in which the project effects would occur… Although cultural resources under NHPA are covered and assessed in the SDEIS , we feel that documentation and evaluation of traditional cultural properties is inadequate. We don't feel that the NorthMet Project adequately balances development that will protect the 1854 Treaty Area.	CR01
4086	By its own admission, the SDEIS states in several sections (the two above are examples) that Mesabe Widjiu is essentially an NRHP that will be affected by PolyMet mining operations. The question is why is this project moving ahead considering the many mitigating factors associated with mining operations?	CR05
4088	Although the Bois Forte elders were speaking about the whole of Mesabe Widjiu, the Cultural Landscape Study, NorthMet Project, Final Report conveniently breaks it down to five geographical locations…The SDEIS overlooks the fact that Mesabe Widjiu, the cultural resources of which are protected under the 1854 Treaty, is not limited to five geographical locations.	CR05
4089	Protect Our Manoomin concurs with the tribal position regarding the CEAA [of the Partridge and Embarrass River watersheds being too small]. We are greatly concerned about the impact on not only the 1854 Treaty Area, but the impact of Anishinaabeg-gichigami, the Great Sea of the Anishinaabe, also known as Lake Superior.	CR01, CR03
4103	How will these toxins [from mining operations, including aluminum, arsenic, manganese among others (i.e., mercury, Fugitive air particles)] impact the waters, the air, plants, animals, fish, and human beings? What is to prevent the release of these toxins into Lake Superior?	AIR09

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Protect our Manoomin (42976)	
4105	Protect Our Manoomin believes that there are a number of mitigating issues regarding reserved treaty rights that are impacted by the NorthMet Project. Reserved treaty rights are protected under the 1854 Treaty. Fond du Lac and Grand Portage have additional protections under the Environmental Protection Agency's Treatment-As-State status… In sum, the 1854 Treaty Area and Mesabe Widjiu are subject to precedent federal Indian case law regarding reserved treaty rights.	CR01, CR05
4108	Protect Our Manoomin feels that there are simply too many inadequate assurances that the 1854 Treaty Area and Mesabe Widjiu will be protecting from mitigating factors associated with the NorthMet Project. Our cultural, natural, and spiritual resources will be placed in harm's way.	CR01, CR05
4109	We feel that the NorthMet SDEIS marginalizes treaty rights and, in particular, reserved treaty rights. And, in doing so, the ancestral connections that Ojibwe people have in relation to the land are on one hand recognized but on the other hand denied.	CR01
4110	A total of 7 Anishinaabe elders were interviewed and their information was used to develop the framework for Cultural Resources… we question of why the interviews with Fond du Lac elders and Grand Portage elders were excluded from the SDEIS. Surely those interviews provide viewpoints that are pertinent to Cultural Resources, and strengthen the Anishinaabe connection to the 1854 Treaty Area and Mesabe Widjiu.	CR01, CR05, CR06
4130	What kind of assurances do we have that our eco-systems, our environment will be protected 20 years from now, 200 years from now, 500 years from now?	FIN01
4142	As cited in the SDEIS, the 1854 Treaty Area is properly recognized, and the usufructuary rights, i.e., reserved treaty rights, to hunt, fish, and gather are noted. Also noted is the exercise of those rights on public lands, although those rights are excluded from private lands unless permission is granted.	CR07
4146	The cultural landscape in question is specifically Mesabe Widjiu or the Historic Tribal District. Under NHPA guidelines, this entire area is covered under Traditional Cultural Properties.	CR02, CR04, CR05
4148	Protect Our Manoomin concurs with the tribal position regarding the impact on native plant communities [i.e., that there will be a net loss to the federal estate of these MBS communities that would not be compensated with equivalent MBS land exchange parcels gained through the USFS land exchange].	VEG02, VEG08
4152	Protect Our Manoomin concurs with the tribal position regarding Minnesota Wild Rice/Sulfate Water Quality Standard and the impact of sulfates on wild rice [i.e., the State's application of the wild rice standard is not in compliance with the Clean Water Act].	WR163
4154	The 137 manoomin lakes and rivers in St. Louis County are within the boundaries of the 1854 Treaty Area. Although the Minnesota Pollution Control Agency have specified that certain wild rice producing waters are protected under the Wild Rice/Sulfate Water Quality Standard, the rights of Ojibwe people gather wild rice on off-reservation land was affirmed by the U.S. Supreme Court in 1999. Therefore, all wild rice waters in the Ceded Territory are protected under 1864 Treaty.	WR163
Sender Name (Submission ID)	Quinn Kilanowski (44306)	
14865	this mine could effect the aquatic life which would snowball into hundreds of problems including eagle populations, wild rice harvest, and the quality of the overall environment for tourists visiting the area.	AQ05
14866	While you claim the mining project would last a while, the park could last forever. FOREVER! That is definitely more economically sound than employing near a hundred people for a short amount of time.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Quinn Kilanowski (44306)	
14867	It does not matter how many steps are taken to prevent ecological damage, damage will be done. And seeing as this would be your first mining project I'm sure it will be damaging beyond what you estimate.	PD01
Sender Name (Submission ID)	R Rita Caruso-Santamaria (20748)	
1937	Is it worth risking polluting the environment for 500 years and the subsequent health effects in exchange for any kind of profit?	SO01
16109	Is it worth risking the lives of thousands of people and mass environmental contamination for profits that are not going to remain in the USA?	SO01
16112	We need to balance environmental and economic interests, renewable technology to produce energy that is not going to take humanity and the world to self-destruction.	NEPA15
Sender Name (Submission ID)	R Scott Thiem (54704)	
17773	Computer models show that water from the mine and the processing plant will be contaminated with heavy metals and sulfates. PolyMet says that they can capture all of the contaminated water on the site and treat it before it's released into the environment. But their own mine plan shows otherwise, admitting that millions of gallons of polluted water will seep off site, untreated. Even when the mine closes after twenty years, this will continue for hundreds of years.	WR115
17774	The EIS states that the DNR officials say it isn't known how long treatment could be needed. That uncertainty and concerns about how much long-term pollution would cost casts serious questions as to the adequate protections. The EIS estimates $200 million a year are needed as a damage deposit. Has this damage deposit been calculated out over the 500 years it may takefor soils to neutralize? What if cost exceeds the damage deposit set aside? It will be the state taxpayers that will end up with the bill?	FIN01, FIN05, FIN10
17775	PolyMet doesn't have a contingency plan for unforeseen problems like difficulties with water treatment plants, leakage form tailings ponds, and pipeline breaks need to accounted for in a mine plan.	PD22
17776	At issue is the amount of water that flows through the area affected by the proposed mine, which sits near the headwaters of the Partridge River, a tributary of the St. Louis River. In determining the mine's effects on water quality, the "base flow" rate for the river is a key variable, but it's one for which agencies like the Department of Natural Resources do not have reliable data.	WR003, WR111
17777	No mining operation like this should be allowed to leave waste piles and tailings in a huge open hole in the ground that will fill with water and eventually overflow. A mine like this needs to be reclaimed. … If the PoiyMet people don't want to spend the money to reclaim the right way, then their permit should be denied.	PD01
17778	It is said that the PolyMet project will only produce 360 permanent mining jobs. That is very low for a project of this size. … Minnesota should not be exploited for the profit of a foreign company that would destroy our environment, take a proportionally small amount of metal and leave the state and take with it all the profits with them.	SO01
Sender Name (Submission ID)	R. Nicholas Rowse (57356)	
18465	This proposed mine would cause severe degradation to NE MN & the BWCA.	WILD02
19832	This proposed mine would cause severe degridation to NE MN & the BWCA.	WILD02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	R. Yaeger (57666)	
19377	Their reverse osmosis plan has never been tried on this scale and there is no proof that it will work as advertised.	PD03
19378	PolyMet's mine plan doesn't include anything for basic, common sense contingencies. Historically, things have gone wrong at these mines with dismaying regularity in nearly all cases.	PD22
19379	PolyMet would leave behind a site requiring very expensive maintenance for centuries.	FIN01
19380	No open pit sulfide mine has left clean water and healthy, fertile land behind when they've gone, and the majority have left highly polluted and infertile sites.	PD26
19381	There is no assurance that PolyMet won't just declare bankruptcy, and once again, taxpayers will be stuck with billions in cleanup costs for untold decades. Damage deposits left by previous mines have been laughably inadequate to cover the actual clean up costs.	FIN01, FIN10
19382	Twenty years of (likely) way fewer local job opportunities than currently advertised, is in no way worth the loss of likely as many other jobs in the tourism and guiding industries forever.	SO01
19383	[tourism/outdoor] jobs will not simply resume when the mine folds. How could they when the mine has left behind an ugly mess of polluted land and water with few of the most popular sport fishes, charismatic animals, or its iconic forests and wetlands?	SO02
Sender Name (Submission ID)	R.M. (57874)	
19820	They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area.	WI02, WI04
19821	Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock.	WR029
19822	The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project.	WI13
19823	This type of mining is not worth it, we need to protect our natural resources, especially water quality.	SO01
Sender Name (Submission ID)	Rachel and Don Christensen (54475)	
17468	The major loss of wetlands, primarily bogs, that cannot be replaced. The SEIS already makes it clear that wetland "restorations" will not take place in the Lake Superior watershed and are highly unlikely to replace bogs.	WET03, WET05
17469	Predictions of chemical pollution, not just from sulfate and its acceleration of toxic mercury conversions, but also heavy metals like nickel and aluminum, that kills fish.	AQ05
17470	The long term need to clean up water from pollutants, possibly for 200 years.	WR035
17471	…the plans to mine the proposed site for 20 years, could possibly provide "financial assurance" to cover the expensive costs of water treatment for 200 years of more into the future.	FIN01, FIN05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rachel and Don Christensen (54475)	
17472	…the proposed PolyMet site area has been designated by MN DNR as "Sites of High Biodiversity Significance" and support eleven state-listed species of plants.	VEG01, VEG02
Sender Name (Submission ID)	Rachel Butler (27517)	
14745	With pollution and industry affecting so many of our natural places, our public lands need to stay public, and not be given away for the benefit of a few in industry. Please keep these lands protected for public enjoyment rather than private benefit and reject the open pit sulfide mine.	LAN01
Sender Name (Submission ID)	Rachel Christensen (48303)	
13120	The SEIS already makes it clear that wetland "restorations" will not take place in the Lake Superior watershed and are highly unlikely to replace bogs. The wetlands at the site have been rated as "having high wetland quality." How can they possibly be "replaced?	WET03, WET05
13121	It's questionable that a company that plans to mine the proposed site for 20 years, could possibly provide "financial assurance" to cover the expensive costs of water treatment for 200 years or more into the future. Can such treatment truly control all the sorts of pollutants that will come from the mine site?	FIN01, WR037
13122	A large portion of the proposed PolyMet site has been designated by MN DNR as "Sites of High Biodiversity Significance" that support 11 state-listed species of plants. How can destruction of such an area be rectified?	VEG01, VEG02
Sender Name (Submission ID)	Rachel Eckert (57970)	
19852	Save the beautiful boundary waters. They are one of the most beautiful places in Minnesota that more people deserve to enjoy.	LU04
Sender Name (Submission ID)	Rachel Garwin (41913)	
2132	The SDEIS considers actions related to the taconite industry and public sector in this [cumulative effects] section. The SDEIS, however, fails to account for any additional copper-nickel sulfide mining activity related to the NorthMet project, and it is thus inadequate… The co-lead agencies should properly study the cumulative impact of all related copper-nickel sulfide mining projects facilitated by the approval of the NorthMet project.	CU04
2133	The SDEIS should include estimates for the length of time and amount of money necessary to treat the water in order to meet Clean Water Act standards… Waiting until the permitting stage of the process is too late, as so much momentum will have built behind the NorthMet project that it will almost necessarily go forward at that point. The co-lead agencies should revisit this question and give the public a reasonable estimate of the estimated time and cost associated with treating the pollution associated with the NorthMet project.	FIN05, FIN13
2135	SDEIS uses a low-quality, unreliable study to support its socioeconomic impact analysis. The Bureau of Business and Economic Research (BBER) 2009 & 2012 studies are inadequate to the task of informing public policy, as they only consider assumed benefits of expanded mining activity in the region and do not assess costs.	SO04
2136	The SDEIS fails to provide an adequate cost-benefit analysis, as well, as neither report assesses the extent of the effects of a growing sulfide mining industry on the already robust tourism and recreation industry built around the SNF, Lake Superior, and BWCAW.	SO01
2138	Additionally, the IMPLAN model was not designed to consider economic impacts as the inputs change over time.	SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rachel Garwin (41913)	
2139	while predicted stream flow reductions might be within annual variability, the reductions in flow were not considered in addition to natural annual variability.	WR086, WR179
2140	while the seepage concentrations of constituent solutes (especially sulfates and mercury) are below allowed water quality standards, the real measure of effect is the impact to total load of each solute in the water body. These impacts should be considered in light of the whole river system, not just at the discharge points from the project.	MERC10
2141	the continued confusion over whether the correct Partridge River flow data were used in the model does not lend confidence in the scientific rigor of the SDEIS. It is important to collect a complete dataset, regardless of industry concerns or timeline.	WR003
Sender Name (Submission ID)	Rachel Lee (54544)	
19179	These places mean so much to me… They help people grow and they help people learn about respect and wonder. We have to protect these places for us and for the future.	LU06
Sender Name (Submission ID)	Rachel Lord (54869)	
19392	Because of the longevity of water treatment needed…the public and regulators need to know far more about the corporate entity undertaking this project, the actual amount of money needed, and its source, far into the future	FIN01, FIN05
19393	I know how alarmed the owning entities can be when asked to absolutely agree to pay or carry legal liability for such a prospect, and they usually turn out to have the expectations that public money will bail them out in a disaster, or that they will have dissolved themselves and/or declared bankruptcy by the time payments are needed…if financial wherewithal is held off until [the permitting process], it will be too late to stop the EIS on this basis. Financial…data is necessary now	FIN01, FIN10
19394	[Regarding] the dangers of leaks/seepage from the tailings basins. No amount of money, in fines or clean-up, will be able to truly undo the damage to drinking water and wetland habitat.	WET07
19395	Threat to ... pollinator insects: this loss could be grave under current warming conditions and the spread of disease and parasites among bees. There is a necessity to preserve native plants as sustenance for native animals and insects.	VEG01, WI01
19396	[I am convinced that] dry storage/sequestration without exposure to water is the only safe/sensible way to contain dangerous waste products like sulfide-bearing rock. Underground mining and re-burial of tailings inside the shaft seems like the only recourse of the careful, well-educated, and non-toxic	ALT01, ALT10
19397	If the company should re-plant there is a danger in using native species from nurseries that carry plants from seed soaked in neo-nicotinoid pesticides which causes these plants to poison insects that feed from them.	VEG05
Sender Name (Submission ID)	Rachel Nelson (42825)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rachel Nelson (42825)	
7303	some of the gravest failings of this SDEIS:•Inaccurate water movement modeling for water flowing through the mine and waste rock storage area and into the Partridge R. (and thus St. Louis R.) The flow through the site has recently been confirmed to be much higher (over threefold) than the model used in the SDEIS to demonstrate that polluted water would not leave the mine site.•This SDEIS makes assumptions that no pollutants (e.g. sulfates, metals) would reach the St. Louis River and thus Lake Superior. This erroneous assumption is the basis of many other related dubious conclusions of the document that no water quality standards will be exceeded by acid mine discharges.•The potential for sulfate discharges from the mine to amplify the production of methylmercury in the sediment of the Partridge and St. Louis Rivers is not considered, even though this is a known phenomena and methylmercury is already a problem in the sediment and fish of the St. Louis River and its estuary that feeds Lake Superior.	AQ12, AQ28, NEPA05, WR003, WR107, WR108, WR111
7303	some of the gravest failings of this SDEIS:•Inaccurate water movement modeling for water flowing through the mine and waste rock storage area and into the Partridge R. (and thus St. Louis R.) The flow through the site has recently been confirmed to be much higher (over threefold) than the model used in the SDEIS to demonstrate that polluted water would not leave the mine site.•This SDEIS makes assumptions that no pollutants (e.g. sulfates, metals) would reach the St. Louis River and thus Lake Superior. This erroneous assumption is the basis of many other related dubious conclusions of the document that no water quality standards will be exceeded by acid mine discharges.•The potential for sulfate discharges from the mine to amplify the production of methylmercury in the sediment of the Partridge and St. Louis Rivers is not considered, even though this is a known phenomena and methylmercury is already a problem in the sediment and fish of the St. Louis River and its estuary that feeds Lake Superior.	AQ12, AQ28, WR003, WR111
7305	some of the gravest failings of this SDEIS:•Financial assurance funding that commits Polymet and its multinational sponsor Glencore/Extrata to set aside millions of dollars in anticipation of future treatment and clean-up processes at the waste rock, tailings pond, and mine pit, is not clearly addressed in the SDEIS.•Even though[t] this public comment period is the best chance for the public to weigh in on whether the financial assurance required of Poly Met would be adequate, there is only a brief mention of it in the mine plan.	FIN01, FIN02
7305	some of the gravest failings of this SDEIS:•Financial assurance funding that commits Polymet and its multinational sponsor Glencore/Extrata to set aside millions of dollars in anticipation of future treatment and clean-up processes at the waste rock, tailings pond, and mine pit, is not clearly addressed in the SDEIS. Since your agency has asked Polymet pointedly about this, I conclude they don't intend to set aside any money for cleanup of the inevitable environmental damage from this mining operation. •Even though[t] this public comment period is the best chance for the public to weigh in on whether the financial assurance required of Poly Met would be adequate, there is only a brief mention of it in the mine plan.	FIN01, FIN02, FIN13
7307	some of the gravest failings of this SDEIS:•The mine requires a land exchange of 6,000 plus pristine acres of Superior National Forest that Polymet seeks to mine for a similar number of acres of non-comparable private land they propose to swap. The quality of the forest lands and wetlands proposed for exchange is substandard, and the habitat and monetary value of the private lands to be swapped isn't accurately compared to what will be lost to mining. The private lands to be placed into the Superior National Forest will have severed mineral rights, so that these will not be protected from future mining efforts.	LAN04
7307	some of the gravest failings of this SDEIS:•The mine requires a land exchange of 6,000 plus pristine acres of Superior National Forest that Polymet seeks to mine for a similar number of acres of non-comparable private land they propose to swap. The quality of the forest lands and wetlands proposed for exchange is substandard, and the habitat and monetary value of the private lands to be swapped isn't accurately compared to what will be lost to mining. The private lands to be placed into the Superior National Forest will have severed mineral rights, so that these will not be protected from future mining efforts.	LAN03, LAN04
18245	I VIGOROUSLY OPPOSE this mine because its grave environmental impact would affect far more people, including children for generations in this watershed, than the handful in a single generation that it would employ.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rachel Nelson (42825)	
18245	I VIGOROUSLY OPPOSE this mine because its grave environmental impact would affect far more people, including children for generations in this watershed, than the handful in a single generation that it would employ.	SO02
18246	No one seems to address tourism as a viable industry; it sure as hell is economically important up here.	SO04
18246	No one seems to address tourism as a viable industry; it sure as hell is economically important up here.	SO04
18247	No one is listening to Native rights arguments about the viability of their land and fishing rights.	CU11
18247	No one is listening to Native rights arguments about the viability of their land and fishing rights.	CU11
18248	What would Polymet's mine do? Destroy not only hunting and fishing habitat in the minefroad areas, but pollute the entire water table in a way that could end fishing in affected waters down the line. End it for good, leaving the kind of ecosystem wasteland you can find north of the great lakes in Canada where sulfide mining has left its mark.	WR108, WR117
18248	What would Polymet's mine do? Destroy not only hunting and fishing habitat in the minefroad areas, but pollute the entire water table in a way that could end fishing in affected waters down the line. End it for good, leaving the kind of ecosystem wasteland you can find north of the great lakes in Canada where sulfide mining has left its mark.	WR089, WR103
18249	Why on earth would Minnesota wish to endanger Lake Superior, the largest freshwater supply in the continent, second largest in the world, for a mining company whose money and technical wizardry could better be turned to recycling copper for technical use?	SO01
18249	Why on earth would Minnesota wish to endanger Lake Superior, the largest freshwater supply in the continent, second largest in the world, for a mining company whose money and technical wizardry could better be turned to recycling copper for technical use?	SO01
18257	Polymet hires engineers who love to hunt and fish up here to come up and tell us this is a good deal for our region. Does this sound like a fair exchange to you? Polymet's profit in exchange for the devastating of a huge ecosystem, ruining our profitable recreational areas, and contaminating the water tables of children for generations?	SO01
18257	Polymet hires engineers who love to hunt and fish up here to come up and tell us this is a good deal for our region. Does this sound like a fair exchange to you? Polymet's profit in exchange for the devastating of a huge ecosystem, ruining our profitable recreational areas, and contaminating the water tables of children for generations?	SO01
Sender Name (Submission ID)	Rachel Rausch (39753)	
7206	The containment of mining wastes is a problem that cannot be solved definitively. The magnitude of waste created by sulfide mining would make it impossible to guarantee that pollution of the fragile ecosystem would not occur. Once mining wastes have been created, they continue to persist in the environment for decades to centuries and continue to pose a threat to the environment long after the mining operations have been abandoned. ... will PolyMet be diligent enough to ensure that the waste from its operations have been taken care of?	PD01
Sender Name (Submission ID)	Raia Meltzer (54873)	
19399	[Mining in the Iron Range] is not a proud heritage that bears continuing in my mind. Have you worked in a mine? These are not jobs to be promoted, especially in such a short-term to make only a few very wealthy people even wealthier.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ralph Butkowski (43067)	
15420	The lack of knowledge about impacts of the mining project is suggested by Eric Carlson's statement that "details would be further worked out" on how one would manage the 3 main pollutants identified by the MPCA... With details to be worked out after a mining permit is granted suggests a lack of understanding about how things are likely to go after mining has begun.	NEPA02
15421	The land exchange program lacks an apparent realization that dollar equity exchange for land does not equate to environmental impact equity. The land exchange plan, like the pollution issue, is a plan "to be further developed". Only superficial mention is made of habitat fragmentation and how to compensate for its effects.	LAN03
Sender Name (Submission ID)	Ralph Karsten (50182)	
11073	A few hundred jobs are being offered in exhange for the loss of environment that is enjoyed by thousands in this state; these thousands support the tourism in this area. You will actually **loose** jobs, not gain them.	SO01
16084	In addition, we will have to monitor the waste for a period longer than our country has even been around.	FIN01
Sender Name (Submission ID)	Ralph Wyman (43349)	
11685	It is not credible that surface water treatment for hundreds of years will be paid for my a mining company that will have made it's profits and departed the region within a few decades. … The United States is littered with mining and other industrial polluters who make short term profits and then declare strategic bankruptcy.	FIN01
11689	Our state can develop it's natural resources in other ways, through tourism, through renewable energy production, and continued innovation in things like healthcare. We do not need the short term jobs and the long-term damage.	SO01
Sender Name (Submission ID)	Randall Heldreth (31017)	
13074	Why should the government keep having to use our tax dollars to cleanup corporate America's messes? Stop them in the first place and save us all huge financial and environmental burden.	FIN10
Sender Name (Submission ID)	Randolph Gaul (19953)	
9951	Decades (or Centuries?) of reclamation is not worth the ore that would come from the PolyMet mine.	SO01
Sender Name (Submission ID)	randy hauserman (41126)	
14202	I believe the state should seek out investments in…industries that don’t have the environmental risks or potential negative impacts.	NEPA02
14204	Regarding the potential harm to the environment, if there are problems, there are no do over’s and Minnesota’s taxpayers could take a big hit.	FIN10
14205	Damage to the environment, so close to one of our most precious resources, the BCWA might be forever	WR111, WR115
14206	The fact that they are proposing at least 200 years of water treatment should be the biggest red flag	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	randy hauserman (41126)	
14207	With a proposal like this, the state has to look long term, fully weigh the potential negative impacts and protect one of Minnesota's most precious assets…..the environment	GEN01
Sender Name (Submission ID)	Randy Holland (43243)	
11710	Thus it's certain that Polyment and other mining companies won't exist in their present form centuries from now so restitution seems unlikely in case of disaster, leaving future generations to pay for the benefit of existing Minnesotans.	FIN01
11712	It's been pointed out that generic water flow assumptions are being used that may underestimate required site-specific treatment facilities.	WR003, WR091
15806	given that sulfide mining may require the longest water treatment plan in history, it's shocking that there is little scientific basis for the estimates of 500 years or more of treatment.	WR035
15808	it is truly stunning to me that the mining job estimates don't factor in the risk to the much larger tourism industry.	SO02
15811	Given the Arrowhead region's total mineral deposit potential, spending another 6-12 months to inject more science and facts into this discussion would show that short-sighted greed by both the state's budget and mining special interest won't trump the risk of polluting the Boundary Waters, Arrowhead region, and Great Lakes watersheds.	NEPA15
Sender Name (Submission ID)	Randy Lasky (38851)	
5160	We feel the project has demonstrated via credible economic impact modeling, that it will deliver a significant economic impact over the 20 year planning period and beyond.	SO10
5161	It's about jobs and the environment and with the addition of 360 new, quality skilled mining jobs as well as over 600 indirect, valued-added, living wage jobs that can support families; this is significant in a region dependent on our natural resources for upwards of 50% of our regional Gross Domestic Product (GDP). If we look at direct financial impacts on the schools statewide and in the region, as well as tax revenues to local, state and federal government of approximately $55 million annually, this is a win-win for us all.	SO10
5162	Second, in terms of financial assurances, we understand laws currently exist to provide permitting agencies the flexibility needed to make sure that the State and all of us are not forced to deal with a bankrupt situation and major environmental problems should something happen to PolyMet and this project. Those safeguards for non-ferrous mining can and will be imposed by Minnesota Department of Natural Resources (MDNR) during the permitting stage.	PER03
5163	In terms of flexibility to hold PolyMet accountable, appropriate assurances can be determined and implemented; under the law, MDNR could select from any number of financial assurance tools including trust funds or escrow accounts, surety bonds, letters of credit, certificates of deposit or insurance policies. Whatever instrument is selected, we agree it has to be bankruptcy proof, held in title by the State, continuously in place, annually updated and readily available to regulators to safeguard the State's interests.	FIN01, FIN05, FIN08
Sender Name (Submission ID)	Randy Wenthold (37877)	
16371	The mining companies must use DADMAC and other polymer products to help recover the suspended solids as part of the mining and ore rinsing process.	HAZ04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Range Bar Association (42972)	
7935	The environmental review process has been lengthy and thorough; the supplemental draft EIS addresses potential environmental impacts and how to mitigate them…The impact to Northern Minnesota's environment will be minimal.	NEPA16
7937	The land post-closure will be reclaimed to protect natural resources over the long term in compliance with the law and enough money is designated to ensure that this process is achieved...Poly Met will provide financial assurance to cover all closure costs.	FIN16
7939	Poly Met's planned mine layout minimizes impact to wetlands, and its reclamation and mitigation plans will replace the wetlands that are lost due to mining.	WET25
7941	PolyMet will control and manage stockpile water with proven technology such as foundation liners, water collection systems and cover systems.	WR190
7942	PolyMet will not discharge process water to the environment that has not been treated with reverse osmosis.	WR190
7944	Poly Met will be a minor source of air pollutants.	AIR14
Sender Name (Submission ID)	ray (3424)	
210	I support Polymet for the following reasons[…]Controlling the existing pollution from the old LTV operation and refurbishing the plant and area.	PD28
646	The project will bring in tax dollars and boost the economy in support of future development in the state.	SO10
840	My concern is in the comment process, and the ability of the DNR to remove the political pressure based on the number of comments.	NEPA06
856	The state and federal regulators will ensure that PolyMet’s project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations.	PER34
857	I’d also like to address some misinformation ... It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time [200-500 years]. It also shows the project will still meet water quality standards even that far out.	WR115, WR189
859	This [groundwater flow] model demonstrates that PolyMet’s plans comply with Minnesota’s laws.	PER34, WR190
860	We cannot afford to miss this job opportunity.	SO10
861	Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands.	NEPA16
878	I believe that the ... eventual operation of the reverse osmosis water purification [used for the NorthMet Project] will provide a research platform for future pollution control other than mining. Minnesota could become a leader in solving water pollution problems worldwide.	WR190
879	the Polymet process to control water pollution is a perfect platform for learning and moving Minnesota into the world stage of this type of pollution control. I believe that eventually it could be a new industry for Minnesota above and beyond mining world wide.	SO10, WR190

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	ray (3424)	
880	I believe that the SDEIS is a complete document. My concern is the comment process, and the political weight DNR will place on the number of responses instead of the validity of content!!!!!!!	NEPA11
Sender Name (Submission ID)	Ray Allard (15974)	
1098	This mining proposal will affect many things, including unresolved legal issues, tribal concerns, and habitat destruction.	CR01, VEG03, WI02
1101	It seems to me that to permit the entire watershed of Minnesota, … to be held up for a 500-year ransom because of a couple hundred fixed-duration jobs, is very much the tail wagging the dog.	SO01
Sender Name (Submission ID)	Ray Fenner (50090)	
13031	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Ray Lewis (52229)	
16209	When the science of the long-term health and environmental impact is uncertain, I would recommend delaying development.	PD01
Sender Name (Submission ID)	Ray Schmitz (43740)	
11790	While it appears that some of the proposed assurances would be fleshed out in later documents, there is nothing the assures me that there is any legal framework or financial instrument capable of assuring its existence for the time periods involved. … What is to prevent a future court or legislature from excusing the commitments in the future, and even if they did not do so, the corporation or other institution could simply stop preforming.	FIN03, FIN14
Sender Name (Submission ID)	raybryan (14937)	
260	This is proposed for a very sensitive environment that if upset would destroy an entire _current_ industry for a half millennium - Tourism!	SO02
1797	Allowing the mining to proceed with such plans using current technology is short-sighted in the extreme and wasteful of valuable natural resources for the long-term future.	SO02
Sender Name (Submission ID)	Rayma Cooley (52362)	
17021	The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility.	PD17
Sender Name (Submission ID)	Raymond George Salin (57197)	
17085	I don't want to see any hazardous materials coming out of our ground, polluting our water,	WR070
Sender Name (Submission ID)	Raymond H Allard (42828)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Raymond H Allard (42828)	
7325	It seems to me that to permit the entire watershed of Minnesota … to be held up for a 500-year ransom because of a couple hundred fixed-duration jobs, is very much the tail wagging the dog. And the irony is that even for the lucky few that get those terminal jobs, at the end of twenty years they will not only have to once again face unemployment, but the ultimate costs of their perfidy will be the compromised environment that made them choose to live in the Hoyt Lake region in the first place….My resistance to Polymet is based on my concern over its shocking potential for permanent or long term damage; damage that has followed every other such mining procedure of this type elsewhere. Our uncritical, unquestioning tolerance of corporate greed, under the unrealistic promise of jobs for everyone, has already caused enough damage to our precious resources.	SO02
7325	It seems to me that to permit the entire watershed of Minnesota … to be held up for a 500-year ransom because of a couple hundred fixed-duration jobs, is very much the tail wagging the dog. And the irony is that even for the lucky few that get those terminal jobs, at the end of twenty years they will not only have to once again face unemployment, but the ultimate costs of their perfidy will be the compromised environment that made them choose to live in the Hoyt Lake region in the first place….My resistance to Polymet is based on my concern over its shocking potential for permanent or long term damage…	SO02
14691	This mining proposal will affect many things, including unresolved legal is'sues, tribal concerns, and habitat destruction.	CR01
14691	This mining proposal will affect many things, including unresolved legal is'sues, tribal concerns, and habitat destruction.	CR01
18263	I sympathize with the concern about jobs and joblessness in the Hoyt Lake region. But this is a bigger question than just the folks in Hoyt Lake. This affects the entire state; the entire North Country, and the ability of residents in the future to defend themselves and their homes from further corporate intrusions.	SO02
18263	I sympathize with the concern about jobs and joblessness in the Hoyt Lake region. But this is a bigger question than just the folks in Hoyt Lake. This affects the entire state; the entire North Country, and the ability of residents in the future to defend themselves and their homes from further corporate intrusions.	SO02
18264	to permit the entire watershed of Minnesota, (especially now, when healthy water is a growing and substantial concern to much of America,) to be held up for a 500-year ransom because of a couple hundred fixed-duration jobs, is very much the tail wagging the dog. And the irony is that even for the lucky few that get those terminal jobs, at the end oftwenty years they will not only have to once again face unemployment, but the ultimate costs of their perfidy will be the cbmpromised environment that made them choose to live in the Hoyt Lake region in the first place.	SO02
18264	to permit the entire watershed of Minnesota, (especially now,when healthy water is a growing and substantial concern to much of America,) to be held up for a 500-year ransom because of a couple hundred fixed-duration jobs, is very much the tail wagging the dog. And the irony is that even for the lucky few that get those terminal jobs, at the end oftwenty years they will not only have to once again face unemployment, but the ultimate costs of their perfidy will be the cbmpromised environment that made them choose to live in the Hoyt Lake region in the first place.	SO02
Sender Name (Submission ID)	Raymond Klosowski (41230)	
8960	It will give Minnesota citizens a long term economic benefit with stabile high paying jobs, increase the annual state revenue intake providing funding for critical infrastructure improvements, health care, and education while precluding adverse impacts to our environment.	SO10
Sender Name (Submission ID)	Raymond Olson (54820)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Raymond Olson (54820)	
18443	This project needs to have a proper, independent environmental impact statement that is not paid for by the industry and packed with scientists and other persons with bias to the viewpoints of the mining company	NEPA18
18449	Many inadequacies and errors in the EIS have been pointed out. Such as inadequate and inaccurate ground water flow from Modeling. No contingency plans for pollution of waters and wetlands	NEPA09
18452	[The EIS presents] a poor plan for "financial assurance"	FIN08
18454	A longer comment period (at least 180 days) is also needed, so the facts can come out and we can make an informed decision.	NEPA06
18461	Is the DNR competent to manage this? How involved are the MPCA and the Health Department?	PER36
Sender Name (Submission ID)	Raymond Shelerud (57199)	
17088	I am truly worried about the after effects of sulfide mining. ... Sulfide mining has never been proven to be safe for the environment.	PD26
Sender Name (Submission ID)	Rebecca & John Gaertner (31655)	
13082	We all know they will file bankruptcy as soon as they are required to be responsible for their environmental messes.	FIN01
Sender Name (Submission ID)	Rebecca Burich and David Zins (42881)	
16909	the proposed mining and processing operation will create 360 direct jobs and over 600 indirect jobs in St. Louis County alone	SO10
16909	the proposed mining and processing operation will create 360 direct jobs and over 600 indirect jobs in St. Louis County alone	SO10
16911	PolyMet Mining will contribute millions of dollars to local cities, school districts and the State through net proceed taxes, occupation taxes, and sales tax	SO10
16911	PolyMet Mining will contribute millions of dollars to local cities, school districts and the State through net proceed taxes, occupation taxes, and sales tax	SO10
16912	it is stated within the Minnesota Department of Natural Resources, US Army Corps of Engineers, and the US Forest Service's Supplemental Draft Environmental Impact Statement (SDEIS), "The SDEIS has thoroughly evaluated water quality impacts, and has shown the project will not cause an exceedance of aquatic life water quality standards."	WR190
16912	it is stated within the Minnesota Department of Natural Resources, US Army Corps of Engineers, and the US Forest Service's Supplemental Draft Environmental Impact Statement (SDEIS), "The SDEIS has thoroughly evaluated water quality impacts, and has shown the project will not cause an exceedance of aquatic life water quality standards."	WR190
16913	the metals that PolyMet will mine are essential for daily life	NEPA05
16913	the metals that PolyMet will mine are essential for daily life	NEPA05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rebecca Cramer (10204)	
370	The risk of contaminating vital waters needed for the present and future generations of people and animals outweighs any short-term gain of employment.	SO01
1438	Jobs will be created in the realm of ecotourism and sustainable use of our forest resources. That is the trend we must believe in and plan for.	SO06
1439	support industries which safely "mine" for these precious metals in the discarded equipment that has already been manufactured.	ALT09, ALT16
Sender Name (Submission ID)	Rebecca E. Berg (42921)	
9586	the environmental risks associated with sulfide mining used to extract the Copper, Nickel and other precious metals far outweigh the potential economic gains….While jobs and job creation are an important aspect of this proposed project, the potential to cause irreversible environmental damage to the unspoiled land surrounding this area far outweighs any benefits.	SO01
9588	The by-products produced by Sulfide Mining, most notably being sulfuric acid, would create an environmental disaster if they were to leach into surrounding soil and water.	WR115
9592	Proponents of the Polymet mine have stated that the surrounding material in the proposed mine is low in Sulfide, and therefore acidic runoff would be minimal. However, ...nothing can be guaranteed.	WR025
17466	In 1998 the state of Wisconsin, in order to prevent future environmental catastrophes adopted into law “the prove it first” legislation. This important law requires that before Mining companies can begin operations, they must prove that the particular type of mine they wish to operate has functioned for ten continual years in other states or Canadian provinces without any environmental infractions. Since this law went into effect, no sulfide mining operations have begun operations within Wisconsin, being unable to show that pollution has not been an unfortunate side effect of Sulfide Mining.	PER25
Sender Name (Submission ID)	Rebecca Ekmark (46475)	
9102	My belief is that the Polymet group has done extensive environmental research and has proven successfully that the techniques used and preventative measures they plan to use are going to help keep our waterways clean.	PD28
Sender Name (Submission ID)	Rebecca L Rom (11615)	
2294	The SDEIS is wholly inadequate to provide definitive information about (i) about the total costs of such treatment [water treatment]; (ii) the mechanisms for providing for, requiring payment of, and insuring payment of, such costs; and (iii) the socioeconomic costs to the people of Minnesota and the nation when, as seems likely, the mechanisms for insuring payment are insufficient or fail entirely.	WR145, WR147
2294	The SDEIS is wholly inadequate to provide definitive information about (i) about the total costs of such treatment [water treatment]; (ii) the mechanisms for providing for, requiring payment of, and insuring payment of, such costs; and (iii) the socioeconomic costs to the people of Minnesota and the nation when, as seems likely, the mechanisms for insuring payment are insufficient or fail entirely.	FIN01, FIN05, FIN10
2296	The failure of the SDEIS to deal explicitly with the size and nature of the costs and financial assurance to cover these unknowable but massive costs means that it utterly fails to describe the socioeconomic risk to the citizens of the State of Minnesota and the United States if financial assurance is inadequate to deal with any possible contingency.	FIN05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rebecca L Rom (11615)	
2296	The failure of the SDEIS to deal explicitly with the size and nature of the costs and financial assurance to cover these unknowable but massive costs means that it utterly fails to describe the socioeconomic risk to the citizens of the State of Minnesota and the United States if financial assurance is inadequate to deal with any possible contingency.	FIN05
7351	...a major flaw in the project is that the cost of engineering, designing, planning, building, and maintaining water treatment is unknowable. Any project for which the cost of water treatment is unknowable but according to the project proposer will be in the billions of dollars should not be considered for approval by the State.	FIN01, FIN05
7351	...a major flaw in the project is that the cost of engineering, designing, planning, building, and maintaining water treatment is unknowable. Any project for which the cost of water treatment is unknowable but according to the project proposer will be in the billions of dollars should not be considered for approval by the State.	FIN01, FIN05
7352	The SDEIS contains a list of imponderables, including things like physical difficulties in implementing plans, escalating environmental standards, unanticipated liabilities, unplanned cessation of operations, failure of the mining company, and failure of third parties to meet commitments. The failure of the SDEIS to deal explicitly with the size and nature of the costs and financial assurance to cover these unknowable but massive costs means that it utterly fails to describe the socioeconomic risk to the citizens of the State of Minnesota and the United States if financial assurance is inadequate to deal with any possible contingency.	FIN01, FIN05
7352	The SDEIS contains a list of imponderables, including things like physical difficulties in implementing plans, escalating environmental standards, unanticipated liabilities, unplanned cessation of operations, failure of the mining company, and failure of third parties to meet commitments. The failure of the SDEIS to deal explicitly with the size and nature of the costs and financial assurance to cover these unknowable but massive costs means that it utterly fails to describe the socioeconomic risk to the citizens of the State of Minnesota and the United States if financial assurance is inadequate to deal with any possible contingency.	WR111, WR130
Sender Name (Submission ID)	Rebecca Lystig (18246)	
13648	PolyMet's plan for an open-pit mine will directly destroy more than 900 acres of wetlands and threaten more than 10 square miles of additional wetlands with toxic contamination and drainage. No information is provided in the SDEIS about the amount and form of financial assurance damage deposit that PolyMet will be required to provide to cover cleanup costs extending over centuries.	FIN05, FIN08, FIN13
13649	Instead of opening new mines which will cost taxpayers and the environment, we could greatly increase recycling of copper, nickel and other metals with less impact to the environment, reduced emissions of global-warming gases and provide greater potential for jobs.	NEPA06
Sender Name (Submission ID)	Rebecca Rom (18375)	
2568	PolyMet-NorthMet project, as described in the supplemental EIS violates Minnesota law. The provisions that it violates relate to perpetual treatment. Minnesota rules 6132.3200 does not allow perpetual treatment. It reads, "To receive a permit to mine, the permittee must be able to close the mine in such a way that it is stable, free of hazards, minimizes hydrological impact and release of substances, and is maintenance free."	PER04
5922	Our members and supporters also visit and recreate throughout the three-county Minnesota Arrowhead Region and will be directly impacted by the North Met Project.	#N/A
6304	The PolyMet SDEIS states that long-term treatment of wastewater is aided, which means the site will not be maintenance free at closure. This is over 500 years of treatment at the plant site and over 200 years of treatment at the mine site.	PD03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rebecca Scott-Rudnick (54665)	
17902	As a Minnesota resident, T am greatly concerned by the lack of clarity in the report, in particular in regard to the long-tenn cumulative impact of the mining on Minnesota's moose population and other habitat destruction.	WI01
17904	efforts to help protect and revitalize Minnesota's moose population cannot be forgotten or altered by the proposed Poly Met NorthMet mining.	WI01
17906	lf the PolyMet plan is approved without further study of the impacts on the moose population, the current concerns of the DNR towards Minnesota's moose would not only be exacerbated, but it could alter the significant efforts already being made by DNR to understand the complex, important andpotentially devastating problem at hand.	WI05
Sender Name (Submission ID)	Rebecca Stoner (54837)	
18756	Based on the Minnesota Environmental Rights ACT, I have a statutory right to object to any pollution, impairment, or destruction of the environment and I'm asking you all to uphold that right…I feel strongly that we are all stewards of the [BWCAW] area and I will fight any type of pollution of these waters	PER35
18757	Because we have 1/5 of the world's fresh water in Lake Superior ... and the Boundary Waters Canoe Area Wilderness (BWCAW) is the most visited wilderness area in the country because of it's fairly pristine conditions so far, I DON'T THINK THERE IS ANY REASON ON PLANET EARTH THAT ANYONE SHOULD BE ALLOWED TO POLLUTE ANY OF THIS.	WILD02
18760	[PolyMet] want us to believe that they wouldn't harm the water of the BWCAW or Lake Superior (LS) any more than anyone else is. Just because the current EPA standards are not being met by other mining operations on the Range doesn't mean that others can come in and do it also and on a much larger scale that would compound the problem.	CU01
18765	Research is showing that a statistically significant percentage of babies born on the North Shore already have high levels of mercury in them. This mining effort would worsen that also. Nobody is doing a health evaluation of the pollution of not only the runoff but also the air and groundwater pollution and I feel that should be included in any EIS that affects this many people in an already-polluted area. I join with the Duluth Medical community in protesting this aspect of it also.	HU03
18787	[PolyMet] want us to believe that their proposed sulfide-laden waste rock pile and their "Proposed Engineering Controls" wouldn't leak thru the liner they'll have on the ground for the more than 500+ years it'll take for it to all leach out. That's about the amount of time it's been since Columbus discovered America. They must think us all fools….They say that their proposed injected clay barrier wall under the waste pile and liner that attaches to the bedrock there won't leak ever.	PD15
18789	[PolyMet] state that there are no cracks in the bedrock underneath their waste rock pile that might allow for drainage to run into underground water sources there. They didn't even address it in their proposal as a possibility.	WR007
18790	They say that their "fugitive dust" that contains many polllutants including more mercury than they are willing to add up won't add anything to the pollution there so they didn't even include it in their EIS for all to read. They considered it" not an issue" but it will contain copper, nickel and mercury. Not really harmless, is it? ... It is NOT an insignificant amount and would harmeveryone locally and downstream /downwind of their operations.	AIR04
18791	they say they can adequately collect and treat ALL of their wastewater during mining operations AND for 500+ years and not leave us with a Superfund area subsidized by our descendants. This is a multinational corporation, formed on purpose that way so they can skirt our laws and none of them will take the blame and pay the cost of treating anything when they've taken what they want and left the area…Their Financial Assurance that's published is flimsy at best and the whole permit should include their major funder Glencore or it should not move any further.	FIN01, FIN02, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rebecca Stoner (54837)	
18792	For their proposed "Water Evaluation Criteria", they used small site-specific area testing of each area, which they extrapolated out for the whole area that allowed the whole area of water there be degraded to the small site specific criteria. ...Basically they're saying that since this area is already polluted, we should be able to continue to pollute it to the tested amounts.	WR064, WR078, WR177
18794	When testing for solutes, they conveniently ignored and didn't publish any testing on mercury which I feel is illegal and unethical at least. They also had 2 exceptions to that list, including lead and aluminum which will also be a factor in their mining efforts and are toxic in our water supplies. Copper is another metal not in their EIS and it goes on forever way above the standards.	WR038
18796	They'll be using Colby Lake water for some of their operation and because that lake is already polluted with mercury and aluminum, and they don't need a permit to use it, they don't have to filter it or treat it. Not a good idea.	WR123, WR184
18797	Models for the mine site for base flow of the Partridge River don't match the low flow measurements. So we can't believe any of their predictions for long-term treatment. Redo the study or don't permit it.	WR003
18799	In this age of climate change, they did not address excessive rain events and what they would do to mitigate that with their systems.	PD22
18800	All of their pollution could end up in Lake Superior. Who will want to come here for tourism if our water is polluted, undrinkable, unswimmable, etc.	WR111
18803	They have not addressed mitigation for indirect impact on wetlands or wildlife travel corridors and that would need to be done before permitting. There would be destruction or degradation of >1700 acres of MN bird survey sites of High Biodiversity Significance and the land exchange proposed doesn't even come close to replacing all that will be lost.	WET01, WI02, WI03
18806	How would their product get safely to Canada from the mine? They haven'taddressed that anywhere and the route would probably go thru more wilderness area.	WILD01
18808	The money received for the privilege of removing the minerals of the Arrowhead might help with our schools and the estimate is about one textbook per student. NOT worth it by any means. I understand that the DNR needs the money pretty badly so there may not be any money for schools come out of this fiasco at all. It would hire 0.012% of all MN workers for maybe 1 generation total. It would create 0.1% of MN GOP. We don't have an unemployment problem in Minnesota that is worth all this destruction.	SO07
18809	How can the DNR both protect our environment and be required to make the most money off the same land as they possibly can. These 2 mandates are contradictory and should be fixed.	PER42
18810	To substitute fairly low number of temporary jobs on the Range for probably 1 generation only, with the potential to destroy some of the most precious and abundant water resources in our country and the many thousands of tourism jobs that are here because of that water, makes no sense to me...Tourism is OUR business .. Our ONLY business. It is our livelihood and our way of life. OUR economy.	SO01
18813	Recycle valuable metals now. Reuse. Encourage international conservation of these precious metals so we con't have to destroy our local land by digging up more of them.	ALT09, ALT16
Sender Name (Submission ID)	Rebecca Tollefson (43857)	
6871	After the mining starts would you drink the polluted water? [Animals do not] have the ability to filter their water.	WR042, WR141

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rebecca Tollefson (43857)	
14941	Its more common than not unfortunately that after mankind starts to mine, log and destruct the natural habitat that horrible catastrophic effects on Mother Nature and all of her inhabits.	SO01
Sender Name (Submission ID)	Red Cliff Band (42974)	
3899	As this project negatively affects wetlands that are protected under our treaty rights, which reserves our right to hunt, fish, and gather within ceded territories in the 1854, 1847, and 1842 Treaties between the Lake Superior Chippewa and the United States government, we object to the destruction of such a large amount of wetlands… [in the case] that the project may still be permitted, [there is a]... need for more stringent measures to project the wetlands, particularly those wetlands sites of High BioDiversity Significance.	CR01, WET19, WET23
3902	While there is no policy or requirement to mitigate effects on the MBS sites of High Biodiversity Significance and that the mine reclamation may allow such BMS sites to reestablish, we believe that it would be in the best interest of the company and the state to establish mitigation plans for these wetlands. They are unique and of value to the Red Cliff Band of Lake Superior Chippewa and all other Chippewa tribes. Considering their uniqueness and value, there should be mitigation in place that properly reflects the uniqueness and extreme sensitivity of these areas.	CR01
3903	Red Cliff would like to reiterate that the water flow hydrology has been inadequately characterized, and would like to see the XPSWMM's projections be recalibrated with more recent and more local data. The current projections used data from 1978-1987 and from a site over 17 miles away. This results in a low estimate of baseflow and results in data that are not only inaccurately, but underestimates the potential for negative hydrological effects caused by the project.	WR003
3904	We also feel that it is reasonable to plan for higher levels of precipitation than historical records have shown due to the unfathomably long duration of this project and potential impacts of climate change, 100 year floods, and the potential of extreme weather events.	WR077, WR180, WR189
3905	The IMPLAN Study is based on study that was developed in the 1970s. Many in the academic community considered it obsolete. This IMPLAN Study only measures positive impacts and not negative impacts. Thus we feel that the potential socioeconomic factors of the NorthMet project are not being properly related to the public.	SO04
4001	Another problem with the analysis is the lack of distinction between full time, part time, seasonal, and permanent positions. It also does not make a distinction between which jobs will be available during certain periods such as how many employees during opening, full operation, closure, and reclamation. These are important distinctions to be made to determine the value of the jobs that are being offered by NorthMet and this project.	SO04
4004	no trade union agreement was mentioned [in the SDEIS], making the possibility of non-local (out-of-state) workers to make up the majority of the positions.	SO06
4005	The proposed private land being offered in exchange is problematic. It is not contiguous and some parcels are located in other counties. This would complicate the manner in which the US Forest Service cares for these tracts and likely be a greater financial burden to the agency. The parcels in question include the Lake County Land Tracts in Lake County and the McFarland Lake Tracts in Cook County.	LAN07
4016	The tribe feels that the underground mine shaft could be a potential alternative that is less destructive and would remove the need for the proposed land exchange… The underground mine shaft would reduce many of the problems that the Red Cliff Band of Lake Superior Chippewa has with this SDEIS. The underground mine shaft alternative would have a positive impact on ambient air quality, wetlands and the need for wetland mitigation, and likely reduce the reclamation period.	ALT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Red Cliff Band (42974)	
4019	[The underground mining] alternative was dismissed as being economically infeasible, but a more in-depth analysis into the economic feasibility has not been released into the public…We believe that the environmental benefits, cultural uses, and historical properties outweigh the socioeconomic costs [of the underground mine alternative] and that the NorthMet Company should reassess how much they may save in reclamation/closure costs, taxes, employee wages, and potential fines from violated permits. Lastly, it appears extremely unrealistic that NorthMet can expect several centuries of treatment of their facility after closure, but cannot afford the underground mine shaft alternative.	ALT01
4091	Other problems with the economic aspects of the SDEIS include the absence of a minimum/maximum budget for paying employees' salaries and where these jobs will be located. The highest paid employees for many mining operations and similar projects are lawyers and engineers who do not live in the immediate area of the actual project themselves, therefore are not directly contributing to the most immediate local economy.	SO04
Sender Name (Submission ID)	Regan J Scuffy (54647)	
17994	I feel that PolyMet, The State of Minnesota and the federal agencies have done a great job on drawing up the second EIS draft and making sure that they are totally in compliance with the regulations.	NEPA16
17997	I also feel that the project would be a huge economic benefit to the Iron Range and also for the State of Minnesota. The job opportunities alone that would be created from this project would be a plus for the families that live and want to stay in Northern Minnesota. … I have been a resident of Northern Minnesota for 40 years and I can't see this mining process being any worse than other mining that is or has taken place across the Iron Range, especially with today's regulations.	SO10
Sender Name (Submission ID)	Reginald Defoe (19511)	
14823	why would we further damage the area, the watershed, by opening up the sulfuric mining operations and to damage it any further when we're spending millions and millions of dollars on cleaning up an area that once used to be pristine with thousands and thousands of acres of wild rice.	WR111, WR115, WR162
Sender Name (Submission ID)	Reid Carron (11540)	
2491	….. "allowing private surface mining would be inconsistent with USFS legal mandates for acquiring and managing these lands" [under the Weeks Act.] The SDEIS fails to address adequately the socioeconomic cost of the loss of intact, contiguous existing habitat at the mine site or to assess the relative value of the non-contiguous lands to be acquired in exchange. The SDEIS does not explain how the USFS can abandon its responsibilities to manage Weeks Act land for habitat and watershed protection and thereby inflict harm upon the socioeconomic well-being of citizens through the simple expedient of a land exchange that does not even pretend to replace lands lost in the Lake Superior Basin.	LAN02
2491	….. "allowing private surface mining would be inconsistent with USFS legal mandates for acquiring and managing these lands" [under the Weeks Act.] The SDEIS fails to address adequately the socioeconomic cost of the loss of intact, contiguous existing habitat at the mine site or to assess the relative value of the non-contiguous lands to be acquired in exchange. The SDEIS does not explain how the USFS can abandon its responsibilities to manage Weeks Act land for habitat and watershed protection and thereby inflict harm upon the socioeconomic well-being of citizens through the simple expedient of a land exchange that does not even pretend to replace lands lost in the Lake Superior Basin.	LAN02
3533	The SDEIS does not attempt to reconcile the effects of the proposed exchange of Superior National Forest lands and of the destruction of wetlands with the socioeconomic protections provided to citizens by the federal Weeks Act, the National Environmental Policy Act, the Minnesota Environmental Rights Act, and the Minnesota Environmental Policy Act.	LAN02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Reid Carron (11540)	
3534	At and near the mine site, the project would destroy 913 acres of unique wetlands, plus many hundreds of additional acres of lands of high biodiversity significance, including imperiled and vulnerable plant communities.	VEG02, VEG03
3535	These lands [at or near the mine site] are currently owned by the U.S. Forest Service in the Lake Superior Basin; virtually all of the wetlands mitigation is outside that Basin, at substantial distances from the habitat that would be fragmented and destroyed by the mine.	WET03, WET15
3536	The project would indirectly affect thousands of acres of other wetlands in the Partridge and Embarrass River watersheds by pollution and changes in hydrology; the SDEIS fails to address any mitigation of the great majority of this wetlands damage except to say that damage would be "monitored" after permitting and additional compensation may be required	WET01
3537	The SDEIS fails to address adequately the socioeconomic cost of the loss of intact, contiguous existing habitat at the mine site or to assess the relative value of the non-contiguous lands to be acquired in exchange.	SO04
3538	The SDEIS does not explain how the USFS can abandon its responsibilities to manage Weeks Act land for habitat and watershed protection and thereby inflict harm upon the socioeconomic well-being of citizens through the simple expedient of a land exchange that does not even pretend to replace lands lost in the Lake Superior Basin.	LAN02
3539	the SDEIS is inadequate because of its failure to acknowledge that the proposed project ignores basic socioeconomic rights to a clean environment guaranteed by Minnesota law.	PER35
3543	The SDEIS fails to use a credible calculation of the groundwater flow in the Partridge River watershed. Tribal hydrologists and Minnesota Department of Natural Resources staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS	WR003, WR086, WR091
3546	The SDEIS must be revised to disclose, with objective data, how much water would go where; the pollution levels that would exist at each pond, sump, waste pile, waste facility and seep; and the actual field experience alleged to demonstrate that the PolyMet plan would meet water quality standards	WR023, WR060, WR181, WR182, WR195
3547	The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to assert that threats to wild rice, fish and human health from tailings basin discharge will be minimal	HU01
3548	The SDEIS must be revised using accurate and complete predictions about the effect of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures.	WR010, WR069
3549	The SDEIS is inadequate because it does not provide a comprehensive cost-benefit analysis of the proposed project. The industry-financed University of Minnesota-Duluth/Skurla report that features prominently in the SDEIS inflates the alleged benefits of sulfide-ore mining and fails to address significant short-term and long-term negative environmental and economic impacts of such mining.	SO04
3550	The SDEIS is inadequate with respect to its treatment of the alleged economic output of the proposed project. Job numbers and economic activity numbers are not credible. The widely-discredited IMPLAN model that Mr. Skurla used in the UMD study generates pie-in-the-sky numbers—hundreds of millions of dollars—in alleged economic output. At page 5-496, the SDEIS admits that the IMPLAN numbers amount to creative writing... The SDEIS also states that IMPLAN does not model the impact of changes in mining technology.	SO04
3552	The SDEIS fails to address adequately the staggering costs of NorthMet. The UMD report admits that it ignores those costs.	SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Reid Carron (11540)	
3553	The SDEIS fails to address adequately the negative impact of mining on other economic activity.	SO04
3554	the SDEIS simply speculates, without using any comparative data on the effect of mine closure on real estate or the effect of mining on recreationists, tourists, and retirees.	SO04
3557	the SDEIS appears to be silent on the effect of the permanent destruction of thousands of acres of wetlands and other habitat on wildlife populations.... Without baseline population studies and comparative data, the SDEIS assertions are not credible.	WI02
3560	the SDEIS fails to define the human health effects of increased mercury emissions, arsenic, and exposure to asbestos-like mineral fibers.	HU01
3565	The SDEIS fails to clearly state the expected amounts of mercury that will be released into surrounding watersheds over time, and does not estimate the amount of mercury likely to affect significant water bodies downstream from the project, particularly the St. Louis River and Lake Superior Basin.	MERC19
3566	The SDEIS does not examine the possible health impact of dust containing asbestos-like amphibole fibers.	HU05
4248	The SDEIS does not attempt to correct the effects of the proposed exchange of Superior National Forest lands and of the destruction of wetlands with the protection provided to citizens by the Federal WEEKS Act, the National Environmental Policy Act, the Minnesota Environmental Rights Act, and the Minnesota Environmental Policy Act.	LAN02
4249	The mine site project would destroy 913 acres of unique wetlands, plus many hundreds of acres of lands of high (inaudible), including (inaudible).These lands are currently owned by the US Forest Service in the Lake Superior Basin. Virtually all of the wetlands in mitigation in that site and basin are substantial distances from the habitat that would be fragmented and destroyed by the mine.	WET03, WET15
4250	The project indirectly affects thousands of acres of other wetlands in the Partridge and Embarrass River Watershed by pollution and changes in hydrology. The SDEIS fails to address any mitigation of a great majority of this wetlands exchange except to say that they have to be monitored after permitting and additional compensation may be required.	WET01
4251	The SDEIS admits that allowing private surface mining would be inconsistent with the US Forest Service legal mandate for acquiring and managing these lands.	LAN02
4252	The SDEIS fails to address adequately the socioeconomic cost of the loss of intact contiguous existing habitat at the mine site or the relative value to non-contiguous lands to be acquired in exchange.	SO04
4254	The legislature declared in Section 116B4 of the Minnesota Environmental Rights Act that the state has a paramount concern for the protection of its air, water, land, and other natural resources from pollution, impairment, or destruction. The statute explicitly states economic considerations alone shall not constitute a defense to violations of the Environment Rights Act.	PER35
6739	The SDEIS fails to address adequately the staggering costs of NorthMet. The UMD report admits that it ignores those costs. Appendix B of that report says, at page 67:"Readers are encouraged to remember the Bureau of Business and Economic Research is providing an economic impact analysis. Policy recommendations should be based on the 'big picture' of total impact, and a cost-benefit analysis would be needed to assess the environmental, social, and governmental impacts of ferrous and non-ferrous mining in the State… [A]detailed cost-benefit analysis is beyond the scope of this report…"	SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Reid Carron (11540)	
7444	The SDEIS does not attempt to correct the effects of the proposed exchange of Superior National Forest lands and of the destruction of wetlands with the protection provided to citizens by the Federal WEEKS Act, the National Environmental Policy Act, the Minnesota Environmental Rights Act, and the Minnesota Environmental Policy Act. the proposed project ignores basic rights to a clean environment guaranteed by Minnesota law. It acknowledges that the project will destroy or impair thousands of acres of land, pollute the water for at least hundreds of years.	LAN02
7444	The SDEIS does not attempt to correct the effects of the proposed exchange of Superior National Forest lands and of the destruction of wetlands with the protection provided to citizens by the Federal WEEKS Act, the National Environmental Policy Act, the Minnesota Environmental Rights Act, and the Minnesota Environmental Policy Act. the proposed project ignores basic rights to a clean environment guaranteed by Minnesota law. It acknowledges that the project will destroy or impair thousands of acres of land, pollute the water for at least hundreds of years.	LAN02
7446	The project indirectly affects thousands of acres of other wetlands in the Partridge and Embarrass River Watershed by pollution and changes in hydrology. The SDEIS fails to address any mitigation of a great majority of this wetlands exchange except to say that they have to be monitored after permitting and additional compensation may be required.	WET01
7446	The project indirectly affects thousands of acres of other wetlands in the Partridge and Embarrass River Watershed by pollution and changes in hydrology. The SDEIS fails to address any mitigation of a great majority of this wetlands exchange except to say that they have to be monitored after permitting and additional compensation may be required.	WET01
15471	The SDEIS is inadequate because it does not provide a comprehensive cost-benefit analysis of the proposed project. The industry-financed UMD report that features prominently in the SDEIS inflates the alleged benefits of sulfide-ore mining and fails to address significant short-term and long-term negative environmental and economic impacts of such mining.	SO04, SO07
15476	The SDEIS is inadequate with respect to its treatment of the alleged economic output of the proposed project. Job numbers and economic activity numbers are not credible. The widely-discredited IMPLAN model that Mr. Skurla used in the UMD study generates pie-in-the-sky numbers – hundreds of millions of dollars – in alleged economic output. At page 5-496, the SDEIS admits that the IMPLAN numbers amount to creative writing; the SDEIS states that employment depends on metal prices, that mining is boom and bust, and that although "this boom and bust phenomenon is often present in mining communities, IMPLAN does not model this phenomenon" because it is unpredictable.	SO04, SO08
15484	The SDEIS also states that IMPLAN does not model the impact of changes in mining technology. At minimum, the SDEIS should provide historical data with regard to the economic impacts of boom-and-bust in existing copper-mining areas, and with regard to the relentless drive toward mining automation that has caused dramatic output increases per employee and has drastically reduced mining employment in the United States.	SO04, SO08
15496	The SDEIS fails to address adequately the negative impact of mining on other economic activity. Objective studies and the reality of the Iron Range show that time and again mining drives out other economic activity. The reasons are the environmental degradation, boom-and-bust disruption, and political bullying – think about the Highway 53 re-route – that follow the billionaire mining companies, as the night follows the day. Mining results in less overall employment and poorer communities.	SO04
15501	At 5.2.10, the SDEIS says this:"Housing: Reclamation and Closure: (During this period) ... it is likely that demand for housing would drop as workers migrate from the area ... However increases in housing demand spurred by the strength of the tourism industry and the increasing popularity of the study area for retirement could obscure any such declines."The SDEIS is inadequate because it fails to analyze the effect of increased mining industrialization and the associated environmental degradation on the desirability of the area for recreation, tourism, and retirement; the SDEIS simply speculates, without using any comparative data on the effect of mine closure on real estate or the effect of mining on recreationists, tourists, and retirees.	LU06, SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Reid Carron (11540)	
15507	With regard to wildlife and the prospects for hunting and wildlife viewing (both of which are key attractors for recreationists, tourists, and retirees) in the surrounding area if the project proceeds, the SDEIS blithely states at page 5-513 that "overall opportunities for hunting and wildlife viewing on public lands in the region are not expected to change substantially." While admitting that the mine might cause game to avoid the area, the SDEIS appears to be silent on the effect of the permanent destruction of thousands of acres of wetlands and other habitat on wildlife populations. It is nonsensical to assume that populations will remain robust in surrounding areas in the face of the loss of thousands of acres of high-quality habitat for breeding, forage, and shelter. Without baseline population studies and comparative data, the SDEIS assertions are not credible.	LU06
17075	the SDEIS is inadequate because of its failure to acknowledge that the proposed project ignores basic socioeconomic rights to a clean environment guaranteed by Minnesota law. The SDEIS acknowledges that the project will destroy or impair thousands of acres of land, that it will pollute the water for hundreds or thousands of years, and that it will create other harmful environmental impacts such as air and noise pollution.	PER35
17133	At and near the mine site, the project would destroy 913 acres of unique wetlands, plus many hundreds of additional acres of lands of high biodiversity significance, including imperiled and vulnerable plant communities. These lands are currently owned by the U.S. Forest Service in the Lake Superior Basin; virtually all of the wetlands mitigation is outside that Basin, at substantial distances from the habitat that would be fragmented and destroyed by the mine.	WR107, WR108
17133	At and near the mine site, the project would destroy 913 acres of unique wetlands, plus many hundreds of additional acres of lands of high biodiversity significance, including imperiled and vulnerable plant communities. These lands are currently owned by the U.S. Forest Service in the Lake Superior Basin; virtually all of the wetlands mitigation is outside that Basin, at substantial distances from the habitat that would be fragmented and destroyed by the mine.	WET03, WET15
17136	The currently intact landscape at the mine site has significant socioeconomic value for wildlife habitat, watershed protection, and carbon sequestration. The SDEIS does not explain how the USFS can abandon its responsibilities to manage Weeks Act land for habitat and watershed protection and thereby inflict harm upon the socioeconomic well-being of citizens through the simple expedient of a land exchange that does not even pretend to replace lands lost in the Lake Superior Basin.	SO02
17136	The currently intact landscape at the mine site has significant socioeconomic value for wildlife habitat, watershed protection, and carbon sequestration. The SDEIS does not explain how the USFS can abandon its responsibilities to manage Weeks Act land for habitat and watershed protection and thereby inflict harm upon the socioeconomic well-being of citizens through the simple expedient of a land exchange that does not even pretend to replace lands lost in the Lake Superior Basin.	SO02
17137	Further, the SDEIS is inadequate because of its failure to acknowledge that the proposed project ignores basic socioeconomic rights to a clean environment guaranteed by Minnesota law. The SDEIS acknowledges that the project will destroy or impair thousands of acres of land, that it will pollute the water for hundreds or thousands of years, and that it will create other harmful environmental impacts such as air and noise pollution.	WET01, WET04
17137	Further, the SDEIS is inadequate because of its failure to acknowledge that the proposed project ignores basic socioeconomic rights to a clean environment guaranteed by Minnesota law. The SDEIS acknowledges that the project will destroy or impair thousands of acres of land, that it will pollute the water for hundreds or thousands of years, and that it will create other harmful environmental impacts such as air and noise pollution.	WR115, WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Reid Carron (11540)	
17138	The legislature has declared in Section 116B.04 of the Minnesota Environmental Rights Act that the state has a "paramount concern for the protection of its air, water, land, and other natural resources from pollution, impairment, or destruction." Section 116B.02 Subd. 5 says that " 'pollution, impairment, or destruction' is," among other things, "any conduct by any person…which materially adversely affects or is likely to materially adversely affect the environment." The statute states explicitly that "economic considerations alone shall not constitute a defense" to violations of MERA.The Minnesota Environmental Policy Act, at Section 116D.04 Subd. 6, uses similar language to prohibit the issuance of any permit for any action where the action would cause "pollution, impairment, or destruction of the air, water, land, or other natural resources….Economic considerations alone shall not justify such conduct."Accordingly, the SDEIS is inadequate with respect to these important points.	PER35
17138	The legislature has declared in Section 116B.04 of the Minnesota Environmental Rights Act that the state has a "paramount concern for the protection of its air, water, land, and other natural resources from pollution, impairment, or destruction." Section 116B.02 Subd. 5 says that " 'pollution, impairment, or destruction' is," among other things, "any conduct by any person…which materially adversely affects or is likely to materially adversely affect the environment." The statute states explicitly that "economic considerations alone shall not constitute a defense" to violations of MERA.The Minnesota Environmental Policy Act, at Section 116D.04 Subd. 6, uses similar language to prohibit the issuance of any permit for any action where the action would cause "pollution, impairment, or destruction of the air, water, land, or other natural resources….Economic considerations alone shall not justify such conduct."Accordingly, the SDEIS is inadequate with respect to these important points.	PER35
17348	At minimum, the SDEIS should provide historical data with regard to the economic impacts of boom-and-bust in existing copper-mining areas, and with regard to the relentless drive toward mining automation that has caused dramatic output increases per employee and has drastically reduced mining employment in the United States.	SO04
17349	The SDEIS is inadequate because it fails to analyze the effect of increased mining industrialization and the associated environmental degradation on the desirability of the area for recreation, tourism, and retirement….	CU11
Sender Name (Submission ID)	Reka Crohn (14680)	
13786	The very small number of potential jobs created and the economic benefit to the local region from this mine is in no way, shape, or form adequate recompense for the almost certain destruction of the environment.	SO01
13787	500 years of polluted water treatment... and that is the BEST case scenario? In the light of recent environmental events such as the chemical spill in West Virginia, for-profit corporations must be held to an even higher standard for protecting the public in their effort to make a buck	FIN01
Sender Name (Submission ID)	Remy Lee (11589)	
3250	I want you to stop them from mining this is something that will only benefit the state in the short term, long term it will destroy lots of habitats, clean water, and just be plain bad.	SO01
3250	I want you to stop them from mining this is something that will only benefit the state in the short term, long term it will destroy lots of habitats, clean water, and just be plain bad.	SO01
Sender Name (Submission ID)	Renae Rodgers (42917)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Renae Rodgers (42917)	
11341	after the NorthMet mine closes... "mechanical water treatment is part of the modeled NorthMet Project Proposed Action for the duration of the simulations (200 years at the Mine Site, and 500 years at the Plant Site) (SDEIS, 5-7)….there is no plan laid out for ensuring that PolyMet fulfills the water treatment requirements after mining operations have ceased…In the event that PolyMet, for whatever reason is unable to keep up the requisite water treatment before the 500 years is up at the mining site, what safeguards would be put in place to ensure that water treatment would continue?	WR035
11349	... it is very possible, even likely, that the PolyMet Mining corporation will not be around in 200 to 500 years to supervise, much less pay for, the extended water treatment required by this proposed short-term mining project. In the event the PolyMet Mining declares bankruptcy, who will pay for the cost of water treatment?...The public is then left to conclude that the cleanupwill become part of the public tax burden	FIN01
11355	The public is then left to conclude that … Minnesota's landscapes and wildlife will be abandoned to badly acidified waters and crippling levels of heavy metal contamination	WR107, WR108
11361	the SDEIS states in several places that the most effected bodies of water would be the Partridge and Embarrass rivers in the St. Louis River watershed,and that both the Boundary Waters Canoe Area and Voyageurs National Park will be spared any adverse effects. However, the prospective processing of the copper-nickel sulfide ores has the potential to release enormous amounts of sulfur dioxide into the atmosphere; these emissions would bring acid rain to the entire region, not just to the St. Louis River watershed.	AIR09
17425	the SDEIS suggests that, "[t]he sulfide sulfur (S) concentrations of the NorthMet waste rock would be relatively low compared to many other mines," but no evidence is provided in support of this assertion (SDEIS, 2013).	PD15
17426	The mine proposal has been updated to allow for subaqueous disposal of...waste rock, in order to minimize oxidation of sulfur into sulfur dioxide, the cause of acid rain, and the mobilization of heavy metals. However, safely transporting the tailings to the mine pits will be expensive, and there is no clear strategy for how the company will fund subaqueous disposal of all sulfide-bearing waste rock accumulated during the operational life of the mine.	PD25
17429	the release of sulfur during ore extraction, transportation and processing, which is potentially the most destructive and immediate source of SO2, is not addressed at all in the SDEIS. There are no proposals in the document for trapping sulfur dioxide resulting from the smelting or ore conversion processes. These emissions...would cause acid rain ... [which would have] detrimental effects on forested areas due to mobilization of ... heavy metals within the watersheds...the effects of the sulfur emissions would likely extend beyond the waters of the St. Louis River watershed and would have negative and long-lasting consequences for the entire northern Minnesota region	AIR02, MERC08
17430	In addition to threatening waters beyond the St. Louis River watershed, acid rain would cause direct damage to flora and fauna, endangered and otherwise across northern Minnesota	VEG06
17431	The SDEIS fails to adequately address the potential for acid rain as a result of the NorthMet copper-nickel mine and fails to present strategies for capture and mitigation of oxidized sulfur...there is no mention at all of the potential for acid rain due to mining or processing in either the SDEIS chapter entitled "Environmental Consequences," or the chapter, "Cumulative Effects."	AIR11
17433	the trade-off of a couple of decades of mining for several centuries of water treatment combined the lack of a fall back plan should PolyMet fail to meet its commitment to treat water contaminated by the mine are all indications of theinadequacy of, and important gaps in, the mining proposal and its environmental review.	NEPA15
Sender Name (Submission ID)	Renee Aro (19907)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Renee Aro (19907)	
1500	For some 200 jobs, I won't want to loose hundreds of others which find their livelihood based on the beauty of this area.	SO01
1501	I am also very concerned about the mitigation money to be set aside for repairing our precious lakes and land.	FIN11
14837	It is my understanding that Polymet has never operated a mine before so they have no track record. But Glencore's record is rather unsavory beginning with its association with MARC RICH	PD23
15440	What assurances does the public have that needed and required financial assurance will exist for the 200 years water needs to be treated? Who is guardian of these funds and what guarantees are in place so funds won't be diverted to other projects. What laws protect these funds at all level of government. Will the State of Minnesota have access to these funds to borrow, to use for other things?	FIN01, FIN08, FIN11
Sender Name (Submission ID)	Renee M Manning (3075)	
568	They will produce needed metals and create hundreds of jobs that can support families and sustain communities.	SO10
569	PolyMet is committed to utilizing the best available emission control devices possible on all their mobile mining equipment.	AIR14
Sender Name (Submission ID)	Renee Valois (21574)	
10093	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for	FIN01, FIN08, WR035, WR128, WR144
10097	In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream.	AQ05, WR156
10100	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
10102	A paltry twenty years of profit for that company could create hundreds of years of toxic runoff and water pollution!	SO01, WR115
Sender Name (Submission ID)	Rep David Hill (18082)	
3205	But [the Iron Range Delegation of Legislators] are here tonight as a group to tell you people that we unilaterally and unequivocally support the development of non-ferrous minerals in Minnesota until such time it is proven by the data-driven outcomes that it cannot be done, and then we are unilaterally against it until such time that we can prove that it is feasible, environmentally and financially.	NEPA16
Sender Name (Submission ID)	Rep. Barb Yarusso (42916)	
3847	From the point of view of a chemical engineer, the SDEIS does not adequately account for all of the material outputs of the project. Amounts consumed by the process are listed for a variety of process chemicals, but there is no description of where they will end up. They can't just disappear. Will they degrade (into what?)? End up in the tailings, concentrate, sludge disposed of offsite, discharged water?	PD30

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rep. Barb Yarusso (42916)	
3848	The assessment of the probability of a spill of potassium amyl xanthate (PAX) during transportation to the site is judged to be "moderate". According to the modeling estimate, there is approximately a 1/60 chance of a spill due to a highway accident over the 20 year working period of the mine… Are local communities prepared to handle these specific hazards?	HAZ06
3850	Will there be residual PAX on the copper concentrate which is to be shipped out by rail? Will this cause an odor issue as it degrades and gives off hydrogen sulfide?	HAZ04, HAZ06
3852	The bedrock under the tailings basin is assumed to be a "no flow boundary". What effect will the possible lowering of the pH in the basin over time due to the addition of acid-producing tailings be on this? Will it have any effect on whether small fissures grow, or on the integrity of the boundary between the bedrock and the bentonite barrier at the walls?	WR001, WR099
3855	Is there any historical data or anecdotal information to indicate that well water quality in the area changed after the start of previous mining operations at the site?	WR041
3857	Descriptions of the use of reverse osmosis to treat water for discharge focus on sulfate concentrations. Will the process also remove copper, nickel, and other heavy metals?	PD03, WR131, WR143
3859	What is the potential environmental impact of concentrate spilled along the railway when it is shipped out for processing? The area between the plant and Lake Superior has several trout streams. How close are the tracks to these or other streams or rivers, do tracks cross any of them, what would the cumulative impact of spills be on aquatic life?	PD36, WR151
3862	Is there ever going to be a time when the potential of environmental harm from the tailings and other materials left behind will cease? The modeling did not address this question, but Minnesota law doesn't allow for perpetual harm. There should be modeling of the long term time evolution of the concentrations of components of interest.	PD29
3863	There is the hope (but not a guarantee) of development of a passive, biological system – is this to address sulfate issues? I can't see how it could help with heavy metals, because you can't make them go away.	WR137
3864	Would it make more economic (and environmental) sense to use a system that increases rather than minimizes oxygen contact with the tailings in order to exhaust the potential for sulfate formation, while treating the water, to eliminate the indefinite treatment of polluted water at the site?	PD32, WR029
3865	Is there any point along the Embarrass, Partridge, or St. Louis Rivers where heavy metals would tend to precipitate (due to local chemistry) and accumulate?	WR197
3866	What is the oldest facility that has a liner of the type to be used for the hydrometallurgic residue facility? What does the manufacturer say about the expected lifetime?	PD17
Sender Name (Submission ID)	Rep. Diane Loeffler (44962)	
8470	It is noted that exceedences on lead levels can be expected during times when there is a lot of natural runoff in addition to that created on site...Why should exceedences on this known dangerous pollutant be in any way acceptable and why were these not flagged as unacceptable and in need of lasting prevention and mitigation?	WR082

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rep. Diane Loeffler (44962)	
8480	The recent studies of wild rice impacts of the expected pollutants threatens a historic and cultural resource to the Native Americans and all residents of our state and a valueable source of food and habitat for key Minnesota species. Insufficient assessment of alternatives that would preserve, not mitigate this unique historic, cultural, diet, and habitat resource are noted and deserve specificity and the honoring of Treaty rights. Why has this area not been more sufficiently analyzed?	WR156
8490	Not enough science and successful modeling has been presented to give confidence to the public on the scientific basis on which to assure sufficient protection of the waters of northern Minnesota.The limited availability of proven models supports a more cautious approach that requires demonstration sites and laboratory demonstrated sustainability. Why have small demonstration sites and implementation models of the proposed processes not been required as part of the establishment of a scientific analysis of the validity of the proposed protections?	WR189
8491	There is no demonstrated capacity for the state to develop and implement models of financial assurance that will adequately enable continuous monitoring and environmental response for many centuries….Given that the company proposing the mine has international ownership, is U.S. and MN law sufficient to enforce actions against that entity and or its successors? Should the "no action" alternative be adopted until such time as there is established scientific confidence that risks can be managed and funded within a time period of less than 75 years?	FIN01
8496	A better alternative would be to challenge our University and others to develop and test safer approaches to mineral extraction that present dramatically less long term risk to the waters, natural habitat, cultural traditions, and long term economic sustainability of the diverse economy of the state.	ALT16
8499	Impact of the proposed land transfer on the value of the US Forrest for recreational use, continuous large lots for natural wildlife communities to prosper, and the air and water quality of the area are insufficiently analyzed. How has it been determined that the proposed tracks for swapping are in any way able to replicate the same environmental values to all species and wetland and forest benefits?	LAN03
8504	Fragmentation and decrease of large contiguous, undisturbed critical habitat threatens a variety of species, particularly the lynx but also at least four other species.The Superior Forrest is a unique habitat not replaceable by scattered site acquistion of alternative lands….Based on this,the proposed land swap does not adequately preserve the natural heritage of Minnesota and should be rejected.	WI01, WI02
8511	It is noted that it is not "practicable" to replace all impacted wetlands types with equivalent in kind wetland areas. Practical is not an acceptable standard….All kinds should be mitigated with at least the same amount and type in similar areas surrounded by large tracks of natural forrested habitat. What other habitat and ecosystem mitigation can be required to achieve the same ecological benefit in diverse natural wetlands?	WET05
10024	The Minnesota Constitution clearly limits the purposes and processes for long term obligations of the state. Can the need to maintain, monitor, and fund risk related activities for periods measured in centuries be defined as a ongoing financial obligation of the state? If so, under what authority other than specific, direct legislative act can authorize such longterm obligations and is that able to be delegated? How is that supported by recent Supreme Court rulings?	FIN01, FIN14
10025	Minnesota has a long history of "pollutor pays" even for clean up of environmental risks that were not known or identified at the time of the polluting event or processes. How can that be enforced against pollution risks not identified or anticipated at this time? How will that added potential risk and obligation be accomodated in financial assurance?	FIN01
10026	What testing evidence is available that the proposed liners, membranes, and other containment and protection materials are sufficient to last through 500 or more centuries without deterioration, cracks, or other material failure given the wide range of geologic, climate and other stressors it may be subjected to in addition to the passage of more time than any man made synthetic material of this type has existed?	PD22

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rep. Jean Wagenius (42977)	
3870	PolyMet placed monitoring wells without an understanding of the groundwater hydrology. Further, it only placed wells on the mining site. DNR needs to ensure that it understands how ground water is moving in, off and around the site before it determines when PolyMet's monitoring is sufficient.	WR007, WR008, WR071, WR079
3871	PolyMet's would like to have two waste rock storage sites without liners on the bottom. That proposal does not meet Minnesota Statute section 103H.001 or Minnesota Rules Chapter 7050. Liners can be practically achieved in 2014. Moreover, PolyMet prides itself on wanting to mine minerals for the next generation of productions while meeting the last generation standard for its own landfills. That is not acceptable. If the DNR were to permit a landfill without a bottom liner, then the financial assurance/damage deposit would need to be sufficient to remediate the contamination of the groundwater.	FIN14, PD02
3877	DNR must also require enough financial assurance/damage deposit to compensate for any loss of our native wild rice stands. While we have science to support a 10 parts per million sulfate standard, that standard alone may not be strong enough to protect wild rice over time.	FIN11, WR160
7948	PolyMent is seeking to mine in an area of the state that doesn't yet have a Geologic Atlas. As a result, little is known about the groundwater hydrology of the area. The borings that have been done were designed to understand mineral deposits and not for understanding the hydrology in the area.	WR007, WR008, WR071
7949	In order to develop an intelligent monitoring system, it is critical to have an understanding of how groundwater moves in, off, and around the project site before placing monitoring wells to track groundwater hydrology.	WR007, WR008, WR071, WR139
Sender Name (Submission ID)	Rep. Jim Swiderski (42886)	
3607	The NorthMet project and land exchange is being proposed at a time far removed from mining ventures of the distant past... Regulations are in place today insuring not only that every environmental impact is monitored and regulated, but that companies responsible have strong financial assurances guaranteeing that sufficient resources are available to restore mining sites and prevent future environmental damage.	FIN16, FIN17
3740	The land exchange negotiated between PolyMet, Inc., the proponent of the NorthMet project, and the USFS, will enhance the overall resources of the Superior National Forest, and enable the USFS to better meet its long term mission. There will not be an environmental degradation to these existing forest lands, as the project is designed.	LAN11
3741	Overall, there will be an increase in forest lands available for management,and the expansion of public recreation areas, which will complement and enhance the attractions for tourism and recreation, a vitally important business of Northeastern Minnesota.	LU07
3743	The SDEIS has demonstrated that the NorthMet Project can achieve anunprecedented goal of sulfate emissions of less than 10 mg/1, a standard that will in fact improve the water quality of the nearby Embarrass River.	WR190
3744	The NorthMet project will re-use the former LTV taconite mine and plant, cleaning up this site and recycling valuable infrastructure.	PD28
3745	[T]he plan for site reclamation will restore both the mining and project siteto a natural environmental state, encapsulating the waste rock and preventing acid rock drainage into the foreseeable future. I believe the NorthMet Project will set a standard for excellence that will pave the way for future responsible mineral development in this region.	PD28

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rep. Jim Swiderski (42886)	
3747	The NorthMet Project will produce over 500 construction jobs for this region and 350 permanent jobs over the life of this mine. However, there are many thousands of additional jobs at stake in the future development of the Duluth Gabbro Complex which, if done correctly, promises an economic opportunity for the next 100 to 200 years. Not unlike the past 132 years of iron ore and taconite mining that have sustained the economy of this region, environmentally responsible mining in the Duluth Gabbro Complex can be an economic boon for residents.	SO10
3750	One must also take into account the secondary jobs created as well. There will be businesses supplying materials to the copper-nickel mining industry in this region. There will be businesses providing food, clothing and shelter. Transportation, health care, education: all economic sectors of the economy will receive a positive impact from the mining activity proposed in this region.	SO10
3753	Beyond the direct and indirect jobs created, responsible development of the copper-nickel reserves of the Duluth Gabbro is also a serious strategic national priority. Today the USA imports 100% of the nickel and over 1 j 3 of the copper needed in modern industry, critical to our national economic development as well as to our national defense. In addition, platinum and a host of other strategic minerals appear to exist in significant enough quantities to be extracted economically.	SO10
3761	To those who say we can get these minerals from other sources, I would argue that is a short sighted alternative.	PD28
3764	The metals that will be mined in this region are critical and essential to our modern computer, electronics, and communications industries. In addition, these metals are essential for the development of green technologies that will improve our air quality, create energy independence for our nation, and reduce carbon emissions that threaten our climate worldwide.	SO10
3766	Without these metals, we cannot have a green future. Without American production of these minerals we put our nation at risk in a dangerous world. These factors must be taken into consideration when weighing the costs and benefits of the NorthMet Project, and it would be irresponsible for us to do otherwise.	SO10
3769	While the environmental review process for the project is still ongoing, I am convinced the plan put forward for the NorthMet Mining Project and Land Exchange will result in a productive mining operation that will produce minimal environmental impacts and will advance the technology of mining. It will set a high standard for additional mining proposals that may follow.	NEPA16
3771	The SDEIS represents a plan, however, and execution of the plan will requirevigorous monitoring and enforcement of the project features set forth in thisdocument, and a solid Financial Assurance package that will enable the mining site reclamation to be completed if the project should fail or be abandoned at any point in the process going forward.	FIN16
3772	I also insist that Cultural Impacts be carefully protected in the plans going forward, before the Final Permit to Mine is issued by the Minnesota DNR.	CR05
Sender Name (Submission ID)	Rep. Phyllis Kahn (37929)	
3839	In chapter 3, pages 136 to 138, you list information that includes the preliminary cost estimate of closure. The source cited is “Foth 2013.” I’ve looked at the cited memo in the SDEIS. The Minnesota DNR has simply copied information from PolyMet’s hired consultant without confirming or fact checking their work. If the Minnesota DNR and its co-lead agencies are unable to even fact check the work they presented on financial assurance, how are we to expect that you are capable of adequately protecting the citizens of Minnesota?	FIN05, FIN09

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rep. Phyllis Kahn (37929)	
3840	This project should not go forward unless a reputable third party insurer, such as Lloyd's of London, can be found to back the issued bonds. Private insurers have expertise in managing risk that the State of Minnesota can't match. Additionally, policymakers could tape the assurance funds for other purposes. Private insurance is clearly superior to a state managed approach in this case. The simple fact is, if a third party private entity will not take on the financial risk posted by PolyMet, the state shouldn't.	FIN08, FIN09
3841	In the SDEIS you say that financial assurance will be done in the Permit to Mine stage. Looking at the most recent MinnTac Permit to Mine document, there is one short paragraph on financial assurance. This project shouldn't go forward without robust public debate, and the opportunity for legislative hearings, if what we can expect is a paragraph from the DNR in the Permit to Mine phase. You must ensure that the public, including financial expects and those elected to represent the citizens of Minnesota, have a chance to weigh in on financial assurance. It has not been your practice to do so in the past, will it be in this case?	FIN13
Sender Name (Submission ID)	Rev. Charles Flynn (57341)	
18428	I would like to have something like PolyMet come in that could possibly reverse that and resuscitate our communities that are dying. ... I looked up the environmental review statement. It seems to be very much in accord with preserving God's creation and making sure that nothing bad happens to it. … the whole thing seems like it is going to preserve our clean water, preserve our environment and keep everything the way it should be.	SO10
18430	I have no fears that that [environmental degradation] will happen because the long arm of the law is out there.	PER34
Sender Name (Submission ID)	Rev. Wendy Jerome (51615)	
13197	Our watersheds are huge porous underground resources that sustain a world-celebrated wilderness. 100% of sulfide mines leak toxic carcinogens and sulfuric acid. The ancient Greek and Roman mines around the Mediterranean are still leaking today.	WR023
13199	We can count on the death of aquatic life and the terrestrial life - including human beings- dependent on it, if sulfide mining is allowed in Minnesota.	HU03
13200	Some think that sulfide mining would bring jobs to MN. On the contrary, it would bring a few hundred part time and full time jobs, that would be intermittent, given world ore prices. The mining would last 20 years. Minnesota would loose a slowly, but steadily growing recreation economy - and wilderness that is a world treasure for the world.	SO01
Sender Name (Submission ID)	Rhoda Drake (38447)	
13618	The potential pollution problems and destruction of the environment are my main concerns. The clean water and natural environment should be protected. Please do not permit the Polymet project.	GEN01
Sender Name (Submission ID)	Rhonwen Tas (39715)	
14884	The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility.	PD17
Sender Name (Submission ID)	Rich (38360)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rich (38360)	
13662	I'd like to share my support for Polymet and to tell you that they are committed to keeping a clean,safe operation that will employ thousands to begin with and hundreds for a long,long time.	SO10
Sender Name (Submission ID)	Rich Libbey (44953)	
8305	Rather than refilling the pit with sulfate laden crushed waste rock ... instead completely enclose the stock pile with a bottom liner and impervious overlay of geomembrane and concrete plus soil overlay	GT04, GT10
8307	The EIS needs to consider the use of fly ash from Minnesota Power's electric power plants which is high in PH and now put in tailings basins to be mixed with the concrete mixture.	ALT08
8310	If the Polymet mine can't develop a plan with zero discharge after closure then leave the ore body in the ground for future generations.	PD01
8312	I question the ground water migration figures and suggest test wells be drilled and pumping from the fracture zones to measure the ground water movements and fracture zones.	WR011, WR012, WR061, WR071, WR078, WR079, WR087, WR099, WR168, WR169
8329	What is the predicted out flow of the mine pit after closure and the water quality with and without refilling it with waste rock?	WR173
8331	How is Polymet going to handle the dirty contaminates that are removed from the water?	PD03
8333	The draft EIS does not consider the total impacts of possible future mines in the Duluth complex that is a certainty if Polymet is approved.	CU04
12689	THE EIS FAILS TO CONSIDER THE USE OF FLY ASH AS A SOLUTION TO POTENTIAL ACID MINE DRAINAGE AND USE AS A MINE CAP CLOSURE ALTERNATIVE AND US AS A NEUTRALIZING AGENT IN THE MINE PIT.	ALT08
17015	I Feel the SDEIS is inadequate because it does not analyze a ZERO discharge upon closure option. The current option of indefinite treatment by Reverse Osmosis is totally unacceptable. The only way this mine can be permitted responsibly is a NO ACTIVE TREATMENT OPTION.	ALT15
17018	THE SDEIS SHOULD ANALYZE THE FEASIBILITY OF TOTALLY ISOLATING THE SULFATE BEARING WASTE FROM AIR AND WATER. IT DOES NOT DO THIS AND IS THEREFOR INADEQUATE.	ALT01, ALT03
17019	THE FINAL EIS NEEDS TO PREDICT THE WATER QUALITY OF THE EAST PIT WHEN FILLED WITH WASTE ROCK AND WHAT IT WOULD BE WITHOUT THE WASTE ROCK BACK FILLED INTO IT.	WR173
17020	THE FINAL EIS NEEDS TO DETERMINE IF THE PIT WILL OVERFLOW IN PERPETUITY AS THE CANISTEO IRON MINE ON THE NORTH SIDE OF BOVEY IS DOING AND COSTING TAX PAYERS MILLIONS OF DOLLARS TO CONTROL EVEN THOUGH THE WATER IS SOME OF THE HIGHEST QUALITY IN THE STATE. IF THE POLYMET MINE OVERFLOWS WITH TOXIC RUNOFF THE PROBLEM WILL BE UN MANAGEABLE.	WR173
17308	Information on using waste fly ash [CCP'S] in mine closures. This should be considered in the Polymet EIS. The EIS is incomplete without considering all alternatives.	ALT08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rich Libbey (44953)	
17400	a reverse osmosis system...is a high maintenance system computer controlled with pumps constantly running and filters to be changed once a week. The Polymet water treatment plant would have to be manned 24 hours a day with at least 4 full time employees... I would suggest at least 500 million guaranteed up front bond tied to the consumer price index. The labor expense alone needs to be calculated. I would estimate at least $250,000 per year in operator wages.	FIN05
17401	I would also suggest that we pass a law similar to Wisconsin's that requires citing a similar mine that has operated at least 10 years and has showed successful closure for ten years any where in the world before applying for a permit to mine.	PER25
Sender Name (Submission ID)	Rich Sill (43686)	
15455	I feel strongly that if we, as Americans, are going to continue to demand gold, copper, platinum, paladium, etc we need to be responsible for mining those minerals here and be willing to take ownership of the problems associated with that mining. It seemed unethical to throw our demand on other counties, many of which do not have adequate environmental or labor laws to protect either their land or their people.	NEPA05
15458	After reviewing the SDEIS I am becoming increasingly concerned about the mines effect on wild rice. The latest report shows the 10 parts per million limit as probably a sensible amount of sulfite in the water. I am seriously concerned that their will be an aggressive action by certain parties to increase that greatly (in some reported cases to as much as thousands of parts).	WR160
15459	Wild rice is a sacred grain to the Ojibway people of this area and is protected by treaty. If the permit is granted I would strongly feel very strong ongoing monitoring be required. Wild rice is a valuable resource in itself and should not be sacrificed in order to extract other resources such as copper.	CR01
15460	I am deeply troubled by what I am currently hearing regarding the fact that nearly all the copper is scheduled for transport to China. I supported the mine originally because I believed we would be using these minerals primarily for domestic use.	PD25
Sender Name (Submission ID)	Rich Staffon (11626)	
7397	What will happen to the ownership of the land at the mine site? When the site has been reclaimed and rehabilitated, after mining is completed, would it be possible for the land to be returned to public ownership as part of the reclamation process? It would be great if a commitment could be made to return our public land after the project is completed	PD24
7397	What will happen to the ownership of the land at the mine site? When the site has been reclaimed and rehabilitated, after mining is completed, would it be possible for the land to be returned to public ownership as part of the reclamation process? It would be great if a commitment could be made to return our public land after the project is completed	PD24
Sender Name (Submission ID)	Richard & Carol Colburn (42764)	
14522	What environmental and economic preparations will be created to effectively monitor the mine site while in operation and after it closes in thirty years? What sort of escrow account can be required to insure there will be funding for environmental monitoring and necessary remediation of the site? What assurances will there be that the citizens of the region and Minnesota will not be left with both an environmental and economic disaster? Further, what preparations will be required to insure that Poly Met will be able to respond to an emergency situation now and in the future?	FIN01, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Richard & Carol Colburn (42764)	
14523	Equally important is provision of the funding necessary to effectively monitor the operations of the mine. We assume that it will be the responsibility of the Department of Natural Resources to monitor the mine. It makes little sense to develop stringent environmental and economic requirements but to inadequately fund the oversight of these requirements.	FIN01
14524	We have been told that the non-ferrous metal deposits in northern Minnesota are very large and will eventually be developed. If that is the case it is incumbent on the Department of Natural Resources and the state of Minnesota to insure that it will be done in such a way that the long-term environmental health of the region be protected.	CU02, PD30
Sender Name (Submission ID)	Richard & Justine Kingham (40204)	
6642	Minnesota is too fragile yet important a natural resource to threaten with this [mine]	PD01
Sender Name (Submission ID)	Richard and Katherine Collman (636)	
419	What price wilderness? What price our nation's great parks? What price pollution in our lovely northern waters? What price put on the short term vision for copper and nickel for world computers only to ruin some waters and woods in the next 100-500 years? We can put a price on short terms needs and suffer in the generations to come.	SO01
Sender Name (Submission ID)	richard anderson (41170)	
9205	I strongly believe that preserving our natural resources, including uncontaminated water, is more important than temporary financial gain.	WR195
Sender Name (Submission ID)	Richard Brainerd (16171)	
11232	I believe the planmine should not be built as proposed is a bad deal and puts Minnesota waters and taxpayers at risk.	SO02
Sender Name (Submission ID)	Richard C Staffon (11625)	
2307	[mining proposal will:] Increase mercury and sulfate pollution in the St. Louis River watershed which is already impaired for these pollutants. This has serious implications for human health and wild rice.	HU03, WR158
2307	[mining proposal will:] Increase mercury and sulfate pollution in the St. Louis River watershed which is already impaired for these pollutants. This has serious implications for human health and wild rice.	HU03, WR158
7398	[This mine will] destroy at least 3 square miles of high quality fish and wildlife habitat, including forests, wetlands, and streams. … A much larger area of habitat may be left degraded…A responsible mining plan would not result in the destruction of thousands of acres or our land, water and vegetation.	VEG03, WI02
7398	[This mine will] destroy at least 3 square miles of high quality fish and wildlife habitat, including forests, wetlands, and streams. … A much larger area of habitat may be left degraded…A responsible mining plan would not result in the destruction of thousands of acres or our land, water and vegetation.	VEG03, WI02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Richard C Staffon (11625)	
7400	[This mine will] leave a legacy of polluted soil and water in the St Louis River watershed that will need to be treated at great cost for possibly hundreds of years...A responsible mining plan would not require massive financial assurance, perpetual maintenance or leave toxic pollutants stored in ponds or basins that are subject to chronic leakage and eventual failure.	WR037, WR130
7400	[This mine will] leave a legacy of polluted soil and water in the St Louis River watershed that will need to be treated at great cost for possibly hundreds of years...A responsible mining plan would not require massive financial assurance, perpetual maintenance or leave toxic pollutants stored in ponds or basins that are subject to chronic leakage and eventual failure.	WR037, WR130
7401	Millions of dollars have already been spent to clean up the legacy of industrial pollution that was left in the lower St Louis River years ago. Much progress has been made, yet much work is left to be done to clean up this mess. Have we learned so little, that now we are willing to create the same problem in the upper reaches of this watershed?	WR111
7401	Millions of dollars have already been spent to clean up the legacy of industrial pollution that was left in the lower St Louis River years ago. Much progress has been made, yet much work is left to be done to clean up this mess. Have we learned so little, that now we are willing to create the same problem in the upper reaches of this watershed?	WR111
7402	I am opposed to an irresponsible mining project that … creates an enforcement nightmare for our public agencies. These agencies are unlikely to have the ability to monitor and require the mining companies to actually do what they have promised.	PER06
7402	I am opposed to an irresponsible mining project that … creates an enforcement nightmare for our public agencies. These agencies are unlikely to have the ability to monitor and require the mining companies to actually do what they have promised.	PER06
7403	When a mining company shows up that has the will, the technology and the financial strength to mine these minerals in an environmentally sustainable manner, only then should we consider giving someone a permit to mine in the water rich environment.	PER35
7403	When a mining company shows up that has the will, the technology and the financial strength to mine these minerals in an environmentally sustainable manner, only then should we consider giving someone a permit to mine in the water rich environment.	PER35
7404	A responsible mining plan would leave a site that is stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact natural resources and is maintenance free upon closure (MN Rules 6132.3200)	PD02
7404	A responsible mining plan would leave a site that is stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact natural resources and is maintenance free upon closure (MN Rules 6132.3200)	PD02
7405	The PolyMet SDEIS... defines a level of impacts that far exceeds what one could consider to be a responsible mining project. And on that basis, it should be denied.	PER35
7405	The PolyMet SDEIS... defines a level of impacts that far exceeds what one could consider to be a responsible mining project. And on that basis, it should be denied.	PER35
Sender Name (Submission ID)	richard carothers (10)	
296	This project is not worth the cost of our sacred forest and waters.	SO01
297	The jobs are not there now so what's the difference [if the mine is there].	SO06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Richard Cooter (54659)	
17926	Sulfide mining has a terrible history of water and air pollution and adverse health effects.	PER23
17927	Experimenting with new mine technology at the height of one of the world's great watersheds seems like a really bad idea.	WR128
17928	The claim is 30 years or so of jobs and 200 and 500 years of abatement and water monitoring. Will people 200 years from now thank us? Will they say "Those people helped to make our lives so much better by mining here"? I doubt it.	SO01
17930	Considering the nature of the jobs it seems clear the main beneficiaries of the project will the shareholders and not the public.	SO06
17931	The proposed fund for the 200 and 500 years of monitoring is really some kind of fantasy. Can the legislature be depended on to be acting in the public interest? Surely lawyers for the company won't be. Will some future legislature or governor find a way to raid the fund for their own purposes? Think of the tobacco fund.	FIN01, FIN08
Sender Name (Submission ID)	Richard Daly (16240)	
10313	MN has the capability and resources to move ahead with this very important economic development project using available advance technology and techniques that provide adequate safe guards to the environment!	SO10
Sender Name (Submission ID)	Richard Decoster (14900)	
13804	We live on the western end of the Mesabi Range and have been living with and still are, the remains of what the mining companies left, a mess for us all.	FIN10
13805	We want pure water for now and for the future and our clean environment left intact.	WR195
Sender Name (Submission ID)	Richard Flesvig (18067)	
3180	By express admission in the SDEIS significant water pollution will last for 200, 500 or longer in terms of years; and will require perpetual water treatment. Not all of the polluted water will be treated.	WR035, WR115
3181	The 90 percent capture rate of polluted water bears no scientific proof or substantiation. So the SDEIS must be rejected.	WR018
3182	…And the state's paramount concern for the protection of it's air, water, land, and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct."No such conduct is provided – no such alternative is provided in the SDEIS.	ALT13
3183	The SDEIS indicates that the details of the financial assurances required to sustain a 200- or 500-year period will not be disclosed until the permitting process commences. This is unfortunate as I seriously question how anyone can properly calculate the staggering dollar amount let alone provide a financial assurance for this long term of a period.	FIN01, FIN05, FIN13
17475	PolyMet "thinks" its actions will contain 90%+ of the runoff from the mine tailings. There is no science that confirms this prediction. If we assume that 90% of the highly toxic runoff is contained and "treated" through a highly questionable reverse-osmosis method, the 10% that is non-treated and leftover is significant to our environment. By ackowledgement in the SDEIS (see pages 3.5 of section 3.1.1.7 in the SDEIS), the term of treatment may be 200 to 500 years or longer.	WR018, WR035, WR108

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Richard Flesvig (18067)	
17556	The environmental and human relations performance of this parent company ishorrible. To think either PolyMet or Glencore will be a viable company beyondthe twenty-year life of the mining operation, let alone throughout the longperiod of clean up and remediation, is highly questionable. Please review theannual report of PolyMet and you will be very concerned about its viability andexperience.	FIN01
17557	There are no reasonable examples of environmentally safe sulfide mining in theworld. None. There are no reasonable examples of environmentally safe watertreatment using reverse osmosis technology on a large scale in the world. None. Why would we let PolyMet experiment at this location? It is one of the most important watersheds in the Northern Hemisphere.	PD03, PD23
17558	Economic considerations should not be the primary determinant in the decisionmaking regarding the SDEIS. How can twenty years of mining jobs be traded for decades and perhaps hundreds of years or more of environmentalcontamination and the destruction of our precious water resources?	SO01
Sender Name (Submission ID)	Richard Fuller (7673)	
51	It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells	HU01, WR041
52	It doesn't explore alternatives that could reduce PolyMet’s destruction of wetlands.	ALT13
53	It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish.	AQ28
814	PolyMet SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.”	WR037
1827	The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes.	CR01
1828	The Land Exchange serves only the private interest of a foreign corporation, not the public interest. The Land Exchange won’t unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining.	LAN04
1829	The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade.	LAN03
1830	The SDEIS’ analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St. Louis River and tribal resources.	CR01, WR115, WR189
1832	Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government’s fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice.	CR01
Sender Name (Submission ID)	Richard H Hudelson (54892)	
18827	I attempted to read the summary part of the SDEIS and found it difficult.	NEPA07
18828	I am worried about the great uncertainties regarding this project. Cost estimates, time period, reliability of technology, and unusual weather events all open room for bad outcomes. The risks seem too great.	PD01, PD22

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Richard Harris (54643)	
18008	IS the financial assurance of [a shell company, PolyMet] solid?	FIN01
18010	Have the models taken into account the torrential rains that St. Louis County had two years ago?	WR077
18011	Is there any chance that some of the copper can be designated to green energy companies that woul dbe set up in the iron range, creating jobs there?	SO04
Sender Name (Submission ID)	Richard Henke (7161)	
494	There is no question that this area is in need of the jobs this mine will create and support in the surrounding communities.	SO10
Sender Name (Submission ID)	Richard K Newkomet (57207)	
17116	This mining is going to pollute the land and waters so my grandkids will not enjoy what I have.	WR107
17119	Only thing this is going to benefit is the politician's pocket books… And when they are done making their millions of dollars they will pull out and leave the taxpayers to clean their mess up.	FIN01, FIN10
Sender Name (Submission ID)	Richard Lee Hallfrisch (54570)	
18228	Money is the only motive for them to be allowed to destroy parts of our north country for years to come.	SO02
Sender Name (Submission ID)	Richard Mammel (4869)	
1920	It seems to many of us that as Minnesotans voted for the Water Legacy Act only about five years ago that having this PolyMet issue pop up is a total contradiction as well as violation of policy, good sense, and ethics as well.	PER35
Sender Name (Submission ID)	Richard Martin (42940)	
11984	I have deep concerns about the mining project's potential impact on Minnesota's natural resources, water quality, loss of wetlands and harm to wildlife.	WET24, WI01
14507	My concerns are the proposed mining in the area will be a threat to the Minnesota wetlands, rivers, lakes and streams, including Lake Superior and the Boundary Waters.	WET24, WR024, WR081, WR111
14508	Even if just one of the potential negative events happens the impact will take decades, or even generations for the area to recover from the mining disaster.	PD01
Sender Name (Submission ID)	Richard McGehee (3617)	
664	do not allow the pollution inevitably produced by these dirty mines.	GEN01
Sender Name (Submission ID)	Richard Morrison (44360)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Richard Morrison (44360)	
10368	Provide time to plan and execute, before operations begin, water flowage tests within and out of the 100 Mile swamp. These would presumably include both water volume flow rates at appropriate times and also potential contaminant migration rates.	WR080, WR175
10370	Provide for a secure funding source in the event that remediation is found to be necessary at some future time.	FIN01
10371	Allow time to review and correct the misleading statements about drainage from the 100 mile swamp. It is clear from expert geological review that the swamp drains in part via Langley Creek into the BWCA. This is a fact which Polymet has omitted from its plan.	WR024, WR080, WR081, WR111, WR175
Sender Name (Submission ID)	Richard Morse (44542)	
11762	Not enough emphasis has been given to the fact that this mine is not only putting the jobs of the tourism area at risk, but many, many people like me would not relocate here if the environment is spoiled.	SO02
Sender Name (Submission ID)	Richard Pierce (32893)	
13828	With the midwest poisoning their water supplies with herbicides, pesticides and other chemicals. Other states having water supplies contaminated from fracking or having water supplis rationed due to drought and climate change... plus human population of earth nearig 8 billion, it is no longer prudent to endanger our GREAT LAKES with further pollution.	WR111
Sender Name (Submission ID)	Richard R Lund (57264)	
17404	Would it be economically more feasible to subsidize mine workers (unemployed) than to pay for environmental cleanup for 100 years?	SO01
Sender Name (Submission ID)	Richard Staffon (18347)	
2529	It [proposed action] will destroy at least three square miles of high-quality sufficient wildlife habitat, including forests, wetlands and streams.	WI02
2530	This project will increase mercury and water pollution in the St. Louis River Watershed, which is already impaired by these pollutants. This has serious implications for human health, especially fetal development (phonetic) in northeastern Minnesota, for people who eat fish, and it will also impact wild rice.	HU03, WR158
2531	it will leave a legacy of polluting the soil and water in the St. Louis River Watershed that will need to be treated at great costs for possibly hundreds of years.	FIN08
Sender Name (Submission ID)	Richard W. Swanson (47025)	
10925	We simply cannot afford to risk our environment for “progress and jobs.” Those two elements cannot be allowed to drive everything and outweigh serious concerns about environmental and health dangers. If there is any doubt, the doubts must be resolved in favor of the environment and health.	SO02
10927	There certainly have been doubts raised in the EIS and subsequent comments. Please do not sweep those doubts aside in favor of economic gain or the technical “needs” of our modern lifestyle.	NEPA05
Sender Name (Submission ID)	Richard Watson (3687)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Richard Watson (3687)	
9647	We are just beginning to understand how badly we have fragmented the forest here [through mining]….	VEG03
9648	We are just beginning to understand ... how impaired our waters are already [from mining]….	WR109
9651	Our efforts should be put to cleaning up what we have already mucked up and not trying to determine just how much more pollution we can tolerate.	NEPA15
9652	The myth of "strong regulations" in Minnesota must be scientifically evaluated, mining company variances denied, and corporate polluters held totally accountable before we embark on further pollution of this region.	PER06
9655	I strongly suggest we need to hold off on sulfide ore mining in this region until we have a much better plan in place than offered by Polymet.	PD01
12089	Real life understanding of the effect of the proposed mine on the BWCA requires determining the split of waste drainage in the swamp that goes to the St. Louis River and BWCA watersheds by hydraulic conductivity testing which has not been done.	WR024, WR071, WR080, WR081, WR111, WR167, WR175
12090	Ongoing protection of the BWCA requires periodic water testing for mine waste at Langley Creek and the Dunka River which is not provided for in the uncorrected SDEIS.	WR024, WR071, WR080, WR081, WR111, WR175
13053	SDEIS requires clarification as it is incomplete….The chemical and physical characteristics of the low grade ore crushing and grinding should be tested and defined for appropriate and specific design of the emission control system for the low grade sulfide ore crushing and grinding operations and not rely on taconite plant designs….	NEPA09
13055	SDEIS must include a consideration of all sources of Ultra Fine Particles' (UFP), quantities of UFP's generated by each source, and a method for controlling such particles to eliminate human exposure to UFPs….Ultra Fine Particles are toxic due to their size and not necessarily their chemical makeup. Nano Particles or Ultra Fine Particles which may be present in crushing and grinding operations are definitely produced when high explosives are used to blast rock and are present in diesel exhaust. Testing for UFP's at all physical handling stages, blasting, crushing, grinding, and transport should be standard. And, elimination or control of UFPs, a known health hazard, must be accomplished.	HU01
13058	The SDEIS modeling of what happens in the tailings basin is incomplete and misleading. in studying the Beneficiation Process, we discover that there is a list of chemicals that are listed as "Consumed." This list amounts to a total of 29,738.5 tpy (tons per year) of additional chemicals, of varying degrees of toxicity, that will be added to the tailings basin according to a reply I received from the DNR….This is problematic in itself, a large quantity of varying degrees of chemical toxicity that have essentially been unaccounted for and is not included in modeling and could have a significant impact on chemical interaction in the tailings basins.	HAZ03, WR025, WR057
Sender Name (Submission ID)	richardbradford@mchsi.com (6686)	
1204	We need what Polymet will mine and this mining can not be done more safely in any other part of the world	ALT16
1291	I believe that the review process is as complete as it can possibly be.	NEPA16
Sender Name (Submission ID)	Rick (39533)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rick (39533)	
6271	Section 5.2.2.3.1 of the EIS. Common sense tells you that the aquifer in the area and in the pit will be affected by such an operation. There is no way the current compaction levels can be redone to seal off any contaminants from entering the aquifer.	WR005, WR088, WR171
6273	500 years plus [of water pollution and treatment] is a long time with prohibitive costs that will be a burdon on future taxpayers.	FIN10, WR115
6277	To allow [the backfilling of the East Pit after year 11] would lead to a direct injection of sulfides and heavy metals into the aquifer.	WR088, WR171, WR173
13569	The plan calls for pumping water back in it including "treated water" from the WWTF. The word limit is in the EIS. Limit to me means not quite as much. There should be no oxidation of the sulfide minerals.	PD03
Sender Name (Submission ID)	Rick Brandenburg (54658)	
17936	The 900 acres of wetlands this project would destroy and the thousands of additional acres that would be degraded by pollution, drawdown and drainage include a mosaic of many different communities with an incredible range of biodiversity that could never be replaced by proposed mitigations measures.Replacement wetlands just don't work. There is insufficient analysis of the loss of ecosystem functions that would result if the permit is issued. This wetland loss is unacceptable.	WET05
17938	The decision the USACE must make as to whether to allow Poly Met to go ahead with its plans, pits the permanent chemical, physical, and biological destruction of all these special places, at the headwaters of a thegreatest river on the US side that flows into Lake Superior, against the worth of not very many jobs that will last for maybe 20 years. The Poly Met Section404 Permit should be denied.	SO01
17941	The [Land] exchange would be senseless from the Forest's point of view, since it would not enhance forest biodiversity and other values, and it would not benefit the public who use the Superior National Forest and want to see it protected.	LAN01
17942	The tremendous volume of this waste rock, as well as distrubed peat, mine pits, and tailings that the minue would generate is stupendous, and mercury is giong to be seeping away from all of it.	MERC20, MERC21
17943	The SDEIS looks at the impacts of mercury deposition on area lakes--why not streams and rivers? The predicted mercury loads to the Partridge River from the Embarrass River is underestimated because of this oversight.	MERC08, WR044, WR045
17946	If PolyMet is allowed to carry out its plans, sulfates, lead, copper and probably other pollutants are going to be poisoning the St. Louis River, its estuary, and Lake Superior for hundreds of years, because perpetual treatment is never going to happen.	FIN01
17947	The jobs touted by the mining companies will come at the expense of natural resource and tourism occupations that depend on pristing northwoods.	SO01
Sender Name (Submission ID)	Rick Cannata (18203)	
13436	We need the jobs in Northern Minnesota, not just the construction jobs and the mining jobs, but it's all here, the manufacturing, all the spinoff jobs	SO10
Sender Name (Submission ID)	Rick Olson (44693)	
7210	The risk to water quality, wild rice, fish, birds, other wildlife, and other segments of the environment are too high to permit sulfite mining in northern Minnesota.	VEG04, WI01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rick Olson (44693)	
7212	How is the DNR assured PolyMet will be able to pay for environmental cleanup years after the jobs are gone and the environment is severely damaged?	FIN01
7214	What is the economic impact on the region?... Jobs would be created by mining; however the potential to loose jobs in the area is a factor...Tourism and recreation jobs may be lost.	SO04
7220	Potential benefits of sulfide mining is not worth the potential to severely damage a watershed that connects to the largest fresh water lake in North America.	WR115, WR195
Sender Name (Submission ID)	Rick Putnam (39076)	
10227	I do not think it is in the best interest for the citizens of Minnesota tobe responsible for future tax burden as a result of cleanup costs forpollution that will result from poly mets project. … The reason I am so concerned…in spite of poly met saying that they would be responsible, is that the financial assurances need to remain in place for an extreme amount of time.	FIN01
10230	I understand that the financial assurance part of this project is actually looked at in the permitting stage, but I strongly feel it is important that it is addressed here as well.	FIN13
10232	The land swap between the forest service and poly met in my mind needs tohave its own separate review.	NEPA13
10242	Plan to account for the destruction of moose habitat as well as othernatural habitat for the Canadian lynx	WI02
10243	Plan should call for a detailed plan for financial assurances that protect current and future taxpayers	FIN10
10244	Plan should accurately assess health risks to the public	HU01
10245	Address the risks of mercury pollution for our children as well as future generations	MERC03
10246	Plan should improve wetland protection and replacements	WET04
10249	Provide Minnesotans with accurate information about how long polluted waters will require treatment	WR036
10250	Glencore must be recognized as a responsible party for permitting because of its ties with PolyMet	PER02
10253	Our fresh water is our most Important and valuable resource.	WR195
16671	I feel it is a mistake for us to make this trade which would allow non ferrous mining to be done in our national Forrest without a longer period of time for public comment and education on this important change of use. It just does not make logical sense, unless a for profit corporations project does not need to have the same scrutiny as an individual.	NEPA07
16672	There is some discrepancy as to the amount of water being released from theproject. I would believe the tolerances were put into the model for a goodreason therefore it would make sense that the correct numbers be put in andthe model be rerun. This is an important part of the EIS. In order to protect our citizens it is only responsible to redo the calculations and do a revision of the model.	WR086, WR093, WR105, WR178, WR183, WR189

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rick Putnam (39076)	
16674	[I am] very troubled by the potential harm this type of mining could bring to northern Minnesota. I believe this harm will not only come to the earth but also would be damaging to the already established tourism environment of thatarea. This includes businesses as well as cabin owners. The related jobs,as well as construction jobs, taxes and other benefits this tourism economyand vacation home industry brings to the state is sustainable and can begrown. I do not believe that the current tourism economy and vacationhome industry could flourish side by side with the nonferrous mining economywhich brings pollution and greater industrialization to this unique part ofour country.	SO02
Sender Name (Submission ID)	Rick Skoog (57347)	
18397	I guess my main point is I really find it hard to believe that a for-profit company, who is a foreign corporation, is going to put up the money, and they fully admit that it is probably going to be for 200 years' worth of water treatment. I really find it hard to believe that a for-profit corporation is going to put up that amount of money and guaranty that amount of money. And I find it hard to believe that that amount of money can be put in a safe place, without some politician stealing from this, "We have got a big fund here and it is just sitting here and it is not doing anything, so we better borrow from that fund."	FIN01, FIN08
18398	no compelling reason to have 20 years' worth of mining that is going to end up producing 200 years' of pollution.	SO01
18401	They are not treating the problem [with water treatment]. They are just treating the runoff from the water.	WR195
18743	One big bad idea is for the Federal government to trade land for this deal. Over 1000 acres of wetland will be lost forever. They are not trading wetland. It is federal land not Minnesota land or Hoyt Lakes land, but this does not protect or enhance the federal postion it only puts the federal tax payer on the hook with hthe toxic chemicals leach from the tailings pond.	LAN01
Sender Name (Submission ID)	Rita Ann Youngs (9591)	
220	There is nothing more important than our most precious resource, clean water. We cannot leave future generations of Minnesotans strapped with polluted water.	WR195
1132	We need to do more recycling and reusing materials versus digging into this precious land.	ALT16
Sender Name (Submission ID)	Rita Bauer (39325)	
12783	We need to seriously consider the impact on wildlife and the environment as well as humans. I do not feel this is too much to ask. It is the minimum !	WI01
Sender Name (Submission ID)	Rita Jarrard (20706)	
16104	The proposal by Polymet to trade acreage in the Superior National Forest for other land in northeastern MN sounds unlawful and dangerous…These other lands include those "protected" by treaties with Ojibwe Indians. How many more times will people of power vote to disrespect our early Americans?	LAN05
16105	Pollution from such mines would destroy the land for hunting, fishing and growing of crops by the Ojibwe, and create untold health hazards for ALL future generations of Americans.	HU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rita Kovtun (43220)	
14215	When weighing the pros and cons of the project, it seems logical to discontinue the project as the number of years of profit are only a fraction of the number of years of treatment and rehabilitation of water and land.	SO01
Sender Name (Submission ID)	Rita OConnell (47774)	
8202	Providing water quality treatment for 200 to 500 years (or more) is incomprehensible...can we really, in good conscience, even consider permitting a mining action whose wastewater discharges do not meet water quality standards without mechanical treatment at the time of or shortly after closure? Is it legal to permit a facility with such a long-term timeline?	PER04
8205	If the company is still in existence in 200-500 years, its own estimate of postclosure costs...is $700 million to $1.2 billion. Will the company's profits from 20 years of mining be sufficient to pay for that?...Or will they prepay those entire cost in an upfront manner	FIN01
8210	Reverse Osmosis...produces a concentrated waste product that must be removed to "appropriate off-site facilities" (page 3-72)…I'm concerned that these wastes are truly "treated appropriately" so they don't move the contamination problem to another location.	WR145
8219	I'm concerned, however about whether groundwater will move into fractures in the bedrock…I didn't find a description of what bedrock was present at the stockpile location, and then reading on page 4-46 that the upper 200-300 feet of the Duluth Complex is more fractured & jointed than lower portions. If the stockpile is located on that or other fractured bedrock, building a hydraulic barrier down to bedrock may still allow significant contaminated groundwater movement away from the site.	WR011, WR017
8228	Fig 3.2.10 shows the 20-year pit extending only into a small portion of Unit 1… [and] that Unit 1 is exposed at the land surface at the mine site, but is not part of the 20-year projected mine pit. It's hard to believe that the company won't expand further into that ore body.	PD30
11177	Do you really think the company will be around or responsible for that long? Will the state of Minnesota be around in 500 years? Look back at what was happening 200 years ago (1814) or 500 years ago (1514), and could people in those times accurately predict what would happen today? No, and no more can we predict our distant future.	PD24
11189	Another project is already well into their planning process - Twin Metals is proposing to mine at the Birch Lake, Maturi, and Spruce Road locations, the latter 2 of which are quite close to the BWCA.	CU02
Sender Name (Submission ID)	River Gordon (16874)	
13933	I understand the short-term economic benefits of a project like this, but the risks to our abundant and beloved natural resources are just too great.	SO01
Sender Name (Submission ID)	River Point Resort & Outfitting Co. (39586)	
6305	There is no comprehensive analysis in this SDEIS that incorporates short-term, moderate-term, long-term and very long-term (hundreds of years) estimates of costs and benefits.	FIN05
6306	there are no reasons given why other alternatives that could reduce pollution and impacts on wetlands were not analyzed.	ALT13

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	River Point Resort & Outfitting Co. (39586)	
6308	everywhere on the Earth where this type of mining has occurred, heavy metal pollution and acid mine drainage is a result. Nowhere in the SDEIS was there any acknowledgement of this fact. Nor was there any data substantiating that the proposed PolyMet Mining Corporation's North Met mining project would be unique in preventing what history tells us happens at each and every sulfide mine site, and will occur at the PolyMet.How will this venture in Minnesota's water rich environment be done in such a unique manner, as to guarantee no pollution to our waters?	PD26, WR023
6332	The SDEIS does not address why, with modern technology and knowledge, these [Dunka Mine and LTV Tailings Basin] continue to have AMD runoff into our watersheds, threatening the health of our birds, our wildlife, our wells, and ultimately our human health. Failure to raise this issue of past history of AMD drainage in the SDEIS raises serious questions about the commitment of PolyMet, the MPCA, and other responsible agencies for protecting our environment and health both during and after mining operations.	PER06, PER18, WR023, WR029
6334	It is more important to have our natural resources protected for the good of the public now, and for the generations to come than to allow this flawed and inadequate PolyMet sulfide mine proposal to proceed to permitting. A mine cannot be permitted if it causes destruction of our natural resources. We Minnesotans have the right to protections of these natural resources.	PER35
6895	How does the USFS think the destruction of 1000+ acres of prime wetlands and thousands of acres of Superior National Forest through sulfide metal mining will serve the Public Interest? (…) The proposed land exchange goes against the Weeks Act and does NOT serve the Public Interest.	LAN01, LAN02
6899	1.Wetlands cannot be created. How will the USFS loss of the 1000+ acres wetlands and the loss of the “one hundred mile swamp” for the creation of the proposed sulfide metal mine of PolyMet be made up?2.How will the loss of wetlands and the loss of the 100 mile swamp affect and impact the water resources surrounding the proposed mine?3.How will the loss of wetlands and the loss of the 100 mile swamp affect sensitive and endangered or threatened species such as the wolf, moose, and lynx and their critical habitat, including noise and the destruction of winter denning or shelter?	WET14, WET19, WI01, WI02, WI05, WR112
6903	4.How will the loss of open space be made up? 5.How will the loss of forests be reconciled?	VEG03
6906	6.How can the USFS ignore the cumulative effects of mineral exploration?7.How can the USFS ignore the cumulative impacts regarding loss of and damage to wetlands?	CU02
6911	8.How can the USFS ignore the potential for environmental damage due to espouse of sulfide ores to air and water, and the potential leaching of toxic heavy metals into the environment?9.How can the USFS ignore contamination from the drilling process itself, including air quality degradation during drilling operations and potential for leakage of gas or oil from equipment and chemicals used in the process, and the auditory pollution from the noise of drilling and heavy machinery?	AIR10
6912	10.How can the USFS ignore the effects regarding water usage and water contamination as related to mineral exploration?	WR203
6914	11.How can the USFS ignore the lack of funding to monitor the extent of exploratory drilling and the necessary future monitoring of the sites for acid mine drainage (AMD)?12.How can the USFS ignore the acid mine drainage (AMD) that is occurring at the former INCO exploration site on Spruce Road, some 36 years after exploration was completed?13.How can the USFS ignore the perpetual nature of acid mine drainage and its very controversial aspects?	WR001, WR023, WR203
6915	16.How can the USFS ignore the degradation of US public lands by foreign companies?	NEPA02
6916	17.How can the USFS ignore the potential impact of mining on the present tourism and recreation industries, and forestry and fisheries as related to federal lands?	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	River Point Resort & Outfitting Co. (39586)	
8766	PolyMet's SDEIS has a flawed water flow model. And, now…it is apparent that the SDEIS also has another flaw – water seepage.	WR017, WR019, WR189
8769	the seepage collection system at Minntac had an approximate return rate of only 50 percent…50 percent is sure a lot less than the 99.38 per cent claimed in PolyMet's SDEIS. Inaccurate, flawed information. And, from those hundreds of operating systems lauded by the SDEIS, only one could be found. Amazing.	PD03, WR020, WR023
10041	The SDEIS maps draw a much smaller swamp downhill from the mine compared to existing government maps. According to US Government maps, the One Hundred Mile Swamp downhill from the mine is 10.4 miles long and drains to both the Saint Louis and Rainy Lake (BWCA) watersheds but SDEIS maps show a shorter 5.5 mile long swamp that is missing the portion of the swamp that drains to the BWCA. Omitting the portion of the swamp that drains to the BWCA supports PolyMet's conclusion that seepage of mine waste water to the BWCA watershed will not occur.	WR024, WR080, WR081, WR111, WR167, WR175
12067	The projected seepage from PolyMet's tailings basin and the Mine Site Category 1 waste rock stockpile has been grossly underestimated.	WR017, WR018, WR060
12069	PolyMet does not propose to line the Tailings Basin, nor is the existing LTVSMC Tailings Basin Lines." (SDEIS, p.5-161) ...a proposed tailings basin of approximately 2,900 acres in size, or four-and-a-half square miles, would be situated, unlined, on top of an existing, leaking, unstable tailings basin, also unlined, screams BIG TROUBLE.	PD07, PD10, WR105
12072	The SDEIS assumption of nearly perfect seepage collection is the critical foundation upon which all claims that PolyMet might comply with water quality standards downstream of the tailings piles rely. This assumption is unreasonable, unfounded, inconsistent with site conditions and inconsistent with the Modeling Work Plan methodology adopted by PolyMet.	WR018
12079	the only example the lead agencies had (of field experience with tailing seepage pump-back) was a study to estimate possible seepage collection at the Minntac tailings basin. And records obtained from the U.S. Army Corp of Engineers through a Freedom of Information Act Request indicate that the seepage collection system at Minntac had an approximate return rate of only 50 percent." 50 percent is sure a lot less than the 99.38 per cent claimed in PolyMet's SDEIS.	WR020
14601	Will the proposed benefits of the projected mining operations significantly outweigh the risks and harms to the environment, to population health and the economy?	SO01
14602	Environmental groups say the regulatory history of the Dunka Pit is an example of lax enforcement policy at the MPCA.	PER06
14603	There are reasonable foreseeable problems that may arise in this project that would adversely impact waste water treatment and tailings management which are not reviewed. ...Broken pipes, human error causing accidents, equipment malfunction, and severe weather related disasters.	WR021, WR127, WR128, WR144, WR202
14604	The SDEIS provides no factual assurance or details (only vague references and the need for "adaptive management techniques") on the impacts to water quality, wildlife or human health if the treatment system fails or if there is a breakdown, which is inevitable. To be told by the agencies, and specifically by Jess Richards, "that emergency planning also will be included in the mine's permitting" is irresponsible and inadequate, as there will be no opportunity for public comments at that step in the process.	PD01
14605	There is no Financial Assurance plan provided. This is an integral part of the EIS proposal; yet, lead agencies do not currently require it until after the EIS is approved. No public comment period for the public to weigh in on this crucial piece of the PolyMet NorthMet Sulfide Mine Proposal.	FIN13

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	River Point Resort & Outfitting Co. (39586)	
14606	Why are the same valid reasons to involve the public with comments related to the EIS not also critical to the public's involvement and comments for the 'permit to mine' process? This is illogical and raises the red flag as to the validity, fairness, transparency, and credibility of the entire decision- making process.	PER01
14607	The SDEIS provides no credible information about the cost of monitoring, maintaining, and replacing equipment needed to treat polluted water for 500 years or more. No details are revealed about the nature of guarantees of a financial assurance scheme that would remain viable for 500 years or more….	FIN01, FIN05, FIN11
14752	[The SDEIS] water flow modeling was flawed. Definitely a big problem when the Minnesota Department of Natural Resources seriously underestimated the amount of water available to transport pollutants. Perhaps a show-stopping problem; the DNR is not talking. The Tribes have been saying for years that water flow numbers were wrong.	WR003, WR091
14753	The co-lead agencies have not only made incorrect assumptions for base water flow, they have made incorrect assumptions for seepage of contaminated water (uncaptured and untreated). Simply put, they do not know how much surface and groundwater flows through the area; how fast, far, and where it flows; or how much contaminated water is escaping.	WR003, WR019
14754	[The SDEIS claims] that 99.38 percent of total seepage from the tailings piles will be collected and treated...However, the implicit assumption that total groundwater seepage at the tailings site would be 209 gpm (thus, total uncaptured groundwater would be 21 gpm during PolyMet's operations) is incongruous given the volume of water in the tailings system.	WR018, WR056, WR060
14755	the SDEIS also assumes that no seepage will be released into Second Creek and that no seepage will drain into groundwater beneath the vast, unlined tailings piles through fractures and historic streams or as a result of changes in topography as tailings are deposited. Each of these claims is unreasonable and unfounded."	WR010, WR092, WR117, WR118
14756	The PolyMet SDEIS released to the public made no mention of fractures under the tailings basin—not one—even though the Preliminary SDEIS (PSDEIS) referred to "fractured bedrock" under the site. Even though, at a scale of 1:500,000, a 2011 statewide compilation of bedrock geology showed at least one long fault line running beneath the tailings site.	WR010, WR061
14757	It is reprehensible that crucial pieces of the PSDEIS never saw the light of day in the SDEIS, that a water treatment facility operating "for perpetuity" was redacted. Or that "fractured bedrock" under a tailings basin sank out of sight by the time the SDEIS was released. The EIS process is not supposed to be some kind of " hide and seek" game with the public.	NEPA05
14758	The co-lead agencies must reject the PolyMet SDEIS... make the company tell us how much pollution would occur and how nasty the results would be if the seepage collection was 50 percent effective, or maybe, on a good day, 75 percent effective. Have the courage and integrity to use field experience and science instead of wishful thinking and misdirection.	WR022, WR038
14982	Maps in the SDEIS released on December 6, 2013 make it appear that sulfuric acid and heavy metal containing mine runoff will drain only into the already impaired Saint Louis River watershed when in fact drainage can go to two watersheds, one of which includes the unspoiled Boundary Waters Canoe Area wilderness.	WILD01
14983	The downstream flow mapping feature of the www.nationalatlas.gov/streamer map was used to show that the eastern portion of the One Hundred Mile Swamp drains via Langley Creek and the Dunka River to the BWCA, and that the drainage will also affect the Quetico Provincial Park along the US – Canada border.	WILD01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	River Point Resort & Outfitting Co. (39586)	
14984	Real life understanding of the effect of the proposed mine on the BWCA requires determining the split of waste drainage in the swamp that goes to the St. Louis River and BWCA watersheds by hydraulic conductivity testing which has not been done.	WR024, WR071, WR080, WR081, WR111, WR167, WR175
14985	Ongoing protection of the BWCA requires periodic water testing for mine waste at Langley Creek and the Dunka River which is not provided for in the uncorrected SDEIS.	WR024, WR081, WR111, WR175
14987	Untrustworthy conclusions about sulfide mining pollution from PolyMet's proposed mine can't go unresolved. The incorrect mapping in the SDEIS is a huge issue. This DEIS is flawed and must be rejected.	PD29, PD38
19005	I believe that some serious common sense must prevail in this proposed land exchange between the US Forest Service and PolyMet Mining, Inc (PolyMet) with the purpose of allowing a foreign sulfide mining company to garner federal lands so that copper, nickel and other precious minerals could be extracted resulting in the ultimate degradation of U.S. public lands, wetlands, and the entire watershed leading into Lake Superior.	WR111
Sender Name (Submission ID)	RJoa (3951)	
700	I don't believe wetlands are replaceable. The wetlands in the proposed mine area are imperative for wildlife of all kinds as well as migrating fowl. It is my understanding that there is proportionally only a small quantity of wetlands in the watershed of the area. Replacing this biologically priceless land with a larger chunk of essentially man-made wetland that has already been robbed of its wealth in another part of the state could never be a "fair" trade.	WET03, WET14
701	there are stories all over the country of mining companies not doing what they've agreed to do as far as pollution mitigation. They go for years without supervision or inspections from federal or state authorities. When they are finally held accountable they simply say it is too expensive to correct and will cut into profits for shareholders or company owners. They pay a small fine and continue business as usual. Profits are considered a good reason to destroy the health of local people and lands.	FIN01
Sender Name (Submission ID)	roadrunnerkappes@netscape.net (36861)	
8782	200 permanent jobs!!! Just a number!...the 200 job number is probably high and it is probably in the 150 employment range.	SO06
Sender Name (Submission ID)	Rob Davis (18136)	
13514	And it's a near certainty that there will be millions of dollars of cleanup.	FIN05
13515	PolyMet is not a Minnesota company. It's just not a good deal for Minnesota.	SO06
Sender Name (Submission ID)	Rob Grunewald (47779)	
11964	The EIS should specify in detail the impact of a large flood or other extreme weather event on PolyMet's proposed water filtration process. Over a 500 year period there is high risk that an extreme weather event would happen in the proposed mine area, especially with the prospects for increased weather volatility in the context of climate change	PD22, WR176

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rob Grunewald (47779)	
11970	The number of jobs created by PolyMet's mine should not be considered a tradeoff for a clean environment. Minnesota can wait as long as it takes until mining and containment technologies are proven to be effective.	SO01
11974	The EIS should assess the risk and implications for the environment if PolyMet is sold or goes into bankruptcy...A buyout or a bankruptcy has environmental implications due to the 500 years or longer of time required to maintain clean water at the mine site and surrounding area.	FIN01
14142	The state can and should wait until the sulfide mine water filtration technology has been tested and used in a multi-year project with absolute perfection in another location before trying it in Minnesota.	WR143
14145	We need time to reduce risks that ultimately the taxpayers of Minnesota would have to pay if PolyMet’s proposed environmental clean-up plans fail.	FIN01
14146	Granted as mining technology improves, the number of jobs could be smaller in the future, but in that case the jobs will likely be even higher paying and safer.	SO06
14148	Mining companies like PolyMet that get projects off the ground can be bought out by larger multi-national corporations that have less investment in the local community. There is risk that if PolyMet is purchased by a large mining firm that the new owner will not show as much good faith in adhering to promises to safeguard water sources from contamination.	PER02
Sender Name (Submission ID)	Rob Simonich (38377)	
13659	Based on the impact statement, I have total confidence in Poly Met and our DNR to do the right thing. No one wants to destroy what we have. That's why we live here.	PD28
Sender Name (Submission ID)	Robby Bragg (40586)	
8894	The affects of this mine will be detrimental to not only the environment but will not help the economy or jobs in the long run either…Since the mine is a temporary endeavor so would be the workers' contracts. Unless you are planning on the environmental destruction that would be caused by this mine and the jobs that would come of that. If so, I think that is a pretty hypocritical precedent to set for our children.	SO02
Sender Name (Submission ID)	ROBERT A BRODIE (14782)	
172	the few FULL time jobs that will result in this endeavor will not be worth the likely leakage of heavy metals into the water.	SO01
1750	[there is] the likelihood of the mining operations disrupting the water tables and creating havoc to populations of people and wildlife in the future.	WI06
1751	It is in the foreseeable future that water shortages will become an economic reality, with talk of getting water supplied to other states from Lake Superior…our clean water is an important source of life, not only for Minnesota's people and environment, but also as a viable economic tool for the future.	CU11
Sender Name (Submission ID)	Robert A Johnson (11573)	
2224	By doing sulfide mining in Northern Minnesota you will not only harm the air and water, you will eliminate the tourism to the area. The animal life will suffer and our children ill no longer have a healthy future.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Robert A Johnson (11573)	
2224	By doing sulfide mining in Northern Minnesota you will not only harm the air and water, you will eliminate the tourism to the area. The animal life will suffer and our children ill no longer have a healthy future.	SO02
2225	What if the future holds another depression? Who will then pay for the clean-up? How do you restore a destroyed environment?	FIN01
2225	What if the future holds another depression? Who will then pay for the clean-up? How do you restore a destroyed environment?	FIN01
3243	I want you to consider what you are giving up. In 20 years fresh water will be scarce in Minnesota. If you left this wilderness area in good condition, our children could enjoy a healthy habitat along with the wildlife. People would pay a very high amount to visit such an area.	SO01
3243	I want you to consider what you are giving up. In 20 years fresh water will be scarce in Minnesota. If you left this wilderness area in good condition, our children could enjoy a healthy habitat along with the wildlife. People would pay a very high amount to visit such an area.	SO01
Sender Name (Submission ID)	Robert Ambler (42089)	
2134	the SDEIS is insufficient... because it is lacking vital information about long-term water treatment and how it will be paid for -- information that is necessary to decision-makers.	FIN01
2137	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
2142	Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk.	SO01
Sender Name (Submission ID)	Robert and Barbara Engel (54585)	
18267	We need this for Minnesota jobs and development!	SO10
18267	We need this for Minnesota jobs and development!	SO10
Sender Name (Submission ID)	Robert and Kathryn Stodala (57209)	
17123	Regarding the SDEIS, specifically the Partridge River baseline base flow and the XP-SWMM model predictions, we feel that base flow has been underestimated in the Partridge River by 3 to 4 times. This would mean transport of greater quantities of pollutants. Current base flow projections are outdated and do not align with the rating curve from the new MDNR winter monitoring data or data from the Dunka Rd gauge.	WR003
Sender Name (Submission ID)	Robert Bartholomew (18213)	
2173	I believe in this system. They've done their job.	NEPA16
Sender Name (Submission ID)	Robert Brandon (15748)	
12004	Please explain how 100-year swamp drainage into the Duncon River….has benen omitted from consideration.	WR080

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Robert Brandon (15748)	
12006	Concerned citizen worried about short-term gain for long-term loss.	SO01
Sender Name (Submission ID)	Robert Bruner (33192)	
12183	Everyone is in favor of more jobs and economic activity. However, it is a forgone conclusion that the project will end up polluting the waters of the Arrowhead Region of Minnesota...This ends up being a tradeoff between water quality which serves everyone forever if we protect it, and short term economic gain for a small number.	SO01
12185	Everyone is in favor of more jobs and economic activity. However, it is a forgone conclusion that the project will end up polluting the waters of the Arrowhead Region of Minnesota...This ends up being a tradeoff between water quality which serves everyone forever if we protect it, and short term economic gain for a small number.	SO01
Sender Name (Submission ID)	Robert Bullis (11280)	
12532	Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come.	WR195
Sender Name (Submission ID)	Robert C. Jackson (47356)	
12244	Make a serious study of tunnel mining as an alternative.	ALT06
12246	Add weighted valuation to your overall damage risk strategy of avoidance, minimization, and compensation. In my value system avoidance has a much higher weighted value than minimization. Compensation, no matter what the dollar amount, is a last resort with almost no value compared to the loss or degradation of habitat for threatened animals, numerous plant species including wild rice, human health via air and water quality, and the land itself.	NEPA15
12250	Rethink the proposed land swap and mitigation plan. (…) Peat bogs are ancient with unique plant communities which cannot be replaced, at least not for thousands of years. Restoring wetlands elsewhere is not a good bargain.	WET05, WET15
12252	Let the MN Department of Health do a health impact assessment of the proposal. Northern Minnesota babies are already born too often with hazardous levels of mercury in the blood (…) The operation will release mercury into air and water. Also the risks of lung problems from amphibole mineral fibers released during rock-crushing operations seem unknown.	HU01
Sender Name (Submission ID)	Robert Chapman (16775)	
12342	the BWCA is one of the last few preserved forests… An incredible plethora of wildlife and foliage resides in the BWCA (many of which don't exist anywhere else) and contaminating it is only blemishing the face of America.	WILD02
Sender Name (Submission ID)	Robert Devine (4350)	
1807	This PolyMet proposal will be similarly 'rubber-stamped' [as the White Bear Lake aquifer depletion] by your leadership and no doubt all the public comments will be dutifully ignored as you serve your corporate masters.	NEPA15
1808	the executives [will] walk away with millions leaving someone else to suffer the environmental damage, birth defects and cleanup costs.	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Robert E McKlveen (42786)	
6864	The SDEIS fails to adequately and accurately account for the impact that the thousands of people like me have on the local economy, and the harm to the economy if the mine is built under the currently proposed conditions and restrictions. The current SDEIS fails to appropriately quantify the decrease in recreational economic activity that WILL occur if the mine is built. If the waters or air of the BWCAW and the surrounding area are damaged by this mine or its aftermath, fewer visitors (including myself) will come to the area. This would have a significant negative impact on the economy of the area that will outlast the productive life of the mine by decades or centuries. The SDEIS needs to account for this negative impact in a meaningful way.	SO04
12732	In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site, undermining confidence that it can accurately predict future water conditions.	WR049, WR091, WR189
14102	There is evidence that the current surface and groundwater flows in the Partridge River basin that were used in the SDEIS were flawed. Correction of those errors may significantly impact the conclusions of the SDEIS.	WR003
14103	History tells us that such system failures [e.g., pipeline] DO occur, with regularity. Failure to plan for such failures is a recipe for environmental disaster.	PD22
Sender Name (Submission ID)	Robert E. McKlveen (43049)	
12258	The SDEIS fails to adequately and accurately account for the impact that the thousands of peoplelike me have on the local economy, and the harm to the economy if the mine is built under thecurrently proposed conditions and restrictions. The current SDEIS fails to appropriately quantifythe decrease in recreational economic activity that WILL occur if the mine is built. If the waters orair of the BWCAW and the surrounding area are damaged by this mine or its aftermath, fewervisitors (including myself) will come to the area. This would have a significant negative impact onthe economy of the area that will outlast the productive life of the mine by decades or centuries.The SDEIS needs to account for this negative impact in a meaningful way.	SO04
Sender Name (Submission ID)	robert fors (57676)	
19362	This project will create much needed jobs in the region, provide tax revenues for the state, bring investment dollars into the state, and it will provide opportunities for educated young people to find employment in MN.	SO10
Sender Name (Submission ID)	Robert Frame (46787)	
8629	The costs of trying to keep this copper mine (and its openly anticipated expansion) from being hugely damaging to water quality and from causing other environmental degradation is unknown, and unknowable. Therefore, the most stringent review as well as limitations/requirements on the company need to be the guiding principle for the DNR and the whole state.	FIN04, FIN05
Sender Name (Submission ID)	Robert Herling (44923)	
8273	I would like you to reject the PolyMet Northmet sulfide mine project based on the extensive risk to water resources and human health in the Lake Superior Basin.	HU03
8274	PolyMet’s SDEIS does not provide a comprehensive enough analysis of the long-standing impacts to clean water, ecological integrity, and human health.	NEPA09

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Robert Herling (44923)	
8275	I do not believe that enough consideration has been given to the long-standing economic impacts to Northeast Minnesota, and the state taxpayers at large.	SO04
8277	While the PolyMet project may increase economic activity in the region, those economic benefits would be very temporary and largely go outside of the state.	SO02
8286	the economic risks due to environmental clean-up would be virtually permanent and ultimately rest on the shoulders of Minnesota's taxpayers.	FIN01
Sender Name (Submission ID)	Robert Hershovitz (18286)	
4121	Some of the cultural resources are very fragile and the damage cannot be undone. For example, if there is a faint historic trail that gets disturbed or destroyed, you can't restore it….Like an archeological resource, once it is disturbed, its value in terms of providing data, its value is diminished, if not lost…I'm not sure that it is possible to have adequate protection for some of those lost resources.	CR05
4122	I am concerned that the corporation that causes, for example, environmental damage really in the long run is not responsible for that damage and it can declare bankruptcy and walk away, and the citizens of the state are left holding the bag to pay for the cleanup for however many years...If the…company would be willing to put up a surety bond for even 200 or 250 years, 500 years ideally, then the citizens would have some assurance that we will not have to pay for the damage caused	FIN01, FIN10
Sender Name (Submission ID)	Robert Hoekstra (34903)	
13255	PolyMet's destructive and polluting open pit sulfide mining cannot be allowed to negatively impact the region's natural resources and public health of the Superior National Forest.	WILD02
13257	Sulfide mining in Minnesota threatens wetlands, rivers, lakes and streams.	WR115
Sender Name (Submission ID)	Robert Johnson (11946)	
13735	I don't see any good reason for someone to rush into this beautiful area, pillage the minerals, provide a small number of jobs for 20 years, and then disappear, leaving Minnesotans with a few dollars for the minerals they have plundered, and an environmental mess for the taxpayers in the state to clean up. If it can ever be cleaned up…There is no way that anyone can forecast what the total cost will be to clean up the damage from the proposed operation.Please enforce the rules in the laws that Minnesota already has, and do not allow this mine to be permitted to operate!	FIN05, FIN10
14821	Sulfide mining is a very dirty process, and it should not be done in Northern Minnesota. It shouldn't be done at all. You know, we should save these pristine areas when the climate really gets bad. We don't know what the future holds. There could be a depression in the future.	SO01
14822	they expect the people of Minnesota to pay for the cleanup. Now, how is it that a foreign corporation can come into Minnesota, make profits off our land, leave, and leave us with the cost of cleaning it up?	FIN10
Sender Name (Submission ID)	Robert Kaiser (13069)	
1713	We must be constantly reminded of all the water pollution questions that thisproject proposes, not how much money can be made from mining minerals.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Robert Kosuth (57206)	
17113	Problems:Flaws in the study re water flow200-500 year timeline = total irrationality – similar to nuke waste storage	WR035
Sender Name (Submission ID)	Robert Lawrence Dryke (57149)	
16843	Will…PolyMet provide continuous insurance, bonds and monies for the future problems and effects the ore processing causes that are unknown?	FIN01, FIN08
Sender Name (Submission ID)	Robert Lohman (18265)	
13879	But I think the PolyMet mining proposal ranks right up there with having a hazardous waste site and it is pretty close to having a nuclear waste site in Minnesota. I can't understand how anybody is willing to put Lake Superior, the Boundary Waters wilderness, various wetlands, plants and animals at risk. For what? 350 jobs, 500 jobs for 20 years?	SO01
13880	Another thing I can't understand is why would we even be talking to PolyMet, who has never operated a plant?..I was also thinking about Glencore...So, we're inviting corporations like this into Minnesota and we are going to take their word for the fact that they have state-of-the-art technology and nothing is going to happen?	PD23
Sender Name (Submission ID)	Robert McKlveen (18388)	
12097	The SDEIS fails to adequately and accurately account for the impact that the thousands of people like me [tourists] have on the local economy, and the harm to the economy if the mine is built under the currently proposed conditions and restrictions.	SO02
12099	If the waters or air of the BWCAW and the surrounding areas are damaged by this mine or it's aftermath, fewer visitors (including myself) will come to the area. This would have a significant negative impact on the economy of the area that will outlast the pdocutive life of the mine by decades or centruies.	SO01
15239	[The SDEIS needs to account for the effects of reduced tourism] in a meaningnful way.	SO02
Sender Name (Submission ID)	Robert Nanti (7376)	
734	I am writing in support of the environmental review process in place that is evaluating the project, ensuring that the project will comply with existing regulations. Minnesota, for many years, has been a leader in protecting its environment. I have found the SDEIS process, although lengthy, to be a sound and detailed process, based upon scientific principles and not prone to political maneuvering.	NEPA16
Sender Name (Submission ID)	Robert Risch (44099)	
8006	Sulfide mining… [has the] potential to create long term pollution as waste materials are exposed to water over the years. This will happen both from rain water and from the mine being located in an extremely high, water-rich environment.	WR001
14905	Financial assurances, to deal with this long term reality, would have to extend beyond the lifetime of anyone alive today…To my knowledge, no financial assurance, of this open ended duration, by a corporation, has ever been enacted and/or is still successfully being carried out.	FIN01
Sender Name (Submission ID)	Robert Rydell (16215)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Robert Rydell (16215)	
10110	For the few jobs created, the trade off of the water pollution for 500 years or more is unacceptable.	SO01
Sender Name (Submission ID)	Robert Schmitz (50037)	
12994	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
12997	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Robert Stevens (50086)	
13026	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Robert Stodola (54835)	
18703	I'm extremely worried about the lack of human studies from PolyMet -- no epidemiological references to what long-term exposure to sulfation - sulfides, & toxic metals: mercury, cobalt, arsenic. MN EPA hasn't insisted on this information, so the effects will only become apparent if the proposal is approved -- with us as guinea-pigs.	HU01
18710	There will most certainly be long term degradation to the St. Louis Lower basin that dumps into Duluth bay from the surface and groundwater runoffs that will most surely happen.	WR111
Sender Name (Submission ID)	Robert Tammen (54840)	
18832	As a firewall against excessive meddling by agency personnel, the mining industry hires retiring State employees to make sure that any "adapting" they must do is favorable to their bottom line. Our environment should not be exposed to the vagaries of adaptive management.	NEPA18
18833	Several documents refer to PolyMet and Poly Met (Two words). There must be a reason for having two different legal entities. The SDEIS should explain the difference and perhaps declare which will get dividends and which will have environmental clean up liability.	EDIT01
18834	Federal, state, and local taxes. The SDEIS does not quantify rebates traditionally given to the mining industry. Our history of rebates to the taconite industry should be documented and the probability of rebates to the sulfide mining industry should be acknowledged...5-503 Operations. IMPLAN discussion does not address the Minnesota policy of rebating taxes to themining industry. Disclose rebates.	SO05
18837	ES-40 IMPLAN. The November 2012 UMD Economic Impact Report and it's IMPLAN references are not credible. Page 4 declares that mining totals approximately 5.3% of Minnesota's Gross Regional Product but the same page lists Minnesota GRP as $281.1 billion and mining GRP as $4.5 billion. Mining is obviously less than 2% of Minnesota's economy.	REF01
18841	ES-41 "There is no legal access to the federal lands via land,... The SDEIS should acknowledge that the mining industry has the power to prevent American citizens from accessing Superior National Forest land and should resist efforts to give the industry even more power by facilitating a sulfide mining operation in Minnesota.	LU06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Robert Tammen (54840)	
18846	ES-41 Cumulative Effects. Respected geologists have estimated that the Duluth Complex is a 1 billion ton ore body and have predicted with great certainty that it will be developed. ... the State should ...be able to give a reasonable estimate of the square miles of pits, waste dumps, and tailings ponds that will be created in our water rich environment by the processing of our sulfide ore.	CU18
18851	Purpose and Need. There is little economic evidence for proposing mining for purposes of economic development… Mining no longer creates healthy communities.	NEPA01
18855	Endocrine disrupters should be evaluated by the SDEIS. Several metals are endocrine disrupters and the synergistic and cumulative impacts should be evaluated.	HU02
18856	The SDEIS should report that the consent decree was not entered into by theState until an environmental group filed a 60 day notice of intent to sue in federal court. This seems to indicate that the State of Minnesota will not regulate the mining industry unless requested to do so	PER06
18859	Discussion of tailings storage should include an evaluation of the 1,000' crack inthe Hibtac dike in February of 2012 and possible applicability to understanding of Polymet's proposed tailing storage plan.	GT02
18861	4-165 "The Plant Site is located north of the Laurentian Divide ...Misprint? The plant is South of the divide. See map.	EDIT01
18864	4-371 "higher-sulfur waste rock" Percent sulfur of the Dunka waste rock that was buried in LTVSMC tailings should be disclosed.	PD30
18867	4-376 Last paragraph. Heal should be heel.	EDIT01
18870	5-5 "located in ... Mesabi Iron Range" The mine is located in the Duluth Complex in the Superior National Forest. Once again, the SDEIS deserves an EU-3.	EDIT01
18874	5-5 "waste rock is predicted to average 0.15 percent sulfide" From the Northern Miner January 14, 2008 authorized reprint. "Waste rock ... can have up to 6% sulphur content."	GEN03
18902	5-113 Bedrock Groundwater. SDEIS should disclose that exploratory drillings do not have to be sealed for 10 years and the consequences in ubiquitous briny water formations.	WR078
18903	5-525 Mishandling ... discharge into the environment. Even proper handling of ANFO results in the discharge of ultra-fine particles into the environment. SDEIS should analyze fine particle discharge from blasting.	AIR04
18904	5-532 Lime. The SDEIS should analyze the consequences of increasing the amount of calcium in waters that might be invaded by zebra mussels.	AQ17
18905	6-1 reasonably forseeable. The impacts of developing a 10 billion ton ore body as described by geologists in Minnesota should be evaluated as reasonably forseeable.	CU07
18906	Table 6.2-1 Mesaba Energy Project. The IRRRB has granted Mesaba Energy an option to purchase land near Hibbing for a gas power plant. Update table. At the same meeting the IRRRB granted the City of Hibbing an option to purchase land for a possible Racino. This was probably an effort to pressure tribal interests by threatening to compete with Fortune Bay and Black Bear casinos. The actions were connected and should be analyzed.	EDIT01
18907	6-9 6.2.2.1.6 Essar ... begin operation in 2014. Essar will not begin operation in 2014. Update SDEIS.	EDIT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Robert Tammen (54840)	
18908	6-14 "a portion of Highway 53 ... would need to be relocated". The SDEIS should disclose that Minnesota taxpayers will pay to move the highway for Cliffs Natural Resources and that it would be reasonable to expect unanticipated taxpayer costs for Poly Met.	FIN10
18909	6-16 cumulative effects on groundwater. NRRI TR 2005/01 states that over 2,000 exploratory holes have been drilled in the Duluth Complex. Geological maps show numerous faults in the vicinity of Polymet's operations. The possibility for cumulative effects in an area with saline groundwater is obvious.	WR010, WR023
18910	7-10 irreversible loss of ore. The November 2013 Minnesota Mining Tax Guide describes ore as a wasting asset and allows a percentage depletion allowance for the reduction in reserves. The SDEIS should give us an estimation of the value of Polymet's ore asset so that the public could evaluate the benefits of leaving that ore in the ground.	SO07
18913	7-12 Unavoidable Adverse Effects. The mining industry is stripping Minnesota's mineral assets. That unavoidable effect should be quantified by the SDEIS and a reasonable estimate made of the long term financial benefit of leaving the Superior National Forest intact for future generations.	SO07
18915	A-5 Thematic Response. AQ-1. Oar should be ore.	EDIT01
Sender Name (Submission ID)	Robert Tipping (43010)	
11682	the SDEIS states “The concern for the NorthMet Project Proposed Action is whether excavation of the East Pit and West Pit could penetrate zones of saline or briny groundwater or otherwise draw these waters to the surface, thereby increasing the salinity of the West Pit water, which is proposed for treatment at the WWTF” (SDEIS 5-113). …the presence of saline water has broader implications regarding the modeling characterization of the Duluth Complex in the SDEIS as a homogeneous low-permeability hydrogeologic unit…The conceptual hydrogeologic model presented in the SDEIS of the mine, plant and tailings basin site, particularly with regard to solute transport, would be improved with an inventory of chloride to bromide ratios for surface water and groundwater. …The presence of some admixture of these waters in the near surface (less than 500 feet) indicates there may be hydraulically active fractures in the bedrock.	WR012
Sender Name (Submission ID)	Robert Tomassoni (18259)	
13709	The PolyMet plan is built on the latest science, mechanics and world-class engineering. We can build a world-class mining facility in northern Minnesota. We can mine copper, nickel, gold, and other precious metals better than anyone else in the world and we can do it safely and in an environmentally friendly manner.	SO10
19977	The experts have reviewed this permit and we can do this properly... Let’s move forward to protect our country, to create good paying jobs while mining these minerals in a safe and environmentally safe mine.	GEN02, SO10
Sender Name (Submission ID)	Robert Topliff (9497)	
179	Lake Superior is sacred, and we cannot take the risk of contamination again	WR111
Sender Name (Submission ID)	Robert W Trevis (4710)	
1875	there [needs to be]… continuous oversight by State of Minnesota employees during construction of any retention/holding water bodies, as well as continued inspection/oversight on a weekly basis so long as the mine operates.	PER06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Robert Walker (18218)	
2181	Lake Superior is the largest body of fresh water in the world, and we need to protect that water, and the way we can do that is to make sure that we develop our economy in ways that will not pollute that water, and there hasn't been a sulfide mine anywhere that hasn't had the problems…	WR023, WR111
Sender Name (Submission ID)	Robert Watson (13597)	
122	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for	WR035, WR128, WR143
123	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
124	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	Roberta Dale (57963)	
19847	the long term consequences for water quality and wildlife are far more critical issues.	GEN03
Sender Name (Submission ID)	Roberta Mistretta (19945)	
1549	This will RUIN our ground waters, you KNOW it but continue to PRETEND there is nothing to be concerned about.	WR107, WR108
Sender Name (Submission ID)	Roberta Otto (54748)	
19146	I believe the environmental review process has not been sound and thorough. The state and federal regulators cannot ensure that Polymer's project design, and its control and measures will address potential environmental impacts and will not meet all states and federal regulations.	PER35
19147	Big mining companies will once again leave our state totally destructed, with only large dumps and empty mines that cannot support tourism much less jobs.	LU06
Sender Name (Submission ID)	Roberta Ryan (44692)	
7195	While economics are important, this endeavor simply isn't worth the possible risks.	SO01
7199	No matter how tight regulations are or how careful everyone is, it's impossible to control everything all of the time.	PER06
7200	I'm not willing to gamble Minnesota's wildlands for profit and prosperity.	SO02
Sender Name (Submission ID)	Roberta Tietge (11632)	
2316	The poisons produced will harm water (people’s and animals’ drinking/recreation) water. It will harm people, and wildlife.	WR071, WR189

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Roberta Tietge (11632)	
2316	The poisons produced will harm water (people's and animals' drinking/recreation) water. It will harm people, and wildlife.	HU03, WR042, WR115, WR195
2317	The BWCAW is a globally unique [illegible] (HARD WON) ecosystem. THIS WILL BE VIOLATED.	WILD02
2317	The BWCAW is a globally unique [illegible] (HARD WON) ecosystem. THIS WILL BE VIOLATED.	WILD02
2318	When PolyMet cuts and runs, leaving a polluted and costly problem, how will our state agencies who supported them look??	FIN01
2318	When PolyMet cuts and runs, leaving a polluted and costly problem, how will our state agencies who supported them look??	FIN01
3323	The acids will infiltrate 3 watersheds, groundwater, and aquifers. We are on shallow glacially scraped soil and mostly granite.	AQ12, AQ28, WR003, WR111
3323	The acids will infiltrate 3 watersheds, groundwater, and aquifers. We are on shallow glacially scraped soil and mostly granite.	WR111, WR115
8201	Resource Recovery Efforts Must Be Investigated First. Cu recovery from old computers and pennies...This will exceed any mineral below the surface of NE MN. We have this technology AND IT WOULD CREATE JOBS!!	NEPA06
8201	Resource Recovery Efforts Must Be Investigated First. Cu recovery from old computers and pennies...This will exceed any mineral below the surface of NE MN. We have this technology AND IT WOULD CREATE JOBS!!	NEPA06
Sender Name (Submission ID)	Robin Bunney (9592)	
1133	I support this project, as well as the process that got us to this point. The information tables really helped put the process into layman terms. I was impressed by the depth of research	NEPA16
Sender Name (Submission ID)	Robin Peterson (54511)	
18755	What measures will be taken to assure that wildlife, both aquatic and land animals will not be exposed to the by products of this mining process? Mercury, sulfur, etc!	PD01
Sender Name (Submission ID)	Robin Poppe (42769)	
6674	1.The plan predicts that contaminants from permanent waste rock and tailings would require treatment for hundreds of years. Polymet will not be around for hundreds of years to treat the polluted water they created. Nor will the money set aside for treatment lasts hundreds of years.2.Millions of gallons of this untreated contaminated water will seep from the site into groundwater and nearby streams and river.3.The polluted contaminated water would increase arsenic into Hoyt Lakes drinking water by 38.5% above the level of concern in MN cancer risk rate.4.The report is missing important data needed to predict levels of pollution that would be released into streams and ground water.	WR037, WR038, WR043, WR060, WR070, WR071, WR107, WR108
6675	5.PolyMet does not provide details about how to calculate an adequate damage deposit to protect taxpayers from the cost of clean-up of PolyMet's polluted site.6.PolyMet does not have a plan for problems like pipeline breaks or extreme weather events.	FIN05, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Robin Poppe (42769)	
14525	2.Millions of gallons of this untreated contaminated water will seep from the site into groundwater and nearby streams and river…The report is missing important data needed to predict levels of pollution that would be released into streams and ground water.	WR060, WR070, WR135
14526	3.The polluted contaminated water would increase arsenic into Hoyt Lakes drinking water by 38.5% above the level of concern in MN cancer risk rate.	HU05
Sender Name (Submission ID)	Robin Raplinger (45883)	
11382	How could such an estimate of costs ever be accurate and guaranteed for 200-500 years or more? PolyMet does not have the resources to guarantee those immense liabilities and could be described as a "shell corporation" when the major investors, including Glencore, enjoy that protection.	FIN01
11386	What this proposal asks you to accept is 20 yrs of 200-300 jobs and promise that PolyMet will fund everything for 200-500 yrs.	SO01
12587	There is an alternative plan of an exchange of 4,901 acres. The SDEIS does not explain how the smaller land exchange would affect the project. With a different property boundary resulting from the alternative plan there is not analysis in the SDEIS of the affects of that change. The SDEIS does not explain the change in ground water seepage with the boundary closer to the category 1 waste rock pile, the West Pit, and adjacent creeks (Longnose). •The SDEIS must be rejected until it contains an analysis the effect of water and other pollution if that alternative is selected.	WR155
12595	No analysis of increase road fatalities to endangered species throughout the building or site preperation and mining or production phases. There are 11 state-listed Endangered, Threatened, or Special Concern (ETSC) plant species and six state-listed ETSC wildlife species known to occur within the project area. State-listed wildlife includes the gray wolf, bald eagle, wood turtle, eastern heather vole, yellow rail, and Laurentian tiger beetle. There is not much, in the PolyMet plans, about the effect on the already declining moose population.	VEG01, WI01
12608	The SDEIS must be rejected until a cumulative assessment of arsenic exposure and cancer risks for people including formula fed infants and people relying on fish and wild rice for food is completed and incorporated in future EIS's.The Minn. Dept. of Health should be included to analysis both workers and residents' effect on their health. Minn. Dept. of Health study must include the projects immediate and cumulative effects of arsenic on infants, children. Such Health Assessment is missing from the SDEIS and I ask that it be included	HU01
12618	...there are mistakes in the modeling of base water flow rate using the XP-SWMM modeling tool. XP-SWMM underestimated base flow rate by about three times the real base flow. The Cooperating Agencies believe that the XP-SWMM model to be inaccurate and they were correct. The Cooperating Agencies found that the GoldSim model similarly inaccurate for this project's conditions...•More appropriate models, or better yet on site testing and scientific hydrological observations, should be done to determine base and other flow rates.	WR106
12621	•The SDEIS must be redone to incorporate a 70yr "lifetime" , not the 30 yr. criteria use in the SDEIS (pages 5-421, 5-424 and 5-426) , for cancer exposures for workers and effected nearby residents as used by the EPA and the State of Minnesota .	HU01
12652	The PolyMet tailings basin is located on the old, 1950's, LTV tailings piles that cover about two square miles. On top of the old tailings PolyMet proposes to dump sulfide tailings leeching acid and metals. PolyMet claims they will collect, despite the increased seepage resulting from PolyMet's activities, over 99% of surface and ground water seepage. (SDEIS p. 5-159) They do not show any comparable collection from any unlined tailings pile. It is not realistic. There is no experiential basis for that collection percentage.	WR020, WR023
12660	The tailings pile is constructed over streams allowing drainage or seepage. This is a historic water flow pattern but is ignored in the SDEIS. The sub basin streams are in the Draft PolyMet EIS Figure 4.1.9. One stream flows to Spring Mine Creek which is already impaired. This flow evades the collection pumps.	WR056, WR092, WR096, WR104

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Robin Raplinger (45883)	
12662	The SDEIS does not address fractures beneath the tailings basin. They are known pathways of contaminant migration to ground or surface water. This is already happening as is shown in the SDEIS p. 4-12 area of concern #8.	WR010, WR012, WR061, WR071, WR099, WR168
12687	The alternatives considered in the SDEIS simply amount to the PolyMet plan, or a smaller amount of land exchange, or no action. There are no substantial or significant mining alternatives in the SDEIS. The SDEIS must be rejected until: Underground mining is considered or other substantial or significant mining alternatives are analyzed. Thousands of acres of wetlands could be saved with an underground option.	ALT01, ALT06
12690	The SDEIS [must] reflect the goals and requirements of Minnesota Administrative rule 6132.3200 CLOSURE AND POSTCLOSURE MAINTENANCE…It is clearly not the goal of the PolyMet SDEIS to be, upon closing, stable, free of hazards, minimizing hydrologic impacts, minimizing the release of substances that adversely impact other natural resources, and is maintenance free. Instead the SDEIS contemplates virtual perpetual maintenance. For a State Agency such as the DNR to ignore the law, and its goals, is a breach of that agency's duties, and that agency's commissioner's duty, to obey the laws of Minnesota.	PER04
12693	"financial assurance instruments covering the estimated cost of reclamation" is required. There is an estimation of 120-170 million dollars at closure and 3.5-6 million dollars per year after closure…. How could such a Financial Assurance estimate of costs ever be accurate and guaranteed for 200-500 years or more? We have no idea what changes in law and the economy could take place in 200-500 years…. Could anybody believe PolyMet or their "financial assurance" will be around hundreds of years after the mine operation, and its value, is gone?	FIN01, FIN05, FIN08
14328	The Cooperating agencies have been correct, as one co-lead agency MDRN now recognizes, in there objection to relying on the deficient and misleading reliance on XP-SWMM model used to extrapolate flow data. This model is flawed, as direct observation shows. The SDEIS must be reworked and revised concerning this aspect.	WR003
14329	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies.	PD03, PD32
16868	PolyMet is receiving land that that will have a increased value, above and beyond the value of the separate rights or ownership interests, as they will have unified surface and mineral rights. The exchanged land that ends up in public ownership will have less value as a result of the divided nature of the surface and mineral rights. The land exchange must be rejected until bona fide appraisals are available for citizen taxpayer comment.	LAN02
16869	The sole reason for the proposed land exchange is to allow a private entity, PolyMet, to take lands that are now available for multiple uses including wildlife habitat, forestry, hunting, gathering and recreational uses and convert those lands into a single use, PolyMet's mining activities. This is an economic justice issue. The land in the proposed exchange will be used exclusively for the proposed project and all other uses will be eliminated for decades if not permanently. This does not serve the public interest.	LAN01
16870	One reason given for the land exchange is to unify ownership of the surface and subsurface mineral rights. The proposed land exchange attains that goal only for PolyMet. The exchanged lands that end up with the Forest Service will all have severed mineral rights. The exchanged lands that end up with the Forest Service will all vulnerable to future mining activities. This not an equitable exchange and the public receive less value in the exchange.	LAN04
16871	The remediation plans include introduction of at least two non-native plants.	VEG05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Robin Raplinger (45883)	
16872	The EPA rates arsenic as a Class A carcinogen. Colby lake supplies drinking water for the city of Hoyt Lakes . The SDEIS 5-145 states that arsenic levels will increase 38.5%. The EPA adopted rules with thresholds of unacceptable increases of cancer due to arsenic. The Colby lake increases in arsenic show in the SDEIS are above the EPA'S threshold (40 C.F.R. 131.36) and the Minnesota cancer risk.	HAZ02
16873	The SDEIS must be rejected until: Accurate scientific hydrological observations and findings can be made concerning mercury pollution and bio-accumulation in the St. Louis River and all its tributaries.	MERC19
16874	Many emissions the PolyMet mine and plant increase the risk of cancer for on-site workers and people living around the operation. Such emissions include nickel dust, dioxins and asbestos-like fibers in some rock near the PolyMet site. Mesothelioma is a known risk for Minnesota taconite workers. There have been calculations for similar cancer risks done by the Dept. of Health at the Prairie Island Nuclear Plant for on-site workers. Off site, arsenic increases in the drinking water are a cancer risk for inhabitants of Hoyt Lakes. The SDEIS does not analyze health effects on the workers.	HU02
16875	There is heavy reliance on collection and Reverse Osmosis water filtration. There is not Reverse Osmosis water filtration for up to 40 years into the project according to the SDEIS….RO WWTP should begin at the same time as mining.	WR143
16876	•The SDEIS must be rejected until [there is an] Analysis of the possibility of backfilling waste rock into one of the pits, instead of piling outside, to reduce runoff and other forms of pollution.	ALT03
16877	The polymet SDEIS addresses financial assurances basically to keep the RO pumps running, no plans for failure or unplanned expsenses.	FIN05
16878	The SDEIS must be rejected until:•The SDEIS analyzes the long term cost to health, the environment and perpetual treatment of water pollution from this mine. •The SDEIS analyzes the possible, and probability of, failures or unplanned for expenses in the perpetual treatment of water pollution from this mine.•The SDEIS analyzes and designs funding mechanisms to fund those perpetual liabilities.	FIN05, FIN08
Sender Name (Submission ID)	Robin Stark (5969)	
1954	We need the jobs, the economic growth, and spin offs from this project.	SO10
1998	I stand behind and trust the state and federal agencies that are involved in preparing this document.	NEPA16
Sender Name (Submission ID)	Robin Vora (21380)	
995	I don't believe the short-term economic benefits, including possibly increased valuation of my property near Aurora, justify the potential long-term adverse impacts to the environment.	SO01
996	I am not convinced that over time water quality will be protected. Increased aluminum, lead,mercury, copper, cobalt, nickel and sulfate concentrations in wetlands, including lakes, rivers and groundwater are unacceptable	WET24
997	Besides damage to water quality, the project would result in: net loss of forest, natural wetlands, and wildlife habitat; direct harm to rare plants and their habitats; loss of areas of high biodiversity significance, reduced carbon sequestration and increased carbon emissions; and air pollution.	VEG01, VEG02, VEG03, WET13, WI02
998	The EIS does not address mitigation of reduction of lands available to tribal members to hunt, fish and gather	CR01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Robin Vora (21380)	
1001	The amounts of insurance and the reclamation bond are inadequate. The mining company must have sufficient insurance and a large enough bond to cover all potential accidents, repairs, insufficient mitigations measures, and site restoration when mining is completed.	FIN05, FIN11
1003	The EIS has an inadequate range of alternatives. There must be other practical alternatives that reduce impacts on wetlands, forests, and wildlife habitats.	ALT13, ALT23
1006	a near 1:1 land exchange is not justified. Lands used for mining are worth far more in dollars than forest lands. Government policies require land exchanges be of lands of equal value, not equal area. …The Superior National Forest should gain many more acres from the land exchange than proposed or the mining project should be reduced significantly in size if transferring only 6,722 acres from private to public ownership.	LAN03
1330	The EIS does not address … how adverse environmental effects may be exacerbated by potential climate change	AIR01
1333	I recall a land exchange in the 1990s in which LTV Mining provided the U.S. Forest Service with about 5,000 acres in exchange for 40 acres within the LTV mine.	LAN03
1334	The proposed PolyMet land exchange does not serve the public interest	LAN01
1336	The EIS needs to include a real and comprehensive economic analysis of land values.	SO04
1339	The long-term public benefit of these lands [used by tribal members] would be reduced significantly by this project.	LU06
Sender Name (Submission ID)	Rod Fisher (42273)	
6756	I am a chemical engineer that understands the potential economic value and potential environmental costs of such operations. This is simply not worth the risk to such an important region	SO01
Sender Name (Submission ID)	Rodger and Kathryn Ringham (43008)	
11669	The long term impact of mining in the Eveleth and Virginia communities has actually worsened the local economies as diverse business left. Tourism declined.	SO02
15329	Taxes from mining will be abysmally low. Recent records showed one mining company paying 3.5%. They have already located buildings in tax free zones.	SO05
15330	Good, long term jobs will be minimal. Specialized workers outside of Minnesota would be needed for the skilled jobs...Many initial jobs will be eliminated. Consider this: mining companies are currently testing GPS controlled loaders that require NO OPERATORS!	SO06
15331	Rain on taconite tailings produces rust. Rain on precious metals waste produces sulfuric acid!...Water pollution will not only impact local communities such as Ely, but also Lake Superior and Canada.	WR001
15332	Poly Met has NO experience with copper nickel mining...Every sulfide mine to date has had detrimental impact to the environment.	PD26
Sender Name (Submission ID)	Rodger F Ringham (54512)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rodger F Ringham (54512)	
18748	The long term impact of mining in the Eveleth and Virginia communities has actually worsened the local economies as diverse business left. Tourism declined.	SO02
18749	Taxes from mining will be abysmally low. Recent records showed one mining company paying 3.5%. They have already located buildings in tax free zones.	SO02
18750	Good, long term jobs will be minimal. Specialized workers outside of Minnesota would be needed for the skilledjobs. … Many initial jobs will be eliminated. Consider this: mining companies are currently testing GPS controlled loaders that require NO OPERATORS!	SO06
18751	Water pollution will not only impact local communities such as Ely, but also Lake Superior and Canada.	WR111
18753	Poly Met has NO experience with copper nick~l mining. … Every sulfide mine to date has had detrimental impact to the environment.	PD23, PD26
18754	Rain on taconite tailings produces rust. Rain on precious metals waste produces sulfuric acid!	WR001
Sender Name (Submission ID)	Rodney Bleifuss (46884)	
10819	There is no way to justify this development based on current studies. The potential environmental impacts simply outweigh the economic benefits to Minnesotans.	SO01
Sender Name (Submission ID)	Rodney Monson (20172)	
1744	I am in favor of the Poly Met Mining project becoming a reality. What an opportunity for the State of Minnesota to show us Minnesotans and the rest of the country that we are indeed interested in bring good pay jobs to our State.	SO10
Sender Name (Submission ID)	Roer A Powell (54634)	
18606	At present, both the proposed mine site and the land proposed for the exchange are good wildlife habitat. After an exchange, the mine site will no longer be good habitat. So, wildlife lose.	WI02
18629	Aluminum and lead levels are projected to exceed water quality limits. This outcome is not acceptable. The SDEIS should show the public how PolyMet proposes to avoid exceeding these water quality limits or the NorthMet Project should not be permitted.	WR064
18631	MDO # 1, 7, 13, 14: The responses of the co-lead agencies to these MDOs are stated clearly to be based on "belief' and also appear to be based on on misunderstandings of biology, limnology and model results. An EIS is not to be based on "belief' but on the best science and technology.Our best knowledge arises from what science and technology have demonstrated and does not arise from "belief'. The responses of the co~lead agencies must be revised to be based on established science and technology, including appropriate citations of appropriate professional publications.	NEPA12
Sender Name (Submission ID)	Roger A Morrison (52295)	
10765	Know this is a fragile ecosystem I am worried about the possible impact on the BWCA posed by mine drainage at the PolyMet's NorthMet project.	WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Roger A Morrison (52295)	
10770	In my review of the government maps of this area it shows a need to determine the actual effect of mine drainage into the waterways on the edge of the Boundary Waters.	WR024, WR081, WR111, WR175
10772	The proposed mine site is uphill from the One Hundred Mile Swamp, which drains into the BWCA watershed. There is a lack of testing and research…to show that water entering One Hundred Mile Swamp will not then flow into Rainy Lake and the BWCA watershed. This is evident by the authors of the Supplemental Draft Environmental Impact Statement (SDEIS) using incorrect maps which contradict the government maps along with omitting sections of the One Hundred Mile Swamp… I think that PolyMet needs to complete a new SDEIS using the correct maps and the project should not be allowed to progress until the new information can be reviewed.	WR024, WR080, WR081, WR085, WR111, WR167, WR175
10774	I also have concerns that there is little or no assurance that PolyMet LLC has the financial resources to ensure that any damage done to the environment will be adequately and properly cleaned up.	FIN01
Sender Name (Submission ID)	Roger A Powell (42879)	
9474	The SDEIS makes clear that treatment of contaminated water will be "perpetual" in the sense that the models in the SDEIS project for only 200 or 500 years and for most contaminates no decrease in contamination is seen in the graphs through the projected 200 or 500 years of treatment. The SDEIS does not state how the treatments will be maintained for hundreds of years.	WR128
9474	The SDEIS makes clear that treatment of contaminated water will be "perpetual" in the sense that the models in the SDEIS project for only 200 or 500 years and for most contaminates no decrease in contamination is seen in the graphs through the projected 200 or 500 years of treatment. The SDEIS does not state how the treatments will be maintained for hundreds of years.	WR128
9475	It does not state how long geomembrane covers and liners will last, how they will be replaced, and what replacement will cost. It does not state how long the equipment doing the treatment is projected to last and how it will be replaced when it fails. It does not state how PolyMet will maintain the physical plant. And, in general, it does not provide adequate information for the general public, voters and regulating agencies to evaluate whether PolyMet will be able to treat contaminated water as projected.	FIN01, FIN05, FIN06, WR127, WR128, WR138
9475	It does not state how long geomembrane covers and liners will last, how they will be replaced, and what replacement will cost. It does not state how long the equipment doing the treatment is projected to last and how it will be replaced when it fails. It does not state how PolyMet will maintain the physical plant. And, in general, it does not provide adequate information for the general public, voters and regulating agencies to evaluate whether PolyMet will be able to treat contaminated water as projected.	WR003, WR189
9476	Given that PolyMet has stated in its 2013 Annual Report that it has no experience with treating contaminated water, the SDEIS must tell the public exactly how PolyMet will use and maintain water treatment for more than 500 years.	PD01, PD23
9476	Given that PolyMet has stated in its 2013 Annual Report that it has no experience with treating contaminated water, the SDEIS must tell the public exactly how PolyMet will use and maintain water treatment for more than 500 years.	PD01, PD23
9483	The SDEIS continually states that the selected actions are "expected" or "modeled" or "projected" to be such-and-such. The SDEIS does not state that actions have been shown by previous example or by research to do such-and-such. The wording makes clear that PolyMet will be experimenting with the NorthMet Project, putting northern Minnesota in jeopardy.	PD26, WR023
9483	The SDEIS continually states that the selected actions are "expected" or "modeled" or "projected" to be such-and-such. The SDEIS does not state that actions have been shown by previous example or by research to do such-and-such. The wording makes clear that PolyMet will be experimenting with the NorthMet Project, putting northern Minnesota in jeopardy.	WR023

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Roger A Powell (42879)	
9488	The SDEIS does not address effects on the environment or on the economy if a major breach occurs for the system that PolyMet proposes to build to control pollution. The public needs to know how PolyMet proposes to respond to the worst case scenario, given that PolyMet has no experience with cleaning up environmental contamination.	HAZ01, NEPA09
9488	The SDEIS does not address effects on the environment or on the economy if a major breach occurs for the system that PolyMet proposes to build to control pollution. The public needs to know how PolyMet proposes to respond to the worst case scenario, given that PolyMet has no experience with cleaning up environmental contamination.	HAZ01
9489	Wildlife will lose acreage in the land exchange. At present, both the proposed mine site and the land proposed for the exchange are good wildlife habitat. After an exchange, the mine site will no longer be good habitat. So, wildlife lose.	WI02
9489	Wildlife will lose acreage in the land exchange. At present, both the proposed mine site and the land proposed for the exchange are good wildlife habitat. After an exchange, the mine site will no longer be good habitat. So, wildlife lose.	WI02
9490	The SDEIS fails to address worker safety. The NorthMet Project site will handle thousands of tons of explosive Hazardous Materials and millions of gallons of hazardous fuels. If explosions or spills occur, mine employees could be exposed to Hazardous Materials during the emergency and during clean up. PolyMet has stated in its 2013 Annual Report that is has no experience with mining. Consequently, for the SDEIS not to address worker safety is irresponsible.	HU04
9490	The SDEIS fails to address worker safety. The NorthMet Project site will handle thousands of tons of explosive Hazardous Materials and millions of gallons of hazardous fuels. If explosions or spills occur, mine employees could be exposed to Hazardous Materials during the emergency and during clean up. PolyMet has stated in its 2013 Annual Report that is has no experience with mining. Consequently, for the SDEIS not to address worker safety is irresponsible.	HU04
9491	The SDEIS fails to address in any of its sections on Cultural Resources or Socioeconomics that the influx of large numbers of temporary workers will lead to increased availability and use of drugs and will lead to trafficking of women. Increased use of drugs and increased trafficking of women have been a great cost to communities in North Dakota where large numbers of temporary workers have responded to the oil drilling boom. Drugs and trafficking will come with the NorthMet Project. Consequently, the SDEIS must estimate the costs to communities near the NorthMet Project of increased availability of drugs (including availability to local youth), increased drug use, and trafficking of women.	SO04
9491	The SDEIS fails to address in any of its sections on Cultural Resources or Socioeconomics that the influx of large numbers of temporary workers will lead to increased availability and use of drugs and will lead to trafficking of women... Drugs and trafficking will come with the NorthMet Project. Consequently, the SDEIS must estimate the costs to communities near the NorthMet Project of increased availability of drugs (including availability to local youth), increased drug use, and trafficking of women.	SO04
9492	The NorthMet Project will destroy 912 acres of high quality wetlands for which mitigating replacement of wetlands is planned in compliance with the Clean Water Act. The scientific consensus is now that wetland restoration is ineffective (National Research Council 2001, Doyle and Shields 2012), does not restore ecological function and integrity of the wetlands that are destroyed, and does not restore ecological function and integrity of the mitigated wetlands. Thus, the approximately 1-1/2 square miles of wetlands destroyed by the NorthMet Project will effectively be lost, as will the ecological services that they now supply to northern Minnesota. This violates the Clean Water Act.	COE03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Roger A Powell (42879)	
9492	The NorthMet Project will destroy 912 acres of high quality wetlands for which mitigating replacement of wetlands is planned in compliance with the Clean Water Act. The scientific consensus is now that wetland restoration is ineffective (National Research Council 2001, Doyle and Shields 2012), does not restore ecological function and integrity of the wetlands that are destroyed, and does not restore ecological function and integrity of the mitigated wetlands. Thus, the approximately 1-1/2 square miles of wetlands destroyed by the NorthMet Project will effectively be lost, as will the ecological services that they now supply to northern Minnesota. This violates the Clean Water Act.	COE03, WET05
9494	None of the listed financial instruments presented on pages 3-138 and 3-139 have been documented, or have a history, to last 200-500 years. Consequently, these financial instruments are not acceptable for the stated use.	FIN08
9494	None of the listed financial instruments presented on pages 3-138 and 3-139 have been documented, or have a history, to last 200-500 years. Consequently, these financial instruments are not acceptable for the stated use.	FIN01, FIN08
9504	Page 5-215 and elsewhere- Contingency mitigation actions are not presented here or anywhere else in the SDEIS, only the conditions that would lead to mitigation actions. The SDEIS does not provide the basic information here needed to evaluate the environmental effects of the proposed NorthMet mine. The public needs to know what the contingency mitigation actions will be. This section needs to be expanded to include the actions that PolyMet will take if contingency mitigation actions are needed. Allowing Poly Met to wait till the permitting process or later to explain these actions is not adequate because PolyMet has no prior experience dealing environmental contamination. If those actions are clearly inadequate but are not presented until the permitting process starts the public will not have the same opportunities to demand adequate actions as it does now.	WR064, WR109
9504	Page 5-215 and elsewhere- Contingency mitigation actions are not presented here or anywhere else in the SDEIS, only the conditions that would lead to mitigation actions. The SDEIS does not provide the basic information here needed to evaluate the environmental effects of the proposed NorthMet mine. The public needs to know what the contingency mitigation actions will be. This section needs to be expanded to include the actions that PolyMet will take if contingency mitigation actions are needed. Allowing Poly Met to wait till the permitting process or later to explain these actions is not adequate because PolyMet has no prior experience dealing environmental contamination. If those actions are clearly inadequate but are not presented until the permitting process starts the public will not have the same opportunities to demand adequate actions as it does now.	PD22, PD24
9518	Pages ES-39, 5-374 and 5-365; Figures 6.2.3-1 and 6.2.3-2- The loss of wildlife habitat is important but even more important is the loss of 2 corridors. Figure 6.2.3-2 shows that roads at the NorthMet Project will close 2 of only 18 habitat corridors that allow wildlife to cross some 80 miles of mining operations.	WI02, WI03
9518	Pages ES-39, 5-374 and 5-365; Figures 6.2.3-1 and 6.2.3-2- The loss of wildlife habitat is important but even more important is the loss of 2 corridors. Figure 6.2.3-2 shows that roads at the NorthMet Project will close 2 of only 18 habitat corridors that allow wildlife to cross some 80 miles of mining operations.	WI02, WI03
9519	Pages ES-39, 5-374 and 5-365; Figures 6.2.3-1 and 6.2.3-2- Lynxes are listed by the US Fish & Wildlife Service under the Endangered Species Act as threatened with extinction and lynxes can, at present, use the 2 corridors that will be closed. Loss of wildlife corridors can cause trouble for lynxes. Lynxes avoid areas with roads (Fuller et al. 2007, Bayne et al. 2008, Alexander 2008, Hoving 2005) and, where traffic volume has been studied, predatory mammals avoid roads with high traffic volume. The roads built for the PolyMet Project will have heavy use with large vehicles, equivalent to high traffic volume. Just because lynxes have been seen crossing roads does not mean that they do not avoid them. When new roads are built, use of adjacent habitat by wildlife is reduced and travel corridors are eliminated. The loss of these 2 corridors can be considered "take" according to the Endangered Species Act and cannot be ignored.	WI01, WI02, WI03, WI11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Roger A Powell (42879)	
9519	Pages ES-39, 5-374 and 5-365; Figures 6.2.3-1 and 6.2.3-2- Lynxes are listed by the US Fish & Wildlife Service under the Endangered Species Act as threatened with extinction and lynxes can, at present, use the 2 corridors that will be closed. Loss of wildlife corridors can cause trouble for lynxes. Lynxes avoid areas with roads (Fuller et al. 2007, Bayne et al. 2008, Alexander 2008, Hoving 2005) and, where traffic volume has been studied, predatory mammals avoid roads with high traffic volume. The roads built for the PolyMet Project will have heavy use with large vehicles, equivalent to high traffic volume. Just because lynxes have been seen crossing roads does not mean that they do not avoid them. When new roads are built, use of adjacent habitat by wildlife is reduced and travel corridors are eliminated. The loss of these 2 corridors can be considered "take" according to the Endangered Species Act and cannot be ignored.	WR044, WR049, WR172, WR173, WR174
9523	Figure 6.2.3-1 does not show the corridor that the text on page 5-374 states that it shows. The figure must be revised to show the corridor.	EDIT01
9523	Figure 6.2.3-1 does not show the corridor that the text on page 5-374 states that it shows. The figure must be revised to show the corridor.	EDIT01
9535	Chapter 3, pages 4,-5, 4-5, 4,-23, Section 5.2.2.2.1, Figures 5.2.2A and 5.2.2.6- The SDEIS lacks documentation of existing ground water flow and, consequently, the public has no way to understand or to evaluate changes to ground water flow.… The SDEIS does not explain MODFLOW and does not explain how ground water flow was modeled. Consequently, the public can not evaluate the model. The SDEIS must follow standard practices for professional publications, which is to present and to explain all models used or to justify their dependability by demonstrating that they have been used extensively with consistent, accurate results.	WR201
9535	Chapter 3, pages 4,-5, 4-5, 4,-23, Section 5.2.2.2.1, Figures 5.2.2A and 5.2.2.6- The SDEIS lacks documentation of existing ground water flow and, consequently, the public has no way to understand or to evaluate changes to ground water flow.	WR201
9539	Ground water flow is assumed by the SDEIS to follow ground water elevations measured at 23 wells but the SDEIS provides no evidence that ground water flow actually does follow those elevation contours. Ground water flow does not necessarily follow watersheds (Jarosiewicz and Witek 2014) and the basics of even surface water flows, let alone groundwater flows, are not well understood (McDonnell2013). This section of the SDEIS is clearly inadequate and must be redone and expanded to explain the models.	WR058, WR071
9541	Ground water flow is assumed by the SDEIS to follow ground water elevations measured at 23 wells but the SDEIS provides no evidence that ground water flow actually does follow those elevation contours. round water flow does not necessarily follow watersheds (Jarosiewicz and Witek 2014) and the basics of even surface water flows, let alone groundwater flows, are not well understood (McDonnell2013). This section of the SDEIS is clearly inadequate and must be redone and expanded to explain the models. The ground water flow shown in Figures 5.2.2,-4 and 5.2.2,-6 does not follow the ground water contours that are mapped on the figure and is misleading. Either the model does not follow the assumptions used to build it, or the figure does not show accurately the model output. Either way, the SDEIS does not provide adequate, appropriate and accurate information and cannot be used to evaluate the environmental effects of the proposed NorthMet mine. The modeling behind these figures must be redone and the figures must be redrawn to match the output of the models.	WR041, WR058, WR167, WR103, WR195
9541	The ground water flow shown in Figures 5.2.2,-4 and 5.2.2,-6 does not follow the ground water contours that are mapped on the figure and is misleading. Either the model does not follow the assumptions used to build it, or the figure does not show accurately the model output. Either way, the SDEIS does not provide adequate, appropriate and accurate information and cannot be used to evaluate the environmental effects of the proposed NorthMet mine. The modeling behind these figures must be redone and the figures must be redrawn to match the output of the models.	WR058, WR167

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Roger A Powell (42879)	
9542	The SDEIS states that the 1st priority for ground water is its use for domestic water but the SDEIS has several problems with this priority item. First, the SDEIS does not explain the models it used to predict ground water flow. Second, ground water flow can be independent of surface water flow and can flow in different directions from surface water. Third, the SDEIS presents information in figures that violate assumptions of the models and assumptions used to build the figures. Finally, contaminated ground water will not necessarily be stopped or directed by surface water drainages. Consequently, the material about ground water in the SDEIS untrustworthy at best and could endanger humans, or even cause death, if used by PolyMet to make decisions.	WR086, WR105
9542	The SDEIS states that the 1st priority for ground water is its use for domestic water but the SDEIS has several problems with this priority item. First, the SDEIS does not explain the models it used to predict ground water flow. Second, ground water flow can be independent of surface water flow and can flow in different directions from surface water. Third, the SDEIS presents information in figures that violate assumptions of the models and assumptions used to build the figures. Finally, contaminated ground water will not necessarily be stopped or directed by surface water drainages. Consequently, the material about ground water in the SDEIS untrustworthy at best and could endanger humans, or even cause death, if used by PolyMet to make decisions.	WR086, WR105
9543	Pages ES-39, 4-61, 4-66, 4-74, 5-7, 5-8; Tables 4.2.2.7 and 4.2.2.8- River and stream flows that are lower than the average, present seasonal flows but still within the annual range can have huge impacts on animals and plants that depend on high water during certain seasons. Amphibians require high water levels in spring for reproduction, as do fish that spawn in the spring...Spring ephemeral wetland plant communities require high water levels. Spring flows reduced to the low flows of autumn and winter will be a disaster for amphibians [and] wetland plant communities...and will deny amphibians and spring plants adapted to wetlands of their required water levels for reproduction and growth.	WI06, VEG07, WR037, WR189
9543	Pages ES-39, 4-61, 4-66, 4-74, 5-7, 5-8; Tables 4.2.2.7 and 4.2.2.8- River and stream flows that are lower than the average, present seasonal flows but still within the annual range can have huge impacts on animals and plants that depend on high water during certain seasons. Amphibians require high water levels in spring for reproduction, as do fish that spawn in the spring...Spring flows reduced to the low flows of autumn and winter will be a disaster for amphibians...and will deny amphibians and spring plants adapted to wetlands of their required water levels for reproduction and growth.	VEG07, WI06
9552	The SDEIS does not explain the models used to predict stream and river flows in the appropriate tables or in the text. Consequently, the public is not able to evaluated the models and their assumptions. To provide adequate information for the public, the SDEIS must follow standard practices for professional publications, which is to present and to explain all models used or to justify their dependability by demonstrating that they have been used extensively with consistent, accurate results.	WR189
9552	The SDEIS does not explain the models used to predict stream and river flows in the appropriate tables or in the text. Consequently, the public is not able to evaluated the models and their assumptions. To provide adequate information for the public, the SDEIS must follow standard practices for professional publications, which is to present and to explain all models used or to justify their dependability by demonstrating that they have been used extensively with consistent, accurate results.	WR189

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Roger A Powell (42879)	
9558	The tables demonstrate clearly that the models of stream and river flow are grossly in error. For example, the 30 day maximum flow for a stream or river must, by definition, exceed the average flows of all 30 day periods, otherwise it would not be the maximum flow. Yet, the mean 30 day maximum flow for the Partridge River predicted by the model is less than the actual mean flow for April, showing that the model is simply wrong and should not be used. Similarly, the 1-month maximum flow must be less than the 1-time maximum pulse, the 1-month minimum flow must be less than the 1-month mean flow, and the 1-month minimum flow must be greater than the 1-time minimum flow. Yet, the flows predicted by the model and shown in the tables violate these requirements. Thus, these tables demonstrate that the model used to predict stream and river flows cannot mimic the natural system that it is supposed to model. If the model cannot replicate the system as it is, it cannot be used to predict water flow after mining starts. Thus, the modeling of water flow must be completely redone.	WR003, WR189
9558	The tables demonstrate clearly that the models of stream and river flow are grossly in error. For example, the 30 day maximum flow for a stream or river must, by definition, exceed the average flows of all 30 day periods, otherwise it would not be the maximum flow. Yet, the mean 30 day maximum flow for the Partridge River predicted by the model is less than the actual mean flow for April, showing that the model is simply wrong and should not be used. Similarly, the 1-month maximum flow must be less than the 1-time maximum pulse, the 1-month minimum flow must be less than the 1-month mean flow, and the 1-month minimum flow must be greater than the 1-time minimum flow. Yet, the flows predicted by the model and shown in the tables violate these requirements. Thus, these tables demonstrate that the model used to predict stream and river flows cannot mimic the natural system that it is supposed to model. If the model cannot replicate the system as it is, it cannot be used to predict water flow after mining starts. Thus, the modeling of water flow must be completely redone.	WR003, WR189
9572	On page 4-74, the last sentence states that water samples "generally met" standards. Had water samples always met the standard, the SDEIS would have stated so. Consequently, an intelligent person must deduce that at least some samples, if not many, did not meet the standards. Not meeting the standards is not acceptable.	WR071
9572	On page 4-74, the last sentence states that water samples "generally met" standards. Had water samples always met the standard, the SDEIS would have stated so. Consequently, an intelligent person must deduce that at least some samples, if not many, did not meet the standards. Not meeting the standards is not acceptable.	WR071
9573	In addition, Minnesota law prohibits lowering water quality below the original level even if the original level exceeds the standard for modified or polluted waters. The public must be shown the present levels to be able to evaluate the projected effects of the NorthMet Project. Aluminum and lead levels are projected to exceed water quality limits. This outcome is not acceptable. The SDEIS should show the public how PolyMet proposes to avoid exceeding these water quality limits or the NorthMet Project should not be permitted.	PER33, WR064, WR109
9573	In addition, Minnesota law prohibits lowering water quality below the original level even if the original level exceeds the standard for modified or polluted waters. The public must be shown the present levels to be able to evaluate the projected effects of the NorthMet Project. Aluminum and lead levels are projected to exceed water quality limits. This outcome is not acceptable. The SDEIS should show the public how PolyMet proposes to avoid exceeding these water quality limits or the NorthMet Project should not be permitted.	WR064, WR109
9574	Figures 5.2.2-18, 19 and 41a of the SDEIS show PSO, contradicting the text.	EDIT01
9574	Figures 5.2.2-18, 19 and 41a of the SDEIS show PSO, contradicting the text.	EDIT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Roger A Powell (42879)	
9578	Table 5.2.13-1 of the SDEIS shows that deliveries of explosive and dangerous materials (just a portion of the Hazardous Materials) to the NorthMet Project site are projected to be about 5000 tons per year. The SDEIS states that the probability of a spill of some serious Hazardous Material is 12.5 %. PAX, one of the most hazardous materials to be delivered to the site, constitutes about 20% of the serious Hazardous Material to be delivered. PAX is spontaneously combustible and produces H2S, hydrogen sulfide, which is toxic. The SDEIS states that the probability of a spill of PAX is 2.5%. Deliveries of diesel fuel will total over 6 million gallons per year. The SDEIS states that the probability of a spill of diesel fuel is 40%. Thus, the total probability of a spill of diesel or of PAX or of some other Hazardous Material is about 50% or possibly greater. Given that PolyMet has no experience in handling serious spills of Hazardous Materials, the SDEIS must explain how PolyMer proposed to deal with the emergency of a serious spill and how PolyMet will clean up these serious spills if they occur. Otherwise, the public and future regulators cannot evaluate their proposed handling of spills.	HAZ01
9578	Table 5.2.13-1 of the SDEIS shows that deliveries of explosive and dangerous materials (just a portion of the Hazardous Materials) to the NorthMet Project site are projected to be about 5000 tons per year. The SDEIS states that the probability of a spill of some serious Hazardous Material is 12.5 %. PAX, one of the most hazardous materials to be delivered to the site, constitutes about 20% of the serious Hazardous Material to be delivered. PAX is spontaneously combustible and produces H2S, hydrogen sulfide, which is toxic. The SDEIS states that the probability of a spill of PAX is 2.5%. Deliveries of diesel fuel will total over 6 million gallons per year. The SDEIS states that the probability of a spill of diesel fuel is 40%. Thus, the total probability of a spill of diesel or of PAX or of some other Hazardous Material is about 50% or possibly greater. Given that PolyMet has no experience in handling serious spills of Hazardous Materials, the SDEIS must explain how PolyMer proposed to deal with the emergency of a serious spill and how PolyMet will clean up these serious spills if they occur. Otherwise, the public and future regulators cannot evaluate their proposed handling of spills.	HAZ01
9585	MDO #5: The response of the co-lead agencies does not address the socioeconomic and cultural costs of temporary employees, which is the topic of this MDO.	SO04
9585	MDO #5: The response of the co-lead agencies does not address the socioeconomic and cultural costs of temporary employees, which is the topic of this MDO.	SO04
9589	In many places, the SDEIS makes statements without providing adequate documentation. In other places, the SDEIS provides enough information to show that the models or evaluations used are inadequate or simply wrong. And in some places the SDEIS makes statements that contradict known ecological science. My conclusion is that the SDEIS is grossly inadequate. The SDEIS requires massive revising before it can be used to evaluate the potential Environmental Impacts of the NorthMet Project. Thus, it cannot logically be titled an "Ecological Impast Statement". It will be grossly irresponsible not to require revision of the SDEIS and not to have the revised SDEIS available for public comment before permitting is considered.	NEPA09
9589	In many places, the SDEIS makes statements without providing adequate documentation. In other places, the SDEIS provides enough information to show that the models or evaluations used are inadequate or simply wrong. And in some places the SDEIS makes statements that contradict known ecological science. My conclusion is that the SDEIS is grossly inadequate. The SDEIS requires massive revising before it can be used to evaluate the potential Environmental Impacts of the NorthMet Project. Thus, it cannot logically be titled an "Ecological Impast Statement". It will be grossly irresponsible not to require revision of the SDEIS and not to have the revised SDEIS available for public comment before permitting is considered.	NEPA09
18606	At present, both the proposed mine site and the land proposed for the exchange are good wildlife habitat. After an exchange, the mine site will no longer be good habitat. So, wildlife lose.	WI02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Roger A Powell (42879)	
18629	Aluminum and lead levels are projected to exceed water quality limits. This outcome is not acceptable. The SDEIS should show the public how PolyMet proposes to avoid exceeding these water quality limits or the NorthMet Project should not be permitted.	WR064
18631	MDO # 1, 7, 13, 14: The responses of the co-lead agencies to these MDOs are stated clearly to be based on "belief' and also appear to be based on on misunderstandings of biology, limnology and model results. An EIS is not to be based on "belief' but on the best science and technology.Our best knowledge arises from what science and technology have demonstrated and does not arise from "belief'. The responses of the co~lead agencies must be revised to be based on established science and technology, including appropriate citations of appropriate professional publications.	NEPA12, NEPA14
Sender Name (Submission ID)	Roger and Maxene Linehan (54662)	
17911	This highly polluting type of mining has NOT been done anywhere in the world without severe consequences to the environment. Why on earth should we try out this unproven mining technology here in the fragile and pristinelakes and forest lands ofMinnesota?	PD26
17912	The health of the area's human and wild inhabitants, and thousands ofestablished tourism-based jobs would be traded away for hundreds of temporary local mining jobs. … Our mined metal resources will mainly enrich aforeign corporation, while residents of the Lake Superior watershed are likely to experience degredation and loss of water quality, as well as the loss of the rare, irreplaceable wild rice wetlands of the Ojibwa people.	SO01
17913	Important forest habitat and wetlands will be lost for hundreds of years or more, and with them the wildlife that bas survived on our dwindling and scattered habitat and corridors. Moose habitat loss would be especially tragic, as would the wetlands of Minnesota's also-dwindling duck populations.	WI01, WI02
17914	These wild places and their inhabitants have evolved for tens of thousands of years since the glaciers; whole ecosystems like this can't be replaced simply by planting trees or digging ponds, especially if the chemicals (including sulfuricacid) dredged up by mining will drastically alter the land and its living things.	WILD02
17915	Please listen to doctors, nurses and other medical experts who foresee serious and fatal health consequences from this pollution, and are speaking out.	HU03
17917	the SDEIS failed to include a cost/benefit analysis and specific provisions concerning amounts and sources of fmancial assurance. Accidents and failures are distinct possibilities during that time span. I don't know of any company that has that long a track record. lfPolymet will not or cannot provide money up front to finance this pollution abatement, and/or if the company goes bankrupt or ceases to exist, we Minnesota taxpayers will be stuck with the clean-up tab, quite possibly for centuries. Add to that the fact that pre-financing cleanup is complicated by the changes our monetary system and values are likely to undergo in the next 500 years!	FIN01, FIN10
17918	The huge two-volume SDEIS is far too long for working people to digest in the short time allotted for comment. I urge you to change the comment deadline to allow more people to respond to this important, far-reaching issue.	NEPA07
17920	errors have been detected such as underestimations ofthe actual river rate of flow, and the questionable plan for wall barriers to be built down to bedrock to contain tailings.	WR003, WR019
17921	A new, alternative industry could provide jobs as well as precious metals for modem technology, such as recycling plants for old cell phones and other tech waste so that those items don't end up wasted and polluting theground in landftlls around the world.	NEPA06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Roger B Carlson (10312)	
496	Keep the Range unique and safe and healthy and prosperous, Minnesota too. Go forward with the proposed Polymet Mine	SO10
Sender Name (Submission ID)	Roger Bergh (11529)	
2481	Why hold up a project that has met current environmental rules. We need this mine for jobs and income. Holding this project up for some wild rice is rediculous. The draft impact statement has met all requirements.	SO10
2481	Why hold up a project that has met current environmental rules. We need this mine for jobs and income. Holding this project up for some wild rice is rediculous. The draft impact statement has met all requirements.	SO10
Sender Name (Submission ID)	Roger Clemence (57956)	
19841	The contamination will last forever (if the past tells us anything).	GEN01
Sender Name (Submission ID)	Roger Dahlin (47181)	
11632	As a harvester of wild rice for more than thirty years, I have personally observed the sensitivity of that species to changes in water conditions. Research has demonstrated that wild rice is negatively affected by even mildly elevated levels of sulfide in the waters in which it grows.	WR156
11635	I am not satisfied by assertions that water polluted by the proposed mining will be treated to meet strict quality standards. Such assurances mean nothing when something goes wrong and contamination spreads. Such things do happen. I'm not willing, without much more convincing evidence that any such accident will be immediately contained and its effects negated	WR128, WR144
13407	As a harvester of wild rice for more than thirty years, I have personally observed the sensitivity of that species to changes in water conditions. Research has demonstrated that wild rice is negatively affected by even mildly elevated levels of sulfide in the waters in which it grows.	VEG04, WR156
13408	The region surrounding the proposed PolyMet mine has many lakes and streams in which wild rice forms the basis for rich aquatic ecosystems and provides an important food source for many waterfowl, including swans, geese, and several species of ducks.	VEG04, WI01
13409	Native Americans living in areas where wild rice grows have for many centuries harvested and eaten it. The harvesting and processing of wild rice has long been integral to the hunting/gathering culture of northern woodlands tribes. The potential for damage to this natural crop represents a threat to both native cultures and natural harvest traditions of many others.	CR01
16300	The region surrounding the proposed PolyMet mine has many lakes and streams in which wild rice forms the basis for rich aquatic ecosystems and provides an important food source for many waterfowl, including swans, geese, and several species of ducks. Significant damage to stands of wild rice in this area would profoundly impoverish habitat for many other species, constituting a tragic diminution of biological diversity.	VEG04, WI01, WI02, WR157, WR158
16302	Native Americans living in areas where wild rice grows have for many centuries harvested and eaten it… The potential for damage to this natural crop represents a threat to both native cultures and natural harvest traditions of many others.	CR01
Sender Name (Submission ID)	Roger F Heegaard (54793)	
18078	Our State, nation and world must have learned by now, how fragile our water, air and forests are. We must project them from any project, such as this, that must surely expose them to degradation. We should also understand, full well, that the promises made by those who would benefit from the mine cannot be relied upon over time. No one can really understand and protect us from the risks.	PER02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Roger Garton (21699)	
13956	Not only does the proposed PolyMet mining project present serious environmental risks to the ground water and overall ecosystems of the northeast part of Minnesota, this project will increase the amount of pollution that is added to our atmosphere through coal generated electric consumption	WI13
13957	PolyMet should be required to present a means for offsetting all of the additional coal generated electricity that they will consume. This means could be through contribution to the Conservation Improvement Program (CIP) fund, or through direct deployment of renewable energy generation such as solar or wind power.	PD39
13958	Letting a small few compromise the natural beauty and ecosystems of our state for their personal profits and leaving the tax payers holding the bill for the cleanup efforts is not an option.	SO01
Sender Name (Submission ID)	Roger Hiller (40825)	
14002	Please protect our wilderness area and our waters. We have heard before, the promises of containment, and we know from experience what happens.	PD01
Sender Name (Submission ID)	Roger Johnston (16098)	
9654	Allowing PolyMet the right to mine in the Boundary Waters area is the ultimate sellout of a irreplaceable natural resource for a fleeting economic gain. We have a beautiful natural resource that cannot be replaced at ANY PRICE.	WILD02
Sender Name (Submission ID)	Roger Klisch (15352)	
565	We cannot put our water resources at risk, as this mining operation would surely do.	WR115
Sender Name (Submission ID)	Roger Meyer (47301)	
11396	The extraction of resources will cause environmental damage during extraction and leave the citizens of Minnesota monitoring and/or cleaning up the site for centuries after operations cease.	WR037, WR115, WR195
11399	The short-term economic gain from this project does not come close to off-setting the short-term environmental impact and the long-term risk.	SO01
Sender Name (Submission ID)	Roger Skraba (18311)	
4178	The number is 1.3 nanograms. And one of the concerns I have about that is -- again former mayor -- we have a wastewater treatment plant and we have to be concerned about our mercury that we put into the water.	MERC15
4180	And I'm always kind of wondering about the [mercury] in the air. How do we measure that it comes from foreign countries or from ourselves? And how does that go into this EIS?	AIR06, MERC08
Sender Name (Submission ID)	Roger Thoma (42046)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Roger Thoma (42046)	
2074	This pervasive [mercury pollution] condition [in Ohio] is the result of air deposition derived from air discharges in states west of Ohio, such as Minnesota. It will not be possible for Ohio to meet the requirements of the USEPA as long as air born mercury is transported to our state. As long as such conditions continue Ohio will be in Non Compliance for all of its waters. This is, as you know, a violation of law.	AIR06
2075	It is my understanding from a review of available information that the state of Minnesota has not yet established compliance with its mercury discharge regulations and that many of its mining operations are exceeding their permit limits for mercury. … Minnesota is contributing to the damage of Ohio's environment and disenfranchisement of its people to clean waters and edible fish as required by the Clean Water Act and its legal permutations.	MERC01
2076	The activities of Minnesota, by failing to enforce its own laws, is a clear violation of the objectives put forth by the IJC [International Joint Commission]. MInnesota is a member of the IJC and has agreed to cooperate with the other members in achieving their goals.	PER06
2077	I am requesting the state of Minnesota place a moratorium on all future permits requested in your state until full compliance with mercury discharge regulations is achieved.	PER25, PER35
Sender Name (Submission ID)	Roma Leuty (7207)	
10614	The PolyMet sulfide mine plan would end up like the Reserve Mining debackle that we had to deal with. It took years to stop the dumping of tailings in Lake Superior!	WR023
Sender Name (Submission ID)	Ron Bergh (7346)	
691	The project has great merit and I feel the changes to the environment will not be harmful to the effect as to stop the project from proceeding.	PD28
736	I think the study and plans presented covered the environmental concerns.	NEPA16
738	I hope the permits are issued soon so the people of MN can start reaping the benefits.	PER34
739	A study should be made about the costs of all this delay.	NEPA12
742	I think the study and plans presented adequately addessed the environmental concerns.	NEPA16
743	I hope the permits are issued soon so the people of MN can start reaping the benefits.	PER34
752	I think the study and plans presented covered the environmental concerns.	NEPA16
754	I hope the permits are issued soon so the people of MN can start reaping the benefits.	PER34
761	I think the study and plans presented covered the environmental concerns.	NEPA16
762	I hope the permits are issued soon so the people of MN can start reaping the benefits.	PER34
765	I think the study and plans presented covered the environmental concerns.	NEPA16

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ron Bergh (7346)	
767	I hope the permits are issued soon so the people of MN can start reaping the benefits.	PER34
770	I think the study and plans presented covered the environmental concerns.	NEPA16
771	I hope the permits are issued soon so the people of MN can start reaping the benefits.	PER34
776	I think the study and plans presented covered the environmental concerns.	NEPA16
777	I hope the permits are issued soon so the people of MN can start reaping the benefits.	PER34
809	I think the study and plans presented covered the environmental concerns.	NEPA16
810	I hope the permits are issued soon so the people of MN can start reaping the benefits.	PER34
13516	I think Polymet['s]…thoroughness is apparent, even if a minute amount of harvested wild rice is affected.	WR161
13516	I think Polymet['s]…thoroughness is apparent, even if a minute amount of harvested wild rice is affected.	WR161
15094	Time and money is wasted with this long delay in allowing permits.	PER34
Sender Name (Submission ID)	Ron Brodigan (39798)	
6985	The plan misrepresents or misunderstands the amount of wild rice waters within the St. Louis River/Lake Superior Watershed. MDNR should insert actual steps in a new DEIS to better identify and preserve wild rice waters in northeastern Minnesota. ... 100-mile swamp [will] undoubtedly will be affected via underground water exchange by a PolyMet open-pit mine and associated infrastructure.	VEG04
6990	The proposed precious metals mine and related infrastructure would possibly destroy moose habitat. With an already seriously declining population of these animals, there should be more analysis of the potential mine's effects on this remaining population in the SDEIS.	WI01, WI02
7002	It is known that some of the minerals to be mined have similar properties to asbestos and other harmful mineral fibers and can be causal to lung afflictions such as pleural plaque, pleural effusion, asbestosis, silicosis, lung cancer and mesothelioma...There needs to be serious and considered analysis of health effects to the human population for generous distances from the proposed industrial area.	HU05
7066	The proposed land exchange (for the sole benefit of PolyMet) between the mining company and the U.S Forest Service is not the kind of swap usually done by the latter agency. Forest Service rules may actually prohibit such a trade. This represents a one-sided giveaway of valuable wetland and upland forest that can never be replaced. The U.S. Forest Service must not forget they are giving to a corporation, parts of the Superior National Forest. More analysis and justification of this proposal by the Forest Service should be included in the supplementary DEIS.	LAN02
7092	There seems to be no plan in theory or in practice for remediation of future extraordinary weather or geophysical events that could release contaminants into air, streams, lakes and subsurface waters. This should comprise an entire new section in the revised DEIS.	PD22
7103	The DEIS contains inadequate data on existing water and air pollution throughout PolyMet's area as a direct result of 100-plus years of iron and taconite extraction and processing. PolyMet's potential activities would exacerbate existing pollution on a magnified scale.	AIR11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ron Brodigan (39798)	
7105	This DEIS considers no alternatives such as underground mining on the same site. Alternatives and their relative viability must be included in the SDEIS.	ALT06
7110	Clarify in a new DEIS exactly how much PolyMet or their parent company would pay in various kinds of taxes should the enterprise be permitted by the state. Examine and confirm the accuracy of (questionable) tax estimates in the existing DEIS.	SO04
7113	PolyMet's proposed project is very close to the Rainy Lake/Lake of the Woods – St. Louis River/Lake Superior watershed divide. Since little is known about deep sub-surface movements of ground water and fracture characteristics of the underlying geology, an analysis of known data in this regard should be included in the Supplementary DEIS.	WR007, WR010, WR012, WR056, WR061, WR071, WR087, WR099, WR169
7116	Much of Appendix C, response of Tribal Governments, should be answered in a more thoughtful and less patronizing way and included in the new EIS. The responses of the sponsoring agencies already set out in the DEIS are inadequate and wide of the mark.	NEPA12
7133	Recognize Glencore Xstrata of Switzerland as the actual company behind the "shell corporation," PolyMet, which has never built or operated a mine of any kind and has little access to the necessary funds to even develop or clean up the former taconite infrastructure and land they now possess.	FIN02, FIN11
7136	If Glencore, the legal parent of this project, is left out of the new DEIS equation, very little in the Supplementary DEIS will have substance or credibility.	PER02
7138	When Glencore and PolyMet finish extracting the ores and sending the precious metals to China (as already contracted for), or when environmental troubles begin, it may find a way to get beyond the reach of Minnesota or the Federal Government for any damages. The joke, then, is on us. But the potential of decades or even centuries of (largely ineffectual) cleanup is not to laugh at.	FIN01, FIN04
14261	We own operate several environment and natural resource-dependent family businesses in an area that will be affected by noise, dust and water pollution if a mine is built nearby.	LU06
Sender Name (Submission ID)	Ron Deike (12056)	
47	This project (PolyMet) should not go forward because the state and the taxpayers will be stuck with the clean-up bills.	FIN01, FIN10
Sender Name (Submission ID)	Ron Holch (39851)	
6968	this proposed mining area sits at the beginning of three major continental watersheds:Mississippi drainage to the Gulf, St. Laurence drainage to the Atlantic, Hudson Bay drainage to the Arctic Ocean. Sulfides that leave the proposed mine can pollute the lion's share of our nation and Canada with acid waters and leaching heavy metals for 500 years.	WR115
Sender Name (Submission ID)	Ron Lawrenz (18224)	
2186	"Our only gauge for the future is studying the past." That reflection is of little comfort to the context of our current discussions, and I'm unaware, as many have pointed out, there's been a sulfide mining effort anywhere else that has not polluted the environment.	WR023
2187	I'm opposed to this project based on potential impacts, and I suggest that we not approve this EIS.	NEPA09

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ron Lawrenz (18224)	
2188	I would argue that we need to focus on tangible issues; selling, trading land for fragments of lands in 900 places, trading wetlands, rather than unique ecosystems.	WET14
12914	…the SDEIS ignores the most significant cumulative impact, that is, the development of other copper/nickel mines in the region, by categorizing the development of additional cooper-nickel mines as "speculative".	CU02
12921	By definition, cumulative impact means, in part, “the impact on the environment that results from incremental effects of the project in addition to other past, present, and reasonably foreseeable future projects regardless of what person undertakes the other projects”. The SDEIS dismisses the cumulative effects/impacts of other potential non-ferrous mine developments by subjectively listing them as “speculative”.	CU02
12926	I argue that the future development of additional non-ferrous mines is not "speculative", but rather reasonably foreseeable and thus subject to evaluation in the SDEIS.	CU02
12945	…the State, including the MNDNR, specifically forecasted that non-ferrous mining in notheastern Minnesota was reasonably forseeable to the point that it was willing to invest $4.3 million (in1979 dollars) to study the regional impacts of said mining (3).	CU02
12952	…the MNDNR, as an RGU for the proposed Northmet/PolyMet project, cannot argue that the development of other non-ferrous mines is"speculative", and should be compelled under EQB guidelines to conduct a comprehensive analysis of the cumulative potential effects of other non-ferrous mines in the SDEIS.	CU02
12953	The fact that the Environmental Quality Board: Regional Copper-Nickel Study (1979) was not used as a reference in the development of the SDEIS seems to be a serious oversight of the SDEIS…In part, the study concludes that there will be cumulative impacts to various environmental components (i.e. hydrology, among others) if non-ferrous mining were to move forward	CU03
12956	The Attorney General's Office (2006) acknowledges that the interpretation of cumulative impacts under the EQB rules "has been the subject of a fair amount of litigation'. The majority of cases cited in their review found that cumulative effects/impacts of like projects needed to be considered and included in the respective EISs.	CU03
12964	while the wetlands that are to be restored will be re-vegetated, those efforts won't completely match the biological community of the wetlands that will be lost. It may take decades, or more for the restored wetlands to recolonize and aquilibrate with other biotic components (bacteria, fungi, invertebrates, etc.), and they are not likely to be the same as those that were lost.	WET05
12965	…the more southerly location of the mitigation wetlands will make [species such as the Lynx and the Moose] more vulnerable to the impacts of climate change and create an even larger differential in habitat types and aquatic communities from the current condition. The SDEIS does not take this disparity into consideration…	WET04, WI02
12970	..there is no substantive discussion concerning the removal of the forest plant community and the peatland/bog ecosystems as carbon sinks. The SDEIS needs to more extensively explore these issues to be a complete document.	VEG03, WET13
12973	mine development will create disturbances that could facilitate the distribution and abundance of invasive species…(for example: earthworms) in the heart of a large forested area…The role of site disturbance and the cumulative impact of this project, as well as other reasonably foreseeable projects, on the introduction of invasive and exotic species need to be thoroughly discussed and mitigated in the SDEIS.	VEG05
12975	[The SDEIS] combined the percentage loss of rare or endangered plant species so that the overall impact appeared to be more reasonable (1% decline in statewide populations) when the statewide decline for the populations of some species was much greater, and potentially critical…The concern must be discussed at the species level since the impact is at the species level.	VEG01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ron Lawrenz (18224)	
12976	…the SDEIS couples ecological references to land and wetland exchange areas being in the 1854 Ceded Territory is misguided when discussing ecological impacts or variables. The 1854 Ceded Territory designation is socio-political…Land and wetland exchanges should be defined within established ecoregions or biological communities in which they occur.	LAN05, WET14
12982	…the majority of the lands offered as mitigation and replacement within the National Forest are not protected from future mining activities because the mineral rights will be held by private entities and not the U.S. Forest Service or the State	LAN04
14945	…there is no discussion that the wetland exchange areas proposed are not equivalent since they are based on vegetative typing as surrogates for, or in lieu of, other ecological factors such as water chemistry and invertebrate communities…the primary replacement wetlands would be located well to the south of the distributional ranges of a number of rare or unusual aquatic invertebrate species most likely to be found on the proposed mine site.	WET14, WET15
14948	…the wetlands that are proposed for mitigation…are nearly 100 miles southwest of the proposed project site…[and] well outside the known ranges of organisms that are most likely found at the project site. For example, …the distributional ranges of the Zigzag Darner dragonfly (Aeshna sitchensis) and the Lake Emerald dragonfly (Somatochlora cingulata) include the habitats and location of the proposed mine, but do not extend down to the proposed mitigation wetlands. Both of these dragonflies are listed as rare for the State (Mead 2009)	AQ18, WET03, WET05
14951	carbon emissions from the proposed facility were not fully analyzed for their overall contribution and impact on global climate change…the SDEIS only commits about one page to the issue of carbon emissions and global climate change	AIR01
Sender Name (Submission ID)	Ron McGriff (13950)	
1731	I can not see any amount of "protective" or "repair" dollars that will be truly effective for an operation whose processes and waste have the potential to impact nature for 200 to 300 years.	FIN01, FIN05
Sender Name (Submission ID)	Ron Miles (38457)	
9811	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01
13610	[The proposed Project] exists in conspicuous, diametric opposition to the expressed wishes of most Minnesotans and Americans, except for those profiteering industry corporados without environmental ethics and vision.	SO02
Sender Name (Submission ID)	RON PETERSON (4013)	
819	this plan will…Destroy thousands of acres of beautiful, sustainable forest – forever!	VEG03
822	this plan will…Create a relative few, hundreds, of direct jobs for Minnesotans which mostly will be the lower end of the pay spectrum for only a few decades. The highest end jobs come from outside the state and country.	SO06
823	this plan will… Trade the value of Minnesotans or in other words OUR LAND, and mineral wealth of precious metals for a few decades of jobs while exporting the profits to foreign companies.	SO06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	RON PETERSON (4013)	
824	Billions of dollars, not to be under estimated, and State Expense of time for: A. Hearings and reviews B. Legal Work C. Monitoring, testing and Policing of the sites D. Cleanup and treatment of downstream and underground water from pollution and the cost of damage to fisheries E. State invested cost for road upgrades and maintenance F. Inevitable Litigation G. Loss of recreational attraction and jobs for the tourist industry H. The future loss of jobs and recreation of a local recession when production ends I. The greatest " The theft of what we could have left for our grandchildren to enjoy and for their quality of life"	FIN05
832	For this we get a few hundred jobs over a short few decades - and endless damage.	SO01
Sender Name (Submission ID)	Ron Shoden (42853)	
8577	If the federal & state agencies are satisfied that PolyMet has complied or have exceeded with state & federal regulations pertaining to the EIS, and give their blessing, there is no reason why the Polymet Project should not proceed and begin the permitting process.	PER34
8578	PolyMet has worked very hard on the second EIS draft and I believe the draft is totally compliant. PolyMet employees and their investors have shown great patience over these many years and should be commended.	NEPA16
8580	Obviously, the economic impact PolyMet will have on local, state and even national levels will be tremendous and much needed as we continue to climb out of this recession.	SO10
8581	Finally, I know and trust Polymet officials; if they believed the project would have a negative impact on the environment, they would not proceed.	PD28
18305	If the federal & state agencies are satisfied that PolyMet has complied or have exceeded with state & federal regulations pertaining to the EIS, and give their blessing, there is no reason why the Polymet Project should not proceed and begin the permitting process.	PER34
18306	PolyMet has worked very hard on the second EIS draft and I believe the draft is totally compliant. PolyMet employees and their investors have shown great patience over these many years and should be commended.	NEPA16
18307	the economic impact PolyMet will have on local, state and even national levels will be tremendous and much needed as we continue to climb out of this recession.	SO10
18308	I know and trust Polymet officials; if they believed the project would have a negative impact on the environment, they would not proceed. Several officials have lived in the area their entire lives and raised their families.	PD28
Sender Name (Submission ID)	Ron Sternal (18222)	
2184	The public discussions over the last few weeks have established if the mine is built, there will be 360 jobs for 20 years, plus an uncertain, but large amount of land, air and water pollution that the SDEIS is supposed to quantify.	AIR11, WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ron Sternal (18222)	
2185	. Can we trust PolyMet. But it was not PolyMet we need to trust. It is Glencore Xstrata. Glencore Xstrata is the primary owner of PolyMet and as the research firm, Stifel Nicolaus states, Glencore Xstrata will buy the rest of PolyMet when all the permits are in place. So who is Glencore Xstrata and can they be trusted. Glencore Xstrata is a Swiss-based firm known for its ruthlessness. This is the fourth largest mining company in the world. It controls 50 percent of the world's copper through its ownership of 100 mines around the world and its commodities trading operations. Glencore Xstrata's CEO is Ivan Glasenberg, who prides himself on extracting maximum profits from its overseas holdings. Under his leadership, Glencore Xstrata has run a long list of labor and environmental abuses, including 58 mining fatalities between 2008 and 2010, over twice the number reported by any other mining company over that period. Just in 2012, the environmental and labor record includes dumping raw acid into waterways in the Congo; Failure to provide a vapor barrier to prevent acid mist from descending on 3,000 people in Zambia; Utilizing child labor as young as 10 years old at mines in the Congo; and causing environmental damage at the McCarthur River Mine in Australia.	PER02
Sender Name (Submission ID)	Ron Wetzell (18261)	
13713	The answer is that it is immoral and unethical of us to encroach upon, to mortgage, to pilfer our children's rightful heritage to a clean and healthy environment for our benefit of a few hundred jobs for 20 some years. It is flat out wrong.	SO01
13714	Seriously, what entity do we know that we can trust for 200 years? For 500 years? The answer regarding this project is not complex. It is pretty simple. The pinch is that it calls us to have courage to walk the talk of our deepest failures.	PD01
19887	...it is immoral and unethical of us to encroach upon, to mortgage, to pilfer, our children’s rightful heritage to a clean and healthy environment for our benefit of a few hundred jobs for 20 some years....Seriously, what entity do we know that we can trust for 200 years, for 500 years?	SO01
Sender Name (Submission ID)	Ronald Iannelli (38486)	
13596	I feel the MPCA, DNR and the State have enough safeguards in place to allow this project to go forward	PER34
Sender Name (Submission ID)	Ronald Palosaari (2738)	
12283	Until Polymet can show us places where this type of mining has not resulted in seriously polluted water and land,MN SHOULD NOT be a test case.	PD26
12284	Also set aside money will become a political football until some or much is gone.	FIN08
13453	Until Polymet can show us places where this type of mining has not resulted in seriously polluted water and land, MN SHOULD NOT be a test case.	PD26
Sender Name (Submission ID)	Ronald Pearson (43061)	
11508	Lastly, I would like to state the obvious, even ludicrous assumption- that we can have any degree of certainty about what is going to happen 200 years from now. The only thing we know for sure is that the BWCA will still be here in 200 years. Polymet and its successor companies (or their "financial assurance") -- not too likely.	FIN01
11511	I believe the 'alternatives analysis' provided by Polymet is grossly insufficient…it is incomprehensible to me that this type of mining continues, when there is more than enough of the metals that Polymet seeks to mine available through recycling.	NEPA06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ronald Pearson (43061)	
11512	Why has the Minnesota Department of Health not been involved in a quantitative health risk assessment? I believe this is a critical step to ensure an objective evaluation of public health risk.	HU01
11519	A footnote to Table 5.2.2-50 states "Volatilization rate [of mercury] is estimated based on the low end of the range of values discussed in Section 6.6.2.3. 7 of PolyMet 2013i. " . Why is this allowed?	MERC04
11521	Section 5.2.2.3.4 states "Mercury was not included in the GoldSim model, as insufficient data and a genera/lack of definitive understanding of mercury dynamics prevented modeling mercury like the other solutes. " This is unacceptable.	MERC13
15425	I have grave concerns regarding the likely emissions of mercury from mining operations. The US EPA's review of the draft EIS raised many objections to insufficient characterization of uncertainty and risks from mercury. In my review ot the Supplemental Draft EIS, I do not believe these have been adequately addressed.	MERC03, MERC17
15438	The SDEIS states "…The NorthMet Project Proposed Action is expected to have little or no effect on [the factors that appear to influence mercury methylation], but the effect of two of these, sulfate concentrations and hydrolic conditions, warrants further discussion." How can a claim like "…is expected to have little or no effect on most of these things…" be allowed to stand without detailed substantiation of each?	MERC10
Sender Name (Submission ID)	Ronald W. Stromsness (45036)	
7094	I suggest we wait until [PolyMet] have a few more notches in their stick, proving this can be done with minimal harm not only to the environment but to human saftey as well!	HU03
7109	I believe the minerals[NorthMet] recover will be sent overseas for processing where decent wages and environmental laws are non-existent!	SO06
7115	When and if we ever do this mineral extraction lets do so when we, the good old U.S. of A can process the materials with good wages, strong environmental and human safety laws to protect not only us but our world.	SO10
7120	We already have problems with mercury and acid precipitation here in Northern Minnesota. Lets not exacerbate to those problems we currently seem to want to do nothing about.	MERC01
Sender Name (Submission ID)	Ronnie Puckett (54110)	
15976	I do not believe the PolyMet mine is a good idea until it has been proven safe and clean and Minnesota should not be the testing grounds for this.	PD32
Sender Name (Submission ID)	Rory Scoles (18114)	
13494	I want to trust the DNR, the agencies to do their job. I personally watched in my area them not do their jobs. We're all human and make mistake. Our job is to hold people accountable when (inaudible) flood. I do not see those types of events included in these environmental processes. That's one of the biggest oversights. All this will be in the ground for 100 years.	WR077
Sender Name (Submission ID)	Rosalie Stefanich (50019)	
12980	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rosanne E. Fischer (23550)	
3504	The land of Superior National Forest has been purposefully set aside in public trust and should remain so.	LAN01
3505	The acid mine drainage from sulfide mining kills fish, wildlife and plants and irreparably damages the wild rice harvest and way of life.	CU11
3507	A mere 20 years of copper mining will require centuries of water treatment and entails much greater environmental risks than the taconite mining of the past.	SO01, WR035
3511	Mining by-products such as arsenic, manganese, thallium and mercury increase risks of cancer and other illnesses, developmental and neurological damage in human persons.	HU05
Sender Name (Submission ID)	Rose Carlsen (45334)	
13022	The short term long range impact on the environment including the moose population, water quality for wild rice, and the surrounding boundary waters wilderness area to name just a few would be dire.	WR111, WR115, WR158
13024	If mining must occur the idea of an underground mine with the tailings being reburied in the mine should be considered.	ALT10
Sender Name (Submission ID)	Rose Knopff (20077)	
15730	The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures.	WET01, WET04, WET07
15731	The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity.	WET19
15732	PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts.	WET01, WET04, WET23
15733	The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns.	WET10
15734	Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting	WET01
15735	Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be	WET07
15736	Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data	WET10
15737	Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage	FIN11
Sender Name (Submission ID)	Rose Line (54227)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Rose Line (54227)	
16795	[The Polymet mine] project can generate a pollution for centuries and will poison our pure boundary water to a sulfuric acid. I am concerned about the safety of our environment. Because the map on the polymet is wrong and this is giving the company taking advantage on minning a huge area.	PD38
Sender Name (Submission ID)	Rose Olszewski (28182)	
10886	Lake Superior is a glacial lake, its waters are too cold for the wildlife their to recover quickly.	AQ26
10887	I know the economy is poor, but allowing this would only make the areas around the lake poorer. Once a land is tainted it takes decades for it to recover. There are better ways and you have the power to insist on better.	SO01
Sender Name (Submission ID)	Rosemary Johnson (7386)	
741	I have not heard any discussion of requiring polymet to dispose of tailings other than storing them on the surface. Why not deposit them in some of our abandoned openpit iron mines or underground mines. The tailings could no longer create surfacewater problems and storage problems would be solved. I know that this sounds simplisticbut some variation of this idea might be feasible.	ALT10
744	We could very well be left with a badlydamaged environment and huge storage costs when the mining company pullsout or becomes insolvent.	FIN01
9110	I understand that Poly Met's chief investor plans to sell copper concentrate to China. That means that we here in Minnesota will be putting our water quality etc. at risk to benefit one of our most challenging and dangerous rivals.	SO06
9112	I'm all for more jobs and opportunity for young people in our area.	SO10
9114	I am against a project that has the potential to spoil the very things that many of them want to stay here for.	PD01
9118	In the end the MDNR will be blamed for anything that goes wrong with this project ["the DNR approved it"]. They all have an out but you do not.	PER35
Sender Name (Submission ID)	Ross Anderson (39714)	
6892	...mercury is a known neurotoxin and highly regulated pollutant. We use amalgam separators to remove as much mercury as we can from our waste water, and then have the contaminant disposed of properly. …. Adding mercury and arsenic to our waters through a large mine is irresponsible.	MERC17
6894	Using Minnesota and its citizens as another mining experiment is not appropriate. I don't feel the science or technology is advanced enough to successfully complete this mine without adversely affecting public health and the environment.	ALT16
12969	[M]ercury is a known neurotoxin and highly regulated pollutant...Adding mercury and arsenic to our waters through a large mine is irresponsible.	MERC01
12972	The notion that the contamination from something as large as a sulfide mine can be treated and contained is asinine...I don't feel the science or technology is advanced enough to successfully complete this mine without adversely affecting public health and the environment.	PD32

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ross Peterson (14948)	
269	In spite of the promise of much-needed jobs, a huge boost to Minnesota's economy and a new source of precious metals, I am opposed to mining for copper and other metals until the technology exists that guarantees that our water will be safe for use and for future generations.	WR128
Sender Name (Submission ID)	Ross Phenning (11611)	
3295	Working in management at an iron mining facility I know that government agencies will continuously monitor the water treatment and will ensure that Polymet is held responsible for any changes in water treatment. Thus I have no concerns with water quality going forward.	FIN16, FIN17, WR190
3295	Working in management at an iron mining facility I know that government agencies will continuously monitor the water treatment and will ensure that Polymet is held responsible for any changes in water treatment. Thus I have no concerns with water quality going forward.	VEG04, WI02, WR001, WR156
Sender Name (Submission ID)	rowlandg (43338)	
11414	What's the rush? Those minerals have been in the ground for billions of years and they only get more valuable. Add the unnecessary risk to the environment - I don't think this needs to happen any time soon.	NEPA03
Sender Name (Submission ID)	Roxann Snyder (18178)	
3971	500 years of treating groundwater. None of the advocates are talking about how we're going to pay for that. ...We the taxpayers, we're going to be paying for [treating groundwater]. ... I see no estimate on what that is going to cost us.	FIN01, FIN05, FIN10
Sender Name (Submission ID)	Roy D Erickson (3667)	
552	The cost/benefit from hard rock mining and the resulting tailings management are diffidently not worth the costs.	SO01
10917	Are these mining jobs worth threatening the BWCAW?	SO01
10930	Are these mining jobs worth threatening the BWCAW?	WR081
Sender Name (Submission ID)	Roy Maki Jr. (4354)	
1815	I have seen industries develop new ways of controlling their impact on the environment, while supporting the communities they share space with. … I believe industry has stepped up to the plate and done what was required based on the knowledge and awareness at the time, has taken responsibility, by taking the appropriate actions for positive environmental stewardship.	PD28
Sender Name (Submission ID)	Rudy Perpich (2905)	
12310	If the mining companies work with the U of M and other universities to develop ways to safely contain the pollution, then the permits can be issued.	PER34
12311	We shouldn't even consider a project with a 500 hundred year pollution monitoring requirement. It is ludicrous.	PD01
13456	If the mining companies work with the U of M and other universities to develop ways to safely contain the pollution, then the permits can be issued.	PER34

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Russ Erickson (20039)	
1682	Will any liabilities be attached to future purchasers of those companies? The issue here is that at no point should the state and the taxpayers be left holding the bag for environmental cleanup.	FIN01
1683	[NorthMet should] List and detail the forecast costs of all the environmental clean-up issues 500 years into the future.	FIN01, FIN05
1685	Will the wetlands be replaced?	WET24
1686	Will the moose and other wild life endangered by the loss of their habitat be relocated?	WI01, WI02
1687	Have the lands involved in the land swap been established and judged to be of comparable quality.	LAN03
1688	Will the mine pits be filled in after completion of the mining to restore the landscape?	ALT09
1689	Will the bedrock underneath the tailings locations be studied for cracks and fissures? Will the cracks and fissures be grouted?	WR008, WR090
1690	Will all the acidic waters coming off the tailings piles be captured and run through the RO process for the full 500 year projection of pollution contamination (not just 200 years). Will the mine be required to fund this operations cost of the ground water cleanup and pumping of 10's of millions of gallons a year through Reverse Osmosis filtration for 500 years in advance of the permit being issued.	FIN01, WR009, WR037, WR070, WR128
1691	Will the state code that requires the mine to be left maintenance free at mine closure be upheld? This is a potentially negative economic issue that in the long run will outweigh any short near term jobs and economic issues.	PER04
13918	There should be a moratorium on the permits until the government dedicates real money towards establishing strict studies and develops MN mining rules that guarantee a zero tolerance for pollution issues. They mining company should be required to restore the land and water quality back to original.	PER06, PER25, WR109
13919	Profits should be Escrowed until the mine has closed. Guarantees must be made to the public that continual environmental monitoring be done. That monitoring shall only be done by a citizen approved impartial company with their own financial records monitored by a state auditor to assure the public there is no manipulation of the data. The costs to the state for the continuous monitoring and oversight and auditing shall be borne by the mining company.	FIN01, FIN11
14851	Regulation – It should be made a requirement that only non-partial government regulated third party firms will be allowed to do the monitoring of the environment testing.	PD24
14852	The enforcement and fine structure should be in place and have real consequences for all of the corporate executives involved in the mine. That includes PolyMet , Glencore Xstrata and any future owners or corporate concerns.	PER02, PER03
14853	The definition of what constitutes a failure of the environmental issues should be laid out and made clear for both the mining companies and the citizens of the state.	PD01, PD22
14854	Will you require the corporate partners of PolyMet in the mining company (Glencore Xstrata) be required to sign the permit and share in the mines potential future liabilities?	PER02
14855	The permit should only be let out to a company that can prove through past mine site demonstration that they can mine without damaging the environment.	PER35

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Russ Erickson (20039)	
14856	List the enforcement methods - fines – fees – legal expenses - executive jail terms for failure and list the moneys escrowed by the mining company to be set aside to meet these expenses.	FIN01, FIN08
14857	Will the quality of the land swap be of equal value?	LAN03
14858	Will the peat lands be moved and reestablished as it takes thousands of years to develop them.	WET05
14859	Will they add to the area adjacent to the superior National Forest.	LAN06
14860	Will the mine be responsible for 100 year overtopping rain events?	PD22
Sender Name (Submission ID)	russ mattson (26920)	
15261	But we must mine, and we must guard or only home as well. …Our task is to assure that this mining is done,(in accordance with the most stringent environmental rules in the world) in an acceptable manner. That manner is one in which all available methods are used to assure that we do no damage. And that we, the citizenry, verify the process, continuously.	PER06
15262	We have completed an extremely extensive and lengthy environmental process stretching over six years. This is our duty to ourselves and future generations.	NEPA16
Sender Name (Submission ID)	Russ Nolan (43852)	
11865	It just doesn't make sense to approve something that will poison our water for 500 years…or even 200 or even 100.	PD01, WR195
Sender Name (Submission ID)	Russel Remmen (54133)	
16010	Don't let money destroy our natural resources!! Air, land, water.	SO02
Sender Name (Submission ID)	Russell Hobbie (43051)	
11064	...many of us do not appreciate how harmful the sulfuric acid from the tailings will be. We need to recognize the fact that grinding the rock into small particles increases the surface area exposed to water. …Slime from the proposed mine would leach sulfuric acid. The acid will be spread to places where it will do damage by the water that is already flowing through the existing tailings basin.	WR150
17495	The number of new jobs that is projected is actually small compared to the number of existing mine jobs in the Arrowhead.	SO06
17496	The short term effects will include excessive noise from drilling and blasting.	N05
17497	The profits will go to people outside Minnesota, and probably in other countries. The profits from tourism remain in the community.	SO02
Sender Name (Submission ID)	Russell Martinez (54228)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Russell Martinez (54228)	
16796	The SDEIS made are wrong. PolyMet re-drew the maps. They have left out half of the one hundred mile swamp. That leaves the BWCA completely unprotected from the acide mine drainage.	PD38
16797	Governor Dayton needs to address the MN DNR to do there job and tell PolyMet to provide a correct environmental impact statement that has financial information, has the correct geography in maps, has correct hydrology studies.I would like the maps in the SDEIS (Supplemental Draft Environment Impact Statement) to be corrected. Measure the percolation rate through the swamp.	NEPA09, PD38
Sender Name (Submission ID)	Russell Palma (58134)	
19933	I sympathize with the need for jobs in northern MN, but there must be some line in the sand where the cost to the earth and future generations is simply too great to justify the risk.	SO01
19997	The potential impact on future generations is incalculable It is ludicrous to think that any company can plan for hundreds of years of remediation, or that they have the financial wherewithal to cover all contingencies. Polymet is most likely to follow a well-worn path of extraction and abandonment as evidence by Superfund sites all across the western us.	FIN01
20005	The state could better allocate its resources by using the money it would spend to protect ground water for hundreds of years by using it to retrain miners and other Minnesotans for jobs of the future, rather than the extractive past.	SO01
Sender Name (Submission ID)	Ruth Bartling (54782)	
19497	Has the world wide supply of copper and nickel been completelydepleted that opening another mine is absolutely necessary for industrialmanufacturing? Or are we opening another mine just because it is there? It might be wise to think about future generations and the needs they will have.	SO01
19498	The life of the mine is anticipated to be twenty years. Who will providethe utilities, the homes, the schools, the recreation centers, the hockey rinks, the libraries, auditoriums, the transportation network, law enforcement agencies, legal services, shops and stores, hospitals and clinics, public services, and parks to name only a few.	SO06
19499	I learned from watching a movie on "fracking" that the women were terrifled to go into grocery stores for fear of being subjected to unwanted advances by workers in the majority in the mining town. The values of the town had been completely shredded by an industry that had tom the community apart.	SO04
Sender Name (Submission ID)	Ruth Hruby (16129)	
9675	this deposit shoukld be left for at least 50 years for future generations!	NEPA03
Sender Name (Submission ID)	Ruth Lindh (373)	
12122	To allow this kind of damage to our Minnesota waters for a few hundred relatively short term jobs would be a classic case of "Penny wise and pound foolish."	SO02
14415	The direct destruction of 913 acres of wetland and the danger to over 7,000 more acres of wetland is not wise stewardship of our precious state resources.	WET24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ruth Lindh (373)	
14416	Twenty years of profit versus 500 years of pollution and the loss of something that can never be replaced is foodhardy and misguided.	SO01
Sender Name (Submission ID)	Ruth Mason (58018)	
19878	The quality and short term gain of jobs does not balance the long term destruction of water, land, habitat and quality of life.	SO01
Sender Name (Submission ID)	Ryan Birkenholz (6131)	
1092	The extensive regulations and controls they must go through provide a reasonable assurance that environmental impacts will be kept to a minimum.	PD28
Sender Name (Submission ID)	Ryan Christopher Alger (43456)	
15706	One of the most nocitible side affects of the drilling is the excessive noise pollution. Particularly in the winter when sound travels much further. One of the issues with the current NorthMet SDEIS that i've recognized is the inaccuracy of the projected levels of noise pollution and the GIS models used to estimate them. … The amount of noise generated and how it affects wildlife should also be looked at closer.	N04
15709	The SDEIS does not adequately project the possible damage and risk of a spill, leak, or overflow from containment ponds. The mine must be designed to withstand at least a 1,000 year rain event without risking pollution. The DEIS does not adequately factor in the long term affects of climate change.	NEPA15
Sender Name (Submission ID)	Ryan Gaffke (6139)	
1045	believe they will build and operate a mine that complies with all regulations and protects the environment.	PER34
1046	demonstrates that PolyMet can develop this resource in a sustainable manner and there are logical, engineered solutions proposed for potential impacts.	PD28
1047	PolyMet will….generate significant economic activity, expanding and diversifying our mining economy. PolyMet will contribute to the local and state economy at a time when we really need the jobs and economic benefit. PolyMet can...create hundreds of jobs....PolyMet will provide millions of dollars in local and state taxes to support our communities and educational system.	SO10
Sender Name (Submission ID)	Ryan Heule (3273)	
198	Does the financial assurance take into account inflation in the event this mine operates beyond its 20 year life?	FIN08
199	After this project does go end of life who will be responsible to post shutdown monitoring of the tailings basin and pit water in the event Northmet is no longer around?	PD24
Sender Name (Submission ID)	Ryan L. Burke (43968)	
14934	The people of Minnesota need sustainable investments that will bring us ahead, and not destroy our water systems and the Northern economy. These companies do not have the state's best interest, nor do they plan on making long-term investments in our people.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ryan L. Burke (43968)	
14935	I am writing you today to ask that this proposal be rejected on the grounds that it puts all Minnesotans at risk.	PD01
Sender Name (Submission ID)	Ryan Mc Bride (32225)	
12025	I do not believe that the possible contamination of Lake Superior, and hence the entire Great Lakes waterway, and the Boundry Waters Canoe Area Wilderness is worth the minerals gained via mining in these areas.	SO01
Sender Name (Submission ID)	S. Alexandra Leary (52194)	
12916	The map the Polymet mine people have offered in their paperwork doesn't encompass the entirety of the 100 Mile Swamp as is indicated on government maps.	WR080, WR175
12917	I believe [the use of inaccurate maps] is an intentional misrepresentation by Polymet of the SCALE and NATURE of the 100 Mile Swamp which encompasses wetlands and ephemeral wetlands.	WET19
12918	Once pollutants like sulphuric acid begin to slowly seep into the 100 Mile Swamp, the ecological security of the nearby Great Lakes is no longer.	WR080, WR081, WR111, WR167, WR175
12919	The nature of the Great Lakes fishery will change for aeons and the use of the Great Lakes as a source of fresh, potable water will be compromised for two countries if the impossible nature of the reality of a 500-year remediation plan is ignored.	AQ05, WR042
12920	Chemical contamination lagoons in such an ecologically sensitive area w/such a high water table would be subject to extreme of temperatures from the freezing and thawing and I cannot imagine these lagoons would hold up over a 500-year remediation period.	WR127
12922	There is no reality in this EIS to the suggestion this company is intent on allocating financial resources for the expected 500-year remediation period, never mind if they've made any effort to scale up their remediation efforts if there is any leakage over time that begins to infiltrate the Boundary Waters Canoe Area Wilderness.	FIN01
12923	If the hydrology studies show that Polymet is unwilling to TRULY PROTECT the Rainy Lake watershed and the Great Lakes by drilling test wells for polution tracking and is otherwise unprepared to handle subterranean pollution, then the permitting process should be reconsidered.	PER06
12925	This site must be handled by attaching a PERMANENT LEGAL STRICTURE as to its continuing remediation that must be the responsibility of the Polymet company and any subsequent transfer of Polymet to another corporate entity.	FIN01
16226	This mapping discrepancy should have been one of the first things on which the Minnesota Department of Natural Resources demanded clarification from the Polymet organization in the early years of development of the EIS. To add to this issue of what surface waters are contested as being potentially subject to pollution, the hydrology of the area is not well understood other than in the vaguest practicable terms.	PD38
16227	There is also no sign Polymet intends to add hydrology protections to its management of the site by drilling test wells to test for seepage at set distances from the site.	PD04
16228	I believe we must conduct baseline hydrology mapping of the 100 Mile Swamp, the Dunka River and other flowage in the Rainy Lake watershed so we have a clear understanding of subterranean water flow and just how quickly we are risking pollution seeping into the Great Lakes.	WR080, WR081, WR175

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	S. Alexandra Leary (52194)	
16229	It's time for America's citizens and America's oversight organizations to understand the nature of CORPORATE TACTICAL MALFEASANCE and realize that we must protect ourselves against corporations in ways that are far more legally binding especially given a 500-year horizon of oversight being required.	FIN04
Sender Name (Submission ID)	Sally Bujold (4861)	
1907	This [99%] waste rock bears sulfide. Sulfide-bearing rock exposed to air and water yields sulfuric acid, producing forms of pollution (including mercury, arsenic, lead, and other toxins) that, according to PolyMet's own documents, will last at least 500 years.	PD01, WR001, WR035, WR059
1912	copper scrap already provides half of U.S. annual demand for that metal and the U.S. provides 23% of the world supply of recovered copper, recycling holds tremendous potential for fulfilling most of this nation's needs.	NEPA06
1913	Typically, mining companies import their expertise from elsewhere; only half the jobs promised by the mining companies are apt to go to local residents; the highest-paid positions will be taken by outsiders, who will leave the area once the mine has been exploited.	SO06
1915	The metals extracted from these mines will likely be exported; the profits will go to share-holders around the world rather than the residents of northern Minnesota.	SO06
1916	History predicts that once these mines are exhausted, their owners will declare bankruptcy and absolve themselves of responsibility for damage left behind.	FIN01
1917	Sooner or later, copper-nickel waste rock creates acid mine drainage, which often eats its way to ground water. New technology remains experimental, untested on an industrial scale, while exploratory drill sites in northern Minnesota are already leaking acid.	PD32, WR023, WR128
1918	who will pay for, operate, and maintain this technology twenty-four hours a day, day after day for 500 years or more?	FIN01
1919	Over the past two decades, while the mining workforce shrank, the economy diversified and grew less vulnerable to the boom-and-bust cycle of the mining industry. We support continued diversification [forestry, farming, recreation, iron mining].	SO02
1993	Copper-nickel mining, always risky for humans and their environment, is least dangerous in arid settings; but northern Minnesota, the site of three major watersheds, is one of the richest sources of freshwater in the world. Such wealth requires our most careful stewardship.	WR115
Sender Name (Submission ID)	Sally Drew (27782)	
14738	Is sulfide so rare that it is worth endangering the wetlands, rivers, lakes and streams in this area?	WR115
14739	I do not understand how the federal government can allow mining activities in national forests. Was not this land put aside so that this would not happen?	LAN02
Sender Name (Submission ID)	sally furness (57685)	
19363	The contribution to state and local economies will be substantial.	SO10
Sender Name (Submission ID)	Sally Munger (18132)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sally Munger (18132)	
3454	Why would we want to take a chance on this process when we are in a water-rich area and the report itself says that remediation will be needed or could be needed for 500 years.	PD03, WR195
3455	Add to that that copper-nickel mining has never been done anywhere without significant environmental damage. Let me say that again. Copper-nickel mining has never been done anywhere without significant environmental damage.	PD26
13508	Now, that new thing is reverse osmosis. Before we take one step to do this, I ask that it be proven that this process will work on the scale that will be needed.	PD03
13509	Are the jobs that will be created livable-wage jobs, and how long will they really last?	SO02
Sender Name (Submission ID)	Sally Rauschenfels (44096)	
15148	despite my desire for well-paying jobs here, I am smarter than to be seduced into the clutches of this slick Polymet project public relations campaign and resulting incomplete SDEIS for the greedy gain of a few dozen unsustainable jobs. ... The fact that our Minnesota DNR is even considering putting at risk our 10% of the world's fresh water for short-term economic gain is sad and shameful.	SO01
15149	The SDEIS provides no detailed definition of what financial assurance funds will be placed in trust to ensure that water flowing from the waste piles and tailings ponds will be treated and maintained for the required hundreds of years, and that contamination episodes can be cleaned up in the highly predictable event that the company goes out of business soon after closure.	FIN01, FIN08
15150	The hydrologic model for the water moving through the mining and processing site dramatically underestimates the volume of water passing through, and the rate it moves across and under the waste containment sites. Thus, this crucial predictive tool greatly understates the risk of significant acid rock drainage impacts to surrounding wetlands, groundwater, the Partridge and St. Louis Rivers, and ultimately Lake Superior.	WR003, WR189
15151	This revised version of the project has not been improved enough to assure that the mine's waste and the laws and variables of nature can now be managed so as to avoid major pollution for the indefinite future, beyond a time when our present regulatory systems may even be functioning.	PD01
15153	Unlike ferrous mining, Polymet's open pit sulfide mine operation has significantly greater potential to pose human health risks through contamination of drinking water and fish, seriously degrade the St. Louis River, destroy wild rice and irreplaceable wetland habitat, and harm the lake that holds the world's fresh water.	HU03, WET24
Sender Name (Submission ID)	Sam DiVita (44760)	
7238	I disagree with how the current (Supplemental) Draft EIS disregards the concerns of the Fond du Lac and Grand Portage Tribal Governments, the 1854 Treaty Authority, and the Great Lakes Indian Fish and Wildlife Commission.	CR01
7242	I also believe the some of the maps in the draft are incorrect. Specifically, the map of the One Hundred Mile Swamp…therefore the environmental impact statement is inadequate until the maps are corrected to show the real details of the area.	PD38
7244	I do believe that runoff from the project will enter the BWCAW and impact our waterways and wilderness areas in Minnesota.	WR111
Sender Name (Submission ID)	Sam Ilstrup (40101)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sam Ilstrup (40101)	
6463	PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year…The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution.	AIR01
6464	PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere…these peatlands and their stored carbon should be left undisturbed.	WET13
6466	fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change…the Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin.	WR057, WR077, WR180, WR193
6467	the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing problems.	FIN01, FIN05, FIN08, FIN13
Sender Name (Submission ID)	Sam Johnson (38440)	
13620	Since this [project] involves sulfide rich ore and the best of projections indicate that this type of mining cannot be done without long-term risk to groundwater contamination, I believe the plan to do such mining at key headwater sources is impractical and ill-conceived.	WR195
Sender Name (Submission ID)	Sam Steinberg (43579)	
9939	If 2200 pages are required to explain exactly how this project can be safely implemented, then there must be tremendous potential for negative outcomes.	NEPA07
15135	look west to Holden Village to see the legacy a copper mine can leave. That mine has left a scar on the face of one of the most pristine and beautiful wilderness areas in the world. Let’s not allow PolyMet to do the same thing to our wilderness areas.	WILD02
Sender Name (Submission ID)	Samantha B. Singer (6025)	
1529	There is absolutely no way [PolyMet] can deliver on a promise to treat the water until it is no longer polluted.	WR035
Sender Name (Submission ID)	Samantha Bauer (44073)	
14915	I am deeply concerned that PolyMet, a company that has never before operated a mine, will not be able to follow through on their claims to not pollute, and that it will be my generation that has to pay the price – in superfund taxes, and by losing priceless wilderness.	PD23
14916	I know that jobs have to be created, but I would prefer to see efforts channeled towards lasting jobs, not positions that will be cut as soon as the mine is either shut down or done providing copper.	SO02
14917	PolyMet’s Supplemental Draft Environmental Impact Statement talks about using ‘reverse osmosis’ on the water to keep pollutants from leaching into the aquifer and the Lake Superior Basin, but the science isn’t sound.	PD03
14918	Even if reverse osmosis did work, 99% of what the mine is going to produce will be waste products. Is that 1% of copper-nickel needed so badly that we can afford to overlook the potential damage that could be done to more than 8,260 acres of St. Louis River watershed?	WR111, WR143

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Samantha Bauer (44073)	
14919	I would like to request that action be taken against the PolyMet plan, in the form of postponement until a better plan can be developed that captures and controls runoff pollution from the mine. I would also like the plan to address the care of workers, as PolyMet's financial backers have a history of human rights violations.	PD23, PD32
17269	I am deeply concerned that PolyMet, a company that has never before operated a mine, will not be able to follow through on their claims to not pollute, and that it will be my generation that has to pay the price – in superfund taxes, and by losing priceless wilderness.	FIN01, FIN10
17270	I know that jobs have to be created, but I would prefer to see efforts channeled towards lasting jobs, not positions that will be cut as soon as the mine is either shut down or done providing copper. This copper, incidentally, will be sold to China instead of used in the United States, which I also object to.	SO02
17271	PolyMet's Supplemental Draft Environmental Impact Statement talks about using 'reverse osmosis' on the water to keep pollutants from leaching into the aquifer and the Lake Superior Basin, but the science isn't sound. Even if reverse osmosis did work, 99% of what the mine is going to produce will be waste products. Is that 1% of copper-nickel needed so badly that we can afford to overlook the potential damage that could be done to more than 8,260 acres of St. Louis River watershed? Open-pit mining like this has been done in more arid climates, and pollutants have still found their way into water. That threat will only be more potent in our water-rich environment.	WR111, WR143
17273	I would like to request that action be taken against the PolyMet plan, in the form of postponement until a better plan can be developed that captures and controls runoff pollution from the mine. I would also like the plan to address the care of workers, as PolyMet's financial backers have a history of human rights violations.	HU04, PD32
Sender Name (Submission ID)	Samantha Henderson (54339)	
17574	I think that we all use products everyday that we wouldn't have if these metals weren't made available.	NEPA05
17575	I think that the project proposer is going to be responsible and minimize the effects of water pollution and air pollution. For example, PolyMet has come up with air filters that can help filter during rock crushing and processing. They are also going to use energy efficient equipment and processes.	AIR14
17576	To minimize water pollution they propose to have liner systems to prevent chemical from seeping into the ground. They will have groundwater containment systems to help control the wastewater.	WR190
17577	PolyMet will use old mining sites to plant new vegetation on. They will keep the invasive species under control in these areas. They will also put back some nutrients in the soil that are needed for the land to have growth again.	PD28
17578	Polymet will have to remove some wetlands, but they will be replacing them elsewhere. They will try to work around them the best that they can.	WET25
Sender Name (Submission ID)	Samantha Henningson (47706)	
8090	The landscape and waters of Minnesota are forever, and I do not believe for one minute that PolyMet will pay to remedy problems that this is created…	FIN01
11154	I understand there are jobs at stake, and that the minerals being mined are in demand. But these are short term considerations.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Samuel Crook (32548)	
13836	Are you going to bet the future our children and grandchildren will have to deal with, on what many would consider infantile obsessions with power and money?	SO01
Sender Name (Submission ID)	Sandi Paavola (11607)	
2280	It [PolyMet SDEIS] doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells.	WR041
2280	It [PolyMet SDEIS] doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells.	WR041
2281	It [PolyMet SDEIS] doesn't explore alternatives that could reduce PolyMet's destruction of wetlands.	WET20
2281	It [PolyMet SDEIS] doesn't explore alternatives that could reduce PolyMet's destruction of wetlands.	WET20
2282	It [PolyMet SDEIS] doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish.	AQ28
2282	It [PolyMet SDEIS] doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish.	AQ28
2283	The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin.	WET24
2283	The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin.	WET24
2284	Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children.	AQ05, WR107, WR108, WR156, WR158
2284	Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children.	WR037, WR038
2285	the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity.	WI02, WI01
2285	the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity.	PD01, PD03, WR035, WR070
Sender Name (Submission ID)	Sandra Berg Dickson (42264)	
6751	The very thought that we would take a "chance" on polluting our presteen northland for jobs that will last less twenty years over pollution that could last over five hundred years totally baffles me.What is more important to all living beings than our water supply?	SO01, WR115
Sender Name (Submission ID)	Sandra Fantz (38592)	
14052	This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin.	WR111, WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sandra Fantz (38592)	
14053	The boundary waters in Mn is a national treasure and should be protected not ruined. We cannot buy that kind of environment and it is inappropriate to mine near it and destroy it.	WILD02
Sender Name (Submission ID)	Sandra Reuther (21202)	
1513	How is it possible to contaminate water, air, land and negatively impact wildlife areas in return for 350 jobs and 20 yrs of production.	SO01
8950	It is ridiculous to mine in the Superior National Forest a location set aside for wildlife, and for generations to come as a area of beauty and nature for all to enjoy.	LU06
8950	It is ridiculous to mine in the Superior National Forest a location set aside for wildlife, and for generations to come as a area of beauty and nature for all to enjoy.	LU06
8955	How is it possible to contaminate water, air, land and negatively impact wildlife areas in return for 350 jobs and 20 yrs of production. This then requiring a 200 to 500 year clean up, if cleanup is even possible. Water, Land, Nature are the three most important qualities that any state has, to ruin them would leave the next generations a state with problems much more serious than jobs.	SO01
8955	How is it possible to contaminate water, air, land and negatively impact wildlife areas in return for 350 jobs and 20 yrs of production. This then requiring a 200 to 500 year clean up, if cleanup is even possible. Water, Land, Nature are the three most important qualities that any state has, to ruin them would leave the next generations a state with problems much more serious than jobs. Without clean water and food tradition is negated.	SO01
8958	Mine Co. leaves the mess to the local community. Reading on I note [PolyMet] has never operated a mine before; it is not an American Co. and the parent Co. has a record of tax evasion and numerous fatalities.	FIN01
8958	Mine Co. leaves the mess to the local community. Reading on I note [PolyMet] has never operated a mine before; it is not an American Co. and the parent Co. has a record of tax evasion and numerous fatalities.	FIN01
8963	No example of a Copper/Nickle mine that has not contaminated water.Sulfuric acid produced with negative effects on soil and plants... Without clean water and food tradition is negated.	WR023
8963	No example of a Copper/Nickle mine that has not contaminated water.Sulfuric acid produced with negative effects on soil and plants... Without clean water and food tradition is negated.	VEG06, WR023
8965	[Copper/nickle mining has] never before tried in MN.	NEPA03, PD26
8965	[Copper/nickle mining has] never before tried in MN.	NEPA03
Sender Name (Submission ID)	Sandra Wagner (54842)	
18948	Everybody knows there are other companies waiting to see how Polmet fairs, before lining up to apply for their permits to mine. Therefore, I do not recognize this process as legitimate because it fails to consider the cumulative environmental impacts in the context of multiple mines.	CU04
18949	I also find it wholly disingenuous that financial assurances are not defined and part of this step in the process, when the DEIS acknowledges hundreds of years of pollution…I do not believe [the cost] can be feasibly calculated.	FIN05, FIN13

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sandra Wagner (54842)	
18950	I will not stand idly by and watch sovereign Treaty Rights abrogated in this quest.	PER08
Sender Name (Submission ID)	Sandy Bergeron (39346)	
12831	Let's not take short term gains for a few take our natural resources for the future.	SO01
Sender Name (Submission ID)	Sandy Loney (14840)	
224	Why would we want to swap out high quality land for lower quality lands scattered around?	LAN03
1770	Why would we risk having anything happen to our Superior Nat'l forest and fresh water supply?	WR111
3571	…I am contacting you to plead that you stand up for our fresh water, forests, and American Indians of Minnesota. There is so much to lose with this project!! Why would we risk having anything happen to our Superior Nat'l forest and fresh water supply?	CR01
3573	Why would we want to swap out high quality land for lower quality lands scattered around? What is the benefit for Minnesota? There is NONE! … The short term jobs aren't worth it. Don't sell out the state for the rest of us.	SO01
3618	No way should mining waste be happening near our national treasure ~ clean fresh water!	WR195
16238	PolyMet's main investor is known around the world for being a major polluter. Why would we risk doing business with this company? Are you really willing to risk our water? Will you be able to sleep at night if/when an accident occurs?	PER02
16239	Why would we allow ANY corporation with a notorious environmental record anywhere near our Minnesota forests and water? Again…. What is the benefit for Minnesota? There is NONE!	SO01
Sender Name (Submission ID)	Sandy Sterle (15965)	
956	I am dismayed that [the Co-lead agencies] … continue to consider a mining project, which would create ongoing heavy metal and sulfate pollution in the St. Louis Watershed and would need 200-500 years of ongoing water treatment after closure of the mine and processing site.	PD01, WR115
958	This proposed mining project does not meet the Minnesota Rules (6132.3200) which states when a proposed mine is closed that it is to be left clean and maintenance free…this proposed mine would create a need of at least 200-500 years to finance testing and maintenance of water quality.	PER04
959	The mining industry is notorious for avoiding liability after taking financial gains, so requiring a 500-year financial assurance is an unrealistic expectation.	FIN01
962	The SDEIS does not clarify the proposed project's effects on tribal traditional practices and cultural rights guaranteed under treaty.	CR01
963	The SDEIS does not include analysis of indirect effects on the aquifer	WR010
964	The SDEIS does not … clarify in detail encumbrances on the lands to be received in the land exchange.	LAN04
965	The wetlands lost at the mining site will not be functionally replaced in the St. Louis River Watershed	WET03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sandy Sterle (15965)	
967	the land exchange negates the original purpose of the U.S. Forest Service to protect these lands, forests and waters at its headwaters.	LAN02
969	the SDEIS needs to be redone to transparently analyze all the short-term, long-term and cumulative negative impacts from an open-pit sulfide mine in a water rich environment.	SO04
970	This SDEIS does not include an analysis of the risks to mine employees and surrounding communities from exposure to air pollution possibly containing asbestos-like fibers … [or] the long-term health risks of people exposed to water polluted with heavy metals and sulfates from ongoing and long-term water seepage into groundwater, and the Partridge and Embarrass rivers. The SDEIS must be redone to include a rigorous health risk assessment.	AIR03, HU01, HU04
974	The SDEIS economic analysis stands on an old vision of inflating the benefits of extractive mining without revealing the costs of significant current and long-term negative environmental impacts.	SO04
975	the economic analysis misrepresents the tax benefit by not subtracting tax breaks given to the industry, and by not adding the costs to the local, county, and state for public services following this project's development.	SO04
976	The economic analysis under represents comparisons to tourism and other sectors that support tourism. It does not consider potential long-term loss of tourism due to impacted natural aesthetics along with polluted air, water and mercury in fish.	SO02
977	This SDEIS economic analysis should be rejected because of its emphasis solely on the benefits of mining while leaving out the costs.	SO04
978	By allowing this SDEIS to avoid transparency and by lacking balanced analysis, the three governmental agencies are effectively letting go of protecting our public lands and waters.	NEPA15
980	The ideal way to apply this rule [MN Rule 6132.3200] is to not permit seepage of polluted water and the site must be cleaned up during operations, so most of the cost of cleanup is applied as an expense against yearly profits.	PER04
982	[This] is a setup for the future citizens of Minnesota to pay to test and maintain water treatment at the mine and processing site for the next 200-500 years. ... Even if the company were to pay these costs up front, it is not realistic to expect investments to be risk-free for centuries, or to expect a state agency to be able to protect financial assurance from future legislation redirecting these funds elsewhere.	FIN01, FIN08, FIN10
986	The realistic scenario is if the mine is left with a need for active maintenance after closure… eventually citizens will have to pay the cost for cleanup and consequences of the health hazards from heavy metals and sulfate water pollution into ground water and into the watershed	FIN10
988	This proposed sulfide mine should not go forward because it would create ongoing heavy metal and sulfate pollution in surface water, ground water and into the St. Louis River Watershed, which provides drinking water to communities and flows into Lake Superior.	WR041, WR042, WR195
990	This pollution contributes to mercury buildup in fish, and could make this natural resource unsafe for consumption in most of the St. Louis River Watershed.	AQ05, AQ11
991	Fishing is very important to Native people and Minnesota's tourist industry. Warnings about more mercury in local fish negatively affect tourism.	SO02
993	this pollution affects production of wild rice, which is just one of many hunting and gathering rights protected by treaty for the Native American community.	CR01, WR156

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sandy Sterle (15965)	
994	The SDEIS must be redone to show the full impact on ground water, and the Partridge and Embarrass rivers.	WR044, WR045, WR058, WR173
999	It is unclear whether there are full emergency plans to respond to a long-term power outage or other unexpected failures such as: water treatment plant equipment failure, failure of lining material as it ages, and accidental releases of hazardous wastes. The SDEIS needs to add emergency contingency plans for equipment and other failures along with revealing the estimated volume and level of contamination released from uncontained discharge of polluted water.	PD22, WR127, WR130
1000	The public near the proposed mine needs to be informed with clear explanation and pictures of consequences to their health and environment from polluted air and water from sulfide mining, so they are fully aware of what they are inviting into their community.	SO04
1002	The land exchange is a net loss of wetlands for the St. Louis River Watershed.	WET15
1012	Proposed wetland mitigation will take place outside of the watershed, meaning the type and function of the wetlands will not help water quantity and quality within this watershed ... [and] the function of the 900+ acres of wetlands on the proposed mining site will be lost forever.	WET03
1015	The water table will be drawn down for an unknown distance around the mine, which could encompass an additional 7,000 acres. The SDEIS needs to be redone to include analysis of these 7,000 acres of indirect effects on the aquifer and surface hydrology.	WET10, WR119
1016	In the SDEIS, it is unclear if the lands to be exchanged are free of encumbrances. If the lands already have split interests of minerals, aggregate or timber reserves this could lead to a setup for another land exchange. The SDEIS needs to clarify the title of each of the lands to be exchanged.	LAN04
1017	The SDEIS needs to clarify the title of each of the lands to be exchanged. In the SDEIS, it is unclear if the land exchange is legal.	LAN04
1021	My concern is this proposed land exchange seems to negate the spirit of the law ... [and instead] makes this land unavailable to the public due to it being turned into a permanent industrial waste site ... The SDEIS needs to be redone to reveal all the legal questions and negative consequences from this exchange.	LAN02
1022	the water aquifer will be drained down and ground water will be exposed to pollution from untreated toxic mine seepage	WR086
1023	local citizens could develop cancer or other health problems	HU05
1024	public wetlands will be turned into an industrial waste site effectively creating a net loss of wetlands in the watershed	WET24
1027	mercury in fish will rise leading to less tourism and a loss of tourism related jobs	SO02
1029	wild rice production will be negatively affected, Native American treaty rights will be affected	CR01, WR156
1030	Minnesota taxpayers will be left to pay for 200-500 years of water treatment once PolyMet or the financial organization holding financial assurance goes bankrupt	FIN10
2011	mining has a long history of boom and bust of the local economy, which will likely impact PolyMet's employees and the community before it closes.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sandy Sterle (15965)	
2012	It came to my attention that the major financial backer to PolyMet is a large international corporation, which has a poor record for worker rights, indigenous rights, and environmental pollution.	PD23
15560	..it is unclear if the land exchange is legal. The proposed mining site is land acquired under Weeks Law…does this mean that this land acquired for forest usage and water flow specifically located near the headwaters of Embarrass and the Partridge Rivers which are tributaries to the St. Louis River and flow into Lake Superior, cannot be exchanged due to their…status under the Weeks Law?...The SDEIS needs to be redone to reveal all the legal questions and negative consequences from this exchange.	LAN02
Sender Name (Submission ID)	Sandy Stoffel (15427)	
8935	For those that argue that it will be bring jobs to the arrowhead region need to learn their facts. Over 60% of the employees will be brought in from out of the region. … Polymet has already grossly decreased how many "proposed" jobs there would be.	SO06
12836	The matter isn't "if" the water will be polluted, but "when" it will be polluted. With moose deriving not just water but also food from the waterways around the NorthMet project, moose will be negatively affected by this mine.	WI01
12837	Tourists bring $1.6 billion in revenue per year in the arrowhead region. They travel from around the world to fish and camp in the pristine waters of the Boundary Waters Canoe Area Wilderness. What's going to happen to that revenue when the fish are killed off and the waterways are too toxic to swim or even camp nearby?	SO02
13818	I believe that Polymet needs to prove they can build a mine that will protect the environment and our waters 100%, this needs to be proven in another state.	PER35
13819	Over 60% of the employees will be brought in from out of the region. Not to mention the fact that Polymet has already grossly decreased how many "proposed" jobs there would be.	SO06
13820	Let Polymet prove, in another state, that they can make a mine 100% environmentally safe.	PER35
14878	To date, there hasn't been one sulfide mine or open-pit mine that hasn't polluted the waterways. ...while all projects reviewed stated that it wouldn't pollute, over 76% of the time it did. Along with that, 89% of these mines polluted when it was stated that it was "completely safe".	WR023
14879	when these mines contaminate, it is up to the taxpayers to fend for the tens-of-millions-of-dollars bill because some of the mining companies filed for bankruptcy.	FIN01, FIN10
Sender Name (Submission ID)	Santiago and Laurie Sovell-Fernandez (43323)	
11837	I question the accuracy of the modeling used to predict the impact of the project on both ground and surface water quality and quantity due to data limitations. More data is needed to make an accurate assessment of potential impacts in these areas.	WR025, WR071, WR072
15749	I strongly question the conclusion of the SDEIS on potential sulfate and mercury pollution impacts to water resources within and near the project area. Interactions among these water quality constituents are complex and many questions remain about the necessary rules and enforcement required to adequately ensure protection and nondegradation.	PER06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Santiago and Laurie Sovell-Fernandez (43323)	
15750	I believe we must take a precautionary stance on a project of this nature and magnitude. If a true Cost Benefit Analysis was conducted, would 20 years of extraction and a few hundred short term jobs outweigh the cost of (at least) 500 years of pollution clean up and health impacts of which we can not know?	SO01
Sender Name (Submission ID)	Sara Anderson (57254)	
17388	What effects does this have on human and animal life, since NO testing has been conducted on cancers, illnesses, water pollution linked to human/animal life indirect correlation to the proposed mine?	HU03, WI04
Sender Name (Submission ID)	Sara Barsel (43009)	
11676	How will the RO plant be powered? There is no indication of a dedicated energy source/power plant for the reverse osmosis component of the wastewater treatment plant. ES-17 Industrial RO plants have their own, designated power plants…How will power outages impacting the RO plant be addressed?	PER04
11677	Who will maintain the [reverse osmosis] RO plant after mine operations cease, at what cost , and paid by whom?	FIN01
11678	Because function of the RO plant is critical to satisfaction of the current Minnesota Wild Rice Sulfate Standard (Minn. R. 7050.0224, subp. 2), and potential modifications to the current rule will most likely include retention of 10mg/L as the maximum aqueous sulfate concentration, the ability of this RO plant to process mine water that meets the standard is essential. PolyMet / NorthMet Project has repeatedly stated that the water discharge will meet this standard. Consequently, detailed answers to the above questions [regarding the RO plant] are essential, and the SDEIS should be rewritten to include this information.	WR143
11696	The SDEIS does not address the potential for catastrophic failure of the mine pit walls….The SDEIS does not refer to use of methods for predicting catastrophic failure of open pit mine walls during mine operation or after mine closure.	GT15, WR202
11701	The SDEIS does not indicate that PolyMet/NorthMet has considered the consequences of such [mine pit wall] failures on…Fatalities to human and animal populations [and] permanent interruption of wildlife corridors	WI01, WI03
11703	The SDEIS does not indicate that PolyMet/NorthMet has considered the consequences of such [mine pit wall] failures on...Pollution of MN waters (lakes, streams, and wetlands around the project area and downstream) and the consequences (to health, loss of biodiversity, remediation costs, etc.)	WR202
11706	The SDEIS does not indicate that PolyMet/NorthMet has considered the consequences of such [mine pit wall] failures on...Economic costs to PolyMet, the State of Minnesota, any proximal mining operations contracting NorthMet for processing operations (the copper-nickel-PMG properties in the Duluth Complex that are close to the Erie plant facility which may consolidate under PolyMet)	FIN05, FIN12
11713	Impact on mining operations (loss of infrastructure, suspension of mining operations), including the plant sites total capacity. Polymet's Edison Report analyzes details for the investment potential of expanding the project.	SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sara Barsel (43009)	
11770	The SDEIS insufficiently addresses issues related to nondegradation and/or antidegradation related to water….Under the provisions of MN Rule Part 7050.0185 Nondegradation for All Waters and other Minnesota Rules, I formally request that the following items be addressed in the SDEIS, with appropriate determinations by the MPCA Commissioner:•Are any of the proposed discharges from the Project new or expanded discharges, as defined in the Rule 7050.0185?•Are any of the proposed discharges from the Project "significant" discharges, as defined by the Rule 7050.0185?•If any of the discharges are significant discharges from either a point or nonpoint source, the MPCA shall determine whether additional control measures beyond those required by MN Rule 7050.0185 subpart 3 can reasonably be taken to minimize the impact of the discharge on the receiving water. If it is appropriate to consider any alternatives, please revise the SDEIS accordingly….•Because all NorthMet Project area waters are also designated Outstanding International Resource Waters (Minnesota Rules, parts 7050.0460 and 7052.0300), I request that a full nondegradation demonstration for all bioaccumulative substances of immediate concern (e.g., mercury) is completed and approved by the MPCA as part of the SDEIS and before the permitting process begins….•Under MN Rule 7052.0310 subpart 4, the SDEIS should address the question of whether the proposed Project discharges constitute a nondegradation demonstration trigger. …•Under MN Rule 7052.0310 subpart 6, the MPCA should address whether any or all of the proposed discharges should be allowed only if there is not a prudent and feasible alternative to the discharges….The deficiencies of the SDEIS related to nondegradation are made obvious by the fact that the word "nondegradation" appears only twice in the entire body of the SDEIS.	PER09, WR109
11778	Who will pay for all the future monitoring and related laboratory work? …Mechanical water treatment was included in the modeling for 200 years at the Mine Site and 500 years at the Plant Site. The actual duration of the needed mechanical water treatment is described as "uncertain". How will the cost be predicted and the appropriate funding established if the duration is "uncertain"?	FIN01, FIN05
11779	It would be a conflict of interest and not in the best interest of the State for the Project Proposer to perform or oversee the monitoring or related laboratory analysis. The SDEIS should be revised to include provisions for independent parties to perform this work….The SDEIS should be revised to include provisions for an independent review board comprised, in part, of stakeholders to oversee and review all the future monitoring and related laboratory work.	PER24
11782	Who is responsible for the "pilot studies to be conducted to demonstrate the ability to transition to non-mechanical water treatment"? These studies should be funded by the Project Proposer but not implemented or overseen by the Proposer. State agencies or independent third parties should perform and supervise this work. A long-term compliance watchdog group should also have responsibility and oversight for this work.	PER24
16710	What are the provisions for water purification back-up while the RO plant is being serviced?	PD03
16712	What is the maximum volume or RO water processed/day? What is the estimated cumulative processing volume?	PD03
16714	Has the RO plant designed by Barr Engineering been piloted, and if so, where are the technical reports?	PD32
16741	The SDEIS does not address any predicted consequences of rock avalanches, including induction of earthquakes.	GT05
16743	The SDEIS does not address the role of extreme weather events in causing catastrophic landslides. The SDEIS provides insufficient address to extreme weather events in the Duluth Complex area.	PD11
16744	The SDEIS insufficiently addresses issues related to the potential for catastrophic failure of the mine pit walls or the consequences of such failure. The SDEIS does not indicate that NorthMet will employ any technology for early-warning monitoring and prediction of failures….[and] impact on surrounding properties	GT15, WR130, WR132

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sara Barsel (43009)	
16749	The SDEIS does not refer to use or literature discussion of any methods for forecasting big slides in other open mine pits this discussion or technology. The SDEIS provides inadequate reference to / analysis of extreme precipitation events in the immediate region of the NorthMet mine and processing site. NorthMet contingency plans are dependent on function of mine site infrastructure, which will likely be dysfunctional in the event of a catastrophic wall failure.	WR077, WR130, WR132, WR180
16788	The waters listed in Table 4.2.2-2 Impaired Waters within the Embarrass River and Partridge River Watersheds are listed as impaired for mercury and awaiting a TMDL (TMDL Target Date 2015). They are not included under the Statewide Mercury TMDL. For waters that are impaired but do not yet have a completed TMDL, the MPCA cannot allow any new or expanded discharge that may cause or contribute to the impairment.. …At a minimum, this issue and concern should be addressed in a revised SDEIS. All relevant information should be provided and alternatives considered.	ALT13
16790	There is a statement in the SDEIS that the water quality model “performs probabilistic simulations, taking into account the uncertainty around many of the model input assumptions”. Please revise the SDEIS to address the following questions and concerns:Which model inputs included uncertainty? Which model inputs did not? Was uncertainty included in the other water modeling – groundwater and surface water?Was uncertainty addressed in a sufficient manner? For example, did the modeling inputs include the possibility of significantly increased rainfall for long periods of time (years or decades)?	WR189
Sender Name (Submission ID)	Sara Harrison (39737)	
7067	I would like to know exactly how you plan to hold PolyMet accountable financially for a 500 year window of time, for any adverse environmental impacts from sulfide ore mining in the proposed area. There is no record of any company staying intact for that kind of time horizon. What evidence do you have that they have the commitment or the financial reserves to back-up their promises for this extended period of time?	FIN01
7069	what level of pollution are you going to deem 'acceptable,' in terms of runoff into adjacent rivers and lakes? What impact will that run-off have on fish, birds, wild rice, and wildlife in the region?	PER18
7079	How large of an area will the mining impact?	PD30
7083	What protections will be put in place to ensure that heavy metal contamination does not occur in the watershed surrounding the mining site?	WR130
7084	What level of ongoing monitoring will the DNR and EPA have? What regulatory teeth will you have to hold PolyMet accountable?	PER06
7093	the national and state trends have been to 'relax' environmental regulations, in favor of promoting a business- friendly environment. So, tell me, who will make sure we do not end-up with a 500 year window of unregulated pollution from this proposed mine? I would like to know who will sign their name to that pledge and back it up with the best environmental monitoring available now and in the future.	PER06
13021	I would like to know exactly how you plan to hold PolyMet accountable financially for a 500 year window of time, for any adverse environmental impacts from sulfide ore mining in the proposed area. There is no record of any company staying intact for that kind of time horizon. What evidence do you have that they have the commitment or the financial reserves to back-up their promises for this extended period of time?	FIN01
13027	As well, what level of pollution are you going to deem 'acceptable,' in terms of runoff into adjacent rivers and lakes? What impact will that run-off have on fish, birds, wild rice, and wildlife in the region?	WR110

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sara Harrison (39737)	
13028	How large of an area will the mining impact? What protections will be put in place to ensure that heavy metal contamination does not occur in the watershed surrounding the mining site? What level of ongoing monitoring will the DNR and EPA have? What regulatory teeth will you have to hold PolyMet accountable?	PD24, PD30
19866	We cannot afford to accept monitoring & clean-up of 500 years of water quality, protection, post-Polymet mining!	PD01
Sender Name (Submission ID)	Sara Hill (39474)	
13426	Proper site management should be part of the cost of business, not a cost to taxpayers in Minnesota. Jobs are not a profit to Minnesota if Minnesota needs to pay any site maintenance or clean up.	FIN10
Sender Name (Submission ID)	Sara Mairs (43851)	
11863	There are so few pristine wilderness areas left in our country and in the world. Doing anything for short term gain that would put this resource at risk is beyond my comprehension.	WILD02
11864	There is a long history of negligence on the part of mining companies, and I do not trust the integrity of any mining company to follow through on efforts to prevent known and unknown problems from occurring.	FIN01
14943	The only way to ASSURE the health and safety of both the ecosystems and the residents of this area is to NOT mine in the first place.	ALT13
Sender Name (Submission ID)	Sara Roberts (33526)	
12317	This is a precious area that must be protected for all time so that my grandchildren and others' grandchildren can know wilderness and wild things.	WILD02
Sender Name (Submission ID)	Sara Skalle (58061)	
19877	The long-term loss, damage and sacrifice outweighs the short-term benefits.	SO01
Sender Name (Submission ID)	Sarah Alexander (10398)	
517	PolyMet does not seem to have a very clear proposal for dealing with containing waste created as part of the mining process.	PD15
519	Piling the tailings does not seem to be a practical or aesthetically sound solution. Run-off is going to be incredibly hard to contain, because it can easily seep into the groundwater and then lead to contamination of surrounding ground and surface waters.	WR056, WR057
521	However, the lifespan of the project is 20 years, and wastewater and other treatments could take over 500 years. There is no way that PolyMet can agree to and promise to be responsible for that length of time, as it is well over a human lifespan.This would then fall to the state, and future generations would have to pay for clean-up for years.	FIN01, FIN10
1458	This would be the first sulfide mining project in Minnesota, however other similar projects have all had issues with water contamination. To date, I do not believe there are any cases of sulfide mines that have operated without significant environmental impacts.	WR023
Sender Name (Submission ID)	Sarah Betzler (38211)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sarah Betzler (38211)	
13691	Please consider that when chemical contamination and spills affect water resources in this less-than-wealthy area, and when ecotourism is reduced because of the water contamination and spoiled vistas, and when the mine closes and jobs disappear again, the residents in this region will be worse off than they are now.	SO01
13692	Regulation, job safety improvements, and promises by Polymet may soothe some worries, but I don't believe we have the rules or the enforcement capacity to solve most of these problems.	PER35
13693	The behavior of other mining companies causes me to doubt that Polymet will really take care of these people and clean up their mess. Please don't trust them to do the right thing - as our state government, it is your job to distrust those that might take advantage of us and our resources.	FIN01
Sender Name (Submission ID)	Sarah E. Reed (43571)	
15696	I know there are many economic challenges in northern Minnesota and I don’t have the perfect answer but I think there are other options that can bring numerous, skilled jobs to the Iron Range for the long term and won’t threaten to turn the state’s freshwater ecosystems into Superfund sites.	SO01
15697	most of the world’s copper supply will soon be derived from copper recycling. Why not be forward-thinking and build copper (and other precious metal) recycling facilities in northern Minnesota? These could supply quality jobs for an indefinite amount of time with a drastically reduced level of environmental risk.	NEPA06
15698	PolyMet has simply failed to establish that its project can adequately mitigate the extensive and well-known risks associated with the mining of ore deposits with acid-forming minerals. Please do not risk adding northern Minnesota to the long list of acid mine drainage disasters.	GEN03
Sender Name (Submission ID)	Sarah Heggestuen (9559)	
195	The jobs today are not worth the risk tomorrow.	SO01
966	the company can quickly declare bankruptcy and the cost of cleanup - if cleanup is even possible - will be left to taxpayers.	FIN01
968	It (PolyMet) threatens the wild rice, the water supply for 60,000 people.	VEG04, WR042, WR156
Sender Name (Submission ID)	Sarah K Poznanovic (54687)	
17847	The Polymet SDEIS lacks sufficient detail pertaining to the economic impacts of the mine. Copper sulfide mining will negatively impact the environment and the SDEIS does not take into account the costs of environmental degradation.	PER03
17848	tourism, which is extremely important to the economy of northeastern Minnesota, will suffer. The proposed copper sulfide mine will certainly make northeastern Minnesota less desirable as a tourist destination.	SO02
17849	The Polymet SDEIS does not adequately address water pollution caused by the mine. … A copper sulfide mine would significantly negatively impact water quality and many other natural resources in the BWCA and Lake Superior Watersheds. It is unconscionable to pollute water in our state with sulfuricacid and heavy metals for at least 500 years.	WR115
17851	The Polymet SDEIS does not address how accidents due to equipment malfunctions or extreme weather events will be dealt with.	PD22

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sarah K Poznanovic (54687)	
17853	The base flow values used by the DNR to model pollution dischargeare much lower than actual discharge rates. Therefore, the predictions made with this model are inaccurate.	WR003
17854	the SDEIS fails to provide financial assurances from Polymet for monitoring,maintenance, and replacement costs.	FIN11
17855	There is no rush to accept an inferior EIS for copper sulfide mining in Minnesota. We should wait until sometime in the future when research and development have progressed enough to ensure impacts to theenvironment will be minimal.	ALT16
Sender Name (Submission ID)	Sarah Kutzke (43840)	
11854	Minnesota is such a beautiful place. Ruining Minnesota's natural beauty and resources would be a huge mistake. Keep Minnesota beautiful and clean, please.	LU04
Sender Name (Submission ID)	Sarah Malick (38456)	
9653	The mines will not only be an eyesore, they will also increase rail and truck traffic, which would negatively affect tourism in the area.	LU06
9656	Sulfide-bearing rock brought to the surface will turn into sulfuric acid and leach into our waterways, resulting in irreparable damage to our biotic community.	WR001, WR113
13612	The Boundary Waters Canoe Area Wilderness is America's most visited wilderness area and one of the oldest designated wilderness areas in the nation. Despite what proponents of the copper-nickel mines say, creating new mines within 50 miles of Ely would be extremely detrimental to our local economy.	SO01
13613	The noise from drilling and moving material destroys the wilderness experience on the southern end of the Wilderness area near Spruce Road and Birch Lake.	N02
13614	there is no evidence that our most precious resource, the interconnected system of pristine waterways, will adequately be protected. Acid mine drainage in our waters is unacceptable.	WR111
Sender Name (Submission ID)	Sarah Musgrave (44687)	
7169	The wetlands that will be removed are not replaced in the same watershed and the whole issue is not addressed and seem of little concern to everyone.	WET03
7170	Removing the wetlands will cause increased pollution into another great natural resource.	WET24
7175	Also the vast amount of water needed to mine will cause damage to the ecosystem.	WR115
7176	Because of climate change it is creating draught or flooding conditions.	WR180
7178	Also the vast amount of water needed to mine ... could cause water shortages.	WR181, WR182
Sender Name (Submission ID)	Sarah Nelson (39178)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sarah Nelson (39178)	
5508	We must take good care of our resources - and this mine project looks just disastrous for our fresh water. 500 years or more of pollutants leaching into the ground water and our waterways?	WR195
6757	you've heard all the environmental risks - both imminent and long term….. A handful of jobs, for a host of certain damages to our fresh water.	SO01
6773	the immediate and potential future water pollution problems are just too great. We don't want the short term damages to our beautiful fresh waters and critical aquafers, and we definitely don't want the long term damages	WR195
12279	Perhaps we need to invest some resources into retraining underemployed residents of northern Minnesota. That would be far more cost effective than selling off our beautiful northland resources to a corporation that might not even exist in 20 years.	SO01
12937	A handful of jobs, for a host of certain damages to our fresh water. In 10 or 20 years, the company will have made their profits and be gone. Minnesota will be left with all the costs.	SO01
13478	In 10 or 20 years, the company will have made their profits and be gone. Minnesota will be left with all the costs.	FIN01, FIN10
14143	In 10 or 20 years the company will have squeezed as much profit as they can from the site and be gone. Minnesota, will be left with all the costs.	FIN01, FIN10
Sender Name (Submission ID)	sarah nevins (43474)	
15545	[Mining in this area] would (if allowed) destroy the vital and vibrant tourism economy in northern Minnesota.	SO02
15546	It would jeopardize the Boundary Waters Canoe Area Wilderness -- not only environmentally, but it would impact every activity tourists partake in; from sightseeing and wildlife viewing to hunting, trapping and fishing.	WILD02
15548	Part of the plan is to "monitor and treat polluted water for 500 years" ? This is simply not feasible. A project that openly plans to pollute fresh water for that long should never be allowed. … This proposed project would affect all of the Lake Superior Basin, sulfuric acid in the lake will not stay in one place as you certainly know.	WR037, WR128
17055	Part of the plan is to "monitor and treat polluted water for 500 years" ?.... A project that openly plans to pollute fresh water for that long should never be allowed…. reject the exchange of Superior National Forest land that would allow the project to move forward, and deny the Section 404 permit.	COE03
Sender Name (Submission ID)	Sarah Oppelt (36615)	
3810	The mine will provide relatively few jobs for a relatively short amount of time with very likely significant environmental impacts.	SO01
3812	If the mine is approved, please do ensure that there are significant financial assurances in the permitting process. It is important to me as a Minnesotan that there is enough money to deal with contamination problems when they do arise to minimize the impacts on our precious waterways and land.	FIN05, FIN08
Sender Name (Submission ID)	Sarah Schaefer (54560)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sarah Schaefer (54560)	
18965	Polymet's proposal will leave cleanup for 500 years at its lowest proposed timeframe. This is likely a bill that will be paid by Minnesotan tax-payers. Despite claims that this project will create jobs and revenue, only 100 jobs in 20 years of its existence will be for in-state workers and only approximately 1% of revenue will stay in-state.	SO01
Sender Name (Submission ID)	Sarah Sigford (54648)	
17988	Polymet has acknowledged 500 plus years of pollution control is not uncommon, but we don't see a plan or money for dealing with that scale of problems.	FIN05
17990	Our tax dollars are already going to clean up for the watersheds of many of these rivers that will be polluted. How can we justify continuing to degrade them? This project will be the first of its kind if it passes in MN. We need to set precedent that MN cares more for our water and wilderness. Exchanging precious wetlands, wildlife corridors, and moose habitat is not worth the 20 years of potential jobs.	WR107, WR108
17992	We have no guarantee that Polymet will abide by regulations set forth and we have no guarantee that other agencies and government will properly enforce these regulations. We've seen no evidence that reserve osmosis will provide to work with added pollution and chemicals that would be present in mine waste.	PD01, PD03
Sender Name (Submission ID)	sarah stonich (45929)	
10359	There's .5 ounce of copper in your cell phone - if every time we bought a cell phone we included 5 pennies for the manufacturer in our payment - that would cover it. A computer, perhaps 30 pennies …. So, how about we eliminate the penny as currency and collect the pre 1983 all-copper pennies for manufacturers needing copper? Too simple? Not really.	ALT09, ALT16
Sender Name (Submission ID)	sbarkema (7201)	
546	The people behind this6 push have only one thing on their mind. $$$$$$$ They will do anything and promise anything to get this started. The damage it WILL cause and the pollution it will create now and for hundreds of years are what we and our next generations will have to live with long after the $$$$ has disappeared.	SO01
548	The HUGE potential for additional damage and problems that can happen once this project gets the go ahead is in no way feasible for the few temporary jobs they SAY will be made.	SO01
Sender Name (Submission ID)	Scarlett Antcliff (11520)	
2472	I need not sulfide mineWhy1.I need clean water to swim in2.The fish need it clean3.The other forest creatures need clean water to drink	HU01, WR195
2472	I need not sulfide mineWhy1.I need clean water to swim in2.The fish need it clean3.The other forest creatures need clean water to drink	FIN08, FIN05
Sender Name (Submission ID)	Schmidt Michael (17371)	
1974	Even with a very large bond posting by the company or industry I do think support this type of a destructive industry in Minnesota.	FIN05, FIN10
2100	This time of mining appears to be a boom-bust proposition with so much potential for immediate and ongoing pollution and industrial damage to the environment of this beautiful natural and tourist area.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Scot Dauner (57256)	
17392	There is no track record of a pollution free solution for the type of mine and it is right next door to the BWCA. I don't believe one but that anyone is going to sign up to clean water for 200 to 500 years.	PD26
Sender Name (Submission ID)	scott anderson (9473)	
8156	this 480 years who will pay for the containment of the toxic water. Tax payers…What if polymet goes bankrupt to get out of their commitments. Then the tax payers will be held accountable.	FIN01
9788	I do not understand why 300 jobs for 20 years is more important than clean water. This mine will play out in 30 years.	SO01
10650	The containment plan of this toxic water, does it take into account large rains, like in june of 2013, the 100 year rain.	WR057, WR077, WR180, WR193
11906	I do not understand why 300 jobs for 20 years is more important than clean water. This mine will play out in 30 years while the water has another 480 years before it might be non-toxic.	SO01
11907	The containment plan of this toxic water, does it take into account large rains, like in june of 2013, the 100 year rain	PD22
11908	[In] 480 years who will pay for the containment of the toxic water…What if polymet goes bankrupt to get out of their commitments. Then the tax payers will be held accountable.	FIN01
13274	the water has another 480 years before it might be non-toxic. this 480 years who will pay for the containment of the toxic water. Tax payers.	FIN10
13275	The containment plan of this toxic water, does it take into account large rains, like in june of 2013, the 100 year rain.	WR057, WR077, WR180, WR193
13276	What if polymet goes bankrupt to get out of their commitments. then the tax payers will be held accountable.	FIN10
Sender Name (Submission ID)	Scott Bennett (44180)	
9808	PolyMet's web site claims that water that will be discharged from its project site would never enter the Boundary Water Canoe Area Wilderness lakes or streams. In reality, however, hydraulic conductivity testing is needed to determine the actual effect of acid mine drainage into the waterways on the edge of the Boundary Waters.	WR024, WR071, WR081, WR111, WR175
9815	the SDEIS have used incorrect maps which contradict the US National Atlas watershed map… Significantly, the SDEIS claims that there is no delineated boundary for One Hundred Mile Swamp… Without hydraulic conducitivty testing and measurements, PolyMet has no way to show that water entering One Hundred Mile Swamp will not then flow into Rainy Lake in the BWCA watershed.	WR024, WR071, WR080, WR081, WR111, WR175
9819	There has been no baseline water testing in the Dunka River, Langley Creek, or anywhere else in the Rainy Lake watershed. Without such testing in the Rainy Lake watershed, there is no way to gauge the possible harm to the BWCA and Quetico from PolyMet mine drainage.	WR085
14890	the National Atlas shows a 10-mile-long wetland that drains to both the St. Louis River and BWCA watersheds, the most recent SDEIS maps depict the One Hundred Mile Swamp as only six miles long, and as existing only on the St. Louis River side of the divide.	WR024, WR071, WR080, WR081, WR111, WR175

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Scott Bennett (44180)	
14891	PolyMet must be required to correct its SDEIS to include accurate watershed mapping, with hydraulic conductivity testing in One Hundred Mile Swamp, with water quality testing for the BWCA watershed, and with a data-based statement of the impact of the proposed mine on BWCA water quality.	PD29
Sender Name (Submission ID)	Scott Bol (18134)	
3458	I would want us to make sure we have all of our stockholders and all of our investors in PolyMet to make sure that they are going to be accountable and not for five years, but for decades, and we start looking at a tremendous amount of years.	FIN02, FIN04
13513	So we have 500-year storms, we have 100-year storms every few years. So when we have seepage from the holding pits, they could flood and that could be a tremendous problem.	WR057, WR077, WR180, WR193
Sender Name (Submission ID)	Scott Cramer (19869)	
1421	Mining is a highly disruptive activity that will cause hundreds of years of monitoring and clean up after all the ore is gone. Otherwise, we face wide scale water pollution.	GEN01
14825	What will we leave for the future generations. Will America fall apart if we leave this copper in the ground? Might it be possible that 100 years from now a safer, cleaner, cost efficient method of mineral extraction will have been found ? Don't we believe that leaving waste dumps and mine pits leaking toxic chemicals is no gift but rather a poison pen letter to our future offspring.	SO01
Sender Name (Submission ID)	Scott Daby (38886)	
5399	The potential long-term negative environmental impacts far outweigh the potential short-term economic gains.	SO01
Sender Name (Submission ID)	Scott Duffy (51611)	
3657	The DNR/EPA is asking the public to read, digest, and comment on a 2300 page Environmental Impact Statement in 90 days. What is the rush? Give the public the time it needs to fully look over the report. This is a decision that will not only affect us, it will affect future generations for hundreds of years to come. I urge you to extend the comment period.	NEPA07
9867	The DNR/EPA is asking the public to read, digest, and comment on a 2300 page Environmental Impact Statement in 90 days. What is the rush? Give the public the time it needs to fully look over the report. This is a decision that will not only affect us, it will affect future generations for hundreds of years to come. I urge you to extend the comment period.	NEPA07
10742	The EIS makes no mention of the air quality of the immediate area surrounding the project site. How will this project affect the air quality of the surrounding area?	AIR07
10745	The EIS makes no mention of the effects on Moose and moose habitat that this project will have. How much moose habitat will be destroyed with this project?	WI01, WI02
10748	The EIS makes no mention of what contingencies are in place to protect the mine site if this type of event [500 yr flood] should happen.	WR130
10751	How much pollution is the question. What happens if it is discovered that the mine site is leeching sulphur and other pollutants into the groundwater? Who is going to pay for the cleanup costs?	FIN01, WR128

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Scott Duffy (51611)	
10753	What will happen to the surrounding wildlife?	WI01
10754	What will happen to the largest (and cleanest) freshwater lake in the world?	WR111
10755	What happens if these events occur after the mine is closed? How can a company possibly give financial assurances for 200-500+ years in the future? Do we really want a superfund in this state?	FIN01
Sender Name (Submission ID)	Scott Francis (44585)	
11820	The amount of short term benefits are vastly outweighed by the massive implications that the mine could have in the future.	SO01
11822	Even though the PolyMet corporation claims responsibility for the clean up, how can we as minnesotans make sure that a brand new mining corporation will last 500 years into the future to continue the clean up process.	FIN01
11824	The mine also is poised too close to the spectacularly preserved boundary waters area. Ruining that area through exploitation of the natural resources shows a lack of forethought and planning for the future.	WILD02
Sender Name (Submission ID)	Scott Helgeson (18159)	
13309	What assurances are we going to have that this is going to be a long-term financial commitment to take care of our water and our natural resources for 500 years.	FIN01
Sender Name (Submission ID)	Scott Hochhalter (40911)	
7040	This mining operation has serious environmental consequences. And in my opinion, not enough jobs created to validate the destruction of the land, water, and habitat. PolyMet itself has said it could take up to 500 years to clean up the toxic mess this kind of mining creates.	SO01, WR035
Sender Name (Submission ID)	Scott Kylander-Johnson (43831)	
11838	As a life-long Duluthian I am already loaded up with heavy metals according to results from my blood work. How will PolyMet make the Duluth area any better?	HU03
14952	I don't care about a few jobs and a majority of money that will head to other countries thanks to a few minerals extracted from this area. It is time for the government to begin looking out for the people and all life on the planet.	SO01
Sender Name (Submission ID)	Scott Lombardo (35764)	
11288	What bond and in what reasonable amount can be required to compensate this and future generations of Citizens for the problems that NorthMet is likely to create for our planet?	FIN05, FIN08
Sender Name (Submission ID)	Scott Long (45548)	
11589	We love this area and do not want to see anything implemented that could pollute the clean water that is so special to the area or make it harder for our special animals like the Lynx, Moose and Wolves to survive	WI01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Scott Long (45548)	
15884	We understand that this would bring many jobs to northern MN to people who really do need those jobs but we feel it cannot be at the expense of possibly long term harm to the waters of the BWCA and its environment plus to nearby areas as well as pollution travelling the rivers to other areas.	WR111
15885	It seems that testing and long term projections concerning the toxic byproducts of this mining are not adequate and do not take into consideration every possible reach and scope of this pollution. From what we have read, it seems the studies may be unrealistically optimistic.	PD32
15886	In addition to or as a result of the ground and water pollution, the mine would destroy many acres of ecosystems for many wildlife species that are very special to Minnesota as well as destruction of wetlands and important vegetation. These are the things we and the many tourists who come here come to see.	VEG03, WET24, WI02, WR115
15887	Getting isolated pieces of land in exchange is nearly worthless to the experience of the visitor who goes to the Superior National Forest to camp and hike and fish and see wildlife and just experience peace and quiet.	LAN06
15889	if Polymet ceases to exist or just gets out of cleanup once it is done mining, then it is up to the state and the taxpayers of the state to continue with the cleanup and that would have a negative impact on all of us who live in Minnesota.	FIN01
Sender Name (Submission ID)	Scott Mead (11594)	
2252	With treatment required for 500 – may be more, how can we be guaranteed that the mining CO's will even care what happens?	PD24
2252	With treatment required for 500 – may be more, how can we be guaranteed that the mining CO's will even care what happens?	PD24
2253	The money put up for discharge treatment is grossly inadequate. It is quite obvious that the taxpayers will be on the "hook" again.	FIN05, FIN10
2253	The money put up for discharge treatment is grossly inadequate. It is quite obvious that the taxpayers will be on the "hook" again.	FIN05, FIN10
2254	What measures can be done when the discharge containment fails?	WR132
2254	What measures can be done when the discharge containment fails?	WR132
12242	I am concerned that we, in the US, are bending over backwards to accommodate a foreign mining company that has a very good chance of polluting NE MN for many centuries….If this project will create a few jobs, why are other established industries/business going to be negatively affected? Logging. Recreation. Tourism. Local business. Local residents.	SO02
12243	The amount of water used/consumed was grossly under stated in the SDEIS. The actualwater used will change the figures used for water treatment. Even using Poly Met's figures, the water used will deplete some aquifers and there is a threat of contamination in other aquifers.	WR181, WR182
12247	PolyMet isn't even sure how to handle the residue….The dams, dikes, pumps, and pipes will last 500 years? Of course not. A no to each item.Long term maintenance wasn't address or was inadequately addressed.	PD01
12249	Wetlands that will be destroyed are very unique and cannot be replaced or renewed. How can you replace a peat bog that is tens of thousands of years old?	WET24

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Scott Mead (11594)	
17492	The MN DNR is aware that the modeling used regarding water quality was flawed.	WR189
17493	The reverse osmosis is not a proven process and has only been "tested".	WR143
Sender Name (Submission ID)	Scott Moen (43127)	
14121	if polluted seepage ruins fragile and pristine wilderness, how will money solve the problem?	FIN11
Sender Name (Submission ID)	Scott Polyner (10711)	
1471	Having read the SDEIS, I am confident that the involved agencies will hold this project to those same standards that allow us to have the largest taconite mines in the USA and still have the cleanest water in Minnesota.	PER34
1472	I believe the MPCA,the DNR, and the Army Core of Engineers will adapt and over come any issues that arise.	PER34
Sender Name (Submission ID)	Scott Robertson (7332)	
17	what level of wastewater containment failure they would find acceptable?	WR021, WR022, WR129, WR144
Sender Name (Submission ID)	Scott Slocum (3639)	
426	It is clear to me that the Supplemental Draft Environment Impact Statement (SDEIS) prepared by PolyMet Mining, Inc. is not sufficient to avoid the dangers of sulfide-ore mining in Minnesota.	NEPA09
Sender Name (Submission ID)	Scott Weappa (42788)	
6869	I am supportive of the Polymet Project. It will bring needed jobs to the area. With a new precious metals mine in our area it would help balance our economy with the ups and downs of taconite mining. The only way I will not support this project if it cannot be done in a safe manner. I put my trust in the governing bodies to decide this issue.	SO10
Sender Name (Submission ID)	Scott Wolff (46992)	
10895	I would like to know who is responsible if something goes poorly. Specifically I would feel much better if individuals at the upper level of the Polymet hierarchy have something personally at risk, "skin in the game" if you will.	FIN01
Sender Name (Submission ID)	Scott Wolla (21814)	
9551	The Polymet project is important to the economy of northern Minnesota, and the U.S. economy. The natural resources found here are important to our economic vitality.	SO10
Sender Name (Submission ID)	Sean Engel (42837)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sean Engel (42837)	
7337	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US Dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range.	NEPA16, SO10
7337	I believe that due diligence has been served; the public and the environment have been protected by a joint effort of MDNR, US Dept. of Forestry, EPA, and Polymet. To the greatest extent possible the environment will be protected throughout this project and with that there will be a revitalization of the northern Minnesota economy especially in the iron range.	SO10
Sender Name (Submission ID)	Sean Piette (39592)	
13531	Sulfide mining is a very dangerous mining and Minnesota does not care for mining. There is, never has been, and probably never will be a clean, environmentally damage free mining.	SO01
Sender Name (Submission ID)	Sen. John Marty (42961)	
3843	[T]he modeling in the draft arbitrarily stops at 200 and 500 years, despite the fact that those models show that the water will still require treatment at that point. The models in the SDEIS need to be amended to project out to the point in time where the water meets Minnesota's water quality standards, even if that is many hundreds of years further into the future. The difference between 200 years and 2000 years might seem to be an insignificant point to a business that may not be around in 50 years, but to the state, which would otherwise be forced to pick up the costs of virtually perpetual water treatment, it is an important distinction.	WR035, WR036
3844	The SDEIS needs to factor in failures in water treatment systems. Breakdowns in pumps, power failures and other unforeseen problems are not hypothetical. Over a period of hundreds of years, these failures will be a reality. Pumps and other treatment infrastructure, even ones designed to last for thirty or more years, will break down and wear out repeatedly, and there is a need for backup systems to deal with these contingencies as they periodically occur.	WR129, WR131
3845	The financial assurance details cannot be worked out in closed-door meetings at some later date. The SDEIS is not adequate until it includes the details about how much money will be required to pay for cleanup and in what form it would be held. The public has a right to know and review what is all included in that number to ensure that it is sufficient, bankruptcy-proof, and will be available long after those who have profited from the project are gone.	FIN01, FIN05, FIN08
Sender Name (Submission ID)	Sen.Bev Scalze (9578)	
215	We should wait for technology to be developed to offer the possibility of mining them without the accompanying destruction that future generations will pay for.	PD32
1129	I am in favor of an additional user fee for the BWCA that would be shared with the residents of the area to compensate for their not getting the 300 some jobs that come with the destruction of the area.	SO06
Sender Name (Submission ID)	Senator Al Franken (47597)	
3595	The NorthMet copper-nickel mining project offers the opportunity for a new type of mining that will also have a significant economic impact on the region and help to diversify the local economy.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Senator Al Franken (47597)	
3596	[T]he project is expected to create over 500 construction jobs and 350mining jobs on the Iron Range.	SO10
3597	Importantly, developing these precious metal resources will reduce our dependence on foreign imports.	SO10
3598	At the same time, some have voiced concerns about the environmental impact of copper-nickel mining, and particularly about its impacts on our precious water resources.	WR115
3599	In addition, citizens in our state want to know that the cost of future environmental remediation efforts will be covered by project developers.	FIN05
3600	I have been encouraged to see the company working closely with a diverse set of stakeholders, including the Environmental Protection Agency, the Minnesota Department of Natural Resources, the Minnesota Pollution Control Agency, the U.S. Forest Service, the Army Corps of Engineers, and area tribal communities in order to put together a plan. And as the Supplemental Draft Environmental Impact Statement is finalized, it is important that any legitimate concerns be adequately addressed.	NEPA16
3601	I have confidence in state and federal agencies working with industry to complete the environmental review process…As the Supplemental Draft Environmental Impact Statement is finalized, I therefore urge you to ensure it is done in a way that is consistent with state and federal environmental laws, and in a manner where tax-payers are protected from future environmental remediation costs.	PER34
Sender Name (Submission ID)	Serina Gebrehiwet (54181)	
16425	The water is going to become polluted. The boundary waters are important to the area that you are going to destroy. It is very popular in Minnesota so it should be kept with us.	WR111
16427	You can mine somewhere else less important. The affects are too negative and copper and nickel can be found elsewhere.	ALT13
16428	This mine has been done in other lakes and rivers and the negative affects they have on the environment. It hurts the ecosystem. The acid will throw off the PH balance and kill life in the water.	WR023, WR113
Sender Name (Submission ID)	Shandra Thao (54231)	
16802	The SDEIS map have mislead the public. The map of the swamp has cut off half of the one hundred swamp diverting everyone from the fact that the BWCA will be completely unprotected from the acidic drainage of the mine.	PD38
16804	[The NorthMet mine] will provide jobs; an economic boost but how many people know that less than 2% of the water on earth is pure water? Before we know it, there will not be any pure water left! Are they willing to take this risk knowingly? This needs to be fixed because they are misleading the public.	SO01
Sender Name (Submission ID)	Shane Johnson (44620)	
12086	I have reviewed the SDEIS for the Polymet Project, and fully approve of the proposed processes and mitigation systems as well as the science used in designing them, and ultimately constructing them.	PD28

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Shane Johnson (44620)	
12088	I also believe from an economic standpoint, that expediting the current processes so Polymet could begin construction immediately would bring a desperately needed, immediate economic boost to the Iron Range, not to mention the added benefit of more public lands, through the land exchange.	SO10
Sender Name (Submission ID)	Shannon Martin (18277)	
13989	I think 500 years of water pumping and treatment is not a good trade-off for 20 years of jobs. I think one of our top priorities in the state should be the state protecting our natural resources in the long run.	SO01
Sender Name (Submission ID)	shari smith (48065)	
17350	I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations.	NEPA16
Sender Name (Submission ID)	Sharlyn Dahl (57502)	
19566	I… have total confidence that Polymet has done everything possible to make their operation safe for our environment now and for my grandchildren. I can not believe that with all the time and studies that have been made and proven, that there should be any question of this. Polymet will be an extremely great benefit to our area, and to the state as well.	SO10
19568	With all of the time and money that has been and is being spent on environmental issues, I have full confidence that all it will be an environmentally acceptable mining operation. The permitting process takes a ridiculously long time.	PER20, PER34
Sender Name (Submission ID)	Sharon Angell Magliulo (21228)	
896	• Inadequate cumulative impacts and effects. "Past, present, and reasonably future actions" are not included. Public needs to be informed that this is the beginning of a sulfide-mining district in the lake country of the Arrowhead. The NorthMet Mine and other proposed sulfide mining projects would be in the Duluth Complex, not on the IronRange; this is not being addressed.(…) • The impacts from the tremendous amount of coal-fired electricity used to operate a sulfide-mining district (or one sulfide mine on top of taconite mining releases) are not adequately addressed.	AIR02, CU01, CU04, PD39
899	• The hydrology is flawed. Poor comparison to the Canisteo Pit. Not the same geological formation; not the same depth; inadequate test borings.(…) • The SDEIS is flawed in its determination of faults and fractures.(…) • This type of mining has never been done successfully in this type of water environment.	WR012, WR023
902	• National Forest Land must not be exchanged. The Weeks Act protects the land. Also, the exchange does not adequately compensate the American Public for loss of this land. The exchange will have a significant effect on wildlife habit and corridors, loss of wetlands and wetland functions (inadequately addressed), as well as overall ecological quality.	LAN02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sharon Angell Magliulo (21228)	
905	• There is no "500 year event" at the core of the SDEIS. An SDEIS based on a hundred year event is insufficient.(…)• The LTV tailings basin is unstable and leaking. The SDEIS underestimates the amount of leakage. There are faults and streams running under the basin that the SDEIS does not address.(…)• The SDEIS is flawed in the areas of water exceedances and rates of water flow. Conclusions are incorrect. One year of documentation is insufficient for water flow.(…)• The SDEIS is flawed in its determination of the amount of seepage collected and treated, as well as its levels of toxicity. It is seriously flawed in its assessment of seepage that escapes untreated. (…)• The reverse osmosis plan is insufficient and unproven on the scale involved. Sulfate removal is overestimated. None of Minnesota's taconite mines have found reverse osmosis to be feasible. The Eagle Mine in Michigan is already having problems.	WR017, WR018, WR051, WR056, WR071, WR104, WR128, WR132, WR180
924	• There are no elucidated plans for unforeseen events; repeatedly saying that the company and agencies will deal with incidents as they arise is not only unacceptable, itis negligent. Not having back-up plans spelled out and included as part of the SDEIS makes this document incomplete.(…) • Sulfates: the effects on wild rice, on newborns in the Lake Superior basin due to mercury levels in fish, and other related ecological impacts need to be better understood and addressed before any sulfide mine is permitted. • Ecological affects of extensive limestone treatment on an entire ecosystem need to be addressed. • Chlorides are insufficiently addressed, essentially ignored.	PD22, PD34
13833	• Climate change is not addressed. Carbon based energy used to do this type of mining is irresponsible. PolyMet alone would emit 707,342 metric tons of carbon dioxide each year.	AIR01
13834	• There is no cost benefit analysis.(…)• In the best interest of the people of Minnesota financial assurance needs to be part of the public comment period, with transparent and complete information provided.	FIN13
13844	• Perpetual treatment or any long-term treatment after closure is unacceptable; a mine is to be maintenance free under Minnesota Rules.	PER04
13845	• The Regional Copper Nickel Study is forty years old. Still valid. However, additional studies need to be done in this decade before any sulfide mine permit is issued.	NEPA14
16258	Inadequate cumulative impacts and effects. "Past, present, and reasonably future actions" are not included. Public needs to be informed that this is the beginning of a sulfide-mining district in the lake country of the Arrowhead. The NorthMet Mine and other proposed sulfide mining projects would be in the Duluth Complex, not on the IronRange; this is not being addressed.	CU01, CU02, CU04
16259	There is no cost benefit analysis.	SO07
16260	The LTV tailings basin is unstable and leaking. The SDEIS underestimates the amount of leakage. There are faults and streams running under the basin that the SDEIS does not address. … The SDEIS is flawed in its determination of the amount of seepage collected and treated, as well as its levels of toxicity. It is seriously flawed in its assessment of seepage that escapes untreated.	WR010, WR018, WR019, WR060, WR071, WR090, WR099, WR104, WR108
16261	The hydrology is flawed. Poor comparison to the Canisteo Pit. Not the same geological formation; not the same depth; inadequate test borings. … The SDEIS is flawed in its determination of faults and fractures.	WR071, WR086, WR119
16262	National Forest Land must not be exchanged. The Weeks Act protects the land. Also, the exchange does not adequately compensate the American Public for loss of this land. The exchange will have a significant effect on wildlife habit and corridors, loss of wetlands and wetland functions (inadequately addressed), as well as overall ecological quality.	LAN02
16263	There is no "500 year event" at the core of the SDEIS. An SDEIS based on a hundred year event is insufficient.	PD01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sharon Angell Magliulo (21228)	
16264	The SDEIS is flawed in the areas of water exceedances and rates of water flow. Conclusions are incorrect. One year of documentation is insufficient for water flow.	WR047, WR048, WR109
16265	The impacts from the tremendous amount of coal-fired electricity used to operate a sulfide-mining district (or one sulfide mine on top of taconite mining releases) are not adequately addressed.	PD39
16266	Climate change is not addressed. Carbon based energy used to do this type of mining is irresponsible. PolyMet alone would emit 707,342 metric tons of carbon dioxide each year.	AIR01
16267	Sulfates: the effects on wild rice, on newborns in the Lake Superior basin due to mercury levels in fish, and other related ecological impacts need to be better understood and addressed before any sulfide mine is permitted.	MERC02, WR157
16268	Ecological affects of extensive limestone treatment on an entire ecosystem need to be addressed.	PD34
16269	Chlorides are insufficiently addressed, essentially ignored.	WR025
16270	The reverse osmosis plan is insufficient and unproven on the scale involved. Sulfate removal is overestimated. None of Minnesota's taconite mines have found reverse osmosis to be feasible. The Eagle Mine in Michigan is already having problems.	WR023, WR143, WR149
16271	There are no elucidated plans for unforeseen events; repeatedly saying that the company and agencies will deal with incidents as they arise is not only unacceptable, it is negligent. Not having back-up plans spelled out and included as part of the SDEIS makes this document incomplete.	PD22
16272	The Regional Copper Nickel Study is forty years old. Still valid. However, additional studies need to be done in this decade before any sulfide mine permit is issued.	NEPA15, WR023
16273	Perpetual treatment or any long-term treatment after closure is unacceptable; a mine is to be maintenance free under Minnesota Rules.	PER04
16274	In the best interest of the people of Minnesota financial assurance needs to be part of the public comment period, with transparent and complete information provided.	FIN13
16275	This type of mining has never been done successfully in this type of water environment. … Water must be, and is, protected by Federal law. NO ACTION ALTERNATIVE	WR023
Sender Name (Submission ID)	Sharon Barnett (57936)	
19859	I support the No Action Alternative.	NEPA15
Sender Name (Submission ID)	Sharon DeCelle (32919)	
12135	Open pit sulfide mining is destructive and polluting. It is not in the public interest. Please do not approve the destruction of our environment.	SO02
Sender Name (Submission ID)	Sharon Frykman (39958)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sharon Frykman (39958)	
7733	The wastewater will travel by the St. Louis river to Lake Superior. If the water treatment starts out effective, which is doubtful, you still can't tell us that PolyMet will be able to continue treatment for 200 to 500 years! This is absurd! It will affect the quality of life for multiple future generations….Lake Superior is presently one of the largest sources of fresh clean water.	WR037, WR111, WR144, WR195
7737	There will be destruction of forest, plant, and wildlife habitat, as well as, the destruction of wildlife corridors. The moose and lynx are already threatened.	VEG03, WI01, WI02, WI03
7741	There will be air pollution from fine mineral fibers and dust. Greenhouse gas emissions are a major concern.	AIR03
7766	The trade-out for wetland mitigation is outside of the St. Louis river basin.	COE01
7772	The Arrowhead Region's economy is tourism based. The pristine forests and lakes are our livelihood and why we choose to live here.	SO02
Sender Name (Submission ID)	Sharon Krumme (58118)	
19946	Need more information in the 100 mile swamp, the flow of water (waste) through Dunka to the BWCA...Flow of water on the Patridge River – need new results on the details and usage of this flow...A plastic sheet over waste rock pile – that is suppose to contain seepage – proof that this would work and why...More concise details of how the damage deposit will be adequate	GEN03
Sender Name (Submission ID)	Sharon Lane-Getaz (42904)	
7727	Northern Minnesota is the site of 3 major watersheds. We and many states downstream from us need fresh, clean water.	WR111
7746	Per Renee Richardson of the Brainerd Dispatch (January 30th, 2014) , “once mining operations are done, mechanical water treatment at the site is proposed for 200 years at the mine site and 500 years at the plant site. The state reported it’s unknown how long water treatment would be required other than to say long term.”	WR035
7757	Northern Minnesota should not extend mining rights to an outside corporation that cannot realistically provide stewardship for our water nor our environment.	SO02
7759	Kathryn Hoffman, staff attorney with the Minnesota Center for Environmental Advocacy, said “the process to treat the water is complex, requiring multiple systems to work successfully and a mine in Michigan using a state-of-the-art reverse osmosis plant to do just that has already had more than 40 permit violations for not meeting water quality standards.”	WR128, WR143
7764	While jobs are important, we may be talking about as few as local 90 jobs in the balance compared to 500 years of ongoing water treatment... “PolyMet project is expected to create 360 jobs…after experts in the mining field are imported the site will create about 90 local hires.”	SO01
Sender Name (Submission ID)	Sharon Legg (43727)	
12667	how will a mining company be able to control the sulfides reacting to air and water as they are exposed, as they are uncovered in the pits. I realize that the waste will be encapsulated in the waste piles, but what happens before the waste is transferred to that site? Obviously, exposing acres and acres of rock which contain these sulfides, will impact air and water quality. There will be dust and there will be seepage...not all of the water can possibly be captured and the air will travel with dust in it.	AQ04, WR025, WR134, WR151

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sharon Legg (43727)	
12672	I understand that there should be some financial assurance from the company to avoid taxpayers having to fund clean-up efforts in the future. I am concerned as to how anyone can come up with the amount necessary. How can we know? And, what discount rates will be used? We are unsure of how many years we are even trying to project the needs for these funds to become available. How can we possibly know what costs will be at some unknown date?	FIN01, FIN05, FIN08, FIN10
12675	If the State of Minnesota was dealing with a known commodity, a company (Polymet) that actually had experience in this type of operation and that was not being funded by a company (Glencore) that clearly has a bad reputation, there could be hope that past practice would indicate a positive future outcome. In this case, neither applies.	SO02
Sender Name (Submission ID)	Sharon Lindberg (54126)	
15997	The mining process & its clean-up has never successfully prevented environmental problems before.	PD01
15998	Contaminated water still must be dealt with!!	WR129
15999	Unless PolyMet is willing to put one billion dollars up front for the eventual clean up, this copper mineral mine should not be dug.	FIN05
Sender Name (Submission ID)	Sharon Meister (45787)	
16349	I don't see how anyone can assure us that the water used in the processing of this mine will not leach into the surrounding surface or ground water.	WR115, WR195
Sender Name (Submission ID)	Sharon Wehner (16142)	
9680	Allowing the proposed mine to operate is to great a risk at any time to our water supply, the ground and bogs, and health issues that would follow, from such an insult to the environment.	HU03, WR042, WR111
Sender Name (Submission ID)	Sharon Koll (47342)	
12225	It is not worth the jobs promised - - - -to destroy any part of our heritage.This proposal is just a precedent. There are more of the same pending.I’ve read parts of the proposal. I can give you specifics when needed. This proposal will:* destroy our heritage * destroy Minnesota tourism * set a precedent	SO01
Sender Name (Submission ID)	Shary Hess (42533)	
15581	I believe Polymet has gone far and beyond to assure a safe environment with this project and I believe the agencies have done a great job. It is time to move forward with the Polymet Project.	PER34
Sender Name (Submission ID)	Shary Zoff (43045)	
12207	This letter is asking you to reject the porposed PolyMet Land Exchange. PolyMet is proposing that the Superior National Forest swap 6,650 acres of high quality land in the Partridge River headwaters for lower quality land scattered throughout NE MN. The deal may be good for PolyMet but breaking up large pieces of acreage into scattered pieces does not serve the ecosystem well.	LAN03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Shary Zoff (43045)	
12208	This also violates the 1854 Treaty with the Ojibwe tribes. Have we not violated too many treaties already for far too long?	CR01
Sender Name (Submission ID)	Shawn Beattie (6604)	
1089	I realize from an economic standpoint there would be new jobs created if the mine was approved, and that would obviously be a boon to the local people in the area. But I cannot support the mine based on the risks and long-term possible complications it may cause to such a pristine area.	SO01
1196	But I cannot support the mine based on the risks and long-term possible complications it may cause to such a pristine area.	WR115
Sender Name (Submission ID)	Shawn Bryant (15439)	
660	The local benefit of a few hundred jobs lasting 20 years (at most half of the working lifetime of an american worker) does not come close to mitigating the environmental degradation and danger which would come with the proposed mine.	SO01
1900	More to the point, name a company that has been in business for 500 years. This is the proposed time period for which environmental mitigation would be required if the project is approved.	FIN01
Sender Name (Submission ID)	Shawn Conrad (45458)	
15722	I am opposed to the PolyMet project moving forward as it is shocking that the state would consider permitting a project with detrimental environmental impacts that will require mitigation longer than the probable lifespan of the corporation pursuing the permit.	PER35
Sender Name (Submission ID)	Shawn Roed (3565)	
399	The environmental sensitivity and public value of areas within and surrounding the proposed mining sites, as well as the disturbing environmental record of copper-nickel mining, leave no room for error in the regulatory process.	NEPA09
402	When contamination occurs it can be difficult to cover the costs for cleanup and remediation. Mining companies go bankrupt or fail to set aside enough financial assurances ahead of time, and taxpayers can end up holding the bill to cleanup their own community.	FIN01
404	In many cases, despite guarantees that water quality standards would be met and efforts from mining companies to do so, unacceptable contamination of water supplies and soil resources happens over 75% of the time in and around mining sites.	FIN08
Sender Name (Submission ID)	Shawna MullenEardley (46984)	
10879	PolyMet’s Supplemental Draft Environmental Impact Statement (SDEIS) is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for -- information that is necessary to decision-makers.	FIN01, WR036
10880	Wild Rice needs exceptionally clean water, and as such, is threatened by the certain water pollution that will result from the sulfide mining process.	VEG04, VEG06, WR156
10881	Additionally, this mine poses a threat to wildlife, including the federally listed Endangered Canada Lynx. By fragmenting its habitat, the mining is certain to negatively impact Lynx. The mining would also affect the long-eared bat, a species proposed to be listed as endangered. ... six state-listed animals are known to occur in the proposed PolyMet mining area. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest-the largest designated Important Bird Area in Minnesota.	WI01, WI02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Shawna MullenEardley (46984)	
10882	In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream long after the mining operation is done.	AQ05
10883	Concerning human health, the World Health Organization lists 10 chemicals of major public health concern. Of those, sulfide mining involves five of them: mercury, arsenic, lead, asbestos, and air pollution, which (again) the SDEIS does not sufficiently address the extent and impact of these chemicals. Additionally, the SDEIS does not look at the possible health impact of dust containing asbestos-like amphibole fibers because such dust is not regulated.	HU01
10885	Perhaps one of the most prevalent arguments for PolyMet is the number of jobs it will create. However, these jobs are attached to severe toxic pollution, health concerns, destruction of habitat, and threats to wildlife. Instead, we should be bringing clean jobs to the Northland! The Green industry is growing tremendously and has a sustainable future (sustainable in terms of job security as well as environmental sustainability).	SO01
16705	Eleven state-listed endangered, threatened, or special concern plant species and six state-listed animals are known to occur in the proposed PolyMet mining area…the assessment does not look at the extent of the affects to these many species of plants and wildlife.	VEG01, WI01
Sender Name (Submission ID)	Sheila Packa (11336)	
275	The Iron Range is a valuable water resource and sulfide mining jeopardizes the safety of water, wildlife, and people.	WI04
1623	Economic development concerns need to be secondary to the health and welfare of the landscape.	SO01
1624	PolyMet has presented information suggesting that they could contain the effluence. They are not able to predict extreme weather events, human error, and failures of technology---all of which are likely to occur. They always occur.	PD22
Sender Name (Submission ID)	Sheila Sullivan (10237)	
378	I understand that jobs are important but we need to consider long term economies not a 20 year stint that may damage other business in the end.	SO01
380	I realize Polymet has a plan to treat the water - for hundreds of years. Why would Polymet commit to such a long term agreement? And how long is long. Please explain who will continue to treat the water when Polymet is not longer in existence? Has any company lasted over 200 years?	FIN01
1447	Please explain who will continue to treat the water when Polymet is not longer in existence? Has any company lasted over 200 years?	FIN01
1448	…focus on recycling and reusing of old metals.	ALT09, ALT16
Sender Name (Submission ID)	Sheila Wilcox (45268)	
9137	Since there has never been a sulfide mine able to pull metal out of the ground without leeching toxins into the ground water and surface water, I am convinced that no matter what Polymet says they will not be able to mine in our region safely	WR023
9140	I am concerned about current mining operations that are not meeting minimum wastewater discharge standards. What kinds of variances will be allowed for Polymet? If we can’t or won’t police the taconite industry, how much more difficult will it be to police Polymet?	WR139

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sheila Wilcox (45268)	
9142	I am concerned about the costly effects of cleaning up the poisoned water and soil when Polymet either goes bankrupt or gets sold to some other company.	FIN01
9147	I am concerned about the astronomical cost of health care for all the individuals who will develop illnesses decades later due to unsafe exposure to manganese, arsenic and mercury brought about by pollution from Polymet.	HU03
9150	I am concerned that in exchange for polluting 6,000-8,000 acres of pristine water rich land, we are returning much less important and quite scattered lands to wetland. In my mind that is not exchanging an apple for an apple.	WET14
9153	Finally, I am concerned about the Polymet's lack of support for the community in the form of giving to non-profits, especially the arts.	SO02
Sender Name (Submission ID)	Shelby Flint (16344)	
11256	the SDEIS needs to take into account not just the anticipated impacts under the current climate, but the likely impacts in future under probable future-climate scenarios	AQ16, WR180
13861	Even if PolyMet offers to mitigate wetland loss by constructing wetlands or purchasing & conserving other acreage, such measures are inadequate. Newly constructed wetlands would not contain the biodiversity or carbon-storage capacity provided by intact bogs… Purchase & conservation of wetlands outside the 100 Mile Swamp watershed won't mitigate the impacts to ground- and surface-water flow that will occur if the wetland destruction proposed by PolyMet is permitted.	WET05, WET19
13862	the drawdown & drying of peatlands that will occur if the plans proceed as proposed, will result in rapid decomposition of existing peat and a substantial release of CO2.	WET13
13863	Permitting the proposed PolyMet activities would be short-sighted and cause much more environmental harm than economic benefit.	SO01
Sender Name (Submission ID)	Shelley Hines (14882)	
234	Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs	FIN05
235	Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for the conceivable potential period of water treatment	FIN01, FIN03, FIN05
236	Identify other responsible parties (e.g. major investors) and how they will be held responsible for long-term cleanup should PolyMet be unable to meet their obligations	FIN02, FIN04
237	Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation of what would constitute adequate treatment	FIN05
Sender Name (Submission ID)	Shelley L Robinson (54554)	
18961	500 years to clean up the results of a few years of "productive" mining?	SO01
Sender Name (Submission ID)	Shelley Rask (10042)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Shelley Rask (10042)	
326	I believe that PolyMet has meet all the necessary steps to ensure that the process is sound.	PD28
327	I have property (a cabin) very close to the area that is intended to be mined and feel that my way of life and use of my property would not be adversely damaged.	LU07
Sender Name (Submission ID)	Shelley Robshaw (20120)	
1737	We cannot risk destroying the environment for this short term gain. The negative impacts will live on for generations.	SO01
1738	PolyMet cannot guarantee the safe performance of its process, nor can it provide the financial resources to handle cleanup activities long into the future.	FIN01
15014	PolyMet Mining's proposed copper nickel mine near the boundary waters is dangerous to a precious natural resource. Wild rice has already been hurt by the sulfide released into the water from previous mining.	WR159
Sender Name (Submission ID)	Shelley Strohmaier (15430)	
654	my reading and researching on copper sulfide mining has convinced me that the polymet mine poses an unacceptably high level of risk to our pristine northern Minnesota waters.	PD01
657	It seems absurd and short sighted in the extreme that the state would allow a mine project to go forward that will produce only a few hundred jobs for just 20 years.	SO02
658	In return for those relatively small and short lived gains for the Northern Minnesota economy, we risk hundreds and hundreds of years of spoiled waters.	WR115
659	Time and again … sulfide mining companies have destroyed the environment and failed to provide the funding required to prevent or repair the environmental damage they have caused.	FIN01
Sender Name (Submission ID)	Shelley Valentini (5937)	
1948	One important key to maintaining prosperity in our region is the creation and stability of gainful employment options for our citizens. ... The PolyMet initiative is projected to add over 350 permanent, living-wage jobs to the area and will boost the economy in a number of other ways, including attracting other businesses to plant stakes where we live.	SO10
Sender Name (Submission ID)	Shelly Schilling (40227)	
14122	I understand that PolyMet will reuse the infrastructure from the former LTV taconite mine and proposes to mine within an already established mining district. The proposed reuse of this facility will decrease the amount of land disturbed compared to an entirely new facility.	PD28
14123	I believe the SDEIS demonstrates that PolyMet will help meet our nation'sdemand for copper, nickel, platinum, platinum, gold and cobalt, put Northeastern Minnesotan's back to work and insure the protection of our precious natural resources.	SO10
14124	jobs [created by the proposed Project] as well as the estimated $80,000,000 in annual federal, state and local taxes are very important to the future of the Iron Range in Minnesota.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Shelly Schilling (40227)	
14129	These metals are critical for the economy of the State of Minnesota and our nation's needs. The metals are needed in medical applications, electricity, catalytic converters, cell phones, computers and other essential products.	SO10
Sender Name (Submission ID)	Sheri Plesha (39192)	
12344	PolyMet will produce these metals in an environmentally sound way and generate significant economic activity, expanding and diversifying our economy and creating hundreds of jobs that can support families and sustain communities…This project would mean 2 million construction hours, 360 full-time mining jobs and more than 600 related jobs – jobs that our state needs.	SO02
12346	Based on my review and the level of detail included in the draft EIS it appears that a thorough evaluation of the project and potential impacts has been completed.	NEPA16
Sender Name (Submission ID)	Sherie Bosak (43311)	
15763	The public deserves more time to educate themselves and weigh the costs and benefits. Please extend the public comment period.	NEPA07
15764	Polymet's proposal to implement water osmosis treatment has been unproven on such a large scale.	WR143
15766	Polymet's proposal to contain contaminated waters erroneously pro-ports that the geological underground is not fractured and therefore, a "holding" tank of some type is to contain contaminants. The geology of northern Minnesota is widely known to be fractured.	WR012
15768	Sulfide mining has never been done in such a lush waterway. The mining industry has no proven track record for keeping waterways clean.	WR023
15769	Polymet's promise of more jobs brought to northern Minnesota does not take into consideration the jobs lost due to lack of tourism with polluted waters. … Let us preserve our jewel of northern Minnesota. It is not worth the risk of a short sighted economic boon.	SO01
15770	Please require a health cost impact. I understand children born in northern MN already have higher levels of mercury which may have resulted because of taconite mining.	HU01
15771	The proposed site is in a verdant marsh area. This land is not replaceable by a equal land exchange.	LAN03
15772	There is no "damage deposit" required of Polymet should contamination occur. (I do not believe that sulfuric acid can even be removed from water.) Please insist on a damage deposit.	FIN01
15773	By Polymet's own projections, copper contamination to fish, at its best, will be 100 X's greater than DNR's safety levels of contamination.	AQ05, AQ11
15774	I have already chosen to go camping away from lands where preliminary drilling is said to be going on. I understand the sound of drills can be heard throughout the night.	N01
Sender Name (Submission ID)	Sherita Townsend (54208)	
17644	Mining on the boundary waters could cause pollution. It would never be the same. Our boundary waters is more important than mining copper and nickel.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sherita Townsend (54208)	
17645	I don't think it's a good idea to mine on the boundary waters. People go there to relax and enjoy the wilderness. These waters are very important to Minnesota.	LU06
Sender Name (Submission ID)	Sherrie Lindskog (42841)	
7345	According to the Minnesota DNR there are more bogs and wetlands in Minnesota than in any other place in the lower 48 states. Why, then, would we risk polluting northern Minnesota for a mine that will require monitoring for hundreds of years after the jobs are finished and the ore is depleted?This type of mining has never been done anywhere without polluting nearby waters.	WR023, WR115
7345	The watershed of Lake Superior is not the place to put a copper-nickel mining operation. According to the Minnesota DNR there are more bogs and wetlands in Minnesota than in any other place in the lower 48 states. Why, then, would we risk polluting northern Minnesota for a mine that will require monitoring for hundreds of years after the jobs are finished and the ore is depleted? This type of mining has never been done anywhere without polluting nearby waters.	SO10, WR023, WR0115
18274	Don't let Poly-Met use Minnesota as a test area for something they have never done before.	PD23
18274	Don't let Poly-Met use Minnesota as a test area for something they have never done before.	PD23
Sender Name (Submission ID)	Sheryl Wilson (45942)	
10364	The environmental damage caused by this enterprise will be significantly greater than any positives this mine will bring to the area or Minnesota. 300 jobs is really just a drop in the bucket. I am so tired of rhetoric that encourages people in depressed economic areas to poison their surroundings in order to make a living. … This is just big business preying on the economically disadvantaged for the sake of huge profits.	SO01
10367	... this type of mining is environmentally unsound and has proven to be very likely to cause damage in the future. …We have a beautiful state here and the Boundary Waters are a national treasure. Please don' t put all of that in jeopardy for only a few hundred jobs.	WILD02
Sender Name (Submission ID)	Shira Brech (57184)	
18657	Don't mine near the boundary waters – work towards job creation through renewable energy – we need to be moving forwards – the boundary waters is beautiful and preserves humanity and hope – protect the people, workers, and planet.	SO02
Sender Name (Submission ID)	Shirley Ann Steinhagen (57180)	
18664	It is necessary to have a decent population of people living and raising families and having jobs to earn a living and enjoy our state.Where does this lead us if the ground and air so contaminated? It puts a risk of our resources a life for everyone well into the future. Let us not forget Lake Superior and the dangers of contamination.	SO02
18665	Contaminated streams, rivers and lakes are at serious risk to the health of all animals and our forests. Let's not forget the people who consume contaminated wild life from creatures in the water and on land.	GEN03
Sender Name (Submission ID)	Shirley Huskins (54797)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Shirley Huskins (54797)	
18107	We nee to [sustain and protect]...not damage the environment ... in any way that our generation and future generations will no longer have this original setting to savor and enjoy. The Northern Forest ecosystem would be forever changed. How can you replace this natural beauty?	LU04
18112	The pollutants deposited in the water from sulfide mining would devastate everything...Polluted water would be felt far beyond NE Minnesota as the rivers and streams enter Lake Superior and the Mississippi to the South, Pacific Ocean to the West, Hudson Bay to the North, and St.Lawrence Seaway to the East…How can you prevent polluted waters from leaving the mining area?	WR107, WR108, WR111, WR130
18114	Human Health...was not adequately addressed in the EIS. Contaminating metals, such as mercury, manganese, lead, nickel, aluminum, and arsenic are all injurious not only to humans, but to all fish and wildlife. ... the population of Northeast Minnesota... were warned not to eat more than one meal of fish a week because of the high amounts of mercury found in the fish. It would be frightening to learn what effects the other metals would have on the brain, lungs, and other body systems.	MERC03
18115	Wild Rice...would be affected by the polluted waters. ... Why should [Native Americans] now have to worry about waters that grow the wild rice are so polluted to prevent them from growing their economical crop so that large companies and corporations can have more money in their pockets?	CR01
18117	Ely, Minnesota is known as a tourist area which benefits greatly from the tourists who come not only from the U.S. but all over the world. Why? Because of its natural beauty, the peace and tranquility of camping on its beckoning lakes, fishing its refreshing waters, paddling its rivers, lakes and streams, and breathing its cool, pine scented air. ...There is no ...reason why these quiet, relaxing ways of life should be replaced ... with noise and unwanted diversities.	SO02
18120	It is stated that there would be reclamation of affected areas in mining localities. Once affected, it can never be reclaimed. How can PolyMet ever make such a statement?	VEG05
18123	the subject of mishaps or accidents has not been mentioned. Everyone knows such things happen, but no mention of how the costs would be covered is included in this SDEIS	FIN05
Sender Name (Submission ID)	Shirley Zumberge (58084)	
19846	At this time I see no guarantee of safety to our water, air or wildlife.	GEN03
Sender Name (Submission ID)	Sierra Club (3922)	
9676	The companies that own the mines will reap the profits and then leave, forcing the citizens of Minnesota to deal with the damage to the health of humans as well as wildlife. There is no guarantee that any company will be around long enough to sufficiently correct all of the damage done, no matter what these companies promise in the beginning.	FIN01
9842	The waste-water from sulfide mining damages the ecosystem around the mine, as well as everything downstream from the runoff. Studies show there is not a possibility long term pollution, but a certainty.	WR023, WR115
9844	However, there is a guarantee that damage will be done to the natural environment, especially the irreplaceable Boundary Waters Canoe Area Wilderness	WILD02
9845	Destroying the beauty and health of the state of Minnesota is not worth creating a few hundred temporary jobs.	SO01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sierra Club (3922)	
12412	hazards of sulfide mining demand that any permit granted for mining in Minnesota be conditioned on a posted bond sufficient to cover the costs of mitigating any and all of those hazards.	FIN05, FIN08
12415	The state must first be assured by all competent authorities that this project will not damage Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations.	WET24, WI01
12420	The state must recognize that the mining of precious metals beneath our surface may first require the development of new mining technologies.In this regard, wouldf-be miners should be encouraged to contribute funding for research by the University of Minnesota and work with the University to develop those safe mining practices.	PD32
Sender Name (Submission ID)	Sierra Club Northstar Chapter (42950)	
5655	The proposed NorthMet mining project poses numerous unconscionable risks to the State of Minnesota, its citizens and future generations, and the surrounding environment and watersheds. This project will not keep Minnesota’s invaluable water resources safe and clean. Hardrock mining is the top toxic producing industry in the country. There has never been a sulfide mine that has not polluted its surrounding environment. Now PolyMet wants to bring this dangerous type of mine to Minnesota. Sulfide mining has never before been permitted in the state of Minnesota and after review of the SDEIS it must be concluded that this risky project cannot be conducted in a safe and trustworthy manner.	PD26
5657	The SDEIS is severely inadequate and is missing many important details. The SDEIS shows that the proposed mining project will pose numerous unsafe and unacceptable environmental risks. The SDEIS does not establish proper safeguards to deal with problems as they arise. Without suitable safeguards the SDEIS cannot be considered complete….PolyMet has not provided adequate financial assurance to guarantee that the site will be adequately cleaned up and all traces of pollution dealt with.	FIN05
5660	A flawed computer water model blatantly under-predicts the true amount of pollution that will result from proposed mining activities. This flawed modeling data must be redone. The water model shows long term treatment of waste water will be required for hundreds of years after closure of the mine site. PolyMet stopped its modeling after 500 years. What happens after 500 years have gone by? Who will take responsibility to constantly monitor, treat, and prevent any contaminated water from escaping into the environment 200 years from now, or 500 years from now? Who will bear this financial burden? Expensive treatment and cleanup of PolyMet’s mine site for the next 200 to 500 years and likely even longer, is completely unacceptable and violates Minnesota law requiring closed mines be “maintenance free”.	PER04, WR037, WR189
5662	The loss and degradation of vast amounts of high quality wetland areas is unacceptable. PolyMet plans to dig up and obliterate almost 1,000 acres of high value wetlands that provide critical habitat to numerous sensitive species, including moose. But it doesn’t stop there; over 6,000 additional acres of wetlands would potentially be destroyed or impaired due to mining activities. Many wildlife species are declining in Northern Minnesota and impacts from proposed mining activities will further degrade their habitats.	WET24
5664	If the Land Exchange is approved by the USFS, it would facilitate the destruction of over 1000 acres of high quality wetlands and thousands of acres of the Superior National Forest by a Canadian multinational mining company for a copper-nickel sulfide strip mine. This would be the largest permitted destruction of wetlands since the Saint Paul District of the Corps began permitting wetland fill. PolyMet's NorthMet strip mine is sited on the headwaters of Lake Superior and the Great Lakes themselves. In recognition of the significance of the affected wetlands and watershed, the EPA has said "this project may result in substantial and unacceptable impacts to aquatic resources of national importance (ARNI)".	WET14, WET19, WET23

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sierra Club Northstar Chapter (42950)	
5666	The Sierra Club opposes the proposed PolyMet Land Exchange. The sole purpose is to remove long standing environmental protections, on Superior National Forest public lands, against destroying the surface, and more specifically against strip mining.The land exchange would pave the way for PolyMet to strip mine national forestlands protected by the Weeks Act of 1911 and open a sulfide mining district across Minnesota's Arrowhead Region.	LAN02
5668	Adverse effects on endangered and threatened species, and other wildlife, are inadequately addressed in the scoping documents for the PolyMet Land Exchange including lynx, wolf and moose analyses. Thousands of acres of habitat and important wildlife corridors would be severely and negatively impacted, without meaningful mitigation. This includes northern goshawk territory, numerous migratory birds, Bald and Golden Eagles.	WI01, WI02, WI03
5670	The wetlands impacts in the Land Exchange proposal are even more underestimated because credit is given for the buffer lands that are assumed to be left intact "for the foreseeable future" this is an unfounded assumption. USFS guidelines call for "no net loss" of wetlands (MN also has a No-Net-Loss policy on wetlands) and have not addressed the fact that the current USFS lands and wetlands will be destroyed, most likely the buffer lands wetlands will be as well. A land exchange doesn't create wetlands, it is a loss and the USFS must acknowledge that. The land exchange would actually facilitate and allow the destruction of wetlands (again, the single largest loss of wetlands in MN ACOE history.	WET14, WET23
5672	[T]he loss of the USFS wetlands and forests would be a loss to the public and would be contrary to the Weeks Act and would be against the public interest. For the Forest Service to simply exchange these national forest lands whenever there is a “conflict” between the Forest Service’s management and the private mineral estate, would violate the very intent and purpose of acquiring these lands under the Weeks Act.	LAN02
5674	The Forest Service Must Withdraw the Land Exchange Proposed Action Because There Is No Conflict That Needs To Be Resolved.The SDEIS states that the purpose of the Land Exchange is to “consolidate the surface and mineral ownership of the lands involved at the Mine Site" (SDEIS at 1-11)...At the outset, it is important to dispense of the notion that there is some "fundamental conflict" that must be resolved. No such conflict exists. If "the mineral rights that were reserved do not include the right to surface mine as proposed by PolyMet," then there is no conflict with not allowing that kind of mining to occur. PolyMet is not entitled to engage in activities that its predecessors-in-interest failed to reserve at the time the United States acquired the surface.	LAN04
5677	The Sierra Club does not believe that the lands set forth to be exchanged are a fair trade or of equal value for the USFS lands...The EIS should provide a detailed analysis of how the proposed tracts of land were assessed for value, including value to the public for recreation purposes, water, species and scenic resources, value for cultural and historical purposes and future value in terms of biodiversity, lessening of fragmentation and climate change. The true economic value of the surface estate to PolyMet, including gaining the ability to destroy the surface by strip mining, should be included in the valuation.	LAN03
5678	According to the NOI in the Federal Register: "Many of these federal lands are adjacent to lands extensively impacted by past and ongoing mining activities." These are almost the same circumstances as the current PolyMet NorthMet split-estate situation that is the stated purpose of this land exchange. Will the Hay Lake acreage (and all of the non-federal lands) have Weeks Act protections against destroying the surface? Shouldn’t that information be included in the SDEIS?	LAN02
5680	Most of PolyMet's proposed exchange lands are in mineral exploration areas. The Mineral section from the Feasibility Analysis was done by PolyMet’s own geologist Richard Patelke and is speculative and conflicted by the relationship of the preparer with PolyMet. Yet the USFS is relying upon the documents as fact based instead of merely PolyMet based assumptions. Will the newly exchanged lands have equal protections on the surface as the USFS Weeks Act of 1911 lands do now?	LAN02
5682	Deforestation on the now intact USFS lands will occur in the foreseeable future if the exchange is approved. The exchange, and thus the mine, will likely result in increased invasive plant species across the Superior National Forest.	VEG05

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sierra Club Northstar Chapter (42950)	
5684	Why has the public had limited access to the USFS NorthMet lands? Please explain the complete history of the Dunka Road. The public has been denied access for many years. The USFS should explain and document by what authority or agreement, etc that the public's use has been restricted on the USFS lands.	LU01
5686	The value of the metals should be part of the valuation, or more accurately, the value of the Access to the metals. The mineral estate is encumbered by the Weeks Act provisions against strip mining, and the value of the mineral estate is less because of the mining restrictions contained in the deeds. It is a GIFT to PolyMet & RGGS (mineral estate holder) if they get virtually unfettered access and the right to strip-mine the minerals merely for the value of the surface lands (through an exchange of equal surface rights). The difference between being able to destroy the surface or not, underground versus strip mining, determines whether the mine is profitable or not (ostensibly worth hundreds of millions of dollars). A private party would most likely not enter into such an arrangement, they would no doubt negotiate many millions of dollars above and beyond the lands offered for exchange. The PolyMet land exchange appears to be a bad deal for the USFS and the American people.	LAN02
5688	Further, the proposal does not meet these four Forest Service Strategic Plan Goals:1) provide and sustain benefits to the American people (desired outcome is forests with sufficient longterm multiple socioeconomic benefits to meet the needs of society);2) conserve open space;3) sustain and enhance outdoor recreation opportunities; and4) maintain basic management capabilities of the Forest Service by reducing landlines and mineral conflicts.	LAN04
5692	Land Exchange violates the Weeks Act of March 1, 1911 and Federal Land Policy and Management Act of 1976; and the Federal Land Exchange Facilitation Act of 1988. According to the scoping documents: "This exchange is proposed under the authorities of the Weeks Act of March 1, 1911 as amended; the Federal Land Policy and Management Act of October 21, 1976; and the Federal Land Exchange Facilitation Act of 1988." The USFS public lands were acquired under the authority of the Weeks Act of 1911 and designated for watershed protection and to secure the maintenance of a perpetual growth of forest. The land was to be held as national forest lands- forever. Please explain how the Proposed NorthMet Mining Project and connected Land Exchange, is in compliance with these laws?	LAN02
5696	The USFS has the ability and the requirement to protect the surface of the USFS lands that PolyMet wishes to destroy by strip mining, it is in the public's long term best interest that they protect the surface. The PolyMet plan calls for perpetual treatment and persistent and long lasting pollution and degradation at the proposed mine site that could be avoided if the USFS kept title to the lands and continued to administer them as Weeks Act lands.	LAN02, LAN04
5698	Underground mining is an option with substantial environmental benefits, but was quickly eliminated on economic grounds – even though it would better protect the surface of the Federal lands.	ALT01
5700	It is the obligation of the USFS to protect the land, air, water, animal and other natural resources of the public lands being proposed for exchange, set to be destroyed and degraded if the land exchange is approved. No acceptable mitigation has been offered for those losses. Again, will the Weeks Act protections be part of the non-federal lands that the Forest Service would get in the exchange? That must be addressed in the environmental review of the project.	LAN02
5701	If Lake County has approved or entered into an agreement or contract with PolyMet for the sale of lands to PolyMet in furtherance and assistance of PolyMet's NorthMet project through the environmental review process, it is prohibited from doing so by state and federal law restricting government action or approval prior to completion of the environmental review process….If Lake County has indeed entered into an agreement with PolyMet, it is a violation of MN Rules part 4410.3100,...The acts of Lake County are prejudicial to the final approval of the NorthMet project. The USFS must address whether the Lake County Lands are part of an illegal action and if so,remove them from consideration in PolyMet's proposed land exchange.	LAN09

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sierra Club Northstar Chapter (42950)	
5704	The Sierra Club concludes that the USFS must find that the proposed land exchange would not result in an overall benefit to the public and is not in the public interest. The land exchange would pave the way for PolyMet to strip mine lands protected by the Weeks Act of 1911 and open a sulfide mining district across the Superior National Forest and beyond. The land exchange, if approved, would have very negative environmental impacts on the forests, wetlands and wildlife of Minnesota's boreal region.	LAN01, LAN02
5706	The SDEIS provides minuscule discussion on the costs and benefits of the no action alternative relative to the preferred alternative and there are few comparisons of the no action alternative to other alternatives.	ALT14
5709	While the SDEIS "identifies" several alternatives, it does not discuss them and is therefore in violation of Federal and Minnesota law. The whole point of this requirement is to discuss different alternatives, and the SDEIS discusses only one; the preferred alternative. Simply listing a one sentence description of an alternative measure to be used, is not discussing the feasibility of that measure. PolyMet is obligated to study, develop and describe all reasonable alternatives and alternatives eliminated from detailed consideration do not count in the range of alternatives.	ALT06, ALT21
5713	Under NEPA, an EIS must "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. §4332(2) (E); 40 C.F.R. §1508.9(b). Without including other alternatives to the proposed project, there is no discussion of alternative mitigation measures that could be employed. There is no discussion of alternative reclamation plans, waste rock containment, or water treatment strategies.	ALT06, ALT21
5719	The SDEIS fails to adequately assess reasonable alternatives such as underground mining. The SDEIS is also inadequate because it does not address reasonable alternatives that are likely to have far less environmental impacts than the proposed open pit mine alternative.These include theunderground mine alternative, the west pit backfill alternative, and the reduced production alternative. These alternatives will result in significant environmental benefits over the proposed action.	ALT01, ALT06
5721	Eliminating an alternative simply because a permittee indicates that it would not go ahead with the project if the alternative was required would allow permittees to avoid increased costs for environmental protection at their own discretion. This would essentially nullify the Minnesota Environmental Rights Act. An underground mine option would result in far less negative environmental effects including a much shorter water treatment period. In addition, an underground mine would have a significant economic benefit.	ALT01
5726	The SDEIS fails to include many relevant projects in its cumulative effects analysis, including current and anticipated mineral exploration in the Superior National Forest, other sulfide mines that are in the process of completing their environmental review and permitting requirements, potential land exchanges, and Superior National Forest vegetation management projects… Notably missing projects include; Twin Metals, Federal Hardrock Mineral Prospecting Permits #2, and Teck Cominco. These three mining projects must be included in the cumulative effects analysis.	CU02, CU08, CU09
5729	Various land exchanges that are being considered must also be disclosed in the SDEIS and how they may impact the potential environmental impacts related to the PolyMet project. This includes the proposed School Trust Lands – Boundary Waters land exchange.	CU08
5732	The SDEIS fails to disclose that there are plans to operate the plant site for other reasonably foreseeable mining projects in the area… Any potential for reasonably foreseeable projects, that will utilize the plant site, must be included in the cumulative impacts discussion.	CU02, CU04
5792	The potential use of the site for underground mining needs to be evaluated. It must be considered that it is reasonably foreseeable that underground mining operations will occur in the future at the NorthMet mine site; this needs to be included in the cumulative effects analysis.	ALT01, CU04

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sierra Club Northstar Chapter (42950)	
5793	The discussion of cumulative impacts on wildlife is severely lacking. There must be a proper analysis of this project and other projects effects on moose, lynx, aquatic species, and other sensitive species within the area and downstream watersheds. Destruction of vegetation and wetland areas, noise, blowing sulfate containing dust, and releases of pollutants into water resources are just some of the cumulative effects that will impact wildlife.Also missing is any references to cumulative impacts to wildlife from ongoing and future climate change conditions.	WI01, WI04, WI05, WI08
5794	The SDEIS fails to adequately assess the environmental impacts caused by increased sulfates, mercury, and other pollutants as a result of this project and other past, present, and future mining projects.	MERC10
5796	The SDEIS needs to sufficiently analyze all potential cumulative impacts to surface and subsurface waters, including downstream areas and watersheds such as the St. Louis River and its estuary, and Lake Superior. Additionally, effects to wild rice waters need to be included.	WR024, WR157
5797	Cumulative effects considered for wetlands need to include the St. Louis River watershed along with the Partridge and Embarrass River watersheds. Project activities will increase the already present existence of pollutants that are degrading water quality standards within the St. Louis River watershed….The SDEIS' review of cumulative impacts to wetlands is insufficient, geographically limited, and drastically under estimates total effects to area wetlands.	WET18
5806	The SDEIS does not specify when or where water alone will be used to suppress dust from roads and other surfaces, and where suppression enhancers will be added to water to improve its suppression abilities. Without a significant environmental or safety reason, water alone should not be used to suppress dust, rather magnesium chloride or another suppression enhancer should be used in conjunction.	AIR07
5808	The SDEIS states that there will be two ambient air quality monitors installed to minimize fugitive dust effects (5-402). But does not specify what they will monitor for. Two monitors are not sufficient, there should be more. Their placement will determine their effectiveness. More information needs to be disclosed regarding the specifics of these air quality monitors.	AIR13
5811	Filling the waste pits with waste rock and then flooding them with water to "minimize" the amount of waste rock exposed to the atmosphere is supposed to be the strategy for preventing oxidation of the sulfide minerals. This plan is insufficient. Metals are still going to leach into the pit water and could escape into the surrounding environment….If a pit floods, disaster unfolds. If a sudden storm occurs there may not be time to adequately dewater the pit to prevent flooding, spills and leakage.	PD15
5812	The SDEIS should include an analysis of the total amount of mercury in the mining process, including bulk tailings, hydrometallurgical tailings, and autoclave scrubber waste, and where PolyMet plans to dispose of this waste. Further, to ensure that mercury capture systems are functioning properly, a regulated monitoring plan should be required to provide reliable data on mercury emissions.	MERC17, MERC20
5813	The SDEIS should include noise contour maps, especially important near recreational areas such as the Boundary Waters Canoe Area Wilderness (BWCAW) so that the public can be fully aware of the noise that they will encounter when visiting state and federal recreational lands. These maps should include not only noise from all mining operations but also noise from transportation activities to the site.	N02
5815	Further, it is incomplete to merely consider noise in terms of decibels, rather noise impacts should also be analyzed in terms of noise tonality, low frequency noise, fluctuating noise, and impulsive noise.	N06
5817	The SDEIS' reclamation plan calls for abandoning pipelines where they lay. This could be a problem if these abandoned pipelines result in water flowing in places where it should not be flowing. All pipelines that are to be abandoned should be fully evaluated to ensure that they are not leaking any contaminants and that their location is not causing water to flow between two different water resources, where without the pipeline there would be no connection.	PD35

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sierra Club Northstar Chapter (42950)	
5819	Regarding waste, the reclamation plan does not expressly state the applicable federal and state laws, regulations, and rules governing testing, handling, storage, and disposal of hazardous, toxic, nuclear waste. These laws, regulations, and rules need to be included in the EIS to assure compliance. The reclamation plan should include a tracking system and a documented certification program so that it can be guaranteed that hazardous materials are properly disposed of.	PD35
5821	The SDEIS does not explain how the reclamation plan will work to prevent erosion from occurring. There needs to be discussion in the EIS and a clear plan for reducing erosion that could lead to negative impacts on water resources.	PD09, PD35
5824	The reclamation plan does not provide enough detail on the desired water balance between the East and West Pits. What conditions would prevent this water balance from being achieved? How long will it take to achieve this balance? What will need to be done to achieve this balance? The reclamation plan needs to provide a more thorough analysis regarding a timeline for water balance between the two pits.	PD35
5825	There is concern that the reclamation plan does not adequately consider how the pits will affect wildlife in the area. How will bird and wildlife species be protected from falling into the pits and the channel that connects them? The reclamation plan needs to assure that wildlife species are protected from these areas and the contaminated waters contained therein.	WI04
5827	The reclamation plan needs to commit to removing all the waste rock and all the contaminated materials underneath the temporary stockpiles after their use is complete.	PD35
5829	In addition, the reclamation plan needs to clearly articulate goals and plans for re-vegetation of the site and procedures and timelines for decommissioning roads. Plans for storage and redistribution of topsoil need to be included. Plans for stopping the spread of weeds and invasive species must be addressed.	VEG05
5830	PolyMet needs to establish a better plan for replacing wetlands on-site. Merely working to purchase or protect wetlands at different locations, away from the mine site, is not sufficient. A commitment needs to be made to re-establish wetlands on-site, the SDEIS should include specific goals including size and volume for re-established wetlands. If it is not possible to re-establishwetlands on-site, this reality needs to be included in the EIS. If PolyMet makes the commitment to reestablish wetlands on-site and these wetlands, after 5-10 years are not functioning, what will be done to remedy the situation?	WET03
5832	The reclamation plan does not contain enough specifics regarding monitoring. Very explicit goals need to be identified and reached before monitoring at the site can be reduced or the bond is released. Monitoring schemes must include timeframes and clearly identify what responses will be for failure to meet these timeframes and goals. The reclamation plan should be reviewed and updated every few years so the public and regulatory agencies are kept up-to-date on the progress of reclamation.	PD24
5833	The SDEIS fails to take a hard look at the impact of vehicle/lynx collisions. It ignores the seriousness with which the designation of threatened species must be taken when reaching the conclusion that vehicle/lynx collisions will not have significant consequences.	WI01, WI03
5835	Lynx are known to travel long distances in search of prey, especially when their preferred prey is at a low ebb (p 5-364; Thumbs 1271). Lynx must try to reach all parts of their critical habitat to forage. The SDEI S ignores these facts, which it describes well, when concluding that the transportation corridor is not a hazard for lynx and that there is a low likelihood of collision between lynx and vehicles.	WI01, WI02, WI03
5836	The assumption that vehicle collisions would be low because lynx will avoid the area due to mine activity is absurd. This project will result in significant negative impacts to the lynx.	WI01, WI03

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sierra Club Northstar Chapter (42950)	
5837	The SDEIS mischaracterizes their own data and in so doing understates the impact on lynx habitat resulting from mining activities at the mine site….Stating the results this way gives the impression that the additional fragmented and reduced acreage of lynx habitat is small and inconsequential. However, this is the wrong impression. The reality is that the proposed action of this one strip mine would increase the percent of fragmented and unsuitable lynx habitat in LAU 12 by 50%.	WI02
5838	The SDEIS is inadequate and incomplete because it does not analyze the impacts of noise, vibration, and air blast on animals, notably the Canada Lynx, a threatened species. And it uses an inappropriate baseline when reporting impact on animals.	WI01, WI05
5839	The SDEIS cumulative analysis of noise, vibration, and air blast is inadequate because it fails to report effect contours from other nearby mining sites on wildlife travel corridors and access routes and, therefore, it fails to take a hard look at cumulative environmental effects of noise, vibration, and air blast on wildlife.	WI03, WI05, WI08
5840	The SDEIS analysis of the effects of noise, vibration, and air blast is deficient also in the near total absence of discussion of all of these factors on animals, in particular the Canada Lynx, a threatened species; or the wolf or moose.	WI01, WI05
5842	We have shown that noise, vibration, and air blast contours encompass five wildlife corridors and their access routes due to proposed mining activities at the mine site. A reasonable cumulative analysis would impose similar effects contours emanating from existing nearby operations such as Northshore mine, Mesabi nugget, etc. These contours would no doubt overlap those shown for the proposed NorthMet action. Concentrations of effects on geographic features such as wildlife corridors and access routes should be highlighted. The SDEIS should show what portion of the effects is due to the proposed and modeled mine site over and above the combined effects due to other sources on wildlife travel corridors and access routes.	N03
5844	The SDEIS is deficient because it does not analyze separately the effects on the Canada lynx population that inhabits portions of the critical habitat area south of the mine site, the plant site, and more generally, the area south of the Mesabi Range.	WI01, WI02
5845	The SDEIS is replete with statements to the effect that the proposed NorthMet action will have no effect on the lynx population as if the population lynx north and south of the Range possess identical risk levels.	WI01
5846	The SDEIS utterly fails to understand the effect of placing a miles long permanent barrier to travel to and from south east of corridor 17. It continually refers to this barrier in legal terms, “direct loss and fragmentation”, without detailing how the loss in language impacts the lynx. It seems ludicrous to assume that the experience of the population that resides south of the Mesabi Range, including, of course, the population that lies south of the mine and plant sites, is no more at risk than lynx populations residing north of the Mesabi Range. Lynx to the south of the Mesabi Range are, without even considering the environmental effects of the proposed NorthMet action, already at greater risk than the population north of the range.	WI01, WI02, WI03
5847	Both land exchange proposals are invalid because the “mine site only” land exchange proposal was erroneously rejected and dropped from further consideration. The “mine site only” land exchange proposal includes the smallest land area of all the considered proposals other than the “no action” proposal and would meet some of the inadequacies of the preferred and alternate land exchange proposals. It preserves a much larger amount of high quality critical habitat than either the preferred land exchange proposal or the alternate smaller one.	ALT14, ALT23

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sierra Club Northstar Chapter (42950)	
5848	The agencies rejected the "mine site only" proposal erroneously in spite of their own data [i.e cumulative Class I and Class II incremental effects], an indefensible decision that invalidates both the preferred land exchange proposal and the alternate proposal. The "mine site only" proposal must be rehabilitated as a viable land exchange option. Note: When rehabilitating the mine site only proposal, none of the Superior National Forest land that is situated to the south of Dunka Road should be included. A perusal of the Figures representing the proposed uses of the mine site reveal that nomining use at all is proposed for any of the Superior National Forest land that lies south of the Dunka Road. There is no valid reason to include in the proposals land that is not needed for the proposed NorthMet action.	ALT23
5849	Both the preferred and the alternate smaller land exchange proposals are invalid as additional land area beyond the requirements of the mine site is not required; and none of the proposed exchange parcels satisfy the most immediate, specific environmental requirement required by the Canada Lynx, a federally listed species. ...The agencies have failed in their obligation to take seriously the duty to protect wildlife such as the federally threatened lynx and the State listed wolf which should not be deprived of what remains of the large block of needed high quality critical habitat when it is not required formining. These proposals include large amounts of land not required for mining which should be maintained in tact in deference to wildlife such as the federally threatened lynx and the State listed wolf….None of them [proposed land exchange units] are geographically located in the access path physically proximate to what is the only wildlife corridor not threatened with direct loss or fragmentation of habitat inside the corridor (p. 6-56; Thumbs: 1677); moreover, none of them are so situated with regard to any wildlife corridor...The SDEIS fails to recognize that all of the proposed replacement exchange parcels fail to compensate for this critical environmental fact: All of the land included in the preferred and the alternate B proposals permanently eliminate and/or fragment large areas of existing high quality roadless habitat all of which must be preserved intact in order to assure unimpeded access to corridor 17. Both the larger preferred proposal and the alternate B proposal fail to do this and are, therefore, invalid.	NEPA04
5850	Contemplation of additional mining activity beyond the proposed NorthMet action is a connected action and would invalidate the SDEIS if not fully disclosed. PolyMet rejected the underground option in the absence of adequate analysis….PolyMet's rejection of the idea of backfilling the west pit is presumptive evidence that further mining activities on Superior National Forest lands included in both land exchange proposals are, ipso facto, reasonably foreseeable actions. If so, then this constitutes a connected action which must be fully disclosed and analyzed in a detailed mining plan estimate before it can be rejected. Failure to fully disclose a connected action would invalidate the SDEIS.	NEPA14
6388	Both the preferred and the alternate smaller land exchange proposals are invalid as additional land area beyond the requirements of the mine site is not required to fulfill the purpose of the proposed NorthMet action….In fact, perusing the Figures representing the proposed uses of the mine site no use at all is proposed for any of the land inside the mine site that lies south of the Dunka Road. There is no valid reason to include in the proposals land that is not needed for the proposed NorthMet action. Wildlife will be seriously affected by the permanently reduced acreage of the mine site, the permanent barrier that would be erected there, and the permanent Category 1 rock pile...mining. Both land exchange proposals include large amounts of land not required for mining. This land should be maintained, intact, in deference to wildlife such as the federally threatened lynx and the State listed wolf.	NEPA04
6389	Wildlife will be seriously affected by the permanently reduced acreage of the mine site, the permanent barrier that would be erected there, and the permanent Category 1 rock pile. The agencies have failed in their duty to take seriously the duty to protect wildlife such as the federally threatened lynx and the State listed wolf which should not be deprived of what remains of the large block of needed high quality critical habitat when it is not required for mining.	WI01, WI02
7198	None of the proposed exchange parcels satisfy the most immediate and essential environmental requirement of the Canada Lynx, a federally listed species and are, therefore, invalid...The SDEIS fails to recognize that all of the proposed replacement exchange parcels fail to compensate for this critical environmental fact: All of the land included in the preferred and the alternate B proposals permanently eliminate existing high quality roadless habitat all of which must be preserved intact in order to assure access to corridor 17.	WI01, WI02, WI03, WI10

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Sender Name (Submission ID)	Sierra Club Northstar Chapter (42950)	
7202	Both land exchange proposals are invalid because the agencies misuse, wrongly interpret, and fail to follow the land exchange guidelines and, as a result, ignore imperative environmental concerns (as regards the impact of the proposed land exchange on the Canada Lynx, a federally threatened species, and the Grey Wolf, an RFSS listed species.)…The SDEIS lists four administrative guidelines when considering the purposes of National Forest System land exchanges… We disagree with the Forest Service claims regarding guidelines (a) and (c). …We disagree that the affected Superior National Forest land is "chiefly valuable for non-Forest System purposes". To suggest that protecting essential lynx habitat by insuring access to important wildlife corridors is not a major valuable purpose of the National Forest System, as citing this guideline [guideline a] does, is absurd and represents an abandonment of lawful duty….The attempt to characterize the whole of the land exchange proposals as "isolated and intermingled with private land" in order to justify the sacrifice of thousands of acres of high quality habitat as a remedy for administrative problems with a small detached parcel is to not only a mischaracterization of the matter but also a misuse of guideline (c) in an arbitrary, misleading, and egregious manner. Since there would be no impediment to fulfillment of the proposed NorthMet action by deleting it from consideration, the detached parcel cannot rightly be used to qualify the existing land exchange proposals under guideline (c).	WI01, WI02, WI03
7219	The SDEIS goes on to site three priorities that also serve as guides in the selection of replacement exchange parcels: "Standards and Guidelines to achieve this Desired Condition provide that land acquisitions would generally be guided by the following criteria (G-LA-2, Forest Plan" (pages 51-52) and then ignores them, especially Priority 1: "Priority 1 (a, b, and c are not listed in order of importance) …The agencies cannot "cherry pick" guidelines to satisfy administrative actions when to do so is in conflict with other imperative obligations. The agencies must pay attention to the priorities, especially Priority 1. They cannot arbitrarily ignore some guidelines and ignore others at will, in this case, abandoning their responsibility to protect the Canada lynx and shepherd its recovery in order to meet administrative goals of lesser importance. Failing to recognize the obvious demand of Priority 1 represents an abandonment of the obligatory function of preserving needed habitat as specified in this guideline… The privately owned proposed exchange parcels are, thus, perforce disqualified due to incorrect application and misuse of land exchange guidelines (a) and (c) while ignoring Priority 1. Therefore, both land exchange proposals are invalid.	WI01, WI02
7611	The SDEIS is inadequate because the agencies failed to construct a land exchange proposal that integrates existing Superior National Forest land with adjacent areas to preserve and expand federal protections to lynx, wolf, and umbrella species' access to the southwest, south, and eastern access paths to corridor 17...With the likely direct loss of land inside corridor 18 due to expansion of the Northshore mine, corridor 17 takes on even greater importance. The proposed land exchange proposals would not remedy this situation and would remove federal responsibility to protect the lynx andnurture its recovery.	WI01, WI03
7788	A newly developed exchange proposal containing a portion of the area west of the national forest boundary is the only way to consolidate land needed for environmental protection of the lynx and the wolf; and, at the same time, extend perpetual, specific, and necessary federal protection of the Canada lynx managed under the USFS lynx management plan insuring access in perpetuity southwest of corridor 17; as well as state protection of the wolf, a State listed species.	WI01, WI03, WI10
7991	As noted above, the larger parcel proposal fails to preserve a sufficient un-fragmented, straight line access path eastward to and from corridor 17. In like manner, the smaller parcel proposal fails to preserve an eastward path to and from corridor 17 (Fig. 3.3-2; p 3-167; Thumbs 328). The new land exchange proposal should be constructed in such a manner as to preserve from fragmentation additional needed habitat in this eastern access path to corridor 17 by including portions of T16N R13W Sec 33, 34, 35; and T59W R 13 W Sec 2, 3, 4, portions of which are owned by the federal government and already included within the national forest boundaries. Likewise, the new landexchange proposal should include the land lying east of the east pit that is not required to achieve the purposes of the proposed NorthMet action.	WI03

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8002	[S]electing the smaller mine site proposal as the preferred land exchange option is not a complete solution because this option falls short of the opportunity which the agencies have to definitively extend federal forest boundaries sufficiently westward to establish clearly the breadth of the southwest access path to and from corridor 17, In addition, it does not describe an easterly approach to corridor 17 that provides an adequate straight line assess path to corridor 17.	WI03
8004	The failure of the agencies to prepare a land exchange proposal that fulfills the National Forest Service obligation to protect a federally threatened species and state listed species by preserving needed high quality habitat surrounding the mine site, and even to increase the protected critical habitat by bringing all of the eastern, southern, and southwestern access paths under permanent federal and state protection--when the opportunity lay open before their eyes--is a glaring error that confirms the inadequacy of the SDEIS land exchange proposals.	WI01, WI02
8012	The cumulative analysis of the effects of the proposed NorthMet action on wildlife (Canada lynx, grey wolf, moose, bear) is invalid because of a failure to develop an adequate data base on the wildlife travel corridors and access paths thereto, conclusory statements, language which obscures the nature of the impacts, and a virtual absence of a contextual analysis of the cumulative effects of the proposed NorthMet action required by law.	WI01, WI03
8019	The available data are inadequate to clearly indicate where and in what degree or manner the existing and additional effects are or would be situated with respect to the corridors and access paths. Keeping in mind the level of detail found elsewhere in the document, for example in the characterization of the land exchange parcels and the mine site, there is no excuse for this.	WI03
8022	extensive on-the-ground assessments should have been undertaken to further describe the corridors and the access paths to and from them. A rationale should have been devised to reduce the level of judgment involved in setting the boundaries of corridors and access paths and determining which criteria listed above were met and to what degree. Modeling of existing effects and likely future effects with accompanying graphic representations would have provided additional clarity to the matter. It is simply astounding that none of this was done.	WI03
8025	The result of the poor quality of data is that most characterizations of the corridors and access paths are conclusory accompanied by little or no detailed data. We are simply left to accept, or not, the statements of the agencies.	WI03
8053	In light of the effects described above, and in spite of the inadequacy of the data base, one would still expect that the SDEIS would attempt to quantify or at least discuss the cumulative effects of the NorthMet action on corridor 17. Instead, the agencies, after cataloging current and likely effects on the basis of poor quality information simply let stand the unanalyzed statements which, as noted, include incorrect information, inadequate descriptions, and fail to include pertinent information and critical analysis regarding the permanent barrier and the other impacts described.	WI03
8054	Even more glaring, however, is the near complete lack of analysis of the cumulative impact of the proposed NorthMet action on wildlife, especially the Canada lynx, a federally threatened species, in the context of the total loss of five wildlife corridors and the fact that all of the remaining corridors are or will likely be eliminated, reduced in area, or restricted by mining activities or other encroachments.	WI01, WI03
8110	a critically important fact regarding corridor 17, unbelievably, goes unremarked in the cumulative analysis section of the SDEIS, to wit: Of the remaining wildlife corridors, corridor 17 is the only wildlife corridor which is not—is not--- threatened with direct loss or fragmentation of habitat inside the corridor, thus making it of signal importance in any cumulative analysis of the environmental effects.	WI03
8113	The agency must take a “hard look” at what the cumulative total loss of 5 out of 18 corridors and current of future increases in restrictions of use of all of the remaining 13 corridors means for wildlife protection and habitat preservation. The analysis must be thorough and based on the best available science.	WI03

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8147	The SDEIS then should determine the travel capacity of the remaining impaired 13 corridors, analyze whether they are enough to sustain the Canada Lynx population with special reference to the population residing south of the Mesabi Range, what type of physical pressure does this place on the Lynx survival (how much farther will the lynx have to travel, what are the increased dietary demands due to this additional exertion), which roadless blocks are cut-off from by loss or restriction of the corridors, and were these corridors also popular denning or breeding sites.	WI01, WI02, WI03
8150	There is no reasoned assessment or scientific reports to support that loss of 5 corridors, coupled with restrictions on the remaining ones, is not a significant cumulative impact, rendering the SDEIS inadequate. (Sierra 2910 pp. 29-30; revised by jlh to be consistent with the SDEIS.) No analysis of the cumulative impacts on corridors and access paths that meets the requirements of law appears in the SDEIS.	WI03
8155	The SDEIS is inadequate in that it fails to analyze a full range of possible mitigation measures that would reduce impacts to the Canada Lynx, the Grey Wolf, and other large mammals.	WI01
8168	The agencies must remedy the minimal and pro-forma proposed mitigation actions at closure in the SDEIS and consider other mitigations which flow from taking a hard look at lynx populations survival needs, travel habits, and access to important wildlife corridors.	WI01, WI03
8171	[The agencies] must consider at least the following and/or other possible actions to mitigate the effects of mining activity on the Canada lynx: 1. The planned location of the permanent Category 1 rock pile extends about a mile to the west of the permanently reduced habitat area, the barrier that consists primarily of the fenced pits. It also presents a formidable steep sided massif adding a further impediment to access of wildlife corridor 17. The pile also removes high quality critical habitat north of the permanent fenced pits barrier which seriously impedes access to corridor 17 to and from the east. An important mitigation would therefore result if the Category 1 rock pile were to be backfilled into the west pit. The agencies rejected this recommendation for several reasons with which the Tribal Agency disagreed, as do we in the same terms as the Tribal Agency.	WI01, WI02, WI03
8178	[The agencies] must consider at least the following and/or other possible actions to mitigate the effects of mining activity on the Canada lynx: The potential for collisions could be reduced by construction of several wildlife travel tunnels under the transportation corridor at points where lynx habitat meets the vehicle corridor. The Transportation and Utility Corridor crosses three streams (p. 4-10; Thumbs 345) which crossings may provide appropriate locations for wildlife tunnels. The culverts containing these streams under the Corridor could be widened to serve as wildlife underpasses. These tunnels could be constructed at the same time as the culverts under the railroad are modified to capture spilled ore from rail transport. The modifications should be completed prior to the onset of actual mining activity.	WI01, WI02, WI03, WI10
8180	[The agencies] must consider at least the following and/or other possible actions to mitigate the effects of mining activity on the Canada lynx: A portion of the plant site apparently intrudes into wildlife corridor 16 due to prior mining activity, although the exact parameters of the ingress are nowhere detailed in the SDEIS. The area in and around the corridor is said to be of diminished habitat quality due also to prior mining activity, a statement which also lacks detailed description. A plan for improving this degraded area including the corridor itself should be compiled and reclamation should begin at the same time as mining readiness activities commence, that is, about 18 months prior to the onset of active mining activities per se, continued throughout the twenty year life of the mine, and amplified at closing.	WI02, WI03
8183	[The agencies] must consider at least the following and/or other possible actions to mitigate the effects of mining activity on the Canada lynx: Comprehensive action aimed at reducing noise and vibration emanating from the plant site must be proposed including, but not limited to, the installation of sound insulating materials inside structures and placing vibration absorbing materials under machinery much like that used in the construction of light rail in metropolitan areas.	N04
8189	[The agencies] must consider at least the following and/or other possible actions to mitigate the effects of mining activity on the Canada lynx: A comprehensive blasting protocol must be compiled with the aim of reducing maximally the effects of noise, vibration, and air blast from this source.	N04

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8194	[The agencies] must consider at least the following and/or other possible actions to mitigate the effects of mining activity on the Canada lynx: A comprehensive action aimed at reducing noise emanating from the pits, both water treatment facilities, the train loading and dumping stations, and the transportation corridor could include tall sound fences like those found in urban areas along heavily traveled highways. Positioning sound barriers along the transportation corridor, for example, would have the additional effect of directing traveling animals to the passages under the transportation corridor, thus reducing even further the possibility of lynx or wolf/vehicle collisions. The fences should not be constructed, of course, until the passages under the transportation corridor are completed.	N04
8196	[The agencies] must consider at least the following and/or other possible actions to mitigate the effects of mining activity on the Canada lynx: A more expansive reclamation plan should be developed in order to hasten the day when the fragmented area begins again to resemble the high quality habitat that will be lost by the proposed NorthMet action.	WI02
8200	[The agencies] must consider at least the following and/or other possible actions to mitigate the effects of mining activity on the Canada lynx: Re-vegetation of fragmented areas appears to rely primarily on planting mixtures of native grasses and forbs to stabilize soil. This is inadequate for reestablishing either Snow Shoe hare or lynx habitat; or for that matter, adequate cover for the grey wolf. Plantations of patches of coniferous trees must be interspersed across the area. These tree plantations must be caged in order to prevent destruction by ungulates. An adequate remediation/reclamation plan would be based on the idea of re-establishing satisfactory habitat at the earliest time.	VEG05, WI02
8212	The Moose is a state listed species of special concern. It thus, merits special attention in the SDEIS. But there is almost no mention of the Moose or the impact on Moose habitat of the proposed NorthMet action. This glaring omission makes the SDEIS is inadequate…In the hands of PolyMet which has no obligatory responsibility for listed species there will be no Moosemanagement plan and this large area of high quality habitat will be lost forever. It is therefore imperative to maintain federal ownership of the maximum possible acres out of 6,495 acres currently under consideration.	WI01, WI02
8213	If a land exchange is conducted, Alternate B, of those being considered, would eliminate less total acreage, and be of more value to the Moose than the larger preferred plan. However, a rehabilitated “mine site only plan” would be yet better for the Moose because it would eliminate even less of the total acreage (2,719 acres) than proposed by either the preferred or Alternate B plans.	ALT23, WI02
8217	The SDEIS is inadequate because wind rose determinations and subsequent air emissions data, based upon measurements from Hibbing, are not an accurate representation of winds at the mine and plant sites… Mine and Plant Site measurements should have been made, but they were not. In Section 4.2.7.1 (p. 4-427, ff; Thumbs 582, ff.) the Hibbing wind rose model is proposed as comparable to that of the project site. Wind rose models for Virginia or Ely would be more useful than the Hibbing model, which uses annualized data, whereas Virginia’s and Ely’s are on a monthly basis. Monthly measurements would more accurately reflect the winds from the southwest which are common in these locations from June through September; southwest winds are not common in Hibbing. Ely or Virginia, MN wind rose data are more descriptive representations of winds likely to blow air pollutants into the BWCA and Voyageurs National Park during the months of highest visitor use.	AIR09
8229	In section 5.2.7.1.3 (p. 402, Thumbs 737) the Mine Site and the Plant Site are listed as sources of air pollutant emissions. The rail line that connects these two sites is not included in the air pollutant emissions totals in Table 5.2.7-4 Total Projected Controlled Emissions (tpy). There is no way to know whether adding in rail operations emissions (or what these would amount to) would significantly increase pollutant emissions totals...Air pollutant emissions need to be monitored from all areas of mining operations including mine site, plant site and the rail corridor connecting the two.	AIR13

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8230	It is further noted on p. 402 that there will be two ambient air quality monitors which "are proposed to minimize fugitive dust effects at the mine." Firstly, monitors themselves can't minimize dust. Secondly, no mention is made as to exactly where these monitors would be placed or what specific air pollutants they would measure...Placement and number of air monitors is critical. Limiting them to two in number is not sufficient. If the monitors are to providevaluable information to the public, the MPCA and the mine operator (for the purpose of informing their fugitive dust control efforts), those details should be known to PolyMet and disclosed in the SDEIS.	AIR13
8233	The SDEIS is inadequate because it fails to adequately analyze cumulative effect of SO2 and NOx emissions on NAAQS limits under specified likely levels of compliance to MPCA orders. And it fails to provide a more comprehensive analysis of the modeling results and identify significant contributions of the proposed project NorthMet project to any exceedences...the cumulative effect of SO2 and NOx emissions will exceed NAAQS limits. Since there are no guarantees that currently operating taconite facilities will promptly comply with MPCA orders to reduce SO2 and NO2 emissions, the SDEIS should have calculated cumulative results under various scenarios from full compliance to the most likely level of compliance. Additionally, the emissions from the proposed NorthMet project could be contributing significantly to other exceedences of these 1-hour standards. The SDEIS should provide a more comprehensive analysis of the modeling results and identify significant contributions of the proposed project to any exceedences.	AIR09
8237	The SDEIS is inadequate because it does not adequately analyze or describe the implications of the fact that the proposed NorthMet action will compound an already excessive inhalation pollution risk hazard to the region where the mine would be located and create further health hazards...The NorthMet mine will clearly compound an already excessive pollution risk hazard to the region surrounding the mine site create further health hazards. There needs to be a complete health hazard assessment before the process can proceed.	HU01
8245	The SDEIS is deficient because it does not analyze or discuss the effects of employing different levels of pollution control including Best Available Control Technology (BACT) on amphibole fibers, nor the implications of the existing cumulative exceedences, nor the likely lowering of the PM2.5 NAAQS during the 20 year lifetime of the mine...The MCEA recommends that the proposed PolyMet mining operation implement the Best Available Control Technology (BACT). According to this same table (5.2.7-12), PolyMet does not implement the BACT. The SDEIS has no discussion of possible mitigation practices.	AIR07
8249	Examining Table 5.2.7-12 further, it is clear that there is very little room for error in the total 24-hour PM2.5 modeled. The total for mine site and plant site is 34 µg/m against 35ug/cubic m allowed by the NAAQS and MAAQS. These smaller PM2.5 particles are much more dangerous in that they can be inhaled and lodge directly in the lungs according to the Public Health Dept. Additionally, it is likely that the PM2.5 NAAQS will be lowered during the 20 year lifetime of the mine and thus the SDEIS should also disclose how close the area would be to the PM2.5 NAAQS based on the expected level of emissions in addition to the already noted maximum. Given the danger of the amount and type of particulate matter emitted from mining operations, the already high levels of particulates emissions, and the elsewhere noted inadequacies of the wind data require a reanalysis of these crucial health data.	AIR09
8250	The SDEIS is inadequate because of an astounding failure to quantify many aspects of the problem; many sources of greenhouse gases are not included in the calculations; and many statements are conclusory...Voluntary mitigation measures to reduce GHG emission to which PolyMet has committed are described, but they are not quantified (p. 5-433; Thumbs 1341).To see how these measures could reduce GHG emissions by more than 100,000 tpy requires further information such as quantifying other fugitive and mobile sources added to the larger 196,342 figure which don't count towards PSD. The calculations resulting in this reduction need to be clear and they are not.	AIR01
8252	The mine would occupy and destroy 1000 acres of peatland..."This [amountof peatland destruction] would increase Minnesota's total annual emissions of CO2 by 2% above 2005 levels." The SDEIS indicates that long term mitigation measures will offset any CO2 losses from the destruction of wetlands, but immediate effects are not calculated, and the statement is conclusory.	WET13

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8254	There is no plan to capture and sequester the CO2 or methane that will be released the proposed NorthMet action is initiated. Methane, a gas with 20 times the heat trapping potential of CO2, which will be released along with CO2 as the peat lands are destroyed by mining, is not discussed in theSDEIS. The presumption is that the use of wetland "banking" or constructing new wetlands where none now exist is intended to compensate for the destruction of wetlands that the NorthMet action will destroy. The SDEIS must show evidence that banked wetlands can sequester equivalent quantities ofCO2 and methane.	WET05, WET13
8255	The proposed NorthMet action would seriously undermine extraordinary efforts to retain Minnesota's peatlands untouched as a primary role in reducing Minnesota's efforts to reduce its carbon footprint and limit the release of methane. There are assumptions about CO2 reduction measures by PolyMet which are not substantiated by numerical analysis leading to many conclusory statements.	WET13
8258	The SDEIS fails to analyze whether legal standards regarding mercury will be met. PolyMet has not taken the NEPA mandated "hard look" at problems with mercury. Neither the impacts of mercury deposition in wetlands nor the addition of mercury to groundwater flow through wetlands is assessed in the SDEIS. A proper evaluation of mercury, using the best available science, must be done, and must include the St Louis, Embarrass, and Partridge rivers and the surrounding wetlands. The SDEIS uses a flawed water model that severely underestimates the flow of groundwater. This model cannot be relied on to accurately account for increases of mercury in wetlands.	MERC04, MERC09
8259	The SDEIS only discusses inputs of mercury to the Partridge, St. Louis, and Embarrass Rivers as those discharged from the Waste Water Treatment Plant and Waste Water Treatment Facility. The estimate of increased or decreased loading to the rivers leaves out mercury from air deposition, from leaching to groundwater, and from the transfer of Colby Lake water. When looking at these sources the conclusion that there will be decreased mercury loading is inaccurate. Further, it is not permissible to rely on tradeoffs by increasing mercury into one water body only to hope that there will be decreases in mercury at another water body.	MERC18
8261	The SDEIS must assess the total additional load of mercury to wetlands from all sources (air deposition, groundwater transport, and spillage) and the impact it will have both on the violations of the water quality standards and the mercury level in downstream fish. The SDEIS does not include details on current mercury levels in water in the wetlands that would be impacted, particularly at the mine site. Many wetlands are likely already above the mercury water quality standard, as are the Partridge and Embarrass Rivers and many of their tributaries.	MERC01, MERC09
8262	This project could result in irreversible impacts on Aquatic Resources of National Importance (ARNI). The area contains many bogs, peatlands, the One Hundred Mile Swamp, the St. Louis River which feeds into the Lake Superior Watershed and Great Lakes Basin, and wetlands within the Partridge River watershed which also feeds the Lake Superior Watershed and Great Lakes Basin. The 404 permit application and the SDEIS do not adequately assure that these important water resources can be protected.	PER35
8265	404 permit applicants must have sufficient documentation in order to determine that their project will not violate water quality standards and that discharges will not result in adverse impacts. PolyMet has failed to adequately provide this information. The SDEIS and supporting documents show that discharges will violate effluent standards and applicable water quality standards. The permit application must be denied.	COE03
8270	The SDEIS fails to adequately analyze the current levels of mercury in surrounding water resources, nor the impacts of project caused mercury deposition into these water resources.	MERC16
8276	However, what is missing [from the 404 permit application] and what should, logically, be a part of the overall purpose and need description, is the extent to which this mining operation would serve to offset United States imports of the metals proposed for extraction. It seems misleading to list percentages of United States imports and then report expected extraction quantities at a rate of tons per year. Doing so infers that the proposed mining project has the ability to significantly offset imports, but does not provide the appropriate comparative data.	NEPA02

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8279	PolyMet states there is sufficient income to cover extraction and reclamation costs (p. 15). However, in the discussion of extraction costs, there is no mention regarding whether there is sufficient income to cover wetland mitigation construction, monitoring, repair and maintenance costs. Costs are typically, and sometimes radically, underestimated… PolyMet is proposing experimental wetland mitigation, which may or may not succeed, the cost of which does not seem to have been accounted for in the calculation of development and operating costs.	FIN04, PD25
8283	Wetlands outside of the project area will be monitored for indirect impacts. However, the 404 permit application has very little regarding what would happen if there were significant indirect impacts to wetlands… The SDEIS needs to provide a mitigation plan for indirect impacts on wetlands.	COE02
8284	The SDEIS states that it will capture 100% of surface water run-off. It appears as if the SDEIS is overly optimistic regarding the capabilities of an untried containment system, and it is far more likely that the system will leak at some point in the future. There must be an effective contingency plan and financial penalties in place which will appropriately compensate the taxpayers of Minnesota if the containment system leaks and causes harm and if installation of such a system significantly impacts streams flows and wetland hydrology.	FIN05, FIN10
8285	While wetland boundaries have been delineated in the project area, wetland boundaries on lands proposed for exchange are approximate and not all wetlands were delineated. Unless wetlands on private lands are delineated and there is an extensive, comparable study of wetland functions and values as has occurred within the project area, it should not be assumed that there has been an appropriate examination of wetland functions and values and whether there will be equal exchange.	WET17
8287	The proposed land exchange will exchange high quality wetlands currently on public lands with wetlands that are of lower quality. .. There will be a projected net loss of 6,025.8 acres of wetlands that were on the MBS high biodiversity significance and a net increase of 767, 9 acres that are of moderate biodiversity significance. Exchanging lands containing wetlands will lower quality in terms of functions, values and biological diversity is not in the public interest nor is it an equal exchange.	WET14
8288	[T]he wetland functions and values of these wetlands cannot be appropriately replaced. Wetland mitigation site construction is experimental with respect to construction of open bogs or coniferous bogs. There is not a contingency plan if mitigation fails. There is also not a contingency plan if there are indirect wetland impacts that cannot be restored.	WET01, WET04, WET05
8289	It is troubling to see the great potential for indirect wetland impacts and yet there is no contingency plan in place to deal with such impacts beyond assurances that the appropriate state and federal agencies will resolve such issues should they arise. Currently, the only contingency available to agencies is to require financial assurance, which should be structured in a way that keeps PolyMet's parent company and its shareholders on the hook and meeting their financial obligations.	FIN01, FIN02, FIN11, WET01
8291	The water quality modeling that is used in the SDEIS to support the prediction of meeting water quality standards cannot reliably forecast those values. The model:- has too many deterministic data values trying to represent a complex environment,- does not have enough data available to fully calibrate it,- does not capture the full dynamic of precipitation and drought,- has little or no validation.As such, it is insufficient as a tool to predict the water quality that will result from the project plan.	WR189
8327	More data is needed to better calibrate the modeling for the project and to validate that it is able simulate the movement of contaminants at the plant and mine site. The model can provide good information about how different processes are linked together, but also, some scenarios should be developed based on heavy rainfall and drought events, which, due to our changing climate, will likely become more frequent	WR072, WR077, WR180, WR189

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sierra Club Northstar Chapter (42950)	
8330	The SDEIS water quality modeling for the mine site is based on modeled values of base flow that do not match real world values. The Partridge river base flows are predicted to be way too low when compared to actual measured values… The implication is that the model thinks very little water moves through the groundwater system.	WR003
8332	The SDEIS sorption values are arbitrary and do not represent the complex soil environment of the mine site or plant site.	WR058
8344	The SDEIS uses simplistic proportioning of annual rainfall into monthly portions...this treatment of precipitation does not include variability during the year like a dry summer and a wet fall. One can have dry years and wet years, but no variability within them. Nor does it handle extreme events at all.	WR057, WR077, WR176
8348	How is overall water quality determined? The only standards that the model is addressing are concentration values. However, the EIS is supposed to address environmental impact, not just ability to meet concentration values. Would anyone allow PolyMet to pump water from Colby Lake to add to the flow of the Partridge River just to meet water quality standards? Those metals and sulfates are going somewhere, even if the concentration is lower due to dilution. The total mass of contaminants in the stream may be much higher. What happens to that load when the water evaporates in back waters, marshes and ephemeral flooded ponds? Does the mass of additional sulfate and other metals (mercury, for instance) build up in Colby Lake (Partridge River) or Sabine or Wynne Lakes (Embarrass River)? Does the mass of sulfate lead to an increase in the methyl mercury concentrations in those lakes? Does the high volume carry those pollutants down to Lake Superior and the St. Louis River delta?	MERC08, WR197
8352	The design criterion for large floods in the SDEIS is too low. The SDEIS design for storm precipitation is 4.1 inches for the 25-year, 24-hour event and 5.2 inches for the 100- year, 24-hour event. Although there are some contingency plans to handle events larger than planned, those plans will fail if the basic design is inadequate.	PD22
8355	The SDEIS has several statements about pump capacity that can be expanded or overflow capacity that can be improved, if needed. Of course, the problem is that there are some kinds of failures that could have very large impacts. If the tailings basin fails, it will be too late to consider improvements to the way it handles floodwaters.	PD11
8357	The SDEIS grossly underestimates the impacts of climate change. There is no mention of an increase in extreme weather, both rainfall and droughts...But there is still no capability in the model for extreme rainfall events that are predicted to increase with climate change. Nor is there any real consideration of extended droughts. As a result, the model cannot tell us what their impacts will be.	WR180, WR189
8359	The water quality model has no validation in the real world...As the SDEIS stands, most of the available data was used in calibrating the model and thus is not usable to validate it.	WR106
8360	The SDEIS has not sufficiently considered the impact of chloride compounds in the ore and rock that will be mined. The Category 1 waste rock pile could leach chloride depending on precisely where in the Partridge River Intrusion mining is done.	WR025
8361	The SDEIS claims that briny groundwater will be substantially below the level of the pit even at its deepest extent. However, there is no discussion of chlorine compounds in the mined rock itself. Severson and Hauck reported the presence of liquid drops with very high chlorine concentrations on many of the drill cores from the Partridge River Intrusion...Obviously, the processing of the ore is expected to consume large quantities of hydro-chloric acid so the plant will have to deal with chloride. However, it is not clear how well contained the chloride from waste rock piles might be, and it should be addressed.	WR025

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8371	The SDEIS provides no estimate(s) of how long post-closure treatments will be required. Failure to provide these estimates deprives the public of the opportunity to assess the potential effects of the project, including the indirect effects, "… which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." [40 C.F.R. § 1508.8.] In addition, failure to provide estimates of the times needed for post-closure treatments deprives the public of the opportunity to evaluate the financial risks associated with the NorthMet project.	WR036
8380	The lead agencies assume that the mining company will exist for centuries after closure. This is not a realistic assumption. Mining companies historically are temporary entities that disband soon after a mine project comes to an end. The most reasonable scenario for long term closure is that a state or federal agency will be responsible for monitoring, maintenance, and cleanup activities because a mining company cannot be held accountable if it no longer exists.	FIN01
8389	Waste treatment in the NorthMet Project will be perpetual, as "perpetual" is defined in standard dictionaries to include, "lasting for an indefinitely long time."…The SDEIS states, "Financial assurance could be required indefinitely and could include self-sustaining instruments as discussed in the following sections." (3.2.2.4.1). This statement is in error because Minnesota rules do not allow for a non-ferrous mining operation that will require indefinite post-closure maintenance. The rules require closure and that it be maintenance free.	PD02
8390	Post-Closure costs approaching or exceeding 500 years must be calculated as, "in perpetuity."	FIN01, FIN05
8394	The wisest decision for Minnesota lawmakers would be to stop this mining project from moving forward due to the fact that it will require long-term water treatment. PolyMet cannot set a timeline for when water treatment will be completed. With absolutely no guarantees, the risk of costly cleanup for generations to come is too great. If PolyMet cannot design a project that adequately reclaims the mining area and treats the water within a reasonable amount of time, they should not be allowed to move forward.	PD03, WR036, WR195
8399	A detailed analysis of financial assurances must be present in the EIS, including financial calculations based on worst-case-scenarios of water quality predictions… information regarding the interests and return on investment rates, and the operating costs should have been included in the EIS.	FIN05, FIN08, FIN13
8401	Even with the best possible financial assurance measures in place, the PolyMet project still poses a significant long term risk to water, including Lake Superior and the St Louis River watershed, results in significant loss of wetlands and wildlife habitat, and still leaves significant undetermined financial risk to taxpayers.	FIN10, FIN11
8405	The specific nature of the PolyMet proposal makes developing effective financial assurance particularly difficult. No one has been able to ascertain with any reasonable certainly how long the PolyMet mine site will require ongoing treatment. The models used in creating the SDEIS document stopped at 200 years for the mine site and 500 years for the tailings basin. However, the SDEIS does not conclude that even these extreme timeframes actually represent an end date for ongoing treatment. Into perpetuity is a long time.	FIN01, FIN05
8411	[T]he SDEIS does not address positive economic possibilities outside of increased mining, such as recreation.	SO04
8414	Because the PolyMet SDEIS fails to otherwise include the cumulative impacts of additional copper-nickel mining projects, such as Twin Metals which is now in the pre-feasibility stage or Teck America which has done a bulk sampling, and fails to acknowledge the intention that the permitting of PolyMet will open the door for the creation of a sulfide mine district within the Duluth Complex --then the SDEIS also fails to acknowledge the over-all destruction of high quality forests, wetlands, and waters in areas of the Arrowhead that are not part of the Iron Range, have never been previously mined, and have been a source of economic support for tourism, recreation, and lake property. By exaggerating the benefits of large scale mining and ignoring the negative impacts of a sulfide mine district, this PolyMet SDEIS is incomplete and erroneous.	CU02, CU04, CU17

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8418	In addition, the SDEIS ignores the current and expanding impacts to the St. Louis River watershed as a result of occurring and expanding taconite mining. Nowhere, in any environmental review or granting of permits, is any mention made of the cumulative impacts to the St. Louis River watershed, nor in the impact this has upon the regional economy.	CU11
8422	The SDEIS lacks analysis of societal costs related to the high rates of asthma, autism, heart disease, dementia, and cancer likely related to mining pollution	HU01
8428	The SDEIS fails to address the disparity of income within the mining area economy.	SO04
8430	[The SDEIS] fails to address the large disparity in mining jobs that favor men over women and how this contributes to over-all economic and societal balance.	SO04
8437	The SDEIS fails to analyze the benefits to Canada in comparison to the state of Minnesota. The highest salary benefits will be exported to other countries such as Canada (PolyMet) or Switzerland (Glencore). Chemicals needed for PolyMet's processing plant will be imported from Canada. Major equipment and sources of energy will be imported. Final processing will be done elsewhere.	SO04
8478	The SDEIS presents a one-sided report on the economic benefits of PolyMet to northeast Minnesota. It ignores the extent or quality of jobs that would be lost due to mining impacts. It assumes that the PolyMet proposal is designed entirely to benefit the residents of northeast Minnesota, ignoring the fact that our resources will be extracted and exported, our land denuded and polluted, and potential clean-up costs deferred to future generations, all for the benefit of multinational corporations.	SO04
8481	Just as the ground water and environmental impacts of PolyMet's proposed project lack proper modeling, the economic benefit analysis is equally lacking in rigorous and objective peer review.	SO04
8482	The SDEIS does not adequately analyze the economic benefits of a no-action alternative on the mining proposal.	SO04
8488	The SDEIS presents a one-sided view of the economic benefits of mining activity and totally disregards negative impacts. When water treatment is projected to be needed for 200-500 years or longer, then the long-term economic analysis of this proposed project is inadequate and flawed.	SO01
8497	The SDEIS has not sufficiently analyzed the potential this project has to adversely affect human health. There is great risk to the health of the citizens of Minnesota from long term pollution caused by this project.	HU01
8500	The SDEIS does not address the human risks of exposure via air, water, soil, skin contact, and food and water consumption.	HU01
8502	The SDEIS does not address the increased risks to human health from emissions of highly toxic chemicals and metals.	HU01
8515	There are no data in the SDEIS to show how the proposed sulfide mine operation will prevent leaching into the environment and intake into the body of heavy metals. To what extent will this project add heavy metals and fine particle air pollution to our environment and what will the cumulative effect be to our health? How will the toxicity of pollutants affect vulnerable citizens such as the unborn, children, elderly, those with chronic disease and immunosuppressed individuals?	HU01
8518	Pollution from this mine will be a part of our environment for the next 200 to 500+ years, there must be an analysis of how this will affect human health for us and our future generations. It is the cumulative effects of air pollutants and toxic chemicals in soil, food, and water that result in human diseases. The magnitude of this project will contribute to this burden and the effects to human health must be considered.	HU01

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8521	The PolyMet SDEIS assessment of the risk to human health from exposure to mineral fibers is inadequate and incorrect.	HU01
8522	The risk is high. There are elevated levels of lung cancers, including mesotheliomas all across the Mesabi Iron range. Minnesota Department of Health studies and University of Minnesota studies have found mesotheliomas are 200% higher than expected. For workers on the Iron Range, the risk of incurring mesothelioma rose about 3% per year worked. Lung cancers are above expected by 20%. Thus, the risk of disease is not insubstantial.	HU05
8523	The SDEIS claims only “asbestos” fibers are hazardous, but two lines of evidence make this claim suspect…[A] non-asbestiform amphibole mineral found near to the PolyMet proposed mine has been shown to be just as carcinogenic as commercial amphibole asbestos.	HU05
8524	[T]he SDEIS cannot rely on the fact that the amphibole fibers will mostly be cleavage fragments to conclude that the risk is minimal. They cannot rely on the fibers having an aspect ratio less than 20:1 to claim they are not hazardous.	HU01
8530	There are amphibole minerals in the ore that PolyMet will be mining. Even though it is likely that the presence of asbestos is low, fibers generated by the mining and crushing of the rock are hazardous and should be contained.	HU05
8534	The SDEIS needs to seriously consider the impact of the fibers that the PolyMet project will create and disseminate. At a minimum, roads and tailings should be treated with a dust suppressant. Monitoring should be established in other communities than Hoyt Lakes. Finally, the dust should be handled and treated as hazardous.	AIR03
8539	The potential release of asbestos-like fibers from PolyMet has not been adequately analyzed, even though the SDEIS states that "potential public health risks of uncertain magnitude" could be expected.	HU01
8542	To comply with the wild rice sulfate standard, the PolyMet project relies on engineering controls that capture and treat mine related effluent. These controls must function perfectly for hundreds of years. It is unrealistic to assume that any treatment facility can be properly maintained or managed for 200 to 500 years. It is also unrealistic to assume that seepage from mine pits, waste rock piles, and tailings can be controlled through any type of water management system.	WR128
8544	All of the PolyMet predictions regarding discharge fail to consider the effects of fractures on discharge to groundwater and surface water.	WR011, WR012
8546	Existing groundwater contamination from the previous mining activities is still an issue near the LTV tailings basin and mine pits. The lead agencies need to demonstrate that this legacy pollution can be cleaned up and controlled before permitting new polluting operations on top of existing ones.	HAZ05
8550	The proposed project would severely disrupt surface and groundwater hydrology in the wetlands surrounding the proposed mine features. The SDEIS must take this into account by including a complete set of available data. The methodology in the SDEIS relies on impacts observed at other sites. With current types of access to information, this is totally unacceptable.	WR058, WR064, WR105, WR112, WR119, WR120, WR183
8552	Wetlands in the 100 mile swamp are ecologically significant, provide important habitat for a large variety of animals and have been found to be aquatic resources of national importance. Loss of these functions, particularly forested wetlands, are irreplaceable.	WET19
8553	Thousands of acres of high quality wetlands would be filled and indirectly impacted by hydrologic changes. In addition to the approximately 1000 acres of direct fill this analysis indicates approximately 5700 acres of wetlands would be severely impacted. Mitigation for indirect impacts is not included in the SDEIS. To permit a new project of this type at the cost of such a significant loss of wetlands is reason enough for a No Action Alternative.	WET01

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8554	The word “moose” does not appear at all in the SDEIS cumulative effects analysis. As of August 19, 2013, moose are now proposed to be listed as a MNDR species of concern. It is premature to move this SDEIS forward without addressing impacts to this iconic species.	WI01
8558	It is likely that wind-blown dust particles containing sulfate compounds that are emitted from mining activities could contaminate wetlands, lakes, and streams near the project site and could cause harm to the Species of Special Concern that have been found in this area and to the animals that depend on these plants for food.	WI01, WI04
8560	The cumulative effect of 24 hour/day, seven days/week of heavy industrial and blasting noise on sensitive wildlife has not been addressed.	WI05
8561	MN Rule 6132.3200 does not allow perpetual treatment: “To receive a permit to mine, the permittee must be able to close the mine in such a way that it is stable, free of hazards, minimizes hydrologic impact and release of substances, and is maintenance free.” The PolyMet SDEIS states that “longterm” (>500 years at the Plant Site and >200 years at the Mine Site) treatment of wastewater is needed which means the site will not be maintenance free at closure.	PD02
8564	The regulatory agencies cannot assume that a proposed project of this size and scope will not result in changes to the average stream of flow of the Partridge and Embarrass Rivers.	WR183, WR186
11088	The NorthMet SDEIS in many particulars deviates from the statutory charge of protecting the environment. Some of these deviations are express and others merely implied by the failure to consider, or to take a “hard look” at uncertain or unsubstantiated conclusions...Many of the inadequacies of the SDEIS, outlined herein in detail (concerning alternatives, cumulative effects, impact on wildlife, financial assurances, acid mine drainage, etc.) indicate that the Agencies are balancing risks to the environment vs. economic factors.	CU14
11095	Wetland function analysis is inaccurate. It is likely, in the foreseeable future, that the additional 3,810 acres of buffer forests and wetlands would be adversely and significantly altered by mining or use of the surface to support mining, etc. If PolyMet does not plan to destroy the surface, then a protective covenant (such as the Weeks Act now provides) can be put on the buffer lands….Will the additional 3,810 acres of buffer Lands be losing their Weeks Act protections against strip mining? If in the foreseeable future the 3,810 acres won't be used for mining, why wouldn't the protective covenants from the Weeks Act deed restrictions continue on the lands?	LAN02, LAN06
11416	Clearly the project does not meet the stated purpose and need of the project. The mineral estate and the potential for mining, as well as the split-estate of the properties in the exchange are inadequately addressed in the proposal.	LAN04
11421	The land exchange appears to be a scheme to remove Weeks Act protections on USFS lands against strip mining. Over half the mineral estate in the Superior National Forest is severed, is the USFS going to land exchange all of the lands that have "conflicts" between the mineral and surface estates?	LAN02, LAN04
11438	The Mineral Estate is not being adequately addressed. The USFS federal lands, and the mineral estate of the non-federal lands, appear to be severed. The severed minerals estate on the nonfederal lands devalues them. The Federal lands have valuable controlling covenants that protect the surface estate. In addition, the USFS makes no mention of placing Weeks Act protections upon the non-federal lands PolyMet wants to exchange. The true economic value of the surface estate to PolyMet, including gaining the ability to destroy the surface by strip mining, should be included in the valuation.	LAN02, LAN04

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sierra Club Northstar Chapter (42950)	
11627	Potential loss of the additional 3,810 acres of buffer Lands (over and above the mine site) and wetlands needs to be analyzed. It is likely that the buffer Lands will be mined or destroyed by mining, or by the use of the surface for stockpiles, etc., in the foreseeable future. The additional federal buffer lands in the proposed exchange most likely will be used to facilitate and expedite future mining. This needs to be addressed in the EIS….Why is the USFS facilitating future mining projects? The mining and/ or destruction of the surface of the additional 3,810 acres must be addressed in the environmental review process. Has PolyMet optioned the minerals from RGGS on the lands?	LAN04, LAN06
11638	One of the major flaws with the SDEIS is it fails to disclose the history of copper mineral and hard rock mining projects and the environmental disasters that have taken place at other mine sites. This omission violates NEPA's disclosure requirements. There needs to be an analysis and comparison of similar mining projects that have occurred throughout the country and the effects and consequences of the environmental impacts that accompanied them.	PD26
11639	The SDEIS lists several projects as "speculative" and thus excluded them from the cumulative effects analysis. Many of these projects are quite far along and it is important to consider future projects as well as past and present projects. These projects should be included in the cumulative effects discussion.	CU02
11641	In addition to omitted mining projects, there are many vegetation management projects conducted by the Forest Service that should be included in the cumulative effects analysis. Some of these include: the Kabetogama Project, the Mixed Use Motorized Use Project, the Pearl Project, the Glacier Project, the Skibo Project, the Tracks Project, the Birch Project, the Echo Trail Project, the Travel Management Plan of 2009, the Pelican Project, the Tracks Project, the Virginia Project, and the Big Grass Project. Simply listing "forestry practices" as part of the analysis is not sufficient.	CU09
11648	Mining activities from the NorthMet site and operations originating at other mine sites may contaminate lakes, streams, and wetlands around the project area and downstream. Pollutants that get into moving waters such as rivers, streams, and groundwater will have far-reaching effects on wildlife….The SDEIS goes on to conclude that the project is unlikely to cause a cumulative impact to surrounding wildlife species and aquatic ecosystems. This conclusion cannot be made because it is not based on an appropriate, relevant, orlegally adequate analysis.	WI04, WI08
11650	Ore-dust contains many contaminants and these contaminants will accumulate in the environment over the lifespan of mining operations. The rail transfer hopper and the rail car loading conveyer and platform should be enclosedto minimize the amount of dust that will escape. Additionally the rail cars should not be open-top.	PD36
11680	Rail cars will be used to transport ore, side-dump cars are supposed to minimize spillage, but spillage will still occur. It seems certain that these areas will have ore residuals and that completely cleaning up all surrounding sediments will be nearly impossible. How will these areas be contained?What will happen when stormwater comes into contact with these areas? What will prevent stormwater from coming into contact with dangerous ore residuals and carrying them into the surrounding environment?	PD36
11687	The Category 1 stockpile water containment system should have a permeability of 1x10-6 cm/sec or less for the cutoff walls for the Category 1 waste rock and the tailings cutoff wall. For the Category 2/3 and 4 Stockpiles and Ore Surge Pile Liners, all liners made of natural materials should have a permeability of 1x10-6 cm/sec or lower.	PD15
11688	No site stormwater or any other runoff from any ponds should be draining into the Partridge River, any of its tributaries, Trimble Creek, Colby Lake, or any other streams, rivers, or lakes. The potential for disastrous effects is far too great. All runoff and stormwater must be contained and kept from polluting the surrounding environment.	PD04

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sierra Club Northstar Chapter (42950)	
11937	The precise swath of land that is included in the south and southwest access paths is uncertain because the agencies have failed to identify the specific parcels of land they refer to.	WI03
11939	The new land exchange proposal described here is similar to the “mine site only” proposal which was erroneously rejected for consideration by the agencies (See Item 6). The “mine site only” option would resolve some of the problems discussed in this section. However, a new land exchange proposal can be designed to provide better defined eastern, southern, and southwest access paths to corridor 17, preserve the maximum possible needed high quality habitat, add to significant area to the federal lands, and limit the size of the exchange to the minimum size required to fulfill the purpose of the proposed NorthMet action.	ALT23
11942	The agencies routinely use the conditional form of speech in their descriptions of environmental effects. Intentional or not, the language style often obscures more than enlightens.	NEPA07
11965	The proposed project will result in hundreds of acres of peat bogs being destroyed, which means that hundreds of acres of Hg (mercury) sequestering surface will be permanently lost to the Lake Superior watershed. The proposal to replace lost wetlands with artificially constructed wetlands in Aitkin and Pine counties having disproportionately less peat bog surface and are located in different watersheds, which will result in significant mercury impacts to the Lake Superior watershed.	WET03, WET05
11978	Mitigation sites will be just one year into construction, and because there is some experimental methodology being proposed, there is no assurance there will be type for type replacement and no assurance there will be adequate replacement of wetland functions and values. Frankly, the functions and values of the wetlands at the mine site cannot be replaced through wetland mitigation as the wetlands that would be impacted by this project rated by the Minnesota Biological Survey as having high biodiversity significance. Such wetlands have had little or no human disturbance...There are no wetland mitigation sites that have successfully restored or created an open bog or coniferous bog, and therefore, there is no template to determine success.	COE05
11979	The flotation tailings basin (FTB) containment system will decrease the amount of stream flow to 4 tributaries around the tailings basin. Such flows are proposed to be augmented by waste water treatment plant (WWTP) effluent and, secondarily, by taking water from Colby Lake. If, as a result of construction of the FTB containment system, there will be a lack of water to tributaries, it seems there would also be a lack of water flowing to adjacent wetlands. Although some wetlands will be monitored for hydrological and vegetation changes, it seems as if the extent of monitoring is not sufficient to ensure there are no secondary wetland impacts.	WET12
11982	The SDEIS and 404 permit application states that wetland boundaries were mapped in the field after an extensive off site review. The SDEIS states that the working group approved wetland delineation on March 30, 2011. There were updates between April 2011 and fall 2012. Wetland boundaries were again refined in 2013. Boundaries were refined, but no apparent description of what was refined or how boundaries were altered. If boundaries were approved on March 30, 2011, what was the basis for refinement? Furthermore, with all the refinements, can it really be known that wetland boundaries are accurate? Are there more wetlands present than mapped?	COE05
11994	Are leaching rates, hydrologic conductivity, ground water flows, dispersion, sorption rates, and other properties tied to precipitation inputs in the model? From the reference material provided, it does not appear that they are. Does that model run know that there was a sixmonth drought? Many or all of these parameters change with changing hydrological conditions (dry or saturated soil, hydrologic pressure). As it is currently deployed, the model simulates these changes in a random way. That is entirely appropriate when evaluating independent uncertainties, but it will not work when many of the parameters are correlated.	WR077, WR189

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Sender Name (Submission ID)	Sierra Club Northstar Chapter (42950)	
11995	The highest concentrations of contaminants may occur during or just following extreme droughts. Because the model does not address drought (other than low annual precipitation portioned through the year) in any significant way it would miss these potentially harmful events. It does not adjust leaching rates to drought or wet-dry cycles. Thus, it will inevitably underestimate the actual leaching that is occurring.	WR077
11997	An assessment of risk where there is a high likelihood of damage being caused by extreme events is not a candidate for probabilistic modeling. The modeling can help figure out how processes are linked, but determining uncertainties on the tails of the distributions is very difficult. It would be useful to see a scenario analysis of drought and flood. That would provide a better idea of the risk involved with those events.	WR077, WR189
12009	PolyMet has not demonstrated that it is capable of paying for collection and treatment of water for hundreds of years. PolyMet has described its water treatment technology with specificity, and can even tell you the cost to treat each thousand gallons of water. PolyMet has designed and has precise schematics for all barriers and collection systems. The drawings are all available in the public documents. They are not in the SDEIS, but we do have great detail about PolyMet's mine plan. The DNR has significant detail about things like the longevity of liner systems on the site. On the other hand, they claim they do not have sufficient information for financial assurance at this point and that the plan is not final and could change. But that is true of all analysis in the SDEIS, and is not a reason not to make those calculations based on the mine plan we have today.	PD25, PD29
12010	PolyMet has projections on financial assurance. They are printed in the SDEIS. The DNR has accepted these numbers, and yet there is no documentation to prove that these numbers are reasonable or based on acceptable assumptions. The state of Minnesota should not be relying on estimates fromparties with a vested interest in the outcome.	FIN05
12014	Taxpayers around the country have been left responsible for the financial costs of cleanup when mining companies declare bankruptcy at the end of their mining operation. There is nothing currently in Minnesota law that requires parent companies or majority shareholders to be parties on a permit to mine, issued by the state, which could help to address this problem.	FIN01, FIN10
12019	More recently (2008), higher amphibole fiber levels occurred in the air of Babbitt when the wind was blowing from the south – the direction of the Peter Mitchell Pit. The SDEIS does not consider sources other than the plant as source of fibers, but the mine could easily be cumulative with the Peter Mitchell Pit in producing fiber concentrations in nearby communities.	AIR03
12026	Hydrological and water quality cumulative effects must incorporate the entire St. Louis River watershed. Existing mining discharges have resulted in elevated concentrations of pollutants that persist far downstream in the St. Louis River.	AQ26
12027	We agree that groundwater pollutant travel times have been underestimated and the SDEIS projections are inadequate. Cumulative impacts to groundwater and surface water quality and quantity must be included in the SDEIS.	WR024, WR042, WR064, WR167
12028	We agree that benefits of a No Action Alternative must include improvement in water quality due to the Cliffs Consent Decree.	ALT14
12029	We disagree with agency conclusions that projected mining will have no impact on water quality, based upon not exceeding applicable water quality standards. This is a false conclusion--no existing mine operation in northeast Minnesota is consistently meeting water standards. Mining by its very nature impacts the quality and quantity of water. The claim that proposed copper-nickel sulfide mining will not impact water quality can only be based upon false modeling and/or assumptions.	PD26
12030	We agree with the Tribes that it is impossible to properly mitigate for losses to the landscape and ecosystem based upon the scope of the mining operations, the intensity of industrial operations, and the geological chemistry that results from blasting, crushing, grinding, and processing sulfide ores.	PD01

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12979	References attached regarding Geology and School Land Trust lands in BWCAW.	REF01
12988	References attached regarding Cumulative Effects and the impacts of heavy metals from mining.	REF01
14813	I am emailing to request a 180 day comment period for the Northmet Mining project. The PolyMet SDEIS is extremely long and I need extra time to be able to read it.	NEPA07
Sender Name (Submission ID)	Signe Martell (43071)	
11235	I am asking you to please say no to allowing the PolyMet sulfide mining to take place. Our water, air, & entire environment will be spewed with toxins which will affect all living beings.	HU03
Sender Name (Submission ID)	Simon Gretton (40176)	
6598	I do not think this project should be allowed to go ahead because of it's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining	SO02
6600	PolyMet spokes people talk of job creation, but as a resident of North East Minnesota who lives only a little above the poverty level, I feel strongly that a few dozen or even several hundred jobs are not worth long term damage to our environment.	SO01
6602	An additional fear is that if this project is given the go ahead, it will open the door to even bigger sulfide mining projects by Twin Metals and others	CU04
6605	Given that runoff water from the site will need treatment for some 500 years, the chance of significant pollution at some point seems highly likely.	PD03
6634	PolyMet spokes people talk of job creation, but as a resident of North East Minnesota who lives only a little above the poverty level, I feel strongly that a few dozen or even several hundred jobs are not worth long term damage to our environment.	SO02
6636	it's worth noting the economic benefits of metal mining tend to be very volatile leading to long term downturns and the decline of local communities	SO02
11670	DNR documents show groundwater base flow is 200-300% higher than the rate used in PolyMet's analysis. It seems that neither the SDEIS nor the sulfide mine project are based on good science.	PD29, WR003
11671	Given the extensive history of sulfide mining pollution and the potential long term threat to receiving waters… this project should be rejected.	WR195
12353	as a resident of North East Minnesota who lives only a little above the poverty level, I feel strongly that a few dozen or even several hundred jobs are not worth long term damage to our environment.	SO01
12354	An additional fear is that if this project is given the go ahead, it will open the door to even bigger sulfide mining projects by Twin Metals and others.	CU04
13035	I feel strongly that a few dozen or even several hundred jobs are not worth long term damage to our environment.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Simon Gretton (40176)	
13038	I do not think this project should be allowed to go ahead because of it's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining.	HU03
14113	As far as I can tell there has not been a sulfide mining site that had not resulted in significant long term pollution. Given that runoff water from the site will need treatment for some 500 years, the chance of significant pollution at some point seems highly likely.	PD26, WR023, WR195
Sender Name (Submission ID)	Siri Lindquist (54535)	
19168	Please re-write the EIS until there is more information or more examples of successful mining without long term pollution. Past mining experience, have seriously shown that the long term safety or isolation of the waste cannot be guaranteed.	PD26
19169	The tailings and impact on the land of the unused material from this mining. Think about the total picture of the future—the sulfuric iron will seriously affect the land and water of the area, and the ecological changes that cannot be undone. To preserve the waste from running into the land should be important.	GEN01
19170	Put the responsibility clearly on Polymet, and think about how it is impossible to ensure 500 years of securing the waste. 10 years of mining for 500 years of after effects or possible pollution if it fails.	FIN01
Sender Name (Submission ID)	Siyanda Elizabeth (15659)	
8644	This project would violate water quality standards for generations to come.	WR038
11001	Why would we sacrifice the quality of our land and water to provide economic benefit for a few individuals in the mining industry?	SO01
Sender Name (Submission ID)	Skip Fay (57975)	
19863	Even if you can "mitigate" risk, the current natural state is too valuable, and our water is at risk without a mine.	PD01
Sender Name (Submission ID)	solfrid ladstein (17725)	
14622	The PolyMet NorthMet SDEIS does not adequately examine the risks to worker safety and public health from asbestos-like fibers found in the rocks that they propose to mine. I ask the DNR to require a more comprehensive public health assessment of the risk to workers and the public than what PolyMet has provided in the SDEIS.	HU04
14624	A number of mesothelioma cases were found in mine workers who worked in the LTV Erie Plant that PolyMet proposes to use as part of their mine plan, and the SDEIS inaccurately characterizes a University of Minnesota study of mesothelioma in mine worker as showing that this risk came exclusively from the use of commercial asbestos products in the mine. In fact, the University of Minnesota did not exonerate dust from crushing ore, and is continuing to study the health impact of exposure to short amphibole fibers of the type contained in the ore that PolyMet would mine and process.	HU07
14625	the DNR should: … Revise the SDEIS and conduct a formal health assessment of the risk to public health and worker safety from the amphibole fibers present in the ore at the PolyMet mine site. The SDEIS should specifically conduct a formal health assessment of the risks from asbestos-like fibers less than 5 microns in length	HU04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	solfrid ladstein (17725)	
14627	[The MDNR should]… Revise the SDEIS to provide details of the air monitoring at the mine and plant site and in nearby communities, and describe contingency plans to address the risk to public health and worker safety if asbestos-like fibers are detected during construction, operation, closure and post-closure	AIR03
14628	[The MDNR should]… Revise the SDEIS to eliminate inaccurate characterizations of the University of Minnesota mesothelioma study. Specifically, eliminate statements that imply that commercial asbestos is the primary risk factor for mesothelioma risk	HU07
Sender Name (Submission ID)	Sonja Meintsma (47095)	
16569	The Boundary Waters are a sacred place for many Minnesotans and Americans--I urge you to ensure the protection of these lands.	WILD02
Sender Name (Submission ID)	Sonja Misch (41798)	
4689	the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever.	WR035
Sender Name (Submission ID)	Sonya Mirus (46931)	
10836	I value the clean water and unsullied natural areas. The proposed PolyMet mine would destroy what I love most about this area. It is not a sustainable source of jobs, and it would greatly deteriorate the quality of life for human residents and wildlife, not to mention decimating the local tourism industry.	SO01
16375	I value the clean water and unsullied natural areas. The proposed PolyMet mine would destroy what I love most about this area. It is not a sustainable source of jobs, and it would greatly deteriorate the quality of life for human residents and wildlife, not to mention decimating the local tourism industry.	GEN03
Sender Name (Submission ID)	Sophie Justinak (38341)	
9357	The pollution from the PolyMet proposal that would leak into ground water, and which would affect surface water will just add to the list of Minnesota's impaired waters. Additionally, the proposal includes the destruction of vital peat bog habitat, and carbon-sequestering forest.	WET13, WR020, WR112
9358	The projected 20-year use of the PolyMet mine seems cursory; considering the 100's of years that the waste water treatment facilities will operate after the mine closes, along with the time and money that will have to be spent on the restoration of the surrounding areas.	FIN08, WR128
Sender Name (Submission ID)	Soua Xiong (54236)	
16813	The SDEIS have a wrong calculation of the map. They left out the half of the one hundreds mile swamp. That means it also leaves the BCWA completely unprotected from the acid mine. There are lacks of evidence that the mining won't goes to BCWA, but the mining will only affect Lake Superior. But the map is wrong because Langley Creeks goes to BCWA not Lake Superior.	PD38
16816	There are many possible solutions to protect the BCWA:1. Correct the SDEIS maps and measure in the right calculation of the mining2. Testing the water of the Langley Creek into the BCWA3. More evidence that the mining won't affect the BCWA	WILD01, WR080, WR081, WR111
Sender Name (Submission ID)	Spencer Snyder (58070)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Spencer Snyder (58070)	
19869	Clean water means more than profits	SO01
Sender Name (Submission ID)	Stacey Larsen (38607)	
14063	Since [mining] can be done soundly and produce local jobs and revitalize a struggling economy in northern Minnesota, I do not know of any reason why our state would not want to mine these metals…As someone who's job is connected to the mining industry, mining plays a key role in keeping me, as well as hundreds of other Minnesotans, employed.	SO10
Sender Name (Submission ID)	Staci L Drouillard (54854)	
19071	My concerns about PolyMet and any new mining in Minnesota stem from ourproven and documented history with mining; not as a sustainable long termeconomic source, but as a destructive boom and bust industry that takes muchmore than it gives to surrounding communities.	SO01
19072	Treatment of contaminated water will be required for more than 500 years. The modeling done by PolyMet stopped at year 200 (at the mine site) and year 500 (at the plant site) because that was the point at which it became clear that water quality would not get worse. However, the modeled water quality at 500 years does not come close to meeting water quality standards. In fact, PolyMet's data indicates that for some pollutants, treatment will be needed for millennia. Copper, lead, and sulfate-are all pollutants that will impact the St. Louis River for centuries if treatment ends prematurely.	WR035
19073	The SDEIS predicts that the project will not add to sulfate levels ... or other pollution. But this statement is dependent on the predicted rate at which pollutants will flow to the rivers through groundwater, and these predictions are almost certainly wrong. Modeling of groundwater movement at the mine site is based on estimates of flow of the Partridge River that do not come close to reflecting actual conditions….The result is that the predictions may significantly underestimate the amount of sulfates and other pollutants that will enter the Partridge River.	WR086, WR091
19075	The tailings basin estimate is based on unrealistically optimistic estimates of theeffectiveness of the water collection system (and on the assumption that it willoperate indefinitely). The result is that the predictions underestimate the amount of sulfates and other pollutants that will enter the Embarrass River and its tributaries	WR018
19078	The St. Louis River downstream from the PolyMet site is already heavily impacted by sulfate. Wild rice production is a fraction of what it once wason the river ...We cannot allow the MPCA and other State agencies allow mining companies to set the sulfate standards. Keep the independently researched and already proven 10 ppl sulfate standard in place for wild rice waters.	VEG04, WR159, WR160
19091	PolyMet's humidity cell testing indicates that mercury will leach from waste rock at more than four times the water quality standard. But PolyMet proposes not to conduct an analysis of the amount of mercury that will enter either the Partridge or the Embarrass River from leakage from waste rock, disturbed peat, mine pits, or tailings. This analysis was done for 28 other constituents, many of which have nowhere near the potential for impacts that mercury does.	MERC16, MERC20, WR034
19093	The SDEIS assesses the impacts of mercury deposition on area lakes, butignores the streams and rivers. The conclusion that the annual mercury load tothe Partridge River will decrease by 1.2 grams and the annual load to theEmbarrass River will increase by 0.6 grams does not include deposition from airemissions. That deposition will be significantly greater than the decrease in load predicted in the SDEIS.	MERC23
19096	the SDEIS does not take into account any new power sources that will be required to run large, new mining operations and the effect that theseadditional power plants will have on mercury pollution in Lake Superior as adirect result of coal-fired power plants around the Lake basin and to our West.	AIR02, MERC10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Staci L Drouillard (54854)	
19099	The existence of toxic fibers in the rock at the Mine Site has not been studied; whether such fibers will be dug up and released to the air is unknown. However, the Northshore Mine is very close by, and it is known to release fine mineral fibers. Minnesota taconite miners in general have a high rate of mesothelioma, a disease that is caused only by breathing fibers.	AIR03
19102	The North Met Mine would completely destroy at least 1,741 acres of high quality ecosystems, which provide habitat for many wildlife species, including Canada lynx, wolves, and moose. Many more acres are likely to be degraded in the area surrounding the mine. Losses will include 1, 7 41 acres of Minnesota Biological Survey sites of High Biodiversity Signficiance; 698 acres of Jack pine/black spruce forest, which are considered imperiled/vulnerable in Minnesota; and portions of one of only twelve known populations of floating marsh marigold in the state. All of these resources are currently located within the Superior National Forest, and are public resources	WILD02
19132	PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. The majority of the mitigation for the 912 acres of high quality wetlands that would be destroyed outright would occur outside of the St. Louis River basin, so the benefits of wetlands to the river system would belost. Thousands of additional acres will likely be lost or degraded due togroundwater drawdown, reduced river flow, and the impacts of water and airpollution; no mitigation has been proposed for these losses.	WET01, WET03, WET23
19148	Mines and other development in the Mesabi Iron Range currently create a significant barrier to wildlife migration. Studies have found only 13 to 18 narrow corridors that allow wildlife to move from north to south of the Range. Planned projects and expansions within the taconite industry will severely limit or destroy many of these corridors in the next few years. The NorthMet Mine would further degrade what is already a marginal, but important corridor,	WI03
19150	PolyMet would be responsible for 0.44% of all of Minnesota'sgreenhouse gas emissions... Minnesota is already highly unlikely to meet its greenhouse gas reduction goals for 2015 and 2025, and this increase would be a significant set-back.	AIR01
19152	PolyMet would ...employ approximately 0.012% of Minnesota's workers...This clearly imbalanced ratio between pollution and jobs benefit seems like a bad deal for Minnesota.	SO01
19157	The Mine Site is on National Forest Land. Rather than requiring PolyMet to comply with Forest Service requirements (which would mean that the mine had to be underground rather than open-pit), the Forest Service is accepting an exchange for a number of smaller parcels scattered throughout the Forest. These other lands do not appear … to contain the same quality of ecosystem integrity and wildlife habitat as the Mine Site does. The overall effect will be a loss of forest and biodiversity.	LAN02, LAN03
19165	PolyMet does not accurately or completely address the issue of Financial Assurance in the SDEIS or in the business model. They do not provide any substantive details as to how the long term treatment of polluted water will be paid for. Margaret Watkins, a PhD Water Quality Specialist from Grand Portage...calculated that the cost for treating polluted water for more than500 years could be as much ...One hundred billion dollars!	FIN01, FIN05
Sender Name (Submission ID)	Staci Revers (15763)	
828	PolyMet did some revisionist geography to imply that acid drainage from waste rock piles can’t flow to the BWCA because the site is on the south side of the Laurentian Divide. In fact, the mine is uphill from a wetland that exists as a divot in the divide and drains down both sides ... The One Hundred Mile Swamp (it’s actually a little over 10 miles long). ... I would like PolyMet to do more testing on the flow through the swamp to ensure BWCA is safe.	WET19, WR080
Sender Name (Submission ID)	Stacie Whaley (39478)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Stacie Whaley (39478)	
7279	I believe the [NorthMet mining project] environmental review process has been sound and thorough.	NEPA16
7283	The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations.	PER34
Sender Name (Submission ID)	Stan Paczynski (18066)	
13253	I trust in the numerous agencies and facilities that have done their homework and their due diligence. And I have my full trust in what they do. Not only in the jobs and economic stability to the area I think we need to rely on our people doing their job, again, with the agencies and the government entities that are doing the permitting processing and have faith.	NEPA16
Sender Name (Submission ID)	Stephanie Digby (18267)	
13887	I have discovered that in the reclaimed water and in the whole reclamation process microorganisms have not been considered…They are environmental indicators and they are also necessary for the health of the water and the water system. They are the start of the food chain. I have been told this has not been considered.	NEPA14
Sender Name (Submission ID)	Stephanie Kessler (16244)	
10324	Please consider the long term effects for this short term financial "gain"...who's gain will it be in the end...certainly NOT Minnesotans, left with water to clean up for multiple generations! This is not worth it!	SO01
Sender Name (Submission ID)	Stephanie kRawn (5984)	
1964	Wouldn't it be prudent to try to resolve [water] issues by researching ways to not contaminate the water system? … Please find a way to help the water system in Northern Minnesota remain pure for those who use it AND be able to extract the various minerals you need.	PD01, WR130
1999	Please find a way to help the water system in Northern Minnesota remain pure for those who use it AND be able to extract the various minerals you need.	PD01
Sender Name (Submission ID)	Stephanie L Carlson (57148)	
16842	Our precisions resources of water, particularly, along with forest and wildlife, are irreplaceable and are worth far more than any short-term profits to be gained by sulfide mining. The trade-off is not worth it	SO01
Sender Name (Submission ID)	Stephanie Onorat (18250)	
13667	Under the risk-benefit analysis, the risks, fact one would be sulfide mining is toxic. It will result in environmental destruction, loss of wildlife, habitat, economic loss, and water contamination for possibly 500 years.	SO01
13668	The flip side of the risk-benefit analysis, the benefit, as we know at this point, can only with certainty be said that PolyMet stands to benefit from this transaction. They will make their fortune and move on, leaving us with currently unquantifiable damage because the flaws in their environmental impact statement have not yet been alleviated.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Stephanie Onorat (18250)	
13669	I would note that PolyMet has not committed to establishing a trust fund with millions of dollars in it so Minnesota can monitor its water for the next 200 to 500 years, which appears to be a certainty.	FIN01, FIN08, FIN11
Sender Name (Submission ID)	Stephanie Onorato (9627)	
1335	Have they agreed to put millions into a trust fund for Minnesota's use so we can monitor and possibly clean-up pollution for hundreds of years after they are long gone?	FIN01, FIN08
1337	…there was discussion about the "land-swap" that PolyMet has so generously proposed. I believe the terms involve the government relinquishing control of prime land situated in National Forest (or close to it) for land somehere - no mention of where. Is it in a swamp? Is the value even remotely comparable to what is being given up?	LAN03, LAN06
1338	At the very least, destruction of habitat, interruption of the life-cycle and feeding/migration habits of wildlilfe, pollution and NOISE from constant drilling and trucking in the midst of our quiet space.	N04
Sender Name (Submission ID)	Stephanie Summers (40119)	
15297	Any plans that rely on keeping systems to protect the environment in place for hundreds of years seems unrealistic if not practically delusional. The mining companies almost never keep their promises and cut corners at the first opportunity. What happens when the company goes out of business or is bought?	PD01
Sender Name (Submission ID)	Stephen Dahl (17250)	
2091	It is lacking vital information about long-term water treatment and how it will be paid for.	FIN01
2092	The SDEIS proposes no mitigation for the indirect wetland impacts.	WET01
2093	Additional toxic metals such as mercury, copper, and nickel that are not captured for treatment will damage aquatic organisms and habitats downstream to Lake Superior.	AQ05
2094	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	Stephen Greenfield (47494)	
12218	I realize that metals have to be mined somewhere, but sulfide mining inevitably leads to heavy metal contamination, and should never be done in a place like the boundary waters that is so connected to multiple major watersheds...the amount of time that we will have to manage the pollution and its costs clearly dwarf any benefits.	WILD02
16728	I realize that metals have to be mined somewhere, but sulfide mining inevitably leads to heavy metal contamination, and should never be done in a place like the boundary waters that is so connected to multiple major watersheds. The revenues look tempting, but the amount of time that we will have to manage the pollution and its costs clearly dwarf any benefits.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Stephen Greenfield (47494)	
16753	but sulfide mining inevitably leads to heavy metal contamination, and should never be done in a place like the boundary waters that is so connected to multiple major watersheds.	WILD02
16754	he revenues look tempting, but the amount of time that we will have to manage the pollution and its costs clearly dwarf any benefits.	SO01
Sender Name (Submission ID)	stephen hoglund (2)	
6	We have a amazing tourism industry that can only grow, unless this nightmare takes place in North Eastern Minnesota!	SO02
Sender Name (Submission ID)	Stephen J Jay (23471)	
3337	The document is inappropriately long- 2,169 pages, complex, disjointed and confusing to read, with many leading and unsubstantiated statements	NEPA07
3338	Lack of evidence-based explanations for key conclusions is problematic. For example, there are no reasons given why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed.	ALT13
3360	Will the proposed benefits of the projected mining operations significantly outweigh the risks and harms to the environment, population health and the economy?	SO01
3361	There is no comprehensive analysis that incorporates short- term, moderate- term, long- term and very long- term (hundreds of years) estimates of costs and benefits	FIN01, FIN05
3362	Before proceeding with the SDEIS, I respectfully suggest that lead agencies collaborate with the Institute of Medicine, U.S. EPA, American Public Health Association, and other health science- based organizations to convene professionals, including clinicians, researchers and public health experts to examine the implications of sulfide mining on human health, safety and well-being in Minnesota.	HU01
3363	The SDEIS reference material is not easily available; vetting references is realistically impossible, given the limited time allotted for public comments.	NEPA07
3364	The first reference in Master Reference List of References, (p. Ref 3): Addison et al 2008, states that the article was "retrieved" from a URL. When this URL is clicked, a form page of Science Direct appears that requires reference detail to be typed in to access the paper.	NEPA07
3366	the Barbour reference URL, (p. Ref 5) when clicked, showed a "Sorry—that page doesn't exist" error message.	NEPA07
3367	NEPA and MEPA Process (p. ES7) states: "The purpose of the EIS is to inform the public and decision-makers of the proposed actions, assess potential environmental consequences, identify potential mitigation measures and reasonable and feasible alternatives and to address the no-action alternative. This SDEIS fails to achieve these three aims. Most important is the absence of a clear focus on human health in the SDEIS. (Myers, 2014)	HU01
3368	In 6.0 Cumulative Effects (p. 6.1, 6.2) there is no direct mention of cumulative effects in humans	HU02
3370	The DEIS notes that for 45 years to 2000 years after closure the mine pollutants will be discharged into the Partridge River and exceed water quality standards for nickel, sulfate, cobalt, copper and mercury.	WR038

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Stephen J Jay (23471)	
3371	Another section of chapter 4, acknowledges that rock liners may fail to contain contaminated drainage and liners may degrade with contaminated seepage expected to exceed standards for aluminum, antimony, arsenic, fluoride, iron, manganese, sulfate, dioxin, and perhaps beryllium and thallium	WR127
3372	Aluminum may exceed water quality standards for 500 years. Concentration of such toxics in fish that can be eaten by humans presents major implications for human health	AQ05, WR035
3375	The leakage of sulfates with their known role in facilitating mercury methylation, a toxic form of mercury that may cause brain and kidney damage and bio- behavioral disorders in humans, is of concern, as is the long- term implications of sulfate pollution that is detrimental to sustaining growth of wild rice so important to Minnesota Tribal communities?	MERC08
3377	Given the projected pollution with these human toxins and given the myriad uncertainties with long- term management of environmental pollution over hundreds-thousands of years, why is the SDEIS largely silent on human disease implications of sulfide mining?	HU01
3378	Sulfide mines are among the worst polluting mines in the world. (Dartmouth, 2010, 2012; A Mining Truth, 2012; Qu 2012) …There is no information in this SDEIS that acknowledges this fact and outlines specifically how the proposed project will be unique in preventing what history tells us occurs at every SM site and will occur at the PolyMet sites.	PD01
3383	MN has existing polluted mining sites with Acid Mine Drainage: one off Spruce Road near our residence has been draining acid material into the local environment and watersheds for the past 36 years; another at Dunka LTV mine has been leaching heavy metals into Birch Lake for years. (Sulfide Mining 2014; Sulfide Mining, Spruce Road, 2014). The SDEIS does not address why, with modern technology and knowledge, these sites continue to put AMD into the Minnesota environment.	PD26, WR023
3385	History of sulfide mines is rich with details of major problems that occur during mining operations. Drawing on such history to develop detailed evidence- based contingency planning, would greatly strengthen the SDEIS.	PD22
3386	There is little information provided on contingency planning. For example, the reasonably foreseeable problems that may arise in this project adversely impact waste water treatment and tailings management are not reviewed.	PD22
3387	Historical data can be incorporated in computer models to provide objective estimates of costs associated with such failures and precautions necessary to decrease the rates of mishaps.	FIN05
3388	Sulfide mining presents serious threats to water quality and the health of those persons who drink it. Yet the SDEIS contains flawed methodology and inaccuracies in estimates of water flow through the site. Since the quantity and rate of pollutants entering water sheds and nearby rivers are dependent on accurate estimates of water flow, it is critical that the methodology is accurate. (U.S. EPA, 1994; EPA Letter, 2013)	WR003, WR052, WR086, WR091, WR105
3390	b.Table 4.2.2-2 (Impaired Waters within the Embarrass and Partridge River Watersheds) (p. 4-29) shows data for mercury in fish tissue “found to be above the state’s human health chronic standard.” This Table and other sections in the DEIS fail to present data regarding the “real world” exposure of environments and humans to pollutants—exposure occurs to multiple toxic chemicals not one pollutant at a time. It is the cumulative additive effects of all toxins in the water, air and soil that predict ecosystem degradation and increased risk of human disease. I could not find reference to models that quantified cumulative effects of metals and other toxic chemicals	HU03, MERC03, WR024, WR042, WR071

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Stephen J Jay (23471)	
3394	Synergism among pollutants adds significantly to the increased risk of environmental degradation and human disease, such as lung cancer. (Cancer Research UK, 2013; Frost, 2011) Many persons (men and women) who will be exposed to mining toxic pollutants in the PolyMet proposed project will be smokers. 18.8% of persons in Minnesota smoke (771,300), including 9.5% of pregnant women. Smokers have a 15 times greater risk of lung cancer than non-smokers. But, exposure of smokers to toxic pollutants from sulfide mining (AMD and air pollution) increases lung cancer risk in smokers. Models used to estimate these exposures and risks should be included in this SDEIS	HU05
3396	toxic pollutants may interact synergistically and have a multiplicative rather than an additive effect on risk. No data are presented regarding this well- known “multiplier” or “amplifier” effect when toxic chemicals coexist in leachates and water and air: arsenic, asbestos and radon, among others. (Hubaux 2012) The result of such exposures may not simply the sum of risks of each toxic pollutant.	HU01
3398	Pollution will include a myriad of toxins, including sulfuric acid, sulfates, and numerous heavy metals. Millions of gallons of polluted seepage from tailings basin and seepage from the mine site will enter groundwater without being treated.	WR021, WR070, WR108
3399	The PolyMet modeling estimates lack foundation in science and common sense and suffer from false assumptions; as such they seriously detract from the credibility of the project proposal. A realistic and coherent review of remediation options is critical but lacking in this SDEIS. (Johnson, 2005)	WR025, WR130, WR189
3400	It is simply unimaginable that PolyMet can manage 526 acres of land covered by 167 million tons of waste rock with plastic sheeting to prevent contaminated seepage, all the while fixing leaks, contending with forest fires, potential catastrophic weather events; etc	PD22
3401	.A Financial Assurance plan is not provided. Such information is one of the main pillars of an EIS proposal, yet it is not currently required by lead agencies until after the EIS is approved. Thus, there is no public comment period available for input into one of the most critical aspects of the PolyMet proposal	FIN13
3403	There are well considered reasons for requiring public comment for the EIS. Why are these reasons not also valid for the ‘permit to mine’ process?	PER01
3404	Lead agencies need to restore the public comment period before proceeding further with the review process.	NEPA07
3405	. PolyMet’s estimate of closure costs of $200 million and annual maintenance costs of $6 million are far lower than estimates of the Grand Portage Band of Ojibway that concluded the set aside for financial assurance at the outset should be approximately $90.5 billion. Such glaring discrepancies must be reconciled and public comment would help inform the issues	FIN05, FIN13
3407	None [Cost Benefit Analysis] is provided despite the critical importance of answers to cost-benefit questions before decisions are made regarding the fate of the SDEIS. Similarly, there are no related analyses such as cost-effectiveness; cost-utility; economic impact analysis or analysis of social return on investment. Such analyses are mandatory for most all major business enterprises or government projects. Their absence here is troubling	SO04
3408	The model used to calculate alleged benefits is seriously flawed and fails to include numerous factors including but not limited to: i.What fraction of wages paid to mine employees will stay in MN?ii.What will be the impacts on jobs of decrease in the price of copper and other metals? iii.What will be the cost of depressed real estate values, lost recreational activities, social disruptions, and unending clean-up of roads, environment, water, and air? iv.When jobs are lost, what will be the cost to MN for unemployment benefits, healthcare, increased crime rates, government infrastructure, and social service costs resulting from mining? (p. 4-325-4-326) v.What will be the economic costs of degradation of the environment short-term; moderate-term and long-term (in perpetuity)? vi.What will be the cost of displacement of other economic activity?vii.What will be the impacts on tribal rights to hunt, fish and gather (1854 Treaty)?	SO04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Stephen J Jay (23471)	
3409	The SDEIS provides little specific evidence or detail on Polymet Corporation, its history, organization, stability, partners and finances.	PD23
3411	A detailed plan of how Polymet expects to manage this site for 500 years would be interesting to read but of no relevance to reality for creation of such a plan is impossible	SO04
3412	The quantity and quality of analyses of the potential adverse health impacts of long-term pollution on the health of Minnesota citizens is wholly inadequate in this SDEIS	HU01
3413	b.Human Risks: This SDEIS fails to adequately address the human risks of exposure via air, water, soil, skin contact, and food consumption, to increased emissions of highly toxic chemicals and metals including: iron, copper, arsenic, mercury, lead, cadmium, chromium, cobalt, zinc, manganese, aluminum, thallium, asbestos like fibers, radon, fine particulate matter; silica, sulfate, diesel exhaust, among others, which acting singly or in combination with synergistic effects have been shown to cause disease, death and impaired quality of life in humans. (Goyer, 2004; Nriagu, 1988; U.S. NIOSH, 2014)	HU01
3414	There are no data presented to indicate how the PolyMet proposed sulfide mine operation will prevent leaching into the environment and intake into the body of heavy metals which are among the key promoters of oxidative stress in humans that promote metal-induced and metal enhanced formation of free radicals in the body with resulting toxicity and carcinogenicity. (Jomova 2011; Franco 2009)	HU01
3415	What are the projected impacts of 200 to 500 years of such pollution for human health of Minnesotans? The SDEIS is silent on these matters.	HU01
3416	Fine particle air pollution increases morbidity and mortality and reduction of such pollution improves life expectancy. For every 10 microg/cubic meter decrease of exposure to fine particulate matter the estimated impact on life expectancy is an increase of 0.61 years. (Pope, 2009)	AIR11
3417	It is the cumulative effects of air pollutants and toxic chemicals in water, soil, and food, predict the likelihood of human disease. I found no estimates of such cumulative effects in the SDEIS.	HU01
3420	Chemicals in AMD [acid mine drainage] and other toxic pollutants are powerful “oxidant stressors” that are well known to cause DNA damage in the body. These chemicals cause cancers, including lung cancer; neurodegenerative and autoimmune disorders; heart and blood vessel diseases; diabetes mellitus; Alzheimer’s disease and Parkinson’s disease. (Jomova 2011; Franco, 2009)	HU05
3421	The heavy metals arsenic, nickel-chromium and other toxicants such as fine particles, silica, and diesel exhaust among others cause lung and other cancers in workers and the general population. (De Matteis, 2012; Hubaux, 2012; Cancer Research, 2013 ; Martinez, 2011) to what extent will the PolyMet mining add to this chemical burden and risks to health	HU05
3423	Reproductive pathology: is caused by metals and toxic chemicals commonly found in sulfide mining operations. Such chemicals cause damage or death to human embryos and fetuses, neurological damage in the fetal and neonate brain; recently researchers at Harvard have discovered the association of air pollution with Autism Spectrum Disorder (ASD) in a major study (>320 cases and >22,000 control subjects) of the perinatal exposure to metals lead, manganese, mercury, and diesel exhaust and other pollutants. (Roberts, 2013) I found no mention in the SDEIS of potential risks to pregnant women regarding reproductive pathology.	HU01
3424	Please extend the comment period to 180 days.	NEPA07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Stephen J Jay (23471)	
3467	NorthMet Project Effects on Biological Resources. p. ES37. 912.5 acres of wetlands would be directly affected by mining operations. It is not clear how the impacts of operations will be monitored and impacts remediated or mitigated. Also, re the footprint of 912.5 how was this calculated? Did it include "wetland" and "buffer zones" integral to the health of the wetland? Was a standard definition of "wetland" used? If so please reference this.	WET02, WET04, WET07
3468	p.ES40-41. It is stated "..it would contribute criteria air pollutants during construction, mining and processing activities, though they would be less than applicable Prevention of Significant Deterioration emissions thresholds." This statement is confusing without clarifications and definitions of terms. It is not clear how it was determined that "these pollutants were all found to be below state and federal risk guidelines." Was a dynamic model used that included variables that affect air pollutants over time? To what extent will the project add to the cumulative burden of air pollutants over the duration of the project? To assess compliance with NEPA such cumulative effects must be estimated. (p.ES 41)	AIR09
3471	Presence of Wild Rice within the NorthMet Project Area. p.4-32. There is no mention of the quality of wild rice for human consumption and projected changes in incorporation of mine related chemicals in the wild rice plants over time. Will viability of the plants be impaired? Will the wild rice be safe for human consumption? What is the evidence?	WR157
3472	[Section] 4.2.2.1.4 Mercury. p. 4-37. Mercury is only one of many metals that will be leached into the water through acid mine drainage. What are the concentrations of other chemicals? What are the projections for change in them over 20 yrs? 200 years?	WR038, WR107, WR108
3474	Upper Partridge River Water Quality: p. 4-73. The statement: "Most of these water quality data represent grab samples and the frequency of sampling does not allow a detailed assessment of water quality trends, seasonal effects, or relationship to flow. Nevertheless, collectively, the data can be used to generally characterize water quality in the watershed and draw some comparisons…." These two sentences make no sense; the conclusion in sentence 2 is not supported by conclusions in the first sentence..	WR071
3475	Air Quality 4.2.7: 4-252: The PM 2.5 Standard Primary is 12 micrograms/cubic meter not 15 as indicated in this Table (see http://www.epa.gov/air/criteria.html)	AIR12
3476	6.0; 6-1: Cumulative Effects: The SDEIS fails to abide by the intent of NEPA and MEPA, in part, because the analyses fail to consider the cumulative effects of incremental environmental impacts that in turn have detrimental effects on human health. (U.S. EPA. HIP)	HU03
3477	On page 6-3 top table is listed: "mercury deposition and bioaccumulation in fish." What are PolyMet's projections for bioaccumulation of mercury and other highly toxic metals and other pollutants in human beings?	HU01
3478	Since such exposures are cumulative over the life of the subject exposed, seemingly inconsequential concentrations of pollutants must be quantified. The toxicants bio- accumulate and cause human disease and death.	CU14
Sender Name (Submission ID)	Stephen P Jorgenson (54344)	
17462	Six endangered or threatened species will be affected by the mining operations. Some species, such as the Canada lynx, will be directly affected by noise and possible habitat destruction. Others will be indirectly affected. Eleven plant species will be affected by the mining operations. If these species aren't protected then they will possibly go extinct.	VEG01, WI01, WI02, WI05
17463	Mercury could also be found in small amounts in the tailings pit. If this were to contaminate the water, then there would be a significant loss of plant and wildlife. Copper, cobalt, and nickel could also be released, all of which could affect the water-based organisms, if they were allowed to enter the water.	WR108

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Stephen P Jorgenson (54344)	
17465	A great number of cultural resources will be affected. Although the Sugarbush camp area will not be affected, other nearby resources will be. Parts of the Laurentian Divide will suffer damage. The Divide has been sacred to the Ojibwe people for centuries. The Erie Mining Company Concentrator Building will be affected due its proposed refurbishment and use. The mining will also happen on land that was ceded to the United States by the Bands under the 1854 treaty. This reserved the right for people to hunt, fish, and gather on these lands. With mining operations affecting wildlife, the damage is unknown.	CR01, CR05
17598	The economy of Minnesota, I think, will benefit from the surge of job opportunities and the addition of a new mining branch. The disadvantages, however, seem to outweigh the advantages.	SO01
17599	During mining sulfur dioxide and other gases will be released. The gases will be released throughout the entire processing of the 1mterial. Dust will reduce visibility, taking away natural beauty from the surrounding area.	AIR08
Sender Name (Submission ID)	Stephen P. Safranski (43108)	
11448	Even with its current scarcity and concern over the environment, the prospect of a project that would impair our clean water resources for 200 to 500 years is significant.	WR115
11451	the potential costs of this project are incalculable.	FIN05, FIN10
Sender Name (Submission ID)	Stephen Rossiter (44170)	
8127	The public (i.e. the financial assurance program) should receive much more money up front.	FIN05
8131	Is [Long-term maintenance of the Category 1 Stockpile, including repairing erosion and removal of vegetation] included in the planning of the financial assurance package and how many years is “long-term”?	FIN05
8133	Both Native Americans and low income people rely on a clean natural world for food and water. It would be unjust to force them to accept the risks [of pollution] while others receive the financial benefits.	SO02
8145	Most economic benefits would go abroad while Minnesotans get a few low paying jobs over a few years but the permanent potential for pollution.	SO01
8158	due to carcinogenic nickel dust and other toxic metals that would be present at the sites, I ask that the Minnesota Department of Health do a Health Risk Assessment for the safety of mine workers.	HU04
8160	The SDEIS contains inadequate quantification of unintentional seepage from the mine site that could make its way beyond the mine perimeter thru the groundwater… Minnesota is a very water rich area and attempting a project that requires containing and managing all that water to prevent unacceptable pollution seems foolhardy.	WR089
8161	estimates of the rate of groundwater flow used in the SDEIS seem to be inaccurate and underestimated.	WR052, WR071, WR091
8167	A recent map of fault lines in the project area suggests there may be more routes for groundwater to move thru than acknowledged in the SDEIS… The SDEIS says on page 4-47 that at the mine site “the hydraulic connection between surficial aquifer and underlying bedrock underlying is weak.” But that assertion is not quantified in a meaningful way. Does “weak” mean effectively zero, or, overtime, will the polluted seepage add up to a significant level?	WR010, WR011, WR012, WR014, WR087, WR090, WR168, WR169, WR179

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Stephen Rossiter (44170)	
8169	Were the locations used in the water quality models the same locations that will be considered legal compliance points by the EPA (dilute locations downstream or at the property boundary)?	PD03
8177	the SDEIS claims that Hoyt Lakes treats [for] manganese before distribution to residents. But even if the city can remove the manganese during treatment, who will pay for that treatment? And what about the water quality for nearby residents who operate independent residential wells…?	SO07, WR041, WR128, WR142
8186	the section 404 permit [should] be rejected… Only 27 [acres] of mitigation is currently planned while ~8000 [acres] will be directly or indirectly impacted. Furthermore… current mitigation/restoration/reconstruction abilities are wholly inadequate to functionally replace [peat] wetlands… the plan calls for mitigation to be based on future evaluations [but there are no records of such evaluations]	COE01, COE02
8192	[The mine site would destroy lynx dens and disrupt] 2 of the 13 remaining habitat corridors that allow Lynx to move through the landscape and maintain a more genetically diverse (healthy and thus resilient) population.	WI01, WI02, WI03
8204	parts of the project are designed for 1 in 100 or 1 in 25 year precipitation events, yet these sites will be hazardous for at least 200-500 years! … No plans or provision for mitigating an unexpected/accidental release are in the SDEIS… For each part of the project, the EIS should include how that part is designed to cope with extremely heavy rains, what chemicals would be released in the case of an overflow, and alternatives that would protect against heavier rains.	PD22
8206	Will [the reject concetrate evaporation pond] be adequately lined? How is this pond protected against extreme rain events? I did not see a discussion of this important pond within the SDEIS.	PD03, PD22
8208	A cumulative effects analysis for mercury in the St. Louis River is not in the SDEIS but it should be. Mercury releases (especially if less than 99.37% of tailings seepage is captured) could affect the fish that would be consumed by the Fond du Lac tribe and the St. Louis estuary ecosystem.	HU03
8211	The assumption that 99.37% of seepage (all but 21 of 3,380 gallons) from the tailings pile will be captured is highly suspect. [There is no evidence to support this claim]… The EIS should include an analysis of the consequences if the percent captured is lower than 99.37%, perhaps 50% or 80%	WR018
8215	Besides the no action alternative, the SDEIS does not compare any alternatives… Other action alternatives that should be analyzed are: more intensive/durable linings underneath and covers over the waste pile and tailings, starting reverse osmosis treatment in year 1, and layouts that minimize acreage of wetland loss.	ALT06, ALT07
8218	It is my opinion that if the science behind something is good, it can be made plain to the general public. In contrast, the science in this entire SDEIS has been anything but clear and simple. For nearly every important point in the SDEIS, the only reference cited is from PolyMet/Barr Engineering. It appears that the lead agencies have accepted PolyMet's assumptions at face value, rather than using their own analyses and judgment.	NEPA15
Sender Name (Submission ID)	Stephen Snyder (46084)	
10767	The SDEIS does not adequately address a scenario wherein the party that proposes a major mining project has never before operated a mine. PolyMet is a company that has never generated any revenue or income let alone operated any mine. It is just a front organization for the foreign money that is behind this project. ...The assurances made by a front organization should be given no weight. ... The environmental review should demand commitments from officers of the actual companies that will be operating this controversial mine.	PER02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Stephen Snyder (46084)	
10769	The SDEIS does not adequately address the impact on the nearby Boundary Waters Canoe Area Wilderness if the ground waters in part will leach in that direction. …Since the route of the ground water flowage is only approximated from the surface flows, the SDEIS fails to adequately address other potential consequences. The wilderness character of the BWCAW is a fundamental asset to Minnesota and any potential impact on its watershed must be thoroughly addressed.	WR080, WR111
10773	The SDEIS does not adequately address the material risks that are presented by the proposed mining of base minerals from sulfide-bearing ores in the wet environment of northeastern Minnesota. Models based on copper-nickel mining in dry environments have no application here. This issue is particularly important because the SDEIS is based on inaccurate projections of surface water flow. Exposure to water is the number one risk here, yet the SDEIS itself in its current form only addresses this issue within its margins of error. There also has been no attempt to study the actual ground water flows below the proposed tailings pond.	WR003, WR025, WR026, WR052, WR060, WR071, WR081, WR086, WR091
10778	The long-term maintenance required during and almost forever after for this proposed mine presents an impossible modeling challenge … The agencies may be able to model the next 50 or maybe even 100 years with some confidence, but it is ludicrous to think that anyone could prepare an adequate model to predict how the massive byproducts of this proposed mining project will be maintained for the next 500 years. …how can we evaluate the future environmental degradation that will result from this project if it is approved?	PD29
Sender Name (Submission ID)	Stephen Talty (17507)	
1975	the water supplies that trickle down toward the Great Lakes where our water source comes from that is of concern. To risk contamination of water supplies that will affect so many people in so many ways-from abundance of wildlife to fishing to drinking water is irresponsible.	LU06
2101	As you are fully aware of the hazards associated with this type of mining-hundreds of years of pollution and destroying of ecosystems and water supplies, please know that we hope this project will not move forward.	WR195
Sender Name (Submission ID)	Steve Adams (41841)	
2047	a project that will contribute toxic metals and sulfate pollution to the St. Louis River whatershed -- for 500 years!	WR115
2048	The threat that this project poses to the environment, wild rice, and non-mining-related uses of the land should be enough to nip it in the bud.	LU06
2049	The mining industry's record of evading its fiscal and environmental responsibilities is shameful.	FIN01
Sender Name (Submission ID)	Steve Braker (15747)	
11989	…fails to guarantee water quality	WR111
11998	…fails to provide safeguards for things going wrong…fails to provide examples of working sulfide mind operations which hae not caused pollution	PD22
12000	…fails to provide enough local jobs to even consider an economic effect	SO06
Sender Name (Submission ID)	Steve Clemens (7020)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Steve Clemens (7020)	
444	I am strongly opposed to the proposed Poly-Met mine because of the severe threats to clean drinking water as well as potential pollution to our rivers and Lake Superior.	WR042
449	Short-term (20 years) profits and jobs are a poor risk in face of potential (and probable) long-term environmental damage.	SO01
Sender Name (Submission ID)	Steve De Bock (18201)	
13434	It's going to be great for jobs our economy in Minnesota, Northeastern Minnesota, Minnesota in general, and the whole nation, quite frankly…. I urge everybody to get behind this and finally let this thing go through	SO10
Sender Name (Submission ID)	Steve Debock (18359)	
14652	We embrace this project because of the hundreds and hundreds of new jobs that PolyMet will create either through direct employee instruction or new jobs with their vendors like us.	SO10
Sender Name (Submission ID)	Steve El (19992)	
1625	[The SDEIS] claims that since the whole population [of Canada Lynx] in the mine area (perhaps 200 or fewer animals) wouldn't be lost but rather just a few, there is no problem. However, decades of conservation work around the world indisputably show that loss of habitat causes species to go extinct.	WI01, WI02
1626	The SDEIS is explicit (Chap 5-122) about pollution of the Partridge River continuing to be problem "in perpetuity." That is, forever. How can we possibly believe that Polymet will be able to take responsibility for treatment of this pollution in that timescale?	WR035, WR037
14843	I would also add that the area in question is home to an already at-risk population of moose. Moose, of course, depend on wetlands, some 8,000 acres of which will be destroyed. Promises of restoration, even should they be reliably fulfilled, will not come nearly in time to mitigate the destructive effects on the moose population.	WI01, WI02
Sender Name (Submission ID)	Steve Gildersleeve (6060)	
1004	Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining.	WET24
1005	The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat -- much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals."	WI01, WI02
1008	According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different? The SDEIS supplies no answers.	PD01
1009	Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public interest.	LAN01, LAN02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Steve Gildersleeve (6060)	
1025	But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed.	FIN01
Sender Name (Submission ID)	Steve J. Nelson (46967)	
10842	1. Protecting Minnesota citizens from future adverse effects of mining on environment with financial assurances, i.e. insurance policy, is critical Requiring assurances to safeguard against company filing bankruptcy after damaging the environment is critical. Copper/nickel prices will rise and decline over the lifetime of this mining project. Mining companies have used bankruptcy as a business strategy to walk away from their failure to mine responsibly. As a tax payer, I do not want to pay for their mistakes.	FIN01, FIN08, FIN10
10843	2. What contingencies are or will be in place for major catastrophic failures in the mining process?If water processing fails, water holding ponds leak, electrical supply is offline for an extended period...what is the action plant to protect the environment?	PD22
10844	4. The BWCAW is a state and national treasure. Maintaining water quality is critical.Is the current technology, i.e. reverse osmosis, sufficient to handle any sulfide runoff?	WR143
10846	5. No information has been included in the SDEIS concerning the epigenetics of increase consumption of sulfides, copper and nickel on local populations due to emissions and releases into local water system.	HU01
10848	3. Is Minnesota mining policy and regulations sufficient to handle adverse mining effects 20-30 years from now?	PER06
Sender Name (Submission ID)	Steve Jorgenson (4140)	
869	It is absolutely immoral to even consider allowing companies to place a mine near a wilderness area, solely for short term profits, and pollute our earth and water in the process, a long term consequence.	CU11
870	Creating jobs is not a good justification; jobs can be created by wind farms, solar power, and many other sustainable industries that benefit the environment instead of destroying it.	SO02
Sender Name (Submission ID)	Steve K (6059)	
1534	What type of groundwater contaminates would be introduced into the environment? Have there been longitudinal epidemiological studies of how they effect human and wildlife populations?	HU01
10000	How will this seepage of untreated water (up to 10% of total discharge) into the groundwater effect the potability of groundwater for surrounding residents, flora and fauna, including those in the connected watersheds?What type of groundwater contaminates would be introduced into the environment? Have there been longitudinal epidemiological studies of how they effect human and wildlife populations?	HU01
Sender Name (Submission ID)	Steve Kinney (54803)	
18156	I urge the lead agencies to move this positive enterprise to the permitting stage so that northern Minnesota residents -- indeed the whole state and region -- can benefit from the new jobs, additional taxes, essential minerals and brighter economic future PolyMet would deliver.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Steve Kinney (54803)	
18157	The exhaustive SDEIS deals with potential challenges intelligently and thoroughly…We have trusted our state and federal scientists, permitting experts and enforcement officials to do their work honorable and completely. I believe they have done the right thing by the people of Minnesota in the past, are doing so now, and will continue to keep our environment clean in the future as science evolves and protective laws and regulations advance.	NEPA16
18158	PolyMet would bring to the Iron Range…hundreds of jobs, millions of dollars in taxes -- including much-needed educational funds -- investment in spin-off industries.	SO10
18159	I have faith that permits to protect our land, water and air will be firmly and fairly enforced…I applaud the work state and federal agencies have already done in closely examining PolyMet's NorthMet project. I truse them to do the right thing and let PolyMet uncover valuable minerals while preserving a beautiful environment that attracted us to a place we now call home.	NEPA16
Sender Name (Submission ID)	Steve Koschak (57335)	
18462	not all of the polluted water will be captured for treatment. This is what PolyMet calls minimizing the water pollution in their marketing rhetoric. How is the SDEIS going to address using an antiquated tailings basin which is a leaker? Ten percent of the volume of water that there will be, the waste will not be going into any type of discharge pond. It will not be reclaimed. It will be let go out into the environment. … Why does the SDEIS not provide a solution to this situation?	WR018, WR070, WR090, WR108
18467	there is no plan for events or failures of PolyMet's water treatment system. It provides no details for what happens in the event of catastrophic accidents or failure for the system to operate for 500 years, during which polluted water is discharged. Daily operations are planned to treat some 6.2 million gallons of water daily. What is going to happen with broken pipes or tailings basin and human errors? … This mining plant is designed for a 100-year storm, and given the climate change, this design is lacking at best. Scientific studies suggested this facility should be designed for a 500-year storm	PD22
18468	The SDEIS provides no assurance or details on the impact of water quality, on wildlife or on human health if the treatment system fails or there is a breakdown, which is inevitable.	PD22
18469	I have another concern about the water quality analysis and how the samples and the studies were done. One of the water quality testings that they did was done in a dry season. There was very low water flow and they based their figures on low water flow, one of the lowest in decades, and this is what they based their study on. So, we'll have outflow from the water flow and waste not being adequately adjusted to reflect normal water conditions.	WR003
18471	there is a lack of information regarding mercury contamination of fish and ultimately methylmercury in humans. There is an area of homes near to six operating taconite mines and there's already an alarming concentration of mercury and other pollutants.	MERC02, MERC03
18473	There is a lack of alternatives to the probable permanent destruction of some 8,263 (phonetic) acres of land, with some 918 acres being very high-quality irreplaceable wetlands in the St. Louis River watershed. There is no plan to compensate for thousands of acres of wetlands that would be indirectly harmed.	WET01, WET20

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Steve Koschak (57335)	
18475	The trade that is to take place with the Land Exchange will be a violation of the Weeks Act (phonetic). The Weeks Act (phonetic) was established to prevent open pit mining on federal land, and this land being the Superior National Forest. This trade and this exchange is going to be setting a precedent to other mining industries across the country, not only in the northern part of Minnesota, but anywhere in the United States where you have a federal park or a federal forest, anywhere where the federal jurisdiction is involved with the land, and all of a sudden the industry comes in and decides they want to start an open pit mine. The land owners and the general public is in jeopardy.	LAN02
18476	the UMD Business and Economics Report (phonetic), which this DEIS was based upon, is flawed because it does not address any associated costs of non-ferrous mining, it is only addressing the benefits. Would you ever build a home without making a list of benefits and the costs, both monetarily and otherwise to you? To come up with a mine plan that weighs heavily on economic gains and determines job gross output, but without weighing other job losses and other economic losses in the area, such as tourism, which is dependent on clean water, clean air and a national forested landscape, and is incompatible with mining? This replacement of economic activity, such as tribal life, fish and hunt, under the 1854 Treaty is flawed at best.	SO04
18477	This model does not take into account the loss of environmental lands, the loss of wetlands, wildlife, wildlife habitats, loss of infrastructure due to mining, and the costs of up and down economic industry related to the inflow and outflow of mining employees. What will be done to offset the loss of real estate value for land owners due to the possible sulfide mine? Present day values have already plummeted to the exploratory sites.	SO04
18479	What are the costs of the federal land? 600 acres of federal lands are going to be gated and then fenced off. What are the costs to the local communities and costs of unemployment benefits and increased claims and other social problems? What is impact of the loss of jobs when the copper prices fall?	SO04
18480	Other studies in the SDEIS, in Section 52-82, they mention nothing about people that live on Birch Lake, recreation on Birch Lake, how a business profits on Birch Lake, all they have in reference to anything on Birch Lake are two campgrounds which are federally owned...There are three resorts, two boat house operations and one canoe operator, and hundreds of private lake homes that are going to be subjected to not only the sound, but the impact of the sound of the air blasts of the sulfide mine.	SO04
18482	Our business caters to 1500 plus resort guests per season and these guests travel down beautiful Birch Lake seeking fish, wildlife, peace and serenity. Where we are now going to be impacted by the sound of blasting. The blasting sound will travel that far and the air blast contours and the air blast effects will be affecting the visitors to the area.	N05
Sender Name (Submission ID)	Steve L'Abbe (3150)	
7998	What a great economic infusion for the Iron Range and all of Minnesota.	SO10
9548	Polymet has been patient, responsible and transparent.	PER34
Sender Name (Submission ID)	Steve Olinger (43514)	
8125	There are no copper-nickel mining operations that don't have serious water pollution problems. The Flambeau mine used as an example is really not a good example. It was a much smaller operation that did not stay in business and did have problems.	WR023
8126	While there is an attempt to provide financial assurance, it does not seem realistic.	FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Steve Olinger (43514)	
15530	While I understand and would hope for job creation in Northern Minnesota, I am concerned about how much we would be sacrificing to supply them.	SO01
Sender Name (Submission ID)	Steve Petersen (47236)	
9240	I would like to make the point that if this company who is saying they will guaranty monitoring for years after they are finished mining goes bankrupt at any time after they are do or during their mining operation the state taxpayers are on the hook for the clean up.	FIN01
Sender Name (Submission ID)	Steve Schreader (58052)	
19882	With the main benefit being jobs, what happens when the mine closes & what economic impacts will the disruption of the BWCA have on the economy.	SO01
Sender Name (Submission ID)	Steve Smith (47070)	
11209	Destroying pristine forest lands and risking the future of our water resources, including native trout streams and Lake Superior is just not worth the supposed 'economic prosperity' a new mine would bring the region.	SO01
11211	Preserving Minnesota's natural beauty and resources for our future generations is worth much more than any short term prosperity a mining operation would bring.	SO01
Sender Name (Submission ID)	Steve Snyder (18181)	
3972	...there is no model in this [SDEIS] statement as long as it is that would apply for a 500-year period.	PD29, WR196
3973	Of course, it is the combination of the water and the exposure to the atmosphere to create the sulfuric acid that creates the leaching out of these very toxic metals. In my view it's not adequately addressed in this statement.	WR001
3974	... we have just recently found out that even the basic data with respect to the groundwater flows into the Partridge River are not accurate in this document. That's why the EPA gave the original draft an "F" for its failure to address these type of matters. And yet after that work we come back and have the same type of issue here that needs to be addressed.	PD29, WR003
3975	…the document does not address the fractures in the bedrock that will be below these mining sites, and what this is going to do with the leaching that occurs and where that is going to go and where that is going to end up.	WR010, WR011, WR012, WR071, WR090
3978	… if it turns out those assurances untrue, would PolyMet agree that this mine should be closed down or would it instead lead to hearing that somehow they have to be grandfathered in and be able to continue to operate because they've already done the damage?	AQ30
13400	…within this EIS statement there is very little that addresses the huge concern of operating a mine in a plant such as this in this very water-rich environment. This is not a dry and arid environment that we are looking at here. This is a very wet environment.	PD01
Sender Name (Submission ID)	Steve Stratman (39441)	
13546	I believe will eventually be on the wrong side of history and future residents will think we were unwise to create such a black hole of ecological and economic problems.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Steve Stratman (39441)	
13548	take the money we would have spent on cleaning the mine pollution and invest it right now into business development and jobs.	NEPA15
13549	The corporation that owns the mine will promise everything, then they'll leave and not fulfill their obligations. It happens every time, regardless what they say to the contrary. We will end up with a hole filled with acid, and we'll have no one to blame but ourselves.	FIN01
Sender Name (Submission ID)	Steve Sulivan (54163)	
16059	The forrest is eternal, jobs do not last just say no to mines.	SO01
Sender Name (Submission ID)	Steve Weston (43826)	
11830	I believe it is unwise to approve any plan that requires ongoing active management of hazardous mine waste, such as treatment of toxic runoff, after a mine has been closed.	PD06
14953	If the waste cannot be passively contained, but requires ongoing intervention for an indefinite period, there is too much danger that...could result in the treatment infrastructure being abandoned. We today are not capable of promising any action more years in the future than our republic has yet existed.	FIN01
Sender Name (Submission ID)	Steve Eggimann (45943)	
10372	The Boundary Waters is one of the crown jewels of our national park system. Like Yosemite, Glacier, and Yellowstone there are no other places like it on earth... I urge you to ... restate the principle that these wild places were set aside for all Minnesotans, all Americans, and all the world so there would be some places unspoiled for all peoples for all time. No economic argument to the contrary is worth consideration. ... Please restate the principle that it is your obligation, the obligation of all of us to preserve these very few wild places for all mankind.	WILD02
Sender Name (Submission ID)	Steven & Cynthia Broste (39636)	
7360	In this case, even Lake Superior would be in danger.	CU01
7361	And after 10 years, the area will have lost …the pristine wilderness that currently draws thousands of people to northern Minnesota.	WILD02
7362	All of this risk (current estimate 100%) for a few hundred jobs for 10 years or so. And after 10 years, the area will have lost the new jobs,	SO01
7363	it doesn't appear that sulfide mining has ever been done without significant, long lasting damage and toxic waste…and accidental releases will be inevitable.	PD22, PD26
7364	I understand that these metals are needed for numerous things we all depend on, but we will need those things in a hundred years as well. ... Maybe at a time far in the future we will have developed better ways to extract these metals and better ways to protect the crown jewels of our state from the clear and present danger that the Polymet project represents.	NEPA03
Sender Name (Submission ID)	Steven Amundson (18293)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Steven Amundson (18293)	
12470	The only thing that I would consider to be a viable risk would be one that ensures that PolyMet can actually guaranty that there is not only a system that would work to take care of the environment, but also that there would be enough money somewhere set aside to be able to clean up any issues well into the future.	FIN05
12473	If we were to move forward with this project, the only way that I would, as a Minnesotan, agree that it would be feasible, if there was enough money set aside for hundreds of years of cleanup, because I believe that's what will end up being necessary.	FIN05
Sender Name (Submission ID)	steven dahlke (46991)	
10894	Delay approval until Polymet Mining has financial assurances of $500 Trillion or proves -it-First will be safe.	FIN01
Sender Name (Submission ID)	Steven DeBoth (43804)	
11819	If what I have read is even close to accurate, in my professional opinion as an analyzer of financial risk, I assure you that the probability of any of today's existing raw material extracting enterprises to still be around 500 years from now is nearly 0%.	FIN01
15074	those who will reap the rewards of this type of mining will be dwarfed by those bearing the risks, financial and otherwise.	SO01
15075	As someone who has spent time in those very same woods, this is as tangible of a selling your soul for a few shiny coins moments as I have ever seen. Those woods are the soul of the state. No amount of money is worth the nature of the risks, especially when the risk estimates are in control of those who will get your soul.	SO01
Sender Name (Submission ID)	Steven Eli Kokotovich (57213)	
17143	Before you approve a Polymet mine, you need to be extremely confident that it will not damage the environment. A mistake on your part could be devastating for generations.	PER35
17149	Also, enough money (from Polymet) needs to be set aside (securely) for cleanup and all future monitoring. This cost should not be paid by the taxpayer.	FIN01, FIN10
Sender Name (Submission ID)	Steven gammon (10736)	
598	My response is to not allow any type of mining that could directly or indirectly allow any type of chemicals into the vital, precious water sources.	WR115
604	These (EIS) statements, other documents and comments concerning the vital and precious water sources of Northeastern Minnesota were well prepared and show genuine appreciation, concern and foresight into the effects of the proposed mining project.	WILD03
Sender Name (Submission ID)	Steven George (37819)	
11185	Polymet's tailings pile will have toxic metals and sulfates and the SDEIS proposes the tailings basin will have no liner to contain these toxins… The proposed tailing dump site is on top of old LTV tailings. This tailings dump was designed in the 1950's for taconite tailings and it was built on top of streams to allow drainage through the tailings. How will this pit that was designed to leak possibly manage to contain the toxins safely for 500 years?	PD08, PD10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Steven George (37819)	
11190	When the Polymet plan was first proposed, the "Scoping Report" said that the EIS had to evaluate "if all tailings will need to be managed in a completely lined basin." The SDEIS must be redone to analyze the alternative of a completely lined tailings basin. The lined tailings basin alternative should avoid wetlands and streams.	ALT07
11192	The Polymet SDEIS claims that the tailings piles won't cause pollution (page 5-159). Polymet says the project will increase seepage at the LTV tailings dump from 2,202 to 3,380 gallons per minute. The SDEIS claims that with the use of pumps, all except 21 gallons per minute will be contained, which would be a 99.37% collection rate…. this collection rate would be unprecedented. The SDEIS doesn't name a single unlined tailings pile that meets these almost perfect results with the use of pumps. The SDEIS must be redone to analyze water quality outcomes if the tailings pile collection rate is not what Polymet claims.	PD08, WR018, WR020, WR090
11198	in Figure 4.1.9 [of the Draft EIS], ...there are at least three streams that ran under the LTV tailings site. One of those streams runs right under Cells 1E and 2E, where they plan to dump the Polymet tailings, and then into Spring Mine Creek. Water is likely to drain through filled over streams as these are the historic drainage routes. Spring mine Creek is already impaired for aquatic life as a result of past mining and has excessive levels of sulfate, aluminum and mercury. (SDEIS, p. 4-122, 4-238). The SDEIS assumes all tailings wastewater will seep to the north side where the pumps will be. The SDEIS must specifically analyze impacts on water quality of seepage that would escape following historic stream drainage beneath the tailings basin.	WR056, WR081, WR104
11202	SDEIS doesn't have a single word addressing the possibility that fractures beneath the tailings site would transport pollutants...Existing tailings seepage already exceeds groundwater standards and on the LTV site, adjacent to the tailings, the SDEIS has documented that Area of Concern #8 has a plume of pollution propagating through fractures. (SDEIS, p. 4-12). The SDEIS must anticipate that tailings contaminants will propagate through fractures and clearly disclose the impacts this leaching through fractures will have on surface and groundwater quality.	WR010, WR012, WR061
11206	Do we really expect Polymet to still exist and be paying for the cleanup and monitoring of the wastes in 500 years, or even 100 years for that matter? Who will this burden fall on?	FIN01
11207	Polymet's plan is completely inadequate in assuring protection of the environment and proper treatment and cleanup. … I am asking the agencies involved to reject the SDEIS as inadequate and deny Polymet a state permit to mine.	PER35
Sender Name (Submission ID)	Steven Graupman (21784)	
8951	I am very concerned with protecting our clean water, but I believe Polymet's plans to mine sulfide ore in northeastern Minnesota as described in the Supplemental Draft Environmental Impact Statement will. I believe that the SDEIS is sufficient and SHOULD be approved, because it details how new mining and processing techniques will be more than sufficient.	WR190
8952	PolyMet would provide many needed jobs and would finally end an economic depression for that area.	SO10
8953	Birds that depend on fish and other aquatic organisms for food might be affected, but their numbers will rebound after mine reclamation.	WI01
Sender Name (Submission ID)	Steven Hanke (14895)	
247	Is the Minnesota DNR able to require PolyMet to establish and/or negotiate terms and conditions of employment for the proposed workers prior to the project being approved?	SO06
250	What assurances does the Minnesota DNR have regarding the number of jobs this proposed project will create?	SO06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Steven Hanke (14895)	
251	Is any job considered in that calculation, or does it have to be full-time (40+ hours weekly) permanent employment?	SO06
252	How does the DNR calculate the proposed economic impact of the jobs based on the limited information and description provided by PolyMet.	SO04
255	I am concerned by the lack of details regarding the economic impact analysis.	SO04
256	The claims regarding the number of jobs to be provided by the project are vague and lack any effort at substantiation.	SO04
257	The study needs to be extended to include number, type, duration, and pay ranges for those jobs, as well as an analysis of the economic impact to the area surrounding the proposed sites.	SO04
Sender Name (Submission ID)	Steven Jorgens (4220)	
10209	I have a very large interest in seeing mining and jobs to return to that area.	SO10
10210	Polymet partnering with GE to have a reverse osmosis system is also very impressive.	WR190
Sender Name (Submission ID)	Steven Kraemer (2971)	
12326	I have read that acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Why won't it do the same in the Arrowhead Region of Minnesota?	PD26, WR023
12328	Why incur major risks and costs from sulfide mining which ultimately might far outweigh the short-term job creation benefits of the mine?	SO02
13458	I have read that acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Why won't it do the same in the Arrowhead Region of Minnesota?	WR023
13459	But, why incur major risks and costs from sulfide mining which ultimately might far outweigh the short-term job creation benefits of the mine?	SO01
Sender Name (Submission ID)	Steven L Losh (46879)	
8597	The SDEIS shows that Polymet has done a thorough job of addressing these concerns. They have characterized in detail both geology and waters (both surface waters and groundwater) throughout the affected area:	WR190
8600	Although there can always be more information gathered and added to the models (e.g., bedrock permeability, which is likely very low, beneath the tailings basin), I am satisfied that the proposed action will remedy environmental impacts to an acceptable level.	PD28
8602	A double liner at the hydrometallurgical plant site will protect groundwater and surface waters from leakage from that source.	PD28
8604	During mining, Polymet will capture runoff from critical areas such as the waste piles and tailings basin, and route that water through state-of-the-art treatment facilities. Much of the water will be recycled on site, but the water that is discharged will for the most part be of better quality in terms of substances of concern (such as mercury and sulfate, as well as acidity) than the natural waters at the site.	PD28

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Steven L Losh (46879)	
8605	The proposed strategy for capturing groundwater that would otherwise exit from the tailings area – a cutoff wall to bedrock augmented with ditch and collection wells – appears adequate for ensuring water quality. The results of groundwater flow modeling show that, for reasonable conditions, discharge of waters of elevated concentration of various evaluated substances will be minimal to negligible.	PD28
8606	In the case of aluminum (one of the two substances potentially released at excess concentrations), the source of the excess substance is an already-existing reservoir that will be used in reclamation; in the case of lead (the other substance at potentially excess concentrations), the infrequent exceedances will be due to variations in water hardness rather than to actual elevated discharge of lead. Overall, as long as the proposed actions in the SDEIS are followed and monitored, water quality should not be adversely impacted.	PD28
8608	From the SDEIS, it appears that adequate steps will be taken to ensure water quality well into the future. Monitoring wells will be placed outside the perimeter of the tailings basin to further safeguard water quality, and can guide further remediation should it be necessary during and after mining.	PD28
8609	After mining is finished, Polymet's reclamation plan appears adequate – among other things, the company will backfill pits with otherwise reactive waste rock to submerge it in water, which will isolate it from oxygen and prevent breakdown of sulfide minerals, cap the tailings area with bentonite to minimize oxidation and leaching of tailings, and continue to be responsible for meeting applicable water quality regulations for any water that does flow off site.	PD28
8610	The report is thoroughly researched and vetted by State and Federal regulatory agencies, which appear confident that the Northmet mine will meet if not surpass water quality regulations, and that environmental impacts of all the other aspects of the mining operations will be adequately remedied by Polymet's proposed actions.	PD28
8611	While the mine and related operations will clearly affect the local environment, this impact will be dealt with in a responsible, sustainable way that can serve as an example to the mining industry worldwide.	PD28
10429	Polymet and the DNR... conducted long-term tests on the oxidation behavior of ore and waste rock containing various amounts and types of sulfide minerals, specifically to evaluate the potential for generation of acid mine drainage and release of heavy metals during oxidation at the surface. Based on these tests, they designed a strategy for storage of various kinds of sulfide-bearing rock that, in conjunction with runoff and groundwater collection and treatment, can be expected to adequately forestall acid mine runoff and leaching of heavy metals into groundwater or surface waters. This is a key concern regarding environmental impact of the proposed action, and Polymet is using a responsible, science-based approach in addressing it.	PD28, WR190
Sender Name (Submission ID)	Steven M Kramer (54894)	
18830	…far too many questions remain unanswered -- particle dispersal of waterborne contaminates remains an issue, and the time span of guaranteed oversight by the company is totally inadequate!	FIN01
Sender Name (Submission ID)	Steven Ulmen (3145)	
154	The only addition I suggest is the use of hydrogen fuel cells to generate electricity for the Erie plant as well as returning it to the grid.	ALT17

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Steven Ulmen (3145)	
580	Polymet comes to us possessing the technology to conduct non-ferrous mining at Northmet as well as the technology to protect the environment during the mining process. Reverse osmosis will treat the waste water to remove sulfides that meet the strict wild rice standard and not cause damage to water runoff at the mine site or in rivers and lakes, all within the standards set by the EPA. All of these technologies have been tested and are effective. Polymet possesses all these technologies and is committed to put them to use in a way that they can mine in a cost-efficient manner and protect northern Minnesota's environment at the same time.	PD28
581	Polymet has demonstrated they have the technology to mine Northmet in full compliance with guidelines as established by the Environmental Protection Agency, and will provide funding to continue these environmental processes long after mine closure. They have committed to leave the Northmet site cleaner than it is now and in full compliance with EPA standards for as long as it takes.	PD28
Sender Name (Submission ID)	Stewart Crosby (11339)	
274	To sum up my concerns, I am not confident that the proposed water treatments will work over the timeframe needed to protect exisiting surface and subsurface water.	WR035, WR129
1628	I am opposed to any copper-nickel mining as proposed because I do not believe adequate protection of the surrounding landscape can be guaranteed and I do not believe Minnesotans should have to take such a risk for the benefit of a small number of corporations.	SO02
Sender Name (Submission ID)	Stewart Mills (18112)	
13476	We have tremendous opportunities to grow jobs, to grow prosperity, and grow our economy not only in this area but all across Northern Minnesota, because we have a very interconnected economy. ..project is so well thought out and is so well engineered, and the oversight is so extraordinary, there is absolutely no reason why we cannot have both economic prosperity and clean water so we can hunt and fish and not only enjoy the economy but also enjoy ecology	SO10
Sender Name (Submission ID)	Stu Astleford (18283)	
13994	I believe that the water quality degradation is permanent to the environment and it is not worth polluting a pristine environment that future generations can enjoy for years to come.	WR195
13995	…it is just too risky to put a mine so close to the Boundary Waters, where it will do permanent damage, in my opinion, for generations to come.	WILD02
Sender Name (Submission ID)	Stu Farnsworth (50049)	
13010	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Stuart Blee (38496)	
13576	Polymet has met the State and Federal requirements regarding what they will do to safeguard the water and air.	PER34
Sender Name (Submission ID)	Stuart Chastain (47659)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Stuart Chastain (47659)	
7744	I believe that the proposed NorthMet copper/nickel mine is important both for its economic benefit to Minnesota and for its strategic/geopolitical value to the United States.	SO10
7770	Polymet's proposal to ensure there is no long-term seepage of sludge into aquifers is not adequately redundant. The redundancy of the actual sludge barrier is more important than any long-term financial arrangements to cover environmental damage.	WR019, WR130, WR132
Sender Name (Submission ID)	Sue Bowman (18108)	
3355	We know how to mine in Northeastern Minnesota. And we do under the strictest standards. If we don't utilize this great resource of mining copper and nickel in Minnesota, these minerals will continue to be mined in places around the world that have little or no environmental regulations whatsoever causing massive pollution to the earth.	SO10
13473	PolyMet will bring some 360 direct jobs and hundreds more spinoff jobs to the area of the state that needs them.	SO10
Sender Name (Submission ID)	Sue Carver (15750)	
13154	the polymet open-pit sulfide mine plan would have unaceeptable environemntal imapcts on surface and water quality for hundreds of years, if not forever.	WR115
13155	Recent news that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science.	WR003
13159	The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streams.	WR003
13160	The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows Poly Met to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge.	WR022
13161	The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures.	WR010, WR012, WR061, WR069, WR168
13162	The SDEIS must be redone to assess the impacts of slope and dam failure at the mine site waste rock piles and the tailings piles, instead of just assuming that no failure can happen. (SDEIS, p. 5-546). PolyMet's tailings would be placed on top of huge, leaky and unstable existing tailings piles.	GT07, GT15
13164	The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility.	PD17
13165	The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down.	WR180

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sue Carver (15750)	
13166	The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS.	WET12
13168	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies.	WR023, WR060, WR181, WR182, WR195
13169	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN13
13170	The Poly Met SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards.	WR189
13894	I just don't see how it can possibly benefit us. The ore is going to be taken out and given to China. The companies that -- are owned by foreign nationals, who will benefit from the money earned.	SO06
13895	And a few Minnesotans in the northern part of the state will have jobs, but the jobs will be short-term.	SO02
13896	I just can't see any benefit for us, except the long-term pollution that is going to happen that we are going to have to clean up and use our tax dollars for. And the loss of the pristine environment that is up there in the northeast section of our state	SO01
Sender Name (Submission ID)	Sue Denio (11550)	
2512	We should require a $600 million performance bond before they begin work.	FIN05, FIN08
2512	We should require a $600 million performance bond before they begin work.	VEG04, VEG06
2513	With climate change, wastewater and stormwater collection needs to be designed for extremes.	WR180
2513	With climate change, wastewater and stormwater collection needs to be designed for extremes.	WR180
2514	The EIS must include criteria for cumulative effects of future mining operations in the watershed.	WET18
2514	The EIS must include criteria for cumulative effects of future mining operations in the watershed.	WET18
2515	The EIS should have clear, ironclad restrictions for company transfers after the permit is granted, insuring the safety measures are maintained for the 200-500 years!	FIN01
2515	The EIS should have clear, ironclad restrictions for company transfers after the permit is granted, insuring the safety measures are maintained for the 200-500 years!	FIN01
Sender Name (Submission ID)	Sue Evert (42036)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Sue Evert (42036)	
2070	Although I understand people needing jobs in northern Minnesota, … the risks of contamination of beautiful areas and much needed wetlands seems too great to allow this proposal to go through.	SO01
2071	Are the standards very high to ensure no pollution of this area?	PER06
Sender Name (Submission ID)	Sue Goodin (32510)	
12035	Please do not let greed destroy one of the loveliest parts of this state. Norendanger its wildlife. Folks come here to remember or experience how beautiful the USA once was.	SO02
Sender Name (Submission ID)	Sue Halligan (16941)	
11023	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Sue Hatcher (11559)	
3234	Polymet has invested their time and money to meet and exceed the fears of clean water pollution. I am confident that Polymet has done everything that has been asked to secure a bright future for our young and protect the natural resources Northern Minnesota enjoys.	PER34
3234	Polymet has invested their time and money to meet and exceed the fears of clean water pollution. I am confident that Polymet has done everything that has been asked to secure a bright future for our young and protect the natural resources Northern Minnesota enjoys.	PER34
Sender Name (Submission ID)	Sue Ramthun (14631)	
165	The major downside of sulfide mining is the water pollution risk (acid and increased mercury emissions)…[to] drinking water and fishing waters	AQ05, AQ08, WR113, WR142
166	The SDEIS acknowledges that water from the Polymet operation will need to be treated for at least 500 years. What if there are leaks?	WR129
1697	The risks that come with sulfide mining far outweigh any economical benefits proposed by Polymet.	SO01
1700	No amount of money can replace or "fix" our clean water supply and damaged wetlands.	FIN05, FIN11
Sender Name (Submission ID)	Sue Sojourner (11361)	
262	Proposed mines should keep Minnesota's waters clean and safe. Plans should put safeguards in place to avoid things going wrong. The plan should leave the site clean, maintenance-free, and should protect Minnesota taxpayers.	FIN08, FIN10, WR130
1639	I am—and we all should be—appalled and leery of the five centuries of hazardous water treatment violations that will affect us.	PD01
Sender Name (Submission ID)	suehawkeleven@yahoo.com (43209)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	suehawkeleven@yahoo.com (43209)	
17089	Poly Met Destruction of all North Americas Aquafors. Water sold to Canada and China. A few jobs for miners. Who's gonna pay for all our healthcare? What we gonna drink? What bout foliage? Animals? Rice? Air?	SO01
Sender Name (Submission ID)	superspamke (44593)	
11832	The company might promise full resposibility for the mess it creates but it is not certain. If they can't clean up the mess like a lot of mining comapnies multiple generations of Minnesotans would be left to clean the problem.	FIN01
Sender Name (Submission ID)	Susan Abrahamsen (54777)	
19480	It is impossible to guarantee acceptable water quality will be maintained during the mining and also for the next 200 to 500 years. The SDEIS underestimates the base flow at the mine site and doesn't even monitor the amount of mercury that enters the Partridge and Embarrass Rivers and ultimately LakeSuperior.	WR165
19482	I am distressed by the amount of upland forest, swamps and bogs that will be destroyed from this mine and also future mines in NE Minnesota.	WET24
19483	The forest needs to be intact enough to enable wildlife to travel to food sources and appropriate winter and summer habitat.	WI02
19484	I value NE Minnesota for its natural beauty, clean water and abundant wildlife. To me this is priceless. No amount of promised jobs is worthdegrading it.	SO01
19486	generations of residents will end up paying for this financially and also with their health.	HU03
19487	The profits from this mine will leave the state of Minnesota and go to the company headquarters in Switzerland, causing the taxpayers to lose out again.	SO05
19488	I believe in recycling and using technology that doesn't leave negative impacts on the environment.	NEPA06
Sender Name (Submission ID)	Susan Agrimson (45190)	
9000	I'm totally confident the company will protect the environment. there are plenty of safeguards in place. plus the new jobs will be a great benefit to northern Minnesota.	SO10
Sender Name (Submission ID)	Susan and Herb Lasch (47542)	
12220	Has the SDEIS fully considered [and compared] the negative environmental impact in other geographic areas that have been subjected to this type of mining?	PD26
12222	[Has the SDEIS fully considered] the track record of PolyMet Mining Corporation in previous mining operations?	NEPA15
12229	Hast the SDEIS fully considered the unknown capability of future generations of oversight to monitor water quality in the 500+ years to come.	WR130
Sender Name (Submission ID)	Susan anderson (42891)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Susan anderson (42891)	
9163	I do not trust [PolyMet mines and Glencore Xstrata] and it's claims to hire many union workers from the area and to reliably clean up resultant environmental damage.	SO02
9164	The acid mine drainage and resulting contamination of over 900 acres of wetlands and the potential harm to another 7,300 acres; not to mention the St Louis River and Lake Superior.	WET24, WR111, WR115
Sender Name (Submission ID)	Susan Armington (57202)	
17094	Where will the money come from to ensure the waste water treatment plants will continue to operate for 200 at the mine site and 500 years at the plant site? How can we ensure the PolyMet will meet its share of these costs, and not for instance, default or go bankrupt or whatever, before it pays its share?	FIN01
Sender Name (Submission ID)	Susan C Flesvig (54479)	
17476	[Reference Table 4.2.2-2 on page 4.29 of SDEIS] The commentary states that the mercury contamination content in fish tissue sample from these waters is above current state maximum levels. (…) I believe much more analysis needs to be conducted regarding this assumption, especially given the very long term that significant mercury and other contaminants will be released into these and other waters within the affected watersheds.	MERC02, WR158
Sender Name (Submission ID)	Susan D Blom (57940)	
19848	The long term consequences to wildlife and public health are really not known, despite the research done so far.	GEN03
Sender Name (Submission ID)	Susan D. Lannin (35133)	
13040	Approving PolyMet's proposal would give an unwise signal for more sulfide mining near Lake Superior, a vast freshwater resource unique among the Great Lakes, and endanger millions of acres of wildlands, including 1,000 pristine lakes and streams, and threaten the 1,500 miles of canoe routes, now a major recreational draw within the Boundary Waters Canoe Area Wilderness.	LU06
13045	Destruction of fish and wildlife habitat from polluted lakes and rivers, contaminated drinking water, immense cleanup costs and hundred-year recovery times make sulfide mining too dangerous for this region.	WI02, WR114, WR115
Sender Name (Submission ID)	Susan Darley-Hill (48784)	
13352	given the prospect of an increasingly-shrinking supply of clean, fresh water within the next 50 years. Water is a resource far, far more precious than any metal - now - and especially in the future when nothing will be more precious or valuable to our descendants.	WR195
14608	Water is a resource far, far more precious than any metal - now - and especially in the future when nothing will be more precious or valuable to our descendants.	SO01
14609	It is a fact that, time after time, in every place where sulfide-rich rocks have been exposed through ore mining, the waters have been impaired.	WR023
14610	the burning of fossil fuels necessary to power the extraction and then maintain the system constructed to handle the acid drainage will release a staggering amount of carbon dioxide, particulates and mercury- all detrimental to the health of virtually every living thing.	AIR01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Susan Darley-Hill (48784)	
16781	This project's potential impacts on Minnesota's natural resources and public health include direct damage through disruption of habitat of threatened species such as lynx and moose, destruction of wetlands, and impairment of water quality.	WI01, WI02
Sender Name (Submission ID)	Susan Dunne (36036)	
11296	The Boundary Waters canoe experience must be protected. When you have the opportunity to bring city people up there, those that have never left the city cannot believe their eyes. The fishermen on Lake Superior and those who operate lakeside resorts would agree - allowing mining would negatively impact their lives and livelihoods. The purity of our lakes is a tremendous asset. Please do risk our drinking water and so much more.	SO02
Sender Name (Submission ID)	Susan Frame (10758)	
12257	Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come.	WR195
Sender Name (Submission ID)	Susan Hawthorne (43126)	
10305	the plan does not adequately consider catastrophic possibilities—infrastructure failures, loss of funding for containment due to (inevitable) government change, changes to waterflow subsequent to usage and global warming, etc., etc	PD22
Sender Name (Submission ID)	Susan Hoppe (57711)	
19365	I have patrons who would like to review the NorthMet SDEIS. Can you tell me how we can get a hardcopy for our library?	RFI01
Sender Name (Submission ID)	Susan Jane (43093)	
10070	Poly-Met's open-pit copper-sulfide mining plan does not include any analysis of potential risks to on-site mine workers from exposure to asbestos-like amphibole fibers, which have been linked to the fatal lung cancer mesothelioma, that are present at the site.	HU05
10072	the plan does not include a Health Risk Assessment of the effects of mercury, manganese, lead, arsenic and other pollutants on people who live downstream from the site, such as the town of Hoyt Lakes, downstream from the proposed site's waste piles.	HU01
10073	The sulfate discharge and deleterious impacts to wetlands of the proposed mining may result in an increase in levels of mercury to fish and contamination of drinking water ...that will jeopardize the health, particularly, of bottle-fed babies, children and the elderly.	AQ05
14796	Over the past twenty years, we have explored much of this special wilderness area [the BWCAW] in small, lightweight solo canoes, relishing its extraordinary beauty… weighed against the extreme environmental risks that inevitably accompany the Poly-Met mining proposal, the hoped-for benefits of sulfide mining seem hopelessly short-sighted to me.	WILD02
14797	From my understanding of the proposed mining processes, water quality degradation is almost unavoidable, and the company's assurances to remedy any and all resulting water pollution are simply unfeasible. ... adequate safeguards for protection of northern Minnesota natural resources is impossible to guarantee and the potential for environmental damage and its cost to the area is too great.	WR037, WR128, WR195
14798	Sulfide mining appears to be especially unsafe in a water-rich area such as our State. ...there appears to be a high probability of eventual pollution of the groundwater, which would require literally hundreds of years of treatment	WR115

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Susan Jane (43093)	
14799	[PolyMet] has no great commitment to the proposed mine region. As we have seen in many recent environmental disasters, such as in West Virginia, the responsible corporate parties typically declare bankruptcy or find another "escape route," leaving local communities to contend with the devastation.	FIN01
14800	the idea that the proposed mining operation will provide a significant boost to the northern Minnesota economy is not a sure bet. There is no guarantee that all jobs will be filled by local workers – and the majority of profits from this enterprise will certainly benefit distant shareholders.	SO06
Sender Name (Submission ID)	Susan Leaf (9767)	
1567	Since there is no copper/nickel mine with sulfide ore that has not polluted the water around it, we can assume this will happen to Minnesota, too.	WR123
1568	It is nearly beyond belief that rational people are even weighing these facts against one another: a mine that will offer a few hundred people jobs for less than one work-life-- a 20 year old man beginning at the proposed mine would be out of work at age 40-- versus the pollution (worst case) or 500 year monitoring (best case) of a cherished wilderness area and the world's largest freshwater lake?	SO01
Sender Name (Submission ID)	Susan Lick (40913)	
13951	Polymet may be able to mine as safely and environmental sound as they propose but to allow a mining operation of this sort in the ecologically sensitive region proposed without a full fledged program to glean all used precious metals is mindless.	PD01
13952	Before DNR issues permits to mine Cu, Pd, Ni, Pt at the Polymet site all measures to provide reclamation and recycling to outdated electronic gadgets should be instituted… I am not proposing that Polymet be forced to advocate this endeavor, this must be done by state government. Currently there is a half hearted program in operation to reclaim these metals but it is by no means adequate to retrieve all metals used to manufacture phones, computers, cars, etc.	NEPA06
Sender Name (Submission ID)	Susan Maas (9620)	
1342	Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity.	WR035
1343	As a Minnesotan, a wilderness lover and a taxpayer -- history suggests we taxpayers will be left holding the bag for cleanup if/when the company folds -- …	FIN08, FIN10
Sender Name (Submission ID)	Susan McCabe (40259)	
9650	I am most concerned with the mercury contaminants which will be going into the groundwater and Lake Superior…Kids in this area already have a higher level of mercury in their bodies.	MERC03
14137	It is not right for a company to be allowed to pollute our environment and harm our infants and children.	HU03
14138	Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit -- that would allow this open-pit sulfide mine to harm Minnesota's fresh water.	WR195
Sender Name (Submission ID)	Susan Miner (4664)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Susan Miner (4664)	
1871	realize the cost in cleaning up the leftover disaster when you are done destroying the pristine area ... The people of Minnesota do not need to add another clean=up bill to our already high taxes.	FIN08
Sender Name (Submission ID)	Susan Murray (14645)	
167	Because this region contains an underground aquifer, NO AMOUNT of money will ensure an adequate clean-up/disaster leak contingency plan.	FIN05, FIN11, WR128
Sender Name (Submission ID)	Susan Narayan (39974)	
6234	I urge you to reject this risky proposal to mine sulfide ore in the headwaters of the St. Louis River.	WR195
Sender Name (Submission ID)	Susan Nordin (18365)	
2544	There's been a lot of speaking about pollution and pollution runoff, heavy metals, and mercury. And this impact and the impact on human health. And I have a deep concern about that.	HU03
2545	One thing that is noted in the plan is that already there are currently 16 main thoroughfares for large mammals to traverse at this point remaining across the Iron Range area. This project would do away with two of those permanently	WI03
2546	This is a high-quality wetland that we're talking about. This is pre-settlement wetland that cannot be replaced. It's 1,000 acres. We're talking about trading that for -- trading land that is ours under the Forest Service for mine pits and low-quality wetlands, which is not going to be supportive of our health.	WET14
5425	We respectfully request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks of the proposal.	HU01
5426	After reviewing the PolyMet SDEIS, we believe that the information on mercury releases and the potential for mercury bioaccumulation is insufficient. The SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of mercury and other air pollutants or of hydrologic changes on mercury bioaccumulation. The SDEIS does not provide evidence to justify its claims about collection and containment of mercury and sulfates.	AIR05
5428	The PolyMet SDEIS also provides an insufficient analysis of the human health risks of other pollutants, such as neurologic morbidity resulting from manganese and lead release; and carcinogenic effects of air emissions of diesel, asbestos-like fibers, nickel and other particulates, and of arsenic releases to water.	HU01
5431	The PolyMet SDEIS...fails to assess impacts of tailings groundwater seepage on nearby residential populations.	HU01, WR041
5443	[The requested supplemental] Health Impacts Assessment should include at least the following: Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges based on reliable toxicity and epidemiology data.	HU01
5444	[The requested supplemental Health Impacts Assessment should include:] Assessment of health risks resulting from fossil fuel combustion, including impacts of burning coal to meet mine energy demands.	HU01
5445	[The requested supplemental Health Impacts Assessment should include:] Assessment of potential health impacts on residential wells from tailings seepage and cumulative health risks from contaminants to other drinking water sources.	HU01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Susan Nordin (18365)	
5446	[The requested supplemental Health Impacts Assessment should include:] Health risk assessment for on-site workers at both the PolyMet mine and plant, reflecting both cancer and non-cancer risks.	HU04
5447	[The requested supplemental Health Impacts Assessment should include:] Assessment of cumulative mercury risks, including hazard levels in bodies of water that are already impaired for mercury in fish and risks posed by mercury concentration downstream in the St. Louis River.	MERC03, MERC10
5448	[The requested supplemental Health Impacts Assessment should include:] Assessment of cumulative cancer and non-cancer risks from existing and additional sources of toxic chemicals, such as manganese, arsenic, lead and nickel, applying the most protective health risk analysis and an appropriate “lifetime” exposure.	HU05
5449	[The requested supplemental Health Impacts Assessment should include:] Assessment of cumulative risks of multiple chemicals and exposure routes on vulnerable populations, including infants, children, the elderly and populations who have higher rates of consumption of affected foods, such as fish and wild rice.	HU01
5514	We would further request that, in revising the PolyMet SDEIS, a comprehensive Health Risk Assessment be prepared under the guidance of the Minnesota Department of Health.	HU01
5851	The PolyMet SDEIS fails to analyze health risks to workers who would work on -site at the PolyMet mine or plant…	HU04
13054	There are significant concerns relating to human health that need to be thoroughly examined before such a project is allowed to proceed. These have to do with toxic pollutants related to sulfide mining, which are known to affect human health such as methyl- mercury, lead, arsenic, manganese, air pollution and asbestos.	AIR10
13063	We ...expressed concern about the lack of information relating to human health impacts within the PolyMet proposed project's SDEIS... Specific information about toxic pollutants such as mercury, asbestos and air pollution are not fully and clearly disclosed within the SDEIS... The data relating to the amount of mercury and methyl-mercury appears incomplete.	HU01
13073	…the proposed Poly Met copper-nickel mine project could have significant adverse impacts on human health as a result of pollutants released to air, surface water and drinking water... [The SDEIS] fails to adequately assess important risks to human health from pollutants that would be released from this project. The absence of any professionals from the Minnesota Department of Health from the List of Preparers of the SDEIS is particularly troubling.	HU03
13079	The information on mercury releases and the potential for mercury bioaccumulation is insufficient. The SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of mercury and other air pollutants or of hydrologic changes on mercury bioaccumulation. The SDEIS does not provide evidence to justify its claims about collection and containment of mercury and sulfates.	AIR05, WR017, WR018
13083	The PolyMet SDEIS ...provides an insufficient analysis of the human health risks of other pollutants, such as neurologic morbidity resulting from manganese and lead release; and the carcinogenic effects of air emissions of diesel, asbestos-like fibers, nickel and other particulates, and of arsenic releases to water.	HU01
13087	The PolyMet SDEIS does not discuss impacts of exposures to vulnerable populations, such as infants, children, the elderly and persons who rely for subsistence on fish, wild rice, or game species where pollutants may bioaccumulate.	HU01
13092	The SDEIS should include a Health Impacts Assessment... including: a description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges based on reliable toxicity and epidemiology data.	HU01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Susan Nordin (18365)	
13093	The SDEIS should include a Health Impacts Assessment...including: an assessment of health risks resulting from fossil fuel combustion, including impacts of burning coal to meet mine energy demands.	HU01
13097	The SDEIS should include a Health Impacts Assessment…including: an assessment of potential health impacts on residential wells from tailings seepage and cumulative health risks from contaminants to other drinking water sources.	HU01
13100	The SDEIS should include a Health Impacts Assessment... including: health risk assessment for on-site workers at the Poly Met mine and plant, reflecting both cancer and non-cancer risks.	HU04
13104	The SDEIS should include a Health Impacts Assessment... including: assessment of cumulative mercury risks, including hazard levels in bodies of water that are already impaired for mercury in fish and risks posed by mercury concentration downstream in the St. Louis River.	HU01, MERC03, MERC10
13106	The SDEIS should include a Health Impacts Assessment… including: assessment of cumulative cancer and non-cancer risks from existing and additional sources of toxic chemicals, such as manganese, arsenic, lead and nickel, applying the most protective health risk analysis and an appropriate "lifetime" exposure.	HU01
17514	Without…a health risk assessment, communities affected by the PolyMet proposed project are denied the opportunity to make a fully informed decision about this project. We believe the lack of such a health assessment renders the current SDEIS incomplete and insufficient.	HU01
17515	We respectfully request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks in the proposal. We would further request that, in revising the PolyMet SDEIS, a comprehensive Health Risk Assessment be prepared under the guidance of the Minnesota Department of Health.	HU01
17516	Mercury contamination of fish and impacts on neurotoxicity in the developing fetus as well as infants, children and adults is a significant public health concern in Minnesota…We are aware that many of the bodies of water downstreams of the proposed PolyMet mine and plant are legally impaired due to mercury in fish tissue.	MERC03
17517	Other mine facilities that release mercury and/or sulfates increase the cumulative risk of methylmercury bioaccumulation. The lower reaches of the St. Louis River, including the St. Louis River estuary, are known to contain particularly high levels of mercury.	MERC10
17518	The PolyMet SDEIS fails to analyze health risks to workers who would work on-site…and fails to assess impacts of tailings groundwater seepage on nearby residential populations.	WR041
17519	we…request that the PolyMet SDEIS be revised to provide more complete information on mercury and sulfate air pollution emission and deposition, water pollution seepage from various sources, and the potential conversion to and bioaccumulation of methylmercury resulting from releases to the environment and hydrological changes from the proposed PolyMet project.	AIR02, MERC08, WR033, WR060
17520	We further request that the PolyMet SDEIS be determined inadequate pending supplementation to include a Health Impact Assessment, under the direction of the Minnesota Health Department.	HU01
17521	The SDEIS should include a Health Impacts Assessment… including: …assessment of cumulative risks of multiple chemicals and exposure routes on vulnerable populations, including infants, children, the elderly and populations who have higher rates of consumption of affected foods, such as fish and wild rice.	HU01
Sender Name (Submission ID)	Susan Rom Zuriff (20045)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Susan Rom Zuriff (20045)	
1696	The effect on long-range state finances is imperiled if that happens. And the number of jobs may be many fewer than anticipated with the expansion of technology, especially robotic.	SO06
Sender Name (Submission ID)	Susan Scherer (16178)	
9750	It seems likely that contamination will occur and that cleanup, if even possible, will take a very long time. That is not what I consider a stance for an agency that is supposed to protect our natural resources, especially water.	WR070, WR195
11465	The pursuit of money seems to drive many decisions, but it cannot be our number one consideration, if we want to continue living on this planet.	SO01
18591	I worry about wetland destruction, contamination of the water entering the watersheds to Lake Superior	WR111, WR112
18595	Harm to the ecology of the Superior National Forest is a violation of Indian treaty rights.	SO02
Sender Name (Submission ID)	Susan Schneck (54134)	
16028	There are other ways to grow our economy safely with respect to the environment.	SO02
Sender Name (Submission ID)	Susan Schurke (18080)	
3196	I'm very concerned about the financial assurance in the SDEIS. Who can ever figure out what the cost of the cleanup will be for 500 years.Who can ever figure out what the cost of the cleanup will be for 500 years. Who will pay this? Who -- what is the amount they could possibly -- that can be put forward to replace something that can never be replaced; our clean water that we desperately need?	FIN01, FIN05
3197	The proposed sulfide mine and tailings dump would pollute streams, wetlands and drinking waters for hundreds if not thousands of years.	WR115
3198	I request that common-sense alternatives like putting liners under the permanent waste-rock pile and the tailings piles be analyzed before the EIS can be finalized.	ALT10
3199	The vast majority of wetlands mitigation is outside the Lake Superior Basin and there is no plan to replace most of the indirectly-affected wetlands.	WET01, WET03
3200	I am concerned that cumulative impacts of the PolyMet Project, and other existing and expanding mines, would impair wild rice, fish and aquatic ecosystems and violate the treaty rights of Indian tribes to hunt, fish and gather in the Superior National Forest lands ceded to the United States.	CU11
3201	I'm concerned that PolyMet's water and air pollution from mine pit, waste rock and tailing piles, and PolyMet's excavation and changing hydrology and wetlands would increase mercury loading to wetlands and streams and increase mercury bioaccumulation in fish putting human health at risk.	MERC02
3202	I'm concerned that PolyMet's discharge would increase carcinogenic arsenic in Hoyt Lake's drinking water and release arsenic, lead and manganese, chemicals that impair brain function, into the ground water.	HU05
3203	I am concerned that PolyMet's water pollution from the permanent mine site waste-rock pile would need treatment for at least 200 years and pollution from the tailings piles would require treatment for at least 500 years.	WR035

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Susan Schurke (18080)	
13313	I believe that issues that haven't been analyzed at all in the SDEIS, like impacts on workers' health, be studied before the EIS is finalized.	HU04
Sender Name (Submission ID)	Susan Solterman Audette (43313)	
15754	Northern Minnesota needs economic development that does not risk polluting surrounding surface waters with a mix of acid and heavy meta	SO01
15755	PolyMet, as proposed in the Supplemental Draft Environmental Impact Statement, creates a new ongoing water pollution source in the headwaters of the St. Louis River, the largest American tributary to Lake Superior, which contains 10 percent of the world's fresh water. PolyMet's own data show it is expected to generate water pollution for more than 500 years.	PD03
15756	Treating the polluted water requires a complex and untested mechanical system of pumps, pipelines, and filters, which would need to operate indefinitely. The plan does not consider the possibility of mechanical or human failure. PolyMet has no contingency plan for predictable mechanical problems such as pipeline failures, extreme weather or human error. These considerations remain unaddressed in the SDEIS and should not, ultimately, be overlooked by our State's designated environmental managers and stewards.	GT10
Sender Name (Submission ID)	Susan Soule (38413)	
13644	The idea that we would risk centuries of pollution and the staggering costs of cleanup (provided that is truly possible) to one of our most basic and essential resources for a few hundred jobs lasting two or three decades is beyond belief.	SO01
13645	WATER is a precious resource. Besides being the foundation for much of Minnesota's recreational industry, it is essential to the life of our entire ecosystem from the lowliest life forms to human beings.	WR111, WR195
13646	The idea that we would allow Polymet and its affiliates to do this, with their horrendous track record, is equally terrible.	FIN01
Sender Name (Submission ID)	Susan Stanich (11627)	
2311	We will be left with thousands of acres of ruined land and water, ruined for 500 years into the future. Glencore/PolyMet says it will put into place its "reverse osmosis" plant in 40 years, to clean things up. Even if such a thing would work, and the SDEIS doesn't appear it would, the company's history indicates that its more likely to drop out of the picture before then, leaving us with ugliness, illness, poisonous sludge and no money or ability to deal with it.	SO02, WR037, WR128, WR143, WR144
2311	We will be left with thousands of acres of ruined land and water, ruined for 500 years into the future. Glencore/PolyMet says it will put into place its "reverse osmosis" plant in 40 years, to clean things up. Even if such a thing would work, and the SDEIS doesn't appear it would, the company's history indicates that its more likely to drop out of the picture before then, leaving us with ugliness, illness, poisonous sludge and no money or ability to deal with it.	WI05, WI02
3314	How will Gencore/Polymet keep its intensely toxic sludge safely behind its proposed dam during increased rains of global climate change? What is it plan for putting aside money now to pay for cleanup in 50 to 200 years?	WET24, WR196
3314	How will Gencore/Polymet keep its intensely toxic sludge safely behind its proposed dam during increased rains of global climate change? What is it plan for putting aside money now to pay for cleanup in 50 to 200 years?	FIN01, FIN05, WR066, WR130

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Susan Stanich (11627)	
7406	A DNR warning sign that the mercury-loaded fish in the St Louis are unsafe for human consumption is visible from our house. ...So we fish elsewhere, and we gather wild rice in lakes whose productivity clearly will decline with the sulfates and mercury leaking from this dreadful project.	WI02, VEG02, WET05
7406	A DNR warning sign that the mercury-loaded fish in the St Louis are unsafe for human consumption is visible from our house. ...So we fish elsewhere, and we gather wild rice in lakes whose productivity clearly will decline with the sulfates and mercury leaking from this dreadful project.	AQ05, WR156, WR158
7409	Unless Glencore/Polymet can prove that they can prevent [devastating environmental damage], the EPA should deny the project and the Army Corps should not give them a section 404 wetlands-destruction permit.	COE03
7409	Unless Glencore/Polymet can prove that they can prevent [devastating environmental damage], the EPA should deny the project and the Army Corps should not give them a section 404 wetlands-destruction permit.	COE03
Sender Name (Submission ID)	Susan Williams (54846)	
19007	Minnesota is the "land of 10,000 lakes"…there is water everywhere and it is all connected…PolyMet try to convince us that they will be able to treat the contaminated water they will be creating for 500 years. Too risky!	WR195
19008	Companies go bankrupt all the time…What happens then? For the next 500 or 1000 years? Who pays to clean up the mess they've made? We do!	FIN01, FIN10
Sender Name (Submission ID)	Susie Kleusch Parkhurst (40104)	
6474	I do trust and rely on entities such as the FDA, EPA and MN DNR to have done their due diligence to assure that they have done all they can to protect and preserve all that they are charged with protecting. I feel comfortable with the levels of guidelines that are currently enforced and that will be enforced in the future to protect our environment and the environment of the world.	PER34
Sender Name (Submission ID)	Susu Jeffrey (42474)	
7063	More money in clean up than extraction--Foreign-owned, therefore profits go away	SO02
10759	20 YEARS of MINING...20 GENERATIONS of CLEAN UP…Reject the PolyMet sulfide mine plan in Northern Minnesota's water-rich territory.	WR115, WR195
12548	We think the PolyMet mine is a dangerous idea because the jobs really aren't there. They are only there for 20 years, and then 500 years of cleanup.	SO01
Sender Name (Submission ID)	Suzanne Bowman (4038)	
846	I am very anxious to hire new employee's as the result of Polymet opening. Not only will the plant hire, but the vendors who supply the mine will hire, and we will see a much needed increase in hotel stays therefore I will be able to hire.	SO10
847	I love the idea that the plant will be recycled from the old LTV plant!	PD28
13595	I believe that we need the precious metals very much and we cannot have it dependent on another country, especially China and Japan because they are looking to go to war between them.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Suzanne Candell (34383)	
13247	Although the project offers jobs in the immediate term, they are transitory. The long-term damage that such a project will inflict environmentally and economically on the area means that the legacy to future generations may be a loss of tourist income, illness and spoilage of the natural beauty of the area.	SO01
Sender Name (Submission ID)	Suzanne Michael (30499)	
13992	We here in Mi. are proud of our Great lakes and want to keep them perfect and you're coming in and ruining it al isn't in any of plans.	WR115
Sender Name (Submission ID)	Suzanne Sette (16169)	
9713	We saw what can happpen in [West Virginia] with the coal industry polluting water for 350,000 people. And then declaring bankruptcy!! We don't need Polymet in this state with the opportunity to do the same!	FIN01
Sender Name (Submission ID)	Suzanne Shuckhart (50020)	
12999	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Suzanne Steinhagen (54757)	
19188	The people for sulphide mining are endeavoring to solve the problem of employment by formulating a more complicated problem of toxic water pollution, lasting two to five hundred years.	WR115
Sender Name (Submission ID)	Sven Hoaglund (44459)	
10625	I think that its great that for 20 years there might be a few more jobs in a pretty cash strapped region of our state, but in all reality it is not sustainable...and after the 20 years of mining are up the residents of northern MN will be in the same place they were before this.	SO01
10627	It' also absurd that we might be cleaning up waste from these 20 years of mining for an eternity...or 500 years which is close enough.	PD03
Sender Name (Submission ID)	T & S Wright (38976)	
18244	PolyMet is vital to our region's longevity and the future is depending on Polymet to help breathe life back into the local economy that has NOT been here since the late 1970's	SO10
Sender Name (Submission ID)	T Olsen (44213)	
11951	The fact that we need to discuss and learn about how to clean up this toxic process and consider clean-up efforts for at least the next 100 years, likely more if it's possible at all, should be reason enough to stop this conversation here and now!	PD01
14885	Can anyone provide substantive proof that no harm will come to the areas proposed in the mining? I have not heard any such evidence. What I have heard is evidence that this type of mining allowed in other states has resulted in significant damage and pollution. …This land and our environment belongs to everyone, not just those who want to profit from it regardless of impact.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	T Wilson (36936)	
15907	...I feel the offshore companies should not be allow to mine on US soil. They too easily escape the responsibility for proper clean up after the [environmental damage] has occurred.	FIN04
15908	Please show me a study which displays the demand for copper and the need to destroy our ecology for this myopic enterprise.	NEPA03
15909	Jobs? the few actual jobs for the locals is far outweighed by the damage to the ecology for what 20 jobs?	SO01
Sender Name (Submission ID)	T. Chandler (44182)	
12727	Many costs associated with this project have not been addressed: costs of health effects due to increased pollution in water and air, depressed real estate values (which has already occurred in the area), costs of future perpetual cleanup which will be born by taxpayers (this site will end up as a Superfund site costing billions of dollars), costs of lost influx of revenue (new residents/tax base, tourists), costs of road and other public infrastructure maintenance, costs of abandoned buildings/homes when the mining company stops operations, and all other costs that will be born by taxpayers. These and all other external costs must be calculated and defined in the SDEIS.	SO01
12729	This mine will result in hundreds of acres of permanent habitat destruction. Important natural resources, from clean ground water to animals such as moose and lynx, will be permanently affected or destroyed.	WI01, WI02, WR111, WR112
15367	No company or government action has ever prevented water contamination from sulfide mines from occurring. No company has ever been able to completely clean up the contamination once it occurs nor is it possible for any company to continue with cleanup for the hundreds of years remediation would take.	PD26, WR023
15368	The SDEIS does not address how [water] contamination will be prevented, nor does it adequately address how clean up of the certain contamination will be handled. The SDEIS provides no details on the impacts to water quality, wildlife, or human health if the water treatment system ceases operations at some time during the 500+ years during which the polluted water is being discharged.	PD03
15369	The SDEIS does not adequately address the prevention of air contamination from dust, particulates, emissions from machinery, and emissions from power generating plants.	AIR11
15370	The SDEIS does not address how on-site or off-site spills or leaks of fluids, ore and waste materials and other accidents will be handled to prevent contamination.	HAZ01
15373	It is clear that sensitive receptors, including wildlife, residents, and tourists will be affected by the blasting and will permanently avoid the area, not just avoid the area “at times.”	N05
15374	The SDEIS fails to provide details of how the monitoring and maintenance of pollution prevention measures would be handled for the hundreds of years needed to Minnesota Rules 6132.3200 requires that the site must be maintenance-free at closure, but the PolyMet mining plan calls for at least 500 years of active water treatment.	FIN11
15376	The stockpile covers and liners are not adequate to prevent migration of contaminants to air, surface water, and groundwater. The SDEIS fails to address how the pollution prevention measures would be maintained over the hundreds of years necessary to prevent contamination.	WR127, WR138
15379	Mining companies are notorious for abandoning projects once the ore is extracted, leaving cleanup to the taxpayers. … If this mining operation is allowed, it will end up as a Superfund site that will take decades just to reach the remediation stage and will cost the taxpayers of this country billions of dollars.	FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	T. Chandler (44182)	
15380	The SDEIS fails to accurately portray the hydrogeology of the area.	WR071
15381	It is clear that PolyMet is only able to pursue this project because of the environmental justice associations. This project would never have been proposed if the affected area was more highly populated and the people more affluent. The only way a project like this can obtain approval is if the affected persons are convinced that the jobs benefit outweighs the environmental devastation. It is intolerable to think that the involved state agencies will allow the people of this area to be so negatively affected by this project.	SO01
15382	This SDEIS has failed to provide adequate and accurate data to show that PolyMet will operate the proposed mine without polluting the environment, affecting public health and safety, and negatively affecting the socioeconomic wellbeing of the area. I request that involved agencies reject this SDEIS.	PD01
Sender Name (Submission ID)	Tam McGehee (15894)	
11290	The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards.	WR023, WR060, WR181, WR182, WR195
Sender Name (Submission ID)	Tami Limberg (45247)	
9090	This type of mining has never been done without pollution and our land cannot take the hit. Yes it would bring in millions of dollars to our state in revenue, but at the expense of one of the last remaining wild places.	SO02
Sender Name (Submission ID)	Tanner Bailey (43742)	
11791	I believe no mining should be allowed in our National Forests. Please keep the forests in their natural state.	WILD02
Sender Name (Submission ID)	Tanner Bong (18070)	
13261	And I support the whole mining situation because it will help with the outcome of jobs and people.	SO10
Sender Name (Submission ID)	Tanner Lucas (20081)	
15742	The PolyMet NorthMet SDEIS contains inadequate analysis of the cumulative effects of habitat fragmentation and loss on the Canada Lynx (Lynx canadensis).	WI02
15743	The Canada Lynx is a threatened species listed under the federal Endangered Species Act. The NorthMet project area is in designated critical habitat for the lynx, and the SDEIS notes that the proposed action would destroy over 1,400 acres of critical lynx habitat at the mine site. The designation of this area as critical habitat is supposed to trigger analysis of whether the proposed action, and the cumulative effects of other reasonably foreseeable actions place the Canada Lynx in jeopardy.	WI01, WI02
15744	the incidental death of Canada Lynx due to increased vehicle traffic between the mine and plant site is noted, but inadequate attention is paid to mitigation measures that could limit incidental deaths of lynx. Despite this, the SDEIS contains contradictory statements about the use of roads as travel corridors by lynx.	WI01, WI03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tanner Lucas (20081)	
15799	The cumulative effects analysis section of the NorthMet SDEIS fails to adequately account for a number of reasonably foreseeable projects.Specifically, the Twin Metals and Teck American projects are listed as "speculative" in Section 6.2.2.1.21 and are not analyzed for their cumulative effects. No evidence or rationale for excluding these projects from the cumulative effects analysis is offered.	CU02
15801	In Section 6.2.3.6.4, the Gray Wolf is the only "Special Status Species" for which even limited analysis of cumulative effects is conducted, despite the Canada Lynx's status as a federally threatened species.	WI01
15805	Please… Include the Twin Metals and Teck American projects as reasonably foreseeable projects in the cumulative effects analysis in section 6.2.2, since the disposition of the NorthMet SDEIS and subsequent permitting decisions could make these projects more likely to be built.	CU02
15807	[Please] Include the Canada Lynx as a "Special Status Species" in Section 6.2.3.6.4 and conduct a cumulative effects analysis of the impact on Canada Lynx.	WI01
15809	[Please] Analyze and include mitigations such as tunnels and fencing to limit the possibility of incidental take of Canada Lynx by increased road traffic associated with the NorthMet proposed action.	WI01, WI10
15810	[Please] Remove contradictory language in SDEIS about Canada Lynx utilization of roads as travel corridors. For example, on p. 5-628 the SDEIS states "Lynx utilize snow packed trails and roads as travel corridors," while on p. 5-366 it says "this species does not rely on roads for	WI01, WI03
15815	[Please] Analyze and include mitigation such as accelerated re-vegetation of the mine site after closure to decrease the amount of time the mine site would be inhospitable to Canada Lynx.	WI01, WI02
Sender Name (Submission ID)	Tanya Bachmann (54563)	
18966	…I am VERY concerned about PolyMet's proposal and the impact on Minnesota's water, Minnesota's environment, and Minnesota's citizens/guests for years and years to come!(…) Our water will not remain safe, clean or maintenance free!	WR037, WR115
Sender Name (Submission ID)	Tanya Beyer (17137)	
1658	Not vinyl, not clay, not metal set in the ground to hold the drainage in storage ponds or divert run-off from towering piles of dug-up rock, wood rubble and dried-out peat will keep the acid waste water from where we don't want it to go.	WR126
1659	Minnesota, girded underneath by sands and the soft stuff making up peat bogs, and abundantly snowed-on many winters, creating vast movements of water, is hugely vulnerable to the transfer and pooling up of chemical toxins.	WR112
1660	What if closures due to major market slowdown happened within the lifetime of Polymet	PD24
1661	what if the few fish left are full of mercury, another pollutant released by sulfide mining--or arsenic, or both?	AQ05
1662	And what about carbon emissions [767,648 metric tons annually] from the heavy equipment and land disturbances normal to mining?	AIR01
2088	Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever.	NEPA04, WR195

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tanya Beyer (17137)	
3459	Last night my friend and I went to the hearing in Duluth, a first of three around Minnesota, about the proposal to let a big mining conglomerate, Polymet, leak sulfuric acid and a mess of other toxic overflow into the Lake Superior watershed in order to get at the copper, nickel, platinum and other mineral wealth that underlies this area our hearts draw sustenance from.	WR111
3460	I say mines because Polymet's proposed mine located near the Embarrass and Partridge Rivers, which would wash the pollution into the St. Louis River and thence Lake Superior, is not the only proposed sulfide mine. Twin Metals is a joint venture between a Canadian and a Chilean company that wants to dig another mine barely three miles from the Boundary Waters Canoe Area near Ely, Minnesota.	CU02
3461	No company, whatever formal arrangements it puts on record, will retain squadrons of river guardians or pit watch personnel past its own dissolution, or past all caring once the blue coldwater lakes of legend or the fishing streams are discolored or pretty well devoid of healthy aquatic life.	FIN01
3462	Arguments made by citizens in favor of mining are that we need the copper that the region has, that no other mining region of the world has the robust environmental oversight found among Minnesota agencies and that we have to at least let Polymet give it a first try, ostensibly to see how well they do protecting the rest of our resources. Unfortunately, and most persuasively, there is the loudly proclaimed and very real need for paying jobs in northern Minnesota. The first point is moot; copper mines crowd the southern two thirds of Arizona, and are also found in New Mexico, Utah, Montana and Michigan. As for oversight, in any area of the world, whatever underlies a mine pit is more or less permeable by water, and no matter what is practiced in the westerly copper mining districts, a place like Minnesota, girded underneath by sands and the soft stuff making up peat bogs, and abundantly snowed-on many winters, creating vast movements of water, is hugely vulnerable to the transfer and pooling up of chemical toxins.	PER35
3463	Meantime, during and after the inevitable bust cycle that follows in the northland, as inhabitants in their degrees of hunger and desperation forage fish, hunt and forage from the land, what if the few fish left are full of mercury, another pollutant released by sulfide mining--or arsenic, or both?	AQ05
3470	And what about carbon emissions from the heavy equipment and land disturbances normal to mining? One source, an Anishinaabe native people's on line tract titled Protect Our Manoomin (wild rice,) says sulfide mining will have an annual carbon footprint of 767,648 metric tons annually. Credit for the facts and figures is given to sources including WaterLegacy, Friends of the BWCA, and Lake Superior Mining News.	AIR01
12992	This whole region is underlain by percolating water which will begin to run with soluble metals including mercury, getting into lakes, marshes and rivers, harming wildlife scarce already including the threatened lynx and our declining moose populations.	GEN03
12995	The Polymet scheme is a rich corporate affair that in no way benefits anyone except those who measure well-being in dollars. A hoax is being perpetrated on the job-poor promising them work at the expense of everything else in the region.	SO02
16242	The questions are when, how soon and how much effluent will make its way where-all and how far.	WR064, WR070, WR111, WR177
16249	our kind of people just doesn't agree to leave things well enough alone where financial wealth is at stake. The ones who can will amplify their rationale for going and getting, and they persuade enough of the others that life will be better for them too as a result. This is how one more big patch of Earth full of places with virgin thickets and swamps, rivers and lakes that still keep their historic complement of fishes and frogs, birds and wild fur bearers risks becoming another piece of everywhere else, with tired water and particulate-blown air.	SO01
Sender Name (Submission ID)	Tara Skar (54537)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tara Skar (54537)	
19172	The Boundary Waters and the surrounding National Park/Forests are more than important tourist attractions and recreation areas—they are historically and culturally integral to Minnesota's identity. Our solution to low employment can't infringe on future generations' environmental health.	SO02
Sender Name (Submission ID)	Tara Widner (54915)	
19316	Manoomin is a sacred plant to the Ojibwe. The Ojibwe were compelled by aprophesy prior to colonization to migrate from the east coast of North America to the Great Lakes region to live where the 'food grows on the water' and that food was manoomin. Manoomin is the first food to be eaten by Ojibwe babies and lastly served at funeral ceremonies. The manoomin harvest continues to be central to Ojibwe families for it's nutrition, economical and spiritual value.Any proposed mine that puts manoomin in jeopardy should not be allowed to go forward.	CR01
19317	The Partridge and Embarrass Rivers are wild rice waters that will be affected by sulfide runoff from the proposed PolyMet mine. All mines in sulfide bearing rock in a non-desert environment have resulted in pollution. Minnesota's unique topography with water tables so near the surface, it facilitates surface and ground water interaction and more potential for pollution.	VEG04, WR156
19318	There are no plans for lining the tailings piles. When it rains or snow melts the tailings piles will leach pollutants into the water. There are no plans in place for floods or other emergencies such as the flooding in Northeastern Minnesota in 2012.	WR127, WR130, WR180
19319	Water is sacred. We cannot allow for water to intentionally be polluted and then treated by a method that has not been proven effective at the volumes PolyMet is proposing.	WR195
19320	By PolyMet's own admission, the water will require 500 years of perpetualtreatment- completely unrealistic. All of this for the possibility of a few hundred jobs for a couple decades. It is irresponsible to even consider the Polymet offer. There is no amount of financial stability that can guarantee that kind of financial or moral obligation.	SO01
19321	The land is sacred to the Ojibwe. The mine site and the area around the mine isknown to the Ojibwe as Mesabe Widjiu, the Laurentian Divide. The mine will pass through the Thunderbird Trail preventing access for ceremony and gathering of medicine.	CR01, CR05
19322	The Ojibwe continue to hold usufructuary Treaty rights in the area where the mine is being proposed. To allow pollution and the ecological devastation will prevent the Ojibwe from exercising their usufructuary rights. You can't harvest manoomin, hunt, trap or gather on land that has been poisoned.	CR01
19323	there is no statement on the potential public health impact to the general public. This area is known for exceptionally high rates of mesothelioma. It has been noted in studies that there are 'asbestos like fibers' in the rock of the eastern Iron Range. There are no assessments of the chemicals including arsenic that will be released into the city of Hoyt Lake's water supply, Colby Lake. There are no assessments on the health impacts of the increase in energy usage that will be required. There are no public heath assessments of any kind.	HU01
19324	The part of Minnesota that is being offered up as an ecological sacrifice is sacred to the Ojibwe and a treasure to all Minnesotans.	GEN01
Sender Name (Submission ID)	Ted Donahue (54520)	
18737	Keep the Boundary Waters pristine. I want to continue to spend my vacation dollars there.	WILD02
Sender Name (Submission ID)	Ted Heller (47702)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Ted Heller (47702)	
7965	Unless you want to ban copper/nickel products in the state, MN needs to live up to it's responsibility to responsibly mine these minerals. MN can do this better and safer than probably most states/countries in the world.	NEPA05
Sender Name (Submission ID)	Ted Wahl (44589)	
11831	As a young youth in Minnesota, building a mine close to the boundary waters that's only providing 50-100 jobs for the economy, is NOT worth the 500 years of clean up.	SO01
Sender Name (Submission ID)	Terence H Cooper (42710)	
8598	The permitting of one Cu/Ni mine in this area will imply that additional mines are also permitable. I think the cumulative effects of Cu/Ni mines are so detrimental to the environment that permitting one mine is not acceptable.	PER07
8599	With the mine lasting 20 years I find this concept of processing for water quality 200 and 500 years into the future unacceptable...Polymet would create polluted water requiring expensive treatment for 500 years after they stop mining, and millions of gallons of untreated, polluted water would seep from the site every year into groundwater and nearby rivers according to the SDEIS.	WR115, WR195
8601	The future is uncertain for our climate due to climate change. Experts predict that storms will be more severe in the future. PolyMet's plan fails to plan for contingencies like pipeline breakages and extreme weather events.	PD22
8603	The fact that PolyMet's mine plan doesn't release details about how much of a damage deposit would be needed to protect taxpayers from the cost of 500 years of cleanup and maintenance is not acceptable. ... Minnesotan's will be left holding the bag for the cost of cleanup and maintenance.	FIN01, FIN10, FIN13
Sender Name (Submission ID)	Teresa / Aaron Alto (45519)	
11498	The mining of these metal resources threatens another resource: water and clean and healthy watersheds and watershed ecosystems	WR115
15757	And we are talking about a necessary cleanup—according to the company’s own materials—required for too long for human companies or governments to plan for or fund.	FIN01
Sender Name (Submission ID)	Terrell Brown (57945)	
19837	There is no way to guarantee that the money will be available in even 100 years or project what the costs may be at that time.	FIN01
Sender Name (Submission ID)	Terri Fogarty (52224)	
16220	Protect our natural resources - not their pocketbooks!!!!! There is NO price you can put on our natural resources.	SO01
Sender Name (Submission ID)	Terry (38473)	
13598	Polymet mining will provide a much needed economic boost for northern Minnesota lasting many years.	SO10
13599	As long as Polymet can prevent permanent damage to our lakes and streams, Polymet should be given the right to mine.	WR190

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Terry D Welander (14793)	
185	Where is the accounting of the emissions from the 1500 volcanoes droppingtoxins everywhere downwind (which is nearly everywhere on Earth) and on the surface in NE MN in particular?	AIR09
186	Where is the accounting of the emissions from the daylighted natural ore bodies in numerous locations in NE MN?	AIR11
187	Providing nickel production in North America is a national security requirement negating practically all of the environmental concerns.	NEPA05
188	Immediate issuance of the necessary permits by the MPCA to Polymet is urged in the strongest possible terms to make this review lawful and avoid formal criminal court complaint from local governments	PER34
189	Only the MPCA should be involved and should immediately issue permits based on the 99% pollution sources on the planet being the 1500 active volcanoes and their beyond huge emissions affecting practically all air on Earth.	AIR14
1765	The U.S. Corps of Engineers jurisdiction is limited to commercially navigable waters. The closest being the Duluth docks and harbor 60 miles away from the project. Or the U.S. Corps of Engineers does not and has never had jurisdiction on this project.	COE11
1766	Snow fall in NE MN and other places has 50 parts per billion Mercury; most likelyfrom all those 1500 natural volcanic emissions.	AIR05
Sender Name (Submission ID)	Terry Houle (11562)	
2206	I do not feel the SDEIS contains enough detail on how our water, wetlands, Lake Superior and the BWCA will be protected for 500+ years.	WILD01
2206	I do not feel the SDEIS contains enough detail on how our water, wetlands, Lake Superior and the BWCA will be protected for 500+ years.	WILD01
2207	I do not want the forest land sold, rented or traded for this project. Need more info cause not a fair trade.	LAN03
2207	I do not want the forest land sold, rented or traded for this project. Need more info cause not a fair trade.	LAN03
7911	This project is a violation of section 404c under the Clean Water Act and should not be allowed.	PER35
7912	DNR Commissioner Landwehr comments about the SDEIS comment process I believe have tainted the entire SDEIS process and unduly influenced people.	NEPA15
7914	The flow rate information contained in the SDEIS has already been called into question for accuracy. This should be restudied to insure its validity and accuracy for something this important	WR003
7916	Also believe their was a bias of where and how information was obtained with links between Polymet/Glencore and the MN Department of Natural Resources which should be investigaged if allegations are true	NEPA15
11313	This project is a violation of section 404c under the Clean Water Act and should not be allowed.	COE03
11316	DNR Commissioner Landwehr comments about the SDEIS comment process I believe have tainted the entire SDEIS process and unduly influenced people.	NEPA15

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Terry Houle (11562)	
11317	Minnesota Superfund Sites in St Louis County are already numerous. To add more potential risk to a sensitive area in not acceptable.	CU11
11318	The St. Louis River Watershed Monitoring and Assessment Report published in March 2013 stated: "However, historic and current land use changes throughout the watershed have proven to be damaging to the many lakes, rivers and streams within the St. Louis River watershed."Therefore [the NorthMet Project area is] already a fragile area with a proximity to the Boundary Waters Canoe Area and with all the uncertainties on copper nickel mining that may leave pollution for hundreds of years this is not acceptable.	WR111
11320	Due to this new type of mining I do not believe the health impacts have been studied and identified in this SDEIS report. It is something that should be taken into account before moving forward any further.	HU01
11321	The flow rate information contained in the SDEIS has already been called into question for accuracy. This should be restudied to insure its validity and accuracy for something this important and may be over hundreds of years.	WR003
11322	believe their was a bias of where and how information was obtained with links between Polymet/Glencore and the MN Department of Natural Resources which should be investigaged if allegations are true.	NEPA15
12515	This project is a violation of section 404c under the Clean Water Act and should not be allowed.	COE03
12526	Therefore already a fragile area with a proximity to the Boundary Waters Canoe Area and with all the uncertainties on copper nickel mining that may leave pollution for hundreds of years this is not acceptable.	WR111
12529	Due to this new type of mining I do not believe the health impacts have been studied and identified in this SDEIS report.	HU01
12531	The flow rate information contained in the SDEIS has already been called into question for accuracy. This should be restudied to insure its validity and accuracy for something this important and may be over hundreds of years.	WR003
15099	I do not believe the health impacts have been studied and identified in this SDEIS report. It is something that should be taken into account before moving forward any further.	HU01
Sender Name (Submission ID)	Terry Miller (21890)	
3293	We are impressed with the great deal of depth contained in the completed study and are convinced it shows the safety and viability of the project.	NEPA16
3296	On the contrary, the thorough study indicates the extremely slow rate of travel that the water will filter down through the bedrock, and that water quality standards will still be met even that far out on the timeline [200 to 500 years].	WR190
3297	Let's not squander the opportunity to be the suppliers of these precious resources that will also bring to our state so many new jobs (360 full-time and 600+ related) and considerable added revenue for the State of Minnesota.	SO10
Sender Name (Submission ID)	Terry Nevalainen (21992)	
3312	Polymet has more than answered all questions asked of them and addressed all regulatory requirements.	NEPA16

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Terry Nevalainen (21992)	
3313	Allowing Polymet to operate will definitely help the local, state and federal governments fund further projects and aid with financial support from Polymet and local businesses through taxes created from the employment of the public. At this time in our age we need all the employment help we can get.	SO10
Sender Name (Submission ID)	Terry Olsen (40759)	
14033	Reject PolyMet's plans flawed with predictable failures in the water pumping and treatment system and the power supply to run that system.	WR143, WR144
14034	if the company declares bankruptcy, who would be left to repair the damage and restore the communities and habitat?	FIN01
14035	Once our sacred and natural Minnesota lakes, rivers and aquifers are polluted from a toxic spill, there is no way to ever recover what we lost…we can not recover what we could lose from quality of life, natural habitat, economic benefits of tourism and the livability of the local communities.	SO01
15346	The loss of habitat for the lynx and moose and other rare and endangered species is irreplaceable.	WI02
15347	The damage of mercury to fish and the arsenic in the water would have significant impact on the health of our children and at-risk people.	HU03
15349	I ask that…DNR identify critical habitat that should not be disturbed	WI02
15350	I ask that…that the state health department experts identify real health impacts, especially in consideration of infants and children and the environmental justice impacts from this mine	HU01
15351	I ask that…copper and nickel recycling be investigated and pursued as an alternate and cleaner option.	ALT09, ALT16
Sender Name (Submission ID)	Terry Williamson (27011)	
15264	All of our communities will be lessened to the extent that we allow the limited wilderness that now exists to be further diminished by mining and industrial pollution.	SO01
Sender Name (Submission ID)	Tersenia Schuett (46588)	
9139	Unforseen, predictable and unpredictable incidents and accidents are not addressed in Polymet's proposed water treament plan.	PD22, WR144, WR202
9143	All the financial assurance dollars in the world are not worth taking the risk of impairing MN waters.	FIN08, FIN10
9146	In light of this, I see JOBS as a four-letter word. Don't let ~350 short-term jobs, the heft of big business, and dollar signs cow the DNR into submission.	SO02
Sender Name (Submission ID)	Tess Zangrilli (34016)	
13242	It is in the public's interest that water, which is vital to life be protected.	WR195
Sender Name (Submission ID)	The Bremicker-Bartels (42963)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	The Bremicker-Bartels (42963)	
7752	A required period of two to five hundred years to maintain the infrastructure, test water and ensure compliance is simply not credible in terms of history and the life time of corporate entity –even the longevity of government is questionable given the continued assault on governmental functions. To suggest that the political, financial, and technical will power will be present to assure effective water treatment over the required period of time is ludicrous.	FIN01
Sender Name (Submission ID)	the Maloney Family (43254)	
15794	Four hundred jobs for twenty years traded for a sulfide tailings is not worth it. It is not even going to produce that much in minerals.	SO01
15795	Nothing grows around these mines. The pH is wrong for plants.	VEG06
15797	The ore deposit is not going anywhere. Let us leave it for our future Minnesotans with improved technology to decide if they want to mine the ore.	NEPA03
Sender Name (Submission ID)	The Mowans (38548)	
14026	Three-hundred jobs will never justify what the pits, up to 700 feet deep and the sulfur piles 20 stories high will do to the environment, FOREVER. After the 20 year run when all the wealth leaves this country these miners will again be jobless	SO01
Sender Name (Submission ID)	The Nature Conservancy (42982)	
4161	We believe the conversion of the NorthMet site from lowland forest to industrial mining and ore processing will result in a significant loss of high quality habitat that is important to the ecological integrity of the Sand Lake-Seven Beavers landscape.	VEG03
4163	Specifically, the EIS should include and evaluate a range of meaningful project alternatives, potential modes of failure, contingencies and mitigating measures, adaptive management, cumulative effects, transparent estimates and durable vehicles for financial assurance.	ALT06
4164	Despite the regional and cumulative nature of impacts, the cumulative effects assessment in the NorthMet SDEIS receives inadequate focus, suffering from deficiencies in approach, scope of affected area, future actions and environmental trends evaluated... A watershed framework similar to that used in the Bristol Bay assessment is needed to adequately evaluate the direct and cumulative impacts of the NorthMet project and any subsequent mine development in the region...A watershed approach to mitigation can be implemented and administered under the 2008 mitigation rule through an ILF program or “umbrella” mitigation bank guided by a watershed conservation plan and subject to key standards of practice.	CU03, CU05
4184	The NorthMet project site is located in the headwaters of the St. Louis River, specifically the Embarrass and Partridge Rivers adjacent to Sand Lake-Seven Beavers. These watersheds have some of the highest condition and watershed integrity scores… The St. Louis River watershed is identified as a Conservancy freshwater priority… These watersheds have some of the highest condition and watershed integrity scores in the St. Louis River watershed…In sum, the biological monitoring of the NorthMet project site indicates the waters are capable of supporting many important fish and macrobiotic species.	AQ20
4185	The NorthMet project would directly affect 2400+ acres designated as having high biodiversity significance, including native plant communities considered “imperiled” or “vulnerable” and nine SGCN Need identified in the Minnesota’s State Wildlife Action Plan…The SNF lands that comprise the proposed NorthMet Mine Site are designated as an area of high biodiversity significance by the MBS…	VEG02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	The Nature Conservancy (42982)	
4781	Although the SDEIS describes plans for reclamation at the site post-closure, imperiled, vulnerable and other native plant communities of high biodiversity significance are very difficult to restore, and thus it is highly unlikely that the impacts could be reversed via reclamation. A wealth of research and experience supports the assertion that many of the most imperiled and "vulnerable" native plant communities are very difficult to restore. For example, communities such as peatlands take a long time to establish, and would not be compatible with some of the stated goals for reclamation in the SDEIS including "rapidly establishing a self-sustaining plant community …and minimizing the need for maintenance."	VEG02, VEG03, VEG05
4782	Indirect effects on adjacent wetlands from dewatering are also significant. The SDEIS anticipates impacts to adjacent areas and potential indirect impacts on wetlands and water tables from groundwater table drawdown up to 3,200 ft. from the mine pit (SDEIS Section 5.2.2.3.2). These impacts have the potential to negatively impact adjacent high quality and vulnerable wetland types as well as wetland functions. This issue is further discussed in our comments on wetlands and mitigation herein. We also note that the question of the extent and severity of impacts to adjacent wetlands is included in the SDEIS 8.3 and Appendix C.	WET10
4783	Several rare and high quality communities that will be eliminated by the Mine Site are ranked as having high vulnerability to climate change, meaning that they will be under even greater pressure throughout their range. These include acid peatlands and forested peatlands. Additional communities ranked as vulnerable to climate change that will be negatively impacted by the project include wet forest systems, riparian areas, and headwater stream systems…Several of the rare and high quality communities that will be eliminated by the NorthMet mine site were ranked as "high vulnerability" to climate change. These include acid peatlands, forested peatlands, and wet forest types.	VEG02, VEG03
4784	Stream and river systems are also identified as potentially some of the most vulnerable systems to climate change in the upper Midwest and Great Lakes due to the combination of increased storm runoff, more frequent drought/reduced baseflows, land cover change, nutrient loading, altered thermal regimes, and invasive species. Based on the IBI assessment of the Partridge and Embarrass Rivers, several headwater streams have been classified as cold water or cool water. Both of these thermal regime types are also considered highly vulnerable in northeast Minnesota under anticipated climate change due to the sensitivity of many cold water species to increases in water temperature.	WR180
4785	All aspects of environmental review, permitting and mitigation for the NorthMet Project and the Land Exchange should consider the high biodiversity value, landscape context and irreplaceability of habitat that will be lost or impacted.	PD01
4786	The SDEIS proposed action includes the exchange of a single 6,650.2-acre parcel of federal land for multiple tracts within the proclamation boundary of the SNF. A priority habitat for the Conservancy is the 6,344 acre, Sand Lake-Seven Beavers preserve, located within the Sand Lake-Seven Beavers landscape, which harbors one of the state's largest areas of lowland conifers…The proposed mine and plant site occur within this significant landscape.	LU01
4787	Both the federal and exchange lands occur within the SMF ecoregion…The USFS goals for the Superior National Forest include restoring long-lived conifer species and maintaining and increasing older forest growth stages. These goals are based on the recommended desired outcomes, goals and strategies developed in the MFRC's 2003 Northeast Landscape Plan; a plan developed by approximately 60 people representing agencies, conservation non-profits, industry, and private landowners. The Conservancy shares these goals.	VEG03
4788	In addition, to determine that an exchange well serves the public interest, the authorized officer must specifically find that the resource values served by the non-Federal lands to be acquired equal or exceed the resource values served by the Federal lands to be conveyed…However, overall neither the proposed land exchange, nor Alternative B represents equal ecological or resource values. Again, to determine that an exchange well serves the public interest, the authorized officer must specifically find that the resource values served by the non-Federal lands to be acquired equal or exceed the resource values served by the Federal lands to be conveyed. The proposed exchange appears to fail this test.	LAN01

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4789	In addition, it is important to note that the federal lands were acquired under the Weeks Act of 1911 (36 Stat. 961, as amended 16 U.S.C. §§ 515, 521) which permitted the federal government to purchase private land in order to protect the headwaters of rivers and watersheds in the eastern United States. As noted above, the mine site is located within the Sand Lake-Seven Beavers landscape, which encompasses the headwaters of the St. Louis River. Conversion of the federal lands to mining is therefore contrary to the original intent of the federal enabling legislation to protect ecologically significant headwaters.	LAN02
4790	Given the fact that the proposed land exchange will result in a significant net loss of biodiversity habitat, the U.S. Forest Service ("USFS") should find that the Land Exchange, as it is currently proposed, is not in the public interest as required by 36 C.F.R. § 254.3(b).	LAN01
4791	To avoid a significant net loss of biodiversity habitat, the Land Exchange should expand the portfolio of non-federal tracts to be acquired to include lands with at least a MBS rank of moderate within the St. Louis River Watershed. Focus should be on lands that mimic the habitat lost in the exchange, including not only wetlands, but a wide variety of lowland plant communities, forested bogs and swamp.	VEG02
4792	The final EIS should ensure that the lands with the highest MBS rankings remain part of the Land Exchange. These include Tract 2 (Lake County north and Lake County south), and Tract 3 (Wolf Lands 1-4).	VEG02
4793	The final EIS should eliminate Alternative B, the more limited Land Exchange, since it has no ecological benefit.	ALT23
4794	We note that Shrub swamps represent 12% of the impacted wetland acres and are recognized as distinct wetland types and offer some important functions for wildlife and water quality. However, it should be recognized that shrub swamps often represent a degraded successional form of more herbaceous wetlands such as marsh and fen caused by artificial drainage or fire suppression. As such they may not always be appropriate targets for mitigation or restoration. The Conservancy thus recommends careful evaluation of the setting and prior history of all shrub wetlands in the impacted areas, and where appropriate using the original historic wetland type as the target for compensatory replacement.	WET05
4795	Additionally, the Cooperating Agencies (SDEIS 8.3, MDO 8) provide an alternative analytical method for estimating these indirect impacts from groundwater drawdown and determine that as many as 5,720 acres would be vulnerable to "severe" impacts. These differences are indicative of large uncertainties in the effects of hydrologic alteration that should be reconciled in the EIS and an appropriate single estimate or range provided. We support the Cooperating Agencies' method as technically valid, and no less reasonable than the two approaches documented in the SDEIS… If the uncertainty persists, the SDEIS must consider the worst case analysis, and if another basis is used for decision purposes, must justify the basis on which a lesser impact is predicted....The final EIS should resolve the uncertainties in the analysis of indirect impacts of hydrologic alteration and provide a supported single estimate or range of acres and wetland types affected. If the uncertainties cannot be resolved, worst case analysis must be included and addressed.	WET10
4796	For this reason the Conservancy strongly supports an up-front commitment to avoidance and minimization of impacts and compensation for lost wetland functions -- at a minimum for wetlands identified as highly likely or moderately likely to experience groundwater drawdown and fragmentation impacts. Such commitment should include identification of viable mitigation options and sites, and applicable compensation ratios in advance of project permitting, along with performance expectations such as timing and triggers for implementing mitigation...The Record of Decision and permit conditions should include advance commitment to mitigation for all indirect impacts, including identification of mitigation sites and compensation ratios.	COE02

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4797	The SDEIS should demonstrate how the project will address the full mitigation hierarchy required under state and federal rules… The 2008 Federal Mitigation Rule reaffirmed an appropriate "mitigation hierarchy" … The mitigation hierarchy insists that a project applicant must first consider designs, locations and approaches that avoid impacts, then develop plans to minimize those impacts that are unavoidable, and compensate for lost wetland functions and values. The Rule also asserts that compensatory mitigation must be sited with respect to the context and needs of the watersheds in which they occur. Minnesota's Wetland Conservation Act similarly sets out a required "sequencing" plan that shows the applicant has avoided, minimized, replaced or otherwise compensated for lost wetland functions according to the hierarchy…Insufficient efforts have been made to avoid and minimize impacts through alternative project designs such as underground mining which was taken out of consideration largely for economic justifications. We recommend that the EIS include a thorough sequencing plan that demonstrates adherence to the mitigation hierarchy required by state and federal law and evaluates meaningful alternatives for avoiding and minimizing wetland impacts...The final EIS should include a sequencing plan that demonstrates adherence to the mitigation hierarchy of avoid, minimize and mitigate impacts to wetlands as required by state and federal law.	WET03, WET20
4798	Higher compensation ratios and financial assurance are warranted because of the scale, type and setting of impacted wetlands and the difficulty restoring their functions and values...Moreover, because of the uncertainty in the range of wetlands to be affected by indirect impacts, as discussed above, it is even more important that a higher ratio of mitigation be used, so that the uncertainty does not undermine the assurance of appropriate mitigation overall… It is important to recognize that mitigation is not likely to restore all lost functions and that restoring wetland functions of any kind will take considerable time. Thus it is important that these shortcomings are compensated through higher than normal mitigation ratios. However, it is also important that success criteria for this kind of wetland mitigation goes beyond conventional compliance success, to include functional success, to determine if ecological functions of the system have been restored, and landscape success, to determine how restoration has contributed to ecological integrity of region or watershed...A compensation ratio of 2:1 or higher (and no less than 2:1) should be used for unavoidable impacts to bog, coniferous swamp, hardwood swamp and other wetlands of the lowland conifer ecosystem.	WET04, WET05
4799	The 2008 Mitigation Rule and St. Paul District policy also allows for the agency to require financial assurance mechanisms to ensure that compensatory mitigation is successfully implemented and permit conditions are satisfied in the event of unforeseen circumstances. Under the Rule, the USACE District Engineer can determine that financial assurance is not necessary if alternate mechanisms are in place to ensure confidence in mitigation outcomes. Minnesota state rules (Minn. R. 8420.0552) also require financial assurance for mitigation… the Conservancy believes that financial assurance should be set forth in the final EIS as required under state and federal law. Such financial assurance should be separate from that required for mine reclamation and long term maintenance and should be required until mitigation success criteria are demonstrated to have been fully achieved, not just until construction is completed...Financial assurance, separate from that required for mine reclamation, should be required to ensure the success of mitigation, to cover the costs of monitoring and adaptive management and to ensure against indirect impacts to wetlands.	FIN05, FIN11
4800	Careful monitoring design is needed to validate indirect wetland impacts and evaluate progress of mitigation toward satisfaction of success criteria… However, we believe more detail is needed in the EIS on the monitoring, adaptive management and decision framework that will be used to determine if and to what extent and severity indirect impacts are occurring, the trigger points that would require mitigation to be implemented, and the compensation ratios that would be required...The final EIS should fully address monitoring design, adaptive management, and the decision framework for identifying indirect impacts and associated mitigation.	WET02
4801	A robust monitoring design should require monitoring in all potential impact categories, not just in Highly and Moderately impacted zones.	WET02
4802	Additionally, biological monitoring, including annual vegetation surveys, should be done in conjunction with hydrologic monitoring locations, and hydrologic monitoring should utilize continuous recorders at all sampling sites, with all data collected made available to the Co-Lead Agencies and to the public.	WET22

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4803	In addition to shallow monitoring wells or piezometers, deeper wells at the same locations (in combination with shallow wells) would provide better evidence of the impacts of groundwater drawdown.	WET22
4804	Weather stations at one or more sites are needed to help distinguish true drawdown impacts from the effects of weather and climate.	WET22
4805	Multi-parameter biological monitoring is also recommended, not just of plants, which often have considerable resilience and do not show impacts for several years, especially in forested wetlands, but also of invertebrates and other biota sensitive to changes in hydrology. Focus should be on edges of wetlands and other locations that provide early indicators of hydrologic impacts.	WET22
4806	Reporting annual average water levels or other such integrated statistics may be nearly meaningless when used to detect drawdown impacts, and it is important to detail the wetland hydrograph at daily, weekly and monthly intervals, all of which are easily possible with the use of continuous recorders.	WET22
4807	In addition to water levels, annual and growing season hydroperiods and hydropatterns are biologically important for determining wetland function and should be reported in consultation with agency staff.	WET22
4808	The commitment to identify and monitor reference wetlands in the monitoring design is laudable. We recommend that monitoring parameters at reference wetlands be the same as impacted wetlands in terms of frequencies, type and locations. Reference locations should be free of all direct and indirect effects from the NorthMet project or other disturbance, including existing or future mining projects, yet close enough in proximity, setting and type that weather and other regional factors are reasonably similar to that of the impacted wetlands.	WET22
4809	Mitigation should focus on viable options within the St. Louis River basin, including watershed- based approaches, mitigation banks or other opportunities to restore aquatic functions at a scale commensurate with the impacts from the NorthMet project… The Co-Lead Agencies should require that site searches focus on a larger suite of in-watershed mitigation opportunities including ecologically suitable wetland banking, on-site mitigation and in lieu fee program development that addresses restoration of functional loss in the St. Louis watershed… As per the 2008 Mitigation Rule, out-of-basin mitigation should be strongly discouraged given the cumulative un-replaced losses of functions and services that accrue in the impacted watersheds....Mitigation should focus on restoration of functional loss in the St. Louis River Watershed and should include ecologically suitable wetland banking, on-site mitigation and an in lieu fee program development.	WET03
4810	As noted in the SDEIS (SDEIS, 5.2.3.3.2), opportunities exist for restoration of tens of thousands of acres of peatlands affected by ditching within the St. Louis River watershed and northeast Minnesota in general, but a determination by the USACE of the feasibility of this for mitigation is not yet completed. The Conservancy strongly urges the USACE to complete this assessment prior to making a final determination of mitigation requirements for the NorthMet project...The U.S. Army Corps of Engineers ("USACE") should complete its feasibility determination for peatland restoration within the St. Louis River Watershed and incorporate this information into its determination of mitigation requirements for the NorthMet project.	WET01, WET03, WET04
4811	The Conservancy believes a coordinated watershed approach to identifying mitigation needs and options is warranted for the Lake Superior basin in Minnesota and that sufficient information is available to conduct a watershed-wide analysis… Using a watershed approach, mitigation could be implemented as an in-lieu fee program or umbrella bank in accordance with a watershed plan as is currently being discussed in the context of the Northeast Minnesota Mitigation Strategy.	WET03

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4814	The SDEIS analysis of the potential impacts from contaminated water is predicated on best-case assumptions whereby all equipment functions as designed, no operator error is anticipated, and the potential for failure is insignificant. The SDEIS does not provide adequate analysis of the potential impacts from wastewater releases that could reasonably be expected to occur due to human error, equipment breakdowns, or other system failures associated with wastewater collection, transportation, and treatment...The final EIS should identify for all phases of the project potential risk and release scenarios that could occur during routine operation and probable failure scenarios at the Mine Site, Plant Site, and Transportation Corridor including the tailings basins, stockpiles and breakdown of the reverse osmosis systems. The final EIS should evaluate the effect on downstream resources in terms of failure type, duration, and magnitude as was accomplished in the USEPA's Bristol Bay assessment.	WR202
4815	The Tailings basin, Waste Rock Stockpiles, and Hydrometallurgical Residue Facility are potentially significant threats to groundwater quality. Therefore, the stability and structural integrity of these storage systems warrant additional consideration when evaluating potential risk scenarios… The Conservancy is concerned that the tailings basin will contribute to water quality impacts by leaking contaminants into the ground waters that may be hydraulically connected to surface water. Given the concerns regarding the structural integrity of these storage systems, the Conservancy believes that the analysis of the stability of the Tailings Basin, waste rock stockpiles, and Hydrometallurgical Residue Facility warrant special consideration when evaluating failure and risk scenarios.	WR066, WR067, WR127, WR128
4816	The nature of the effluent from mining operations, and the harsh weather conditions of northern Minnesota pose unique challenges to the effective operation of the wastewater treatment systems proposed at the Project site. The potential barriers to effective wastewater treatment should be discussed and addressed in the SDEIS… The NorthMet SDEIS does not address potential causes of breakdown or compromise of the reverse osmosis system, or the potential for release in such scenarios, nor does it assure that replacement membranes would be promptly available and easily installed in order to minimize any impacts from what would seem to be routine failures of these systems in other facilities.	WR128, WR143, WR144
4817	Minnesota's mining reclamation rules state that a "mining area shall be closed so that it is stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources and is maintenance free." Thus, it is important that long-term maintenance needs of active or "passive" treatment systems be thoroughly understood, documented and incorporated into calculation of financial assurance requirements.	PD02
4818	The Conservancy recommends that any consideration of a passive system (e.g. an artificial wetlands treatment system) include an analysis of performance over the long term and under extreme weather conditions as experienced in the region...If wetlands are to be used as a wastewater treatment method, the final EIS should include an analysis of expected wastewater treatment performance during the winter, the length of time a wetland treatment system can function before reaching capacity and how the effectiveness of the system will be monitored. It should also discuss long term maintenance of the system, such as removal and disposal of accumulated metals in the wetland plants and sediments.	WR122, WR137
4819	Given the inevitability of errors, break downs, accidents, and unexpected events over the long run, some amount of failure should be anticipated and incorporated into the project's design and management. The focus of design and assessment should be on development of decision frameworks and strategies that ensure it is "safe-fail," or safe in failure, rather than fail-safe. The approach taken in the SDEIS is simply to assume that everything will work as predicted, failures will not occur and the regulatory process will ensure that environmental risks will be mitigated.	PD22

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4820	Adaptive management is proposed as a framework for dealing with uncertainty, but the SDEIS does not describe an effective AWMP. The SDEIS does not comprehensively evaluate risk due to the lack of a thorough examination of potential failures and the lack of an effective adaptive management plan… The "wait and see" approach reflected in the SDEIS is not adaptive management, and is an inadequate strategy for addressing uncertainty and change… While the SDEIS does include general information about adaptive management plans, it states the AWMP (and other adaptive plans), are preliminary in nature and will be "adjusted" during the final design and permitting process...The Adaptive Water Management Plan ("AWMP") should provide a clear framework for understanding how adaptive management will work. An adaptive management framework is required that specifies the management assumptions, the monitoring design, thresholds that will trigger mitigation actions, and the actions that will be taken if those thresholds are met.	PD22
4821	All permits should be conditioned on commitment to mitigating actions identified in the AWMP and other adaptive management plans as documented in the final EIS and Record of Decision.	PER06
4822	Given its importance to the environmental risks of the NorthMet project, opportunity for public comment on the AWMP should be provided prior to issuance of a Permit to Mine.	PER01
4823	The NorthMet Project Action has the potential to significantly alter flows and water levels in nearby streams and wetlands, including headwater streams of the Partridge and Embarrass Rivers that are both tributary to the St. Louis River, a Conservancy freshwater conservation priority…. Because the Conservancy's SMF and Great Lakes ecoregional plans have identified the St. Louis River headwaters (adjacent to the Partridge and Embarrass River sub-watersheds) as a freshwater priority, we are evaluating the SDEIS with respect to the potential to impact flows in the Partridge and Embarrass Rivers and the St. Louis River.	WR081, WR111, WR114, WR183
4824	The Conservancy supports the use of the IHA criteria for assessing hydrologic alteration. However, we note that 20% alteration can represent a significant departure at extremely low flow or high flow conditions when it is additive to the range of natural variation....More protective flow criteria (< 5% alteration) should be used for flows at the low and high end of the frequency distribution to evaluate the potential for impact to aquatic systems. Mitigating measures should be specified for periods when flow alteration exceeds this criterion.	WR130, WR185
4825	The final EIS should reevaluate assumptions about the basic hydrology of the project site in light of current data, including baseflow estimates in affected streams. Assessment of impacts and conclusions derived from flow and water quality modeling results should be revisited if those assumptions are in error.	WR003, WR052, WR071, WR086, WR091
4826	We are concerned, however, about the operative capacity of the WWTF (particularly post-closure) and if the pits and the RO facility will be able to handle 100- or 500-year precipitation events (such as that which occurred in the St. Louis basin in June 2012) indefinitely following closure of operations. To avoid hydrologic impacts from altered storage and runoff, the wastewater pits and WWTF will have to be able to accommodate the full range of potential runoff events, and control discharges so as to make them seasonally appropriate and comparable to the natural hydrograph....The final EIS should explicitly define and describe "adaptive engineering controls" as well as address the capacity to accommodate the full spectrum of extreme storm events at both the Plant Site and Mine Site, including event frequencies anticipated under future climate change scenarios. The EIS should also describe the capacity of the wastewater treatment plant ("WWTP") to pattern permitted discharges on the natural flow regime.	WR130, WR148, WR180, WR189
4827	The final EIS should include a sensitivity analysis of flow and water quality impacts to a range of baseflow, climate, and leakage estimates. The results of this analysis should be used to identify mitigating actions that would be implemented to avoid additional impacts.	WR022, WR091, WR180, WR197
4828	The NorthMet SDEIS examines and then dismisses the possibility that NorthMet flow changes have any significant implications for downstream channel stability… However, the final EIS should give greater consideration and analysis of the effect of the project on stream channel stability.	WR003

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4829	The SDEIS states that flows will return to nearly pre-NorthMet Project Proposed Action conditions during closure. However, the Conservancy suggests that downstream impacts to flows in both rivers may extend beyond the 20-40 year timeframe, based on alterations of surface and groundwater hydrology made at the Plant and Mine sites, in conjunction with mechanical treatment operations and discharges, and existing alterations discussed in the SDEIS. It is unclear how much longer the Northshore Mining dewatering and associated augmentation of the Upper Partridge River will continue. Regardless, additional increases in precipitation, precipitation intensity, and variability are considered extremely likely under most downscaled climate models. NorthMet project impacts may be either additive or compensatory to these effects depending on the time frame. The SDEIS fails to address how climate change may affect its predictions regarding flow levels....Assessment of potential hydrologic impacts of the NorthMet Project for the Partridge and Embarrass Rivers should be evaluated based on up-to-date understanding of current and future climate scenarios.	WR005, WR006, WR077, WR180
4830	Based on the IBI assessment of the Partridge and Embarrass Rivers, several headwater streams have been classified as cold water or cool water. Both of these thermal regime types are also considered highly vulnerable in northeast Minnesota under anticipated climate change...Given the potential for flow augmentation and its impact on erosion and sedimentation, the EIS, Record of Decision and permit conditions should address appropriate monitoring and adaptive management for thermal regimes, downstream sediment and associated habitat impacts.	WR130, WR180
4831	NorthMet Project area waters that have restoration potential for wild rice should be designated as “wild rice waters” and should be required to meet Minnesota’s sulfate standard.	WR154
4832	Minnesota Tribes hold substantial legal and cultural interests in wild rice habitat in the project area that should be recognized and protected… In the context of PolyMet’s proposed project, it is important to note that these legal rights might be affected by pollution and hydrologic modifications associated with development and permitted industrial uses that impact natural resources… Therefore, continued tribal access to sustainable and healthy native wild rice is an important issue for the Conservancy...The “affected area” considered by the SDEIS for wild rice impacts should include the entire St. Louis River watershed.	WR159, WR163
4833	Although there is no comparable research on wild rice, it is clear that a fuller understanding of methylmercury fate and transport is needed, and should be part of the adaptive management plan for NorthMet and other ongoing mining operations and reclamation activities. Given the mounting evidence demonstrating negative impacts to wild rice from relatively low levels of sulfides, the positive correlation between levels of sulfate in water column and sulfides in sediment, combined with the remaining uncertainties about long-term impacts and the relationship between sulfate and methylmercury, the weight of evidence tilts against a weakening of the 10 mg/L sulfate standard.	WR130, WR160
4834	The current 10 mg/L sulfate standard for wild rice waters should remain in effect...The waters affected by the NorthMet Project should not be permitted to seasonally exceed the sulfate standard.	WR153, WR160
4835	The NorthMet project discharges and other activities in the watershed should be monitored and evaluated for flow regime alterations that could potentially impact downstream wild rice waters. Potential corrective actions should be explicitly specified in the water management plan.	WR157
4836	The SDEIS needs further focus on cumulative effects analysis, especially the geography of the affected area, future actions considered and incorporation of climate change… The approach in the NorthMet SDEIS is to use different timeframes and cumulative effects affected areas (“CEAA”) depending on the resource being considered. This inconsistency has the effect in some cases of narrowing the scope of the analysis such that it leads to circular logic that precludes evaluation of the full picture of impacts. Similarly, an overly-narrow definition of reasonably foreseeable future impacts is used in the SDEIS that eliminates consideration of other likely mining actions. Accordingly, our comments below are focused on future actions considered, timeframe and area affected by cumulative impacts.	CU05

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4837	The EIS must therefore provide some analysis of the increased impacts that could be expected from additional mining operations within the area, especially ones that will likely come into operation within the same period. While the current status of the other projects might prevent a detailed analysis, the ability to develop a reasonably thorough understanding and evaluation of cumulative risks of mining in a large watershed sufficient to inform permitting decisions is demonstrated by the recent USEPA assessment in Bristol Bay, Alaska.	CU02, CU03
4838	The Conservancy believes this definition [of speculative] is too narrow, and excludes other nearby copper-nickel, PGM and titanium oxide deposits now in the early stages of development. These excluded projects include potential future actions at the nearby Teck American Mesaba deposit, Encampment Minerals' Serpentine deposit, Cardero Resource Corporation's Longnose deposit and Twin Metals' Maturi and Birch Lake deposits...The cumulative effects assessment should include other nearby non-ferrous mining developments, as well as planned expansions of taconite mining and processing as reasonably foreseeable future actions, as detailed in our comments.	CU02
4839	The Conservancy believes that the full St. Louis River watershed is the appropriate CEAA for impacts to water resources, high biodiversity sites, species, wild rice, wetlands and other critical habitat. The NorthMet project site is part of the Sand Lake-Seven Beavers conservation landscape, also known as the Headwaters Site because of its position at the headwaters of the St. Louis River....The cumulative effects assessment should use the entire St. Louis River watershed as the cumulative effects affected area for impacts to water resources, high biodiversity sites, species, wild rice, and wetlands.	CU01
4840	All NorthMet Project area waters are also designated Outstanding International Resource Waters which prohibits any new or expanded point source discharges of bioaccumulative substances of immediate concern (i.e., mercury) unless a non-degradation demonstration is completed and approved by the MPCA.	MERC01
4841	Yet the SDEIS actually uses a smaller CEAA for wetland loss in the cumulative effects analysis than it does in the assessment of direct impacts to and mitigation for wetland loss from the NorthMet project alone: the CEAA is confined to the Embarrass and Partridge Rivers while the entire St. Louis River watershed is appropriately considered for direct impacts to wetlands and mitigation.	CU01, WET18
4842	As described in our comments on water flows and levels, loss of forested wetland habitat also has effects on the temperature of stream and riparian habitat that can have important implications for sensitive species such as moose. When considered cumulatively with the loss of wetland function in the Partridge and Embarrass watersheds and the effects of climate change, such impacts can have profound impacts on the survival of vulnerable species.	WI01, WI02, WI08
4843	The Conservancy believes that the cumulative effects analysis should focus on the amount of habitat of different types, including lowland conifer wetlands and wild rice, which occur across an ecologically meaningful region such as the St. Louis River watershed or the Sand Lake-Seven Beavers landscape, and determine how all past, present and reasonably foreseeable future projects cumulatively modify habitat availability. Then it should estimate how the remaining habitat conditions compare to the needs for well distributed, viable populations of species that depend on the habitat.	CU17
4844	A similar analysis should be completed for watershed functions, first determining how projects, including NorthMet, have cumulatively modified important hydrologic functions, then comparing the results of the analysis to an assessment of needs.	CU15
4845	The Conservancy believes the proper scale of these analyses, and thus for the CEAA, is the St. Louis River watershed, which encompasses the area where cumulative effects on wetlands, wild rice and water resources are most relevant, contains both the Sand Lake-Seven Beavers and Headwaters Site conservation landscapes and a portion of the Hundred Mile Swamp, as well as the majority of northern Minnesota's industrial mining district. Importantly, the St. Louis River watershed is also the heart of wild rice cultural and subsistence use and the region of highest density of remaining wild rice in the 1854 Ceded Territory (SDEIS, Appendix C).	CU01

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4846	The cumulative effects assessment should include an analysis of how all projects have cumulatively modified habitat availability and compare this with habitat needs of dependent species using a population viability analysis approach.	VEG03, WI02
4847	Overall, however, the SDIES appears to take the perspective that climate change effects are so uncertain or imprecise they cannot be incorporated into the assessment in any meaningful way... The Conservancy believes that climate change effects are occurring now, are relevant over the operational and post-closure timeframe of the NorthMet project and should be incorporated into the cumulative effects assessment...The cumulative effects analysis should incorporate climate change effects on sensitive habitat, species and water resources.	AIR01, CU03
4848	While acknowledging the uncertainty inherent in climate change predictions, the SDEIS fails to demonstrate how that uncertainty will be mitigated or whether freeboard, margins of safety and excess water storage and treatment capacity are adequate over the 20-year period of mine operation, much less the 200 to 500-year post closure period during which treatment may be required....The SDEIS should demonstrate how climate uncertainty will be mitigated in the project design and operations, identifying the specific mitigating measures employed.	WR180
4849	The state and federal government should conduct a “tier 1” regional environmental assessment using a Programmatic Environmental Impact Statement (“PEIS”) or Generic Environmental Impact Statement (“GEIS”) model before significant additional mining development occurs.	CU19
4850	The regional environmental assessment should focus on the St. Louis and Rainy River watersheds and be structured similar to the USEPA’s Bristol Bay, Alaska assessment and include the nine essential elements of that study.	CU01, CU03, CU18
4851	The SDEIS should be supplemented to include at least one alternative from each of the following categories: alternative sites; alternative technologies; modified designs or layouts; modified scale or magnitude; and alternatives incorporating reasonable mitigation measures.	ALT06
4852	MEPA prohibits state action, including issuance of a permit, for activities “significantly affecting the quality of the environment” so long as there is a feasible and prudent alternative. Minn. Stat. § 116D.04 subd. 6 (2013). It specifically mandates that “Economic considerations alone shall not justify such conduct.”...Yet both the underground mine alternative and the west pit backfill were excluded as alternatives for economic considerations… The underground alternative was not fully evaluated because PolyMet refused to pursue it:…Instead, the Co-lead Agencies conducted “a semi-qualitative screening analysis of the alternative.”...NEPA requires that the agency evaluating the proposed action verify the accuracy of information supplied by the applicant...The Co-lead agencies appear to have adopted this conclusion [of PolyMet] of the project proposer without independent verification….The evaluation process for both the underground mine alternative and the west pit backfill alternative results in elimination of those alternatives for economic reasons in violation of Minn. Stat. § 116D.04 (2013)...The underground mine alternative and the west pit backfill alternative should be evaluated with more than a screening level analysis, and the accuracy of information provided by the project proposer should be independently verified.	ALT01, ALT03
4853	The Purpose and Need Statement focuses on private economic objectives… By defining the “purpose and need of the project” narrowly, the SDEIS readily eliminates alternatives as not fulfilling the purpose and need of the project… Even the broader Co-lead Agencies’ Purpose and Need statement at SDEIS Section 1.3.2.1 allows economy to trump environment:.. By framing the Purpose and Need and related analysis in terms of production and markets, and excluding alternatives that might currently be unprofitable in a volatile minerals market, the evaluation is driven by today’s private economic considerations…The Purpose and Need statement and analysis should fully encompass long-term and watershed-wide environmental benefits and costs in addition to private economic considerations.	NEPA01
4854	Minn. R. 4410.2800 (2009) provides, in part, that the final EIS shall be determined adequate if it “addresses the potentially significant issues and alternatives raised in scoping so that all significant issues for which information can be reasonably obtained have been analyzed in conformance with part 4410.2300, items G and H.” Id. The SDEIS fails to include and fully evaluate alternatives.	ALT20

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	The Nature Conservancy (42982)	
4855	The Purpose of NEPA and MEPA require that Financial Assurance be Considered at the EIS Stage and Not Await the Permit to Mine Decision…63. Thus, for the SDEIS to serve as an adequate disclosure and examination of the proposed alternative, it must provide a thorough documentation of the cost estimates underlying the financial assurance, a high degree of assurance that all contingencies that may occur during the perpetual treatment, replacement, and maintenance are fully covered by the proposed financial assurance, and a mechanism of financial assurance that will remain effective and fully payable in perpetuity...The final EIS should be supplemented to include a detailed description and dollar estimate of costs of each component of reclamation to be secured by financial assurance from PolyMet and an opportunity for public comment should be provided on this essential supplementary analysis.	FIN01, FIN05, FIN13
4856	To Fully Inform Decision-making and Public Comment, Financial Assurance Analysis in the EIS Must Include Failure Analysis and Account For Risks Associated with the Unprecedented Duration of Monitoring and Treatment… The NorthMet SDEIS includes a generic listing of adverse contingencies,…The final EIS should be supplemented to include an assessment of the risk and assign cost factors associated with the failure of proposed abatement and reclamation systems for the NorthMet project, as was done in the USEPA's Bristol Bay assessment.	FIN05, FIN11, FIN12
4857	The EIS should address the financial impact and need for assurance associated with additional risks and costs in light of the unprecedented duration of reclamation, monitoring and treatment. .. All the above factors indicate that even with an assumption that the MNDNR will properly perform its duty to assure adequate financial assurance, any current estimate of restoration and reclamation costs must take into account failure scenarios, technological progress, regulatory changes, and extreme weather events such as floods and tornados. The EIS must include analysis of these risks to ensure that they are adequately borne by PolyMet and any successor operators and not Minnesota residents and taxpayers.	FIN01, FIN05, FIN12, FIN13
4858	The final EIS should be supplemented to address the additional costs associated with the unprecedented duration of reclamation, monitoring and treatment required by the NorthMet project, such as facility obsolescence, and regulatory and technological changes.	FIN05, FIN13
4859	The final EIS should commit to a fully funded financial assurance mechanism, at least 90% of which is composed of a trust fund to be administered by a group of governmental agencies, representing state, federal and/or local government.	FIN08
4860	The final EIS should agree to the release of financial assurance obligations only upon all closure, reclamation and mitigation performance criteria being met.	FIN08
5920	On behalf of the Minnesota/North Dakota/ South Dakota Program of The Nature Conservancy, I request an extension to the public review and comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) for an additional 90 days beyond the current end date of March 13, 2014.	NEPA07
5921	The longer review and comment period is warranted by the length and complexity of this document. The quality of comments that the Conservancy and the public will be able to provide will improve with additional time.	NEPA07
17506	On behalf of the Minnesota/North Dakota/ South Dakota Program of The Nature Conservancy, I request an extension to the public review and comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) for an additional 90 days ...The longer review and comment period is warranted by the length and complexity of this document.	NEPA07
Sender Name (Submission ID)	Theo (43082)	
14990	Do not allow the copper mines in Minnesota. ... I worry about what it will be like when I am an adult, will the BWCAW still be the same? will I be able to go swimming and eat the fish I catch?	LU06
Sender Name (Submission ID)	Theresa Gerber (33046)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Theresa Gerber (33046)	
14015	It is the DNR's job to protect Minnesota's environment and take care of our natural resources, and allowing mining that has the potential to pollute for hundreds of years is a direct contradiction of this.	PER04, WR195
14016	I do not understand how anyone, especially a government agency that is supposed to put public interest first, can think that a relatively small increase in jobs and economic output for twenty years outweighs the potential for catastrophe and pollution for hundreds of years.	SO01
14017	Minnesota is known for its clean lakes and rivers, but fresh water is not an infinite resource and we should not be actively working to jeopardize the local watershed and Lake Superior, which is what would happen if the PolyMet mine is approved.	WR195
14018	Even if there is some way that PolyMet could guarantee it can pay for clean-up of a catastrophe, Minnesota has only been a state for a little more than 150 years and it would be crazy to knowingly create a situation that leaves us cleaning up water pollution for twice as long as we have been a state.	FIN01
19836	How can the mining company guarantee that if something does go wrong, they can pay for cleaning water for 200-500 years?	FIN01
Sender Name (Submission ID)	Theresa Johansen (10691)	
12195	The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won’t allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards.	WR189, WR202
12198	Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come.	WR195
Sender Name (Submission ID)	Theresa Nelson (43232)	
15816	I'm by no means rich, but choose to spend my money here in order to experience the BWCA as it is. BUT not if, I even think for a moment that the water is being contaminated, the animals lives are being compromised or the local economy doesn't value protecting this most incredible resource.	SO02
Sender Name (Submission ID)	Theresa Rokusek (14955)	
280	How many [jobs] are guaranteed to US citizens?	SO06
Sender Name (Submission ID)	Theresa Zaydel (30091)	
13860	serious concern for the health of the Great Lakes region of the United States and Canada.	WR111
Sender Name (Submission ID)	Thomas A Leaf (40931)	
7551	We Minnesotans have before us a proposed project from an outside company which stands to obtain large economic gain...The benefits for Minnesotans are some construction jobs for a few years and a few mining jobs for a twenty year time period...We do not have an economy that is so destitute that we need to consider this project.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Thomas A Leaf (40931)	
13949	We will soon be left with an abandoned mine...and we have clean up and monitoring of the site for centuries...The amount of money to be set aside has been only vaguely defined...It is quite impossible to plan monitoring and clean up for several hundred years.	FIN05
13950	Recent water quality data regarding sulfate water contamination confirm original studies that suggest we have native wild rice and potentially many other species are very sensitive to increased sulfates in the water...We are contemplating the possibility of adding pollution to the largest freshwater lake in the world.	WR156
Sender Name (Submission ID)	Thomas and Charlotte Meinz (39998)	
6317	The dollars earned by providing jobs for a number of people pales when you consider the damage to the environment and the potential cost of cleaning up the water and land that will result for MANY YEARS. The studies that say we could subsidize a number of people for as many years as they would make a living on jobs provided would be much fewer dollars spent by our taxpayers than what will be needed if and when the mining companies disappear from the scene. MINNESOTANS WILL BE LEFT HOLDING THE BAG AND OUR PRISTINE LAND AND WATER WILL BE RUINED.	SO01, WR037, WR115, WR195
13015	The dollars earned by providing jobs for a number of people pales when you consider the damage to the environment and the potential cost of cleaning up the water and land that will result for MANY YEARS.	SO01
13020	The studies that say we could subsidize a number of people for as many years as they would make a living on jobs provided would be much fewer dollars spent by our taxpayers than what will be needed if and when the mining companies disappear from the scene.	SO01
Sender Name (Submission ID)	Thomas Aro (42514)	
15441	I was stunned to learn that the “Financial Assurances” being put forth are more platitude than substance. The gentleman explaining the matter said such assurances are statements and positions put forward by the company but one not completely vetted in the review and EIS decision making phase of the project. Underlying support for letters of credit, how trusts will be funded and what happens if the undertaking turns marginal or uneconomical at some future point seem to me to be critical concerns that should be met before the project moves on.	FIN08, FIN13
Sender Name (Submission ID)	Thomas Bergum (54168)	
16067	Northern MN may be forever changed struggling with ground water polution for hundreds of years.	WR195
Sender Name (Submission ID)	Thomas Cahoy (45444)	
11397	PolyMet says waste water will need treatment for 500 yrs minimum. How much longer after that?	WR038
11398	Where are the contingency plans or financial guarantees in case of accident or emergency?	FIN05, FIN08
Sender Name (Submission ID)	Thomas Donaghy (15304)	
458	The economy of northern Minnesota is now built on tourism, which is based on the natural beauty of the area. PolyMet would undermine that beauty -- and the economy that relies on it -- for centuries.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Thomas Donofrio (21724)	
9487	I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations.	NEPA16
Sender Name (Submission ID)	Thomas Gillach (42527)	
2440	People are our most important resourse. I repeat, people are are most important resourse. They need work to live and they need it now to support their families and to bring this area into the future. Polymet will help do this and the enviornment will remain one of their main concerns.	SO10
3799	[The Co-Leads] have put forth a very comperhensive enviornmental impact study report which addresses the many questions and concerns of the future, a future that no one can correctly predict over the next two hundred or five hundred years.	NEPA16
15536	Laws have been written in the past and nodoubt more will be written in the future regarding water and air protection. We have seen evidence in this area of industries working with these concerns and they have made and are making great strides to assure that these laws are followed. We must trust that they will be followed and if infringed upon, will be corrected under the watchful eye of those intrusted with this responsibility.	PER06, PER34
15538	[PolyMet has] been forthright in addressing the concerns of the environmentalists, have taken on the challenges of water purification, have develop a process of water osmossis which has proven to be very effective in removing sulfides.	WR190
Sender Name (Submission ID)	Thomas Howes (11563)	
14340	Water treatment for hundreds of years in exchange for money to the local and state governments plus a few jobs is not a sustainable or intelligent decision. The life of this mine will create some economic activity and in return my home territory is tainted forever to benefit a few wealthy investors.	SO01
14340	Water treatment for hundreds of years in exchange for money to the local and state governments plus a few jobs is not a sustainable or intelligent decision. The life of this mine will create some economic activity and in return my home territory is tainted forever to benefit a few wealthy investors.	SO01
Sender Name (Submission ID)	Thomas J Arneson (54638)	
18570	The EIS should include contingency planning based on failuremode and effect analysis or some other failure analysis methodology. This analysis should describe the likelihood and impact of failure at each step of extraction, transport, processing, and ongoing site treatment, giving remediation plans (with costs) for responding to each. The currentversion ofthe EIS, treating contingencies only in the most superficial way, if at all, presents an overly optimistic picture of the effectiveness and the cost of preventing pollution.	PD22
18574	The EIS needs to be revised to include analyses of bow long pollution mitigation will be needed. Failure to provide this information makes it almost impossible to assess the feasibility of providing pollution mitigation as long as it is necessary.	NEPA09
18576	The feasibility of ongoing treatment for hundreds of years is questionable, given societal changes and natural disasters that will no doubt occur over centuries. Lack of effective treatment over centuries will result in pollution. To strengthen credibility that centuries of effective treatment is feasible, the EIS should document examples of similar processes that have worked effectively for centuries.	WR023, WR129

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Thomas J Arneson (54638)	
18578	The EIS does not contain information on bow it will be assured that financial resources will be available, provided by Polymet, successor companies, or partner companies, for whatever treatment is necessary to prevent pollution for centuries at the mining site and at the processing site. The EIS should contain this information. If the companies stop doing the necessarytreatments for fmancial or any other reason, treatment processes are likely to be disrupted before state or federal taxpayers assume the costs. During this period of disruption pollution is likely to ensue.	FIN01, FIN10
18579	The EIS states estimated costs for pollution mitigation while the mine is operating, at the time it is closed, and annual costs thereafter. But the assumptions, rationale for the assumptions, and calculations to produce the estimates are not provided. The EIS needs to be revised to show thisinformation.	FIN05
18581	Multiple copper/nickel ore mining projects reasonably close to the PolyMet site are now being pursued, and development of some of these sites is reasonably likely. ... Table 6.2-1 should include additional copper/nickel ore mining operations in exploration or development in the area.	CU02, CU04
18584	The potential problems associated with uranium products being found in the ore material or waste rock are not covered in the EIS. … If Poly Met or its contractors have done sufficient testing to demonstrate uranium will not be a problem at the proposed Poly Met project site, this information should bedetailed in the EIS.	HAZ03
18587	I do not support the proposed land swap because I believe it sets a bad precedent for development of additional copper/nickel mines in the area and because it is not fiscally responsible. ... To allow a swap based on an appraised value ignoring mining plans is giving Poly Met a large financial subsidy. I oppose a subsidy of this kind.	LAN03
Sender Name (Submission ID)	Thomas King (39167)	
12277	We know with past experience of the iron mines that there will be accidents and spillage of toxic chemicals. Check out lake Vermillion for evidence. We cant risk this kind of exposure with sulfide mining!!!	WR023
Sender Name (Submission ID)	Thomas Koehler (9306)	
96	There is no mention of mitigation of other heavy metals that will be released in the water effluent, in excess of current water quality standards.	WR027, WR128, WR130
97	The parent rock body will be fractured by blasting, and there is no mention of how to prevent ground water from entering these fractures and producing acidic drainage into the aquifer.	WR016
913	Past experience with mining companies has indicated to me that any entity engaged in sulfide mining will escape any responsibility, whether legal or financial, by simply dissolving or filing bankruptcy, as has happened in our past. In the case of a projected 200 year or 500 year liability, I am saying that all entities will escape ANY liability with the simple stroke of a pen. There is no provision whatever to assure and insure that any entity of any kind will actually be forced to exist and remain liable for all costs that will otherwise be externalized as has always happened in the past and to date.	FIN01
914	Why isn't any limestone placed with all sulfur-bearing rock to neutralize subsequent acid formation? Will any limestone be placed in the tailings basin? There is no mention of the location of the Poly-Met hydromet facility, where phase two nickel concentrate will be sent, nor any description of the chemical nature of that treatment and its wastes. Autoclaving of concentrate and oxidation under pressure is mentioned, but no description of the chemical nature of the solutions used. Limestone is apparently added to this spent solution, but what of the consequent sulfates? Pit linings are notoriously short-lived and leaky, as demonstrated by other pit linings.	PD34

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Thomas Koehler (9306)	
916	The foremost and greatest weakness and objection is the inability to hold any entity responsible for the proposed duration of this enterprise - by its own definition, up to 500 years!! Reserve Mining evaporated out from under its financial obligations in less than sixty years!	FIN01
Sender Name (Submission ID)	Thomas La Point (13907)	
141	The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for	WR035, WR128, WR143
142	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior.	AQ05
143	Four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	Thomas Lambrecht (20229)	
1810	Copper-nickel mining will contribute to the local and state economy at a time when we really need the jobs and economic benefit.	SO10
Sender Name (Submission ID)	Thomas Moen (54507)	
18774	Water is critical to our state as well as states around us, and this development in the midst of 3 watersheds is not one that should be undertaken. This area is unique, and cannot be replaced after the mining companies leave.	WR111, WR195
18776	I encourage the development of jobs that are sustainable for the area, and that go beyond the 20 years promised by Polymet.	SO10
Sender Name (Submission ID)	Thomas Nelson (45805)	
16345	The technology is there to protect the water and provide much needed resources and provide good paying jobs.	WR190
16346	As a Superintendent of a wastewater treatment and water treatment facilities in the Great Lakes Water shed if we can keep Mercury out with limits as low as 1.8 ppt we can keep the effluent from the Polyment project clean.	MERC15
Sender Name (Submission ID)	Thomas Normile (44203)	
11950	Do not pollute or kill our Lakes, Aquifers, Rivers and Swamps.	GEN01
Sender Name (Submission ID)	Thomas S. Falkowski (14836)	
216	I am concerned that the official report does not clearly identify the costs associated with the ongoing monitoring of both the mining site and the plant site, as well as what may be required as potential remedies if monitoring identifies problems.	FIN05, FIN11
217	The significant lengths of monitoring would require a financial reserve that would likely exceed both the revenues of the state from the mining company and any economic stimulus of employees that would pay state or local taxes.	FIN05, FIN11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Thomas S. Falkowski (14836)	
218	There should be adequate financial reserves that are both prepaid prior to initiation, and also accrued during the years of operation that account for all 500 years of MN tax payer exposure.	FIN01, FIN05, FIN08, FIN10
219	[Regarding affected water sources,] I did not see a clear statement as to the populations of the communities and the total number of people that could be affected for the duration of the exposure.	HU01
Sender Name (Submission ID)	Thomas Scott (21247)	
14032	The inherent incalculable risks will extend for many generations to come, and these are simply not worth undertaking.	SO01
Sender Name (Submission ID)	Thomas Wallace Morgan (57141)	
16837	Our water is too precious to gamble with.	WR195
Sender Name (Submission ID)	Thuan Thai (54230)	
16800	[PolyMet] mining company drawing the [NorthMet mining area] map was not credible and was cut off of original map. The map was cut off so that the people look at the mine site and would think that the mine site would not affect other lakes, swamps or rivers. From that point of view, people would approve of the mining construction but the map was correct to the BWCA which is could affect to environment.	PD38
16801	The mine releases phosphate to the swamp which will react with water and form sulfuric acid and if the sulfuric acid goes to the BWCA and eventually will pollute those BWCA. I would really like to go to boundary water to visit and enjoy the nature. But if the mining begin the sulfuric acid would go to BWCA which could destroy the ecosystem. This is unacceptable to destroy the nature which and where we are living in.	WR111
Sender Name (Submission ID)	Tierney Bartell (54164)	
16061	Do not allow another mine to ruin our beautiful landscape. I	LU04
16062	It is too much of a risk and will have a disastrous long term outcome if allowed. Money & greed are driving this mine and I oppose it.	SO01
Sender Name (Submission ID)	Tim Gihring (15345)	
489	But as the environmental review makes clear, the proposed Polymet mine is not like the old ... mines. The costs are greater, the stakes much higher. … The mine is for a few decades and the damage potentially forever.	PD27, WR115
Sender Name (Submission ID)	Tim Grebner (10196)	
368	I think it unwise to jeopardize water supplies for 500 years for short term jobs.	SO01
369	How can we sacrifice the water quality for 500 years! Who will pay for the ongoing water treatment? The length of water treatment is longer than our nation has existed.	FIN01, WR035
Sender Name (Submission ID)	Tim Iverson (44267)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tim Iverson (44267)	
11957	So, we get 300 new jobs, in exchange for decades of inevitable cleanup of the water, soil, and probably air. That hardly seems like a good tradeoff.	SO01
11958	The original estimate was far less [of another mine], as I'm betting the same for the cost of environmental cleanup with Polymet.	FIN05
14877	the exposed rivers, Partridge and Embarrass eventually flow into the St Louis River, which flows into Lake Superior, which Duluth is located on. Lake Superior is now just getting her health back after years of dumping by other mines and Honeywell barrels.And now we are asked to trust Polymet?	WR111
Sender Name (Submission ID)	Tim Johnson (42999)	
15272	I would like to encourage you to give more time for citizen input on the PolyMet mine…I have learned over the years [to] not rush things and as much as possible work for consensus.	NEPA07
Sender Name (Submission ID)	Tim Karst (38647)	
11894	The jobs that will be created and the taxes that will be collected are needed to keep Minnesota an economic leader.	SO10
11895	The Minnesota DNR has the most stringent mine permitting process in the country and I have confidence that this mining can be done safely with no damage to the enviroment.	PER34
Sender Name (Submission ID)	Tim Lundahl (15404)	
600	Water quality will be impacted for centuries and we have no experience in knowing how to deal with this for such an extended time.	PD03, WR035, WR038
602	It is folly to even suggest that the DNR or any other agency can develop a plan that will "guarantee" water treatment for centuries to come at no cost to the taxpayer.	FIN10
603	The relative few number of jobs this project would create and the fairly short life span of the mine do not justify the long term financial and environmental liabilities that this proposal would create for Minnesota's citizens.	SO01
1867	PolyMet mining proposal, however, has far more long range negative environmental impacts than iron mining ever has.	PD27
1891	The track record for similar mining operations in our country is filed with failures. These failures include serious water pollution, corporate bankruptcies, insufficient dollars for environmental remediation and mismanagement.	PD26
Sender Name (Submission ID)	Tim Melby (11595)	
2255	My wife and I have been harvesting wild rice for the past 35 years in the area affected by sulfide discharge. My concern is that the PolyMet SDEIS will not preserve current environmental laws and enforcement will possibly be degraded.	WR154, WR156
2255	My wife and I have been harvesting wild rice for the past 35 years in the area affected by sulfide discharge. My concern is that the PolyMet SDEIS will not preserve current environmental laws and enforcement will possibly be degraded.	PD24, WR128

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tim Melby (11595)	
2256	If PolyMet is so concerned about meeting current standards of 10 milligrams per liter of sulfate, then why not offer to beat the standards and challenge the State of MN with the proof of a clean mine in order to allow for future sulfide mining projects.	WR147
2256	If PolyMet is so concerned about meeting current standards of 10 milligrams per liter of sulfate, then why not offer to beat the standards and challenge the State of MN with the proof of a clean mine in order to allow for future sulfide mining projects.	WR147
2257	United States treaties with the Lake Superior Band of Ojibwe need to be honored and acknowledged, including a seat at the table with enforcement rights.	CR01
2257	United States treaties with the Lake Superior Band of Ojibwe need to be honored and acknowledged, including a seat at the table with enforcement rights.	CR01
14232	I mention these locations because we are actively and intimately involved in the area that toxic sulfate mining will affect the clean water in our lakes streams, rivers and ground water.	WR115
14232	I mention these locations because we are actively and intimately involved in the area that toxic sulfate mining will affect the clean water in our lakes streams, rivers and ground water.	WR115
Sender Name (Submission ID)	tim mikkelson (12156)	
1652	To think that the mining would produce millions of pounds of material that would have to be monitored and treated for many, many lifetimes (and would most likely end up being the taxpayers responsibility, as with most mines) is TOTALLY UNACCEPTABLE.	FIN10, WR035
Sender Name (Submission ID)	Tim Minotas (23726)	
13983	Enough is enough with dirty mining and energy practices that not only contributes to climate change, but damages many people's and species way of life and health.	WI04
13984	The Great Lakes and its surrounding systems are one of our most vital resources, we can't afford to degrade.	WILD02
Sender Name (Submission ID)	Tim Peschman (38454)	
14467	In my experience, I have not seen ANY hard rock mining operations that have successfully provided treatment during and after their mining operations. The 30+ Superfund hard rock mining sites that the EPA has is testament to this.	PD26
14469	The various hard rock gold and precious metal mines, dating back to the middle 1800's have proven that our human nature is to make a profit irrespective of the environmental impacts.	SO01
14470	And [past mining projects] legacy is being borne on the backs of taxpayers, based upon ARRA funding, local bond issues, increased local water costs, etc.	FIN01, FIN10
14471	Why, I ask therefore, are the impacts to the Superior National Forest and/or the Boundary Waters Canoe area, if PolyMet is allowed to do their open pit mining, not of the same strategic value [as the Pebble mine, which would have been located near a stragegic fishery]? Clearly, these were designated as strategic wilderness areas and in this evaluation, went through years of public and private scrutiny for this designation.	WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tim Peschman (38454)	
14472	My point is that the mining industry is only recently working to start compliance with their discharges. Heretofore, it has been too easy for them to litigate for delays or claim insolvency to avoid their environmental responsibilities.	PER06
14473	I work with Reverse Osmosis systems all of the time and I can testify that they 1). Require a significant amount of maintenance, 2.) Have a long track record of plugging from precipitation of inorganics and silicates on the membrane surface, and 3.) Are prone to bacterial fouling, particularly in bacterially active waters, such as will be developed at this site. Without some sort of additives (pH control, sequestrants, cleaning systems, etc.) which could impact the environment (I didn't see any discussion of this within the SEIS), they will fail. Without some form of redundancy, they are not reliable.	PD03
14474	The SEIS indicates that there will be no impact to water flow within the Boundary Waters - that all water flow will be to the St. Louis river watershed and ultimately to Lake Superior. Given the volume of water to be used within this facility and the wastewater discharge points, there will be considerable reversal of flows within the various rivers, changing the hydrology of the area.	WR080, WR081
14475	there is more than ample evidence in our present environment to show that hard sulfide-bearing rock mines can not and do not comply with their environmental responsibilities. These responsibilities are passed on to future tax-paying generations by the Mining Companies, as they undergo bankruptcy or name change to protect or eliminate their liabilities.	SO01
Sender Name (Submission ID)	Tim Wallace (51599)	
13191	If this mining proposal is allowed to go forward it will only be the beginning forhow do you stop future proposal when this one gets approved. Impactsare cumulative as well as specific for each mine regardless if it is surface or underground.	CU04
13194	I own a nice piece of property on the St. Louis River and I will be directly affected by the discharge of contaminates from the PolyMet Mine for the rest of my life if it is allowed. PolyMet has a short life, the rivers and water are needed forever by all life in and near the river. This project must be measured by the standard of short term vs. long term. The decision will be easy and it will be NO if this metric is used.	LU06, WR115
13913	Impacts are cumulative as well as specific for each mine regardless if it is surface or underground.	CU11
13914	PolyMet has a short life, the rivers and water are needed forever by all life in and near the river. This project must be measured by the standard of short term vs. long term.	SO06, WR195
Sender Name (Submission ID)	timlndbrg@yahoo.com (46090)	
10784	Lets get this done & try to help the folks in northern mn with gainful employment, help our ayates economy lord knows it wouldnt hurt, & help mn be a bigger player in the global market place.	SO10
Sender Name (Submission ID)	Timm Frankowski (9749)	
289	Accurate groundwater rates are crucial to predict pollution and seepage of waste into the Partridge River. The SDEIS must be re-modeled to make it accurate!	WR003, WR086, WR091
290	The long term treatment of waste water at the mine sites and processing plant of possibly hundreds of years and the cost of which that would be put on the backs of future MN generations is outrageous!	PD25

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Timm Frankowski (9749)	
291	The jobs that Polymet is proposing are far outweighed by the environmental cost of the cleanup that will have to take place over a very long time.	SO01
1372	Polymet's SDEIS water model is seriously flawed. The most recent MN DNR report shows the actual rate of groundwater base flow is 200-300% higher than the rate used in Polymets SDEIS. Accurate groundwater rates are crucial to predict pollution and seepage of waste into the Partridge River. The SDEIS must be re-modeled to make it accurate!	WR003
1376	Lake Superior is an international gem bordered by exceptional lands in Northeast Minnesota. The Lake is under siege in so many ways. Water compacts between the Great Lake States and Canadian Provinces in the Great Lake watersheds are trying to protect these natural wonders. The BWCA is Minnesota's most pristine wilderness area. Why would we want to risk this truly special area to the degradation that this type of mining would certainly impose?	WR111
1377	Please extend the comment period	NEPA07
Sender Name (Submission ID)	Timothy G Lerick (54646)	
17999	I believe the people involved have gone above and beyond the measures required to gain the necessary permission from the regulation authorities. In my opinion the project is 35 years overdue.	NEPA16
Sender Name (Submission ID)	Timothy Larson (43967)	
7055	The SDEIS briefly claims that that mercury will not leach into the Partridge River at the site of mines and waste rock sites, but the assurances are contradicted by admissions that metals could be affected by groundwater flow--which has not been adequately assessed.	WR167
7058	Owners of mineral rights do not have the right to pollute our land, air, and waters--directly or indirectly.	SO02
7059	The issue of mercury is not adequately described in the SDEIS.	MERC01
Sender Name (Submission ID)	Todd Burras (38834)	
5073	... we oppose any mining project, including the one being proposed, that threatens the water quality of the Kawishiwi watershed and the Boundary Waters Canoe Area Wilderness.	WILD02
Sender Name (Submission ID)	Todd Ernest Barkus (57240)	
17342	I think the PolyMet operation, and all similar proposed operations do not adequately address the long term and short term impacts of the pollution that will be produced. I think these operations should not be allowed to proceed. We cannot build an economy on processes that destroy the environment.	SO01
Sender Name (Submission ID)	Todd Lyden (7399)	
746	I am confident that the Supplemental Draft Environmental Impact Statement (SDEIS) gives regulators the information they need to issue PolyMet Mining permits to operate while protecting natural resources.	NEPA16

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Todd Lyden (7399)	
748	The PolyMet project has been designed to minimize environmental impacts. It reuses an existing site (the old LTV mining site) and existing infrastructure, minimizes the disturbance of wetlands, and utilizes multiple safeguards to protect the environment.	PD28
749	PolyMet will also have dramatic, positive socioeconomic impacts to a region that has been built on mining.	SO06
751	An added benefit is the land exchange with the U.S. Forest Service will open up new public recreational opportunities for all Minnesotans.	LU01
Sender Name (Submission ID)	TODD M (45408)	
15621	*PolyMet will contribute to the local and state economy at a time when we really need the jobs and economic benefit.*I'm proud that my investment dollars are being spent here in Minnesota by Minnesotans. Our economy needs these jobs.	SO10
15622	*PolyMet will be a domestic supply of critical metals needed in medical applications, electricity, catalytic converters, cell phones, computers and other essential products.	PD28
Sender Name (Submission ID)	Todd McGillivray (10721)	
588	The SDEIS is an amazing document. Comprehensive, informative, complete. It's time to move on to the Permitting process.	NEPA16
1483	One comment about the Public meeting system. I don't believe people should be allowed to speak when their presentation is full of lies and inaccuracies. Public comment at the meetings would be much more informative and useful if one or all of the lead agencies would have time to respond to the speakers presentation with factual information. The system that was used was very unfair to the PolyMet project.	NEPA11
Sender Name (Submission ID)	Tolvo Sober (54157)	
16049	Poly Met's proposed copper-nickel mine has the potential to pollute our environment for hundreds of years, far beyond the life of the company.	FIN01
Sender Name (Submission ID)	Tom (20080)	
1727	Minnesota has some of the most protective environmental regulations in the nation, and the SDEIS outlines how Polymet's mine and plant operations will meet these standards. I believe the plans for the lined stockpile areas, in-pit subaqueous waste disposal, and treatment of tailings pond effluent provide key methods for reduction of potential impacts of waste rock and wastes generated by the project. In addition, the land swap provides for mitigation of biologic and wetlands impacts	PER34
1728	Financial assurance laws in Minnesota outline standards that will ensure Polymet will honor its responsibility for long-term treatment and reclamation of the site.	FIN16, FIN17
1729	The Polymet project will provide valuable jobs on the iron range, where metal mining has been conducted in a safe, sustainable manner for over a century. I believe that the Polymet Mine will be an asset to the state and the country, and can be operated with an eye toward environmental stewardship.	SO10
2331	How diligent will the MPCA/DNR and all the other public agencies be if standards aren't kept or met?	PER06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tom (20080)	
2331	How diligent will the MPCA/DNR and all the other public agencies be if standards aren't kept or met?	PER06
2332	Is there enough money and procedures in place to ensure a long lasting healthy environment during and after the mine goes away?	FIN05
2332	Is there enough money and procedures in place to ensure a long lasting healthy environment during and after the mine goes away?	FIN05
2333	Talking with the MPCA, they stated, "No one has really raised the question regarding – what happens if the 20 yr. treatment plant (reverse osmosis process) breaks down for a lengthy period of time?"An employee felt – "It would be shifted to another location to clean the water, – or hold the water until the plant is fixed. – But she smiled – w/ the – it would be a problem!	WR157, WR190
2333	Talking with the MPCA, they stated, "No one has really raised the question regarding – what happens if the 20 yr. treatment plant (reverse osmosis process) breaks down for a lengthy period of time?"An employee felt – "It would be shifted to another location to clean the water, – or hold the water until the plant is fixed. – But she smiled – w/ the – it would be a problem!	PD24, WR128
2334	How do you feel it would be dealt w/ if terrorists picked this as a great target? – With all the protection available for water treatment plants – what type of secerity will you require of PolyMet	PD22
2334	How do you feel it would be dealt w/ if terrorists picked this as a great target? – With all the protection available for water treatment plants – what type of secerity will you require of PolyMet	PD22
15011	In addition, the land swap provides for mitigation of biologic and wetlands impacts.	WET15
Sender Name (Submission ID)	Tom and Dana Vogen (43570)	
8318	I believe it is unconscionable to create pollution that would need to be treated for centuries if it can even be done effectively.	PD01
15492	If we make decisions based primarily upon jobs and money, the destruction of the earth will continue unabated.	SO01
Sender Name (Submission ID)	Tom and Julayne Johnson (45248)	
9096	If they cannot 100% guarantee that there will be no environmental damage and especially to our water supplies and Lake Superior, then mining should not be and never be allowed.	WR110, WR111
Sender Name (Submission ID)	Tom and Mary Schutz (44295)	
11850	I support the MEPA and the Minnesota Environmental Rights Act (MERA) prohibit state agencies from permitting projects that will cause pollution, impairment, or destruction of the environment.	PER35
11851	This is just another get rich quick idea that will leave pollution expense that they, the company, will not be around to clean up and pay for the pollution expense later. We the people, our country and the planet earth does not need this kind of waste and havoc to our land, water and environment.	FIN01
Sender Name (Submission ID)	Tom Anderson and Kathryn Hagen (36387)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tom Anderson and Kathryn Hagen (36387)	
3787	Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS.	WR036
3788	Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment.	WR036
3790	Revise the SDEIS to address Minnesota Rules 6132.3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free."	PER04
Sender Name (Submission ID)	Tom Anderson (7145)	
476	Three hundred some jobs for twenty years.... For the trade off of polluted sulphite contaminated water that will possibly need to be treated for up to four to five hundred years!!!???	WR195
478	Despite the "best" safeguards industrial accidents happen all the time. Spills happen. No matter how careful companies say they can and will be, there continue to be spills and accidents.	PD22
480	Is one of the states most precious resources worth tainting and polluting? Since every living thing cannot survive without water, just how much pollution is acceptable for the entire ecosystem???	WR115
Sender Name (Submission ID)	Tom Anzelc (54815)	
18979	I believe PolyMet needs to put money up front in the event of environmental impacts or they declare bankrupcy.	FIN01
Sender Name (Submission ID)	Tom Bittinger (21635)	
14222	I would also like to express my belief that short public comment period on the Supplemental Draft Environmental Impact Statement (SDEIS), as well as the timing of the limited public meetings, certainly gave the appearance that there wasn't any real interest in what the public thinks about this issue and that a decision has already been made. Having such a short and limited opportunity for public comment on this long, confusing, contradictory and misleading statement was unfair.	NEPA10
14223	The negative environmental impacts that result from these mines are more than common, they are almost inevitable.	CU11
Sender Name (Submission ID)	Tom Carious (18162)	
13315	…those of us that are concerned with reducing our carbon footprint specifically rely on copper for our wind turbines, for the solar panels in the parking ramp across the street, for the electric car charging stations in the parking ramp, and the power of the light-rail trains that will open this summer in St. Paul. In fact, we in the US are among the world's leading consumers of copper. We consume significantly more than we produce or can recycle.	NEPA05
13317	if it's a given that we're going to continue to use copper…I believe that we here in Minnesota and the United States are in the best position to mine these metals. Better than any of the existing mines in any of the other countries that produce them. We have the strictest environmental regulations to protect our water; the strongest unions to ensure worker safety and good wages; we have public agencies full of technical experts controlled by democratic processes that value citizen input.	NEPA05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tom Casey (42960)	
7596	Sulfate standards have not yet been established by the Minnesota Pollution Control Agency.	PER10, WR152
14981	The water flow modeling is incorrect.	WR052, WR091, WR105
Sender Name (Submission ID)	Tom Clarke (57954)	
19843	The threat to air and water especially the St. Louis River watershed & Lake Superior is too great.	GEN01
Sender Name (Submission ID)	Tom Conrad (11545)	
2499	Is there enough monitoring in place to ensure we don't get to an unmanageable situation. AND who pays for the economic impact of it not working – loss values on home, property people quite using an area, etc….	FIN01, FIN11
2499	Is there enough monitoring in place to ensure we don't get to an unmanageable situation. AND who pays for the economic impact of it not working – loss values on home, property people quite using an area, etc….	WR044, WR045, WR047, WR048
7467	What happens if the mine opens AND it doesn't work. Is there enough monitoring in place to ensure we don't get to an unmanageable situation. AND who pays for the economic impact of it not working…	SO04
7467	What happens if the mine opens AND it doesn't work. Is there enough monitoring in place to ensure we don't get to an unmanageable situation. AND who pays for the economic impact of it not working…	SO04
Sender Name (Submission ID)	Tom Diener (44187)	
11881	Taking a historically dirty industry and operating it close to a nearly pristine wilderness area seems absurd.	WILD02
11882	If I could be assured that there is adequate protection in place I could support the plan but as I understand it, the level of funding for protection of the environment will be not be determined until after the plan is approved. It feels like a backward approach. Funding for unforeseen problems needs to be addressed now.	FIN01
11883	Enforcement of regulations safeguarding the environment including water quality is an important consideration. Who will be the enforcement agency, several hundred years from now, to deal with harmful tailings runoff if they occur?	PER06
Sender Name (Submission ID)	TOM DIMOND (43109)	
10153	If the US Forest Service does agree to the swap there will be thousands of acres of wetlands lost or degraded within the boundaries of the National Forest. This proposal does not call for the restoration of wetlands that have been lost. The US Forest Service should not support a proposal that causes a net loss and degradation of existing wetlands.	LAN03
10155	The modeling for water flow and assumption that 99% of the flowage and seepage will be treated lacks scientific data to support these claims. Without accurate water flow and capture rates evaluation is impossible.	WR021
10156	The plan to limit pollution depends on containment walls, pipes, pumps, and geo membrane. The SDEIS lacks adequate information on how these structures and systems will stay in place and operational for 500 years.	PD07, PD15

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	TOM DIMOND (43109)	
11456	The negative impacts to our State greatly outlast the short term benefits. The SDEIS does not include the full economic picture. Tourism is a major employer in Minnesota. Attracting and retaining businesses is Minnesota is highly dependent on the quality of life and the natural environment. Degradation of the environment and potential financial liabilities from 500 years of cleanup could cause job losses that greatly exceed any temporary gains.	SO01
11623	The Cumulative Effect or Cumulative Impact [to wetlands, wildlife, vegetation, and water resources] has not been adequately considered.	VEG08, WET24
11626	PolyMet proposes swapping privately owned lands in the Superior National Forest for the 6,650 acres of federally protected public land. This proposal is contrary to protection of the wetlands and natural resources within the boundaries designated.	LAN06
11631	Estimates have placed the pollution cleanup monitoring and maintenance costs at $3.5 million to $6.5 million annually. Cleanup is projected to take 500 years.	FIN01, FIN05
11636	The State needs detailed and verifiable information to protect the taxpayers and environment because the State is the only party that is likely to be here 500 years from now. A miscalculation by the State could create a taxpayer financial liability that risks the jobs and well being of many Minnesotans.	FIN01, FIN10
Sender Name (Submission ID)	Tom Drill (6337)	
1179	This area is an economic wasteland without this project. This project will transform the area into a vibrant and sustainable economy with jobs and services for over 100 years, possibly 200 years.	SO10
1277	Polymet has mitigated the problems in the watershed where they operate.	PD28
Sender Name (Submission ID)	Tom Ehlinger (21326)	
945	Water - fresh water --(….) once it is contaminated, it will take generations upon generations to gradually clear up	WR115
14038	But the idea of putting our fresh water at risk for hundreds, if not thousands of years, for at most several decades of jobs, is utterly astounding.	SO01
Sender Name (Submission ID)	Tom Fiero (38703)	
9971	Polymet's modeling for contamination and mitigation stop at year 200 for the mine site, and year 500 for the plant site--ignoring the fact that contamination will continue after these end dates. Will the state of MN and its taxpayers then assume the burden of continuing the necessary mitigation actions?...Polymet must guarantee adequate permanent funding for pollution mitigation actions….	FIN10
9973	Furthermore, the SDEIS modeling of groundwater movement...uses a Partridge River estimated baseflow of 0.51 cfs, which is not realistic. Actual measurements east of the mine site establish a baseflow that is several times higher. .. SDEIS predictions for the amount of sulfates and other pollutants entering the river are probably low.	WR003, WR091, WR149
11990	Significant quantitative errors in the SDEIS need to be corrected, and the corrected document should then be subjected to further review.	NEPA15
Sender Name (Submission ID)	Tom Garneau (14788)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tom Garneau (14788)	
1754	The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes.	LAN02, LAN05
1755	The Land Exchange serves only the private interest of a foreign corporation, not the public interest.	LAN01
1756	The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining.	LAN04
1757	The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. This includes a net loss of 6,026 acres of areas with high biodiversity; 2,030 acres of mature forest – replaced by 2,000 acres of immature forest; 1,400 acres of floodplains and losses of 11 endangered or threatened species.	VEG01, VEG02, VEG03
1758	The PolyMet sulfide mine would reduce lynx habitat by two square miles, kill individual lynx, and impact 2 out of 13 remaining small corridors for wildlife to travel across the Arrowhead region. The PolyMet sulfide mine plan would also destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which dropped precipitously by 35% from 2012 to 2013. Yet, the SDEIS contains no analysis of impacts on moose from the PolyMet project.	WI01, WI02, WI03
1759	The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions.The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St. Louis River and tribal resources.	CR01
1760	Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice.	CR01
1761	the PolyMet Land Exchange …[is] inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value.	LAN03
1762	the PolyMet project [will have]… cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish	MERC02, WR156
1763	the PolyMet project and Land Exchange [is]… inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes.	CR01
1764	The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands.	VEG03
Sender Name (Submission ID)	Tom Graham (36537)	
14268	[The proposed mine] is extremely bad for the wildlife and water creatures.	WI01
14269	I don't think [the proposed mine is] in the best interest of the area or for the people living there and then the people using the boundary waters canoe area.	WILD02
Sender Name (Submission ID)	Tom Howell (19875)	
9349	Wild-rice farming will be endangered. That will affect those who depend on those crops, as well as their customers.	VEG04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tom Howell (19875)	
9350	If fish advisories already exist for waters of the area, there should be vigorous efforts to reduce pollution rather than support for projects that will make things worse.	AQ11
Sender Name (Submission ID)	Tom Jahnke (47214)	
8807	I ... have never witnessed a successful recovery of natural resources following any kind of mining operation...The scar upon the landscape never heals. In my home county of Wright, there are at least 40 old gravel mines that have never been "healed" after the minerals were removed.	PD26
8808	Statements to protect water have been misleading in all instances.	WR189
8810	There best be a method by which those who operate the mines can safely protect the environment and afford to pay all expenses to recover the lost resources "up front"!	FIN01
Sender Name (Submission ID)	Tom Kapsner (11576)	
14187	Mining has made our area more successful than all businesses combined. Minnesota has lost most of 3M, IBM, Control Data and Burlington Northern due to unfriendly tax situations. What better business offers the opportunity to create jobs, pay taxes for communities, cities, counties and the state. Helping to provide better educational opportunities, repair roads, help environmental programs with funding. Literally 10's of thousands of jobs and millions in taxes. Let's work together to make this opportunity a reality.	SO10
14187	Mining has made our area more successful than all businesses combined. Minnesota has lost most of 3M, IBM, Control Data and Burlington Northern due to unfriendly tax situations. What better business offers the opportunity to create jobs, pay taxes for communities, cities, counties and the state. Helping to provide better educational opportunities, repair roads, help environmental programs with funding. Literally 10's of thousands of jobs and millions in taxes. Let's work together to make this opportunity a reality.	SO10
Sender Name (Submission ID)	Tom King (16357)	
1524	I don't believe we have the technology to safely do this kind of mining at this time.	PD32
2028	Also we do not need to tap into these resources and can save them for a later time when the need will be greater and the technology more	NEPA03
Sender Name (Submission ID)	Tom Kolodzinski (18295)	
12480	My concern is that the project has not looked enough at the impact on White Water Lake. In the small bay, by the diversion works, there is a potential drop of up to 12 feet of water in that small bay, when pumping into Colby, in the initial stages.	WR140
12482	As a homeowner in that area, especially if it is during drought time, [a potential drop of up to 12 feet of water in the White Water Lake] ruins our opportunities or that impacts greatly, severely our opportunities in enjoying the water and what we built.	LU06
12483	The mine is certainly, with that kind of money, the mining company, 600 million, isn't going to want to see damage. And those that do not support the mine have not shown evidence that this model will cause the damage.	SO10
Sender Name (Submission ID)	Tom Koshiol (4734)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tom Koshiol (4734)	
1883	[I have] great concerns about the known water quality issues associated with the proposal … There does not appear to be a concrete water protection/treatment plan in place	WR035
1884	It's a ridiculous compromise to the 33,000-plus tourism jobs already in place, and that presently sustain many communities in the area.	SO02
1886	The dangers associated with acid mining are astronomically larger and longer lasting that the iron and taconite mines, and the industry's track record is dismal at best	PD27
1887	These are very short-term jobs for a very low number of families, with the vast majority of mining profits leaving not just our state, but our country.	SO06
Sender Name (Submission ID)	Tom Kranz (47068)	
11193	This pristine wilderness area has clean water and healthy forests and it is in everyone's interests for the BWCAW to remain unspoiled and unpolluted. The YMCA is aware of proposals to mine sulfide ore in the watershed of the BWCAW.	WILD02
11196	In considering the permitting of any proposed sulfide mining operations, we urge decision makers to be certain that the following clean water and environmental protection principles can be guaranteed:1. BWCAW waters and nearby lakes and rivers remain safe and clean2. Strong safeguards are in place in the event anything goes wrong3. Mining companies must leave the site maintenance free (in accordance with existing MN mining rules).	PER06
Sender Name (Submission ID)	Tom McMullen (57719)	
19366	The process to approve the PolyMet Mining project has been dragged out long enough…the DNR has done an adequate job of holding the mining companies responsible, they have done their due-diligence, let's move forward.	PER20
19367	This is a valuable project for the state of MN, we have already lost enough jobs (tax base..) from our state.	SO10
Sender Name (Submission ID)	Tom Neiman (43798)	
11814	Satisfying short-term business opportunities does not serve the long-term best interests of Minnesota/the upper Midwest or its people/land/animals/agriculture.	SO01
Sender Name (Submission ID)	Tom Obst (42709)	
14323	Let us look for markets and products before we dig holes and lose the opportunity for turning out other items in the momentum that occurs during the mining and refining process. Without a plan we end up with leeching piles of gravel.	NEPA03
Sender Name (Submission ID)	tom peacock (23487)	
9953	The value of profits cannot, by any rational measure, begin to compare to their value.	FIN10
Sender Name (Submission ID)	Tom Reinke (41553)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tom Reinke (41553)	
9333	The model used to calculate the alleged economic benefits of the mine does not take into account the costs to the environment; the displacement of other economic activity, including among other things tribal rights to hunt, fish, and gather under the 1854 Treaty; the infrastructure, government, and social service costs resulting from the mining; and the consequences of the unpredictable influx and outflow of mine employees.	SO04
9334	PolyMet admits that water pollution by sulfuric acid and heavy metals will last for at least 500 years. Annually, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated [and] 5 million gallons of polluted seepage from the mine site will enter groundwater without being treated	WR070
9335	The computer model used by PolyMet may understate the actual pollution impact, because it has been shown to be inaccurate in representing current conditions for water quality around the mine site.	WR044, WR049, WR149, WR172, WR173, WR174
14300	What would be the costs for public infrastructure, lost opportunities to engage in other economic activities incompatible with mining, depressed real estate values, lost recreational opportunities, social upheaval, and perpetual clean-up that the public would be required to bear?	FIN05
14301	Not all of the polluted water will be captured for treatment	PD03, WR017, WR018, WR070
14302	Annually, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated.	PD04, WR070, WR117
14303	Annually, 5 million gallons of polluted seepage from the mine site will enter groundwater without being treated.	PD04, WR070
14304	The SDEIS fails to adequately assess the long-term impacts of the pollution resulting from the release of this untreated water.	WR070
Sender Name (Submission ID)	Tom Roth (50003)	
12986	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN10
Sender Name (Submission ID)	Tom Rukavina (44812)	
7282	It makes economic and environmental sense to locate this Northmet mine in the Hoyt Lakes/ Babbitt area. The towns that will house the workers are already there and are capable of accomodating the influx of workers needed to build and operate the mine.	SO10
7285	By using all the old course and fine crushers, concentrator, power lines and sub-stations, railroads, haul roads etc, the NorthMet project will save the environment by not having to mine for the metals that built this minesite the first time around.	PD28
7287	The human race and the citizens of the USA need the resources that will be mined at the Northmet site.	NEPA05
7288	In order for the human race to move away from the fosil fuels that cause global warming, we need the copper and nickel and platinum, palladium etc that will be mined at this site.	NEPA05
7292	Modern technology and modern regulations will insure that this mine will be one of the most environmentally sensitive mines in the world.	PER34
7293	We know that here in the USA, you regulators will make sure that we put all the safeguards in place to make this mine the safest in the world.	PER34

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tom Rukavina (44812)	
7296	The experts at the Natural Resourses and Research Institute… have indicated that the reverse osmosis process proposed by Polymet to treat their waste water will work and not pose a threat to our area.	WR190
7300	We need to mine the resources we all use in this country, not export our desires for these metals to another place where the environment will be abused.	NEPA05
13431	We even have the environmental regulations to make this mine one of the showcase mines in the world…. Right here, you can have good union mining jobs in the United States of America.	SO10
16438	In fact, many of the communities on the Range get their drinking water from the old natural iron ore pits. The sulfides in those pits has not turned to sulfates.	WR190
16439	People in the Eveleth/Virginia/Gilbert/Mt.Iron area live under the shadows of three different mines operating near their communities and they live healthy long lives. The U of Mn has completed a 5 year/ 5 million dollar study on mesothelioma and found our air is cleaner than the air in downtown Minneapolis. We have not polluted our environment.	HU08
Sender Name (Submission ID)	Tom Steigauf (4874)	
1921	This type of mining; often called sulfide or acid mining has never been conducted in a way that preserved the natural landscape, habitat, or wildlife in the adjacent areas.	PD26
1922	The PolyMet mine will create jobs but how many and for how long? ... The fact is a relatively small number of jobs will be created and most of the money will leave the state.	SO06
1923	MN will be left with the environmental mess.	WR115
1924	It would be far better to develop tourism and create jobs around tourism. These would be long-term jobs that would continue on for generations.	SO02
Sender Name (Submission ID)	Tom Thompson (18939)	
14731	Please extend the comment period for the Polymet Northmet Supplemental Draft Environmental Impact Statement from 90 days to 180.	NEPA07
Sender Name (Submission ID)	Tom Welch (42565)	
17064	I trust the science and my neighbors and friends to protect our land and way of life. We need jobs badly but not at the expense of our Land and Water. Many millions of dollars have been spent on researching this project and the time is now to start mining the resources we have been blessed with.	SO01
Sender Name (Submission ID)	Tom Witt (7037)	
452	...strip mining brings with it a host of environmental damages that are not worth the number of jobs that PolyMet promises: Danger to water quality Discharge of sulfates Harm to wildlife Destruction of wetlandsLet's not pollute it for the sake of some jobs, but rather let's do the harder work of finding more jobs that don't have such a harmful effect on our environment.	WET24, WI04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tom Wright (42567)	
17071	We do not live in the era of the 1960, 70, 80's we have governing agencies that we have to entrust that will help guide polymet as a company to comply with all standards.	PER34
Sender Name (Submission ID)	Toni Watt (18238)	
13608	And I am a proponent of no mining allowed in the Boundary Waters. I really don't think it's safe, and I don't think they can guarantee that the water there will not be polluted.	WR111, WR195
13609	I don't think it's a good investment to look for 20 years worth of jobs, maybe, and 500 years worth of pollution, you know, and there's -- and the mining companies do not have a good track record,	SO01
Sender Name (Submission ID)	Tony Jordan (9845)	
312	We should wait for technology to be developed to offer the possibility of mining them without the accompanying destruction that future generations will pay for.	PD32
1397	I am in favor of an additional user fee for the BWCA that would be shared with the residents of the area to compensate for their not getting the 300 some jobs that come with the destruction of the area.	SO06
Sender Name (Submission ID)	Tony Nelson (10266)	
385	Are the mine owners willing to put the money up front to cover the entire cost for this cleanup? We must not get caught in a situation where the owners file bankruptcy after the mine is played out and the citizens are stuck with the bill.	FIN01
Sender Name (Submission ID)	Tony Vavricka (9)	
32	The press release put out by the DNR forgets to mention the 500 years of clean up[…]who gets to pay for this[?]	FIN01
Sender Name (Submission ID)	Tonya Kjerland (18269)	
13889	And I would like to state that in order to determine what a rice water is, the state should consider simply the presence of wild rice. Looking at historic data, such as it is, is very difficult at this time since we have not yet collected enough density data to determine how wild rice populations change over time.	WR154
13890	I would also like to say as a native person that the wild rice is more than just a plant. It is a sacred medicine. And that this is not just for the native people, it is for everyone.	CR01
Sender Name (Submission ID)	Town of Fayal (54716)	
18499	the metals that Poly Met will mine are essential for daily life-copper, nickel, cobalt, platinum, palladium and gold-found in countless products, including cell phones, computers, joint replacements, medical treatments and devices, wind h1rbines and catalytic converters;	SO10
18500	the combination of strict Minnesota regulations and Poly Met's commitment tomining in a way that protects the environment will serve as a global template for responsible, ethical and successful mining practices;	PER34

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Town of Fayal (54716)	
18502	the proposed mining and processing operation will create 360 direct jobs and over 600 indirect jobs in St. Louis County alone; and WHEREAS, it is anticipated that the PolyMet Mining project will require 2 million hours oflabor during its construction phase; and WHEREAS, PolyMet Mining will contribute millions of dollars to local cities, school districts and the State through net proceed taxes, occupation taxes, and sales tax; and	SO10
Sender Name (Submission ID)	Tracy Alfson (16995)	
11032	The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site.	FIN01, FIN10
Sender Name (Submission ID)	Tracy Bauman (16590)	
13923	The PolyMet plan is not going to be applicable while maintaining the lakes and rivers to the same standards we have for so many years. It would be a total waste of a beautiful natural resource that can potentially kill our children with mercury pollution and ruin our fish not to mention the moose population which is already dropping more and more every year.	MERC01
13924	[The NorthMet Project could] potentially kill our children with mercury pollution and ruin our fish not to mention the moose population which is already dropping more and more every year.	HU03
Sender Name (Submission ID)	Tracy Fredin (42464)	
6804	It does not provide enough economic benefit for the cost to our quality of life. There are other, more economically effective paths to follow.	SO02
Sender Name (Submission ID)	Travis Barnes (54172)	
16388	The mine is a bad idea. It will cause a lot of pollution and kill a lot of wildlife.	WI01, WI04
16389	You could mine somewhere not important like Canada.	ALT09, ALT16
Sender Name (Submission ID)	Travis Durkin (20017)	
1657	I am against the new mine. I live in Ely and I am very concerned about out watersheds. I do not feel that there is sufficient evidence to keep our waters safe from pollution.	WR115, WR195
Sender Name (Submission ID)	Trevon Clay (54177)	
16403	I don't think they should build the mind because there is many places to mind besides doing it right next to a wildlife area.	ALT13
16404	The minding will destroy fishing, the water, the sulfuric acid will destroy all most everything in the water that would be another wildlife destroy.	WR115
16406	The wild habit will be destroyed we need animals to survive like fish and other animals. The acid will make the [ILLEGIBLE] the go down.	WI01, WI02, WI04
Sender Name (Submission ID)	Trevor Russell (38788)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Trevor Russell (38788)	
4904	There is just no way to be sure that this company will even exist half a millennium from now - when its pollution will still need treatment. Which means there is just no way this won't become a financial burden to our state and an embarrassment to our people.	FIN01
Sender Name (Submission ID)	Trish (49559)	
12901	PolyMet may have some good points, but it will also destroy the wetlands!!	WET24
Sender Name (Submission ID)	Tristan McCormick (41253)	
9306	As I'm sure you know… the impact of which is huge but containable, sulfide mining tailings produce highly acidic runoff. The upper Minnesotan hydrological system is so interconnected that this would mean centuries of catastrophic and un-manageable ecological costs in what might be the combined most beautiful, ecologically valuable, and visited lake ecosystem in the Union.	WR001, WR115, WR195
9307	Even if they DID commit the appropriate amount of fund (which is probably, you know, hundreds of billions of dollars since the runoff would need essentially indefinite treatment), there is a nearly flawless record of companies like this almost immediately raiding those funds/hiding behind bankruptcy protection. Then who pays for it?	FIN01, FIN08
9308	The few thousand jobs created over the next decade will be nothing compared to the job and revenue losses in the tourism industry that will almost certainly result as people are less inclined to visit a lake system….	SO01
14216	These companies aren't even American! Which might be the WORST possible reason to reject this mine but the money isn't even staying in the state! It's going to some international mining conglomerate acting through shell corporations!!	FIN04
Sender Name (Submission ID)	Trout Unlimited Minnesota (54909)	
18866	While state law and prudence require that closed mines be maintenance free, the mining plan outlined in the SDEIS reveals that the NorthMet sites will require hundreds of years of monitoring and water treatment. Indeed, at the end of the arbitrary 500 year time period beyond which PolyMet chose not to run its model, water seeping from the site still will not meet several water quality standards.	WR037, WR128
18868	Some of these pollutants show declining levels, but the SDEIS fails to examine how far the presumably tapering "tails" extends into the distant future. The model needs to be run further out into the future, especially for persistent pollutants such as mercury and other heavy metals.	WR036
18872	The SDEIS does not adequately examine the cumulative impact of long term loading of Lake Superior and inland waters with numerous heavy metals, especially mercury...Indeed all northeast Minnesota trout waters could be impacted by increased emissions of airborne mercury, both from the NorthMet site and from the coal power plants generating the power needed for the operations. These impacts need further analysis in the SDEIS.	MERC08, MERC10
18877	We are particularly concerned that the collective impact of increased levels of sulfates, mercury and other heavy metals leaching into the St. Louis River and Lake Superior, alteration of hydrology, and increased mercury loading in wetlands and waters within the Lake Superior basin will lead to increased bioaccumulation of mercury in fish, ourselves and our children and grandchildren.	MERC03
18878	We note that the SDEIS assumes a net offset in mercury due to treatment of the water entering the Partridge River. However, this analysis fails to account for the fact that there will be no such treatment in the first 40 years.	WR158

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Trout Unlimited Minnesota (54909)	
18879	The SDEIS also discounts the impacts of sulfates and leached heavy metals based upon the fact that they will be somewhat diluted before entering surface waters. However, because of mercury's long term persistence in the environment, discounting impacts based upon dilution is not justified.	MERC16
18881	the impact of failing to replace most of these [impacted/removed] wetlands within the Lake Superior basin needs greater scrutiny. A clear plan is needed which replaces all the important/unctions of these wetland (both destroyed and impacted wetlands) within the Lake Superior basin.	WET03
18882	To preserve the outstanding quality of Lake Superior and the productivity of its coldwater fisheries the wetland impacts must be mitigated within the basin, not elsewhere.	WET03
18883	While the impact of treated water is discussed at length, the substantial amounts of water which will not be collected, conservatively estimated at 10% of all water, are not included in numerous calculations.	WR018, WR070
18884	The SDEIS's assumptions about the absence of fractures under the pit locations, confused by a permeability analysis which assumes no fractures, further cast doubt upon the estimates of seepage volumes.	WR011
18885	Given the substantial doubts surrounding the groundwater model and unproven assumptions regarding bedrock fractures, the lining of all pits and waste rock piles and construction containment systems should be explored as alternatives.	ALT06, ALT07, ALT13
18886	Engineered redundancies for the protection of water quality are warranted from the outset given the importance of preventing any degradation of Lake Superior and its tributaries. It is not appropriate to delay an examination of these measures until the permitting phase. The purpose of the EIS process is to ensure that all potential impacts and measures to avoid them are thoroughly vetted by the public during the EIS process.	ALT13
18887	The SDEIS needs to carefully explore...lining all pits and stockpile locations, including at the mine site;	ALT07, ALT13
18888	The SDEIS needs to carefully explore...installing a water collection system under each liner	ALT13
18889	The SDEIS needs to carefully explore...constructing or extending water containment and collection systems around the entire perimeter of each pit and stockpile	ALT13
18890	The SDEIS needs to carefully explore...locating additional monitoring wells in close proximity to the edges of the containment systems, rather than only at points of discharge into surface waters.	WR078, WR079
18891	We are concerned with plans to essentially "pirate" the base flow from wetlands and streams for many years…The SDEIS fails to examine theimpacts on aquatic life of stealing these base flows and pumping it to the pits.	AQ24
18892	The SDEIS should explore other alternatives for supplying water to the pits for subaqueous disposal. Collected groundwater should instead be treated and released into infiltration areas downslope from the containment areas to mimic natural groundwater flow to the streams.	ALT13
18893	The SDEIS fails to detail the monitoring plans which have a bearing on when or whether seepage of contaminated water is detected and corrective action taken. Likewise, it fails to lay out all possible adaptive water management strategies (i.e., share some of the less optimistic scenarios) and evaluate the relative merits and impacts of each.	WR139
18894	Since the adequacy of financial resources can affect the level of impacts, the SDEIS must provide detailed information of the range of financial assurances likely to be required should this project move forward.	FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Trout Unlimited Minnesota (54909)	
18895	We strongly disagree with the agencies' decision not to conduct a full examination of the underground mine alternative, and with the reasoning offered for it. This alternative is a reasonable one and should have been reexamined in greater detail in the SDEIS…[If all] costs of theopen pit mining plan are counted, we suspect that the underground mine alternative will be as economically feasible [as the proposed action].	ALT01
18896	We do not see evidence in the SDEIS that monetary values have been assigned to all of the real costs of the proposed mining plan. These include the costs of truly adequate financial assurances necessary to meet all contingencies, including adaptive water management measures.	FIN01
18897	We caution that the agencies' reasoning used for dismissing an alternative because it does not meet a proposer's "need" is rather circular and could be used to exclude all alternatives which reduce profits. At some point every measure needed for resource protection which is not in a proposer's plan does not meet its "need" for a desired level of profit.	NEPA01
18898	Page ES-39 indicates that the mine would reduce water flows in several tributary streams to the Partridge and Embarrass Rivers. It dismisses the possibility of potential impacts from this on the basis that the flows would "remain within the range of annual natural variability." This reflects a poor understanding of riverine systems, which need period high water and "flushing flows" to maintain ecosystem health.	WR185
18899	Proposed practice of blending sulfides (and heavy metals discharges) to levels where acid mine drainage cannot occur is untested and optimistic.	WR147
18900	The proposed land exchange fails achieve the stated need, "To eliminate surface and mineral conflicts within the Superior National Forest by exchanging federal lands for non-federal lands that have equal or greater value." The proposed exchange does not accomplish this. Rather it merely exchanges one present conflict for future conflicts involving newly acquired lands which also have severed mineral rights.	LAN04
18901	The 90 day comment period was too short for our members to adequately review the voluminous, often technically complex, SDEIS documents.	NEPA07
Sender Name (Submission ID)	Trout Unlimited, Chapter 642 (47838)	
12886	The following response was unanimously approved on March 3, 2014 by the board of the Headwaters Chapter 642 of Trout Unlimited. I.Incomplete underground mine analysis compared to open mine	NEPA12
12887	II. Contradicting statements on stream flow, Executive Summary p. 39, table 51 and (appendix C sub sec 1) “reduce water flows to range of annual natural variability	EDIT01
12888	A disregard for human life concerns by not addressing the amphibole mineral fibers that is a definite and significant human risk. Where’s the revenue to match the risk	HU01
Sender Name (Submission ID)	Troy Rogers (47783)	
8711	As such, I view the PolyMet project as currently proposed, planned, and outlined in their SDEIS to be a major threat to Northeastern MN's long term economic vitality, rather than as an opportunity.	SO02
15843	I am a firm believer in the potential for this region's innate cultural and recreational resources to usher in an era of economic revitalization for the Arrowhead. I also believe that short-sighted decision making based on short term profits for the few can undermine and negate this potential.	SO02
15844	I view the PolyMet project as currently proposed, planned, and outlined in their SDEIS to be a major threat to Northeastern MN's long term economic vitality, rather than as an opportunity.	SO03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Troy Rogers (47783)	
15845	the place I want to be is in Northeastern MN. Foremost among my reasons for wanting to return to the area to live, work, and grow my small start-up company are the pristine lakes and waterways of the Arrowhead region.	WR195
Sender Name (Submission ID)	Tyler Lies (47423)	
17586	I would love to have the ability to continue visiting [the Boundary Waters] in the condition that it's in for years to come, and this won't be possible if it becomes polluted and disrupts the ecosystem that is currently in place.	WILD02
Sender Name (Submission ID)	Tyler Nord (11603)	
2264	Could the loss of wetlands in the area of the mine contribute to hazardous flooding conditions over and above those outlined in the SDEIS?	WR197
2264	Could the loss of wetlands in the area of the mine contribute to hazardous flooding conditions over and above those outlined in the SDEIS?	WR197
2265	The section 404 should be denied and reconsidered for hazardous flooding conditions at the site beyond those listed in the SDEIS, and metropolitan water management downstream on the St. Louis River.	COE03
2265	The section 404 should be denied and reconsidered for hazardous flooding conditions at the site beyond those listed in the SDEIS, and metropolitan water management downstream on the St. Louis River.	COE03
2267	As the St. Louis river watershed is continuing to be cleaned up, and births with high levels of mercury continue to hang around 10% in the arrowhead region, we should consider addressing the LTV tailing pond as it stands, instead of proposing to pour a completely different type of waste in toit.	MERC03
2267	As the St. Louis river watershed is continuing to be cleaned up, and births with high levels of mercury continue to hang around 10% in the arrowhead region, we should consider addressing the LTV tailing pond as it stands, instead of proposing to pour a completely different type of waste in toit.	MERC03
2268	Polymet's tailing pile will be an unlined pile. LTVs preexisting pile is nearly two square miles in size. These piles will contain part of the 99.9% of waste material generated by this project, and will be there in perpetuity. However, the SDEIS claims this will cause no pollution, as pages 5 through 159 indicate.	WR056, WR105
2268	Polymet's tailing pile will be an unlined pile. LTVs preexisting pile is nearly two square miles in size. These piles will contain part of the 99.9% of waste material generated by this project, and will be there in perpetuity. However, the SDEIS claims this will cause no pollution, as pages 5 through 159 indicate.	FIN01, FIN10
2269	The SDEIS does not provide an alternative scenario for a lined pond.	ALT10
2269	The SDEIS does not provide an alternative scenario for a lined pond.	ALT10
2270	The tailing dumps at the LTV site will increase from 2,020 gallons per minute to 3,380 gallons per minute, according to the SDEIS, and claims that 21 gallons per minute will not be contained. That is 0.63% of the total volume moved; where has this system been demonstrated before that substantiate these claims?	PD07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Tyler Nord (11603)	
2270	The tailing dumps at the LTV site will increase from 2,020 gallons per minute to 3,380 gallons per minute, according to the SDEIS, and claims that 21 gallons per minute will not be contained. That is 0.63% of the total volume moved; where has this system been demonstrated before that substantiate these claims?	PD07
2271	I request the SDEIS be rejected and redone to analyze water quality outcomes if the tailings pile collection rate is not what Poly Met claims.	WR018
2271	I request the SDEIS be rejected and redone to analyze water quality outcomes if the tailings pile collection rate is not what Poly Met claims.	WR018
2272	I ask that the land exchange be denied until the SDEIS addresses the alternatives to courses of action in regards to the project, at most levels as the SDEIS does little in the way of addressing different methods or outcome scenarios.	ALT23
2272	I ask that the land exchange be denied until the SDEIS addresses the alternatives to courses of action in regards to the project, at most levels as the SDEIS does little in the way of addressing different methods or outcome scenarios.	ALT23
2406	I would like to request that it [SDEIS] is rejected and reanalyzed.	NEPA15
2409	in the SDEIS -- in the EIS they demonstrate that they will be using the LTV site. (Inaudible) it drains from the bottom into three separate streams. It was designed that way. They are just going to pile a different type of waste on top.	WR018, WR182
2410	I will remind you that this type of mining has never been done safely and we live in a high-water content area	WR023
2411	... PolyMet doesn't acknowledge 500-year floods or 1,000-year floods, 2,000-year floods at the site…The main flaw in the EIS, the acronym that applies here, it is that it doesn't show what happens if the pumps at the edge of that tailing pond fail. It doesn't show the alternative scenarios. It doesn't show that 21 gallons per minute that leaks from the LTV site, that they admit will be leaking 21 gallons per minute, that is --first of all, that's never been demonstrated before. They acknowledge that untreated water will be leaving the waste site.	WR021
7859	The wetlands are literally an irreplaceable asset in the watershed; no wetland, natural or fostered, will contribute to the relevant watersheds as the loss proposed in the Section 404 request	COE01
7859	The wetlands are literally an irreplaceable asset in the watershed; no wetland, natural or fostered, will contribute to the relevant watersheds as the loss proposed in the Section 404 request	COE01
13911	When you take a wetland out from one area, you can't just have another one happen somewhere else. Any technologist can tell you that. Any geographer can tell you that. It might be a similar size of wetland, but the service it provides to your economy isn't the same, if in a specific location, you filter more water than in another location. So, just adding more wetlands somewhere else while destroying the wetlands on the other line won't work.	WET05
Sender Name (Submission ID)	Tyler Reid (42009)	
2059	Sulfide mining has never been done in Minnesota and … Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred.	WR023
2060	The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public interest.	LAN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	UM Natural Resources Research Institute (42893)	
5507	The public does not fully understand the underlying science related to the generation of acids due to the proposed mining operations...Clarify the underlying geology and chemistry, esp. why certain metals are apt to bind with sulfides in nature…	WR001
5516	How can the time periods for active vs. passive treatment [of water at the Mine and Plant sites] be better constrained? Articulate results more clearly; provide model results across a range of specific flow and treatment option scenarios. Provide results of sensitivity analyses for hydrologic modeling.	WR036, WR137, WR175
5517	How do you insure that the potential for acidic runoff is mitigated before it leaves the pile area? A potential solution may be use of a fine limestone so that water can interact with this material to neutralize any leachate found. (Reaction kinetics information may be needed to show this will work.)	WR127
5518	How does PolyMet assure that there is not a significant amount of class 2/3, class 4 (dc) and class 4 (VF) materials in the class 1 waste pile? Consider a potential approach as follows: put clay liner down, then layer of fine limestone to react with any potential sulfuric acid that may be generated; calculate based on assumption that a little of the class 2/3, class 4 (DC, VF) is present; clarify how rock type separation is to be controlled.	PD15, PD34
5519	What actions must be taken to control acid generation in the east pit area? Consider a calculated limestone addition. Amount of limestone should be based on mass balance calculations to react with/to total amount of sulfur present. It may be possible to pre-buffer the higher sulfate rock as it is being added to the pit so that potential acid sulfate issues are mitigated before they can cause environmental harm. Consider lining the pit walls in areas of enhanced sulfide materialization prior to filling the pit to minimize water contact with sulfide materials.	WR002, WR027
5520	What special quality control procedures will be used to ensure that "excellent" installation of the [geomembrane] liner is achieved? Provide a quality control plan for effective sealing of liner materials.	PD15
5521	What is the expected lifespan of geomembrane liners? Literature suggests that lifespan is unknown, but will depend on type of membrane, geochemical, and physical environment. Major points of failure are seams. Certainly the lifespan will be finite; will it be shorter than the predicted need for either temporary (class 2/3, 4) or long-term (class 1) sequestration? Provide data addressing the life-span and performance of the liner.	PD15
5522	Is ageing of the slurry wall an issue? What if cracks (etc.) are present or are created in the bedrock by the construction of the slurry wall. What contingency plans are in place for problems or failures associated with the slurry wall?	PD07
5523	At present, the amount of actual ore to be process is ambiguous. Clarify the volume of material that will be removed, processed, and produced as concentrate. Indicate actual amount of rock to be processed in terms of metallic values.Indicate the volume of residue from the hydro-met system that will be generated and the proactive treatment regime that will be employed to minimize future issues with this material category.	PD30
5524	Salt will be a significant byproduct resulting from operations of reverse osmosis units. Define how salts from reverse osmosis unit will be handled/disposed of on a long term basis.	PD03
5526	How will PolyMet ensure that facilities will last as long as treatment is necessary? Indicate the measures that will be taken to maintain/improve conditions as adaptive management proceeds. Some of the countermeasures noted in previous sections could be very helpful in reducing overall long-term treatment requirements.	PD22
5532	How will dust loading be handled at the crushing stages of the ore? Describe plans to characterize, monitor and control dust. Describe the physical, chemical, and mineralogical attributes of the dust, and evaluate potentially harmful health affects (for example, respirable silica, elongate mineral particles, etc.)	AIR10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	UM Natural Resources Research Institute (42893)	
5538	Project will result in increased loading [of mercury] into Embarrass River and decreased loading into Partridge River (because of water treatment). Results in a net decrease in Hg loading to the St. Louis River. However, given the current TMDL for mercury, is any increase in Hg loading to a permanent water body acceptable, even if the net result of the project is decreased loading downstream? Consider engineering solution.	MERC18, MERC22
5544	The pit lake was cited as needing perpetual treatment due to leaching from pit sidewalls (SO4, heavy metals). Consider proactively treating the water filling pit so leaching of sulfate, heavy metals is precluded or minimized. Actions could be taken to lessen leaching from mine walls. The following treatments could be considered: (1) Add class 1 materials into pit to reduce depth of lake, and minimize access to pit walls for reactions, to a depth where reaction to produce acid would likely not take place. (2) Limestone addition is typically used to reduce sulfate levels in pit lakes right now -- calculate amount of limestone necessary to mitigate leaching from pit sidewalls and production of metals/sulfate. This reduces amount of class 1 material in class 1 waste rock pile and will reduce the overall depth of the proposed pit lake. In addition, if all the Class 1 material is backfilled into the West pit then the legacy issues potentially associated with any intermixing of higher sulfur rock that might get into this pile are eliminated.	ALT03, ALT06, ALT13
5545	PolyMet could explore sustainability options involving beneficial use of the synthetic gypsum produced during the hydromet process. Encourage the exploration of market options for this material in the buildiing products (e.g. gypsum board) and agriculture (e.g. soil amendment) sectors.	ALT17
5546	What is the magnitude of pH change as a result of the proposed action in relation to background levles of natural and pit lakes in the region? Illustrate pH values of pit lakes across range in relation to proposed pH of pit lake at PolyMet proposed site. Illustrate predicted pH, alkalinity, and sulfate for the tailings basin and the pit lake. Define pH variance. Consider baseline data with respect to acid mine drainage issues and concerns.	WR001, WR060, WR173
5547	Contingency planning [in cases where treatment plant activities are compromised] is a must and should include responses to failure of passive systems (pits, tailing ponds, slurry wall, etc.) and active systems (WWTF, WWTP)…Evaluate 100 year and 500 year weather events and develop responses that will prevent any water deterioration or other environmental degradation.	PD22
5548	There was no analysis to account for changing climate, and potential effects of both higher peak flows and increased variability…Hydrologic models in the EIS do not account for the possibility of lower base flows in summer (due to less precipitation and higher evapotranspiration caused by increased air temperatures), and potential for increased number of intense rain events. Contingency plans are needed for all such scenarios.	PD22, WR180
5549	There is no analysis to account for changing base flow levels. Indicate results of sensitivity analyses at lower- and higher-base flow values that were utilized in developing the hydrologic models.	WR003, WR091
5550	Wetlands will be lost in a region that currently contains a large proportion of its original wetlands. Selecting potential mitigation wetlands can be challenging in these conditions...Focus mitigation on "restorable" wetlands within the same watershed; or consider the possibility of enhancing existing wetlands of the same type elsewhere in the watershed. NRRI expertise can contribute to the selection of restorable wetlands and enhancement of existing wetlands.	WET03
5551	Ensure that worker health safety measures are clearly discussed in EIS, and that contingency plans for worker/public safety in the event(s) of emergencies are clearly spelled out. Indicate measures by which PolyMet will insure that OSHA/MSHA standards for worker health safety are addressed and met.	HU04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	UM Natural Resources Research Institute (42893)	
5552	What is the true life cycle cost of this project, from inception through closure? An economic model that includes both inputs and outputs must be a part of the discussion; the IMPLAN model was limited in scope and accounts for the benefits side of the equation but does not consider the total costs of this project relative to the benefits of jobs and taxes. Consider conducting a more thorough economic study that includes the externalities, such as the costs of pollution control and abatement, the loss of ecosystem services from the lost wetland and forest cover should be conducted, and cost of road and other infrastructure use and degradation.	SO04
5553	What quantity of refined metal will be produced within Minnesota and/or domestically? What percentage of the metals is anticipated to be used domestically, and what percentage will be exported? Why is it strategically important for the United States to produce these metals here? Describe the degree to which the United States' dependence on non-ferrous metals is anticipated to be met by the project. Indicate current US strategic metal reliance on foreign sources	SO04
5554	What is the position of PolyMet in following the sustainability directives currently suggested by various mining organizations (for example, 10 Principles of ICMM)? We strongly encourage PolyMet to develop and commit to maintaining a transparent responsible mining policy and discuss how objectives will be achieved to maintain a Social License to Operate throughout all phases of the proposed project.	ALT01
Sender Name (Submission ID)	United Transportation Union (54880)	
19569	We believe that northern Minnesota has the opportunity to produce minerals that will remain in demand far into the future in a manner that can set the high standard for environmental preservation worldwide...We look forward to the delivery of essential rail service with new economic development in northern Minnesota.	SO10
Sender Name (Submission ID)	USEPA (47834)	
2981	Comment # 1. Spill prevention is an important part of the mitigation for this project. Using new or retrofit side dump rail cars (possibly with hydraulic air-operation conversions) should be considered as part of the mitigation package for the proposed action. Proactive mitigation through the use of updated rail infrastructure would help reduce spillage and subsequent environmental concerns, possibly including the need for additional long-term water treatment.Recommendation: Consider use of new or retrofit side-dump rail cars when producing the spilled ore plan.	COOP01, WR151
2982	Comment # 2. Pages 5-50 forward describe how the company has classified its waste rock and tailings into four categories based on their likelihood to generate acid rock drainage. We understand from discussion with the co-lead agencies that lime will be added to Category l waste rock, which is expected to result in neutral to slightly basic pH.Recommendation: The FEIS should indicate that Category I waste rock leachate is expected to have a neutral to slightly basic pH due to the addition of lime.	COOP01, WR027
2983	Comment # 3. Page 5-157, Section 5.2.2.3.3, 2nd Paragraph: information on the design, operations, and monitoring plans for the hydrometallurgical research facility (HRF) is insufficiently detailed.Recommendation: The FEIS should provide information on the HRF's design and operations in sufficient detail for the reader to understand potential impacts associated with this facility and how those impacts will be avoided or mitigated. This includes explaining that a detailed Residue Management Plan for this facility will be required during permitting.	COOP01, PD17, WR066
2984	Comment # 4. Page 4-336 discusses the possibility of inundating an existing coal ash landfill located within the proposed tailings basin. Based on current knowledge of leachate concentrations found in groundwater at such landfills, inundation may lead to future water quality impacts.Recommendation: The FEIS should discuss how constituents found in the coal ash landfill may impact water quality in the Embarrass River, how this landfill will be protectively managed, and how any impacts will be mitigated.	COOP01, WR028

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2985	Comment # 5. CWA requirements for antidegradation ("nondegradation" in Minnesota' s terminology) help ensure that a proposed project will not result in a loss of existing uses of surface waters, and preclude reduced water quality unless the State determines it is necessary to accommodate important social and economic development (see 40 CFR 131.12). This review must occur before project activity that may result in a new or increased discharge commences, and should not be deferred until NPDES permitting. EPA understands from discussion with MPCA that much, if not all, of the information needed for an antidegradation review is already contained in the SDEIS.Recommendation: The FEIS should include an evaluation of which of Minnesota's nondegradation rules (7050.0180, 7050.0185, 7052.0300) apply to this project, and explain how the project complies with the applicable nondegradation rules	COOP01, PER09, WR109
2986	Comment # 6. The proposed project provides significant overall environmental improvements over the proposal in the DEIS through installation of seepage containment and other controls at the former LTV tailings basin. However, the SDEIS modeling predicts increases in aluminum (Al) and lead (Pb) in surface waters affected by the proposed project- including exceedances of evaluation criteria for Al and Pb at locations on four tributaries to the Embarrass River (p. 5-7 to 5-8). These predicted increases are based on a number of assumptions, including the contribution from remediation of the former LTV tailings basin. The SDEIS modeling also predicts other increases and exceedances of evaluation criteria based on the "Continuation of Existing Conditions" scenario. EPA understands that monitoring of receiving waters downgradient of the existing tailings basin is being carried out now. This monitoring data will be an important source of information to consider along with modeling results.Recommendation: Available monitoring data should be used to inform NPDES permitting. Monitoring should continue throughout the life of the project to inform permitting, adaptive management, and additional measures to prevent or mitigate impacts to aquatic life as necessary.	AQ12, AQ30, COOP01, WR139
2987	Comment # 7. The SDEIS anticipates that pollutants will be discharged from mine site features, travel via groundwater pathways and reach the Partridge River several years following the start of the mining project. See SDEIS Table 5.2.2-26. However, as EPA has stated previously, the pollutants originating from mine site features may discharge to jurisdictional wetlands and tributaries prior to reaching the Partridge River. CWA Section 301 prohibits any point source discharge of pollutants to waters of the United States, either directly or via directly connected groundwater, unless the discharge complies with a NPDES permit. Waters of the United States include jurisdictional wetlands and tributaries. See 40 CFR 122.2.Recommendation: The FEIS should reflect the fact that a NPDES permit is required before the pollutants from the mine site reach waters of the U.S. (including jurisdictional wetlands and tributaries). Statements in the SDEIS about when discharges will reach waters of the U.S. should be revised, and these changes should be reflected in the FEIS.	COOP01, PER05
2988	Comment # 8. The Tribal Cooperating Agencies Cumulative Effects Analysis (September 2013) included in Appendix C of the SDEIS states: "PSDEIS Table 4.2.2-18 reports Colby Lake as currently having an observed mean for Arsenic of 0.78 to 1.4 ug/L (depending on the data set), whereas Figure 5.2.2-35, the No- Action (continuation of current conditions)" P50 model for Colby Lake Arsenic shows annual maximum values of 0.5 ug/L." In addition, the SDEIS shows Colby Lake's current mean arsenic concentration as 0.78-1.4 ug/L on Table 4.2.2-18, with a range of 0.25-2.3 ug/L, while the modeled p90 maximum value in Figure 5.2.2-35 lists the maximum concentration of arsenic in Colby Lake as 0.70 ug/L. Comparing the modeled mean for arsenic in Colby Lake to existing site-specific data in the SDEIS, the model outputs underestimate arsenic concentrations by up to l 00%. Colby Lake is currently modeled as a continuation of the Partridge River because there is insufficient data to model it as a lake, which may be causing this discrepancy. We understand that monitoring is ongoing, which may provide additional information on observed arsenic concentrations.Recommendation: The FEIS should document an analysis that addresses this discrepancy between existing conditions in Colby Lake and modeling results, taking into account all necessary data. The FEIS should include any follow-up actions that will be necessary based on this analysis.	COOP01, WR046
2989	Comment # 9. Modeling using MODFLOW assumes no seepage through the berm on the east side of the tailings basin. The co-lead agencies have agreed to reexamine this assumption. MODFLOW outputs are used as an input to the GoldSim model, so changes to these outputs may require updated GoldSim modeling as well.Recommendation: Recalibrate MODFLOW as necessary to reflect seepage on the east side of the tailings basin, and update GoldSim modeling as necessary. The FEIS should explain how this comment was addressed.	COOP01, WR054, WR102

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Sender Name (Submission ID)	USEPA (47834)	
2990	Comment #10. Modeling of water quality parameters is subject to inherent uncertainties that call for ongoing evaluation. For example, acid rock drainage (ARD) in cold, wet climates raises uncertainty due to climatic factors including distinct freeze-thaw cycles, varying contributions from rain and snow, and a period of significant melting during the spring thaw.Recommendation: The permit to mine should require water quality modeling throughout the life of the mine, assuring that the model uses input from actual monitoring discharge data as it becomes available, so this information can be used to support adaptive management. The model should accommodate specific climatic factors associated with the site.	COOP01, WR130, WR139
2991	Comment #11. MDNR has collected new Partridge River flow data that vary from the base flow calculations used for modeling in the SDEIS. The co-lead agencies have explained that the model accounts for this discrepancy, which is correlated with pit dewatering from the upstream Peter Mitchell Pit, a factor that was not present during the time period used for continuous flow data in the SDEIS (1978-1987), Details are provided in a technical memorandum from the coleadagencies. While the flow data used in the S DEIS was appropriate, low-flow conditions may not represent the most conservative conditions, though they are conservative in that they assume less dilutionof contaminants. However, dilution is the only variable considered. High-flow conditions, while increasing dilution, may mobilize contaminants toa greater extent than expected under low-flow conditions. Recommendation: The FEIS should evaluate how base flow affects variables other than dilution, taking into account high-flow as well as low-flow scenarios.	COOP01, WR091, WR165
2992	Comment # 12. There is insufficient detail to explain why "outlier" data were excluded from consideration in the GoldSim model. Recommendation: The FEIS should provide a specific justification to support excluding any such data from modeling.	COOP01, WR072
2993	Comment # 13. Page 5-61: the SDEIS shows that tailings leachate pH increases after 300 weeks, but does not show how leachate pH was extrapolated to the longer term, such as 50-100 years.We understand this data is already available. Recommendation: The FEIS should show how leachate pH was extrapolated to the longer term, such as 50-100 years, through a graph or chart.	COOP01, WR001
2994	Comment # 14. The SDEIS could be interpreted to imply that the plant site is expected to need water treatment for up to 500 years, and the mine site for up to 200 years. We understand from discussion with the co-lead agencies that this interpretation is incorrect. Recommendation: The FEIS should clearly explain the timeframe during which water treatment is projected, for both the plant and mine sites.	COOP01, WR036
2995	Comment # 15. Page 5-20: the SDEIS states that "mercury was not included in the GoldSim model, as insufficient data and a general lack of definitive understanding of mercury dynamics prevented modeling mercury like the other solutes." It also states that "regardless, the NorthMet Project Proposed Action would still need to demonstrate consistency with the mercury evaluation criteria (see Section 5.2.2.1)." Given the absence of modeling data for mercury, it is unclear how consistency with mercury evaluation criteria will be determined. Recommendation: The FEIS should either provide a supporting rationale that explains why elemental mercury does not warrant modeling, and how consistency with mercury evaluation criteria will be determined; or include modeling and evaluation of elemental mercury. If GoldSim is not suitable to model this pollutant, elemental mercury can be modeled using a different water quality model, such as the Water Quality Analysis Simulation Program (WASP)3, which is commonly used by EPA to model elemental mercury.	COOP01, MERC13
2996	Comment # 16. Page 5-509, Section 5.2.10.2.6, 51h paragraph: The SDEIS states that "increased mercury concentrations, and associated increases in mercury bioaccumulation in fish tissue could therefore constitute an environmental justice impact for Band members and other subsistence consumers of fish;" and that "deposition of mercury from the NorthMet Project Proposed Action would cease at closure, but mercury bioaccumulation in fish tissue and existing fish consumption limits could persist beyond the mine's operational life." Table 5.2.2-51 shows how much elemental mercury is expected to leave the project site under currently-proposed control measures. Further consideration of mercury impacts is needed. Recommendation: The FEIS should refine the quoted statement to more clearly characterize the risks associated with mercury releases. Based on this risk characterization, the FEIS should explain what has been and will be done to avoid, minimize, and mitigate mercury releases from the project.	COOP01, MERC02, MERC24

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	USEPA (47834)	
2997	Comment # 17. The SDEIS describes current site conditions, including the acreage, type, and quality of the wetland resources at the tailings basin and mine sites. The SDEIS also describes the proposed direct impacts remaining after measures to avoid or minimize direct impacts. However, the SDEIS does not quantitatively assess indirect impacts or measures to minimize and mitigate these impacts, except with respect to wetland losses due to fragmentation. The SDEIS also omits all indirect impacts from the cumulative impacts analysis for wetlands (Section 6.2.3.4). Recommendation: The FEIS should quantitatively assess all indirect impacts. The FEIS should more clearly describe the proposed mitigation plan, including mitigation for indirect impacts. The monitoring and mitigation plans in the CW A Section 404 permit should clearly explain proposed measures to minimize and mitigate indirect wetland impacts during the project.	COE02, COOP01, WET18
2999	Comment # 18. The SDEIS uses wetland assessment sites as an approach for evaluating impacts. The location of these assessment sites is discussed in the SDEIS, and Figure 4.2.3-2 shows locations of wetland assessment sites as points in a diagram. There are few wetland assessment site locations north and south of the mine site, and those shown on Figure 4.2.3-2 are far from the site boundary. The SDEIS does not sufficiently explain the assessment approach. Recommendation: The FEIS should describe in more detail the wetland assessment protocol and the assessment sites used, including the assessment methods used at those locations, why these locations were chosen, and how will they be used (e.g., for monitoring future wetland conditions).	COOP01, WET21
3000	Comment # 19. Section 5.2.3 states that 26.9 acres will be impacted by fragmentation, and that these losses will be mitigated. The criteria used to determine fragmentation are broadly described in Section 5.2.3.1.2, but lack sufficient detail. Recommendation: The FEIS should describe in more detail the criteria used to determine fragmentation losses.	COOP01, WET08
3001	Comment # 20. Figure 5.2.3-4 highlights wetland acres at the mine site where the proposed mine features would indirectly impact wetlands by fragmentation. Fragmentation is defined in the SDEIS as causing a change in the watershed area by greater than 20%. The SDEIS (Page 5-226) briefly describes how fragmented wetlands were identified, but does not explain the method for determining the 20% threshold. Indirect impacts from fragmentation at the mine site will also include habitat fragmentation, divisions in vegetative communities, and the general loss of functions in wetlands that are divided from adjacent wetlands and made smaller by mine features. Wetland acres that are surrounded on all sides by mine features will be fragmented because their ecological functions will be impaired. Recommendation: The FEIS should explain how the 20% threshold was determined. The FEIS should also recognize that the term "fragmentation" may define indirect impacts other than changes in watershed size. These other factors should be included when estimating fragmentation impacts. Compensatory mitigation should also be proposed for all losses of wetland timctions due to wetland fragmentation (in addition to adverse impacts from changes to a wetland's watershed).	COOP01, WET01, WET08
3002	Comment # 21. Section 5.2.3 describes the proposed wetland mitigation plan. EPA previously commented on the proposed mitigation ratios, and supports the mitigation ratios proposed in USACE's May 29,2013 Draft Memorandum on The Application of the Federal Mitigation Rule and St. Paul District Policy Guidance on Compensatory Mitigation, as described on page 5-316. The SDEIS describes the proposed ratios, but also states, "The determination of final mitigation credits ... would be determined during permitting" (p 5-224). Recommendation: The FEIS should provide a status update on development of final wetland mitigation credits. EP A will work with USACE during CW A Section 404 permitting to determine the final wetland mitigation credits needed, including mitigation for indirect impacts.	COOP01, WET04
3003	Comment # 22. The proposed mitigation plan includes post-mining on-site wetland mitigation. Restoration of wetlands on the site as part of reclamation is positive and important, but EPA and USACE have agreed that mitigation credits are not appropriate given how long it will be before this mitigation is carried out. The S DEIS contains inconsistent statements regarding whether or not on-site mitigation is proposed to generate mitigation credits. Recommendation: The FEIS should be clear that post-mining, on-site mitigation will not be used for mitigation credits. The mitigation plan in the CW A Section 404 permit should exclude mitigation credits for post-mining, on-site wetland mitigation.	COE01, COOP01

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Comment ID	Comment Text	Theme Codes
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3004	Comment# 23. Page 6-36, Table 6.2-8 and Pages 6-40 to 6-42, Table 6.2-11: There appear to be some inconsistencies between Table 6.2-8 and Table 6.2-11 with respect to reported future wetland and water resource numbers, including the bullet summaries for the Partridge River(Page 6-40) and Embarrass River (Page 6-42). For the Partridge River, Table 6.2-11 and bullet summary text note future condition with 3,516 acres of deepwater resources, while Table 6.2-8 indicates 1,922 acres.Recommendation: The FEIS should resolve or explain these inconsistencies.	COOP01, EDIT01
3005	Comment# 24. Page 6-21, Section 6.2.3.3.2: the "Contributing Past, Present, and Reasonably Foreseeable Actions" section, lists twelve foreseeable future actions with potential cumulative effects on surface water hydrology and quality in the Partridge River and Embarrass River watersheds. There is some inconsistency between this list and Table 6.2-1 (Page 6-7). "Cliffs Erie, LLC- Hoyt Lakes Area (former LTVSMC)," and "Cliffs Erie, LLC- Area 5 NW Pit" are not included in the table, at least not by these names.Recommendation: The FEIS should resolve or explain these inconsistencies, and use consistent names for foreseeable future actions to simplify cross-referencing by the reader.	COOP01, EDIT01
3006	Comment # 25. Page 6-26 states: "In summary, the maximum cumulative effects of the NorthMet Project Proposed Action, plus present and reasonably foreseeable future actions on the hydrology of the Partridge River, would be expected to reduce average annual flow in the Lower Partridge River at any time during operations by no more than 8.4 cubic feet per second (cfs) and 2.4 cfs (2 percent) during closure of the NorthMet Project Proposed Action, based on average annual flow of 112 cfs at USGS gauging station 04016000 downstream of Colby Lake." In some cases, this effect is well above the mean recorded flow of the Upper Partridge River during certain times of the year. The SDEIS does not address how flow reductions will affect the Partridge River and its resources. Recommendation: The FEIS should discuss the magnitude and significance of these flow reductions, including additional analysis or information as necessary. Potential impacts caused by these reductions should be discussed in section 6.2.3.3.3.	COOP01, WR024
3008	Comment # 26. Pages 6-22 to 6-25 and 6-27 to 6-28, Section 6.2.3.3.3: This text does not reference sources of hydrological effects data for each action.Recommendation: The FEIS should reference sources of hydrological effects data for each action.	COOP01, EDIT01
3009	Comment# 27. Table 6.2-15 shows the direct effect of other actions in terms of populations of each plant species affected. However, the SDEIS notes that for 4 out of 9 potentially contributing actions, "The NHIS data and MDNR take permit data were reviewed and no vegetation records were available for these actions. As a result, these actions are not considered in the cumulative effects analysis for vegetation."Recommendation: The FEIS should indicate whether the lack of vegetation records indicate no cumulative effects on vegetation, or simply lack of data on the subject.	COOP01, VEG08
3010	Comment # 28. We understand that MDNR will not calculate detailed financial assurance until the Permit to Mine process, although it may have additional information before the FEIS isissued. Recommendation: The FEIS should include additional information on financial assurance as available.	COOP01, FIN01, FIN08
3011	Comment # 29. The SDEIS does not identify the least environmentally damaging practicable alterative (LEDPA). This information will be required for CWA Section 404 permitting under CWA Section 404(b)(l). Recommendation: The FEIS should describe the process that will be used to determine the LEDP A, and should provide LEDP A information to the extent it is available.	COE02, COOP01
3012	Comment # 30. The Noise section and page 5-370 of the SDEIS does not sufficiently describe potential noise impacts from blasting and vibrations on wildlife. A cited Federal Highway Administration technical document in Appendix C of the SDEIS provides information on the sound threshold and frequency range for four biologic classes (mammals, birds, reptiles, and amphibians). Recommendation: The FEIS should contain analyses of noise and vibration impacts to wildlife based on the above biologic classes' sound threshold and frequency range, based on information included and cited in the SDEIS. Any impacts and/or mitigation measures should be noted in the FEIS.4	COOP01, N04

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Sender Name (Submission ID)	USEPA (47834)	
3013	Comment # 31. On pages 1-14 and 1-15, the SDEIS notes that the USFS must determine that "the public interest will be well served" before it can enter into a discretionary, voluntary real estate transfer (36 CFR 254.3(b)). This analysis is included in the SDEIS, but should be made clearer and more focused. Recommendation: The FEIS should clearly and concisely summarize the analysis of the proposed land exchange (Alternative A) and Alternative B under 36 CFR 254.3(b), including a clear explanation of the rationale and criteria for selecting the preferred land exchange alternative, and of how protecting cultural resources is included in the public interest determination.	COOP01, LAN01
3014	Comment# 32. The SDEIS states that modeled groundwater capture system efficiency at the tailings basin is at least 90%. However, it does not explain the basis for this estimate.Recommendation: The FEIS should provide the specific model assumptions that were used to make this determination. Recommendation: The FEIS should indicate that any discharge not captured by the proposed capture systems and entering waters of the U.S. (e.g., jurisdictional wetlands, the Partridge and Embarrass Rivers and their tributaries) is subject to NPDES permitting.	COOP01, PER05, WR017, WR018
3016	Comment # 33. Pages 4-261 through 4-264 refer to cultural resources/Section 106 resources solely as historic properties. Recommendation: The FEIS should make it clear that cultural resources include archaeological resources.	COOP01, EDIT01
3017	Comment # 34. Moose is a culturally-important species that has traditionally been subsistence hunted by the Chippewa Tribe. The SDEIS does not adequately describe how the proposed project will impact moose population and habitat of moose. Based on information in the SDEIS, it appears that there are unconsidered impacts to moose population and habitat, such as the proposed impacts to two local wildlife corridors, moose reliance on wetlands during warmweather, and impacts on foraging. Recommendation: The FEIS should more completely explain how the proposed action will impact moose population and habitat.	COOP01, WI01
3018	Comment# 35. On March 13, 2014, MPCA released preliminary findings on the effects of sulfate on wild rice growth.Recommendation: The FEIS should provide the most current available information on MPCA's findings, and on next steps based on these findings.	COOP01, WR152
3019	Comment # 36. Section 5.2.14 addresses geotechnical issues at the mine. Reasonable stability analyses were conducted for the permanent waste rock pile, but it is unclear if the company has committed to designing this unit so it meets conservative static stability Factors of Safety (FOS) (static FOS of 1.5 and seismic FOS >1). The company has committed to meeting conservative FOS for both the tailings basin and the HRF. Recommendation: The FEIS should clarify the company's commitment with respect to design of the permanent waste rock pile.	COOP01, GT04
3020	Comment # 37. Liquefaction analyses were not conducted for the HRF, based on the assumption that those wastes could compress and that the likelihood of liquefaction is remote. However, liquefaction and liner leakage could occur at the HRF because the HRF is proposed to be located above a hydraulically-active seep, which will place inward hydraulic pressure on the HRF liners. Recommendation: The potential for liquefaction should be analyzed. The FEIS should clearly summarize the results of this analysis, including next steps in response to this analysis.	COOP01, GT11
3021	The alternatives analysis in the application references the 2009 Draft Environmental Impact Statement (DEIS) and 2013 Supplemental Draft Environmental Impact Statement (SDEIS), but does not include the necessary detail to determine that the preferred alternative is the Least Environmentally Damaging Practicable Alternative (LEDPA). Since the DEIS was published in 2009, the project has evolved and many alterative have been eliminated. Chapter 6 in the application describes some of those alternatives as they relate to direct wetland impacts; it is not a comprehensive list of alternatives, and it does not consider indirect impacts to wetlands and streams. EPA recommends that the applicant develop a table describing all alternatives considered during the environmental review process (e.g., mine methods, mine configurations, tailings processing options). The table would assist EPA in determining whether or not the preferred alternative is the LEDPA. The table should also include the reasons each alternative was eliminated, including references, and the potential direct and indirect effects to wetlands and streams.	COE04, COOP01

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3022	The application does not provide a quantitative assessment of all indirect impacts (except for fragmentation impacts). We recognize that the heterogeneity of the project site and the complexity of the wetlands and hydrology make it difficult to quantity indirect impact, but we recommend that specific impacts to wetlands within the mine site be identified to the extent possible. The application should better estimate the changes in functions and values at wetlands, especially those surrounded by mine features.	COE02, COOP01
3023	Specifically, EPA is concerned that there will be indirect impacts to remaining wetland areas in Wetlands Nos. 33A, 45, 48, 57, 68, 101, 88, 96, and 107. Indirect impacts in these wetland areas will include habitat fragmentation, divisions in vegetative communities, and the general loss of functions in wetlands that are separated from adjacent wetlands and made smaller by mine features. Specific compensatory mitigation should be proposed for all losses of wetland functions (including identification of ratios and site locations).	COE01, COOP01
3024	Large Figure 9 and 10 and Large Table 2 in the application highlight wetland areas at the mine and plant sites where the proposed mine features would indirectly impact wetlands by fragmentation. Compensatory mitigation is proposed for those areas. Page 3 of the Wetland Analysis Workplan (Attachment B) gives a brief description of how fragmented wetlands were identified, but the application should also describe the impact thresholds and how the fragmentation impact criteria were developed.	COE02, COOP01
3025	Page 58 of the application states that the purpose of the indirect impacts analysis is to inform the monitoring plan for indirect wetland impacts. The application should include a description of how the impacts analysis will be used to ensure that indirect impacts are avoided, minimized, and mitigated. Section 11-5 in the application implies that the indirect impact monitoring plan will focus on wetlands that are under threat by multiple indirect impact factors (Table 11-1); this is not a valid approach because even wetlands that are under risk of one factor (such as only drawdown or only decreased water quality) would result in a loss of wetland function. We recommend more comprehensive monitoring for indirect impacts at the plant and mine sites.	COE02, COOP01
3026	The application does not describe monitoring for stream impacts surrounding the project areas. We recommend that the U.S. Army Corps of Engineers (Corps) require monitoring for indirect impacts to headwater streams surrounding the site as well as impacts to wetlands.	COE02, COOP01
3027	There is a potential for indirect impacts to wetlands, Spring Mine Creek, and Spring Mine Lake on the east side of the tailings basin, but no monitoring sites are proposed for that area. Wetland and stream monitoring sites should be required for the east side of the tailings basin.	COE02, COOP01
3028	Section 17.1 of the application describes that wetland monitoring wells 1,4a, 6, 10, 12, 15, and 21 are "being removed because they are either within the direct project impacts or areas where no potential indirect impacts are anticipated". Figure 16 shows Wells 4a, 6, 10, 12, and 15 just outside the project boundary and between mine features and Yelps Creek and the Partridge River. These wells are in wetland areas that would likely be impacted by adjacent mine features because of their close proximity to the mine features and wetland areas. For a more comprehensive impacts analysis, we recommend that the applicant continues to monitoring at the existing wells where they are outside the direct mine impact locations. Because there are baseline hydrologic data at these locations, changes in wetland hydrology, if they occur, should be evident.	COE06, COOP01
3029	Some wetland types, such as coniferous and open bogs, are sensitive to subtle changes in hydrology. A 50% change in hydroperiod (the proposed impact criteria) may not be an adequate measure of adverse impacts to the wetland vegetation communities. The applicant should include a more complete description of impact criteria and rationale for the proposed monitoring and reporting schedule.	COE02, COOP01
3030	Section 17.4 of the application states that wetland baseline conditions for wetland vegetation will be established during the first growing season after permit issuance. EPA recommends that the Corps require baseline vegetation monitoring prior to permitted impacts to ensure that a true pre-impact baseline is established.	COE06, COOP01

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3031	The vegetation monitoring is proposed for every 5 years. The basis for the proposed monitoring frequency is not clear from the application. Effectively managing certain threats to the wetlands, such as invasive species or vegetation changes due to drawdown, requires early detection, and monitoring every 5 years might not be sufficient to adequately manage the threat. . EPA recommends increasing monitoring for vegetation changes to every 2 years to better be able to identify and manage any adverse impacts to wetlands early.	COE06, COOP01
3032	The adaptive management plan described in Section 17.8 uses a phased approach to assessing indirect impacts and providing compensatory mitigation for adverse impacts to aquatic resources. Phase I is described a broad based monitoring; while Phase II would be a more detailed assessment. In order to determine if the adaptive management plan is sufficient, EPA needs more information on the timing and methodology of Phases I and II of the monitoring plan. EPA is concerned that Phase II monitoring would not be designed unless deemed necessary, and that the threshold for determining a need for Phase II is not described.Clear impact criteria must be established and potential mitigation options must be developed prior to permit issuance. EPA recommends that Phase II be planned prior to permit issuance to ensure that wetland and stream impacts are not missed.	COE02, COOP01
3033	The application lacks a description of cumulative effects to the aquatic resources within the watersheds except as they apply to wildlife corridors (Section 12.1.2.3). Cumulative Wetland Impacts (Section 5.3) is included in the March 1, 2013 Wetland Data Package V.7, but it is not referenced in the application. It is not clear if this analysis includes recently proposed projects, as it seems to be missing projects in the iron range (e.g., MINNTAC and UTAC). The cumulative effect assessment in the application should include the most recent and comprehensive information.	COE07, COOP01
3034	Indirect impacts are not included in the cumulative impacts assessment for wetlands in the Wetlands Data Package V. 7. All adverse impacts to aquatic resources should be considered in this assessment.	COE07, COOP01
3035	The analysis of cumulative effects in the Wetland Data Package V.7 evaluates the percentage loss of all wetland types. Many of the wetlands proposed to be impacted at the Polymet site are high quality bog and forested resources, and indirect impacts of mining often include wetland type changes due to changes in hydrology. The cumulative loss of different wetland types should also be evaluated.	COE07, COOP01
3036	The mitigation ratios proposed in the application conform to the conditions included in the Corps' May 29, 2013 Memorandum: Application of the Federal Mitigation Rule and St. Paul District Policy Guidance on Compensatory Mitigation- Compensation Ratios for Loss of Wetlands/Aquatic Resources. EPA agrees that the mitigation ratios proposed in the Corps' Memorandum were reasonable.	COE12, COOP01
3037	One concern that remains is that no compensatory mitigation plan exists for indirect impacts to wetlands and streams. Table 11-1 of the application indicates that more than 7,300 acres of wetland would be potentially impacted by the proposed project. Because in-watershed mitigation is so difficult to find, mitigation options for indirect impacts must be discussed in the application.	COE02, COOP01
3038	EPA remains concerned that a majority of the compensatory mitigation for impacted wetlands will occur outside the St. Louis River and Lake Superior Watersheds. This constitutes a permanent loss of aquatic resources within these watersheds. EPA understands that it is difficult to find in-watershed wetland mitigation opportunities, but the soon to be implemented Northeast Minnesota Wetland Mitigation Strategy may support the Corps and permit applicants to better implement a watershed approach to mitigation. Once implemented, EPA recommends that the strategy be used to find additional wetland mitigation sites within the St. Louis and Lake Superior Watersheds to compensate for indirect wetland impacts at the Polymet Site.	COE13, COOP01
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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	USFWS (42983)	
3483	The Fish and Wildlife Service (FWS) believes the northern long-eared bat (Myotis septentrionalis) is not adequately addressed in the SDEIS, as it is only listed as a Regional Forester Sensitive Species. Given the status for state and federal listing, the anticipated start date of the proposed project, and its potential for significant environmental impacts, it would be appropriate to discuss the northern long-eared bat under all "Federally and State-Listed Species and Species of Special Concern" subsections in the SDEIS in much greater detail.	WI01
3485	The Cumulative Impacts section of the document fails to address the overall cumulative impacts associated with the 28 prospecting permits represented in the Bureau of Land Management's (BLM) September 2012, Record of Decision (ROD) for Federal Hardrock Mineral Prospecting Permits, U.S.Department of Agriculture, Superior National Forest.Potential impacts associated with the 2012 ROD on Mineral Prospecting meet the criteria of "reasonably foreseeable future actions" since the prospecting permits are all located on the Superior National Forest and could contribute direct or indirect impacts in the region.	CU02, CU08
3486	In addition to the 20 projects considered in the Cumulative Effects analysis, some effort should be made to consider the cumulative effects of the 11 speculative projects that are in the early stages of development...The NorthMet mine could be considered a catalyst for other mining operations which could lead to much greater impacts to the regional ecosystem.	CU02
3487	The temporary nature of the projected 500 direct jobs created during construction and additional 631 "operations-phase" jobs may result in a substantial need for temporary lodging that could impact to Voyageurs-area visitors in the form of hotel or motel room shortages.	EDIT01
3488	Finally, the major differences of opinion between the lead agencies and the Bands, the Great Lakes Indian Fish and Wildlife Commission (GLIFWC), and 1854 Treaty Authority regarding the effects of the proposed actions should be resolved before any permits are issued.	EDIT01
3489	Mitigation of a larger number of smaller wetlands in the direct area should not be dismissed solely on whether the company deems it economically feasible to do so, especially if those mitigation options make more sense environmentally. The SDEIS states the majority of wetlands that would be impacted would be "difficult to replace." Alternatives for avoiding impacts to wetlands that are difficult to replace should be considered.	WET03, WET05, WET20
3491	The GIS buffer zones for determining indirect wetland effects cut off at the border to the existing Northshore Mine, even though the wetlands are continual across that border. Impacts to the entire wetland body should be covered in the Cumulative Impacts section	WET08, WET18
3492	The area of potential effects should be larger than the two watersheds that are directly impacted.	WET18
3493	The cumulative impact analysis for wetlands does not constitute an analysis of impacts. It is strictly comparing wetland acreage between pre-settlement (which is based on imprecise estimates), current, and proposed conditions. We recommend using accurate numbers for wetland acres lost in the area over the past few decades instead of using an unknown "pre-settlement" number as the baseline. In addition, wetland impact is more than just acres lost or gained. There needs to be a true analysis of impacts by wetland type and value, and include indirect effects, as is done in the Wetlands section of the SDEIS.	WET18
3495	This section needs maps to illustrate the location and extent of Minnesota Biological Survey (MBS) Sites of High Biodiversity Significance in order to support the claim that the number of sites within the project area is small, and to show how much of the 100 Mile Swamp and Upper Partridge River Sites will be impacted.	EDIT01
3496	Stating that less than 1 percent of the state's Sites of High Biodiversity Significance would be affected is misleading because not all of these sites are of the same type.	EDIT01
3497	The Indirect Effects discussion of the NorthMet project only talks about dust. The discussion should include effects from hydrologic changes, habitat fragmentation, microclimate, loss of fungal associates, erosion, and exotic species.	VEG07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	USFWS (42983)	
3498	The SDEIS acknowledges the disturbance of 1718.6 acres of high diversity significance and 698.2 acres of imperiled-vulnerable or vulnerable native plant communities. Deliberately and knowingly taking/destroying populations of state-listed Endangered, Threatened, or Special Concern plant species should not be an acceptable option.Having PolyMet purchase lands with these populations to give to the State raises a question of conflict of interest since the State is the entity proposing this action.	VEG01, VEG02
3499	There are 12 known populations of state-endangered Caltha natans in Minnesota. One of those populations is in Voyageurs. Destroying one of the 12 known populations will put added pressure on Voyageurs to protect any remaining populations.	VEG01
3500	The SDEIS states that non-native species will be used in the reclamation of the Mine Site and Plant Site...Many of the species listed for reclamation have proven to be problematic invasive species. This is not an acceptable practice. The emphasis on reclamation should be on ecological quality, not on speed of getting plants growing.	VEG05
3501	The cumulative impact area is unclear and seems to alternate between use of the Nashwauk Uplands/Laurentian Uplands and the Mesabi Iron Range.	VEG08
3502	The cumulative impact analysis for vegetation, like the wetlands analysis, is weak since the Geographic Information System (GIS) analysis only looked at changes in habitat type.Cumulative impacts should include changes in acreage of Sites of High Biological Diversity and vulnerable communities, loss of threatened plant species, increase in exotic plants, and other vegetation impacts. Those are the true cumulative impacts to the area.	VEG08
3506	The lead agencies should defer to the judgment of the Bands about potential impacts to traditional cultural properties even if the precise locations and significance are not shared with non-Natives.	CR05, CR06
3508	Historic properties such as the Spring Lake Mine Sugarbush are rare, have cultural and historical significance to the entire region, and have research value for understanding Ojibwe land use in other areas, including Voyageurs. Potential impacts to the Sugarbush, beyond fugitive dust deposition, should also be addressed.	CR05
3509	Trail systems such as the Beaver Bay-Lake Vermilion Trail historically connected communities, including connecting Native people who had off-reservation allotments in Voyageurs. Loss of parts of these trail systems may compromise the ability to understand historic Ojibwe land use in the entire region.	CR01, CR02, CR03, CR05, CR06
3510	We would suggest the lead agencies consider that the geographic feature known as the Misabe Widjiu (Laurentian Divide) could be significant not only to Native Americans but significant to the identity of the Region. Further permanent alteration of the Misabe Widjiu could be considered a loss to all Minnesotans.	CR05
3512	When referring to Canada lynx (Lynx canadensis), page 5-365 the SDEIS states that, “Although the NorthMet Project Proposed Action would result in a reduction and fragmentation of lynx habitat at the Mine Site, little to no effect on statewide lynx populations would occur as it is unlikely that an individual lynx or pair of lynx would be affected by the habitat decrease.” This is unclear and misleading. Our suggested rewording of this is, “Although the NorthMet Project Proposed Action would result in a reduction and fragmentation of lynx habitat at the Mine Site, little to no effect on statewide lynx populations would occur even if individual lynx are affected by the habitat decrease.”	EDIT01
3513	FWS also recommends adding the northern long-eared bat to Table 4.2.5-1 identifying Key Habitat, Cover Types, and Associated Species in the Nashwauk and Laurentian Uplands Subsections at the NorthMet Project Area as well as Section 5.2.5.2.1 Federally Listed Species.	WI01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	USFWS (42983)	
3517	The Draft BA also acknowledges that the Tower/Soudan Underground Mine State Park is an important hibernacula for the species (Myotis septentrionalis) and is located approximately 15 miles northwest of the project area. Given the proximity to known occurrences and available suitable habitat, the species is likely to be present at the Mine Site, Plant Site and Transportation and Utility Corridor. In the second paragraph of Section 5.2.5.2.1, please assure that the northern long-eared bat is included.	WI01, WI11
3518	Potential impacts to the northern long-eared bat as a result of this project should be addressed in this SDEIS. This should include, but not be limited to, direct habitat loss of all forested habitat within the project area, potential for Take of the species if any trees are cleared during the Summer Roost Season of April 1st through September 30th, noise disturbance and the potential for bioaccumulation of methyl-mercury or other contaminants.	WI01, WI02, WI04, WI05
3520	The Northern long-eared bat should also be addressed when looking at proposed non-federal exchange lands and added to Tables 4.3.5-2 and 4.3.5-5 since bats were observed at both Tract 1 and Tract 5, but not identified by species. Clarification is needed for Table 4.3.5-5 since “northern myotis” is identified in the table but not mentioned in the textual description for Tract 2.	WI01
3521	Table 4.3.5-4 identifies eastern pipistrelle as an associated wildlife species, but not the northern long-eared bat. FWS recommend the addition of this species, especially if bats were observed on site but not identified to species.	WI01
3524	With respect to Trust Resources that will continue to have direct access to open water sources at the mine site (mainly migratory birds and northern long-eared bat), the SDEIS should clearly state the anticipated water quality of the West and East-Central Pit Lakes, potential for bioaccumulation of methyl-mercury from aquatic invertebrates and other food chain pathways, and layout proposed measures to minimize or mitigate for any impacts to Trust Resources throughout the life of the mine and into reclamation phase. Of particular importance is the water quality of the wetland that will be established over the backfilled East-Central Pit after year 20, at which point would become an intended attractant to Trust Resources. It is unclear to FWS whether the SDEIS fully accounts for all sources of mercury. Supporting information for assumptions of mercury concentration, leaching and absorption should be provided and all materials associated with the proposed pit ponds should be characterized. Lead agencies should also reevaluate the need for containment and adequate treatment of the Overburden Storage Laydown Area, as this may be another significant source of mercury and other contaminants to the ecosystem.	AQ10, WR058, WR088, WR109, WR167
3525	While the air quality analysis appeared to be thorough, we strongly suggest NPS air quality specialists carefully review and confirm NorthMet’s pollutant source data, modeling methodologies, and modeling results.	AIR08
3623	It is difficult to comment on wetland mitigation because the direct mitigation ratio has not been determined and the indirect mitigation will be determined by USACE and MDNR at the time of permit.	WET01, WET04
3624	In addition, the mitigation sites proposed for this project are currently being developed and have not yet been permitted by the USACE. Suitability of these sites as mitigation for proposed wetland impacts cannot be determined at this time.	WET06
Sender Name (Submission ID)	USW Local6115 (42924)	
9667	Mining these [precious metal] deposits in a responsible way represents the largest economic opportunity for the NE MN region and the state of MN since iron ore was discovered here, bringing construction and operation jobs that pay enough to support families, provide high quality health care and the retirement security of a pension.	SO10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	USW Local6115 (42924)	
9668	If these metals are not mined in Minnesota, they will continue to be mined in places around the world that have little to no environmental regulations whatsoever, causing massive pollution to the earth…[and] they will be mined in places around the world that offer no safety protections to workers, where children are routinely put in danger by being forced to work in these unsafe conditions, and where workers are exploited by being paid inhumane wages that do not allow them to feed their families,	SO10
9670	Mining these metals in Minnesota is the green option because we have a long history of mining responsibly, and we have the most protective environmental regulations in the world for permitting new mines and the alternative to mining in Minnesota is to mine in places that have none of our safeguards.	NEPA05
9671	Minnesota taxpayers are fully protected by the toughest financial assurance laws in the nation, laws that leave control over this process completely in the hands of the experts at the DNR, and in which the companies are faced with one decision—either accept the conditions of financial assurance or do not accept and receive no permit.	FIN17
9672	The United Steelworkers Local 6115 supports iron ore, copper, nickel and other precious metal mining projects in Northeast Minnesota as long as the rigorous and nation-leading process in our state of permitting new mines is followed, that the Polymet Corporation allows union card check/neutrality at their proposed facility, and our union has faith that the experts and professionals in our state and federal agencies, most of whom are proud members of AFSCME or MAPE, will carry out this process and ultimately determine whether or not projects can meet our tough environmental and financial assurance standards.	NEPA16
Sender Name (Submission ID)	UTU Minnesota: (42987)	
8833	On behalf of our 1200 active and many retired railroad workers in Minnesota, we support the acceptance of the proposed Polymet Mining Environmental Impact Statement without any further delay.	SO10
Sender Name (Submission ID)	Valerie Mellerop (33877)	
13089	Wisconsinites consider canoeing in the Boundary Waters area to be the pinnacle of recreation. This pristine wilderness is the last frontier for midwesterners to explore. It should be protected at all costs, as there will never be another.	WILD02
Sender Name (Submission ID)	Valerie Murphy (21181)	
1946	Even if it could be cleaned up, the clean would be required for hundreds of years, at enormous expense, an expense that may or may not be paid for my the mining company.	FIN01
1947	I believe no potential number of jobs is worth destrying this priceless, beautiful area located near the pristine BWCA. Once it's gone, it's gone! It is not worth it.	SO01
Sender Name (Submission ID)	Valerie Stoehr (45005)	
11168	I am concerned about the lack of return on investment given that the cost of environmental safety hazards may dwarf the economic benefits.	SO01
11171	There is no consideration of alternate methods (like underground mine, putting liners under the waste dumps), no guarantees of who pays for routine monitoring/treatment after mine closes—and no consideration of spills, etc.	FIN01, FIN05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Valerie Stoehr (45005)	
11174	The computer model for treating wastes and handling pollution is based on poor data and requires revision.	WR003, WR063, WR071, WR143, WR146, WR147, WR189
Sender Name (Submission ID)	Vance Anderson (57336)	
18447	I support the PolyMet mining and believe them that they will build and operate a mine that complies with all regulations and protects the environment. I trust the multiple state and federal agencies involved in preparing the document. … The SDEIS demonstrates that PolyMet can develop this resource in a sustainable manner and there will be logical engineered solutions proposed for potential impacts. I am impressed by the extraordinary precautions proposed by PolyMet, such as a reverse osmosis, and look forward to having them as a new neighbor.	NEPA16
18450	The SDEIS shows that mining, recreation, tourism, and other land and natural resources can be -- can co-exist.	LU07
18458	PolyMet has demonstrated they can produce these critical metals while following Minnesota's strict environmental requirements to protect air, water and land.	PER34
18460	If we are to maintain our modern way of living, we need to continue to find and extract these metals. And just as well we do it in Minnesota, where we find them in abundance, where there are sound regulations in place and where we have a ready and available workforce. PolyMet will produce these metals in an environmentally sound way and generate significant economic activity expanding and diversifying our mining economy.	SO10
Sender Name (Submission ID)	Vern Simula (16354)	
1511	it is incumbent upon the mining company to prove unequivocally PRIOR to mining operations that that pollution standards will not be violated.	PER06
1514	The Northmet SDEIS, with its probabilistic/statistical modeling, does not satisfy this common sense standard [unequivocal proof of no pollution].	WR189
1515	The SDEIS [states] that water quality problems [are] likely to occur [but goes on to say] "dismissive" comment[s about mitigation.] I demand that the company declare their commitment that "steps WILL be taken" to not only reduce … but to mitigate the problem such that water quality criteria are, indeed, met.	PD05, WR130
1518	The SDEIS contains no detailing of what these "adaptive water management measures" or "steps" would consist of. Additionally, and more importantly, there is no assessment as to the efficacy of such adaptive measures.	PD22, WR130
2301	THE ECONOMIC CONTRIBUTIONS that such a proposed twenty year mining project supposedly offers MUST BE CONSIDERED IRRELEVANT, out-of-bounds, for the considerations before us at this hearing.	SO01
2301	THE ECONOMIC CONTRIBUTIONS that such a proposed twenty year mining project supposedly offers MUST BE CONSIDERED IRRELEVANT, out-of-bounds, for the considerations before us at this hearing.	SO01
2302	potential ECONOMIC LIABILITIES are legitimate, for the SDEIS suggests a high probability that taxpayers may need to assume liability for environmental cleanup. I refer to the centuries-long possibility of water treatment where the adequacy of financial assurances are impossible to calculate at the point in time.	FIN05, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Vern Simula (16354)	
2302	potential ECONOMIC LIABILITIES are legitimate, for the SDEIS suggests a high probability that taxpayers may need to assume liability for environmental cleanup. I refer to the centuries-long possibility of water treatment where the adequacy of financial assurances are impossible to calculate at the point in time.	FIN08, FIN01
2303	To this question [is the proposed mining project environmentally safe?], the published SDEIS, itself, is ambivalent. It is not conclusive, for Chapter 8 contains a litany of "MAJOR DIFFERENCES OF OPINION" (MDOs).	PD01
2303	To this question [is the proposed mining project environmentally safe?], the published SDEIS, itself, is ambivalent. It is not conclusive, for Chapter 8 contains a litany of "MAJOR DIFFERENCES OF OPINION" (MDOs).	PD01
2378	In chapter 8 it contains a litany of major differences of opinion. If indeed there are doubts or disagreements, unanswered questions, or probability that if one of the criteria of the safeguards cannot be met then the only reasonable, prudent decision for our regulatory agencies is to invoke what I call a precautionary principle	NEPA12
7390	[Many] of my neighbors, especially younger workers, ... are desperate for any job in our Iron Range communities. ...But the need for such relatively short term jobs (or more precisely, THE ECONOMIC CONTRIBUTIONS that such a proposed twenty year mining project supposedly offers MUST BE CONSIDERED IRRELEVANT, out-of-bounds, for the considerations before us at this hearing.	SO02
7390	[Many] of my neighbors, especially younger workers, ... are desperate for any job in our Iron Range communities. ...But the need for such relatively short term jobs (or more precisely, THE ECONOMIC CONTRIBUTIONS that such a proposed twenty year mining project supposedly offers MUST BE CONSIDERED IRRELEVANT, out-of-bounds, for the considerations before us at this hearing.	SO02
7392	The FUNDAMENTAL ISSUE is the question of whether the proposed mining project CAN BE DONE SAFELY without harm to the natural environment, and to human health.	HU03
7392	The FUNDAMENTAL ISSUE is the question of whether the proposed mining project CAN BE DONE SAFELY without harm to the natural environment, and to human health.	HU03
7393	...the broader public is being misled ...that the proposed mining project [will be] environmentally safe, and … "generate hundreds of jobs" for LOCAL workers.	SO02
7393	...the broader public is being misled ...that the proposed mining project [will be] environmentally safe, and … "generate hundreds of jobs" for LOCAL workers.	SO02
7394	If, indeed, there are doubts, disagreement, unanswered questions, or a probability that environmental criteria and safeguards cannot be met, then the only reasonable, prudent decision for you, as representatives of out regulatory agencies is to INVOKE THE PRECAUTIONARY PRINCIPLE.	PER35
7394	If, indeed, there are doubts, disagreement, unanswered questions, or a probability that environmental criteria and safeguards cannot be met, then the only reasonable, prudent decision for you, as representatives of out regulatory agencies is to INVOKE THE PRECAUTIONARY PRINCIPLE.	PER35
7395	I simply ask that you acknowledge that there is not anything close to a scientific consensus on the environmental safety of the propose Polymet mining venture. I ask you to invoke a "no action" option based upon the precautionary principle.	NEPA15
7395	I simply ask that you acknowledge that there is not anything close to a scientific consensus on the environmental safety of the propose Polymet mining venture. I ask you to invoke a "no action" option based upon the precautionary principle.	NEPA15

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Vern Simula (16354)	
12190	There has been tremendous political pressure urging approval of the SDEIS, because the Northmet Project will create "jobs" for the Iron Range. The pressure is so clamorous that leads one to think that the "Range" is solely dependent upon this project for additional jobs. Not so. The Iron Range Resources and Rehabilitation Board (IRRRB) just in the last three years has, according to their report, created 1,894 permanent jobs, supplemented by 2,800 construction jobs, jobs that do not contribute to potential serious environmental hazards.	SO02
12196	Numerous statements in Chapters 5 and 8 of the SDEIS "admit" that waterquality violations will likely occur. These statements are followed with therather "flippant" comment that in the event of such occurrences, measures willbe taken to remediate the violation. There is no description or evaluation of the efficacy of such remedial measures. This is unacceptable.	WR130
13903	But the need for such short-term jobs, or more precisely the asserted economic contributions they propose will be provided, the 20 years, must be considered irrelevant for the purpose of this hearing. That issue is out of bounds. Not germane. Because the fundamental issue here is what is at the proposed mining project can be done safely without harm to the natural environments or to human health.	SO01
13904	And also, even the EIS itself is not conclusive. In chapter 8 it contains a litany of major differences of opinion. If indeed there are doubts or disagreements, unanswered questions, or probability that if one of the criteria of the safeguards cannot be met then the only reasonable, prudent decision for our regulatory agencies is to invoke what I call a precautionary principle.	NEPA12
16750	The pressure is so clamorous that leads one to think that the "Range" is solely dependent upon this project for additional jobs. Not so!	SO06
16751	Numerous statements in Chapters 5 and 8 of the SDEIS "admit" that water quality violations will likely occur. These statements are followed with the rather "flippant" comment that in the event of such occurrences, measures will be taken to remediate the violation. There is no description or evaluation of the efficacy of such remedial measures.	WR130
Sender Name (Submission ID)	Verna Alt (18477)	
15640	the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever… This project would violate water quality standards for generations to come.	WR038
15641	In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science.	WR003
15642	The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health.	HU01, WR041, WR115, WR189
15644	The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS.	WET12
15645	The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge.	WR017

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Verna Alt (18477)	
15646	The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures.	WR012
15647	The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards.	WR189, WR202
Sender Name (Submission ID)	Vernon Baker (46988)	
10890	I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations.	NEPA16
10891	It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out – all the more reason to support it. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws – some of the strictest environmental regulations in the country.	WR190
10892	Minnesota is home to a world-class deposit of copper, nickel, platinum, palladium and gold. This is an economic opportunity right below our feet that will benefit the state's economy for future generations. PolyMet will produce these metals in an environmentally sound way and generate significant economic activity, expanding and diversifying our economy and creating hundreds of jobs that can support families and sustain communities. … This project would mean 2 million construction hours, 360 full-time mining jobs and more than 600 related jobs – jobs that our state needs.	SO10
10893	Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands.	PER34
Sender Name (Submission ID)	Veronica Erickson (54179)	
16416	I don't think you should mine in the area of the boundary waters. The sulfur in the rock mixed with air creates sulfuric acid. Acid kills most aquatic life. This means no more fishing.	AQ08
16418	Many people go to the boundary waters for peace and quiet, but the drill noise along is hard on the ears.	N02
16419	This area has been protected since 1989, and if you plan to mine for 20 years, it will do damage to our water for much longer than that. The contamination from this mine will threaten all water bodies connected to it. The PH of the water will be 4, 3, 2 even 1. Aquatic life dies below a PH of 4.	WR001, WR113, WR115
Sender Name (Submission ID)	Veronica Smith (57344)	
18416	I am a band member. And my concern is, of course, is the waters and the streams and the lakes that come down from where the mines are going to be.	WR111
18417	What I have the most concern about is the wild rice. Our Manoomin -- the creator has given us manoomin.	CR01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Vicki Andrews (45098)	
7563	This plan is bad for the environment, a potential disaster to Minnesota communities, residents, land and water.	PD22
7566	PolyMet's proposed location increases risks of pollution and harm to public health….	HU03
7567	[PolyMet] would impact irreplaceable high value wetlands in the St. Louis River watershed- destroying 913 acres and indirectly affecting another 7,228 acres.	WET24
7569	Tailings will be dumped in an unlined tailing basin. It is almost certain to result in contamination of surface and/or ground water with sulfates and toxic metals.	WR018, WR105
Sender Name (Submission ID)	Vicki Cebulla (15346)	
495	There currently is no way to mine the copper without contaminating the water. Scientists would be monitoring the groundwater for thousands of years after the mining is over. The contamination would spread into Lake Superior.	WR023, WR195
499	Locals wouldn’t be able to turn on their faucets and drink their well water. ... the water is going to be affected for thousands of years	WR041, WR195
502	the companies just don’t care about who ends up paying for this	SO02
Sender Name (Submission ID)	Vicki Effertz (10216)	
372	Sulfide ore mines providing employment is a RELATIVELY SHORT TERM FIX of a problem.Sulfide ore mines polluting water and wilderness is LONG TERM DESTRUCTION of a precious MN resource.	SO01, WR115
1441	Sulfide ore mines polluting water and wilderness is LONG TERM DESTRUCTION of a precious MN resource.	LU06
Sender Name (Submission ID)	Vicki Ericson (57972)	
19833	I have concerns about the runoff from the holding ponds to the Embarrass River watershed & the 100 mile swamp. Those regions [drain to] the Boundary Waters.	WR080
Sender Name (Submission ID)	Vicki M Gustafson (57212)	
17141	This mine could create more illnesses that could lead to death. Anything toxic will destroy life.	HU03
Sender Name (Submission ID)	Vicki Sanville (44237)	
11954	What can possibly keep the mercury contamination from eventually moving into the groundwater and causing major changes in the quality of the groundwater involving a huge part of our natural world.	MERC16, MERC21
14882	We should understand by now that the resulting damage to our environment does not let us even consider such an effort.	SO01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Vicki Sanville (44237)	
14923	I would like to be included in the mailings or electronic distribution of the record. I included my name, Vicki Sanville, and would now like to submit my address and e-mail contact which is as following:Vicki Sanville1501 Vermilion RoadDuluth, MN 55812email address: vickisanville@yahoo..com	RFI01
Sender Name (Submission ID)	Vicki Stute (42758)	
14461	We believe this project will have important positive impacts not only on the range, but across Minnesota. Our state has a proud mining tradition that has created thousands of jobs and billions of dollars in economic activity for its residents and this project is an important continuation of that heritage.	SO10
Sender Name (Submission ID)	Vicky Wicks (5978)	
1959	20 years of jobs for 500 years of pollution. How short sighted are we to even consider this.	SO01
Sender Name (Submission ID)	Victor Walter (40812)	
10130	Any degradation of our water will be a slow death for our state. Please do not mine for copper in Northern Minnesota.	WR195
14012	We don't need more mining jobs in northern Minnesota. Our tourism will be worth much more in the long run for our states financial security.	SO02
Sender Name (Submission ID)	Victoria Bloch (42454)	
15265	Lake Superior is a precious national resource, as is every significant body of fresh water in our country. With fresh water at a growing premium, any threat to water represents a threat to our economy, our citizens' health, and our nation.	WR111
Sender Name (Submission ID)	Victoria Oakey (14370)	
151	the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for	WR035, WR128, WR143
152	sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream.	AQ05
153	Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl.	WI01, WI02
Sender Name (Submission ID)	Victoria Singer (40878)	
13962	If our landfills were mined for precious metals, and manufacturers pressed to create more from recycled products, there would be no need to open new mines. There would be no need to risk the health and home of all living things.	NEPA06
Sender Name (Submission ID)	Victoria Turke (19527)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Victoria Turke (19527)	
13439	Computer models show that the water from the mine and processing plant will be contaminated with toxic metals and sulfate….I am concerned that PolyMet will not be able to capture and treat all of the contaminated water before it reaches the St. Louis River and Lake Superior.	WR017, WR018
13440	How will PolyMet be able to treat the polluted water for 500 years? How will they pay for it?	FIN01
13684	The SDEIS uses a small bit of data from 1984 to address the water flowage and its impact concerning the issue of how much and how fast our groundwater, streams and lakes will be polluted. The report is using data that does not reflect what the conditions actually are at the proposed site.	WR003
13685	This report does not adequately answer the question of how this perpetual need for taking care of the polluted waters is to be paid for, and when questioned, they say those details will be addressed during the permitting process.	FIN01
Sender Name (Submission ID)	Vincent Graziano (48718)	
12817	Their own simulations say pollution for 500-years, in other words FOREVER.	WR035
16773	I would like for once the State and DNR actually protect the natural resources that they are supposed to protect and not just hand over our future to corporations and especially foreign corporations.	PD01
Sender Name (Submission ID)	Vincent W. King (45163)	
8483	It is simply ludicrous to suggest that any amount of human engineering, or any amount of money, can prevent a disaster from occurring, resulting in the acid mine drainage entering the surface and underground waters in the area.	WR001, WR037, WR128
8487	he short-term economic gains from sulfide mining are far outweighed by the long-term risk.	SO01
Sender Name (Submission ID)	Virgil Boelland (11535)	
2485	Has this mining company successfully done what they propose to do to Minnesota in any other place, anywhere?	PD23
2485	Has this mining company successfully done what they propose to do to Minnesota in any other place, anywhere?	PD23
Sender Name (Submission ID)	Virgil Sohm (17825)	
13214	I am an enrolled member of the Lake Superior Band of Ojibwe at Nett Lake Reservation… Culturally this is our medicinal,hunting and wild rice harvesting territory. The Federal Government and State government has a fiduciary responsibility to honor the rights our grandfathers were promised in the Treaty of 1854.	CR01
Sender Name (Submission ID)	Virginia Danfelt (36340)	
3664	My main concerns are that the document does not adequately address the permanent water pollution and lack of adequate planning for prevention and clean up of accidental failures and mishaps should polluting materials be released.	WR130, WR131
3749	The financial assurance to cover these potentially expensive errors is not planned for adequately.	FIN05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Virginia Danfelt (36340)	
3751	The health of local residents, which include animal populations, are also at risk.	WI13
Sender Name (Submission ID)	Virginia Nichols (57444)	
19512	This plan is short sighted, and will irrefutably negatively affect the waters that Minnesota is famous for.	WR195
Sender Name (Submission ID)	Virginia Rosenbaum (35315)	
13090	Lake Superior is connected to the other 4 Great Lakes; together they hold one-fifth of the world's fresh water supply. It would be CRIMINAL to allow a corporation to risk polluting this vital resource, only for a business to make a short-term profit.	SO01
13245	Millions of people rely on the Great Lakes for their drinking water, and there is also a large (billions of dollars) fishing industry thatrequires clean water.	SO02
Sender Name (Submission ID)	Voyageurs National Park Association (54910)	
18911	The SDEIS identifies the Twin Metals mining project as a speculative action, and as a result, Twin Metals is not considered as a cumulative action in the cumulative effects [section]...Currently available information demonstratesthat both government agencies and private organizations are considering the Twin Metals project in their long-range planning. [Therefore,] Twin Metals is a reasonably foreseeable action that must be considered in the cumulativeimpacts statement.	CU02
18912	if the proposed NorthMet project becomes operational NorthMet could set precedent for future mining operations, like the proposed Twin Metalsproject.	CU04
18914	Water is especially vulnerable to incremental effects of pollution- in this instance- acid mine drainage. If the proposed NorthMet project comes to fruition, the water modeling, treatment processes, and assurances will set a precedent for future projects	WR198
18916	Given the complexity and length of the SDEIS, 90 days was not a reasonable time period for VNPA or other concerned citizens and stakeholders to comprehensively review and respond to the SDEIS.	NEPA07
18917	The FEIS must distinctly evaluate how long active water treatment will be necessary to deal with pollution after this mine is closed…The lead agenciesmust re-run the water analysis to provide an accurate estimate.	WR036
18918	The public deserves to have a concrete understanding of how long active treatment will be needed and the risks and potential costs to taxpayers associated with that treatment.	FIN01, FIN10
18919	If it is not possible to design preventative measures [i.e., for water quality] into the mine, then the mine should not be permitted to operate.	PER03
18920	We strongly believe the financial risk to the public involved with permitting a mine that calls for treatment of water in perpetuity in a water-rich environment like northern Minnesota sets an irresponsible stewardship standard.	FIN10
18921	[The SDEIS fails] to provide a means for cleanup in the event of a major leak as well as any details for financial assurance for this cleanup. A lack of financial assurance burdens the taxpayers who would then be liable for cleanup costs. With the centuries of proposed treatment, it burdens unascertainable future generations of taxpayers who view the mine's operational life as a distant history.	FIN01, FIN10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Voyageurs National Park Association (54910)	
18922	if the permitting agencies do decide to permit long-term water treatment, then at a minimum, the costs and financial assurance vehicles should be identified up front before the FEIS and the permitting process is initiated.	FIN05, FIN08, FIN13
18923	The EIS process is the time the public is supposed to have to review the project as a whole. The omission of how PolyMet intends to financially provide for potential accidents and spills denies the public information of an important element we wish to take into consideration in this action.	NEPA06
18924	The SDEIS describes a mine and a processing facility that will require centuries of water treatment after its 20 year operational life. This in direct violation of this statute which requires that the site be maintenance-free at its closure.	PER04
18925	The NorthMet project will be contributing a new source of air pollution in an already degraded area.	AIR13
18926	The cumulative visibility analysis (Section 6.2.3.8.7) is out of date and should be updated (SDEIS at 6-78 - 6-86). It fails to account for the Federal Implementation Plan issued by the U.S. Environmental Protection Agency in 2013 for emissions from taconite facilities, and does not include available visibility data from 2011 for nearby Class I areas.	AIR08
18927	We request analysis of the cumulative impact on moose from the PolyMet project and other habitat disruptions.	WI01, WI02
18928	The Poly Met mine plan fails to analyze the cumulative impact on the Canada lynx from the proposal and other nearby projects. It also fails to correctly identify the Canada lynx as a species listed of "Special Concern." The FEIS should include ways to mitigate the risk to lynx from road traffic and ways to restore its habitat after construction.	WI01, WI02
18929	Mitigation of a larger number of smaller wetlands in the direct area should not be dismissed solely on whether the company deems it economically feasible to do so if those mitigations make more sense environmentally. The SDEIS states the majority of wetlands that would be impacted would be "difficult to replace." Alternatives for avoiding impacts to wetlands that are difficult toreplace should be considered.	WET03, WET05, WET20
18930	The GIS buffer zones for determining indirect wetland effects cuts off at the border to the existing Northshore Mine, even though the wetlands are continuous across that border.	WET19
18931	There should be existing hard numbers on wetland acres lost in the area over the past few decades instead of using an unknown "pre-settlement" numberas the baseline	WET18
18932	Wetland impact is more than just acres lost or gained. There needs to be a true analysis of impacts by wetland type and value and include indirect effects, just like in the Wetlands section of the SDEIS.	WET14
18933	[The Vegetation]]section needs maps to illustrate the location and extent of Minnesota Biological Survey (MBS) Sites of High Biodiversity Significance in order to support the claim that the numbers of sites within the project area issmall, and to show how much of the 100 Mile Swamp and Upper Partridge River Sites will be impacted.	VEG02
18934	Stating that less than 1 percent ofthe state's Sites of High Biodiversity Significance would be affected is misleading because not all of these sites are of the same type.	VEG02
18935	The Indirect Effects discussion of the NorthMet project only talks about dust. The discussion should include effects from hydrologic changes, habitat fragmentation, microclimate, loss of fungal associates, erosion, and exotic species.	VEG07
18936	Deliberately and knowingly taking/destroying populations of state-listed ETSC plant species should not be an acceptable option.	VEG01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Voyageurs National Park Association (54910)	
18937	Having Poly Met purchase lands with [ETSC] populations to give to the State of Minnesota raises a question of conflict of interest since the State is the entity proposing this action.	NEPA15
18938	Many of the species listed for reclamation have proven to be problematic invasive species. This is not an acceptable practice. The emphasis on reclamation should be on ecological quality, not on speed of getting plants growing.	VEG05
18939	The cumulative impact area [for Vegetation] is unclear and seems to alternate between use of the Nashwauk Uplands/Laurentian Uplands and the Mesabi Iron Range.	VEG08
18940	The lead agencies should defer to the judgment of the Bands about potential impacts to traditional cultural properties even if the precise locations and significance are not shared with non-Natives.	CR05, CR06
18941	Trail systems such as the Beaver Bay-Lake Vermilion Trail historically connected communities, including connecting Native people who had off-reservation allotments in Voyageurs. Loss of parts of these trail systems may compromise the ability to understand historic Ojibwe land use in the entire region.	CR01, CR05
18942	we would suggest the lead agencies consider that the geographic feature known as the Misabe Widjiu (Laurentian Divide) could be significant not only to Native Americans but significant to the identity of the Region.	CR05
18943	The SDEIS does not include details outlining emergency procedures for the facilities. We request that the SDEIS be updated to specifically identify the key risks to the environment due to problems that could occur in the process (e.g. failed pumping stations) and containment systems due to extreme weather events and describe how the situation will be handled.	PD01, PD22
18944	the criteria used to evaluate failures should be reviewed and documented in the final EIS to ensure it reflects a general increase in heavy rainfall events due to climate change.	AIR01
18945	The SDEIS fails to include adequate discussion or analyses of alternatives including mining elements (pumping schemes, liners, covers, mechanical filtering and chemicals) capable of reducing the potential for surface and groundwater contamination and potentially, the need for centuries of water treatment.	ALT13
18946	documentation of "Best Practices" would provide stakeholders and the public with a higher level of confidence that all reasonable design and reclamation alternatives which could mitigate environmental impacts have been rigorously and objectively evaluated.	ALT06, ALT07, ALT13
Sender Name (Submission ID)	Vu Thanh Phan (54200)	
17251	Having a mine up there can potentially damage the aquatic ecology and the natural habitat of many species.	AQ05
Sender Name (Submission ID)	Vytautas Champ, Greenwood (58165)	
19943	Mining is detrimental to watersheds, the air, food, etc...mining is terrible for the ecosystem. Any study which states that there is no detrimental is conducted by a corporation. This is tampered data. And what about the fishes which are in danger? Mining and fracking can eliminate fish...	GEN03
Sender Name (Submission ID)	W Clinton Jurgens (16935)	
1583	The SDEIS addresses water quality but completely fails to address the fact that water is a natural resource with inherent economic value.	FIN05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	W Clinton Jurgens (16935)	
1585	Water is desperately needed in many areas of the US and the world. Why would you not consider uses of all the resources? Why place water on a lower needs level and merely consider it as a resource for mining ore?	WR115
1588	The financial assurance required from PolyMet must include payment for the economic value of the water should it be damaged.	FIN05
1589	Less than 1% of bulk ore produces the copper, nickel, etc. generating over 99% waste in addition to the overburden. This equates to over 31,000 tons of waste every day, presenting a significant threat to the water.	WR025
1592	How can that be worth the small number of jobs that only last a single generation? If sulfide mining is permitted, it should at least be a critical part of a US strategic plan to maintain our leadership position in the world.	SO02
1601	The estimated value of the water in northeastern Minnesota [$165,101,400,000] is significantly more than the estimated value of the Duluth Complex copper nickel mining operations [$74,188,034,188].	SO01
1604	And, of course lake homes and resorts are significantly reduced in value. With a reduction in the value of lake property the tax receipts of these counties will also drop significantly.	SO03
1606	With polluted water the tourism industry will go away.	SO02
2072	Water is worth more than the ore and the SDEIS should address this simple fact first.	NEPA09
2073	If sulfide mining is permitted, it should at least be a critical part of a US strategic plan to maintain our leadership position in theworld.	NEPA02
Sender Name (Submission ID)	W. Charles Huskins, M.D. (42980)	
8774	The SDEIS does not fully acknowledge vulnerable human populations affected by the environmental impacts of the project.	HU01
8776	The SDEIS does not adequately address the impact of the project on sulfate and mercury contamination of water resources and accumulation of methylmercury	MERC08
8777	The SDEIS does not adequately address the impact of methylmercury exposure on human health, particularly the health of vulnerable populations.	HU01
15164	...the SDEIS does not acknowledge pregnant women or their unborn infants are a vulnerable population with respect to methylmercury exposure...In addition, because mercury accumulates and persists in the human body, women with childbearing potential, not just pregnant women, should be considered a vulnerable population. This is a major omission because developing fetuses are highly susceptible to neurotoxicity caused by exposure to methylmercury.	HU01
15165	…the SDEIS does not acknowledge that elderly adults are another vulnerable population with respect to methylmercury exposure. The risk associated with this population may be due to reduced metabolism of toxic compounds, neurologic co-morbidities, a higher pre-existing load of mercury in their bodies, or increased consumption of contaminated fish...This is a major omission because of the large proportion of the population that already is classified as elderly and demographic trends that will increase the size of this proportion in the future.	HU01
15166	...because the existing [mercury] contamination [of water resources] is already above acceptable levels, any incremental increase in mercury contamination is important, particularly for vulnerable populations	MERC01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	W. Charles Huskins, M.D. (42980)	
15167	Recent measurements from the Partridge River indicate flow rates are 3-4 times higher than those used in the SDEIS models. In addition, the SDEIS does not account for changes in water flow that may occur as a result of climate change, catastrophic weather events, or other industrial activities that may occur during or after mine operations. For these reasons, the SDEIS estimates of sulfate and mercury contamination of water resources may be significant underestimates.	WR003, WR165, WR180
15168	The SDEIS assessment of the impact of the project on accumulation of methylmercury is based on the water quality model predictions for sulfate and mercury concentrations. This assessment is severely limited by numerous areas of uncertainty...Given the critical risk to human health posed by methylmercury exposure, particularly the risk to vulnerable populations..., the degree of uncertainty that surrounds the assessment of the impact of the project on methylmercury accumulation is unacceptable.	MERC11
15169	Given the duration of water treatment required (decades and perhaps centuries), the analysis of the effectiveness of wastewater and seepage treatment should account for variability, and incapacity, in the effectiveness of the water treatment system.	PD03
15170	The Adaptive Water Management Plan (AWMP) is proposed as a means to address the uncertainties identified above as well as unexpected future developments. However, the process by which the AWMP would be developed and reviewed, the opportunity for public comment, and the implementation, monitoring and revision of the AWMP are not described.	WR130
15171	the SDEIS does not address the impacts of methylmercury exposure on high-risk populations (e.g., children, pregnant women, the elderly), which are likely to differ from the impact on the population as a whole.	HU01
15172	The SDEIS uses the “Hazard Quotient”… to quantify the potential impact of the exposure to methylmercury on human health. The SDEIS states “a Hazard Quotient greater than 1 exceeds the health-based target” (Page 6-63). However, the SDEIS does not provide evidence that the Hazard Quotient is a precise and accurate measure of the effect of exposure to methylmercury on human health. Moreover, it does not state whether a Hazard Quotient threshold of 1 is applicable to all segments of the population, particularly vulnerable populations	HU01
15173	The SDEIS estimates the “maximum incremental cumulative Hazard Quotient from the two projects over existing fish mercury concentrations is 0.08 for recreational anglers, 0.61 for subsistence/tribal anglers, and 0.54 for subsistence fishers. The NorthMet Project Proposed Action contributes approximately 59 to 92 percent of the incremental cumulative Hazard Quotient.” (Page 6-63)...a mere two-fold increase in this estimate would indicate that the project will have a substantial effect on the health of humans who are subsistence or tribal anglers.	HU03
15174	Perform and report additional studies of the effects of sulfate and mercury contamination of water resources on the accumulation of methylmercury, with adjustment for other variables (e.g., organic carbon, temperature, micronutrients required by sulfate-reducing bacteria, sulfate loadings, and hydrologic conditions).	MERC08
15175	Provide additional description of wastewater and seepage treatment with estimates of its effectiveness under varying conditions, including the need for mechanical interruptions at the Waste Water Treatment Plant, possible breaches in wastewater or seepage containment, and unusual climate conditions that would reduce capture of wastewater and seepage or markedly increase the demand on the system.	WR143, WR202
15176	Provide evidence that the Hazard Quotient is a precise and accurate assessment of the impact of methylmercury exposure on human health, including vulnerable populations … If this cannot be done, use other methods for estimating the impact of methylmercury exposure on human health or acknowledge that the risk is unknown.	HU01
Sender Name (Submission ID)	Wade Johnson (42196)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Wade Johnson (42196)	
6378	There is enough destruction taking place on this planet already for the sake of easy money. When it gets to the point of sacrificing our environment as the Polymet proposal does, it must end.	SO02
Sender Name (Submission ID)	Wallace Elton (12672)	
90	I believe the SDEIS is insufficient and should not be approved because it proposes no mitigation for indirect damage to wetlands	WET01
92	[The SDEIS] is lacking vital information about long-term water treatment needs and how they will be paid for.	WR035, WR128, WR143
94	sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream and into Lake Superior	AQ05
95	the damage to wetlands and forest habitat will affect many kinds of wildlife directly, including four bird species identified as of greatest conservationneed: spruce grouse, black-backed woodpecker, northern goshawk, and boreal owl. In addition, birds that depend on fish and other aquatic organisms for food, including belted kingfishers, hooded mergansers, common terns, and common loons, will be harmed by the decline in water quality both locally and downstream.	WI01, WI02
Sender Name (Submission ID)	walmoe (20184)	
1777	We cannot survive without fresh water but we can survive without precious metals until they have proven technology available to insure non-pollution.	WR195
Sender Name (Submission ID)	Walt Handschin (42782)	
6771	This type of mining has never been done properly and Polymet offers to take at least 500 years to provide wholly ineffectual remediation! Five hundred years is a long time. Minnesota – even if you include territorial days – has only been around for less than 166 years. Polymet has been around only for a matter of days and months and may have already – as we hold this hearing – secretly filed for bankruptcy.	FIN01
Sender Name (Submission ID)	Walt Moe (18076)	
3189	But searching the SDEIS, I have found no concrete actions being proposed to be taken in case of things going wrong at the PolyMet mine causing irreparable harm to the waters of the Embarrass and Partridge Rivers, river watersheds and surrounding thousands of acres around these watersheds...to last at least 200 years, more likely 500 years, or even into perpetuity.	WR115, WR128
3190	Again, I think that the approximately 300 jobs for 20 years versus 200 to 500 or more years of remediation is an extremely poor choice unless other alternatives can be explored.	SO01
13285	My questions are how much monitoring is going to be required? For how long? How will it be handled? How quickly is a response going to occur? Who's going to make the decisions to curtail operations, and who's going to decide if it operations are allowed to presume -- or resume? As I understand the procedure, the above is to be spelled out in the actual permitting process, which I'm not sure will be subjected to the same scrutiny as the EIS.	PD24
Sender Name (Submission ID)	Walt Niemiec (38933)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Walt Niemiec (38933)	
16866	I'm for economic development, people need jobs, but this cost is far too high. I believe it should wait unless and until a less obtrusive mining procedure can be developed.	SO01
Sender Name (Submission ID)	Waltraud Usahanun (29311)	
13869	ENDLESS GREED FROM ECONOMY & HELPING AUTHORITHIES HAS TO STOP ALL KINDS OF DESTRUCTION TO THE ENVIRONMENT & LIVING CREATURES BY APPLY STRONGEST JUSTICE TO THE RESPONSIBLES.	SO01
13870	DEMAND ALL INITIATORS ACTING IRRESPONSIBLY TO PAY REDEMPTION TO FUTUREGENERATIONS!	FIN01
Sender Name (Submission ID)	Wanda Ballentine (43995)	
14924	Minnesota has never permitted a project that would destroy this many acres of wetlands.	COE03
14925	the idea that following the close of the mine would require hundreds of years of treating polluted water!!	WR115, WR128, WR195
14926	Always there is the statement that jobs are the necessity for any proposed business. How long will the jobs last - a lot at first, but much fewer later - relative to the years of treating the polluted water?	SO01
14927	Will PolyMet PAY for [post-closure] treatment [of polluted water]? Or - as so often happens - will they go bankrupt and leave it up to the taxpayers????	FIN01, FIN10
14928	The decisions about PolyMet will have ramifications right up to the edge of the Boundary Waters Wilderness. …If Minnesota allows this industry with an unbroken record of water pollution into this area, the pure water that is the lifeblood of the Boundary Waters would be severely threatened.	WILD02
14929	PolyMet's studies contain inaccurate water data that must be corrected - this lack is true of I don't know how many extraction proposals made in this country.	NEPA09
14930	the mine plan lacks analysis of human health impacts from mercury and asbestos-like fibers….	HU01
Sender Name (Submission ID)	Warren Anderson (42873)	
8989	We are experiencing an economic downturn. We need to help working people get good jobs. Our economic system only works when people work, pay taxes and contribute to society. We need the jobs Polymet can provide for our cities and towns to live.	SO10
8989	We are experiencing an economic downturn. We need to help working people get good jobs. Our economic system only works when people work, pay taxes and contribute to society. We need the jobs Polymet can provide for our cities and towns to live. Our young people need to have a reason to stay and raise their families here.	SO10
8994	People say this has never been tried before...technology strides are going to make Polymet a state of the art production facility. Better, cleaner ways of manufacturing are being designed into the plant.	PD28
8994	People say this has never been tried before...technology strides are going to make Polymet a state of the art production facility. Better, cleaner ways of manufacturing are being designed into the plant.	PD28

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Warren Anderson (42873)	
18069	People say mining is a short-term project. This site has created jobs for many years. My first trip to Erie Mining was as a high school freshman, in 1975. I am now 55 years old and hope to be working with the people at Polymet for many years to come. There has been mining in this area since 1905. How many other industries have lasted that long?	SO10
18069	People say mining is a short-term project. This site has created jobs formany years. My first trip to Erie Mining was as a high school freshman, in1975. I am now 55 years old and hope to be working with the people atPolymet for many years to come. There has been mining in this area since1905. How many other industries have lasted that long?	SO10
18071	technology strides are going to make Polymet a state of the artproduction facility. Better, cleaner ways of manufacturing are beingdesigned into the plant. We can make it safe and clean.	PD32
18071	technology strides are going to make Polymet a state of the art production facility. Better, cleaner ways of manufacturing are being designed into the plant. We can make it safe and clean.	PD32
Sender Name (Submission ID)	Warren Banks (42238)	
6718	Is there a verified history of the effects of copper-nickel mining on the adjacent environment?	PD26
Sender Name (Submission ID)	Warren Howe (11564)	
2208	The SDEIS proposes a permanent 526-acre, 25-story, unlined Category 1 waste rock pile, although PolyMet's earlier 2010 proposal (DEIS) would have provided lined stockpiles for long-term waste storage. Clearly, unlined waste rock piles would release far more toxic waste than lined piles.	PD16
2208	The SDEIS proposes a permanent 526-acre, 25-story, unlined Category 1 waste rock pile, although PolyMet's earlier 2010 proposal (DEIS) would have provided lined stockpiles for long-term waste storage. Clearly, unlined waste rock piles would release far more toxic waste than lined piles.	PD16
2209	PolyMet's two-mile-wide tailings piles would also be unlined. Its claims that more than 99% of seepage will be captured are unsubstantiated and not supported by field experience. And PolyMet would pile its tailings on top of the old LTV tailings site, where surface and groundwater seepage already violates water quality standards.	WR018, WR020, WR117
2209	PolyMet's two-mile-wide tailings piles would also be unlined. Its claims that more than 99% of seepage will be captured are unsubstantiated and not supported by field experience. And PolyMet would pile its tailings on top of the old LTV tailings site, where surface and groundwater seepage already violates water quality standards.	FIN05, FIN10
14343	Every time sulfide mining has been tried in a water-rich environment, such as the proposed site, it has resulted in contamination of surface and/or ground water with sulfates and toxic metals. PolyMet's SDEIS does not demonstrate why its proposal would have better results.	WR023
14343	Every time sulfide mining has been tried in a water-rich environment, such as the proposed site, it has resulted in contamination of surface and/or ground water with sulfates and toxic metals. PolyMet's SDEIS does not demonstrate why its proposal would have better results.	WR023
14344	I also request that the United States Forest Service reject the proposed transfers of land for the mining project. The USFS will not obtain more valuable land than it would surrender, so why does it even entertain such a land exchange? The USFS is not in the business of mine development.	LAN03
14344	I also request that the United States Forest Service reject the proposed transfers of land for the mining project. The USFS will not obtain more valuable land than it would surrender, so why does it even entertain such a land exchange? The USFS is not in the business of mine development.	LAN03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Warren L High (57261)	
17398	No mining should be allowed in this area because of the destruction of the fresh water applied to Lake Superior and our extreme world problem for potable water	WR111
Sender Name (Submission ID)	Water Legacy (52178)	
4037	The 90-day comment period was insufficient, not only because the SDEIS is long, but because important information was omitted from the SDEIS and even from the reference documents provided on CDs.	NEPA07
4038	WaterLegacy's submissions reach the conclusion that the SDEIS is inadequate and the project is likely to pose significant adverse impacts to the environment, to human health, to environmental justice and to tribal rights and resources.	CR01
4039	The SDEIS is data poor, and its modeled outcomes are determined by unsubstantiated and unreasonable assumptions, rather than by empirical information and field experience. Basic information required to evaluate PolyMet's proposed action, such as a water balance and loading of solutes in process water flows, is not presented.	WR059, WR060, WR071, WR072, WR172, WR173, WR177
4040	Closer review reveals that fundamental modeling assumptions, like Partridge River baseflow, are erroneous.	WR003
4041	Cited literature is misrepresented and information selectively presented, suggesting advocacy for the project, rather than an independent assessment of its probable outcomes.	NEPA08
4071	Federal regulations promulgated under the National Environmental Policy Act (NEPA) are not followed in the SDEIS. Information is not the high quality required under NEPA, foreseeable failures are not analyzed, cumulative impacts are arbitrarily limited, and no alternatives are evaluated, although alternatives analysis is the heart of the EIS under applicable law.	NEPA14
4072	The SDEIS is not compliant with the regulations in 40 CFR 1500 – 1508, and istechnically inadequate. The proposed action is conceptual and not specific, and is not compared to reasonable alternatives. The descriptions of the affected environment are not representative of the site specific conditions at the mine site or the plant site. The environmental consequences presented in the SDEIS are based on assumptions that are not substantiated or are unjustified. Consequently, the conclusions presented in the SDEIS are not defensible and should not be used as a basis for making decisions affecting the environment.	NEPA09
4295	The analyses presented in the SDEIS are not based on an analytical or scientific review of the proposed action and the reasonable alternatives to the proposed action. Instead, the analyses are based on a conceptual description of the proposed action and an extensive set of assumptions of the environment and the performance of the conceptual design. The SDEIS is technically inadequate as a result of the numerous omissions and flaws in the analyses presented in the SDEIS.	NEPA09
4296	The PolyMet proposed action described in the SDEIS also fails to satisfy Clean Water Act Section 404 requirements. The SDEIS does not demonstrate that the project is the least environmentally damaging practicable alternative or that its impacts on aquatic resources of national importance will be mitigated.	COE04
4297	The proposed land exchange serves a narrow private interest and contradicts both federal policy and federal fiduciary responsibilities to protect tribal resources.	CR01
4298	the PolyMet SDEIS declines to model what are likely to be the most significant adverse impacts of its proposal – indirect destruction of high value wetlands in the Partridge River watershed near the mine site and increases in methylmercury contamination of fish as a result of emissions, discharges and hydrologic changes resulting from the proposed action.	AQ25, WET08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
4299	Even with all of the limiting assumptions and lack of clarity in the SDEIS disclosures, scrutiny reveals that the PolyMet project would result in wetlands destruction dwarfing cumulative past and foreseeable watershed impacts from all other sources.	WET24
4300	The PolyMet project would have the potential for significant adverse impacts to aquatic life, a federally-listed species, and to persons who consume fish and wild rice for subsistence.	HU03
4301	The project is modeled to increase cancer risks above Minnesota's health risk threshold and to exceed Minnesota's health risk limits for pollution in groundwater.	HU05
4302	The SDEIS must be revised to provide a clear water balance showing inputs and outputs from the mine, plant, tailings basin, treatment facility and hydrometallurgical residue facility during operations, closure and long-term treatment and maintenance.	WR181, WR182
4303	The SDEIS must be revised to provide a clear statement of the concentration predicted of solutes for representative years in all mine site and plant site potential sources of contamination in units of measurement comparable to water quality standards.	WR060, WR173
4304	The SDEIS must be revised to provide a clear explanation of the modeled sources of solutes in waste rock piles, tailings, mine pits, equalization basins and the HRF, specifying for each the source and concentration of inputs and the degree to which the modeling has assumed a concentration cap, adsorption of solutes of burial of solutes.	WR060, WR173
4305	The SDEIS must be revised to describe the basis for any such critical assumptions pertaining to the level of solute concentrations, including concentration caps, burial or adsorption assumptions.	WR033, WR058, WR060, WR167, WR173
4306	The SDEIS must be revised to provide a clear statement of the volume and concentration of seepage, leakage, spillage and runoff from any potential source of contamination at the mine site and plant site.	PD04, PD08, WR060, WR173, WR189
4307	The SDEIS must be revised to make explicit any assumptions about the efficacy of liners or caps in containing seepage or process water or limiting percolation of precipitation, including all field experience that supports these assumptions and a comparison between the climate conditions and duration under which these were tested as compared to the proposed action.	WR126
4308	The SDEIS must be revised to substantiate any assumptions about the efficacy of collection systems in containing seepage, specifying the particular field experiences, climates, geological conditions and designs where the efficacy has been demonstrated.	PD04, PD08
4309	The SDEIS must be revised to substantiate any assumptions regarding hydraulic conductivities in surficial and bedrock materials.	WR086, WR087, WR096, WR099
4310	The SDEIS must be revised to identify the capital, replacement cycle, operations, and maintenance costs for all treatment and mitigation measures during operations, reclamation and long-term closure, specifying which measures are definite and which are contingent as part of adaptive management.	FIN05, FIN06
4311	The SDEIS must be revised to provide accurate baseflow modeling for the Partridge River.	WR003
4312	The SDEIS must be revised to model propagation of contaminants through high conductivity surficial materials and secondary porosity features in bedrock.	WR010, WR011, WR012, WR058, WR061, WR071, WR090, WR168

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
4313	The SDEIS must be revised to model propagation of uncaptured seepage in all directions indicated by reasonable geology, hydrology, history and data.	WR103, WR189
4314	The SDEIS must be revised to use current and substantiated sorption coefficients.	WR058, WR167, WR168
4315	The SDEIS must be revised to model site-specific impacts on wetlands that would result from mine drawdown, calibrating such model using accurate hydrologic data and field experience.	WET08
4316	The SDEIS must be revised to model increased mercury methylation in the project area and downstream in the St. Louis River as a result of hydrologic changes, mercury air emissions, dust deposition, and discharge of mercury and sulfates.	AIR05
4317	The Proposed Action must be substantially changed to preclude use of untreated Colby Lake water for stream augmentation to Unnamed Creek, Mud Lake Creek, Trimble Creek or Second Creek.	WR124
4318	The SDEIS must be revised to explain how stream augmentation will be ensured without relying on untreated Colby Lake water to serve this purpose and must demonstrate that the proposed solution will comply with applicable water quality standards.	WR123, WR124, WR125
4319	The SDEIS must be revised to analyze impacts of mercury air deposition from the PolyMet mine site, including magnitude and speciation. This analysis must consider impacts on all waters, including the Second Creek watershed and waters upstream of identified Embarrass River lakes.	AIR05
4320	The SDEIS must be revised to analyze impacts of mercury air deposition considering species other than fish and potential bioaccumulation in downstream waters.	AIR05
4321	The SDEIS must be revised to provide explicit information as to the mass of mercury in peat, overburden, ore, waste rock, process water, tailings, reject concentrate, filtered sludge, HRF waste and any other potential sources of mercury release from the project.	MERC14, MERC20
4322	The SDEIS must be revised to disclose mercury concentrations in seepage from all potential project sources, including the OSLA, Category 1 waste rock pile, liner leaks, mine pits, tailings piles and the HRF, making explicit any assumptions regarding leaks, infiltration and adsorption.	MERC20
4323	The SDEIS must be revised to provide a scientific basis for its assumptions regarding mercury burial, sequestration or adsorption in the East Pit, West Pit lake, tailings or hydrometallurgical residues.	MERC04, MERC20
4324	The SDEIS must be revised to use a reasonable range of probabilities for mercury burial, sequestration or adsorption in lake sediments, tailings, residues and surficial materials based on uncertainty as to the mechanisms of adsorption and desorption and the range of values observed in tests and field experience.	MERC04, MERC20
4325	The SDEIS must be revised to disclose the influent and effluent assumptions and targets for the WWTF, both prior to and after conversion to reverse osmosis, and for the WWTP, explaining for both facilities the treatment methods proposed to achieve compliance with the Great Lakes mercury standard.	WR147
4326	The SDEIS must be revised to assess the sulfur content of mine site and plant site particulate emissions and the impacts of particulate emissions and ore spillage on mercury methylation in the project area and on sulfate loading to the Partridge River and Embarrass River watersheds.	MERC08, WR151
4327	The SDEIS must be revised to assess the impacts of all mine site sulfate seeps and liner leaks to shallow groundwater on mercury methylation.	MERC20
4328	The SDEIS must be revised to disclose the concentration of sulfates in tailings basin pore water and seepage release beneath the tailings basin.	MERC06, WR060

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
4329	The SDEIS must be revised to model reasonably foreseeable improvements of water quality at, near and downstream of the tailings basin for a "no action" baseline considering natural attenuation through precipitation and mitigation likely to be required in compliance with the Cliffs Erie Consent Decree.	MERC04, WR108
4330	The SDEIS must be revised to assess the impacts of tailings basin sulfate releases on mercury methylation as compared to a "no action" baseline.	MERC08
4331	The SDEIS must be revised to model the impacts of sulfate and mercury emissions and release and hydrologic changes at both the mine site and the tailings basin site on mercury methylation.	AIR05
4332	The SDEIS must be revised to evaluate effects on water quality, wildlife, human health, tribal rights and resources and environmental justice resulting from cumulative impacts of the PolyMet proposed action on the St. Louis River and estuary.	HU01
4333	The SDEIS must be revised to determine effects of the PolyMet project on compliance with the downstream Fond du Lac water quality standard for mercury.	PER11
4334	The SDEIS must be revised to provide a health impacts assessment for methylmercury, describing salient health impacts and assessing cumulative health risks of increased mercury on fetuses, infants, children and adults.	HU01
4335	The SDEIS must be revised to assess disparate impacts of methylmercurybioaccumulation on low-income families and tribal members who rely on fish for subsistence.	HU01
4336	The SDEIS must be revised to analyze cumulative impacts of mercury and sulfate releases and methylmercury bioaccumulation on tribal rights and resources and environmental justice.	SO04
4337	The SDEIS must be revised to conclude that the PolyMet proposed action would pose an unacceptable cumulative risk to human health and to environmental justice.	HU01
4338	The SDEIS must be redone to accurately model Partridge River baseflow, using all reasonably available data and the range of minimum flows calculated by tribal and MDNR scientists.	WR003
4339	The SDEIS must be redone to revise modeled predictions of inflows and outflows, water quality and wetlands impacts at the mine site, showing the effects that a change in Partridge River baseflow has had on these modeled outcomes.	WR003, WR052, WR071, WR086, WR091, WR115
4340	The SDEIS must be revised to disclose changes in the volume and chemistry of water inputs to the mine site WWTF, tailings piles and plant site WWTP based on revised predictions of baseflow, identifying any planned changes in treatment facilities.	PD03, WR003, WR147
4341	The SDEIS must be revise[d] to consider the presence of known bedrock fractures transecting mine pits and beneath mine site contamination sources in calculating potential water quality impacts.	WR010, WR012
4342	The SDEIS must be revised to assess the hydrologic significance of bedrock fractures, faults and secondary porosity features at the mine site.	WR007, WR008, WR011, WR012, WR061, WR086, WR087, WR099, WR168, WR169
4343	The SDEIS must be revised to consider blasting and weathering impacts on propagation and access of contaminated groundwater to bedrock fractures.	WR010, WR016

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
4344	The SDEIS must be revised to provide more robust assessment of the connection between deep groundwater and surficial waters, including additional deep borehole sampling as well as pump testing.	WR007, WR008, WR010
4345	The SDEIS must be revised to assess surficial materials, such as zones of outwash sand and gravel that may provide high conductivity pathways for contaminants.	WR058, WR092, WR096
4346	The SDEIS must be revised to consider the full range of hydraulic conductivitiesof surficial materials, not just an average based on excluding the most conductive samples.	WR058, WR092, WR096, WR167
4347	The SDEIS must be revised to analyze propagation of seepage from all mine site contaminant sources through shallow groundwater and bedrock secondary porosity features in multiple directions, including flow north and northeast to Yelp Creek, the Hundred Mile Swamp and the Partridge River.	WR011, WR012, WR061, WR080, WR081, WR086, WR087, WR089, WR099, WR167, WR168, WR169, WR175, WR186
4348	The SDEIS must be redone to analyze the Category 1 waste rock pile as an independent contaminant source, propagating pollutants in various directions through shallow groundwater and bedrock secondary porosity features.	WR010, WR071, WR086, WR088, WR167
4349	The SDEIS must be revised to analyze alternatives to minimize seepage from the Category 1 waste rock pile, including liners and a seepage collection system.	ALT07
4350	The SDEIS must be revised to disclose the volume and concentration of Category 1 waste rock pile seepage at various mine years and stages, stating clearly what volume of seepage reduction and collection has been modeled to make water quality predictions.	PD04, WR189
4351	The SDEIS must be revised to use a reasonable range of input assumptions to model uncaptured seepage from the Category 1 waste rock stockpile. This reasonable range of input values must be based on site-specific hydrogeology, climate, change over time, and field experience.	WR017
4352	The SDEIS must consider a broader range of input assumptions for the efficacy of the geomembrane system over time in preventing introduction of precipitation to the Category 1 waste rock pile.	WR127
4353	The SDEIS must be revised to modify the concentration cap assumption for the Category 1 waste rock pile considering the variability of sulfur concentrations and the potential for pockets of acidity and high metals leachate in this waste rock.	WR127
4354	The SDEIS must be revised to remove the potential use of Category 1 waste rock for construction materials given its potential to generate acids and leach metals.	PD15
4355	The SDEIS must disclose solute concentrations within the mine pits at representative years and identify the nature and extent of reduction in solute concentrations predicted to result from subaqueous disposal, any proposed treatment method and from attenuation.	WR088
4356	The SDEIS must be revised to substantiate claims for the efficacy of subaqueous disposal in preventing acid mine drainage and reducing solute concentrations and to discuss the relationship between cycling of pit water for treatment and maintaining anoxic conditions.	PD03, WR173
4357	The SDEIS must reconcile the apparent contradiction between statements that in-pit disposal in the West Pit Backfill alternative provides no environmental advantage and assertions for the proposed action that subaqueous disposal is highly beneficial.	ALT03, PD29

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
4358	The SDEIS must be revised to analyze the nearest point of connection to surface water for all discharges to groundwater from any mine site contamination source.	WR120, WR177
4359	The SDEIS must be revised to disclose at P90 probabilities the levels of all regulated parameters at the closest location where they would be discharged to surface water from any mine site contamination source.	WR120, WR177
4360	The SDEIS must be revised to clearly state that the proposed action would have significant adverse effects on the environment, including violation of numeric surface water quality standards as a result of mine site discharge.	WR107
4361	The SDEIS must be revised to include a clear and intelligible water balance for the tailings basin and WWTP.	WR056, WR063, WR182
4362	The SDEIS must be revised to consider the presence of known bedrock fractures beneath the tailings basin.	WR011, WR012, WR061, WR099
4363	The SDEIS must be revised provide a reasonable assessment of tailings seepage through faults, fractures and other secondary porosity features beneath the tailings basin.	WR011, WR012, WR061, WR099
4364	The SDEIS must be revised to use a reasonable range of assumptions based on site-specific conditions and field experience to model containment and release of untreated seepage to surface water and groundwater.	WR067, WR189
4365	The SDEIS must be revised to assess potential seepage toward the east based on changes in the topography and water table height in tailings Cell 1E and Cell 2E.	WR054, WR102
4366	The SDEIS must be revised to provide a reasonable assessment of seepage toward the south and Second Creek based on hydrological testing, LTVSMC experience and increased storage of tailings and process water.	WR056, WR117
4367	The SDEIS must be revised to specify concentrations of constituents in plant process water, tailings basin pore water, untreated seepage and WWTP influent, using numbers that allow easy comparison with applicable surface and groundwater quality standards.	WR060
4368	The SDEIS must be revised to specify concentrations of constituents in mine site process water and to verify the capacity of the WWTF to reduce contaminants to meet “targets.”	WR147
4369	The SDEIS must be revised to disclose its assumptions regarding the capacity of the tailings site to contain water, the water pressure exerted, and what increase in the volume of groundwater is predicted during operations and closure.	PD07, WR056, WR090, WR105
4370	Where field experience has demonstrated the insufficiency of water quality models, the SDEIS must demonstrate that models have been revised to verify their accuracy.	WR003, WR049
4371	The SDEIS must be revised to disclose its assumptions regarding concentration caps, explaining what concentrations of solutes would be predicted absent a cap, and how uniform pH and sulfate would be maintained with varying inputs over thousands of acres.	WR033
4372	The SDEIS must be revised to disclose and substantiate its assumptions regarding burial, sorption or retention in tailings and reduction in chemical reactivity resulting from bentonite placement, including field experience that supports those assumptions.	WR060
4373	The PolyMet revised SDEIS must consider alternative methods of avoiding or mitigating impacts of tailings seepage on water quality, including but not limited to constructing a new and completely lined tailings facility on a properly prepared bedrock surface.	ALT07, ALT10, WR133

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
4374	The SDEIS must be revised to provide detailed disclosure of the chemical composition and pH of all individual wastes proposed for disposal in the HRF, including but not limited to hydrometallurgical process wastes and WWTF sludge.	PD18
4375	SDEIS must be revised to analyze the chemical composition of all HRF wastes based on additional leachate testing that reflects the current hydrometallurgical and WWTF sludge formation processes, and must evaluate chemical changes over time.	PD18, WR068
4376	The SDEIS must be revised to provide a current mass balance for mercury, including a current analysis of the mass of mercury that would be deposited in the HRF from all wastes, including but not limited to hydrometallurgical process wastes and WWTF sludge.	MERC17
4377	The SDEIS must be revised to provide a rigorous analysis of whether the HRF wastes or any part of them are hazardous wastes under Minnesota law, requiring issuance of a hazardous waste disposal permit.	HAZ02
4378	The SDEIS must be revised to reject any location for the HRF on top of wetlands, compressed peat, slimes or unconsolidated materials, and to reject any location on top of faults or fractures, unless detailed hydrologic analysis has demonstrated lack of hydraulic conductivity to shallow groundwater.	PD19, WR069
4379	The SDEIS must be revised to conclude that the location for the HRF in the PolyMet proposed action is unacceptable.	PD19
4380	The SDEIS must be revised to model water quality impacts from the HRF based on a reasonable and conservative range of liner leakages under normal conditions.	WR067
4381	The SDEIS must be revised to model water quality impacts from HRF discharge in the reasonably foreseeable event of liner failure or stability failure.	WR067
4382	The SDEIS must be revised to evaluate alternatives to mitigate leakage from the HRF including completely dewatering and solidifying HRF materials.	PD17
4383	The SDEIS must be revised to evaluate the potential that materials deterioration and maintenance lapses over time would increase liner leakage and water quality impacts.	PD03, WR127, WR129
4384	The Section 404 permit for the PolyMet project must be denied because the proposed action has substantial and unacceptable impacts on aquatic resources of national importance (ARNI).	COE09
4385	The Section 404 permit for the PolyMet project must be denied because the proposed action has substantial and unacceptable impacts on wetlands in the Partridge and Embarrass River watersheds, impacting drinking water quality, fisheries and wildlife in the Lake Superior Basin.	COE03
4386	The Section 404 permit for the PolyMet project must be denied because the applicant’s mitigation plan fails to compensate for reasonably foreseeable indirect adverse impacts on wetlands.	COE02
4387	The Section 404 permit for the PolyMet project must be denied because the applicant’s mitigation plan proposes compensation for direct destruction of wetlands outside the Lake Superior Basin.	COE01
4388	The Section 404 permit for the PolyMet project must be denied because the applicant’s mitigation plan fails to minimize and avoid impacts on irreplaceable wetlands in the Lake Superior Basin.	COE01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
4389	The Section 404 permit for the PolyMet project must be denied because the SDEIS fails to consider project and mitigation alternatives that would reduce impacts on wetlands and ARNI.	COE04, COE09
4390	The Section 404 permit for the PolyMet project must be denied because it has not been demonstrated that the proposed action is the least environmentally damaging practicable alternative.	COE04
4391	The SDEIS must be revised to employ a valid site-specific model and provide high quality information on the indirect adverse impacts on wetlands from all of the following: a) mine drawdown; b) tailings area hydrological change; c) water quality impacts; d) air deposition of pollutants.	WET10, WR112
4392	The SDEIS must be revised to specifically state the number of wetland acres where indirect wetlands impacts are reasonably foreseeable, providing a scientific basis for its conclusions.	WET07
4393	The United States Forest Service (USFS) should reject the proposed land exchange as inconsistent with federal laws requiring that exchange of public lands be in the public interest and for fair value.	LAN01, LAN03
4394	The USFS should reject the proposed land exchange since it conflicts with federal regulations disapproving exchanges of land with split estates and reserved mineral rights.	LAN04
4395	The USFS should reject the proposed land exchange as inconsistent with the Forest Plan, due to water quality and wetlands impacts, and losses of mature forests and high diversity habitats for rare and endangered species and species of special concern.	LAN04
4396	The USFS should reject the proposed land exchange due to losses of wetlands, headwaters and higher order streams in the Lake Superior Basin and adverse impacts on high priority national and international waters.	WR107, WR108, WR114
4397	The USFS should reject the PolyMet project and proposed land exchange as inconsistent with provisions of the Forest Plan and obligations of the federal government to protect tribal rights to fish, hunt and gather plants.	CR01
4398	The USFS should immediately disclose all appraisal information for the land exchange and allow public review and comment.	LAN03
4399	The SDEIS should be revised to analyze the impacts of loss of wetlands, headwaters and higher order streams in the Lake Superior Basin.	WR071, WR112, WR114
4400	The SDEIS should be revised to analyze cumulative impacts of the land exchange and the PolyMet project on tribal rights to hunt, fish and gather wild rice and other plants in the Ceded Territories, Reservation waters, the St. Louis River, and the Lake Superior Basin.	CR01, CR03
4401	The SDEIS must be revised to assess specific conductivity, including background levels from reference streams, elevations in project waters resulting from existing mining impacts, improvements in water quality predicted from attenuation and enforcement, and impacts from the PolyMet proposed action.	WR064, WR071, WR108
4402	The SDEIS must be revised to assess cumulative impacts of the specific conductivity from the PolyMet project on aquatic life in downstream waters, including the St. Louis River.	AQ14, AQ26
4403	The SDEIS must be revised to evaluate the significance of the potential impacts on aquatic life from increased metal solutes under the proposed action, including solutes not predicted to exceed numeric water quality standards.	AQ06

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
4404	The SDEIS must be revised to include results from toxicity testing of leachates from PolyMet project wastes and tailings to evaluate risks to aquatic life from uncaptured seepage.	AQ05, AQ06
4405	The SDEIS must be revised to evaluate impacts on aquatic ecosystems from hydrologic changes resulting from the PolyMet project in the Partridge River watershed, including Yelp, Wetlegs, Wyman, Longnose and Unnamed Creek as well as the Partridge River. This consideration must include revised and accurate baseflow inputs.	AQ24, WR003, WR081
4406	The SDEIS must be revised to evaluate impacts on aquatic ecosystems from the volume as well as chemical composition of WWTF effluent that would be discharged to the Partridge River during closure.	AQ23, WR147
4407	The SDEIS must evaluate the impacts of hydrologic changes to the Partridge River watershed resulting from the PolyMet proposed action [on aquatic life], considering seasonal and climatic variations, not just averages.	AQ24, WR003, WR180
4408	The SDEIS must evaluate an alternative where reverse osmosis is constructed on the PolyMet mine site in year one and augmentation provided to Partridge River watershed streams to mitigate impacts on aquatic ecosystems.	ALT13
4409	As detailed in Section I, the SDEIS must be revised to provide a comprehensive assessment of the risks of methylmercury resulting from the PolyMet project to fetuses, infants, children and adults, including people who rely on fish for subsistence as a result of fish consumption in the Embarrass River and Partridge River watersheds and in the St. Louis River.	HU01
4410	The SDEIS must be revised to assess impacts of air emissions at the PolyMet mine site and plant site for on-site workers both for cancer and non-cancer health risks.	HU04
4411	The SDEIS must be revised to model exposure of PolyMet on-site workers to mineral fibers and estimate the health risk to workers from mineral fibers based on the best protocols and research available, including the U of M 2013 data.	HU04
4412	The SDEIS must be revised to model the volume and concentrations of mineral fibers in air emissions from the PolyMet mine site and plant site and in water discharge to groundwater and surface water to assess health risks to the public.	AIR03, WR025, WR107
4413	The SDEIS must be revised to disclose all parameters of concern, including lead, mercury and methylmercury in all residential wells between the tailings basin and the Embarrass River, sampling multiple times and correlating results with location and depth of wells.	WR041
4414	The SDEIS must be revised to analyze potential impacts [(including health risks)] of tailings basin seepage on residential wells, using reasonable assumptions regarding the volume and concentrations of seepage that would be released untreated from the PolyMet tailings piles.	HU01, WR041
4415	The SDEIS must be revised to evaluate health risks from coal combustion emissions resulting from the PolyMet proposed action.	HU01
4416	The SDEIS must be revised to state that increased discharge of arsenic from the PolyMet project would increase cancer risks beyond Minnesota's cancer risk threshold of 1 in 100,000.	HU05
4417	The SDEIS must be revised to state that increased manganese discharge at the tailings basin would exceed Minnesota's health risk limit of 100 µg/L.	HU01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
4418	The SDEIS must be revised to provide a Health Risk Assessment for air emissions, discharge to surface water and groundwater and, where applicable, bioaccumulation of pollutants that may pose a risk to human health from the PolyMet proposed action. This Health Risk Assessment, prepared in conjunction with the Minnesota Department of Health, must:1. Explain health risks of pollutants in terms intelligible to decision-makers and the public;2. Use reasonable assumptions about emissions, seepage and transport of pollutants;3. Evaluate cancer and non-cancer risks for vulnerable populations, including fetuses, infants, children and the elderly;4. Evaluate cancer and non-cancer risks to populations with highest levels of exposure, including on-site workers, persons with residential drinking wells downstream of the site, and persons who rely on fishing, hunting and gathering for subsistence.5. Evaluate cumulative risks of multiple chemicals and exposure routes.6. Evaluate past, existing and reasonably foreseeable impacts of pollutants in assessing health risks.	HU01
4419	Upon completion of a Health Risk Assessment, the SDEIS must quantify as socioeconomic costs all costs related to health impacts, including medical treatment costs, lost productivity and costs from reduction of neurological and other functions in infants, children and adults.	SO04
4420	The SDEIS must be revised to assess the probabilities and environmental consequences of partial or complete slope failure of waste rock stockpiles.	GT15
4421	The SDEIS must be revised to assess the probabilities and environmental consequences of partial or complete dam or slope failure at the tailings and hydrometallurgical residue storage facilities.	GT15
4422	The SDEIS must be revised to assess the probabilities and environmental consequences of extreme weather and flooding at the mine site and plant site.	PD22
4423	The SDEIS must be revised to assess the probabilities and environmental consequences of pipeline spills and rail accidents along the transportation corridor.	PD36
4424	The SDEIS must be revised to assess the probabilities and environmental consequences of failure of the integrity of liners beneath sumps, basins, ore surge and waste rock piles and the hydrometallurgical residue facility.	PD11, PD17, PD22
4425	The SDEIS must be revised to assess the probabilities and environmental consequences of failure of leachate collection and wastewater treatment systems to perform as planned.	PD11, PD22
4426	The SDEIS must be revised to provide sufficient detail as to the nature and duration of wastewater treatment, leachate containment, liners, caps, maintenance, monitoring, and wetlands compensation to support mitigation and financial assurance requirements.	FIN05, FIN06, FIN11
4427	The SDEIS must be revised to provide a detailed projection of capital costs, operating costs, life cycle replacement, adaptive management and contingency costs for unanticipated events to allow determination of financial assurance requirements.	FIN05
4428	The SDEIS must be revised to evaluate the Underground Mining project alternative based on the full scope of mineral resources at the site and the reasonable costs of both Underground Mining and the proposed action, including long-term mitigation costs.	ALT01
4429	The SDEIS must be revised to evaluate the West Pit Backfill mitigation alternative, explaining any environmental concerns posed by in-pit disposal of waste rock.	ALT03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
4430	The SDEIS must be revised to evaluate the Mine Site Reverse Osmosis in Year One alternative, including the following components:1. Require on-site treatment of mine site stormwater and process water with reverse osmosis to meet surface water quality standards and prevent degradation of water quality starting in year one.2. Employ hydrological testing to assess appropriate quantities and locations for water release to support wetlands and headwaters streams in the Partridge River watershed.3. Release water treated by mine site reverse osmosis through pipe and/or spigot systems to mitigate the impacts of hydrological changes and mine dewatering on high value aquaticresources in the Hundred Mile Swamp and Partridge River Headwaters.4. Treat East Pit water with mine site reverse osmosis starting when reclamation begins, to limit acidity and metals seepage from the East Pit to aquatic ecosystems.	ALT13
4431	The SDEIS must be revised to evaluate alternatives for the management of reject concentrate, including but not limited to evaporation or disposing of reject concentrate off site.	ALT09
4432	The SDEIS must be revised to evaluate alternatives for the Category 1 waste rock pile that seal faults and fractures, construct the pile over a compacted subgrade, and place liner and leak detection systems under the waste rock pile.	ALT07
4433	The SDEIS must be revised to evaluate an alternative for the Overburden Storage Laydown Area that seals any faults and fractures, constructs the pile over a compacted subgrade, and places liner and leak detection systems under the OSLA	ALT07
4434	The SDEIS must be revised to evaluate alternatives that place PolyMet tailings in a new tailings facility excavated to bedrock and constructed on a compacted subgrade above liners and a leak detection system.	ALT10
4435	The SDEIS must be revised to evaluate additional alternatives that reduce seepage from tailings, including post-closure dewatering and dry tailings disposal.	ALT10
4436	The SDEIS must be revised to evaluate alternative locations for HRF, excluding sites located above an existing landfill, compressed peat, wetlands, or bedrock faults and fractures.	ALT09
4437	The SDEIS must be revised to evaluate an alternative where HRF wastes are managed and monitored as hazardous wastes, including active dewatering and stabilization at closure.	ALT09
4438	The SDEIS must be revised to evaluate the alternative of disposing of hydrometallurgical wastes and sludge off-site in a facility designed and maintained to manage this material.	ALT09
4439	The SDEIS must be revised to evaluate an alternative using new rail cars with sealed compartments to transport ore and fines.	ALT06
4440	The SDEIS must be revised to state clearly that the cumulative impacts of the PolyMet project and other past, present and future mining projects would have a significant adverse impact on aquatic life.	AQ27
4441	The SDEIS must be revised to state that the cumulative impacts of the PolyMet project and other past, present and future mining projects on wildlife corridors would have a significant adverse impact on the Canada lynx, a federally-listed species.	WI01, WI03
4442	The SDEIS must be revised to include a cumulative analysis of the effects of PolyMet proposed action on wetlands values.	WET18
4443	The SDEIS must be revised to analyze the cumulative effects of the PolyMet proposed action on groundwater in the project area, including impacts of Northshore and Cliffs Erie facilities.	WR024

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
4444	The SDEIS should not be finalized until the mercury TMDL study for the St. Louis River is completed.	MERC22
4445	The SDEIS must be revised to analyze cumulative effects of the PolyMet proposed action on mercury and methylmercury in the project area and the St. Louis River.	MERC10
4446	The SDEIS must be revised to analyze cumulative effects of the PolyMet proposed action on sulfates and wild rice in the project area and the St. Louis River.	WR159
4447	The SDEIS must be revised to analyze cumulative effects of PolyMet discharge of salts, ions and metals on St. Louis River aquatic life and water quality in the project area and the St. Louis River.	AQ06, AQ26
4448	The SDEIS must be revised to analyze cumulative effects of the PolyMet project on environmental justice, as a result of impacts to natural wild rice, fish abundance and mercury contamination of fish.	SO04
4449	The SDEIS must be revised to analyze cumulative effects of the PolyMet project on tribal trust resources, including fish, wild rice and moose in the project area and the 1854 Ceded Territories.	CR01, CR03
4450	The Section 404 permit must be denied due to federal obligations to protect trust resources from wetlands and habitat destruction and increased mercury bioaccumulation in fish.	CR01
4451	The land exchange must be denied due to federal obligations to protect trust resources of high biological diversity that serve as habitat for moose.	WI02
4452	The SDEIS must be revised to analyze cumulative effects of other mining projects based on a current assessment of which projects are reasonably foreseeable.	CU02
4453	The SDEIS [cumulative impacts section] must be revised to include planned expansions of mining, processing and tailings disposal at the PolyMet mine site, plant and tailings basin.	CU02, PD30
4454	The SDEIS must be rejected due to its inadequate analysis of mercury and methylmercury in the Partridge River watershed, the Embarrass River watershed and the St. Louis River. The SDEIS must be redone to appropriately analyze and model all of these impacts of mercury and methylmercury.	MERC04, MERC19
4455	WaterLegacy believes the PolyMet project must be rejected due to violations of water quality standards limiting mercury in the Lake Superior Basin and impaired waters and due to the substantial and unacceptable impactsof methylmercury bioaccumulation on the environment, human health, tribal resources and environmental justice.	CR01
4456	PolyMet’s use of Colby Lake water for stream augmentation would violate water quality standards and increase mercury loading to a high-risk methylating environment.	WR184
4457	The PolyMet SDEIS does not discuss how pumping water from Colby Lake to augment streams in the project area can be reconciled with Minnesota water quality standards limiting mercury discharge.	WR184
4458	The PolyMet SDEIS understates and inadequately analyzes mercury air deposition and mercury seepage to groundwater at both the mine site and plant site.	AIR05, MERC20
4459	Analysis of mercury air emissions and deposition from the PolyMet mine site and plant site is incomplete and inadequate.	AIR05

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
4460	The SDEIS states that no air emissions risk assessment was performed for local mercury deposition at the mine site because potential emissions are less than 1.0 pounds per year. (SDEIS, p. 5-431). Although this screening may be appropriate for dispersed smokestack emissions, it is an inappropriate exclusion for mercury contained in mine site particles, most if not all of which should be assumed to deposit locally in the Partridge River watershed.	AIR05
4461	In addition, the PolyMet SDEIS' analysis of plant site mercury emissions is incomplete…The analysis does not consider deposition of mercury from the plant site to the Second Creek watershed, which is immediately adjacent to the plant site and is neither part of the Colby Lake watershed nor the watersheds for Embarrass River lakes.	AIR05, MERC08
4462	In addition, the SDEIS' assumption that there is a simple linear relationship between mercury deposition to a water body and fish tissue methylmercury concentrations (SDEIS, p. 5-21) is too narrow… An increase in sulfate to sulfate-limited methylating environments, along with an increase in mercury deposition could have a synergistic and multiplicative effect on methylmercury concentrations.	MERC02, MERC08
4463	The PolyMet SDEIS fails to provide high-quality information and analysis regarding mercury seepage and indirect discharges to surface waters.	MERC04, MERC20
4464	The PolyMet SDEIS does not provide high-quality information as to potential mercury seepage from mine and tailings sites. The SDEIS contains no information regarding mercury levels in groundwater seepage or surface water from mine or tailings basin sites.	MERC20
4569	The SDEIS does not disclose mercury concentrations or leach test results from overburden or peat. However, technical documents contain the results of leach tests on both.	MERC20
4570	The SDEIS fails to discuss testing updates to determine mercury releases from waste rock.	MERC20
4571	The PolyMet SDEIS needs to reconcile various test results and provide mercury leachate results for all categories of waste rock and a reasonable range of predictions of mercury release through seepage.	MERC04, MERC20
4572	The PolyMet SDEIS states that the tailings basin would receive inputs of mercury from residual concentrations in the tailings and process consumables, with contributions from Colby Lake makeup water and Mine Site process water. (SDEIS, p. 5-205). However, no analysis is provided from which a decision-maker or citizen could determine the mercury mass and concentrations that are deposited to the tailings piles.	MERC04, MERC20
4573	The SDEIS states that process and tailings water samples from a pilot study conducted with NorthMet ore were found to have mercury concentrations of 11.2 and 0.7 ng/L, respectively and that mercury loadings to the Tailings Basin are estimated to be 16.2 pounds per year. (SDEIS, pp. 5-205, 5-206). No reference is cited for this data. The SDEIS also asserts, again without a citation, that "about 95 percent of the mercury originating in the ore is expected to remain within—or be adsorbed to—the tailings and the hydrometallurgical residue, where it would remain isolated from further transport to the environment." (SDEIS, p. 5-431)	MERC04
4574	The PolyMet SDEIS assumes that mercury concentrations in untreated tailings basin seepage will be 1.1 ng/L; runoff will range from 1.1 ng/L if it interacts with tailings, to 3.5 ng/L if it does not interact with tailings; and tailings basin pond water will be 2.0 ng/l. (SDEIS, p. 5-206). However, even the reports prepared on PolyMet's behalf do not support these assumptions.	MERC04
4575	The PolyMet SDEIS contains no explanation of mercury removal technologies that would be provided at the WWTP. By assuming that WWTP influent will not exceed 1.3 ng/L, the PolyMet SDEIS avoids the question of what treatment and at what cost would be needed if the WWTP had to significantly reduce mercury concentrations in order to comply with the Great Lakes standard.	MERC15

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
4576	The PolyMet SDEIS provides no information as to the amount of mercury contained in the hydrometallurgical residue and avoids any discussion of its impacts by assuming that leakage from this facility "would be negligible." (SDEIS, p. 5-157).	MERC12
4577	The PolyMet SDEIS' assessment of the risks of mercury methylation and bioaccumulation is inadequate.	MERC03
4578	The PolyMet SDEIS does not evaluate the reasonably foreseeable impacts of the Proposed Action on mercury methylation and bioaccumulation.	MERC23
4579	Although it is undisputed that the risk of methylmercury is significant and that the PolyMet project would affect high-risk areas for mercury methylation, the PolyMet SDEIS makes no attempt to analyze the risk of mercury methylation locally and downstream as a result of air emissions, water discharges and hydrological changes at the proposed PolyMet mine and plant site.	AIR06, MERC08
4580	The PolyMet SDEIS does not assess impacts of particulate air emissions and ore spillage on mercury methylation.	AIR05
4581	The PolyMet SDEIS does not discuss the impacts of sulfur from particulate emissions on mercury methylation. Particulate emissions from both the mine site and the plant site are substantial.	AIR10
4582	The PolyMet SDEIS does not disclose the level of sulfur in these various particulates or analyze to what degree and in what areas sulfur in particulate deposition would contribute to mercury methylation in wetlands at and near the project area.	MERC08
4583	The PolyMet SDEIS' analysis of mine site and tailings site sulfate seepage and mercury methylation is inadequate and inconsistent with applicable law.	MERC20
4584	The PolyMet SDEIS acknowledges that the project will increase the sulfate load in the Partridge River. (SDEIS, p. 5-208). However, the SDEIS provides no analysis of how sulfate discharge at the mine site, along with the air deposition and ore spillage previously described, would predictably increase mercury methylation in sulfate-limited waters.	MERC08
4585	As discussed in Section II of these comments, mine site sulfate discharges are underestimated and seepage will occur in additional directions, potentially impacting more wetlands.	WR070, WR174
4586	PolyMet mine site deposition of sulfur-bearing particles and discharge of sulfates are of particular concern for mercury methylation, since mine site wetlands and waters are likely to be low-sulfate waters where sulfate inputs would increase mercury methylation. (See SDEIS, p. 5-208). WaterLegacy found no sulfate monitoring data for the mine site wetlands within surficial groundwater flow paths.	MERC08
4587	The SDEIS supplies no predictions of sulfate levels in tailings pore water or in seepage to groundwater beneath the tailings pile.	WR060
4588	PolyMet SDEIS assumption of more than 99 percent collection of tailings seepage is unsubstantiated and unreasonable. Analysis of both the volume and concentration of sulfates in uncaptured and undiluted groundwater seepage must be provided in a revised SDEIS.	WR018
4589	The PolyMet SDEIS comparison of Proposed Action water quality impacts at the tailing site to "Existing Conditions" rather than the foreseeable improvements that would result from the No Action alternative is inconsistent with federal regulations and inconsistent with the Consent Decree for the existing Cliff Erie LTVSMC tailings basin.	WR108
4590	Reduction of sulfate discharge from the LTVSMC tailings basin does not depend on approval of the PolyMet project; it is required by law. Effects of tailings basin discharge from the PolyMet Proposed Action must be compared to a "no action" baseline that includes remediation to comply with water quality standards and with the Cliffs Erie Consent Decree.	ALT14

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
4591	The SDEIS acknowledges that hydrologic changes and water level fluctuations increase methylation of mercury: ... Thus, hydrologic changes and water level fluctuations can stimulate mercury methylation and enhance bioaccumulation. (SDEIS, p. 5-210)[.] The PolyMet SDEIS makes no effort to apply this scientific research to describe, let alone quantify, risks from the Proposed Action. This omission must be rectified.	MERC11
4592	The PolyMet SDEIS must be redone to analyze cumulative impacts on mercury bioaccumulation in the St. Louis River and more thoroughly analyze cumulative impacts of mercury on human health and environmental justice.	HU01
4593	The PolyMet SDEIS denies that mercury and sulfate loadings from the Proposed Action have the potential for cumulative effects on water quality in the St. Louis River. (SDEIS, p. 6-18). The PolyMet SDEIS then fails to consider the potential for cumulative effects on water quality in the St. Louis River of mercury methylation near the project area flushed downstream during storm events or bioaccumulating in the food chain.	MERC10
4594	comparison of tailings basin sulfate releases with “continuation of existing conditions,” rather than a reasonable no action baseline, distorts predictions of sulfate loading to the Embarrass River Watershed.	WR083
4595	PolyMet cumulative mercury and methylmercury impacts are likely to have unacceptable environmental, health and environmental justice effects.	MERC24
4777	The SDEIS analysis must recognize the cumulative risks from adding additional incremental mercury and methylmercury to an area where fish tissue mercury already poses significant hazards.	MERC10
4778	The SDEIS must also be revised to provide a more robust and candid health risk assessment for mercury.	HU01
4779	The revised SDEIS should place mercury deposition to Embarrass River lakes in context by disclosing the actual Hazard Quotient in these lakes...What theSDEIS fails to mention is that actual Hazard Quotients for the Embarrass chain of lakes are far above 1…The health risk for subsistence anglers or subsistence tribal members relying on fish from these lakes would be up to 15 times the EPA-assumed safe intake level for a pregnant mother or child underthe age of 15.	HU01
4780	Not only would mercury and methylmercury increases from the PolyMet project impact downstream water bodies already impaired due to excessive mercury in fish tissue, these increases would also affect tribal waters, treaty lands where tribes have the right to hunt, fish and gather for subsistence, Lake Superior’s largest tributary, a critical estuary, and a region where a dismayingly large proportion of infants are born with unsafe mercury levels in their blood. WaterLegacy believes that this PolyMet mine project in this particular location would pose an unacceptable cumulative risk to human health and to environmental justice.	HU01
5012	The PolyMet SDEIS’ analysis of water quality impacts from PolyMet’s proposed open-pit sulfide mine and other mine site features relies on inaccurate modeling, unsubstantiated and unreasonable assumptions, as well as insufficient data. The SDEIS water quality model outcomes seem to be determined by its assumptions, rather than arrived at by an objective and independent analysis. The SDEIS must be redone to address multiple inadequacies, which are likely to understate water quality impacts.	WR060, WR064, WR071, WR115, WR149, WR172, WR175, WR189
5013	The PolyMet SDEIS incorrectly models Partridge River baseflow.	WR003
5014	Both tribal scientists and MDNR scientists concur that it is likely the SDEIS modeling for the mine site uses an inaccurate deterministic baseflow input, and that a more realistic value would be approximately three times the input used in the SDEIS.	WR003
5015	PolyMet SDEIS’ water quality modeling rests on inaccurate and unsubstantiated assumptions regarding fractures, hydraulic conductivities and pollution transport through bedrock faults and surficial materials.	WR011, WR012, WR061, WR071, WR073, WR087, WR099

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5016	The SDEIS modeling of attenuation through soils results in a prediction that copper, nickel and arsenic will take thousands of years to travel from source areas to evaluation locations or the Partridge River. (SDEIS, p. 5-56). This attenuation model does not consider transport through fractures or other high porosity features.	WR012, WR058
5017	The SDEIS must be revised to consider the presence of known bedrock fractures transecting mine site pits and beneath mine site contaminant sources in calculating potential water quality impacts.	WR012
5018	PolyMet SDEIS' assumptions regarding Category 1 waste rock pile seepage, collection and reactivity underestimate water quality impacts.	WR025
5019	the PolyMet SDEIS uses an unsubstantiated deterministic input to model more than a 90 percent collection rate of all seepage from the unlined Category 1 waste rock pile. No field experience supports this presumed collection rate, and PolyMet's own work plan requires engineered systems to be modeled as probabilistic inputs. Finally, SDEIS assumptions regarding the efficacy of seepage reduction from its proposed cover system lack data support and may be overstated.	WR017, WR127
5020	The SDEIS assumption that all Category 1 seepage will migrate to the West Pit is unsupportable.	WR017, WR073, WR088, WR089
5021	Where faults transect the West Pit, the direction of flow for contaminated seepage both during operations and after closure must be analyzed, not assumed.	WR010
5022	Containment efficacy for the mine site collection system is unsubstantiated and modeling of uncaptured seepage is unreasonable.	WR017
5023	The SDEIS provides no data or field experience suggesting that compacted soil or clay could withstand hydraulic forces over time, that gravity flow in the trench would maintain a gradient to resist drainage passing through the compacted soil trench wall or that a slotted drain pipe would remain unclogged. The sole support for the claim that "nearly all" seepage would be collected by the proposed perimeter trench and dirt wall is as follows:The geologic conditions are favorable for a cutoff wall due to the presence of low permeability bedrock. Performance modeling of the containment systems performed by PolyMet and reviewed by the Co-leads provides strong evidence that the capture efficiency would be greater than 90 percent. (SDEIS, p. 3-47)	PD03, WR019
5024	The SDEIS does not disclose the volume or concentration of seepage that would result if the cover was not provided or was ineffective. However, the SDEIS states that water modeling indicates that "for many constituents, this stockpile would be the largest source of constituent load" if seepage were to be captured and routed to the West Pit. The SDEIS further states that the Category 1 cover system "would be the primary engineering control" that limits constituent loading from the stockpile. (SDEIS, p. 5-213). Neither seepage collection assumptions nor postclosure seepage reduction assumptions for the Category 1 waste rock pile are adequately substantiated.	PD16, WR017, WR127
5025	The SDEIS understates the potential of acid generation and solute leachate from the Category 1 waste rock pile and the mine pits.	WR001, WR025
5026	The SDEIS also fails to substantiate the efficacy of subaqueous disposal in preventing acid mine drainage and high levels of solutes in the East Pit and West Pit during reclamation. No field experience at other mines is cited.	WR024
5027	The PolyMet SDEIS' assessment of mine site compliance with water quality standards is misleading. Scrutiny suggests that standards will not be met.	WR107

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5028	As discussed above, the SDEIS minimizes potential discharge from mine site contaminant sources by underestimating Partridge River base flow through the site, by denying the potential for propagation through higher conductivity pathways in surficial materials and bedrock, by excluding flow paths to the north and northeast of the mine site, by imposing concentration caps, and by assuming collection and reduction of seepage based on models unsubstantiated by field experience.	WR005, WR017, WR018, WR033, WR091, WR167
5029	Other sections of WaterLegacy's comments demonstrate that the SDEIS fails to analyze mercury discharge either from the mine site or plant and that sulfate discharge and its impacts on wild rice are inadequately and improperly assessed. The SDEIS also does not analyze specific conductance, or potential impacts of degradation of water quality on aquatic life	AQ05, AQ14, MERC08, MERC17
5030	Throughout our review of the SDEIS, WaterLegacy has been concerned that the SDEIS reflects advocacy for the project, rather an independent "hard look" at scientific evidence. Some specific instances of misleading edits, phrasing and omissions are highlighted in this section. In addition, despite gaps and assumptions in the SDEIS that serve to minimize potential water quality violations, WaterLegacy believes there is sufficient evidence related to mine site contaminant sources to identify excursions from water quality standards.	WR107
5031	The PolyMet SDEIS' analysis of whether discharge to shallow groundwater will meet surface water quality requirements is misleading.	WR115, WR195
5032	The SDEIS' language and analysis undermines the ability of either decision-makers or the public to evaluate whether PolyMet's discharge of pollutants to shallow groundwater connected to surface water will comply with surface water quality standards. The SDEIS provides an inadequate basis for regulation to protect surface water quality. This deficiency is also reflected in SDEIS analysis of seepage from the tailings basin, where only groundwater standards are applied as evaluation criteria.	WR010, WR112
5033	the SDEIS contains no analysis of where pollutants discharged at either the mine site or the tailings site will first daylight to groundwater.	WR093, WR167
5190	Other decisions as to which data is presented in the SDEIS may also conceal rather than disclose water quality risks. For example, critical information on the amount of groundwater flow from various mine site contaminant sources and the time it would take for pollution migration is only disclosed for the P50 model, not the foreseeable P90 greater risk.	WR060, WR064, WR173
5191	The PolyMet SDEIS does not evaluate water quality at the nearest points where compliance with surface water quality standards would be required.	WR064, WR177
5192	As previously discussed, the PolyMet SDEIS does not evaluate seepage from the Category 1 waste rock pile toward the Hundred Mile Swamp or north or northwest to the Partridge River. Even for the flowpaths from mine site contaminants on the south of the site, "evaluation locations" are not equivalent to CWA compliance points.	WR081, WR167, WR177
5193	Not only does the SDEIS fail to analyze compliance with surface water quality standards where contaminants from mine site first daylight to wetlands. Yet more striking, the SDEIS fails to assess compliance with water quality standards at the "surface water release" points, as defined in the text of Table 5.2.2-8 above, where contaminants first reach the Partridge River.	WR017, WR173, WR176, WR189
5195	Even with the PolyMet SDEIS' incomplete analysis, modeling shows mine site discharge excursions from water quality standards.	WR107, WR109
5196	As detailed above, the SDEIS model of pollutants from mine site contaminant sources understates the concentrations likely to be found in mine site surficial flowpaths. However, even using only the data that the SDEIS has provided, modeling indicates that mine site discharge would cause or contribute to violations of surface water quality standards. The SDEIS either fails to identify these excursions or attributes them to another source.	WR115, WR172

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5197	In its primary data table, the SDEIS also fails to provide information about contaminant levels from the West Pit flowpath at the Partridge River location where it is clear that groundwater discharges to surface water.	WR173
5199	The SDEIS seems to misdirect attention away from, rather than candidly disclose, these violations of numeric WQS.	WR109
5200	The PolyMet SDEIS provides unsubstantiated and unreasonable predictions of seepage of untreated contaminants from the tailings piles. This flawed and overly optimistic analysis affects predictions of drinking water contamination, compliance with surface water quality standards, impacts on aquatic life, effects on natural stands of wild rice and increases in downstream mercury methylation due to sulfate loading in the St. Louis River as well as the Partridge River and Embarrass River watersheds.	PD08
5201	In addition, SDEIS disclosure of solute levels and of the assumptions behind its modeling of seepage concentrations is opaque and insufficient. The concentration of solutes in seepage is likely to affect predictions of contaminants in treated effluent as well as in untreated seepage escaping the tailings basin. Even with current modeling, discharge of treated effluent is likely to cause or contribute to excursions from water quality standards for aluminum, lead and selenium.	WR059, WR064, WR147, WR189
5202	NEPA requires that an EIS must use “high quality” information and “accurate scientific analysis.” 40 C.F.R. §1500.1(b). The PolyMet SDEIS water quality predictions from tailings basin seepage do not meet this test. The SDEIS must be rejected as inadequate on this basis alone, and supplemental and transparent modeling on tailings water quality issues must be included in a revised SDEIS, available for public review and comment.	GT11, WR049, WR050
5203	SDEIS tailings seepage collection assumptions are unsubstantiated and unreasonable.	PD08
5204	The SDEIS assumption of nearly perfect seepage collection is the critical foundation upon which all claims that PolyMet might comply with water quality standards downstream of the tailings piles rely. This assumption is unreasonable, unfounded, inconsistent with site conditions and inconsistent with the Modeling Work Plan methodology adopted by PolyMet and the Co-Lead Agencies.	PD08
5205	The PolyMet SDEIS modeling explicitly assumes that its row of pumps will capture 100 percent of the surface seepage and 90 percent of the 209 gpm of groundwater seepage on the north, northwest and west sides of the tailings site. (SDEIS, p. 5-159). By analyzing no other release of untreated seeps from the tailings site, the SDEIS also assumes that no seepage will be released into Second Creek and that no seepage will drain into groundwater beneath the vast, unlined tailings piles through fractures, and that neither historic streams nor changes in topography will carry seepage to the east of the tailings piles as tailings are deposited. Each of these claims is unreasonable and unfounded.	WR012, WR018, WR020, WR054, WR056, WR061, WR099, WR101, WR117, WR118
5206	PolyMet tailings pile seepage collection claims are not supported by field experience.	WR020
5207	Despite formal requests for substantiation, the Lead Agencies have provided no documentation verifying that field experience supports their claim that virtually all seepage can be captured with a pump collection system at an unlined tailing basin.	WR180
5208	Water inflow to the tailings site during PolyMet’s operations will increase groundwater seepage.	WR057
5209	The PolyMet SDEIS provides no water balance information from which to determine the volume of water that would be in the tailings piles during operation and closure. No information is provided from which one might calculate the downward pressure or “head” that would result from the height of the water. Ongoing review of the hydraulic conductivity and storage coefficients of surficial and bedrock materials suggest that PolyMet SDEIS models may be erroneous.	WR057, WR095, WR105

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5210	Seepage from PolyMet's tailings will discharge untreated through fractures, faults and historic streams beneath the tailings.	WR010, WR011, WR012, WR061, WR071, WR090, WR092, WR096, WR099, WR104
5211	The PolyMet SDEIS misrepresents and overlooks available information regarding tailings site geology. The SDEIS states, "Jennings and Reynolds (2005) mapped the surficial deposits around and beneath the Tailings Basin as Rainy Lobe Till, which functions as the surficial aquifer and is generally a boulder-rich till with high clay content" (SDEIS p. 4-95). However, the cited reference reports the surficial Rainy lobe till mapped in the vicinity ofthe proposed NorthMet project as "clay-poor." Till matrix textures are reported to range from 48 to 87% sand, 9 to 40% silt and 0 to 13% clay, but "generally much less than 10% clay." (Jennings and Reynolds, 2005). This is a sandy till, not a till with high clay content.	EDIT01
5212	Although the preliminary SDEIS referred to "fractured bedrock" beneath the tailings site (Preliminary SDEIS, May 2013, p. 5.2.2-58), the SDEIS released to the public in December 2013 does not contain a single reference to fractures that may be present at the tailings site. The map prepared by geologist J.D. Lehr, using Minnesota Geological Survey data and a 2011 statewide compilation of bedrock geology, shows several faults in the bedrock beneath the tailings site and the hydrometallurgical residue facility.25 The SDEIS should have analyzed these fractures and their hydrologic relationship with surficial materials and shallow groundwater.	WR012, WR071, WR099
5213	the SDEIS does not discuss how the historic branches of the creek connected to Spring Mine Lake may affect groundwater flow beneath the tailings or how the increased height of the water table in PolyMet tailings may affect flow patterns on the east side.	WR102, WR104
5214	the elevation of Spring Mine Lake is 1,676 feet above sea level. Although the current Cell 1E and Cell 2E tailings piles are lower than Spring Mine Lake, the new water table in the PolyMet tailings would be higher than that of Spring Mine Lake, reversing the topography and potentially changing the flow of groundwater in sediments of the historic creek branching beneath the east side of the tailings. The PolyMet SDEIS fails to discuss or assess how increased tailings water table elevation would affect seepage toward the east of the tailings piles.	WR102
5215	Seepage from PolyMet's tailings will discharge untreated to Second Creek, on the southeast side of the tailings piles.	WR117
5216	Statements in the SDEIS regarding groundwater seepage on the south side of the tailings site appear to be inconsistent. In one section, the SDEIS states, "Groundwater currently seeps from the existing LTVSMC Tailings Basin to the headwaters of Second Creek." (SDEIS, p. 5-153) In another narrative, the SDEIS claims that there would be no impacts on wetlands resulting from changes in groundwater flow since, "All of the seepage from the south side of the Plant Site is surface water." (SDEIS, p. 5-297).	EDIT01
5217	SDEIS disclosure of solute concentrations at the tailings site is opaque and unreliable, preventing verification of seepage concentration rates or concentration rates in treated effluent.	WR189
5218	The SDEIS provides very little information as to the concentration of contaminants at the tailings site.	WR030
5219	The SDEIS does not provide information on the volume of inputs and outputs to the tailings pond, tailings piles or WWTP. The SDEIS does not disclose modeled solute concentrations in the tailings pond, tailings pore water, tailings seepage or WWTP influent. The SDEIS does not specify the treatment or pre-treatment that will be used at the WWTP. Overall, even with the help of citizen chemists and engineers, it was not possible to understand, let alone verify, the key SDEIS assumptions regarding contaminant sources at the tailings site.	WR030, WR057, WR060, WR063, WR143, WR147

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5220	The SDEIS states that its predictions included a concentration cap, based on the assumption that tailings would have less that 0.12 percent sulfide and would never produce acid drainage. (SDEIS, p. 5-61, 5-160). Without disclosing predicted inputs to the tailings basin, the SDEIS provides insufficient information to substantiate this assumption. No explanation is provided as to the way in which a constant concentration would be maintained in several square miles of tailings piles receiving mine process water, tailings seepage, and beneficiation slurries at various times.	PD08, WR033
5221	The SDEIS statement that the proposed action "contaminant release parameters are based on a combination of laboratory tests and water quality observations at similar tailings facilities in northern Minnesota," (SDEIS, p. 5-63) is unreassuring. Minnesota has no other tailings facilities for copper-nickel mines.	WR030
5222	The SDEIS states, "the operating configuration and requirements of the process units within the WWTP or the capacity of the WWTP could be modified to accommodate varying influent streams and discharge requirements." (SDEIS, pp. ES-24, 5-214). The SDEIS may refer to this as "an adaptive engineering control," but for either a decision-maker or a member of the public, this conceptual approach is insufficient to demonstrate water quality would be protected.	WR130, WR143
5223	It is likely that PolyMet tailings basin seepage and WWTP effluent would cause or contribute to excursions from water quality standards.	WR064, WR108
5224	As described at length in the preceding sections, modeling assumptions for uncaptured seepage are unreasonable underestimates of volume. Concentrations of solutes in seepage are undisclosed, and may also be unreliable. Even within the limits of this model, tailings seepage in the North flowpath would violate the surface WQS for lead. The incremental increase in North flowpath manganese would also exceed Minnesota's groundwater health risk limit.	WR010, WR018, WR019, WR059, WR060, WR064, WR071, WR082, WR090, WR099, WR108, WR109
5225	Lead and other contaminants are likely to surface in wetlands "within the surface watersheds immediately downstream of the Tailings Basin, which includes watersheds upstream of modeling locations." (SDEIS, p. 5-308). But, even without considering the nearest point where lead would daylight to surface water, lead discharge from the North flowpath at Mud Lake Creek (2.5 µg/L) would exceed the applicable 1.3 µg/L chronic standard for lead in 50 mg/L hardness waters. Minn. R. 7050.0110, subp. 4.	WR059, WR064, WR082
5226	In the North flowpath, manganese concentrations at the property boundary are modeled at 759 µg/L in comparison to 522 µg/L under continuation of existing conditions. At the property boundary, where groundwater standards apply, not only is the modeled concentration seven-and-a-half times the manganese health risk limit (HRL), but the 237 µg/L modeled increase in manganese exceeds Minnesota's 100 µg/L HRL set to protect infants from harm.	HU03, WR064, WR109
5227	The SDEIS suggests that aluminum exceedance is an artifact of the modeling. (SDEIS, p. 5-189). This may or may not be the case. The GoldSim model assumes that effluent from the mine site WWTF will meet the "target" of 125 µg/L. But this assumption may be unrealistic for the WWTF filtration plant. During mining operations, concentrations of aluminum in the west equalization basin for the WWTF would range as high as 530,000 µg/L of aluminum.32 Without a more transparent disclosure of aluminum inputs to the tailings piles and the WWTP, it is not possible to discount the modeled exceedance from aluminum standards.	WR063, WR064, WR143
5228	Lead levels modeled for the PolyMet proposed action would cause or contribute to excursions from Minnesota's WQS for lead. Lead concentrations for the proposed action increase in every tributary as compared with continuing existing conditions. Under the proposed action, lead levels at Mud Lake Creek MLC-3 (1.9 µg/L), Trimble Creek TC-1 (3 µg/L) and PM- 19 (2.9 µg/L), and Unnamed Creek PM-11 (3 µg/L) would all exceed the 1.3 µg/L chronic WQS for lead in Lake Superior Basin waters with hardness of 50 mg/L.	WR082

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5229	The PolyMet SDEIS provides unsubstantiated and unreasonable predictions of seepage of untreated contaminants from the tailings piles. This flawed and overly optimistic analysis affects predictions of drinking water contamination, compliance with surface water quality standards, impacts on aquatic life, effects on natural stands of wild rice and increases in downstream mercury methylation due to sulfate loading in the St. Louis River as well as the Partridge River and Embarrass River watersheds. The PolyMet SDEIS must be rejected as inadequate on this basis alone.	PD08, WR019, WR041, WR113, WR115
5230	The concentrations both in untreated seepage and in WWTP effluent depend on the levels of solutes in tailings site process water. In addition to revision of water quality models to include a realistic volume for untreated seepage, the concentration of solutes in tailings seepage, plant site pond and process water, and WWTP influent must be disclosed in a revised SDEIS so that models of water quality downstream of effluent can be verified.	WR060, WR063
5231	The Hydrometallurgical Residue Facility (HRF) will contain some of the most concentrated and toxic wastes produced by the PolyMet project. Yet, the SDEIS fails to disclose the chemical composition of these materials or explain the analysis that was done to determine whether or not they would pose hazards to the environment.	WR068
5232	The PolyMet plan selects an unsuitable location for the HRF, increasing risks of liner failure and instability at this permanent waste storage facility. The SDEIS inappropriately denies the potential for releases as result of liner leakage from the HRF. Planned management of the HRF is insufficient to reduce risks of significant releases.	PD17, PD19
5233	The PolyMet SDEIS provides inadequate information as to the nature and chemical characterization of HRF wastes.	PD18
5234	The SDEIS does not tell decision-makers or the public what concentration of acids, salts and metals is predicted for the hydrometallurgical process wastes and filtered sludge that would be deposited in the HRF. No documents among the SDEIS references model the overall chemistry of the hydrometallurgical residue facility at any relevant time period. Neither the SDEIS nor any document identified to date explains the analysis that was done by any regulatory agency to determine whether the HRF should or should not be characterized as hazardous waste.	PD17, PD18
5235	The SDEIS does not discuss the chemical composition or process by which the WWTF will produce filtered sludge...We've found no analysis of the volume or chemistry of the filtered sludge proposed to be deposited in the HRF. However, levels of sulfates and metals in reject concentrate, even before dewatering to form sludge, indicate that sludge may pose a hazard if released to the environment.	PD18
5236	The PolyMet SDEIS does not include a requirement that the HRF obtain a permit as a hazardous waste facility. Neither does the SDEIS contain any analysis of whether the HRF should be treated as a facility for storing hazardous wastes. This analysis is long overdue.	PD17
5237	The proposed location for the PolyMet hydrometallurgical residue facility is an unsuitable site.	PD19
5238	The PolyMet SDEIS proposes to construct the PolyMet hydrometallurgical residue facility on two shallow marsh wetlands totaling 36.1 acres...Minnesota law precludes establishment or construction of either a hazardous waste facility or an industrial solid waste facility in a "wetland" or in a location "where the topography, geology, hydrology, or soil is unsuitable for the protection of the ground water and the surface water." Minn. R. 7045.0460, subp. 2; Minn. R. 7035.1600. Location of the HRF on top of wetlands is prohibited pursuant to Minnesota rules.	PD19
5239	The PolyMet SDEIS inappropriately fails to consider liner leakage both within an expected leakage range and under conditions of liner integrity failure.	PD22
5240	The SDEIS fails to provide any analysis of the impacts of liner leakage on modeled water quality.	PD03

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5241	As a result of the liner stress posed by the proposed location of the HRF on top of shallow marshland, peat, slimes and other unconsolidated materials, failure of liner integrity is more likely. In addition, both the HRF process and the chemical trains for filtered sludge involved limestone or lime, creating high concentrations of calcium. The presence of these ions will increase the likelihood of failure of the second liner, the geosynthetic clay liner.	PD17
5242	Management of the hydrometallurgical residue facility is insufficient to reduce the risk of liner loss of integrity or impoundment failure.	PD17
5243	Minnesota rules ensure that a facility issued a hazardous waste permit or a state disposal system permit will be properly inspected and maintained and that long-term closure will reduce the risks that caustic or toxic wastes will be released. There is no such assurance for the HRF...The SDEIS does not propose any schedule for monitoring liquids removed from the leak detection system, or for inspections to ensure that the pumping system is not clogged due to solids accumulation.	PD17
5244	Although the SDEIS claims, “mitigation measures would be undertaken if there was any indication of potential solute releases to groundwater or surface water” from the HRF (SDEIS, pp. 5-89, 5-157), the nature of these measures is not specified. Short of excavating the hydrometallurgical residue facility, there is no mitigation that would restore the patency of a liner that has lost its integrity.	PD17
5245	The PolyMet SDEIS uses an unverified analog for indirect impacts on wetlands and unsubstantiated assumptions about impacts of mine drawdown, fragmentation, and pollution to understate the reasonably foreseeable indirect effects of the PolyMet open-pit mine, mine wastes, processing and tailings facilities. Despite these understatements, the PolyMet proposed action would have substantial and unacceptable impacts on aquatic resources of national importance.	WET08, WET19
5246	the PolyMet SDEIS plan for wetlands mitigation is inadequate. The SDEIS proposes wetlands mitigation for only 27 of up to 7,351 acres of wetlands that would be indirectly impacted by the proposed action. Even where mitigation is proposed, more than two-thirds of the compensatory acres and credits are outside the Lake Superior Basin. From a functional perspective, wetlands at the proposed PolyMet mine site are irreplaceable.	WET01, WET03, WET04
5247	Finally, no alternatives are analyzed in the PolyMet SDEIS, although both the underground mine project alternative and several mitigation alternatives discussed in Section XI of these comments would have the potential to reduce impacts on project area wetlands, including aquatic resources of national importance.	WET20
5248	The PolyMet SDEIS must be revised to model indirect wetlands impacts. The Clean Water Act Section 404 wetlands dredge and fill permit must be denied due to substantial and unacceptable impacts on wetlands, an inadequate mitigation plan and the failure to demonstrate that the proposed action is the least environmentally damaging practicable alternative.	WET08
5249	Construction of open pits, stockpiles and haul roads at the mine site could fragment wetlands. Groundwater drawdown from mine dewatering, groundwater mounding/drawdown from tailings basin seepage containment, and changes in stream flow could create hydrological effects converting one wetland type to another or converting a wetland to an upland. Changes in wetland water quality could impact the functions and values of remaining wetlands. (SDEIS, p. 225). As a result of all of these factors, in addition to direct destruction of wetlands, the PolyMet proposed action could indirectly affect up to 7,351 acres of wetlands at the mine site and tailings basin site (SDEIS, p. 5-224, 5-309), resulting in a total potential impact on 8,264 acres of wetlands.	WET24
5250	All wetlands in the Partridge River watershed impacted by the PolyMet project should be considered ARNI. Minnesota Biological Survey mapping shows that the Hundred Mile Swamp, Upper Partridge River and Partridge River Peatlands sites are all areas of high biological diversity.	WET19

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5251	In addition to the aquatic resources in the Partridge River Watershed, it is likely that there are wetlands near the tailings basin that should be considered aquatic resources of national importance.	WET19
5252	The PolyMet proposed action would have substantial and unacceptable adverse impacts on ARNI, which are poorly estimated and understated in the SDEIS.	WET19
5253	Direct wetlands destruction alone resulting from the PolyMet proposed action would constitute substantial adverse impacts on aquatic resources of national importance in the Partridge River watershed. Even before indirect wetlands effects are considered, net destruction of wetlands in the Partridge River watershed from the PolyMet project would result in net loss of 666 acres. According to the PolyMet SDEIS, this direct wetlands destruction from the proposed action would be 26 percent of the total historical and predicted loss of wetlands in the Partridge River watershed from all other sources.40 This is a substantial and unacceptable loss of ARNI from a single project.	WET19
5254	The PolyMet SDEIS' analysis of reasonably foreseeable adverse indirect impacts on wetlands is inadequate and understates indirect impacts.	WET24
5255	The discussion of indirect wetlands impacts in the PolyMet SDEIS is inadequate and potentially misleading. The comparability of the Canisteo pit to the PolyMet mine pits for purposes of the "analog" estimates is unverified. Even applying the Canisteo pit proxy, the SDEIS' use of data seems selected to understate impacts.	WET08
5256	When incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, NEPA requires that the information be secured and included in an EIS. 40 §C.F.R. 22(a). In addition, under 40 C.F.R. §1500.1(b), an EIS must use "high quality" information and "accurate scientific analysis." The PolyMet SDEIS' analysis of indirect wetlands effects doesn't meet these tests.	WET01
5257	The SDEIS' heavy reliance on the Canisteo pit proxy to predict indirect wetland impacts also fails the accurate analysis test 40 C.F.R. §1500.1(b).	WET08
5258	The record is insufficient to verify the reliability of the Canisteo pit "analog" to estimate mine drawdown at the PolyMet mine site. Although the SDEIS claims that that the "geologic and hydrogeologic settings of the Mine Site are relatively similar to the Canisteo and Minntac sites." (SDEIS, p. 5-92), data does not support this conclusion. The PolyMet East pit would be 630 feet deep and the West Pit would be 696 feet deep, (SDEIS, p. ES-17), while the Canisteo pit averages 100 feet deep.41 The PolyMet mine is underlain by Duluth Complex and Virginia Formation, while the Canisteo pit has thicker glacial till and is underlain by Biwabik Formation rock. (SDEIS, p. 5-92). Absent rigorous site-specific characterization of geology and hydrogeology at the mine site – which might obviate the need for an analog at all – there is no verification that mine drawdown at the Canisteo pit would be comparable to the PolyMet site.	WET08
5259	Apart from the inappropriate use of a Canisteo pit "analog" to estimate mine drawdown impacts, the SDEIS' assumptions underestimate reasonably foreseeable indirect impacts on wetlands. The SDEIS assumes that ombotrophic coniferous bogs and open bogs would not be impacted by mine drawdown because their hydrology is supported by precipitation. (SDEIS, p. 5-243). But, "no data or research was used from actual wetlands responding to groundwater drawdown" was used in the SDEIS for conclusions regarding wetlands sensitivities.	WET10
5260	The SDEIS also apparently assumes that if changes in the average annual flow of the Partridge River would not diverge from naturally occurring variation, one could conclude that there were no potential indirect wetland effects for wetlands abutting the Partridge River. (SDEIS, p. 5-273). Finally, with respect to wetlands effects, the SDEIS concludes that the Partridge River "is likely to act as a natural barrier to the expansion of the cone of depression" for mine site drawdown. (SDEIS, p. 5-243). The PolyMet provided no testing data or research to support any of these assumptions.	WET08, WET10

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5261	The PolyMet SDEIS does not consider the levels of sulfates or metals in "dust" deposited or the effects these specific chemicals might have on wetlands. The SDEIS assumes that there would be no effects on wetlands unless dust levels were sufficient to interfere with photosynthesis, and set the threshold for this effect at doubling the existing levels of background deposition.	WET11
5262	Perhaps the clearest example of the SDEIS' inadequacy in characterizing reasonably foreseeable wetlands impacts is on the mine site itself. On the mine site alone, 540 acres of wetlands would remain vulnerable to impairment and destruction after 758 acres of mine site wetlands are destroyed as a result of constructing mine pits, waste rock piles and other mine features. (SDEIS, p. 5-224). It is likely that all of these wetlands would be adversely affected by fragmentation, hydrologic changes, water pollution, air deposition or a combination of the above.	WET07
5263	The PolyMet proposed action would have substantial and unacceptable adverse impacts on ARNI as a result of fragmentation, mine drawdown, hydrologic changes, water and air pollution.	WET19
5264	The SDEIS also fails to identify the total acres of wetlands in the Partridge River and Embarrass River watersheds where adverse impacts are "reasonably foreseeable," whether as a result of fragmentation, mine drawdown, hydrologic changes, seepages, leaks, spills or deposition of contaminants. The SDEIS is inadequate without this assessment and must be revised to clearly state and justify on a sound scientific basis the reasonably foreseeable direct and indirect effects on wetlands from the PolyMet proposed action.47 Until that time, no mitigation plan can be evaluated and no Section 404 permit issued.	WET07
5265	WaterLegacy believes that the PolyMet project would have substantial and unacceptable adverse impacts on wetlands and ARNI, in particular. The PolyMet project's potential direct and indirect impact to 8,264 acres of wetlands would dwarf both the historic wetlands destruction and the projected cumulative wetlands destruction from all other sources in the Partridge River watershed (2,557 acres) and the Embarrass River watershed (402 acres). (SDEIS, Table 6.2-9, p. 6-38; Table 6.2-12, p. 6-41).	WET19
5266	The PolyMet plan for wetlands mitigation is plainly inadequate.A. The PolyMet plan fails to compensate for indirect adverse impacts on wetlands.	WET01
5267	The PolyMet SDEIS contains no discussion of where or how additional compensatory mitigation would be provided for indirect wetlands impacts.	WET01
5268	The vague and indefinite possibility of subsequent compensation for adverse impacts on wetlands resulting from fragmentation, mine drawdown, hydrologic changes, water pollution and air deposition in the PolyMet SDEIS fails to adequately protect ARNI and other wetlands resources under the Clean Water Act.	WET19
5269	The PolyMet plan fails to provide mitigation for direct adverse impacts on wetlands within the Lake Superior Basin.	WET04
5270	PolyMet's mitigation plan for direct destruction of wetlands, as reflected in the SDEIS, proposes 101.8 acres of on-site future restoration, plus 530.9 acres of restoration or preservation at the Zim wetlands bank in the St. Louis River/Great Lakes Basin. The balance of mitigation project acreage —68 percent of the total – are proposed are in Aitkin and Hinckley, both geographically and ecologically remote from the project impacts. (SDEIS, Table 5.2.3-18, p. 5-327). When wetlands restoration credits are evaluated, even a higher percentage – 72 percent of the total – are located outside the 8-digit HUC watershed where the PolyMet proposed action would destroy wetlands in the Partridge and Embarrass River watersheds. (Id.) The SDEIS plan for wetlands compensation is inadequate, even for direct wetlands impacts.	WET01, WET03
5271	The PolyMet wetlands compensation plan does not provide ecologically equivalent wetlands functionality within the Lake Superior Basin.	WET03
5272	The PolyMet proposed action is not the least environmentally damaging practicable alternative as required under the Clean Water Act Section 404.	ALT20

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5273	a Section 404 dredge and fill permit may not be issued under the Clean Water Act unless it is the least environmentally damaging practicable alternative to a dredge and fill project that would impact wetlands and headwaters streams. The PolyMet proposed action does not meet this test.	ALT20
5274	Project and mitigation alternatives described in Section XI of these comments would reduce the direct or indirect impacts to wetlands and ARNI. An underground mining alternative would greatly minimize wetlands destruction. The West Pit Backfill alternative would allow for wetlands restoration, and placement of permanent sources of contaminants above liners would reduce seepage impacts on adjacent wetlands. Construction of Mine Site Reverse Osmosis in Year One would allow mitigation of both pollution and drawdown impacts to Partridge River watershed high-value wetlands and ARNI.	ALT01, ALT03, ALT06, ALT13
5275	The SDEIS proposes a land exchange as a necessary precondition for PolyMet's open-pit mine project. Although this project meets PolyMet's interest in an open-pit mine and may reduce "conflict" between the U.S. Forest Service and the company, the proposed land exchange is unlikely to meet the financial requirements of the Federal Land Planning and Management Act, is not in the public interest, conflicts with the Forest Plan, and would adversely impact environmental and tribal resources.	LAN02
5276	The PolyMet SDEIS fails to disclose appraisal information to confirm that the exchange would not give a favorable deal for PolyMet - at taxpayers' expense - and fails to evaluate impacts on aquatic resources of national importance within the Lake Superior Basin.	LAN03
5277	The PolyMet SDEIS does not demonstrate that the land exchange would comply with law written to protect the public from unfair trades.	LAN03
5278	The SDEIS provides no information demonstrating that either the proposed or the alternative land exchange would comply with Federal Land Planning and Management Act (FLPMA) requirements.	LAN02
5279	Despite requests by WaterLegacy both in the scoping process and pursuant to the FOIA, the Forest Service has declined to provide appraisal information to allow members of the public to verify that the PolyMet exchange would be equitable. Particularly in light of the Forest Service's definition of its interest solely in terms of furthering minerals production, disclosure of appraisals for early and public scrutiny is necessary to ascertain whether the proposed exchange is an unequal trade, benefitting PolyMet at the expense of citizens and taxpayers.	LAN03
5281	The purpose and need for the land exchange asserted in the SDEIS serves a single private interest, not the public interest.	NEPA04
5282	The purpose and need for the PolyMet land exchange stated in the PolyMet SDEIS reflects a singular interest of the PolyMet corporation in open-pit mining in a certain location, not the broad range of uses and values that would serve the public interest.	NEPA04
5283	The exchange of federal lands for private lands with split ownership and severed mineral rights would be contrary to federal regulations and the public interest.	LAN04
5284	The proposed land exchange would be inconsistent with provisions of the Superior National Forest Plan that protect ecological values and would diminish the environmental value of the federal estate.	LAN04
5285	The PolyMet SDEIS does not discuss various Forest Plan provisions that pose conflicts with the PolyMet proposed action. The land exchange and the PolyMet open-pit mine would be inconsistent with these provisions protecting water, wetlands, wildlife and forest resources:"Management activities do not reduce existing quality of surface or groundwater or impair designated uses of surface and ground water." (Forest Plan D-WS-4, p. 2-10)	WR107

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5286	The PolyMet SDEIS does not discuss various Forest Plan provisions that pose conflicts with the PolyMet proposed action. The land exchange and the PolyMet open-pit mine would be inconsistent with these provisions protecting water, wetlands, wildlife and forest resources:“Water in lakes, streams, and wetlands meets or exceeds State water qualityrequirements.” (Forest Plan, D-WS-5 p. 2-10)	WR107
5287	The PolyMet SDEIS does not discuss various Forest Plan provisions that pose conflicts with the PolyMet proposed action. The land exchange and the PolyMet open-pit mine would be inconsistent with these provisions protecting water, wetlands, wildlife and forest resources:“Improve and protect watershed conditions to provide the water quality, water quantity, and soil productivity necessary to support ecological functions and intended beneficial water uses.” (Forest Plan, O-WS-1, p. 2-12)	WR107
5288	The PolyMet SDEIS does not discuss various Forest Plan provisions that pose conflicts with the PolyMet proposed action. The land exchange and the PolyMet open-pit mine would be inconsistent with these provisions protecting water, wetlands, wildlife and forest resources:“Wetland impacts will be avoided whenever possible. Where impacts are unavoidable, minimize and compensate for loss when undertaking projects.” (Forest Plan, G-WS-13, p. 2-15)	WET16
5289	The PolyMet SDEIS does not discuss various Forest Plan provisions that pose conflicts with the PolyMet proposed action. The land exchange and the PolyMet open-pit mine would be inconsistent with these provisions protecting water, wetlands, wildlife and forest resources:“Wetlands will be managed to prevent the reduction of their water quality, fish and wildlife habitat, and aesthetic values. Management actions will not reduce water quality within a wetland, or upstream or downstream of a wetland, unless restoration of natural conditions is the primary goal of the activity.” (Forest Plan, G-WS-15, p. 2-15)	WET16
5290	The PolyMet SDEIS does not discuss various Forest Plan provisions that pose conflicts with the PolyMet proposed action. The land exchange and the PolyMet open-pit mine would be inconsistent with these provisions protecting water, wetlands, wildlife and forest resources:“Increase acres of old-growth lowland black spruce and tamarack forest communities.” (Forest Plan, O-VG-16, p. 2-24)	VEG03
5291	The PolyMet SDEIS does not discuss various Forest Plan provisions that pose conflicts with the PolyMet proposed action. The land exchange and the PolyMet open-pit mine would be inconsistent with these provisions protecting water, wetlands, wildlife and forest resources:“[M]aintain the characteristics of mature or older native upland forest vegetationcommunities and promote the maintenance or development of interior forest habitat conditions.” (Forest Plan, O-VG-17, p. 2-24)	VEG03
5292	The PolyMet SDEIS does not discuss various Forest Plan provisions that pose conflicts with the PolyMet proposed action. The land exchange and the PolyMet open-pit mine would be inconsistent with these provisions protecting water, wetlands, wildlife and forest resources:“Contribute to the conservation and recovery of federally-listed, proposed, or candidate threatened and endangered species and the habitats upon which these species depend.” (Forest Plan, D-WL-3(c), p. 2-27)“Maintain, protect, or improve habitat for all threatened and endangered species by emphasizing and working toward the goals and objectives of federal recovery plans and management direction in the Forest Plan. (Forest Plan, O-WL-4, p. 2-29)	WI12
5293	The PolyMet SDEIS does not discuss various Forest Plan provisions that pose conflicts with the PolyMet proposed action. The land exchange and the PolyMet open-pit mine would be inconsistent with these provisions protecting water, wetlands, wildlife and forest resources:“Avoid or minimize negative impacts to known occurrences of sensitive species. (Forest Plan, G-WL-11, p. 2-31)	WI12
5294	Although other aspects of the land exchange are analyzed in some detail, the PolyMet SDEIS provides little discussion of the effects of the proposed land exchange on wetlands and headwater streams within the Lake Superior Basin that serve critical functions for nationally and internationally important waters. SDEIS land exchange sections don’t explain that losses of firstorder headwaters streams, second-order streams and wetlands can have significant impacts on downstream water quality, wildlife, and fisheries.	AQ29, WET14, WET19

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5295	The PolyMet land exchange would impair tribal resources in the Ceded Territories and conflict with tribal land resource management.	CR01
5296	The proposed land exchange would neither protect access to cultural resources nor protect the ecosystems upon which tribal rights to fish, hunt and gather plants depend.	CR01, CR05
5297	The PolyMet SDEIS fails to analyze specific conductivity, a pollutant limited by Minnesota water quality standards, which is known to be a stressor for aquatic life. Even though existing tailings basin seeps have exceeded standards for specific conductivity, the SDEIS neither reports existing conditions nor models impacts of the proposed action on specific conductivity.	AQ14, WR064
5298	The SDEIS recognizes that levels of many pollutants would increase were the proposed action approved, and that the proposed project would have a potential cumulative adverse impact on aquatic life. What is lacking in this analysis is a discussion of the significance of this adverse impact and its relationship to legal standards preventing degradation of water quality.	AQ27
5299	The SDEIS provides no data on specific conductivity in waters near the PolyMet site and no information to help decision-makers evaluate whether the PolyMet surface mine would impair aquatic life at or downstream of the project site as a result of high conductance. However, Barr reports included as references to the SDEIS demonstrate that discharge from the existing LTVSMC tailings basin violates Minnesota's specific conductance standard and that specific conductance is elevated in streams near the project area with aquatic life impairments.	AQ06, AQ14
5300	In order for the SDEIS to evaluate impacts of the PolyMet proposed action on aquatic life, both specific conductance in the affected environment and predicted levels of this pollutant resulting from the proposed action must beanalyzed.	AQ14
5301	The SDEIS must assess the significance of water quality degradation from the PolyMet proposed action to aquatic life and test leachates for aquatic toxicity.	AQ06, AQ27
5302	The SDEIS does not reach a conclusion as to the significance of the impacts of these increased pollutants on aquatic life. This evaluation must be addressed in the SDEIS, not passed off for possible consideration in permitting (SDEIS, p. 6-61).	AQ27
5303	The SDEIS' analysis of potential adverse effects to aquatic life from increased metal releases has two important gaps. The SDEIS does not assess the significance of degradation of downstream waters on aquatic life. In addition, the SDEIS does not discuss the potential toxicity of leachates from sulfide mine wastes, tailings and residues...Toxicity testing of mine waste, tailings basin and hydrometallurgical residue facility leachates prior to finalizing the SDEIS would identify risks to aquatic life from inorganic ions as well as from metals solutes.	AQ06, AQ27
5304	The SDEIS provides insufficient analysis and mitigation for hydrologic changes, particularly to the Partridge River watershed.	WR130, WR180
5305	The SDEIS' assessment and mitigation strategy for hydrologic impacts to the Embarrass River watershed may be incomplete or unrealistic. However, even this level of evaluation is lacking for the Partridge River watershed.	WR130
5306	The PolyMet SDEIS provides no assessment of effects of the project on the mine site Unnamed Creek, Wetlegs Creek, Longnose Creek, Wyman Creek or Yelp Creek. For Wetlegs, Wyman and Longnose, the SDEIS states that a lack of hydrologic impact was assumed, rather than analyzed. "No baseline flow data collection or hydrologic modeling was conducted for Wetlegs, Longnose, and Wyman creeks as the NorthMet Project Proposed Action is not expected to affect the hydrology of these streams." (SDEIS, p. 4-79). We were unable to locate any discussion in the SDEIS of hydrological impacts of the PolyMet project on Yelp Creek, immediately to the north of the mine site. We also found no discussion in the SDEIS of how mine drawdown during operations and WWTF discharge after approximately year 40 would affect aquatic functions in the Unnamed Creek on the PolyMet mine site.	WR071, WR081

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5307	The PolyMet SDEIS contains an inadequate and incomplete assessment of the potential health impacts of the proposed action.	HU01
5308	In the case of mercury and methylmercury, as described at length in Section I of these comments, data regarding emissions, mercury and sulfate discharge and hydrologic change is missing or inaccurately represented, and the SDEIS fails to evaluate the potential risk of increased methylmercury bioaccumulation in the food chain.	MERC04
5309	the SDEIS completely avoids analysis of certain risks of both air emissions and water discharge, distorts the evaluation of pollutants by using criteria that are not reflective of health risks, considers cumulative impacts of prior industry pollution as “background” and, over all, reflects an insufficient concern and transparency regarding health risks to workers and members of the public.	HU01
5310	The PolyMet SDEIS fails to analyze pertinent health risks posed by air emissions and water discharge from the proposed action.	HU01
5311	The SDEIS does not analyze health risks for on-site workers.	HU04
5312	The PolyMet SDEIS fails to consider any health impacts to workers who actually work on the mine site or plant site. Any references to worker health in the SDEIS only pertain to “offsite workers.” (See SDEIS, pp. 5-421, 5-422, 5-423, 5-425, 5-426). This is an inappropriate omission.	HU04
5313	Primary on-site risk drivers for mine site cancer would be dioxins and dibenzo(a,h)anthracene related to mine vehicle emissions. (SDEIS, p. 5-423). If risks to on-site workers were calculated, it is likely that they would be above Minnesota’s air emissions health threshold.	HU05
5314	At the plant site, again without analyzing mineral fibers, risk drivers for cancer and non-cancer health risks were similar to those at the mine site, excluding indeno(1,2,3-cd)pyrene and adding the additional risk of hydrochloric acid. (SDEIS, Table 5.2.7-21, p. 5-425). Even at the edge of PolyMet’s plant site property boundary, chronic risk from inhalation of pollutants would reach Minnesota’s non-cancer health risk threshold. (SDEIS, pp. 5-425; Table 5.2.7-22, p. 5-426).	HU05
5315	If risks to PolyMet’s on-site plant personnel were calculated, it is likely that they would exceed Minnesota thresholds for both cancer and non-cancer risks. Additional mitigation measures might be required to reduce on-site health risks. For example, the proposal to vent air exhaust from the crushing plant back into the plant (SDEIS, p. 5-442) might be re-considered.	HU05
5316	The PolyMet SDEIS’ discussion of the risks of mineral fibers minimizes their health risks and avoids any analysis of potential morbidity and mortality increases from exposure to fine particulates containing these materials.	HU01
5317	The SDEIS mischaracterizes the University of Minnesota (U of M) taconite worker study, saying the study concluded that “the worker exposure resulting in the increase in mortality is primarily due to commercial asbestos exposure and not the rock being mined (University of Minnesota 2013).” (5-439 to 5-440). Although the U of M study noted that the study could not completely control for the presence of commercial asbestos where data was lacking, the study clearly associate the risk of mesothelioma with exposure to elongate mineral particles (EMP) measured in taconite dust.	HU07
5318	The SDEIS states, “the potential exists for the release of amphibole mineral fibers from the proposed operations, which could pose a potential public health risk of uncertain magnitude.” (SDEIS, p. 5-439). This is insufficient analysis in a situation where a proposed action may pose a significant risk to workers and to public health.	HU01
5319	The PolyMet SDEIS must provide a detailed analysis of mesothelioma risks in consultation with the EPA and U of M researchers. This analysis could begin by estimating exposures to elongate mineral particles for workers at the PolyMet plant and evaluating those exposures in light of the U of M data that correlates EMP exposure with higher rates of mesothelioma. An effort should also be made to model other adverse health effects.	HU01

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5320	In addition to evaluating the mesothelioma risks to workers, the SDEIS should also estimate the volume and concentrations of fibers emitted in fine particulate matter and discharged with seepage to groundwater and surface water.	HU04
5321	However, the SDEIS fails to assess the cumulative health risks from air emissions resulting from coal combustion required to meet PolyMet project energy demands. It is wellknown that coal combustion emissions, including nitrogen oxides, sulfur dioxide, particulate matter, fine particulate matter, mercury and lead significantly impact human health. These impacts may not be experienced at the PolyMet property boundary, but they are project impacts that should be quantified and disclosed in the PolyMet SDEIS.	HU01
5322	The SDEIS' discussion of the impacts of the PolyMet project on arsenic is incomplete and fails to consider the adverse health impacts of this Group A human carcinogen (IRIS 2007).	HU01
5323	To evaluate the risks of the PolyMet proposal, the SDEIS must analyze actual increased risk of cancer a well as compliance with legal requirements.	HU01
5324	Even with all of the limiting assumptions in the SDEIS, PolyMet's modeled increase in arsenic (0.25 µg/L) for Colby Lake drinking water would increase cancer risk by more than Minnesota's 1 in 100,000 health threshold. Minn. R. 4717.7840, subp. 2B.	HU05
5325	The PolyMet SDEIS' inadequately evaluates the human health risks of discharge of pollutants that may affect drinking water.	HU01
5326	The PolyMet SDEIS does not provide either decision-makers or the public with information regarding potential health risks of PolyMet discharge. In fact, its "evaluation criteria" explicitly diverge from the applicable health-based standards.	HU01
5327	The SDEIS' comparison of modeled concentrations from PolyMet's discharge to a "continuation of existing conditions" scenario may also distort analysis of pollutants relevant to human health.	HU01
5328	The PolyMet SDEIS provides no information on environmental impacts if facilities at the mine site and plant site do not perform precisely as desired. When an agency is evaluating reasonably foreseeable significant adverse effects, risks of failure should be included in the analysis.	PD22
5329	The PolyMet SDEIS provides no evaluation of the probability or consequences of failure, accidents, or unanticipated effects of severe weather. Such an assessment must be provided to evaluate reasonably foreseeable significant adverse effects of the PolyMet mine, waste rock storage, tailings storage, and transportation and storage of contaminated process water, concentrates and sludge. The assessment of risks of failure would provide a factual foundation for financial assurance and to evaluate mitigation alternatives, both of which are currently lacking in the PolyMet SDEIS.	PD22, PD25
5330	If failures are not improbable and risks are significant, expanded waste rock piles must be factored into wetlands compensation. Similarly, foreseeable environmental consequences of slope failure of the permanent Category 1 waste rock pile may require reconsideration of the West Pit Backfill alternative to eliminate that impact.	ALT03
5331	Evaluation of the probability and consequences of tailings dam failure may result in assessment of alternatives to the modeled tailings storage design. The SDEIS states that the tailings design "meets the minimum Factor of Safety." (SDEIS, p. 5-566). The SDEIS does not demonstrate or even assert that the tailings storage design is optimized to reduce the risk of catastrophic failure.	PD11
5332	In Northeast Minnesota, the probability of extreme weather events is high – and increasing. The sumps and ponds at the mine site and the tailings and hydrometallurgical residue storage facilities at the plant site are vulnerable to flooding. PolyMet's geotechnical report does not say what level of rainfall was modeled as the "probable maximum precipitation" in evaluating tailings basin slope or dam failure.	GT05

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5333	The SDEIS must evaluate the risks of rail accidents and pipeline breaches in the transportation corridor.	PD36
5334	The SDEIS must evaluate the risks of imperfection in collection and treatment f seepage and wastewater at the mine site and plant site.	PD07, PD15
5335	For permanent waste storage facilities and hundreds of years of wastewater treatment, the risks of failures and poor performance magnify. Such failures could create impacts on water quality, and must be evaluated as reasonably foreseeable adverse effects of the PolyMet proposal.	PD22, WR202
5336	The SDEIS provides little information about financial assurance for the PolyMet project. Although a range of preliminary cost numbers are listed (SDEIS, p. 3-138), the SDEIS neither explains the time horizon upon which appropriate calculation of financial assurance would be based or the nature of equipment and operations that would be included in assessing costs. Financial assurance must be analyzed as part of environmental review, not just in permitting. This analysis would increase the likelihood that controls for adverse environmental impacts would be effective during mine operations and for hundreds of years after closure.	FIN05, FIN13
5337	SDEIS modeling of various contaminant sources over time indicates exceedances extending the entire modeling period – 200 years at the mine site and 500 years at the plant site. (See e.g. Water Modeling Data Package – Mine Site, SDEIS reference PolyMet 2013i, Figure pdf p. 1267). These same modeling assumptions are used to calculate and cap solute levels in earlier years. They must also be used to calculate the need for long-term wastewater treatment.	WR033, WR035
5338	Disclosure of financial assurance cost estimates is needed in the SDEIS both to characterize mitigation and to minimize public economic risk.	FIN05, FIN11
5339	The SDEIS notes that “PolyMet has developed preliminary cost estimate ranges” for hypothetical closure at years 1, 11 and 20 and that cost estimates “would be finalized by the MDNR during the permitting process.” (SDEIS, pp. 3-137, 3-138). Reviewing these SDEIS preliminary costs estimates for closure (SDEIS, p. 3-138), it is not possible to determine on what these estimates are based or to assess whether assurances at this level would be sufficient to protect long-term water quality. If the costs for treatment and mitigation are known, they should be disclosed to decision-makers and members of the public.	FIN05, FIN11
5340	Identifying the level and timing of costs for water treatment could provide specificity on the design for the PolyMet project that is lacking in the SDEIS. In addition, if certain costs are not included in the financial assurance estimate, their absence could indicate lack of a real plan for mitigation. For example, it would be useful to members of the public to know what has been budgeted for indirect wetlands mitigation.	FIN05, FIN11
5341	The SDEIS states, “The level of engineering design and planning required to calculate detailed financial assurance amounts is typically made available during the permitting process” (SDEIS, p. 2-10). If the level of engineering design and planning is, in fact, insufficient to calculate financial assurance, it is also insufficient to make the representations about water quality contained throughout the SDEIS.	FIN05
5342	Although the SDEIS includes an alternative in the size of the proposed land exchange, the SDEIS does not explore or evaluate a single alternative pertaining to the underlying open-pit sulfide mine project or the management or mitigation of potential contamination sources. The PolyMet SDEIS does not demonstrate that the proposed action is the least environmentally damaging practicable alternative. A revised SDEIS is needed to evaluate reasonable alternatives that minimize and mitigate impacts on wetlands and water resources.	ALT06, ALT20, ALT23
5343	An EIS that fails to evaluate reasonable alternatives is inadequate, and a Section 404 permit may not be issued for a proposal that is not the least environmentally damaging practicable alternative.	COE04
5344	The PolyMet SDEIS does not evaluate alternatives and does not propose the least environmentally damaging practical alternative to protect aquatic resources.	ALT20

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5345	The "alternatives" section of the PolyMet SDEIS is inadequate on its face. It constitutes less than 10 pages out of a massive 2,169-page document, most of which are used to assert that alternatives need not be investigated. The SDEIS explores no alternatives other than a "B" choice for the land exchange, which does not affect the underlying mine project, beneficiation or mine waste disposal plan and "would have the same effects" as the NorthMet Project Proposed Action.	ALT23
5346	Several reasonable alternatives have the potential to reduce impacts of the PolyMet Proposed Action on wetlands and water quality. The Underground Mining alternative and West Pit Backfill mitigation alternative were improperly eliminated from consideration. WaterLegacy proposes a Mine Site Year One Reverse Osmosis alternative that would be a less environmentally damaging practicable alternative to the PolyMet proposed action and identifies several mitigation alternatives for management of wastes and contaminant sources that must also be assessed. These alternatives should be evaluated and made available for public comment in a revised SDEIS before a Final EIS is prepared.	ALT20
5347	The PolyMet SDEIS improperly eliminated both the underground mining alternative and the West Pit Backfill alternative based on an unreasonably narrow definition of the objectives of the Proposed Action, a confusion of public and private purposes, and an insufficiently skeptical examination of statements and reports from the project's main beneficiary.	ALT01, ALT03
5348	underground mining could be technically feasible and less environmentally damaging than the Proposed Action and that the "independent" analysis of its economic feasibility was based on an unreasonably narrow definition of the potential project and unrealistic project costs. This analysis is sufficiently unreliable that it cannot support rejection of the underground mining alternative.	ALT01, ALT06
5349	Neither the Revised Underground Mining Assessment, the Bornhorst Report nor the PolyMet SDEIS make any attempt to compare the economic feasibility of underground mining with projections of profit or loss for open-pit mining based on PolyMet's actual costs for land exchange, construction, operations, treatment, reclamation, mitigation and financial assurance. There is, thus, no way for decision-makers or the public to determine whether underground mining, in fact, is less economically feasible than PolyMet's actual open-pit mining proposal.	ALT01
5411	In order to determine if underground mining is the least environmentally damaging practicable alternative, underground and open-pit mining alternatives need to be compared and evaluated in a revised SDEIS -- identifying mineral resources likely to be extracted with each method of mining, projecting reasonable costs including costs for treatment, mitigation and financial assurance, and then comparing environmental and other benefits of both underground and open-pit mining alternatives.	ALT01, ALT06
5412	Elimination of the West Pit Backfill alternative was unreasonable...Elimination of the West Pit Backfill mitigation alternative without evaluation in theSDEIS appears to be based on PolyMet's private interests and/or future mineral development.	ALT03
5413	Neither federal law nor the PolyMet Scoping Decision support elimination of an alternative from consideration to secure a better rate of return for a project applicant. Minnesota's Environmental Policy Act prohibits the use of economic considerations to reject a feasible and practical alternative that minimizes or mitigates adverse effects on state natural resources. Minn. Stat. § 116D.04, subd. 6.	ALT21
5414	If the Co-Lead Agencies have, in fact, eliminated the West Pit Backfill from consideration as a mitigation alternative in order to allow future expansion of open-pit and/or underground mining, the underground mining alternative must be evaluated and the SDEIS must also include the potential mining expansion among its cumulative effects.	ALT03, ALT06
5415	If underground mining is not selected, an alternative that implements mine site reverse osmosis in year one may be the least environmentally damaging practicable alternative (LEDPA) to reduce indirect impacts of the proposed action on the Hundred Mile Swamp and Partridge River Headwaters wetlands and other aquatic resources near the PolyMet mine site. This alternative would allow mitigation of indirect impacts of mine dewatering and seepage from mine pits on high value wetlands and ecosystems on and near the mine site.	ALT20

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5416	Mine Site Year One Reverse Osmosis could minimize or mitigate hydrological and water quality impacts on high value mine site wetlands and headwaters. This alternative would:• Require on-site treatment of mine site stormwater and process water with reverse osmosis to meet surface water quality standards and prevent degradation of water quality starting in year one.• Employ hydrological testing to assess appropriate quantities and locations for water release to support wetlands and headwaters streams in the Partridge River watershed.• Release water treated by mine site reverse osmosis through pipe and/or spigot systems to mitigate the impacts of hydrological changes and mine dewatering on high value aquatic resources in the Hundred Mile Swamp and Partridge River Headwaters.• Treat East Pit water with mine site reverse osmosis starting when reclamation begins (at or about year 11) to limit acidity, oxidation and metals leaching from the East Pit and seeping to aquatic ecosystems through surficial and bedrock groundwater.	ALT20
5417	WaterLegacy suggests that the Mine Site Year One Reverse Osmosis alternative is available, technologically feasible and economically feasible. Potential environmental benefits include reduced impairment and destruction of Hundred Mile Swamp and Partridge River Headwaters wetlands and aquatic systems resulting from dewatering, hydrological changes, and seepage of pollutants from the East Pit through surficial and bedrock groundwater.	ALT20
5418	The Mine Site Year One Reverse Osmosis alternative should be explored and evaluated prior to any decision on the Section 404 wetlands permit, in order to meet the requirements of federal law to select the least environmentally damaging practicable alternative and prior to any state decision on the adequacy of the EIS, in order to comply with MEPA's prohibition on state action that is likely to cause pollution, impairment or destruction of natural resources when there is a feasible and prudent alternative that may prevent or mitigate such adverse impacts.	ALT20
5419	Additional mitigation alternatives should be explored and evaluated to reduce the impacts of mine wastewater, tailings and mine waste rock management, leaks, seeps, discharges and spills. Risks and water quality impairments resulting from discharge of contaminants from mine site wastes, rail corridor spills, tailings seepage and hydrometallurgical residue leaks are described in preceding sections of these comments. The SDEIS must be revised to consider alternatives to mitigate these risks and impairments.	ALT06, ALT13
5420	The PolyMet SDEIS suggests that, starting in year 35, reject concentrate would be evaporated or disposed of off site. (SDEIS Figure 5.2.2-4, p. 5-163). But the SDEIS proposes no alternative management of reject concentrate prior to that time to minimize or mitigate the impacts of rail car spills, liner leakage or flooding at the West Equalization Basin in the event of extreme weather in excess of a 100-year storm.	ALT09
5421	In addition to considering the West Pit Backfill alternative, a revised SDEIS should evaluate the alternative of placing liners and a leachate collection system beneath the mine site Category 1 waste rock pile.	ALT07
5422	There is no information in the SDEIS as to the time that infiltration would reach the Partridge River under a P90 scenario and no analysis of the potential that contaminants would daylight to wetlands between the OSLA and the Partridge River. Although surface water runoff from the OSLA would be pumped and sent either to the tailing basin or the WWTF (SDEIS, pp. 5-101 to 5-102), the SDEIS neither proposes nor evaluates any liner or leachate collection system to reduce infiltration and seepage from the OSLA. (SDEIS, p. 5-97). The SDEIS also provides no assessment of the concentration of mercury in the OSLA surficial aquifer flowpath.	ALT07, ALT13
5423	[T]he PolyMet SDEIS contains no evaluation of any other location for the tailings, or any design that might use liners and seepage collection to minimize tailings basin impacts on water quality. The SDEIS must be revised to provide alternatives to the proposed deposition of tailings in unlined piles in Cells 1E and 2E on top of the existing unlined LTVSMC tailings basin.	ALT10
5424	The SDEIS neither considers alternative locations and management practices for the hydrometallurgical waste and sludge proposed for deposit in the HRF, nor considers the alternative of an off-site location in a facility designed to contain these wastes. Both alternatives should be discussed in a revised SDEIS.	ALT09

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5430	Some of the deficiencies in the PolyMet SDEIS cumulative impacts analysis magnify problems in the underlying analysis of the project's impacts on water quality... one of the consequences of errors and omissions in modeling sulfate and mercury and failing to model methylmercury was that the SDEIS denied that the cumulative effects assessment area (CEAA) for the project extends to the St. Louis River...this error in the scope of analysis must be rectified. Cumulative water quality impacts to the St. Louis River, including but not limited to mercury, methylmercury and sulfates must be analyzed. This deficiency alone is significant enough to require that a revised SDEIS be produced and made available for public comment.	MERC10
5433	Overall, inadequacies in the underlying water quality analysis prevent an accurate cumulative assessment of water quality impacts, including impacts of sulfates on wild rice, of methylmercury contamination of fish and of the PolyMet project on environmental justice and tribal resources.	CU11
5435	WaterLegacy also believes that the scope of projects considered in the SDEIS cumulative impacts analysis is inappropriately narrow. The SDEIS fails to consider impacts from other reasonably foreseeable mine projects. Most important, as reflected in PolyMet's technical reports and commissioned reports for investors, it is reasonably foreseeable that, if permitted, PolyMet's mine and processing facilities would expand. The PolyMet SDEIS must analyze the potential impacts of expanded mining and processing on the PolyMet site, even if only to state that such expansion could not be accommodated without substantial and unacceptable impacts on the environment.	CU02
5437	Apart from the violation of numeric standards, the SDEIS reflects the potential for cumulative impacts on aquatic life, especially in impaired waters. These adverse cumulative effects would result from the degradation of water quality, the presence of ionic stressors, changes in hydrology, and the shift of the hydrologic regime in the Partridge River and Embarrass River from a natural ecosystem to a mechanical system, as a result of the PolyMet project and past, present and future mining activities. These cumulative impacts are summarized in Section VII of these comments.	AQ24, AQ27
5438	Cumulative impacts of the PolyMet and other mining projects on lynx are even more significant. The PolyMet project, along with other past, present and reasonably foreseeable mining activities, would result in an almost complete disruption of historic wildlife movement from the northwestern to the southeastern sections of the Arrowhead region.	WI01, WI03
5439	Even though impacts on wildlife of the PolyMet project, if considered alone, may not reduce lynx population or sustainability, the cumulative impacts of the PolyMet action and other mines and roads across and near the Iron Range would result in a significant adverse effect on population stability and persistence of the lynx. The SDEIS should clearly identify cumulative impacts of the PolyMet project on the Canada lynx as a significant adverse effect on a federallylisted species under the ESA.	WI01
5440	The PolyMet SDEIS' analysis of wetlands impacts fails to consider wetland functions. It is purely a numerical calculation based on the assessment that, since the time of settlement, the loss of wetland acreage from every past, present and reasonably foreseeable land use other than the PolyMet project totals 2,557 acres in the Partridge River watershed and 402 acres in the Embarrass River watershed.	WET18
5441	The SDEIS provides no cumulative analysis of impacts on wetlands functions or values...the SDEIS must be revised to include a cumulative analysis of the effects of PolyMet proposed action on wetlands values.	WET18
5473	The SDEIS' assessments of cumulative impacts on mercury, methylmercury, sulfates and other water quality contaminants is inadequate...The PolyMet SDEIS' assessment of mercury and methylmercury impacts is inadequate. The cumulative effects assessment area (CEAA) for mercury and methylmercury must include the St. Louis River. Both project area and cumulative analyses of mercury and methylmercury in the SDEIS must be redone.	MERC10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5525	Analysis of the cumulative impacts of the PolyMet requires evaluation of all of the past, present and reasonably foreseeable impacts on mercury and mercury methylation in the St. Louis River, including all direct discharges of mercury throughout the watershed, all mining and other industrial projects that contribute sulfates to the watershed, and all ditching activities that affect wetlands in the watershed. A mercury total maximum daily load (TMDL) study is required to determine the factors contributing to these findings of mercury in fish.	MERC10, MERC22
5527	The SDEIS failed to identify potential cumulative effects of the PolyMet project on shallow and bedrock groundwater...failure to identify cumulative effects on groundwater results from unsubstantiated and unreasonable assumptions regarding faults, fractures and other secondary porosity features in mine site and plant site bedrock and regarding the lack of hydrologic connection between shallow and bedrock groundwater. Once these deficits in evaluating project area geology and hydrogeology are rectified, a cumulative assessment must be provided to include past, present and reasonably foreseeable impacts of other mine projects near the project area, particularly Cliffs Erie and Northshore mining activities.	CU02
5528	Cumulative sulfate loading would also affect wild rice waters further downstream in the St. Louis River. A revised SDEIS must consider the cumulative impacts of sulfate loading to the St. Louis River, including impacts to wild rice and mercury methylation along the full length of the River through the estuary.	MERC10
5529	The PolyMet SDEIS provides little analysis of the cumulative impacts of the PolyMet project on environmental justice. This is an important concern for WaterLegacy and members we serve who are low-income persons reliant on fishing, hunting and gathering wild rice for subsistence. A federal executive order and federal policy guidance requires that this deficiency in the SDEIS be remedied	SO04
5530	The SDEIS environmental justice analysis is inadequate. A revised SDEIS must evaluate cumulative harm to low-income, minority and tribal subsistence consumers resulting from reduced productivity of waters for fish and wild rice downstream of the PolyMet project.	SO04
5531	…the SDEIS must evaluate disproportionate multiple and cumulative exposures to chemicals that pose a hazard to human health, such as arsenic and methylmercury, as a result of consuming wild rice and fish.	HU01
5533	The PolyMet SDEIS provides an incomplete analysis of cumulative effects of the project on tribal rights and resources. The SDEIS provides a narrative description of cultural and historic resources and concludes, “The NorthMet Project Proposed Action would result in both direct and indirect effects on historic properties and culturally important resources.”	CR03
5534	Going beyond the analysis of historic properties, however, the SDEIS has significant gaps. The SDEIS discusses cumulative effects on usufructuary rights, but focuses that analysis only on the PolyMet project area, (SDEIS, p. 6-90) rather than considering cumulative impacts of mining activities throughout the 1854 Ceded Territories. The SDEIS states that cumulative effects analysis should focus on plant and animal species that are traditionally or culturally important to the Bands (SDEIS, p. 6-95), but does not analyze impacts on wild rice, fish or moose. Without considering any impacts to these key resources, the SDEIS concludes that neither the PolyMet project nor the cumulative impacts of other past, present and potential future project are likely to reduce the “availability of 1854 Treaty resources that are typically part of subsistence activities in the 1854 Ceded Territory.” (SDEIS, p. 6-95) This conclusion is unsubstantiated.	CR01, CR03
5535	WaterLegacy believes that the SDEIS must provide a more rigorous analysis of cumulative impacts of the PolyMet project on tribal resources. In addition, any consideration of a land exchange or permits for the PolyMet project as well as any NEPA review of the adequacy of the SDEIS must reflect federal fiduciary obligations to protect these resources. Our members view protection of tribal resources as a concern for all citizens and taxpayers represented by the government of the United States in signing treaties with Indian tribes.	CR01, CR03

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5536	Federal responsibilities to protect treaty-covered resources require a comprehensive analysis of cumulative impacts of the PolyMet project and past, present and reasonably foreseeable future activities on fish, wild rice and game, particularly moose. Federal obligations to protect trust resources in the 1854 Ceded Territories, along with the evidence of significant adverse environmental impacts on water quality, wetlands, mercury contamination of fish, aquatic life and human health described in these comments, also supports denial of a Section 404 wetlands permit and land exchange for the PolyMet project.	CR01, CR03
5537	The SDEIS excludes as "speculative" the Cliff Erie UTAC expansion, even though this expansion is already permitted under Section 404 permit 81-172-13, is now undergoing a further permit review process,104 and the highway relocation for its expansion is already underway in the DEIS process. (SDEIS, p. 6-14). The UTAC would impact another 1,300 acres of wetlands. The SDEIS, however, considers the cumulative impacts of a Mesabi Nugget project despite the fact that it is "currently on indefinite hold by the applicant." (SDEIS, p. 6-11).	CU02
5539	The SDEIS declines to include the Twin Metals copper-nickel mining project in its cumulative impacts analysis, despite the strong likelihood that this project will proceed if it is environmentally permittable. The recently released Twin Metals prefeasibility study locates the tailings storage facility and buffer just west of the Northshore Peter Mitchell Pit, increasing the likelihood that impacts from Twin Metals would cumulatively affect water quality within the Embarrass River watershed.105	CU02
5540	Yet more critical, a revised SDEIS must consider the cumulative impacts of reasonably foreseeable expansions of mining at the PolyMet mine site and processing at the PolyMet plant site. A proponent of mineral development may not choose an arbitrary limit on what is economically recoverable, but must base an EIS on the full range of likely production.	CU04
5542	On page ES--- 42, the claim is made that alternatives were identified and screened in accordance with the requirements of 40 CFR 1505.1(e). This is an erroneous citation. The reference to 40 CFR 1505.1(e) refers to NEPA and agency decisionmaking procedures, not the preparation of an EIS. The correct citation is 40 CFR 1502.14, which states, "Alternatives including the proposed action. This section is the heart of the environmental impact statement. Based in the information and analysis presented in the sections on the Affected Environment (1502.15) and Environmental Consequences (1502.16), it should present the environmental impacts of the proposed action and the alternatives in comparison form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public."	EDIT01
5543	The result of the screening of alternatives in Sect. 3.2.3 was either to eliminate an alternative or incorporate an alternative into the proposed action. As a result, there is no other alternative to the proposed action other than the alternative of no action. This is specious reasoning that is not responsive to the purpose of an environmental impact statement or the requirements of 40 CFR 1502.2(g). The SDEIS preparers have assumed the responsibility of the decisionmaker for each of the Federal agencies responsible for this SDEIS and have made the decision for the decisionmaker prior to receiving public input. This is a clear violation of NEPA and the requirements of 40 CFR 1502.2(g).	ALT06
5555	40 CFR 1502.7 specifies the page limits for an EIS should be less than 300 pages. 40 CFR 1502.2(a) states "Environmental impact statements should be analytic and not encyclopedic." 40 CFR 1502.2(c) says that "Environmental impact statements shall be kept concise and shall be no longer than absolutely necessary to comply with NEPA and with these regulations." The SDEIS is in excess of these page limits, is not concise, and is more encyclopedic than analytic. Redundant information that is often contradictory or irrelevant is included in every section. The history of the SDEIS presented in Sect. 2 is encyclopedic and should be an appendix at best. Sect. 2 does not contribute to the SDEIS or to understanding the information presented in the SDEIS.	NEPA08
5556	The description of the proposed action is conceptual and not quantitative. While the process description in Sect. 3 is largely complete, the fluxes within the process are incomplete or missing. For example, on page 3---163, the makeup water is described as being between 20 – 810 gpm. At the least, this sort of description is confusing and leads to the conclusion the design is incomplete.	PD30

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5557	The Category 1 waste rock pile is proposed to have a cutoff wall and a drainage collection system around the entire perimeter of the pile. The water collected by the system is to be sent to the WWTF. The collection efficiency of the collection system is alleged to be greater than 90% (pg. 3---46). This is simply an assumption not justified or supported by analysis or data. Such a drainage system would require routine maintenance to prevent clogging from fines or mineralization. This is not noted in Sect. 3 and is not considered in Sect. 5.	PD16
5558	[T]he performance period for treatment at the mine site is modeled as 200 years and the performance period for the plant site as 500 years. These periods are again simply assumptions that are not justified. There is no evidence that the engineered systems proposed can reasonably be expected to perform as built for 500 years. There is no discussion or analysis to support the long---term performance of the WWTP. There is no analysis of accidents or failures over these extended performance periods.	PD03
5559	[T]he performance period for treatment at the mine site is modeled as 200 years and the performance period for the plant site as 500 years. These periods are again simply assumptions that are not justified…There is no consideration of alternatives that would not require these extended performance periods. To accept these extended performance periods without the consideration of alternatives is contrary to the requirements of 40 CFR 1500 – 1508 and renders the SDEIS unacceptable.	ALT13, NEPA14, PD03
5560	Fig. 5.2.2---6 does not incorporate the historical creeks that are present beneath the existing tailings pile.	WR081, WR092, WR096, WR104
5561	Fig. 5.2.2---18 presents a GoldSim result that has a maximum concentration of sulfate at 2500 mg/L, which precipitously drops to approximately 250 mg/L by year 35. The SDEIS does not explain the constant sulfate concentrations for 20 years, the order of magnitude reduction in the sulfate concentration over 15 years, or the constant sulfate concentration for the next 165 years.	WR086, WR173
5562	Table 5.2.2---22 lists potential contaminant sources, but either does not consider any releases from the west equalization basins at the WWTF, or allows for arbitrarily low leakage rates. Assuming no releases or minimal releases from the WWTF is an implicit assumption that is not justified.	WR126
5563	On Pg. 5---121 the capture of seepage from the south side of the tailings pile and the flow augmentation of Second Creek is described. For this description to be valid the existing pumping system for capturing seepage to Second Creek would have to be assumed to operate perfectly. The WWTP would have to operate without accidental disruption for hundreds of years, the pumping system would also have to work without failure for hundreds of years, the addition of approximately 100 ft. of saturated tailings to the tailings pile could not significantly increase the leakage from the tailings pile, and the natural drainage of Second Creek which originates under the tailings pile could not discharge beneath or around the collection system. This set of implicit assumptions have not been disclosed or justified in the analysis.	WR117
5564	Table 5.2.2---29 suggests that background groundwater, non---contact stormwater and the Northshore Mine operations contribute to the sulfate loading in the Partridge River at SW---004a. The table also suggests that no PolyMet sources contribute to the sulfate loading except a 4.3% increase resulting from water treated at the WWTF in closure year 200. To reach this conclusion, implicit assumptions that are not conservative must have been built into the GoldSim model. These implicit assumptions need to be identified since they are the likely basis for this improbable set of results.	WR049, WR177, WR189
5565	Fig. 5.2.2-27 is physically unrealistic. For this result to have any basis in reality, a continuous, constant source term would have to be associated with the model. Except for a natural source, such a source term does not exist, and will not exist as a result of this project.	WR033, WR044

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5566	Table 5.2.2-36 is yet another example of the use of implicit assumptions to provide a result which is misleading. The notion that the addition of 100 ft. of saturated tailings to the tailings pile will not affect groundwater seepage is physically unrealistic. The notion of partial containment structures around the tailings pile collecting nearly all of the drainage from the tailings pile that has no liner is also unrealistic. These results are simply misleading.	WR018, WR105
5567	In my opinion the SDEIS has developed insufficient site-specific data to adequately inform an evaluation of the projected or actual impacts of the Northmet Mining Project on mercury methylation in the adjacent watersheds. My opinion to this effect is based on: the lack of data on background methylmercury in the SDEIS (4.1.1); inconsistencies in minimum detection limits for total mercury in data presented in the SDEIS (4.1.2), and; failure to conform to standard approaches with respect the manner with which Hg data is calculated, interpreted and then subsequently presented (4.1.3).	MERC07
5568	The SDEIS fails to make reference to methylmercury (the Hg species of concern) in the Predicted Environmental Consequences Of The Proposed Connected Actions section of the Executive Summary (ES-34-37) and this oversight is carried throughout most of the the document when actual data are being presented and discussed. SDEIS Section 4.2.2.1.4 Mercury (4-37) provides an overview of Hg in the Embarrass and Partridge Rivers, where, in addition to total Mercury, it states that "Methylmercury concentrations in the Partridge River at SW-005 average 0.4 ng/L and in the Embarrass River average 0.5 ng/L at PM-12 and 0.4 ng/L at PM-13 over the same period." This is the only reference to methylmercury in natural surface waters that I noted, and Table 4.2.2-4 (4- 41) that is referred to in this section does not present MeHg data (only THg).	MERC07
5569	Moreover, the SDEIS does not provide any THg or MeHg for sediments in lakes, rivers and streams, or wetlands, despite the importance of the solid phase in supplying both species to downstream waters either through in situ methylation or solid-liquid phase partitioning.	MERC04, MERC20
5570	Other THg data presented have similar inconsistencies, including: Table 4.2.2-6 (Summary of Existing Groundwater Quality Monitoring Data for the NorthMet Mine Site). Apparent MDL for Hg 0.25 ng/L.	MERC07
5571	Other THg data presented have similar inconsistencies, including: Table 4.2.2-13 (Baseline Water Quality from the South Branch of the Partridge River). Apparent MDL of 500 ng/L where data are being reported from the 1970s – reliable trace mercury data in water were not reported until the mid-1980s so this data has no utility, and the absence of any more recent data is questionable.	MERC07
5572	Other THg data presented have similar inconsistencies, including: Table 4.2.2-14 (Average Existing Water Quality Concentrations in the Partridge River). Apparent THg MDL of 0.0025 ng/L is analytically impossible using current technologies. I suspect that this is an error in reporting and highly problematic given that this is taken from the range of THg concentrations reported, which must also be in error.	MERC07
5573	Other THg data presented have similar inconsistencies, including: Table 4.2.2-15 (Mean Water Quality Data for Longnose Creek, Wetlegs Creek, Wyman Creek, and West Pit Outlet Creek). Apparent THg MDL of 0.25 ng/L.	MERC07
5574	Other THg data presented have similar inconsistencies, including: Table 4.2.2-23 (Existing Pond Water and Groundwater Quality at the Tailings Basin). Apparent THg MDL of 0.25 ng/L. Methylmercury also reported here with apparent MDL of 0.03 ng/L.	MERC07
5575	Other THg data presented have similar inconsistencies, including: Table 4.2.2-24 (Summary of Existing Groundwater Quality Monitoring DataDowngradient from the Existing LTVSMC Tailings Basin). Apparent THg MDL of 0.25 ng/L. Methylmercury also reported here with apparent MDL of 0.05 ng/L.	MERC07
5576	Other THg data presented have similar inconsistencies, including: Table 4.2.2-34 (Summary of Surface Water Quality Monitoring Data for the Tailings Basin Surface Seeps). Apparent THg MDLs range from 0.25 to 2 ng/L depending on sampling location. MeHg reported for one location with all samples detected (lowest is 0.15 ng/L) so no estimate of MDL is possible.	MERC07

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5577	Other THg data presented have similar inconsistencies, including: Table 4.2.2-6 (Summary of Existing Groundwater Quality Monitoring Data for the NorthMet Mine Site). Mercury data is presented under the "Total metals" part of the table as opposed to the "filtered" section. Unfiltered groundwater samples are unrepresentative of the mobile phase and should be discounted.	MERC07
5578	The SDEIS does not use currently accepted methods for interpreting non-detect samples in the background data presented. In all data tables where non-detect samples are reported, the tables are footnoted with the following statement: Where non-detects occur, the mean was calculated using half the detection limit.The contemporary state of the science does not accept this simplistic handling of nondetect samples.	MERC05
5579	All of the concerns expressed associated with this Opinion call into question theassessments of relative impact of the proposed project on mercury presented within the SDEIS. For example, the NorthMet Project Proposed Action is predicted to increase mercury loadings in the Embarrass River, but decrease mercury loadings in the Partridge River. The net effect of these changes would be an overall reduction in mercury loadings to the downstream St. Louis River. (5-8; 5-210). These assertions may be inaccurate and/or incorrect if the background Hg concentration data were re-evaluated in a more technically appropriate manner.	MERC04
5580	The SDEIS oversimplifies or fails to address other factors that affect Hg fate and transport in its assessment of potential impacts of the proposed Project on downstream water quality. For example:"All samples [from monitoring locations at or near the tailings basin] were well below average concentrations in precipitation (approximately 9.8 ng/L)." (SDEIS 5-21) This statement implies that precipitation-derived Hg is a larger and more important source than runoff from tailings, but is misleading since a) the data is from a 2003 source which cannot account for a trend in decreasing Hg in precipitation in Minnesota; b) fails to recognize that precipitation-derived Hg is primarily delivered to the watershed, and is not a significant direct input to surface waters; c) 75-80% of Hg loading to most aquatic ecosystems is from runoff (Harris et al., 2007) with small seepage lakes and the Laurentian Great Lakes being exceptions.	MERC04, MERC20
5581	5.2.2.3.4 Mercury (SDEIS 5-201). "Current scientific understanding of the factors and mechanisms affecting mercury methylation and bioaccumulation is limited."Based on the burden of evidence in the scientific literature, this is an inaccurate statement. A thorough discussion of the response of fish tissue Hg concentrations to changes in Hg loading is easily found in Munthe et al. (2007), where a multitude of factors, based on a significant body of other literature, are described in governing the response of fish tissue Hg in response to changes in Hg loading.	MERC02
5582	(SDEIS 5-207, 5-208)...clearly identifies increased sulfate loading as implicated in enhancing Hg methylation, yet by its wording, suggests that the scientific literature is conflicted in its findings. Upon close reading of the cited material, it is clear that there is no disagreement in the scientific literature on this issue. Jeremiason et al. (2006) found that increased sulfate loading to a peatland in north-central Minnesota increases mercury methylation and export. The SDEIS fails to go further and state that these authors also found that sulfate concentrations in the peat and waters quickly decreased to below detection level after sulfate addition because of the process of sulfate reduction (and mercury methylation). This is precisely the conclusion of Branfireun and Roulet (2002) (sulfate concentrations decrease as methylmercury concentrations increase), yet the citations are presented as conflicting results in the SDEIS with the inclusion of the word, "However". The scientific literature, including those cited in the SDEIS, is uneqivocal on this issue: increased sulfate loading to freshwater systems increases MeHg production.	MERC08
5583	5.2.2.3.4 Mercury (SDEIS 5-201). "Mercury was not included in the GoldSim model, as insufficient data and a general lack of definitive understanding of mercury dynamics prevented modeling mercury like the other solutes."This is an inaccurate and misleading statement, and implies that Hg does not conform to basic chemical laws, and is unmodellable given current knowledge. A more accurate statement would be that, "The model that was employed as part of this assessment does not include Hg dynamics. This is a deficiency of the model.".	MERC13

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5584	The SDEIS does not make the connection between the dominant wetland type and landcover class (bog wetland, ombrotrophic or otherwise) in the area of impact around the proposed project and methylmercury production in the landscape. This is a critical oversight because of the potential impacts on hydrology and atmospheric deposition as a result of the proposed project (see 6.5 Opinion 5). The literature, including some of that cited in the SDEIS, draws a clear connection between bog-type peatlands and methylmercury production and export, with some of the most relevant work done in the state of Minnesota.	MERC20, WET13
5585	The SDEIS indicates in numerous locations that, “Most of the wetland vegetation present at the Mine Site (69 percent) is indicative of acid peatland systems (i.e., open and coniferous bogs) that are dependent on precipitation rather than groundwater for hydrologic inputs and reflect a perched water table.” (SDEIS 4-150). The focus on the lack of groundwater inputs to bogs downplays the role that the internal biogeochemistry of bogs has on downstream water quality. Peatlands, in particular bogs, are among the most potent Hg methylating environments in the temperate/boreal landscape. Grigal et al. (2000) highlighted the importance of peatlands in the overall mercury budget in north-central Minnesota.	MERC20, WET09
5586	the SDEIS presents the shallow groundwater hydrogeology, bog hydrology, and the nature of connectivity between these landscape components in a purely conceptual fashion, or with limited data from an unproven analog system. In doing so, hydrological impacts of the proposed development on surrounding wetlands and subsequent changes in methylmercury production and release are not adequately evaluated.	MERC09
5587	The SDEIS is entirely deficient in documenting the effect of depressurization of the underlying aquifer due to open pit dewatering. There is no geophysical data concerning the extent and thickness of the surficial aquifers. There is no modelling presented that simulates the development of the cone of depression associated with pit development over time. The reliance on the analog case to evaluate the potential extent and magnitude of the cone of depression and dewatering impact of surface wetlands and streams is completely unsatisfactory, in my opinion, given the availability of robust hydrogeological models that could reasonably evaluate potential impact scenarios.	WR086, WR087, WR119
5588	[T]he classification of degree of potential wetland impacts due to the proposed project in Table 5.2.3-3 is unsubstantiated, not based on sufficient empirical evidence, not based on the best available science, and may in fact be opposite to the real outcomes. This conclusion undermines the efficacy of the proposed wetland impact monitoring strategy outlined in the SDEIS, which would be “based on those wetlands that would have a high likelihood of indirect effects as a result of groundwater drawdown.” (p. 5-310).	WET10
5589	The potential for the discharges of mercury and sulfur from the tailings stockpiles/ponds are inadequately addressed in the SDEIS, and the potential for both direct and indirect downstream water quality impairments are understated.	MERC01
5590	The SDEIS relies on several insufficiently substantiated assumptions regarding collection of seepage from both the mine site and tailings basin to assert that surficial groundwater won’t be impacted by release of sulfates to methylating environments. In my opinion, the data presented in the SDEIS is insufficient to discount the potential for seepage of sulfates and associated impacts to wetlands in the vicinity of both the project mine site and tailings basin. Such seepage would enhance MeHg production in the project area and could also contribute directly to water quality impairments in sulfate-poor sediments downstream of the project site.	WR017, WR018, WR149
5591	it is my opinion that the potential for cumulative downstream impacts both from mercury and mercury methylation at the project site are understated in the SDEIS. Based on the literature (much of which is from Minnesota) and my experience in other wetland ecosystems, it is my opinion that discharges of sulfate and total mercury and hydrologic changes to peatlands at the project site have the potential to significantly increase methylmercury in downstreamwetlands and surface waters...There is also no reason to assume that effects on mercury and methylmercury would be limited to the smaller streams, or the main channels in the Partridge or Embarrass River watersheds. Both direct and indirect water quality impairments would have the potential to affect the St. Louis River.	MERC08, MERC10

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5592	Reviewed as a whole, the PolyMet NorthMet Supplementary Draft Environmental Impact Statement (SDEIS) fails to adequately address major ions and trace elements. The document ignores aquatic toxicity and possible synergistic impacts from waste rock leachates. The SDEIS fails to evaluate parameters in a scientifically defensible manner.	WR064, WR071, WR110, WR141, WR177
5593	Mine Site water quality assessment is based on improper assumptions about rock characterization and chemistry. Category 1 waste rock pile will create acidic pore water and leach high volumes of sulfates and toxic metals.1. The SDEIS improperly uses small sample size and averaging to design waste rock humidity cell tests.	PD15, WR025
5594	The SDEIS humidity cell testing lacks the rigor necessary to predict sulfur content of the waste rock stockpiles.	WR034
5595	The SRK RS53/RS42 document describes the humidity cell process, stating 89 samples were used to categorize waste rock, a total of 309 million tons of waste rock (NorthMet Project Waste Characterization Data Package V. 9, March 7, 2013, SDEIS reference PolyMet 2013l, section 4.3). This sample size is scientifically inadequate for characterization of such a massive pile of waste rock.	WR025
5596	Sorting waste rock stockpiles will not be possible to the degree presumed in theSDEIS. The SDEIS proposes to use block modeling to separate heterogeneous waste rock into four classes based on the sulfur concentrations in block modeling (SDEIS, p, 3-44). This modeling cannot be consistently duplicated in the physical action of loading trucks from the windrowed blast rock.	PD15
5597	The SDEIS states its plan to use Category 1 waste rock for construction material (SDEIS, Table 3.2-8). However, this material should be considered reactive waste (SDEIS PolyMet 2013l, p. 2). It has a high potential for leaching beyond surface water standards and should not be used as construction material.	PD15
5598	The use of a block model intended to predict the amount of profitable resource to determine concentrations of other parameters does not accurately predict potentially toxic waste rock leachates. This error will compound the inaccuracies resulting from the averaging of the sulfate mineralogy from the humidity testing.	WR025
5599	The SDEIS fails to adequately evaluate chlorides. Chlorides will be much higher than predicted, impacting wastewater treatment performance and surface and groundwater quality.	WR002, WR025, WR147
5600	The SDEIS incorrectly assumes the occurrence and concentrations of chlorides are few in number and only in fractures containing water.	WR010, WR025
5601	The SDEIS incorrectly assumes chlorides are mostly found in fractures exceeding PolyMet's mine pit depth.	WR010, WR025
5602	PolyMet assumes but does not substantiate that chlorides are localized to Amax. Such an assumption is not consistent with scientific evidence.	WR087
5603	The SDEIS incorrectly assumes chlorides are found only on the rock surface and in inundated fracture zones.The SDEIS (SDEIS, pp. 5-113, 114) incorrectly assumes that brackish water is contained only in fractured rock, rather than in inclusions within the rock. Because the SDEIS contends both that brackish water is only in fractures and that fractures at the mine site are insignificant; the SDEIS then assumes that the brackish water will not be a continuing source of pollutant. These assumptions are inaccurate.	WR010, WR025, WR078

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
5604	The SDEIS fails to accurately evaluate the impacts of high levels of chlorides on the inundated meromictic east, central, and west pits water at closure (Novotny, 2007). Meromictic impacts from chlorides to ground and potentially surface water and wetlands must be addressed. The SDEIS fails to address impacts of high chloride that is not captured from the seepage and liner leaks; potential impacts on surface water, groundwater and wetlands quality must be addressed. The SDEIS fails to discuss how chlorides may affect reject concentrate and sludge chemistry, potentially impacting waste storage.The SDEIS fails to discuss how any passive treatment systems proposed for closure would control chlorides.	WR002, WR025, WR137, WR147
5605	The discussion in the SDEIS relating to more recent faults and fractures does not take into consideration the significant and relatively recent large-amplitude crustal movements associated with glacial isostatic rebound and their fracture-generating and aperture-expanding potential.	WR012
5606	The SDEIS must recognize the fact that numerous faults and other fractures, including some that have recently formed, are documented at both the Mine Site and the Tailings Basin Site. The SDEIS must adjust the modeling of groundwater and contaminant flow accordingly.	WR012
5607	[A]pplying such low hydraulic conductivity values to the bedrock at the Mine Site as a whole does not accurately reflect field conditions described in other places in the SDEIS as well as in the scientific literature. Considering groundwater flow through fractured bedrock would result in travel times possibly orders of magnitude lower than assumed in the SDEIS. Again, this is major inadequacy of the SDEIS' treatment of hydrogeology.	WR010, WR011, WR012, WR071, WR087, WR090, WR099, WR168, WR169, WR179
5608	the SDEIS analysis of water quality impacts seems to rely heavily upon old references from studies conducted at locations other than NorthMet while at the same time ignoring more recent high-quality geologic studies from the NorthMet project area itself carried out by the Minnesota Geological Survey (Jirsa et al, 2011; Severson and Miller, 1999; Miller and Severson, 2005a; 2005b; 2005c; and 2005d for example) and by PolyMet and its consultants (PolyMet, 2007b and PolyMet, 2013i for example).	WR009, WR023, WR071, WR072
5609	The subject of contaminant transport from the Tailings Basin seems not to take into account surface drainage conditions and the resulting near-surface groundwater flow conditions that existed prior to the construction of the LTVSMC tailings basin.	WR053, WR071, WR081, WR091, WR096, WR104, WR130
5610	The SDEIS also does not acknowledge existing seepage along the east side of the Tailings Basin (Seep 31 shown on Figure 6 in Barr, 2007g) nor discuss how the historic streams flowing from Spring Mine Lake may affect groundwater flow to the east from beneath the Tailings Basin.	WR071, WR081, WR102
5611	The potential for seepage from the Tailings Basin towards the east due to these current and forecast conditions and the potential need for a seepage collection system on the east side of the Tailings Basin seems to have been overlooked in the SDEIS.	WR071, WR081, WR102
5612	The level of detail presented in sections describing the surficial geology of the Tailings Basin area is minimal, not well referenced and is not based on site-specific geologic studies. The following statement made by Barr Engineering sums up their contribution to the understanding of the surficial geology of the Tailings Basin Area in support of the SDEIS. "Site specific geologic studies of the glacial deposits have not been conducted" (Barr 2009f). For this reason, the SDEIS must rely upon the published literature and anecdote to characterize Tailings Basin surficial geology.	WR023, WR058, WR071, WR072, WR096, WR098, WR104, WR105
5613	Many sections of the SDEIS dealing with geology have serious omissions where scientific data should have been provided. The scientific credibility of the SDEIS is further compromised by numerous instances where cited references are misquoted and other areas where important assumptions made about geology and hydrogeology are unsupported.	WR071
9361	The PolyMet SDEIS provides an inadequate and, often, misleading assessment of mercury discharges and emissions, sulfur deposition, and sulfate seepage to shallow groundwater.	MERC08, WR156

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
9362	The PolyMet SDEIS analyzes neither the impacts of pollutant discharges nor ofhydrologic changes on the formation and bioaccumulation of methylmercury.	MERC08
9383	The SDEIS demonstrates that use of Colby Lake water for flow augmentation would violate Minnesota's 1.3 ng/L Great Lakes mercury standard and the Clean Water Act. Five out of five Colby Lake samples exceeded Minnesota's mercury standard, with a range of concentrations from 4.8 ng/L to 6.0 ng/L and a mean of 5.4 ng/L. (SDEIS, Table 4.2.2-4, p. 4-41).	WR184
9391	Although the PolyMet SDEIS refers several times to the 92 percent [mercury] burial assumption (see SDEIS, pp. 5-202, 5-203, 5-204) at no point does the SDEIS cite any literature or data substantiating this assumption.	MERC04
9413	Although the SDEIS suggests that mercury in mine pit lakes generally remains below the 1.3 ng/L standard, average mercury concentrations in 2 of the 16 listed mine pits exceed the standard. (SDEIS, p. 5-202). In addition, mercury concentrations in 5 of the pits ranged above the 1.3 ng/L standard. (Water Modeling Data Package – Mine Site, SDEIS reference PolyMet 2013i, pp. 308-309). Neither the pits nor the data used can be readily identified.	WR201
9431	The NTS 2006 bench study referenced in the PolyMet SDEIS (SDEIS, p. 5-206) does not support claims for 95 percent adsorption of mercury to NorthMet tailings.	MERC04
9448	modeling of methylmercury impacts of the PolyMet project would have been possible using available models and concepts well understood in the scientific literature.	MERC11, MERC13
9902	the SDEIS gives only a cursory and simplistic treatment to the role bedrock fractures play in the transmission of groundwater at the NorthMet Mine Site and at the Tailings Basin... (page 4-45). In many places within the SDEIS important statements made relating to bedrock fracturing are either unreferenced, inaccurately referenced or otherwise unsupported by data tables, figures or maps. Perhaps of greater concern are the numerous instances within the SDEIS where statements made related to the hydrologic significance of bedrock fractures blatantly misrepresent what the cited author(s) stated.	WR126
9903	[Figure 3.2-28] portrays the bedrock that occurs beneath the Tailings Basin as an "assumed no-flow boundary". The implications of this are that groundwater flow through bedrock at the Tailings Basin is so insignificant that it can be conceptually ignored. If this assumption were accepted achieving the collection of 90 percent or more of contaminated groundwater would sound reasonable; however this rather critical hydrogeologic assumption is not supported by either data or cited references within the SDEIS.	PD08, WR010, WR011, WR061
9905	Recent geologic mapping by the Minnesota Geological Survey shows a fault beneath the existing Tailings Basin and proposed Hydrometallurgical Residue Facility ("HRF") (Figure 1 [of Lehr_PolyMetSDEISReview]). Numerous other faults are mapped in close proximity (Jirsa et al, 2005; Jirsa et al, 2011; Jirsa et al, 2012). The hydrologic significance of these faults is unknown at this time because the SDEIS did not address them.	WR012
9910	Numerous recently-developed tools and technologies are commonly used in combination with more traditional mapping methods to successfully evaluate the hydrologic properties of bedrock fractures [including LiDAR topography datasets, traditional drill core logging, borehole geophysical techniques]… Apparently none of these techniques were employed in the SDEIS process to identify fractures or assess groundwater flow through fractured bedrock. This seems like a major omission, resulting in unsupported assumptions and inadequate information regarding groundwater flow at both the Mine Site and Tailings Basin.	WR007, WR008, WR011, WR012, WR014, WR019, WR056, WR061, WR072, WR087, WR097, WR098, WR168, WR169, WR170

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
9911	Neither Farvolden et al (1988), Douglas et al (2000) or Rouleau et al (2003) make statements that support the SDEIS' assertion [on page 4-45] that the degree of faulting and fracturing of rocks is in any way related to the age of the rocks. On the contrary, one pertinent remark made by Farvolden el al (1988) is that "mineral deposits on the Canadian Shield are commonly associated with geologic anomalies, in particular contact zones, faults or fracture zones"…	WR023, WR061, WR071
9913	the SDEIS downplays the hydrologic significance of bedrock fractures and does not seem to include groundwater flow through fractures in its seepage calculations.	WR012
9914	[SDEIS, p. 4-45] there are no Foose and Cooper references listed in the SDEIS from either 1979 or 1980, so it is assumed the references and conclusions in this paragraph are from Foose and Cooper 1978 and 1981 which are cited in the list of references.	EDIT01
9916	these statements [on pg 4-45] made relating to bedrock fractures are not supported by the references cited in the SDEIS. Neither of the two Foose and Cooper papers report that "the most extensive faults are largely filled with gouge." Their only mention of fault gouge in these two papers is that they used its presence to trace fault zones in the field. Neither paper discusses distance groundwater may flow through faults and fractures in the Duluth Complex - in fact neither mention groundwater flow at all.	EDIT01
9917	The sections of the SDEIS describing bedrock fractures rely mostly on references that are quite old while failing to reference vast amounts of more recent geologic data and scientific literature directly relevant to assess hydrologic role of bedrock fractures at NorthMet… The NorthMet deposit mine plan and other critical documents and datasets... have been reviewed by what are essentially external auditors… who prepared the 43-101 Technical Report for the NorthMet project (Desautels and Zurowski, 2012) on PolyMet's behalf. Quality geologic data have been collected over the years from the NorthMet area that could have been used to present a more detailed and realistic understanding of the bedrock fractures known to exist at both the Mine Site and the Tailings Basin than what is presented in the SDEIS.	WR011, WR061
9968	One specific example of the type of data relevant to the nature of bedrock fracturing that have been collected but are not presented in the SDEIS is the RQD table from PolyMet's drilling database (PolyMet, 2007b)…More detail from the RQD table would allow for a greater understanding of the spatial variability of bedrock fractures.	WR014, WR015, WR023, WR071
9970	It would be very instructive [in the SDEIS] to view the spatial relationship between the lowest RQD values [from PolyMet's drilling database (PolyMet, 2007b)] and fault zones and lineament trends mapped using LiDAR data.	WR014, WR015, WR023, WR071
9972	the average RQD values for Duluth Complex rocks (93) are not that greatly different from the Virginia Formation (88) or even the Biwabik Iron Formation (80)… The RQD values of certain rock units within the Duluth Complex – unit 7 for example – have average RQD values less than or equal to the Virginia Formation (87.4 vs. 87.6). These data seem to contradict the numerous claims in the SDEIS that the degree of bedrock fracturing and therefore hydraulic conductivity values for the Duluth Complex rocks are so much lower than the extent of fracturing and resulting bulk hydraulic conductivities in the Virginia and Biwabik Iron Formations.	WR014, WR015, WR023, WR071
9974	"Evidence of several high-angle faults, consisting of brecciated intervals and fault gouge mineralization, was noted in the exploration cores from the NorthMet Project area (PolyMet 2007b)." (SDEIS p. 4-45) The statement above is accurate, but it omits important information about the dimensions of brecciated intervals and the orientation of the faults. This information would have a direct bearing on the potential for bedrock fractures to transmit significant quantities of contaminated groundwater… These specific details [found in PolyMet, 2007b (p. 16)] about the dimension of potentially very porous fault zones at NorthMet should be presented in the SDEIS and their hydrologic significance addressed in groundwater modelling where appropriate.	WR010, WR014, WR015, WR023, WR071

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Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
9975	The hydrologic implications of bedrock containing fault zones with field-documented dimensions on the order of several feet thick that are filled with rubbly rock at the Mine Site should have been specifically addressed in the SDEIS, but this analysis appears to be missing.	WR012
9976	it is virtually certain that the number of fractures documented from drill core greatly underrepresents the actual number of fractures present at the Mine Site. Because the faults mapped at NorthMet are high-angle faults (SDEIS, p. 4-45) and most of the exploratory bedrock drill holes at the NorthMet Mine Site were drilled vertically (PolyMet, 2007b), drill holes would not likely encounter fractures because of their high-angle orientation (Golder Associates, 2010).	WR014, WR015, WR023, WR071
9978	The SDEIS presents a discussion of lineaments lower on page 4-45 that, contrary to current geologic literature, downplays the relationship of lineaments to bedrock fractures and therefore their significance to the hydrogeology of the NorthMet Site. “Numerous lineaments have been mapped over northeastern Minnesota, but these have been associated with glacial deposition and not fracturing in the underlying bedrock (Morey 1981; Heutmaker and Morey 1982).” (SDEIS, p. 4-45) The cited literature refers to glacial “processes,” not glacial “deposition” (Morey, 1981; Heutmaker and Morey, 1982). These terms do not have the same meaning.	EDIT01
9986	The argument is then made in this section of the SDEIS [on page 4-45] that since over-pressured groundwater was not encountered at NorthMet, hydrologically interconnected bedrock joints or faults do not exist at NorthMet. This rationale would ignore the simpler and well-known hydrologic situation where hydrologically interconnected bedrock fractures exist under water table conditions (Siegel and Ericson, 1980), not over-pressurized conditions.	WR012
9987	The strategy used in siting drill holes in Duluth Complex deposits would not be focused on defining fracture zones; it would attempt to avoid these areas altogether. This is not to say that mineral exploration drilling cannot provide useful hydrologic or fracture data. However, it is incorrect to conclude that because a certain set of mineral exploration drill holes did not encounter interconnected hydrologic conditions, that interconnected hydrologic conditions do not exist at Minnamax or NorthMet.	WR023, WR071, WR086, WR087
9988	There have been thousands of mineral exploration and scientific bore holes drilled into the basal Duluth Complex and footwall rocks over the past nearly 40 years. These larger datasets would undoubtedly contain information that would add to the understanding of the interconnectedness of fractures or the presence of pressurized ground water. These data are not presented in the SDEIS.	WR014, WR015, WR023, WR071
9991	The quote… [(starting with "One exploration" ending with "world")] from page 4-45 of the SDEIS stating that the upper fractured zone of bedrock has been removed by glacial scouring should be properly referenced or otherwise supported by data to be taken seriously. This statement is not supported by any of the cited references and is contrary to common knowledge that fractured bedrock is present at NorthMet. Drilling logs included in the SDEIS’ supplementary materials (PolyMet, 2013i; RS-35, RS-42 and RS-46) show intervals of weathered bedrock at multiple locations thereby reducing the credibility of this statement.	EDIT01, WR012
9992	Mine dewatering will lead to an increase in the amount of oxygen that is available to weather rock in pit high walls. This increased weathering rate may be particularly effective at increasing the aperture of bedrock fractures. Rouleau et al (2003) reported that mine dewatering causes oxidation of newly unsaturated rock (including fracture surfaces) increasing the rate of chemical reactions thereby affecting groundwater.	WR173
9993	The SDEIS incorrectly characterizes the information that is available about bedrock fractures at the NorthMet site and fails to address in any rigorous fashion the potential for long-distance transport of groundwater and contaminants through bedrock fractures.	WR012

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
9999	"Due to the generally low hydraulic conductivity of bedrock, independent calculations indicate that groundwater transport in bedrock is minimal and does not affect solute concentrations at the evaluation locations." (SDEIS, p. 5-33)The blanket statement about low conductivity bedrock at the Mine Site is not supported... The conclusion that groundwater transport through bedrock has no effect on solute concentrations can only be reached by ignoring groundwater flow through bedrock fractures, a position that is not scientifically defensible. Assumptions made in the SDEIS about hydraulic conductivity of bedrock at the Mine Site should be revised and better related to actual field conditions.	WR010, WR011, WR012, WR014, WR071, WR087, WR090, WR099, WR168, WR169, WR179
10005	"Although the presence of fractures at the Mine Site cannot be completely ruled out, site specific data, such as boring logs, indicate the bedrock appears competent, only rarely encountered deep fractures near the surface, and hydrogeologic investigations have indicated that the bulk hydraulic conductivity of bedrock at the Mine Site is very low." (SDEIS, p. 5-33)These statements are not true… there is no debate whether fractures exist at the Mine Site; only their detailed hydrologic significance remains unclear. Reports and drilling records presented previously confirm the presence of fractures.	WR014, WR015, WR023, WR071
10103	While the SDEIS fails to acknowledge the fault that exists beneath the Tailings Basin and the proposed HRF, its location is described in PolyMet (2012a), however they suggest there is ambiguity whether this fault exists… The fault beneath the Tailings Basin and HRF is shown on all Minnesota Geological Survey bedrock geology maps covering the Tailings Basin site from 2005 to the present (Jirsa et al, 2005; Jirsa et al, 2011; Jirsa, et al, 2012)… This fault's location is mapped based on sound geologic inference or it wouldn't be shown. It can't be "confirmed" unless careful excavation was carried out along the entire length of the fault.	WR015, WR023, WR069, WR071
10111	The faults shown on Figure 1 [(of Water Legacy, LehrMaps&Figures)] should have been acknowledged early in the environmental review process, and their presence should have triggered additional field studies designed to map the underlying bedrock fracture system and to characterize its hydrologic properties.	WR015, WR023, WR071
10116	due to an admitted complete lack of field data, it is clear that assumptions rather than data have been used to characterize the hydrogeologic properties of the bedrock beneath the Tailings Basin.	WR008
10194	Any conclusion that the rocks at the Tailing Basin site have lower hydraulic conductivity than the Duluth Complex rocks needs documentation to be considered scientifically valid.	WR009
10197	the SDEIS presents conflicting data in Table 5.2.2-7 where hydraulic conductivity values used as MODFLOW inputs for the Giants Range Granite are shown as being several orders of magnitude higher than the rocks of the Duluth Complex, not significantly lower (from Table 5.2.2-7: mean hydraulic conductivities: GRG = 0.026 ft/day vs. DC = 0.00049 ft/day). These blatant contradictions in the reasoning used to portray the hydrogeology of the NorthMet site need to be resolved before the SDEIS can be considered scientifically adequate.	WR087, WR168
10201	[In the SDEIS, p. 5-68-69]… the statement about construction of a slurry wall that is keyed into bedrock is in direct conflict with SDEIS Figure 3.2-28 that shows no keyed relationship between the proposed slurry wall and the bedrock beneath the Tailings Basin site. This is a very important aspect that has direct bearing on the effectiveness of the engineered system designed to capture contaminated groundwater emanating from the Tailings Basin.	WR019
10203	An existing capture and pump back system is apparently in place at ... [the south side of the Tailings Basin in the upper reaches of Second Creek] (SDEIS, p. 5-89). Its ongoing performance should be addressed in this section of the SDEIS as well as how proposed changes to the Tailings Basin hydrology over the 20-year mine life will affect these seeps and the existing seepage collection system.	WR117, WR118

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
10302	of the total amount of nickel that exists in the NorthMet deposit a maximum of only 65 to 75% is expected to be recovered and 25 to 35% will end up in the Tailings Basin bound up in silicate minerals… The same weathering process that liberates calcium to buffer acid will also cause nickel to be released from the lattice of olivine… This situation where large amounts of nickel are weathering from silicate minerals within the Tailings Basin coupled with the likelihood that significant volumes of seepage will escape capture from around the Tailings Basin is likely to lead to excessive levels of nickel migrating off-site. The SDEIS should explicitly analyze the "loss of nickel to silicate" issue, in light of the hydrogeology of the Tailings Basin.	WR025
10322	A few pages above, the term "till" was used as a general term, now in this paragraph [on page 4-46] the term "alluvium" seems to be used as a replacement term for all surficial sediments. On page 4-149 the entire package of surficial sediments is referred to as "soil". This is more than semantics; it leads to confusion as to exactly which surficial sediments are being referenced: the entire surficial sediment section or only till units or only alluvium units or only the post-glacial soil that exists at the land surface? This usage promotes a simplistic understanding of surficial geology, which in turn is converted into overly simple and inaccurate inputs to predictive models.	EDIT01
10327	"This surficial till is relatively young (~14,000 to 60,000 years old), and has been described at a regional scale as unsorted sandy loam mixture with pebbles, cobbles, and boulders (Jennings and Reynolds 2005)." (SDEIS, p. 4-43) This statement doesn't accurately describe Mine Site surficial sediments. First, there is more than one till unit at the Mine Site (PolyMet, 2013i; Barr, 2006b). Drilling logs in these reports provide numerous examples where multiple tills were encountered during drilling at the Mine Site. In some instances multiple tills are separated by intervals of outwash sand and gravel - some that are greater than 10 feet thick (RS-11 for example in PolyMet, 2013i). The thickness and extent of these outwash zones in the subsurface should have received more attention in the SDEIS; they represent significant pathways for groundwater flow and contaminant transport.	WR023, WR071, WR086, WR087
10328	The simplistic conceptual model of surficial geology at the Mine Site has resulted in a very simple and likely flawed plan to mitigate water quality problems that may arise from the presence of sulfur and metals in the overburden.	WR189
10335	Any NorthMet geochemical test results from unsaturated overburden presented in support of the overburden management plan in the SDEIS would be very sensitive to the texture of the material chosen for testing and its age and yet neither the SDEIS or PolyMet (2013l) report what types or textures of unstaturated overburden were subjected to geochemical analyses.	GT13
10339	"Unsaturated overburden is the material that has been above the natural water table and exposed to air long enough for chemical reactions to have taken place." (SDEIS, p. 3-44) This statement is unsupported and misleading… This statement neither takes into account drift prospecting literature which has documented metals in fine fractions of till collected from the vadose zone even when the sulfide minerals themselves have been completely weathered; nor the fluctuation of groundwater levels between the time the oldest overburden sediments were deposited and the present time.	PD31
10396	A figure showing this isopach map [referred to on page 4-45] inserted at this point in the SDEIS would be very helpful in envisioning how the surficial sediment type and thickness varies across the Mine Site. But this map neither appears in the SDEIS or among cited reference documents. The Table of Contents for Golder Associates (2007) lists the isopach map, but the file does not appear in the MDNR DVD set and was not available for review.	EDIT01
10399	A detailed bedrock topography map would also be useful at several places in the SDEIS to illustrate where features such as troughs and bedrock valleys are located on the bedrock surface and to assess pathways that may transmit contaminated groundwater at the interface of the overburden and bedrock.	EDIT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
10408	Knowing dimensions of sand and gravel outwash layers within the overburden [(SDEIS page 4-46)] and their orientation would help predict where groundwater conduits and seeps will be located within the overburden. It appears that no surficial geologic maps for the project areas were prepared specifically for the environmental review process. This is a serious deficiency in a geologic data set that underpins so much of the predictive modeling that is presented in the SDEIS. The SDEIS, in addition, ignores most of the detail in published surficial geologic maps for the area. With respect to geology, the result is a data-poor environmental review process.	WR023, WR071, WR086, WR087
10419	The spatial distribution of permeable outwash layers and their hydrologic significance must be considered for accurate modeling of groundwater flow, but this has not happened in the SDEIS. PolyMet has carried out extensive geologic field investigations at the NorthMet Mine Site and they do report outwash to be present within the overburden (PolyMet, 2007b; 2013i).	WR023, WR071, WR086, WR087
10506	in Table 4.2.2-5… laboratory-derived hydraulic conductivity values for reported “silty sand” are shown as ranging from 0.00043 ft/day to 0.0081 ft/day. The difference between laboratory-derived hydraulic conductivity values of up to 167 ft/day reported in PolyMet, 2013 or even higher in Stark (1977) should be reconciled with the results from a silty sand presented in Table 4.2.2-5 in the SDEIS.	EDIT01
10510	It is stated elsewhere in the SDEIS, as well as being common knowledge that the elevations of groundwater surfaces in surficial sediments under unconfined conditions usually mimic surface topography… It follows from these statements, in addition to well-understood geological concepts, that 20 percent of the surficial groundwater flow paths from the Mine Site should be to the north and northeast. This seems to have been ignored and should be corrected in the SDEIS groundwater modeling or it should be better explained why near-surface groundwater flow does not follow surface topography at the Mine Site.	WR086, WR089
10512	It should also be explained why Figure 2-3 in Polymet 2012s shows flowpaths from the Mine Site north to 100 Mile Swamp and Yelp Creek. This figure shows travel times of 1-5 years and 5-10 years along these flowpaths, not the travel times of thousands of years stated in the SDEIS (p. 5-33).	WR080, WR089, WR167, WR175
10529	The SDEIS’ claim [on page 4-43] of hydrologic separation from the Biwabik Iron Formation aquifer should be supported by a more robust reference than personal communication from one of PolyMet’s consultants. The SDEIS should include an accurate geologic cross-section based on actual drilling information, showing the locations of faults and fractures, not a schematic or overly generalized cross-section where subsurface conditions can be so easily misrepresented.	EDIT01
10545	The discussion on page 4-43 describing the relationship between rocks of the Duluth Complex and older rock to the north does not fully convey the important relationship between the Duluth Complex rocks and the older rocks to the north. The Duluth Complex in the vicinity of NorthMet intrudes the argillaceous rocks of the Virginia Formation (the “footwall of the deposit”). This is not a trivial point because the Virginia Formation is responsible for supplying the sulfur to the ore deposit and because contact metamorphosed Virginia Formation in the footwall and inclusions represent some of the most reactive waste rock that will be encountered.	WR071
10549	The examples of incorrect usage of geologic terminology in the SDEIS below suggest the sections on geology were not given the level of editorial review appropriate for a scientific publication. “The NorthMet Deposit itself is below the surficial till in the layered mafic intrusive rocks of the Duluth Complex, which are part of the Partridge River intrusion.” (SDEIS, p. 4-43) Actually the Duluth Complex is not part of the Partridge River intrusion. The Partridge River intrusion is part of the Duluth Complex.	EDIT01
10554	[The examples of incorrect usage of geologic terminology in the SDEIS below suggest the sections on geology were not given the level of editorial review appropriate for a scientific publication.] “The oldest of the sedimentary rocks is the Pokegama Quartzite. These sedimentary rocks are underlain by Archean granite of the Giants Ridge batholith.” (SDEIS, p 4-43) The correct terminology is Giants Range batholith, not Giants Ridge batholith. This same incorrect usage is repeated in several additional places on pages 4-94 to 4-95.	EDIT01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Water Legacy (52178)	
10561	The claim that there is little connection between water in the bedrock aquifer, water in the surficial aquifer and surface water is made in several places within the SDEIS. In some places these claims may be supported by data; in other places they are not [see SDEIS, p. 4-47 and p. 4-149].	WR010, WR023, WR053, WR071, WR120, WR166
10589	Without data in the body of the SDEIS to support the claim that a single pump test could lead to such an unequivocal conclusion, the reviewer is forced to search for additional tables, maps or cross-sections that could support the claim that the connection between the surficial aquifer and groundwater is "weak" [(see SDEIS pages 4-149-150)]… The statement that the interaction between surficial deposits and bedrock is "insignificant" is not supported by Siegel and Ericson (1980). Actually they stated the opposite… Other hydrologic studies carried out in the immediate NorthMet area contemporaneously with Siegel and Ericson reached the same conclusion.	WR010, WR023, WR053, WR071, WR120, WR166
10611	It has been suggested that the source of this ammonia in the bedrock aquifer is from unoxidized blasting emulsion used in the Peter Mitchell Mine to the north. The presence of ammonia in deep groundwater from the Mine Site is difficult to explain other than as surface contamination traveling deep into the bedrock groundwater system.	WR013
10613	PolyMet also intends to use peat and unsaturated overburden for construction and reclamation. These materials will be stored in unlined stockpiles (SDEIS, p. 3-44)… It is suggested that, unless specific data demonstrates otherwise, all overburden at NorthMet should be managed as reactive with the potential to leach metals. Stockpiles of overburden and peat should be placed above geomembrane liners with leachate collection systems and neither should be used in construction.	PD15
10622	There seems to be a contradiction in the definition of reactive waste rock contained in the SDEIS and what is defined in some of the supporting technical materials [(SDEIS 5-51)]… It is unclear from reading the SDEIS how this agreed-upon definition changed into the SDEIS threshold of 0.12% sulfur -- allowing Category 1 waste rock to be placed in an unlined stockpile. Even if rock with between 0.05% sulfur and 0.12% sulfur may not generate acid, it will leach metals at levels that would not meet water quality discharge standards (SRK, 2007b).	WR107, WR134
10626	Any reactive rock, as defined in the [2007] SRK report and the MDNR's acid mine drainage research program, should only be stored above geomembrane liners with leachate collection systems.	PD15
10632	If NorthMet were to operate as proposed, at the end of 20 years of mining there could be 650 to 700 million tons of resources remaining. This number could grow larger if metal prices increase and/or metal recovery technologies improve and/or additional drilling and assaying occurs. This issue has bearing on probably cumulative effects of the project and should be analyzed as part of a revised EIS.	CU04
10635	Most of the following deposits have 43-101-compliant resource estimates prepared and some are in the pre-feasibility stage: Twin Metals Spruce Road, Maturi and Birch Lake deposits, Cardero's Longnose and Titac deposits, Teck America's Mesaba deposit and Encampment Minerals' various deposits (MDNR, 2013). It is well-known that these companies are poised to begin environmental review should the NorthMet Proposed Action receive approvals. The cumulative environmental effects of these projects should be addressed in a revised EIS.	CU02
Sender Name (Submission ID)	Wayne E Holmberg (54860)	
19343	During my employment [at the U of M Mines Experiment Station] …copper nickel ore was found to have asbestos fiber in it when crushed down to size…If PolyMet mining doesn't use proper dust collectors is can damage our air and water	AIR03, WR151
Sender Name (Submission ID)	Wayne E. Potratz (58137)	
19986	The monitoring of the mine site will required hundreds years of support. The mining co and the government will more than likely not fulfill its obligations for cleanup and mitigation …. This is the pattern for most mining and industrial pollution sites historically...I do not trust the corporation to fulfill its obligation once it has extracted all the metal wealth	FIN01

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Wayne E. Potratz (58137)	
20006	The trace off is too great … 200 jobs and 20 years of extraction vs centuries of pollution and destruction… short term $ long term problems.	SO01
Sender Name (Submission ID)	Wayne Hoklas (45766)	
11353	I understand that there is a great need for high paying jobs in the northern iron range area, but I feel that the potential costs that the Polymet proposal holds are so huge that the possibility of several hundred high paying jobs for twenty years pales in comparison to the enormous negatives that this project represents.	SO01
11358	At a time when the world is running out of drinkable water, we are looking at the possibility of one our our states watersheds being poisoned for potentially hundreds of years is absolutely insane.	WR195
19886	...inaccuracies of the watershed in the area around the proposed site need to be addressed and possibly investigated as to why the watershed was not shown correctly.	PD38
19980	The insanity of this proposal and the cost environmentally of proceeding with this project far exceed the benefits that will be realized for an estimated 20 year period.	SO01
Sender Name (Submission ID)	Wayne Kivela (43005)	
11515	Though some questions remain on Partridge river water flows in computer simulations, I would assume varying flow rates were analyzed and need to be added before a Final Environmental Impact Statement is issued.	WR091
11517	Mining has been and continues to provide economic benefits to Minnesota. Understanding the need to balance the preservation of our local and global environmental impacts versus the economic effects, I feel the project is environmentally and economically preferable to other options	SO10
Sender Name (Submission ID)	Wayne Veasey (54211)	
17655	I believe you shouldn’t build a min[e] because it’s gonna pollute the air and also flood the lake with mud and bad chemicals. It’s gonna hurt people and ruin the nature. It affects lakes, rivers. Over just getting copper. You can get copper somewhere else.	SO02
Sender Name (Submission ID)	Wendall Maijala (42550)	
15617	I am in favor of permitting for the Polymet Project. I feel the state & federal agencys involved have covered all the bases to protect the environment of northern MN.	PER34
15618	Copper nickel mining will be a boom for the iron range.	SO10
Sender Name (Submission ID)	Wendy Griffin (18146)	
3583	I'm asking that the state step up their control and oversight on the PolyMet site. If the state can step up and do their job, it should be a good go for both of us.	PER06
Sender Name (Submission ID)	Wendy Haldorson (6196)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Wendy Haldorson (6196)	
1055	It is extremely important to let PolyMet prove the can mine safely in this state with the technology we have today. Not only does our state need jobs and revenue, our country needs this!	SO10
Sender Name (Submission ID)	Wendy Hansen (44397)	
10595	I don’t feel that putting jobs ahead of public safety can be justified.	SO01
10597	Please don’t let a company from India put our safe, clean water at risk!	WR115
Sender Name (Submission ID)	Wendy Jerome (4190)	
8737	100% of sulfide mines leak toxic carcinogens and sulfuric acid…We can count on the death of aquatic life and the terrestrial life - including human beings- dependent on it, if sulfide mining is allowed in Minnesota.	WI04
9881	Some think that sulfide mining would bring jobs to MN. On the contrary, it would bring a few hundred part time and full time jobs, that would be intermittent, given world ore prices. The mining would last 20 years.	SO02
9882	Minnesota would loose a slowly, but steadily growing recreation economy - and wilderness that is a world treasure for the world.	SO02, WILD02
18843	The lands proposed to be exchanged for the acres that will be destroyed by mining are not the same as the unique target areas, rated of "high biological diversity" by the Minnesota Biological Survey.	LAN03
18844	The PolyMet proposal gambles on the relocation or survival of lynx, moose, and finer interdependent systems of aquatic and land plant and animal forms which are not yet known well enough. Wild life will be lost, and food chains will be destroyed.	AQ01, WI01
18845	Substances that would leak and spread into the Boundary Waters and Lake Superior include known carcinogens, sulfuric acid, lead.	GEN01
18847	Wild rice would be poisoned by sulfates. Effects of these and other mine effluents on the natural ecosystems and on the human body have not been fully studied.	VEG04, WR156, WR157
18849	The cost to Minnesota taxpayers into the future to attempt to clean the polluted water is notaffordable, and it is not certain water, air, or land could be cleaned.	SO01
18850	PolyMet is a gamble for 20 years of 320 irregular jobs that would cost our state a huge taxburden and the permanent loss of an international wilderness treasure.	SO01
19890	100% of mines leak.	PD26
19905	Exchange of mine lands for private lands still robs wild life and future human visitors. They lose ultimately, irretrievably with land exchange.	LU06
19919	I believe permitting sulfide ore mining in MN is a risky undertaking that is nearly certain to destroy a growing recreation economy, water quality, wildlife, plant life and aquatic life and a natural heritage we preserve for the world.	GEN03
Sender Name (Submission ID)	Wendy Moylan (40188)	

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Wendy Moylan (40188)	
14109	I am very sympathetic to the need for jobs in northern Minnesota, however I strongly urge to you stand strong in supporting ONLY projects that will move forward the goals to reduce greenhouse gas emissions.	AIR01
Sender Name (Submission ID)	Wendy Paulsen (46979)	
10872	1. PolyMet would pose an ongoing pollution threat to the St. Louis River and Lake Superior, long after the mining stops...Unless all of this water can be captured and treated, the mine will pollute groundwater and surrounding streams and rivers...And it is my understanding that fractures in bedrock have not been adequately addressed.	WR012, WR111, WR115, WR129
10873	2. In the PolyMet mine plan fails to discuss financial assurance adequately - there are no details of the amount and type of damage deposit adequate to cover the cost of treating polluted water for hundreds of years.	FIN05, FIN08
10874	3. The tax estimates in the PolyMet mine plan lack detail and are full of discrepancies. From one draft of the mine plan to the next the estimated taxes jumped 500% without explanation. This is important, since the state taxes that would apply to a copper-nickel sulfide mine have never been used before.The copper-nickel mining industry is exempt from several state and local taxes, such as property tax and corporate income tax, and has its own unique tax structure. Therefore, the State of Minnesota should confirm these tax estimates, and not just rely on the company to provide them.	SO04
10875	4. PolyMet has never operated a mine before, and is dependent on their largest investor and “strategic partner” Glencore for much of their revenue. Glencore currently owns 25% of PolyMet, with the option to increase their stake to 33%. Glencore also owns the first five years of minerals produced by PolyMet if it opens… It has a long history of environmental pollution, human rights violations, and anti-labor practices. The SDEIS should be revised to recognize Glencore as the party responsible for permitting.	PER02
10876	5. The PolyMet SDEIS fails to adequately assess important risks to human health from the pollutants that would be released from this project. The absence of any professionals from the Minnesota Department of Health from the List of Preparers of the PolyMet SDEIS is particularly troubling.	HU01
10878	6. Federal and state law require environmental impact statements like the PolyMet mine plan to consider a range of alternatives. That is done to ensure all reasonable options to protect the environment are considered… PolyMet mine plan does not consider any alternative to their proposal other than a slightly different version of a land exchange.	ALT21
16692	The SDEIS has no contingency plans for mechanical break-downs in the complicated filtration system that PolyMet proposes to treat the polluted water, even though that system would have to operate for centuries. PolyMet's water treatment system isn't prepared for the super-storms that are growing more frequent due to climate change.	WR176, WR180
16693	Worse, PolyMet’s model doesn’t even prove that the pollution stops after 500 years. Instead, the company simply stopped modeling at 500 years. In other words, the pollution could go on for even longer.	WR035
16694	The SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of mercury and other air pollutants or of hydrologic changes on mercury bioaccumulation. The SDEIS does not provide evidence to justify its claims about collection and containment of mercury and sulfates.	MERC08, MERC20
16695	SDEIS be revised to provide more complete information on mercury and sulfate air pollution emission and deposition, water pollution seepage from various sources, and the potential conversion to and bioaccumulation of methylmercury resulting from releases to the environment and hydrological changes from the proposed PolyMet project.	MERC08, MERC20

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Wendy Paulsen (46979)	
16696	There are several alternatives that should be considered and evaluated in the PolyMet mine that are simply discarded. These include whether the PolyMet proposal could operate as an underground mine instead of an open pit, and whether all of the waste rock created by PolyMet should be backfilled into the mine pits after closure.	ALT01, ALT03, ALT06
Sender Name (Submission ID)	Wendy Robertson (18349)	
2532	I am also concerned and alarmed of the SDEIS plan to mitigate the 930 million (phonetic) acres that wasn't previously mentioned. The wetlands that will be eliminated by PolyMet's infrastructure, mine, waste piles (phonetic), et cetera, it is crucial that we take a look at it.	WET24
2533	The Federal US Army Corp of Engineers' mitigation role requires that (inaudible) before mitigation, which replaces the loss of wetlands, function within the same Hydrological Unit Code, HUC. The word to focus on here is "function."...functions of the wetlands will be lost by having the mitigation outside of our area. Having the compensatory sites in Simm (phonetic), Aitkin and Hinckley will not replace the loss of wetlands' functions to nature and the public.	WET03
2534	I also request that the lead agencies extend the time for public comments by three more months; 108 days. And 2,000 plus pages is a lot to digest and make educated comments	NEPA07
2535	I protest having these three public hearings in January, which is the coldest winter month. The cold and icy weather may impair comments by the elderly, sick and the disabled. You are disenfranchising these groups.	NEPA10
10931	this document fails to place the prospective mine within a larger historical, economic, and environmental perspective	CU02
10937	The primary failing of the SDEIS is that, seen from a broader perspective, it is internally inconsistent, reflecting a larger social schizophrenia wherein we demand both economic growth and a functional environment.	SO01
10940	But to be fair, and to the central point, all these agencies have been given an impossible mandate by wtp, namely to both promote economic growth (p.1-12) and to protect the environment	PER42
10941	the SDEIS attempts to regulate the acceptable impact of a proposed mine, yet it does not limit the number of hardrock mines in the watershed, the region, or the state, hence there is no limit to total impact. ... If wtp [we the people] and our representative agencies were serious about environmental protection, we would, in lieu of outright rejection, cap-and-trade this type of mining: we would put up for auction one and only one (the cap) right-to-mine permit (rtmp) for sulfide mining.	CU18
10945	The SDEIS simply trades one form of impact for another, it does not reduce its quantity, and transforms it to a form that is not as localized and not as immediate.	GEN01
10948	The SDEIS has a glaring omission: enforcement of the conditions of the permit...regulating personnel would [should] have to have an office or trailer on site, and be staffed by a rotating team of specialists, from construction inspectors, hydrologists, air quality specialists, to environmental chemists. They would be intimately familiar with the permit conditions and see that they are being fulfilled.	PER06
10951	Inspectors and enforcement personnel on large project sites can lose control, and as employment and investment accumulate, the the political power of Polymet can overwhelm the regulators, so that the company may do as they please, witness the existing toxic conditions at the plant site--the legacy of the former LTV plant--as cited in the SDEIS.	SO02
10952	The Cumulative Effects portion of the SDEIS not only fails, but fails spectacularly.	CU03

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Wendy Robertson (18349)	
10955	The SDEIS should have included a concise summary of how much of the planet's ecosystem would be destroyed and compromised if this proposal is realized.	NEPA15
10956	The title history of Tract 2 of the land exchange seems odd, even suspicious...Its title was in the public domain (Lake County), passed into the private domain by purchase, and then is to be used in exchange for public lands (p. 4-396). So what was once public becomes public again to offset loss of Federal land to Polymet. The purchase of county land by Lake Forest Enterprise, Inc. should have been detailed and made transparent in the SDEIS. Was this by auction as is usually required?	LAN04
10957	The SDEIS omits a whole class of external costs, namely the social costs associated with the potential industrialization of northeast Minnesota.	SO04
10960	Given the volume of the SDEIS, its most notable success is the effective limit on serious and thoughtful commentary by the abbreviated time allowed for its reading, for subsequent deliberation, and comment writing.	NEPA07
10961	As the three lead agencies "have jointly prepared the SDEIS" (opening sentence of the COVER SHEET), how can it be that these same agencies that will issue the critical Record of Decision?	NEPA08
10962	The several sections of the SDEIS dealing with GHG emissions are confusing and contorted….. First it is noted that the annual GHGe emissions are under the USEPA threshold (Table 5.2.7-7), but we later are told that the threshold is not a limit, but rather would simply require BACT for these emissions (p. 5-429).	AIR01
12234	The SDEIS does not address the cumulative effects of the additional mining companies that are waiting in the wings for future permits.	CU04
12237	The SDEIS has several issues in watershed mitigation that are not addressed.	WR130
12238	I am asking that the agencies involved to extend the comment period for an additional 90 days.	NEPA07
14633	The lands surrounding these wetlands are also indirectly altered and these will not be even considered in the total.	WET01
15183	the SDEIS must also require a financial assurance package, no only for shutdown and cleanup (after the company has extracted and sold their sub-surface mineral property and can leave), but also for construction and operation.	FIN01, FIN08
15184	The SDEIS simply trades one form of impact for another, it does not reduce its quantity, and transforms it to a form that is not as localized and not as immediate. Carbon dioxide is transparent and therefore out of sight.	AIR11
15185	such regulations don't impose limits at all. Take for instance the infamous sulfate standard; not only does it not cap the amount of sulfate that can be discharged into the environment, it does not even cap its rate of discharge: time units do not appear in the denominator of the standard. It is a concentration limit only; to meet the standard Polymet has merely to add water. Or consider the BACT standard, which may reduce impact from what it may have otherwise have been, but sets no mass or rate limits.	PER06
18745	I was fortunate to be selected as one of the 80 plus speakers to give testimony. Given that many others did not have the opportunity to speak only reflects the insufficient amount of time for public comment at hearings and the refusal to extend the comment period on this SDEIS. I am asking that the agencies involved to extend the comment period for an additional 90 days.	NEPA07

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Wendy Robertson (18349)	
18746	The SDEIS does not address the cumulative effects of the additional mining companies that are waiting in the wings for future permits. They are watching to learn what happens as the Polymet process breaks ground in asking to be permitted. By ignoring this glaring omission, I can only conclude that you are not reading the investment brochures of mining companies that are seeking worldwide investors currently.	CU04
Sender Name (Submission ID)	Wendy Saliin (39118)	
5182	Minnesota boasts countless beautiful natural spaces; it is what draws people to Minnesota and what holds them here. Therefore, preservation of clean water and wilderness will provide a more sustainable economic stimulus to state, local, and regional economies than mining.	SO01
5183	A copper scrap metal recycling project would be a sustainable alternative to the boom and bust cycle of mining.	NEPA06
5184	Mercury contamination is already a problem in area lakes, posing a major problem to humans and animals who consume fish from these waters - we already know that this is especially dangerous to pregnant and nursing mothers, infants, and young children. Sulfide mining is known to increase mercury levels in water.	HU03
5187	The WHO lists 10 chemicals of major public health concern. Sulfide mining involves 5 of them: mercury, arsenic, lead, asbestos, and air pollution. All Minnesotans could potentially suffer the ill effects of these chemicals, but this is especially of concern to potential future employees of the mine.	HU03
18251	Natural beauty and a healthy natural environment are not only important to the health and well-being of Minnesotans, they are also a crucial component of state, local and regional economies.	SO04
18258	Minnesota does not deserve to bear the burden of so much risk when likely so little lasting benefit, economic or otherwise, would exist.	SO01
18261	TAXPAYER BURDEN… we are mulling over the possibility of a mining project that we acknowledge will pollute regional waterways for a minimum of 500 years?!	FIN10
Sender Name (Submission ID)	Wendy Schlueter (10936)	
633	The City of Babbitt also thanks PolyMet and the State of Minnesota for being open to the advanced technologies and compliances adhered to for fulfilling and challenging employment opportunities the mine will provide.	NEPA16
634	We are also confident that the mining company and its entities will be in compliance in every aspect to promote this very important and necessary economical job source to Minnesota.	SO10
Sender Name (Submission ID)	Wes Bailey (43244)	
15803	The short-term gains (the vast majority of which will go to out-of-state shareholders) are absolutely not worth the risk to our state's clean and living waters.	SO01
Sender Name (Submission ID)	Western Lands Project (42975)	
7997	The fundamental flaw underlying the proposal and the analysis is the proposition that the conflict between Polymet's mineral rights and the National Forest surface ownership "needs to be resolved." That may be the case from Polymet's point of view, but for the Forest Service and the public on whose behalf it manages the forest, there is no conflict. The land is protected from subsurface exploitation, as it should be.	LAN04, NEPA04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Western Lands Project (42975)	
8755	The proposed land exchange does not serve the public interest as required under both the Federal Land Management & Policy Act (FLPMA) and the Weeks Law.The proposal was brought forward by and in service of private interests, and it the duty of the Forest Service to protect the interests of the public in the lands at issue, acquired under the Weeks Law.	LAN02
15159	We are particularly troubled that the Forest Service would entertain a land exchange that does not consolidate ownership of the public lands, but would result in a split estate on land the Forest Service proposes to acquire-- this is drastically counter to fundamental federal land exchange policy and jeopardizes the public interest. The split estate poses two threats: that mining could occur on some or all of the land and/or future land exchanges could be leveraged by way of threats to conduct mining or exploration that would damage surface lands belonging to the public.	LAN02, LAN04
Sender Name (Submission ID)	Weston (45272)	
9159	I am strongly against the mine. It will destroy the environment in northern minnesota	GEN01
Sender Name (Submission ID)	Whitney Morgan (57248)	
17376	In the review it is stated that potential exists for the release of amphibole mineral fibers from the proposed operations, which could pose a potential public health risk of uncertain magnitude" this is extremely alarming to me. The fact that, that statement can be made in a project's Environmental Review should let alone be the deciding factor in not approving sulfide mining in Minnesota.	HU05
17378	I believe the detrimental effects from mercury that would be emitted is not accurately reported. In a letter approved by many Duluth area physicians it is stated that the review doesn't report the amount of mercury that will discharge into our local watersheds. Due to this lack of information, the review is not complete for mercury pollution is extremely dangerous to our communities health and eco systems.	MERC16
17379	I believe the health effects of sulfide mining is not accurately reported. Many Duluth area physicians have come out to state that the review doesn't properly deserve all of the health impacts that would come with sulfide Mining. ... sulfide mining would threaten my entire communities health by exposing lead, arsenic, lead, asbestos and mercury pollution into our air and water. These threats need to be included in the projects environmental review, along with the major health impact they will have on my family, friends, and community.	HU03
Sender Name (Submission ID)	Whitney Snyder (12288)	
1653	There is no such thing as clean mining and we should stop putting profits before before the environment.	SO01, WR195
Sender Name (Submission ID)	whonka80 . (36502)	
14267	No evidence exists (to my knowledge) that this can be done safely. Not worth it. I take clean water over jobs.	WR115, WR195
Sender Name (Submission ID)	Wiggs (42912)	
9446	The Arrowhead - with its highly permeable soils and vast water resources would be exceptionally vulnerable to such problems [groundwater contamination].	WR090, WR107, WR108
9449	The cumulative environmental effects of a vast new copper/nickel mining district [NorthMet] would be catastrophic to an exquisitely environmentally sensitive and priceless region.	CU11

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Wiggs (42912)	
9450	If copper mines and their associated industry are developed, as proposed and planned…resulting in unacceptable levels of groundwater and surface water contamination, along with other irreversible and devastating environmental and aesthetic damages.	NEPA09
9452	The 2004 EPA report identified 156 hard rock mining sites nationwide that have the potential to cost between $7 billion and $24 billion in total to clean up (at a maximum total cost to EPA of approximately $15 billion).	FIN08
9454	The results [of the Minnesota Department of Health study] showed the highest levels of babies affected [by toxic levels of mercury] were in Minnesota, at 10 percent, with 3 percent in Wisconsin and none in Michigan.	MERC03
9455	Fetuses, infants and children are most at risk from mercury exposure because even small amounts can harm the developing brain and nervous system.	MERC03
9456	The pristine Arrowhead region and Minnesota have a lot at stake…The BWCA [Boundary Waters Canoe Area] alone is visited by over 250,000 every year.	WILD02
9457	According to the state, tourism translates to about 235,000 Minnesota jobs - 11 percent of the state's total private-sector employment.	SO02
9458	In 2004 an EPA special report on hard rock mining in America was done. The US EPA report states, of the approximately 156 such hard rock mines currently on the Superfund National Priorities List, 40 percent of these will take from 40 years to 'in-perpetuity' to clean up. Effectively meaning they will continue to leak toxic metals and acid mine drainage into the surrounding environment, and watersheds, quite literally for thousands of years. This is not speculation.	PD26
9459	And the tourism sector generated $732 million in sales taxes alone last year, about 17 percent of the state's total sales tax revenue.	SO02
9460	Our [Minnesota's] reputation for the purity of this most valued resource – our water and woods – it is the prime draw for tourism - and is in grave danger of being irreparably damaged.	SO02
9461	This process of mining brings massive amounts of 'sulfide-bearing rock' to the earth's surface, pulverizes it, and exposes it to substantial amounts of weathering.	AIR11
9462	In addition to major issues arising from dust and air pollution problems, the minerals gradually oxidize to form dilute sulfuric acid and ferric hydroxide, resulting in the mobilization of toxic heavy metals and acid mine drainage to the surrounding environment.	HAZ03, WR151
9464	The 2004 US EPA special report on hard rock metals mining notes that currently, the US Forest Service estimates, that an astounding 10,000 miles of streams and rivers have already been heavily polluted by this mining industry.	WR023
9467	Mercury contamination of our waters is already significant.	GEN01
9468	The Polymet project is only the first of many companies waiting in line to change the very nature of this area as we know it. There are now at least 11 more ready and waiting or in various stages of exploration.	CU04
9469	The cumulative effects [of mining] will bring staggering change to a priceless and mostly still pristine area.	CU11
9470	This land [proposed location of NorthMet] does not belong to the mining companies or elected officials to do as they please.	PER45

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Wiggs (42912)	
9471	The reality of the situation is that in the real world the development and ongoing day to day operation of such facilities are rarely ever in complete accordance with the permits issued - Particularly during the operational life of such a massive and complex ongoing concern.	PER35
9472	With large industrial operations, there is always variation, operator error and accidents, along with the possibility of outright intentional deviation from permissible operating standards.	PD22
9473	As a positive alternative to mining away our more valuable and sustainable scenic natural resources, why not put a fraction of the effort we are using on mining into attracting businesses and industry that would enhance our region, and value our natural environmental assets.	SO04
9477	This area is prime habitat to the endangered Canada Lynx which has been seen in increasing numbers in the area.	WI02
9478	The Polymet mine should not be granted permit to operate. (…) I ask you to reject the permit application on the basis of specific environmental points and on the overall intent to protect this most precious and pristine region from destruction.	PER35
9479	The Cumulative environmental effects of the many hard rock mines proposed for this region have not been adequately or accurately addressed.	CU03
9480	Polymet's application does not adequately address water movement around and under the site.	PD03, WR003, WR012, WR189
9482	Groundwater and surface water is not adequately or accurately modeled in the [proposed] plan.	WR003, WR189
9485	The Cumulative effects of many mines and related operations - as they would impact the nations favorite wilderness area – the BWCA and surrounding area - has not been adequately addressed.	WILD01
9486	The proposed mine is in the Superior National Forests. The intent of the National Forest is to protection from this type of massive industrial incursion. The land swap circumvents and undermines the intent of the protection of our national forests.	LAN02
Sender Name (Submission ID)	Will Munger (13652)	
125	With this [fish advisories due to mercury] in mind, I would like to see the EIS specifically address issues that can assure us that conditions, with specific regard to water quality, can continue to improve or at least be maintained on the river if permitting of sulfide mining is approved.	MERC02, WR130
127	I would like to request that a cost benefit analysis be done of the proposed North-met Project to determine if the benefits of sulfide mining outweigh the seeming high risk experienced with this kind of mining and the known impacts that such mining is known to have.	SO01
129	I would like to request that scheduled tours of the mine site be continued but be better publicized so the general public can be better informed and see first hand the scope and nature of the project being undertaken. In addition these tours should be conducted by objective 3rd parties, not the mining companies.	NEPA10
130	I would like to suggest that more attempt be made to provide non technical statements that are briefer and easier for lay people to fully understand and digest.	NEPA07
134	If this same information [public hearing information] could be presented in community libraries for a reasonable time ahead of future hearings that would be very helpful.	NEPA10

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Will Munger (13652)	
1719	I would like to see the EIS specifically address issues that can assure us that conditions, with specific regard to water quality, can continue to improve or at least be maintained on the river if permitting of sulfide mining is approved.	WR035
1720	With this in mind I would like to call for the contracting of an objective third party consulting firm to evaluate all aspects of the permitting process to insure that a fully objective evaluation process for approval or disapproval is done.	PER01
Sender Name (Submission ID)	will perry (38534)	
9673	I am concerned that over time pollutants will leach into the water and work their way into Lake Superior and other water systems in the area.	VEG06
9674	[The SDEIS states] "Financial assurance…would occur for as long as needed to meet environmental standards". I have several concerns with the "as long as needed" part of these statements: How…will PolyMet remain financially available to pay the continued costs of reclamation?	FIN01
13570	The plan looks good on paper. But we are talking about long-term impact on a precious resource in exchange for short-term gain...I think there are too many areas in which something could potentially go wrong for this project to occur in this vulnerable area of our state.	SO01
Sender Name (Submission ID)	Will Tajibnapis (7202)	
9346	the pollution from mine tailings and waste heaps would last for at least 500 years. Setting aside money and resources, and making plans to control pollution for 500 years or more is simply impossible.	FIN01
Sender Name (Submission ID)	William (Bill) Gramer (43358)	
11746	It appears that the SDEIS thoroughly vetted all the key environmental issues to insure Minnesota Environment is protected. Great work.	NEPA16
11747	I believe now the approval for initial permitting should be accelerated in further assist Minnesota enviroment through new form of tax revenue as the IronRange Job market experiences the positive economic multiplier effect of new safe jobs.	PER34
Sender Name (Submission ID)	William A Illegible (54798)	
18132	We are concerned that there be adequate long term assurance (with teeth) that the applicants will pay for any [illegible] damage that may [illegible] in the future. A bank-issued [illegible] would be a great solution, but hardly feasible for hundreds of years.	FIN01, FIN08
Sender Name (Submission ID)	William Cunningham (36344)	
3758	I request that the MDNR allow a longer time for public comments on the SDEIS and a correction of the document to address issues of water flow measurement and mapping as well as the lack of convincing financial assurance for several centuries of monitoring and treating effluents from the project.	NEPA07
3759	Glencore, the parent company of PolyMet has an extremely poor history of environmental, human rights, and labor abuses. This is an even greater reason to view PolyMet's claims with suspicion.	SO02
3760	If PolyMet is allowed to go ahead, it will be much harder to stop other mines that are closer to the BWCA.	CU04

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	William Cunningham (36344)	
3763	Sulfide releases from mining and processing this ore will destroy important wild rice resources and violate treaty agreements with Native American tribes. The state of Minnesota should enforce strict sulfide pollution standards in all wild rice waters.	VEG04, WR156, WR160
3765	The fact that water flows in the Partridge River were miscalculated mean the the water model used in the Draft EIS is flawed and needs to be redone.	WR003
3768	…I think there's an error in assuming that no water will flow out of the mine site and processing area into the BWCA. Groundwater contours in the "One Hundred Mile Swamp" where waste rock will be stored, show drainage into Langley Creek, which is a tributary of the Kawishiwi River, which flows through the BWCA and along the Canadian border lakes.	WR080
13732	PolyMet says it will provide adequate insurance to treat effluent from the mine for hundreds of years. I don't believe it's true. Historically, once the ore has been plundered and the profits extracted, mining companies declare bankruptcy and simply walk away, leaving the public to clean up the mess. I think that's going to be the case if PolyMet is allowed to proceed.	FIN01
Sender Name (Submission ID)	WILLIAM DOW (17310)	
9990	Some short-term and unpredictable jobs don't out-weigh the high risk of damage to the environment.	SO01
Sender Name (Submission ID)	William Durbin (42823)	
7297	Projected mercury emissions, degraded wildlife habitat, damage to wild rice stands, and the potential for long-term acidification of our streams, lakes, and groundwater make this a dangerous project.	VEG04, WI02, WR001, WR156
7297	Projected mercury emissions, degraded wildlife habitat, damage to wild rice stands, and the potential for long-term acidification of our streams, lakes, and groundwater make this a dangerous project.	WR115, WR195
7298	We depend on clean water for recreation, fishing, and tourism. According to the Minnesota Department of Revenue, in 2011 the tourism in Northeastern Minnesota generated over 700 million dollars and provided private sector employment to 16,000 people. Any denigration of our natural resources would put this money at risk.	SO02
7298	We depend on clean water for recreation, fishing, and tourism. According to the Minnesota Department of Revenue, in 2011 the tourism in Northeastern Minnesota generated over 700 million dollars and provided private sector employment to 16,000 people. Any denigration of our natural resources would put this money at risk.	SO02
7299	Demanding full financial assurance in the form of a full bond against potential cleanup costs should be a minimum requirement before proceeding with any new, high-risk mining…	FIN08
7299	Demanding full financial assurance in the form of a full bond against potential cleanup costs should be a minimum requirement before proceeding with any new, high-risk mining…	CR01, CR05
15532	Project is far too risky to proceed. Water quality is paramount!	WR195
18239	As a former employee of United States Steel and member of Local 1938, I'm not opposed to mining, and I understand the value of utilizing natural resources. However, Polymet's proposed sulfide mine puts the quality of life in Northeastern Minnesota at risk.	SO02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	William Durbin (42823)	
18239	As a former employee of United States Steel and member of Local 1938, I'm not opposed to mining, and I understand the value of utilizing natural resources. However, Polymet's proposed sulfide mine puts the quality of life in Northeastern Minnesota at risk.	SO02
Sender Name (Submission ID)	William Emery (54526)	
19040	I think granting the permits for Polymet Co. mining sulfide would be very damaging to the environment and especially the water system in the state of Minnesota. Pollution of water entering Lake Superior is totally unacceptable and should not be allowed.	WR111
Sender Name (Submission ID)	William Fischer (36314)	
3658	the short term projected benefits (mainly geographically specific jobs of dubious long-term value) could not possibly justify the long term likely cost externalities (mainly perpetual environmental costs) associated with the proposal.	SO01
3659	corporate or business promises of paying for the cleanup are irrelevant - as soon as the mine is no longer profitable it will be closed and the shell company will just be bankrupted leaving MN with the damaging legacy of this project. Even if this were not the case, most companies today that do not employ practiced bankruptcy as a SOP simply do not exist long enough to pay for this type of cost.	FIN01
Sender Name (Submission ID)	William Gustavus Heeguard (57205)	
17100	1.Please explain why no health impact study was not performed both in regards to human, animal (moose) etc. and aquatic species (plants and animals)	AQ05
17102	4.What protection do we Minnesotans have if this mine goes bust in 10 years – will we have to pay for cleanup like Butte, MT	FIN01, FIN10
17103	2.What exactly is the contingency plan of the Polymet mine3.Is there a parent company	PD11
Sender Name (Submission ID)	William H Duncan (1769)	
520	I'm assuming if Polymet readily acknowledges a 200 year necessary clean-up, it could be considerably longer.	PD29
7988	A twenty-year mining boom, 200 years to filter the waters...What injustice will those unborn generations feel, to be burdened with the toxicity of today's relentless, ruthless pursuit of GDP growth.	SO01, WR115
Sender Name (Submission ID)	William K. Dustin (41985)	
2583	The mineral resources in question here are being given away for the permanent benefit of an alien corporation and a temporary economic benefit for a relatively small, but extremely vocal, group of Minnesotans. What has not been addressed is that the proposed action violates the ethical principle of generational equity.	SO02
2584	Since this low grade mineral resource is not going to get up and walk away, I suggest that… permitting be suspended to allow the citizens of Minnesota to consider a constitutional amendment that would establish a permanent fund to compensate future generations for these losses.	FIN05, FIN08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	William K. Dustin (41985)	
2585	What other groups or individuals were involved [in preparing SDEIS besides Polymet and Tribes being involved]? How closely did the authors of the document work with PolyMet, and did any personal relationships result there from? Are any of the authors hoping to find employment in the mining industry?	NEPA18
2586	"The NorthMet Project Proposed Action has changed substantially since preparation of the 2009 DEIS." This remark appears fairly frequently in the SDEIS…..I got the impression reading through the SDEIS that it was written to rule—i.e. a response was conceived that would fit the rule, but there was no evidence of where it has been done in practice. In other words, what is being proposed here is an experiment that could well fail.	NEPA09
2587	…once the negative externalities [of the proposed action] become evident at some point in the future, no one will be held accountable. The present actors will have taken their profit and left the scene and the current regulators will have retired.	FIN01
2588	p. 3-5 "PolyMet would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions have been met." How will PolyMet be held accountable?	FIN01
2589	p. 3-6 " The Land Exchange Proposed Action would include up to five tracts of non-federal lands in St. Louis, Lake, and Cook counties that would comprise up to 6,722.5 acres (GLO); ……" This looks like a copout. A lesser acreage should not be accepted.	LAN03
2590	p. 3-7 "Long-term, post-closure monitoring and adaptive management involving mechanical treatment for as long as required until if and when non-mechanical passive treatment is proven at the site, for affected water from the pits, permanent stockpile, Hydrometallurgical Residue Facility, and Tailings Basin." Who is going to do all of this? If it is the state, are there FTEs in the budget?	FIN01
2591	p. 3-39 How much additional waste will be derived from the ore? This is low grade ore where 99% is waste.	PD15
2592	p 3-41 "It would be necessary to dewater the pits during mining to remove groundwater and precipitation runoff. These waters would be directed to low areas in the pits, collected in sumps, and pumped to the WTF. The mine pit sump areas and pump capacities would be designed to minimize delay to mining operations during the typical spring snowmelt or major precipitation events." Who is going to design the pumps and where have they been tested?	PD24
2593	p. 3-52 "However, should water monitoring undertaken during or following operations indicate a need to do so, the WWTF could be expanded or treatment capabilities modified to meet water quality standards." How will this be guaranteed?	PD24, WR130
2594	p. 3-59 "PolyMet would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions have been met." How will this be enforced? What about bankruptcy?	FIN01
2595	p. 3-64 "The overburden portions of the pit walls would be sloped and graded at no steeper than a height-to-vertical ratio of 2.5:1 ….. There would always be a clear path to the water surface." Here is an example of writing to rule. It looks like these proposals are being made up as you go along. There is no enforcement mechanism.	PD24
2596	p. 3-91 [Refering to the sentences] "New tailings would be placed ….existing geotechnical conditions at the Tailings Basin and Hydrometallurgical Residue Facility." This doesn't make sense. My understanding is the existing tailings basin is already leaking AMD into the environment.	PD10
2597	p. 3-117 and Figure 3.2-28 "Along the eastern side of the Tailing Basin, high bedrock eliminates groundwater seepage. Along the southern side, surface features result in all seepage emerging at a surface seep." Assumption [that the bedrock eliminates groundwater seepage] is the mother of all screw-up's.	PD12, PD13, WR105

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	William K. Dustin (41985)	
2598	p. 4-139 "Subsequent to publication of the DEIS, baseline wetland types were re-evaluated. Additional field visits were conducted from April to October 2010, in addition to further mapping efforts." Did this result in a lowering of standards?	WET21
2599	p. 4-149. "The hydrology of the wetlands at the Mine Site has been stable over time." This stability should be preserved to prevent pollution of the One Hundred Mile Swamp and the headwaters of the Partridge River.	WET19
2600	p. 4-170 "Of the wetlands that are located on the Mine Site, the majority (92 percent) is rated as having a high overall wetland quality and 8 percent are of moderate overall wetland quality." This is why the wetland mitigation proposal is unsatisfactory. An artificial wetland cannot replicate a natural wetland, particularly wetlands that are the source of a waterway.	WET05
2601	p. 4-173 [Referring to sentences:] "Sites of High Biodiversity Significance contain very good-quality occurrences of the rarest species,….which is 85 percent of the Mine Site." This is another reason as to why the land exchange is inadequate.	VEG02
2602	p. 4-247 "The climate for the NorthMet Project area and Minnesota, in general, is defined as continental. The region is subject ….to more frequent Arctic air masses." How is global warming being factored into the models used to determine long term cleanup and monitoring?	AIR01
2603	p. 4-304 "For most Native American tribes, subsistence is synonymous with culture and identity." The Native American tribes will need to be included in some way with respect to the proposed permanent fund.	CR01, CR06
2604	p. 4-435 [Referring to sentences:] "Wildlife habitat was rated high …human disturbances or effects." "Amphibian habitat was rated high …to successfully reproduce." This as another reason not to disturb the wetlands, particularly with respect to amphibians, because this group is experiencing the highest level of species extinction. They seem to be very sensitive to environmental pollution.	AQ19, WET24
2605	p. 4-436 "The federal lands were found to have 1,889.4 acres (29 percent) of floodplain (500-year floodplain) and these floodplains are not FEMA regulatory floodplains." What will happen if there is a 500 yr. flood? Global warming could make flooding more common.	WET14
2606	p. 4-440 "The value of the wetlands or floodplains for properties received and conveyed is equal (balancing test) and the land exchange is in the public interest." I doubt that the properties exchanged are equal, but it [is] a privatized interest, not a public interest.	WET14
2607	p. 5-7 "The Co-lead Agencies have selected the 90th percentile probability (P90) as its evaluation threshold in determining whether the model results meet established evaluation criteria..." P90 is an unacceptable level of significance. Most statistical research uses P95 as the level of significance, and in this case, where there is the potential for severe pollution, the level should be P99. In addition, statistical modeling is not the same as demonstrating that this type of mining can be done without significant environmental damage. There is an extreme amount of uncertainty in computer models.	WR110
2608	p.5-69 "The probability functions are based on the variability of measured data, professional judgment, or both." Whose professional judgment? PolyMet's?	WR073, WR189
2609	p.5-152 The evaluation criteria are not shown on the graph.	EDIT01
2610	p. 5-223 It is unfortunate that this type of wetland mitigation is allowed because it is not adequate.	WET05
2611	p. 5-226 "Additionally, wetlands in the Northshore Mine and areas directly north of the Northshore Mine have been excluded from the evaluation." Why?	WET08

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	William K. Dustin (41985)	
2612	p. 5-247 "Under this methodology approach, the likelihood of wetland hydrology effects would be as follows:…" This methodology is unclear…	WET08
2613	p. 5-298 "Therefore, monitoring of wetland hydrology and vegetation communities would be the most appropriate way to document the extent and magnitude of wetland responses to the NorthMet Project Proposed Action." Who is doing the monitoring? Using what criteria?	WET02
2614	p. 5-333 "Should the USACE determine that a greater percentage of the compensation be accomplished within the St. Louis River Watershed/Great Lakes Basin, the applicant may be directed to re-evaluate compensation opportunities within that watershed." … Will the public be notified if it does?	COE02
2615	p. 5-448 What is the impact of blasting on bedrock fracturing leading to potential groundwater pollution?	WR016
2616	p. 5-493 "The NorthMet Project Proposed Action would create slightly increased demand for housing and public services in cities and towns near the NorthMet Project area." There will be excess housing and less demand for public services at mine closure.	SO02
2617	p. 5-496 "Prices based on PolyMet's 2008 Bankable Feasibility Study (PolyMet 2008). This is the most detailed published information available, and PolyMet is legally bound to these data." What does legally bound mean here?	SO04
2618	p. 5-513 "After closure, PolyMet would retain ownership of the Mine Site and the federal lands, and public access would likely remain restricted." What is PolyMet going to do with the site after closure? Is public access restricted because the site is heavily polluted?	PD30
2619	P5-514 "The Plant Site is located at the former LTVSMC processing plant. It is owned by PolyMet, and it is not open to the public. Entry roads are gated and/or guarded. No recreational activity is permitted at this site, nor would it be permitted during construction, operation, and closure of the NorthMet Project Proposed Action." Who will be permitted to access the site to monitor compliance with all permits?	PD24
2620	p. 5-534 "All hazardous materials would be transported by commercial carriers in accordance with state and federal hazardous material shipping requirements." How adequate are these [hazardous materials shipping] requirements in light of all the accidents resulting from rail transport of crude oil from North Dakota?	HAZ06
2621	Section 5.3.5 Wildlife don't care about who owns the land, they only care about habitat, and the land exchange will result in a loss of habitat.	WI02
2622	To not account for these so called speculative actions [described in Section 6.2.2.1.21] in considering the combined effects on the environment in unconscionable. For evidence that these activities are more than speculative refer to the March 1, 2014 edition of the Ely Echo, which, on page 7, has an article with a map entitled "Twin Metals unveils first look at proposed mine operations".	CU02
2623	p. 7-10 "Irreversible commitments of resources are those …. ore or wetlands that would be permanently converted to rock stockpile)." … You might add that once started, there is no going back. If PolyMet violates the terms of its permits, they know no one is going to shut them down.	PER06
2624	p. 7-12 Modeling is not the same as a physical demonstration. Reverse osmosis has been mentioned in this document and is supposed to start being used ad year 20. How will this work and where has it been physically demonstrated?	WR143
2625	p. 8.8 "Also, preliminary economic screening by PolyMet determined that sale of metal precipitates produced from an underground mine would not meet the NorthMet Project Proposed Action Purpose and Need,…." Why?	NEPA01
2626	p. 8-10 "If actual NorthMet Project Proposed Action effects were found to be higher than predictions, then steps could be taken to reduce those effects." What [are those] steps?	WR035

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	William K. Dustin (41985)	
2671	[at the public meetings] there was a provision that allowed a speaker selected by lot to cede his/her speaking opportunity to another person. This provided the opportunity for a group of people to enter the lottery with an agreed upon plan to cede their speaking opportunity to a particular individual. This gave that particular individual much greater odds of getting an opportunity to speak.	NEPA11
Sender Name (Submission ID)	William O O'Neill (57177)	
18674	Mining with sulfide in northern Minnesota would be a short-sighted action that would deteriorate the health of the ecology and quality of life in the area. Long after the resources are tapped, our children will still be dealing with the toxins left behind.	SO02
Sender Name (Submission ID)	William R Whiteside (18307)	
12226	And I'm very happy to see as we're looking forward the huge amounts of money -- billions of dollars -- that are going to be available to young people not only of the Iron Range, not only of Duluth, Northeastern Minnesota, but all of Minnesota to assure better educational opportunities, more solid infrastructure, better bridges, highways, hospitals. All the things that are necessary to a healthy and a good environment for people to live in.	SO10
Sender Name (Submission ID)	William Robbins (46971)	
10869	Without knowing the design operating pressure [of RO system], a decision maker would not know the following: How much wastewater will have to be stored or treated by secondary methods. The intended size and cost of the RO system, including pre-filtration equipment. The costs of long-term maintenance, monitoring and repair of the RO system. Without adequate maintenance, monitoring and repair, the cleaner water stream will soon cease to meet even the minimum water quality standards.There seems to have been a focus on controlling water effluent from tailings. This is important, to be sure, but the huge amount of water, both meteoric and ground source water from the open pit will likely dominate water flow which needs to be treated, so sizing of the RO system needs to accommodate large, erratic flows from storm runoff.	WR143
10870	All the following generate airborne dust: Removing overburden, mining, transportation, milling to reduce size preparatory to froth flotation, and tailings storage. I found little mention in the Supplemental Draft EIS of sources of dust, design of equipment and engineering processes to minimize dust generation and remediation procedures to contain and dispose of dust.	AIR07
10871	By planning for a 40-year period of mining, rather than a 20-year period, the removal rate of copper/nickel would need to be reduced. I understand that the up-front costs would be recovered more slowly, and this would generate reduced profits. Benefits to the long term economy, the people in the area, and the environment would result, and those uncertainties would decrease, issues associated with the long term needs of maintaining the site after active mining operations cease.	ALT01
Sender Name (Submission ID)	William Rudie (27497)	
10480	I appreciate the desire of those living in this area to have an opportunity for economic advancement if only for a limited time but the cost in permanent damage to this land and these waters is simply too high.	SO02
15271	The short form of the environmental impact statement could easily say "…the unique and delicate environment of Northern Minnesota will be damaged. Mining companies have been unable or unwilling to do what is required to prevent polution caused by such operations in the past and there is no reason to think that this mine will be any different…"	PER35

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	William Simmons (35263)	
14091	We know that acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. There is no reasonable expectation that a different outcome will be seen in Minnesota!	WR023
Sender Name (Submission ID)	William Smith (54493)	
18084	According to the EIS, treatment will be needed at the mine site for a minimum of 200 years and at the plant site for a minimum of 500 years.(…) Clean water and a healthy environment is extremely important to me and my family and this project puts the St. Louis River watershed and in turn Lake Superior in grave danger.	WR115
Sender Name (Submission ID)	William Wenger (9794)	
1385	We do need copper, and I would prefer it be mined under close government scrutiny in Minnesota, than in other parts of the world where such over site is missing.	ALT16
1386	I support the PolyMet mining plan assuming all safeguards to the environment are in place.	PD28
Sender Name (Submission ID)	William Wilton (57215)	
17151	Research to recycle and reuse what has been already extracted can bring many jobs is just a start.	ALT09, ALT16
Sender Name (Submission ID)	William Youman (58168)	
19888	...the mining should NOT go forth and be NOT approved due to wildlife, water quality and health issues for local residents and all of MN and the water resources.	GEN03
Sender Name (Submission ID)	william youmans (46190)	
8162	We are concerned that the proposed PolyMet NorthMet copper-nickel mine project could have significant adverse impacts on human health as a result of pollutants released to air, surface water and drinking water. We also believe that the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (“PolyMet SDEIS”) fails to adequately assess important risks to human health from the pollutants that would be released from this project. The absence of any professionals from the Minnesota Department of Health from the List of Preparers of the PolyMet SDEIS is particularly troubling.	HU03
8166	We would respectfully request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks of the proposal. We would further request that, in revising the PolyMet SDEIS, a comprehensive Health Impact Assessment (HIA) be prepared under the guidance of the Minnesota Department of Health.	HU01
8170	Reviewing the PolyMet SDEIS, we believe that the information on mercury releases and the potential for mercury bioaccumulation is insufficient. The SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of pollutants or of hydrologic changes on mercury bioaccumulation. The SDEIS does not provide evidence to justify its claims about collection and containment of mercury and sulfates.	MERC20

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	william youmans (46190)	
8172	The PolyMet SDEIS also provides an insufficient analysis of the human health risks of other pollutants, such as neurologic morbidity resulting from manganese and lead release; and carcinogenic effects of air emissions of diesel, asbestos-like fibers, nickel and other particulates, and of arsenic releases to water.	HU01
8182	The PolyMet SDEIS fails to analyze health risks to workers who would work on-site at the PolyMet mine or plant and fails to assess impacts of tailings groundwater seepage on nearby residential.	HU04
8184	The PolyMet SDEIS does not discuss impacts of exposures to vulnerable populations, such as infants, children, the elderly and persons who rely for subsistence on fish, wild rice or game species where pollutants may bioaccumulate.	HU01
8191	For these reasons, we would first request that the PolyMet SDEIS be revised to provide more complete information on mercury and sulfate emissions, deposition, and seepage from various sources, and the potential conversion to and bioaccumulation of methylmercury resulting from releases to the environment and hydrological changes from the proposed PolyMet project.	MERC02
8193	We would further request that the PolyMet SDEIS be determined inadequate pending supplementation to include a Health Impact Assessment, under the direction of the Minnesota Health Department.	HU01
8195	This Health Impact Assessment should include at least the following:1. Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges based on reliable toxicity and epidemiology data.2. Assessment of potential health impacts on residential wells from tailings seepage.3. Health impact assessment for on-site workers at both the PolyMet mine and plant.4. Assessment of cumulative mercury risks, including hazard levels in bodies of water that are already impaired for mercury in fish and risks posed by mercury concentration downstream in the St. Louis River.5. Assessment of cumulative cancer and non-cancer risks from existing and additional sources of toxic chemicals, such as manganese, arsenic, lead and nickel, applying the most protective health risk analysis and an appropriate "lifetime" for exposure.6. Assessment of cumulative risks of multiple chemicals and exposure routes on vulnerable populations, including infants, children, the elderly and populations who have higher rates of consumption of affected foods, such as fish and wild rice.	HU01
8214	Environmental Impact Statements, such as the PolyMet SDEIS, are required by the National Environmental Policy Act to contain analysis of impacts on human health. However, human health is subordinated to environmental impacts, is addressed in a piecemeal fashion, and there is no examination of the social determinants of health in the SDEIS. An HIA would integrate human health into the environmental review for the PolyMet NorthMet proposal, allow consideration of mitigation measures, and involve the community in planning for the project.	HU01
Sender Name (Submission ID)	Wintergreen (10185)	
367	This SDEIS is fundamentally inadequate. We're told to rely on science to get it right. How can we if the agencies that are doing the science got it wrong? Let's start over before we risk permanent damage to Minnesota's lakes and streams and our nation's most significant watershed."	NEPA09

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Wintergreen (10185)	
1436	For 5 years PolyMet and various government agencies have studied the potential impacts that the nation's most polluting & toxic industry might have on the nation's most water-rich ecosystems. For 5 years, we've been told to trust the science. Don't worry, they've told us, PolyMet's models will get it right. These models will determine whether a mine slated to operate for just 20 years is likely to pollute a headwaters of the Great Lakes watershed – the world's most significant freshwater resource -- for hundreds of years if not forever. But now we learn that PolyMet's models got it wrong. They based the study on the wrong data. Their key parameter, stream flow volume, was incorrect. It's simple: to determine how much pollution might travel from the mine site to Lake Superior, you measure the flowage of the headwater stream that connects the two – the Partridge River. But the scientists we are asked to trust did not measure the flowage. They simply guessed using computer models. They guessed wrong. New data shows that at least 3 times as much water flows down the Partridge River than was wrongly assumed in their study. And here's the kicker: For 5 years scientists with native American tribes who know the lay of the land better than any of us warned the agencies that PolyMet's stream flow data was incorrect. The warnings of the tribal scientists were ignored. Why? Is it because much greater flowage might mean much greater pollution treatment costs than PolyMet is willing to pay? Is it because much great flowage might spread the pollution to a much larger area than PolyMet is willing to clean up? Is it because PolyMet's proposed treatment plants will have to process larger volumes of water for hundreds of years than any financial assurance package could ever possible pay for? If the agencies that prepared this SDEIS could not get a simple key parameter correct – the amount of water currently flowing from the mine site – how can we possibly trust them to accurately predict the impact of this mine on our watershed hundreds of years from now -- when it will still be releasing toxins into our surface & groundwater.	WR003
Sender Name (Submission ID)	Wump (45062)	
7542	Please reject the Polymet proposal as it would destroy the natural environment and compromise our waters.	WR195
7543	This cost significantly outweighs any short term financial gain that may result from the copper mine business.	SO01
Sender Name (Submission ID)	Wynter George (54182)	
16433	I think building a mine is a bad idea because it will effect our environment. It will destroy our rivers and are boundaries water.	WR111, WR115
Sender Name (Submission ID)	Xa Peter Vang (54209)	
17648	The boundary water has been our largest wilderness since 1978 and it should be kept like that. The boundary waters is the icon behind Minnesota.	WILD02
17649	I think we should not turn the boundary waters into a mine. I believe we should protect an environment that holds such beauty and serenity.	LU04
17650	Sulfide mining will have a large impact to the environment; sulfide will turn into sulfuric acid and pollute the boundary water.	WR001, WR111
17651	Pollution is a big problem all over the world and we all want to stop pollution, so why build something that will create more pollution.	GEN01
Sender Name (Submission ID)	Yasmina Antcliff (11521)	
2473	I am concerned about mercury levels in the water effecting our fish populations. We need more research. The SDEIS must be redone to check levels of mercury before the contaminated water comes in contact with waterways.	MERC02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Yasmina Antcliff (11521)	
2473	I am concerned about mercury levels in the water effecting our fish populations. We need more research. The SDEIS must be redone to check levels of mercury before the contaminated water comes in contact with waterways.	MERC02
9340	The Environmental Impact Statement doesn't tell us how much mercury pollution will be seeping out of the PolyMet tailings into surficial waters.	MERC20
Sender Name (Submission ID)	yvonne eckstein (40197)	
6626	Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit -- that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever	PER35
6627	The opportunity to provide employment from the PolyMet project has strong appeal to some residents in the area--and jobs are are a real concern BUT I think the short term benefits of these few jobs are vastly outweighed by the longer term and possibly permanent damage to health and environment of Minnesota residents	SO01
6629	I would ask the SDEIS analyze and study the potential impacts of some alternatives to an open pit design--like underground mining, putting liners under the permanent waste pile and the tailings pile	ALT01, ALT07
6630	PolyMet should be denied a permit to mine until the potential impacts of their proposal receive further study, and questions such as--will mercury loading in wetlands pose a risk to fish, to human and animal health; what are the actual costs of treating the water pollution from the permanent mine site waste rock and how long will PolyMet pay for it.	HU01
6631	The groundwater flow rates in SDEIS are inconsistent with "real world" date. What is PolyMet planning to do if their modeling predictions of no risk of water pollution from seepage both from the waste rock pile and the tailings pile do not hold true?	WR058, WR090, WR130
6632	I believe PolyMet's open pit mine plan is deeply flawed and my concern as an old Minnesota resident is the long term potential harm to the environment.--water and air pollution from the mine site, leaching of heavy metals into wetlands and lake drinking water, loss of public lands in Superior National Forest, destruction of irreplaceable wetlands	PD01
Sender Name (Submission ID)	Zabelle Stodola (51512)	
3612	Whatever short-term economic gains might accrue regionally are simply not worth the long-term risks to the environment, to residents' health, and to the local tourist economy.	SO01
3613	The location of PolyMet's proposed NorthMet open pit mine is near important tributaries such as the Embarrass and Partridge Rivers. Therefore, the potential for acid mine drainage polluting the St. Louis River and, crucially, Lake Superior is significant.	WR113
3614	I am also opposed to the land exchange PolyMet has proposed which would zero out critical federal environmental protections such as the Weeks Act. Strip mining is not permitted on Weeks Act land, so special legislation removing environmental regulations would be necessary in order for PolyMet to move forward with the process. Protection provided by the Endangered Species Act and the National Environmental Policy Act would also be removed by the exchange. Shame! Further, if this project goes forward, we could see legislation in the future that would fast track a land exchange largely to benefit multinational mining companies.	LAN02
8763	The location of PolyMet's proposed NorthMet open pit mine is near important tributaries such as the Embarrass and Partridge Rivers… the potential for acid mine drainage polluting the St. Louis River and, crucially, Lake Superior is significant.	WR111

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Zabelle Stodola (51512)	
8765	I am also opposed to the land exchange...which would zero out critical federal environmental protections such as the Weeks Act. Strip mining is not permitted on Weeks Act land, so special legislation removing environmental regulations would be necessary in order for PolyMet to move forward with the process.	LAN02
10460	I would like to remind decision makers that in the past, the taconite industry put private economic gain over health and environmental protection and dumped waste into Lake Superior with disastrous consequences. It has taken years to deal with that mess.	PER35, WR023
16981	ven worse, the mine and associated facilities could be expanded later because other deposits exist in the surrounding area. Allowing construction of the NorthMet mine is an open door to further expansion.	CU02, CU04
16982	I understand that the Swiss corporate mining giant, Glencore, financially backs PolyMet and plans to sell the metals globally. This company, which owns approximately 25% of PolyMet, faces accusations of human rights abuses, environmental damage, and labor violations elsewhere.	PD23
Sender Name (Submission ID)	Zac Cerwinske (54335)	
17313	I don't want the NorthMet Mining Project approved. I am worried about the environment, especially the loss of almost three fifths of our wetlands on the proposed site. Wetlands can decrease flooding, remove pollutants from water, recharge groundwater, protect shorelines, and provide habitat for wildlife.	WET24
17314	A partially filled or damaged wetland can't fully control floods, or help to improve water quality. A badly degraded wetland can lose its ability to remove excess sediments, metals, pesticides, and other pollutants. Wetlands have the ability to provide environmental benefits, but they are not indestructible. If we want wetlands to continue to perform their ecological functions, then we have to do our part to protect them, and this is why I don't want the NorthMet Mining Project to be approved.	WET24
Sender Name (Submission ID)	Zac Kenoyer (54345)	
17677	I think [PolyMet] should find a way to minimize the Cultural resources effect They should change their plan so they do not bother the Ojibwe people. … [find a way to build the mine without] inconveniencing them during construction and ruining some of their historic land. … This will affect cultural resources because it will affect three of five historic places during construction, excavation, filling, etc...Also the 1854 treaty specifies that its reserved for fishing, hunting, and gathering on this land that would be affected.	CR01, CR05
17678	I think this mining will benefit Minnesota by creating jobs and getting us needed resources to use or export.	SO10
Sender Name (Submission ID)	Zach Insheep (54190)	
17214	In the process of building the mine we would be destroying natural water filters, wetlands, peat.	WET24
17216	Worldwide we only have 0.024% of clean drinking water. We should not take our water for granted even if it is for copper.	SO01
Sender Name (Submission ID)	Zach Kunkenborg (54193)	
17220	I mean we have one of the most pure watersheds up there, near the boundary waters and all, so why would you put a sulfuric mine up there and risk tainting the water?	WILD02

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Zach Kunkenborg (54193)	
17221	Also you get a lot of waste from this mining, think of all the waste this will create.	GEN01
Sender Name (Submission ID)	Zachariah Mitteness (37824)	
16336	The polymet mine would jeopardize sacred manoomin (wild rice) which Is almost exclusively here in Minnesota, Wisconsin, and parts of Canada.	VEG04
16337	…the polymet mine would have an effect on the serene beauty of the boundary waters.	WILD02
Sender Name (Submission ID)	Zachary Behnke (54219)	
16293	PolyMet has many problems with their plan and environment impact statement. One of the major problem with PolyMet, is that they re-drew maps to disguise the fact that the runoff from the mine waste piles will enter the BWCA. Not only do they need to get new, ACCURATE maps from the DNR, but they also need to test how much waste will flow to the BWCA and how long it will take to get there.	WR080
16294	PolyMet has many problems with their plan and environment impact statement. The water will have toxic levels of metal at LEAST for 500 years. That will need constant treatment to make it safe. The MN DNR needs to get a water model that is capable of telling how many years it will take for the waste water metal levels to drop to the safe range.	WR036
16298	The environmental impact statement is a set up deal. It’s a way for PolyMet and people to provide jobs for 20 years at max, for at LEAST 500 years of toxic pollution that will destroy not only BWCA, but also destroy any natural parts of Minnesota left. I hope you do not allow these scandals to ruin generations of the great outdoors, and take away from the Minnesota culture.	FIN10
Sender Name (Submission ID)	Zachary Blankenheim (40036)	
6644	The moose is a truly iconic symbol of the Northwoods in Minnesota. The population is already in drastic decline with studies just getting underway to search as to the reasons why. Further decline in moose numbers may also impact the wolf population. Without the moose as a food source the wolf population will possibly rely more heavily on the white tail deer. If the numbers of white tail deer decline that will impact hunters and the amount of revenue that the area receives.	WI01
Sender Name (Submission ID)	Zachary Johns (38609)	
14064	The Boundary Waters Canoe Area Wilderness, yes, our beloved Boundary Waters, is being threatened by the scourge of Sulfide Mining... many around the United States put our BWCA on the same level as Yellowstone, Yosemite or the Great Smokey Mountains. If we screw this up, it will be a national disaster.	WILD02
Sender Name (Submission ID)	ZACHARY LORTON (3225)	
625	When mining in Areas near bodies of water it in inevitable that chemicals will reach and contaminate the water.	WR195
626	When sulfuric acid leaks out from the metal mines it contaminates not only the lakes but also the groundwater.	WR195
627	If the lakes were to be poisoned by chemicals, much like many city lakes, the fish population would surely decrease.	AQ05

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Zachary Nelson (47577)	
7141	At 200 years of clean up...the "jobs" created would be [short] term and would put Ely in the same position as Duluth in the 80s when it was dependent on miming and almost died when the industry fell through.	SO01
Sender Name (Submission ID)	Zack Heuring (47400)	
10263	We cannot afford the hundreds of years of harmful effects for maybe twenty years of jobs. This is a short term fix to a long term problem on The Range and will not serve or state or economy well in the future.	SO01
Sender Name (Submission ID)	Zdenek Mestenhauser (21373)	
979	I attended the public comment event on Jan. 28 in St. Paul. This event was rigged with an intent to skew the outcome. It did not allow equal time for true public comment vs. industry comments. The DNR set the event up to favor industry input by allowing the unions to submit requests to speak, when there was actually no intention to speak and provide public input. (…)The public hearings have to be repeated to allow true public input in order to be valid.	NEPA11
981	Value of clean water is not calculated for the next 500 years.(…) Climate change impact was not considered in the SDEIS. This need to be analyzed to better understand the long impact such a mining operation would have. Several scenarios need to be considered. Raising sea levels will displace population; raising temperature will make Minnesota a better place to live. More severe and extreme storms will happen in the future. Calculations for 5,000 year storms need to be considered in the study. The water treatment plants have to be able to withstand those.	WR180, WR195
983	It is virtually impossible to design a system that will last 500 years. The plan has to address this topic to a great detail in order for experts and the public to assess if the design of such a facility would be adequate. The cost of such a facility has to be estimated.	SO04
984	PolyMET has to show facts to support this claim. Research shows that there is not a single sulfide mining operation that does not pollute. There is certainly not one operating in such a water rich ecosystem.	PD26
985	The proposed mining will increase the contamination of water with heavy metals including mercury. The SDEIS does not adequately estimate the impact of mercury contamination of fish downstream and including all the great lakes.(…) A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. The SDEIS does not address in sufficient detail the amount of mercury and methylmercury released into the Embarrass River. The plan must address mercury pollution.	MERC02, MERC10, MERC11
987	There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin failure.(…) The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates in the Lake Superior watershed.	PD22
989	It is unfair to Minnesotans that this public comment period is the only chance for us to weigh in on whether the financial assurance is adequate. Given the uncertainty of the amount of anticipated and unanticipated water pollution and the required treatment period, how will Polymet and the DNR protect taxpayers centuries into the future? The financial consequences of this project will outlive everyone, every mining company, and even every governmental institution we know today. The PolyMet SDEIS gives no details of the amount and type of damage deposit adequate to cover the cost of treating water for countess generations into the future.	FIN01, FIN05, FIN10, FIN13

Alphabetical by sender's first name

Comment ID	Comment Text	Theme Codes
Sender Name (Submission ID)	Zdenek Mestenhauser (21373)	
14128	The USEPA gave the proposed mine its lowest ranking: Environmentally Unsatisfactory and Inadequate. Polymet's SDEIS clearly shows that after 20 years, there will be three enormous pits up to 696 feet deep full of water polluted with sulfuric acid and toxic heavy metals. Treatment at the mine site will be required for a minimum of 200 years and at the plant site for a minimum of 500 years. Mine tailings will be added to an existing tailings basin that is currently leaking polluted water	WR035, WR070, WR115
19899	Based on available information, pollution of clean water is inevitable... Financial assurances are insufficient! The cost of investigating pollution will be up to the public. It is not worth the risk. This technique has never been used successfully. Please do not gamble with our natural resources!	FIN10

Full Text of Unique and Form Letter Variant Submissions

Alphabetical by sender's first name

1854 Treaty Authority 42968

Please find attached comments on the PolyMet Supplemental Draft Environmental Impact Statement. Thank you. Darren Vogt Environmental Director 1854 Treaty Authority 4428 Haines Road Duluth, MN 55811 218-722-8907 (phone) 218-722-7003 (fax) HYPERLINK "mailto:dvogt@1854treatyauthority-org"dvogt@1854treatyauthority-org HYPERLINK "http://www.1854treatyauthority-org"www.1854treatyauthority-org

4095481751@vzwpix.com 4305

Please approve this project as soon as possible. America and the world will need these metals soon. Thank you.

A M 16161

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

a s dorman 40914

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, a s dorman Minneapolis, MN 55412

40915

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, a s dorman Minneapolis, MN 55412

Alphabetical by sender's first name

a s dorman 49088

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, a s dorman Minneapolis, MN 55412

Alphabetical by sender's first name

A. Harle 19081

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Amethyst Harle A. Harle 1702 North 24th Street Superior, WI 54880 218 481 4318

Alphabetical by sender's first name

A. Harle 19083

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Amethyst Harle A. Harle 1702 North 24th Street Superior, WI 54880 218 481 4318

A. P. Olson 20801

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. Reporting from NPR as well as stories found on Bringmethenews-com have caused me to take action. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, A. P. Olson 1552 Albany Ave St Paul, MN 55108

49639

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. Reporting from NPR as well as stories found on Bringmethenews-com have caused me to take action. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, A. P. Olson 1552 Albany Ave St Paul, MN 55108

Alphabetical by sender's first name

Aaron Bouchard 41969

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Aaron Bouchard 43 Clermont Cres Dartmouth, NS B2W 4N9

Aaron Brasket 16895

Feb 18, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Aaron Brasket 3060 Lake Sarah Rd Independence, MN 55359 Sincerely, Mr Aaron Brasket 3060 Lake Sarah Rd Independence, MN 55359-9743 (763) 291-3748

Aaron Camacho 28831

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, No mine . We need to think of our futures, not in a financial way, but one that considers all living things and the value they hAve This value may not be conducive with the cooperate world. However, this value is relevant to our ecosystems, our life. Being that I live just off the Mississippi River and down stream from this potential mine is disturbing knowledge. Any water affected by this mine will eventually make its way down stream to this area where I live. I am a concerned citizen of Wisconsin and Native American who feels this continual TAKING from the land for financial gain, will be our undoing. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Again, I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public interest, not in the leaSt Sincerely, Aaron Camacho S2861 Mustang Rd Fountain City, WI 54629-7533

Alphabetical by sender's first name

Aaron L. Wittnebel 47268

To Whom It May Concern: As a resident of Northwest Minnesota, it may seem that I shouldn't have an opinion on PolyMet, but I feel compelled to share my concerns about this proposal as it will eventually impact the state of Minnesota as a whole.There are three main concerns that I have as a Minnesota resident: 1-) Instability of the industry; if the business collapses or goes bankrupt, won't it be the taxpayers left covering the costs of cleanup, unemployment, and reemployment. And what is the life expectancy of this mining operation 10, 20 or 40 years total. 2-) No health impact study has been conducted, and this industry has a propensity to be very dangerous to not just the health of employees, but to the general public in the surrounding area. If people become ill, (even much later, as what typically happens with other health conditions brought on by other environmental hazards), again, the state as a whole will be left to care for those that become ill. (It's not the caring for the ill that bothers me, it's the fact that it could have been avoided all together to begin with.) 3-) The proximity of the mining operations are very close to pristine and natural lands, that our state pride's itself on. They are natural wonders that draw people to come to Minnesota for our great tourism industry. What will happen to our state's branding, once mining is expanded and we destroy these attractions. As of now, I'm adamantly opposed to PolyMet. In all good concious, I don't know how the people (other than those in need of employment in the small region) could be expected to support such a proposal without all the answers and assurances. I also suspect that none can be given, and we are expected to proceed on blind faith. In that case, we can't, for the future of Minnesota, we just simply cannot allow PolyMet to happen. Respectfully, Aaron Lee Wittnebel Mayor City of Lake Park - Aaron L. Wittnebel P.O. Box 287 4011 Fourth Street Lake Park, MN 56554 C: (218) 270-0457 O: (218) 209-2320 LEGAL NOTICE: The information in this e-mail is confidential and may be legally privileged. It is intended solely for the addressee. Access to this e-mail, including attachments, by anyone else is unauthorized. If you are not the intended recipient, any disclosure, copying, or distribution of this communication is prohibited and may be unlawful. If you have received this communication in error, please contact the sender immediately by reply e-mail and destroy all copies of the original message. Thank you.

Aaron McLeod 44470

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: As a lifetime resident of Minnesota, I strongly oppose sulfide mining. I'm often told by advocates for this project that if I'm going to be opposed to it, I should give up cell phones and computers. Fair enough. I can be reached through the information provided below. Feel free to come pick up all of my electronics in exchange for a guarantee that I will continue to have clean drinking water and one of the most beautiful places in the world to live for the rest of my life. Thank you for your time, and I look forward to meeting you in person. Aaron McLeod 212 Piedmont Duluth, MN 55806

44472

Dear Ms Fay, Mr Bruner and Mr Dabney: As a lifetime resident of Minnesota, I strongly oppose sulfide mining. I'm often told by advocates for this project that if I'm going to be opposed to it, I should give up cell phones and computers. Fair enough. I can be reached through the information provided below. Feel free to come pick up all of my electronics in exchange for a guarantee that I will continue to have clean drinking water and one of the most beautiful places in the world to live for the rest of my life. Thank you for your time, and I look forward to meeting you in person. Aaron McLeod 212 Piedmont Duluth, MN 55806

Aaron Poznanovic 54686

See attachment

Aaron Vail 3039

To whom it may concern: I am writing in full and complete support of the PolyMet Mining project. The economic impact of this project to the State of Minnesota is significant and necessary. Not only are they creating hundreds of jobs in a downtrodden and economically suffocated area of our great state, they are doing so in a moral, ethical, and responsible way. Best regards, Aaron S. Vail Cell: 651-214-0950 Email: HYPERLINK "mailto:coachaaronvail@gmail-com"coachaaronvail@gmail-com Twitter: CoachVail9 "Sports Do Not Build Character, They Reveal It." - John Wooden

Alphabetical by sender's first name

Abbi Evans 54337

Lisa Fay, EIS Project ManagerMNDNR Division of Ecological and Water ResourcesEnvironmental Review Unit500 Lafayette Road, Box 25St. Paul, MN 55155-402510 February 2014Dear Ms. Lisa Fay, EIS Project ManagerPolyMet Mining Inc. projectI don't think the Poly Met Mining Inc. project is a good idea. With all the harmful effects that couldcome into play.1. The water could be contaminated with sulphate, metals, and mercury.2. The project will affect the Indian reservations.3. It will be moving the earth, and will have visual obstructions, noise, and dust.4. It can affect the following around it: bodies of water, wetlands, vegetation, wildlife, and manyother environmental features.5. If there are buildings on the land would either result in closure and/or demolition.a. This would result in people losing their jobs/businesses.There can be some positive effects though too.1. To make everything run smoothly they will need to hire people, so then there will be jobs forpeople.2. The new resources: iron, copper and nickel.3. It will boost the economy.With that, I understand there are some positive effects, but with the negative ones I don't thinkthey should be able to mine. Wildlife can be harmed, that includes animals on the threatened andendangered species list. There are too many things that can affect us and everything around us. I don't think it will be safe.I truly hope you can understand my thoughts, and will take my idea in consideration.Sincerly,Abbi EvansSouth West Junior High 8th grader

Abby Andresen 45784

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Abby Andresen 3615 35th Avenue South Minneapolis, MN 55406

Alphabetical by sender's first name

Abby Huset 54340

Lisa Fay, EIS Project ManagerMNDNR Division of Ecological and Water ResourcesEnvironmental Review Unit500 Lafayette Road, Box 25St. Paul, MN 55155-402510 February 2014Dear Ms. Lisa Fay, EIS Project ManagerI do think that you guys have a good plan about what you are going to do, it is very exact and gives all the information you need to knew about this process. But you always have to look at what the pros and cons to this situation are, and what they are going to affect. I think that Minnesota can benefit from this mining process because of all the jobs it will provide and all of the money that it will bring in.Some advantages to this process are ...1. make a lot of new jobs2. once we get the minerals then we can make more electronics and stuff we use in our everyday life3. it will make a lot of money4. they will grow the vegetation backSome disadvantages of this process are ...1. cut down forest area2. it may pollute the water3. it might affect some different cultural resourcesSome cultural resources could be affected during construction and operations. The things that this could affect are, the sugarbush, a piece of sacred land of the Mesa be Widjiu, part of beaver bay, and a couple other things.I do agree with the Land Exchange offers because if they don ' t do it here where will they do it.They have to do it somewhere why not here where we know how to make it safer and not pollute as much. All these products (copper, nickel, platinum) are used in our everyday lives. Another thing is that even though they are going to cut down all this forest and vegetation, as soon as they are done mining they have to try and put it back so it is almost like what it was before. A reason why a lot of people say that it would be a bad idea to mine is because they think it is going to pollute the surface water. What they might not know is that you guys do so much to make sure that it doesn't not, and if it does some how then you guys have an emergency backup to either stop it or make sure the pollution isn' t more than just a little. Another thing to think about is how this will affect everyone else. A way this could affect us is if you don'tmine we might start running low in those few minerals and they won't be able to make all of those things that we use everyday such as: electronics, batteries watch bands etc. Thank you for taking your time to read this and I really hope that you take all of this into consideration before you make your decision, thank you again.Sincerly,Abby A. HusetSouth West Junior High 8th grader

Abby Young 38717

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. If you have children and grandchildren, this mine will impact their future. Please reject this mine. Sincerely, Mrs Abby Young 5878 Prairie Ridge Dr Shoreview, MN 55126-5004 (651) 249-4519

Abdullah Ali 54169

Dear DNR I don’t like the idea of drilling to happen. Because after the mine is over the environment will be affected for a long time. The mine isn’t worth disturbing the peace. These so much copper you can drill from other locations. The copper isn’t worth destroying our environment. It can effect the water. I can also effect the animals who live near the area.

aboges1@gmail.com 44547

As a student attending high school in our beautiful state, I have had to sit by and watch as those older than me ran this state and this country with policies of denying global climate change, putting economic gain above environmental preservation and sustainability, and assuming that it won't affect anyone. Well, i am commenting to say that it does and it will affect me, my children, and so on, assuming that the planet is still liveable by then. This mine is just one more offense to the natural and beautiful world that i want to live in and share with generations to come, and regardless of what Glencore claims, mining companies have never given anyone a reason to believe for a second that they will clean up after themselves. Acres upon acres of our land and gallons upon gallons of our water all over this country are polluted because of mines that made the same promise and declared bankruptcy or used some other method to shirk responsibility, and letting them move into our beautiful northern regions and closer and closer to the Boundary Waters Area WILL have negative effects on our environment, and it is not worth it for a little extra money and a handful of jobs. Minnesota is strong, and we can survive not having a small economic gain, but we can't recover if we set this precedence of allowing big corporations to come into our state and destroy our prestine nature. Thank you for your consideration.

Alphabetical by sender's first name

Aby Wolf 38776

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Adaline Shinkle 17065

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Adaline Shinkle 4708 Eastwood Circle Minnetonka, MN 55345

50336

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Adaline Shinkle 4708 Eastwood Circle Minnetonka, MN 55345

Alphabetical by sender's first name

Adam 6273

Greetings, This message is in response to your January 13, 2013 opinion article, "Our View: Insist on civility at PolyMet hearings" http://www.duluthnewstribune-com/event/article/id/288499/group/Opinion/ Thank you for anticipating and alerting readers regarding the "coming chaos" associated with the PolyMet Public Hearings. Surely this debate will mark a very historic event for the state of Minnesota and the Great Lakes region. I was, however, very perplexed why in this article you would include a very crucial piece of misinformation. You state: "An example of misinformation is a charge that PolyMet will produce polluting acid mine drainage. But 70 percent of the rock being mined is low in sulfate, Landwehr said, and can't produce the pollution. And the rest of the rock will be placed on a lined area where anything that runs off it can be collected and treated. This rock then will be dumped back into the mine and covered by water. Underwater, without air to mix with the water and sulfate, acid can't be produced." Emphasis on this sentence: "the rest of the rock will be placed on a lined area where anything that runs off it can be collected and treated" Had you actually read the Draft Supplmental Environmental Impact Statement prior to penning this article, you would have learned that on page ES-36, it is acknowledged: "Nearly all contact or process water at the NorthMet Project area would be treated at the Mine Site WWTF or Plant Site WWTP before release to the environment. At the Mine Site, about 10 gallons per minute of untreated water would be released during closure (all related to groundwater seepage), which represents less than 5 percent of total Mine Site water releases. At the Tailings Basin, about 21 gallons per minute of untreated water would be released during closure (all related to Tailings Basin seepage that bypasses the groundwater containment system), which represents less than 1 percent of total Tailings Basin water releases." The key points here being "NEARLY all." The DSEIS recognizes and acknowledges that not all untreated water can be collected and treated. In fact, 10 and 21 gallons per minutes, respectively, or untreated water are anticipated to bypass the groundwater containment system during closure. So, why would you make the statement that "ANYTHING that runs off it can be collected and treated". This is simply not true. I am very ashamed in you, and the Duluth News Tribune. I demand a public response to this misinformation immediately. Adam Wilke

6274

Greetings, This message is in response to your January 13, 2013 opinion article, "Our View: Insist on civility at PolyMet hearings" http://www.duluthnewstribune-com/event/article/id/288499/group/Opinion/ Thank you for anticipating and alerting readers regarding the "coming chaos" associated with the PolyMet Public Hearings. Surely this debate will mark a very historic event for the state of Minnesota and the Great Lakes region. I was, however, very perplexed why in this article you would include a very crucial piece of misinformation. You state: "An example of misinformation is a charge that PolyMet will produce polluting acid mine drainage. But 70 percent of the rock being mined is low in sulfate, Landwehr said, and can't produce the pollution. And the rest of the rock will be placed on a lined area where anything that runs off it can be collected and treated. This rock then will be dumped back into the mine and covered by water. Underwater, without air to mix with the water and sulfate, acid can't be produced." Emphasis on this sentence: "the rest of the rock will be placed on a lined area where anything that runs off it can be collected and treated" Had you actually read the Draft Supplmental Environmental Impact Statement prior to penning this article, you would have learned that on page ES-36, it is acknowledged: "Nearly all contact or process water at the NorthMet Project area would be treated at the Mine Site WWTF or Plant Site WWTP before release to the environment. At the Mine Site, about 10 gallons per minute of untreated water would be released during closure (all related to groundwater seepage), which represents less than 5 percent of total Mine Site water releases. At the Tailings Basin, about 21 gallons per minute of untreated water would be released during closure (all related to Tailings Basin seepage that bypasses the groundwater containment system), which represents less than 1 percent of total Tailings Basin water releases." The key points here being "NEARLY all." The DSEIS recognizes and acknowledges that not all untreated water can be collected and treated. In fact, 10 and 21 gallons per minutes, respectively, or untreated water are anticipated to bypass the groundwater containment system during closure. So, why would you make the statement that "ANYTHING that runs off it can be collected and treated". This is simply not true. I am very ashamed in you, and the Duluth News Tribune. I demand a public response to this misinformation immediately. Adam Wilke

Alphabetical by sender's first name

Adam Benson 39720

Dear Ms Fay, I have done my best to research the Polymet mine proposal and come away with a number of serious concerns. Based on what I have read this mine is highly likely to damage the Arrowhead regions' ecology. I sincerely hope that your agency thinks long and hard about the tradeoff between 20 years of mining jobs versus up to 500 years of needed pollution control. Not to mention it now appears only half the jobs will go to locals and this project could get canceled as soon as copper prices fall below the needed threshold to make it economic. Polymet has a "plan" but no proof they can do this without polluting the regions' watersheds. I see they claim they will treat the tailings to take out the sulfuric acid content and use reverse osmosis water treatment. Yet it's clear this has never been proven on an industrial scale. This is especially concerning when one considers the fact that this is a low grade deposit that will produce 99% waste rock. The recent episode of "Almanac" on public TV highlighted pollution from tailings at the Minnesota DNR's very own test facility in the region. In my research I did my best to get the key points of view from both sides. It was interesting that after visiting the websites for Polymet and Minnesota Mining (the lobbying organization) they both cited the Flambeau Mine in Wisconsin as evidence this can be done. Yet a simple Google search on this mine revealed numerous reports of its runoff pollution in nearby streaMs Furthermore the Flambeau Mine was tiny in scale to what is being proposed by Polymet. So once again there is simply no proof or strong evidence this mine can be done without polluting the area for decades to come. It appears there is no proposed trial run on a smaller scale for Polymet to prove this can work in a variety of conditions (I may have missed it given the volume of materials in the EIS). In the next 200 to 500 years we can be assured of some extreme weather including periods of flooding. How will their reverse osmosis treatment handle this. I hope your agency is looking critically at these issues. Also, are any alternate plans being considered that would utilize an underground mine where the tailings are kept well below the water tables. It is my understanding that determining the financial assurance needed is not part of this initial EIS and comment period. But let's consider some simple math that should bring the magnitude of the issue to light. Polymet says the ongoing treatment could cost $3-5 to $6 million per year and last 500 years. Using the midpoint of these estimates produces a liability of over $2 billion not even accounting for inflation. The more important point is there is no way your organization can claim to know what the assurance should be. I do appreciate your agency has been given a very hard task in determining the right course for this very divisive issue. Yet we have one chance to do it right or we shouldn't do it at all. Since it's clear this project will result in decades of pollution risk versus a 20 year limited benefit I propose not doing it at all. Sincerely, Adam Benson Minneapolis, MN

Adam Ferris 7180

The comment I would like to make is that allowing this mine to proceed will only benefit all parties involved. Many would like to argue the impact this project will make over the next 500 years is enough to stop any progress, to this I can only say open your eyes and realize that when we as a people are faced with opposition we always work together to solve the issue at hand. How many disasters have we come together and found solutions for. There is nothing that can happen in this world that we have not been able to fix. As far as I can see the major issue that we have today is a lack of opportunity for many persons who are not only qualified to handle the jobs that may be created but also are highly educated persons who are problem solvers. To squander this opportunity would sadden me terribly.

Adam Fesenmaier 54124

I do NOT support Polymet Mining. Do not harm our watershed!! [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Adam Flett 19928

Feb 28, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Additionally, I have experience in the HIA process, and am involved in the MPCA's current HIA surrounding Emerald Ash Borer. Despite the differences between these two environmentally based issues, the HIA process can effectively address any public health concerns from activities involved in sulfide mining for non-ferrous metals. There are direct public health affects that can be strongly correlated and modeled through the HIA process, and I fully believe in the HIA process because it addresses any secondary or tertiary risks as well. I understand the DNR has conflicting motives, both set to make a profit and protect the environment, though I think the presumption that the PolyMet project, or any sulfide mining project can be done without public health issues is a dangerous one, and one that surely has a greater cost than what will come out in profits and tax revenue for the State of Minnesota. Sincerely, Mr Adam Flett 360 Robert St N Saint Paul, MN 55101-1503

adam hozempa 41905

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, adam hozempa minneapolis, Minnesota

Alphabetical by sender's first name

Adam Sippola 57350

My name is Adam Sippola. A-D-A-M S-I-P-P-O-L-A. Alright. I grew up here and have lived in Minnesota for most of my life, enjoying swimming and fishing in our lakes, rivers and streams, and enjoying our high quality of drinking water. I am against the proposed PolyMet sulfide mine in northern Minnesota for several reasons. The potential for acid mined drainage alone is reason enough to say no to this proposal. If not, we risk long-term pollution of the surrounding wetlands, lakes and rivers, including the St. Louis River that flows into Lake Superior. And by "long-term," I mean that the water cleanup following the mine's closure is estimated to last up to or beyond 500 years. It is hard to imagine PolyMet still existing by then, paying for continued cleanup of the water that will be polluted and poisoned if this mining project is approved. No. Instead, that responsibility will fall to the citizens. 20 years of jobs, only 25 percent of which are estimated by PolyMet to be local jobs, cannot justify centuries of cleanup and billions of dollars in cleanup costs. As it is, Minnesota law calls for mines to be maintenance free after closure. And this proposed mine site is located in the Superior National Forest, where open pit mines aren't allowed anyway. We cannot begin making these kinds of exceptions for corporations at the expense of our natural environment and at the expense of pure, fresh water for generations to come. We must employ a longer view. The destruction of more than a thousand acres of wetlands at the PolyMet mine site would be the single largest loss of wetlands ever permitted in Minnesota. The sulfide mines have a horrible track record of bankruptcy and pollution. The EPA has identified hard rock mining as the nation's top toxic producing industry and mining companies are unable to point to a sulfide mine that hasn't polluted Corporations don't have a conscience; therefore, it is our responsibility as human beings to begin a trend away from catering to corporations and toward catering to our environment, including the wildlife, plants, land, water and human beings that are a part of it. The PolyMet sulfide mine proposal should not be approved. Thanks. Let me include my address in there also. My name is Adam Sippola, 805 E. 13th Street, Duluth, Minnesota 55805. Thank you.

Adam Sirvinskas 16268

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Adam Southam 40136

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Adam Southam 5051 Highway Seven Suite 260 Minneapolis, MN 55416

Adam Swansom 7721

Dear Ms Fay, Dear Federal and State Agency Leaders: First, opening the PolyMet mine seems like a bad business deal: We loan PolyMet our land for 20 years, less than one generation's time, and they will leave it polluted for 500 years. That means over 16 generations of future Minnesotans would be affected by pollution caused by the PolyMet Mine. If I tried to get a business loan and said I'd have it paid back in a speedy 500 years, I'd be laughed out of the loan office. Why are we even considering this mine as a plausible business idea. And that is if everything goes RIGHT. What if something goes wrong and we end up facing much more pollution than we were told to expect. I just can't trust a for-profit company to honestly have the environment's best interest in mind; ultimately it's about the bottom line, it has to be. So even if PolyMet tells me that this mine will have the newest safeguards in place, creating minimal damage to the environment, I still hesitate to believe them. And it appears to be for good reason: For example, one study found that, among modern mines in the US that predicted that no acid mine drainage would occur, 89% of those mines DID have acid mine drainage during operations or after closure. And just in case it's not clear, there are many reasons to fear acid mine drainage: acid mine drainage kills fish, wildlife and plants, leaving contaminated waterways devoid of most living creatures. Mining by-products such as arsenic, manganese and thallium, have been shown to increase the risk of cancer and other illnesses in humans. Make no mistake, there WILL be disease created by this mine. Are profits really worth anything if they're at the expense of human life. And, if 500 years of pollution somehow doesn't bother you, maybe the costs to the taxpayers will: Experts who have studied other mining projects across the country said even those that start with financial safeguards can end up costing taxpayers millions of dollars. In Montana, they underestimated the volume of water needing treatment after a gold mine had closed, and state taxpayers had to create a $34 million trust fund to pay for it. Northern Minnesota cannot afford a miscalculation of that magnitude. Another study says that water treatment would cost between $3-5 and $6 million per year after the mine closes. Northern Minnesota cannot afford to foot that bill. Not for one year, not for 500 years. There are other, safer, better ways to grow our economy. For example, Maurices is soon expanding its corporate office, and they're slotted to create 600 jobs right here in Duluth. PolyMet will only create 360 full-time jobs, with HUGE liabilities attached. Let's focus on industries with less risk and more jobs. I vote as conscientiously as I can, I live as conscientiously as I can. My household, and my friends, regularly take actions to preserve the earth and our own health. And now a FOR-PROFIT company is hoping to come in and risk my health and the planet's vital water supply all for money I will never see. Where is the political, social, or moral justice in that. Will no one fight to protect our rights to live as healthily as we can. Well, I will fight for a healthier tomorrow, and I hope that all citizens of Minnesota, especially those with the most power, will stand up and oppose this dangerous, damaging operation. The risks are just too high to bring Sulfide Mining to Minnesota. Sincerely Adam Swanson Adam Swansom 617 N 11th ave E Duluth, MN 55805 218 343 4304

Alphabetical by sender's first name

Adam Theis 45635

I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. The Boundary Waters is a place outside of the realm of day to day modern living in the western world. In much of the BWCA there are no motors allowed. The visitors have to follow strict guidelines to preserve this place. All these things combined with the peace, beauty, simplicity, purity make the BWCA a destination for people from across the country. These mines that are only miles away, are in complete opposition to the ideals that make the BWCA what it is. These mines threaten the purity and integrity of the BWCA. People visit the BWCA to experience PURE Nature, not a natural setting with a mine next door. The priority with a gem like the BWCA should be preservation. Please reject any and all proposals for any mining projects that endanger the BWCA. It is one of the greatest human resources we have in Minnesota. Sincerely, Adam Theis 203 Creekview DR Cold Spring, MN 56320

Adam Waxler 34014

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt (Hi my name is Adam R Waxler.) (i am an illinois Democrat voter.) (i already voted for the Democrats in General.) Thank you for your support. Adam R Waxler (P.S. i say Climate Change and Global Warming is real.) (i say Democrats Forever.) (i care about the Great Lakes since i live in illinois.) (my Drinking water is Lake Michigan and Lake Michigan is connected to Lake Superior so my Drinking water does matter.) Sincerely, Adam Waxler 7615 Church St Morton Grove, IL 60053-1618

Adam Wilke 42981

Attached. Please confirm receipt. Thank you, Adam K. Wilke

adam wright 38312

My name is Adam Wright and I live in northern MN (Hibbing to be exact). I have been following Polymet for years from an independent standpoint. After reviewing the SDEIS and hearing experts on the topic, it is very clear that this company will be responsible not just in the present, but in the future. There is a way to mine these materials safely and Polymet has show that they can do it. To be honest, I have many family and friends not just in the northern part of the state but also the twin cities who support Polymet. I have yet to talk to anyone against the proposed mine. We in northern MN live and depend on mines and without them, we are a ghost towns. Thanks for everything you have done Polymet and I look forward to the future mine. Adam Sent from my iPhone

Alphabetical by sender's first name

adam youngblood 41980

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, adam youngblood Litchfield, Minnesota

Addie Welch 57181

My name is Addie and I am a youth activist and student in Minneapolis. I've had the privilege of visiting the BWCA and like anyone else who has been in the wilderness of this country, I can tell you how much that experience and the future of that experience means to me. Combined with other factors environmentally, economically, and socially, Polymet Mining is a dangerous idea that should not be executed in Minnesota.Addie Welch2315 31st Ave SoMinneapolis, MN 55406

Adele Martin 42723

See attachment

Alphabetical by sender's first name

Adi Grudem 14616

Feb 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

Aditya K Chalakode 16239

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Adriana Grudem 14614

Feb 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Adrienne Beck 57226

The proposed mine is in a very sensitive watershed area. The polluted water can enter ground water effecting rivers, ponds and Lake Superior. The people proposing this mine do not have a good track record for cleanup. They get the ore we get stuck with the mess.Adrienne Beck1045 Larpenteur Ave W #325Roseville, MN 55113

Alphabetical by sender's first name

Aidan Resh 44527

Hello, My name is Aidan Resh and I am currently a Junior at Prior Lake High School, in Minnesota. I am a chairmen of our Eco Team, and work alongside many members of our district in hopes to keep Minnesota and our world for that matter intact for not only my future but also yours and your children's future. In opening this mine, you would essentially be going against everything that Minnesota strives to protect. I would like to bring up a few points that came to mind while I was reading your proposal First off, as I understand it, this mining company Poly Net is brand new with little to no experience. As being financially backed by the company Glen Core, (chaired by Tony Hayward the man responsible for the BP oil spill) I have concerns about your track record in maintaining ecological standards. In another point, I appreciate your commitment to a five hundred year clean up plan, yet I have no assurance your company will even be around for that long How many companies do you know of that were established when Christopher Columbus landed in America. Your location is remarkably close to our nature preserve also known as the boundary waters. I understand you have hopes and aspirations of containing your runoff, but that is not the sole environmental degrader. Deforestation and the rampant use of fossil fuels have their own obvious adverse effects. I get that there could potentially be some reforestation attempts assuming you hold yourselves to your proposed plan. What do you plan to do about the displacement of native species. Because once they are gone, good luck getting them back. I believe it is the DNR's obligation to prevent companies such as this from destroying our nations largest investment. We must set an example for the rest of the world, by holding ourselves to a higher standaRd This decision weighs on your shoulders my friends. I hope for the sake of our future you make the right one. Sincerely, Aidan Resh

Aileen Erler 40039

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Aitkin County, MN 21209

Attached is a copy of the TEP/LGU comments regarding the proposed wetland mitigation site in Aitkin County for Polymet. Becky Sovde Wetland Specialist/Compliance Officer Aitkin County Planning and Zoning 218-927-7342

Akilah Sanders-Reed 58090

The SDEIS is insufficient and should not be approved. The water contamination potential written between the lines is unacceptable. No details are provided on how five centuries of water treatment will be financed. The operation, maintenance, monitoring, and reconstruction of these facilities for over five hundred years is massive liability and financial investment.The plan readily admits that in addition to the five hundred years of water treatment necessary, millions of gallons of polluted water will seep off site, uncaptured and untreated. This is irresponsible natural resource management, as well as a serious human health threat.Further underlining the proposal's ecological incompetence is the U.S. Forest Service land exchange. Natural resources are not purely a tree-hugger hobby; those plants provide ecosystem services estimated to be worth significant amounts of money, performing tasks such as water filtration and retention, and soil protection. These resources are necessary for human occupation of connected ecosystems across the state of Minnesota. We are not immune to the damage of our environments.Finally, the Tribal Governments have shown that the water models used by PolyMet contain errors which may have vastly underestimated the hydrological damage that will be incurred by the mine. The disastrous impacts are unknown, and it would be irresponsible to pass such a proposal. There are sustainable alternatives that, when externalities are factored in, would be financially beneficial: increased recycling rates, or an underground mine, have both beenproposed.The SDEIS is insufficient and irresponsible. Our natural resources are not trivial niceties but necessities. Please decline the Poly Met SDEIS and avert the ecological and economic toll it would take on Minnesota's future.

Al Conard 21881

I am very excited that the north area will be getting a new jump start in the economy. All the lives they will be helping with employment opportunities will be incredible. The area is used of mining so there will not be any major surprises. And Polymet's concern for safety and the environment seems 2nd to none. I totally support what they are planning for Minnesota. Al Conard Coldwell Banker Burnet 612-759-2338 alconard@comcaStnet

Al DeJuliannie 5979

I attended the meeting in Duluth last night and was very pleased and impressed with all the information available. One problem was that I could see was the stuffing of the box by anti Mining people to get there speakers more time give there reasons against the mine. Idea for next meetings so it is fair is to have a box for people that want a chance to speak, one for Anti Mining and one for Pro Mining. Then pick speakers evenly from each box to give there comments. Also person picked should have to give there comments not like what I seen last night where the Anti Mining Group stuffed the Box and then would give there spot to one of there experts and we had to listen to the same lies over an over and I felt it ruined a good meeting. Over half the people exited early because like me we got tired of hearing there same information over an over. Like one person I talked to said I never knew there were so many Scientist in our area. We want a meeting that is Fair and People from both sides have an opportunity to say whats on there minds. This projects puts a lot of pressure on all of you involved in the Environmental Review Process to get it right because if not it will effect every ones lives. Like one speaker said last night we have to trust science. We need these good paying jobs on the Iron Range and whole country and world needs the metals. Thanks Al DeJuliannie

Alphabetical by sender's first name

al eisentrager 41739

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Of all the stupid ideas that have been tossed at MN, this is one of the worst, if not the very worSt At a time when MN is starting to take a lead in preventing more pollution, this is just plain wrong. It doesn't matter how many jobs it creates, how much in revenue MN with get from it. Why don't we just ruin every damn lake, river, and stream we have in this state, strip mine the whole damn thing and become the blight of the world. We don't because the people in this state have respect for what we have and want to see it become a leader in clean energy. This mine crap is the one thing that will ruin our standing in this country, in the world. We don't need it. What we need is to work on becoming the model environment that is the envy of the country, the world. The people of this state work hard at not only cleaning up the messes we already have, but in preventing new ones. This mine would destroy everything the people have come to stand for. It's a disaster in the making and everyone knows it. The people in this state deserve to be respected for all the work we have done already to achieve just that. We are proud of the progress we have made and what we will be doing in the future. There isn't a person in this state that wants more pollution at a time when we are struggling to get rid of what we already hAve This mine is just plain stupid and wrong for the people of this state. It's time to shut it down, permanently. Sincerely, Mr al eisentrager 11355 Kramer Ave NW Annandale, MN 55302-2967

Alphabetical by sender's first name

Al Gedicks 40045

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Al Martin 43449

A. J. Martin 27518 County Road 3 Merrifield, MN 56465 218-765-4321 Mar. 12, 2014 Lisa Fay, EIS Project Manager MN-DNR St Paul, MN RE: Polymet mining comments Dear Ms Fay, I am writing about concerns I have over the Polymet mining project, proposed for northeastern Minnesota. I attended the informational meeting that was held a few weeks ago in Brainerd at the Central Lakes Community College. Some of the concerns I have could not be adequately addressed at the meeting, There is no way this project should move ahead until these concerns can be solved. The problems are too complex to include here in detail, but I would be happy to provide this information. In general, we have a foreign company, with a less than stellar record of following required procedures, wanting to extract the wealth that belongs to all Minnesotans. Being a for-profit company, they will naturally want to take every shortcut possible. It wasn't clear what measures could be in place to force this (or any other) company to comply with rules Minnesota sets up. There was no provisions to prevent Polymet from simply selling off their company's mining to other companies that may not have to follow the same rules. There will be environmental impacts immediately, and long term environment and pollution problems, possibly lasting hundreds of years, requiring cleanup and maintenance. A huge "damage deposit" must be required: cash in hand for Minnesota. It would be foolish to think that 50 or 100 years from now, if Polymet didn't return to address the problems, that Minnesota residents and taxpayers could simply send them a bill for any cleanup costs incurred by the people. Besides, at that point it would be highly unlikely that Polymet would still exist in a legal, solvent form, with sufficient cash reserves to pay for any such damages. Minnesota isn't new at this sort of thing. As George Bush tried to say, "Fool me once, shame on you. Fool me twice, shame on me." We went through all this with the taconite mining years ago. We can't trust to luck having a concerned and strong-standing judge in any future matters. I'm sure Polymet has studied this, and structured ways to get around any future 'environmental judges'. Try to imagine the huge cesspool Lake Superior would've become, had it not been for the force and determination of one man, Miles LoRd I used to drive up the North Shore for work in those days; the lake looked terrible, with streaks of mining pollution from Two Harbors almost to Duluth. These resources belong to the people of Minnesota, and if we leave them in the ground, they'll still be there later should we change our minds, or find more protective ways of mining. Any jobs from these mining activities, would soon dry up and be gone, just like the iron mining cycles. Once we mine it, the resources will be gone and we'll be back at square one. The May-June 2013 issue of "Minnesota Conservation Volunteer" had an article addressing some of the concerns of effect of Polymet mining on the Native wild rice crop, page 9- I submitted a response to it, which DNR asked if they could publish. It appeared in the July-August 2013 issue, page 4- I copied it here below: "Wait, now. "Wild Rice under the Microscope" (May-June) says lake sulfite levels have been under 10 ppm, and that even so, rice beds and production declined dramatically. But mining companies want to allow even more sulfite. More copper and iron mining will "generate millions of dollars". For who. A bunch of already wealthy investors. Let's nationalize mining, so any profits got to the people. Private pockets are already overflowing. It's nice to have copper and iron. But it's more important to have food to eat, and to preserve the means for food production. No one I know can eat copper or iron. Food, air, and water are basic necessities. Smartphones, DVD players, or cars are not. Mike Robertson, a consultant for the Chamber of Commerce, wants to "create jobs". That's not true.

Al Ringer 54690

See attachment

Alphabetical by sender's first name

Al Rudeck 18079

Good evening. I am Al Rudeck, R-U-D-E-C-K, and I am pleased to share my perspectives about PolyMet's land mine process and facility restart and associated land exchange and I thank and have full confidence in the abilities of our state and federal agencies who are experts in their field and well-qualified in how to apply sound science in the development of the SDEIS. See, I'm a professional chemical engineer licensed here in the State of Minnesota. I've taken the oath as an engineer to duly protect public health and welfare. I wear this stainless steel ring on my pinky of my working hand to remind me, daily, of the service oath. I use the science to serve humanity and by using the best of earth's precious wealth and I've reviewed the SDEIS and I believe it's fully formed, and well defines the current, and proposed developments. It's sophisticated modeling and engineered solutions proposed by the agencies and the company, in my professional judgment, will be enable PolyMet to perform at or beyond the stringent state and federal requirements to protect water quality on all fronts. In fact, the overall project will reduce background concentrations in sulfates and not increase them, as well as reducing mercury, and not increase them. Each of the proposed technologies, from advanced liners to reverse-osmosis systems are proven and reliable. No one can deny their applicability to perform as they're used countless applications in our region landfills, sustained county landfills, as reverse osmosis for the water treatments, used in water treatment facilities in many cities and also in many home drinking-water systems. And in terms of the water quality involved in the SDEIS, it is very robust in my view. Groundwater and surface water modeling was run into 2,400 and 6,000 time periods of simulated productions using a wide range of assumptions in order to stress the analysis. Because of the effectiveness of these engineering proposed plan and expected permit limits, I anticipate the real lifetime periods of water treatment will be a mere fraction of the two or 500 years noted. This company, this project, will always meet our stringent water standards, always. See, my family and I have called Aurora White Lakes its home for nearly a decade. While we currently resides in Esco, we own and enjoy property on White Water Reservoir right here on the Partridge River watershed. And as the former two-term Hoyt Lakes City Councilor around the time when LTV closed, I know firsthand how critical quality mining, maintenance and spinoff jobs are to the East Range. They provide basic living essentials for hundreds of families and I look forward to the prospect of job creation the PolyMet Project brings, and moreover, the high-quality metals to be produced representing important new and domestic sources of essential clean copper-nickel and other precious metals that fuel modern life, including wind turbines, hybrid vehicles and other modern necessities. Through the SDEIS's science and downstream permitting, we can have vital employment for our families, while having open access to the cultural, scientific and recreational charges of our area. Thank you.

Alaina Kelley 58116

I have reviewed the PolyMet NorthMet supplemental draft environmental impact statement, and the Environmental Protection Agency (EPA) review of the SDEIS. As a Minnesota taxpayer I request that the SDEIS be rejected because it lacks accurate estimates of the economic costs o fthe proposed NorthMet sulfide mine. I see three potentially expensive side effects of the proposed NorthMet sulfide mine:1. Active treatment of polluted water and other annual maintenance of the mine site and waste site for at least 500 years.2. Known pollution resulting from untreated water that will be costly to Minnesota to clean up, or costly to leave polluted (loss of natural capital and health costs).3. Expected pollution from the accidents that are most likely to occur in and around sulfide mines. SDEIS does not give a comprehensive estimate of how much these three side effects of the proposed NorthMet sulfide mine would cost. As a Minnesota taxpayer, I want to know if the potential benefits of the proposed NorthMet sulfide mine outweigh the potential costs.The SDEIS does not give a detailed, comprehensive and secure plan for how PolyMet or its financial backers will provide full coverage these three side effects, over a period of at least 500 years. Without such a plan, multiple generations of Minnesotans are at risk of being left to pay for the three side effects stated above. The SDEIS does not analyze the risk not fully pay for water treatment, site maintenance, pollution, or accidents.I request that the SDEIS be rejected and specific revisions be solicited:1) Estimate of economic costs of the mining side effects stated above.2) Analysis of the risk that PolyMet not fully pay for the costs of mining side effects stated above. Only with an SDEIS that includes these two revisions can the Minnesota state government and Minnesotan taxpayers make an informed decision based on cost-benefit analysis of the proposed NorthMet sulfide mine.Thank you for considering my request.

Alan Andreae 40380

From Alan Andreae 644 E James St Ely, MN 55731 I believe after reading the SDEIS that Polymet should be granted mining permits. The research done by the governmental agencies should be adequate to allow this project to move forwaRd The jobs are disparately needed in the Arrowhead region of Minnesota and with the scientific research that has been done I see no reason permits shouldn’t be granted. After mining starts there will be sufficient monitoring by both the company and governmental agencies to guarantee the process will not affect the quality of the Arrowhead region.

Alphabetical by sender's first name

Alan Engebretson 30200

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt the boundary Waters Canoe area of northern Minnesota, And Lake Superior, are too important to our environment to risk a mining of any sorts in that area. This area has been used for generations for people to enjoy the great outdoors and have clean water and beautiful forests. Mining in this area would destroy something that cannot be replaced and pollute a beautiful Lake superior and its watershed. Please, do not even consider allowing this mining to happen, it is too important to even think about. Sincerely, Alan Engebretson 1008 Frontenac Ave Stevens Point, WI 54481-3233

Alan Hughes 11434

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Lisa, it isn't rocket science Sincerely, Mr Alan Hughes 111 1st St Excelsior, MN 55331-1713

Alphabetical by sender's first name

Alan Hughes 43554

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Glencore Xstrata plc is an AngloSwiss multinational commodity trading and mining company headquartered in Baar, Switzerland and with its registered office in Saint Helier, Jersey. The company was created through a merger of Glencore with Xstrata on 2 May 2013-[3] As of 2013, it ranked twelfth in the Fortune Global 500 list of the world's largest companies.[4] As Glencore, the company was already one of the world's leading integrated producers and marketers of commodities. It was the largest company in Switzerland and the world's largest commodities trading company, with a 2010 global market share of 60 percent in the internationally tradeable zinc market, 50 percent in the internationally tradeable copper market, 9 percent in the internationally tradeable grain market and 3 percent in the internationally tradeable oil market.[5][6][7] Glencore had a number of production facilities all around the world and supplied metals, minerals, crude oil, oil products, coal, natural gas and agricultural products to international customers in the automotive, power generation, steel production and food processing industries.[6] The company was formed in 1994 by a management buyout of Marc Rich + Co AG (itself founded in 1974).[6] It was listed on the London Stock Exchange in May 2011 and was a constituent of the FTSE 100 Index.[8][9] It had a secondary listing on the Hong Kong Stock Exchange.[10] History 1974 to 2000 According to an Australian Public Radio report, "Glencore's history reads like a spy novel".[11] The company was founded as Marc Rich and Co. AG in 1974 by billionaire commodity trader Marc Rich, who was charged with tax evasion and illegal business dealings with Iran in the US, but pardoned by President Bill Clinton in 2001-[12] He was never brought before US courts before his pardoning, therefore there was never a verdict on these charges. In 1993, commodity trading and marketing company Trafigura was "split off from" Marc Rich's group of companies.[13] As physical commodities traders, along with Tr

Alan Janetka 27503

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sulfides mix with a ir and water to form dangerous sulfer acids like sulfuric and Hydro -sulfides. When are we going to leave virgin areas ALWAYS undeveloped. hOW WOULD THESE COMPANIES KNOW ABOUR SULFIDE DEPOSITES UNLESS THEY WERE GIVEN THE GREEN LITE TO EXPLORE ..Stop this erosion of our natural habitat which effects all of us and most importunately the wildlife which dies off because of contaminated water and foliage . Can we not leave someland untouched for future generation .. Save the land - Al Sincerely, Alan Janetka 5460 Ridge Xing Hanover Park, IL 60133-5379 (630) 628-6654

Alphabetical by sender's first name

alan johnson 40821

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mr alan johnson 129 pavilion hill somers, MT 59932 (406) 857-3343

Alan Knaeble 45114

Alan Knaeble 311 Warwick St St Paul, MN 55105 HYPERLINK "mailto:hallermoses@gmail-com"knaeb001@umn-edu Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 March 12, 2014 Re: Public Comment submittal: Supplemental Draft Environmental Impact Statement, Polymet Mining, Inc.-NorthMet Mining Project and Land Exchange. E-mail directed to HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us Dear Ms Fay, Please consider the following comments with regard to the Supplemental Draft Environmental Impact Statement on PolyMet Mining's proposed NorthMet Project (SDEIS). I am a lifelong Minnesota citizen, age 64, and have worked in Minnesota for 31 years as a geologist, 8 years at an environmental engineering/consulting firm, and then for the last 23 years as glacial geologist for the Minnesota Geological Survey. My work as a glacial geologist entails mapping Minnesota's surface and subsurface glacial deposits to provide basic geologic information to citizens, community and government agencies, and businesses to assist them in understanding the geologic conditions for making decisions in regard to such issues as surface water and ground water use and protection. The following comments reflect only my personal perspective, not that of the Minnesota Geological Survey. Comments on the SDEIS 1- (addressing section 4-2-2-2-1) Surficial glacial deposits in the vicinity of the mine site and in the region are primarily composed of sand and gravel outwash and stony coarse-grained till deposited by the Rainy lobe, an ice advance during the most recent glacial period. The permeability of these deposits tends to be high. As stated in SDEIS they are relatively thin over bedrock. These conditions suggest that in this region ground water exchange between bedrock and glacial deposits is the norm. Lakes and streams are the surface exposures of the ground water, therefore they are interconnected with groundwater in the bedrock. I have two major concerns: First, the former mine pits that will be used to store mined waste material will be over 600 feet deep into bedrock. Ground water that accumulates in these pits will be contaminated by waste rock and will move following the regional flow through bedrock fractures and will have the potential to affect the entire water system down gradient. Second, since the hydrologic system (groundwater in the bedrock, ground water in the glacial deposits, and the surface lakes and streams) is interconnected, the potential for contamination and spread of the contamination, is very high. If the PolyMet project is permitted as outlined in the SDEIS I believe pollution problems will be inevitable. The only questions in my mind will be. How severe and how wide spread. 2- The public comment period for reviewing a document of this complexity and size, over 2000 pages, is inadequate. I would suggest extending the public comment period for an additional 90 days to allow more time for reading through the document and formulating comments. 3- The history of sulfide mining shows that environmental problems are pervasive and wide spread. There has been no acknowledgement of these facts or discussion about them in this document. Without addressing how PolyMet will avoid these problems for this mine, what assurance do the citizens of Minnesota have that these same problems will not occur again. 4- There is no Financial Assurance Plan. It is imperative that a comprehensive plan be presented to the public before the public comment period is over and before a permit is issued. As tax payers each Minnesotan may have to foot the bill if expenses due to remediation of mining problems are not adequately covered by a detailed Financial Assurance Plan. Thank you for listening to my comments, Sincerely, Alan Knaeble

Alphabetical by sender's first name

Alan Muller 47778

Dear Ms Fay, Mr Bruner, and Mr Dabney: I have read much but not all of the 2165 page SDEIS for this project, as well as some of the previous iterations of draft EIS documents for this project. I have formed some impressions, described in a posting entitled "The unending PolyMess ." which is posted here: http://www.alanmuller-com/the-unending-polymess/. This posting or document is incorporated by reference into these comments. The essence of my conclusions are that, in spite of revisions to the original scoping documents, the present SDEIS fails to conform to the letter or the intent of the Minnesota Environmental Policy Act and the National Environmental Policy Act. The SDEIS fails to accurately describe the impacts of the NorthMet project as described by the applicant. Numerous deficiencies have been identified by Water Legacy and other commentors. The SDEIS lacks a meaningful evaluation of alternatives. The SDEIS fails to consider the impacts of, for example, electricity generation on the scale required to extract and process the volumes of ores projected-240 million tons over a period of twenty years. How many megawatt hours are involved and what would be the source. The impacts of generation .. Further, the SDEIS fails to recognize the probability that the NorthMet project would expand in size and duration subsequent to permitting. I address this in my "Polymess" posting by comparing the project description provided by PolyMet-and apparently accepted at face value in the SDEIS-with the projections by Edison Investment Research Limited. Edison notes: "We look for management to create additional value through expanding capacity or consolidating the Duluth Complex. In addition, we believe PolyMet might be able to optimise NorthMet's ore processing rate while staying within the permitted emissions level." Further, it is clear that several other copper-nickel mining projects are projected in the area. "The NorthMet Deposit is one of 10 known significant mineral deposits that have been identified within the 30-mile length of the Duluth Complex and just south of the eastern end of the Mesabi Iron Range." Thus, it is clear that looking at the NorthMet project in isolation violates basic principles of environmental review and cannot give us a trustworthy indication of cumulative impacts. The most recent comments by the US Environmental Protection Agency rate the present SDEIS as "Environmental Concerns-Insufficient Information (EC-2)" In my opinion EPA understates the deficiencies in the SDEIS, but clearly the agency does agree that the present document is unsatisfactory. It appears that the EIS process for this project began in 2005- At least 23 million dollars have been expended so far, by the Minnesota DNR and it's contractor, alone, yet environmental review issues with this project are no closer to satisfactory resolution in 2014 than they were in 2005- The closer people look, the more problems are seen. The time has come to make an "evidence based" decision, to recognize reality, and to shut this project down. These comments are submitted on behalf of myself and no other organization or party. Respectfully submitted, Alan Muller Alan Muller Energy and Environmental Consulting 1110 West Avenue Red Wing, MN, 55066 Box 69 One Stewart Street Port Penn, DE, 19731 302-299-6783 alan@greendel-org

Alphabetical by sender's first name

Alan Petri 43452

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Alan Petri 12700 Dorchester Trl Apple Valley, MN 55124

43453

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Alan Petri 12700 Dorchester Trl Apple Valley, MN 55124

Alphabetical by sender's first name

Alan Robinson 48175

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Alan Robinson 35 Calle Aragon Unit Q Laguna Woods, CA 92637

Alan Septoff 43518

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Alan Septoff 301 Mountain View Dr Cumberland, MD 21502

48488

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Alan Septoff 301 Mountain View Dr Cumberland, MD 21502

Alan Sutton 39702

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Alan Sutton 4390 44th St NW Hackensack, MN 56452-2435 (612) 703-1396

Alphabetical by sender's first name

Alan Tharaldson 17311

Feb 17, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Albert R. Anderson 39377

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Albert van Daalen 21127

Dear Governor Dayton and Lt Governor Prettner Solon After graduating with a master's degree in Civil Engineering from Delft University in 1953 I continued in 1954 at Harvard Business School to graduate with a MBA in 1956- After a first start on Wall Street since 1958, I have been in the investment advisory business, first in New York and later since 1967 in Geneva. One of my best professors at Harvard, General Doriot, Founder in the 1930's of American Research and Development and Digital Equipment inspired my interest in start-up ventures, and in my career I have on several occasions participated in interesting ones. Some of those have worked out in pharmacy and in the oil industry and now a "breakthrough" in Mapper Lithography in Delft. Since its foundation I have had an interest in Polymet Mining while following the painstaking efforts management made over a long period to obtain the permitting procedure; which now seems close at hand. Let me send you some observations. First from my investment experience, I learned that the most important thing is the management team Minnesota should be GRATEFUL to have an excellent team in charge.. Only highly experienced people can succeed in such a complex industry and as I have confidence in the PLM team all of whom joined from important positions because they believe in it I remain a long-term investor. My son is also in the investment business and understands the value of long-term investment. In view of my age (87) I leave my shares to my son and his children, who are already shareholders. For those who oppose Polymet operations they should consider that mining of copper is vital and that instead of importing from countries that do not have environmental standards equal to those in the US that mining is better done in the US. I find the reasons for obstructing the mining operations hypocritical. Those who oppose should realize that they need copper in their houses, cars etcetera. This approach is somewhat similar to CO2- Everything is concentrated on CO2 and no attention is given on the real dangers of pollution.. Trees cannot live without CO2-. So plant more trees. Stop pollution as they attack oceans, algae and reefs. The USA, India and Indonesia are among the most polluted countries. The Polymet project will create at least 1,000 jobs. Which is a conservative estimate in my opinion. The State of Minnesota will get substantial revenue. The surrounding communities will also benefit as PLM Management shows clear interest of community projects. With regards to environmental concerns, Polymet is committed to providing adequate financial assurance. All of us know that if you give a cookie to a dog he wags his tail for more. This looks to me comparable to some people asking constantly for more information in order to keep obstructing the permitting. With my best wishes, Albert van Daalen Champs d'Oisel Petit Sionnet 30 CH-1254 Jussy GE Tél.: +41 22 7591869 mob.: +41 79 6064772 HYPERLINK "mailto:avandaalen@bluewin.ch"avandaalen@bluewin.ch

21280

I have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I'd also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws. We cannot afford to miss this job opportunity. Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. ---------- Albert van Daalen Champs d'Oisel Petit Sionnet 30 CH-1254 Jussy GE Tél.: +41 22 7591869 mob.: +41 79 6064772 HYPERLINK "mailto:avandaalen@bluewin.ch"avandaalen@bluewin.ch

Alphabetical by sender's first name

Alec Hendrickson 16820

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Alec Hendrickson 3219 west 44th street Minneapolis, MN 55410

50160

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Alec Hendrickson 3219 west 44th street Minneapolis, MN 55410

Alphabetical by sender's first name

alek roslik 17200

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, alek roslik 26 Jeff Minneapolis, MN 55418

42043

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, alek roslik Minneapolis, Minnesota

Alphabetical by sender's first name

alek roslik 50466

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, alek roslik 26 Jeff Minneapolis, MN 55418

Alphabetical by sender's first name

Alex Andrea 45471

TO: Lisa Fay, EIS Project Manager, and the Good Folks at DNR Dear Ms Fay: I write to point out deficiencies in the SDEIS prepared by the DNR. I am not part of any "Astroturf" campaign or organization. I am a MN citizen and extremely concerned by the proposed PolyMet mining. I outline my concerns. THE SDEIS DOES NOT TAKE INTO ACCOUNT THE WATER POLLUTION THAT WILL RESULT IN POLLUTION OF RIVERS: PolyMet states its mine will operate for 20 years, but will result in millions of gallons of polluted water, and this water may need to be treated for hundreds of years. The United States itself is just over 200 years old. PolyMet's own plan shows that millions of gallons of water will seep "offsite," untreated, during usual operations. There is no way it can adequately guard against toxic pollution of the St Louis River watershed, and Lake Superior itself, from pollutants such as copper, lead and sulfates. THE SDEIS DOES NOT TAKE INTO ACCOUNT SEEPAGE INTO THE GROUNDWATER: Polymet proposes some membrane liners and geosynthetic covers, but neither PolyMet nor the SDEIS notes that such liners will leak eventually. Additionally, PolyMet doesn't propose that such liners even be under all the tailings. The SDEIS evidently assumes the bedrock under the mine and plant sites is solid and will permit no seepage. This is nuts. THE SDEIS DOES NOT TAKE INTO ACCOUNT AIR POLLUTION: Extraction of copper and other minerals will require the waste rock to be ground into a fine powder. To the extent there are any mercury particulates, the pollution is a neurotoxin. Per the SDEIS, the waste rock will leach mercury at more than 4X the water quality standaRd This is per PolyMet's humidity cell testing. THERE IS INSUFFICIENT FINANCIAL ASSURANCE: The SDEIS is inadequate with regard to the financial assurance required of the company to protect the state of Minnesota and its taxpayers. You have asked for citizens to propose an amount. I will. $100,000,000- Up front. One earlier draft in the newspaper suggested $54,000,000- Those numbers are pulled out of the air, but will prove woefully insufficient once the pollution hits. Once the pollution occurs, Minnesotans can only engage in "reclamation"-a poor substitute for not polluting in the first place. CONCLUSION: I can only ask the DNR and other agencies take another look. I personally am very appreciative of the hard work done in preparing what turned out to be a 2200 page document. But these are critical defects. I am unaware of any other instance where large-scale, sulfide mining has been done without great damage to the environment. I want to say thank you for taking the time to read my comments. I know you will be conscientious, and as hard as it is to re-think what one has already done as an agency, we need to take a second look, and appropriately consider the costs and potential damage to the environment that are not accurately reflected in the SDEIS. Thank you again. Alex Andrea 2624 Windsor Lane Woodbury, MN 55125 HYPERLINK "mailto:alexandrea@earthlink-net"alexandrea@earthlink-net _____ HYPERLINK "http://www.avast-com/" This email is free from viruses and malware because HYPERLINK "http://www.avast-com/"avast. Antivirus protection is active.

Alex Barbeau 15744

See attachment

Alex Christensen 41568

Hello Lisa, I am writing to you to express my concern over the proposed sulfide mine near Ely, MN. The proposed project poses significant, unpredictable, and functionally indefinite environmental health risks to both the humans and other biota of the area. I understand that proponents of the mine routinely cite the influx of jobs and taxable income that would boost the area's economy. I think that is a naive assessment of what this mine would accomplish over time. For starters, the mine, if all goes exactly to plan, will not be around forever. What happens when it must close. Additionally, I have not heard a satisfactory explanation of how polluted water, earth, and air might be treated in a fiscally responsible and ethical. I hope you will avoid advancing this dangerous and short-sighted proposal. Respectfully, Alex Christensen

Alphabetical by sender's first name

Alex Comb 6075

I think it would be great to see the LTV site back in operation and a boon to the economy that the construction and operation of the proposed NorthMet mining operation would bring. I have been trying to understand the details of how this mine and processing plant will operate to better understand the issues involved with deciding whether this proposal should go forward or not. The benefits seem pretty straight forwaRd The possible hazards do not. From what I can understand the mines are three open pits that are up to 697 feet deep. This is obviously well into the aquifers that supply drinking water to the surrounding community and is connected to the series of aquifers throughout the area. I fail to see how during the mining process these aquifers are protected from contamination of the sulfides exposed in the mining process. The rock is obviously exposed to the air, which makes it reactive and the addition of water when it rains makes it seem likely to lead to contamination of the aquifer. The proposal of returning the waste rock, which is still reactive, to the pit also seems poorly determined. I do not see where a fool proof membrane is created whereby the reactive ores will not leach into the water table. Stock piling of some of the waste is at least above the water table, but of course allows the potential of runoff finding a way to the surface water ways. The plan seems to be saying it is allowing in surface water to help with the processing and then returning the wash water to the pit. This would seem to be putting highly acidic water into the unlined pit, allowing for an even greater chance of contaminating the water table. I don't want to pretend to be an expert in these fields, but I have some experience as a former septic inspector for Lake County where by I was charged with seeing that there was at least a three foot separation to the water table from any portion of a septic drain field. It seems this mine plan does not offer even as much protection from effluent that is far more caustic. The details of the plan seem troubling that, even if working properly, it will protect our water from contamination and even admits that both lead and aluminum will be discharged to a level higher than allowed. The plan seems to rely also on using reverse osmosis to treat the effluent. There is a good track record with some of these treatments, though mechanical difficulties can obviously lead to over-flows that would need to be addressed. I did not see adequate redundancies built into the plan for such mishaps or for the unforeseen weather events that are appearing to be the norm in modern times. What is most troubling is that there is an implied admittance that sulfides are a long-term contaminate. I see nowhere it is suggested that the wastes are ever to be rendered neutralized. I noted that the Flambeau River copper mine had used limestone mixed with the waste rock in an attempt to neutralize it. Apparently that has not worked adequately as the seepage now is above that allowed for sulfides and heavy metals. I won't pretend to know the chemistry here. I gather since limestone is not factored into this mining proposal that it is not considered a good solution, yet the fact there is nothing proposed to neutralize these contaminants suggests there is no known way to do so. The results of the Formosa copper and zinc mine in Riddle, Oregon suggests that the harm to the environment from the acid mine drainage is significant and not something we would want to see repeated. This PolyMet proposal does not ease my fears that something similar would not happen here. This anticipated long term contamination is dealt with by this plan by treating and/or monitoring the waste water for up to 200 years at the mine and 500 years at the processing plant using both mechanical (reverse osmosis) and non-mechanical means – which I would believe to mean simple containment. It is suggested that monitoring will dictate

6445

I would like to see that the decision on whether to allow the copper/nickle mining in the area near Ely be made within the context of a long range view. From what I have gathered the proposal is offering what may become 20 years of employment and profit from this mining venture while it is suggested monitoring of the mining may be necessary for up to 500 years. This alone does not suggest a favorable balance. Yet, also at risk is the altering of a sensitive, highly valuable eco-system that now supports the tourism industry for visitors to the BWCA and also visitors to the areas adjacent to the BWCA which caters to snow mobilers, motor boater, fishermen, hunters, berry pickers, etc Should sulfur pollution occur it could greatly impact this economy as well as possibly impacting the forest products economy of the area. Both areas of economic use are vibrantly alive today and are sustainable for the future. Mining is not sustainable. If the mining could be done with no chance of harming the other environments or economies I could support it, but from what I have seen I do not believe this is the case. Thank you, - Alex Comb Stewart River Boatworks P.O. Box 297 Knife River, MN 55609 218-834-2506 HYPERLINK "http://www.woodandcanvascanoes-com"www.woodandcanvascanoes-com HYPERLINK "http://www.stewartriver-com"www.stewartriver-com

Alphabetical by sender's first name

ALEX FELDMAN 40203

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alex Gillie 42026

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Alphabetical by sender's first name

Alex Heegaard-LeGros 47036

I am extremely concerned about the Polymet Mine EIS, especially the long term water pollution risks- There is not a realistic long term storage plan for the mine tailings; the the current plan has huge ground water seepage risks due to inadequate computer modeling based on optimistic best case scenarios. Minnesota has a tremendous resource in our water supply, we cannot let a single company's lack of planning ruin our economy of the future. We are talking about at least 500 years of waste storage so we should be talking about containment systems based on worst case scenarios. The current models are based on lower than usual water levels; a unusually wet year (which seems likely when we consider our changing weather due to climate change) could overwhelm the containment systems and lead to incredibly expensive and possibly irreversible groundwater and surface water contamination. In addition, these problems are likely to occur after Polymet has moved on/been turned into another company to protect the owners from financial liability. There are too many problems with the Polymet EIS to put them all in this email, in addition to what I said above, the Polymet Mine EIS allows risk to our fragile moose population, unique wild rice supply, local long-term tourism economies, local tribal economies and communities, and in general the Minnesota that we are leaving to Minnesotans hundreds of years into the future. Minnesotans 300 hundred years from now will curse our names if we let this company ravage our state. I was born in Minnesota, and i'll die here. I love this state, and what we are considering allowing is not in the long term interest of any Minnesotan, only the wallets of the multinational companies in control of Polymet. -Leo Alex Heegaard-LeGros 3451 18th ave S Minneapolis, Mn 55407 612 251 0663

Alex Reich 43206

Dear Lisa Fay and the MN DNR, I have a comment relating to health and the proposed NorthMet Mine, and a comment related to mining in the region in general. Thank you for hearing and responding to my comments. I believe that the PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. For other projects here in Minnesota, such as the Central Corridor LRT project in the Twin Cities, HIAs have been conducted as part of the environmental review. With 1 in 10 MN newborns in the Lake Superior basin born with unsafe levels of mercury in their blood (according to the MDH), we must make sure that the proposed mine and the associated energy production facilities that will be the source of energy to the mine and processing plant do not cause health harm to the population. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. We must make sure that the mine does not negatively impact the health of locals (especially tribal communities whose psychological wellbeing depends on wild rice and other water-related phenomena), or of others in the state. If Alaska can do it, so can we. We owe it to our people, especially vulnerable and tribal populations. The PolyMet NorthMet mine could serve as a precedent that will tell other mining companies whether Minnesota cares about its natural environment, or whether it is open for development. I understand that development in general is necessary, but I question whether we as a state (or as a DNR) will ultimately (especially in the 500+ year timeline) want to promote a new and much higher-risk form of mining (copper nickel sulfide mining) in a the Arrowhead/Superior/BWCAW region, an area central to our economy (with $1-6B of nature-based tourism annually) and to our state identity. These are important factors that have not been addressed by the current EIS process, even in the cumulative impacts sections. Therefore please take the following action: Whether through a programmatic environmental impact statement review process, a state-wide voter referendum, or another method, please determine whether sulfide mining in the Duluth Complex will be beneficial to the long-term interests of the state, and whether the majority of Minnesotans support it. The unprecedented public involvement in this EIS process indicates that it is important to the people of Minnesota. Improved though the public involvement process for this EIS was over others in the past, I know that not all Minnesotans who wanted to be involved were able to participate. Thank you for the opportunity to provide input on the PolyMet (SD)EIS. Due to the problems with the draft mine plan outlined above (does not include a health impact assessment, does not sufficiently consider the area-wide cumulative effects of this and other potential mines as would be recorded under a programmatic environmental impact statement), I believe the mine should not be built as described. Sincerely, Alex Reich PO Box 145 Marine on Saint Croix, MN, 55047

Alphabetical by sender's first name

Alex Swingley 43716

Mar 13, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. This is our home. We have nowhere else to live. Do not ruin our earth for a man-made concept known as currency. This would be a mistake without repair. ""Only after the last tree has been cut down. Only after the last river has been poisoned. Only after the last fish has been caught. Only then will you find that money cannot be eaten." Sincerely, Ms Alex Swingley 704 W Ash St Saint Joseph, MN 56374-9427

Alex Ventrelli 54212

I don’t think you should mine near the boundary waters because it kills aquatic life and the water gets polluted and the ecosystem will be destroyed. The boundary water is the only place left to experience true nature. That’s why I think you shouldn’t mine.

Alex Witte 54141

I Don't Support! Needs proof that it will be done right and actually works!!! [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alexa Mcdowell 27966

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Although I respect the position presented by residents of the Iron Range whose livelihood has, for generations relied on mining, I have serious concerns about the plan to develop sulfide mining in northern Minnesota. The threat to the state's natural resources is very real and the specifics of the plan for a longterm response to potential contamination are vague at beSt Too many questions remain unanswered. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Alexa Mcdowell 103 Island Ave W Minneapolis, MN 55401-1509

Alexander Gaya 41867

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Alexander Gaya Northfield, Minnesota

Alphabetical by sender's first name

Alexander Rosen 27564

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, As a native of the Great Lakes basin, I oppose this project. I will always consider this vast resource my home, and I feel moving forward with this mine will greatly affect my home in the most negative ways possible. Please do not allow the destruction of the Boundary Waters and Lake Superior to take place. The loss of the health of these great places is NOT worth the dollar amount that will be gained from this sulfide mine. So please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Alexander Rosen 2355 Glendale Blvd Apt 3 Los Angeles, CA 90039-3258

Alexandr Yantselovskiy 40403

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Alexandr Yantselovskiy Svyatoshyns'ka vulytsya Vyshneve, ot 08132 UA

Alexandra Cooke 39912

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Alexandra Cooke 8001 Wyoming Ave S Bloomington, MN 55438-1043 (612) 965-5861

Alexandra Jane Vagac 57140

PolyMet’s Mining proposed NorthMet sulfide mine fails to meet four common sense clean water principles: keeping MN’s water safe and clean, putting safegards in place for when things go wrong, leaving the site clean and maintenance free, and protecting MN taxpayers. Furthermore, NO sulfide mine has ever operated without polluting its nearby waters. As a student, I urge the DNR not to allow the development of this open pit sulfide mine.Alexandra Jane Vagac5309 S. Cant RdDuluth, MN 55804

Alphabetical by sender's first name

Alexey Zinger 39885

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Alexey Zinger 927 Winter St NE Minneapolis, MN 55413-2539

Alexis Berke 42587

See attachment

Alfred Gramstedt 43451

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Alfred Gramstedt 108 E 5 St Northfield, MN 55057

Alice Duggan 50929

Please see the attached document.

Alicha Greenlee 18348

My name is Alicha Greenlee and I am so excited to be here to speak to the population that is under 25. All right. I grew up in St. Croix Falls, Wisconsin, which is right next to Taylor Falls, and this area here (phonetic) is very beautiful scenery, and you know it. So, naturally, I grew up with a deep appreciation of nature and its riverways. Also, I am representing myself, as well as an organization called CEPAC (phonetic), which stands for Clean Construction For Tomorrow (phonetic). I will get to that later. Okay. I am the president of an environmentally conscious organization and as well am an involved member of the community, and I think that the PolyMet project is a great asset to our community. Their safe technologies and their (inaudible) processes, they will be providing (inaudible) services, as well as, even more importantly, jobs for our state. I forgot to mention that I am a UMD student. I major in biology. All right. Because we all believe (phonetic) in conservation, specifically that our lands and forests should be managed responsibly, so that they can be enjoyed by future generations. The proposed mining project meets many of CEPAC's (phonetic) criteria. The first being, the elements being mined in Minnesota by PolyMet are in high demand and are presently being extracted in all the world by much less conscious operators in Russia and in China. We need these resources, and the more we can get responsible operators, the better off we can be. Secondly, clearly for prosperity and environmental protection, prosperous countries and regions can afford to protect their natural habitats. And this project will undeniably improve the economic conditions in northern Minnesota. I believe myself that my peers will create safe technology in the future to protect watershed issues that have come up in this debate. I also want to state that – excuse me, technology. So great. I also wanted to say that a lot of the copper and precious metals that are being mined, they are needed for technology, especially green technology that is so important to our society today. I think that we need to come to a compromise. I think that that is a balance between conservation and in providing economic opportunities for our state. That's all I wanted to say. So, thank you for the opportunity.

Alphabetical by sender's first name

Alicia Aubart 43231

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Alicia Aubart 2320 Lower Afton Rd E Maplewood, MN 55119

Alicia Newell 40703

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. I understand that this is a tough issue but we are at a major crossroads. We have to make a major shift and stop this path of destruction. Please think about your children and their children. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Pleaser dig into your heart and do what you know deep down is right. Stop this from ever happening Sincerely, Mrs Alicia Newell 826 N 9th St Saint Peter, MN 56082-1264 (612) 229-0034

Alison Aune 44879

March 13, 2014 Dr Alison Judith Aune-Hinkel 5409 London Road Duluth, MN 55804 Dear Department of Natural Resources, I am writing to say NO to the proposed Polymet’s sulfide copper/nickel mining in Minnesota. I have followed the reports, televised meetings, TV commercials, and newspaper editorials and it is clear: Sulfide mining pollution would forever change Minnesota. We cannot allow our natural wilderness, the animals that life there, the wild rice harvest, the Boundary Waters, Lake Superior, and other waterways, our air, and the health of our citizens to be put in danger. The Animals: I have read about the dangerous impact on moose habitat, but that analysis is lacking. We cannot allow thousands of acres of moose habitat to be destroyed; The Canada Lynx is listed as a threatened species under the federal Endangered Species Act. Lynx have been tracked on land adjacent to, and on, the PolyMet mine site. It is very serious if the PolyMet mine is built; it would destroy 1,450 acres of designated critical habitat for the Canada Lynx, habitat essential to the conservation of a threatened species. We must not allow the fragmentation and loss of habitat for moose, Canadian Lynx, and other wildlife. Wild Rice: Wild rice is sacred to the Ojibwe people, and is a symbol of our state. Wild rice beds downstream of PolyMet would become polluted with toxic sulfates. Millions of gallons of untreated polluted water will escape every year, and the mine plan predicts an increased chance that water exceeding the sulfate standard will be released at times, years after closure. Dirty Water: Minnesota is the Land of over ten thousand lakes. How can we risk the need for extensive water treatment of our waterways for hundreds of years. Who would pay for the cleanup. Taxpayers would have to pay for this and I do not support the huge cleanup bills when sulfide mining companies have declared bankruptcy or walked away from closed. Dirty Energy: PolyMet would be a huge consumer of electricity, using some of the dirtiest coal power plants in Minnesota. PolyMet would emit 707,342 metric tons of carbon dioxide into the atmosphere every year. This must not be allowed; it would contradict Minnesota’s goal to reduce carbon emissions. What about The Minnesota Next Generation Energy Act set a goal of reducing Minnesota’s greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- Scientists have already stressed that Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. Human Health: Exposure to air and water pollutants like mercury, asbestos-like fibers, and arsenic would have a significant impact on local communities. I have listened to the physicians who have spoken out against this mine to the very real health dangers it poses. Please carefully consider these dangers. Sincerely, Alison Aune-Hinkel - Alison Aune, Phd Professor and Area Chair Art Education/Museum Education University of Minnesota Department of Art and Design School of Fine Arts 317 Humanities 1201 Ordean Court Duluth, Minnesota 55812-3041 218-726-6216 http://www.alisonaune-com/ (password aaune) HYPERLINK "http://www.d.umn-edu/art"www.d.umn-edu/art

Alphabetical by sender's first name

Allan Blais 54161

Who will pay for the hundred year cleanup after this company is long gone? Our grandchildren? I have lived on the iron range. Some people are very short sighted whne a buck could be made. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Allan Bostelmann 43498

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Allan Bostelmann 3655 45th Ave South Minneapolis, MN 55406

48484

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Allan Bostelmann 3655 45th Ave South Minneapolis, MN 55406

Allan D. Henden 57882

I ask you to oppose PolyMet's proposal for sulfide ore mining in the Superior National Forest at the headwaters of the St. Louis River. They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area. The mining will leave square miles of talcum powder-fine waste, piled high. Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock. PolyMet suggests that to prevent pollution of the St. Louis River watershed they will collect the hundreds of millions of gallons of rain and snowmelt waters that filter through the waste every year and run them through water treatment plants ... for up to five centuries. The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project. The cost liability for cleanup over centuries is also a great cause for concern. Please oppose this project.

Alphabetical by sender's first name

Allan Frink 18303

Allan Frink. The current system you have is being gamed mathematically by people bussing in large numbers of people. When they bus them in, they make sure everybody fills out a card. You have random people that arrive that aren't busted in. Only a small percentage of them put cards in. They all go into one pool. You have people who had their cards drawn, they use their entire time talking about nothing about these issues. Yet, other people that, apparently, when their name was called, can't do a filibuster during their time up there like other people. They say, "Oh, I want to defer it to the specialist, so and so," who is in the back of the room, and that person has to walk up to the front to use the time. So you have people that aren't doing productive comments during the meeting, consuming time, so that you can't have additional ones coming And it is all mathematics. And so what you really need is two bins for putting in things; pro and con. I realize that even though they are there, some people will put in the other one, so that you can improve your hit rate anyway. So pretend I'm for it, but I'm against, but so that it gets picked up. So then what you do is you take the same number out of both of these, you put them in the hopper and you mix them. You only draw a small percentage out of that hopper. You can either empty the hopper and do this again and then reply -- and then start over again by mixing parts of the ones together, or you can just add to it and take a small percentage. You will get a better distribution between the bussed in people and the people that came individually. What's happening out there is somebody who says, "I want to sell a gold field and I want to make my money as quick as possible, so I'm going to throw a few pieces of gold around places and salt it. They essentially salted the dialogue. Because they're gaming it mathematically. And I can see it. But I see math. I see everything. I read everything. I read people. I read books. In high school I even read one guy that always had to be white when we played chess and he would mix it up behind his hand, and I'd go, "I'll be black today," and "I'll be white today," and I was always right. He could never figure it out. He always squeezed the white one tighter, so he had white knuckles on the white. And I found it more fun than instead of always picking white, to mess with his mind. But he was -- he was ceding (phonetic), and I was able to observe it. I observed it in this meeting. I don't know what the ones were like up in Duluth or Aurora, but this being the third one, they've had one try, two tries, and they are very good at getting down here. And so you can't -- you can't – you can't do this the way it is because it doesn't work mathematically. Any time that people bring a large group together, it doesn't work. Also, the paper here, this really should be a scientific study. That paper should have a summary. It should have what we did, how we did it, and 98 percent of it should be raw data. And the what we did and how we did it is telling you how we are using the raw data. What we have is incorrect data because one gauge was wrong. We have massaged data. We have no idea how it was massaged. And yet, we are supposed to use this as fact and make comments on it. We also aren't supposed to look at other things, like the fact that MinnTac is just a taconite mine, which has tailings ponds, which is just normal, and they're producing sulfite leakage into two different watersheds, and have been since 2004. That was in the paper today only because they were talking about they want to expand another 480 to 90 acres of mining and they are trying to say, well, they shouldn't have to do an EPA study for this because they have done two other ones already and they're working with state agencies attempting to reduce the pollution going out of their tailings. It's the same rock that this is. They can't handle it over here, where they've been in operation since '67? I think that's '67 when the construction was done. Because I think that's when my dad had friends that moved to Arkansas and worked construction. They left MinnTac construction for that. And they haven't solved the problem in ten years. And there was nothing in there about how much they actually reduced or trying to reduce, making an effort. That doesn't tell you anything in the paper. I don't expect that in the paper. But in a scientific study here, or whatever this is, that kind of stuff should have been there. And in the paper this week, there was the thing saying, oh, well, a different mine has a thing in the Partridge River and they're showing the water is running three times as fast as the one that was used here, before they massaged the data. Computer models just manipulate things. They want to put the rock in a hole where the groundwater runs into it, I mean from the ground, not running in. That will happen, too. But the water comes in from the old pits, from the bottom. It has for decades. They wanted to put the rock in there and cover it with water, so it doesn't have oxygen, but there is oxygen in the water. The water fluctuates through the ground, depending on how the aquifer moves. Stuff is going to go into the aquifer. They're not even looking at that. They're saying the water can't do that. If water can flow one direction, it can flow the other way. I used to live out by Biwabik. Biwabik had open air lagoons for their septic. We were -- we were across the road from the second lake downstream. Every time it rained, we could smell sewage in the lake. So, you can't even handle sewage, how are we going to handle sulfuric acid? I haven't seen anybody talking about how they are going to have the mercury that is in that rock and all of the other stuff, because there is all of the hard metals in it, too. That's why there is gold and the platinum, because there is lots of them. The problem is because it is low volume. But when you start crushing it all up, to powder like for makeup, which is what they crush that at, that's what they did for the taconite, too, all of that stuff is released. That is also the exact same rock that Silver Bay's reserve mining processed, and they dumped their tailings into Lake Superior. And then in 1970 Duluth had to put in a new water treatment plant because of asbestos like fibers, and we had to drink carton water, which the civil defense provided for a long time, and then dairies provided water free of charge because they were getting paid from the government somewhere to provide water that we could drink. So, once I saw what happened in West Virginia, I already knew that. I lived in Duluth when that happened. I still have my blue carton that says, "Civil defense," that I drank water out of. The first one. I kept it. And nobody is correlating stuff. And when they bring people in to talk

Alphabetical by sender's first name

about something, they talk in this little, tiny, narrow vein. It is like saying, "Yes, blue eyes, all babies are born with blue eyes mostly." And yet the discussion was on what the vision is. But, no, we just – because if you -- if you -- if you talk too wide, it is hard to lie. But if you talk narrow, it is easier to lie and still sound like you're telling the truth. And that's what I've seen out here. I've seen wasting. I've seen the gold field salted. I know it is the first time that you guys are doing this, it is actually the third time, but people are organized. Don't have one like this and prove it. I guess so. Unless you want me to talk about the Buell (phonetic) mine that is south of it. And when it was filling and everybody said, "Oh, we can't pump the water out of that and put it in the stream because it would go into the Mississippi and pollute it," even though they were afraid the water was going to run up and flood the town of Buell (phonetic), or Bogee (phonetic) rather. And of course it leveled off beforehand, so everybody was like, "Oh," and that. We already know the mines don't do anything because every mine, as part of their thing to do is that they have to put the bumps back into the holes. And I can count the number of holes that were filled in the mining industry over the entire time on my fingers, on my foot, which is zero. So, and I've seen -- I saw LTV go broke because they created a brand-new company. They shipped equipment to a different spot, sent that equipment back and said, "Oh, well, we're now broke." So, that's exactly what will happen here if they are not getting enough of this stuff out. The Swiss company is going to say, "We're not giving you any more money." And of course they won't have nothing. There won't be anything there to do any treatment or any repair. It will be as bad as when the reserve closed and we wound up with that mega toxic dump up in Silver Bay. You got to look at practices and know they repeat. Everything repeats. So I'm done.

Allan King 16918

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Allan King 4109 Robinson St Duluth, MN 55804

Alphabetical by sender's first name

Allan King 50221

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Allan King 4109 Robinson St Duluth, MN 55804

Allen Doran 40170

Mar 10, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Allen Doran 210 College Dr Melbourne, IA 50162-1008 (641) 485-6992

Allen Frechette 40015

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Allen Frechette 1511 6th Ave W Shakopee, MN 55379-2075 (952) 496-3244

Alphabetical by sender's first name

Allen Killian-Moore 18386

Hello. I am Allen Killian-Moore. I would like to call for a 500-year comment period instead of 500 years of downwater pollution.I think the SDEIS inadequately addresses workers safety and inadequately addresses ground water pollution issues. And I think we need more time to look at those things. I would like to quote Jurassic Park. "Your scientists were so busy thinking about whether or not they should that they didn't stop to think" -- or "whether or not they could that they didn't stop to think whether or not they should." I'm a tenth generation working class Minnesota. I've been involved in three labor unions. And I will say as a working class union person I do not support the PolyMet. I do not trust them to have the rights of the workers in mind. And you should not trust them either. Thank you.

42635

See attachment

57332

Hello. I am Allen Killian-Moore. I would like to call for a 500-year comment period instead of 500 years of downwater pollution.I think the SDEIS inadequately addresses workers safety and inadequately addresses ground water pollution issues. And I think we need more time to look at those things. I would like to quote Jurassic Park. "Your scientists were so busy thinking about whether or not they should that they didn't stop to think" -- or "whether or not they could that they didn't stop to think whether or not they should." I'm a tenth generation working class Minnesota. I've been involved in three labor unions. And I will say as a working class union person I do not support the PolyMet. I do not trust them to have the rights of the workers in mind. And you should not trust them either. Thank you.

Allen Oberg 47195

Polymet should go ahead with providing upfront evidence of complete insurance coverage in event of a pollution incident with their mining operation since they are so sure the high-tech methods they use will not cause groundwater contamination. Allen Oberg

Allen Richardson 18342

I am Allen Richardson from Duluth, R-I-C-H-A-R-D-S-O-N, with an organization called Obard (phonetic). This is a matter that speaks to me personally. Of the many inadequacies and deficiencies in PolyMet's Supplemental Draft Environmental Impact Statement, I am going to focus on PolyMet's greenhouse gas potential. The potential of greenhouse gas emissions from the PolyMet mine, sulfide mine and processing facility are staggering, including the fossil fuels burned on site to run the plant. And the potential carbon dioxide emissions would be 707,342 metric tons per year according to SDEIS Page 5-405. So, to put this into perspective, I looked at the Co2 emissions for the entire City of Duluth from 2011. The whole city, commercial, industrial, and potential transported waste emitted 2.7 million tons of Co2 equivalent greenhouse gasses. PolyMet alone would emit more than one-fourth of the Co2 equivalent of the pollution of all Co2 levels (phonetic). Over a 20-year life plan, PolyMet would emit 15,790,752 tons of Co2 equivalent pollution, more than ten million tons from burning coal and running the processing. That's on Page 5-406. With that in mind, I request that the PolyMet project not be permitted without more studies, comparatives and standards changes to reduce Co2 emissions. The SDEIS should be done with more comparatives and alternatives that would reduce Co2 emissions, starting with changes in vehicle fuel and to reduce our reliance on coal power. Thank you.

42669

See attachment

Alphabetical by sender's first name

allene burns 40088

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. This is too hazardous to consider drafting the MpolyMet Mine in northern Minnesota. We have too many fragile natural plants and animals to say nothing for the environment as well, to consider this risky endeavor. Please do the right thing and look for those minerals elsewhere. We have too much at stake in Minnesota. It is imperative that a Health Impact Study be done to prove the reasons for my concern. Sincerely, Allene Burns Sincerely, Mrs allene burns 5708 Warden Ave Edina, MN 55436-2245

Allete 54719

See attachment

Alliance for the Great Lakes 22327

Attached please find comments from the Alliance for the Great Lakes on the NorthMet Mining Project Supplemental Draft Environmental Impact Statement. I would appreciate confirmation that these comments were timely received. Lyman C. Welch | Water Quality Program Director | HYPERLINK "mailto:lwelch@greatlakes-org"lwelch@greatlakes-org Alliance for the Great Lakes | www.greatlakes-org 150 N. Michigan Ave, Suite 700 | Chicago, IL 60601 | 312-445-9739 Protect Your Lakes at http://takeaction.greatlakes-org/subscribe HYPERLINK "http://www.facebook-com/allianceforthegreatlakes"Facebook iconHYPERLINK "http://www.twitter-com/a4gl"Twitter icon

Allison Engel 42830

See attachment

Allison Fischer 38957

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Allison Fischer 3240 Fremont Ave S Apt 103 Minneapolis, MN 55408-3570 (612) 401-4218

Alphabetical by sender's first name

Allison Foy 42084

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Allison Foy Minnetonka, Minnesota

Allison Herreid 42986

Dear Lisa Fay, EIS Project Manager, I have attached my comment about the proposed mine and the SDEIS. Please take the time to read through what I have to say. Thanks for your time, Allison Herreid HYPERLINK "mailto:allisonherreid@gmail-com"allisonherreid@gmail-com 11619 Edison St NE Blaine, MN 55449

Allison LaBonne 45521

Dear Sirs and Madams, Please protect our most important natural resource: fresh water. Surrounding water would be contaminated by the NorthMet Mine, and though it creates a few jobs and a some tax revenue, the bulk of the profits go to foreign countries. The risks for environmental degradation are too high. The risk that taxpayers will end up footing the bill for long term clean up is too high. The increased risk of chronic illness is too high. When it comes to acid mine drainage, a little goes a very very long way. Please protect our state. Thanks, Allison LaBonne

Allison Plathe 44324

Dear Ms Fay, Dear Ms Fay and Mr Bruner, I am sending this email to let you know that we do not support the PolyMet mine and we do not think that the PolyMet NorthMet SDEIS is adequate. In fact, we want you to reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. The PolyMet SDEIS is an inadequate assessment of human health impacts and the PolyMet sulfide mine and mine wastes proposal poses an unacceptable risk to the health of fetuses, infants, children and adults in Minnesota. Please reject both the PolyMet SDEIS and the PolyMet mine. We have a great environmental state here in Minnesota. I know that you are weighing the 200 jobs that this mine will bring to the area, but it is not worth it to destroy our natural resources. We need to find another way to help those 200 folks get work. Thank you for your consideration. Allison Plathe Allison Plathe 1905 Portland Avenue St Paul, MN 55104 651-491-1441

Allison Spoelhof 52297

Hello, I live in Duluth, MN, and am opposed to the Polymet mining project. I have a 2 year old daughter and another on the way, and for their sake and for generations to come, please do not allow this mine to happen. No mine like this has ever had a good environmental track record, and short term profits are not worth long term environmental and health costs. This would be an environmental and health disaster for northern Minnesota. Please do not let this happen. Allison Spoelhof 2118 Abbotsford Ave Duluth, MN 55803

Alvin Halfaker 42614

See attachment

Alphabetical by sender's first name

Alyssa Caralla 42242

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Alyssa Caralla 1706 Murphy Ln Dublin, GA 31021-3539 (478) 275-3095

Alyssa Evenstad 41837

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Alyssa Evenstad Saint Michael, Minnesota

Alyssa Hoppe 18119

The SDEIS artificially denies the effects of water pollution on the St. Louis River. The SDEIS fails to recognize environment justice effects of pollutants such as metal mercury and (inaudible) found in fish, game, and wild rice as well as water. And cause particular harm to tribal members an low-income families who rely on fish, game, and wild rice. Please take the following actions to protect the impacts of the PolyMet project: Redo the SDEIS to disclose mercury concentrations and loading release directly or indirectly into the surface waters from all PolyMet sources. Redo the SDEIS to assess mercury impact without unreasonable assumptions, like the off-site or Embarrass mercury increases, or the claim that 99 percent of mercury is never released from tailings. Redo the SDEIS to evaluate the metal mercury bioaccumulation from air emissions of mercury and sulfide, water discharge of mercury, an sulfate and hydrological changes resulting from the PolyMet project. Redo the SDEIS to require a separate and clear health risk assessment prepared in conjunction with the Minnesota Health Department to analyze impact of all sulfide mines and plant emission releases and accumulations on health, including a description of the known human health impact of PolyMet's emissions and discharges in language understandable to the public; assessment of potential impact on residential wells from tailings basin seepage; health risk assessment for onsite workers at both the PolyMet mine and plant; assessment of cumulative mercury risk including actual (inaudible) in lakes already impaired; assessment of cumulative cancer and non-cancer risks from existing and additional sources of manganese, arsonic, lead, nickel, and other toxic chemicals, (inaudible) health risk limit and federal profile health analysis; assessment of all risks using a 70-year lifetime for exposure; assessment of cumulative risks of multiple chemicals in exposure wells, drinking water, fish, wild rice, on infants, children, and the elderly; assessment of cumulative risk of mercury contamination of the fish in the St. Louis River (inaudible); complete a measure TMDL study for the St. Louis River before finalizing the PolyMet SDEIS; reject unacceptable health and environmental health impacts on family and tribal members who fish and hunt and gather.

Alyssa Mcgillivray 10719

Ms Lisa Fay I am writing in support of the PolyMet project and the SDEIS. My family and I live on Sabin Lake (the 1st of the chain of lakes on the Embarrass River). We have been following the project for 9 years. I support the project. The SDEIS is comprehensive, informative, complete. It’s time to move on to the Permitting process. Alyssa McGillivray 6525 Voyageur Trail P.O. Box 351 Biwabik, MN 55708

Alphabetical by sender's first name

Amanda 39252

To whom it may concern: The proposal to bring Polymet into the pristine land of Northeastern Minnesota is a dangerous one, filled with short term as well as long term risks. As the granddaughter of a man who worked in the Iron Ore mines in Hoyt Lakes, I fully understand that this area desperately needs jobs to bring back a struggling economy. But I also know, as a passionate environmentalist, that this is a short term fix to a long term problem. PolyMet is promising things that have the potential to fail, and the pristine wetlands and unique Minnesota wildlife can't take that risk. Even more importantly, the health of the people who live up there as well as the health of fresh water sources is in danger if PolyMet is able to proceed with their plans. PLEASE, do whatever can be done to stop this unnecessary risk from entering such a beautiful and wild part of Minnesota, not only for us, but for our children, grandchildren, and the generations that follow. Thank you, Amanda Heuring 2168 Cleveland Lane South Cambridge, MN 55008

54170

My name is Amanda. I am from St. Paul MN. I am against the sulfide mining because they’re owners and tourists that cares and are fighting against it too. It will affect the lakes and rivers that are around the areas. And also [ILLEGIBLE].The lakes has been untouched ever since 1978 Wilderness in MN. Another thing that the sulfide mining will also affect the living things under the water.

Amanda Goettig 42085

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Amanda Goettig Luverne, Minnesota

Amanda Johnson 38423

Lisa Fay, I am writing to submit a comment on the SDEIS for the PolyMet mining project. I have been to all the meetings and I am for this project 100%. I trust that the DNR has done a thorough job and our water will be safe. This project will help our local businesses and schools which are both in desperate need and have been since LTV shut down. It will have hundreds of full time employees and also millions of construction hours. Our local people need good paying jobs or we will loose more of our communities to other places if they cannot make a living here. We have been mining in this area for many years and I trust that it will be done safely. From the meetings I noticed that a majority of people against this project don't even live in the area or maybe just come a few times in the summer to stay. The people who live here want to work and have their children be able to stay in the area instead of moving away because of a lack in jobs. Thank you for your time in reading my comment. Amanda Johnson 6441 E Barker Road Gilbert, MN 55741 (218) 750-1807 Amanda Johnson Office Manager Office (218) 229-0100 Mobile: (218) 750-1807 Email HYPERLINK "mailto:amandaj@amptekcontractors-com"amandaj@amptekcontractors-com Amptek, Inc. 112 Main Street North Suite 106 Aurora, MN 55705

Alphabetical by sender's first name

Amanda Kelly 44211

Mar 13, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. The Boundary Waters is my home away from home, and the truest form of escape that I can imagine. It is a wonderful and serene area where I have made my most cherished memories, and I simply cannot fathom not being able to experience it with with my unborn children. In a world where technology is expanding exponentially and nature is becoming less relevant, oases like the Boundary Waters are absolutely necessary for many who still grasp the overwhelming importance of the Earth itself. Of all things for there to be less of in this world, areas like the Boundary Waters wilderness should not be one of them. Sincerely, Miss Amanda Kelly 1509 Waverly Ave Duluth, MN 55803-2618

Amanda Lingwall 16157

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Amanda Mohler 41872

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Amanda Mohler Stacy, Minnesota

Amber Arntz 47239

Good Morning, My name is Amber Arntz 58 N Yukon Drive Ely, Minnesota 55731 I support the PolyMet Project because PolyMet will have dramatic, positive socioeconomic impacts to a region that exists merely because of mining. This project is located in an area that supports mining and the jobs it will bring. Looking into a future without mining advancements, having only an economy based on the current prospects and tourism has a grim and bleak future for our youth and the area itself. Thank you for your time, Amber Arntz

Amber Bastian 43839

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Amber Bastian 3848 Nicollet Ave S Minneapolis, MN 55409

Alphabetical by sender's first name

Amber Bastian 43841

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Amber Bastian 3848 Nicollet Ave S Minneapolis, MN 55409

Amber Garlan 3002

Dec 19, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining releases toxic metals and can create Acid Mine Drainage (AMD), polluting our rivers and groundwater for hundread of years - long after the profits are spent and the products buried in landfills. PolyMet's own study says that the wter from the mine side would need at least 500 years to treatment. 500 years of cleaning up toxic, hazardous waste is not in the public intereSt The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Amber Garlan 9 7th Pl W Apt 346 Saint Paul, MN 55102-1184 (651) 249-7286

7050

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. The SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely Amber Garlan 9 West 7th Place, apt# 346 St Paul, MN 55102 651 249-7286

Alphabetical by sender's first name

Amber Garlan 11420

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Wild Rice is Minnesota's state grain, and crucial for its cultural significance and importance for subsistence of Minnesota's Native Americans. Manoomin (wild rice) is recognized as a significant resource for Minnesota's tribes, access to which is protected by the Treaty of 1854- Even low levels of sulfates are proven to affect wild rice stands, a fact recognized by Minnesota's protective wild rice sulfate standaRd The PolyMet mine plan identifies wild rice beds downstream of the mine and plant, including part of the Embarrass and Partridge Rivers and Wynne Lake. Since sulfate levels in wild rice beds downstream of the proposed mine already exceed the standard, the proposal must demonstrate it "would have an acceptably high probability of not increasing sulfate concentrations in these areas" (p. 5-5). The mine plan does not meet this teSt PolyMet claims they will meet this standard by using water treatment (including reverse osmosis) to eliminate sulfates before wastewater is released. However, the mine plan predicts that 5-2 million gallons per year will seep out without treatment at the Mine Site after closure, and 11 million gallons of untreated water per year will escape the Tailings Basin (5-8). This seepage will surface and enter streams and rivers nearby. The standard to protect wild rice is 10 milligrams grams per liter of water. The waste rock left behind at the Mine Site will create runoff with sulfate levels of 2,000 to 4,000 micrograms per liter after closure, 5 million gallons of which will escape untreated every year. In fact, the SDEIS predicts that many years after closure this could violate the sulfate standard to protect wild rice, requiring additional measures (5-142). The SDEIS is contradictory, on the one hand relying on mechanical water treatment for hundreds of years in order to seemingly meet the sulfate standard, but also describing possible passive treatments that may be developed that would seasonally violate the protective sulfate standards. The EIS should eliminate that contradiction. Lastly, the SDEIS inadequately characterizes wild rice waters downstream of the PolyMet sites. The Great Lakes Indian Fish and Wildlife Council has provided additional wild rice sites other than those included in the SDEIS. The EIS should be revised to include these additional wild rice waters. Keep rice free from polution. Sincerely, Ms Amber Garlan 9 7th Pl W Apt 346 Saint Paul, MN 55102-1184 (651) 249-7286

19412

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: Please increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. The plan for Minnesota's first ever proposed copper-sulfide mine is over 2,100 pages long and has more than 730 references. A thorough, independent scientific review by the experts and the public will take more time than the current 90 day public comment period. Sincerely yours, Amber Garlan 9 West 7th Place, apt# 346 St Paul, MN 55102 651 249-7286

52166

Dec 19, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining releases toxic metals and can create Acid Mine Drainage (AMD), polluting our rivers and groundwater for hundread of years - long after the profits are spent and the products buried in landfills. PolyMet's own study says that the wter from the mine side would need at least 500 years to treatment. 500 years of cleaning up toxic, hazardous waste is not in the public intereSt The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Amber Garlan 9 7th Pl W Apt 346 Saint Paul, MN 55102-1184 (651) 249-7286

Alphabetical by sender's first name

Amber Garlan 52302

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Amber Maslonkowski 17154

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Amber Maslonkowski 506 E 47th St Minneapolis, MN 55419

50422

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Amber Maslonkowski 506 E 47th St Minneapolis, MN 55419

Alphabetical by sender's first name

Amber Waller 54357

Dear Ms. Lisa Fay, EIS Project Manager,I am an eighth grade Southwest Junior High student writing to you concerning the PolyMet Mining debate. I think that PolyMet Mining has a very good plan in place. It's a good idea to have insurance if the mine suddenly closes. The mine will definitely provide more jobs. It will also boost our economy.There are some big advantages. As I said, it will boost the economy and provide jobs. It will also provide the world with a lot of resources.On the other hand, there are many disadvantages. If the water isn't treated properly, it could cause a lot of contamination problems. Mercury contamination would not be good. Also, mining noise could seriously affect the First Peoples hunting. If contaminants leaked, it could kill a lot of gathering plants.However, I feel PolyMet will take the proper precautions and will deal with any spills or leaks. They have assurance that all water will be treated and plant life restored. They also will keep track of affects to cultural resources. So, I must say that I agree with their plan to build the mine.Sincerely,Amber Waller

Amber Woitalla 48197

25 people recently add their names to Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=one_thousand"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota.". That means more than 500 people have signed on. There are now 375 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=one_thousand"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 374- Jade Beauclair Minneapolis, Minnesota 373- anna barrett Saint Paul, Minnesota 372- Jasmine Warren , United States 371- John Garrett Pelican Rapids, Minnesota 370- Lucas Green Hager City, Wisconsin 369- Spencer Perrone Minneapolis, Minnesota 368- Theresa Kennedy Sullivan, Wisconsin 367- Bronwen Eide Minneapolis, Minnesota 365- Chase Taylor Minneapolis, Minnesota 363- Chris Wakefield Minneapolis, Minnesota 362- Liz Ratcliff Mankato, Minnesota 361- Lucas Giese Collegeville, Minnesota 360- Louis Mielke Minneapolis, Minnesota 359- Laura Loucks Eagle, Wisconsin 358- Dorothy Janovyak Fort Wayne, Indiana 357- Joseph Brandl La Farge, Wisconsin 356- Savanna Richter Highland Park, Illinois 355- Grace Scribner-O'Pray Minneapolis, Minnesota 354- Matt Boys Eden Prairie, Minnesota 353- Julia Kuebelbeck St Cloud, Minnesota 351- Treana Mayer Minneapolis, Minnesota 350- Jennifer Steffen St Peter, Minnesota 349- Zhe Yu Lee , United States 348- Miranda Bridgeman Big Lake, Minnesota 347- Sarah Barton Northfield, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJvbmVfdGhvdXNhbmQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTI5LCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA2NzE4MjF9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK4MGnVyyQF978e12AAVYud6dB9JqsJf6VS-2FyqwoKH3oQzzjTrsejs3XAVuUGgM9vmocwv1tXmztvwWS5jnHBUg7m4ii2WRGWeHovc-2F0jGMXtUZ0nt18tdTD8

Alphabetical by sender's first name

Amelia George 37817

Dear Ms Fay, To Whom it may concern, I am writing to comment on the SDEIS for Polymet's copper-sulfide mine. I don't think that the environmental damage to the area is worth the jobs that would be created by Polymet's mine. I am definitely against Polymet's proposal to swap 6,650 acres of good land in the Partridge river headwaters. I came to northeastern Minnesota 5 years ago in order to live in one of the last unspoiled wilderness areas of the country. There are a lot of Minnesotan's who come here to hunt and fish and harvest wild rice and just generally enjoy the clean wilderness areas of this part of the state, and I think that this mine could be really bad for the tourist industry. Not only that, but the pollution that this mine will generate will definitely be bad for the health of the people, animals and plants that will be downstream of this plant. Also, I heard that Polymets SDEIS water model is not accurate; that the actual rate of groundwater base flow is 200-300% higher than the rate used in the SDEIS. It needs to be redone. PLEASE REJECT POLYMET'S PLAN. Thank you for taking the time to consider my comment, Sincerely, Amelia George 5970 Blesner lake Rd PO Box 535 Finland, MN 55603 Amelia George po box 535 5970 Blesner Lake Rd Finland, MN 55603 2182268261

American Exploration & Mining Associ 42890

Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Rd, Box 25 St Paul, MN 55155-4025 Dear Ms Fay, Attached are the comments of the American Exploration and Mining Association on the NorthMet DEIS. Please acknowledge receipt of these comments. Thank you Laura Skaer Executive Director American Exploration and Mining Association (formerly Northwest Mining Association) 10 N Post St Ste 305 Spokane WA 99201 509-624-1158 x 16 HYPERLINK "http://www.miningamerica-org/"www.miningamerica-org HYPERLINK "http://www.themoreyoudig-com/"www.themoreyoudig-com IT ALL STARTS WITH MINING AEMA_EST_logo_3rgb_h

Amethyst Hare-Heim 57173

Don’t put in any more mines. We need more resourceful answers that will not hurt our future generations.Amethyst Hare-Heim1702 North 24th StreetSuperior, WI 54880

Amie Stone 54204

This mine project proposal for Northern Minnesota will in no way be beneficial to the people of this state of the BWCA. As an avid canoer and camper, the BWCA is the perfect place to do so. The watershed is 100% pure, I can dip my canteen in the certain areas directly into a lake or stream and just drink. There has been undeniable evidence regarding the pollution associated with sulfide mining. It releases sulfuric acid into the water, lowering the pH and therefore harming critters. The “economic benefits” will not at all influence the area surrounding the mine, other than the few, short-term jobs it will provide. The negative aspects completely outweigh the “benefits.” This project proposal is bogus.

Amy Barankovich 39365

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Amy Barankovich 3219 18th Ave S Minneapolis, MN 55407-4803 (612) 722-3370

Alphabetical by sender's first name

amy clauson 41847

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, amy clauson Scandia, Minnesota

Amy Donlin 40169

Dear Ms Fay, Mr Dabney and Mr Bruner, Attached, please find my comments on the Polymet/Northmet SDEIS. Sincerely, Amy Hawkins Donlin 6100 Centerville Road Hugo, MN 55038 (651-426-6356

Amy Ellis 40865

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Amy Ellis 2226 Cocquina Dr Reston, VA 20191-1139 (703) 880-1619

Alphabetical by sender's first name

Amy Farland 39906

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Amy Farland 15111 Greenhaven Dr Apt D41 Burnsville, MN 55306-6141 (952) 435-5676

Amy Freeman 43088

Dear Lisa Fay- I think an open pit approach is particularly problematic and the feasibility of continuing necessary water treatment for at least 500 years is quite questionable. The real issue in terms of long term environmental detriment is this (from page 988 of the SDEIS): With the addition of water pumped from the Plant Site, West Pit flooding is projected to be completed by approximately year 40- When the West Pit water level rises above the top of bedrock, there would be a release of pit lake water into the West Pit Surficial Flowpath. The affected groundwater in this flowpath would migrate slowly towards the Partridge River. Pg 989: The idea that this solution is sustainable on the long term seems unlikely: Surface runoff would be routed away from the mine pits using a combination of existing and new ditches. The WWTF would continue to operate during long-term closure, treating excess water from the West Pit and discharging the effluent to the small Partridge River tributary. A WWTP would be added at the Plant Site to treat Tailing Basin seepage through operations. The reality is that there would be for the long term a very polluted pit lake. Over and over the document says that the WWTP (wastewater treatment plant at the plant) and WWTF (water water treatment facility at the mine site) will remain active for long-term needs, but it is very vaguely stated. The reality is that there would be water that is significantly affected by sulfides and metal leachates associated with the exposed rock in the pit and the waste rock in the "stockpile" for a very long time. Pg 210: It is also hard to envision that the hydarluc barrier could really be that effective as is illustrated. Lots of things happen in soils--animal burrowing, roots that would make it very hard to maintain an impermeable hydraulic barrier. Pg 233: These long-term closure activities would be ongoing until the various facility features were deemed environmentally acceptable, in a s elf-sustaining and stable condition, and until it were shown that water quality standards were being met. The idea that the site would reach a self-sustaining stable condition by around year 40 doesn't pass the sniff teSt They are writing this as if somehow the WWTF that they present as being necessary to prevent long-term discharge of contaminants from the west pit could sustain itself a few decades out. How could this be possible. Pg 240: PolyMet has committed to conduct demonstration projects during the Life of Mine and reclamation phases to establish non-mechanical water treatment systems to be used at the Mine Site. The WWTF would remain operational until water quality monitoring results demonstrate that a non-mechanical system could produce an effluent water quality, which is shown by pilot-testing and modeling, to achieve future water quality criteria at evaluation locations without the need for mechanical treatment. I read this to mean that Polymet really doesn't know how they can come up with a water treatment strategy that is sustainable for the long term. And this next statement from the same page doesn't mean much given the timescale over which we are talking and the reality that resources companies come and go, go bankrupt, etc: PolyMet would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions have been met. What I don't understand in looking through the documents is how they both state the need for the WWTF to keep operating long-term at the mine-site, but then also say that they plan to be able to do this: Pg 233: When all reclamation activities required by the Permit to Mine are completed, a Request for Release per Minnesota Rules, part 6132-1400, would be submitted. This request would provide the Commissioner of the MDNR with detailed information on the final reclamation status of the NorthMet Project area. Who then

Alphabetical by sender's first name

Amy Gardner 44524

Dear Federal and State Agency Leaders: As a resident of Northern Minnesota, a fisherman and a wild rice harvester I am greatly concerned with the proposed PolyMet sulfide mine plan. Trading two decades of benefits for polluting this water rich environment with potential contaminants like arsenic, sulfate, manganese and heavy metals for at least 500 years just doesn't make sense. I ask that a better job be done in studying the impact of mercury contamination of fish and the impact of untreated pit releases to surface groundwater on wild rice before the EIS is finalized. The SDEIS does not address who will perform the indefinite monitoring of the on-site constructed wetlands. The SDEIS must reveal wastewater volumes, pollutant levels and it must explore options if something goes wrong(fails) during long term water treatment. I feel that the SDEIS is flawed because the models for the amount of pollutants to be released are based on data from other sites and not on the current water data from the project site or it's surrounding area. The company did not study the type of rock or the structure beneath the wetlands. I ask that you reject the SDEIS as inadequate and please do not allow PolyMet a State permit to mine. Thank you, Marc Smith 6977 Cramer Rd Box 446 Finland, MN 55603

Amy Goetzman 44457

Hello, I'm a lifelong Minnesotan and have enjoyed year-round outdoor recreation throughout the state since my parents took me camping as a child. Our natural resources and opportunity for public enjoyment of them set this state apart, and people come from all over the country and beyond to visit the Boundary Waters Canoe Area and Lake Superior. There is nothing like it anywhere in the world, and when I visit the natural highlights of other states, I am reminded of how lucky Minnesotans are to have such relatively unspoiled wilderness areas and clean water. It appears that the DNR is so focused on allowing mineral extraction that the agency has forgotten that clean water is our most vital resource, and an increasing rarity here and beyond. In order to let an outside corporation access one resource, copper, for 20 years, the DNR appears ready to throw away a much more important resource, water, for a much longer period of time. How it is possible that we are even talking about poisoning our water for 500 years, in two of the state's most environmentally sensitive and important areas. This is beyond short-sighted, it's criminal. Polymet has not demonstrated that they will mine responsibly, nor have they communicated any feasible plan for cleaning up the site. They may not even be in business in 50 years, much less 500- Why are they being allowed to come in and destroy our natural areas, contaminate our water supply, and ultimately leave the taxpayers with a mess that will never truly be cleaned up. I do feel sympathy for the unemployed mine workers, but it is long past time for them to move on. They cannot sit around for generations waiting for the old days to come back. PolyMet has indicated that many of the jobs will go to outsiders. Even the local jobs that are generated are temp jobs. In 20 years, those people will be unemployed once again. Minnesota has a very strong economy. Those workers need to retrain, relocate, and move on. We can't subsidize their romantic visions of the past with 500 years of poisoned water. It is the DNR's job to protect Minnesota's resources, not give them away to outside interests. In this era of climate change, habitat destruction, and species decline, we need to focus on preservation, not corporate giveaways. This project will leave nothing of any lasting good for Minnesota. If PolyMet wants our resources so badly, don't give them away — at the very least, make the company work hard to come up with a better plan. No one will create a clean method of mining if they aren't forced to. PolyMet has the money to innovate better, cleaner, safer methods, but if we don't ask them to do so, they won't. Make them try harder, for the sake of Minnesotans today and 500 years from now. Or better, turn down their request to destroy our precious wilderness and waters. When it's gone, it's gone forever. Amy Goetzman Maplewood, Minnesota

Alphabetical by sender's first name

Amy Grace 41708

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Amy Hart 3223

Dec 17, 2013 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Amy Levin 26455

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Many. ,many sulfur compounds have a TERRIBLE ODOR. This is another reson I oppose sulfide mining. Winds could move the terrible smell over several states and in to Canada, hurting international relations. I grew up in Minnesota and go back every year. I have talked friends into visiting the state. I love the pristine wilderness of the BWCA. Superior National Forest should be left alone. It is a national treasure. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Amy Levin 916 20th St S Arlington, VA 22202-2616

Amy Okaya 42862

See attachment

Alphabetical by sender's first name

Amy Schmidtbauer 4377

Dec 28, 2013 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Amy Schmidtbauer 6016

Jan 16, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Amy Stevens 41956

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Amy Stevens Burnsville, Minnesota

Alphabetical by sender's first name

Amy Strydom 40186

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Amy Strydom 1160 Dellwood st s Apt Cambridge, MN 55008

Amy Wilfahrt 54656

See attachment

Amy Wilson 43608

Dear People, I am adamantly apposed to the proposed PolMmet mine because it will endanger our collective watershed and ultimately it will harm Lake Superior. There is a grievous lack of responsibility to allow a sulfide mine to be built for the profits of a few when the long-term effects will harm the many. Human wants for monetary gain cannot and should not take precedence of environmental health. Sulfide mines have proven to be disastrous for living ecosystem. This mine will cause harm. It is impossible to monitor the tailings ponds for 500 years even if it were a safe option. Please do not accept this proposal to let PolyMet build this mine. Sincerely, Amy Wilson 77480 Evergreen Rd Port Wing WI 54865

Alphabetical by sender's first name

AmyLeo Barankovich 17038

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, AmyLeo Barankovich 3219 18th Avenue S. Minneapolis, MN 55407

50311

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, AmyLeo Barankovich 3219 18th Avenue S. Minneapolis, MN 55407

Alphabetical by sender's first name

ana perez 40371

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, ana perez avenida de valencia valencia, AB 46130 ES

Anders Lindquist 54533

I am writing to put in my comment on the EIS for the proposed PolyMet sulfide mine. After weighing the pros and cons of having such a mine in Minnesota, I fully believe that the proposed mine does not sufficiently make its point that the mine is in the best interest of Minnesota. Keeping my comments more specifically aimed at the EIS—I see a general lack of accountability for PolyMet and its investors for the environmental issues that are sure to follow a mining project that produces such large quantities of waste. Who will be held responsible for the environmental impacts 200 years from now. Also is there any contingency planning in case the new technology for controlling the inevitable pollution fails? I would like to see a revision that makes proposed plans for how to deal with every conceivable contingency plan.

Alphabetical by sender's first name

Andre Bell 16961

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Andre Bell 3400 Lyndale Av S Mpls, MN 55408

50252

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Alphabetical by sender's first name

Andre Leavitt 18248

Andre, A-N-D-R-E, Leavitt, L-E-A-V-I-T T. It's hard for me growing up when I did in this state that we're even considering letting this mine open, jeopardizing the watershed of Lake Superior. That is just madness for 20 years of jobs. I'm sorry, you got to move and find work elsewhere, start a business. Figure it out. But it's just -- I grew up in a different time. I'm just appalled by this, that the short-sightedness of 20 years could be looked at, and they never -- when companies come in it never works out the way they say. All we have to do is look at Delta Airlines and Northwest before them and see the jobs that came. It'll be -- anyway, it's madness, I'm against it, and I think if it comes to it, put it to the state and they will lose because a vast majority of people do not want this. Enough.

andre lima 42

Please do not let this highly risky mining operation potentially devastate our water and air. The only way to guarantee the safety and cleanliness of our water and air is to not allow mining. The EIS cannot account for all scenarios that could occur in real life, for example power outages, major winter storms or tornadoes that could damage the waste water treatment facilities leading to potential environmental contamination. For this reason I urge you to not permit this project especially being so close to our national treasures known as the BWCA and Voyaguers Park. Sincerely, Andre Lima 4140 Lakewood Ave St Paul, MN 55110 651-592-6321

Andrea Childs 42060

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Andrea Childs 2240 Devin Ln Long Lake, MN 55356-9475 (952) 476-1595

Alphabetical by sender's first name

Andrea Girtz 20660

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation" wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as in adequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1-Underground mining, looking at the full ore deposit and PolyMet's real costs; 2-Putting a liner under the Category 1 waste rock stockpile; 3-Placing all tailings on a new completely lined facility; 4-Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5-Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to protect irreplaceable we

Andrea Hillis 41951

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Andrea Hillis Minneapolis, Minnesota

Alphabetical by sender's first name

Andrea Mousel 41986

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Andrea Mousel Duluth, Minnesota

Andrea Sather 41771

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely Andrea Sather 420 1st St Apt 4 Two Harbors, MN 55616 218-724-4355

Alphabetical by sender's first name

Andrea Sreiber 39195

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Miss Andrea Sreiber 5 Nassau Ave Schenectady, NY 12304-1819

Andrea Thompsom 39785

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. There is only one Lake Superior and wilderness area. Sulfide mining can ruin it for all times. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Andrea Thompsom 7717 Penn Ave N # No2 Minneapolis, MN 55444-1848 (763) 560-9090

Andrea Unga-Smith 54153

Do Not! I do not support this. Mining repercussions cannot be reversed & we need to work in better ways to care for our children's future. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Andrea Vail 3126

I support PolyMet because, I believe they will generate millions of dollars in local and state taxes to support the MN communities and educational system. PolyMet will also create hundreds of jobs that will support families and I believe that they can produce these metals in an environmentally sound manner. ~Andrea Vail 651-208-3171

Alphabetical by sender's first name

Andres Moreno 44311

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Andres Moreno 4015 Standish Ave Minneapolis, MI 55407

44320

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Alphabetical by sender's first name

Andrew Carson 38786

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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Andrew Comfort 42944

Attention: Lisa Fay, DNR: OVERVIEW The following comment has four core arguments summarized here and provided in detail below: 1) Interpretation: the SDEIS is inadequate because it too narrowly interprets "cumulative effects" and "reasonably foreseeable," thus inappropriately categorizing numerous proposed mines as "speculative." Both CEQ and Minnesota Rules suggest a broader interpretation. 2) Polymet and the BWCAW: Polymet is currently south of the Laurentian Divide, but post-closure Polymet will be a part of the BWCAW watershed. The broader interpretation of "cumulative effects" will allow a revised SDEIS to more accurately present how mining operations will change the geography and shift the Laurentian Divide southwaRd 3) Scenarios: in the revised SDEIS one scenario of the cumulative effects analysis should include all proposed mining operations from Polymet to Spruce Road and a further scenario should include the assumption of mining operations along the entire basal contact zone from Polymet to Tuscarora Lake 4) Full Information: the revised SDEIS will provide the opportunity to take a broad view of mining on the Duluth Complex, now, before it commences, based on full information available today of what the area will look like in 150 years or 500 years if/when Polymet to Spruce Road or Polymet to Tuscarora Lake is fully mined and closed, with water treatment either ongoing or prematurely ceased – and to allow Minnesotans to consider if this is their vision for the state and if the reward justifies the risk, or if a permanent moratorium is the better choice. And since this impacts the border lakes, the Canadians should have a voice in this as well. NOTE: This comment makes reference to the 2004 Bedrock Geology Map (Figures 1 and 2). Various explanatory illustration overlays of this map (Figures 1-14) are attached to this email submission as a single pdf. An attempt has also been made to write the comment so that it can be understood without the figures. But for a close technical reading, please refer to both Figures 1-14 and an actual copy of the 2004 Bedrock Geology Map. A printed copy of the map can be obtained through MNGS: Bedrock Geology of the Ely and Basswood Lake 30' x 60' Quadrangles, Northeast Minnesota, by Mark A. Jirsa and James D. Miller Jr., 2004, Minnesota Geological Survey (MNGS), prepared and published with the support of the US Geological Survey as part of the 2003 State Geologic Mapping Program Element (Statemap) of the National Geologic Mapping Program. INTERPRETATION SDEIS and Council on Environmental Quality (CEQ) Guidance The SDEIS states (page 1623): "Resource-specific spatial and temporal boundaries are used to identify past, present, and reasonably foreseeable future actions that would likely affect the same environmental resources as the NorthMet Project Proposed Action. MEQB, CEQ, and USEPA guidance allow for a fairly broad interpretation of "reasonably foreseeable" to accommodate project-specific conditions, but indicate that actions that would be considered "speculative" should be excluded." So the SDEIS, therefore, excludes Teck American, Twin Metals and others from the cumulative effects analysis by labeling them as "Speculative Actions." The document Considering Cumulative Effects under NEPA by CEQ, January 1997, page 19, however, states: "Whenever speculative projections of future development are used, the analyst should provide explicit description of the assumptions involved. If the analyst is uncertain whether to include future actions, it may be appropriate to bound the problem by developing several scenarios with different assumptions about future actions." "In general, future actions can be excluded from the analysis of cumulative effects if · the action is outside the geographic boundaries or time frame established for the cumulative effects analysis; · the action will not affect resources t

43315

Attention: Lisa Fay, DNR: The December 2013 Polymet SDEIS is inadequate because it suggests that there could ever be a cessation of financial assurance as it does under section 3-2-2-4-3: MDNR would release PolyMet from the responsibility to maintain financial assurance when the MDNR determines, through inspection of the mining area, that: all reclamation activities have been completed in accordance with the Permit to Mine, conditions necessitating post-reclamation monitoring and maintenance no longer exist and are not likely to recur, and corrective actions have been successfully completed and monitoring of those corrective action is no longer needed. By saying that MDNR will somehow make a determination on what could be cast in court as subjective measures is inappropriate. A burden of proof has been put on the state to prove that a risk remains. The risk of some problem developing lasts for all time. For example, the idea with subaqueous containment is that the process of creating sulfuric acid is shut down (or significantly slowed down) by limiting air contact. If a subaqueous containment strategy fails in 2000 years, then the water level will drop and the creation of sulfuric acid will begin with the exposure to air. And as another example, the need to cut woody material off of the Hydrometallurgical Residue Facility will last for all time – during any time frame in which trees can grow in Minnesota. Solution: Rephrase the financial assurance section in the SDEIS so that there is clearly no cessation of financial assurance under any circumstance. Further, state that Polymet and its parent, assigns, successors etc remain responsible for the financial assurance for all time. Otherwise there is a risk that a legal maneuver could be taken to force the cessation of financial assurance – which would then place the burden onto Minnesota taxpayers instead. Submitted by: Andrew Comfort Legal Address: 1788 Hennepin Ave S. #41, Minneapolis, MN 55403 Preferred Mailng Address: PO Box 583154, Minneapolis, MN 55458

Alphabetical by sender's first name

Andrew Comfort 43342

Attention: Lisa Fay, DNR: The December 2013 Polymet SDEIS is inadequate because it does not include analysis of uranium in the waste rock, tailings etc The Eagle Mine in Michigan had trouble with uranium contamination of drinking water. So it is reasonably foreseeable that the Polymet mine could as well. Rock with up to 7 ppm of U was one potential cause of the uranium problems at Eagle Mine. See this study of the Dunka Road area by Theriault, Barnes and Severson: The influence of country-rock assimilation and silicate to sulfide ratios (R factor) on the genesis of the Dunka Road Cu-Ni-platinum-group element deposit, Duluth Complex, Minnesota. Robert D. Thériault, Sarah-Jane Barnes Département des Sciences Appliquées, Université du Québec à Chicoutimi, Chicoutimi, Québec, G7H2B1, Canada and Mark J. Severson, Natural Resources Research Institute, Duluth, MN 55811, USA. The Theriault Severson study (page 170) shows uranium levels in core samples as high as 7 to 23 ppm. In some cases the higher U levels correlate with higher Cu levels. Solution: This issue should be studied and if necessary discussed in a revised SDEIS regarding how to protect ground water and what needs to be done for proper disposal of any uranium collected. Submitted by: Andrew Comfort Legal Address: 1788 Hennepin Ave S. #41, Minneapolis, MN 55403 Preferred Mailng Address: PO Box 583154, Minneapolis, MN 55458

andrew froehle 16138

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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Andrew Hernandez 41964

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Andrew Hernandez Hopkins, Minnesota

Andrew Hill 41621

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Andrew Hill Minneapolis, Minnesota

Andrew Jansen 38797

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Andrew Jansen 1155 Menke Cir Shakopee, MN 55379-3225

Alphabetical by sender's first name

Andrew Johnson 16203

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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Andrew Kuncel 10000

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Andrew Kuncel 4227 Harriet Ave S Minneapolis, MN 55409

18746

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Andrew Kuncel 4227 Harriet Ave S Minneapolis, MN 55409

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Andrew Kuncel 50819

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Andrew Mutchler 40275

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Andrew Mutchler W10892 Blackhawk Trail Fox Lake, WI 53933 US

Alphabetical by sender's first name

Andrew Pankaw 58038

I am opposed to Sulfide Mining in Minnesota. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Andrew Papale 42467

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Andrew Papale 1715 Roselawn Ave W Roseville, MN 55113-5757

Andrew Paul 58135

My name is Andrew Paul and I'm from Grand Rapids, MinnesotaI'm a representative of Minnesota Power and our parent company ALLETE.• I care about the environment. I have a Bachelor's degree in Biology and I amemployed as an Environmentalist Compliance Specialist with Minnesota Power.• I live in the Northland, I have many co-workers and friends that are from the EastRange area and I hunt, fish, and camp in and around the Iron Range. SKIP• Two of my Great Grandfather's left their agricultural roots in South Dakota andSouthern Minnesota to move North and work in the mines.• After World War II mining allowed my Grandfather to return home and earn anhonest and good living that lead to all four of his children and six of hisGrandchildren having the opportunity to attend college.I support the Polymet project for many reasons, one of those being the potential economic impact this mine could provide. An impact of nearly 1,000 sustained good paying wages! To me that equates to at least 1,000 families being better suited to provide themselves and their future generations the same opportunities to pursue their goals and ambitions as mining has provided my family.Secondly, with my professional background in Environmental Compliance I am well aware of the science and technology committed to mitigating the water quality impacts from the Polymet site. We as Minnesotans have always pushed for stringent water quality standards to ensure we protect our valuable freshwater resource. With that in mind, one of the key topics of water quality concerns with Polymet has been the sulfate standard and impacts the project may have on Wild Rice. Polymet has committed to the proven and effective technology of a Reverse Osmosis Treatment System which will allow them to meet and exceed the sulfate standard. I commend the Environmental Stewardship Polymet is showing by implementing this technology and eliminating the sulfate issue as a concern for their process moving forward.Lastly, from hockey games, to softball tournaments, to camping trips, to work commitments I have spent a lot of time in the Eveleth, Gilbert, Biwabik, Aurora, and Hoyt Lakes communities. These small town citizens have been waiting almost ten years for the opportunities that a project like Polymet will provide. From a health and environmental protection standpoint I can see no reason that Polymet will not protect the citizens and natural resources of the area. Polymet and the people from the East Range should be able to move forward with this project. It is their livelihood they are trying to enhance, there will be no impact to the BWCA, and there will be no acid rock drainage.Thank you to the DNR, the U.S. Army Corps of Engineers and U.S. Forest Service, for doing such a thorough job on the Supplemental Draft EIS and thank you for allowing these comments to be heard. I urge you to view this from a scientific and ecological standpoint ask that the agencies find the supplemental Draft EIS acceptable and move forward with the permitting process.

Andrew Phelan 19873

From: Andrew Phelan, Minneapolis Given the risks and long term liability, I support not granting approval to the Polymet mining project. Sent from my iPhone

Andrew Samela 42558

See attachment

Alphabetical by sender's first name

Andrew Slade 18130

Hi. Good evening. My name is Andrew Slade. I live in Duluth, Minnesota. As we have been waiting for the last, really, two years for this SDEIS to come out, I was really hoping that this would be a good project; that it would be something that I could rally behind, but unfortunately, for a lot of reasons, the project, as proposed, has some real problems. I'm not going to go into that right now, though. I would like to talk about some structural problems with the EIS document, itself. First of all, we've seen some proof tonight that the 90-day comment period is really too short. There's been lots of folks coming up to these microphones and saying, "I don't understand this. I can't understand this. It's too long." And what that's meant for them and this is what they've said, "I'm going to rely on the agencies to have done this correctly." And I appreciate that sentiment, but I think that flies right in the face of what this whole process is set up for. This was not set up so people could not read it and just trust the people who did it, if that makes sense. The other thing I would like to talk about, and I think this is more important, is that the project, fundamentally, the EIS document does not present -- presents very few alternatives. The only alternative is the size of the land exchange from the forest service. There was, buried in EIS, the rejection of an alternative which I really think should have been considered more seriously and that was the alternative of an underground mine and here's why I think that should have been considered. For one thing, it would have reduced the impact on wetlands of 900 acres, 900 acres less of high-quality wetlands impacted, but it also would have made for a more complex project; a project which would have led to more employment. Now, we all want jobs. An underground mine would have provided more jobs. However, the reason that it was rejected out of EIS as an alternative was pretty simple; it was too expensive. Based on copper prices of today, it would have been "too expensive," and I put that in quotes, to do the underground mine. Which means that the company has said it's too -- we don't want to have that complex of a project where we need to hire more people to do it. We're going to do it cheaper and quicker and not wait, for example, until copper prices go up, which raises another bigger question. I'm sorry but what -- what will happen to this project if and when copper prices go back down again? I think we're setting ourselves up to do a poor project and we're doing it too soon. So I just want -- I feel that the EIS is missing a very important alternative that should have been included. Thank you.

Andrew Smith 18938

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I’m writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn’t fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It’s going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn’t explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren’t analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal “Major Differences of Opinion” call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won’t seep pollution; that mining won’t dry out wetlands; and that mercury contamination of fish and other toxic chemicals won’t increase. * The SDEIS doesn’t allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Andrew Smith 2220 Ridge Dr Apt. 31 St Louis Park, MN 55416 612-790-0681

Alphabetical by sender's first name

Andrew Sterioff 39988

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Andrew Sterioff 4800 Pleasant Ave Minneapolis, MN 55419-5441 (612) 827-2527

Andrew Thorsen 38652

i support polymet being issued a permit. I beleive the sdeis adresses all the concerns about the environment and that they have a solid plan in place to mitigate any issues that may arise. Andrew thorsen 232 guilford rd Hoyt lakes mn 55750

Andrew Turke 18291

My name is Andrew Turke, T-U-R-K-E, from Ely, Minnesota. I just want to voice my opposition to the mining proposal, so, based upon the 500-year projection of that water filtration requirement. It is just a very high risk. I just wanted to make myself heard.

Andrew Urban 18103

Hi. My name is Andrew Urban from Eagles Nest Township near Ely. I am opposed to the current PolyMet SDEIS as it is a highly flawed document. It serves As a wonderful public relations tool, but does little to protect the areas' wetlands, lakes, rivers and watersheds. The SDEIS learns nothing from past problems. It pays little heed to the concern of other agencies and is based on a best-case scenario, rather than on hard historical data. This is a "business as usual" and PolyMet will build in the expected costs of fines and lawsuits that will result from expected contamination. According to Patricia Engelking (phonetic) of the MPCA, since 2010 there have been 12 water quality enforcement actions against eight metallic mining operations, which we know how to do. The settled cases resulted in fines of over $113,000. The companies paid the money, but the pollutants remained. In 1999 Herzog Engineering Company prepared a report of well and groundwater contamination for the U.S. Army Corps of Engineers. The easy cleanup of the old airforce station in Finland, Minnesota proved not so easy, as frequent fracturing had allowed groundwater and well contamination. Contaminants polluted private wells, the municipal well in Finland. The SDEIS says little about the problems posed by fractures. Pollution of groundwater and wells doesn't happen under a best-case scenario, but in July of 2012, after a record-breaking rainstorm, Duluth learned that nature doesn't always follow best-case scenarios. The Minnesota Department of Health in August 2009 pointed out that mining activities in this area puts at risk private and public wells because, and I'm quoting, "Wells in this area are a public health concern because the aquifer exhibits sensitive geologic conditions. Here there are no protective layers of fine grain materials, such as clay or shale, to prevent the movement of contaminants into the aquifer. The SDEIS gives a best-case scenario for a double osmosis system that has never been tested with these particular contaminants and at this proposed volume. The SDEIS is built on best-case scenarios, with skewed data to support them. The SDEIS promises robust economic benefits, with little or no environmental damage. History tells us otherwise. Thank you.

Alphabetical by sender's first name

Andrew Urban 40049

Comment on North Met SDEIS Help the struggling Northeast Minnesota moose population. Help protect the habitat of the Canada Lynx. Refrain from fracturing contiguous forest to promote healthy habitat for nesting warblers and insure unimpeded corridors for wildlife. Plant native species and trees to create an ecosystem where invasive plants do not thrive. Offer the public low cost seedlings of native trees and shrubs to increase proper habitat for wildlife. Maintain the public trust of public lands. All of the above are worthwhile objectives of the National Forest Service. I have read about each of these things in various publications. Yet, all are to be thrown out to allow a foreign company to spoil a beautiful and important segment of the Superior National ForeSt Besides being contrary to much of the mission of the Forest Service, such an act would be foolish, immoral, short-sighted, and grossly betray the public truSt A land swap of this kind is supposed to be land of equal value. But where has this been established in this case. What is the criteria. Does the proposed swap have equal value for the wildlife. Does the proposed swap help the Forest Service achieve its environmental goals. The reason this swap is necessary is the proposed site for the open pit mining is on land that is protected from open pit mining. It is transparently immoral and a breach of public trust to now swap that land so that a mining company can make a profit off it. You ask me as a property owner to do things to protect the life of the foreSt But you allow your actions to be sold to the highest bidder. Andrew Urban 1347 Walsh Rd Ely, MN 55731

Andrew Van Hauer 45550

To whom it may concern; My name is Andrew Van Hauer, 2101 24th Ave S., #1, Minneapolis MN 55406, and I am writing today to express my strong opposition to the northmet mining proposal by PolyMet. First, I am deeply concerned that neither EIS nor the SDEIS accurately portray the drainage, watershed, or borders of the 100 mile swamp. This area is of critical concern for migratory birds, and there is no land that exists that would be able to replace this ecologically unique piece of land. Further, the amount of wetlands in the swamp do not even come close to totaling the benefit of this one wetland. This wetland is designated as an Area of High Biodiversity Significance by the Minnesota Biological Survey. Another concern I have is that this company has NEVER operated a mine before at all. The fact is, no open pit copper nickel mining project in the world has been successfully completed without significant environmental harm. Often, the nearby waters are polluted with high concentrations of sulfuric acid, requiring hundreds of years of water treatment. What waters would be affected. Lake Superior is downstream from the St Louis, Embarrass, and Partridge Rivers, all of which would be affected, as well as the 100 mile swamp draining into the BWCA. Since Lake Superior drains into the other great lakes, so this project has the potential to contaminate over 20% of the entire WORLD'S above-ground fresh water supply. This is not a risk we should be willing to take, especially with the fact that the trailing basin they are proposing to use at the abandoned taconite facility is already leaking contaminated water, is unlined, and there is no plan to repair, replace, or line it. We have a rich deposit of precious metals, copper, nickel, and rare earth minerals in Minnesota. We should wait until a company has proven that it is capable of operating a mine elsewhere in the world, without significant environmental impact, before allowing them to operate here. We are lucky enough to have some of the most beautiful and pristine wilderness areas in the country, and we have a duty to preserve these for future generations. What is the point of even having protected wilderness area if we allow mining companies to destroy them. Another concern I have are the companies involved. PolyMet's only interest is in this mining project. As I mentioned, they have never operated a mine before. They are not owned by Minnesotans, or even by Americans, but based in Canada and the majority ownership is in the hands of Glencore Xstrada, possibly the world's worst international mining conglomerate. This company has been found to have have violated the UN trade embargo in Irag, traded with the Ayatollahs in Iran including buying their oil and supplying them with material crucial to their nuclear program, and skirted US embargoes in Cuba and Libya. Not to mention employing children as young as 10 years old in the mining industy, as well as rampant fraud and tax evasion. This company should not only be denied permits to operate in Minnesota, but should be banned from operating a mine ANYWHERE. Finally, Glencore Xstrada has a whopping 76% chance of bankruptcy in the next two years. This is not a company we want doing business in Minnesota. This project should not be approved. Thank you for your time. Andrew Van Hauer Sources: http://www.nwf-org/What-We-Do/Energy-and-Climate/Drilling-and-Mining/Mining-Loopholes/PolyMet-Mine-MN.aspx https://secure2-convio-net/mnlcv/site/Advocacy.cmd=displayandpage=UserActionandid=372 http://www.miningtruth-org/sulfide-mining-minnesota/polymet-mine-proposal/#.UyEAjzko5dI http://www.tcdailyplanet-net/news/2014/03/12/community-voices-it-s-whopper-polymet-s-myth-9938-tailings-seepage-collection http://www.aljazeera-com/indepth/features/2011/05/20115723149852120-html http://www.samachar-com/Glencore-lists-fraud-criminal-case-among-IPO-risks-lfevLadgedj.html http://www.independent.co.uk/news/uk/home-news/glencore-traded-

Andrew Wyffels 42744

See attachment

Alphabetical by sender's first name

andrew young 41888

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, andrew young ***, Minnesota

Andy Boyum 16572

I say go ahead with the mine as long as the Mine is ran properly to ensure the minimum environmental impact and there is proper oversight on the project by the DNR. Thanks Andy Boyum Field Service Manager | Ziegler CAT 3502 St Hwy 210 West | Fergus Falls, MN 56537 218-736-2680 Office 218-770-0085 Mobile 800-346-7649 Toll Free 218-736-2625 Fax HYPERLINK "http://www.zieglercat-com/"www.zieglercat-com ZieglerCATFinal1 HYPERLINK "http://www.zieglercat-com/email"Sign up here for our e-newsletters

Alphabetical by sender's first name

Andy Chesla 38938

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Andy Johnson 48602

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Only after the last tree has been cut down, the last river has been poisoned, and the last fish has been caught. Only then will you find that money cannot be eaten. This quote sums it all up. Yes we need to mine metals, elements and other natural resources for humans to survive, work, play, invest in the future, and enjoy activities in the past couple of centuries. But only because most people think that everything on this planet is endless, expendable and have the greed for money and quick profits. But what happens when after the mining, and the chemicals, and the refining, and the advertising to sell he product. It usually gets used sparsely for a few years or days and dumped in the landfills or burned. Nobody thinks about where it came from, or how it got their. Or hey i can recycle this. What damaged it caused to their planet or their future grandchildren. The irreversible effects for a quick want, or got to have it hot item. This mine will effect generations forever and the only REALL return will be for the very few who will make a lot of money and move on. Not giving a crap, lying, bribing, and buying there way out of whatever trouble may come. Long before 1858 we did not need this mine why do we need it now. And why do we need to destroy such a pristine, rare, and beloved area for it. Oh yea I forget, we were talking about money, business, and politics again. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Andy Johnson 22 4th Ave N Sauk Rapids, MN 56379-1706 (715) 338-8686

Alphabetical by sender's first name

Andy Kell 54866

See attachment

Andy Wamstad 5948

From what I've read, I believe PolyMet should be allowed to proceed with their mining operation. New jobs have a trickle down affect and it appears this company has done it's homework. I support PolyMet and believe they will follow all established rules and regulations. Andy Wamstad

angela christensen 15920

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, angela christensen 4613 cedar ave s minneapolis, MN 55407

Alphabetical by sender's first name

angela christensen 49900

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, angela christensen 4613 cedar ave s minneapolis, MN 55407

Angela Livieri 47366

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, This is a step in the wrong direction. Economy is not more important than the environment. The only mining we should be doing, is digging in recycling bins. I want a state and country that consumes less, and requires less. In return, we can have a simple and healthy population. Prestine, clean, untouched wilderness and less garbage and construction. Where will the destructive cycle end. This generation is not stuck in the Industrial Age. Please do what you can to keep the mining out of Minnesota. Thank you. Sincerely, Dr Angela Livieri 3233 48th Ave S Minneapolis, MN 55406-2337 (612) 703-8909

Alphabetical by sender's first name

Angela Schweiberger 10089

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Angela Schweiberger Atschweiby@yahoo-com Angela Schweiberger 1620 E 37th St Hibbing, MN 55746

18831

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Angela Schweiberger Atschweiby@yahoo-com Angela Schweiberger 1620 E 37th St Hibbing, MN 55746

Alphabetical by sender's first name

Angela Schweiberger 50905

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Angela Schweiberger Atschweiby@yahoo-com Angela Schweiberger 1620 E 37th St Hibbing, MN 55746

Alphabetical by sender's first name

Angela Silberberger 52403

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. I'm not willing to gain a few short term jobs while destroying our water for this and future generations. Sincerely yours, Angela Silberberger Angela Silberberger 4822 Hwy 3 Silver Bay, MN 55614

Angeline Dufner 39223

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. We can learn from our neighbor Wisconsin and from Europeans: Ban all potentially toxic mining until each proposed mine has been proven safe. Do not sell our future for short-term profits. Letr us not be recorded in history as the Land of 10,000 Toxic Lakes. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Angeline Dufner 29665 Island Lake Rd Saint Joseph, MN 56374-9640 (320) 363-8407

Alphabetical by sender's first name

Angie Iverson 41979

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Angie Iverson Owatonna, Minnesota

angie nastrom 41802

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, angie nastrom Isanti, Minnesota

Angie Nichols 12057

From: Angie Nichols [mailto:nichols360@gmail-com] Sent: Friday, February 14, 2014 6:45 AM To: Dabney, Tim -FS Subject: Mining and Land Exchange Letter Hi Tim, I'm writing to you as a concerned private citizen about Polymet's proposal for mining and the proposed land exchange described in the attached letter. When I heard the presentation by Water Legacy's Legal Advocate, Paula Maccabee, it occurred to me that we as human beings have come to a place in time where economic interests of the state and the physical and spiritual health of our land must reach a compromise. To me, the fact that our water supply has needed a lawyer to protects its rights from monetary interests of corporations that claim a right to destroy the environment while staking a claim to it's resources seems like a crime to me. I'm not a lawyer, and I'm not enrolled in a tribe, but I do think that the people and animals inhabiting the state all have a right to a healthy environment and we have a right not to be forced into spatial "swaps" that compromise existing wildlife habitats. Why would we make such compromises. If you and I "are" the people who would hypothetically inhabit this land in 350 years wouldn't it be a blessing to know that our ancestors fought hard to protect our natural resources so that our hunting and fishing would be productive and our game would still thrive and our water would be healthy. We are those ancestors of future generations and I would like to ask you to consider not the immediacy of today's profiteers, but the responsibility to care for the environment and our duty to also uphold the rights of tribes so that the future is secure for the people and wildlife at the mercy of our advocacy today. Thank you for your time, Tim. Sincerely, Angie Nichols 925 N. 14th Ave East Duluth, MN 55805 This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

Alphabetical by sender's first name

Angie Pedersen 54350

Dear Ms. Lisa Fay, EIS Project Manager,My response to the Northrnet Mining Project and Land Exchange is that they should go through with it. Having another mine up in the north would create more jobs for people. This will help people create better lives for their families and themselves.There are many advantages to going through and completing this project. One of the advantages I came up with is we will get more natural resources, like copper, nickel, and platinum deposits from mining in this area. These products will help fuel our economy by providing our economy with construction material, electrical equipment, and more.However, along with having advantages there come disadvantages. One disadvantage is we will have a lower air quality, water quantity and quality. This would cause slight problems with our ecosystem. Another disadvantage is with the land exchange, it will most likely cut off river flow and may kill some large black spruces, tamaracks, and cedar wetlands. Without this mining project, the land remains a part of the Superior National Forest.As one can see, by creating this mine there will be more jobs for unemployed people. They will be able to take better care of themselves and their families. They will be able to provide more things that their families want and not just what they need. Overall, I think that they should go through with the plan to mine this area.Sincerely,Angie Pedersen, Eighth Grader at Southwest Jr High

Angie Simonson 47273

Northern MN has a rich history of industry in mining and timber, yet we still have the most beautiful environment in the state. I believe we can continue that tradition, we can have both. The knowledge, technology and funds are in place to make this a successful venture for Polymet and the state of MN. Some people, many in the cities, would love to believe that the world turns by those sitting behind a desk, not realizing how insignificant their role in society is. The industry is what keeps us moving forward both economically and developmentally. Creating more industry based jobs will support not only those working directly for the mines but hundreds of supporting jobs. The need for precious metals is not going to decrease anytime soon, if we don't mine here, it'll be done elsewhere and likely with less regulation and concern for the environment. Our biggest concern should probably be that Polymet accidently digs all the way through to China (that's how ridiculous some of the concerns being addressed sound). Support this amazing opportunity for our state and our future. Stop drawing lines in the sand and start shaking hands, together we can do this right. Angela L. Simonson MAIN IDEA CREATIVE www.facebook-com/mainideacreative Angie@mainideacreative-com 218-427-2350 9669 Crooked Creek Rd Meadowlands, MN 55765

Anita Alcantara 35022

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The Boundary Waters Canoe Area Wilderness is the most beautiful area our Girl Scouts, Boy Scouts, and countless campers of all ages have experienced. It is extremely important to preserve it from impact of mining. The precious clean water of the great lakes where Isle Royale National Park sits are also necessary to protect for continuation of life on earth. Sincerely, Anita Alcantara 6930 N Greenview Ave Apt 711 Chicago, IL 60626-3474 (773) 409-4678

Alphabetical by sender's first name

Anita Gille 18317

I am Anita Gille from Duluth, Minnesota. I am concerned about water quality and especially tailings pilings that will be located on top of the old taconite tailings basin that was designed in the 1950's before there was environmental safeguards and on top of streams to allow drainage through the tailings. If you go back and look at the draft EIS in figure 4.1.9, you can see that there are at least three streams running under the old LTV tailings site. One of those streams runs right under cells 1E and 2E where they plan to dump the PolyMet tailings and then into Spring Mine Creek. Even when the stream is filled over, water is still flowing under the channel where it has been draining for thousands of years. And Spring Mine Creek is already impaired for aquatic life as a result of past mining and past excessive levels of sulfate and mercury. The SDEIS just assumes that all tailings wastewater will seep into the north side where PolyMet will have a row of pumps. But the SDEIS must specifically analyze impacts on water quality of seepage that would escape following historic stream drainage beneath the tailings basin. I also question the methodology used for creating the EIS and the summary document. I have attempted to read the summary and I found it very unclear. My husband is a soil scientist. He had a hard time with it. How is a layperson supposed to understand what this is? We know it's very complicated, however; and I can't understand the ultimate levels, such as mercury and sulfide. And I would like to recommend a performance bond be required of PolyMet to cover all damages to the environment.

36532

Dear Ms Fay, To: Lisa Fay Dear Miss Fay, Federal and State Agency Leaders: The US Environmental Protection Agency , in 2010, gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” I believe the PolyMet SDEIS is still inadequate. Claims are unsupported by facts. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Page 5-122 of the SDEIS states: “These untreated pit releases would include East Pit backfill pore water into the East Pit Category 2/3 Surficial Flowpath (beginning year 21) and West Pit lake water into the West Pit Surficial Flowpath (beginning year 33). These releases to surficial groundwater would continue into perpetuity. Groundwater in these flowpaths would flow downgradient and eventually reach the Partridge River.” The SDEIS should include a cost-benefit analysis of the PolyMet sulfide mine proposal over the long term, considering all of the potential long-term costs. I do not want to see the taxpayers of Minnesota stuck with clean-up costs for centuries into the future, all for promises of up to 360 jobs for only 20 years. This also assumes copper prices remain high and cheaper mining locations do not materialize. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely, Anita Gille 4117 West 8th Street Duluth MN 55807 Anita Gille 4117 W 8th St Duluth, MN 55807 (218)428-7232

Anita Kovacich 2916

I am sending this email in support of Polymet obtaining the permits they need to pursue precious metal mining in Northeastern Minnesota. I trust that Polymet can mine in an environmentally sound manner. Polymet will generate millions of dollars in state and local taxes to help support our economy and educational systeMs Polymet will keep jobs in Minnesota .. Polymet will keep our young and educated people from seeking jobs elsewhere. Polymet is needed in the State of Minnesota. Thank you Anita M. Kovacich Sent from my Kindle Fire HD

Alphabetical by sender's first name

Anita Seeling 10437

Jan 25, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. We must LEARN from our environmental mistakes, not perpetuate them. Let us learn from West Virginia is teaching us at this very moment. First, the rich run the country's economy into the ground. Then, bit by bit - they take advantage of our desperation by convincing the masses to help them to not only dismantle the labor force protections, but also the necessary environmental safeguards. Indeed, they portray these safeguards as responsible for the stagnant economy. Twenty or so extra jobs now are not worth 500 years of pollution. And, as West Virginia also illustrates - bankruptcy by the offending company is the usual "out" for them. This needs to stop, and it needs to stop NOW. We do not want to be in the headlines as is West Virginia. We Minnesotans are better than this. WE ARE NOT WEST VIRGINIA. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Anita Seeling 13126 Murdock Ter Eden Prairie, MN 55347-5264

15578

Feb 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuri

Alphabetical by sender's first name

Anita Seeling 51501

Jan 25, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. We must LEARN from our environmental mistakes, not perpetuate them. Let us learn from West Virginia is teaching us at this very moment. First, the rich run the country's economy into the ground. Then, bit by bit - they take advantage of our desperation by convincing the masses to help them to not only dismantle the labor force protections, but also the necessary environmental safeguards. Indeed, they portray these safeguards as responsible for the stagnant economy. Twenty or so extra jobs now are not worth 500 years of pollution. And, as West Virginia also illustrates - bankruptcy by the offending company is the usual "out" for them. This needs to stop, and it needs to stop NOW. We do not want to be in the headlines as is West Virginia. We Minnesotans are better than this. WE ARE NOT WEST VIRGINIA. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Anita Seeling 13126 Murdock Ter Eden Prairie, MN 55347-5264

Anita Suzanne Tillemans 42951

Included with this email, I am sending a digital copy (final pdf) of my comments sent by first class mail on March 7, 2014- Respectfully, Anita Suzanne Tillemans 4021 Chowen Ave So Minneapolis, MN 55410-1013

54773

See attachment

Anita Zager 6086

I am writing to ask the MN DNR to consider the consequences of pollution to the watersheds in NE Minnesota and to not approve the PolyMet project because of the following questions: As I look at the map of the mine site it is surrounded by wetlands and lakes. Would any other project requiring dangerous unproven chemical processes be approved by the state of MN if it sat in this location. How does the State of MN and PolyMet protect the water treatment for 500 years in any known or proven method both financially and chemically. If we can't agree on Yucca Mountain for storage and transport of nuclear waste treatment how can we do this correctly and perfectly. What is the financial value of the current clean watershed over 500 years. Have economists reviewed this contingency of 500 years of water treatment in weighing the value of the minerals, cost of the project for 500 years and the potential value of clean water in 500 years. When human beings are involved in any engineering processes there are always mistakes, unforseen consequences, catastrophic accidents. Do the principle leadership of PolyMet and their contractors have a record of lax and ignored oversite of environmental risks and laws. This region is a porous, literally water premeable area where the seapage of toxic waste can not be allowed to happen. Please answer these questions as part of your deliberations and publish them in all the state newspapers. Anita Zager, 5369 N Shore Dr, Duluth MN 55804

Alphabetical by sender's first name

Ann Burns 15663

As a land owner in Itasca County, I appreciate the economic base and value that mining has brought to the region. That said, I also appreciate that the region's future will rely more and more upon sustainable resource management and an emphasis on the natural world that attracts tourism and retirement dollars to the area. I currently live in Monticello, MN, but own property in Itasca County and plan to move there in retirement. I am concerned about the long-term environmental impacts of the planned Polymet sulfide mine, and feel that the current plan does not do enough to protect our waters. PolyMet's models, used in their proposal, indicate that waste water will need to be actively treated for more than half a millennium. In particular, expecting the company and/or the state of Minnesota to have the economic resources and the political will to treat mining waste water for more than 500 years is utterly untenable. The time frames about which we are speaking make the average life expectancy of US corporations look transitory. It is highly unlikely that PolyMet, as a business, will be here to keep paying for and executing on any water treatment requirements. Rather, taxpayers will pick up the tab. This plan does not do enough to ensure that the necessary financial resources, to treat waste water and remove sulphur contaminants, will be secured and reliably sufficient. Failure of such mitigations would have far reaching and permanent impacts. Further, the current plan is already insufficient in its planned water treatment scope. At the mine site itself, each year more than 5 million gallons of untreated contaminated water will seep into our ground water. At the tailing basin, more than 11 million gallons of untreated contaminated water will seep into our ground water each year. Never in the history of mankind, has a successful environmental mitigation plan relied on the potential sustained commitment of future generations 500 hundreds of years into the future. The plan for waste water treatment is not based upon best practices; it is based upon hope and pretense, and should not be permitted. Ann Burns 1517 West River Street Monticello MN 55362

Ann Campbell 715

Hi, I would like to give my input on the proposed Polymet mine. I've lived in Bemidji for the past 37 years. It's just been (I am ashamed to say) the last 8 years that I have been visiting the BWCA area and Ely. In those 8 years I go up at least 3 times a year for a week at a time. Summer, winter it doesn't matter. The BWCA is the most beautiful place on this planet. It truly is the end of the road. My family lives in Wisconsin and I have brought them up to visit and they too have fallen in love with the area. I am extremely upset at even the thought of desecrating one of God's magnificent creations all in the name of money. I understand it will create jobs but at what coSt 500 years of clean up.. For 20 years of employment. We are witnessing first hand in Bemidji the million dollar cleanup of Lake Bemidji due to Georgia Pacific polluting the lake and that is not even close to what the cleanup will cost never mind the destruction of one of the most incredibly beautiful land masses in our state and country. And then to top it all off we have Tony Hayward investing in the mining business, didn't learn anything from the gulf debacle. I just wanted to let you know how opposed I am to the construction of this mine. Thank you for your time. Ann Campbell 3420 Lake Ave NE Bemidji, MN 56601

Alphabetical by sender's first name

Ann Cary 47256

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Ann Cary 4309 28th Ave Minneapolis, MN 55406

Ann Diers 38802

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ann Diers 4807 Lake Ave White Bear Lake, MN 55110-2848 (651) 476-8145

Alphabetical by sender's first name

Ann Dow 26131

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt As a former District Ranger in California's "gold country" (Nevada City RD, Tahoe NF), I know that mining is highly toxic, degrades soil, water and wildlife habitat, and it generally excludes other uses of an area. I aso know that there are many competing and compelling demands on national forest resources. Exchanging land or allowing sulfide mining on Superior National Forest will be at the expense of too many of the other "multiple uses" the forest was established to provide. Please do not go forward with this proposal. Sincerely, Ann Dow 3401 Dee Hwy Hood River, OR 97031-8435

Ann Fritz 15960

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Ann Galbraith Miller 41085

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. My personal statement: I attended the first comment session in Duluth. The DNR made it clear they wanted perspectives on the draft EIS, not "emotional" arguments. While proponents of both sides spoke, it was apparent to me that those who opposed the mine had actually read at least parts of the EIS, and were basing their comments on science - as directed. The pro-mining advocates were largely concerned about jobs. While jobs are certainly important, they are not a scientific argument based on the draft EIS. Those jobs will benefit a few, while the after effects of open-pit sulfide mining will potentially impair thousands of acres of watershed and the Lake Superior basin for HUNDREDS OF YEARS. Given mining's history of destruction and denial, I wouldn't bet on this mine operating benignly for 20 years and beyond. The decision to protect Minnesota's Lake Superior basin and the thousands of people who live here should favor science and the environment, not jobs that will benefit a few. Sincerely Ann Galbraith Miller Ann Galbraith Miller 2921 E 1st St Duluth, MN 55812 218-728-1227

Ann Gaul 33144

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred-to say nothing of the acid rain experience in places like Sudbury, Ont. The Boundary Waters and Superior National Forest must be kept pristine for future generations. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining, which MN has had to deal with from the asbestos problems of taconite mining years ago. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Those of us who may wish to return to our home State in the future would be permanently deterred by such operations in the Arrowhead Region of MN. Why not do this in Eastern Wisconsin or Ohio. Sincerely, Ann Gaul 671 Lincolnshire Ln Hoffman Estates, IL 60169-2772

Ann Marie Sunderland 43509

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Ann Marie Sunderland 1 St Paul, MN 55124

Alphabetical by sender's first name

Ann Marie Sunderland 48486

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Ann Marie Sunderland 1 St Paul, MN 55124

Ann Meany 43351

Dear DNR: Back in 1970 I and my family spent a winter and spring at Holden Village an abandoned copper mining village located on Lake Chelan north of Wenatchee, Washington. The former mine site had been sold by the mining company to the Lutheran Church for one dollar and had been converted into a retreat center. Besides the camp buildings: cottages, dining hall and assorted living structures were the remains of the mining operation plus vast tailings piles, covered by snow in the winter but in the spring and summer left to blow in the wind. These tailings were huge three or four football-sized fields and absolutely devoid of vegetation. This is a toxic operation. There is no way that copper sulfide mining can be compared to taconite iron ore mining. To allow something as toxic as sulfide mining anywhere in Minnesota, let alone right next to the Boundary Waters Canoe Area is insane. Please, someone stop this madness. I believe that the Holden Village mining site has now been listed as a Super Fund Site. Philip Meany, 5672 North Shore Drive, Duluth, MN 55804 Janet Meany, 5672 North Shore Drive, Duluth, MN 55804 Ann Meany, 3006 W. 44th St, No. 1, Minneapolis, MN 55410

Ann Possis 10115

Dear Ms Fay, Dear Federal and State Agency Leaders: I am writing to express my concerns about the PolyMet project, and to urge you to deny the permits for this mine. It's not worth the risk and possible destruction of our precious natural resources in northeastern Minnesota. We must be able to come up with livable-wage jobs without trashing our natural environment. Twenty years of jobs, many of which would be filled with people brought in from outside our area, are not worth hundreds of years of pollution of an irreplaceable part of the world. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely, Ann Possis Ann Possis 4038 Cascade Beach Road Lutsen, MN 55612 218 387-9081

10116

Dear Ms Fay, Dear Federal and State Agency Leaders: I am writing to express my concerns about the PolyMet project, and to urge you to deny the permits for this mine. It's not worth the risk and possible destruction of our precious natural resources in northeastern Minnesota. We must be able to come up with livable-wage jobs without trashing our natural environment. Twenty years of jobs, many of which would be filled with people brought in from outside our area, are not worth hundreds of years of pollution of an irreplaceable part of the world. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely, Ann Possis Ann Possis 4038 Cascade Beach Road Lutsen, MN 55612 218 387-9081

Alphabetical by sender's first name

Ann Redig 39194

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Ann Reed 16924

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. I know you are receiving many of these and may be simply putting them aside but please listen. The next crisis we are facing is one of adequate clean water. People who live in southwestern United States are experiencing drought conditions. We saw what happened in West Virginia with their water. I understand that we all walk a fine line – we want jobs for people but what good are the jobs if everyone's water is contaminated. Human beings can live without a lot of things but we must have water. We Minnesotans live upstream. We have a responsibility to protect the lakes and rivers we hold so dear. Please help us and reject PolyMet's plan Sincerely, Ann Reed Minneapolis, MN Ann Reed 3432 35th Av S minneapolis, MN 55406

Alphabetical by sender's first name

Ann Reed 50228

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. I know you are receiving many of these and may be simply putting them aside but please listen. The next crisis we are facing is one of adequate clean water. People who live in southwestern United States are experiencing drought conditions. We saw what happened in West Virginia with their water. I understand that we all walk a fine line – we want jobs for people but what good are the jobs if everyone's water is contaminated. Human beings can live without a lot of things but we must have water. We Minnesotans live upstream. We have a responsibility to protect the lakes and rivers we hold so dear. Please help us and reject PolyMet's plan Sincerely, Ann Reed Minneapolis, MN Ann Reed 3432 35th Av S minneapolis, MN 55406

Ann Sandler 39605

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ann Sandler 9833 West 101st Terr Overland Park, Ks. 66212 Sincerely, Ms Ann Sandler 9833 W 101st Ter Overland Park, KS 66212-5431

Ann Schley 41854

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, As Minnesotans we are privileged live among beautiful wetlands and forests. As part of that privilege, I believe it is our responsibility to protect those resources for the future. As such, I urge you to reject PolyMet's request to mine. There is just too much risk that dangerous chemicals will be released now or in the future from the mining operations. Our resources are much more precious as natural recreation area, than as mines. Sincerely, Ms Ann Schley 1120 Winthrop St S Saint Paul, MN 55119-5609 (651) 398-7012

Ann Snodie 11044

Attention: Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environment Review Unit 500 Lafayette Road, Box 25 St Paul, MN. 55155-4025 I am writing to you to speak out against the NorthMet Mining proposal to let Polymet mine copper-nickel in Northeastern MN (on superior national forest land). A few things to consider is whether our future WATER quality is worth more to us in the long-run (some predict 100's of years of possible damage) then job creation in Northern MN. And this is coming from somebody who has been unemployed for a while. I don't think we should take that risk. Historically, mining reclamation, in the end, cost the tax payer money for clean-up, long after the corporation, who created the mess, is gone. The Office of surface Mining Reclamation and enforcement (OSM) has not been effective in other states where mining has been destructive (West Virginia, Kentucky, Wyoming, Pennsylvania. etc) I wonder if Kentucky was at a crossroad between job creation vs. water quality and protecting their natural resources. Why do they still have water quality issue in Kentucky after 20 years Initially, were they told the same thing as we are being told about the safety today. Let's keep Minnesota the beautiful state that it is and protect our precious water. We don't need this in Minnesota.. Sincerely, Ann Snodie

Ann Stangland 54899

See attachment

Alphabetical by sender's first name

Ann Vreeland 57337

My name is Ann Vreeland. That's "V," as in Victor, R-E-E-L-A-N-D. I live in Hoyt Lakes, Minnesota. I have lived -- I was born and raised in Hoyt Lakes, Minnesota and I currently live there with my husband. I am a family nurse practitioner at the Aurora Hospital at Northern Pines Medical Center. And I have had an opportunity tonight to review the various information that has been put out by various government agencies about the permitting process for PolyMet mining. I feel very confident that they have done due diligence as far as their safety for the water and for the environment. We need the jobs up here and we need mining, and that has been our lifeblood for over 50 years, and I support it 100 percent.

Anna Blaine 54174

I believe this mining should not be introduced in MN. It’s degrading to our land and water! The water and area around where this mine is supposed to be is too precious to our environment to be compromised for this mining project.

ANNA FRENCH 43064

Some effects of the proposed PolyMet sulfide mine plan are immediate and easy to predict. For example, it is known that the mine would impact our dwindling moose populations and the already endangered Canada Lynx by destroying their habitat. Other impacts, such as those to air and water quality, are still uncertain. The plan is incomplete and has not been carried out thoroughly. An example of this is the lack of a health impact study. For something that could have impacts 500 years into the future, it seems like we could take a little more time analyzing consequences. Anna French 16425 39th Pl N Plymouth, MN 55446

Anna Guldner 54527

If it threatens our lakes, rivers, streams, and groundwater, I will not support Poly Met Mining Co.

Alphabetical by sender's first name

Anna Hemphill 40411

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Alphabetical by sender's first name

Anna Hess 10352

To: HYPERLINK "mailto:info.dnr@state.mn.us"info.dnr@state.mn.us Cc: John and Debbie Woerheide Dear Minnesota State and Federal partner links for the preparation of this DEIS: Unfortunately we were not able to attend the public meetings for various reasons beyond our control, including the weather, and resulting road conditions. So our comments need to be expressed in this email. As residents of the Minnesota Arrowhead country, we certainly hope that these comments are considered. We are full time residents of the Minnesota north country, living at Lutsen for the past 26 years,at 5171 Highway 61, and 103 Caribou trail. The very things that attracted us to this gorgeous country include the beautiful boreal forest, clear streams and inland lakes, and of course the unequaled beauty of Lake Superior during all seasons of the year. We didn't come here enticed by new jobs being offered by any resource gobbling industries. We came here and created our own jobs, offering services that the people living here, or coming to visit needed. We have all lived in various parts of the country, such as south central Missouri, southern Illinois, the mountains of New Mexico, the mountains of Colorado, and the spectacular coast of Alaska, So we have seen other beautiful parts of the country, but none to top the Minnesota Arrowhead, Lake Superior country. The father/grand father of this family, John Woerheide served the US Forest Service for 35 years. Various jobs included preparing proposals for designating Wilderness Areas, lands and minerals management, timber management, silvicultural research, recreation resource management, and public affairs. The whole family has witnessed the results of metals mining for such metals as lead, zinc, copper, gold, silver, and many other metals as well. We lived on various National Forests, mostly in remote back country areas. When we lived in Southern Illinois on the Shawnee National Forest we often visited the fluorspar/lead/zinc mines of that area. such as Minerva Number One, and the Crystal mine. At many of these mines the fluorspar was the retained ore mineral, and the lead, zinc, and other metals often made it into the tailings of these operations. That was back in the late 1950s, and of course the people of the area could only see the benefit of the jobs the mines provided. As a result of the careless surface disposal of metal ores, there is now a great deal of water pollution at and around disposal sites, leading to health alerts for such areas as the Minerva No 1 site (see HYPERLINK "http://www.atsDradc-gov/"www.atsDradc-gov. Minerva Mine No1) When we lived on the Santa Fe National Forest at Pecos, New Mexico we used to make many trips up the Pecos River to the site of the old Terrero Min about 12 miles north of Pecos . This was an old deep mine under ground where zinc , copper, lead, gold and silver were mined in the past, There were about a dozen other trace minerals involved as well. Waste rock material was spread out in an area about 20 acres in size at the mine site. Higher grade ore was sent by tramway to the Alamitos Mill at Pecos, New Mexico, where the ore was processed, and waste tailings were fed into tailings ponds. Both of these sites have been discovered to be highly polluted. Unacceptable levels of pollutants present in surface areas, and extreme pollution of ground waters are present all the way as far south as Carlsbad on the Pecos River. Water at camp grounds along the Pecos River has been polluted. A person can not even go near the old mine site, or the mill site. There are chain link fences and keep out signs around the areas. As a reference see - New Mexico Geological Society guidebook, 52nd Field Conference, Geology of the Llano Estacato, 2001 = Long Term monitoring of the Geochemistry Of Surface Water, and Stream-Sediment Samples from the Southern Pecos Wilderness to Brantley Dam North Of Carlsbad. Eastern New Mexico - Year Nine. It is absolutely amazing how long this pollution has

Anna Louise E. Fontaine 42415

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Anna Louise E. Fontaine 102 Ch Du Lac-Cloutier Lantier, QC J0T 1V0

Alphabetical by sender's first name

Anna Meyer 38743

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Anna Newton 52574

Protect our water. Hooded Mergansers swim in northeastern Minnesota's pristine marshes, ponds, and rivers, feeding on fish, crayfish, frogs, and insects. PolyMet Corporation is proposing to destroy thousands of acres of pristine habitat to mine sulfide ore at the headwaters of the St Louis River - a major waterway that flows over 180 miles to Lake Superior. PolyMet's proposal calls for 20 years of mining, and they acknowledge that 500 years of toxic runoff will need to be collected and treated. Just like the Hooded Merganser, our children and grandchildren all deserve clean water. Let clean water be our legacy - not toxic pollution from mining. There are SERIOUS issues with this proposal.

Anna Peterson 43809

To whom it may concern, I believe the proposed Poly Met mine should not go forwaRd The SDEIS has not shown that mining of precious metals in rocks with sulfide can be done safely in the watery environment of NE Minnesota without serious contamination and destruction to wetlands and habitat. Thank you for your consideration of my comment. Sincerely, Dr Anna Peterson - Anna C. Peterson, PhD Conservation Biology University of Minnesota 763-370-1639 Tell me what is it you plan to do with your one wild and precious life. -Mary Oliver

Alphabetical by sender's first name

Anna Runestad 44598

I wake up every day knowing how I choose to live my life will affect my future and those around me. The long term effects of choosing to open the Superior National Forest to mining is a choice that I don't agree with. It has short term benefits that do not out weigh the long term cost our state and our natural water habitats will suffer for years. Anna Runestad

Anna Russel 58146

I am appalled that Minnesota would even consider putting in this mine so close to the boundary waters. The lives of countless plants and animals will be impacted, not to mention the entire ecosystem as a whole. The profits are not worth the risks involved. We are NOT dependent on copper! Throw away your cellphone and take a walk in the woods! We need to be putting minds together to figure out actually proven environmentally safe processes to achieve our goals. Create more jobs to plant new trees and wetlands on the proposed sites. I will be ashamed as a Minnesotan if this mine passes. Someone needs to give a voice to the creatures who cannot speak the trees, the water, the birds, the wolves. We need to learn to coexist, the water, the birds, the wolves. We need to learn to coexist, even give back positively to the environment. Now wouldn’t that be crazy.

anna sherman 15282

Attached: To Mine, Or Not To Mine. Anna Sherman, 21123 Iverson Avenue North, Forest Lake, MN 55025 Google Drive: create, share, and keep all your stuff in one place. HYPERLINK "https://drive.google-com"Logo for Google Drive

Alphabetical by sender's first name

anna wagner 15648

Feb 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuri

anna zirkes 43205

I am opposed to this plan. I am concerned that the pollution created by this plan will forever change the Boundary waters. Anna Zirkes 1818 Rolling Green Curve Mendota Heights, MN 55118

Alphabetical by sender's first name

annamarta dostourian 40432

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, annamarta dostourian 1970 san pablo ave berkeley, CA 94702 US

Annamary Herther 42813

See attachment

Alphabetical by sender's first name

Anne 37917

Anne Calderwood PO Box 2244 Murphys, CA 95247 (also: 3496 N. Arm Road, Ely, MN 55731) March 7, 2014 Dear Ms Fay, I urge you to reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. I urge you to stand up for the interests of the public and the known facts about this type of copper sulfide mining and the destruction to human and environmental health that it leaves behind. The BWCA and the clean water that is it's hallmark is a national treasure. My family owns property in the Ely area and spend time each summer enjoying the BWCA and surrounding lakes. Our drinking water comes dirrectly from Burntside lake, and we eat the fish and wild rice from the local area. It seems ironic that the DNR is vigilant about rules for local homeowners living near the water, but a huge project with the potential to create longterm damage to the ecosystem of the area is being actively considered. I would encourage your agency to just say no to this potential disaster of scale. The BWCA is famous for it's fishing opportunities. Mercury is an ongoing concern in the area. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. Why would a public agency allow a known source of mercury pollution to conduct such a business in such a interconnected water rich area right next to the BWCA. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. It is easy to make pronouncements but what are the facts related to this type of mining. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. How will they be captured without liners. What happens when there is episodic flooding. Was an alternative explored by Polymet that does not impact wetland areas. It is irresponsible to gamble with the health of the region. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. Even 30-40 years is too much of an impact to the area. The burden should be on Polymet to design mining plans with no risk to the drinking water in the area. I am confident that you would not allow a homeowner to conduct a business in the BWCA area that would jeopardize his/her neighbor's well water. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. Too much has already been taken from the n

Alphabetical by sender's first name

Anne 42498

Anne Calderwood PO Box 2244 Murphys, CA 95247 (also: 3496 N. Arm Road, Ely, MN 55731) March 7, 2014 Dear Mr Bruner, I urge you to reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. I urge you to stand up for the interests of the public and the known facts about this type of copper sulfide mining and the destruction to human and environmental health that it leaves behind. The BWCA and the clean water that is it's hallmark is a national treasure. My family owns property in the Ely area and spend time each summer enjoying the BWCA and surrounding lakes. Our drinking water comes directly from Burntside lake, and we eat the fish and wild rice from the local area. It seems ironic that the DNR is vigilant about rules for local homeowners living near the water, but a huge project with the potential to create longterm damage to the ecosystem of the area is being actively considered. I would encourage your agency to just say no to this potential disaster of scale. The BWCA is famous for it's fishing opportunities. Mercury is an ongoing concern in the area. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. Why would a public agency allow a known source of mercury pollution to conduct such a business in such a interconnected water rich area right next to the BWCA. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. It is easy to make pronouncements but what are the facts related to this type of mining. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. How will they be captured without liners. What happens when there is episodic flooding. Was an alternative explored by Polymet that does not impact wetland areas. It is irresponsible to gamble with the health of the region. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. Even 30-40 years is too much of an impact to the area. The burden should be on Polymet to design mining plans with no risk to the drinking water in the area. I am confident that you would not allow a homeowner to conduct a business in the BWCA area that would jeopardize his/her neighbor's well water. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. Too much has already been take

Alphabetical by sender's first name

Anne Clark 40660

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described.Clean ground water is essential. Please don't risk something that can't be recovered, except by extraordinary means and centuries of time for short term prosperity. Sincerely, Anne Clark 708 N 1st St Minneapolis, MN 55401-1133

Anne Elizabeth Haugan 45022

To whom it may concern at the DNR Office . . . I am very opposed to PolyMet's proposal for copper/nickel mining in Minnesota's Arrowhead Region. It's a NO – BRAINER. Do we provide several hundred construction and mining jobs for a few hundred people for twenty to thirty years and pollute the watershed basin flowing into our great Lake Superior for hundreds of years, as well as polluting the air. Or protect this valuable watershed environment for hundreds of years. Another great concern is dealing with Poly Met, a small new company, which has little accountability and the likelihood of the mining operation being turned over to Glencore Xstrata. This scares me as Glencore Xstrata has a poor environmental record, as well as treating their employees unjustly. Let's find alternatives that will provide jobs to better the Northeastern Minnesota economy, such as the solar panel industry on the Iron Range, tourism industry, or forest products industry. Thank you for taking my comment, Anne Elizabeth Haugan 1161 Oakcrest Ave Roseville, MN 55113-3219 Phone: 651-484-3856

45041

To whom it may concern at the DNR Office . . . I am very opposed to PolyMet's proposal for copper/nickel mining in Minnesota's arrowhead. It's a "no-brainer". Do we provide several hundred mining jobs and construction jobs for a few hundred people for 20 to 30 years and pollute the watershed basin into the great Lake Superior for hundreds of years. or protect this valuable watershed environment for hundreds of years. Another great concern is dealing with PolyMet, a small new company, which has little accountability and the likelihood of the mining operation being turned over to Glencore Xstrata. This scares me as Glencore Xstrata has a very poor environmental record, as well as treating their employees unjustly. Let's find alternatives that will provide jobs to better the Northeastern Minnesota economy, such as the solar panel industry on the Iron Range, tourism industry, or forest products.

54905

See attachment

Anne Macaulay 54699

See attachment

Alphabetical by sender's first name

anne morrison 42907

anne nelson 42052

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, anne nelson minneapolis, Minnesota

Anne Simpson 48305

FYI

Anne Stewart Uehling 54775

See attachment

Anne Wetteland 54882

See attachment

Annette Anderson 38646

I believe that the Polymet Project would be safe for the environment and would have huge positive economic benefits. I support this project. Annette Anderson 323 Aspen Court Brainerd, MN 56401

Alphabetical by sender's first name

Annette Heiberg 16225

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Annette Jaros 57169

I oppose sulfide mining in NE Minnesota because of appalling and costly long-term impacts on irreplaceable natural resources. Science supports you in putting a stop to this potential desecration.Please say “NO.”Annette Jaros3108 Minnesota AveDuluth, MN 55802

Annette Price 40007

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Annette Price 1817 Ford Pkwy Apt 101 Saint Paul, MN 55116-2170

Alphabetical by sender's first name

Annette Strom 39349

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Living in Duluth, I am so fortunate to have the largest surface area of freshwater nearly outside my door. We would like to keep our wonderful freshwater resources in this area. After over 30 years of clean up, we are almost able to say that the St Louis River is not polluting our great lake. That time period compared with 500 years seems quite small, and yet that clean up has affected all of us in this area. I also grew up during the time when we needed to drink bottled water due to the tailings in Lake Superior. It seems we should be more careful into the future with our water resources, especially when we already know about some of the ramifications. Sincerely, Ms Annette Strom 1512 Boulevard Pl Duluth, MN 55811-2719

Annie Bien 40320

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Annie Bien 29 Tiffany Place Brooklyn, NY 11231 US

Alphabetical by sender's first name

Annie Carlin 37600

To Whom It May Concern; Copper cobalt mining has proven itself to be filthy and I am highly skeptical that this will be the first clean copper mine ever. Do not pollute our Great Lakes for imperial greed. My full name is Anne Carlin and mailing address is 6901 Hillcrest Lane Edina, MN 55435- It was the governments job in WV to monitor and maintain safe water for their civilians but they didn't and they still haven't. I do not support this copper cobalt mining venture and its highly probable irrevocable damage by exposing toxic contaminants to our water. Please do not allow this venture to proceed any further. Sincerely, Annie Carlin Sent from my iPhone

Annie Gardner 40055

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Annie Gardner 1906 1st Ave S Minneapolis, MN 55403

Alphabetical by sender's first name

Annie Gardner 40056

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. This includes a net loss of 6,026 acres of areas with high biodiversity; 2,030 acres of mature forest – replaced by 2,000 acres of immature forest; 1,400 acres of floodplains and losses of 11 endangered or threatened species. The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade. The PolyMet sulfide mine would reduce lynx habitat by two square miles, kill individual lynx, and impact 2 out of 13 remaining small corridors for wildlife to travel across the Arrowhead region. The PolyMet sulfide mine plan would also destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which dropped precipitously by 35% from 2012 to 2013- Yet, the SDEIS contains no analysis of impacts on moose from the PolyMet project. The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St Louis River and tribal resources. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice. Please take the following actions to protect clean water, ecological communities, public lands and tribal rights: •Reject PolyMet's proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. •Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. •Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. •Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. •Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. No more studies are needed to know that the PolyMet land exchange and sulfide mine should not be approved. The SDEIS plan is also inadequate and should be rejected: •The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. •The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at taxpayer expense. •The SDEIS fails to analyze alternatives, including underground mining, that could reduce impacts on lynx, moose, and other species that are thre

Alphabetical by sender's first name

Annie Gardner 40057

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation" wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1-Underground mining, looking at the full ore deposit and PolyMet's real costs; 2-Putting a liner under the Category 1 waste rock stockpile; 3-Placing all tailings on a new completely lined facility; 4-Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5-Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to

Alphabetical by sender's first name

Annie Gardner 40058

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Annie Gardner 40059

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

57978

Sulfide mining is a dangerous and risky proposition for the future health of Northern Minnesota's environment. PolyMet has not shown that they can adequately protect Minnesota's environmental resources, especially our invaluable water resources. Mining is not good for the future of Minnesota. PolyMet cannot be trusted to complete its cleanup and financial responsibilities. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Annie Kieffer 42025

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Annie Kieffer St Charles, Minnesota

Annie McMahon 48166

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Annie McMahon 421 Geary Hgts. Dr Clarkdale, AZ 86324

Anonymous 15728

See attachment

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Alphabetical by sender's first name

Anonymous 15735

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42572

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54111

No Way! [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

54112

I do not support the mining! [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

54114

B.S. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Anonymous 54115

Baloney. I believe in protecting our water supply. Greedy companys only need pay fines when things go wrong. Copper mining is not mining. It's destruction. I believe in iron ore mining. Please stop putting the two mining types in the same category. Such a shameless ploy. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

54151

NO! NO! Red Flag--Devastation, result of Anaconda Copper in Montana! [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

54159

Bewildered--200 & 500 year models/water containment & treatment/closings & cappings/bodies of water flowing into Lake Superior. Most of all--lead & aluminum--toxic metals for the young and old. I wish I could sign this postcard in regard to jobs & revenues--but I am not qualified to assess and I don't know who would be! [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

54171

Destroyed the RiverBecause of the EnvironmentBig Whole in the Ground, PollutionIt’s a wonderful ecosystems for [ILLEGIBLE] animalsSpecial part of who Minnesotans doneSecond [ILLEGIBLE]Dear DNR, I don’t think you guys would bid a mine only for your benefit and there is other places you can find copper in [ILLEGIBLE] just because that whole is going to be in the ground for the next 20 years and we’ll have to deal with these problems years after that after closed and I think it’s a wonderful ecosystem for the animals and it’s a quiet, sacred place for Minnesotans and I think the word would look bad without any preservatives in nature environment. Also I’m against the mine is because of the pollution. The affects are environment would be negative and you could put it somewhere else.

54332

Dear Ms. Lisa Fay, EIS Project Manager,I am writing to you because I would like you to know my opinion on the possible PGE mine being created by the Boundary Waters. I think you should allow this mine, because it would be of great benefit to our economy. But ...Since this is the first PGE mine in Minnesota, I think that we should be extra cautious and be extremely aware of the environment around the site of both the mine and the facility. Now, I know that PolyMet Mining, Inc. has already said that they will continually monitor both the water and the surrounding area. I also know that I am probably going to bring up the same points that countless others have already. I also acknowledge that you and your peers have probably already addressed this. But, I'll still bring them up anyway.I am concerned about the possible damages that the facility and the mine could do to the environment. I am also worried about the land that the Native Americans are connected to. I understand that the land is important to them. I know that in the treaties and other documents on your website, the mining company has said certain things concerning all of the concerns mentioned above.So, to finish up, I can see it going either way with the allowing of the mine. I think that both answers to the question of whether or not to allow the mine are okay by me. I will support whatever decision that you make regarding the mine, and I hope that your decision is the right one.Thank you for reading this, and for being so thorough with your investigation.An anonymous commentor

54333

Dear Ms. Lisa Fay, EIS Project Manager,I don't think the PolyMet Mining has a good idea. The mining will just harm the environment not help it. It will take twenty years to mine the area. That is just too long to be doing that to the environment. The area is around a beautiful place of nature. The mining will just ruin it by destroying trees and most likely some wildlife along with many other things.You need a lot of money to clean the water after you are done mining and that will be years and years from now when we are done with that. We won't have the money to continue cleaning the water so we will just stop cleaning the water so then it will get polluted. If the water gets polluted then the environment will have a counter effect. The water is very important and that's what we need to live.There are others ways to have the things we have without fossil fuels. Instead of spending the money on the mining project we can just use the money to research solar power and other environmentally safe fuels.Thank you for taking my opinion in and using it for your decision.

Alphabetical by sender's first name

Anonymous 54562

I do not believe that this is a good idea. This is all about money, not jobs. We have to protect our resources, water soil etc.

Anschel Burk 39355

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness, ultimately threatening human lives, the Minnesota tourism industry to natural wonders like the Boundary Waters, and any other industries that depend at all on clean water. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Anschel Burk 300 N College St Northfield, MN 55057-4000

Anthony B 44965

This mining project is a possible and potential disaster. Please don't compromise our clean water for pollution at any coSt Thank you for your time. Anthony Brandenburg Anthony B 433 Thomas Avenue South Minneapolis, MN 55405

45607

Dear Ms Fay, This mining project is a possible and potential disaster. Please don't compromise our clean water for pollution at any coSt Thank you for your time. Anthony Brandenburg Anthony B 433 Thomas Avenue South Minneapolis, MN 55405

45608

This mining project is a possible and potential disaster. Please don't compromise our clean water for pollution at any coSt Thank you for your time. Anthony Brandenburg Anthony B 433 Thomas Avenue South Minneapolis, MN 55405

Anthony Bonadio 39224

Mar 11, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Anthony Bonadio 116 Boulder Dr Berea, OH 44017-3119

Alphabetical by sender's first name

Anthony Hicks 41993

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Anthony Hicks St Paul, Minnesota

Anthony Taylor 54206

A majority of us believe that building a mine next to the only preserved native area is not a good (or smart) idea. It is the HABITAT of animals. They need the boundary waters they have nowhere to go. It is also the paradise of humans you can build a mine pretty much anywhere. You can’t create a natural habitat. There are also people like me, who want to take their children there one day. In this day of age, nature is becoming rare. It is a place where you can see and feel what earth would be like without human interference I am not only talking for myself, but on the behalf of a majority. You can build a mine anywhere, but not true nature.

Alphabetical by sender's first name

Anthony Wolf 16180

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Anthony Wolf 17050

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Anthony Wolf 19998 200th st N Ulen, MN 56585

50323

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Anthony Wolf 19998 200th st N Ulen, MN 56585

Alphabetical by sender's first name

Antoinette Moran 406

The potential for the state to be stuck with >100years of clean-up plus the potential to harm important state water resources is just too great to justify a few hundred jobs for 20 years. Such a short term gain for potentially generations of harm. I am strongly opposed to this. Antoinette Moran, M.D. Professor and Division Chief University of Minnesota Pediatric Endocrinology East Bldg Rm MB671 2450 Riverside Ave (Fed Ex/UPS--2414 South 7th St) Minneapolis, MN 55455 HYPERLINK "mailto:moran001@umn.edu"moran001@umn.edu phone 612-624-5409; FAX 612-626-5262

Antonia Cristofaro-hark 15752

See attachment

54851

See attachment

apeterson8083@yahoo.com 45146

You would be fools to even consider any further, the detrimental damage polymet and sulfide mining would have on our aquafor. There has never been a sulfide mine proven safe. We the people of Minnesota, want to protect our clean water. This project is too expensive in the long run, for clean up. Why sacrifice our water for a few temporary jobs. It doesn't make sense. Promote recycling for precious metals, quit mining.

April Hughes-Brauner 43726

Concerning the Polymet mining project in NE Minnesota: Given that the mine in question is in one of Minnesota's most scenic and pristine areas, where water is of such abundance and purity I would like to voice opinion to the mine, especially of the threat to native flora and fauna, wild rice in particular. -Sharon Campbell 2101 Island View Drive NE Bemidji, MN 56601

Archie K Benham 47364

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, FACTS: The ENVIRONMENT is **not** more important than the ECONOMY. Climate change and global warming are real issues. Pressing issues. The world does not need to farm Copper/Nickel anymore. Recycling can handle the demand. The CONS **far** outweigh the pros. I do not want to take away from Minnesota's healthy environment. WE WILL LOSE A PART OF OUR GREAT STATE. I SAY, NO, TO MINING.. Sincerely, Archie K Benham 3928 Abbott Ave S Minneapolis, MN 55410 Sincerely, Mr Archie K Benham 3928 Abbott Ave S Minneapolis, MN 55410-1037

Ariane Norrgard 57465

As a concerned citizen of Duluth and the surrounding area I am commenting on my position against PolyMet Mining. If citizens of this community allow companies to mine copper and nickel at the expense of clean water, we are setting the stage for years to come. Fresh water is a more valuable, precious resource that will provide more wealth to Minnesota in the far future. PolyMet mining hinders Minnesota's ability to use water resources because of the detrimental effects copper nickel mining has on water and wild rice. Please consider protecting the boundary waters area, Lake Superior, and water quality as a whole by not allowing PolyMet (or companies like PolyMet) to operate within our region. Thank you, Ariane Norrgard 1615 E 2nd St Duluth MN, 55812

Alphabetical by sender's first name

Arlene Renshaw 16252

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Arlene Roth 16005

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Arlo Cristofaro-Hark 54852

See attachment

Alphabetical by sender's first name

Arly Piri 40346

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Arly Piri 1027 16th Ave SE Minneapolis, MN 55414 US

armand ball 41095

March 9, 2013 To: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources, Environmental Review Unit, 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Re: Supplemental Draft Environmental Impact Statement for the mining plan for Polymet’s NorthMet Mine. I cannot fathom why the State of Minnesota would provide a permit for this mining plan. I lived in Minnesota for many years and directed a children’s camp in Ely area and though retired now I return to the area to relive those years. This is an area of unique natural resources and belongs to all of the citizens of the USA for their pleasure. From my viewpoint it is apparent that such mining would: pose human health risks through contamination of drinking water and fish, seriously degrade the St Louis River, destroy wild rice and irreplaceable wetland habitat, and harm Lake Superior that holds 10 percent of the world’s fresh water. The precedent set and the ramifications of this project transcend short-term economic concerns. provide a significant risk in the watersheds receiving the drainage from Polymet’s waste rock and tailings complexes, given that two million tons of sulfur would be brought to the surface during mining, result in unacceptable and long-term water quality impacts, which exceed water quality standards All of this for a foreign corporation whose stated goal is to provide the first eight years of copper produced to China, without any plan to meet domestic needs in our country. How strange. How unnecessary when the promise of jobs constitutes non-union jobs that carry the possibility of unknown periods of layoffs and a terminal time period. Armand Ball 16502 Cypress Villa Lane Fort Myers Florida 33908

Armando Santos 54203

I am writing this letter to recommend not to do the mining. The reason for this are because it’s going to destroy the beauty of the land, its going to slowly destroy the wilderness, and our water pH level will decrease. Our planet is damaged enough already and destroying the wilderness or turning the water into sulfuric acid just to mind copper and nickel is [ILLEGIBLE] have heart to think about the animals that are going to affected! Those animals also deserve to live peacefully. We humans have destroyed enough land and token away a lot of land that a lot of animals are forced to leave to find another home and many die! PLEASE DON’T DO THIS!

Arno A Kahn 54801

See attachment

Alphabetical by sender's first name

Art Dale 42522

See attachment

Art Lind 18131

Good evening. My name is Art Lind. I'm a lifelong Iron Ranger, born and raised in Hibbing. I've been working in the mining industry for over 52 years already. I graduated from Hibbing High School in 1963; graduating class at that time was 325, about. Also in about 1963, happened to be the year that they passed the Taconite Tax Relief Act which spawned massive investments in this region to build six taconite plants. Jobs were everywhere by1965 and people that had once moved away started to return. People with teaching degrees were taking jobs as laborers in the area of taconite plants because the jobs paid better. Our economy was vibrant and the young people were everywhere. Well, the world has changed. We have to -- we have to compete with many manufacturing and mining jobs that are now being done in third-world countries under some of the worst job conditions imaginable with little regard for human health or the environment. Graduating classes in Hibbing today are about 150. You have to have good-paying jobs to support young families. Tourism? Yeah, we like tourism. Tourism wouldn't make a pimple on a mining job's behind when you compare the economics each of those jobs produces. On the horizon is the next era of mining and the top-paying jobs that will come with the development of one of the world's largest deposits of precious metals. I guess I'm part of the silent majority, most of which have left now. Let's see. I lost my place. I guess I'm getting tired of listening to the anti-mining group whose main focus seems to be to stop any mining development. You keep talking about 200 to 500 years of water treatment. It doesn't say that. It doesn't say the treatment will be 500 years. It says, "Treatment will be determined using measured results," which is the way the law is designed to responsibly handle it. The 200- to 500-year timeframes used in the SDEIS model represents the durations that models were run, not to predict how long treatment would be needed. Read page 39 and then take a good look at your life. If you drive a car, have electricity, buy groceries, have a cell phone, a computer or go to the clinic or hospital; everything we do is touched in some way by these metals. If you can't grow it, you've got to dig it out of the ground.I would venture a guess that those against this project have just as big an environmental footprint as everyone else and they enjoy the quality of the life these metals help to provide. Does that make them hypocritical? In the news yesterday it was reported that 10 percent of the air pollution on the west coast of this country comes from China. We can do this project right. Our mining industries operate under the strictest environmental regulations anywhere in the world, and we have all these agencies to watch over them. We need this project.

Art W 43384

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Art W 830 S. Winthtrop St StPaul, MN 55119

ARTHUR 5936

Most people do not realize the value that mining brings to their everyday life and the historical development of this country, especially those that are opposed to the development of this particular project as it is in "their back yard". They take for granted the conveniences as though they are picked from the sky when in fact most are derivatives of mining processes in one way or another. All mining has some risk. Since Polymet's inception 10 years ago, many tens of millions of dollars have been invested, not only by Polymet, but the State of Minnesota and the Federal Agencies to process the best environmental alternatives known in modern technology to be the best that we can be. Not to utilize this vast resource and the economic benefits they will provide and allow the metals to be mined somewhere in the world not as attentive as Minnesota is HYPOCRITICAL. I support Mining and Mining supports me. We need this project. This State needs this project. The Country needs this project. Art Lind 3904 5th Ave E. Hibbing, Mn 55746 Cell: 218-969-6169

Alphabetical by sender's first name

Arthur Dorman 2997

Dec 19, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. With unknown outcomes, it is essential for us to err on the side of caution, requiring total thoroughness in studying the matter, and total transparency in reports. Until that occurs, and unless the results of such study are that there is no danger to water quality, soil interity, and wildlife populations, there should be not action. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Arthur Dorman 817 Orange Ave W Saint Paul, MN 55117-4028 (651) 487-3793

52162

Dec 19, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. With unknown outcomes, it is essential for us to err on the side of caution, requiring total thoroughness in studying the matter, and total transparency in reports. Until that occurs, and unless the results of such study are that there is no danger to water quality, soil interity, and wildlife populations, there should be not action. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Arthur Dorman 817 Orange Ave W Saint Paul, MN 55117-4028 (651) 487-3793

Arthur Marble 41873

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Arthur Marble Edina, Minnesota

Asher 54721

See attachment

Alphabetical by sender's first name

Ashley Briscoe 14664

Feb 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

ashley ferguson 43134

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, ashley ferguson 12th st duluth, MN 55806

43135

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47700

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Ashley Williams 42000

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ashley Williams Minneapolis, Minnesota

Alphabetical by sender's first name

Astrid Yankosky 16556

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Astrid Yankosky 330 Marshall Ave Saint Paul, MN 55102

49973

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Alphabetical by sender's first name

Atlas Lincoln 42549

See attachment

Audrey Burmeister 18935

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Audrey Burmeister 8708 41st Ave N. New Hope, MN 55427, MN 55427 612 280 5707

Audrey Cullen 18300

Audrey Cullen. My statement is I don't think this is a responsible project. There is too much inherent risk involved with polluting the best watershed in this country. There is a drought in the western part of this country that is going to soon be escalating to the point of a crisis, and if we really want to do a commodity depletion or removal, it should be our clean water. It shouldn't be destroying our environment to get things that we can get by recycling (phonetic). I am also asking the DNR, the Forest Service, and all governing agencies that are involved in this to think about the future generations. Who out of that governmental agency is going to be around in 500 years to make sure everything is good? Not one of us breathing at this moment is going to be here. Who is going to take care of the future generations? Also, I think that it is very arrogant just to think about our own species. There is frogs, birds, deer, fish, moose, lynx, cougars, skunk, raccoons, et cetera, et cetera, that all depend on land. Why are we able to go in and tear it apart for our inability to conserve anything as a people? I'm just asking them to be wise versus short-sighted, myopic. I think I have gone on long enough. Thank you so much.

Alphabetical by sender's first name

Audrey Fairchild-Ehm 15581

Feb 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuri

Audrey Glassman 39568

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Audrey Glassman 2120 Aldrich Ave S Apt 202 Minneapolis, MN 55405-3099 (612) 870-7157

Alphabetical by sender's first name

Audrey Haynes 10337

Dear Lisa Fay, I am writing to you to inform you that I strongly oppose sulfide mining in Northern MN. I worked in Northern Minnesota for many years. I am very familiar with the area. In addition, I am a graduate student in Environmental Science. I have a lot of experience with the consequences of mining in natural areas and I know the damage that projects, such as this one, can have on natural resources. The Boundary Waters of Minnesota are a state treasure, which draw tourists not only from the Twin Cities but all over the country. I can personally attest to that, as I have travelled from California many times to paddle the Boundary Waters. Throwing away the natural beauty, a large source of income and state pride, in favor of the temporary income from mining is foolish and shortsighted. Moving forward with mining without a comprehensive and realistic Environmental Impact Assessment, and plan for what to do with the mining waste is, again, shortsighted. Sulfide mining could cost the state more in damages and waste removal than it is even worth. Letting the sulfide mining proposal go through is an irreversible decision- and not worth the unknown risks. Again, I urge you to consider this issue. Say no to sulfide mining. Audrey Haynes HYPERLINK "mailto:audreyhaynes@berkeley-edu"audreyhaynes@berkeley-edu 510-316-1334

audrey jiricko 44117

Dear Ms Fay, As as a frequent traveler to the Boundary Waters Canoe Area, I have significant concerns about the proposed North Met SDEIS mining and land exchange project. Twice a year, I travel from Utah with my husband and children to Ely, MN to enjoy the unique beauty and wildlife of the area. When one looks at the history of sulfide mining, there is no reason to believe that there won't be serious negative environmental impacts that will last decades if not centuries to come. From an economic standpoint, any short term gain for Polymet and addition of some jobs in the immediate future will be negated by longterm negative environmental and economic impact when the environment including something as precious as water quality is damaged. What is the chance that decades from the mining of the desired material, the company will still be around to take responsibility and continue to try to clean up the surrounding area. History tells us not a chance. Additionally, as a obstetrician/gynecologist, I have even more concerns about the heavy metals and toxic chemicals which will certainly impact the reproductive health of women living in the area as well as the development of embryos/fetuses. More and more evidence is pointing towards significant negative impact of reproductive and developmental health from these toxins. A lack of information regarding the specific pollutants may lead to catastrophic outcomes for individual women in the area. Overall, the project appears to focus on short term gain while ignoring significant negative long term impacts. More time is needed to investigate fully the potential outcomes for Minnesotans and the citizens throughout the world who travel to visit your beautiful state. Thank you for considering all viewpoints. Sincereley, Audrey Jiricko, M.D.

audrey kramer 40083

Attention DNR: The company chosen to head this overwhelming project is not trustworthy. Tell them to look elsewhere for their mining projects. We need the untainted water, forests, environment of northern Minnesota to stay in tact. Think West Virginia. WE CAN DO BETTER .. Just say, "NO ." Audrey in Chanhassen

Audrey/Dennis M 39318

To: Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit The North Met SDEIS should be rejected for a number of reasons. The computer model shows that the water seepage will pollute for at least 500 years and must be treated for the entire time. This is totally unrealistic to expect this to happen. PolyMet is asking to be allowed to run a 500 years experiment that has never been tried before. PolyMet is a company with no mining experience and no substantial financial backing. The financial assurances for hundreds of years ate not addressed in the SDEIS. This must be corrected. In addition the computer model is known to have been run with incorrect water flow information. The water flow was greatly underestimated requiring the analysis the be completely redone Dennis J. Peterson 3458 N Rangeline Rd Gheen, MN 55771 218-787-2302 HYPERLINK "mailto:audrey.dennis@gmail-com"audrey.dennis@gmail-com

Audubon Minnesota 42897

Dear Ms Fay, Please accept, attached, comments on behalf of 17,000 Audubon Minnesota members on the PolyMet NorthMet Project and Land Exchange SDEIS. Thank you for distributing them to the relevant agencies for consideration. Don Arnosti Policy Director Audubon Minnesota Mississippi River Flyway 612-718-3626 cell

Alphabetical by sender's first name

August W Haugan 57230

I am concerned that leaching from the sulfides in the pit, waste rock, and tailings from the proposed PolyMet copper-nickel mine cannot be effectively contained after the mine is decommissioned. I request that you not approve the required permits for this project. Furthermore, if permits are approved this could set a precedent for possible approvals of the Twin Metals projects and the leaching from those projects, could be disastrous for the BWCA watershed.August W. Haugan1161 Oakcrest AveRoseville, MN 55113

Avery Jorgenson 54343

Dear Ms. Lisa Fay, EIS Project ManagerPolymet Mining seems to have a very set plan in place. I think that this plan is a good well thought plan because they are doing the best they can to not change to much of the surroundings. Personally I think the copper-sulfate mining will benefit MN. I think that it will benefit us by helping create a better environment and also finding better ways to get the resources we need.There are many advantages to the mining process. Some of these are getting some of the resources like copper, mixed nickel and copper, and PGE to be more abundant. As there are many advantages that also brings the disadvantages. Some of them being that wildlife will be affected by the mining process. Also, that some of the land open to public is going to turn private.This process will also affect the cultural resources greatly. Ways being, fish, plants, and animal species being affect either positive or negative. This project will also affect the people that are living in this area.I agree with the land exchange. I agree because I think that Polymet is trying their best to make it fair but still get the resources they need to continue with this project. The Net will gain or increase most of the needed land and material from this land exchange.This project will impact or affect a lot of people. However, I do not think that this project will end up being an impact on me.Sincerly,8th grade student Avery Jorgenson

Alphabetical by sender's first name

Avesa Rockwell 14847

Feb 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

B Erickson 38678

I am writing to state my opposition to the proposed cooper nickel mining in north eastern Minnesota. I am frightened of the contamination. That beautiful region of our state generates 1-6 billion in tourism. Let's protect and preserve a national treasure. We had the good sense to preserve it in the paSt Let's not gouge away our future recreational areas. Betty Erickson 5500 164th Lane NW Ramsey MN 55303 HYPERLINK "mailto:bjoe48@gmail-com"bjoe48@gmail-com

Alphabetical by sender's first name

B Graves 43114

Dear Ms Fay, Mr Bruner and Mr Dabney: Please accept these comments on the PolyMet Mining Corp. mining project Supplemental Draft Environmental Impact Statement. Please reject the PolyMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River waters "would continue in perpetuity." One peer-reviewed study found that, while all projects that were reviewed predicted they would not pollute, at least 76 percent of the time they still did. The same study found that 89 percent of mines that have polluted said they would not. It is this history that is one of the biggest reasons for worry about proposals to bring the mining to Minnesota. The industry says they won't pollute our prized waters, but they've said that before, and they've been wrong more often than not. The Brohm Mine, mentioned above, is also a useful illustration of this problem. There, the mining company assured the state that the mine would not produce acid mine drainage because the ore was low in sulfides, around one percent average. The mine still created terrible pollution, killing all the fish in that stream turned acidic. This is an important point, because the mining industry in Minnesota frequently states that because the ore here is low sulfide, it won't cause acid mine drainage. Taxpayers left holding the bag Confronted with astronomical clean-up costs and battered by a volatile metals market with frequent boom-and-bust cycles, mining companies often abandon their polluted mines, walking away and leaving taxpayers holding the bag. Although Minnesota requires mining companies to provide financial assurances to fund cleanup if the company goes bankrupt or is otherwise unable to perform the work itself, it is very difficult to predict the extent of the pollution and resultant cleanup costs. Also, assets of bankrupt mining companies are often awarded to other creditors. The industry's track record of not paying to clean up its messes is long and shameful. A few examples include: Zortman-Landusky Mine, Montana – $33 million and counting Summitville Mine, Colorado – $185 million and $1-5 million/year Grouse Creek Mine, Idaho – $53 million Solution: The Minnesota legislature needs to first pass a bill similar to Wisconsin's "Prove It First" law that, before opening a mine, a company must be able to point to a similar mine to what it is proposing that a) has operated for 10 years without polluting and b) has been closed for 10 years without polluting. Major problems of the SDEIS Evaluation (1) Mercury is a huge concern. The Minnesota Health Department found 10% of infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS

B H Flora 45472

Hello DNR, Let's get to the core of the issue. Who stands to benefit monetarily far greater of all interested parties. It is the Chinese. Do we here in America want to sacrifice our natural resources and jeopardize our future human habitat in order to supply minerals to the Chinese. No. It is time that NE Minnesotans move toward a regional future that doesn't include this kind of eco-unfriendly, shortsighted enterprise. Did you know that: 1) PolyMet would require hundreds of years of expensive treatment of polluted water, 2) PolyMet would destroy thousands of acres of habitat used by threatened moose and lynx, 3)PolyMet's mine plan lacks analysis of human health impacts from mercury and asbestos-like fibers, and 4) PolyMet's studies contain inaccurate water data that need to be corrected . It's too risky and does not pass a Minnesota smell teSt Bert Flora ========== B H Flora 5336 26th Av S Minneapolis, MN 55417 612-210-1614 bert.flora@outlook-com

Alphabetical by sender's first name

b mayler 40419

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, b mayler po box 1012 yelm, WA 98597 US

b wagner 39540

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. One idea if the mine does open: any and all profit from the mine goes into a trust fund to pay for any damages and clean up that is caused by the mine. Once the water and any other environmental damage(s) is fixed, then PolyMet can have what's left in the truSt B Wagner Sincerely, Ms b wagner 1471 Hague Ave Saint Paul, MN 55104-6727

Alphabetical by sender's first name

B. J. Alexis 35452

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement.- TOO DANGEROUS FOR THE GREAK LAKES. West Virginia, North Carolina, how many others have been damaged for years to come due to some form of mining or chemicals for mining. That should provide more than enough evidence to prevent any mining on or near the Great Lakes. Including but not limited to, they couldn't even figure out how to shut down the spill in North Carolina-it was shut down by pure accident when the platform they were to use to figure out how to shut down the pipe spilling chemicals collapsed by accident thereby collapsing the pipe and shutting down the flow. WE DO NOT WANT AND CANNOT AFFORD THESE KIND OF SPILLS ON THE GREAT LAKES. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, B. J. Alexis 2204 Oxford St Rockford, IL 61103-4163 (815) 968-7565

Backcountry Hunters & Anglers 50932

--- Forwarded Message --- From: David Lien <dlien2@yahoo-com> To: "NorthMetSDEIS.dnr@state.mn.us" <NorthMetSDEIS.dnr@state.mn.us> Sent: Monday, January 27, 2014 7:59 PM Subject: PolyMet SDEIS Comments Dear Federal and State Agency Leaders: Please accept these comments (attached) on the PolyMet Mining NorthMet Project SDEIS from the Minnesota Backcountry Hunters and Anglers (BHA). Thank you for your consideration. Sincerely, David A. Lien Co-Chair, Minnesota Backcountry Hunters and Anglers The Sportsman's Voice for Our Wild Public Lands, Waters and Wildlife HYPERLINK "http://www.backcountryhunters-org/"www.backcountryhunters-org HYPERLINK "http://www.facebook-com/backcountryhabitat"www.facebook-com/backcountryhabitat HYPERLINK "https://www.facebook-com/pages/Backcountry-Hunters-Anglers/148205145252473"Like us on Facebook. HYPERLINK "https://twitter-com/#%21/Backcountry_H_A"Follow us on Twitter

Alphabetical by sender's first name

Bailey Rehnberg 39376

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." I appreciate the opportunity to voice my opinion on the SDEIS, as it has major flaws that must be addressed. Most importantly, the pollution of water sources is unacceptable. Drainage and toxic run-off into the St Louis River and ultimately Lake Superior is both a hazard to local inhabitants and a dangerous long-term decision. Water has become one of the most precious resources in the world and we must recognize both its crucial importance and its finite nature. We cannot afford, figuratively or financially, to pollute our healthy waters. The lack of financial assurances provided by Poly Met is also extremely concerning to me. After 20 years of mining, the taxpaying citizens of Minnesota deserve a detailed financial plan for how Poly Met will ensure 500+ years of water treatment. The fact that these assurances have not made it into the SDEIS scares me as a Minnesota resident and tells me that this company is not looking out for our best intereSt This issue is not a matter of the environment versus jobs in terms of economic interests, and I want to stress the overall financial stupidity of this project. Lastly, this mine would set a horrific precedent for both the health of Minnesota's wildlife and wilderness areas across the country. Please do not allow Minnesota to be part of this short-term economic project that will create pollution for hundreds of years to areas of beautiful and precious wilderness. Thank you for considering these changes that must be made to the SDEIS. These components of the Poly Met proposal, as well as countless others, should ultimately reveal the extreme negative effects that this mining would have on our waterways, our wilderness areas, and our pocketbooks. Sincerely, Ms Bailey Rehnberg 1600 Grand Ave Saint Paul, MN 55105-1801

Banny Lesar 42547

See attachment

Barb Cooper 52181

To whom it may concern, In my opinion, you should NOT approve the permit to start sulfide mining. Many factors need to be addressed. *The money for any potential cleanup after mining needs to be in a secure financial institution BEFORE the mining starts. *It wont hurt anything to wait until all the questions are answered *The “what ifs” on toxic effects to water are still unknown and cant be fixed quickly once it starts to happen Thanks for your time, Barb Cooper 10125 Bandana Lake Rd Isabella, MN 55607

Alphabetical by sender's first name

Barb Landes 43239

To:NorthMetSDEIS.dnr@state.mn.us I would like to respectfully register my opposition to the proposed Copper mining project. While my rationale stems from a sincere appreciation for the natural beauty of the area and a strong desire to see it protected, I also have substantive rationale for my objection to the project. 1- The Environmental Impact study has not adequately addressed the elevated levels of sulfate and metals such as copper, cobalt, and nickel. The potential presence of mercury is also a threat to water based organisMs 2- The amount of wetlands at risk (913 acres) is too great to warrant the minimal benefits of the project. 3- The minimal number of jobs promised by this project is not worth the permanent damage likely to be done to the natural resources of this area. 4- The minimal compensation promised for the workers to be hired is not worth the damage likely to be done to the natural resources of this area. Thank you for your attention to this matter. Barb Landes landesbj@frontier-com 14398 Embassy Way Apple Valley, MN 55124

Barb LaVigne 39319

Dear Federal and State Agency Leaders. I co-own the Angry Trout Cafe on the harbor in Grand Marais, MN. We employ over 60 people and cater primarily to tourists interested in wilderness and the pristine beauty of our area. I am very concerned about the PolyMet Mine Plan. We can not gamble our future for the promises of questionable environmental protection and short term jobs. This is just crazy. The reason many support PolyMet is that they were left jobless after iron mining's boom and buSt Please reject PolyMet's SDEIS and deny them permits. Clean water is the basis of our economy in NE Minnesota. PolyMet's plan puts my business at risk. There is no room for error here. Sincerely, Barb LaVigne Owner, Angry Trout Cafe P.O. Box 973 Grand Marais, Mn 55604

Barb Manns 38950

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Barb Manns 15941 Ebony St NW Ramsey, MN 55303-6901

Alphabetical by sender's first name

Barb Schilling 15969

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Barb Swanson 10762

Hello, Please hear my vote against any sulfide-ore mining in northeastern MN. It will have unacceptable environmental impacts and should not be allowed in the sulfide-bearing Duluth Complex from the Boundary Waters to beyond Lake Superior. Thank you for listening. Richard L. Swanson 308 Grove Place Hopkins, MN 55343 651-231-9682

11360

Please hear my voice against sulfide-ore mining in northeastern MN. It will have unacceptable environmental impacts and should not be allowed in the sulfide-bearing Duluth Complex from the Boundary Waters to beyond Lake Superior. Thank you for listening. Barbara E. Swanson 308 Grove Place Hopkins, MN 55343 952-938-5000

Alphabetical by sender's first name

Barb VonBenken 29372

I will be out of the office Thursday (2/27/14) through Monday (3/3/14)and will not be checking emails during this time. I will respond to your email on Tuesday (3/4/14). If you need assistance before my return, please contact my assistant, Doris Ardo, at dardo@zarembagroup-com. ~ Thank you. _____
********** The information contained in this e-mail transmission is intended solely for the addressee and may be privileged or confidential. Therefore, any dissemination, distribution, or copying of this communication is strictly prohibited. If you are not the intended recipient and have received this e-mail in error, please notify the sender by e-mail reply. Thank you.
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Barb Wiklund 47376

As a person who was born in Virginia, MN and whose family owns lake property in Britt and a tree farm in Angora I urge you to approve the Polymet mining project. I am an avid outdoors person who enjoys fishing, hunting and other activities outside and appreciate the beauty of our area. However I also believe that we, who choose to live up north, also need industry. I believe that the SEIS had been thoroughly prepared and reviewed and demonstrates that industry and environment can co-exist and thrive. Please consider this a vote for Polymet for both of us. Respectfully submitted, Jeffrey and Barb Wiklund 6705 McQuade Rd Duluth, MN. 55804

Barbara A. Haack 21171

Dear DNR: It is with great concern that I am sending this email regarding Poly Met's proposed mining in northern Minnesota. After reading about the project the following information supported my decision that a email must be sent: 1) It appears foreign countries are the promoters (Canada and Swiss) and not the United States. 2) The main jobs are to be given not to Minnesotans but to imported professionals therefore providing only minimum income for the people of our state. 3) Poly Met mining experience of this type is limited therefore Poly Met could end up losing money and filing bankruptcy leaving the tax payers of Minnesota to pay the bill for all clean-ups (especially water pollution). 4) Permitting this type of mining operation opens the door to other companies who can use this permission to say, "You granted permission before, how can you refuse us." The treasure we have in our northern water, soil, and air should never be taken for granted. Once gone it cannot be restored. Please consider my sincere concerns for the future of Minnesota having been born and raised here. I am 78 years old. Thank you. Barbara A. Haack 36815 Country Road 15 St Peter, MN 56082

Barbara Adams 28242

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Any potential gain from jobs or what the industry provides must be offset by the cost and loss it could potentially cause. If only those PR-like proposals and income/jobs charts and graphs by companies were mandated to show costs for clean-up and recovery, there would be a very different presentation and bottom line. And a very different legacy that politicians would be asked to make by signing any approval this PolyMet project. The fate of the environment is in your hands. Sincerely, Barbara Adams 5100 Montebello Cir Richmond, VA 23231-3516 (804) 222-2955

Alphabetical by sender's first name

Barbara Bottger 14850

Feb 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Barbara Bower 40212

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Barbara Bower 8053 40th Ave Brainerd, MN 56401-1740

Alphabetical by sender's first name

Barbara Bridges 57942

Please do not accept mitigation as an answer to unknown future impact. Let's preserve our precious "Land of 10,000 Lakes." Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Barbara Brockway 39995

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Barbara Brockway 233 Nichols Ct Shoreview, MN 55126-2338 (999) 999-9999

Barbara Burkhart 48123

Dear Ms Fay, Dear Federal and State Agency Leaders: "PolyMet’s water pollution from the permanent mines site waste rock pile would need treatment for at least 200 years and pollution from the tailings piles would require treatment for at least 500 years. Pollution seeping out of the mine pits would “continue in perpetuity.” Forever." ~Water Legacy. So, in other words, for a couple decades of a small number of people having a job, we're willing to let this company saddle generations centuries into the future with the consequences. Classy. I can't even imagine what the people 500 years from now will think of us and our greedy, shortsighted generation. Will they starve because they can't eat the fish or the wild rice. Will they have birth defects due to the chemicals and toxins in the water. What about the people who are alive today, who depend on the fish, land, water, and wild rice as part of their livelihood. Are we saying that big business is more important than our rights as citizens to clean water, clean air, and sensible land-management. The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely Barbara Burkhart Barbara Burkhart 3501 - 15th Ave S Minneapolis, MN 55407

Barbara Crow 42603

See attachment

Alphabetical by sender's first name

Barbara Curphy 19963

Hello. I am a Wisconsin resident with summer recreational lake property on Cadotte Lake in Minnesota. I have many questions and concerns regarding the current EIS surrounding this project. Attending the forum at the DECC, some of my questions were answered most not. I am very concerned about the lack of knowledge of this type of mining. What kind of clean up will be needed. The amount of sulfuric acid into the ground water. The 500 year plan for clean up That is just too bizarre to comment on. I was born and raised in MN. The land and water is like no other. I pay taxes in MN, I work in MN. I have boats registered there. We have discontinued all further development of our property until this is figured out. Please reconsider the continuation of this EIS and the project until we can comfortably say this mining will not now or ever damage our beautiful land and water. Thank you, Barbara Curphy 4989 S. Rockmont Rd Poplar, WI. 54864 Sent from my iPad

Barbara Downham 39751

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Barbara Downham 4141 Arbor Ln Eagan, MN 55122-2893 (651) 454-2818

Barbara Durbin 42822

See attachment

barbara erickson 46649

To Whom it Concerns at the MN DNR and State of MN: I am opposed to copper/nickel mining in MN. I am opposed to a foreign company mining on our soil China has a poor history of protecting its environment and people. Water is a huge natural resource , and in shortage worldwide. It is only going to get worse as time goes by. We should protect a very important resource for the planet as well as humans. In the short run this allows us to continue tourism to a very pristine place. In the long run it protects generations. The decisions we have made in the last 100 years have decimated the planet . 20 years of jobs for what this will do to the land, air and water , is shortsighted. It will not provide a man or family with a lifetime of work and wages. Please do the right thing , not the shortsighted money decision. Thank you for opening this to the Citizens. Barbara Erickson 104 West 36th St Minneapolis, MN. 55408

Barbara Fleishman 17662

Thank you. I don't want to lose anymore of these precious birds d/t environmentally unsound practices by humans.. On Sat, Feb 15, 2014 at 5:53 PM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd - Barbara Fleishman

Alphabetical by sender's first name

Barbara Fleishman 17664

Feb 15, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Ms Barbara Fleishman 5522 Century Ave Apt 4 Middleton, WI 53562-2029

Barbara Garet 24482

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please, please think long and hard about the consequences of the PolyMet Mining Corp. NorthMet mining project. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. This type of contamination can have drastic effects on future generations of humans and animals, even to the point of extinction of species. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt It MUST be prevented. It is incomprehensible for a project of this nature to be planned for PROTECTED NATIONAL FOREST LAND. Sincerely, Barbara Garet 13384 Ravine View Dr Grand Haven, MI 49417-9165 (616) 847-3576

barbara goodman-fischtrom 38897

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms barbara goodman-fischtrom 5600 Mahoney Ave Minnetonka, MN 55345-5119 (952) 975-0065

Alphabetical by sender's first name

Barbara Hughes 39069

---Original Message--- From: dlhuskins@hotmail-com [mailto:dlhuskins@hotmail-com] Sent: Tuesday, March 11, 2014 8:37 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, barbara hughes 2624 Windsor Ln Saint Paul, MN 55125-2792

Barbara Imes 42624

See attachment

Alphabetical by sender's first name

Barbara Janssen 9963

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Barbara Janssen 7356 Quantico Ln. N. Maple Grove, MN 55311

18719

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Barbara Janssen 7356 Quantico Ln. N. Maple Grove, MN 55311

Alphabetical by sender's first name

Barbara Janssen 50794

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Barbara Janssen 7356 Quantico Ln. N. Maple Grove, MN 55311

Barbara Johns 40298

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Barbara Johns 693 Yorktown Road Lewisberry, PA 17339 US

Barbara Jones 42541

See attachment

Alphabetical by sender's first name

Barbara Kantola 38839

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Barbara Kantola 835 Platt St Niles, MI 49120-1535

Barbara Kittinger 48155

See attachment

54804

See attachment

Barbara Mathes 40991

Mar 9, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Mrs Barbara Mathes 1431 Alisa Ct Rio Rico, AZ 85648-1062

Alphabetical by sender's first name

Barbara Monks 39129

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms barbara monks 420 Minnie St Trlr 5 Paynesville, MN 56362-1800

39165

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Barbara Monks 420 Minnie St Trlr 5 Paynesville, MN 56362-1800

Alphabetical by sender's first name

Barbara Naber 39573

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the TIME. ine should not be built as described. NO PROJECTS OF ANY SIZE SHOULD BE APPROVED TO GO FORWARD UNLESS CLEAN ENERGY IS USED. IT IS CRAZY WHAT HAS BEEN ALLOWED IN THE PAST 50 YEARS. IT DOE NOT TAKE A COLLEGE EDUCATION TO KNOW AND SEE ALL THE DAMAGE DONE IN THIS SPAN OF TIME. THESE GREEDY PERSONS MUST NOT HAVE GRANDCHILDREN THEY CARE ABOUT. .. PLEASE CONSIDER WHAT IS HAPPENING TO ALL HUMANITY BY MANY BAD DECISIONS. THANK YOU. Sincerely, Ms Barbara Naber 723 Evergreen Ct Burnsville, MN 55337-4672 (952) 210-8021

Barbara Nelson 42768

See attachment

Barbara Peterson 7153

I believe PolyMet has done their due diligence and has provided a detailed and thorough SDEIS. I feel they are responsible and capable of managing this project. This study proves they are committed to the environment. The number of jobs PolyMet would create would be a huge benefit to the Iron Range and increase the tax base which in turn benefits our local economy. Including families, schools,and merchants. This is a project that the Range hasn't seen the likes of in decades. It's time to put Iron Rangers to work and prove to the rest of the country that we can do this right. Barbara Peterson 401 Douglas AVe Eveleth, Minnesota 55734 The views and opinions expressed in this message my own. I am solely and individually responsible for the content. This is not intended to represent or reflect anyone else’s views or opinions, including those of my employer, ALLETE, Inc.

Barbara Raye 42034

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Barbara Raye Mpls, Minnesota

Alphabetical by sender's first name

Barbara Ritter 57245

I am concerned about the impact the proposed mine will have on the state's water. The plan for treating polluted water does not have enough detail. How will this be paid for in the future? Is having polluted water for hundreds of years a reasonable by product of this mine? Please don't sacrifice our water resource for the mine.Barbara Ritter2117 Sioux BlvdNew Brighton, MN 55112

Barbara Ronningen 44833

I am totally opposed to the Polymet project in northern Minnesota. To me, the risks are too great in a pristine environment. I am more concerned about the rush job the DNR has taken on comments. I agree with the Minnesota 2020 piece on the very short comment period. See http://www.mn2020hindsight-org/view/trust-me-the-polymet-comment-period-was-too-short.utm_source=emailandutm_medium=emailandutm_campaign=polymet Makes one wonder who's pushing this - citizens, environmentalists or more likley Polymet. BJR Afton, MN Laughter is the sun that drives winter from the human face. Victor Hugo HYPERLINK "http://www.goodreads-com/author/show/1673-Thomas_Jefferson" Barbara J Ronningen,Chair 2014 NALS Show http://allstarlilies-org/ July 9-13 in Bloomington, MN

Barbara Sellers 45687

Dear Ms Fay: 1- Polymet's mine plan fails to address mitigating the environmental impact of the mine by using underground mining, rather than open-pit mining. If the financial cost is currently too great to justify underground mining, the metals should be left in the ground until the demand for them justifies the cost of underground mining. 2- The precious metals that Polymet proposes to mine would currently be available in sufficient quantities if previously-mined metals were reclaimed and recycled. Polymet's mine plan fails to address mitigating its environmental impact by reclaiming and recycling previously-mined metals instead of digging any mine, whether underground or open pit. Thank you. Barbara S. Sellers 1875 Juliet Avenue St Paul, MN 55105 HYPERLINK "mailto:BarbaraSellers1947@msn-com"BarbaraSellers1947@msn-com

Barbara Snyder 58063

This type of project is just nonsense - big money destroying our state! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Barbara Stamp 40006

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Barbara Stamp 6901 W 84th St Apt 216 Bloomington, MN 55438-1188

Alphabetical by sender's first name

Barbara Stamp 52293

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Barbara Stamp 6901 W 84th St Bloomington, MN 55438

Barbara Teawalt 23422

Mar 4, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Barbara Teawalt 11234 Isanti Ct NE Blaine, MN 55449-6113 (763) 780-4691

Barbara Walker 14210

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, I despair at how often, with regard to safeguarding our environment and wildlife, our country engages in repeated forgetfulness, denial, rationalization, negligence, spite. Mining results in toxins that almost always eventually leak or leach or belch into our waterways, soils, air. Enough.. As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Ms Barbara Walker 5450 Windsong Ct Morrison, CO 80465-2177

Alphabetical by sender's first name

Barbara Wirth 16942

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Barbara Wirth 4834 33rd Ave s. minneapolis, MN 55417

51034

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Barbara Wirth 4834 33rd Ave s. minneapolis, MN 55417

Alphabetical by sender's first name

Barry Babcock 39440

The Polymet non-ferrous sulfide mining proposal should not be allowed. The lakes and rivers in N MN are a national asset. Few if any states have the abundance of relatively clean waters we do. The historical evidence of contamination from sulfide mining is too risky to place our waters in jeopardy. The MN DNR should be more protective of our clean water assets than catering to the wishes of industry. According to "Earth Works" a 2008 study shows that the American taxpayer is stuck with a 70 billion dollar cleanup cost for sulfide mine AMD in our waters. We would be foolish to risk our waters to a 20 or 30 year mining project. Barry W. Babcock 38998 315th Ave Laporte, MN 56461 solaris@paulbunyan-net

Barry Bissonett 43007

This is a letter that my wife (milli) and I wrote. I want this copy submitted for my name as well – Barry R. Bissonett. Thank you.

Barry Peterson 38618

Rpepresentative Kahn and Lisa Fay, I just learned of this concern on Monday, March 10, 2014- How is it that a 90-day response period will end on March 13, 2014 when citizens have not had an adequate time to know about the horrific pollution this will cause in inhabited regions, and near regions where a substantial water table exists. The comment period should be extended until June 10, 2014- Barry N. Peterson 1600 South Sixth Street - 334 Minneapolis, MN 55454 USA HYPERLINK "mailto:encourageothers@gmail-com"encourageothers@gmail-com 1-612-276-6266 On Tue, Mar 11, 2014 at 6:23 PM, Phyllis Kahn <HYPERLINK "mailto:rep.phyllis.kahn@house.mn"rep.phyllis.kahn@house.mn> wrote: State Rep. Phyllis Kahn NEWS RELEASE Minnesota House of Representatives District 60B HYPERLINK "tel:651-296-4342"651-296-4342 – HYPERLINK "mailto:rep.phyllis.kahn@house.mn"rep.phyllis.kahn@house.mn 365 State Office Building, St Paul, MN 55155 FOR IMMEDIATE RELEASE CONTACT: Tim O'Brien Communications Specialist HYPERLINK "tel:%28651%29%20296-8877"(651) 296-8877 tim.o'HYPERLINK "mailto:brien@house.mn"brien@house.mn March 11, 2014 REP. KAHN HAS CONCERNS ABOUT POLYMET PROPOSED NORTHERN MINNESOTA MINE St PAUL – Rep Phyllis Kahn (DFL-Minneapolis) said in a statement on Tuesday that she has serious concerns about PolyMet's proposed open-pit mine and ore processing facility near Hoyt Lakes and Babbitt. While she believes the environmental impact will be significant, her statement stuck to the issue of financial assurance. Her statement will be part of the public record of review and comment called for by the Department of Natural Resources regarding the controversial proposed copper-nickel mine. The Canadian mining company has proposed building the first of what could be a series of many copper-nickel mines in the state. The area for the possible mines is just east of the Iron Range north to the edge of the Boundary Waters Canoe Area Wilderness. Kahn's statement is: The scope of the PolyMet NorthMet SDEIS [Supplemental Draft Environmental Impact Statement] is seriously lacking. This is especially the case when the issue of financial assurance is concerned. I have three points: I. In chapter 3, pages 136 to 138, you list information that includes the preliminary cost estimate of closure. The source cited is "Foth 2013-" I've looked at the Foth memo cited in the SDEIS. The Minnesota DNR has simply copied information from PolyMet's hired consultant without confirming or fact-checking their work. If the Minnesota DNR and its co-lead agencies are unable to fact-check the work they presented on financial assurance, how are we to expect that they are capable of the adequately protecting the citizens of Minnesota. II. This project should not go forward unless a third-party insurer, such as Lloyd's of London, can be found. The simple fact is, if a third-party private entity will not take on PolyMet, the state shouldn't. Private insurers have expertise in managing risk that the State of Minnesota can't match. Additionally, policymakers could tap the assurance funds for other purposes. Private insurance is clearly superior to a state managed approach in this case. III. In the SDEIS you say that financial assurance will be done in the Permit to Mine stage. Looking at the most recent MinnTac Permit to Mine document, there is one short paragraph on financial assurance. This project shouldn't go forward without robust public debate, and the opportunity for legislative hearings, if what we can expect is a paragraph from the DNR in the Permit to Mine phase. You must ensure that the public, including financial experts and those elected to represent the citizens of Minnesota, have a chance to weigh in on financial assurance. It has not been your practice to do so in the past; will it be in this case. The

Alphabetical by sender's first name

Barry Peterson 39706

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. ********** Regardless of the fact that this type of mining has never been done before, this toxic mining organization will be harming both wildlife and humans for over 500 years. There is just too much ground water around that area to risk poisoning citizens and guests who depend on potable water. I vigorously request that this project be denied in a steadfast, solid, and intolerable manner. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Barry Peterson 1600 S 6th St Apt 334 Minneapolis, MN 55454-1615

Barry Shoultz 20022

I am opposed to the mining proposal due to likely negative impacts on our natural resources which may never be corrected once they occur. Barry Shoultz 5182 Moline Road Kellte River, MN 55757 612-751-7359 phone HYPERLINK "mailto:shoultz@comcaStnet"barry@shoultzadvertising-com

Barry W. Tungseth 10161

To the Minnesota DNR, in regards to the Polymet mining situation in Northern Minnesota . Rebecca Otto has it correct when it comes to Polymet putting it`s money where it`s mouth is. The claim they have made, is that they will be around to monitor the mine site and it`s holding and run-off ponds for 250-500 years. That is longer than Minnesota has been a state. Facts are, all ANY company has to do in this state, is to go bankrupt, and the taxpayers are held up to paying the coSt Minnesota knows it, the public knows it, and the companies know it. Also, for a 20 year life span of a mine that will not even complete the working lifetime of one single long term employee, the risks out weigh the bennies. In 20 years or so, the entire area here in Northern Minnesota will be right back to ground zero, and will be going through exactly the same set of long term employment problems, and economic depression all over again. Those who tout the saying, "Mining supports us", must be talking about someplace else in Minnesota, because it hasn`t done it here in northern Minnesota at all. In the last 10 years, while our economy was turning into depression, the stell and mining companies made RECORD PROFITS, while those who were the labor force, went into record unemployment. Most sought everything from state and federal help, after their unemployment bennies ran out. THAT made them fall out of the "count of those unemployed". Mining has a proven track record of "NOT supporting us" should be the slogan. An example of the public held at bay via a mining company would be the status of state HWY 53 through Virginia .WE THE PEOPLE of Minnesota will be paying to move an entire highway because of the companies mining "rights". Taking THAT into effect, just how can this state look at the Polymet statement of , "we`ll be here for over 250 years to monitor at no cost to you the taxpayer, as truth. Let alone belive their propaganda that says they have figured out how to mine it correctly, when they have no there mine using the Tec. they claim they perfected. They can`t show one ounce of proof to that at all. Clean water is FOREVER. Mining is not. Period. I`m against the Polymet mine, and agree with Rebecca Otto put your money where your mouth is first, and prove the things that are claimed as fact before even looking at opening any new mine in Northern Minnesota. Thank you, Barry W. Tungseth 13898 Romberg Shores / P.O. Box 537 Ely, Mn. 55731 Phone:: 218-365-7112 Email:: HYPERLINK "mailto:fernbergbear1953@aol-com"fernbergbear1953@aol-com

Barry Wolfe 42700

See attachment

Bart and Lynn Galle 54498

See attachment

Alphabetical by sender's first name

Bart and Lynn Galle	54499
See attachment	
Bart Sutter	11356

The moose population has been dropping precipitously in northern Minnesota over the past two years, yet the SDEIS offers no detailed analysis of the possible effects of the proposed NorthMet operation on moose. Why is that. Sincerely, Barton Sutter 1321 East 8th Street Duluth, Minnesota 55805

Barton Sutter	42705
See attachment	
	42776
See attachment	
Basil Loney	54868
See attachment	

Alphabetical by sender's first name

Bea Eichten 16276

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Bea Shemberg 40325

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Bea Shemberg 13228 Central Ave, Unit #101 Hawthorne, CA 90250 US

Beacoms 5949

Just wanted to provide comment that I am fully against the proposed mining projects in NE Minnesota. Thanks Joe Beacom 4856 Louisiana Ave N. Crystal, MN 55428

Becca Krasky 57190

As a local youth environmentalist, I care deeply about the state of Minnesota and our pristine north woods and the BWCA. I can’t imagine the havoc and destruction Polymet mining near the Boundary Waters would cause. Please consider the generations of future Minnesotans that could be impacted by your decision. Think about the well-being of Minnesotans. Our wilderness is priceless.Becca Krasky3436 41st Ave SMinneapolis, MN 55406

Beck Austin 39709

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. We have had a family cabin up north for over 50 yrs. The changes we have seen have been very concerning. we used to have tons of green frogs, cray fish and yes even leeches. I don't know how long it has been since we've seen them but it has been long while. Though you may think you may not see any changes but believe me they do happen faster than you think. We are suppose to be good stewards of the land. This is not about jobs etc It is about taking care of what we have been entrusted with. Please think long term. Don't be short sighted. Like they say "pay back is a Bi .". And the pay back would be polluted water,soil and air. Look what has happened to W VA and the oil from the gulf spill has been making it way down the coasts and they have found it is make the sea life sick.. Leaks and spills can never be cleaned up, really they can't. Please don't allow this to happen Please. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Beck Austin 3145 44th Ave S Minneapolis, MN 55406-2313

Alphabetical by sender's first name

Beck Austin 48874

Mar 10, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. We have had a family cabin up north for over 50 yrs. The changes we have seen have been very concerning. we used to have tons of green frogs, cray fish and yes even leeches. I don't know how long it has been since we've seen them but it has been long while. Though you may think you may not see any changes but believe me they do happen faster than you think. We are suppose to be good stewards of the land. This is not about jobs etc It is about taking care of what we have been entrusted with. Please think long term. Don't be short sighted. Like they say "pay back is a Bi .". And the pay back would be polluted water,soil and air. Look what has happened to W VA and the oil from the gulf spill has been making it way down the coasts and they have found it is make the sea life sick.. Leaks and spills can never be cleaned up, really they can't. Please don't allow this to happen Please. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Beck Austin 3145 44th Ave S Minneapolis, MN 55406-2313

Becky and Jack Hustedt 58000

I agree that we can't continue to destroy our environment - especially for supposed "energy" mining. We need to find alternate energy sources, & projects for jobs. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Becky Ault 44084

To Whom It May Concern: I feel strongly that sulfide mining should not be allowed in NE Minnesota until it has been thoroughly explored. Citizens like myself (I am an 83 year old farmer) must be heard before letting it be done. This is a democracy and my point must be heard. Dwight Ault 51564 262 St Austin, MN 55912

Becky Erickson and Dan Sullivan 40122

I would like to express my strong opposition to granting the permit to pursue this copper mine project. While the SDEIS indicates few cumulative effects, there are many unknowns and a significant number of assumptions contained in that report. We know for certain that other similar mines have had measureable adverse environmental impacts. We also know that mining companies have poor track records for safety and environmental concerns. Given the fragility of the environment in the vicinity and the potential for long term adverse impacts, I would encourage the DNR to decline this permit. It would be unfortunate to allow a short term economic interest endanger long term environmental balance. I will watch the proceedings with great concern. Sincerely, Daniel Sullivan 857 Lincoln Avenue St Paul, MN 55105

Alphabetical by sender's first name

Becky Hall 41645

I'm writing to submit a comment on the Supplemental Draft Environmental Impact Statement (SDEIS) for PolyMet Mining's proposed NorthMet project. For almost a decade, PolyMet has been going through a permitting process with several, highly rigid and regulatory agencies to develop a plan that addresses issues concerning safe copper mining in Northeastern MN. Having participated in the public comment events, reading the SDEIS, visiting with PolyMet officials at their site as well as reviewing information provided by the three governmental co-lead agencies (MNDNR, USACE and USFS), I am very confident that each entity has done thorough and extensive work to address the environmental concerns of this project and it should be permitted to move forward with its construction and production of the mining facility at the former LTV site in Aurora, MN. PolyMet's SDEIS, in partnership with the three co-lead agencies, overwhelmingly addresses many facets of the environmental impact of this project. However, initially I did have some concerns regarding the 200-500 year ground water flow model and after further review of all the pertinent information, I believe there is a bit of misinformation regarding the model from those who oppose this project. The argument I'm hearing in the community states that it's next to impossible to expect a mining company to mitigate any environmental hazards for 200-500 years. My understanding is that this model was created to show that, due to the water flowing ever so slowly through the stream system from the site to its end point being Lake Superior, that the model is based on that movement of water taking somewhere between 200-500 years to make it to its endpoint. By the time, such water from site empties into Lake Superior, the acidic level is well below the co-lead agencies requirements. The argument that it will take 200-500 year to treat the water from the site is factually incorrect. What the model does show is that PolyMet can comply with Minnesota's laws, some of the strictest in the nation, regarding environmental protection of its lands and water. I also learned, after visiting PolyMet, that even at the site, should any water inadvertently escape the "lined" tailings basins, its acidic level (after being treated at the site) is well below the agencies requirement as well, about the same acidity as milk for that matter. Additionally, PolyMet has already committed somewhere between $100 – 200 million for water treatment, clean-up and mitigation once the plant is closed. Along with already investing millions of dollars in the permitting process over the last decade, PolyMet is also committed to investing millions more in leaving its home, once the mining is complete, in the best condition as it received it. Under the ground near Aurora, MN lies the second richest resource of precious metals in the world. And here in this region, with PolyMet, it can be mined safely and within the rigid regulations of our governmental agencies. I support this project wholeheartedly rather than remaining dependent on these resources coming from other countries with less environmental regulation and more harm to their environments. Aside from the environmental impact of this project which I believe has been thoroughly addressed by the company and the governmental co-lead agencies, this project has a huge economic impact on our region creating hundreds of great paying jobs for families – 360 full-time jobs, 600 more related jobs, 2 million construction hours, and increased tax revenue that benefits our communities and education system. It's time to support our region's families and communities by putting folks to work. It's irresponsible to import these metals from other countries and export our jobs when we can mine safely here in Minnesota. I look forward to an exciting and promising future for the Iron Range and our region with companies like PolyMet at the helm providing safe opportuni

Alphabetical by sender's first name

Becky Larson 16060

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Becky Milanese 54766

See attachment

Becky Richardson 54826

See attachment

Alphabetical by sender's first name

Becky toner 45535

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Becky toner PO Box 325 Grand Marais, MN 55604

Becky Zientek 45149

Hello, I am opposed to nickel/copper sulfite mining in Northeastern MN because my understanding is that it has never been done before without polluting the water where these mines are located. I live outside Ely, just 3 miles from where Twin Metals has one of their proposed sites and I am extremely concerned about how it will affect my well water and general quality of life from traffic, noise, mine construction, etc I know this is not about the Twin Metals sites, but if Polymet gets their's approved, it would seem that Twin Metals would be allowed in as well. I am all for good paying jobs, but it is just too risky and not worth the harm I believe these mines will very likely cause. Time and again you read about environmental disasters and the companies that cause them who fight tooth and nail not to pay what they should for a proper cleanup or declare bankruptcy and leave taxpayers with a large cleanup bill along with the wrecked environment. Clean air and water are priceless resources that belong to millions of Minnesotans and should not be risked for a hundred or even thousand jobs. The short term benefits just do not add up to outweigh the very real likelihood of the long term negative effects. Thank you, Becky Zientek 1587 Saari Rd Ely MN 55731 Beckyzientek@gmail-com 218-365-3447 Sent from my iPad

45169

Hello, I am opposed to nickel/copper sulfite mining in Northeastern MN because my understanding is that it has never been done before without polluting the water where these mines are located. I live outside Ely, just 3 miles from where Twin Metals has one of their proposed sites and I am extremely concerned about how it will affect my well water and general quality of life from traffic, noise, mine construction, etc I know this is not about the Twin Metals sites, but if Polymet gets their's approved, it would seem that Twin Metals would be allowed in as well. I am all for good paying jobs, but it is just too risky and not worth the harm I believe these mines will very likely cause. Time and again you read about environmental disasters and the companies that cause them who fight tooth and nail not to pay what they should for a proper cleanup or declare bankruptcy and leave taxpayers with a large cleanup bill along with the wrecked environment. Clean air and water are priceless resources that belong to millions of Minnesotans and should not be risked for a hundred or even thousand jobs. The short term benefits just do not add up to outweigh the very real likelihood of the long term negative effects. Thank you, Becky Zientek 1587 Saari Rd Ely MN 55731 Beckyzientek@gmail-com 218-365-3447 Sent from my iPad

Alphabetical by sender's first name

Ben Christiansen 39799

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. An impact study would be the very least you could do for the public. We Minnesotans take pride in our pristine land. Consider the public's well being as much as you consider the opportunity for profit. Please make a balanced decision and don't let the motivation of greed after your decision. Sincerely, Ben Christiansen 6425 W Franklin Ave St Louis Park, MN 55426-2107

Ben Cushing 40128

_____ From: benjamin@greencorps-org [benjamin@greencorps-org] Sent: Monday, March 10, 2014 4:43 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Ben Cushing 2232 Vermilion Rd Duluth, MN 55803

Alphabetical by sender's first name

Ben Davis 40012

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Ben Davis 3514 Riviera Rd Sartell, MN 56377-9761

Ben Hoidal 48194

10 new people recently signed Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota." on Change-org. There are now 400 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 400- Ben Hoidal Forest Lake, Minnesota 399- Aaron Klegin Coon Rapids, Minnesota 398- Audrey Reinhardt Saint Paul, Minnesota 397- Julia Kloehn Minneapolis, Minnesota 395- Laura Jones Saint Paul, Minnesota 394- Debra Luetmer Morris, Minnesota 393- Peter Boever Morris, Minnesota 392- Troy Goodnough Morris, Minnesota 391- Sanjay Dhir Minneapolis, Minnesota 390- Ian Miles Northfield, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJmaXZlX2h1bmRyZWQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTMwLCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA3Njg5NDZ9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVKzOa9DHdeRxJiLjbOroaeSpNMKhc78hUvEmjNIf5uFec-2BY-2Bog8EK5b-2FdwnmIAwducj4nv6gpYjppRDbGiacoiViSghqhjIq4QgLXWBKi7NeB0cKEOv-2FluQB76IQz6d2z2VSb-2B05DN6cpUuayy99mcCWC7qARXiaJYciyV1cEhkKpLWMa2fqclnZBwCupOAfe-2Feuy9QQcsP0ieym1o65bImkh21N-2BjWgQ-2FABAN9SePWV3

Alphabetical by sender's first name

Ben Isbell 52493

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Ben Isbell 6016 north pike lake road Duluth, MN 55811

Ben Miller 21290

To Whom It May Concern: The reuse of brownfield sites and existing infrastructure make this project a very low impact operation. The proposed environmental mitigation meets or exceeds the requirements as shown by the provided documents. Regards, Ben Miller

Alphabetical by sender's first name

Ben Niessen 41187

Dear Ms Fay, 9 March 2014 Marquette, MI 49855 Dear Ms Fay, Mr Bruner and Mr Dabney: My addition to the following information relates to forty-five years of living in Marquette County Michigan. Mining has been part of life here for over 100 years. The cumulative effects of mining can be seen everywhere. Two groups of people have benefited from mining; those who own the corporations, companies and businesses who supply the particular mine, and the group of people who are their employees-those whose who do the heavy lifting. Efforts here to forbid or restrict mining have always failed. It is primarily about the power of money, pure and simple. All of Earth has been degraded for profit. I look at a Google map of areas I explored as a child-now I can only see the orange tailing pools, where once was nearly virgin forest towering high above, and plant life on the forest floor seemingly gone forever. Doing no harm at all may be a dream, but mitigation of harm should not be in the category of wishful thinking. The mining companies of the present and future should be forced to jump through as many hoops as scientists and environmentalists can design. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, f

Ben Senauer 58058

Claiming environmental safeguards can prevent pollution from this mining is a JOKE! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Ben Trump 41606

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Ben Trump 8750 Georgia Ave Apt 303b Silver Spring, MD 20910-3610

Alphabetical by sender's first name

Ben Wagner 45344

Benjamin Wagner 329 West Arrowhead Road Duluth, MN 55803 To Whom It May Concern: As a concerned citizen and resident, I feel compelled to draw your attention to certain portions of the industrial copper mining plan which fall short of providing a clear picture of a safe future for Northern Minnesota. As I understand, the plan allows for the industrial mining interest ('PolyMet') to simply state that it plans to contain any contaminated waste water from this operation, additionally planning to 'treat' any contaminated waters for up to and beyond -five-hundred- (500) years. All this, in the midst of a vast, complex system of inter-connected waterways which serve as habitat for many of our state's treasured residents, including Common Loons, Moose, Lynx, as well as many precious plant species including Wild Rice, Labrador Tea, orchids, and many other incredible residents of this state. How can a responsible plan, which supposedly(.) aims to protect and preserve the future interests of the state, as well as the common citizen and local resident, allow for a plan with abstractions such as "500 years" of ongoing water treatment. In considering such a mine project, I think to myself, as one regulating the issue must think too; 'What was going on 500 years ago around this region of North America.' And, more important in this discussion, 'What will be taking place on this continent in another 500 years.' THINK about the spans of time you are considering. THINK about the habitat and animals whose futures you are sending towards doom if this mine becomes reality. Can we really say, in an -HONEST- assessment of human civilization at this point in history, that we are in some golden age, at some point of collective stasis that will continue and reign dominant over the course of 500 years.. HAH. Has anyone considered where we will be in even 100 years. Any plan that talks about ongoing water-quality issues that will require intensive treatment at timescales of 500+ years is obviously extremely risky and requires extremely careful examination, creative and open foresight regarding all possible futures, and probably should involve lots of effort towards gathering public input (for many different reasons). As a citizen of this state I demand that you be honest about water quality issues surrounding this mine, and provide us with a REAL plan to treat contaminated water. If the plan calls for water to be contaminated, perhaps it is a bad idea in the first place, since it clearly is a plan that threatens the well-being of human and non-human residents and future residents of this state. What happens when(not if) the mine pollutes surrounding waters, and let's say anecdotally, the mining company is dissolved and/or goes bankrupt. Who will pay for further maintenance of the polluted waste site. Who will oversee water issues. Will I, as a taxpayer, be charged to maintain what was destroyed to create profits for others. This subject of water quality and future maintenance of the site is clearly worth discussing for hours, perhaps days or week on end, and is only one of many issues surrounding this mine project which did not receive adequate public discussion. This is only one of quite a few grievances I have with the plan being offered. You also need to HONESTLY address issues of habitat destruction and impacts of stress on local inhabitants (MOOSE anyone.), regional human health impacts of mining, effects on local infrastructure, noise pollution in surrounding wilderness areas, HONEST information on local job creation associated with mining, and most importantly, HONORING THE EARTH. I happen to have a deep connection with Loons, and am very concerned about your plan to seriously impact a favored area of one of the most enchanted, magical creatures of this landscape. Please provide me with details of how you will meet the requirements of guiding us into a safe and livable future in this part of Northern Minnesota. Sincerely, Benjamin W

Ben Wolfe 42701

See attachment

Benjamin A. Sullivan 43004

Benjamin B. Eide 42450

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I am writing to state my strong opposition to the PolyMet mine. Our lake and waterways are what help make Minnesota a great place to live. And Lake Superior is not only a state or national treasure but a ONE OF A KIND treasure that is vital to our state. Please don't risk polluting it for a few jobs and a few dollars. We have to much to lose. Please don't go down that slippery slope of allowing non-enviromently friendly industries to destroy our states future beauty. Thank you for your time , Sincerely, Mr Benjamin B. Eide 519 Heinel Dr Roseville, MN 55113-2108 (651) 245-8538

Alphabetical by sender's first name

Benjamin Cook 51560

Dec 24, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I have witnessed sulfide mining firsthand in South America. The waste-water from sulfide mining damages the ecosystem around the mine, as well as everything downstream from the runoff. Studies show there is not a possibility long term pollution, but a certainty. It doesn't belong in Minnesota. The companies that own the mines will reap the profits and then leave, forcing the citizens of Minnesota to deal with the damage to the health of humans as well as wildlife. There is no guarantee that any company will be around long enough to sufficiently correct all of the damage done, no matter what these companies promise in the beginning. However, there is a guarantee that damage will be done to the natural environment, especially the irreplaceable Boundary Waters Canoe Area Wilderness. Destroying the beauty and health of the state of Minnesota is not worth creating a few hundred temporary jobs. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Benjamin Cook 6805 Athena Way Inver Grove Heights, MN 55077-2413 (651) 492-1640

Benjamin H Johnson 43031

Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay: Attached as a PDF file, please find my comment on the Polymet mining proposal. Thank you for your consideration. Sincerely, Benjamin Johnson - Benjamin H. Johnson Associate Professor, Global Studies and History University of Wisconsin-Milwaukee P.O. Box 413 Milwaukee, WI 53201 johnsobh@uwm-edu 414-229-5204 http://www4-uwm-edu/letsci/history/faculty/johnson.cfm

Benjamin Johnson 38724

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Benjamin Johnson 11 Daniels Farm Rd Saint Paul, MN 55110-5211

Benjamin Krohling 52291

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Benjamin Krohling 1819 5th Street South, 104 Minneapolis, MN 55454

Alphabetical by sender's first name

Benjamin Tsai 58160

I regularly go to the Boundary Waters and surrounding areas for camping and fishing opportunities. Iwant to voice my opposition to the PolyMet mine plan because I do not want us to endanger thesethese beautiful areas with long-term mining pollution.In 2010, the U.S. Environmental Protection Agency gave the Poly Met sulfide mine environmentalstudy a failing grade, saying that the study itself was "inadequate" and the sulfide mine project wouldbe •'environmentally unsatisfactory."The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't analyzethe effect of pollution on workers' health or on nearby drinking water wells. It doesn't explorealternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect thatPoly Met's sulfide mine, combined with other mines, would have on toxic pollution, like mercurycontamination of fish.The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake SuperiorBasin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surfacewater and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, andimpair health of adults and children.PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings andwaste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge Riversurficial waters "would continue in perpetuity."Please reject the Poly Met SDEIS and deny permits - like a permit to mine or a Section 404 wetlandspermit-- that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, ifnot forever.

Benji Pajari 42664

See attachment

Bentleydog 21277

Thank you for this opportunity to comment. We vacation in northeastern Minnesota every year and we are concerned about the long-term environmental impacts of mining sulfide-bearing rocks. We have read the DEIS and our concerns about the adequacy of the DEIS are included below. Please forward the land exchange comments to the Forest Service. · Land Exchange: The DEIS does not adequately address all the biological and land use issues with the land exchange. Additional information on the natural heritage and timber resources of the exchange lands need to be gathered. In the long run, the public is best served if the public gains much more public land than it gives up. The exchange ratio should be at least 2 to 1- · Storage of Tailings: To prevent the oxidation of sulfide tailings a tailings basin must be designed to secure those tailings forever. Forever is a very long time. No made-made structure can be designed to last forever so at some point in the future the tailings storage facility will be compromised. At some time in the future the people of Minnesota will have to pay for and clean up the failing tailings storage facility. Large amounts of money put aside today for future remediation will fall short of what is really needed. Millions of dollars today will equate to pennies in the distant future. The DEIS should make very clear that the tailings storage facility will not last forever and at some time in the future the people of Minnesota will either pay huge amounts for a cleanup of endure sulfide pollution. Thanks again for this chance to comment. Ron and Jan Eckstein 5059 Sunset Dr Rhinelander, WI 54501

Berdena Antilla 54152

I do NOT support Polymet mining NO. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Bernadine Rolle 54148

NO! Save our water! Visit Sudbury Ont. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Bernard Malacina 29436

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt I have personally worked in the BWCAW as a outfitter and have taken several canoe trips into this pristine area. I can't believe any company would want to endanger this area where you can actually drink from the lakes. I have had people from Denmark come to this country just to canoe in this area. Please stop putting our public lands into destructive companies hands. Sincerely, Bernard Malacina 215 N True St Griffith, IN 46319-2645 (219) 922-9081

Bernard Schmidt 39618

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Bernel Bayliss 15746

See attachment

Alphabetical by sender's first name

Bernice Norregaard 10440

After working for both Reserve Mining Co and Northshore Mining Co I was able to retire with healthy lungs in 2010- I saw how environmentally sound their practices are and know how the air and water is tested for contaminants. Any water (even rain water) leaves the property cleaner than when it cam in. I would expect that the State and Federal government would be just as strict with the non-ferrous as they are with the taconite mines. The mines offer a quality way of life with a great respect for the environment. I believe that it is better to have the mines in Minnesota with its tough laws than in third world countries where they don't care how they pollute the air and water and they have no regard for the safety of their employees. We would not have children working for little of nothing so that big corporations can get even bigger profits. We have to care about those far off countries, because their polluted air and water does make it to North America. Not only are the mines scientifically safe, but they add tax dollars to the local, state and federal coffers. Those of us who have lived here all or most of our lives are proud of how we have maintained or beautiful Arrowhead Region, we won't turn our "back yard" into a sewer. We will demand responsible mining practices. We can have both mining and clean air and water. Bernice Norregaard

39844

I believe that the environmental impact studies will show that Polymet's plan to operate an mine on the Iron Range are very sound and will not adversely affect the air or water of NE Minnesota. In Minnesota we have strong environmental laws and the mines are monitored regularly to insure that they don't pollute. It is much better to have the mines here, where they will add to our productivity, rather than in third world countries that exploit not only the land, but the people as well. Bernice Norregaard PO Box 351 Babbitt, MN 55706

Bernie Baltich 42580

See attachment

Bernie Schlafke 44588

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Bernie Schlafke 1029 Spaight St C6 Madison, WI 53703

Alphabetical by sender's first name

bernita flynn 38523

The Polymet project is a bad plan for Minnesota. Minnesota should be putting its efforts and funds into alternative forms of energy such as solar and even nuclear. Both would create more skilled jobs that pay higher wages that could employ our graduating college students who are now unable to find jobs. We must stop destroying our land and atmosphere and it is time to take other forms of energy seriously. The company says it will restore the land for 500 years following the sulfide mining. Really. They won't be around and our future generations will be the ones to suffer. I beg you please do not allow the destruction of our water supply and wildlife. Sincerely, Bernita Flynn 1310 32nd St NW Rochester MN 55901

Bert and Cynthia Weberg 57171

Have other sulfide mines been near a big body of fresh water? If so, what are/were the results? We would hate to be part of the generation that would allow Lake Superior and other great lakes to be poisoned.Bert & Cynthia Weberg1067 6th Street SEForest Lake, MN 55025

Bert BG Hyde 42868

See attachment

Bert Hyde 46196

This is my fifth letter. The others were sent by US Mail, and I'm emailing this one to get it in before the deadline. There is so much more to comment on. I've been reading carefully for months and have only reached section 5- I hope these letters will convince you that this SDEIS is so inadequate that at least it should be redone. Pg.3-136 Section 3-2-2-4 Financial Assurance Paragraph 2 - The wetland mitigation that would be constructed should require financial assurances. These wetlands would be in place before the mining process begins. They will be monitored throughout the "life" of the mining project. Hopefully information gathered throughout the monitoring process will aid in creating the best possible wetland outcomes - "best possible" means matching exactly the wetland in form and function with complex and interrelated species. Why are the financial assurances not spelled out in the SDEIS. These should stand to answer many of the "what if." questions raised in these SDEIS reviews. With all the pages of "infrastructure" that PolyMet has generated, it seems suspicious that they did not have the time, resources, or expertise to put together a complete and accurate financial assurance plan. Please have PolyMet submit a true financial assurance detailed statement. Please include financial assurances that include information that extends 500 years into the future. Please include information that would make clear how the state of Minnesota would not be financially liable for environmental clean-up if PolyMet goes bankrupt, dies, disappears, or otherwise "skips town." Pg. 3-158 Section 3-3-1-1 Priority 2, 2b through 2e The reasons that the land exchange should NOT take place: I ask that the USFS reconsider and then refuse the USFS land exchange. 2a and c Land that enhances recreational opportunities, public access, and aesthetic values. The area of the proposed land exchange includes much of the High Value Biodiversity, 100-mile Swamp wetlands. This area supports many varieties of life forms that are not common to other areas in Minnesota. Caltha natans and Felm Canadensis are but two. 2e. The Partridge River, among others, would be severely negatively impacted by this PolyMet project. The Partridge River flows into the St Louis River, then Lake Superior. Heavy metals and other toxic and carcinogenic pollutants would definitely be washed to the lake Superior waters. Please read pg. 4-157, paragraph 2, and Table 4-2-3-4- Wetlands 92% high quality. I ask that the USFS land exchange NOT go forward. Pg 3-158, Priority 2-2c Environmentally sensitive and/or ecologically rare lands and habitats. 2d Wetlands 2b Land needed to enhance or promote watershed restoration or improvements riparian areas. Pg 4-192 - 4-2-3-3 Threatened and Endangered Plan Species There are three state-listed ETSC plant species. Even though they are not federally listed, that does not weaken the argument that they are rare and unique individuals and deserve full protection. The land exchange would doom these plants and their community. The No Action alternative is the only fair and reasonable path. Pg 4-1732 Mn Biological Survey, paragraph 2 Two native plant communities: Black Spruce-Jackpine woodland (FDn32c) is 34% of the mine site and Rich Black Spruce Swamp are characterized by the MBS as "imperiled/vulnerable" and "vulnerable" - another reason for the No Action alternative. Pg 5-4, 5-2-1-2-2 paragraph 1, last sentence: "The USFS also requires preparation of associated reclamation plans to insure the long term protection and restoration of the natural resources." The SDEIS has not documented the "protection and restoration" of the natural resources. See pg 3-124, 3-2-2-3-1-2 PolyMet says they have developed a Reclamation Plan, but they WILL submit it to the MDNR (not USFS) as part of the permit process. These plans should have been included in the SDEIS for examination and evaluation by the public. I ask that these plans be included in the next dr

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54711

See attachment

Bert Weberg 54572

Some years ago, the acid rain resulting from emissions from coal fired power plants south of us was a problem for the northern Minnesota ecosystem. Would the acid resulting from the extraction and processing of the sulfide ores present the same problem?

54573

In other sulfide mine sites, as in So. Africa, have there been problems with dust from the mining process? We worry about the workers and flora/fauna in nearby forests.

Alphabetical by sender's first name

Beryl Schewe 40146

I am writing to voice my deep concern about PolyMet's proposal for copper and nickel mining in the Masabi Iron Range. I am deeply concerned that pollution to this pristine area of our state will be potentially devastating. Can we realistically accept a plan that demands remediation for the next 500 years. Do we expect PolyMet to exist in 500 years. In 50 years. If the best case scenario that PolyMet puts forward does not happen, what then. The consequences for any misstep, any glitch in PolyMet's plan could be devastating. The Natural Resource we should be protecting are our waterways, the Boundary Waters and Lake Superior. Can PolyMet or the DNR give ANY example of copper or nickel mining that has not caused pollution. And if the pollution proves too costly for PolyMet to clean up, they will most likely file for bankruptcy and leave Minnesota with both the spoiled and polluted environment and the bill for the cleanup. PolyMet's proposal does not make long term economic sense for Minnesota. PolyMet's proposal is not without grave environmental costs. Please reject PolyMet's proposal. Beryl Schewe 11054 Bluestem Lane Eden Prairie, MN 55347 612-578-4971 Beryl Schewe, MBA, MDiv, BCC Director of Pastoral Care Our Lady of Grace Catholic Church Edina, MN 55436 952-929-3317 ex 106 HYPERLINK "mailto:berylschewe@olgparish-org"berylschewe@olgparish-org www.olgparish-org

beshig 44126

You have the Scientific Data ,Enforce it. Tell polymet and their Chinese Investors to go elsewhere. Awas. ,go away. Have some courage to stand up to Corporations. Do not be Bribed. Lavern Shotley 7748 Jokela Road Cloquet mn.

Beth Beattie 42581

See attachment

Beth Blackledge 10139

Recently I have heard about the water shortage problem in western United States. We have water in Minnesota so why should we take any chance of polluting it with a material that wreaks it for people and wildlife. No one can drink money. The water shortage throughout the world does not appear to be getting any better. Who in that area thinks they will make a lot of money from this mining project. Do cities and the state think they will collect high amounts of taxes. Do people think there will be a hugh number of high paying jobs connected with it. The only people making large amounts of money are the owners of the companies, and it is my understanding that no one has on record just who these companies are. It would be best for the whole state to deny this mining project forever. Beth and Leland Blackledge 2430 Heimel Street South St Paul, MN 55075

Beth Cutting 48304

FYI

Beth Davidson 42604

See attachment

Beth Gohdes 57986

In addition to the risks outlined below, I remain very concerned that the long term effects of keeping the water clean are not being acknowledged. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

beth knudtsen spears 16776

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, beth knudtsen spears 807 N Main Cambridge, MN 55008

50125

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, beth knudtsen spears 807 N Main Cambridge, MN 55008

Alphabetical by sender's first name

Beth Lewis 7022

Please find attached a PDF letter with my comments on the NorthMet SDEIS. I also plan on attending the January 28 hearing. Beth Lewis bal588@comcaStnet 588 Terrace Courte2372 Gray Jay Drive Roseville MN 55113Ely, MN 55113

9291

Please find attached a PDF letter with my additional comments on the SDEIS following my attendance at the January 28 open house and hearing. Beth Lewis 588 Terrace Courte2372 Gray Jay Drive Roseville, MN 55113Ely, MN 55731

Beth Yokom 43334

Dear DNR,, Assuming the above is a true equation, I find it shocking that anyone is still considering approving this mining operation. Water is essential for all life, and in MN we are especially known for our water Land of 10,000 Lakes To consider jeopardizing our water flabbergasts, confuses and disappoints me. The environment and natural splendor of the Arrowhead region of MN is it's greatest asset (not to mention one of our state's greatest assets) and the reason folks visit and want to live there. DO NOT even consider jeopardizing such a jewel. Thank you, Beth Yokom 806 Linwood Ave St Paul, MN 55105

Bethany Ebert 9599

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: When the information given regarding pollutants in the atmosphere is inaccurate, it is impossible to have an open and honest dialogue regarding pollution. Therefore it is my opinion that the SDEIS should be redone to reflect the new information. I also think that, considering what I already know about the topic, PolyMet's sulfide mining plan should be rejected. PolyMet gave inaccurate information about the amount of waterflow. Therefore it's possible they also gave inaccurate information about air pollution. Speaking as a person with lungs that are annoying at best and life-threatening at worst, I prefer to not sit in my apartment all day because there's too much pollution in the air to enjoy the weather. Sitting inside all day gets boring, and I like walking outside. People need to breathe fresh air and get out there and get exercise. If the sulfide mining plan messes with my lungs too much, I could die. I know I'm just one person, but there are other people in the Midwest who have to use inhalers. A lot of us would be affected. Please also keep in mind there are some people in the world who are predisposed to cancer, and too many carcinogens in the air could aggravate their conditions, causing more illness and death. This would change the city drastically as well. While death is a natural part of life, it's also true the quality of life while living should be a good one. PolyMet is not going to do much to improve the quality of life. It will just make the environment more polluted. A lot of people here like to fish and hunt, a lot of people like walking their dogs, a lot of people like just hanging out by the lake, and if the mining happens, who's to say any of that would continue. And then there's the part about pregnancy. What sort of risks would the pollutants in the atmosphere bring to a fetus in the first trimester, or a newborn. The first trimester is one of the most important times regarding health. If a woman is exposed to too much at that time, with regards to pollutants, she is more likely to miscarry, which is a terrifying thing to go through as a young woman. And if the baby is carried to term, there is still the risk of its future health, as well as the hobbies it can be part of once it's old enough to get outside and have fun. Kids should be able to get outside and play. If there's a lot of pollutants in the environment, this kind of ruins that. I know a lot of people are big on sitting a kid in front of the television set or a cell phone or an iPad, but we should be allowing our children the ability to play outside. Technology should not be running everything. We don't need a ton of iPads and televisions to be happy. These are luxury iteMs I understand video games are fun, I love them too, but there is nothing wrong with going outside. And I think we don't need too much that we don't already hAve There are jobs in the area. People just aren't looking for them because they've given up. If it ain't broke, don't fix it. That's all I've got to say on the matter for now. Thank you for considering my opinion. With respect, Bethany A. Ebert Bethany Ebert 230 West 3rd St #306 Duluth, MN, MN 55802

Alphabetical by sender's first name

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Dear Ms Fay, Mr Bruner and Mr Dabney: When the information given regarding pollutants in the atmosphere is inaccurate, it is impossible to have an open and honest dialogue regarding pollution. Therefore it is my opinion that the SDEIS should be redone to reflect the new information. I also think that, considering what I already know about the topic, PolyMet's sulfide mining plan should be rejected. PolyMet gave inaccurate information about the amount of waterflow. Therefore it's possible they also gave inaccurate information about air pollution. Speaking as a person with lungs that are annoying at best and life-threatening at worst, I prefer to not sit in my apartment all day because there's too much pollution in the air to enjoy the weather. Sitting inside all day gets boring, and I like walking outside. People need to breathe fresh air and get out there and get exercise. If the sulfide mining plan messes with my lungs too much, I could die. I know I'm just one person, but there are other people in the Midwest who have to use inhalers. A lot of us would be affected. Please also keep in mind there are some people in the world who are predisposed to cancer, and too many carcinogens in the air could aggravate their conditions, causing more illness and death. This would change the city drastically as well. While death is a natural part of life, it's also true the quality of life while living should be a good one. PolyMet is not going to do much to improve the quality of life. It will just make the environment more polluted. A lot of people here like to fish and hunt, a lot of people like walking their dogs, a lot of people like just hanging out by the lake, and if the mining happens, who's to say any of that would continue. And then there's the part about pregnancy. What sort of risks would the pollutants in the atmosphere bring to a fetus in the first trimester, or a newborn. The first trimester is one of the most important times regarding health. If a woman is exposed to too much at that time, with regards to pollutants, she is more likely to miscarry, which is a terrifying thing to go through as a young woman. And if the baby is carried to term, there is still the risk of its future health, as well as the hobbies it can be part of once it's old enough to get outside and have fun. Kids should be able to get outside and play. If there's a lot of pollutants in the environment, this kind of ruins that. I know a lot of people are big on sitting a kid in front of the television set or a cell phone or an iPad, but we should be allowing our children the ability to play outside. Technology should not be running everything. We don't need a ton of iPads and televisions to be happy. These are luxury iteMs I understand video games are fun, I love them too, but there is nothing wrong with going outside. And I think we don't need too much that we don't already hAve There are jobs in the area. People just aren't looking for them because they've given up. If it ain't broke, don't fix it. That's all I've got to say on the matter for now. Thank you for considering my opinion. With respect, Bethany A. Ebert Bethany Ebert 230 West 3rd St #306 Duluth, MN, MN 55802

50588

Dear Ms Fay, Mr Bruner and Mr Dabney: When the information given regarding pollutants in the atmosphere is inaccurate, it is impossible to have an open and honest dialogue regarding pollution. Therefore it is my opinion that the SDEIS should be redone to reflect the new information. I also think that, considering what I already know about the topic, PolyMet's sulfide mining plan should be rejected. PolyMet gave inaccurate information about the amount of waterflow. Therefore it's possible they also gave inaccurate information about air pollution. Speaking as a person with lungs that are annoying at best and life-threatening at worst, I prefer to not sit in my apartment all day because there's too much pollution in the air to enjoy the weather. Sitting inside all day gets boring, and I like walking outside. People need to breathe fresh air and get out there and get exercise. If the sulfide mining plan messes with my lungs too much, I could die. I know I'm just one person, but there are other people in the Midwest who have to use inhalers. A lot of us would be affected. Please also keep in mind there are some people in the world who are predisposed to cancer, and too many carcinogens in the air could aggravate their conditions, causing more illness and death. This would change the city drastically as well. While death is a natural part of life, it's also true the quality of life while living should be a good one. PolyMet is not going to do much to improve the quality of life. It will just make the environment more polluted. A lot of people here like to fish and hunt, a lot of people like walking their dogs, a lot of people like just hanging out by the lake, and if the mining happens, who's to say any of that would continue. And then there's the part about pregnancy. What sort of risks would the pollutants in the atmosphere bring to a fetus in the first trimester, or a newborn. The first trimester is one of the most important times regarding health. If a woman is exposed to too much at that time, with regards to pollutants, she is more likely to miscarry, which is a terrifying thing to go through as a young woman. And if the baby is carried to term, there is still the risk of its future health, as well as the hobbies it can be part of once it's old enough to get outside and have fun. Kids should be able to get outside and play. If there's a lot of pollutants in the environment, this kind of ruins that. I know a lot of people are big on sitting a kid in front of the television set or a cell phone or an iPad, but we should be allowing our children the ability to play outside. Technology should not be running everything. We don't need a ton of iPads and televisions to be happy. These are luxury iteMs I understand video games are fun, I love them too, but there is nothing wrong with going outside. And I think we don't need too much that we don't already hAve There are jobs in the area. People just aren't looking for them because they've given up. If it ain't broke, don't fix it. That's all I've got to say on the matter for now. Thank you for considering my opinion. With respect, Bethany A. Ebert Bethany Ebert 230 West 3rd St #306 Duluth, MN, MN 55802

Alphabetical by sender's first name

Bethel Anderson 42722

See attachment

54470

See attachment

Betheny Ebert 18932

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Betheny Ebert 230 West 3rd St #306 Duluth, MN, MN 55802 218-269-3883

Betsy Blume 44364

To whom it may concern, My name is Betsy Blume and my address is 5157 Upton Avenue South, Minneapolis, MN, 55410- I am grateful for the DNR's effort in taking on the huge undertaking of providing the public with information and the ability to comment on this project. It is truly all of our responsibilities to understand the long term consequences of allowing this and other similar projects to go forwaRd After reviewing some of the executive summary report information and other information that is part of your website I believe the risks for allowing this project to move forward are too great. My greatest concerns are: Review of other EIS from Hard Rock mining projects in other parts of the US show that of the 20 mines reviewed, 80% or more had a violation of water quality standards. A recent statement by the EPA says that Hard Rock mining is the most toxic polluter in the US today. The problems with this type of mining have not been solved. It is an experiment that Polymet proposes in dealing with the issues of polluting our watersheds. New technology is Not evidence that the projects will not have severe long term damage to our water resources. Hard Rock mines in Colorado and Montana have permanently caused the death of rivers. Noise pollution near wilderness areas like the BWCAW will effect users (like me.) and the economic interests of the community that supports these recreation geMs There are many untested laws in this proposal that could cause years of litigation that lie in wait for the citizens of the state of Minnesota. Is the environment (water, air, wildlife, wetlands, Lakes) worth less than these precious minerals. Thank you for the opportunity to comment. Sincerely, Betsy Blume

Alphabetical by sender's first name

Betsy Bowen 42857

See attachment

Betsy Daub 47793

From: Betsy Daub [mailto:betsy@friends-bwca-org] Sent: Friday, March 07, 2014 11:52 AM To: Periman, Richard -FS Subject: Fwd: PolyMet water data issues ----- Forwarded message ----- From: Betsy Daub <HYPERLINK "mailto:betsy@friends-bwca-org"betsy@friends-bwca-org> Date: Fri, Mar 7, 2014 at 11:48 AM Subject: PolyMet water data issues To: "Rye, Marty E -FS" <HYPERLINK "mailto:mrye@fs.fed.us"mrye@fs.fed.us>, Mary Shedd <HYPERLINK "mailto:mshedd@fs.fed.us"mshedd@fs.fed.us> Cc: "Radosevich-Craig, Lisa -FS" <HYPERLINK "mailto:lradosevichcraig@fs.fed.us"lradosevichcraig@fs.fed.us>, Nancy Schuldt <HYPERLINK "mailto:nancyschuldt@fdlrez-com"nancyschuldt@fdlrez-com>, Margaret Watkins <HYPERLINK "mailto:watkins@boreal-org"watkins@boreal-org>, John Coleman <HYPERLINK "mailto:jcolema1@wisc-edu"jcolema1@wisc-edu> Dear Marty and Mary, I am emailing you with a big concern about our attempts to get geochemistry leachate data and other relevant water data from the MN DNR regarding PolyMet. I am hoping you might work with Brenda to urge the MN DNR to grant a 30-day extension to the comment period, and that the DNR would be encouraged to fully share the data that has been requested repeatedly. Here is a quick summary of the key issues: MCEA and the Friends have retained 6 technical experts to help us evaluate the SDEIS for PolyMet. These are hydrologists, geochemists, geophysicists, wetlands ecologists, etc They have been hard at work on the SDEIS and its thousands of background documents for months. But their analyses have been hampered for a number of reasons: 1- Several technical documents that MCEA requested of the DNR were not sent in a timely fashion. The first document: "Wetland Impact Assessment Technical Memorandum - Appendix B" was requested from the DNR on January 23, 2014- MCEA did not receive a copy of it until February 24, 2014- This technical memo was the sole basis for the sensitivity analysis that determined the extent of the potential indirect wetland impacts that could occur as a result of groundwater drawdown. The second document, PolyMet 2013k, was cited 14 times in Chapter 5 of the SDEIS and should have been included on the SDEIS reference disk but was not. This document provided data on potential indirect impacts that may occur as a result of the augmentation of Second Creek. MCEA requested the data from the DNR on February 20, 2104, and received it on February 24, 2014- The delay in receiving these documents resulted in delays to our technical expert's review of the information. 2- We have had recent issues in obtaining geochemistry leachate data. These are data that should have been attached to the original SDEIS or in the reference documents, but were not. We are still trying to obtain them. MCEA made several requests for documents that were cited in reference documents, only to find more citations to earlier documents. The path has finally led to documents from 2007, which MCEA requested. The database MCEA received this week is incomplete and has many empty cells in the Excel spreadsheet. Many of the missing cells appear that they would have contained leachate concentrations above water quality standards. For example, a plot of nickel concentrations in one document shows a great many samples of test pile leachate to be above the 10 mg/L for Ni. But in the database that accompanied it, only six samples with concentrations above that limit are shown. Most of the entries in the database are filled with "#N/A." It seems odd that the higher values for Nickel are missing. This occurs for many constituents - not just Nickel. We still need a database with all the entries included. 3- Our geochemists have found the documentation to be extremely complicated. We are working with two geochemists, both of whom have worked on hundreds of mining proposals. They have found the SDEIS materials to be extremely difficult to understand and to work with. Part of the problem is t

Alphabetical by sender's first name

Betsy LePlatt 23581

Please see the following. Elizabeth LePlatt 7012 Cheyenne Trail Chanhassen, MN 55317 Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 I do not believe PolyMet's NorthMet project would be good for the State of Minnesota. I am very concerned about trading our long term environmental health for short term and not clearly spelled out financial gain. One of the things which concerns me most is permanent water pollution. I do not think it is good enough to base such important decisions on "probabilistic simulations," or computer models, of the effects of PolyMet's mining activities on water quality. After all, I read the other day that the flow rates on the Partridge River entered on the SDEIS were wrong. How would we know the models were correct. Are there any real world examples of similar mines run in equivalent environments which have not resulted in major environmental probleMs Seems to be a pretty big gamble to me. "Direct and indirect effects to wetlands would result from mining operations. The NorthMet Project Proposed Action would directly affect 912-5 acres of wetlands located within the NorthMet Project area, mostly within the Mine Site, as a result of activities such as filling, excavation, and installation of a containment system within the wetland boundary, and, therefore, these wetlands would be permanently loSt" "Due to both on- and off-site limitations and technical infeasibility, it is not practicable to replace all affected wetland types with an equivalent area of in-kind wetlands." The SDEIS states there will be water pollution and loss of wetlands. I do not understand why this would be okay for Minnesotans. I have narrowed my comments in this letter to focus on water quality and wetlands, however, I am very concerned about other effects of the mining project on the environmental balance of northern Minnesota. The long term economic impact of this project is also a big concern of mine. Would the clean up cost the State more than the economic gains of the project. It seems to me it would be wise to have a more concrete answer to this question before approving this sulfide mining project. My family and I have loved Northern Minnesota – the beautiful boreal forest, the pristine lakes for years. We own a cabin near Ely, where we spend our summers. I do not look forward to the industrialization as well as air pollution this mine and others proposed near our cabin would bring. Thank you for your time and extreme consideration of this matter. Sincerely, Elizabeth LePlatt

Alphabetical by sender's first name

Better MN 16000

cid:image001-jpg@01CEFBFF.AF2AC0D0 February 2014 “What’s Happening in Better Government for a Better Minnesota” is the source for the latest news and info on government reform as seen from the perspective of state employees. We want to hear from you. Have something from your agency to share. Tips, best practices, success stories or other news of note. Send them to us at HYPERLINK "mailto:better@state.mn.us"better@state.mn.us. A Message from Chief of Staff Jaime Tincher cid:image010-jpg@01CF2E33-8F05DE50Dear Colleagues, After a year and a half as Governor Dayton’s deputy chief of staff, I am excited to take on a new role as the Governor’s chief of staff. I look forward to working with you and continuing our work together to build a Better Government for a Better Minnesota. The upcoming Unsession truly gets to the heart of our better government efforts. The Unsession legislative recommendations we are developing will incorporate many of the great ideas that state employees across the administration recommended this past summer and fall. Paired with suggestions from people around the state, the Governor’s Unsession agenda and additional Unsession efforts from legislators will help state government better serve the needs of all Minnesotans. In the upcoming session, Governor Dayton also has proposed providing additional tax relief for middle class Minnesotans, eliminating business to business taxes, and passing a comprehensive bonding bill that will create an estimated 27,000 jobs. These initiatives along with your valuable service for the people of Minnesota will help us support continued economic growth, while making critical investments in the state’s future. Thank you for the work you do every day to build an even brighter future for all Minnesotans. Sincerely, Jaime Tincher Chief of Staff, Governor Mark Dayton and Lt. Governor Yvonne Prettner Solon cid:image012-png@01CF2E3C.A7B2EBB0 “Transition Briefs” Aid Disaster Response and Recovery HYPERLINK "https://dps.mn-gov/divisions/hsem/"HSEM Logo When disasters and emergencies strike, every resource is precious and every second counts. Following the severe storms of 2013, the Homeland Security and Emergency Management (HSEM) Recovery Branch made some changes to its processes to better serve those who seek assistance from the Federal Emergency Management Agency (FEMA) in the wake of an emergency. HSEM initiated what it calls “Transition Briefs,” for counties and other applicants seeking recovery assistance from FEMA under the Public Assistance Program. As part of a Transition Brief, HSEM Applicant Services staff are deployed to a disaster impact area, where they meet directly with applicants to provide technical assistance, ensuring required documents get submitted faster. Under this process HSEM staff will be deployed to Transition Briefs when future disaster declarations are made here in Minnesota. If applicants have the proper documents prepared, HSEM will be able to complete the assistance reimbursement process immediately. The end result of the briefs will be applicants receiving reimbursements in a more timely and efficient manner. And for those managing emergency situations, fewer of those vital resources and seconds will go to waste. cid:image012-png@01CF2E3C.A7B2EBB0 The Unsession HYPERLINK "http://mn-gov/governor/unsession/"cid:image014-png@01CF2E3C.A7B2EBB0 Thank you for participating in Governor Dayton’s effort to make the 2014 Legislative session The Unsession. The response was inspiring; more than 3,200 employees have joined in and submitted over 850 ideas and 2,000 comments to the Unsession website. In addition to the great work you have done, you provided great ideas to revolutionize how our departments operate and interact with the citizens of Minnesota. There are great ideas for how we can improve our interactions with the citizens of Minnesota thr

Betty Holmen Greene 54730

See attachment

Betty Preus 46968

To whom it may concern: I am writing in strong opposition to the Polymet copper mining proposal. There are so many concerns and unanswered questions that it is unbelievable to me that we would risk our future by moving ahead with this project. These are just a few of my concerns: - Health risks such as exposure to mercury, asbestos and arsenic. Mercury is already a problem with 10% of newborns in the Lake Superior basin. Polymet admits that mineral dust released could harm workers and nearby residents. Doctors have recently requested a study of the potential health impact of this project. Let's study the potential impact and not the problem after it has sickened or killed many people. - Hundreds of years of polluted watner seeping into our streaMs I am not convinced that Polyment would be able to contain all polluted water. It will inevitably seep into our clean waters. Boundary Waters rivers have been named at risk for pollution as a result of this proposal. The Boundary Waters is a most precious resource that we simply must preserve for future generations. - Destruction of 6,000 acres of wetland which are currently habitat for our endangered moose and lynx populations and many other species. - Questions about whether Polymet would cover the costs of cleanup and whether they would be paying fair taxes. To me, I don't think it would be possible for them to pay enough for damage and taxes because they would be destroying a treasure that is priceless and irreplaceable. Please stop this proposal from moving forward. Elizabeth Preus 40 E. Faribault St Duluth, MN 55803

Alphabetical by sender's first name

Betty Tisel 38391

Dear reader at the MN-DNR, My name is Betty Tisel. I live in South Minneapolis and am a lifelong Minnesotan. My Slovenian-American grandfather spent his working life in the open pit mines in Virginia, Minnesota, as an employee of Oliver Mining, and then US Steel. He was also a union member. I am writing to convey just one of my many concerns about the mine plan and PolyMet's Supplemental Environmental Impact Statement. I am concerned that the SDEIS does not include any analysis of the health effects for on-site workers at the mine. The only "health-risk assessment" in the SDEIS was done for people who are off-site. Mining industry workers are at a higher risk of fatal mesothelioma. PolyMet ore will include asbestos-like fibers. According to the PolyMet SDEIS, exhaust from the rock crushing plant will be vented back into the plant, in order to reduce heating costs. In a recent University of Minnesota study, workers involved in the crushing process had toxic particle exposure over the safe exposure limit. The PolyMet site is a "lean" deposit of copper and nickel - 99% of what is dug out of the ground will be considered waste. Blasting and grinding the dug-up rock will unleash huge amounts of particles and fibers that workers will breathe. Other Minnesota environmental impact statements and documents have looked at cancer risks for workers. Why not PolyMet. The SDEIS must let the public know the health risks to on-site workers. The SDEIS must analyze particles and fibers in crushing plant air, not just air outside the property boundary. Sincerely, Betty Tisel 4155 Garfield Ave Minneapolis, MN 55409 612-824-5820 Betty Tisel HYPERLINK "mailto:betty@tiselfarley-com"betty@tiselfarley-com

58075

Others will speak more specifically about this specific mine's potential negative impacts. My concern is also that 1) we need to stop all projects that will worson the environment anywhere and 2) if we want more jobs in MN let's create jobs that people can really take pride in. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Bev Gillen 40727

DNR, I am highly against the proposal to allow PolyMet to operate mines in Minnesota. I have lived in the Twin Cities for 50 years. My husband and I chose to raise our family here because of the beautiful lakes, trees, wildlife, and clean air. My family has camped in the Boundary Waters and experienced its beauty and peacefulness. We cannot afford to have this resource polluted by mining companies who lamely promote job growth but are really counting profits. Counting on you to represent the best interests of Minnesota families in the face pressure from these big companies and their slick staff. Please say NO to Polymet and preserve Minnesota’s beauty for generations to come. Regards, Bev Gillen Bev Gillen | Sr Electronics Commodity Manager | Rosemount Flow Emerson Process Management | 12001 Technology Dr | M/S AE07 Eden Prairie | MN | 55344 | USA T +1 952 828 3019 beverly.gillen@emerson-com

Bev Scalze 47482

Please enter these comments into the public comment process: The SDEIS doesn't account for the replacement capital costs of the mine proposal, eg. water treatment plant, holding pond liners, etc The SDEIS is silent regarding emergency measures in case of failures in construction and treatment. The SDEIS doesn't analyze the relationship between Polymet and Glencore Xtrata. If the Glencore firm is a silent partner, or at least a financier, that information should be included in the SDEIS because a partner or assign should be part of the application for the permit. The partner or assign (or any other term) should be noted so that all parties are included in the permit and are responsible for cleanup if Polymet (or NorthMet) goes bankrupt. The draft SDEIS doesn't include a long-term analysis of present or failed sulfide mines anywhere in the world. The draft SDEIS doesn't include capital costs of the life of the liners of the pits or stockpiles, nor does it include methods to monitor the liners and the replacement of those liners and the surrounding possibly-contaminated soils and aquifers. The aquifers surrounding the proposed sites haven't been monitored for the existing conditions of the waters. The draft SDEIS doesn't include maps and analyses of surrounding streams and rivers as to their existing conditions and a process for monitoring in the future. No accounting for monitoring of conditions in he 200 and 500 year models as included by Polymet. The Polymet document labeled Figure H-16-24-2 shows Mixed Influent Cncentration (ug/L) at year 200 that is six times higher than the present water quality standaRd These and other concerns should trigger an additional document that addresses the items that are missing from the draft SDEIS. Bev Scalze 969 Beam Avenue Little Canada, MN 55109 (651) 483-1055

Alphabetical by sender's first name

Beverly Blinde 42457

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. The risk to our children, grandchildren, and the environment for many generations to come is too great - and not worth the benefits of a few jobs for a few years. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the precious Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Beverly Blinde 5620 Bloomington Ae. So. Minneapolis, MN 55417 Sincerely, Mrs Beverly Blinde 5620 Bloomington Ave Minneapolis, MN 55417-2641

Beverly Finke 16154

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Beverly Hanson 42727

See attachment

Beverly Kenealey 54761

See attachment

Alphabetical by sender's first name

Beverly M Berntson 42738

See attachment

Beverly Schell 38773

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Beverly Schell 401 Hiawatha Blvd Winona, MN 55987-2164 (507) 454-3260

Beverly Schilleman 41563

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

beverly zamora 42421

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms beverly zamora 4107 Lowry Ave N Robbinsdale, MN 55422-3110 (763) 273-8600

bhughes03@yahoo.com 21762

The employment is good for the workers in that area.

Bianca Geisdorf 18104

My name is Bianca Geisdorf and I'm from Aurora. I am the vice-president of the 7th Grade Student Council for Mesabi East High School. I know numerous students who live at or beneath the poverty line due to the loss of jobs or lack of opportunity for good-paying jobs. Jobs are important for the future of the students of Mesabi East and the Iron Range. Presently good-paying jobs are secured and many of us will have to move away in order to be able to earn a living capable of supporting a family. The reason our towns are here today in the first place was because of money. It provided our families with jobs capable of supporting them. We need these jobs that PolyMet will bring to our towns for strong communities and thriving families; not ones that just get by living in poverty. We truly care about our land, air and water and believe that the SDEIS is sufficient to address this. The co-lead agencies have done the job needed to show that PolyMet will not pollute our land, air and water. I support the work of the DNR, the Army Corps of Engineers and U.S. Forest Service. I also believe that the Minnesota Pollution Control Agency is the best in the world and will make sure that PolyMet does not pollute. Thank you.

Bill 6595

Let them build the copper mine so we can have jobs in Minnesota. Bill_Thiffault@yahoo-com Da Bill

18121

BILL: Hello. I am Bill (inaudible) from Ely. I am a lifelong resident and third-generation business owner and former school board member. I look at the opportunity to bring PolyMet to our area and look at the needs, the jobs, the benefits, and (inaudible) and also look at the challenges that face a project like this in water quality, wetlands, wildlife. Growing up in Ely, the population was near 6,000. The K-12 enrollment was 1,775 students. Today there are 540 kids in Ely's K-12. That's a drop of 70 percent resulting in the loss of dozens of teaching jobs. Ely's population today is about 3,460. A drop of 264 from 2000 to 2010. Sure there is more people living in the townships, but that doesn't tell the whole story. Drive into town and look at the shuttered storefronts. The additional people in the townships haven't kept those businesses open. Drive to the post office. Eight empty house in two blocks. (Inaudible) shingles coming off the roofs. Our median age is now 45.3 and climbing. A jump more than 6 percent since the 2000 census. The median household income has dropped from 27,602 to an average of 24,000 as of the 2010 census. 200 families on food-shelf assistance this year compared to 110 last year. Tourism by itself is not providing sustainability. Obviously there is a tremendous need for jobs here in our area, not China. We need the metals. We also care if mining is done environmentally responsibly to maintain our clean water and air. I-Pads, computers, electronic places use the metals that come from this project. Hybrid cars, (inaudible) wind turbines. When you turn on the appliance or lights in your house, you are using copper. When you go to the dentist or doctor, the stainless steel surgical tools are nickel alloyed steel. Therefore, after reading the SDEIS summary and reviewing other documents of the document, I can conclude that the scientific integrity, the research, (inaudible), including the mitigation and mtreatment procedures have done an in-depth job to accurately address the issues. And I support the findings for this project to move forward.

Alphabetical by sender's first name

Bill 45634

I have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I'd also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws. We cannot afford to miss this job opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. NAME. Bill Culbert ADDRESS 601 5th Av. So. Virginia, Mn. 55792 Sent from my iPhone

58167

Hello. I am Bill (inaudible) from Ely. I am a lifelong resident and third-generation business owner and former school board member. I look at the opportunity to bring PolyMet to our area and look at the needs, the jobs, the benefits, and (inaudible) and also look at the challenges that face a project like this in water quality, wetlands, wildlife. Growing up in Ely, the population was near 6,000. The K-12 enrollment was 1,775 students. Today there are 540 kids in Ely's K-12. That's a drop of 70 percent resulting in the loss of dozens of teaching jobs. Ely's population today is about 3,460. A drop of 264 from 2000 to 2010. Sure there is more people living in the townships, but that doesn't tell the whole story. Drive into town and look at the shuttered storefronts. The additional people in the townships haven't kept those businesses open. Drive to the post office. Eight empty house in two blocks. (Inaudible) shingles coming off the roofs.Our median age is now 45.3 and climbing. A jump more than 6 percent since the 2000 census. The median household income has dropped from 27,602 to an average of 24,000 as of the 2010 census. 200 families on food-shelf assistance this year compared to 110 last year.Tourism by itself is not providing sustainability.Obviously there is a tremendous need for jobs here in our area, not China. We need the metals. We also care if mining is done environmentally responsibly to maintain our clean water and air. I-Pads, computers, electronic places use the metals that come from this project. Hybrid cars, (inaudible) wind turbines. When you turn on the appliance or lights in your house, you are using copper. When you go to the dentist or doctor, the stainless steel surgical tools are nickel alloyed steel.Therefore, after reading the SDEIS summary and reviewing other documents of the document, I can conclude that the scientific integrity, the research, (inaudible), including the mitigation and treatment procedures have done an in-depth job to accurately address the issues. And I support the findings for this project to move forward.

Bill & Nancy Henke 4783

Hello. It is my belief that this project should not proceed without full due diligence environmentally (ie. conservation over mitigation/ repair of damage) and full and complete financial assurance by Polymet. Full financial assurance by my definition means that it is provided for by the company inflicting the damage, for the duration, whether this is for decades or for hundreds of years. The monetary amount backing this full financial assurance should take into account not only industry projections of clean up needs but also worst case scenarios including catastrophic accidents and acts of nature that overcome technology. Minnesota's water and land resources are an undeniable treasure and absolutely cannot be compromised. We are already so hard on our environment and can ill afford to further punish it with impunity. A legacy of a well cared for and sustainable Minnesota natural environment holds far more value to me than the convenience of my cell phone and the limited entertainment emanating from my big screen TV. Thank you. William C. Henke MD 962 South Shore Drive Detroit Lakes, MN 56501 HYPERLINK "mailto:wchenke1@gmail-com"wchenke1@gmail-com

Alphabetical by sender's first name

bill braskey 41803

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, bill braskey Mankato, Minnesota

Bill Collins 57476

To Whom it May Concern- I am writing to express my support for the issuance of permits for PolyMet Mining. I have been actively following Polymet’s efforts and after reviewing SDEIS, news articles and opinion pieces I am confident PolyMet’s project will have no discernable impact on the natural environment while at the same time greatly benefitting the economic environment. I have personally invested in the project not only because of my confidence in PolyMet but also because I want to see my state benefit from the great jobs, economic synergy and expanded tax base and my country from the increase in the domestic supply of critical metals needed in many vital manufacturing industries. I urge you to approve PolyMet’s mining permits. Bill Collins, Managing Director N 44 Productions 275 East 4th Street, Suite 730 Saint Paul, MN 55101 Phone: 651-290-2290 Cell: 612-961-7311 Fax: 651-224-6902

Alphabetical by sender's first name

Bill Conger 38700

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: While I am not against mining in general, this type of mine in this location seems like a recipe for disaster. Please consider the quality of life, the value of wild and natural places, and the health of our citizens and environment and reject the PolyMet plan. It is difficult to place a dollar amount on the above iteMs Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Bill Conger Bill Conger 455 Ridge View Circle Hamel, MN 55340

Alphabetical by sender's first name

Bill Dilley 16105

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Bill Doran 42523

See attachment

Bill Erzar 38801

To whom it may concern: Attached to this email is my comment letter as a Microsoft Word document on the PolyMet NorthMet SDEIS and my feelings on the environmental aspects and socio-economic needs of the Project. Sincerely, Bill Erzar 1232 Heather St Ely, MN 55731 PS: Please Forward to: Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 LaFayette Road, Box 25 St Paul, MN 55155-4025

Bill Fredrickson 43099

Attn. Lisa Fay - EIS Project Manager, MDNR Division Of Ecological and Water Resources Please green light the permiting and approval process required for the proposed PolyMet mining operation in your jurisdiction. I have followed this approval process for several years and strongly believe that the PolyMet Mining Company has operated in the best interests of the public and the enviroment. Both in the past and fully intends to meet all expectations in the future of the EPA and the Minnestota Department of Natural Resources. Also Minnesota really needs the jobs. Thank you for your consideration and this opportunity to weigh in. Sincerely, William Fredrickson 5428 Overlook Drive NE Albuquerque, NM 87111

Alphabetical by sender's first name

Bill Holden 58108

My February National Geographic Magazine came yesterday and the article, “Gold Fever in the Yukon”, documents the exact issues we debate today. That is; long term environmental and economic stability versus short term extractive wealth and its threats to a regional community. Yes, twenty to thirty years is very short term for the issues we must decide today a wealthy owner of a current Yukon prospecting company is quoted in the article; “I tell people not to get to attached to all this beauty. We just might want to mine it.”I have seen firsthand the yellow orange acidified streams flowing near western state copper mines. I have seen firsthand the moonscape desolation around Sudbury, Ontario caused by the copper nickel mines and smelters. Treeless grate hills where the rocks crumble in your hand and the lakes sparkle blue and fishless. Granted, companies who extract and process ores have been forced to meet much more stringent environmental guidelines in the past few decades, but significant air and water pollution will occur in any mining project.PolyMet has done a lot of advance work on this DEIS. It is an impressive document.It is also imperative to always remember that a corporation is required by United States law to reap maximum monetary rewards for its stockholders. This fact mandates that business operations externalize costs whenever feasible.The DEIS states on page 5-7 that the mine and plant site might need hundreds of years of monitoring and maintenance. What American companies can you name that are still viable after only one hundred years? How will future inhabitants of northeastern Minnesota pay for this task?St. Louis, Lake, and Cook counties have a combined population of approximately 220,000 people. The PolyMet plan estimates about 360 permanent jobs over the twenty year life of the mine. This means that the equivalent of .16% of the 3 county regions will have jobs through the mine.If those 360 jobs each pay $100,000 per year then they will bring thirty six million dollars a year into the community, for the 20 years of operation.In 1996 David T. Schaller form the Department of Geography at the University of Minnesota did a research study of the economic impact of tourism in the region. He found that the major group of visitors are from Minnesota and visit for the fishing. He estimated the regional monetary impact of tourism at around fifty million dollars a year. Tourism and diversified small businesses will bring in that fifty million dollars a year for the next twenty years and on into our great grand kids’ futures.The issues are simple but deep. Short term extractive wealth and its threats to the established community or long term environmental and economic stability.The people of PolyMet and Glencore Xstrata must PROVE IT FIRST at another copper nickel mine and then return in twenty years to talk about sulfide mining in the St. Louis and Rainy River watersheds of Minnesota.

Bill Horsch 7663

I am writing to you today to thank you for the excellent job done putting together the NorthMet Mining Project and Land Exchange SDEIS for the PolyMet Project. It is a thorough analysis of all aspects of the proposed mining effort with specific solutions defined to address all areas where the environment could be impacted. Thank you for a job well done. I fully support the PolyMet project and ask that you complete the SDEIS review phase and move to the permitting phase as soon as possible. In addition, I want to convey my strong support to maximize the protection of the environment while the project is underway. I believe we must do both, safely mining for critically necessary metals and protecting the environment are both necessary. I do not think these are mutually exclusive goals and I believe the PolyMet project has developed a comprehensive, practical plan for safely developing, executing, and closing the mining project. So, please, endorse the PolyMet project. Remember, We Must Do Both. Sincerely yours, William H. Horsch 2292 Timberlea Dr Woodbury, MN 55125

Bill Mckechnie 39014

You cannot build this mine because the company and it's owners will not fund the two hundred plus years of compliance to protect their mine waste from our fresh water. It is simple if they can insure for the two hundred plus years a fund to observe and protect our fresh water, then the market forces can be used to protect the water, however, I know of no insurance company that will underwrite such a risk at a premium that Poly Met can afford, thus there is not way to mitigate the risk of the mining wastes thus no mine should be build. Given the track record of the mining industry in managing mine wastes, we can not trust our fresh water to these business people. There is not enough money to be made to risk our fresh water future. With a barrel of water put in plastic bottles more expensive than a barrel of oil, we should protect our water. Finally, there is not enough jobs to make this work either. Bill McKechnie Wolf Hill Management 1394 Blackburn Dr Cotton,MN. 55724 952-237-2962 612-208-7753 wemwolf@gmail-com USBC Agent

Bill Morrissey 42739

See attachment

Alphabetical by sender's first name

Bill Polchow 19524

My name is Bill Polchow, P-O-L-C-H-O-W. I reside at 49623 County Road 191 in Deer River, Minnesota. My comment is the International Brotherhood of Boilermakers, Iron Shipbuilders, Blacksmith Forgers and Helpers, Local 647, would like to comment on the implementation of PolyMet. Boilermakers Local 647 covers all of Minnesota, North Dakota and South Dakota. Although we are considered one of the least-known construction unions, we feel we play a big part in the industry. In a nutshell, we construct and repair power and steam-generating boilers, construct and repair pressurized vessels, construct and repair stacks, and more importantly, construct and repair pollution control devices, such as baghouses and scrubbers. Our trade has been around a long time with many generations of proud boilermakers who have seen the streets and yards black with soot and the air hazy from the emissions from smoke stacks of factories. We are proud of the fact that we are partly responsible for the cleanup, clean air we now have, and the fact that most of the emissions we now see from the stacks are mostly steam. In fact, most of our work today is the construction of pollution control systems. Boilermakers do not look at the construction of PolyMet as a full-time employment opportunity. As a matter of fact, most boilermakers work short-term jobs and then move to the next. They do, however, believe in protecting the environment in which they live and investing in the economy. The fact is, a third of the Local lives in the area affected by the plant, another third lives in Minnesota outside range, the rest live in North and South Dakota, but we all respect the environment and a strong economy. We also believe in not passing the buck. We look at the environment globally. If these resources are not produced in an area where they are monitored by the finest governing agents in the world, they are still needed and will be produced or shipped out to be produced in an area that is not controlled. As boilermakers, we believe the construction of PolyMet is a win-win situation. Not only does this put back to use the mine, but can create jobs and much needed resources in an environmentally-friendly fashion. Thank you.

Bill R Doherty 7632

See attachment

bill seifert 3309

Noooooo. On Dec 15, 2013 5:54 PM, "*NorthMetSDEIS (DNR)" wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Bill Sorem 41839

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Bill Sorem Minnetonka, Minnesota

Alphabetical by sender's first name

Bill Steele 15967

21 February 2014 Dear Sir or Madam: I am writing to express my views concerning the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS). My wife and I moved to northern Minnesota 17 years ago because of its relatively pristine environment with many lakes and forests. As a 71-year old retired geologist, I have seen more than my share of both active and abandoned sulfide mines. I have never seen either an abandoned or a working sulfide mine that was not causing water pollution. Tailings dams leak, pipes leak, waste water seeps through liners, etc According to the SDEIS, At the Mine Site, about 10 gallons per minute of untreated water would be released during closure (all related to groundwater seepage), which represents less than 5 percent of total Mine Site water releases. At the Tailings Basin, about 21 gallons per minute of untreated water would be released during closure (all related to Tailings Basin seepage that bypasses the groundwater containment system), In other words, 5-2 million gallons of polluted, untreated water from the mine site and 11 million gallons of untreated seepage from the tailings pond will enter groundwater every year with no treatment whatsoever, and ultimately much of this water will end up in the Embarrass and Partridge Rivers. That in itself should be unacceptable. Moreover, the groundwater model used to obtain these numbers may be flawed so as to skew them to be unrealistically low. Even more problematical is that the SDEIS indicates that the NorthMet Project is to operate for only 20 years but water from the site may need to be treated for 500 years. If we consider a human generation to be 25 years, is one generation of mining employment worth condemning 20 generations to pollution. I think not. In my opinion, to do so is both illogical and immoral. I am adamantly opposed to ruining part of northern Minnesota with this project. If, however, the project is approved, somehow Minnesotans must be protected from the expense of treating waste water for 500 years and other environmental problems that turn up. Our country is not even 500 years old. How can 500 years of waste water treatment be financed over such a period. In my experience the old adage about mining that “Wealth strays and pollution stays,” always applies. I doubt that Polymet will exist 500 years from now. I suspect that even 10 years after closure of the mine, when some pollution control agency tries to find Poly Met Mining, Inc. to send a bill for environmental remediation, the result will be something like, “ Oh, Poly Met was sold to Acme Mining Company, which is now defunct.” If mining does occur, provision must be made to protect Minnesota taxpayers from the expense of dealing with the abandoned mine and plant sites. How do you finance waste water treatment for 500 years. Regulators must obtain funds for long term waste water treatment and cleaning up failures of tailings management facilities up front. The SDEIS itself gives no indication about how centuries of waste water treatement and remediation of probable failures of tailings containment infrastructure will be financed. Clearly, the state of Minnesota must mandate establishment of a large fund for future environmental maintenance at the NorthMet site. The huge Glencore Corporation owns 25% of Polymet. Glencore has extremely deep pockets, and consequently Polymet should be able to provide a very large trust fund for future cleanup actions. Government regulators have an obligation to secure funding to protect Minnesota taxpayers. Large ownership of Polymet by Glencore should itself be a red flag. Glencore and its many subsidiaries are notorious for a wide variety of egregious behavior including tax avoidance, violating UN embargoes of despotic regimes, rampant pollution by its mines, and even major human rights violations. A quick reading of the Wikipedia entry for Glencore gives an overview of some of its wrongdoing as does the sitehttp://pu

Bill Thronson 54654

See attachment

Bill Wallace 9644

DNR, I am submitting my feedback regarding the Polymet proposal. It seems to me that the solution to this issue can be had pretty easily. We all want more jobs and everyone benefits from the materials that will be mined through products used in everyday life. The company says they have a plan to deal long-term with the water pollution and will be putting away money into a fund to address it. The easy solution is to triple or quadruple the amount of funding that the company "claims" needs to be set aside. It is certainly in the company's best interest to lowball the number needed so let's have them put in a much higher number that would cover all possible worst case scenarios. What we don't want to happen is for us to run out of money 40 years from now and be stuck with a company that may not even exiSt If putting triple the amount of money into the fund forces the project to be uneconomical then maybe it shouldn't be built. I certainly think we can negotiate in good faith and say that milestones can be met for the company to get the money back if it isn't needed at long-term intervals in the future. Bill Wallace Mound, MN

Alphabetical by sender's first name

Billy Southwell 43142

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Billy Southwell 425 13th Ave SE Apt 804 Minneapolis, MN 55414-2060

Birgit Walch 42462

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Birgit Walch Stone Church Rd E Hamilton, ON L8W 0B1

Bjorn K Monson 43043

March 8, 2014Tim Dabney, Deputy Forest SupervisorU.S. Forest Service, Superior National Forest8901 Grand Avenue PlaceDuluth, MN 55808Dear Mr. Dabney,I am writing in opposition to the PolyMet copper-nickel mining proposal.In 1948 Aldo Leopold wrote in his A Sand County Almanac that, East of the Rocky Mountains, the only remaining parcel of true wilderness was the boundary waters area of Minnesota and Ontario. So far we have been able to preserve this as the BWCA.Permitting the PolyMet project would be the opening of a Pandora's Box releasing multiple evils: Sulfuric acid, the result of disruption of the sulfide containing rock and exposing it to water and air(oxygen.) This will poison the watershed. It is unlikely that this can be neutralized or contained in the short term, let alone for half a millennium.Poisonous heavy metals, especially mercury which is already a problem in northeastern Minnesota. Asbestos causing malignant mesothelioma, which is a horrible disease . It causes a slow painful death. Asbestos also increases the incidence of lung cancer. As a retired heart and lung surgeon I am particularly concerned this problem.Although drainage from the PolyMet mine would flow to the St. Louis River, which already has adverse effects from acid drainage, allowing a permit for the PolyMet Mine would set a precedent, and likely accelerate permits for mines closer to the BWCA. Acid drainage from these mines would then drain into the boundary waters with disastrous effects.Like with Humpty Dumpty, once we break it, all the king's horses and all the king's men, all of the money and all of good intentions cannot put it back together again.I urgently implore you to decide in favor of preservation, and not allow this process to proceed any further.Sincerely, Bjorn K Monson

Alphabetical by sender's first name

Bjorn K Monson 54768

See attachment

54816

See attachment

Blake Romenesko 42670

See attachment

Blakely Fraasch 44379

Hi my name is Blakely Fraasch, It has come to my attention that Polynet will build their first mine on the edge of the Boundary Waters. In my science class here at Prior Lake High School, we learn the pros and cons of mining. I realize that this mine could cause severe environmental damage with little pros to individuals (little jobs created, with the boom hitting only the corporation). As well as a little economic impact for the state of Minnesota with a huge environmental impact to our land. I believe the right thing to do is to save the beautiful and preserved environment from severe damage. It's time we stop "looking away" from the damage we are causing this planet in order to make some bank. Do the right thing for the true Minnesotans that love our state. Sent from my iPhone

blayne johnson 57479

I would hope people agree that Minnesota’s Natural Resources and water quality is more important than pillaging a beautiful natural forest area for a few dollars and a lifetime of potential contamination. I would express my opinion to not allow the mine to proceed.

Bo Benya 39352

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Bo Benya 3325 High Way 55 Eagan, MN 55121 (651) 621-3109

Alphabetical by sender's first name

Bob Amis 15289

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay, Please consider this my comment on the SDEIS for the NorthMet mining project. My name is Bob Amis. I live in Minneapolis, and own a cabin near the Boundary Waters in Cook County, MN. I have a number of serious concerns with the current Supplemental Draft Environmental Impact Statement. Even though it has been improved from the original Draft Environmental Impact Statement, there appear to be a number of deficiencies remaining in the document, including numerous unsupported assumptions and unsubstantiated, overly optimistic projections which, if uncorrected, will not adequately protect the region from an unacceptably high risk of air and water pollution. I will give two specific examples, although there are many others: First, The SDEIS estimates that the project will increase seepage at the LTV tailings dump from 2,020 to 3,380 gallons per minute. The SDEIS then claims that all but 21 gallons per minute will be contained. That's a collection rate of over 99%. The SDEIS does not support this estimate by naming one tailings pile in Minnesota, or anywhere else, that has experienced such a high collection rate from pumps at the edge of an unlined tailings pile. It is my understanding that comparable real world experience is between 50% and 75% collection rates. The SDEIS does not consider the impact to water quality if the collection rate is lower than this extremely optimistic estimate. I ask you to require the SDEIS to be revised to include real world data on collection rates for tailings piles of this type, and an analysis of water quality outcomes if the tailings pile collection rate is not what PolyMet claiMs Second, The SDEIS acknowledges that the bedrock at the mine site contains numerous fractures, but states that these fractures won't transport pollution into the nearby 100-Mile Swamp and Partridge River. In order to come to this conclusion, the SDEIS assumes low average, or "bulk" rates of rock conductivity, claiming that any pollution will take dozens, or even hundreds of years to travel even a short distance. This defies common sense. We all know that water will flow along the bedrock, find the fractures, and then flow through those fractures at a rapid rate, much faster than the SDEIS assumes. Furthermore, in addition to the existing fractures, mine site blasting will occur every 2-3 days, breaking up 200,000 to 300,000 tons of rock with each blast, creating more fracturing in the bedrock. The impact of this increased bedrock fracturing is not contemplated in the SDEIS. Therefore, I ask you to require the SDEIS to be revised to clearly analyze and explain the impact on surface and ground water if contaminated water from the mine site is transported through fractures in the bedrock. Ms Fay, I am not opposed to this mining project per se, but I am opposed to any project that will pollute the air or water of this beautiful state. I implore you to hold this project to a high enough standard to ensure that our air and water quality are not compromised. Sincerely, Robert W. Amis Jr. 1911 Kenwood Parkway Minneapolis, MN 55405

Bob and Joy Johnson 42045

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Bob and Joy Johnson Harmony, Minnesota

Bob and M Wright 58081

What will we have left for our grandchildren? Everything in our country is not for sale. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Bob Bartlett 9394

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Bob Bartlett 5080 Silver Lake Rd 5080 Silver Lake Rd Mounds View, MN 55112

18647

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Bob Bartlett 5080 Silver Lake Rd 5080 Silver Lake Rd Mounds View, MN 55112

Alphabetical by sender's first name

Bob Bartlett 18985

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Bob Bartlett 5080 Silver Lake Rd 5080 Silver Lake Rd Mounds View, MN 55112

28003

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, The BWCA is unique to the world. There is no other place like it, except for a smaller area in Canada. This treasure has to be given the best protection possible. PolyMet must be able to prove, guarantee that their mine will not affect the quality of wetlands and water in this area. They cannot do this as of yet. Human error happens. that is how we got Asian carp and oil spills. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Bob Bartlett 5080 Silver Lake Rd NW Mounds View, MN 55112-4817 (763) 780-1110

Alphabetical by sender's first name

Bob Bartlett 40461

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Alphabetical by sender's first name

Bob Bartlett 50722

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Bob Bartlett 5080 Silver Lake Rd 5080 Silver Lake Rd Mounds View, MN 55112

Bob Beutel 44578

Dear Director, I cannot find on the DNR website the public comment section on the Polymet application, so please forward this to the appropriate office/file/folder: Polymet has no record at all of mineral mining, much less a record of environmentally safe mining. All the promises and assurances it gives are of no value. The cost of failure is cataclysmic: All of the Boundary Waters and Quetico from Basswood to Crane Lake, and Voyageurs National Park, Rainy River, and Lake of the Woods would be rendered sterile – no fish, no vegetation, no clear water, no safe swimming, nothing. That kind of risk is inconceivable and unimaginable. Those waters are not ours to ruin – we hold them in trust for many succeeding generations. 20 years of profit and a handful of jobs are not justification for ruination of our natural jewels. Robert Beutel Attorney at Law 2080 Edgcumbe Road St Paul, MN 55116 Phone: 651-699-7392 Fax: 651-699-6308 http://bobbeutel.wordpress-com/about/

Alphabetical by sender's first name

Bob Boeck 45187

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Bob Boeck 2207 10th Ave S St Cloud, MN 56301

45189

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Alphabetical by sender's first name

Bob Brezinski 54473

See attachment

Bob Carlson 18089

My name is Bob Carlson. I'm from Ely. I'd like to address wild rice. I started picking wild rice in 1963. I think I'm familiar with all of the major rice beds in Northern Minnesota, and many, many, many of the small, little rice beds. I went through the draft statement. I read everything that I could read on wild rice, and I think that the DNR and the other people involved did a really thorough job in their research on wild rice. Several comments I got about that. The areas downstream of the PolyMet Project have such a tiny bit of wild rice that I don't think it's really an issue. There's not a bed of rice down there that's large enough to harvest any rice out of, and -- and another thing to add in that tiny bit of rice down is something that really went haywire with the wild rice, we've got a lot of lakes in this area that historically didn't have rice. Some examples are Stone Lake near Hoyt Lakes, Seven Beaver. Stone Lake's got more than 100 acres of rice. Seven Beavers has got 4 or 500 acres. Those were seeded by the forest service in the 1970s, and they've got good crops of wild rice right now. There's a whole bunch more and I know a bunch of them that were seeded, some by the DNR, which they're in the process right now of trying to seed some, so that would mitigate any damage, should something happy. A couple other comments on this. They've got Hay Lake listed as a control site, you know, for comparison to the PolyMet Project. I think that's a poor, poor lake for a number of reasons. I picked rice in that lake for a number of years starting in the '60s. Sulfate levels. They check the sulfate downstream of this PolyMet site at a number of places. Two of the places where they checked sulfate layers, levels were much higher than the 10 parts per million. One was 17.something, another one was in the 30s. So it makes me wonder if the DNR and maybe our legislators shouldn't look at raising that 10-part-per-million sulfate level because rice is growing pretty darn good right now where that -- where the levels are higher. I guess the last thing I'd like to say is that the band members in the 1854 Treaty area have concerns about wild rice, but I think their concerns are really unfounded due to all these other lakes that have been planted that historically didn't have rice. Thank you.

19523

My name is Bob Carlson. I live at 324 East White Street, Ely, Minnesota. I'd like to address the wildlife -- or the wild rice issues. I think that concerns about wild rice with this PolyMet Project are really overblown. I've been picking wild rice since 1963, and I've picked most of St. Louis County and adjoining counties, and downstream of PolyMet, I'm completely unaware of any significant wild rice stands. So even if they did release sulfites that were damaging to wild rice, there isn't any wild rice there to hurt, so I think it's an insignificant thing to think about. And another thing, if wild rice was harmed by some sulfides released from the PolyMet Project, they could quite easily mitigate that by purchasing some ponds and planting wild rice. The United States Forest Service and the State of Minnesota have planted wild rice in the area with very good success. Stone Lake near Hoyt Lakes is one example, it has at least 150 acres, or maybe 200 when the crops are good. Seven Beavers, which is at the headwaters of the St. Louis River, has much more than that, maybe 4- to 500 acres of wild rice. That was planted by the United States Forest Service in the '70s. Plus, there are some lakes near Ely that were planted and wild rice grows well, and the State of Minnesota, at this time, the Minnesota DNR is attempting to get rice growing in a lake called Garfield Lake. It's between Soudan and Ely off the Mud Crick Road. So I think the wild rice concerns are really insignificant and should not be a factor in this draft EIS. Thank you.

Bob Hale 44617

My concern with granting permits to the mining companies pertains to the water quality of the mines after the metals have been exhausted. I do not see adequate funds being required to execute a plan B in case all the currently mentioned mitigation fails. The main issue is: you can't take it back once it has been released into the environment. According to my analysis of past industry cases, there is a larger than prudent risk of contamination. I don't see specified, who will monitor these so called bedrock walls that would contain pollutants. Overall, it doesn't seem like a good idea to risk our wonderful resources. Why don't we just give the mine workers a salary, it would be cheaper than trying to fix things afterwards. Bob Hale St Paul, MN

Alphabetical by sender's first name

Bob Haugen 17228

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Bob Haugen 5813 36th Ave N. Crystal, MN 55422

50494

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Alphabetical by sender's first name

Bob Haugen 52227

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Bob Haugen 5813 36th Ave N Crystal, MN 55422

Bob Ilg 45848

Subject: SDEIS Date: March 12, 2014 To: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us Minnesota DNR, Please do not let SDEIS do any mining in the Superior National ForeSt Please save our wetlands, bogs, and swamps from being destroyed by pollution due to open-pit mines. We do not want contamination of ground water or our lakes and rivers. Once the water is polluted it will never be the same. Clean water is precious to every form of life. Minnesota's valued resource today and the future for its economy. SDEIS is inadequate and should not be mining in a fragile ecosystem. Robert Ilg 57 Bunn Trail Grand Marais, MN 55604

Bob Kaiser 16234

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Bob Lenzmeier 44829

Mar 13, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. Twenty years of jobs with the result being hundreds of years of polluted water. Any project that harms the water supply should be turned down without question. Sincerely, Mr Bob Lenzmeier 5041 Wood Ave Saint Paul, MN 55110-6625

Bob Ray 42027

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Bob Ray St Paul, Minnesota

Bob Shannon 47660

Please find attached my comments on the Supplemental Draft EIS. Sincerely, Robert Shannon Grand Marais, Minnesota

Bob St. Dizier 21252

I have confidence in the DNR and believe the SDEIS process for PolyMet Mining’s proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet’s project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I’d also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet’s plans comply with Minnesota’s laws. We cannot afford to miss this job opportunity. Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. The United States needs and the jobs it can get. Complete the process. Bob St Dizier 316 Montrose Ave Lafayette, LA 70503 bstdzier@cox-net

Alphabetical by sender's first name

Bob Tammen 18090

I'm Bob Tammen from Sudan, Minnesota. I worked in several of the mines, and in the '70s, I had the privilege of working on the PolyMet site, back then it was Erie Mining Company, and it's an interesting history, and in my golden years, my wife and I spent a lot of time working with environmental organizations and I worked the Blueberry Festival in Ely, and perhaps some people here have stopped by and talked with me, reasoned with me, and there are a few that agree with me and one, especially, stuck in my mind. He was a water plant operator that worked on the Dunka site. They had a water treatment plant on that site to clean up the water before it ran into Birch Lake and they eliminated his job. They shut down that water treatment plant, which was meeting Minnesota's discharge standards, and they went to a constructive wetland, which was cheaper to operate but did not consistently meet Minnesota's discharge standard. As a matter of fact, there's a variance request in right now for the Dunka site. And just recently, we've had other request for a variance. We've heard so much about Minnesota's stringent environmental regulations. There's a request for a variance in right now on PolyMet's leaking tailings pond over here. It's leaking 2.9 million gallons a day. Now, that plant shut down in 2001. They've had a very good opportunity to clean it up. I think it's time they started cleaning up their mine sites and quit granting variances. We've also heard mention of socioeconomic effects and I think, once again, the environmental impact statement should do the science. We've heard people talk about 2,000 pages of science in that EIS and we've heard talk about socioeconomic effects. The studies are out there. If you build your economy on a mining industry, on the average, in the United States of America, you have you lousier economy than people that built their economies on nothing but the intellectual horsepower of their residents. We're going to be trapped in this boom-and-bust economy until we finally accept that we are a talented people up here and we're going to have to build our economy on the talents of our people instead of on stripping our assets, which are going to be shipped overseas, they aren't going to be building windmills in our backyard. We've already got a contract outstanding with Glencore. There's only half a dozen places on earth that can process these plant minerals. They're headed out of our country. So with that, I'd say, we should start working now on the future of our children. Give them something besides mining. Thank you.

18205

My name is Jacquelyn Halberg, and I respectfully defer my time to Mr. Bob Tammen. I'm Bob Tammen from Soudan, Minnesota, T-A-M-M-E-N. My wife and I live in Soudan, a little mining town, and I worked in several of the mines when I was younger, so I'm familiar with the process, with the economy, and so a lot of people have spoken on environmental issues. I want to focus a little bit on socioeconomic issues. First, I would respond to the mayor of Hoyt Lakes who said the IRRRB is working tirelessly to diversify the economy of Northern Minnesota. I go to IRRRB meetings, and I can assure they work tirelessly to rebate tax dollars right back to the mining industry; In the last 20 years, over $200 million. They did it again last year, and they'll do it again this year unless we embarrass them enough to quit rebating tax dollars to taconite companies, and it takes a lot to embarrass a mining company. I would also comment on the Chamber of Commerce spokesperson that said the industry does not seek to weaken Minnesota's environmental regulations. The industry regularly requests variances to Minnesota's discharge standards, and the State of Minnesota regularly grants those variances. I checked the list at the end of 2013. There is a variance request for PolyMet's tailings pond which is leaking approximately 2.9 million gallons a day as we speak. If we have stringent environmental regulations in Minnesota, why are these tailings ponds constantly leaking. And in closing, I would speak as a union member who believes in collective bargaining, and I would point out to our friends in the labor movement that have been promoting this project that it's been a long battle. I lived through Reaganomics. It's even worse now, and I sympathize with people trying to maintain a decent standard of life, but we've seen what happened in Wisconsin, we couldn't get the vote on the recall. We've seen what happened in Michigan, right to work. Why does that happen? You union people should realize that environmentalists tend to be progressive people that support your collective bargaining agreements and tax (inaudible.) Why are you bashing the last friends you have in the State of Minnesota? Thank you.

Alphabetical by sender's first name

Bob Tammen 41216

Please accept the following comments. They will also be submitted as hardcopy for your convenience.-Bob Tammen Lisa Fey, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Re: Comments on Northmet SDEIS Dear Ms Fay: Please accept the following comments on behalf of myself and my wife Pat. I have worked in the mining industry as both a direct and contract employee in Montana, North Dakota, Minnesota, Wisconsin, and Michigan. Pat was employed as a teacher for over 30 years and we have seen the negative economic and environmental consequences of mining in the communities where we were employed. As retirees in northern Minnesota, we oppose opening up a sulfide ore body while the State of Minnesota has demonstrably failed to properly regulate the taconite mining industry. Sincerely, Robert Tammen PO Box 398 Soudan, MN 55782 ********** GLOSSARY It has been my experience in the industry that acid draining from a mine is referred to as Acid Mine Drainage. Industry efforts to euphemize the term to Acid Rock Drainage is sadly unprofessional and should be corrected in the glossary and in the SDEIS. ES-10 "uninterrupted operation" There is no history or probability of uninterrupted mining operations in Minnesota. ES-24 Adaptive Management. As a Vietnam veteran, I personally participated in one of the larger adaptive management exercises in American history. When my unit, the 173rd Airborne, was transferred from Okinawa to Vietnam in the spring of 1965, we were told we'd be returning in a few months. Of course, we never returned to Okinawa. The war drug on for 10 years but the magic of adaptive management allowed the military industrial complex to keep the profits rolling in regardless of costs or casualties. Just as the military industrial complex dominated US policy, the mining-political complex dominates Minnesota to the detriment of its environment and economy. As a firewall against excessive meddling by agency personnel, the mining industry hires retiring State employees to make sure that any "adapting" they must do is favorable to their bottom line. Our environment should not be exposed to the vagaries of adaptive management. ES-31 PolyMet. Several documents refer to PolyMet and Poly Met (Two words). There must be a reason for having two different legal entities. The SDEIS should explain the difference and perhaps declare which will get dividends and which will have environmental clean up liability. ES-40 Federal, state, and local taxes. The SDEIS does not quantify rebates traditionally given to the mining industry. Our history of rebates to the taconite industry should be documented and the probability of rebates to the sulfide mining industry should be acknowledged. ES-40 IMPLAN. The November 2012 UMD Economic Impact Report and it's IMPLAN references are not credible. Page 4 declares that mining totals approximately 5-3% of Minnesota's Gross Regional Product but the same page lists Minnesota GRP as $281-1 billion and mining GRP as $4-5 billion. Mining is obviously less than 2% of Minnesota's economy. ES-41 "There is no legal access to the federal lands via land, The SDEIS should acknowledge that the mining industry has the power to prevent American citizens from accessing Superior National Forest land and should resist efforts to give the industry even more power by facilitating a sulfide mining operation in Minnesota. ES-41 Cumulative Effects. Respected geologists have estimated that the Duluth Complex is a 10 billion ton ore body and have predicted with great certainty that it will be developed. Being the State of Minnesota has been able to estimate the cumulative benefits for school trust funds, the State should also be able to give a

44398

Dear Ms Fey, Wetlands Action Group requests that a cost-benefit analysis be done that recognizes ore removal as asset depletion. We also request that the EIS analyzes the synergistic effects of discharging mineral based endocrine disruptors from mining operations into waters that already have other endocrine disruptors. Sincerely, Robert Tammen, President Wetlands Action Group PO Box 387 Soudan, MN 55782

Alphabetical by sender's first name

Bob Tanner 18377

I'm Bob Tanner from Soudan, Minnesota. An old mining town. I worked in several of the mines in my younger years. And there are a few issues with the supplement to the EIS that I believe need improvement. Of course, being we live in that economy I don't think the EIS treats the economic issues thoroughly. Now there's some sections in there that talk about the benefits of mining, but we know that there are significant costs to living in a mining economy. I will start with the rebates we're giving to the mining company. We read that EIS and see that we're getting millions in taxes. But that EIS doesn't disclose that we're giving $220 million back to the mining companies. Over the last 20 years they clawed back $220 million of our tax dollars. Now that's important to my wife Pat and I because our high school in Tower closed a couple of years ago. Just a little bit of that 220 million could have healed us up for quite a while. But the mining company has the political clout. They get that money back. And those of us that came down here from The Range drove down Highway 53. What is it going to cost us to move that highway? The mining company wants the highway moved. We're going to pay. They have enough political clout to get an agreement that we're going to move that highway. Well, Pat and I go to the informational meetings to try to figure out how much it's going to cost us to move that highway. A year or so go they said, "Well, between 60 and $150 million." A couple weeks ago we went back for another informational meeting. "Well, we have a lot of alternatives. Between 80 and 300 million." Now any time you got blacktop involved, I would say you're going to end up the higher end of the range. But that's the cost of having a mining economy and not being diversified. Another thing I bring up is that we've heard lot of people say that we have clean water in Northern Minnesota. We're responsible stewards. That we can trust our mining organizations up there to do the right thing. I live within a mile of Lake Vermilion. Sulfates in Lake Vermilion are now over 10 milligrams per liter on our end of the lake. We know there's over 100 miles of headwaters in the St. Louis River. My wife and I love Birch Lake. The Dunka site is still leaking toxic crap into Bob Bay of Birch Lake. We've heard speakers say, "Well, we've got reverse osmosis. We got wonderful technology now." If this technology is appropriate for mining, why aren't we using it to clean up our existing messes? Minnesota has a history of being unable to regulate the mining industry. Thank you.

Bob Wirtanen 46536

My name is Robert A. Wirtanen currently residing at 5805 English Drive Farmington, NM 87402 I was raised in northern Minnesota for 24 years and I currently own property in Minnesota. I am opposed to the SDEIS NorthMet Project for the following reasons. Waters Resources are portrayed as capturing greater than 90% of the water for treatment. This should be reset to 100%. Mercury loading levels to a receiving water resource should NEVER be allowed to increase.(example Table 1 Page 53 the Embarrass River) Aluminum and lead evaluation criteria should NEVER be allowed to exceed applicable water quality evaluation standards Robert A. Wirtanen, CSP Retired - Environmental Specialist (35 years) Oil and Gas Industry.

Bobbi Galush 4

I have been following this saga for over 8 years now. Northern MN needs this. Let's go. The EIS addresses all of my concerns. I am embarrassed that the government has delayed this project for this long. No wonder why northern MN has been suffering for so long. Reverse osmosis is the best technology to keep the water supplies clean. I deal with it daily at my place of work. It is extremely effective. Quit catering to all the tree huggers in this state. We need mining for northern MN. Sent from my iPad

Alphabetical by sender's first name

Bobby King 16260

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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bodin sabrina 40392

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, bodin sabrina 3 allée anatole france séné, ot 56860 FR

Bois Forte Band 42979

All; Please find attached the Bois Forte THPO comments on the NorthMet SDEIS. If there are any questions feel free to contact me. Sincerely; Bill Latady Curator/THPO Bois Forte Band of Chippewa Bois Forte Heritage Museum 1500 Bois Forte Road Tower, MN 55790 218-753-6017 (v) 218-753-6026 (f)

Bonnie 45164

I believe it is not worth the risk to our water resources so I am opposed to the PolyMet proposal. I have studied the issues and attended the public hearing in St Paul. I do own property just a few miles from Hoyt Lakes and the proposed site. Bonnie Boberg 12600 Parkwood Drive Burnsville mn 55337 Sent from my iPhone

Bonnie Blodgett 38722

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Bonnie Blodgett 1 Crocus Hl Saint Paul, MN 55102-2809

Bonnie DeClercq 10748

Water needing to be treated for 200-500 years is just too long. What an awful legacy to leave future generations. They need to have a better process before I would be in favor of this mining. Bonnie DeClercq

Alphabetical by sender's first name

Bonnie Ford 57873

I ask you to oppose PolyMet's proposal for sulfide ore mining in the Superior National Forest at the headwaters of the St. Louis River. They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area. The mining will leave square miles of talcum powder-fine waste, piled high. Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock. PolyMet suggests that to prevent pollution of the St. Louis River watershed they will collect the hundreds of millions of gallons of rain and snowmelt waters that filter through the waste every year and run them through water treatment plants ... for up to five centuries. The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project. The cost liability for cleanup over centuries is also a great cause for concern. Please oppose this project.

Bonnie Kamel 40182

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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Bonnie Morris 39523

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Please consider the significant environmental impact that this mine would have to the treasure that is our Northern Minnesota- the wilderness, the pristine waters of the BWCA,to the Great Lake of Superior. Please think of the generations of the First People's who lived lightly on this land. Consider how the unintended consequences of what is projected but not known about how this mine's construction and operations could lead to impacts that would affect this area for generations to come. Sincerely, Ms Bonnie Morris 3129 James Ave S Minneapolis, MN 55408-2519

Bonnie Nelson 18279

Bonnie Nelson. For the Land Exchange, I am concerned that we are taking land that is currently in a natural state and turning it into or exchanging it into land that's going to be mining. It would make more sense to take mining land and turn it into a natural state in exchange, so that the two would have an equal use exchange. Does that make sense?

Bonnie Peterson 45234

Dear Ms Fay, Dear Federal and State Agency Leaders: Who really believes that polluted leach water would be monitored and treated for hundreds of years after the mining ends. We have no mechanism for long term treatment on that scale. It's more likely that a polluter-friendly government will reduce treatment requirements - or forget them entirely. The land swap should be denied, and mining company should not be allowed to strip mine and expose sulfide waste. Mining company should instead mine underground, replacing waste materials in mined out tunnels. If the strip mine is to be allowed, regulators must keep in mind that are no materials that will hold up for hundreds of years. Waste pit liners will degrade over time, and leak. The project must include at least one, and probably more liner replacements. Look around the country and notice neglected pipelines that leak and burst because once they are installed we neglect them. 20 years of jobs is a bad trade for hundreds of years of probleMs I am counting on you, as regulators, to protect Minnesota's long term interests. Thank you for your work. Sincerely, Bonnie Peterson Bonnie Peterson 155 Sherwood Road Shoreview, MN 55126

45618

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: Please reject the land swap that would enable sulfide mining in the arrowhead region of Minnesota. Sulfide mining and resultant fragmentation of our wild areas would be a permanent loss for Americans. With so few wild areas left in the world, it is more important than ever to preserve them where we can. Sincerely Bonnie Peterson Bonnie Peterson 155 Sherwood Road Shoreview, MN 55126

Alphabetical by sender's first name

Bonnie Peterson 45621

Dear Mr Dabney, Mr Bruner and Ms Fay: Please reject the land swap that would enable sulfide mining in the arrowhead region of Minnesota. Sulfide mining and resultant fragmentation of our wild areas would be a permanent loss for Americans. With so few wild areas left in the world, it is more important than ever to preserve them where we can. Sincerely Bonnie Peterson Bonnie Peterson 155 Sherwood Road Shoreview, MN 55126

Bonnie Ploger 16213

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Bonnie Shallbetter 45677

Hello, I am a resident of Hackensack, Minnesota. I have lived in Minnesota all of my 60 years and have been very proud of that fact. Minnesotans treasure the out of doors and the myriad of outdoor activities the state has to offer. I have been going to the Boundary Waters since I have been 13 years old and it has been a significant factor in shaping me as an adult and my relationship with the outside world. It is truly rare to have a place like the Boundary Waters where one can experience quiet and a sense of self. I, therefore, am very much against any mining by PolyMet or any other company with that goal. I strongly believe that it will change the Boundary Waters forever. The shortsighted 20 years of jobs verses 500 years of pollution (and why would it stop there.) is not the legacy we should be leaving for our children and the generations to come. I fear that if the mining proceeds we will hugely compromise our natural resources and our beautiful state of Minnesota. Thank you for your time, Sincerely, Bonnie Shallbetter 934 32nd Street NW Hackensack, Minnesota 56452

Alphabetical by sender's first name

Bonnie Shenski 19531

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Bonnie Shenski 2606 Chapel Lake Dr apt105 Gambrills, MD 21054 US

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bonnie staples 17433

Feb 16, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Brad Bjorklund 40311

Dear Ms Fay, Dear Federal and State Agency Leaders: Sometimes one relies upon experts in the field and in this case I find that Dave Crawford of White Bear, Minnesota, a retired State Park Naturalist, has made correct and truthful comments about the SDEIS that need to be adopted. I have read and agree with his conclusions. Please adopt them. I do not want my grand children to have to drive way around the dead zone you will create on and around the Polymet site. Sincerely Brad Bjorklund 36290 Westlund Ave Taylors Falls, MN 55084 Brad Bjorklund 36290 Westlund Ave Taylors Falls, MN 55084

Brad Borrman 36887

To Whom It May Concern; I am against copper-nickel mining by PolyMet, or any similar operation in NE Minnesota. I have seen the damage done by other mining projects and do not want to jeopardize the clean water, fishing, forests, and tourism industry we currently have in place. When you make an informed decision, you balance the risks vs rewards, and the risks are far too great. We have something special in NE Minnesota. Do not take the chance of ruining it for our generation, my children's generation, grandchildren's generation, and all generations to come. Please do what is right and deny this permit. Thank you. Brad Borrman 111 Westmaher Drive Marine on St Croix, MN. 55047 612-850-4152(cell) bradbwca@aol-com Sent from my iPad

Alphabetical by sender's first name

Brad Clifford 19530

My name is Brad Clifford. I'm with -- I live at 1006 West Sixth Street in Duluth, Minnesota, 55806.My comments are in agreement with the Water Legacy in addressing the cumulative effects and the request for an EPA study. Last month, 59 groups in Minnesota, Wisconsin and Michigan asked the United States Environmental Protection Agency to do a cumulative analysis of the effects of mining on the Lake Superior Basin. These 59 groups included Duluth businesses, non-profits and faith groups like Whole Food Co-Op in Duluth; the Institute for a Sustainable Future; Idle No More Duluth; Peace United Church of Christ; Food, Energy and Environmental Team. On January 6, Congresswoman Betty McCollum sent a letter urging the EPA to use the funds provided by Congress to conduct an assessment and inform citizens of the generational consequences of sulfide mining to impact ecosystems, human health and the basis of tremendous water resource. The PolyMet SDEIS doesn't study impacts that could affect mercury contamination of fish in the St. Louis River Estuary, let alone impacts to habitat and tribal resources in the region. A cumulative effect analysis of mining should be done before the PolyMet SDEIS gets finalized. That would permit us to know the consequences before opening up Minnesota's northeast to a sulfide mining district.

57354

My name is Brad Clifford. It is C-L-I-F-F-O-R-D. I live at 1005 W.6th Street, Duluth, Minnesota 55806. My telephone number is (218) 260-3208. And my comments are reflective of that information that I've heard in many community conversations, as well as conversations that we have looked at at Northstar Community Development Corporation, which for 35 years we, as a nonprofit organization, look at economic development, small business development, job creation, cost per job, and sustainability of risking capital to create economic opportunity. Over our 35 years we have invested eight million to nine million dollars with 350 ventures, and 125 are still in business today, with about 600 jobs. So, with that, I look at the history of '72, 1972, when US Steel closed down out in Morgan Park 320 acres that are still on the Remedial Action Plan with the Superfund site, and there is no money to clean up an estimated 28 to 38 million dollar cost to reclaim and restore the land. And some say the land will heal itself. And others say, "If we ever lived out there, we would create a Love Canal incident all over again." We did manage, I believe, a sizable amount of money, somewhere between I think 15 to 20 million, I'm not sure of the exact amount, with the Equestria (phonetic) cleanup. And there was some dumpings that were in Lake Superior that the Red Lake Tribe is investigating, which many dismissed it, not wanting to look at the impact to fish migratory patterns and other issues to the habitat when contaminants were put into the lake. And when we see drought and when we see lack of water, like in Colorado or other places in the country, and we can buy water at $10 a gallon, our greatest resource, above and beyond what we cut down of the trees or what we can dig up out of the earth, really is our water. So, as citizens of Duluth, the question we are scratching our head and saying is, "Well, wait a minute. Nobody has cleaned up the US Steel site." So, if we are going to exploit and take one percent of the earth and crush the other 99 percent and leave tailings, what would Judge Myles Lord say? What would we do to clean up after the fact? And if we simply say, "Well, we will shove it down the road to the next generation," and here we are, 40 years later, and the US Steel site is still a mess. How do we trust this economic opportunity? And how do we assure ourselves that we can see sustainability, we can see an economic balance, sort of the idea of an "economic equilibrium," and Dr. Gram Nash's theory, who was a Nobel Prize winner on economics, where values were assigned to each component, the land exchanged, the reclamation, the actual value of the minerals in the ground and the cost to get them up, and the tax revenue that the agencies and state can levy to keep it balanced. And as long as those answers come up to a balanced equation, then we should -- we should go forward as quickly as possible. However, if the questions aren't answered and mitigation and rationalization and the science isn't proven, that's the problem that we have. Who can say honestly and clearly that this science has been proven? When Mesabi Nugget tried to prove their technology, they did a very, very small equation, and it took several years for that to be proven, before they went forward to the next step. And if we skip any step and try to argue that our concerns are dismissive, then the deliberative democratic process gets thwarted. And so suddenly somebody's assertion isn't as important as the individual that has more money and can buy it, does it? So, when we look at our mineral rights in our forest, they may not be worth what some people believe them to be worth. And if they are, then show us what the math is. And if they can do that, then people will buy into it. But if they can't, and they can't deliver, then remediation, for example, in the river, if it gets to certain levels -- and how do we determine those levels? At .2 on the map, and down at the rice patties

Alphabetical by sender's first name

Brad Davidson 44755

269 Anemone Dr Boulder, CO 80302 TO: Lisa Fay, EIS Project Manager, My name is Bradley R. Davidson, I have a Masters in Environmental Geochemistry and have lived in the Southern and Central Rocky Mountains for most of 40+ years. I have seen first hand the results of the hard rock mining of massive sulfides underground though out the WeSt Efforts to control AMD in many area of the West have met with limited success and long, long term care and oversight has been the prognosis. The only bright spot is that some sites have become living laboratories for the study of AMD. Requests for samples come from around the world. Not an export to be proud of. The NorthMet Mining Project and Land Exchange and its Supplemental DEIS represents a significant improvement in identifying impacts and solutions. This is due to the expanding embrace of interrelated parties and their interests to the realization that other resources will be impacted and their availability to future generations imperiled. It is encouraging to see that the rice waters as well as other 1854 treaty concerns are priority iteMs The potential impacts to the watersheds and the other renewable resources which support sustainable economies cannot be taken lightly and trusted to the normal economies of mining. We owe it to the future to take it slow and do it right the first time. I feel that the process of Impact Assessment continue but not progress with the following points addressed. 1) Why Sulfides will always present a hazard and to consider a sulfate potential standard related to surface area. 2) What kind of extreme weather events are considered. 3) Who would maintain containment in perpetuity. 4) What value do we place on the complete loss of a renewable resource in the immediate area. 5) What value do you place on the potential loss of a much greater area and its resources. 6) What if we made a Return To Initial State a requirement for tailings. I can comfortably discuss just the first point but it is to the heart of the issue. It is a matter of chemistry and physics. Rock turned to coarse flour. In order to separate the low grade disseminated metal sulfides from the waste rock, the ore must be milled to the point where the target minerals are liberated. Liberated: that the grain size is small enough so that one material (mineral) dictates the grain's response to various processes and treatments. Sulfide ores had been sequestered within solid rock for millions of years. What had been solid rock will run through you fingers easily, the texture of fine sand with grains . 074 to .42 mm in diameter. The separation process will evolve as conditions change but the goal is to efficiently remove the valuable from the waste. Trial and error is a common method of refinement in recovery rates. Most likely much regrinding occurs and as a result of the milling the surface areas of metal sulfide minerals such as pyrite and chalcopyrite could be on the order of a fraction of a square meter per gram. The now liberated sulfide minerals are very reactive with respect to oxygen and immediately begins to oxidize or at least will if given the opportunity. The urge to oxidize begins during the milling process and the oxygen is quickly depleted in the early stages of the milling process. Sulfate formation is usually anticipated in flotation processes. The specific hydro-metallurgical process employed will probably strictly control oxidation. The dramatic increase in material surface area contributes to this extraction process but it leaves the discarded sulfide ripe for oxidation. The rate of pyrite oxidation by O2 is first order with respect to the surface area. First order: as you increase a concentration of a particular reactant the reaction increases by a like amount. Double the exposed surface of metal sulfides the rate of oxidation doubles. We are in fact faced with a tremendous increase in the concentration of sulfide surface area by many orders of magnitude. If No

Brad K 43090

Lisa, I am 100% IN FAVOR of the PolyMet Met Mining project and the firm's plans to extract minerals and metals on the Iron Range and northern Minnesota lands managed by the firm. I will also state that I am an avid BWCA/Quetico canoe camper and also water sports enthusiast who frequents numerous northern Minnesota lakes and rivers. I am also involved as a volunteer and camper parent of a YMCA youth camp near Eveleth, MN . I also use the area's bike triails/paths and state and national forests and campgrounds on the Iron Range. This project will be good for the region and state. Again, I am in favor of issuing PolyMet the necessary permits and regulatory paperwork necessary to proceed with the firm's mining plans. I believe it will be very positive for Minnesota economic development and provide much needed natural resources for our region and nation and others around the globe. It will provide needed jobs so more people can pursue the American dream. I am confident in PolyMet's ability to manage its operation(s) and comply with Federal and State regulations - and not have a negative impact on outdoor recreation activities or the natural environment beyond the boundaries of the mining operation and related land/soil and watershed. Thank you, Brad Brad Konkler 23 Wildwood Ave St Paul, MN 55110 952-491-1470 - cell

Alphabetical by sender's first name

Brad Little 38871

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Brad Little 2729 E 6th St Duluth, MN 55812-1507 (218) 269-0904

38873

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. A health impact assessment should be standard for projects like this that have the potential to affect both human and environmental health across the Arrowhead. Sincerely, Mr Brad Little 2729 E 6th St Duluth, MN 55812-1507 (218) 269-0904

Alphabetical by sender's first name

Brad Little 38939

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. If this mine is to be developed safely and responsibly, we must take the time to ensure that PolyMet is willing to make sure no human lives or ecosystems are put at risk by this project. 20 years of copper reserves is not worth jeopardizing ten percent of the world's fresh water in the Lake Superior watershed. I suspect that in my lifetime we will see fresh water become even more valuable then copper. Sincerely, Mr Brad Little 2729 E 6th St Duluth, MN 55812-1507 (218) 269-0904

38942

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Brad Little 2729 E. 6th St Duluth, MN 55812

Alphabetical by sender's first name

Brad Little 48630

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Brad Little 2729 E. 6th St Duluth, MN 55812

Brad Oachs 18088

Good evening. I'm Brad Oachs; Oachs is spelled O-A-C-H-S. I'm chief operating officer of Minnesota Power. I've lived in Northeastern Minnesota for over 24 years. In my various us roles at Minnesota Power and through its utility operations, I have worked with several Iron Range mining businesses; US Steel Minntac, Hibbing Taconite, Arcelor Metal and North Shore Mining. The metals mined at PolyMet will be used for electrical components, cell phones, computers and catalytic converters; products critical to our lives. Mining has a long history this our region. Because of this history, significant support exists; the regulatory framework, the people and technical expertise, the physical community infrastructure, all there to safely mine copper-nickel. For these reasons, there is no better place in the world to be mining copper-nickel than right here, and I support the PolyMet Project. So often the response to opportunities and projects like this is not in my backyard. I find it very refreshing to hear many of you speak to, "Yes, in my backyard," and why we can do that is because we know we can do it well. Thanks.

Brad Sagen 42928

Public Comments on the NorthMet SDEIS by Bradley Sagen are attached. Bradley Sagen 13667 Deer RD Ely, MN 55731 218 365-6461 hbsagen@frontiernet-net

Brad Snyder 40701

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, As a current Science Teacher and Outdoor/Environmental Education instructor, and former Engineer I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Brad Snyder 8887 Dallas Ln N Maple Grove, MN 55369-9270

Alphabetical by sender's first name

bradford c. 43234

My name is brad carlson. My wife and I own a cabin outside of ely - 840 kawishiwi trail. We have had the place for over ten years. Our six acres is a precious place to us as is the entire wilderness, surrounding national forest and community of ely. We are in strong opposition to allowing copper mining in Minnesota. For a few jobs created during the brief period such mining would be around it will leave in its wake hundreds of years of toxic waste and destruction. We do not consider this a fair trade off - not even close. This type of mining has a proven track record of being destructive to the environment and communities - without exception. This fact alone should dictate a flat denial of permitting for such mining in Minnesota. The US e.p.a. has shown this industry to be the largest polluter in our nation. There is no doubt this type of mining if allowed in the area proposed would have devastating negative effects on the wilderness, the local communities, water supplies, wetlands and property values (ours included). We urge you to deny the permit for polymet to mine for copper in this area and in the state. Shame on Minnesota for even considering it. Signed, Brad carlson and barbara garza, residents of the affected area in question. 840 kawishiwi trail Ely, mn 55731 This is a second version of this comment because I forgot to put our full address on the firSt

43249

My name is brad carlson. My wife and I own a cabin outside of ely - 840 kawishiwi trail. We have had the place for over ten years. Our six acres is a precious place to us as is the entire wilderness, surrounding national forest and community of ely. We are in strong opposition to allowing copper mining in Minnesota. For a few jobs created during the brief period such mining would be around it will leave in its wake hundreds of years of toxic waste and destruction. We do not consider this a fair trade off - not even close. This type of mining has a proven track record of being destructive to the environment and communities - without exception. This fact alone should dictate a flat denial of permitting for such mining in Minnesota. The US e.p.a. has shown this industry to be the largest polluter in our nation. There is no doubt this type of mining if allowed in the area proposed would have devastating negative effects on the wilderness, the local communities, water supplies, wetlands and property values (ours included). We urge you to deny the permit for polymet to mine for copper in this area and in the state. Shame on Minnesota for even considering it. Signed, Brad carlson and barbara garza, residents of the affected area in question.

Alphabetical by sender's first name

bradley janssen 41875

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Bradley Schmidt 39982

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Bradley Schmidt 17 13th St NE Faribault, MN 55021-3813

Alphabetical by sender's first name

Bradley Sorock 42468

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Bradley Sorock 1917 Irving Ave S Minneapolis, MN 55403-2824

Bradley Thompson 41666

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Bradley Thompson 5400 46th Ave S Minneapolis, MN 55417-2310

Brandenburg Gallery 46103

To whom it may concern: M.I.T. researchers, when asked their opinion on whether or not copper-nickel sulfide mining should be permitted in northeastern Minnesota replied: "In a water table as fragile and valuable as the one in northeastern Minnesota, you just don't do it." The PolyMet Environmental Impact Study is hypothetical. Even proven first methods can result in environmental disaster given the event of natural earth movement, equipment failure, or human error. Should companies be allowed to put at great risk the health and welfare of ecosystems, people, and wildlife. No, because individual citizens are not permitted to. If a terrorist were to come and poison our water supply we would go to war over it. Minnesota is defined by its lakes and quality of clean water. The shortage of clean water in the world is becoming increasingly severe and large scale. Unlike other resources, there is no substitute for clean water. The world's water crisis is closely related to the flaws of modern economics and politics. Greater than a crisis in jobs, is a crisis in our own values. We need jobs. Well, some jobs will kill you. I am saddened to think that Minnesota even considers permitting copper-nickel sulfide mining. Minnesota ought to first make mandatory the recycling of all metals. Just say NO to permitting sulfide mining in Minnesota. Sincerely, Milli Salmela Bissonett P.O. Box 31 Ely, Minnesota 55731

Alphabetical by sender's first name

Brandi Balmer 38878

Mar 11, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Brandi Balmer 1422 E 3rd St Apt A Duluth, MN 55805-3936 (608) 201-9519

Brandon 44581

Hello, I am a current student at prior lake high school and I would like to let you know that the mining idea next to the boundary waters will be a bad decision for not only the company but also the environment. The clean up costs will far outweigh the costs of running this mine for only 20 years. It is absurd to think that you will be able to clean up and pay for the clean up many years after. I beleive that this is a bad decision for the fate of the precious boundary waters and the environment around it. Please make your decision wisely. I normallyddon't get involved with environmental impact statements, but this one stands out to me. Thanks, Brandon

Alphabetical by sender's first name

Brandon Cooke 16243

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Brandon Swann 42684

See attachment

Breawnna Wunder 19513

My name is Breawnna Wunder, B-R-E-A-W-N-N-A, W-U-N-D-E-R. My address is 3515 Columbus Avenue South, Minneapolis, Minnesota 55407.And here is my statement. The SDEIS is insufficient and should not be approved. It does not provide adequate information about the water treatment. How will up to five centuries of water treatment be paid for? No details are provided as to how the centuries of operation, maintenance, monitoring and reconstruction of water treatment facilities will be paid for. What financial institution has ever lasted even one century, much less five? The mining industry as a whole is responsible for the largest and most costly environmental cleanups in our nation. Across the country, environmental damage from sulfur mines is well documented and well known. In Minnesota, we value our waterways, and it is unacceptable to not be protecting our ecosystems for our current citizens, as well as our future citizens. Claims in the SDEIS that mercury and sulfate pollution will decrease in nearby waterways as a result of mining are dependent in large part on operation of water treatment systems that are not detailed. To ensure protection for future generations, we need a detailed report that guarantees the protection of our waterways. Thank you.

Alphabetical by sender's first name

Brenda Adams 16912

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Brenda Adams 101 Judd Street Marine on Saint Croix, MN 55047

50215

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Brenda Adams 101 Judd Street Marine on Saint Croix, MN 55047

Alphabetical by sender's first name

Brenda Ammon 41988

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Brenda Ammon Wabasha, Minnesota

Brenda Beebe 22188

Dear Sir or Madam: If it is the mission of the Minnesota DNR is to “work with citizens to conserve and manage the state’s natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life”, I don't understand how we can even be having a conversation about the possibility of allowing this mining. Even if the PolyMet mine were going to provide for thousands of good paying jobs, it would not be worth a minimum of 500 years of cleanup. The cost to the taxpayers of this state will be unthinkable, and the costs will be on the taxpayers because corporations always externalize such costs. No reasonable person can think that any corporation will live up to the responsibility of paying for that kind of cleanup, and that is just the financial coSt The cost to the environment would be a sustainable quality of life. No one would be able to live in that area. A minimum of five hundred years of cleanup basically means there is no way to clean it up. As a taxpayer and a citizen that loves this state, I say this mining project should not be approved. Regards, Brenda Beebe

22192

Beebe, Brenda (DLI) would like to recall the message, "PolyMet Mining".

22660

Dear Sir or Madam: If it is the mission of the Minnesota DNR is to “work with citizens to conserve and manage the state’s natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life”, I don't understand how we can even be having a conversation about the possibility of allowing this mining. Even if the PolyMet mine were going to provide for thousands of good paying jobs, it would not be worth a minimum of 500 years of cleanup. The cost to the taxpayers of this state will be unthinkable, and the costs will be on the taxpayers because corporations always externalize such costs. No reasonable person can think that any corporation will live up to the responsibility of paying for that kind of cleanup, and that is just the financial coSt The cost to the environment would be a sustainable quality of life. No one would be able to live in that area. A minimum of five hundred years of cleanup basically means there is no way to clean it up. As a taxpayer and a citizen that loves this state, I say this mining project should not be approved. Regards, Brenda Beebe

Brenda Doup 5992

I know I am a small voice, however, please do not let Polymet or any other mining company destroy our natural resources. There is no amount of jobs worth putting MN resources at risk. Our freshwater lakes already have contaminates. Stop the purposed copper-nickel mine (and make the other mining companies more responsible for what is already happening. Sometimes in life we all must sacrifice something to insure the future population can live in a clean, safe environment. There is no amount of money that will ever bring back what the mines are taking. Polymet and others will continue to throw money at this and pay off Politicians to get their way. Please do everything you can to secure our great resources in our state. Health all around us is a beautiful thing. Thank You, - Brenda Doup 4556 Miller Rd Duluth, MN 55803 Work: Program/Project Specialist University of Minnesota Duluth 1035 University Drive, 109 Med Duluth, MN 55812 218-726-7581

Alphabetical by sender's first name

Brenda Doup 5993

I know I am a small voice, however, please do not let Polymet or any other mining company destroy our natural resources. There is no amount of jobs worth putting MN resources at risk. Our freshwater lakes already have contaminates. Stop the purposed copper-nickel mine (and make the other mining companies more responsible for what is already happening. Sometimes in life we all must sacrifice something to insure the future population can live in a clean, safe environment. There is no amount of money that will ever bring back what the mines are taking. Polymet and others will continue to throw money at this and pay off Politicians to get their way. Please do everything you can to secure our great resources in our state. Fresh water is a beautiful thing. Thank You, - Brenda Doup Program/Project Specialist University of Minnesota, Medical School Duluth 1035 University Drive, Duluth, MN 55812 HYPERLINK "mailto:curaff@d.umn-edu"curaff@d.umn-edu, 218-726-7581 CONFIDENTIALITY NOTICE: This email, including any attachments, contains information from The University of Minnesota Medical School Duluth, which may be confidential or privileged. The information is intended to be for the use of the individual or entity named above. If you are not the intended recipient, be aware that any disclosure, copying, distribution or use of the contents of this information is prohibited. If you have received this email in error, please notify the sender immediately by a "reply to sender only" message and destroy all electronic and hard copies of the communication, including attachments.

Brenda Hoppe 44417

Mar 13, 2014 Ms Lisa Fay MN Dear Ms Fay, As an environmental public health scientist and water quality specialist, I am extremely concerned with the impacts that the PolyMet project will have not only on area ecosystems but to water resources that will serve generations to come. I would like to respectfully urge you to please consider rejecting the PolyMet proposal in defense of Minnesota's proud natural resources and all that Minnesotans gain from them clean water and pristine habitat in particular. Many thanks and kind regards, Brenda O. Hoppe, PhD Sincerely, Brenda Hoppe 2423 Hayes St NE Minneapolis, MN 55418-3935 (971) 222-9117

Brenda Jerich 47225

Five reasons why I'm against allowing PolyMet to open a Copper Nickel Mine in Northern Minnesota. Not in order of importance. 1- Have these facts been checked into. PolyMet is a Canadian Company and their largest investor is a Swiss commodities trading firm (Glencore) with a poor environmental and human rights recoRd 2- This Swiss commodities trading firm (Glencore) has an agreement to sell copper concentrate to China. What about the US. 3- Open-pit mining and the entrails leave behind a devastating landscape. 4- Pollution and toxic waste. 5- 100 jobs (short term) in exchange for millions of dollars lost in tourism and clean up (long term). I beg you, please do not allow Open-pit mining in Northern Minnesota. Sincerely, Brenda Jerich bsjjoy@aol-com

Brenda Johnson 43341

I have lived here most of my life and think our state has the potential to be the cleanest state in this country. People like the idea of waking up and being able to take a shower, get a cup of coffee, or whatever it may be, they count on the water to be clean. This mining operation in filthy. It will have long lasting effects on the environment and our children. No amount of jobs or money could possibly be worth the trade off. Have you not seen the effects of previous endeavors by mining companies. The media has painted a care nothing attitude about the people or the environment by mining companies. Please, prove me wrong. Name one mining company, fracking company that has put the people firSt Please explain why the continued pollution of our land is in the best long term interest of anyone. Put PolyMets history on the table for review by the people in this state. What is their history in previous places. I'd like to hear interviews by the people who live near a PolyMet mining operation, both current and paSt Include environmental photos of the areas affected by PolyMet. Brenda Johnson

Alphabetical by sender's first name

Brenda L Sweet 44063

I made the attempt to retrieve this message and then thought “really Bren.” So I am resending it as I really do believe we need to consider the impact. Sorry for the confusion and thank you again for your time. _____ From: Sweet, Brenda L Sent: Thursday, March 13, 2014 10:36 AM To: 'NorthMetSDEIS.dnr@state.mn.us' Subject: Mining concern/comments Good morning, I grew up in the small town of Babbitt during its prime, and enjoyed the spoils afforded us by the mining industry. I understand everyone’s concern for employment. It is unfortunate to go back home and see houses in disrepair, schools closed. I also enjoyed the lake and the woods. My father loved being out in nature and he passed that love and appreciation down to me, although as a child I thought everyone had a lake in their backyard, a forest in the front. After leaving the area to live elsewhere to work, I soon discovered that is far from the truth. How blessed I was without even being aware of what was right before me.. As an adult, I have a whole new appreciation of the area, nature and how fragile it really is. The gratitude for what I had as a child was so deep, that when the opportunity to purchase the home I grew up in presented itself, we jumped. Currently we only get to enjoy the area on weekends but plan is to retire there. So as a child of mining: The history of copper mining/pollution/clean up is very disheartening. What makes us think this will be any different. I have been told “well, it is all underground.” Honestly, that just doesn’t satisfy my concern for such a beautiful area and the potential seepage and damage we are asking them to merely put a deposit on. Think about that. We are saying “We are so certain you are going to mess up this area, we would like a damage deposit. It won’t be enough money to get the job done after you destroy where we live but gosh, go ahead make your mess and leave, we have your deposit.” We will not only lose jobs people are fighting for at that point but we will lose the whole BWCA Wilderness and all this area is appreciated for. All of it gone so much for leaving the world a better place. President Roosevelt had the foresight to reserve some of our lands as national parks. How many of us go enjoy them. Maybe the people there don’t appreciate us all visiting their area like I have heard people on The Range don’t appreciate the BWCA. Yet those parks are there, we go visit them and we are grateful his legacy. Please be certain of your actions and decision. This will be your legacy to our children and grandchildren. HYPERLINK "http://www.brainyquote-com/quotes/quotes/a/anseladams161651-html"It is horrifying that we have to fight our own government to save the environment. HYPERLINK "http://www.brainyquote-com/quotes/authors/a/ansel_adaMshtml"Ansel Adams Thank you for your time, Brenda Sweet

Brenda Palo 35413

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Hello. This issue is the most important environmental issue for MN this century. The Polymet project must NOT go forwaRd I am a MN resident and was born and raised in Eveleth, on the Iron Range. I grew up with iron mining in the strip mining tradition. I am not in favor of this sulfide mining project due to its well documented and clearly established long-term negative consequences for the local and regional people, animals, and natural environment. It must not go forwaRd Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Brenda Palo 1540 Hartford Ave Saint Paul, MN 55116-1514 (612) 730-6481

39990

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. This issue is of paramount importance. I am completely against this going forwaRd Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Brenda Palo 1540 Hartford Ave Saint Paul, MN 55116-1514 (612) 730-6481

Alphabetical by sender's first name

Brenda Scott 40210

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

42419

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Brenda Scott 409 7th Ave NE Minneapolis, MN 55413-2028

Alphabetical by sender's first name

Brenda Solomon 20207

Dear Ms Fay, My husband and I have had the privilege and opportunity to experience the unique beauty of the Boundary Waters Canoe Area for the past 35 + years. We first visited the BWCA as Sr. High Church Youth Group members, canoeing and camping in this pristine area of MN. Our family thoroughly enjoyed vacations at various campgrounds/resorts every summer in the Ely area. We had a dream of one day owning our own cabin in this paradise, and finally in December 2013 our dream came true. We purchased a cabin in the Isabella area. We, our family and friends, are looking forward to enjoying the breathtaking beauty and tranquility this area offers for many years to come. Until recently, we were unaware of the exact location and potential devastation the PolyMet mining project poses to this sacred area. We are VERY CONCERNED about the negative impact the mining will have on the land, water, wildlife and tourism in NE MN. We understand mining may create jobs/revenue for the next 20 years, but the destruction/pollution it will create will last for centuries. We feel protecting the environment far outweighs any benefits PolyMet claiMs We are asking you to please protect Minnesota's future. Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank-you for your concern and assistance in protecting the land, water, wildlife, and tourism industry from the devastation this mining project will cause if it is allowed to proceed. Sincerely, Brenda and Jeff Solomon Cabin: 2307 N McDougal Ln Isabella, MN 55607 Brenda Solomon brenda@erahome-com Phone: 507-213-9496

Brenden Obryan 42081

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Brenden O'bryan Woodbury, Minnesota

Alphabetical by sender's first name

Brennen Stenke 46226

DNR, Please, do not let PolyMet go through with their project in Northern Minnesota. People have been saying that it is too much of a risk for us to allow PolyMet to exploit our environment, but the truth is, it's more than that. The term "risk" implies uncertainty, but as your Environmental Impact Statement shows, there is no uncertainty that PolyMet will negatively impact our environment. Without doubt, PolyMet will foul our air, dirty our waters, rob habitat from our endangered animals, kill our endangered plants, and alter our landscape and its ecosysteMs Indeed, PolyMet will lose an opportunity to make a profit and some of us will miss out on a short-term economic boon. But in allowing PolyMet's project to be realized, you are breaking not only the hearts of thousands of Minnesotans, but those of everyone who has ever fought in the name of our environment. When it comes down to it, this question isn't just abut politics and economics— it's about morals. Many people see a dichotomy between nature and culture, but in actuality, we are part of nature. Not only do we depend on it, but it depends on us. And because my words are not as eloquent as his, I will end this letter in the voice of John Muir: "God has cared for these trees, saved them from drought, disease, avalanches, and a thousand tempests and floods. But he cannot save them from fools." Brennen Byrnes Stenke 636 Grand Avenue #202 St Paul, Minnesota 55105

brent chezick 44851

Lisa Fay, I'm writing to submit a comment on the Supplemental Draft Environmental Impact Statement (SDEIS) for PolyMet Mining's proposed NorthMet project. First, I want to express my confidence in your agency to thoroughly evaluate the project and its ability to mitigate potential environmental impacts. I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. Additionally, I'd like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out – all the more reason to support it. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws – some of the strictest environmental regulations in the country. Minnesota is home to a world-class deposit of copper, nickel, platinum, palladium and gold. This is an economic opportunity right below our feet that will benefit the state's economy for future generations. PolyMet will produce these metals in an environmentally sound way and generate significant economic activity, expanding and diversifying our economy and creating hundreds of jobs that can support families and sustain communities. We cannot afford to miss this job opportunity. This project would mean 2 million construction hours, 360 full-time mining jobs and more than 600 related jobs – jobs that our state needs. Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. Based on my review and the level of detail included in the draft EIS it appears that a thorough evaluation of the project and potential impacts has been completed. Sincerely, Brent Chezick 7534 Trapper Trail Eveleth, MN 55734

Alphabetical by sender's first name

Brent Gurtek 19006

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Brent Gurtek 1873 Korkki Road Duluth Twp. Duluth Twp., MN 55804 218-525-7573

Brent Notbohm 23922

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. As a tax paying citizen of the great state of Minnesota who loves the beauty of the Lake Superior basin and the Boundary Waters Canoe Area Wilderness, I am extremely concerned about this project's potentially hazardous environmental impact on the region where I live. Not only have I made my home in this region so that I can easily access its beauty, but I spend literally thousands of dollars each year fishing, camping and canoeing in Northern Minnesota The fact that something as destructive as sulfide mining is even being considered baffles me beyond expression. As I'm sure you know, Sulfide mining has never been done in Minnesota and its track record has been sketchy at best in terms of environmental consequences. This project is not being proposed in some remote corner of the world where nobody visits, but in the heart of one of the most spectacular and most visited natural areas in the continental United States. I beg of you to seriously consider the consequences heavy metal contamination could have on our precious region, and the wildlife and water quality that people travel from around the world to enjoy. Even one slip of environmental protections could have a dramatic impact on the lives and lifestyles of the people who live here, like myself. Please consider the public's best interest and protect our Superior National Forest by rejecting PolyMet's destructive and polluting open pit sulfide mine proposal. The risk is not worth the reward for the people who love and live here. Thank you. Sincerely, Brent Notbohm 5001 Peabody St Duluth, MN 55804-2441

Alphabetical by sender's first name

Bret Johnson 40019

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. These risks are not acceptable for the economic benefit in a region that prizes natural beauty and pristine waters. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Bret Johnson 1613 Conway St Saint Paul, MN 55106-5925

52261

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Bret Johnson 1613 Conway Street St Paul, MN 55106

Alphabetical by sender's first name

Bret Pence 40338

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation" wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1-Underground mining, looking at the full ore deposit and PolyMet's real costs; 2-Putting a liner under the Category 1 waste rock stockpile; 3-Placing all tailings on a new completely lined facility; 4-Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5-Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to

Brett R. Ewald 41331

Mar. 9, 2014 Dear MDNR Division of Ecological and Water Resources Environmental Review Unit, I think that we must weigh the possible outcomes of the NorthMet Mine proposal, and other projects likely to follow, against the plausible benefits and detriments. PolyMet offers at least 20 years of jobs for between 300-360 personnel. There are varying estimates of temporary construction and indirect jobs. The state will reap the benefits of taxes per pound or ton with additional taxes from purchased goods in the local communities. Their modeling, as evidenced in the SDEIS, eludes to 200 years of water treatment costing between 3-6 and 6 million dollars per year. This assumes there is minimal exposure, run off, or other means of untreated water leaving the compounds. It is great if their modeling is too farsighted and treatment is not needed for that long. What occurs if treatment is needed after the 200 or 500 years. Can we rely on future technologies to better mitigate the untreated water. I see this issue as short term profits for very few and jobs for some versus potential contamination of water that has existed for millennia. As seen in the news, water is constantly and quickly becoming a scarce commodity. Copper and nickel are not. We need not mine the copper and nickel in NE Minn. using unproven methods for mostly profits of foreign owned and backed corporations. Please take these considerations into account when weighing the benefits and detriments. Thank you for your time. Brett R. Ewald 4790 Centerville Rd, Apt. 215 White Bear Lake, MN 55127 ---------- This message was sent using the University of Minnesota Duluth Webmail

Alphabetical by sender's first name

Brett Reierson 43

From: Brett Reierson [mailto:mrbrett64@gmail-com] Sent: Wednesday, December 11, 2013 12:37 PM To: Fay, Lisa (DNR) Subject: copper mine While i love the Boundary Waters and the wilds of northern Minnesota, i believe we also have to use our natural resources for our modern needs. But USE, not ABUSE our resources. I think a properly planned and managed project could be positive, but i don't think this project, at this point, is properly planned or managed. Please make the mining company provide better answers and solutions.. Thank you for all you do. -Brett Reierson

Bria Schurke 18212

Hi, I'm Toni Watt. I live in Minneapolis, and I met tonight Bria Schurke who is the daughter of a person who introduced me to the Boundary Waters 30 years ago. My name is Bria Schurke, S-C-H-U-R-K-E, and I am born and raised in Ely Minnesota, White Iron Lake. Kawishiwi River is my literal backyard playground, and I'm a proud customer and friend from of Zup's Grocery Store, but I'm not going to give you my car keys. You don't want my car anyway. I have high expectations of my policymakers and community members to make decisions for my community that will keep Ely and Northern Minnesota sustainable, clean, healthy and inviting for the next generation. I do not want to raise my children in a community that has fallen at the mercy of a money-mongering mining -- international mining company that has yet to prove that they are truly vested in the sustainability of the future generations and for our quality of life. There is more to life than money. I am happy to live cutting wood and living in Ely but live with minimal means. Mining is not the only answer for a middle-income job in Northern Minnesota. Also, sulfide mining is not the same as iron-ore mining. We were not founded on sulfide mining. We were founded on iron-ore mining. That is completely different. 100 percent of sulfide mines around the world have proven to cause pollution. I will not accept any pollution in the community that I want to raise my children, if there's risk that my children will be raised on polluted water. Why? Why would I want to do that. I feel like I am against a wall with these major corporations. It's just another classic story from another small community in the world being pushed up against major corporations. Where are our politicians? Where are our local leaders? Why are we having this conversation right now? There's more to life than corporations taking over small towns. I'm disappointed, and I'm frustrated. We have a huge problem with PolyMet SDEIS, but this is not rocket science. This problem is so alarmingly simple that everyone in this room should be pushing the panic button right now. For five years, PolyMet and various government agencies have studied the potential impact of the (inaudible) polluting it. Thank you. Please protect Ely and Northern Minnesota. We are beyond -- we are above -- we are above this.

Alphabetical by sender's first name

Brian and Ruth Lavelle 19099

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Brian and Ruth Lavelle 19206 Redtail Drve Spring Grove, MN 55974 507 498 3695

Alphabetical by sender's first name

Brian and Ruth Lavelle 40391

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Alphabetical by sender's first name

Brian and Ruth Lavelle 40472

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Brian Anderson 38814

I have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I'd also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws. We cannot afford to miss this job opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. NAME Brian Anderson ADDRESS PO Box 205, Ely, Minn. 55731 Sent from my iPad

Alphabetical by sender's first name

Brian Berggren 43525

SDEIS Comments 13 March 2014 As a Wetland Health Evaluation Project volunteer for the last 13 years, and as a wild ricer during my college years as a biology major, I have seen the limits of mitigation, reclamation, remediation, and restoration. Nothing beats not messing things up in the first instance. Even with significant money, the efforts rarely achieve more than partial success. Section 3-3-3-4 Financial Assurance starts with the grammatical fiction that costs can be better estimated later in the permitting process as outlined in para..4-1- The 200 year and 500 year timeframes, numbers that exceed the lives of nations and certainly that of commercial enterprises, are beyond both planning and funding. The effects of dewatering, sediment movement, chemical leaks and seeps, and ground disturbances on a large scale in such a sensitive area are not possible to estimate. One event like the Duluth deluge will overcome all prior planning. Worse is the statement that "compensatory wetland mitigation" not be approved and constructed in advance – outside of financial assurance requirements. Comments The Watershed Restoration goals described on page 3-71 seem overly optimistic. Water events, sediment and toxic waste or process water migration, have a way of defeating barriers and will only minimize watershed contamination. With the number of sites identified as problems (Table 4-2-1-2) and the sensitivity of wild rice to sulfates (4-2-2-1-3 and Table 4-2-2-3), the state should reduce or eliminate problem sites prior to permitting. Mining may be inevitable someday, but placing processing facilities and tailing sites at the head of an important watershed, and adjacent to the BWCA and Rainy River Watershed should never be allowed. We cannot leave a legacy of NURPs (National Urban Runoff Ponds) for a principal watershed of Lake Superior. Thank you, Brian Berggren 11 High Road Inver Grove Heights, MN 55077

Brian Bluhm 43729

Hello - I am contacting you with two of my concerns about the proposed PolyMet Mining Project. I am concerned with humanity's ability to continually monitor and manage, as would be the case with the proposed project. Despite the use of new technology, there is always risk involved when disturbing natural processes. If some aspect of the proposed management system were to fail, for example from a sustained power outage, are there other measures in place to prevent contamination. I am also concerned about the potential effects on human health, and the related monetary costs to those impacted and their communities. If contaminated water were to enter the watershed, are there assurances in place to prevent the cost of these impacts on human and community health from being imposed on the municipalities, tax payers and individuals of northeast Minnesota. Thank you for all the good work the DNR has done and will continue to do in our state, Brian Bluhm 630 N 10 Ave E Duluth, MN 55805

Brian Duren 39789

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Brian Duren 3732 Garfield Ave Minneapolis, MN 55409-1115 (651) 408-5390

Brian Eisinger 40558

Please preserve the BWCA. Thanks, Brian Eisinger

Alphabetical by sender's first name

Brian Freeman 39884

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Brian Freeman 3520 Cedar Creek Dr NW Oak Grove, MN 55303-8421

Brian Guadagno 38900

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Brian Guadagno 101 E 26th St Bayonne, NJ 07002-4904

Brian Hanson 18378

Good evening. My name is Brian Hanson, H-A-N-S-O-N. I'm here tonight because I care. I care about a lot of things in this region. I care about our environment. I care about our economy. And I care about our world's environment. And that's an important part of the component of this whole conversation tonight, because we live in a global environment. We need to make sure that there's protection across that globally. We know that can happen here. So like just about everyone else who is here I consider myself an environmentalist. And with that in mind I took a look through the SDEIS. Now I will be the first one to admit it, I don't have a lot of experience with reviewing these kinds of documents. I'm not a scientist. I work in economic development. But I learned a lot from looking through that. First of all, I learned that it's truly a process that is followed on an independent basis by people who have been trained and do understand environmental impacts. I picked up a lot of information. And I appreciate that. Thank you very much. I think the organizations have done a great job of circling around the most important issues and covering them and talking about them, and talking about how those issues are the things that need to be addressed at a permitting stage. Ultimately what I found as I read through the SDEIS was that it does cover the key issues. That it does create a basis. That it is a document that we can use to safely permit this mine and be able to proceed with (inaudible) mining in Northeast Minnesota. Now, here is what I know about the PolyMet team. These folks are our friends and neighbors. These are people who grew up in the communities that we grew up and the people in this room. We know these folks. They're going to produce metals that we all need, that we all use. No matter who are you are, unless someone came here either walked here in moccasins, clothes that they made themselves, they probably got here aided by the metals we're talking about and that we need. It's irresponsible to use products that are generated elsewhere when we have no idea of the impacts of those areas when we have people who live and work here, who have studied the impacts, can tell us how to control them, and can help make this happen in a responsible manner. So I support PolyMet. I'm proud of the Supplemental Draft EIS that has been put together here in our state. And I look forward to this project moving on to the permitting stage. Thank you.

Alphabetical by sender's first name

Brian Hanson 47634

Minnesota has turned the corner with the state's job market's recent return to pre-recession levels. Forbes recently ranked Minnesota the eighth best state to do business — a 12-spot jump in the rankings. Helping to fuel this economic success is Minnesota's mining industry, which contributed more than $2-9 billion to the state's economy and supported nearly 10,000 jobs in 2012- As business continues to play the primary role in job creation, it is critical that policy-makers continue to support this industry in order to continue an upward trend in growth, specifically in this region. PolyMet Mining's proposed copper-nickel project on the Iron Range is an example of how Minnesota companies continue to lead the way balancing technological advancement with the State's environmental standards. I support PolyMet Mining and believe they will build and operate a mine that complies with all regulations and protects the environment. Multiple State and Federal Agencies have been involved in preparing the SDEIS document; I place trust in and respect the integrity and the responsibility of these organizations to manage the impact of mining efforts. The SDEIS was a sound process – a detailed and independent review. Federal, state and tribal agencies shaped the development of the draft EIS, which was written by an independent, third party. The draft EIS offers regulators the information they need to issue permits so that PolyMet can operate in a way that protects natural resources. The SDEIS demonstrates that PolyMet can develop resources in a sustainable manner and there are logical, engineered solutions proposed for potential impacts. PolyMet's project is a case study for business and economic development. The Company will put a brownfield site back in operation and reuse existing infrastructure at the former LTV site in Hoyt Lakes – a $350 million facility that would cost nearly $1 billion to reconstruct today. PolyMet's project will create 360 direct jobs and over 600 indirect jobs, at a time when family-sustaining jobs are needed in Northeast Minnesota. The project has been designed to minimize environmental impacts and the disturbance of wetlands, utilizing multiple safeguards to protect the environment. PolyMet will be a domestic supplier of critical metals consumed every day. Minnesota's $5-3 billion electronics industry depends on the metals supply chain to produce the technology that we as consumers depend on for use in medical applications, electricity, catalytic converters, cell phones, computers and other essential products. A decade ago computer chips were made with 16 minerals. Today as many as 60 different minerals and constituent elements are used to produce similar computer chips. Mineral needs will only swell with technological advancement. If we are to maintain our modern way of living, depending on these types of technology, we need to continue to find and extract these metals. Minnesota has the ability to demonstrate leadership in innovation with sound regulations and standards – there is no better location in the Country to access these resources in a responsible manner. As a person who lives, works and plays in the area, I understand the importance of proper use of resources like minerals and preservation of resources such as water and air. I trust and support that the SDEIS lays the proper groundwork for developing an environmentally and economically sustainable project. PolyMet can produce these metals in an environmentally sound manner and create hundreds of jobs that can support families, sustain communities and ensure a thriving Minnesota for future generations. Thank You. Brian W. Hanson President and CEO APEX_Final_New Logo_6 1 10-jpg 306 W Superior St Duluth, MN 55802 P 218-740-3667 C 218-730-7330 HYPERLINK "http://www.apexgetsbusiness-com/"www.APEXgetsbusiness-com Notice: This email contains confidential, legally privileged information which belongs to the se

Brian Harrington 43463

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Brian Harrington 11600 37th Ave N Plymouth, MN 55441

brian huberty 9279

The SDEIS does not include an option or discussion for a closed water system for not only Polymet but also for other Iron Range industries. Instead of making an open system where water can flow in and out of the mining system and impact the environment, it may make more sense to create a closed system where water can be piped between industries as supply and demand dictates. Polymet excess water could be used for cooling at proposed powerplants and steel making operations. In other words, think beyond just the needs of Polymet but to also the needs of other industries as well as the needs of the environment. Given this proposed mine has been in the works for over a decade, Polymet should have in good faith already restored the wetlands needed to compensate for the proposed impacts on the existing wetlands. In good faith, this action would show a more proactive approach which would help mend the long term and permanent impacts any mining operation produces.

Alphabetical by sender's first name

Brian J 43363

I have concerns with this mine (Polymet), and it is not simply because I love the BWCA and all that the northern areas of our state have to offer. My concern lies primarily with the money available for cleanup when the containment fails because it will fail the rock in the area fractures with frost, settling, etc so the containment isn't going to stop it all. I reviewed their stock/invester information and as far as I can tell, they don't have any money they are completely funded by others as a startup which as soon as the well runs dry and income stops, they are going to sell their shares as fast as possible. This will leave MN taxpayers with the cleanup costs and while we are an easy target and can offer little to stop the state from taking the money needed for cleanup I don't imagine this will go over well with the masses. Thankyou for considering my comments regarding this issue. I am not opposed to mining in general, but as far as I can tell, this company cannot prove they can do it safely, and cannot prove they have the finances to keep our waters clean. I have a 5 month old daughter and I don't want to raise her knowing I didn't say anything on the topic hopefully I can raise he knowing I did something to make sure our land and waters are kept as clean in the future, as they are today. Brian J Deering 2009 Longfellow Ave St Paul MN 55119

Brian Jenkins 41811

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Brian Jenkins 5959 E Northwest Hwy Apt 3057 Dallas, TX 75231-7448 (214) 242-9169

Brian Johnson 42625

See attachment

54661

See attachment

Alphabetical by sender's first name

Brian Maki 18094

Hello. My name is Brian Maki and I'm president and CEO of Lakehead Constructors which is located nearby Virginia, Minnesota in the Twin Ports of Duluth-Superior. We employ over 700 full-time union employees in the construction business across Northern Minnesota. I was born the grandson of Finish immigrants, like so many others, at the White Community Hospital here in Aurora. My parents raised six children in Hoyt Lakes on a draftsman wage from Erie Mining Company. The town was prosperous and bustling with the schools and churches bursting at the seams. There were 100 kids on every block of town. We had a storybook childhood filled with our great memories and all the neighboring towns were the same for generations. This was our way of life. Our immigrant parents and grandparents worked at the mine, at the power plant, on the railroad, construction, grocery stores, coffee shops, restaurants, drugs stores, movie theaters, auto dealerships, logging, trucking, all sorts of other businesses. This was our way of life. We all spent time hunting, fishing, trapping, skiing, shooting, biking, hiking, snowmobiling, camping, swimming, water-skiing and boating. And the list goes on. We were good stewards of the environment. Our communities established campgrounds and parks, preservation areas, ski hills and trails, sanctuaries and other scenic places. We were and are good stewards of the environment. In 2001, Erie Mining Company closed its doors and the east end of the Range began to suffer almost immediately. The darkness days were upon us. It was not a good time for families and the human suffering began. Unemployment, bankruptcies, business closures and all sort of personal tragedies associated with unemployment befell our residents. It's time to turn this around. We have the opportunity to revitalize Northern Minnesota with the promise of good-paying jobs. We have done our homework and science is on the side of progress, and on the side of responsible environmental stewardship. We have the opportunity with non-ferrous mining and PolyMet to demonstrate to the world the type of people we are in Northern Minnesota. Hard working, thoughtful and caring folks who would never harm the land we love so dearly. Every job is a family. Every job is a family, and don't forget it. I would like to thank all the agencies here, working on this project who clearly understand the science behind the project and who deal in fact and not fiction. I'd like to thank all of the elected officials who whole-heartedly back this project. I'd like to thank all of those who came out in support of this great project in Duluth last week and tonight, and finally, I would like to thank PolyMet for their hard work and determination on behalf of the folks the Iron Range and we pray for your success. Thank you.

Brian McClung 54684

See attachment

Brian Mensolek 54502

See attachment

Brian Mulally 40699

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Brian Mulally 8090 Upper 129th Ct Apple Valley, MN 55124-9759

Alphabetical by sender's first name

Brian Murn 40042

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Dr Brian Murn 5421 Twin Lake Blvd E Minneapolis, MN 55429-3356

Brian Nelson 42553

See attachment

Brian Nordlund 41703

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Brian Nordlund 2537 Providence Rd Duluth, MN 55811-2947

Alphabetical by sender's first name

Brian Nordlund 41704

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Brian Nordlund 2537 Providence Rd Duluth, MN 55811-2947

Brian Peterson 44186

I am submitting this comment in order to reflect the position the sulfide mining and mining near culturally and environmentally valued areas is not in the overall, long-term interest of Minnesota and Minnesotans North Eastern MN is one of our state's greatest assets, it has many formally recognized forests parks, as well as an abundance of of hills, forests, lakes, rivers that are not on public property but are equally valued for what they contribute to the Minnesota experience. We should be working to expand the borders or protected areas, strengthen the protections and see to it that we save and preserve what we have not yet ruined. In many parts of the state it is too late or not feasible to take such actions. Why should we do this. Because it is the right thing to do for future generations, current Minnesotans, and our long term fiscal health and physical health. I am fully confident that when all true costs are considered (loss of habitat, noise pollution, water contamination, clean-up, human health costs, infrastructure demands, etc) these proposals will be a net loss for MN both in economic terms and human terMs I also see almost no circumstance where some of the clean-up and reclamation does not fall on the taxpayers. The jobs this will likely create, long-term, are Superfund jobs, the kind of jobs Minnesotans don't want. Don't let this mining take place, but if you do, Polymet should put skin in the game. My suggestion: $500,000,000 in escrow, with an oversight board using the money to immediately address environmental and human concerns. Polymet can always add money, and keep any intereSt If the fund is depleted to $250,000,000, all mining stops, the money is used to reclaim the land and any leftovers go into the Legacy Fund. When the mine closes and the area is properly cleaned and restored, Polymet gets any remaining balance back. If Polymet intends to play by the rules there should be little objection to such an arrangement. I appreciate you taking the time to read my letter and please make the decision that is best for Minnesotans in the long-term and considers all associated costs and negative, as well as positive, externalities. Thank you Brian Peterson

Brian Slaby 24278

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Considering that Lake Superior has a water retention time of almost 200 years, even a small risk of pollution should be taken seriously. It could create a problem for our continent's largest freshwater lake that's unsolvable for two centuries. Sincerely, Brian Slaby 16218 Edgewood Ct Maple Heights, OH 44137-3921 (216) 475-7767

Alphabetical by sender's first name

Brian Stompe 20141

Feb 27, 2014 Ms Lisa Fay MN Dear Ms Fay, I now live in California, but am a native of Wisconsin and have traveled from CA to MN to canoe and fish in your pristine Boundary Waters park, as have tens of thousands of others who appreciate clean water and healthy ecosysteMs I understand the need for mining but there are places it should not be done no matter what the short term gain.The water shed that feeds into Boundary Waters is one of those places. We have mines from the 1800's in the watershed that feeds in to San Francisco Bay, that despite extensive efforts, are still leaching acid and mercury into the rivers flowing into the bay, and make fish from the Bay unsafe to eat. San Francisco Bay was once a great source of good fish. Not now, thanks to mining. So many waters have suffered a similar fate. No one wants to visit polluted waters with contaminated fish. SAVE THE TOURISM AND GREAT FISHERY WHICH WILL LAST FOREVER, and forgo short term profits from mining. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Thank you. I hope to visit Boundary Waters again if they are still pristine. Sincerely, Brian and Susan Stompe 110 San Mateo Way Novato, CA 94945 Sincerely, Mr Brian Stompe 110 San Mateo Way Novato, CA 94945-1201 (415) 897-1610

Brian Thorbjornsen 41667

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Brian Thorbjornsen 42271

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Brian Thorbjornsen 2819 Wicklow St Duluth, MN 55806-3405

Brian Tighe 43187

Dear Sirs and Madams, Allowing the Northmet sulfide mining operation would violate a binding treaty with the Chippewa to protect their hunting and fishing rights in that region, by contaminating their food sources. Please protect our most important natural resource: fresh water. Surrounding water would be contaminated by the NorthMet Mine, and though it creates a few jobs and a some tax revenue, the bulk of the profits go to foreign countries. The risks for environmental degradation are too high. The risk that taxpayers will end up footing the bill for long term clean up is too high. The increased risk of chronic illness is too high. When it comes to acid mine drainage, a little goes a very very long way. Please protect our state. Thanks, Brian Tighe

Brian Wicklund 7083

Dear Ms Fay, Dear Federal and State Agency Leaders: I am deeply concerned about the potential for PolyMet and other mining corporations to be allowed to mine public land that contains Minnesota's most pristine and fragile water system. It is foolish to allow a type of mining with a 100% failure rate of toxic leakage into ground and surface water to be allowed at the source of three watersheds. A decision to allow sulfide mining would also be an economic disaster. Any short term gain of jobs and revenue would be trumped by the estimated 500 years of maintenance of the waste. In spite of assurances by PolyMet, what companies can you name that have been continuously viable for 500 years. You can bet our tax paying children will be footing the bill for clean up for generations to come. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely Brian Wicklund Brian Wicklund 800 Broadway St Marine, MN 55047 651-402-5435

Brian_Walvatne 37830

My name is Brian Walvatne and I am a MN resident that is opposed to the opening of the Polymer mine in Northern Minnesota. Water is the essence of life and this mine will increase risk of severe environmental damage that could last for 500 years or more. This mine is not right for Minnesota. Thank you, Brian Walvatne 227 Paisley Lane Golden Valley, MN. 55422

Briana Baumann 42518

See attachment

Alphabetical by sender's first name

Brianna Tinjum 39164

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The proposed sulfide mine does not reflect the values Minnesotans place on the environment and natural world, and the risk of damaging and polluting such a pristine area of our beautiful state is unacceptable. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Brianna Tinjum 3421 17th Ave S Minneapolis, MN 55407-2309

Brianne Plumadore 42730

See attachment

Bridget Carns 41990

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Bridget Carns Rochester, Minnesota

Bridget Mcconville 39624

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Bridget Mcconville 223 Amherst St Saint Paul, MN 55105-1911

Alphabetical by sender's first name

Bridget Peterson 43547

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Water is a finite resource. The Great Lakes holds some 80% of North America's fresh surface water and about 20% of the entire world's(http://www.epa-gov/greatlakes/basicinfo.html). This is about more than us and our region(even though the damage to be done here is to me enough on its own), putting resources needed not just by us here but by the entire WORLD in such jeopardy for mere profit is ridiculous. We are already wasting such resources by not engaging in recycling what's already out there as much as available, something which could both reduce pollution(and the damage done to humans exposed to it wasteful atrocities such as this - http://www.theguardian-com/environment/gallery/2014/feb/27/agbogbloshie-worlds-largest-e-waste-dump-in-pictures) and create the much-needed jobs, probably more and longer lasting employment than the mine will create, at a benefit to our environment rather than more harm. It astounds me how willing some are to let an outside corporation come in and muck up our environment so drastically for resources that seem most likely destined to be shipped overseas at a great profit for them, and just a few jobs and decades of likely irreversible pollution to our drinking water and environment for us. Thank you for your time and thoughtfulness in reviewing my, and the rest of the community's, comments. Sincerely, Bridget Peterson 222 N. 2nd Ave E. Apt. #223 Duluth, MN 55805 Sincerely, Ms Bridget Peterson 222 N 2nd Ave E Apt 223 Duluth, MN 55805-1752

Brigette Nies 42801

See attachment

Alphabetical by sender's first name

Brigitte James 40344

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Brigitte James 1482 Wakefield Ct. Upland, CA 91784 US

Britt K Johnson 57263

The impact of winter release of sulfates should be further studied. The sulfides will accumulate in the organic sediments and not flush down river during the winter. Then in the spring when the H2O warms up the micrbiome will be high on verifying the stored sulfates into sulfite at the same time as the wild rice begins to germinate. John Patter’s research has shown that sulfite is toxic to wild rice seedlings at very low concentrat6ions. Thus the predictor would be that the sulfite concentration would be the highest in the spring after continuous winter loading due to water discharging of sulfate from the Polymet site. This would put the wild rice seedlings at even greater risk. The EIS should assess to the fact of what winter water releases from the Polymet site on spring sulfite levels in the seedlings of wild rice beds downstream.Britt K. Johnson9007 East Superior StDuluth, MN 55804

Britt See-Benes 42675

See attachment

Britta Dornfeld 42041

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Britta Dornfeld Owatonna, Minnesota

Alphabetical by sender's first name

Britta Dornfeld 45147

Dear Minnesota DNR, Hello. I would just like to say I am against the proposed PolyMet Mine for a variety of reasons. This sulfide mine has said that it has a plan for dealing with acid mine drainage; however, this plan has never been tested before. Minnesota's North Shore and the Lake Superior watershed should not be the guinea pig for this new idea. As no mine has never successfully mined without creating acid mine drainage, I think this proposed mine is a bad idea. Also, since acid mine drainage can last for hundreds of years, it is highly likely that the mitigation of the drainage will fall upon the government- an expensive, long-term task that we, as citizens and tax-payers who would help foot the bill, can ill affoRd Also, I would just like to say that this is not an issue of the environment vs. employment; it is an issue of the environment vs. resources. The jobs that this mine would provide are based off of cycles of boom and bust- while they would provide jobs for a thirty to forty years, areas that benefited from these jobs would be in the same, or worse place than they were before the mine. In starting this mine, more long-term jobs in tourism and public land management would be harmed, since this area would not doubt be damaged by acid mine drainage. Please seriously consider all of the drawbacks to this mine- while it has a significant economic impact, its cons outweighs its pros. Thank you for your consideration. Sincerely, Britta Dornfeld

brittany kron 39112

My name is Brittany Wilson and My address is 1030 Como Place, St Paul, Mn 55103 I am very concerned about the proposed Polymet mining that would be taking place in Northern Minnesota. As someone who spent over 20 years living in Northern Minnesota I am greatly disappointed that our state would even consider putting our states natural assets at risk. I grew up being surrounded by clean fresh water lakes, beautiful coniferous trees, and seeing natural wildlife almost every day. It would be unwise of Minnesota to destroy its streams and lakes, poison its animals, and ultimately lower the living standards of its citizens, because it will more than likely pollute lake superior. A short gain of profit is not worth the hundreds of years this project could take to clean up. I do not support Polymet Mining in our state. Thank you for your time, Brittany Wilson

Bromley Griffin 22700

I've lived for 77 years. I was a natural resources professional for 38 years. I have been a serious supporter of environmental causes for 70 years. I am fortunate to own and live on 1/4 mile of land on the beautiful St Louis River. I am sick of the get-rich-quick schemes of the mega-wealthy here and abroad who promise everything and have historically lived up to virtually no promises to 'keep it clean forever'. Short-term jobs for a few native and non-native Minnesotans is no where near worth the risk of the permanent damage to the resource that almost always follows the flash of profits and then polluted silence following the fading of almost all major mining projects, especially copper mines. I stand in total opposition to the granting of permits to allow the despoliation of the land, streams and rivers of northern Minnesota via copper mining.

Alphabetical by sender's first name

Brooke Shepherd 11263

Brooke Shepherd 9185 182nd St N Forest Lake MN Brooke Shepherd Avd. Science, Hour: 4 Ms Olson 30, January 2014 Digging Ourselves a Copper Grave There is much controversy about the new copper mine that Polymet is thinking of building. First of all, copper is a chemical element used in conducting electricity. The mining process is rather complicated and consists of concentrating ore, a type of rock containing minerals. In order to concentrate it, they must crush the ore up and roast it to convert the interior minerals, sulfides to oxides, which they then mine and produce hot metal. They then refine it and finally use a process called electrolysis to obtain the copper. The average American uses twelve pounds of copper per year. Minnesota is considering building this mine because not only is copper a highly useful element, but the mining process will also create hundreds of jobs and a flow of revenue. Northeastern Minnesota, where the mine would be built, has one of the largest untouched copper deposits, as well as other minerals, just beneath the lakes and forests. In my opinion however, building this mine would be a huge mistake. We simply do not have enough information of the damage it could cause to our environment at this time. The Polymet mine will also affect our air quality by releasing sulfur dioxide, greenhouse gases and nitrogen oxide into the environment. They estimate that even with this pollution, the air quality will still be up to standards. However, an estimation alone doesn't seem safe enough to go ahead with the project. The water useage from Colby Lake is another large concern in building this mine. Polymet says it could vary in using between twenty and 810 gallons per minute. There is a very large difference between twenty and 810, so we really won't know what affect it will have on the lake if we aren't sure how much water they'll be using. They say that they will build a waste water treatment plant and let it run off into two nearby rivers, but what does that mean for the lake. There is also a chance of mercury being released into our air and water. Though it would be a minimal amount, it is still dangerous to be releasing any amount of it into our air or water systeMs Lastly, we should be thinking of the animals in the area. The construction of the mine, the noise from the workers, the clearing of forests and the changes in air and water quality could greatly affect the several different species of animals who call the area home. Two of which are endangered species, the gray wolf and the Canadian lynx. Polymet claims that once they finish with the land, they will attempt to restore it; however, this could take decades to have it return to normal and the animals who lost their forest homes may not come back. I understand that some would think the jobs and revenue would outweigh the potential pollution but they also need to think of the future of Minnesota. I strongly feel we know too little of the environmental effects that the Polymet Copper Mine will have on our animals, water and air. My opinion should be considered because some of the things we are risking with this mine take decades to correct themselves once the damage is done. My hope for the future is that we find a safer way to extract copper so the flora and fauna and the mining can live peacefully together. At this time however, the Polymet mine is not ready for this and it would be wise to wait until we know more. Websites Used HYPERLINK "http://www.dnr.state.mn.us/volunteer/julaug12/nonferrous.html"www.dnr.state.mn.us/volunteer/julaug12/nonferrous.html http://dnr.state.mn.us/input/environmentalreview/polymet/index.html HYPERLINK "http://www.startribune-com/local/240643741-html"www.startribune-com/local/240643741-html HYPERLINK "http://www.polymetmining-com/"www.polymetmining-com/

Brooklyn Blackman 54173

DNR, we should not use the sulfide mining act because it pollutes the water with sulfuric acid the PH levels will go down. People like to fish up there and eat the fish, if the people of Minnesota and tourists eat the poisoned fish it's not going to be good. Also it will put a huge amount of business up there. We as the people should have at least one place of natural wilderness where we could count on our generations to come and be a part of this beautiful wilderness center we have been protecting for 30 years. My name is Brooklyn Blackman and I am Against it. The mine up north is a horrible idea.

Alphabetical by sender's first name

Brooks Halliday 48186

10 new people recently signed Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota." on Change-org. There are now 470 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 468- Daly Johnson Lewiston, Maine 467- Mary Jane Brummitt Pueblo, Colorado 466- Charles Brummitt Milwaukee, Wisconsin 465- Martha Mulcahy St Paul, Minnesota 464- Lizz Dean San Antonio, Texas 463- Margaret Boles Kenilworth, Illinois 462- Cara Webster Washington, District Of Columbia 461- Barbara Hogan Des Moines, Iowa 459- Mary Garcia East Lansing, Michigan 458- Deidre Hall Saint Paul, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJmaXZlX2h1bmRyZWQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTMwLCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA4NTM4NDd9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK2fJVngvuDFVsMP-2BEZZ4NFUjWjRRSDGi2xgTdJN2Isk0fAL-2F45sY7vdVmwlNywSzTLl85sfezwawh5quh4XvKUGPkFY4mWp06KXKSL-2Bs7O636vCNJlXH-2B4RUAwYp8ICXAe2wPztiDeAYlAMcYWdRmosbkduPQn9Y6JOyTbWFxgysNy8Uye9yRSOJHPzqurljmYJUb2flY1OPAs-2F1ldGtgaG-2Fj65U-2BbN3yYJQ96jcFtSd

Brownie Wood 39205

Thank you.. On Tue, Mar 11, 2014 at 12:49 PM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

39216

Dear Lisa Fay, EIS Project Manager, Thank you for collecting testimonies from the people of Minnesota regarding the very important issue of Polymet's proposed Copper Nickel Mining in northeasten Minnesota. I would like to be counted as another deep caring citizen who is most concerned with maintaining a healthy, life sustaining eco-system in Minnesota. There is absolutely nothing about copper nickel mining through the environmental impact studies that have been done that eases my mind regarding the future health of all of life so dependent on water. I encourage you NOT to support Polymet's mining plan. I encourage you to speak and work on behalf of our fragile environment. There is absolutely nothing more precious, vital, and valuable in this whole world as fresh, healthy water. Nothing. I appreciate your time. Blessings of Health to You. Most Sincerely, Marce Wood PO Box 61 Grand Marais, Mn. 55604 218-349-8668

Alphabetical by sender's first name

Bruce and Linda Anderson 57928

The Boundary Waters and surrounding area is one the jewels of Minnesota and the nation. Any risky endeavors such as this mining project will negatively affect eh environment, the wildlife, and water quality. Please don't let this mining project move forward. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Bruce Berggren 44600

From: bruce berggren [mailto:brski67@gmail-com] Sent: Wednesday, March 12, 2014 7:04 PM To: Fay, Lisa (DNR); Brian Berggren Subject: SDEIS I've worked as a forester for the DNR in northern Minnesota for over 31 years. Caring for the resources on both State and private forest lands was my job and as and as a retiree maintain a Stewardship ethic. Reviewing the SDEIS, I've found certain areas of concern. Minnesota law is in conflict with the SDEIS, as in order to advance the SDEIS an arbitrary term of 500 years is used as the last year that monitoring is needed. The State law I am talking about is the law prohibiting issuing a "Permit to Mine" to any mine requiring Perpetual maintenance after closure. Chapter 5-2-2-8 Mine Site Surficial Flow paths states that both the East and West pits "Solute Source End Time" is listed as continuous. Continuous and perpetual sound pretty similar to this reader. The USFS requires the preparation of a reclamation plan to ensure the long term protection and restoration of the natural resources. If a reclamation plan has, or is being developed, the project may meet their goals. The Weeks Law of 1911 is designed to protect the headwater watersheds of navigable rivers. Both the Partridge and Embarrass river watersheds fall under protection from this law but I could not find it addressed in any of the chapters I read. One more item. In all the tables of contents, I could not find anywhere how an emergency shutdown or closure will take place if or when needed. An emergency Shutdown chapter would let others know what management or mine owners plan to do in an emergency. Or at least think about a course of action to take. This project is for the300 to 600 jobs that will last for about 20 years or so. The USFS and State are sacrificing portions of the 100 Mile Swamp for this mine. The USFS, in their forest plan, has considered this an ecologically sensitive area. Thank you, Bruce Berggren 5105 Rice Lake Rd Duluth, MN. 55803

44627

I have worked as a forester on the North Shore. This comment is in regards to the land exchange process. The land exchange should consider lands within a reasonable distance from the mine site. The site in Cook county is beyond a fair distance from the mine site and should be removed from the exchange process. All. sites in Cook county should not be attached to this project. Thank you, Bruce Berggren 5105 Rice Lake Rd Duluth, MN 55803 On Mar 12, 2014 6:05 PM, "*NorthMetSDEIS (DNR)" <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

45922

Do you want addresses if all .making comments. On Mar 12, 2014 6:02 PM, "*NorthMetSDEIS (DNR)" <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Bruce Berggren 45923

I've worked as a forester for the DNR in northern Minnesota for over 31 years. Caring for the resources on both State and private forest lands was my job and as a retiree maintain a Stewardship ethic. Reviewing the SDEIS, I've found certain areas of concern. Minnesota law is in conflict with the SDEIS, as in order to advance the SDEIS an arbitrary term of 500 years is used as the last year that monitoring is needed. The State law I am talking about is the one prohibiting issuing a" Permit to Mine" to any mine requiring "Perpetual" maintenance after closure. Chapter 5-2-2-8 "Mine Site Surficial Flow Paths" state that both the East and West pits Solute Source End Time is listed as continuous. Not for the 200 or 500 years will the flow come from the mine, but continuously. Perpetual and continuous sound pretty similar to this reader. The USFS requires the preparation of a reclamation plan to ensure the long term protection and restoration of the natural resources. If a reclamation plan has, or is being developed, the project may meet their goals. The Weeks Law of 1911 is designed to protect the headwater watershed of navigable rivers. The Partridge and Embarrass River Watersheds falls into this type of area. This law has not been addressed in any of the chapters I've read. One more item. In all the tables of contents I could not find anywhere how an emergency shutdown or closure will be handled if or when needed. An emergency shutdown chapter would let others know what management or mine owners plan to do in an emergency. Or give readers what is being thought about for an emergency situation. This project is for 300 to 600 jobs lasting about 20 years. The USFS and State are sacrificing a good part of the 100 mile swamp. the USFS in their forest plan consider this an ecologically sensitive area. Thank you, Bruce Berggren

Bruce Blackburn 54783

See attachment

Bruce Brummitt 40022

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. A very small gain for a very few with long term pain . The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Bruce Brummitt 24747 Guyles Rd Ponsford, MN 56575-9276

Alphabetical by sender's first name

bruce downing 38821

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Giving a go ahead to POLYMET mining in northern MN would be probably the dumbest thing I have ever heard of. The ore isn't going anywhere. SO WAIT until the future brings a better way to do it. DON'T DO THIS . Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Bruce Downing 510 North 7 Avenue #2 St Cloud, MN 56303 Sincerely, Mr bruce downing 510 7th Ave N # 2 Saint Cloud, MN 56303-3522

Bruce Droogsma 39126

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Bruce Droogsma 203 1st St Delano, MN 55328-9775 (763) 442-2229

Alphabetical by sender's first name

Bruce Droogsma 39128

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Bruce Droogsma 203 1st St Delano, MN 55328-9775 (763) 442-2229

39130

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Bruce Droogsma 203 1st St Delano, MN 55328-9775 (763) 442-2229

Alphabetical by sender's first name

Bruce Droogsma 39131

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Bruce Droogsma 203 1st St Delano, MN 55328-9775 (763) 442-2229

39134

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Bruce Droogsma 203 1st St Delano, MN 55328-9775 (763) 442-2229

Alphabetical by sender's first name

Bruce Droogsma 39135

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Bruce Droogsma 203 1st St Delano, MN 55328-9775 (763) 442-2229

Bruce E Grewcock 42750

See attachment

Bruce Grewcock 42712

See attachment

Bruce Harten 3205

From: asajuice5@hotmail-com To: opinion@startribune-com Subject: Open Pandoras Box . Date: Tue, 17 Dec 2013 12:15:25 -0600 Ive been reading the EIS on the Polymet process. The footprint they want to establish overlays a very messy footprint left by "Bygone Mining interests" that continually pollutes my Brown trout stream (St Louis River @watershed) who's polution study was recently abandoned by the PCA for reasons not given. PCA is one of the Major Permiters for Polymets application. In putting the polymet footprint into the existing polymet wants to use the same berms, tailing pools, ect ect, which in turn gives Polymet the liability phrase "It was poluting before we began" were not responsible. Eight miles of railroad from defunct upgraded plant to the open pit (42,240 feet of asbestos like dust rout, subject to runoff and derail.) This is Minnesota with the Biggest fortune 500 co.s the best Schools and universities, the absolutely finest engineers and the most accomplished, productive, licenced, organized labor force on the planet : So I propose an underground mine , that does not infringe on the existing mess that has an "adjacent" New Closed Loop Crushing, milling, extraction, smelting, sulphide processing and capture, water filtered and reused, dry tailings/site return with NO EXTERNAL PONDING OR BERMS every process INTERNAL . When the power go's off everthing stops . This Is Minnesota where WE CAN INSIST ON IT . .And We Can Do IT . The EIS also has quite the "Socio-economic" article which is intended to obfuscate anti-pollution criteria in favor of "jobs". Army Corps of Engs, MPCA, MDNR .are charged with decisions on natural "Environmental Impact Only" .and leave Socio-economic to our inept legislature where it belongs. Thank you bruce harten 5640-138 st west apple valley mn 55124 952 431 1123 retired IBEW wireman USAF

Alphabetical by sender's first name

Bruce Harten 7564

_____ From: asajuice5@hotmail-com To: attorney.general@state.mn.us Subject: FW: Minnesota law. Date: Tue, 21 Jan 2014 08:43:54 -0600 _____ From: asajuice5@hotmail-com To: attorney.general@ag.state.mn.us Subject: Minnesota law. Date: Mon, 20 Jan 2014 09:52:00 -0600 Miss Swanson Can the Department of Natural Resources under Minnesota Statute/Law Refuse to "Issue Permit" to Polymet for the purpose of mining "copper/nickel" in the ongoing process. Minnesotans are due a statement from your office on procedure and "Minnesota Law in effect. Dnr, Corps of Engineers, EPA all are described as having a VOTE on permitting. "What is the truth." What agency has "Yay or Nay" in this event. thank you Bruce A Harten apple valley mn 55124 952 431 1123

10744

_____ From: asajuice5@hotmail-com To: opinion@startribune-com Subject: Fun with Copper Mining Date: Sat, 1 Feb 2014 11:10:37 -0600 1955 to 1982 Butte Montana went from tunnel copper mining to "Open Pit" . The Waterfilled toxcic hole remaining as one of the top superfund sites is 7000 feet long, 5600 feet wide and sixteen hundred feet deep containing Thirty Billion Gallons of Toxicity. In 1995 a migrating flock of snow geese landed on it .342 carcases were retrieved,studied and creamated. Im just sayin "How would judge Miles Lord look at this.

46044

This "Polymet thing" as Ive said earlier is going to "Happen" so the effort should be concentrated on "How it Happens". Do not let the Footprint of this Plan get anywhere near an existing "Abandoned or Operating" mining venture. Closed loop crushing, milling extraction, smelting, sulfide packaging, tailing compaction and return, Interior ponding and water reuse ALL IN ONE ENCLOSURE Power Goes off everything stops .and all mining is done without "Open Pit" This procedure also lets Attorney Generals Office off the hook for defending the "Criteria of Permit ."Minnesota has the Resources, Technology and the Manpower to do this right and deserves no less . Bruce A Harten apple valley minn. HYPERLINK "mailto:c.c.opinion@startribune-com"c.c.opinion@startribune-com

46045

This "Polymet thing" as Ive said earlier is going to "Happen" so the effort should be concentrated on "How it Happens". Do not let the Footprint of this Plan get anywhere near an existing "Abandoned or Operating" mining venture. Closed loop crushing, milling extraction, smelting, sulfide packaging, tailing compaction and return, Interior ponding and water reuse ALL IN ONE ENCLOSURE Power Goes off everything stops .and all mining is done without "Open Pit" This procedure also lets Attorney Generals Office off the hook for defending the "Criteria of Permit ."Minnesota has the Resources, Technology and the Manpower to do this right and deserves no less . Bruce A Harten apple valley minn. HYPERLINK "mailto:c.c.opinion@startribune-com"c.c.opinion@startribune-com

Bruce Hurtley 39097

It would be wonderful to be able to live in a beautiful area and have good union job for 20 years. It would be wonderful if the PolyMet and GlencoreXstrata companies could guarantee that the NorthMet mine would be safe for the environment during its operation and centuries after its closure. However, the risks of sulfide mining are very high and there are no guarantees. There are only promises. Mining companies don't always keep promises. Mining executives sometimes exaggerate their commitment to environmental safety and their concern for the well being of union families. Do you trust them. You may believe that PolyMet would never allow sulfuric acid runoff from their mining/refining operations to destroy surrounding wetlands and that any liability for future cleanup costs would fall to the company and not to the tax payers of Minnesota. You may also believe that corporations put people and natural resources ahead of profit. If so, enjoy your hopeful and wonderful fantasies, but please, also consider the track record of sulfide mining because the stakes are very high for Minnesota and this industry does not deserve your faith. Sincerely, Bruce Hurtley 122 Demont Ave E, #159 Little Canada, MN 55117 612-270-7638

Alphabetical by sender's first name

Bruce Johnson 48036

Dear Ms Fay, Dear Federal and State Agency Leaders: I am writing as a concerned citizen of Northern Minnesota to ask that you reject Polymet's SDEIS as inadequate. There are many reasons why this proposed project would be damaging to the quality of life in this region. A few of the most important problems are: The long-term pollution of our precious water resources is unacceptable. Clean water is our area's most valuable resource. This is not the deserts of Arizona, Chile, or the Australian outback. The wetlands of northern Minnesota are simply not the place for a copper mine of this kind. The financial assurances are inadequate. What is said is vague and completely unacceptable. Glencore, Polymet's 'strategic partner,' has a very poor track record with respect to environmental pollution and human rights abuses. The proposed operation would require massive amounts of carbon-intensive energy. We need to be transitioning to sustainable energy systeMs The habitat of already vulnerable species, such as moose and lynx, are threatened by this project. Wild rice would be further damaged by the inevitable pollution from this misplaced mine. We are responsible for the stewardship of this unique and life-sustaining environment. The risks involved are simply too great. Sincerely, Bruce Johnson 835 West College Street Duluth, MN 55811 (218) 724-6084

Bruce Kuehl 39347

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Due to the problems with the draft mine plan outlined above, I believe the mine should not be built. I am a long term, out of state frequent visitor to MN for tourism reasons. Should MN allow this mine project I think my friends, family and I will look for a different state/province to visit. Sincerely, Dr Bruce Kuehl 8004 Eagle Rd Lake Tomahawk, WI 54539-9468

Alphabetical by sender's first name

Bruce Ludewig 43496

The following are my comments regarding the Polymet NorthMet SDEIS: Regarding the land swap: While the proposed swap would involve roughly equal acreages, it seems like the Superior National Forest would be diminished as a result, since the land to be traded to Polymet is on the perimeter of the SNF boundary, thus reducing the "effective size" of the forest, while the lands traded to the USFS are within the forest boundary and are effectively already part of it. It seems that there would be a net loss of forest and wetland as a result of this trade and the subsequent Polymet operations. I'm also concerned that in the proposed trade the USFS is not getting a good "price" for the lands that would be traded to PolyMet. Since the owner of the surface estate effectively controls access to the minerals below, the value of those minerals should be factored into the value of the surface estate. The lands proposed to be traded to the USFS have little mineral value, so are effectively worth much less. Regarding water quality: Due to the long time span (100s of years) over which treatment will be needed, I think it is a leap of faith to conclude that containment and treatment systems will be effective and can be maintained for as long as necessary. Can we really expect these engineered liners and collection systems to last for hundreds of years. It seems that they would at the least require ongoing maintenance, and possibly require complete rebuilding at some point. I don't trust the engineering over such a long time span. Is there enough financial assurance to cover rebuilding the containment systems 100 years from now. What will the political and economic situation be even 20 years from now. I am not confident that the proper monitoring, maintenance and response to unforeseen issues will occur into the future as assumed in the SDEIS. According to the SDEIS, the water discharged from the mine and plant sites is expected to contain levels of sulfate that are less than or equal to current levels in the watershed, and less than the current standard for wild rice waters. Even assuming that that situation is maintained for the long term, are we certain that we aren't replacing a natural water flow that would have had lower sulfate levels in the absence of the NorthMet project, and thus increasing the flow of sulfate into the watershed. Is sub-aqueous storage really a safe way to dispose of the category 4 waste rock. Regarding the cumulative effects: If the model results show at a 90% certainty level that water quality won't be impaired with this project, isn't it reasonable to expect that one out of 10 similar projects might result in unacceptable contamination. Given that there are several other similar projects likely to be proposed in the region in the near future, I think the 90% certainty level is far too low. For what it's worth, I think the comment period should have been extended; the SDEIS is a very large and complex document. Given the high level of public interest in this issue, 90 days wasn't enough time for an average citizen with a full time job to properly review the document. Thank you. Bruce Ludewig 6 Chester Pkwy Duluth, MN 55805

Bruce Magnuson 12077

Dear Persons, I realize that the NorthMet project is a very emotional issue and I am not an expert on the subject. However, my gut feeling is that in the long run, the proposed NorthMet mining project will be bad for the state. The mining company is looking at it with profit in mind and profit motives can cloud good judgment. As I understand it, there will have to be long-term containment of acid formation, and that means 200 years at the mine site and 500 years at the processing site. I think this is too long. I think the risk is too high. I know there are jobs that would be created by the mining of copper and nickel, but I feel that the area's current economic base of tourism and agriculture can continue to be a good source of income for that area. Sincerely, Bruce Stephen Magnuson 2434 11th Ave South Minneapolis MN 55404

Bruce McBeath 39521

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. This issue is too important and has consequences too extreme to pass human health and safety concerns. Sincerely Bruce McBeath 1687 siewert Red WIng, MN 55066

Alphabetical by sender's first name

Bruce McKay 39078

---Original Message--- From: bmckay.aces@gmail-com [mailto:bmckay.aces@gmail-com] Sent: Monday, March 10, 2014 8:55 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Bruce McKay 29976 290th St Henderson, MN 56044-4415

Alphabetical by sender's first name

Bruce McKay 42227

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

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Bruce Peck 52548

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404 " Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation " wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect " wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1- Underground mining, looking at the full ore deposit and PolyMet's real costs; 2- Putting a liner under the Category 1 waste rock stockpile; 3- Placing all tailings on a new completely lined facility; 4- Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5- Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to protect irreplaceabl

Alphabetical by sender's first name

Bruce Philipson 43701

Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd In short, the time for accepting the PolyMet mine has not come yet. Current mining technology and methods are not environmentally safe enough to operate in Minnesota. Certainly this is not something of honest dispute, otherwise why are we looking at monitoring for 500 years. Is the 20 years of mining really worth 500 years of pollution concern. Seems it would be best to err on the side of protecting the environmental certainly at least until safer mining techniques with less risk for pollution have been developed and proven to be effective. Minnesota should not be the testing ground. The precious metals have been there for centuries and are not going anywhere on their own. They will wait until they can be mined in a safe and environmentally responsible manner. I realize the projected economic impact to both the local area as well as the state of Minnesota are large numbers especially to an average citizen, but the reality is the numbers are not that big when compared to the potential costs and risks being pushed upon the citizens. Certainly a 1,000 temporary construction jobs and something less than 400 so called permanent jobs, if 20 years is permanent, all are appealing but at what costs. In light of the recent announcement by one company, Wells Fargo Mortgage, cutting 2,000 good permanent jobs and there being little outcry it does not seem the potential PolyMet jobs are really that big of a deal. Certainly not such a great boon given the potential long term damage to the local environment that is surely to arise from mining in such a delicate environment as that proposed for the PolyMet. History is a great teacher for those who are willing to learn from it. One of the lessons it offers is that mining companies are poor citizens and certainly have not been friends of the environment and all to often not to their employees either. All too often the mining concerns have been interested only in their bottom line and take action to protect, (actually clean up after the fact) the environmental and health concerns only when forced to. The common method of operation is for the mining concerns to get while the getting is good and leave behind a path of environmental destruction. All too often escaping the economic responsibility for cleaning up their mess thru bankruptcy and leaving the public holding the bag. Examples of abandoned polluted mines are ever abundant in the western states. One only need look at the Minnesota's own fight over the taconite tailings pollution at Silver Bay and numerous superfund sites that remain. In short, mining concerns have not been good environmental citizens on their own in the past and should not be expected to have changed overnight. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,34

Bruce Reno 39550

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. There are no safe guards to protect the environment and the tourism industry after the mining has been approved and started. What happens to the businesses and jobs that will be eliminated after the problems arise from this mining practice as has happened every where this type of mining has occurred. I personally have seen the effects of the damage that has come about and once it happens their is no fixing it. The people of this state cannot afford to fix the problems resulting from the mining process and the lack of over site that always occurs due to greed and miss management that is pervasive in the mining industry as a whole. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Bruce Reno 2851 Tuxedo Blvd Mound, MN 55364-9158 (612) 801-7138

Alphabetical by sender's first name

Bruce Reno 48786

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. There are no safe guards to protect the environment and the tourism industry after the mining has been approved and started. What happens to the businesses and jobs that will be eliminated after the problems arise from this mining practice as has happened every where this type of mining has occurred. I personally have seen the effects of the damage that has come about and once it happens their is no fixing it. The people of this state cannot afford to fix the problems resulting from the mining process and the lack of over site that always occurs due to greed and miss management that is pervasive in the mining industry as a whole. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Bruce Reno 2851 Tuxedo Blvd Mound, MN 55364-9158 (612) 801-7138

Bruce Snyder 58064

This type of project has no place in the watershed of the Great Lakes. Do we still offer short term riches in exchange for our long term best interests? I hope not. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Bruce Synder 18184

Good evening. I'm Bruce Snyder. I noticed all the Snyders that have been here tonight were a proud clan, but actually I'm not related to any of the other Snyders. I've been a neurologist in Minnesota for about 40 years, which means I'm old. And it also means I know a fair amount about technology and scientific literature. And I do know a couple of things. I know that economic interest does affect the perspective of the scientist. I know that in science -- although we count on science to be intellectually honest, we count on science to be technically proficient, and we believe some of it still that science is actually objective. And it's not. It's not. I've seen this in my own line of work. I've seen it with various devices that haven't worked as they should. I've seen it with medications that have turned out to be toxic. I've gotten to be -- because I'm old -- skeptical. Now when it comes to environmental concerns, I'm even more skeptical. I mean I went to college when Rachel Carson wrote her book. DDT was actually a very useful chemical coming out of World War II. It killed fleas and lice. And unfortunately unexpectedly it had a major environmental impact. I was in Minnesota the first years when Three Mile Island melted down. That was a nuclear plant that was designed carefully with a great deal of engineering expertise and responsibility. And God knows, I'm sure well-intentioned and well-informed labor. And we know what happened there. Maybe you don't. You don't remember that it melted down. It was a containment breach. And we just avoided major environmental nuclear pollution in that way. Our energy industry has – it supports us. I burn oil. I use electricity. We all do. Our energy industry, however, needs to perhaps be held in check. Putting a nuclear plant on a seismically active fault is not the best idea. And putting a polluting mine in our freshwater is not a good idea either. The surface water and streams and groundwater that this plant will be affecting are in the watershed of the Great Lakes. The Great Lakes is 20 percent of the world's freshwater. We are in the middle of an impending, increasing, actualizing drought. Two years ago the Mississippi was too low for barges. Groundwater supplies dropped -- and I'll stop there. I'm against it.

Alphabetical by sender's first name

Bruce Ventura 34208

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Sulfide ore based mineral extraction is also occurring in the Upper Peninsula of Michigan where I live, and has similar potential to pollute Lake Superior. Sulfide based ore extraction took place in northern Wisconsin in the late 1990s, with disasterous results for the rivers in that area. NO sulfide based ore mining or extraction of coal that is high in sulfur has ever been done without major contamination of water resources. No technology has ever been developed to prevent the damage and destruction of watersheds in any region in the world where sulfide based mining has occurred. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Bruce Ventura 140 Timber Ln Marquette, MI 49855-8801 (906) 225-0139

Bruce Vukelich 44066

I am writing to submit my opposition to the new proposed PolyMet mining operation. History has shown that despite men’s best efforts to prevent accidents, they continue to happen and once they happen it is too late to reverse the damages. The plans which provide for 200 and 500 year spans of cleaning pollutants and waste from water and the land in the area and surrounding areas is testament enough for me of the potential damages we could sustain to our already endangered eco-system. 500 years. In viewing the FonDuLac watershed district maps produced to show current levels of pollution, many with areas that are already over the limit specified by the EPA as being safe is a big concern. Adding this new mining operation to this area will only add to these already troubled areas. Jobs and opportunities are very important to the vitality of the Iron Range of northeast Minnesota but not at the cost of our water and soil. We are one of the few states in the country with the water resources we have and we should be highly protective of those resources. Thank you, Bruce Vukelich 5481 245th Street Forest Lake, MN 55025 651-464-2573

Bruner Bullivant 52290

Mar 13, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I'm a student at the University of Minnesota Duluth. The natural beauty of the Great Lakes is what drew me to to going to school here. I love Minnesota because it is a state that values and protects these natural spaces. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Bruner Bullivant 7518 130th Ave Milaca, MN 56353-4437 (763) 898-0268

Bruno Prata 42437

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Bruno Prata Rua Dr Jorge De Seabra 10 - 1º Esquerdo Castelo Branco (Portugal), None 6000-216

Alphabetical by sender's first name

Bryan Emmel 39577

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Hydrologists and futurists agree that one of the most precious commodities of the future is clean, potable water. Northeast Minnesota has some of the most pristine surface waters in the world. It makes no sense to trade it for ten pieces of gold. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Bryan Emmel 322 9th St S Virginia, MN 55792-2836

Bryan Hainey 41817

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Bryan Hainey Fridley, Minnesota

Alphabetical by sender's first name

Bryan Hansel 18895

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Bryan Hansel PO Box 149 728 Devil Track Road Grand Marais, MN 55604

42226

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Bryan Hansel PO Box 149 Grand Marais, MN 55604-0149 (218) 370-8351

Bryan Nelson 47518

Bryan Nelson Twenty years of minor prosperity is not worth 500 years of pollution. Please do not permit such a man made disaster.

Alphabetical by sender's first name

Bryan Thao Xao Chay 54220

Dear Ms. Lisa Fay,Do you know what you're doing? You are allowing Polymet to mine a very conservative place. Do you know what that would do to the Boundary Waters? It would basically poison the water with sulfuric acid! But that's not all of it. The water would be contaminated for over 500 years! And the cost to decontaminate it would cost a lot, even higher than one billion dollars.Polymet's plan to mine is also wrong too. They plan to mine in a huge area, but they are telling everybody that they're only mining in a small area. Which is a lie! How can you trust and allow a company to go through with this plan, when it is so obvious that they are lying!That is all I have to say. Goodbye and have a good day. And think hard if what you are going to do.Sincerely,Bryan Thao Zao ChayP.S. I am a Humboldt High School student of Saint Paul, MN.Address: 1245 7th Street East55106 St. Paul, MN

Bryan W Cox 9333

I would like express my gratitude to be able to provide my opinion regarding Polymet's current proposal for a precious metal mine in Minnesota. As a lifelong resident of St Louis County, I too enjoy the natural resources and outdoor activities of the State, but I also understand the importance of economic growth. While the proposal has drawn opponents, alarmed about run off, mining in general, the company's ability to effectively maintain or clean their waste, and preservation of our current environment, a multitude of concerns have been raised that are simply too advanced to truly have an effective answer. One could theorize different circumstances and still remain unprepared for all eventualities. If Polymet has developed a reverse osmosis process that extracts minerals from waste well below the EPA standards as they claim, one would believe their ability to be environmentally viable. Furthermore, waste water can be treated before being reinstituted into the surrounding area. Companies throughout the country have practiced this with great success for years. Recent concern regarding water flow data along the Partridge River have been brought forth. Opponents tout further reason to avoid implementing the mine; however, according to the Duluth News Tribune, a sensor was not placed into the river until mid-2011- I question the true impact of this revelation. First, two years is not a sufficient period of time to conclude consistent water flow data. Second, Northern Minnesota went through one of the worst floods in history in June of 2011, which would obviously elevate data. Finally, data can be skewed by both opponents and proponents alike to meet their own agendas. Northern Minnesota is not truly new to precious metal mining. For decades, copper and silver mines were abundant along the shores of Lake Superior. They remain abandoned today along one of the largest watersheds of the country. Such mines, along both Knife and Sucker rivers are well known to locals. Silver mines were present further up the shore. Vegetative growth, habitat, and wildlife remain viable in these avenues. Certainly EPA standards were less aggressive then today and yet run off persist from these mines with little influence to the surrounding area. I have faith that the project will be environmentally wholesome and beneficial for the region and the state. The proposed minerals that will be mined play a vital role in our society. Little do most people understand that day to day devices carry such metals in their structure. These metals already help advance our Country's goal of being energy efficient and will ultimately reduce the carbon foot print of society. There are many ways to protect the environment on an individual basis. Our current laws are sufficient enough to protect these standards. Assuredly, Government agencies will see that it will. Thank you. Sincerely, Bryan Cox This St Lukes communication is intended for the use of the person or entity to whom it is addressed and may contain information that is privileged and confidential, the disclosure of which is governed by applicable law. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering it to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this information is prohibited. If you have received this message in error, please notify sender immediately.

Bryan Wood 9521

Dear Ms Lisa Fay and MDNR Division of Ecological and Water Resources Environmental Review Unit, Please find my attached comments in opposition to the proposed PolyMet mine. Sincerely, Bryan Wood 15410 Groningen Road Sandstone, MN 55072

20814

Dear Mr Bruner, Ms Fay and Mr Dabney, I am submitting my opposition to the PolyMet mine proposal in the attached document. I ask that you please read it, and decide against this incredibly environmentally harmful proposal. Sincerely, - Bryan Wood 15410 Groningen Road Sandstone, MN 55072 HYPERLINK "mailto:bwood18@gmail-com"bwood18@gmail-com 320-290-8246

Alphabetical by sender's first name

Bryan Wood 49648

Dear Mr Bruner, Ms Fay and Mr Dabney, I am submitting my opposition to the PolyMet mine proposal in the attached document. I ask that you please read it, and decide against this incredibly environmentally harmful proposal. Sincerely, - Bryan Wood 15410 Groningen Road Sandstone, MN 55072 HYPERLINK "mailto:bwood18@gmail-com"bwood18@gmail-com 320-290-8246

Bryce Makela 19522

My name is Bryce Makela, B-R-Y-C-E, M-A-K-E-L-A, 2504 West 11th Street in Duluth, Minnesota. I don't particularly hold any pro or anti-mining view. I think you can mine and have clean water. They're not mutually exclusive, but what I'm concerned about, I can't find any information in the EIS that has looked at the existing copper mine that was closed in Ladysmith, Wisconsin. I would think that, rather than modeling, computer modeling, you know, sulfite concentrations in water, that there should be a comparison study of a few existing copper mines that use modern technology, such as the Eagle Mine in Upper Michigan, and the closed Ladysmith Copper Mine. I mean, just simply going down there and sampling the water flowing from the waste rock pile will generate a mountain more data than computer monitoring -- or computer modeling situation. That’s all I have to say. I mean, it's a mistake if the EIS has not taken real-life measurements from an existing closed copper mine, such -- I think it was in Ladysmith -- I'm not sure of the name of the mine. I'm not pro or against. I think that if -- if they haven't looked at that, they're missing something. That’s all I have to say.

Bryn M Shank 57198

Ruining the environment for up to 500 years is selfish! The CEOs of these mining companies won’t be around. They won’t have to pay for the health concerns. People’s lives don’t have a price. Let’s do the right thing and say NO to PolyMet!Bryn M. Shank1696 James AveSt. Paul, MN 55105

Bryn M. Shank 16486

Minnesota is well known for its beautiful wilderness. Lets not wreck it. 500 years of clean up is way too long. Do the smart thing for the future of Minnesota. -Bryn Shank 1696 James Ave StPaul MN 55105

BSMAJEWSKI@aol.com 47161

It is imperative that any water discharges from this operation off site meets all standards that protect all users of the resource (plants, animals, insects, etc that are part of the food chain at all levels) within the watershed it will be placed in. Dilution is not an acceptable solution. Treatment level and time is critical. The SDEIS is not clear on how much time will be necessary to treat the water used in the process. It is assumed that rather large quantities of water will be affected by the process and whether this amount can be adequately stored onsite and treated before release to the adjacent watershed for travel eventually to the St Louis River and Lake Superior where it will be drawn into the intake for drinking water by the residents of the urban area of Duluth and Superior. The 12,000 acre estuary could be adversely affected by the water if it is not adequately treated before release. Contamination of the ground water resource is also a critical concern and needs to be examined more closely. Once groundwater pools are contaminated there is no remediation. This contamination could travel considerable distances to affect areas unknown to us today. If treatment time is in the range of 200-500 years as has been mentioned, it is not acceptable. The adjusted cost for such treatment after the mining activity ceases over that kind of time period doesn't make any sense whatsoever. When put in the perspective of the time between the time when Christopher Columbus discovered America and today, I don't think anyone is going to have the resources to set aside to support the long term cost of the treatment process and replaced equipment for that long.

Alphabetical by sender's first name

Bud Fontana 18116

Good evening. My name is Bud Fontana. I'm a manager at Hoyt Lakes Global Mining project. And I'm here speaking in favor of PolyMet. And the DNR's extensive testing has shown we can have industry mining jobs and clean water. According to the document, the average mining job paid $62,000 per year on average. The jobs PolyMet will create are good, high-paying jobs people on the Iron Range are trained for and are good at. Spin-off jobs created because of PolyMet, like those at (inaudible) also very important to our community. The socioeconomic studies included in the primary geographic area impacted by the PolyMet project include the areas of Duluth, Hibbing, Virginia, Ely, Biwabik, some portions of Cook County (inaudible) population trend in our area you will see 10 percent decrease since 1980. Our young people, my daughter, has had to move away from our community to the Cities to find work. These jobs have to be well paying to sustain a family to be able to purchase products and drive an economy. The PolyMet project can bring hundreds of these direct paying jobs back to our region and bring some of us back to the family that they left. Mining these deposits in a reasonable way represents the largest economic opportunity for the Northeast Minnesota region and the state of Minnesota since the Iron Range ore was (inaudible) bringing construction and jobs to support families, provide high-quality health care, and retirement security for the future. If you use, like I do, all the devices in our life these days, which are coming at us faster and faster, you support the mining industry, whether it's here locally or it's a foreign country. I'm glad they have state policies that call for responsible extraction of our mineral resources and sound laws and processes in place to ensure we protect the people and the environment when we mine. I support the Draft Environmental Impact Statement. And I believe it provides sound foundation for the company to seek and obtain the needed permits to operate. The metals used every day, copper and nickel, exceeds the recycle supply. We are net importers of these metals. Given that there are no supports and increases in demand, if we are responsible stewards of our global planet, we should be for locally sourced metal rather than foreign and thereby sending good jobs overseas.

Bud Stone 18096

Good evening. My name is buzz stone. I am the president of the Grand Rapids Area Chamber of Commerce. Our chambers had a formal resolution in place supporting the PolyMet Project since August of 2007. The reasons that we passed that resolution were varied but include the things that you've already heard about, like positive economic impacts, jobs, tax money for the State of Minnesota and funding for schools. Now, some of those opposed to the project talked about the long-term effects of the project in a negative tone, but we don't see it that way. They also talked about unproven processes that might not be perfect and how they don't trust the agencies that are critiquing the project. During the creating of the EIS and SDEIS, hundreds of smart people from these agencies gave their input based on what we call best available technology. Tomorrow's best available technology will be entirely different than today's. Just as Smart Phones evolved from two tin cans with a piece of string between them, mining as we know it today will change as we get smarter. Just as high-tech transportation evolved from the model T, we'll develop advanced ways to protect our environment from things we don't know about today. Just as we have develop ways to scrub mercury and carbon from power plant emissions, we'll also find new ways to prevent new pollution and clean up old pollution. You know, questioning the way we do things is beneficial as this leads to new and better ways to do them. It's always done that way. Today, the world need to the precious metals that we have under our feet. Tomorrow, the world may need something else. But for now, we have the resources to advance civilization down the path that we know best using our best available technology, which is far superior to anywhere else in the world. Fifty years ago, we would not have even been talking about the PolyMet Project as it is proposed today. That's because we weren't smart enough. Fifty years from now, the things that people are concerned about today will no longer be relevant as we will have new tools, new knowledge to deal with. We believe that this project can be done environmentally responsibly and that in the future, it will get even easier. In closing, I'd like to point out that, you know, you can't be anti-mining and pro metals. If you use electricity are indoor plumbing, if you use a computer, cell phone or drive a car, bicycle, if you use this microphone and the amplifiers and the speakers in the room to have your voice heard, you're supporting the mining industry and, specifically, copper and nickel mining. Personally, I'm glad that we have state policy that calls for responsible extraction of our mineral resources and strong laws and processes in place to ensure that we protect the people and the environment when we mine. We support the draft EIS and the supplemental draft EIS and believe they provide a solid foundation for the company to week and obtain the needed permits to operate. Thank you.

Building Construction Trades Council 54696

See attachment

Alphabetical by sender's first name

Burgess Eberhardt 16181

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Burt 54903

See attachment

bwolfe 4570

I hope you have read very carefully the SDEIS with the very limited time given to the citizens of Minnesota. There are so many environmental, economic, and social costs not answered in this over 2,000 page document. If water pollution will last for a MINIMUM of 500 years this document gives generalities when it comes to COSTS ..repairs, monitoring, treatment of the water. etc Are we really going to pass all this on to future generations. PLEASE google the Berkeley Pit in Butte Montana, a super fund site and this is what we will create in NE MN. Why would anyone want to do this. Also the SDEIS document NEEDS a cost/benefit analysis of the Polymet mine. This document is inadequate and the risks are too unknown to have this type of mining in Minnesota. Barry Wolfe 1612 Jefferson St Duluth, Mn. 55812 bwolfe@d.umn-edu

Alphabetical by sender's first name

bwolfe 36805

I do not feel PolyMet's SEIDS is complete enough for this project to go forwaRd Please consider the following that should be answered. Polymet's SEIDS needs to be more specific about the expected amounts of mercury that will be released into the surrounding watersheds. 2) Polymet's SEIDS needs to include the effects of mercury emissions and the exposure to asbestos and arsenic on the health of humans living in the area or visiting the area, as well as the animals and vegetation. 3) Polymet's SEIDS needs a cost analysis on the indirect harming of wetlands, air pollution, and redirecting of water in the Partridge River headwaters. Water is our most precious resource. We have worldwide water wars and the US will possibly see more of this type of war inside this country with the effects of climate change. Fresh, clean water is more precious to human beings in this state and this nation than any copper so why is this state so eager to poison this natural resource. Once the water is contaminated there is no way to purify the water to make it safe for human consumption or it would cost billions and decades. Why would any state want to EXPERIMENT with a copper sulfide mine such as the PolyMet proposal. I hope the public will see in writing all their questions answered. We cannot vote on this issue so please understand the concerns ..you must weigh what is best for Mn. and future generations and this May mean looking at the entire picture and not segments of the PolyMet proposal .and this takes courage to speak out Let's not EXPERIMENT with NE MINNESOTA 's resources Mrs Barry Wolfe 1612 Jefferson St Duluth,MN. 55812 218-728-2465

Byron Kuster 16074

Dear Ms Fay, Dear Federal and State Agency Leaders: I am writing in regards to the Polymet SDEIS. I believe it has overlooked one important matter, the possibility of a terroristic action directed towards the mercury that is planned to be stored on-site. This mercury is a byproduct of the reverse osmosis and other mining related processes. Most people would agree that there are people who will create havoc and chaos as a way to get attention or as a way to express anger. Examples of this would be the Boston Marathon bomber brothers, the shooter at Sandy Hook Elementary School, or Chris Christie's staff who ordered the blockage of traffic on the Geo. Washington Bridge. My concern is that a terrorist, foreign or domestic, could create an improvised explosive devise (IED) and direct it to the Polymet's on-site stockpile of mercury. If accomplished, the explosion could disperse mercury in all directions in a manner that would be extremely difficult to clean up quickly and thoroughly. The un-recovered, toxic mercury could then cause seriously pollution to the watershed and underground aquifers. Preventing such a terrorist act would be nearly impossible because an IED could be dropped from a small aircraft or helicopter. An attempt at prevention would likely include a double row fence with razor wire between such as found surrounding a prison, 24/7 armed guards, and a no-fly zone above the Polymet site for as long as mercury is stored in the area. If the mercury were to get moved, similar mobile safety precautions would be needed from point to point. If I can think of this act of terrorism, others more sinister than me can also. A plan of prevention needs to be included in the SDEIS. Currently, it isn't. I am asking you to reject the SDEIS until this threat has been evaluated and a viable plan of prevention has been established. This plan should include an estimate of its cost, its duration, and its liklihood of success. Thank you. Sincerely, Byron Kuster 4761 Coffee Lake Road Moose Lake, MN 55767 218 485-8511

byron paulson 20178

I wish to make one brief comment regarding the EIS for the proposed PolyMet mine in northeast Minnesota. There is discussion that any monitoring and possible cleanup of the site may be in the 500 year timeframe. To put this in perspective, 500 years is as long as the elapsed time between when Columbus "discovered" America and the present. Think of all the events and turmoil which have occurred in the past 500 years. Project this into the future, and then ask yourself if it is reasonable to expect that vigilance in monitoring and potential cleanup will really occur centuries from now. Thank you. Byron Paulson 10822 Oxborough Ave Bloomington , MN 55437

Alphabetical by sender's first name

Byron Quinn 39067

---Original Message--- From: quinnb@upstel-net [mailto:quinnb@upstel-net] Sent: Tuesday, March 11, 2014 9:37 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Byron Quinn 709 SE 2nd St Little Falls, MN 56345-3503

Byron Rice 39876

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I don't want my grand children having to pay for cleaning up Northern Minnesota because we thought it would be a good idea to get jobs up there for a 20 year stretch. Let's come up with a jobs program to help the people of Northern Minnesota. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Byron Rice 6310 Russell Ave S Richfield, MN 55423-1004 (612) 866-8286

Byron Richard 8

Representative, I have two responses: 1) The process presented is blind to an informed consideration of impacts that could extend from 200 to 500 years into the future. The process is inadequate and represents either our cupidity or cowardice, or both. 2) Geological asset extraction yields short-term financial benefits while expending social, health and other economic resources a score of generations or more into the future. Does that sound like a good exchange to you. I look forward to the day when this kind of proposal is immediately recognized as criminal activity too shameful for anyone to voice in public. Erin Thompson Byron Richard 4609 Lyndale Avenue South Minneapolis, MN 55419

Alphabetical by sender's first name

Byron Richard 45463

I'm registering my profound opposition to the Polymet mine proposal and to any sulfide mining in Minnesota. Your assurance, though possibly legal, do not adequately equip the state and future residents to maintain the mitigation of water pollution. I'm looking at Mine Site Version 5-0 Model, Annual Average of Concentration Statistics, CU in the long-term WWTF Influent. This chart ends at year 200 with almost no change in concentration. 1) what kind of fraudulent representation is this. At that slope how long does it take to achieve acceptable mitigation, 2000 years. 2) the parent company of Polymet can cash out and leave Minnesota high and dry. Your assumptions call for best case scenarios for rainfall and assume no leakage in the containment facility. Both of these assumptions are on the wrong side of caution. There is no sulfide mining mitigation that has been successful. The Polymet reserve osmosis plan doesn't have the capacity, never mind the funding for 2000 years. I wouldn't wish this on your children, so don't compel it on mine. What kind of cost are you willing to incur for 3 years of 200 jobs from this low-employment density project and open season on further mining proposals. It makes no sense. NO to Polymet. Byron Richard 4609 Lydnale Avenue South Minneapolis, MN 55419

C Bach 54472

See attachment

c carlson 18943

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I’m writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn’t fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It’s going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn’t explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren’t analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal “Major Differences of Opinion” call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won’t seep pollution; that mining won’t dry out wetlands; and that mercury contamination of fish and other toxic chemicals won’t increase. * The SDEIS doesn’t allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, c carlson boulder creek drive 16025 boulder creek drive mtka mn minnetonka, MN 55345 952 934 5357

Alphabetical by sender's first name

C Dodd 22967

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, C Dodd PO Box 1110 Monterey, CA 93942-1110

C Goustin 8128

Dear Ms Lisa Fay, Five hundred years. At leaSt The United States is not yet 250 years old. Who will be here to treat the wastewater in five or six hundred years. Do you think PolyMet will be there. What is the average life of a polluting corporation in our modern era. Even if reverse osmosis is the miracle that the mining companies claim, who will be here to do it. In fact, we know it won't happen. This is permanent destruction of our home planet for short-term corporate gains. The pressure is on you to sell the citizens out to a dirty, greedy corporation. Do the right thing. Say no. Thank you, C Goustin 6029 Dupont Ave So Minneapolis, MN 55419 US

C Jean Kilgour 42634

See attachment

C Johnson 9697

To Whom It May Concern: I am an Environmental Health Specialist in the State of Minnesota and a planning and zoning commissioner. I hold a bachelor of science degree from the University of Wisconsin-Eau Claire. I am adamantly opposed to the proposed PolyMet nickle mine in Northern Minnesota. If reasons for my opposition to the project are needed, please contact me via email reply to this address. Sincerely, Caleb Johnson Lexington, Minnesota

C Lee Beaty 39870

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms C Lee Beaty 2801 42nd Ave S Minneapolis, MN 55406-1817 (612) 721-7108

Alphabetical by sender's first name

C Peterson 10825

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs C Peterson 7 Bainbridge Ct Laguna Niguel, CA 92677-6067

10829

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs C Peterson 7 Bainbridge Ct Laguna Niguel, CA 92677-6067

11437

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs C Peterson 7 Bainbridge Ct Laguna Niguel, CA 92677-6067

Alphabetical by sender's first name

C Quast 48168

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, C Quast xxxxx xxxst Ave Henderson, MN 56044

C Stephens &/or L Olson 38855

The SDEIS is inadequate. It does not and cannot provide reassurance that this mining will not result in irreparable harm to the watery environment in Minnesota's Arrowhead. PolyMet’s proposed mine threatens the state's clean water, wild lands, and public health. These valuable resources must be protected and not sacrificed for short term employment and profits. Charlotte Stephens, 23 Pandolfo Place, St Cloud MN 56303

c. dino pappas 4006

Dear Sirs, The state of Minnesota needs more jobs and must increase it's tax base. The environmental issues will be answered with a cleaner state that which exists now (remember this is an old iron ore mine). The community is desperate for jobs, this area has some of the highest unemployment in the state, with this project there will be thousands of new jobs. The fact is that PolyMet is going to be using reverse osmosis as it's topping of it's water treatment. Good enough to drink, and yes I would drink it. Minnesota is very rich in natural resources lets use these gifts, and we have a very well educated population. I think that we have a chance to keep more of these people in the state by creating these new jobs. I have been an investor and a frequent visitor to Minnesota all of my life. I use to go to Lake Vermillion as a youngster and think highly of keep Minnesota clean and I know that is just what PolyMet will be doing. Oh and just one more thing to think about is that these are strategic materials which we currently get from other countries which are not all that friendly. Please approve the PolyMet application. Thank you. C. Dino Pappas C. DINO PAPPAS Vice President for Development @ PyroPhase, Inc. The Future of US Energy .. and President of P.S. Consultants, Ltd. Technology Transfer and Licensing Insurance, Pensions and Finance //:\\ MAIL: POB 652, SKOKIE, IL. 60076-0652 STREET: 8453 N. LAWNDALE Ave SUITE 1, SKOKIE, IL. 60076 847 676 4169 VOICE /// 847 361 3160 CELL c.dinopappas@usa-net // c_dinopappas@yahoo-com The information contained in this transmission may contain privileged and confidential information. It is intended only for the use of the person(s) named above. If you are not the intended recipient, you are hereby notified that any review, dissemination, distribution or duplication of this communication is strictly prohibited. If you are not the intended recipient, please contact the sender by reply email and destroy all copies of the original message.

Alphabetical by sender's first name

C. Morgan McNeil 25624

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Re: PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. To: Douglas Bruner, US Army Corps of Engineers, Tim Dabney, US Forest Service, Lisa Fay, Minnesota Department of Natural Resources Susan Hedman, Environmental Protection Agency PolyMet doesn't have a history to consider. Glencore does. The company founded by Marc Rich, a financier, who if pardoned for his involvement by President Bill Clinton, has nevertheless been implicated in environmental disasters, as well as labor violations and human rights abuses around the world. To date there has been no Sulfide mining in Minnesota. Sulphide mining now threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Renal tubular malfunction and pulmonary emphysema from Cadmium, Arsenic, Mercury are on offer to local residents. A corresponding threat to the health of wildlife will result in species decline. Virtually every environmentally responsible person who knows about PolyMet Mining says no to this project. We, they, do not want acid mine drain water. Those who do, live elsewhere and profit. Nor do those people who will be affected want to lose local wetlands or wildlife to this mining scheme. Specifically, lynx and declining moose populations are threatened by the cumulative impact to an even greater degree than are local residents. The animals are defenseless. Residents can, and do however, say no. The Federal land exchange of protected Superior National Forest decision to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public interest while those who will profit will in any exigency hide behind corporate law and not be held responsible for the harm they knowingly cause to wetlands, residents and wildlife. C. Morgan McNeil 9876 Wilshire Boulevard Beverly Hills, CA 90210 Sincerely, C. Morgan McNeil 9876 Wilshire Blvd Beverly Hills, CA 90210-3115

Cahrene Dimick 57968

I understand the need for employment, however I am completely opposed to jobs that will place at risk and harm our natural resources. The area on the PolyMet Mining Corp NorthMet is pristine and vulnerable. Please do not let this project occur. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Caitie Ryan-Norton 45112

Mar 12, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. As a Minnesota native who is spending a year living in southern Colorado I have a new perspective on our water sources as vital components to our livelihood. Listening to the struggles of southwestern water rights and priorities I know that it is essential for us to protect our water. Participating in a mine that has even the most remote chance of polluting our waterways is not worth it. Our water is an incredibly valuable resource that should not be taken for granted. Sincerely, Ms Caitie Ryan-Norton 307 Laurel Ave Saint Paul, MN 55102-2105

Alphabetical by sender's first name

Caitlin Bellis 42444

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, The proposed PolyMet mine is a dangerous beginning to the degradation of lands and waterways we have fought hard to protect for decades. There is a precious amount of off-limits land in this country, and something we as Minnesotans are proud of maintaining. generation after generation. Understandably, there is profit to be made by mining. However, money has a finite existence, whereas the natural beauty and resources of the BWCA are infinite, so long as we protect them. Just because something is profitable, does not mean it is acceptable. For example, the sale of illegal drugs and prostitution. Also, we have the responsibility of protecting the headwaters of the Mississippi River, a water source that cuts through our country and supplies water to millions of Americans. I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Caitlin Bellis 325 Runge Ln Saint Paul, MN 55118-2913 (612) 816-3671

Caitlin Kelley 54864

See attachment

57189

The PolyMet proposal represents unjust risks to our natural resources and the public health. Do not allow this to go through and threaten Minnesota’s water quality and native and state resources. Mines like the mine proposed have never been operated without contamination of the environment. Please, oppose PolyMet’s proposal.Caitlin Kelley10155 150th Street EastNerstrand, MN 55053

58117

The Polymet/Northmet proposal should be rejected. The environmental costs of the mining project being proposed are not worth temporary jobs supporting a temporary industry. I believe Minnesota’s natural woodlands and wetlands need to be protected and respected. A proposal that suggests cleanup of hazardous materials produced by the planned mine could take 500 years is not an acceptable proposal. Reject this proposal to protect our natural resources.

Caitlin Pedracine 41930

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Caitlin Pedracine Coon Rapids, Minnesota

Caleb DeGolier 47695

My name is Caleb DeGolier. I oppose the PolyMet mine. The possibility of an accident that could drastically affect Minnesota's wilderness and habitats of our wildlife is definitely not worth the relatively few number of jobs the mine will provide. Furthermore, there is no company that can be trusted to provide clean-up for contamination for hundreds of years. What if they file bankruptcy for instance. The tax payer and the environment will end up paying the price. Sincerely, Caleb

Alphabetical by sender's first name

Calee Malvasio 33555

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, It would like to believe that there are still some good people out there who are willing to do what is right and in the best interest of all that inhabit this planet. We need to find a balance between use of resources and raping the land. In a time when fresh water is becoming ever more scare we should be protecting the valuable resource we have in the Great Lakes Basin. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Calee Malvasio 414 McMillan St Marquette, MI 49855-4809

Cali Mellin 57192

The mining project would damage Minnesota’s Boundary Waters, a very important part of the environment; due to this I do not support the mining effort.Calin Mellin405 N Ray Street

Calista Small 42416

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I do not even think there is a choice:the PolyMet mine must be rejected. Thank you Sincerely, Ms Calista Small PO Box 200625 New Haven, CT 06520-0625

Calvin Cloutier 41901

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Calvin Cloutier Saint Paul, Minnesota

Camilla Illegible 58001

Keep the Boundary waters clean! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Camille George 40202

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

41910

Mar 8, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. As an engineering professor, I want you to know that we DO NOT possess the technology to do this mining safely. Please do not allow us to pollute this beautiful land. Sincerely, Dr Camille George 679 Lincoln Ave Saint Paul, MN 55105-3529 (651) 962-5763

Alphabetical by sender's first name

Candace Keskitalo 39613

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Candace Keskitalo 4341 Channel Rd Spring Park, MN 55384-9734

Candace Smolich 44677

As a small business owner in Aurora, Minnesota I am in full support of the PolyMet project moving forwaRd The dramatic impact this mining operation will have on my business will be the difference in just existing and trying to keep my doors open to making updates and creating jobs. I look forward to creating a part time job(s) which will help our area econmically overall. There are always students and others looking for part time employment and at this time I am unable to support a paying position. I believe once the PolyMet mining project begins this is something I will be able to offer. I see PolyMet as keeping our mining jobs alive on the Iron Range. And jobs with decent living wages which will keep our future families stay in our area and grow our population overall. Mining today is not the same mining created a hundred years ago. I have no doubt that the SDEIS gives regulators the informaton they need to issue PolyMet Mining permits to operate while protecting natural resources. I am ready to see PolyMet Mining be issued their mining permits. Candace Smolich 216 W 2nd Ave N Aurora MN 55705 218-229-3317 «·´`·.(*·.,(`·.,
,.·´),.·*).·´`·» «·´¨*·.¸¸.*have a great day. *.¸¸.·*¨`·» «·´`·.(¸.·´(¸.·* *·.¸)`·.¸).·´`·»

Candice C Pierce 54823

See attachment

Alphabetical by sender's first name

Caree Gordon 37752

Dear Ms Fay, 3/1/2014 Dear Regulatory Agency: I reside in Duluth, MN and am very passionate about the pristine wilderness and quality of clean water/air we are so fortunate to enjoy in Northern Minnesota. I am deeply concerned about the possibility of PolyMet's copper-nickle sulfide mining project. One of the reasons so many people vacation in MN is to enjoy the Boundary Waters Canoe Area Wilderness and the beautiful lakes in Northern MN. If PolyMet wants us to believe their mining won't pollute the rivers, lakes and water shelf, then they need to take inspectors to past mining sites they have constructed and actually demonstrate that the waters have not been polluted. I doubt very much if they can demonstrate this, as mining has always resulted in pollution. I have heard that before an inspection, the EPA trucks in water to put in the rivers/lakes to dilute the pollution level. Of course as an average citizen, I can neither confirm, nor prove this happens. It's really quite distressing to me to think that our lakes and rivers could become as polluted as others have become in the Southern US Many well established businesses in Northern MN that depend on clean water for fishing, as well as the survival of our wilderness and wildlife will be in jeopardy if PolyMet's mining initiative is allowed to begin destroying the land in Northern MN to extract minerals. People from all over the world visit the Boundary Waters Canoe Area, as it’s one of the last wilderness areas on the planet. People right now so rely and need places like the Superior National Forest to get away, rest and recharge themselves. I hope people of MN are paying attention, because the Superior National Forest borders are in jeopardy of being changed. If a border is changed it is geographically a small change; however, the polluted and/or fresh water that runs underground cannot observe a man-made boundary. If our great lakes, rivers and drinking water are polluted, aware people will stop visiting MN for their summer vacations. I realize more jobs will be created by PolyMet, but at what coSt In 15-20 years when PolyMet has extracted all the copper and minerals from the Earth, they will pull out and leave a wasteland that will take 100s of yrs to rehab. This will create jobs too, but not the kind anyone wants. I don’t even need to mention the health risks people will face when the water is polluted from the carcinogens that are used in the chemical buffers added to the waste before being dumped into the rivers (that eventually run off and enter Lake Superior (ie water shelf). It’s too late for Northern WI, but not for MN. Perhaps we, our water and wilderness still have a chance to protect our natural resources. Please represent me and all of the other people who love the wilderness, clean lakes and rivers MN has to offer. I am absolutely sick at heart to think our precious watershed and land could become a receptacle for toxic waste due to sulfide mining. Glencore-Xstrata, you need to know we totally care about our environment, land and water in the beautiful State of Minnesota, and are prepared to defend it against the likes of corporate sulfide mining. Caree Gordon Caree Gordon 1201 Mississippi Ave Duluth, MN 55811

Carey Hartman 44361

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I’m also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet’s own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won’t allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Carey Hartman 3666 Roundtree Ct. Boulder, CO 80304

Alphabetical by sender's first name

Carey Hartman 44363

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Carey Hartman 3666 Roundtree Ct. Boulder, CO 80304

Carl and Jean Stueland 47082

We are property owners on White Iron Lake. This is our comment. Mining should be allowed only if the mining companies are held to the current Minnesota environmental laws and standards without giving them variances. Mining isn't a problem as long as the mining companies aren't given variances which weaken the laws and standards already in place. Carl and Jean Stueland ; 3081 Elm St; Lindstrom, Mn 55045 Sent from my iPhone

Carl Anderson 43112

Mining companies have shown again and again they are not responsible. They should not be allowed to have it. When something goes wrong, they'll pay the environmental fine and we'll be left with the mess and contamination for eons to come. Don't let them do it. Carl Anderson 2150 Mailand Road St Paul, MN 55119

Alphabetical by sender's first name

Carl Grandstrand 36613

Mar 2, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. With many states now wondering where are we going to get water for our daily use I just think it would be wise to not allow a risky business adventure like this to come in and produce another Sudbury, Canada, mining area. I remember seeing pictures of that mined area and it was devastating to the country side with it's sulfuric acid waste. If it were up to me I would like keeping that area clean and pristine along with preserving the water that we do have in our state. We need to preserve it. I would take clean water over digging up a whole bunch of rock to gain a few tons of copper nickel ore that they might get, and then leave that area in mess of mining taillings. Don't let them destroy our beautiful state and its water supply. Sincerely, Carl Grandstrand 2411 Island View Dr Albert Lea, MN. 56007 Sincerely, Mr Carl Grandstrand 2411 Islandview Dr Albert Lea, MN 56007-1302 (507) 373-3340

Carl Helke 14590

mining is a lot more improved and more closly watched so start mining --Original Message-- From: *NorthMetSDEIS (DNR) To: carl4369 Sent: Wed, Feb 12, 2014 2:18 pm Subject: RE: Please protect Minnesota's future from centuries of treatment Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

14754

water can be protected and still mine safely now days let them mine --Original Message-- From: *NorthMetSDEIS (DNR) To: carl helke Sent: Wed, Feb 12, 2014 1:00 pm Subject: RE: Please protect Minnesota's future from centuries of treatment Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

14756

500 years from now who knows what will be up so lets get the mining going haven't seen polution yet --Original Message-- From: *NorthMetSDEIS (DNR) To: carl helke Sent: Wed, Feb 12, 2014 12:59 pm Subject: RE: Comment on PolyMet NorthMet SDEIS Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Carl Helke 14776

Feb 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

Carl Horstmeier 16275

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Carl Johnson 16285

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Carl Kuhl 54682

See attachment

Carl Pilegaard 54167

As a shareholder of Allete I do NOT agree . AR Hodnik CEO of Allete is on the board of Pollymet a conflict of interest do not permit Polymet Mining. DO NOT SUPPORT!! [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Carl Unger 42691

See attachment

Carl Wright 22053

-- Forwarded Message -- From: Carl Wright To: "NorthMetSDEIS.dnr@state.mn.us" Sent: Wednesday, March 5, 2014 10:44 AM Subject: I support PolyMet Mining I am totally in favor of Polymet going forward with the Northmet project. They have done an excellent job on the SDEIS and will make a positive contribution to the state. The economics of this project could not be better; all will benefit. Carl R Wright FWG 19510 Ventura Blvd, Ste 211 Tarzana, CA. 91356 mailto:mcwright@FWG-com

Alphabetical by sender's first name

Carl Wright 22060

I am totally in favor of Polymet going forward with the Northmet project. They have done an excellent job on the SDEIS and will make a positive contribution to the state. The economics of this project could not be better; all will benefit. Carl R Wright cmailto:cwright@FWG-com

Carla Arneson 9536

This is the comment (letter attached below) that I was going to read at the PolyMet SDEIS hearing at the RiverCentre in St Paul, but my name was not called. If you have kept the cards filled out by those wishing to speak, you will have the one that I filled out. I am sending my remarks as a comment now. Sincerely, Carla Arneson P.O. Box 336 Ely, MN. 55731

15740

See attachment

19520

My name is Carla Arneson, C-A-R-L-A, A-R-N-E-S-O-N, and it's PO Box 336 in Ely, Minnesota 55731.The Minnesota Department of Natural Resources is lying to the public. PolyMet's NorthMet Project will require perpetual water treatment for its solution. This project, by law, must not be permitted.

42512

Perpetual PolyMet By Carla Arneson Minnesota cannot legally permit a mine that requires perpetual water treatment. In the Preliminary SDEIS, the consulting firm Environmental Resources Management (ERM) -picked by the Minnesota Department of Natural Resources (MDNR) and paid for by PolyMet- succinctly stated, "For purposes of this SDEIS, the WWTF (wastewater treatment facility) is considered a permanent facility and would be discharging treated effluent for perpetuity." (Duluth News Tribune) Perpetuity is perpetual. Released to the public on December 6, the final version of PolyMet's SDEIS is a fabrication, morphing from ERM's determination of water treatment for "perpetuity" to a watered-down version, "Modeling predicts that treatment activities will be a minimum of 200 years at the Mine Site and a minimum of 500 years at the Plant Site. While long term, the time frames for water treatment are not necessarily perpetual;" then that weaker version morphed too, essentially disappeared. By the time the general public saw PolyMet's SDEIS there was no mention of perpetual. Vanished. A redacting magic act! And by then the public's right to know had been emasculated even further. "Minimum" had been cut, no longer delineating water treatment of "200 years at the mine site and 500 years at the plant site." Water treatment "for the very long term" became "long term." But one telling word survived, it concerned closure, and "transitioning from mechanical to non-mechanical/passive water treatment if or when proven effective." (SDEIS 3.1.1) IF. If, or when, proven effective! Sophistry. During the April 9, 2013 panel discussion on nonferrous mining at the University of Minnesota-Duluth, MDNR Commissioner Tom Landwehr was asked whether the MDNR could issue a permit if it received a plan that called for long-term treatment. "Landwehr replied that treatment would need to be passive (such as water being filtered through a wetland) or not active at closure." (Cook County News Herald) Minnesota Administrative Rules concerning closure and postclosure maintenance (Minnesota Rule 6132.3200) states: "The mining area shall be closed so that it is stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." Perpetual water treatment is not maintenance free. The permitting process for sulfide mining needs to stop in Minnesota. It is not only delusional in Minnesota's water rich environment, by law it is over. Carla Arneson P.O. Box 336 Ely, MN 55731

42925

42962

Alphabetical by sender's first name

Carla Arneson 43989

http://www.tcdailyplanet-net/news/2014/03/12/community-voices-it-s-whopper-polymet-s-myth-9938-tailings-seepage-collection I wrote the above article and I am sending it as a separate SDEIS comment. Carla Arneson P.O. Box 336 Ely, Mn. 55731

44010

I apologize for any inconvenience. I realized that I did not have my full address on the comment I just sent. This one is corrected. Carla Arneson P.O. Box 336 Ely, MN 55731 POLYMET NORTHMET SDEIS COMMENT These were some of my Hardrock Comments (concerning exploratory drilling) to the US Forest Service; With a few alterations I am adding them to my PolyMet SDEIS Comments. I believe they are vital when considering proposed sulfide mining. An intensive, cumulative impact assessment needs to be done for both the Lake Superior and Kawishiwi Watersheds as part of PolyMet's SDEIS. Its NorthMet mine would be in the Duluth Complex; all very "foreseeable" sulfide mines to follow would also be in the Duluth Complex. I am respectfully requesting that the public be informed, as part of a cumulative impact study for PolyMet's NorthMet Project, of the total number of exploratory borings that exist in the Duluth Complex – including the approximate number of undocumented borings and the number of borings that will be added by further proposed exploration. I also ask that a thorough inspection be done of all borings, that all borings be sealed properly, and that all borings be sealed the full length not just 250 feet (change the law if necessary). And, that exploratory borings no longer be allowed to remain merely capped, not sealed, for ten years. Drilling is not only exploration for mining - it is turning our National Forest into a mining pincushion. No one knows what is happening within our aquifers. If the inherent belief is that it doesn't matter because it will be mined anyway that rationale needs to stop. There has been inadequate oversight of just what happens in our water rich environment at these drilling sites. If Minnesota does not properly supervise exploration, it will certainly not be able to control massive sulfide mining operations. Minnesota does not hold taconite operations to standards, instead issuing variances. The issue with the first photo below is not how it happened, but that it was left that way for weeks/months without anyone finding it or doing anything about it. I dropped a line with a weight to see if it was an open hole – I stopped at a hundred feet – when I pulled it up it was covered in stinking, oily slime. I have a collection of similar photos that show lack of oversight. The photos below give you the idea – uncapped boring hole, loose pipe that is oozing substance into the middle of a wetland, a broken off pipe that has a beer can stuck down it. I have found other borings that are loose and oozing, broken off, or just holes in the ground and I didn't get a chance to look at that many. There was also debris left at sites. Orange fencing was left around an open pool at one boring. There were borings too close to the lake (under the Shipstead-Newton-Nolan Act). One wetland drill pit was going to be buried the next day. It was covered with slime and smelled like something dead - the DNR said it should not have been that way and it would get soaked up and then buried. I can only assume that it was. If I hadn't said something it would have been buried, as is. It was interesting to note that right after I reported the detached pipe (above) the borings nearest to roads were all cemented around the base of each boring pipe – I question why they were not done that way in the first place - or if it is just for show and ineffectual. The pipes off the road - that you had to hike to - were not cemented. I have attached photos of some of the cemented borings and some of the borings that were not cemented. Oozing fluids from boring Beer can inside broken off boring pipe Newly cemented drill site . Newly cemented Cemented Not cemented Not cemented Not cemented These borings are conduits to our aquifers. The following is info from research on Picher, Oklahoma: "Beneath approximately 2,500 acres of this site lie around 300 miles of underground tunnels, and mo

44093

I wrote this. It is one of my comments. http://www.tcdailyplanet-net/news/2014/03/12/community-voices-it-s-whopper-polymet-s-myth-9938-tailings-seepage-collection Carla Arneson P.O. Box 336 Ely, MN 55731

Alphabetical by sender's first name

Carla Jentoft 40993

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes unsubstantiated claiMs It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells, nor explore alternatives that could reduce PolyMet’s destruction of wetlands, nor examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of positive predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely Carla Jentoft Carla Jentoft 38 Varner Rd Grand Marais, MN 55604 763-784-8630

Carla Johnson 13351

Feb 13, 2014 Ms Lisa Fay MN Dear Ms Fay, As a proud Minnesotan, I carry on the tradition passed down from my ancestors to enjoy the outdoors, always leaving the environment in better condition than I found it. If I see garbage while kayaking, I pick it up. PolymMets plans run counter to my values, and to the values of most Minnesotans. They want to strip away all the resources of out state, then leave stinking, polluted, lifeless pits in place of a vibrant, sustainable ecosystem. An animal will not deficate in their lair, so it makes sense that Vancouver based PolyMet; infamous "I want my life back: Tony Hayward, and Swiss Glencore are the financial backers. They will not drink the water, hike the scarred, barren of life land, or raise their children in a toxic waste dump, They are fine with doing it here in Minnesota, bcause they don't live here, and it is about profit and cutting corners, Why do I have concerns. For one, Tony Hayward is involved. He promised, he glossed over and mostly he lied day in and day out for each excruciating day of the Deep Water Horizon catastrophe, one of the worst man made disasters to hit this planet, Secondly PolyMet is going to polllute the water for 500 years. Enough said. Of course, PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. They will directly destruct the habitat and sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. This is what they do. They pollute the environment. Birds that depend on fish and other aquatic organisms for food will be SOL, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl can pack their meager bags and head nowhere, as this is their suitable home. They will be part of the "overburden" that is culled, carted away and dumped. I urge decision-makers, and those with common sense, morality and humanity to reject this disaterous proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Carla Johnson 3175 Cuneen Trl Inver Grove Heights, MN 55076-4539 (651) 554-0807

Alphabetical by sender's first name

Carla Norris-Raynbird 41561

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Carlen Lovejoy 16153

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

carlie volbrecht 41870

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, carlie volbrecht qoodbury, Minnesota

Alphabetical by sender's first name

Carlos I Vasquez 54210

Please do not build a mine in the boundary waters. I feel that there is a high chance that the water will become polluted and that the poor innocent fish well die. I feel that if a mine is built by the boundary waters, by people with big names and lots of money and power well feel like it’s okay to destroy beautiful places such as the boundary waters just for a quick buck. Please leave the Mother Nature and her home alone, thank you.

Carlsons 42936

Daniel L and Ann M Carlson 902 Timberline Lane Duluth, Minnesota 55811 Phone: 218-726-0325 Dear Department of Natural Resources: We are property owners on Clear Lake, along Highway 169 between Tower and Ely (GENE GAZELKA PLAT T OF EAGLES NEST LOT 11 BLOCK 1}. We would like to express our strong support for the PolyMet project. We have lived in Minnesota all of our lives, being born on the Iron Range and currently living in Duluth. We chose to live and raise a family in northern Minnesota because we enjoy the environment of forests and lakes and felt that northern Minnesota was a great place to raise a family. The mining industry has provided a good living for our parents and generations of other northern Minnesotans. PolyMet will provide an opportunity for satisfying and productive careers for many young people who wish to be able to remain on the Iron Range and raise their families in northern Minnesota. Thank you for your consideration, Dan and Ann Carlson

Carly Coulson 11332

To the Minnesota Department of Natural Resources, I oppose the planned PolyMet Mining Inc Project because the location is within the Lake Superior watershed and puts our clean water resources at risk. Our clean water resources are more valuable in the long-term than the short-term economic benefits of the mine. A 500 year commitment to mine waste water treatment is far too great. No matter what regulations imposed and funds received from the mine company to meet this 500 year commitment, it is foolish to think we can plan for anything that far out. The 300 or so jobs created by the mine is such a small number in comparison to the high environmental and regulation risks that will go on for 500 years. 300 jobs can be created in so many other ways that are easier to create and have no environmental risks. We should be turning this conversation into one about jobs and other ways to create 300 jobs in the northland. The State of Minnesota should not trust that the PolyMet Mining Inc company will take it's environmental responsibilities seriously. The project has in it's planning, investors, and management team individuals with very poor records regarding environmental damage. Bill Williams is being charged with Crimes Against the Environment in Spain. Tony Hayward was responsible for the BP disaster in the gulf. These leaders should not be trusted to operate such a high risk mine in Minnesota. I am not opposed to mining in general. I have an iPhone and use many products with metals which I fully understand must be mined from somewhere. I would likely support a mine if it were in a safer location in Minnesota, did not impact Lake Superior, did not require 500 years of water treatment, and had mining leaders involved that had a clean record regarding environmental damage. Kind regards, Carly Coulson 10 west first street apt 105 Duluth, MN 55802

Carly Hawkinson 9474

Please see the attached letter for comments regarding the PolyMet sulfide mining in Minnesota. Thank you, ~ Carly Hawkinson

Carly Hicks 38760

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Miss Carly Hicks 2424 Crosby Rd Wayzata, MN 55391-2316

Alphabetical by sender's first name

Carly Steel 42417

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Carly Steel 1809 Cross Draw Trl Leander, TX 78641-8681

Carly Wagner 38795

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Carly Wagner 2405 Lyndale Ave S Apt 2 Minneapolis, MN 55405-3336

Carlyle Conrad 42599

See attachment

42600

See attachment

Carmelita Banks 22766

I did not provide comments on the project or land exchange - Carmelita Banks (773)492-1979 On Tue, Mar 4, 2014 at 6:27 AM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Carmen Oprea 40399

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Carmen Oprea 4106 Brooklyn Ave Cleveland, OH 44109 US

Carol A Sandstrom 57246

Quit destroying our water and our wetlands. By removing our minerals you are also causing all these sink holes. I don’t want the pipeline from Canada coming down here. Let them keep their crap up there. Why in the Hell are we allowing B/P in our country. We kicked the Fricken Brittish out of our country. Don’t let them back in!! We don’t want them.

Carol A. Overland 42955

All - Attached please find my comments on the PolyMet/NorthMet SDEIS. Thanks for the opportunity to Comment. Carol A. Overland - "Our lives begin to end the day we become silent about the things that matter." Dr Martin Luther King, Jr. Carol A. Overland Attorney at Law Legalectric - Overland Law Office 1110 West Avenue Red Wing, MN 55066 612-227-8638 overland@legalectric-org www.legalectric-org www.nocapx2020-info www.not-so-great-northern-transmission-line-org -- This email is free from viruses and malware because avast. Antivirus protection is active. http://www.avast-com

Alphabetical by sender's first name

Carol and Doug Damberg 43020

P.O. Box 121 Cold Bay, Alaska 99571 HYPERLINK "mailto:cd_damberg@hotmail-com"cd_damberg@hotmail-com (907) 947-8088 March 12, 2014 To: Lisa Fay, EIS Project Manager DNR Ecological and Water Resources Division Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay I've been watching the debate about the PolyMet mining proposal in northern Minnesota for a long time. You'll see from my address that I can't vote for folks who are either for or against the proposals. My career choice in conservation and resource management has afforded me the opportunity to move around and live in many communities over the years, some of these that bear the scars of significant past or ongoing resource extraction efforts. Despite my wanderings, Minnesota will always be home for me. My family roots are in the iron range, I graduated from high school near St Paul, and I visit the family cabin near Ely for extended periods every year. In ten years or so I will be thinking of retiring from my current job. I've often thought of Ely as a place that I would settle. I strongly oppose the proposed mine based on two primary factors: first, and most importantly, the significant long-term environmental impacts that would undoubtedly result, and second, the associated social impacts that could significantly alter the fabric of significant parts of northern Minnesota, and not for the better. These impacts would be at the expense of our most treasured public resources, including surface and groundwater and the Boundary Waters Canoe Area Wilderness. The trade-off for a limited number of jobs and short-term economic boom is simply not worth it and a disservice to not just to the State of Minnesota, and all those that love and treasure these resources around the country. The technology that mining interests claim will protect water quality is untested and unproven. It's just not possible that the proposed mine, particularly with the anticipated sulfide impacts, can be put in place without significant long-term environmental damage, particularly to surface and ground water quality. To say that a mine won't impact the areas water quality is like the smoking industry claiming that secondhand smoke doesn't have health impacts on folks sharing the same airspace. Both arguments have been made and both are equally irresponsible. The Boundary Waters Canoe Area Wilderness is a national treasure. It is one of the most pristine and unique locations not just in the lower 48 states but anywhere in the world. There's nothing else like it and once it is trashed, it can't be repaired, fixed, or mitigated for. We're already seeing changes of unknown cause to the Kawishiwi drainage, where our family cabin is located, even without additional runoff and contaminants from a new mine. Over just the past few years alone wild rice stands in the North Kawishiwi have declined by over 50%. I lived for 7 years in the Rock Springs/Green River, Wyoming area and during that time experienced the take off of the latest natural gas boom. Anyone who has driven through western Wyoming can see first hand the impacts and scars of this crush of gas wells on the landscape. If you've lived there, like I have, you've seen the significant social impacts of transient workers – folks who work hard but play hard too and don't have a vested interest in the long term viability of the area. In Wyoming this is a boom and bust cycle, and it's not hard to see the complex social issues of both the boom, and the bust, on the local economy and lifestyle. On the sidelines, the predicted significant impacts to wintering mule deer, migrating antelope, soon-to-be-listed sage grouse, and other species is quietly occurring much to the chagrin of sportsman and wildlife viewers alike. The vast sea of sage plains surrounded by glorious mountains has become a tangle or roads, weeds, gas wells, drilling towers, and dust trails l

Carol Atchley-Mashuga 19826

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS plan. I believe that sulfide mining in Minnesota will have a damaging and permanent impact on the environment. Sincerely yours, Carol Atchley-Mashuga Carol Atchley-Mashuga 754 Havenview Court Mendota Heights, MN 55120

49558

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS plan. I believe that sulfide mining in Minnesota will have a damaging and permanent impact on the environment. Sincerely yours, Carol Atchley-Mashuga Carol Atchley-Mashuga 754 Havenview Court Mendota Heights, MN 55120

Carol Bogart 27021

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please do not issue permits that will allow this threat to one of the world's largest freshwater resources. Please also initiate testing of feeder rivers to Lake Erie such as the Sandusky River so as to ascertain the impacts of upriver discharges to the river. Example: the unremediated Tiffin, Ohio-owned landfill in Seneca County on CR 90- The landfill, active in the '50s and '60s, has never been issued an NPDES permit, yet extensive industrial toxic waste has been documented in leachate and aquifers that discharge into the Sandusky River. (See Ohio EPA file) Sincerely, Carol Bogart 760 Dorothy Adamo Ln Apt 921 West Sacramento, CA 95605-2167

Alphabetical by sender's first name

Carol Bolin-Abrahamson 10743

Dear Ms Fay, Dear Federal and State Agency Leaders: Get your priorities straight. We we cannot live without clean water-Just ask the people in West Virginia who are now left holding the bag of externalities of the company "Freedom (to pollute) Industries, which has now declared bankruptcy. CLEAN WATER, NOT COPPER, IS WHAT IS GOLD. We need clean water to survive. But corporations don't care, because they profit most when they create scarcity - and there is movement underway in Washington to encourage state and local municipalities to privatize water resources. CONNECT THE DOTS. How dare we pollute such a precious resource that is necessary for crop production. California, in the midst of a drought of historical proportions is stupidly proceeding with fracking, even though it requires millions of gallons of water and pollutes water at the same time. THIS IS SHEER AND UTTER MADNESS. WHEN WILL WE STOP BOWING TO CORPORATE INTERESTS AND INVEST IN THE SURVIVAL OF THE HUMAN RACE. WE CANNOT UNDO THE DESTRUCTION ONCE IT STARTS - NO COPPER / SULFIDE MINE HAS OPERATED THAT HAS NOT POLLUTED WATER. In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” PolyMet has stated that it may not have insurance available to cover liabilities for environmental pollution; (and the pollution would be for OVER AT LEAST A 500 YEAR PERIOD). PolyMet has received significant financial backing from Glencore, a multi-billion dollar privately-held foreign company founded by pardoned US tax exile, Marc Rich, has been named by European NGOs as the “Worst Corporation of the Year” – globally; Glencore has cut jobs at the Mopani copper mine in Zambia, Africa when copper prices fluctuated, creating a boom and bust for the local economy. Observers report that infrastructure in the host community has been left derelict; Environmental problems at Glencore’s Mopani mine have resulted in fish kills and drinking water contamination resulting in hospitalizations of 800 people; Glencore’s Prodeco coal operation in Columbia was fined $700,000 in 2009 for numerous environmental violations; its Cerrejon plant is notorious for displacing indigenous peoples and razing their villages; Glencore’s South American operations have also been criticized for systematic firings of union workers and intimidation through the use of armed guards; Glencore’s Metaleurop copper processing subsidiary removed corporate resources, leaving workers uncompensated and imposing on France a $411 million unfunded pollution liability. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely, Carol Bolin-Abrahamson Carol Bolin-Abrahamson 5009 Quail Avenue North Crystal, MN 55429

Alphabetical by sender's first name

Carol Brandenburg 47177

To the People of the DNR, As a teenager and young adult I canoed our beautiful Boundary Waters many times, and still have precious memories of that unique area – the crown jewel of our state. My brother Rick Brandenburg - a former US Forest Service Ranger in the BWCA - still lives with his family in the Superior National ForeSt We are all committed to seeing the BWCA protected, in perpetuity. But as we know, the BWCA's future is now in grave jeopardy. Here is the short list associated with copper-sulfide mining operations - the ecological, social, and economic legacy that would impact our state for hundreds of years, if proposed mining operations go forwaRd That is a truly terrifying prospect, when Polymet, Northmet and their cohorts will be long gone by the year 2040 or so. I implore you to consider their existing track records: Water pollution Fresh water, the world's most precious natural resource, is now threatened in many places. · Loss of pristine wetlands and forest · Negative impact on three separate watersheds, and all wildlife in the area · Climate change due to carbon emissions · Serious health threats, including cancers and respiratory ailments · Mercury poisoning People who live in the Superior Basin are already exhibiting dangerous levels. · Loss of public lands · Devastating aesthetic impact · Loss of northeastern economy based on eco-tourism · Loss of wilderness jobs Thousands of people depend on ecology and wilderness for their wages (compared to an estimated 300 mining jobs that may last a couple of decades—and then where will the miners go when the last traces of mineral are gone.) · Superfund cleanup to the tune of billions of dollars for hundreds of years Once our priceless Boundary Waters area has been destroyed, it can never be restored. Please, PLEASE stop the mining companies before any more damage is done. Thank you for your consideration of this most urgent issue. Sincerely, Carol Brandenburg 2950 Dean Parkway #705 Minneapolis, MN 55416 612 353-4847 Executive Producer/Project Manager Conrad Productions HYPERLINK "mailto:carolb@conradprod-com"carolb@conradprod-com

Carol Buelow 44052

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Carol Buelow 4206 Doncaster Dr Madison, WI 53711

Alphabetical by sender's first name

Carol Buelow 44054

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Carol Buelow 4206 Doncaster Dr Madison, WI 53711

Carol Dallman 18278

My name is Carol Dallman and I live in St. Paul. I am here to oppose the mining because I do not believe that we have done enough to recycle and conserve resources and now is not the time to mine an area that has such potential for long-term environmental effects. We know where it is. If we choose not to mine now, we know where it is, it will still be there, if there is a way to do it in a more environmentally responsible way in the future. So I guess that will be it.

Carol Frechette 17039

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: The PolyMet NorthMet SDEIS is an open-pit sulfide mine that will ruin ground water quality for hundreds of years, if not forever and must be rejected. I'm also sending a copy of my letter to the US Environmental Protection Agency. Recent DNR documents showing that base flow at the mine site was seriously underestimated and confirms this. The PolyMet SDEIS relies on unsupported assumptions to minimize threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. •Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts wetlands and streaMs •Minnesota should not be an experiment for untested technologies. •The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no scientific real support, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unproven assumptions, conceals facts, and won't allow the public to understand risks of accidents, failures or routine violations of water quality. Please reject the SDEIS and the experiment in long-term, potentially permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Carol Frechette 1511 W 6t1h Ave Shakopee, MN 55379

Alphabetical by sender's first name

Carol Frechette 50312

Dear Ms Fay, Mr Bruner and Mr Dabney: The PolyMet NorthMet SDEIS is an open-pit sulfide mine that will ruin ground water quality for hundreds of years, if not forever and must be rejected. I'm also sending a copy of my letter to the US Environmental Protection Agency. Recent DNR documents showing that base flow at the mine site was seriously underestimated and confirms this. The PolyMet SDEIS relies on unsupported assumptions to minimize threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. • Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts wetlands and streaMs • Minnesota should not be an experiment for untested technologies. • The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no scientific real support, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unproven assumptions, conceals facts, and won't allow the public to understand risks of accidents, failures or routine violations of water quality. Please reject the SDEIS and the experiment in long-term, potentially permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely, Carol Frechette 1511 W 6t1h Ave Shakopee, MN 55379

Carol Gisselquist 17697

Feb 15, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. As someone who values life and the clean water that supports it, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Ms Carol Gisselquist 29 W Governor Rd Hershey, PA 17033-1723

Alphabetical by sender's first name

Carol Greenwood 40124

_____ From: carolgwood2@gmail-com [carolgwood2@gmail-com] Sent: Monday, March 10, 2014 4:58 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Carol Greenwood 2615 38th Ave S. Minneapolis, MN 55406-1751

carol haasl 7631

Greetings, Keith Haasl 215 W. 4th Ave N. Aurora, MN. 55705 1-218-750-2366 I attended the meeting at the DECC last week and would like to add. I heard a lot of talk about responsibility. Responsibility to our water, responsibility to the 9000+ acres of wet land, responsibility to the environment, responsibility to the next generation. No one address out responsibility to provide a way for us to acquire the metals we need in a responsible manner. We live in a world economy and will get the things we want. Is it ok to buy the copper from a source that has no environmental controls or concerns as we do. Are we responsible for the damage that happens in another part of the world. I believe that you cant have it both ways, if we choose to use the things PolyMet will provide we need to find a way to let them produce them, or continue to buy them from questionable sources. I heard more about the study, most opponents stated that it was incomplete or incompetent I don't think either. I believe that it was responsibility prepared by people that have a genuine concern about this matter. Thank You

Carol Hedberg 4185

Minnesota's greatest assets are our natural resources: ground and surface water, soils, and, yes, metal deposits. But water is what we are known for and have the most of, and the need for that will increase the most in the coming decades. There will always be a need for copper and nickel, too. Its value will only increase over time. Minnesota needs to focus on - and invest in - our pristine spaces and relatively unpolluted fresh water as our biggest asset. Watch the value of a protected Minnesota soar. Don't vote to lose it forever for a very-short-term gain that really helps only a very few. There is no rush. Keep our copper, nickel, forests and waters for the future. In even 25 years, they will be ten times as valuable as they are today. Sincerely, Carol Lewis Hedberg 6150 St Croix Ave N, #312 Golden Valley, MN 55422

Alphabetical by sender's first name

Carol Iwata 45040

Dear Ms Fay, Dear Federal and State Agency Leaders: As a citizen of Minnesota who is concerned about environmental safety hazards, I ask that the PolyMet SDEIS be rejected as inadequate and that a permit not be granted to them for mining. These are the reasons for my position: 1- Copper and nickel mining (from sulfide ores) is not like other mining but far more polluting. Sulfide Mining—everywhere it's been done in the world—has caused serious pollution, even in dry environments like the American WeSt Northern Minnesota is wetlands (the Hundred Mile Swamp) where pollution spreads even more easily. 2- Polymet's first Environmental Impact Statement was in 2010; the US Pollution Control Agency gave it the lowest possible failing grade. (Only 0-3% of projects are graded this low.) This revised draft (SDEIS) is still very inadequate and makes optimistic promises based on speculation: no consideration of alternate methods (like underground mine, putting liners under the waste dumps), no guarantees of who pays for even routine monitoring/treatment after mine closes—and no consideration of spills, etc 3-The computer model for treating wastes and handling pollution is based on poor data, not even good science: sparse water data from dry years. (MN has had 4 "100-year" floods in the last 9 years.) 4-Knowledge about this bad data has been available to the DNR for years. Native scientists (from the Great Lakes Indian Fish and Wildlife Commission) have been trying to draw it to their attention, and have very different data. 5-PolyMet says they will guarantee the water treatment for "however long it takes." But PolyMet is a shell company. Their chief investor, Glencoe Xstrata, is not on the hook for any guarantees. Glencore Xstrata, is a Swiss mega company with a truly terrible environmental record that is international in scope. 6-"However long it takes": PolyMet's own EIS is working with figures like 200 and 500 years. It is completely unrealistic to expect that PolyMet or their owning company will be around that long with the resources to clean up environmental waste. 7-Taxpayers will end up paying for environmental damage. The single biggest Superfund costs have been cleaning up sulfide mining. 8- The Iron Range needs jobs. But these mining jobs come at too high a coSt There are other jobs that depend on a clean natural environment, such as for tourism, hunting, fishing etc these jobs would be loSt 9-Pollution will affect everyone. Mineworkers. Babies. People who drink water. Lynx and moose and bears. Wild rice. Fish. Therefore—people who rely on the tourism economy. The waters at risk include the Partridge Cree and the Embarrass River. The St Louis River basin, to Duluth and Lake Superior. (Already 1 in 10 babies born in St Louis River mouth and the North Shore has an unacceptable level of mercury.) Next to be affected—perhaps from Polymet, for sure from the next projects—the Boundary Waters. 10- PolyMet is just the first of the companies that will be mining in this environment. If they are granted a permit, there are numerous other copper-nickel projects targeting the BWCA watershed) that are waiting for the outcome of this process. Thank you for your attention. Sincerely, Carol Iwata Carol Iwata PO Box 395 Afton, MN 55001

Carol L Weber 9655

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: PLEASE reject the PolyMet NorthMet SDEIS. The PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. Recent findings from the Department of Natural Resources' documents show that the base flow at the mine site was seriously underestimated. The SDEIS and the sulfide mine project are based on seriously flawed, unrealisistic and inconsistent assuptions, not accurate science. PolyMet is using these improper and unsupported assumptions to minimize the threats and impact of sulfide wastes on drinking water, surface water and, ultimately, the health of all Life that would be touched by this waste. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts and does not allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS. This experiment would violate water quality standards for generations to come, bringing unwanted and unnecessary harm to Minnesota. Sincerely yours, Carol L Weber 5223 Silver Maple Circle Minnetonka, MN 55343

Alphabetical by sender's first name

Carol L Weber 18526

Dear Ms Fay, Mr Bruner and Mr Dabney: PLEASE reject the PolyMet NorthMet SDEIS. The PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. Recent findings from the Department of Natural Resources' documents show that the base flow at the mine site was seriously underestimated. The SDEIS and the sulfide mine project are based on seriously flawed, unrealisistic and inconsistent assuptions, not accurate science. PolyMet is using these improper and unsupported assumptions to minimize the threats and impact of sulfide wastes on drinking water, surface water and, ultimately, the health of all Life that would be touched by this waste. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts and does not allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS. This experiment would violate water quality standards for generations to come, bringing unwanted and unnecessary harm to Minnesota. Sincerely yours, Carol L Weber 5223 Silver Maple Circle Minnetonka, MN 55343

50602

Dear Ms Fay, Mr Bruner and Mr Dabney: PLEASE reject the PolyMet NorthMet SDEIS. The PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. Recent findings from the Department of Natural Resources' documents show that the base flow at the mine site was seriously underestimated. The SDEIS and the sulfide mine project are based on seriously flawed, unrealisistic and inconsistent assuptions, not accurate science. PolyMet is using these improper and unsupported assumptions to minimize the threats and impact of sulfide wastes on drinking water, surface water and, ultimately, the health of all Life that would be touched by this waste. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts and does not allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS. This experiment would violate water quality standards for generations to come, bringing unwanted and unnecessary harm to Minnesota. Sincerely yours, Carol L Weber 5223 Silver Maple Circle Minnetonka, MN 55343

Alphabetical by sender's first name

Carol Mason Sherrill 58059

Our natural resources are the most important aspect of our lives - NOT money - not politics - not business run in this manner - We can live w/o money, politics, water - we CANNOT live w/o our water, creatures, air, land - STOP THIS MINE! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Carol Michealson 42869

See attachment

Carol Mockovak 39975

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Carol Mockovak 4300 W. River Parkway #407 Minneapolis, MN 55406

Alphabetical by sender's first name

Carol Neumann 39621

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. There are not only too many "unknowns", there are way too many "cannot take backs". We cannot take back the human errors that are inevitable. We cannot undo, either financially nor physically, the death of fish, the extensive pollution of our water (from one of the largest bodies of fresh water in the world), nor can we unpollute the air. The toxic waste from this antiquated idea should not proceed. We are the caretakers of all of these resources. If a better way cannot be found, this mine proposal should not go forwaRd We do not own the earth, we merely caretake the earth. So do your job as a caretaker. Our communities in the great north country of Minnesota should not perish at the hands of greed, backwards thinking in the mining industry, or a bad decision by our lawmakers. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Carol Neumann 694 Oakdale Ave Saint Paul, MN 55107-3024

48821

Mar 10, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. There are not only too many "unknowns", there are way too many "cannot take backs". We cannot take back the human errors that are inevitable. We cannot undo, either financially nor physically, the death of fish, the extensive pollution of our water (from one of the largest bodies of fresh water in the world), nor can we unpollute the air. The toxic waste from this antiquated idea should not proceed. We are the caretakers of all of these resources. If a better way cannot be found, this mine proposal should not go forwaRd We do not own the earth, we merely caretake the earth. So do your job as a caretaker. Our communities in the great north country of Minnesota should not perish at the hands of greed, backwards thinking in the mining industry, or a bad decision by our lawmakers. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Carol Neumann 694 Oakdale Ave Saint Paul, MN 55107-3024

Carol Reamer 24316

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. No pollution, by water or air, should be permitted to infiltrate Minnesota wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. As a Minnesota resident I demand ZERO pollution, zero water runoff and zero air pollution be proven beyond doubt and if not proven this mining activity must be rejected by the State and Federal agencies. No pollution of any kind is acceptable in this sensitive region of the State. As a State resident I value our natural resources above corporate profits. If they can not provide PROOF of Zero pollution, both now and future, from their project it must be rejected. The requirement of providing proof and reimbursement of all governmental cost to verify their proof is valid must be 100% their responsibility. Minnesotan's can not afford to damage our waters or absorb the risk of any future costs for loss of resource or cleanup of pollution, no mater how insignificant it may appear now. Burden of proof for zero pollution and zero future risk to Minnesota must be provided. Failure of either zero threshold requires project rejection. Businesses come and go. States can not afford to participate in corporate risks. ALL COST and Elimination of ALL RISK must be paid for by the business. Additionally, the Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Carol Reamer 4159 Primrose Path Saint Paul, MN 55127-6141 (612) 720-2922

Alphabetical by sender's first name

Carol Reschke 42931

comments from: Carol Reschke 869 Shoreview Heights Road Two Harbors, MN 55616 HYPERLINK "mailto:cr3@frontiernet-net"cr3@frontiernet-net 13 March 2014 to: Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay: I have reviewed portions of the SDEIS for the NorthMet Project proposed by PolyMet Mining, Inc. I have three major concerns about the adequacy of the SDEIS: 1) inadequate discussion of cumulative effects of all proposed sulfide mining projects located in northern Minnesota; 2) inadequate resolution of major differences of opinion (MDOs) expressed by cooperating tribal agencies; and 3) inadequate models and data for addressing the effects of sulfates on growth of wild rice in light of recent MPCA findings. I previously mentioned my first two concerns in comments on the DEIS that I sent on February 3, 2010 to Stuart Arkley, EIS project manager at MNDNR, and to Jon K. Ahlness at USACE. I will reiterate those comments here in hopes that they will be taken more seriously by the co-lead agencies (MNDNR, USACE, and USFS). I am a resident of Lake County, Minnesota and I live on property I own near the city of Two Harbors. These comments reflect my professional opinion. I have 30 years experience as a professional plant community ecologist; and my current research is related to restoration of fish and wildlife habitats within the St Louis River Area of Concern (AOC) in Duluth, Minnesota and Superior, Wisconsin. 1) My first concern is that I have found no suggestion or discussion that a Generic Environmental Impact Statement (GEIS) may be needed for sulfide mining projects in northern Minnesota. PolyMet's NorthMet Project is anticipated to be the first of several proposals for sulfide mining of precious metals in northern Minnesota. The SDEIS lists eleven projects they consider "Speculative Actions" in section 6-2-2-1-21 that "have not been mapped or considered in the cumulative analysis". I understand that there are numerous mining exploration permits to search for precious metals in the Duluth Complex rocks. I understand that if ore containing small percentages of precious metals is found, mines would be proposed which would presumably utilize similar sulfide mining processes to extract precious metals from the rocks. I suggest that a GEIS for sulfide mining on the Iron Range would be an appropriate document for addressing cumulative impacts of multiple mining projects currently being planned. A Generic Environmental Impact Statement (GEIS) is a specific form of environmental review that can be used to study certain types of projects not adequately reviewed on a case-by-case basis. The authorization for conducting alternative forms of environmental review, such as a GEIS, is found in Minnesota's Environmental Policy Act, MS 116D.04, Subd. 4a. Specific criteria for determining the need for a GEIS and the unit of government most appropriate to oversee its preparation, and the general process and content of a GEIS are identified in Minnesota Rules, part 4410-3800- Although only the Minnesota Environmental Quality Board (EQB) is authorized to order a GEIS, any person or government body may request the EQB to consider the preparation of a GEIS. I suggest that MNDNR, USACE, and USFS ought to be requesting the EQB to order a GEIS for sulfide mining in northern Minnesota. According to Minnesota Rules, part 4410-3800, a GEIS may be ordered by the EQB to study types of projects that are not adequately reviewed on a case-by-case basis. Subpart 5 lists twelve criteria to be considered in determination of the need for a GEIS. I think at least nine of the twelve criteria are relevant to sulfide mining projects in northern Minnesota. Those criteria are listed below: A. if the review of a type of action can be better accomplished by a generic EIS than by project specific review;

Carol Sayres 44690

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. nds as well as due to air and water pollution. The PolyMet SDEIS is an inadequate assessment of human health impacts and the PolyMet sulfide mine and mine wastes proposal poses an unacceptable risk to the health of fetuses, infants, children and adults in Minnesota. Please reject both the PolyMet SDEIS and the PolyMet mine. Very truly yours, Carol Sayres 23783 Clarissa Haven Dr Henning, MN 56551

Carol Schafer 26584

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I have grave concerns about the PolyMet project of an open pit sulfide mine on Nat'l Forest lands near the Boundary Waters Canoe Area Wilderness and Lake Superior. This proposed project has potential impacts on our Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Carol Schafer 19227 N 29th Pl Phoenix, AZ 85050-2533

Alphabetical by sender's first name

Carol Selmason 57216

Until they can prove otherwise, sulfide mining is a destructive process. The permanent rape of our environment is not worth the profit of a few (Big Business). We all need jobs, but not at such a price. Let them prove they can mine safely, until then sulfide mining has no business in Minnesota.Carol Selmason924 South 72nd Ave WestDuluth, MN 55807

Carol Smith 52228

Hello, This is a request for the powers that be to deny Polymet Mining and all companies like the opportunity to mine nickel and other various metals from the Mesabi Iron Range. The location of the anticipated mining is too close to the BWCA, Superior National Forest, and other natural wilderness. The inevitable water pollution, the loss of the natural land, the mitigation of wildlife and fauna is too high a price to pay for any benefit from mining - including jobs the opposition argues for. Once the land is compromised, it is lost forever. As stewards of nature, please protect this region from this invasive action as devastating as any war may be. Please do not allow the exchange of land for Polymet, do not allow the reopening of the shuttered processing plants. Thank you. Carol Anne Smith 11093 Branching Horn Eden Prairie, MN 55347

Carol Vopatek 41865

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Carol Vopatek Minneapolis, Minnesota

Carol Wahl 42965

Please see attached letter. THIS IS NOT A FORM LETTER.

Carol weber 47291

Mar 12, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, Again I am asking you to say "No" to the proposed PolyMet mine. The risks of sulfide mining are unacceptable as they place the Boundary Waters Wilderness Area and the Great Lakes in serious jeopardy. We cannot afford to lose the multifaceted Life that these sources hold. Sincerely, Ms Carol weber 5223 Silver Maple Cir Minnetonka, MN 55343-4308

Alphabetical by sender's first name

carole blaska 11889

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, carole blaska 589 rice creek terrace fridley, MN 55432

Carole Carlson-Bursch 57228

The project should move ahead.Carole Carlson-BurschBabbitt, MN 55706

Carole M Megarry 54739

See attachment

Carole Megarry 47795

From: Carole Megarry [mailto:carole.megarry@gmail-com] Sent: Thursday, March 06, 2014 11:08 AM To: Periman, Richard -FS Subject: Public Comment on Polymet Mine Mr Periman: I am directing to you this copy of my comment mailed today to Lisa Fay of Minnesota DNR based on a auto reply from Mr Dabney indicating that he has retired. If you are not the individual in the US Forest Service who is to receive these comments, please let me know where I should direct it. Thank you. Carole M. Megarry

carole nelson 9458

Alphabetical by sender's first name

Carole Rust 39052

---Original Message--- From: Larry-Carole-Rust@msn-com [mailto:Larry-Carole-Rust@msn-com] Sent: Tuesday, March 11, 2014 1:13 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Carole Rust 1826 Alameda St Saint Paul, MN 55113-6532

Carole Zanardi 42704

See attachment

44365

I am not a chemist, however could there be a positive use for the sulfide acid that might be created. Could it some how be harvested and used in industry or in consumer products so that it would be reclaimed from the start instead of being wasted. Kind of like motor oil is a waste product of making gasoline. Just a thought. Carole Zanardi 1916 W. Kent Road Duluth, MN 55812

Alphabetical by sender's first name

Caroline Roetzel 43039

Members of my church's Caring for Creation Committee at Macalester-Plymouth United Church have discussed the proposal for a large scale copper-nickel sulfide mine near the BWCA, to be conducted by PolyMet. We have shared our concerns about the long-term and destructive impacts on this special area of Minnesota. We are concerned about:1. The major loss of wetlands, primarily bogs, that cannot be replaced. The SEIS already makes it clear that wetland "restorations" will not take place in the Lake Superior watershed and are highly unlikely to replace bogs. The wetlands at the site have been rated as "having high wetland quality." How can they possibly be "replaced?"2. Predictions of chemical pollution, not just from sulfate and its acceleration of toxic mercury conversions, but also heavy metals like nickel and aluminum, that kills fish.3. The long term need to clean up water from pollutants, possibly for 200 years. How can that be assured, especially with more mines ready to ask for permits in that area?4. The questionable suggestion that a company, that plans to mine the proposed site for 20 years, could possibly provide "nnancial assurance" to cover the expensive costs of water treatment for 200 years or more into the future. And can such treatment truly control all the sorts of pollutants that will come from the mine site? The SEIS predicts the company will excavate 307 million tons of bedrock in 20 years, at 70,000 tons per day.5. We are concerned that a iot of the proposed PolyMet site area has been designated by MN DNR as "Sites of High Biodiversity Significance" and support eleven state-listed species of plants. Destruction of such an area cannot be rectified, nor justified.We urge our government officials to take courage and SAY NO to this mine and to others waiting in the cue for permits. There are other ways to secure jobs in this fragile and unique area of Minnesota than this. One suggestion is to create metal recycling facilities and hire people to work on recovering the metals we need.Please reject the PolyMet mine. It’s a short term venture with long term harm to MN.

Carolyn Blaso 40274

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Carolyn Blaso 3301 Sardis Bend Drive Buford, GA 30519 US

Alphabetical by sender's first name

Carolyn Chalmers 39258

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I have grave concerns about this project's potential permandent destructive impacts on Minnesota's natural resources and public health. I also have grave concerns about the projects delivery on the economic benefits it promises. I have grave concerns about relying on DNR to monitor. DNR monitoring resources are not guaranteed and it's independence from the companies' influence not assured. DNR has squandered resources fighting an Ely researcher who has collared a dozen bears-but seems to have no problem saying "yes, yes, yes.." to mining permits. The permit should require the companies to pay for independent experts to do monitoring if DNR's resources and independence fail the teSt I have grave concerns about relying on the slow judicial process to remedy pollution when it is discovered. There needs to be agreement on an expedited process so that pollution is stopped immediately. Carolyn Chalmers 4148 Edmund Blvd Mpls, MN 55406 The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Carolyn Chalmers 4148 Edmund Blvd Minneapolis, MN 55406-3646 (612) 722-9116

48663

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I have grave concerns about this project's potential permandent destructive impacts on Minnesota's natural resources and public health. I also have grave concerns about the projects delivery on the economic benefits it promises. I have grave concerns about relying on DNR to monitor. DNR monitoring resources are not guaranteed and it's independence from the companies' influence not assured. DNR has squandered resources fighting an Ely researcher who has collared a dozen bears-but seems to have no problem saying "yes, yes, yes.." to mining permits. The permit should require the companies to pay for independent experts to do monitoring if DNR's resources and independence fail the teSt I have grave concerns about relying on the slow judicial process to remedy pollution when it is discovered. There needs to be agreement on an expedited process so that pollution is stopped immediately. Carolyn Chalmers 4148 Edmund Blvd Mpls, MN 55406 The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Carolyn Chalmers 4148 Edmund Blvd Minneapolis, MN 55406-3646 (612) 722-9116

Alphabetical by sender's first name

Carolyn Clements 18961

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Carolyn C Carolyn Clements 601 Sunset Dr Sunset Dr Minnetonka, MN 55305

Carolyn Crooke 6067

Dear Ms Lisa Fay, As a Minnesota resident, I am HORRIFIED by Polymet's proposed NorthMet mining project. And really mad. We're seriously going to let them dig massive holes in the ground, destroy wide swaths of wetland, and count on them to treat the water for hundreds of years after. Let them create another Superfund site. This is insane. I get that we need jobs but not at the cost of unacceptable, irreversible environmental impacts. We've lost enough wetlands to iron ore and taconite mining. Can we not sacrifice our environment to line people's pockets. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. And the mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. Everybody knows the land exchange is just a sham and won't be in the public intereSt The SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Carolyn Crooke 3657 Grand Avenue South Minneapolis, MN 55409 US

Carolyn Merrill 54765

See attachment

Carolyn Porter 42816

See attachment

Alphabetical by sender's first name

Carolyn Wessels 40093

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Carolyn Will 15989

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

carriageguy@yahoo.com 46294

I am opposed to copper mining in Minnesota. It is nearly impossible to obtain guaranties sufficient to protect future generations from the damage and expense of the resulting polution. Requiring deposits sufficient to forstall future environmental damage will probably scare investors away. Either way we win. If they want to dance they must pay the fiddler. Scare them away, or make them pay the exorbitant sums necessary to protect our land and non-mining livlihoods. HYPERLINK "https://overview.mail.yahoo-com/mobile/..src=Android"Sent from Yahoo Mail on Android

Carrie Evans 44282

The metals to be mined by Polymet are an integral part of modern living. There is no denying that the demand for these metals will require finding and extracting them for years to come. I believe that Polymet has shown that they will mine the metals in a way that is the most environmentally safe for air, water and land. Foreign production of these metals will not meet the strict environmental codes and practices that are required by Polymet. If we do not allow Polymet to mine the metals it will be done by foreign suppliers in which case there will be a greater chance of global environmental impact. By allowing Polmet to extract the metals, that are critical in so many key areas of our everyday life, I feel that not only will the environment be protected to a greater extent but it will also benefit the state of MN economically. We again must realize the demand for the metals worldwide. Wouldn’t it be beneficial to MN to have the creation of jobs and income at the same time as demanding strict environmental safeguards. If we do not allow Polymet to mine in MN we lose economically and environmentally. Carrie Evans 19996 Rendova St Ne Cedar, MN 55011

Alphabetical by sender's first name

Carrie Olson 39010

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Carrie Reay 38784

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

carrie shanahan 40956

I am opposed to this project- when I moved to Minnesota 9 years ago, one of the factors that drew me in was the beautiful unspoiled areas within the area, particularly up north. It's a treasure we should protects. 500 years to clean up the toxic mess this would leave behind. Too much risk. I don't trust these people to clean up ANY mess they make. Please protect our natural resources and the people of Minnesota, as it was my understanding was your job. Thank you, Carrie Shanahan

Alphabetical by sender's first name

Carstens Smiht 41911

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Carstens Smiht Minneapolis, Minnesota

Cary Anderson 9345

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Cary Anderson 3848 45th ave s Minneapolis, MN 55406

Alphabetical by sender's first name

Cary Anderson 18812

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Cary Anderson 3848 45th ave s Minneapolis, MN 55406

46079

Cary Anderson 3848 45th Ave S Minneapolis, MN 55406 We have an amazingly beautiful state and very unique area in all the world that is the Boundary Waters Canoe Area Wilderness. It is the most visited wilderness in the United States. It is a vast network of watersheds - ground water and lakes, ultimately, Lake Superior and beyond. All Minnesotans benefit from it. A multinational resource extractor with no allegiance to the United States, much less Minnesota, wants to dig gigantic pits there, to take out copper and other metals from rock, ship it out of the country, and leave sulfuric acid in it's place, fully expecting and admitting pollution cleanup will be necessary for 200 years in the surrounding area, and 500 years on the site. WHAT What in hell's name are you considering here. Are you being paid off. I really believe you must be. Polymet is basically owned by Glencore Xtrata. They are famous for private profit and public pollution. They buy mining rights in the first years of production, then sell to Chinese companies. They also have a terrible record of labor rights violations. These jobs they promise do not take that into account, nor account for how long they would even be there, or who takes care of workers when they get illnesses from the mine. There has never been a sulfide mine anywhere that has not polluted. I don't want large chunks of watershed in northern MN to be their quick profit and my sulfuric acid waste dump. Minnesotans will be paying for the clean up in so many more ways than just $$ for as long as we are living and our descendents. How much fresh water is pumped up from the ground to be used in the mining process. Lots. We don't have any to spare. We don't get the product from the mine. It is shipped overseas. Copper mining is so much different than the traditional iron mining that has been happening in MN. The difference is sulfuric acid. Fewer than 20% of computers are recycled in the US Why mine when we can recycle. Because Glencore Xtrata wants gobs of $$. Recycle computers by choosing e-Steward certified recyclers

Cary Gilbert 54121

I do not support PolyMet. Thanks to MN Power for paying for this postage. NO POLYMET! [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Casandra Ladas 17273

Feb 17, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. .Dear Lisa Fay, I sincerely urge you to reject the proposed PolyMet mine. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. The water will take hundreds of years to clean itself if we mine sulfur. Lake Superior is the prominent feature of Minnesota and almost every Minnesotan goes up to visit it. It's one of the only places that has been untouched by humans for years and the beauty which has grown as a result of that is marvoulous . Please don't take away something we value and can never get back. I want to be able to take my children to her glistening lakes and it's completely unfair of you to take that opportunity away from everyone so that there can be a profit for some billion dollar company. Support our state by not putting out all the local boundary waters camps and business' as well as the beauty where we can't find anywhere else in our state. Don't destroy what is not yours. Sincerely Casandra Ladas Roseville Minnesota 55113 Sincerely, Ms Casandra Ladas 1766 Alta Vista Dr Roseville, MN 55113-6553

Casey Betts 42588

See attachment

Casey Deschampe 41981

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Casey Deschampe Grand Marais, Minnesota

Casey Jo Remy 38889

Mar 11, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Mrs Casey Jo Remy 1472 Days Creek Rd Days Creek, OR 97429

Alphabetical by sender's first name

Casey Lebens 9484

DNR, These facts have been brought to my attention recently: Glencore Xstrata, the primary owner of PolyMet, which [reportedly] will buy the rest of PolyMet once all the permits are in placefor the copper mine in northern MN. So, who is Glencore Xstrata. Glencore Xstrata is a Swiss-based firm known for its ruthlessness. It is the fourth-largest mining company in the world. It controls 50 percent of the world's copper through its ownership of more than 100 mines around the world, and its commodities trading operations. Glencore Xstrata has run up a long list of labor and environmental abuses, including 58 mining fatalities between 2008 and 2010, over twice the number reported by any other mining company over that period. Just in 2012, their environmental and labor record includes dumping raw acid in waterways in the Congo, failure to provide a vapor barrier to keep an acid mist from descending on 3,000 people in Zambia, utilizing child labor as young as 10 years old in mines in Congo, and causing environmental damage at its McArthur River mine in Australia. These facts are alarming and scary. I would like to know what I can do in order to convince the public to not support this mine. I am scared the boundary waters will be an unsafe place to bring my children when they grow up. Thank you for your time, Casey Lebens

Casey Stepien 18355

I would like to give my time.

cass kane 6716

I read a lot about sulfide surface water contamination.What is Polymets plan 2 keep sulfide pollution from the groundwater table. I live in the country and get potable water from a drilled well and am concerned about the possibility of this event.Pat Kane 1337 Shoreview Rd Two Harbors,Mn.55616

Cat Griffith 41877

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Cat Griffith minneapolis, Minnesota

Alphabetical by sender's first name

Cat Thompson 19024

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Cat Thompson PO Box 7851, St Paul, MN St Paul, MN 55107 612 616-6298

Alphabetical by sender's first name

Cat Thompson 19025

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Cat Thompson PO Box 7851, St Paul, MN St Paul, MN 55107 612 616-6298

Alphabetical by sender's first name

Cat Thompson 40916

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Catherine Anderson 15249

Hi, I have been reading the pros and cons regarding the proposed copper/nickel mining operation being considered. I am opposed to this mining proposal, as I believe that environmental consequences outweigh the benefits. I firmly believe that we need to be good stewards of our natural resources, and one of the most precious of these resources is clean water. The stakes are just too high to gamble with our water supply, even if the chances are small of it being contaminated for possibly hundreds of years into the future. Our children, grandchildren, great grandchildren, etc, will thank us for having the wisdom to do what is right rather than bow to the pressure of the almighty dollar. I realize the economy is suffering, but why risk an already fragile economy with the added burden of environmental disaster. Thank you for allowing me to express my opinion. Sincerely, Cathy Anderson 949 Oakcrest Dr Sauk Rapids, MN 56379

Alphabetical by sender's first name

Catherine Apostle 39889

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Catherine Apostle 6808 Gleason Rd Edina, MN 55439-1601 (952) 941-0642

Catherine Coult 32643

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt And, as time slips by, as we all know, the challenges will become even greater. With our worldwide population on the rise and the shrinking of habitable land resulting from global warming, we must fight to maintain not only our own health but the increasing threat to the wonderful wild animals that increasingly must struggle simply to stay alive. Just because we humans have the big brains and prehensile thumbs that have enabled us to take charge of the world, we have done so to the disadvantage of our fellow beings, be they four-legged, six-legged, or leg-less, like the whales and snails and snakes, and on and on. Thank you. Sincerely, Catherine Coult 4300 W River Pkwy Apt 602 Minneapolis, MN 55406-3682 (612) 721-1829

Alphabetical by sender's first name

Catherine Griffith 16070

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Catherine Harrison 16279

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

41604

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs Catherine Harrison 27242 Crooked River Rd Pine City, MN 55063-4947

Alphabetical by sender's first name

Catherine Hegg 36439

I understand the economic considerations in wanting to approve this project, but I think past history should teach us that once pollution occurs, it is extremely difficult and costly to clean it up - and the pollution could become an issue long after PolyMet ceases to exist as a company. Of course, then you and I would not be here either, so we can leave the mess to a new generation. we are still dealing with other mining pollution and significant pollution by 3M that no one even thought about. There are also known and unknown health issues to consider. Do I haver an answer. - No. But I cannot help but think the costs to the environment outweigh the gains to the current economy. Catherine Hegg

Catherine Johnson-Thomson 39994

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Catherine Johnson-Thomson 676 Arcadia Dr Mendota Heights, MN 55118-1802 (651) 552-0234

Catherine Nicholl 39330

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Nothing is more precious than our water resources. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Catherine Nicholl 4300 W River Pkwy Apt 177 Minneapolis, MN 55406-3677 (612) 331-5565

Catherine Nicholson 58132

We do need more jobs, but we need clean jobs that don't create a long term cost. Soon we could havd jobs mining the pure clean fresh Lake Superior water/ but not if we have contaminated it by allowing acid based mining in an upstream watershed. What irks me is that this company is not even an American company. They'll make their money and the few jobs thelll provide Minnesotans and then leave and go bankrupt, leaving us with the mess. We are being mined like we are on the frontier, Canada's frontier. We aren't a third world country welcoming resource harvesting mining jobs as our only income. But that's what we are doing in this case. Thank you. I do not support the proposal.

Alphabetical by sender's first name

Catherine Reece 10806

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Catherine Reece 8155 Cameo Cir Inver Grove Heights, MN 55076-4518

Catherine Wright 42702

See attachment

Catherine Yamoor 42808

See attachment

Catherine Zimmer 42978

Dear Ms Fay, Please find the above referenced comments attached. Sincerely, Very truly yours, Catherine Zimmer, MS, BSMT Zimmer Environmental Improvement, LLC St Paul, MN Ph: 651-645-7509 HYPERLINK "mailto:zenllc@usfamily-net"zenllc@usfamily-net

Cathi Koenig 39696

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. My family spent some time in this region in October and we were told that they have some of the purest water in the country. As a Minnesota resident, I want to retain my RIGHT to experience this pristine environment. I also want my children and grandchildren to do this. This is our treasure, and I fear development will destroy it. Let's follow Wisconsin. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Cathi Koenig 902 10th Ave S Moorhead, MN 56560-3549

Alphabetical by sender's first name

Cathy Botha 40332

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Cathy Botha 13 Hilary Street, Gillview Johannesburg, ot 1450 ZA

Alphabetical by sender's first name

Cathy Curtis 16041

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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Cathy Finley 16231

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Cathy Gagliardi 9587

Hello. I urge everyone to please look into "Flambeau Mine Exposed"(FMC) that was in operation back in the 90's (Rusk Co., Wisconsin), before making a final decision on PolyMet Mining here in MN. PolyMet's website boasts about FMC's successful mining project although years after the mining was completed and the plant shut down, not only did high levels of toxins (most notably manganese) show up in groundwater, but also a tributary/stream of the Flambeau River was polluted with copper and zinc toxicity. As of 2012, the WI DNR has recommended to the Environmental Protection Agency(EPA) that the stream be listed as "impaired". I've included the boastful comment from PolyMet Mining's website below after talking with a representative from PolyMet at the meeting last night about this success slogan, I'm guessing this will be disappearing soon. By meeting Minnesota's strict environmental standards, we have the opportunity to mine metals we use every day without harming our air and water quality. In fact, it's been done before at HYPERLINK "http://www.flambeaumine-com/"Flambeau Mine. In its four-year life, the mine, located in Rusk County, Wis., successfully produced essential metals while creating local jobs, benefiting the economy and most importantly, protecting the surrounding environment. Flambeau Mining Company now operates under the tagline "Promises Kept." "Promises Kept" is far from the truth - and even after lawsuits were filed back in 2011, FMC appealed the decision and the US Court of Appeals for the 7th Circuit proceeded to let the mining company "off the hook" in Oct. 2013- The appellate court did not dispute the district court's finding that FMC had violated the Clean Water Act on at least 11 counts. But, what's truly disturbing is that groundwater pollution at mine sites in WI has been legalized by the WI DNR and State Legislature (see NR 182-075 - WI administration code), so even the Clean Water Act did not protect the streams around the Flambeau River, nor the people and wildlife near the Ladysmith community. While it is now known, that Wisconsin actually "shields" mining company's from ever being prosecuted proves that this loop-hole also allows the mining industry to avoid cleanup and absolutely nothing has been done to clean up the toxins surrounding the Flambeau Mine. If cleanup ever does happen now, it will most likely be at the WI tax payer's expense. I urge the powers-that-be in Minnesota to take a long, hard look at what toxins could possibly be in our Lake Superior someday. Especially since the safe long-term storage of metallic sulfide waste depends entirely on complete isolation from air and water. What if their containment fails. Is this PolyMet Mine really worth it, with probable long-term affects. Thank you for allowing me to share my concerns, Cathy Gagliardi 1735 Sheridan Ave St Paul, MN 55116

16340

The man who heads a Hedgefund project to open an alleged open pit mine in the Penokee Range south of the Bad River Ojibwe Reservation in Northern Wisconsin, and over the objections of all eleven WI tribes has been indicted. http://wcmcoop-com/2014/02/19/gtacs-bill-williams-indicted-in-spain/ I hope MN looks into this too with the proposed Polymet Mine. Cathy Gagliardi St Paul, MN

Cathy Geist 47656

Hello, I am writing to express my strong concern about, and opposition to, the NorthMet mining proposal. I attended the February meeting in St Paul and also read much of the Executive Summary of the SDEIS. As a conservation biologist and environmental science instructor, I am extremely concerned about the long-term ecological impacts of this project and also the serious ecological "unknowns". In addition to the likelihood of long-term pollution, I am particularly concerned about the probability of not being able to sucessfully restore the impacted wetland areas. In my graduate study of ecological restoration, I learned that successful wetland restoration (both restoration of species diversity and ecological processes) is tentative at beSt The required restoration in the proposed area seems more like an experiment than a known process. This is simply not OK to do in our precious northland areas. I am certain that many people have written about their concerns for the long-term effects on the waters of the area (including groundwater) and the effects on endangered species (eg lynx) and their habitats. I echo these concerns. I request that this mining project be cancelled. Thank you for considering my concerns, Cathy Geist 3428 34th Ave S. Minneapolis, MN 55406 Cathy Geist Biology Instructor Minneapolis Community and Technical College HYPERLINK "mailto:Cathy.Geist@minneapolis-edu"Cathy.Geist@minneapolis-edu Phone: 612-200-5239 "Come forth into the light of things . . . Let nature be your teacher." -William Wordsworth, English poet

Alphabetical by sender's first name

Cathy Hanson 39778

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. 500 years to treat the water from the mine so it's safe. I've seen some of the devastation from mining - there is no wildlife, no fish, not even weeds grow near that toxicity. I don't want this in the state I live in. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Cathy Hanson PO Box 582474 Minneapolis, MN 55458-2474

Cathy Klegstad 11193

To Whom It May Concern: I support PolyMet Mining and believe they will build and operate a mine that complies with all regulations and protects the environment. Based on my review and the level of detail included in the draft EIS, it appears that a thorough evaluation of the project and potential impacts have been completed. As a person who lives, works and plays in the area, I understand the need to balance use of resources like minerals and preservation of resources such as water and air. I feel this SDEIS lays the proper groundwork for developing an environmentally and economically sustainable project and I wholeheartedly support it. Polymet can produce these metals in an environmentally sound manner and create hundreds of jobs that can support families and sustain communities. PolyMet and its vendors will provide our young people with multiple opportunities for challenging and exciting careers. Enough is enough. Let’s get on with permitting this mine. Mining is our bread and butter. Cathy Klegstad Cathy Klegstad Clerk-Treasurer City of Babbitt 71 South Drive Babbitt, MN 55706 (218)-827-3647 cathy@babbitt-mn-com

Cathy Silvern 22782

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. We cannot affort short-term jobs at the expense of long-term environmental degradation. Our precious few natural resources must be preserved, unpolluted, for all future generations. Once having destroyed our water, it cannot be restored. Look what is happening in West Virginia, for heaven's sake And that chemically poisoned sludge is flowing toward major metropolitan centers, impacting humans, wildlife, natural environments, all manner of agriculture and beyond. The long term effects are incalculable and won't be known for at least a generation; by then it will be far too late to help those impacted and to clean-up the toxic stew that fouls the water. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. These are major camping and family areas. If you dump on them, they disappear forever, destroy communities, economies and especially, the natural habitat and beautify which can never be reclaimed. Where is the benefit to communities. to wildlife. to our air and water. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is most definitely NOT in the public intereSt Sincerely, Cathy Silvern 4618 Washington St Apt 3b Skokie, IL 60076-2591

Alphabetical by sender's first name

Cathy von Euw 45185

I am opposed to the NorthMet copper nickel mining plan. Here are some reasons why: 1) Project Does Not Comply with the MN DNR Mission Statement - This project does not reflect the MN DNRs mission statement: The mission of the is to work with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life. The MN DNR is considering the start up of copper nickel mining in Minnesota. This is a type of mining has never been conducted in Minnesota and the environmental record of sulfide mining in other areas of the United States has shown that releases of sulfuric acid to the surface water and groundwater are prevalent. Based on the fact that sulfide mining has never been conducted without negative environmental impact, the proposed NorthMet mine is not expected to create a sustainable quality of life within the area of Hoyt Lakes and the Lake Superior watershed. 2) PolyMet Lacks Mining Experience - PolyMet does not have a proven track record of successfully operating a copper nickel mine. In fact, PolyMet has absolutely zero experience in operating a copper nickel mine. I believe that the MN DNR should not allow a company to undertake such a huge mining operation without a record showing that they are a qualified company to safely operate the proposed NorthMet mine. 3) Financial Assurances - Glencore will be providing funds to PolyMet for the mining operations. Glencore should be identified as the lead company in this effort. PolyMet does not have the resources to provide financial assurance for environmental clean-up. 4) Establishing a Precedent for Copper Nickel Mining in Northern Minnesota – I am concerned that if the PolyMet mining EIS is approved by the MN DNR and mining permits are issued that it will allow copper nickel mining to proceed in other areas of the state, such as near the Boundary Waters Wilderness Canoe Area. The MN DNR should be very aware of how their decision on the NorthMet mining project will affect other proposed mining plans in the state. 5) High Likelihood of Environmental Contamination – Even with the best intensions and plans, accidents can occur. This is also the case with the proposed NorthMet mine. If there are any releases of sulfuric acid to the soil, surface water and/or groundwater, then long-term significant environmental clean-up will be needed. I do not feel that the MN DNR should use the proposed NorthMet mine as a pilot project for copper nickel mining. Until PolyMet can provide evidence that they have successfully operated a similar-type mine for at least 15 years, I don't think that the MN DNR should grant approval for this project. Thank you for taking the time to read my comments. I feel very passionately that the MN DNR should not move forward with the NorthMet mining plan at this time. My contact information is as follows: Cathy von Euw 4740 Wentworth Avenue Minneapolis, MN 55419 cathy_voneuw@yahoo-com

Alphabetical by sender's first name

catina spann 41602

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Catlin Spargo 40383

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Catlin Spargo 1290 Hall Ave Lakewood, OH 44107 US

ceceile hartleib 41056

Hello, I am a concerned Minnesota citizen. I oppose the sulfide mining project submitted by PolyMet Mining Co. because these ventures have damaged water supplies in other areas of the country and I do not think it is worth it to do it here. I have read some of the comments by those who are going to profit from the mining and am not convinced that they are telling the whole truth. I think they want to make the money and then pull out and let the state pay for the clean up. Thank you. Cecelia R. Hartleib 2034 Selby Ave St Paul, MN 55104 Call Send SMS Add to Skype You'll need Skype CreditFree via Skype

Cecelia Newton 9331

Dear Ms Fay, Dear Federal and State Agency Leaders: I testified at the hearing in St Paul but run out of time and am not sure if this got in the minutes. Climate change caused by rising greenhouse emissions will be affecting Minnesota's natural habits, agriculture and our health. The Polymet project should not be permitted without substantial change to reduce emissions. The SDEIS should be redone to compare alternatives that reduce Carbon Dioxide emissions, starting with changes in vehicle fuel and reduced reliance on coal power. Cecelia Newton 5516 Irving Ave S. Minneapolis, MN 55419 (612) 929-0372

Alphabetical by sender's first name

Cecelia Newton 18143

My name is Cecelia Newton and it's spelled differently than a lot of people spell it. C-E-C-E-L-I-A, and then Newton, N-E-W-T-O-N. I am from Minneapolis, Minnesota. I also was a girl scout. I'm a Minnesota citizen. I'm concerned about climate change and the effects it is having on Minnesota. I know this sounds weird, but Minnesota is the third fastest warming state in the USA. We are being affected. I know you want to laugh, but you go talk to a metrologist. The CO2 emissions from the PolyMet sulfide mine and/or processing facilities would greatly increase Minnesota CO2 emissions. The greenhouse gas emissions from the PolyMet Mine, the processing facility, including the fossil fuels burned to run the vehicles on site and the plant on both places would be potentially -- now I know this is 107,342 metric tons per year. The statistic I'm giving is stated in this Supplement Draft EIS, Chapter 5, 405. That's why I'm giving the specific numbers. For perspective, in the city of Duluth in 2011, that includes commercial, industrial, transport, and waste, they emitted 2.7 million tons of C02 equivalent gas, greenhouse gases. So in one year PolyMet alone would emit one-fourth of the CO2 equivalent pollution of the whole city of Duluth. That's one plant. Over a 20-year mine plan PolyMet will emit 15,790,750 tons of CO2 equivalent pollution from burning coal to run its processing. That also is from the draft statement, Chapter 5, 406. Climate change caused by rising greenhouse gases will be affecting our natural habitats, our agriculture, and our health. Our natural habitat would include fewer lakes -- not the land -- it wouldn't be "The Land of 10,000" anymore. More dried up lakes. Less or no moose. No pine forest. Less good fishing and walleyes. More ticks. So I propose the PolyMet project should not be permitted without substantial change to reduce emissions. The SDEIS should be --

18892

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I’m writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- Sincerely yours, Cece;ia Newton 5516 Irving Ave S. Minneapolis, MN 55419 612-929-0372

Alphabetical by sender's first name

Cecilia Lieder 39999

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Cecilia Lieder 40002

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Cecilia Lieder 41702

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

43228

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Cecilia Lieder 318 N 14th Av E Duluth, MN 55805

Alphabetical by sender's first name

Celeste Birkeland 17116

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Celeste Birkeland 4036 Zenith Avenue North Robbinsdale, MN 55422

50384

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Celeste Birkeland 4036 Zenith Avenue North Robbinsdale, MN 55422

Alphabetical by sender's first name

Celeste Kawulok 54906

See attachment

Celia Hallan 42445

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Celia Hallan 1901 W 49th St Minneapolis, MN 55419-5225

celia poehls 15867

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I urge you to reject the PolyMet NorthMet SDEIS as inadequate. I also urge you to acknowledge the PolyMet open-pit sulfide mine plan has unacceptable environmental impacts on surface and ground water quality. These impacts will persist for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan deserve a less than a failing grade and both should be rejected. Recent news of internal DNR documents show that base flow at the mine site was seriously underestimated. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats the sulfide mine plan and wastes will have on drinking water, surface water, wild rice, mercury contamination of fish. All of these present extreme risks to human health at a time we can no longer ignore them. The SDEIS must be redone. It "methodology" is faulty and conceals, rather than analyzes environmental impacts. Here are a few critical failures: •No use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. NOTE: Both tribal hydrologists and MDNR staff have determined the real base flow is at lesat two to three times higher than the number used in the SDEIS. Base flow affects pollution seepage and impacts on wetlands and streaMs •No use a reasonable range of probabilities polluted seepage from the Category 1 waste rock pile and the tailings piles collection. NOTE: The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no "real-world" support. •No use of accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. NOTE: Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •No inclusion of a specific and reasonable plan for financial assurance toxic mitigation treatment for hundreds (or more) of years (ie, how we can be assure this will not become yet another SuperFund site). The PolyMet SDEIS is not a scientific analysis of water pollution threats. It is a biased document relying on unjustified assumptions. It conceals important facts and does not allow the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. It should be noted that we only need to look to West Virginia and North Carolina to see immediate and real threats to our earth from bad management strategies for treating the byproducts of these methods. Sincerely yours, celia poehls celia poehls 14765 Wake St NE Ham Lake, MN 55304

Center for Biological Diversity 43001

From: Marc Fink [mailto:mfink@biologicaldiversity-org] Sent: Thursday, March 13, 2014 10:42 AM To: Stine, John (MPCA); Brist, Jim (MPCA) Cc: 'JE Reyer' Subject: Section 401 Certification for Proposed NorthMet Mining Project Mr Stine and Mr Brist, Please see the attached letter concerning the Section 401 Certification for the proposed NorthMet mining project on the Superior National ForeSt I will also be sending you a copy of the letter by regular mail. As stated in the letter, also attached are copies of comments that we are submitting today concerning the Supplemental Draft Environmental Impact Statement (SDEIS) and Section 404 permit application for the proposed NorthMet mining project. We can provide you with hard copies of these comments upon requeSt Upon request we can also provide you with a CD that contains all of the exhibits cited to within our SDEIS and Section 404 permit application comments. Please let me know if any questions, and thank you for your consideration. Marc Fink Center for Biological Diversity 209 East 7th St Duluth, MN 55805 218-464-0539 HYPERLINK "mailto:mfink@biologicaldiversity-org"mfink@biologicaldiversity-org

Alphabetical by sender's first name

Center for Biological Diversity 52183

open file to view

Chad Brown 16495

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Based on the environmental damage from this type of mining in other states, I ask that you please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Chad Brown Chad Brown 2713 Glenwood Ave Minneapolis, MN 55405

49954

Dear Ms Fay, Mr Bruner and Mr Dabney: Based on the environmental damage from this type of mining in other states, I ask that you please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Chad Brown Chad Brown 2713 Glenwood Ave Minneapolis, MN 55405

Chad Jurgens 16272

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Chad Sahr 22037

I fully support the PolyMet project. The agencies have done an excellent job preparing the SDEIS. I fully trust the agencies expertise in making sure that this will be done in a safe and responsible way. I was able to attend all 3 public comment sessions. To me this is cut and dry . We can have both clean water and jobs in northern MN. PolyMet has demonstrated it and will prove it when they get their permits. Sarah Sahr 204 S 6th St E Aurora, MN 55705

57490

I fully support PolyMet, the DNR, and all of the other agencies on mining safely in northern MN. I have lived here my whole life and mining is critical to our area. I trust that all of the agencies will ensure that PolyMets mining will be safe for the environment. I also know the huge economic impact that this could provide for the whole state of MN. I also know that all of these metals that they will be mining, will still be mined elsehere. So why not have it done here .. Where we already have the strictest standards. PolyMet has proven that they will meet all of the standards and I hope that the regulators won't let the environmentalists delay this any longer. I feel that the groups that are against this are not pro-environment, they are anti-mining. If these groups were pro-environment then they would want this kind of mining here where we know it will be regulated and watched closely. Not in another country where standards are lower. Sincerely, Chad Sahr

Chad Trebilcock 21879

I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations. It's time to move forward as people want and need jobs in the area. Chad Trebilcock 7805 South Jackson Road Lake Nebagamon, Wisconsin 54849 The views and opinions expressed in this message my own. I am solely and individually responsible for the content. This is not intended to represent or reflect anyone else's views or opinions, including those of my employer, ALLETE, Inc.

Chanda Welch 44726

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Miss Chanda Welch 670 Ockley Dr Shreveport, LA 71106-1249

char 7639

I'm very supportive of Polymet's efforts to start a mine in Northeastern Minnesota. The SDEIS outlines what has to be done to ensure that the mining process is done in an environmentally responsible manner. It has taken 10 years of study to get where we are today. It is time to move forward with the Polymet project. We desperately need the good paying jobs and to be independent from foreign suppliers of these minerals. Thank You, Charlotte Colarich 1011 east white street Ely, MN. 55731 Sent from my iPad

Alphabetical by sender's first name

char colo 40315

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, char colo jamieson St louis, MO 63109 US

Charlene Blake 40909

Mar 9, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mrs Charlene Blake 40 Elizabeth Street Corner Brook, NL A2H 5Z6 (709) 388-0425

Charlene Maertens 57244

All of your mining is destroying our water, the wetlands for animals, and causing more pollution. To top off your handi-work with your mining. You are also partial to blame for formations of sink holes. You take away the ground, but you don’t replace it. Shame on you – this planet is dying.Charlene Maertens1641 – 20th Ave, #314International Falls, MN 56649

Alphabetical by sender's first name

Charles And Mary Weaver 40023

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Charles And Mary Weaver 1245 Karth Lake Dr Saint Paul, MN 55112-5714 (651) 631-3021

Charles Baribeau 18127

Thank you, Dave, and members of the Committee and the groups here. The first thing I'm going to do, I'm going to be putting on two different hats here. I'm putting on my hat -- I'm a Virginia City Councilor from the City of Virginia. My name is Charles R. Baribeau, last name is B-A-R-I-B-E-A U. With that, I'm going to introduce for the record, two resolutions we passed on PolyMet. One for the original draft EIS and we'll be putting together another resolution in next Tuesday's council meeting for this current supplemental EIS draft that's out at the present time. I've been a pharmacist for 40 years throughout the community of Virginia, and we support the PolyMet from a City Council perspective, and we support it 100 percent. These resolutions were a 7-nothing vote and a 7-nothing vote with two members absent. The PolyMet Project will increase, and as already mentioned, jobs in this area by about 400, from 1,000 1,000 to more. The Iron Range unemployment rate right now is higher than the state average, so This will help to increase the employment in this area. There will be high-paying jobs. There will be an increase of younger families due to subsistence of everything on the Iron Range. There will be an increase in school enrollment, an increase in real estate values of homes and businesses if this project goes through. There will be an increase in all types of sales. Now, I'm going to put on my hat as a pharmacist. The water process with reverse osmosis has been in the business as long as I've been a pharmacist, for 40 years. The quality of water coming out of this system will be better than the water that they're drawing from whatever streams, and et cetera, that they draw the water from. The process will be pure; all the minerals, all the chemicals, the mercury, everything you've heard, them talk about will not be available to go back into the downstream system of the Lake Superior watershed. We in Virginia are held to a standard of mercury that will be identical to what the environmental system requires of the mining industry. That standard is based on a brand-new sewage treatment plant we just put into operation here in Virginia this past year. So it's a brand new standard that the mining company will be held to. Just a couple other things. Reverse osmosis is used in drinking water purification. Food industry, food and juices. Your household water industries. Your sewage treatment plants. Your desalination of fresh -- for fresh water from the ocean. The pharmaceutical industry has used reverse osmosis with purity of water for many years. One last thing. It also extracts bacteria and pathogens- from the system, depending on the membranes you use, so the water will be more pure than what went in.

Alphabetical by sender's first name

Charles Borden 16936

Dear Ms Fay, Dear DNR Friends: I'm a lifelong friend of the boundary waters and I am writing to tell you that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality now and long into the future. This mine would work fine in Nevada or other states with the minerals where the water table is not rich and pristine. But to do this mine at the top of the laurentine divide where its effects would not just damage local water tables but run off into Lake Superior, the Mississippi River and hundreds of other smaller rivers and lakes is simply foolhardy. Please reject the PolyMet NorthMet SDEIS as inadequate. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Charles Borden Charles Borden 9 Delos Street W, # 3 St Paul, MN 55107

Alphabetical by sender's first name

Charles Borden 50229

Dear DNR Friends: I'm a lifelong friend of the boundary waters and I am writing to tell you that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality now and long into the future. This mine would work fine in Nevada or other states with the minerals where the water table is not rich and pristine. But to do this mine at the top of the laurentine divide where its effects would not just damage local water tables but run off into Lake Superior, the Mississippi River and hundreds of other smaller rivers and lakes is simply foolhardy. Please reject the PolyMet NorthMet SDEIS as inadequate. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Charles Borden Charles Borden 9 Delos Street W, # 3 St Paul, MN 55107

Alphabetical by sender's first name

Charles Dayton 43340

Comments of Charles K. Dayton. January 28, 2014 1666 Coffman St St Paul, MN 55108 651 341 2049 HYPERLINK "mailto:chuckdayton@gmail-com"chuckdayton@gmail-com Regarding the Draft Supplemental EIS for the Polymet mining operation at Hoyt Lakes Minnesota. My experience as a retired environmental attorney with over 40 years of practice includes some lessons relevant to this issue. We can't predict the future very well. Pro-mining interests keep urging us to trust the agencies to do their job. I don't doubt that the agencies will act in good faith, but as a lawyer for environmental groups on the Reserve Mining case I learned that State Permitting agencies are not adept at predicting what will happen in nature in the future, even using the best available scientific information. The then Commissioner of DNR, in issuing the original permit allowing Reserve to dump taconite tailings into Lake Superior, found that there would be no harm to water supplies and that the tailings would stay within a mile of plant. But, the tailings turned out to be carcinogenic, they polluted Duluth's water, and were found across the lake in Wisconsin; 20 years later the discharge stopped. The lesson for this EIS is that potential changes in climate, particularly rainfall, should be evaluated. Economic analysis of future treatment costs is required by law. As a lobbyist for the Sierra Club in the 1973 session, I worked on the Minnesota Environmental Policy Act requiring impact statements. That law clearly requires that the potential economic cost of treating the water that will be affected by the waste rock must be evaluated in the EIS: 116D.4, Subd. 2a. provides: "The environmental impact statement shall also analyze those economic, employment, and sociological effects that cannot be avoided should the action be implemented." This failing is an obvious flaw in the Supplemental EIS. The EIS must evaluate scenarios that include an increasing incidence of heavy rainfall events. Three years ago, I co-authored a chapter of "Water Policy in Minnesota" published by Resources for the Future, together with Don Pereria, the head of fisheries research for the DNR. In working on our chapter, entitled, "The Impact of Climate Change on the Distribution and Use of Water" I learned that the severity of heavy thunderstorms has increased and will continue to increase in northern Minnesota as the climate warMs The research cited shows that the incidence of heavy rainfall events is now double the rate of a century ago, and that climate change forecasts show that current increasing trends will continue into the future. Id. at 206- This research is confirmed by the report of an inter-agency task force in Minnesota, Adapting To Climate, 2013, Report of the Interagency Climate Adaptation Team, which included representatives of the PCA and DNR, November 2013- http://www.pca.state.mn.us/index.php/view-document.html.gid=15414- The report shows a 45 percent increase in "very heavy precipitation events,"from 1958 to 2011 in the upper Midwest, including Minnesota. P. 8, figure 6- The report forecasts more frequent extreme weather events as well and notes, significantly for our purposes: "Higher peak intensity rainfall events may result in bypass of wastewater treatment facilities or sanitary sewer overflows, leading to the release of minimally treated or untreated wastewater." My understanding is that the waste basins and treatment facilities for the water polluted by contact with waste rock will be designed for a hundred year rain event of 5-2 inches of rain in 24 hours. This is insufficient. The flood that plagued Duluth and Northeastern Minnesota in June of 2012 with 8 to 10 inches of rain was the worst in history, so far. Mark Seeley, climatologist with the University of Minnesota, observed, "This type of storm reminds us that climate is changing in Minnesota. Not only in terms of quantity of precipitation, but in the character of precipitation

Charles Derry 33513

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Maybe you don't seem to understand that the Lake Superior waters are pretty much a closed system and, as I have heard, have 300 year turnover. The lake may look big, but, it really isn't and this type of mining, shows the potential of killing the entire lake and its surroundings. You are playing with fire here and it is time the fire was put out. Do not allow this mining to take place and pollute the entire Great Lakes. We take so much care in not letting lead from the Mackinaw Bridge get into our lakes, when the sulfide mining contamination is going to be far greater and far worse. Make sure your priorities are in the right place as you drink your filtered city water. You are playing with 1/5 of the world's fresh water here. Don't take a chance like this that could be fatal for our lakes and our children. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Please stop this greed and insanity before you kill the greatest of the Great Lakes and maybe all of them down the road. Thank you. Sincerely, Charles Derry 8660 Merkel Rd Dexter, MI 48130-9655

Alphabetical by sender's first name

Charles Grell 42022

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Charles Grell Cold Spring, Minnesota _____ There are now 2368 signatures on this petition. Read reasons why people are signing, and respond to National Audubon Society by clicking here: HYPERLINK "http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89bandutm_source=targetandutm_medium=emailandutm_campaign=signature_on_sponsored_petition"http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89b http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJzaWduYXR1cmVfb25fc3BvbnNvcmVkX3BldGl0aW9uIiwiaWQiOiJ1c2VyXzE2MDAyMTUiLCJjaXR5IjoiU2FuIEZyYW5jaXNjbyIsInN0YXRlIjoiQ0EiLCJ6aXBjb2RlIjoiOTQxMTAiLCJjb3VudHJ5X2NvZGUiOiJVUyIsImluY29tcGxldGVfYWRkcmVzcyI6ZmFsc2UsInNpZ251cF9kYXRlIjoiMjAxMC0wOS0yMyIsImxvZ2luX2NvdW50Ijo5NDE2LCJ0b3RhbF9hY3Rpb25zIjo0MzAsImNvbm5lY3RlZF90b19mYWNlYm9vaz8iOmZhbHNlLCJzaWdudXBfY29udGV4dCI6ImFjdGlvblBhcnRpY2lwYW50IiwiZGlzdGluY3RfaWQiOiIyMWQ2MmIwMC1iZTVkLTAxMmYtNjg2ZS00MDQwNjBlNzJhYmIiLCJ0b2tlbiI6IjMwYWEyNmExZDZlOTNhZTE1OGRmYmRjMTZiNDkzMzEyIiwidGltZSI6MTM5NDMwMDA3Mn19andip=1andimg=1 http://email.changemail-org/wf/open.upn=aGGv9wQ398j6-2FWVT4grdXbWUo0w-2FupjjjD-2BeyIkg5XeInLuCEKc3fZdho8GXjxxiplFn6SybU80HWYOLHct2MhHcRv7ksg-2F-2Bt-2BBQdFBpjlzxDktVOQ-2BFk4aqIGmD-2B9H0ETTSyCrlBEL-2BYLKrJGQk-2Fgo-2BhY6Er-2FZwiNckZtvItwa8IwiDHbX3gTY01xZvjq9A9o-2F2bxT8q2s4vFw9oTec4Q0cDOo-2Bg0whrCXD7MEqEyNQyuQRqclAyVwr-2B57sBEo9-2Bb2FEGX-2F5XabrmXxmyny24S-2BQd3ZzpJfm8ZAPRO5jN6O3M4ndnRUsC8KG7AVJNPf

Charles J Marsden 54700

See attachment

Charles Kothe 42814

See attachment

Charles Krysel 46075

I think the environmental risks of this mining project far outweigh the projected economic gains if realized. Hundreds of years to mitigate the waste generated for a decade or two the mine is operated. Are you kidding. This is just another of the mounting instances where an Industry takes control over public lands and its agencies. The State of Minnesota should reject this destructive and dangerous project. Sincerely, Charles Krysel 2024 12th St SW Backus, MN 56435

Alphabetical by sender's first name

Charles Lahti 18061

My name is Charles Lahti. The question that I have relating to this particular permitting system is what happens to permitting after the product leaves the property? In other words, when it's in transportation we have hazardous materials that's in a liquid solvent state or a dried state going across all the water aquifers between here and the location. I'm afraid a train accident or something like that will put it into our water system, the Great Lakes, the Red River, going up the Hudson Valley or the Mississippi. And we are talking thousands of tons of hazardous material. How do we handle that? And why isn't the Department of Transportation involved in this permitting? And the other thing is on these routes we have to look at the hazardous characteristics for the emergency people and the fire responders. Those first responders are they going to be aware and properly equipped to handle the hazards that this brings forth to their towns.

Charles Lehn 36610

Please consider the attached letter regarding Polymet MIning. cl Sincerely, Charlie Lehn Morningstar Exteriors, Inc. 4991 165th Ave NW. Andover, MN. 55304 763-286-9792

Charles Madsen 39765

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Charles Madsen 90 13th Ave SW New Brighton, MN 55112-3438 (651) 724-8593

41840

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Charles Madsen New Brighton, Minnesota

Alphabetical by sender's first name

Charles Marsden 20173

I sent an email on this subject moments ago, but was unable to determine if it went through, so I am sending in a different manner. My apologies if this turns out to be a duplicate message. Please make this a part of your file of comments on the NorthMet SDEIS. Charles Marsden

36906

Attached is an analysis of the size of a Trust Fund required to provide adequate Financial Assurance as well as some suggestions on dealing with the issue. Charles Marsden

42819

See attachment

43029

Your task is complex. The attached letter includes some suggestions about how not to lose sight of the big picture. Charles Marsden

54574

I am writing to you regarding the application for mining permits for the NorthMet Project and the SDEIS currently under review by the DNR. I am a retired chief financial officer of a chemical company listed on the NYSE and have had many years experience buying and selling properties that involve complex environmental issues, and, as a result, believe I can offer some informed opinions about the issue of Financial Assurance which is a major consideration in the PolyMet proposal.The main points of this letter can be summarized as follows:•Copper-nickel mining in Minnesota involves a significant risk of groundwater contamination.•Taxpayers need to be protected from the potentially very large cost to clean up environmental damage resulting from this type of mining.•The time to get the necessary financial guarantees to protect taxpayers is now, before permits are issued.•The best protection would be a large initial cash deposit supplemented during mine production by a tonnage charge.As you know, hard rock sulfide mining, unlike iron mining, has potential severe environmental impacts on ground water, and the challenges of dealing with toxic runoff from tailings impoundments are substantial. This is evidenced by the fact that no sulfide mining operation anywhere in the world has yet succeeded in containing the toxic runoff and avoiding pollution of groundwater (drinking water) in surrounding areas. PolyMet claims in its SDEIS that it knows how to solve this seemingly intractable problem. However, the most optimistic way of looking at this issue is to view it as a bold experiment to be conducted in Minnesota. The state needs to protect itself and the taxpayers if it allows this experiment to take place and serious environmental damage does occur, as it has in every other sulfide mine.The PolyMet SDEIS acknowledges that treatment of runoff from tailings impoundments will need to continue for hundreds of years. The net present value cost of that alone is huge, and not really addressed in the SDEIS.Scientists, engineers, and other technical experts can argue about the relative merits and likelihood of success in containing toxic runoff and treating whatever escapes impoundments. But there are other important evaluations to be made that are of a business and financial nature. How can we be assured that Minnesota taxpayers will not be stuck with an enormous bill for cleanup of the mining sites and ongoing treatment costs? Minnesota Rules, part 6132.1200 is supposed to provide for that, but the rule is only effective if (1) the future financial liability is forecasted realistically and (2) PolyMet is capable of providing financial assurances to the extent required to meet their potential obligations for both mine closure and reclamation and environmental damage.Section 3.2.2.4 Financial Assurances of the SDEIS for the NorthMet Mining Project and Land Exchange is the only place where this issue is addressed. Having reviewed that short section (3 pages), I can say with confidence that no businessman would consider the statements made and assurances suggested to be anywhere near adequate for entering into an agreement with PolyMet. The section consists solely of generalities and future intentions to address the issue in a more comprehensive way during the permitting process. Given the extensive time and work that went into preparing the voluminous SDEIS, it is surprising that no more definitive estimates of future costs to reclaim the sites and deal with long term monitoring of ground water are available. Further, there is no indication that the possibility of substantial contamination of ground water due to failure of impoundments or other issues has even been considered. Costs to deal with this kind of issue could far exceed the general estimates of closure costs ($120-$170 million after 20 years of mining) and post-closure monitoring and maintenance costs ($3.5-6 million annually) that ar

Alphabetical by sender's first name

Charles Moore 57343

My name is Charles Moore. I live at 4320 London Road, Duluth. I am opposed to the proposed mining for the following reasons. One, I think that the proposed or postulated cleanup has not been adequately tested on a large enough scale at other such mines. Secondly, I am opposed because I think underground mining hasn't been given a – I don't know how much that has been looked into. And thirdly, the cost of the cleanup for hundreds of years seems to be -- how is that going to be guaranteed? Okay. That's it.

Charles Morrison 41740

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Charles Pacholski 41757

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Charles Pacholski 2312 Marshfield Rd Lawtons, NY 14091-9781

Alphabetical by sender's first name

Charles Pfannenstein 16062

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Charles Plumadore 4781

DNR, I am writing you with my concerns about the proposed Polymet sulfide mining to be done very close to the BWCA. After reviewing the information from the recent environmental impact analysis, I have no confidence that the Polymet company can keep the surrounding watershed safe from pollution caused by the mine. As an avid user of the BWCA and resident of the state of Minnesota, I am urging you to reject Polymet's proposals for sulfide mining in our state. Sincerely, Charles Plumadore 5965 195th Ave Foley, MN 56357

Charles Renner 18263

Charles Renner, Ely, Minnesota. I just wanted to say I have lived on the Iron Range for 50 years. The mining industry is what brought us to the Range during the mining business in Hoyt Lakes, Minnesota during the sixties and seventies. The town was full of miners, full of kids, full of schools. Now we have no miners to speak of, a handful of miners. The schools are all closed up and boarded up. And I am for the mining industry and I am looking forward to it starting. They have studied it for years, eight years I believe, possibly ten. They have spent millions of dollars studying this. I believe they are capable of doing it safely and I am looking forward to them getting it started as soon as possible.

58141

Lived on range for 50 years supported by mining. We've studied this for years, spent millions of dollars. Lets start mining!

Alphabetical by sender's first name

Charles Schaedler 3049

The fact that this company will provide so many good jobs for Minnesotans, is by far the most important thing to remember. I also believe that conservationists have too much say in what happens in our state. We all want to keep our planet livable, but we have to remember that our population is constantly growing. We have to do something to create jobs for the expanding job force.. The fact that this can be done with no appreciable effect on the environment, is all the more reason to promote this project.. Charles F Schaedler

Charles Skaudis 41915

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Charles Skaudis Woodbury, Minnesota

Charles Sugnet 48670

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I am a property owner in Cook County and an outdoor sports/environmental writer. The news media keep framing the mining question as a question of jobs and the economy versus the environment, completely forgetting that a clean wilderness will produce jobs over a much longer hall. From a strictly economic point of view, it is a question of a large number of jobs that last for a short time and destroy the resource (the capital) versus a smaller number of jobs that are sustainable over the very long haul because they do not destroy. I've seen what the area around Sudbury looks like after copper-nickel smelting. Nothing in PolyMet's approach (leaky test wells, misleading public communication) leads me to believe that northern Minnesota will be spared serious and long-lasting damage if PolyMet is allowed to mine. Charles J Sugnet 2312 30th Ave S Minneapolis, MN 55406 The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Charles Sugnet 2312 30th Ave S Minneapolis, MN 55406-1444 (612) 655-9700

Charles Wick 54568

Cu-Ni mining is too risky so close to priceless watersheds. Minerals are too toxic in parts per billion to ensure safety. Monitoring of water quality has to be done way past the life of the mine and the corporate owners. Its too close to the BWCAW to risk such a major intrusion.

Charlie Elowson 38947

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Charlie Elowson 2515 Burnham Rd Minneapolis, MN 55416-4333 612 729

Alphabetical by sender's first name

Charlotte Anderson 10158

To the Minnesota DNR: I am strongly opposed to the sulfide mining proposal in northern Minnesota. From the reading I have done in the media and portions of the prepared environmental statement, it is inconceivable that sulfide mining can be anything but disastrous for our northern water and land environment. Our natural resources in Minnesota have always been a defining part of our state's economic health and culture, and they MUST be protected. I do not believe that human progress and economic need should be held to be more valuable than our beautiful lakes, trees, land and wildlife. We need these places of quiet, clean air and water, these places of refuge. I have visited the BWCA the past 5 years and will continue to visit as long as I am physically able. The history of previous sulfide mining projects elsewhere in the country tells the story of ongoing pollution, bankruptcy of the mining companies, and cleanup burdens left to taxpayers. Why would we expect it to be different in Minnesota. Minnesota has been a leader in protecting the environment-do not stop now, do not change this now. Please say no to this mining project.. Sincerely, Charlotte Anderson 2909 40th Avenue South Minneapolis, MN 55406 Sent from my iPad

Charlotte Egler 39707

Mar 10, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Charlotte Egler 10898 Daylight Dr Camby, IN 46113-9180 (317) 966-5852

Charlotte Kerelko 41812

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Charlotte Kerelko Floodwood, Minnesota

Alphabetical by sender's first name

Charlotte Quiggle 16201

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Chase Carter 54178

The boundary waters is a beautiful place with many aquatic and non-aquatic animals. There is a lot of people who frequently visit the boundary waters. People also own businesses on and around the waters.If you start to mine for precious metals you will destroy so many great things. Sulfide ore mining will kill thousands of innocent animals. It will also turn the water yellow and polute the little wilderness we have with acid and lower the ph so fish will die.The mining will bring jobs but it will also destroy many family businesses. Tourists won’t come to visit because the wilderness won’t be there. You think you will get profit from precious metals but its not worth destroying so many great things.If you mine their I guarantee you will regret it.

Alphabetical by sender's first name

Chase Root 41924

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Chase Root Lindstrom, Minnesota

Chelsea Helmer 19942

Dear Federal and State Agency Leaders: Firstly, I want to express disappointment that the ninety day comment period has not been extended. Ninety days is insufficient for proper public analysis of this SDEIS given its length and complexity. I concur with the Tribal Comments and Supporting materials related to hydrological monitoring and models conducted on the Partridge River. I concur with MDO #1 that “the natural variability in precipitation would be more adverse than reported in the SDEIS.” It appears that these models to again quote “characterize the groundwater hydrologic system as moving an unrealistically small quantity of water.” Predications of future water quality cannot be based on flawed statistical data related to current water quality. The agencies response states that if “actual NorthMet Project Proposed Action effects were found to be higher than predictions that steps could be taken to reduce those effects.” What these steps would be needs to be specified. I request that the SDEIS needs to be redone to accurately reflect quantities of water in this hydrological system. Polymet’s proposal would destroy 913 acres of high-value wetlands in the St Louis River watershed according to the SDEIS. The proposal would indirectly affect up to another 7,351 acres. There is NO PLAN to compensate for these thousands of affected wetlands. Additionally any compensatory mitigation, an undefined term, does not affect the St Louis River watershed or Lake Superior resident. As a citizen of the Lake Superior Basin, I believe that the Section 404 permit must require “compensation” for loss and injury to wetlands in the Lake Superior Basin. Additionally the SDEIS reveals that PolyMet would not build a reverse osmosis plant for water treatment at the mine site for approximately 40 years. Contaminants in the permanent waste rock and tailings will require treatment for hundreds of years, and admittedly mine pit pollution would continue in perpetuity. The mine itself will only be in operation for 20 years. It is extremely unlikely that the PolyMet Corporation would survive the years that are needed to mitigate this pollution. Costs and a plan necessary for funding this treatment must be sufficiently developed and provided to the public. The SDEIS should explain exactly what would ensure how the treatment of mine pit pollution will be funded for hundreds of years. Sincerely, Chelsea J. Helmer 302 Hawkins St Duluth, MN 55811 (218) 341-4407

Alphabetical by sender's first name

Chely Tverbeg 11452

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs Chely Tverbeg 4294 Munger Shaw Rd Cloquet, MN 55720-9252 (218) 591-4750

Cher Johnson 16056

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Cheryl and Mark Wilke 54912

See attachment

Cheryl Dannenbring 6111

Dear Ms Fay, Dear Federal and State Agency Leaders: In the SDEIS from PolyMet, it is claimed that the tailings piles resulting from the mine project won't cause pollution(p5-159- However, this unlined tailings site will be on top of the existing LTV tailings piles, an area exceeding two square miles. The tailing site already leaks pollution. Now there will be even more toxic tailings added, and they will be there forever. Polymet claims that all but 21 gallons of seepage per minute (out of 3,380 gal. per minute) will be contained via pumps. That is a 99% collection rate. Nowhere is there an example of this almost perfect result at the edge of an unlined tailings pile. Simply saying it will happen does not mean that it will. As with many other points in the SDEIS, PolyMet makes claims that are not backed up with hard evidence or scientific review. Nor do they explain what will happen when PolyMet is no longer there to keep the mechanical form of reclamation going - some 50, 200, or 500 yrs. down the line. The SDEIS needs to be redone to analyze water quality outcomes/risks IF the tailings pile collection rate is not what PolyMet projects. It also needs to detail Polymet's financial guarantee to back up its claiMs Sincerely, Cheryl Dannenbring Cheryl Dannenbring 1850 Vermilion Rd Duluth, MN 55803 218-730-9973

6121

Dear Ms Fay, Dear Federal and State Agency Leaders: Dear Lisa Fay, EIS Project Manager: I am writing regarding the US Forest Service's willingness to accept Land Exchange on behalf of PolyMet. The Forest Service claimed that the purpose of a land exchange was to unify ownership of federal lands so federal forests would not be on top of mineral leasing. But the proposed land swaps do not fill that purose. Almost all of the land proposed for the swap have split ownership and severed mineral rights. (SDEIS, p. 3-163) In other words, the land swap will allow PolyMet to take lands from the Superior National Forest—lands currently available for multiple-faceted public use—wildlife habitat, forestry, and recreation—and turn them into a single use (mining) parcel. It is not the Forest Service's job to make land available for a foreign corporation's economic benefit. I ask that the proposed Land Exchange be rejected since it does not serve a public intereSt PolyMet should have to find lands where the public would have unified ownership with no split mineral leases to sell off. Sincerely, Cheryl Dannenbring 1850 Vermilion Rd Duluth, MN 55803 Cheryl Dannenbring 1850 Vermilion Rd Duluth, MN 55803 218-730-9973

7548

Dear Ms Fay, Dear Federal and State Agency Leaders: In 1997 the MNDNR and the MNPCA, along with several other agencies developed a Minnesota Wetlands Conservation Plan. To quote from this project: "The goal for wetland conservation in Minnesota is to maintain and restore the quality and diversity and increase the overall quantity of wetlands in the state . . ." According to the DNR's own document, the benefits of wetlands are many. They include: erosion control, fisheries habitat, flood control, ground water recharge and discharge, natural filter for pollution, rare species habitat (almost 50% of threatened or endangered species in the US live in wetlands), general wildlife habitat, recreation, sources of income and food, and educational opportunities. Being aware of these critical roles that wetlands play in the ecology and culture of Northern Minnesota, I am extremely concerned about PolyMet's proposed impact on such lands. By its own admission, PolyMet will destroy 913 acres of wetlands directly and another 7,351 acres will likely be destroyed due to fragmentation, pollution and changes in hydrology. However, the Polymet's EIS details no plan to mitigate this huge loss within the Lake Superior Basin. Furthermore, the Army Corp of Engineers has no record of requiring wetland compensation or mitigation after a project is built. Polymet's SDEIS shows a disregard for the ecological and public value of wetlands. I ask that the EIS be deemed unacceptable and that the DNR does not permit the mine on the basis of its own stated goals for preservation and improvement of wetlands in Minnesota. Sincerely, Cheryl Dannenbring Duluth, MN Cheryl Dannenbring 1850 Vermilion Rd Duluth, MN 55803 218-730-9973

Alphabetical by sender's first name

Cheryl Dannenbring 10742

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: There appear to be many inadequacies in Polymet's new EIS, with limited plans for protecting ground and surface water topping the liSt The mine will open a pit reaching below the presently used aquifer, thereby making a permanent connection between all geologic zones that are mined through. There is no plan to create a permanent barrier from the toxic mining byproduct to the water, either during mining or after by-product disposal. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: Sincerely yours, Cheryl Dannenbring Cheryl Dannenbring 1850 Vermilion Rd Duluth, MN 55803

10931

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: Polymet's SDEIS, section 3-40 paragraph 2 states "There is no mine plan for any material that lies outside of the proposed open pit; as such, mining material located beyond the proposed pit outline would be evaluated as appropriate if proposed in the future." As in many sections of the EIS, this vague language opens the door to future environmental assaults without having a plan 'on the books' to deal with those eventualities. This EIS should cover all possible known variants of the mining plan, not just the one proposed at the time being. I am concerned that the mining company could start with a small operation and thus be grandfathered into a larger operation without needing to go through all review processes. This is only one of many shortcomings that has become clear on the public's scrutiny of this document. The SDEIS needs to be redone to address all such concerns, without the 'smoke and screen' language it currently employs. Sincerely, Cheryl Dannenbring Cheryl Dannenbring 1850 Vermilion Rd Duluth, MN 55803 218-730-9973

15263

Dear Ms Fay, Dear Federal and State Agency Leaders: The amount of water that the proposed PolyMet mine would require for operations is of great concern to me. On pg.3-102, paragraph one states that 'make-up water' drawn from Colby Lake would average 275 gallons per minute. (and we, as good citizens, worry when our taps are leaky.). After twenty years of use, this would mean removing a significant portion of the lake's total volume. No study was done to measure the effects of this lake drainage. For instance, the Whitewater Reservoir could become tainted from the City of Hoyt Lakes' sewage discharge. Any number of unintended consequences could arise from using such large volume of water, and polluting much of it to the point that it cannot be discharged from the plant. Furthermore, as with the issue of pollution, the effects will be greatly multiplied with each additional mining operation permitted for the Arrowhead region. I believe the people of Minnesota should have priority use of our waters, not foreign mining companies. I reject the 'we'll deal with that if it arises' solution which seems to be an integral part of this SDEIS. Plans for such eventualities must be in place before the operation is permitted. Cheryl Dannenbring 1850 Vermilion Rd Duluth, MN 55803 218-730-9973

18407

Dear Ms Fay, Mr Bruner and Mr Dabney: There appear to be many inadequacies in Polymet's new EIS, with limited plans for protecting ground and surface water topping the liSt The mine will open a pit reaching below the presently used aquifer, thereby making a permanent connection between all geologic zones that are mined through. There is no plan to create a permanent barrier from the toxic mining byproduct to the water, either during mining or after by-product disposal. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: Sincerely yours, Cheryl Dannenbring Cheryl Dannenbring 1850 Vermilion Rd Duluth, MN 55803

42711

See attachment

Alphabetical by sender's first name

Cheryl Dannenbring 50526

Dear Ms Fay, Mr Bruner and Mr Dabney: There appear to be many inadequacies in Polymet's new EIS, with limited plans for protecting ground and surface water topping the liSt The mine will open a pit reaching below the presently used aquifer, thereby making a permanent connection between all geologic zones that are mined through. There is no plan to create a permanent barrier from the toxic mining byproduct to the water, either during mining or after by-product disposal. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: Sincerely yours, Cheryl Dannenbring Cheryl Dannenbring 1850 Vermilion Rd Duluth, MN 55803

51205

Dear Mr Dabney, Mr Bruner and Ms Fay: Polymet's SDEIS, section 3-40 paragraph 2 states "There is no mine plan for any material that lies outside of the proposed open pit; as such, mining material located beyond the proposed pit outline would be evaluated as appropriate if proposed in the future." As in many sections of the EIS, this vague language opens the door to future environmental assaults without having a plan 'on the books' to deal with those eventualities. This EIS should cover all possible known variants of the mining plan, not just the one proposed at the time being. I am concerned that the mining company could start with a small operation and thus be grandfathered into a larger operation without needing to go through all review processes. This is only one of many shortcomings that has become clear on the public's scrutiny of this document. The SDEIS needs to be redone to address all such concerns, without the 'smoke and screen' language it currently employs. Sincerely, Cheryl Dannenbring Cheryl Dannenbring 1850 Vermilion Rd Duluth, MN 55803 218-730-9973

57152

ES-24, paragraph 3 states that the Hydrometallurgical Residue Facility will be capped and double-lined for the duration of the estimated 500 years of toxicity. No know man-made structure can retain its original and viable properties for such a length of time, especially concrete or geomembrane, which are known to degrade. Thus any claims which count on this system to contain polluted material must be discounted. Until this very crucial point is addressed in a scientific, valid manner, the project should not proceed.Cheryl Dannenbring1850 Vermilion RdDuluth, MN 55803

57153

I am wondering how the MN EPA can approve and permit the Polymet copper-nickel mine (or Twin Metals, or any other perspective operation) when many MN water ways are already polluted by old iron mining operations. The Clean Water Act clearly states that no new source of pollution can be added to already polluted water. PolyMet's permit must be denied until old pollution problems are dealt with.Cheryl Dannenbring1850 Vermilion RdDuluth, MN 55803

57154

Mining proponents keep claiming that sulfide pollution will not be a problem due to the low percentage of sulfide in the rocks (less than 1%). The Brohn Mine (SD) produced acid mine drainage, although the same claims had been made. The company declared bankruptcy (after done extracting) and the site was declared a Superfund Site in 2000, to be treated perpetuity at taxpayers expense. The same thing at the Zortman-Landusky Mine in Montana. Thus all "estimations" for pollution assumed by the SDEIS must not be accepted. Simply saying Polymet won't produce water pollution does not make it so.Cheryl Dannenbring1850 Vermilon RdDuluth, MN 55803

57155

I am concerned about pollution from the open pit Polymet mine. There has been no study that proves or disapproves that water pollution will migrate via natural permeability or existing fractures. Any pollution could dangerously seep into the local fresh water system. (ES-5 and 4-43 through 4-44) Until independent studies are conducted (not connected to the agencies authorizing the SDEIS) regarding water seepage (sub-terrain water migration) to give a clean understanding of where pollution may travel, the SDEIS should not be approved.Cheryl Dannenbring1850 Vermillion RdDuluth, MN 55803

Alphabetical by sender's first name

Cheryl Dannenbring 57492

Dear MN DNR: What I would like to see in Polymet's EIS draft, is: 1- a clear explanation of how they are going to prevent pollution from leaking out of holding ponds that are designed to leak. 2- how they plan to keep the leaking pollution from seeping into surface and groundwater. 3- whether accurate water samples are being taken now to determine the pre-mining sulfate levels in surrounding ground and surface water. 4- whether Polymet is making financial commitments to be responsible for 'clean up' of pollution that appears 20, 50, and 100 years from now. (as it is known that this type of pollution often takes that 20 years to manifest itself-hence the need for accurate pre-mining samples-and that it can be expected to linger indefinitely. 5- whether they will be held responsible for restoring deforested areas with the biodiversity that presently exists, and continue to finance that restoration until the forests regain their former health. 6- whether the economic impact of the loss of tourism-related jobs, jobs related to our present resources of clean water, forests, and wilderness, have ben figured into the scenario. I am sure there are many other areas I would like to see addressed in the EIS, but these seem pretty basic. Since I don't believe heavy-metal mining has any justification in comparison with maintaining our clean water, questions regarding water should be the priority. Sincerely, Cheryl Dannenbring 1850 Vermilion Rd Duluth, MN 55803 218-730-9973

Cheryl Gerth 48563

Mar 12, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. AS A FORMER STOCKHOLDER in Polymet, I felt great pangs of conscience when I learned of the potential for disastrous natural consequences to sulfide mining. I have several friends who still have a financial stake in Polymet's future, but their small economic loss is nothing compared to the threat to the clean air and water which is Minnesota's best legacy. For them it is a small economic game; for everyone else, it spells foreboding and the future loss of a healthy environment is NO one's gain. I sold my stock, not wishing to participate any longer in this dangerous risk. PLEASE DO NOT APPROVE THIS. It is time for the world to learn to live on less. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Cheryl Gerth 10122 Uplander St NW Coon Rapids, MN 55433-4655 (763) 862-8050

Alphabetical by sender's first name

Cheryl Lawrence 41633

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Cheryl McCrory 39727

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Cheryl Olivanti 3139

During this public comment period I would like to support the issuing of permits necessary to allow Polymet to begin mining in Minnesota. Northern Minnesota has been dependent on mining for over a century and another employer would be a great benefit to the area. Our young people need another employer in the area to help them be able to make this area their home for life. This area has seen far too many layoffs and the mass exodus of young people and now we need a reason for them to say or come back. As a small business owner, the higher paying jobs would bring customers to my business. With more business comes the possibility of having to hire more employees and hopefully lower the unemployment rate in norhtern MN. I am proud to be an investor in Polymet and I have confidence in the company that they will do hwhatever it takes to run a clean operation now and in the years to come. Sincerely, Cheryl J. Olivanti 727 15th St N. Virginia, MN 55792

Cheryl Pearson 4274

Please do not allow PolyMet degrade thousands of acres in NE Minnesota. Cheryl Pearson 6559 West Hunter Lake Rd Duluth, Mn 55803

Cheryl Stanek 21258

I would like to express my support for approval of the PolyMet North et project in Hoyt Lakes, MN. I urge the DNR to grant permission to PolyMet to build this mine. This would be an excellent opportunity to boost the economy of Minnesota in all aspects. Thank you very much for your time. Cheryl Stanek 18561 183 Street Little Falls, MN. 56355 Cheryl "Every day's a Good Day (especially when you're retired)."

Alphabetical by sender's first name

Cheryl Storm 43285

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Cheryl Storm 6068 Murphy Lake Road Brimson, MN 55602

47822

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Cheryl Storm 6068 Murphy Lake Road Brimson, MN 55602

Alphabetical by sender's first name

Cherylyn C. Kelley 45323

March 11, 2014 Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Re: Protect Water from PolyMet Dear Ms Fay, I study Environmental Science at the University of Missouri, which is where I first heard of the plan to mine sulfide ore in northeastern Minnesota. Naturally, the consensus of the class was one of concern. Though I cannot speak for my peers, I would like to express to you why I think sulfide mining in this delicate area should not be approved. The Superior National Forest is home to many plants and animals, including two endangered species and 11 rare species. It's also the largest designated Important Bird Area. The mine would dig up roughly 1000 acres of peat and bog but its effect would be felt for more than 4000 acres. These areas will be difficult to restore and monitoring plans in these areas is decidedly insufficient. Downstream from the PolyMet site are wild rice beds, which are sensitive to sulfates and will die at even low levels. Much of my concern stems from insufficient or inaccurate information provided by PolyMet. There was very little information about the water treatment systems that would be used. How will it be paid for in the years after the mine is profitable. Will taxpayers be held responsible for the treatment costs. The SDEIS also mentioned that the cut off wall would extend down to the bedrock, but what will they do if there are cracks in the bedrock. The SDEIS also does not include information about potential influence on the endangered species in the area. Those in favor of the mine claim it will boost the local economy and create jobs, but is there no middle ground between jobs and environmental protection. PolyMet boasts the creation of 360 jobs and others that wouldn't be local, so I fail to see how that will help a great deal. I feel certain that transitioning to wind, water, and solar energy could produce more jobs than that while protecting the future of the environment. Do we want to leave a legacy of pollution and expenses for future generations. Or could we give them a beautiful, healthy national forest that provides numerous ecosystem services. Approving this proposal by PolyMet is an unnecessary risk that will surely result in damaging ecosystem, polluting water, and further endangering fragile species in the area. Sincerely, Cherylyn Kelley 2500 Old Highway 63 South (816) 510-7780 HYPERLINK "mailto:KelleyCh@Missouri-edu"KelleyCh@Missouri-edu

Cheyenne Kopp 41612

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Cheyenne Kopp Saint Cloud, Minnesota

Chiara Race 41845

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Chiara Race Eagle Bend, Minnesota

Alphabetical by sender's first name

chiara testi 40290

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, chiara testi via nazionale 980 s. gemignano di moriano lucca, ot 55100 IT

Chipper Johnson 19892

I have reviewed the draft EIS and believe PolyMet has done a great job addressing the issues. I support this project. Peter G. "Chipper" Johnson, PE President Hoover Construction Co.

Chippewa Ottawa Resource Authority 42954

To Minnesota DNR: Please accept this submission of comments regarding the NorthMet SDEIS on behalf of the Chippewa Ottawa Resource Authority (CORA) provided as a letter in PDF format. Please contact me if there is any problem opening or reading this file. Respectfully, Mike Ripley Environmental Coordinator Inter-Tribal Fisheries and Assessment Program Chippewa Ottawa Resource Authority 179 West Three Mile Road Sault Ste. Marie, MI 49783 Tel. (906) 632-0072 HYPERLINK "http://www.1836cora-org"www.1836cora-org

chooch karton 45067

Please don't let Polymet take our state's true legacy away from the people who live here. What a dreadful shame it would be for corporations from other countries to damage our beautiful state for short term gains. Short term gains with disastrous long term consequences Nature that is timeless and rewards each generation with its lessons as well as guides us towards a healthier earth and more enlightened future: this is what we stand to lose. No amount of money can possibly be worth what would be lost. Please close the door to the Polymet future and we can proudly share in this beautiful state that we are lucky to live in Very Sincerely, Christian Langheinrich 5032 Bloomington Ave Minneapolis, MN 55417 (612)867-6903 Choochkarton@gmail-com

Chris A Norman 42660

See attachment

Alphabetical by sender's first name

Chris Adams 41554

Lisa Fay, We are writing to submit a comment on the Supplemental Draft Environmental Impact Statement (SDEIS) for PolyMet Mining's proposed NorthMet project. First, we want to express our confidence in your agency to thoroughly evaluate the project and its ability to mitigate potential environmental impacts. We trust the multiple State and Federal Agencies involved in preparing the document. Minnesotans trust the DNR to study copper-nickel mining and keep our communities safe. We believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. The environmental review process has been lengthy and thorough; the supplemental draft EIS addresses potential environmental impacts and how to mitigate them. Additionally, we'd like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out – all the more reason to support it. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws – some of the strictest environmental regulations in the country. Minnesota is home to a world-class deposit of copper, nickel, platinum, palladium, and gold. This is an economic opportunity right below our feet that will benefit the state's economy for future generations. PolyMet will produce these metals in an environmentally sound way and generate significant economic activity, expanding and diversifying our economy and creating hundreds of jobs that can support families and sustain communities. We cannot afford to miss this job opportunity. This project would mean 2 million construction hours, 360 full-time mining jobs and more than 600 related jobs – jobs that our state needs. Copper-nickel mining will contribute to the local and state economy at a time when we really need the jobs and economic benefit. Copper-nickel mining will provide millions of dollars in local and state taxes to support our communities and education system. Enough is enough; let's get on with permitting this mine. We want jobs and it's time to put people to work. Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. Based on my review and the level of detail included in the draft EIS it appears that a thorough evaluation of the project and potential impacts has been completed. We live and work in the area that will be affected by allowing PolyMet to get the needed permits to begin operating. We feel that PolyMet has done their due diligence in providing a safe environment for our family and other families in the area to live in. We would like to see the permits needed to begin production provided to Polymet. Sincerely, Ronald and Christine Adams Makinen, MN 55763

Chris and Catherine Pranskatis 54688

See attachment

Chris Bangs 36657

I was born and raised on the Mesabi Iron Range in Chisholm, MN. It was a fine town to grow up in and has been through the highs and the lows that come with any mining operation. I've owned businesses across northern MN for the past 40 years and I have owned recreational land on the Littlefork River north of my hometown since the 70's. I am pro-business and I understand the need for jobs. But I also have a great love and appreciation for the land and waters of our famous "Up North". The costs for these copper mining jobs will come at far too high a price for all of the people of MN. The industry's track record of enviromental damage is long and damning. Too many abandoned mines have been left for other state's residents to clean up at obscene cost levels. Furthermore, this mine is located much too close to the jewel of northern MN-the BWCA, which is a treasure we cannot risk to lose. On its eastern flank lays Lake Superior, the continent's largest source of clean water-which in time may prove to be far more valuable than all the copper below our state's surface. From a business economics viewpoint I'm surprised by how little study has been done on this project. With only 350 jobs being proposed over 20 years and with environmental reparations costs projected to be in the hundreds of millions-why are we even considering this one-sided fiasco of a proposal. I, and many other businessmen, would be happy to propose far less damaging options for 350 jobs at a fraction of the cost to the state that these will become. Please deny PolyMet's permit until a far safer and less intrusive methodology is found and verified to work. Chris Bangs 8846 Pheasant Run Rd Woodbury, MN 55125 Sent from my Verizon Wireless 4G LTE smartphone

Alphabetical by sender's first name

Chris Bollis 46047

DNR I urge you NOT to accept the SDEIS regarding PolyMet for the following reasons I do not think it is in the best interest for the citizens of Minnesota to be responsible for future tax burden as a result of cleanup costs for pollution that will result from poly mets project. The reason I am so concerned about this, in spite of poly met saying that they would be responsible, is that the financial assurances need to remain in place for an extreme amount of time. Financial assurances that need to be in place for 200 to 500 years have not ever been proven. Have there ever been any financial assurance vehicles that have been tested or proven effective for 500 years. I understand that the financial assurance part of this project is actually looked at in the permitting stage, but I strongly feel it is important that it is addressed here as well. The land swap between the forest service and poly met in my mind needs to have its own separate review. The proper amount of time needs to be allotted to this important piece of poly mets project. It cannot be lumped together and hurried through. The use of the national forest has restrictions put on it for a reason. We need to respect that and not put the needs of a corporation ahead of the rights of the citizens of the United States. We were personally involved in a land trade with the federal government. Our land trade took 12 years to go through and it was to trade lakeshore recreational property which was already in use and leased for that purpose. I feel it is a mistake for us to make this trade which would allow non ferrous mining to be done in our national Forrest without a longer period of time for public comment and education on this important change of use. It just does not make logical sense, unless a for profit corporations project does not need to have the same scrutiny as an individual. There is some discrepancy as to the amount of water being released from the project. I would believe the tolerances were put into the model for a good reason therefore it would make sense that the correct numbers be put in and the model be rerun. This is an important part of the EIS. In order to protect our citizens it is only responsible to redo the calculations and do a revision of the model. I am a concerned citizen, who loves this part of Minnesota, and is very troubled by the potential harm this type of mining could bring to northern Minnesota. I believe this harm will not only come to the earth but also would be damaging to the already established tourism environment of that area. This includes businesses as well as cabin owners. The related jobs, as well as construction jobs, taxes and other benefits this tourism economy and vacation home industry brings to the state is sustainable and can be grown. I do not believe that the current tourism economy and vacation home industry could flourish side by side with the nonferrous mining economy which brings pollution and greater industrialization to this unique part of our country. The following are items I would like the DNR to fix in PolyMets mine plan Plan to account for the destruction of moose habitat as well as other natural habitat for the Canadian lynx Plan should call for a detailed plan for financial assurances that protect current and future taxpayers Plan should accurately assess health risks to the public Address the risks of mercury pollution for our children as well as future generations Plan should improve wetland protection and replacements Provide Minnesotans with accurate information about how long polluted waters will require treatment Glencore must be recognized as a responsible party for permitting because of its ties with PolyMet Fix the inaccurate water data used in the model and redo the water model In conclusion it is my opinion that the few hundred jobs and monetary gain for a corporation is not worth the perpetual damage a

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Alphabetical by sender's first name

Chris Bremer 43566

Dear DNR staff, Having reviewed the NorthMet proposal and followed much of the reporting on this issue, I would like to offer the following comments: The EIS states: "Mining would be conducted in three open pits.The East Pit and West Pit would be mined simultaneously through the first 11 years of the mine life .Mining would cease at the East Pit at approximately year 11 and continue at the West Pit until year 20 .The Central Pit would be mined between years 11 and 16 and would ultimately be combined with the East Pit." This is not a long-term jobs program. It only delays the need for development of good, new jobs in that part of the state. We would not offer to have a nuclear waste storage facility in Minnesota just for the jobs - we would want the strongest assurances of safety and even then we might see the risk as too high. And such jobs would last for centuries, not 11-20 years. This is not a safe plan. The plan does not seem to adequately address the consequences of failures of primary water protection mechanisMs Numerous disasters in the US and elsewhere have shown that these systems cannot be trusted to behave as promised, or even as designed. As someone with a child who lived through the earthquake and unnecessarily disastrous Fukushima consequences in Japan, I don't want other parents to have to worry about their children's safety due to the poor decisions of others. Even now, my son (still temporarily in Japan) has to worry about the food he eats. I urge you to take the long view and turn down this application. In addition, this mine would damage the tourism business, including hunting and fishing, reducing long-term jobs in the region and our sense of being connected as Minnesotans by our commitment to our beautiful land and clean, productive waters. The proposed mine is a bad deal for Minnesota, even economically. As someone who is very concerned about the future of middle-class jobs in this state, I urge you to take a pass on this flash-in-the-pan. The EIS states "The monitoring of water, wetland, vegetation, and other resources would continue. Adaptive management would be implemented, if necessary, to protect the environment for the long term." There are no examples of good environmental outcomes related to copper-nickel mining. The checkered history of environmental care on the part of PolyMet's parent company has been terrible. They have not lived up to their promises and they do not inspire truSt I urge you to be the trustworthy ones, and turn this down. As a parent of three young adults who will have to live with the decisions you make, I strongly urge you to do what is best for the future of our land,water, and people. Do not approve the PolyMet application. Sincerely, Christine D. Bremer, Phd 6001 Ewing Ave S Edina, MN 55410

Chris Chiappari 16972

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Chris Chiappari 1937 Fremont Ave S. #2 Minneapolis, MN 55403

Alphabetical by sender's first name

Chris Chiappari 50258

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Chris Chiappari 1937 Fremont Ave S. #2 Minneapolis, MN 55403

Chris Commers 57229

How do we sustain water treatment for 200 years? 500 years? Who will pay for this?I'm trying to find answers to many questions unanswered in the PolyMet proposal to exploit the resources NE of Hoyt Lakes, MN. At this point the DNR should deny the permit application. Do we Minnesotan's really want Glencore (parent co of PolyMet) to bring their show here? Please reject SDIS!Chris Commers14380 County Road 51Norwood, MN 55368

Chris Dahlberg 18175

I'm Jim Hofsommer from Aurora, Minnesota. And I'm ceding my time to Chris Dahlberg, St. Louis County commissioner right where this project is taking place. Good evening, or as we say in Finish (speaks foreign language). My name is Chris Dahlberg. I am St. Louis County commissioner. I'm also the current chair of the natural resource committee. St. Louis County is on record of supporting precious mineral mining. I'm a Finlander-Swede. I'm a fourth-generation Minnesotan. My daughter there is in the back, Mia O'Lene. And one of the things is we have a long tradition of mining up on The Range, and families that are involved in that. And so my great-grandfather Andrew Maki was farming up there 100 years. What I want to say is that it's not only a workplace and play place, but it's our home. And we take care of our backyard, including the environment. And we support mining. We have a process here, it's a solid process, science over emotion. The process needs a resolution. It needs a decision. The reality is that there is some here that just oppose mining. Period. No matter what we say or prove, they're against it. I fear that this process is becoming unreasonably lengthy and burdensome. It has taken longer to get a permit for mining on the Iron Range than it took us to get a man to the moon. And that was 1960's technology. We are allowing nations to hand us our own lunch. We need to unleash America's great workforce, including such people as our building and trades out there and jobless today. In my own district we have a foundry called ME Global. And recently they had an expansion. Great in my district. 50 new jobs. And not only that, how would you like to have an expansion where you had the business ready to go into the future years in? But you know the sad part where that turns, all of those grinders that they're making in that foundry are going off to Mongolia, China. We are letting countries such as China and India take us over. And we need to turn this around. So I'm asking today let's get the permit issued. Let's get jobs going in Minnesota. And let's get precious mineral mining going on the Iron Range for the next 100 years ahead of us. Thank you.

Alphabetical by sender's first name

Chris Davies 39601

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Chris Davies 7087 Eldorado Ct Cannon Falls, MN 55009-5255

Chris Engel 18294

My name is Chris Engel, E-N-G-E-L. My address is 11615 Northgate Lane, technically Pine River, or Cross Lake, Minnesota. We have owned property in central and northern Minnesota for many, many years. I have traveled extensively in the Iron Range area, and particularly as kids. I spent time in the Babbitt/Ely area, and have studied the nearly 2,000 pages of the SDEIS. And for the greater good of Minnesota, including the propagation of new jobs and a more vital northern Minnesota economy, we are absolutely in favor of proceeding with the PolyMet project. We believe it will be a great benefit to the State of Minnesota. Albeit, maybe not to the level of shale oil in North Dakota, but in fact Minnesota needs to start generating our own jobs and generating our own new economy, and revitalizing that northern part of Minnesota. I think it would be of great benefit for us to do it in-house. I think that the Minnesota DNR, Army Corps of Engineers, along with the US Forest Service, and along with the EPA, have done an extensive study. And I believe from what I've read and what I understand, I believe that the project can be done safely and with a minimum amount of negativity towards the environment. So thank you.

42831

See attachment

Alphabetical by sender's first name

Chris Erickson 1776

Dec 10, 2013 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

chris fastner 15405

I would like to express my opposition to the Polymet and Twin Metals mine development being considered near Ely. The proximity to the federally-protected Boundary Waters Wilderness makes this project clearly and simply too risky. Given the track record for this type of mining and the proximity to the BWCAW it would be unconscionable for the state of MN to allow this development to proceed. Sincerely, Chris Fastner 303 Second Ave NW Aitkin, MN 56431

Chris Fleege 47663

I fully support this project and I ask for the state and federal regulators to approve this and move it to the next level. I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet’s project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations. As a person who lives, works and plays in the area, I understand the need to balance use of resources like minerals and preservation of resources such as water and air. I feel this SDEIS lays the proper groundwork for developing an environmentally and economically sustainable project and I wholeheartedly support it. Chris Fleege 4031 Regent Street Duluth, Minnesota 55804 The views and opinions expressed in this message my own. I am solely and individually responsible for the content. This is not intended to represent or reflect anyone else’s views or opinions, including those of my employer, ALLETE, Inc.

Alphabetical by sender's first name

Chris Gordon 19962

To Whom It May Concern, I am resident of the state of Minnesota. I oppose the development of the NorthMet Mining Project. The potential impact on waters that flow into the Boundary Waters Canoe Area as well as into Lake Superior, one of the largest bodies of fresh water is too large to risk. No amount of money can guarantee this protection. In fact, every other mine similar to the one being proposed by PolyMet has left pollution in its wake. Other mines of this nature have destroyed the water habitat and left the land worse off than before it was mined. Even in a water rich state like Minnesota, there are already serious problems with our water table depletion. We cannot risk this incredibly valuable fresh water for a mere 360 temporary jobs. The jobs are here until the mining company depletes all the metals and moves on to the next one. The 5-379 million people of our state and the over 250 million people of our nation far outweigh the 360 permanent jobs created by this mine. This mining company will do what many other companies have done. They will take the resources and destroy the land and water in its path and then leave when they have nothing left to take. This company has no allegiance to our state, our resources, the animals that reside in the area or our people. They care about the money and their bottom line and their shareholders. We need to protect the BWCA and Lake Superior as if they are the precious resources that they are and this means keeping PolyMet away. Please deny PolyMet the right to mine. The costs outweigh the benefits. I oppose the North Met Mining Project. Thank you, Chris Gordon 1240 Thomas Ave Saint Paul, MN 55104 651-338-1493

Chris Haenisch 58104

I understand that we need to mine to get resources and it’s important to find safe and sustainable ways to do that. This proposed project does not sound safe with the 500 year hitch to contain the pollution. What would have happened is the big flood last year occurred after the mining had started, or what will happen when the next 100 year flood occurs. I think Polymet will declare bankruptcy and walk away from any responsibility like they have in the past. I will not support any of the politicians who are supporting this effort.

Chris Hanson 20066

--Original Message-- From: chris@thedatabank-com [mailto:chris@thedatabank-com] Sent: Wednesday, February 26, 2014 2:53 PM To: Fay, Lisa (DNR) Subject: PolyMet's SDEIS is poorly planned and needs to go back to the drawing boaRd Dear Ms Fay: The PolyMet Supplemental Draft Environmental Impact Statement (SDEIS) is fatally flawed, and needs to go back to the drawing board to be fixed. You should not burden the next fifteen generations with toxic water pollution and cleanup costs from a sulfide mine that hasn.t been properly planned. Sincerely, Chris Hanson 10 E Oaks Rd Saint Paul, MN 55127-2511

Chris Heesch 54186

I don’t think the mining project is worth it because it can damage the water. It can also potentially take away camping and canoeing areas. Being an outdoorsy person I would hate for it to damage or take away any of that because those are things I love to do when it’s nice. Thanks for taking your time to read this.

Chris Heeter 38266

Mar 6, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, We are looking at hundreds of years-by PolyMet's own reckoning-of recovery needed in order to re-gain the water quality that we now hAve This is not something we can risk, not a resource that we can replace in any way. Yes, the lure of jobs is strong, the needs are great. And, the jobs that would be created are not from a long view. Not from a place that is sustainable, even for mining in the long run. Please protect us from that place in all of us that wants a quick fix for our economy. Help us stand for something that looks beyond a few decades and on into preserving a treasured area of wilderness that may not ever recover from this meddling-most certainly not in our lifetime or many generations to come. Be bold. Be wild. Protect what speaks to our greater selves. This is not worth the risk. Thank you. Chris Heeter Sincerely, Chris Heeter 1835 Meadowview Rd Bloomington, MN 55425-2455 (763) 479-3954

Alphabetical by sender's first name

Chris Leier 41607

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Chris Leier Minneapolis, Minnesota

Chris Lian 15450

To whom it may concern - As a citizen of northeastern minnesota I am vehemetly opposed to copper mining. The fact that waste water will need to be treated indefinitely(forever) to avoid polluting our waters is a very scary proposition. This project should get rejected due to that fact alone. This is a bad deal for minnesota not only environmentally, but also from a business standpoint. Polymet plans on processing the metals in another state costing jobs in minnesota. This project threatens tourism and property values in the region. I purchased a lake cabin a few years ago and refused to look at property anywhere near this area because of the extreme environmental threats, machinery noise, etc I know I'm not alone. Lake Vermillion has very low calcium levels making it unlikely zebra mussels will have the ability to colonize in its waters. Calcium could leech into this lake via numerous waterways tied to the mine allowing calcium levels to increase to a level that zebra mussels could possibly thrive. This type of mining has never been done safely. There will be contamination. All of this water flows into the St Louis River watershed and into Lake Superior poisoning the water I and tens of thousands of other people drink. Th risk of an environmental catastrophe vs. the creation of a couple hundred jobs is a risk minnesota can't affoRd Please protect this precious area of our state and our basic need of clean drinking water and REJECT this irresponsible mining project. The average Minnesotan is counting on it. Christopher Lian 308 Kenilworth Ave Duluth, Mn 55803 218-724-4763

Alphabetical by sender's first name

Chris Lish 48504

Thursday, March 13, 2014 Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Subject: Send the PolyMet Mine SDEIS Back for Further Analysis as "Incomplete" Dear MDNR Division of Ecological and Water Resources EIS Project Manager Lisa Fay, Regional EPA Administrator Susan Hedman, USACE Regulatory Branch Chief Tamara Cameron, USACE Regulatory Program Manager for Mining Projects Douglas Bruner, and USFS Deputy Forest Supervisor Timothy Dabney, As someone who values clean water and as a former resident of northern Minnesota, I have serious concerns about PolyMet's plans to mine copper-nickel (sulfide) ore in northeastern Minnesota wetlands at the headwaters of streams flowing into Lake Superior as described in the Supplemental Draft Environmental Impact Statement (SDEIS). I have grave concerns about this project's potential impacts on the region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I am also concerned that this risky proposal will set a precedent for how other mines in the Upper Great Lakes will be evaluated, including some within the watershed of the world-renowned Boundary Waters Canoe Area Wilderness. "Our duty to the whole, including to the unborn generations, bids us to restrain an unprincipled present-day minority from wasting the heritage of these unborn generations. The movement for the conservation of wildlife and the larger movement for the conservation of all our natural resources are essentially democratic in spirit, purpose and method." - Theodore Roosevelt This mine proposal does not meet the highest and most protective standards for our water and I urge the Environmental Protection Agency (EPA) to send the SDEIS back for further information and analysis. The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for—information that is necessary to evaluate the environmental effects of this proposal. I also urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. "Our government is like a rich and foolish spendthrift who has inherited a magnificent estate in perfect order, and then has left his fields and meadows, forests and parks to be sold and plundered and wasted." - John Muir The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt Not surprisingly, acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. "As we peer into society's future, we—you and I, and our government—must avoid the impulse to live only for today, plundering for our own ease and convenience the precious resources of tomorrow. We cannot mortgage the material assets of our grandchildren without risking the loss also of their political and spiritual heritage. We want democracy to survive for all generations to com

Alphabetical by sender's first name

Chris McGreevy 46853

Thank you for the opportunity to provide my comments describing what I think are several substantive deficiencies in the Polymet SDEIS. These are my own comments prepared after reviewing the SDEIS. 1- Land Exchange. The proposed land exchange is key to the overall project. I believe there are several problems with the land exchange that are either not addressed or are addressed inadequately in the report. a. The map in the study does not seem to accurately reflect the Hundred Mile Swamp. It does not show the full dimensions of the area and the drainage through Langley Creek. This has several implications for the overall SDEIS. The main one of course is that there is a connection from the Polymet project to the Boundary Waters Canoe Area Wilderness as Langley Creek flows through the Dunka River to the Kawishiwi and on to Birch Lake. Water monitoring and remediation at Langley Creek is not mentioned in the study. The fact that this has been missed, intentionally or unintentionally, call in to question quality of the entire SDEIS. The connection to the BWCAW watershed should also mean increased federal scrutiny of the project. b. The Hundred Mile Swamp which is proposed to be exchanged for is an important wetland supporting wildlife and plant life. The various parcels proposed to be exchanged for the Hundred Mile Swamp are not the same quality of environment or even equivalent wetland. Therefore if the proposed exchange were to go forward, as project runoff flows into the wetland, the result would be an overall degradation of the environment in Minnesota. 2- Air Quality. The portion of the SDEIS that considers air quality impacts considers only direct effects of air quality from the mining project from grinding and tailings pile duSt It does not consider the effect of power generation needed to operate the plant in this area and what effect that would have on the Superior National ForeSt Certainly the amount of power needed to operate this project for Polymet and for expected use of excess processing capacity by Twin Metals would far exceed anything needed for the current population of the area and would have a negative impact on the Superior National Forest and the health of the population. 3- Reclamation. The portion of the study that addresses reclamation states that is “uncertain how long” water treatment would be needed but that modeling shows that at 500 years of treatment, water quality would be within acceptable levels. The section also says that Polymet “would be held accountable”. Later the SDEIS explains, without details, that financial assurance instruments would be created. There are several problems with the lack of specificity in this section. a. There are currently no financial institutions capable of guarantees extending to 500 years. b. Polymet could legally declare bankruptcy at any point in time and could no longer be held accountable in any way. c. Given that the current length of time needed for remediation is unknown, how can any financial assurance be made that could cover any unexpected increase in the amount of time needed for remediation and take into account Polymet’s ability to declare bankruptcy and walk away, leaving the taxpayers of Minnesota to pay for clean up. 4- Unusual Weather Events. The report fails to consider the increasing likelihood of unusual weather events including large volume rainfalls, high winds equivalent to the 1999 blow down, as well as extreme winter temperatures, all of which could cause equipment failures, water runoff surges, and retaining wall failures. 5- Comparative Studies. The SDEIS fails to study the project in the context of other sulfide copper/nickel mines and the overall historical environmental impact as well as the general regulatory compliance history of the companies involved,

Chris Mortenson 7065

I am continually dismayed that our intelligent and technologically savvy society still holds to arcane mineral extraction techniques. This debate is only a replay of the same debate since the inception of environmental impact statement: how much do we need to tweak our outdated mining techniques. Why is there no one in this debate saying we need to develop and implement different mining practices instead of making small changes to outdated techniques. An open pit mine with toxic tailing reservoirs. Really. Is it 1950- If the there is truly the amount of copper and nickel Polymet thinks there is, they should be willing to invest in the research and development necessary to extract the ores in an innovative and environmentally safe manner. Doesn't this also add R and D jobs as well. Chris Mortenson

Alphabetical by sender's first name

Chris Nelson 35947

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt My demand is that a NO VOTE is needed in this issue. How can we continue to trade off our national treasures to allow pollution and to add to a corporations profit. It is not acceptable to allow this mining for PolyMet Mining Corporation. Just another accident waiting to happen. When our water is polluted we have to then attempt to clean it in order to make it potable. Fish and wildlife die because they have no other access. Our lands have been pillaged and raped by big business .enough is enough. This is a NO VOTE so Vote NO.. Sincerely, Chris Nelson 1848 Vassar Dr Naperville, IL 60565-9265 (630) 527-0872

chris nordstrom 41784

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Chris Norman 54819

See attachment

Alphabetical by sender's first name

Chris O'Brien 47310

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Chris Perry 40135

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Chris Perry 447 E Sheridan St Ely, MN 55731-1455 (218) 248-1431

Alphabetical by sender's first name

chris raynr 10703

Dear Sirs: My name is Chris Rayner in Red Wing, Minn. 55066 (651-388-4447). I am in favor of the Polymet mining operation. I think the State has done a good job in vetting this proposal and now it is time to let the company proceed. People who are against the mining have said someone will have to monitor the water for 500 years. I don't think that is true but let's say it is true. Don't we as a society monitor or test water where- ever people settle I know communities around the world test water on a ongoing basis. Look how towns and cities treat their sewage. I feel that Polymet will operate their mining operation in a prudent manner. Sincerely, Christopher Rayner

Chris Robinson 39220

Dear DNR, The maps are wrong and the environmental impact statement is inadequate until the maps have been corrected. While the true One Hundred Mile Swamp is over 10 miles long and drains out of its east end to the BWCA, PolyMet's environmental impact statement maps draw a much smaller swamp less than 6 miles long that cuts off the eastern portion of the swamp, creating the illusion that the mine and BWCA are not connected. Sincerely, Chris

Chris Spenningsby 18129

Hello. My name is Chris Spenningsby, S-P-E-N-N-I-N-G-S-B-Y, and I'm a resident of Duluth, Minnesota and I support PolyMet Project as outlined in the SDEIS for three primary reasons. The first reason I believe the PolyMet Project should advance to the permitting phase is my faith is in the environmental review process. Our country and in particular our state have among of the highest standards for air quality and water quality in the world, and our regulatory and permitting process works as designed. One example of this improvement is the improvements made in the underground containment in water treatment since the original draft impact statement in 2009. The regulating agencies at PolyMet identified an improvement in the process, tested and implemented this new design and now they're able to reduce the projected sulfate level in the wastewater discharge to less than 10 milligrams per liter, which by the way, is 25 percent -- 25 times less than the standard required for discharging water. The second reason I support the PolyMet Project is that mining minerals in our state under our very strict regulatory control is the ethical thing to do. We have already decided as a society that minerals such as copper-nickel are required for modern conveniences and we've collectively have chosen to produce and use them. These conveniences include indoor plumbing, electricity, as well as the 64 pounds of copper and 32 pounds of nickel in aToyota Prius. If the PolyMet Project were not to advance, the world-wide demand for copper that fuels our improvement in the quality of life will still be filled but not under the strict and open environmental review process we're seeing here tonight. Finally, I support the PolyMet Project for the economic benefits documented in this study by the University of Minnesota-Duluth referenced in the environmental impact statement. Economic development in this area creates a future where young people can stay in this area and afford to raise a family and it's not only for the workers and mine, but supporting contractors and those who operate businesses in the area. The economic benefits will also trickle outward to areas such as Duluth, where I live, and down of St. Paul in the form of taxes and because of the strong environmental regulations and oversight in our state, these jobs can exist with the existing jobs in our tourism sector. I would like to thank the DNR, Army Corps of Engineers, US Forest Service, as well as everyone who showed up tonight. In the words of Thomas Jefferson, "Wherever the people are well informed, they can be trusted with their own government." Thank you.

Chris Swensen 42726

See attachment

Chris Timm-Hughes 44060

I am opposed to any new mining in Northern Minnesota. I believe the land should be preserved. Chris Timm-Hughes

Chris Vreeland 5996

I believe the co-agencies have done a very complete job on the EIS. You can't determine all the problems, but I believe they have all the tools in place to take care of any problems that come up. Citizens of Hoyt Lakes have coexisted with mining for 60 years with no problems and with very good working relationships with the companies. I believe the same will be true with Polymet. We need to move forward with precious mining, these are metals we use every day and we need to mine them in a environmentally friendly way. I believe Polymet will do it the right way and this EIS proves that. Sent from my iPad

Alphabetical by sender's first name

Chris Waltz 18242

My name is Chris Waltz. That's spelled C-H-R-I-S, W-A-L-T Z. And my question would be specifically on EIS report. I'm wondering, and I'm not fully sure about the process, but I'm wondering why the MPCA is not involved in that process, and specifically were they excluded from that process? And then the other agency that I was surprised wasn't involved in that process was the US Fish & Wildlife Service, so I'm wondering why those two organizations weren't in that draft EIS report.

18260

My name is Chris Waltz. I had a question specific to the DNR. I'm wondering what assurances they could provide where tailings and other pollutants from the copper-nickel mine would not flow into the Boundary Waters Canoe Area? I didn't feel that was fully addressed in the EIS statement or in at least the executive summary that I read. So, some clarification there on, you know, what pollutants, if any. So far it doesn't seem like any, but just assurances that pollutants won't be running into the Boundary Water Canoe Area. And then a follow-up to that is if the potential would exist that pollutants could run into there, could we have assurances through the financial assurances mechanism to properly fund those pollutants, if they do discharge into the Boundary Waters Canoe Area?

Christeen Stone 16288

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Christeen Stone 39783

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Christeen Stone 2727 Hazelwood St Saint Paul, MN 55109-1158 (651) 777-4864

Christey Sharpshair 41617

Hello, My name is Christey Sharpshair, and I'm taking part in a conference at Gustavis University concerning environmental justice. I have heard about the proposed plan to possibly build and maintain a mine in northeastern Minnesota, and I would like to say that I am against such a proposal. After what I have learned of the effects this project will inevitably have on the environment-and eventually the people-the negative consequences far outweigh any positive benefits on the economy the project might hAve Please look further into ecological ramifications and weigh these damages with the benefits carefully. Again, I propose a stop to this mining project. Thank you so much for reading. Christey Sharpshair

Christiaan Petersen 40273

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Christiaan Petersen PO Box 66926 St Petersburg, FL 33736 US

Christian Nelson 37313

To Whom it May Concern, The proposed Polymet mine has unacceptable risks and therefore should not be approved. 1 generation of jobs is not worth 19 generations (500 years) of clean-up efforts. Not only is this just outright wrong, it's likely not feasible that the money will exist to cleanup something whose value was cashed in 480 years ago. A time-span of 500+ years means catastrophe is not a question of 'if', but rather 'when'. Without clean water an area is uninhabitable. Forever. The risks are simply too high and the gains too small and for too few people. Sincerely, Christian Nelson 910 25th Street Cloquet, MN 55720

Alphabetical by sender's first name

Christiana Wilke 54844

See attachment

Christie Jearmey 18339

Hi, my name is Christy Jearmey, C-H-R-I-S-T-Y J-E-A-R-M-E-Y (phonetic). I am a Hibbing native, born and raised in Hibbing and I had to move away from Hibbing to get an education and job. I was gone for about ten years and was able to get back to the Hibbing area, in northern Minnesota. The Supplemental Draft EIS provides a good portrait, a good picture of the potential environmental and economic impact of the project, but it doesn't soften the impact the project will have on the communities and on the families, and especially the educational programs throughout northern Minnesota. It (phonetic) has been working hard to allow educational opportunities and to allow residents to stay where they live and play in northern Minnesota; something that I could not do. Many of our educational opportunities, such as the science and engineering festivals, the after-school programs, the new post-secondary educational opportunities that are being developed in northern Minnesota are being funded by the area's various businesses. The PolyMet project will provide substantial additional funding to our area's educational programs, which will help the whole state. PolyMet has already been engaged in helping set forth various educational programs for the last five years. This has included the area's new engineering program, a new post-secondary program that just started in Virginia, Minnesota that enables or that allows our young people to stay in northern Minnesota. PolyMet is good for the state and I support this project and the Supplemental Draft EIS. On another note, I have a cabin in Forbes, Minnesota, which is just immediately downstream of the tailings basin. Our lake is full of wild rice. The whole area is full of wild rice. Our cabin neighbors go out and harvest wild rice on the lake and I have friends that come to the lake and harvest wild rice on the lake, before they even knew that I was on the lake. The reason I want to point this out to you is that I want to point out that responsible mining and clean water can become hand in hand.

Christie Milczanowski 58020

I support the no action alternative! The mining of copper/nickel sulfide ores is a toxic type of mining that puts our communities enviroment and local economies at risk… long after the profits' are spent. Please extend the no comment period to 180 days. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Christie Nelson 54818

See attachment

christie white dauphin 10728

As a resident of Minnesota and owner of cabin and 94 acres of land in Fairbanks Township I can only say: there has not yet been a copper nickle mining operation that has not severely polluted the surrounding area of land and water supply. Why not wait. Wait until the science has proven itself elsewhere. Those minerals will not be worth less for waiting. In fact, they will probably be worth more. Talk is cheap. Mining companies want to mine. The people who run them are unlikely to be affected by negative consequences. Water seeps. My recently drilled cabin water well is 40 miles from Hoyt Lakes. My daughter and son are joint owners of this land. Don't destroy the future relying on untested science. Thank you, Christie Dauphin 2853 40th Avenue South Minneapolis, MN 55458 1185 Gabbro Road Brimson, MN 55602

Christina 54530

You know what you're doing is wrong. Stop mining for everyone that is not you!

Alphabetical by sender's first name

Christina Bellert 9886

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Christina Bellert 17064 Saddlewood trail Minnetonka, MN 55345

18648

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Christina Bellert 17064 Saddlewood trail Minnetonka, MN 55345

Alphabetical by sender's first name

Christina Bellert 47001

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Wild Rice is Minnesota's state grain, and crucial for its cultural significance and importance for subsistence of Minnesota's Native Americans. Manoomin (wild rice) is recognized as a significant resource for Minnesota's tribes, access to which is protected by the Treaty of 1854- Even low levels of sulfates are proven to affect wild rice stands, a fact recognized by Minnesota's protective wild rice sulfate standaRd The PolyMet mine plan identifies wild rice beds downstream of the mine and plant, including part of the Embarrass and Partridge Rivers and Wynne Lake. Since sulfate levels in wild rice beds downstream of the proposed mine already exceed the standard, the proposal must demonstrate it "would have an acceptably high probability of not increasing sulfate concentrations in these areas" (p. 5-5). The mine plan does not meet this teSt PolyMet claims they will meet this standard by using water treatment (including reverse osmosis) to eliminate sulfates before wastewater is released. However, the mine plan predicts that 5-2 million gallons per year will seep out without treatment at the Mine Site after closure, and 11 million gallons of untreated water per year will escape the Tailings Basin (5-8). This seepage will surface and enter streams and rivers nearby. The standard to protect wild rice is 10 milligrams grams per liter of water. The waste rock left behind at the Mine Site will create runoff with sulfate levels of 2,000 to 4,000 micrograms per liter after closure, 5 million gallons of which will escape untreated every year. In fact, the SDEIS predicts that many years after closure this could violate the sulfate standard to protect wild rice, requiring additional measures (5-142). The SDEIS is contradictory, on the one hand relying on mechanical water treatment for hundreds of years in order to seemingly meet the sulfate standard, but also describing possible passive treatments that may be developed that would seasonally violate the protective sulfate standards. The EIS should eliminate that contradiction. Lastly, the SDEIS inadequately characterizes wild rice waters downstream of the PolyMet sites. The Great Lakes Indian Fish and Wildlife Council has provided additional wild rice sites other than those included in the SDEIS. The EIS should be revised to include these additional wild rice waters. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I do believe it is important to protect all of our natural resources. Why is one cultures lively hood more important then the others. Native Americans rely on wild rice to supplement their lively hood whether they collect the rice and us it at home or sell it to generate income why is their way to make money not as important and miners. Because there are more miners. Wild rice is a delicate plant and will be impacted by the smallest change in its environment. Not only will Native Americans feel the loss of this plant but there are other impacts on our environment that will result in the lose of this plant. I believe everyone who is able and willing to work should. But we do not have the right to destroy our world to make money. Maybe not everyone can working in the mining industry and live in their home town or town they have grown to love. Maybe workers need to reinvent themselves reeducate themselves for a different career and maybe have to leave the town they love. I would love to live in Ely it is BEAUTIFUL up there but I cannot find gainful employment so I do not live there. I go where I can find work. I even had to reinvent myself because that area I would rather work in the jobs are few and far between. There are areas that and more importantly watersheds that make a greater impact on more then just the area up north. This mini

Alphabetical by sender's first name

Christina Bellert 50723

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Christina Bellert 17064 Saddlewood trail Minnetonka, MN 55345

Christina Diver 57204

I find the SDEIS faulty and inadequate because the proposed plan does NOT protect Minnesota taxpayers.Christine Diver1605 N. Milwaukee, 9BLibertyville, IL 60048

Christina Erickson 4156

Dec 22, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Please do not support Polymet's effort for sulfide mining permits. Sulfide mining threatens the areas of Minnesota that I love most; wetlands, rivers, lakes and streams across the Arrowhead Region. Even our fabulous Lake Superior and the Boundary Waters Canoe Area Wilderness. Acids and heavy metal contamination pollute waters. The industry needed to extract the ore creates garbage, and the jobs it creates aren't sustainable over generations. At that point, we won't have our tourism to turn to either. Refuse to accept Polymet today, and keep our natural areas safe, for us and for the future. Todd and Christina Erickson The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Christina Erickson 1764 Simpson St Saint Paul, MN 55113-6261

Alphabetical by sender's first name

Christina Erickson 51605

Dec 22, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Please do not support Polymet's effort for sulfide mining permits. Sulfide mining threatens the areas of Minnesota that I love most; wetlands, rivers, lakes and streams across the Arrowhead Region. Even our fabulous Lake Superior and the Boundary Waters Canoe Area Wilderness. Acids and heavy metal contamination pollute waters. The industry needed to extract the ore creates garbage, and the jobs it creates aren't sustainable over generations. At that point, we won't have our tourism to turn to either. Refuse to accept Polymet today, and keep our natural areas safe, for us and for the future. Todd and Christina Erickson The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Christina Erickson 1764 Simpson St Saint Paul, MN 55113-6261

Christina Klein 44142

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs Christina Klein Place de l'Europe Esch-sur-Alzette, None 4112

Alphabetical by sender's first name

Christina Krauz 38781

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Christina Mullozzi 42228

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Christina Munko 40899

Mar 9, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Christina Munko 1000 Ivy Hill Rd Philadelphia, PA 19150-3232 (724) 594-6948

Alphabetical by sender's first name

Christina Rarick 39791

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Christina Rarick 424 Monroe Ave S Hopkins, MN 55343-8456

Christina Sand 45456

Mar 12, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, After attending the St Paul PolyMet hearing, doing research on sulfide mining as PolyMet itself, and reading some of the environmental sections of the EIS, I am deeply concerned with the risks and inevitable damages that would occur from the proposed North Met project. As a college student, I am constantly thinking of the future and the world that I someday hope to bring children into. I want them to know the untarnished BWCA as I do. I understand that we have a desire to continue to to obtain the resources that reside at the proposed mine site , but hope instead we can focus Minnesota's time and energy and commitment on sustainable resources that will continue to provide for us into the future. This mine project is a risk and PolyMet's attempted promise for 500 years of tending to the site is seriously beyond their control- that promise extends farther into the future than our nation's history does into the paSt I cannot trust PolyMet and neither can MN. We should not be risking the beauty and purity of the BWCA and the water that sustains many people residing there. I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. This earth is not ours to destroy, and many generations to come will look to the decision that is made on this project to determine our commitment to preserving the environment and a love towards them. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Miss Christina Sand 28407 County Road 176 Freeport, MN 56331-9730

Christine 39344

Sent from my iPad Hello we are in support of the PolyMet project. This would be good for the Iron Range, by creating jobs so people could stay and work here. We believe this could be done without hurting the environment .Brad Nosie Chris Nosie 6150 Hwy 73 Chisholm Mn 55719

Christine Ahmann-Maples 38956

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Christine Ahmann-Maples 541 Warner Ave S Mahtomedi, MN 55115-6837 (612) 709-7581

Alphabetical by sender's first name

Christine Beckwith 16399

Feb 19, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I grew up in Northern Minnesota near the site of this mine. I understand first hand how dependent the people of that region are on mining as a way of life. That dependency sometimes impedes good judgement as there are not many opportunities to positively impact the economy. Environmental laws exist to protect our natural resources, especially when good judgement is impeded by the prospect of short gain. So I as a former resident of the iron range, and as a current resident of Minnesota and as a US citizen, I get to have a voice on this. These mines represent reckless greed and a complete disrespect for future generations living in northern Minnesota as well as throughout Minnesota. I also urge the SDEIS to fully address the long term financial plan to treat water in perpetuity as well as incorporate a cost benefit analysis which takes into account irreversible impacts to the BWCA. Sincerely, Mrs Christine Beckwith 9243 Avalon Path Inver Grove Heights, MN 55077-4431

Christine Cole 18353

I am Christine Cole. I am giving my time to Matt Tyler.

42598

See attachment

Alphabetical by sender's first name

Christine Frank 16700

Feb 18, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

43119

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Christine Frank 115 2nd Ave S #714 Minneapolis, MN 55401

Alphabetical by sender's first name

Christine Frank 43190

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The lack of health impacts in the document from exposure to toxic heavy metal contamination, the inhalation of mesothelioma-causing asbestos fibers, the drinking of acidic water, and breathing fugitive dust and other forms of air pollution is inexcusable. All of these are unacceptable risks which no one should have to bear-either mine workers or those living in surrounding communities or on tribal lands. Given that the chemical body burden of the average adult in industrialized society is some 250 chemical compounds, no one can afford further contamination of their mind/body. This is especially true for children, who suffer even higher concentrations. PolyMet needs to go back to the drawing board on this point. For the sake of human health now and in the future, there should be no hard-rock, metallic sulfide mining in Minnesota whatsoever. Sincerely, Ms Christine Frank 115 2nd Ave S Apt 714 Minneapolis, MN 55401-2060

43524

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The financial assurance section of the SDEIS is inadequate and needs to be changed to reflect details about how much money would be required to pay for cleanup and in what form it would be held. In 2010, the US Environmental Protection Agency called PolyMet's first draft Environmental Impact Statement "inadequate." One significant reason was that the 2010 DEIS did not show that financial assurance would be enough to cover the cost of long-term water treatment at the site. "EPA believes that the adequacy of financial assurance for these activities could make the difference between a project adequately managed over the long-term by the site operator, or an unfunded or underfunded contaminated site that becomes a liability for the federal government and the public " As your revise the SDEIS, please take the following actions: 1) Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs in the current draft 2) Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for hundreds of years of water treatment 3) Identify other responsible parties (eg major investors like Glencore) that will be held responsible for long-term cleanup should PolyMet go bankrupt or be unable to meet their obligations 4) Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation for the what would constitute adequate treatment Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. With acid mine drainage expected to be virtually in perpetuity (Roman mines in Great Britain have been exuding acid seepage for 2,000 years), the price tag for water treatment will be practically insurmoutable. Once a mine is exhausted, the usual behavior of most mininng companies is to file bankruptcy, then cut and run without so much as a by your leave, leaving taxpayers to foot the bill. The EPA is now coping with numerous SuperFund Sites, costing billions in clean-up especially in the WeSt I have family in Colorado, which has 30,000 abandoned mines, affecting 1,300 miles of streams and know first hand what this is like. Additionally, the US Forest Service estimates that there are 20,000 to 50,000 mines on Forest Service land that have negatively impacted 8,000 to 16,000 kilometers of streaMs The inevitable pollution of Superior National Forest land and the St Louis River Watershed would be adding to these tragic statistics. My folks reside on the Western Slope of the Rockies. When we drive up into the San Juan Mountains, we can see from the highway the yellowboy staining the streambeds bright yellow, orange, and red from the numerous mines along the way. The notorious Summitville Gold MIne is by far the worst disaster in the San Juans. Origially a shaft mine in the 1870s, open-pit mining of gold was initiated by the Canadian firm, Summitville Consolidated Mining, in the 1980s, using cyanide heap-leach techniques for extracting low-grade ores, the high-grade stuff having played out in the 1950s. The irreplaceable alpine tundra ecosystem was blasted and stripped away, now gone forever. Due to a damaged pond liner, which the sloppy, cheap-ass company failed to have properly repaired, there was a massive release of toxic metals and cynaide along with highly acidic waters into the Alamosa River in 1991- As per usual, the mine owner declared bankruptcy and bolted, forfeiting the $3 million bond it had put up. Clearly, money is no guarantee of preventing such a cataclysm. With the pH level of 3-0 to 4-0, the water was the equivalent of vinegar or battery acid. Either way, nothing can live in that environment. The result

Alphabetical by sender's first name

Christine Frank 43754

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Clearly, mining of any sort is a highly energy- and carbon intensive industry especially when it is powered by filthy fossil fuels. Jobs from such an enterprise can hardly be called green. To engage in this type of dirty production is suicidal. We have already passed a crucial tipping point with the extreme loss of Arctic Sea Ice, which has upset Earth's heat balance to such a degree that the temperature gradient between the poles and the equator has decreased. This has resulted in an altered Jet Stream and weather fronts that get stuck in place and last for weeks on end be they heat waves, droughts, or deep freezes. A weakened polar vortex due to human influence on Arctic conditions has resulted in prolonged periods of bitter cold in the temperate zone of North America unlike any previously experienced in the second half of the 20th century. That occurred this year while the globe as a whole just experienced its hottest January on recoRd For the sake of the climate and the security of future generations, there should be no hard-rock, metallic sulfide in Minnesota whatsoever. Sincerely, Ms Christine Frank 115 2nd Ave S Apt 714 Minneapolis, MN 55401-2060

Alphabetical by sender's first name

Christine Harshman 16034

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Christine Huff 38904

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, Please protect Lake Superior. You have influence that most of us do not. Please use that influence to help protect the future for our children, and their children. I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Christine Huff 1472 Minnehaha Ave W Saint Paul, MN 55104-1911

Christine Oliver 5908

Dear Ms Lisa Fay, This is not the right thing for our state. Our northern lakes and forests are the most invaluable resource we have in this state, this proposal has a high, high risk of contaminating these significantly. How are we considering letting any company, not to mention a brand new company with no formal experience in this type of mining, start a project that we already know, even barring any emergencies, would need 500 years of follow up. Who will pay the price if we cannot miraculously keep this company solvent and in charge of this for the next half millienium. Incidents such as what just occurred on West Virginia's Elk River might be a reminder to us of the potential for things to go array, and again, this situation is even at its onset problematic. Thank you, Christine Oliver 3224 Colfax Ave S Minneapols, MN 55408 US

Alphabetical by sender's first name

Christine Ordemann 39978

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Christine Ordemann PO Box 68 Lutsen, MN 55612-0068 (218) 340-6773

Christine Pikala 9909

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Christine Pikala 4825 34th Ave So. Minneapolis, MN 55417

Alphabetical by sender's first name

Christine Pikala 18679

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Christine Pikala 4825 34th Ave So. Minneapolis, MN 55417

50753

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Christine Pikala 4825 34th Ave So. Minneapolis, MN 55417

Alphabetical by sender's first name

Christine Tendle 39813

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Christine Tendle 2435 Brenner St Saint Paul, MN 55113-1002

Christine Umhoefer 44381

Dear Ms Fay, I realize all of you will most likely be long dead and gone by the time the damage to our environment because of the copper mines will start affecting the residents of Minnesota, and everyone else who loves the beauty of this beautiful place. And no one will remember your name, and that you were part of the problem, and that you abdicated your responsibility to the citizens and the environment. Maybe you do not care about future generations, including your own. Maybe you have been given rewards for caving to large corporations. Maybe you have not read the science reports detailing the damage these mines will do. Maybe you figure it's too hard to stand up to powerful corporations. The list of reasons for your supporting the mine are numerous, and I believe all of them lack credibility. I live on White Bear Lake. The lack of oversight and the DNR's obligation to protect our environment is clearly visible on this lake. It will affect thousands of people economically, recreationally, and in as yet to be determined other areas. There is a lawsuit pending because of the past failure of the people who are the face of the DNR. There are excuses and double talk. It will cost the taxpayers of Minnesota millions by the time it is finished.. This is nothing compared to the mistake the DNR is currently contemplating making regarding mining. The copper mines are an even more serious environmental issue, negatively affecting the entire state, not just one small lake, hundreds of years into the future. Please read the objective science and have the integrity and courage to do the right thing for all of Minnesota. Fight those in the state government who do not have the wisdom to make the intelligent decisions. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely Christine Umhoefer Christine Umhoefer 49 peninsula road Dellwood, MN 55110 6514264040

Alphabetical by sender's first name

Christine Umhoefer 44507

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Christine Umhoefer 49 peninsula road Dellwood, MN 55110

Christine Underdahl 40187

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Christine Underdahl 2205 Dunedin Ave Duluth, MN 55803-2226 (218) 724-6509

Christopher Apriori-Mendoza 41154

has shown a history of environmental neglect. I used to travel the boundary waters with my father, and hope to do so oneday with my daughter. What is being proposed in unacceptable. As a student of Economics, I understand your reasoning, but think you logic in pursuing the mining project do not take the natural aesthetic and environmental resource is will at the expense of. please do not allow PolyMet to pursue mining anywhere near the BWCA/Quetico.

Alphabetical by sender's first name

Christopher Berger 54529

I'm interested in learning about existing copper mines, their environmental impact statemetns and how successfully each has avoided environmental pollution. I believe this background should be included in the PolyMet EIS as it is representative of actual and likely outcomes.

Christopher Boyd 42080

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Christopher Boyd Minneapolis, Minnesota

Christopher Carlson 15749

See attachment

41846

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Christopher Carlson Minneapolis, Minnesota

Alphabetical by sender's first name

Christopher Childs 38645

Comment on the Northmet SDEIS; CO2e and climate concerns While the planet as a whole just experienced the fourth warmest January on record, Minnesotans froze in near-zero temperatures quite possibly the (outwardly ironic) result of imbalanced heating of the Arctic and the more slowly-warming temperate zone, a likely greenhouse-effect-related imbalance that may have impacted the strength and flow of the jet stream, sending unseasonably cold air south from Canada. And yet Minnesota is contemplating the permitting of a mining facility that not only puts both its immediate and regional environment at demonstrated risk - no sulfide-mining operation anywhere having succeeded in demonstrating that it could operate without eventually causing acidic discharge - but which all by itself, as stated in the Polymet SDEIS, is estimated to increase the state's annual combined direct and indirect output of greenhouse gases by nearly half of one percent (0-44 percent; SDEIS 5-2-7, p. 5-430). That is an enormous cumulative quantity of emissions for a single facility. It is also likely an understatement, given - to name just one reason -the potential overall damage to the biota likely to result from such a facility, and the seemingly casual, neatly rounded estimate (10,000 mtpy of CO2e; Table 5-2-7-8) given for terrestrial carbon loss. The potential loss is much higher, and it should be quantified in detail under a worst-case scenario. The industry website HYPERLINK "http://minecost-com"minecost-com shows values for kg of CO2 directly released onsite per kg of copper produced that run as high as 10 to 1 (<http://www.minecost-com/carbon.htm>). Polymet estimates an output of 36,000 tons (cited at <http://www.northernwilds-com/pages/Explore/perich/understanding-polymets-proposed-copper-mine.shtml>; = ~32,760 tonnes) of copper annually from the proposed mine; a precautionary approach would use the highest demonstrated value for emissions, yielding a figure of up to some 327,000 tonnes of direct onsite CO2 releases per year, compared to the SDEIS value of 196,341 mtpy (Table 5-2-7-8). Why use worst-case scenarios, and why take a precautionary approach. For the well-known reason that ninety-seven percent of credentialed climatologists are now telling us that climate shift - with the potential for medium- and longterm climate shock - is underway, is caused by anthropogenic emissions of greenhouse gases, and may lead to a rise in global average temperatures sufficient to cause the death of millions of people and to disrupt the very basis of human civilization. Most agree, given that most models have thus far proved conservative when compared to real-world events, that temperature rise in this century is more likely to be toward the high end of the range estimated by the IPCC - likely to run to four degrees Celsius or more - than toward the low end. Do we need a continuous output of copper. Of course we do - ironically, on one level, to continue the advance of clean energy technologies which rely on a steady supply of this metal. What we do not need is copper produced in ways that undermine a core intent of clean energy-production, and energy efficiency, methods: vastly reducing our output of GHGs. We need major advances in copper recycling and advances in technologies that allow for the replacement of copper with alternatives, and/or the use of less of a raw material that is becoming increasingly precious - and increasingly risky to produce. Polymet's plans - and the analysis of those plans - are useless in the pursuit of these essential aiMs Future generations of Minnesotans and future generations everywhere on the globe will look back upon us as either those who, in the face of overwhelming evidence that the earth was being put at gross risk by our addiction to out-of-date, carbon-emitting technologies, elected to take out an insurance policy for the planet or as those who failed to do so. We insure our homes against fire not

Christopher Davidson 16256

Feb 20, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. The Boundary Waters is one of our most precious resources. Do not allow PolyMet to degrade it. Thank you, Chris Davidson Hennepin Ave, Minneapolis, MN Sincerely, Mr Christopher Davidson 3411 Hennepin Ave Apt 11 Minneapolis, MN 55408-3800 (612) 270-6635

Alphabetical by sender's first name

Christopher Delp 7733

Greetings, I am a physician from Duluth who just wants to respectfully voice my opposition to the proposed mining plans. Health issues including air born mercury and asbestos fibers were not seriously evaluated with the first draft EIS and not with this supplemental draft either. The first draft EIS was judged inadequate by the US EPA. As a physician I see first hand the increase in the cancerous mesothelioma in the taconite industry. Polymet has never run a mine-they are a fronting corporation for Glencore which has a rich history of environmental damage. Tailings will go on top of existing taconite tailings in one of the mine pits. Discharge from a number of pits on the range already exceed standards for a number of heavy metals including the pit Polymet will use. Polymet is maintaining that a limestone base and synthetic liner will contain discharge for at least two hundred years (the point in their modeling at which time the contaminated water can be expected to get no worse rather than the contamination subsiding to safe levels). Toxic levels of copper in the pit leachate are modeled to persist for 500 years. Any overflow of the pit will dump this into the Embarrass and Partridge rivers and hence into the St Louis. Groundwater flow from the pit into the underlying aquifier are not adequately addressed in terms of both hydrology studies and planned monitoring of local wells in the event the mine proceeds. I am asking you to protect all of us and the future of Minnesota in this regard Thank you Chris Delp

Christopher Lish 17366

Feb 17, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As someone who values clean water and as a former resident of northern Minnesota, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. "Our duty to the whole, including to the unborn generations, bids us to restrain an unprincipled present-day minority from wasting the heritage of these unborn generations. The movement for the conservation of wildlife and the larger movement for the conservation of all our natural resources are essentially democratic in spirit, purpose and method." - Theodore Roosevelt PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. "As we peer into society's future, we-you and I, and our government-must avoid the impulse to live only for today, plundering for our own ease and convenience the precious resources of tomorrow. We cannot mortgage the material assets of our grandchildren without risking the loss also of their political and spiritual heritage. We want democracy to survive for all generations to come, not to become the insolvent phantom of tomorrow." - Dwight D. Eisenhower Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. "Every man who appreciates the majesty and beauty of the wilderness and of wild life, should strike hands with the farsighted men who wish to preserve our material resources, in the effort to keep our forests and our game beasts, game-birds, and game-fish-indeed, all the living creatures of prairie and woodland and seashore-from wanton destruction. Above all, we should realize that the effort toward this end is essentially a democratic movement." - Theodore Roosevelt I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise." - Aldo Leopold Thank you for considering my comments. Sincerely, Mr Christopher Lish PO Box 113 Olema, CA 94950-0113

Alphabetical by sender's first name

Christopher Mortenson 41656

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Christopher Orcutt 42067

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Christopher Orcutt Saint Paul, Minnesota

Alphabetical by sender's first name

Christopher Panayi 42481

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Christopher Panayi 4 Devon Lodge Carlton Hill Brighton, None BN2 0HF 447966483031

Christopher Ruth 40881

Mar 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Christopher Ruth 1611 8th St SE Apt 304 Minneapolis, MN 55414-2373 (201) 403-5186

Alphabetical by sender's first name

Christopher Stauthammer DVM 44608

I am deeply concerned and now motivated to express my concerns and frustrations with your organization in how the mining proposal has been handled. I have always been a proud supporter of the DNR believing that the organization really protected our environment and natural resources. I have lived in many different parts of the US, and by far MN is the best when it comes to our outdoor environment. I incorrectly attributed this to the DNR. Until now, I gladly gave to the DNR with supporting the nongame wildlife fund, environmental plates, Conservation Volunteer and supported many of the hunting and fishing initiatives. I will now be shifting my financial support to organizations that actually function to protect our environment as the DNR disgusts me. I live in the twin cities, but I travel often to the Superior National Forest and the Boundary Waters. These locations are truly magical and need to be protected. It is amazing to see lakes covered in wild rice and to see threatened species such as moose, lynx, fishers, etc After reading your mining environmental statement, I believe that it will be destroyed as you do not go far enough to ensure its protection. How are we going to pay for the 500+ years of clean up needed after the mines have gone in 25 years. You know as well as I know that the mining companies are not going to, which means that the people of MN will be left with the bill. What a terrible thing to leave for the future 4-5 generations of MN. Let's think of them for once and not give into the "me" generation who only care about the here and now. The cleanup costs far out way any financial employment gain that mining will bring. My other concern is about the wild rice and sulfate. It is clear that we do not fully know about the danger of sulfate to the wild rice. I wanted to read the reports from the EPA before commenting here but they have not been released. Despite key information that will impact sulfate mining, the DNR has decided to ram this proposal through instead of waiting for the data. This action tells me that the DNR does not care about the science. We need to know what such mines will do to the wild rice. I do not understand how we can even consider such proposals until after the EPA has determined sulfate and sulfide standards. I am sure that we will get this mine regardless of the cleanup and environmental concerns. I am also sure that the DNR will act surprised when the State is stuck with the bill or when there is a major catastrophe and the BWCA is polluted. I see it all of the time when it comes to the environment, ie BP and the Gulf oil spill. To summarize my letter of concern, I request that the DNR look into identifying methods to ensure that the mining companies will pay for the 500 years of estimated clean up. The DNR should see such funds are put in place before any mining can begin. I also request that the DNR analyze the environmental impacts on wild rice, and threatened species (moose, lynx, fishers and loons). As part of this analysis, the DNR needs to look at what impacts would happen if there is a major spill of contaminated water into the surrounding watershed. What would this spill do the fragile waterfowl population. What measures will be in place to limit the damage of such a spill and what methods and associated costs will be in place to promptly address the contamination. I also request that the DNR analyze what the mining will do to tourism as no one wants to camp or visit a polluted waterway or foreSt The regional income is highly dependent on tourism both from the state and nation. What is the projected loss of tourism income when the mine opens and if there is environmental contamination. Thank you for your time. Christopher D. Stauthammer, DVM Faculty Member of the University of Minnesota

Alphabetical by sender's first name

Christopher T Loch 16503

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Christopher T Loch 6145 15th Avenue South Minneapolis, MN 55423

49957

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Christopher T Loch 6145 15th Avenue South Minneapolis, MN 55423

Alphabetical by sender's first name

Chuck Corliss 18284

Chuck Corliss. My concern is that there is a discrepancy between the number of years that we see on the modeling of 200 or 500 years, but I don't understand why they can't do testing of the ground materials to a level where they can tell us more definitively if we are dealing with a pollution containment for 60 years or 80 years, or if in fact it could be for 500 years. And even though we have asked the questions to several people here today, the answer is they don't know. And I have a significant concern with continuing with the project if in fact it has centuries' worth of cleanup associated with it. And we would hope that the state would ask a more definitive timeline on how long the cleanup would take through some sort of testing procedure. That's it.

Chuck Dixon 17334

The Boundary Waters Canoe Area Wilderness is a national treasure, just like the Grand Canyon. The BWCAW is the most pristine wilderness area on the planet. The residue left behind by copper mining seeps into the water, kills plant life, fish and wildlife. In a very short period of time, copper mining will ruin 500 Years Of Echo System. There are several mining companies ready to start mining in this area. As soon as one gets permission to begin mining, the other mining companies will be right behind Poly Met Mining Inc. All of these mining companies are not even US COMPANIES. They are for profit organizations and once they are given the green light, they will destroy this Pristine Wilderness Area. I implore you to take a stand, against allowing the mining companies, anywhere near, any waterway, tributary, steam connected to or running into a Boundary Water Area Lake Or Waterway. Several decades ago, one man stood up against a rich and powerful man, who wanted to dam up this area, to create hydro electric power, for the sole purpose of selling it and making even more money. Something's are worth more than money. The peaceful, pristine, soulful wilderness area, called the BWCA is one of them.. On behalf of my children, their children and your great, great, great grandchildren; PLEASE, SAY NO TO THE MINING COMPANIES SAY NO TO BIG MONEY . Carry on the legacy of the man who originally saved the BWCA. You are in a position to make a decision regarding this matter. On behalf of all of us and future generations, make it a good one. Thank you. P.S. Please forward to Lisa Fay, EIS Project Manager , too. Charlie R Dixon Rochester MN 55901

Chuck Engel 54587

See attachment

Chuck Fitzer 47368

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. I'm surprised the State of Minnesota would even consider this project. It provides relatively few jobs for a couple of decades, which will not rejuvenate the economy in the area. In the meantime, the pollution will wreck the environment and not be cleaned up till long after our grandkids are gone. Sincerely, Mr Chuck Fitzer PO Box 537 Center City, MN 55012-0537 (612) 419-8006

Alphabetical by sender's first name

Chuck LeGros 45349

I am writing to comment on the SDEIS. I am amazed that we would even consider something that will require careful monitoring and oversight for 500 years. I will write about 3 concerns: clean water, sustainable jobs and long-term oversight and accountability. 1- Clean Water. What is the plan for catching and monitoring all water exposed to sulfide tailings for 500 years given fractured bedrock and fluctuating water tables. How does a mine that needs hundreds of years of monitoring comply with Minnesota law that requires mines to be maintenance free at closure. Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Extend the water pollution model and account for changing water tables and fractured bedrock. 2- Sustainable Work. Jobs are so important in our state and especially in Northern Minnesota. I am concerned that the jobs generated will be short lived, largely utilize imported workers and be divisive in the communities we hope to support. Demand that Polymet and Glencore produce documentation about the numbers of local jobs they expect to produce; to describe how they will train and protect Minnesota laborers, how they will protect existing economies (wild rice, winter and summer tourism, fishing) that depend on clean water, silence, low light pollution; to describe methods for enhancing sense of community rather than creating tension and hostility that we see over and over in communities (most recently in our neighbor North Dakota) where new mining industry disrupts and does extensive damage even while providing jobs to a relatively small number of local workers. Demand that Polymet describe and include local jobs produced by the ongoing provision of water safety. Demand that the financial assurance includes funds for those important jobs. 3- Assurance. The financial assurance and contingency plans are inadequate for what we know will be needed let alone what we cannot foresee at this moment. Accidents happen everywhere and in every phase of the mining operation, every mine has had a longer window of reclamation than anticipated. There are way too many ways for Polymet, Glencore and Tony Hayward to reap the benefits, take them out of Minnesota and not assume responsibility for what is left behind for those of us in Minnesota to live with. Demand that the financial assurance is based on realistic predictions based on accurate worst case water table models and fractured bedrock; that Glencore and other large investors are named and held responsible for the financial assurance for 1) mine clean up; 2) water quality maintenance over the projected 500 years of necessary monitoring and treatment; 3) for other environmental disruptions that will occur and for accidents and inevitable problems that were not anticipated in the SDEIS. Minnesota has the opportunity to set a new standard for mining operations. This not only protects the largest body of clean water in the world but also will provide precedence- Chuck LeGros Office: 612-824-2282 Cell: 612-670-3507 EM: LeGrosSci@aol-com

Chuck Nelson 9590

PolyMet Comment We in Minnesota are fortunate to be living in a land of scenic beauty, a land with water resources second to none. For more than a century we acted as though the number 10,000, as in 10,000 lakes, was close to infinity. Only now do we understand our water resources to be both vulnerable and limited. Today we have seen the most optimistic mining and processing proposals put forth by PolyMet. They have put on them the best face that they could conjure up, and it is ugly. Twenty years of jobs for a few, followed by centuries of danger or worse. We would be fools to permit this exploitation. As an alternative to mining sulfide rock we could establish a better jobs program by fostering a metals recovery operation that would mine valuable metals from our electronics trash. Engage the electronics manufacturers in the processing, for they certainly know where the metals are to be found in the devices they have made. Locate this facility away from vulnerable water resources. May our decision makers be wise enough to understand the serious environmental threats. May they be generous enough to forgo short term gains while protecting long term treasures. May they have appreciation for the beautiful. Sincerely, Chuck Nelson 2694 Apache Road North Saint Paul, MN 55109 Sent from my iPad

18235

My name is Chuck Nelson, C-H-U-C-K, N-E-L-S-O N. We in Minnesota are fortunate to be living in a land of scenic beauty; a land with water resources second to none. For more than a century, we acted as though the number 10,000, as in 10,000 lakes, was close to infinity. Only now do we understand our water resources to be both vulnerable and limited. Today, we have seen the most optimistic mining and processing proposals put forth by PolyMet. They have put on them the best face that they could conjure up, and it is ugly. Twenty years of jobs for a few followed by centuries of danger or worse. We would be fools to permit this exploitation. As an alternative to sulfide rock mining, we could establish a better jobs program by fostering a metals resource recovery operation that would mine valuable metals from our electronics trash, engage the electronics manufacturers in the processing for they certainly know where the metals are to be found in the devices they have made. Locate this facility away from vulnerable water resources. May our decision-makers be wise enough to understand the serious environmental threats; may they be generous enough to forego short-term gains while protecting long-term treasures; may they have appreciation for the beautiful.

Alphabetical by sender's first name

Chuck Spindler 42680

See attachment

Chuck Viren 58163

What was happening 500 years ago? What will the world be like 500 years from now? A little over 500 years ago, Columbus crossed the Atlantic. No one could envision what the world would be like today. No one would be willing to take responsibility for the effects of their actions 500 years in the future.Yet somehow, PolyMet seems willing to take actions that will impact the environment for at least 500 years. Are they willing to guarantee the results at their actions for the next 500 years? Is the state?This project is [ILLEGIBLE] inaccurate, [ILLEGIBLE] beyond belief. And it must be stopped.

Chuck Zeugner 43704

HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us Lisa Fay, EIS Project Manager DNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 RE: PolyMet SDEIS Response To whom it may concern: My wife and I own property near Ely, Minnesota. We spend several weeks each year in the area. We are building a home and plan to reside there year round. We are already employing several local people and our presence there will continue to increase the tax base and economic viability of the area. However, our plans are threatened by the proposed mining activity. I am strongly opposed to the proposed PolyMet project, and I believe that the PolyMet SDEIS is inadequate. I share the concerns of many other people, whether residents of the North Woods, citizens of Minnesota, regular visitors or occasional tourists. There are individuals far more competent than I that have repeatedly addressed the inadequacy of the SDEIS economic impact analysis, the failure to address the consequences of creating a mechanism that will produce a permanent source of pollution in important watersheds, and absence of contingency planning in the event of accidents or unanticipated system failures. Further the SDEIS does not adequately account for opportunity costs for displaced activity, or for the value of intangible, but significant items such as tribal rights to hunt, fish, and gather. I would like to address several other important issues. The first is that the Arrowhead Region is an incredible treasure in its own right. While it is easy to focus on the value of the copper below ground, it is even easier to ignore the value of clean air and water. As easy as it is for the people that live in the North Woods to undervalue these resources, it is even easier for outsiders. The history of colonization is not pretty. Historically, whenever outside entities come into areas to exploit resources, the trade is unequal. This project is no different. Copper is an important resource. However, so too are the other resources in abundance in the North Woods. However, this is not a simple trade. Mining the copper, which provides a short-term benefit will permanently diminish the value of the other resources of Northern Minnesota. Further complicating the economic analysis is that the positive economic impact of the mining will be temporary within the region while the costs will be long term. At the same time, the abundance of wealth derived from the copper extraction will be taken away from Minnesota to benefit companies and individuals elsewhere. The basic calculus of the mining project is arguable. However, assuming that there will be no accidents, system failures, or unintended consequences should be a fatal flaw in any analysis. Any list of these things would be very long, and the economic consequences would be uncountable. A third significant issue is that of financial responsibility. Even the most ardent supporters of the PolyMet project acknowledge that there will be environmental impacts, and the SDEIS purports to describe the remediation efforts that will be made to mitigate the damage from those impacts. Indeed, Generally Accepted Accounting Principles (GAAP) require firms to account for restoration costs in their financial statements. However, there are three important unanswered questions. The first question is what constitutes remediation or restoration. It won’t be possible to eliminate the pollution or to put the rock back. The second question is whether the ultimate cost of those mitigation efforts can be estimated, and the third question is whether PolyMet or a successor company will even be around to perform the remediation or restoration. Leaving aside the speculation about business practices in extractive industries, consider whether any major organization, business or government, can make promises about things that will happen at some point in the future. I

Alphabetical by sender's first name

Ciara Cagemoe 4953

Dear sirs/ma'ams, I ask of you, please do not let them mine in Minnesota. I know you are probably getting a lot of contacts from people saying this, but I agree with this and am saying it to. Please, please please do not let anyone mine in Minnesota. We don't need to, it would harm the wildlife(they say it wont but oh…it will. And then it'll be too late.) and it would be extremely expensive, money we could use for other things. Just, please don't let them. We don't need these minerals. We think we do, but to survive, we don't need them. We just need food, water, and shelter. Our wildlife on this planet and in our state is amazing and beautiful, and in order to mine you'd have to destroy pieces of it, unique pieces of it like no other and displace tons of animals homes. If everyone keeps taking pieces of the wilderness away, some sad, horrible day, maybe it won't exist. And then we'll be doomed without oxygen. And what? All for our selfish needs and money? Money creates many unwanted emotions and behaviors that hurt people, other animals and the environment. So, please just don't mine. Not here. (Although, I'd prefer not anywhere on our planet but people obviously won't go for that. Not until we mine asteroids or something..) Also, I do not think there should be a wolf hunting season here currently. The hunting of animals for fun is….not very nice. Plus wolves just got off the endangered species list, they deserve time to repopulate and all that. In the past we over hunted wolves…we don't want to repeat that. Thanks for taking the time to read this. Yours truly, A citizen of Minneapolis

Cindy & Tom Edberg 6425

My address is Tom Edberg 34337 Forest Blvd Stacy, Mn 55079, thank you. From: *NorthMetSDEIS (DNR) [mailto:NorthMetSDEIS.dnr@state.mn.us] Sent: Tuesday, January 14, 2014 11:54 AM To: Cindy and Tom Edberg Subject: RE: I Support Polymet Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

6427

Sirs, Ladies; This type of mining is much different then ferrous mining of the past for taconite. This nonferrous mining will create no harmful permanent pollution to our waters or land in my opinion. The entire mining process and the end of the mining plan has been carefully planned and written. The more stringent regulations that have been imposed by the DNR and EPA for pollution control for this mining goes well beyond what was done in the paSt I fully support this mining process proposed by Polmet corp. and hope they get the permitting to begin. This also will greatly benefit the peoples of St Louis county financially in many ways in a area that has greatly needed it for a long time. Tom Edberg, Stacy Mn.

21763

I do very much support the new copper mine being proposed by the Polymet corp. They have gone under a relentless 8 year long attack by many groups concerned about the damage it might cause to the environment. I believe Polymet has put together a great plan that far surpasses any previous mining plan to protect the environment ever seen in Minnesota in the paSt. Minnesota really needs this mine for the economic benefits it will bring to the people of the Hoyt lakes area and also to the State as a whole. Not only will good paying full time jobs with livable wages be created but also many more jobs that will pop up to support this new (already existing mine). The economic boost for this part of Minnesota this mine will create has been sorely needed for many years Tom Edberg, 34337 Forest Blvd, Stacy, Mn 55079- .

Alphabetical by sender's first name

Cindy Brausen 17411

Feb 16, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

40907

Mar 9, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Cindy Brausen 8301 Virginia Cir N St Louis Park, MN 55426-2447

Cindy Ilg 46880

Minnesota DNR, Please do not let SDEIS do any mining in the Superior National ForeSt Please save our wetlands, bogs, and swamps from being destroyed by pollution due to open-pit mines. We do not want contamination of ground water or our lakes and rivers. Once the water is polluted it will never be the same. Clean water is precious to every form of life. SDEIS is inadequate and should not be mining in a fragile eco system. Cindy Ilg

Alphabetical by sender's first name

Cindy Oberg-Hauser 41879

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, The long terms dangers of this project far outweigh the short term financial gains. We need to maintain the incredible jewel that is Lake Superior and the Boundary Waters. I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Cindy Oberg-Hauser 1206 Charles Ave Saint Paul, MN 55104-2514

Cindy Strong 28360

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Dear, Mr Bruner, I have spent a significant amount of time in the Boundary Waters Canoe Area and on Lake Superior. Both are precious and must be treated as the such. As a youth I recall my first time seeing the northern lights in the BWCA and discovering what the word awesome actually means. We need these areas and so do our future generations. I ask you to make a decision respectful of what our children deserve from us. Please be a good steward to this beautiful planet. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Cindy Strong 329 Cleveland St Menasha, WI 54952-3402 (920) 209-7883

Cindy Swanson 41799

It is unquestionable that the vast majority of Minnesotans are strongly in favor of protecting our environment from pollution. They have expressed this desire in election and recently even voted to raise their own sales taxes expressly for the protection of clean water. Since it is simply a fact that the mining of this ore will result in sulfuric acid draining into the waters of northeastern Minnesota it is impossible for us to believe that most Minnesotans would support this mine for the short term economic benefit of a relative handful. The waters of northeastern Minnesota, in particular, have a special place in our hearts and to willfully permit their degradation is woeful governance and the abandonment of the expressed interests of the vast majority of Minnesotans. This majority may not understand that this pollution is inevitable if this mine is approved but they will learn and be outraged in time. Do your duty and reject this mine's permit. Sincerely, Cindy Swanson and Dennis Clowes 3904 Washburn AV S Minneapolis, MN. 55410 Sent from my iPad

Cindy Thomas 47030

Mar 12, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. I may not know you but I do understand how damaging this mine IS going to be to the ecology in the river and surrounding the river. I am a 40 year old Student at Metropolitan State University earning an Individualized Degree with a focus in Environmental Science Advocacy, and I am asking you to please reject the PolyMet mine. Sincerely, Cindy K Thomas 1374 Edgerton St St Paul, MN. 55130 Sincerely, Miss Cindy Thomas 1374 Edgerton St Saint Paul, MN 55130-3430 (651) 280-0775

Alphabetical by sender's first name

cindy Welke 40114

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

City of Aurora 54709

See attachment

City of Chisholm 54639

See attachment

City of Ely 42902

Please find attached the City of Ely's Resolution in support of the PolyMet Mining NorthMet Project. Thank you, Claire Huisman Deputy Clerk City of Ely 209 E Chapman St Ely, MN 55731 218-226-5449

City of Eveleth 42910

Please find attached a Resolution of Support for the Polymet Mining Northmet Project.

Alphabetical by sender's first name

City of Gilbert 42913

---Original Message--- From: Debra Sakrison [mailto:debrasakrison@gilbertmn-org] Sent: Wednesday, March 12, 2014 10:06 AM To: Fay, Lisa (DNR) Subject: Gilbert MN Support of PolyMet EIS Please accept the attached resolution as evidence of the City of Gilbert's support of the Poly Met Environmental Impact Study. I am hoping this is accepted into the Public Comments on this matter. Debra Sakrison City Clerk/Treasurer City of Gilbert PO Box 548 Gilbert MN 55741 debrasakrison@gilbertmn-org voice: 218-748-2232 fax: 218-748-2234

City of Mountain Iron 40523

City of Mountain Iron 8586 enterprise Drive South Mountain Iron, MN 55768

City of Virginia 15963

Attached is a copy of Resolution No. 14033, in support of the Supplemental Draft EIS for the PolyMet Mining NorthMet Project, which was adopted by the Virginia City Council on February 11, 2014- Please let me know if you need any additional information. Thank you. Lois Roskoski City Clerk City of Virginia 327 South 1st Street Virginia, MN 55792 (218) 748-7500 HYPERLINK "mailto:roskoskil@virginiamn.us"roskoskil@virginiamn.us

42520

See attachment

42521

See attachment

CJ Feist 44605

I am a girl from an urban city where I get enough of a feel from both the city and the country to know where I stand on this issue. Time and time again, coal miners have been given opportunities to 'clean' up their area years into the future. And for years, these sights have been left untouched because of the companies 'claiming' bankruptcy and so the land is left polluted. The boundary waters have for years been a beautiful and important part of minneosta and its culture. This mine would sit at the prime spot for the pollution to run off into the waters and pollute this 'protected' area. The company claims they'll clean up this mess within 500 years for 20 years of use. If the East Indian Trade Company can't even stick around long enough to last for 200 years, why should we believe that the Nickel mine will last for over twice that amount of time. When will we finally reach a point where we say enough is enough. This mine is creeping in on one of Minnesota's landmark jewels and if we allow it to be followed through, we'll be facing not only a loss of biodiversity and ecosystems but a loss of one of our vital minnesotan organs. The mine is wrong and we should not allow it to be created.

CJ Jacobson 43582

Please - do not let PolyMet pollute so much valuable, fragile land and water. For short-term economic gain and jobs that will not last long and a support infrastructure that will be time-stamped even as it's being built - the cost in the environmental impact and devastation is far too high. Please put life-affirmation ahead of planet devastation. Some things are not renewable and the health of the planet merits protection. Thank you. Sincerely, C.T. Jacobson 617 East Main Street Wabasha, MN 55981

Alphabetical by sender's first name

Claire Barnett 14050

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, I have heard that PolyMet's Supplemental Draft Environmental Impact Statement (SDEIS), is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. Too often, mining companies use subsidiary corporations that declare bankruptcy after the mining is finished, leaving taxpayers to pay for cleanup. It is vital to have long term planning and delegated responsibilities for cleanup that can not be avoided when mining is finished. And environmental standards should be in force at every stage including planning. Wetland destruction and pollution are not acceptable byproducts of mining. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Ms Claire Barnett 110 W Walnut St Baraboo, WI 53913-1170

Claire Gerhard 4894

Please see attached for my comment on this development. Thanks, Claire Gerhard - CHG Art Conservation Services cel: 917-582-9237 HYPERLINK "http://www.chgartcon-com/"www.chgartcon-com

6701

See attached for statement from Charles Lyons. Thanks. - CHG Art Conservation Services cel: 917-582-9237 HYPERLINK "http://www.chgartcon-com/"www.chgartcon-com

Claire Goebel 40133

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs Claire Goebel 24th ave south mpls, MN 55406

Alphabetical by sender's first name

Claire Nelson 48604

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Water is the cornerstone of Minnesotan identity. We are the people of the land of ten thousand lakes. What this project proposes is, basically, to threaten our very identity. The Duluth Complex will be situated on a 27 square mile swath of land which was supposedly protected as part of the Superior National ForeSt How can that be undermined. By boasting that this project will bring in more jobs and economic revenue, and more the PolyMet Mining company has circumvented the very blockades meant to purposefully keep them out. Sulfide mining causes damage that is extensive and practically irreversible, PolyMet itself has stated that the clean-up process could take up to 500 years. 500 years. Over that period of time who knows how much the chemical problem would increase. Compacting, like interest on debt, the length of time to make our land and water pure again. Can we afford to do so much damage to a place so resplendent. And while they destroy our environment PolyMet plans to use those resources of copper and nickel in overseas trade, so the profit will not stay in the United States, but be outsourced. I understand that they do not want to upset their investors at Glencore, but what about the people who will work for them and those that live in Minnesota. Do we not have a say. The environment effects us all; people, animals, plants etc Please do not allow this atrocity. Anyone who has seen this land knows what a loss we, as a nation, would be taking. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Miss Claire Nelson 845 Clayland St Saint Paul, MN 55104-1005

Claire Sefiane 40887

Mar 9, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Claire Sefiane 1065 S 21st Ave Ozark, MO 65721-7842 (417) 732-7172

Alphabetical by sender's first name

Clara Groenhoff 40159

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I feel that everything is done on a monetary level. Everyone thinks about the jobs that this will generate, so we can't stop progress. But do progress and jobs need to harm the envionment. So often things get done for supposedly good reasons only to find out years later the harm that is done and the cost of it to right the situation. Please provide all possible care in the proceeding of this. Our future depends on it. Sincerely, Mrs Clara Groenhoff 1178 Highway 68 Canby, MN 56220-2201 (507) 277-5726

Alphabetical by sender's first name

Clare Padgett 15321

Feb 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

clarence jarvis 15834

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, clarence jarvis 2200south blvd south st paul, MN 55075

Clarence Kontio 42636

See attachment

Clarence Malick 47407

Ms Lisa Fay: I am writing to express skepticism that mining which requires hundreds of years of cleanup can possibly succeed. It has never been tried over such a long period. There is a high probability of some sort of natural calamity intervening to disrupt the walls, dams, membranes, pipes, etc How the size of a sufficient set aside cleanup fund can possibly be determined through, what tens or hundreds, of economic boom-bust cycles eludes me, and I daresay you, as well. The BWCAW is a national treasure for all the citizens, not to be irreversibly exploited for a few hundred local jobs. - C W "Buck" Malick 715 386 7010

Alphabetical by sender's first name

Clarence Roed 39520

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Clarissa Ellis 40643

Dear Sir or Madam, I am writing to urge you not to issue the required permits for the proposed PolyMet mine. I am very concerned about the pollution of our waters, and the lasting impact this will have on the people, economy and environment long after the mine operation has closed down. I understand that jobs are greatly needed in northern Minnesota. But I do not think that sacrificing the quality of our water and all that will impact for the short term economic gain is worth the price we will all have to pay. Given their history, I do not believe that the assurances of the mining companies are valid. Please make a wise decision for a healthy future based on the science, not emotion. Thank you. Clarissa Ellis-Prudhomme 53533 Sjodahl Rd Sandstone, MN 55072 (320)245-2589 -

Alphabetical by sender's first name

Clark Gantzer 44209

Mar 13, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has not been done in Minnesota and threatens wetlands, rivers, lakes, and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Sulfide miningâ'.s potential for pollution is tied to the presence of water (wetlands), and for that reason it has usually been done in arid climates. Even in dry areas, the sulfide mining has still created severe pollution. The likelihood that sulfide mining can be done in northeastern Minnesotaâ'.s wetland ecosystem without polluting lakes, rivers, and streams is highly improbable. The legacy of likely environmental pollution, and the price the public would pay is very high. NorthMet would drain into in the Boundary Waters watershed and tributaries of the St Louis River, a stream that discharges to Lake Superior. This is a concern since acid mine drainage and heavy metal contamination have polluted waters in all locations where sulfide ore mining has occurred. Moreover, to ensure proper reclamation and water treatment is done there must be continuous treatment for decades, even if PolyMet goes out of business, at a probable and unnecessary cost to the public. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land and the Boundary Waters Canoe Area Wilderness to help PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Clark Gantzer 112 E 1st St Hermann, MO 65041-1112 (573) 882-0611

Clark Seha 39532

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Clark Seha 10201 Rich Rd Bloomington, MN 55437-2502

Claude Pettis 23382

Many thanks. My family, colleagues and I feel very strongly about this and we are registered voters. In case you do not have my address it is: 2386 S. Goebbert RD # 1043 Arlington Heights, IL 60005 Thanks and regards, Claude M Pettis From: *NorthMetSDEIS (DNR) [mailto:NorthMetSDEIS.dnr@state.mn.us] Sent: Tuesday, March 04, 2014 1:20 PM To: Claude Pettis Subject: RE: Comment on PolyMet NorthMet Supplemental Draft EIS Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Claudia Engeland 41791

I write to express my concern about the proposed Cooper/Nickel "Sulfide" mine. I have compared the 2010 and 2013 SDEIS and I do not see anything in the 2013 version that convinces me that this mine can be operated without damage to our environment. There should be no trade offs - jobs vs the unique water rich environment that is Minnesota. As I watched the State Hockey Tournament last night I noticed that PolyMet references "hundreds" of jobs. This mine would have a LIMITED lifespan. A significant portion of Northern Minnesota's economy is tied to tourism that is centered around our clean rivers and lakes - the rights of these Minnesotans should not be threatened. The mere possibility that Lake Superior could be threatened by pollution from this mine should be enough for denial of this proposal. But factor in acres in Superior National Forest and acres of wetlands that will be impacted. Contamination world wide from this type of mine has resulted at every site where water quality standards existed. PolyMet's 2013 SDEIS certainly does NOT guarantee that it can't or won't happen here. 200-500 years of potential damage to Minnesotans' health and water quality is an unconscionable risk. Claudia Engeland 3940 Inglewood Ave S St Louis Park, MN 55416

Alphabetical by sender's first name

Claudia Gibson 40866

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Remember you are entrusted with our resources. No one owns them No one has the right to destroy them. Please don't pollute with this terrible project. Teddy Roosevelt would kick your ass. Sincerely, Ms Claudia Gibson Cascade dr Fairfax, CA 94930 (415) 302-5954

Claudia La Paglia 41835

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Claudia La Paglia Via E. Bernardini n. 8b/20 Genova, None 16138

Clay and Amy Wenner 21244

Dear Ms Fey, I am writing to express my concern with PolyMet's recent SDEIS. The environmental impacts of the project are just too great, and I worry that the state will be left picking up the bill for clean-up and that the water and wildlife of the region will be irreversibly damaged. I am a Minnesota Master Naturalist, a member of the Environmental Commission of Chanhassen, and an environmental educator at Excelsior Elementary. Our family visits the Boundary Waters every year, and our love of the area extends to our children who have been going since they were both out of diapers. The state already realizes the environmental importance of this region, witnessed by the creation on the BWCA and the Superior National Forests. We have friends world-wide who appreciate Minnesota for this gem, and it has been a source of pride for us that Minnesota has done such a wonderful job protecting it. We also have friends who live in Babbitt, and realize the need for more jobs in the area. However, the introduction of this type of mining would irreparably hurt tourism in the region. I would love to see more research and incentives to develop "knowledge clusters" in the region instead. Some research I contributed to in graduate school explains the concept, "HYPERLINK "http://www.hhh.umn-edu/centers/slp/economic_development/documents/rkc_MnSCU.pdf"Rural Knowledge Clusters: Implications for Minnesota Colleges and Universities." Please consider my comments in the DNR's response to the SDEIS. Thank you so much, Amy Wenner 7046 Chaparral Lane Chanhassen, MN 55317

Alphabetical by sender's first name

Clayton Sankey 39359

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Though the mine would bring money and jobs to Minnesota, the risk of disaster is too great to allow this mine. Any incident that damages the reputation of our state as a pristine vacation destination will cost more than we could ever gain from this mine. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Clayton Sankey 6484 Kings Dr Oakdale, MN 55128-2523

Cliff Martin 54872

See attachment

Cliff Odegaard 42033

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Cliff Odegaard Roseville, Minnesota

Clifford Fenton Martin 57187

Yo. Destroying the earth destroys ourselves. Mining does nothing but fuel consumerism, kill miners and communities and kills the environment. We cannot continue to mine or start a new one.Clifford Fenton Martin1275 62nd Street WestNorthfield, MN

58092

The extreme extraction of resources docs nothing but that Extract. When we extract materials in an unhealthy and unbalanced way from the land, we extract the dignity of the humans who we not only impacted by the poison of this mining but also the workers who have to do it. There’s no better way to create hurt, unhealthy, angry, said, and dangerous people, than to have them engage in the active destruction and killing of living things. We can see this demonstrated in slaughter house workers and the resulting abuse in their families. The same applies for the employees of Polymet and the hurt they will cause the land, water, [ILLEGEIBLE] and people. Jobs are never worth destruction, hurt and pain. This mine absolutely should not happen.

Clifford Hansen 14219

Feb 13, 2014 Ms Lisa Fay MN Dear Ms Fay, I would like to express my opposition to the proposed mining of sulfide ore in northeastern Minnesota. Twenty years of jobs isn't worth the permanent damage sulfide mining would do. This proposal should be rejected outright. Barring that, financial assurance should be required for the full cost of the hundreds of years of water treatment that may be needed. Sincerely, Clifford Hansen 318 5th St SE Apt 5 Rochester, MN 55904-4882 (507) 281-0249

Alphabetical by sender's first name

Clifford Johnson 40829

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Clifford Kashtan MD 37359

The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1) Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2) Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3) Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Clifford E. Kashtan, M.D. 2828 Huntington Avenue Saint Louis Park, MN 55416

Alphabetical by sender's first name

Clifford Kashtan MD 37723

I am writing to express my firm opposition to the PolyMet mine proposal. The risks posed by this mine to water quality, the health of Minnesotans and the BWCA ecosystem are too severe to allow this project to move forwaRd Clifford E. Kashtan, M.D. 2828 Huntington Avenue St Louis Park, MN 55416

Clifford Moyes 31289

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The mining companies have a history of making promises they can't keep in order to get the permits they need. And when they are later identified as the source of pollution, they place the blame on everyone and everything except themselves. Solve the problem before it exists. Don't grant the permits. Sincerely, Clifford Moyes 905 Division St Horicon, WI 53032-1745 (920) 643-7046

Clint Jurgens 42839

See attachment

Clyde Erickson 54155

We do not believe the environment with its lakes and rivers could ever be protected from this mining project. OPPOSED. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Cole Christenson 45547

Dear Ms Fay, Lisa Fay MDNR Division of Ecological and Water Resources Tim Dabney US Forest Service Douglas Bruner US Army Corps of Engineers Dear Ms Fay, Mr Dabney, and Mr Bruner I am writing to ask you to reject the PolyMet sulfide mine project, Supplemental Draft Environmental Impact Statement (SDEIS) and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes and does not take into account the true cost of the project. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all lands in the exchange have split mineral rights and no legal barrier to future surface mining. The Land Exchange results in an unacceptable net loss of 6,026 acres of area with high biodiversity; 2,030 acres of mature forest-replaced by 2,000 acres of immature forest and 1,400 acres of floodplains. Secondly, PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swampland and the Partridge River headwaters for its open-pit sulfide mine. This would result in the single largest wetlands loss ever proposed in Minnesota. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres in total due to air and water pollution, mine dewatering and water from wetlands. These comments are made from both the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit. In addition, the PolyMet sulfide mine would negatively impact 2 out of 13 remaining corridors for wildlife, including resident and migratory species, to travel across the Arrowhead region. The PolyMet mine plan would destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which has dropped precipitously by 35% from 2012 to 2013- Eleven endangered or threatened species, including lynx, would be further impacted. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants including wild rice. PolyMet and the SDEIS do not acknowledge the true cost of the proposed PolyMet sulfide mine. PolyMet is a lean deposit of copper-nickel, therefore, 99% of what is dug out of the ground will be waste. For that 1% gain in metal, the true cost will be unfathomable. The toxic extraction process will be energy and water intensive (releasing 200,000 metric tons of carbon dioxide). Even more water and energy (generating 707,000 metric tons of carbon dioxide each year) will be used in processing; leaving us with even more waste that will need to be managed for 500 years. This is in direct opposition to Minnesota's goal of reducing greenhouse gas emission by 30% by 2025- Lastly, it can no longer be ignored that fresh water is a precious resource and must be treated as such. By rejecting PolyMet's SDEIS and sulfide mining plan, you have the opportunity to pass on to future generations of humans and nature alike, the gift of irreplaceable wetlands, mature forests and fresh water resources of the Lake Superior Basin. You have the responsibility to do what is right and lead the way to a future that faces the fact that we live on a finite earth with finite natural resources. I respectfully ask you to reject the PolyMet sulfide mine project. Sincerely, Cole Christenson 12309 Fiona Ave N White Bear Lake MN 55110 colejchristenson@gmail-com Cole Christenson 12309 Fiona Ave N White Bear Lake, MN 55110

Colin Walker 23997

Dear Ms Fay, My name is Colin Walker and I live and work in Ely, MN. I have some major concerns regarding the SDEIS and specifically, the water model, which is at the foundation of the entire SDEIS. The water model basically portrays the estimated amount of water in and around the potential site. This includes where the water is coming from, how it flows through the ground, and where it will end up. In essence, it is a reconstructed prediction of the pattern of water flow. On January 23rd, Marshal Helmberger published an article in the Timberjay, revealing the inadequacies of this model. The specific miscalculations are related to the amount of water that flows through the mine site at the headwaters of one of the tributaries of the St Louis River, the Partridge River. A misjudgment in math could potentially result in catastrophic, irreversible impact on the watershed. One of the world's largest fresh water sources, Lake Superior, is at stake. Several environmental agencies have issued similar statements regarding the inaccurate reflections set forth by the water model. Mike Liljegren, a DNR hydrologist said that it is "more than likely" that a new model will need to be developed in a revised SDEIS. The Great Lakes Indian Fish and Wildlife Commission also highlighted the miscalculation in water flow near the mine site, which eventually drains into Lake Superior. (Found in Appendix C) From the beginning, we've been told to "trust the science." Well, until a mining company can prove that sulfide mining can be completed and not harm a watershed, this is the wrong place with too much at risk. I demand that the DNR addresses this issue, with the highest expectation that the water model within the SDEIS will contain accurate data prior to any further decisions are made. Because of the fundamental flaw in calculation, the SDEIS is fundamentally inadequate and unacceptable. We must stay committed to the environment if this mine is going to happen. Yes, metal is a precious and sought after resource but not at the sacrifice of the greatest resource, our water. Colin Walker PO Box 104 Ely, MN 55731

Alphabetical by sender's first name

Colin Walker 49494

My name is Colin Walker and I live and work in Ely, MN. I have some major concerns regarding the SDEIS and specifically, the water model, which is at the foundation of the entire SDEIS. The water model basically portrays the estimated amount of water in and around the potential site. This includes where the water is coming from, how it flows through the ground, and where it will end up. In essence, it is a reconstructed prediction of the pattern of water flow. On January 23rd, Marshal Helmberger published an article in the Timberjay, revealing the inadequacies of this model. The specific miscalculations are related to the amount of water that flows through the mine site at the headwaters of one of the tributaries of the St Louis River, the Partridge River. A misjudgment in math could potentially result in catastrophic, irreversible impact on the watershed. One of the world's largest fresh water sources, Lake Superior, is at stake. Several environmental agencies have issued similar statements regarding the inaccurate reflections set forth by the water model. Mike Liljegren, a DNR hydrologist said that it is "more than likely" that a new model will need to be developed in a revised SDEIS. The Great Lakes Indian Fish and Wildlife Commission also highlighted the miscalculation in water flow near the mine site, which eventually drains into Lake Superior. (Found in Appendix C) From the beginning, we've been told to "trust the science." Well, until a mining company can prove that sulfide mining can be completed and not harm a watershed, this is the wrong place with too much at risk. I demand that the DNR addresses this issue, with the highest expectation that the water model within the SDEIS will contain accurate data prior to any further decisions are made. Because of the fundamental flaw in calculation, the SDEIS is fundamentally inadequate and unacceptable. We must stay committed to the environment if this mine is going to happen. Yes, metal is a precious and sought after resource but not at the sacrifice of the greatest resource, our water. Colin Walker PO Box 104 Ely, MN 55731

Colleen Bonniwell 42594

See attachment

54496

See attachment

Colleen Fisher 21640

Hello I am absolutely for Polymet opening in northern minnesota. I believe they have gone beyond what is needed to prove they can obtain the minerals safely. I am tired of northern minnesota being denied the capability of supporting itself with great paying careers for the residents. I am from Duluth, MN originally. I am one of thousands of people from northern minnesota who ended up leaving 25 years ago due to lack of well paying jobs. Please continue to work towards goals of the people who actually live on the Iron Range and surrounding areas. I am tired of people who do not live there dictating to residents what should go on there. I love Northern Minnesota and want the people there to have a legacy of great paying jobs and the economy that will flourish due to Polymet. I spread the good word of Polymet whenever I can. Keep going PLEASE. Colleen Fisher Maple Grove, MN Sent from my iPad

Colleen Krebs 25231

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, To avert the greatest tragedy in our state's environmental history, you must demand strong scientific evidence that our precious woods and waters will NOT be damaged. That RESTORATION can be guaranteed. Reassurances are not enough. Intentions and beliefs are not enough. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Colleen Krebs 3655 Garfield Ave Minneapolis, MN 55409-1112

Alphabetical by sender's first name

Colleen LeBlanc 39414

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Colleen LeBlanc 40868

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Colleen Lund 47775

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Many thanks for this opportunity to express my concerns regarding the proposal put forth for Polymet to establish their mining venture in northern Minnesota. I am strongly opposed to opening up this pristine area of boreal forests and majestic waterways to the magnitudes of unknown challenges to the health of this valuable environment as well as the quality of life and health of the residents and animals who call this their home. I myself own acreage just south of this area — and have lived in and learned to appreciate the value of this healthy environment for most of my younger years. It seems absolutely ludicrous to me that any business involving mining with all of the potential toxic pollution that goes along with these operations would ever be allowed to establish itself in the heartland of this vital watershed district. While I understand that PolyMet has proposed innovative ideas to deal with some of the potential anticipated hazards, there simply is no guarantee that incidents resulting in toxicity being released into the environment well into the unforeseeable future will not happen. The aquatic surroundings of the proposed mining area only amplifies the danger of this rapid spread of contamination throughout a huge area of the northland. I am very concerned for the potential sulfate pollution of this area and its impact on human and animal health. Arsenic, mercury contamination and asbestos-like fibers have already presented serious hazardous health issues in some of these areas. Has there been an accurate assessment of how this mining proposal would further affect the well-being of the local residents and animals living in this area. If not, please consider requiring such a study to determine the potential health hazards involved with the PolyMet proposal. I understand that the PolyMet water model significantly understates the amount of water flowing in the nearby Partridge River. If this information is wrong, predictions about water pollution are in question. If the model is incorrect, and there is more water flowing through the site than it assumes, the polluted water from pits and waste rock will move more easily through the soil, and reach lakes and rivers more quickly. The water could also carry more pollutants than the PolyMet model predicts. Please fix the inaccurate water data and redo the water model in PolyMet's mine plan. I am particularly concerned also for the loss of thousands of acres of critical habitat for our legendary moose inhabiting this territory which would be negatively affected by the PolyMet proposal. These animals are already in serious population decline and remain in peril as a result of the recent tick infestation and additional probleMs Having recently been listed as animals of “serious concern” because of their requirement for extensive and specific habitats in order to thrive, it is disappointing to me to see that the PolyMet plan has obviously ignored the challenges their plan poses to this majestic being of our northwoods. Please require thorough analysis of the impact of the mining proposal on the moose population in northern Minnesota. Native Americans have been challenged in their cultural practices for far too long. The issue of PolyMet mining also appears to present yet another threat to their way of life by ignoring the impact on their sacred connection to both the moose population as well as to our state grain - Minnesota Wild Rice, a significant resource to local Minnesota tribes. Unfathomable gallons of polluted sulfate waters released into the watershed will undoubtedly have a negative effect on wild rice crops in the northland. The PolyMet proposal should clearly address these expressed concerns of Minnesota’s tribal populations and further guarantee the safety of this vital, natural crop. The PolyMet operation

Colleen Roman 52191

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Colleen Roman 5504 University Way NE, #3 Seattle, WA 98105

Alphabetical by sender's first name

Colleen Sehnert 16096

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Colles B. Larkin 45604

I have additional comments: - The sulphuric acid and toxic metals produced by this type of mining are the result of exposure of this rock to air and water. This contamination happens wherever such mining exists and has always - with no exceptions - polluted surrounding waters. - This particular site is in a water-rich environment and, as such, facilitates/accelerates the seepage of pollutants (sulfide, heavy metals) due to the open-pit mining process. - The PolyMet site is within the confines of the Superior National Forest (public land). Federal law prohibits open-pit mining within national forests/parks. - Since federal law prohibits mining in national parks, a "land exchange" of some 6000 acres has been proposed as an equal exchange for the land and water that will be polluted by PolyMet's mine. This is not an equal exchange. An "exchange" misses the point entirely. National parks/forests are set aside as recreational areas for humans to enjoy Nature as well as habitat refuges for flora and fauna. The reason for setting aside large tracts of land is to provide an extensive natural habitat; a mine in the middle of such an area cannot be compensated by token land elsewhere. - The DNR, as presently set up, has a conflict of interest relating to mining decisions. By federal statute the DNR is mandated both to regulate and promote mining on public lands ~ and, in its promotion capacity, to maximize the royalties collected for any mining on state land. Promotion and regulation are two different jobs; one government agency should not be responsibly for both. The EPA should be given the regulatory responsibility ~ for the sake of citizen's health and, of course, the ecological impact. - A recent article (January 27, 3014) in the Star Tribune noted, as has the WaterLegacy organization, that 99% of the rock from which the mined metals are extracted would be waste. It is not only the sulphuric acid mentioned above that will contaminate surrounding water and land, but other pollutants such as mercury, arsenic, lead and unspecified others. This contamination, it is estimated, will last 500 years. And our state government would sanction this for so little copper.. ..and when Duluth's children already exhibit high levels of mercury in their systems. - The DNR would compromise our water resources for copper when, per "the Institute of Scrap Recycling Industries, copper scrap now provides half of the annual US demand for that metal and the US provides 23% of the world supply of recovered copper" The 500 year certainty of polluted water that will compromise the St Louis River and others that spill into Lake Superior is, I think, too high a price to pay for the small amount of copper and the huge amount of polluting waste. - Last Monday (March 3, 2014) the Star Tribune ran an article: "Duluth tires new view on tourism" and, next page, "Duluth: Not just a pretty view." This article announces the city's effort to expand tourists' awareness of the city's surrounding attractions. These include "miles of hiking and biking trails, a zoo, a ski hill, a campground and several places to launch canoes and kayaks ON THE WIDE AND SCENIC St LOUIS RIVER." (my emphasis) I'd be willing to wager that mothers will not want their family members to canoe on waters contaminated with sulphuric acid, mercury, heavy metals, lead PLEASE do not allow this permit to go forwaRd Our water and the health of our children is just too important. Thanks you. On Wed, Mar 12, 2014 at 4:51 PM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Colles Larkin 58119

As someone interested in the environment I am really opposed to the PolyMet Miing Company being allowed to mine in our near [ILLEGIBLE] Forrest area north of Duluth.1. Polymet’s history is not stellar. Oversight is something they have shown [ILLEGIBLE] to not [ILLEGIBLE] with regularity.2. No open pit [ILLEGIBLE], it’s my understanding has ever left a clear site. 500- years worth of pollution – Polymet has not, in SDEIS, has not put forth contingency plan for inevitable problems – leaks, from water pollution.The possibility of major contamination of the watershed that spills into the Great Lakes is too important to allow to happen. Water is not a never renewable [ILLEGIBLE] particularly if we are not careful stewards.Please do not allow this to happen – the risk is too greatEPA regulates and [ILLEGIBLE] for oversight need be augmented if we are to survice

Alphabetical by sender's first name

Collette Leonhardt 17150

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Collette Leonhardt 1582 Circle dr Winona, MN 55987

50420

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Collette Leonhardt 1582 Circle dr Winona, MN 55987

Alphabetical by sender's first name

Collin Motschke 21152

Feb 24, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. To whom it may concern, I am writing in regards to the proposed construction of the NorthMet mine in Minnesota's Arrowhead region, a few miles south of the Boundary Waters Canoe Area Wilderness (BWCAW). The NorthMet mine, a project conceived by PolyMet Mining Corporation, would be the first metallic sulfide strip mine in Minnesota. Though supporters claim that it will produce large quantities of precious metals (copper, cobalt, and nickel), the NorthMet mine will have destructive ecological and economic impacts. The most threatening of these adverse effects is the potential for Acid Mine Drainage, a phenomenon in which sulfide ores become exposed to air and moisture, undergo a chemical reaction forming sulfuric acid, and leach into surface water and the aquifer. This process decreases pH levels, thus destroying many aquatic ecosystems and contaminating drinking water. According to the US Environmental Protection Agency (EPA), Acid Mine Drainage from metallic sulfide mines is the leading source of water pollution in the Mid-Atlantic States. NorthMet mine will also have dampening effects on the economy. The Draft Environmental Impact Statement (DEIS), a federal document projecting the ecological consequences of business proposals, estimates clean-up costs of over $44-6 million, to complete clean-up tasks including land reclamation and acid remediation. In addition, construction and operation of the mine could disrupt the natural serenity of the area, which, in turn, would negatively influence ecotourism, a significant contributor to the region's economy. Besides its ecological and economic consequences, the NorthMet mine would have harmful impacts on my recreational and spiritual life. Since my childhood, I have viewed the BWCAW as an utterly divine place, the destination of my daydreaMs Each year, my family and I would travel north to paddle the placid waters, camp amongst the ancient pines, and submit to the enveloping aura of tranquility. In this peaceful wilderness, I developed an undying appreciation for nature and contemplated life in its most primitive form. Destruction of this blissful refuge, an inevitable result of the NorthMet mine, would be absolutely devastating to me and the thousands of other people who enjoy the BWCAW each year. Please oppose any legislation that would allow the PolyMet Corporation to begin sulfide mining in northern Minnesota. If passed, these bills would set a precedent for selling public lands to private corporations and undermine the National Environmental Policy Act. Sincerely, Collin Motschke US Student Fulbright Program The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Collin Motschke 1514 11th Ave S Saint Cloud, MN 56301-5638 (320) 761-8112

47170

Mar 12, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I am writing in regards to the proposed construction of the NorthMet mine in Minnesota's Arrowhead region, a few miles south of the Boundary Waters Canoe Area Wilderness (BWCAW). The NorthMet mine, a project conceived by PolyMet Mining Corporation, would be the first metallic sulfide strip mine in Minnesota. Though supporters claim that it will produce large quantities of precious metals (copper, cobalt, and nickel), the NorthMet mine will have destructive ecological and economic impacts. The most threatening of these adverse effects is the potential for Acid Mine Drainage, a phenomenon in which sulfide ores become exposed to air and moisture, undergo a chemical reaction forming sulfuric acid, and leach into surface water and the aquifer. This process decreases pH levels, thus destroying many aquatic ecosystems and contaminating drinking water. According to the US Environmental Protection Agency (EPA), Acid Mine Drainage from metallic sulfide mines is the leading source of water pollution in the Mid-Atlantic States. The NorthMet mine will also have dampening effects on the economy. The Draft Environmental Impact Statement (DEIS), a federal document projecting the ecological consequences of business proposals, estimates clean-up costs of over $44-6 million, to complete clean-up tasks including land reclamation and acid remediation. In addition, construction and operation of the mine could disrupt the natural serenity of the area, which, in turn, would negatively influence ecotourism, a significant contributor to the region's economy. Besides its ecological and economic consequences, the NorthMet mine would have harmful impacts on my recreational and spiritual life. Since my childhood, I have viewed the BWCAW as an utterly divine place, the destination of my daydreaMs Each year, my family and I would travel north to paddle the placid waters, camp amongst the ancient pines, and submit to the enveloping aura of tranquility. In this peaceful wilderness, I developed an undying appreciation for nature and contemplated life in its most primitive form. Destruction of this blissful refuge, an inevitable result of the NorthMet mine, would be absolutely devastating to me and the thousands of other people who enjoy the BWCAW each year. Please oppose any legislation that would allow the PolyMet Corporation to begin sulfide mining in northern Minnesota. If passed, these bills would set a precedent for selling public lands to private corporations and undermine the National Environmental Policy Act. Sincerely, Mr Collin Motschke 1514 11th Ave S Saint Cloud, MN 56301-5638

Alphabetical by sender's first name

Collin Motschke 50955

Feb 24, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. To whom it may concern, I am writing in regards to the proposed construction of the NorthMet mine in Minnesota's Arrowhead region, a few miles south of the Boundary Waters Canoe Area Wilderness (BWCAW). The NorthMet mine, a project conceived by PolyMet Mining Corporation, would be the first metallic sulfide strip mine in Minnesota. Though supporters claim that it will produce large quantities of precious metals (copper, cobalt, and nickel), the NorthMet mine will have destructive ecological and economic impacts. The most threatening of these adverse effects is the potential for Acid Mine Drainage, a phenomenon in which sulfide ores become exposed to air and moisture, undergo a chemical reaction forming sulfuric acid, and leach into surface water and the aquifer. This process decreases pH levels, thus destroying many aquatic ecosystems and contaminating drinking water. According to the US Environmental Protection Agency (EPA), Acid Mine Drainage from metallic sulfide mines is the leading source of water pollution in the Mid-Atlantic States. NorthMet mine will also have dampening effects on the economy. The Draft Environmental Impact Statement (DEIS), a federal document projecting the ecological consequences of business proposals, estimates clean-up costs of over $44-6 million, to complete clean-up tasks including land reclamation and acid remediation. In addition, construction and operation of the mine could disrupt the natural serenity of the area, which, in turn, would negatively influence ecotourism, a significant contributor to the region's economy. Besides its ecological and economic consequences, the NorthMet mine would have harmful impacts on my recreational and spiritual life. Since my childhood, I have viewed the BWCAW as an utterly divine place, the destination of my daydreaMs Each year, my family and I would travel north to paddle the placid waters, camp amongst the ancient pines, and submit to the enveloping aura of tranquility. In this peaceful wilderness, I developed an undying appreciation for nature and contemplated life in its most primitive form. Destruction of this blissful refuge, an inevitable result of the NorthMet mine, would be absolutely devastating to me and the thousands of other people who enjoy the BWCAW each year. Please oppose any legislation that would allow the PolyMet Corporation to begin sulfide mining in northern Minnesota. If passed, these bills would set a precedent for selling public lands to private corporations and undermine the National Environmental Policy Act. Sincerely, Collin Motschke US Student Fulbright Program The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Collin Motschke 1514 11th Ave S Saint Cloud, MN 56301-5638 (320) 761-8112

Alphabetical by sender's first name

Collin S. Mackey 44553

3-13-14 Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resource Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us Dear Ms Fay: I am writing to request that the Minnesota Department of Natural Resources, the United States Army Corps of Engineers, and the United States Forest Service either suspend the NorthMet Project Proposed Action and the Land Exchanged Proposed Action, or extend the amount of time left to discuss possible alternatives to these plans. I believe that these mitigation techniques to reduce the impact on the environment are not strict enough and should be further amended to have as little impact as possible on the environment. I feel that Alternative B does not really accomplish anything, as all it really does is reduce the amount of land being exchanged between the NorthMet Project area and federal lands. It does not put further restrictions on waste and toxin management, so does not reduce any of the affects caused by the mine. I feel that if a different, more effective alternative cannot be made, no action should be taken, in order to protect the plants, wildlife, and local tribes at risk. In the NorthMet Project Proposed Action, they state that 90% of the ground and surface runoff that comes in contact with the various toxins and contaminants at the mine and plant site will be treated. But that still leaves 10% untreated water contaminated with hazardous materials that can seep into the ground or runoff into the Embarrass River, St Louis River, and other streams and lakes nearby. This could cause significant water quality degradation throughout the area, possibly disrupting fragile aquatic ecosystems nearby. Also, local animal wildlife rely on these bodies of water for drinking water. If such a significant amount of untreated water gets into these waterways, it could have detrimental effects on these animal species. They also state that a side effect would be an increase of aluminum and lead amounts entering into tributary streams north of Tailings Basin. Aluminum and lead can be very toxic, and if they get in the waterways, it could lead to further degradation of water. In order for this mine to work, the mitigation techniques to stop pollutants and chemicals from entering into water ways should be stricter. It also concerns me that 912-5 acres of wetlands will be directly affected and 6,498-1-7,350-7 acres of wetlands will be indirectly affected by this plan. Wetlands are a very important part of the environment that play a vital role in the purification of water. If this many acres of wetlands are going to be directly and indirectly impaired in some way, it could have some effect on the water quality. A good chunk of these wetlands will be removed and replaced with the mine and plant site, along with various buildings. So instead of having a natural environment allowing for water to percolate through and be purified, there will be open barren land bringing toxins to the surface. So this plan is decreasing the amount of land used to remove pollutants from water, and increasing the amount of pollutants put into the water. I believe a good alternative would be to decrease the size of the mine, and develop a layout that would build around the wetlands, while removing as little of it as possible. Another concern is the 4,016-3 acres of vegetation and wildlife habitat that will be reduced. Eleven special concern plant species will be directly or indirectly affected by this plan, which would only endanger them even further, and could disrupt the balance of the local ecosystem. It could also lead to the decrease of the local Canadian lynx population and other species, such as wolves. These are special status species, and any action that can threaten their habitat and endanger their population should be looked at with some scrutiny. As you are aware, this land sits

Colvin Loken 54127

I do not support PolyMet! Please consider possible water contamination. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Commissioner Keith Nelson 18196

Hi. I'm Marla Fredrickson, and I'm deferring my time to Commissioner Keith Nelson. Commissioner Landwehr, Supervisor Halter, and Deputy District Engineer -- and I'm going to try this -- Tahanus? Close. Okay. I'm sorry. My name is Keith Nelson. I'm a St. Louis County Commissioner. I am going to ask this audience to show me the respect that I would certainly show you as I speak. All of my career as an elected official, I've had the luxury of following Tom Rukavina. He was the representative from the very same district that I serve, and once again, Tom Rukavina has stolen a great deal of my thunder. At 5' foot 4", he can do that. AUDIENCE MEMBER: He can steal other things, too. KEITH NELSON: With that, I would like to address something that I don't feel has seen a lot of attention, and this idea that somehow construction jobs are temporary jobs. I respectfully submit that construction jobs are temporary in their location. I would like to tell you Kermit's story. Kermit was my father. He came to the Iron Range in 1952 after serving his country in the Korean War. He came there because he heard there was jobs there. He brought my mother and an infant son, my brother, with him. He went to work, ironically, for Foley Building Mining Company, the very same site that we're talking about PolyMet today. Thirty-seven years later, he was still working that temporary job. Our construction workers are not temporary employees. As Former Representative Rukavina stated, jobs matter on the Iron Range. I will tell you that that one person who came to Minnesota's mineral range from western Minnesota now has 24 direct descendants living, working on Minnesota's mineral range. Thank you very much.

Alphabetical by sender's first name

Community of St Martin 54722

See attachment

Compudyne 54710

See attachment

Coni Erickson 42607

See attachment

Conn Mattfield 42552

See attachment

57363

I would like to show my support of the Polymet, Northmet project near Hoyt Lakes.. We need a safe and viable means to support econnomic growth in this region and with the states help I believe this is 100% possible. Sincerely, Conn Mattfield 311 Coventry Rd Hoyt Lakes, MN 55750 Sent from my iPhone

Connie Grundhofer 3656

Dear DNR Please do not let the dollar signs dancing around your heads be the ultimate deciding factor for having the Polymet mine plan come to be. The people of the United States needs for quality water and land are more important than money. We can not keep on destroying the earth and still live on it. Money won't fix all of the destruction. The Great Lakes is the largest body of fresh water on earth. Why would you take the chance of risking it. Really. Have you truly thought of all the possibilities. You do know that the least amount of destruction from this type of mining is to be far away from bodies of water and wet lands. Did any decision maker watch the PBS special Great Plains: America's Lingering Wild with Michael Forsberg. Did you see the destruction in the west because of the process of the mining. Have you heard about Alaska's Bristol Bay. People are trying to save it from losing a valuable fishery. Do you need to see destruction first and then say, "Well maybe that was a bad idea after all." Through destruction there are lives lost, ecosystems ruined or destroyed for years after. As you are well aware of, we are losing too many species of flora and fauna now. So please do not take the risk because of dollars signs dancing around your heads. Thank you for your time. Connie Grundhofer 235 Linda Ave Lino Lakes, MN

Connie Lacher 38732

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Connie Lacher 12325 County Road 51 Apt B1 Saint Joseph, MN 56374-9808 (320) 363-4364

Alphabetical by sender's first name

Connie Lanphear 43277

Hi, I want to register my opposition to the PolyMet mine proposal. I have so many concerns about the project but my main concern is the potential to contaminate the Embarrass and Partridge Rivers, which flow into the St Louis River and then Lake Superior. The plan to contain pollutants sounds weak and I have a very hard time believing any company would be around in the next 200-500 years to oversee the required and promised containment. Secondly, I don't like the precedent this mine would set for the many other mining projects waiting in the wings. I love our state's water resources especially, and want my teenage girls (and all Minnesotans and visitors) to continue canoeing the BWCA and to have the opportunity to share it with their own kids someday. Please, please, please keep the big picture and the value of our natural resources in mind when evaluating this proposal, and I urge you to deny the project permit. Best regards, Connie Lanphear 3715 45th Ave S, Mpls, MN 55406 612-384-3405

Connie Lehr 43796

My name is Connie Kirvida-Lehr and I would like to make a few comments about Polymet's SDEIS and the process that ends today. 1) It is my belief that the MN DNR and ERM have acted as proponents of this project, rather than in unbiased roles protecting the best interests of the residents of the state of Minnesota. 2) The access to information was frustrating at best, and included a maze of different resources available in different ways. Transparent, it was not. 3) I also question the amount and location of wetlands used in remediation. They are outside the Lake Superior watershed and the amount less than most believe is an adequate replacement. 4) I believe the state of Minnesota deserves to put this project to rest and concentrate on mining that does not come at such a risk. If the copper is so valuable, we should keep it safe, just like the water. We protect our environment and our future that way. 5) Lining the pockets of foreign investors at the risk of our environment is not worth 350 jobs on the iron range. It is time for the people who choose to live there to realize that Minnesota's heyday of mining was just that. You cannot expect to do the same job your grandfather did today anywhere. Jobs evolve over time for everyone, unless they are sustainable like fishing and farming. As you can see, my concerns are all over the place. Just as they are for many I know. This, along with the continual release of new information , I also believe your decision to not extend the comment period was wrong. Polymet had years and millions of dollars, along with data provided by those protecting our resources to create their case. The residents of MN got 90 days to digest it and comment. Connie Kirvida-Lehr 8679 243 rd street Forest Lake, MN 55025 -and- PO 217 Lutsen, MN 55612

Connie Metcalf 9820

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Connie Metcalf 802 Mendenhall Ave Breckenridge, MN 56520

Alphabetical by sender's first name

Connie Metcalf 18614

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Connie Metcalf 802 Mendenhall Ave Breckenridge, MN 56520

Alphabetical by sender's first name

Connie Metcalf 40463

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation" wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1-Underground mining, looking at the full ore deposit and PolyMet's real costs; 2-Putting a liner under the Category 1 waste rock stockpile; 3-Placing all tailings on a new completely lined facility; 4-Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5-Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to

Alphabetical by sender's first name

Connie Metcalf 50690

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Connie Metcalf 802 Mendenhall Ave Breckenridge, MN 56520

Connie Wanner 54655

See attachment

Connor McComas 38389

Mar 6, 2014 Ms Lisa Fay MN Dear Ms Fay, Dear Mr Governor and DNR, I support the position of the MN DNR and associated legal bodies. The mining operations should go through as planned. As an environmental scientist that specializes in water quality, I believe that mining, tourism, and good environmental quality can coexiSt I am writing from the Audubon society webpage, where I have found dozens of inaccuracies that they support and willingly spread to the public. A brief list of inaccuracies would include: Calling the mining "sulfide mining" when in fact it is copper-nickle mining. 500 years of treatment will not be required as stated by the Audubon, that figure is used in modeling the sub-surface water percolation in the EIS and does not represent treatment estimation. There will be no toxic runoff as all drainage will be treated, and mining will have no impact on the boundary waters (BWCA) as the watershed is not affected. The Audubon society is being intellectually dishonest when they make a number of unfounded claims that have no scientific basis. The deceit by the Audubon society is hard to ignore by anyone familiar will the science. I truly hope that good data will make it's way to the general public. Sincerely, Mr Connor McComas 426 Wheeler St N Saint Paul, MN 55104-3623 (651) 231-3239

Conrad Gill 3657

Please reconsider the environmental impact that could possibly occur (and generally does), if their mining project is permitted. It seems to me that all mining projects, whether it be for oil, minerals or whatever, end up with some sort of catastrophic consequence. There is always an unforeseen event used as an excuse when the catastrophe occurs. Now is the time to do something about it. The jobs created are not worth the eventual costs. I'm sure that there are plenty of other industries that could be located in this area without the possibility of environmental endangerment. Sincerely, Conrad and Kathy Gill 1270 S. White Iron Road Ely, MN 55731-8237 HYPERLINK "mailto:gill37@frontiernet-net"gill37@frontiernet-net

Alphabetical by sender's first name

Conservation Minnesota 42942

Paul Austin Executive Director Conservation Minnesota 1101 West River Parkway, Suite 250 Minneapolis, MN 55415 612-767-2444 www.ConservationMinnesota-org Meet our Strategic Advisors – Helping Conservation Minnesota deliver results for you. http://www.conservationminnesota-org/people/advisors

Constanza Raber 42028

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Constanza Raber Saint Paul, Minnesota

Cook County Coalition of Lake Associat 38695

---Original Message--- From: Biz Clark <bizclar@aol-com> To: NorthMetDEIS.dnr <NorthMetDEIS.dnr@state.mn.us> Sent: Sun, Mar 9, 2014 10:07 pm Subject: comments on North Met SDEIS Please see attached comments from the board of the Cook County Coalition of Lake Associations(CCCoLA). CCCoLA represents 15 lakes in Cook County. Thank you. Biz Clark, co-chair

Coral McDonnell 42737

See attachment

Coralee Thilges 44993

This project may have benefits of jobs, but with all things pros and cons must be considered. This project is such a short term mine in the first place. 40 years is not long-term for job seekers. Is it worth building a home in a place that will loose all it's boom in 40 fast years. The environmental impact has to be considered. Mining absolutely will pollute the ground and water with toxic materials that have been known to cause cancer. It's not worth 500 years of cleanup for 40 years. Just because the natural resources are there does not mean it has to be mined right now. Waiting for the right technology that can extract without polluting is very worth it. The sensitive ecosystem will never be the same. The land holds so much value, let alone beauty. All that matters to mines is making money. Even with guidelines it cannot be done safely. Let's wait for technology to develop better techniques. The environmental impact is a serious issue and needs to be a real concern. Prevention of having the water contaminated is the best route. Not an attitude of it can be eventually cleaned up. This project should not happen. We need to preserve the land in order to sustain the population. Thank you for your time, Coralee Thilges

Corey Wipper 3713

Dec 20, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I've always loved the wilderness up north, especially around the boundary waters. That area has been preserved for a long time, and I wish it were kept that way. Sincerely, Corey Wipper 565 Sandhurst Dr W Apt. 106 Roseville, MN 55113 The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Corey Wipper 565 Sandhurst Dr W Apt 106 Roseville, MN 55113-4663 (612) 770-8307

Alphabetical by sender's first name

Corey Wipper 51794

Dec 20, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I've always loved the wilderness up north, especially around the boundary waters. That area has been preserved for a long time, and I wish it were kept that way. Sincerely, Corey Wipper 565 Sandhurst Dr W Apt. 106 Roseville, MN 55113 The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Corey Wipper 565 Sandhurst Dr W Apt 106 Roseville, MN 55113-4663 (612) 770-8307

Cori Mattke 20956

Hello, Wondering if written comments must be received by March 13 at 4:30 PM, or postmarked by March 13- Thank you for the clarification, Cori

Corie Ekholm 9607

As I downloaded the SDEIS for Polymet, I was amazed at the size. As I read through it, it became obvious that a lot of time, money, and effort went into the document/project to ensure all topics were thoroughly investigated and discussed. Polymet has a well thought out plan to minimize and mitigate the environmental impacts associated with copper-nickel mining in Northern Minnesota. We need all the minerals Polymet will mine, they are essential to live in our society. I would much rather mine them here, where we will do it in an environmentally friendly manor, than in some other country with no regulation that will pour the pollutants into the air and water. We are already seeing the effects of Chinese factories air pollution in the US. The SDEIS is good but I would like to have more explanation on the model used to predict the number of years of water treatment. I do not think the SDEIS fully discusses the fact that the model allows for no decrease in the amount of pollutants coming from the various areas. As the rocks weather (oxidize over), pollutants will no longer be leached out at the same rates. The weathering will form a barrier covering the rocks preventing more pollutants from reacting and being leached out. This will cause a decrease in the pollutant load as time goes on, which is not addressed in the model or discussed in the SDEIS. The Polymet project will have numerous benefits for the community. It will provide good paying jobs that are needed in the area. The additional jobs will enable people to stay and live in the area instead of having to move elsewhere to find work. The local communities will benefit from the tax revenue and additional jobs. Overall, I feel the SDEIS did a good job at addressing the environmental impacts of the Polymet project. We can do both, mine and protect the environment. I support the SDEIS and the Polymet project. Corie Ekholm 4413 Woodlawn Dr W Eveleth MN 55734

Correy Merritt 3072

Everyone is very concerned about the negative effects of mining, with good reason, but we need to look closely at the facts. The need for mining precious metals is being driven by the demand for; cars, computers, phones, televisions, appliances and any other technologies that require these metals. Whether we like it or not we are all “supporting” mining by creating this demand. The need and demand for these things is not going away so how do you protect the environment and provide the things that people want and need. I suggest that it is by conducting mining in countries like the United States who have systems of laws and regulations in place that protect workers and the environment. By having mines here we can keep control of how they are operated and have accountability. By blocking projects in the United States we are simply shifting the supply source to countries like; China, South Africa and Russia. It will probably be cheaper to get our precious metal from these sources because they don’t have the cost of government regulation to deal with but is that the right thing to do. If you’re really concerned about the environment but you’re not ready to give up your modern technology it seems to me that we should all be supporting companies like Polymet. Here are a few more facts that you may not be aware of; If you are a supporter of solar energy, wind energy, electric cars, hybrid cars, renewable energy, electronic devices, then you are a supporter of metal mining. Did you know that wind energy requires 30-50% more copper than larger base loaded power plants. Did you know that a hybrid car uses 50% more copper than a standard car and an electric car uses 3 times more copper. If you really support these greener energy and transportation alternatives, then you are supporting metal mining. Where will these metals come from, an area without strict environmental regulation and oversight. Or an area that is highly regulated and has been metal mining for generations. Think about which is better for our planet. Correy Merritt 8561 W Hwy 61 Schroeder, MN 55613 HYPERLINK "mailto:merritts@northlc-com"merritts@northlc-com

Alphabetical by sender's first name

Corryl Jeske 9366

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Your support is paramount to keep Poly Met Mining from irreversibly contaminating Minnesota's treasured northern land. The well being of all living things is in jeopardy with this inaccurate and incomplete SDEIS document. A few low paying jobs in the area will never compensate for generations of contamination to our environment. Thank you for listening. Sincerely yours, Corryl Jeske 8996 North 15th St Lake Elmo, MN 55042

Alphabetical by sender's first name

Corryl Jeske 15943

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Corryl Jeske 8996 North 15th St Lake Elmo, MN 55042

Alphabetical by sender's first name

Corryl Jeske 18514

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Your support is paramount to keep Poly Met Mining from irreversibly contaminating Minnesota's treasured northern land. The well being of all living things is in jeopardy with this inaccurate and incomplete SDEIS document. A few low paying jobs in the area will never compensate for generations of contamination to our environment. Thank you for listening. Sincerely yours, Corryl Jeske 8996 North 15th St Lake Elmo, MN 55042

Alphabetical by sender's first name

Corryl Jeske 40469

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Alphabetical by sender's first name

Cortney Evans 40406

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Cortney Evans 800 nw fork Rd 1-p stuart, FL 34994 US

Cory Hertog 57995

I believe that going forward with the NorthMet Mining project will not be a good step to developing a sustainable future for Minnesota, and the world. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Cory Wagner 16095

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Council of Carpenters 54724

See attachment

Courtney Boettcher-Whited 46082

Dear Ms Fay, Dear Federal and State Agency Leaders: Please do not support approval of the PolyMet sulfide mine because the Superior National Forest is an environmental gem for the community, the State of MN and for our country. I ask you, have you cross country skied there in the winter when the frozen snow sparkles on the trees. Have you hiked there in the summer time to witness the numerous, clean waterfalls. I could provide scientific studies that don't support this, but I'm asking that you simply visit this area and decide what makes sense when you look back at your legacy and how you left this community, this state, this country as pristine as when you first saw it. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely Courtney Boettcher-Whited 5829 Chowen Avenue South Edina, MN 55410

Alphabetical by sender's first name

courtney butcher 17607

Feb 15, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not adequately examine the risks to worker safety and public health from asbestos-like fibers found in the rocks that they propose to mine. I ask the DNR to require a more comprehensive public health assessment of the risk to workers and the public than what PolyMet has provided in the SDEIS. The SDEIS acknowledges that amphibole fibers are present in the rock to be mined, that crushing the rock for processing releases these fibers, and that these fibers are suspected of causing mesothelioma in workers. The SDEIS further acknowledges that there have been few studies of the risk from fibers of the size that would be created at the PolyMet mine and plant site. A number of mesothelioma cases were found in mine workers who worked in the LTV Erie Plant that PolyMet proposes to use as part of their mine plan, and the SDEIS inaccurately characterizes a University of Minnesota study of mesothelioma in mine worker as showing that this risk came exclusively from the use of commercial asbestos products in the mine. In fact, the University of Minnesota did not exonerate dust from crushing ore, and is continuing to study the health impact of exposure to short amphibole fibers of the type contained in the ore that PolyMet would mine and process. Specifically, the DNR should: 1) Revise the SDEIS and conduct a formal health assessment of the risk to public health and worker safety from the amphibole fibers present in the ore at the PolyMet mine site. The SDEIS should specifically conduct a formal health assessment of the risks from asbestos-like fibers less than 5 microns in length 2) Revise the SDEIS to provide details of the air monitoring at the mine and plant site and in nearby communities, and describe contingency plans to address the risk to public health and worker safety if asbestos-like fibers are detected during construction, operation, closure and post-closure 3) Revise the SDEIS to eliminate inaccurate characterizations of the University of Minnesota mesothelioma study. Specifically, eliminate statements that imply that commercial asbestos is the primary risk factor for mesothelioma risk Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I am a concerned citizen, grassroots activist, auntie, traveller, herbalist, and dedicated bioregionaliSt Recently I had the privilege to travel to the southern part of what we call the united states where the corporation transcanada has built - or is finishing - construction on the infamous keystone xL. though it was an immense privilege to travel and spend time in the communities along that route and to experience the landscape and the terrain it was also devastating to witness and hear the stories of people who live along the route and in the communities where that nasty tar slosh is being transported and . refined. these were stories of legacies lost and people facing DEATH simply b/c a company was irresponsibly given rights to the landbase. aside from the outright racism that moves such as this by a greedy corporation perpetuate the environmental hazards are devastating. michael bishop (who is now running for governor) is suing several state and one federal entity for the failure to enforce regulations. the land that he bought with plans to turn it into a self-sustaining farm yard is now torn up and polluted with the futures he planned for his grandchildren taken away just like that *insert finger snap here.* lovely maya, who's mother cooked us dinner and heated up the sauna for us, and who's church brought us in and fed us soup EVERY sunday that we were there (and housed us when it rained) is feeling the affects of the pipeline on her land: her father is suffering from cancer caused by the gas that comes through the

Alphabetical by sender's first name

courtney butcher 19150

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS seems to be one-sided. Well-documented tribal Major Differences of Opinion call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles and tailings heaps won't seep pollution, that mining won't dry out wetlands and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they are not available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and putting public meetings in January (when bad weather is likely) seems designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just foreign corporations, will matter when the government makes its decisions. Sincerely yours, courtney butcher 1298 32nd st sw pine river, MN 56474

Courtney Kerns 47171

I am writing to register my total opposition to PolyMet's proposed copper-nickel mine near Hoyt Lakes. I am originally from West Virginia where we have so many dead rivers and creeks due to acid mine drainage. These rivers and streams ran clear, beautiful, and brimming with life for thousands of years until companies came along and extracted a couple decades of short-term profits from the land. The jobs and companies are long gone, but the rivers still flow dead- and in some cases yellow and orange. We CANNOT risk this happening in northern Minnesota. The short-term gains (the vast majority of which will go to out-of-state shareholders) are absolutely not worth the risk to our state's clean and living waters. Thank you, Courtney Kristina Kerns 2505 Elida Dr Grand Rapids, MN 55744

Courtney Werk 41851

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Courtney Werk Moorhead, Minnesota

Alphabetical by sender's first name

Craig 20092

Craig & Karen Groth 16141

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Craig A Swenson 19921

I've been following the Polymet project for several years, and my concerns are satisfied that the due diligence required of PLM has been performed. Let me state that my family owns lake property in Northern MN and I trust that the MN DNR and overseeing agencies will monitor very closely any data and react with Polymet to correct if there are any surprises not anticipated by EIS (although that seems unlikely with a 1000 page study). Our State, especially Northern MN, needs jobs and this project (future projects) can bring economic vitality into the communities where the young generations have been forced to leAve It wouldn't be right for Washington DC or the Twin Cities environmental lobbies to kabosh a project for Northern MN that is complying with all rational requirements. We Northern Minnesotans don't stick our noses into the business of the Metro area, nor do we necessarily have the clout to do if we tried. The polls and surveys for Northern MN residents are overwhelmingly positive. Northern Minnesotans are the most knowledgeable of the mining industry- they are not afraid. I believe strongly that the net Global effect on the environment is positive if Polymet is permitted. This copper/nickel mine will set an example for the rest of the world to follow. The environmental lobbies should spend their time on where the real problems are (third world) rather than claiming the end of the world is coming if Northern MN operates one brand new mine with tons of oversight. I thank all the good people of the DNR for their work in this matter. Please help breathe some life to Northern MN. -Craig Swenson . . . . . Craig Swenson Financial Advisor Ameriprise Financial Services, Inc. 1201 Tall Pine Lane Cloquet MN 55720 Cloquet Office: 218-879-6784 International Falls Office: 218-283-3051 Toll Free: 888-256-3292 Learn more at: HYPERLINK "http://www.ameripriseadvisors-com/craig.a.swenson"ameripriseadvisors-com/craig.a.swenson LinkedIn: http://www.linkedin-com/pub/craig-swenson/15/373/b07 We shape financial solutions for a lifetime® An Ameriprise Financial Franchise. Ameriprise Financial Services, Inc. offers financial advisory services, investments, insurance and annuity products. RiverSource® and Columbia Management ® products are offered by affiliates of Ameriprise Financial Services, Inc., Member FINRA and SIPC. ********** "This message and any attachments are solely for the intended recipient and may contain confidential or privileged information. If you are not the intended recipient, any disclosure, copying, use, or distribution of the information included in this message and any attachments is prohibited. If you have received this communication in error, please notify us by reply e-mail and immediately and permanently delete this message and any attachments. Thank you." **********

Craig Andrew Anttila 42578

See attachment

Alphabetical by sender's first name

Craig Blacklock 1778

Dec 9, 2013 Ms Lisa Fay, Deparment of Natural Resources To Ms Fay, Deparment of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible

Alphabetical by sender's first name

Craig Blacklock 6233

Dear DNR Commissioner: I wish to voice my opposition to any sulfide mining in Minnesota at this time, for the following reasons: As a landscape photographer, I make my living photographing the wild beauty found within the watershed the proposed PolyMet mine would impact. I've paddled, hiked, and photographed these areas my whole life, and have struggled to protect them from various threats over the decades. No previous threat has been as sinister or long-lasting as the ones presented by sulfide mining. I'm not alone in relying on the area's relatively pristine beauty as a source of income and inspiration. Tourism has been, and could sustainably continue to be a stable, long-term employer in northern Minnesota. I'm very concerned we might be sacrificing these sustainable jobs in favor of a short-term boost in employment from mining. We humans have a pretty myopic outlook on life — especially if jobs are involved. We build on flood plains that haven't flooded for a few years and are surprised when it floods. We build houses in forests that haven't burned in decades, and are surprised when things go up in flames. Like floods and fires, the effects of sulfide mining present threats we can predict with near certainty, and common sense would dictate we prohibit it— especially adjacent to the BWCAW and Lake Superior. What is predictable is that Sulfide mines will cause pollution. What is also predictable is that mine companies may go out of business far sooner than the need to mitigate mine pollution, sticking tax payers with clean up costs. It happens over and over. One of the really outrageous realities in the PolyMet proposal is the need to actively manage the waste for hundreds of years. This would require a guarantee that our system of government would still be in place that long, and that it would have the necessary funds, ongoing technical ability and political will to continue this. There is no example of that kind of stability in the history of mankind. And besides, who are we to place such a burden on that many generations. It is my opinion that if anything requires active management beyond a few years, it should not be permitted — as there will surely come a time when it is allowed to fail. Budget cuts, wars, plagues, famines, all come about with the same certainty as floods and fires, and will be much more likely as climate change and commodity shortages due to population growth strain global stability. If someone were proposing a hazardous waste disposal site, with the exact same specs as the PolyMet proposal, rather than a mine, EVERYONE WOULD BE OPPOSED TO IT — ESPECIALLY THOSE LIVING NEAR IT. I'd like to raise an additional thought, which is perhaps the largest reason to deny permits at this time. Any mining operation takes lots of electricity. Actively treating water through reverse osmosis creates the spectrum of huge amounts of electricity into the foreseeable future. Climate change is an imminent threat to the planet. Many scientists feel we must stop adding any more carbon dioxide into the atmosphere to mitigate what will already be severe environmental damage, especially to northern areas and forests. The DNR is charged with protecting our natural resources, including the health of our forests and waterways, and certainly must take this issue into consideration. Currently, any new mining operations in the area would be primarily serviced by fossil-fueled electric power plants, emitting huge amounts of carbon dioxide and other pollutants. The mineral deposits these companies wish to extract, are not going to go away, and the demand for these minerals in the future will only produce higher prices as they become scarcer. Humans will, within the next few decades, develop much cleaner sources of electricity — sources such as liquid fluoride thorium reactors, and advancements in solar and wind energy. In light of this, it would be totally irresponsible for the DNR to allow mining to go ahead now. If it

Alphabetical by sender's first name

Craig Blacklock 19122

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Craig Blacklock 3853 County Line Road P.O. Box 344 Moose Lake, MN 55767 2184850478

Craig Bowron 43992

Dear Ms Fay and other members of the EIS for the proposed non-ferrous mine, I believe their are multiple problems-among them tax structure, water quality, lack of a health impact assessment, water quality issues-and so I would ask that you not allow the mine to be built as described in the current plan. Beyond that, I simply do not trust that any mining company (or any private company) can be held to a 500 year clean up plan. Capitalism is a remarkable economic system, but its view is short term; it seeks to maximize short term profits, and minimize losses. When the nickel and copper are gone, they will shift to loss prevention-by either loosely following clean up agreements or by abandoning them altogether, thereby forcing them into the courts (whichever option minimizes the losses would be the preferred option). That's not a judgment statement, that's how capitalism works. Bankruptcy is also a tried-and-true method for minimizing losses. The history of capitalism is littered with externalities-economic costs that private companies foist onto the public. When the private snowplowers here in Saint Paul push all of the alley snow-which they are being paid to remove-out into the street, the snow becomes an externality that the public plows must deal with. Simply look at the lumbering industry here in the early days of our state. When the tree$ were gone, the lumber companies moved weSt The slash and the stumpage was sold to immigrants as "cleared farm land," even though most of it would never be successfully farmed. In this regard, I would ask you to fix the Polymet mine plan by hammering out a detailed plan that provides solid financial assurances to the current owners of the nickel and copper: Minnesotans. Thank you for taking my thoughts into consideration. Craig L. Bowron 1396 Sargent Avenue Saint Paul, MN. 55105

Alphabetical by sender's first name

Craig Brown 40105

_____ From: cbrown@monkeybridge-com [cbrown@monkeybridge-com] Sent: Monday, March 10, 2014 5:33 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Craig Brown 2908 Southbrook Drive Minneapolis, MN 55431-2447

Alphabetical by sender's first name

Craig Brown 41780

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Craig Dienger 42074

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Craig Dienger Minneapolis, Minnesota

Alphabetical by sender's first name

Craig Geiger 40407

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Craig Geiger 2810 Galloway St Se Olympia, WA 98501 US

Craig Johnson 18071

I would like to discuss for a few minutes the concept of risk management. All decisions involve risk. It's the ability to properly evaluate, account for, and mitigate the risk that sets apart the fly-by-nighters and the professionals. I think that we can manage the risk to provide our people resources that they need to advance and maintain our current lifestyles. I think we know how to manage the risk better than anyone else in the world could. We have over a century of mining experience to learn from. Undoubtedly some of these examples are not good ones. But yet we have learned from them and are better prepared to face the challenges that may arise tomorrow and long into the future. We do have some of the most pristine habitat and natural water quality in the United States. And maybe even the world. And have standards that far exceed those of our contemporaries to ensure that these blessings that we enjoy remained unblemished. Moving ahead with the NorthMet copper-nickel mine involves risk. I believe those risks have to be evaluated, accounted for, and mitigated to meet one of the highest standards, the Minnesota-not-in-my-backyard standard. I believe we can set a new standard of mineral extraction that will be used as an example for generations to come. And hopefully without eight and a half years of prior scoping and evaluation. As I mentioned in the beginning, all decisions involve risk. It should be understood that determination to not allow a proposed mine also involves risk. We risk allowing someone else of lower standards than ours to gain an advantage in the precious metal market. We set up a big warning sign for future investors in Northern Minnesota that says, "Don't even think of mining here unless you can guarantee that nothing will ever happen. That absolutely no habitat will be impacted. And your pre-scoping budget must be greater than $100 million." I mean how else will we support our economy? And finally we risk the wellbeing of Minnesota's most important resource, our people and our children, which are all stakeholders in this project. Thank you for all who have spent an enormous and expensive amount of time and resources choosing to professionally address the decisions and the associated risk before us in a highly professional manner.

Alphabetical by sender's first name

Craig Laughlin 40425

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Alphabetical by sender's first name

Craig Nagel 16088

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Craig Olson 18368

My name is Craig Olson, O-L-S-O-N. I'm a proud fourth generation (inaudible). What makes me even prouder is my daughter Christie is a fifth generation. She works in the painter's union as an apprentice. Very proud to be five generations. My family has been able to live in these communities from Ely to Duluth and be able to make a living here. I'm speaking tonight as the President of the Duluth Building Trades Council. Our 17 construction trade unions, many of them were here tonight. I was proud to see all the apprentices are that here. The men and women, the young people were here. They care about this issue. Speaking as the president, we are on record in support. The Northeast Area Labor Council is also on record. I'm on their executive board. Of course we have a project labor agreement on this project. PolyMet has done everything we've asked them to to ensure our members, who live in these communities, from the Iron Range to Duluth and the region, to make sure that our people are the ones that will be employed there. And that is absolutely going to happen. This project will produce a lot of jobs. Not only construction jobs. The construction isn't just for the PolyMet site. The recycled LTV site, which by the way I worked at LTV as a construction worker. I'm proud to have a good job. That project alone will bring in 2 million man hours construction. 2 million man hours. That's the equivalent to the Target Stadium that was built here recently in the Twin Cities where the Twins play. There is 360 full-time mining positions. And there's more than 600 related jobs that will be produced. That will produce good-paying jobs for the families that are very much needed. We cannot afford to miss the opportunity of these full-time job, including the construction jobs. Copper-nickel mining can be done right. I've listened to a lot of good speakers on both sides tonight. My members of my unions, trade unions, they are environmentalists. You bet they are. I spend in my time in Tower, Minnesota, every chance I get at the family cabin. We fish. We hunt. We are environmentalists. We're going to protect our environment. But we're going to make sure it's done right. The agencies in front of us tonight we know. We trust them. We know it's going to be done right or it's not going to be permitted. We know that. But it's about time we put our people to work. A lot of men and women in the trades, over 6,000 in this region. We need the jobs. Thank you.

Craig Poorker 42471

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Craig Poorker 3711 York Ave N Robbinsdale, MN 55422-2312

Alphabetical by sender's first name

Craig Prudhomme 45438

From Craig Prudhomme 53533 Sjodahl Rd Sandstone, MN 55072 HYPERLINK "mailto:craigprudhomme@gmail-com"craigprudhomme@gmail-com 320-245-2589 Comments on SDEIS PolyMet Minnesota has a long history of natural resource extraction from fur-bearing wildlife like the beaver, to our forest resources like the big pines and the Big Woods, to mineral extraction like the great iron mines. It has consistently been a story of huge changes on the landscape, of boom and buSt When we are done, the land is never the same, never as good. We can never fully undo the damage and the change. In the 1970s and 80's we began to see the price of such unsustainable practices and to create some agencies and laws to protect the land and the water. Though it seems like the land of 10,000 lakes has a never-ending water resource like the loggers thought of the the great pine forests, we are seeing that too is not true. Excessive draws on groundwater is draining lakes, water quality is decreasing, invasives are increasing, wetlands continue to be compromised, and the habitat surrounding our surface waters is under constant attack from development - residential, commercial and industrial. Northeastern Minnesota, though somewhat beat up, is one of the last great reservoirs of wild land in this region. It is an international resource that includes the Superior, the greatest of our Great Lakes. PolyMet is proposing to create a mine that will further destroy wetlands and put at risk watersheds that include Lake Superior. This is done for a finite mineral resource that will be extracted for a finite number of years with the promise that the waste left behind, will be adequately and safely monitored and the environment protected - for many lifetimes - far longer than this corporation, this government, or current agencies can even imagine paying for and maintaining. This is not going to occur in a desert region, it will occur in a temperate, wet, leaky region, where we have the occasional flood event. I have personally observed the immediate after effects of when heavy rain caused a "secured" ash pile to fail and wash across the highway into Taconite Harbor near Schroeder in 1993- We can look to reports of power plant ash dikes that have not been adequately inspected here in Minnesota. How do we think we can take the risk to monitor and inspect for hundreds of years when we do not have enough institutional memory to keep from revisiting past errors. This mine should not be permitted. The potential costs are too great for the potential short-term gains. And these gains will be short-termed by comparison to the costs. The people who moved to the mining areas for the past booms bemoan the buSt They'll get some jobs and it will revitalize their communities until the next bust, and then, unlike beaver and trees which can grow again, a bunch of grassed-over, leaky, walled-off tailings piles and polluted water will leave the land even less able to sustain a living. We think copper and nickel are valuable resources, but when we look at the one most important resource to life, fresh water, we are only now beginning to realize that it is the number one, most important resource. Clean water is finite. You just have to go to different regions of our country to see it is our most basic necessity. Do not put this at risk. Sincerely, Craig Prudhomme

Alphabetical by sender's first name

Craig R. Miller 3491

Dear Lisa Fay, I believe the Minnesota Department of Natural Resources' DEIS on PolyMet's mine plan is flawed and inadequate, as it does not fully describe impacts on Minnesota taxpayers or the surrounding environment. It is very problematic that PolyMet's details about a financial assurance or a "damage deposit" the company provides are not outlined in this revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuries of costly water treatment, or how the public will be protected from liability. As a former shareholder of PolyMet stock I have changed my position on this mining project 180 degrees and am now strongly opposed to this mine proposal. I am very concerned that PolyMet Mining company anticipates that at least 500 years of polluted water will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Also, every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not leave the site clean and maintenance free. The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. Who will be paying for all of this after the mine is closed in just 20 years. As a current stockholder of many other mining companies, I do not believe that PolyMet's plan is reasonable, responsible or in the best interests of Minnesota, its citizens or environment. The DNR's DEIS must be revised to more fully analyze the range of environmental and economic impacts of this flawed proposal. Sincerely, Craig R. Miller 1849 Whitaker Street White Bear Lake, MN 55110

Craig R. QualeyFisher 17340

Please see Attached Letter. Craig R. Qualey-Fisher, CLU Risk Advisor 2048 Superior Drive NW 620 Main St/ P O Box 49 Suite100 Red Wing, MN 55066 Rochester, MN 55901 Phone (651)388-4613 Phone (507)535-3133 Fax (651)301-7620 Fax (507)535-3130 www.cobrown-com The information in this email is intended for the person or entity to which it is addressed and may contain CONFIDENTIAL information or material. If you receive this information or material in error, please contact the sender and delete or destroy the information or material immediately. ---Original Message--- From: mp161@lba-com [mailto:mp161@lba-com] Sent: Monday, February 17, 2014 11:52 AM To: Craig R. QualeyFisher Subject: This E-mail was sent from "RNPDB6FA8" (Aficio MP 161). Scan Date: 02-17-2014 11:52:09 (-0600) Queries to: mp161@lba-com

Alphabetical by sender's first name

Craig Schroeder 15771

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Craig Spry 42770

See attachment

Craig Westgate 39790

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Craig Westgate 3523 Saint Paul Ave Minneapolis, MN 55416-4344

Alphabetical by sender's first name

craig zlimen 15451

As a lifelong resident of Minnesota, including living in Eveleth, MN and currently owning a summer home and property on the Iron Range, I am highly concerned about the proposed PolyMet Mine. While I appreciate the need for livable wage jobs in this generally depressed economic area, it seems the risk of wide-spread, long-term contamination of the area's water-supply far outweighs any potential benefit of a few hundred, relatively short-term jobs. Currently, tourism is the one of the largest sources of jobs and revenue in and around the Iron Range. Given the tourism industry is driven almost entirely by the area's lakes, streams, and outdoor recreation opportunities, it seems absurd to consider any large-scale plan that would place those invaluable natural resources at risk. It is not worth risking large-scale harm to the environment and established tourism industry for the prospect a relatively small number of jobs expected to be created by PolyMet. I sincerely hope the DNR will advocate for the long-term health of Minnesota's environment, water, and tourism and deny PolyMet's permit to mine in Northeast Minnesota. Thank you for taking comments on this matters. Craig Zlimen 2203 Ogden Court St Paul, MN 55119 651-245-5330

craigaparsons 41998

I would like to voice my opinions regarding the SDEIS for the proposed Polymet mine. I believe the SDEIS has serious shortcomings that need to be addressed before any permitting decisions are made. The location of the proposed mine is identified throughout the document as being on the Iron range, implying that it is part of the Biwabik iron formation. However I've read reports that contradict this and place this mine location in the sufide-bearing rock of the Duluth formation. I'm concerned about this beyond simple semantics. Are the assumptions underpinning the studies of potential pollution caused by hydrologic and geologic activity consistent with this misclassification. I feel the economic benefits section of the document is misleading. There has not been quantitative accounting of the many environmental effects on the economic outlook. Full and part time jobs have been lumped together in the analysis. Also the economic benefits of mining should be compared to a no-mining scenario. Without such a comparsion, how does one claim the mining option results in a net social and economic benefit, even if the huge environmental risks are deemed acceptable. The environmental risks completely dominate the decision on whether the mine should be allowed or not. Mines such as the one proposed here, where sulfide bearing rock will be exposed have the monumental task of containing the sulfide runoff from that waste rock. In fact, no mine of this type has been successfully operated without accompanying acid pollution. This proposal fails to convince me that this mine will be first to avoid that outcome. It is paramount that the technical plan for mine cleanup and water treatment be beyond reasonable question especially in light of the location of this mine so close to pristine wilderness such as the BWCAW, and Lake Superior. The SDEIS as it exists now does not meet that requirement. I have read that even other taconite mines that have been shuttered in the state of MN have not been in compliance with acceptable levels of sulfide runoff, and those were mines where the waste rock was of much lower sulfide content. In the last week, it has been announced that the MPCA will soon release new standards for sulfate release into waters that are capable of growing wild rice. This is expected to have far reaching consequences for any mining operation. Because these new standards, this proposal should be delayed for further consideration until it has addressed compliance with these new rules. The most disturbing shortcoming of the SDEIS is the lack of an accounting for the financial aspects of the closing and decommissioning of the mine. The report indicates unacceptably high levels of sulfide in discharge water for hundreds of years after mining ceases, yet none of the projections actually show safe levels being reached for the hundreds of years over which the models were run. How can a decision to permit be discussed without a timeframe identified where active and costly water treatment such as reverse osmosis are no longer required. Polymet has been quoted in the press as saying that they are able and willing to treat mine runoff for as long as it is required. This is clearly a ridiculous statement. No realistic business plan could be based on an infinitely long treatment plan that would at some point negate all profits realized from the mining operations. Knowing the length of this treatment time is absolutely necessary to determine if the mine can be a successful business venture. Polymet knows this and I imagine they know exactly how long they can afford to treat water and stay profitable or otherwise they wouldn't have been able to attract investors for this project. The corollary to establishing a true cost estimate for the long term water treatment is to also understand how much money Polymet must place in a trust to ensure the treatment needs can be met without taxpayer support. Without this trust, there i

Alphabetical by sender's first name

Crystal Myslajek 38772

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Proponents of the project argue that it will create jobs however, there are other and better ways to create jobs that do not deplete and pollute our natural resources for generations to come. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The proposed mitigation measures for dealing with the risks are costly and are not guaranteed. This project puts too much at risk The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Crystal Myslajek 2731 14th Ave S Ste 620 Minneapolis, MN 55407-1126

Crystal Waters 42694

See attachment

Crystal Yakacki 18893

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Crystal Yakacki 1014 27th Ave SE Apt E Minneapolis, MN 55414 (516) 987-6328

ctok 21718

Ronald and Carol Tokarczyk 243 Kent Road Hoyt Lakes, MN 55750 218-225-3564 Fact: Each season has differing amounts of snow levels, and rainfalls. Question: Will they in fact be prepared to meet the varying demands for safe handling of the byproducts of production. Fact: We hear that Polymet is reluctant to put money into a trust fund for cleanup. Question: Can they be trusted to be responsible for long term water control and reclamation. We would like to see Polymet become a reality, but we are uncertain whether they can be trusted as a good neighbor.

Alphabetical by sender's first name

Curt Bush 9838

Dear Ms Fay, As a downstream resident on the Whiteface River near Cotton, Minnesota, and because I have been learning about sulphide ore bodies once uncovered, I gotta ask you to demand a renewed environmental review based upon accurate water flow measurements at the Polymet site. My real hope is that the DNR will work with the tribal agencies and form an alliance to protect our water resources. My ultimate hope is that the whole darn project will be evaluated as too risky, in too sensitive an area, and should be abandoned. I have so very little faith that Polymet, or any mining corporation, would be trustworthy partners in understanding the critical value of water conservation and environmental protection and doing what they say they will. Please give my letter to you, every consideration we don't have many clean water areas left. sincerely, Curt Bush 7789 Arkola Rd Cotton, MN

9847

Dear Mr Bruner, As a downstream resident on the Whiteface River near Cotton, Minnesota, and because I have been learning about sulphide or bodies once uncovered, I gotta ask you to demand a renewed environmental review based upon accurate water flow measurements. My real hope is that the Army Corps will work with the tribal agencies. My hope is that the whole darn project will be evaluated as too risky, in too sensitive an area, and should be abandoned. I have so very little faith that the Minnesota DNR will look at the project from the standpoint of the critical value of water conservation and environmental protection. sincerely, Curt Bush 7789 Arkola Rd Cotton, MN

18629

Dear Mr Bruner, As a downstream resident on the Whiteface River near Cotton, Minnesota, and because I have been learning about sulphide or bodies once uncovered, I gotta ask you to demand a renewed environmental review based upon accurate water flow measurements. My real hope is that the Army Corps will work with the tribal agencies. My hope is that the whole darn project will be evaluated as too risky, in too sensitive an area, and should be abandoned. I have so very little faith that the Minnesota DNR will look at the project from the standpoint of the critical value of water conservation and environmental protection. sincerely, Curt Bush 7789 Arkola Rd Cotton, MN

42508

Dear Mr Bruner, As a downstream resident on the Whiteface River near Cotton, Minnesota, and because I have been learning about sulphide or bodies once uncovered, I gotta ask you to demand a renewed environmental review based upon accurate water flow measurements. My real hope is that the Army Corps will work with the tribal agencies. My hope is that the whole darn project will be evaluated as too risky, in too sensitive an area, and should be abandoned. I have so very little faith that the Minnesota DNR will look at the project from the standpoint of the critical value of water conservation and environmental protection. sincerely, Curt Bush 7789 Arkola Rd Cotton, MN

51495

Dear Mr/ Ms Dabney, As a downstream resident on the Whiteface River near Cotton, Minnesota, and because I have been learning about sulphide ore bodies once uncovered, I gotta ask you to demand a renewed environmental review based upon accurate water flow measurements at the Polymet site. My real hope is that the Forest Service will work with the tribal agencies and form an alliance to protect our water resources. My ultimate hope is that the whole darn project will be evaluated as too risky, in too sensitive an area, and should be abandoned. I have so very little faith that the Minnesota DNR will look at the project from the standpoint of the critical value of water conservation and environmental protection. Please give my letter to you every consideration we don't have many clean water areas left. sincerely, Curt Bush 7789 Arkola Rd Cotton, MN

Alphabetical by sender's first name

Curt McNamara 7722

Dear Ms Fay, Dear Federal and State Agency Leaders: The PolyMet sulfide mine is an extremely bad idea for Minnesota. Our legacy is clean air, water, and recreation. Mining in such a sensitive area is not compatible with our values and presents substantial risk to air and water quality. I realize that work has been done to quantify how the discharges would affect the environment, and predictions have been made. The sad fact is that "stuff happens" and it will take the environment hundreds or thousands of years to recover. In addition the mine would destroy wetlands which we and our wildlife desperately need. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely Curt McNamara 3616 44th Ave S Mpls. MN 55406 Curt McNamara 3616 44th Ave S Minneapolis, MN 55406

Curt Steinerbraun 18148

My name is Bernie Rissanen. I'm a representative of the Pipefitter's 539 Minneapolis. And I yield my time to Curt Steinerbraun. CURT STEINERBRAUN: Hi my name is Curt Steinerbraun. This morning when I left my home in Winter Springs, Florida, it was 81 degrees. Let me assure you I'm happy to be here. And I am grateful for the opportunity to speak here. Actually, my journey started in 1923. 90 years ago last month my grandfather got off the boat, went through Ellis Island seeking a better life. Four days later he was working for the Westinghouse Corporation. He worked in the factory 42 years. My father was an apprentice. Worked in the same factory for 43 years. I was blessed with the opportunity to get a mechanical engineering degree. I have two sons, both mechanical engineers. With the four generations we have 151 years in the energy business. My first trip to The Range was in 1973. 25 years ago I had my first shore lunch. I fished the Boundary Waters -- and they truly are beautiful -- two of the last three years. I'm hoping to be there again this summer. Minnesota has beautiful scenery, has wonderful resources, and some of the best people in the world. And I'm here to advocate on behalf of the Minnesota mining initiatives. I work for Siemens. Siemens is a large global company, a leader in the field of energy and electrical equipment. We're a $100 billion company doing business in the US of $25 billion every year. We are approaching 60,000 employees globally here in the US. And I'm responsible for the western part of the US for our energy sector. We build products that make electricity and deliver it to your homes and your businesses. We need copper and other critical metals to build our products. An example you can see in your community here is wind turbines that we are building in the state of Minnesota and North Dakota that feed this territory with clean, renewable energy. One of my issues or problems is every one of those wind turbines requires about 8,000 pounds of copper. And it also requires other specialty metals. If I -- if my company is to maintain a thriving, healthy business, we need a secure domestic source for copper and other metals like that. And I would speak just a moment on the EIS process. Every major power plant we build is required to go through EIS. I know how thorough it is. I know how time consuming it is. And I know how many hours everybody puts into it. So thank you to the US Corps of Engineers, the Department of Natural Resources, and the US Forestry for your effort.

Curt Thompson 38488

I have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I'd also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws. We cannot afford to miss this job opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. NAME ADDRESS Sent from my iPhone

Curtis Martinson 42773

See attachment

Alphabetical by sender's first name

Curtis Stendel 39057

---Original Message--- From: curt@panelworksplus-com [mailto:curt@panelworksplus-com] Sent: Tuesday, March 11, 2014 11:38 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Curtis Stendel 4861 Ambassador Blvd NW Saint Francis, MN 55070-9716

Alphabetical by sender's first name

Cyn Goustin 9390

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Cyn Goustin 6029 Dupont Avenue S. Minneapolis, MN 55419

18621

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Cyn Goustin 6029 Dupont Avenue S. Minneapolis, MN 55419

Alphabetical by sender's first name

Cyn Goustin 50697

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Cyn Goustin 6029 Dupont Avenue S. Minneapolis, MN 55419

Cyndi Neus Bradley 39558

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Cyndi Neus Bradley 4510 Chatsworth St N Shoreview, MN 55126-2207

Alphabetical by sender's first name

CYNDI SALINAS 40362

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, CYNDI SALINAS 1632 PARK DRIVE SCHAUMBURG, IL 60194 US

Cyndy Klinksiek 4219

From: Cyndy Klinksiek [mailto:klink@visi-com] Sent: Tuesday, December 31, 2013 4:58 PM To: Fay, Lisa (DNR) Subject: PolyMet Ms Fay: My husband and I moved to Duluth because of the great natural beauty and unspoiled resources of northern Minnesota. I'm writing to express my views about the SDEIS draft for PolyMet. I understand that people need jobs, and we citizens of Minnesota want to build a strong, sustainable economy, but we also need to consider the legacy we leave our children. The proposed copper-nickel mine may bring money into communities in the short term, but when the metals have been extracted, tax-payers will be left holding the clean-up bill. Our precious pure supplies of water are the envy of the world. We need to safeguard them for future generations. I've read about the chemistry of sulfates, and I believe we need to value our supplies of fresh water more highly. With waste that may need to be treated for more than 500 years, the risk is too great. Mining will create wealth for few, leaving generations of Minnesotans wondering how our citizens could have been so short-sighted as to approve this extraction at so cheap a price. Cyndy Klinksiek 125 E 7th St Duluth, MN 55805 _____ HYPERLINK "http://www.avast-com/"Image removed by sender. This email is free from viruses and malware because HYPERLINK "http://www.avast-com/"avast. Antivirus protection is active.

Cynthia A & Russell K Hobbie 54571

See attachment

Alphabetical by sender's first name

Cynthia Cone 16232

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

cynthia hardy 41850

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms cynthia hardy 1145hudson rd apt 335 st paul, MN 55106

Cynthia Hobbie 21541

Please see the attached document.

Cynthia Lee 14677

Feb 12, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved. You all know the problems with PolyMet - and you know that the public does, too, and that people like me are spreading the word that PolyMet has a horrible plan which will make them rich, and then they'll duck out on taking care of their mess. We all know this. Don't think that there are any good sides to their proposals, because what small good things come of it are not even close to outweighing the damage that will result from this. So I say to you: Reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Miss Cynthia Lee 1882 Shryer Ave W Roseville, MN 55113-5412 (612) 570-4595

Alphabetical by sender's first name

Cynthia McKeen 16259

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Cynthia Peterson 48176

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Cynthia Peterson 518 N 23rd Ave W Duluth, MN 55806

Alphabetical by sender's first name

Cynthia Wicklund 14869

Feb 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Cynthia Williams 41862

Mar 8, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Cynthia Williams 1940 E Hearn Rd Phoenix, AZ 85022-4515 (602) 482-1089

D Becker 17540

Based on reading the reports it is apparent Polymet can safely mine in norther MN with little impact on the environment. With the limited environmental impact I fully support the approval of permits for this mine. Native of MN. David Becker

Alphabetical by sender's first name

D Borgmann 46963

Dear Ms Fay, Mr Bruner and Mr Dabney: I am writing to ask you to reject the PolyMet sulfide mine Project and the proposed exchange of 6650 acres of Superior Forest Lands. The US Forest Service does not allow strip mines on Federal land within the Superior National Forest where this proposed mine would be located. I feel it is wrong to do this land exchange to basically get around the intent of this law and it is not in the public's intereSt Sulfide mining has a track record of water contamination caused by acid mine drainage. In particular water rich areas are most vulnerable such as in the Superior National Forest where this Polymet mine is proposed. Even lower sulfide content can be quite toxic when there is a lot of waste rock which is the case for this proposed mine. Many if not most owners of mines declare bankruptcy leaving taxpayers with the cleanup costs which run into the millions of dollars. In fact Hardrock mining is considered by the United State EPA as being the top toxic producing industry. Acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. The SDEIS has admitted treatment of water would require 200- 500 years or more. This is basically perpetual treatment. This violates Minnesota Rule (6132-3200) calling for a mine to be left maintenance free at closure. With that said it amazes me this is even being considered. We need a law as strong as Wisconsin's "Prove it First" mining moratorium law. This is what I want and Minnesotans deserve, we should not be risking our valuable resources. Sincerely, Diane Borgmann 2285 Stewart Ave #2123 St Paul Mn 55116

D Hudson 40317

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, D Hudson Tracy st Los Angeles, CA 90027 US

D K 9657

This email is intended to communicate my personal opinion that the NorthMet Supplemental Draft Environmental Impact Statement should be deemed complete in every respect.. This project should proceed to permitting without delay. This is a good project capable of creating good jobs in northern Minnesota. It will also allow many of the legacy issues that exit due to past mining activities to be addressed by PolyMet in a technically sound manner in a shorter timeframe. Respectfully submitted, David King 7563 Park Lane Eveleth, MN 55734 218/780-8868-

Alphabetical by sender's first name

D O 41717

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, D O 1600 Pine Road Chesapeake, VA 23322

D Ross 58144

Board Resolution Regarding PolyMet Mining January 28, 2014 The Duluth Area Chamber of Commerce supports the emerging strategic metals mining industry in Northeastern Minnesota. The Chamber's board of directors passed a formal resolution, illustrating this support, on May 28, 2013. The Chamber's board understands how the strategic mining industry of Northeastern Minnesota will generate thousands of new jobs for our region. As well, the board appreciates how strategic metals mining will have a positive impact on local tax revenue and education funding. Additionally, the board realizes how mining companies operating in Northeastern Minnesota, such as PolyMet, will utilize advanced technology to meet rigorous environmental standards established by the United States Environmental Protection Agency and the State of Minnesota to ensure protection of human and environmental health. These agencies rely on years of scientific research to set these standards that safeguard our air, water and land. The board also recognizes and appreciates how members of our Chamber have already benefited from the planning phase of the PolyMet project. For example, Barr Engineering is doing much of PolyMet's environmental work. Additionally, Krech Ojard is providing PolyMet engineering support. PolyMet has spent more than $1.2 million doing business with Duluth companies in 2013. We recognize that, once PolyMet receives its permits, several more Duluth area businesses will provide services and product to the Polymet Project. The positive economic impact of PolyMet will exponentially grow when construction and mining begin. In summary, the Duluth Area Chamber of Commerce stands in support of the emerging strategic metals mining in beautiful Northeastern Minnesota. The PolyMet Project is the most immediate example of this mining. Therefore, the Chamber's board is passing this formal resolution to: fully support and publicly advocate for the PolyMet Mining initiative. We respectfully encourage decision makers empowered with determining PolyMet's future to allow this needed project to proceed.

Alphabetical by sender's first name

D V Sandstrom 42559

POLYMET COMMENT/EDITORIAL 1/22/14 • My family has N.E. MN roots dating back of the turn of the century (early 1900's). I have lived in other areas of the Midwest but have lived here on the Iron Range since the late 1970's and chose to raise a family here in large part for a love of the outdoors & this area's unique environment. • I do not wish to impugn the motives of those against this project but I am a bit mystified by their positions, especially "the sky is falling" mentality environmentally. "Conservation" is the wise use as opposed to misuse or nonuse of resources. It seems to me that our presence here at this evenings forum is proof that here in America, we have policies & procedures in place designed to protect the environment. Polymet is utilizing environmentally friendly technologies designed to utilize resources without abusing the environment- technologies that simply were not previously available. For years this Nation has been concerned with becoming "energy independent"... Why not the same sentiment re: "metals independence"? Regardless of how well intentioned, on at least two fronts that I can think of, those who are against this project for "environmental" reasons may not have entirely thought through their position.1. Overreaching under the "environmental protection" mantra actually does more harm than good to the very environment they are claiming to protect. How so? To the extent that we find ourselves dependent upon foreign supplies of these resources, are we not simply shifting at much higher environmental cost (and social & economic cost I might add) the liability to countries who do not have policies in place designed to protect the environment? That many of these other countries are unwilling to invest in technologies & infrastructure designed to utilize resources without regard for the environment should be obvious, just ask the average Chinese citizen how they feel about their air or water quality. By refusing to move forward with projects such as Polymet, we in effect do more damage to the environment globally and are subsidizing atrocious policies where concern for the environment takes a back seat and stringent environmental measures are paid lip service at best. 2. Furthermore, refusing to utilize resources given the protections and processes we have in place is irresponsible economically and socially. Not only are wages and benefits lost to N.E., MN and our state generally but, as alluded to previously, our refusal to responsibly mine these resources means that we are subsidizing entities who, as demonstrated by their wanton disregard for the environment, obviously have little regard for economic or social stewardship. Are those who work in the mines and industry of China enjoying a dignified standard of living? If so, at what cost? At the cost of wearing a respirator just in order to be outdoors or of being afraid to drink the water? Shame on us if we allow a well intentioned but misguided few nix projects such as Polymets and thereby promote continuation of these policies globally. Finally, in my opinion "Polymet" and all those involved with the project , ought to be commended for their conviction, patience and persistence and used as model rather than vilified. Thank you for the vision and risk you and your investors have been willing to take for all of our benefit. Respectfully, D.V. Sandstrom 3747 Hwy 5, Hibbing, MN 55746 d.v.sandstrom@gmail.com (218)262-3987 or (218) 966-2720 cel

Dabney Bullivant 52289

Mar 13, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I'm a student at the University of Minnesota Duluth. The natural beauty of the Great Lakes is what drew me to to going to school here. I love Minnesota because it is a state that values and protects these natural spaces. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Dabney Bullivant 7518 130th Ave Milaca, MN 56353-4437 (763) 898-0268

Dagmar Romano 1811

Please email the Executive Summary of the PolyMet Draft EIS to HYPERLINK "mailto:ron-moore1@hotmail-com"ron-moore1@hotmail-com Thank you - Dagmar Romano _____ From: NorthMetSDEIS.dnr@state.mn.us To: dagmar.romano@hotmail-com Subject: RE: Comment on PolyMet NorthMet SDEIS Date: Sat, 14 Dec 2013 23:20:08 +0000 Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Dagmar Romano 18257

My name is Dagmar Romano. I am from St. Paul. I am 71 years old. My professional background is in environmental remediation. I am a mom and a grandma. My granddaughter is six years old and my grandsons are four-year-old twin boys. I call them my three little munchskins. They are so cute. They are my greatest source of joy and my greatest source of fear. The joy is self-explanatory. My fear is that they will not experience the natural health, beauty and serenity of Minnesota's northland as I have been able to do for so many years. I fear that they will inherit from my generation a state that is much less environmentally sound than it was when I found it. It is a well-known and honored practice that when camping in the BWCA we always leave our campsites in as good a shape or better than when we found them. Wouldn't we want to do the same for our precious state? The PolyMet SDEIS isn't a plan. It is an experiment that would put Minnesota's clean water at risk for hundreds of years, as stated in the document. The document doesn't provide the basic information to support its predictions. How much polluted wastewater is going back and forth through nine miles of pipes? What is the total volume of wastewater in tailings and processing residue? Just how polluted is the wastewater and waste rock piles, pits, sump ponds, the tailings basin and the hydrometallic waste dump? The SDEIS is incomplete because without this basic information, we can't estimate what would happen if PolyMet's unrealistic assumptions, not based on data by the way, don't come true. The project -- the SDEIS admits that the project is an experiment. On page after page it says that in the event that modeling shows violations of water quality, PolyMet will adaptively manage the problem. How does "adaptive management" as a plan sound to you? The document is incomplete. It must reveal wastewater volumes and pollutant levels at every step. It must have facilities from day one tomeet water standards. In closing, can someone help me understand how on earth we, as Minnesotans, would even consider a project that threatens to pollute our water for hundreds of years? Is this the state and the legacy that we want to leave our kids and grandkids? And for what? Some jobs that last a few years and huge profits for a mining company? I'm reminded of a poem by Robert Fulghum titled, "All I really need to know I learned in kindergarten." Particularly these lines, "Share everything, play fair, don't hit people, clean up your own mess, don't take things that aren't yours." PolyMet, are you listening?

42447

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, The SDEIS is incomplete because inportant issues, such as environmental assurances, are not adequately addressed. In addition, there is inadequate data to make an informed decision about the 500 year time frame that is being proposed for water treatment from the operation. In addition, how can any state agency agree to a 500 year time frame for water treatment/monitoring. That proposition is nuts I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms dagmar romano 1840 Goodrich Ave Saint Paul, MN 55105-1509

Daisy Dominguez 54221

Dear Ms. FayI am a student at Humboldt High School and we are an environmental school. We like to take care of nature, we also try to prevent damage to our environment.Environmental impact statements show that water from mines will have toxic levels of metals after 500 years. Of course it does not have to be that way. This is all preventable.I have noticed that your map is incorrect. I am sure that you are well aware of this. Giving false information and leaving out very import information is not okay. I am asking for you to redo your map correctly and show the correct length of the swap.I also find it necessary for a hydraulic conductivity test to see how much the swap and the mines could effect the boundary waters. Also there must be a water test in the boundary waters to make sure there is no chemicals in it.The boundary waters are very important and special because they are pure and clean, not too many places are left like that. You do not have the right as well as any other person to contaminate the boundary waters. You can not take your own selfish decisions and harm our environment.Sincerely,Daily Dominguez58 East King St. Paul, MN 55107

Alphabetical by sender's first name

Dakota Hoska 39812

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The fact that we are even considering this mine is ludicrous. We have so much to protect, so much to lose, it is not worth the few measly jobs this project will create and for how long. Jobs for 200 people for 20 years. For what. Loss of rice beds, loss of wildlife habitat, loss of water security and the loss of fragile, pristine ecosystems. The copper mine must be stopped. That is the bottom line. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Dakota Hoska 5152 10th Ave S Minneapolis, MN 55417-1724 (612) 823-2821

Dakota Johnson 42540

See attachment

Dale & Lynie Shimmin 44631

I am writing to encourage you to not approve the proposed PolyMet mine project. After studying the available research, I am convinced that this mine would be detrimental to the people of Minnesota as well as all those who visit this area. The long term affects on the land and water of this area would be disastrous. Sincerely, Dale Shimmin 2832 Minnesota Avenue Duluth, MN 55802

Dale Boeff 39527

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Dale Boeff 1738 Forssa Way Eagan, MN 55122-2658

Alphabetical by sender's first name

Dale Dahlquist 38712

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dale Dahlquist 1005 Argyle St St Paul, MN 55103

Dale Gustafosn 28767

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I would like to add my comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The records are clear, the mining industry has a terrible record of pollution and note standing behind their statement of taking care of probleMs Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. There is no proof that they can contain the pollution from this mining practice and only proof that they will not keep promises to protect the value of clean water and the species that thrive in that water. Once some pollution gets in the water flowing to Lake Superior it will be impossible to clean it out. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Dale Gustafosn 1845 Wisconsin Ave N Golden Valley, MN 55427-3962 (763) 544-4215

Dale Hegfors 42799

See attachment

Alphabetical by sender's first name

Dale Hintsala 9283

PolyMet EIS Project Manager I wish to submit my opinion concerning the release of permits for the construction and operation of the PolyMet project in Minnesota. I sincerely believe the citizens of Minnesota and the United States would environmentally and economically benefit from the construction and operation of the PolyMet project in Minnesota were the facility would have to be managed and operated under strict US and Minnesota environmental regulations. If the capacity of the proposed operation were to be developed in other Nations, such as China, our western States would receive atmospheric pollutants as they experienced from other mineral beneficiation processes located in countries with little or no environmental regulation. Build the capacity in the United States were it can be environmentally controlled-do not submit to building the capacity in a foreign nation were we only experience the environmental pollution from unregulated processes. Thank you Dale A. Hintsala, P.E. 11152 County Road 553 Nashwauk, Mn 55769 218-262-3654

Dale Johnson 10205

To Whom It May Concern: Time after time we are assured all necessary precautions have been taken to protect the environment yet when damage is done the responsible parties declare bankruptcy and walk away. I cite the company that released chemicals into the water supply in Charleston, West Virginia as the most recent example. What assurances are there this won't happen the first time pollutants are "accidentally" released. The beauty and quality of Northern Minnesota is too valuable to risk for a few jobs that will end up costing the citizens of Minnesota multiple times their value in damages and clean-up. Dale F. Johnson 4141 Victoria St N. Shoreview, MN 55126

16031

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Dale Johnson 41738

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Dale Johnston 10869

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Dale Johnston 14615 Oakwood Rd Minnetonka, MN 55345-2322 (952) 929-3765

Alphabetical by sender's first name

Dale Johnston 39731

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Dale Koplin 41810

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Dale Koplin 111 Bayfield Ct Lake Mills, WI 53551-1566 (920) 648-5137

Alphabetical by sender's first name

Dale Lockwood 43574

I am concerned in many ways. Number one,does the MN. DNR have up to date fish surveys and inventory of fish populations present. Aquatic plants present. As a person who is very familiar with the use and labeling of copper sulfate By the US EPA as a herbicide,pesticide,fishicide etc. it can be deadly at very low levels. Montana still has Blue ribbon trout streams completely void of fish due to runoff of copper sulfate waste from mines closed years ago and still having problems containing the runoff and leaching. Copper Sulfate at concentrations as low as 0-2PPM,which is equivalent to adding 0-5 pounds of copper sulfate per acre foot of water as Mn. DNR records show moves fish. At low alkalinity if present for more than a day has the potential to kill fish. Higher concentrations will definitely kill fish. These levels may even be lower than the levels Wild Rice can tolerate. Also any acidification of the water will cause soluable mercury levels to rise and work into the food chain,causing levels in fish to rise,which recomendations for people to eat are already very limited in the area. Recent study along the north shore indicates 10% of women who are pregnant have too much mercury in their system at present time. Dale Lockwood 13894 Two Mile Rd Brainerd MN. 56401 email:dale.lockwood@hotmail-com

Dale Long 18101

My name is Dale Long. The last name is spelled L-O-N-G, from Orr, Minnesota. I was the mayor in Orr for several years. And water and resources are dear to our hearts. I am an operating engineer for Local 49 and also a business representative there. I am speaking today for the Iron Range Building and Trades, which consists of 17 trades, with 6,000 plus members in this region alone. We support the state and federal agencies' document that has analyzed the PolyMet project thoroughly. This is not just about the construction jobs and building this project, but it is also about the long-term jobs to run the plant, as well as the spin-off jobs and positive effects to our area communities. I have seen this east end of the range deteriorate from the time I was in high school to where it is today. This region definitely needs this project. Thank you.

Dale Olson 4121

I forgot to include my address, it is Dale Olson 2427 Hutchinson Road Duluth, Mn. 55811 ---Original Message--- From: *NorthMetSDEIS (DNR) To: ddolson8845 Sent: Sun, Dec 22, 2013 3:02 pm Subject: RE: polymet Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

4166

please consider all of are family in your decisions four legged and two legged as some animals and ecosystems will be adversely affected. the four legged brothers and sisters don't even use money but like the two-legged they need water to live. there are alternatives to destroying eleven percent of the fresh water of the world, it would be more wise to buy out the lease of poly in the long run. this is going backward first heavy industries then tech like med tech devices now back

Dale Schwerin 39610

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Dale Schwerin 23465 Cedar Lake Dr Aitkin, MN 56431-3195

Alphabetical by sender's first name

Dale Stewart 44405

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dale Stewart - Life long Northeastern MN resident Addendum: Tourism is a much, much more important industry in this area than some copper nickle mine. Let them go open a mine where water is not an issue. Dale Stewart PO Box 792 Willernie, MN 55090

Alphabetical by sender's first name

Dale Stewart 44406

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dale Stewart - Life long Northeastern MN resident Addendum: Tourism is a much, much more important industry in this area than some copper nickle mine. Let them go open a mine where water is not an issue. Dale Stewart PO Box 792 Willernie, MN 55090

Dale Swanson 20020

Dale Swanson 16288 Cart Trail SW Kensington, Mn 56343 I think that exploration for minerals and mining can be done in a manner that would not be detrimental to our environment. I am an environmentalist, but I also see the need to put people to work. HYPERLINK "http://www.incredimail-com/.id=621159anddid=10501andppd=2820,201206281812,9,1,92825524811683742andrui=151179276andapp_test_id=0andsd=20140227" HYPERLINK "http://www.incredimail-com/.id=621159anddid=10501andppd=2820,201206281812,9,1,92825524811683742andrui=151179276andapp_test_id=0andsd=20140227"FREE Animations for your email http://www.incredimail-com/.id=621159anddid=10501andppd=2820,201206281812,9,1,92825524811683742andrui=151179276andapp_test_id=0andsd=20140227 http://www.incredimail-com/.id=621159anddid=10501andppd=2820,201206281812,9,1,92825524811683742andrui=151179276andapp_test_id=0andsd=20140227 http://www.incredimail-com/.id=621159anddid=10501andppd=2820,201206281812,9,1,92825524811683742andrui=151179276andapp_test_id=0andsd=20140227http://www.incredimail-com/.id=621159anddid=10501andppd=2820,201206281812,9,1,92825524811683742andrui=151179276andapp_test_id=0andsd=20140227HYPERLINK "http://www.incredimail-com/.id=621159anddid=10501andppd=2820,201206281812,9,1,92825524811683742andrui=151179276andapp_test_id=0andsd=20140227"Click Here. http://www.incredimail-com/.id=621159anddid=10501andppd=2820,201206281812,9,1,92825524811683742andrui=151179276andapp_test_id=0andsd=20140227http://www.incredimail-com/.id=621159anddid=10501andppd=2820,201206281812,9,1,92825524811683742andrui=151179276andapp_test_id=0andsd=20140227 http://www.incredimail-com/.id=621159anddid=10501andppd=2820,201206281812,9,1,92825524811683742andrui=151179276andapp_test_id=0andsd=20140227 http://www.incredimail-com/.id=621159anddid=10501andppd=2820,201206281812,9,1,92825524811683742andrui=151179276andapp_test_id=0andsd=20140227 HYPERLINK "http://www.incredimail-com/.id=621159anddid=10501andppd=2820,201206281812,9,1,92825524811683742andrui=151179276andapp_test_id=0andsd=20140227" http://www2l.incredimail-com/gcontent/stamps/new2011/pixel.gif.upn=92825524811683742

Alphabetical by sender's first name

Dalen 47318

I support polymer and the fact that we need to keep family's working and food on the table Sent from my iPad

Dan Allosso 40139

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Furthermore, given Glencore Xstrata's well-documented irresponsibility as a long-term steward of the environment, I think any claims the corporation makes about its commitment to multi-decade or even centuries-long containment of environmental externalities should be treated as nonsense. To put this in the plainest English possible, Glencore Xstrata intends to treat northern Minnesota as a third-world resource provider and waste sink. I live in northern Minnesota, and I have no doubt that given a thorough understanding of the issues, none of my neighbors would willingly trade our environment for a short-term solution to economic problems that could be solved in a variety of ways that wouldn't involve making our home unlivable. Sincerely, Dr Dan Allosso 9400 Cottonwood Ave NE Bemidji, MN 56601-8663 (218) 333-0480

Alphabetical by sender's first name

Dan Anderson 38624

We have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. We would also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws. The model used to calculate the alleged economic benefits of the mine takes into account the costs to the environment and the displacement of other economic activity. Tribal rights to hunt, fish, and gather under the 1854 Treaty will not be adversely affected; nothing is the same as it was when the treaty was signed. Tribal people have, and always will adapt. Further: The supplemental draft Environmental Impact Statement is a detailed, independent review of the PolyMet project. Federal, state and tribal agencies shaped the development of the SDEIS, which was written by an independent, third party. I am confident that the lengthy, thorough environmental review process has addressed potential environmental impacts and how to mitigate them. I am confident that the SDEIS gives regulators the information they need to issue PolyMet Mining permits to operate while protecting natural resources. The PolyMet project has been designed to minimize environmental impacts. It reuses an existing site and existing infrastructure, minimizes the disturbance of wetlands, and utilizes multiple safeguards to protect the environment. PolyMet's planned mine layout minimizes impacts to wetlands, and its reclamation and mitigation plans will replace the wetlands that are lost due to mining. In fact, PolyMet will restore and protect more wetlands than it impacts. PolyMet will control and manage stockpile water with proven technology, including foundation liners, water collection systems and cover systeMs PolyMet will have dramatic, positive socioeconomic impacts to a region that has been built on mining. This project is located in an area that supports mining and the jobs it will bring. The land exchange with the US Forest Service will open up new public recreational opportunities for all Minnesotans. We cannot afford to miss this opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. Dan and Lucy Anderson 810-7th Street Cloquet MN 55720

Alphabetical by sender's first name

Dan Anderson 39910

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Dan Burnett 41570

Howdy Lisa, I am Dan Burnett, resident at 2308 Elliot Avenue S Minneapolis, MN 55404 who works with the Lutheran Volunteer Corps at Open Arms of Minnesota - a nonprofit located in the Phillips Neighborhood - and I would like to express my objections to the proposed Mining Project. It is simply foolish to ask a company to provide water treatment for the area for a length of time that is over three centuries. If the contaminated water is projected to be undrinkable for longer than white people have been politically organized in a meaningful way then we should not allow the water a chance to be contaminated in the first place. It is irresponsible to expect anyone to be obligated for such a period of time. Therefore I urge the DNR to deny this permit to PolyMet. Best, Dan

Alphabetical by sender's first name

Dan Carn 18110

My name is Dan Carn. I would like to address the location that we're talking about. I believe this is the absolutely perfect location that we're looking at. I see Hoyt Lakes as the birthplace of our mining industry. And I see history repeating itself. If the mining company hadn't stepped forward at that time, we wouldn't have the construction we have today. We have a great opportunity here. This is a world-class resource. And I think this is a stepping-off point that has an awful lot of merit. Everything that we do has an impact and we should make as small of an impact as we can. This is already an industrial site. We already have a huge facility there. We're using the existing tailings basin. And we have the railroad infrastructure in there. The only thing we're doing is moving the pit area (inaudible). Regarding the issue of risk, we've said a lot about that tonight. And I also trust all the agencies that have worked very hard for eight years or more, maybe closer to ten. And I'm assuming they have an awful lot of work to do in that time. And I believe they've been hard at it. Regarding the issue of adverse risk. Nobody wants to (inaudible). If we want to eliminate risk, you can't do anything and we will have nothing, which brings me to my next point of unintended consequences. If we don't do this, there is a cost of not having it. Look at the Middle East in the last 50 years. (Inaudible) wars since the history of mankind since the beginning of time are resource based. You don't have it, you take it. You're not immune from pollution here.

Dan Cooke 6426

I do not believe the few jobs that this will bring to the state is worth the potential of long standing envirionmental impact. Dan Cooke Cooke Custom Sewing 7290 Stagecoach Trail Lino Lakes, MN55014-1988 HYPERLINK "http://www.cookecustomsewing-com"www.cookecustomsewing-com

DAN DEMARINO 21971

EIS Project Manager- I support the Polymet Mining project. I have followed the project over several years and watched how socially responsible solutions to concerns have progressed nicely. The seemingly never ending long term assurances voiced by those opposing the mine may be able to be resolved by the requirement to have long term bond assurance. Sometimes the pleasures of having a recreational retreat are not realistic and that location may have to move to a new location. The hard points are that families will be able to survive with a great quality of life if they are allowed to have an income. The mine will provide that. The community will be able to grow economically. The advances in contamination control should help to ease the concerns of pollution. The checks and balances in place should also alleviate concerns. Let people work. Let people advance. Let the mine open. Dan DeMarino 142 Sonning Rd Irmo, SC 29063

Dan Dimick 57969

I am deeply opposed to the project. The economic gains are outweighed by long term environmental risks. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Dan Esposito 42483

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Dan Esposito 1510 N Rowell Ave Manhattan Beach, CA 90266-4082

Alphabetical by sender's first name

Dan G. Eischens 7524

Looks like a pretty extensive process for this mining operation, and would like to say how impressive this information is. I think that the environment would be better off after the sulfides are no longer exposed to the effects of climate after the reclamation work is done. This is just the type of mining project this state needs to boost the economy and school aids it delivers, along with jobs and a supply source of much needed copper. Daniel G. Eischens 7700 Sunwood Dr #144, Ramsey, MN 55303 (763) 587-5201 (763) 323-5410 NOTICE: Unless restricted by law, email correspondence to and from Anoka County government offices may be public data subject to the Minnesota Data Practices Act and/or may be disclosed to third parties.

7525

Dan G. Eischens would like to recall the message, "COMMENTS POLYMET". NOTICE: Unless restricted by law, email correspondence to and from Anoka County government offices may be public data subject to the Minnesota Data Practices Act and/or may be disclosed to third parties.

7526

Looks like a pretty extensive process for this mining operation, and would like to say how impressive this information is. I think that the environment would be better off after the sulfides are no longer exposed to the effects of climate after the reclamation work is done. This is just the type of mining project this state needs to boost the economy and school aids it delivers, along with jobs and a supply source of much needed copper. Dan Eischens SAMA - Senior Appraiser Anoka Co. Property Records and Taxation (763) 323-5410 NOTICE: Unless restricted by law, email correspondence to and from Anoka County government offices may be public data subject to the Minnesota Data Practices Act and/or may be disclosed to third parties.

Dan Harp 42532

See attachment

Dan Houle 3641

Daniel G. Houle 3065 East Arm Rd Ely Mn 55731 20 years of destruction for a few labor jobs and exporting our “precious metals” with a 500 hundred year price tag just doesn’t make sense. Like Ms Otto said,,, how do you do the math on that. The time is not right we should save it for the future generations when it means more than just a few jobs. Who know what the need and technology will look like in 200 years .. Dan Houle 218-235-0413

43367

PLEASE STOP THIS THE TIME IS JUST NOT RIGHT AND THERE IS NO PROVEN SYSTEM AT THIS TIME TO MINE COPPER NICKEL WITHOUT POLLUTION. A prime example of times to come is directly stated by the current Mesabi Nugget quest to raise the amount they can pollute. We have one of the worlds largest supply of fresh water. Any degree of pollution is incomprehensible for a few jobs. Take the example of Alaska and the NO PEBBLE MINE stance. The land of 10,000 polluted lakes. not here please. Daniel G. Houle 738 East Camp St Ely Mn 55731 218-235-0413

Alphabetical by sender's first name

Dan Humay 18062

My name is Dan Humay. I live just outside of Ely in Eagle's Nest Township. I've reviewed some of the EIS. And obviously it's a cumbersome document. But I look for assurances that what is being claimed can in fact be accomplished. And I must admit I have some really great concerns. I think my initial concerns were triggered by reading that copper mining has never been conducted anywhere in the world without producing grave pollution of water resources in the mining area. I look for some hope in this project that that won't happen. Yet I see veiled attempts to prevent information in one way without answering with some pertinent questions. I'm especially concerned about the contamination of mercury from the mining operation. Northeast Minnesota already has a serious problem with mercury. And the Minnesota Pollution Control Agency has listed a number of water, rivers, lakes, and streams in this area as impaired with methalized mercury found in fish tissue. So there are some warnings about eating levels of fish beyond a certain point. And it seems to me that the mining company, PolyMet, does not do anything to assure that this is not going to become worse because of their activity. They are talking about releasing annually from the tailings container 11 million gallons every year of untreated seepage right into the water system. Furthermore, they're going to release another 6 million gallons of untreated seepage from the mine site itself into adjacent streams and rivers. Any increase in the level of mercury in the water table, whether it be in a stream, river, lake or aquifer is not acceptable. And I don't see where they can give any assurance that this will be done. Children born in this region one in ten have elevated levels of mercury in their bodies when they are infants. Elevated to the point where they are listed by the National Board of Health as hazardous. This is an anomaly. And women who are pregnant are warned about ingesting sources of mercury. To date I think they've tested 1,465 children and they found their bodies are contaminated with mercury poisoning. And yet we're going to allow a mining company to create a situation that will only exacerbate this. I think that's unconscionable. For 360 jobs for 20 years that's an embarrassment that we will perpetuate a widespread health problem to that end. I also think that corporations are not living things. They are entities that are driven by profit. And the only reason PolyMet is here is because they're interested in making money at our expense. And I wish the permitting people would wake up and smell the coffee. I think it's just wrong, unconscionable, and it may even be criminal. Thank you.

18126

Thank you. My name is Dan Humay, and I live between Ely and Tower, about halfway and I want to thank you for having the hearing, and I hope you're listening carefully because a lot of good things were said tonight. None of us are as smart as all of us, so it's important that we take what we hear and really think about it. This is really kind of an not going to tell you that I read 2,300 pages because I didn't. I think that's impossible. But I did focus on some things that were a concern of mine, and I'm not going to talk about what if, what would be our how long it would be. I want to talk about what is right now. Right now, today, as we sit here, in this watershed, the Minnesota Pollution Control Agency has classified dozens of strange rivers and lakes as impaired. What would make them impaired? Levels of mercury above what are considered to be safe. Methylized mercury appearing in fish tissue. One in 10 children who are born in this watershed have elevated levels of mercury in their body when they are born. That's not a statistical anomaly, but compared to other places in the state, it's astronomical. This project, as good as it appears to be, and the science you are examining, what it claims, admits this in this document. Annually, 11 million gallons of untreated water will be released into the watershed from the tailings containment area. Another 5 million gallons will be released into the watershed from the mine site itself. Sixteen million gallons of water this year, the next year, the next year, the next year, the next year. How much mercury is that? The EIS really falls short in dealing with mercury, and I think behooves you to hold them accountable. We certainly expect that. Everybody here who is in mining community expects it and those of us who aren't, but live here, also expect it. As a matter of fact, we demand it. We cannot put at risk children who are innocent residents the way we are now. 1,675 kids have been tested positive so far, and I think that's unconscionable --in the name of jobs or minerals or anything else. Children is all we have. Thank you.

Alphabetical by sender's first name

Dan Iler 17693

To who ever is in charge, I am concerned about the potential opening of a copper/nickel mine by PolyMet Mining Corp. in northern MN. It is my understanding that in October 2009, a Draft Environmental Impact Statement for the proposed PolyMet mine was released for public review and comment. Following that statement in February 2010, the US Environmental Protection Agency (EPA) gave the proposal its lowest ranking: Environmentally Unsatisfactory-Inadequate. The EPA gave many reasons, including: missing information, failure to address pollution problems, structural issues, and lack of financial assurance analysis. PolyMet Mining's response to this was a revised draft called the “Supplemental Draft Environmental Impact Statement” or SDEIS. There are a number of reasons that I object to allowing a copper/nickel mine to open in northern MN by PolyMet Mining (or any mining company). My first and primary concern is the environment. The second concern is financial and the third concern is a lack of trust in mining companies. 1- With a projected mine life of twenty years and a projected water clean up of the mine site for a minimum of 200 years and 500 years at the plant site the risk to reward is skewed to the way too risky side. Environmentally it is reckless and naïve to believe that any company or agency can contain and clean all of the waste water from the mine site or processing plant. It is impossible to account for all the variables mother nature can throw like floods, cracks in bedrock allowing seepage to ground water, plants and roots tearing into a possible synthetic cover over the tailings pile or Not to mention inevitable mechanical breakdowns, leaks or breaks in piping used to move waste water, human error, or . The EPA identifies the hardrock mining industry as the largest toxic-waste producing industry in the US and no sulfide mine has ever operated without polluting its nearby waters. Even if the projected water clean up is off by a hundred years or so it is still not a sound or viable deal for Minnesota's fish and wildlife, the people relying on the region's water supply, or the vegetation (wild rice ect..). 2- When it comes to the financial assurance side of the equation I feel it is unrealistic to think there is a magic formula to get a monetary number for 200 - 500 years of water clean up and reclamation. Once again, there are too many variables to try and account for with such a long time span involved. Even if the company sets aside a "damage deposit" for financial assurance and gets a back up insurance policy for financial assurance, there is not a company out there that has a track record of being in business for 500 years. It seems inevitable that eventually Minnesotans will be on the hook to cover the cost of clean up. 3- The track record of mining companies abandoning mine sites that are no longer profitable is long. The EPA has designated many of these sites as "superfund" sites, leaving tax payers to shoulder the cost of cleanup (if clean up is even possible at all). It is easy for corporations to hire good lawyers to write a nice "plan" on how well they will take care of the land and be good stewards to the environment. It is an entirely different thing for them to actually honor that plan and implement it. PolyMet Mining Corp. is simply the pawn on the chess board set up to fail. PolyMet Mining Corp. will have sent most, if not all, of its earnings to major backers (like Glencore International PLC). Once all the valuable minerals are extracted from the mine site and it is no longer profitable they will close up shop and file bankruptcy to evade clean up coSt At the end of the day the only people that really benefit from all this are some top executives of the company, some well paid lawyers and a few bought off politicians. When a person sits back and looks at this, from a common sense and scientific approach, they will see that twenty years worth of jobs mining the precious metals is

Dan Iverson 19944

It is apparent to me or any one with more than a passing interest in the sulfide mining issue, and let’s call it sulfide mining because that is really what your mining, that the DNR and the Corp of Engineers and to a lesser extent the US Forest Service has no issues with the potential impact of sulfide mining to the recreational treasure Minnesota posses and has, until recently, protected from the grasping hands of logging and mining interests. At the initial hearings at the capitol in St Paul I was stunned at how the DNR’s presentation mimicked the Poly Met proposal and then angered at the arrogance of the national mining representative who arrogantly stated to all that this was a an opportunity for income to the state of Minnesota and jobs and so what is “your problem.” Over the past few years now, as one independent source after another has pointed out the folly of this venture for the state, the DNR has remained steadfast in it’s support for sulfide mining, consistently willing to tweak the computer modeling of the project to meet the desired outcome. At the last public hearing in St Paul, it was disgusting to see the parade of paid for spokesman for the mining interests profusely thank the DNR and the Corp of Engineers for their hard work and good judgment. Obviously, the deal was in the bag as it always had been and the DNR was just going through the motions, a little dance all government agencies must do to appease the public with a show of democracy. Your actions and others in government who have been tasked with preserving Minnesota’s legacy of clean water and quality of life have failed us. Your betrayal is unprecedented and will plaque and sadden future generations as the true impact of your shallow deceit slowly and forever befouls our treasured northern lakes and streaMs Dan Iverson Master Electrician Silgan Containers Savage, MN. 55378 Office (952)707-1635 Main Plant (952) 890-2120 diverson@silgancontainers-com

Alphabetical by sender's first name

Dan Iverson 57504

Northern Minnesota is essentially a realm of water inundated by forests. And, it is this realm that defines Minnesota and holds the promise of our present and future quality of life. Twenty years of promised prosperity for a few is a poor exchange for an eternity of poisoned lakes and streaMs Dan Iverson Master Electrician Silgan Containers Savage, MN. 55378 Office (952)707-1635 Main Plant (952) 890-2120 diverson@silgancontainers-com From: *NorthMetSDEIS (DNR) [mailto:NorthMetSDEIS.dnr@state.mn.us] Sent: Thursday, January 09, 2014 7:34 AM To: Dan Iverson Subject: RE: Comment on PolyMet NorthMet SDEIS Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Dan Jobin 45242

March 12th 2014 Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental ReviewUnit 500 Lafayette Road St Paul, MN 55115-4025 Dear EIS Project Manager, I recently attended the public meeting in St Paul regarding PolyMets proposal to open a mine in Northern MN. I went into this with an open mind and heard presentations from both PolyMet as well as watched the video regarding what this project would entail. I want to thank the DNR and other agencies for there hard work in objectively evaluating this project. After viewing the video of this project a number of questions came to my mind so I spent a considerable amount of time with one of the representatives from the MPCA. This gentleman was very informative and provided me with as many facts as he could and clarified a number of things for me. 1- One of my biggest concerns is the lining that will be used under the stockpile of the most highly reactive rock. The MPCA told me there would be damage to the liners, holes and punctures so some highly acid waste would seep directly into the ground and would not be appropriately treated. I realize there are projections of what this would look like but what if they are not accurate based on some unforeseen circumstance. I am also questioning the viability of these liners over the long run of 50 to 100 years, especially when it will be constantly exposed to an acidic environment. Can we reasonably say that these liners will hold up for the long term. If they do not what is the plan to mitigate this possible scenario. 2- High levels of lead and aluminum due to the overall mitigation process of treating this water have not been addressed. These levels are well above the norm according to the MPCA. Recently a waiver was revoked on one of the taconite mines in northern MN which was allowing for high lead discharge levels. I would not be in favor of any such waiver. What a waiver tells me is that we are willing to take an environmental risk. 3- Copper is one of the key minerals that will be mined and is currently not in short supply. After attending this open house I did not walk away with the confidence or complete certainty there would not be significant impact on the water in this area. The Mayor of Hoyt Lakes said " is it a risk, yes but it is time to take it". I am not in favor of taking a risk at this time when there is a possibility that future technology would provide us a better way to mine these metals. 4- I am concerned about the pressure being put on the DNR, legislators, and other decision makers by the business community that has a direct financial incentive on this project moving forwaRd 5- The MPCA told me there has never been this type of a mine around this much water. These mines are usually in arid areas which helps mitigate the possibility of water contamination. I am not a scientist and I do not have many alternatives to provide solutions. But I do believe we need solutions that will guarantee beyond a shadow of a doubt the protection of our water resources in this area. Thank you so much for considering my comments. Sincerely, Dan Jobin 1716 Heritage Lane New Brighton, MN 55112

Dan Johnson 19966

Sirs: I did not send my mailing address in my original comment so I will restate it as follow: In spite of the EIS there have never been a documented metals operation like this that has not led to surface and ground water pollution surrounding the mines. We do not need this in Minnesota and I am strongly against this mine. Dan Johnson 3764 Gershwin Ave N. Oakdale, Mn. 55128 _____ From: "*NorthMetSDEIS (DNR)" To: tadpoly@comcaStnet Sent: Thursday, February 27, 2014 9:55:12 PM Subject: RE: PolyMet EiS Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

19968

Sirs: In spite of the EIS there have never been a documented metals operation like this that has not led to surface and ground water pollution surrounding the mines. We do not need this in Minnesota and I am strongly against this mine. Dan Johnson Oakdale, Mn.

Alphabetical by sender's first name

Dan La Vigne 18244

Name is Dan La Vigne, L-A space V-I-G-N-E. I have a couple talking points more or less. My first one is 200 years of water-pollution treatment from the mine site and 500 years of pollution seeping from the pit is not a viable solution to prevent an environmental catastrophe. Such a proposal indicates there is not a real method to deal with the problem of sulfide mining in Minnesota. Balanced against some 250 to 300 jobs for an estimated 20 years of employment is not an equitable deal for Minnesota residents. Minnesota's resplendent with wetlands and this puts them at high risk. Owning lake property makes me very concerned. There is a possibility that eventually this could affect Lake Superior, which contains 10 percent of the fresh water on the planet, and also, the Boundary Waters, the BWCA. This applies to quotes section 404 permits and the SDEIS. Even current tailing ponds leak, for example, the one at Minntac. It has been out of compliance for years. How is PolyMet going to do better? Putting money aside in a fund is not feasible, especially for 200 to 500 years. Who can predict the cost? Besides, human nature being what it is, the probability of that fund remaining untouched is next to nil. I can easily imagine it being raided to reduce taxes or for something else. A DNR report shows the rate of groundwater base flow is 200 to 300 percent higher than PolyMet's plan, so we should reject this plan. Just a comment that sulfide mining may be feasible in a different ecological system, but in Minnesota, it just makes no sense.

Dan Little 47508

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dan Little 2729 E 6th St Duluth, MN 55812

Alphabetical by sender's first name

Dan Mack 17143

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dan Mack 706 1st ave north apt 512 Minneapolis, MN 55403

50409

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dan Mack 706 1st ave north apt 512 Minneapolis, MN 55403

Alphabetical by sender's first name

Dan Mork 41893

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Dan Mork Chanhassen, Minnesota

Dan Murray 42006

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Dan Nelson 38401

Hi, I do not remember whether I sent a comment or signed a petition so excuse me if I already sent a comment but I want to make sure I have voiced my opposition to allowing a permit for the Polymet project for the following reasons. Water Pollution - there are no sulfide mining operations that have not had problems and I do not believe PolyMet has shown that they will prevent any major pollution probleMs The tailings and mine waste are reactive for too long a time period to take this lightly. Fiscal Outlook - 20 years of mining is not enough to pay for hundreds of years of pollution risk and monitoring when the company could easily renege on its pledges by selling it's assets or opting for bankruptcy in the case of a disaster. Precedence setting - there will be other permit requests and if this first permit is put through without it being bullet proof then other companies will use that as the benchmark. So even if Polymet, by some stroke of luck, does everything right and does not have an issue, other companies may have issues that they can't handle. So Polymet, as the first one down the pipe, needs to be conservative in their projections and promises and liberal in funding for all the risks now and for hundreds of years. Job Outlook - Any pollution problems from this project will negatively impact the tourism industry jobs for far more than the 20 years of mining jobs. Thank you for your time and consideration and the very professionally run public meetings on this topic. Dan Nelson 3010 Winnetka Ave N Apt 423 Crystal, MN 55427

Dan Nyberg 39908

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. This is all short-sighted and bad for our state. Minnesota deserves better. Sincerely, Mr Dan Nyberg 3285 Emmert St Shoreview, MN 55126-4116

Dan Parsow 57507

To Whom it May Concern, I would like to voice my support for Polymet Mining and their pending mining project. I have followed the company for many years now and have reviewed the SDEIS and other relevant documents. I have also had the opportunity to visit the actual site and speak with the company's management and operating teaMs I feel strongly that they have put together an excellent team of professionals and that this project will meet and exceed all environmental standards. In addition this project will bring much needed jobs and tax revenue to the area. I hope you allow this project to continue. Best regards, Dan Parsow dparsow@aol-com

Dan Pearson 18340

My name is Dan Pearson. So the spelling is D-A-N P-E-A-R-S-O-N. So nobody can serve two masters. It is you either hate one or love the other or else you can loathe one and despise the other (phonetic). You cannot serve God. A very famous man once said these words. You might have heard of him. His name was Jesus. "First, learn right from wrong and good from evil (phonetic)." Today I stand in front of you, looking into your eyes (inaudible), to bear false witness in the name of the Lord. I always (inaudible). PolyMet has the right to sit here tonight, as indicated, and talk about their mine in front of the people, where in fact their mine is only about the profits (inaudible). They have taken a path away from God, away from love, and now they put a profit before the lives of others; simple. In the past and present (phonetic). Do these words have any meaning? We've turned our backs on these words so many times, in so many different ways. PolyMet acts as the hearts and minds, but we are still here today calculating whether PolyMet is right in the eyes of God, even though we might hurt others. I will tell you right now, no. PolyMet's actions are not just and not right in the eyes of God. Any corporation that will (inaudible) disregard life for the personal needs for themselves is committing sins in the eyes of God; and these are. (Inaudible) reparations for such acts. To me, children die every day, every minute and every second from actions of corporations like PolyMet. Due to their actions (inaudible). All of these actions have to stop. (Inaudible) these words and (inaudible) rethink their actions (inaudible). Put love in your heart and not evil. (Inaudible) doubt that. If not (phonetic), your actions can be taken for life severe consequences in the eyes of God. Thank you.

Alphabetical by sender's first name

Dan Pederson 41616

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Dan Pederson St Paul, Minnesota

Dan Petrella 40134

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. To the DNR, Let's be responsible to the future people of Minnesota and make sure the fragile rocky ecosystem of Northeastern Minnesota is protected from the kind of devastation the dumping of taconite tailings did to Lake Superior. I worked hard to prevent what happened to Lake Superior in the 1950's and see the same tactics being used today regarding PolyMet. The people of Minnesota will make a good decision regarding PolyMet if they are given honest and complete answers. It is not rocket science to understand the make up of the soil in Northeastern Minnesota. All the data regarding the rocky soil and shallow bed rock structures is available in any public library. Water in Northeastern Minnesota doesn't soak into soil because the soil is primarily rock. Water simply runs through the rocks and directly into the rivers. We found good solutions regarding the mining of taconite and I'm sure we can find a good ecological solution to copper-nickel mining if we deal with the honest facts. I urge we find other ways then is currently proposed to dispose of the water tailings from the copper-nickel mining. Sincerely, Dan Petrella 5809 Whited Ave Minnetonka, MN 55345 Sincerely, Mr Dan Petrella 5809 Whited Ave Minnetonka, MN 55345-6659 (952) 934-2529

Alphabetical by sender's first name

Dan Skorich 15991

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Dan Steinhacker 52226

Hi: I am writing to express my opposition to the proposed copper/nickel mine in Northern Minnesota. I am sympathetic to the positions of residents of the area that stand to benefit from the influx jobs and money, especially given the economic hardship many face and the migration of young people from the area. However, the history of copper sulfide mining repeatedly shows a short window of increased employment and a certain future management of contaminates that remain long after the economic benefits and Polymet have gone. The lackluster initial proposal by Polymet is indication that any mining in Minnesota will be business as usual and business as usual with copper sulfide mining has a short window of benefit, generations worth of contamination and local communities and states left to deal with the mess. Every time. No thanks. Dan Steinhacker 1407 Arona St St Paul, mn 55108 Sent from my iPhone

Dan Sullivan 11327

The Polymet proposal does not sufficiently address the amount of money that should be set aside for environmental degradation. The mining industry has a long history of declaring bankruptcy and leaving taxpayers with the bill. The risks of this project are so much higher than the reward and I am opposed to it. Thank you. Dan Sullivan 1004 Chatsworth PL Shoreview MN 55126

Dan Turpening 58161

I am very much opposed to the Polymet mine. The environmental risks are too great in my opinion.

Alphabetical by sender's first name

Dan Waters 18123

My name is Dan Waters, W-A-T-E-R-S. I am a member of Up North Jobs, which has over 600 members in Ely. It's a non-profit organization in favor of jobs, any kind of jobs, on the Iron Range. I'm a business owner in Ely. Last year was my 50th year in business. Unlike some of the people here I am in the tourist business. Doesn't have anything to do with mining. It's strictly tourism. My business is not open in the winter time. It's strictly a seasonal business. So I don't have any links to economic help from a mining industry necessarily other than the ones from reduced taxes and things. That being said, I'm also a conservationist. I think I can consider myself an environmentalist. And I'm in favor of clean water. I am also in favor of mining. Especially copper-nickel mining and the PolyMet project. I think the Environmental Impact Statement that was done was excellent. And I think that not being a scientist I will rely on what they said in that statement. One fact I would like to clear up, in Ely it seems that some of the organizations that feel like Ely is they call it sustainable, and that is based on that tourism can sustain Ely. Tourism cannot sustain Ely. Since I started in business, Ely has changed dramatically. We used to have year-round bus service. At one time Ely had passenger train service. We had five grocery stores. We're down to two. We had two lumber yards. We're down to one. We had 1700 plus students in the schools. We're down to 500 and some. We're in danger of having our school go through consolidation. We're in danger of losing our hospital. All these things point to the fact that Ely and the entire East Range needs mining. This is what the range was built on. This is what will sustain Ely and the rest of the range is mining. We can have both. We can have mining. We can have clean water. We can have tourism. There's no reason not to have any of those. Thank you very much.

Dan Wicht 40111

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

dana dembinny 40324

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, dana dembinny harsdörfferstr. 20 nürnberg, ot 90478 DE

Dana Harth 9489

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Darin Harth Dana Harth 19592 state hwy 28 Glenwood, MN 56334

Alphabetical by sender's first name

Dana Harth 18429

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Darin Harth Dana Harth 19592 state hwy 28 Glenwood, MN 56334

50549

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. • The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Darin Harth Dana Harth 19592 state hwy 28 Glenwood, MN 56334

Dana L Jackson 54916

See attachment

Alphabetical by sender's first name

Dana Lansky 43508

When considering sulfide mining proposals, please take climate change into careful consideration. And please make sure the PolyMet NorthMet SDEIS explicitly states the assumptions about Minnesota's climate, economy, society, water security, food security, and political system for the next five hundred years; upon which its conclusions depend. And please require that every one of those assumptions is backed up with strong evidence that those assumptions can be dependably relied upon for the next five hundred years. Any sulfide mining proposal that doesn't address and plan for the reality that our climate situation will deteriorate is not addressing everything it should. There is an extraordinary amount of consensus among the scientific community that climate change is happening. Reporting on a major U.N. study, The Atlantic explained that "We are Terrifyingly Close to the Climate's 'Point of No Return.'" (http://www.theatlantic-com/technology/archive/2013/09/we-are-terrifyingly-close-to-the-climates-point-of-no-return/280076/) The Guardian reported that scientists are now saying that the planet is likely to warm by 4C by 2100, and that "4C would likely be catastrophic rather than simply dangerous." (http://www.theguardian-com/environment/2013/dec/31/planet-will-warm-4c-2100-climate) Even if governments around the world were doing everything they have pledged to do to prevent catastrophic climate change, which they aren't actually doing, it still wouldn't be enough to prevent our climate situation from getting perilously worse. (http://www.theguardian-com/environment/2013/dec/03/un-2c-global-warming-climate-change) Some climate experts say we aren't even aiming for the right target. Mother Jones reported that scientists are now saying that the: "Current International Warming Target Is 'Disastrous.'" (http://www.motherjones-com/blue-marble/2013/12/scientists-current-warming-threshold-would-be-disastrous) In fact, even if we immediately stopped all fossil fuel emissions, which we are not doing, our climate situation would likely continue to deteriorate. (http://www.princeton-edu/main/news/archive/S38/51/51I69/) Some climate experts think we would need to make radical changes in an extremely short amount of time in order to give our species a fighting chance. (http://www.youtube-com/watch.v=Tl7YF4fmh4oandfeature=youtu.be) As you have probably noticed, we aren't making radical changes quickly. Because some climate feedback loops may become practically unstoppable by human efforts once they get going and because carbon dioxide emissions remain in the atmosphere for prolonged periods of time, by the time most people realize how dire our situation is, it may be too late to prevent catastrophic change. Professor Richard Zeebe said: "The legacy of our fossil fuel burning today is a hangover that could last for tens of thousands of years, if not hundreds of thousands of years to come." (http://www.sciencedaily-com/releases/2013/08/130805152422-htm and http://www.sciencedaily-com/releases/2013/05/130530095020-htm) So unless the PolyMet NorthMet SDEIS bases all of its conclusions about the next five hundred years on the assumption that our climate situation is likely to be significantly changed for the worse, it is not taking reality into consideration. Different regions are expected to be affected by climate change to different extents, at different paces. And it is extremely likely that there will be a period of time when people continue to live in Minnesota under much more environmentally stressful conditions than exist today. There may even be large numbers of people seeking refuge in Minnesota from coastal and more severely drought stricken areas. Any sulfide mining proposal that does not take into consideration, and plan for, a time period such as this, is grossly inadequate. The University of Oklahoma reported: "OU Study Suggests Non-Uniform Climate Warming Affects Terrestrial Carbon Cycle, Ecosystems and

Dana McCarthy 44298

Mar 13, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. The studies done to support the PolyMet mine project have been deeply flawed and do not adequately protect our environment. There are also insufficient economic guarantees to address pollution issues in the event that the company goes bankrupt. Sincerely, Ms Dana McCarthy 1681 Lafond Ave Saint Paul, MN 55104-2214 (651) 644-2831

Dana Wahlberg 9334

Good Afternoon~ Thank you for providing the opportunity for the public to make comments on the PolyMet Project. I attended the public meeting at the RiverCenter earlier this week. My name was not drawn to speak, so I would like to share my thoughts in a written format. Like so many others, my family is extremely hopeful that this thoughtfully and carefully developed project will soon become a reality for all of us in Minnesota. The co-lead agencies have invested significant time and resources in this initiative, for which we are both appreciative and thankful. Sincerely, Dana Wahlberg 5188 Midway Rd Duluth, MN 55811

Alphabetical by sender's first name

dana woods 40303

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, dana woods 8744 e moreland st scottsdale, AZ 85257 US

D'Andre Wilson 54216

Can you not build a mine near our lakes cause waste run which can pollute our waters. It can also mess up our trees for sight-seeing. I can disturb our forest animals heavily. Sulfur pollutes water sulfuric acid. And it decreases they're PH. And fish die because of the acid that goes in the water and it effects the fish. No human wants to eat acid fish cause its bad for you.

Danette Vassilopoulos 39497

The SDEIS for the Poly Met Mining Project is flawed and does not guarantee that sulfide mining can be done in Minnesota without seriously harming water and habitat. This project should not go forwaRd It seems an absurd assumption that water treatment for hundreds of years is a reasonable expectation. There are no models for replacing the types of habitats that will be detroyed. The major impact to the water shed is too complicated to know what the outcome will be in all scenarios. Let's protect the valuable parts of our state that have already been set aside for future generations. Danette Vassilopoulos 13704 James Ave South Bursnville, MN 55337 HYPERLINK "tel:952-894-9235"952-894-9235

Alphabetical by sender's first name

Daniel Alvarez 14879

Feb 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

Daniel Balto 16001

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Daniel Batten 54670

See attachment

Alphabetical by sender's first name

Daniel Belgum-Blad 36347

Dear Reader, I am writing after carefully studying the information on several sites about the Polymet and Twin Metals Copper-Nickel Mines Proposal(s). I also write as a nearly life-long Minnesotan, and someone who has canoed the pristine waters of the northern Minnesota's BWCA and the Canadian Quetico Park areas for 45 years. I have also guided canoeists in the BWCA-Quetico for three summers as a canoe guide. The beauty, spiritual renewal, and invigorating physical aspects of travelling in the untrammeled wilds of the northern Minnesota Boundary Waters is unparalleled, and leave a deep, lasting impression. There is NO PLACE like it on earth. I have traveled around the world and visited countless wilderness areas, including in Alaska and Asia, and I can say that there is no place like our Boundary Waters. It is an unparalleled, pristine wilderness area. I have always drunk the water straight out of the lakes. Never have I gotten sick, nor has anyone, to my memory, on one of the trips I guided. I want to see the BWCA and Lake Superior Basin kept pristine for my children and grandchildren. and for others' grandchildren This is why I am writing. I am convinced that Polymet's and Twin Metals' plan will not keep our BWCA and surrounding rivers and lakes (watersheds) safe. The fact is: other copper-nickel mines around the world have led to terrible pollution of surrounding waters. It will be tragic if this happens near our beloved BWCA or Lake Superior - and the wonderful watersheds surrounding them. I am convinced it is just a matter of time before the mines and there extensions will do just that - cause environmental devastation. I realize jobs are important. But,the long-term risks do not justify the short-term "gains" - for anyone. The greatest freshwater lake in the world, Lake Superior is also at risk, as is the St Louis River and estuary. The fact that it will take hundreds of years of monitoring and cleanup after the mines finally close, is evidence supporting this: "don't start mining." The EPA has identified "hard rock mining" as the nation's top toxic producing industry. The sulfuric acid produced by this kind of mining is known to leach into rock and dissolve compounds that are toxic and that can then leach into waters - impacting birds, fish, amphibians, and the whole web of life. That's not acceptable to Minnesotans. In fact, the EPA reports that hard rock mining produced 41% of all toxins in our country in 2010- In addition, Polymet's mine would destroy 1000 acres of irretrievable wetlands. We already have lost most of our wetlands in Minnesota. We can't afford to lose more. Again, this is unacceptable. The bottom line, there are just too many risks, and I am deeply opposed to both of these proposed mines. In my opinion, it will be a big mistake if they are allowed to proceed. Sincerely, The Rev. Daniel Belgum-Blad 301 Ramsey Ave W. Atwater, MN 56209 Phone: 320-974-0736

Daniel Berg 9318

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Why give jobs to China, this is a global economy, use your heads and let mining be a part of the economy. Sincerely yours, Daniel Berg 500 Fiddler Ave SE New Prague, MN 56071

50540

Dear Ms Fay, Mr Bruner and Mr Dabney: Why give jobs to China, this is a global economy, use your heads and let mining be a part of the economy. Sincerely yours, Daniel Berg 500 Fiddler Ave SE New Prague, MN 56071

Daniel Butler 6194

I have reviewed the environmental information posted on the DNR website regarding the Polymet mining proposal. I will just get to the point. It appears the company has done their research into the processs and have a reasonable plan forward in their mining operation. I am in favor of allowing the company to mine. I would also like to make the point that the public input for the process is somewhat unproductive and at times unreasonable. Rather than open all of this public opinion why doean't the DNR simply have the best prefessionla is a field determine if the mining is reasonable and allow the operation to proceed. I would bet most of the people weighing in on this haven't even bothered to read all of the information on the website and very well may not understand the information. This is too much politics and should be more scientific. Let the mining move forwaRd Thanks, Daniel L. Butler Cohasset, MN

Alphabetical by sender's first name

Daniel Donnelly 44095

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Daniel Donnelly 2533 34TH AVE S MINNEAPOLIS, MN 55406

44100

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Daniel Donnelly 2533 34TH AVE S MINNEAPOLIS, MN 55406

Alphabetical by sender's first name

Daniel Drehmel 39602

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Additionally, mining has historically put strain on the surrounding communities via the boom/bust cycle that tends to follow an influx of capital and workers in mining towns/areas. It is my view that mining should be withheld from the region altogether. As northern MN is a beautiful and wild area that houses countless treasures that are uniquely ours and of great importance to the ecosystems that comprise northern MN, allowing potentially harmful mining practices to be used in advance of a full exploration of all options and a full report of the environmental consequences within that range would be irresponsible. Open pit mining is an abhorrently destructive practice that leaves landscapes irreparably damaged. Please ensure that every alternative is considered throughout this process and fight for the health of MN's gateway to the north as our voice in a position to be heaRd Sincerely, Daniel Drehmel 9733 Wedgewood Bay Woodbury, MN 55125-9313

Daniel E Pearson 42665

See attachment

Daniel Engelhart 39238

I sent an email in opposition to the Polymet Mine. I am in opposition but I neglected to include my address. It is 525 19th ave ne, Minneapolis, MN 55418- Thank you. On Tue, Mar 11, 2014 at 12:12 PM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd - Dan Engelhart "The function of an ideal is not to be realized but, like that of the North Star, to serve as a guiding point." -Edward Abbey

39271

I am extremely opposed to Polymet and any Sulfide mining in Minnesota. The proof is that no sulfide mine can escape the terrible pollutin that comes from this. The Jobs argument is also false given that mechanization has changed the way mining is done. I am someone who was once for this and am not opposed to taconite mining and using natural resources responsibly. Sulfide mining cannot be done responsibly and The studies have already shown that. Thank you for considering my comment for the public recoRd - Dan Engelhart "The function of an ideal is not to be realized but, like that of the North Star, to serve as a guiding point." -Edward Abbey

Alphabetical by sender's first name

Daniel H Mundt 54769

See attachment

Daniel Haller 44270

Dear Ms Fay, Dear Federal and State Agency Leaders: Our family owns property and resides seasonally near Ely, Minnesota. We believe the PolyMet SDEIS is inadequate and that this destructive project must not proceed as currently proposed because of the 1) widespread and severe environmental damage inherent in the PolyMet project and 2) the failure of the SDEIS to include a cost/benefit analysis and specific provisions regarding amounts and sources of financial assurance. We believe the Supplemental Draft Environmental Impact Statement is inadequate in the following areas: 1) Economic Impacts -The SDEIS contains no cost/benefit analysis of the PolyMet mine. - The SDEIS does not say whether wages paid to mine employees will stay in Minnesota or whether they will go primarily to transient employees who will spend only a fraction of their income in Minnesota. The SDEIS does not discuss the impact of the loss of jobs when the price of copper declines and mining becomes unprofitable, although it acknowledges that such job loss is inevitable: “Mining-related employment is volatile and fluctuates from year to year due to the market price of commodities being extracted.” SDEIS, 4-325—4-326- The SDEIS fails to assess the cost of unemployment benefits and other social services, increased crime rates, and other societal costs associated with volatility in employment. - The model used to calculate the alleged economic benefits of the mine does not take into account the costs to the environment; the displacement of other economic activity, including among other things tribal rights to hunt, fish, and gather under the 1854 Treaty; the infrastructure, government, and social service costs resulting from the mining; and the consequences of the unpredictable influx and outflow of mine employees. - What would be the costs for public infrastructure, lost opportunities to engage in other economic activities incompatible with mining, depressed real estate values, lost recreational opportunities, social upheaval, and perpetual clean-up that the public would be required to bear. 2) Permanent Water Pollution -PolyMet admits that water pollution by sulfuric acid and heavy metals will last for at least 500 years. -Not all of the polluted water will be captured for treatment. Annually, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated. -The SDEIS fails to adequately assess the long-term impacts of the pollution resulting from the release of this untreated water. -The computer model used by PolyMet may understate the actual pollution impact, because it has been shown to be inaccurate in representing current conditions for water quality around the mine site. 3) Absence of Planning for Inevitable Accidents and Failures -The SDEIS fails to provide contingency plans for the kinds of failures and mishaps that routinely occur in mining operations. During operations, at least 6-2 million gallons of polluted water would need to be treated every day. Pipeline spills, accidental releases, failure of water collection and treatment infrastructure, and tailings basins failures are virtual certainties. And because the provisions regarding financial assurance are so plainly inadequate (see below), the SDEIS does not tell us how the costs of responding to such failures will be covered. -The SDEIS provides no details on the impacts to water quality, wildlife, or human health if the water treatment system ceases operations at some time during the 500+ years during which the polluted water is being discharged. The Mine Plan Requires an Absurd and Unachievable Level of Monitoring and Maintenance for Many Centuries -Minnesota Rules 6132-3200 requires that the site must be maintenance-free at closure, but the PolyMet mining plan calls for at least 500 years of active water treatment. -526 acres of land, covered by more than 167 million tons of waste rock, would be covered by a plast

Alphabetical by sender's first name

Daniel Hirsch 46396

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Daniel Hirsch 85 Bridgewater Drive Vadnais Heights, MN 55127

46398

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Daniel Hirsch 85 Bridgewater Drive Vadnais Heights, MN 55127

Alphabetical by sender's first name

Daniel Hollenhorst 40765

To: DNR, State of Minnesota Regarding: Comments about PolyMet Sulfide Mine Proposal From: Juliana Elchert, 513 7th Av. S., St Cloud, MN 56301 Please include this commentary in opposition to the PolyMet Sulfide Mine Proposal as part of the public recoRd I am following the PolyMet Sulfide Mine proposal with great concern. How can you assure that precious Minnesota water and land resources will be preserved and protected. The scale of the proposal is so overwhelming and the technology so unproven that it appears that a failure is all too possible - and at what cost. For example, how can we be certain that attaching a huge wall to bedrock for long distances will not fail. What if the bedrock crumbles. What if an attachment fails. Or more attachments fail. We know that water is so mobile that any failure will lead to immediate leakage. Minnesota is known for its 10,000 lakes. We cannot accept the potential of seriously polluting pristine areas. I have only to remember the breech of a tailings holding area along the Northshore onto Highway 61 a number of years ago to know that calamities can occur. A failure in this project would be a calamity on a much higher scale. Do we want to risk it. NO. It is not worth it.

Daniel Holsinger 42078

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Daniel Holsinger Minneapolis, Minnesota

Daniel J. Peters 38636

Hello, I am writing to urge denial of the proposed PolyMet mining operation near Babbit, MN. In my opinion, the risks to MN water quality, at a time when potable water is becoming more scarce and valuable, is too great. Furthermore, I do not trust PolyMet or its parent corporation, and suspect they will simply declare bankruptcy and walk away with their profits, leaving the taxpayers of the state to foot the bill for potentially centuries of water pollution mitigation. All that risk for 5 years of jobs for a few hundred people. U think that's a foolish trade. Please oppose the proposed PolyMet mine in Babbit. Thanks, Dan Peters Minneapolis, MN 100 Melbourne Ave SE Mpls, MN 55414

Alphabetical by sender's first name

Daniel Martin 41669

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Daniel Merfeld 57367

To whom it may concern, I believe that this mining project is a great project. It iwll help the communities involved and have a small impact on the local environment. I would like the DNR to listen to the voices of those that live in the area, not residents of southern MN, who will see no impact of the mines in northern MN. This project will not only provide MUCH NEEDED jobs both now and in the future, but will also create many off-shoot jobs in the process. When it comes to the impact on the environment, all I ask is that the state of MN keep a close eye on how the plant is being run, as you do with all the current mines in the state. Continue to monitor what the mines put back into the environment and regulate it as you have been. If people have a problem with anything leftover from mines, feel free to feed them some of the trout from Miners' lake in Ely, MN. I grew up eating fish from that lake and nearby Shagawa. I have never seen a problem from the water in these lakes (Now that the local sewage plant is better-controled). And this mine was from a time when there were very few regulations on mining.. Between mining and logging, these two jobs are the life-blood of Northern MN. We need these jobs or else our communities will quickly die out. Even Ely is not able to survive on toursim alone in our current economy. WE NEED MINING IN MN. Thanks for listening to one person's opinion, Dan Merfeld 2309 3rd Ave West Hibbing, MN

Alphabetical by sender's first name

Daniel Mettner 47063

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Daniel Mettner 19 N. 44th Ave E. Duluth, MN 55804

Daniel Moran 58023

Any times we destroy wet lands we add co2 to the atmosphere and this causes global warming so I support the no action alternative. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Daniel Olson 21186

Daniel Olson, 1495 Simpson Street, Saint Paul, MN, 55108: These are some of my concerns regarding the proposals and plans of the Poly-Met Corporation as of 2014- - The plan covers a period of between 200 to 500 years and beyond. Our knowledge is not sufficient to make predictions for that long of a time period. Accurately making predictions over such a long time horizon is very difficult, and our confidence in the outcomes must be quite low. For example, a variation of a half to one percent can create vast changes in outcomes over such a long period. We are essentially saying that we are going to successfully complete an action plan that has never been completed successfully before. We will hope it is a good plan. We will hope that the outcomes will be close to the predictions. By the time that we learn if the plan worked or not, this mine will be long closed. It could also be true that several mine operations had been opened, closed and similar waste treatment plans had been put in place for other sites as well. By the time we learn whether or not the plan worked as predicted, it will be too late to prevent similar outcomes with similar operations. There could be unforeseen damages and costs that will have to be borne by our very distant descendants. Northern Minnesota is a wet, watery land of abundant lakes and streams and includes the world's largest and cleanest freshwater lake, Lake Superior. This region has vast, natural resources that will sustain healthy lives and healthy economies, if we protect them from degradation. We like to think that we are so wise and knowledgeable to accomplish anything that we need to do. Our scientific capabilities are great, but we are simply not smart enough to know if this plan, this experiment with our northern environment, is worth the risks that it presents. The time frame is simply too large. We do not have those kinds of capacities at this time. We may need to conduct some long-term demonstrations and experiments to give us better understandings of this kind of challenge. We need to know more confidently, that this plan will be a workable and durable and successful plan. Our climate is currently undergoing an unusually high rate of change. Human beings have not seen such changes over the course of recorded history. This current situation, alone, makes prediction models for what will occur 200 to 500 years from now much less reliable. We do not have the knowledge that we need to implement this plan at this time. Sincerely, Daniel R.C. Olson, St Paul, MN Daniel Olson HYPERLINK "mailto:olso1981@umn-edu"olso1981@umn-edu

Daniel Otterstrom 11252

Sent from Windows Mail Hello, my name is Daniel Otterstrom. I have been a resident of Minnesota for a number of years, mainly in the Duluth area. I have seen the economy of that part of the State go from good to bad because of lack of jobs and tax money’s not being there. I believe that we have resources that should be looked at with Polymet Mining. I have been following the progress of Polymet Mining and believe that they are going to be careful with the environmental issues so that the mining does not impact the land and wildlife in a negative way. They already have the resources to process the ores from mining and with them using the reverse osmosis to make sure that there are no residues left in the water to pollute the environment, I have faith that the Polymet Group will make the responsible choices so that both sides will be working together for the greater good of Minnesota.

Daniel Pauly 42966

Please find enclosed my comments on the NorthMet SDEIS. A hard copy will be delivered to the MNDNR this afternoon. Regards, Daniel Pauly 2100 West 49th Street Minneapolis, MN 55419 612-325-1237

Daniel Schutte 42674

See attachment

Daniel Telin 19528

Daniel Telin, T-E-L-I-N, 1540 North 8th Avenue East, Duluth, Minnesota 55805.I would just like to go on record that I believe the EIS, as written, is insufficient in that the project introduces sulfites and other contaminants into an essentially uncontaminated environment and a partially compromised St. Louis River watershed. The potential for environmental degradation is high because of untested assumptions in the EIS as written. And finally, there is no long-range plan for the treatment of the tailings and the sulfide wastewater whose treatment would run into centuries.

Alphabetical by sender's first name

Daniel W Iverson 9988

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Daniel W Iverson 4640 North Arm Dr 4640 north arm drive Mound, MN 55364

18731

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Daniel W Iverson 4640 North Arm Dr 4640 north arm drive Mound, MN 55364

Alphabetical by sender's first name

Daniel W Iverson 18957

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Daniel W Iverson 4640 North Arm Dr 4640 north arm drive Mound, MN 55364 952-472-7835

Alphabetical by sender's first name

Daniel W Iverson 50805

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Daniel W Iverson 4640 North Arm Dr 4640 north arm drive Mound, MN 55364

Daniel W McLaughlin 54811

See attachment

Daniel Zachman 44881

The plan to mitigate waste-water run off is not adequate. It is irresponsible to expect our grandchildren to continue to clean the waste-water from our jobs project. Please send PolyMet back to the drawing boards and ask them to come up with a workable plan. Daniel Zachman Minneapolis, MN

Daniel Ziegler 30041

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining on tourism. I hope someone other than taxpayers will pay for the clean up future mining operations. Sincerely, Daniel Ziegler PO Box 115 Port Washington, WI 53074-0115 (920) 892-7377

Alphabetical by sender's first name

Daniel Ziegler 40669

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Daniel Ziegler 2040 W Wayzata Blvd Apt 115 Orono, MN 55356-5605

Danielle Cabrera 41695

To who it may concern at the Department of Natural Resources, Please do not grant the permit to PolyMet for building a mine in Northern Minnesota. The gravity of losses that would be incurred as a result of the mine are much greater than the economic benefits. You must consider the health, social, cultural, and environmental consequences of a mine. While I understand the need for jobs in northern Minnesota, you can neither rebuild an environment full of biodiversity nor reverse the negative health impacts of local families. I ask that you decline the permit and set a precedence that affirms the dignity of humans and the life in northern Minnesota. I also ask that more sustainable jobs be presented to the local communities in the North. Thank-you for your time. Danielle J. Cabrera - Danielle J. Cabrera Communication Studies Major '15 Student Senate Co-President Collegiate Fellow Gustavus Adolphus College

danielle henjum 52316

I do not think that the Polymet Mining Project in Northern MN will be a good project for the people of this region. I believe that use of water for hundreds of years to clean up the mining is too precious of a resouce for our people. The threat of contamination of our fresh water is something that I don't think is outweighed by the minerals and jobs that will be mined and created. If a mining is allowed try it on a scale that is only 25% of what Polymet is currently proposing for 20 years. Use this as a way to both compromise with business and environmental interests and as a way to study the impact of such mining in MN. Brian Smith 5001 Oakely St Duluth, MN 55804

Alphabetical by sender's first name

Danielle Lake Diver 39466

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I live in the Minnesota Arrowhead region and I do not want my home and farm polluted by toxic waste from mining. My husband is a member of the Fond du Lac Band of Lake Superior Chippewa and he is concerned for the future of wild rice, which is a culturally important food as well as a means of economic and nutritional support for many people on Fond du Lac Reservation and throughout the Arrowhead region. If waste from open pit mining gets into wild rice beds the wild rice will die off. If the waste reaches our ground water, we will have to leave our home. I am strongly opposed to open pit mining and I believe that PolyMet's short-sighted vision will quickly become a nightmare for those of us who live near the mines. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Danielle Lake Diver 1811 Big Lake Rd Cloquet, MN 55720-9708

48737

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I live in the Minnesota Arrowhead region and I do not want my home and farm polluted by toxic waste from mining. My husband is a member of the Fond du Lac Band of Lake Superior Chippewa and he is concerned for the future of wild rice, which is a culturally important food as well as a means of economic and nutritional support for many people on Fond du Lac Reservation and throughout the Arrowhead region. If waste from open pit mining gets into wild rice beds the wild rice will die off. If the waste reaches our ground water, we will have to leave our home. I am strongly opposed to open pit mining and I believe that PolyMet's short-sighted vision will quickly become a nightmare for those of us who live near the mines. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Danielle Lake Diver 1811 Big Lake Rd Cloquet, MN 55720-9708

Danielle Rodgers 54147

I DO NOT SUPPORT POLY MET [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Danielle Sveiven 54205

I am against building a mine up north, sulfide mining is one of the dirtiest mining types. Sulfide mining is 99% waste. The boundary waters has some of the purest watersheds, where people LOVE to go camping and canoeing. I personally love going camping up there and enjoy how clean and beautiful it is.

Alphabetical by sender's first name

Danielle Taylor 18200

My name is Alice, A-L-I-C-E, C-L-O-S-M-O-R-E, and defer my time to a mentor of mine, Danielle Taylor. Thank you, Alice. My name is Danielle Taylor, D-A-N-I-E-L-L-E, T-A-Y-L-O-R. Almost 20 years ago, I moved to a small town on the shores of Lake Superior where its vastness and its power and its beauty inspired me. It was then that I knew that I had to do everything in my own power in the defense of the water. Recently, I was talking with my friend Pete who works tirelessly in defense of the water, the land and its creatures. Day in and day out, he does educational work taking people out to where they can see the source of Class 1 trout streams bubbling up in small streams, and he lets them decide for themselves; is this something that we collectively value? Sometimes when people are seeing a Class 1 trout stream for the first time, they are hooked, and that is inspiring. But sometimes the work of the educating can seem so small. So I asked my friend Pete, "How do you do it? How do you keep the energy and the commitment when sometimes it seems so futile?" He just said, "What else am I going to do." Working together patiently, defining our collective values and looking for creative approaches to our economic needs, these are activities that keep us going. What else are we going to do? The idea of the greatest good for the greatest number of people for the longest time is at the heart of development-oriented managed approach to our natural resources. The proposed PolyMet mine promises 300 jobs for 20 years, but it also calls for up to 500 years of monitoring cleanup. This equation does not add up to development. It is simply extraction. Although it merged at the beginning of the 1900s within the US Forest Service, the idea of the greatest good for the greatest number for the longest time also applies to our ways of governing ourselves and living together in communities. In an essay on patriotism, Terry Tempest Williams said that "This is the bedrock of democracy: The greatest good for the greatest number of people for the longest time." Few organizations by the numbers, United States, 250 years old, Minnesota just over 150. Minnesota DNR, 80 years old. USEPA founded in 1970 -- same age as me. PolyMet, how long has PolyMet been in existence. Among these groups, I would like to know which can make a genuine and credible promise to be around monitoring for up to 500 years? I can tell you, as far as I know, the only people that have been around here for 500 years are not too pleased about this proposal. I think there are a number of ways to do the greatest good for the greatest number of people for the longest period of time. We need to keep talking with each other, working together, one (inaudible) at a time.

20033

Attention: Lisa Fay What else are we going to do. Almost 20 years ago I moved to a small town on the shore of Lake Superior where its vastness, its power and its beauty inspired me. It was then that I knew I was to do everything in my own power in defense of the water. Recently I was talking with my friend, Pete, who works tirelessly in defense of the water, the land and its creatures. Day-in-day out he does educational work – taking people out to where they can see the source of Class 1 Trout Streams bubbling up in small springs. And he lets them decide for themselves. Is this something that we collectively value. Sometimes when people are seeing a Class 1 Trout Stream for the first time, they are hooked and that can be inspiring. But sometimes the work of educating can seem so small. So I asked my friend Pete, how does he do it. How does he keep up his energy and commitment when it sometimes seems so futile. He just said, “what else am I going to do.” Working together patiently, defining our collective values and looking for creative approaches to our economic needs—these are activities that can keep us going. What else are we going to do. The idea of “the greatest good for the greatest number of people for the longest time” – is at the heart of a development-oriented managed-use approach to our natural resources. The proposed Polymet mine promises 300 jobs for 20 years. But it also calls for up to 500 years of monitoring and clean-up. This equation does not add up to development—it is simply extraction. Although it emerged at the beginning of the 1900s within the US Forestry Service, the idea of “the greatest good for the greatest number for the longest time” also applies to our ways of governing ourselves and living together in communities. In an essay on Patriotism, Terry Tempest Williams says that this is the bedrock of democracy- “the greatest good for the greatest number of people for the longest time.” A few organizations by the numbers: · United States is not quite 250 years old. · Minnesota just over 150- · MN DNR about 80 years old · US – EPA founded in 1970 – 44 years old. · PolyMet – How long has Polymet been in existence. Among all these groups, I would like to know which one can make a genuine and credible promise to be around monitoring for up to 500 years. As far as I can tell, the only people who have been around here for 500 years are not too pleased by this proposal. I think there are a number of ways to “do the greatest good for the greatest number of people for the longest period time.” We need to keep talking to each other, keep working collectively and creatively— It’s one story at a time. One peace at a time. What else are we going to do. Thank you for listening. Danielle Taylor 12325 County Road 51 Apt. B4 Saint Joseph, MN 56374

Alphabetical by sender's first name

Dannell Shu 17157

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dannell Shu 1814 Taylor St NE Minneapolis, MN 55418

50425

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dannell Shu 1814 Taylor St NE Minneapolis, MN 55418

Alphabetical by sender's first name

Danny Ayotte 40158

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Danny Ayotte 14 Park Dr Northfield, MN 55057-2640 (507) 645-9447

Dara Syrkin 9732

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze, environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. We must be stewards of the land, stewards who use science and the long view, to determine actions. Sincerely yours, Dara Syrkin Dara Syrkin 3229 48th Ave S Minneapolis, MN 55406

Alphabetical by sender's first name

Dara Syrkin 18562

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze, environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. We must be stewards of the land, stewards who use science and the long view, to determine actions. Sincerely yours, Dara Syrkin Dara Syrkin 3229 48th Ave S Minneapolis, MN 55406

Alphabetical by sender's first name

Dara Syrkin 50638

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze, environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. We must be stewards of the land, stewards who use science and the long view, to determine actions. Sincerely yours, Dara Syrkin Dara Syrkin 3229 48th Ave S Minneapolis, MN 55406

Alphabetical by sender's first name

Darlene Coffman 16990

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Darlene Coffman 1765 3rd avenue sw rochester, MN 55902

50275

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Darlene Coffman 1765 3rd avenue sw rochester, MN 55902

Alphabetical by sender's first name

Darlene Eckert 42930

Please find attached my comments. Darlene Eckert

Darlene Haus 42865

See attachment

Darlene Jackson 42537

See attachment

Darlene Solheim 54649

See attachment

Darlene Subialka 40013

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. This is not what we want scarring the pristine sacred land of Minnesota. I say no more mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Darlene Subialka 702 N 64th Ave W Duluth, MN 55807-1120

41977

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Darlene Subialka Duluth, Minnesota

Darlene Watson 18308

Darlene Watson of Duluth. I'm turning over my speaking time to David Kane.

Alphabetical by sender's first name

Darlene Young 40008

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Darlene Young 222 2nd St SE Apt 1005 Minneapolis, MN 55414-5167 (612) 378-4933

Darrell and Delores White 57243

Sulfide mining in northeastern MN lacks common sense and is not a responsible thing to do. There is a high risk of pollution to our water, land and wild life. Tourism will be ruined for years in this area. This company lacks experience. Cleanup is expensive; they should have “billions” in a cleanup fund which no one can use except what it’s intended for.Darrell & Delores White22710 County Rd 70Bovey, MN 55709

Darrell Godbout 18073

My name is Darrell Godbout. I represent approximately 1600 union ironworkers in my regions, and a while back, I was thinking, around the area, around the country, how many small towns there are who would love to have a project like this built in their small town to bring up their community, their schools, small businesses, and all of us that have had kids have to send them off somewhere else to go to work. Here's an opportunity we can have our kids stay right here, Hoyt Lakes, Aurora, the Iron Range, and get a job and stay here. I think that's very important. I've been at the PolyMet meetings in the past. CEO, John Cherry, Steve -- Steve Ryan, Joe Scipioni; I've talked to them many times, I've been to all their meetings, and not once has any of these guys ever said on this environmental impact that we need to change our laws or lift our laws to allow them to do some things that they shouldn't be doing. I think they need to follow the laws 100 percent and make sure we have clean water, clean air for everybody. But like I said, not once has any of these guys ever said, "We want to change these environmental laws and get this thing pushed through." I think they're outstanding people. I think they want a good project. And another thing I thought about quite a while ago is, at one of the meetings I heard 70 percent of our copper is imported in this country from other parts overseas where there is no environmental protection at all, spewing crap in the air and everything else. Here, we got a company that's going to do it clean. We won't have to import this stuff no more. We can sell it right here in Northern Minnesota. I guess that's all I had and thank you very much for your time.

Darren Froehle 54641

See attachment

Alphabetical by sender's first name

Darsi Miller 44086

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Darsi Miller Landowner in the Gilbert, MN area Darsi Miller 578 Jandel Ave NE Hanover, MN 55341

44098

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Darsi Miller Landowner in the Gilbert, MN area Darsi Miller 578 Jandel Ave NE Hanover, MN 55341

Alphabetical by sender's first name

Darwin Roth 39092

---Original Message--- From: darwinroth@msn-com [mailto:darwinroth@msn-com] Sent: Monday, March 10, 2014 5:49 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Darwin Roth 4517 W 84th St Minneapolis, MN 55437-1356

Dat Tran 40359

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Dat Tran 124 Academy Lane Upper Darby, PA 19082 US

Alphabetical by sender's first name

Dave Bartholomay 15745

See attachment

Dave Carlson 9754

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dave Carlson 5818 Co Rd 2 Ft. Ripley, MN 56449

Alphabetical by sender's first name

Dave Carlson 18575

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18576

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Alphabetical by sender's first name

Dave Carlson 50651

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50652

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Alphabetical by sender's first name

Dave Cicmil 6190

I have lived and worked in northern Minnesota all my life. The mining industry has provided me and my family the means for a quality way of life, excellent education, and the opportunity to remain in the area to enjoy all it provides. I have seen technological improvements within the industry to improve and protect our environment and believe there to be a “check and balance” between state and industry. With the time, research, and money that has been invested towards this project and Polymet’s commitment to the environment, providing well-paying jobs and tax revenue, while providing the metals so badly needed to improve our quality of life. I feel that it is very important that this project, already heavily scrutinized, be allowed to move forwaRd Respectfully, Dave Cicmil Industrial Lubricant Company

Dave Clapper 17001

To whom it may concern, I remember years ago when LTV was shut down and the impact it had on the local economy. When an opportunity like PolyMet comes around to mine the world’s largest cooper reserves, we owe it to the region to create hundreds if not thousands, of jobs. It would be a shame not to jump at this opportunity that we have been so blessed with. I for one believe that PolyMet Mining would operate the mine responsibly and protect the long-term environmental concerns. I say, move ahead and do not miss out on this tremendous opportunity. Our economy could use a boost in that region and help Minnesota continue being a leader and the envy of other States. Sincerely David F. Clapper 1617 woodstone drive Victoria Mn-55386 _____ This e-mail and its attachments are intended only for the use of the addressee(s) and may contain privileged, confidential or proprietary information. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution or taking of any action in reliance on the contents of this information is strictly prohibited. If you have received this e-mail in error, please notify the sender immediately by return e-mail and promptly delete this message and its attachments from your computer system. Thank you for your cooperation.

Alphabetical by sender's first name

Dave Crawford 38374

Dear Ms Fay, Dear Federal and State Agency Leaders: PolyMet's initial DEIS was found inadequate. The SDEIS is still inadequate. I have the following concerns and I request the actions stated with each concern: The PolyMet SDEIS fails to acknowledge the Tribal Cooperating Agencies' position that there will be a need for containment or treatment of contamination from mine waste, mine pit, and tailings pile in perpetuity. Require the SDEIS to be redone to include this testimony and an objectively substantiated response from PolyMet. The PolyMet SDEIS does not adequately substantiate PolyMet's claim that 99-37 percent of the seepage from the tailings pile will be captured and that no contaminants will seep from the mine waste rock pile. Require the SDEIS to be redone to provide verifiable substantiation of claims of protection of surface waters from contamination. Damage to wetlands surrounding the project site and direct destruction of 913 acres of wetlands by the project are inadequately mitigated. The majority of mitigation for direct destruction will take place outside the Lake Superior Basin and therefore does not mitigate the impact of the project on the Lake Superior Basin. There is no plan to replace most of the indirectly damaged wetlands which will likely be compromised in the area surrounding the project. Deny the Section 404 wetlands destruction permit and require a reassessment in the SDEIS of likely impacts to surrounding wetlands outside the project footprint. The PolyMet SDEIS does not adequately assess the potential impacts of contaminant seepage through existing bedrock fractures and through additional fractures which may result from routine blasting operations at the mine pit. Require the SDEIS be redone to accurately address these impacts. The PolyMet Land Exchange would result in net losses of thousands of acres of high biodiversity plant communities, floodplains, and mature foreSt Deny the land exchange in both of its two proposed alternatives. The PolyMet SDEIS lacks a health risk assessment which sufficiently addresses likely impacts to PolyMet workers' health and the effects of airborne and seepage contaminants on drinking water wells, surface waters and their human-consumable resources of fish and wild rice, and on aquatic and terrestrial wildlife throughout the watershed, including threatened and special concern species. Require a health risk assessment. The PolyMet SDEIS fails to explore alternatives such as comparing an underground mining alternative with the proposed open pit mine; placing waste rock back into the pit; placing liners under the waste rock pile and tailings piles; or implementing engineering solutions to reduce water drainage away from Partridge River Watershed wetlands and streaMs Require a new SDEIS which documents these alternatives and compares them with the current proposal. Deny PolyMet a mining permit until all of these inadequacies are corrected with well-substantiated data and with guaranteed measures to negate adverse impacts for the entire expected duration of the problem.* This is of particular importance because the precedent which is set in allowing a hard rock mining permit in sulfide-bearing rock will set the bar for any subsequent applications for similar mining. Insufficient regulatory attention to human and environmental safety has characterized all similar mining projects across the US Minnesota needs to set a precedent which will not leave the state facing the problems which plague communities and governments saddled with the presence and aftermath of sulfide mining elsewhere. *Mining companies are temporary entities, but the PolyMet proposal creates a permanent problem. Regulatory oversight is not sufficient unless it guarantees that the party initiating a proposal will take, and be held to, all of the responsibilities for all costs and damages, present and future, which may arise as a result of implementing the proposal. If the initiating party can't make this gua

Dave Ethier 43337

Lisa Fay, EIS Project Manager, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to the citizens and taxpayers of Minnesota and the impact this project will have on water quality. Please respond to the following questions: There has not been enough research and analysis to identify the impact of a 100 or 500 year flood on containment systems and the site in general. The state, country, and world in general has had an increase in the number of large storms that resulted in historic flooding. Recent examples include the Duluth flooding in 2012, Colorado, Estes Park / Bolder areas, and the Ontario, CA flooding in the spring of 2013- Please take the following action: Conduct a impact assessment for potential historic flooding for the PolyMet project, and include the results of the assessment in the EIS. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Dave Ethier 4209 S River Run Savage, MN 55378 952-447-6332

Dave Gaddie 6605

To Whom It May Concern: As a business owner/manager I would like you to approve the permits necessary for PolyMet to proceed to construction. This project has been thoroughly vetted as it should be, but it should not be held to higher standards than any other mining project currently operating in NE Minnesota. The company has fulfilled all of the requests throughout the EIS process and it is now time to approve the project and move forward with jobs and materials that will help drive the economic environment for all of us who operate a business in NE Minnesota. We operate bank in Hibbing and know first hand that people that live on the range are in dire need of living wage jobs and benefit packages. Regards, David M. Gaddie President'/CEO Republic Bank with locations in Duluth and Hibbing

Alphabetical by sender's first name

Dave Gibbens 38453

Dave Gibbens 9655 Inver Grove Trail Inver Grove Heights MN 55476 To Lisa Fay and the good folks at the DNR: I want to add my comments to the copper-nickel mining issue. Basically, I'm FOR it. While I hope to see Minnesota is as well-protected as we can make it, I think it's important to move forward on the Polymet project. Other proposals have to be evaluated on a case-by-case basis, but again I am generally favorably disposed. This is just too good to let it get away from us. One thing for sure: copper and nickel will be mined, and we Minnesotans will do it better, cleaner and safer than anyone else. Unlike tourism, mining actually creates wealth. To the extent that deleterious effects are minimized, it's a good thing for northeastern Minnesota and the state as a whole. I grew up a child and grandchild of miners on the Iron Range and my grandfather worked in copper mining in Michigan. My dad was a mining engineer on the Range. I too worked in iron mining in the 1960s before graduating with a degree in physics, but I still spend my summers there and follow local issues. The iron mining companies' steel built our nation and gave us the materials to win WWII, but the nation needs copper now. Mining companies once made Range area schools the best in the state, if not the nation. That was then, but now the Iron Range is suffering and has lost much of its population as the better jobs migrated out. I have long been aware of the nickel, copper, gold and palladium deposits in the area Polymet proposes to mine, from acquaintances who worked on exploratory drilling rigs 50 years ago, and it has been surprising that it has taken this long for concrete mining business plans to emerge. It's a shame that it had to be at the hands of foreign mining miltinationals, but that's better than nothing - the Iron Range economy has always been controlled by outsiders, whether they be from the Twin Cities, Pittsbugh, Wall Street, Canada or Europe. Nevertheless, copper- nickel mining will be a tremendous economic benefit to northeastern Minnesota and the whole state, and I urge you to help make it happen. Thanks again for your attention - Dave Gibbens

Dave H 9486

Sulfide Mining Comments: “Does The End Justify The Means” 1/28/2014 I am a native of this precious state. I was raised on a small farm in the south central area of rural Minnesota. As a youngster after school, and after the farm chores were done, I could choose to walk the many miles of fence lines between farmers fields hoping for a shot at a ring neck pheasant or I could sneak into one of several dozen grassy slews or swamps and wait for the ducks and geese to return from feeding all day in the bean and corn fields. Sadly, these opportunities do not exist any longer in rural Minnesota. Why. Global food demand caused our prairie lands and wetlands to disappear, first by removing the fence lines between farmer’s fields, then by plowing over the grasslands and finally by tiling the wetlands. Although the yield per acre doubled, today, tons of nitrates flow into the Gulf of Mexico expanding the Dead Zone by hundreds of feet per day. Next, exhaustive global requirements for steel left acres and acres of massive holes in our northern forest land but not before we almost poisoned Lake Superior to death with tailings. Finally, urban sprawl has been chewing up acreage since settlement. In total, these operations have changed forever 2/3 of the state’s natural landscape/geography, leading the nation in that category. Did the end justify the means. Maybe. I am sternly opposed to the activation of the Polymet mine or any sulfide for the following reasons. 1- No history exists, anywhere in the world, proving that sulfide mining does not negatively impact the environment. In Minnesota this means damage to our: . Natural wild rice plots . Streams, rivers, lakes, peatlands . Forests and vegetation . Wild life and Fish . Current and future drinking water supplies (including Lake Superior) 2- Stop endangering our wetlands. According to the National Wetlands Inventory, Minnesota has lost 1/2 or 10-6M acres of wetlands since pre settlement. 3- The Polymet mine would destroy 1,400 acres of precious purifying peatland increasing the state’s CO2 level by 2% over 2005 levels. 4- Swapping nationally protected BWCA acreage for mining is reneging on land promised for preservation. 5- How can we ignore the 2008 recommendations of the Minnesota Climate Change Advisory Group stating that protecting our carbon reservoirs (peatlands) is critical and that we should design policies to maintain those protections for the future. 6- Allowing sulfide mining not only carries the risk of pollution with perpetual cleanup and filtration, the natural resources being removed are not renewable. 7- Risk of losing tourism revenue in the NE counties. 8- Foreign owned/backed mining companies have NO risk to their own soil and environment. 9- Indications are that of Polymet’s estimated 350 jobs only about 75 would involve local resources. We must protect our water supply at all costs. By now we all should be aware that an inevitable water shortage is forthcoming that will dwarf the agitating cost of current gasoline prices. Awareness of our state’s diminishing water supply should be enough of an impetus for us to strictly protect ALL ground water, from ANY and ALL type of pollution, OR the RISK of pollution. Without fuel we don’t move around, without water we die. Ok, let’s consider some alternatives. 1- How about we change our environmental stewardship attitude from "reactive" to "pro-active". The Clean Water Act of 2008 (Legacy Amendment) was a beginning but is mostly reactionary by using money to fix a problem (533M allocated/committed to date) after it arises. I submit that our attitude towards damaging environmental issues should be pro-active and prohibit proven polluting operations in the first place, like sulfide mining. 2- Find a substitute for copper/nickel. Surely, just as man invented the wheel, tools, black powder, automobiles, plastics, airplanes and space ships to the moon and Mars, we can put the resources together to find substitutes or alternate products

Alphabetical by sender's first name

Dave Hamlin 39339

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Dave Hamlin 12363 195th Ave NW Elk River, MN 55330-4143 (763) 234-4349

dave hiller 39117

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

dave hiller 48172

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Dave Hiller 3634 Campaigne rd Brimson, MN 55602

dave hunsche 7623

Name: David R. Hunsche Address: 24 West Chapman Street, Ely, MN 55731 Mailing Address: PO Box 788, Ely, MN 55731 e-mail: dhunsche@hotmail-com I am wondering if there is any research into the presence of asbestos or similar fibers in the soils or rocks at the proposed mine site. If any of these fibers are present what are the implications for worker and the surrounding populations health. Thank you, Dave Hunsche

Dave Kinzer 41755

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Dave Kotula 42545

See attachment

Alphabetical by sender's first name

Dave Krings 38131

I have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. To the environmentalists, it does not matter if they are wrong. Even if they make no sense they feel they must fight on. They have bet the farm against Polymet and are convinced, losing will seriously wound their entire movement. We cannot afford to miss this job opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. David Krings 1329 Isleview Rd Grand Rapids, MN 55744 Phone: 218-327-8289 E-Mail: gofishingmn@msn-com

Dave Lacey 3246

These mining firms cannot be trusted with our water supplies and the health of the citizens around their for profit operations. Just say no to this project. We are dealing with a similar misinformation campaign in Oregon. The short term jobs do not compare to the degradation left over when they are gone. Happy Holidays. Dave Lacey 541 373-0487

Dave Laliberte 43063

Comment on PolyMet Project In 1946, the Reserve Mining Company announced plans to build an enormous new plant and nearby company town in northeastern Minnesota. Utilizing innovative new technologies focused on obtaining taconite—iron particles magnetically extracted from crushed rock—the Reserve mine promised thousands of jobs and hundreds of millions of dollars for local economies. By the 1960s, Reserve produced 15% of all taconite used in the American steel industry, according to historian Thomas Huffman, and had brought a financial windfall to Silver Bay, the site of its processing facility, and to neighboring communities along Lake Superior's North Shore. For a resurgent mining industry, these were boom times. By 1986, however, Reserve Mining Company declared bankruptcy. Its Silver Bay plant closed that same year. By 1994, when the downsized plant re-opened under new ownership, its host community had lost 1,000 of its 3,000 residents. Boom times, it seems, did not last forever. Today, Minnesotans are considering another potential mining project, this time for copper, nickel and other precious metals, again in the state's Arrowhead region. As seven decades ago, the current proposal of PolyMet Mining Inc. contains innovative features—this time for environmental controls—and the lure of enormous economic gain. Northeastern Minnesota's history, though, should caution us that in all likelihood, any mining proposal for the region is likely to feed another boom-bust economic cycle simply because the extraction of minerals from northern Minnesota is inextricably linked to the broader society's demand for that mineral—a trend that cannot be accurately predicted decades into the future. Just as lower-cost iron and steel imported from Brazil led to plummeting taconite demand from domestic sources in the 1980s, according to historian Norman Risjord, new sources of or reduced demand for today's sought-after minerals may prove PolyMet's requested 20-year operation in Hoyt Lakes overzealous. And in the end, whether PolyMet's operations continue for a portion of two decades or beyond it, a private company cannot be expected to endure—and financially ensure the environmental health of the area it impacts—for centuries. Ultimately, the PolyMet proposal determines to take from the land what we want now; I deem it more important to leave in the land what our children may value tomorrow. Respectfully, David J. Laliberte 1108 Seventh Ave N. St Cloud, MN 56303 HYPERLINK "mailto:dlaliberte@usa-net"dlaliberte@usa-net 320-251-0019 Dave Laliberte 320-251-0019 dlaliberte@usa-net

Dave LaZella 7152

First of all I'd like to express my support for the Poly Met project. As a native Iron Ranger I understand the economic value that this project brings to the state and local area. Poly Met will provide many jobs for the local economy along with generating a substantial amount of tax revenue for the state. Having grown up less than 20 miles from the mine site I understand how mining and the environment can co-exiSt This doesn't have to be an "either or" proposition. Jobs and the environment can be balanced out. I believe that the supplemental draft EIS has thoroughly looked at and addressed all environmental concerns. This has gone on long enough and I want the permits to be issued and the jobs to begin. Thank you, David LaZella 18362 Sherry's Arm Road Grand Rapids, MN 55744 218-259-4349 HYPERLINK "mailto:dlaz1951@yahoo-com"dlaz1951@yahoo-com

Alphabetical by sender's first name

Dave Leitzke 44909

To Whom it May Concern: This Minnesota citizen now adds his voice to the many concerned people of this state regarding the proposed Polyment mine. From all reasonable accounts, this mine will have a devastating effect on the environment of the immediate landscape, as well as poison the drinking water of local residents. The beauty of our state must be preserved. This mine might provide short-term profit for its owners and share holder.. it will also wreak havoc with the surrounding countryside as well. if there was a statewide referendum on this topic today, I would vote NO, against the Polymet mine. Sincerely, David Leitzke 1404Raymond Avenue, Apt 2 St Paul, MN 55108

Dave Lislegard 44276

My name is Dave LislegaRd Like our late Senator Paul Wellstone, our Range Delegation, Congressman Nolan and Senators Franken and Klobechar, and other Community, business, and Labor Leaders are working hard to support urgently needed mining jobs on the Range, while protecting our environment and quality of life in Northern Minnesota. This unified approach is exactly the kind of leadership needed to make progress. As a lifelong resident of the Iron Range, I have a strong interest in supporting responsible mining projects that will breathe new life into our region while protecting our natural environment. I am not a scientist or engineer but recognize that PolyMet's reverse osmosis water treatment design is well tested and used in many applications today. The Minnesota Department of Natural Resources is a respected agency responsible for determining that the PolyMet project will meet our state's strict standards. They along with the EPA and Army Corps of Engineers have been deeply involved with the evaluation of the state of the art technologies that will be used by PolyMet. Senator Paul Wellstone was a champion of both economic and environmental justice and did a great deal to help my family and so many others after the LTV plant closure. As with the late Senator, I believe the economic opportunity represented by mining and environmental stewardship are not mutually exclusive. PolyMet represents an opportunity to create hundreds of direct jobs supporting families on the East Range, as well as thousands of additional jobs statewide. And make no mistake, our Range communities want this in their backyard and fully believe we have the ability to do this project right. Personally I am offended when the opposition uses fear tactics and suggests that our communities are divided. What better way to stand up for environmental and economic justice than to create mining jobs in a state with some of the strictest environmental regulation in the world and labor and safety laws designed to protect workers. Senator Wellstone fully understood that Iron Rangers are fighting for a way of life that balances our love for our natural environment as well as our desire to see families stay in the region because they have economic opportunity. Like my daughter Hailey who is currently enrolled in the heavy equipment operator program in Staples with the hope and dream that she will be able to come home to work and raise her family. I commend the agencies for doing their homework and using their professional expertise to ensure this project will be held to our State standards. Dave Lislegard 720 Arrowhead St Aurora MN, 55705

Dave Mills 45008

Dear Lisa Fay, Firstly, thank you for your time. Secondly, down to business: Please reject the Polymet project. I grew up in Grand Rapids, MN. It wasn't a mining town, but had had a little mining nearby - close enough to bike to. The tailings piles were an eyesore, but they also gave the land some character. They were fun to explore. The pits were fun to swim in, kind of scary deep, but fun. They almost seemed exotic. The land had been torn up and not yet restored, but the danger was minimal. There was no toxicity to treat. Just pits to fill, but it wasn't done. Not the worst consequences from what I can tell, but a lack of follow through with a lasting impact. The Iron Range had a reputation of not quite being stable. Mines were shut down while I grew up, and sometimes re-opened, but then shut down again. Mining is not a economically sustainable industry. Sometimes a boost to an economy can help revitalize a community, but if there is significant potential harm it would seem a dangerous wager. Minimizing risk seems to be in the best interest of the community. I would suggest minimizing the environmental risk of the area from a safety standpoint(potential leaks, leaching, drainage - the Fukushima radiation is still not contained as an example of how technology, albeit different, can fail) as well as minimizing the environmental risk from a financial standpoint, if bankruptcy occurs (and it has been occurring around the globe quite a lot lately). The safest way to do that would be to reject the project altogether. The consequence of rejecting the project seems to be the status quo, and my understanding is that the economy of the area is not flourishing. The area HAD flourished while more mining operations were happening, but like previously stated, mining is not sustainable. The Polymet project would potentially improve the economy for less than a lifetime, yet the potential hazards will last for much longer than a lifetime, much longer than Minnesota has been a state, and much longer than any living thing in our State. The EIS of the project does not sufficiently cover our interests. There is too little evidence supporting the project, especially considering the real potential harMs Please reject the project for the good of everyone and all things good. Thank you for you time and hard work. Sincerely, Dave Mills Grand Marais, MN

Alphabetical by sender's first name

Dave Redelman 43605

Subject: Comments on the PolyMet Supplemental Draft Environmental Impact Statement From: David Redelman 2115 E. River Terrace – 202 Minneapolis, MN 55414 I have some general comments about the SDEIS concerning the process that will be followed by four issues that are not adequately addressed in the SDEIS. I feel the comment period for the EIS should be 180 days. The comment period for the SDEIS should have been longer than 90 days due to the complexity of the document and the modeling used in the document. You could make EIS easier to follow by including all relevant information in the document and not refer back to SDEIS or DEAS. Also, when the EIS is released, the List of References should include links to those references with the references stored and easily accessible on the DNR website. Users of the website should be able to download these reference files. My general comments on the SDIES regard my feeling the process is basically cooked with a predetermined outcome. The presenter for the introduction at the open house on January 26, 2014 at the River Center, St Paul, mentioned four reasons why the SDIES was completed. He made it sound like the SDIES was the idea of the State of Minnesota or Polymet. He neglected to mention that the DEIS was basically rejected by the EPA. In addition, answers to questions by representatives of the State or their contractors at the booths seemed like a sales pitch to approve the mine. This concern is heightened considering the MN DNR and MN PCA signed off on the DEIS followed by the EPA giving the DEIS in inadequate – environmentally unsatisfactory ranking. My primary concerns involve addressing long term water quality issues. Sulfide mining has a generally poor record leaving long term water pollution after closing the mines. I am sure the proposals for these polluting mines also looked good on paper but still resulted in long term pollution probleMs There have also been many mining companies going bankrupt with inadequate financial assurances resulting in taxpayers paying for the cleanup. The proposed PolyMet mine would be the first sulfide mine in Minnesota. Everyone is learning as we go through this process so we need to proceed with great caution. If errors are made, these errors should be on the side of caution. Specific issues that are not adequately addressed in the SDEIS: Financial assurances are not adequately addressed. Detailed financial assurance calculations with the associated risk analysis need to be completed for the EIS. This risk analysis is crucial in the EIS and any decision to proceed forward to the permitting process is dependent on this risk analysis. Section 3-2-2-4 of the SDIES states “The level of engineering design and planning required to calculate detailed financial assurance amounts is typically made available during the permitting process and was not available at the time that this SDEIS was prepared.” What is typical of this process as the SDEIS is for the first sulfide mine in Minnesota. Also, forgive me but it seems absurd that more detailed engineering and analysis of risks would only be completed during permitting. Again, the engineering design and the risk analysis are both crucial in the EIS. Any decision to proceed forward to the permitting process is dependent on this risk analysis. I do not understand how the financial arrangements between PolyMet and Glencore results in Glencore getting a free pass and not accountable for any financial assurances. Glencore seems to be getting an increasing ownership stake in the operation with the right to sell the metals. PolyMet has not operated a mine but chosen a partner that seems to leave pollution problems in its wake. At the open house, DNR staff was confident that lessons have been learned from past mining pollution and that financial assurances would be adequately addressed. I do not share that confidence. Sulfide mining h

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Dave Salo 18085

Hi. I'm Dr. Dave Salo. I currently reside in Mountain Iron, Minnesota. This is an introduction to the medical and pharmaceutical applications of these local metals, that's going to include cooper, nickel, platinum, palladium, gold and some other isolated isotopes. First off, copper we see as a pharmacological category as a trace element. We see it in over-the-counter supplementation; we see it in total (inaudible) nutrition; and most importantly, is going to be the anti-bacterial property that copper has because it is much cheaper than silver yet acts just like it. Along with that, nickel. Nickel is present in stainless steel, and it is a durable stain-resistant surface. It's easily cleaned and we've used this quite a bit within the hospital settings and other areas of healthcare. We also see it implemented in a number of our instrumentation, especially in the surgical suites, and it's also used in drug eluting and/or bare-metal stents after somebody has a coronary event. Anyone had a heart attack? Probably got a stent; okay? That's what some of these metals are going to be used for. Platinum. Anything with a platin on the end of the molecular name is going to have a platinum molecule attached to it. We use these as far as anti-cancer agents, alkylating agents. We have three of these available on the market, now, as pharmaceuticals; cisplatin, carboplatin and oxaliplatin; and we've got one in phase two of clinical trials, satraplatin. If anyone has had cancer before and known someone who has had cancer before, they more than likely have had one of these drugs or at least considered as part of the drug regimen. Some of the indications include but are not limited to bladder, ovarian, testicular, colorectal, cervical, in vitro, head and neck, mesothelioma, lung, non-Hodgkin's, et cetera. Palladium. Palladium is a radiopharmaceutical. We implant these into the prostate. It's a alternative to a prosthetic in removal of a prostate. And also, too, anyone who's a diabetic, or knows some who's a diabetic, this is present in their electrodes in their blood-glucose meter. This results in electron flow that is measurable and directly proportional to the concentration of glucose in the blood resulting in quick and accurate measurements for which we are familiar with today. Now, in conclusion, we know these metals are not readily available on the surface, but we need to extract them from the ground, and we need to do this to maintain the current manufacturing of these drugs and these products. Also, to foster the future pharmaceutical manufacturing and/or development of drugs, advance the practice of medicine and to treat -- in an effort to treat cancer, control infection and diagnose and monitor the path of physiology of affected individuals. And I will state one thing about statistics; there is lies, dam lies and then statistics. So the science is very good.

Dave Sandstrom 9560

Please find my Polymet Op Ed published by the Hibbing Trib 1/28/2014 attached. Thank You, Dave Sandstrom 3747 Hwy 5 Hibbing, MN 55746

Dave Semerad 18158

My name Sam Burke. I'm a third-generation ironworker from Local 512. And I yield my time to Dave Semerad. Thank you, Sam. My name is Dave Semerad, S-E-M-E-R-A-D. And I'm the CEO for the Associated General Contractors of Minnesota. We're the state's oldest and largest trade association representing the building and highway heavy-construction industry. Collectively our members perform the vast majority of heavy highway construction, and commercial and public building construction in the state. Today our members employ over 75,000 construction workers. We are construction professionals who since 1919 have built Minnesota schools, places of worship, stadiums, roads, bridges, hospitals and clinics, locks and dams, power plants, refineries, water treatment facilities, pipelines, municipal utility projects, airports, hotels, retail centers, factories, high-tech manufacturing facilities, shopping malls, and countless other projects. And if you worked on one of those projects, let me hear it from you. For years, and before it was vogue, we practiced industrial recycling and conservation. We have partnered with environmentalists on the job site to develop practical and effective rules and regulations to preserve our environment; and worked with our partners in labor, engineering and design to develop best practices that enhance safety, improve quality, and maximize value and efficiency. We believe this project near Hoyt Lakes represents an extraordinary opportunity for the Iron Range communities and for Minnesotans. As in any project, there are risks. And we believe these have been carefully vetted and mitigated in the planning and review process. We believe this project will infuse economic vitality into the communities that understand and embrace the importance of clean air and water and the conservation of forest and wildlife and countryside. Not only will meaningful projects be created across a wide spectrum of careers, but confidence and faith in Minnesota industry will be uplifted finding its way into communities, schools, and families. For every $1 million of investment, 28,500 jobs are projected. We urge that this project proceed without further delay. It will be safely and responsibly by proud men and women who believe their efforts will contribute (inaudible).

Dave Vukson 58164

I think the format of this meeting was very misconstruded people should not be able to give away there time to speak. If they don’t want to talk they should pass. Not give it to politicians. I didn’t come here to here politicians I came to here the people speak.

Alphabetical by sender's first name

Dave Worshek 42566

See attachment

Dave Zins 45274

David Zins 307 Kent Road Hoyt Lakes MN 55750 I would like to begin by stating that i am a life long resident of Hoyt Lakes, Minnesota. My father started working for Erie Mining Company (which later became LTV) in September of 1957 a year before I was born. I have lived in Hoyt Lakes my entire life. I am currently serving in my tenth year as a member of the Hoyt lakes City Council. I was elected to office in 2004, this was around the time many of the former LTV employees were running out of unemployment and leaving the area to find work. I state this because I know what the economic impact of Polymet getting permitted would mean for our city, schools, and local businesses. We in city government have had to face the financial decisions of not replacing several of our retiring employees and still provide the basic services our residents had grown accustomed to. i am confident that the agencies involved in the decision making on this project have thoroughly reviewed all of the scientific data on this project and are well aware the project can be done environmentally safe. The project has been designed to have minimal environmental impact and yet utilize a an existing processing facility where my father was able to work for forty years and raise a family of five children. Restarting this existing plant site would be one of the largest recycling projects that has ever happened in the state of Minnesota. Polymet's mine site is one which is surrounded by mining company properties. The only way the public could ever utilize the mine site for recreation would be by trespassing. This is the reason I believe the land exchange with the US Forest makes sense. This land exchange would open up lands that have been privately held, for the general public to use and enjoy for generations. I believe that the technology exists for this project to move forward now and start a new generation of mining with sustainable jobs for years to come. In closing I would like to state that I feel i am confident that Polymet will adhere to the strict regulations that the agencies have laid out. I also believe they have answered all of the concerns and will operate while protecting the natural resources which I consider are in my back yaRd Respectfully submitted, David Zins

Alphabetical by sender's first name

Dave/Lynn Horwath 39156

Speak the Truth byDonella Meadows Material accumulation is not the purpose of human existence. All growth is not good. The environment is a necessity, not a luxury. There is such a thing as enough." Lisa Fay, EIS Project Manager DNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 FR: David and Lynn Horwath 1612 kingsbury Rd Washington, IL 61571 RE: PolyMet SDEIS Response To whomever it may concern: Our family owns property and resides seasonally near Ely, Minnesota. We believe the PolyMet SDEIS is inadequate and that this destructive project must not proceed as currently proposed because of the 1) widespread and severe environmental damage inherent in the PolyMet project and 2) the failure of the SDEIS to include a cost/benefit analysis and specific provisions regarding amounts and sources of financial assurance. We believe the Supplemental Draft Environmental Impact Statement is inadequate in the following areas: 1) Economic Impacts -The SDEIS contains no cost/benefit analysis of the PolyMet mine. - The SDEIS does not say whether wages paid to mine employees will stay in Minnesota or whether they will go primarily to transient employees who will spend only a fraction of their income in Minnesota. The SDEIS does not discuss the impact of the loss of jobs when the price of copper declines and mining becomes unprofitable, although it acknowledges that such job loss is inevitable: "Mining-related employment is volatile and fluctuates from year to year due to the market price of commodities being extracted." SDEIS, 4-325—4-326- The SDEIS fails to assess the cost of unemployment benefits and other social services, increased crime rates, and other societal costs associated with volatility in employment. - The model used to calculate the alleged economic benefits of the mine does not take into account the costs to the environment; the displacement of other economic activity, including among other things tribal rights to hunt, fish, and gather under the 1854 Treaty; the infrastructure, government, and social service costs resulting from the mining; and the consequences of the unpredictable influx and outflow of mine employees. - What would be the costs for public infrastructure, lost opportunities to engage in other economic activities incompatible with mining, depressed real estate values, lost recreational opportunities, social upheaval, and perpetual clean-up that the public would be required to bear. 2) Permanent Water Pollution -PolyMet admits that water pollution by sulfuric acid and heavy metals will last for at least 500 years. -Not all of the polluted water will be captured for treatment. Annually, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated. -The SDEIS fails to adequately assess the long-term impacts of the pollution resulting from the release of this untreated water. -The computer model used by PolyMet may understate the actual pollution impact, because it has been shown to be inaccurate in representing current conditions for water quality around the mine site. 3) Absence of Planning for Inevitable Accidents and Failures -The SDEIS fails to provide contingency plans for the kinds of failures and mishaps that routinely occur in mining operations. During operations, at least 6-2 million gallons of polluted water would need to be treated every day. Pipeline spills, accidental releases, failure of water collection and treatment infrastructure, and tailings basins failures are virtual certainties. And because the provisions regarding financial assurance are so plainly inadequate (see below), the SDEIS does not tell us how the costs of responding to such failures will be covered. -The SDEIS provides no details on the impacts to water quality, wildlife,

davec 19912

Dear Sirs, Just a note to let you know I am for the Polymet mining proposal. My whole life, 58 years, has been spent here living around mining. This industry has enhanced our environment and my standard of living. Many areas within 20 miles of my home have been mined, mother nature has done a great job reclaiming the old mines, pristine water, and beautiful trees growing right out of rock piles, and where mines have been reclaimed by man the results are outstanding. The government agencies are doing a wonderful job insuring the mining companies currently running are following the rules and leaving the environment as good as or better than the original terrain. The process required for Polymet's proposal although time consuming has left no stone unturned. The time for uncertainty has passed, government inspectors will make sure this mine is done right. It is time to let them get going, they will follow the rules set forth by the EIS, otherwise our government will shut them down. Our community and country will be better for allowing this project to move ahead. Thank you for your time. Sincerely yours, Dave Clement Minnesota Farmer, hunter, and construction worker 2372 N Yoki Road Zim, MN 55738

Alphabetical by sender's first name

David 7736

TO: Lisa Fay, EIS Project Manager Lisa, After observing Polymet Minings efforts over the past several years and carefully reviewing the recent SDEIS, I feel the company has met the environmental requirements and should be issued a permit to proceed. Although, I do have empathy for the long term concerns of the projects opposition, I am far more concerned about the negative economic affects (loss of jobs in Logging and Mining) caused by the creation of the Boundary Waters Canoe Area and the closure of Erie Mining Company have had on the people and communities of Northeastern Minnesota. I have no doubt that environmental issues beyond the future closure of Polymet Mining can and will be dealt with in a responsible manner. Thank You David Krings 1329 Isleview Road Grand Rapids, MN 55744 Phone: (218) 327-8289 E-mail: gofishingmn@msn-com

45117

Dear Ms Fay, I would like to make a comment against sulfide mining. My objections are based on: - This type of mining has never been done without polluting the surrounding area. - The owners of the companies proposing the mining project are foreign owned, and almost impossible to go after once problems arise. - Your Department and the other regulating entities can't be trusted to to protect these areas. The incestuous relationship between regulators and the businesses they regulate make that impossible. You can see it when you look at the DNR website which does not mention the flaws in the water model, which I believe underestimated the river flow rate on purpose. - The taxpayers will be on the hook for the reverse osmosis mitigation. Estimates show that we will have to provide mitigation for at least 500 years. The average corporation like Polymet has a much shorter lifespan. They will be sold or go out of business, and we will be left holding the bag. There is no way the companies can make enough money to build the infrastructure to change public opinion, start up the mine, pay salaries, buy equipment, ship and process the ore, close the mine, and treat the ground water forever. It doesn't make any sense. - These proposals always wildly inflate the number of jobs that will be created. I believe that these objections, and many more not included here make this project totally unacceptable. There is no change I could offer except to scrap the plan. I would like to see a way to "claw back" the revenues of this project from the corporations, officers, employees, shareholders, unions, vendors,and public employees who supported this project. In the absence of all of these entities guaranteeing the safety and environmental protection, we can't go forwaRd I also believe that the DNR should work to protect the environment and not be a spokesman for private, for profit corporations. Thank You. David Mykkeltvedt 4900 W 86th Street Bloomington, MN. 55437

David & Alison Edgerton 46933

Comment: I urge the State of Minnesota to deny the permits and leases for the nonferrous mining proposed by PolyMet. It has too many risks to our environment- the flora and fauna of the area including the people who live or recreate in the region. There are too many unknowns about the process, the heavy metals that may be released, and the cleanup and reclamation required for years and years after the actual mining. Please protect our northern forests and lakes, our world-reknowned recreational area, and the people who live there. Alison Edgerton 2009 Hogans Island Dr NW Backus, MN 56435 218-947-4709 HYPERLINK "mailto:edge02@tds-net"edge02@tds-net _____ HYPERLINK "http://www.avast-com/" This email is free from viruses and malware because HYPERLINK "http://www.avast-com/"avast. Antivirus protection is active.

David & Ardis Eide 42718

See attachment

David A and Dianne K Kuiti 42876

See attachment

Alphabetical by sender's first name

David Abazs 43078

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I am an Alternative Energy consultant and installer and live in the Lake Superior watershed. Although copper is an essential element in alternative energy components, no respectable alternative energy advocate would ever trade the kind of environmental damages inherent in the PolyMet proposal. Sulfide mining in the water rich environment of northern Minnesota is not worth the risk. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, David Abazs David Abazs 5879 Nikolai Road Finland, MN 55603

Alphabetical by sender's first name

David Abazs 47781

Dear Ms Fay, Mr Bruner and Mr Dabney: I am an Alternative Energy consultant and installer and live in the Lake Superior watershed. Although copper is an essential element in alternative energy components, no respectable alternative energy advocate would ever trade the kind of environmental damages inherent in the PolyMet proposal. Sulfide mining in the water rich environment of northern Minnesota is not worth the risk. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, David Abazs David Abazs 5879 Nikolai Road Finland, MN 55603

Alphabetical by sender's first name

David Alexander 47598

I stand with my representative Phyllis Kahn in her statement of concerns (listed below the MPR link) and I believe: ?We have plenty of copper to recycle already. ?I'm not confident of the protection of people and environment. ?A reputable third-party insurer, such as Lloyd's of London, must be found. ?We need a robust public debate. MPR asked Are you confident that the proposed PolyMet mine would avoid polluting. Read others comments from the mpr "today's question" Sincerely, David Alexander of Minneapolis, MN 612-666-5532 http://blogs.mprnews-org/todays-question/2014/03/are-you-confident-the-proposed-polymet-mine-would-avoid-polluting-minnesotas-water/ My answer: No, I'm not confident the proposed PolyMet mine would avoid polluting Minnesota's water. If we need to boost our economy and protect the environment let's beat Colorado's projected gain of 100 million dollars in taxes by repealing the prohibition of cannabis/hemp altogether. My representative (who also is for repealing prohibition) Phyllis Kahn's statement is: The scope of the PolyMet NorthMet SDEIS [Supplemental Draft Environmental Impact Statement] is seriously lacking. This is especially the case when the issue of financial assurance is concerned. I have three points: I. In chapter 3, pages 136 to 138, you list information that includes the preliminary cost estimate of closure. The source cited is "Foth 2013-" I've looked at the Foth memo cited in the SDEIS. The Minnesota DNR has simply copied information from PolyMet's hired consultant without confirming or fact-checking their work. If the Minnesota DNR and its co-lead agencies are unable to fact-check the work they presented on financial assurance, how are we to expect that they are capable of the adequately protecting the citizens of Minnesota. II. This project should not go forward unless a third-party insurer, such as Lloyd's of London, can be found. The simple fact is, if a third-party private entity will not take on PolyMet, the state shouldn't. Private insurers have expertise in managing risk that the State of Minnesota can't match. Additionally, policymakers could tap the assurance funds for other purposes. Private insurance is clearly superior to a state managed approach in this case. III. In the SDEIS you say that financial assurance will be done in the Permit to Mine stage. Looking at the most recent MinnTac Permit to Mine document, there is one short paragraph on financial assurance. This project shouldn't go forward without robust public debate, and the opportunity for legislative hearings, if what we can expect is a paragraph from the DNR in the Permit to Mine phase. You must ensure that the public, including financial experts and those elected to represent the citizens of Minnesota, have a chance to weigh in on financial assurance. It has not been your practice to do so in the past; will it be in this case. http://blogs.mprnews-org/todays-question/2014/03/are-you-confident-the-proposed-polymet-mine-would-avoid-polluting-minnesotas-water/

David And Alicia Newell 38974

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs David And Alicia Newell 826 N 9th St Saint Peter, MN 56082-1264

Alphabetical by sender's first name

David Anderson 17418

Feb 16, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

David Aquilina 45421

To: Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 From: David Aquilina 4817 Vincent Ave S Minneapolis, MN 55410 HYPERLINK "mailto:davidaquilina@q-com"davidaquilina@q-com PolyMet is seeking approval to mine and refine 32,000 tons of copper-nickel ore per day in Northeastern Minnesota. If the state allows them to proceed, there should be no doubt that sooner rather than later, PolyMet will be back, pushing the state's elected officials and regulators to let them scale up their operations to 90,000 tons per day. Moreover, they will put their considerable weight behind other companies' efforts to open even more copper-nickel sulfide mines. Why. Because the company's investment advisor has concluded that given the capacity of their proposed processing facility, such a huge expansion is necessary in order to achieve maximum operational efficiency, maximize their return on investment, and thereby boost the company's stock price by 300-400 percent. With such an increase in shareholder wealth at stake, who can doubt PolyMet's real intentions. PolyMet's spokesperson has claimed that enlarging mining and processing operations are not part of their current discussions or plans. To characterize that statement as disingenuous is way too Minnesota Nice. Even if expansion were not under discussion, it should be. And, that discussion should involve all citizens of our state. I know that the government can only review the EIS for the company's plans as currently proposed. But we should be clear that if they get the go ahead to mine and refine 32,000 tons day, the government is opening the door to triple the size of that scale of mining and refining. A chemist with more than 30 years of experience at the Minnesota Department of Natural Resources (DNR) and the US Environmental Protect Agency summarized the hazards of chemical contamination from copper-nickel mining and processing in a letter to the Star Tribune ("A chemist speaks of the dangers," December 2, 2013). After PolyMet ceases operations in 20 years, measures to monitor and manage the tailing wastes and regional water quality will be required for 200 years at the mine and for 500 years at the processing facility. The total estimated cost today is about $3 billion. In the decades ahead, who knows what the costs might be – especially if PolyMet is just the first of many copper-nickel mines in the region. As the Minnesota Center for Environmental Advocacy has made clear, the environmental impact statement only addresses PolyMet's proposed plans at present. However, the actual scale of their operations is sure to be vastly bigger. What is the environmental impact of a threefold increase in the volume of ore dug up – at the PolyMet mine and at other mines that would need to be opened to supply their processing facility. Do we know. The impact of shipping more and more tons of ore by rail every day from its mine and from other mines to PolyMet. Do we know. How will doubling or tripling the amount of ore processed affect the scope and costs of current and future environmental controls at the plant. Do we know. What we do know is that for decades and decades after PolyMet's shareholders – including Glencore Xstrata, PLC, the Anglo–Swiss multinational commodity trading and mining company that is PolyMet single biggest stakeholder -– have extracted their profits from the rocks of Northeastern Minnesota, our children, grandchildren and their descendants will be left with the rubble of the environmental consequences and costs.

Alphabetical by sender's first name

David Arbeit 42935

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay, The PolyMet NorthMet open pit mine project proposed to extract copper, nickel and other metals from northeast Minnesota is more than "groundbreaking" in a literal sense; for better or worse, it will set Minnesota on an irreversible path that will define our future. With so much at state, it is appropriate that state rules and regulations guiding the review and approval process provide for an admirable degree of public involvement. And with more than 40,000 comments submitted in response to PolyMet's Supplemental Draft Environmental Impact Statement, I expect that most issues regarding the project's impact have been identified and addressed in some form or another. Still, one fact remains: The right decision hinges on the trade-off between a reasonable expectation of economic benefit over a short twenty-year period in exchange for an unreasonable expectation that mitigation will prevent incalculable and irreversible environmental damages, economic costs and human health issues that will be felt by generations. Can anyone seriously doubt that this is a terribly risky bet. Minnesota needs a healthy economy and our people deserve rewarding, well-paying and safe jobs. But opening the State to open pit sulfide mining will not get us there and represents a trade-off that we should not make to achieve more limited goals. The PolyMet NorthMet SDEIS is impressive in many ways, but it also is dramatically inadequate in a number of ways and should be rejected, along with related proposals for open-pit sulfide mining. Among them are inadequate assessments of long-term risks, a bias towards "best-case" scenarios that convey a false sense of prospects for mitigating risks, a complete failure to analyze risks to on-site workers, the absence of a Health Risk Assessment of the effects of toxic pollutants on people and habitat downstream, and the absence of compelling evidence that technologies needed for reducing long-term risks to acceptable levels will be capable of achieving that outcome. PolyMet's 2,169 page SDEIS documents PolyMet's plans for three impacted areas: a mine site, transportation and utility corridor, and a plant site. It covers 18 months of construction, 20 years of operations, and reclamation, closure and post-closure maintenance "if or when proven effective" for a period that PolyMet acknowledges "would last for an unknown duration." This last sentence is telling: what if no effective method exists for putting the genie back into the bottle when a toxic contaminant is leeched or released – especially once operations have ended. To PolyMet's credit, the SDEIS represents a significant investment of intellectual resources and makes the case that copper-nickel sulfide mining can be pursued with close to zero risk to the environment, supported by extensive analysis and complex modeling marred by often questionable assumptions, mitigations that involve many untested technologies, and promises of an enduring commitment to reduce risk to implausibly low levels. If the SDEIS were an academic exercise, it would probably deserve an A-plus. Yet, the assumptions made and scenarios used to demonstrate a low-risk result defy what we already know – even under "blue sky" conditions, risk cannot be reduced to zero. So what about the cost of a highly improbable scenario should it occur. Can it really be measured and who, if not the public, will end up paying for it. Must we forget the results of catastrophic failures such as Fukushima, Exxon/Valdez or Deepwater Horizon. Or on a more modest scale, but perhaps more germane, must we forget the effects of the Elk River chemical spill on water supplies affecting residents of nine West Virginia counties. Yes, PolyMet has depicted scenarios that might possibly be effective, but sulfide minin

David B Puskala 54553

I would like lakes and streams as clean as my grandathers enjoyed for my grandchildren's grandchildren. Water is a precious resource. If you have ever been a real fisherman you understand that. The trout sure as hell do. If you must know, I mined on the Iron Range like my father & grandfathers did.

David B. Edgette 46258

Please DO NOT issue a mining permit to PolyMet. The St Louis River and Lake Superior already have too much pollution flowing into them as a result of past and present industries. Potential additional pollution from PolyMet should not be allowed. In fact, more clean up of all fresh water should begin ASAP. The copper concentration in the ore body that PolyMet plans to mine is of such low concentrate that a large amount of material will need to be removed for a very small return of copper. Minnesota should not permit any mine of this type. The destruction of forest and pollution produced for 100's of years is not worth 15-25 years of mining jobs. Sure it might be profitable for corporations like Minnesota Power to sell more electricity produced from their polluting coal burning power plants. This also would not be good for the environment. Mining should not be allowed in the Superior National ForeSt A land exchange does not replace the location and original forest as was intended when it was set aside for the future. Recreational land is one of Minnesota's largest long term assets. Please DO NOT issue a permit to allow PolyMet to profit for a short term by shipping their copper to China, leaving Minnesota with another polluting hole in the ground. Thank you for your consideration, David B. Edgette 12049 East County Road B Lake Nebagamon, WI 54849 HYPERLINK "mailto:dbasil2@gmail-com"dbasil2@gmail-com

Alphabetical by sender's first name

David Bergerud 42720

See attachment

David Brown 18290

David Brown. I'm just against the mining just simply because of the 500-year exposure and what it would mean to the wetlands and the water there. I think ultimately that's all going to come to be billed to the taxpayers. And I would -- I think like my wife said, I would rather use that money to create other programs for the people that would essentially benefit from this. So, I understand that they make some comments about nobody is saying we should use less copper, but I would say, yes, we should use less copper and all sorts of industrial products. And I don't think the fact that people aren't yet ready to give up copper is a reason to create more mines for copper. The end. Thank you.

42119

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

David Brown 42122

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

david burrow 47221

) > >>>> >>>> >>>> In 1991 my wife and I purchased a 3 acre lot on White Iron Lake. Clean >>>> water and access to the BWCA attracted us to the area. We built a cabin the following year where we now spend about 6 months of the year. We fish, swim, canoe, Kayak, sail, bike ride, camp and cross country ski. Clean water is critical to everyone in Northern Minnesota that enjoys these activities. >>>> The Northeastern area of Minnesota, currently being considered for >>>> the NorthMet project, is a unique land and water resource. So >>>> unique that a significant portion of the area has been designated >>>> as a National Wilderness Area (BWCAW). As a result, there are >>>> limits placed on the area with respect to how it can be used with >>>> the intent of preserving it for the long term. Copper/heavy metal >>>> mining will put the BWCAWin jeopardy. This area has a great many >>>> lakes and includes two watersheds, one emptying into the Hudson Bay >>>> and the other into the Great Lakes. These watersheds represent a substantial amount of the >>>> fresh water reservoir on the planet. Fresh water is an increasingly >>>> scarce and essential resource for life itself. It is for this >>>> reason, I believe, that copper mining should not be introduced into Minnesota. >>>> >>>> The copper deposits throughout the Duluth Complex are embedded in >>>> rock containing sulfide. Large amounts of sulfide bearing rock >>>> will be extracted along with small amounts of copper (and other minerals). >>>> Oxidization of sulfide bearing waste rock resulting from extraction >>>> and processing will create sulfate. Sulfate contact with surface >>>> or groundwater, accidental or otherwise, results in acidification of the >>>> water. Lakes and wetlands in NE Minnesota are very sensitive to >>>> changes in ph. Small changes effectively "poison" the the water and >>>> will kill fish and wildlife. >>>> >>>> There is no denying that copper is a vital component of many of the >>>> devices we use everyday. That said, studies have shown that there >>>> is a great deal of copper in the earth's crust distributed around >>>> the planet; enough to last thousands of years at current rates of >>>> use. In addition, we continue to increase our recycling rates for essential >>>> minerals. The SDEIS acknowledges that the environmental impact of >>>> untreated waste rock and water as a result of the NorthMet project >>>> could be serious and perhaps devastating. As such, multiple >>>> treatment and containment techniques detailed in the SDEIS will be >>>> employed to manage the threat of environmental damage. However, >>>> despite best efforts at protection, every existing copper mine has caused >>>> significant environment damage. Worse still is that the possibility >>>> for damage exists not just during the mines operation but for many, >>>> perhaps hundreds of years into the future. >>>> >>>> In an anticipation of the possible future cleanup costs, there are >>>> suggestions, not detailed in the SDEIS, of a surety bond or some >>>> financial instrument that sets aside monies to pay for ongoing >>>> management/treatment of the mine's waste products. Given that few >>>> corporations remain in business for hundreds of years, including >>>> those involved in mining or backing bonds, how then can Minnesotans >>>> be assured that we collectively will not be responsible for future >>>> cleanup/ treatment costs associated with copper mining. >>>> >>>> In conclusion, given the potential devastating impact to our scarce >>>> freshwater resources, I believe that the risk of introducing copper >>>> mining into Minnesota is too great. We should increase our >>>> recycling efforts and/or mine copper in areas where there is less >>>> freshwater than in the "land of 10,000 lakes." It is for that >>>> reas

David Carlson 42595

See attachment

45601

There are hundreds of reasons to say no to this mine. Reasons for it. Maybe a couple hundred non union jobs for 20 years. The risk to the waterways of this state are just not worth it. The costs the taxpayers will end up picking up to clean up their mess when they leave will be endless. The damn copper won't even stay in this country. This company can not be trusted. We have something far more precious than the copper in the ground. It's the liquid gold that flows all around us. Clean water is far more useful then any metal, and we are very lucky to have as much as we have in this state. And this will be even more true in the future. Just say NO to this damn mine..

David Cartwright 42793

See attachment

Alphabetical by sender's first name

David Christenson 47994

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Once again the shiny empty promises of international conglomerates are distracting Minnesotans from the harsh and inevitable consequences of a poorly planned industrial project. No copper-sulfide mine has ever operated without polluting its environment. Not one. Ever. What is in the history of the backers of PolyMet, or their plans, to make us think they're the exception. Nothing. There's a weird short-sighted Minnesota exceptionalism that prevents us from seeking out the experiences of other states when a controversial issue like this comes up. We need only look to the U.P. of Michigan, right up Highway 2, where 'Copper Country', potentially an outdoor paradise, is littered with abandoned mines and their long-lasting pollution. The latest: fish consumption warnings for Torch Lake in the heart of the region, where fish with "tumors of unknown origin" have been caught - nearly 50 years after full scale mining in the area shut down. Sure, the PolyMet mine will bring money and profit - mostly for the mine execs and investors of course - but PolyMet -and other mining operations that will surely follow whatever precedent you set - are more than likely, long term, to turn the region into another abandoned 'Copper Country' - chronically polluted, chronically depressed, decaying and depopulated. Thank you for your attention, David Christenson 3615 35th Ave S. Minneapolis, MN 55406

52376

Dear Ms Fay and Mr Bruner, Once again the shiny empty promises of international conglomerates are distracting Minnesotans from the harsh and inevitable consequences of a poorly planned industrial project. No copper-sulfide mine has ever operated without polluting its environment. Not one. Ever. What is in the history of the backers of PolyMet, or their plans, to make us think they're the exception. Nothing. There's a weird short-sighted Minnesota exceptionalism that prevents us from seeking out the experiences of other states when a controversial issue like this comes up. We need only look to the U.P. of Michigan, right up Highway 2, where 'Copper Country', potentially an outdoor paradise, is littered with abandoned mines and their long-lasting pollution. The latest: fish consumption warnings for Torch Lake in the heart of the region, where fish with "tumors of unknown origin" have been caught - nearly 50 years after full scale mining in the area shut down. Sure, the PolyMet mine will bring money and profit - mostly for the mine execs and investors of course - but PolyMet -and other mining operations that will surely follow whatever precedent you set - are more than likely, long term, to turn the region into another abandoned 'Copper Country' - chronically polluted, chronically depressed, decaying and depopulated. Thank you for your attention, David Christenson 3615 35th Ave S. Minneapolis, MN 55406

David D Cameron 57224

The motivation for sulfide mining is greed, monetary, and political. There is no justification to mine low grade sulfide for the benefit of a few and ruin the environment for generations to come. And , if they think PolyMet or any other mining company will clean up their mess just look at the mess in the Yukon.David D. Cameron9397 91st Ave SWStaples, MN 56479

David D. Thomas 10318

If there is a significant chance of environmental destruction and human health hazards, this project can not be worth the projected modest short-term economic gains, for a small number of people, many of whom are not Minnesotans and will not be affected directly by the destruction and hazards. David D. Thomas William F. Dietrich Professor Department of Biochemistry, Molecular Biology, and Biophysics University of Minnesota Office and mail: HYPERLINK "http://www1-umn-edu/twincities/maps/NHH/index.html"NHH 5-124, 312 Church St SE, Minneapolis, MN 55455 Office: (612) 625-0957 fax: 624-0632 cell: (612) 308-7410 Email: HYPERLINK "mailto:ddt@umn-edu"ddt@umn-edu Web: http://biochem.umn-edu/ Home address: 4744 Thomas Ave S, Minneapolis, MN 55410

David Davison 44816

Polymet has few ties to Minnesota and is foreign-owned. The corporation has little incentive to fix any damage it causes. The company should be required to create an escrow account for damage repair that is acceptable to most Minnesotans. If the company falls short on its obligations, Minnesota should be able to shut it down. - David Davison -- This email is free from viruses and malware because avast. Antivirus protection is active. http://www.avast-com

Alphabetical by sender's first name

david diedrich 9480

Jan 30, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

David Donch 39907

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Hundreds of thousands of Minnesotans like myself vacation near this area every year and support the local economies with our tourist dollars. I myself have family that lives in the area and do not wish to have their ecosystem harmed for the sake of a few thousand jobs that one day will be replaced with massive clean-ups that cannot leave the ecosytem nearly as pristeen as it is now. I am against this mine for profit . David M. Donch, Sincerely, Mr David Donch 1792 Duluth St Maplewood, MN 55109-4310 (651) 771-0895

Alphabetical by sender's first name

David Evans 903

David Evans 1093 12 Ave SE Minneapolis, MN 55414 The HYPERLINK "http://files.dnr.state.mn.us/input/environmentalreview/polymet/sdeis/fact_sheets/commenting.pdf"fact sheet located on the DNR website states that "All comments must be made by 4:30 PM on March 13, 2013-" I believe that should read "March 13, 2014"

52263

Dear DNR Review Board: I strongly oppose the proposed mining operation. There is every reason to believe there will be unintended consequences and hidden costs. Having personally seen the toxic waste problems in Butte Montana, Kevin Montana, and Libby Montana go without resolution for decades I cannot support this current proposal. The permit request in front of you is disguised with assurances that a clean up program will be adequate, funded and carried out. All of the aforementioned sites in Montana were abandoned by the "responsible" corporations and after years of lawsuits the American public is facing the costs of ill-health and decades of clean up. There is also reason to believe that some of the toxins that will enter our waters will be nuerotoxins. While these will potentially effect children as yet unborn one of the decisions you are making is if you should risk the future intelligence and health of our grandchildren for a few jobs and the short term profits for a few shareholders. I hope you will think of them as you cast your vote. Sincerely, Thomas Evans 13231 Arcadia Ct NE Bemidji, mn 56601

David Farr 42023

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, David Farr Minneapolis, Minnesota

David Ferenci 57976

I feel this is a bad idea for many reasons and should not be allowed.The following are just a few of my reasons.1) Production of Sulfide Acid.2) Never has there been a copper/nickel mine anywhere in the world that has not polluted water.3) Polymet has never operated a mining operation.4) The mine would be located 20 miles upstream from the largest fresh water lake in the world.5) 20 years of mining with 500 years of monitoring is an unrealistic thought.6) Threat to thousands of jobs in the recreational and tourist industry over the next 200 years,for a handful of 20 year mining jobs.

David Flessner 31822

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Sulfide mining is illegal in Wisconsin, in fact, until it can be proven safe This project will impact the region's natural resources and public health, including risks to water quality, loss of wetlands and harm to both wildlife and people. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit would be an ecological disaster. No matter what PolyMet says about their environmental practices, they will inflict severe damage on the area and bring a significant level of toxicity to a pristine area. This outweighs the benefit of any jobs that might be created. Sincerely, David Flessner 3565 S 83rd St Milwaukee, WI 53220-1027 (414) 545-2744

Alphabetical by sender's first name

David Frame 11358

Below are my comments: Mining in northern Minnesota I am not against metal mining in northern Minnesota as long as it's done properly. I have read the articles that suggest that there will be acid based runoff and leaching for up to 500 years. That tells me that the process was not done properly. When iron ore was first made into taconite pellets the 'waste' product was piped into Lake Superior. The mining process was not done properly. Steps were taken to correct the process. The 'waste' product, tailings and water, was then deposited on land. The tailings were dumped on land as the tailings were produced. At all government levels we have accommodated business by allowing them to reduce their profits by accelerating their costs and pushing the final disposition of their spoils into the future. I think it's time that we make both the cost causer and cost payer the same, and tie the time line of the process to the time line of the fix. By that I mean that the waste product created each time period, I suggest each quarter of the year, be neutralized during the next time period (or before). The companies and Minnesota know from the test drilling and from the details of the extraction process the volume of the waste product and the possible quantity and pH of the 'waste' and possible leachate. The DNR should require the mining company to mix their 'waste' with a substance that is similar in consistency to the 'waste' and in a quantity that will neutralize the 'waste' so that any runoff or leachate will be have a pH that will not degrade the environment. From what I've read the 'waste' products produce an acid waste or a 'waste' that produces an acid product when exposed to air and/or water. If that 'waste' were mixed in something like a hot mix asphalt plant with crushed limestone then as the resulting mix was exposed to air and water the acid products would be neutralized as they are created. I am sure that PolyMet will say that it can't be done. What they are really saying is that doing this will reduce our profits. They would rather gain the high profits now and then, as the chemical company out east did, declare bankruptcy, when the cost go up and the profits down. If you present the problem to several universities and their chemists and chemical engineers say that it is impossible to treat or process the waste as it is created to reduce or eliminate acid runoff or leachate I would read their reports. Engineers see 'can't' as opportunities to find a way David Frame 25826 Skyline Circle Elko, MN 55020 952-461-2909 dframe@integra-net

David Franseen 6185

Greetings, I have reviewed the executive summary of the Northmet SDEIS, as well as the Major Differences of Opinion and the supporting SDEIS sections. It appears reasonably certain that this project can move forward without undue or significant impact on the environment. Or it may even have positive outcomes for the site and surrounding ecosysteMs Double win if that can be achieved through permitting and development. I support moving this project forward to the Final EIS and ROD. I also support diligence from the Co-lead agencies in assuring desirable environmental outcomes. Thank you for your efforts, David Franseen 2411 W Skyline Parkway Duluth, MN 55806

David Freeman 18312

My name is David Freeman from Ely, Minnesota. The following comments apply to the SDEIS and the Clean Water Act Section 404. The SDEIS is wholly inadequate in scores to reflect the real environmental and economic costs of the proposed project. My comments focus on the inadequacy of the SDEIS with respect to the major associated economic costs of the proposed project. The perpetual treatment costs. An inescapable conclusion from the SDEIS is does the water treatment to remove toxic pollutants and the maintenance and monitoring of water treatment will require hundreds or thousands of years. The SDEIS is wholly inadequate to provide definitive information about the total cost of such treatment, the mechanisms for providing for or requiring for payment and ensuring payment of such costs. And the socioeconomic costs to the people in Minnesota and the nation when it seem likely that the mechanisms for ensuring payment are insufficient or failed entirely. The SDEIS acknowledges that toxic water pollution from mine sites, tailings piles, and waste piles will require treatment for a very long time. The mechanical water treatment is part of the model proposed to action for 200 years at mine site, 500 years at the plant site. The SDEIS states that while the exact period is uncertain, it is expected to be long term. End quote. After noting that, "Financial assurance would be required indefinitely." The SDEIS states in section 3.2.2.4 that, "The level of engineering design and planning required to calculate detailed financial assurance amounts is typically made available during the permitting process and was not available at the time that this SDEIS was prepared." Indeed a major flaw in the project is the cost of engineering, designing, planning, building, and maintaining the water treatment is unknowable. Any project for which the cost of water treatment is unknowable, but according to the project proposer will be in the billions of dollars, should not be considered for approval by the state. It is irrational to believe that any water treatment facility or corporation will last for hundreds of years, but any financial institution or instrument can provide credible guarantee for hundreds of years and that there will be no catastrophic failure by humans o equipment over hundred of years. Take for example just last week the chemical spill in West Virginia, the Fukushima nuclear reactor destruction, the Deepwater Horizon explosion, or the I-35W bridge collapse. Thank you very much.

Alphabetical by sender's first name

David French 10803

I have been following the progress of Polymet Mining since I first heard of the Company in the UK 3 years ago. I have been most impressed with the professional approach of the Company to systematically dealing with the very valid concerns of the environmental lobby, particularly with the subject of water pollution. As a professional engineer, I applaud the Company's reverse osmosis solution, and I doubt if there is a mining operation anywhere where environmental concerns have been given such a high priority. On the positive side, the mine clearly contains large quantities of very valuable minerals which will benefit the whole community and the country, and the creation of hundreds of well paid jobs in an economically deprived area could only be a major boon. In summary, I would hope that the whole community takes this project to their hearts, invests in the Company and shares in the prosperity that the project will bring. Air Vice- Marshal David French CB, MBE, CEng 109, Yarmouth Road Blofield Norwich UK Sent from my iPad

David G Nelson 54896

See attachment

David Garelick 39464

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The negative impacts of sulfide mining upon surrounding environments is beyond debate. Credible science corroborates the extreme environmental risks of these operations. Those that purport to tell a different story are bought and paid for by mining dollars and lobbying. Who's kidding who. Even a child doesn't trust fake make-believe. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr David Garelick 2116 Randolph Ave Saint Paul, MN 55105-1333 (612) 690-4042

Alphabetical by sender's first name

David Givers 45537

From: David Givers Moorhead, MN 56560 "Mechanical water treatment is part of the modeled NorthMet Project Proposed Action for the duration of the simulations (200 years at the Mine Site, and 500 years at the Plant Site). The duration of the simulations was determined based on capturing the highest predicted concentrations of the modeled NorthMet Project Proposed Action. It is uncertain how long the NorthMet Project Proposed Action would require water treatment, but it is expected to be long term; actual treatment requirements would be based on measured, rather than modeled, NorthMet Project water quality performance, as determined through required monitoring." (ES-11) As you know, the scientific method requires a testable hypothesis. This condition is missing from the SDEIS. The uncertainty described in the document (see above quote) means that it is impossible to model the scenarios that can occur given enough time. For example, there is no way for DNR to certify that a postulated containment wall drilled into bedrock will keep water within its boundaries over the unknown length of time that the SDEIS cannot and does not specify. Other unspecified events, while they seem improbable, can still occur. Geoscientists can estimate the probability on an earthquake on the Laurentian shield. That probability is not zero, but given enough time an event could occur that fractures or shifts the steel wall thereby allowing water to escape. These events do not include the climate change we are destined to experience. Climate scientists are clear that climate change is on us and will continue to escalate over what was the Cenozoic Era. This is borne out by the following statement and shows that the SDEIS is seriously flawed: "For example, the Continuation of Existing Conditions Scenario model does not include future expected additional mitigation at the existing LTVSMC Tailings Basin, because these mitigation measures have not yet been determined, nor does it try to account for climate change. The No Action Alternative, on the other hand, is not static and anticipates for other predictable changes in the NorthMet Project area, such as other planned projects, required mitigation, and climate change (5-2) There is an error in this statement and an error in logic. (a) it implies that the science can determine the climate change impacts in the No Action Alternative. This is a basic error in the understanding of climate change at the local level. Climate models do not at this time tell us what will happen in Northeast Minnesota. We only know that the climate as we experience it today is likely to deviate from historical climate normals and, also, that there is a likelihood of extreme events, which can not be predicted. (b) The statement also errs because it does not take its purported finding of climate change in the No Action scenario and apply them to the PolyMet scenario. this is a logic error and misrepresents the purported reasons to approve this SDEIS. If this study subsumes these modeled climate changes within the SWM (Gold Sim) models, then the written report needs to spell them out in the narrative so that the citizens of Minnesota, and the rest of the United States, can read the results.

David Grande 39360

Mar 11, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, David Grande W11322 Schultz Dr Beaver Dam, WI 53916-9521 (608) 243-8527

David Greene 23427

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Iwant to comment on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The Great Lakes are a valuable and irreplaceble resource for the central mid-west and should be cleaned-up not made mre dirty. Minning is one of the worst sources of toxic materials known and should not be allowed to contaminate these lakes. Minnesota is largely unspoiled and should remain an important drainage source for two of the great lakes. Sulfide mining can destroy wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. This area is home to a wide variety of animal and plant life and sould continue to supply clean water to the lakes. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, David Greene 806 Francis Ave Columbus, OH 43209-5412 (614) 231-8417

Alphabetical by sender's first name

David H Hopper 54759

See attachment

David Homans 47312

Lisa Fay MDNR Division of Ecological and Water Resources Kenneth Westlake US Environmental Protection Agency RE: PolyMet NorthMet Sulfide Mining SDEIS Dear Ms Fay, Mr Westlake: This comment letter is submitted on behalf of the undersigned doctors, nurses and other health professionals. We are concerned that the proposed PolyMet NorthMet copper-nickel mine project could have significant adverse impacts on human health as a result of pollutants released to air, surface water and drinking water. We also believe that the PolyMet NorthMet Supplemental Draft Environmental Impact Statement ("PolyMet SDEIS") fails to adequately assess important risks to human health from the pollutants that would be released from this project. The absence of any professionals from the Minnesota Department of Health from the List of Preparers of the PolyMet SDEIS is particularly troubling. We would respectfully request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks of the proposal. We would further request that, in revising the PolyMet SDEIS, a comprehensive Health Impact Assessment (HIA) be prepared under the guidance of the Minnesota Department of Health. In this letter, we summarize some issues and concerns leading to these requests. Mercury contamination of fish and impacts on neurotoxicity in the developing fetus as well as in infants, children and adults is a significant public health concern in Minnesota. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. The percentage of infants thus at risk for neurologic impairment was higher than in the Lake Superior Region of Wisconsin or Michigan. We are aware that many of the bodies of water downstream of the proposed PolyMet mine and plant are legally impaired due to mercury in fish tissue. The lower reaches of the St Louis River, where the estuary for Lake Superior fish is located, contains a particularly high level of mercury. We also know that other mine facilities release both mercury and the sulfates that increase bioaccumulation of methylmercury. Reviewing the PolyMet SDEIS, we believe that the information on mercury releases and the potential for mercury bioaccumulation is insufficient. The SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of pollutants or of hydrologic changes on mercury bioaccumulation. The SDEIS does not provide evidence to justify its claims about collection and containment of mercury and sulfates. The PolyMet SDEIS also provides an insufficient analysis of the human health risks of other pollutants, such as neurologic morbidity resulting from manganese and lead release; and carcinogenic effects of air emissions of diesel, asbestos-like fibers, nickel and other particulates, and of arsenic releases to water. The PolyMet SDEIS fails to analyze health risks to workers who would work on-site at the PolyMet mine or plant and fails to assess impacts of tailings groundwater seepage on nearby residential. The PolyMet SDEIS does not discuss impacts of exposures to vulnerable populations, such as infants, children, the elderly and persons who rely for subsistence on fish, wild rice or game species where pollutants may bioaccumulate. For these reasons, we would first request that the PolyMet SDEIS be revised to provide more complete information on mercury and sulfate emissions, deposition, and seepage from various sources, and the potential conversion to and bioaccumulation of methylmercury resulting from releases to the environment and hydrological changes from the proposed PolyMet project. We would further request that the PolyMet SDEIS be determined inadequate pending supplementation to include a Health Impact Assessment, under the direction of t

Alphabetical by sender's first name

David Hopper 43037

Members of my church's Caring for Creation Committee at Macalester-Plymouth United Church have discussed the proposal for a large scale copper-nickel sulfide mine near the BWCA, to be conducted by PolyMet. We have shared our concerns about the long-term and destructive impacts on this special area of Minnesota. We are concerned about:1. The major loss of wetlands, primarily bogs, that cannot be replaced. The SEIS already makes it clear that wetland "restorations" will not take place in the Lake Superior watershed and are highly unlikely to replace bogs. The wetlands at the site have been rated as "having high wetland quality." How can they possibly be "replaced?"2. Predictions of chemical pollution, not just from sulfate and its acceleration of toxic mercury conversions, but also heavy metals like nickel and aluminum, that kills fish.3. The long term need to clean up water from pollutants, possibly for 200 years. How can that be assured, especially with more mines ready to ask for permits in that area?4. The questionable suggestion that a company, that plans to mine the proposed site for 20 years, could possibly provide "nnancial assurance" to cover the expensive costs of water treatment for 200 years or more into the future. And can such treatment truly control all the sorts of pollutants that will come from the mine site? The SEIS predicts the company will excavate 307 million tons of bedrock in 20 years, at 70,000 tons per day.5. We are concerned that a iot of the proposed PolyMet site area has been designated by MN DNR as "Sites of High Biodiversity Significance" and support eleven state-listed species of plants. Destruction of such an area cannot be rectified, nor justified.We urge our government officials to take courage and SAY NO to this mine and to others waiting in the cue for permits. There are other ways to secure jobs in this fragile and unique area of Minnesota than this. One suggestion is to create metal recycling facilities and hire people to work on recovering the metals we need.Please reject the PolyMet mine. It’s a short term venture with long term harm to MN.20 years of extraction and “360” jobs—followed by 200+ years of monitoring for pollution makes no sense to me. Then there is the history of delaying litigation that follows any unforeseen problems [illegible]…Short term gains for corporations and the job [illegible].

David J Bombich 42849

See attachment

David J Hampton 54541

Ms. Fay: Please take extreme care while assessing the environmental impact of the PolyMet mining project. Constantly keep in mind that you are dealing with an extractive project of limited duration that, in all probability, have centuries of environmental impacts.

David J McMillan 54487

See attachment

Alphabetical by sender's first name

David J. McMillan 40758

Dear Ms Fay: My name is David McMillan. I am a 25-year resident of Duluth. My wife and I attended UMD and raised a family here. In addition to my roles in the local and regional energy sector, I am heavily engaged in non-profit, public and private sector leadership and governance roles at the regional, statewide and national levels across the transportation, higher education, and health care sectors. All of these sectors are vitally important to our region as well as our State and all are integrally linked to the environmental and socioeconomic health of this region that so many of us call home. My reasons for submitting written comments in this proceeding focus on each of the following. First and most importantly, I want to express my fundamental interest in preserving and protecting the natural environment that is at the heart of the region I call home - NE Minnesota. Second, I believe the regulators charged with investigating and developing a record regarding PolyMet's plans for mining and processing the NorthMet Deposit ores east and north of Hoyt Lakes, MN have done an exceptionally thorough and comprehensive job. Led by Minnesota's own Department of Natural Resources (DNR), the Army Corps of Engineers, the USFS and the DNR have thoroughly and competently assessed PolyMet's project and applied the stringent standards set forth under state and federal law. This process has been long and arduous at times and expensive for PolyMet to be sure. Nevertheless, protecting our natural environment warrants considerable time, resources to ensure that the Supplemental Draft EIS is accurate, comprehensive and complete. Third, I feel that it is critically important to highlight the resources and infrastructure we have here in NE Minnesota that will enable us to responsibly and effectively support expansion of mining in our region should PolyMet's Permit to Mine be issued by the DNR - which I believe it should. Minnesota has a long and rich heritage of timber and mineral resource development and processing. We have the infrastructure, the know-how, the support industries and the workforce to responsibly mine and process these non-ferrous ores. "Infrastructure" means much more to me than railroads, ports, drills, trucks and businesses that supply all of those industries. It also means a K-12, technical college and higher education system that can train the workforce, produce the chemists, the welders, the engineers, and environmental experts needed to safely and economically extract and process these minerals. "Infrastructure" means the research engine that is our University of Minnesota and, in particular, University of Minnesota-Duluth's Natural Resources Research Institute right here in Duluth and Coleraine. Both have needed expertise and know-how to bring to bear on the challenges associated with mining. Most importantly, infrastructure also includes the Minnesota DNR and other state and federal agencies charged with permitting and then regulating the ore mining and processing work that will occur over coming decades. No state in this country is better prepared to assure that PolyMet mines and processes ore in a safe and environmentally secure manner than Minnesota. Indeed, I daresay that no place in the world is better able to assure that the strategic minerals needed for today's technologically and energy savvy world will be extracted with more care for the environment than right here in northeastern Minnesota. As a citizen and long-term resident, as a parent, as a business leader, as a member of governing boards for many of the region's leading employers, I am fully supportive of PolyMet's proposed project being permitted to move forward at the tail end of what has been a thorough, transparent and well-managed regulatory process. Sincerely, Dave McMillan 2724 Greysolon Road Duluth, MN 55812 David J. McMillan 2724 Greysolon Rd Duluth, Minnesota 55812 The views and opinions expressed in this message my own. I am solely an

David K Wickstrom 54705

See attachment

David K. Nelson 47595

MN DNR PolyMet Mining I would not like to see the MN DNR or the state give a permit to do any copper, nickel or other metal mining in Minnesota. I have been to the meeting in St Paul. At that meeting NO one had shown me a true safe way of mining without poisoning our great state of Minnesota. Lets think about it, this state has a lot to offer everyone in the whole United State. Water recreation for one, camping, fishing, hunting, tour guides, lodges for people to get away from the big city life. No one can predict the out come for the generations to come, our young people are at stake. The miners said the only thing they no is mining. Come on now what about cross training. Hunting, fishing, camping tour guides and lumbering just to name a few. I had cross training before. Why not put the people to work building some of these things. I know money talks, lets look beyond poisoning Minnesota. When it comes down to do copper mining in our Minnesota. My answer would be NO. Because its not a safe bet in my book not for 500 years. David Nelson MN Mater Naturalist 2574 4th Ave E. North St Paul, MN. 55109

Alphabetical by sender's first name

David Kane 18309

Hello. My name is David Kane, K-A-N-E. I grew up on the Iron Range. I graduated from Mesabi East 1990 from Biwabik. I'm the kind of person that, you know, was pro-mining. I started looking into what sulfide mining entails. I switch sides. I don't think it's wise to mine toxic material on top of a (inaudible) that straddles the continental divide. Your lives are important. Your health is important. People on the Iron Range's health is important. I'm also concerned about who is going to be paying for the perpetual water mine. We are talking about a Canadian mining outfit backed by foreign banks. 20 years of mining. And then basically we are not talking about cutting down a tree, we are talking about blasting into a toxic rock formation and leaving tailings piles forever. Sulfide plus oxygen equals sulfuric acid just like one plus one equals two. So we're talking about -- I don't know -- thousands, millions of tons of sulfides baking in the sun, water. Everybody knows how much it rains in Minnesota. We're not only talking about surface water but we got a lot of aquifers underground. I grew up close to the Embarrass River in Lakeland and chain of lakes, close to Bass Lake, which is a spring-fed lake. I'm curious what kind of study has been done with the underwater type studies of this kind of mining and fracturing of rock formation like this. I am also concerned about, you know -- I think it's a noble cause to stand up for the little guy without a voice, the wilderness or the tourism industry. You talk to somebody on the Iron Range and somebody needs jobs. Polluting your environment for 20 years' worth the jobs and then taking care of that water for 500 years -- a number pulled out arbitrarily -- to me I don't know who is going to be paying for it. I think it's going to be dumped on the taxpayers. I'm a taxpayer of Minnesota. You're taxpayer of Minnesota. The Federal Reserve prints, you know, money out of thin area. Keep that in mind when you're thinking about poisoning our waters for 20 years of jobs. This is going to set a precedent for the future proposed mining on the other side of the continental divide. So if we set a precedent here and stop this in its tracks, hopefully (inaudible). Thank you.

David Kranz 42485

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr David Kranz 2401 34th Ave S Minneapolis, MN 55406-1426

David Kremer 47027

Mar 12, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. "I didn't know a place like this existed," commented my international friend on a recent BWCA canoe trip. As a union member myself, I value good jobs, but not at the expense of this Minnesota/national/international treasure. Sincerely, Mr David Kremer 3838 Fremont Ave N Minneapolis, MN 55412-2043 (612) 396-8643

Alphabetical by sender's first name

David Krings 7628

I would like to extend my support for approving the Polymet mining project. I have followed the project closely for years, and my family has been a presence on the Iron Range for many decades. based on the data that has been provided, I feel comfortable that the environmental concerns have been largely addressed, and that those remaining are as well managed as they can be with the current technology. Certainly, I have a great deal of respect for those who disagree with my view, and I also share their wish to protect our environment and leave our children with clean water and access to the wonderful outdoor experiences we have always enjoyed in Minnesota. At the same time, I think it is important that we balance those values with a belief that good, secure and well paying jobs for our citizens are a necessity, or no one will be able to live here productively. We must come together to achieve both goals, not crush the goal of one group to claim victory for our own. There is no perfect option, and mining is somewhat disruptive to the environment by its very nature. However, I believe that we need to take advantage of the resources that exist under the ground, the forests growing on the ground, the water flowing over the ground and the air we breathe above the ground. The key is to put into place plans for recovering the land after the mine is retired, and I am convinced that this will happen in such a way that the current landscape will be healthier than it is now. Since the area is already impacted by previous mining activity, this is our chance to recover more metallic ore and to fund a true rehabilitation of the land so our grandchildren will find it in a better condition. I don't think many people are aware of the current site conditions, and they picture a pristine wilderness in their minds. It is far from that, in fact is quite a barren, scarred place, and this project is a chance for much of the existing mining equipment to be used for a good purpose for decades to come. Please approve the project and let it proceed with all due speed. The Iron Range needs the jobs, and the economic value that follows a good business will help us all. Kind Regards, David W. Krings II Kenyon, MN

David L. Ivonen 53223

Protect our water! Hooded Mergansers swim in northeastern Minnesota's pristine marshes, ponds, and rivers, feeding on fish, crayfish, frogs, and insects. PolyMet Corporation is proposing to destroy thousands of acres of pristine habitat to mine sulfide ore at the headwaters of the St. Louis River - a major waterway that flows over 180 miles to Lake Superior. PolyMet's proposal calls for 20 years of mining, and they acknowledge that 500 years of toxic runoff will need to be collected and treated. Just like the Hooded Merganser, our children and grandchildren all deserve clean water. Let clean water be our legacy - not toxic pollution from mining! Dear Governor…I was born & raised in the Iron Range; I love the area, people, & work ethic I was raised in & around. I would love nothing more than to see good paying jobs…However, NOT at this expense. The majority of the X I vote DFC; I will not vote for anyone backing Polymet.

David Langfeld 43343

I would like to stress my opinion that I believe that the Polymet project be given full approval by the State of Minnesota agencies involved for permitting. I believe enough scrutiny has been applied to the project by all of the agencies involved over the many years that it has been waiting, not to mention the vast amount of money spent by the company to address the environmental concerns of those special interest groups who, I believe, don't have valid argument against the project. I believe the Aurora and Hoyt Lakes communities have patiently waited long enough through the various delays that have been placed on this project. They have waited far too long for the day that good paying jobs would return to the former LTV site that once sustained a good quality of life. I know this first hand, as my father worked at LTV and retired from there in 1992- I have observed the closures of schools and businesses, as well as the losses of the various civic organizations that made for an enjoyable upbringing in these communities. Thank you for your consideration of an approval to the Polymer project. Sincerely, David Langfeld 706 1st Avenue N.W. Chisholm, MN 55719 Telephone: 218-254-0032

Alphabetical by sender's first name

David Lankinen 39241

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

David Lasecke 3429

Dec 21, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I want to know who really stands to benefit from sulfide mining in the Arrowhead Region. Do the taxpayers of Minnesota benefit. Does the state benefit. PolyMet and other companies seeking to mine in the region are not Minnesota companies, nor are they even US companies. Does the tourism industry in the region benefit. The Boundary Waters and other lakes and parks in the region draw thousands of visitors each year from around the country and around the world. Some businesses in the tourism industry are already experiencing a decline in business because of test-drilling sites located nearby, What will happen to the tournism industry once sulfide mining begins production. Do we really want to trade one viable industry that can continue and flourish for generations (tourism) for another industry that will only provide jobs for a couple of decades yet will scar the region for centuries. Do the locals in the region who are pro-mining really have the chance to benefit as much as they are being promised. PolyMet's operation is estimated to provide a few hundred jobs only, and only for 20-some years. How many locals can realistically expect employment. Do we really want to trade a few hundred temporary jobs for 500 years of cleanup. Do the property owners in the region benefit. I'm one of those property owners, and I pay a small fortune each year in property taxes that help support the region. I view my own property, and the region as a whole, as a JEWEL, as a LEGACY to pass on to the generations that follow me. I do not want to see this jewel poisoned by poorly managed sufide mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, David Lasecke 3124 Christopher Ln Shoreview, MN 55126-4146 (651) 486-7625

51635

Dec 21, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I want to know who really stands to benefit from sulfide mining in the Arrowhead Region. Do the taxpayers of Minnesota benefit. Does the state benefit. PolyMet and other companies seeking to mine in the region are not Minnesota companies, nor are they even US companies. Does the tourism industry in the region benefit. The Boundary Waters and other lakes and parks in the region draw thousands of visitors each year from around the country and around the world. Some businesses in the tourism industry are already experiencing a decline in business because of test-drilling sites located nearby, What will happen to the tournism industry once sulfide mining begins production. Do we really want to trade one viable industry that can continue and flourish for generations (tourism) for another industry that will only provide jobs for a couple of decades yet will scar the region for centuries. Do the locals in the region who are pro-mining really have the chance to benefit as much as they are being promised. PolyMet's operation is estimated to provide a few hundred jobs only, and only for 20-some years. How many locals can realistically expect employment. Do we really want to trade a few hundred temporary jobs for 500 years of cleanup. Do the property owners in the region benefit. I'm one of those property owners, and I pay a small fortune each year in property taxes that help support the region. I view my own property, and the region as a whole, as a JEWEL, as a LEGACY to pass on to the generations that follow me. I do not want to see this jewel poisoned by poorly managed sufide mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, David Lasecke 3124 Christopher Ln Shoreview, MN 55126-4146 (651) 486-7625

Alphabetical by sender's first name

David Litsenberger 38778

To whom it may concern, As one who has a master's degree in biology and lives up north for the beauty of the lakes and wildlife, it concerns me to see the Polymet proposal. My wife and I had a very unique experience this February to have a female lynx, a Minnesota threatened species, entertain us in our back "yard" for a good three hours. She spent most of that time about six feet away from our house. As a "threatened" species, it is of concern to the DNR to see that this species is successful in reproducing and able to forage for food. However, the proposed Polymet project would add on to the fence-like barrier the Iron Range mines present to lynx and other mammals in this region. Lynx are known to avoid disturbed areas and occupy spacious territories of 4 to 20 square miles. In times of food shortages they will migrate as much as 250 miles (Kurta's Mammals of the Great Lakes Region). The mining activities of the Iron Range, a rather vast disturbed area, therefore, acts to restrict the movements of lynx. Further extension of the Iron Range will further restrict the lynx when it comes to breeding and seeking food. Should the Polymet project win approval it is easy to see that more projects of this type will then be approved to where this barrier will extend from Grand Rapids to the Boundary Waters. You folks at DNR are in a poor situation. On one hand you are here to serve and protect the wildlife, while on the other hand you are here to encourage mining of natural resources for the benefit of people. In the situation of the lynx, you have a built in conflict of intereSt That shouldn't be. It would be nice if our wonderful politicians could find a way to solve this problem separate departments. Of course, the lynx are not my only reason I appose this project. Environmental concerns alone should stop this folly. Also, the fact that Polymet has never had a mine and doesn't have the financial resources for assurances in case of (and they will occur) environmental mishaps, well, this project should not be allowed to go forwaRd Dave Litsenberger outside of Ely

David M Windseth 47697

I am strongly against the proposed sulfide mine in northern Minnesota. This mine has a strong potential to pollute northern Minnesota waterways, including areas of the Boundary Waters and Lake Superior, and is not worth the risk to the wilds of northern Minnesota, which many people depend on for tourism to make a living. These types of mines have a bad track record in wet environments like Minnesota, and should not be allowed to compromise the state we all live in and enjoy. Most of the money used to mine will not remain in MN, and if the tailings dam does leak many times the company will take the money and declare bankruptcy to avoid having to pay for cleanup costs, putting the responsibility unfairly on the citizens of MN. I implore the DNR not to allow the permitting of this mine in Minnesota to make sure the state may be enjoyed by all future generations of MN. 50 years of jobs is not worth the 500+ years of monitoring and risks it puts on one of the cleanest water systems in the world. For the good of all Minnesotans, present and future, please deny the permitting of the Polymet copper mine. David M. Windseth 11410 53rd Ave N Plymouth, MN 55442

David M Zimmerman 58082

Please don't destroy our natural habitat. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

David Maki 39035

To: Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay, I am writing to provide public comment concerning the Polymet Mining "NorthMet Project". I am a Civil Engineer who has worked in cultural resource management in Minnesota for more than 20 years. I am deeply troubled by the prospect of Sulfide mining in one of the most environmentally sensitive areas of the United States. As an engineer, I am fully aware that there is not a single case study documenting Sulfide mining that did not lead to long lasting watershed pollution involving increased acidity and heavy metal contamination. PolyMet is a new company with no mining experience or track record of responsible pollution management. However, the track record of PolyMet's parent corporation Glencore is riddled with environmental disasters, labor violations, and human rights abuses around the world. The company was founded by Marc Rich, who was Federally indicted on 65 criminal counts, including income tax evasion, wire fraud, racketeering, and trading with Iran during the oil embargo (at a time when Iranian revolutionaries were still holding American citizens hostage). The charges would have led to a sentence of more than 300 years in prison had Rich not been controversially pardoned by President Clinton on his last day in office. The Chairman of Glencore's board of directors is former BP CEO Tony Hayward, the man who presided over the largest oil spill in US history and BP's subsequent efforts to avoid responsibility for the disaster and clean-up. I strongly urge you to consider the history of Sulfide mining in general, and Glencore's record of environmental stewardship when considering this issue. Furthermore, as a cultural resource professional I have deep reservations concerning the effects Sulfide mining will have on the natural and cultural resources of the Partridge and Embarrass Rivers. Both rivers contain significant wild rice resources. Wild Rice is a traditional cultural property of the Anishanabe people. Heavy Metal contamination, both real and perceived, will have a negative impact on this traditional resource for the next 200 to 500 years. I strongly urge you to reject PolyMet's shortsighted plan for polluting Minnesota's public waters. Short-term profits do not justify centuries of pollution. Thank you. David Maki 4150 Dight Ave #110 Minneapolis, MN 55406

David Martinson 38708

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr David Martinson 3000 W River Pkwy Apt 207 Minneapolis, MN 55406-2355

38761

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr David Martinson 3000 W River Pkwy Apt 207 Minneapolis, MN 55406-2355

Alphabetical by sender's first name

David Mccue 31504

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. My god, this is an area where motor boats are restricted. How is it even posible that a proposal like this even gets drawn up on paper. If industrialists had their way the whole world would be a turned over waste land. Between oil, sulfer, and fracking this country is under attack. Leave the forrests alone .. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt In fact only the interest of those who would be making money. Go elswhere and earn a living. Sincerely, David Mccue 1602 Remington Rd Rockford, IL 61108-6227 (815) 543-9769

David McGraw-Schuchman 16174

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

David Mcmillan 18350

Thank you. My name is David McMillan, MCM (phonetic). I am a senior vice-president of External Affairs for Elite (phonetic). I am a 25-year resident of Duluth and I went to school here at UMD. My wife and I are fortunate enough to raise a family here in Duluth. In addition to my role in the regional and local energy sector, I have also been engaged in a not-for-profit, private and public sector, internship (phonetic) regarding the transportation, higher education and healthcare industries here in northern Minnesota. Each of these sectors and industries is vitally important to the economic well-being for northern Minnesota. And upon that, I want to speak tonight. I have three purposes to my comments. The first being that I am fundamentally committed to the environmental well being and protecting our national resources of northern Minnesota, that we all call home. Secondly, I want to say to the lead agencies and the DNR that the roles you have been charged with, you have done a thorough and comprehensive job in looking at this and applying the stringent standards in regard to the state's applicable laws, and that the SDEIS and the EIS is accurate, comprehensive and complete. Finally, the point I want to highlight the most is the resources and infrastructure that this region can bring to bare, to make certain that we do this in an environmental and economically responsible manner. As far as the construction and resources goes, we have a long and rich heritage of mining and timber resources in northeastern Minnesota. We have the infrastructure, the support industries and the workforce to responsibly mine and process these resources. What do you think of when you think of infrastructure? Well, it means a lot more to me than railroads, ports, ships and tailings basins, and all the businesses it supplies by those. What else does it mean? It means a K12 and Technical College and a higher education system that can train a workforce that can do the work, the welders, the engineers, the environmental experts that we need to extract these minerals safely. And it is the University of Minnesota, and very specifically, the Natural Resources Research Institute, right here in Duluth (phonetic), who have the expertise and the experience and training that we need to help us safely move forward in addressing the challenges associated with mining. Most importantly, the infrastructure also means the Department of Natural Resources and the other state and federal agencies in charge of permitting, and secondly, regulating the unknown processes that will occur in the coming decades. No state in this country, in my opinion, is better equipped and better prepared to ensure the quality of the mines throughout the process are safe and environmentally secure in northern Minnesota. I dare say that no place in the world is better ready to pull the resources out of the ground, with the technology and the safe processes that are needed. Thank you.

Alphabetical by sender's first name

David Miller 40832

To the Co-Lead Agencies: I wish to respectfully submit the following comments on the NorthMet Project and related SDEIS. I am a property owner on a lake in Lake County. I came to Minnesota over 35 years ago because of its abundant and clear waters. But the Proposed Connected Actions pose a grave threat to our State without meaningful corresponding public benefit. To those who proclaim our long history of mining, I would say simply " this is not your grandfather's mining." The SDEIS, populated with inadequate and self-serving PolyMet-provided data, offers the following summation: "In summary, the Proposed Connected Actions would produce some additive effects on certain resources." This grossly understates the cumulative and perpetual damage the PolyMet mine would visit upon the area and Lake Superior watershed. Further, the SDEIS fails to consider a range of common sense risks by making rosy and unsupported projections concerning water capture and treatment, wetland mitigation, air pollution and other side effects of a massive, industrial mining zone in the heart of the Superior National ForeSt The existing taconite mining discharges have resulted in elevated concentrations of pollutants that persist downstream in the St Louis River-one of America's largest fresh water rivers. The NorthMet Project will contribute additional sulfate to the groundwater from tailings basin water that is not captured and treated, water that seeps through fractures in the mine pit walls and stockpile infiltration and run-off. Every year, 11 million gallons of polluted seepage from the tailings basin and 5 million gallons from the mine site will enter groundwater and the environment without being treated. All of the PolyMet predictions regarding discharge from the mine pits and waste rock piles, including the more reactive waste rock piles and the ore surge pile as well as the unlined permanent Category 1 waste rock pile, are made without considering the effects of documented fractures at these sites on discharge to groundwater and surface water. Groundwater contamination from the previous mining activities is still an issue near the LTV tailings basin and mine pits. Engineering controls that are planned for the mine must function perfectly for hundreds of years to meet applicable water standards. The assumed performance of these critical water capture systems in the SDEIS is over 90% effectiveness. This assumption is neither reasonable nor realistic. PolyMet's favorable water modeling is also based on groundwater base flow data that now appears to have significantly underestimated the likely speed and volume of water flow and resulting sulfate discharge around the mine and processing plant. The modeled rate of water movement at the site is completely unreasonable and does not come close to reflecting actual conditions. The water infiltration rate is lower than the design targets for engineered controls at landfills, has never been observed in any known wetland system, and accounts for only five percent of precipitation falling at the site. Nor is the assumption reasonable that human constructed water capture and treatment facilities will operate at any level of effectiveness for hundreds of years. Even the most reasonably foreseeable problems at the site, including pipeline breaks, dam or slope collapse and problems with waste water treatment go unaddressed in the SDEIS. Design for the 100-year storm also fails to account for the current state of our climate and is insufficient. Although PolyMet's testing indicates that its waste rock leaches mercury at more than four times the water quality standard, it proposes not to conduct an analysis of the amount of mercury that will enter the watershed. Yet it has done this analysis for each of the 28 other solutes, many of which have nowhere near the potential impacts that mercury does. This appears to be a clear attempt to avoid federal and state regulations that do not allow

David Miranowski 6253

Dear Ms Fay, Dear Federal and State Agency Leaders: Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. We cherish our beautiful lakes and are all very afraid that if PolyMet fails to be thorough/convincing in their pre-planning efforts, they will be even more reckless in their physical treatment of our land. Sincerely, David Miranowski David Miranowski 290 Commonwealth Ave Boston, MA 02115

David Moen 36338

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: I am a physician who has seen patients in Minnesota for over 25 years. I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The study of potential health effects has been inadequate and I am VERY concerned that 10% of infants born in St Louis County have mercury toxicity today and this project will likely put more citizens at risk. The SEDIS study has several deficiencies including inaccurate assumptions about seepage of toxic metals into surface and ground water. Health impacts include complex neurological changes that are irreversible. You each have a responsibility to safeguard the public and future generations from poorly planned insults to our public and individual health. I ask you to exercise leadership on behalf of those of us who are concerned. Thank you, David W. Moen, MD 290 Laurel Rd Mahtomedi, MN. 55115 David Moen 290 Laurel Rd Mahtomedi, MN 55115

Alphabetical by sender's first name

David Moen 49524

Dear Mr Dabney, Mr Bruner and Ms Fay: I am a physician who has seen patients in Minnesota for over 25 years. I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The study of potential health effects has been inadequate and I am VERY concerned that 10% of infants born in St Louis County have mercury toxicity today and this project will likely put more citizens at risk. The SEDIS study has several deficiencies including inaccurate assumptions about seepage of toxic metals into surface and ground water. Health impacts include complex neurological changes that are irreversible. You each have a responsibility to safeguard the public and future generations from poorly planned insults to our public and individual health. I ask you to exercise leadership on behalf of those of us who are concerned. Thank you, David W. Moen, MD 290 Laurel Rd Mahtomedi, MN. 55115 David Moen 290 Laurel Rd Mahtomedi, MN 55115

David Morris 58028

Keep all these mining companies away from the boundary waters! The risks are much too great to this treasure of nature! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

David NN 58133

I have spent 3 summers of my life guiding canoe trips in the BWCA. I know firsthand how valuable this resource is to the resort owners to tourists. This industry is a proven, reliable economic engine for northern Minnesota. To risk losing and [ILLEGIBLE] damaging this precious resource in favor of Polymet CEO's and 300 employees is absolutely not worth it. No Mine has ever successfully run without major environmental effects. For everything that will happen, pollution, environmental degradation, it will be MN taxpayers footing this bill. This mine will cost Minnesotans more [ILLEGIBLE] it pumps into our economy. Bad idea, where is your conscious and common sense?

David Oliver 38390

Lisa Fay Please see attached. Regards, David C. Oliver PO Box 543 Ely, MN 55731

David Olson 18142

My name is Alan Hanson. I live in Maplewood. I represent the International Union of Painters Allied Trades GC82, which we have glazers, drywall finishers, painters, and sign display. And I would like to yield my time to David Olson. Thank you. My name is David Olson, O-L-S-O-N. President of the Minnesota Chamber of Commerce. Also a eagle scout. Minnesota Chamber represents more than 2,300 companies around the state of Minnesota. Businesses that care about Minnesota and want to see it succeed. We support copper-nickel mining and more specifically PolyMet Mining in its proposed project in Northeast Minnesota. Minnesota is famous for our natural resources. How we use them, how we take care of them. Copper-nickel mining should be no different. We enjoy one of the richest deposits in the world for copper nickle. We have been waiting a long time for the right time, the right technology, the right reasons, and the right people to mine it. We have the technology. We have the Right rules and regulations in place. We have a need for these metals in our modern lives. They are integral in winter events, electric and hybrid cars, solar panels, and a host of other important technologies and uses. Now is the time to mine them here in Minnesota. We support the environmental review process that this project has been involved in for seven years. It is thorough and it is complex for a project like this. But seven years is long enough. We have reached a point where an important decision needs to be made based on sound science, and to be true to the process set forth by state and federal law. We have confidence in that process. We applaud the DNR and other agencies for the ample time -- twice what the law calls for -- for interested parties to review and provide feedback on the environmental review. PolyMet has already invested $150 million in this state and will invest hundreds of millions more. Their investment will return billions of dollars with economic benefits to Minnesota. An estimated 300 million in new local and state tax revenues, and an estimated $900 million in new federal tax revenues. We must continue to move forward in the review and permitting process, uphold our high environmental standards -- nobody has asked for them to be reduced -- and bring real economic expansion to Minnesota. This project will diversify our economy and create hundreds of jobs that can support families and sustain communities. An economic impact that will be felt not only on the Iron Range but throughout the state, which is why the Minnesota Chamber of Commerce and so many local chambers and their members support this project. Thank you.

Alphabetical by sender's first name

David Olson 40011

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr David Olson 6454 Poplar Rd Gilbert, MN 55741-8154

David Ortiz 16210

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

David Osteraas 26247

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I want to express the following thoughts on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage and heavy metal contamination have polluted waters in all places where sulfide ore mining has occurred. It boggles my mind that this type of mining would be allowed in the state of Minnesota and specifically the Arrowhead Region, Lake Superior and canoe area wilderness. This mining project would have potential impacts that would include risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, David Osteraas PO Box 1178 Gualala, CA 95445-1178 (707) 785-9633

David Passmore 13875

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Mr David Passmore 4000 Creighton Ridge Rd Cazadero, CA 95421-9500

David Plotnicky 54664

See attachment

David R Gadbaw 54728

See attachment

David R Gregorich 54888

See attachment

David R Witte 42846

See attachment

Alphabetical by sender's first name

David Rannetsberger 47110

To Lisa Fay, I have read much of the SDEIS and would like to make the following comments regarding the project. I feel the SDEIS has addressed all possible environmental concerns in a manner that will protect the environment from harm. The enormous amount of effort and study that went into this SDEIS is mind boggling. Spending over 8 years and $100 million dollars to prove that you can run a mine in a safe manner should be commended by Polymet. I feel they have taken all necessary steps to comply with the state and federal standards and will continue to do so into the future. I also feel that this project, once operational, will attract more intense scrutiny by State and Federal agencies, environmental watchdog groups, and the local communities, which will further strengthen the environmental stewardship that Polymet has committed to, and continues to show throughout this process. I trust that our State and Federal agencies have followed the permitting process to a tee, and that your review and involvement in this process will produce a mining permit that will ensure all aspects of the environment are protected. After all of the years of study, restudy, and further review, I feel the time is now for the project to move forward and begin providing the crucial raw materials that todays world demands. We cannot produce the much wanted green energy without the copper, nickel, and other precious metals in our world. We also cannot import these metals from other parts of the world without knowing that they were produced with more environmental impact to the environment. We would be harming future generations if we decided to leave this treasure of green energy in the ground, while importing it from a country that has lax environmental regulations. Why would we do this. Why wouldn't we take advantage of this opportunity to help our world and at the same time avoid environmental problems in other parts of the world. I know our regulators won't allow problems to occur here. We live in an area that values and regulates our environmental protection more than anywhere in the world. We all want wind power, solar power, green power to succeed for our future generations, they all need copper, and they all need nickel. Let's do our part to help our local and global environment by allowing this mine to produce the green power products that will further reduce our impact on the world for centuries to come. Sincerely, David Rannetsberger P.O. Box 2185 Tofte, MN 55615 218 663-7111 rannets@wildblue-net

David Reisenweber 46436

Date: Wed, Mar 12, 2014 at 1:35 PM Subject: Comments on PolyMet's NorthMet SDEIS 3/12/2014 Dear Ms Fay (MN DNR), MrBruner (USACE), Mr Dabney (USFS), and Ms Hedman (Adm., EPA): SUBJECT: Weather extremes affects on the proposed NorthMet mining operation A major omission in the NorthMet SDEIS that particularly concerns me is the affects of weather extremes. A lightning strike or a windstorm could destroy equipment used to move polluted material to the right place at the right time. Is there a backup plan. How will the mountains of sulfide ore be successfully contained when catastrophic precipitation events occur. The NorthMet SDEIS lacks plans for accidents and emergencies that will happen, when something goes wrong with ponds, pipes, pumps, filters, etc needed for water treatment. If the questions of pollution, monitoring points, health effects on workers, long-term treatment, employment provided, and tax revenues had viable answers and solutions, whyhasn't it happened at existing mines of this type. I have lived through two 500-year and one 200-year precipitation events over a 20-year period. I also was working for the city of Grand Forks, ND, when the flood of 1969 crested there at 45-69 feet, just inches from the top of dikes protecting downtown Grand Forks. The 1997 flood breeched the dikes and caused $3-5 Billion in damage to North Dakota and Minnesota. The crest was 54 feet and destroyed most of downtown Grand Forks. The Duluth flood of June 2013, has been called a 200-year event. Did anyone predict the damage done, when upwards of 10 inches of rain fell. We lived in Watertown, SD, when a 500-year flood ravaged the town in 1997- Much of the town was flooded and the sewage system overflowed into lower areas of town. I've farmed all my life, and one night in July 1993, our place received over 10 inches of rain. There was widespread flooding from western ND through Missouri covering 9 states and 400,000 square miles causing $15 Billion in damage. The 1993 event on our farm caused hydrological changes that took two years to become apparent, as excess moisture from higher ground 9 miles away seeped to lower elevations in our area. Our topsoil is silt and the subsoil is clay, and our aquifer is 155 feet deep. This happened underground. It was not surface movements, as basements and pothole sloughs began filling with water in 1995 two years after the 10-inch rain event. The bedrock of northeastern Minnesota has many cracks and water will probably move differently depending on amounts of precipitation received. Is there flexibility in the SDEIS to find what is moving where. I could not find it. Does the state of Minnesota have maps of the complete hydrology of the Duluth Complex where this mining is proposed. The certainty is that all water in that area moves toward Lake Superior, which holds one tenth of the world's fresh water. This is not in the public's best intereSt Reject the plan. I appreciate your listening to my concerns. Sincerely, David F. Reisenweber 111 Garden Street Duluth, Mn. 55812 HYPERLINK "tel:218-%20728-1508"218- 728-1508 HYPERLINK "mailto:bigwater@clearwire-net"bigwater@clearwire-net

Alphabetical by sender's first name

David Robert Ott 18249

I'm David Robert Ott, last name O-T-T, Minneapolis, Minnesota. I'm here tonight. I would like to voice my opposition to the PolyMet plan. In my opinion, my humble opinion, I feel like -- I feel like it hasn't been proven beyond a reasonable doubt that the water quality issues will be adequately addressed. Therefore, I think the risks are too high, and I think it would spoil a great treasure of our state, being the water quality of the whole drainage ultimately going to Lake Superior. So quite simply, I just don't think it's safe. That's essentially my comment. Thank you.

David Ross 42673

See attachment

David Sandbeck 11449

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity DNR hydrology data show that the PolyMet water model significantly understates the amount of water flowing in the nearby Partridge River. If this information is wrong, predictions about water pollution are in question. If the model is incorrect, and there is more water flowing through the site than it assumes, the polluted water from pits and waste rock will move more easily through the soil, and reach lakes and rivers more quickly. The water could also carry more pollutants than the PolyMet model predicts. David Sandbeck 245 West Baker Street Saint Paul MN 55107 Sincerely, Mr David Sandbeck 245 Baker St W Saint Paul, MN 55107-2704 (651) 428-2736

Alphabetical by sender's first name

David Schaenzer 47910

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, David Schaenzer 2456 west 24th street minneapolis, MN 55405

48359

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, David Schaenzer 2456 west 24th street minneapolis, MN 55405

Alphabetical by sender's first name

David Schaenzer 52386

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, David Schaenzer 2456 west 24th street minneapolis, MN 55405

David Schluchter 47510

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. After assisting with flood disaster clean up in / and around Duluth in 2012, I am very much against the PolyMet mine, and the connection between many interconnected watershed districts, and the topography of Northern Minnesota - is too precious to chance. Allowing mining in this very sensitive eco system is not the legacy we would want to leave for future generations. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr David Schluchter 4433 46th Ave S Minneapolis, MN 55406-3617

David Shaw 39606

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr David Shaw 960 27th Ave NE Minneapolis, MN 55418-2962

Alphabetical by sender's first name

David Shea 15912

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, David Shea 200 S. Olive Street, #205 #205 Waconia, MN 55387

David Simpson 38943

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr David Simpson 2322 31st Ave S Minneapolis, MN 55406-1455

David Snyder 58065

Keep the mines away from BWCA! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

David Stack 40620

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr David Stack 3306 W 46th St Minneapolis, MN 55410-1717

David Steinhorst 54715

See attachment

Alphabetical by sender's first name

David Stever 41747

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

David Stewart 17218

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, David Stewart 2549 Cedar Hills Dr Minnetonka, MN 55305

50484

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, David Stewart 2549 Cedar Hills Dr Minnetonka, MN 55305

Alphabetical by sender's first name

David Tomasoni 18107

Thank you, Karin. I'm David Tomasoni. I'm State Senator representing Senate District 6, which you are all sitting in right now. On behalf of the Iron Range delegation, as Representative Dill (phonetic) originally talked about, I'm also speaking for the Iron Range delegation. And I'm here to tell you that we all support this project. As I was saying in Duluth last week, this DEIS is 2200 pages long and it has cost PolyMet upwards of 65 million dollars and has been in the works for over eight years. There have been over six agencies involved. There have been six agencies involved both on a state and federal level, as well as the tribes, in order to ensure that all of the "I"s are dotted and all of the "T"s are crossed. We want it done right. And our laws require it to be done right. And our people want it to be done right. This SDEIS addresses subaqueous storage, refutes acid rock drainage and includes a financial assurance reference, which are unique to an EIS. You know, we have been mining up here for 125 years. In fact, it is a result of mining proceeds that the Delta Airlines Reservation Center was built. You know, John D. Rockefeller once said that, "Had it not been for the Mesabi Iron Range, we never would have won World War II." Well, man, how much copper is being used in our high-tech military today? PolyMet is an open-pit mine, which will provide 500 to a thousand construction jobs, 366 direct jobs and over 700 spin-off jobs. Some people say it is not worth it. Well, tell the people of Aurora and Hoyt Lakes that these jobs aren't worth it and see what kind of reaction you get. Tell the people of the Iron Range that mining jobs aren't necessary and see what kind of answer you get. Try to even imagine living on the Iron Range without mining. The entire area would be a huge ghost town. PolyMet is mining. This is not sulfide mining, this is precious metals mining. These will be conflict-free metals. In other words, no ten-year-old kids will be employed at 50 cents per day, no wars will be fought to overthrow regimes. But rather, we will have an environmentally considerate mine in a region where mining has existed and provided for our economy for over 125 years. And after all of these years of mining, we still have some of the cleanest water and air in the country. And that was noted recently by a previously referenced University of Minnesota study. Yale University just concluded that of about 62 different minerals that they studied, that there is no good substitute for these minerals. Well, guess what, folks? All of these minerals don't fall out of the sky. Every single one of them has to be mined. The National Academy of Science just released the finding that pollution in China makes its way to the U.S. They wrote -- We can do this thing right. We can do it right here, right now, in the right way, with jobs and the environment working hand-in-hand and side-by-side.

David Tomassoni 18167

Steven Biondich, (inaudible). I yield my time to Senator Tomassoni. DAVID TOMASSONI: You don't have to "boo." I'm David Tomassoni State Senator from Senate District 6, home of five of our six taconite plants where mining is our way of life. The SDEIS, of approximately 2,200 pages, costing more than $65 million, eight years in the making with seven agencies, both state and federal involved, is extremely a comprehensive analysis of the proposed PolyMet Mine. It's hard to imagine that more can be done. The agency has done a very good job and deserves credit for making sure it was done right and for even going further and having three such public meetings as opposed to the one that is required in law and doubling of the comment period to 90 days. PolyMet will be done right and jobs and the environment will co-exist to the benefit of everyone in the state. Mining is the Iron Range's economy. It has been for more than 125 years and will continue to be for the foreseeable future. Our water is clean and our air is clean. PolyMet is mining. 500 to 1,000 construction jobs, 366 direct jobs, over 700 spinoff jobs. This is not sulfide mining. This is precious metals mining. These will be conflict-free minerals. The National Academy of Sciences has just released a study on pollution from China that simply stated, "When we outsource our jobs, we import China's pollution." We have a perfectly good alternative right on the Iron Range. PolyMet. Our green economy demands copper, nickle, platinum, palladium, gold, and more. There are four tons of copper in a windmill. There is copper and precious metals in solar panels, computers, electric cars, medical devices, catalytic converters, TVs, and, yes, broadband. At this very moment many of you may be texting, Tweeting, surfing, and maybe just talking on your i-Phone. There are 39 different minerals in that cell phone. Every one of them must be mined. With never-ending technology advances our society needs these minerals more every day. And in this turbulent world of seemingly never-ending conflict our country must have its own source of these minerals. Really. Now do we want to continue outsourcing jobs, importing pollution, and buying our minerals from countries in a constant state of conflict, and worse yet, employs 10-year-old kids by the millions or do we want to have great-paying, environmentally friendly jobs on the Iron Range with all the benefits to go along with them to develop a domestic source of precious metals to advance our green economy? The choice is clear, it's PolyMet. The SDEIS is a complete document done according to the toughest environmental laws in the country; and it shows that we can do it right, right here, right now, the right way with jobs and the environment working hand in hand, side by side. The SDEIS has my full support and the support of the Iron Range delegation.

Alphabetical by sender's first name

David Tomassoni 18361

Thank you, Tony. And thank you all for coming. It's quite an event when you see a room like this full, because people are very, very interested in what is going on in the state of Minnesota. How we're going to address this particular issue. I'm the state senator for Chisholm. I've been in the legislature -- I'm in my 22nd year now. I'm the chairman of the economic development, environmental, and agricultural finance committee. I am also the co-chair of the LCCMR. And I can tell you that for the people who say 90 days isn't long enough or 2200 pages is too long and too complicated, well, regardless of what the DNR decided it wouldn't be right. The 90-day comment period the DNR has put out there is twice as long as they need to put out there. And so now people are saying "That's not long enough. We needed longer." Well, if we went 180 days, people would say, "That's not long enough. We need 360 days." So these types of comments I don't believe are valid comments. I've been watching this over and over again. I've been watching people say, "This is too complicated. It's 2200 pages. We can't understand it." If we a 100-page document, that wouldn't have been long enough, wouldn't have been complete enough. And so I have to give a lot of credit to the DNR and the agencies doing this, because those of you that don't know, this thing has been going on for eight years. The company has spent $65 million hiring scientists and engineers to analyze this in a way that has never been analyzed in this country. And the fact that we have six different agencies involved, Minnesota DNR, the PCA, the Army Corps of Engineers, the federal EPA, Federal Forest, fish and wildlife, the tribes that have been involved, PolyMet is involved. How much more analysis by experts do you want here? This is a good document. This is a document that has been scrutinized and gone over and over. Wetlands have been mitigated. There will be no acid drain off that has not already been decided. You people are who are saying this is sulfide mining, this is not sulfide mining. This is copper-nickel mining (inaudible) sulfide in the sand way less than anything that they had in any of the other places that you're all alluding to that have had problems in the world. Quite frankly, this copper, there's four tons of it in these windows. There's copper all over the place in solar panels. Cobalt -- I got lot more to say. But I'm for this thing. It can be done, and we can do it right on the Iron Range.

David W Johnson 18233

My name is David W. Johnson, J-O-H-N-S-O-N, and I'm from Ely, and I worked in the mines and in logging, and we have four generations of relatives buried in the Ely cemetery, and I have reviewed EIS, and I feel all the conditions have been met and let's start mining, stop whining. Thank you.

David Walsh 43371

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, David Walsh 1463 Portland Avenue #2 St Paul, MN 55104

Alphabetical by sender's first name

David Warfield 15952

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, David Warfield 608 2nd St SE Roseau, MN 56751

David Welch 18262

David Welch, W-E-L-C-H. My non-substantive comment is I am not in favor of the proposed project. That is my comment. My substantive comment is a comprehensive analysis of water flow cannot be done. Climate change is progressing so rapidly that it is not possible to predict with accuracy the extent of pollutant migration into the hydrological system. Mitigation must be planned from the basis that passive water treatment is not applicable due to the inability to accurately project rainfall and to accurately project future rainfall and climate change. That's my comment. The action I urge is what I already said, which is that I am not in favor of this and to not permit it. Thank you so much for your time.

Alphabetical by sender's first name

David Williams 39370

I am writing to express my concerns regarding the introduction of copper mining into Minnesota and the NorthMet Mining Project. Having reviewed the SDEIS and listened to a great deal of the discussion and exchange regarding the project, I find that I cannot support this project or the introduction of copper mining into Minnesota. The Northeastern area of Minnesota, currently being considered for the NorthMet project, is a unique land and water resource. So unique that a significant portion of the area has been designated as a National Wilderness Area (BWCAW). As a result, there are limits placed on the area with respect to how it can be used with the intent of preserving it for the long term. Copper/heavy metal mining will put the BWCAWin jeopardy. This area has a great many lakes and includes two watersheds, one emptying into the Hudson Bay and the other into the Great Lakes. These watersheds represent a substantial amount of the fresh water reservoir on the planet. Fresh water is an increasingly scarce and essential resource for life itself. It is for this reason, I believe, that copper mining should not be introduced into Minnesota. The copper deposits throughout the Duluth Complex are embedded in rock containing sulfide. Large amounts of sulfide bearing rock will be extracted along with small amounts of copper (and other minerals). Oxidization of sulfide bearing waste rock resulting from extraction and processing will create sulfate. Sulfate contact with surface or groundwater, accidental or otherwise, results in acidification of the water. Lakes and wetlands in NE Minnesota are very sensitive to changes in ph. Small changes effectively "poison" the the water and will kill fish and wildlife. There is no denying that copper is a vital component of many of the devices we use everyday. That said, studies have shown that there is a great deal of copper in the earth's crust distributed around the planet; enough to last thousands of years at current rates of use. In addition, we continue to increase our recycling rates for essential minerals. The SDEIS acknowledges that the environmental impact of untreated waste rock and water as a result of the NorthMet project could be serious and perhaps devastating. As such, multiple treatment and containment techniques detailed in the SDEIS will be employed to manage the threat of environmental damage. However, despite best efforts at protection, every existing copper mine has caused significant environment damage. Worse still is that the possibility for damage exists not just during the mines operation but for many, perhaps hundreds of years into the future. In an anticipation of the possible future cleanup costs, there are suggestions, not detailed in the SDEIS, of a surety bond or some financial instrument that sets aside monies to pay for ongoing management/treatment of the mine's waste products. Given that few corporations remain in business for hundreds of years, including those involved in mining or backing bonds, how then can Minnesotans be assured that we collectively will not be responsible for future cleanup/ treatment costs associated with copper mining. In conclusion, given the potential devastating impact to our scarce freshwater resources, I believe that the risk of introducing copper mining into Minnesota is too great. We should increase our recycling efforts and/or mine copper in areas where there is less freshwater than in the "land of 10,000 lakes." It is for that reason, I feel the state of Minnesota and/or the federal government should deny any applications for mining of copper or other heavy metals in Northeastern Minnesota. Sincerely, David Williams 2639 Humboldt Ave So Minneapolis, MN 55408 Sent

Alphabetical by sender's first name

David Wohlfeil 16044

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Poor planning in Japan has already put one ocean in danger and it looks as though the number of oceans effected may be two possibly three very soon. The Atlantic. Pacific and Indian oceans will just be large bodies of poison where any food we normally get from these beautiful waters will be infected with radiation. Now you want to build and open a mine here in my home state. You have got to be kidding me. A company with a track record like yours, you expect us to bend over and take it up the keester. I guess companies like yours just won't be happy until you totally destroy this planet. Do you even think about that shit before you plan a project. I don't see it or any planning to protect the earth from you people. Oh you'll just clean it up if a spill occurs. Well there is no way you can clean it all up before it damages the water animals fish and any other life forms here. I only know one way to stop this from happening and that is to stop you from before you even start. If you do start I know what needs to be done its isn't pretty and I get know happiness out of doing it but I will take any action needed to stop you. Lets start by dangling you in the courts for a couple of decades. Then enlist the power of the catholic church to do some damage as well. I'll bet they have enough money to keep you busy until the three horsemen arrive. Just don't build it stay away put your building equipment away and find some thing else to waste your money on. Maybe even think of another way to make the world just a little better. Sincerely, Mr David Wohlfeil 1427 Hazel St N Saint Paul, MN 55119-4218 (651) 307-7560

David Yount 42703

See attachment

David Zelinski 58166

I am a professional engineer in metallurgical engineering. My review of the PolyMet draft EIS and SEIS is that the report and [ILLEGIBLE] of data appears as a thorough evaluation of the project, potential impacts, and how to mitigate the impacts has been completed. They will use the best available technology to create an effective operation. These technologies need to more efficient use of water, [ILLEGIBLE] and a [ILLEGIBLE] stack of tailings.

Alphabetical by sender's first name

David Zimney 18996

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, David Zimney 7110 Excelsior Way 7110 Excelsior Way St Louis Park, MN 55426 6125010968

Dawn Baker 38725

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Dawn Baker 4708 Oakland Ave Minneapolis, MN 55407-3538

Alphabetical by sender's first name

Dawn Baker 40162

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Dawn Baker 4708 Oakland Ave Minneapolis, MN 55407-3538

Dawn Brink 42035

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Dawn Brink Brooklyn Center, Minnesota

Alphabetical by sender's first name

Dawn Demaske 40205

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Dawn Donahue 54519

Please be very careful about the decisions you make about the Polymet Mine in the Northern Lakes Region. Our vacation there last year was a wonderful memory and we’d love to return to see the unspoiled beauty again.

Alphabetical by sender's first name

Dawn Drouillard 9637

My name is Dawn DrouillaRd I am originally from Grand Marais and currently own a business here in the Twin Cities. My dad is a Grand Portage band member and a former employee of Erie Mining and LTV Steel in Silver Bay. My mom's dad, Bill Burge, moved to Taconite Harbor in the 1950's to work on the development of that mine. While our family has a historical connection to taconite mining, we have a much deeper connection to the land and to Lake Superior and the surrounding watershed. Lake Superior is already under siege from mercury poisoning created by coal fired power plants, invasive species, climate change and the pollution left behind by early mining activities. The addition of non-ferrous mining, which has never been done safely without polluting the surrounding waters, could very well be our Lake's point of no return. I reject the PolyMet Supplimental Draft Envionmental Impact Statement (SDEIS) because: • The SDEIS greatly underestimates groundwater flow rates. Real and accurate numbers are needed to predict the actual pollution and seepage from mine pits and the actual size of waste rock piles to be added to the Partridge River watershed. • There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin failure and extreme rain events, like the one in 2012, are not covered in their plan. • During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. • The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. •The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. • 526 acres and over 167 million tons of reactive waste rock would be left on the surface. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A plastic sheet placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of deep-rooted woody plants that might perforate the synthetic material. • A pit “lake” and tailings basin pond would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River and the Embarrass River. I don't believe that PolyMet will see this situation through for 500 years or more. •A lengthy network of pipelines conveying polluted and treated water would need to be monitored for hundreds of years. I don't believe that PolyMet will see this through for 500 years or more. • Details about financial assurance — a “damage deposit” the company provides — are not provided in the revised mine plan. The public does not know how much 500 years of water treatment will coSt According to Grand Portage Water Quality Specialist Margaret Watkins, this number could be in the 100 billion dollar range, a figure she calculated using the mining company's own financial assurance formula. The SDEIS does not address how the company will be held responsible for centuries of costly water treatment — or how the public will be protected from liability. And these are just some of the technical flaws within the SDEIS. There are many other unanswered questions and related issues that are important to consider, including: • The threat that an enormous industrial zone in NE Minnesota will have to a thriving and growing tourism economy. 200 or 300 jobs compared to over 245,000 jobs in the tourism industry seems like a very bad trade. • The effect that increased sulfates will have o

Alphabetical by sender's first name

Dawn Hofstrand 14649

Feb 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

Dawn Jensen 39804

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dawn Jensen 4119 normanna rd Duluth, MN 55803

Alphabetical by sender's first name

Dawn Jensen 39807

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Dawn Mulle-Friday 40376

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Dawn Mulle-Friday 262 chemin de Dabiou Cintegabelle, ot 31550 FR

dawn oz 39488

good - i look forward to the updates. On Mon, Mar 10, 2014 at 11:14 PM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Dawn Snyder 10055

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dawn Snyder 4007 Glen Oaks Blvd 4007 Glen Oaks Blvd Sioux City, IA 51104

18803

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dawn Snyder 4007 Glen Oaks Blvd 4007 Glen Oaks Blvd Sioux City, IA 51104

Alphabetical by sender's first name

Dawn Snyder 50877

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dawn Snyder 4007 Glen Oaks Blvd 4007 Glen Oaks Blvd Sioux City, IA 51104

Dawn Trexel 39255

Hello, I would like to make a comment about the proposed PolyMet mine. I believe that Minnesota should be a leader in sustainability. That means thinking about what is best for the state in the long-term, not just the short-term. Just because there is a company interested in mining our minerals doesn't mean now is the best time to do so. The minerals are not going anywhere. Perhaps in the future we will have more sustainable methods for extracting such minerals. Just because iron mining is socially acceptable in Minnesota doesn't mean that all mining should be. Copper-nickle mining is very different from iron mining, and those differences and long-term impacts need to be taken seriously. Dawn Trexel 7717 Hwy 169 Virginia, MN 55792

Alphabetical by sender's first name

dayna mase 9999

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, dayna mase po box 746 ely, MN 55731

18744

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, dayna mase po box 746 ely, MN 55731

Alphabetical by sender's first name

dayna mase 50818

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, dayna mase po box 746 ely, MN 55731

Dean & Peggy Erzar 44366

To all involved; I feel that the governing bodies that are involved in watching over PolyMet will do a good job and enact policies that will be enforced for the good of all who live here. I have been a miner for 35 years, 31 at Minntac and 4 at Northshore Mining, while working at Minntac I was involved in much of the process and worked under some of those that run Polymet. I can tell you that environmental rules always played a big part in any changes we made. The same holds true at Northshore. The governing bodies did a great job on the SDEIS and should continue making changes and watching out for us as the process goes on. You have my full support in this project. Please continue on. Dean Erzar 1280 S. White Iron Rd Ely, Mn 55731

Dean And Tristan Jacobson 38731

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I also think that this never needs to be done anywhere in the USA, due to the fact that all it is doing is ruining the environment. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Dean And Tristan Jacobson 420 Old Farm Rd Saint Paul, MN 55126-2052 (651) 248-1363

Alphabetical by sender's first name

Dean Borgeson 16711

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dean Borgeson 9208 Erickson Ct N Brooklyn Park, MN 55428

50080

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dean Borgeson 9208 Erickson Ct N Brooklyn Park, MN 55428

Alphabetical by sender's first name

Dean Erickson 18385

Thank you. Well, I will be submitting more technical comments in writing. I just want to make the point that in the late 1970's the St. Louis River (inaudible) and the entire watershed, including the upper watershed was designated by the International Joint Commission, which manages the air and water concerns in the United States and Canada, as an area of concern. So an area of concern basically means you all got a big mess and you got to clean it up. And so we've been working since that designation to develop a plan through decades really at this point of input to clean up the lower St. Louis River. And that's continuing right now. It just came up with a new draft of remedial action plan for the St. Louis River area of concern. That puts us delisting the beneficial (inaudible) the area of concern in about 25 years or so if we can make it. Some of the beneficial use includes mercury contamination, degradation which basically means the critters in the water that are the basis of the ecosystem in the food chain can't survive due to mineral and salt contamination in the water. We already see pretty marketed impact in conductivity, which inhibits the growth of pretty much everything that lives in the water at the streams that flow out of the Iron Range and below the Iron Range. It looks fine. Because it looks fine doesn't necessarily mean it is fine or that we're sustaining the amount of life that we should be sustaining in that ecosystem. The addition of potential sulfuric acid drainage into the St. Louis River Watershed, which is the largest watershed in the United States, flowing into the largest body of fresh water on earth seems unacceptable. And the MEPA and the other organizations that are collaborating to do this, we are spending -- we expect to spend $420 million cleaning up our mess in the area of concern. $420 million. That's our money. And it seems contradictory I guess I would say to be spending that much money to be cleaning up something when we're not tending to the 11 headwaters. I also just want to point out that we base our predictions of water flow on the past. What we're seeing in the future is not the same as what we've seen in the past. We have minimal understanding at the revolution we need of climate change impacts in our watershed. And the flush scenarios are likely inadequate. And then finally I just want to say that we are a ceded territory. And we have a lot of things that we need to take care of on behalf of the original people on this land.

Dean Evenson 42479

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Dean Evenson 35 Luverne Ave Minneapolis, MN 55419-2623

Dean Flugstad 15811

I can scarcely believe that it has come to this, that one of the most treasured jewels in the crown of outdoor America , the BWCA, is being threatened by the mining industry again. But the poison this time is thousands of times worse than iron ore mining could ever be. How will retention dams hold back sulfide and toxic metals for hundreds of years. This mining has no place in or near the place we hold dear in our hearts. Mining of all kinds has a very poor long term record in environmental integrity. It is get in, extract, get out and let the people pay for the clean up and mourn their lost environs. A 2200 page document perhaps was intentionally made so long it could hide all sorts of sins. Sorting this out Should be allowed to take years to be done. Be careful and cautious please, Dean Flugstad 72243 300 th Ave Lake City, Mn 55041 Sent from my iPad

Dean Graveel 10714

Gentlemen, I could not make the comment section of your Email on the "Mining Meeting" work. So I am writing you separately. I travel to the BWCA two to three time a year and guide various groups. I love the area and think it is one of God's greatest creations, besides the birth of a child. I also am a Mechanical Engineer with about 50 years experience. I do not like all the negative reporting and the negative groups that are trying to stop the Mining proposal for the BWCA. They do not seem to have many truthful facts to support there "NO" answer to everything that is presented on this subject. As an Engineer, their is always many ways to solve problems and remove all dangers. We must work together for the solutions and keep everybody satisfied and still accomplish the "Mining " goal. Dean A. Graveel Alexandria, IN 46001

Alphabetical by sender's first name

Dean Halverson 18331

My name is Dean Halverson. I am from Barnum, Minnesota. I have no script or anything. I'm a mill worker. I'm a taxpayer. And I live in one of the greatest states in The Union. I am going to take my hat off to the DNR people, department of natural resources, for timber, taconite, copper. It's natural resources, folks. God gave it to us for a reason. We're going to use it. Good luck to everybody involved in this project. My hat off to you.

Dean Mohs 16064

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Dean Peterson 42666

See attachment

Alphabetical by sender's first name

Deanna Erickson 20103

RE: Technical comment on the Polymet Draft EIS In the early 1980's, the St Louis River was designated by the International Joint Commission (which manages air and water concerns between the United States and Canada) as a Great Lakes Area of Concern, making the river mouth one of 43 areas slated for clean up and delisting of Beneficial Use Impairments. With momentum behind this clean up building as a result of the Great Lakes Restoration Initiative, a newly updated Remedial Action Plan developed by the Wisconsin DNR and the Minnesota Pollution Control Agency lays out a plan to delist the Area of Concern by 2025, spending over 420 million dollars in public funding to accomplish the cleanup efforts. In order to delist the St Louis River Area of Concern (which includes the entire watershed of the St Louis River), MPCA and the MN and WI Departments of Natural Resources will need to delist the following Beneficial Use Impairments that could be made considerably worse by the impacts of sulfates and sulfides in river water: BUI 1: Fish Consumption Advisories. In order to delist this BUI, "There are no Area of Concern-specific fish consumption advisories issued for the St Louis River by the State of Minnesota or the State of Wisconsin. Tissue concentrations of contaminants of concern in representative samples of resident fish are not significantly elevated from regional background samples" The two contaminants of concern are mercury and PCBs, as those are the reasons for current consumption advisories in the AOC. (Text from the Remedial Action Plan). Sulfates and sulfites are essential components in the methlylation of mercury. BUI 2: Degraded Fish and Wildlife Populations. An essential component of delisting this BUI is to "(Develop) a wild rice plan and wild rice restoration at Rask Bay and additional sites in the estuary in Minnesota" in order to foster wildlife habitat. The growth of wild rice is severely inhibited by over 10mg/L sulfites in the water and sediment. The Polymet Draft EIS does not make any mention of the Area of Concern or the Beneficial Use Impairments, nor does it adequately address how these impairments might be mitigated in the event that sulfuric acid enters the water column of the St Louis River. In order to ensure that the Polymet proposal does not impede progress on delisting the Area of Concern, impacts to the St Louis River Beneficial Use Impairments should be clearly addressed in the Draft EIS. I am not in favor of this proposal and believe that on behalf of the largest US river entering the largest freshwater lake in the world, we are internationally obligated to deny permits for the Polymet operation. Sincerely, Deanna M. Erickson 3138 Minnesota Ave, #2 Duluth MN 55802

Deanna Greene 42529

See attachment

Deanne Roquet 43827

Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Deanne Roquet 315 W Oxford St Duluth, MN 55803-2235

Alphabetical by sender's first name

Deb Blair 46373

I am concerned with the Polymet proposal and am fiercely opposed to this project moving forward in Minnesota. Best regards, Deb Blair Business Manager Sunny Hollow Montessori 636 S. Mississippi River Blvd St Paul, MN 55116 651-690-2307 x110

Deb Brinkman 19960

We do not oppose sulfide mining, per se, it must be done without polluting our environment. The SDEIS is inadequate; it does not provide any reassurance that this mining will not result in irreparable harm to the watery environment in our Arrowhead. PolyMet's proposed mine threatens our clean water and public health. To keep pollution out of the environment, the only sustainable option is to clean the environment while mining is in progress. We need to promote an environment beneficial to life through the protection and wise management of natural resources in the public intereSt Pollution should be controlled to preserve the physical, chemical and biological integrity of ecosystems and to protect public health. Deb Brinkman 4327 Alabama Avenue South St Louis Park, MN 55416 612 803 6142

41406

Dear Ms Fay, Dear Federal and State Agency Leaders: 500 years of pollution is unacceptable. In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was "inadequate" and the sulfide mine project would be "environmentally unsatisfactory." The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity." Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely Deb Brinkman 4327 alabama avenue south St louis park, MN 55416

Deb Bryant 45866

I am vehemently opposed to the prospect of a copper sulfide mine being developed in Minnesota for many reasons to include the poor track record of the Glencore corporation, the risk to habitat and water quality, and the direct disruption such activity would create next to a wilderness area. The estimated gain of a limited number of jobs for a mere 20 years is not worth the huge risk of damage done that will last potentially for centuries. It has become a well known fact that whatever precious metal is produced through this mislead endeavor will not be available for use in the United States and will be shipped overseas, most likely to China. There is huge weakness in the environmental draft statement pertaining to water quality, and based on the unsuccessful track record of preventing environmental damage as demonstrated through other such mines, there can be no assurance that the proposed mine will be any different. Deborah Bryant, DVM Greater Minnesota Veterinary Behavior Services HYPERLINK "http://www.gmnvetbehavior-com/"www.gmnvetbehavior-com HYPERLINK "mailto:info@gmnvetbehavior-com"info@gmnvetbehavior-com Ph: 320-292-6608 Fax: 320-529-9696 P.O. Box 168 Sartell, MN 56377

Alphabetical by sender's first name

Debbie 7726

Dear MN DNR, Please accept these as my comments since due to health issues I am unable to attend the public hearing in Duluth. Outlined below are my main concerns regarding this specific mining project and subsequently any similar mining projects that involve mining for primarily copper, nickel and other metals from sulfide ores. 1). Mercury: Fact: Minnesota already has substantial mercury pollution, mainly from air deposition that has polluted our water, land and air and the food we eat. This project will significantly increase mercury pollution. In my opinion the EPA, DNR and the MPCA and MN Health Dept. currently have not done enough to lessen mercury pollution from its sources. No agency has done any significant research which has looked at the accumulated effects of mercury pollution on children and women of childbearing age and why there is a higher rate of autism and other neurological disorders around the Great Lakes and in particular Lake Superior and Minnesota than in other areas of the United States. Therefore: Because of the magnitude of this proposed mining project and because if this mining project is approved it will open the doors to over 35 other similar mining projects being proposed in Northern Minnesota - this EIS should not be accepted and/or approved until a long-term (20 year minimum) research project be conducted in Minnesota on the accumulated effects of mercury on children and women. 2).Watershed impairment: This project will adversely effect the Partridge River watershed and the St Louis watershed by eliminating over 900 acres of pristine wetlands and by the potential for contaminating this watershed with sulfide ore runoff. This watershed is part of the Lake Superior watershed and the Great Lakes watershed. Millions of people and including businesses live "downstream" from this proposed mine and depend on the clean water of its entire system to survive. Therefore: Since there has never been a sulfide ore mine in the world that has not polluted and has not left a polluted site for taxpayers to bare the burden to live with and try and clean up; why does the DNR and the state of Minnesota think that proposed Polymet project will be any different. The MNDNR has never not approved any EIS permit and both the MNDNR and MPCA have a poor record of monitoring permits and enforcement. A check over the past 10 years shows a clear record of many abuses by industry - including our existing iron ore mining industry of violations of their existing permits which end up polluting our rivers, land and air. Therefore: If the MNDNR and MPCA can't prevent current industries from continually violating state and federal permits how are they going to be able to hold Polymet accountable. Note: I would like the MNDNR and the MPCA to show one existing mining operation in Minnesota that has never, I repeat never - violated one of their permits. They can't because it doesn't exiSt Approving this proposed mine is a ludicrous based on the past history of mining operations in Minnesota and based on the poor record of the MNDNR and the MPCA in effectively monitoring and enforcing federal and state laws to protect our environment. 3). Wetlands When Rep. Willard Munger and other state legislators passed the MN Wetlands Act it was to insure that we protect existing wetlands within the watershed(s) where they exiSt If he were alive today he would be appalled at how his legislation has been watered down. He and other legislators original intent was never to allow wetlands in one county to be replaced in another county. We need to preserve and protect existing wetlands not use gravel pits (which has been done) to try and build new ones that will never replace natural wetlands that took years to make. For every acre of wetlands that is impacted a natural, existing wetlands must be permanently preserved forever. I was on a Wetlands Technical Committee and was involved in testing the quality of man-made wetlands and our rese

Debbie Brown 37305

Mar 1, 2014 Ms Lisa Fay MN Dear Ms Fay, I write as a Minnesotan who advocates for protecting our clean water far into our future. Citizens such as myself have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement. I believe that the SDEIS is insufficient and should not be approved because it lacks information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest, the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. I personally care a lot about birds and view them as an indicator of the health of our land. I advocate on behalf of birds because they have no voice in decisions made about their habitat and homes. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Goshawk and Boreal Owl. I urge decision-makers to reject the proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining could result in long-term water pollution and negative (harmful or fatal) impact to sensitive birds and habitats. In my opinion, which considers the long term, this short term trade-off is not worth the risk. Thank you for your consideration. Sincerely, Mrs Debbie Brown 449 Pascal St S Saint Paul, MN 55105-2520 (713) 351-9220

Alphabetical by sender's first name

Debbie Engel 42833

See attachment

Debbie Legan 57236

As I watched on the news the river in West Virginia and the town's impacted by the contamination spill, I thought "perhaps NOW the individuals who can stop the PolyMet mining in Minnesota will rethink this." Do not destroy the best of what Minnesota has to offer.Debbie Legan1004 Glen Paul CtShoreview, MN 55126

Debbie Meister 15978

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Debbie Mucklow 41819

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Debbie Mucklow champlin, Minnesota

Debbie Neimark 40363

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Debbie Neimark 6018 N. Oakley Ave Chicago, IL 60659 US

Alphabetical by sender's first name

Debbie Thompson 40828

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Debbie Tilman 54666

See attachment

Debbie Wall 41950

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Debbie Wall Minneapolis, Minnesota

Alphabetical by sender's first name

Debby 7655

PolyMet is the worst thing that could come to fruition. Please do NOT do this to our beloved state. Protect our environment for generations to come. I live in Cook County six months of the year, and I want all of our 11 grandchildren to enjoy a natural environment. Debby Rebischke MAR-COM and Associates 612-419-7546 cell 952-925-9132 fax drebis@comcaStnet

Debby and David Ortman 54685

See attachment

Deborah A Ramos 54528

I am totally against the sulfide mining in northeastern Minnesota. Question? If Canada is own by the Queen of Enland and that Enland rejects exports from the USA pertaining to international laws, (example) if I wanted to send cookies-cereal-smoked sausages to a friend in England I cant because of the chemicals in our food. Then we have the right to stop the company from Canada coming here and destroying MN.

Deborah Cheek 32765

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt There are things in our lives and in the world that are much more valuable and precious than money. The National Forest lands near the Boundary Waters Canoe Area Wilderness and Lake Superior are considered by some to be one of the most beautiful wilderness areas in the world. My heart aches that some corporation thinks that it is right/moral to seek permission to put an open pit sulfide mine on this land. Please act now to block this proposal put forth by PolyMet. Sincerely, Deborah Cheek 503 W Center St Mount Morris, IL 61054-1315 (815) 734-6228

Alphabetical by sender's first name

Deborah Crocker 9873

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: My God, I am horrified that this has gotten this far. If this goes through it will COST US big time It will destroy our great north woods, animal life, AND the money from tourism It will also cost us money to clean up It will probably never really be clean or will we have our great north woods ever again, at least in my life time. It seems to me the costs are TOO great just for a few jobs. Unlesss some people are getting paid alot of money who make this decision Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Deborah Crocker 3012 Darling Dr Alex., MN 56308

Alphabetical by sender's first name

Deborah Crocker 18642

Dear Ms Fay, Mr Bruner and Mr Dabney: My God, I am horrified that this has gotten this far. If this goes through it will COST US big time It will destroy our great north woods, animal life, AND the money from tourism It will also cost us money to clean up It will probably never really be clean or will we have our great north woods ever again, at least in my life time. It seems to me the costs are TOO great just for a few jobs. Unlesss some people are getting paid alot of money who make this decision Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Deborah Crocker 3012 Darling Dr Alex., MN 56308

Alphabetical by sender's first name

Deborah Crocker 18881

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: Bottom line The people of MN. do NOT want or need this company in our state. The CONS far outway the pros I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Deborah Crocker 3012 Darling Dr Alex., MN 56308

Alphabetical by sender's first name

Deborah Crocker 50717

Dear Ms Fay, Mr Bruner and Mr Dabney: My God, I am horrified that this has gotten this far. If this goes through it will COST US big time It will destroy our great north woods, animal life, AND the money from tourism It will also cost us money to clean up It will probably never really be clean or will we have our great north woods ever again, at least in my life time. It seems to me the costs are TOO great just for a few jobs. Unlesss some people are getting paid alot of money who make this decision Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Deborah Crocker 3012 Darling Dr Alex., MN 56308

Alphabetical by sender's first name

Deborah Flanders 39522

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Deborah Gibbons 43573

Dear Ms Fay, Dear Ms Fay and Mr Bruner and Dear World The reason I am writing is because I noticed the logo for the US EPA is a clump of blueberries. I am an Interpretive Naturalist in Ely MN taught at Vermilion Community College. A Blueberry shows us and tells us and gives us our picture of health. Blueberries are a SUPERFOOD and shared on every health food site and David Wolfe magic smoothies. Main ingredient - BLUEBERRIES. Blue berries support our basic need for health, even the bear knows this.. The bear taught the people how to keep their digestive system ALIVE. Blueberries, blueberry leaves and blueberry plant stems all give us a SUPERIOR sense of health. How do we know that. A bear eats a bushful of blueberries, leaves and stems and the goes to sleep for 6 months. What retains his health. The superfood, blueberry. We know this. Why would anyone put their own health at risk for a little gold when we have all the golden blueberry medicine we need for all time. Since I am a Naturalists, I'd like you to know that i also have similar information about total sustainable health relating to WILD RICE, CEDAR, WHITE BIRCH AND ESPECIALLY YELLOW BIRCH . MY MESSAGE IS TO ASK YOU TO SAVE IT ALL. And save the wolves that help it all stay healthy and disease free. My presence and my vote will always be against destruction of the native forest in any way. Reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Yes, our ability to keep ourselves healthy is our prime intereSt Deborah Gibbons Ely, MN Very truly yours, Deborah Gibbons 429 S 4th Ave E Ely, MN 55731 218 235 7146

Alphabetical by sender's first name

Deborah Gibbons 43575

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Deborah Hendrickson 15878

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Deborah Hendrickson 301 N 18 1/2 Ave W Duluth, MN 55806

Alphabetical by sender's first name

Deborah Hendrickson 16929

Feb 18, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Deborah Hendrickson 18901

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Deborah Hendrickson 301 N 18 1/2 Ave W Duluth, MN 55806 218 391 5133

Alphabetical by sender's first name

Deborah Huskins 18232

I'm Deborah, D-E-B-O-R-A-H, Huskins, H-U-S-K-I-N-S, and I live in Woodbury. My family has been involved for four generations in north woods activities, and I want to make these statements because I'm very concerned about the proposed NorthMet/PolyMet project. Any large undertaking requires us to plan and hope for the best but to prepare for glitches and unanticipated events. While we all hope sulfide mining can be done without damaging the environment, experience throughout the world shows otherwise. There are foreseeable problems. Just one example is the Duluth flood event that occurred in 2012. Nearly 7 inches of rainfall fell in 24 hours, causing flash floods, widespread flooding, tearing apart roads and river beds, et cetera. This rainfall exceeded the 100-year flood records. PolyMet says that they can capture all of the contaminated water on site and treat it before it's released into the environment. Their own mine plan shows they will have millions of gallons of polluted water that will seep offsite untreated. PolyMet will be collecting some of the water in pits lined with membrane -- membrane liners. These liners will eventually leak. What will happen if we have a flood event like the Duluth flood event? Contingency plans are important. No one has explained how the damage can be retracted once it occurs. If leakage occurs, or worse, a spill, how can the acidified water be pulled back? It can't. It proceeds downstream and down into the groundwater killing plants, fish and all aquatic life it contacts, leaching dangerous heavy metals and mercury into the environment. How do you reclaim water that has been acidified and the plants and animals that are killed off? Reclamation costs are used to determine what the financial assurance is that will be required. But how can we give a dollar value to the damage once it's occurred? Financial assurance must be enough to protect Minnesota taxpayers in the future; long after the mining company is gone. Protection from bankruptcy is important, also, because Minnesotans otherwise would be left liable for any costs. The SDEIS is 16 inadequate. It doesn't provide a financial assurance plan that will remain viable for 500 years and account for all unanticipated liability. How can it? How can a corporate entity be held accountable for these costs over centuries? The answer is get all costs up front. But we really don't know what the costs of the water treatment monitoring maintenance and repair for decades and even centuries are. This mine plan still fails to provide details on the amount and form of financial assurance that is needed to fully protect taxpayers. The actual cost of monitoring, maintaining, replacing equipment and protections over the course of hundreds of years needs to be built into the costs and the financial assurance estimates. The PolyMet's Director of Environmental Permitting and Compliance says that we don't need to know how long water treatment will be needed. They will -- the company will prepare for treating the water for as long as it takes. This doesn't make sense. How can the state be assured that sufficient financial assurance will cover the costs if we don't know how long these costs will last? And so we can't know the total costs. The SDEIS is inadequate for that reason, as well. Another reason the SDEIS is inadequate is that the economic analysis is not complete. What jobs really will go to Minnesotans and which ones will go to non-Minnesota, non-U.S. employees? What about the jobs that are displaced or disappear when the mining starts, and what about those jobs that disappear afterwards? A cost-benefit analysis is needed. When the mine closes, there will be costs due to the impact of lost jobs, unemployment and other societal costs. The SDEIS does not take these into account. Displacement of other economic activities should be part of the cost-benefit analysis, including activities associated with hunting, fishing, ecotourism and outdoor recreation. In conclusion, the SDEIS is inadequate in multiple ways and doesn't provide insurance that our water and our environment will be protected, despite the mining for the entire period of time that the damage will occur. We must be strong and vigilant to protect these precious natural resources. Thank you.

42918

Hello, this message is addressed to Ms Lisa Fay, EIS Project Manager, MDNR Division of Ecological and Water Resources, Mr Douglas Bruner, US Army Corps of Engineers, and Mr Tim Dabney, USForest Service. My comments on the SDEIS for the NorthMet Mining Project and Land Exchange are attached. I will also send a paper copy to the mailing address listed for Ms Lisa Fay at the DNR. Thank you for the opportunity to comment on this extremely important SDEIS. Please keep me on all mailing lists/groups regarding the NorthMet/Polymet proposal. Sincerely, Deborah Huskins 2624 Windsor Lane Woodbury, MN 551225

54482

See attachment

Deborah J Rasmussen 42740

See attachment

Alphabetical by sender's first name

Deborah Kleese 42542

See attachment

Deborah Meyer 39913

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Deborah Meyer 4970 150th Ln NW Ramsey, MN 55303-4293 (763) 323-9338

Deborah Morse 54508

See attachment

Deborah Robinson 58142

I, Deborah Robinson (774 Timber Lane, Shoreview MN 55126), do not supportcopper/nickel mining in northern Minnesota because:#1) The risk to water quality is far too great (sulfuric acid pollution for many years, perhaps centuries, into the future) for the limited number of jobs (350) that would result over such a limited time (20 years); There are many less risky ways (both financially and environmentally) to revitalize the economy of northern Minnesota without copper/nickel mining;#2) Hardrock mining history in other U.S. states has proven that hardrock mining companies usually declare bankruptcy long before mine site cleanup is done leaving tax payers, such as myself, paying for the long-term cleanup costs - there is no reason to believe that PolyMet would or could do better;

Deborah Walsh 16392

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Deborah Walsh 1124 N 2nd street Stillwater, MN 55082

Alphabetical by sender's first name

Deborah Walsh 49950

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Deborah Walsh 1124 N 2nd street Stillwater, MN 55082

Deborah Webster 28650

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I'm sure you've read many similar messages from other Sierra Club members. My main concerns are irreparable environmental damage and lack of a good plan to prevent accidents, along with sufficient funds being set aside to clean up the mess after PolyMet has stripped the earth of anything valuable. History has shown that other mining interests have simply declared bankruptcy to avoid paying clean up costs. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Deborah Webster 2298 Snowshoe Ln E Saint Paul, MN 55119-5900 (651) 731-4662

Alphabetical by sender's first name

Deborah Winter 40137

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Deborah Zeleznik 26407

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please consider these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota, but we must learn from past mistakes. Acid mine drainage and heavy metal contamination have polluted waters everywhere sulfide mining has occurred. It threatens wetlands, rivers, lakes and streams and will affect the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. I'm concerned about our region's natural resources and public health, risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, not to mention the cumulative effects from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet not in the public's interest, only PolyMet's. Sincerely, Deborah Zeleznik 1200 Beach Ave La Grange Park, IL 60526-1243 (708) 352-3141

Alphabetical by sender's first name

Debra Barnhardt 9802

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Debra Barnhardt 3416 Zenith Ave North Robbinsdale, MN 55422

18601

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Debra Barnhardt 3416 Zenith Ave North Robbinsdale, MN 55422

Alphabetical by sender's first name

Debra Barnhardt 50677

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Debra Barnhardt 3416 Zenith Ave North Robbinsdale, MN 55422

Debra Cless 18117

My name is Debra Cless. I'm a resident of Ely, Minnesota. And I would like to address some issues that have come up again and again in this discussion. Science-data-driven outcomes and socioeconomics. My comments will really focus on what I perceive to be flaws in two interactive parts of the SDEIS, modeling of water movement at the mine site and current hydrology. And the impact of these model errors on another section, which is the socioeconomic section. After reviewing the information -- I have read the whole SDEIS, and I have especially paid attention to Chapter 8 and Appendix C. And in there there are scientific studies. And the ones I found most compelling were the five letters and memos contained in the hydrology section of Appendix C. I contend that these problems in the model -- and we've heard some questions about the importance of modeling -- and I would also call attention to the fact that it's PolyMet's modeling itself that has contained 200-year and 500-year outcomes. However, the model water quality at 500 years is only the point at which the water doesn't get worse. The predictions in these models create serious challenges to prediction of critical economic components. Future mitigation and remediation costs. Risk assessment cannot be separated from risk management. Therefore, critical flaws, present in the assessment of risks, will lead to critical flaws in estimations of future costs. I will highlight the flaws briefly. I included them in my comment that I submitted. First of all, when we're looking at the model, the major tenent of the model is that computer simulations are discredited if the things you are looking at have not been tested and do not reflect adequate field conditions. The surface water model failed to do that. Secondly, the (inaudible) model, which predicted water quality at the mine site also did do (inaudible) that's it.

Alphabetical by sender's first name

Debra Evpm 40738

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Debra Frasier 22723

Mar 4, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The slew of recent tragedy-inspiring broken pipes, holding tanks, and containment systems should be warning to us enough: There will be an accident. It is a matter of time. What happens then. Will this company be around in 50 years to take care of the problem. No. And we are talking an extension of 500 years for possible containment probleMs Jobs. We trade all this for jobs that will last at best 20 years, and the bulk of the profits will be exported. It does not make sense to open the flood gates of permits to the dangers of this kind of mining. But let us at least have a fair idea of the health dangers, not brush this under the rug for after the fact. I have read the materials on both sides and understand what it means to be without work in a community. We must do better than this. Please do not proceed with this mining effort without the health assessment. Sincerely, Debra Frasier 45 Barton Avenue SE Minneapolis, MN 55414 Sincerely, Ms Debra Frasier 45 Barton Ave SE Minneapolis, MN 55414-3511 (612) 379-0424

Alphabetical by sender's first name

Debra Frasier 58098

I have come to this meeting because I am 60 years old and grew up in Florida. After 30 years in Minnesota I can tell you that the pristine beauty of your state is the most valuable treasure you have. It seems, from the present, that job here-and-now is the gold --- it is not. Look at Florida, my homeland ---sold for jobs and now plagued with natural disasters in water quality run off, and soil erosions, contaminating water ways. Now, water is the gold. Minnesota has a chance to keep its gold. Every protected area of this country has proved its value and that will only increase. Don't sell to the short sighted job – protect the gold – we cannot sign up for a "plan" that counts on 500 years of cleanup for a job today. The math does not work.

debra haveri 4410

People just have to check out what happened in Ladysmith Wisc. The Flambeau river.. Maybe then theyandapos;ll take their head out of their as____es and realize we should not allow polymet here.. "*NorthMetSDEIS (DNR)" wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Debra Thurlo 41858

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Debra Thurlo 1135 Loma Linda Ave Mound, MN 55364-9759

Debra Wilde 40030

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Debra Wilde 902 3rd Ave S Virginia, MN 55792

Alphabetical by sender's first name

Debrah Billmeier 18270

Deborah, D-E-B-O-R-A-H, B-I-L-L-M-E-I-E-R, Mound. I've never been able to find the words to adequately express the value that the wilderness has on, from as far as I can tell, everyone that has ever been there. That is the wilderness of northern Minnesota would probably be a little more accurate. There is no amount of money that could ever replace this ancient wilderness. I think if everyone could have the amazing experience that the peace and freedom nature provides, they would agree it is stupid and reckless to open mines that would endanger this rare and interesting environment. I find the history of the Polymet/Swiss owner's mining company's practices extremely disturbing. Despite the sulfide mineral mining company's promises, they have never proven that they can prevent the extremely toxic waste and the sulfuric acid from entering into the surrounding environment. With fresh water being the most valuable resource, this mining project, it is like the worst location for it to be a test site. It is near Lake Superior, the largest freshwater source in the world. It seems like a pretty stupid place to just see if it is not going to do it. I hope that we will continue to protect the wilderness and truly leave a better Minnesota for future generations.

Debsonstage 10358

I am concerned about the sulfide mining that is proposed on the range due to the great risk of our ecology from Babbit through The Great Lakes. Not one of the mines that has done this type of insult to the land has contained the pollution and my question is why is this even on the books waisting tax payer money. Todd Gremmels 1626 London Road Duluth MN 55812

Dee Ann Christensen 41890

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Dee Ann Christensen Coon Rapids, Minnesota

Alphabetical by sender's first name

Dee Awe 16535

Feb 19, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Dee Ray 3162

POLYMENT IS A COMPANY THAT DOES WHAT THEY SAY. THEY ARE A GREAT EXAMPLE OF BUSINESS AT ITS BESt THE LEADERS ARE ETHICAL, SINCERE AND HONESt MINNESOTA NEEDS THESE JOBS AND IT WILL HELP THE STATE IMMENSELY. Dee Ray

57424

POLYMENT IS A COMPANY THAT DOES WHAT THEY SAY. THEY ARE A GREAT EXAMPLE OF BUSINESS AT ITS BESt THE LEADERS ARE ETHICAL, SINCERE AND HONESt MINNESOTA NEEDS THESE JOBS AND IT WILL HELP THE STATE IMMENSELY. Dee Ray

Deidre Moderacki 26851

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Please include climate change expectations in your plan. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Therefore, please justify the anticipated loss of fresh water, wetlands, wildlife and public health in your plan. Show me where you stand in regard to America's water. Sincerely, Deidre Moderacki 626 E 14th St New York, NY 10009-3312

Alphabetical by sender's first name

Deja White 54213

I don't think you should allow this mine to be done. The boundary waters is the only natural and beautiful land here in Minnesota. Digging this mine will intamenate the waters. Ruining the habitat of the animals around it and in the waters. Your polluting the waters with sulfuric acids making the pH go down. Which means no more fishing for the people who love to do so. The wilderness is a very historic place being open since 1978. What about the future generations? Building this mine will polute multiple lakes and rivers.

Delia Santiago-Stulc 41822

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Delia Santiago-Stulc Circle Pines, Minnesota

Delores Dufner 38736

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Delores Dufner 104 Chapel Ln Saint Joseph, MN 56374-2020

Alphabetical by sender's first name

Denise Coviello 40287

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Denise Coviello 1338 Virginia Trail Youngstown, OH 44505 US

DENISE KASTNER 40304

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, DENISE KASTNER 17667 GRANT ST LOWELL, IN 46356 US

Alphabetical by sender's first name

Denise Marlowe 39196

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Denise Mueller 16152

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Denise Perry 58039

Explore more options for disposal! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Denise Thomas 41749

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Denise Wunderlich 31534

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Allowing sulfide mining to begin would pose a threat to wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness, as has been demonstrated by the heavy metal contamination that has polluted waters in all other places where sulfide ore mining has occurred. This proposed project has major potential negative impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, and harm to wildlife. Allowing PolyMet to build an open pit sulfide mine, using a Federal land exchange that includes protected Superior National Forest land is not in the public intereSt I beseech you not to move forward on this project. Sincerely, Denise Wunderlich 13730 Vernon St Oak Park, MI 48237-1387

Dennis Cleaveland 37282

Dear Sir or Madam: I have read the SDEIS and attended a public meeting regarding the Polymet Northmet Project at Hoyt Lakes, MN. My conclusion is that as a result of the treatment facilities and methods proposed by Polymet, the industrial water returned to the St Louis river basin will be cleaner than the water currently in the river and its basin. In the chapter of the SDEIS labeled "Major Differences of Opinion", detractors arguments often include "we don't know . or . has not been addressed". The totality of the SDEIS belie those statements. The project is environmentally responsible and should go forward lest I think all reason is lost in Minnesota. Dennis Cleaveland 2454 Cliff View Circle Two harbors, MN 55616

Alphabetical by sender's first name

Dennis DesMarais 54674

See attachment

Dennis Dietzel 3099

There are many concerns I have about the proposed Polymet nickel and copper mine. The main concern is around the subject of ongoing water quality. From my reading of the environmental impact statement there would need to be water remediation for 200 to 500 years. I don't understand how one can plan for remediation that would last that long. The United States as a country is just over 200 years old, and, to my knowledge there are no corporations that have ever existed nearly that long. I cannot support a project that compromises water quality of the area and Lake Superior that far into the future. We have no idea how many resources would be required 100's of years from now to handle such a situation. Based on my comments above, I would like to register my opposition to the proposed Polyment nickel and copper mine project. Dennis Dietzel 2954 Hamline Avenue Roseville, MN 55113 651-633-0432

Dennis Dunphy 50934

The DNR has not been able to answer any of my questions on the Poly Met Mine proposal. Now, Let us stop this madness. The DNR continues to back a project without being able to answer basic and important questions. Such as, how to they plan to forecast the value of a human life lost due to pollution from the mine. How many mines will open up. How can Poly Met open a mine when they have not money to do so. Why would we let a Canadian mining company like Poly Met open a mine in Minnesota since they have no ties to the United States. How can they predict the success of technology never used in the Boundary Waters area. Have they looked at the pollution of other mines and told the public the truth about the pollution from these other mines. Why has the DNR used numbers given them by Poly Met without doing their own analysis. How can they not look at the action needed when pollution takes place which it will. What are the actions that will take place when a river is polluted. It is stupid to continue on with this political game when Mr Brad Moore used to work for the Minnesota Pollution Control Agency and not is a mouth piece for Poly Met. He has a degree in political science. And we know how politicians lie all the time. It is insane. Stop it. Dennis Dunphy 1-320-290-5330 HYPERLINK "mailto:dunphy@cloudnet-com"dunphy@cloudnet-com 535 6th St Apt. 101 Avon, Mn. 56310

50935

I have proof that Poly Met, DNR, and Minnesota Pollution Control Agency don't hAve History. History is the real story of truth and pollution. Pollution that takes place when those know it all said that technology will make certain pollution will not happen. Look at the mines in Nevada. Look at Reserve Mining and the asbestos in Lake Superior some forty years ago. If you don't remember you are to young to remember it. Look how the Gulf of Mexico turns red from pollution. Technology fails all the time. Look at how the Titanic was unsinkable. The Poly Met Mine will pollute and kill. It will kill a large area right off the bat. As soon as the first shovel is dropped to remove rock, it is dead forever. Look at the zebra muscles spreading like wildfire from lake to lake. OK. The water from northern Minnesota goes all the way to the ocean and is used several times by cities on its way to the ocean. Once that water is polluted it is no good anymore. You wouldn't be able to drink it or swim in it. You wouldn't be able to fish it. So, nobody comes to Minnesota anymore to fish or camp. Because politicians set on their duffs and let it happen. The Chamber of Commerce and their buddies wanted the jobs. I can't see any future or benefit here at a Poly Met Mine. Finally, Poly Met has not money to do what they keep promising along with the DNR to do. Poly Met is a Canadian company with not legal or moral ties to Minnesota or the US The only source of money for them is the American citizens. NO. Now, People have been warned and they need to stop this catastrophe from happening to our beautiful state and other states.

Dennis Falk 39977

I am writing to oppose the NorthMet (Polymet) Mining Project. As I read the SDEIS and understand state statutes and regulations, this project will not meet the allowable standards for water quality. The mining activity will last perhaps 30 years, but the need to treat water to bring it to an allowable standards will likely last 200-500 years. I do not believe this situation meets the letter or spirit of the law, and I urge you to NOT issue a permit for this project to proceed at this time. Sincerely, Dennis R. Falk 16 South 25th Avenue East Duluth, MN 55812

Alphabetical by sender's first name

Dennis Ferche 43089

To: Minnesota Department of Natural Resources Fr: Dennis S. Ferche, Phd-Chemical Research and Life in General Re: The possibility of the mining of copper and nickel in Minnesota as proposed by Polymet Mining Inc.-The related Supplemental Draft Environmental Impact Statement (SDEIS). NOTE: In December of 2007, The Minnesota Pollution Control Agency released a report for public environmental review of a proposed Ash Disposal Facility in West Lakeland Township of Washington County- (this is as near the St Croix River). I compiled and made my comments before the MPCA at that time. Now we have the current mining proposal and this again involves the hazards of exposure to heavy metals via land, air, and water contaminants. My concerns with the heavy metals, at that time, carry over to this SDEIS. Therefore, I won't take the time from preparations for gardening (food production) and other worthy endeavors. Instead I offer some philosophy and some proposals that I believe pertain: 1) As I see it this proposal projects to give our youth another task into perpetuity. 500 years for monitoring and maintaining quality control seems almost comparable to tending to nuclear waste facilities for thousands of years. It seems time to review the nature of such endeavors, versus bringing on new ones-(How is the atoms for peace initiative working out around the world-as 400 tons of radioactive water escapes from the Japanese plant daily). I contend our creative youth may want to do otherwise. Note: This is evidenced by many choosing pathways where the ownership of an automobile can be avoided. 2) It has been reported that a ton of typical high tech equipment contains much more gold and other resource material than does several tons of related ores. I contend we need to get at reclamation in a proper manner. Currently, i understand that many items get sent to China for recycling-Reports are that much of this is done in a manner that is not respectful of the Earth or the life upon it. Meanwhile, over the years, I have listened to the statement via the Bill and Melinda Gates Foundation: "All people deserve a healthy and productive life". I concur, and we need to work that philosophy into current and future activities-Here, in China, and Everywhere. For this purpose, I propose that before any mining might be provided for that Reclamation of related resources be done and evidenced near the 100% level. Further, if any mining is to be allowed, that an accounting of resources be provided for-Meaning: Mined resources shall be track ed and followed through production and reclamation. Those planning to use the minerals need to provide the plan and the means for their reclamation in environmentally sound manners. 3) These days, as in much of the past, we hear jobs, jobs, jobs as the mantra-I contend that now we need to put the emphasis on evolving more worthy jobs. My top priorities are for the production of healthy soils and healthy foods-and grown locally as first preference. Secondly, in the worthy job category, we need to get on with the production of our fabrics, and related materials, via the growing and processing of industrial hemp-In contrast to importing these products. .: Gotta go now-Worthy Endeavors to Everyone, With Appreciation, Dr Dennis S. Ferche, Phd 1535 Stagecoach Trail South Afton Mn. 55001-9703; 715-338-2342

Dennis Good 38576

To whom it may concern: In case this e-mail or attached letter encounter any problems in the sending, a paper copy is also on the way Thanks for your time Dennis good

54729

See attachment

Dennis Hansen 57516

Dear MN DNR, As an aquatic biologist and resident of Duluth MN, I would like to voice my support for the mining industry in northern MN. There are several people that are rightfully concerned about the degradation of water and habitat in the mining areas. However, with proper mine planning, the short and long term effects can be turned into positive assets. In the short term, the extra air emissions from processing can be mitigated with today's technology, it will not cost too much more. Sulfide runoff can be reduced with proper mine contouring, wastewater treatment (even something as simple as limestone treatments). In the long term, the abandoned mine pits can contoured properly and be turned into new lakes, lake homes and property tax revenue. The catchment areas for these new lakes can contoured and coated with bentonite and/or top soil and replanted. These mines are future lakes. Even though I am a proponent of mining in northern MN, I do recognize, in the past, mining companies have taken MN's resources, siphoned the profits away from MN, declared bankruptcy and left a mess behind. Today's mining industry should come out with short term and long term plans to alleviate these concerns and gain public support. In short, most everyone agrees that northern MN needs the industry and nobody wants mining to leave our water and habitat degraded, but with today's technology, we can turn the future abandoned mines into lakes and recreational assets. Thank you for your time, Dennis Dennis L. Hansen M.Sc Aquatic Biologist and citizen 4284 Kingston Road Duluth MN 55803 218-626-5944 HYPERLINK "mailto:dlhansen@d.umn-edu"dlhansen@d.umn-edu

Alphabetical by sender's first name

dennis kaleta 40838

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources March 10, 2014 I am a resident of St Louis County, Minnesota and for many months now I have been listening and reading about the pros and cons of the proposed PolyMet copper mine in my county and region. After much thought and study, I've come to the conclusion that, while this development, like any of this scale and investment, would provide good-paying jobs in my part of the state, I see this mine as doing much more harm than good. I have seen copper mine operations in the American West and am aware of the long-term consequences. Copper mining is fraught with environmental probleMs There's a long history of toxic tailings and wastes, and mining companies that simply "take the money and run", leaving others to deal with the problems they've left behind. And these mines aren't placed like this one would be, in fragile wetlands near protected wilderness and the Lake Superior watershed. The minerals are there, but is this the right place to unearth them. There are far too many unknown variables with this project. The very process proposed to treat the toxic wastes is in question. Doesn't it border on insanity to talk about treating mining wastes for hundreds of years. This is not something that's been done before and planning to do such a thing, for this length of time, only proves how strange this type of thinking is. The health effects of this project, unearthing toxins and exposing these to air and water are unknown, and this has not been addressed in the EIS. Recently a group of health care specialists in Duluth pointed this out. Some of these concerns are mercury, toxic metals, arsenic, and asbestos-like fibers. What are the cumulative effects of pollution/toxins from the proposed operation along with current iron ore mining operations. A Health Impact Assessment should be required and it is surprising that this hasn't been done. We should know how many lives will be affected by these environmental toxins, and the sociological and economic costs. It is my understanding that native wild rice areas are already impacted by problems linked to water quality. I think it is of utmost importance that wild rice be protected and managed for no further loss and, in fact, wild rice should be re-introduced where it's been loSt It is unknown how this project will affect wild rice, hence our water quality and our quality of life in Minnesota, where water is our life. Some talk about changing our environmental standards and regulations to accommodate this new form of mining, but that is terribly misguided and shortsighted. How will this development affect the tenuous moose population. Thousands of acres of wetlands and moose habitat will be destroyed, with an impact that reaches beyond this immediate development. Critical Canada lynx habitat will be lost, as well. These concerns should be addressed. It is not required in this EIS, but considering the scope of this project and the pervasive pollution it will create, the technology and costs of containing and remediation of this pollution for hundreds of years MUST be part of this permitting process. It seems likely that more jobs would be created to clean up the pollution over hundreds of years, long after the twenty years of active mining. Ultimately I feel the question is: Are we in Minnesota willing to take a gamble on hundreds of years of toxins in our environment for a few hundreds jobs that will last a couple of decades. It has become an emotional issue for many on the Iron Range, an "us versus them" attitude, but this activity would have an impact far beyond the immediate area. One generation of good jobs is not worth twenty generations of pollution and health risks. Sincerely, Dennis Kaleta 1424 W. Knife River Rd Two Harbors, MN 55616

Dennis Kittock 21459

We are very much against the opening of N.E. Minnesota to any mining. You can be sure that the mining companies will figure out a way to leave us with a big mess. We are also very concerned about water contamination. All we need to do is look at past history. Dennis and Helen Kittock 401 Creekview Lane Arlington, Mn 55307

dennis mackey 7741

I used to work at LTV and do support polymet 100%, its about time to let them start building and mining. Thanks Dennis Mackey 501 N Auburn Ave Eveleth,MN 55734 218-744-3498

Alphabetical by sender's first name

Dennis Mashuga 19820

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dennis Mashuga 754 Havenview Ct Mendota Heights, MN 55120

49557

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dennis Mashuga 754 Havenview Ct Mendota Heights, MN 55120

Alphabetical by sender's first name

DENNIS NELSON 28040

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, For what it is worth, being an experienced wildlife observer (including a "birder" with a "life list" of over 500 bird species), I have enjoyed visiting Illinois Beach State Park and Indiana Dunes State Park/Indiana Dunes National Lakeshore, besides Northerly Island Bird and Butterfly Sanctuary on Chicago's South Side, along Make Michigan-especially during the spring migratory bird season. As a naturalist and an environmental researcher who has lived in the Chicago Metropolitan Area since the Winter of 1982, the entire Great Lakes Region MUST be immediately protected from ALL forms of toxic pollution. Therefore, please accept my comments on the PolyMet Mining Corporation's proposed NorthMet open-pit sulfide mining project Supplemental Draft Environmental Impact Statement (EIS). Lake Superior-a vast freshwater resource unique among the Great Lakes-and the millions of acres of wildlands, about 1,000 pristine lakes and streams, and around 1,500 miles of canoe routes within the Boundary Waters Canoe Area Wilderness MUST BE PROTECTED FROM THE PROPOSED OPEN-PIT SULFIDE MINE. The destruction of fish and wildlife habitat from polluted lakes and rivers, contaminated drinking water, huge cleanup costs (preventing the toxic chemical pollution in the first place is always the best option), and "hundred-year recovery" make ANY (AND ALL) OPEN-PIT SULFIDE MINING JUST TOO 'TOXIC' AND 'HAZARDOUS' FOR THAT REGION. (In fact, inherently 'dirty' sulfide mining has never been done in Minnesota. Again, this threatens wetlands, rivers, lakes, and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness.) Continuing on, acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has happened. I have really serious concerns about this project's potential impacts on that region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife species/populations (like the threatened Lynx and declining Moose populations), and the cumulative impacts from open-pit sulfide mining. (Even according to the PolyMet Mining Corporation's own study, the water from the open-pit sulfide mining site will require at least 500 years of treatment.) Finally, the federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open-pit sulfide mine is NOT IN THE PUBLIC INTEREST-AND SHOULD NOT BE ALLOWED. Sincerely, DENNIS NELSON 3817 S Winchester Ave FL 2 Chicago, IL 60609-2011

Dennis Purkat 18102

Good evening. My name is Dennis Purkat. I was born and raised in McKinley, Minnesota. The only reason I'm here is because my father raised eight children on a miner's salary, in a three-bedroom house. We didn't kill each other. We have all gone on to successful careers and lives here. I am fully behind this project because I work for a company. I am an independent sales rep and a lot of my friends and business associates are here tonight. I would just like to say thank you for all of the support they give me. I could raise my children. They have already -- they are going on to bigger and better things. I want to stay here. I just passed a 20-year milestone for the company I work for. I firmly believe this is a good project and I think that PolyMet is also going to support me in my endeavors in being a sales rep, and I just wish them well. And I hope that everybody here that is young and looking for a good job, that is willing to stay here and pay their taxes, I think it is a win-win situation for all of us. Thank you for your time.

Alphabetical by sender's first name

Dennis Szymialis 18326

My name is Dennis Szymialis. My great-grandparents homesteaded in Northeastern Minnesota in (inaudible) township (inaudible) had a cross versed economy in agriculture. Today the St. Louis River is polluted by iron mining, runoff from the iron mines; and it's led to a situation where that once rich land of the St. Louis River Valley no long enables us to feed ourselves. I want to say that my mother was a sergeant in the Army Corps of Engineers. And I'm disappointed that there wasn't anybody with a uniform on that she wore that's here for me to ask questions of at this hearing today. Myself I'm a graduate of the University of North Dakota School of Law where I took courses in oil and gas law, agriculture law. I want to assure people that there will be downstream victims of the sulfide mine runoff that will occur at PolyMet. And I want to point out a couple of things with the EIS. I want to emphasize that it's vague and ambiguous. That the liners are called geo liners because they're merely packed down on dirt of some sort. The reverse osmosis procedure that's being promised won't filter out arsenic, which is (inaudible) at a neutral level. Filter out another carcinogen, nickel sulfate. And these will get into our drinking water downstream and the downstream consumers of that water will be the victims. In addition to our natural environment, the plants and animals that rely on clean water. The Federal Land Management Policy requires that the EIS -- if you read it, there's a number of places where excuses are made for the economics not favoring the proponent, the mining company. They're not required under case law to be allowed -- they're required to do all mitigation regardless of the cost under the Federal Land Management Policy Act. And when this case comes before (inaudible) I want you to all look at the decisions being made by the court and make sure that they follow the Federal Land Management Policy Act and require all mitigation rather than what is economically beneficial to the mining companies. Last of all, I want to talk about jobs. This is isn't a job promoter, this is a job killer. First of all, we've been asked and we are currently subsidizing PolyMet to the tune of 12 percent (inaudible).

47215

POLYMET SDEIS COMMENTS Allowing only 90 days for public comment for this project is inadequate to fully vet objections to the project which PolyMet and lead agencies have allegedly spent tens of millions of dollars and more than 9 years. The comments given below should be given deference for judicial review under these circumstances or be determinedto violate due process notice and comment requirements. The comments given should be regarded as conservative objections and be given a broad reading. The lead agencies are being paid to provide an SDEIS that will be permitted. This payment conflicts with their permitting and monitoring responsibilities. For them the permitting of PolyMet is nothing less than employment featherbedding. They have an pecuniary interest in permitting PolyMet including the promotion of future projects that will go through licensing and which they will have to monitor. The agencies are denying cumulative impacts because they want to hide their own misconduct. Why should we have to tolerate "evaluation criteria" that they created in the first place. Is every watershed available for contamination of "evaluation criteria." "But no one is sure if arsenic levels below the 10-microgram threshold are completely "safe." And researchers are still studying whether there could be health effects at those concentrations." at http://www.reuters-com/article/2012/01/24/us-chile-cancer-idUSTRE80N1YJ20120124- While most sources attribute lower cancer rates from arsenic in Chile there was one at least source that I read that indicated it was from a change in water supply. Future monitoring and the filling in of some very substantial gaps of the SDEIS will be left to these lead agencies that have contracted with PolyMet to act on their behalf. These agencies have already in the DEIS written an EIS that was rejected by the EPA. This does not mean that the EPA will continue to save us. It only means that the EPA will be the focus of pressure to capitulate. Because environmental organizations rely on donations they are also subject to the pressure of being financially influenced. Volunteers cannot be relied on to continue to carry the load. There is little hope without drawing a line in the sand to stop PolyMet. Unlike Bangladesh we have a choice http://www.bmj-com/content/342/bmj.d2431- The MDNR that told us that the DEIS would protect us is going to be the agency that will be paid to monitor compliance.They will present us with test results that are self serving. The only thing worse than being poisoned is being poisoned and told to drink the water anyway because it won't hurt you. At their most hoped for best these agancies deal in an imperfect world of subjective standards and judicial over-site. The arsenic standard in particular is unreasonably low as it was the standard adopted from that set by the World Health Organization at a time when detection technology was limited and as a result was set at 10 parts per billion. We should not be threatened by claims that PolyMet will meet government standard that are third world at the outset. The primary obligation of the lead agency is to protect public health and any cutting corners or exception to that rule is a violation of their social contract with individual citizens, undermines their constitutional legitimacy and is a betrayal of the american revolution. What is the deal with putting the filtrate from the mechanical treatment in "licensed landfills." This simply delays the release of toxins like thousands of tons of arsenic into the environment. What licensed landfill would take the stuff and what kind of vicious monster would be doing the licensing anyway. Maybe the Duluth Chamber of Commerce will volunteer the Gary New Duluth landfill that emits a plume down Sergeant Creek into the St Louis River. Reliance on sorption or absorption of arsenic by iron compounds currently is not taking place in the tailings basin or at the mine site. Releases of arseni

Alphabetical by sender's first name

Dennis Szymialis 48162

Dennis, Thank you for the discussion during the Duluth meeting and for your comments. Your comments will be included in the administrative record and considered as the state and federal co-leads for the project update the SDEIS. Sincerely, Doug Bruner ---Original Message--- From: Dennis Szymialis [mailto:shrimpshadow@hotmail-com] Sent: Wednesday, March 12, 2014 9:47 AM To: Bruner, Douglas W MVP Subject: [EXTERNAL] FW: NorthMet Comments- Szymialis Dear Mr Bruner; I am the person that you talked to after giving my spoken comments in Duluth. You encouraged me to write comments so I am forwarding them to you after e-mailing them to the MDNR. I am convinced more than ever that the PolyMet project will be an economic and health disaster for Minnesota which will most adversely impact N.E. Minnesota. I think the process including the 90 day comment period limitation is offensive and dangerous to the public. The process presents a callous disregard for the public generally. If any of the agencies are offended by my comments they well should be as that was my intention. Sincerely Dennis Szymialis _____ From: shrimpshadow@hotmail-com To: northmetsdeis.dnr@state.mn.us Subject: NorthMet Comments- Szymialis Date: Wed, 12 Mar 2014 10:23:12 -0400 POLYMET SDEIS COMMENTS Allowing only 90 days for public comment for this project is inadequate to fully vet objections to the project which PolyMet and lead agencies have allegedly spent tens of millions of dollars and more than 9 years. The comments given below should be given deference for judicial review under these circumstances or be determinedto violate due process notice and comment requirements. The comments given should be regarded as conservative objections and be given a broad reading. The lead agencies are being paid to provide an SDEIS that will be permitted. This payment conflicts with their permitting and monitoring responsibilities. For them the permitting of PolyMet is nothing less than employment featherbedding. They have an pecuniary interest in permitting PolyMet including the promotion of future projects that will go through licensing and which they will have to monitor. The agencies are denying cumulative impacts because they want to hide their own misconduct. Why should we have to tolerate "evaluation criteria" that they created in the first place. Is every watershed available for contamination of "evaluation criteria." "But no one is sure if arsenic levels below the 10-microgram threshold are completely "safe." And researchers are still studying whether there could be health effects at those concentrations." at http://www.reuters-com/article/2012/01/24/us-chile-cancer-idUSTRE80N1YJ20120124- While most sources attribute lower cancer rates from arsenic in Chile there was one at least source that I read that indicated it was from a change in water supply. Future monitoring and the filling in of some very substantial gaps of the SDEIS will be left to these lead agencies that have contracted with PolyMet to act on their behalf. These agencies have already in the DEIS written an EIS that was rejected by the EPA. This does not mean that the EPA will continue to save us. It only means that the EPA will be the focus of pressure to capitulate. Because environmental organizations rely on donations they are also subject to the pressure of being financially influenced. Volunteers cannot be relied on to continue to carry the load. There is little hope without drawing a line in the sand to stop PolyMet. Unlike Bangladesh we have a choice http://www.bmj-com/content/342/bmj.d2431- The MDNR that told us that the DEIS would protect us is going to be the agency that will be paid to monitor compliance.They will present us with test results that are self serving. The only thing worse than being poisoned is being poisoned and told to drink the water anyway because it won't hurt you. At their most hoped for best these agancies deal in an imperfect wor

Denny FitzPatrick 7377

To: Lisa Fay, EIS Project Manager Hi, I wanted to submit my public comment on the Polymet project: The possibility of water contamination for hundreds of years is not worth the risk. They should have to PROVE IT FIRST that it is a safe environmental project. We taxpayers could be left with the burden of cleanup, after Polymet is long gone. Please resist the big corporate pressure, money and power to fast-track this project. Don’t just take their word for it. Protect our clean water. Thank you for the opportunity to voice my opinion, Dennis FitzPatrick PO Box 563 Grand Marais MN 55604-0563 dfitz@boreal-org 218-387-9000

Derrick Passe 44876

Polymet is proposing to construct a mine in NE Minnesota. Their model predicts and increase in mercury concentration in the Embarrass River. While the Embarrass River is not currently considered impaired for mercury in fish tissue, most of the lakes and many of the streams Northern Minnesota are impaired. This includes downstream resources such as Embarrass Lake and the St Louis River. Given the existing mercury impairments and the likelihood of fish to pass between Embarrass Lake and Embarrass River, I would ask that the Polymet proposal be revised to demonstrate NO increase in mercury to any receiving water. Derrick Passe 763-286-0570

Alphabetical by sender's first name

Devin Vosdingh 54356

Dear Lisa Fey,EIS Project Manager,The PolyMet Mining, Inc. can be a very good thing and a very bad thing for Minnesota. They have a sturdy plan in place. Mining can be a good thing. it can skyrocket economies, it provides jobs, and it's a good way to get natural resources. Some advantages to PolyMet Mining are a better economy. And, it will provide Minnesotans with more jobs. Some disadvantages are that it could seriously damage the environment and Minnesota's amazing wild animals. Waste could run off into the mighty Mississippi. You need to weigh the pros with the cons and come up with the best decision for all of us.This will also affect cultural resources. I'm part Native American and even though my family doesn't celebrate their traditions, it's still a big part of my life. even though the project does not take place on reservation land it still affects all Native Americans and Minnesotans in general. Will all the waste from the sites affect the people? Will people with seasonal and environmental allergies to dust be affected? I'm affected by it because two of my uncle works in mining and I hardly ever see them. One of them plans on moving to PolyMet if they start up. I don't know if his family would ever see him.I do agree with the Land Exchange.This affects me because lots of my family is in the mining business. This will also affect me because some of my family lives in Fond du Lac and Vermillion. A segment of the Vermillion Trail will be affected. Will that cause a chain reaction to the people being affected? Will people be affected because of the noise, vibrations, dust and access restrictions? These are the questions you need to ask yourselves. Is this the best thing for Minnesota? And, if not, how can you improve the situation so we get the maximum amount of use out of the deal?One of my questions is why did PolyMet pick the state Minnesota? Why did they pick Northern Minnesota? Is that where the maximum amount of ore is? I think the project can be a very good thing for Minnesota. it can make some peoples lives easier and others harder. You need to make sure this is what you want for Minnesota. Because, not matter what you choose it will impact all of us.Devin Vosdingh,

Dewayne Townsend 39742

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Dewayne Townsend 3222 39th Ave S Minneapolis, MN 55406-2212 (612) 724-7010

Alphabetical by sender's first name

Diadra Decker 40125

_____ From: diadra@att-net [diadra@att-net] Sent: Monday, March 10, 2014 4:58 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Diadra Decker PO Box 2472 Inver Grove Heights, MN 55076-8472

Diana 43368

To: Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Minnesota is blessed with water. THAT is a valuable resource. Just because it is not a resource to be “owned” by a for-profit company it is not a resource to be wasted on the environmental disaster proposed by PolyMet. If this proposed mine was on the outskirts of Minneapolis and proposed to use water from chain of lakes it would have been dead a long time ago. Out of sight, out of mind does not apply to water. Sincerely, Diana Wright

Diana Anshakov 23151

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Northern MN and the BWCA are one of few unspoiled wilderness areas left. Please protect them for future generations to enjoy as I hAve Sincerely, Diana Anshakov 2928 N 4425th Rd Newark, IL 60541-9123

Alphabetical by sender's first name

Diana Moore 57333

My statements almost come across as questions. I am Diana Moore. So, like I said, I think that my concerns come out more as questions. One would be I am concerned about how long these mines will actually -- this mine that we are coming here tonight for would actually be operating, in the whole scheme of things. And, also, after it does close, or it is closed, who is going to be taking care of the land and the water that will be exposed and potentially polluting? After the closing of the plant, I am concerned about the length of time that the purification is going to be necessary. I have read that it could be up to 500 years, 200 or 500 years (indicating). And who would be responsible for this? Who would actually be accountable or who would actually take care of it? Who is taking care of it? I would -- I don't think that the underground mining has been examined thoroughly. It has not been looked at as a choice; an alternative. And I think that there needs to be a study for that. And I am wondering about the number of jobs that it actually does create. The number that would be at the beginning of the project, when the infrastructure and when all of it is getting actually built, and then the mining. But after the initial operations get started, is there going to be a great difference in the number of jobs? I sort of foresee that perhaps there will be a lot of jobs at first, and then when the operation gets going normally, that there will be a lot fewer jobs. That's it. Okay. Thank you.

dianadarc@provide.net 43333

You may include me using the email address of my original note. That is HYPERLINK "mailto:dianadarc@provide-net"dianadarc@provide-net Thank you. on Mar 13, 2014, *NorthMetSDEIS (DNR) <NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Diane 45411

To: NorthMet HYPERLINK "mailto:SDEIS.dnr@state.mn.us"SDEIS.dnr@state.mn.us From Diane Klinefelter Date: March 12, 2014 The PolyMet mine plan should be altered to include greater protection and replacement of wetlands. The peat bogs that will be destroyed are habitat to many animals and plants and the plan does not adequately address replacement of the unique habitat of the peat bogs in the nearby area. I would like the DNR to provide in greater detail and with more accuracy the length of time that water polluted by the Poly Met mine will need to be treated. My understanding is that even after hundreds of years there will be polluted water from a closed mine that will be entering the watershed. A longer projection and plan for protecting the watershed must be included. Another way that PolyMet would affect the environment would be using a large amount of electricity, more than likely from dirty coal power plants in Minnesota. In keeping with Minnesota's goal to reduce carbon emissions, the PolyMet mine plan should be required to use clean energy. The Canada Lynx is a threatened species under the federal Endangered Species Act. Lynx have been found in the mine area. The mine would destroy 1,450 acres of critical habitat and cause fragmentation of the remaining habitat. I would like the DNR to further analyze the effect of Polymet's plan on the Canada Lynx. The effect on human health from the PolyMet mine should be considered with a health impact assessment that would be included in the PolyMet mine plan. Many hazards could directly affect public health due to exposure to arsenic, mercury, and asbestos-like fibers. Mercury, for example, would be emitted from the plant and increase the about of mercury in the water, in the fish, and in the diets of Minnesotans relying on fish in their diets. The risks of mercury pollution, especially for Minnesota children, should be addressed. Minnesota's state grain, Wild Rice, is put at risk and should be better protected in the PolyMet plan. As an important resource in Minnesota, and particularly for Minnesota's native people, the rice beds downstream of the mine would be affected and water there might not meet the state's wild rice sulfate standaRd The plan outlined by PolyMet suggests that water exceeding the sulfate standard will be released in the years after closure. Thank you for considering these comments. Diane Klinefelter 1011 Iowa Ave W. St Paul, Minnesota 55117

Alphabetical by sender's first name

Diane Anderson 45427

To Lisa Fay, Dept. of Natural Resources: From: Diane and Thomas Anderson, 1034 Glen Paul Ct. Shoreview, MN 55126; HYPERLINK "mailto:dbanderson@comcaStnet"dbanderson@comcaStnet and HYPERLINK "mailto:Thomas.anderson9@comcaStnet"Thomas.anderson9@comcaStnet I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan and as a property owner in Cook County, I believe the mine should not be built as described. I have monitored the public meetings and discussions and I am deeply concerned that the state is more interested in short term job growth over the long-term negative effects from the mine on our water quality. Minnesota is known throughout the country as the state with 10,000 lakes. Tourism and a healthy environment for people and wildlife, especially in the BWCA, is vital to the long-term financial interests of our state. PolyMet has never operated a mine, it's not a US company. No mining company, especially PolyMet, could ever provide enough financial resources to clean up ANY site for hundreds of years. Please don't put money ahead of our irreplaceable clean water, wildlife habitat and tourism industry. Don't be shortsighted; this proposed mining will have an everlasting detrimental effect on Minnesota. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean. The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong. There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free. The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and m

Diane Beckett 25429

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Tthe PolyMet Mining Corp. NorthMet mining project should not go ahead. If approved the mine will pollute Lake Superior, threaten our clean water and wildlands, and endanger public health for generations to come. The Great Lakes have about 25% of North America's fresh water and are the home of much of the Canadian and US population. Any pollution to the Great lakes will negatively affect the health, livelihoods and economies of millions of people. And, as the rate of refresh of the water in the Great Lakes is 1% a year - the pollution will effectively last forever. A decision in favor of PolyMet's proposal would open a floodgate for more sulfide mining in a large area near Lake Superior and surrounding the Boundary Waters Wilderness - considered by some as one of the most beautiful wilderness areas in the world. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Diane Beckett 353 Chapel St Ottawa, ON K1N 7Z5 (613) 231-6274

Alphabetical by sender's first name

Diane Beeny 52187

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Diane Beeny 181 Tudor Oval Westfield, NJ 07090

Diane Bublitz 40081

I came to work for the Governor's Job Training Office in 1984, during the height of the shut down of taconite mines on the "Range" and the dislocation of many families from the "Range" to the Twin Cities and other locations for jobs. I can understand the support and desire for good paying mining jobs. Unfortuately I cannot support Copper/Nickel Sulfide Mining. It has not been done safely anywhere there is water present like it is in Northeast Minnesota. We need safe drinking water for human, animal and plant life. The need to do long term - 200 to 500 year- water treatment is not a realistic for us. Please put clean water before the interests of foreign companies. Diane Bublitz 1776 Cypress Road St Cloud, MN 56303

Diane Bundlie 39477

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. We have a duty to our planet to protect it. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Diane Bundlie 2536 34th Ave S Minneapolis, MN 55406-1734 (612) 508-6402

Diane Dickey 54697

See attachment

Diane Dinndorf Friebe 38997

Hi - I would like to enter a comment about the Polymet proposal and their SDEIS. There is not enough proof that damage will not be done permanently to the watershed here in northern MN and certainly not enough proof that Polymet will escrow enough money to take care of the problems the citizens of MN will face for the next 100, 200, several hundred years. Please do not allow them to build this mine and ruin our watershed. Thank you. Diane Dinndorf Friebe 760 Old North Shore Circle Two HArbors MN 55616

Diane Harper 37778

Mar 1, 2014 Ms Lisa Fay MN Dear Ms Fay, US citizens from everywhere are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). We are spreading the word through Facebook and other worldwide networks. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This mine will also ruin Minnesota's reputation as a great place to find safe and peaceful recreation. Sincerely, Ms Diane Harper 3205 Drew Ave New Bern, NC 28562-8008 (407) 484-8518

Alphabetical by sender's first name

Diane Hilscher 38919

Dear Lisa, I believe we should be listening to Minnesota State Auditor Rebecca Otto regarding the financial risk to taxpayers, not only to ourselves but though many generations. We all want to do the right thing here. Her article from the Star Tribune is copied below. We already are looking at have unknown expenses due to the rapidly changing climate. It is getting commonplace in Minnesota to have presentations on climate effects to living species including actions such as moving trees to assist their migration and other methods. With weather records on a yearly basis now and more turbulent weather causing major storm damage, I think we'd be far better to be prepared to have funding available to address unknown issues such as this, and not take on a long-term risk such as non-ferrous mineral extraction that is too hard to quantify. I hope you will deny approval of the PolyMet mine. Far too much is at stake financially. Sincerely, Tony and Diane Hilscher 910 Oakgreen Ave N. Stillwater, MN 55082 State auditor on mining: Long-term risk too hard to quantify Article by: REBECCA OTTO Updated: November 20, 2013 - 7:22 PM http://www.startribune-com/opinion/commentaries/232745641-html Thirty-one nonferrous mineral leases were recently approved by the Minnesota Executive Council -— that is, by the governor, lieutenant governor, secretary of state and attorney general. I voted against them. In my judgment as state auditor, important financial questions related to nonferrous mineral mining have emerged. Minnesota taxpayers are entitled at least to have a full discussion of the issues. The state owns mineral rights under much of Minnesota's land. It leases those rights to private mining companies. The leases give companies the right to explore for nonferrous minerals beneath both public and private lands. The companies must seek additional permits from the state to begin mining, but the reason for both the leases and the exploration is mining. Iron ore (ferrous) mining has existed in Minnesota for more than a century. It is part of our history and identity. Because of iron ore mining, Minnesota has a fairly well-developed body of mining law to protect the environment and the taxpayer. Nonferrous mining, however, is new to Minnesota. It brings with it unfamiliar risks. Nonferrous minerals are found in sulfur-bearing rocks. When sulfide waste rock is exposed to water and air, sulfuric acid is produced. Toxic heavy metals can also be released. When sulfuric acid and heavy metals get into our surface waters, fish and plant life die. Waterfowl and other wildlife populations follow. Minnesota law requires mining companies to provide financial assurances. A financial assurance is a damage deposit provided by the mining company before mining begins to ensure that cleanup and reclamation can be done after the mine closes. Financial assurances, if sufficient, protect taxpayers from having to foot the bill for cleanup costs. Cleanup related to nonferrous mines is costly and difficult to predict. State regulators estimate that the PolyMet Mining site in northern Minnesota, for example, will require water treatment for up to 500 years. How do we calculate such financial risk 500 years into the future. How do we account for changes brought on by technology, the environment or the economy over such a long period of time. How will local governments and the local economy be financially impacted. Will other local economies suffer a negative financial impact. Will it impact other stakeholders such as hunters and anglers and wild rice gatherers. As state auditor, I am charged with looking out for taxpayers' financial interests. Based on the evidence I have seen so far, I am not convinced that we know how to accurately quantify the size of the financial risk of this type of mining. The US Government Accountability Office, an independent nonpartisan agency that reports to Congress, says that financial assurances fo

Diane Hiniker 3655

As a resident of northeastern Minnesota I am sending my comments on the Poly Met copper/nickel mining proposal in Hoyt Lakes. Sulfide mining has never been done without environmental consequences. All the promises in the world to do no harm to the environment are sincere I'm sure, but accidents happen and people are fallible. (Exxon, BP, Shell, Japan's and Chernobyl's nuclear industries, sand mining and fracking companies, etc were all sure they could go about their work without any environmental disasters. They were wrong.) All the money in the world cannot buy back the treasure we have in this region once it's contaminated. There are no metals more precious that our water and we owe it to future generations to protect it at all costs. Many of us up here depend on tourism for our livelihood. People from all over the country come here for the peace and tranquility that are found in it's woods and waters. Are their needs less important than that of large corporations that are only interested in how much money they can make. Should Native Americans be asked to risk continued wild rice harvests. Wild rice requires clean water to grow, a mining accident could destroy that crop. Yes some people want the jobs that mining might bring, yet they choose to live here because of the environment. I don't believe they can have both. I am a senior citizen who won't be around 50 years from now but my hope is that northeastern Minnesota will still be a place to get away from it all and enjoy a break from everyday life. There is an old Cree proverb that should be heeded. "Only when the last tree has died, and the last river poisoned, and the last fish has been caught will we realize that we can't eat money". Diane Hiniker 147 Bloomquist Mtn. Rd Grand Marais, MN. 55604 HYPERLINK "mailto:backwoodsnellie@msn-com"backwoodsnellie@msn-com 612-581-7844

Alphabetical by sender's first name

Diane Hiniker 38990

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. This includes a net loss of 6,026 acres of areas with high biodiversity; 2,030 acres of mature forest – replaced by 2,000 acres of immature forest; 1,400 acres of floodplains and losses of 11 endangered or threatened species. The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade. The PolyMet sulfide mine would reduce lynx habitat by two square miles, kill individual lynx, and impact 2 out of 13 remaining small corridors for wildlife to travel across the Arrowhead region. The PolyMet sulfide mine plan would also destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which dropped precipitously by 35% from 2012 to 2013- Yet, the SDEIS contains no analysis of impacts on moose from the PolyMet project. The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St Louis River and tribal resources. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice. Please take the following actions to protect clean water, ecological communities, public lands and tribal rights: •Reject PolyMet's proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. •Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. •Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. •Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. •Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. No more studies are needed to know that the PolyMet land exchange and sulfide mine should not be approved. The SDEIS plan is also inadequate and should be rejected: •The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. •The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at taxpayer expense. •The SDEIS fails to analyze alternatives, including underground mining, that could reduce impacts on lynx, moose, and other species that are thre

Alphabetical by sender's first name

Diane Hiniker 38991

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Diane Hiniker 147 Bloomquist Mtn. Rd Grand Marais, MN 55604

Alphabetical by sender's first name

Diane Hiniker 39004

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Diane Hulke 15791

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. You can not turn back the clock to fix the damage. We can find other ways for the local people to make a living. Not a temporary situation which leaves behind nothing but a damaged environment. Sincerely, Mrs Diane Hulke 1830 Ives Ln N Plymouth, MN 55441-4023

Diane J Peterson 54489

See attachment

Alphabetical by sender's first name

Diane Krueger-Pirnat 6437

Hi, My name is Diane Krueger-Pirnat, CPA. My address is 8231 Stone Lake Rd in Zim, Minnesota 55738- I am a business owner in three Iron Range towns. I am a life long resident of Northeast Minnesota and have had family members all the way back to my Great Grandfather work in the mining companies of northeast Minnesota. I also worked at LTV mining company as a college student in the summer of 1995- I received a college scholarship from LTV mining company which helped me a lot as a nontraditional student. In other words, my family and I have a lot at stake concerning the Polymet project and completely support it. I believe that the environmental review process has been going on too long and that the supplemental draft EIS has solutions to the impacts on the air, water, or land. The land post-closure documentation shows that the land will be reclaimed to protect the natural resources. Polymet will help create jobs that can support a family so that our children do not have to move away as soon as they are out of High School or College. Local businesses need a boost to their bottom line as many have already closed up and have left vacant office buildings or stores in every town on the Iron Range. Enough is enough; let's get the permits out for this mine. I want to see our economy prosper again as it has in the paSt Sincerely, Diane

Diane M Cole 57231

After reading info on what is being proposed – it still makes no sense to put our natural environment at such risk. We should protect all the wetlands, rivers and lakes, the quiet areas from being invaded. These folks are not even from our country and will have even less interest in preserving our land and waters.Diane M. Cole24553 Evergreen DriveNevis, MN 56467

Diane Marie Knott 39544

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Diane Marie Knott 93 Kent St Apt 5 Saint Paul, MN 55102-2060

Diane Mason 19926

I would like to comment on the Polymet mine situation. I toured the Polymet mine proposed project with a college group, and while on this tour, the college kids began asking questions. Many were very well thought out questions about water, the quality of the surface water, the ground water, and what was proposed. They were either brushed off, or they were told that the water would be re-used from open holding ponds that were so toxic that anything that got into them (ie. Birds landing in them, or wild animals drinking from them) would die. They were told that these ponds would be "impermeable" even though the track record for this is horrendously bad. They asked what would happen if a leakage occurred in an area with the World's most pristine ground water. They were told that the water would flow "away." Our students were hydrogeology students. They know that there is no away. They researched the record of mine drainage, and they know that any metal mines using sulfur produces horrible acid. They also know that some of the areas that this company owns are geologically pristine and should be preserved. Even though it feels like legislators and the powers that be are willing to sacrifice our water and one of the only wild areas left in the Midwest, I think it is unthinkable that it is even being considered based on the water issues at hand. Diane Mason

Alphabetical by sender's first name

Diane Michel 2935

Dec 19, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I* find it difficult to believe that anyone appointed and paid to serve the citizenry could even contemplate an activity such as open-cut sulphide mining in the sensitive Arrowhead Region. Even if contamination abates after the estimated five or so centuries, it is obvious that the flora and fauna we now treasure will not stage a miraculous return. We need the clean waters and all which they support. Particularly at a time when coal seam gas drilling/fracking is despoiling great tracts of land and underground water, surely we should not add sulphide ore mining to the growing selection of ways to destroy the future. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Who will profit and by how much. Polymet would appear to be yet another code word for short-term profit serving mindless greed. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Diane Michel 535 Summit Ave Crookston, MN 56716-1510

52108

Dec 19, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I* find it difficult to believe that anyone appointed and paid to serve the citizenry could even contemplate an activity such as open-cut sulphide mining in the sensitive Arrowhead Region. Even if contamination abates after the estimated five or so centuries, it is obvious that the flora and fauna we now treasure will not stage a miraculous return. We need the clean waters and all which they support. Particularly at a time when coal seam gas drilling/fracking is despoiling great tracts of land and underground water, surely we should not add sulphide ore mining to the growing selection of ways to destroy the future. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Who will profit and by how much. Polymet would appear to be yet another code word for short-term profit serving mindless greed. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Diane Michel 535 Summit Ave Crookston, MN 56716-1510

Diane Mundt 37946

Mar 7, 2014 Ms Lisa Fay MN Dear Ms Fay, Dear Gov. Dayton and Minnesota Department of Natural Resources, I am writing to oppose the plan to allow sulfide ore mining in northeastern Minnesota. It is the wrong project for an area so dependent on clean water throughout that watershed. Contaminating that water will harm all living things in that beautiful part of our state, including humans. Water has become a very valuable resource. Why would we do anything to harm that resource. I am 81 years old. I can't believe the damage that has been done to the environment in my lifetime - a mere blip in time. I wish I could honestly think that writing to you would have an impact on your decision, that the decision will not be made solely on political expediency or who has the most money for lobbying. A decision in favor of the environment on this issue would be an encouraging turning point to those of us concerned about our future. I would like to think that you are thinking of what is best for our state and people in the long run. Regularly in the news there are stories of newly discovered polluted sites, newly discovered ways in which polluting chemicals, etc are damaging our health. Why would we pursue a project that would likely be one of those stories long into the future. If we can make sure our state remains beautiful and healthy people will want to live and work here. That is what will keep us prosperous in the future. Sincerely, Diane Mundt 3709 Grand Way #216 St Louis Park, MN 55416 Sincerely, Mrs Diane Mundt 3709 Grand Way Apt 216 St Louis Park, MN 55416-2937 (952) 646-6467

Alphabetical by sender's first name

Diane Nelsen 41939

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Diane Nelsen Saint Paul, Minnesota

Diane Norland 16251

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Diane Olson 26684

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt I GREW UP NEAR LAKE ERIE AND I LOVE THE GREAT LAKES, THEY ARE A NATIONAL TREASURE. EVERYTHING SHOULD BE DONE TO KEEP THEM AS CLEAN AS POSSIBLE. HAVING SULFIDE MINING ACROSS THE ARROWHEAD REGION OF MINNESOTA INCLUDING LAKE SUPERIOR IS A TERRIBLE IDEA. THE OWNERS OF THESE PROPERTIES JUST WANT TO MINE THEM FOR WHAT THEY ARE WORTH THEN MOVE ON LEAVING A TERRIBLE MESS BEHIND NO MATTER WHAT THEY PROMISE. Sincerely, Diane Olson 521 Montana Ave Apt 305 Santa Monica, CA 90403-1370 (310) 395-2043

Diane Overby 38828

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Diane Overby 8059 Kentucky Ave S Bloomington, MN 55438-1247

Diane Peterson 47371

Lisa Fay EIS Project Manager Minnesota DNR Division of Ecological and Water Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay: I am concerned about the inadequacies of the Polymet SDEIS and request that you reject it. I also request that you do not issue permits to Polymet to go ahead with its plans to begin sulfide mining. You would severely undermine the confidence of Minnesota citizens in fair and logical government if you took action which neglected your duty to require strict adherence to statutes, and to prudent protocol, in handling the review process of the Polymet SDEIS. Governor Dayton’s administration has failed to follow statutes in federal and state law concerning the handling of Medicaid funds in Minnesota. For professional pride in the mission of the DNR and your responsibility within it, you should avoid following the bad example which the Dayton administration set in the last four years by the Minnesota Department of Human Services regarding that agency’s scandalous failure to properly regulate the state’s Medicaid prograMs The Department of Natural Resources could distinguish itself as an ethical leader—in public esteem far above that other pitiful state agency-by holding firm against shoddy, flimsy documentation submitted by a corporation. The DNR can, and should, uphold the highest standards which protect the state’s environment and the state’s residents from the harmful consequences of the environmental degradation which is certain to occur from Polymet’s current proposal. Polymet’s predictions of water pollution rely on unsubstantiated assumptions that no pollution will seep from the 526-acre mine site waste rock pile into the 100 Mile Swamp. Polymet claims that pumps on the edge of the tailings pile will capture 99-37 percent of the polluting seepage. The DNR should require solid evidence that 99-37 percent of Polymet’s toxins will be prevented from contaminating our environment. As reported by J. R. Kuipers et al., in Comparison of Predicted and Actual Water Quality at Hardrock Mines (2006), every time sulfide mining has been tried in a water-rich environment, it has resulted in contamination of surface and/or ground water with sulfates and toxic metals. The proposed Polymet mine site is located in a water-rich environment. Require the SDEIS to be redone to provide verifiable substantiation of Polymet claims of protection of surface waters from contamination. I have confidence that the DNR can protect the long-term environmental interests of the majority of Minnesotans. Ms Fay, you are in a position of public trust, a gatekeeper to preserve nature from a short-term corporate exploitation which would inflict death-dealing impacts for centuries. Please exercise your power, uphold your duty. For environmental protection, Diane J. Peterson 4051 Gisella Boulevard White Bear Lake, Minnesota 55110 HYPERLINK "mailto:birch7@comcaStnet"birch7@comcaStnet

Diane Skoog 54514

See attachment

Alphabetical by sender's first name

Diane Steen-Hinderlie 52209

The following comments are submitted by Diane Steen-Hinderlie, 2829 Yosemite Av., St Louis Park, MN 55416- First, regarding water resources, a federal website shows that there will be connections/flow to the Boundary Waters Canoe Area, which will jeopardize this invaluable state and indeed national treasure. There will be mine "acid drainage" that will leave lakes, rivers, and streams without most living creatures. Mining pulls water from areas, so a thousand acres of wetlands at the mine site will be loSt No sulfide mine has ever operated without producing polluted drainage. 2/3 of attempted remedies fail. So, secondly, wildlife is affected. Birds, fish, moose, even lynx, etc, are poisoned. Their habitat is threatened, changed beyond their evolutionary capacity to adapt. Of course there's human life threatened, with increased cancer rates, etc Third, regarding jobs and finances, PolyMet itself predicts that only 25% of the jobs would be from local hiring. World markets make all quickly changeable - highs and lows re the economics of it all. Plus, the end of operations finds a devolving of responsibility from companies to the taxpayers, private to public. This happened right next door in So. Dakota, where a mine went bankrupt and the state had to request Superfund status. I thank Mining Truth for much of the above. Please don't inflict the PolyMet project on our State. Yours, Diane _____ HYPERLINK "http://thirdpartyoffers.juno-com/TGL3142/532284cc2b5024cc3723st03duc"This fish is Toxic (avoid) Impairs brain function, damages your heart, joints, and skin HYPERLINK "http://thirdpartyoffers.juno-com/TGL3142/532284cc2b5024cc3723st03duc"info.inflammationsolution-com

Diane Tessari 58157

The content of the PolyMet SDEIS causes me extreme concern that the proposed project would add dramatically and catastrophically to pollution and habitat destruction in the already polluted and compromised area in which the project would take place, as well in the entire watershed, including the St. Louis River, its estuary, and the waters of Lake Superior. I believe the project would adversely affect worker health, human health in general, wildlife (including endangered lynx and threatened moose, among many others), and plan life (including wild rice sacred to native peoples – and a sensitive indicator species when it comes to water pollution). The PolyMet SDEIS proposes:• The largest wetlands destruction ever proposed in Minnesota• A land exchange that would result in a significant loss of public land in areas of high biodiversity, mature forest, and flood plains• Mining activity and unlined waste storage only 100 feet above the aquifer, in an area with existing fractures, and more likely to occur with blasting• A plan that underestimates water flow through the area• That treated water would dilute pollution, while the EPA says testing must be done at the initial point of pollutionSerious omissions include:• No plan to replace most “indirectly” affected wetlands• No water treatment for the perpetual seepage of polluted water from waste piles• No analysis of alternatives such as underground mining, lining waste piles, returning waste to the pit, etc• No analysis regarding worker health or residential wells• No analysis of risks to public health in an area where one in ten babies is now born with elevated mercury levelsGiven all this, I ask that:• The EIS be rejected as inadequate• The project be rejected as environmentally harmful• The proposed land exchange be rejected• The Section 404 Permit be denied• A state permit to mine be denied

Alphabetical by sender's first name

Dianna Jancik 40183

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Dianne Douglas 42487

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Dianne Douglas 2723 E Valencia Dr Phoenix, AZ 85042-7082 (602) 268-7065

Alphabetical by sender's first name

Dianne Ensign 16507

Feb 19, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As someone who cares deeply about protecting our environment and who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Ms Dianne Ensign 11600 SW Lancaster Rd Portland, OR 97219-7655

Dianne Knoben 39475

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota’s Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS’ claims that mercury and sulfates - which increase mercury in the food chain - will be “captured” are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet’s pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year “lifetime” to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet’s air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Dianne Pappas 16207

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Dianne Robertson 41745

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Dianne Rowse 58046

It's not worth the risk of 500++ years of environmental contamination. Do not mine so close to the BWCA. Instead, focus on reclaiming copper from used electronics, homes, etc. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Dianne Swanson 16516

I am most certainly NOT IN FAVOR of allowing copper mining in northern MN. We cannot sanction the continued destruction of our wetlands and waterways. The frac sand mining right next to the Mississippi River is also a concern. Please say NO to the copper mines. Dianne Swanson Rochester, MN From: Kenneth Rosemark Sent: Monday, February 17, 2014 9:57 AM To: 'Mark Rieder'; 'gkbkleist@aol-com'; 'Kleist, Kevin J., C.Ph.T.'; 'TODD SLIFKA'; 'Norman Fitch'; 'Chris Benson'; 'John Walker'; 'Chuck Dixon'; 'Vincehila@aol-com'; 'Dustin Rosemark'; 'Michael_dosdall@yahoo-com'; 'jmhockert@charter-net'; 'CSibley@KTTC-com'; AllUsersCOB; AllUsersLBA Subject: FW: Copper Mining Around Ely, Minnesota In March of this year, a decision will be made regarding whether to allow copper mining in and around the Ely, Minnesota Area. If allowed, I believe the silica residue left behind, will destroy the eco system of the pristine area we know as The Boundary Waters Canoe Area Wilderness. I've expressed my opinion in the letter listed below and E-mailed it to HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us. If you believe as I do, please feel free to sign onto this letter and forward it to the above E-mail address. Together, we can make a difference KBR From: Kenneth Rosemark [mailto:kenneth_rosemark@charter-net] Sent: Sunday, February 16, 2014 6:48 PM To: Kenneth Rosemark Subject: Fwd: Copper Mining Around Ely, Minnesota Sent from my iPad Begin forwarded message: From: Kenneth Rosemark <HYPERLINK "mailto:kenneth_rosemark@charter-net"kenneth_rosemark@charter-net> Date: February 5, 2014 at 11:38:37 PM CST To: "HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us" <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> Cc: "HYPERLINK "mailto:Krosemark@cobrowm-com"Krosemark@cobrowm-com" <HYPERLINK "mailto:Krosemark@cobrowm-com"Krosemark@cobrowm-com> Subject: Copper Mining Around Ely, Minnesota The Boundary Waters Canoe Area Wilderness is a national treasure, just like the Grand Canyon. The BWCAW is the most pristine wilderness area on the planet. The residue left behind by copper mining seeps into the water, kills plant life, fish and wildlife. In a very short period of time, copper mining will ruin 500 Years Of Echo System. There are several mining companies ready to start mining in this area. As soon as one gets permission to begin mining, the other mining companies will be right behind Poly Met Mining Inc. All of these mining companies are not even US COMPANIES. They are for profit organizations and once they are given the green light, they will destroy this Pristine Wilderness Area. I implore you to take a stand, against allowing the mining companies, anywhere near, any waterway, tributary, steam connected to or running into a Boundary Water Area Lake Or Waterway. Several decades ago, one man stood up against a rich and powerful man, who wanted to dam up this area, to create hydro electric power, for the sole purpose of selling it and making even more money. Something's are worth more than money. The peaceful, pristine, soulful wilderness area, called the BWCA is one of them.. On behalf of my children, their children and your great, great, great grandchildren; PLEASE, SAY NO TO THE MINING COMPANIES SAY NO TO BIG MONEY . Carry on the legacy of the man who originally saved the BWCA. You are in a position to make a decision regarding this matter. On behalf of all of us and future generations, make it a good one. Thank you. P.S. Please forward to Lisa Fay, EIS Project Manager , too. Kenneth B. Rosemark, Rochester, MN. Sent from my iPad

Dick Bottorff 38062

To the Attention of Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Dear Ms Fay: I would like to comment on the proposed Polymet Mining Project. As a concerned citizen of Minnesota, and a regular visitor to our great North including often to the Boundary Waters Canoe Area Wilderness, I find this idea appalling. Copper and other heavy metal mining is among the most environmentally destructive and far reaching types of mining in the world today. One need look no further than Chile or Australia, or our own Western US to view the massive damages wrought on the landscape by this type of mining. The images of the huge gouges, toxic spills, polluted water and other destruction caused by this type of mining of the earth are all over the web, and easy to see. Do we want this in Minnesota. Our citizens are saying overwhelmingly, "No." and as public servants our government employees have a duty to stop this project. To be contemplating this on the edge of our most pristine and sensitive natural wilderness is highly irresponsible. All of this beauty and splendor could be jeopardized for the sake of a few temporary jobs. And at what coSt The information from Polymet's own studies say that the cleanup of the water alone will take centuries. The earth will however never be the same. Polymet touts a new process that is supposedly safer. Frankly, why should we trust them. The fact remains that no project of this scope and scale can be conducted without massive environmental damage. So please do everything in your power to safeguard our irreplaceable Northern Minnesota paradise and keep Polymet and similar ill-advised schemes from destroying our environment. Kind regards, Richard Bottorff 4128 Sheridan Ave S Minneapolis, MN 55410 tel. 612-590-7654

Alphabetical by sender's first name

Dick Hock 5972

I have toured the Polymet site and listened to their very extensive plan to protect the environment in their operation and am convinced that they are being responsible to the extent possible with the technology available, which is all that can be expected of any new venture. They are abiding by all imposed governmental standards currently in existence. If we were to allow progress to be governed by all of the "what ifs", we would still be in the horse and buggy days. There will always be unknowns, challenges, and yes, mistakes and accidents. But we learn from them and are better able to move ahead and provide for the needs of society. Many would not move ahead at all for fear of the risks and the unknown and then where would we be. It is time to move ahead on this venture to provide the needed jobs and materials for our ever expanding society. Think you. Dick Houck A Minnesota business owner Dick_houck@yahoo-com Sent from my iPad

Dick Houck 2259

Sirs: For a non-engineering professional to read and understand such an extensive and detailed document and then make intelligent comments on it is rather presumptuous at beSt However, I have read most all of the PolyMet material and have toured the proposed sight and asked many questions of the officials of the company, and have come to the conclusion that the company is utilizing the most up to date and modern techniques available to mine the needed minerals while protecting the environment as well. If this country is to continue to move ahead in the world with continued growing employment and business development, it must utilize all possible ways in which to progress. Those with an environmental agenda would disallow all such progress and prevent any and all abilities to utilize the materials that are needed for that progress. This country was long built on utilizing the natural materials available while also utilizing the preventatives available at the time to protect the environment. In listening to the safety measures that the company will take in this venture I am convinced that they are all that are available at this time and will protect the environment as much as is possible at this time. I am also convinced that if more protective measures become known in the future they will also be used as they become available. The earth has been created for man’s use and should be made available if and when it can be done in the best ways available at the time. By doing such things in the present, can there only be better ways developed for the future. R. J. Houck 1131 Roselawn Ave Roseville, MN 55113 HYPERLINK "mailto:Dick_houck@yahoo-com"Dick_houck@yahoo-com 651-489-1069

38212

I am one of a few who has taken time to investigate the PolyMet mining sight in person and listen to the plans for the effort, and am greatly enthused about the possibility for employment for the region as well as the need for the minerals that it contains. I am also greatly concerned that the environmentalists do not want to see anything happen that in any way infringes upon the environment or the “beauty” of the State. There are guarantees in the production of anything, and as long as reasonable means are taken to protect against accidents, moves must be taken to move ahead to use the natural resources that are available to us, and I believe that is the case here. I believe that PolyMet has outlined a very reasonable approach to this effort and should be allowed to proceed with its plan. It cannot, nor can anyone guarantee what will happen in the future, but it seems to me that all precautions are being taken that can be taken within what is known at this time. It seems to me that all the environmentalists want to do is prevent anything and everything from happening regardless of the need or good for society and the nation. The State and the region need this effort and it should be approved for the benefit of everyone. Thank you. Richard Houck 1131 Roselawn Ave Roseville, MN 55113 Dick_houck@yahoo-com

dick krueger 3471

Please do not allow the Polymet mining project to proceed. It will harm water quality and degrade wetlands for hundreds of years. Richard Krueger 55 Holly Lane N Plymouth, MN 55447 Sent from my Verizon Wireless 4G LTE smartphone

Alphabetical by sender's first name

Dick Webber 18064

My name is Dick Webber. And one of the concerns with me is the environment. And from what I understand, 70 percent of the rock being mined is low in sulfate and can't produce pollution. And the rest of the rock will be placed on a lined area where anything that runs off it can be collected and treated. This rock then will be dumped back into the mine and covered by water without air to mix with the water. And sulfate acid can't be produced. And I'm confident that the DNR, the pollution control agency, the US Forest Service, Army Corps of Engineers, and other experts have done their research and will make sure the project does not hurt the environment. The other side of the coins is jobs. And we all know that if we don't have jobs we don't pay our bills and don't send our children to college. And as far as I'm concerned, this is 2014, it's not the 50's or the 60's. Let the agencies do their job and make sure it is done correctly.

18302

My name is Dick Webber. One of my comments is that I was inside talking to the person that was in charge of the overflow and which direction the water is going, and from what I learned, one of my main questions is, is this job going to be monitored weekly? Monthly? That's my biggest concern. Because I fish and hunt in northern Minnesota, and if this job is going to be monitored by the DNR, Corps of Engineers, EPA, or other agencies, then I don't see any reason why the job shouldn't go through. If it can be done safely, correctly, and everybody is on board with it getting done the right way, I really, really don't have any problem with it getting done and moving forward, as long as it is monitored. Because I care about jobs and I also care about the environment. So, I don't know why, with the opposition we have for and against it, why the job shouldn't move forward. It's simple.

Dinda Evans 36517

--Original Message-- From: dindamcp4@yahoo-com [mailto:dindamcp4@yahoo-com] Sent: Sunday, March 02, 2014 8:14 PM To: Fay, Lisa (DNR) Subject: PolyMet's SDEIS is poorly planned and needs to go back to the drawing boaRd Dear Ms Fay: The PolyMet Supplemental Draft Environmental Impact Statement (SDEIS) is fatally flawed, and needs to go back to the drawing board to be fixed. You should not burden the next fifteen generations with toxic water pollution and cleanup costs from a sulfide mine that hasn.t been properly planned. PolyMet proposes a complex mechanical system of pumps, pipelines, and filters that it says will capture and hold back the water pollution from getting into our rivers. PolyMet assumes the proposed expensive and complicated water treatment system will continue to operate effectively for long, long after the mining has stopped. It should be expected that mechanical systems like pumps, filters and pipes will eventually fail. In a 2007 report, an organization called Earthworks analyzed the records of 14 modern copper mines in five states found that 100% of these mines experienced pipeline spills or other accidental releases. 92% had failures of water collection and treatment systems that resulted in releases of contaminated mine seepage that significantly impacted water quality. But Polymet's SDEIS lacks contingency plans for predictable failures in the proposed piping, pumping, and filtration equipment. By assuming that a complicated water treatment system will function indefinitely without fail, the SDEIS has failed to take the hard look required at the proposed PolyMet sulfide mine. Please send the SDEIS and PolyMet back to the drawing board with directions to include contingency plans for predictable failures in the water pumping and treatment system, and the power supply to run that system.PolyMet proposes a large open-pit mine in untouched, high-quality wetlands, that are located on public land owned by the US Forest Service. The SDEIS states that building an underground mine would have .significant environmental benefits. compared to an open-pit mine. However, the PolyMet SDEIS rejects underground mining, stating that in today.s market conditions, underground mining is not considered economically feasible. The minerals will be there if and when the market prices are high enough to mine them right. Not fully considering the underground alternative is a major flaw in the SDEIS. Sincerely, Dinda Evans pob 178695 San Diego, CA 92177-8695

Alphabetical by sender's first name

Dinda Evans 39055

---Original Message--- From: dindamcp4@yahoo-com [mailto:dindamcp4@yahoo-com] Sent: Tuesday, March 11, 2014 12:38 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Dinda Evans pob 178695 San Diego, CA 92177-8695

Dirk and Kathryn Hanson 52588

Protect our water. Hooded Mergansers swim in northeastern Minnesota's pristine marshes, ponds, and rivers, feeding on fish, crayfish, frogs, and insects. PolyMet Corporation is proposing to destroy thousands of acres of pristine habitat to mine sulfide ore at the headwaters of the St Louis River - a major waterway that flows over 180 miles to Lake Superior. PolyMet's proposal calls for 20 years of mining, and they acknowledge that 500 years of toxic runoff will need to be collected and treated. Just like the Hooded Merganser, our children and grandchildren all deserve clean water. Let clean water be our legacy - not toxic pollution from mining. At a minimum - extend review period.

Alphabetical by sender's first name

Dirk Hanson 21067

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, The PolyMet NorthMet sulfide mine will pollute wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands for its open-pit sulfide mine. The SDEIS says that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, which makes it the largest wetlands loss ever proposed in Minnesota under the Clean Water Act. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as in adequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. Very truly yours, Dirk Hanson 1491 Pyhola Court Way Ely, MN 55731 2182350886

49828

Dear Mr Bruner, Ms Fay and Mr Dabney, The PolyMet NorthMet sulfide mine will pollute wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands for its open-pit sulfide mine. The SDEIS says that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, which makes it the largest wetlands loss ever proposed in Minnesota under the Clean Water Act. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as in adequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. Very truly yours, Dirk Hanson 1491 Pyhola Court Way Ely, MN 55731 2182350886

Disa Moraine 39168

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Disa Moraine 4229 Chicago Ave Minneapolis, MN 55407-3150 (612) 790-9833

Alphabetical by sender's first name

Disch 44954

Lisa Fay EIS Project Manager MDNR I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. I have concerns about the pollution of waters where wild rice grows. Since wild rice moves around and does not stay in one area, it is crucial to protect the waters in areas beyond where wild rice is presently growing. Who will monitor these waters. I am concern about the present pollution in the former taconite mine area where Poly Met plans to mine. Will there be clean up of the site before Poly Met would be allowed to startup. Who pays for the cleanup. There seemed to be data that says there is already pollution into neighboring streams from the former taconite site at the planned Poly Met site. Are holding ponds for tailings and debris of Poly Met's mining lined underneath to prevent leaching into the groundwater. I saw plans for covering the mine debris and catching the runoff to filter, but I am unsure of what is under the tailings and the holding ponds to prevent leaching of toxins into the groundwater. How often are covers replaced as they deteriate over time. Is there plans for replacement of covers. Is the present plan to use reverse osmosis to clean the runoff a viable process. Has it been used and shown to prevent toxins and pollutants from entering water from the mining area. If the reverse osmosis process is put in place and fails to keep runoff within water quality standards, are there alternative methods to clean the runoff. Will enough money be collected from Poly Met to pay for the continuing cleanup of pollution of the water in the area and for how long. Who will pay these costs if Poly Met fails to. Will taxpayers pay for poor planning of cleanup costs. How accurate are models that project cleanup processes. Is there an ongoing monitoring that corrects the models to represent the reality of the pollution being created. Is there accurate monitoring of runoff and water in the area to check pollution levels. Who monitors. Self monitoring by some companies has not always been up to standards. Will Poly Met self monitor or is there monitoring by outside reliable sources. How thorough is the regulatory process in Minnesota. Is this type of monitoring water quality in regards to mining already in place in Minnesota and has it been able to prevent water pollution from exceeding standards and reduce pollution that exceeds standards. Will the surrounding residents be exposed to air pollution from the dust created by the mining and extraction process. Can there be more aggressive ways to recycle the many minerals that are thrown into landfills every day in Minnesota, before mining for more minerals. I have huge concerns about creating more pollution from Poly Met's planned mine. The St Louis watershed affects Lake Superior's water quality. We cannot afford to pollute the largest fresh water in the world. I am afraid allowing Poly Met's planned mining operation will open new mines closer to the Boundary Waters area, a very sensitive area needing high water quality. I am not in favor of mining in the Boundary Waters watershed. Minnesota needs clean water to protect our health and our lives and our fishing, birding, and tourism industries. Mary P Disch Mayadidi@hotmail-com 8308 York Ave N Brooklyn Park, MN 55443-2747 763-560-6793 Sent from my iPad

Dixon Shelstad 47034

I am writing to comment on the Polymet SDEIS. As a professional forester and educator, I am familiar with the planning processes that natural resource managers complete prior to any major project. These processes help insure that completed projects deliver a net benefit to our state's citizens, while minimizing detrimental effects to the environment. After reviewing the information presented in the Polymet SDEIS, it is apparent to me that a very comprehensive and thorough accounting of all potential environmental impacts has been accomplished. The most contentious issues, those involving effects on the local and regional watersheds, have been addressed in the plan and mitigations appear to be in place to safeguard against potential probleMs I have no expertise in mining, or the potential environmental impacts. I expect that the same could be said about the vast majority of individuals submitting comments on the SDEIS, whether they support or oppose the proposed mine. With that in mind, I would only ask that you consider the source of the comments you receive - and that includes mine. Specific, science-based comments, from scientists with backgrounds in closely related fields should be given more weight than those delivered by non-experts. My comments, and those that come from the thousands of non-experts that oppose the mine, should be given relatively little consideration in the process. I would ask that you discount the emotional speculations and exaggerations, and focus on the comments (both pro and con) that have significant scientific basis. In summary, as a non-expert, I support that SDEIS as written. It presents a strong case for balance between mining and environment. I also support any significant changes found to be necessary as a result of this comment period, as long as they follow scientific reason. Thank You for allowing me to comment. Dixon Shelstad 512 E. Pattison St Ely, MN 55731

Alphabetical by sender's first name

DJ Wickre 39801

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

DJK Alexander 39199

Please see attached letter, in response supplemental draft environmental impact statement. Thanks for the opportunity to comment. Deb - Deborah Alexander (651) 659-9964 HYPERLINK "mailto:DJKAlexander@gmail-com"DJKAlexander@gmail-com

Alphabetical by sender's first name

djordet@q.com 9472

1- Is a performance bond going to be required of the company. 2- How is it going to be determined that the bond will be sufficient to cover the cost of clean up. 3- Can the fund be used to clean up spills or damage as they occur. If so how is the fund going to be refreshed. 4- How is the bond going to be protected from government changing its use designation and reassigning the money for other projects in the state. 5- What is to keep the fund in place for 500 years or until the site is deemed safe. 6- Who is going to administer the fund and be responsible for its use. 7- Is the bond going to be invested to make interest as it sits in place. 8- If a bond is required, how is it going to keep pace with the rising cost of construction costs as the years go on. 9 Who is going to be responsible for monitoring the site. 10- What powers will the monitors have to deal with immediate problems that will arise. 11- What is going to happen to the tailings in the pond after they reach saturation of sulfates. 12- How is the water seeping through the tailings and into the bedrock cracks and pores going to be monitored. 13- As a suggestion, would it be safer for all concerned to build a concrete table on which the tailings could be placed so that the sulfides and sulfates could be better treated and controlled. 14 How are the emissions on the stacks going to be controlled. 15 Who is going to monitor them and be responsible to see that they are being held within the EPA limits. 16- If effects are seen in the environment (effects on the water, plant and animal life) around the mine site, who will be responsible for applying corrective action and how will the effects be monitored measuring the water leaving the site and air off the stacks.

Dodd Cosgrove 19391

Dear Mr Bruner: I’m writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn’t fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It’s going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn’t explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren’t analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS seems to be one-sided. Well-documented tribal Major Differences of Opinion call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles and tailings heaps won’t seep pollution, that mining won’t dry out wetlands and that mercury contamination of fish and other toxic chemicals won’t increase. * The SDEIS doesn’t allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they are not available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and putting public meetings in January (when bad weather is likely) seems designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just foreign corporations, will matter when the government makes its decisions. Sincerely yours, Dodd Cosgrove

Alphabetical by sender's first name

Dominique Boczek 39754

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Please don't take valuable resources away from the future generations. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Miss Dominique Boczek 310 15th Ave SE Apt 516 Minneapolis, MN 55414-2831 (651) 235-4936

Don & Tess Uzelac 15775

I have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I'd also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws. We cannot afford to miss this job opportunity. Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. Sent from my iPad. Don and Tess Uzelac 1324 Fraser Drive Grand Rapids, Minnesota 55744

Don Arnosti 18328

Thank you. My name is Don Arnosti. I live in St. Paul but I represent Audubon members throughout the state. I work for the National Audubon Society. I'm the policy director here in the state. Audubon members and Audubon is not either in favor of mining or against mining. We are pro-clean water, pro-habitat, pro-clean water for birds and fish organization. And we take a look at this proposal in that light. It's clear that the deal being offered by this proposal is anti-clean water, anti-habitat, anti-fish. On that basis this should be rejected. This is not a good deal for the people of the state, particularly those who are not in the room and who are not yet warned. It is inconceivable that we could consider 20 years' worth of jobs -- that is all of us in the room benefitting from both the materials and the jobs -- and to pass along a legacy of hundreds and hundreds of years of water treatment and the costs associated with that in the hope that we're not polluting our great-grandchildren's waters. We inherited a beautiful Minnesota from our ancestors. And personally speaking I think it's a moral obligation to pass the state along in better condition. This is a bad deal. The particular SDEIS is insufficient and should be rejected because it does not provide information on the water treatment plant or how that will be paid for. Not just when we're alive but for centuries into the future. What is being talked about is perpetual water treatment that would last more than twice the life of our nation. The United States is 238 years old. George Washington was alive 238 years ago. We're talking about more than double that. And there are no details in this SDEIS that would explain how this magic water treatment system is going to be paid for 2, 3, 400 years from now. That alone is sufficient to say this document is incomplete. This is an inappropriate proposal. Beyond that -- just wanted to check the time -- there's a number of other insufficiencies in this document. For example, the proposal to mitigate headwaters (inaudible), specifically the headwaters of the St. Louis River, only concerns the 912 acres that are directly impacted by either excavation or filling. However, in the document is information on more than ten square miles of additional wetlands that are going to be either partially drained or poisoned by toxic materials that flow off the railcars and off the mine site. And the proposal simply calls for monitoring, and if necessary in the future mitigation. That is also insufficient information and should be the grounds to send it back for further analysis. Finally, what I would say is this document refuses to consider alternatives that will reduce

Alphabetical by sender's first name

Don Arnosti 40760

---Original Message--- From: darnosti@audubon-org [mailto:darnosti@audubon-org] Sent: Thursday, March 06, 2014 3:08 PM To: Fay, Lisa (DNR) Subject: PolyMet's SDEIS is poorly planned and needs to go back to the drawing boaRd Dear Ms Fay: PolyMet proposes a large open-pit mine in untouched, high-quality wetlands, that are located on public land owned by the US Forest Service. The SDEIS states that building an underground mine would have .significant environmental benefits. compared to an open-pit mine. However, the PolyMet SDEIS rejects underground mining, stating that in today.s market conditions, underground mining is not considered economically feasible. The minerals will be there if and when the market prices are high enough to mine them right. Not fully considering the underground alternative is a major flaw in the SDEIS. The PolyMet Supplemental Draft Environmental Impact Statement (SDEIS) is fatally flawed, and needs to go back to the drawing board to be fixed. You should not burden the next fifteen generations with toxic water pollution and cleanup costs from a sulfide mine that hasn.t been properly planned. PolyMet would operate for 20 years but, according to PolyMet.s own data, would pollute water for over 500 years at the tailings basin, and over 200 years at the mine pit. The modeling results provided in the SDEIS show that PolyMet and the DNR simply did not look beyond 500 years. The fact that the SDEIS does not say when the mine pit and tailings basin will stop polluting our water is a major and apparently intentional failure that needs to be corrected by the DNR. Please run the models . or require PolyMet to run the models . long enough to show when pollution of our water by PolyMet.s mine would cease. The PolyMet SDEIS suffers from many major failings. The SDEIS needs to be withdrawn, sent back, and fixed before it is returned for public comment. Sincerely, Don Arnosti 1722 Princeton Avenue Saint Paul, MN 55105-1916

42579

See attachment

Alphabetical by sender's first name

Don Arnosti 43738

Fantastic, Julian. Thanks for the good work on this. Don Sent from my iPhone On Mar 13, 2014, at 12:29 AM, "Julian Sellers" <HYPERLINK "mailto:juliansellers@msn-com"juliansellers@msn-com> wrote: Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay: This comment pertains to the effects the proposed NorthMet mine would have on two avian species: northern goshawk (Accipiter gentilis) and Boreal Owl (Aegolius funereus). The habitat requirements of these two species are similar, and the proposed mine would affect them similarly. The Supplemental Draft Environmental Impact Statement does not adequately address the status and outlook for these species in Minnesota. Section 4-2-5-1-2, Species of Greatest Conservation Need, of the SDEIS contains the following: Mature upland and lowland forest is the most common habitat type at the NorthMet Project area (primarily at the Mine Site). Section 4-2-4 provides a more detailed discussion of vegetation cover and habitat types. Northern goshawk, spruce grouse, black-backed woodpecker, and boreal owl were observed in these forests (ENSR 2005). These species represent a group that generally requires large forested blocks and/or minimal human intrusion. Section 4-2-5-1-3, Regional Forester Sensitive Species, misstates the status of northern goshawk and boreal owl in Minnesota. That section states: Four of these RFSS species are state-listed ETSC species (ie, gray wolf, bald eagle, wood turtle, and eastern heather vole) and are discussed above. Seven other species are on the SGCN list and are discussed by habitat type in Table 4-2-5-1- These species include the boreal owl (Aegolias [sic] funereus), . And: The northern goshawk (Accipiter gentilis) is not federally or state-listed. In fact, the Minnesota Department of Natural Resources added both species to the list of Special Concern species in August, 2013- The Minnesota DNR defines Special Concern species, in part, as follows: A species is considered a species of special concern if, although the species is not endangered or threatened, it is extremely uncommon in Minnesota, or has unique or highly specific habitat requirements and deserves careful monitoring of its status. Both the northern goshawk and the boreal owl meet this definition. In fact, when the DNR proposed this listing, Audubon Minnesota objected, stating that both species should be listed as Threatened rather than Special Concern. Here is Audubon Minnesota's justification for the Threatened status of both species: Northern Goshawk – Audubon Minnesota believes that the Northern Goshawk should be listed as Threatened. Listing this species on the Special Concern list, as proposed by the DNR, does not properly reflect the current status of this bird and will not provide an appropriate degree of protection to ensure its future in the state. As noted on the Species Status Sheet, there has been an average of only 29 territories found in MN annually in the recent past, in spite of intensive surveys by the DNR and the US Forest Service. Additionally, as the SONAR shows, the Minnesota population has lower productivity than found in populations in other parts of the country. While we recognize that the species habitat needs are not fully understood in this part of North America, there is strong evidence suggesting that large patches of mature forests are very important to the Northern Goshawk. This habitat is currently in decline in Minnesota, and recent land management decisions are likely to exacerbate this slide. There are no plans to increase this habitat type in the future. Boreal Owl – Audubon Minnesota believes that the Boreal Owl should be listed as Threatened. The proposal by the DNR to list this species as Special Concern does not adequately address the needs of this species in the State nor ensu

Don Baldus 40003

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Don Baldus 40835 County Road 90 Mazeppa, MN 55956-4199

Alphabetical by sender's first name

Don Brown 43076

Please accept these comments on the PolyMet SDEIS 1-Minnesota law is clear that clean up/reclamation after mining activity cannot be perpetual. It appears that the proposed post PolyMet mine cleanup would be perpetual under any common/reasonable understanding of that term. That is, the SDEIS does not and apparently cannot indicate when the proposed cleanup with end. Absent an end date, any proposed cleanup must be presumed to be perpetual. Moreover, it appears that the materials used in allegedly protecting the environment, eg., liner of the mine waste storage pit would need to last forever (perpetually) in order to protect the water resource. Similar concerns exist with respect to other processes (reverse osmosis) and materials such as containment pits. What proof is there that these processes and materials will last until cleanup is finished (perpetual). 2- The SDEIS does not seem to adequately adequately address issues concerning the health and safety of human resources such as those who would be employed and/or living in or near the proposed mine and those living in or near the relevant watershed area. What substances will be released into the air, water or otherwise and what effect will that have on human (and non-human organisms). 3- The DSEIS does not appear to address the effects of releasing heavy metals brands other than mercury into the environment. There appears to be no doubt that certain other heavy-metal released into the environment including but not limited to magnesium. 4- There appears to be no real cost-benefit analysis, or cumulative effects analysis, for the total cumulative impact area – in both the Lake Superior and Rainy River Watersheds. Donald Brown 603 Mt Curve St Paul, MN 55116 3432 Breezy Oint Road Tower, MN 55790 612 414 1664

don hilligoss 38208

Mar 6, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are NOT very concerned with protecting our clean water. We Do Not have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is sufficient and should be approved.I would like to mine this area and provide the State with the profit they will get from the land they hAve I implore the decision-makers to approve this proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis river. We have been mining this area for over 100 years. Enough study has been done. Sincerely, Don Hilligoss Sincerely, Mr don hilligoss 3509 E Inner Dr Hibbing, MN 55746-2644

Alphabetical by sender's first name

Don Hon 40468

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

42488

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Don Hon 3135 Arthur St NE Minneapolis, MN 55418-2210

Don Janes 21690

Don Janes 651-429-0016 On Wednesday, March 5, 2014 5:52 PM, Don Janes wrote: One many things about the SDEIS that concerns me is that underground mining and subsequent underground disposal of tailing was not considered. Even tho it may be more costly, it would help to mitigate sulfide pollution and would save many acres of wetlands from being converted into tailings ponds I believe that the DEIS should be revised to consider this option. I am also concerned about effects of inevitable sulfate pollution of wild rice waters. Wild rice is a part of the culture of native Americans, and should be protected. Thank you for the opportunity to comment. Don Janes 5 Doral Dellwood, MN 55110

Alphabetical by sender's first name

Don Klegstad 42543

See attachment

Don Markwardt 41018

I believe the DNR has done an excellent job in evaluating the Polyment mining proposal and included restrictions and regulations to make it an environmentally safe operations. They have set rules that have to be met or the process would be shut down. Technology has improved so much over the years that this process can be done successfully. The comments on the SDEIS should relate to the information on the SDEIS not on personnel feelings or misinformation. What was done years ago doesn't apply except to learn what needs to be done. We have so many technological improvements that were not available years ago. The country needs this type mining process to protect it self. Donald Markwardt 414 Arlington Road Hoyt Lakes, Mn. 55750

Don Mitchell 37970

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was "inadequate" and the sulfide mine project would be "environmentally unsatisfactory." The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity." Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Treatment of tailings wastewater and waste piles for perpetuity at the headwaters of the Lake Superior watershed is illogical and impractical even if it was successful for the 1st time in the history of sulfide mining. The proximity to the Hudson Bay watershed to the north and the potential to devistate the headwaters of the St Louis River make this mining project's risks unacceptable. New basewater groundwater flow studies indicate incorrect science to support the project were included in the PolyMet SDEIS permit. Impacts to residential wells from tailing seepage must be studied in light of the incorrect data for groundwater and surface flow rates. Sulfide mining impacts on the health of plantlife, wildlife and fisheries for subsistance lifestyles and the health of those diverse biological communities must be adequately accessed before permitting is allowed. This project is not about jobs versus the environment. It comes down to an independant unbiased scientific assessment which assures Minnesotans and all citizens on both sides of the border in the Lake Superior watershed that our treasured irreplaceable water will not be polluted long after PolyMet is gone. Sincerely, Don Mitchell Don Mitchell 2950 E. Pioneer Rd Duluth, MN 55804 2185250509

Alphabetical by sender's first name

Don Mitchell 44476

Mar 13, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I am a lifelong resident of Northern Minnesota accept for my years at the University of Minnesota while working to complete a BS in Fisheries Biology. The information I have seen regarding PolyMet's proposed plan to mine precious metals from this mineral deposit which contain sulfides has not addressed all legitimate science based concerns regarding long term impacts to an aquatic resource which is both unique and irreplaceable. While working for the MN DNR I surveyed many lakes found within the Lake Superior watershed that this mining will impact. This is a special ecosytem I am involved in protecting through invovement in Trout Unlimited, the Lake Superior Steelhead Asssociation, The Lake Superior Coldwater Coalition and as a Landowner that recently added a conservation easement on the French River which is a tributary stream to Lake Superior. This watershed is under stress from many different challenging probleMs I am commited to protecting this watershed and the species which are found here. I am for economic development but not at the expense of this essential ecosystem. We must be stewards of the land if it is to provide for our spiritual,mental and physical health as well as for the health of the other species found here. History is full of examples of the huge costs required to clean up degraded ecosysteMs Short term economic gains to often overwhelm long term good decisions. When our water resource is polluted as happened in the cold slurry spill in West Virginia, then we see how irrereplaceable clean water is to our health. Risks to our water quality must not be ignored. Until mining in sulfur bearing rock complexs can be assured without degrading the water quality of this watershed the permit should not be issued. Thank you, Don Mitchell 2950 E. Pioneer Rd Duluth MN 55804 Sincerely, Mr Don Mitchell 2950 E Pioneer Rd Duluth, MN 55804-9711 (218) 525-0509

Don Morrison 41507

My mining and environmental experience puts me is full support of Polymet and expansion of our resource developments. We need to PRODUCE responsibly in every way we can. Don Morrison Neon Magic of WY, LLC 1407 W. 4th St Gillette, WY 82716

Don Olson 57334

I am from Aurora. I worked out there for many years, the plants and that. I don't know, we had a good living and everything. All of the kids are healthy. But I was just thinking, you know, we have been mining this country for 100 and some years and it is basically the only industry there is. I was just thinking, you know, half of these towns wouldn't even be here and it is just hard to picture what the country would be like without the mining. You know, the amount of taxes that they put out, you know, even Duluth gets half of our taxes. You know, it would just be a dead country. Logging is pretty much all gone. You know, we just got to get something going up here. As one guy was saying, all of the minerals were put into the ground for a purpose, and if we don't use them, what good are they? So, basically that's it. But, you know, our kids would like to stay up in this country. I don't know. Basically that's it. You know, these guys are always saying all of these things that are going to happen but, you know, how do you know what is going to happen? They don't know what the mining company is going to do or what pollution is going to be there, or anything else. All of their theories are going to be there or whatever. I can't say much more. I lay in bed and think of this, I think all we got to do is get it going. Because, you know, tailings basin, they say it is going to hurt the wildlife. Well, I've counted between 50 and 100 deer on the tailings basin a night. The moose are out there. It is all full of wildlife. And in the fall, there is thousands of geese out there. So where is the pollution coming from? You know, wildlife is smarter than we are. The tailings basin is full of walleyes. You can catch one every time you cast. I don't know. Basically that's it I guess.

Alphabetical by sender's first name

Don Osborn 41814

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Don Osborn Rochester, Minnesota

Don Pietrick 45271

Dear Ms Fay, Dear Federal and State Agency Leaders: I strongly advocate that the decision on whether to allow hard rock mining by PolyMet be solely based on the most rigorous possible scientific analysis of potential environmental impact. The DNR should make this determination independent of political influence. Don Pietrick 3824 Susan Lane Minnetonka, MN 55345 612-581-1284

Don Portwood 57884

I ask you to oppose PolyMet's proposal for sulfide ore mining in the Superior National Forest at the headwaters of the St. Louis River. They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area. The mining will leave square miles of talcum powder-fine waste, piled high. Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock. PolyMet suggests that to prevent pollution of the St. Louis River watershed they will collect the hundreds of millions of gallons of rain and snowmelt waters that filter through the waste every year and run them through water treatment plants ... for up to five centuries. The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project. The cost liability for cleanup over centuries is also a great cause for concern. Please oppose this project.

Don Rudrud 58145

Let me tell you an experience I have personally seen with my own eyes. There is a mining village in the State of Washington name Holden on Railroad Creek. Holden Village was created by the Howe Sound Mining Company to mine copper and other metals for the war effort in the Second World War. Holden Village housed the miners for a few years till it was suddenly closed in the 1950’s leaving huge piles or tailings and sulfide polluted water that I have seen many times in the past 60 years. Holden Village was given to the Lutheran Church and thousands of visitors have visited Holden to observe with their own eyes and to learn of the God given responsibility of care for the earth. Now after Al-can sold the mineral rights to Rio Tinto (based in London). Riot Tinto is spending up to 100 million dollars in cleanup. This very year they must build a concrete container to contain two years ago water at Holden. Saw sulfide polluted water still running out of the mine into Railroad Creek and Lake Chelan. Don’t let it be in Minnesota!

Don Schumacher 45264

Please don't allow copper mining in MN. Our state is too precious to be polluted. Thank you, Don Schumacher Sent from my iPad

Alphabetical by sender's first name

Don Vasatka 29715

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and I don't see any way that the pollution from this mine can be contained for 500 years. Even if it could, we should not put the cost of this on future generations. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Don Vasatka 4754 Beacon Hill Rd Eagan, MN 55122-2708 (651) 454-8310

Don Yerhot 39918

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Don Yerhot 2501 W 70th St Richfield, MN 55423-2003 (623) 866-9204

Donald Barstad 22173

From: Don Barstad [mailto:donjo2@frontiernet-net] Sent: Wednesday, March 05, 2014 11:16 AM To: Fay, Lisa (DNR) Subject: Polymet Supplemental EIS Ms Fey, After following the Supplemental information, I believe the updated results provide a complete analysis of the project to date. The economic benefit to the area is well certified by many of the comments both in the review and by public comments. The land exchange and wetland are reasonable for the area intended for the project. Future effects on wildlife and plant life are not adverse to the environment of the area. The design of the mining and plant operations are well thought out. Some new processes have covered many previous questions in regards to water and waste. The proposed Reclamation and Financial Assurance add to the feasibility of the return to “mother nature” of an acceptable result. The annual review of the project in this regards gives continuous oversight. As a resident of the Iron Range, I look forward to this project (and future ones) providing an economic and environmental boost to the area. Donald Barstad 5209 South Ave Aurora, MN 55705

Alphabetical by sender's first name

Donald Britt 40214

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Donald Britt 1102 - 1st St Princeton, MN 55371-1404

Donald C Myntti 54745

See attachment

Donald Chambers 21581

I have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I'd also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws. We cannot afford to miss this job opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. Donald Chambers 25958 County Road 62

Donald Howard 26304

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is NOT in the public intereSt Sincerely, Donald Howard 8317 Water Lily Way Laurel, MD 20724-2995 (301) 362-0969

Donald L Stewart 54494

See attachment

Alphabetical by sender's first name

Donald Myers 48953

Mar 10, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. It is not right to have a short term benefit for a few at the cost of a long term cost to many, including the children to multiple generations of those getting a short term gain. Why can't we love our children. Donald Myers The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Donald Myers 2388 Jansen Ave White Bear Lake, MN 55110-5540

Donald Nelson 41470

Dear Ms Fay, Dear Federal and State Agency Leaders: There are several reasons I object to the PolyMet mine, but I have recently learned of one that speaks to me in a personal way that I think needs addressing. I was at the Jan. 28th comment session and I heard a lot of people talking about how mining creates good jobs. I've had relatives up in the area working in the mines and the processing. Today I learned that there has been no evaluation of the impact on the on-site workers. Considering the toxicity of the substances, this seems a grave oversight at the start. But more personally, I lost an uncle to one of those "good" jobs because of mesothelioma. And I'll grant that there was not much awareness of the problems form asbestos at the time. Still, there wasn't even an attempt. And now the PolyMet proposal is making the same assumptions - the health of the on-site workers is not a concern. We know a lot more now, and we also know this mining involves substances known to be toxic at many levels. As a minimum, there should be a detailed evaluation of the health effects of the on-site workers and their families (as at least some of that substance is going to come home with them. It always does). Health effects on the general population are also important and should be taken in to account. After all, making the people in the area (or even just the workers) is an effect on the environment. I also object to not having liners for the waste pits. This is a known fractured area and we have more and more evidence that the sulfides cause ;problems for the plants (such as the wild rice) and animals. So get a fair study of the health impacts on workers and families. And line the waste ;pits. At a minimum. Sincerely Donald Nelson 812 Queen Av N Minneapolis, MN 55411 612 588 8910

Donald Pederson 57194

See attachment

Donald Plotnik 24008

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt As a career military aviator I flew over and enjoyed many of the earth's beautiful places. Having grown up in northern Minnesota in the Floodwood/Cloquet/Duluth area, I later learned how I was fortunate I was to have enjoyed the lakes and rivers of Boundary Waters. The St Louis River was a special place to enjoy as it made its way to Lake Superior. The Boundary Waters area is unique in its earthly beauty. The thought that this area and its beauty could be desecrated by sulfide or other mining is frightening. I have seen this ugliness left behind by open pit iron mining on the Mesabi Range. No mineral is worth that type of ugliness in or near the Boundary Waters. We must keep special places like Boundary Waters and the St Louis corridor natural and free. Sincerely, Donald Plotnik 211 Bluebird Ln. Central, SC Sincerely, Donald Plotnik 211 Bluebird Ln Central, SC 29630-8405

Donald R Fosnacht 42612

See attachment

Alphabetical by sender's first name

Donald V Wahlberg 57211

I strongly oppose Polymet's sulfide mine plan. It would not be good for Minnesota or the US.Donald V. Wahlberg1451 Arden PlaceArden Hills, MN 55112

Donella Kubiak 57223

I emphatically object to sulfide mining or any other kind of mining in the pristine forest and lake property of northern Minnesota. Our generation should not produce the kind of pollution from mining, for many generations to come, and leave it to the next generation(s) to clean up! No! We should do a better job of re-claiming metals/minerals through recycling.Donella Kubiak6830 Three Lake RdCanyon, MN 55717

Donna 38492

We strongly oppose any form of copper mining in northern Minnesota. The long-term run-off pollution threat to our unique water resources is just too great to take a chance. The possibility of hundreds of years to reclaim potential damage is a frightening prospect to pass on to future generations. And all this for several hundred jobs that themselves aren't for certain sustainable in the long term. WE SAY NO. Donna and Bryce Hamilton 4033 Linden Hills Blvd Minneapolis MN 55410

Donna & Neil Berglund 10720

Dear Ms Fay, Dear Federal and State Agency Leaders: NO NO NO to copper mining in our state Mining has a terrible track record and no amount of so-called "science" will convince us this won't turn into a disaster for not only this generation but future generations to come. How can we justify 25-30 years of mining vs. 500+ years of treatment-more like forever No matter how much money we throw at cleaning the area, it will never be what it is now. Never. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely Donna and Neil Berglund 61555 252nd avenue mantorville, MN 55955 5076355195

Donna and Allan Butler 16663

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Donna and Allan Butler 8438 Mississippi Blvd NW Coon Rapids, MN 55433

Alphabetical by sender's first name

Donna and Allan Butler 50042

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Donna and Allan Butler 8438 Mississippi Blvd NW Coon Rapids, MN 55433

Alphabetical by sender's first name

Donna Anderson 17256

Feb 17, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. It is my firm belief that Minnesota should pass on this sales proposal at this time and not be pressured by the empty promises of Tony Hayward who's BP oil spill desecrated the waters of The Gulf of Mexico, then whined about his responsibility. As a close watcher of the tactics used by Northern Dynasty Minerals at the Pebble (copper) Mine in Bristol Bay, Alaska, it is apparent that Poly-Met will likely do and say anything to get at Minnesota's copper resources. 80% of people opposed to the Pebble Mine "don't want their unspoiled home to become the kind of dead zone that surrounds the world's other giant copper mines." Please see the heartbreaking results in Nicaragua and Honduras for example. In all honesty, I don't trust the true ownership. I'm thinking it's the Kochs or Global Bankers who are quietly purchasing precious metal industries. I am highly skeptical that PolyMet's emission figures are credible, that their monetary clean-up guarantee is calculable with any certainty, or that they wouldn't" hit and run" after five years, declare bankruptcy and leave taxpayers to clean up the mess. Let's make the deliberate choice to watch and wait five years or so to collect more third-party data. Everyone knows an accident is going to happen while quibbling over what the damage is going to be worth in dollars. We should be embracing our value of clean air and water, and the quality of life it affords every Minnesotan. Sincerely, Ms Donna Anderson 10211 Cedar Lake Rd Hopkins, MN 55305-5403

26249

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. We don't need it and the risks are too great. Let Poly-Met experiment elsewhere. Sincerely, Donna Anderson 10211 Cedar Lake Rd Hopkins, MN 55305-5403

28435

Minnesota's passage of the Legacy Act speaks volumes. Keep polluters out of our state and keep Minnesota exceptional. On Tuesday, March 4, 2014 6:32 AM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Donna Arbaugh 43211

Short term employment and economic benefits have little value when compared with the spectacular ecosystem of northeastern Minnesota. The risk is much too high with too many unanswered questions. We should not risk the devastation that followed the mining near Butte, Montana. Donna Arbaugh Tacoma, WA

Alphabetical by sender's first name

Donna Belvin 42107

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Donna Belvin 4513 Gillis St Austin, TX 78745-1809

Donna Butler 48173

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Donna Butler 8438 Mississippi Blvd NW Coon Rapids, MN 55433

Alphabetical by sender's first name

Donna Ceglar 16118

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Donna Hanna 40276

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Donna Hanna 48 Mulberry Circle Staten Island, NY 10314 US

Donna Henry 15992

I oppose the PolyMet Mine and Land Exchange. And I Ask that you extend the public comment period for the proposed PolyMet Mine. The current 90 day comment period is not enough time. Due to the size, complexity and difficulty in reviewing the SDEIS - 180 days is needed to adequately review the proposal. The draft EIS was already found to be lacking in several areas and received a scathing EPA review. 90 additional days of review is little to ask in light of the potential for long term problems and the dismal record of sulfide mining around the world, regardless of what mine operators promised. The PolyMet project proposes a land exchange of 6,700 acres of federal land within the Superior National ForeSt The Forest Service is under no obligation to do a land exchange with PolyMet. According to current federal law, it is illegal to strip mine land acquired under the Weeks Act for watershed protection. Don't put corporate profits before the people, land, water and wildlife of the Arrowhead. This project will be harmful to the Superior Nationald Forest and Lake Superior Watershed. Treatment of contaminated water will be required for more than 500 years. The modeling done by PolyMet stopped at year 200 (at the mine site) and year 500 (at the plant site) because that was the point at which it became clear that water quality would not get worse. However, the modeled water quality at 500 years does not come close to meeting water quality standards. In addition doesn't include: • No back-up plan if Reverse Osmosis doesn't work for water treatment. • Hardrock mining carries the potential for asbestos-like minerals to be released in water effluent or air emissions. The PolyMet environmental review process does not adequately address their effects on human health as this is already an emerging concern in northern Minnesota. • Destruction of Wetlands - The SDEIS predicts that 912 acres of wetlands will be destroyed by filling or excavation and up to 7,413 acres may be “indirectly” impacted, mostly by converting wetlands to dry land. “Mitigation” for the direct impacts will occur primarily outside of the St Louis River/Lake Superior watershed, in an area to the south that is unlikely to support comparable ecosystems and cannot replace the lost functions to the St Louis River system The proposed mine is harmful to wildlife, threatening home ranges of endangered lynx, wolf, as well as moose which are dramatically declining in the state. As an Audubon member I urge you to halt the project. PolyMet mine could spell life or death for critical habitats and the birds that live there, this mining operation would ooze toxic pollution into the region’s waterways for as long as 500 years.More than 300 bird species spend at least part of their year in Minnesota and three Important Bird Areas would be especially vulnerable. These include winter habitats for Great Gray Owls and breeding habitat for dozens of neotropical songbird species. At particular risk are water-dependent bird species, including Belted Kingfisher, Common Loon, Goldeneye, Red-breasted Merganser, Hooded Merganser, Common Tern, American Bittern, and Least Bittern. Donna Marie Henry 538 So. 8th Avenue Galloway, NJ 08205

Alphabetical by sender's first name

Donna Johnson 37952

The value of our clean water far exceeds any mineral value now or in the future. Its not worth the risk. We need to preserve the wilderness for ourselves and future generations. Our taconite mines are already polluting our lakes and streaMs Donna Johnson P O Box 396 Forbes, MN 55738 - Donna Johnson Vermilion Land Office cell: 218-780-9977 office: Tower 218-753-8985 Virginia 218-741-8985 HYPERLINK "mailto:donna@vermilionland-com"donna@vermilionland-com

Donna Kneeland 41861

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Donna Kneeland Big Lake, Minnesota

Donna Magrina 12525

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, (Y)OUR WORLD of NATURAL HABITAT and LIFE is more important than profits. As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Donna Magrina 1908 Pomona Ave Ste A Costa Mesa, CA 92627-6233

Alphabetical by sender's first name

Donna Nelson 16160

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Donna Neste 39261

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Donna Neste 2616 14th Ave S Minneapolis, MN 55407-1125

Alphabetical by sender's first name

Donna Olsen 39222

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Donna Olsen 3132 Oakland Ave Minneapolis, MN 55407-1523 (512) 669-6297

Donna Rautiola 42804

See attachment

Donna Seabloom 17098

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Donna Seabloom 1206 Pacific St E St Paul, MN 55106

Alphabetical by sender's first name

Donna Seabloom 50368

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Donna Seabloom 1206 Pacific St E St Paul, MN 55106

Doran Whitledge 42696

See attachment

Alphabetical by sender's first name

Doreen Britz 40094

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Doretta Reisenweber 42668

See attachment

Dori Arnett 54540

Please preserve our sacred environment & this sacred place! Stop mining. Your short-term gain is not worth such costs.

Dorie Gallagher 11

Having lived in the north country all my youth, please note I am deathly opposed to this open mining pit. Copper dust is a killer. Some say it is about jobs. Take a lesson from Libby Montana. No job is sacred when you are dead. Thanks, Dorie Gallagher South Minneapolis Resident

Alphabetical by sender's first name

Dorie Gallagher 18276

Dorie Gallagher. D-O-R-I-E R-A-E, Gallagher, G-A-L-L-A-G-H-E-R. I was born in Hibbing in a house on Third Street, where the mine actually took the house and whole town. I know mining. I came from a mining family. I am not in favor of PolyMet. I am not in favor of it because it is not the same as taconite mining. Taconite mining, you could move a rock and it would stay a rock, and it wasn't toxic. 80 to 90 percent of rocks moved in the PolyMet mine will be toxic. This toxicity will last from 200 to 500 years. There are homes in Park City that is on 100-year-old pilings that are still toxic and the ground cannot be dug, children cannot play in the ground, gardens can't be planted, and miscellanea. We cannot afford to have our beautiful northern area be destroyed for the few jobs. I understand they need jobs, but jobs should have been provided, and can be provided, without destroying our northern section of Minnesota.

Dorie Reisenweber 4221

December 31, 2013 To: Lisa Fay MN DNR Subject: Please extend the public comment period on the NorthMet SDEIS Dear Ms Fay and others concerned, I write to urge an extension of the public comment period for the NorthMet SDEIS. On December 24, I heard Commissioner Landwehr express on MPR's Daily Circuit the desire for "as robust an analysis as possible." I understand preparing the SDEIS took over two years of work by agencies and experts. Lay people need time to analyze such a lengthy document dealing with a project which the SDEIS indicates could require five hundred (500) years water treatment. The project's many impacts to water, air and life in northeastern Minnesota demand serious, thoughtful and objective analysis by both the public and by government agencies. As Minnesotans we want the opportunity to study and to ask all of our questions and to raise all of our concerns. Questions need to be raised and to be answered. It will take time to discover and to resolve any problems with the project SDEIS. Afterall, our common goal is to leave a clean, safe environment for future generations. Please consider extending the ninety- day public comment period. Thank you for your attention. Respectfully yours, Doretta (Dorie) Reisenweber 111 Garden Street Duluth, MN 55812-1142 218-728-1508 HYPERLINK "mailto:dorierduluth@hotmail-com"dorierduluth@hotmail-com

16076

Attached please find a comment to the NorthMet SDEIS on water shortage. My thanks for your efforts to maintain and protect the water, Doretta (Dorie) Reisenweber

16082

Ms Lisa Fay, EIS Project Manager: Governor Dayton: Please find attached a comment on the NorthMet SDEIS. Thank you for your best efforts to protect the water present and future generations. Doretta (Dorie) Reisenweber

16085

As part of the public comments on the NorthMetSDEIS, please find attached a "word document" on Water Quality Issues. Thank you for your best efforts to protect Minnesota's water for present and future generations. Doretta (Dorie) Reisenweber

19990

Please find attached public comments on Polymet's NorthMet SDEIS concerning monitoring and contingency funds.

37062

Please find attached comments on PolyMet's NorthMet SDEIS. We all want our water protected, whether we are for or against sulfide mining. This letter shows multiple ways in which sadly, our environmental laws let us down, because they have been watered down. Thank you for listening to these concerns, Doretta (Dorie) Reisenweber

Alphabetical by sender's first name

Doris Bandel 22965

Mar 4, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I am particularly alarmed by the possibility of sulfide mining in Minnesota. Although the PolyMet mine watershed drains into Lake Superior, the Twin Metals Mine would drain into Voyager National Park. Our family has a cabin on Lake Kabatogama with 4 generations having witnessed its breathtaking beauty. The otter come up to the dock. The location of our dock is only known to family and friends because it is the best dock to catch walleyes. I cannot bear to think of my niece's 2 month old son growing up to never know that beauty because some people did not take good care of the land that God gave to us, telling us to be good stewards of that land. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Doris Bandel 1574 Cohansey St Apt 101 Saint Paul, MN 55117-4567 (651) 489-3226

41676

Mar 8, 2014 Ms Lisa Fay MN Dear Ms Fay, I do not think this PolyMet mining is looking to the future care of Minnesota's great wildlife. My family has used our cabin on Lake Kabetogama for 4 generations. We cherish the time we spend there. There are wild Lady Slippers on the path - we do not pick them because they must be saved for future generations. I have stood nose to nose with a bear at the screen door - I think he was as fearful as I was. I enjoy seeing the Northern Lights and hearing the Loons across the lake. The best walleye fishing is off our dock - but only close friends and family are allowed to know where it's location. :-) Please do not let PolyMet ruin this for my family for the next 25 generations.. I do not trust PolyMet to be truthful -sorry, but their job is to make money, not to protect the water of Minnesota. That is your job and my job. I'm doing my part by informing you of my thoughts. Now you do yours. I voted for you. I appreciate your time. Sincerely, Doris E H Bandel Note - you can read all of these facts below. But I think my thoughts above are most important. I am a mechanical engineer with a minor in polymers and coatings. So, I understand the science of this immoral business. Creating sulfuric acid to poison Minnesota water should be considered a crime. Have you ever seen skin tissue eaten from sulfuric acid. I have and it is not pretty. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Doris Bandel 1574 Cohansey St Apt 101 Saint Paul, MN 55117-4567

41790

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. My family has a cabin in Voyagers National Park. The last 4 generations of our family have joyously spent time at the cabin. I want the next 4 generations to have the same envirnment available to them. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Doris Bandel 1574 Cohansey St Apt 101 Saint Paul, MN 55117-4567

Alphabetical by sender's first name

Doris Bandel 49457

Mar 4, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I am particularly alarmed by the possibility of sulfide mining in Minnesota. Although the PolyMet mine watershed drains into Lake Superior, the Twin Metals Mine would drain into Voyager National Park. Our family has a cabin on Lake Kabatogama with 4 generations having witnessed its breathtaking beauty. The otter come up to the dock. The location of our dock is only known to family and friends because it is the best dock to catch walleyes. I cannot bear to think of my niece's 2 month old son growing up to never know that beauty because some people did not take good care of the land that God gave to us, telling us to be good stewards of that land. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Doris Bandel 1574 Cohansey St Apt 101 Saint Paul, MN 55117-4567 (651) 489-3226

Doris Lawson Gerdes 36778

Dear Ms Fay, Attached are my comments on the Polymet NorthMet SDEIS. Thank you for incorporating them into your analysis of the efficacy of the proposed project. Sincerely, Doris Lawson Gerdes 10566 Highway 1 Isabella, MN 55607

Alphabetical by sender's first name

Doris Petrie 15773

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Dorothea Diver 11355

Dear Madam: I am writing to complain that the SDEIS as proposed by the DNR is very inadequate in failing to offer a plan that leaves the site clean and maintenance free. In addition, the water modeling that involves the ongoing protection of the Partridge and Embarrass Rivers has been recently proven very off - by a factor of four in some cases. To issue a go-ahead permit to a mining plan that so endangers - for 100s of years - our most precious resource - clean water - is an abdication or your department's mission to protect and do no harm to our environment. Please get real science and real numbers behind this plan, Thank you, Dorothea Diver, 1321 E. 8th St, Duluth, MN 55805

42746

See attachment

42772

See attachment

42778

See attachment

Alphabetical by sender's first name

Dorothea Diver 42779

See attachment

42780

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42795

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See attachment

54547

Dear Sirs, It is so important that we get the standards for the projected Polymet undertaking set at levels that will set the bar for many mining projects which will surely follow. I therefore ask that the 18 areas cited as “Major Differences of Opinion” by the tribal co-operating agencies be addressed and corrected in the final EIS.

Dorothy Brown 42424

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Dorothy Brown 5701 Lake Rose Dr Minnetonka, MN 55345-5500

Alphabetical by sender's first name

Dorothy Dolezal 16688

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dorothy Dolezal 3005 west 43rd st minnepolis, MN 55410

50062

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dorothy Dolezal 3005 west 43rd st minnepolis, MN 55410

Alphabetical by sender's first name

Dorothy Nordness 40640

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, I am a native Minnesotan and an outdoors-lover and a birder. Though I have lived in Michigan much of my adult life, I have often visited northeast Minnesota for its beauty, its clean waters, and the life-changing experience of canoeing in the Boundary Waters. I am very concerned that this area be protected from any intrusion that could potentially disrupt this pristine area. I want my grandchildren and their children to all have access to this wonderland of wilderness. The long-term implications of PolyMet mining operation's water protection seem impossible to actually fulfill for the duration needed to assure that the water is not polluted with harmful chemicals. I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Dorothy Nordness 114 8th St Ann Arbor, MI 48103-4254 (734) 668-6306

Dorthea Diver 18329

Hello, My name is Dorthea Diver. And I'm going to cede my time to Gerri Williams.

Doug Baker 36437

Dear Ms Fay, On behalf of Doug Baker, please see the attached letter. Required info to accompany letter: Ecolab Doug Baker – Chairman and CEO 370 Wabasha St N. St Paul, MN 55102 Kind regards, Tanya TANYA ANDERSON EXECUTIVE ASSISTANT EXECUTIVE OFFICES / ECC / 19 ECOLAB 370 WABASHA STREET NORTH, St PAUL, MN 55102 T 651 293 2400 F 651 225-3230 E HYPERLINK "mailto:tanya.anderson@ecolab-com"tanya.anderson@ecolab-com CONFIDENTIALITY NOTICE: This e-mail communication and any attachments may contain proprietary and privileged information for the use of the designated recipients named above. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message.

Alphabetical by sender's first name

Doug Buell 23304

Lisa Fay, EIS Project Manager MNDNR Division of Ecological and Water Resources For the past 20 years or more, I have followed the history and development of the NorthMet deposit from an initial indication in early diamond drilling through the creation of this SDEIS. Living in Hoyt Lakes from the mid 1960's until May of 2011, I worked for Erie Mining / LTV Steel Mining companies as a Mining Engineer from the mid 60s until LTVSMC was closed in early 2001- I have a BS degree in Mine Engineering from the University of Wisconsin. As part of my duties with the taconite mine, I traveled the "Dunka Road" many times, passing through the area of the proposed NorthMet mine at the boundary of the Superior National ForeSt The only road access is by way of private roads not open to the general public. In addition the site is surrounded by the private roads, railroads and Northshore mine pits and LTV mine operations. The site has been logged for pulpwood in the last 20 years and has no unique features that are not available throughout most of the public accessible areas of the Superior National ForeSt Some folks point to the stockpiled Gabbro at the Dunka mine pit as an example of the issues that may arise at NorthMet. It should be remembered that that pit and its stockpiles were started in the early 1960's before there were few if any regulations, permits or guidelines from State or Federal authorities concerning mining or pollution. The mining and stockpiles at NorthMet will be built and protected under the strictest rules available and will be intensely monitored to prevent any escape of potential pollutants. The fact that PolyMet will reuse an existing plant and brownfield site in an area of the state that has seen continuos mining and processing for over 100 years is a positive in that a minimum of "new lands" will be disturbed. This mine and processing operation will provide well paying and full time employment, that is at a premium. I do not believe that "tourism" jobs will be adversely affect. For the most part unaffected jobs are minimum wage and part time. Those are jobs for students and second incomes and are not family supporting. In general, this is such a high visibility and intensely followed project that it will highly unlikely that any unwanted consequences will be allowed to begin to happen before remedial action is initiated. Thank you for the opportunity to add my comments to the important discussion. Douglass A. Buell 201 Bluffs Ridge Court Duluth, MN 55811-2602

Doug Christy 57338

My name is Doug Christy from Grand Rapids, Minnesota, and I am for the project. I guess I want to start the statement by saying that if people had seen the "Lake of Construction" advertisement on TV recently, it kind of says it all. It states that, "This is mining country." People live here and work here and they play here. And that, you know, from there people have choices. If that's not the way they want to live, they can move, you know, if they feel this environment isn't for them. Also, I would like to state that we have, you know, the best and the brightest right here in Minnesota on our staff, as far as the DNR, the Forest Service, the Corps of Engineers, the University of Minnesota that have been studying this. And if people don't trust the information we are getting from them, who will they ever trust? From there, I guess I feel that there is inherent dangers to any business or manufacturing, whether it is, you know, your power plants or your paper mills or the oil industry. I mean right down to your farming and your, I guess your cattle. I mean everything has got inherent potential for I guess so-called danger. I guess you can pause there. So, this is no different. And for us to progress forward, you know, sometimes we have to take that risk and we have to do our due diligence and try to get the facts and information on what the risks might be. The progress still has to go forward. People -- people have to work to live up here and this is one way they can do it. We need the jobs. I guess I will just leave it at that.

Doug Connell 18370

My name is Doug Connell. C-O-N-N-E-L-L. I'm from St. Paul. I'm here on behalf of Jobs for Minnesotans. I heard from our chair Nancy a few minutes ago. I just want to make a point that the economic impact of this project is not restricted to the Iron Range. It affects all of Minnesota. It affects the region. The jobs that are created directly and indirectly are going to benefit the whole region. I'm the former of CEO of Bar Engineering Company. We've been very active in assisting PolyMet with scientific and engineering aspects of this work. And that is an example of the ancillary jobs that are created from this kind of project. That has led to my company hiring folks in Hibbing, in Duluth, in the Twin Cities, and the also around the country in the technical expertise needed to support and do these kinds of projects safely. Those impacts really have a dramatic effect. If you have read recently about Duluth's resurgence, part of that resurgence, as the articles have indicated, have been because of the jobs that have been created in fields like engineering as well as other areas. And this is the reason why those jobs are being created. This economic development that this project represents is very clearly tied to the fortunes of Duluth, the fortunes of Northeastern Minnesota, and the state as a whole. I'm very proud of the work that my colleagues have done. I haven't had any personal involvement in the technical aspects of the work. I think it's been done very, very well, very rigorously. And I compliment the agencies for the process that they used to put together this public comment period, public meeting, etcetera. I've attended quite a few public meetings in my day. I have rarely seen one that has been this well run and frankly this cordial. So thank you.

Alphabetical by sender's first name

Doug Duncan 16172

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Doug Halverson 40524

I support copper – nickel mining in Northern Minnesota. I believe Polymet is doing all the right things to make their operation environmentally safe. I am very confident that there will be no pollution of any streams, rivers or lakes including the Boundary Waters. There won't be a Smelter involved here, so no acid rain. Even though some people feel that copper-nickel mining pollutes lakes and streams, I beg to differ as I grew up in Coniston, Ontario which is in the Sudbury Nickel belt. Even with 3 smelters running in the 1960's and 1970's there were no lakes or streams or rivers that were polluted by mining and smelting sulphide ores. I swam in every lake and river and creek in the Sudbury area. Copper-Nickel mining will be very safe in Minnesota. Thanks you, Doug Halverson 1330 20th Street Cloquet, MN 55720 Email: dhalverson@mchsi-com

Doug Hildenbrand 19940

My name is Doug Hildenbrand and live at 420 NW 8th Street Chisholm, Mn 55719- My wife and I have followed this process closely. I have toured the proposed mine site and have investigated the proposed process. We are fully in support of proceeding with the project as proposed. Congrats to the agencies who have played a vital role in developing controls and measures that address environmental concerns. Let's begin the mining. Sent from Doug's iPad

Alphabetical by sender's first name

Doug Lande 57346

My name is Doug Lande. It is spelled L-A-N-D-E. Okay. I am requesting that the executives in charge of approving or disapproving the DEIS will take the "no-action alternative," as stated in the executive summary, on Page 43, and that no land exchange of public property be allowed to create a mining operation for private financial gain. Could you read that back for me; what I just stated? Okay. You can do a new paragraph. I would say a number of inappropriately addressed concerns give reason to distrust claims made in the DEIS. Specifically, there seems to be a problem with the DEIS, listed at Page 5-413, Table 5.2.7-12. The problem that I see is that the DEIS doesn't take into account uncontrolled Co2 emissions, such as that generated by the electric plant used by the mining operation. I don't think this is accounted for in the edition which says that the Co2 emissions are minor and not a major emission source. So, I would like to see all controlled and uncontrolled Co2 emissions related to the mining operation be listed. Also, I don't believe that the DEIS explains who does the monitoring of potential pollution sites, who pays for the monitoring, and where the public can access in an easy manner the monitoring results. Also, I do not believe that, as stated in the DEIS, that reclaimed wetlands should serve for mitigation lands, as they will never again be as productive as they were before they were reclaimed. Also, I don't believe that the 90th percentile discussion of probable pollution levels related to water is appropriate and I believe the modeling to be flawed as described in the dissenting opinion of the tribes. That's it.

Doug Lohman 36359

It's a really bad idea. Please, don't let it happen. Doug Lohman HYPERLINK "http://www.armadillohomerepair-com"Armadillo Home Repair HYPERLINK "http://ww.armadillosound-com"Armadillo Sound and Design HYPERLINK "http://www.dlcajunband-com"DL Cajun Band 612-306-3490 Keep your words soft and tender, someday you may have to eat them Don't tell them where your goat is. If they can't find it, they can't get your goat.

doug myren 46524

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, doug myren 609 Portland, #2 St Paul, MN 55102

Alphabetical by sender's first name

doug myren 46526

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, doug myren 609 Portland, #2 St Paul, MN 55102

Doug Stevens 9700

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Doug Stevens 130 W 43rd St Mpls, MN 55409

Alphabetical by sender's first name

Doug Stevens 18547

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Doug Stevens 130 W 43rd St Mpls, MN 55409

50623

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Doug Stevens 130 W 43rd St Mpls, MN 55409

Alphabetical by sender's first name

Douglas DeNio 42794

See attachment

Douglas Ewart 39530

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Douglas Ewart 3714 17th Ave S Minneapolis, MN 55407-2808 (612) 722-0910

Douglas Gregor 54857

See attachment

Douglas Kuehl 44549

There exists at least one assessment that yet has not been considered and really needs to be considered before mining should be permitted. That being, whether or not there exists sufficient need for the amount of copper and nickel expected to be mined when considering the current and future developments in replacement products, ie will the new technologies that have been developed using carbon nano-fiber for electronics, building materials, etc rapidly replace the need for even small amounts of new sources of copper and nickel, thus resulting in rapidly making the mining operation unprofitable. The MN-DNR should determine if there exists sufficient justification to permit the mine to begin operation, if in just a couple of years the use of carbon nanofibers results in suspension of mining operations. This may be reviewed on the internet in, among other sources, at HYPERLINK "http://www.mining-com"www.mining-com by looking at discussions of the research results of Cambridge University, or simply searching for applications of carbon nanofibers on the internet. Thank you. Douglas W. Kuehl 1401 Minneapolis Ave Duluth, MN 55803 218-391-2768 HYPERLINK "mailto:dwkuehl@gmail-com"dwkuehl@gmail-com - Douglas W. Kuehl Duluth, MN (218) 391-2768

Alphabetical by sender's first name

Douglas Olson 15824

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and DNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Douglas Olson 20538 Cadwell Ave Brainerd, MN 56401

15898

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and DNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Douglas Olson 20538 Cadwell Ave Brainerd, MN 56401

Alphabetical by sender's first name

Douglas Olson 40388

Dear Ms Fay, Dear Ms Fay, Mr Bruner, Mr Dabney and Mr Westlake: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes alre

Douglas P Fulton 54727

See attachment

Alphabetical by sender's first name

Douglas Peterson 42503

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Douglas Peterson 9508 Russell Ave S bloomington, MN 55431

Douglas Stephen 39333

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Douglas Stephen 8765 Hunters Way Apple Valley, MN 55124-9433

39340

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Douglas Stephen 8765 Hunters Way Apple Valley, MN 55124-9433

Alphabetical by sender's first name

Douglas Wood 45685

From: Douglas Wood 3835 Pine Point Road Sartell,MN 56377 Dear DNR I wish to state my very strong opposition to the proposed PolyMet and Twin Metals mine operation in NE Minnesota. I am aware of the Duluth Complex deposit and of its size and importance, and of the need for such metals in today's economy and technologies. I also know that such a mining operation is inherently extraordinarily risky in terms of potentially catastrophic collateral environment damage. Because of the location of the minerals, all within igneous and metamorphic bedrock billions of years old and laced with fractures, the chances of acid contamination are high indeed. Soothing assurances about corporate responsibility and effective long term treatment and amelioration are in fact not reassuring at all, given the following circumstances: A waste water treatment program that will need to be in place and stringently monitored and overseen for a period of at least 500 years. (For perspective , 500 years ago it had only been 22 years since Columbus' first steps into the New World.) After recent environmental accidents in West Virginia and Japan, among others, the hubris of such an expectation is self-evident. The fact that virtually no corporation can be expected to last 500, or even 50 or 100 years, and thus assurances of long term responsibility are relatively meaningless. The fact that the location of these and other mining proposals is at the head of two great watersheds - St Lawrence Seaway (including of course incredibly valuable and highly sensitive Lake Superior and the other Great Lakes, destined to become only more valuable in the future) and Hudson Bay. The likelihood of a devastating impact to these watersheds - based on the past record of such mining operations globally - is very high indeed, particularly when extended over 500 years, with all the attendant uncertainties and unknowns. Even if, for instance, there were 1% chance of a failure in a given year, that would translate to a 99% chance over 500 years. The fact that the existing track record alone - of other such mines around the world - is convincing of only one probable outcome. And the transcendent fact that such mining operations would be at the very doorstep of Minnesota's natural crown jewel, the Boundary Waters Canoe Area Wilderness, and downstream Voyageurs National Park. Generations of Minnesotans and other Americans have devoted their lives to understanding, studying, preserving, defending, and enjoying these global treasures. They are bequeathed to our care. And there is simply no realistic, tangible, practical, predictable, or believable way that this responsibility can be honored while approving and moving ahead with these plans. We are told of potential economic benefits - for a relatively short period of time, a few decades, 30 or 40 years, with some good wages for a few workers. PolyMet estimates that 25% of workers would be hired locally, with about 90 from neighboring communities, 72 commuting from regional hubs like Duluth, and 200 coming from elsewhere. While I in no way denigrate the importance of jobs and living wages to these workers, one must point out in fairness that the current jobs, careers, and economic benefits of tourism alone in the area - the Boundary Waters alone is visited by 140,000 visitors a year on multi- day trips - dwarf these potential benefits in the short term, but more importantly in the long term. The greatest economic benefits from these projects - the really big money - will go to enrich a very few who do not live here, who have no ties or feelings or sense of place or responsibility for this globally significant and internationally treasured area. When we are asked a question that requires a yes or no answer, the human bias is toward yes. Yes is positive, it seems forward looking and optimistic. No, on the other hand seems negative, oppositional, leading only toward a stop sign or a dead end. But it all depends on how the questio

dprichards86 9513

I welcome my opportunity to comment on the PolMet mining proposal. It was extremely easy to find links to sign a petition against this mining not easy to find a forum to vote for the mining and opportunity for more jobs in Northern Minnesota. My opinion is the State of Minnesota should be able to monitor the mining process, they do have the experience to do so. Everyones fear is unrecognized fear, have we not made state parks out of past reclaimed mines. I myself have enjoyed these state parks. Are not mining companies requiered to reclaim the land once finished. I could go on and on about this as I have a background in business opportunity. I also have a long history in Northern Minnesota. I could not find a decent job there It has always appeared to me that the state is more in the way than helpful when it comes to emerging business. The cities and counties understand the importance of business and economic growth. We need jobs in Minnesota, we also need business opportunity. Nothern Minnesota does in fact have residents and they would like jobs. Northern Minnesota is not a playground for the rich and underworked people to enjoy the boundry water canoe area. It is also not a wolf sanctuary. There are residents in that all over Northern Minnesota. Most barely able to afford a hunting or fishing license let alone pull a 100,000 dollars of boat and pickup around. My family for a number of generations has served the State of Minnesota in a variety of positions. The state would have many more resources if we would replant the State forests once logged off. In summary, I feel the State of Minnesota is more than qualified to monitor and enforce mining laws with this new opportunity. Lets turn a leaf and welcome new business to Minnesota. Better yet, let's help them in any way we can. Dan Richards HYPERLINK "mailto:dprichards86@zoho-com"dprichards86@zoho-com

Alphabetical by sender's first name

Dr Jay Sullivan 40277

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Dr Jay Sullivan 771061rst Ave Nw Gig Harbor, WA 98335 US

Dr Paul Lindfors 51756

From: Sierra Club [mailto:information@sierraclub-org] On Behalf Of Paul and Gail Lindfors Sent: Friday, December 20, 2013 7:59 AM To: Dabney, Tim -FS Subject: Comment on PolyMet NorthMet Supplemental Draft EIS Dec 20, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The burden of proof should be on PloyMet to prove their actions will not hurt people. It should not be left for the people to prove they might be injured. The injuries of pollution are subtle and require long and careful studies. Such studies have not been done. Consider the case against cigarette smoke being inhaled by innocent bystanders. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Paul and Gail Lindfors 2224 W Dream Dr North Mankato, MN 56003-2306 (507) 388-2876

Alphabetical by sender's first name

Dr. Louis LaPierre 40460

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Drake Best 54334

Dear Ms. Lisa Fay, EIS Project Manager,After researching the idea of mining in northeastern Minnesota, I disagree with the idea. I think that PolyMet Mining does have a good plan in place, but I feel that the disadvantages overpower the advantages. The copper-sulfute mining process could boost Minnesota's economy, but we can find other ways to boost the economy. The effect on the environment is not good. Although PolyMet is planning to minimize or possibly avoid the effects, they can't stop everything that could happen. Let's take wetlands for example. If the project does take place, 913 acres of wetlands would be permanently lost. I understand that PolyMet plans to recreate some of these wetlands after the mining is done, but they will not be able to replenish the valuable home of organisms and many animals. Mining in this region would also harm the St. Louis River. As many people know, the St. Louis River flows into Lake Superior. There is already a lot of pollutants in the lake, and polluting a river that flows into the lake would only make things worse.Another reason why I disagree with the idea of mining in northeastern Minnesota is, what it would do to the Ojibwe people. The Ojibwe people would lose part of the sacred Mesabe Widjiu. It is not fair to take away even one inch of their sacred land. Many Indian tribes throughout the country have lost most or all of its land. Taking away even more of their land is unethicalThe last reason I would like to address on why I believe PolyMet should not mine in the region is, the effect it would have on endangered species. One endangered species in particular would be the Canada Lynx. The Canada Lynx are struggling to sustain a population in Minnesota and mining would only exacerbate the situation.Thank you for reading my letter and considering my opinions.Sincerely,Drake Best

Alphabetical by sender's first name

Dressel 54853

See attachment

Drew Johnson 58113

To the Minnesota DNR, thank you for this opportunity to comment on the Polyment Supplement Draft Environmental Impact Statement. We are fortunate to live in a place that requires Environmental Impact Statement for the significant mining projects such as this one. We are also fortunate to live in a place where we can publicly discuss significant mining projects. The proposed Polyment mine would be a significant mining project potentially a precedent setting mining project for many mining projects lined up to follow it. The way we handle this proposed mine will surely be used as a blueprint, perhaps even a legal argument, for many mines that might follow.So we are thankful for this hearing and the 2, 200 page study that has been submitted. It is a long document, but unfortunately not thorough. Some significant questions are left unanswered, including:How long will the mine need to be maintained? The study mentions 500 or more years. That sounds an awful lot like forever or we don't know to me.How much will maintenance cost? Maintaining a complex and polluted site forever would cost quite a lot, I assume.Who will pay the maintenance cost? I don't believe Polymet will be around forever so I can only assume that means Minnesotans will pay for it.Mining operations are expected to last 20 years, according to the study. After the 20 year boom what support will there ber for communities that will face the mining bust? Who will pay for and provide this support?In this state, we are strong community. We care for each other. We want good jobs and cleaner water. For everyone, including those too young to speak tonight and those not yet born. I'm a parent of three very young Minnesotans and I care deeply about the world they will inherit from us. Given the magnitude of those proposed mien on the people and the land we hold most dear, we must get the Environmental Impact Statement right. To act responsibly and avoid recklessness, we must demand concrete answers to these fundamental questions. For this we pray that you will be thorough and you will be courageous that you will be wise. Thank you.

Drew Peterson 41987

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Drew Peterson Montrose, Minnesota

Alphabetical by sender's first name

Drew VanKrevelen 16621

Feb 18, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Duane Arvola 42515

Duane Arvola 1204 18th St NO Virginia, MN 55792 With the national debt at near 18 trillion, we had better get real. The new type of mining is already proven to work fine, even as the water is concerned. North Dakota is really booming now, we can also do our part in Minnesota to help our nation. She is really getting weak now.

Duane Bieber 42589

See attachment

Alphabetical by sender's first name

Duane Glew 39561

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Duane Glew 1135 Brown Rd S Wayzata, MN 55391-9119 (952) 476-6426

Duane Godbout 42528

See attachment

Duane J Lunda 57227

I'm no expert on this type of mining, but I have done a lot of reading up on this subject and I believe that this is not the right type of mining in the proposed area. My biggest concern is who is overseeing the project? Is it the same person who was in charge of the BP oil spill as reported in the news?Duane Lunda5940 Eagle Lake RdDuluth, MN 55803

Duane Larry Gerlovich 54480

I have listened to television news, radio programs, talked to a few people at various places. I have my own opinions also, It seems like the pollution and runoff are or would cause some problems in surrounding area of Polymet. I think we would be better off with some type of manufacturing jobs that would not pollute the area up there. We do need jobs in this area.

Duane R Schmidt 54831

See attachment

Duane Sickmann 39582

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. We must preserve our Minnesota wilderness from these type of activities and stop pollution before it starts. Clean water is what Minnesotans want as they passed the Clean Water Legacy Act "overwhelmingly" - these funds are not to clean up activities such as PolyMet's that never should be allowed to start without full measures to insure our waters are clean well into the future. Thank You Duane Sickmann The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Duane Sickmann 200 Freeport Ave NW Apt 1 Elk River, MN 55330-1567 (763) 259-1844

Alphabetical by sender's first name

Duluth Seaway Port Authority 19913

February 28, 2014 Attached in pdf format is the Resolution of Support for PolyMet that was passed at the Duluth Seaway Port Authority's board meeting on February 27, 2014- The original is being sent to Lisa Fay, MDNR Division of Ecological and Water Resources Environmental Review Unit, via US Mail. Contact information for the Duluth Seaway Port Authority is as follows: Vanta E. Coda II Duluth Seaway Port Authority 1200 Port Terminal Drive Duluth, MN 55802 Regards, Becky McMillan Executive Assistant Duluth Seaway Port Authority Phone: 218-727-8525 HYPERLINK "mailto:bmcmillan@duluthport-com"bmcmillan@duluthport-com

54660

See attachment

Duncan Storlie 52563

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404 " Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation " wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect " wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1- Underground mining, looking at the full ore deposit and PolyMet's real costs; 2- Putting a liner under the Category 1 waste rock stockpile; 3- Placing all tailings on a new completely lined facility; 4- Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5- Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to protect irreplaceabl

Alphabetical by sender's first name

Dureti Doto 54222

Dear Lisa Fay,I am a student at Humboldt High School and my name is Dureti Doto. I have recently been informed about the one hundred mile swamp. I learned that the SDEIS incorrectly drew the one hundred mile swamp in the SDEIS maps. I also learned that the mine site is just south of the one hundred mile swamp that drains to the boundary waters.I am writing to you today because first of all people do notice the error on the SDEIS maps, because people really do care about the one hundred mile map and the boundary waters. And because it is not okay for the SDEIS to draw the map incorrectly. It is also not okay for the mines to contaminate the boundary waters. The boundary waters are important because they are clean and there are only a few of those left. We need to leave clean water for our future generations. Please take this into consideration because it is important for many people.Thank you.Dureti Doto1605 Case AveSt. Paul, MN 55106

Dustin Bower 40623

This comment is from: Dustin Bower 8865 Branson Drive, Inver Grove Heights, MN 55076- I am emailed to express my complete disagreement with the proposed PolyMet mining project, specifically on environmental grounds. If the tachonite seepage is already exceeding water quality standards for the holding ponds, and the Polyment things the solution is to add even more pollution to the mix and create a few more massive holding ponds, and then use an unproven reverse osmosis system in an attempt to decontaminate the water, I just don't know how the DNR can approve such a plan. Minnesotan's pride ourselves on our clean water and beautiful nature. Please don't allow Polyment to destroy an area in Minnesota that hasn't even recovered from the last mining operation. Sincerely, Dustin Bower

Dustin Cloyes 40420

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Dustin Cloyes 4485 3rd Street Columbiaville, MI 48421 US

Dustin Rosemark 3631

I understand that the public can comment on the Proposed Poly Met project. I highly object to this project, it throws years of conservation by people like Earnest C. Oberholtzer and others. Poly Met is NOT ready to be given such an enormous responsibility by the public. Should there be any damage to this area it would be long-lasting and potentially crippling to an already fragile eco-system. My heart and soul belongs to this place which I feel is now threatened. Please do something to stop Poly Met. Dustin M. Rosemark 311 24th St NE Rochester, MN 55906 www.dmrosemark-com 507-206-8332 This transmission (including any attachments) may contain confidential information, privileged material (including material protected by the solicitor-client or other applicable privileges), or constitute non-public information. Any use of this information by anyone other than the intended recipient is prohibited. If you have received this transmission in error, please immediately reply to the sender and delete this information from your system. Use, dissemination, distribution, or reproduction of this transmission by unintended recipients is not authorized and may be unlawful.

Alphabetical by sender's first name

Dwayne 38429

We need the Polymet Jobs. In 2008 I was laid off from my heavy equipment operating job due to the housing market crash. Polymet seemed to be ready to go so I took all the mine training and bought a building site in Hoyt Lakes planning to finish out my operating career at the mine. When Polymet was put on hold, again, I had to take an out of state job. My family wants to come home. We need Polymet to open. This is life changing for us. The people who do not want change on the iron range are using distorted facts and outright fibs. The 20 years of work they keep bringing up is not true. The permit would be good for 20 years, Then they would apply for another permit. The mine may last closer to 100 years. The 500 years of water monitoring is also misleading. Is this a made up number. And technology keeps advancing. The water may very well be better than it is today. Get the facts right and let the people on the range make a decent living. It is good for the world and the right thing to do. Dwayne Myrvold 2014 Atha Woods Dr Monroe, Georgia 30566

Dwayne Trulsen 30273

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, History repeats itself. How much more health problems and environment destruction do we need or can handle. There needs to be be ways to mine without the severe secondary effects to our health and especially the health of our children. Dr Dwayne and Peggy Truhlsen Sincerely, Dwayne Trulsen 25228 Redwing Ave Shafer, MN 55074-9779 (715) 338-6480

Dwight and Ann Ericsson 10753

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I could just forward to you the comments prepared by others, and I do endorse them, but I just want to say that I shudder to think of the long-term consequences of this mining proposal. I first visited the Boundary Waters in 1953- I have, over the years traveled most parts of the Boundary Waters and much of the Quetico. It would be tragic to pollute those beautiful waters, as the PolyMet-proposed mine would almost certainly do. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dwight and Ann Ericsson Dwight and Ann Ericsson 4963 W 539 N Huntington, IN 46750

18395

Dear Ms Fay, Mr Bruner and Mr Dabney: I could just forward to you the comments prepared by others, and I do endorse them, but I just want to say that I shudder to think of the long-term consequences of this mining proposal. I first visited the Boundary Waters in 1953- I have, over the years traveled most parts of the Boundary Waters and much of the Quetico. It would be tragic to pollute those beautiful waters, as the PolyMet-proposed mine would almost certainly do. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dwight and Ann Ericsson Dwight and Ann Ericsson 4963 W 539 N Huntington, IN 46750

Alphabetical by sender's first name

Dwight and Ann Ericsson 39717

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

50514

Dear Ms Fay, Mr Bruner and Mr Dabney: I could just forward to you the comments prepared by others, and I do endorse them, but I just want to say that I shudder to think of the long-term consequences of this mining proposal. I first visited the Boundary Waters in 1953- I have, over the years traveled most parts of the Boundary Waters and much of the Quetico. It would be tragic to pollute those beautiful waters, as the PolyMet-proposed mine would almost certainly do. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dwight and Ann Ericsson Dwight and Ann Ericsson 4963 W 539 N Huntington, IN 46750

dwight fellman 43252

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, dwight fellman 7909 victoria curve St louis park, MN 55426

Alphabetical by sender's first name

Dwight Mcconnell 39083

---Original Message--- From: condor6@2z-net [mailto:condor6@2z-net] Sent: Monday, March 10, 2014 7:19 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Dwight Mcconnell 438 Buck View Rd Ely, MN 55731-8176

39085

---Original Message--- From: condor6@2z-net [mailto:condor6@2z-net] Sent: Monday, March 10, 2014 7:19 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Dwight Mcconnell 438 Buck View Rd Ely, MN 55731-8176

Alphabetical by sender's first name

Dwight Rabuse 58140

The environmental plan PolyMet has proposed appears detailed and comprehensive and should assure the public that this important project is environmentally responsible and sound.

Dwight Smith 6269

Dear Ms Fay, Dear Federal and State Agency Leaders: No doubt you are receiving numerous messages regarding the PolyMet Supplemental Draft Environmental Impact Statement. I have read a fair amount of the statement itself and other things written - pro and con - regarding both the statement and the advisability of non-ferrous metals mining in northern Minnesota. I don't pretend to know what the best answers are. I do know the history of such mining operations elsewhere, and it makes me very uneasy to think that authorities might proceed quickly on an issue that has potential long-term consequences. I understand the eagerness of a business like PolyMet to begin operations on what is potentially a very profitable venture, and I likewise understand the desire of many interests in the state and region to bring good jobs and prosperity to an area whose economy has suffered in recent decades. What I can't understand is how any government official, elected or appointed, should feel the need to come to a decision without a thorough consideration of all the consequences of taking this step. What is under consideration is a question that will have an impact on the land and water for literally centuries. Shouldn't this justify taking a few additional months of analysis and research before leaping into action. Additionally, is it really wise to consider something as momentous as this in the months leading up to national and state election. Certainly nobody can be so naive as to think there are no political ramifications to this matter. The real points of this message are simple: This is a major consideration with critical consequences for the entire state, regardless of the final decisions. It should therefore be given the necessary time and effort to fully understand all aspects of this matter. And all of this should be carried out in as objective a manner as possible, as free as possible from political pressures. Those minerals have been in the ground for millennia; they aren't going anywhere. They will be as available for extraction in a year or two as they are today. The Iron Range has endured decades of economic difficulties. While everyone would like to see a revival of that region's economy, some additional time taken to get it "right" isn't going make that great a difference. If the decisions are rushed, generations of Minnesotans may be paying the consequences of hasty action. Commercial and political expedience are no excuse for compromising our treasured natural legacy. Please consider the full weight of the decision you are making, not just the short-term profit and benefits that will come from it. Respectfully, Dwight Smith Dwight Smith 2285 Brooke Lane Hastings, MN 55033 651-983-1799

Dyces 21482

*letter below is attached in PDF format Dear Ms Fay (MN DNR), Mr Bruner (USACE), and Mr Dabney (USFS) Subject: the NorthMet SDEIS By now you have heard rivers of testimony as to the danger the PolyMet mine poses to land, water and air. You have also heard the industry bargaining line with the promise of jobs and claims that they are committed to be good stewards of the land and water. I am greatly concerned about the very real contamination of precious and finite resources of land, water and air. What good is the promise of a few jobs when the water becomes contaminated. What happens to the numerous tourist and recreation jobs that rely on clean water and undamaged wilderness. I am not willing to risk sacrificing water resources so that PolyMet can take the minerals and run. We know that PolyMet will not be around for the next 250 – 500 years to make good on their “promise” to protect the water. For reasons mentioned earlier, I need not elaborate on the testimony that you have heaRd I will however, ask that you remember some of the basic information you learned in high school science class. Sulfide and water is a dangerous mix. When the sulfide mining process sees sulfide and life giving water interacting, sulfuric acid is produced on a very large scale. It doesn’t stop there. As the acid dissolves the rock, heavy metals are released. Heavy metals no longer trapped in rock become yet another, real and present danger to humans, fish, birds, plants and other wildlife. There goes the neighborhood. Not just decades of water contamination, but also the release of toxic metals. This surely encourages a stronger “catch and release” practice for those who dare to fish the contaminated waters; however certainly there is a better way to protect our fish and human population Although I live in southwest Minnesota, I know that the damage that comes with this mine would impact all of us in one way or another. We began our life journey surrounded with water. Please recognize how precious water is to all life on this planet. I urge you to reject the NorthMet SDEIS and deny any permits which could harm Minnesota’s water quality and supply for present and future generations. Your help to stop NorthMet SDEIS will be greatly appreciated by so many. Sincerely, Darwin Dyce 1764 330th St, Ghent, MN 56239 HYPERLINK "mailto:dyce@mvtvwireless-com"dyce@mvtvwireless-com or Cell: 507-476-2042

Alphabetical by sender's first name

Dyke Williams 10693

From: Dyke V. Williams 3725 Parkway Deephaven, MN 55391 NorthMet and the expanded sulfide mining it forecasts are "too far". Currently we the people have no statutes or precedents for being able to determine that a project goes "too far" beyond the qualities of life we wish to enjoy. Because of the numerous earth and water quality and safety hazards it represents, NorthMet must be stopped now - because the people of Minnesota want it stopped. The need for profit (greed) of foreign company executives to sell our resources for their gain is "way too far" Specific objections and concerns include: - Your cynically offering only three public meetings, only one of which was in the Twin Cities area and that way too far east for many of us. Clearly you are afraid of open discussion here. - That only about 90 jobs will go to local northern Minnesota residents - the rest to out-of-state experts in various arcane skills related to this most dangerous mining plan. - It is clear to most of us that the Arrowhead will be far better off economically if left relatively clean - land untrammeled, water unpolluted, air unburdened with particulates, roads unclogged with huge, dangerous and impeding traffic, sound left quiet without the roar of Diesel and shock impact of drills and explosives. Like it is now where a resort or outfitter can advertise "Come north where it's clean" - NOT "come north and enjoy the dirt, mess and sulphuric acid". The Arrowhead and BWCA are the area's best assets, NOT to be spoiled for 20 years of profit but lingering on effectively in perpetuity. It is said that the only entity that has lasted for 500 years (where are those NorthMet long term funding plans.) is the Catholic Church. And that hasn't exactly kept the same form, aims and goals throughout. Why should we believe NorthMet's non-existent plans will. - No planning has been made for unintended consequences, nor for unexpected events. What happens when we get another 14" rainfall in 8 hours (July, 1988 - I was there - we paddled OVER campsites and looked DOWN at firegrates). Or the New Madrid fault becomes active. Or green fanatics try to sabotage machinery, facilities, fail-safes (for which there are already precedents). A Polymet manager told me he had never even considered the possibility of sabotage. Why in heaven's name not . - Our remaining wilderness and wild areas are irreplacable. As a consultant in experiential education, I and we know that most kids can best learn adult roles and responsibilities through involvement in outdoor adventure/challenge experiences - Outward Bound, Menogyn, Widgiwagen, Warren, Wilderness Canoe Base, Sommers Canoe Base, scout and church trips through outfitters. Dig it up and its gone for good. And impact goes MUCH farther than you might think - I've been on Sturgeon Lake in the Quetico and could hear the dozers and Diesels in the Atikokan mine when it was still open. And the Canadian railroad Diesel engines from the Canadian National and Canadian Pacific today. - That the copper is there NO LONGER means that anyone has the automatic right to dig it up in the face of enormous, serious and scientific objections. It is the responsibility of the DNR and of the State of Minnesota to stop this before it starts. This is not a smallish group of deer hunters saying keep the deer population unnaturally at 1-2 million so we can shoot deer easily (the natural carrying capacity is said to be about 150,000). How do the 34 people killed in deer/car collisions last year feel about the DNR catering to the squeeky hunter wheel. It is time to stop accomodating, listen to the majority and make decisions based on the science available or needed and NOT on the emotions or need for extra department funding. Please, please listen to all of us who are saying 20 years' profits for 500 years pollution is going "too far". You have the chance to be leaders and heros, or to be followers and fools. Please choose well for all of us. Dyke Williams

E Blankers 39599

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs E Blankers PleaseUseEmail Chanhassen, MN 553170001 (952) 361-6670

E C Norman 54875

See attachment

E H Hanson 42741

See attachment

Alphabetical by sender's first name

E Lane-Getaz 45643

Dear Ms Fay, I am concerned about the pollution that is left behind for hundreds of years after the mining ceases, especially water pollution. I am also concerned about lingering threats to human health that have not been adequately assessed. The technology required to preserve the safety of our water is not adequate. We should not extend mining rights to an outside corporation that cannot realistically provide stewardship for our water nor our environment. Kathryn Hoffman, staff attorney with the Minnesota Center for Environmental Advocacy, said "the process to treat the water is complex, requiring multiple systems to work successfully and a mine in Michigan using a state-of-the-art reverse osmosis plant to do just that has already had more than 40 permit violations for not meeting water quality standards." While jobs are important, we may be talking about as few as 90 local jobs compared to 500 years of ongoing water treatment. I support jobs in northern Minnesota that are sustainable to all life in the area, and I encourage the Minnesota Department of Natural Resources to take a leadership role is promoting sustainable industry. However, Hoffman estimated that while "PolyMet project is expected to create 360 jobs after experts in the mining field are imported the site will create about 90 local hires." Thank you for taking public comment on this important issue that affects the health of us all, and our environment, for generations to come.. Let us be good stewards of the resources we hAve Sincerely, Betsy Lane-Getaz, MS, RN 32293 Alta Avenue Northfield, Mn 55057

Earl Rook 45197

Dear Ms Fay, Dear Ms Fay, Mr Bruner, and Mr Dabney: I am writing to ask that you reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. (I'm also sending a copy of my letter to the US Environmental Protection Agency). In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on sound science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish, and human health. The SDEIS must be redone, because its unjustifiably optimistic predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin, and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not an objective and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely, Earl Rook Stillwater, MN Earl Rook 11550 Irish Avenue North

Alphabetical by sender's first name

Earl Rook 45199

Dear Ms Fay, Mr Bruner, and Mr Dabney: I am writing to ask that you reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. (I'm also sending a copy of my letter to the US Environmental Protection Agency). In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on sound science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish, and human health. The SDEIS must be redone, because its unjustifiably optimistic predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin, and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not an objective and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely, Earl Rook Stillwater, MN Earl Rook 11550 Irish Avenue North Stillwater, MN 55082

Earth Concerns 54113

I don't buy it!! [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Eben Spencer 39496

I am very concerned about both the short and long term consequences of proposed sulfide mining in NE Minnesota. While I understand the need for meaningful employment in the region, the potential environmental degradation inherent with such mining must be avoided at all costs. I am not completely opposed to such mining, but I urge the Minnesota DNR, MPCA, and the USA EPA to require the strictest of standards and to protect our national heritage – our waters, forests, and wetlands – first and foremoSt I do not feel that Polymet has provided such assurances yet, and strongly feel that permits should not be issued at this point, nor should permits be issued until further studies and guarantees are in place and 100% foolproof. Eben S. Spencer Eben S. Spencer 26303 Cedar Lake Trail Bovey, MN 55709

Ed & Harriet Griffith 42713

See attachment

Alphabetical by sender's first name

Ed Borchardt 10189

I live on lake Vermilion. We do not have a well, we have a lake water system and use the water from lake Vermilion for everything in our house including the drinking water with minimal filtration. I would be able to see the head frame from the Sudan underground mine if the small hill between the lake and the mine were not there. This mine started as an open pit mine as well as numerous test pits. Some will say the rock that was drilled and blasted for this mine and the rock cuts for Hwy. 169 and 135 contain sulfur bearing rock. This rock has had no mitigation and has been leaching into the waters that supply lake Vermilion for over 100 years with no measurable adverse effects. It's time to move the PolyMet project foreword and show the world we can mine safely in Minnesota. Best regards, Ed Borchardt Area Manager _____ Atlas Copco Construction Mining Technique USA LLC 4359 Isle of Pines Drive Tower, MN 55790 USA Cell: +1 (218) 929-2540 E-mail: HYPERLINK "mailto:ed.borchardt@us.atlascopco-com"ed.borchardt@us.atlascopco-com Visit Atlas Copco at: www.atlascopco.us Read about our products in action atwww.miningandconstruction-comandwww.deepholedriller-com _____ Committed to sustainable productivity

Ed Verzal 41105

There is no evidence that Polymet will not cause serious damage to the environment. Also, there is no way to ensure that Polymet will be able or willing to pay for restoration of land/water areas destroyed by pollution. Polymet must not be given a permit to mine in Minnesota. Thank you. Ed Verzal 2512 16th Ave E. Hibbing, MN 55746

45275

I live on the Iron Range, and I strongly oppose the PolyMet copper nickel mining project. My husband and I love traveling and staying on the North Shore of Lake Superior, and I do not want to see sulfuric acid waste from this project destroy the wetlands, rivers, streams, and trees in the Superior National Forest and Boundary Waters Canoe Area. Tourism is an important and viable industry in this part of the state and should not be compromised by a risky mining project. Copper nickel mining leaves the land and water polluted wherever it occurs. We as a state cannot afford to clean up this pollution for hundreds of years. Mary Verzal 2512 16th Ave East Hibbing, MN

Eddie Harrison 39585

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Eddie Harrison 2425 County Road C2 W Roseville, MN 55113-1054

Alphabetical by sender's first name

Edi Thorstensson 20051

I am writing to express my opposition to the copper mining that Polymet proposes be carried out in northeastern Minnesota. My concern centers on the potential for irreversible damage to the environment, water polution, industrialization and limited access to a large natural area, and economic loss for residents of the area due to lost recreational revenue. Foremost among these is water pollution, which is estimated to take hundreds of years-many generations-and billions of dollars to clean up. I share these quotes with you. "If you need a horror story, go online to the Berkley Pit story. The Pit is in Butte Montana and the copper mine company long gone. So the city, state and the EPA have had to build a very expensive water treatment plant to deal with the sulfuric acid lake that is threatening to overflow any year now, poisoning the area water. I have a niece who works for the regional energy company in Montana and South Dakota." One of the greatest dignities of humankind is that each successive generation is invested in the welfare of each new generation. ~ Fred McFeely Rogers Edi Thorstensson 809 S. 7th Street St Peter, MN 56082

Edie 46637

Edie and Chuck Mersereau 4320 Glenwood Ave Golden Valley MN 55422 Summer home on Ring Rock. 12963 West ridge Grew up in Hibbing and have lived with mining destruction. Please no more. Lakes and forests will never be the same.

Edith deGroot 41700

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Edith S. Glass-Englund 19977

I am a native of Duluth and I have seen what mining operations do to our northern wilderness. I believe that if the people of that area are conflicted about the mines presence, that they have a more definitive opinion about the impact of this mine on their livelihoods. Right now in this country, we are on the verge of a Keystone pipeline going through the mid-section of this beautiful country, we have the drought-causing practice of fracking snapping at our heels, we have the coal orientated disasters of West Virginia and North Carolina, the serial poison spills nationwide, the oil train derailments and the entire practice of having the oil industry write it's own regulations so as they can do as they please. We're a on a run away train heading for the docks with no breaks..so you people better be pretty damn sure that this mine isn't going to contribute to the already down turn of this planet because when the ocean comes it will take no prisoners rich or poor..and no one will be left to say that the human species that was given their capacity to think, to create and project reason took this beautiful planet, this wonderful wilderness ecosystem and the pure air that we breath acted instead like a bunch of morons. Sincerely, Edith S. Glass-Englund

Edmund Kelley 14818

Feb 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Edward A Alto 54706

See attachment

Alphabetical by sender's first name

Edward Johnson 41943

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Edward Johnson Eden Prairie, Minnesota

Edward Martell 43111

Dear Ms Fay, Dear Federal and State Agency Leaders: I am strongly against the PolyMet sulfide mine plan. Sincerely Edward Martell 2149 Goodrich Av St Paul, MN 55105 651-231-1179

Edward Pajunen 41270

An outstanding effort has been put forth by the 3 agencies and the company. It is time to allow the company to move forwaRd The region, the state, the US and the world will all benefit economically and environmentally. Edward L. Pajunen 168 E 6th St #4002 St Paul, MN 55101

Edwin Wintermute 27592

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Unless there is an over-riding need for the sulfides that would be produced, this proposal should be rejected. The need for untrammeled natural spaces should take precedence. Sincerely, Edwin Wintermute 182 Dividing Ct Arnold, MD 21012-1026 (410) 544-1155

Edwina Hertzberg 6160

Gentlepeople: We write to ask that the possibility of Polymet Mining Corp. mining in this region be fully and thoroughly studied, that no permit be granted until such studies are complete, and then only if Polymet can assure an escrow account that would pay for cleanup for the 500 years that the region would be affected. Short-term jobs that risk long -term pollution would be a short-sided and foolish decision, risking the beauty of this precious part of the globe. It is impossible for Polymet to assure that no accident can happen, no mistake made that would jeopardize the safety and beauty of this corner of the earth. The risk of pollution of the streams and lakes, small and large, is too great. No amount of money can buy the purity of this environment. Sincerely, Edwina and Robert Hertzberg 7090 E. Hwy. 61 Grand Portage, MN 55605

Edwyna Bergh 42583

See attachment

Eh Ku Soe Tun Baw 42927

Eh Ku Soe

Alphabetical by sender's first name

Eileen Anderson 39738

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Please keep PolyMet Mining Corp out of Minnesota. Please keep our waters clean and this area pristine. This area has a special place in my heart because of its beauty and its healing qualities. This area deserves to be kept special for Minnesotans and any that want to experience the beauty of this spot on earth. The highest good would be to preserve this area for the generations to come. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Eileen Anderson 5356 Holiday Rd Minnetonka, MN 55345-4420 (952) 934-6260

Eileen Molitor 57166

Hi, I do not agree with the proposed mining in the area suggested. The probability of poison going into the water is way too dangerous to our environment. It is never ok to ruin our water. It is way too important to our health.Eileen Molitor717 North 44th Ave EDuluth, MN 55804

El Dorado 41800

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, El Dorado Rockford, Minnesota

ela crutchley 41718

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, ela crutchley 25 miller rd christchurch, None 07672

Alphabetical by sender's first name

Elaine Brown 9575

I was too upset to listen to the entire public forum in St Paul last evening, so I left. This morning, I watched the entire public hearing online. After listening to what people said, I have formed my opinion. I do not think this mining project should be allowed. I have never believed this project as environmentally sound for this part of Minnesota. On the other hand, I have battled with the idea of job creation. I do understand the people that live on the Iron Range need sustainable employment. The key word being sustainable. I believed what I heard when individuals spoke of a need to boost their economy. However, I do not think mining can ever offer sustainable employment. After all, isn't that what is most upsetting to the former miners living on the range. Most spoke proudly of their heritage, as sons and daughters of miners and a desire to carry that forward to their children. I will be harsh in my judgement, in my opinion, you can not have mining a non renewal natural resource as a sustainable career. The people living there today are the end result of an economy unable to sustain itself. Mining is an economy build on a boom to bust cycle. How many mines will it take to sustain employment for Northeastern Minnesota generations to come. At what eventual cost to the environment. As to my environmental concerns I heard one pro mining gentleman say mining forever changes the land. He went on to say he strongly felt in today's world Polymet could somehow do it better, that is, with less destruction. He is clearly a hopeful gentleman. I do agree that mining is destructive to the environment, but I can not see clearly that Polymet can promise less destruction. I find it highly doubtful when Polymet makes such bold claiMs It is my understanding, the pro mining gentleman was suggesting there has to be a trade off. I agree. I am just not in favor of the trade off. The risk is just too great. I do not believe the science is there to prove it can be done. A classic example of science gone wrong is what is currently happening in Washington state at the Hanford Nuclear Waste Treatment Site. It is leaking, an unbelievable amount of money has been and continues to be spent, the Governor of Washington is seeking a fix, and a resolution is not forth coming. I do not believe it was the intention of anyone in the Pacific Northwest to contaminate the Columbia River Gorge, but that is what they are left with some seventy years after the construction of the site. It makes me wonder how predictions upwards of 500 years could possibly seem reliable. It would be unwise to create the potential for such misfortune in Minnesota. Polymet is not here to help the people of the Iron Range find sustainable employment, nor is it their goal to build the local economy. They are corporation with world wide corporate interests and investments. Approval or not, they will at some point fold the tent and move on, leaving another generation of Iron Rangers looking for sustainable employment. In my opinion, let them leave now, and we will continue to sustain the wilderness areas of Minnesota for future generations of Minnesotans and our global tourists. Elaine Brown 15761 Rivers Edge Drive Milaca, MN 56353

Elaine C Gaston 57278

Dear Federal and State Agency Leaders: In 2010, the U.S. Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was "inadequate" and the sulfide mine project would be "environmentally unsatisfactory. The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity." Please reject the PolyMet SDEIS and deny permits that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever.

Elaine Kaeter 54800

See attachment

Alphabetical by sender's first name

Elaine Leach 16186

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Elaine Loeffler 11353

Dear Ms Fay, Dear Federal and State Agency Leaders: The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands and waterways. 500 Years of monitoring is not a realistic plan. Jobs for a short time will not balance out the extreme risk current mining operations pose to the area. It would be cheaper to pay those workers for twenty years to stay home and not take on the mining risk. We are not the only generation. Future mining methods will hopefully be created that don't pose so great a risk. The minerals will still be there, and future technology will hopefully be discovered that mitigate some of the extreme environmental risk we currently are considering. A realistic plan would lay out years to mine, years to close down the mine, and years to monitor the plan, with a timeline completed within a human lifetime. That would be a plan that could be considered for permitting responsibly by today's agencies. Please reject the PolyMet SDEIS and deny permits. The known risks are too great. Sincerely Elaine Loeffler 7197 Highway 1 Finland, MN 55603 2182268623

Elaine Mayer 9833

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years. The SDEIS must be redone, because its predictions are unreliable and its methods conceal environmental impacts. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs Sincerely yours, Elaine Mayer 1432 20th St NW Rochester, MN 55901

Alphabetical by sender's first name

Elaine Mayer 18622

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years. The SDEIS must be redone, because its predictions are unreliable and its methods conceal environmental impacts. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs Sincerely yours, Elaine Mayer 1432 20th St NW Rochester, MN 55901

50698

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years. The SDEIS must be redone, because its predictions are unreliable and its methods conceal environmental impacts. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs Sincerely yours, Elaine Mayer 1432 20th St NW Rochester, MN 55901

Elaine Skrentner 40099

Dear DNR, If you can show me one mine that has run as perfectly as reports are assuming the new Poly Met will run, then I would consider approving the mine. BUT, I don't think you can do that. Do not risk Minnesota's water for the next 500 years for a 50 years of economic development. Elaine Skrentner 5551 Village Drive Edina, MN 55439

Elaine Swanson 25125

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I write from east-central Wisconsin where we are privileged to live on a 50-acre wildlife sanctuary. For over 30 years, our family has worked to take land out of crop production and restore woodlands, ponds, and native grasses. At the core of our efforts lies the belief that the land deserves our reverence and our respect. I am appalled that any serious consideration by officials in Minnesota should be given to an open pit mine on National Forest lands near the Boundary Waters Canoe Area Wilderness and Lake Superiod. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Elaine Swanson W10732 Triangle Rd Pickett, WI 54964-9601 (920) 589-6477

31590

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I write from east-central Wisconsin where we are privileged to live on a 50-acre wildlife sanctuary. For over 30 years, our family has worked to take land out of crop production and restore woodlands, ponds, and native grasses. At the core of our efforts lies the belief that the land and wildlife deserve our reverence and respect. I see a violation of both when an open pit sulfide mine is proposed on National Forest lands near the Boundary Waters Canoe Area Wilderness and Lake Superior. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Elaine Swanson W10732 Triangle Rd Pickett, WI 54964-9601 (920) 589-6477

Alphabetical by sender's first name

Elaine Thrune 6230

Dear Ms Fay, Dear Federal and State Agency Leaders: NO AMOUNT of "progress" or "economic advancement" or "more jobs" or corporate gain, or more tax revenue is worth the price of polluting our land and water, destroying wetlands, poisoning our children (and adults, and livestock, and pets, and wildlife), killing fish, poisoning rivers and groundwater used for drinking water and irrigation, and negatively affecting our entire food chain and living habitat in this part of our beautiful and otherwise mostly healthy state. We all live downstream. Please reject the PolyMet SDEIS and deny ALL permits for proposed activities that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely Elaine M. Thrune Elaine Thrune 708 Riverside Ave S Sartell, MN 56377

Elaine Tucker 57876

I ask you to oppose PolyMet's proposal for sulfide ore mining in the Superior National Forest at the headwaters of the St. Louis River. They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area. The mining will leave square miles of talcum powder-fine waste, piled high. Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock. PolyMet suggests that to prevent pollution of the St. Louis River watershed they will collect the hundreds of millions of gallons of rain and snowmelt waters that filter through the waste every year and run them through water treatment plants ... for up to five centuries. The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project. The cost liability for cleanup over centuries is also a great cause for concern. Please oppose this project.

Elanne Palcich 42959

Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 NorthMetSDEIS.dnr@state.mn.us Tamara Cameron US Army Corps of Engineers St Paul District, Regulatory Branch 180 5th Street E, Suite 700 Saint Paul, MN 55101 tamara.e.cameron@usace.army.mil Tim Dabney USDA-Forest Service Superior National Forest 8901 Grand Ave Place Duluth, MN 55606 tdabney@fs.fed.us March 13, 2014 RE: PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) I am submitting these comments as a life-long resident of the Iron Range. The impacts of taconite mining upon the landscape and the watershed are becoming increasingly apparent, and the severity of those impacts are gradually being made known to the public. I believe that we are entering an age that will demand more transparency from our governmental agencies, as individual citizens take it upon themselves to become more informed. My comments are as follows: Problems Concerning the Proposed US Forest Service Land Exchange, Loss of Wetlands The US Forest Service Land Exchange, as part of the PolyMet SDEIS, is lacking in several significant areas. (1) The Land Exchange bypasses the most important obligation of the US Forest Service, which is that of protecting the surface area of land purchased under the Weeks Act. (2) The Forest Service omitted an underground mine option as the only legal alternative; because it was omitted, the plan was never analyzed. As a result, the Forest Service has wasted tax payer money and agency time on the preparation of an open pit proposal that cannot meet the obligations belonging to the Forest Service. (3) The rationale for choosing the proposed parcels to be exchanged fails to demonstrate that this would be an equal exchange. (4) The Forest Service fails to adequately analyze the loss of wetlands and Aquatic Resources of National Importance (ARNI). The loss of wetlands in acreage would be significant and the quality of the wetlands irreplaceable. (5) The Forest Service fails to adequately analyze the loss of wildlife, bird and migratory bird habitat, and the loss of wildlife corridors. Of great concern is the lack of analysis on impacts to threatened or endangered wildlife species or Regional Forester Sensitive Species (RFSS) of plants. In addition, the concept of a land exchange as put forth by the Forest Service presents a precedence that would greatly facilitate the opening of a sulfide mine district in what is now Superior National ForeSt The Forest Service is thus removing itself from its over-riding obligation to the citizens of this state and nation, in which land was put aside in order to protect the watershed and preserve the natural quality and character of the land for all generations. This land exchange instead amounts to a give-away of public land to a Canadian mining company with global ties, and in which any metals would be directly sold on the global market, most likely to China (based upon an agreement with main investor Glencore-Xstrata). The Forest Service also fails to adequately analyze the economic impact of copper-nickel sulfide mining in northeast Minnesota, by neglecting to analyze the costs of degradation to the environment over a time frame of 500 years or more, and by not considering the loss of current and potential jobs that are based on a clean environment. Nor is there any analysis of actual loss of these metals as a domestic source. The loss of 6,000 acres of Superior National Forest for a large scale mining operation is unacceptable. But to make matters worse, the Forest Service has neglected to adequately analyze cumulative impacts to the Forest, including continued mineral exploration, taconite mine expansion, and potential copper-nickel mining proposals from Teck Cominco and Twin Metals. The Forest Service has failed to fulfi

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Elayne Lappi 41957

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Elayne Lappi Virginia, Minnesota

Eleanor & John P Yackel 42807

See attachment

Eleanor Wagner 40434

Dear Ms Fay, Dear Ms Fay and Mr Bruner, There are so many problems with the PolyMet NorthMet SDEIS that it's hard to know where to start. Minnesota has always been a leader in preserving the environment and providing a beautiful state for those who want to enjoy unspoiled nature. Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential imp

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Eleanor Wagner 54692

See attachment

57875

I ask you to oppose PolyMet's proposal for sulfide ore mining in the Superior National Forest at the headwaters of the St. Louis River. They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area. The mining will leave square miles of talcum powder-fine waste, piled high. Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock. PolyMet suggests that to prevent pollution of the St. Louis River watershed they will collect the hundreds of millions of gallons of rain and snowmelt waters that filter through the waste every year and run them through water treatment plants ... for up to five centuries. The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project. The cost liability for cleanup over centuries is also a great cause for concern. Please oppose this project. The jobs gained are not worth the damage.

58077

I am strongly opposed to the NorthMet mining project. Even though it would create some jobs, the damage to our environment more than offsets the benefit of the jobs. I believe if the project goes through, tourism jobs would be lost. We need to preserve our environment and increase jobs not by mining but by developing alternative energy sources. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Elena Willmot 45104

Hello, My name is Elena Willmot, and I'm a graduate student at the University of Wisconsin-Madison. I am asking that you please reject the PolyMet Mining Inc. Project (SDEIS) which plans to exchange 6,650 acres of national forests to create an open-pit sulfide mine in northern Minnesota. The Fact Sheets provided by the Minnesota DNR suggest that "There would be few cumulative effects from the [PolyMet Project] The affected resources included water quantity and quality, air quality, wetlands, and vegetation." While the number of resources affected may seem small, their impacts are overwhelmingly important in the regional and global climate. Air quality, especially, does not have simple local effects but can affect neighboring communities, states, or countries. Not to mention that increases in CO2 emissions on the order of 200,000 metric tons per year is the last thing this planet needs. The mining technology is outdated and no longer suited for this environment if we hope to maintain the beauty of our national parks. Many people in Wisconsin speak about northern Minnesota as their sacred place: the place to which they retreat to find peace, comfort, and pleasure. I, personally, have not yet been to northern Minnesota, but I would hate my first trip to include dirty water, foul air, and no wildlife. I have every intention to visit this summer, and I sure hope this project has long been rejected by then. I urge you to make the right decision and reject this project. Best Regards, Elena Willmot Mailing Address: 432 W Wilson St, #6 Madison, WI 53703

Eleni Johnson 54532

Please think about the cost, payoff & benefit. Worth the cost is the land and the water, the benefit is jobs and the payoff is both you getting to say you've created jobs and you making money. Let's think creatively in 2014., THERE ARE OTHER WAYS TO CREATE JOBS. DO THE RIGHT THING.

Eleonora Lesar 42548

See attachment

Alphabetical by sender's first name

Elexus Garcia 54223

Dear ms. lisa fayI'd like to have a minute of your time to let you know my most unadulterated feelings towards that of the mining near the boundary waters. The mere fact that even considering mining near any pure water, untouched by chemicals and etc, is the most degrading consideration to those who care, who just want to protect the land and the water surrounding/in the boundary waters.The mining that may take place, which shouldn't, will definitely affect the BWCA. This should go without saying that this is wrong and unjust to a environment will no say, and with way off fight bad on the big machinery that will try to wiggle it's way in. Also to mention that those who are pushing the mining in the BWCA are Are blatantly putting false images of the swamp that the mining would lead into. The fact is they're falsifying facts by removing from view of citizens the connected creek of lanely to the BWCA .Only allowing you to see the river to lake superior, And people believe this!. There are two connecting waterways through the swamp;lanely creek connected to BWCA and partridge river that connects to lake superior.The thing is that this would be simple to sway people back to the side of protecting the BWCA if they knew that this were effecting the BWCA, but the mining companies are doing great at lying and just being straight up unethical. I really think that this needs to be stopped and nipped in the bud. And i think in order to justify that this won't affect the BWCA is to then place two water wells in the swamp and in Langley creek to test the transportation of dye in the run off. Then we should have a answer of how this will affect the people on the side BWCCA and the BWCA. Help in the fight to protect The boundary waters, please!Sincerely,Elexus garcia Of humboldt high school tenth grade chemistry class.

Eli Bissonett 45195

Thank you for providing the PolyMet SDEIS for public viewing, and thank you for this opportunity to share my comments, questions, and suggestions. Though the NorthMet Project Proposed Action concisely outlines proposed environmental and economic impacts of the proposed PGE mine, please consider the following SDEIS modifications to help better inform the public about the effects of the mine if it is ultimately permitted. 1- Financial Assurance Please provide clearer parameters on what types, and what degree of environmental pollution a "damage deposit" would and would not be used for. Please describe a realistic and enduring legal framework for financial assurance that would render damage deposits bankruptcy-proof. What is the agreed definition of "bankruptcy-proof", among Polymet and all involved agencies. Please include in the SDEIS a requirement that the largest shareholder of PolyMet stock (currently Glencore, and whoever it happens to be in the future) be held legally accountable to share the financial responsibility of cleaning up any pollution from mining operations that exceeds legal levels. 2- Water Quality Please include more qualitative modeling of the effects of the proposed action on mercury in fish, flora, and fauna. Correlate a spectrum of mercury exposure to actual physical effects on these organisMs Create a similar correlation with regard to lead and aluminum contamination risks mentioned in the Executive Summary. Please do the same with regard to possible manganese and arsenic pollution. Please address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. Please redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity. Please don't let the SDEIS wording underestimate the possible magnitude of ground water base flow unpredictabilities, especially those incurred by seasonal fluctuations of water levels. The 2013 SDEIS appears to be making this underestimation. 3- Public Health Please conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Organizations in communities affected by the St Louis River Watershed, such as the Duluth YMCA, have already publicly requested that this HIA be conducted. Please provide detailed descriptions or modeling of how PolyMet mining operations could strain existing health and social service infrastructure. Thank you for considering my comments. Please provide reasonably detailed responses that specifically address my bulleted concerns. Sincerely, Eli Bissonett

Alphabetical by sender's first name

Eli Goyke 48182

10 new people recently signed Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota." on Change-org. There are now 500 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 500- Eli Goyke Ashland, Wisconsin 499- Nathan Torell Eden Prairie, Minnesota 497- Jonah Lazarus Oak Park, Illinois 496- Michaelk Moen Wausau, Wisconsin 495- Vera Davis Avondale, Arizona 494- Kari Bull Minneapolis, Minnesota 493- Geoff Perkins Des Moines, Iowa 490- Jeff Powell Anoka, Minnesota 489- Marti McAllister Orange City, Iowa 488- Dylan Linet minneapolis, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJmaXZlX2h1bmRyZWQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTMxLCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA4NjU1MTB9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK7EcokkzkW-2B48lduB3umqGZ3ZcNttrkzIhm2DZYPbUepPBo4IUCLL8Fu6kiI-2BtOGzNYoBDRvS1zl4OrWuFcqrMEr57N469ZYTE8iXWJBx2ZNeQekfwpCL8-2BWlYyrsPfLrFqLQ23mZQQt-2BWR6-2F8xIRP9hfGyanQn7msmDf7vzPd5fCB3-2FmfvKrHLN2eVjAehTZCfc6vBJkXv28ClH9gbcqb5-2FGG-2FFyG61FTfdDozjYBAR

Eli Riesgraf 54351

Dear Ms. Lisa Fay, EIS Project ManagerI have read through your plans to build a mine up in northern Minnesota. I have thought about it and I don't think it will be a good idea to build a mine up there. I know you're thinking, 'Why doesn't this kid want us to build this mine, it will benefit us a lot." I agree that it will benefit us a lot with a lot of resources, but what's the outcome of getting the resources, pollution is the answer.The advantages are obvious, we get all the resources from under the ground. The disadvantages though are not so obvious, people just think about what we will get from the mine and not what we will create from this. We will create pollution, as in bad air quality. The air we breathe to live, is going to get ruined, even if it's just a little bit, it will get ruined.Plus, up in northern Minnesota is a lot of cultural resources. The company would expand and ruin some of the cultural sites up there. They would ruin the sites with dust, smoke, and other air pollutants.The one good thing this company is doing is the land exchange. I think this is the good thing because they are giving back what they take and use. What I mean by that is that you are using like 6,500 acres for the mining, and in return you guys are buying around 6,500 acres and giving it to the public. Now that is a good way to give land back to the public.This process will not individually affect me. I am just concerned about the people up in northern Minnesota that have to deal with this mine. I think the people up there agree with me when I say the pollution will affect their breathing. All the dust, smoke, and air chemicals will maybe cause diseases to people breathing the air pollutants. No matter how well you try to hold in the pollutants, some will always escape into the air.Sincerely,Eli Riesgraf

Alphabetical by sender's first name

Elias Anoszko 44798

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. This mine is short sighted and would permanently impair the environmental quality of one of the most biologically rich areas of Minnesota. Sulfide mining has never been shown to not pollute and we can expect to be dealing with the pollution from Polymet long after Polymet has gone bankrupt. Who pays for pollution. we the tax payers of MN will be paying for it, not the mining company. The lakes of the BWCAW already have high levels of mercury pollution, making the fish in some lakes unsafe for human consumption. Polymet must not be allowed to add to the mercury load of these already threatened water bodies. Furthermore Polymet there is a good chance that Polymet would leach acid mine drainage into area lakes and streams that have inherently low buffering capacity. This could make much of the affected areas unsuitable for growing wild rice. PolyMet must show it would not increase sulfate concentrations in these areas. However, it fails to do so. The mine plan inaccurately describes wild rice waters, understating the area that supports stands of wild rice. In addition, the mine plan claims to reduce sulfates, but that assumes that expensive water treatment will continue for hundreds of years. Millions of gallons of untreated polluted water will escape every year, and the mine plan predicts an increased chance that water exceeding the sulfate standard will be released at times, years after closure. Sincerely, Mr Elias Anoszko 948 Cromwell Ave Saint Paul, MN 55114-1123

Elif Cingi 40167

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Dr Elif Cingi 7659 W 14th St Minneapolis, MN 55426-2002 (952) 544-1368

Alphabetical by sender's first name

Elinor Ogden 16023

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Elinor Ogden 51424

Dear Mr Dabney, Mr Bruner and Ms Fay: I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The Land Exchange includes a net loss of 6,026 acres of areas with high biodiversity; 2,030 acres of mature forest – replaced by 2,000 acres of immature forest; 1,400 acres of floodplains and losses of 11 endangered or threatened species. The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade. The PolyMet sulfide mine would impact 2 out of 13 remaining small corridors for wildlife to travel across the Arrowhead region. The PolyMet sulfide mine plan would also destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which dropped precipitously by 35% from 2012 to 2013- Yet, the SDEIS contains no analysis of impacts on moose from the PolyMet project. The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St Louis River and tribal resources. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice. Please take the following actions to protect clean water, ecological communities, public lands and tribal rights: • Reject PolyMet's proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. • Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. • Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. • Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. • Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. No more studies are needed to know that the PolyMet land exchange and sulfide mine should not be approved. The SDEIS plan is also inadequate and should be rejected: • The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. • The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at taxpayer expense. • The SDEIS fails to analyze alternatives, including underground mining, that could reduce impacts on lynx, moose, and other species that are threatened, endangered or of significance to tribes. • The SDEIS fails to study cumulative adverse impacts on moose of the PolyMet project and other activities that destroy habitat and increase global climate change. • The SDEIS fails to provide a cumulative analysis of impact

Elisabeth Bechmann 41834

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Dr Elisabeth Bechmann Neugebäudeplatz St Pölten, None 03100

Alphabetical by sender's first name

elise kyllo 20231

To Whom This May Concern, It is absurd that we would allow PolyMet, an international corporation that has no interest in the long term future health of our environment and it's inhabitants, to embark upon the sulfide mining project in NE Minnesota. From close inspection upon the SDEIS, it seems their study is based upon tests that stretch the truth or conveniently have performed their tests so that outcomes are falsely positive. There has never been a mining project that hasn't polluted. There is also a long list of previous mining projects that have failed to meet environmental standards, leaving the area polluted and sticking the local government and its taxpayers to pay for clean up, or more likely, to live with the pollution because clean up is too expensive and often not even possible. We must consider the long term costs of these open pit mines; the costs of the pollution of an undetermined area for an undetermined time. It seems obvious that the risks far outweigh the potential benefits of this project. Why would we sacrifice even an acre for the short term impact of a few jobs and a bump in the economy when we know the benefits (if there are any) would be temporary and the negative consequences would certainly be passed onto countless future generations. Who will be responsible for the long term management of the water and area polluted by this mine. Of course the company and its investors should be, but we know the company will try to weasel out of any clean up and long term pollution management. They have structured their corporation in a way that "legally" enables them to escape responsibility. The major investor of this project, Glencoe, a Swiss owned company has a long history of illegal activity. Responsible mining and clean up is not in their for profit intereSt If we could see the future, the choice would be clear. 526 acres of land on the edge of the BWCAWA turned upside down, 167 million tons of waste rock covered by black plastic, supposedly enclosed in a waste treatment system, that requires continuous monitoring and maintenance for centuries to contain the toxins, which is realistically impossible. Hundreds of miles of dusty roads traveled by loud and smelly, polluting trucks, noise, light pollution. These mines are nothing like the Taconite mines of the paSt If we could see the financial and societal costs of pollution seeping through bedrock, into lakes, wetlands, the atmosphere, fish, birds and finally into our bodies, we would obviously stand up and say no. No, thank you. It is not our duty to mine these minerals and we are not forced to accept the environmental damage. Our arms are being twisted by the power of money, but this is our choice and this is our future. It would be negligent of us to not question and thoroughly study the claims made by the company in the SDEIS report. Considering the impact of this project, it is logical to extend the comment period from 90 days to 180 days or more. I have moved to the north woods to be near the quiet beauty of wilderness areas. The fact that water can be sipped from a BWCA lake, that wild rice can be harvested, is invaluable and this is at stake. People travel from around the world to experience the rare purity and silence of this wilderness. Please reject the Poly-Met SDEIS and deny permits that would allow open pit sulfide mines. Please extend the comment period to allow the public fair time to investigate and comment upon the topic. Please protect our waters, the people that live here and the beauty that makes this one of Minnesota's favorite places to visit. Elise Kyllo PO Bo 71 Grand Marais MN 55604 ekyllo@hotmail-com

42501

Please see the attached document.

Alphabetical by sender's first name

elise kyllo 47691

It is absurd that we would allow PolyMet, an international corporation that has nointerest in the long term future health of our environment and it's inhabitants, to embarkupon the sulfide mining project in NE Minnesota. From close inspection upon theSDEIS, it seems their study is based upon tests that stretch the truth or conveniently have performed their tests so that outcomes are falsely positive. There has neverbeen a mining project that hasn't polluted. There is also a long list of previousmining projects that have failed to meet environmental standards, leaving the areapolluted and sticking the local government and its taxpayers to pay for clean up, or morelikely, to live with the pollution because clean up is too expensive and often not evenpossible. We must consider the long term costs of these open pit mines; thecosts of the pollution of an undetermined area for an undetermined time. It seemsobvious that the risks far outweigh the potential benefits of this project.Why would we sacrifice even an acre for the short term impact of a few jobs anda bump in the economy when we know the benefits (if there are any) would betemporary and the negative consequences would certainly be passed onto countlessfuture generations? Who will be responsible for the long term management of the waterand area polluted by this mine? Of course the company and its investors should be, butwe know the company will try to weasel out of any clean up and long term pollutionmanagement. They have structured their corporation in a way that "legally" enablesthem to escape responsibility. The major investor of this project, Glencoe, a Swissowned company has a long history of illegal activity. Responsible mining and cleanup is not in their for profit interest.If we could see the future, the choice would be clear. 526 acres of land on theedge of the BWCAWA turned upside down, 167 million tons of waste rock covered byblack plastic, supposedly enclosed in a waste treatment system, that requirescontinuous monitoring and maintenance for centuries to contain the toxins, whichis realistically impossible. Hundreds of miles of dusty roads traveled by loud andsmelly, polluting trucks, noise, light pollution. These mines are nothing like the Taconitemines of the past. If we could see the financial and societal costs of pollution seepingthrough bedrock, into lakes, wetlands, the atmosphere, fish, birds and finally into ourbodies, we would obviously stand up and say no. No, thank you!It is not our duty to mine these minerals and we are not forced to acceptthe environmental damage. Our arms are being twisted by the power of money, butthis is our choice and this is our future.It would be negligent of us to not question and thoroughly study the claims madeby the company in the SDEIS report. Considering the impact of this project, it is logicalto extend the comment period from 90 days to 180 days or more.I have moved to the north woods to be near the quiet beauty of wilderness areas.The fact that water can be sipped from a BWCA lake, that wild rice can be harvested, isinvaluable and this is at stake! People travel from :around the world to experience therare purity and silence of this wilderness.Please reject the Poly-Met SDEIS and deny permits that would allow openpit sulfide mines. Please extend the comment period to allow the public fair timeto investigate and comment upon the topic. Please protect our waters, the peoplethat live here and the beauty that makes this one of Minnesota's favorite places tovisit.

54632

See attachment

Elise Moser 28802

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I am against sulfide mining in Minnesota. It would threaten wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. I've haven't been to the Boundary Waters yet - I want it to last until I get there, and for generations after me. I have grave concerns about this project's potential impacts on the region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Elise Moser 1200 Water St Sauk City, WI 53583-1658

Alphabetical by sender's first name

Elisee J. Angoran 45858

3/13/14 Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay I am writing to request the immediate termination of PolyMet's project to implement the first open-pit copper-nickel mine in an area comprised of wetlands and water ways that could lead to the possible contamination of the Boundary Waters and Lake Superior. The reasoning behind this request is the many drastic consequences that this project will bring to that particular area, with respect to its ecology and populations. On the one hand, PolyMet claims that this project will provide 500 jobs during peak constructions periods and 360 during operations, generating substantial revenue for the state and it's people. The society we live in requires copper for many various uses, ranging from household uses to renewable energies. On the other hand, we have to take into account the consequences that a project of this magnitude will generate. Indeed, the digging of the mine will generate 533 million tons of waste rock in a 20-year span. Moreover, the mine is located on top of a sulfide-containing matrix. In contact with water and oxygen, sulfide oxides will release heavy metals in the ground and the water bodies around the mine. Decades after the mine has been closed, those heavy metals will remain in the soil and the water. That will be the same water in which many organisms have found their habitat, the same water used to grow our crops, and the same that will eventually be used for human consumption. All the other species living in that area will be put at risk as well. The birds, fish, mammals, all part of the food chain, will be contaminated, and contaminate the organisms that prey upon them. Alternatives to open-pit mining do exist, such as hydrometallurgy. A leach liquor solution is used to extract the precious metal. An extractant is then used to extract the metal out of the solution then purified for use. This process will not generate millions of tons of rock waste, cheaper and more environmentally friendly than the traditional mining processes that cause a lot of pollution. Much research is underway in order to perfect the process, but it is a step in the positive for a more sustainable way of gathering minerals that are predominant in our every day lives. Despite the intention of PolyMet to install a wastewater treatment plant, the pollution that will be caused by the mine will take far too much time and resources to clean up. There are benefits to this mining pit, namely the much needed copper. However, the cascade of drastic consequences the pollution will bring, leading up to health issues in human populations. For these reasons, I strongly urge you to put a stop to this project. Sincerely Elisee Joel Angoran 3905 Buttonwood Drive Columbia MO, 65201 ejat27@mail.missouri-edu

Elissa Hansen 21965

I completely support the SDEIS and cannot wait for this project to break ground. Elissa Hansen, MBA, EDFP Director, Business Development image001 APEX 306 West Superior Street Suite 902 Duluth, MN 55802 Office: (218) 740 - 3667 Cell: (218) 590 - 5133 elissa@apexgetsbusiness-com www.apexgetsbusiness-com

Alphabetical by sender's first name

Eliza Schrader 9617

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone to assess the impacts of slope and dam failure at the mine site waste rock piles and the tailings piles, instead of just assuming that no failure can happen. (SDEIS, p. 5-546). PolyMet's tailings would be placed on top of huge, leaky and unstable existing tailings piles. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Eliza Schrader 139 Saint James Place Brooklyn, NY 11238

42504

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone to assess the impacts of slope and dam failure at the mine site waste rock piles and the tailings piles, instead of just assuming that no failure can happen. (SDEIS, p. 5-546). PolyMet's tailings would be placed on top of huge, leaky and unstable existing tailings piles. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Eliza Schrader 139 Saint James Place Brooklyn, NY 11238

Alphabetical by sender's first name

Elizabeth A. Phyle 43954

I do not support the proposed mining project. It is not a wise investment for Minnesota's economic or ecological future. The benefits of job creation and mineral access are simply not outweighed by the heavy costs. These are the following costs that I see as most detrimental: Minnesota is lucky enough to have such a large freshwater resource, which will only increase in value as fresh water become more scare. The estimated 500 years of water clean up that will be necessary if this project is approved, far out ways the short term benefit. If all of the real costs of this project was taken into account it would not be a profitable venture. The foreign companies should not be able to generate these externalities in Minnesota and leave with the bulk of the profit. Please consider this before starting a mining project that will harm Minnesotans for many years to come. This mining proposal is a bad idea. Elizabeth Phyle Resident of Plymouth, MN

Elizabeth Ann Fryberger 57138

Have your say on PolyMet –Minnesota is the land of 10,000 lakes – a watershed state. Water is vital to life and Minnesota must protect this dwindling vital resource. It is unconscionable to pollute Minnesota. Just say NO!Elizabeth Ann Fryberger3399 Riley RdDuluth, MN 55803

Elizabeth Bartlett 43416

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. The people whose health would be most impacted are the miners and their families, probably for generations to come, the local indigenous population, and first and foremost women and children, including fetal health. Even small doses of mercury, methylmercuy, lead, arsenic at critical moments of fetal development will cause irreversible damage to internal organs, spinal development, and brain development. We pressure pregnant women to be sure not to drink alcohol, not to use drugs, not to smoke, be sure to eat healthy meals, etc, but what about all the toxins in the air we breathe, the water we drink. Would the owners of Polymet be willing to have the pregnant women among their loved ones be exposed to the toxins that will be released in this mining project. I say, that they themselves must be willing to live here, drink this water, breathe this air. This is a multinational corporation which has no stake in the local population. These are critical issues. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Dr Elizabeth Bartlett 2215 Heather Ave Duluth, MN 55803-1431

Elizabeth Brombach 42112

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Elizabeth Brombach 2214 Goodrich Ave Saint Paul, MN 55105-1022 (651) 699-8466

Alphabetical by sender's first name

Elizabeth Burr 39357

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Elizabeth Cerny 16731

Feb 18, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. Five hundred years is a very long time. Five hundred years ago Columbus had just "discovered" the New World. How can a mine whose toxic water drainage will require treatment for 500 years even be considered for a permit. What effect will a 6-foot rise in sea level from global warming have on Lake Superior's level, and on the mine area. Will the mine be underwater. What happens to all the toxic runoff if the mine is flooded. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Is all the water from those ten square miles of wetlands that will be "dewatered" going to run into the mine pit. Eleven point four square miles (the dewatered 10 plus the 1-4 of the mine itself) of prime wetlands is a lot of frogs, baby fish, herons and egrets, ducks, etc killed or made homeless. How do you dig a pit mine in a wetland, anyway. Can it be economically feasible, with constant water seepage and expensive water treatment necessary for 500 years. Or does the operator plan to simply quit treating the wastewater when they quit mining and who cares about poisoning every living thing for the rest of the 500 years. Whatever fines they are charged will probably be cheaper than treating the water would be, so they will just pay the fines and let the poison continue to run out of their pit. It's public land after all-it's not like it is theirs to care about. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Ms Elizabeth Cerny 7728 Williams St Downers Grove, IL 60516-4408

28631

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. This also threatens the entire economy of the region, which depends heavily on tourism, hunting and fishing and guide services for canoe trips into these waterways. Fishing will certainly end when the fish are no longer safe to eat, if the fish manage to survive in the polluted water. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. The mining company admits that the wastewater would need treatment for at least 500 years. Will they be there treating it 500 years into the future. Five hundred years ago, Columbus had just bumped into this unexpected land mass between Spain and India-how can any company possibly say what they will do for the next 500 years; but we know what the acidic, poisonous runoff water will be doing throughout that half-millenium: continuing to pollute everything downstream of the played-out mine. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Doesn't an "open pit" mine automatically mean cutting down and digging up a large area of foreSt Plus all the surrounding trees that need to be cut for access roads, oar truck heavy roads, waste storage, water retention ponds, and whatever else such a desecration of the entire forest environment would entail. The noise pollution of the forest silence alone would scare off every animal for miles around. You can not plunk such an operation down in the middle of a forest and pretend there will be no effect on the surrounding forest, even in the areas where the trees remain standing. Sincerely, Elizabeth Cerny 7728 Williams St Downers Grove, IL 60516-4408 (630) 971-3891

Alphabetical by sender's first name

Elizabeth Dokken 16886

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Elizabeth Dokken 4201 Parklawn #301 Edina, MN 55435

50200

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Elizabeth Dokken 4201 Parklawn #301 Edina, MN 55435

Alphabetical by sender's first name

Elizabeth E Watson 46596

To Whom it May Concern, My name is Betsy Watson and I am a senior at the College of St Benedict, graduating this May. Although I didn't grow up near Lake Superior or the Boundary Waters, I have made numerous trips to those areas since coming to college and I have determined that they are some of my favorite places to be. As a Minnesotan I have become extremely proud of these waters and feel that they make up a huge part of our state. No sulfide mine has ever operated without polluting nearby waters- and the rivers near the PolyMet mining proposed area flow into Lake Superior and are dangerously close to the BWCA. I can't see how these waters would not be affected and contaminated by the sulfide mining. PolyMet's model even shows that there will be need for water treatment of 500 years in order to fully decontaminate the water. Water is something that we are proud of in Minnesota, and I would hate to see that pride destroyed for 20 years of sulfide mining. I would be extremely upset and disappointed if the Minnesota DNR decided to accept PolyMet's proposal. Sincerely, Betsy Watson College of St Benedict 37 S. College Avenue St Joseph, MN 56374

Elizabeth Edinger 40145

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Dear Governor Dayton and Minnesota Department of Natural Resources: , My husband and I have lived on the South shore of Gunflint Lake, Minnesota for twenty years. We have always been thankful. for the priceless gift of clean water not only for the people who live and visit here as tourists, but also for the animals and birds. And I am very grateful to the Audubon Society for helping me to express my concerns about the PolyMet Mining plans. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Although I am not a scientist I am deeply concerned about this problem. Sincerely, Elizabeth Ann Edinger 483 South Gunflint Lake Grand Marais, Minnesota 55604 Sincerely, Mrs Elizabeth Edinger 483 S Gunflint Lk Grand Marais, MN 55604-2062

Elizabeth Edmondson 40908

Mar 9, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Elizabeth Edmondson 290 Hill Crest Cir Woodstock, GA 30188-2256 (404) 276-2216

Alphabetical by sender's first name

Elizabeth Edwards 41944

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Elizabeth Edwards Minneapolis, Minnesota

Elizabeth Frost 57164

I am concerned about the environmental impact of sulfide mining in North Minnesota. Please don't be short-sighted and approved mining that will compromise the BWCA. BWCA will bring in jobs to North Minnesota for a thousand years.Elizabeth Frost2904 43rd Ave SoMinneapolis, MN 55406

Elizabeth Heck 42896

Please find the attached comment letter regarding the NorthMet SDEIS. Thank you, Paul and Elizabeth Heck

Elizabeth Hope 40510

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Elizabeth Hope 10134 170th St E. Nerstrand, MN 55053

Alphabetical by sender's first name

Elizabeth Hope 40551

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. This includes a net loss of 6,026 acres of areas with high biodiversity; 2,030 acres of mature forest – replaced by 2,000 acres of immature forest; 1,400 acres of floodplains and losses of 11 endangered or threatened species. The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade. The PolyMet sulfide mine would reduce lynx habitat by two square miles, kill individual lynx, and impact 2 out of 13 remaining small corridors for wildlife to travel across the Arrowhead region. The PolyMet sulfide mine plan would also destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which dropped precipitously by 35% from 2012 to 2013- Yet, the SDEIS contains no analysis of impacts on moose from the PolyMet project. The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St Louis River and tribal resources. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice. Please take the following actions to protect clean water, ecological communities, public lands and tribal rights: •Reject PolyMet's proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. •Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. •Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. •Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. •Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. No more studies are needed to know that the PolyMet land exchange and sulfide mine should not be approved. The SDEIS plan is also inadequate and should be rejected: •The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. •The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at taxpayer expense. •The SDEIS fails to analyze alternatives, including underground mining, that could reduce impacts on lynx, moose, and other species that are thre

Alphabetical by sender's first name

Elizabeth Hope 40565

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Elizabeth Hulstrand 54678

See attachment

Alphabetical by sender's first name

Elizabeth Lempp 40471

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Alphabetical by sender's first name

Elizabeth Lempp 48143

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Elizabeth Lempp 36365 Pine Grove Lane Sturgeon Lake, MN 55783

Elizabeth LePlatt 54713

See attachment

Elizabeth Maus 39867

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. This mine sends us in the wrong direction for caring for our state and it's beautiful lands, which belong to ALL Minnesotans. I hiked in Superior National Forest last year and I don't want it to be the last time. That mine benefits Minnesota in no way whatsoever. We need to follow Wisconsin's lead and ban this type of mining forever. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Elizabeth Maus 9148 Upton Ave S Bloomington, MN 55431-2150

Alphabetical by sender's first name

Elizabeth Mccambridge 14600

Feb 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

Elizabeth Merz 9353

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Elizabeth Merz 111 W. Lincoln Ave, #305 #305 Fergus Falls, MN 56537

18749

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Elizabeth Merz 111 W. Lincoln Ave, #305 #305 Fergus Falls, MN 56537

Alphabetical by sender's first name

Elizabeth Merz 18950

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Elizabeth Merz 111 W. Lincoln Ave, #305 #305 Fergus Falls, MN 56537 218-998-3145

Alphabetical by sender's first name

Elizabeth Merz 50823

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Elizabeth Merz 111 W. Lincoln Ave, #305 #305 Fergus Falls, MN 56537

Alphabetical by sender's first name

Elizabeth Murray 42244

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Elizabeth Murray 42245

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Elizabeth Olson 58032

A state that prides itself in its lakes - the PolyMets Toxic Sulfide Mine will DEFINETLY endanger this resource. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Elizabeth Paulson 41711

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Elizabeth Plummer 16222

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Elizabeth Sivertson 6115

Thank you. Elizabeth Sivertson Sent from my iPhone On Jan 14, 2014, at 9:22 AM, "*NorthMetSDEIS (DNR)" <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Elizabeth Sivertson 42863

Dear agency officials now considering PolyMet's North Met SDEIS, My overall concern about the SDEIS is that it fails to show to how toxins will be kept out of the water systems leading to Lake Superior. The water "treatment" and collection systems under rock waste piles being managed by pumps at the end of 2 mile long rock piles 25 stories high seem inadequate to keep leaching toxins from entering the water ways. With the many possibilities and probabilities that those systems could fail in their goal to prevent water pollution, I believe that PolyMet's plan is inadequate. Planning to pile sulfide bearing tailings on an old LTV pit storage area (originally meant for iron tailings to drain into streams) is irresponsible. What bothers me is the unfounded claims by PolyMet to be able to collect the rain run off for treatment in a wetland rich area, to somehow "contain" the toxins and then treat them sufficiently with pumps and treatment systems that would need to be in place for as much as 200-500 years, their models and graphs showing that the toxins will increase as these tailings piles age- leaching more toxins by many times as much in about 40 years' time .... and long after companies could be held accountable ..... all of the floods and accidents that could occur, and the fact that the SDEIS is inadequate in addressing such probable accidents or floods. Besides those flaws, there are fractures in the earth below the PolyMet site, and new fractures would no doubt be created by the several times a week mine blasting. I don't believe PolyMet's plan to build a 5 mile long cement wall to bed rock would be sufficient to "hold" toxins from leaching into water systems. I can't imagine how the geological evidence showing such a water rich landscape could possibly kept out of harm's way during such an enormous mining operation. I have trouble believing that 32,000 tons of waste rock produced every day, hauled in trucks, dumped on wetlands- every day for 20 or so years, will not have ample opportunity to leach devastating amounts of sulfide content, mercury, cobalt etc. There are not sufficient safeguards in case of flooding, or accidents or spills addressed in the SDEIS. PolyMet's SDEIS shows more "hopeful" predictions of water flow than are even realistic. Since the water flow data in the models used by PolyMet are now shown to be inaccurate, I have less faith in claims of "safe levels of toxins" to be emitted by PolyMet's mine operation. PolyMet has not shown us a feasible or plausible way to both mine copper/nickel, and keep the water from getting contaminated. Already we have exceeded standards of water quality in mercury and sulfates in the St. Louis River, and I believe it is absolutely irresponsible to open the gate for one more mining operation- to tolerate any more mercury, no matter if it abides by current laws. PolyMet, no matter if it complies with the law, WILL add to the mercury content that already exists in the St Louis River and Lake Superior. In Minnesota the other mining operations have hardly been held accountable to clean up their act, and the former LTV site that PolyMet will use already and still exceeds water quality standards based on the old mining operation. The StLouis River still has high enough mercury content to issue health warnings of fish consumption. The Fond du Lac Tribes have been constantly having to bring lawsuits to keep the iron mining companies in compliance, or to try and get them to clean up their act already .... and this is at a very high cost to a community that has very little financial infrastructure to keep having to fight these mining corporations in order to force compliance. One in ten children born in this part of the state have higher mercury levels, levels that are known to significantly impair cognitive function. According to the Minnesota Environmental Rights Act, each person is entitled by right to the protection, preservations and enhancement of air, water, land, and other na

Elizabeth Swarthout 25002

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt As someone who spends part of the summer near Lake Superior in the Upper Peninsula of Michigan, the purity of Lake Superior is of great interest to us. It's one of the few fresh water lakes that still has relatively clear water, relatively non-toxic fish and wildlife that is not seen in other areas of the country and that is threatened by environmental pollution. Please consider the long-term health of the region in preference to a short-term economic gain. Sincerely, Elizabeth Swarthout 6739 Richmond Ave Richmond, CA 94805-2079 (510) 215-1647

Elizabeth Treher 42689

See attachment

Alphabetical by sender's first name

Elizabeth Urban 54518

See attachment

Elizabeth Vance 30256

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt I just know, that Lake Superior is one of the most beautiful and natural places left in our province. It is a place where there is still a home for the animals we love. It is a place we can go to and get back to a peaceful, healthy environment. Don't destroy such a beautiful spot. Sincerely, Elizabeth Vance, P.O. Box 275, Flesherton, Ontario. N0C 1E0 Canada Sincerely, Elizabeth Vance P.O. Box 275 Flesherton, ON N0C 1E0 (519) 922-3118

Elizabeth Yoder 37881

Polymet's proposed NorthMet mine project should not be permitted because the risk to the environment is so great. The SDEIS admits this and proposes to deal with the results, but I, along with many others, do not believe either that it can be done or that Polymet has the financial resources to do it. My husband and I bought property here almost 20 years ago and retired here 10 years ago because we thought it was one of the few unspoiled places left in the country. Mining for precious metals in this water-rich environment could destroy it-as it has destroyed many other places on the planet. Elizabeth Yoder 1772 Hwy 120 Ely, MN 55731

Ellen Brown 9539

Please don't risk the environmental health of northern Minnesota and Lake Superior by permitting sulfide mining in the region. Thank you for accepting my comment. Ellen T Brown 874 Fairmount Avenue Saint Paul MN 55105 651-225-5650

Alphabetical by sender's first name

Ellen Brown 10133

Jan 28, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Ellen E Shelhon 57242

I am strongly opposed to the Polymet project because there has never been copper nickel mine operation that has not significantly and permanently damaged our precious environment. We must not leave this legacy for our upcoming generations.Ellen E. Shelhon101 W. Kent RdDuluth, MN 55812

Ellen Hawkins 42616

See attachment

54676

See attachment

Alphabetical by sender's first name

Ellen Jones 46066

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. This does not seem to be such a difficult decision. How can it possibly make sense to burden future generations with treating water. How will wildlife survive with polluted water. Who cares if there were jobs in this decade if the area is toxic in the next decade. The benefits of a few hundred jobs are simply just not worth these costs. Sincerely, Ms Ellen Jones 5261 Lochloy Dr Edina, MN 55436-2023 (952) 924-9048

Ellen Kent 42448

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Ellen Kent 107 Hill Valley Dr Winchester, VA 22602-6108

Ellen Lafans 7740

To whom it may concern, We have to tell you that our family will be very disappointed in the MINNESOTA DNR if they allow for the dirty mine up near our beloved Boundary Waters. We have been going to the BWCA for all of our lives and love Ely and that entire area. The sulfur can cause too many problems for too long to allow this to happen and truly, don't expect PolyMet to clean it up .. The contamination that occurs may in several decades. JUST SAY NO MINE. There must be another way to get some jobs up there. You will loose the tourism industry if something happens. Ellen Lafans, RN, MSN Dr Richard Lafans William Lafans Katie Lafans 3967 Worchester Drive Eagan, MN Cell 651-353-2741

Ellen Lease 47780

Dear Gentlepersons: I urge you to reject the Polymet Mining proposal. If it is true that this effort will produce only 90 highly technical jobs that locals will likely not be prepared to fill, it does not significantly decrease levels of unemployment in that county. If the estimates that water quality could be negatively impacted for as long as 500 years is accurate, there is no benefit to Minnesotans for allowing this to proceed. There is, in fact, great detriment. A despoiled ecosystem is never truly recovered. Please do not allow Polymet to establish a mine. Thank you, Ellen Lease

Alphabetical by sender's first name

Ellen Mork 43105

Ms Fey, My name is Ellen E. Mork. I live at 1013 Borgert Ave, St Cloud, MN 56303- I am responding to the request for public input on the PolyMet Copper-Nickel Mine. I am opposed to this mine. My background includes a MA in biology with a minor in chemistry. I understand the chemistry involved with sulfide exposure to water. I understand the consequences for water pollution and destruction of habitat for the animals and people of northern Minnesota. Moreover, I understand the consequences polluting that largest fresh-water body of water in America, if not the world – the Great Lakes. We simply cannot afford to fill them with mercury and acid mine drainage for the sake of a few jobs for 20 years max – that is a suicidal trade-off. Now to the specifics: Ø I am against selling off part of the Superior National Forest to a Canadian firm that has no experience in operating such a mine and requires the assistance of a Swiss firm (Glencore Xstrata) which has an abysmal record of environmental breaches. How can the DNR or the state of Minnesota pretend to control such a firm. Ø This mine would destroy over 900 acres of high quality wetlands and indirectly harm up to 8,264 acres. As you know, wetlands provide several positive functions for the health of our water: they help to filter and purify water to aid in local and downstream water quality. How can the DNR do anything but abide by the state laws regarding wetland preservation. Ø It is my understanding that there has been no plan produced for the mitigation of the loss of these wetlands, according to Minnesota law. Ø I have also learned that PolyMet plans to use the existing unlined tailings basin used for iron ore to hold the tailings from the sulfide ores. This is a plan for distribution of the sulfuric acid into the local streams, lakes and underground water supplies. It would be dangerous for those living within the range of these waters, as well as the fauna and flora in the vicinity. At the very least, they must be required to line that basin. Ø Since there are rivers near the mine and plant sites that flow into the St Louis River, it is obvious that these rivers will all be polluted with acid mine drainage. I have read that the St Louis River is already heavily polluted. How can we allow even more to occur. Ø Regardless of the inflated figures provided by PolyMet for new jobs in the region, experts know that the numbers are more like 350-400, many of whom would be “imported” from Canada and other regions where similar mines have been operating. Mining equipment has greatly changed since the iron mines were at their peak, according to those reporting on this aspect of the plan. PolyMet will want experienced workers to run these expensive machines. The number of jobs available to Minnesotans of the Range will be minimal. Ø I read everything written about PolyMet in the news. I understand that this SDEIS still does not contain financial assurances of funding to cover the 200-500 years of required clean-up that will continue to be needed to ensure that Minnesota taxpayers are not left holding the bag. This is one of the most egregious faults of mining firms everywhere. They all remove saleable product while there is ore in the ground and leave it to others to do their clean-up. Without financial assurance, Minnesota has nothing – no ore, no jobs, no income and a lot of outgo. Please reject this SDEIS on this factor alone.. Ø Geologists have reported the existence of underground fractures that could increase in number by the blasting that would occur to break up the sulfide ores. Each fracture would have the possibility of transporting pollution into the ground water. I can see no mitigation from this problem. Ø I have already alluded to the probability of mercury contamination in the waters of the north, already so high that babies born in the NE are exhibiting very hi

Alphabetical by sender's first name

Ellen Murphy 11657

Feb 14, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Ellen Nore 29076

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt We need to think of the future and not to bow to corporations seeking immediate profit at the long run of great costs to our nation. Pollution from sulfide mining is very harsh and TREATMENT for this pollution would have to last for 500 years. We must NOT SUPPORT sulfide mining near this region, which houses supplies of clean, precious water for future generations. Sincerely, Ellen Nore 502 N Fillmore St Edwardsville, IL 62025-1762 (618) 656-5790

Alphabetical by sender's first name

Ellen Peterson 47457

Comment Submitted by: Ellen Peterson 1990 Skillman Ave West Roseville, MN 55113 Attn: Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Please see my comment below: The Poly Met NorthMet SDEIS does not fully consider all potential environmental impacts that this mine could hAve My understanding of the purpose of environmental review is to investigate all areas in order to make certain the impact a project will have on its surrounding environment. In its current state, the Poly Met NorthMet SDEIS is erroneous, contradictory, and incomplete. My main concerns with the Poly Met NorthMet SDEIS are with the issue of protecting our water. As a citizen of the state of Minnesota who recognizes the significance of our geographic location – our proximity to an incredible source of fresh water, not to mention our Boundary Waters Canoe Area Wilderness, it is entirely unacceptable that my government – in this instance the DNR who is responsible for completing the environmental review process as well as for issuing the permits, would even consider taking such a massive risk without knowing for certain the outcomes. Please see, record and take action on the comments below pertaining to the specific issues found within the SDEIS itself: · Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." · Wild Rice is Minnesota's state grain, and crucial for its cultural significance and importance for subsistence of Minnesota's Native Americans. Manoomin (wild rice) is recognized as a significant resource for Minnesota's tribes, access to which is protected by the Treaty of 1854- Even low levels of sulfates are proven to affect wild rice stands, a fact recognized by Minnesota's protective wild rice sulfate standaRd The PolyMet mine plan identifies wild rice beds downstream of the mine and plant, including part of the Embarrass and Partridge Rivers and Wynne Lake. Since sulfate levels in wild rice beds

Alphabetical by sender's first name

Ellen Root 43074

To Whomever It May Concern: I own property and reside in Babbitt, Minnesota. I am concerned that the PolyMet SDEIS is inadequate and fails to consider or address several important considerations regarding PolyMet's proposed NorthMet mine. I believe the Supplemental Draft Environmental Impact Statement is inadequate in the following areas: Water Resources: Tribal hydrologists and MDNR staff have determined that the base flow rate of water in the Partridge River is two to three times higher than the number used in the SDEIS. The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Cumulative Effects of the Mine: Minnesota Rules 6132-3200 requires that the mine site must be maintenance-free at closure, but the PolyMet mining plan calls for at least 500 years of active water treatment. The SDEIS provides no details on the impacts to water quality, wildlife, or human health if the water treatment system ceases operations at some time during the 500+ years during which the polluted water is being discharged. The SDEIS must be redone to include detailed financial assurances of how Polymet will continue to monitor and maintain its water treatment system over this 500-year span. The SDEIS also fails to assess the impacts of possible slope and dam failure at the mine site waste rock piles and the tailings piles. The SDEIS must be redone to include assessments of possible pollution and other impacts resulting from failures at either of these sites. The SDEIS does not discuss the impact of the loss of jobs when the price of copper declines and mining becomes unprofitable, although it acknowledges that such job loss is inevitable: "Mining-related employment is volatile and fluctuates from year to year due to the market price of commodities being extracted." SDEIS, 4-325—4-326- The SDEIS must be redone to assess the cost of unemployment benefits and other social services, increased crime rates, and other societal costs associated with volatility in employment at the mine. Please reject the current SDEIS and require further investigation of these unaddressed issues. After weighing the proposed benefits of the mine against the many risks to water resources, wildlife, cultural resources, and community members who live near the mine that are outlined in detail in the SDEIS, I ask that you reject Polymet's proposed project in favor of other projects that carry lower pollution and health risks. Sincerely Yours, Ellen Root 3298 Lenont Road Babbitt, MN 55706

Ellen Segal 40348

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Ellen Segal 1066 San Jacinto Way Palm Springs, CA 92262 US

Alphabetical by sender's first name

Ellen Thomas 38600

I am from a family that has had a summer home in Northern Minnesota since 1950- Over the years, we have spent nearly every summer there, and some winter breaks. We come because of the pristine wilderness and clean water of the BWCAW, and often eat meals and visit tourist sites along Lake Superior's North Shore. Our wonderful experience is one of the reasons that both of our children have looked at Minnesota for college. Our daughter is currently a freshman at Carleton College, and our son has applied to the University of Minnesota. Businesses in the state of Minnesota are getting a very high percentage of our family's money at the present time. Over the years, we have introduced many people to the beautiful North Woods, and often they have returned again on their own for additional vacations. Minnesota wouldn't have much to offer without the pristine wilderness-I can't think of any other reason we would routinely drive hundreds of miles to come to your state. This must be true for hundreds of thousands of tourists. The proposed copper/nickel sulfide mine is putting all of that at risk. It is virtually certain to pollute vast areas of wetlands-wetlands which are disappearing all over the country, and with them important habitat, water filtration, and other ecological services. Furthermore, the history of this industry is one of making big messes, declaring bankruptcy, and then letting the taxpayers take on the clean-up bill. I urge you to reject this proposal. Ellen Thomas 2616 Hillshire Drive Columbia, MO 65203

Elli King 18310

Hello. My name is Elli King. I live with my family in the woods outside of Finland, Minnesota. We have lived there for ten years. The main concern that I want to express today is the rise in sulfate levels (inaudible) PolyMet's draft EIS predicts. My family is practicing subsistence living. We currently harvest or grow 80 percent of our food and are also in the process of two initiatives, wilderness guiding and wilderness education for most financial sustenance and in community service. Our harvest takes (inaudible) all around the county. And I have neighbors and friends from Hoyt Lakes. My understanding is that any significant increase in sulfates in our water will inhibit the growth of wild rice. And that sulfates are a key component in the accumulation of you mercury in fish. Fish and wild rice and ducks who live on rice as they migrate in the fall are food staples of my family as well as that of many others in my community. I have a real founded fear of not being available to us anymore. And they are secondarily also important to our economy. While the EIS does speak to this issue as being controlling sulfate, the EIS is incomplete. At best I feel that further hydrological research and more developed refined filtration systems need to be explored. Also, I have intimate information that the base flow of the Partridge River was miscalculated for this EIS. And I don't think there's been time to investigate that yet, but I would ask of you that you investigate that, please. The acknowledged time span of hundreds of year of water treatment (inaudible). I don't see how anyone can submit to that. And it seems (inaudible) for taxpayer expense. I am also worried about the precedent that this project would set because there is a much larger similar project being explored. So if this is approved on a small level, I'm worried about that transferring over. So in summary, I guess I'm fearing that our community over time will lose major food sources and a good slice of our economic potential. To me those would be unacceptable in fact for any project. Please consider the valve of these resources to our community and the risks they will undertake if this project is approved.

Alphabetical by sender's first name

Elli King 19092

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Eleanor King-Gallagher Elli King P.O. Box 526 Finland, MN 55603 218 220 8997

Ellie Hofman 4347

Dear DNR- I am a 15 year old who lives on Lake Superior. I have a cabin near the BWCAW and each year take at least two camping trips into the BWCAW. I am concerned about the sulfide mining polluting our lakes. As I grow up I hope to be able to enjoy the natural wilderness as I do today. I won't be able to if we start sulfide mining. There have been no sulfide mining attempts that have not polluted water systeMs This would be a permanent pollution that could harm our entire ecosystem. The pollution is the biggest concern of mine but the cleanup could be left to all the taxpayers. Companies like Polymet have reputations of running out of money on the mining then leaving the cleanup to the taxpayers. So what are we going to get out of the mining. The metal and jobs. To me ruining our water systems and ecosystem is not worth the temporary jobs and metals. Please stop the sulfide mining and let the younger generations enjoy the natural beauty that northern Minnesota has to offer. Thank You Ellie Hoffman

elliot 46507

I'm fully behind the Polymet project. I've attended the meeting in St Paul, listened to all the arguments (both pro and con), and was privileged to tour the entire site. I feel the benefits of this project are enormous. I have friends and relatives that live in the area, and they are all wholeheartedly behind the project. These are people who have been involved in mining in the area for generations, but are also a part of the land and want it to remain clean. They don't feel that there's a risk that they will have their backyards polluted. I have also been an ardent fan and user of the Boundary Waters, camping and canoeing for over 40 years. I see no evidence that this project will change the nature of the surrounding area. I fully support the project. Elliot Nordquist 2424 Flag Ave So. St Louis Park, Mn. 55426

Alphabetical by sender's first name

Elliot Ginsburg 15276

Feb 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

Elly Huston 41416

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: As someone who cares a great deal about the natural environment in northern Minnesota, I ask you to please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone to assess the impacts of slope and dam failure at the mine site waste rock piles and the tailings piles, instead of just assuming that no failure can happen. (SDEIS, p. 5-546). PolyMet's tailings would be placed on top of huge, leaky and unstable existing tailings piles. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Elly Huston Minnesota resident Elly Huston 200 Cheyenne Trail Wayzata, MN 55391

Ellyn L Wiens 42719

See attachment

58078

There has never been a non-polluting copper/nickel mine such as Polymet proposes. Let's recycle instead! Stop the mine! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Elsie Dyke 31855

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please protect the great lakes, and vote against sulfide mining anywhere near the great lakes. We need to save this wonderful resource we have from being contaminated by mining. It is not worth the sacrifice of our lakes so that a large company can earn a lot of money. Thank you. Elsie Dyke Sincerely, Elsie Dyke 1718 Chandler Rd Ann Arbor, MI 48105-1612 (734) 663-9741

Alphabetical by sender's first name

Elton Brown 15535

MY COMMENTS ON THE INADEQUACY OF THE POLYMET SDEIS 1) THE ONLY REASON TO PERMIT POLYMET IS FINANCIAL: + The Minnesota Environmental Rights Act states that economic considerations alone cannot justify the destruction of our precious natural resources. Clearly the PolyMet plan will result in environmental destruction and degradation (loss of valuable wetlands, loss of an important wildlife corridor, the huge amount of electrical energy needed, and the seemingly-inevitable long-term leakage of heavy metals and toxic water). Given that these metals (especially copper) are readily found elsewhere in less water-rich parts of the planet, it would seem that the main reason to permit the PolyMet mining plan is, in fact, financial. + But the PolyMet SDEIS is quite vague on specifics about how the operation will benefit the Minnesota economy. Where are the company's assurances of wage levels and benefits. Should there not be a realistic analysis of how many jobs will be offered to Iron Rangers (rather than commuters who are apt to spend most of their income elsewhere). Further, is there any way to hold PolyMet (and its parent corporation) legally obliged to fulfill its promised local hires and wage levels. If the reason to permit this project is local jobs, should not the SDEIS offer us a detailed description of the types and number of jobs that will be available for local hires. 2) INCREASE THE PRODUCTION TAX: + As Aaron Brown ("MinnesotaBrown") wrote, "We enter into a negotiation, not a pep rally. The mining company will protect its interests; the community must do the same. Communities that fail to do this are exploited." Of course PolyMet and its parent corporation are mainly interested in maximizing their profits. If we permit this industry for the benefit not of the corporation but of the people of Minnesota, should we not raise the meager percent of taxes they will return to the state. An investigative journalism article in the Ely Timberjay (Jan. 17, 2014) reveals that local tax revenues generated by area taconite mines have been falling behind inflation, even as taconite prices have soared. It makes no sense to sell off these world-class non-renewable resources so cheaply. After all, these mineral deposits are not going anywhere until we decide to sell them, and as time goes on the value will only increase and, hopefully, the techniques for safe extraction will improve - and be proven foolproof elsewhere firSt 3) FINANCIAL ASSURANCE: + And then there is the matter of financial assurance for future treatment and mitigation of contaminants that could escape into our surface and ground waterways for generations. Will PolyMet be willing to set aside enough money to completely pay for the monitoring of containment barriers, the quick repair of leaks caused, say, by some unexpected flood or earthquake of the century, the maintenance (and eventual replacement) of reverse osmosis installations, etc + Should not the public be told now how this huge sum of money will be paid and held safely in escrow for future maintenance and clean-up. Why is the SDEIS so vague on this critical and thorny issue. Any short-term financial benefits to Minnesotans will be more than negated in the long run if clean-up costs fall yet again on taxpayers. + I also wonder if there is a way to hold the parent corporation legally responsible for future clean-up costs once the PolyMet subsidiary declares bankruptcy or simply dissolves when the North Met project is no longer profitable. 4) NEGATIVE IMPACT ON LOCAL ECONOMY: + The PolyMet PDEIS is inadequate in its failure to include an analysis of the costs of this mining proposal to the local economy. Is there a realistic estimate of lost income from tourism, fishing and hunting licenses, etc, should a large hunk of the Superior National Forest be lost to heavy industry. Local realtors tell me that property values, and buyers, in the vicinity are already decreasing. + Also, what protections and compensations are in p

Elwood & Bonnie Swanson 42777

See attachment

Ely Smith 54832

See attachment

Alphabetical by sender's first name

Elyse Dornhecker 4285

To whom it may concern, As someone who knows many at Polymet and many in the communities they will be impacting, I continue to be impressed by the level of care and concern they take in doing what's right for the community and the state as a whole. The economic development they will bring, while paving the way as the benchmark for clean, environmentally friendly mining, shows that collaboration is key to moving our state forward as an economic, industrial, and conservationist leader in the US. I grew up on the Canadian Border of Minnesota in a small town called Baudette. Through my time in that community and my last 15 years in the urban parts of this state, I have a unique perspective. I have seen what happens when small towns lose their primary sources of employment. I have seen the small town values that bind people together and create excellent school systems, communities, and cultural centers, but I have also driven through northern MN to see abandoned homes, dilapidated farms, and far too many people living without the necessary heating and provisions to raise their families appropriately. I have lived through and seen the sad decline of my hometown and many others on the iron range. I have also experienced the perception of what "northern MN" is and those opinions held by the majority of our population that dwell in the city. Everyone is entitled to their own opinions and comes from different backgrounds, but Polymet has shown that they are committed to meeting and have met every environmental standard that has been set forth by the state of MN and the many professionals and academics who are charged with caring for and regulating the mining industry and so many more. I hope you will remember this when you make your final decisions around the permitting of this project. The futures of many Minnesotans are at stake. Elyse Dornhecker, CFP®, ChFC, CLU Area Vice President Registered Representative Gallagher Benefit Services, Inc. | T h i n k i n g A h e a d 3600 American Blvd. W, Suite 500 | Bloomington, MN 55431 Office: 952-356-3592 | Mobile: 218-590-8513 | Fax: 866-701-1125 HYPERLINK "http://www.gallagherbenefits-com/minneapolis"www.gallagherbenefits-com/minneapolis | HYPERLINK "mailto:Justin_Demars@ajg-com"Elyse_Dornhecker@ajg-com This e-mail and any files transmitted with it are intended only for the person or entity to which it is addressed and may contain confidential material and/or material protected by law. Any retransmission or use of this information may be a violation of that law. If you received this in error, please contact the sender and delete the material from any computer.

18357

Hi, everyone. My name is Elyse Dornhecker. I need to spell that. D-O-R-N-H-E-C-K-E-R. I grew up in Northern Minnesota. I know we have already talked about that. It is actually on the Canadian border. I was raised near the river and had a lot of recreation activity (phonetic) and we can talk about eating fish and whatnot and, you know, the impact on the communities. I also had one of my closest friends who went to the U of M and she studied and she has got her Ph.D. in large mammal ecology (phonetic). And I say that because I spent the last four years of my life, since I've practically known her, listening about the moose population and how that has been negatively impacted and what is going on there. But I say that because I put my faith in the fact that (inaudible) knows a heck of a lot more about that stuff than I do. And the regulatory agency that put this together and have been working closely with PolyMet in the last year, and they have studied this more than I have, and they have told us that they think they can safely operate within the environmental laws of the State of Minnesota, and they can do so while raising tens of millions of dollars of tax revenue that will come back to us and educate us and allow us to do everything needed in the State of Minnesota. So, I am getting up here today to express my support. It says St. Paul, that my name's from, but I went to school in Duluth and I'm from the northern part of the state, not far from there. And I put my faith in the fact that the regulatory agencies, no other (inaudible) has more people involved and who are far more knowledgeable than I am, and have put together the SDEIS, and will prove that PolyMet can operate within the parameters and they are going to do so by bringing mining back to the range.

Alphabetical by sender's first name

Emily Altrichter 44469

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Emily Altrichter Emily Altrichter 4815 Todd Dr Apt. 62 Ames, IA 50014

44473

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Emily Altrichter Emily Altrichter 4815 Todd Dr Apt. 62 Ames, IA 50014

Alphabetical by sender's first name

Emily Barter 44108

Mar 13, 2014 Ms Lisa Fay MN Dear Ms Fay, The plans of PolyMet to mine sulfide ore in northeastern Minnesota seem completely unsound. They plan to mine for a short period of time, but in so doing cause nearly irreparable damage to a critical environment. Clean water, healthy wildlife, and a non-toxic environment are very important to me. The PolyMet mine would jeopardize all of them. I understand that the creation of jobs is very important right now, but the environmental and monetary cost of this project is not worth it. The massive funds that would be necessary to clean up the environment in the wake of this mining could even be used to much greater effect on public works projects to employ Minnesotans in more productive ways. I urge you, as decision-makers on this issue, to reject PolyMet's sulfide ore mining proposal. Please don't choose a short-term financial gain over the long-term health of our environment. I'm counting on you, as my elected officials, to make the right choice for Minnesota's future. Sincerely, Miss Emily Barter 3208 Lyndale Ave S Minneapolis, MN 55408-3633 (617) 899-7307

Emily Brown 36464

My Response to the PolyMet SDEIS Regarding wetland destruction PolyMet's open pit form of copper/sulfide mining involves destroying hundreds of acres of wetlands in the Partridge River headwaters. Most of these wooded wetlands are of high quality and are key to providing mitigation for flooding, food for fish downstream, and maintaining water quality downstream. Also, these wetlands are an important habitat for waterfowl, moose and other wildlife. The US EPA notes that these wetlands may qualify as "aquatic resources of a national importance". That designation would require a higher level of protection than is currently planned. Thousands more acres would be indirectly harmed by air and water pollution and by the redirecting of water that is needed to support wetlands. PolyMet does not plan to include compensation for these thousands of acres that would be indirectly harmed. Their "wait and see" approach means agencies may or may not mitigate later. Since PolyMet's mine plan did not consider any alternatives to reduce wetland destruction and water pollution, it is doubtful that any such solutions would be found. Taking Climate Change Seriously The widespread contamination of water in West Virginia, the current catastrophic drought in California, and even the ongoing shortage of water for agriculture in southern Minnesota are red flags to a changing climate where water is an increasingly valuable resource that must be protected above all. All reputable climate scientists tell us that extreme weather, long periods of drought, and events such as Duluth's dramatic flooding two years ago are the new normal. Therefore, I submit that new public policy should place an ever higher value on clean water, which is our greatest natural resource here in northern Minnesota. Any plan such as PolyMet's needs to take a more serious approach to accommodate extreme weather and inform the public on how they will prevent torrential rainfall from bursting dams and overflowing waste storage basins. Stop Reliance on Dirty Energy As a society, we must stop the growing reality of climate change. The increase in CO2 parts per million pertains to the larger amounts of electrical energy that this kind of mining requires. At this point that energy source would be mostly coal. In addition, the fuel used by the huge trucks and heavy equipment proposed would add even more CO2 to the air we breathe. PolyMet's project should be postponed until we have energy sources that are not dependent on coal and gas. There is already an issue of haze in the BWCAW. The problem of clean energy needs to be solved before PolyMet adds to the current level of pollution. The SDEIS needs to address this aspect of the project's environmental impact. Conclusion In summary, an environmental impact statement that is responsible to future generations of Minnesotans needs to take into account the big picture of climate change and the long-term effects of adding an intensive industrial operation to our already-endangered waters, forests, and air. Sincerely, Emily M. Brown 1603 Hanson Road Ely, MN 55731

Emily Dayton Slowinski 54566

I am very concerned about the effects of the proposed PolyMet mine on our environment. No matter how you slice it there will be destruction of acres & acres of wilderness to begin with and extensive lasting negative effects for years afterward. We (and all of nature) depend on pure water for our health and lives. Tall trees and wetlands are not just decoration. My husband and I (now 91 and 84) have visited the BWCA at least 20 times in the past and our canoe trips have fed our souls as well as our bodies. As for jobs, we have enough smart people to figure out how to provide employment that is constructive rather than destructive.

Alphabetical by sender's first name

Emily Fleissner 40025

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Emily Fleissner 3515 Chambersburg Ave Duluth, MN 55811-3046

Emily Gardner 14972

Feb 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

emily gherity 15251

I find it beyond belief that Minnesota is contemplating such a disastrous mining scheme when all of our waters and natural resources are under siege from zebra mussels in Mille Lac and Superior to Asian carp moving up river to moose die-off due to global warming. There is no scientific question that this type of mining is always extremely damaging to the environment. When the costs of maintenance and recovery have to be figured over centuries, this should be a signal that we are talking about the tooth fairy. This mine would be planted on top of the Superior watershed, a body of water already damaged by earlier economic exploitation. 350 jobs would not justify this failure of stewardship nor would 35,000 jobs. At any rate, the alleged jobs are temporary and, as always when the job argument is used, it is a fig leaf for the millions, conceivably billions of dollars which will flow into the pockets of foreign investors and perhaps a few adroit members of the iron range mafia. I know this thing will go forward and I know there will be a catastrophe and that taxpayers will pay for it while the decision makers act surprised. We are placing a curse on our own children and need to call it for what it is. Emily Gherity 3328 10th Ave S Mpls MN 55407

Emily Hegland 42071

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Emily Hegland Mounds View, Minnesota

Emily M Brown 54671

See attachment

Emily M. Kindelspire 43132

To whom it may concern: Please think about the long term consequences of allowing mining. Too many decisions are made with only the short term benefits in mind- economic gains, increased employment etc What about the children who will be born in 25 years. 50 years. 75 years. 200 years. What will be left for them. What do we want to leave for them to ensure their success and survival. Peace, Emily Kindelspire VISION Student Co-Director Adventure Seeker Story Collector kind1157@stthomas-edu<mailto:kind1157@stthomas-edu> "Humans are vulnerable and rely on the kindness of the earth and the sun. We exist together in a sacred field of meaning"- Joy Harjo

Alphabetical by sender's first name

Emily Mashuga 7762

Jan 18, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in MN and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the BWCAW. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I love the Boundary Waters and the wildness and purity it represents, and I'd hate to see that ruined that so we can make more iPHONES and cheap electronics. Some things are just more important than other things in life, and safe clean lasting water is much more important than making more DVD players and cell phones. Which people don't really "need", but are convinced they want and should have because of advertising. I do not approve of this mining at all, and I think it should not happen here in MN (or anywhere for that matter). Metals like: copper and nickel, etc are notoriously good materials for recycling and they maintain their integrity very well, even after being recycled many times. That option (recycling) should be the one we all start turning to, to get these metals Polymet (and manufacturers) want. Instead of constantly digging up virgin materials, when we already have the materials needed (to make a lot of things) wasting away in landfills. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Emily Mashuga 754 Havenview Ct Saint Paul, MN 55120-1800 (651) 269-0080

51502

Jan 18, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in MN and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the BWCAW. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I love the Boundary Waters and the wildness and purity it represents, and I'd hate to see that ruined that so we can make more iPHONES and cheap electronics. Some things are just more important than other things in life, and safe clean lasting water is much more important than making more DVD players and cell phones. Which people don't really "need", but are convinced they want and should have because of advertising. I do not approve of this mining at all, and I think it should not happen here in MN (or anywhere for that matter). Metals like: copper and nickel, etc are notoriously good materials for recycling and they maintain their integrity very well, even after being recycled many times. That option (recycling) should be the one we all start turning to, to get these metals Polymet (and manufacturers) want. Instead of constantly digging up virgin materials, when we already have the materials needed (to make a lot of things) wasting away in landfills. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Emily Mashuga 754 Havenview Ct Saint Paul, MN 55120-1800 (651) 269-0080

Alphabetical by sender's first name

Emily Meyer 15994

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Emily Ness 41935

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Emily Ness Minneapolis, Minnesota

Alphabetical by sender's first name

Emily Onello 47643

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. I am a practicing Family Physician and medical educator. I believe that the impact on human beings must be clearly outlined before proceeding further. Sincerely, Dr Emily Onello 2817 E Superior St Duluth, MN 55812-2353 (218) 724-1269

Emily or Ken Steil 10712

There do not seem to be enough facts presented along with a listing of the issues such as on the bottom of page 5-6 and into 5-7 where these is discussion of how to treat groundwater as needed on an extended basis. It seems to say all that will be determined by the needs at that point. But page 5-6 also says a certain mechanical treatment process will only be used the first forty years, what happens after that is not made clear except to say treatment would shift to some non-mechanical form to be determined at that time with no definitive statement that mechanical treatment will not be needed longer. Page 5-7 then goes on to say there will then be a 200 to 500 year period that some sort of treatment will need to continue. That is too big a window and too long a time period to lay out at this point. It suggests that what will happen is not known and will be determined and addressed as the years roll along. The mining company is not mentioned as having any responsibility for this though it is likely the company will not exist at that point. I don not think this project should proceed given this huge uncertainty. It suggests the technology is not in existence yet. It is likely the project will proceed in the future as mining techniques catch up. The way to proceed at this point would seem to be to dump category one tailings into the west pit as is being done with east pit. This would answer what I see as the big hole in this proposed project. Thank you for your consideration of this. Ken Steil 301 East Anoka St Duluth, MN 55803 218-728-2551 ste190@aol-com February 2, 2014

Emily Ostercamp 14944

Emily Ostercamp 6213 267th Ct. Wyoming MN 55092

Alphabetical by sender's first name

Emily Schneider 42018

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Emily Schneider Eagan, Minnesota _____ There are now 2374 signatures on this petition. Read reasons why people are signing, and respond to National Audubon Society by clicking here: HYPERLINK "http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89bandutm_source=targetandutm_medium=emailandutm_campaign=signature_on_sponsored_petition"http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89b http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJzaWduYXR1cmVfb25fc3BvbnNvcmVkX3BldGl0aW9uIiwiaWQiOiJ1c2VyXzE2MDAyMTUiLCJjaXR5IjoiU2FuIEZyYW5jaXNjbyIsInN0YXRlIjoiQ0EiLCJ6aXBjb2RlIjoiOTQxMTAiLCJjb3VudHJ5X2NvZGUiOiJVUyIsImluY29tcGxldGVfYWRkcmVzcyI6ZmFsc2UsInNpZ251cF9kYXRlIjoiMjAxMC0wOS0yMyIsImxvZ2luX2NvdW50Ijo5NDE2LCJ0b3RhbF9hY3Rpb25zIjo0MzAsImNvbm5lY3RlZF90b19mYWNlYm9vaz8iOmZhbHNlLCJzaWdudXBfY29udGV4dCI6ImFjdGlvblBhcnRpY2lwYW50IiwiZGlzdGluY3RfaWQiOiIyMWQ2MmIwMC1iZTVkLTAxMmYtNjg2ZS00MDQwNjBlNzJhYmIiLCJ0b2tlbiI6IjMwYWEyNmExZDZlOTNhZTE1OGRmYmRjMTZiNDkzMzEyIiwidGltZSI6MTM5NDMwMDI5OX19andip=1andimg=1 http://email.changemail-org/wf/open.upn=aGGv9wQ398j6-2FWVT4grdXbWUo0w-2FupjjjD-2BeyIkg5XeInLuCEKc3fZdho8GXjxxiplFn6SybU80HWYOLHct2MhHcRv7ksg-2F-2Bt-2BBQdFBpjlwoFDs2Rei6JPpgObA0SW5ZqHBhlRx3kGGHiAjiMeGucWYbiE4itGWHMRNRgKxQZcvAG-2FSz46ZQx5TcZSc7Ih7PGfZD7a1LUJKqbETc0qklUj3w5CU1jxNkOKLPGm-2FoDa1QVZlBT4yCR4zpD-2BTbpuH5k1r8ZQI936PFZaEzx0kS-2FgvYMc17-2Butuioc6N-2Fv56vk1kSeYrXGz1RaeHeQIOGTF

Alphabetical by sender's first name

Emily Smith 42180

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. This includes a net loss of 6,026 acres of areas with high biodiversity; 2,030 acres of mature forest – replaced by 2,000 acres of immature forest; 1,400 acres of floodplains and losses of 11 endangered or threatened species. The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade. The PolyMet sulfide mine would reduce lynx habitat by two square miles, kill individual lynx, and impact 2 out of 13 remaining small corridors for wildlife to travel across the Arrowhead region. The PolyMet sulfide mine plan would also destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which dropped precipitously by 35% from 2012 to 2013- Yet, the SDEIS contains no analysis of impacts on moose from the PolyMet project. The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St Louis River and tribal resources. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice. Please take the following actions to protect clean water, ecological communities, public lands and tribal rights: •Reject PolyMet's proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. •Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. •Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. •Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. •Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. No more studies are needed to know that the PolyMet land exchange and sulfide mine should not be approved. The SDEIS plan is also inadequate and should be rejected: •The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. •The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at taxpayer expense. •The SDEIS fails to analyze alternatives, including underground mining, that could reduce impacts on lynx, moose, and other species that are thre

Alphabetical by sender's first name

Emily Swanson 16170

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Emily Wartman 42693

See attachment

Alphabetical by sender's first name

Emily West 41754

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Emily Whittaker 42995

Dear Ms Fay, Attached is a letter from Freshwater Future and other fellow organizations working to protect the Great Lakes. The letter is requesting that the MDNR deem the current version of the Supplemental Draft Environmental Impact Statement as inadequate. It is imperative to have a sound EIS in order to make proper decisions regarding our resources. If you have any questions, please contact me. Thank you for the opportunity to comment. Emily Whittaker Policy Specialist Freshwater Future (231)-373-3670 HYPERLINK "mailto:emily@freshwaterfuture-org"emily@freshwaterfuture-org HYPERLINK "https://www.facebook-com/pages/Freshwater-Future/10150104189620648"Like Us on Facebook

Alphabetical by sender's first name

Emily Wick 48201

10 new people recently signed Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota." on Change-org. There are now 340 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 339- Jolene Brink Saint Paul, Minnesota 338- Alexis Boxer Minneapolis, Minnesota 337- Whitney Adrian St Cloud, Minnesota 336- John Smith St Paul, Minnesota 335- Jillian Duffy Farmington, Minnesota 331- Adam Klisch coon rapids, Minnesota 330- Julia Valero Mahtomedi, Minnesota 329- Sam Neubauer Northfield, Minnesota 327- Mackenzie Crumb Mahtomedi, Minnesota 326- Juliann Skarda Northfield, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJmaXZlX2h1bmRyZWQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTI4LCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA1MTMyOTR9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK2ewDRRoIp0-2Bp30u9iHtKBajLhy7QQtqpnMi5bpRnUD-2B04BNrel65O1oWbbQxQXBevngxKIKBNpeG0o6u3MDOc4yWrovqCivdz2tTmXxw-2BnhgKPyAxQ17c5t1zHA47oJWqjHyoVJ59lYmqD19ckch6i-2BWRP5B6sqG5ak7h8h0WO5Z-2BgUmJvt7K5IckG7hwjF6b7W-2FWCcp2e6C1H8V46-2F1NEWPlepJtfLgNpl6JU6WFQe

Emily Wilkie 54214

I am not in favor of building this mine. I believe it will do more harm to the environment than good. This is very clean pure water that would be polluted and wasted. We already have a water shortage in our lives today and since I am a part of the generation of the future, I do not want my water supply to be polluted. This would remove wetlands and harm the animals and wildlife here. It’s also in the boundary waters which should remain UNHARMED.

Emma Liedtke 54226

Dear, Ms. FayI have become aware that then SDEIS maps are incorrect. When Poly-met redrew the maps, they left out half of the whole 100 mile swamp. Because of this incorrect modification the BWCA has been left completely unprotected from the acid mine drainage. A correct environmental impact statement with correct geography is required.Governor Dayton needs to talk to the MN DNR and address the task at hand. He needs to make the MN DNR do their job correctly and provide a geographically correct environmental impact statement that has correct financial information, the whole 100 mile swamp and other missing geography, correct hydrology studies, and water pollution modeling data that will tell how long it would take for toxic metal concentrations to reach safe levels without requiring any reverse osmosis.I would like the maps in the SDEIS (Supplemental Draft Environment Impact Statement) to be re-drawn and corrected. I would like the percolation rate in the swamp to be measured also.Sincerely,Emma Liedtke927 Sims Ave ESt. Paul, MN 55106

Alphabetical by sender's first name

Emma Marshall 54195

I am a high school senior from Minnesota and I am concerned for the condition of the boundary waters after the mining project. These waters are the purest waters that we have and they are the perfect destination for camping and canoeing. People from all over the US come to enjoy the boundary waters. There are so many things that are going to negatively affect the boundary waters and animals near this area. 99% waste is ridiculous and it is not worth mining for the 1%. You will directly be killing many animals, fish, and polluting the beautiful waters. I am not an environmentalist at all but this is dear to my heart because of all of this nature that will be ruined.

Emma Radke 15906

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Emma Radke 1712 Pleasant St Lauderdale, MN 55113

Emmalee Breth 42003

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Emmalee Breth Elk River, Minnesota

Alphabetical by sender's first name

Emmett Doyle 43814

Mar 13, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness, in addition to damaging the wilderness itself through sulfide pollution. Moreover, because the mechanization of mining has reduced the number of jobs that the industry creates as well as lead to a workforce that tends to be more non-local and thus less stimulating to the economy, and because the environmental impacts of this mine could harm the tourism and recreation industries that are northern MN's inevitable future, this mine is economically the wrong choice for Minnesotan workers. Finally, the mine is roundly opposed by the indigenous community for its potential impacts on manoomin and the wider north woods ecosystem, and the wishes of the indigenous community should bear a degree of special consideration given the historical context of our state. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Emmett Doyle 4315 45th Ave S Minneapolis, MN 55406-4062

Emmett Ramstad 10763

Hello, I am writing to strongly oppose the proposed PolyMet Northtmet copper-nickel mining plan. I am not at all convinced that the short term goal of mining is at all worth the inevitable pollution it will cause. Nor am I convinced that PolyMet will be able to reverse the damage to water and land to it's original healthy state. I vacation every year on Lake Superior, the largest body of water in the world. I cherish it and am proud to live in a state that boasts this gorgeous treasure of a lake. I am afraid the pollution will inevitably enter the near by Embarrass River and Partridge River which flows into the St Louis River that then flows into Lake Superior. Not good. A resident in Bisbee, AZ. became ill from his garden produce, due to the toxins leaching into the soil from that copper mine. Please think of what is good for the earth and its people and stop this dangerous plan. Thank you for reading this. Sincerely, Emmett Ramstad 2420 31st Ave So Minneapolis, MN 55406

Emmy White 20147

I simply can not understand how the DNR could stand by a consider copper mining in our watershed area. To contaminate the waters for our generations to come is unthinkable. Please stop this from happening. Emmy White

Emrys Stramer 18192

So I have been participating in the harvest of wild rice for about seven years with a group of friends. Wild rice has become a staple food in my diet. It's not only nutrients that I gain during this seasonal harvest, but an incredible time of community-building among my friends. It's an empowering practice to know that we can all feed ourselves and each other in ways that don't exploit the natural environment or people -- yeah, numerous intangible and tangible benefits from doing this. So concerns: Arsenic causes cancer in human beings. The PolyMet project would increase arsenic in Colby Lake by 38.5 percent. That is the drinking water for Hoyt Lakes. Arsenic also accumulates in fish and wild rice. Low-income people who fish and rice for food have the most cumulative risk, and this does proportionately negatively affects poor people and poisons our food supply. The SDEIS must be redone to make a cumulative assessment of arsenic and cancer risks for people in Hoyt Lakes, including people who rely on fish and rice for food. I think that my friends and my community endeavors to provide food in this way for ourselves and enjoy this bounty that is out there that needs to be respected and honored. Like special movement of people of my generation and in lots of, like, to make sustainable food systems that are just food systems. So yeah, I see that as an environmental justice issue. The proposed mine is located within the 1854 Treaty on Ceded Territory, and three sovereign nations retain, never gave away, their hunting, fishing, gathering rights. Under federal case law, these rights are for the welfare and well-being of tribes, and federal caselaw provides that the ceded land must remain productive for the exercise of those rights. So 48,000 of the 64,000 acres of wild rice in Minnesota are within tribal-ceded land, 1,800 just in the Hoyt Lakes area. Destroying damaging, poisoning the plants and other, you know, other important resources in the 1854 Territory is -- you know, this is part of the cumulative effects that aren't entirely addressed by the Impact Statement. Continued genocidal policies and actions towards the indigenous people, towards these lands is unacceptable. So I would ask, in addition to the rare and endangered species, the EIS must analyze fully the impact of the PolyMet proposal on any animal or plant species relevant to any tribal property. Thank you.

Alphabetical by sender's first name

Environmental Law & Policy Center 42967

Ms Fay – attached please find NorthMet SDEIS comments on behalf of the Environmental Law and Policy Center. Please confirm that they have been received ahead of the comment deadline. Thanks, Allen _____ Allen Gleckner Staff Attorney Environmental Law and Policy Center St Paul, Minnesota 651-789-1407 HYPERLINK "http://www.elpc-org/"elpc-org

eric baldus 42219

To Agree with everyone who is concerned, I am writing to express my feelings about what a terrible idea this is to allow copper nickel mining in one of the most pristine locations in Minnesota/the USA. This is an extremely dirty process and a very disruptive method of mining. The tailings that are produced are full of toxic elements. The number of jobs created is negligible, certainly we have high levels of unemployment in the area and I appreciate the desire to create jobs. But to be saddled with the environmental damage barely seems worth it. It is extremely short sighted to think that the jobs created would be worth the risk. In light of the recent spill in Kentucky by Freedom industries, please do not allow this mining operation to happen. Freedom industries declares bankrupcy after the spill and now the state and the federal government are responsible for the clean up. To believe that the state will be able to escrow enough money for 200+ years of water cleanup is ridiculous.And what if there is a release, what happens to the jobs that are created by fishing/recreation in the area. The area is now ruined forever, do not think that it will rebound, once a natural area is damaged it does not return to the pristine condition that it was once in. Look at the push for mountain top mining in the south. The effort to create jobs only creates wealth for a few at the cost of future generations. We expect more from the people who are supposed to protect our environment for future generations. It is not work the risk for a few jobs. Please do not allow this mine to proceed. Thank you and please protect what we are leaving for the generations to come, please do not let this become our legacy. Eric Baldus, CNLP Owner/Designer HYPERLINK "http://www.TerraVistaMN-com"www.TerraVistaMN-com Cellular: 612-227-0107 Office : 612-788-7500 Fax : 612-781-3260 3009 Central Ave NE Minneapolis MN 55418

Eric Bergstrom 39386

DNR: PolyMet would be a huge consumer of electricity, much of it coming from the dirtiest coal power plants in Minnesota. PolyMet’s electricity supplier, Minnesota Power, got 85% of their power from coal in 2013- PolyMet would emit 707,342 metric tons of carbon dioxide into the atmosphere every year. This would contradict Minnesota’s goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota’s greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. Finally, Minnesota law requires that a closed mine site be “maintenance free,” but PolyMet’s mine plan calls for hundreds of years of monitoring and expensive water treatment. Worse, these models don’t even show that the pollution stops after 500 years. They just stopped modeling at 500 years. This is not acceptable and we should be provided with information that is accurate. I ask that the DNR reject the Polymet mine plan by requiring use of clean energy to reduce impacts of pollution and we be provided with accurate information to proposed treatment and 500 years is not acceptable. Thank you- Eric Bergstrom 1362 Sargent Avenue Saint Paul, MN 55105

Eric Erkkila 46278

Please enter these comments into the record for this project. As a native of Northern Minnesota I have lived with and seen the economic booms and busts. A project of this type will stabilize the economy. Adding this operation to the area will provide the following to the economy: - Much needed construction jobs to build the new mine and rehabilitate the existing processing plant. - Increased sales activity for suppliers of construction commodities and services. - Increased sales for mining vendors for supplies during the mine operation. This will provide 2 jobs for every job at the mine. - Provide additional revenue for the state and local economies. - Long term employment for both miners and suppliers. - The national economy needs these raw materials to provide for the necessities and luxuries of life. On the environmental side of the issue: - The re- use of an existing processing facility and tailings basin. - Stringent controls in place for protection of the environment. - Raw materials to feed the "green economy" of windmills and hybrid automobiles. Thank you for your consideration. Eric C. Erkkila 2909 Parkwood Lane Duluth, MN 55811

Alphabetical by sender's first name

eric evenson 48196

10 new people recently signed Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota." on Change-org. There are now 380 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 379- Annika Peterson Northfield, Minnesota 378- Rebecca Salter Edina, Minnesota 377- Isaac Olson Houghton, Michigan 376- hannah kranz eagan, Minnesota 375- Amber Woitalla St Paul, Minnesota 374- Jade Beauclair Minneapolis, Minnesota 373- anna barrett Saint Paul, Minnesota 372- Jasmine Warren , United States 371- John Garrett Pelican Rapids, Minnesota 370- Lucas Green Hager City, Wisconsin http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJmaXZlX2h1bmRyZWQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTI5LCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA2NzkyNjh9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK4woLgH27JrNXMeP1FGLHiuUOZZIkDaIle3kZFVfldxXsZRkY9K67uUVFnMBRrmTk6tdGpEzeEu8HEZfoVn7yo9MtjHir9n81peCOStTOhH1DpvUBy-2FaxVzjWsCAtOo7PV8EZ6veZVjzBHg3bpBN3QVVFzcJE-2BY-2B2uZUCL9-2Fh3FDmDYYYDGaTPozC2-2FDHHde6C0-2FgZNC-2FUsB1PnfN-2BMRcS2N17RHUU8cXAfzvzaNPTu8

Eric G. Galush 21393

To all parties involved, I have worked at Graco Inc for 20 years in Minneapolis, MN. I have been fortunate to have a well-paying and stable management position in a solid company. The same cannot be said for thousands of families in northern MN. I own land up north, so I see just how depressed the situation can be from small town to small town. The Polymet situation is an opportunity to "buck the trend" of losing high paying, stable jobs from the north. Many people, including myself, want to see northern MN thrive again. It pains me to listen to the numerous negative environmentalist views. This would actually help the overall world environment. Instead of importing copper and other precious metals from countries that do not practice safe and clean mining techniques, we would supply our own manufacturing organizations with materials from a miner that will practice safe and clean mining procedures. Polymet is utilizing an old processing plant that was just "rusting away" in the wilderness. I love their plan and am in full support of what they want to achieve. Polymet has been working to get permits for close to a decade now. It should never take that long, in any situation, to get the approval or disapproval to do something. That is just poor business practices being demonstrated by the government. I hope that whoever reads this realizes how much Polymet has invested into the EIS, and they deserve to be the first to mine copper in the state of MN. Thanks for hearing me out. Sincerely, Eric G. Galush 8457 Upland Lane North Maple Grove, MN 55311

Alphabetical by sender's first name

Eric Haefner 7175

Polymet, along with all the government agencies that provided input, have shown in the SDEIS that the proposed mining operations will not negatively impact the State of Minnesota. Mining has been, is currently, and will always be a vital part of the State of Minnesota. Through government regulations we can make mining a safe industry, and this SDEIS is proving that it can happen. I am an avid outdoorsman and have been to Northern Minnesota and the Boundary Waters multiple times, so I understand the concern and the beauty of the area. What this SDEIS proves is that mining and nature can co-exist if done right. Eric Haefner, P.E. 47068 Shanaska Creek Road Kasota, MN 56050 Eric Haefner, P.E. Bolton and Menk, Inc. P: (507) 625-4171 ext. 2655 M: (507) 380-4180 email: HYPERLINK "mailto:ericha@bolton-menk-com"ericha@bolton-menk-com _____ This email has been scanned by the Symantec Email Security.cloud service. For more information please visit http://www.symanteccloud-com

_____

eric hendrickson 39182

I write to urge you to deny the permit for the PolyMet copper-nickel mine proposal. The signs read “We support Mining; Mining supports us.” The second half of the catch phrase certainly applies to me and my family. Dad worked for US Steel and helped develop the taconite industry starting in l951- Mom still gets a pension from his employment. The family lake cabin they were able to build in 1959 is within the drainage area that PolyMet would impact. My sister and I worked in the mines and I worked four summers on the ore boats which put me through college. I was an enthusiastic rider on the Taconite Train to a Vikings game that promoted passage of the taconite amendment in 1964- If mining was so beneficial to us, why then don’t I support Polymet’s application. The answer is that the issue is much more complex than a quid pro quo of “We support Mining”. Comparing ferrous mining with sulfide mining is an apples and oranges proposition. On the Range we played on the ore dumps as kids, housing developments and trees have sprung up on them, ATV parks use them, all with no ill effects. While iron mining has caused some environmental damage, most notably Reserve Mining’s dumping of tailings into Lake Superior, it has been remediable and not long term. The track record of sulfide mining is disturbingly different. I was born in Flin Flon, Manitoba where Dad worked for Hudson Bay Mining and Smelting, a copper nickel operation. Despite a 600 foot smokestack, when the wind blew in a certain direction, Mom would rush out to cover her garden with sheets so they wouldn’t die from the fumes from the smelter. Ross Lake in the center of town quickly became and remains to this day a dead body of water. We are told that new technology will obviate this kind of problem. As I understand the data, this confidence in “new technology” is misplaced. As we perform our due diligence in vetting the assurances of the companies, we will be well served to err on the side of caution. I taught high school social studies for 30 years and think about the historical context of this issue. My students found it hard to believe that 400 years ago wars were fought and empires won and lost over spices. Four hundred years from now, students may well wonder the same thing about oil and minerals. A foreign company whose stock share price hovers around a dollar is a fool’s bet for long term accountability. It is not the company but citizens who will be dealing with PolyMet’s toxic legacy. We need look no further than the American West to see what a precious resource our water is. We need to take the long view; be statesmen, not politicians. Chief Seattle said “We do not inherit the earth from our ancestors; we borrow it from our children”. Let’s not be the man in the Bible who sells his birthright for a bowl of pottage. Three hundred fifty jobs for 20 years is not worth the risk. Eric R. Hendrickson 1813 Juliet Avenue St Paul, MN 55105

Eric J Simso 58151

Has there been a jobs trade-off analysis, mining/construction vs recreation/construction. As a Minneapolis resident and lake County taxpayer and summer resident, the relative jobs and revenue contribution of no-residents doesn’t seem to be accounted for.

Alphabetical by sender's first name

Eric Kemp 44836

To: Ms Lisa Fay, EIS Project Manager, MDNR Division of Ecological and Water Resources From: Eric Kemp, concerned citizen Dear Ms Fay- I am writing to you out of concern that the Environmental Impact Study pertaining to the proposed PolyMet Mine is lacking, insufficient or possibly misleading. I don't believe it deals with ground water contamination to the extend that is necessary to protect this precious resource. Of the many instances where this mine, if it were allowed to go forward, will pose a threat to the environment and the waters of Northern Minnesota, there is no threat so great as that effecting ground water. Ground water may be our most precious resource. In materials produced by PolyMet, they state that they can capture and prevent 90% of surface water from seeping into the ground. This statement should read that they think they can capture up to 90% of surface water because this mine proposal is really a scientific experiment. In any scientific experiment there is an inherent margin of error. Undoubtedly PolyMet and there Lawyers have an interest in releasing the most positive data regarding there plans to the public. Even if the mine were able to capture 90% of it's waste water from entering the ground water supply, the remaining 10% entering ground water represents hundreds of millions of gallons of contaminated water entering the aquifer. I hope the MDNR sees this as the problem that it is. We have seen in this country and even in this State contamination of our surface water. In the cases of the Great Lakes, the Mississippi River and the Cuyahoga River, just as examples, legislation and time have helped to make these water bodies more healthy. We have NEVER witnessed the same regarding contamination of ground water aquifers. Once an aquifer is contaminated it will remain so, so far as our science has shown us to date. As bad as it would be for the proposed mine to contaminate surface and run-off waters surrounding the PolyMet mine site, it would truly be a tragedy to let hundreds of millions of gallons of water with toxic fibers and heavy metals contaminate our most precious resource, our ground water. Thank you. Sincerely, Eric Kemp Duluth

Eric Larson 9900

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: It is critical that you responsibly reject the inaccurate PolyMet NorthMet SDEIS and acknowledge that PolyMet's open-pit sulfide mine plan would have enduring negative environmental impacts on surface and ground water quality past the lives of your great great great grandchildren. I’m also sending a copy of my letter to the US Environmental Protection Agency. In absolute fact, the PolyMet SDEIS and the PolyMet sulfide mine plan still represent unacceptable risk to the incredible current and future asset of clean water that the world will value incredibly highly until well past the lives of your great great great grandchildren. To take any risk with this, much less a high risk, demands your action to reject it. Recent news of internal DNR documents showing that the groundwater base flow at the mine site was seriously underestimated confirms my assessment. Neither the SDEIS nor the sulfide mine project are based on acceptable use of known science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be rejected and be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won’t allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. You must act to protect the environment from the money and political pressure that should not influence a thorough scientific assessment and conclusion. Your actions will have more long term impact that virtually any decision facing the state. Sincerely yours, Eric Larson Resident on Burntside Lake in Ely Eric Larson 2835 Schaeffer Road Ely, MN 55731

Alphabetical by sender's first name

Eric Larson 18664

Dear Ms Fay, Mr Bruner and Mr Dabney: It is critical that you responsibly reject the inaccurate PolyMet NorthMet SDEIS and acknowledge that PolyMet's open-pit sulfide mine plan would have enduring negative environmental impacts on surface and ground water quality past the lives of your great great great grandchildren. I'm also sending a copy of my letter to the US Environmental Protection Agency. In absolute fact, the PolyMet SDEIS and the PolyMet sulfide mine plan still represent unacceptable risk to the incredible current and future asset of clean water that the world will value incredibly highly until well past the lives of your great great great grandchildren. To take any risk with this, much less a high risk, demands your action to reject it. Recent news of internal DNR documents showing that the groundwater base flow at the mine site was seriously underestimated confirms my assessment. Neither the SDEIS nor the sulfide mine project are based on acceptable use of known science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be rejected and be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. You must act to protect the environment from the money and political pressure that should not influence a thorough scientific assessment and conclusion. Your actions will have more long term impact that virtually any decision facing the state. Sincerely yours, Eric Larson Resident on Burntside Lake in Ely Eric Larson 2835 Schaeffer Road Ely, MN 55731

50740

Dear Ms Fay, Mr Bruner and Mr Dabney: It is critical that you responsibly reject the inaccurate PolyMet NorthMet SDEIS and acknowledge that PolyMet's open-pit sulfide mine plan would have enduring negative environmental impacts on surface and ground water quality past the lives of your great great great grandchildren. I'm also sending a copy of my letter to the US Environmental Protection Agency. In absolute fact, the PolyMet SDEIS and the PolyMet sulfide mine plan still represent unacceptable risk to the incredible current and future asset of clean water that the world will value incredibly highly until well past the lives of your great great great grandchildren. To take any risk with this, much less a high risk, demands your action to reject it. Recent news of internal DNR documents showing that the groundwater base flow at the mine site was seriously underestimated confirms my assessment. Neither the SDEIS nor the sulfide mine project are based on acceptable use of known science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be rejected and be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. You must act to protect the environment from the money and political pressure that should not influence a thorough scientific assessment and conclusion. Your actions will have more long term impact that virtually any decision facing the state. Sincerely yours, Eric Larson Resident on Burntside Lake in Ely Eric Larson 2835 Schaeffer Road Ely, MN 55731

Eric Marleau 20048

Good afternoon, I just wanted to make a few comments on the proposed copper nickel mining around the BWCA. Number one, I am for starting mining operations in this area. In the late '60s and early '70s I worked for Longyear Drilling Company on the Core Drilling rigs in the areas that the Mining Companies are now planning on working. I also retired as a Heavy Equipment and Shovel Operator for the US Steel Mintac Mine, and know how mining is done. Regulated correctly, there is no reason not to mine this resource. This issue has been gone through over and over again sense I worked on the Core Drilling Rigs long ago. All results have been the same, that done correctly, the environmental impact is negligible. I grew up in Ely, and have had a life long love of the woods. If in anyway I thought that this mining would hurt the woods that I have used my entire life, I would be against it. However, with the first hand knowledge that I have on this issue, I believe the Copper Nickel Mining is long overdue. Regards, Eric Marleau

Alphabetical by sender's first name

Eric Morrison 4211

Dec 22, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The SDEIS for the Polymet project on the Babbitt site is incomplete and omits important information. There is insufficient consideration of watershed information. The proposed mine site is uphill from a body of water (One Hundred Mile Swamp) that straddles the Laurentian divide and feeds both the St Louis River and Rainy Lake (via the Dunka River) watersheds. Mention of both the One Hundred Mile Swamp and the Dunka River as it relates to hydrology of the mine site is completely absent from the SDEIS and may be intended to obscure the impact of the proposed mining on the BWCAW wilderness area. The waste water treatment discussion is inadequate. Reverse osmosis its likely to be completely impractical because of short membrane lifetimes and other maintenance issues and the non mechanical treatment methods proposed for the 200 to 500 year treatment are not only unproven, they do not exist today. There are other omissions and questionable conclusions in the SDEIS and it is unreasonable to allow the project to move forward before the SDEIS is corrected. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Eric Morrison 1202 Cherokee Ave West Saint Paul, MN 55118-2004 (651) 334-8399

18177

I'm speaking on behalf Jim Rock who concedes his time to Eric Morrison who speaks for a lot of us who are not getting paid to be here. Good evening. My name is Eric Morrison. And I have Ph.D. in chemistry from Penn State. I would like to address the Clean Water Act Section 404, which allows the US Army Corps of Engineers to authorize discharge into and destruction of wetland by allowing land exchange. The wetland that PolyMet is seeking a permanent discharge into is called the 100-mile Swamp. Shortly before its release the following land was added to the wetland section of the Environmental Impact Statement. And I quote, "However, no delineated boundary exists for the 100-mile Swamp," end quote. This statement is in fact completely incorrect. Delineated boundaries for the 100-mile Swamp do exist and they are available at the US Government National Atlas at www.NationalAtlas.gov/streamer. The US Government National Atlas shows that the 100-mile Swamp is drained by Langley Creek, which is a tributary to the Dunka River, which is in turn a tributary to the Kwishiwi River which runs straight to the Boundary Waters. It is an inconvenient fact that the authors of the Environmental Impact Statement simply do not want recognized that mining waste will flow to the Boundary Waters by way of the 100-mile Swamp and the Dunka River. Worse than just having the statement about the delineation of the 100-mile Swamp, they redo the maps of the 100-mile Swamp solely as to omit the part of the swamp that drains to the Dunka River. (Inaudible) this appears on page 472 of the SDEIS and at least five other maps. On the basis of the redrawn map attention has been diverted from the Boundary Waters. No baseline water testing was done in Langley Creek or in the Dunka River or any other part of the Boundary Waters Watershed. And nor would any testing be done if mining were allowed. This leaves the Dunka River and the BWCA completely and utterly unprotected. The Boundary Waters are a national treasure. And what I request is a federal-level environmental impact evaluation. I'm concerned that local and even state officials would (inaudible) of the BWCA for the proverbial nickel on the promise of a kickback or trickle-back penny. This is shortsighted and it violates the public trust of American citizens and future generations. At a minimum I'm requesting Governor Dayton compel a bonded public review period of 180 days for this SDEIS; and compel a subsequent SDEIS, which has the correct geographical features in it and requires water testing for the Dunka River and the Boundary Waters.

Alphabetical by sender's first name

Eric Morrison 44576

Eric Morrison 1202 Cherokee Ave West Saint Paul, MN 55118 Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay The PolyMet Supplemental Draft Environmental Impact Statement requires information on financial assurance. Less than three pages devoted to finances required for centuries of treatment projects to protect the environment is absuRd The amount and type of financial instruments which are required for mine and plant site closure and ongoing water treatment are as essential to the environmental impact statement as technical details and need to be subject to public review. For the Minnesota Department of Natural Resources to negotiate financial assurance with PolyMet without public or legislative oversight is a severe violation of the public truSt PolyMet exists only for the exploitation of minerals in the NorthMet site and it is a serious concern that PolyMet lacks the assets required to provide a level of financial assurance commensurate with the scope of the proposed project. Glencore, which owns 40% of PolyMet , has the financial resources but Glencore's involvement is cause for alarm. Glencore is a ruthless trading company founded by FBI Ten Most Wanted fugitive Marc Rich, is currently lead by Rich protégé Ivan Glasenburg and ousted British Petroleum CEO Tony Hayward, and has a very poor track record of environmental, ethical, human rights, and labor violations which includes bribery. It is completely unethical to negotiate with PolyMet as a substantially owned subsidiary of Glencore behind closed doors. The need to carefully manage financial assurance for mining is greatly exacerbated for the NorthMet project by PolyMet's finances, ownership, and the extreme risk to the environment from sulfide ore mining. An addendum to the NorthMet Mining Project and Land Exchange Supplemental Draft Environmental Impact Statement is required that includes substantial details of the reclamation bond including the dollar amount, the nature of the trust, and the financial instruments for funding it.
Sincerely, Eric Morrison

Alphabetical by sender's first name

Eric Morrison 46074

Eric Morrison 1202 Cherokee Ave West St Paul, MN 55118 Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay The safety of the Boundary Waters Canoe Area from mine drainage that will be created by PolyMet's proposed NorthMet mine has not been established. The NorthMet Mining Project Supplemental Draft Environmental Impact Statement of November 2013 makes no adequate statement about whether water discharged from the mine site can possibly enter the Boundary Waters Canoe Area Wilderness and provides no satisfactory evidence relevant to this critical issue. Without a definitive statement and data about mine waste and the BWCA, the NorthMet Project SDEIS is inadequate. Determining the relationship of the proposed NorthMet mine and the BWCA requires information about the extent to which the mine site is geologically and hydrologically connected to the Rainy Lake watershed. The proposed mine site is just south of and uphill from a wetland area named the One Hundred Mile Swamp which drains to both the Saint Louis River watershed and the Rainy Lake (BWCA) watershed. Because the mine site drains to the One Hundred Mile Swamp and the One Hundred Mile Swamp is geographically connected to the BWCA, the mine cannot possibly be isolated geographically from the BWCA. Hydrologically, the SDEIS includes no hydraulic conductivity testing for the One Hundred Mile Swamp which would indicate the extent to which the mine is hydrologically isolated from the BWCA. In US Government maps, the One Hundred Mile Swamp is a 10-4 mile long depression straddling the Laurentian Divide that drains to both the Partridge River which is a tributary to the St Louis River and Langley Creek which is a tributary to the Rainy Lake (BWCA) watershed [1]. Groundwater contours for the swamp are easterly descending towards Langley Creek [2] which promotes movement of mine waste to the BWCA watershed while the closer proximity of the mine to the Partridge River drainage site would minimize flow to the BWCA. The balance of the competing effects has not been measured and the division of waste water between the two watersheds is unknown. Estimating the proportion of mine waste that flows to the two watersheds requires lateral hydraulic conductivity testing in the One Hundred Mile Swamp. Over the time scale that mine site drainage will leach pollutants and furthermore considering likely excursions in weather and water levels, flow to the BWCA is almost certainly not zero. Not only does the environmental impact study fail to properly consider hydrology around the mine site, it includes incorrect information. A misleading statement was inserted into the Wetlands Section (4-3-3) of the SDEIS late in the drafting process [3] regarding the unavailability of geographical information for the One Hundred Mile Swamp. The statement "however, no delineated boundary exists for the One Hundred Mile Swamp" on page 4-429 is false. Delineated boundaries for the One Hundred Mile Swamp do exist and are available at HYPERLINK "http://www.nationalatlas-gov/streamer"www.nationalatlas-gov/streamer [2]. Accompanying the misleading statement in Wetlands Section of the SDEIS are maps that represent the One Hundred Mile Swamp in a way that is contradictory to the US National Atlas. The portion of the One Hundred Mile Swamp that drains to the BWCA watershed is missing in SDEIS maps. Contradictory maps in the SDEIS support the implication that seepage of mine waste water to the BWCA watershed will not occur. In SDEIS maps, the One Hundred Mile Swamp is depicted as a 5-5 mile long body of water that exists only on the St Louis River watershed side of the Laurentian divide as compared to the 10-4 mile long wetland in the National Atlas that exists as a depression straddling the divide and drains to both the St Louis River and Rainy Lake Watersheds.

51620

Dec 22, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The SDEIS for the Polymet project on the Babbitt site is incomplete and omits important information. There is insufficient consideration of watershed information. The proposed mine site is uphill from a body of water (One Hundred Mile Swamp) that straddles the Laurentian divide and feeds both the St Louis River and Rainy Lake (via the Dunka River) watersheds. Mention of both the One Hundred Mile Swamp and the Dunka River as it relates to hydrology of the mine site is completely absent from the SDEIS and may be intended to obscure the impact of the proposed mining on the BWCAW wilderness area. The waste water treatment discussion is inadequate. Reverse osmosis its likely to be completely impractical because of short membrane lifetimes and other maintenance issues and the non mechanical treatment methods proposed for the 200 to 500 year treatment are not only unproven, they do not exist today. There are other omissions and questionable conclusions in the SDEIS and it is unreasonable to allow the project to move forward before the SDEIS is corrected. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Eric Morrison 1202 Cherokee Ave West Saint Paul, MN 55118-2004 (651) 334-8399

Alphabetical by sender's first name

Eric Norberg 54778

See attachment

Eric Norgaarden 39892

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Eric Norgaarden 634 Randy Ave Shoreview, MN 55126-7013 (651) 482-9987

Eric Olson 18256

My name is Eric Olson from Minneapolis, Minnesota. My comment is on the SDEIS in regards to indirect emissions from land use, from Section 5-404, or 5/404 and 5/406. In that section they list off indirect emissions, air emissions, and the results from the project, indirect emissions from the project, in which they list off terrestrial carbon loss, which would be considered carbon loss from trees and different living things on the land, which would be turned into mine; however, they do not include carbon sequestration loss or rates of carbon emissions that would occur from changing the land use from the peat -- what do you call it? Peat swamp to the mining area. The agencies should look into emission factors for calculating out the amount of carbon dioxide or carbon dioxide equivalent losses during the transition of this land use to the mining land use. And in doing that, using some – given emission factors of 750 pounds of carbon dioxide, 750 tons of carbon dioxide sequestered per acre, that is a significant source of emissions that could be emitted into the atmosphere. That's it. Thank you.

Eric Paul Jacobsen 41971

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Eric Paul Jacobsen 247 Winona St W West Saint Paul, MN 55118-5707 (651) 228-1282

Eric Ruhland 42110

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. As a medical and environmental professional I am embarrassed that the State would allow this company to jeopardize our water supply, our most precious natural resource. This mistake we will look upon in the coming decades as a short sided decision that put our children,environment, and economy in a worse place. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Dr Eric Ruhland 635 Summit Ave # 1 Saint Paul, MN 55105-3434 (651) 238-6815

Alphabetical by sender's first name

Eric Snyder 17123

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Eric Snyder 215 Oak Grove St, #1802 Minneapolis, MN 55403

Alphabetical by sender's first name

Eric Snyder 51036

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Eric Snyder 215 Oak Grove St, #1802 Minneapolis, MN 55403

Eric Viken 44982

Dear MN DNR Representative: I am writing to let you know that I'm deeply concerned about the possibility of a copper-nickel mine being opened in Minnesota and then causing irreparable harm and cost to generations of Minnesotans to come and our precious natural environment. The mining should only be allowed if it can be shown that the water and air quality off the land used to mine is not impacted long after the corporation that mined the land ceases to exiSt A method for mining must be first found to prevent the dangerous contaminants from leaking out and dispersing off of the mine site and not to rely on continuous filtering and maintenance of water flowing off site. We are essentially taking a piece of land and converting it to a contaminated waste dump that won't be useable for other purposes for many generations as well as hurt the surrounding lands downstream and downwind if the pollution can't be contained long term. The mining should only be allowed if an endowment fund of enough funds is able to be setup before mining commences to ensure that the site cleaning and containment system can be maintained for perpetuity until the site is longer a source of pollution (ie, 500+ years). The lost tax revenue and utility of the land after the mine ceases to operate needs to be considered because it will become a liability once the mine is used up and is no longer useable and long term will be a drag on the local economies. I think the external costs that will be born by future generations will far outweigh the short term benefits in jobs that are made during the life of the mine. There are plenty of similar mines that have been environmental problems and none that have been shown to be good examples of environmental stewardship. Minnesota's water rich environment will be even more challenging to maintain the mine long after it has closed than other states with less challenging conditions that have failed. If this mine were to move forward, which I think is a very bad idea, we need to make sure we are covered for the long term costs of maintaining the pollution control systems, lost value of the mine land and neighboring lands, and long term costs to the local economies which need to more than offset the short term benefits the mine will be bring to the local economy. Regards, Eric S. Viken HYPERLINK "mailto:eric.viken@gmail-com"eric.viken@gmail-com iPhone: (218) 727-9061 Workdays: (218) 727-3115x5012 or Page at x0 459 Kenilworth Avenue in Beautiful Duluth, MN 55803

Alphabetical by sender's first name

Eric Willms 7061

In light of today's exposure of the DNR's ignorance of accurate water flow analysis, I have difficulty trusting the other data compiled in the SDEIS. The DNR should go back to the drawing board to analyze water flow in a model that includes predictions for climate change as well. Another major concern I have is the lack of consideration for the type of construction materials to be used for piping sulfate-containing water 7 miles between mine and plant. Nobody from the DNR at the recent Aurora public informational session could tell me anything about pipe construction. What happens when the temperature drops to -50 F. Finally, how can anyone predict the financial responsibility required to continue monitoring and treating pollution for 200 and 500 years. Mining corporations will not likely exist that long, banks holding reserve trusts to fund it may go belly-up, and taxpayers may not care. I thought that when I moved to Minnesota, the DNR would be more conscientious and comprehensive in protecting our environment than Missouri, where I am from. It appears that you are more interested in corporate profit that environmental protection. I fear that NorthMet pollution will be in news headlines in the future, following in line with West Virginia, North Dakota, and Gulf of Mexico disasters. Eric Willms 1901 Southern Drive Virginia, MN 55792

Erica Ann Allen 57146

The benefit to the Polymet Company does not outweigh the damage the company’s practices cause to the public.Erica Ann Allen421 W 3rd St, Apt 307Duluth, MN 55806

Erica Johnson 10136

Good evening and thank you for taking my comments on the PolyMet Mining, Inc. proposal and environmental impact report. I am opposed to the PolyMet Mining, Inc. project and feel that it is a bad investment for Minnesota and urge the DNR to forgo the permitting process. Minnesota is unique among ecosystems, not only within Minnesota but within the globe for its maintenance of close-to-pristine wilderness and raw natural resources. Unique due to the sensitive balance of our bogs, forests, Great Lake, international watershed, and the hundreds of thousands of living species that depend on those interconnected systems to survive. PolyMet Mining, Inc. claims that their production facility will be safe, but there is NO GUARENTEE of that truth. To allow them to mine in Minnesota is playing Russian Roulette with a loaded pistol. Allowing them to mine puts the taxpayer a risk for millions, if not billions, of dollars in cleanup funds for decade after decade. We see Federal Superfund sites that STILL are not clean all across the State. The PolyMet mine would become the largest superfund site in the Nation with no clear understanding of how their mine would impact our delicate watersheds and ecosysteMs Allowing the mine to move forward would be irresponsible, selfish and a risky gamble for the DNR. Is the DNR that desperate for cash that it would sell the very soul of Minnesota for a few years of cash flow. Is the risk of poisoning our very water worth it. With climate change in play; more severe weather pattern swings (droughts, extreme heat, fires, extreme cold, etc) now is not the time to allow a risky venture further to anchor itself in the State on a set of loosely conceived ‘what-if’s’. Yes, what IF we have sustained water replenishment to flush out the mining chemicals from the watershed. What if we enter several years of drought. What then. What if the weather causes something to happen at the mine which will cause the leaching of chemicals into the very aquifer. How will that watershed be cleaned 100% back to its former safe standards. Mining is by its nature an intrusive, messy business. Of course our environment will be altered by its presence. That is the nature of mining. That fact alone should be enough for the DNR to say NO to such a project: A Disaster Waiting to Happen. Just say No to the PolyMet Mine. Thank you, Erica Johnson 1332 N. 4th Street Mankato, MN 56001 (507)-720-7768 Sent from Windows Mail

Alphabetical by sender's first name

Erica Sniegowski 16261

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Erica TenBroek 4157

Thank you for your time and for the opportunity to provide input on the PolyMet SDEIS plan. For all the reasons stated by those who oppose the Copper and Nickel mine in St Louis County, we should say a resounding "no" to this plan. Not only is 200-500 years of environmental distress enough to make a decision, but the fact that we will put increasing stress on an already shrinking area of natural habitat. It is certainly true that we all use products that require minerals obtained from mining. Nevertheless, the location of this mine and the potentially large environmental impact should make this an obvious choice. It is sad that the population has grown to levels where we are losing so much of the undeveloped land (all over the world) that actually protects our health in so many ways. As the world continues to grow, and demand for materials grows, we will continue to push the natural world into smaller and smaller spaces. In the end this will undoubtedly harm our way of life. In my opinion, it has already started to do just that. We need a complex and widespread web of life to keep the world healthy and bountiful. Better to draw some hard lines now and work on developing alternatives while we are still able to protect the small number of remaining spaces. Please consider that Minnesota's prime jewels are within the natural world. We are so lucky. There aren't many states that have such beautiful and bio-diverse areas that have remained "healthy". I have watched through the years as the once awe-strikingly beautiful and biologically healthy Canada (eg, British Columbia) has allowed the mining industry to flourish. Areas under pressure from mining that were once so astounding in natural beauty now look much different. Dirtier on the surface, and probably much worse if one were to look deeper. You have the power to prevent this from happening here in Minnesota. I know that this is a complex issue. But there comes a time to just say no. We can look harder for alternatives, and I think if we put our minds to it, we'll find better answers. Warm regards, Erica TenBroek Minnesota resident "Our intelligence, however prodigious we like to think it, is trivial compared to the accumulated wisdom of the hundred million species that make up Earth's biosphere. Since each microbe, animal, and plant possesses some minute portion of the know-how that makes the whole earth work, the loss of any species erases some portion of organic intelligence, and leaves the land more stupid." -Sara Stein

Alphabetical by sender's first name

Erica TenBroek 12062

To: Lisa Fay, EIS Project Manager, Minnesota Department of Natural Resources From: MN resident -Biologist with 11 years corporate research experience Topic: Comments PolyMet Open Pit Copper Mine Proposal EIS 1) Minnesota Environmental Loss The estimated loss and predicted damage to native ecosystems will be huge in the area planned for the mine and mining operations as well as the predicted serious indirect effects to the watershed. As stated by several environmental groups and law firms, PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. This alone should raise red flags. PolyMet, if allowed, will dig up nearly 1,000 acres of high value peat bogs, and damage a large part of the 100 Mile Swamp, a critical habitat for many plants and animals. This wetland has been designated an Area of High Biodiversity Significance in the Minnesota Biological Survey. Although said to be less, over 6,000 acres of wetlands could be damaged or destroyed by PolyMet changing the flow of some of these waters. Wetlands will dry up, animals and plants will die. The damage is almost always more than we can predict, ad the suffering to individual animals has been glossed over or completely ignored. So much is unseen and subtle that we cannot calculate the true cost until the damage is done. We can't get back the organisms from these key habitats once they become extinct. It goes without saying that such areas of high biodiversity are the most critical to preserve as the world continues to develop. In my opinion, it's time that we stand firmly behind what we say is important. As a poor analogy, the car won't run at all once even half the spark plugs are gone. 2) Copper and Nickel and Modern Living It has been argued that Copper and Nickel are particularly fundamental to modern living. These are materials used in power lines, stainless steel, rechargeable batteries, etc It has been said that these minerals are necessary for many green technologies. And this is true - but I also think naïve. It is my understanding that copper and/or nickel are NOT the limiting materials in many critical electronics that have been thrown around as examples. People may be unaware that the same "green" products are dependent upon more limited supplies of scarce rare earth metals. These rare earth metals are mined in other parts of the world (eg China) and we will run out of these long before copper and nickel supplies are gone. An MIT site on strategic use of resources quotes that an average wind turbine can use up to 500 kg of neodymium and dysprosium per kilowatt generated (Department of Energy, 2011). Rare earth metal needs are similarly associated with green energy for cars. Certainly green energy and other forms of energy rely on conducting materials, but it is oxymoronic if a "green" technology ultimately creates more ecological damage and/or pollution than it prevents. Something seems wrong with our cost/benefit analysis. Do we really need more copper or will providing more copper merely increase use. If the international demand for copper is high as a result of population growth worldwide, is it our duty to make sure that supply is met. At what coSt How much of the copper/nickel market is one that is created by availability. How much of this is out of true need. I can tell you this – I wouldn't have bought stainless steel appliances if I knew the environmental coSt There is no debate that copper is currently used in many products, but does it need to be. 3) Other environmental costs omitted from consideration As pointed out by the MN Center for Environmental Advocacy, "PolyMet would emit 707,342 metric tons of carbon dioxide into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- Minnesota is uniquely vulnerable to clima

54651

See attachment

Alphabetical by sender's first name

Erich Wunderlich 16150

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

ericksongary 44906

I hope this project does not proceed. The risk of permanent damage to the environment is not worth the price of shipping Minnesota copper to China. The resulting jobs are a blink of an eye compared to centuries of poisoned waters. How many businesses last 500 years. When Hennepin Paper went broke the taxpayers paid for the cleanup in Little Falls and the odds on 500 years of follow up is unrealistic. Please don't allow this debacle to proceed. Sincerely, Gary Erickson 1132 Lindbergh Drive South Little Falls, Mn 56345

Alphabetical by sender's first name

Erik 40074

To: Minnesota DNR As a Minnesotan, I am deeply concerned about this project and it's potential to damage what I love about this state - it's lakes, waterways, and the aquatic life in seemingly pristine wilderness areas like the BWCA. I am unwilling to risk the health of those areas on the basis of reports that assume flawless operation of an industry that cannot demonstrate such perfection at any other location and where the only stated benefit is 350 jobs. Clearly, the profits from this mine will be enormous, if the Canadian company asking to mine in our state has expressed willingness to pay cleanup costs for centuries. Clearly, the risks of this project are real and significant given the public debate. Minnesota is known as the land of 10,000 lakes - how many should we be willing to sacrifice for 350 jobs. What recourse do we have if it becomes evident that the operation of the mine is not in accordance with predictions associated with minimal environmental impact. It seems that there would be far less risky ways for the state to encourage just about any other industry to create 350 jobs, if that is the main benefit cited for the state. I find it hard to believe that a mining company would not behave as any other company and try to find ways to maximize its profit and minimize its costs. What guarantee do we have that this company or its investors will honor any promise to pay for future cleanup. If the assumption is that little cleanup will be needed, how is the amount of money set aside by the company determined. What happens if the amount of pollution is demonstrated to be greater than predicted - will additional money be required from the company in the present to pay for the greater than predicted cleanup. Will it be written into the permit that projected levels of pollution must be realized or the permit will be revoked. How will the levels of pollution be monitored, both on site to assure that contaminants are not escaping and elsewhere to be ensure that nearby water and aquatic life is not affected. Will the company pay for all monitoring and testing performed by state and national environmental agencies. PolyMet owns the mineral rights, but I have read that the US Forest service considers surface mining to be illegal in this area. I do not agree that swapping land is a reasonable solution to this issue. I have read that other copper mines are more safely operated as underground mines. Why isn't underground mining part of the proposal. Isn't open pit mining inherently more risky to the environment. I have read that it is a given that the company will need to treat water at the site by reverse osmosis. I have also read that it is considered difficult to assume that all water used on site will make it to and through the treatment facility, due to cracks in bedrock, etc If it is admitted that the process creates water that should not be reintroduced into the environment "as-is", how will the DNR monitor and assure state residents that absolutely no untreated water is escaping into the environment without treatment. If untreated water is found to be entering the environment, will the permit be revoked and mining operations ceased. Nothing about this project sits well with me, and I strongly request that the DNR deny PolyMet a permit to mine in the state. It is impossible to believe that the mining industry will provide it's first case of leaving a site without long term environmental devastation for which the public will eventually have to foot the bill. There are many other projects that could provide 350 jobs, and I don't feel that the DNR should even evaluate this project on the basis of the jobs it may create. The project should only be evaluated on the basis of its potential damage to our state and the costs of that damage. Please do not issue a permit for this mine as proposed. Thank you, Erik Helgen, AIA 760 Nebraska Ave W. St Paul, MN 55117

Erik and Larissa Mottl 44189

Please choose the "No Action Alternative." Finding out that Polymet doesn't actually own the land it would like to mine and that public lands would be sacrificed for this proposal is disturbing. Mining and gas extraction have a long history of environmental disturbance beyond what they or other experts initially expected. We cannot out engineer mother nature and we cannot control the weather. If there are no plans for Polymet to treat the contaminated water there should be NO mine at this time. Recently we have seen what happens with lax government inspection and decisions made by companies to save money- rivers contaminated and towns without drinkable water. This mine would provide short term employment opportunities for a few residents. It is simply not worth the risk to ruin another park of Minnesota's natural heritage for short term extraction and financial gains to an industrial intereSt Please choose the "No Action Alternative." Sincerely, Erik C. Mottl 23113 Hilo Ave N Forest Lake, MN 55025

Erik Erie 42525

See attachment

Erik F Storlie 54702

See attachment

Alphabetical by sender's first name

Erik Fors 4638

My name is Erik Fors from North Oaks mn. Let's give our workers a chance to be great. We need to keep people in our state. Give workers a chance. Please approve the mines in Northern Minnesota Kindest Regards Erik Fors Sent from my iPad

Erik Hinderlie 28150

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. I have a cabin downstream from the proposed mining site, and am terrified at the havoc it would do to the marvelous jewel that is the Boundary Waters Canoe Area Wilderness, and what it could do to Lake Superior if leaks and drainage got out of control. I also do not trust Polymet's parent company, Glencore, with its abhorrent human rights and environmental violations abroad. I am sure as decision makers you have seen Glencore's terrible history, though handsome profits because environmental destruction, topsoil depletion and freshwater contamination is never calculated in GDP or economic indexes. But you will feel its terrible power if sulfide mining contaminates the North Woods, in polluted lakes, rivers and streams, massive deforestation and habitat fragmenting, reduced employment in tourism, outfitting, recreational hunting and angling and second home properties-it will be chaos for short-term economic goodness for one company, not the area. Please consider where you live, what a beautiful, bountiful and life-giving wilderness. The ample opportunities for outdoor enjoyment, provided by the North Woods-the peace, tranquility, pollution free environs. Think about our children, what world they would inherit with a massive open pit mine, with pollution controls that MUST LAST for at least 500 years after Polymet extracts everything-indeed, long past the likely life of that company. The EIS had to be re-jiggered already because Glencore is known for shortcuts and silencing critics and a key error was found in how it pollutes. Let us not give away one of Minnesota's most critical assets-a billion dollar tourism, recreational and private property industry to one quick burst of mining metals. There are many other appropriate places to do sulfide mining. The North Woods wilderness, Great Lakes basin is definitely not one of them. Thank you, Erik Hinderlie Sincerely, Erik Hinderlie 7 Commonwealth Ave Fl 2 Gloucester, MA 01930-3441 (763) 222-6668

Erik Olson 42555

See attachment

Alphabetical by sender's first name

Erik Packard 16292

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

erik pederson 41904

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, erik pederson Glenwood, MN, Minnesota

Alphabetical by sender's first name

Erik R 58139

After reading the Polymet SDEIS there are many crucial unanswered questions. One of which are the details surrounding the “West Equalization Basin”. It is clear from the report that this basin will receive the “reject concentrate” from the plant that takes pollution from the tailings. What isn’t clear in the SDEIS is exactly how polluted this basin will be. The only document that offers any indication as to these figures is the 2012 Mine Site Waste Water Treatment Facility Design Plan and this plan is neither listed nor referenced in the SDEIS> In that plan it says this basin could have 8,700 milligrams per liter of sulfate and nickel concentrations that are 10,999 times what the Minnesota water quality standards would allow.Not only does the SDEIS fail to describe the predicted levels of pollution in this basin, it offers little in the way of contingency plans for what would happen in the results of a catastrophic weather event. The extent of their existing contingency plan is that any overflow from this basin would simply flow into the mine pits, which are in no way designed to deal with the high levels of concentrated pollution present in the basin.In the end it comes down to this, the project as laid out in the SDEIS poses far too many risks and brings little in the way of benefits to the state and to the regions. We have seen over and over how these projects can go bad and then we the tax payers will be left to clean up the mess. If we are to learn anything form recent history, it is that these corporations are ethically corrupt and not bound by the legal framework as individuals. They purposefully structure themselves legally so as to minimize or outright avoid any liability in the event that anything goes wrong. There is no reason to believe that Polymet or its investors would be any different. Therefore, there are no conditions or restrictions you could put on this project that these companies couldn’t find a way to weasel out of and that is why I ask you to reject this SDEIS. Thank you. I yield the rest of my time.

Erik Riesenberg 18229

My name is Erik Riesenberg, E-R-I-K, R-I-E-S-E-N-B-E-R-G. After reading the PolyMet SDEIS, there are many crucial unanswered questions, one of which are the details surrounding the West Equalization Basin. It is clear from the report that this basin will receive the reject concentrate from the plant that takes pollution from the tailings. What isn’t clear in the SDEIS is exactly how polluted this basin will be. The only document that offers any indication as to these figures is the 2012 Mine Site Wastewater Treatment Design Plan, and this plan is neither listed nor referenced in the SDEIS. In that plan, it says that the basin could have 8,700 milligrams per liter of sulfate and nickel concentrations that are 10,000 times what the Minnesota Water Quality Standards would allow. Not only does the SDEIS fail to describe the predicted levels of pollution in this basin, it offers little in the way of contingency plans for what would happen in the results of a catastrophic weather event. The extent of their existing contingency plan is that any overflow from this basin would simply flow into the mine pits which are in no way designed to deal with the high levels of concentrated pollution present in the basin. In the end, it comes down to this. The project as laid out in the SDEIS poses far too many risks and brings little in the way of benefits to the state and to the region. We have seen over and over how these projects can go bad and then we the taxpayers are left to clean up the mess. If we are to learn anything from recent history, it is that these corporations are corrupt and not bound by the legal framework that individuals are bound by. They purposefully structure themselves legally so as to minimize or outright avoid any liability in the event that anything goes wrong. There is no reason to believe that PolyMet or its investors would be any different. Therefore, there are no conditions or restrictions you could place on this project that these companies couldn’t find a way out of, and that is why I ask you to reject the SDEIS. Thank you.

Erik Roth 43482

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Erik Roth 225 W. 15th St #412 Minneapolis, MN 55403

Erik Simonson 42678

See attachment

Alphabetical by sender's first name

Erik Simonson 43130

Thank you for the opportunity to comment on the Northmet Supplemental Draft Environmental Impact Statement. My legislative district is bordered by Lake Superior, the St Louis River Estuary, and the St Louis River. Naturally my constituents are concerned with the water quality of the river. I have reviewed the summary document and understand the proposed mercury discharge is to be within current state law, at least with respect to net effect. My particular concern is with the future quality of the river and the estuary with respect to excessive mercury content. Currently, there remains a fish consumption advisory in effect for game fish taken from the river and estuary. MPCA is in the midst of a multi-year effort to determine, through science, why these mercury levels remain unusually high, especially given the reduction in airborne emissions over the past years. While it is unknown what the end result of this study will reveal, it should at the very least be considered as you review this proposal for compliance. I understand you must consider current law, but it is entirely possible that the mercury standard may change in the near future. I ask you to consider the possibility that the proposal may have to be adjusted to a lesser discharge of mercury, and can the proposal be adjusted to meet that in the future. Thank you for your time and consideration. Representative Erik Simonson Room 429 State Office Building 100 Rev. Dr Martin Luther King Jr. Blvd. Saint Paul, Minnesota 55155 651-296-4246 Follow me via e-mail updates at: http://www.house.leg.state.mn.us/members/join.asp.id=15417

Erik Solberg 42466

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Dr Erik Solberg 6433 2nd Ave S Richfield, MN 55423-1622

Erik Trader 42564

See attachment

Alphabetical by sender's first name

Erika Carls 45153

The land up here is beautiful, since it is not largely deforested and converted into farm land. So we are lucky here in Northern Minnesota. Nobody wants to see the land hurt, especially the people that choose to live in the area around the PolyMet mine, where I live. And lots of thought has gone into decreasing the environmental impact of the PolyMet project on the local environment. However, I am concerned about some of the risks we may face from the PolyMet mine. What is the existing water quality in our area due to prior mining activity. The water tastes like it already has a lot in it. I would like to know what amount of water pollution from the PolyMet mine would cause our already poor quality water to change to unhealthy and to unpotable water. Is the current water quality in the area linked to problems such as cancer or other health issues. And how would cancer rates and other health problems be affected by the mine. What health problems could be caused by the chemicals used in the mining process. Would pregnant mothers be more strongly impacted by water quality problems. Would the increased rate of mercury pollution in the Embarrass river effect any people or other organisms. How would the levels change in the case of a small leak, or in the case of a large leak. How much leaching is predicted from this mine. How much leaching is predicted from the average mine. What is the probability of having a mining accident like the one in Virginia which cause the water to be completely undrinkable. How would the health of the workers in the mine be impacted by the air pollutants they will be exposed to while they are working, including mercury pollution. How would such air pollution effect the people in the towns near the mining operation. If the speed with which copper is extracted is slowed down, could workers keep their jobs for a longer period of time, and could this reduce the pollution rates and possibly the impact of pollution. How many jobs will be provided as a result of the need to monitor the environmental impacts on the project area. What emergency equipment is needed for clean up in the case of an accidental large scale leaking or other pollution event. Will this equipment be stored in an area that is easy to access in an emergency. Will personnel be trained on how to operate such equipment. Is there a guarantee that the quality of water will be monitored on an hourly basis. If not, how frequently will the water quality be monitored. Does the job security of a few hundred people for 20 years outweigh the safety of several thousand people over hundreds of years. How much will water treatment cost in the worst case scenario. What are the legal mechanisms mining companies may use to dump responsibility onto Minnesota tax payers. Since the treatment of the water will need to continue for up to 500 years, how will we guarantee that there is enough money to keep treating the water. How do we know that the company responsible for the mine will be a viable, responsible company in 500 years. Will a substantial enough portion of the profits be set aside for clean up efforts, especially in the case of a major mining pollution accident. Will this money be kept in a place where it can not be removed for other purposes in the case that the company goes bankrupt. How is climate change likely to impact the PolyMet mine. Will the predicted increased intensity of storms cause any difficulties in keeping the mining area safe. I am especially concerned about increased flooding events. Are there plans in place for natural disasters such as earthquakes, or for the possibility of tornadoes up here. (Tornadoes may sound like a strange thing to inquire about. However, the climate in this area is predicted to become like the climate of the Twin Cities well before 500 years are finished.) I have questions about the i

Erika Sitz 43330

Sent from my iPhone Begin forwarded message: From: Erika Sitz <HYPERLINK "mailto:esitz@goldengate-net"esitz@goldengate-net> Date: March 12, 2014 at 6:24:40 PM CDT To: Erika Sitz <HYPERLINK "mailto:esitz@goldengate-net"esitz@goldengate-net> Cc: Paul Sitz <HYPERLINK "mailto:paul.sitz@siemens-com"paul.sitz@siemens-com> Subject: Polymet comments Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Please excuse brevity and some shorthand comments. I am in transitional care following major surgery and not very strong yet. 1- Data There are innaccurate and incomplete data in water modeling, eg Partridge River. 2- Water Pollution Does process plan capture all polluted water. What about accidents, extreme weather events, or if things just don't go as planned. Treatment plan length needs more documentation. 3- Wetlands Destruction Destroys 1000 acres of prime peat lands, including 100 Mile Swamp. Destroys another 6000 acres of wetlands by changing water flow. Replacement elsewhere is not adequate. 4- Energy Minnesota Power's dirtiest coal plants, carbon dioxide and mercury. The boreal forest is extremely vulnerable to climate change. 5- Financial Glencore's long history of environmental pollution, NOT TRUSTWORTHY. More detailed discussion of financial assurance needed to protect taxpayers. Sent from my iPhone

Alphabetical by sender's first name

Erin Beeson 42037

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Erin Beeson Spring Lake Park, Minnesota

Erin DeWitt 57142

We have a responsibility to ensure safe and accessible drinking water for now and into the future. Mining – the PolyMet project would be environmentally irresponsible – jeopardizing the quality of water not only for our region, but the whole state as this region is a major watershed! We cannot and must not ignore that fact. The damage this project would cause is irreversible; we have witnessed this in other projects. Land that becomes unfarmable and water impure. Please, it is our responsibility to our fellow humanity, our grandchildren, the animals and the earth. Thank you for hearing me.Erin DeWitt1512 Jefferson StDuluth, MN 55812

Alphabetical by sender's first name

Erin Goetz 14816

Feb 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

Erin Goetz 17165

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Erin Goetz Gladstone Duluth, MN 55804

51038

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Erin Goetz Gladstone Duluth, MN 55804

Alphabetical by sender's first name

Erin Herold 41953

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Erin Herold Saint Paul, Minnesota

Erin Jordahl Redlin 47449

March 11, 2014 Lisa Fay Minnesota DNR Division of Ecological and Water Resources Tim Dabney US Forest Service Douglas Bruner US Army Corps of Engineers Dear Ms Fay, Mr Dabney, and Mr Bruner, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement (SDEIS). In my view, the SDEIS is inadequate and the proposed mine plan, as well as the proposed exchange of 6,650 acres of Superior National Forest lands, would have unacceptable environmental impacts. I'm writing on behalf of my three year old and her little sister or brother who is expected in June, as well as other future generations of Minnesotans - because they can't speak up now to voice their concerns about a project that will affect the future of the water they drink, the outdoor places in which they recreate, the wildlife they admire, and the taxes and clean up costs they pay. I live in St Anthony Village now, but I was born in northern Minnesota - a part of the state that holds a special place in my heart. I can't imagine why our state would embark on a project that poses such extreme risks to such a special place. And one that puts the future of our kids and their kids and their kids and their kids in jeopardy. I know that you aren't dealing with financial assurance in the SDEIS, but I think we need answers now about who will pay for the inevitable pollution that occurs, when the companies behind this project no longer exiSt Future generations of Minnesotans will be on the hook for those costs - generations that didn't have any input into this decision. With such a poor record of operation in every other place it has been done, why do we think the pollution won't happen here. And why do we believe that the PolyMet corporation and its investors will be around to clean up the pollution. I've lived in South Dakota, a state with a history of mines that created acid mine drainage and passed the clean up costs on to the taxpayers. My husband is from Montana, another state with a history of polluting mines that the taxpayers have to clean up. I don't want Minnesota to join that group of states. Please think about the future of Minnesota and our precious water resources. Take another look at this proposal. Address the flaws in the SDEIS. Make sure that future generations of Minnesotans aren't saddled with hundreds of years of pollution and the costs to clean that up. Thank you for your consideration. Erin Jordahl Redlin 2901 30th Avenue NE St Anthony Village, MN 55418 HYPERLINK "mailto:ejr0904@gmail-com"ejr0904@gmail-com

Alphabetical by sender's first name

Erin Manning 47894

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands and wildlife habitat in the watershed of the Lake Superior Basin. I am a wildlife educator and along with many other aspects of this project that make me incredibly nervous, the lack of acknowledgement of the wildlife impacts the SDEIS is unacceptable. It does state that Minnesota moose population has declined %35 in 1 year. This is an astonishing number. Moose are a vital part of the ecology of this area. The PolyMet project would harm moose further due to loss of habitat and habitat fragmentation. It will be in a key area of moose habitat types. Moose are also a large draw for tourists to the northern Minnesota woods. Lack of tourists, which this mine would have a huge impact on in many ways, will harm our economy greatly. Many of our local businesses rely on the tourist economy. Another animal that will be greatly affected is the Canada lynx. It is federally listed under the Endangered Species Act and the SDEIS admits that the sulfide mine, vehicle and train traffic will reduce lynx habitat by two square miles and kill individual lynx. Having 200 or fewer lynx in Minnesota currently, we should be doing everything we can to protect these amazing northern Minnesota animals. The SDEIS should analyze alternatives to reduce loss of lynx habitat. These two plus many more wildlife will be negatively affected by the PolyMet mines. I was very disappointed in the SDEIS focuses on wildlife, there needs to be more studies done and alternatives proposed before this process should go forwaRd We have lost so much habitat already, why take away prime, beautiful wild lands for such a risky, short term endeavor. It is not worth the risk. It is our job to protect irreplaceable wetlands, fresh water and wild life habitat resources in the Lake Superior Basin for generations to come. If we don't do it now, what does that mean for the future of northern Minnesota. Very truly yours, Erin Manning Northern Minnesota resident Erin Manning 6587 Park Hill Rd Finland, MN 55603

48341

Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands and wildlife habitat in the watershed of the Lake Superior Basin. I am a wildlife educator and along with many other aspects of this project that make me incredibly nervous, the lack of acknowledgement of the wildlife impacts the SDEIS is unacceptable. It does state that Minnesota moose population has declined %35 in 1 year. This is an astonishing number. Moose are a vital part of the ecology of this area. The PolyMet project would harm moose further due to loss of habitat and habitat fragmentation. It will be in a key area of moose habitat types. Moose are also a large draw for tourists to the northern Minnesota woods. Lack of tourists, which this mine would have a huge impact on in many ways, will harm our economy greatly. Many of our local businesses rely on the tourist economy. Another animal that will be greatly affected is the Canada lynx. It is federally listed under the Endangered Species Act and the SDEIS admits that the sulfide mine, vehicle and train traffic will reduce lynx habitat by two square miles and kill individual lynx. Having 200 or fewer lynx in Minnesota currently, we should be doing everything we can to protect these amazing northern Minnesota animals. The SDEIS should analyze alternatives to reduce loss of lynx habitat. These two plus many more wildlife will be negatively affected by the PolyMet mines. I was very disappointed in the SDEIS focuses on wildlife, there needs to be more studies done and alternatives proposed before this process should go forwaRd We have lost so much habitat already, why take away prime, beautiful wild lands for such a risky, short term endeavor. It is not worth the risk. It is our job to protect irreplaceable wetlands, fresh water and wild life habitat resources in the Lake Superior Basin for generations to come. If we don't do it now, what does that mean for the future of northern Minnesota. Very truly yours, Erin Manning Northern Minnesota resident Erin Manning 6587 Park Hill Rd Finland, MN 55603

Alphabetical by sender's first name

Erin Manning 52368

Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands and wildlife habitat in the watershed of the Lake Superior Basin. I am a wildlife educator and along with many other aspects of this project that make me incredibly nervous, the lack of acknowledgement of the wildlife impacts the SDEIS is unacceptable. It does state that Minnesota moose population has declined %35 in 1 year. This is an astonishing number. Moose are a vital part of the ecology of this area. The PolyMet project would harm moose further due to loss of habitat and habitat fragmentation. It will be in a key area of moose habitat types. Moose are also a large draw for tourists to the northern Minnesota woods. Lack of tourists, which this mine would have a huge impact on in many ways, will harm our economy greatly. Many of our local businesses rely on the tourist economy. Another animal that will be greatly affected is the Canada lynx. It is federally listed under the Endangered Species Act and the SDEIS admits that the sulfide mine, vehicle and train traffic will reduce lynx habitat by two square miles and kill individual lynx. Having 200 or fewer lynx in Minnesota currently, we should be doing everything we can to protect these amazing northern Minnesota animals. The SDEIS should analyze alternatives to reduce loss of lynx habitat. These two plus many more wildlife will be negatively affected by the PolyMet mines. I was very disappointed in the SDEIS focuses on wildlife, there needs to be more studies done and alternatives proposed before this process should go forwaRd We have lost so much habitat already, why take away prime, beautiful wild lands for such a risky, short term endeavor. It is not worth the risk. It is our job to protect irreplaceable wetlands, fresh water and wild life habitat resources in the Lake Superior Basin for generations to come. If we don't do it now, what does that mean for the future of northern Minnesota. Very truly yours, Erin Manning Northern Minnesota resident Erin Manning 6587 Park Hill Rd Finland, MN 55603

Erin Ramberg 45597

Dear Sirs, Two of Minnesota's greatest resources are water and the outdoors. Of these the North shore of Lake Superior is the best example of both. Adding a hazardous practice mine to strip a few mineral for a 20 year duration seem senseless when considering the potential to damage the quickly diminishing clean fresh water we prize and the outdoors I've personally used and loved for 40 years of my 46 years of life. Let the protection of the outdoors and clean water to enjoy for the next 1,000 years guide this decision over the short term benefits it will yield in minerals. Regards, Erin Ramberg

Ernest and Beth Cutting 54476

See attachment

Ernesto Luna 58014

I very much want every effort to be made to protect our natural resources and choose not to put them at risk. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

58015

Our natural resources are too beautiful to risk. Please protect them. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

erossow@gustavus.edu 41685

To the DNR, Please do not allow the PolyMet mining to happen. I do not believe that this project will benefit the community or the environment in a positive way that would continue over time. Yes, there are pros and cons to this however, in the end the negative effects are much more prominent then the positive ones. This project may create jobs and provide resources that are valuable to other industries. Although once the job is completed the only people that will be gaining income will be the companies that continue to get money off the land. The jobs will only last 20 about years then after that people will be back to were they where. Not to mention the environmental impact you will be making, even though the site is not on the boundary waters, you can not control mother nature. You are not God. There is no way for the company to put the environment back to the way it was. Also, from the negative impacts there will be health problems (because there always are when you mess with the environment). I would suggest that you inform the public and educate them on the projects that happen in our community, that is your job to inform the public and keep the environment and the community safe. Thank you for your time to read this

Erynn Jenzen 40906

Mar 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Espoir DelMain 16488

I urge you to not support sulfide mining in Minnesota. It will destroy the many watersheds that encompass our state and though it may help the economy it will not help anything else. There is more to life than money, once needs happiness and purpose, all of which I have found in nature and wilderness. I know I am not alone, please help support the many others like me in going against sulfide mining. Thank you Espoir DelMain 1052 Orchard Ave St Paul, MN 55103

Alphabetical by sender's first name

Esther Hope 47977

Dear Ms Fay, Dear Federal and State Agency Leaders: I am a toxicologist in a private company. My job is to assure that my company's products are safe for people and for the environment. I am proud of my work and use every available tool to assess the impact of my products now and in the future-this is appropriate management. I do not see PolyMet using the care and attention to detail that I would expect and that the people (and wildlife) of Minnesota deserve. The PolyMet SDEIS doesn't analyze the effect of pollution on workers' health or on drinking water sources. The SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years, but does not provide robust plans to remediate this pollution. PolyMet's sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals. The SDEIS does not give any reasonable assurance that this environmental damage can be addressed. In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was "inadequate" and the sulfide mine project would be "environmentally unsatisfactory." Their most recent study is still inadequate. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely Esther Hope Esther Hope 1006 Cromwell Ave Saint Paul, MN 55114

esther ouray 20070

--Original Message-- From: runningwoman5457@yahoo-com [mailto:runningwoman5457@yahoo-com] Sent: Thursday, February 27, 2014 8:32 AM To: Fay, Lisa (DNR) Subject: PolyMet's SDEIS is poorly planned and needs to go back to the drawing boaRd Dear Ms Fay: The PolyMet Supplemental Draft Environmental Impact Statement (SDEIS) is fatally flawed, and needs to go back to the drawing board to be fixed. You should not burden the next fifteen generations with toxic water pollution and cleanup costs from a sulfide mine that hasn.t been properly planned. PolyMet would operate for 20 years but, according to PolyMet.s own data, would pollute water for over 500 years at the tailings basin, and over 200 years at the mine pit. The modeling results provided in the SDEIS show that PolyMet and the DNR simply did not look beyond 500 years. The fact that the SDEIS does not say when the mine pit and tailings basin will stop polluting our water is a major and apparently intentional failure that needs to be corrected by the DNR. Please run the models . or require PolyMet to run the models . long enough to show when pollution of our water by PolyMet.s mine would cease. PolyMet proposes a complex mechanical system of pumps, pipelines, and filters that it says will capture and hold back the water pollution from getting into our rivers. PolyMet assumes the proposed expensive and complicated water treatment system will continue to operate effectively for long, long after the mining has stopped. It should be expected that mechanical systems like pumps, filters and pipes will eventually fail. In a 2007 report, an organization called Earthworks analyzed the records of 14 modern copper mines in five states found that 100% of these mines experienced pipeline spills or other accidental releases. 92% had failures of water collection and treatment systems that resulted in releases of contaminated mine seepage that significantly impacted water quality. But Polymet's SDEIS lacks contingency plans for predictable failures in the proposed piping, pumping, and filtration equipment. By assuming that a complicated water treatment system will function indefinitely without fail, the SDEIS has failed to take the hard look required at the proposed PolyMet sulfide mine. Please send the SDEIS and PolyMet back to the drawing board with directions to include contingency plans for predictable failures in the water pumping and treatment system, and the power supply to run that system.In addition, the SDEIS proposes to dump tailings from the mining process on top of the former LTV Steel.s tailings basin, which was built in the 1950s on top of three streams, was designed to leak. In fact, the existing tailings basin is already leaking millions of gallons of untreated water, yet the chemical composition of that large volume of leaking water has not been tested and characterized. The failure to test and account for known leaks of untreated tailings basin water from the existing LTV Steel tailings basin is another major problem with the SDEIS. Moreover, the tailings basin and the dam holding it back from flowing downstream are recognized to be unstable. If the tailings basin dam were to fail, vast quantities of contaminated tailings, sulfates, and heavy metals would be released into the headwaters of the St Louis River. In other mines, such tailings basin failures have sent a flood of millions of cubic yards of toxic debris as much as hundreds of miles downstream. The failure of the SDEIS to fully consider the potential for . and the consequences of . a tailings dam failure is a deadly flaw in the SDEIS. PolyMet proposes a large open-pit mine in untouched, high-quality wetlands, that are located on public land owned by the US Forest Service. The SDEIS states that building an underground mine would have .significant environmental benefits. compared to an open-pit mine. However, the PolyMet SDEIS rejects underground mining, stating that in today.s market conditions, underground mining is not

Alphabetical by sender's first name

esther ouray 41832

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms esther ouray 3351 Columbus Ave Minneapolis, MN 55407-2032 (612) 229-1641

ethan hogen 41959

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, ethan hogen minneapolis, Minnesota

Ethelyn Kaim 42631

See attachment

44513

My comment has to do with hiring Union labor, from the beginning of the project, through to the end, when the mine's resources are exhausted. I know many miners in this area are pro-union workers, I hope this project will respect the worker's right to organize and be part of a union.

44528

The profits from the industry must be kept in banks in the US They must not be allowed to hide their profits and not pay their fair share of taxes. Those who do not pay their fair share of taxes are unpatriotic. This corporation must not be allowed to bank their profits overseas.

44531

They must have a 'super fund' of their own to clean up the pollution that will be present. I have seen mines plead bankruptcy and the tax payer left to pay to clean up the pollution. The fund must be in place before they are allowed to begin. The last comment may be the most important: The profits from the industry must be kept in banks in the US They must not be allowed to hide their profits and not pay their fair share of taxes. Those who do not pay their fair share of taxes are unpatriotic.

Etta Bartholdi 57183

Please don’t destroy the boundary waters. I love them very much and I feel mining for coal will [ILLEGIBLE] destroy the natural beauty and eco health of the BWCA. Thanks.Etta Bertholdi2100 26th Ave SouthMinneapolis, MN 55406

Eunice Lindberg Milbrath 54505

See attachment

Alphabetical by sender's first name

Evan Faltesek 54477

See attachment

Evan Nikunen 42656

See attachment

Eve Glidden 43216

I oppose the poly met plan. I beleive that the information in the seis is un true and incomplete for many reasons. one is that the information regarding the potential impacts on wild life including fauna and flora is lacking more observent details including the pathways for moose, the breeding grounds for links, the extince of sun-dews (A rare medicine plant) in the proposed mine location. I believe that saying clean up needs to happen for more than the amount of time the mine will be run is dangrous grounds and there is no proof that poly met, glencore or any other investors would stick around for long enough to clean up any thing. There is also the issue of the tribal rights to the land. the fact that it is in the national forest should be enough to stop this plan before it starts. we need to live for generat5ions to come not just the next 20 years. there are no jobs on a dead planet. another thing lacking in the seis it the real details about what would happen if we took out that much of our current carbon sink. this plan and seis is flawed please take the time to stop this tragedy before it starts. thanks Eve Marie Glidden 4326 5th ave south Minneapolis mn 55409 612b 333 1805 The holy land is everywhere~ Black Elk

Evelyn Staus 16116

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Evelyn Stillwell 39814

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining may have a short-term economic benefit for Minnesota but at what cost. There is clearly an environmental price to pay in the short-term but there is also there very real potential that this could turn into a massive environmental problem in the long term as a consequent of toxic metal release and Acid Mine Drainage. This possibility should not be understated - it would negate any initial financial benefit that Minnesota would experience and could leave the environment damaged for hundreds of years. It is a gamble that is simply not worth taking. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Evelyn Stillwell 1099 Chatsworth St N Saint Paul, MN 55103-1005 (651) 603-0734

Evi Winter 40285

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Evi Winter Heynestrasse 42 Nürnberg, ot 90443 DE

Eville Gorham 42824

See attachment

Alphabetical by sender's first name

eyesoftheworld . 44175

Dear Sir or Madam, My name is Erik and I am from Glenwood. I have worked a couple of springs in the Glenwood hatchery and have dear friends at the Glenwood office. I have been to 49 states and seen much wilderness in many of them. I have also been abroad a few times but I have found the BWCA to be one of the most beautiful and unique places I have been in my travels. I believe with copper sulfide mining in the BWCA watershed, there will be grave environmental impacts to the fragile ecosystem, flora and fauna. I do not support allowing a multinational corporation(s) to spoil the great area. The jobs are in no way worth destroying this treasure of nature. Mining is boom and bust and once they extract the resources of the area and possibly destroy the local environment, our children, grandchildren and beyond will inherit the legacy. I think its a terrible idea to allow this. I really hope future generations can enjoy and benefit from this vital, unique and beautiful wilderness. Thank you for your utmost consideration. "The movement of a canoe is like a reed in the wind. Silence is part of it, and the sounds of lapping water, bird songs, and wind in the trees. It is part of the medium through which it floats, the sky, the water, the shores ." Sigurd F. Olson Respectfully, Erik Pederson

F Jeff Verito 1826

You are inundating me with too much information. What I require are large scale maps of the land exchange parcels, with contours, contour interval, and water features. I'd also like to know the vegetation composition and age of the trees on each parcel. Please make clear which are currently Federal versus private. Thank you. Frank Jeff Verito, 350 east Ridge Street, Marquette, MI 49855

3564

PLEASE SEND THE REQUESTED INFORMATION. THIRD REQUEST FJVerito On Monday, December 16, 2013 4:09 PM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

4592

Dear Head of the Minnesota DNR: These are my opinions. Receipt reply requested. The MDNR failed to respond to my twice-requested information regarding the land exchange portion of the proposal. Based upon this failure, I can only assume that the land to be sacrificed is worth more than the land that will be exchanged for public use. Why else are you trying to hide the information that is obviously needed to compare the parcels. Furthermore, mining prospectors are impacting too many areas. The impact they cause is evident across many more acres (from a visual quality perspective) than the actual damage covers. Access roads and pits are needed, encouraging sedimentation and the introduction of non-native plants. I have no more faith or trust in the Minnesota DNR than I have in the Michigan DEQ. Their managements, in my opinion, are comprised of conspirators who belong in jail cells. Curses to the MDNR for not sending me the requested information. Frank Jeff Verito 350 East Ridge Street Marquette, MI 49855

7490

January 21, 2014 Mr Jiminez: The information you've provided is extremely unhelpful, in fact, you're wasting my time. I need to quickly be able to reference maps of what's to be exchanged and what's to be obtained with contours, water features, composition of the parcels (type and age of vegetation) and contour intervals. I've dealt with Ottawa and Hiawatha NFs for twenty years, and have camped Superior NF, and all the above has made me extremely distrustful. Your failure to provide obviously-needed maps only heightens this distruSt I cannot imagine why you'd refuse to provide this information unless you're trying to hide something. For the third time-PLEASE PROVIDE THE REQUESTED INFORMATION AND ONLY THE REQUESTED INFORMATION. THANK YOU. FJVerito 350-1/2 East Ridge Street Marquette, mi 49855

Alphabetical by sender's first name

F Jeff Verito 47596

The attached maps look like they were drawn by seventh graders. No description of the parcels (type of vegetation, age, water features, etc..) was provided as requested, and the contour interval was not provided. The contour interval is the change in elevation between the contour lines. In other words, do the contour lines represent a two-foot change or a fifty-foot change in elevation. No way can a citizen compare what we're obtaining to what we're relinquishing without the federal parcels as well. TO WHOM DO YOU REPORT Mr JIMENEZ. IT'S APPARENT THAT YOU NEED TO TAKE A GEOGRAPHY COURSE, AND A PUBLIC RELATIONS COURSE SO YOU CAN VISUALIZE WHY SOMEONE WHO'S PREPARING COMMENTS WOULD NEED THIS INFORMATION. It's obvious that we're having a difficult time communicating, and that you're not prepared to be handling this NorthMet item whatsoever. Please add this comment to the comments file for this project. I am dead-set against it until the obviously-needed information is provided. Start over and do it right. FJVerito On Friday, January 24, 2014 5:15 PM, "Jimenez, Michael -FS" <mjimenez@fs.fed.us> wrote: Dear Mr Verito, I conferred with our realty specialist regarding your request for maps and information. We identified the attached maps. They are not currently in our project records for the NorthMet Mining Project and Land Exchange, however they may address your request for contour mapping on the non-federal parcels included in the proposed land exchange. Corresponding mapping for the federal parcel was not included in the files and apparently not done as it was for the non-federal parcels. If you feel that the SDEIS is missing information on the proposed land exchange that could make the environmental analysis more complete or understandable. Please include your thoughts on this potential information with any comments you may be submitting on the SDEIS. Michael Jiménez Superior National Forest (218) 626-4383 From: Schleif, Elizabeth -FS Sent: Friday, January 24, 2014 12:46 PM To: Jimenez, Michael -FS Subject: RE: Citizen Information Request on Land Exchange Parcels Michael, Some resource information maps were compiled for appraisal instructions. They are not part of the SDEIS, but it sounds like the information this individual is seeking. The files are quite large so I will put them in a common folder for your access. -Liz Elizabeth Schleif Realty Specialist Superior National Forest (218) 626-4373 HYPERLINK "mailto:eschleif@fs.fed.us"eschleif@fs.fed.us From: Jimenez, Michael -FS Sent: Thursday, January 23, 2014 4:09 PM To: Schleif, Elizabeth -FS Subject: FW: Citizen Information Request on Land Exchange Parcels Liz, Please read the my preceding email correspondence with Mr Verito. He is requesting maps that to my knowledge has not been developed and is not available as requested. Do you know of any materials that may be useful to him, beyond what I identified for him in the SDEIS in my original response. Michael Jiménez Superior National Forest (218) 626-4383 From: F Jeff Verito [mailto:sailboardjeff@yahoo-com] Sent: Tuesday, January 21, 2014 4:57 PM To: Jimenez, Michael -FS Subject: Re: Citizen Information Request on Land Exchange Parcels Mr Jiminez: The information you've provided is extremely unhelpful, in fact, you're wasting my time. I need to quickly be able to reference maps of what's to be exchanged and what's to be obtained with contours, water features, composition of the parcels (type and age of vegetation) and contour intervals. I've dealt with Ottawa and Hiawatha NFs for twenty years, and have camped Superior NF, and all the above has made me extremely distrustful. Your failure to provide obviously-needed maps only heightens this distruSt I cannot imagine why you'd refuse to provide this information unless you're trying to hide something. For the third time-PLEASE PROVIDE THE REQUESTED INFORMATION AND ONLY THE REQUESTED INFORMATION. THANK YOU. FJVerito On Tues

57373

HELP**********please send requested information On Saturday, December 14, 2013 4:19 PM, *NorthMetSDEIS (DNR) <NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

F Mary Melander 54565

I do not believe sulfite mining is as harmless as the mining companies & politicians say it is. I am deeply against sulfite mining for environmental reasons!

Alphabetical by sender's first name

faith Jutz 42020

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, faith Jutz Saint Paul, Minnesota _____ There are now 2370 signatures on this petition. Read reasons why people are signing, and respond to National Audubon Society by clicking here: HYPERLINK "http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89bandutm_source=targetandutm_medium=emailandutm_campaign=signature_on_sponsored_petition"http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89b http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJzaWduYXR1cmVfb25fc3BvbnNvcmVkX3BldGl0aW9uIiwiaWQiOiJ1c2VyXzE2MDAyMTUiLCJjaXR5IjoiU2FuIEZyYW5jaXNjbyIsInN0YXRlIjoiQ0EiLCJ6aXBjb2RlIjoiOTQxMTAiLCJjb3VudHJ5X2NvZGUiOiJVUyIsImluY29tcGxldGVfYWRkcmVzcyI6ZmFsc2UsInNpZ251cF9kYXRlIjoiMjAxMC0wOS0yMyIsImxvZ2luX2NvdW50Ijo5NDE2LCJ0b3RhbF9hY3Rpb25zIjo0MzAsImNvbm5lY3RlZF90b19mYWNlYm9vaz8iOmZhbHNlLCJzaWdudXBfY29udGV4dCI6ImFjdGlvblBhcnRpY2lwYW50IiwiZGlzdGluY3RfaWQiOiIyMWQ2MmIwMC1iZTVkLTAxMmYtNjg2ZS00MDQwNjBlNzJhYmIiLCJ0b2tlbiI6IjMwYWEyNmExZDZlOTNhZTE1OGRmYmRjMTZiNDkzMzEyIiwidGltZSI6MTM5NDMwMDIxNn19andip=1andimg=1 http://email.changemail-org/wf/open.upn=aGGv9wQ398j6-2FWVT4grdXbWUo0w-2FupjjjD-2BeyIkg5XeInLuCEKc3fZdho8GXjxxiplFn6SybU80HWYOLHct2MhHcRv7ksg-2F-2Bt-2BBQdFBpjly6HQ4M4XkzMb3fHv981lBfkjwLvPdqR023DnavNXzUc-2F2E1tpRvieDyT2Rh75VI4yHtEyt2zsxAMa9BYJenXsQfHALT6mdwsav0UN3UrGFPEp-2B3ZWgnW6WMdm1oWWPZUrLLedeFC-2FJFaofSqtEAjGCgBRpky3x6DviNfUQ1PUfa-2F9YNeGxO3Qq0ptXjU1AzBI6C9lu-2BCYPF-2Fo2ly-2Bak9wV

Alphabetical by sender's first name

Faraz Harsini 40334

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Faraz Harsini 3126 4th St Lubbock, TX 79430 US

Fay Bullivant 52283

Mar 13, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I'm a student at the University of Minnesota Duluth. The natural beauty of the Great Lakes is what drew me to to going to school here. I love Minnesota because it is a state that values and protects these natural spaces. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Fay Bullivant 7518 130th Ave Milaca, MN 56353-4437 (763) 898-0268

Fay Simer 58150

How will mine clean-up be guaranteed and paid for after the mine closes? I am concerned this is not adequately addressed by the SDEIS process.

Fern Arpi 54471

See attachment

Alphabetical by sender's first name

Fern Peterson 3669

To Whom It May Concern: The proposed PolyMet project in the watershed of Lake Superior will destroy or permanently degrade thousands of acres of high-quality wetlands and cause permanent water pollution with sulfuric acid and toxic metals. Treatment would be required for at least 500 years, but more likely thousands of years. Sulfide ore mining is hard-rock mining, and every hard-rock mine in the United States pollutes the land and water. The United States Environmental Protection Agency (EPA) says that hard-rock mining is the most toxic industry in the United States. Polymet's Supplemental Draft Environmental Impact Statement is inadequate in its response to these concerns. In February 2010, the EPA gave PolyMet's Draft Environmental Impact Statement (DEIS) the lowest possible score. After almost four years, PolyMet is back with a Supplemental Draft Environmental Impact Statement (SDEIS). Despite the length of time taken to prepare the SDEIS, it fails to describe the staggering environmental, economic, and social costs of the project. We are strongly opposed to the State of Minnesota allowing PolyMet to begin production of any sort of mining near our pristine BWCA and feel it would be short-sighted and immoral to trade a few hundred relatively short term mining jobs for the future of our health and the health of our planet. New technologies should be supported/discovered to reduce the need for copper and other minerals for our cell phones, computers, ipads, cars and other devices which are driving this "need" for sulfide mining. Sincerely, Todd and Fern Peterson 5209 Chantrey Road Edina, MN 55436 and 68 Menogyn Trail Grand Marais, MN 55604

Ferolyn Angell 42048

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ferolyn Angell Morris, Minnesota

Fione 54180

I have never been to the boundary waters but I have only ever heard wonderful things about the experiences people have while they are there. During the speech some very valid points were brought up about how mining should not be allowed in the boundary waters area such as how it will pollute the area which is known well for camping and lots of wild life. Also it is a pure watershed which is a great resource to have, especially so close to home. I do believe mining should not be allowed in this nature sanctuary.

FL no name 42658

See attachment

Flannery Delaney 15756

See attachment

Alphabetical by sender's first name

Florence Hedeen 41769

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: Please reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. If in place, the precautionary principle would preclude this ill-conceived project that will compromise the natural resources we've come to take for granted, for generations to come. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. This includes a net loss of 6,026 acres of areas with high biodiversity; 2,030 acres of mature forest – replaced by 2,000 acres of immature forest; 1,400 acres of floodplains and losses of 11 endangered or threatened species. The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade. The PolyMet sulfide mine would reduce lynx habitat by two square miles, kill individual lynx, and impact 2 out of 13 remaining small corridors for wildlife to travel across the Arrowhead region. The PolyMet sulfide mine plan would also destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which dropped precipitously by 35% from 2012 to 2013- Yet, the SDEIS contains no analysis of impacts on moose from the PolyMet project. The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St Louis River and tribal resources. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice. Please take the following actions to protect clean water, ecological communities, public lands and tribal rights: •Reject PolyMet's proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. •Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. •Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. •Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. •Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. No more studies are needed to know that the PolyMet land exchange and sulfide mine should not be approved. The SDEIS plan is also inadequate and should be rejected: •The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. •The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at ta

Florence Marks 46077

From what I've read about this proposed mining, the protection of the environment has not been adequately met. The project will provide some employment but the land will be raped in the process. The long term effects of the mining appear to be devastating. Until some satisfactory method of preventing contaminants from entering the water system, this is a no go from my perspective. Florence Elliott Marks 3424 Silver Lake Rd NE Minneapolis, MN 55418

Florence Sandok 52239

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Florence Sandok 1516 13th Ave n.e. Rochester, MN 55906

Alphabetical by sender's first name

flynn karen 39536

I think this is a bad idea. I think it is very possible pollution will occur that may be impossible to clean up. Furthermore, if the company declares bankruptcy at some point, there will be insufficient funds to clean up any mess. I recall the state of Minnesota giving a lot of money to Northwest airlines to assist the airline in keeping jobs in Minnesota - now Northwest is gone. I don't think we can count on a business to have environmental safety as its primary concern. This is just too dangerous. Thank you for reading this. Sincerely, Karen Flynn 16 East 10th Street Duluth MN 55805

Fond du Lac Band 42920

Lisa: please see attached comments from the Fond du Lac Band on the NorthMet SDEIS. These should be considered our final comments, although I will follow up with an official hard copy on Fond du Lac letterhead. Nancy Schuldt Water Projects Coordinator Fond du Lac Environmental Program 1720 Big Lake Road Cloquet, MN 55720 218-878-7110 ph 218-878-7168 fax

Forrest Johnson 42626

See attachment

Forrest Petersen 42938

Aloha, Please find attached work doc. with my comments for the Supplemental Draft Environmental Impact Statement Polymet Mining, Inc. NorthMet Mining Project and Land Exchange. Thank you for you time. Sincerely, Forrest Petersen

Fort JK 47327

Mar 12, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. The Supplemental Draft Environmental Impact Statement fails to adequately address the negative impact of the proposed copper sulfide mine. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. It would pollute and ruin the wild and beautiful St Louis River and watershed from it's northernmost regions all the way to Lake Superior, which is another body of water that would be so negatively impacted as well as all the groundwater in its wake, groundwater that we citizens rely on to be safe and healthy to drink. For Duluth, or any cities/towns who get their drinking water from Lake Superior, it would be a negative impact as well. But, we must also mention the terrible, direct devastating effect the pollution from the mine would cause concerning wildlife and birds who use the St Louis River and Lake Superior to drink from and obtain food from. I include the Embarrass River and any other body(ies) of water that would be harmed by the mine as well, such as the lake that is over the presumed deposit. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Therefore, in the best interests of public health and safety along with wildlife/bird and environmental health and safety, I urge you not to approve any of the environmental impact statements that favor Polymet's action to build/operate this mine they are proposing. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Fort JK 10332 Bachelor Square Rd Meadowlands, MN 55765-8103

Alphabetical by sender's first name

Fort JK 48574

Mar 12, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. The Supplemental Draft Environmental Impact Statement fails to adequately address the negative impact of the proposed copper sulfide mine. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. It would pollute and ruin the wild and beautiful St Louis River and watershed from it's northernmost regions all the way to Lake Superior, which is another body of water that would be so negatively impacted as well as all the groundwater in its wake, groundwater that we citizens rely on to be safe and healthy to drink. For Duluth, or any cities/towns who get their drinking water from Lake Superior, it would be a negative impact as well. But, we must also mention the terrible, direct devastating effect the pollution from the mine would cause concerning wildlife and birds who use the St Louis River and Lake Superior to drink from and obtain food from. I include the Embarrass River and any other body(ies) of water that would be harmed by the mine as well, such as the lake that is over the presumed deposit. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Therefore, in the best interests of public health and safety along with wildlife/bird and environmental health and safety, I urge you not to approve any of the environmental impact statements that favor Polymet's action to build/operate this mine they are proposing. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Fort JK 10332 Bachelor Square Rd Meadowlands, MN 55765-8103

Fran Brinkman 13360

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As a Wisconsin neighbor who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Fran Brinkman 8226 Slater Ave Mount Pleasant, WI 53406-3708

Alphabetical by sender's first name

Fran Cobb 16204

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

fran whitman 9750

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, fran whitman 13856 ford drive L'ANSE, MI 49946

18572

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, fran whitman 13856 ford drive L'ANSE, MI 49946

Alphabetical by sender's first name

fran whitman 50648

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, fran whitman 13856 ford drive L'ANSE, MI 49946

Francie Turner 39792

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Francie Turner 211 South St Morris, MN 56267-1522

Frank Antilla 54138

No I DO NOT support mining in wilderness woods. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Frank Blume 38361

This is a very environmentally friendly mine proposal. We need good paying jobs. We need the platinum group metals. Let's do it. Frank Blume 211 Park Avenue Colchester, CT 06415

38365

This is a very environmentally friendly mine proposal. We need good paying jobs. We need the platinum group metals. Let's do it. Frank

Alphabetical by sender's first name

Frank Frederickson 18100

Hello. My name is Frank Frederickson. I was born and raised in International Falls and I currently reside and live and work in Grand Rapids, Minnesota, where my wife and I are raising our family of four children. My whole life I have enjoyed the beauty of the region and the opportunities it provides to hunt, fish and camp. And as a high school and college student, I was very blessed to have a summer job piloting a tour boat in Voyageurs National Park for the whole three months of the year that our tourist season was. Today I am blessed, again, to have a year-round job in northern Minnesota that is a direct result of the paper and mining industry in our region. This job enabled me and my wife to relocate back into northern Minnesota, after spending ten years in the Twin Cities, so that we could raise our family in northern Minnesota and show them the same environment that we grew up to appreciate and enjoy. With this background, I wanted to state my appreciation for the efforts of the permitting agencies and of PolyMet to work together in a diligent environmental review process that identifies necessary protections for our shared environment, while enabling the economic extraction of materials and minerals that we all use in our daily lives; in our phones, homes and cars. More specifically, I want to comment on the proposed Land Exchange in the SDEIS. As a native of International Falls, I grew up in a community that was established by a paper company and remains largely supported by the mill today. And I also enjoyed having Voyageurs National Park at my doorstep. This national park was not formed without its own controversy in the sixties and seventies. And the establishment of the park meant for an expansion of federal land protection in northern Minnesota and a reduction in private woodland for mixed-use recreation, hunting and pulpwood production. But the national park ultimately was able to co-exist with the paper industry, and it was partially enabled by a Land Exchange between the state, county, federal and paper mill. This Land Exchange my grandfather was a part of, as woodlands manager for the mill, in making that happen. I reviewed the Land Exchange proposed in the SDEIS between the U.S. Forest Service and PolyMet and believe this is a smart move for our region. As detailed in the SDEIS, the Land Exchange proposes a transfer of the surface rights of 6,650 acres of federal land that is landlocked by neighboring private ownership and basically inaccessible for public use to PolyMet for the mine operation in exchange for up to 6,722 acres located within the management area of the U.S. Forest Service. The lands of the U.S. Forest Service will gain a higher recreational value, while the lands for PolyMet unite the ownership of the subsurface mineral rights with the surface rights. I believe this is a win-win for our region and that it enables enhanced recreational opportunities for the public, while enabling the extraction of minerals in an environmentally sound manner. This is a good deal for Minnesotans and our country. I fully support it and thank you for your thorough review.

Frank Gardner 57979

Minnesota cannot be expected to treat polluted water for 500 years. PolyMet cannot be trusted to clean up this mess. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Frank Hansen 17017

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Frank Hansen 17376 US Highway 169 South Grand Rapids, MN 55744

50292

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Frank Hansen 17376 US Highway 169 South Grand Rapids, MN 55744

Alphabetical by sender's first name

Frank Jossi 11268

Hi, I live at 1810 Hartford Ave, St Paul, MN, 55116- The following are general comments about the draft. 1) The Audubon Society and others have suggested Polymet look at underground mining instead of open pit. I don't see that as an option in the EIS. Why not. It would cost Polymet more to mine copper nickel but the environmental damage would be far less. 2) We have one of the largest concentrations of fresh water in the world, both in our interior lakes and with Lake Superior. This seems far valuabIe to the country than copper nickel, especially in time when droughts have impacted different parts of the country for at least the last two decades due to global warming. This legacy is worth preserving and this mine, and others proposed, would like end it. 3) Like many Minnesotans I find it hard to imagine the monitoring of water for 500 years. Copper nickel mining has an atrocious international record so I would certainly plan on necessity for long-term monitoring. The chance for pollution due to heavy rainfall, poor planning, breached liners and unforeseen weather events seems likely. Where is the mitigation plan for worse-case scenarios. Again, the reputation of copper nickel miners hasn't been stellar. 4) What are the details of the proposed water treatment systeMs I can't find them. 5) Who will pay for five centuries of monitoring. If Polymet goes under, what is the liability to the taxpayer. 6) How much will Polymet put up annually to pay for cleanup in case of a disaster. 7) Are you going to correct the inaccurate water flow model. 8) Will there be more work on the impact to wetlands. Seems under-represented. 9) The land exchange basically a fraud. The mining rights are not clear at all in the swap - so those lands could be mined someday too. 10)There is significant habitat loss not well documented in the report. 11) Finally, Polymet is a small company, frankly not all that well capitalized to take on such an enormous undertaking. It is not Kennecott. I fear any kind of even minor disaster will likely put it out of business, or it may decide to put itself out of business. Of course, the taxpayer will be left with the environmental and financial damage of such a result. The strategy of going out of business is common in the copper nickel mining community. Minnesota needs a liability plan and money in the bank to guard against the inevitable. Thanks for your time. Frank Jossi www.jossi.biz www.featherly-jossi-com (w) 651-690-9211 (c) 651-206-2558

Frank Korpi 54645

See attachment

Frank Moe 788

Dear Ms Fay, First, thank you for sending me the full bound copy of the Polymet EIS. As you know it is a lot to try and digest but I'm giving it my best effort. There are so many comments I'd like to make but there is one point, that is so glaringly obvious, that it alone should prevent Polymet from ever getting a favorable opinion from any involved regulating agency. Does anyone really believe that Polymet will operate the largest reverse osmosis system ever used for this purpose for at least 500 years. Seriously. That's more than twice as long as our country has been in existence. Five hundred years ago Europe was just coming out of the Dark Ages. Columbus had just made his trip to America. If we are all honest about this, there is zero chance that Polymet, or even it's primary investor Glencore, will be in existence in 500 years, much less any remediation system that they propose. Please, let's just be honest here. Either we admit that this is pure fantasy that this proposed massive reverse osmosis system will still be in existence in how ever many hundred years it takes for the Polymet mine pollution to somehow no longer be a threat, or we admit that we want the mine to happen regardless of the massive amounts of pollution that will result from it. This draft of the Polymet EIS is still "inadaquate" being based upon the assumption that the pollution from the mine can and will be processed for 500 years. We all know this is not going to happen. So please let's again reject the Polymet EIS and protect the Saint Louis River Watershed and Lake Superior. Thank you. Frank Moe PO Box 863 Grand Marais, MN 55606

Frank Ongaro 54506

See attachment

Alphabetical by sender's first name

Frank Peterson 39543

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Frank Peterson 424 W Main St Waconia, MN 55387-1028

Frank Trapanese 9593

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I live in Red Wing and a few years ago committed the majority of my life savings to purchase a lake lot in St Louis county. Thus, I am both a concerned citizen and a stake holder. It is the duty and ethical responsibility of the EPA, DNR, the Corp and other governmental agencies to protect ordinary citizens and the environment. I ask that you fulfill this duty by not letting PolyMet get by with a poor quality assessment based on unrealistic data. The effect of PolyMet's likely pollution would devastate the now vital fishing and tourism industries of northeastern MN for generations. The prospect of a limited number of jobs for a limited period of time would be more than offset by the collapse of fishing, tourism, seasonal residencies etc etc etc, not to mention future decades of cleanup costs that PolyMet would undoubtedly shrink from and leave to the tax payers. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. There are critical failures.The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Frank Trapanese 4202 Wright St Red Wing, MN 55066

Alphabetical by sender's first name

Frank Trapanese 18502

Dear Ms Fay, Mr Bruner and Mr Dabney: I live in Red Wing and a few years ago committed the majority of my life savings to purchase a lake lot in St Louis county. Thus, I am both a concerned citizen and a stake holder. It is the duty and ethical responsibility of the EPA, DNR, the Corp and other governmental agencies to protect ordinary citizens and the environment. I ask that you fulfill this duty by not letting PolyMet get by with a poor quality assessment based on unrealistic data. The effect of PolyMet's likely pollution would devastate the now vital fishing and tourism industries of northeastern MN for generations. The prospect of a limited number of jobs for a limited period of time would be more than offset by the collapse of fishing, tourism, seasonal residencies etc etc etc, not to mention future decades of cleanup costs that PolyMet would undoubtedly shrink from and leave to the tax payers. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. There are critical failures.The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Frank Trapanese 4202 Wright St Red Wing, MN 55066

50584

Dear Ms Fay, Mr Bruner and Mr Dabney: I live in Red Wing and a few years ago committed the majority of my life savings to purchase a lake lot in St Louis county. Thus, I am both a concerned citizen and a stake holder. It is the duty and ethical responsibility of the EPA, DNR, the Corp and other governmental agencies to protect ordinary citizens and the environment. I ask that you fulfill this duty by not letting PolyMet get by with a poor quality assessment based on unrealistic data. The effect of PolyMet's likely pollution would devastate the now vital fishing and tourism industries of northeastern MN for generations. The prospect of a limited number of jobs for a limited period of time would be more than offset by the collapse of fishing, tourism, seasonal residencies etc etc etc, not to mention future decades of cleanup costs that PolyMet would undoubtedly shrink from and leave to the tax payers. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. There are critical failures.The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Frank Trapanese 4202 Wright St Red Wing, MN 55066

Frank Verderame 4294

How can anyone even consider allowing this project to proceed. For short-term monetary gain which probably will not even provide a high percentage of benefit to Minnesota, we risk our treasure. As a user of the Boundary Waters whose extended family has enjoyed this resource for over 70 years, and a student of environmental studies, I cannot see, given the track record of such mining operations, how this will not have a serious and long- term impact on the area, changing it, irreparably, forever. Please don't let a foreign entity spoil one of the last remaining true wilderness areas in the US and leave the taxpayers holding the bag for generations. Far more money can be made in the long run by keeping the area wild and pristine and focusing on smaller projects with less negative effect. Frank Verderame 20635 Manor Rd Excelsior, MN 55331 Sent from my iPad

Alphabetical by sender's first name

Frank Wattunen 18206

My name is Frank Wattunen, F-R-A-N-K, W-A-T-T-U-N-E-N. I've heard a lot on both sides. I do get a little emotional. "Profit" is not a nasty word. All of your income, all of your livelihoods rely on profit from somebody. Businesses don't exist without profit. PolyMet should make a profit. It doesn't matter where they're from. They're willing to invest their time and money to create jobs. Copper-nickel is not a curse; it's a blessing. Everybody talks about the BWCA. I spent more time in the BWCA before it was the BWCA than most of you people ever have or ever will. My future's home, permanent home and not a constant weekend home is on the border of the BWCA. I want everyone to enjoy the BWCA, but not turn to be a religious zealot regarding water quality. Technologies change. There's a famous place in Ely that's fished very heavily going by the name of Stinky Ditch. That's where Ely Municipal used to discharge all of their waste. That has been totally cleaned up. It's a great fishery on Shagawa Lake. Yes, mining scars the earth. It's not pretty. It never will be pretty, but it can be done right. We have the experts. Let them do their jobs. Twenty years. A lot of us -- I work there in the summertime. My folks worked there. Reserve Mining Company, huge, huge, huge plant. Yes, they did pollute Lake Superior with their discharge until they got it all straightened out. Again, thanks for listening. It can be done. Logging, mining and tourism can coexist.

Frank Wood 20193

February 26, 2014 Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit Dear Lisa Fay - Our adult lives have been lived in Minnesota. We love our entire state but the beautiful northern lake and forest country has a special place in our hearts. We spent many happy days camping and canoeing there. Now in our mid-eighties we are limited in what we can undertake but our memories are fresh and often freshened by reports from our friends and younger family members about their trips. We want to save this precious resource for them and others. We understand the desire of Minnesotans who want to live in the midst of this special place and also earn a good income. We think the time has come to plan for sustainable employment rather than relying on jobs in mining which have a limited duration. We are disappointed that anyone is ready to risk the health of the entire region for a few hundred jobs. The fact that we happen to live in a particular place does not give me the right to do anything we choose to that environment. Previous mining has already done damage. Consider the pollution of the St Louis River. Look at the isolated instances of damage where sulfide bearing ores have been mined. We do not believe there is a “safe” way to manage the poisonous residue from such mining. Concentrating the poison using the filtration process proposed does not solve the problem. Consider the history of Butte MT, particularly the Berkeley Pit. What responsible person would place such a pool of poison in the midst of a network of lakes and streaMs Just recently we have seen a tank leakage in West Virginia and a slurry dam failure in Georgia. In the first case, the corporation involved sought protection in bankruptcy—a move that is not unusual for firms in a tight place. Promises do not last when the profits are gone. Corporations have no heart or soul—this makes them useful for some human purposes but not for protecting the environment. We hope to be able to respect the process used in evaluation the pros and cons of this request for a license to mine. We know that there are powerful commercial interests pressing for approval. They are seeking profit. We understand the DNR’s two-fold responsibility both to protect and use the natural resources of our state. In this case we believe the proposed use will cause too much damage to the environment to be permitted. Minnesotans like us want to pass something irreplaceable on to future generations without nasty scars. Sincerely – Frank H. and Raquel K. Wood 141 Bedford Street Southeast Minneapolis, MN 55414

Franklin Illegible 42536

See attachment

Fred Hickox 30296

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project SDEIS. Sulfide mining can not be performed safely without causing long term pollution and environmental damage. In the long term the tax payers will be paying for this mine with lost tourism jobs, health care costs, and clean-up costs. It would be more cost effective for the tax payers to pay the mining companies millions to just go away. Save our money, save our health, and save our environment. The Federal land exchange of protected Superior National Forest land is not in the public intereSt Sincerely, Fred Hickox 2705 Rockhill Dr NE Grand Rapids, MI 49525-1242 (616) 866-7638

Alphabetical by sender's first name

Fred Rogers 58043

This project is indeed a choice between jobs and the environment. What is very clear is that the jobs are relatively short term - 10-20 years - and the environmental risk and degradation are very long term - 100-500 yrs. This is a difficult choice for some, but an essential choice for all. No mine is worth it. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

58143

I oppose the proposed project and urge the State of Minnesota to reject it. Jobs are important, and so is the environment. I strongly oppose the land swap as sub [ILLEGIBLE] to avoid wetland protection. It should not be allowed. 99% of the material mind will be waste, creating unrealistic and immense, perpetual liabilities. I grew up in Pennsylvania and have been long term acid mine run-off. It is not pretty. It is a very destructive result, and Minnesota is a [ILLEGIBLE] and thus more vulnerable than Pennsylvania. There is no precedent where this damage was not the result of sulfide mining. 50% of the US copper comes from recycling. We are recycling less than half of what is thrown away. We should be mining the waste we have created and are creating – not destroying more of the planet to create, ultimately, more waste. These new jobs will also disappear and when they do, what will remain? Will our grandchildren think it was worth it! Really! Thank you.

Fred Schumacher 52278

Fred Schumacher 3460 N. Range Line Rd Gheen, MN 55771 218 787-2212 HYPERLINK "mailto:fredschum@gmail-com"fredschum@gmail-com I oppose granting a permit for the proposed Polymet mining operation near Ely. The mining period is too short, the number of jobs created too small, the experience of the company in mining non-existent, the possibility of damage too great, and the remediation period too long. The trade offs are not worth it. Note that the EPA recently halted the permitting process for the Pebble Mine near Bristol Bay, Alaska because of concerns over environmental damage. Thank you. Sincerely, Fred Schumacher

Alphabetical by sender's first name

Fred Thompson 45317

COMMENT ON POLYMET NORTHMENT SDEIS To: Lisa Fay, EIS Project Manager, MDNR Division of Ecological and Water Resources Environmental Review Unit, St Paul, MN 55155 From: Fred and Pamela Thompson, 1223 Little Creek Road Brimson, MN 55602 Email: MWVisuals@aol-com PLEASE NOTE: The following is not a form letter regarding Polymet/Northmet's proposal to mine copper nickel and other minerals in Minnesota's Arrowhead Country: To whom it may concern: Pamela and I have been residents in northern Minnesota's Arrowhead Country for forty-four years. We are among the founders of the Iron Range Historical Society. Our business, Midwest Visuals Inc.(MWVisuals@aol-com), created dozens of educational slide shows and videos about the region's history, its environment and its nonprofit organizations and business institutions. In 1979, under contract with the State of Minnesota, we produced Iron Range Country, a 232-page book about the history and culture of Minnesota's Vermilion, Mesabi and Cuyuna Iron Ranges. Minnesota's mining history is a classic example of a boom and bust economy. Many companies came and left after they exhausted the mineral riches our region offered. What did they leave us. Ultimately, hundreds of hills of overburden too sterile to grow trees and other plants; deep holes in the ground; a holding pond contaminated with asbestos like fibers; hundreds of homes worth only a few thousand dollars and many unemployed workers. When the iron mines opened in the late 1800s and early 1900s, they provided employment for thousands of immigrants. This ended in the 1970s, a mere 80+ years after the opening of the first mines when the "natural ore" mines gave out. Another, more modest boom took place after the discovery of a means to economically produce iron from the area's abundant taconite ore deposits. This boom lasted until the price for iron plummeted and it was no longer profitable to ship ore from Minnesota. Results: more unemployment, more sterile overburden, more costs to the Minnesota taxpayer. It is only lately that we are again experiencing some modest growth given improved economies and world-wide demand. Now, Polymet and its investors, along with other mining companies, want to exploit our region's other mineral resources. This time, it's copper, nickel and other minerals that are located in a sulfide ore base. Unfortunately, unlike iron mining, the world today has much negative experience with this type of mining. We've been through this before. Does anyone remember INCO's and AMAX's efforts to obtains permits to mine Minnesota's copper nickel deposits in the 1970s. After pressure from citizen groups such as the Minnesota Copper-Nickel Coalition, Minnesota took on the task of a complex study of the long term effects of this new (for the state) type of mining. Its study came to the conclusion that there were still many questions left unanswered. And then: the price for copper and nickel plummeted making mining unprofitable. AMAX and INCO faded away. Can this happen again. Of course. What did we learn from the 1970s that's still relevant today. When it rains on the overburden from iron mining, the result is mostly rusty water. Not so with a sulfide ore body. It is well documented that the acidic runoff from sulfide mine overburden must be captured and contained, potentially for hundreds of years. And who will pay for this monitoring. Polymet. Consider the company's history. PolyMet has never operated a mine. It is dependent on Glencore, its largest investor, for much of its revenue. Glencore is the world's largest commodities company and one of the world's largest global mining companies. Unfortunately for Minnesota, however, it also has a long history of environmental pollution, human rights violations and anti-labor practices. Are we asking Glencore to be the responsible party. Given its history, is this a company that Minnesota can trust. Increased employment. Yes, initially there will be s

Fred Vos 54154

I do NOT support PolyMet mining. The environmental issues are far too serious to risk. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Freddy Bear 47562

I am opposed to the PolyMet Mining Inc Project because I believe the environmental risks and future financial costs out way near term economic benefits. Instead I think the state should fund research to develop new mining technologies that are environmentally safer and less intrusive. Charles Douglas Marks 614 Taylor St NE Minneapolis, MN 55413

Frederic Boger 42592

See attachment

Alphabetical by sender's first name

Frederic Stephens 16199

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Frederick K Campbell 54784

See attachment

Alphabetical by sender's first name

Frederik de BENOIST 40284

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Frederik de BENOIST 1 allée RAMEAU les clayes sous bois, TX 78340 FR

Freds Gmail 6712

To whom it may concern: I have been reading about this project through the DNR website, trying to become familiar with its scope, its impact –both environmentally and financially – upon the area – and I trust that all precautions will be taken, implemented and sufficient in order to protect the watershed. My questions/concerns revolve around the duration of the environmental impact upon water quality for the next “200 years at the Mine Site and 500 years at the Plant Site”. I have been unable to read where my following questions are answered; specifically regarding money/finances/responsibility – 1- Where is the money coming from in order to support the operations that prevent any negative environmental impact for the next 200-500 years. 2- Is there going to be a reserve set up in order to support monetarily the operations that prevent any negative environmental impact for the next 200-500 years. 3- Who is responsible in supporting the operations, and watch-dogging the operations, that prevent any negative environmental impact for the next 200-500 years. While I understand that Polymet will be required to protect the environment and that the MNPCA / MN EPA will be the watchdogs along with the DNR, might I suggest the following, if it isn’t already in place: · The DNR, MNPCA and the MN EPA, be the watchdogs for the next 200-500 years. · After the appropriate annual operational budget calculations are made, that an annual fee be assessed upon Polymet and its successors that is based upon the annual volume of water contaminated and the costs necessary to support containment operations of that volume for the next 200-500 years. · Finally, all monies need to be placed into a non-accessible reserve (non-accessible by any present or future State Governments) that will support all environmental operations for the next 200-500 years. Thank you for your anticipated response to my questions and suggestions. Fred Whitney Frederick R. Whitney 2768 Highway 61 Two Harbors, MN 55616 218-834-7168

Freese 54856

See attachment

Alphabetical by sender's first name

Friends of the Boundary Waters 42984

Dear Lisa Fay, Attached are comments from the Friends of the Boundary Waters Wilderness on the proposed NorthMet mine SDEIS. Our comments include expert reports and attachments too large to send electronically in an email. I will be copying those to a disk and delivering those and a hardcopy of our comments to the DNR office today before the deadline. Please consider all the reports and attachments as part of our formal comments to the DNR for this project. Thank you so much. Let me know if you have any questions or problems with the attachment to this email or with the disk containing the reports. All the best, Betsy Daub - Betsy Daub Policy Director Friends of the Boundary Waters Wilderness 401 N. Third Street, Suite 290 Minneapolis, MN 55401 612-332-9630 HYPERLINK "mailto:betsy@friends-bwca-org"betsy@friends-bwca-org

Friends of the Cloquet Valley State Fore 54904

See attachment

Front Desk 17365

I agree with the attached letter, save the land and water. It is all we have left. Lynne Grenier

G. D. 57877

I ask you to oppose PolyMet's proposal for sulfide ore mining in the Superior National Forest at the headwaters of the St. Louis River. They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area. The mining will leave square miles of talcum powder-fine waste, piled high. Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock. PolyMet suggests that to prevent pollution of the St. Louis River watershed they will collect the hundreds of millions of gallons of rain and snowmelt waters that filter through the waste every year and run them through water treatment plants ... for up to five centuries. The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project. The cost liability for cleanup over centuries is also a great cause for concern. Please oppose this project.

Gabe Ernst 43803

I have seen the area that this mine will damage and I am completely against this mine as well as other non-ferrous mining. The amount of damage that this will to the watersheds and their associated recreation and tourism does not add to a good decision to bring a mine here. Please push back against this corporate interest that will inevitably lead to further poverty in our region just like the last time mining collapsed. We have moved beyond this economically and there is no reason to regress back again. Thank you, Gabe Ernst

Gabriel de la Iglesia 48167

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Gabriel de la Iglesia 8930 W Flagler St Apt 108 Miami, FL 33174

Alphabetical by sender's first name

Gabriel Skelly 38794

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Gabriel Skelly 8937 N Minnehaha Cir Minneapolis, MN 55426-3728

Gael Zembal 15406

Hello, Please find attached my comment on the NorthMet SDEIS. Thank you for your time, Gael Zembal

50931

Hello, Please find attached my comment on the NorthMet Sulfide Mine SDEIS. I have also sent a copy to Ms Fay of the DNR and Mr Bruner of the US Army Corps of Engineers. Thank you for your time, Gael Zembal

Gaelynn Lea 5933

Why I oppose the NorthMet Mine and thus believe the SDEIS should be rejected: My name is Gaelynn Lea Tressler. I am a musician and I am proud to call Duluth home. Two of my bands,HYPERLINK "http://violinscratches-com/2014/01/17/why-i-oppose-sulfide-mining-in-minnesota/www.snobarnmusic-com"Snöbarn and HYPERLINK "http://www.lea-sparhawk-crows-com/"The Murder of Crows, recorded tracks for the HYPERLINK "http://thearrowheadstory.bandcamp-com/"Arrowhead Story – an album created to raise awareness about the risks of Sulfide Mining. I am against the proposed PolyMet mine for many reasons. Of course, some of my opposition stems from my spirituality – I believe that humans are supposed to protect, not destroy, the Earth that God gave us. I also believe that it is our duty to alleviate suffering whenever possible, in this case, suffering from the future harm and disease caused by toxins that will almost certainly be released by this proposed PolyMet mine. But there are other reasons to oppose Sulfide Mining, even if one is not of a religious background. First, it just seems like a bad business deal: We loan PolyMet our land for 20 years, less than one generation's time, and they will leave it polluted for 500 years. That means over 16 generations of future Minnesotans would be affected by pollution caused by the PolyMet Mine. If I tried to get a business loan and said I'd have it paid back in a speedy 500 years, I'd be laughed out of the loan office. Why are we even considering this mine as a plausible business idea. And that is if everything goes RIGHT. What if something goes wrong and we end up facing much more pollution than we were told to expect. I just can't trust a for-profit company to honestly have the environment's best interest in mind; ultimately it's about the bottom line, it has to be. So even if PolyMet tells me that this mine will have the newest safeguards in place, creating minimal damage to the environment, I still hesitate to believe them. And it appears to be for good reason: For example, one study found that, among modern mines in the US that predicted that no acid mine drainage would occur, 89% of those mines DID have acid mine drainage during operations or after closure. And just in case it's not clear, there are many reasons to fear acid mine drainage: acid mine drainage kills fish, wildlife and plants. Mining by-products such as arsenic, manganese and thallium, have been shown to increase the risk of cancer and other illnesses in humans. Make no mistake, there WILL be disease created by this mine. Are profits really worth anything if they're at the expense of human life. And, if 500 years of pollution somehow doesn't bother you, maybe the costs to the taxpayers will: Experts who have studied other mining projects across the country said even those that start with financial safeguards can end up costing taxpayers millions of dollars. In Montana, they underestimated the volume of water needing treatment after a gold mine had closed, and state taxpayers had to create a $34 million trust fund to pay for it. Northern Minnesota cannot afford a miscalculation of that magnitude. Another study says that water treatment would cost between $3-5 and $6 million per year after the mine closes. Northern Minnesota cannot afford to foot that bill. Not for one year, not for 500 years. There are other, safer, better ways to grow our economy. For example, Maurices is soon expanding its corporate office, and they're slotted to create 600 jobs right here in Duluth. PolyMet will only create 360 full-time jobs, with HUGE liabilities attached. Let's focus on industries with less risk and more jobs. I vote as conscientiously as I can, I live as conscientiously as I can. My household, and my friends, regularly take actions to preserve the earth and our own health. And now a FOR-PROFIT company is hoping to come in and risk my health and the planet's vital water supply all for money I will never see. Where is the political, so

Alphabetical by sender's first name

GaiaTrading 20110

I want to register my opposition to mining in BWCAW - long term consequences presently unknown. Thanks for your consideration - Barbara Putnam; St Louis Park, 55426 gaiatrading@yahoo-com GaiaTrading

Gail Bollis 46059

DNR I urge you NOT to accept the SDEIS regarding PolyMet for the following reasons I do not think it is in the best interest for the citizens of Minnesota to be responsible for future tax burden as a result of cleanup costs for pollution that will result from poly mets project. The reason I am so concerned about this, in spite of poly met saying that they would be responsible, is that the financial assurances need to remain in place for an extreme amount of time. Financial assurances that need to be in place for 200 to 500 years have not ever been proven. Have there ever been any financial assurance vehicles that have been tested or proven effective for 500 years. I understand that the financial assurance part of this project is actually looked at in the permitting stage, but I strongly feel it is important that it is addressed here as well. The land swap between the forest service and poly met in my mind needs to have its own separate review. The proper amount of time needs to be allotted to this important piece of poly mets project. It cannot be lumped together and hurried through. The use of the national forest has restrictions put on it for a reason. We need to respect that and not put the needs of a corporation ahead of the rights of the citizens of the United States. We were personally involved in a land trade with the federal government. Our land trade took 12 years to go through and it was to trade lakeshore recreational property which was already in use and leased for that purpose. I feel it is a mistake for us to make this trade which would allow non ferrous mining to be done in our national Forrest without a longer period of time for public comment and education on this important change of use. It just does not make logical sense, unless a for profit corporations project does not need to have the same scrutiny as an individual. There is some discrepancy as to the amount of water being released from the project. I would believe the tolerances were put into the model for a good reason therefore it would make sense that the correct numbers be put in and the model be rerun. This is an important part of the EIS. In order to protect our citizens it is only responsible to redo the calculations and do a revision of the model. I am a concerned citizen, who loves this part of Minnesota, and is very troubled by the potential harm this type of mining could bring to northern Minnesota. I believe this harm will not only come to the earth but also would be damaging to the already established tourism environment of that area. This includes businesses as well as cabin owners. The related jobs, as well as construction jobs, taxes and other benefits this tourism economy and vacation home industry brings to the state is sustainable and can be grown. I do not believe that the current tourism economy and vacation home industry could flourish side by side with the nonferrous mining economy which brings pollution and greater industrialization to this unique part of our country. The following are items I would like the DNR to fix in PolyMets mine plan Plan to account for the destruction of moose habitat as well as other natural habitat for the Canadian lynx Plan should call for a detailed plan for financial assurances that protect current and future taxpayers Plan should accurately assess health risks to the public Address the risks of mercury pollution for our children as well as future generations Plan should improve wetland protection and replacements Provide Minnesotans with accurate information about how long polluted waters will require treatment Glencore must be recognized as a responsible party for permitting because of its ties with PolyMet Fix the inaccurate water data used in the model and redo the water model In conclusion it is my opinion that the few hundred jobs and monetary gain for a corporation is not worth the perpetual damage and

Gail Frethem 40144

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Gail Frethem 5241 10th Ave S Minneapolis, MN 55417-1701 (612) 823-6633

Alphabetical by sender's first name

Gail Gaebe 10031

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Gail Gaebe 12648 tanglewood rd audubon, MN 56511

18775

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Gail Gaebe 12648 tanglewood rd audubon, MN 56511

Alphabetical by sender's first name

Gail Gaebe 39853

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Gail Gaebe 41671

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Gail Gaebe 50849

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Gail Gaebe 12648 tanglewood rd audubon, MN 56511

Gail Gail McMullen 42438

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Gail Gail McMullen 1734 N Kingsley Dr Apt 4 Los Angeles, CA 90027-3722

Gail Gilliland 21539

Please see the attached document.

Gail Gray 26481

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Acid Mine Drainage and heavy metal contamination have polluted waters in ALL other places where sulfide ore mining has occurred. Sulfide mining in Minnesota threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. And this feeds into ALLthe other Great Lakes, great because they are fresh water. I have grave concerns about this project's impacts on our region's natural resources and public health, risks to water quality, risk and loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The federal land give-away to a mining company is not in the public's interest, it is not in the interest of wildlife, it is not in the interest of keeping our Great Lakes clean and fresh. Sincerely, Gail Gray 5213 Franklin Blvd Cleveland, OH 44102-3329

Alphabetical by sender's first name

Gail Gray 28852

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Sulfide mining threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness and on into the rest of the Great Lakes, including my Lake Erie. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Gail Gray 5213 Franklin Blvd Cleveland, OH 44102-3329

Gail J. Harty 6215

I urge you not to let this mine be built. It would be short term financial gain for a relative few, compared to the long term gain, on several levels, for countless individuals and businesses for the countless generations to come. Thank you, Gail Harty 34562 Fern Rd Lanesboro, MN 55949

Gail Jacobson 40090

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action I'm grateful for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs Gail Jacobson 1747 Carl St Saint Paul, MN 55113-5201 (651) 647-5019

Alphabetical by sender's first name

Gail Linnerson 40272

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Gail Matthews 42647

See attachment

gail roberts 42899

Attached are my comments on the NorthMet SDEIS titled: PolyMet/NorthMet Project Violates DNR Strategic Goals. Thank you for your careful consideration. Gail C. Roberts 1150 Ivy Hill Drive Mendota Heights, MN 55118 gcroberts777@yahoo-com

48158

See attachment

54491

See attachment

Alphabetical by sender's first name

Gail Rosenquist 15806

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Gail Rosenquist 1514 N 8th Ave E Duluth, MN 55805-1115

16683

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Gail Rosenquist 1514 N. 8th Av. E. Duluth, MN 55805

Alphabetical by sender's first name

Gail Rosenquist 50059

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Gail Rosenquist 1514 N. 8th Av. E. Duluth, MN 55805

Gail Smallridge 40437

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Gail Smallridge 1310 Boston Corners Road Millerton, NY 12546 US

Alphabetical by sender's first name

Gale Havrilla 40492

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, Please do not let mining destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. Comments apply to both the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands plus as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. I live near Silver Bay and a number of the once fishable streams have been reduced to fowl smelling drainage ditches void of the once healthy aquatic system due to leachate from the taconite settling ponds. I fish the St Louis River and Lake Superior and do not want to see additional pollution entering them. Wetlands in the 100 Mile Swamp and Partridge River Headwaters are priceless natural resources that help protect out waters and provide habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so less of it will travel downstream and accumulate in fish causing harm and brain development problems in the children who eat St Louis River and Lake Superior fish. 2/3 of North Shore children have already been shown to have harmful levels in their systeMs The problem should not knowingly be allowed to worsen. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn’t suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn’t look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation" wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all “compensation” mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1-Underground mining, looking at the full ore deposit and PolyMet’s real costs; 2-Putting a liner under the Category 1 waste rock stockpile; 3-Placing all tailings on a new completely lined facility; 4-Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5-Building the reverse osmosis on the mine site in year 1 to tr

Alphabetical by sender's first name

Gale Lecompte 16185

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Galiena Anderson-Lind 16580

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Galiena Anderson-Lind 261 99th Avenue NW Coon Rapids, MN 55433

49987

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Galiena Anderson-Lind 261 99th Avenue NW Coon Rapids, MN 55433

Alphabetical by sender's first name

Garret T. Wright 44963

Greetings, I wish to throw in my input concerning the proposed mining project taking place in northern Minnesota. I will state my background and bias first: I am an Iron Ranger, raised (not born), and I am a graduate of a liberal arts school, Bethel University, in St Paul which gives me a left leaning, environmentalist sentiment. I do value the habitat in northern Minnesota. I get the privilege of fishing the boundary water lakes every fishing opener, and I own 1500 shares in Polymet stock. As one can see, I can be a very torn character in this debate. My conclusion is this: There is a demand for nickel, copper, and other precious metals in the market today. If we do not mine these resources in Minnesota, another country, state, or providence will mine these resources. And I'm afraid if another region mines these minerals, tight restrictions, regulation and watchdogs will be less existent in those regions – resulting in a greater risk for environmental loss, employee exploitation, business mis-management. If these precious metals are mined in Minnesota, a very strident-progressive state; the commonwealth would keep a close watch on the company PolyMet which will pressurize them into making responsible business decisions when it comes to preserving the environment. We need the environmentalist community in this debate; not to terminate the project as a whole, but push for it and hold it accountable during its development. Much thanks. -Garret Wright Dept. of Human Services Caution: This e-mail and attached documents, if any, may contain information that is protected by state or federal law. E-mail containing private or protected information should not be sent over a public (nonsecure) Internet unless it is encrypted pursuant to DHS standards. This e-mail should be forwarded only on a strictly need-to-know basis. If you are not the intended recipient, please: (1) notify the sender immediately, (2) do not forward the message, (3) do not print the message and (4) erase the message from your system.

Garrett Bonem 52258

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Garrett Bonem 6400 Heaven Dr Howell, MI 48855

Garrett Ferderber 22744

Dear Ms Fay, Below is a form letter that I sort of believe in. I will say that I am concerned about this project as a former resident of Ely, MN and as someone who hopes to share the wonders of that area and of Lake Superior with my future children and grandchildren. I hate when science gets muddled by politics and money. It is really hard to tell what is really going on with this project because the information available is from two sides that seem to be taking extreme views of each other. I would like for there to be some sort of response to the allegations made in this letter and in the comments you are receiving regarding the NorthMet project. I would like to hear relatively easy to understand information about how the NorthMet site is or is not actually proceeding in accordance with state and federal laws. I would like to know that the people of Minnesota actually stand to gain more than a polluted hole in the ground in the long term and that our leaders are fulfilling their obligations to our future and not acting irresponsibly for short term gain. But like I said, it is a challenge to feel like there is honesty from both sides and usable information for the public. I would love for representatives from both sides to sit down and talk over the concerns. Thank you for your time. Garrett Ferderber Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was "inadequate" and the sulfide mine project would be "environmentally unsatisfactory." The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity." Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely Garrett Ferderber 4021 11th Ave S Minneapolis, MN 55407 6122268658

Alphabetical by sender's first name

Garrett Labarre 15536

Katy Olson 2345 Woodbridge St Roseville, MN 55113

Garry Budolfson 10417

DEAR BOARD, I HAVE LOTS OF CONCERNS ABOUT YOUR DIRECTIONS ON PERMITTING TO NONE AMERICAN BUSINESS. OVER FLOW SPILLS WILL HAPPEN, HOLDING A NON-AMERICAN FIRM LIABLE FOR TOTAL DOLLARS IS A WISP-IN-WIND WISH.TAILING PONDS IN EUROPE HAVE NOT HELD, YOU SHOW NO DATA FOR A EPIC RAIN EVENT. I HAVE BEEN CAMPING IN THAT REGION WHEN WE GOT 11 INCHES IN TWO HOURS. HOW ABOUT THAT EXTENDING FOR SEVERAL HOURS. SULFATE PARTS PER MILLION YOU CALL TO THE PARTRIDGE RIVER SYS AND HYPERLINK "http://B.W.CA"B.W.CA. LEAD AND ALUMINUM SEEPAGE IS EXPECTED. MERCURY IN TAILING,LIMITED.. TO WHAT. NO FROM ME, GARRY BUDOLFSON , STACY MN

Garry Leaf 58121

I am sorry I am unable to be at the last of three public hearings this evening on the Supplemental Draft Environmental Statement for the proposed PolyMet mine.As you can imagine, Sportsmen are following this closely, as we live and breathe the outdoors. Minnesota is one of the best places in the world for hunting and angling. For example, we have amazing trout and walleye fishing throughout the state. Deer hunting is so important to our culture that the opener is designated each year as a hunting opportunity for Minnesota's Governor. And we have association organizations for virtually anything that can be hunted or fished.Setting aside for a moment the tremendous job prospects for our states (and many hunters and anglers for that matter), I wanted to add my comments to this issue as it relates to the process itself.Sportsmen have strongly supported Commissioner Landwehr and I believe Minnesota has some of the most responsible environmental permitting standards in the United States. They are far better than so many places in the world, where these critical metals, like copper and nickel, are currently coming from.There are passions that erupt during a permitting process like this. My comment is that the DNR needs to be trusted to do its job, and if companies like PolyMet are able to show that they can meet or exceed the standards, we should welcome the jobs that will result.Thank you for all that the DNR does, and for protecting Sportsmen and women here in our great state. Thank you for your responsible permitting process and for efficiently bringing jobs online for those companies that can meet the standards.

Garth R Lee 42643

See attachment

Alphabetical by sender's first name

Gary 57535

Here's the link to the SDEIS as posted on the DNR website. There you can download and read chapter by chapter http://www.dnr.state.mn.us/input/environmentalreview/polymet/index.html And here's a good article written by Carla Arneson, who lives near Ely. http://www.tcdailyplanet-net/news/2014/01/05/community-voices-polymet-s-sdeis-perpetual-water-treatment-and-sulfide-mining-are-sy It's shaping up to be an interesting battle. But of course, there is huge money in the pockets of these companies, and there are politicians who fear for their re-election status if they oppose it. So, we'll see. Peace, GC From: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"*NorthMetSDEIS (DNR) Sent: Friday, December 06, 2013 7:18 PM To: Undisclosed recipients: Subject: ATTN: Notice of Availability of Supplemental Draft EIS for PolyMet NorthMet Mining Project and Land Exchange DO NOT REPLY TO THIS EMAIL. THIS MESSAGE AUTOGENERATED. [419] You are receiving this email because our records indicate you have participated in the ongoing Environmental Impact Statement (EIS) for PolyMet's proposed NorthMet Mining Project and Land Exchange. The purpose of this message is to alert interested parties of the availability of the Supplemental Draft Environmental Impact Statement (SDEIS) for the project. Attached please find the transmittal letter from the three Co-lead Agencies: US Army Corps of Engineers (USACE); US Forest Service (USFS); Minnesota Department of Natural Resources (MDNR). The text of the transmittal letter is provided below. Thank you for your interest in the project. To Interested Parties: The Minnesota Department of Natural Resources (MDNR), the US Army Corps of Engineers (USACE), and the US Forest Service (USFS) have jointly prepared the Supplemental Draft Environmental Impact Statement (SDEIS) for the NorthMet Mining Project and Land Exchange. The SDEIS describes the anticipated environmental and socioeconomic impacts of the proposed PolyMet Mining, Inc. (PolyMet) NorthMet Mining Project and Land Exchange, located near the cities of Hoyt Lakes and Babbitt in northeastern Minnesota. The SDEIS is posted on MDNR's website at: http://www.dnr.state.mn.us/input/environmentalreview/polymet/index.html. The NorthMet Project would create an open pit copper, nickel, cobalt and precious metals mine with adjacent stockpile areas; refurbish a portion of the former LTV Steel Mining Company (LTVSMC) processing plant and construct a new hydrometallurgical facility at the plant site; construct a new tailings basin facility on the site of LTVSMC tailings facilities; and add to existing utility infrastructure and rail lines. The Land Exchange would consist of USFS conveyance of Superior National Forest Lands encompassing the NorthMet mine site and surrounding lands to PolyMet, and USFS acquisition from PolyMet of up to five tracts of private lands within the Superior National Forest proclamation boundary. The Land Exchange is subject to Forest Service Project-Level Predecisional Administrative Review Process (objections process) regulations at 36 CFR 218, Subparts A and B. The Land Exchange legal notice, identifying requirements under 36 CFR 218, will be available on the Superior National Forest website, http://www.fs.usda-gov/goto/superior/northmet. The Biological Assessment and Biological Evaluation for the proposed NorthMet project are also posted on the Superior National Forest website. The USACE public notice for the SDEIS and public meetings, and the public notice for the USACE Section 404 Clean Water Act Permit, are available on the Army Corps of Engineers, St Paul District website, http://www.mvp.usace.army.mil/Missions/Regulatory/ProjectsStudies/PolyMet.aspx. Following the anticipated publishing of the SDEIS notice in the Federal Register on December 13, 2013, the MDNR, USACE, and USFS invite written comments on the SDEIS during the public comment period that ends March 13, 201

Gary & Lois Travis 36628

To whom it may concern, I am greatly concerned about allowing the PolyMet mine to proceed. There are so many ways the environment can be irreparably damaged even if there are funds set aside and plans made for these damages. So much death will occur if the nearby waters are poisoned or the surrounding land is poisoned, how can you repair or replace that. Recovery could take a century or more. How can we leave that as a legacy to our children and grandchildren. Please don't allow our pristine North to suffer the fate of so many locations already poisoned across this country, even when safeguards were put in place, Alaska, the Gulf of Mexico, Alabama, many places on the East coaSt Thank you for considering my concerns. Lois Travis 840 2nd Ave S South St Paul, MN 55075

Alphabetical by sender's first name

Gary A Russell 39053

---Original Message--- From: gar6@juno-com [mailto:gar6@juno-com] Sent: Tuesday, March 11, 2014 12:53 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Gary A Russell 4301 11th Ave S Minneapolis, MN 55407-3213

Gary and Connie DeGrote 42449

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Gary and Connie DeGrote 1108 Woodland Trl Northfield, MN 55057-5285

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Gary Anderson 46956

Dear Mr Jimenz, Along with a group of friends I spend a lot of time at our camp next to the Superior National Forest outside of Findland, MN. I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation" wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1- Underground mining, looking at the full ore deposit and PolyMet's real costs; 2- Putting a liner under the Category 1 waste rock stockpile; 3- Placing all tailings on a new completely lined facility; 4- Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5- Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives

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Gary Boelhower 44854

Dear Ms Fay, Dear Federal and State Agency Leaders: The SDEIS for the PolyMet sulfide mine is still inadequate and environmentally unsatisfactory. It makes unsubstantiated claims without facts, often based on assumptions that are flawed. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. There are several local wells in the area; yet there is no analysis of how these wells might be affected. It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. Sulfate and mercury pollution increase mercury contamination of fish. St Louis River mercury contamination of fish is already higher than in other Northeastern Minnesota regional waters and higher downstream than upstream. One out of 10 infants in Minnesota's Lake Superior Region are born with mercury in their blood above safe levels. This is a very significant danger to the human population. Clear and thorough analysis of the effect of additional sulfates in the St Louis River and Lake Superior on the uptake of mercury in fish must be studied. We cannot risk mercury poisoning of our human population. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. These wetlands are irreplaceable. This is a rich habitat for biodiversity, both plant and animal; it should not be sacrificed. It is not replaced by adding dissimilar pieces of land in other parts of the state. The significant function that the wetlands play in this region would be lost to both plant life, animal life, and the natural processes related to purification, sedimentation, and natural water regulation. Polymet's waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. Its plan to purify the water is inadequate. Reverse osmosis systems need to be significantly expanded. It is ridiculous to make the assumption that there will not be significant leakage and seepage in several directions. PolyMet would dump tailings in an unlined tailings basin designed in the 1950's on top of streams in order to leak. This old LTV basin already violates water quality standards. The SDEIS does not adequately address leach out from this basin. With the immense amount of blasting in the area, it is likely that significant rock fractures will occur. PolyMet has not substantiated its claims that nearly all seepage could be captured by pumps at one end of the 2-mile wide tailings basin. Fractures already known to exist at the PolyMet mine and plant site would transport pollution.There is geological evidence to suggest that seepage must be treated in several locations, and there must be back-up systems in the event of failure. PolyMet's 526-acre permanent, unlined Category 1 waste rock pile would be less protective than its old proposal, which would have provided lined stockpiles for long-term waste heaps. Finally, we must seriously ask the question whether or not it is environmentally responsible to propose a mining process in a water-rich environment that will require water purification systems to operate effectively for 100 or 200 or 300 or 400 years, especially when it is clear that seepage and run-off would affect wild rice growth-a sacred food for tribal members of the region; when it is clear that seepage would make its way to Lake Superior and raise the mercury level in fish which when eaten raises the level of mercury in humans. Polymet's own analysis allows 1506 micrograms per liter (ug/L) criterion of manganese at the plant which is 15 times higher than the health risk limit set by the Minnesota Health Department to prevent brain damage in infants, children and adults. The PolyMet project would

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Gary Burt 7

If a terrorist showed up in our backyard, and polluted the water, land, and air, but he created a few jobs in the process, would that be a good thing or a bad thing in the long run. The intentions of the Polymet corporation are, on the surface, good ones for some people, but not for everyone, and not in the long run. They want to create jobs, and create a small amount of wealth for a few people, and create a large amount of wealth for an even smaller group of people. They also want to make people in this area dependent on them for the jobs they create, and the money it will, supposedly, bring to the area, but this will only be true for as long as the mine also makes them extremely wealthy. It's been written that if a person wants to be free, they not only have to be responsible for their intentions and their decisions, they also have to be responsible for the CONSEQUENCES of their decisions. I have yet to see any mining company, any fracking company, any oil company, any coal company, any nuclear company, any too-large-to-fail bank, or any corporate CEO or corporate board, put down in writing that they will, in full measure, be financially responsible for any problems or hardships they create, and for as long as it takes to fully fix the problems or hardships. If the Polymet corporation was able to guarantee that they would hold themselves financially accountable for any problem or hardship they created, I might consider their business proposal valid. If the corporation was a not-for-profit business, I might consider them to be sincere. I don't see either of these things happening. Most corporations of this nature want to socialize risk and responsibilites, and privatize profits. They really don't care whose back does the labor, as long as the money keeps rolling in to their bank accounts. I doubt that any of them will live next door or downstream from any of the pollution or problems they create. I believe the CEO and board of Polymet will, as much as possible, try to keep themselves isolated from any of the consequences that result from their economic intentions and decisions. What I see is a corporation that is willing to do anything, or say anything, to get their way. If you scratch the surface of this corporation, I believe you will find a bully who wants to control the way other people think and react towards them. I also believe that if you scratch the surface of any bully, you will find a cowaRd It is only those who are afraid that feel the need to control other people, and how people think and act. When you deal with a corporation like this, with the priorities they are based on, what you almost always have is a group of people who will tell you the part of the truth that makes them look good, or, at least, doesn't make them look bad. They love the lie that preserves their image, but never the unflattering truth. And yet, if we are to make any kind of rational decisions about this corporation, and their business proposition, we need to get to the full truth, and not just the part that makes them look good, such as the jobs they boast will be created. I don't believe this corporation will ever hold themselves fully accountable for the consequences of their intentions and their decisions, which means they will never be free of their need for half-truths, intrigue and subterfuge. The people that work for them, or try to work with them, will never be free either. Such is the nature of the current corporate mentality.

19952

It's been written that the person who can see both sides of an issue, usually doesn't have money tied up in either side. Here are some simple questions that cannot be easily answered. What was the carbon footprint of the Super Bowl and the Sochi Olympics. What is the carbon footprint of a NASCAR race. What will the carbon footprint of the World Cup soccer games be. What will the carbon footprint be for building the new Viking's stadium. What was the carbon footprint of the current SI Swimsuit edition. And what is the carbon footprint of the PolyMet and G-Tac mines going to be. For what it's worth, you can pick any major event, or any major mining and fossil fuel situation, and ask the same question. The list is endless. For the people who are involved in, and dependent on, any event which is connected to their livelihood, one will probably find them adamantly on the side of holding that event. They will probably not be very interested in giving up or curtailing their event of choice. So how do we choose which events to give up, when every event will evoke the same kind of resistance. Ironically, if things continue as they are, the more fossil fuels we use, and the more events we hold and attend, the less options the earth will eventually allow us to have, when the temperature rises, and the weather gets really crazy. If things continue as they are, the population is expected to end up around nine billion people by the year 2050- If things continue as they are, the temperature of the earth is expected to rise by 4 to 6 degrees Centigrade by 2100- When that happens, the earth will only be able to support half a billion people at moSt What is going to happen to the other 8-5 billion people in the 50 years before 2100- If that happens, events like the Super Bowl, the Olympics, World Cup soccer, NASCAR, the Vikings, the swimsuit issue, PolyMet and G-Tac will be meaningless. The main irony, which most people continue to ignore, is that we would all be on the side of change, and saving the earth, if we were a rational breed of mammals. But, no, we would rather continue supporting and being involved in "events," even though it will kill most, if not all of us, in the long run, if things continue as they are. Gary Burt PO Box 143 Marble, Mn. 55764 218-247-3134

54708

See attachment

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Gary Clements 16502

From: Gary [mailto:gclem@visi-com] Sent: Wednesday, February 19, 2014 2:43 PM To: TDabney@fs.fed.us; Fay, Lisa (DNR); douglas.w.bruner@usace.army.mil Subject: Public comment on the Polymet SDEIS Greetings, As representatives of the Co-Lead Agencies for the study of this mining proposal, I'm including all of you in my comments. It occurs to me that each of your organizations has a particular expertise and interest in how this plays out, and I thank you for the opportunity to comment. I recognize, as I'm sure you do, that there is an extremely delicate balance of factors to be considered as the decision is made whether this SDEIS is an adequate improvement over the one that failed so miserably, or whether the questions that remain are still essentially unanswered. For me, there are several key questions that have not been adequately addressed. The first is the question of the proposed land exchange. It is clear to me that the original legislation that created the Superior National Forest recognized the undesirable nature of mining for sulfide bearing ores. The proposed exchange clearly violates the intent of that legislation, if not the letter of it. And I believe that the proposal also would be in clear violation of Section 404 of the Clean Water Act, because of the total imbalance of the wetlands acreage that Polymet's operation would destroy, and also because I cannot find any definitive study of the relative assessed valuation of the two parcels. I believe that such a valuation is required as part of any land exchange. Therefore I believe that it would be wrong, if not illegal, for the Forest Service to go ahead with this exchange as proposed. The second major question that has not been answered for me is the question of water treatment, both from the current LTV plant tailings pit, which is already known to be leaking, and the area where the sludge that is to eventually be captured from the reverse osmosis process is to be dumped. In fact, it seems inconclusive just where that sludge, which contains an even more highly toxic mix of pollutants, will wind up. Is it to be in some off-site landfill, where it poses even more untreated harmful potential, or is it to be in the area shown on the map near the mine site itself. In either case, this material is the worst of the worst, and the plan for its long term treatment protection is very unclear. Even worse is the totally inadequate study of the ground water flowage in the area. The Minnesota Geological Survey studies show fracturing beneath the mine and plant site areas that go well beyond what is stated by Polymet, and to use only "computer models" as a definitive statement of how much leakage there might be out the bottom of the system, and exactly where that groundwater flows, is pretty much ridiculous. Let's see an actual physical study of what waters are down there and where they feed. Do they feed the Partridge River. Do they supply Colby Lake, a source of city water for Hoyt Lakes. Do these ground waters supply a number of area rural wells. The Polymet estimations include millions of gallons that will escape treatment. Just how much magnesium, mercury, and arsenic will end up being leached from the earth as these waters flow into that ground water. A third major question is the one of the reverse osmosis procedure itself. I know that this procedure has been used on small scales to take particulate matter out of drinking water, but to use, again, a computer model rather than hard actual experience somewhere to extrapolate that this process will actually work on this massive scale across this massive time period totally stretches the imagination. The Flambeau mine in Wisconsin that is cited as an example is known to have been in violation at several points during its operation, and does not give us the scale of experience we need in order to have confidence that this kind of system will actually work in an operation the size o

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Gary Clements 51028

Greetings, As representatives of the Co-Lead Agencies for the study of this mining proposal, I'm including all of you in my comments. It occurs to me that each of your organizations has a particular expertise and interest in how this plays out, and I thank you for the opportunity to comment. I recognize, as I'm sure you do, that there is an extremely delicate balance of factors to be considered as the decision is made whether this SDEIS is an adequate improvement over the one that failed so miserably, or whether the questions that remain are still essentially unanswered. For me, there are several key questions that have not been adequately addressed. The first is the question of the proposed land exchange. It is clear to me that the original legislation that created the Superior National Forest recognized the undesirable nature of mining for sulfide bearing ores. The proposed exchange clearly violates the intent of that legislation, if not the letter of it. And I believe that the proposal also would be in clear violation of Section 404 of the Clean Water Act, because of the total imbalance of the wetlands acreage that Polymet's operation would destroy, and also because I cannot find any definitive study of the relative assessed valuation of the two parcels. I believe that such a valuation is required as part of any land exchange. Therefore I believe that it would be wrong, if not illegal, for the Forest Service to go ahead with this exchange as proposed. The second major question that has not been answered for me is the question of water treatment, both from the current LTV plant tailings pit, which is already known to be leaking, and the area where the sludge that is to eventually be captured from the reverse osmosis process is to be dumped. In fact, it seems inconclusive just where that sludge, which contains an even more highly toxic mix of pollutants, will wind up. Is it to be in some off-site landfill, where it poses even more untreated harmful potential, or is it to be in the area shown on the map near the mine site itself. In either case, this material is the worst of the worst, and the plan for its long term treatment protection is very unclear. Even worse is the totally inadequate study of the ground water flowage in the area. The Minnesota Geological Survey studies show fracturing beneath the mine and plant site areas that go well beyond what is stated by Polymet, and to use only "computer models" as a definitive statement of how much leakage there might be out the bottom of the system, and exactly where that groundwater flows, is pretty much ridiculous. Let's see an actual physical study of what waters are down there and where they feed. Do they feed the Partridge River. Do they supply Colby Lake, a source of city water for Hoyt Lakes. Do these ground waters supply a number of area rural wells. The Polymet estimations include millions of gallons that will escape treatment. Just how much magnesium, mercury, and arsenic will end up being leached from the earth as these waters flow into that ground water. A third major question is the one of the reverse osmosis procedure itself. I know that this procedure has been used on small scales to take particulate matter out of drinking water, but to use, again, a computer model rather than hard actual experience somewhere to extrapolate that this process will actually work on this massive scale across this massive time period totally stretches the imagination. The Flambeau mine in Wisconsin that is cited as an example is known to have been in violation at several points during its operation, and does not give us the scale of experience we need in order to have confidence that this kind of system will actually work in an operation the size of which Polymet contemplates. Finally, as a Minnesota taxpayer and grandfather of two who will be around long after the proposed operation is finished, I am appalled that there is not a more complete explanation

Gary Duggleby 46209

Hi, I just commented on PolyMet's open-pit copper-sulfide mine plan and wetland destruction permit. To build its mine, PolyMet proposes to directly destroy 913 acres of high quality headwater wetlands and indirectly harm up to an additional 7,351 acres of headwaters wetlands due to air pollution, water pollution, and water diversions. These wetlands are in the headwaters of the Partridge River, an important tributary to the St Louis River and ultimately Lake Superior. Most absurdly, PolyMet's plan includes NO replacement of any indirect wetland losses. Headwater wetlands are critical to protecting water quality and fish populations downstream. Please join me in telling State and Federal agencies to reject PolyMet's inadequate mine plan and wetland destruction permit. There are many, many, many more different industries that would bring a lot more jobs, that would not compromise on the Nation's finest canoeing and camping wildlife areas. Thank you, Gary Duggleby Minnetonka, MN 55345

46214

Hi, I just commented on PolyMet's open-pit copper-sulfide mine plan and wetland destruction permit. To build its mine, PolyMet proposes to directly destroy 913 acres of high quality headwater wetlands and indirectly harm up to an additional 7,351 acres of headwaters wetlands due to air pollution, water pollution, and water diversions. These wetlands are in the headwaters of the Partridge River, an important tributary to the St Louis River and ultimately Lake Superior. Most absurdly, PolyMet's plan includes NO replacement of any indirect wetland losses. Headwater wetlands are critical to protecting water quality and fish populations downstream. Please join me in telling State and Federal agencies to reject PolyMet's inadequate mine plan and wetland destruction permit. There are many, many, many more different industries that would bring a lot more jobs, that would not compromise on the Nation's finest canoeing and camping wildlife areas. Thank you, Gary Duggleby Minnetonka, MN 55345

Alphabetical by sender's first name

Gary E Glass 54500

See attachment

Gary Fifield 46920

---Original Message--- From: garyfifield@comcaStnet [mailto:garyfifield@comcaStnet] Sent: Wednesday, March 12, 2014 10:07 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd I am sure you have all of the numbers and reasons for not approving the mining proposal. I am sure you have received many of the pre-written letters from concerned individuals through the Environmental Partnership. This is not one of them. My statement is simple: We cannot afford the risk that is inherent in this project. The forces of mining for profit are very strong. The people living in the area, many of them, see jobs and livelihood resulting from the project. I do not think the number of jobs or the time they will last is adequate to justify the risk involved. We must not let the large absentee corporations make our future for us if it is too risky for those living here. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, I am told, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS and, in fact, the idea of mining in the proposed area. Thank you. Sincerely, Gary Fifield 1893 Berkeley Ave Saint Paul, MN 55105-1631

Gary G. Kohls 7717

Duty to Warn The Corporation as Psychopath: Do Mining Corporations like PolyMet and GTac Meet the Definition. by Gary G. Kohls, MD An earlier version of this essay was posted at: http://www.globalresearch.ca/the-us-corporation-as-psychopath/5345811 "Slavery is the legal fiction that a person is property. Corporate personhood is the legal fiction that property is a person." - Anonymous The NeoConservative, pro-corporate, anti-democratic Roberts' 5/4 Supreme Court's decision in the 2010 Citizens United vs. Federal Election Commission ruling (granting personhood to corporations and allowing unlimited, anonymous monetary contributions to political candidates) has emboldened the already powerful and very corruptible multinational corporations (that now have achieved dominion over politics and the economy in the United States) to "buy" any number of politicians and brain-wash many voters in many state and national elections. The US Supreme Court has made legal the absurd notion that inanimate corporations like PolyMet and GTac, potential despoilers of northern Minnesota and Wisconsin's irreplaceable wetlands, aquifers and aboriginal land and water rights deserve the same privileges (but not the same responsibilities) as living humans. Soberingly, after the ruling came down, there was only a brief bit of anger and outrage from our national leadership over this democracy-threatening decision, and the outrage was quickly drowned out of the public consciousness by a well-timed, mainstream media-orchestrated "tempest in a teapot", namely Toyota's recall of tens of thousands of accelerator pedals (that had only infrequently been the cause of significant accidents). The following question must be asked: If corporations are given the privileges of personhood shouldn't they also bear the same responsibilities and incur the same punishments as individuals when living breathing humans commit crimes against humanity, poison the drinking water or rape the land. Peace and justice activists briefly applauded when the citizens of Shapleigh, Maine protected their water rights last March from the insatiable water-extracting corporate giant Nestle. (See video and more information on this episode at: (http://www.afterdowningstreet-org/node/40335). Nestle, one of the most infamous of the countless number of multinational corporate exploiters, has no allegiance to Maine, Minnesota or Wisconsin or any other locality where they try to extract water that never was theirs; but when the water is gone or polluted and when the minerals have been depleted, so will Nestle, PolyMet and GTac, and so will be Exxon/Mobil, British Petroleum, Halliburton, Deep Water Horizon, British Petroleum, Coca-Cola and Perrier or whatever other corporate intruder that poisons or extracts the people's resources for the benefit of their shareholders and the predators at the corporate headquarters, none of whom will have to live with the poisoned environment that they leave behind. The good citizens of Maine recognized the foxes that tried to get inside their henhouse, and they did the right thing by vigorously resisting, and little David - with justice and his little slingshot on his side - won a rare victory against the evil giant Goliath. This small victory for justice should illustrate what must be done if real democracy is ever to thrive again in America. The disastrous, unconstitutional Citizens United decision must be reversed with a constitutional amendment. The future of the nation, our children, the planet, our drinking water, natural habitat and aboriginal rights are all at stake. And corporations, just like most psychopathic entities, don't seem to care. It is important to understand that the allegiance of corporations is to its shareholders, executives and management teams, and not to the people whose lives and health depend on the sustainability of the land, water, air and food supplies. Most corporate sha

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Gary G. Kohls 23539

Regarding my testimony below: my phone # is 218-728-9756 and my mailing address is 1306 8th St, Duluth, MN 55805- Thand you for your intereSt Gary G. Kohls, MD _____ Duty to Warn The Corporation as Sociopath: Do Mining Corporations like PolyMet Meet the Definition. by Gary G. Kohls, MD "Slavery is the legal fiction that a person is property. Corporate personhood is the legal fiction that property is a person." - Anonymous In 2010 the NeoConservative, pro-corporate, anti-democratic Roberts' 5/4 Supreme Court's decided in the Citizens United vs. Federal Election Commission ruling to grant personhood to corporations by allowing unlimited, anonymous monetary contributions to political campaigns and candidates. This ruling, called by many to be the worst Supreme Court decision of the past century, has emboldened the already powerful and corruptible multinational corporations (that now have achieved dominion over US politics as well as the economy) to "buy" any number of politicians and brain-wash voters by multi-million dollar ad campaigns that the rest of us can't afford to counter in state and national elections. The US Supreme Court has thus made legal the absurd notion that inanimate corporations like PolyMet and GTac (potential despoilers of northern Minnesota and northern Wisconsin's irreplaceable wetlands, aquifers and aboriginal land and water rights) deserve the same privileges (but not the same responsibilities) as living humans. After the ruling came down, there was only a brief bit of outrage from the so-called national leadership of our essentially "one-party system" (one-party, that is, when it comes to the GOP and Democratic Party's corporate and militarist agendas). What outrage was expressed was quickly drowned out by a well-timed, mainstream media-orchestrated "tempest in a teapot", namely Toyota's recall of tens of thousands of accelerator pedals (that had only infrequently been the cause of significant accidents). >> The following question about the consequences of the Supreme Court's democracy-threatening decision must be asked: If corporations are given the privileges of personhood, shouldn't they also bear the same responsibilities and incur the same punishments as individuals when they commit crimes, poison the water and air or rape the land. Peace and justice activists applauded when the citizens of Shapleigh, Maine protected their water rights last year from the insatiable water-extracting corporate giant Nestle. (See video and more information on this episode at: (http://www.afterdowningstreet-org/node/40335). Nestle, one of the many multinational corporate exploiters, has no allegiance to Maine, Minnesota or Wisconsin or any other state where this foreign entity tries to extract water or minerals that never were theirs to begin with. But when the minerals have been depleted and the water has been polluted or drained, Nestle, PolyMet and GTac will be gone, and so will Exxon/Mobil, British Petroleum, Halliburton, Deep Water Horizon, British Petroleum, Coca-Cola, Perrier or whatever other corporate intruder that ruthlessly extracts or poisons the people's resources - all for the economic benefit of their faceless investors, shareholders and CEOs at their out-of-state corporate headquarters, none of whom will have to live with the poisoned environment that they have left behind. The good citizens of Shapleigh recognized the foxes that tried to get inside their henhouse, and they did the right thing by vigorously resisting; and another underdog David - with a lot of justice, a lot of pluck and a little luck on his side - won a rare victory against another evil giant. >> That small victory against injustice should illustrate what must be done if American democracy is ever to thrive again. The outrageous Citizens United decision must be overturned with a constitutional amendment. (See www.movetoamend-org for more.)

Alphabetical by sender's first name

Gary G. Kohls 38857

Duty to Warn The Corporation as Sociopath: Do Mining Corporations like PolyMet Meet the Definition. – Part Two By Gary G. Kohls, MD "Slavery is the legal fiction that a person is property. Corporate personhood is the legal fiction that property is a person." – Anonymous Experienced psychologists tell us that sociopathic individuals that have committed crimes have to be locked away or otherwise isolated to protect society from them. As a review of last week's column, part 1, I reprint below the seven diagnostic criteria that are used to diagnose antisocial (aka, sociopathic or psychopathic) personality disorder in humans. Be mindful that only three of the seven are needed to make the diagnosis. 1) callous disregard for the feelings of other people 2) the incapacity to maintain human relationships 3) reckless disregard for the safety of others 4) aggressiveness 5) deceitfulness (repeated lying and conning others for profit) 6) incapacity to experience guilt and 7) the failure to conform to social norms and respect for the law. Other helpful traits that are commonly manifested by sociopaths include: Lack of conscience Lack of remorse for evils done to others Indifference to the suffering of its victims Rationalizes (makes excuses for) having hurt, mistreated or stolen from others Willingness to exploit, seduce or manipulate others No sign of delusional or irrational thinking Cunning, clever Usually above average intelligence Always looking for ways to make money or achieve fame or notoriety Willing to cause or contribute to the financial ruin of others Untrustworthy Cannot be trusted to adhere to conventional standards of morality. So a number of questions need to be asked. Given the fact that human sociopaths need to be avoided, marginalized or locked up, we need to ask what needs to be done with corporate entities that meet three of the seven criteria above. What needs to be done with corporations that have a history of deceiving, lying, cheating, raping the land, poisoning the water, fouling the air or otherwise acting unethically. Given the anti-constitutional 2010 Roberts' Supreme Court ruling granting personhood to corporations (Citizens United), shouldn't sociopathic corporations be dealt with just like their human counterparts when they act criminally. Shouldn't long prison sentences be given to the CEOs, Boards of Directors and management teams. Shouldn't there be confiscation of property or even capital punishment in the case of egregious cases including mass deaths as in the cases of Union Carbide, Coca-Cola and Merck (examples: the Vioxx and Gardisil deaths). I hasten to add that I am against capital punishment for humans, but any person with a conscience and more than a double digit IQ knows that corporations are not really human. Corporations don't bleed and don't cry out in pain during the execution process, although they may plead for mercy while shedding insincere crocodile tears. Capital punishment for corporations, contrary to the data on capital punishment for humans, would prevent a lot of future sociopathic behaviors. <<<What Should be Done With Corporate Rapists.>>> What about the crime of rape as applied to corporations. Rape has several definitions, including the following ones that are in my dictionary: 1) Any violent seizure or hostile action against a weaker opponent; 2) to rob or plunder; 3) the act of seizing and carrying off by force; 4) the crime of having forcible sexual intercourse without consent. Corporations that plunder, pollute or poison Mother Earth or execute hostile mergers and acquisitions of weaker companies meet some of the above definitions for rape. Shouldn't our society punish corporate rapists as severely as we punish the human kind. What about the known lethal poisons that thousands of unregulated chemical corporations knowingly discharge into the water, air, soil and food. Should the

Gary Geisler 39356

Dear Ms Fay, We oppose the PolyMet copper-nickel mine proposal. Human civilization is unsustainable in it's present form. The negative affects of global warming due to our ever-increasing fossil fuel emissions are predicted to accelerate, even if we were to end all our consumption tomorrow. It's quite possible, even probable, that civilization will eventually collapse as severe droughts, violent storms and rising sea levels disrupt the production and distribution of food and energy supplies to our ever-growing populations. I'm afraid a lot of potential customers of this new copper source, will wind up dead. Clean water will become an increasingly rare resource for the future generations that survive. Do you really think they'll be able to maintain another poisonous legacy of our short sighted folly for many centuries to come without the equipment and know-how to do so. Sincerely, Gary and Sara Geisler St Cloud, MN

Gary Glass 43015

Dear Sirs and Madam: Please find attached as a pdf file my comments on the Supplemental Draft Environmental Impact Statement provided to me by Lisa Fay, Mn DNR. Also included is a statement of my qualifications as an expert in environmental science and the chemistry of pollutants, especially mercury. Thank you for the opportunity to comment. Sincerely, Gary E. Glass, Phd 218-525-2384 143 Occidental Blvd. Duluth, MN 55804 Attachment - pdf -

Alphabetical by sender's first name

Gary Guttormson 16190

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Gary H Johnson 16241

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Gary Horning 22374

After reading several editorials and attending the meeting in St Paul, the state should realize that PolyMet will hire the best attorneys available to negotiate clean up and water treatment costs. So should the state. If we simply reley on DNR regulators, we will lose. We need to go outside and hire very aggressive and skilled negotiators that will watch out for the taxpayer. PolyMet only cares about their bottom line, not us. Do not let the state get taken to the cleaners like Uncle Zigi did to Uncle Mark. Gary Horning 13810 26th St N Stillwater MN. 55082 651 430-2058

Alphabetical by sender's first name

Gary Huss 43450

I am writing to voice my absolute disgust with the Polymet project. Northeastern Minnesota, and the BWCAW in particular contain some of the greatest natural places not only in Minnesota, but in the entire nation. Clean air, beautiful forests, and magnificent lakes and streams with high water quality are why people live in this state and why countless numbers of people want to visit here. People don't visit Minnesota and spend their tourist dollars so that they can see how wonderful the open-pit mines are. The NorthMet deposits are located on National Forest System (NFS) lands. NFS land by definition is co-owned by all of the people of the USA, not just Minnesotans. Therefore, this is a decision that can not exclude what is in the best interests of ALL stakeholders involved (not just the less than 2000 people of northeast MN that might get jobs). There is so much more at stake here than the jobs that might be generated from such a project. I understand that the residents in northeast MN would benefit greatly from the jobs, but they are not the only and most important stakeholders that need to be considered here. According to the NorthMet project documents, operations of the mine would only last approximately 20 years. It would create approximately 500 direct jobs during the 18 month peak construction phase and only 360 direct jobs during the operation phase. There would be additional 'indirect' and 'induced' employment of 332 'estimated' additional construction-phase jobs and 631 'estimated' operations-phase jobs. There is the disclaimer that these 'indirect' and 'induced' employment numbers include temporary, part-time, full-time, long-term and short-term positions. There is an added note that states 'Some of the skilled workers would relocate from outside the region'. According to the NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) 'it is uncertain how long the NorthMet Project Proposed Action would require water treatment, but it is expected to be a very long time'. The 'models' estimate that the water at the mine site will have to be mechanically treated for a minimum of 200 years and at the plant site for a minimum of 500 years (of which you will not be demanding the money to pay for the 500 years of water treatment up front and placed into an escrow account prior to starting the project). I guess you are so desperate to have them tear-up and pollute our State that this never entered the equation. On 3/12/2014, the MPCA was supposed to recommend new standards for sulfate emissions for the protection of the wild rice crop in Minnesota. After two years of studying the issue, they concluded that they aren't certain of how sulfate affects the wild rice crop. In fact, the sulfate may not have any affect on the crop, but it may be when the sulfate settles to the bottom of the lake and becomes sulfide is when the issues affecting the wild rice may be occurring. But, they stated that until they analyze the actual data more thoroughly and more scientists look at it they aren't willing to make any conclusions or set any new standards at this time. Also this week, it was reported that the EPA at the request of the MPCA granted a variance to the Clean Water Act allowing Mesabi Nuggets to release chemicals including sulfate into the environment in northeastern Minnesota. And if not for the lawsuits of some environmental groups, they would still be allowing Mesabi Nuggets to release these chemicals. The EPA issued an apology and said they should have never allowed the variance. These two examples show how difficult it is to know the effects of pollution even a couple years down the road. So now you think that your model of water treatment for 500+ years makes perfectly good sense and can easily be supported by your 'modeled' data. What kind of stewards of our land, water and air are you trying to masquerade behind. No one with any credibility could even dare to extrapolate data from a 'model' projected 500 years out

Gary Johnson 43719

The PolyMet mine will provide a few good jobs for 20 years, or so, and then it will leave behind 500 years of devastation. It would be impossible to escrow enough money to deal with that aftermath. Additionally, it would be absolute insanity to permit something which will leave behind such a huge need for toxic cleanup. Not to mention all the issues that are more important than money-such as the health issues this mine will cause in the while it’s in operation. . Gary Johnson | President – MAPE Local 501 Saint Paul, Minnesota Office: 651-259-7220 Mobile: 651-983-8108 Personal e-mail: HYPERLINK "mailto:ibscoinc@msn-com"ibscoinc@msn-com

Alphabetical by sender's first name

Gary Kohls, Md 24027

Mar 4, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Please be aware that multinational corporations share most of the characteristics of antisocial personality disordered individuals (aka psychopaths/sociopaths). That means that they tend to lie, cheat and deceive while appearing normal and acting trustworthy. They are motivated by greed, wealth, power and prestige and will do anything necessary (even illegal if they can get away with it) to achieve their goals. Although they often are charismatic, they ultimately lack in empathy. When they are caught in criminal behavior, they usually show no remorse and only compensate their victims for losses when court-ordered to do so. When ordered into therapy/rehabilitation they are very good at pretending to rehabilitate, often fooling even the best psychotherapists or judges. I wrote an essay about the corporation as psychopath, a version of which can be found at http://www.globalresearch.ca/the-us-corporation-as-psychopath/5345811- Please read it thoughtfully before risking becoming a sucker for a Big Lie con job that might make Minnesota regulators a laughingstock in the smoke-filled rooms of the Big Mining bosses of PolyMet. Gary G. Kohls, MD, Duluth, MN PS: Please access another article of mine about the consequences of giving carte blanche to multinational mining corporations at: http://duluthreader-com/articles/2013/03/09/1513_bringing_death_to_your_hometown. It is titles Bring Death to Your Hometown (after the Bruce Springsteen song of the same title). The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Gary Kohls, Md 1306 E 8th St Duluth, MN 55805-1632 (218) 728-9756

49495

Mar 4, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Please be aware that multinational corporations share most of the characteristics of antisocial personality disordered individuals (aka psychopaths/sociopaths). That means that they tend to lie, cheat and deceive while appearing normal and acting trustworthy. They are motivated by greed, wealth, power and prestige and will do anything necessary (even illegal if they can get away with it) to achieve their goals. Although they often are charismatic, they ultimately lack in empathy. When they are caught in criminal behavior, they usually show no remorse and only compensate their victims for losses when court-ordered to do so. When ordered into therapy/rehabilitation they are very good at pretending to rehabilitate, often fooling even the best psychotherapists or judges. I wrote an essay about the corporation as psychopath, a version of which can be found at http://www.globalresearch.ca/the-us-corporation-as-psychopath/5345811- Please read it thoughtfully before risking becoming a sucker for a Big Lie con job that might make Minnesota regulators a laughingstock in the smoke-filled rooms of the Big Mining bosses of PolyMet. Gary G. Kohls, MD, Duluth, MN PS: Please access another article of mine about the consequences of giving carte blanche to multinational mining corporations at: http://duluthreader-com/articles/2013/03/09/1513_bringing_death_to_your_hometown. It is titles Bring Death to Your Hometown (after the Bruce Springsteen song of the same title). The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Gary Kohls, Md 1306 E 8th St Duluth, MN 55805-1632 (218) 728-9756

Alphabetical by sender's first name

Gary Maciejewski 20075

To Whom It May Concern: I believe that any sulfide mining in Northeastern Minnesota will not only destroy surface in the area including Lake Superior, but it will also destroy much of the ground water in that area. A substantial part of the economy of Northeastern Minnesota depends on surface water of many lakes including Lake Superior, and obviously ground water is necessary for that economy to prosper. It seems very foolish to put at risk thousands of jobs related to the recreational economy including all the related jobs for a few hundred temporary jobs provided by the sulfide mining project. In addition, many people have retired in Northeastern Minnesota because of the pristine surface water including good ground water for their wells and the related recreational opportunities. Thousands of more jobs have been created in many areas that are the result of numerous people retiring or having a cabin in Northeastern Minnesota. MN Rule 6132-3200 does not allow perpetual treatment: "To receive a permit to mine, the permittee must be able to close the mine in such a way that it is stable, free of hazards, minimizes hydrologic impact and release of substances, and is maintenance free." The PolyMet SDEIS states that "long term" (>500 years at the Plant Site and >200 years at the Mine Site) treatment of wastewater is needed which means the site will not be maintenance free at closure. Low sulfur rock (Duluth Complex 0-15% S, Virginia Formation 0-2-1% S) will produce acid mine drainage. The Virginia formation comprises the north wall of the east pit. In-pit disposal of waste rock with sulfur concentrations of 0-2% has required perpetual wastewater treatment for the Zortman Landusky mine in Montana, a superfund site, requiring $948,000 per year for reclamation maintenance paid for by taxpayers. This would mean that on a related basis the Polymet mine will require over $500,000,000 of reclamation treatment at the Plant Site and over $200,000,000 at the Mine Site. If Polymet goes bankrupt after mining that area, Minnesota taxpayers will not be very happy to pay the above mentioned bills. Polymet should be required to set aside at a minimum the above mentioned amount of funds or no mining permit should be issued. Heavy metal leaching is one of the greatest environmental liabilities associated with mining, especially in pristine environments like the Project mine site, that have economically and ecologically valuable natural resources (Reclamation Research Group (Bozeman, MT) for USFWS Anchorage, Alaska, "Acid Mine Drainage and Effects on Fish Health and Ecology: A Review" (2004), Ex. G.) There are no hard rock surface mines that exist today that can demonstrate that heavy metal leaching can be stopped once it occurs on a large scale. (Earthworks Factsheet, "Hardrock Mining: Acid Mine Drainage"). Inaccurate pre-mining characterization and interpretation often results in a failure to predict impacts to water quality and aquatic life. (J.R. Kuipers et al., Comparison of Predicted and Actual Water Quality at Hardrock Mines, 2006). Evidence from literature and field observations suggests that permitting large scale surface mining in sulfide-hosted rock with the expectation that no degradation of surface water will result due to acid generation conveys enormous risk to water quality and fisheries. (Id.) Finally, the word "Moose" does not appear at all in the SDEIS cumulative effects analysis, despite consistent concerns raised by tribal cooperating agency staff to co-lead agency staff during the environmental review process. As of August 19, 2013, moose are now listed as a MNDNR species of concern. Gary J. Maciejewski P.O. Box 323 Lutsen, MN 55612

Gary Markfort 38207

Hello, I am really against this mine. There is no copper mine in existence that has not done extensive damage to the environment. This mine threatens our most important resource, fresh water. Fresh water is more valuable than any other natural reaource. We'll I believe the mine is going to happen, regardless of any input against it. Therefore, those who prosper most should be the ones cleaning up the mess and paying back the people of MN for irreparable damage. My firm belief is that the owners of Polymet, (not the company) employees, their subcontractors, individual shareholders, should pledge their personal fortunes to repairing all damage. Once they have pledged and the pledge is in writing,and mn has the right to confiscate their individual fortunes, then they can start mining. To often we hold the company responsible, but companies have an automatic out, they change leadership, they go bankrupt, they just cease to exiSt We need to hold the individual's responsible and throw away the corporate veil. Thank you for reading this communication. It is a bit extreme, but no freshwater is a very serious business. Freshwater is one of the main reasons I live here. I lived for awhile in Texas where you can not drink the tap water, bathing in it is not real cleansing either. Look at west Virginia near Charlote. More jobs will be lost in the end than are gained by this mine. Just say no to the mine. Sent from mobile device Gary Markfort Every time you wake up on the right side of the grass; its gonna be a great day.

Alphabetical by sender's first name

Gary Meier 39406

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Gary Robinson 54750

See attachment

Alphabetical by sender's first name

Gary Rost 41557

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

GARY THOMPSON 3234

The expected contamination and water treatment requirement for 500 years cannot be seen as a reasonable trade- off for jobs, and even prosperity, for only 20 years. Moreover, the cost of treatment for 500 years cannot be calculated with any reasonable certainty. How can we expect a company, or a bonding company, or even a state held escrow fund to be available in 500 years. We can't trade our valuable resources for such a ridiculously small return. Gary Thompson 190 Wildhurst Rd Excelsior, MN 55331 952-474-7971

Gary Tubb 40883

Mar 9, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Gary Tubb 387 Pinewood Spur Copley, OH 44321-1241 (330) 668-8496

Alphabetical by sender's first name

Gary Wernersbach 39740

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Gary Wernersbach 26745 128th St NW Zimmerman, MN 55398-4683 (763) 856-5204

Gary Zarling 16206

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Gavin Danfelt-Martin 21383

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I would like everyone's parents, children and selfs to be able to drink freely from our refreshing ground water. PolyMet can do better than their current SDEIS. I believe even though the mining will create jobs that doesn't mean that our workers should be subjected to making our groundwater less drinkable. Money and economy are important but at what price. PolyMet is mistaken by relying on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because there are people in this state that care about the environment more than money and have taken time to speak out for the welfare of this clean beautiful state. Keep it clean should be just as important to PolyMet. I'd like to see answer and comments on the following issues with the current PolyMet's SDEIS: •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Would it hurt to be very thorough when making sure a resource that keeps us alive stays healthy for us. Sincerely yours, Gavin Danfelt-Martin -a concerned citizen and water drinker Gavin Danfelt-Martin 209 5th St SE #101 Minneapolis, MN 55414

51024

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I would like everyone's parents, children and selfs to be able to drink freely from our refreshing ground water. PolyMet can do better than their current SDEIS. I believe even though the mining will create jobs that doesn't mean that our workers should be subjected to making our groundwater less drinkable. Money and economy are important but at what price. PolyMet is mistaken by relying on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because there are people in this state that care about the environment more than money and have taken time to speak out for the welfare of this clean beautiful state. Keep it clean should be just as important to PolyMet. I'd like to see answer and comments on the following issues with the current PolyMet's SDEIS: • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Would it hurt to be very thorough when making sure a resource that keeps us alive stays healthy for us. Sincerely yours, Gavin Danfelt-Martin -a concerned citizen and water drinker Gavin Danfelt-Martin 209 5th St SE #101 Minneapolis, MN 55414

Alphabetical by sender's first name

Gavin Spraby 41844

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Gavin Spraby Hibbing, Minnesota

Gay Trachsel 6085

Gay Trachsel. POBox 3675 Duluth, MN 55803 218-728-5478 > > > > > Sent from my iPad

18335

My name is Trachsel, spelled T-R-A-C-H-S-E-L. I am from Duluth and I'm a scientist and I have worked in the health field for 40 years. My sister died from mesothelioma. She was not a miner. She did live, though, within mining sites and drank the water, as well as breathed the air contaminated with mining particles. I do not see any reference to the major health risks to mining districts and surrounding communities to lifetime exposures. Please, I ask you to include in the SDEIS the risk for workers and the surrounding communities for at least 70 years, as Minnesota uses for guidelines, not for 35 years, as the SDEIS does on Page 5421-426. My sister was older than 30, but she was less than 60 when she died. Also, the projected healthcare costs to the State of Minnesota should be included in this statement and they are not. As a scientist, I know that some assumptions are made because models are used; not actual data. And in making conclusions in this case, the idea that this mine can be 99 percent sure that seepage will be contained and decontaminated and will flow in a certain direction, north, is not a fact, but it is an assumption. The SDEIS needs to prepare a statement with alternative water models and the impact of the seepage that most likely will occur and what contaminants will be in the seepage. This mine is an experiment. The material that is presented in this SDEIS has never occurred in copper-nickel mining anywhere else and it is imperative that alternatives will be looked at that will protect the streams that feed the three watersheds. We are now at the peak fresh water in the world. We can't afford to destroy it. Alternatives are imperative. 300 jobs for 20 years is not a good trade for 500 years of irreversible water contamination. A lot of those jobs will be for contamination cleanup and health care workers. So that at the end we can say, "We poisoned the water, but we created a lot of jobs."

Alphabetical by sender's first name

Gay Trachsel 39964

Dear Ms Fay, Dear Ms Fay and Mr Bruner, I am a health care worker and I have seen the implications of polluted water and air. It is required that the public interest is addressed by Minnesota law. Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-sit

Gayathri Ramanathan 38605

Dear Ms Fay, Dear Ms Fay and Mr Bruner, This is regarding the PolyMet NorthMet SDEIS which I feel is inadequate in addressing the public health concerns. I am very concerned about 1)Mercury pollution besides others like manganese, lead and aluminum in water and the fish population 2) air pollution resulting from all the mining-related activities - diesel, asbestos-like fibers, nickel and other particulates which are carcinogenic. Plus Ithink there are huge gaps in the SDEIS on various other pollution concerns. Corporations should take full responsibility and not externalise cost of doing business to the communities/taxpayers by polluting the air and water and our food supplies and causing diseases . I hence request you to reject the SDEIS. Thanks Gayathri Ramanathan 115 2nd avenue south Minneapolis, MN 55401 612-333-7981

Alphabetical by sender's first name

Gayl Gustafson 42506

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Gayl Gustafson 229 Earl St St Paul, MN 55106

Gayle VanGuilder 43737

3/13/14 I have reviewed the SDEIS for the Polymet Project, and fully approve of the proposed processes and mitigation systems as well as the science used in designing them, and ultimately constructing them. I also believe from an economic standpoint, that expediting the current processes so Polymet could begin construction immediately would bring a desperately needed, immediate economic boost to the Iron Range, not to mention the added benefit of more public lands, through the land exchange. I fully support the SDEIS in its entirety. Gayle J VanGuilder 6853 Wilson Rd Makinen Mn. 55763

Gaylyn Bickug 54160

I do not support Poly Met mining! [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Gene 3437

Hello, Poly Met wants to ruin one of Minnesota's true pristine northern forests. Not only will it ruin the Minnesota treasure for generations to come, the pollution from I will be all but irreversible for decades to come. The assurance money that is supposed to be set aside to clear up the pollution and damage caused by mining, won't be there for pollution clean up and restoration of the pristine treasure. Like the tobacco settlement money that was for stop smoking campaigns and to help people quit smoking, the legislature will use that assurance money for other purposes. The jobs created by mining won't be worth the destruction to this Minnesota treasure and the damage to the environment. How will they even start to clean up the pollution this will cause to the ground water. This is an ecological disaster waiting to happen. I would hope that this project would be given the thumbs down. Sincerely, Gene

Alphabetical by sender's first name

Gene Betts 18091

I'm Gene Betts. I live in Knife River, Minnesota. I represent myself, and I moved up to Knife River, North Shore area in 1975 because I came from Minneapolis up here almost every single weekends. I love this area. I do support the PolyMet Project. The reason that I think that the PolyMet Project will be a good project and they'll do what they say they're are going to do is because Minnesota has some of the strongest regulating bodies anywhere in the world. Do I trust PolyMet? No. PolyMet would have to build a relationship with me just as any of you would before I would trust you. So I'm depending on these regulatory agencies to do their job. One of the other reasons I think PolyMet will do this is because they're going to spend between $400 million and $500 million before they make a nickel. If they don't do their environmental work, they will be shut down and somebody's going to lose $400 million or someplace along that. Another reason I think they will do their job is because there are four or five other projects similar to this that will be looking at PolyMet, and if they don't do it, those projects won't happen. The environmental area that's impacted I think will end up being cleaner simply because what PolyMet is required to do will help clean up the pollution that's already here. It's been mentioned a couple of times about if this project were built in China, all you got to do is watch your TV about once a week and find out you can't see a block in China. They don't care in China. It's all about money. I want to thank the people who are considered the real environmentalists, although I consider myself a real environmentalist, because they have made this project so much better, and they another reason I believe it will be successful, because they're not going to quit. They're going to keep watching this. One of the other big quality-of-life issues is a living wage, and living wages support all the infrastructure below them. All the service jobs, all our hardware stores, all our garages. Thank you, very much.

18332

My name is Gene Betts. B-E-T-T-S. I live in Knife River, Minnesota. And I represent myself. Little bit of mining history. A lot of people -- hundreds of years the way it sounds -- but I moved here in 1975 so that I could enjoy the quality of life that is available in Northeastern Minnesota. I think it's really important to not just look at the environmental impact statement for what it is. It's really important to look at the regulatory agencies that are going to enforce what PolyMet says it's going to do. Because I truthfully don't trust PolyMet. I truthfully don't trust any of you. You're going to have to work on me pretty hard to get me to trust you. But I do trust these regulatory organizations. And I watched them help clean up Minnesota from when I moved here. I watched them clean up other messes left by other mining organizations. I watched those mining organizations declare bankruptcy. Part of the reason I think PolyMet will work is because somebody is willing to put $500 million of money before they even open the door, before they make a dime. And if they're in business for 30 days, they can get shut down by a regulatory organization and somebody is going to lose $500 million. The next thing is, this probably is the first one of these big copper-nickel mining things. And those other companies they don't want PolyMet to fail. If PolyMet fails, they don't get a chance. So I support PolyMet. I support their good jobs. Part of the quality of life in this area is good jobs. Good paying jobs. Part of the tourist industry survives because I'm here in the winter to pay for going to the restaurant and going to those other places. I understand the concern. I love this area. I don't want it to be contaminated or ruined. And I don't believe it will be. Thank you.

Alphabetical by sender's first name

Gene Champagne 45593

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. As a Special Education Teacher and Consultant I am keenly aware of the link between heavy metals and learning difficulties in children. I am also aware of the increased risk of cancer from living in the mining ranges of the Upper Great Lakes / Lake Superior Region. We cannot afford to recklessly go forward for a quick economic fix that will not only cost millions and possibly billions of dollars down the road in remedial education and menial job skill training due to health impacts on the central nervous system. The cost of needlessly throwing productive lives away because we rushed forward carelessly without assessing all of our risk and options is unthinkable. The minerals are going nowhere. They will still be in the ground for years to come. The only benefit in rushing into this without assessing all of the risk is to the mining company. The public may end of paying billions in untold costs if we do not do this right. Private profit and socialized costs are an unacceptable violation of the public truSt PLEASE, conduct a Health Impact Assessment before moving forward with this or similar future projects. Best practices net best results. Sincerely, Gene Champagne PO Box 21 Big Bay, MI 49808-0021

Gene Christenson 39260

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. There is no real need, except profit motive, to create tailing ponds that need decades to treat. Why isn't the water treated in real time like other industries. Why are the tailings not put to beneficial use at some other location instead of creating an environmental nightmare that everyone knows PolyMet will eventually walk away from. If proper operations are not financially viable for PolyMet then they should not be doing this project. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Gene Christenson 1312 Portland Ave Saint Paul, MN 55104-6905 (657) 645-9373

Alphabetical by sender's first name

Gene Fowler 46418

I would like to direct my comments not to the specific issue of PolyMet's Environmental Impact Statement, but to the larger issue of copper/nickel mining in Minnesota. I know that this may not what you are looking for, but I want to go on public record as being totally opposed to any copper/nickel/sulfide mining in the state. There has never been a copper mine anywhere in the world, ever, in any environment other than a total desert, that did not leach sulfuric acid into the groundwater. It has never been done and can not be done. Water combines with the sulfides to produce sulfuric acid. Large quantities of sulfuric acid can not be contained over long periods of time. That is an indisputable fact and all one has to know to reject PolyMet's permit application. It doesn't matter what is in their Environment Impact Statement - it is all smoke and mirrors to maintain the fiction that copper mining can be done environmentally safely. It can't. Minnesota should ban all copper/nickel/sulfide mining in the state unless and until it has been proven to be environmentally safe somewhere else. We should not be wasting time and money evaluating meaningless Environment Impact Statements. Meaningless, because they are offered in support of something that can not be done. More specific to PolyMet, why would one ever consider granting a mining permit to a company which has no competency in mining. Here are excerpts from PolyMet's 2013 annual report, signed by Jonathan Cherry, the CEO and Douglas Newby, the CFO: From page 9: "We have had no production history and we do not know if we will generate revenues in the future. While we were incorporated in 1981, we have no history of producing minerals. We have not developed or operated any mines, and we have no operating history upon which an evaluation of our future success or failure can be made. We currently have no mining operations of any kind. Our ability to achieve and maintain profitable mining operations is dependent upon a number of factors, including our ability to successfully build and operate mines, processing plants and related infrastructure ourselves. We may not successfully establish mining operations or profitably produce metals at any of our properties. As such, we do not know if we will ever generate revenues. We have a history of losses, which we expect will continue for the future. If we do not begin to generate revenues we may either have to suspend or cease operations. As a development stage company with no holdings in any producing mines, we continue to incur losses and expect to incur losses in the future. As at January 31, 2013, we had an accumulated deficit of $88-4 million. We may not be able to achieve or sustain profitability in the future. If we do not begin to generate revenues we may either have to suspend or cease operations. We currently have negative cash flow from operating activities. The Company cannot predict if or when it will operate profitably, to generate positive cash flows." From page 10: "We may not have adequate, if any, insurance coverage for some business risks that could lead to economically harmful consequences to us. Our businesses are generally subject to a number of risks and hazards, including: • industrial accidents; • railroad accidents; • labor disputes; • environmental hazards; • electricity stoppages; • equipment failures, and • severe weather and other natural phenomena. These occurrences could result in damage to, or destruction of, mineral properties, production facilities, transportation facilities, or equipment. They could also result in personal injury or death, environmental damage, waste of resources or intermediate products, delays or interruption in mining, production or transportation activities, monetary losses and possible legal liability. The insurance we maintain against risks that are typical in our business may not provide adequate coverage. Insurance against some risks (including liabil

Gene Smith 38909

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Gene Smith 11701 Van Buren St NE Blaine, MN 55434-3062

Alphabetical by sender's first name

Geneva Wychor 45051

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Geneva Wychor Geneva Wychor East 1st Street Apartment 2 Duluth, MN 55812

45053

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Geneva Wychor Geneva Wychor East 1st Street Apartment 2 Duluth, MN 55812

Alphabetical by sender's first name

Genya Welch 11400

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Dr Genya Welch 1813 Red Oak Rdg Carver, MN 55315-4568 (952) 448-0535

11401

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Dr Genya Welch 1813 Red Oak Rdg Carver, MN 55315-4568 (952) 448-0535

11404

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Dr Genya Welch 1813 Red Oak Rdg Carver, MN 55315-4568 (952) 448-0535

Alphabetical by sender's first name

Genya Welch 16624

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Genya Welch 1813 Red Oak Ridge Carver, MN 55315

50014

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Genya Welch 1813 Red Oak Ridge Carver, MN 55315

Alphabetical by sender's first name

Geoff Lynn 15975

Feb 21, 2014 Ms Lisa Fay MN Dear Ms Fay, I've lived in Minnesota now for close to 7 years. I grew up in a state (Montana) where the legacy of mining has dotted the land with Superfund sites including many where the water will need to be treated perpetually. While jobs and the economy are important, resource extraction provides temporary benefits, typically at long term cost to the environment and to many who will never benefit from the economic impact. Mining companies have a long track record of irresponsibility, regardless of the promises they make. I am against this development and am strongly urging my friends and family in Minnesota to voice their opposition. Sincerely, Mr Geoff Lynn 1605 Marshall Ave Apt B Saint Paul, MN 55104-6205 (406) 431-7286

Geoffrey Gates 18338

I am Geoffrey Gates, G-E-O-F-F-R-E-Y G-A-T-E-S. I went to college here and went to medical school here. I didn't live here for 25 years and then I came back. And the reason I came back was partly "Minnesota Nice." This is incredibly a heated (phonetic) topic, and yet people clap for one side or another. And this is incredible, actually absolutely incredible, and I thank you all. My comments are I am opposed to this particular proposal, but I'm for resource management. I am proud of this state for having honest regulatory agencies, with democrats, republicans, and even wrestlers. I am very proud that this steel from this state built the nation, the forest built the nation. We still have an extraordinary state to live in up here in the northeast. This project is different, though, for us or for iron mining. This has a toxic waste, which has to be cared for almost as long as this continent has been around. Well, Christopher Columbus, 1492 -- that even goes back before Washington. Okay, that's 500 years. Um, we have difficulty with financial assurance for something as simple as teacher pension funds. They were fully funded 20, 30 years ago, and now the taxpayers may have to bail them out for reasons that -- oh, I don't for certain understand it. But it has to be done. How are we going to take care of this toxic material long after this company is gone? Twice the length of the country. We do need these materials. In World War II there were nickel issues in armor, copper issues in shell casings, so what we did is we went to our coins and we took the nickel out of circulation and we put it in different materials, we took the penny out of circulation and we made it out of different materials, because we needed the nickel and the copper, the nickel. We took that out of circulation. If we are really that desperate, we can look at the 140 million or billions of pennies that are out there, we can look at the 40 billion nickels that are out there, which have more copper and nickel than this mine can produce. It is not that critical; the tailings are. Thank you.

Geoffrey Rich 46061

Mar 12, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, After reviewing the details, even with slight economic reasons, I believe the proposed mining is too risky to our unique resources in Minnesota, and I am fairly conservative in beliefs and would still agree with this. I am an outdoors-man, hunter, fisher, and Eagle Scout. Although I am all for other projects which can help the national and state economic resources, and eliminate our foreign dependence, I do not think this mining should happen at this time. I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Geoffrey Rich 11460 17th Pl NE Saint Michael, MN 55376-4237 (763) 242-8101

george crolick 43222

Risks are high-, Our track record is poor-,No cost in delaying-, environment is worth more than economic benefits. George Crolick Property Owner Northern Minnesota

George Gordon 21989

Just when did I "provide comments" on NorthMet Mining Project and Land Exchange SDEIS. I do not recall doing so. Thank you. George J. Gordon On Tue, Mar 4, 2014 at 6:34 AM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

George Greene 57987

Just think about the fact that none of us will be here 500 yrs from now. What will those people think of our decisions today. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

George Halvorson 6285

Dear Ms Fay, Dear Federal and State Agency Leaders: Don't put your faith in PolyMet's willingness or ability to satisfy future claims in the event that something goes wrong. A brief survey of pollution litigation should inform you that even where states are able to claw back compensation for environmental pollution, they spend an enormous amount of money doing so and the return rarely reflects the damage done. As the population of MN grows, the Boundary Waters will only increase as an economic resource for the state. Don't risk them. Best, Charles Former employee of Gunflint Lodge and a longtime enjoyer of the BWCA George Halvorson 131 W 110th Street Apt. 6F New York, NY 10026

George Illegible 58002

The cost to our future are not balanced with the short-term benefits that will be provided to private investors. This asymmetrical ____ guarantees that the public will bear the costs without compensation. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

George Johnson 16192

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

George L Withbroe 54847

See attachment

George Lah 6601

As a resident of NE Minnesota since 1960, I have seen many ups and downs economically and environmentally. While the pendulum has swung positively and negatively for both concerns we generally are able to maintain a healthy balance. The natural resources of our area are the basis for the majority of our economy. Not only from an environmental/tourism standpoint, but also from a harvest/production standpoint. I applaud both sides of the issues regarding the Polymet proposal for their hard work and diligence. Because of the concerns on both sides I believe that a healthy balance has been reached. Polymet can and will provide essential metals to the global economy and will do so in an environmentally conscious fashion. Now is the time to move ahead with this project for the people of NE Minnesota. George A. Lah 805 W Prospect Ave Cloquet, MN 55720 218 393-8045 glah@compudyne-net

Alphabetical by sender's first name

George Logan 46917

Lisa Fay MDNR Division of Ecological and Water Resources Kenneth Westlake US Environmental Protection Agency RE: PolyMet NorthMet Sulfide Mining SDEIS Dear Ms Fay, Mr Westlake: This comment letter is submitted on behalf of the undersigned doctors, nurses and other health professionals. We are concerned that the proposed PolyMet NorthMet copper-nickel mine project could have significant adverse impacts on human health as a result of pollutants released to air, surface water and drinking water. We also believe that the PolyMet NorthMet Supplemental Draft Environmental Impact Statement ("PolyMet SDEIS") fails to adequately assess important risks to human health from the pollutants that would be released from this project. The absence of any professionals from the Minnesota Department of Health from the List of Preparers of the PolyMet SDEIS is particularly troubling. We would respectfully request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks of the proposal. We would further request that, in revising the PolyMet SDEIS, a comprehensive Health Impact Assessment (HIA) be prepared under the guidance of the Minnesota Department of Health. In this letter, we summarize some issues and concerns leading to these requests. Mercury contamination of fish and impacts on neurotoxicity in the developing fetus as well as in infants, children and adults is a significant public health concern in Minnesota. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. The percentage of infants thus at risk for neurologic impairment was higher than in the Lake Superior Region of Wisconsin or Michigan. We are aware that many of the bodies of water downstream of the proposed PolyMet mine and plant are legally impaired due to mercury in fish tissue. The lower reaches of the St Louis River, where the estuary for Lake Superior fish is located, contains a particularly high level of mercury. We also know that other mine facilities release both mercury and the sulfates that increase bioaccumulation of methylmercury. Reviewing the PolyMet SDEIS, we believe that the information on mercury releases and the potential for mercury bioaccumulation is insufficient. The SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of pollutants or of hydrologic changes on mercury bioaccumulation. The SDEIS does not provide evidence to justify its claims about collection and containment of mercury and sulfates. The PolyMet SDEIS also provides an insufficient analysis of the human health risks of other pollutants, such as neurologic morbidity resulting from manganese and lead release; and carcinogenic effects of air emissions of diesel, asbestos-like fibers, nickel and other particulates, and of arsenic releases to water. The PolyMet SDEIS fails to analyze health risks to workers who would work on-site at the PolyMet mine or plant and fails to assess impacts of tailings groundwater seepage on nearby residential. The PolyMet SDEIS does not discuss impacts of exposures to vulnerable populations, such as infants, children, the elderly and persons who rely for subsistence on fish, wild rice or game species where pollutants may bioaccumulate. For these reasons, we would first request that the PolyMet SDEIS be revised to provide more complete information on mercury and sulfate emissions, deposition, and seepage from various sources, and the potential conversion to and bioaccumulation of methylmercury resulting from releases to the environment and hydrological changes from the proposed PolyMet project. We would further request that the PolyMet SDEIS be determined inadequate pending supplementation to include a Health Impact Assessment, under the direction of t

Alphabetical by sender's first name

George R. Dunn 42992

To Whom It May Concern: See below and attached my Public Comments on Proposed PolyMet Mining Project: Public Comments on Proposed PolyMet Mining Project From: George R. Dunn 1707 Taylor Avenue, Saint Paul, MN 55104 (651) 224-7687 HYPERLINK "mailto:grdunn@juno-com"grdunn@juno-com I write to urge the Minnesota DNR to reject the draft EIS and to eventually deny any permits for the proposed project. It is time for the debate about sulfite mining to end. This project and the other numerous proposed sulfite mining projects are dangerous, destructive, and divisive. This proposal and other perspective projects create an unacceptable risk to the environment and ecosystems of northeast Minnesota. For my public comments regarding the proposed PolyMet Mining Project, please note the following: The comment period should be extended. The shortened public comment period should be extended to at least the customary length of time. Although this is an amended Environmental Impact Statement ("EIS"), the issues and complexities of the project demand that the comment period be extended. The amended EIS is essentially a complete workover of the original EIS. The volume of material, complexities of the issues, evolving revelations, and recently discovered discrepancies all demand that the comment period be extended. Information has come out since the release of the draft EIS calling into question issues of hydrology assumptions, effectiveness of the reverse osmosis process, and the plan for future water treatment. These issues are of such significance that meaningful public input can only be achieved through an extension of the current comment deadline. Failure to explain the long-term plan. The applicant's failure to explain the plan for long-term water treatment is a fatal defect in the proposal. Although the EIS, itself, also fails to identify the length of time water treatment will be necessary, all parties agree that water treatment will be needed for essentially an indefinite period of time (eg, 500+ years). It is sobering to think that the State of Minnesota would even contemplate relying on a corporation to treat water for 500+ years in connection with a mining project that is scheduled to last 20 years. Time and time again across this country and throughout the world corporations have made promises similar to what PolyMet has made in its proposal, yet in every instance they have failed to follow through. The current state of corporate and bankruptcy law is such that there are no legally binding mechanisms to get a commitment from PolyMet (or its multinational corporate overlords) to treat the water for the length of time that will be necessary. The inevitable conclusion is that the financial responsibility for treating the impacted water will fall on the shoulders of the taxpayers of the State of Minnesota. This future financial obligation that would be assumed by the taxpayers of this state far outweighs any possible economic advantage the state and/or its people would benefit from by granting PolyMet the right to use the state's mineral resources and water. Additionally, the EIS fails to outline what sort of financial assurances and security PolyMet would be required to post in order to go forward with the project. I would submit that there are no financial assurances or security that PolyMet could offer that could possibly balance out the future cost of water treatment and, more importantly, the future cost of remediation that would be required in the case of an environmental disaster. Additionally, with the increase in the frequencies of severe weather events it seems increasingly likely that a catastrophic event like a dike rupture or a containment pond overflow is likely. Let us not forget the rain that fell in Duluth in June of 2012- Questions regarding the effectiveness of the proposed reverse osmosis process. Recent information from independent experts call into question the effectiveness of th

George Rounds 28780

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I have been lucky enough to have canoed Boundary Waters Area on many occasions and find it to be one of the most pristine areas in the midWest if not the nation. It would be criminal, in my opinion, to permit any mining of resources in the region that would contaminate, and eventually kill, this national treadure, So please do not allow the PolyMet Mining Corp. NorthMet mining project Supplemental to operate anywhere near this treasured land. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, George Rounds 2735 Park Pl # D Evanston, IL 60201-1336 (847) 864-5671

Alphabetical by sender's first name

George Salner 16094

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

George W Miller 54558

Remember Silver Bay & Reserve M [illegible] dumping asbestos rock & water into Lake Superior. Thanks to Myles Lord the man responsible. Thank you for stopping this tragedy. In 201 Duluth Metals signed a $227 million agreement with a Chilean firm to advance mining 3 miles from the wilderness. PolyMet Mining Corp a Canadian Co has never actually operated a mine. Please stop this from happening. Do not permit the damage which will take over 2000 years and for 20 years of mining?

George Withbroe 43048

To: Tim Dabney, U.S. Forest ServiceSuperior National Forest8901 Grand Ave. PlaceDuluth, MN 55808From: George Withbroe, Ph.D.Subject: The proposed PolyMet mine.I am deeply concerned about the proposal to develop a large copper-nickel sulfide mine near the BWCA, or, for that matter anywhere in Minnesota.It appears that this mine will be a major source of pollution, particularly to water. How can we develop a mine which will be a major source of toxic pollutants for hundreds of years, a mine which will has a high probability of becoming a financial burden to the taxpayers for decades after the owners of the mine have made their profits and left the state.For a decade I was a senior executive at NASA headquarters. I am well aware of how things go wrong on complicated projects, failures resulting from unanticipated problems which occur in spite of intense efforts to have a failsafe system. I doubt that a mining company whose primary goal is financial gain will be as careful as is required when dealing with a product that offers so many opportunities to produce destructive, long lasting, toxic pollutants.This is a beautiful state. Its beauty and wonderful natural resources should not be compromised by an industry that has a well earned reputation for being environmentally unfriendly. I have a daughter and four grandsons living in Minnesota. What legacy will we leave them?George L. Withbroe

Alphabetical by sender's first name

George Wollenburg 31663

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt It is short sighted to risk long term damage to a pristine area that presently is heavy into tourism. To be risking centuries of damage for an industry that will only exist while it is profitable to themselves is a morally corrupt thought. What little the residents of Minnesota might gain from this industry will be long forgotten when PolyMet abruptly shuts down an leaves an environmental mess. If PolyMet is anything like similar industries, they will respond with a huge team of lawyers that will fight every effort in court rather than doing anything. No man made correction to fix an environmental disaster will ever approach what nature gave us from the start. Sincerely, George Wollenburg 19646 Ulysses St NW Elk River, MN 55330-2135 (763) 441-3233

George Young 42915

Please see the attached letter in support of PolyMet. Thanks and regards, George Young

Georgia Anderson 57930

This pristine area in Northeastern Minnesota must not be destroyed for a few bits of metal--wetlands, wildlife, forests must be preserved--This mine abuts the Boundary Area, which is known and appreciated worldwide--Our family has canoed the Boundary Waters many times. Too spectacular to be desecrated. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Georgiana Anderson 39024

From: georgiana anderson [mailto:simba@backpack-net] Sent: Saturday, March 08, 2014 3:50 PM To: Stine, John (MPCA) Subject: PolyMet I write because the proposed PolyMet mining project is a dismal idea and one that evades any proper Environmentally-sound treatment. The very idea that you could get PolyMet to be responsible in 500 years for the degradation that will follow that mine, is ridiculous and obscene. The environmental issues/problems will arise immediately and will need to be addressed immediately.The areas that support Wild Rice culture will be affected and may never be reversed if sulfide is allowed to invade those Wild Rice wetlands.So we will lose a uniquely Minnesota treasure not to mention the damage that the Native Americans would sustain to their history and legacy.Sulfide mining will have other more insidious results,Sulfuric Acid.Is that something we want to produce.Not that way. There is another treasure that will be threatened,a national park that draws in people from all over the country and Europe,The Boundary Waters. Those lake are vulnerable. to acid drainage and toxic metal as are indeed,the Wild Rice growing areas,and the water supply for communities around the proposed mine. The Environmental Review process should be lengthened.This is too complicated an issue to be hurried along.You need to take the time to evaluate .There are very few pros to this plan.Only one that I can think of and that is jobs.Well, lot of jobs will be created for people cleaning up this mess forever and ever.Is that the way we want o develop jobs.I hardly think so. Why did the EPA give the PolyMet EIS a failing grade. Why is Minnesota not paying attention. Why is the Minnesota Environmental Review board complicit in this process. There is only one answer;corrupt politics and ignorance.There is only one solution:deny a permit. Thank You,Georgiana Anderson Georgiana Anderson,436 Holly Ave,St Paul,Mn.55102

Alphabetical by sender's first name

Georgiana Anderson 41795

-Poly Met is predicted to be a hazard that may still be a threat for 500 years. PolyMet is going to put up enough money to deal with this degradation for the next 500 years.I doubt that that can be accomplished. -Wild Rice requires clean water and sulfide will kill the rice if it invades the Wild Rice wetlands.They are a unique treasure for Minnesotans with great meaning for Native American's history and legacy.. -When sulfide is mined,it has the potential to produce Sulphuric Acid. -The Boundary Waters are visited by Americans and Europeans.This tourism brings money to the state.Those waters are vulnerable to acid drainage and toxic metals. The Environmental Review process needs to be extended. The period allowed is too short.This is too important for Minnesota for it to be cut short. -I have heard that the EPA gave the PolyMet EIS a failing grade.All the more reason for the period to be extended.The permit should be denied. -I understand that this means jobs. 500 years of jobs cleaning up the mess. ThankYou, Georgiana Anderson

54720

See attachment

Gerald Brown 19915

I support the PolyMet Project. My concerns for environmental protection have been satisfied. The economic benefits of this project and protection of the environment are not mutually exclusive. I urge approval and permitting by all governmental agencies charged with responsibility for NorthMet permitting. Gerald J. Brown Attorney at Law, # 001199X 8820 Deer Run Drive Victoria, Minnesota 55386 Mobile: 218-31 .0-1672- Fax: 888-634-2038 HYPERLINK "mailto:geraldjohnbrown@gmail-com"geraldjohnbrown@gmail-com ..

Gerald Casey 54118

I do NOT support PolyMet mining. I believe they will leave ground water polluted for a millenium and the state will be stuck with the cleanup bill. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Gerald Erickson 54119

We believe the environmental review process has NOT been sound and thorough. The state and federal regulators will NOT ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations. Therefore we oppose the mining project. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Gerald Krueger 54125

I believe the environmental review process has NOT been sound and thorough. The state and federal regulators will NOT ensure that PolyMet's project design, and its controls and measures will NOT address potential environmental impacts and will NOT meet all state and federal regulations. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Gerald L Sundberg 57210

Until it can be proven that no run off will be done, I'd say no to mining. Also I see a problem for others as well. If they don't mine here they'll just make a mess somewhere else. We need these minerals and the jobs they create, but at whose expense? Either fix the problem or chance our life styles.Gerald L. Sundberg2507 Lauren RdDuluth, MN 55804

Alphabetical by sender's first name

Gerald Nadreau 38975

Mar 11, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Gerald Nadreau 24191 Dial Ave Tomah, WI 54660-4328

Gerald Robert Arnebeck 54886

See attachment

Gerald S Stiff 42734

See attachment

Gerald Striegel 38890

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Gerald Striegel 400 Beacon Ave Saint Paul, MN 55104-3526

38973

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Gerald Striegel 400 Beacon Ave Saint Paul, MN 55104-3526 (651) 603-8721

Gerald Wambach 38804

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Gerald Wambach 51871 169th Ave Bemidji, MN 56601-9608 (218) 333-0891

Alphabetical by sender's first name

Geraldine Davidson 57349

My name is Geraldine Davidson. They said that this pollution being created is a new type of pollution to this area. According to the studies, they say it's in compliance. My concern is the accumulation or the cumulative effect of all of these different pollutions that are in compliance, but added together, what types of health complications are there? Especially since it is new, they just probably don't know yet. Because they said none of them are related to cancer, but there are other problems. For example, there is a study out of Canada that methylmercury, a byproduct of mining, is in our streams. They have now made a link that it suppresses your body's natural ability to break down plaque. And so now they are finding that methylmercury is contributing to cardiovascular disease because of the plaque not being able to be broken down. So what responsibility will the company have when they do make this link in the future, 50 years from now, when they make a link of the different health problems that are created by this new pollution? Now I am changing subjects here. The mineral rights, how much are they paying? The mineral rights that they are mining? Because they are going to be destroying that land. How much are they going to be making in the open market versus how many union jobs will there be for the total number of jobs that are created? How many of those are going to be union wages, with benefits, compared to their profits? My concern, too, is the quality of the air. They claim that they are going to be cleaning it, but are they going to have natural ways to clean up the land? Other than the usual methods of pollution control, such as probably having filters and that kind of stuff. But what other efforts or measures will they take to help clean the air and clean the water from all of this? Like planting more trees. I know they say they will have containment measures in place, in reservoirs, and all of their safety containment, but who is responsible 50 years from now when it breaks down and all of that pollution is brought out into the environment? Who is going to be paying for that? Who is going to be paying for the health complications that people just don't know are there? Like mesothelioma, they didn't know about it back when those minors were working. Now, is the mining company paying for their health or is it the government; us, the taxpayers? One last thing is that some of the land that they want to mine is next to the Boundary Waters Canoe Area. I oppose this Land Exchange because it will ruin that pristine area. Okay. That is it.

Geraldine Polasky 41622

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Geraldine Polasky Gheen, Minnesota

geri 43993

I forgot to put down my address, could you please ad to my comment. Kendall L Johnson 27 6th Street NE Crosby MN 56441 HYPERLINK "mailto:ger64@charter-net"ger64@charter-net 218-772-0206 From: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"*NorthMetSDEIS (DNR) Sent: Thursday, March 13, 2014 12:14 PM To: HYPERLINK "mailto:ger64@charter-net"geri Subject: RE: I support PolyMet Mining Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

geri 44087

To whom it may concern, I come from three generations of miners from all over the Iron Range in Minnesota. I know you have seen all sorts of comments both pro and con about the PolyMet project. Both to save your time and not give you a load of baseless conjecture and stats about pollution and destruction of the earth I have only one comment. Take a look at the Cuyuna Iron Range in Crosby MN which is now a state recreation area. The mining started here in the early 1900 and ended in 1985, and is now a state recreation area with Trout fishing, boating, canoeing, and Mountain Biking. If the mining industry could do there job and leave us this wonderful rec area with old and outdated technology just think what we can do today. The benefits for this project will be seen for hundreds of years. If the committee wants to see a beautiful old mining area come to Crosby MN and take a look you will not be disappointed, There is no reason to not proceed with Polymets plan. Thank you Kendall L Johnson US Army ret 218-772-0206 HYPERLINK "mailto:ger64@charter-net"ger64@charter-net

geri Jensen 20205

Feb 26, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. February 26, 2014 As a biologist and a resident of northern Minnesota, and with a mining engineer in the family, I have reviewed the options and submit a strong plea against the PolyMet copper-nickel mining proposal for our northern Minnesota. As a major retirement destination with an ever increasing tourism industry northern Minnesota depends on a sustained natural environment with exceptional fresh water quality which is in direct conflict with the proposed mining. Creating the mine itself would first destroy thousands of acres of living plant and animal life and jeopardize the fresh water system which supports all life. There is no acceptable land trade or replacement of such destroyed communities. When we are so concerned and protective of our water resources that we demand a permit to add a 6'X8' deck on a house and disallow building an outhouse, how can PolyMet possibly rank consideration. What about common good. And jobs. When our nation permitted environmental destruction to build the Panama Canal and dams such as the Grand Coulee, we had less knowledge of ecology, and there were presumed centuries of benefit expected. This is not the case with mining. Mining by its very purpose is an extraction process, finite, non-renewable, take and run with all mines at some point abandoned. A civil engineer friend describes mining as the rape of the earth. PolyMet would have a few decades at best and would begin and end leaving a wake of destruction. There is no proven, safe and lasting containment method nor treatment, and there are always mishaps, accidents, acts of God, and mistakes made. The cost of any is far greater than the benefits. Money can't fix it. How desperate can we be. What national crisis or need could be so dire as to entice the DNR to even consider a permit to deliberately destroy a well-functioning and highly valued resource, a Parthenon of nature. Some have held up a cell phone to illustrate our need for copper and other valued minerals for high tech devices. Then we should be less careless with the copper we alrea

Geri Wellems 39317

I was born and raised on the Iron Range. I am 100% opposed to copper/nickel mining in MN. Our environment is more important than jobs. I remember Reserve Mining and I have been to Milepost 7- As usual, the mining companies will take what they want and leave us with environmental damage that will be with us for eternity. All for a few jobs for a few years. I say NO. Geri Wellems Sent from my iPad

Alphabetical by sender's first name

Germain Walseth 45182

What does the MN DNR stand for. If not to protect and manage our natural resources. I am appalled that the MN DNR is allowing mining companies to pollute our natural resources FOREVER. And for what.. I am a resident of Ely, Mn and have lived in Ely, MN for 18 years. Before that, in Minneapolis for 10 years. I am so grateful to have enjoyed 28 years of Minnesota's beautiful natural resources and I am ashamed and saddened that future generations will never know the Minnesota that I have known. The mining companies WILL pollute our water, air and land. It's what they do. And mining companies will get out of paying for all the damage they have done. It's what they do BESt It's unfortunate that you will allow sulfide mining. As well as not extending the comment period.Not allowing MN tax payers a chance to voice our concerns. Obviously, it doesn't matter what the MN tax payers think, you've already made up your mind. Sulfide mining must NOT be allowed in MN. Germain Walseth Ely, MN

Gerri Williams 18330

Good evening. My name is Gerri Williams, G-E-R-R-I. And I'm a resident of Duluth. I'm not Slovenian. My most recent position was as a research associate at the Water Resource Research Institute in Washington, DC. But I represent no organization. I speak for myself. I grew up enjoying the beauty that Minnesota offers. I'm now a Duluth resident. I'm grateful for the stewardship of previous generations who passed on this heritage to me. I am not anti-mining. I recognize the benefits of the tools and technologies of modern life that enable (inaudible), including that of mining. But the public interest demands that a mining operation must prove it's appropriate to drain the location and then minimize risk to the natural habitat and to human communities. It is very troubling the proposed mine located on one of the state's most sensitive and environmental rich areas of wetlands is an open-pit mine. PolyMet (inaudible) natural resources has rejected the approach of an underground mine. The mine site itself would destroy 913 acres of wetlands and endanger more than 7,000 plus acres of surrounding wetlands. What I would add is that we really have to accept what PolyMet says on faith, because PolyMet has never operated a copper mine before. That's right. A fledging untested company is going to experiment with the health and safety of our water as part of its learning curve. Minnesota officials recognize the importance of wetlands as stated in section 103A202 stating, "The legislature finds that it is public interest to preserve the wetlands of the state to conserve surface water, maintain water quality, and promote comprehensive and total water management planning." In conclusion, it is a given the open-pit mining method that PolyMet proposes will harm wetlands. I ask the co-leading agencies to take into account that just five years ago the citizens of this state voluntarily agreed to raise their own taxes to fund a 25-year effort to enhance, protect, and restore water quality in Minnesota. Preserving wetlands must be considered crucial to this goal.

42845

See attachment

43376

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: As a Duluth resident, I have spent months of reviewing materials, both pro and con, about the proposed Polymet mine—articles, videos, letters to the editor, and the SDEIS executive summary and appended documents. I have also spoken at one of the public meetings. To me it comes down to the extensive – and potentially permanent – damage to wetlands, watersheds, animal habitat and human health that such a mine (like all other copper mines) would inflict. This is balanced against the possibility of a handful of comparatively short-term jobs and the efficacy of an untested mining conglomerate operate to avoid this damage. The record is clear that every copper mine in the world leaves in its wake destruction and damage that lingers for decades, and could persist for centuries. It is apparently the case that safe copper mining is an impossibility in its present state of development, and that reverse osmosis and other improved technologies remain unproven at the scale and duration required for industrial mining. In the case of Minnesota, copper mining situated in sensitive wetlands would add to the potential disaster. Please help Minnesota maintain its record as a forward-looking, environmentally strong model for the nation and the world. Please deny the permit for the proposed Polyment copper mine. Sincerely yours, Gerri Williams Gerri Williams 326 N. 12th Avenue E Duluth, MN 55805

Alphabetical by sender's first name

Gerri Williams 43379

Dear Ms Fay, Mr Bruner and Mr Dabney: As a Duluth resident, I have spent months of reviewing materials, both pro and con, about the proposed Polymet mine—articles, videos, letters to the editor, and the SDEIS executive summary and appended documents. I have also spoken at one of the public meetings. To me it comes down to the extensive – and potentially permanent – damage to wetlands, watersheds, animal habitat and human health that such a mine (like all other copper mines) would inflict. This is balanced against the possibility of a handful of comparatively short-term jobs and the efficacy of an untested mining conglomerate operate to avoid this damage. The record is clear that every copper mine in the world leaves in its wake destruction and damage that lingers for decades, and could persist for centuries. It is apparently the case that safe copper mining is an impossibility in its present state of development, and that reverse osmosis and other improved technologies remain unproven at the scale and duration required for industrial mining. In the case of Minnesota, copper mining situated in sensitive wetlands would add to the potential disaster. Please help Minnesota maintain its record as a forward-looking, environmentally strong model for the nation and the world. Please deny the permit for the proposed Polyment copper mine. Sincerely yours, Gerri Williams Gerri Williams 326 N. 12th Avenue E Duluth, MN 55805

54845

See attachment

54883

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Gerrit Crouse 7135

Dear Ms Lisa Fay, PolyMet's proposed NorthMet open-pit mining project is the 1st of many attempts to mine copper and nickel from sulfide ores in northeast MN. The initial draft EIS was harshly criticized by EPA. The supplemental draft EIS proposes irreversible environmental damages and should be denied. The mine would include 3 open pits, 2 at depths of 600 feet. 1,000 acres of high-quality wetlands would be eliminated in the region, which has already lost many 1000s of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is now home to dramatically declning lynx and moose. The sdEIS vaguely acknowledges the mine would "adversely impact" 4,000 acres of wildlife habitat, which is critical lynx habitat. It barely mentions moose, except to acknowledge the mine "will affect moose individuals." Affect, as in extirpate. Lakes and streams near and downstream of the mine site already violate state water-quality standards. To meet standards for sulfates, mercury, and other chemical poisons and pollutants, the sdEIS acknowledges PolyMet would need to mechanically treat its wastewater for 500 years. But it doesn't explain just how PolyMet can assure funds will be available for 100s of years after the mine has closed. According to EPA hardrock mining is the country's most toxic industry: 40% of Superfund sites are now devoted to cleaning it up. How will PolyMet's mine be different. The sdEIS gives no answers. It doesn't ask the question. The proposed mine site is on Superior National ForeSt The Forest Service recognizes that open-pit mines are prohibited here. But it is proposing to exchange these lands to allow the open-pit mine to proceed. It has provided no information to demonstrate that this is in the public intereSt This sdEIS should be rejected. I write as an emeritus member of the American Institute of Biological Sciences (AIBS). Reference: "Summary for Decision-Makers", /Millennium Ecosystem Assessment Synthesis/ (Washington, DC: Island Press, 2005). Gerrit Crouse 38 4th Avenue Nyack, NY 10960 US

Gerry Gingles 39745

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The Boundary Waters are a state and national treasure please don't sacrifice them for the almighty dollar. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Gerry Gingles 405 3rd St E Canby, MN 56220-1517 (507) 223-5773

Alphabetical by sender's first name

Gerry Gingles 48895

Mar 10, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The Boundary Waters are a state and national treasure please don't sacrifice them for the almighty dollar. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Gerry Gingles 405 3rd St E Canby, MN 56220-1517 (507) 223-5773

Gerry Rosenberg 39811

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Gerry Rosenberg 6825 Harold Ave Golden Valley, MN 55427-4927

Gerry Snyder 42826

See attachment

42880

See attachment

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Alphabetical by sender's first name

Gib Ahlstrand 47507

Hello, I am simply forwarding the 3 points about some sketchy financial details in the Polymet mining proposal as expressed today my my State representative, Phyllis Kahn. I completely agree with these concerns and urge that they be given serious consideration before this project is approved or even allowed to go ahead into the Permit to Mine phase. Sincerely, Gib Ahlstrand, 50 Barton Ave SE, Mpls. MN 55414- I. In chapter 3, pages 136 to 138, you list information that includes the preliminary cost estimate of closure. The source cited is “Foth 2013-” I’ve looked at the Foth memo cited in the SDEIS. The Minnesota DNR has simply copied information from PolyMet’s hired consultant without confirming or fact-checking their work. If the Minnesota DNR and its co-lead agencies are unable to fact-check the work they presented on financial assurance, how are we to expect that they are capable of the adequately protecting the citizens of Minnesota. II. This project should not go forward unless a third-party insurer, such as Lloyd’s of London, can be found. The simple fact is, if a third-party private entity will not take on PolyMet, the state shouldn’t. Private insurers have expertise in managing risk that the State of Minnesota can't match. Additionally, policymakers could tap the assurance funds for other purposes. Private insurance is clearly superior to a state managed approach in this case. III. In the SDEIS you say that financial assurance will be done in the Permit to Mine stage. Looking at the most recent MinnTac Permit to Mine document, there is one short paragraph on financial assurance. This project shouldn’t go forward without robust public debate, and the opportunity for legislative hearings, if what we can expect is a paragraph from the DNR in the Permit to Mine phase. You must ensure that the public, including financial experts and those elected to represent the citizens of Minnesota, have a chance to weigh in on financial assurance. It has not been your practice to do so in the past; will it be in this case.

Gil Baldich 18356

Hi there. I would like to start off by saying this is not a project, it is an experiment. It has never been done in Minnesota. I am Gil Baldich (phonetic). I am from Ely, Minnesota. I am in a band with the Baldich nephews and I am good friends with them. He was saying that China has a lot of copper right now, and that's funny, because that copper is from here and is going to go to China. So, to give them more copper doesn't make sense to me. And then I would like to talk about mining as well. I have grown up and seen them swimming in the mine pools. You know, that is a different kind of mining. That is iron oar mining. This is a completely different kind of thing. It is like fishing. Like I always remind people like crab fishing and salmon fishing, they are completely different things, but you can't be a salmon fisherman and fishing for crabs. It is completely different. Now I got to get to my paper because I only have two minutes. I was born and raised in Bemidji, Minnesota and I was a college student at St. Scholastica in Duluth. I am very concerned about the effects this so-called mining project will have on my home. Not very far away from this PolyMet mining site, the effect on the (inaudible) Tailings Basin. It will be four times (phonetic) more higher in the groundwater than the levels currently are. At the LTV tailings basin, manganese is far above Minnesota's health risk limit, but that is also expected to increase by 45 percent (phonetic). All of this is on SDEIS Page 159, Chapter 5 (phonetic). Lead (phonetic) in drinking water is known can cause brain damage. Manganese can cause neurological damage and reduce IQ in children. (Reading.) This is very alarming to my family and me because PolyMet in the EIS reports that 27 (inaudible) wells downstream of the tailings basin. As citizens, your town will be drinking this water. And some of those wells already have high levels of toxic metals. SDEIS Chapter 4, "(inaudible) does not contain any knowledge whether or not pollution from tailings basin affect these wells." (Reading.) The SDEIS must be redone to analyze any impact from the tailings basin groundwater of the wells my family and friends drink from. Why has there not been an analysis of the pollution of the drinking water of the Minnesota citizens just downstream from the tailings basin? What is protecting the water that my family and friends and daughter drink from year-round and day after day. Go Ely.

Giminon Nahgahnub 42653

See attachment

Alphabetical by sender's first name

Gina Everett 44868

Hello my name is Gina Everett. I am a lifelong resident of the state of Minnesota and I have a few concerns that I am hoping can be addressed. I believe the Polymet SDEIS is inadequate in the following areas: •It does not adequately look at reducing impacts to wetlands by considering underground mining vs. open pit mining. Economic feasibility is not supposed to be the primary factor for alternative methods in an EIS. •What evidence is there that the proposed treatment of contaminated water by reverse osmosis actually works on projects of this scale. •The water treatment process is not specific enough. What are the plans for the toxic sludge generated by reverse osmosis. How is the reverse osmosis system guaranteed to keep up with the quantity and continuous supply of contaminated water. •The proposed wetland reclamation and regeneration would not equal the high quality wetlands that the mine will destroy. •What are the effects on human health, especially in the unborn and very young, of exposure to the pollutants emitted into the air and water, especially as these pollutants accumulate to higher levels. •What insurance is there against underground drinking water contamination and what procedures will be followed to clean up any contamination that occurs. •As abundant clean water becomes more scarce world-wide and thus more valuable, this resource should be weighted higher for impact considerations the farther the timeline of impacts goes into the future. For example, clean water is likely to be more economically and environmentally valuable 100 years from now than it is today, therefore, any long term negative impacts done now should be assessed as more harmful than is currently considered. •What are the health risks to employees who are exposed to sulfide mining conditions. •What is the potential for soil contamination away from the mine site and what health risks are present for people who come into contact with this soil, especially for those growing their own food. •The Superior National Forest is a national asset and the proposed land exchange is not adequate compensation for US citizens. •How will the survival and reintroduction of rare species found in the disturbed wetlands be assured after mine closure. •Adequate funding is not guaranteed in the event of any environmental accidents while the mine is still operating or for the extensive period of water treatment needed after the mine closes. I am a mother and plan on raising my children here in Minnesota where I also hope my children can raise their children. So i'm sure you can see why these issues would be of my concern. Thank you My email address is GMOMMYEVERETT@GMail-com

Gina Holje 38539

March 6, 2014 Attention: Lisa Fay EIS Project Manager, MDNR Division of Ecological and Water Resources, Environmental Review Unit, 500 Lafayette Road, Box 25- St Paul, MN 55155-4025 RE: Public / Written Comment re the PolyMet Project Supplemental Draft Environmental Impact Statement Dear Ms Fay, Please include the below comments to the public record regarding PolyMet’s proposed copper-nickel mining project and the Supplemental Draft Environmental Impact Statement (“SDEIS”). Any environmental impact assessment (draft, supplemental, or final) that fails to comprehensively analyze the issue of "financial assurance" in the context of addressing pollution remediation / treatment work for up to the 500-year period that this project's lingering effects will require is a completely inadequate review. It therefor fails to comply with the legal requirements for adequate environmental review under both federal and state law. The time for the responsible parties producing the SDEIS to perform a detailed analysis of this issue is now long past due, and cannot wait until the permitting process commences. Until and unless the public has an opportunity to provide comment on a comprehensive analysis of the "financial assurance" issue, the true possible environmental impacts of the PolyMet project cannot be known. If the DNR is incapable of providing this analysis now, then it is self-evident that that agency is unfit to do its job as the lead party in performing the environmental review. Respectfully submitted, Gina Holje, 5333 Oliver Avenue South, Minneapolis, MN 55419, gholje@usa-net

Gina Lauria 42056

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Gina Lauria 41 W Walnut Ave Painesville, OH 44077-2923

Alphabetical by sender's first name

Gina Lauria 42057

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Gina Lauria 41 W Walnut Ave Painesville, OH 44077-2923

42058

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42059

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Alphabetical by sender's first name

Gina Marano 39519

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Gina Mckenzie 5676

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Gina McKenzie 602 4th St NE Minneapolis, MN 55413 US

Alphabetical by sender's first name

Gina Mckenzie 16294

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

gina rueck 40405

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, gina rueck schinkelst reutlingen, ot 72768 DE

Ginga Newton 40038

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Please don't put our natural resources in jeopardy. We live in a valuable area and don't need to have any of our water resources contaminated. Sincerely, Ginga Beleza Newton 5814 Elinor St Duluth, MN 55807 Sincerely, Ms Ginga Newton 5814 Elinor St Duluth, MN 55807-1215 (218) 390-1694

Ginner Ruddy 43062

March 7, 2014Dear Mr. Dabney,For the past 35 summers I have taken at least 1 canoe trip in the BWCA. The Wilderness is a place of refuge for me—it makes my heart sing.Please protect this incredible place by not supporting the PolyMet proposal. We owe this to future generations.Thank youGinner Ruddy

54751

See attachment

Alphabetical by sender's first name

Ginner Ruddy 54752

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We must protect our land! Please do not let mining take place Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Ginner T Ruddy 54753

See attachment

Ginny 43087

I wish to voice my support for the Polymet project. I have lived in the Ely area for 59 years. I love the area and trust that the state and federal agencies will do their job and protect our air and water. Enough is enough. Please get in with the permitting process and allow our area to gain hundreds of jobs so that our children can also live in this area. It shouldn't have to be just a retirement community or for tourism. Please put people to work. Thank you. Virginia Anderson 90 W Chandler St Ely, MN 55731 Sent from my iPhone

Ginny Knapp 552

Please prevent acid mine drainage from polluting our waters and to save us the huge future taxpayer costs of trying to cleanup the mess. No new mines. Virginia Knapp 2483 79th St E. Inver Grove Heights MN 55076

giuliano rigotti 40401

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, giuliano rigotti via vicenza trento, ot 38061 IT

Alphabetical by sender's first name

Gladys Schmitz 43235

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Gladys Schmitz 170 Good Counsel Drive Mankato, MN 56001

Glen Helgeson 9797

I recommend the DNR not approve the EIS for the proposed PolyMet mine project. This nickel sulfide mine would be a short-term gain for an unnecessary long-term risk. Trading 200-500 years worth of mining pollution for only 20 years worth of jobs is irresponsible. Furthermore, treatment costs could exist forever. Do we really want to treat water pollution at a mine that has been closed for centuries just for 20 years of operations and 400 jobs. I say, “no”. Trading 200-500 years worth of mining pollution for these jobs is simply irresponsible. PolyMet environmental study is inconclusive on water treatment. The EIS only covers the 20-year plan and is only specific about how much area would be mined and how much waste would be generated. The EIS doesn't provide details on how PolyMet would pay for water treatment. It doesn't provide details on how state officials can be sure the required financial guarantees will be there to adequately treat the water for centuries to come. The DNR and PolyMet is not really sure exactly how long will water treatment will be needed. Even the PolyMet officials say it's very uncertain. Furthermore, they won't know enough about potential contaminants until PolyMet begins unearthing and monitoring their impact. It would be too late for the public to stop the project if this were to happen. No one knows if PolyMet will be able to capture all the contaminated water. Even though they plan to treat the water with a reverse osmosis process, they wont know for sure whether they can capture all the water at the mine site and at the tailings basin. Acid mine drainage could potentially seep into the fractured bedrock allowing contaminated water to seep through and reemerge outside the mine site. Historically copper-nickel mines have never operated without polluting surrounding waterways, even when environmental impact statements for projects have been approved. It's too risky to permit mines with this track record in a water-rich and sensitive environment that drains into Lake Superior or the Boundary Waters. Glen Helgeson 901 Parkview Terrace Golden Valley MN 55416

58106

I recommend the DNR not approve the EIS for the proposed PolyMet mine project. This nickel sulfide mine would be a short-term gain for an unnecessary long-term risk. Trading 200-500 years worth of mining pollution for only 20 years worth of jobs is irresponsible. Furthermore, treatment costs could exist forever. Do we really want to treat water pollution at a mine that has been closed for centuries just for 20 years of operations and 400 jobs? I say, "no". Trading 200-500 years worth of mining pollution for these jobs is simply irresponsible.PolyMet environmental study is inconclusive on water treatment. The EIS only covers the 20-year plan and is only specific about how much area would be mined and how much waste would be generated. The EIS doesn't provide details on how PolyMet would pay for water treatment It doesn't provide details on how state officials can be sure the required financial guarantees will be there to adequately treat the water for centuries to come.The DNR and PolyMet is not really sure how long will water treatment will be needed. Even the PolyMet officials say it's very uncertain. Furthermore, they won't know enough about potential contaminants until PolyMet begins unearthing and monitoring their impact. It would be too late for the public to stop the project if this were to happen.No one knows if PolyMet will be able to capture all the contaminated water. Even though they plan to treat the water with a reverse osmosis process, they wont know for sure whether they can capture all the water at the mine site and at the tailings basin. Acid mine drainage could potentially seep into the fractured bedrock allowing contaminated water to seep through and reemerge outside the mine site.Historically copper-nickel mines have never operated without polluting surrounding waterways, even when environmental impact statements for projects have been approved. It's too risky to permit mines with this track record in a water rich and sensitive environment that drains into Lake Superior or the Boundary Waters.

Glenn A Partick 42774

See attachment

Alphabetical by sender's first name

Glenn Barth 39184

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Dr Glenn Barth Eden Prairie, MN 55346 glenn@goodcities-net Glenn Barth 7340 Hunters Run Eden Prairie, MN 55346

Alphabetical by sender's first name

Glenn Bertelson 40046

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

glenn guntenspergen 20831

To the Commissioner of the Minnesota DNR: I have attended one of the informational meetings on the Polymet SDEIS and have reviewed the document and watched the news carefully. What concerns me is that the SDEIS acknowledges that the mine site will require water treatment and monitoring for 100s of years after the mine closes. And of course, during operations, there will be significant land disturbance and development of piles of tailings. The potential environmental damage and the enormous cost of protecting the environment outweigh the 200 or so jobs and the value of the minerals to be extracted. No such mineral mine has ever been shown to be environmentally protective; every instance world wide has caused a great deal of damage to surface and ground water, wetlands, and the landscape in general. It is virtually impossible to estimate the cost of 200-500 YEARS of containing the sulfate and other toxins and treating the water; no amount of assurance bonding or trust fund will be enough to cover the risk of failure of the protective measures. Consider the recent disasters of coal ash spills, 500 year flood in Duluth, and other rare but entirely possible disaster. This is no routine treatment process. We do not know whether the rock to be mined contains gunnerite, a mineral that is known to cause mesothelioma and one that the state has gone to great lengths to prevent becoming airborne. This alone is a huge risk. This mine will be in the Lake Superior watershed and has the potential to poison wild rice beds in our waterways and lakes. Recent studies have shown that 10 ug/L or more cause wild rice to decline in viable seed production and the growth is damaged. We cannot risk this important cultural and economic resource, as well as the riverine and riparian wetlands that might be damaged by sulfide containing water. As much as we all use the metals that Polymet would generate in our technology, we cannot afford to risk so much costly and long-lasting environmental damage for a few years of jobs. As much as I appose the NIMBY attitude, we must protect our freshwater resources for future generations. the SDEIS recognizes the threats and the evidence convinces me that we should not permit sulfide mining in northern Minnesota. The integrity of our fresh water and our Minnesota culture that is based on clean fresh water and healthy watersheds for our quality of life cannot be put at risk. I urge the Minnesota DNR to refuse the permit the Polymet mine and other similar proposals (especially any that affect the BWCA or the Lake Superior watershed). We need to find alternatives to the metals required for technology - let's encourage such innovation in our state instead of ruining our natural resources for what is becoming old technology. Thank you for the opportunity to comment on the Polymet SDEIS. I am proud that our State of Minnesota is a democracy that gives all our citizens a chance to voice their opinion on these important matters. Sincerely, Janet Keough 2787 Northwoods Lane Duluth, MN 55803 nyssa52@northlc-com

Glenn Oliver 54536

Our fresh water is to important to risk. All the water up there will reach Superior sometime.

Gloria C Walters 42692

See attachment

Gloria Dosch 41853

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Gloria Dosch 9062 Woodthrush Ct Hebron, MD 21830-1087

Gloria Jacobs 40097

Sirs: I believe that we need to maintain the prestine conditions of the BWCAW and not allow PolyMet to mine the land as they propose. We need to act as stewards of the environment because if this proposed mine is completed then you can bet your bottom dollar that chemicals will leeche and the whole site will be impacted and useless. It just isn't worth the riskt in the long term as a mine in the short term will poison the environment for generations to follow. No to PolyMet.

Alphabetical by sender's first name

Gloria Nugent 35664

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereStIf you give permission for a SULFIDE mine to opperate in ANY PORTION OF THE GREAT LAKES,YOU ARE BASICALLY POISONING THE LARGEST SOURCE OF FRESH WATER IN THE WORLD. CAN YOU DRINK IT NO. WILL IT KILL THE WILDLIFE THAT DEPEND ON A FRESH WATER SUPPLY. YES WILL THE CITIES,THAT DEPEND ON A FRESH WATER SUPPLY WITHER AND DIE. YES. IS ALL THIS WORTH PUTTING MORE MONEY IN CORPORATIONS POCKETS. NO,NO,NO. Are you going to let GOOD SENSE PREVAIL,or are you going to be INCREDIBLY STUPID AND RUIN MORE OF OUR PRECIOUS RESOURCES. THIS COUNTRY ABSOLUTELY CANNOT AFFORD MORE CORPORATE ABUSES . Sincerely, Gloria Nugent 3854 Washington Rd Carsonville, MI 48419-9311

Gloria Scoonover 16003

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Glory-June Greiff 31837

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, As a concerned citizen and environmentalist, I submit these comments on the PolyMet Mining Corporation NorthMet Mining Project Supplemental Draft Environmental Impact Statement. My first reaction was what are these people thinkingand do we never learn to consider the unintended consequences. Sulfide mining has never been done in Minnesota. It threatens wetlands, rivers, lakes and streams across the Arrowhead Region, which includes Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I see nothing that assures me that this will not happen should this project go forwaRd I have grave concerns about this project's potential impacts on the region's natural resources and public health. Among these are risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is decidedly not in the public intereSt Sincerely, Glory-June Greiff 1753 S Talbott St Indianapolis, IN 46225-1758 (317) 637-6163

GMS Industrial 3

It should be obvious this proposal should Not be allowed considering all the environmental factors. Sent from my iPad

Gordon H Kimball 44085

After reviewing the SDEIS we submit the following comments for response: The ability of PolyMet Corporation to perform this large scale project or meet the long term financial commitments called for is not proven. PolyMet has no record of successful mining. The average life of a multi-national corporation engaged in large scale business is estimated to be 40 – 50 years. It cannot be assumed they can or will perform the expanded, difficult and long term commitments described in the SDEIS. The SDEIS does not fully or adequately describe or project the cost of the following: Reclamation and Closure Fixed Engineering Controls Annual Post-closure Monitoring and Maintenance for the 200 to 500 year monitoring period Contingency Mitigation Transition From Mechanical to Non-Mechanical Water Treatment methods Due to the serious consequences and long term exposure described in this proposal we believe the SDEIS must fully address the potential for PolyMet to cease existence and performance of financial obligations. In order to make an intelligent decision regarding this proposal we believe the following questions need to be answered. What potential failures or problems exist for long term maintenance and environmental protection. If they happen, what will be the mitigation and correction required. What is the annual cost of Monitoring and Maintenance for the years after mine closure. Who will pay for it if and when PolyMet no longer exists. The SDEIS states $3-5 – 6-0 million per year for Monitoring and Maintenance. What is the annual projected cost per year in the time period 50 – 500 years expressed in 2014 dollars. What assumptions about inflation and economic conditions can rationally exist to make these projections valid. Who will pay for shortfalls in long term Monitoring and Maintenance funding. What legal and financial obligations exist for the permitting agencies and governmental bodies that participated in this SDEIS and / or approved permits. What process exists for securing binding commitments now for financial participation in the 200 – 500 year period of exposure. If none, we believe this is a valid reason for not approving this SDEIS according to State law and regulations. Will the State of Minnesota be liable to cover shortfalls in long term Monitoring and Maintenance funding. What percentage. What is the potential cost expressed in 2014 dollars. What is the likelihood the State will be able to and be willing to cover costs for the critical long term Maintenance and Monitoring time period. Will St Louis County, the cities of Aurora and Hoyt Lakes be asked to help cover shortfalls in long term Monitoring and Maintenance funding if needed. What percentage. What is the potential cost expressed in 2014 dollars. What is the likelihood they will be able to and be willing to cover costs for this time period. What mechanisms can be put place that obligates these governmental bodies to participate in funding long term Maintenance and Monitoring/ Sincerely, Gordon H. Kimball Nancy O. Kimball 3036 Edgerton Street Little Canada, MN 55117

Alphabetical by sender's first name

Gordon Kircher 16173

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Gordon Larsen 54140

I don't trust anyone with a dog in the fight, they will say anything to make money, and will be gone before trouble comes. Make Polymet board members personally responsible for clean up, I bet they will not trust the finding. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Gordon Manary 39549

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

gordon marino 42054

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, gordon marino northfield, Minnesota

Alphabetical by sender's first name

Gordon Murdock 38758

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. That said, I also urge you to do everything possible to create environmentally safe jobs in NE Minnesota. Unfortunately the PolyMet mine does not meet this criterion. Sincerely, Dr Gordon Murdock 1489 Hythe St Saint Paul, MN 55108-1426

Gordon Palzer 39127

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Gordon Palzer 2221 Scheffer Ave Saint Paul, MN 55116-1161

Gordon Shetter 58060

The lands and waters will exist long after mining, and any potential benefits, is gone. It isn't worth the risk of our resources for corporate profits. The people need solutions that produce long term jobs and local prosperity, not resource extraction. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Gordon Sirvio 11329

From: Gordon Sirvio 42302 Chase Lake Road Deer River, MN 56636 To: Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Memo: The PolyMet environmental standards needs to reflect the fact that our climate is changing. Climate at the mining site will become more extreme. Generally, it is projected, there will be lower natural precipitation but there will also be more frequent severe storMs Holding ponds need to be managed for not just a single 100 year storm using the climate standard from the 20th Century but the more likely event of this type of storm occurring 2 or more times in the same period of time. So we have a dual problem. With the diversion of water to the mining process, plans need to be made for how the surrounding land will be affected. Plus drain fields, dams and erosion controls need to be modified for the increase in periodic severe weather. This will mean modifying the accepted 20th Century environmental standards. Also, unless there is a 'real' current pollution cleanup solution, all protection standards for waste materials will need to be considered for the top timeframes actually experienced for cleanups of past mining sites. This means that, if in the past a 50 year projected safe zone that has not been successfully passed with mining waste sites of current and past projects, the projected time period should be extended to 75 or possibly 100 years. People have a tendency to plan for the future with an assumed increase in technology. This should not be done until that technology actually exists. It is unwise to bet the environment on a guessed future. HYPERLINK "http://www.paulbunyan-net/users/gsirvio"Sirvio's Keep

Gordy Grundeen 21583

Our proposal "Using Solar Hydrogen to reduce sulfite minerals" at the Polymet mine site is: Gordy Grundeen Blue Sky Sciences, Inc. 8270 Hidden Bay Trail Lake Elmo MN, 55042 651-770-1056 gordyg@teksolr-com

Gordy Meier 38594

March 5, 2014 Mr, Bruner, Thank you for taking the time to collect public comments regarding the Sulfide Mining Proposal for Northeast Minnesota. We would appreciate your understanding why we are in TOTAL OPPOSITION to sulfide mining, and in particular, the sulfide mining proposal in our back yard in Ely and we want the proposal to sulfide mine Rejected. It is apparent to us, that under the quest to create jobs and for a questionable long term economic gain, there is a willingness to risk the environment , not be concerned for MN citizens and Northeast residents, ignore the devastating impact to existing Northeast tourism, real estate markets and the wild rice industry. Environment Sulfide mining has never been done successfully, without a huge negative impact to the environment. This damage cannot be repaired by just creating a Super clean-up fund, but in addition would take many lifetimes to correct, if ever. The acid runoff and ground water contamination would devastate lakes , rivers , the BWCA and Lake Superior. This is exactly why Wisconsin has now put a moratorium on any further sulfide mining in the State without demonstrated proof sulfide mining can be done without impact to the environment. ie the Flambeau mine. We in Minnesota are blessed with a pristine wilderness area of Northeast Minnesota and the BWCA which truly sets us apart from anything in the lower 48 states- is that worth risking. Economy Copper and nickel are currently in the limelight due to high prices, demand and availability- this too will go the way of iron ore-taconite and steel when China and other countries, all with low labor and process rates, start mining and processing these metals. When the US becomes be high cost producer, and they lose the demand for their product, then watch the mining companies pack up and leave with no regard to what is left or happens to the jobs, environment or economy in the NortheaSt People need to wake-up and start measuring the TOTAL DOLLAR impact to the Northeast when mining and the ruined environment cause the current real estate market, tourist industry and wild rice industry to dry up. Personal My wife and I have spent 50 years in the Ely, Bear Head State Lake Park area. Over 30 years ago we purchased 5+ acres on Eagles Nest Lake #3 . We cleared the property and built a year round log home. This home is a heritage for my daughter to retire to and for our grandson to enjoy as he grows up. The Eagles Nest Lakes Chain of 4 lakes, are pristine wilderness spring fed lakes. If this sulfide mining proposal goes through we stand a huge risk of ground and surface water contamination which would render our lakes and wells not usable. With that our property which we poured over 30 years of time, money, sweat and tears into would be worthless. Thanks for taking time to read this and we pray that all the folks involved with this sulfide mining proposal weigh the decision with common sense and facts and then VOTE THIS SULFIDE MINING PROPOSAL Down . Thanks for your time and consideration. Regards , Gordon and Kay Meier 6101 Century Blvd. Brooklyn Park , MN 55429 763-561-0676 AND 3780 Rustic Wood Rd Ely, MN 55731 218-365-5567 E-mail HYPERLINK "mailto:GHM1942@gmail-com"GHM1942@gmail-com

Alphabetical by sender's first name

Gordy Meier 49449

March 5, 2014 Mr Tim Dabney; Thank you for taking the time to collect public comments regarding the Sulfide Mining Proposal for Northeast Minnesota. We would appreciate your understanding why we are in TOTAL OPPOSITION to sulfide mining, and in particular, the sulfide mining proposal in our back yard in Ely and we want the proposal to sulfide mine Rejected. It is apparent to us, that under the quest to create jobs and for a questionable long term economic gain, there is a willingness to risk the environment , not be concerned for MN citizens and Northeast residents, ignore the devastating impact to existing Northeast tourism, real estate markets and the wild rice industry. Environment Sulfide mining has never been done successfully, without a huge negative impact to the environment. This damage cannot be repaired by just creating a Super clean-up fund, but in addition would take many lifetimes to correct, if ever. The acid runoff and ground water contamination would devastate lakes , rivers , the BWCA and Lake Superior. This is exactly why Wisconsin has now put a moratorium on any further sulfide mining in the State without demonstrated proof sulfide mining can be done without impact to the environment. ie the Flambeau mine. We in Minnesota are blessed with a pristine wilderness area of Northeast Minnesota and the BWCA which truly sets us apart from anything in the lower 48 states-- is that worth risking. Economy Copper and nickel are currently in the limelight due to high prices, demand and availability--this too will go the way of iron ore-taconite and steel when China and other countries, all with low labor and process rates, start mining and processing these metals. When the US becomes be high cost producer, and they lose the demand for their product, then watch the mining companies pack up and leave with no regard to what is left or happens to the jobs, environment or economy in the NortheaSt People need to wake-up and start measuring the TOTAL DOLLAR impact to the Northeast when mining and the ruined environment cause the current real estate market, tourist industry and wild rice industry to dry up. Personal My wife and I have spent 50 years in the Ely, Bear Head State Lake Park area. Over 30 years ago we purchased 5+ acres on Eagles Nest Lake #3 . We cleared the property and built a year round log home. This home is a heritage for my daughter to retire to and for our grandson to enjoy as he grows up. The Eagles Nest Lakes Chain of 4 lakes, are pristine wilderness spring fed lakes. If this sulfide mining proposal goes through we stand a huge risk of ground and surface water contamination which would render our lakes and wells not usable. With that our property which we poured over 30 years of time, money, sweat and tears into would be worthless. Thanks for taking time to read this and we pray that all the folks involved with this sulfide mining proposal weigh the decision with common sense and facts and then VOTE THIS SULFIDE MINING PROPOSAL Down . Thanks for your time and consideration. Regards, Gordon and Kay Meier 6101 Century Blvd. Brooklyn Park , MN 55429 763-561-0676 AND 3780 Rustic Wood Rd Ely, MN 55731 218-365-5567 E-mail HYPERLINK "mailto:GHM1942@gmail-com"GHM1942@gmail-com

Gosia Mitros 40412

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Gosia Mitros 3112 Creekbend Ct Sachse, TX 75048 US

Alphabetical by sender's first name

Grace A. Nelson 43470

Dear [Decision Maker], My name is Grace Nelson, a student at the University of St Thomas and furthermore an advocate for protecting the land of my home state Minnesota. I am writing to you as a concerned resident of Minnesota. I can see where you see the sulfide mining benefiting our state with the use of its minerals and providing jobs, but I do no see how those benefits outweigh the long term negative effects of the sulfide mining. As a homegrown Minnesotan, it is hard for me to think that the beautiful landscape of Minnesota will be dug up in order to make room for these mines. I also am not very fond of the negative effects of sulfide mining in terms of pollution of the land and its natural resources. I am a resident of Minnesota and would like to protect our land. I have many childhood memories of adventures up north and I know that the beautiful landscape and natural bodies of water are some of Minnesota's greatest treasures. I do not think that the benefits of 20 years of mining outweigh the negative long term effects on the land and on the people living in the surrounding area. Thank you, Grace Nelson

Grace Christenson 39773

Lisa Fay MDNR Division of Ecological and Water Resources Tim Dabney U. S. Forest Service Douglas Bruner U.S Army Corps of Engineers DENY THAT MINE. My name is Grace Christenson and I am 11 years old. I am against the purposed PolyMet sulfide mining. I care for northern Minnesota and all animals that could be affected. I think of northern Minnesota as a beautiful place for animals and humans to experience. The PolyMet sulfide mining would harm animals, the food chain and nature. The 11 endangered species population would decrease even greater than it currently is because of pollution and loss of habitat. Both lynx and moose are endangered and are protected by the Endangered Species Act. Unique wetlands would be harmed by PolyMet’s mine. PolyMet does not state the matter of how they will clean up the mess from the mining. Only 1% is useful, the remaining 99% is toxic waste. This will leave us with hundreds of years of clean up, impacting human health. Babies born on the north shore already have a high mercury level from iron ore mining and a even higher level would occur from sulfide mining. Tourism is a big part in northern Minnesota jobs, if mining were to occur people would stop visiting. I am opposed to Polymet mining. I have written this from my heart and I hope you care about it as much as do. Sincerely, Grace Christenson Grace Christenson 12309 Fiona Ave N White Bear Lake MN 55110 HYPERLINK "mailto:gracekchristenson@gmail-com"gracekchristenson@gmail-com

grace e palmer 14838

Dear Lisa Fay, EIS Project Manager I am writing to voice my opposition to the proposed PolyMet mining operation in our beautiful northern forest area of Minnesota. I have traveled to several western states and seen first hand the long-term damages done by copper mining. As a property owner in northeastern Minnesota, I ask you to not let this environmental disaster happen. The long-term damage done by this project will continue for years after you and I are gone. It is just not worth it. Sincerely, Bruce A. Palmer 418 Otis Avenue St Paul, MN 55104

14970

Dear Madam or Sir, Pure water, clean air, and viable soil are our only true wealth. The proposed PolyMet mine threatens all these, thus threatening the health of generations to come. The mine could close after 20 years, providing only one generation with jobs, while the monitoring of the watershed will need to go on for hundreds of years, becoming the responsibility of countless generations. The mining company could declare bankruptcy at any time, leaving financial guarantees unmet and taxpayers to pay for necessary closure, clean-ups and endless future monitoring. The risks so far outweigh the possible benefits that no guarantees of money are adequate. Please stop this mining project from going forwaRd Protect our and our children's only true wealth. Sincerely, Grace Palmer 418 Otis Avenue St Paul, MN 55104

Alphabetical by sender's first name

Grace Erba 40853

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Miss Grace Erba 410 Roy St Winona Lake, IN 46590-1804 (574) 269-0067

Grace Geier 1772

I would like to take this opportunity to say no to sulfide mining. Sulfide mines have historically been environmental disasters, and when mining companies disappear, it is left to the state and the federal government to do the clean up- don't let this happen to our beautiful state. Furthermore, I understand that mineral resources are important But water is a resource too- and one more instrumental to our survival. Moving forward with sulfide mining in a region where we don't understand ground water and where some of the largest fresh water reserves are located is pure insanity. Protect our state, protect our water. Please do not move forward on sulfide mining.

Grace Heitkamp 37178

To Whom it May Concern: NO, NO, NO, NO, NO, NO, NO to PolyMet. I do not trust that they have the best interests of the state of MN and especially its people at heart. How can we gamble with our natural beauty and life-sustaining water. Sincerely, Grace Heitkamp 11677 Gilbert Trail, Lonsdale, MN 55046 507-744-4661 artist

Grace Kelly 46938

Minnesota is being sold a false choice between picking between jobs and environment. We can do both. The Solutions Project maps out an transition project of going to wind, water and solar that would create 63,500 construction jobs and 39,300 operation jobs. Contrast that with the 360 jobs that Polymet is promising. Polymet is proposing a different type of mining than we have had before. It is a mining that is heavily polluted with heavy metals and sulfates. Storage is simply done in open pits, open to the weather, open to seepage. Even the company's own models show pollution with expensive treatment for 500 years or more. Let's be real. Once pollution gets into the underground aquifer, there is no undoing it. Our rivers will carry the pollution all over. At that point, we will have to treat all our drinking water or suffer the health effects. We have an incredible growing brewing industry that will be put at risk because good water is essential to brewing. Let's face it, we are being held hostage for 360 jobs. Polymet can go elsewhere and will go elsewhere if it has to pay for safe mining. There are still third world countries who will allow any type of toxic mining. Minnesota wants to lose those 360 jobs, because the cost of losing safe drinking water is way too high. Do any green energy project from the Solutions Project. Please consider raising my income taxes now for green projects instead of having me pay more for clean water forever. It will cost me much less. Companies are good at ducking financial consequences. They simply bankrupt the shell company or change the laws. Even if you can get a company to pay there is still no financial amount can cover permanent water pollution. Tell me what amount would make you want to watch loved one die early from these toxic effects. Lets face it, there is no financial amount of money that can fix this pollution. No compromise is acceptable. Just say NO. Grace Kelly 1660 Hague Av St Paul, MN 55104 651 246 6717

Grace Lanasa 15341

HYPERLINK "https://docs.google-com/a/flaschools-org/file/d/0B2ITMKXJ8eMkUjNzZHRXV1pvNWM/edit.usp=drive_web" Copper.docx

Alphabetical by sender's first name

Grace Sheely 45039

Comments from Grace Sheely 14325 Grenier Road, Minnetonka, MN 55345 HYPERLINK "mailto:gracesheely@gmail-com"gracesheely@gmail-com I am a 2014 Water StewaRd I believe that water resouces are too scare and this project is an unnnecessary risk to the MN waters. The MN waters that would be affected are entirely upstream from everyone in the state. Any mining error or contamination would damage and impact tourism and the MN quality of life. This project is not needed now. Please count my comment as a vote against Polymet. I also do not believe that the company behind the operations will be solvent and financially able to manage any mishap or its contamination costs. Thank you. Grace

Grace Strong 12884

Fran and I are in Japan for the month. See you in January.

Grady O'Neill 57176

I think it is a horrible idea. We need to preserve our wilderness.Grady O'Neill2616 North 21st StreetSuperior, WI 54880

Graham Murdock 33503

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining in and of itself may not be considered dangerous in many areas. However, when such action is taken in an area, any area, close to one of our most precious natural resources, fresh water, it must not be permitted. Sure, proponents will tell us that have done everything possible to assure the safety of our precious and limited fresh water supply, that there is no danger of such being contaminated. until one of two things are involved .greed and stupidity. We can perhaps control greed and the poorly designed process shortcuts that develop from that; However . stupidity has no cure. We simply cannot put ourselves in a position to second guess this pending disaster. . Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt I strongly oppose it. Sincerely, Graham Murdock 937 S Feldkamp Ave Springfield, IL 62704-2311

Grand Portage Band 42990

Dear Ms Fey, Mr Bruner, and Mr Jimenez: Please find attached copies of the Grand Portage Band comment letter Exhibits C. - H., for the PolyMet NorthMet SDEIS. Sincerely, Margaret Watkins

42991

Dear Ms Fey, Mr Bruner, and Mr Jimenez: Please find attached a copies Grand Portage Band comment letter Exhibits A. - B., for the PolyMet NorthMet SDEIS. A third e-mail will be sent with Exhibits C - H. Sincerely, Margaret Watkins

42994

Dear Ms Fey, Mr Bruner, and Mr Jimenez: Please find attached a copy of the Grand Portage Band comments regarding the proposed PolyMet NorthMet Supplemental Draft Environmental Impact Statement and the US ACE 404 Wetlands Permit Notification, and an Index of Exhibits. The exhibits will be attached in a follow-up e-mail. Thank you for the opportunity to provide our comments. Sincerely, Margaret Watkins

Alphabetical by sender's first name

Grand Rapids Area Chamber of Commer 22390

Please see the attached document – My testimony at the Aurora Polymet Public Meeting . Bud Stone - President Grand Rapids Area Chamber of Commerce One NW Third Street Grand Rapids MN 55744 HYPERLINK "mailto:bud@grandmn-com"bud@grandmn-com 218-326-6619 1-800-472-6366 Toll free HYPERLINK "http://www.grandmn-com"www.grandmn-com HYPERLINK "http://www.facebook-com/grchambermn"www.facebook-com/grchambermn

Grant Johnson 18225

My name is Grant Johnson, G-R-A-N-T, J-O-H-N-S-O-N. I have a master's degree in public health at the University of Minnesota in community health promotion. I'm from Duluth, currently living in Minneapolis, but working up north in Aurora and other cities on the East Range. I run and -- well, more snowshoe these days on the trails behind Giant's Ridge, swimming in Lake Embarrass almost every day in the summer when I drive by in Biwabik and fish up there every chance I get. And before I begin, I want to give a nod to my great grandfather, who worked in the mines in Hibbing when the mines were just starting. So with my connections up north, if someone were to ask me do I support mining, my reply is yes. I do support mining and the Iron Range, but I do not support the kind of mining that is proposed with the copper-nickel mining. I believe that this mining is a threat to the environment and to our water supply. We are fortunate that the iron ore mining that has been done in the past is fairly clean and at the end of the process is just a big pit and mounds that we all see with little to no toxicity. But I have major doubts about this current copper-nickel mining and the impact that it will have. From what I've read in the research, the risks to our water supply is potentially compromised. This is our water we need to live, not just playing. So we are fortunate to have such a vast water supply in Minnesota and I want to keep this safe. The environmental threats to our water supply puts risks -- health risks to our towns up north and moreover, even puts at risk the tourism industry up north. And more on the -- more on the economic impact, I am disappointed that most of the profits from the mining won't stay in Northern Minnesota or even Minnesota. As we talked about PolyMet, it's not from Minnesota or even the United States. Again, it's from Toronto. So I feel that they're not completely invested into our community, even though we may think they are, being from up north, but they're not. So again, if anyone asks me if I support mining, my answer is yes, but at this time, with the risks involved and potential major financial gains being exported, I cannot support the copper-nickel project. Thank you.

grant k 15471

As a native to Minnesota state, I would like to voice my OPPOSITION to the Northmet mining project. As a child i frequently visited much of the wilderness on the range and would like it to stay as just that, wilderness. I would like to see northeast minnesota to remain pristine and untouched by industrial pollution so my children will be able to experience the wonder of our pristine lakes and rivers and our great forests. The north met mining project is a bad news for the future of Minnesota's natural environment. Sincerely Grant E Kahl 5751 Bergquist RD Duluth MN 55804

Grant Thrall 3875

Mining for these metals is not in anyone's interest, other than those who would profit financially, foreign or local, in the short term. Our environment is far too precious to even consider damaging our nation's, or Canada's, watersheds in the short term. But 500 to 2,000 years of pollution management for the short term gain is unconscionable. Grant Thrall 4038 Blaisdell Avenue South Minneapolis, MN 55409 612-827-7054

10727

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, properly, which will provide legal justification for rejecting the sulfide ore mining plan. I am a father, lover of nature and Minnesota taxpayer. The proposed mining endangers my children, the BWCAW and guarantees Minnesota will be on the hook to pay for the perpetual cleanup of a project that would give a small number of people jobs, and little revenue for the state. Sincerely yours, Grant Thrall Grant Thrall 4038 Blaisdell Avenue South Minneapolis, MN 55409

Alphabetical by sender's first name

Grant Thrall 15094

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: Please reject the PolyMet Land Exchange as just plain wrong. National forests are created to be preserved, in perpetuity. Any land swap would be one that would diminish the concept of national forests, especially in favor of a commercial intereSt It is also inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. Sincerely Grant Thrall Grant Thrall 4038 Blaisdell Avenue South Minneapolis, MN 55409 612-827-7054

18430

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, properly, which will provide legal justification for rejecting the sulfide ore mining plan. I am a father, lover of nature and Minnesota taxpayer. The proposed mining endangers my children, the BWCAW and guarantees Minnesota will be on the hook to pay for the perpetual cleanup of a project that would give a small number of people jobs, and little revenue for the state. Sincerely yours, Grant Thrall Grant Thrall 4038 Blaisdell Avenue South Minneapolis, MN 55409

51075

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, properly, which will provide legal justification for rejecting the sulfide ore mining plan. I am a father, lover of nature and Minnesota taxpayer. The proposed mining endangers my children, the BWCAW and guarantees Minnesota will be on the hook to pay for the perpetual cleanup of a project that would give a small number of people jobs, and little revenue for the state. Sincerely yours, Grant Thrall Grant Thrall 4038 Blaisdell Avenue South Minneapolis, MN 55409

Grant Wesley Anderson 54780

See attachment

57252

The cumulative effects analysis area must include the St. Louis River. The EIS limits the area to the Partridge and Embarrass River watersheds. This decision was not scientifically supported. There must be additional work to assess cumulative effects on the St. Louis River as the St. Louis is in a watershed where the mining discharge occur. There’s no scientific rationale for not including the St. Louis River. The impacts of the St. Louis should be top priority due to the size and importance of this watershed.Grant Wesley Anderson6783 Nelson RdCulver, MN 55779

Great Lakes Indian Fish and Wildlife Co 42952

Good Afternoon, Attached are the Comments from the Great Lakes Indian Fish and Wildlife Commission on the SDEIS of the proposed NorthMet mine project. Please contact me with any questions or concerns. Esteban Chiriboga - Esteban Chiriboga Great Lakes Indian Fish and Wildlife Commission 550 Babcock Dr Rm. B-102 Madison, WI 53706 Phone: 608-263-2873

Alphabetical by sender's first name

Great Northern Solar 43595

Dear DNR People: Please confirm that you have received this and it is added to the recoRd The proposed Mine's EIS is full of gaps, incomplete analysis, and problems that call into question how accurately it describes the environmental impact of the proposal. The mine plan inaccurately describes wild rice waters, understating the area that supports stands of wild rice. In addition, the mine plan claims to reduce sulfates, but that assumes that expensive water treatment will continue for hundreds of years. Millions of gallons of untreated polluted water will escape every year, and the mine plan predicts an increased chance that water exceeding the sulfate standard will be released at times, years after closure. PolyMet is proposing something Minnesota has never allowed before. The company's own computer models show that hundreds of years after the mine closes, water seeping into groundwater and flowing into streams and rivers at the site will be polluted with heavy metals and sulfates. Unless all of this water is captured and treated, the mine will pollute surrounding waters. Minnesota law requires that a closed mine site be "maintenance free," but PolyMet's mine plan calls for hundreds of years of monitoring and expensive water treatment. Worse, these models don't even show that the pollution stops after 500 years. They just stopped modeling at 500 years. In other words, the pollution could go on for even longer. PolyMet would be a huge consumer of electricity, much of it coming from the dirtiest coal power plants in Minnesota. PolyMet's electricity supplier, Minnesota Power, got 85% of their power from coal in 2013- PolyMet would emit 707,342 metric tons of carbon dioxide into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. One part of the PolyMet mine plan is an estimate of how much in taxes the mine would pay if permitted. The tax estimates in the PolyMet mine plan lack detail, are full of discrepancies and contain explained changes. From one draft of the mine plan to the next the estimated taxes jumped 500% without explanation. This is important, since the state taxes that would apply to a copper-nickel sulfide mine have never been used before. The copper-nickel mining industry is exempt from several state and local taxes, such as property tax and corporate income tax, and has its own unique tax structure. Therefore, the State of Minnesota should confirm these tax estimates, and not just rely on the company to provide them. There are many other problems to the proposal so I list a few important ones here. Please reject this EIS with prejudice and refuse to allow this destructive mine to be created. Thank you. Energetically, Christopher LaForge Great Northern Solar 77480 Evergreen Road, Suite #1 Port Wing, WI 54865 715 774 3374

Greenwood Vytautas Champ 58165

Something to keep in mind: there is no need for mining. I only care about the safety of our planet, and its life. Please stop doing what the doped masses want. Mining is detrimental to watersheds, the air, food, etc. Why mine for the sake of greed? It is fact that mining is terrible for the ecosystem. Any study which states that there is no detrimental is conducted by a corporation. This is tampered data. And what about the fishes which are in danger? Mining and fracking can eliminate fish like Black Redhorse, greater Redhorse, River Redhorse, Gravel Chub, Topeka Shiner, Plains Top minnow, Pallid Shiner, Wetern Sand Dorters, Crystal Darter, and Bluntnose Darter. We lost the Ghost Shiner, let's not lose any more speciaes. I know mihing will occur in the southeast corner (where the species I mentioned occur) in addition to the north.

Greg Allen 18106

Good evening. My name is Greg Allen and I'm superintendent of Mesabi East Schools, this school right here; home of the Giants. I am an avid outdoorsman. I care about the environment. I use our natural resources. I canoe, camp, fish, hunt and enjoy this area. I enjoy the natural beauty of the state and believe mining can co-exist. We live in a beautiful area, where mining has existed for generations. I care about protecting the environment as much as the next guy. I support the PolyMet project. As the Iron Range's population has steadily declined, naturally, so has our school enrollment. As you may know, or may not know, school funding from the state is based on a per pupil count, which is why over the years so many schools have consolidated. And if you take a look in the large commons, you will see about 21 different school buildings that are now all students are housed in one. It is quite a wall of buildings. Many districts have been forced into short-term borrowing to cover costs. Schools on the range do not receive property tax from the mines. They receive a taconite tax, when the mines are producing. This extra funding helps, but it is not stable funding. PolyMet mining will bring in new jobs, which will bring in new families. School enrollments and our ability to add teachers, class offerings and new technology will increase as a result. I support PolyMet. The mine's economic impact will directly affect the Iron Range's schools' ability to provide a top-notch education for our children. The DNR U.S. Forest Service and the U.S. Army Corps of Engineers have done great work. If I were grading it, I would give you an A+. Thank you for your comprehensive work. I support this project and the PolyMet project on behalf of one of the many schools that will benefit of this well-designed project. I encourage you to move forward. Thank you.

Alphabetical by sender's first name

Greg bastien 43115

Dear Ms Fay: The Polymet mine proposal for northern Minnesota has some immediate benefits and long term hazards. At the financial hearing conducted by the House it was clear that the review process for possible catastrophic events only takes in short term events. The failure of a holding pond or undetected ground water infiltration could leave the state with liabilities that extend to other states and Canada with only sufficient funds to handle short term plugging of holes. The $2-4 billion down payment in a trust fund would be difficult to administer and with successors likely for the company in the future distributing any excess at the end of the period when the material from the mine is safe would be problematical. On a purely technical basis the reuse of the old mine facilities is economically prudent for the company the difference in sulfide mining and taconite mining is considerable and the safety net for water resources is and would be insufficient. All ponding would have to meet a 300-500 year impermeabillity standaRd All processing would have to be contained with no release to outside air and water. While not impossible these safeguards would drive the cost so high that the promised 20 year window of production would close much sooner the short term gain would be that much less with fewer jobs and less payroll. Until we have mined our garbage dumps for old copper and nickel I would pass on any new ventures involving perhaps decades of debatable clean up if the worst happened. Sincerely, Greg bastien 2709 E. Minnehaha Parkway Minneapolis, Minnesota

Greg Benedict 26618

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I come from a hunting and fishing background that has a deep love for the outdoors. Much of my childhood was spent in Superior National Forest, and I know the aesthetic value that it has for many people. I have witnessed already, in the past 4 years, the extensive logging and deforestation of many of the areas me and my dad would go hunting. I know of the water pollution problems on the north shore from the refining processes. I watch slowly through the years as irresponsible mining and logging operations degrade the habitats where grouse and deer used to be numerous. Its not just about the wild game, but of the ecosystem health as well. The more forest/protected land that goes to these giant excavations, the more pollution and disruption of natural processes will occur. I won't throw statistics and numbers out there to make myself more "credible," there is no need. You don't need a scientist or a mathematician to tell you that something is wrong with polluting and depleting the very environment that we need for survival. I would feel deeply disappointed if I witnessed any more significant damage to the places I love to visit like Superior National Forest and BWCAW. They aren't just places to go, they are places that facilitate spiritual growth and understanding. Places that are relaxing, slow, peaceful, and calm. The experiences of complete wilderness are beyond anything in a book. If the money and the jobs conquer the argument, I understand. Many push the idea of money over everything. Its never about the everyday people who make connections, memories, and above all harmony with the land. However, I hold the utmost respect to you, who hear the actual voices of the people. I wrote this short testimony to let you know that this mining proposal is a ludicrous, destructive endeavor. Don't let the money cloud your vision in making the decision, and don't allow them to destroy and abuse more beauty in Superior National ForeSt Sincerely, Greg Benedict 151 Excelsior Ave S Annandale, MN 55302-9610

Greg Benson 38887

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Greg Benson 1525 Woodcrest Dr Duluth, MN 55804-1426

Greg Boom 6198

Minnesota has strong environmental laws - Polyment will be environmentally responsible. The environment safety will be covered by Minnesota laws. This project will create tax money which every state needs. It will provide jobs for a area that is not over flowing with employment. Greg Boom 103 Woodland Springs Road, Denver, IA 50622

Alphabetical by sender's first name

Greg Chester 11005

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: As a resident of Northern Minnesota I urge you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. This would allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to the Ojibwe Nation. The Land Exchange sacrifices our sacred lands to a foreign corporation, not for the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. It will endanger both a valuable watershed and Lake Superior, one of the larges fresh water lakes in the world. Its diminution or loss resulting from this and several other existing and proposed mines would be a global tragedy. Its pristine waters are far more valuable than the momentary gains of a temporary mine. Rejecting the PolyMet SDEIS as inadequate, the proposed PolyMet sulfide mine, and Land Exchange would be for the long term benefit of those of us living in the region. The dangers far outweigh the benefits. We live here for the clean air, soils and water and the health of our future generations. And we honor our treaties with the Ojibwe Nation. Please do not put these at risk. Sincerely Greg Chester 6312 164th St NW Cass Lake, MN 56633 218-335-6501

44601

Dear Ms Fay, Dear Ms Fay and Mr Bruner, The proposed PolyMet NorthMet SDEIS is in my backyaRd I live in Northern Minnesota and live here because of its natural beauty, healthy environment to raise children and grandchildren and healthy water and fish and wild game to enjoy and eat at times without fear of contamination. We can drink our well water without fear of contaminants. Most of the continent was like this a few hundred years ago. This is one of the last areas left where a person can sink a 25 foot well and drink sweet clean water. Please do not poison this area like others have done with so much of the rest of it. I urge you to reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine as well as the wastes proposal because of its unacceptable risks to human and the natural ecosystems' health. Mercury is just one threat to our environment and health. This should not be dug up and released into the environment including our streams, rivers, and lakes. Some of our fish are already tainted with mercury from coal fired power plants. We do not need more. The threat to humans is very real as well as eagles and osprey. The cost benefit ratio shows that we may lose far more than we gain from the mine. What tourist would want to leave an urban environment to come to a contaminated rural area. This poisoning may drive many away. They might as well stay at home and drink their city water and breath exhaust fumes. Thank you for considering my views. Sincerely, Dr Greg Chester Greg Chester 6312 164th St NW Cass Lake, MN 56633 218-335-6501

51269

Dear Mr Dabney, Mr Bruner and Ms Fay: As a resident of Northern Minnesota I urge you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. This would allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to the Ojibwe Nation. The Land Exchange sacrifices our sacred lands to a foreign corporation, not for the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. It will endanger both a valuable watershed and Lake Superior, one of the larges fresh water lakes in the world. Its diminution or loss resulting from this and several other existing and proposed mines would be a global tragedy. Its pristine waters are far more valuable than the momentary gains of a temporary mine. Rejecting the PolyMet SDEIS as inadequate, the proposed PolyMet sulfide mine, and Land Exchange would be for the long term benefit of those of us living in the region. The dangers far outweigh the benefits. We live here for the clean air, soils and water and the health of our future generations. And we honor our treaties with the Ojibwe Nation. Please do not put these at risk. Sincerely Greg Chester 6312 164th St NW Cass Lake, MN 56633 218-335-6501

Greg J 45849

Lisa I have reviewed the SDEIS for the PolyMet mining project and I believe it is complete and covers all issues. Greg Johnson 14283 Dulcimer Way Apple Valley MN 55124 Sent from my Verizon Wireless 4G LTE Tablet

Alphabetical by sender's first name

Greg Jackson 43688

Dear Minnesota DNR representative, I hope this email finds you well. I am writing to provide personal comment on the proposed PolyMet copper-nickel Mines in Northeastern Minnesota. I write this not only as a concerned outdoorsman, but also as an economist with a master's degree in natural resource economics from the University of Wisconsin-Madison - one of the leading economics programs in the world. I am well aware of the cost-benefit analysis project that precedes such projects, and am also aware of the demand for precious metals for household items like cell phones and electronics. However, I strongly urge the state DNR to consider the true and lasting impacts this proposed mine may have on current and future generations. I am concerned that the analysis has not fully included the economic benefits of the landscape as is - including the recreational use, bequest, and existence value so many Minnesotans and Americans place on the Boundary Waters. Tens of thousands of recreators from around the state, country, and world, not only visit the BWCA annually, but many like myself behold the region as one of the last unspoiled wilderness areas in the continental united states. Imagining a headline that reads: "Sulphur leeches into lakes, pollutes nearby rivers, fish and wildlife at risk". I am a supporter of extraction and manufacturing jobs, especially in economically depressed areas, however, I am not convinced that the proposal as it stands now will guarantee that a) negative environmental impacts will be avoided, and b) that jobs created will last and profits from the extracted minerals will stay in Minnesota. I urge you and your colleagues to apply the highest possible standards to your review of the proposal, and to consider the long-term impacts of the project on future generations - generations who have yet to experience the wonder and quiet of the northwoods. In an increasingly fast-paced and noisy world, we need places that are unspoiled by human intrusion, and my money is on keeping the BWCA free from mining. I appreciate your time in reading this letter. Sincerely, Greg Jackson Conservation Crew Leader, Angler, Minnesotan.

Greg Keilback 2508

To those opposing the audacious activity: I ask as strongly as I can for you to have me do more. I am an ecologist and am currently working out of a nature center in Northern Illinois. I lived in the Ely area for three years while attending school before transferring on. In my position I have brought many folks back to the area and will do so again this spring. Last year we met with some of the mining speculators and listened to what they had to say. This is the same fight that the Superior National Forest and the BWCAW has seen before, just with new faces. I wish Sig was here to help fight this one too. Like Sig, I am a writer and been fortunate enough to see my work on land issues published on a national scale, although to no degree of Sig's work. Please let me know how I can be of a greater resource in spreading the word that the fight is not over. I believe that as long as there is a fight and conversation there is active hope. Greg Keilback From: *NorthMetSDEIS (DNR) [mailto:NorthMetSDEIS.dnr@state.mn.us] Sent: Thursday, December 12, 2013 7:44 AM To: Greg Keilback Subject: RE: Comment on PolyMet NorthMet SDEIS Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Greg Korelich 17613

Feb 15, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for- information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Mr Greg Korelich 1840 Albany Dr Santa Rosa, CA 95401-3605

Alphabetical by sender's first name

greg lee 38896

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr greg lee 5501 Thomas Ave S Minneapolis, MN 55410-2545

greg mcneely 41884

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, greg mcneely Stpaul, Minnesota

Greg Olson 39878

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Greg Olson 7373 Ann Ct Eden Prairie, MN 55346-3111 (952) 943-0839

Greg Perrell 6243

5 generations of my family have enjoyed the benefits of living on the Iron Range. This last generation will hopefully see mining continue in a responsible way (Polymet) or they will see the demise of Northern Minnesota. God gave everything on this earth to use and enjoy. Polymets approach to use what God gave us responsibily is a perfect example of that Greg Perrell 218-969-1411 Sent from my LG Optimus G Pro™, an ATandT 4G LTE smartphone

Greg Pittelli 57539

Berkeley Pit. Learn from it. Don’t destroy this beautiful place forever. Minnesota is smarter than that.

Alphabetical by sender's first name

Greg Solberg 1

I do not believe the technology exists to do this without causing environmental damage. If it does, mining companies would be using it. They are not, as far as I know. Could you provide us with examples of where this so-called technology is being used successfully in other sulfide mining operations around the world. How much will it cost to treat the water for upwards of 500 years, and who will pay for it. We all understand that as soon as the mining companies are finished extracting - they are gone. Bankrupt in some cases, as we've seen in the paSt Layer upon layer of shell companies, leaving taxpayers to foot the bill. All one needs to do is look to the western United States. It's my sincerest belief that, contrary to you and the mining companies, these mining operations will produce acid rock drainage. Start reading on page 5-99- From a stockpile duration how long is temporary. Research shows that within 3 months - acid mine drainage starts to occur. Might be 30 years in a test tube, but in the wild - it can start in 30 days. If I'm not mistaken, the first failed EIS draft said that the sulphur content was 4%. And at the time, they tried to tell us that 4% was considered low. It is not, and now the concentrations seemed to have changed. Can you explain. Please read this: http://pub.epsilon.slu.se/1874/1/Kappan_Avhandling_nr_08-88-pdf Long story short, until mining companies can produce real results showing no environmental damage from current operations, I am not for sulfide mining in Minnesota. Regards, Gregory A. Solberg 1645 Millwood Ave W. Roseville, Mn. 55113

42854

See attachment

Greg Swanson 38431

The SDEIS for the Poly Met Mining Project is flawed and does not guarantee that sulfide mining can be done in Minnesota without seriously harming water and habitat. This project should not go forwaRd We need to move slowly and carefully on this effort. While a boost to our economy is always tempting, any long term adverse environment impacts will certainly vastly overshadow any short term economic benefits. Our healthy natural environment is our legacy to our successors, not our bankbooks. Thank you, Greg Swanson 651-459-5455

Greg T. Lehman, MD 42914

See attachment

Greg Tiburzi 42687

See attachment

greg tofte 40053

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely greg tofte 152 sawbill trail tofte, MN 55615 2186637829

Alphabetical by sender's first name

Gregg Hoffman 54122

I OPPOSE PolyMet Mining. PolyMet should be required to make a cash deposit to the state in the amount necessary to pay for any environmental problems they create, this deposit may be refunded when all risks to the environment have passed (I believe this is estimated to be in 200 to 500 years). As a shareholder of Minnesota Power (Allete) I thank them for providing this card to express my opinion to you. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Gregg Wiitala 9289

Dear Ms Fay: Please reject the PolyMet NorthMet SDEIS as inadequate and as there is considerable evidence that this approach is not environmental sound. The area that is proposed for the PolyMet open-pit sulfide mine is located in one of the most pristine areas of Minnesota and enjoyed by so many people. Potential negative environmental damage to surface and ground water quality is something hard to rectify and often not possible to rectify. I'm also sending a copy of my email to the US Environmental Protection Agency. The PolyMet SDEIS and the PolyMet sulfide mine plan both should be rejected as many of the assumptions used were not realistic. Recent news of internal DNR documents showing that base flow at mine site was seriously underestimated. Neither the SDEIS nor the sulfide mine projects are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) is not supported by scientific evidence. This assumption allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. It is unethical to ask future generations to pick up the tab for clean-up that occur in the future when we know what the real risk is. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. There will be improved mining processes in the future that will be better equipped to protect this fragile environment. I think the good folks of Minnesota would rather wait for a safer mining operation rather than move forward with a risky project now. Sincerely yours, Gregg Wiitala 131 Needham Rd, Grand Marais, MN

Alphabetical by sender's first name

Greggory Jennings 39098

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Greggory Jennings, Wildlife Biologist PO Box 912 Ashland, WI 54806

Gregory and Mary Johnson 39301

Attached please find my comments concerning the PolyMet Mining Project. From: Mary S. Johnson Address: 2089 Lake Hattie Dr SW Backus, MN 56435 Tel: 218-587-4014 Email: gmjohns@tds-net

Gregory B. Gregory 31738

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. If approved, the mine will pollute Lake Superior, threaten our clean water and wild lands, and endanger public health for generations to come. A decision in favor of PolyMet's proposal would open a floodgate for more sulfide mining in a large area near Lake Superior and surrounding the Boundary Waters Wilderness - considered by some as one of the most beautiful wilderness areas in the world. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Gregory B. Gregory 1321 N 21st St Milwaukee, WI 53205-2406 (414) 933-9167

Alphabetical by sender's first name

Gregory Fox 39882

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Gregory Fox 11613 Rio Loma Ln Burnsville, MN 55337-7211

Gregory Garmer 39735

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Granting Polymet permission for Sulfide mining is like letting the proverbial camel stick his nose into the tent. If one sulfide mining operation is allowed, then all others will demand equal treatment under the law. If each company digs for twenty years and then leaves behind a source of pollution that will have to be monitored and managed well into the future, pretty soon mining scars and environmental watch areas will sprout all over Northeastern MN. There is no sure way to manage the results once the Pandora of sulfide mining is let loose. Please count my vote as being against this proposal. Gregory Garmer, Duluth,MN The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Gregory Garmer 2126 Water St Apt 304 Duluth, MN 55812-2155

48880

Mar 10, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Granting Polymet permission for Sulfide mining is like letting the proverbial camel stick his nose into the tent. If one sulfide mining operation is allowed, then all others will demand equal treatment under the law. If each company digs for twenty years and then leaves behind a source of pollution that will have to be monitored and managed well into the future, pretty soon mining scars and environmental watch areas will sprout all over Northeastern MN. There is no sure way to manage the results once the Pandora of sulfide mining is let loose. Please count my vote as being against this proposal. Gregory Garmer, Duluth,MN The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Gregory Garmer 2126 Water St Apt 304 Duluth, MN 55812-2155

Gregory Johnson 17713

Attached are my comments about the proposed PolyMet mine in Northern Minnesota. Gregory L. Johnson

Gregory M Anderson 54556

The risks are too great to the environment. I fear the clean up operations will offset any profits. This is not good for Minnesota.

Gregory N Rautell 57208

Only thing this is going to benefit is the politician’s pocket books. This mining is going to pollute the land and waters so my grandkids will not enjoy what I have. And when they are done making their millions of dollars they will pull out and leave the taxpayers to clean their mess up. Just like Duluth’s steel plant cleanup and cement plant cleanup.Gregory N. Rautell5557 N. Cloquet RdDuluth, MN 55810

Alphabetical by sender's first name

Gregory P Elstad 42724

See attachment

42850

See attachment

Gregory S. Bringman 57878

I ask you to oppose PolyMet's proposal for sulfide ore mining in the Superior National Forest at the headwaters of the St. Louis River. They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area. The mining will leave square miles of talcum powder-fine waste, piled high. Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock. PolyMet suggests that to prevent pollution of the St. Louis River watershed they will collect the hundreds of millions of gallons of rain and snowmelt waters that filter through the waste every year and run them through water treatment plants ... for up to five centuries. The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project. The cost liability for cleanup over centuries is also a great cause for concern. Please oppose this project.

Greta Bergstrom 46344

Thanks for offering public input in this critical process. I am writing to request that you revise the draft EIS to address Minnesota Rules 6132-3200, clarifying to the public how the post-closure activities described in the mine plan are consistent with the mandate that the mine site be “maintenance free” upon its closing. It is my understanding that existing data in the water management plan supporting the SDEIS show that sulfates and metals will dramatically exceed water quality standards for hundreds of years after closure. As we know, releasing sulfuric acid into our water supply will taint it. The reverse osmosis water treatment that will be required for hundreds of years appears (to me) to be in conflict with Minnesota Rules requiring that mines be "maintenance free" at closure, bringing the project truly to a close without harm to our environment or excessive costs to state taxpayers. Please show how exactly PolyMet’s North Met mining project would meet applicable water quality standards upon completion/closure given these Rules. We cannot cut corners on crucial questions required to accurately evaluate this project including making sure our water stays clean and safe (throughout as well as beyond project completion); taxpayers are protected; and we have strong safeguards in place for when things go awry which has always been the case in every other sulfide mining project that has been undertaken. Thank you. Greta Bergstrom St Paul

Greta Fay 57974

Please don't mine in the BWCAW. I grew up there and don't want it to change. Please don't dig. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Gretchen 45407

One has to look at the taconite mines past to realize the horrendous impact a copper mine would have on our state jewel-the boundary waters. The mining companies quickly disappear when the profits are gone and leave the ravaged environment for the taxpayers to clean up. Sent from my iPhone

Gretchen Amis 42570

See attachment

Alphabetical by sender's first name

Gretchen Amis	54779
See attachment	
Gretchen Bratvold	9915

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Gretchen Bratvold 3444 Edmund Blvd Minneapolis, MN 55406

Alphabetical by sender's first name

Gretchen Bratvold 18683

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Gretchen Bratvold 3444 Edmund Blvd Minneapolis, MN 55406

50758

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Gretchen Bratvold 3444 Edmund Blvd Minneapolis, MN 55406

Alphabetical by sender's first name

Gretchen Flynn 41193

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Gretchen Flynn 4300 W River Pkwy #149 Minneapolis, MN 55406

Alphabetical by sender's first name

Gretchen Lindgren 41783

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Gretchen Zell 39609

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Gretchen Zell 14250 Jonquil Ln N Dayton, MN 55327-9656 (763) 323-7884

Griffin Henjum 44607

I am a young person in Minnesota and I believe this mine will have negative effects for generations to come. The hundreds of years of clean up and adverse effects on the environment is not worth the short term economic benefits.

Alphabetical by sender's first name

Gus & Glenda Fisker 47276

To whom it may concern, I am concerned with the long term safety of the water. I do not believe all contingencies can be anticipated and that the state will ultimately come out poorly. There needs to be very long term, perhaps indefinite, water protection. The BWCA should be protected at all costs. Once damaged or altered, it can never be replaced. The mines will eventually come and go. Steven Fisker 590 Palmer Drive Pine River, MN, 56474 (218) 587-3156

Gwen Myers 58129

This project must not be permitted. The SDEIS is inadequate and inaccurate and confusing. How can it be that all their science cannot predict how long water treatment would be required? How can PolyMet say they will be able to answer the question after they've begun mining? Incredible!

Gwen S Myers 18887

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: Please increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Gwen S Myers 12009 Hilloway Rd W 12009 Hilloway Rd W Minnetonka, MN 55305 952-545-8686

42652

See attachment

Gwen Updegraff 42871

See attachment

Gwendolyn Danfelt-Martin 21520

H B Bloomer 42848

See attachment

Alphabetical by sender's first name

Haddie Hadachek 40155

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Hallie Finucane 47088

Mar 12, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I strongly urge you to reject the proposed PolyMet mine. I am well aware of how mining companies strip an area of minerals or metals, and then ignore responsibilities for the mine sites and environmental damage, based on what I have seen in Arizona, where I own a seasonal home. The sites are just abandoned, and the state is left to clean up the site at the expense of the state and the taxpayers. Too often, the mining companies go bankrupt and/or just walk away from the mine and the state has no recourse for restitution. The financial responsibility for the clean up is borne by the state and taxpayers, and in the case of Arizona, the state has not had the financial resources to restore the area that was mined. What financial guarantees does Minnesota have so this does not happen to the state of Minnesota and our taxpayers. I am greatly concerned about this for Minnesota. The Polymet project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. It is clear that the main concern of PolyMet is the profits that can be obtained, and the Range wants jobs, even though the jobs are relatively short term. Lake Superior and the Boundary Waters area should not be irreversibly compromised and sustain long term damage to satisfy corporate profits. The high risk of irreversible and long term (500 year) damage to our beautiful wilderness areas cannot be sacrificed or justified for short term jobs and corporate profits. What real financial protection does the State of Minnesota have for all of the clean up that will be required. Also, since PolyMet is a Canadian company, how easily can any obligations be enforced. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I strongly urge you to reject the PolyMet mine. Sincerely, Ms Hallie Finucane 2447 Chatsworth St N Roseville, MN 55113-3315

Alphabetical by sender's first name

Hanna Hindt 44369

Hello, I am a young citizen of Minnesota and am concerned about the issue of the insertion of a mining site. I do not support the decision to go forward with this movement. I live in a suburb of the Twin Cities, and traveling to the fresh air and beauties of northern Minnesota is a treasure. Having the mining site located outside of the boundary waters creates a strong case for the degradation inside the reserve. Run-off of chemicals is expected to occur. For me, the natural resources and quality of air, land, and water in one of the purest places in Minnesota are most important. The pride I have to live in this beautiful state is founded by the natural aesthetics and fresh air accessible to all. People travel from far across Minnesota and other states to visit and breath the fresh, not as polluted air. Being disrupted by this mining site will change the opinions of many negatively. Hanna Hindt

hanna poulsen 40483

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, hanna poulsen Tigaiga Pt. de la Cruz, ot 38400 ES

Hannah 44577

My name is Hannah Hinh and I am a senior at Prior Lake High School. As a young person living in Minnesota, I do not agree with allowing polynet to mine. Although it will provide few jobs, the ecological damage will affect the natural habitats of Minnesota and the Boundary Waters to a great extent. I don't want to go to the Boundary Waters expecting to see a beautiful lake surrounded by lush forests and find mining residue polluting the area around it. I also don't believe the company when they say that they will clean up the mess and pay for ecological damage. Most of the companies that "claim" they will clean up usually file bankruptcy and leaves the next generation to clean up their mess. I don't agree with the plan to mine due to the guarantee of ecological damage.

Alphabetical by sender's first name

Hannah Baxter 24430

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Minnesota's precious water resources are irreplaceable. Public health, water quality, and the lucrative tourist industry all depend on the area under consideration for this dangerous proposed mining project. Our state's remaining wetlands, lake and riparian habitats and amazing wildlife-including the threatened lynx and moose already on the decline-also stand to lose if this goes forwaRd The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt I urge you to protect public health and the environment by rejecting this proposal. Sincerely, Hannah Baxter 1300 Yale Pl Minneapolis, MN 55403-2151 (218) 260-5251

Hannah Hoglund 39881

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. This cannot be done. We need to protect our earths clean and beautiful waters as much as we can. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Miss Hannah Hoglund 10208 Hilltop Ct Champlin, MN 55316-2630 (763) 712-9987

Hannah Jents 54342

Dear Ms. Lisa Fay, EIS Project Manager,I am an eighth grade student attending South West Junior High School. I think that PolyMet Mining has a good plan in place. I think that this copper-sulfate mining process will benefit Minnesota. Some of the advantages that there will be are more jobs open for people for mining and mechanics. It could bring more businesses over, opportunities and industries too. There are some disadvantages though. Water and air pollution could be a problem if they are not treated right. Also some of the chemicals could harm the environment around the area too. It could affect cultural resources by stunting the growth of the wild rice if not treat properly, same with the runoff water and rivers. I do agree with the Land Exchange offers. I don't think that this will affect me right now, but it might in the future. Though, it could affect people now who are looking in to mining and mechanics or live by that area.Sincerely,Hannah Jents

Hannah Maertz 43835

My name is Hannah Maertz and I live at 2006 east 1st street, Duluth, MN 55812 I am incredibly concerned for the well-being of future generations if the PolyMet mine proposal succeeds. Even the company acknowledges the large amount of water pollution that will occur for hundreds of years after the mining takes place. As a Minnesotan, I am proud of our states abundant water supply and our ability to ensure it's quailty. I believe this mine would greatly jeporadize that. Thank you for your time and consideration. Please do not let this mine become a reality .

57265

Human life as we know it is incredibly-nay, ENTIRELY-dependent on water. The proposed mine plan does not keep Minnesota’s water safe and clean. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. Is short term, unsustainable, monetary gain worth centuries of damage to a vital resource? Please support MN and earth friendly energy plans – not this mine!Hannah Maertz2006 East 1st StreetDuluth, MN 55812

Alphabetical by sender's first name

Hannah Miller 45113

Who has ever lived five hundred years. Outside myth, outside Methuselah. What company has ever lived so long, to clean up the wreckage it has wrought. Think now, think ahead. There is no way that a few decades of questionable profit are worth a future of waste and pollution. Think now, think ahead. Do not allow PolyMet to proceed as planned. Sincerely, Hannah Miller

Hans Olsen 57543

December 17, 2013 Hans Olsen 2314 Birchwood Lane Ely, MN 55731 218 365 6318 HYPERLINK "mailto:hansolsen44@yahoo-com"hansolsen44@yahoo-com Lisa Fay, et al EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Copies: Wide Distribution Dear Ms Fay: This is a response to the request for public comment on the PolyMet SDEIS for the NorthMet project. I am a local citizen who supports this mining and is actively engaged in ensuring that it is done right, what I like to call Minnesota right. Offered in this spirit, here are some substantive suggestions that are intended to improve the NorthMet project plan and the associated SDEIS going into the permitting process. Please seriously consider these ideas. There is a summary followed by supporting detail, beginning with this overview: Cumulative effects: Herein there is disagreement with the decision to exclude certain cumulative factors and a suggestion for one major addition to be considered. This involves an important open decision by regulating agencies that is avoided in the current SDEIS. It must be decided whether to concentrate copper / nickel ore processing in one river drainage or disburse it across all three. Long term pollution mitigation: There is also disagreement with the decision not to consider certain catastrophic failures and a suggestion for public funding of long term secondary mitigation measures on a fairly grand scale. Water use: There are specific suggestions relative to Colby Lake and the Whitewater Reservoir. Solar panel arrays: There is a suggested alternative supplemental cover system to cap stockpiles and tailings basins. Wild Rice: There is a specific plan for compensatory mitigation that affects certain lakes and rivers that currently hold wild rice but are impaired. Infrastructure improvements. There are two suggested new public roads plus certain floodplain proposals. Maps: There are suggested improvements for maps in the SDEIS. Among other things maps need to more clearly show the Laurentian Divide. Summary: The SDEIS section on Cumulative Effects must include some high level analysis of the impact of multiple copper / nickel mines processing their ores in this immediate vicinity, and of PolyMet processing larger volumes for longer periods. There needs to be some conceptual analysis of the impact on these headwaters of multiple copper / nickel mines operating there for a hundred years. It is simply not acceptable to affirmatively permit this one mine for only 20 years without considering the more global impact that surely will follow. In fact, if this were to be the only copper / nickel mining project ever undertaken in the Duluth Complex, it should be turned down. We are not evaluating a new mine here, we are evaluating a new industry. For the same reason a specific analysis needs to be done of Twin Metals processing their ores using excess processing capacity at this same site. That possibility is too real and too imminent to be excluded from your analysis. At a bare minimum this EIS needs to identify one backup site for an additional tailings basin and needs to update the impact on the local hydrology assuming a doubling of the projected volume of ores processed in this same time frame. That analysis needs to consider refilling the West Pit at twice the forecast rate. The assessment of cumulative effects should not be limited to known specific pl

Alphabetical by sender's first name

Harla Partridge 40413

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Harlan 43962

The proposed PolyMet mining project is too risky. The SDEIS tells us that water pollution and other environmental harms can be prevented or contained for 20 years of mining operations and hundreds of years thereafter . . . if the reverse osmosis water treatment and other systems work as they are designed to work, if nothing goes wrong, if extreme weather events or other natural or human-caused catastrophes do not occur, if the containment barriers are not punctured or overwhelmed, etc But unforeseen things do happen; in the real world, unexpected events should be expected; and hundreds of years is a very long time. The likelihood of a breakdown in PolyMet's proposed operations is great, and the consequences to the environment would be disastrous, especially in this fragile and water-rich part of the Lake Superior watershed. The short-term economic benefits of the mine would not be worth the price of the potential long-term harm. Harlan Cavert 100 2nd St SE, #1002 Minneapolis, MN 55414 (612) 378-2919 HYPERLINK "mailto:hmcavert@msn-com"hmcavert@msn-com

Harold Childers 54474

See attachment

Alphabetical by sender's first name

Harold Denenberg 40970

Mar 9, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Harold Denenberg 833 Persimmon Ln Langhorne, PA 19047-1777 (215) 752-3122

Harold Dziuk 44383

From: Harold Dziuk [mailto:beha1@bigfork-net] Sent: Thursday, March 13, 2014 9:08 AM To: Fay, Lisa (DNR) Subject: PolyMet SDEIS Dear Ms Fay, Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan, I believe the mine should not be built as described. There are many problems with PolyMet's mine plan. All I want is to make sure that any sulfide mines opened in Northern Minnesota are safe, clean, and don't leave taxpayers with a bill. If we don't get this right the first time, the next 17 generations of Minnesotans will have to live with the consequences. Sincerely, Harold Dziuk 51301 Pine Point Road Bigfork, MN 56628-4229

Harold J Noyes 43218

Dear Comment Reviewer: I find the NorthMet SDEIS to provide a very strong basis supporting that the project move forward and I encourage the appropriate authorities to do so. There is confusion in the public media about the impacts related to the potential for ground water or surface water contamination or a potential need for an extended, undefined term of mechanical treatment. It is my understanding that extensive lab leaching tests and related modelling have been conducted that address and resolve these issues, but I do not believe this has been made adequately clear to the public, since this remains a commonly cited objection and most people cannot reasonably understand a 2300 page technical document. I recommend in your approval of the project that you provide some better summary of this collection of issues. Harold J Noyes P. O. Box 1186 Golden, CO 80402

Harold Kapaun Jr 41908

Mar 8, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mr Harold Kapaun Jr 2207 Reaney Ave E Saint Paul, MN 55119-3949

Alphabetical by sender's first name

Harold Kapaun Jr 41909

Mar 8, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mr Harold Kapaun Jr 2207 Reaney Ave E Saint Paul, MN 55119-3949

Harold Nordin 43066

To: Lisa Fay, EIS Project Manager MN-DNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 From: Harold Nordin 5310 Oakley Street Duluth, Minnesota 55804 In my opinion the NorthMet SDEIS falls short of providing the quality of information required to ensure the appropriate environmental safeguards are implemented before, during, and after the projected 20-year life of the project. For the following reasons I feel the current NorthMet (PolyMet) SDEIS should be rejected and a revised document required: 1- The current SDEIS does not address the use of alternative methods for mining sulfide bearing ores that would reduce the impact on the environment—eg underground or subsurface mining operations which could significantly reduce adverse impact on the ecologically sensitive surface area and reduce the likelihood of water contaminants in the watershed. 2- The current SDEIS does not adequately address the issue of water quality relative to the reproduction of wild rice in waters adjacent to mining operations. Current guidelines for water quality should be enforced as currently written and allowances for seasonal variations should not be allowed. 3- The current SDEIS does not address the consequences of long terms exposure to water borne and airborne contaminants for individuals living and working within area which will be impacted by open-pit mining operations including consequences likely to occur long after mining operations have ceased. 4- The current SDEIS does not adequately address the issue of water quality relative to the reproduction of wild rice in waters adjacent to mining operations. Seasonal variances should not be granted until research is available to support such action. 5- The current SDEI does not adequately address the ability of the parent company (PolyMet) to provide the necessary financial assurances that site remediation issue can be addressed long-term notable after mining operations have ceased.

Alphabetical by sender's first name

Harold Radke 40132

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Harriet Liedtke 14622

Feb 12, 2014 Ms Lisa Fay MN Dear Ms Fay, Let's keep mining out of Minnesota. Let the other states take the risk. Keep Minnesota wild and beautiful. It's our investment for the future. It makes economic sense to not burden our children with 500 years of pollution. Let's be known for our unpolluted natural resources. There are no "guarantees" worth the risk. Say No to mining. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Harriet Liedtke 15151 Greenhaven Dr Apt 124 Burnsville, MN 55306-6151 (952) 435-6715

Alphabetical by sender's first name

Harriet M Liedtke 20992

We live on a planet overcrowded with people. Evolution tells us that any species that gets out of control ultimately dies off. We need to treat our environment as precious. Everything that is not eco-friendly must not be done. This mine isn't environmentally friendly. We don't need it. Minnesota is known for its natural resources. Let's not risk our future. It's not worth it. Tell them to develop a solution that doesn't pollute. That's what makes economic sense. Clean technology is real, and there are companies that can bring it about. Let's do the right thing. Say No to this mine in its present form. Harriet M Liedtke 15151 Greenhaven Dr #124 Burnsville, MN 55306

Harriet McCleary 43494

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Harriet McCleary 2440 Stevens Ave S. #2 Minneapolis, MN 55404

48483

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Harriet McCleary 2440 Stevens Ave S. #2 Minneapolis, MN 55404

Harrison Olk 57268

I have had the privilege of calling Duluth my home for six years. Throughout this time, I have learned the importance of the environment and waters that surround this area. This is something that is not only important to me, but also to my kids, their kids and the many people to inhabit this area for years to come. Send this plan back, restore the region so we can be proud of the land we live in.Harrison Olk1921 East 3rd Street, Apt 2Duluth, MN 55812

harry greenberg 41941

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, harry greenberg Minneapolis, Minnesota

Alphabetical by sender's first name

Harry Melander 18140

My name is Keith Hanson, H-A-N-S-O-N. And I'm ceding my time to Harry Melander.: Harry Melander, H-A-R-R-Y, M-E-L-A-N-D-E-R. Mahtomedi, Minnesota. Thanks for the chance to comment on the Supplemental Draft EIS for the purpose of the NorthMet copper-nickel mining opportunity for our state. As indicated, my name is Harry and I work for the Minnesota Building and Construction Trades Council. This council represents over 55,000 skilled construction workers throughout our state. Tonight we are here as a group to comment on this document, and we will only do that. We believe that the applicant has provided to our state and our national agencies all that has been asked for and more. We believe that the agencies, the DNR, are state agencies and others that we all support and trust addressed all that Minnesota wants, which is a safe and clean mining process for minerals that everyone in this room depends upon. We believe that the applicant was required and provided concerns brought forward by the state and federal agencies. And those issues are addressed in this document. Minnesotans, today we come together as a state to discuss a process that was required and followed. We are here commenting on what can be the future of clean copper-nickel mining not only in our state but our nation. We know that there are no individuals in this room that want to do damage to our pristine Northwestern Minnesota landscape. Our organization supports and believes that. We do see the benefit of clean and safe copper-nickel mining and what it will do for our state. Let's not blow a chance to establish globally what good, clean copper mining looks like. Minnesota, we have an opportunity to produce safe and clean copper-nickel mining. And to say that it needs to and it's okay to be somewhere else is globally irresponsible. In closing, this document has all and more than what was asked for. We cannot look in the mirror and say anything different. Mining in Minnesota has been a tradition for over 100 years. Our members benefit from it, the region benefits from it, and everyone in this room depends upon it. Clean, safe protected policy is what this document is about and provides. We ask our state and federal agencies to make sure that happens. And this time it does just that. We asked them, they delivered it, and now let's move on. Jobs in the traditional of mining clean, safe, and greatly regulated. Thank you.

Harvey Hyatt 54551

Please reject the polymet mine. I heard just today, Jan 22 2014, that the model is based on a drought year. This severely underestimates the amount of sulfides that will enter the environment.

Heather Day 15754

See attachment

Heather Dunlop 41860

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Heather Dunlop Minneapolis, Minnesota

Alphabetical by sender's first name

Heather Friedli 7163

To whom this may concern; I am a former resident of Ely, and I am STRONGLY AGAINST the new proposed copper-nickel mines. I have worked several jobs there, in the outdoor tourism industry, retail and food. My husband and I married and had our first child in Ely. I have many friends who live there still, and we still live in Ely during the summer for our jobs. I feel that 500 years of potential pollution to our lakes and rivers is too much of a risk to take. For the outdoor tourism industry we do have, and for the health and lives of the people who live and work in the surrounding area. We need sustainable industry up there- not the slash and burn, boom town industry that mining has always been. There is not one copper-nickel mine in the world that has operated safely without serious pollution and harm to people who live around it. I don't want to live near a Superfund site which we just let happen in some of the most scenic and pure places in the world. Who will be paying for the perpetual clean up of these mines and tailing basins. While the mining companies say they will, 500 years of pollution is longer than we can expect those companies to stay in business, or stockpile enough money to take care of their mess. Polymet has yet to detail how they will financially pay for perpetual cleanup. Without that information it would be foolish for us to even consider letting the mining begin. In reality cleanup will fall on the backs of our children, and our children's children for many generations. Who gives us the right to do that. We should not pollute the water we all drink and play in. What about the heritage we leave to our children. I want them to have the same opportunities to fish clean waters and collect wild rice that we hAve I do not want them to live in fear of what the pollution is doing to their bodies and minds because they live up north. Is this the legacy we want to leave our children. This and other mining proposals are some of the reasons I hesitate to move my young family back to Ely, despite the fact that we love it there. Lack of jobs doesn't keep me away, I know I can create my own living there. The resulting boom town and pollution which will ruin many lives does keep us away. Thank you for listening. Heather Friedli-Ratzlaff 37135 Shady Lane Trail Cannon Falls, MN 55009

Heather Hartfiel 40200

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Miss Heather Hartfiel 122 W Fletcher St Apt 5 Crookston, MN 56716-1944

Heather Hundt 52315

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Heather Hundt 15686 141st Avenue Lake Park, MN 56554

Alphabetical by sender's first name

Heather Lehtinen 39116

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. Cumulative Effects- Arsenic and Cancer *Arsenic is rated by the US Environmental Protection Agency as a Class A carcinogen. That means it causes cancer in human beings. Colby Lake provides drinking water for the city of Hoyt Lakes. It already has high arsenic levels. *The SDEIS says that the PolyMet sulfide mine projet will increase arsenic in Colby Lake by 38-5% (SDEIS, p. 5-145) *The EPA has adopted rules calculating how much arsenic in water unacceptably increases the risk of cancer. (40 C.F.R. 131-36) PolyMet's increase in arsenic for Hoyt Lakes drinking water is above both the threshold set by the EPA and the cancer risk level in Minnesota. *In addition to arsenic in their drinking water, people in Hoyt Lakes would ingest arsenic by eating local fish or wild rice. Low income people who fish and rice for food would have the most cumulative risk. The Food and Drug Administration recently tested rice for arsenic and found Minnesota wild rice has 6 micrograms per liter of arsenic. *The SDEIS must be redone to make a cumulative assessment of arsenic exposure and cancer risks for people in Hoyt Lakes, including formula fed infants and people who rely on fish and wild rice for food. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routin

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Heather Lehtinen 48647

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. Cumulative Effects- Arsenic and Cancer *Arsenic is rated by the US Environmental Protection Agency as a Class A carcinogen. That means it causes cancer in human beings. Colby Lake provides drinking water for the city of Hoyt Lakes. It already has high arsenic levels. *The SDEIS says that the PolyMet sulfide mine projet will increase arsenic in Colby Lake by 38-5% (SDEIS, p. 5-145) *The EPA has adopted rules calculating how much arsenic in water unacceptably increases the risk of cancer. (40 C.F.R. 131-36) PolyMet's increase in arsenic for Hoyt Lakes drinking water is above both the threshold set by the EPA and the cancer risk level in Minnesota. *In addition to arsenic in their drinking water, people in Hoyt Lakes would ingest arsenic by eating local fish or wild rice. Low income people who fish and rice for food would have the most cumulative risk. The Food and Drug Administration recently tested rice for arsenic and found Minnesota wild rice has 6 micrograms per liter of arsenic. *The SDEIS must be redone to make a cumulative assessment of arsenic exposure and cancer risks for people in Hoyt Lakes, including formula fed infants and people who rely on fish and wild rice for food. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of wat

Heather Macdonald 30924

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, The proposed mining is a death knell.. Why would we create a by product that will pollute environment for 100s of years. Yes- they say they have safety standards and rules and laws in place to prevent pollution. That is no guarantee. Why can't we learn from our mistakes. A mistake will happen. Humans make mistakes. Then part of our world will be gone forever. All for money. Money and greed. They dangle before us that jobs will be created by this mining. Why would we want jobs that don;t even last as long as the pollution this mining will create. What are people thinking to allow this to happen to one of the world's pristine places. There WILL be pollution from this mining that will negatively impact this unique and precious environment. AND it will create a by product that will be toxic for hundreds of years. Are we insane that we would undertake this venture for short term goal and long term pollution and destruction This action is not in the interest of the many but of the interest of the few. Those that will make the most money want this. Money. The language of destruction. Why doesn't ethics , values and the beauty of nature ever trump profit. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Heather Macdonald 75 Vermillion St Carlton, MN 55718-9705 (218) 390-1929

Alphabetical by sender's first name

Heather Meier 20234

Dear Ms Fay, Thank you for taking the time to hear comments and understand my position strongly opposing the proposed MN Sulfide Mine. I'm shocked and saddened that Sulfide Mining in one of our national treasures, the Lake Superior Basin, is even being considered. I am not fundamentally against mining; however, I am strongly against Sulfide Mining and this Proposal. Therefore, I respectfully urge you to reject this proposal and to not grant permits. With great power comes great responsibility. Don't allow the destruction of the Lake Superior Basin's environment and existing economy. The scientific facts are clear + Sulfide mining's current state and history are consistent and clear: This type of mining is destructive to the environment. There is nothing in this proposal to prove otherwise. It is both naïve and dangerous to think Sulfide Mining will just "fit right in" to Northern Minnesota and create jobs with no negative consequences to the environment and existing economy. I'm in favor of job creation but not at the expense of everything else (eg water. and existing jobs). Everything comes with a cost, and the true cost of sulfide mining is far too high. Don't allow Northern MN to be another failed sulfide mining "experiment". My strong opposition to this proposal has many bases~ · Environmental · Economic · Personal Environmental Impact: Have we really come to the point in the American Economy that we need to choose between clean water and jobs. This proposal risks our water, air, and the overall environmental health of the region. This is not equivalent to mining Iron Ore (which is a tradition of the region). The impact difference between Sulfide and Iron Ore mining is drastic, but this is not being discussed enough. There are many of us who are not fundamentally against mining, but have researched this, and are very against sulfide mining. However, I'm concerned most Minnesotans believe this is just the same as the Iron Ore mining done in Northern MN for generations. It is up to you, as leaders, to know the difference, stand strong, and protect this region. Iron ore mining doesn't trigger acid mine drainage and pollute the surrounding environment. There is mining and then there is MINING . Facts: · When Sulfide ore comes in to contact with air and water (keep in mind, these mines are almost always below the water line), sulfuric acid is generated. · This acidic run off mixes with other heavy metals and thus creates acid mine drainage. This leaches in to ground water, lakes, streams etc + pollutes the air.. This is dangerous for people (as well as wildlife). · The mine craters fill with water (rain + ground water) and mix with the mines acid drainage creating Acid Lakes-This kills the wildlife that unwittingly land in, or drink from, these "acid drainage lakes". · To date, no sulfide mine has been able to operate without causing pollution in the surrounding environment. o Many companies point to the Flambeau Mine as a model case; however, a 2012 federal ruling showed multiple violations of the Clean Water Act at the Flambeau site. · As a result of the Flambeau site, Wisconsin has issued a moratorium requiring sulfide mining companies to prove that sulfide mining has successfully been done elsewhere, without causing water pollution, before the allowance of mines there. There is no real life evidence PolyMet's plan will work. Their proposal is not fact based, but rather theory and speculation. We need real, practical application PROOF this has been done (in a similar climate and scale) without destruction. Not "theories on paper" or "controlled tests or models". Let's not just believe the Mining Companies (that have a long history of poor stewardship, integrity and accountability). No matter what measures they claim will be put in place, there will be issues/"events". Thinking we can "control" the spread of the acid mine drainage is supremely arrogant and obviously wrong. No matter how many pages the proposal is, we all know

Alphabetical by sender's first name

Heather Meier 42502

Dear Mr Bruner, Thank you for taking the time to hear comments and understand my position strongly opposing the proposed MN Sulfide Mine. I'm shocked and saddened that Sulfide Mining in one of our national treasures, the Lake Superior Basin, is even being considered. I am not fundamentally against mining; however, I am strongly against Sulfide Mining and this Proposal. Therefore, I respectfully urge you to reject this proposal and to not grant permits. With great power comes great responsibility. Don't allow the destruction of the Lake Superior Basin's environment and existing economy. The scientific facts are clear + Sulfide mining's current state and history are consistent and clear: This type of mining is destructive to the environment. There is nothing in this proposal to prove otherwise. It is both naïve and dangerous to think Sulfide Mining will just "fit right in" to Northern Minnesota and create jobs with no negative consequences to the environment and existing economy. I'm in favor of job creation but not at the expense of everything else (eg water. and existing jobs). Everything comes with a cost, and the true cost of sulfide mining is far too high. Don't allow Northern MN to be another failed sulfide mining "experiment". My strong opposition to this proposal has many bases~ · Environmental · Economic · Personal Environmental Impact: Have we really come to the point in the American Economy that we need to choose between clean water and jobs. This proposal risks our water, air, and the overall environmental health of the region. This is not equivalent to mining Iron Ore (which is a tradition of the region). The impact difference between Sulfide and Iron Ore mining is drastic, but this is not being discussed enough. There are many of us who are not fundamentally against mining, but have researched this, and are very against sulfide mining. However, I'm concerned most Minnesotans believe this is just the same as the Iron Ore mining done in Northern MN for generations. It is up to you, as leaders, to know the difference, stand strong, and protect this region. Iron ore mining doesn't trigger acid mine drainage and pollute the surrounding environment. There is mining and then there is MINING . Facts: · When Sulfide ore comes in to contact with air and water (keep in mind, these mines are almost always below the water line), sulfuric acid is generated. · This acidic run off mixes with other heavy metals and thus creates acid mine drainage. This leaches in to ground water, lakes, streams etc + pollutes the air.. This is dangerous for people (as well as wildlife). · The mine craters fill with water (rain + ground water) and mix with the mines acid drainage creating Acid Lakes-This kills the wildlife that unwittingly land in, or drink from, these "acid drainage lakes". · To date, no sulfide mine has been able to operate without causing pollution in the surrounding environment. o Many companies point to the Flambeau Mine as a model case; however, a 2012 federal ruling showed multiple violations of the Clean Water Act at the Flambeau site. · As a result of the Flambeau site, Wisconsin has issued a moratorium requiring sulfide mining companies to prove that sulfide mining has successfully been done elsewhere, without causing water pollution, before the allowance of mines there. There is no real life evidence PolyMet's plan will work. Their proposal is not fact based, but rather theory and speculation. We need real, practical application PROOF this has been done (in a similar climate and scale) without destruction. Not "theories on paper" or "controlled tests or models". Let's not just believe the Mining Companies (that have a long history of poor stewardship, integrity and accountability). No matter what measures they claim will be put in place, there will be issues/"events". Thinki

Alphabetical by sender's first name

Heather Meier 47797

From: Heather Meier [mailto:Heather.Meier@genmills-com] Sent: Wednesday, March 05, 2014 3:39 PM To: Periman, Richard -FS Subject: Sulfide Mining Comment: Strongly Opposed. Reject Proposal Dear Mr Periman, Thank you for taking the time to hear comments and understand my position strongly opposing the proposed MN Sulfide Mine. I'm shocked and saddened that Sulfide Mining in one of our national treasures, the Lake Superior Basin, is even being considered. I am not fundamentally against mining; however, I am strongly against Sulfide Mining and this Proposal. Therefore, I respectfully urge you to reject this proposal and to not grant permits. With great power comes great responsibility. Don't allow the destruction of the Lake Superior Basin's environment and existing economy. The scientific facts are clear + Sulfide mining's current state and history are consistent and clear: This type of mining is destructive to the environment. There is nothing in this proposal to prove otherwise. It is both naïve and dangerous to think Sulfide Mining will just "fit right in" to Northern Minnesota and create jobs with no negative consequences to the environment and existing economy. I'm in favor of job creation but not at the expense of everything else (eg water. and existing jobs). Everything comes with a cost, and the true cost of sulfide mining is far too high. Don't allow Northern MN to be another failed sulfide mining "experiment". My strong opposition to this proposal has many bases~ Environmental Economic Personal Environmental Impact: Have we really come to the point in the American Economy that we need to choose between clean water and jobs. This proposal risks our water, air, and the overall environmental health of the region. This is not equivalent to mining Iron Ore (which is a tradition of the region). The impact difference between Sulfide and Iron Ore mining is drastic, but this is not being discussed enough. There are many of us who are not fundamentally against mining, but have researched this, and are very against sulfide mining. However, I'm concerned most Minnesotans believe this is just the same as the Iron Ore mining done in Northern MN for generations. It is up to you, as leaders, to know the difference, stand strong, and protect this region. Iron ore mining doesn't trigger acid mine drainage and pollute the surrounding environment. There is mining and then there is MINING . Facts: When Sulfide ore comes in to contact with air and water (keep in mind, these mines are almost always below the water line), sulfuric acid is generated. This acidic run off mixes with other heavy metals and thus creates acid mine drainage. This leaches in to ground water, lakes, streams etc + pollutes the air.. This is dangerous for people (as well as wildlife). The mine craters fill with water (rain + ground water) and mix with the mines acid drainage creating Acid Lakes-This kills the wildlife that unwittingly land in, or drink from, these "acid drainage lakes". To date, no sulfide mine has been able to operate without causing pollution in the surrounding environment. Many companies point to the Flambeau Mine as a model case; however, a 2012 federal ruling showed multiple violations of the Clean Water Act at the Flambeau site. As a result of the Flambeau site, Wisconsin has issued a moratorium requiring sulfide mining companies to prove that sulfide mining has successfully been done elsewhere, without causing water pollution, before the allowance of mines there. There is no real life evidence PolyMet's plan will work. Their proposal is not fact based, but rather theory and speculation. We need real, practical application PROOF this has been done (in a similar climate and scale) without destruction. Not "theories on paper" or "controlled tests or models". Let's not just believe the Mining Companies (that have a long history of poor stewardship, integrity and accountabili

Alphabetical by sender's first name

Heather Meier 49583

Dear Mr Dabney, Thank you for taking the time to hear comments and understand my position strongly opposing the proposed MN Sulfide Mine. I'm shocked and saddened that Sulfide Mining in one of our national treasures, the Lake Superior Basin, is even being considered. I am not fundamentally against mining; however, I am strongly against Sulfide Mining and this Proposal. Therefore, I respectfully urge you to reject this proposal and to not grant permits. With great power comes great responsibility. Don't allow the destruction of the Lake Superior Basin's environment and existing economy. The scientific facts are clear + Sulfide mining's current state and history are consistent and clear: This type of mining is destructive to the environment. There is nothing in this proposal to prove otherwise. It is both naïve and dangerous to think Sulfide Mining will just "fit right in" to Northern Minnesota and create jobs with no negative consequences to the environment and existing economy. I'm in favor of job creation but not at the expense of everything else (eg water. and existing jobs). Everything comes with a cost, and the true cost of sulfide mining is far too high. Don't allow Northern MN to be another failed sulfide mining "experiment". My strong opposition to this proposal has many bases~ · Environmental · Economic · Personal Environmental Impact: Have we really come to the point in the American Economy that we need to choose between clean water and jobs. This proposal risks our water, air, and the overall environmental health of the region. This is not equivalent to mining Iron Ore (which is a tradition of the region). The impact difference between Sulfide and Iron Ore mining is drastic, but this is not being discussed enough. There are many of us who are not fundamentally against mining, but have researched this, and are very against sulfide mining. However, I'm concerned most Minnesotans believe this is just the same as the Iron Ore mining done in Northern MN for generations. It is up to you, as leaders, to know the difference, stand strong, and protect this region. Iron ore mining doesn't trigger acid mine drainage and pollute the surrounding environment. There is mining and then there is MINING . Facts: · When Sulfide ore comes in to contact with air and water (keep in mind, these mines are almost always below the water line), sulfuric acid is generated. · This acidic run off mixes with other heavy metals and thus creates acid mine drainage. This leaches in to ground water, lakes, streams etc + pollutes the air.. This is dangerous for people (as well as wildlife). · The mine craters fill with water (rain + ground water) and mix with the mines acid drainage creating Acid Lakes-This kills the wildlife that unwittingly land in, or drink from, these "acid drainage lakes". · To date, no sulfide mine has been able to operate without causing pollution in the surrounding environment. o Many companies point to the Flambeau Mine as a model case; however, a 2012 federal ruling showed multiple violations of the Clean Water Act at the Flambeau site. · As a result of the Flambeau site, Wisconsin has issued a moratorium requiring sulfide mining companies to prove that sulfide mining has successfully been done elsewhere, without causing water pollution, before the allowance of mines there. There is no real life evidence PolyMet's plan will work. Their proposal is not fact based, but rather theory and speculation. We need real, practical application PROOF this has been done (in a similar climate and scale) without destruction. Not "theories on paper" or "controlled tests or models". Let's not just believe the Mining Companies (that have a long history of poor stewardship, integrity and accountability). No matter what measures they claim will be put in place, there will be issues/"events". Thinki

Heather Payne 22850

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on the region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Therefore, I request that you not approve any exchange. Sincerely, Heather Payne 1300 Mason Farm Rd Chapel Hill, NC 27514-4604 (919) 933-0229

Alphabetical by sender's first name

Heather Phillips 42051

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Heather Phillips Eden Prairie, Minnesota

Heather Simso 54135

I realize it's all about $ for Allete, but why they think this will be the one mine without environmental consequences--not good--is ridiculous. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

HeatherR Nord 41801

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, HeatherR Nord Benson, Minnesota

Hedman Bullivant 52286

Mar 13, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I'm a student at the University of Minnesota Duluth. The natural beauty of the Great Lakes is what drew me to to going to school here. I love Minnesota because it is a state that values and protects these natural spaces. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Hedman Bullivant 7518 130th Ave Milaca, MN 56353-4437 (763) 898-0268

Alphabetical by sender's first name

Heidi Jindrich 29233

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Because I currently live in an area code far removed from the proposed PolyMet mine, you may want to discount my concerns. But your decision will have a far-reaching effect on the rest of the country-whether democratic forces will have any effect in mine locations anywhere, including our own Cascade and Olympic mountain ranges. I grew up in West Virginia as well as Wisconsin, and I have seen the type of society that accompanies resource extraction economies: severe local poverty, extreme corruption in government, brutal ignorance and its militant defense. The time had come for a different vision, just to survive. Others see it and are willing to defend the land if you are not. We need water to live. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Heidi Jindrich 4159 47th Ave SW Seattle, WA 98116-4001

Heidi Lynn Ahlstrand 42007

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Heidi Lynn Ahlstrand 1580 State Ave NW Owatonna, MN 55060-5688

Heidi Takala 48639

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. I grew up on the shores of Lake Superior and in the surrounding wooded areas. I still live in those areas. How dare you even think about setting forth with this business of such contamination process. I am very sure that you are able to find other area that are adequate for your needs. Please do so. This area is the very pure and should remain so. It is the one and only unpolluted natural waters left. What are you thinking. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. People in these areas rely on the natural wildlife and natural resources in this area, I am sure that do not want to see their lives and their childrens' lives threatened by the destruction that would impact the area. PLEASE DON'T DO THIS. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Heidi Takala 1232 4th Ave SW Apt 13 Rochester, MN 55902-3815 (507) 358-0290

Alphabetical by sender's first name

heidi uppgaard 40477

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Alphabetical by sender's first name

heidi uppgaard 40479

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Heidi VanGuilder 44554

3/13/14 I have reviewed the SDEIS for the Polymet Project, and fully approve of the proposed processes and mitigation systems as well as the science used in designing them, and ultimately constructing them. I also believe from an economic standpoint, that expediting the current processes so Polymet could begin construction immediately would bring a desperately needed, immediate economic boost to the Iron Range, not to mention the added benefit of more public lands, through the land exchange. I fully support the SDEIS in its entirety. Heidi VanGuilder 7955 Waris Road Embarrass, Minnesota 55732

Heinecke 9576

Dear DNR, I am absolutely opposed to PolyMet's proposal for sufide mining and am shocked that our state is even considering it. Allowing it would be shortsighted and unethical, as generation after generation will pay the price for our greed. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Thank you for your time, Elizabeth Lee Heinecke 4213 Branson St Edina, MN 55424 (952)928-9957

Alphabetical by sender's first name

Helen Elizabeth Proechel 42803

See attachment

Helen Forsythe 3115

To whom it may concern, As a young person who has treasured the natural landscape on and around Lake Superior on many occasions, I am entirely disappointed that such a beautiful place in our state would be considered for the destructive and toxic process of mining. In addition, people living around this region would be detrimentally affected by any sulfuric acid released into watersheds as a byproduct of the proposed Polymet mine. To endanger the health of this sacred ecosystem for the benefit of corporate interests is to devalue the health of the people and other creatures that inhabit this region. To put corporate profits before this health is entirely immoral. I recognize that this mine will create over 300 jobs for 20 years, which is a social benefit of the mines that I do not want to discredit. However, a job can only get you so far if the water coming out of your sink is contaminated by sulfuric acid or other mining byproducts. For these reasons, I am in favor of the rejection of the proposed Polymet mine. I hope the DNR will take into account the health of the people and the land when making this decision. Thank you for your time. Helen Forsythe

57188

In the interest of protecting human and environmental health, I am in opposition of the proposed Polymet mine project. I believe the perceived economic benefits of these mines will be short-lived and will benefit only a few people so the dangers posed by these mines are entirely more significant than the benefits.Helen Forsyth25361 County 7 BlvdWelch, MN 55089

58096

I am in opposition of the proposed Polimet mine. I understand the significant economic opportunities offered by these new sulfide mining operations, but I believe the consequences to be for too dangerous for the economic argument to be valid. The potential water, soil, and air pollution effects from these mines pose major threats to the health of people in Minnesota. Our citizen’s health will be compromised by this mine, and even those who receive the economic benefits will either be living away from the wastes created, or they will be experiencing the toxic qualities of mining for the period of time that they are employed in the mines. The use of the products received from those mines are not worth compromising our health in the form of our water, soil, air, co2 levels, etc. It is simply not a logical tradeoff, and the proposed Polymet mine should not be approved.

helen frigo 17665

Feb 15, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, helen frigo 9650 S Ocean Dr Jensen Beach, FL 34957-2354

Alphabetical by sender's first name

Helen Gilbert 38825

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Dr Helen Gilbert 3540 Edmund Blvd Minneapolis, MN 55406-2943

HELEN J SPRY 6128

We are property owners on the White Iron Chain of lakes. We are GRAVELY concerned about the potential water quality damage that could result from the proposed mining efforts in the area. We do not believe the mining company premise that this process is "safe". All mines of this type in the US and outside have water issues. There are other locations that have these minerals, why do this next to Watersheds critical to MN and US. Why would or should the state risk this next to one of the most pristine and valuable water sheds in the state: BWCA and Lake Superior. I encourage the deciders to consider the risk of doing this to the future generations Can it really ever be repaired if a problem occurs. If mining is allowed, and if correction is needed it should be funded as a HUGE (multiple BILLIONS) bond or escrow. When your document shows mitigation needs to allow 500 years on the Mining companies, make sure it's the mining pocket books NOT the MN or US taxpayers on the hook. Thank You Helen Spry 2639 Humboldt Ave So MPLS, MN 55408 612 747 0640 Sent from my iPad

Helen Johnson 41698

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Helen Matekunas 40410

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Helen Matekunas 1570 West 96th Street Indianapolis, IN 46260 US

Helen Mercer-Taylor 57193

I do not support the Polymet mine project because it goes against the things I value most about my state. I've grown up spending time in our beautiful, pristine natural areas like the waters threatened by this project. I also believe in a Minnesota that shows respect toward the Native Americans living here, whose wild rice resources would be threatened.Helen Mercer-Taylor2231 Folwell AveSt. Paul, MN 55108

Helen Paul 42787

See attachment

Alphabetical by sender's first name

Helen Sievers 43350

To all that it may concern Having heard a representative from PolyMet speak earlier in the year, I thought perhaps this might be an ethical company. Attending the public meeting in St Paul convinced me otherwise. One of the first things I observed was what appeared to be bus loads of unprofessional people arriving in overalls and hard hats, apparently representing the miners. One had to wonder if they thought the ceiling was going to fall down, thus the hard hats. Then, there was the activity of "stuffing" the barrel with names of people who then "ceded" to people who had interests that would bring themselves monetary rewards. Why didn't the people who put their names in speak for themselves. Any company that stoops to those tactics is not likely to care about what damages they do while extracting what will probably be great monetary profits for the company, PolyMet. I left the meeting being even more concerned about the damage that will be done to the environment than when I came. Not only are many valuable resources such as forests, wetlands, bogs, lakes and rivers be physically and permanently damaged but the seepages of toxic chemicals such as mercury and all of the sulfides into the watershed will cause big problems for generations to come. There already is significant damage from previous mining activities. This will only exacerbate the probleMs My concerns were increased through a conversation with a representative of PolyMet situated at their booth during the meeting. When I asked what the company was going to do about the metals that would inevitably escape their reclamation system, he indicated none would because the whole purpose was to acquire those metals to sell. Clearly he did not understand, or perhaps acknowledge not only the known pollutant, mercury, is a metal but more importantly some of the copper and nickel would inevitably escape and that these elements were toxic to plant and animal life alike, even in very low concentrations. One could also add, once in the environment these metals could be converted to organometallic compounds which are extremely toxic at even lower concentrations than the inorganic form, the sulfides for example. Methylation of such compounds, which can occur in natural environments, increases their capacity to cross the blood/brain barrier causing all types of neurological problems as well as genetic anomalies. Take for example the methylation of mercury by sulfate-reducing and iron-reducing bacteria (http://www.intechopen-com/books/methylation-from-dna-rna-and-histones-to-diseases-and-treatment/the-methylation-of-metals-and-metalloids-in-aquatic-systems). An acute example of the health hazards brought on by methyl mercury is occurring right now in the Grassy Narrows in Ontario, Canada (http://en.wikipedia-org/wiki/Ontario_Minamata_disease). If PolyMet is truly concerned about the environment and what problems they leave behind, I wonder what is they willing to do in order to obtain the right to mine the copper, nickel and other valuable metals located at the proposed mining site. Are they willing to pay a "carbon tax" on all of the carbon dioxide it releases. Are they willing to put a cap on their profits and invest the rest into the community from which they are taking the minerals. Are they willing to invest a significant portion of the monetary gains towards researching methods of preventing and/or reversing the effects of the pollution caused by their mining techniques. I asked a PolyMet representative at the public meeting if they would install solar cells on the roofs of the buildings only to find an unwillingness to even entertain the idea. Photovoltaic cells could also be installed over the tailing ponds. Oregon has what they refer to as solar highways (HYPERLINK "http://www.oregonsolarhighway-com/"www.oregonsolarhighway-com). Would PolyMet be willing to install solar power or wind power along the roads to the mining site. Would th

Alphabetical by sender's first name

Helena Mestenhauser 41898

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Helena Pohlandt-McCormick 47694

Do not permit sulfide mining in northern Minnesota. We must hold this land in trust for the future. Helena Pohlandt-McCormick 1128 Portland Avenue Saint Paul, MN 55104

Alphabetical by sender's first name

Helene Vion 40378

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Helene Vion 1903 commonwealth houston, TX 77006 US

Helmut Maier 10239

Dear Ms Fay, Thank you for letting me comment on the proposed leaching mine in Northern Minnesota. I am a retired PhD in Chemistry who has worked for many years for Henkel/Henkel Corporation, a company involved in providing chemicals to the mining business in the US and worldwide. This company has developed the LIX (liquid ion exchange) process to remove valuable metals from ore. As part of my employment, I have learned much about the opportunities and challenges in mining low grade ores. As you are certainly aware, the leaching technologies used to extract metals from low grade ore use a number of very dangerous and/or toxic chemicals, like cyanides or sulfuric acid, depending on the metals that are extracted. In all cases, protecting the water below and around the leaching fields is a major technical challenge that continues long after the leaching operations are discontinued. While it is technically feasible to do this, the long duration of all protective measures have generally exceeded the commitment or financial resources of the operating companies and the clean-up of problems falls onto the public sector. While this may not have resulted in major disasters (yet) in North America, the very large operations in Africa that used leaching processes, are an example of the environmental disasters that can result in the aftermath of abandoned leaching operations. Unless PolyMet is forced to fully finance the long-term clean-up of the proposed leaching sites while they operate the mine, the long-term protection of the ground water and environmental waster sources will eventually fall to the public sector, either through bankruptcy or off-shoring of the operating company. In any case, major negative environmental impact of the mine after the leaching operation ends is, in my opinion, a certainty, due to the long clean-up process. I am strongly opposed to the PolyMet proposal and urge the DNR not to approve it. Best regards, Helmut Maier 1201 Yale Place Apt. 702 Minneapolis, MN 55403 maierhk@outlook-com

Alphabetical by sender's first name

Helmut Maier 17286

Dear Ms Fay, I am writing to you regarding the planned Polymet Mine in Northern Minnesota. After reading that Glencore is a 25% owner of the intended mine and a likely operator, I was concerned about ethical issues reported about Glencore in the news and on the internet (see quotes from Wikipedia below). My big concern is the protection of the environment in the area around the proposed mine. Considering the heavy metals as well as sulfur containing ores in the tailings of the mine, water and air contamination are serious concerns. To assure that any contamination is caught in real time rather than upon inspection by the authorities after the fact, effluent and off-gases should be controlled in real time with data sent immediately on-line and automatically to a government authority as soon as the allowed discharge limits are exceeded. The technology for such real time tests as well as on-line reporting is readily available and would protect the environment much better than cleaning-up after a spill has been discovered. As you are well aware, cleaning up a heavy metal spill is very difficult, time consuming and costly and does major damage to the environment. Prevention is the only option here. Finally, considering the information listed below, the PolyMet mine has to fund verifiably ongoing insurance that will pay for any longterm clean-up of water from the mine operation. It has to be assured that the owner or operator of the mine cannot declare bankruptcy or go off-shore and walk away from their long-term obligations without leaving enough funding/insurance behind for the long-term operation of the clean-up and monitoring operation. The tax payer should not have to pay for any of the long-term consequences of this mine operation. Best regards, Helmut Maier 1201 Yale Place, 702 MPLS, MN 55403 Controversies[HYPERLINK "http://en.wikipedia-org/w/index.php.title=Glencore_Xstrataandaction=editandsection=11"edit] Financial and accounting manipulations[HYPERLINK "http://en.wikipedia-org/w/index.php.title=Glencore_Xstrataandaction=editandsection=12"edit] Five non-government organisations have filed a complaint to the HYPERLINK "http://en.wikipedia-org/wiki/Organisation_for_Economic_Co-operation_and_Development"OECD against a subsidiary of Glencore over allegations that a mine it owns in HYPERLINK "http://en.wikipedia-org/wiki/Zambia"Zambia may not be paying enough tax on its profits. The cause for the complaint lies in the financial and accounting manipulations performed by the two companies' subsidiary, Mopani Copper Mines Plc (MCM), in order to evade taxation in Zambia.HYPERLINK "http://en.wikipedia-org/wiki/Glencore_Xstrata#cite_note-corporatejustice-org-41"[41]HYPERLINK "http://en.wikipedia-org/wiki/Glencore_Xstrata#cite_note-guardian-42"[42] In 2011, HYPERLINK "http://en.wikipedia-org/wiki/Grant_Thornton_International"Grant Thornton found that tax avoidance by Glencore in Zambia cost the Zambian Government hundreds of millions of dollars in lost revenue. The avoidance was facilitated through mechanisms such as HYPERLINK "http://en.wikipedia-org/wiki/Transfer_pricing"transfer pricing and inflating costs at Glencore's HYPERLINK "http://en.wikipedia-org/wiki/Mopani_Copper_Mine"Mopani Copper Mine. The Mopani mines are controlled through the HYPERLINK "http://en.wikipedia-org/wiki/British_Virgin_Islands"British Virgin Islands, a recognised tax haven.HYPERLINK "http://en.wikipedia-org/wiki/Glencore_Xstrata#cite_note-43"[43] Dealings with "rogue states"[HYPERLINK "http://en.wikipedia-org/w/index.php.title=Glencore_Xstrataandaction=editandsection=13"edit] ABC Radio reported that Glencore "has been accused of illegal dealings with HYPERLINK "http://en.wikipedia-org/wiki/Rogue_state"rogue states: HYPERLINK "http://en.wikipedia-org/wiki/Apartheid"apartheid HYPERLINK "http://en.wikipedia-org/wiki/South_Africa"South Africa, HYPERLINK "http://en.wikipedia-org/wiki/Soviet_Union"USSR, HYPERLINK "http://en.wiki

58122

Concern about control of discharge from mine. It is not sufficient to control discharge level of pollutants on an infrequent basis. Instead, there has to be real fine control for metals and pollutant gases to assure no inadvertent pollution happens due to mechanical failures or human error. The technology for this exists. It is essential to prevent such pollution accidents since cleanup of spills in this sensitive environment is very difficult or impossible and, for sure , expensive.

Henry Illegible 42622

See attachment

Henry J. Sandri 42919

Please see the attached letter. Thank you. Henry J. Sandri President and COO Vermillion Gold Inc.

Henry Koski 42638

See attachment

Alphabetical by sender's first name

Henry Moore 7496

Dear Ms Fay, The proposed PolyMet mine for northeastern Minnesota is a disaster on a number of fronts just waiting to happen. Reading the SDEISI am opposed to the mine for several reasons. First, it will destroy nearly 1000 acres of wetlands and probably nearly 8,000 additional acres, all in violation the EPA which requires that a project that destroys wetlands not be approved if pollution would violate the Clean Water Act. This applies to the “Section 404 Permit” as well as the SDEIS. Poly-Met admits water pollution at the site. How does Poly-Met respond to this concern, and will the EPA rule be enforced. Second, will Minnesota’s own Department of Health regulations regarding limits for manganese be upheld. The current limit set by Poly-Met of 1506 micrograms per liter for manganese is fifteen times higher than the health limit set by the Health Department. Why. How will this be corrected since it induces brain damage in humans of all ages. Third, what will be the effect of the toxicity of the plant on the workers. Will Poly- Met cover their health liabilities or leave it to Minnesota and the federal government to cover the long term costs. Why is nothing regarding worker health liabilities addressed in the SDEIS statement. Why is this glaring omission allowed. Fourth, why is a project potentially allowed which will pollute the agricultural, fishing, wildlife, and drinking water for thousands of people in the northeastern Minnesota area and in the Lake Superior basin into perpetuity. If clean drinkable water is one of the absolute necessities of life why is it being considered for toxic pollution for the next 500 years or longer. What happens when the systems designed to stop the seepage, drainage, and discharge fail to operate as described in the SDEIS. How is Poly-Met (or whoever might buy them out during the 20 year mining period) going to be held responsible. How will the water seepage from rock fractured by blasting into underground sources which will eventually reach the wetlands, rivers, streams and lakes be prevented. I live in the Lake Superior region, have a cabin on Island Lake and love the beauty of the land, the woods and the forests. I moved here from Chicago about 25 years ago so that our daughters might learn to love this beautiful place also. I do not fish, hunt, or ride snowmobiles but I respect the rights of those who do and the vendors who service their pursuits. Why should a most valuable tourist and vacation land for much of the Midwest be sacrificed for a few short lived high-tech jobs, a valuable product to be shipped overseas, and profits be provided to corporations located elsewhere around. Respectfully, Henry O Moore Henry Moore 502 Madison Abve Duluth, MN 55811 218-727-5319

Henry Mott 28605

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, To whom it may concern: I understand the desire for jobs in Minnesota's iron range and the desire to develop the vast deposits of copper and other valuable metals lying beneath the Earth's surface in NE Minnesota. However, I am aghast that those charged with the protection of Minnesota's environment, especially Lake Superior, would accept a "reclamation" plan from PolyMet that would require treatment of mining-contaminated water for hundreds of years post mine closure - perhaps in perpetuity. We the people will be paying for the extracted copper long after PolyMet's CEO and other top executives have built their trophy homes and purchased their yachts and the workers from the area have purchased their new pickup trucks, snowmobiles and camper trailers. I would hope that the officials in command of this permit application would stand firm that mining should leave no legacy environmental problems with which to deal post closure. Those wishing to profit from the mining operations undoubtedly claim that such a guarantee cannot be made - that such a remediation plan cannot be set in place. I would vehemently disagree. I am an environmental engineer (holding a PhD) and strongly believe that such a design surely can be devised. It may be expensive, but in order to partake in Minnesota's subsurface mineral natural resources, PolyMet (or any other mining company wishing to do so) must be prepared to shoulder the true cost of extracting the minerals from the Earth. Do not say "NO" to mining itself; say "NO" to mining when associated reclamation plans will leave legacy environmental probleMs Please don't concentrate on the amount of the bond that PolyMet will set forth - whatever is decided, it will not be sufficient. Rather, concentrate on a requirement that the mining operations will leave no new legacy environmental probleMs Sincerely, Henry V Mott, PE, PhD Sincerely, Henry Mott 1489 Clarmar Ln Saint Paul, MN 55113-1652 (605) 484-8140

Alphabetical by sender's first name

Henry Mott 43681

Mar 13, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. March 13, 2014 To the Minnesota Department of Natural Resources: Re:Supplemental Draft Environmental Impact Statement NorthMet Mining Project I have reviewed the Supplemental Draft Environmental Impact Statement (SDEIS) for the proposed NorthMet Mining Project and Land Exchange, with specific focus upon the proposed reclamation plan. I find this reclamation plan to provide grossly inadequate assurance of long-term protection of critical ecosystems and surface waters. The proposed necessity to maintain monitoring and treatment systems for seepage from the tailings basin and category 1 waste rock storage pile for 200 to 500 years post mine closure is preposterous. Further, the proposed necessity, in perpetuity, to maintain the vegetative covers to prevent growth of trees and woody plants on the tailings basin, hydrometallurgical pit and category 1 waste rock pile caps is unthinkable. The proposed plan would simply allow the West Pit to fill without measures to isolate the reactive walls from oxygen. The pit would subsequently overflow requiring treatment (perhaps in perpetuity) of emanating water. This portion of the plan is unconscionable. Hereinafter, I offer some specific comments relative to proposed plans for tailings, hydrometallurgical pit, category 1 waste rock, catetory 2-4 waste rock, and East/Central and West mine pit reclamation. 1-0Tailings basin: PolyMet proposes to cap the unlined tailings basin with bentonite layers. This action is intended to limit the entry of oxygen into the materials contained therein. The inevitable oxidation of sulfide to sulfate would merely be delayed beyond the time frame of mining operations. Then, post-closure, over time the sulfide to sulfate reaction would occur, creating acid seepage containing leached metals. Then, the acidic seepage water from the un-lined basin would necessarily be collected and treated well after active mining operations cease, until the entire quantity of sulfide contained in the tailings would be converted to sulfate. PolyMet's predictions suggest a period of up to 500 years during which mechanical treatment of tailings seepage would likely be necessary. PolyMet would not be around to perform this treatment, which if discontinued for any reason, would put sensitive ecosystems and water resources at significant risk. Generations well beyond ours would bear the ultimate brunt of these un-reclaimed tailings as would the ecosystems which undoubtedly would be adversely affected by this activity. This portion of the reclamation plan should be rejected as it provides wholly insufficient protection of water resources and the environment. It would seem prudent to devise a methodology, alternate to PolyMet's proposed "mining business as usual" approach for the tailings basin. PolyMet should be directed to devise a means to accelerate the sulfide to sulfate reaction of the tailings during active mining and a short, well-defined, period thereafter, thus eliminating the reactivity of the tailings and providing the potential for alternative uses. A large body of existing scientific literature addresses the characteristics and behavior of sulfide-oxidizing bacteria. Means to contact tailings with oxygen and other reactants in the presence of sulfide oxidizing bacteria to produce the acid and release metals prior to placement in the tailings pile should be devised. Bench- and pilot-scale testing should be initiated if the literature does not yield sufficient information for system design. Since acids will inevitably be created and metals thereby leached from tailings, the best time for this to occur is during active mining when human and plant resources to deal with this side stream are present and abundant. Additionally, the tailings already existing in the tailings basin, if reactive, co

Alphabetical by sender's first name

Henry Mott 48491

Mar 13, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. March 13, 2014 To the Minnesota Department of Natural Resources: Re: Supplemental Draft Environmental Impact Statement NorthMet Mining Project I have reviewed the Supplemental Draft Environmental Impact Statement (SDEIS) for the proposed NorthMet Mining Project and Land Exchange, with specific focus upon the proposed reclamation plan. I find this reclamation plan to provide grossly inadequate assurance of long-term protection of critical ecosystems and surface waters. The proposed necessity to maintain monitoring and treatment systems for seepage from the tailings basin and category 1 waste rock storage pile for 200 to 500 years post mine closure is preposterous. Further, the proposed necessity, in perpetuity, to maintain the vegetative covers to prevent growth of trees and woody plants on the tailings basin, hydrometallurgical pit and category 1 waste rock pile caps is unthinkable. The proposed plan would simply allow the West Pit to fill without measures to isolate the reactive walls from oxygen. The pit would subsequently overflow requiring treatment (perhaps in perpetuity) of emanating water. This portion of the plan is unconscionable. Hereinafter, I offer some specific comments relative to proposed plans for tailings, hydrometallurgical pit, category 1 waste rock, catetory 2-4 waste rock, and East/Central and West mine pit reclamation. 1-0 Tailings basin: PolyMet proposes to cap the unlined tailings basin with bentonite layers. This action is intended to limit the entry of oxygen into the materials contained therein. The inevitable oxidation of sulfide to sulfate would merely be delayed beyond the time frame of mining operations. Then, post-closure, over time the sulfide to sulfate reaction would occur, creating acid seepage containing leached metals. Then, the acidic seepage water from the un-lined basin would necessarily be collected and treated well after active mining operations cease, until the entire quantity of sulfide contained in the tailings would be converted to sulfate. PolyMet's predictions suggest a period of up to 500 years during which mechanical treatment of tailings seepage would likely be necessary. PolyMet would not be around to perform this treatment, which if discontinued for any reason, would put sensitive ecosystems and water resources at significant risk. Generations well beyond ours would bear the ultimate brunt of these un-reclaimed tailings as would the ecosystems which undoubtedly would be adversely affected by this activity. This portion of the reclamation plan should be rejected as it provides wholly insufficient protection of water resources and the environment. It would seem prudent to devise a methodology, alternate to PolyMet's proposed "mining business as usual" approach for the tailings basin. PolyMet should be directed to devise a means to accelerate the sulfide to sulfate reaction of the tailings during active mining and a short, well-defined, period thereafter, thus eliminating the reactivity of the tailings and providing the potential for alternative uses. A large body of existing scientific literature addresses the characteristics and behavior of sulfide-oxidizing bacteria. Means to contact tailings with oxygen and other reactants in the presence of sulfide oxidizing bacteria to produce the acid and release metals prior to placement in the tailings pile should be devised. Bench- and pilot-scale testing should be initiated if the literature does not yield sufficient information for system design. Since acids will inevitably be created and metals thereby leached from tailings, the best time for this to occur is during active mining when human and plant resources to deal with this side stream are present and abundant. Additionally, the tailings already existing in the tailings basin, if reactive

Henry O Moore 42756

See attachment

Henry Reich 10226

Dear Minnesota DNR, I'm writing out of concern for the possible development of a new Sulfide Mining industry in northern Minnesota, in particular the PolyMet mine currently under consideration. I am worried that the environmental impacts of such a mine are far too great and risky to be worth permitting the mine - in particular, the mine has great potential to seriously pollute the water in the Lake Superior watershed, especially in the long term, which has downstream effects on countless other states, provinces, and ultimately the Atlantic ocean. In addition, development of such a mine sets a dangerous precedent that could open the doors to other mines that could further pollute both the Lake Superior watershed as well as the Boundary Waters Canoe Area Wilderness. The DNR should take a hippocratic oath to "FIRST, DO NO HARM" when managing Minnesota's natural resources, the most valuable of which are our clean air and water. I URGE YOU to protect our water and DO NOT ALLOW THE DEVELOPMENT OF A SULFIDE MINING INDUSTRY in Minnesota. Sincerely, Henry Reich Creator of the Youtube Channels MinutePhysics and MinuteEarth with 2-7 million subscribers PO Box 145 Marine on St Croix, MN 55047

Alphabetical by sender's first name

Herb Smith 18383

My name is Herb Smith. I'm from Red Lake, Minnesota. It's great to be here. And what I have to say is I'm not really for mining because I've seen what it's done to other lands and other bands. And they don't really clean up their site. They have never really cleaned up their sites. Take a look at the southwest corner of our United States. Take a look at Oakland. There's radioactive (inaudible) all over. Our water -- we got the greatest waters here in Minnesota, and we want to let somebody pollute it for a few minor jobs. Your kids and grandkids and your great-grandkids are going to drink that water. Are you going to stay in that area and drink that water? I don't think so. You guys will be buying water. But that water eventually reaches us. All the water in the land -- take a look at water -- I was told we live on a big sponge. You take a look at your own body. You prick it here, that blood is going around. I saw some of your pictures out there. It says it just runs away. It does not run away. It runs all over the earth. If you consider us a like the earth. So when you contaminate the water over here, you contaminate my water in Red Lake. I'm not for this. Few jobs. You know, you guys want to pollute the water -- these guys that want to use these chemicals, drink a gallon of that water in front of us and see how safe it is. Is it that safe? Are you guaranteeing that water is safe once they mix it in with that other water? It doesn't run one way. This is the greatest watershed in the whole world. A couple weeks ago on the news they said we've got the greatest watershed, and we're going to let somebody pollute our water. Water gives life. It sustains us. I appreciate the time for letting me speak. Appreciate it.

Heyward Nash 2665

Dec 20, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Heyward Nash 2625 Park Ave Minneapolis, MN 55407-1016

52204

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, HEYWARD NASH 2625 park avenue MINNEAPOLIS, MN 55407

Hillary Peterson 18318

I'm Hillary Peterson. I am from Sturgeon Lake. The proposed PolyMet mine is not a good deal for Minnesota. Trading 500 years' worth of water pollution for 20 years' worth of jobs is irresponsible. Water from open mines and processing plants will be contaminated with heavy levels of sulfide. PolyMet initially stated they would capture all the contaminated water on site and treat it before it was released. However, their own plan now shows that millions of gallons of polluted water will seep off the site before any treatment can be done. Minnesota law requires that sulfide mines be maintenance free at closure. This means a mine site cannot be ongoing with pollution when it is closed. The wastewater generated by sulfide mining is the source of dangerous pollution that by at least one mining company's own acknowledgement will be toxic for thousands of years. Pollution at sulfide mines will certainly require some sort of maintenance into perpetuity. The SDEIS is insufficient. There are still far too many unanswered crucial questions. We should not be willing to gamble the future of Northern Minnesota and condemn ourselves to 500 years of water pollution for 20 years' worth of jobs. I ask that the DNR reject the SDEIS and protect the future of Northern Minnesota.

Alphabetical by sender's first name

Hillary Peterson 44261

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The proposed PolyMet mine project is not a good deal for Minnesota. Trading 500 years of water pollution and immeasurable damage to the pristine environment of Northeastern Minnesota for a mere 20 years of mediocre jobs is desperately irresponsible. There are far, far too many unanswered questions about this project that need solid, scientifically based answers before this project is considered any further. We cannot continue to pretend this project is somehow special or different from all the other sulfide mining projects. PolyMet has absolutely no motivation to protect our environment. They are a company in a capitalist society. Therefore, their solitary goal is to make the largest profit possible, regardless of the cost to people or the environment. Many who support this project have often said our society needs these minerals if we want to sustain our highly technical way of life; so we should mine them here, in Minnesota, where we have strict environmental laws. I am not doubting the high demand for these minerals or saying that I do not utilize gadgets that are made from these minerals. However, I do have many objections to these statements. First, Minnesota does not have a perfect track record, by any means, for regulating now existing taconite mines. Many of these mines have been granted variances from environmental laws and have paid thousands and thousands of dollars in fines for violations. Sulfide mining poses far more opportunities for environmental harm than taconite mining. If we are not able to fully regulate lower risk taconite mining, why should Minnesotans believe our governing agencies will be able to regular sulfide mining any more effectively. I am not accusing the governing agencies of not trying to regulate the mining indust

hiyala indiga 28438

oh yes, now i remember that i did sign a petition. On Tue, Mar 4, 2014 at 8:16 AM, hiyala indiga wrote: i did not make any comments On Tue, Mar 4, 2014 at 7:02 AM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd - Hiyala Indiga owner, Body Prayers Yoga and Massage housed within Body Mind Circle Holistic Healing Center 301 Village Parkway (on SE quadrant of Lex/Lake dr) Circle Pines, Mn. 55014 - Hiyala Indiga owner, Body Prayers Yoga and Massage housed within Body Mind Circle Holistic Healing Center 301 Village Parkway (on SE quadrant of Lex/Lake dr) Circle Pines, Mn. 55014

28673

i did not make any comments On Tue, Mar 4, 2014 at 7:02 AM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd - Hiyala Indiga owner, Body Prayers Yoga and Massage housed within Body Mind Circle Holistic Healing Center 301 Village Parkway (on SE quadrant of Lex/Lake dr) Circle Pines, Mn. 55014

Alphabetical by sender's first name

Holle Brian 7146

I'm very concerned about what will happen after 20 years of mining. I'm amazed that anyone could seriously consider this proposed mining operation knowing that the water will have to be monitored for up to "500 years". -- Rich Smith Minneapolis, MN 612-822-6593 holleb@aol-com

Holliskim 1535

Thank you for your hard work on behalf of concerned Minnesotans Sent from my Galaxy S®III ---- Original message ---- From: "*NorthMetSDEIS (DNR)" Date:12/09/2013 12:24 PM (GMT-06:00) To: Hollis Kim Subject: RE: Comment on PolyMet NorthMet SDEIS Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Holly Check 44596

Good Morning, After hearing that the treatment and clean-up efforts could and most likely will last up to 500 years, I am too worried about our environmental future as it is to condone this decision. Despite PolyMet's claim that they'll be around in that time to continuously fund the treatment, if we're being honest, how many companies alive and well 500 years ago are still here today. I can't think of a single one. This leads me to believe that PolyMet will not stay true to their promise and our environment (one that has been protected for good reason) will be left in worse shape and without much hope for effective treatment. Thank you for your time. Holly Check Senior at Prior Lake High School

Holly Hubing 39591

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Holly Hubing dominick dr Hopkins, MN 55343

Holly Jenkins 38892

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Holly Jenkins 1130 Tiffany Pt Eagan, MN 55123-1876

Alphabetical by sender's first name

holly marcotte 41978

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, holly marcotte spring lake park, Minnesota

Holly Nelson 58030

The proposal is short sighted and will put the natural resources of our state at undue risk of harm. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Holly Villa 40328

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Holly Villa 729 McPherson Dr Nashville, TN 37221 US

Alphabetical by sender's first name

Hope C'Dealva-Lenik 22805

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, It is my understanding that sulfide mining has never been done in Minnesota, and that in all other places where it has been allowed, acid mine drainage and heavy metal contamination have polluted nearby rivers, lakes, streams, groundwaters, etc In addition to risks concerning water quality, there would also be danger for local wildlife such as declining moose populations and the threatened lynx, not to mention the obvious health risks to the local human population due all forms of pollution from the mine. I ask you, who would benefit from the mine, other than the mine owners themselves. Are the risks to human and animal health, plus the egregious despoiling of one of the most beautiful wilderness areas in the world worth it. These are National Forest lands: public lands that are set aside for ALL American citizens. Sincerely, Hope C'Dealva-Lenik 7462 Sale Ave West Hills, CA 91307-1640

Hope Flanagan 18160

(Spoke foreign language). What I'm saying in Ojibwe is, "Hello, relatives. My name is Little Wind Woman." I'm a teacher. I don't have money to hire a whole van of people to cede my time to. It is about our children and the health of our children. Our prophecies talk about seven generations. We got to think about every action that we take affects seven generations of our actions right now. And I wanted to speak as a native woman. Native women we have known -- it was part of our prophecies that we would have to watch out over the water, because we carry our children in sacks of water. All of you women out there, this is our job. We got to make sure our kids aren't sick. The water is the health. When I say "we're relatives," we're relatives to those plants. We're relatives to the food that we eat. I also work in Dream a Lot Health. We're looking at the food sources. We got to have clean water, clean food, clean places to go to get ourselves clean or we're going to have sickness. And I think we've seen that in birth defects and challenges in our children. So let's start thinking about our children. It's not worth a little bit of money. The fellow talked about a risk walking across the street. Well, if nobody ever successfully walked across the street, don't walk across the street. No one has ever successfully had one of these mines. And I would suggest, like the last fellow did, go to a copper mine, see what it looks like. Nothing grows there. It's like a moonscape. I remember when they were trying to grow little plants there. It's so sad. For me, I get people asking me to gather medicines. Right there at Babbitt this year I went fishing, I went gathering plants that they asked me to go for healing. We can get healings from those places, spiritual; the healing from those plants, we don't know all those gifts that those plants have yet. And I know that's part of our ways. Look through those healings. There is different ways of looking for growth. This doesn't have to be a way that pollutes us for infinity. As the rest of the world is looking for freshwater and we're ready to throw ours away. Don't throw this precious, precious gift away. As human beings you'll see in my community we've had women walking from the four directions, from the Arctic Circle, from the Gulf of Mexico, from the two coasts to say “Water is precious. We are running out of freshwater." So please support this clean water movement. Remember, that's what we are, we are water. We are walking skin with water.

Horovitz 54891

See attachment

Howard Frame 42765

See attachment

Howard Heath 54792

See attachment

Alphabetical by sender's first name

Howard Lambert 40216

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Howard Lambert 35495 Riverwood Ct Unit 1623 Crosslake, MN 56442-4069 (218) 692-5521

Howard Markus 18367

Good evening. My name is Howard Markus, H-O-W-A-R-D, M-A-R-K-U-S. I am a volunteer with Audubon Minnesota. I just retired after working over 22 years for the Minnesota Department of (inaudible) in the area of water quality. And I have a few points to make. Many points have been made on all sides. So I appreciate the fullness of that. But I do have a few things to talk about from my own experience. Taconite mining does not use sulfuric acid. This mine will. So everybody's experience up here I appreciate how good taconite mining has been to everybody. You have no idea how ugly acid mine drainage is. I was a grad student at Iowa State. I saw acid mine drainage in abandoned coal mines in Oskaloosa, southeast of Des Moines. It is not pretty. It is not something you want up here. It sounds great now and there won't be any of this, there won't be any of that. It is ugly. It kills things. It is not what you want up here. It is going to seriously degrade the water resources up here. I read so far about two-thirds of the 2,200 pages. So I'll probably have more comments at another time once I have read the rest of it. But what I have so far is I was looking at the land trade. Right now the land proposed to be traded comes with the surface rights but not mineral rights. This is going to happen all over again. The EIS says all of these things are invaluable. Well, they're not valuable until they become valuable. I believe the Forest Service should reject the land trade and do it right by demanding both the surface rights and the mineral rights for all the lands traded or we're going to be in this circle where we have to go through all this again. So the land trade to me does not work until everything is traded, both surface and mineral. Really soon after the mine starts there is going to be discharges to impaired waters. It is going to be a mess for the agencies. It is going to be a mess for the mine. This is going to be in ecosystems forever. It's going start out with no drainage and no pollution, and really soon there's going to be pollution, there's going permanent problems. There's going to be all sorts of problems with this. It is – you just have no idea of the mess that's going to be in courts from this forever once this thing starts going into waters. These waters are too good. There is just not enough limestone. It's all taconite. My last point is that we are trading upland valuable forest land and they are going to be traded for shrub forest wetlands. Not a fair trade.

54809

See attachment

Howard Miller 21974

Dear Sir/Madam: I wish to convey my wholehearted support for the Polymet Mining effort to establish a copper/nickel precious metal mine in Minnesota. This project will provide thousands of well-paid jobs and will help to provide North America with an inexpensive supply of copper and nickel plus ancillary precious metals. Polymet management will ensure that the mine is operated in an environmentally sound fashion. They will leave the area in at least as good a condition as it is now. Thank you for considering my comments in your deliberations. Howard Miller 12 Colgate Dr Camp Hill, PA 17011 (717) 982-0263 email address: HYPERLINK "mailto:htmil@aol-com"htmil@aol-com

Alphabetical by sender's first name

Hser Hoo 54189

I'm against the mine because mining will destroy the wilderness. There will be water pollution. The sulfuric acid will reduce the pH level and kill all the fishes. We won't get to fish in the river anymore. Even though we need copper and gold, we want to save the environment. The economy and environment will have to live through the pollution for 20 years. That's a long time to have to live through those loud machines. The river is a sanctuary for all lands of animals and for some people. Please don't destroy our peace and ar environment.

Hudson Mohawk Bird Club 20761

See attachment

Hugh Curtler III 17605

Feb 15, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. There are serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for -- information that is necessary for you to make a fully informed decision. I urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining threatens to result in hundreds of years of water pollution to sensitive wildlife and habitat. This trade-off is not worth the risk. Thank you for your time and consideration of this important matter. Sincerely, Mr Hugh Curtler III 4516 89th Cres N Brooklyn Park, MN 55443-3936 (763) 315-8749

30110

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as lynx and moose populations, and cumulative impacts from mining. In short, I feel that the federal land exchange of protected Superior National Forest land to facilitate a destructive open-pit sulfide mine is not in the public intereSt Thank you for your time and consideration of this matter. Sincerely, Hugh Curtler III 4516 89th Cres N Brooklyn Park, MN 55443-3936 (612) 111-1111

Humphrey Kearns 3703

Dec 20, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Until it can be demonstrated that no contaminated water can leave the site, either in run-off or under ground, I can't support this type of mining in an area like the Arrowhead. Once you mess up a place it is pretty much messed up forever. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Humphrey Kearns 6282 State 26 La Crescent, MN 55947-8763 (507) 894-1000

51784

Dec 20, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Until it can be demonstrated that no contaminated water can leave the site, either in run-off or under ground, I can't support this type of mining in an area like the Arrowhead. Once you mess up a place it is pretty much messed up forever. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Humphrey Kearns 6282 State 26 La Crescent, MN 55947-8763 (507) 894-1000

Alphabetical by sender's first name

Hunter Maughan 46034

Mar 12, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Also because there are ecosystems, and this mining could endanger them. Or possibly destroy them for good. Imagine if you were a animal in the Boundary Waters, you wouldn't like it if one day miner just came near your Waters and polluted your water that you live in. You'd probably die from it. So please, SAVE OUR ANIMALS. And one of our National Treasures. Sincerely, Mr Hunter Maughan 2123 Ivy Ave E Saint Paul, MN 55119-3222

i care 40267

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, i care manila manila, ot 1000 PH

Alphabetical by sender's first name

Ian Kimmer 18320

First of all, thank you for holding this hearing and taking the time and effort to listen to people's concern. Very much appreciate all the work that has gone into that. I want to invite our friends from Northeastern Minnesota, particularly the Iron Range, to overwhelm our friends from Duluth here tonight and eat at those establishments. Those bartenders will love their tips at the end of the night. My first request, respectful request, of the co-lead agencies is that at over 2100 pages this document is an overwhelming conglomeration of information. And a lot of it is very difficult for a layperson or even many experts to understand. I first of all respect your request that we extend it from 90 days to 180 days for people to take in that information and review and provide comments. Second of all, I would like to see a more complete delineation of how we are going to pay for the water treatment facility that will be required to run perpetually in order to make sure that the water discharged from the site is not polluting our Northern Minnesota rivers, lakes, groundwater included. As it has been explained to me often, the financial assurances all happens during the permitting stage. However, just because we've done something wrong before doesn't mean we should continue to do it. So I respectfully request that we have the financial assurance piece, how we're going to pay for the long-term water treatment at the facility, included in the SDEIS process so that the public can participate, see how it's going to be paid for and come away with a reasonable assurance that if we are going to do this project that at some point the taxpayers are not going to liable for hundreds of years of water treatment. Additionally, there is some confusion in the SDEIS over the tax numbers. As it is right now there doesn't appear to be any analysis behind the tax figures that are presented. In the original draft it was something in the neighborhood of 1.5 million. It is now 16 million. And as far as I understand it, the DNR did not do a tax analysis of the project. And I would like to see the State of Minnesota -- having gone throughout the pull-tab debacle – understand a little bit more of what we are going to be seeing for actual tax occurrence from this site. Because if we are going to pay for it, I want to see what's coming in. Finally, there seemed to be some current conditions that are in the EIS that do not match what the actual monitoring stations read. And I would like to see that resolved. Because as we were looking at the future modeling, the models have never been accurate; however, they are good guidances and some of the current conditions anticipated by the model conflict with what we see at actual monitoring stations in the field. Thank you so much.

47155

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. Dear Lead Agencies, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Ian Kimmer 4102 Gilliat St Duluth, MN 55804-2140 (218) 750-0784

Alphabetical by sender's first name

Ian Kimmer 47156

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of the cumulative effects of habitat fragmentation and loss on the Canada Lynx (Lynx canadensis). The Canada Lynx is a threatened species listed under the federal Endangered Species Act. The NorthMet project area is in designated critical habitat for the lynx, and the SDEIS notes that the proposed action would destroy over 1,400 acres of critical lynx habitat at the mine site. The designation of this area as critical habitat is supposed to trigger analysis of whether the proposed action, and the cumulative effects of other reasonably foreseeable actions place the Canada Lynx in jeopardy. In addition, the incidental death of Canada Lynx due to increased vehicle traffic between the mine and plant site is noted, but inadequate attention is paid to mitigation measures that could limit incidental deaths of lynx. Despite this, the SDEIS contains contradictory statements about the use of roads as travel corridors by lynx. The cumulative effects analysis section of the NorthMet SDEIS fails to adequately account for a number of reasonably foreseeable projects. Specifically, the Twin Metals and Teck American projects are listed as "speculative" in Section 6-2-2-1-21 and are not analyzed for their cumulative effects. No evidence or rationale for excluding these projects from the cumulative effects analysis is offered. In Section 6-2-3-6-4, the Gray Wolf is the only "Special Status Species" for which even limited analysis of cumulative effects is conducted, despite the Canada Lynx's status as a federally threatened species. Please take the following actions: 1) Include the Twin Metals and Teck American projects as reasonably foreseeable projects in the cumulative effects analysis in section 6-2-2, since the disposition of the NorthMet SDEIS and subsequent permitting decisions could make these projects more likely to be built. 2) Include the Canada Lynx as a "Special Status Species" in Section 6-2-3-6-4 and conduct a cumulative effects analysis of the impact on Canada Lynx. 3) Analyze and include mitigations such as tunnels and fencing to limit the possibility of incidental take of Canada Lynx by increased road traffic associated with the NorthMet proposed action. 4) Remove contradictory language in SDEIS about Canada Lynx utilization of roads as travel corridors. For example, on p. 5-628 the SDEIS states "Lynx utilize snow packed trails and roads as travel corridors," while on p. 5-366 it says "this species does not rely on roads for travel." 5) Analyze and include mitigation such as accelerated re-vegetation of the mine site after closure to decrease the amount of time the mine site would be inhospitable to Canada Lynx. Dear Lead Agencies, The PolyMet NorthMet SDEIS contains inadequate analysis of the cumulative effects of habitat fragmentation and loss on the Canada Lynx (Lynx canadensis). The Canada Lynx is a threatened species listed under the federal Endangered Species Act. The NorthMet project area is in designated critical habitat for the lynx, and the SDEIS notes that the proposed action would destroy over 1,400 acres of critical lynx habitat at the mine site. The designation of this area as critical habitat is supposed to trigger analysis of whether the proposed action, and the cumulative effects of other reasonably foreseeable actions place the Canada Lynx in jeopardy. In addition, the incidental death of Canada Lynx due to increased vehicle traffic between the mine and plant site is noted, but inadequate attention is paid to mitigation measures that could limit incidental deaths of lynx. Despite this, the SDEIS contains contradictory statements about the use of roads as travel corridors by lynx. The cumulative effects analysis section of the NorthMet SDEIS fails to adequately account for a number of reasonably foreseeable projects. Specifically, the Twin Me

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Ian Kimmer 47182

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Dear Lead Agencies, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or expl

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Ian Kimmer 47183

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Dear Lead Agencies, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Ian Kimmer 4102 Gilliat St Duluth, MN 55804-2140 (218) 750-0784

Alphabetical by sender's first name

Ian Kimmer 47185

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Dear Lead Agencies, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Ian Kimmer 4102 Gilliat St Duluth, MN 55804-2140 (218) 750-0784

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Ian Kimmer 47186

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Dear Lead Agencies, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Ian Kimmer 4102 Gilliat St Duluth, MN 55804-2140 (218) 750-0784

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Ian Kimmer 47188

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Dear Lead Agencies, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in t

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Ian Kimmer 47189

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The financial assurance section of the SDEIS is inadequate and needs to be changed to reflect details about how much money would be required to pay for cleanup and in what form it would be held. In 2010, the US Environmental Protection Agency called PolyMet's first draft Environmental Impact Statement "inadequate." One significant reason was that the 2010 DEIS did not show that financial assurance would be enough to cover the cost of long-term water treatment at the site. "EPA believes that the adequacy of financial assurance for these activities could make the difference between a project adequately managed over the long-term by the site operator, or an unfunded or underfunded contaminated site that becomes a liability for the federal government and the public " As your revise the SDEIS, please take the following actions: 1) Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs in the current draft 2) Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for hundreds of years of water treatment 3) Identify other responsible parties (eg major investors like Glencore) that will be held responsible for long-term cleanup should PolyMet go bankrupt or be unable to meet their obligations 4) Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation for the what would constitute adequate treatment Dear Lead Agencies, The financial assurance section of the SDEIS is inadequate and needs to be changed to reflect details about how much money would be required to pay for cleanup and in what form it would be held. In 2010, the US Environmental Protection Agency called PolyMet's first draft Environmental Impact Statement "inadequate." One significant reason was that the 2010 DEIS did not show that financial assurance would be enough to cover the cost of long-term water treatment at the site. "EPA believes that the adequacy of financial assurance for these activities could make the difference between a project adequately managed over the long-term by the site operator, or an unfunded or underfunded contaminated site that becomes a liability for the federal government and the public " As your revise the SDEIS, please take the following actions: 1) Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs in the current draft 2) Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for hundreds of years of water treatment 3) Identify other responsible parties (eg major investors like Glencore) that will be held responsible for long-term cleanup should PolyMet go bankrupt or be unable to meet their obligations 4) Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation for the what would constitute adequate treatment Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Ian Kimmer 4102 Gilliat St Duluth, MN 55804-2140 (218) 750-0784

47190

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Dear Lead Agencies, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Ian Kimmer 4102 Gilliat St Duluth, MN 55804-2140 (218) 750-0784

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Ian Kimmer 47191

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Dear Lead Agencies, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasib

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Ian Kimmer 47192

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Dear Lead Agencies, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you

Ian Wunder 19514

My name is Ian Wunder, my spelling I-A-N, W-U-N-D-E-R, address 3515 Columbus Avenue South, Minneapolis, Minnesota 55407.The claim in the SDEIS is that PolyMet will decrease mercury and sulfate pollution in nearby waterways and will do this by operating water treatment systems that have not been detailed. The treatment plant designs have not been outlined in detail in this document, and this industry has a zero percent success record at containing waste toxins. Because of this detail, the SDEIS is insufficient and should not be approved. It does not provide this important information.

19515

My name is Ian Wunder, I-A-N, W-U-N-D-E-R, 3515 Columbus Avenue South, Minneapolis, Minnesota 55407.Five centuries of water treatment will need to be paid for either by the mining company or by Minnesota taxpayers. These individuals in either case will be the future generations of Minnesotans and US citizens. They will be left with a legacy of pollution and wastewater that will need to be cleaned continually for more than half a millennium. The mining industry as a whole is responsible for the largest and most costly environmental cleanups in our nation, and a large percentage of Superfund sites are the legacy of sulfide ore mining specifically. We do not need this legacy added to our Minnesota tax burden for so many future generations.

Alphabetical by sender's first name

Ian Wunder 19516

My name is Ian Wunder, I-A-N, W-U-N-D-E-R, 3515 Columbus Avenue South, Minneapolis, Minnesota 55407.The SDEIS is insufficient and should not be approved based on missing information. The economic consideration for developing an underground mine to access the mineral ore beneath the US Forest Service land has not been sufficiently explored. Many tribal governments in the State of Minnesota have brought concerns forward through the SDEIS and other avenues that the economic possibility of extracting the ore in an underground mine has not been fully explored and that the SDEIS should not be approved based on the fact that this method of mitigating and avoiding environmental degradation has not been explored.

19517

My name is Ian Wunder, I-A-N, W-U-N-D-E-R, 3515 Columbus Avenue South, Minneapolis, Minnesota 55407.Based on the following information, the SDEIS is insufficient and should not be approved. The entire 3,014-acre mine site is classified as high biodiversity significance and houses endangered, threatened and special-concern plant species, as well as used habitat by many rare and important bird species, as well as other rare and important Minnesota wildlife. There is not sufficient action outlined in the SDEIS to mitigate the disturbance of this specific, very important ecosystem habitat.

19518

My name is Ian Wunder, I-A-N, W-U-N-D-E-R, 3515 Columbus Avenue South, Minneapolis, Minnesota 55407.The SDEIS is insufficient and should not be approved on the basis that the proposed wetland mitigation will only cover 912 and a half acres of wetland impact by the PolyMet operation. Ten additional square miles or more of wetlands as well as surrounding area are projected to be indirectly impacted by drainage, decrease in water level and the addition of toxic materials in the form of blown dust. There is absolutely no monitoring plan that will be able to mitigate damage immediately. Additionally, any damage that does occur will be occurring on bogs and coniferous swamps that are extremely difficult to restore and are ecologically sensitive and very important.

Iana Studelska 57272

Absolutely against the licensing and pursuit of this project and similar projects. I am unwilling to trade 20 years of “jobs” for a future of sulfide pollution and the compromise of the Lake Superior Basin. This project does not have the science, nor crystal ball to meet its stated goals.No sulfide Mining.Iana Studelska2318 Roslyn AveDuluth, MN 55803

IBEW294 7607

DNR The PolyMet project is an Important part of northeastern Minnesota's economic future. As an Iron Ranger I am confident that this project will provide us with long term jobs.That is good paying jobs not minimum wage jobs.The environmental review process has been lengthy and thorough. The supplemental draft EIS addresses the potential environmental impacts and how to mitigate them.I trust the DNR to do there job to protect us and the environment. I also think that by letting PolyMet mine with the controls that have been put in place will clean up a brown area the old LTV mining sight. This will make the sight cleaner than it is to day.After all these are metals that we use every day. We can control the pollution here but we have no control in other countries.So if we don't mine here, There will just be more uncontrolled pollution in other parts of the world which still affects us here.We should be using our recourses and controlling the environment. Thank You Greg Topel IBEW LU 294 503 E 16th street Hibbing,Mn 55746 HYPERLINK "mailto:busmgr294@mchsi-com"busmgr294@mchsi-com 218-363-6895

Alphabetical by sender's first name

Ida DeLisi 10088

To Whom It May Concern: As a resort owner in Cook County, I have been keeping informed on the mining debate. I am completely against this mining project - or any other that poses such a risk to the environment in general, and the Boundary Waters in particular. No mining has been proven to be safe, all mining destroys at least some part of the environment, and water is a resource we can't waste. The risk to human health is too high. The jobs claim is a false one, and the cost associated with any cleanup is unacceptable. In fact I question the estimate, because I don't believe it takes everything into consideration, particularly when it will be us, the taxpayers of Minnesota footing the bill for the cleanup, and trying to live with the destruction of not only our business but the loss of a pristine national public area for at least 500 years. We've seen too much to believe any corporation - the oil spills in Alaska are still not cleaned up even decades later. The small fines payed by companies responsible for the oil spill in the Gulf is criminal. Corporations get away with far too much in this age of greed when a handful of people own half of the globe's wealth - trust in our system of checks and balances is gone, and there seems to be a deep lack of fairness and simple honesty in the race to the bottom to achieve profit at any coSt This cost is too high. Far too many of the disasters we've seen over the years have been due to human failure and disregard for others, but mostly the motive of profit. Until more regulation and stricter controls and rules are put in place, and until we are guaranteed a criminal conviction and jail time for any and all persons responsible for damage, including the death of the corporation itself, I say NO. to sulfide or other destructive mining in Minnesota or anywhere in this country. We need to look more to the sun for our sources of energy, and the challenge of coming up with new materials for manufacturing that are not harmful is one many are waiting on. Thank you, Ida DeLisi 13732 Wellington Crescent Burnsville, MN 55337

17220

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Ida DeLisi 13732 Wellington Cres Burnsville, MN 55337

Alphabetical by sender's first name

Ida DeLisi 40807

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Ida DeLisi 50486

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Ida DeLisi 13732 Wellington Cres Burnsville, MN 55337

Igra Jamari 54191

I think you should not mine there because you can find or make copper and nickel at other places. Also it will harm and destroy animals, environment and also other state near MN.

Illegible 42838

See attachment

54861

See attachment

Illegible Marroquin 58123

The NorthMet/PolyMet mining project should be REJECTED. This project is not worth the potential environmental impacts and risks. I love this earth and this is not the way to treat it. Our environment should be protected and respected for generations to come. If you pass this sulfide mine you will not only not be protecting the environment but you will be inadvertently destroying it. This mine will poison our drinking water, negatively affect wildlife and raise greenhouse gases as well as ruin our beautiful boundary waters. What we decide, what you decide will affect your children, my children and our grandchildren. Reject the proposed PolyMet/NorthMet sulfide mine.

Alphabetical by sender's first name

Ilse Mortensen 40984

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable r ange of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone to assess the impacts of slope and dam failure at the mine site waste rock piles and the tailings piles, instead of just assuming that no failure can happen. (SDEIS, p. 5-546). PolyMet's tailings would be placed on top of huge, leaky and unstable existing tailings piles. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Ilse Mortensen 1425 w. 28th street # T 10 Minneapolis, MN 55408

Alphabetical by sender's first name

Ilze Mueller 16278

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Ingrid Baudler 40662

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ingrid Baudler 700 College Dr Decorah, IA 52101-1041

Alphabetical by sender's first name

Iraida Capaccio 40438

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Iraida Capaccio 337 Hudson Rd Sudbury, MA 01776 US

Irene O'Connell 1819

I think northern MN needs the new jobs. Irene Oconnell 12158 197 CT N W Elk River MN 55330

Iris Sinai 14184

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Ms Iris Sinai 36 W 47th St New York, NY 10036-8601

Alphabetical by sender's first name

Iris Young 41829

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Iris Young St Paul, Minnesota

Irling Itzen 54166

I am opposed to Polymet mining due to environmental concerns. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Iron Range Bar Association 42972

Greetings. I am the President of the Iron Range Bar Association, which has over 100 member-lawyers. The attached resolution passed and it is forwarded on here. If there are any questions or comments, please let me know. Thank you. Sincerely, Erik Erik J. Honkanen Honkanen Richards, S.C. Attorney License No. 387813 US Bank Plaza 230 1st St South, STE 101 Virginia, MN 55792 Office - 218-749-3047 Fax - 218-749-3048 HYPERLINK "http://www.honkanenlaw-com"www.honkanenlaw-com CONFIDENTIALITY NOTICE This is a transmission from the Honkanen Richards, S.C. and may contain information which is privileged, confidential, and protected by the attorney-client or attorney work product privileges. The information is, or may be covered by the Electronic Communications Privacy Act, 18 USC.2510-2521- If you are not the addressee, note that any disclosure, copying, distribution, or use of the contents of this message is prohibited. If you have received this transmission in error, please destroy it and notify this office immediately at the telephone number (218) 749-3047- CIRCULAR 230 NOTICE. Any advice expressed above as to tax matters was neither written nor intended by the sender or Honkanen Richards, S.C. to be used and cannot be used by any taxpayer for the purpose of avoiding tax penalties that may be imposed on the taxpayer. If any such tax advice is made to any person or party other than to our client to whom the advice is directed, then disregard and destroy this email. Each taxpayer should seek advice based on the taxpayer’s particular circumstances from an independent tax advisor.

Irv Berlin 30614

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, To my knowledge sulfide mining has never been done without polluting the environment. Doing it in an area that could contaminate Lake Superior and the famed Boundary Waters Canoe Area seems to be the height of folly. Risking Superiors waters, the recreational economy of the area, public health, and the environment in general is not worth the profits to the company that proposes this disaster. Clearly the Federal land exchange of Superior NF land to help Poylmet's polluting open pit mine is not in the public intereSt Sincerely, Irv Berlin 16385 Frels Rd Cable, WI 54821-4525 (715) 798-4646

Alphabetical by sender's first name

Irv Smith 39335

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Irv Smith 3141 Dean Ct Minneapolis, MN 55416-5507

Isaac Anderson 42511

See attachment

Ivan Snajdar 40409

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Ivan Snajdar Kralja Zvonimira 27 Crikvenica, ot 51260 HR

Ivan Zenker 11271

Gentlemen: I grew up in the UP of Michigan and understand the desire of rural folks to develop potential jobs. However, as a child I also saw the bleak desolate terrain surrounding Sudbury, Ontario Canada. It was a site that I will never forget. It looked like eastern Wyoming or maybe even the moon. There was little live vegetation. Now I know that was caused by the very polluted water run off. I just don't feel some jobs in the short run justify the danger to the watershed areas that surround the site. And I believe that asking for a company to promise stewardship many, many years into the future to treat the water long after the profits are gone is just not something we should count on. Ivan Zenker 5698 King Arthur Road NW Rochester, MN 55901

Ivy Wright 54555

There is nothing more important to every person in our world than clean air and water. Sulfide mining has been shown to be toxic to the environment. Financial gain for foreign or American companies is a shameful reason to destroy our world.

Alphabetical by sender's first name

Izaak Walton League 54712

See attachment

J Beverly 52235

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, J Beverly 803 Shurts Street Urbana, IL 61801

J Brophy 39412

Dear DNR, I am writing to express my opposition to the PolyMet mining project in MN. Jobs v. Environment Risk The supposed short term gain via jobs would be a small scale, short term boost at beSt And the jobs would be grossly outweighed by the risk of water pollution and contamination that will continue for centuries after the mining is completed. This is a short-sighted project that endangers our natural resources needlessly. Financial Assurances of Clean Up: PolyMet may sign on to promise clean up, but companies go bankrupt all the time, so what financial guarantees will there be to make sure the clean ups actually occur. For that matter, insurance companies go bankrupt, as do major financial institutions. We can’t be left holding the clean up bag if PolyMet’s finances evaporate. Thank you for your consideration, J. Brophy Victoria, MN

J Cherveny 16517

To Whom It May Concern: I am writing to share my concerns with you about the proposed Poly-Met copper-nickel mining project. I live in Duluth, and we draw our drinking water from the beautiful Lake Superior. In fact, our water was voted the best-tasting in the state. It is one of the largest fresh water bodies in the world, and many people would love to have our water. Just ask the folks in California and Nevada, among other places. Fresh, clean water is a very precious commodity. The people in West Virginia who live on the Elk River can vouch for that. Yet people in our state are willing to risk our fresh water for a generation of jobs with the promise of a clean up if the inevitable contamination occurs. I can hardly believe that anyone would want to risk our precious clean water for any job or mine or promise of money. You can’t drink money. Please deny the permits they are requesting. It’s not just for me that I am asking this. It’s for my children and grandchildren as well. They deserve the same clean water that we have enjoyed and have a right to--yes, a right to. This is my world, my state, my community, my water, and I don’ t want it polluted by Poly-Met or anyone else. Thanks for “listening.” Judith Cherveny Duluth, MN

Alphabetical by sender's first name

J Foster 41707

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

J Gravenson 16324

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, J Gravenson 1820 Ivan Way St Paul, MN 55116

49933

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, J Gravenson 1820 Ivan Way St Paul, MN 55116

Alphabetical by sender's first name

J Olfe 42265

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

J Patrick Kegley 18171

Good evening. I'm Patrick Kegley from Minneapolis. K-E-G-L-E-Y. And I have lived in Minnesota all my life. I've been up to the Boundary Waters Canoe Area many years ago with Jim Klobuchar. And I am also on behalf a member of Ecology Democracy Network with Ken Pentel. And I think the spirit of Pete Seeger is here tonight. We have to protect the land, the water. The ecology must come first. We cannot restore the ecology. You cannot restore things once they're damaged. Native Americans have known this for years, centuries. We must also consider that. Yes, we need copper. Yes, we do need precious metals. But much of the metal is already here. We can reclaim and reuse copper. 24 percent of the copper of the world comes from reclaiming it. We don't have to continually mine it and rip apart the earth to do it. I wish there were a way to do it safely and responsibly, but I don't trust that there is. I've never seen it done in any way. From all I've heard about copper mines, it's destructive and it pollutes the environments. I don't know any way around that. I am hoping everyone here will consider making comments and strongly speaking for generations yet to come that we need to have the ecology and all of the environment protected as our first priority, not something as an afterthought later. That's all I have to say. Peace.

J Van Dyne 58162

Wonderful discourse. We, the public, needs more study and comment timePolymet has not or needs to respond to concerns brought up tonight.We need to think about the 7th generation and what we may be leaving behind. As a society, we tend to be shortsighted. Jobs for 20 years! Sure they worth the travesty, wrecked on our environment which will impact us economically, physical – both health wise and topographically.I have seen the devastation in Utah, and various places in AZ, IT it not pretty – nothing is growing.H2O is in shortage. We need to keep it clean.

Alphabetical by sender's first name

J. Alvey 41852

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

J. K. Fort-Strietzel 17857

Feb 15, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. This will ruin the entire St Louis River Watershed, which is home and habitat to many birds, animals and people. Birds that depend on fish and other aquatic organisms for food will be affected, including Bald Eagles, Ospreys, Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons, Mallard Ducks and other ducks. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. Animals that live and depend on the St Louis River include River Otters (which live in/on the banks of the river or nearby), Fox, Coyote, Timber Wolves, Black Bears, River Otters (who make their home in or near the banks of the St Louis River), Deer, Moose, many small mammals and birds. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. The St Louis River is a beautiful and scenic river and from the source until it gets to and drains into Lake Superior, most all of it is a river that travels in quiet beauty through wild/wildernesslike lands. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds, animals, people and habitats. This trade-off is not worth the risk. Please do not allow this harmful mine to ever happen. Every company who has undertaken sulfide mining has promised to clean it up but they never do. They alwyas have said that it would be okay for the environment but it has devistated the environment. Unlike the iron mining that has happened in Minnesota, this sufide mine would be much more damaging to the environment and not just the local environment where it is located but much of Northeastern Minnesota where the St Louis River watershed and the Lake Superior watershed exists. So, please do everything in your power to stop this mine from ever starting or existing. Our lands, wildlife, human life, water that we drink are more important to most all of us than any gold, silver, copper, platinum, etc that we are told exists where Polymet wants to mine. Thank you for all your help and all that you will do to protect us and a beautiful and wild area of Minnesota. Sincerely, Ms J. K. Fort-Strietzel 10332 Bachelor Square Rd Meadowlands, MN 55765-8103 (218) 206-1788

Jace Carlson 57139

Sulfide mining in other states has been extremely detrimental to the water around the mines and in an area like the Superior National Forest with valuable peatlands, this kind of pollution would be unacceptable. The fact that there are no safeguards for when things go wrong makes this plan even scarier. Risking our valuable environment for this reckless mine is unacceptable. I urge you to stop this plan before Minnesota is seriously damaged by it.Jace Carlson4238 LaVaque RdHermantown, MN 55811

Jaci Christenson 40833

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms jaci christenson 12309 Fiona Ave N White Bear Lake, MN 55110-1147 (651) 343-6340

Alphabetical by sender's first name

Jaci Christenson 47458

Lisa Fay MDNR Division of Ecological and Water Resources Tim Dabney US Forest Service Douglas Bruner US Army Corps of Engineers Dear Ms Fay, Mr Dabney, and Mr Bruner I am writing to ask you to reject the PolyMet sulfide mine project, Supplemental Draft Environmental Impact Statement (SDEIS) and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes and does not take into account the true cost of the project. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all lands in the exchange have split mineral rights and no legal barrier to future surface mining. The Land Exchange results in an unacceptable net loss of 6,026 acres of area with high biodiversity; 2,030 acres of mature forest-replaced by 2,000 acres of immature forest and 1,400 acres of floodplains. Secondly, PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swampland and the Partridge River headwaters for its open-pit sulfide mine. This would result in the single largest wetlands loss ever proposed in Minnesota. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres in total due to air and water pollution, mine dewatering and water from wetlands. These comments are made from both the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit. In addition, the PolyMet sulfide mine would negatively impact 2 out of 13 remaining corridors for wildlife, including resident and migratory species, to travel across the Arrowhead region. The PolyMet mine plan would destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which has dropped precipitously by 35% from 2012 to 2013- Eleven endangered or threatened species, including lynx, would be further impacted. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants including wild rice. PolyMet and the SDEIS do not acknowledge the true cost of the proposed PolyMet sulfide mine. PolyMet is a lean deposit of copper-nickel, therefore, 99% of what is dug out of the ground will be waste. For that 1% gain in metal, the true cost will be unfathomable. The toxic extraction process will be energy and water intensive (releasing 200,000 metric tons of carbon dioxide). Even more water and energy (generating 707,000 metric tons of carbon dioxide each year) will be used in processing; leaving us with even more waste that will need to be managed for 500 years. This is in direct opposition to Minnesota's goal of reducing greenhouse gas emission by 30% by 2025- Lastly, it can no longer be ignored that fresh water is a precious resource and must be treated as such. By rejecting PolyMet's SDEIS and sulfide mining plan, you have the opportunity to pass on to future generations of humans and nature alike, the gift of irreplaceable wetlands, mature forests and fresh water resources of the Lake Superior Basin. You have the responsibility to do what is right and lead the way to a future that faces the fact that we live on a finite earth with finite natural resources. I respectfully ask you to reject the PolyMet sulfide mine project. Sincerely, Jaci Christenson 12309 Fiona Ave N White Bear Lake MN 55110 HYPERLINK "mailto:jacichristenson@gmail-com"jacichristenson@gmail-com

Jack and Rhoda Liebo 4146

I am a life long Minnesotan. My wife and I are both physicians, as are 2 of my three children. We adore this state, and mostly because this has been a state that cares more about health and family, and less about money than many of the other 50- I was shocked to hear about the exploration for minerals near the BWCA and the Superior National forest watershed, several years ago. I understand how blighted the region has been economically, since the iron mines have ceased. But the decision to move forward past this ridiculous review shows a sense of panic on the part of the officials in government to produce(in the short term), good economic growth. They have a blind eye to the real issues here. Externalizing toxic water soluble poisons, which are currently well insulated from doing us harm, into this glorious region of Minnesota, shows a complete absence of understanding. The multinational corporations that promise economic prosperity and jobs for Minnesotans are nothing more than rapists, telling us all the while that we will like it, and that it is for 'our' good. In fact, they will extract our wealth, freeing deadly polluting poisons that will contaminate our environment, kill the fish and the precious watershed, leaving us, some time within the next 500 years to cover the cost of cleanup. They will kill land values, resources, and the budding conservationists tourist industry. Just look at the hard rock sulfide mining track track recoRd No matter what the industry suggests, there are no big breakthroughs that will suddenly make this type of mining safe for the local watershed. Say no to these 'carpetbaggers'. Read their EIS for what it truly is, a fairy tale, told to eager and receptive ears. Do the right thing, deny these mines. Protect the state from evil during your watch. Have patience, and do not succumb to the financial enticements. Jack and Rhoda Liebo 5729 Kemrich Drive Mpls., MN 55439

Alphabetical by sender's first name

Jack Brunell 15964

Dear Lisa, I am in favor of letting Polymet mine in Northern Minnesota. In the past mining companies could do whatever they wanted with almost no regulation. That is not true today. I feel the current State regulations adequately safeguard the Northern Minnesota environment. I was raised in Northern Michigan in a copper mining area. I have seen the problems unregulated mining can cause. I also see that nature is very good at correcting mistakes that man has made. Thanks You, Jack F. Brunell 2133 10th ST NW New Brighton, MN 55112

Jack Carrick 15815

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, jack carrick 2525 2nd ave E North St Paul, MN 55109

21543

Please see the attached document.

42810

See attachment

Alphabetical by sender's first name

Jack Carrick 43050

Superior National Forest Service8901 Grand Ave PlaceDuluth, MN 55808Dear Tim Dabney,I am writing to ask you to not approve or even consider the PoliMet open pit mine. I attended the meeting last week and saw how important jobs are to the miners and the tax base of the area but please, think of the future.Please keep in mind that there has never been a sulfide type mining operation that has not polluted. PoliMet spent years and a ton of money on trying to get EPA approval and can't even get it correct on paper?! How in the world would they be able to do it for real? And take care of the upkeep?Some of the obvious possible failures of even a good plan are;1. a 100 year weather event and the whole area overflows.2. the area is mostly rock but there could be crevasses where contaminated water can slowly leach.3. heavy equipment throws up dust, in the summer the wind is usually out of the south blowing toxins directly into the BWCA (the fish already have high mercury levels from coal plant dust hundreds of miles away).4. a tornado hits and blows the waste all over the place,5. a dam fails6. a containment membrane fails7. a reverse osmoses filter fails8. a pipe breaks9. a rail car or truck derails10. engineering miscalculation11. bankruptcy and bond to cover bankruptcy fails (500 years is a long time)12. worker errorThere are many others of course but I have to go to work. As you know most of these thing have already happened in the past in other types of projects and I am sadly confident will happen with PoliMet site more than once over the years.Please do what is right. We're already limited to how much fish (probably the healthiest food known to man) we can eat from Minnesota lakes. Help clean the lakes and drinking water, don't make things worse.Jack Carrick2525 2nd Ave ESt Paul, MN 55109651-704-0123

jack dunham 40393

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, jack dunham 3343 wilawana Rd sayre, PA 18840 UM

Jack Fulton 54790

See attachment

Alphabetical by sender's first name

Jack Furry 11158

Polymet is a Canadian mine development company that wants to start copper mining in Hoyt Lakes, Minnesota. They want to build a mine in northern Minnesota in order to attain an abundance of metals and open up hundreds of jobs for unemployed Minnesotans. It is being launched by an unproven company, Polymet, and it could desecrate the beauty of northern Minnesota, but I think they should go for it. The reward far outweighs the risk. It would open up hundreds of new jobs and it would provide us with metals that we need in our everyday life. There are many reasons why Polymet should start copper mining. For one, based on an unbiased article I read, the estimated amount of ore underneath the northern regions of Minnesota totals out at well over one trillion dollars. That would really benefit the state financially. Another reason they should go forward with mining is because it would open up a multitude of new jobs for the unemployed residents of Minnesota, mainly those that live in northern Minnesota, where jobs are scarce. The third reason we should open this mine is because we need to take a leap of faith. Where would we be today if we had hesitated on opening mines in the paSt We wouldn't have nearly as many of the materials needed to survive. Sometimes we need to take a chance. It could go horribly wrong, but it could also predominantly right. Either way, we won't know until we try. There are, however, unignorable issues. Polymet is new to the scene and has no past experience with mining. The open pit mine they are hoping to construct would most likely pollute the area's watershed, which is all of the water under the ground, which in turn, could end up reaching the Boundary Waters. Once these toxins reach the lakes in the region the fish are sure to die. If this happens, this pristine national treasure will be destroyed forever. The company also hasn't assured us that they will leave the area in good condition when they are done. There are a lot of risks, but if the company can address these environmental issues before they were to begin mining I believe they will be able to pull it off. In conclusion, I support opening the copper mine in northern Minnesota. We need the resources and we need to open new jobs for Minnesotans struggling to get by. Sometimes you have to take a risk, and maybe, just maybe, that risk will pay off for Minnesota.

Jack Huhta 18081

I'm Jack. I'm Jack Huhta from Gilbert. My background is I've got about 32 years with the FAA, and about nine years with the St. Louis County Planning and Zoning. I was chair of the planning commission for three years, and I was involved a lot -- or we were involved a lot with the clean water and sewer systems and we were very concerned about it, but having said that, I'm still just a layman like you people are in the audience here. We have to depend on the Corps of Engineers, the DNR and the US Forest Service for our information. We're paying them. They're all experts and they did all the research on this – for this EIS and we have to depend on the information that they're providing us. Opinions are fine. We heard a lot of opinions in Duluth the other night and we're going to hear opinions here tonight. Opinions are fine as long as they're based on facts, but a lot of times you have opinions that are based on emotions and they are not valid in the cases that are confronting us tonight with this EIS and the mining in -- up at the -- at PolyMet. World War II probably would have turned out a lot different had we not had the mining here on the range for the iron ore. As we all know, a lot of the iron ore for fighting World War II was provided by the Iron Range. Who would have ever thought that we would have been finding trout, probably the most sensitive species of fish in the Iron -- in the pits where we had extracted all the iron ore. Who knows what's going to happen; what we can do? Who knows what they can do with the – with the -- with the area that has been extracted -- that PolyMet's going to do. We put PolyMet through a lot of hoops. We've made them -- we put them through a lot more than the average corporation would ever think of going through. The cost, the frustrations and the delays are unbelievable. I can't imagine nine years what they've gone through trying to get this process forward. Our schools, our streets, our roads, we need something. We need a tax base so we can provide an education for our kids. How are we going to provide an education for our kids with schools if we're going to depend on the canoeists in the boundary waters, picking rice and shooting ducks. It isn't going to happen. We have to have a tax base, and that's money. We can't build schools with money that we get from rice and canoeing. So I just wanted to tell you people that -- listen to the facts. Forget about the opinions and let's move forward. I'm a full supporter of PolyMet's project.

Jack Hwinta 58109

The Polymet Project will not only benefit northern Minnesota. It will provide resources and raw materials for manufacturing which will benefit the entire state of Minnesota made in USA sounds a lot better made in China or Bejing.

Alphabetical by sender's first name

Jack Parker 38108

http://www.icmm-com/members/member-companies Good morning Lori: Will you please bring this organization to the attention of your mining people. It is important. They control your future. In London they now acknowledge the fact that nations with mineral resources are beginning to resist offshore pirates and would-be colonists. In our neck of the woods it is they who seek out the decision-makers and adopt them for as long as they are useful. It is they who decide whether we should be bought, not with beads today, but with t-shirts and baseball hats with corporate logos. It is they who will decide when to pull out with maximum loot, leaving second-tier mining companies to deal with the left overs and perhaps the cleanups. Please remember Kennecott/Rio Tinto Flambeau and Eagle and Pebble projects more clearly than we "Remember Pearl Harbor.". So soon we forget the wasted millions. You will probably recognize some of the corporate logos already. Keep in mind their multi-billion dollar reasons for being and trust them as far as you can throw them. Check their social and environmental records. Begin by demanding all the facts concerning the mineral resources they seek - NOT only those items they choose to divulge to serve their reason for being. Demand too financial assurance that all damage will be remediated. If, for example, they cannot give us absolute assurance that Lake Superior will not be harmed - then there should be no mining. For an antidote to ICMM go to "London Mining Network" an honorable non-profit organization in London keeping tabs on big miners. Thank you Lori, Sincerely, Jack Parker, Mining Engineer/Geologist, Baltic.MI 49963, 3/7/2014

38261

One more comment please - to support my earlier comments concerning the integrity of the PolyMet principals, if any. They are not dumb. They have led the opposition up paths where they have little to worry about, and they withhold most of the information which they would rather not bring to light. For that reason we must insist on seeing all of the basic information, not what they want the public to see. Fail to do that and we give them freedom to do whatever they want to do, regardless. Example 1- Remediation. Show the terrain as it is now, summer and winter. Show it again when the mining is finished.. Show it again after remediation. All photographs and "artist's concepts" clear enough for viewing on a large screen, i.e not thumbnails. eg 2- Provide all the geological information needed for an independent evaluation of underground mining. Thank you, Jack Parker, Mining Engineer/Geologist, Baltic MI 49963, March 6th 2014 On Thu, Mar 6, 2014 at 12:30 PM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Jack Parker 38445

Hello MDNR. Lyman being out of office until 3-17-14 I figure I should fwd this directly to you for prompt action - please. It is vitally urgent Thank you, Jack Parker --- Forwarded message --- From: Jack Parker Date: Thu, Mar 6, 2014 at 11:24 AM Subject: THE MID-MARCH HEARINGS RE POLYMET To: "HYPERLINK "mailto:lwelch@greatlakes-org"lwelch@greatlakes-org" , Lori Andresen , jack parker Am not a chemist but find your comments OK, except that Superior is the biggest by surface area but not by volume. Baikal is. Time is short and my octog. fingers not supple so I must be brief. A resume is available on ne. 1- You do not know your opponent. He is not a benign businessman. I have been working, unpaid, on the Kennecott/Rio Tinto/ Lundin Eagle project since 2006, not giving up because very soon after receiving the application for permits we recommended that it be rejected - the document was indeed unacceptable. The basic design data had been faked. When corrected the design approach indicated that the factor of safety was lower than one - UNSTABLE. There were many other mistakes and mis-statements, lies. In short they got away with it because they were in cahoots with MDEQ and the courts. I took the case all the way up the ladder from local cops to US Atty Gen and all declined to prosecute because "jurisdiction over mining matters had been delegated by the Feds to Michigan DEQ." $4,700,000,000 can do that. Michigan Mining Law, Part 632 recognizes their approach as felonious and prescribes stiff penalties for principals, including jail time. 2- So what is that to you in Minnesota. Hear this: The prime movers at PolyMet, Messrs Cherry, Foth and now Ware, were at the helm of the Eagle project. The truth is not in them. With another potential bonanza in the Duluth gabbro they can be expected to lie and to cheat and to hand out t-shirts to get the money. Foth boasts that he knows how to get permits. You might learn something about tactics by Googling "The Silver Fox Fable" at the "Woods Person" site. You'd better believe it. You will recognize the progression. 3- Am not familiar with the machinations in Minnesota but know this: That the big miners do not follow established rules and politicians look the other way. In days of yore, for example, the miner seeking a permit would have to submit all basic data = diamond drill cores and logs and assays and evaluations in detail. How else can the project be evaluated. I was not surprised, for example, when Eagle "discovered" recently that there is uranium in the system. I saw it in the very first core logs, but they quit testing for it and declared it absent. 4- I suspect that the MN ore could be mined selectively underground, so ameliorating many problems with the environment, but I see that PolyMet dismisses the possibility, essentially "Because I say so". We cannot correct them because they will not disclose details of geology. Part of their plan. 5- I submit that we, the people, cannot and should not accept PolyMet statements unless we can confirm them via original data. 6- As a demonstration of good faith how about them submitting all known facts about the "orebody" (which it is NOT until factors including environment are satisfied) to a worthy mining group for evaluation. There they have you by the scrotum. The Big Miners already have their Club, the ICMM in London. QV. Hanging on eagerly to their coat tails are most of the international mining consultants - as we saw at the Eagle. Their experts too lied freely under oath - with one notable exception - David Sainsbury of your Itasca group. He was quickly shipped off to Australia. We knew about his promotion before he did. Not many old-timers are left. Maybe some associated with universities. Maybe Ralph Marsden is still kicking in Duluth, he's a good man. You might look up Wilson Blake - his reputation is good. 7- Divide and Conquer is a good weapon for them. If you put on blinders to concentrate on chemistry and get no support from tree hug

Jack S Sneve 57237

I am voicing my concern for the destruction of 913 acres of irreplaceable wetlands along with another 7,350 acres in the St. Louis River watershed that would be affected (SDEIS, p 5-224). This mine and its water if allowed to proceed, will effect all living things “down stream” in the Lake Superior basin. This area of northern Minnesota that is so very water rich could very quickly be polluted. All ecosystems are interconnected. Mining harm to this area will effect the whole environment, such as the nuclear meltdown in Japan iif effecting all of the Pacific Ocean basins. I ask that you please reject the Polymet SDEIS as inadequate. I ask that you reject the proposed Polymet mining – it is a grand experiment – that will leave northern Minnesota with pollution; the money (billions) going to Canada’s Glencore Xstrata Corp. The company and its chair, Tony Hayward, now famous for his part in the BP deepwater oil spill have a notorious record for environmental and labor abuses. Thank you.Jack S. SnevePO Box 3501Duluth, MN 55803

Alphabetical by sender's first name

Jack S Sneve 57238

The precautionary principle “states that if an action (PolyMet Mine (My View J.S.S.)) or policy has a suspected risk of causing harm to the public or the environment” and that when “extensive scientific knowledge on the matter is lacking” (Polymet’s recent (MY view J.S.S.) science must be re-examined because it is based on computer modeled simulations and prediction. They must do the numbers on red field evidence!) or scientific evidence is insufficient to prove that such harm will not occur, the prudent thing to do is to say NO. I am saying NO and I ask you to say NO to granting the permit to mine until evidence can prove otherwise. The principle implies that there is a social responsibility to protect the public and the environment form exposure to harm when scientific investigation has been found to have plausible risk. Source: Wikipedia) [ILLEGIBLE] every sulfide mine has had a 100% failure rate. Untreated seepage forever for all living beings.Jack S. SnevePO Box 3501Duluth, MN 55803

Jack Sikora 39364

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Jack Sikora 1600 N Jefferson St New Ulm, MN 56073-1417

Jack Treher 42690

See attachment

Jack Van meter 41626

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Jack Van meter Hugo, Minnesota

Jacki Fisher 54497

See attachment

Alphabetical by sender's first name

Jackie Falk 3276

16 South 25th Avenue East Duluth, MN 55812-2227 Lisa Fay, Public comment Manager, DNR DNR Ecological and Water Resources 500 Lafayette Rd Suite 25 St Paul, MN 55155-4032 Dear Ms Fay: I have lived all of my adult life in Minnesota. I love its beautiful natural resources and have raised three children to do likewise. As a citizen and taxpayer, I write to express my opposition to the reported conclusions in the SDEIS draft for the PolyMet proposed for Northern Minnesota. (To be frank, the document is too complex and lengthy for me to make an informed analysis based on my own knowledge.) As it has been repeatedly pointed out, correctly, any jobs for Minnesotans are temporary, the bulk of the profits will flow out of the local economy, and the "toxic legacy of damaged waterways" will remain permanently here in Minnesota. To date, "Mining without harm" and "environmentally safe mining" have been promised, but there is zero evidence to back up the claim that sulfide mining can be done without causing devastating watershed pollution. In fact, mining of sulfide-metal ore has never been accomplished without causing eventual acid-metal leachate pollution of ground and surface waters. As a result, Wisconsin wisely placed a moratorium on sulfide mining operations in 1997, until it could be demonstrated that such a mine would not pollute the water. The construction of a mine such as the one PolyMet proposes violates the Precautionary Principle: "if an action or policy has a suspected risk of causing harm to the public or to the environment, in the absence of scientific consensus that the action or policy is harmful, the burden of proof that it is not harmful falls on those taking an action." Only if and until, the mining industry has a demonstrated track record that it has the means and the willingness to invest the effort and the capital necessary to mitigate all present and future environmental costs, the benefits of the mine cannot possibly outweigh the damages to Minnesota's water resources, resources that may require treatment for more years into the future than can be accurately predicted. Thank you for your attention to my concern. Jackie Falk _____ "I go down to the shore" I go down to the shore in the morning and depending on the hour the waves are rolling in or moving out, and I say, oh, I am miserable, what shall what should I do. And the sea says in its lovely voice: Excuse me, I have work to do. - - Mary Oliver Jacqueline H. Falk 16 South 25th Ave East Duluth, MN 55812-2227 ground line: (218) 724-7407

jackie hartleben 6010

I support you and the mining, I know you can do it that will not harm the environment and create jobs. Love technology. Jackie Hartleben Ely, MN 55731

Alphabetical by sender's first name

Jackie Midthun 16313

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Jacob Conway 57960

I am very much against the mining issue. I am a land owner near Babbitt and I cannot tell you how fearful I am that this will ruin this land. I am also infuriated that these companies have eventual mineral rights underneath my land (State owns this and can sell it to the companies). Stop these products. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Jacob Crawford 9604

Minnesota DNR: My name is Jacob CrawfoRd I am not a Minnesota resident yet, but I will be in a few months. I'm distressed to hear about the potential for Polymet Mining's proposed Copper-Nickel mine to become reality. I may not live in your state yet, but I've been doing a lot of research on all the great things Minnesota has to offer for outdoor enthusiasts such as myself - not least among them being the Boundary Waters Wilderness, which this mine will almost undoubtedly affect adversely. Long has this been a dream destination for me. Speaking as an out-of-stater, I can say that it holds a somewhat mythical status among Americans across the nation and even to foreigners abroad. To think of what damage this mine could reap upon such a place (such as the leaching of acid drainage and harmful heavy metals into the surrounding environment) makes me very sad for the future we're leaving for future generations. My brother and his wife are Minnesota residents and this April they'll be bringing into the world their first son (my first nephew). I want places like the Boundary Waters to be untouched by industrial havoc for his generation to enjoy, explore and be proud of. Beyond my sentimental attitude and selfish hopes as future Boundary Waters visitor, I believe this mine can not be practically considered. I'm told the previous EIS on the project received an "F" from the EPA for all its many dangers, which is not something that should be brushed aside lightly. Approving such a project would put wildlife and human health at risk as well as the good reputation of the state of Minnesota. Thank you for your time, Jacob Crawford 2208 E. 17th Ave #2 Denver, CO 80206

Jacob E Davis 47064

I am commenting today due to my concerns of the geological analysis of the mine site. The environmental impact survey is based on the iron range and its geology, where as the actual mine site is entering into the Duluth Complex. This misrepresentation of the geological implications of the proposed mining site is misleading to the public. Further, it is flawed science. Give the people truth. Stop squandering what could be a lifelong resource (our waters) for 20 years of jobs. Stop letting corporations extract wealth from our lands only to leave us with pools of toxic waters for 500 years. Recreation is far more important to northeastern Minnesota than mining. Jacob Davis, MLS (ASCP)

Alphabetical by sender's first name

Jacob Kjome 17036

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: The PolyMet project is not just risky, it is all but guaranteed that this project would decimate Minnesota's fresh water for hundreds of years. Also, how many companies do you know that are till around for cleanup after even 100 years, let alone 50, 25 or 10- If it'll be cheaper for them to go bust, then that's what they'll do and you know it. They'll take their short-term money and run leaving us with a long term costly, disastrous, mess. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jacob Kjome 10761 100th Ave N Maple Grove, MN 55369

Alphabetical by sender's first name

Jacob Kjome 50308

Dear Ms Fay, Mr Bruner and Mr Dabney: The PolyMet project is not just risky, it is all but guaranteed that this project would decimate Minnesota's fresh water for hundreds of years. Also, how many companies do you know that are till around for cleanup after even 100 years, let alone 50, 25 or 10- If it'll be cheaper for them to go bust, then that's what they'll do and you know it. They'll take their short-term money and run leaving us with a long term costly, disastrous, mess. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jacob Kjome 10761 100th Ave N Maple Grove, MN 55369

Alphabetical by sender's first name

Jacob Mitchell 48209

25 people recently add their names to Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=one_thousand"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota.". That means more than 500 people have signed on. There are now 278 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=one_thousand"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 269- Paul Schliep Howard Lake, Minnesota 268- Amanda Nelson Coon Rapids, Minnesota 268- Charlie Diamond Morris, Minnesota 267- Celena Davis Morris, Minnesota 266- Robert Meier Big Lake, Minnesota 266- Alyssa Berquam Morris, Minnesota 264- LeAndra Brookins Inver Grove Heights, Minnesota 262- Henry Megarry Morris, Minnesota 261- Brennan Gensch Morris, Minnesota 260- Evan Reller Melrose, Minnesota 259- Andrew Kroska Saint Joseph, Minnesota 258- Nicholas Honer Morris, Minnesota 257- Emma LaChance Morris, Minnesota 256- Michelle Schamp Morris, Minnesota 255- Austin Keller Morris, Minnesota 254- Claire Sylvestre Minnetonka, Minnesota 253- Alanna Henry Morris, Minnesota 252- Erin Spry Morris, Minnesota 251- Shannon Jordan Morris, Minnesota 250- Jackie Becker Andover, Minnesota 249- Erin Kvam Stacy, Minnesota 248- Ricardo Rojas Morris, Minnesota 247- Karl Beck MPLS, Minnesota 246- Thomas Neumiller Mahtomedi, Minnesota 245- Jayce Koester Morris, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJvbmVfdGhvdXNhbmQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTI2LCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA0MTM0Njl9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK-2FRz6WnbPoxvkalCi9wOB09EKbeC8Te89Dp7dM0X7Vl4h66Mk3bEY26wwueyHvpgxcofLI2xCQWAMUiyjQU-2BKk6vWF1CbTNZwLOwIykaexykqpdaMS5imiEUIPX6BnwpGrJkaTggM30DbOV78VqduHT7wu5uOei-2F1YgFG5rkezCzq-2BNyz

Jacob Sparber 18252

Jacob Sparber, S-P-A-R-B-E-R. My comment is, I've heard from other people in the room that were making comments that why should we have a company that should last 20 years with 40 -- I forgot the number of miners, but it was 40 something maybe -- 400 jobs, I forgot the number, why would it last for 20 years, and have 500 years of cleanup instead of having another area that would be a little bit safer or cleaner for the environment that would have a little less, like maybe 100 years of cleanup instead of that long of cleanup because there's been a lot of climate change, usually winters would not barely be negative. They would go to negative 5, not all the way down to negative 25 or lower. And if you've seen on products, it would say, "Since 1775 for an example, they have been a really successful company that has lasted hundreds of years, and they have barely made any impact in the environment, and why should something as small as 20 years make a 500-year impact or 100-year company would make like a 10-year impact or something in the environment that would last a little bit shorter in time for the pollution to go away a little bit more. I'm 11 years old.

Alphabetical by sender's first name

Jacque Lively 39700

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. PROTECT THE PEOPLE OVER CORPORATE GREED AND FINANCIAL TERRORIST, please~ The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Jacque Lively 4976 390th Ave Curlew, MN 55027

Jacquelyn Morano 16135

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Jairo Molina 39784

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Jairo Molina 651 Humboldt Ave Saint Paul, MN 55107-2920

Jake Giefers 54183

I believe the mine that is desired to be built is not a good idea. Building this mine will pollute the beautiful waters and put people in danger. Sure it may create jobs, but the negative impacts such as waste and pollution will weight those out.

Jake H 11362

Dear DNR, I am worried about the perpetual clean-up costs associated with the North Met project. It is my opinion that Glencore, the European company that is backing Polymet, is trying to reap the economic benefits of our natural resources while avoiding liability for environmental impacts. I'd imagine that Glencore would own the North Met project outright, if it were not for the aforementioned perpetual costs. I believe that the responsibility for such costs should rest entirely on the company- a responsibility which cannot be realized given the indefinite nature of the environmental impact. In June 2012, the region I live in (Duluth area) experienced a historic flood, the likes of which I had not thought possible. The St Louis river saw peak flows of 56,000 cubic feet per second, 40% higher than the previous recoRd What would the consequences be if such an extreme precipitation event (10 in+) were to occur in the region of the proposed site, either during or after mining operations. Would the tailings basin overflow and contaminate flood waters. How would a situation like that be managed if the power went out, as would likely to be the case in such a scenario. Would the waste water pump and treatment facility still be operational. Also, I believe the increased demand for Coal-generated electricity, as a result of new mining operations such as this, would be a step backwards in the direction our state should be heading. We should instead be looking for ways to reduce our energy needs and diversifying our energy sources away from coal. Burning Coal and Mining Copper what year are we in, 1880- I'm sure President Ulysses Grant would approve of all this nonferrous nonsense, God rest his soul. Thank you for your consideration, Jake Hartley 418 Kelly Cir Duluth, MN 55811

Jake Hodie 23665

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. So much of our wilderness has already been ruined by development, drilling, pollution, and logging. Enough is enough. The wilderness is supposed to be a place of peace and quiet for us, and the wildlife which live in it. The animals are running out of places to live and be safe. Our wildlife are under threat from so many angles. They desperately need to be protected, mainly from humans. Life is hard enough for people, let alone the animals. Can't we please offer them some much needed help.. PLEASE save the wilderness for all future generations before it is permanently ruined. Some damage cannot be undone. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Jake Hodie 145 Starwood Aspen, CO 81611

Alphabetical by sender's first name

Jake Jacobi 19105

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Jake Jacobi 861 19th Av SE Mpls, MN 55414 612 378 3954

Alphabetical by sender's first name

Jalene Betts 47705

Lisa Fay MDNR Division of Ecological and Water Resources Douglas Bruner US Army Corps of Engineers Tim Dabney US Forest Service March 13, 2014 Dear Ms Fay, Mr Bruner, and Mr Dabney, I write today to ask you to please reject the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) as inadequate. You must not allow the PolyMet project to proceed for the following reasons: 1- The extensive environmental devastation at the core of the PolyMet project that will negatively impact our economy, 2- The severe lack of integrity and neutrality among the authors of the SDEIS when choosing what information and outcomes to include in the SDEIS and what information and outcomes to obfuscate or hide, and 3- The negligence of the authors of the SDEIS in their failure to include a cost/benefit analysis of the PolyMet mine with specific provisions regarding amounts and sources of financial assurance. The only appropriate decision is to select the No-Action Alternative in the SDEIS. I am very familiar with the economic and environmental issues concerning the citizens of the Minnesota Arrowhead region. I have lived in the Arrowhead most of my life; I grew up in Grand Rapids and now live in Grand Marais. My brother is part of the Iron Workers Union and frequently works for the mining companies along the Iron Range. I work in the kindergarten classroom of a Grand Marais public school and at the Angry Trout Café during the summer. I understand that a responsible, clean mining operation could be a boon for this area. The SDEIS, despite its many attempts to hide or distort the truth, shows that PolyMet's proposed project will be environmentally and economically devastating for our area. The issues directly concerning the local people, the people who live in the Arrowhead, are strongly interconnected. What happens on the Iron Range does not stay on the Iron Range; the environmental and economic reverberations can be felt from Grand Rapids to Grand Marais. The health of our regional economy depends upon its diversity. What threatens our environment also threatens our economy. We, the people who live in the Arrowhead, greatly value the natural beauty of our wilderness. It is in our interest to preserve the attractiveness of our wilderness and parks not only for our own enjoyment, but also for the enjoyment of visitors to our area. Tourists as well as locals seek out our area as a haven a multitude of outdoor activities, including, (but not limited to), hunting, camping, canoeing, and fishing. Our robust and constantly expanding tourist economy depends upon these nature visitors to thrive, and survive. If the natural beauty of our region were compromised by bad land management practices, as would be the case if the PolyMet project was allowed to proceed, these visitors would lose interest in returning to our area. Then, the outdoor outfitters, hotels, state parks, restaurants, gas stations, and everything in between would suffer a significant loss of income. The economic impacts of losing the robust recreation and tourism industry we have so carefully constructed would be catastrophic. In this way, we depend upon the natural beauty healthy environment of the Arrowhead region for our jobs. Dependable jobs, (notably those supported by our tourism industry that have lasted and will continue to last for several generations), are of great concern for the Arrowhead's local people. It is not logical to jeopardize over 18,000 jobs in our recreation and tourism industry in order to provide a few hundred people jobs in a destructive sulfide mine that will only turn a profit for 30 years, and, PolyMet admits, will require cleanup of the pollution by sulfuric acid and heavy metals it causes to our water for over 500 years. According to Minnesota Rules 6132-3200, at the time of its closure the mine site must be maintenance-free. The PolyMet plan for 500 years of cleanup not only br

Jame Hall 42736

See attachment

James & Marilyn Keegan 24438

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, THIS IS ANOTHER EXAMPLE OF WHERE GREED IS THE AGENDA LIKE THE INFAMOUS KEYSTONE PIPELINE WE AGREE AND ACCEPT THE COMMENTS AGAINST SULFIDE MINING. MY GOD. YOU HAVE PROOF OF POLLUTION FROM PREVIOUS SULFIDE MINING. WHAT MORE DO YOU NEED. YOU ARE WILLING TO RISK THE POLLUTION OF LAKE SUPERIOR AND SURROUNDING AREAS. UNREAL AMAZING. PLEASE, LET COMMON SENSE PREVAIL.
********** Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, James and Marilyn Keegan 8895 SW 91st Pl Unit D Ocala, FL 34481-7409

Alphabetical by sender's first name

James & Sara & Jae & Jaz Conway 43501

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, James and Sara and Jae and Jaz Conway 4620 Valley DR NW Rochester, MN 55901

48485

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, James and Sara and Jae and Jaz Conway 4620 Valley DR NW Rochester, MN 55901

James A Ahrens 41863

Mar 8, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. Those of us who love the boundary waters and the many species of wildlife and especially birds fear that proposals such as this will bring long term losses that cannot be justified by short term profits. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mr James A Ahrens 529 Park St Grinnell, IA 50112-2421 (641) 236-4665

James A Seme 42561

See attachment

James Ahrlin 54884

See attachment

Alphabetical by sender's first name

James Alvey 39697

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr James Alvey 135 Stinson Blvd New Brighton, MN 55112-3101 (651) 746-0712

James Amato 36348

I wish to register my objection to the proposed PolyMet copper mine and processing center near Hoyt Lakes. Copper mining is very different from traditional taconite mining. It carries increased risks to the environment which in my opinion have not been adequately addressed. The waterways of northern Minnesota are a priceless asset. They have enriched our lives for countless generations and should be passed on unspoiled to future generations. A comparative handful of jobs for a few decades do not justify the immense risk involved. As a retired physicist and a concerned citizen I urge you to please take into account the serious danger to our environment posed by this project. James J. Amato, Phd 4004 London Rd, Apt. 1111 Duluth, MN 55804

Alphabetical by sender's first name

James Amato 41661

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

James Amundsen 38826

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. My wife and I have recently bought property on the North Shore. From our point of view, the danger is so catastrophic that there is no way we would want this area's unique beauty to be risked for generations, much less for our generation. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Dr James Amundsen 3540 Edmund Blvd Minneapolis, MN 55406-2943 (612) 721-3282

Alphabetical by sender's first name

James And Deborah Nicholson 34673

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. The BWCA is particularly sensitive, and, its natural beauty aside, is a major contributor to the economy of northeast Minnesota and particularly Ely. We moved to Minnesota 35 years ago, drawn by the quality of life and the unspoiled woods, lakes and rivers, and the legacy of environmental stewardship. We want to see those qualities preserved for our children and grandchildren and future generations. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. We have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, James And Deborah Nicholson 7508 Hyde Park Dr Edina, MN 55439-1743 (952) 942-9639

james barnett 17221

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, james barnett 515 E WilsonSt ELY, MN 55731

Alphabetical by sender's first name

james barnett 50492

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, james barnett 515 E WilsonSt ELY, MN 55731

James Barrett 38809

_____ From: jmichaelbarrett@hotmail-com To: jmichaelbarrett@hotmail-com Subject: Date: Mon, 10 Mar 2014 17:24:14 -0400

Alphabetical by sender's first name

james bates 46217

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, james bates 15 Vincent Ave S minneapolis, MN 55405

46218

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, james bates 15 Vincent Ave S minneapolis, MN 55405

Alphabetical by sender's first name

James Beaty 38357

Dear Sir, I am an avid canoeist, CC skier and general all around outdoorsy 64 year old. I was born in Ely and moved back here +30 years ago. I 100% support responsible mining in this area. I want to see healthy young families grow and prosper here like I did. Tourism never did and especially with the creation of "Disney Woods" never will provide livable wage jobs. Like my Buddy Rick said " Jobs. There are plenty of jobs in Ely. Why my girlfriend moved here and within a week had 3 jobs. Of course their total pay barely covered her living expenses-but hey, she's living in Ely" We need to move forward with the mine project. James F. Beaty 921 E. Pattison St Ely MN. 55731

James Beaumont 57461

I believe the PolyMet Mining project should proceed. The PolyMet Mining water quality study, the Superior National Forests bio. assessment and evaluation as well as the United States Army Corp of Engineers have done an extensive review of the proposed project and long-term effects. Please help to see this project passes. Thank you for your help. James Beaumont 3290 68th Court East Inver Grove Heights, MN 55076

James Beckstrom 31231

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, The trend to pollute must be reversed - when is blatant greed going to be taken off its pedestal. Sincerely, James Beckstrom PO Box 436 Oscoda, MI 48750-0436

James Borden 3601

December 20, 2013 No Polymet Project Please. I am e-mailing you as part of the window of public response given to residents of Minnesota to say I do not feel that Polymet’s proposed mining of Sulfide Ore is good for Minnesota from any way it is viewed. It will only go for 20 years, with a minimum of jobs, especially compared to the jobs we get from sustainable tourism in Ely area, and produce sulfuric acid in all the waters it drains to including Lake Superior, the largest supply of fresh water in the US. Thanks, James Borden 1963 Fairmount Ave St Paul, MN 55105 651-699-8957

9311

January 30, 2014 I am writing because I am against PolyMet or any other company mining for metals in sulfide bearing ore. The issue is very simple to me; the danger of harmful byproducts, such as sulfuric acid and mercury is too great in an environment like this. The mining for these copper and Nickel need to talk place in dry environments like Arizona, Utah and New Mexico, which are already the leading states for copper mining, not in a wet environment like Superior National ForeSt No this can't happen, here, especially not near the boundary waters, a protected as a National Wilderness Preservation System. With two major watersheds that could potentially spreading sulfuric acid into Lake Superior and the Hudson Bay. This mining deal doesn't really present viable, sustainable jobs and may only last 20 years whereas the potential for pollution may be up to 500 years. It would be a foolish trade- off for all involved. Thanks for letting me speak my mind. James Borden

Alphabetical by sender's first name

James Bradley 40343

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, James Bradley 18448 Belle Alliance Prairieville, LA 70769 US

James Bussa 6316

Say no to mining in the BWCA. A handful of jobs is not worth 100's of years of pollution. Jim Bussa Shakopee

James Cunningham 33549

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. So, there's no need to start. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. This mining activity will pollute one of our nation's largest bodies of fresh water. Not a good idea unless you want to poison Americans. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public interest in any way, shape, or form. We cannot allow corporate profits to trump public health. Please put a stop to this incredibly bad idea. Sincerely, James Cunningham 205 W Reindeer Dr Powell, OH 43065-5073 (614) 326-0730

James David Cole 57232

Too many decisions in the quest for greed ignore the consequences. When the land is destroyed, where will we live? The costs to clean up the problems left behind far exceed the profits taken!James David Cole24553 Evergreen DriveNevis, MN 56467

James Denman 43645

There needs to be more push back on the Polymet Proposal. The BWCA is so close and it is a treasure that we should not risk. 1- Polymet will emit 46 lbs of mercury/ year that will cause harm to visitors to the BWCA and local residents. 2- It will destroy Moose and lynx habitats 3- The risk of Sulfide pollution is high. 4- The project will affect over 1000 acres of valuable wet lands. The project does not seem to benefit the local residents nor the citizens of Minnesota. The risk to the area is high compared to the benefit of the project is low for Minnesota overall.

Alphabetical by sender's first name

James Dushane 39703

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr James Dushane 936 8th Ave SE Rochester, MN 55904-5006

James Ellis 38751

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms James Ellis 11051 Russell Ave S Minneapolis, MN 55431-3950 (952) 888-3340

38755

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms James Ellis 11051 Russell Ave S Minneapolis, MN 55431-3950 (952) 888-3340

James Everest 4885

Jan 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. As a lifelong resident of the state of minnesota, one of the things I hold most dear is the Boundary Waters Canoe Area and North Shore of Lake Superior. It's where I proposed to my wife. It's where I"ve had some of the most important moments in my life, moments of reflection and fellowship with friends and family. It's where we've taken many visiting friends from across the country and even overseas - as something rare and truly inspirational. And it never ceases to amaze these visitors, with it's pristine wanters and protected wild forests. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Please do not put short term profits ahead of invaluable, irreplaceable natural habitats that so many of us cherish and rely on to help define who we are as minnesotans. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr James Everest PO Box 18262 Minneapolis, MN 55418-0262 (612) 879-8676

Alphabetical by sender's first name

James Everest 51507

Jan 10, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. As a lifelong resident of the state of minnesota, one of the things I hold most dear is the Boundary Waters Canoe Area and North Shore of Lake Superior. It's where I proposed to my wife. It's where I"ve had some of the most important moments in my life, moments of reflection and fellowship with friends and family. It's where we've taken many visiting friends from across the country and even overseas - as something rare and truly inspirational. And it never ceases to amaze these visitors, with it's pristine wanters and protected wild forests. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Please do not put short term profits ahead of invaluable, irreplaceable natural habitats that so many of us cherish and rely on to help define who we are as minnesotans. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr James Everest PO Box 18262 Minneapolis, MN 55418-0262 (612) 879-8676

James Farrells 42781

See attachment

Alphabetical by sender's first name

James Fournier 14988

Feb 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

James Grindeland 52516

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404 " Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation " wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect " wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1- Underground mining, looking at the full ore deposit and PolyMet's real costs; 2- Putting a liner under the Category 1 waste rock stockpile; 3- Placing all tailings on a new completely lined facility; 4- Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5- Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to protect irreplaceabl

James H Brutger 42792

See attachment

James H Juntti 42630

See attachment

James H. Stout 21542

Please see the attached document.

James Hacking 9551

This is a great project with huge economic impact for all of northern Minnesota. Tax revenues for the state, job creation, and much needed resource for all. Polymet has done their due diligence and complied with all environmental requests. I appreciate all environmental concerns. Please allow the permit to go through. If there are environment issues you can always shut them down as I am sure they will have ongoing testing and monitoring. Sincerely James R. Hacking, CPA Duluth, Mn

Alphabetical by sender's first name

James Hall 15382

Feb 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr James Hall 1820 E 1st St Duluth, MN 55812-1721

James Hansen 57378

I think it's great idea to develop the area and create jobs for the iron range. Jim Hansen Sent from AOL Mobile Mail

James Hanske 11272

Hello, It was unclear on your website where you are receiving comments for the Northmet SDEIS. I will submit mine here. I feel that my rights as a Minnesota citizen would be violated by having the Northmet mine approved. This is Minnesota superior national forest land and it should be up to the people to decide its use and up to the DNR to protect this land and ensure its preservation. This mine would significantly degrade the water quality of the boundary waters lakes and lakes in the surrounding area. It is our job as Minnesotan citizens to protect arguably the most precious natural resource in Minnesota which is our lakes and more specifically the boundary waters. It would be an outright greed driven crime for SNF lands to be exchanged to a mining company. The way we regulate mining companies to make sure they follow environmental regulations is not enough. Furthermore surface mining is extraordinarily harmful to the environment. It would be the biggest betrayal of the people for the DNR, the very people who are supposed to preserve this land, to not only allow but knowingly aid in the permanent destruction of our beloved lake country. If this is approved and a mine is built I will have lost all faith in my representatives ability to listen to their citizens and the DNR's ability to protect our states wildlife and wilderness areas. I will no longer vote to approve any funding for DNR sponsored programs because of my lack if faith in their morality and ability to do their job. I urge you to please make the decision that will protect our nations fading wildlife and not allow this or any other mine in this area. Thank you, James Hanske

JAMES HENDERSON 38574

Dear DNR, I oppose the proposed PolyMet mine in northern Minnesota. It will pollute the land and water with little economy compensation to justify such a degradation of our precious environment. Thank you, James C. Henderson 104 Windsor Court New Brighton, MN 55112-3309 651-633-2297

Alphabetical by sender's first name

James Hilgemann 39166

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The sulfide mining is yet another example of the root-hog-or-die mentality behind the smoke-and-mirrors of this country's resources/energy conundrum. I think it's time to leave the 19th century mindset behind. This is the 21st century. It's time to evolve. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, James Hilgemann 676 Ashland Ave Apt 12 Saint Paul, MN 55104-7168 (651) 298-1396

James Holden 16020

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

James J Drost 58091

By way of background, I have BS & MS degrees in Mining and Metallurgical Engineering from the University of Wisconsin, Madison. I have worked at the U.S. Bureau of Mines, ALCOA, and other mining related industries. Over the years I have read many EIS documents and Conditional Use Permit applications; there is a common thread through all of them. That thread is that the mining companies are using them for hype and propaganda. Poly-Met hopes that by overdramatizing a few positives, namely jobs and the economy, the many flaws and omissions in this document will be missed by the many review boards.Let me briefly recount the history of the Flambeau Mine in Rusk County near Ladysmith, WI., a location similar to that which Poly-Met has chosen, but with far fewer complications. Flambeau said that they would be there for at least 20 years, supply 160 jobs to the locals, reclaim, and restore everything so that you could hardly tell that they had been there. In the end, Flambeau shut the mine down in less than 6 years, and exported an estimated $750,000,000 of metal out of this country. From the few records that Flambeau made available it seems that less than half of the jobs went to locals and they were the low paying ones; Rusk County's jobless rate and economy made no improvements. Worst of all there was very significant pollution. Below is the website where this information can be found.http://flambeaumineexposed.files.wordpress.com/2013/01/buzzards19.pdf History Flambeau mineThis project will deeply and adversely impact the lands of several Native American bands in the area. I thought that we as a nation and state had grown out of the phase in history where it was okay to cheat the Native Americans because someone wanted to make money with Their Land. They want the land that was returned to them by treaty, because it is sacred to them. This land is their "green grass of home", and yet this company wants to destroy it forevermore by polluting it with toxic waste water. When will we as a Nation and a State be honorable enough to keep our agreements?This document has been studied and been found to be misleading, missing information, and fails to speak to many issues including health. It is not an acceptable document on which to ba8e public trust for the future of Minnesota's people, especially the unborn. I ask you to reject this facade of due diligence.

James Kayfes 77

Let’s get this done. We need the jobs in that part of the State. These people know what they are doing when it comes to mining, give them the opportunity. If we fail to support this part of the State I will no longer commit any more resources/donations, etc.to the State of Minnesota. Everything is for the Twin Cities, I am fed up with this. James Kayfes Accounts Payable Manager PeopleNet_LogoLres 4400 Baker Road, Minnetonka. MN 55343 DIRECT 952-908-6215 TOLL FREE 888-346-3486 x 215 | FAX 952-908-6129 HYPERLINK "http://www.peoplenetonline-com/"jkayfes@peoplenetonline-com

Alphabetical by sender's first name

James King 39802

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

james koenig 40867

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr james koenig 1584 Whitaker St White Bear Lake, MN 55110-3768 (651) 261-1798

James Korthals 57348

My name is James Korthals. K-O-R-T-H-A-L-S. I am a partner with Krecho Jard & Associates (phonetic), an engineering firm based in Duluth, Minnesota. I am here to talk for and in support of PolyMet and the project that they have going right now. K-R-E-C-H-O J-A-R-D. We are thoroughly convinced that through the collaborative efforts of all of the agencies and PolyMet that the EIS has brought forth everything that will be of benefit and/or detriment to the environment. And we firmly believe that PolyMet is a responsible mining company and they will be taking care of the environment for a very long time to come. My background, I am a mining engineer. I have been involved in the mining industry for the last 30 years. And I personally know a large number of people that work at PolyMet, and I am convinced that their ethical behavior is above reproach and the way they undertake business is also above reproach. So, therefore, we fully support the NorthMet project.

Alphabetical by sender's first name

james koschak 43565

Lisa Fay, SDEIS Project Manager, MN DNR Kenneth Westlake, US Environmental Protection Agency Region 5 Douglas Bruner, US Army Corps of Engineers Michael Jimenez, US Forest Service-Superior National Forest March 13, 2014 Re: Public Comment submittal: Supplemental Draft Environmental Impact Statement, PolyMet Mining, Inc.- NorthMet Mining Project and Land Exchange E-mail directed to: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us HYPERLINK "mailto:Westlake.Kenneth@epa-gov"Westlake.Kenneth@epa-gov HYPERLINK "mailto:Douglas.W.Bruner@usace.army.mil"Douglas.W.Bruner@usace.army.mil HYPERLINK "mailto:Mjimenez@fs.fed.us"Mjimenez@fs.fed.us From: James Koschak 1329 East Harvey Street. Ely, Minnesota 55731 Dear Ms Fay, Mr Westlake, Mr Bruner, Mr Jimenez, Thank you for the opportunity to comment on this proposed NorthMetSDEIS mining and land exchange project. My Home is located in Ely and my two tourism recreational businesses are located at 12007 River Point Road in Stony River Township on Birch Lake and the South Kawishiwi River. I am a 3rd generation owner. I have reviewed the SDEIS and have interest in providing comments for the MN DNR, the US Army Corps of Engineers, and the US Forest Service. Comments have also been sent to the EPA. General Comments: The PolyMet North Met Mine proposal SDEIS is filled with flawed data, inaccurate information, omissions of pertinent information and is overwhelming complex by design. It is inappropriately long at 2,169 pages, confusing to read, with many leading and unsubstantiated statements. Details of models used to project pollutant estimates are often lacking and the basic assumptions and data inputs for models inadequate. Lack of evidence-based explanations for key conclusions is problematic. One example is that there are no reasons given why other alternatives that could reduce pollution and impacts on wetlands were not analyzed. Why is that. Taking Our Lake Country and Minnesota's Most Valuable Wetland and Turning It into a Mining District: If approved the PolyMet NorthMet sulfide mine would be the first of many such mines looking to secure a permit in northeastern Minnesota. If permitted, PolyMet NorthMet Mine, along with Twin Metals Minnesota and other such toxic sulfide mines "waiting in the wings" would effectively turn our lakes recreational district into a mining district devoid of a beautiful wilderness landscape, solitude, wildlife, including the iconic moose, clean water, clean air, and peace and quiet. PolyMet's proposed mine is not on the Iron Range.PolyMet's SDEIS states: "The NorthMet Project area, including the Mine Site, Plant Site, and connecting infrastructure, would be in St Louis County, Minnesota, and situated at the eastern end of the Mesabi Iron Range." "That statement is false. The NorthMet Mine Pit would not be on the Iron Range. It would be on the Superior National Forest land approximately six miles from the Plant Site. It would be in the Duluth Complex, where the predominant mineral sulfide is copper-nickel, not iron. PolyMet's Mine Plant (LTV's old taconite plant) is on the Iron Range. The Iron Range is not the Duluth Complex." (Community Voices, February 26, 2014). Other misrepresentations, besides the Minnesota Department of Natural Resources SDEIS, as to where the NorthMet Mine Pit would be located were made in other instances, including the opening statements by DNR Director of Lands and Minerals, Jess Richards, at the February 11, 2014 Minnesota House Environmental, Natural Resources, and Agriculture Finance Committee hearing (financial assurances and PolyMet), and the investment firm, Edison, secured by PolyMet, put the Project on the Iron Range. Again, this is not correct. It is quite evident as to why the NorthMet Mine site has been resoundingly misrepresented as being on the Iron Range, instead on in the Superior National Forest in the dissemina

Alphabetical by sender's first name

james koschak 43572

Lisa Fay, SDEIS Project Manager, MN DNR Kenneth Westlake, US Environmental Protection Agency Region 5 Douglas Bruner, US Army Corps of Engineers Michael Jimenez, US Forest Service-Superior National Forest March 13, 2014 Re: Public Comment submittal: Supplemental Draft Environmental Impact Statement, PolyMet Mining, Inc.- NorthMet Mining Project and Land Exchange E-mail directed to: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us HYPERLINK "mailto:Westlake.Kenneth@epa-gov"Westlake.Kenneth@epa-gov HYPERLINK "mailto:Douglas.W.Bruner@usace.army.mil"Douglas.W.Bruner@usace.army.mil HYPERLINK "mailto:Mjimenez@fs.fed.us"Mjimenez@fs.fed.us From: James Koschak 1329 East Harvey Street. Ely, Minnesota 55731 Dear Ms Fay, Mr Westlake, Mr Bruner, Mr Jimenez, Thank you for the opportunity to comment on this proposed NorthMetSDEIS mining and land exchange project. My Home is located in Ely and my two tourism recreational businesses are located at 12007 River Point Road in Stony River Township on Birch Lake and the South Kawishiwi River. I am a 3rd generation owner. I have reviewed the SDEIS and have interest in providing comments for the MN DNR, the US Army Corps of Engineers, and the US Forest Service. Comments have also been sent to the EPA. General Comments: The PolyMet North Met Mine proposal SDEIS is filled with flawed data, inaccurate information, omissions of pertinent information and is overwhelming complex by design. It is inappropriately long at 2,169 pages, confusing to read, with many leading and unsubstantiated statements. Details of models used to project pollutant estimates are often lacking and the basic assumptions and data inputs for models inadequate. Lack of evidence-based explanations for key conclusions is problematic. One example is that there are no reasons given why other alternatives that could reduce pollution and impacts on wetlands were not analyzed. Why is that. Taking Our Lake Country and Minnesota's Most Valuable Wetland and Turning It into a Mining District: If approved the PolyMet NorthMet sulfide mine would be the first of many such mines looking to secure a permit in northeastern Minnesota. If permitted, PolyMet NorthMet Mine, along with Twin Metals Minnesota and other such toxic sulfide mines "waiting in the wings" would effectively turn our lakes recreational district into a mining district devoid of a beautiful wilderness landscape, solitude, wildlife, including the iconic moose, clean water, clean air, and peace and quiet. PolyMet's proposed mine is not on the Iron Range.PolyMet's SDEIS states: "The NorthMet Project area, including the Mine Site, Plant Site, and connecting infrastructure, would be in St Louis County, Minnesota, and situated at the eastern end of the Mesabi Iron Range." "That statement is false. The NorthMet Mine Pit would not be on the Iron Range. It would be on the Superior National Forest land approximately six miles from the Plant Site. It would be in the Duluth Complex, where the predominant mineral sulfide is copper-nickel, not iron. PolyMet's Mine Plant (LTV's old taconite plant) is on the Iron Range. The Iron Range is not the Duluth Complex." (Community Voices, February 26, 2014). Other misrepresentations, besides the Minnesota Department of Natural Resources SDEIS, as to where the NorthMet Mine Pit would be located were made in other instances, including the opening statements by DNR Director of Lands and Minerals, Jess Richards, at the February 11, 2014 Minnesota House Environmental, Natural Resources, and Agriculture Finance Committee hearing (financial assurances and PolyMet), and the investment firm, Edison, secured by PolyMet, put the Project on the Iron Range. Again, this is not correct. It is quite evident as to why the NorthMet Mine site has been resoundingly misrepresented as being on the Iron Range, instead on in the Superior National Forest in the dissemina

james lindbeck 37326

you people are generally tools of the extraction and consumption industries and if you had any shame, you would recognize that your sad little dark souls are going to suffer in the end. you sicken me

James Lynskey 37290

My husband and I want to express our concern about the poly met operation being planned for northern Mn. Perhaps we should be leaving the minerals in the ground until a safer way of getting it out of the ground. Contaminating our ground water is a high price to pay for a relatively few local jobs. Also, we tax payers should not be the ones to pay for cleanup. thank you for consideration of our concerns. Jane Dietl and Jim Lynskey McGregor, Mn.

40527

We would like to be kept informed about NorthMet Mining Project. Our address is 41916 248th Place McGregor Min. 55760- Thank you. Jane Dietl and James Lynskey _____ From: NorthMetSDEIS.dnr@state.mn.us To: jameslynskey@outlook-com Subject: RE: polymet Date: Sat, 1 Mar 2014 19:13:34 +0000 Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

James M. Hagen 44976

Dear Reviewers: The EIS should state how the mine's production will be transported to customers. Whether by rail, ship, truck, or pipeline, the method and route of shipment is important as shipping corridors may be greatly impacted by an increase and concentration of shipping traffic along the corridors to be used. Thank you. James M. Hagen 3817 47th Avenue South Minneapolis, Minnesota 55406 jamesmhagen@yahoo-com

james mccluskey 709

I understand the implications of a project like the new mining project. I live in Bigfork Minnesota and have for years. The DNR is not a very good steward of our natural resources and systematically is destroying our forests with logging and power sport trails, wildlife with the wolf hunt and now destruction of the ground itself with this purposed mining project. I guess giving the reigns to a entity that needs money from natural resources to grow and survive was our fault, but you have to live with it. I vote no on any new "management" of our natural resources. You should protect, not destroy. Jim McCluskey 55107 Owen lake road Bigfork, MN 56628 218 743 6720

19979

I want to go on record as opposing the mine operations as a citizen of this state. I will not go into detail, but as a Minnesotan and a person who loves our public lands, I think we should protect them at all costs and stop the progress of this mine. Think of our kids. lets not destroy another piece of this great land. Jim McCluskey 55107 Owen lake road Bigfork, MN 56628

James Mcveety 16271

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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James Melander 57165

Minnesota law required mined out areas to be left “maintenance free.” The EIS statement explains that the mined out area will required 500 years of maintenance and water treatment. It is obvious that we do not have the technology to do this project safely.James Melander616 West 5th StreetDuluth, MN 55806

James Moran 6083

Department of Natural Resources: I, James Moran, support PolyMet Mining and believe they will build and operate a mine that complies with all regulations and protects the environment. I also trust the multiple State and Federal Agencies involved in preparing this document. Where can an Iron Ranger getting out of school get a job. Especially one that will support a family. I am a native of the iron range and would like the opportunity to stay, work and raise a family in Northern Minnesota. As a person who lives, works and plays in the area, I understand the need to balance use of resources like minerals and preservation of resources such as water and air. I feel this SDEIS lays the proper groundwork for developing an environmentally and economically sustainable project and I wholeheartedly support it. Sincerely James D. Moran P.E. James Moran 1107 NW 2nd Ave Grand Rapids, Minnesota 55744 The views and opinions expressed in this message my own. I am solely and individually responsible for the content. This is not intended to represent or reflect anyone else’s views or opinions, including those of my employer, ALLETE, Inc.

James Nessa 54770

See attachment

James Nygard 54509

See attachment

James P. Bremer 36682

To who it may concern: With respect to the PolMet project, as a citizen of Minnesota, I personally believe this project should be allowed to leave absolutely no pollution. Whatever is used in the process and whatever is a result of this process should leave no effect on the environment. Therefore to insure that this happens, if the project is approved, a fund should be created as the mining is done to reverse any harm to the environment. JPB James P. Bremer 16015 46th Ave N Plymouth, MN 55446 Phone: 612-750-2370 jim.jpbv@comcaStnet Confidentiality Notice This e-mail document and any documents accompanying this transmission contain CONFIDENTIAL INFORMATION belonging to the sender, which is legally privileged, and only for the use of the intended recipient. If you are not the intended recipient or the employee/agent responsible for delivery of this message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. You are requested to notify me immediately by telephone (612-750-2370) and to destroy this message and any attachments. Any unauthorized use of the information contained in this transmission is strictly prohibited. Thank you for your cooperation.

James Poole 57241

I believe that any mining company that is moved to Minnesota [ILLEGIBLE] should be faced to escrow any and all cleanup costs paying forward/or 500 years. This should be done in the forms of a 100 million dollar fund that advances by 10% each year starting with the first day of production. If they don’t need to do any damage, then after 500 years the company gets the money. This should be a sure thing for them if it really is as clean as they say.James Poole10641 Hwy 37Hibbing, MN 55746

James R Bester 57203

If this mine pollutes Birch Lake and the Kawishiwi River it flows right into the BWCA and up through Canada. If it pollutes the Cloquet and St. Louis River it flows into Lake Superior. Has anyone thought to ask the citizens of Canada and the Great Lakes states what they think of this acid mining? Let’s hear what their thoughts are.James R. Bester6413 Petre StDuluth, MN 55807

Alphabetical by sender's first name

James Rodriguez 44302

To the Department of Natural Resources, Please oppose the Polymet mining proposal. Sulfide mining produces toxic waste that could irreversibly damage Minnesota's fragile lakes, rivers and natural resources. This is not our grandparents' iron mining — sulfide mining has never been done in Minnesota. While iron mines have significant environmental challenges of their own, the sulfuric acid that is produced with sulfide mining makes it particularly difficult to avoid polluting nearby lakes, streams and ground water. Thank you, James Rodriguez 1919 5th St NE #1 Minneapolis, MN 55418

James Rolfe 57150

Thank you for the opportunity to comment. I strongly oppose sulfide mining in Northeastern Minnesota. In my opinion, the long term consequences and the potential for irreversible damage far outweigh any short-term gain. It's an enormous risk to this area, the country and the planet.James Rolfe6252 Heritage RoadDuluth, MN 55804

James Russell 39698

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr James Russell 805 Hidden Ln Excelsior, MN 55331-1916 (952) 474-9052

James Schulzetenberg 36539

Dear Ms Fay, Dear Miss Fay, Federal and State Agency Leaders: Please reject the PolyMet SDEIS and deny the section 404 permits that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. The SDIEIS admits that PolyMet's sulfide mine will directly destroy over 900 acres of wetlands by blasting pits, and creating huge mounds of waste rock, along with other wetland destruction. The SDEIS also states that an additional 7,350 acres or more of wetlands could be destroyed because of air and water pollution resulting from taking water from the mine site to the tailings pile and changing the water patterns at the existing old LTV tailings site. However, according to the SDEIS, PolyMet will only have to replace about 27 acres, not the full amount of 7,350 acres. Given the history of the indirect effects of mining on wetlands, PolyMet should be required to come up with wetlands replacement in advance for all likely wetlands losses. Again, please reject the PolyMet SDEIS and deny the section 404 permits that would allow this open-pit sulfide mine to harm Minnesota's fresh water. Thank you. Sincerely, James Schulzetenberg 4117 W 8th Street Duluth MN 55807 James Schulzetenberg 4117 West 8th Street Duluth, MN 55807

Alphabetical by sender's first name

James Stout 43053

Feb.4, 2014 Dear Mr. Dabney, My name is James Stout. I am a recently retired professor of Earth Sciences at the University of Minnesota, Twin Cities campus. In addition to teaching both undergraduate and graduate courses for over 41 years, several of my PhD students have gone on to work in the mining industry. One of them, Drummond Earley (PhD 1991) is a specialist in sulfide mining remediation and now is employed as a regional hydrogeochemst with Barrack Gold Corporation. I have maintained close contact with him over the years, and along with input from dozens of colleagues elsewhere in the profession, I believe I have a well-informed opinion regarding both sides of the Polymet sulfide mining debate in northern Minnesota. First and foremost sulfide mining is a dirty activity. It's just inherent to the business. In every operation I am aware of, there is or has been significant environmental pollution. The negative impacts of sulfide mining on the quality of water, air, soil and plant life are exceptionally well documented in the literature. All14 of the currently active sulfide mines in the U.S. have suffered some level of environmental damage with remediation costs in some cases amounting to many millions of dollars (Gestring, B., 2012, www.earthworksaction.org/files/publications /Porphyry_ Copper_ Mines_ Track-Record. pdf). Last Wednesday evening I attended the third Public Hearing in St. Paul on the Polymet proposal. Speaker after speaker on the pro-mining side spoke about how clean the proposed mining operation will be. That promise flies in the face of a very large body of data that shows otherwise. It is noteworthy that all of the currently operating sulfide mines in the U.S. went through an EIS process where "promises" of no pollution were made. All have failed to some degree. In my view, it not a matter of "if' we are going to see environmental pollution in the proposed Polymet operation, but rather "when" it will be. The second and final point I would like to make has to do with a parallel debate concerning the Pebble Mine proposal in Alaska. If developed, the Pebble Mine will easily become the largest open-pit sulfide mine in North America. At risk is the inevitable negative impact the mine and its auxiliary components will have on the native salmon fishery that is so unique to the area and so vital to commercial and sport fishing. The parallel risk in Minnesota will be to the flourishing recreation industry centered on the BWCA and Superior National Forest. The economic benefits of this use of our resource is guaranteed in perpetuity in contrast to proposed mining operations in that area. I believe strongly that mining is not the best use of our resources in N. Minnesota. Thank you for your attention James H. Stout

James Thompson 52440

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, James Thompson 8905 Little Horse Ave Las Vegas, NV 89143

Alphabetical by sender's first name

James Vental 39743

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Why do you want to do sulfide mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, James Vental 13 Spring Farm Ln Saint Paul, MN 55127-2145 (612) 916-1654

48885

Mar 10, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Why do you want to do sulfide mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, James Vental 13 Spring Farm Ln Saint Paul, MN 55127-2145 (612) 916-1654

James Vigliotti 38983

Hello. I would like to comment that a federal-level review should be done of the proposed PolyMet mine's SDEIS particularly regarding the incorrect maps as seen on http://www.bwcasulfidemining-org/mine-site-drainage-to-bwca/ . My name is James Robert Vigliotti. My mailing address is 999 Smith Ave S. Apartment 1 West Saint Paul, MN 55118

James Voita 58186

My name is James D. Voita, V-O-I-T-A, Afton, Minnesota and Finland, Minnesota. We use the North Shore for cabin, recreation and fishing, swimming and we're very concerned about the long-term water quality and the fact that this process has never been done anyplace in the world, successfully, and that there's still visible damage from copper mines that King Solomon used centuries ago. We're also on the Sierra -- Sierra Club board.

James W Larson 54867

See attachment

James Watson 18113

My name is James Watson. First off, I would like to thank everybody for showing up here. I'm just a grunt who worked at the mines like so many other people here. Friends that I worked with, friends that I haven't worked with. And I've seen firsthand some of the work that PolyMet does. Maybe not firsthand but second, third, fourth hand. They're pretty diligent in their research. Rightfully so, because I suppose they're told they have to do it that way. But they seem sincere in the way they go about it. I would also like to thank the whole team of PolyMet for taking part in this, giving us the opportunity to push it along. Also at the same time I would like to thank all the people here taking a part of this to make sure that it is done right. And it sure looks to me like it's done right. There's no reason in my opinion as why we can't get along with all our environmentalists. We have seen tonight so far the wild rice thing. Sort of a homemade expert on wild rice. Doesn't sound like it's a big problem. (Inaudible) something bad shows up for wild rice, it's going to show up quick. All the experimentation that PolyMet has done in the last eight, nine, ten years you have to see it to believe it is actually done. It is a good thing we have some investors that are willing to take a chance on a venture like this. I am 100 percent for PolyMet in that we need jobs. We have so many of our young people that have left the area. Young families have left because there's no livelihood for them here. There's no one with family that I can think of that is capable of supporting a family on $10-an-hour wage. It looks like PolyMet is going to be one good payer of good wages and benefits. They already have a facility that is pretty much already built. There's modifications to do, of course. But that is all laying out already what they're going to do if this is approved. So I think PolyMet needs to go forward so we don't wind up with a whole bunch of ghosts towns on the Iron Range.

Jami Halder 42613

See attachment

Alphabetical by sender's first name

Jami Halder 57352

My concern is the pollution spreading much farther than the localized area and, you know, affecting more people than it is saying it is going to. With the quality of water and its going down the seeded area, the watershed, the St. Louis watershed, my concern is that we will all be affected and that watershed will come down and affect my gardening, and all of that stuff. So, I don't know. That's my comment. That's my concern. It is the polluted water spreading further than they are saying it is going to. That is my concern. Thank you so much.

Jamie Bartzen 38038

DNR representatives This a NO vote for the PolyMet mining proposed for northern Minnesota. Please do not give approval to them, too much is'unknown'. Our resources must be protected at all costs. Thank you Jamie Bartzen Sent from my iPhone

Jamie Fillmore 40278

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Jamie Fillmore 18770 SW Lisa Court Beaverton, OR 97006 US

Alphabetical by sender's first name

Jamie Greer 40370

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Jamie Greer 10 Highland place West Orange, NJ 07052 US

Jamie Ireland 39367

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Jamie Ireland 317 Victory Ave Sartell, MN 56377-4625 (320) 420-4670

Alphabetical by sender's first name

Jamie LeDent 40316

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Jamie LeDent 2185 Chatsworth San Diego, CA 92107 US

Jamison Tessneer 43744

To whom it may concern: I raise several concerns with the proposed project, but most of the concerns have been raised at public hearings. One concern that has not been addressed is the adequacy of Minnesota law to protect landowners that could potentially have their land polluted by sulfide mines. The Minnesota Environmental Rights Act exempts permitted projects like the Northmet project from private causes of action from landowners whose groundwater or surface water may become contaminated. Will causes of action under public/private nuisance laws give landowners adequate recourse if their property is damaged. Will causes of action couched in theories of negligence or trespass give landowners adequate recourse if their property is damaged.? If we do not know, then what do we tell landowners whose property is contaminated. What recourse will they have against a multinational company that is profiting off the destruction of a private landowner in Minnesota. What if that land is a resort or business and the owner loses business. What recourse will they have. These are all issues that must be considered. Respectfully, Jamison Jamison Tessneer Student | William Mitchell College of Law jamison.tessneer@wmitchell-edu 218-831-4118

Alphabetical by sender's first name

Jan and Jim Porter 18911

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Jan and Jim Porter 26334 Indigo Dr n/a Park Rapids, MN 56470

Alphabetical by sender's first name

Jan and Jim Porter 40075

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Jan Greenfield 43965

Dear DNR, Please support "green" jobs for the unemployed in the Ely area. Give some governmental support to MORE solar energy; more wind energy; these jobs pay better and they look to the future, not the paSt The days of digging up the earth for quick-term gain should be OVER. There's NO CONTEST between a few short-term jobs and the 500-year-predicted clean-up schedule for Minnesota's blessed natural resources. DO NOT ALLOW POLYMET to destroy Minnesota's fabulous, beauteous environment. Sincerely, Jan Greenfield 1793 Rome Ave St Paul, MN 55116

Alphabetical by sender's first name

Jan Kaeter 43694

Dear Ms Fay, Dear Lisa Fay I'm writing in regards to the PolyMet SDEIS. It appears that the study is flawed. It does not make any sense to allow a mine that will only be open for 20 years that will require 500 years of clean up. PolyMet is only a shell company and will file bankruptcy as soon as the minerals are extracted, then it will be up to the tax payer to pay for the clean up costs. They say reverse osmosis is their plan to clean up the waste, they estimate it will cost 6 million dollars per year: If the clean up lasts 500 years we are looking at 3 billion and that is not including inflation, PolyMet must agrees to put up 3 billion dollars + inflation up front to protect us the tax payers. I also do not agree with the wetland swaps the current wetland, draining wetland in one part of the state and digging a pothole in another does not replace a wetland and it's value to a watershed and the wildlife that depends on it. And speaking of wildlife our moose population has been stressed and been in decline in the last decade, we can ill afford to remove any more habitat from it's range. There is no way I can see that they can totally seal off the waste in our water rich environment when sulfide based mining in the drier western states have all ended up being environment disasters requiring us the tax payer to clean up the mess. The potential cost to Minnesota tax payers and the natural environment is just to high and the SDEIS doesn't address the problems adequately. From what I understand the Minnesota rule 6132-3200 requires all mines to be maintainence free opon closure, and PolyMet doesn't even come close to meeting that rule. Every thing I see PolyMet has a long way to go before we even consider this type of mining in Minnesota and should be turned down. Thankyou for considering my comments. Sincerely Jan Kaeter 28585 Co Rd 2 St Joseph MN 56374 Jan Kaeter 28585 Co Rd 2 St Joseph, MN 56374

Jan Karon 18384

My name is Jan Karon. I'm going on to cede my time to Dean Erickson.

20031

Hello, I have a number of concerns that lead me to question the wisdom of granting Polymet a permit to mine in northern Minnesota. The length of time Polymet itself says the toxic waste will have to be monitored - 200-500 years, violates current Minnesota law requiring such waste to be permanently disposed of before an operation closes. It is simply immpossible for Polymet to meet the letter of this law. Is making an exception a wise precident. Second, the logic of the safety of monitoring for such an unheard of long time eludes me. Mining companies simply do not last that long; most companies do not last that long. Who will monitor the toxic waste when Polymet no longer exists. The State of Minnesota at taxpayer expense. Furthermore, how could Polymet possibly give financial assurance for such a long- term operation. The duration of the toxic waste is an amazingly difficult environmental threat. I hope that you will deny the permit and protect our waters, one of Minnesota's greatest treasures. Thank you for considering my concerns. Jan Karon 218-722-7200

Jan Korby 34508

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I'm a lifelong Minnesotan and hope my grandchildren will be able to enjoy Minnesota. I've studied this issue and have not gotten involved yet, knowing the importance of development and increasing jobs for our local economy. However, in my research, I've come to the conclusion we must not allow this mining. Our water will be all that's left because of draught everywhere. Please please do not allow this until there's a more ecologically safe way to mine it. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Jan Korby 609 Pearl St Cloquet, MN 55720-1257

Alphabetical by sender's first name

Jan Mezzenga 15786

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Jan Myers 41838

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Jan Myers Saint Paul, Minnesota

Alphabetical by sender's first name

Jan Myslajek 38734

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Jan Myslajek 14665 -78th Ave N. Maple Grove, MN 55311 (763) 420-7339

38735

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Jan Myslajek 14665 -78th Ave N. Maple Grove, MN 55311 (763) 420-7339

Jan Saecker 7057

Dear Friends, Years ago, I was touring the Peloponnese area of Greece, a mountainous region where it was still possible to experience the sound of silence. But one vast scar cut away an entire section of one mountain, and the tour guide explained that it was caused by an American company mining bauxite for aluminum production. When I returned to the states, everyone was drinking sodas from aluminum cans and throwing the cans away. Very little recycling was happening. If we recycled, there would be no need to tear up pristine landscapes any longer. Recycling is cheaper, brings us more jobs, and logically should be a true conservative's first choice. We really have very little need now for copper and nickel, especially since those metals are available through recycling. What we need is not more mining of copper and nickel, but more clean water preservation. Every life form requires water. There is no life form that requires copper or nickel mining. We also need more natural land preservation. As Mark Twain observed, they're not making land any more. Once a mountain is destroyed, once a great lake is contaminated, once a river is toxic, it is difficult if not impossible to bring it back. Sincerely, Jan Saecker W2771 Circle Drive Markesan WI 53946

Alphabetical by sender's first name

Jan Swart 39537

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. We have seen these promises from mining companies before. There is no way they can avoid damage to our pristine environment in the Lake Superior basin. Period. We ask for our rights, as citizens, to reject these mining proposals. It has no foresight for down the road pollution of the entire basin. Having copper/mineral mining in this area is absolutely ridiculous Sincerely Jan Swart Jan Swart 214 1st Ave Two Harbors, MN 55616 218-834-4051

jan Weber 17048

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: We are proud of our land and water quality in MN and want to keep it great. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I’m also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet’s own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won’t allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, jan Weber 1878 ROBLYN AVE ST PAUL, MN 55104

Alphabetical by sender's first name

jan Weber 50321

Dear Ms Fay, Mr Bruner and Mr Dabney: We are proud of our land and water quality in MN and want to keep it great. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, jan Weber 1878 ROBLYN AVE ST PAUL, MN 55104

Janarose Savit 40368

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Janarose Savit 148A Daly Road East Northport, NY 11731 US

Jane A Dolter 54525

PolyMet needs to be responsible for all clean-up operations—from day one of their operations to eternity plus.

Alphabetical by sender's first name

Jane Ahlf 54142

I do NOT agree with the above statement. Enough!! Do no more harm. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Jane Ament 18281

Jane Ament. My name is Jane Ament, A-M-E-N-T. I live in the Two Harbors/Silver Creek area of Lake County. My home and property is located in the Lake Superior watershed district. This is approximately 45 miles southeast of the proposed PolyMet mining site. As a home and property owner from this area, I have serious concerns about both water and air quality should this mining proceed. Each summer I feed approximately 250 hummingbirds who nest in and around my property. I arrived at this population estimate because they consume 60 ounces of nectar daily from mid-August to early September in preparation for migration. I equate these little birds to the canaries sent into mines in days of yore. They are environmental barometers. If they die from bad drinking water, so will we. It would translate into the loss of many species. My interpretation of this open-pit mining process is that sulfuric acid will then be introduced into the air. These airborne toxins will then travel whichever way the wind blows. Not only will it blow my way, it will also blow to a huge portion, if not all, of the Superior hiking trail. This will poison our air, our earth (topography) and our surface water. This will pose tremendously hazardous health risks to all inhabitants and visitors to the Arrowhead region. It should be noted here that the Arrowhead already suffers from high levels of acid air and rain from industries, both past and present. In summary, I ask two questions. No. 1, can the DNR/PolyMet unequivocally promise me that our drinking water (from underground aquifers) will remain completely safe? No. 2, that our air quality (which also impacts our topography and surface water) will remain safe and not deteriorate if this mining goes forward?

19086

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, JANE AMENT 3000 East Alger Grade Two Harbors, MN 55616 218 834-6055

Alphabetical by sender's first name

Jane Amundson 18292

My name is Jane Amundson, A-M-U-N-D-S-O-N. I am from Northfield, Minnesota. I believe that the mining company needs to prove that this process of cleanup will be safe and effective. They need to put the money upfront for the cleanup, so that we are not expecting that they can have the money for 500 years. So, I just want to say, "Prove it first, that it is safe." That's all.

Jane Armstrong 45105

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I am a concerned citizen, a regular visitor to the BWCA, and the Community Board Chair of one of the YMCA Camps in the Ely area. I am a Professor at the University of Minnesota and regularly read grant proposals and feasibility studies. I have major concerns about the PolyMet NorthMet SDEIS Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I have particular concerns about the unsubstantiated assumptions like the percent of seepage collection at the tailings basin. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science and there has been insufficient time for adequate independent evaluation. One has to look no farther than West Virginia to see the results of industry assurances of "safety". The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. I am very concerned about the potential impact of these threats on the BWCA. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. A number of critical failures have been pointed out in letters from WaterLegacy. I share these concerns. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jane Armstrong 11550 Irish Ave N Stillwater, MN 55082

45106

Dear Ms Fay, Mr Bruner and Mr Dabney: I am a concerned citizen, a regular visitor to the BWCA, and the Community Board Chair of one of the YMCA Camps in the Ely area. I am a Professor at the University of Minnesota and regularly read grant proposals and feasibility studies. I have major concerns about the PolyMet NorthMet SDEIS Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I have particular concerns about the unsubstantiated assumptions like the percent of seepage collection at the tailings basin. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science and there has been insufficient time for adequate independent evaluation. One has to look no farther than West Virginia to see the results of industry assurances of "safety". The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. I am very concerned about the potential impact of these threats on the BWCA. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. A number of critical failures have been pointed out in letters from WaterLegacy. I share these concerns. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jane Armstrong 11550 Irish Ave N Stillwater, MN 55082

Jane B Livingston 54764

See attachment

Alphabetical by sender's first name

Jane Ball 4134

Please do not approve PolyMet's mining project. The gains are temporary; the damage is forever. -PolyMet admits that water pollution by sulfuric acid and heavy metals will last for at least 500 years. -Not all of the polluted water will be captured for treatment. -Annually, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated. -Annually, 5 million gallons of polluted seepage from the mine site will enter groundwater without being treated. -The computer model used by PolyMet may understate the actual pollution impact, because it has been shown to be inaccurate in representing current conditions for water quality around the mine site.

Jane C 39896

March 8, 2014 Dear Minnesota Department of Natural Resources, I have attended two of the meetings regarding the NorthMet copper-nickel-precious metals mining project, and I am deeply concerned about the possibility of a permit to mine being granted to PolyMet. Our only guarantee in this project is that our water will be polluted. There are many questions yet to be answered about this project, and it is unwise to move forward when some extremely important questions and concerns remained unanswered. Some of these are: It is not known what path the toxic seepage will take. Who and what will it affect. Holes in the models. Many of the questions asked of the MDNR at the hearing on February 11, 2014 received a response of “We don’t know” or “The model doesn’t account for that”. It is not enough to only require PolyMet to answer questions that they pose. The MDNR must think through this project and demand answers to every eventuality. Samples of some of these questions are: “ What financial assurance has been guaranteed for industrial accidents, such as a waste water line break, rail car derailment and waste spill” It is not possible to make a realistic financial guarantee reaching out 500 years. We know the pollution will last 500 years, but we don’t know that PolyMet or any of the financial agents will exist in 500 years. It is easy to promise to do something, and easy to not follow through. Do you think they would take the deal if the terms were “You put the money down now, and we promise that in 500 years, PolyMet will be granted a permit to mine”. Is there a safer way to mine. The hurry here is of financial nature only. There will likely be a demand for those metals in future years. If we wait for a safer mining practice to be developed, we could have our cake and eat it too - by getting the metals, and keeping clean water. Remember we may want the metals, but we need clean water. Since the only benefit of this project for Minnesotans is jobs - is there a better way to create 350 jobs that will last 20 years (or how about 350 jobs that will last many more years, or, perhaps 14 jobs that will last 500 years), rather than accept this project that has extremely limited gains for enormous risks. Is this the company you want to go into business with. PolyMet seems disingenuous. One example of this attitude is from the financial assurance hearing on February 11, 2014- PolyMet sent Brad Moore, Executive Vice President to speak for the company at the financial assurance hearing. When asked simple questions about the company’s financial statement, Mr Moore claimed he didn't know about the financial statement, but would be happy to bring the committee’s questions back to the company and get back to them. This was his response to nearly every question from the committee. He also elected not to read his prepared statement for the committee. Mr Moore’s refusal to answer the committee’s questions made a mockery of the committee and the proceedings. He offered no answers, and no statement from PolyMet. PolyMet hid from the questions, and offered no answers or assurances of their own. There is no guarantee on how many years the mine will operate. All the benefit analysis for jobs is based on a 20 year operation of the mine, but that is the maximum number of years of operation. There is nothing to say that the mine won’t shut down earlier. Would you be considering this proposal at all if the projected jobs were only for 5, 10 or 15 years. We are guaranteed, however, of at least 500 years of pollution from the first day of mining. Wetlands cannot be created to be the same diversity of conditions or organisms of the original wetland. A land swap is ill-advised, as the precious wetland cannot be recreated. The water models are flawed and in dispute. They need to be redone. Much of the information I heard at the meetings was alarming, and if the copper/nickel mining project is allowed, our precious natural re

Jane Christensen 43068

My name is Jane Christensen and I live at 1876 Eleanor Ave, St Paul, MN 55116 I disagree with how the current (Supplemental) Draft EIS disregards the concerns of the Fond du Lac and Grand Portage Tribal Governments, the 1854 Treaty Authority, and the Great Lakes Indian Fish and Wildlife Commission (the four formal representatives of tribal interests) relegating those concerns to Appendix C and responding to each concern as a MDO "Major Difference of Opinion." I also ask that the map/ boundaries of the One Hundred Mile Swamp be clarified. Thank you. Jane Christensen

Alphabetical by sender's first name

Jane Clements 40994

I am writing to express my concern over the North Met DEIS, particularly the lack of information concerning the monitoring of the effluent. Minnesota water is going to be more valuable than gold, copper a n d nickel. We have no assurance that this mining operation will contain their run off in safe and long term, non polluting ways. What a terrible legacy you will leave to your community and the state should this be approved.

Jane Eloise Whitledge 57151

PolyMet should not be allowed to get their mine just because they've already spent millions of dollars, any more than a robber should be allowed to ransack your house because he's spent time and money casing the property, and seeing the best way int.Jane Eloise Whitledge1801 E. Superior St, Apt 1Duluth, MN 55812

57156

Someday there is going to be commodity worth more than all the gold on earth: clean water. PolyMet's - and the public's – short-sighted vision on profits overlook our long-term needs. Life cannot survive without water. We can live without gold, copper, nickel. We must look to recycling for our metal needs.Jane Eloise Whitledge1801 E. Superior St, Apt 1Duluth, MN 55812

57157

With clean water sources dwindling the world over, it is very foolish to destroy one of the last remaining large areas of unpolluted water. Scientists predict future wars will be fought over drinking water. Do we really want to destroy a commodity that will be – and I believe really is now – more valuable than gold.Jane Eloise Whitledge1801 E. Superior St, Apt 1Duluth, MN 55812

57158

We can't afford to sell tomorrow for today. We have no right to sell our children's future. PolyMet is about to commit a crime against nature and humanity. They have admitted their mine will leave contaminated water for 500 years!Jane Eloise Whitledge1801 E. Superior St., Apt 1Duluth, MN 55812

57159

If an individual caused our water supply to have to be treated for 200 years, polluting it willfully, we would call him a terrorist and imprison him. PolyMet will be doing exactly the same, and yet will be rewarded with enormous gain, at the public's expense and detriment to health.Jane Eloise Whitledge1801 E. Superior St., Apt 1Duluth, MN 55812

57160

If this mine – God forbid – should be approved, it should not come without a strict "damage deposit" required of PolyMet, to insure that taxpayers will not be burdened with the (very likely – the admitted) clean-up, which will cost in the millions and millions of dollars over centuries!

57161

PolyMet has not clearly stated how they would great our waters to ensure drinkability, safety for fish, wild rice, etc. Or how they will keep treatment facilities in place for 200 years or more, or how they will for them.Jane Eloise Whitledge1801 E. Superior St., Apt 1Duluth, MN 55812

57162

This mine is unconstitutional. Minnesota law clearly states that a mine must be left maintenance-free when closed. PolyMet, meanwhile, says the water, after mining, will have to be treated for at least 200 years! How could anything be less "maintenance-free"?Jane Eloise Whitledge1801 E Superior St, apt 1Duluth, MN 55812

Alphabetical by sender's first name

Jane Eloise Whitledge 57163

We can't afford to sell tomorrow for today. We have no right to sell our children's future. PolyMet is about to commit a crime against nature and humanity. They have admitted their mine will leave contaminated water for 500 years!Jane Eloise Whitledge1801 E. Superior St., Apt 1Duluth, MN 55812

57167

Before the state approves any mining project – such as this sulfide mine proposed by PolyMet – it should be able to point to a mine somewhere in the world where its safety and maintenance-free closure are an example. It cannot.Jane Eloise Whitledge1801 E. Superior St., Apt 1Duluth, MN 55812

Jane Gilbert-Howard 9615

Dear People at the DNR, US Army Corp, and the US Forest Service. Thank you for taking my comments. I do NOT believe the EIS addresses the long-term environment effects of this proposed copper/nickel mine. I have spent time at Killarney, a Canadian provincial park. I have seen first-hand the damage the mine and smelter at Sudbury has done to the environment. The lakes at Killarney are sterile—nothing grows, no fish, the land looks like you are on a planet—only white rocks with no vegetation. This is an area that should look just like Duluth—lots of healthy trees, wonderful lakes full of fish, and lots of vegetation. Sudbury isn't very far away from Lake Superior and Lake Huron—it should look like northern Canada and it doesn't. What a tragedy for PolyMet to put a mining operation so close to the BWCAW—the only remaining wilderness of its type on the planet—especially when the forecast for "handling contaminated water" is estimated to be 200-500 years—OMG how can the permitting agencies even consider such an insult to the environment. I have much faith and trust in the DNR, the US Army Corp and the US Forest Service to make the right decisions to protect our environment for generations to come—by not accepting the EIS and not allowing PolyMet to build this mine. Thank you, Jane C. Gilbert-Howard 8717 Congdon Blvd. Duluth, MN 55804 This St Lukes communication is intended for the use of the person or entity to whom it is addressed and may contain information that is privileged and confidential, the disclosure of which is governed by applicable law. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering it to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this information is prohibited. If you have received this message in error, please notify sender immediately.

Jane H Kulas 54805

See attachment

jane johnson 39232

To whom it may concern: As a resident of Tofte,MN I want to express my grave concern over the possibility of Polymet mining. I do not believe that they will ever be able to prove that there will not be pollution of the waters that are so important to this area. In our current time of climate change, clean water is at a premium and must be preserved at all costs. Jobs are important but cannot take precedence over preserving our clean water resources. There are so many endangered species in this area. So many times in the past we have allowed industry to take priority over preservation. This time lets make a different decision - lets learn from the paSt PLEASE DO NOT APPROVE POLYMETS APPLICATION TO MINE IN THIS AREA.. Jane Johnson PO Box 2303 Tofte,MN 55615

Alphabetical by sender's first name

Jane Koschak 18060

PolyMet's NorthMet project plan is harmful to the Arrowhead, the Superior National Forest, and the Lake Superior Watershed. The SDEIS is inadequate.

There are numerous fallacies in this plan. One being that mining would totally occur on the Iron Range where typically iron and taconite mining have occurred. However, the copper and nickel deposits, which are proposed to be mined, are located within the Duluth Complex, which is not on the Iron Range. Only PolyMet's plant is on The Range, not its proposed NorthMet Mine. The proposed mine site is in the Superior National Forest.

Birch Lake is part of the Duluth Complex Areas and is located in the Superior National forest. Birch Lake would be negatively impacted by this mine plan.

My home and my resort and canoe outfitting businesses that I have owned for 38 years, and which have been in my family since 1944, are located on the north end of Birch Lake, which is a multi-use recreational 20-mile Long Lake. There are resorts, house boat businesses, campgrounds, cabins and homes dotting the shoreline of Birch Lake. There are vast areas of forest, wildlife habitat, treaty-protected resources within the 1854 ceded territory and cultural sites, one being an archeological cultural site of the Laurel people located on my property dating to 500 years before Christ.

Noise and air pollution. Most, if not all, will be impacted and permanently degraded by noise pollution and air pollution from the proposed sulfide mine. I have 1500 plus resort guests each season. And when they boat, fish, canoe, kayak, picnic, and swim on Birch Lake, they do so with the expectation of listening to the loons and watching eagles, fishing in peaceful coves, and picnicking on islands studded with pine trees and a canopy of clean air. Instead with this plan my guests and most who live and recreate on Birch Lake will be receptors for mine noise and air pollution. This is unacceptable.

Why should my businesses and my way of life and the lives and homes of others on Birch Lake be impacted negatively by this sulfide mine plan?

Perception of noise, air, water pollution and degradation of the wilderness land in the minds of the travelers will negatively impact their decision to recreate in the Arrowhead region of Minnesota; therefore, economic loss for tourism.

Figure 5.2-8.2 of the SDEIS illustrates air blast contours from the blasting at the mine site. This documentation is flawed and inaccurate. It does not take into account impacts to residents that do live on Birch Lake near the proposed mine site, to recreational sites to the Birch Lake pine forest just outside of Babbitt with biking and hiking trails, and to the 14 federal camp sites on Birch Lake.

Furthermore there is no mention of the privately owned recreational tourism businesses based on Birch Lake for decades.

There are three resorts, a canoe outfitter, two houseboat businesses, and one campground that will be sound and air receptors of the proposed NorthMet Mine. It only mentions the federal camp area.

It is important to remember that noise and air pollution have no barriers no matter how many charts and tables may be drawn up to state otherwise. Why was documentation related to the aforementioned items not included in the SDEIS?

Wind blown dust particles containing sulfite compounds that are emitted from mining and beneficiation activities could contaminate wetlands, lakes, and streams near the project site and could cause harm to the species of concern that have been found in this area and to animals that depend on these foods or these plants for foods. This comes from the Tribal Cooperating Agency Supporting Intertribal Agency. These wind blown dust particles could be hazardous to human health of those living in the region of the proposed NorthMet. How is the SDEIS going to address this concern?

Alphabetical by sender's first name

Minnesota Environmental Rights Act. The Minnesota Environmental Rights Act 116B.01 says, "The legislature finds and declares that each person is entitled by right to the protection, preservation, and enhancement of air, water, land, and other natural resources located within the state, and that each person has the responsibility to contribute to the protection, preservation, and enhancement thereof."

This environmental rights act gives its citizens to right to protection of our land, our water, our air, and our natural resources.

The SDEIS states that it will not pollute our environment. How can this proposed mine plan move forward when it will degrade and destroy air, water, land, and other resources that are natural resources within our state.

Open-pit mining, heavy metal leaching, and human health. Under the Weeks Act, open-pit mining is not allowed on federal land. But instead of rejecting this proposed mine the United States Forest Service is proposing a land exchange so that their consideration of the surface land is eliminated. These lands and these waters that are proposed to be exchanged to PolyMet by the USFS belong to all the citizens of this country. This is wrong. This is our land, our wetlands, our water. This should not be allowed. Why is the Weeks Act not being enforced?

In return for this possible land exchange with the federal government, PolyMet's proposal would take a portion of our Arrowhead Lake District and the Superior National Forest and turn them into a mining district with the tradeoff of destroying the forested land that belongs to us, perpetual water pollution, and increased human health risks, including increased neurological damage to our children from mercury pollution.

Heavy metal leaching is one of the greatest environmental liabilities associated with mining, especially in pristine environments like the project mine site that have economically and ecologically available natural resources. And that comes from Reclamation Research Group Bozeman, Montana, for USFWS, Anchorage, Alaska. The article is "Acid Mine Drainage and Effects on Fish Health and Ecology," a review 2004.EX.G. how is the SDEIS going to address this environmental liability?

Metal, such as manganese, at the tailings pile will have 15 times more manganese per liter than the limit set by the Minnesota Department of Health to prevent brain damage in infants, children, and adults. There will be an increase of arsenic at the tailings pile by up to 417 percent. An increase in arsenic in Colby Lake drinking water by 38.5 percent, which would increase the risk of cancer for Hoyt Lake residents above the level of concern in Minnesota's cancer risk rule.

How is the SDEIS going to prevent this dire situation to our waters from occurring to preventing human health risks of cancer and other diseases and ailments?

There are no hard-rock surface mines that exist today that can demonstrate that heavy metal leaching can be stopped once it occurs on a large scale. And that documentation comes from EARTHWORKS fact sheet, "Hard Rock Mining Acid Mine Drainage," which is available online at www.earthworksaction.org/PUBS/FS underscoreAMD.PDF.

Mining cannot be permitted if it causes destruction of our natural resources. PolyMet's proposed sulfide mine not only Minnesota's clean water but it threatens public health.

Minnesota Environmental Policy Act. Under the Minnesota Environmental Policy Act 116D.04 subdivision 6. "No state action significantly affecting the quality of the environment shall be allowed nor shall any permit and natural resources management and development be granted where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resources located within the state so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare, and the state's paramount concern for the protection of its air, water, land, and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify this conduct."

The proposed PolyMet plan would seriously degrade the quality of our environment. How will the SDEIS address this?

Perpetual treatment. Minnesota rule 6132.3200 does not allow perpetual treatment. "To receive a permit to mine the permittee must be able to close the mine in such a way

Alphabetical by sender's first name

that is stable, free of hazards, minimizes hydrologic impact and release of substances, and is maintenance free."

A, the PolyMet SDEIS states that long-term -- meaning greater than 500 years at plant site and greater than 200 years at the mine site -- treatment of wastewater is needed, which means the site will not be maintenance tree at closure.

B, 526 acres of lands covered by more than 167 million tons of waste rock would be covered by a plastic sheet and surrounded by a system that would supposedly by collect contaminated seepage. All would require monitoring and maintenance constantly for hundreds of years to fix leaks, repair perforations, and remove deep rooted plants.

C, a mining pit lake would require pumping to prevent the toxic brew of acid and heavy metals from spilling into the nearby Partridge River and the tailings basin pond would require pumping to prevent spillage into the tributary of the Embarrass River.

And finally D, the polluted water collection system, which includes miles of pipes, would require monitoring and maintenance for centuries. This proposed sulfide mine project features requiring perpetual maintenance and monitoring, which is in violation of Minnesota rule 6132.3200 is absurd and unachievable as it requires this to go on for centuries. It should not be allowed. How will the SDEIS attempt to counteract this?

This SDEIS proposal is not in the public's best interest. It is inadequate, contains falsehoods, and omissions related to moose, mercury, and other concerns. The word "moose" does not appear at all in the SDEIS cumulative effects analysis. What is the reason that important concerns related to moose and their habitat and mercury as related to aquatic species and human health were not fully addressed in the SDEIS?

Lastly, nothing in this SDEIS demonstrates that we need the copper or the jobs, which are the big reasons it is being pushed for by the mining boosters. This is totally a bad plan for Minnesota. Therefore, I endorse the no action alternative.

Alphabetical by sender's first name

Jane Koschak 42544

PolyMet's NorthMet project plan is harmful to the Arrowhead, the Superior National Forest, and the Lake Superior Watershed. The SDEIS is inadequate. There are numerous fallacies in this plan, one being that mining would totally occur on the Iron Range, where typically iron and taconite mining have occurred. However, the copper and nickel deposits, which are proposed to be mined, are located within the Duluth Complex, which is not on the Iron Range. Only PolyMet's plant is on the Range, not its proposed NorthMet Mine. The proposed mine site is in the Superior National Forest. Birch Lake is part of the Duluth Complex area and is located in the Superior National Forest. Birch Lake would be negatively impacted by this mine plan. My home, and my resort and canoe outfitting businesses that I have owned for 38 years, and which have been in my family since 1944, are located on the north end of Birch Lake which is a multi-use recreational 20 mile long lake. There are resorts, houseboat businesses, campgrounds; cabins and homes dotting the shoreline of Birch Lake. There are vast areas of forest, wildlife habitat, treaty-protected resources within the 1854 Ceded Territory, and cultural sites, one being an archaeological cultural site of the Laurel people located on my property, dating to 500 years before Christ. Noise and Air Pollution Most if not all, will be impacted and permanently degraded by noise pollution and air pollution from the proposed sulfide mine. I have 1500+ resort guests each season, and when they boat, fish, canoe, kayak, picnic, and swim on Birch Lake, they do so with the expectation of listening to the loons and watching eagles, fishing in peaceful coves, and picnicking on islands studded with pine trees and a canopy of clean air. Instead, with this plan, my guests, and most who live and recreate on Birch Lake, will be receptors for mine noise and air pollution. This is unacceptable. Why should my businesses and my way of life, and the lives and homes of others on Birch Lake be impacted negatively by this sulfide mine plan? Perception of noise, air, water pollution and degradation of the wilderness lands in the minds of the traveler will negatively impact their decision to recreate in the Arrowhead region of Minnesota. Figure 5.2-8.2 of the SDEIS illustrates air blast contours from the blasting at the mine site. This documentation is flawed and inaccurate. It does not take into account impacts to residents that DO live on Birch Lake near the proposed mine site, to recreational sites, to the Birch Lake Pine Forest, just outside of Babbitt, with biking and hiking trails, and the 14 federal campsites on Birch Lake. Furthermore, there is no mention of the privately owned recreational tourism businesses based on Birch Lake for decades (3 resorts, a canoe outfitter, two houseboat businesses, and one campground) that will be sound and air receptors of the proposed NorthMet Mine. It only mentions the federal campground area. It is important to remember, that noise and air pollution have no barriers, not matter how many charts and tables may be drawn up to state otherwise. Why was documentation related to the aforementioned items not included in the SDEIS? Wind-blown dust particles containing sulfate compounds that are emitted from mining and beneficiation activities could contaminate wetlands, lakes, and streams near the project site and could cause harm to the Species of Concern that have been found in this area and to animals that depend on these plants for food. (Tribal cooperating agencies and supporting intertribal agencies). These wind-blown dust particles could be hazardous to human health of those living in the region of the proposed NorthMet Mine. How is the SDEIS going to address this concern? Minnesota Environmental Rights Act MN Environmental Rights Act 116B.01 says: The legislature finds and declares that each person is entitled by right to the protection, preservation, and enhancement of air, water, land, and ot

Alphabetical by sender's first name

Jane Koschak 44049

Mar 13, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining is a toxic threat to Minnesota's Lake District. This type of mining has never been done anywhere in the US without horrific water pollution results. The EPA calls hard rock mining the most toxic polluter. Where is the common sense in thinking that this type of destructive mining could be done in the water-rich environment of northeastern Minnesota. 1- Permanent Water Pollution. Not only will there be 500 years, or basically into perpetuity, of water pollution from sulfuric acid and heavy metals, as indicated by PMet's own DEIS, but in addition, not all of the polluted water will be captured for treatment. This is what PolyMet calls "minimizing the water pollution" in their marketing rhetoric. Some 11 million gallons, annually, of polluted seepage from the tailings basin will enter our groundwater without treatment. And, further some 5 million gallons of polluted seepage from the mine site will enter groundwater without being treated. Think of it this way .Flush your toilet 9 times, and the waste goes where it is supposed to, but for the 10th flush, the polluted and toxic waste flows directly into the ground by your home, or into the water in a nearby lake, or into your neighbor's yaRd What would be the long-term effects of the release of this untreated water to your health, your neighbor's health, and the health of the land and nearby lake. What kind of plan is this. PolyMet's computer model may actually understate the actual pollution impacts, because it has been shown to be inaccurate in representing current conditions for water quality by the mine site. Irresponsible and inadequate. 2- No Plan for Accidents and Failures. PolyMet's water treatment system provides no details for what happens in the event of catastrophic accidents or failure of the system to operate over the 500+ years during which polluted water is being discharged. Daily operations are planned to treat some 6-2 million gallons of polluted water daily. Broken pipes, tailings basins failures, human error causing accidents, and more are inevitable. Just look at the recent news for West Virginia, for North Dakota. There is always some type of accident whereby pollutants run off into the ground and waters. This mine plan is designed for a 100 year storm and given climate change this design is lacking, at beSt Scientific studies suggest that this facility must be designed for the 500-year storm, because the 1980's 500-year storm is now occurring almost as often as the 100-year storm. The SDEIS provides no assurance or details on the impacts to water quality, wildlife or human health if the treatment system fails or if there is a breakdown, which is inevitable. Irresponsible and inadequate. 3- Lack of information regarding mercury contamination of fish and ultimately methymercury in humans. This area, home to 6 operating taconite mines, already has an alarming concentration of mercury and other pollutants far exceeding the regulatory standards. Every one of our taconite plants is presently operating under variances with basically a "permit to pollute." Minntac's, which is operating on a wastewater discharge permit that was issued in 1987, despite the Clean Water Act requirement that permits be reviewed and renewed with updates every five years. Minntac's pollution of nearby water with sulfate concentrations are up to 60 times higher than state limits, are linked to mercury contamination and are toxic in fish and wild rice. In the 2011 MN Dept of Health's study, 10% of our newborns tested in the Lake Superior Basin had toxic levels of mercury in their blood, from pregnant mother's eating mercury-laden fish. The answer: eat less fish, rather than enforcement of standards for mercury, sulfates, and water hardness. I have no level of confidence that our so-called st

Alphabetical by sender's first name

Jane Koschak 44201

Mar 13, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, PolyMet would also destroy thousands of acres of very high-quality, irreplaceable wetlands, (the largest destruction of wetlands in the state of Minnesota). To create the Mine Site, our public lands within the Superior National Forest of Minnesota would be traded by the US Forest Service for lands in Cook, St Louis, and Lake County that are non-contiguous with a fraction of the value of the lands we, the people, would be virtually giving away to PolyMet Corporation for their Mine Site. These wetlands are in an area identified by Minnesota as having "high biodiversity significance," the highest state ranking. The US Environmental Protection Agency agrees, calling these wetlands, "aquatic resources of national importance." These are large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of waste water. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for multiple sulfide mining companies, "waiting in the wings", that would endanger the Boundary Waters Canoe Area Wilderness (BWCAW). My family and I have lived on Birch Lake and the South Kawishiwi River for the past 38 years, adjacent to the the BWCAW. We have two tourism recreational businesses (resort and canoe outfitting). We are threatened by the advent of turning our Lake District into a Mining District .from turning a vibrant Wilderness area into a dead and barren Minefield of toxic destruction, not only to the landscape, but to our most valuable resource .our WATER. For all these reasons, and many others, I urge you to reject the PolyMet SDEIS. It is inadequate and is harmful to the Arrowhead Region, the Superior National Forest, and the Lake Superior Watershed. It is not in the Public Interest to allow this plan to proceed. The No Action Alternative should be used. Sincerely, Mrs Jane Koschak PO Box 397 Ely, MN 55731-0397

Alphabetical by sender's first name

Jane Koschak 45295

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Forty six doctors, nurses, and other health-care professionals sent a letter on March 11, 2014, asking the MN DNR to declare that the environmental review of the proposed PolyMet sulfide mine as inadequate, and justly so. There simply is not enough information about possible human health effects of air and water pollution, particularly sulfate, manganese and mercury. Methyl mercury is linked to mental-health problems, lowered intelligence, behavior and memory probleMs Ten percent of babies born in the Lake Superior Basin are born with mercury in their bloodstreams, according to the MN Department of Health report of 2012- (Analysis of PloyMet impacts is inadequate, letter to DNR says, By Stephanie Hemphill, MinnPost, March 11, 2014-) Pregnant mothers eating fish is linked to the high levels of mercury in newborns. After the alarming MDH study, did our agencies hold any Minnesota industry in any way accountable for contaminating our waters. Did any industry scramble to fix its toxic releases to help protect Minnesota's children. No. Industry claims it is not "economically feasible" or "cost effective." Women are told they should make better decisions about the fish they eat, ironically told they can "choose." I presented this same information, along with other facts related to health issues and mining, as outlined in the paragraph below, to the St Louis County Board in the fall of 2012- Not only was the Board present, but so were Representative Dill and Rukavina. Health concerns released by the MDH in 2012, and reported in the Hometown Focus: According to the MDH, compared to all rural regions of the state, northeastern Minnesota has the highest rate for "asthma hospitalization and emergency department visits, the highest Alzheimer's rate over age 65, the highest mortality rates for cancer, heart disease, and diabetes; and the highest overall mortality rate." The fact that there are six operating taconite mines on Minnesota's Iron Range surely has something to do with these serious health risks for those of us who live here. But, the pro-mining St Louis County Board and the Representatives, who only wanted to postulate upon jobs that the new era of sulfide mining would provide, and promote their agenda regarding the school trust fund had no comments regarding workers or public health on the Range. In 2007, the mayor of Hoyt Lakes reportedly testified at a hearing, "We're used to mercury here." Really. Acceptance of whatever a corporation does to our children, just the cost of doing business. Unacceptable. Since 2004 all modern taconite mines have violations and fines, not adherence. The long closed Dunka Mine on Birch Lake may have qualified as a Superfund site. Instead it was given variances allowing it to be non-compliant for decades; releasing high levels of sulfates and heavy metals particularly nickel, to our waters. Nickel is a genotoxin, carcin

Alphabetical by sender's first name

Jane Koschak 48498

Mar 13, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining is a toxic threat to Minnesota's Lake District. This type of mining has never been done anywhere in the US without horrific water pollution results. The EPA calls hard rock mining the most toxic polluter. Where is the common sense in thinking that this type of destructive mining could be done in the water-rich environment of northeastern Minnesota. 1- Permanent Water Pollution. Not only will there be 500 years, or basically into perpetuity, of water pollution from sulfuric acid and heavy metals, as indicated by PMet's own DEIS, but in addition, not all of the polluted water will be captured for treatment. This is what PolyMet calls "minimizing the water pollution" in their marketing rhetoric. Some 11 million gallons, annually, of polluted seepage from the tailings basin will enter our groundwater without treatment. And, further some 5 million gallons of polluted seepage from the mine site will enter groundwater without being treated. Think of it this way .Flush your toilet 9 times, and the waste goes where it is supposed to, but for the 10th flush, the polluted and toxic waste flows directly into the ground by your home, or into the water in a nearby lake, or into your neighbor's yaRd What would be the long-term effects of the release of this untreated water to your health, your neighbor's health, and the health of the land and nearby lake. What kind of plan is this. PolyMet's computer model may actually understate the actual pollution impacts, because it has been shown to be inaccurate in representing current conditions for water quality by the mine site. Irresponsible and inadequate. 2- No Plan for Accidents and Failures. PolyMet's water treatment system provides no details for what happens in the event of catastrophic accidents or failure of the system to operate over the 500+ years during which polluted water is being discharged. Daily operations are planned to treat some 6-2 million gallons of polluted water daily. Broken pipes, tailings basins failures, human error causing accidents, and more are inevitable. Just look at the recent news for West Virginia, for North Dakota. There is always some type of accident whereby pollutants run off into the ground and waters. This mine plan is designed for a 100 year storm and given climate change this design is lacking, at beSt Scientific studies suggest that this facility must be designed for the 500-year storm, because the 1980's 500-year storm is now occurring almost as often as the 100-year storm. The SDEIS provides no assurance or details on the impacts to water quality, wildlife or human health if the treatment system fails or if there is a breakdown, which is inevitable. Irresponsible and inadequate. 3- Lack of information regarding mercury contamination of fish and ultimately methymercury in humans. This area, home to 6 operating taconite mines, already has an alarming concentration of mercury and other pollutants far exceeding the regulatory standards. Every one of our taconite plants is presently operating under variances with basically a "permit to pollute." Minntac's, which is operating on a wastewater discharge permit that was issued in 1987, despite the Clean Water Act requirement that permits be reviewed and renewed with updates every five years. Minntac's pollution of nearby water with sulfate concentrations are up to 60 times higher than state limits, are linked to mercury contamination and are toxic in fish and wild rice. In the 2011 MN Dept of Health's study, 10% of our newborns tested in the Lake Superior Basin had toxic levels of mercury in their blood, from pregnant mother's eating mercury-laden fish. The answer: eat less fish, rather than enforcement of standards for mercury, sulfates, and water hardness. I have no level of confidence that our so-calle

Jane L Soukup 54834

See attachment

Alphabetical by sender's first name

Jane Livingston 43044

Members of my church's Caring for Creation Committee at Macalester-Plymouth United Church have discussed the proposal for a large scale copper-nickel sulfide mine near the BWCA, to be conducted by PolyMet. We have shared our concerns about the long-term and destructive impacts on this special area of Minnesota. We are concerned about:1. The major loss of wetlands, primarily bogs, that cannot be replaced. The SEIS already makes it clear that wetland "restorations" will not take place in the Lake Superior watershed and are highly unlikely to replace bogs. The wetlands at the site have been rated as "having high wetland quality." How can they possibly be "replaced?"2. Predictions of chemical pollution, not just from sulfate and its acceleration of toxic mercury conversions, but also heavy metals like nickel and aluminum, that kills fish.3. The long term need to clean up water from pollutants, possibly for 200 years. How can that be assured, especially with more mines ready to ask for permits in that area?4. The questionable suggestion that a company, that plans to mine the proposed site for 20 years, could possibly provide "nnancial assurance" to cover the expensive costs of water treatment for 200 years or more into the future. And can such treatment truly control all the sorts of pollutants that will come from the mine site? The SEIS predicts the company will excavate 307 million tons of bedrock in 20 years, at 70,000 tons per day.5. We are concerned that a iot of the proposed PolyMet site area has been designated by MN DNR as "Sites of High Biodiversity Significance" and support eleven state-listed species of plants. Destruction of such an area cannot be rectified, nor justified.We urge our government officials to take courage and SAY NO to this mine and to others waiting in the cue for permits. There are other ways to secure jobs in this fragile and unique area of Minnesota than this. One suggestion is to create metal recycling facilities and hire people to work on recovering the metals we need.Please reject the PolyMet mine. It’s a short term venture with long term harm to MN.

Jane Maltby 41960

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Jane Maltby Chanhassen, Minnesota

Jane Norling 39883

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Jane Norling 5450 Ridgewood Cv Mound, MN 55364-8238 (952) 472-7155

Alphabetical by sender's first name

Jane Norling 40988

Mar 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Jane Norman 54162

Shame on you, representing our water resources and siding with themining companies. Its time you be visionary and care about everyone's future. Water is fast becoming our most important resource. Soon it will be more important than oil or anything else--yes even money. Don't sell your soul! [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

jane piepgras 47417

To Whom it mayconcern: We are property owners near Ely,Mnnesota and enjoy the beautiful waters and serene environs year round at our home there. We write to express out concern regarding the PolyMet Sulfide mine near Babbitt and urge that this project as outlined in the SDEIS not be allowed to proceed. We have read the proposal carefully yet are left with the genuine concern that long term environmental protection expecially for the area waters, can not be assured. Our fears are substantiated by the fact that there is no existing sulfide mine, even the most contemporary such as Flambeau in Wisconsin, which have not ultimately caused leakage of toxic metals and sulfuric acid into the water table and surrounding earth. Northeastern Minnesota's precious natural resources must not be jeopardized for future generations by approval of mining which is based on unproven technology, false premises and self serving promises from an industry with such a terrible track record worldwide. Sinderely, Jane and David G. Piepgras

Alphabetical by sender's first name

Jane Sullivan 43215

Good Day, Please do not let this project move forwaRd The long lasting impact on our beautiful state's environment is NOT worth 300 jobs. Rather, lets create jobs by putting those folks to work on our infrastructure roads; bridges etc I think it is highly unfair for our children to allow this project any ground what so ever. I heard a Woman from WI speak about how just the testing for that site ruined their crops of Wild Rice. I do not trust that they will be able to keep the percentages of sulfite low enough to be dismissed. These are people's lives we are talking about destroying, along with our ground water, if this project is allowed to continue. Hoping you all will make the intelligent decision to tell Poly Met "NO" Yours in solidarity with Clean Water Action. Best, Jane Marie Sullivan 3022 East 35th St Mpls MN 55406 Sr. Interpreter Specialist HYPERLINK "mailto:patty@kisasl-com"jane@kisasl-com 612-840-7600 Trusted Access. Anywhere. Anytime. HYPERLINK "http://www.kisasl-com/"www.kisasl-com

Jane Townsend 16176

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Jane Whitledge 18313

Jane Whiteledge, Duluth. W-H-I-T-L-E-D-G-E. All we need to know about this mining proposal is what PolyMet itself has said, that once the mining is done the water will have to be treated for at least 200 years. The lack of common sense and the stupidity of it all is breathtaking that we even consider following our own water forever. Thank you.

Alphabetical by sender's first name

Jane Whitledge 42695

See attachment

Janet Ackerman 16269

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Janet Anderson 35147

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I have serious and real concerns about the PolyMet Mining Corp. NorthMet mining project Supplemental DEIS. PolyMet's destructive and polluting open pit sulfide mine is NOT good for the public health - also there is loss of wetlands, risks to water quality, harm to wildlife, and cumulative NEGATIVE IMPACTS FROM MINING. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Janet Anderson 2130 N 85th St Wauwatosa, WI 53226-2848 (414) 258-5624

Alphabetical by sender's first name

Janet Bennett 40418

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Janet Bennett 201-w Park Row #207 St Peter, MN 56082 US

Janet Brown 38837

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, As an avid user of the BWCA and the beautiful natural areas of Northern Minnesota, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. I do not believe that PolyMet has proven that they will not contaminate this area forever. Only that they have a lot of money to spend on PR. Too often we see they companies claim that they have taken every precaution, only to find out later that they have cut every corner and we are left with millions or billions in clean up efforts that not only become the burden of the taxpayer, but leave us with a destroyed ecosystem. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Janet Brown 5100 Portland Ave Minneapolis, MN 55417-1748 (612) 750-7210

Janet C Hubbell 54795

See attachment

Janet Deming 47591

Do not let polymet mines happen. Sent from my iPad

Alphabetical by sender's first name

Janet Diehl 40386

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. Do Not allow this The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. Water is needed for Life and is therefore of far more value that all the ore that can be mined. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. No, this should Not be allowed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt This makes me sick. In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Janet Diehl 75 N. Oak Street #312 Platteville, WI 53818 US

Janet Dieterich 10725

We opposed the Poly Met Mining proposal in northern Minnesota. Janet Dieterich

Alphabetical by sender's first name

Janet Donovan Moran 16969

Feb 18, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Janet Draper 42821

See attachment

Alphabetical by sender's first name

Janet Frigstad 16888

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Janet Frigstad 111 Riveness rd Duluth, MN 55811

50202

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Janet Frigstad 111 Riveness rd Duluth, MN 55811

Alphabetical by sender's first name

Janet Green 42885

Attached are my comments on the SDEIS for the PolyMet project. Janet C. Green

Janet Jacobson 15789

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Janet Johnson 44768

I may not be as eloquent as some writers, but I have attended hearings, read much of the Polymet Report and would like to say, 500+ years of treating polluted water, Damages wild rice, Damage deposit detais, Water Data errors, Mercury pollution , Destroys lynx habitat, Tony Hayward and Glencore, Destruction of wetlands, Dirty Energy, No health impact study, Failed to consider alternatives, Tax discrepancies. The first reason alone should be enough to open our eyes and say no. Water is our most precious resource and in a world where potable water is scarce and disappearing why are we endangering one of our last great supplies of clean water (this watershed goes into Lake Superior) for mining that has not proven to be safe and has never before been done in such a wet environment as Northern Minnesota. Sincerely, Janet Eileen Johnson 1823 15th Avenue S Minneapolis, MN 55404

Janet Magree 42646

See attachment

Alphabetical by sender's first name

Janet Neihart 38355

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Here's why I signed: This is beautiful unspoiled area. It needs to stay that way. Sincerely, Janet Neihart Cottage Grove, Minnesota _____ There are now 2071 signatures on this petition. Read reasons why people are signing, and respond to National Audubon Society by clicking here: HYPERLINK "http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89bandutm_source=targetandutm_medium=emailandutm_campaign=signature_on_sponsored_petition"http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89b http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJzaWduYXR1cmVfb25fc3BvbnNvcmVkX3BldGl0aW9uIiwiaWQiOiJ1c2VyXzE2MDAyMTUiLCJjaXR5IjoiU2FuIEZyYW5jaXNjbyIsInN0YXRlIjoiQ0EiLCJ6aXBjb2RlIjoiOTQxMTAiLCJjb3VudHJ5X2NvZGUiOiJVUyIsImluY29tcGxldGVfYWRkcmVzcyI6ZmFsc2UsInNpZ251cF9kYXRlIjoiMjAxMC0wOS0yMyIsImxvZ2luX2NvdW50Ijo5Mzk1LCJ0b3RhbF9hY3Rpb25zIjo0MzAsImNvbm5lY3RlZF90b19mYWNlYm9vaz8iOmZhbHNlLCJzaWdudXBfY29udGV4dCI6ImFjdGlvblBhcnRpY2lwYW50IiwiZGlzdGluY3RfaWQiOiIyMWQ2MmIwMC1iZTVkLTAxMmYtNjg2ZS00MDQwNjBlNzJhYmIiLCJ0b2tlbiI6IjMwYWEyNmExZDZlOTNhZTE1OGRmYmRjMTZiNDkzMzEyIiwidGltZSI6MTM5NDE0MjQ0Mn19andip=1andimg=1 http://email.changemail-org/wf/open.upn=aGGv9wQ398j6-2FWVT4grdXbWUo0w-2FupjjjD-2BeyIkg5XeInLuCEKc3fZdho8GXjxxiplFn6SybU80HWYOLHct2MhHcRv7ksg-2F-2Bt-2BBQdFBpjlx5Se6vWQJAGw3TmamXks5kImDrQDdE0hwbX8Dn5Aqgd4r6yxlwc1Ome-2FbkJrHPCSdv9PliCcC1SM2x9YjC70cnGBitdHcV2-2BL85AG254dyaz0hwXUw3N64airWO40eq-2BdSyezTAjaIp1dXjLZdOulc0R3FZd0DJ-2Fvk7kfHxwQ75SXhr52G24bi7f-2Fziv-2FHlkFHLg20eS5St39boTPk9peG

40394

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Alphabetical by sender's first name

Janet Neihart 41658

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

42465

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Janet Neihart 6751 Geneva Ave S Cottage Grove, MN 55016-1019 (651) 261-3579

Janet Neville 3745

Dec 20, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The health and beauty of our Earth are a priceless legacy that belongs not only to us but to all generations to come. It is our responsibility to see that it is protected. This means practicing the "precautionary principle" when making decisions that can irrevocably damage our planet. It must be proven beyond a shadow of a doubt that sulfide mining will not degrade the environment or tip the ecological balance. It must be proven absolutely safe before any permits are release. Consider it through the eyes of our descendants. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Janet Neville 11742 Mount Curve Rd Eden Prairie, MN 55347-2927 (952) 903-9682

Alphabetical by sender's first name

Janet Neville 51828

Dec 20, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The health and beauty of our Earth are a priceless legacy that belongs not only to us but to all generations to come. It is our responsibility to see that it is protected. This means practicing the "precautionary principle" when making decisions that can irrevocably damage our planet. It must be proven beyond a shadow of a doubt that sulfide mining will not degrade the environment or tip the ecological balance. It must be proven absolutely safe before any permits are release. Consider it through the eyes of our descendants. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Janet Neville 11742 Mount Curve Rd Eden Prairie, MN 55347-2927 (952) 903-9682

Janet Petri 43102

Dear Ms Fay: I understand the appeal of the mining jobs - that would last for only 20 years (.) - but i am very concerned about the effects of the sulfide runoff into the watershed. Northern Minnesota and the BWCA are VERY watery environments. The reverse osmosis water filtration seems pretty cool, but it has not been tested on this scale. What happens when (not if) there is a 10 inch rain on the site. Who will be maintaining the reverse osmosis system in 500 years - 480 years after the mine shuts down. A giant barrier is needed, down to bedrock, to keep the untreated, polluted water from flowing down stream. In 500 years, who will be maintaining this barrier. For that manner, who will be maintaining and funding the barrier in 50 years, or 100- Why not require an underground mine, which would present fewer risks to water resources. What happens when the former LTV Steel.s tailings basin, which was developed in the 1950's, fails after sulfide-bearing tailings are dumped on top of it. The company says that copper prices are not high enough to make underground mining pay. However, I think it is worth it to wait to mine until it can be done right. The copper will still be there. I have seen places polluted with mine tailings. I don't want northern minnesota to go that route. Clean water is essential for life. I oppose the Polymet mine as currently proposed. Sincerely, Janet Petri 209 Manitou St Northfield, MN 55057

Janet Spring 9987

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Janet Spring 1676 Olive St, #6 Bloomington, IN 47401

Alphabetical by sender's first name

Janet Spring 18730

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Janet Spring 1676 Olive St, #6 Bloomington, IN 47401

Alphabetical by sender's first name

Janet Spring 51496

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Janet Werner 43687

Here we have a chance to stop an accident before it happens. Installing a copper-nickel mine near Hoyt Lakes and Babbitt in northeastern Minnesota will result in environmental damage to the clean water in the area. If it doesn't happen in our lifetimes, it will eventually. There are no assurances that it won't. In fact, the people trying to convince us to put the mine in Minnesota are already including in their proposal the funds for a clean up. If that isn't an indictment of the situation, I don't know what is. We have to stop treating this planet that we live on as if we can use it up and move on to the next one. We already know that we have changed the climate with our actions. It's time to be the adults that our ages say we are, buckle down, make the hard decisions and save this planet we call home. Janet Lundquist Werner 7531 Douglas Drive Brooklyn Park, MN. 55443 Sent from my iPad

janets8340@comcast.net 16159

Please, please pay attention to what happened in Spain. You know very well that this will also happen here despite their assurances that it will not. These big companies don't give a darn about us, they just want their profits. Do NOT let them rape and spoil our state. We deserve better. HYPERLINK "mailto:janets8340@comcaStnet"janets8340@comcaStnet _____ From: "Cathy Gagliardi" <patcatgags@COMCAStNET> To: MOU-NET@LISTS.UMN-edu Sent: Thursday, February 20, 2014 1:05:13 AM Subject: [mou-net] Our Water and Copper Mining - GTAC Bill Williams, the man who heads a Hedgefund project to open an alleged open pit mine in the Penokee Range south of the Bad River Ojibwe Reservation in Northern Wisconsin has been indicted. http://wcmcoop-com/2014/02/19/gtacs-bill-williams-indicted-in-spain/ I hope MN looks into this too with the proposed Polymet Mine in the BWCA. If you have comments and/or suggestions regarding MN's Polymet Mine, please send your emails to NorthMetSDEIS.dnr@state.mn.us The wetlands that will be completely wiped out at these proposed mining sites will most definitely affect our wildlife and birds. And what could happen to our aquifer (like Spain) will severely affect us. My apologies this is a bit off-topic - but I felt it newsworthy considering the proposed copper mining sites in both states. Cathy Gagliardi St Paul, MN -- Join or Leave mou-net: http://lists.umn-edu/cgi-bin/wa.SUBED1=mou-net Archives: http://lists.umn-edu/archives/mou-net.html

Alphabetical by sender's first name

Janice Beske 42024

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Janice Beske Minneapolis, Minnesota

Janice Conklin 10045

I am writing to state my strong opposion to proposed sulfide mining. I can't even comprehend that we are considering sulfide mining in this state of 10,000 lakes when the risk of polluting the environment is inevitable. No one has ever done sulfide mining "right". The technology to do so doesn't exiSt Nowhere on the planet has copper-nickle mining been done without destroying water resourses. As we all know mining companies tell untruths to get what they want. Do we actually believe that the mining company has detailed plans for clean up when pollution occurs. And do we actually believe that effective mitigation measures will remain in place for 200 to 500 years. OF COURSE NOT. Sincerely, Janice Conklin Mt Iron, mn

Janice Del Calzo 42049

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Janice Del Calzo Minneapolis, Minnesota

Janice Greenfield 14759

Feb 12, 2014 Ms Lisa Fay MN Dear Ms Fay, The current Supplemental Draft Environmental Impact Statement (SDEIS) is missing some fundamental information - what will be the long-term damage to our water resources and who would pay for this damage The Superior National Forest was established for the purposeful protection of our fabulous Minnesota natural resources. We need to respect this visionary purpose and REJECT the PolyMet sulfide mine proposal. Sincerely, Ms Janice Greenfield Rome Ave St Paul, MN 55116 (651) 698-2400

Alphabetical by sender's first name

Janice Hoeschler 9679

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Janice Hoeschler 31018 Old Mill Road Dresbach, MN 55947

18541

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Alphabetical by sender's first name

Janice Hoeschler 50617

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Janice Hoeschler 31018 Old Mill Road Dresbach, MN 55947

Janice M Koski 57175

If one looks at the mine and all the drawbacks, ruined lakes and rivers forever and short-term jobs. If what this (the mine) has ruined will never come back, and if we step back and really look at our planet and see what's happening we should be ashamed. Also, NO Keystone pipeline, we should have improved the rail line a long time ago! And prevent accidents.Janice M. Koski214 South Blackman AveDuluth, MN 55811

Janice M. Mickow 40749

Please count me as a Minnesota resident OPPOSED to Polymet's proposed abuse of our boundry waters. Thank you, Janice Mickow, 24 14th Avenue, NE, Rochester, MN, 55906 Janice Mickow Mayo Clinic Store Business Office 507-266-5321 FAX 507-266-2721

Janice Myers 58130

I came to this meeting because I am concerned that copper and sulfide nickel mining in MN will cause:1. Polluted water2. Loss of wetlands3. Imports on wildlife4. Climate change – more global warming5. Legacy to our grandchildren will be overlooked6. Loss of clean [ILLEGIBLE] in Boundary WatersLet us: 6 Spend our time and work on alternative energy like solar and wind 7 Give construction workers jobs in environmentally friendly job 8 Respect and protect the earth – not take everything we can from the earth.

Janice Peterson 45781

Recently there was a piece in the news about Minnesota water (GOOD water) shortages in the near future. (Not to mention the water disasters sure to occur in the not-too-distant future in the western and southwestern states.) We should not even have a discussion about messing around with the polymet mining proposals: a stable water future is not a sure thing. It is a mistake to think that mining should trump our Minnesota jewels: clear and pure water. LeRoy and Janice Peterson Slayton MN 55172

Alphabetical by sender's first name

janice tarnow 40172

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Janine Cashman 48185

25 people recently add their names to Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=one_thousand"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota.". That means more than 500 people have signed on. There are now 475 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=one_thousand"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 474- Mia Tornatore Chicago, Illinois 473- Stephanie Shimota St Paul, Minnesota 472- Shana Rubenstein Chicago, Illinois 468- Daly Johnson Lewiston, Maine 467- Mary Jane Brummitt Pueblo, Colorado 466- Charles Brummitt Milwaukee, Wisconsin 465- Martha Mulcahy St Paul, Minnesota 464- Lizz Dean San Antonio, Texas 463- Margaret Boles Kenilworth, Illinois 462- Cara Webster Washington, District Of Columbia 461- Barbara Hogan Des Moines, Iowa 459- Mary Garcia East Lansing, Michigan 458- Deidre Hall Saint Paul, Minnesota 457- Josh Marcus Carmel, California 456- Emily McCarthy wilmette, Illinois 454- Stephanie Cotherman Chicago, Illinois 453- Christine Stott Rockford, Illinois 452- Maggie Miller Cedarburg, Wisconsin 450- Laura Nelson Seattle, Washington 448- Adrienne Testa Chicago, Illinois 446- Taya Beattie Hazelhurst, Wisconsin 444- Mira Ensley-Field Saint Paul, Minnesota 443- Jeffrey Perala-Dewey Saint Paul, Minnesota 442- Jessica Hemmer Saint Cloud, Minnesota 441- david baldus minneapolis, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJvbmVfdGhvdXNhbmQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTMwLCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA4NTYyNjh9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK-2FFh9rF-2F-2FU9VXmvlbaVpGD4UBJ461EGPOD6w-2B5ant61GtrMFBz1UCd3YUx-2B-2B0Az7LmKwQe979kkmnjgyj8nF8sJBhid0sCYMZxYMFh34YvU3xh72x7JP8ejvXuQ61L

Alphabetical by sender's first name

Janis Gerkensmeyer 23335

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Janis Gerkensmeyer 72 Gull Lake Lane Grand Marais, MN 55604

49465

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Janis Gerkensmeyer 72 Gull Lake Lane Grand Marais, MN 55604

Alphabetical by sender's first name

janna piper 40331

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, janna piper po box 15072 portland, OR 97293 US

Jaquelyn Blanco 54175

Hello my name is Jacky. I'm writing this letter because I am AGINSST about the mining. It is really dangerous for the environment, economic and for the world. It has been in the history our history in MN I really love the wilderness that has not been destroyed by mankind. It will pollute our water were gonna have sulfuric acid are PH will go down and kill the animals and insect that actually help the envirement. The world don't need more that's why they invented recycling for we can' do no more harm in the world I gess people just don't get that we have to protect what growns in the world for that we can still be living there so many other places were you can get copper, metal and other minerals pleas don't destroy our home the land of 10 thousand lakes we need our lakes and we need animals. I am AGINSST of WHAT YOUR DOING.

Jared Gertzen 39630

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Jared Gertzen 1742 171st Ave NE Ham Lake, MN 55304-4917

Jared Yakk 54539

Please keep the BWCA as is. 20 years of job creation isn't worth the hundreds of years of disaster this will cause. Use your mind not your wallet.

Alphabetical by sender's first name

Jason Carr 43562

As the father of two young boys who love Minnesota's lakes, rivers, and woods, I encourage the MN DNR to carefully balance the short term benefits and localized economic impact of this mine against its potential long term harm to our state's citizens and brand. I believe that our most valuable natural resources are those that are internalized in our spirits and memories rather than extracted from the land. Thank you for your consideration. Jason Carr 301 Monroe Ave S. Edina, MN 55343

Jason Etten 10295

To Whom It May Concern, I am opposed to the proposed mine development near Babbitt, MN by PolyMet. I have read most of the executive summaries of the most recent study and find them to be smooth and glossy but they carry little serious consideration of the hundreds of years of future care the site will require. Most summary documents mention in a sentence or two about long term care and monitoring. Do we really have a concept of the length of time and the cost involved in this cleanup effort. This could be two to three times longer than this state has been in existence. I hope that there will be more serious consideration of the tremendous potential long-term negative impacts and not count on promises from a company that not only has polluted in other areas but has every reason to sell the State of Minnesota on the untested technologies they propose to corral pollution in our future. Humans have shown little ability to control nature over time. There is no reason to think that PolyMet has figured out how to conquer nature in Northern Minnesota. My grandmother and her family grew up in Tower, MN. I have spent significant time in northern Minnesota and visited several mine sites. I am not opposed to mining as much as mining that destroys the earth where the materials are removed and leaves potential environmental disaster for countless generations after mining ends. Those who argue about the positives this will bring to the economy are looking only at the short term. Twenty years of mine work doesn't even provide jobs for a career for a miner. That would be half a career and then we would be back to start with an environmental disaster waiting to happen. This is not a sustainable or wise way to provide jobs and a future for those living in the Iron Range. Please do not allow this mining project to proceed. Thank you, Jason Etten 2054 Cohansey Blvd Roseville, MN 55113

Jason Finley 5925

Jason Finley. 6670 Vernon Ave S. Unit 111- Edina, MN 55436- Clean water is the most valuable resource we can leave for future generations. Mining creates the possibility to poison a Minnesota water supply. Therefore, mining permits should not be issued. Sent from my iPad

Jason Fisher 7617

After reviewing the information provided by Minnesota's DNR and hearing the comments at the public hearing in Duluth on Thrusday January 16th, I am conviced that PolyMet's NorthMet project can be done in an environmentally friendly manner. The SDEIS is a detailed, independent review; federal, state and tribal agencies shaped the development of the draft EIS, which was written by an independent, third party. I believe this is a sound process. The environmental review process has been lengthy and thorough; the supplemental draft EIS addresses potential environmental impacts and how to mitigate them. The public can be confident that the draft EIS offers regulators the information they need to issue permits so that PolyMet can operate in a way that protects natural resources. Since the closure of LTV the East Range is in need of livable wage jobs. Most people would love to have their childern establish careers close to home and currenlty those opportunities are not available. I support PolyMet and ask for your support on this important economic development opportunity for the people of the Iron Range and all of our great State of Minnesota. Thank you for your concideration, Jason Jason Fisher 4165 Kerr Location Hibbing, Minnesota 55746 The views and opinions expressed in this message my own. I am solely and individually responsible for the content. This is not intended to represent or reflect anyone else’s views or opinions, including those of my employer, ALLETE, Inc.

Alphabetical by sender's first name

Jason George 18180

My name is Dustin Loosbrock. Just so everyone knows, I'm not being paid to be here either. And I'm ceding my time to Jason George. Good evening. My name is Jason George. J-A-S-O-N, G-E-O-R-G-E. I work for the Operating Engineers Local 49. We represent 13,000 heavy-equipment operators in the state of Minnesota, North Dakota, and South Dakota. I'm going to talk for a second about the EIS, which I think we're supposed to kind of direct our comments to. Although I don't hear much of that going on. We support the process that is going on right now with the DNR. We feel like they're doing an excellent job of vetting this project. This public comment period is excellent. It's fantastic to see so many people here passionately advocating one way or the other for this issue. And just really believe in the process. And I think that the process needs to be followed. And when we come to the end of the process and there's a decision, we need to respect that. These folks know what they're doing. The people at the agencies know what they're doing. And I for one trust them to get this right. And I believe that we can get this right. And I believe that we can have these jobs and protect the environment. I know that because my members do that every day. Every day they're working on highway, pipeline. Any kind of industry that we work in these guys over here that build America do it the right way. They know what they're doing. That's right. It's hard for me to believe some of the people that come up here and talk about how there's no way we can do this. It can't be done. I mean I've never heard so much negativity. This is America. We can do anything. Right. We can protect the environment. So I want to dig deeper on jobs. I commented on the process. I think it's a good one. I think we need to dig deeper on jobs. I keep hearing about 300 jobs. Nobody is talking about 2 million construction hours, which is what it's going to take to build this project. That's the same amount of hours by the way that it took to build Target Field. So we're talking about a stadium-sized project in Northern Minnesota that is desperate for jobs. I want to talk about North Dakota. I want to talk about when I go to North Dakota, having union meetings in North Dakota, and everybody I ask to raise their hand who lives in Minnesota. The whole room raises their hand. There's 3,000 49'ers Minnesotans that live here, their family lives here, and they are working in North Dakota right now. My message to you and everybody in this room is: Let's bring them home. Thanks.

Jason Long 15413

Thank you. Look forward to hearing about important updates. Regards, Jason From: *NorthMetSDEIS (DNR) [mailto:NorthMetSDEIS.dnr@state.mn.us] Sent: Sunday, February 09, 2014 2:13 PM To: Jason Long Subject: RE: Please analyze the impact of PolyMet's destruction of moose habitat. Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Jason Loos 21962

To whom it may concern: I fully support the PolyMet project. They have sufficiently addressed the environmental concerns and will provide much needed jobs to the area. Copper and nickel will only grow in demand with the increase in alternative fuel sources. I would rather have these minerals mined in Minnesota where it will be done with oversight than in a third world country with little to no oversight. Jason Loos Jason T. Loos Erik R. Johnson and Associates, Ltd. 505 N. Broadway Ste 206 Fargo, ND 58102 701-280-1901 Direct 701-476-6739 Fax 701-280-1902 This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. It is not intended for transmission to, or receipt by, any unauthorized person. If you have received this email in error please reply to the sender then delete it from your system. The company accepts no liability for any damage caused by any virus transmitted by this email or attachments.

Jason Rabuck 28860

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. This proposed mine threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. It is simply not worth the risk. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. We need to be thinking about recycling, re-using, and reclaiming metals - not sulfide mining The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt This is the people's National Forest and we want to keep it that way. Sincerely, Jason Rabuck W3080 Hay Lake Rd Springbrook, WI 54875-7509 (715) 766-8220

Alphabetical by sender's first name

Jason Wall 37232

Dear DNR Colleagues, Minnesota is an outstanding state for many reasons; the foremost being engaged and involved citizens. Minnesotans have a strong tradition of balancing and ultimately meeting the needs/wants of its diverse citizenry. We have a strong economy, outstanding parks both national and state, many institutions of higher learning and great health care. All of these factors make Minnesota stronger from an economic and environmental standpoint. Minnesota is thriving and there are many reasons why: educational opportunities, employment, quality of life, clean air, clean water and natural beauty. I have spent time time camping and fishing in northern Minnesota every year of my life. I moved to Duluth from Chicago over 10 years ago for graduate school and I have been here ever since. My family has been visiting Lake Vermilion for three generations now. Bottom line, this is a great state, how do we improve from here . Enough of a prologue; I want to express my strong opposition to the copper/nickel mine in Minnesota. My reasons are listed below. 1-) Economics: yes jobs will be created but sustainability will be loSt The preservation of clean water and wilderness will provide a greater economic stimulus to the state and local areas than mining. Mining companies have projected jobs and tax revenue on many occasions only to bow out when the market changes. People will always be drawn to wilderness and Minnesota is a prime example of that draw. Amidst the coldest winter in 139 years tourism in northern Minnesota is thriving because of snowmobile trails, ice fishing, nordic skiing, and the human desire to get outside. A prime example is the The Apostle Islands National Lakeshore sea caves. There has been over 10 million dollars spent by visitors in the darkest days of winter to come see an area that is clean and beautiful. Sustainable development is what will keep minnesota strong and healthy. With respect to health, Minnesota is one of the healthiest and most active states in the union. We are in the top 5- To keep us healthy we need clean air and water, sulfide mining does not meet that goal. Minneapolis and St Paul are vibrant prosperous places to live as compared to other large US metro areas. It is not a coincidence that they are also the most bike friendly urban area in the country and provide plenty of parks and green space to keep there citizens active and living (spending money) in the city versus commuting from a bedroom community like many other urban areas. My town of Duluth is another example; historically mining, timber and shipping put Duluth on the map but higher education, healthcare and tourism will sustain a prosperous Duluth. Duluth is lucky to have trails and is building even more; people come to Duluth both summer and winter to ski, run and mountain bike our trails and it is a rare summer day when our Lakewalk is not crowded with tourists enjoying a cool lake breeze. 2-) Recycle the copper already in our country: We need raw materials to keep our economy strong. There is no question that if we do not supply copper someone else will. My worry is that if we dig a large, likely toxic, hole in our Minnesota backyard and a large multinational firm quickly opens a new copper mine in Chile or Mexico and provides copper at a fraction of the price; our mine is shuttered until the next perceived demand and then what. Once again the sustainability just is not there; we simply cannot out mine other countries with looser environmental laws such as Mexico, Chile and the remote parts of Canada nor would we want to. Our focus should be on reusing and recycling the vast amounts of copper and nickel that are currently in our possession. A robust scrap copper market could be made more mainstream and we would benefit our environment as well. 3-) Accountability: large corporations, especially multinational corporations like Polymet, are often poorly accountable for lingering environmental impacts. St Louis Bay at the western

Jason White 18065

My name is Jason White. I'm here to fully support the PolyMet project. I believe it's a sound environmental project where we can have clean water, clean air, and mining that's responsible and important to the environment.

Alphabetical by sender's first name

Jason Zabokrtsky 20893

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jason Zabokrtsky Ely, MN Jason Zabokrtsky 1246 Wolf Den Dr PO Box 731 Ely, MN 55731

49688

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jason Zabokrtsky Ely, MN Jason Zabokrtsky 1246 Wolf Den Dr PO Box 731 Ely, MN 55731

Alphabetical by sender's first name

Jay & Mary B Newcomb 42707

See attachment

Jay Dregni 19978

_____ From: jdregni@hotmail-com To: dnr@state.mn.us Subject: Copper Nickel Mining Date: Thu, 27 Feb 2014 17:48:25 -0600 To Lisa Fay, EIS Project Manager Dear Lisa Fay, I am writing once again to highlight the gravity of the decision on copper and nickel mining in Minnesota. I can only imagine our children and grandchildren Saying to us something like the following; "what were you thinking in 2014 when you approved nickel and copper mining in Minnesota. Were you thinking at all of the future, our future." Considering the weight of the information and evidence to date, I do not think mining for copper and nickel should go forwaRd Actually the water in our state is truly our treasure - the land of sky blue water. Regards, John Carleton Dregni 921 Bayless Place St Paul, MN 55114 Phone 651 644 2786

20016

Dear Lisa Fay, I am not in favor of copper nickel mining in Minnesota at this time due to lack of environmentally successful mining of this sort, plus the years it might take to rectify the water pollution and environment of our state. If however some level of mining is permitted, the following ideas and conditions must be considered: A. A trust fund with at least two parts; first, a multimillion dollar initial contribution (non refundable), and second an annual addition to the trust fund equal to ten percent of some measure such as revenue, tons of copper/nickel removed, etc B. Sixty percent of the jobs at all levels to be held by Minnesotans, and 90% by US citizens. C. Vertical integration of the mining process and subsequent industrial processes to be conducted in the state of Minnesota. This activity to be considered as an add on only if safe environmental conditions can be put in place. D. Operations management and their families to live in the area. E. No special tax breaks to be provided. Thank you for coordinating this written comment response program. Courage, honesty, foresight and transparency can provide for a good outcome, John Carleton Dregni 921 Bayless Avenue St Paul, MN 55114 Phone 651 644 2786

Alphabetical by sender's first name

Jay Eidem 39468

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. This issue seriously concerns me and my family's future use of the Arrowhead region for recreation; I can't imagine what effect this will have on people that actually live there and have to literally drink the water. My wife and I were seriously considering purchasing land close to the mine site, we will not invest in a future in this area if short-sighted proposals like this threaten the water quality and the environment. Seriously this is the only draw to the northshore and we as Minnesotans should feverishly protect our remaining natural resources. There is no history of sulfide mining in Minnesota, for good reason we should reject proposals like this that threaten our natural resources for little gain for the people of Minnesota. Hundreds of jobs you say, this pales in comparison to the number of jobs that BWCA, Lake superior and its tributaries provide in the form of recreation. Poison the water and poison the future investment in the region. Who will clean up the mess. When Polymet closes their doors, files for bankruptcy and leaves their tailing ponds and rock piles Minnes

Alphabetical by sender's first name

Jay Eidem 48743

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. This issue seriously concerns me and my family's future use of the Arrowhead region for recreation; I can't imagine what effect this will have on people that actually live there and have to literally drink the water. My wife and I were seriously considering purchasing land close to the mine site, we will not invest in a future in this area if short-sighted proposals like this threaten the water quality and the environment. Seriously this is the only draw to the northshore and we as Minnesotans should feverishly protect our remaining natural resources. There is no history of sulfide mining in Minnesota, for good reason we should reject proposals like this that threaten our natural resources for little gain for the people of Minnesota. Hundreds of jobs you say, this pales in comparison to the number of jobs that BWCA, Lake superior and its tributaries provide in the form of recreation. Poison the water and poison the future investment in the region. Who will clean up the mess. When Polymet closes their doors, files for bankruptcy and leaves their tailing ponds and rock piles Minnesotans will pay to

Alphabetical by sender's first name

Jay Haapala 9562

Dear Ms Fay, Mr Bruner and Mr Dabney, Please reject the PolyMet NorthMet SDEIS as an insufficient plan and find the project likely to pollute beyond acceptable levels. Evidence that the plan misrepresents the boundary of wetlands and tributaries flowing into the BWCA and other protected lands needs to be investigated. The plan should include analysis of underlying bedrock and it's ability to protect groundwater from pollution. The Land Exchange proposal is not an equal or fair tradeoff. Potential conflict with the 1854 Treaty with the Chippewa regarding pollution of reservation lands needs to be investigated. Long term pollution mitigation and financial accountability plans are not sufficient. Conflict with the Clean Water Act seems likely. Polymet's actions are deplorable - instead of guaranteeing a clean operation they are engaging in public relations tactics to convince people we should support their operation. They're running ads, hiring "real people" to tell us we need the jobs, we need the copper for wind turbines and platinum rings. We use copper to build nuclear bombs and bullets too, but they're not talking about that. This is not about the products made from minerals. Polymet doesn't care about what their ore is used to manufacture unless it's a convenient story. It is about money and it's about risk. Their tactics and refusal to guarantee a safe operation are enough to tell me we shouldn't move forwaRd At the Saint Paul public forum I sat next to Polymet CEO Jon Cherry and listened to him laugh and scoff while citizens gave testimony on the verge of tears. He and his group looked like foxes in the hen house. It made me sick - first of all I can't believe they were so careless to act that way and second I can't believe these are the people we are doing business with. If they can't even mind their own image in public, how can they mind a mine. If there was a video of how they acted and what they said, this project would be over for good right now. My dad, grandfather and great grandfather were miners along with many other relatives. Many of them died early and some even on-the-job due to unsafe conditions and exposure. Through history, only recently have mining companies been held accountable to acceptable standards even for the safety of their employees. We know that maximum profits and safety are in conflict. The fact that they can't produce an acceptable plan is proof they're already cutting corners. The stakes are higher than they have been in other Minnesota mining projects because technology has increased our ability to damage the environment beyond repair, and the proposal is to mine unsafely in an exceptionally sensitive area. Proponents of this project invoke "The American Way" of progress and industry and say we should charge ahead. If anything, we've learned this old American Way was wrong and so we learned to be more careful with our natural resources. Please delay the permitting process until we are sure that environmental impact within acceptable limits is guaranteed. Jay Haapala 1560 Grand Avenue Saint Paul, MN 55105

Jay Lehman 18099

This is a special treat for me. I am Jay Lehman. I am from Aurora. I am part of a small family business that has been on the range for 30 years. Thank you to the DNR and the federal agencies that are here allowing us to talk about this. Reading through the Supplemental Draft Environmental Impact Study, it is a very complicated and extensive document. I am convinced it takes an experienced environmental engineer versed in permitting to fully understand and appreciate it. I will admit that I'm not one of those people. With that being said, I believe we have to put our trust in the experienced scientists and engineers of the lead agencies to determine if this mining project can be done safely. If this project can meet the environmental and financial requirements, then we must allow PolyMet to move forward with this project. Not doing so would be an injustice to the people in Minnesota, especially here on the Iron Range, as we have one of the world's largest deposits of strategic metals. I believe we have the technology and experience to move forward with this project. Copper-nickel mining has been going on for hundreds of years. We know what the dangers are and we know how to avoid them. Our regulatory agencies are staffed with experienced, competent professionals who are some of the best and brightest that our country has to offer. We need to put our trust in them. We keep hearing that in Minnesota we are going to be trading 20 years' of jobs for 500 years of waste water treatment, or even a thousand years. I would like to ask the DNR to make an official statement as to whether or not this claim of 500 years of required waste water treatment post-closure in the SDEIS is in the SDEIS or is it not? I feel many people aren't sure about this issue. This issue needs to be put to rest in the SDEIS of properly informing the public. The financial risk of moving forward with this project does not lay on the taxpayers' shoulders, it lays on PolyMet's. PolyMet, before mining begins, funds must be set aside to cover the entire cost of the closure and the reclamation. The Minnesota DNR determines the amount to be set aside and the company does not get the funds back until all closure and reclamation is complete. I don't know anybody on the Iron Range who does not care about this project being done right and safe. We care not only for the jobs this project will provide, but we care about protecting the environment as well. This is our backyard. We don't want to damage it. Those saying we need to choose between jobs and environment are presenting a false choice. We can have both. Thanks.

Alphabetical by sender's first name

Jay Newcomb 18362

My name is Jay Newcomb. I'm from Duluth. N-E-W-C-O-M-B. Seems pretty clear to me listening tonight that we would all like to have more jobs on the Iron Range, especially good paying ones. And we also absolutely want to protect our environment. So the real question becomes: Who can make this call? Who can make this decision? Obviously PolyMet is supposed to be the expert in mining. But who can really tell us about the environment and how we need to treat it and live sustainably on it? And even though PolyMet now is using the term "NorthMet," and it sort of sounds like they are from here, they really aren't. The people who can tell us how to live on this plant are the Ojibwe. And they have brought up three bands, the Net Lake, Grand Portage, and Fond du Lac band have drawn up a list of 18 disputes that they have with the EIS. They range from not looking at the possibility of underground mining rather than surface mining, the differences in how wild rice would be affected, groundwater, and the hydraulics. And what I would suggest is that before this mine is considered further or goes forward we need to listen to the people who know how to treat this land the right way and sustainably and resolve all these 18 issues. Thank you.

39471

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, By now you have heard it all: economic arguments for and environmental arguments against the PolyMet mine. The very fact that thousands of people have commented on the SDEIS shows how inadequate it is. We fear for our environment and for the future of our clean water. PolyMet spent its money sponsoring the state high school hockey tournament in a public relations campaign rather than dealing with these real issues. Their job is to make money. Your job is to protect our environment. Jay Newcomb 1230 E 8th St Apt/Suite Duluth, MN 55805 2187246141

48744

Dear Mr Bruner, Ms Fay and Mr Dabney, By now you have heard it all: economic arguments for and environmental arguments against the PolyMet mine. The very fact that thousands of people have commented on the SDEIS shows how inadequate it is. We fear for our environment and for the future of our clean water. PolyMet spent its money sponsoring the state high school hockey tournament in a public relations campaign rather than dealing with these real issues. Their job is to make money. Your job is to protect our environment. Jay Newcomb 1230 E 8th St Apt/Suite Duluth, MN 55805 2187246141

Jay Rich 37880

I'm sending my views on opening the boundary waters for more destructive mining: please don't. They are a unique natural resource that can't be replaced or cleaned. I've enjoyed them repeatedly and would had to see them changed or loSt sincerely Jay Rich 11623 Douglas St Omaha, Nebraska 68l54

Alphabetical by sender's first name

Jay Schaefer 39244

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Jay Strachota 39959

I believe the mine should not be built. I do not believe that PolyMet can safeguard Minnesota's ground water and protect it for 500 years. Further more I believe it should be a requirement that when a mining company finishes mining that the site should be cleaned up and left maintenance free. That's the only possible way taxpayers can be protected and even then PolyMet could default before the end of the mining. We can not strap this clean up burden on future generations who will gain nothing from the efforts after the site is mined. It is beyond basic common sense that any amount of damage deposit is adequate to offset 500 years of water treatment and then depending on a corporation to back it. Corporations by definition are only beholden to their shareholders, not the environment or taxpayers. It is further more beyond belief that people exist who think they can calculate the environmental and financial risks and requirements for possibly 500 years, and others who think they can market the calculations, and still others who want to believe it. Jay Strachota 712 6th Ave S Hopkins, MN 55343

Alphabetical by sender's first name

JAY STROHMAIER 11982

I'm writing to voice my feelings about the potential copper-nickel mine proposed by PolyMet near Hoyt Lakes MN. I live in Minneapolis but spend a tremendous amount of time on the Iron Range. My wife's family grew up on the range, and for the past 60 years have been careful stewards of lake property they've owned near Biwabik since the late 1950's. When I first moved here from Washington State in 1982, my first trip "up north" was to this area. Since then, that is what "up north" has come to mean to me. It is a beautiful and treasured part of our state in fact, a treasured part of our country. We were so entranced with this part of the Iron Range that we purchased our own second home in the area a few years ago, as well. We now spend even more time at our home near Biwabik, and plan to move there when we retire in a few years. The beautiful lakes, bike trails, natural forest, nearby boundary waters, and wonderful people; it is truly a gem - it can't be taken for granted. While I understand and appreciate the economic challenges facing the Iron Range and many other communities around the country, where job growth has been scarce amid an evolving service-centric economy, it seems to me, as an economist by training and an investment manager by profession, that the proposed PolyMet mine represents a grossly sub-optimal trade-off from a risk/return perspective. I understand it could create 350-400 jobs for perhaps a 20 year period; maybe a few more jobs, possibly a few less; maybe a few more years, but perhaps a few less. Commodity prices are volatile and the economic and regulatory environment associated with mining profitability can change quickly and unexpectedly. Even in the best case scenario, we need to carefully consider what we'll be facing 20-25 years from now when the mines close and the cleanup begins. More importantly, what may our grandchildren and great, great grandchildren (and beyond) potentially be facing 100 or 200 or 500 years from now, when the lakes have been contaminated with sulfuric acid and no one even knows what a Walleye is because our lakes don't support any aquatic life anymore. When well water could be tainted and unsafe for drinking. And when the costs associated with the clean-up could overwhelm the ability of local communities (or even the state) to bear the financial burden. For 350 jobs for 20 years. For tax revenue for the state that could pale in comparison to the costs that could be incurred to repair the damage - if that's even possible. I've reviewed much of the research on the efficacy of responsible copper-nickel mining. Reasonable people have argued that there are some cases where it has been conducted and remediated fairly effectively. But there are many more cases, way many more, where both reasonable and unreasonable analysts alike concur that this type of mining has been an unmitigated economic and ecological disaster. Is that a risk we want to take. Is it a risk we need to take. I believe that as a state, we would be better served by creating an economic development program that provides state-of-the-art training to residents of the Iron Range to create long term skills for the economy of the future jobs in technology, medicine, science and the like, with longevities into the next century not just the next 20 years. And the cost of such a program would likely be a fraction, a small fraction, of the present value of the potential liability that the state, and its taxpayers, may ultimately face if the PolyMet project moves forwaRd Finally, I realize that regulators and legislators are working in earnest to ensure that adequate financial assurances can be provided by PolyMet to ensure that potential clean-up expenses will be fully covered. I applaud them for this foresight. But I would also challenge them to ask themselves, "How many companies have been around for 200, 300 or 500 years, with the wherewithal to pay off debts incurred from their business activities centuries earlier." The l

Jay Thacker 38827

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Jay Thacker 4060 Crestview Ln Shoreview, MN 55126-2332 (651) 490-1178

Jaymes G Hubbell 54796

See attachment

Jayne 47693

If we have to put money a side for more then a month then it to harmful to all to move forward , Jayne Sent from my iPhone Jayne.

Alphabetical by sender's first name

Jayne Fingerman Johnson 6451

To: MN DNR As a resident on the edge of of the BWCAW who depends on the tourism industry AND depends on groundwater for my life, according to the PolyMet DEIS: PolyMet would create polluted water requiring expensive treatment for 500 years after they stop mining, and millions of gallons of untreated, polluted water would seep from the site every year into groundwater and nearby rivers. PolyMet's plan fails to plan for contingencies like pipeline breakages and extreme weather events. PolyMet would leave behind a polluted site requiring hundreds of years of monitoring, treatment of polluted water, and site maintenance. PolyMet's mine plan doesn't provide details about how to calculate an adequate damage deposit to protect taxpayers from the cost of 500 years of cleanup and maintenance. Jayne Johnson 52 Black Spruce Trl. Grand Marais, MN 55604

Jayne O'Connor 54510

See attachment

Jayson Pasch 6479

To whom it may concern; I believe that Ploymet is going to be a valuable asset to the surrounding communities. I for one would love to be employed close to home. I live in Gilbert, MN and have a difficult time finding employment close to home. I find that I have no choice but to work up words of 60 miles from home. Currently I work in Le Sueur, MN 4 hours or 250 miles from my wife and five kids. I make it home for 1-2 days every other week. To relocate is not an option. Northern MN is in need of growth, and income. People living on the range take pride in living in a beautiful area, but most people struggle with income and limited options for employment. There are many educated, hardworking people who are just waiting for an opportunity to shine. I understand that not everyone whom applies will be give an opportunity to work for Ployment, but the construction of the facility and other local business will have more work, and be able to employ qualified workers. I would like to see my State and DNR working with Ploymet to overcome the issues and concerns. We have an opportunity for greatness. Ploymet is working hard to overcome every road block that is and has been in the way. I think it's time to join forces, and use the resources we have to make this dream a reality. Sincerely, Jayson Pasch 416 west Michigan Ave Gilbert, MN 55741 Jayson Pasch Electrical/Mechanical Maintenance Technician Hometown BioEnergy 31889 356th St Le Sueur, MN 56058 (218)750-7599 Cell (612)616-0038 Work jayson.pasch@htbe-ls-com

Jean Beccone 20892

I concur with the LWV Minnesota statement that, while we do not oppose sulfide mining,per se, it must be done without polluting our environment. The SDEIS is inadequate; it does not provide any reassurance that this mining will not result in irreparable harm to the watery environment in our Arrowhead. PolyMet's proposed mine threatens our clean water and public health. Jean Beccone 5341 James Ave So. Minneapolis, MN 55419

Jean Bergerson 4716

Submitted by Jean Bergerson 31331 Henselin Road Grand Rapids, MN 55744

Alphabetical by sender's first name

Jean Beyer 40639

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, The citizens of Minnesota are justifiably concerned with protecting our clean water and therefore have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota. I believe that the Supplemental Draft Environmental Impact Statement is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high-quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest, the largest designated Important Bird Area in Minnesota. In addition to direct destruction of habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need likely will lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk, and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. A mere twenty years of mining threatens to result in hundreds of years of water pollution and damage to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Jean Beyer 7413 W 110th St Bloomington, MN 55438-2375 (952) 941-6541

jean brozic 37754

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jean Brozic jean brozic 1227 e. skyline pkwy. duluth, MN 55805

Alphabetical by sender's first name

jean brozic 49553

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jean Brozic jean brozic 1227 e. skyline pkwy. duluth, MN 55805

Alphabetical by sender's first name

Jean Christopherson 19079

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Jean Christopherson 6013 Dublin Cir Edina, MN 55439

Jean Elliott 35344

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's open pit sulfide mine is not in the public intereSt Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. There's no reason to think this won't occur in Minnesota as well. As someone who is downstream from Lake Superior, I want to see that lake kept as clean as possible. Sincerely, Jean Elliott 5151 W Carmen Ave Chicago, IL 60630-2323 (773) 283-5074

Jean Evens 39996

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Jean Evens 3192 Town Road 207 International Falls, MN 56649-9022 (218) 283-4667

Alphabetical by sender's first name

Jean Faley 38962

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Jean Greenwood 9616

Dear DNR personnel, I wish to speak in opposition to the proposed copper-nickel mines in northern Minnesota. I believe that the risks to our environment and our health are too great to warrant our proceeding with this mining venture. Let us not be held hostage by our need and desire to create jobs, so that we resort to short-term thinking, heedless of the long-term consequences. I understand treatment will be required at the mine for 200 years and at the plant site for 500 years. All this for a mine that lasts 20 years, creates few jobs, and puts our land, water, air, health at risk. Please do not grant permission for the PolyMet mining to proceed. Thank you, Jean Greenwood 4515 Garfield Ave Minneapolis, MN 55419

Jean Johnson 57174

Minnesota has clean water and beautiful clean lakes. Why would we permit a company to ruin all our water. They say it will bring more jobs. We need more jobs, but we need clean water to survive. Any mining that will harm our water is not wanted in Minnesota.Jean Johnson3392 Strand RdDuluth, MN 55803

Alphabetical by sender's first name

Jean Lindquist 40364

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Jean Oberle 43120

I am strongly opposed to the Polymet mine project in the Babbitt/Hoyt Lakes area due to the long term environmental ramifications. Jean Oberle 3731South Hills Way Eagan, MN 55123 Sent from my iPad

Alphabetical by sender's first name

Jean Ross 41662

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

42451

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Jean Ross 3624 Bryant Ave S Minneapolis, MN 55409-1018 (612) 824-2080

43101

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Jean Ross 3624 Bryant Avenue S. Minneapolis, MN 55409

Alphabetical by sender's first name

Jean Schramm 42108

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Jean Schramm 850 E River Rd Traverse City, MI 49696-8353

Jean Stephensoon 16286

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Jean Wagenius 54881

See attachment

Alphabetical by sender's first name

Jean Waldt 39379

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Please vote to protect out environment. Jean Waldt Sincerely, Ms Jean Waldt 1992 Hyacinth Ave E Saint Paul, MN 55119-3251

Jean Watson 15985

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Jean Watson 19789

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Jean Watson Red Wing, Minnesota _____ There are now 53 signatures on this petition. Read reasons why people are signing, and respond to National Audubon Society by clicking here: HYPERLINK "http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89bandutm_source=targetandutm_medium=emailandutm_campaign=signature_on_sponsored_petition"http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89b http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJzaWduYXR1cmVfb25fc3BvbnNvcmVkX3BldGl0aW9uIiwiaWQiOiJ1c2VyXzE2MDAyMTUiLCJjaXR5IjoiU2FuIEZyYW5jaXNjbyIsInN0YXRlIjoiQ0EiLCJ6aXBjb2RlIjoiOTQxMTAiLCJjb3VudHJ5X2NvZGUiOiJVUyIsImluY29tcGxldGVfYWRkcmVzcyI6ZmFsc2UsInNpZ251cF9kYXRlIjoiMjAxMC0wOS0yMyIsImxvZ2luX2NvdW50Ijo5MzU1LCJ0b3RhbF9hY3Rpb25zIjo0MzAsImNvbm5lY3RlZF90b19mYWNlYm9vaz8iOmZhbHNlLCJzaWdudXBfY29udGV4dCI6ImFjdGlvblBhcnRpY2lwYW50IiwiZGlzdGluY3RfaWQiOiIyMWQ2MmIwMC1iZTVkLTAxMmYtNjg2ZS00MDQwNjBlNzJhYmIiLCJ0b2tlbiI6IjMwYWEyNmExZDZlOTNhZTE1OGRmYmRjMTZiNDkzMzEyIiwidGltZSI6MTM5MzY1MjU5NX19andip=1andimg=1 http://email.changemail-org/wf/open.upn=aGGv9wQ398j6-2FWVT4grdXbWUo0w-2FupjjjD-2BeyIkg5XeInLuCEKc3fZdho8GXjxxiplFn6SybU80HWYOLHct2MhHcRv7ksg-2F-2Bt-2BBQdFBpjlwWZOJkQr0Nq2XU-2BgsPRAVMRot9q2ePo-2B36CVPtfAeT7-2FwXkoP9lzRfdkFkY0XyhSeD-2F-2F4pn5tIxSoFgD0J7IlYqzq4h9ZbxmTd8NQpRP4SZJNJZngbzTqUPALD7SjQ1N32ULlWRjzUD3XH7ysAd7pl2w6kQw-2BZANKuj31nBr0qdAGN8wQEECKuiegQYm1eu-2FjM-2FJrbeqzSdlAlsYfZKbxs

Jeanette Curphy 19893

From Jack and Jeanette Curphy (please count as two responses-we only have one computer.. We oppose the Polymet project in Hoyt Lakes. There has not been a "safe" way to mine copper/nickel. It bothers us that Polymet is not an American Company but a Canadian company. Do they really care about our environment. The history of copper/nickel mining companies is that they do their mining, file bankruptsy, and leave the citizens to pay for the clean up, and their is no known way to clean up sulphur material in the water. The Poly Met project is located, at the beginning of three (3) watersheds; namely the St Louis River and Great Lakes watershed, the Mississippi River watershed, and Hudson Bay watershed. For the few hundred jobs offered for this project, that would last approximately 20 years, the damage appears to outweigh the benefits. I would hope the legacy of the DNR and governing bodies would not be the irreversible environmental damage they allowed. Thank you. Jeanette and Jack Curphy

Jeanette Trushsess 18247

My name is Jeanette Truchsess. The last name is spelled T-R-U-C-H-S-E-S-S. I wish to register my opposition to copper/nickel mining in Northern Minnesota. We call the assurances -- we recall the assurances that taconite mining would not pollute the watersheds and the attempt of the mining company to deny their actions as a source of asbestos pollution to Lake Superior. Even with the best technology and state-of-the-art methods for capturing sulfide, eventually, perhaps several generations from now, those chemicals will leach into the watershed and Lake Superior. The mining company is not going to take responsibility, even if it still exists as an entity 100 years from now. And even if it were to take responsibility, it would not be possible to reverse the damage. No amount of money would compensate the people relying on Lake Superior for their potable water. Fresh water is going to be a necessary condition for quality of life in Minnesota, long after the miners and the minerals have come and gone. I happen to also be a psychologist that works and specializes in fertility, and I'm concerned about environmental causes of infertility. That's it. Thank you.

Alphabetical by sender's first name

Jeanine Allen 43706

Begin forwarded message: From: Jeanine Allen <HYPERLINK "mailto:jmk.allen@hotmail-com"jmk.allen@hotmail-com> Subject: Opposition to PolyMet Mining Date: March 13, 2014 1:19:51 PM CDT To: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us Cc: Jeanine Allen <HYPERLINK "mailto:jmk.allen@hotmail-com"jmk.allen@hotmail-com> March 14, 2014 MN Department of Natural Resources Dear Sirs: I am writing to express my opposition to the PolyMet copper mine, and any other such mining, in northern Minnesota. My reasons for doing so are due to the negative environmental impact such mining will have on our most precious and endangered resource, namely clean water. It has been noted in news articles that copper mining will expose and release into the environment sulfate, mercury, possibly asbestos-like particles, and other toxic metals into the water, and possible the air. These releases have the potential to destroy wild rice growing areas, wetlands, increase mercury levels in fish and other aquatic species, along with the potential to add more asbestos-like particles to the drinking water of people and possible airborne particles to areas around the mine. To prevent such pollution from happening, we are told that extraordinary pollution control prevention measures must be implemented, and sustained, for a period of at least 500 years. This is absolutely mind-boggleing to me that we would even consider approving a project that gives us 20 years of mining and jobs, in return for more than 500 years of State oversight and maintenance of the mine site. Minnesota has only been a State for 156 years, and to commit future generations to this amount of supervision, and resultant costs, is absolutely irresponsible. In addition, I have yet to find any such pollution control measures that actually work in the real world. Minnesota is known world wide for our Minnesota grown wild rice. Native Americans have been harvesting wild rice for centuries, and will probably continue to do so, "if" we don't ruin the environment which is necessary for its continued survival. As far as I can tell, we have not fully determined the "safe" level sulfides in the water which will allow for the sustainability of our wild rice crop. I feel we should not endanger wild rice production in our State in return for 20 years of copper mining; it just doesn't make sense. We've been trying to reduce mercury levels in Minnesota waters for years. Every summer I hear reports that people should limit their fish intake to so many fish per week due to mercury contamination. And now, we're to consider increasing adding more mercury to Minnesota waters, in return for 20 years of copper mining. Once again, this doesn't make sense. I am also concerned with the asbestos-like fiber getting into the water supply. I lived in Duluth from 1969 to 1975, in the early 70's the City of Duluth informed residents that asbestos fibers were discovered in the water supply, caused by taconite mining. We were told that to prevent aerosolizing the fibers, and risk breathing the fibers in, we shouldn't cook with the water, we should stop taking showers, and wash our clothes in cold water etc, until the City could install filters to remove the fibers from the water supply. I imagine people in Duluth and many other communities and individuals up and down the North Shore who obtained their water from Lake Superior had been subjected to this contamination for years before it was discovered. I also imagine it will be years before the direct negative impact on public health this pollution has, and will, cause. For years I have wondered what will be the eventual impact this will have on my family. People should not have to worry about problems like this. Our government's, including the DNR, primary objective should be protecting Minnesotans and our environment, not catering to foreign corporations. If this in not a concern of the DNR, it should be. Last

Jeanine Center 31247

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Regarding the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement, I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Lake Superior's waters were seriously contaminated by the taconite tailings that mining companies dumped into it. This pollution was a threat to both marine and human life until an international effort stopped the dumping. So why would we even consider authorizing a new and similarly dangerous threat to the Lake Superior and the beloved Boundary Waters Wilderness. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt It's time we stopped protecting corporate pocketbooks and started protecting the health of the earth in earneSt Sincerely, Jeanine Center 618 Northside Ave Ann Arbor, MI 48105-1133

Jeanne Ford 57219

What are the plans for environmental responsibility (ie – keeping the surrounding land and water ways preserved and clean)?Jeanne Ford5945 10th Ave SoMinneapolis, MN 55417

Alphabetical by sender's first name

Jeanne M Wesley 57182

Minnesota's clean waters and wilderness areas have provided our state with ample economic benefits for decades, and they form the backbone of our healthful way of life that attracts people from around the world. These assets of ours will continue to serve us if we don't ruin them for short-term gain. Sulfide mining carries too many proven risks; chances are very high that Minnesota, in the long run, will pay more than it will gain if we move ahead with the sulfide mining.Jeanne M. Wesley2421 Kelly Paulson RdCarlton, MN 55718

Jeanne Piehl 38971

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Jeanne Piehl 24246 Highway 15 N Hutchinson, MN 55350-5401

Jeanne Thoreson 39535

I think it is absurd to embark on a mining operation that gives a few hundred workers 20 years of employment and saddles the state with centuries of cleanup. It is also absurd to risk the health of the Boundary Waters, which is Minnesota's greatest gem. Lastly, it is absurd to allow an out-of-state company to rape our land and carry the profits away. People who think this is a good idea need a sanity check. Thank you. Jeanne Thoreson 504 21st St NE Rochester, MN

Alphabetical by sender's first name

Jeanne Ward 40826

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Jeanne Wright 41970

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Jeanne Wright 221 County Road 44 Grand Marais, MN 55604-2229

Jeannie Rustad 10735

Comment: I am strongly against allowing PolyMet or any sulfide mining in Minnesota because: I believe the toxic waste caused by this type of mining will cause irreperable harm to our environment. The history of this type of mining being able to reclaim the land to it's original state is extremely poor. There is never enough money to pay for the future problems, if it can be fixed at all. I also believe that by allowing sulfide mining to start up in order to provide mining jobs, we will ultimately destroy out tourist industry jobs in Northern Minnesota because of the damage caused by mining for copper. Polymet is at best a short sighted, short term fix for our state. Please do not allow sulfide mining in our state Jeannie Rustad

Alphabetical by sender's first name

Jeff 4563

As a Geology Student in the Northern Minnesota area we learn how to tell the difference between different minerals, we learn how minerals are formed. We also learn things like how ore deposits form, the differences between various forms of ore deposits, how acid mine drainage actually works, and how the chemistry of the surroundings effect the pollution potential in a region. I have been watching the debate over PolyMet for quite some time, and for obvious reasons I have a bias in the direction of it going forwaRd However, I also know the difference between reality and fantasy and can use that to make my own opinions on this matter. PolyMet looks to be proceeding with this project in a manner that is safe, open, and responsible and should be allowed to proceed. This is going to be a huge boon to the area, and the state, with the additional jobs and tax revenues. The project will not pollute the boundary waters (not even the right watershed) and even the watersheds that it does lead to, are also safe because mining can be done safely. Minnesota has some of the toughest mine pollution laws in the country, and this is an area that has been mined for well over 100 years without it turning into a wasteland. Previous mining projects were not mining for copper-nickel, but many of them ended up abutting the copper-nickel deposits due to their geography. Let PolyMet proceed with this project, it is the best for the region and it is the best for Minnesota. Jeff Harrison BS candidate, Geology, University of Minnesota, Duluth 7801 E. Superior St Duluth, Minnesota 55804

JEFF ANDERSON 43336

I would like to submit the following comments: As a fourth generation Iron Ranger, resident of northeastern Minnesota and former elected official, I would like to voice my support for the PolyMet project. The mining of these strategic and precious metals will generate significant economic activity, creating hundreds of jobs that can support families and sustain communities. What does this project mean for northeastern Minnesota: 2 million construction hours, 360 full-time mining jobs and more than 600 related jobs – jobs that our state and the Iron Range desperately need. We need the good-paying jobs that copper-nickel mining will provide. We cannot afford to miss the opportunity for 360 full-time jobs with hundreds of additional jobs in other industries. Having grown up on the Iron Range, I know all too well that we need jobs for young people and copper-nickel mining will provide our young people with multiple opportunities for challenging and exciting careers. I am an environmentaliSt I want to make sure we protect our clean air and water. I hunt and fish and appreciate this beautiful place we live. I trust the multiple State and Federal Agencies involved in preparing the document. Minnesotans trust the DNR to study copper-nickel mining and keep our communities safe. The environmental review process has been lengthy and thorough; the supplemental draft EIS addresses potential environmental impacts and how to mitigate them. It’s time to put people to work. The time is now. Enough is enough; let’s get on with permitting this mine. We want and we need jobs. Jeff Anderson Former Duluth City Council President and Duluth Economic Development Authority President P.O. Box 385 Duluth, MN 55801 Personal Office: (218) 590-5970 HYPERLINK "mailto:Jeff@JeffAnderson-org"Jeff@JeffAnderson-org

Jeff Backlund 39596

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I do not believe the mining industry at this time has an economically affordable way to treat tailings of this process. If they prepaid 100 years of treatment which is estimated at 5 million each year then I would say yes lets do it. But from a business standpoint how can any business profit and be able to support the economics of treating waste at this cost into the future. Please do not let these people fool you. Who will pay for this problem when they decide it's not worth it anymore ..you and me while they made a little bit of money and are now defunct. It does not make business sense and won't until they address this issue to which they have not and cannot due to lack of technology in the field of waste treatment. Thank you Longtime resident of NE Minnesota The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Jeff Backlund Hazel Trl Woodbury, MN 55129

Alphabetical by sender's first name

Jeff Backlund 48809

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I do not believe the mining industry at this time has an economically affordable way to treat tailings of this process. If they prepaid 100 years of treatment which is estimated at 5 million each year then I would say yes lets do it. But from a business standpoint how can any business profit and be able to support the economics of treating waste at this cost into the future. Please do not let these people fool you. Who will pay for this problem when they decide it's not worth it anymore ..you and me while they made a little bit of money and are now defunct. It does not make business sense and won't until they address this issue to which they have not and cannot due to lack of technology in the field of waste treatment. Thank you Longtime resident of NE Minnesota The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Jeff Backlund Hazel Trl Woodbury, MN 55129

Jeff Busse 44068

Greetings - I am writing to provide comment on the NorthMet Mining Project and Land Exchange Supplemental Draft Environmental Impact Statement (SDEIS). My concerns with the SDEIS include: I feel strongly there is a lack of detail regarding the risk analysis in the document that would allow me to fully understand the consequences of the proposed action. While I understand that further detailed risk analysis may be called for at a later stage of permitting, I would urge the agencies to conduct a more thorough, detailed, and complete risk analysis to be included in the EIS. I do not feel the question of financial assurance has been adequately addressed for post-closure, especially given the high likelihood that perpetual treatment is needed. There is absolutely no historical examples of mining in MN that suggests PolyMet will be able to provide the necessary monitoring and funding to make certain that millions of gallons of untreated water don't pollute groundwater and nearby rivers. PolyMet’s mine plan doesn’t provide details about how to calculate an adequate damage deposit to protect taxpayers from the cost of 500 years of cleanup and maintenance. The plan includes inadequate contingencies for disaster events like pipeline breakages and extreme weather events. The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained t

Alphabetical by sender's first name

Jeff Conrod 15264

I am extremely opposed to the proposed Polymet mine. It is absurd to jeopardize the safety of drinking water for 500+ years in order to get, at best, 20 years of jobs. Why destroy the future just to get something today that will be gone soon. What copper mine hasn't polluted the environment. And who will pay for the cleanup if Polymet doesn't have the money to do so, as has happened so many times in the past with other mines. Why should we believe that Polymet can do it this time when nobody has before. And why rush the project until the full environmental study is done. Are the minerals going anywhere. If the demand is going to decrease, that is just another reason to not do to the project. Please do what is best for Minnesota in the long run, not the short run - please stop the Polymet mine. -Jeff Conrod 426 Cherokee Avenue Saint Paul, MN 55107

37895

The wrong question is being asked. We shouldn't be asking, "Can the Polymet Mine be built, operated and decommissioned without damaging the environment." People who are against the mine can easily point to previous mines that were responsible for environmental disasters. Supporters of the mine can point to changes within the industry made to prevent similar disasters from ever happening again. Neither side can say with any certainty of what will happen in the future. Instead, we should be asking, "Are we willing to sacrifice our environment over the long-term in order to receive the short-term benefits from the mine." This is similar to the parent who considers the pros and cons of allowing their child to go on a long-term, unsupervised camping trip in the Northern Minnesota woods with a convicted pedophile. The child might have a wonderful trip with this person who "learned from their mistakes" (as the mining industry claims to have done) and won't repeat the same "mistakes" they made in the paSt Or the child might be scarred for life and may go on to become an adult who makes the same "mistakes" which results in decades of pain and suffering for many many people. Clearly a responsible adult would not allow their child to take this trip. The parent's job is to protect their child since they aren't always able to protect themself. Just as clearly, a responsible state agency, who's charge is to protect the environment (which can't protect itself) MUST not allow this mine to operate. Yes, it is POSSIBLE that it can be built, operated and decommissioned without damaging the environment, just like it is POSSIBLE that a participant in the Minnesota Sex Offender's Program might go through their program and never commit another crime again. But there is a reason why only one person has ever been discharged from the program - the risk is too great. The mission of the DNR is to conserve our natural resources and allow them to be used in a way that creates a sustainable quality of life. Putting the area around the proposed mine at such a high risk of being destroyed for 25 generations is irresponsible and reckless, just as allowing a child to be unsupervised with a pedophile in the woods is. Please protect our environment the same way that the Department of Human Services protects our children. Please don't allow the Polymet mine to be built. Jeff Conrod 426 Cherokee Avenue Saint Paul, MN 55107

jeff durfee 38127

Because of the water rich environment, why not use under ground mining methods. This might help with the water run off probleMs Insist on maintaining Minnesota clean water. Jeff Durfee, 5949 Koski Rd, Duluth 55804 On Thursday, March 6, 2014 9:05 PM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Jeff Evans 46072

My name is Jeff Evans, I live at 1692 Princeton Ave, St Paul 55105- I also own a cabin near Ely and have been taken over thirty canoe trips to the BWCAW. I owned and docked a sailboat on Lake Superior for five years. I am opposed to the plan to mine copper nickel in Northeastern Minnesota for these reasons: 1- The lack of transparency on the financial assurance calculations. Not providing the assumptions or contingencies is short sighted. I realize this by law is to be part of the permitting process but the DNR and other agencies should've realize the lack of faith citizens would have in this process and provided that information. To not make those calculations is akin to saying we are going to Mars next year but not provide the details as to how to get there. 2- The lack of a mercury/sulfate standard for wild rice. How can the state make a wise decision if the rules for sulfate standards haven't been decided on yet or updated. 3- What are the health risks from this type of mining. Has it been studied. 4- How much of the technology has been tested in the field rather in the laboratory. Reverse osmosis operates differently in a controlled environment of the lab. 5- What is the cost to the state and local communities on the infrastructure. Crime will increase so will heavy loads on highways. Is this considered. How this project will be taxed has not been determined. Let's solve that problem firSt 6- What are the costs of 200 to 500 years of pollution compared to twenty years of a few jobs. 7- Modeling should be revised. The new information on water flows indicate that the models are incorrect and need to be substantially revised. The state should make an informed decision with the best information possible, not a hurried political one. I was impressed by the professionalism and patience displayed by state agency personnel at the public hearings. I hope that same professionalism and patience is displayed when they consider the adequacy of the SDEIS.

Jeff Ferris 16933

Feb 18, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Jeff Hanson 44301

Dear Sirs, My name is Jeffrey Hanson. I grew up in Babbitt, MN where we built the family home on Finn Bay of Birch Lake. After high school in Babbitt I attended Vermilion State Junior College in Ely and the University of Minnesota for Mechanical and Environmental Engineering. We still have and use our family home at 8457 Spring Ridge Road, Babbitt, MN 55706- Since we first cleared the land and built our home overlooking Birch Lake we have considered ourselves avid environmentalists and diligent stewards of the natural environment we love so dearly. Based on these convictions, I have been concerned about the eventual impacts of copper-nickel mining ever since its was first discussed in the mid 1960's and found along Spruce Road near to Birch Lake. No one is more passionate about protecting our waters then I am. At the same time I recognize the essential nature of mining and that it does cause impacts on the natural environment. We moved to Babbitt in 1958 due to taconite mining and the new high school it built where my Father was the industrial arts teacher. My first job after high school was working at Reserve Mining where I saw first hand the real impacts of mining. Over the years I have followed from a distance the development of mining above the shores of Birch Lake at the Dunka Pit of Erie LTV Mining. This mine pit is a prime example of the sulfate and acid mine drainage problems that can result from any type of mining where sulfide ores such as copper sulfide or iron sulfide (pyrite) are present. This pit was dug to extract taconite in an area where both copper sulfide and iron sulfide are present. Problems arose and the pit was later closed. To this day seepage from this site is treated before being discharged into Birch Lake, and it still exceeds some contaminate limits. Now PolyMet Mining is hoping to develop copper-nickel mining with a pit behind the Northshore Mining taconite mining pit with processing on the brownfield site of the deactivated LTV/Erie taconite mine and processing facilities. This site is not virgin territory and already has the legacy environmental impacts from times when mining operations were not required to evaluate these impacts prior to initiating operations. Today we do have a rigorous EIS review process to attempt to foresee these impacts and address ways to minimize or eliminate these impacts. I am extremely well impressed by the level of concern and the depth of the review that has been conducted by the PolyMet SDEIS process. This is exactly the type of review that is needed to rationally anticipate and mitigate the environmental impacts that could happen. One of the best aspects of this project and SDEIS review process is that it is on a brownfield site. This is an area where we must address both the potential impacts of copper-nickel mining, as well as the legacy of the taconite mining that has been in the area for 65 years. This is a unique opportunity to take all precautions and learn how to mitigate the impacts of both types of mining. After all, both copper-nickel and iron/taconite mining have impacts on the environment that need to be evaluated. I am further impressed and pleased that the MPCA through their water permits and the SDEIS process have required that PolyMet and Erie evaluate methods for the reduction of sulfates, sulfides and dissolved metals in mining impacted water discharges. I am a strong proponent of biological reduction technologies that can remove 1,000 mg/l, or more, of sulfates from mine pit waters that have high sulfate levels and convert it into pyrite before being discharge downstream. This technology uses nature's normal processes to address the problem of sulfates and their potential transformation to hydrogen sulfide, which is topic to wild rice and humans alike. We are currently conducting field tests that have demonstrated that this can be done on the industrial scale needed to handle the industrial scale problem we have from the legacy of high sulfat

Alphabetical by sender's first name

Jeff Harrison 15395

Feb 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. The moose habitat is being destroyed by climate change, this has nothing to do with Polymet, it has more to do with the interruption of natural fire cycles and the resulting parasite populations. It seems that there is a population who will make any stretch to try to blame the destruction of the planet on a mining project. The reality is far more complex, but mining a few acres of Minnesota, or even a few tens of thousands of acres of Minnesota is not going to do nearly as much damage as human presence in the form of hunting, fishing, camping, sightseeing, travel, commercial transport, and the like. As a result unless we are willing to completely let the entirety of Northern Minnesota go feral by moving every person out and never allowing anyone back in the moose are going to go through their natural cycles regardless of what Polymet does. Sincerely, Mr Jeff Harrison 7801 E Superior St Duluth, MN 55804-3109

Jeff Heikkinen 38105

The risk reward just isn’t worth it for the Polymet proposal. A few hundred jobs and 20 years of work compared to 500 years of possible ecological impact doesn’t make sense Thanks Jeff Heikkinen

jeff hopkins 42440

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr jeff hopkins 69 Amber Ct Lindenhurst, IL 60046-7912

Jeff Iisakka 18333

Good evening. My name is Jeff Iisakka. And I live in Esko, Minnesota. I'm a shy Finish kid. I grew up in Virginia, Minnesota. And as you know Virginia is surrounded by open-pit mines. In fact, in my backyard on Fifth Avenue North in Virginia was the Oliver Iron Mining Company. We had a very good quality of life in Virginia back 30 some years ago. And I'm sure that 50 to 75 years ago the environmental regulations were very minimal if none; and our quality of life was very good. I'm very confident that with today's high technology, strict environmental regulations that the PolyMet mining facility will be highly successful and we'll be enjoying the fruits of their labor for many years. Thank you.

Alphabetical by sender's first name

Jeff Kopp 18137

My name is Jeff Kopp. It's spelled J-E-F-F, K-O-P-P. And I grew up in Aurora, Minnesota. And I now reside in Saint Michael, Minnesota. There was this young boy who lived across the street from this beautiful A-frame Lutheran church that was perched up on this hill. Just below this hill was this beautiful park that had two outdoor hockey rinks in it. He used to wear his skates to ski down that hill to that hockey rink. His mom used to ring the dinner bell and he would hear it and he would race way up this hill as fast as he could to see how far he could get up that hill for dinner time. After prayers and dinner, he would skate back down that hill and play hockey until they turned the lights out. All this happened because my mother was a schoolteacher from Gilbert, Minnesota; and my father was a miner from Erie Mining Company. Yes, the same place and the same buildings that PolyMet is going to bring back to life. Let's get to PolyMet and breakdown who they hire. Two companies come to mind. Barr Engineering, who has won world accolades for their engineering abilities; and GE and their reverse osmosis systems. And let's not forget Mr. Jon Cherry, whose 25 years in the mining industry, who has a bachelor of science degree in environmental engineering. This is a miner that has a bachelor degree in environmental engineering. This 2,160 page SDEIS is a summation of thousands of engineered documents created -- to create the most expensive and comprehensive mine plan yet on this planet that I know of. The iron mining industry paid billions and billions of dollars of taxes to the school systems and the universities to educate our youth. The copper, nickel, PGMs that are on the brink of being mined and allows the chance to continue the billions of dollars the state so needs. I know PolyMet, Minnesotans, and the DNR are going to set world-class standards with this mine plan. I would like to thank all the miners in this room. And especially those that I've known have given their lives for me to be free to be standing right here. I know where I can buy copper, gold, nickle, platinum plating, cobalt. Saved a guy's life back here, that cobalt. If it's not grown, it's mined. But no one can tell me where I can buy sulfide. Whoever created this phrase "sulfide mining," you need to go back and get a new education. I know you're in this room somewhere. Because it didn't work. There is no definition in Webster's Dictionary for "sulfide mining." This is hard work mining. Leave the mining to the miners and allow the children of the Iron Range to have the opportunity to skate both ways to that hockey rink.

Jeff Lentsch 42150

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the economic gain, and environmentally friendly procedures, mining in Minnesota should stay. There is huge demand in the world for mining, and if we don't do it here, it will be done elsewhere, like China. China doesn't care about the environment like we do. So let us keep those good paying jobs here in Minnesota. There have been plenty of health impact study's done on the poor, and their not as healthy when compared to the wealthy. Wealth is the only thing we can invest in the technology that make these procedures more environmentally friendly. Sincerely, Mr Jeff Lentsch 42085 County 14 Blvd Kenyon, MN 55946-3209 (651) 494-2132

Alphabetical by sender's first name

Jeff Mogush 38466

Dear Minnesota Department of Natural Resource: The discussion regarding the proposed Polymet mine has resulted in a great deal of rhetoric. Quantifying the comments is difficult. Some things we know: The world needs copper. Copper mining would result in many jobs in NE Minnesota. If the Polymet mine is permitted, many more mines will likely follow in NE Minnesota. Polymet says that they can mine copper safely. Copper deposits and mines exist in parts of the world where conditions are so arid that water supplies are not placed at risk. Sulfide mining is inherently toxic to aquatic ecosystems and has never been done without causing environmental damage. Environmental damage poses risk to the tourism business in northeastern Minnesota. Copper mining would have a negative impact on real estate values in NE Minnesota. The SDEIS indicates that it may take as long as 500 years to completely treat the water that would be polluted by Polymet in the normal course of operating their proposed mine for twenty years. The SDEIS is based on the assumption that nothing goes wrong. No accidents occur. No strange weather events cause any damage. No pumps fail. No liners leak. The water treatment system works perfectly every day for 520 years. NE Minnesota has abundant fresh water. Parts of the US are experiencing water shortages. White Bear Lake water levels are extremely low because of excessive use of the Prairie du Chien-Jordan aquifer. It is important to protect our abundant supply of fresh water. If this were just about economic benefits, it would be difficult to argue against permitting Polymet’s proposed mine. The fact that this process has never been done safely along with the need to treat the polluted water for 500 years, should make any thoughtful person skeptical. The fact that the SDEIS assumes that nothing will go wrong is not defensible. The risk to the abundant water in the area makes this project a poor choice for our State. Sincerely, J.Jeffrey Mogush 1230 West Minnehaha Parkway Minneapolis, MN 55419-1163

Jeff Pearson 45063

This is a terrible, terrible idea. How can you PLAN to pollute a pristine area like this with 500 years of pollution. What company will be around in 500 years. Our children will hopefully be alive to live with a horrible decision, should this be approved. Turn it down. Don't do this to the BWCA and Minnesota and the people of Minnesota. You know it is wrong

Jeff Peterson 39462

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Jeff Peterson PO Box 177 Marine ON Saint Croix, MN 55047-0177 (651) 433-2653

Alphabetical by sender's first name

Jeff Powell 48183

10 new people recently signed Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota." on Change-org. There are now 490 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 489- Marti McAllister Orange City, Iowa 488- Dylan Linet minneapolis, Minnesota 486- Hannah Specht Minneapolis, Minnesota 485- Mikaela Robertson Minneapolis, Minnesota 484- Simone Childs-Walker Mineapolis, Minnesota 483- Nancy Grubb Lone Tree, Iowa 482- Chelsea Mayers Maple Grove, Minnesota 481- Anna Topping Evanston, Illinois 480- Nathaniel Brown Des Moines, Iowa 479- Anna Sobocinski Denver, Colorado http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJmaXZlX2h1bmRyZWQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTMxLCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA4NjIwMjN9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVKyI6Vw2Uf-2F0v3KRv3ZaBZedhp-2BeUvIjQ-2FaZ8rR6r0YBupTcy04YYFFWXMZL-2Byk271-2F-2BmQoYyL4JzdedX1Kv-2Bz4GT1-2F-2BiCkmt8cmZ2Cq59q1-2FO9qpEnsh-2F3WX7NySTcwr0D0Y7dgIuQS45iNut10-2BxZSnSA7l-2BVGeb0DZS8cD-2BB5i7B6qPGujR5VrNhKwuvEmjM65wUa3lQiMwN-2Bv1WUMxog5MibSXZgPdgmFYO4Q1e3g

Jeff Richards 40001

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Jeff Richards 701 Woodview Dr Burnsville, MN 55337-3643 (952) 894-6145

Alphabetical by sender's first name

Jeff Rohlk 39563

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Jeff Rohlk 2129 Fair St Mankato, MN 56001-5523 (507) 317-8528

Jeff Rupp 40743

DNR, I am against this mining project because waste water (acidic) must be treated on a continuous basis as rain water and ground water make contact with sulfur containing waste rock. I did attend the Saint Cloud Polymet sponsored meeting where no mention was even made about sulfur containing rock and how it would be handled.. Until I asked, and then they stated that the sulfur containg waste rock would eventually be placed into the depleted mine site and then allowed to naturally fill with water- Polymet's stated the reason being, "sulfur containg waste rock surrounded by water isn't expossed to oxygen so won't produce sufuric acid contaminated water".. So therefore very little water treatment is required after mine closure.. First of all I don't think that simple premis holds true in the natural environment. I think it's possible for algae, plants and bacteria to produce oxygen underwater as a result of natural metabolism especially if expossed to sunlight. Second if this premis isn't true and the waste water from the mine will require continous treament as it flows away from the mine site-how can a company and the DNR be certain waste water won't find hidden cracks and fissures at the mine site and perculate to unexpected areas contaminating lakes or groundwater in unforseen locations, making water treatment very difficult. Also, during the mining process and after how would they handle water treatment if for example they had another very intense prolonged rain event with record setting amounts of rain in short period of time like what occured last summer.. Lastly, I want to mention that not all mining results in a economic boost for the surronding communities. I had recently driven through the town of Miami in Arizona and counted over 7 different mines operating in the surrounding hills and this town looked like a ghost town most of the buisnesses were boarded up and the streets and parks were in extreme need of repairs. Its was a very empty looking, depressing town to drive through and just goes to show most economic benefits occur mainly in the early stages of mine construction- not as much during mine operation.. I am afraid if this type of mining is allowed here, it will open the door for the next mine planed just south of Ely Minnesota - even bigger mistake.. Thank you.

Jeff Scharlau 46027

Nothing that comes out of that mine is as important as fresh water and the unspoiled beauty of the Superior National ForeSt Cancel plans for the mine. Jeff Scharlau 2629 W. 43rd St #309 Minneapolis, MN 55410

Jeff Schuller 42477

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, As an avid fisherman, hiker and outdoors enthusiast, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. All for just 20 years' worth of operation. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Jeff Schuller 3933 Aldrich Ave S Minneapolis, MN 55409-1413

Alphabetical by sender's first name

Jeff Soderstrom 45165

My name is Jeff Soderstrom 2055 Salem Court Orono, MN 55356 Thank you for accepting my comments on the Polymet NorthMet EIS. Copper mining involves a much greater environmental threat than iron mining. I am a grateful supporter of the legacy of mostly successful iron mining in Minnesota. However, the proposed mining is an entirely different ballgame and the EIS does not sufficiently address many serious concerns. Perhaps foremost among concerns, while the EIS makes clear that treatment of contaminated water will be perpetual (arbitrarily defined as 200 or 500 years), no decrease in contamination is seen in the graphs projected through these very long time periods. Given this long and indefinite time period, the EIS should state how the treatment mechanisms will be maintained for hundreds of years. It does not state how long geomembrane covers and liners will last, how they will be replaced and what replacement will coSt It doesn't state how long the equipment doing the treatment is projected to last and how it will be replaced when it fails. It doesn't state how Polymet will maintain the physical plant after operations. In general, it doesn't provide adequate information for the public, voters and regulating agencies to evaluate whether Polymet will be able to treat contaminated water as projected. Given that Polymet has clearly stated in public disclosures (including 2013 Annual Report) that is has no experience with mining or treating contaminated water, the EIS should be required to inform the public in more detail how they will maintain water treatment for 500 or more years. Additionally, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. Mitigation plans for these seepages must be accounted for. On the point of Polymet having no mining experience, no present financial capacity to develop and maintain a copper mine and because it is clear to any business person that control of their decisions and ultimate operations would fall to the established mining entities that would ultimately fund the operations, why is Minnesota not requiring the controlling company or companies from making the commitments required of such a massive mining operation. I fully understand why Glencore and other mining giants set up their quasi-affiliates as they do, but I don't believe that should prevent the DNR from requiring clear accountabilities from named funding entities. It is irresponsible to do otherwise. Glencore will be among the primary beneficiaries of permits granted and as such should be the applicant and be subject to legal recourse by the state of MN for any failures to comply with the permits or other violations of law. As an executive of a fortune 300 firm in Minnesota, I would not consent to do business with a shell firm such as Polymet given the significant potential liability of operations and potential damage to the economic and intrinsic value of the region. I accept and understand that not all potential consequences can or should be anticipated. Some problems cannot be anticipated and must be left to address when they arise. However, in these circumstances with technology and processes largely untested on this scale, considerably more contingency planning is warranted. For an entity with no mining experience, asking for the immense responsibility of protecting the water rich environment they seek to mine requires greater and more confident planning and demonstrated ability to address inevitable, unexpected breaches in the mitigation mechanisms outlined in the EIS. There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, fai

Jeff Stromgren 42470

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Jeff Stromgren 711 W Lake St Ste 516 Minneapolis, MN 55408-2994 (612) 925-1840

Jeff Sullivan 9960

I support the Polymet project because I am involved with advances being made in the waste water treatment industry and believe that there are effective, practical, and environmentally responsible developments available that will help meet the needs of this project now and far into the future. For more information see: HYPERLINK "http://us-mg5-mail.yahoo-com/neo/www.evaporationworks-com"www.evaporationworks-com Regards, Jeff Sullivan HYPERLINK "http://www.nidincorporated-com/"www.NIDincorporated-com ========== Jeff Sullivan, General Manager Northern Industrial Distributing, Inc. 1552 Carr Lake Rd SE, Bemidji, MN 56601 USA Office: 218-755-1000 Fax: 218-755-1001 Cell: 218-556-1382

Alphabetical by sender's first name

Jeff Treptau 54878

See attachment

Jeff Wilson 17081

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Remember Reserve Mining. They dumped millions of tons (literally) of iron tailings into Lake Superior. When called out on it, they arrogantly made it clear they will dump whatever they want into the lake. It wasn't until a college professor noticed that that tailings look like asbestos fibers that action was taken. It was the EPA that sued Reserve and stopped the dumping. Remember the EPA. They used to protect the environment. In West Virginia and Kentucky mining companies are blowing up mountains to extract coal. They have blown up 500 mountains so far. They extract the valuable resource and ship it to India, and the residents of West Virginia are left with a pile of toxic rubble, as well as high rates of cancer and birth defects. Last weekend the state of Oklahoma experienced 103 earthquakes as a result of fracking. We are stupid if we believe the "science" and promises of mining companies. We've managed to keep the Arrowhead pristine up till now. Why even take a chance of destroying it. If you want to create jobs, start extracting valuable materials from our waste streaMs People throw old appliances into the trash, and they go into a landfill. To make their new appliances, we go mine more copper, iron, nickle, chrome, etc This is clearly unsustainable, expensive, and ruinous to our environment. Time to do things differently. Best regards, -Jeff Wilson resident of Minnesota and regular visitor to the Arrowhead Jeff Wilson 3145 Harbor Lane N Apt 1313 Plymouth, MN 55447

51035

Dear Ms Fay, Mr Bruner and Mr Dabney: Remember Reserve Mining. They dumped millions of tons (literally) of iron tailings into Lake Superior. When called out on it, they arrogantly made it clear they will dump whatever they want into the lake. It wasn't until a college professor noticed that that tailings look like asbestos fibers that action was taken. It was the EPA that sued Reserve and stopped the dumping. Remember the EPA. They used to protect the environment. In West Virginia and Kentucky mining companies are blowing up mountains to extract coal. They have blown up 500 mountains so far. They extract the valuable resource and ship it to India, and the residents of West Virginia are left with a pile of toxic rubble, as well as high rates of cancer and birth defects. Last weekend the state of Oklahoma experienced 103 earthquakes as a result of fracking. We are stupid if we believe the "science" and promises of mining companies. We've managed to keep the Arrowhead pristine up till now. Why even take a chance of destroying it. If you want to create jobs, start extracting valuable materials from our waste streaMs People throw old appliances into the trash, and they go into a landfill. To make their new appliances, we go mine more copper, iron, nickle, chrome, etc This is clearly unsustainable, expensive, and ruinous to our environment. Time to do things differently. Best regards, -Jeff Wilson resident of Minnesota and regular visitor to the Arrowhead Jeff Wilson 3145 Harbor Lane N Apt 1313 Plymouth, MN 55447

Alphabetical by sender's first name

Jeffery Kane 36458

Mar 3, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage COME ON. you can't see the issue. I own land 20 miles East of the mine. I bought this land to wipe my carbon foot print. How can you allow the this project to go forwaRd This will be the biggest screw up in MN history and your names will be part of it. If the two paragraphs below don't show proof enough then what will. read it again and stop looking through bought glasses, see it for what its worth to are kids and their kids. COME ON. Minnesota history. PolyMet would dig up nearly 1,000 acres of high value peat bogs, part of the 100 Mile Swamp, a critical habitat for many plants and animals. This wetland is designated an Area of High Biodiversity Significance by the Minnesota Biological Survey. In addition, over 6,000 acres of wetlands could be damaged or destroyed by PolyMet changing the water flow. When you dig a deep hole in the ground, it fills with water. That water would come from surrounding wetlands, and could dry out and destroy them. PolyMet is required to replace lost wetlands, but they understate the area of wetlands they would affect, they fail to replace the unique habitat offered by peat bogs, and they propose replacements that are far from the mine site. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Jeffery Kane 2136 Ford Pkwy # 187 Saint Paul, MN 55116-1863 (651) 307-4805

Jeffery Loman 28894

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental No cumulative effects analysis of reasonable foreseeable mining, including uranium mining near Lake Superior. Wisconsin's new mining law is inconsistent with federal law. Wisconsin is about to approve mining activities that will violate federal law. Michigan has already permitted hard rock mining in a manner that's inconsistent with federal law. Meanwhile - EPA Region 5 has been sitting around like last year's Christmas tree making dozens of video presentations by which EPA managers and staff sing parodies that make light of oil spills and the Asian carp debacle. Videos of ballet performances, karate demonstrations, singing and dancing and other inappropriate workplace activities. Then - they placed them in the public domain on YouTube. Disgusting and just plain wrong. Sincerely, Jeffery Loman PO Box 142 Lanse, MI 49946-0142 (907) 720-8680

Jeffrey 54192

the river please don’t do it because it will probably effect are drinking water and it will hurt other animals.

Alphabetical by sender's first name

Jeffrey Brown 11335

Dear DNR Professionals, While I am a business professional and would like to see economic growth in Minnesota, I can not support the Polymet and other copper-nickel mining projects being considered for our state and hope that you will stop these project before they ever get started. The proposed economic and employment benefits are small (if they truly exist at all) in comparison to the economic cost and the high probability of damage to the environment in the region. The state's taxpayers are likely to bear the burden of mitigating the negative environmental impact of the Polymet project for generations to come. This is an unfair burden to be placed upon our children and grandchildren and their children and grandchildren. The negative economic impact on property values and tourism could far outweigh any economic benefits. Clearly these negative impacts are not a certainty, but even a small assumed probability (and I believe they are actually quite high) when multiplied by the very large negative economic impact, should lead our shepherds of our natural resources to say no. I urge you to make it very clear that Northern Minnesota, where the land is a wonderfully dynamic, porous mix of rock and water, is not a place where this type of project should be developed. Thank you for the due diligence that is being exercised and the opportunity for the public to make itself heaRd Jeffrey Brown jdbrown1@gmail-com

Jeffrey Bryan 14491

Dear Sirs, I am writing regarding the mining proposed by Polymet in northern Minnesota. I do not think that this can be done without contaminating and changing the ecosystems surrounding the mining operation. The attempt to contain and treat the waste rock during and after the mining operations for several hundred years after is ludicrous. There will be plenty of problems that will cause heavy metals and other wastes sulfides/sulfuric acid etc to get into either surface or underground sources of water. I think the damage will be substantial and impossible to mitigate. Flooding such as happened to Duluth recently or seismic activity could easily cause the containment to fail. The superfund that cleans up hazardous waste sites have plenty of mining sites that it is working with and this could be a future site. The money that the mining company puts up for clean up would quickly be expended. The brief economic gain for the area is far outweighed by the cost of clean up and the time that this site will have to be cared for into the future. I am against the proposal and want you to reject the applications on these grounds. Sincerely, Jeffrey W. Bryan

Jeffrey D. Rome 7347

Attn: Lisa Fay, EIS Project Manager The Draft Supplemental Environmental Impact Statement (SDEIS) for the NorthMet mining project addresses a variety of potential environmental hazards presented by this project from the perspective of current scientific understanding of climatological factors that have bearing on estimations of risk. One such climatological factor of particular relevance to risk modeling for this project is precipitation, particularly storm water runoff. This specific issue is the topic of my comments and concerns. The water quality implications of this project are, appropriately, an important focus of the SDEIS and mitigation efforts on the part of the proponents of the project. The potential adverse effects on water quality are clearly recognized; acidification and heavy metal contamination are particularly important in this regaRd The estimations of risk and P90 thresholds related to storm water runoff presumably have been calculated on the basis of climatological factors as we understand them today. However, the modeling (MODFLOW, XP-SWMM, GoldSim) used to predict the hydrologic and water quality effects of the mining for the next 200 – 500 years cannot, with an acceptable degree of accuracy, incorporate the effects of climate change on precipitation in the arrowhead region of northern Minnesota. The data to do this are not available at present nor will they be in the foreseeable future. Substantially increased amounts of annual precipitation in this geographic region in the decades/centuries ahead have a significant but unquantifiable potential to overwhelm the water containment and water treatment methods described in the SDEIS. Thus the statement that the "water quality model predicts that the NorthMet Project Proposed Action would not cause or increase the magnitude of an exceedance of the groundwater and surface water evaluation criteria at the P90 level " [ES-35] is inaccurate and untenable. Because the proponents of the project accept and plan for risks to water quality and the need for mitigation for 200-500 years they have placed this unattainable burden of proof on themselves. One needs only to look at recent history to develop an appreciation of the hazards of storm water runoff from the proposed mining project and the potential for widespread and long-lasting effects on water quality in the region. The deluge in the Duluth area of June 19/20, 2012, was unprecedented and exceeded the capacities of both natural and man-made systems for managing it. A storm water runoff event of similar or greater magnitude at the mine site creates an unacceptable risk of environmental contamination in a large surrounding area. Climate change appears all but inevitable, and with it significant alterations in patterns of precipitation, including the distinct possibility of increased frequency and intensity of storMs In this context, the NorthMet Project, which necessitates mitigation efforts for centuries to come, presents a risk of water quality degradation that is too high for the project to meet applicable environmental protection standards.

Alphabetical by sender's first name

jeffrey dickson 19182

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I am a resident of Finland Minnesota and am highly concerned about the ramrodded mining venture that the State and the mining industry is trying to blow past the scrutiny of Minnesota citizens. I perform NEPA reviews for FEMA and fully understand the kind of detail that goes into an EIS. What you are attempting to pull off, under this limited public response period, intentionally targeted over the busiest holiday period of the year, with this exceptionally lengthy document, is in my opinion despicable and possibly bordering on illegal. The time period afforded the mining industry to respond to their first initial dismal failure of the first EIS has been a number of years now. They have had a lot of time to examine the errors of their ways. Now that they have had several years to improve their argument, can not the opposition have similar latitude. I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS seems to be one-sided. Well-documented tribal Major Differences of Opinion call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles and tailings heaps won't seep pollution, that mining won't dry out wetlands and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they are not available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and putting public meetings in January (when bad weather is likely) seems designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just foreign corporations, will matter when the government makes its decisions. Sincerely yours, jeffrey dickson p.o

Jeffrey Domingues 41823

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Jeffrey Domingues Northfield, Minnesota

Alphabetical by sender's first name

Jeffrey Grosscup 10705

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: The investment in Minnesota and the small 10-year projection of jobs/mining is insufficient compared to the unknown costs to the environment. What other industry would create such short term employment opportunity when a better fit wold be creating perhaps 300 jobs for 60 years. Planning for the short term needs to be discarded in favor of a sustainable long term approach. If the mining were to exhausted the deposits after ten years, where would the city of Ely look like with another shut down industry. A bad fit and short sighted in my estimation. Sincerely, Jeffrey Grosscup Minneapolis,, Minnesota Jeffrey Grosscup 4801 Portland Ave S Minneapolis, MN 55417

18402

Dear Ms Fay, Mr Bruner and Mr Dabney: The investment in Minnesota and the small 10-year projection of jobs/mining is insufficient compared to the unknown costs to the environment. What other industry would create such short term employment opportunity when a better fit wold be creating perhaps 300 jobs for 60 years. Planning for the short term needs to be discarded in favor of a sustainable long term approach. If the mining were to exhausted the deposits after ten years, where would the city of Ely look like with another shut down industry. A bad fit and short sighted in my estimation. Sincerely, Jeffrey Grosscup Minneapolis,, Minnesota Jeffrey Grosscup 4801 Portland Ave S Minneapolis, MN 55417

50521

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Jeffrey Hanson 18219

Hello. My name is Jeffrey Hanson. I think everybody can spell Hanson and Jeffrey. I am from Babbitt. I grew up there. I moved there when my father was hired as the industrial arts teacher, built a high school there. We lived in town for a couple of years, and then we cleared the woods on the edge of Birch Lake and built a house. I grew up looking out my bedroom window over Birch Lake. Not specifically related to the PolyMet project, but copper-nickel, Birch Lake is ground zero. The deposits are under my lake. They're by the shores of my lake, and I have been passionately concerned about that since they first discovered copper-nickel back in 1964. Ever since then, I've known sometime they're going to mine around my lake. I moved there because of mining. I live there because of mining. I know it's important. But we cannot exchange the environment for mining. It's not an either/or. It's how can we do it right. Reserve mining was built there before we had EIS statements. They had problems. They were shut down. They corrected the problems, and they opened again. The Dunka Pit of Erie Mining you can see from Birch Lake. It has drained acid into the lake and they've worked on cleaning it up. I have dedicated about the last six years of my life to saying what can we do to mine safer. I've been working on sulfide-reduction projects to clean up taconite mining in bear waters. PolyMet is on an old taconite mine site. They are helping support even my project to clean up taconite mining-impaired waters and yes, it can be done. I'm proud we're in a state, we're in a country where we go through this process of an EIS to try our level best to analyze the problems and do what can be done about it. I support the PolyMet project because they are seriously looking at those things. They are helping me research sulfide-reduction projects and how to minimize the impacts in the future through passive biological treatment. We can't do that if we don't have the industry supporting us. We have a lot at stake. There are many other projects that have happened in the taconite industry that we need to clean up, and we have to do the future of copper-nickel mining right, and I believe we can and we're really working seriously on it, and passionately. Nobody is a stronger environmentalist than I am and my lake in Babbitt.

Alphabetical by sender's first name

Jeffrey Iverson 47003

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Since childhood I have spent summers and winters in the Ely area as one of hundreds of thousands of annual visitors who pour millions of dollars into the area's outdoor tourism economy-clearly among the most dominant sectors of the regional economy. I continue to fish today with my father in the White Iron Lake system, which would be directly impacted by any pollution from the proposed Franconia Mine. It literally breaks my heart to realize that if this project is approved, it is likely that I will not be able to teach my son to fish in these same beautiful lakes, because as we know, past sulfide mining elsewhere has resulted in acid mine drainage causing extensive and expensive damage to water quality and the environment. Given the rarity of protected forest and lake country in America, and the undeniable preciousness of Minnesota's Superior National Forest and the nearby BWCA, I cannot understand why we would risk potentially catastrophic pollution in exchange for the short-term profits that could be earned from exploiting these lands for their limited mineral resources. I am strongly against this project, and I fear greatly that it will be approved in the end. I ask that every revision possible be made to this project to limit as much as possible the environmental damage I believe to be unavoidable, and attain every possible assurance that Polynet will pay for the cleanup necessary, and for the economic losses the region's outdoor tourism industry will suffer. Thank you for the opportunity to provide input on the PolyMet SDEIS. Sincerely, Jeffrey Iverson 2172 Stanford Avenue Saint Paul, MN 55105 Sincerely, Mr Jeffrey Iverson 2172 Stanford Ave Saint Paul, MN 55105-1221

Alphabetical by sender's first name

Jeffrey Kirst 40208

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Jeffrey Kolnick 40018

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. It's not worth it. The answer is conservation and investment in a sustainable economy. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Jeffrey Kolnick 568 State St Apt B Saint Paul, MN 55107-3094 (651) 308-7241

Alphabetical by sender's first name

Jeffrey L Cerar 6630

Just a comment after looking over the EIS. I feel this is an extremely thorough document. No stone was left unturned. The amount of time, money, and effort put into this is incredible. I firmly support the project and believe that it can, and will, be done in the safest way to the surrounding lands, air, and water. As a life-long Iron Ranger and an employee in the mining industry my whole career, I see the importance of making sure things are done right (and I've seen the consequences when they are not done right). The 10+ years of study on this proposed project has given me the undoubted comfort of knowing that the Polymet project is safe. I would never voice my support if I thought otherwise, as I fish, hunt, and enjoy the beautiful areas around this project site year round. So let's finally move forward and issue the permits. What an exciting time for our area and our communities.. Jeffrey L. Cerar 7674 Woodlawn Drive Eveleth, MN 55734 218-744-1840

_____ This electronic message and any attachments included with this message are for the exclusive use of the individual or entity to which it is intended to be addressed. This message may contain information that is privileged or confidential and thereby exempt and protected from unauthorized disclosure under applicable law. If the reader of this message is not the intended recipient, or an employee or agent responsible for delivering the message to the intended recipient, be aware that any disclosure, dissemination, distribution or copying of this communication, or the use of its contents, is not authorized and is strictly prohibited. If you have received this communication and are not the intended recipient, please notify the sender immediately and permanently delete the original message from your e-mail system.

Jeffrey Lyon 47196

Mar 12, 2014 Ms Lisa Fay MN Dear Ms Fay, I am writing to urge you to reject PolyMet's proposal to build a sulfide mine in northeastern Minnesota. As a resident of Duluth, I do not look forward to having our watershed contaminated mine run-off. The history of these mines is problematic, as they often leave behind a legacy of pollution once the mine is closed down. This is not to say that at some point, with better and cleaner technology, the metals could not be pulled out of those veins without the risk we face now with current technology. The metals will be there for the taking, and there is no rush to bring them to market at this time. Many of us who live in the Arrowhead region choose to do so because of the pristine ecosystems and natural beauty. The PolyMet mine proposal threatens to upset what ecological balance we have remaining here in the north part of the state. Clearly, more jobs are needed in the region. But extractive industries do not make for long-term economic health in small communities, which has been shown over and over again in case studies. Please do not allow construction of this mine. Sincerely, Dr Jeffrey Lyon 1125 W Victoria St Duluth, MN 55811-1694 (218) 249-0887

Alphabetical by sender's first name

Jeffrey Masco 18990

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Jeffrey Masco 2720 40 Ave S. 2720 40th Ave S. Minneapolis, MN 55406

Jeffrey R Jukich 46403

To whom it may concern, I want to voice my support for this project. I have faith in all the agencies involved to ensure the environment is protected. I live on Bass lake(57-16) in the St Louis river watershed so water quality is of utmost importance to me. I am also a former LTV steelworker who understands the concepts of open pit mining. I think this is an appropriate use of this land and I believe the economic impact is greatly needed in this area of St Louis County. Sincerely, Jeff Jukich 4621 Bass Lake Road Gilbert, MN 55741

Jen Olson 44615

To Whom It May Concern, I am writing to express my strong opposition to the proposed mining activity in Northern Minnesota's pristine National Forests. As you know, sulfide mining produces incredibly toxic and dangerous byproducts which have the potential to contaminate our public trust resources. The EPA classifies hardrock mining as one of the nation's top polluters, and sulfide mining in particular has a terrible track recoRd The EPA called Polymet's environmental review "inadequate and unacceptable" in 2010- If Polymet can't prepare adequate environmental documents, how will they treat our public lands. The Boundary Waters Canoe Area Wilderness is the crown jewel of Minnesota-there are few other places like it anywhere in the world. I lived in Minnesota for the first 25 years of my life-I grew up and went to college in Duluth, just a few hours south of the proposed mining locations. My mom and I camped and hunted for ruffed grouse in some of the forests where Polymet is proposing to mine. All of my family still lives in MN, and it's heartbreaking to think that areas which continue to provide so much recreation, enjoyment, and food and clean water for my family and other Minnesotans could be irreparably damaged by an industry that knows and cares little about the area it may destroy. Please preserve these places in the name of wilderness, public health, and the environment. Thank you for your time and consideration. Sincerely, Jennifer Olson Current address: 2699 Pleasant Avenue Eureka CA 95503 Phone: 707-502-2372

Alphabetical by sender's first name

Jen Quiners 54202

I believe the mine is not beneficial to us in the long run. While the increase in resources will help the economy in the short run, the value I place on the environment is much [ILLEGIBLE] Please consider the children in your business endeavor.

Jen Y 6

This copper mine sounds like a terrible idea. Minnesota has too many times been taken advantage of by corporations that don't live up to their word (delta comes to mind) I would not trust a company to say they would do this maintenance (or pay for it) for the duration. Please do not allow this to start happening. It's bad for the environment and bad for Minnesota. The few jobs are not worth the environmental impact. Thank you. Jennifer kingsbury- yungers Sent from my iPad

Jena Ketchum 39090

---Original Message--- From: marcusandjena@gmail-com [mailto:marcusandjena@gmail-com] Sent: Monday, March 10, 2014 6:04 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Jena Ketchum 6740 97th St NE Monticello, MN 55362-2914

Jenn Pontinen 6069

Hello Ms Fay and the EIS Project Team, Attached is my letter regarding the PolyMet project. Thank you. Jennifer Pontinen

Jenn Young 54902

The earth doesn’t belong to 360 people who could potentially benefit from jobs with PolyMet. It belongs to us all! What is being done by this mining will have ramifications, maybe not for our Earth now but the Earth of our descendants decades & centuries from now everywhere! Pollution doesn’t care where it goes & what it destroys.

Alphabetical by sender's first name

Jenna Grove 18275

Jenna Grove. I am the grassroots project manager at Clean Water Action and I am here to voice my concern about allowing PolyMet to open the copper-nickel mine here in Minnesota. I am worried that on top of the negative environmental impact, the impact on the economy and the potential burden to taxpayers, that if approved, there will be an opening of the floodgates for more sulfide mining across northern Minnesota. We know that sulfide mining has a significant impact on our environment and with such a water intensive area, that waste rock, when it is exposed to air and water, yields that sulfuric acid, which will produce that harmful pollution. And according to PolyMet's own reports, this pollution will last a minimum of 200 years at the mine site and 500 at the plant site. And it just really doesn't seem responsible, especially with only 20 years of mining. And I do understand the appeal of the creation of new jobs and economic stimulation. And in a perfect world, there would be no environmental degradation and PolyMet would offer all of its employment opportunities to members of local communities and the resources that they planned to mine would be endless, but that is obviously not realistic and we know what implications this will have on our environment. The mining companies will typically import employees from elsewhere and only half of those jobs will go to members of local communities. The metals that will be extracted are most likely going to be exported, putting profits in shareholders' pockets rather than in the pockets of Minnesotans. The resources are not limitless and eventually will become depleted, and ultimately these mining companies will pack up, absolve themselves of their responsibility left behind and move on to the next profitable opportunity, leaving our once pristine environment both polluted and destructed for the next few hundred years. Those jobs will be lost and remind us of the dramatic collapse of the 1980s and could possibly become vulnerable to the boom and bust cycle of mining again. In a report prepared by Thomas Michael Power of the economics department at the University of Montana, it states that, "Environmental quality is not just a matter of prettiness or aesthetic preference, it is an essential part of any region's economic base and potential for economic vitality. He also adds that the question here is whether the public benefits and costs justify approving the proposal. When total costs exceed the benefits, economic rationality would call for the mining project to be rejected. That's all.

Alphabetical by sender's first name

Jenna Spicer 14928

Feb 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Jenni OLink 45100

The SDEIS for the Poly Met Mining Project is flawed and does not guarantee that sulfide mining can be done in Minnesota without seriously harming water and habitat. This project should not go forwaRd Sincerely, Jennifer O'LInk

Jennie Manar 40089

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Jennie Manar 13001 Pennock Ave Trlr 95 Apple Valley, MN 55124-8598

Alphabetical by sender's first name

Jennifer Adams 16656

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jennifer Adams 1200 27th Ave NE Minneapolis, MN 55418

50039

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jennifer Adams 1200 27th Ave NE Minneapolis, MN 55418

Alphabetical by sender's first name

Jennifer Applebaum 17186

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jennifer Applebaum 1Fletcher place Hopkins, MN 55305

50451

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jennifer Applebaum 1Fletcher place Hopkins, MN 55305

Alphabetical by sender's first name

Jennifer Austin 14

To Whom It May Concern: According to a DNR press release, the supplemental draft of the Environmental Impact Statement for Polymet's NorthMet project will be released on the federal register today. I've been searching the register this morning and have not been able to find the draft. Would you be able to direct me to where I can find it. Thank you. Jennifer Austin Reporter KBJR-TV HYPERLINK "http://www.nncnow-com/"www.nncnow-com (218) 969-8104

Jennifer Brajdich 40163

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Jennifer Gross 44056

To Whom it May Concern, First off, thank you for taking the time to read my comment. I'm sure the average demographic responses the DNR is receiving is from middle-aged people with strong personal ties to the BWCA. I am a 23 year old woman and want to say what happens and doesn't happen in northern Minnesota in the coming years matters to my generation too. A few summers ago, I worked up north in Ely a resort where I was first exposed to the idea of mining for precious metal. The resort I worked at was on the Kawishiwi River, near the BWCA. That same summer, there was some exploratory mining going on around the Kawishiwi and Birch Lake. We could hear that mining that was happening ¾ of a mile or more away. Talk about ruining the aesthetic appeal of the Northwoods. As I learned more about Polymet's plans to mine in the area, I became more and more concerned. The waters in that area are all connected. I think it's a huge gamble to take mining in such an environment where a mistake is not only colossal and can potentially harm waters that go into Lake Superior and also into Canada, but any mistake would also be very expensive. In the event that the water becomes contaminated, I highly doubt Polymet is going to see the treatment of the water through for the next 500 years. Inevitably, the burden will fall on the tax payers or possibly even go without being treated. That risk alone, I think should caution people when they consider mining in northern Minnesota. 500 years of water treatment, potentially ruined the lynx and moose habitat, and wild rice patties – is this worth 15 or 20 years of jobs. I'm not convinced. I might be more inclined to the idea of mining in such a sensitive area if Polymet instead considered underground mining, but it sounds like the plan is to use open pit mining, in which case run-off water is harmful to the environment, yet guaranteed. Given what is at stake, I find mining for precious metals dangerous to the environment, to the aesthetic appeal of the BWCA, and to our tax payers. Instead of looking at the big picture: what are we going to leave behind on this earth for our children, mining in the area is a way to make money and a short-term solution. I am lucky enough to have experienced the BWCA myself and readily enjoy a good hiking and fishing trip in the Northwoods. My experiences have taught me an important lesson that most people would benefit from, and that is to walk more gently upon our earth. Thank you, Jennifer Gross Operations Coordinator Stop Loss Cost Containment Team ING US 20 Washington Ave S. Minneapolis, MN 55401 612-342-7191 HYPERLINK "mailto:jennifer.gross@us.ing-com"jennifer.gross@us.ing-com ING US (NYSE: VOYA) Becoming Voya™ Financial in 2014 ---------- NOTICE: The information contained in this electronic mail message is confidential and intended only for certain recipients. If you are not an intended recipient, you are hereby notified that any disclosure, reproduction, distribution or other use of this communication and any attachments is strictly prohibited. If you have received this communication in error, please notify the sender by reply transmission and delete the message without copying or disclosing it.
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Jennifer Jewell Thomas 10280

Dear DNR: My family has enjoyed wilderness camping in the BWCA Wilderness Area nearly every year for over 30 years. The area is one of the treasures of the State of Minnesota and the nation. The pristine waters are essential to the appeal of the area for the vital tourist industry that supports visitors like me. The long-term risk to water quality from the proposed PolyMet mining is enormous and the potential benefit is very small. The few mining-related jobs that would go to Minnesotans would be quickly offset by the devastation in the tourist industry that would result from long-term contamination of the watershed. Only small errors in the water-flow models could lead to the destruction of the wilderness. The potential gain is small and the risk is enormous. Residents in West Virginia know, all too well, that contaminated drinking water destroys jobs and basic livability of a community. Minnesota is better than that. Please do not approve this or other mines in or near the wilderness area or watersheds. Jennifer Jewell Thomas 4744 Thomas Ave S Minneapolis, MN 55410 HYPERLINK "mailto:jjt@jjthomas-net"jjt@jjthomas-net H: 612-920-4246 C: 612-386-5724

58112

My family has enjoyed wilderness camping in the BWCA Wilderness Area nearly every year for over 30 years. The area is one of the treasures of the State of Minnesota and the nation. The pristine waters are essential to the appeal of the area for the vital tourist industry that supports visitors like me. The long-term risk to water quality from the proposed PolyMet mining is enormous and the potential benefit is very small. The few mining-related jobs that would go to Minnesotans would be quickly offset by the devastation in the tourist industry that would result from long-term contamination of the watershed . Only small errors in the water-flow models could lead to the destruction of the wilderness. The potential gain is small and the risk is enormous. Residents in West Virginia know, all too well, that contaminated drinking water destroys jobs and basic livability of a community. Minnesota is better than that. Please do not approve this or other mines in or near the wilderness area or watersheds.

Alphabetical by sender's first name

Jennifer Lasch 41895

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Jennifer Lasch 11213 President Dr NE Blaine, MN 55434-1774

Jennifer Libby 54683

See attachment

Jennifer Lund 14922

Good morning. The PolyMet project, NorthMet, will create a positive addition to the area and the state of Minnesota as a whole. The estimated $10 billion in estimated impact over the twenty years of the project (study by UMD) will help the region to flourish. This growth and sustainability will help families create a stable base for a successful and happy life in our state. When it comes to mining, the concern always comes up about the environmental effects of the project. However, PolyMet has openly addressed and alleviated my concerns. With the federal regulations being strictly regulated and the increase in the technology behind the mining process, preserving the environment appears to be top of mind. Keeping the outdoors as beautiful as they are now is extremely important, and I feel that Poly Met Mining, a Minnesota Corporation, understands that as well. With all of the precautions being taken and the jobs that will be created by the project, we cannot afford to say no. PolyMet has my full support. Thank you for your time. Jenny Lund Payroll Administrator Industrial Lubricant Company P.O. Box 70 Grand Rapids, MN 55744 (218) 328-0263 tel | (218) 328-0259 fax HYPERLINK "http://www.industriallubricant-com/"www.industriallubricant-com cid:image003-png@01CE99AF.096E6780

Jennifer Lynch 57222

The resources we have in NE Minnesota are far too valuable to risk with introducing sulfide mining. The “technology” to prevent polluting our waters are not new and have not proven to be safe. We have the largest source of fresh water in our hands to protect for our children and grandchildren – please do not risk contaminating it.Jennifer Lynch2650 NE McKinley StMinneapolis, MN 55418

Jennifer Marabella 42767

See attachment

Jennifer Osufsen 7372

Good Afternoon, This area desperately needs the jobs that PolyMet can provide, and all the research and preparation has shown this operation will be a responsible and profitable venture for everyone involved. Please support the people of the Iron Range and allow PolyMet to begin mining. Thank you, Jennifer Osufsen Aurora, MN

Alphabetical by sender's first name

jennifer p 16585

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, jennifer p 640 st paul, MN 55101

49991

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, jennifer p 640 st paul, MN 55101

Alphabetical by sender's first name

Jennifer Pearson 4222

Dec 31, 2013 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Jennifer Pearson 10061

Jan 28, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

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Jennifer Popernack 43863

- HYPERLINK "https://s3-amazonaws-com/uploads.wisestamp-com/63a47253aaf32896212fc5a85d32a210/1364504875-png.chaching=none"photoJennifer Lynn Popernack Technology Services Assistant Humanities, B.A. History, Politics, and Gender Studies c: (218) 409 0356

Alphabetical by sender's first name

Jennifer Rials 39227

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Jennifer Rials 13068 Vernon Ave Savage, MN 55378-2429 (952) 953-3180

Jennifer Saran 47832

March 13, 2014 VIA EMAIL Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Re: PolyMet Mining Comments on NorthMet SDEIS Dear Ms Fay: On behalf of PolyMet Mining, I am pleased to provide the attached comments on the NorthMet Supplemental Draft Environmental Impact Statement (SDEIS). Completion of the EIS and issuance of the Clean Water Act Section 404 permit are critically important, and we appreciate the hard work that the DNR, US Forest Service and US Army Corps of Engineers have put into this project. If you have any questions, please contact me at 651-600-5457- Sincerely, Jennifer HYPERLINK "http://www.polymetmining-com/"Description: Description: Description: Description: Description: Description: Description: cid:6AFFE152-73DD-4C01-990F-8A7BF909FA71 Jennifer Saran Director of Environmental Permitting and Compliance Mobile: 651-600-5457 | Office: 651-389-4108 | Fax: 651-389-4101 HYPERLINK "mailto:jsaran@polymetmining-com"jsaran@polymetmining-com | HYPERLINK "http://www.polymetmining-com/"www.polymetmining-com This message is intended for the sole use of the intended recipient. The message and any files transmitted with it may contain material that is confidential and/or legally privileged. Any review, reliance or distribution by others or forwarding without express permission is strictly prohibited. If you are not the intended recipient, please contact the sender and delete all copies.

Alphabetical by sender's first name

Jennifer Schultz 41050

To whom it may concern, As the mother of two young children, I care deeply about environmental issues. I am dedicated to protecting and preserving our environment for my sons and all Minnesotans. There is no substitute for clean water. As an economist, the issue of pollution has special resonance as well. Pollution is a way that businesses and others pass part of the cost of operation off to other people, especially current and future taxpayers. For the public to make an informed decision and to protect our environment many things need to happen. There are more than twenty sites in the Duluth Complex that are designated as potential mining operations. Any review of the environmental impact of mining should require assessment of the impact of all of the projects together, not piecemeal analysis of one project at a time. No project should start before this analysis is performed. There should be no change to our allowable limits for water quality. These limits are the result of unbiased application of the best scientific information. To allow them to be significantly altered - by as much as 28 times more allowable pollution - in response to political and financial pressure is not acceptable. It is my understanding that the techniques planned for water purification are incapable of reaching required water standards today, much less complying to those standards for hundreds of years in the future. The project should be stopped if it cannot meet our existing, scientifically established, standards. Allowing our regulatory agencies to issue variances to pollute is not acceptable. In addition to the water quality issues being addressed, rational assessment requires evaluation of pollution by many other potential contaminants that are being ignored. This includes not only mercury, arsenic, and other chemical pollutants, but also both air and water pollution with small mineral fibers. These have been shown to cause cancers. We should not be threatening our lives and our children's and grandchildren's lives for short-term gains. Financial guarantees should require indemnification not just for the estimated minimum $450 million cost for closing the project, but for potential costs of chronic or catastrophic failures of safety systeMs The legislature should pass laws to ensure this, requiring bonding guarantees in the billions of dollars. Mining companies should be held responsible or not be allowed to operate. These costs should not fall on taxpayers, as they have so often elsewhere. Good quality on-going monitoring and assessment of environmental impact and pollution will be critical from day one until hundreds of years in the future, in order to assure public safety. To provide for this, we will need to hire many trained technicians and invest in scientific instruments to perform continuous monitoring on an independent basis. Funds to pay for this should come from taxes on the mining operations themselves, and should not be passed off to general taxpayers. These new taxes should be passed by the legislature to pay for independent monitoring now and for centuries to come. Finally, any intelligent approach to developing extensive new mining should include a comprehensive, unbiased economic cost-benefit analysis. Benefits of new jobs created and new taxes generated must be weighed against the costs of pollution and costs to existing businesses and residents, including the impact on the recreation and tourism industry. Increased costs of public infrastructure, of monitoring and of possible abatement of environmental impact must be included in these calculations. Unless this type of analysis is made before starting operations, we have no way of knowing if this project is a benefit or a detriment to society's welfare. Development should stop until this analysis is complete. Potential guarantees based on supposed adequate performance in mining operations elsewhere are not sufficient. The history of industrial catastrophes

Jennifer Seeger 41916

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Jennifer Seeger Minneapolis, Minnesota

Alphabetical by sender's first name

Jennifer Stattelman 19891

As residents of Northeastern Minnesota, our family is concerned with the possibility of a sulfide mine on the edge of the BWCA and Superior National ForeSt We canoe, wild rice, and fish and are concerned that the possible increase of sulfates in the St Louis watershed will impact these activities. We don't feel that the environmental review adequately addresses our concerns and that there is a rush to push this project through. We have heard, through personal contacts, that others in the DNR, outside the branch concerned with mining, are also concerned. We are disturbed that the original EIS was deemed completely inadequate yet the follow up does not seem all that improved. We are worried that the thirst for new jobs on the Iron Range and the desire for tax revenues is driving this with little regard for the burden the natural environment and the taxpayers of Minnesota and, possibly, the United States, might have to bear in the coming years, decades, centuries. The mineral resources are not going anywhere and we feel that the onus is on the state to protect all of us until such a time sulfide mining can be proven to be safe and sustainable and have a longer view than simply 20 years of jobs. Mike Stattelman 5041 Washburn Road Duluth, Minnesota 55804 218-724-4179

Jennifer Steffen 48200

10 new people recently signed Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota." on Change-org. There are now 350 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 349- Zhe Yu Lee , United States 348- Miranda Bridgeman Big Lake, Minnesota 347- Sarah Barton Northfield, Minnesota 345- Kristen Peterson Maple Grove, Minnesota 343- Ryan Ericson Mahtomedi, Minnesota 342- Courtney Bachmann Northfield, Minnesota 341- Alex Benjamin White Bear Lake, Minnesota 339- Jolene Brink Saint Paul, Minnesota 338- Alexis Boxer Minneapolis, Minnesota 337- Whitney Adrian St Cloud, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJmaXZlX2h1bmRyZWQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTI4LCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA1NDI3MTh9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK4e4xg3bv5-2Fwms3xsXW2v35ATlZF5ztri-2F9m-2B3n6golJMxRd-2F8YTzpzh2PWSAlFruflmAZVve362MJ-2BLSkcVZO0h9Xa7Gr1EOLVhHbggPNL42sdF71ew1j-2BJ15lFSAezcelMSLGtwjZ4vziRW7LnMlpWH-2B-2BHnMXcX7RHwHbNuHS83SAqvQ0Omgg1cEyOs4xy1UG5CEY-2FB8tQctgihrdKadHH7gUZ46jHTgpJjN8blVyt

Alphabetical by sender's first name

Jennifer Stokes 41609

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Jennifer Stokes Saint Paul, Minnesota

Jennifer Tuder 40044

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Dr Jennifer Tuder 3960 Jackson St NE Columbia Heights, MN 55421-3943 (612) 267-2612

Jenny Brude 42820

See attachment

Jenny Hanlon 38590

Please stop destroying our beautiful planet Sent from my iPad

Jenny Kedward 58115

I understand and appreciate the work put into the SDEIS. Based on the EIS, I cannot support a mining operation that would leave the state or federal government liable for actions of one business. Water quality is evolving constantly. This EIS does not address new concerns or preposed limits of water treatment. And even with the best WWTPs, pollution is still possible. Lead pollution is stated as inevitability with this plan. We know for certain the health and environmental risks associated with lead and mercury. China is the main consumer of copper – more that all other countries put together. I do not feel we need to destroy our land, air, and water to feed Asian growth. We have also not exhausted our recycling efforts for copper. As a recycling educator, I see firsthand what precious metals we send to the landfill.

Alphabetical by sender's first name

Jenny McDermott 40108

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Jenny McDermott 4055 Meadowbrook Ln Saint Louis Park, MN 55426-4608 (952) 935-7509

Jenny Putnam 39101

DNR I urge you not to accept the SEIS regarding PolyMet for the following reasons I do not think it is in the best interest for the citizens of Minnesota to be responsible for future tax burden as a result of cleanup costs for pollution that will result from poly mets project. The reason I am so concerned about this, in spite of poly met saying that they would be responsible, is that the financial assurances need to remain in place for an extreme amount of time. Financial assurances that need to be in place for 200 to 500 years have not ever been proven. Have there ever been any financial assurance vehicles that have been tested or proven effective for 500 years. I understand that the financial assurance part of this project is actually looked at in the permitting stage, but I strongly feel it is important that it is addressed here as well. The land swap between the forest service and poly met in my mind needs to have its own separate review. The proper amount of time needs to be allotted to this important piece of poly mets project. It cannot be lumped together and hurried through. The use of the national forest has restrictions put on it for a reason. We need to respect that and not put the needs of a corporation ahead of the rights of the citizens of the United States. We were personally involved in a land trade with the federal government. Our land trade took 12 years to go through and it was to trade lakeshore recreational property which was already in use and leased for that purpose. I feel it is a mistake for us to make this trade which would allow non ferrous mining to be done in our national Forrest without a longer period of time for public comment and education on this important change of use. It just does not make logical sense, unless a for profit corporations project does not need to have the same scrutiny as an individual. There is some discrepancy as to the amount of water being released from the project. I would believe the tolerances were put into the model for a good reason therefore it would make sense that the correct numbers be put in and the model be rerun. This is an important part of the EIS. In order to protect our citizens it is only responsible to redo the calculations and do a revision of the model. I am a concerned citizen, who loves this part of Minnesota, and is very troubled by the potential harm this type of mining could bring to northern Minnesota. I believe this harm will not only come to the earth but also would be damaging to the already established tourism environment of that area. This includes businesses as well as cabin owners. The related jobs, as well as construction jobs, taxes and other benefits this tourism economy and vacation home industry brings to the state is sustainable and can be grown. I do not believe that the current tourism economy and vacation home industry could flourish side by side with the nonferrous mining economy which brings pollution and greater industrialization to this unique part of our country. The following are items I would like the DNR to fix in PolyMets mine plan Plan to account for the destruction of moose habitat as well as other natural habitat for the Canadian lynx Plan should call for a detailed plan for financial assurances that protect current and future taxpayers Plan should accurately assess health risks to the public Address the risks of mercury pollution for our children as well as future generations Plan should improve wetland protection and replacements Provide Minnesotans with accurate information about how long polluted waters will require treatment Glencore must be recognized as a responsible party for permitting because of its ties with PolyMet Fix the inaccurate water data used in the model and redo the water model In conclusion it is my opinion that the few hundred jobs and monetary gain for a corpor

Alphabetical by sender's first name

Jenny Putnam 39110

DNR I urge you not to accept the SEIS regarding PolyMet for the following reasons I do not think it is in the best interest for the citizens of Minnesota to be responsible for future tax burden as a result of cleanup costs for pollution that will result from poly mets project. The reason I am so concerned about this, in spite of poly met saying that they would be responsible, is that the financial assurances need to remain in place for an extreme amount of time. Financial assurances that need to be in place for 200 to 500 years have not ever been proven. Have there ever been any financial assurance vehicles that have been tested or proven effective for 500 years. I understand that the financial assurance part of this project is actually looked at in the permitting stage, but I strongly feel it is important that it is addressed here as well. The land swap between the forest service and poly met in my mind needs to have its own separate review. The proper amount of time needs to be allotted to this important piece of poly mets project. It cannot be lumped together and hurried through. The use of the national forest has restrictions put on it for a reason. We need to respect that and not put the needs of a corporation ahead of the rights of the citizens of the United States. We were personally involved in a land trade with the federal government. Our land trade took 12 years to go through and it was to trade lakeshore recreational property which was already in use and leased for that purpose. I feel it is a mistake for us to make this trade which would allow non ferrous mining to be done in our national Forrest without a longer period of time for public comment and education on this important change of use. It just does not make logical sense, unless a for profit corporations project does not need to have the same scrutiny as an individual. There is some discrepancy as to the amount of water being released from the project. I would believe the tolerances were put into the model for a good reason therefore it would make sense that the correct numbers be put in and the model be rerun. This is an important part of the EIS. In order to protect our citizens it is only responsible to redo the calculations and do a revision of the model. I am a concerned citizen, who loves this part of Minnesota, and is very troubled by the potential harm this type of mining could bring to northern Minnesota. I believe this harm will not only come to the earth but also would be damaging to the already established tourism environment of that area. This includes businesses as well as cabin owners. The related jobs, as well as construction jobs, taxes and other benefits this tourism economy and vacation home industry brings to the state is sustainable and can be grown. I do not believe that the current tourism economy and vacation home industry could flourish side by side with the nonferrous mining economy which brings pollution and greater industrialization to this unique part of our country. The following are items I would like the DNR to fix in PolyMets mine plan Plan to account for the destruction of moose habitat as well as other natural habitat for the Canadian lynx Plan should call for a detailed plan for financial assurances that protect current and future taxpayers Plan should accurately assess health risks to the public Address the risks of mercury pollution for our children as well as future generations Plan should improve wetland protection and replacements Provide Minnesotans with accurate information about how long polluted waters will require treatment Glencore must be recognized as a responsible party for permitting because of its ties with PolyMet Fix the inaccurate water data used in the model and redo the water model In conclusion it is my opinion that the few hundred jobs and monetary gain for a corporati

Jensen Ronald J 44754

I am writing to express my opposition to the proposed PolyMet sulfide mining project in Minnesota, and my serious concerns with the flawed SDEIS. This project should not go forwaRd As a 35-year Minnesotan, I consider the BWCA and Superior National Forest to be a state and national treasure, and a place that I personally enjoy and support financially several times every year. It is a place of spiritual renewal, and truly one of the best things about living in Minnesota. When I go the DNR website, I see drop-down menus for “recreation”, “destinations”, “nature”, “education/safety”, and “licenses/permits/regs.” I do not see “mining” anywhere. My hope is that the DNR will continue to protect our natural resources for the use of all Minnesota citizens, rather than allowing the environment to be destroyed for the benefit of a Canadian corporation and a few hundred jobs. I sympathize with the workers in NE Minnesota who need jobs, but I don’t think their employment in a boom-and-bust industry like mining is worth the cost to the other 5 million Minnesotans and the entire country, for generations to come. Past history shows that it is not a question of “if”, but “how bad” the environmental impact of sulfide mining will be, and in this regard, I think the SDEIS is seriously flawed in its water flow models, estimates of habitat destruction, and cost/risk models for environmental clean-up. There is no reason to believe data or performance that has not been previously demonstrated. I urge you to think of the greater good of all Minnesotans, our precious natural resources, and generations to come, and not give in to short term economic interests. My ultimate hope is that sulfide mining will never occur in northeast Minnesota, but at a minimum, I expect the DNR to demand an EIS that is accurate and comprehensive. The current SDEIS does not meet the standards I expect for Minnesota. Thank you, Ronald Jensen 9704 Oxborough Road, Bloomington, MN 55437

Alphabetical by sender's first name

Jere Wilkerson 40385

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Jere Wilkerson 1680 Linden Ct. Cambria, CA 93428 US

Jeremiah Boe 16739

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jeremiah Boe 529 Henry Lane Lino Lakes, MN 55014

Alphabetical by sender's first name

Jeremiah Boe 50099

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jeremiah Boe 529 Henry Lane Lino Lakes, MN 55014

Jeremy Beck 43075

I have many concerns regarding the Polymet mine. The key ones are: 500 year cleanup - Who is going to be maintaining this cleanup operation, especially when Polymet or Glencore are no longer in business. Flawed Water Study - The water modeling was done using water flow data from a time with historically low water levels. I feel more representative data should be used to assess the full impact. Contaminant breach - We've had several 1,000 year floods in the last few years. What happens in the event that the containment basin is overflows or is otherwise breached. Our water resources in NE Minnesota are far more valuable than the mineral resources. This proposed project is far too risky to Lake Superior and the surrounding watershed. NO to Polymet and their proposed mine. Jeremy Beck 415 University Ave NE Minneapolis, MN 55413

Alphabetical by sender's first name

Jeremy Reichenberger 9477

"You've all heard that northern Minnesota is home to one of largest copper deposits in the world. It's not. It doesn't even come close. At peak production, this mine would produce 72 million pounds per year. The largest copper mine in the United States, which doesn't even make the list of the top 10 mines in the world, is the Morenci mine in Arizona, which produces 1 billion pounds a year. People ask, can we trust PolyMet. It's not PolyMet we need to truSt It is Glencore Xstrata, the primary owner of PolyMet, which [reportedly] will buy the rest of PolyMet once all the permits are in place. So, who is Glencore Xstrata. Glencore Xstrata is a Swiss-based firm known for its ruthlessness. It is the fourth-largest mining company in the world. It controls 50 percent of the world's copper through its ownership of more than 100 mines around the world, and its commodities trading operations. Glencore Xstrata has run up a long list of labor and environmental abuses, including 58 mining fatalities between 2008 and 2010, over twice the number reported by any other mining company over that period. Just in 2012, their environmental and labor record includes dumping raw acid in waterways in the Congo, failure to provide a vapor barrier to keep an acid mist from descending on 3,000 people in Zambia, utilizing child labor as young as 10 years old in mines in Congo, and causing environmental damage at its McArthur River mine in Australia. Can we trust these people to do it right' in Minnesota. I think not." - Ron Sternal of St Louis Park, a retired Wall Street executive speaking at a public forum on the PolyMet mining project in Northern Minnesota - Jeremy Reichenberger University of Minnesota HYPERLINK "mailto:vicke034@umn-edu"reich298@umn-edu Confidentiality Notice: This message, together with any attachments, is intended only for the use of the individual or entity to which it is addressed and may contain confidential or privileged information. If you think you have received this message in error, please advise the sender and then delete this message and any attachments immediately.

Jeremy Swanson 39363

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. These are sad times we live in when corporations and government care less about the real people that have to live here and only about the bottom line. My wife and I are already researching other states to move to that value natural resources and human life and wildlife more than money. We'll be prepared to move when and if these mines are approved, it will be disheartening, but we literally and physically and mentally cannot support such disdain for the wildlife and nature of this state and country. We've seen programs where PolyMet 'claims' they're environmentally safe and have cleaned up their act. They say they'll implement cleaning acts to help with ground water contamination [a clear admission of fault in and of itself] once their new mining facilities are opened If they really cared about the environment, why wait for mines to open, clean up the water now, show the people they care. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Jeremy Swanson PO Box 140 Mora, MN 55051-0140

Alphabetical by sender's first name

Jeremy Swanson 48694

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. These are sad times we live in when corporations and government care less about the real people that have to live here and only about the bottom line. My wife and I are already researching other states to move to that value natural resources and human life and wildlife more than money. We'll be prepared to move when and if these mines are approved, it will be disheartening, but we literally and physically and mentally cannot support such disdain for the wildlife and nature of this state and country. We've seen programs where PolyMet 'claims' they're environmentally safe and have cleaned up their act. They say they'll implement cleaning acts to help with ground water contamination [a clear admission of fault in and of itself] once their new mining facilities are opened If they really cared about the environment, why wait for mines to open, clean up the water now, show the people they care. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Jeremy Swanson PO Box 140 Mora, MN 55051-0140

Jerilyn Breitkreutz 39915

unsubscribe me. On Thu, Mar 6, 2014 at 6:05 PM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Jerome 54733

See attachment

Jerome A Challman 42763

See attachment

Alphabetical by sender's first name

Jerome Comeau 18900

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Jerome Comeau 3316 Emerson Ave S 3316 Emerson Ave S Minneapolis, MN 55408 612-825-4049

Jerome Ekre 57560

I live approximately one mile north of the Clay County, MN Landfill. This was sited in the 1970's with permission from the State. It was placed on a water recharge area with only a clay liner. The site leaked VOC's into the shallow water table. Follow-up has been to transfer waste and relining most of the original site. The liner is heavy tough plastic. The local governments and the State have learned some tough lessons. The state has been improving and regulating the site. If the local and State-Federal governments allow the Poly-Met mining project the investors and the employees will benefit. Use of this resource will be needed. The land exchange sounds to be a reasonable action. Extreme environmental groups and a few local "Not in My Back Yard Groups" can best be used to lobby for the best science to protect the area and extract the resources. The Laws must be used to make the best and safe use of the resource. I see nothing from this project but knowledge of how to use the resource with safety and provide jobs in an area where Iron has been removed in some of the area. This is an environment that has been used. Some of the Iron sites will have a use and be cleaned up in the future. Allow this project. Thank You Jerome Ekre 18059 17th Ave South Hawley, MN 56549 218-937-5504

Alphabetical by sender's first name

Jerome Kernes 33648

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt REGISTER TO VOTE AND VOTE I AM 81 YRS. OLD AND LIVE WITH MY WIFE ON MY SOC.Sec I AM A VOTER REGISTRAR AND ELECTION JUDGE. THERE IS ONLY ONE WAY TO ACHIEVE REFORM: FIGHT TO HAVE ALL AMERICANS REGISTER AND VOTE. ALSO, THE RIGHT TO VOTE MUST BE DEFENDED AND PROTECTED. VOTER SUPPRESSION IN ALL OF THE REPUBLICANS DESPERATE ATTEMPTS TO PREVENT VOTING IS THE GREATEST THREAT TO OUR LIBERTIES AND FREEDOMs WAKE UP AMERICA. IT IS PRACTICALLY OUR LAST CHANCE TO PREVENT THE COMPLETE TAKE OVER OF AMERICA. MANY DEMOCRATS HAVE ALSO CONTRIBUTED AND PARTICIPATED IN THE DESTRUCTION OF OUR MIDDLE CLASS ENABLING THE MILITARY AND INDUSTRIAL COMPLEX TO WEAKEN THE ECONOMY BY REMOVING BANK REGULATIONS AND ALLOWING THE RICHEST AMONG US TO AVOID PAYING TAXES, INCLUDING SUBSIDIES AND A HOST OF LOOPHOLES. INSTEAD, THE TAX ISSUE IS BURIED IN WASHINGTON UNDER MEDIA SPIN AND SIDE ISSUES CONTRIBUTING NOTHING TO PROGRESS OF UNDERSTANDING WHAT IS IMPORTANT TO THE 47 PERCENT OF AMERICA, ABOUT WHOM MITT ROMNEY INADVERTENTLY MADE REFERENCE. JEROME S. KERNES, DES PLAINES, IL Sincerely, Jerome Kernes 9735 Sumac Rd Apt 418 Des Plaines, IL 60016-1730 (847) 736-0001

Jerri Ann Walseth 54150

I think this is a terrible plan. I think it will lead to pollution that no one will want to pay to clean up. Please do not allow this to proceed. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Jerritt Johnston 44701

To whom it may concern: The PolyMet SDEIS is deeply flawed and should not be accepted. There are numerous, significant problems throughout the document, but four stand out to me. 1- The models used to predict water flow are inaccurate and do not match actual rate of water flowing from the site. This means that all the amount of pollution and impact on the Partridge River and subsequent waterways are underestimated. After this many years of study, if PolyMet cannot accurately measure water flow, they are not competent enough to operate a mine in this area. 2- Minnesota state law requires that closed mines be maintenance free. Two hundred years of water treatment at one location and 500 years of treatment at the other do not meet that requirement. PolyMet fails that teSt Even those numbers are suspect, as the model used ends at those years because there is no longer a change in the level of pollution. It does not stop because the pollution has been eliminated. Also, no amount of financial assurance that a company will be willing to pay will cover the costs of maintaining this site in perpetuity. 3- There is not enough attention paid to cumulative effects of this project in relation with past iron and taconite mining in the area. More importantly, cumulative effects need to be addressed in relation to other copper-nickel mining projects moving forward in this region of the state. 4- As with work supporting much of this document, the socio-economic impact section is lacking. It was prepared using an IMPLAN model, which has been shown to overestimate the impact of new economic activity. Even with those biases, the document states that employment will only be increased by about one percent in the region. This is not a compelling reason to move forward with a project that will cause this much damage. As a resident of Ely, and someone who cares greatly about the economic and environmental viability of this region, I have no confidence in PolyMet's ability to safely operate a copper-nickel mine. The Superior National Forest and the woods in northeastern Minnesota are among our greatest assets. To destroy these assets to mine for possibly 20 years is failing the DNR's mission to manage our resources and is in direct conflict with the Forest Service's responsibility to manage the forest for multiple uses. Sincerely, Jerritt Johnston 737 5th Ave S Ely, MN 55731

Alphabetical by sender's first name

Jerrold Gershone 41938

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, Dear Ms Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Please reject the proposed mine. Future generations will thank us for our foresight in protecting this environmentally sensitive area. Thank you, Jerrold Gershone Sincerely, Mr Jerrold Gershone 13111 April Ln Minnetonka, MN 55305-2735

Jerry & Nancy Irsfeld 42783

See attachment

jerry and Shirlee maertens 45301

To whom it may concern: Please accept and consider my comments regarding the above mining SDEIS by PolyMet Inc. Although a lay person (me) is ill-prepared to technically review any document of this magnitude and formally prepare comments that are “informed, specific and relevant” to the SDEIS as prescribed by the agencies, still, I have attempted to be specific and relevant to those items I have addressed. My concern is about all the types of environmental degradation that usually always occur with large land transformations. True natural areas are becoming less and less and what often replaces them are the scars and contaminations left on the land for future generations to deal with. PURPOSE AND NEED FOR MINING - Alternative for the “need” to mine and JOBS It is stated that the purpose and need for this mining project is to meet the “rising global demand” for these products to domestic and world markets. Just how great is this “demand” at this time. It seems that there could be a possible ALTERNATIVE to mining at this time also. Before we mine our deposits here in Minnesota with an unproven method of copper sulfide mining, we should consider and make an honest attempt to recycle these same metals from the electronics that we as Americans so readily discaRd This trash waste stream is also a rich resource in and of itself and certainly provides more sustainability than does depleting the raw resources in the earth. (Personally, I think it’s more about someone being able to make $$$ from a perhaps ‘easier’ method than the ‘dirty’ process of recycling.) JOBS Certainly there is a need for jobs--and there will always will be a need for jobs as the population grows, but the 300-400 permanent jobs that this mining project provides for only 20 years is a small number in the long-term scheme of things, and likewise for the spin-off jobs---a short-term fix if you can call it that. And after the mine closes, where will the next set of jobs for the area come from. It really is not worth the uncertainty and cost of possible consequences to the waters and land in that area at this time. AFFECTED ENVIRONMENT - WATER Waters are perhaps the most important and major concern of mine. Surface and groundwaters are unequivocally one of and perhaps the most important “element” of our natural commons. (Right.) Any project that poses or threatens harm and degradation to water should not be allowed to go forward until such time that it can be shown/proven that the project actually works as described in the mining process and operations description. Why would you risk Minnesota’s waters and lands. We should be at least as cautionary as Wisconsin who evidently has a prove-it-first policy or standaRd Michigan’s situation remains to be seen. The fact that evidently no where on earth has copper sulfide mining been benign to the environment should not go unheeded. So the process of reverse osmosis has not “stood the test of time” and is only part of the total operation. 1- I am concerned that this process of chemical extraction in order to separate copper and other metals from the sulfide rock material requires vast amounts of water that have the potential of polluting or contaminating surface and ground water quality. To even (having to) refer to water treatment after (only) 20 years of mining, for 200 or to 500 years after the mining has shut down is unthinkable; it is human hubris to the nth degree. NO ONE can assure any of us, the citizens of Minnesota, that treatment would be feasible into the future for hundreds of years and who can tell what the real cost would be. Citizens in places like some of Montana’s mining are paying millions annually for clean-up from mining companies who walked away after filing bankruptcy. In addition, natural calamities happen all the time; WHO can guarantee that something will not occur to

Alphabetical by sender's first name

Jerry Fruetel 45684

If this project is approved, Minnesota will be exposed to enormous environmental and financial risks. If we get this wrong, we risk ruining the environment in one of the most pristine areas of the state, and incurring enormous financial costs for generations to come. Should that occur, the value of the jobs and other economic benefits created by this project will pale in comparison to the damage done. Therefore, I urge each and every regulator on this project to gather your courage, remind yourself of what's at stake, and do your utmost to protect Minnesota's environment and minimize its financial exposure. You should approve this project if, AND ONLY IF, stringent environmental protections and financial assurances are firmly in place. Minnesotans now and for generations to come are depending on you (regulators) to make the right call. Set the bar high, and do not not compromise your standards or judgment in the face of pressures from Polymet, unions, or local leaders who understandably are motivated more by short term economic interests than by the long term well-being of our state. We're counting on you to get this right, and so are millions of future Minnesotans.

Jerry Fryberger 18191

My name is Connie Smallman, C-O-N-N-I-E, S-M-A-L-L-M-A-N. I've been a 25-year member of Local 49 Operating Engineers. I mostly run backhoe and that big yellow, heavy equipment. The one lady who spoke earlier was wondering if a union job was a good-paying job. I'm a single mother of two. I raise my kids all by myself with good pay, good health benefits, and I look forward to a good pension in the future. I yield the rest of my time to Jerry Fryberger. Thank you. Thank you. I am honored to be here. My name is Jerry Fryberger, F-R-Y-B-E-R-G-E-R. I'm a lifelong resident for my 76 years and counting in Duluth, Minnesota. I work for the same company, Hallett Companies, in Duluth for 50 years and counting. One of the companies we have is Hallett Dock Company in Duluth. We are in the business of handling, storing and shipping bulk commodities from our three facilities in the Duluth-Superior harbor. We ship by truck, by rail and by vessel. We ship to folks in Minnesota, Wisconsin, throughout the Great Lakes, Eastern Canada, Europe and South America. And I have, like so many of you here, have read parts of the Supplemental Environmental Impact Statement for the PolyMet project. I questioned the three co-lead agencies; namely, the US Corps of Engineers, the Department of Natural Resources, and the US Forest Service to get a better understanding. You see, I lived here for a long time. I started paddling with my family when I was nine years old in 1946, and I've been going ever since in the Boundary Waters Canoe Area and adjacent Quetico Provincial Park. And I love the clean water, I love the clean air. I like to be able to paddle and sit around the campfire and look at the constellations in clear skies, and that's an environmentalist right to the core. And I am embracing the PolyMet project in my backyard simply because of the superlative job that the H. Cody Agencies (ph) have done. They have done their due diligence. They rolled up their sleeves, rolled up their socks, and made sure that we're going to have a continuation of clean water, clean air and clean skies. I want to particularly honor and thank the leadership provided from these agencies; namely John Stein, who's Commissioner for the Minnesota Pollution Control Agency, Cam Foss, who is Commissioner -- or Director of Mining, Tom Landwehr for the Department of Natural Resources, Tamara Cameron for the US Corps of Engineers and Brenda Halter. I thank you very much.

Jerry Giefer 39752

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Jerry Giefer 1252 2nd Ave N Windom, MN 56101-1557 (507) 831-1316

Alphabetical by sender's first name

Jerry Groeneveld 4335

Jerry Groeneveld 943 Wales Rd Two Harbors, MN 55616 218-834-9552 n0Mrjerry@gmail-com I'm a retired chemical engineer that worked for a major Minnesota company for 35 years. I contributed to many EIS reports for projects where I did research and development, plant design, and startup. I want this and other northern Minnesota noble metal mining projects to succeed because of the value to the area and our country. However, I must also be respectful to my many friends that oppose these projects. I've read a good deal of the report but must apologize up front if I missed sections that describe process and chemistry that I need to form an opinion. I believe these type mining operations can be run in an environmentally friendly manner but I was surprised to see what I believe to be a lot of details missing from the report. Details that I need are the entire physical and chemical process throughout the operation. Again, sorry if I missed this in the report. I read of the physical mining and crushing operation, some sketchy words on a dual flotation operation, a few words on a heat treatment and a large discussion of the disposal of waste. There is mention of RO (reverse osmosis) purification of water. I believe missing is the chemistry, material balance, energy balance and control strategy throughout the entire operation. There may be some trade secrets in parts of the operation but these can be handled in an open manner and with generic chemicals. Each part of the entire operation should have a detailed material balance of all inputs and outputs including physical and energy inputs and outputs. Process control should be included to show the process is well understood to avoid upsets. An additional value of a detailed process overview is that there might be waste streams that can be a valuable byproduct of these operations. Byproducts can be additional revenue and eliminate the possibility of these products being slowly leached into the water or vented to the air. More details can lead to increased yield of the desired minerals and even discovery of other valuable products. Details of an energy balance can show unusually large energy usages that can be reduced. Another item that could be valuable is a comparison to ferrous mining that has been done successfully for many years. How do the waste streams compare, how are they handled and what have been the probleMs Thank you for giving me the opportunity to comment on this report. If more process details are forthcoming I would appreciate the opportunity to read. Jerry Groeneveld

Jerry Hallead 29940

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt This is an egregious attack on the human, animal and environmental state of this region of the United States and will very certainly have destructive effects that will never be reversible. I would direct your attention to the unspeakable damage to the environment in the mountains of West Virginia from open coal mining. Please do not allow this to happen in Minnesota and Michigan. Please keep these States and the wilderness areas, that most certainly will be affected, in the pristine condition that is now enjoyed, so that it can be enjoyed for generations to come. Sincerely, Jerry Hallead 3627 Matador W Apt 42 Traverse City, MI 49684-4651 (231) 510-6039

Jerry Kahlert 51581

Dec 23, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The known - and unknown - hazards of sulfide mining demand that any permit granted for mining in Minnesota be conditioned on a posted bond sufficient to cover the costs of mitigating any and all of those hazards. Beyond that, the state must first be assured by all competent authorities that this project will not damage Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations. The state must recognize that the mining of precious metals beneath our surface may first require the development of new mining technologies. In this regard, wouldf-be miners should be encouraged to contribute funding for research by the University of Minnesota and work with the University to develop those safe mining practices. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Jerry Kahlert 900 Robert St S Apt 110 Saint Paul, MN 55118-1484 (612) 839-0725

Alphabetical by sender's first name

Jerry Pederson 9747

This email is in support of the project that will provide jobs for union families at the PolyMet North Project in Northern Minnesota. Jerry Pederson | APi Construction | Vice President of Construction | 1100 Old Highway 8 NW | New Brighton, MN 55112 | Providing Mechanical Insulation, Scaffolding and Refractory Services | P: 651-604-2718 | C: 651-271-8803 | HYPERLINK "http://www.apiconst-com/"www.apiconst-com | HYPERLINK "http://www.youtube-com/watch.v=igUTx5Yjhz0andfeature=youtu.be"API_VIDEO “WE LIVE BY OUR VALUES. OUR RESULTS SELL THEMSELVES.”

Jerry Stahnke 54877

See attachment

Jerry Witcher 40307

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Jerry Witcher 416 Rail Overlook Adairsville, GA 30103 US

Jerry Witte 7707

The current ferrous mining has old mine and current mines tailings that produce acid runoff into ground water, streams and rivers. The level of this runoff is at or beyond the level that nature can naturally clean it up. From what I read in the EIS is that the Polymet mine will also allow a degree of acid seepage into a water system that is already at or beyond its pollution max. Reverse osmosis water treatment is Polymet's solution to the bulk of there process to minimize the pollution. I propose a moratorium on the Polymet mining process until a working reverse osmosis water treatment can be installed at the worst polluting ferrous tailing pit or mine. This will prove the technology works, the cost of the technology, and the cost of the hundreds of years of filtering that will be needed. If the watershed shows improvement, then the cleaner waterways will be able to accommodate the add planned runoff of the Polymet mine. Jerry Witte Duluth MN

Alphabetical by sender's first name

Jess Walczak 40181

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Jess Walczak 1680 Westminster St Saint Paul, MN 55130-3039

Jesse Bearheart 39576

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. As a wild rice harvester and a First Nations person who depends on subsistence living I am most concerned about the legacy that sulfide mining companies of any kind would leave behind. We need to address the concerns for the Earth and all living things for the next seven generations and hopefully leave it better than we found it. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Jesse Bearheart 8387 Beatty Rd Cook, MN 55723-8802 (218) 666-0279

Alphabetical by sender's first name

Jesse Dermody 40708

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Respect the good earth, our only home while we're physically alive. Sincerely, Mr Jesse Dermody 8484 Arkola Rd Kelsey, MN 55724-8032

Jesse Peterson 18133

Hi. I'm Jesse Peterson and I'm from Duluth. I want to talk a little bit about some of the job creation that has gone on with the PolyMet mine. One of the jobs created was a wonderful job for a poor fellow who's been pining to have his life put back together ever since the BP oil spill. His name is Tony Hayward and he's got a job with Glencore, which is the lead investor in PolyMet. He doesn't have such a great record, and I'd like to just speak to Glencore a little bit. I think it's highly inappropriate to do business with a company that's manufactured famines as a way of doing speculative trading to inflate the price of food and they've also been implemented sitting on ore to inflate the value. And so they're a criminal organization. They're invested in PolyMet and I think it's highly inappropriate to be working with them and that it behoove us that if this is inevitably done it eventually can be done right, that we do not do business with people who have been implemented in exploiting child labor, killing organizers and union members in other mining projects around the world. And now, I'd like to speak to some stuff that has been done properly in the SDEIS. The PolyMet SDEIS artificially limited cumulative-effects discussion of water quality to just the Partridge and Embarrass Rivers. The St. Louis River was left out completely. This cuts out anyone who be fishes or eats fish caught downstream in the St. Louis River and Lake Superior and ignores the impacts on the Fond du Lac Tribal Waters. It is not good science. The PolyMet Project would increase mercury in the Embarrass River and could increase mercury methylation near the mine site, as well. Increases in mercury or sulfates at PolyMet could increase mercury in the fish in the St. Louis River. Both existing LTV tailing seeps and the other mine discharges flowing into the St. Louis River also carry high levels of specific conductance which the EPA has found can be toxic to fish. Tribal research shows that specific conductance is the water chemistry signature for mining discharge that can take more than 100 miles to dissipate. Cumulative analysis of water quality impacts in the SDEIS must include the St. Louis River and must specifically analyze impacts on mercury contamination of fish and impacts of specific conductance levels on fish. So I feel it would be very important for hese things be done and that this is an inadequate ocument done, so far. It looks like I have more time to say that Glencore is really evil and I hope you people could Google them. I do believe something like this could be done, maybe 50 years in the future. I think that people should consider nationalizing the resource and keeping all the money in the United States, guaranteeing that the jobs pay well and guaranteeing that the ore stays in the United States, in Minnesota, before they do business with anyone. I don't think it behooves anybody to rush into this project. You should investigate all the players and think about all the possible ways that this stuff could be mined and the money could be kept in our region. Thank you.

Alphabetical by sender's first name

Jesse Whitney 38822

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Jessic Marshall 41989

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Jessic Marshall Maple Grove, Minnesota

Alphabetical by sender's first name

Jessica cortez 41954

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Jessica cortez Hugo, Minnesota

Jessica Durbin 54640

See attachment

Jessica Eberl 57353

"Topic: Cumulative Effects, Arsenic and Cancer." (Reading.) Okay. "Arsenic is rated by the USEPA as a Class A carcinogen. That means it causes cancer in human beings. Colby Lake provides drinking water for the City of Hoyt Lakes. It already has high arsenic levels. The EIS states that the PolyMet sulfide mine project will increase arsenic in Colby Lake by 38.5 percent. EIS Page 5-145. The EPA has adopted rules calculating how much arsenic in water unacceptably increases the risk of cancer. 40CFR 131.36. PolyMet's increase in arsenic in Hoyt Lakes' drinking water is above both the threshold set by the EPA and in the cancer risk level in Minnesota. In addition to arsenic in their drinking water, people in Hoyt Lakes would ingest arsenic by eating local fish and wild rice. Low income people who fish and use rice for food would have the most cumulative risk. The FDA recently tested rice for arsenic and found wild rice had six milligrams per liter of arsenic." (Reading.) The EIS should be redone to make a cumulative assessment of arsenic exposure and cancer risks for people in Hoyt Lakes, including formula fed infants and people who rely on fish and wild rice for food.

Jessica Gardner 57980

I am worried about the impacts this project will have on moose, lynx, & other animals. This project should be cancelled. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

jessica Hacker 15858

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, jessica Hacker 1805 250th ave canby, MN 56220

Jessica Hemmer 43079

For the past five summers I have worked and enjoyed our great woods and waters at a canoe outfitter located just outside of the Boundary Waters. My love for this unique place compels me to be very nervous about the sulfide mining already taking place in parts of our arrowhead, and especially cautious when considering this large scale proposal that is now in question. I feel the boom then bust that would be created by this mining proposal is not worth the harm it would ultimately cause to some our unique plants and animals. Can we really believe that these big mining companies will be around for hundreds of years to continue to clean up the mess they promise to make. I just don't think it is a risk we should be taking. Thank you for considering my comments, Jessica Hemmer 4510 60th Ave SE St Cloud, MN 56304

Alphabetical by sender's first name

Jessica Hensley 16125

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Jessica I. Ostrov 9326

Thank you so much for giving the public an opportunity to voice their thoughts. I am going to tell you the same thing that I tell my six year old: accidents happen. Plain and simple. Accidents happen. There is no end to the list of environmental disasters. Even in the past few months, the news is flooded with these stories. You have the opportunity to just say no. No, we won't even tempt fate and invite accidents to happen here. Minnesota is smarter than this. We value our environment too much. We know that it is simply too risky to do this particular type of mining here. The ecosystem is connected in all directions with water. That is just too risky. Why would we invite something like that to take place at the headwaters of 20% of the world's freshwater. There are stories are all over the news about the shortage of clean water. It is more precious than copper. All of this for little more than 300, short term jobs. I hear that there's a Wal-Mart opening in Northern Minnesota that will employ about the same number of people as the PolyMet mine. I guarantee that Wal-Mart will have a far greater lifespan than the PolyMet mine. It is not worth it. We know that all of the big profits will go overseas. Is Minnesota going to allow itself to be used like this by international corporations. It seems that we should be smarter than this by now .we KNOW that accidents happen. Do the people of Minnesota not have a right to have an opinion about what happens in our state. This type of pollution is permanent, irreversible and devastating. It doesn't matter what is written in a 2,167 page document. It doesn't even matter if PolyMet were to put all of the millions and millions of dollars aside in case of an accident. That money can't bring back clean water, habitat lost, wildlife lost, the countless opportunities for people for whom a chance to experience wilderness enhances, even saves their lives. No apologies or "we couldn't have predicted this" can bring that back. I am a single mother, whose opportunity to work at a camp at the edge of the Boundary Waters every summer with my son has literally changed our lives. We are careful about not even letting our campers use chemical shampoos in our lake. Yet sulfide mining is being considered. I understand that PolyMet says they will capture 90% of the waste water. First of all, anyone who understands wetlands knows that it would be impossible to predict a figure like that, but even if they could realistically promise that, it still allows 10% of the sulfuric-acid laden water to escape into the waterways. That is unacceptable. I just cannot understand why this is even on the table. Haven't we learned any lessons from the multitude of disaster stories. Are we really going to let this happen in Minnesota. Accidents happen. There's no way around it. And by then, it will be to late to say you're sorry. Just say no. Now. Please. Jessica Ostrov 819 Tuscarora Avenue St Paul, MN 55102 HYPERLINK "mailto:tzelah@hotmail-com"tzelah@hotmail-com

Jessica Langevin 18272

Jessica Langevin. I just think there are things more important than jobs. It is only for 20 years, and the environment, I mean that's forever. That about sums it up.

Jessica Ley 58174

March 10, 2014Lisa Fay, EIS Project ManagerMDNR Division of Ecological and Water ResourcesEnvironmental Review Unit500 Lafayette Rd, Box 25St. Paul, MN 55155-4025Dear Lisa Fay, EIS Project Manager:I am writing to urge you to deny PolyMet the permit to mine near the BWCA. Minnesota is well known for our natural areas and our lakes. That being said, the BWCA is the only wilderness area our state has to offer, and it has been protected for 35 years. Now is not the time to support a project that will undeniably have effects on this pristine watershed.Sulfide mining carries with it proven environmental impacts. Acid mine drainage will drastically lower the pH of our waters, potentially changing the community of life that resides in our northern lakes and rivers. These changes will reach far and wide in a watershed with little buffering capacity. Erosion accompanies the deforestation that will be unavoidable. This increases the turbidity of nearby waters, reducing photosynthesis and oxygen levels, also detrimental to life in our aquatic ecosystems. Air pollution from the equipment used in mining and processing ore is also guaranteed.In a part of our state that receives a large part of its revenue from ecotourism, 20 years of mining and the temporary jobs it will bring is not worth lifetimes of water pollution and destruction of natural environments.The cost of this project certainly outweighs its benefits. Outfitters, camps and lodges are just a few businesses that benefit from this area staying pristine. The copper and nickel this mine would produce is such a low grade that they need to remove an incredible amount of rock to make it worth it. This will scar the land beyond recognition, in the most beautiful part of our state. The stored tailings can contaminate the groundwater, and communities would have nowhere else to turnfor their water. Mining companies have demonstrated time and time again that they do not stick around to clean up their mess. This is another reason the financials do not make sense.I urge you to deny PolyMet the right to scar our land, destroy our wildneess, all for minimal community benefit and corporate profit. It is not worth it.Enclosed are numerous letters from high school students who chose to speak their mind about this mine. They are the reason you should oppose this project. They should have the opportunity to bring their children to the BWCA and other natural areas up north. If we keep rubber-stamping mines and other devastating projects like these they won't have anywhere to go in our country to see true wilderness.Sincerely,Jessica Ley603 7 Clinton AveMinneapolis, MN 5541

Alphabetical by sender's first name

Jessica Martinez 41763

Hello, My name is Jessica Martinez. I live in a small town in Southern Minnesota and I have recently heard about the possible mining project that is going to be voted on in Ely. I want you to know that I oppose this completely. It is going to destroy more liveliness than will be created and it is a solution that corporations and companies are using just to create a simple solution for the NOW, not for the future. Anything that happens now is going to be left for cleanup by the next generation and that is not fair. We are putting more value in making money and objects for consumers with these minerals, but no value in educating the children about what mining would do to their future and how much work they are going to do to minimize their suffering. It really seems like the "older" generation doesn't even care about the young people because if they did, they wouldn't put us through making decisions that won't affect them 20 years from now seeing as they'll probably be gone. Don't accept this mining proposal. Respectfully, Jessica Martinez

Jessica Rocheleau 9359

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jessica Rocheleau 9470 Ranchview Ln. Maple Grove, MN 55369

Alphabetical by sender's first name

Jessica Rocheleau 18837

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jessica Rocheleau 9470 Ranchview Ln. Maple Grove, MN 55369

50911

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jessica Rocheleau 9470 Ranchview Ln. Maple Grove, MN 55369

Alphabetical by sender's first name

Jessica Schadt 9892

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jessica Schadt 3780 London Road Apt 110 Duluth, MN 55804

18654

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jessica Schadt 3780 London Road Apt 110 Duluth, MN 55804

Alphabetical by sender's first name

Jessica Schadt 50729

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jessica Schadt 3780 London Road Apt 110 Duluth, MN 55804

Jessica Stein Diamond 13

To Whom It May Concern, I was born in Duluth and now in my 50s travel to N. Minnesota to visit the Boundary Waters Canoe Area every summer I can. This wilderness region is vitally important to me, to the Minnesota region and the nation as a whole as a place of respite, recreation, wilderness and clean water. It is absolutely unacceptable for the state of Minnesota to approve the PolyMet mining plan for 500 years of treatment of polluted water to be left behind from 20 years of mining. There is absolutely no economic good worth poisoning this beautiful, essential and priceless resource for so many generations to come. Sincerely, - Jessie Jessica Stein Diamond 610 Yale Road Bala Cynwyd PA 19004 610-667-1449

Jessica Straczowski 44819

As a resident of Michigan's Upper Peninsula I have always opposed sulfide mining for many reasons. However, the main reason I am opposing this kind of mining is the dangers it poses to our clean water. Sulfide mining in Minnesota or Michigan or anywhere else in the world affects our future for hundreds of years. Who are the ones who will make sure that clean-up is done appropriately in a hundred years. Why would anyone knowingly risk our water quality - our meaning it affects all of us and our future generations. Please deny Poly Med the permit to operate a mine that risks all of our future. Thank you, Jessica Straczowski Marquette, Michigan

Alphabetical by sender's first name

Jessica Wardlaw 41558

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Jessie Kruchowski 38176

Rudy's Bar and Grill Aurora Mn Tim and Jessie Kruchowski We support Polymet 100%. We bought Rudy's in March of 2003- We have been through some rough times and everyday we hang on in hopes that Polymet will open and one day we will have a prosperous business. When we opened in 2003 we anticipated Polymet was right around the corner, 11 years later we are still waiting. Right now we employ 16 employees. If Polymet opens their doors we anticipate we will employ anywhere from 20-30 employees, that is 20-30 families right here in our community that will be supported by just one small business. So please let's get the doors open so we can continue to do what we do best and make our community happy. Thank you, Tim and Jessie Kruchowski Owners Rudy's Bar and Grill

Alphabetical by sender's first name

Jessie Thompson 41820

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Jessie Thompson Minneapolis, Minnesota

Jessy Carlson and Eric R Bong 42593

See attachment

jfalk 57389

16 South 25th Avenue East Duluth, MN 55812-2227 Lisa Fay, Public comment Manager, DNR DNR Ecological and Water Resources 500 Lafayette Rd Suite 25 St Paul, MN 55155-4032 Dear Ms Fay: I have lived all of my adult life in Minnesota. I love its beautiful natural resources and have raised three children to do likewise. As a citizen and taxpayer, I write to express my opposition to the reported conclusions in the SDEIS draft for the PolyMet proposed for Northern Minnesota. (To be frank, the document is too complex and lengthy for me to make an informed analysis based on my own knowledge.) As it has been repeatedly pointed out, correctly, any jobs for Minnesotans are temporary, the bulk of the profits will flow out of the local economy, and the “toxic legacy of damaged waterways” will remain permanently here in Minnesota. To date, “Mining without harm” and “environmentally safe mining” have been promised, but there is zero evidence to back up the claim that sulfide mining can be done without causing devastating watershed pollution. In fact, mining of sulfide-metal ore has never been accomplished without causing eventual acid-metal leachate pollution of ground and surface waters. As a result, Wisconsin wisely placed a moratorium on sulfide mining operations in 1997, until it could be demonstrated that such a mine would not pollute the water. The construction of a mine such as the one PolyMet proposes violates the Precautionary Principle: “if an action or policy has a suspected risk of causing harm to the public or to the environment, in the absence of scientific consensus that the action or policy is harmful, the burden of proof that it is not harmful falls on those taking an action.” Only if and until, the mining industry has a demonstrated track record that it has the means and the willingness to invest the effort and the capital necessary to mitigate all present and future environmental costs, the benefits of the mine cannot possibly outweigh the damages to Minnesota’s water resources, resources that may require treatment for more years into the future than can be accurately predicted. Thank you for your attention to my concern. Jackie Falk _____ "I go down to the shore" I go down to the shore in the morning and depending on the hour the waves are rolling in or moving out, and I say, oh, I am miserable, what shall what should I do. And the sea says in its lovely voice: Excuse me, I have work to do. - - Mary Oliver Jacqueline H. Falk 16 South 25th Ave East Duluth, MN 55812-2227 ground line: (218) 724-7407

jgust350@yahoo.com 38485

The iron ore mines won't last forever -let's get something new going on up here. Sent from my iPhone

Jill Alisa Holmen 57262

How wretched it would be to witness the demise of our precious BWCA and subsequent lakes and waterways. It’s the thing we hold most dear and brad the most about as Minnesotans. The proposed mining is a massive invasion to the landscape and wildlife, not to mention a permanent damage for very short-term gain. Please use your hearts in making this decision.Jill Alisa Holmen731 North 3rd Ave EDuluth, MN 55805

Alphabetical by sender's first name

Jill Boldenow 15332

Feb 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuri

Jill Boogren 48849

Mar 10, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I'm concerned about the major impacts to water and wetlands this project will have in northern Minnesota, especially given Polymet's own study that says water from the mine site would need 500 (500, not a typo) years (YEARS, also not a typo) of treatment. Sulfide mining should not be given an ounce of consideration, since it a) has not been done in Minnesota, b) is not allowed in Wisconsin (which shares much of the same topography), c) is run by a multinational corporation that has no stake in this location, and d) is not clear who would pay for 500 years of water monitoring and treatment. There is absolutely no way to guarantee Polymet will be around that long to pay for it. And if we leave a trail of toxins in our lakes and waterways, in our wetlands, in our beloved Boundary Waters Canoe Area Wilderness, well I guess we won't be around to care. Have we not learned anything from our mistakes. That toxic spills are terrible for our health, our wildlife, and our public lands, and they take FOREVER to clean up. We have an incredible array of wildlife here in Minnesota - bear, bald eagles, loons, lynx, moose - including the largest population of wolves in the lower 48- And we want to tamper with their drinking water. Please, if we're going to take a 500-year view of these areas, make it be the one where we're doing more to clean up the water, doing more to ensure these wildlife populations are stable, doing more to ensure diversity of plant and animal species, doing more to preserve the landscape. I understand much of the proposed project would use public lands - these are OUR public lands. And the understanding is the government is supposed to protect them for current and future generations. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Jill Boogren 2925 E Minnehaha Pkwy Minneapolis, MN 55417-1315 (612) 722-2391

Alphabetical by sender's first name

Jill Burnham 40990

Mar 9, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Jill Burnham 32 W Point Rd East Hampton, CT 06424-1004 (860) 597-4584

Jill Doerfler 39816

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Jill Eisenberg 18264

My name is Jill Eisenberg. I want to speak on behalf of the future of Minnesota and the generations of Minnesotans to come. Water is one of our most precious resources. So important, in fact, that we even note it on every license plate, the "Land of 10,000 Lakes." I am a union worker and I'm in support of some mining. The hard rock mining of taconite is something that I can live with in this state. But the proposed copper-nickel mining is wholly different from taconite mining. 43 years ago I got a D in chemistry, but even I know that when you mine for copper sulfide, it mixes with the oxygenation in the air to turn to sulfate, which in turn mixes with water, and you get sulfuric acid. This is acid rain. In fact, a minus 3.6 pH is what is listed in the Environmental Impact Statement. And when the water evaporates from the tailings ponds, it will be even more concentrated. I know there is a need for jobs in Minnesota, but 500 years of jobs cleaning up the environment are not what we need. As other states are dealing with severe droughts and the lack of water, and we read about the impact that this has on the entire country, I implore you not to play Russian Roulette with our aquatic future. Thank you.

Jill F Blooston 44516

Please investigate the disaster that is starting to show up in North Dakota brought on by the drilling companies who said they would protect the environment. Sounds like the hollow claims now being made by PolyMet, policing and regulating of mining and drilling companies has always turned out to be a failure, once they have the go ahead they never look back and couldn't care less about the environment. Please think of the next generations, they do not need any more super sights to clean up, find another way for people to be employed.

jill faulknr 16960

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, jill faulknr 7619 gleason rd Edina, MN 55439

Alphabetical by sender's first name

jill faulknr 50251

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, jill faulknr 7619 gleason rd Edina, MN 55439

Alphabetical by sender's first name

Jill Hamze 41709

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Jill Holmen 11350

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jill Holmen 731 North 3rd Avenue East Duluth, MN 55805

18390

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jill Holmen 731 North 3rd Avenue East Duluth, MN 55805

Alphabetical by sender's first name

Jill Holmen 39144

Mar 11, 2014 Ms Lisa Fay MN Dear Ms Fay, Governor Dayton and DNR, I think you know in your hearts that a decision to allow Polymet to engage in mining here in northeastern Minnesota will prove catastrophic in many ways. Don't be the ones responsible for the destruction of our waterways, our groundwater, and the BWCA, all of which are what make Minnesota the destination and pride that it is. People travel here from across the globe to take in one of the last places of pristine, unspoiled wilderness. The mining proposal and EIS simply do not account for all the unexpected and prolonged issues that will occur, and will subsiSt If its jobs we seek, let's consider jobs in greener energy and tourism, the true reasons why people proudly call Minnesota home and why visitors keep coming back. I implore you to stop this wasteful project and show your Minnesota citizens you have our future and best interests in mind. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Thank you, Jill Holmen Sincerely, Ms Jill Holmen 731 N 3rd Ave E Duluth, MN 55805-1201 (218) 624-8903

50509

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jill Holmen 731 North 3rd Avenue East Duluth, MN 55805

Alphabetical by sender's first name

Jill Lyman 47258

Dear Sir/Ms: I am extremely concerned about the proposed PolyMet copper-nickel mining project. No matter what regulations are in place or how much money is set aside, the inevitable byproducts of sulfide mining promise to include sulfur-dioxide emissions, acid rain, millions of tons of solid toxic waste, and the slow leaching of chemicals from tailings into surface water and ground water. Glencore, the Swiss mining and commodities trading giant funding PolyMet, has a history of polluting the areas that it operates mines in. They have also been involved in corruption and human rights violations. This is not a company that we want doing business in Minnesota. Please deny PolyMet's permit. Protect the fresh water in the Lake Superior water basin. We need to find jobs for our state that are sustainable and environmentally sound. Thank you. Jill Lyman 3205 Greysolon Road Duluth, MN 55812 218-728-3133 HYPERLINK "mailto:lymans@q-com"lymans@q-com

Jill Marette 43267

Being a public health nurse, focus on being proactive with the pollution. Prevention FirSt Prevent the pollution before it happens, putting money in a fund for clean-up isn't going to solve the problem. Once you have pollution, the environment will never go back to what it was. You have altered it permanently. Don't let them mine until they can prevent the pollution. Jobs are important, I grew up on the Iron Range, but you can never turn back time. Jill Marette

Jill Mooney 39809

This is dangerous and will ruin the NE section of Mn permanently Please don't do this. We totally oppose this Sent from my iPhone

Jill Radman 3386

I'm not sure who this should go to but I'd like to state my avid objection to an opening to a sulfide mine in Northern MN. These mines always have terrible pollution and it lasts up to 500 years. A few extra bucks is not worth acidifying out beautiful land and the harm the pollution will cause. I'm voicing my opinion that I strongly object to the proposal of a sulfide mine in MN. Minnesota resident, Jill Radman Sent from my iPhone

Jill Thomas 42432

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Jill Thomas 12510 43rd Ave N Plymouth, MN 55442-2716 (635) 452-9718

Jillian Tjosvold 54774

See attachment

Jim Abell 47658

I don't believe the rules for environmental protection is strong enough. Jim Abell 9260 foxline dr Corcoran mn 55340 Sent from my iPhone

Jim and Joyce Tabor 54839

See attachment

Alphabetical by sender's first name

Jim Atkinson 18115

Hi. My name is Jim Atkinson. And I don't consider myself an expert. However, I do consider myself somewhat of an expert on the agencies that are the lead for the environment. I worked in a heavily regulated industry for 28 years and had to get many different permits and have gone through environmental reviews and full-blown EIS's with the DNR and the Army Corps and the Forest Service. And what I know about it is they always without fail have been very cautious and deliberate and really spent the time and energy necessary to make sure that things were the way they were supposed to be. My observations about the Supplemental Draft EIS are, first of all, that it's been a long time in the making. Ten years is enough time for any EIS to be fully developed. And it's based on what I think are very conservative assumptions. I think we're really looking at a worst-case scenario in the predictions that are made. And reality provides a comprehensive and understandable analysis of the issues which it should after 10 years of development. I think PolyMet has demonstrated a commitment to do this right. They've been at it for 10 years as well. They've put in tens of millions of dollars into the environmental studies. And it's also clear that they respect the role and the obligations of the agencies that will have to give them permits. My opinion is that this SDEIS is more than adequate. And it's time to move forward into the permitting stage. Based on everything I've known and all my experiences with the agencies, I think we can all trust them to do just as good of a job in the permitting as they've done in developing this EIS. Thank you.

Jim Baratto 4482

Regarding Polymet I would like to provide my full support and would like to know how an average citizen can help to make this process move forward in an effort to get this mine up and running to provide jobs in Minnesota and boost the overall economy. Efforts to slow the process or even prevent the mine from moving forward in my opinion are self serving to those that continue to try and throw up road blocks. It is time for our leaders to look at the facts and move forward with this project. It is apparent environmentalist groups have a single minded position and that is to stop or delay the progress on this project in the hopes that Polymet will just go away. The questions have been asked and the answers have been provided, let’s make this thing happen. Jim Baratto Owner/President Baratto Brothers Construction, Inc. 13872 Shafer Road Crosslake, MN 56422 218-692-1070 office 218-851-4375 cell 218-692-1071 fax HYPERLINK "mailto:jimb@barattobrothers-com"jimb@barattobrothers-com HYPERLINK "http://www.barattobrothers-com/"http://www.barattobrothers-com BC322437

46756

Creating jobs in Greater Minnesota is the single most important task our legislatures should be concerned with. Mining in that area of the state has been going on for over 100 years and has provided good jobs for hard working people. Go Polymet Jim Baratto Owner/President Baratto Brothers Construction, Inc. 13872 Shafer Road Crosslake, MN 56422 218-692-1070 office 218-851-4375 cell 218-692-1071 fax HYPERLINK "mailto:jimb@barattobrothers-com"jimb@barattobrothers-com HYPERLINK "http://www.barattobrothers-com/"http://www.barattobrothers-com BC322437

Jim Barott 45596

To: Minnesota DNR From: James A. Barott 1103 E. Washington St Ely, MN 55731 As a professional soil scientist who is intimately familiar with the soils and landforms of northern Minnesota, I believe the shipping of the mine tailings by rail to northwest Minnesota should be thoroughly analyzed for its economic and environmental benefit. The shipping of tailings by rail is nothing new. When I lived in Blackduck, Minnesota, iron ore mine tailings from northeastern Minnesota appeared to have been used for the railroad bed. The benefit of shipping the sulfur laden rock to northwestern Minnesota would be due to the calcareous / higher pH / high cation exchange capacity nature of the soils in that area. The soils in northwestern Minnesota a high buffering capacity, compared to a low buffering capacity / lower pH soil in its current northeastern Minnesota location. The terrain is relatively flat in northwestern Minnesota with relatively few lakes. There are also relatively few people who live in some parts of NW Minnesota. The environmental consequences would be much less in the long run. Thank you for your consideration. James A. Barott

Alphabetical by sender's first name

Jim Beeby 16287

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Jim Belland 38687

From: Jim Belland [mailto:Jim@Rebarfabinc-com] Sent: Tuesday, March 11, 2014 5:21 PM To: 'NorthMetDEIS.dnr@state.mn.us' Subject: If the majority of the substance of the “Northeastern Minnesotans for Wilderness presentation on PolyMet” article in the 3-1-2014 article in the Grand Marais, MN Cook County News-Herald are factual, I oppose PolyMet Mining Inc.’s proposed NorthMet Mining Project. Sincerely, James A. Belland 6051 Foxtail Dr White Bear Lake, MN 55110 (principle residence) 2530 E. Highway 61 Grand Marais, MN 55604 (vacation residence)

Jim Bennie 39991

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Jim Bennie 10720 Rockford Rd Plymouth, MN 55442-2865

Alphabetical by sender's first name

Jim Butcher 48163

For some reason my first attempt to submit my Polymet comments were unsuccessful. They were not delivered. The routing error message was delivered to my Spam folder which I do not regularly check. I am attempting to resend my comments. I am hoping that as I originally submitted my comments well ahead of the deadline that this technical hiccup will be forgiven and that my comments will be accepted. Thank you, Jim Butcher On Tuesday, March 11, 2014 12:54 PM, "postmaster@ead.state.mn.us" <postmaster@ead.state.mn.us> wrote: --- Forwarded Message --- Delivery has failed to these recipients or distribution lists: HYPERLINK "mailto:www.NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us The recipient's e-mail address was not found in the recipient's e-mail system. Microsoft Exchange will not try to redeliver this message for you. Please check the e-mail address and try resending this message, or provide the following diagnostic text to your system administrator. _____ Please find attached a file containing my comments on the Polymet SDEIS. Thank you. Jim Butcher 11627 110th Ave Finlayson, MN 55735 612-210-6155 Please find attached a file containing my comments on the Polymet SDEIS. Thank you. Jim Butcher 11627 110th Ave Finlayson, MN 55735 612-210-6155

Jim Cashman 42745

See attachment

42811

See attachment

Jim Clapp 39750

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Jim Clapp 24613 N Melissa Dr Detroit Lakes, MN 56501-7263 (218) 847-8703

Jim Ferstle 43373

James Ferstle 539 Lexington Pkwy S St Paul, MN 55116 The saddest part of this debate over permitting for copper/nickel mining in Northern Minnesota is that it is wasting time, money, and resources on a project that doesn't merit this sort of attention. If some company proposed drilling under Lexington Pkwy, for example to bring out some precious metal resource there and tried to justify it based on "creating jobs," or mining the product in the US rather than having some other country grab the profits from this exercise it would be dead on arrival, as they say about doomed legislation in the legislature. And any company promising to pay "costs" of cleanup is something goes wrong is akin to the proverbial huckster joke about selling somebody worthless swampland in South Florida. Please end this charade and rightfully put a stop to this dog and pony show masquerading as a legitimate business deal. Regards, James Ferstle

Alphabetical by sender's first name

Jim Fitzpatrick 58094

My Name is Jim Fitzpatrick, I am speaking today as the Board President of the ErnestC. Oberholtzer Foundation, “Ober” as his friends called him was responsible for theprotection of the BWCA and Quetco (?) and the first president of the Wilderness Society. He did all of the behind the scenes negotiation on the federal level and got the law written. Ober would be furious about this project. The SDEIS is full of holes. I will talk about only a few but promise a written letter to the DNR and ACE by March 13th.Wetland impacts are unacceptable. 913 acres of direct loss, 7531 acres of indirect impact = 8264 acres of wetland damage. The study of hydrology at the site is inadequate. There is an under estimate of the Partridge ground water base flow. It should be 200 to 300% higher. This is the largest Wetlands destruction project ever proposed in the U.S Army Corps of Engineers Region.The SDEIS says there are no fractures of underground bedrock at the site. I saw a map built by Minnesota History Society that shows the site is riddled with fractures. Not just one or two but many. These fractures will allow onsite pollution to get into the ground water.Putting the tailings on top of an old unlined LTV tailings pile will allow active pollution runoff. This unlined tailings dump from the 50's was built on top of streams to allow drainage of water through the tailings. Surface and ground water seepage at the LTV tailings site ALREADY violate water quality standards in Spring Mine Creek and even Second Creek.The SDEIS does not reveal the levels of contamination that will be placed into the HRF nor does it admit that this highly toxic dump will leak, even if it is lined. It does not analyze the level of acidity, corrosion and toxic metals (or you called it "filtered sludge") that will go into the HRF but it seems very likely that it should be considered and regulated as "hazardous waste landfill" unless PolyMet proves that it isn't. Minnesota statutes and rules require a permit for hazardous waste facilities. They also prevent the siting of hazardous waste dump on wetlands.For these and many many other reasons I can not deal with in 3 minutes I request that the MNDNR At the very least make Poly Met go back and address each of the problems addressed here today by me and others or at the very best reject the SDEIS out right as incomplete. I further request that the USACE deny the section 404 permit request involved in this project.

Jim Foti 43495

Extraction industry megaprojects of relatively brief duration, such as the PolyMet mine, financially benefit only a small portion of a single generation, and yet burden all future generations with a permanently changed landscape. And in this case, hundreds of generations would be left to deal with the pollution impact. One need only be the most casual student of business or history to understand the likelihood of a corporation following through on an environmental responsibility (such as treating the water flowing toward the Great Lakes) for more than a few years after its profits have been made. Unlike the desperately poor areas of the United States and the world that embrace extraction projects, Minnesota is fortunate to have the choice to invest in its future in more econonically and environmentally sustainable ways. Let us not conduct this massive science experiment in our beautiful north woods. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Jim Foti 400 Groveland Ave #209 Minneapolis, MN 55403

Jim Hanson 39372

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Jim Hanson 10283 Gilbert Trl Brainerd, MN 56401-6153

Alphabetical by sender's first name

Jim Houlihan 18087

My name is Jim Houlihan and I live in Grand Rapids Minnesota, and with my family, I'm a co-owner of Industrial Lubricant Company, a mine company, and a former mayor of Grand Rapids -- 100 years ago former mayor of Grand Rapids. A couple of comments. I offer, first, that we are all here tonight with the very same interests. That is that we are all environmentalists, and we all need to earn a living and strive to feed our families, to provides housing, education for our children and to live in safe and clean communities. Our need to enjoy and to be renewed by being in the outdoors and in the Boundary Waters is not in conflict with our need to earn a living. By taking even better care of our natural resources and by being even better stewards of our environment, we are able to take even better care of our families. I add my urging to you that this review ought to be about "and" thinking, not "or" thinking. Like many of my neighbors, I own a snowmobile and I own a canoe. I'm a stockholder in PolyMet, and I'm a stakeholder in Northern Minnesota. PolyMet's requests and their operation is aligned with our broader community interests. Next opportunity. We constantly read in today's newspaper about the growing disparity of income and wealth; the divide between the haves and the have-nots. The key indicators for the state are staggering compared to Northern Minnesota. On indicators like percent living in poverty, median household income and percent working, ages between 60 and 64, as reported by the Wilder Foundation, are stark. For example, percent living in poverty, statewide, 11 percent; St. Louis County, 15. PolyMet would not be a silver bullet, but would be an opportunity for those of us in Northern Minnesota to strive to earn a living like those in the rest of the state. Based on the mining industry's record of environmental improvement over the years and process changes and all of our aligned interest in both living here and working here, we should move forward with confidence that all members of our community, both industry and environmental communities, will operate and can support PolyMet in a responsible and ever-improving manner. Thank you for your service, and thank you for the opportunity.

Jim Howitt 36518

--Original Message-- From: jim.howitt@gmail-com [mailto:jim.howitt@gmail-com] Sent: Saturday, March 01, 2014 3:34 PM To: Fay, Lisa (DNR) Subject: PolyMet's SDEIS is poorly planned and needs to go back to the drawing boaRd Dear Ms Fay: The PolyMet SDEIS has many flaws which should be rectified, but we do know from it that PolyMet is planning over 500 years of pollution for 20 years of mine operation. This is unacceptable. The mine should not be permitted unless much greater pollution controls are planned for. Sincerely, James Howitt 2639 Aldrich Ave S Apt 101 Minneapolis, MN 55408-1312

Jim Husman 1773

Dear Minnesota Department of Natural Resources, US Forest Service and Army Corp of Engineers: I am writing to express my support for the “proposed connected actions” land exchange between Polymet Mining Inc. at the NorthMet Mining Project and the US Forest Service-Superior National Forest as presented in the Supplemental Draft Environmental Impact Statement. It appears to me that the land offered by PolyMet in exchange is of higher quality than the land they will be acquiring adjacent to the NorthMet property. The exchange does not have any significant negative effects on the Superior National ForeSt I believe that the continued wise development of Minnesota’s natural resources is good for Minnesota, the local communities and for the country. Minnesota has a rich mining history and I believe that state and federal support of the NorthMet Project will lead to a resurgent of the economy of northeast Minnesota. Thank you for the opportunity to support this land exchange. Sincerely, James Husman 48 Spruce St Viburnum, MO 65566 _____ This message is intended solely for the designated recipient and may contain confidential, privileged or proprietary information. If you have received it in error, please notify the sender immediately and delete the original and any copy or printout. Please note that any views or opinions presented in this e-mail are solely those of the author and do not necessarily represent those of The Doe Run Company. Finally, the recipient should check this message and any attachments for the presence of viruses or malware. The Doe Run Company accepts no liability for any loss or damage caused through the transmission of this e-mail.

Jim Jr Companion 42812

See attachment

Jim Koepke 7156

Rather than use the tailing ponds, which leak, why not use one of the open taconite pits, which are below ground level. This will keep the sulfur below ground level and will not runoff onto surrounding land.

Alphabetical by sender's first name

Jim Kultala 47836

No to PolyMet mining, environment is worth more then the damage caused my mining the minerals in this way. Clean water is like "gold" Sent from my iPhone

Jim Lamppa 21587

The supplemental draft looks great. Get r done. Jim Lamppa 4245 miller trunk road Eveleth,Mn. Sent from my iPad

jim lassi 46627

My Name is Jim Lassi. I live at 35 Fir Circle, Babbitt, MN 55706- I strongly favor granting of all permits to PolyMet for the following reasons. I am a 15 year member of the Babbitt City Council, and as such I have had numerous opportunities to attend information sessions sponsored by PolyMet as well as Twin Metals and Teck. I am convinced that these companies have developed the technology, such as reverse osmossis that will insure a safe operation. I know that the company execs are men of integrity, and will do what it takes to insure that the environment will be protected. If reverse osmosis can clean up an existing disaster like the Kennicott Mine in Utah, it can certainly be used at the onset for the PolyMet mine. I live in the middle of the potential precious mineral development. Base on the SDEIS, I am confident that the impacts to the land, air, and water will be minimal. The economic benfit of such a development far outweigh any potential negative affects. PolyMet can mine these minerals in an environmentally sound manner that creates hundreds of jobs that can support families that will hopefully locate to my community to booster our economy. I have a hard time understanding the opposition to this project by environmentalists who use these precious minerals every day. It seems to me that they will oppose any type of mining even though it is proven to be safe. Lets let the facts speak for themselves. PolyMet can operate safely. Approve the permit. We need to strengthen our economy in our locat communities and across the state. Thank you

Alphabetical by sender's first name

Jim Marsden 41556

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Jim McWethy 44667

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jim McWethy 1150 LaSalle St Wayzata, MN 55391

Jim Melander 54663

See attachment

jim or bev 5960

I cannot believe the delay in granting a permit, eight or more years and millions of dollars spent, professional agitators with little or no regard for what the truth is holding a whole section of the state hostage, these people should have to post a bond when coming up with there misguided stories of gloom and doom, we in northern Minnesota need the jobs and tax revenue that this project would provide.

Alphabetical by sender's first name

Jim Pounds 16212

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Jim Sandy Wolfe 15349

Minnesota Department of Natural Resources Saint Paul, Minnesota February 9, 2014 Dear DNR, My review of the Full SDEIS did not find anything that addresses the issue of enforcement actions for violations of environmental quality standards and criteria. Planning for environmentally safe operations is presented and is necessary and critical but it is also insufficient. A clear plan of actions that will be taken when operations do not go as planned are equally critical to maintaining a focus on safe operations. I did not find any wording in the SDEIS that would trigger the shut down of mining operations in the event that environmental quality standards are violated. It appears that once mining starts, nothing will stop it other than the exhaustion of the deposits of profitably-mined ore. If environmental standards are violated or if environmentally sound practices are not followed even while the environment has not yet been harmed, then mining and mining profits should stop. The fact that some corporate entity might be liable for remediation costs will be cold comfort once damage is done, and those costs may not be sufficient to deter poor oversight of operations. Water quality in the area of the proposed NorthMet mine site is already impaired because of previous iron ore mining activities. Some seem to think that this makes the site a perfect place to continue mining activities. But this logic is not only faulty, it shows a lack of appreciation of the heightened dangers that Minnesota's waters will face if this new form of mining is permitted. This form of copper mining will generate waste that is much more toxic than existing iron mines, and copper-sulfide mining already has a horrible track record of water pollution is areas that have a tiny fraction of the amount of surface waters found in Northeastern Minnesota. I ask that Minnesotans' concerns for our shared environment be taken more seriously than I find them to be in this SDEIS. We already know from the well-publicized poor quality of the initial DEIS that we should be suspicious of any claims of concern for the environment by the leadership of PolyMet Mining Incorporated. If this new kind of mining is permitted, then the consequences of harming the environmental need to be clearly stated. For example, ‘If the levels of pollutant X exceed level Y at any monitoring station then mining operations shall be halted until the source is identified and the problem is corrected. PolyMet will continue the pay and benefits of all employees during such an interruption in operations ’ I understand people's hopes for new jobs that a mine would provide, but the outsized chance of environmental damage from this form of mining during operation and long after mining stops and the subsequent damage to the existing tourism economy almost guarantees that the costs to Minnesotans will outweigh the benefits. I do not support the permitting of copper-sulfide mining in Minnesota. James A. Wolfe Wood 220 Pineridge Lane Stillwater, MN 55082 651-351-7194

Jim Satterstrom 20112

Please support the PolyMet project. The area needs jobs and this project will bring jobs that will allow family’s to stay in the area. Thank you Jim Satterstrom 952-300-1059 _____ This email has been scanned by MessageLabs

jim saufferer 129

This is a great balance for the betterment of man kind, our state and all those involved and affected by this project. Jim saufferer 952-288-3076 19296 Norman dale Rd prior lake minn.55372 Jim

jim sulerud 43083

I propose that there are at least two major deficiencies in this EIS. 1- The land exchange, per se, is a forfeiture of the public wealth and right. In this document there is no public purpose stated for the land exchanges, per se. Further, while your Executive Summary states a foundation for prohibiting this project as proposed, “allowing private surface mining would be inconsistent with USFS legal mandates for acquiring and managing these lands,” there is no guarantee that the exchanged lands will be managed by these same mandates. The US Government relinquishes control to accomplish these mandates. 2- There is no rationale proposed in the EIS that there is an obligation, a priori, on the part of the public, or its government, to yield anything that it holds, in the face of a private mineral rights ownership. There is no rationale in this document for a quid pro quo. The State should hold to a position of NO risk taken on by the citizens and its government. Instead, the document details mitigation of risk, and weak discussions of probability and extenuations, that gives evidence that public risk is assumed. Jim Sulerud, 730 Vogelsberg Trail, Chaska, MN 55318 952-445-4531

Alphabetical by sender's first name

Jim Suttie 20052

I'm against copper / nickel mining in MN done by Polymet or any other company. I think the environmental risks are too great. I'm against it even if Polymet says they will take care of any environmental damage caused for 500 years and is willing to pay money "up-front" to take care of that. Who knows whether they will pay enough to cover the costs of clean-up. No one knows how long it would take or how much it will coSt I don't trust that they won't just mine for 20 years, then shut the operation down and we will be responsible for dealing with the aftermath. Thanks. Jim Suttie 7940 Pequaywan Lk. Rd Duluth, MN

JIM VOYTILLA 43028

Please read and consider the attached comment. I am basically requesting that this SDEIS be redone because of the seriously flawed LTV tailings basin dumpsite alone. Feel free to call me re any questions about this public comment at 651-214-5597- Sincerely, Jim Voytilla

Jim Warzala 26641

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, IF ANY ONE HAS THE LEAST BIT OF COMMON SENSE, WISDOM, INSIGHT AND FORESIGHT IN D.C. - IT'S YOU, SO PLEASE DO NOT ALLOW THE KEYSTONE XL PIPELINE. FRACKING OR ANY OTHER PIPELINE IN THIS COUNTRY. ONE SPILL FROM A TERRORIST ATTACK, EARTHQUAKE OR POORLY CONSTRUCTED PROJECT WOULD MEAN IRREPARABLE AND IRREVERSIBLE DAMAGE TO THE ENVIRONMENT. ALSO SAVE THE LIVES OF ANIMALS and THEIR HABITATS. WE'VE HURT ANIMALS ENOUGH. MAKE FOREIGN AID, AMERICAN AID Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Jim Warzala PO Box 150 Crystal Falls, MI 49920-0150

jim weigle 38952

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks which cannot at this time be accurately projected nor quantified. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr jim weigle 4751 Dona Ln Golden Valley, MN 55422-3536

Alphabetical by sender's first name

Jim Welch 18063

I was born in 1930. And that was the time of the Dust Bowl. I don't personally remember it because I was pretty little, but that was an environmental crisis and we had to fix it or we would have had all desert in the western part of the United States. So people got together -- and they didn't agree on lots of things -- but they did solve the problem. And so I think you could solve problems of a mine and new jobs if you can get together and work on it. I was born in Alpena, South Dakota, which was in the middle of the Dust Bowl. And my parents were Nellie and William Welch. Nellie, my mom, was born in 1903 and my dad in 1899. And they had some successful crops, and then they had crop failure because the Dust Bowl came in and blew all their crops away. So they were -- basically everybody up there was starving to death. So they all got together and worked and co-oped and raised gardens and hauled water and did all kinds of things to survive. Well, there was pretty much no surviving after 1932 or so. So my dad went down to Minnesota. And he found a farm where he could be a sharecropper, which was you worked the farm and you would get half of the crop and you would give away half of the crop. So that was a way of survival. And I had an older brother and sister. And we were able to survive on what dad would make. And then in 1937, dad had saved enough money -- which wasn't much -- but to save the farm and to put money down on a new farm. So we walked from the old farm to the new farm, which was about 15 miles, and drove the cattle. By that time I was six years old, and I can remember walking most of the way there. And I worked in the fields as my bother did. My brother was four years older. And anyway, they survived by a garden and working out on other jobs. We had an artesian well on the farm, which is kind of an automatic well. It runs. It's like a spring. And my mother and father hauled water to the garden. And they were able to raise some garden crops that way. Well, in 1937 I said dad bought a farm. And then World War II came along, and farmers did quite well. And by 1945 when the war was over, dad had been able to pay for the farm. So we went from being very poor to relatively well off. This all comes down to, I joined the National Guard and went in high school and was called up in '49 for the Korean War. Came back and went into pharmacy, graduated from U of M with honors. Had three girls. At that time we moved to Hoyt Lakes in 1974 and brought six children with us. We left four in the Cities. Since I've been up here, I worked on tourism, Iron Trail, civic board, and I worked on Giant's Ridge. And you might ask what all this means, but also when I worked at Giant's Ridge, I learned about the marsh marigold, which is a very rare flower. It's found in every swamp between here and Duluth or the North Shore. But that was the point where they didn't want to build because of the marsh marigold. Anyway, I learned to look at both sides of every problem or sometimes more than both sides. I also worked on Forest Highway 11 and on the new road to Embarrass and Ely, but that one never came to pass yet anyway. PolyMet has a few people that live in town, and they've been in my store many times. And they're very nice people and they care a lot about the area. And I know that just by the many interactions I've had with them. And I think as long as they live in the area they would be interested in having a safe area. And my opinion is that people ought to look at both sides of all the problems and compromise enough so that we can have some jobs in the area so we can survive. When we moved here there was over 4,000 people here. Now there's probably less than 2,000 people in Hoyt Lakes. And we need people, young people for schools, to keep the area active, to appreciate the area, and being able to go out and fish and do all the things that are fun to do here. We need new jobs to support our community like Hoyt Lakes, Aurora, Embarrass, Ely, Biwabik, Virginia, Mountain Iron, Palo, Gilbert, Markham, Eveleth, and the west range. And I don't know who I forgot. I think the citizens should be able to direct their behavior to support a safe, successful operation so that families that have children will be able to stay together in the area if they choose to. Many of them will choose not to, but it's nice if you can have your children stay with you if they want to. And I think some of the opposition to the mine might also have ideas that would help create a safe mine. I've been retired since 1995. I've been down to Honduras 17 times on mission trips. I work at the store every day as a volunteer. And the reason I volunteer is because my daughter that's the pharmacist has five girls. So it allows her to have a little time with her family and I can still correct and check every prescription that goes.

Alphabetical by sender's first name

Jim Wichmann 40109

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Jim Wichmann PO Box 385 16424 660th Ave Conger, MN 56020-0385

jim wilson 15327

To whom it may concern: As a long time resident of this beautiful state, I'm adamantly opposed to the polymet mine in north east Mn. We need to preserve what we have left in this wonderful state. Our children and future generations will never be able to restore the consequential damage to the landscape, rivers and lakes of this state. The best policy we have for insuring this pristine area is to leave it alone. Sincerely, Jim wilson

Jim Young 14978

Please add me to the list supporters of the Polymet Mining project in northern Minnesota. The additional, living wage jobs combined with economic impact to the region can not be replicated in this area. I believe that the Polymet Group has met and surpassed all regulations and guidelines put before them. It is time to move forward with this project and stop looking for a ghost behind every tree. Thanks, Jim Young Industrial Lubricant Co. Cell: 218-259-6367 Direct: 218-328-0274 Fax: 218-328-0259 jyoung@indlube-com

Jim/Janet 44114

From: Jim Woehrle 12793 Wawina E Wawina, MN 55736 Telephone: 218-387-5006 I am requesting that there be no action taken on the SDEIS for the NorthMet (Polymet project) for the following reasons: The long time frame of up to 500 years for the monitoring of the project and the unknowns of the effect of climate change on the hydrology of the region. The fact that sulfide mining is new to Minnesota. There is no good proven technology or long term model to prove that the environmental protection technology will work as described. The fact that the SDEIS grossly underestimates the amount of water that will flow through the 4-5 square mile site that is unlined and where water seepage through the site. The barriers to bedrock can crack and leak. This alone should disqualify the project. The SDEIS contains no credible information about the actual cost of monitoring, maintaining, and replacing the equipment needed to treat polluted water for 500 years or more. It provides no details about the nature or guarantees of a financial assurance scheme that would remain viable for 500 years, yet it does acknowledge, disturbingly, the possibility of events such as “unanticipated liabilities” and “failure or limitations on the ability of third parties to pay.” It does not attempt to explain how a corporate entity could realistically be held accountable over such an absurdly long period of time. Finally, even though the SDEIS admits that water pollution will last for a minimum of 500 years, its financial assurance section is an exercise in generalities. The actual cost of water treatment, monitoring, maintenance, repair, and reclamation is completely unknowable. The SDEIS says that PolyMet estimates initial closure costs of up to $200 million, with post-closure monitoring and maintenance costs of up to $6 million annually. The Grand Portage Band of Ojibway concluded that PolyMet’s numbers are vastly below the actual amounts required. The Grand Portage Band calculates that the minimum amount that should be set aside for financial assurance at the outset, assuming a 3% return on the amount, is $90-5 billion.

Alphabetical by sender's first name

JinianVictoria Herdina 42029

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, JinianVictoria Herdina Silver Bay, Minnesota

jkohnen 46934

To whom it may concern, Please do not destroy northern Minnesota with a new mine. The Polymet mine could continue to pollute our waterways long, long, long after any benefit is garnered from the mine. There is NO WAY to guarantee the waterways of Minnesota won't be polluted long after the mine has closed and Polymet no longer exists. It will be left to our multi-great grandchildren to bare this expense. The number of sustainable jobs is minimal as compared to the long term expense. It is very short sited thinking to allow this mine. Please do not allow new mines in Minnesota. Sincerely, Jane L. Kohnen 5357 Ewing Ave S Minneapolis MN 55410

Jo Ann McNaughtn-Kade 43318

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Jo Ann McNaughtn-Kade P.Box 396 Effingham, IL 62401

Jo Morse 38596

_____ From: morsejoann@hotmail-com To: northmetsdeis.dnr@state.mn.u Subject: SDEIS - Polymet Mining Project Date: Tue, 11 Mar 2014 19:39:26 -0500 While I am sympathetic to the need for good jobs in Northeastern MN, I think that the risk far outweighs the reward for the Polymet Mining Project. If the state allows the mining companies to potentially ruin the Boundary Waters Canoe Area, one of the major incentives for drawing and keeping an educated work force in Minnesota will be gone. My husband and I are both tech workers who have chosen to relocate to and live in Minnesota because of the wonderful outdoor recreation opportunities in the Arrowhead region. I think that the state of Minnesota will lose people like us if Polymet Mining is allowed to pollute the BWCA and that will ultimately affect the state's ability to attract and keep educated people . Thank you, Jo Ann Morse 1405 29th Ave N.W. New Brighton, MN 55112

Joan and Illegible Mork 58027

We live right near the (truly) Great Lake. There are no benefits greater than its beauty & wholesomeness. Do not let sulfide ore mining compromise this treasure. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Joan Beard 54849

See attachment

Joan Christensen 9287

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Joan Christensen 3292 County Rd 24 Intl Falls, MN 56649

Alphabetical by sender's first name

Joan Christensen 18416

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Joan Christensen 3292 County Rd 24 Intl Falls, MN 56649

50536

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Joan Christensen 3292 County Rd 24 Intl Falls, MN 56649

Alphabetical by sender's first name

Joan Gunderson-Palmer 10541

Dear Ms Fay, Mr Bruner and Mr Dabney, I wish to urge you to reject the PolyMet NorthMet SDEIS on the grounds that the project is likely to cause irreparable damage to our cultural and natural resources as well as result in violations to the treaty that the US made with the Chippewa Bands of Ojibwe people. From the Fact Sheet: "The Project area is also located on land that was ceded to the United States by the Bands under the 1854 Treaty. As part of the Treaty, the Bands reserved the right to hunt, fish, and gather on these lands. Some resources — such as fish, plant, and animal species — may be affected by the project, the degree to which in a cultural resource context is unknown. " Additionally, damage may be done to Wild Rice Harvests which would have a detrimental effect on the Ojibwe and many other Minnesotans. While I appreciate the actions PolyMet proposes to mitigate the potential harm that may be done by the project, I do not believe they are substantial enough to truly prevent or account for the damage that could continue for hundreds of years and more after the project closes. There are too many unknowns in this report, and the consequences are too dire for us to proceed with this project. Sincerely Joan Gunderson-Palmer 999 Seminole Ave West St Paul, MN 651-442-6509

Joan Osgood 58035

It will leak. Loss of Tourist Economy Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Joan Scully 43988

Date: March 12, 2014 To: Department of Natural Resources State of Minnesota From: Joan S. Scully 718 27th Avenue South Minneapolis, MN 55454 Re: PolyMet Copper-Nickel Mining Proposal It is my understanding that the DNR is accepting public comments on the proposed open-pit copper-nickel mine and ore processing facility in the Hoyt Lakes area in northern Minnesota. I have deep concerns related to the environment, our health, the survival of our wildlife and their loss of habitat, jobs for Minnesotans, and our economy. There has never been one sulfide mining operation -worldwide - that has not polluted the environment. There are still locations in England where the sulfide mining done by the Romans still pollutes the environment 2500 years later. Our precious wetlands, our rivers and streams, will be adversely affected by mercury, arsenic, and other toxic metals - the ’natural result‘ of sulfide mining - and it may be necessary for the animals, fish and birds to be instructed on how to keep away from the huge toxic ’ponds’ that will require monitoring for the next “500 years” (as far as the company’s report would go) or, more likely, forever. The health effects stemming from this mining affects humans, wildlife, and the environment. Tourism would suffer if this mining operation were approved. The number of jobs related to tourism is much higher than are jobs related to mining, and if we continue poisoning our state, how will we attract tourists to see our lovely toxic waste ponds or waste piles. Native populations’ tribal rights would be violated if this mining project goes ahead, and their cultural practices and economic livelihoods would be seriously compromised; some would be terminated. As a retired union worker, I have been aware of the historical shortage of good jobs in the northern tier, so I understand the workers’ enthusiasm at the promise of good jobs, but many of these jobs will be filled by people they bring in from other operations, and will probably number in the hundreds, a few hundred. A few hundred jobs for 20 years sounds good to Minnesotans who need to support their families, but there are other ways to create better well-paying jobs for the northern part of our state. It would be better to create jobs in manufacturing alternative energy parts, for example, or building solar panels or wind turbines, or growing hemp for clothing, ‘concrete’, and a myriad of products derived from hemp. Twenty years of jobs resulting in the permanent poisoning of our beautiful state - in its most beautiful part - is just not a good business model. We count on the DNR to protect the state from perpetrators of dangerous money-making schemes that will harm our state. Please listen to our plea: Please Reject PolyMet’s proposal to mine for copper and nickel, etc, in northern Minnesota. Thank you for considering this plea. Sincerely, Joan S. Scully

Alphabetical by sender's first name

Joan Sutliff 44053

I stand with the research provided by and thoughtful comments and opinions of the organization, Water Legacy. They are as follows - "PolyMet's open-pit sulfide mine plan should not be allowed to directly destroy 913 acres, and indirectly destroy as many as 7,351 acres, of high value wetlands in the Partridge River headwaters and 100 Mile Swamp. Wetlands at the PolyMet mine site bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. More than 2/3 of the replacement wetlands in the "compensation package" are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. The Land Exchange plan does not maintain the value of public assets and comes nowhere near replacing the ecological functions lost in the St Louis River Watershed. PolyMet's Mine Plan doesn't even look at alternatives that would reduce wetlands destruction, restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. Minnesotans need to know every alternative has been explored if the permitting process is to be legitimate in the eyes of the public" I ask that you deny the proposed plan from going through and agree that much more work is need to determine a smarter course of action. Thank you. Sincerely, Joan Sutliff 5325 Fish Lake Dam Road Duluth, MN 55803

Joan Thom 41948

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Joan Thom Minneapolis, Minnesota

Joana Cipriano 40427

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Joana Cipriano Beco de Stº Cristo, n.º 1 Coimbra, ot 3040-657 PT

Alphabetical by sender's first name

Joanie Davis 42957

Please find my Comment document attached. Joanie Davis, 4895 Safari Pass Eagan MN 55122-2690

JoAnn Ailes 52310

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, JoAnn Ailes 575 E 950 N Westville, IN 46391

JoAnn Huss 3454

Dec 21, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Why would you even consider a business venture that has a 100% rate of environmental destruction to the state of MN. Not only would the area surrounding the mine sites be affected, the water sheds far beyond will be adversely damaged for a long time after the mining is done. My family and many other MN families are very worried about the human health risks that you are entertaining. This type of mining will put arsenic, manganese and other contaminants in their drinking water and muercury contamination will happen to the fish in the watershed and most likely far beyond, even into Lake Superior . The research has shown that more than 8,000 acres of irreplaceable wetlands in the St Louis watershed will be impaired or destroyed IF you say yes. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. We have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. PLEASE JUST SAY NO to this lethal project. Thank you. JoAnn Huss 916 North Payne Street New Ulm. MN 56073 United States of America The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs JoAnn Huss 926 N Payne St New Ulm, MN 56073-1474 (507) 354-1644

51647

Dec 21, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Why would you even consider a business venture that has a 100% rate of environmental destruction to the state of MN. Not only would the area surrounding the mine sites be affected, the water sheds far beyond will be adversely damaged for a long time after the mining is done. My family and many other MN families are very worried about the human health risks that you are entertaining. This type of mining will put arsenic, manganese and other contaminants in their drinking water and muercury contamination will happen to the fish in the watershed and most likely far beyond, even into Lake Superior . The research has shown that more than 8,000 acres of irreplaceable wetlands in the St Louis watershed will be impaired or destroyed IF you say yes. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. We have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. PLEASE JUST SAY NO to this lethal project. Thank you. JoAnn Huss 916 North Payne Street New Ulm. MN 56073 United States of America The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs JoAnn Huss 926 N Payne St New Ulm, MN 56073-1474 (507) 354-1644

Alphabetical by sender's first name

JoAnn Olson 38820

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

JoAnn Sternberg 15838

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, JoAnn Sternberg 16590 Alpaca St NW Ramsey, MN 55303

Alphabetical by sender's first name

JoAnn Sternberg 40462

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Joanna Schlegelmilch 36350

Dear DNR, The Polymet debate has been plaguing me for some time now. My worry is only eased knowing the decision lies in your capable hands yet I still feel the need to voice it. The overwhelming point is that the stakes are too high and the sacrifice is too great. You as the DNR have been given the task of being stewards of the land and all its naturalness and as such, it is your duty to protect it without being blind sighted by money. This scenario has been played out too many times before in various places all over the world (the promise of economic success for the "simple" use of resources) but rarely if ever has is come without consequences for the land and all that it had supported. Diminishing the quality of life for the next 500 years for the economical benefit of one lifetime sounds completely ludicrous. Please, you must not allow the pristine beauty and vitality of our land to be robbed by big business because they're lying through their teeth if they think this is ultimately beneficial to we who wish to live here long after those mines close. As a recent graduate from UMD and a citizen of Duluth for the past five years, I have always enjoyed doing projects on the water quality of Lake Superior and after travelling to faraway places, I can still honestly say this is the best water I have ever tasted and I feel safe drinking it. It is for the lake alone that I gave up notions of living elsewhere as I wish to live here now, on a lake so superior to all the reSt But even before I was aware of Polymet, I dreamt of disaster threatening the water. My nightmares held black muck seeping into the water, people ridden with grief over children dying of cancer, illness and disease. This sounds dramatic but there is no other way to voice my concern. Please listen to the people and their cries. Defend this land skin, tooth and bone. It's not worth the gamble. Joanna Schlegelmilch 5356 Greenwood Road Duluth, MN 55804

Alphabetical by sender's first name

Joanne & Larry Spears 42725

See attachment

Joanne and Jim Collins 32205

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining should never take place in the areas around Lake Superior, and in the Arrowhead Region of Minnesota, and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. It is absurd to even think about mining these pristine areas around Lake Superior. We are opposed to all mining around these most precious areas. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Protect our lands and waters. Sincerely, Joanne and Jim Collins 86360 Meyers Olson Rd Bayfield, WI 54814-4510

Joanne Engelking 16193

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Joanne Iskierta 42753

See attachment

Alphabetical by sender's first name

Joanne Kalnitz 38718

Mar 11, 2014 Ms Lisa Fay MN Dear Ms Fay, I am not a Minnesota resident but an Illinois resident who is interested in protecting the environment and wildlife. I am very concerned about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Joanne Kalnitz 2920 W Sherwin Ave Chicago, IL 60645-1210 (773) 761-1701

Joanne Luongo 43457

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Joanne Luongo 1636 pingston creek rd Kettle Falls, WA 99141

Joanne M Engel 42834

See attachment

joanne smith 43302

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. Many years ago, I drove with my family through Ontario Canada and was shocked to see the devastation to the environment for several miles surrounding one of these mines. At the time we were told that it was 'acid rain.' You know very well that we are looking at this kind of destruction of you approve this mine proposal, and there will be destruction that wouldn't be fixed from at least 500 years. This is too much damage for the few jobs that would be affected during construction and then for the actual mining operation itself. I come from this area. I was raised in Two Harbors along beautiful pristine Lake Superior, and my husband was born on the Range and raised in Babbitt. He, too, knows the negative impact that this would have on our famous clear water sources plus the northern Minnesota woods and habitat. Clearly this should be a NO vote on these issues. Please listen to the conscience of the people on this one. Sincerely, Joanne Smith 697 23rd Ave NW New Brighton, MN 55112-6516 (651) 636-7736

Alphabetical by sender's first name

joanne smith 43344

My name is Joanne Smith, and I was born and raised on the shores of Lake Superior near Two Harbors MN. As a young child, we took at trip north along Lake Superior, and in Ontario Canada we came across an area that looked like it had been white-washed. For miles the trees were stripped of vegetation and life, and we gradually found out that this was the effect of acid rain a byproduct of the mining industry in that area. If you have never seen images of this kind of destruction, you would NEVER vote yes on letting these mines in to do their destructive mining techniques. Think what this would effect. Not only would it be destructive to the lives of the people that make this area their home, it would literally decimate the tourism industry along the North Shore and over in the BWCA. Our lakes and rivers would be irreparably harmed, as would Lake Superior itself the source of drinking water for many thousands of people. The jobs that we are talking about do not have that kind of economic impact. Yes, there would be construction jobs but only for a while. As for the miners, as many as want to work, there are jobs already available in the iron mining industry. This is a short term vision for a LONG TERM PROBLEM. Please listen to the conscience of the people on this one. This is not simply a tree-hugger issue. This is the future water quality issue for the State of Minnesota and Wisconsin and also Canada. Thanks for listening to a voice of reason, Joanne Smith 697 23rd Ave NW New Brighton MN 55112 651-636-7736

JoAnne Stick 16379

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, JoAnne Stick 5031 148TH PATH W. CTSTRT APPLE VALLEY, MN 55124

Alphabetical by sender's first name

JoAnne Stick 49948

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, JoAnne Stick 5031 148TH PATH W. CTSTRT APPLE VALLEY, MN 55124

Joanne Sunderland 58073

Just stop it! We don't need it, it is not essential. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Joanne Swanson 39081

---Original Message--- From: jos1281@gmail-com [mailto:jos1281@gmail-com] Sent: Monday, March 10, 2014 7:54 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Joanne Swanson 1281 Como Blvd W Saint Paul, MN 55103

Jodi Broadwell 11260

Dear DNR, I am against the NorthMet proposal and any other copper/nickel/sulfide mining proposal that comes to Minnesota. Copper/nickel/sulfide mining has a history of leaving devastated wastelands and poisoned waterways behind when the mining is done and the tailings remain. Mining companies have not found a way to keep the tailings contained. There is 1 copper mine, the Mopani Copper Mine in Zambia, Africa where the tailings are contained. The tailings are contained by a Dolomite shelf that surrounds the copper-this shelf occurred naturally within the earth. The Dolomite has made it environmentally safe for copper mining in Zambia. We do not have a Dolomite shelf surrounding our copper here in Minnesota, we have water. I love living in the land of 10,000 lakes and I choose to buy my home here in 2010- I have invested thousands of dollars into my home and I fear that if our waterways become poisoned I will be forced to move and if the proposed mining project turns the Northland into a wasteland and poisons the Minnesota waterways, I imagine no one will want to purchase my home. Please protect our water and our investments from becoming a poisoned wasteland of loss and devastation. Say no to NorthMet. Jodi Broadwell 317 N. 22nd Ave West Duluth, MN 55806

Alphabetical by sender's first name

Jodi Broadwell 41991

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Jodi Broadwell Duluth, Minnesota

Jodi Johnson 38811

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Jodi Johnson 5830 Grand Ave Duluth, MN 55807-2568

38812

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Jodi Johnson 5830 Grand Ave Duluth, MN 55807-2568

38842

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Alphabetical by sender's first name

Jodi Libey 15681

Feb 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuri

Jodie Prohaska 40777

To Whom it May Concern, I strongly believe the PolyMet mining proposal requires more time in order to sift through issues regarding the maps. I have been conflicted about the mine. I realize jobs for Minnesotans are crucial. My husband has been unemployed for several months and we personally feel the strain of a slow economy. However, I am not convinced that this pollution can be contained. The topographic maps are not accurate. The sulfuric acid will most certainly drain into pristine watersheds. I urge the DNR and stakeholders to look more closely at these maps and require more time to investigate their accuracy. We need resources. We need jobs. However, evaluating the risk to the environment needs more time. Thank you, Jodie Prohaska

Alphabetical by sender's first name

Jody Copp 40682

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Jody Copp 4222 Scott Ter Edina, MN 55416-5036 (952) 926-3740

Jody Goldstein 48169

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Jody Goldstein 2124 Schmidt Ct SE Rochester, MN 55904

Jody Schulman 40313

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Jody Schulman 3305 Coventry Ct. Dr Ellicott City, MD 21042 US

Alphabetical by sender's first name

Joe Adler 40131

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Areas around and near to the BWCAW need to be protected at all costs. We have seen too many of these areas ruined by indiscriminate development, with the average citizen losing out. It not only costs taxpayer money to try to clean it up, but deprives everyone of recreational opportunities. All the mining company has to do is declare bankruptcy when they have extracted the majority of the minerals from a site, and all future clean up, if it can even be remediated, becomes the responsibility of taxpayers. This is wrong. Minimally, any mining company wanting to mine an area should be forced to put in place an escrow of a minimum of 10% of the value of the deposit in order to have funds available for cleanup. Letting them proceed with a permit, using bad data, is negligence on the part of our public servants. This must be stopped. Sincerely, Joe Adler 3305 E 126th Lane NE Blaine, MN 55449 Sincerely, Mr Joe Adler 3305 126th Ln NE Unit E Blaine, MN 55449-6611 (763) 862-8447

Joe Baltich 15743

See attachment

Alphabetical by sender's first name

Joe Baltich 18314

Joe Baltich from Ely, Minnesota. Third generation Slovenian since we're counting. I grew up in Ely and I spent my entire life there and am still there. My family has had a resort in Ely since -- well, it started as a cabin in 1939 and became a licensed resort in 1944 by my dad. And it's operated continuously since 1944 until now. This summer will be our 70th year of operating as resort in the tourism business in Ely, Minnesota. So I know tourism and I know for 30 years prior to the inception of our resort as a licensed facility and to current date mining has occurred in Ely around us for all of these years. And we've lived with it and we've done quite well. The water is clean. The fishing is good. Tourism isn't as good as it is due to competitive forests perhaps, you know, and other things, economic factors and whatnot. But I do know one thing. That Ely won't survive on tourism alone. Tourism is one slice of the pie. Another slice of the pie, from what I see in Ely, is mining. It may be a big slice of the pie, it may not. It depends on how you want to look at it, because all businesses wax and wane. They come and go. Mining will have its peaks and lows. So does tourism. As result I want to see mining on the Iron Range. I want to see the opportunity for the people on the Iron Range to have jobs that aren't just tourism, because tourism comes from Ely next to the Boundary Waters Canoe area where I'm from. It doesn't happened in Virginia, Minnesota, per se. Sorry, Virginia, but it doesn't compare to Ely. And so what I'm trying to stay is you need it all. It's 2014. We've had oh, many, many years now for mining technology to increase over the years and improve. And I believe in the year 2014 that we have the capability to actually function as an ecologically sound mining institution or area or region. One comparison I will make -- and I will try to be brief -- this morning I was reading the news on the Internet and they said China today is having dangerously high outputs toxic air pollution, because China they are all about making money. They don't care what they do. They showed pictures. You couldn't see anything. It was a sea of smog and people walking around with masks. Well, China is one of the biggest places for copper production in the world right now. They're dominating it. And so as a result we've got China doing whatever they want. When they have output of any kind, they dump it out in the sea. They don't care. I will tell you one thing, in Minnesota on the Iron Range we have a lot of fishermen and hunters who like this area. That's why we stuck it out here so long. And as a result we're going to see these people being good shepherds and good stewards to their land. We are not going to see the kind of pollution you're seeing in China. The United States of America, Minnesota, the Iron Range, and Ely should be leading that charge. And that's where I stand.

Joe Begich 18315

My name is Joe Begich and I've resided in Eveleth for the past 84 years. I've been involved in the Minnesota legislature and served on one of the toughest committees in the Minnesota House. The committee of natural resources and environment. We served under a tough chairman. The laws and rules that we are operating under now are the toughest in the USA. Just recently somebody mentioned West Virginia. That plant hasn't been inspected for 20 years. This will be inspected on a daily basis. And there's nothing wrong with mining and providing jobs if we do it the right way. And from what I can follow and what is clear to me, this company is planning to do it the right way. Otherwise I would not support this. I aim to protect the environment like everyone else. But I live in Eveleth in the middle of the mines, of the Eveleth Taconite. 90 feet from my driveway is Eveleth Taconite. I don't have a problem. They live by the good rule. I live by my rule. There is no problem. Why can't we all get together and live the proper way and open that mine and provide long paying jobs for our area, for our youngsters coming up graduating from school.

Joe Cherra 14999

Has anybody researched or even thought to investigat the use of fumerole biotics as a tool for mitigating the sulfur problem associated with sulfide mining. I'm thinking of the deep sea organisms that break down the SO2 and CO3 into oxygen and nutrients to live off of. On Mon, Feb 10, 2014 at 9:32 AM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Joe Cherra 15303

Minnesota has the 4th largest deposit of Copper and Nickel bearing ore on earth. University of Minnesota - Duluth geology professor, Jim Miller, says that estimates are as much as 4 billion tons, worth more than $1 trillion, creating thousands of jobs for maybe a century. Polymet proposes to mine this ore near Aurora / Hoyt Lakes with an annual output of 36,000 tons of Cu, 7,700 tons of Ni, 360 tons of Co and 7200 pounds of precious metals. They estimate that this project will provide: Approximately a $500 million construction project, creating two million hours of construction work. 360 full-time mining jobs 600+ related jobs Estimated $15 million in annual local and state tax revenue Estimated $45 million in annual federal tax revenue $720 million in wages over a 20 year period $10-3 billion in economic benefit to St Louis County $300 million in new local and state tax revenues $900 million in new federal tax revenues. These are Polymets' numbers. What troubles me is: 360 full time mining jobs + 600 related jobs for 20 years is going to create almost 1,000 unemployed 40 and 50 year olds in 20 years in an area that has been hard hit, for years, with scarce job opportunities and higher than the state average unemployment numbers. What happened to the 100 years that Jim Miller forecaSt Even if other mining companies move into the area in the next few years, will they be able to absorb Polymets' unemployed. Will Polymet be paying enough in unemployment compensation taxes to cover these large numbers. Polymet proposes to create 360 full-time mining jobs. They will provide $720 million in wages and benefits to 360 full time employees over a 20 year period. This looks very promising until you consider that $500 million of that projection will go to construction. Subtract that from the $720 million and the number is closer to $220 million. $30,000 in wages looks good until you start deducting the benefits they promise. It doesn't take much to make that good looking job a "slightly better than a poverty level" job for a provider of a family of four. Estimates range from 200 - 500 years to treat the water flowing through the site at a cost of $3-5-6 million dollars per year. No corporation, especially one dealing in a mining project as devastating as this, can guarantee being around that long, even if it's only 200 years. We have to assume that the taxpayers are going to be footing the bill for a clean-up project ranging from $700 million to $3 billion. There goes the local, state and federal tax revenues. This figure should be enough to stop the project in its tracks. The EPA estimates the total cleanup cost would exceed $50 billion. I grew up in Duluth, MInnesota in the shadow of US Steel's Morgan Park plant, a few blocks from the St Louis Bay which the steel plant used as a sewer. My father worked the steel plant from the time he returned from WWII until he was terminated in 1972 when U.S, Steel closed the plant, shipping all of its equipment to Venezuala rather than cleaning up their mess. The grounds of US Steel's Morgan Park operation is now a Federal Super Fund site. The St Louis Bay is still waiting to be cleaned up. US Steel fled rather than fix. I returned from VietNam to find that Duluth's drinking water was contaminated with asbestos dumped into Lake Superior by Reserve Mining Company. Duluth had to build a new water filtration plant to rid the water of the asbestos. Duluth and the federal government paid for this, not Reserve Mining. Reserve Mining closed rather than fix it. The company that took over the Reserve Mining operation lost a tailings pond which dumped mining waste into Lake Superior. LTV closed rather than fix. Polymet has a bad reputation in South Africa and South America. They tend to leave messes behind just like US Steel, Reserve MIning and LTV. Can we trust them to live up to any of their promises. I have learned to be skeptical of any promises made by any corporation that depends on short-term profits ra

Alphabetical by sender's first name

Joe Cunningham 10085

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Joe Cunningham 1486 Pleasant Ave Baldwin, WI 54002

18829

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Joe Cunningham 1486 Pleasant Ave Baldwin, WI 54002

Alphabetical by sender's first name

Joe Cunningham 50901

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Joe Cunningham 1486 Pleasant Ave Baldwin, WI 54002

Joe Feidt 44883

Our home address: Susan Hangartner Joseph Feidt 802 6th St Hudson, WI 54016-1708 On Wed, Mar 12, 2014 at 8:32 AM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

47259

To: State of Minnesota From: Susan Hangartner and Joseph Feidt, Beaver Bay, MN Dear State of Minnesota: We own a home in Beaver Bay, MN on the shores of Lake Superior. The house has been in my (Susan's) family since the 1920s. My great grandparents were some of the original settlers in Beaver Bay. I have roots here that go way back. Both of us have hiked and explored this area since we were children. We urge you look beyond the short term gain of jobs to the relatively near future when the mine is closed and the mining company has pulled up stakes. Can you guarantee the pollution from this mine will not reach streams, rivers, and Lake Superior. Do we really want to gamble on our environment once the mine is closed. Superior is the cleanest of the Great Lakes. It is our jewel to protect. Let's keep it that way for generations to follow. Respectfully Submitted, Susan Hangartner and Joseph Feidt

Alphabetical by sender's first name

Joe Folio 7678

Lisa Fay, EIS Project Manager, MDNR Division of Ecology and Water Resources Environmental Review Unit: I have reviewed NorthMet Mining Project and Land Exchange, Supplemental Draft Environmental Impact Statement documents. I am not a scientist and did not read the entire 2,000+ page document but did read the Executive Summary. In my opinion, the SDEIS provides more than adequate coverage of the NorthMet Mining Project and Land Exchange. Water quality, air quality, cumulative effects, closure, etc are extensively analyzed and studied in the SDEIS beyond the MEPA and NEPA statutes and criteria. The project should be allowed to proceed to the EIS phase. On a personal note I'd like to add that I am from Ely, Minnesota and our town has been dying since our last mine closed on April 1, 1967- We are sitting on one of the largest copper/nickle and precious metals deposits in the world and it would be a shame not to use our natural resources, but import them fro overseas. We need jobs in this area and we also need clean water and air and I believe we can have both. Minnesota has the strictest environmental laws in the nation and we will mine safely. Regards, Joseph R. Folio 546 E. Wilson St Ely, MN 55731 218-365-2474 folio@reagan-com

Joe Hochevar 42535

See attachment

Joe Kasel 54680

See attachment

Joe Knaeble 40871

To: Lisa Fay, EIS Project Manager, or the appropriate person to take public comment on the PolyMet Mining Inc. Proposal. From: Joseph P Knaeble 2533 Colfax Ave South Minneapolis, MN 55405 612 644 9412 HYPERLINK "mailto:joeknaeble@usfamily-net"joeknaeble@usfamily-net I am a Certified Master Water Steward, a contributor to the development of green building standards for the MN GreenStar Program and have been actively involved in the development and operation of several green business over the past 20 years including The ReUse Center, a Project of the Green Institute. I am partial owner of several properties in Itasca County and a property in Lutsen MN. I have several questions regarding the permitting of the proposed PolyMet mine on the Mesabi Iron Range, 6 miles south of Babbit, MN I also have several comments that I would like to be on the public recoRd Questions regarding the SDEIS Document. First questions are in regards to Section 1-1-1 in which the following figures are given of approximate outputs of the mine. 15 million tons of waste rock annually; 11-3 million tons of tailings from the Beneficiation Plan annually: 313,000 tons of residues from the Hydrometallurgical Plant 131,000 tons of copper concentrate, 18,000 tons of mixed nickel/cobalt hydroxides and 500 tons of PGE precipitate annually 1- Would you please identify the toxicity or danger levels of the 15 million tons of waste rock, the11-3 million tons of tailings and 313,000 tons of residues. What are the time estimates of how long these 3 outputs would need to be monitored in the designed storage ponds, pits or piles before they would not create pollution problems that would exceed environmental standards if they escape from the pits, piles or storage ponds. 2- How would the financial assurances be structured to cover failures that exceed environmental standards while PolyMet is still mining, if they occur decades or centuries after PolyMet has closed the mine or if PolyMet has gone out of business. My next questions relate to the answers given in my first series of questions. In Section1-3-2- subsection 1-3-2-1 Project Purpose and Needs are addressed. The 2nd bullet point states that a purpose and need of PolyMet Inc. is "To extract metals in a safe, environmentally responsible, energy efficient, and economically feasible manner subject to mitigation measures designed to avoid or minimize environmental effects to the extent practicable". 1- Is it possible and even probable that to extract metals in a safe, environmentally responsible manner at some point becomes in contradiction with extracting them in an economically feasible manner. To leave it up to PolyMet to define the extent practicable of balancing what could easily be opposing criteria does not seem to be in the public interest nor does it provide protection for the environment in the Cloquet Watershed and for Lake Superior. 2- Mitigation measures are designed to avoid or minimize environmental effects to the extent practicable. Does the State of MN or any other governmental body have a say in defining the extent practicable. Comments 1- According to my research the past track record for sulfide mining in an environmentally sound way is very poor and mitigation efforts have been inadequate approximately 64% of the time and this includes modern mining operations. An organization called Mining Truth claims that mining companies often either do not have the financial resources to clean up the pollution caused by their mines or have gone out of business while financial assurance have not been adequate to cover the costs of clean up. How is PolyMet's proposal different from past sulfide mining operations that have become a liability to the public and have done damage to the environment. Due too the past track record it seems PolyMet needs to guarantee complete clean up for as long as any failure of waste containment from its operation creates problems that exceed en

Alphabetical by sender's first name

Joe Krenzelok 41625

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Joe Krenzelok Minneapolis, Minnesota

Joe Magda 44273

We need the jobs, we need the business, I'm in favor of mining. Joseph Magda 17063 242nd ave nw Big Lake Mn 55309

44289

I'm in favor. We need the jobs, we need the business

Joe Marino 54523

See attachment

Joe Martin 54196

I strongly disagree with your stance towards sulfide mining. I believe you are just looking for profits at the expense of the environment and peoples lives. Sure this would create jobs, but it would just be temporary and would cause major pollution our lakes and rivers. We do not need my mines in our beautiful state, and if it’s not broke don’t fix it.

Joe May 6372

Dear Ms Fay, Dear Federal and State Agency Leaders: Who will pay for the clean up when Polymet has exhausted the resource, then files bankruptcy . PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would d Sincerely Joe May 10533 W. River Rd Brooklyn Park, MN 55443 651-334-4199

10012

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: One question When Polymet has pulled everthing out of the ground or it's proven to be a huge polluter, they probably file bankruptcy as so many mining operations have done in the paSt If it even could even be cleaned up, WHO will pay for it MY answer the state, us. Sincerely yours, Joe May Joe May 10533 W. River Rd Brooklyn Park, MN 55443

18756

Dear Ms Fay, Mr Bruner and Mr Dabney: One question When Polymet has pulled everthing out of the ground or it's proven to be a huge polluter, they probably file bankruptcy as so many mining operations have done in the paSt If it even could even be cleaned up, WHO will pay for it MY answer the state, us. Sincerely yours, Joe May Joe May 10533 W. River Rd Brooklyn Park, MN 55443

Alphabetical by sender's first name

Joe May 50830

Dear Ms Fay, Mr Bruner and Mr Dabney: One question When Polymet has pulled everthing out of the ground or it's proven to be a huge polluter, they probably file bankruptcy as so many mining operations have done in the paSt If it even could even be cleaned up, WHO will pay for it MY answer the state, us. Sincerely yours, Joe May Joe May 10533 W. River Rd Brooklyn Park, MN 55443

Joe Nasvik 42894

Please accept my attached letter for inclusion to the public record against the Polymet Sulfide Mine Application. Sincerely, Joe Nasvik

46053

My address is: Joe Nasvik 3934 Earlston Rd Downers Grove, IL 60515 HYPERLINK "mailto:jnasvik@sbcglobal-net"jnasvik@sbcglobal-net From: *NorthMetSDEIS (DNR) [mailto:NorthMetSDEIS.dnr@state.mn.us] Sent: Wednesday, March 12, 2014 3:36 PM To: Joe Nasvik Subject: RE: Proposed Polymet mining permit Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Joe Nelson 43816

Mar 13, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. The resources that would be obtained from this mine are necessities, if we don't mine them someone else will. Sure there are negatives to the environment but what about our economy and the jobs that we are giving away. As far as the global environmental impact, most countries have much worse environmental regulations and will cause a larger impact to the environment if they produce these metals. I APPROVE the proposed PolyMet mine Sincerely, Mr Joe Nelson NO shoreview, MN 55126 (612) 581-1154

Joe Padden 44704

Dust is sure a problem in mines what dust control for sulfides Sent from my iPhone

44709

What is the hardest rain fall The site is designed to handle. Duluth, mn Was recently Inundated Sent from my iPhone

Joe Quincy 58138

While I appreciate the fact that Polymet has attempted to work within the guidelines and regulations provided them in their endeavor to begin mining 3 MILES AWAY FROM THE BOUNDARY WATERS, feet away from streams and other waterways that lead into the BWCA and surrounding area, I find it absolutely ridiculous that this proposal has gotten this far. The single point that this is a 500 year agreement along makes it an impossible decision for us to make; there are concerns for the next 20 years as regards water, air and soil quality – how could Polymet possibly believe themselves competent to predict/mitigate effects for the next 500 years? I believe it would be best to let nature function as it has for the past billions of years; obviously the pre-existing system works and the proposed amendments to this system – mining – are iffy at best.

Joe Scherer 18118

My name is Joe Scherer. I am from Embarrass, Minnesota. Thank you guys for your time coming here. I appreciate everything you have done, standing up getting ridiculed by some of these people. I'm not going to do that. You have done a great job. Your employees have done a job. I live in Embarrass, Minnesota. I live six miles away from the gate to this plant. I was born and raised here. I hunt, I fish right in the back of this plant that they are proposing. (Inaudible) nobody has these problems with waters. They're monitoring and taking care of them. We are stewards of our area. I fully believe that our government agencies will make sure this area will remain intact and pure. We can having mining. We can have tourism. So with that being said, again, thank you guys very much. Job well done. Thank you.

Alphabetical by sender's first name

Joe Thorne 40029

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Joel 41727

To the Department of Natural Resources in Minnesota, I have a few words. Please consider the harm involved with allowing the PolyMet mine to come to northern Minnesota. Jobs come and go. Our planet does not. This mine would set a negative precedent for our state. Water pollution is serious. Thank you, Joel

Joel Aslanian 46132

Please protect the BWCA watershed and spare all of northern MN the inevitable legacy of mining pollution. Thank you. Joel Aslanian Principal Meriwether Partners LLC 1191 Second Avenue, Suite 1570 Seattle, WA 98101 Ph: (206) 816-1573 Cl: (206) 799-4783 HYPERLINK "mailto:jaslanian@mericap-com"jaslanian@mericap-com

Joel Bryan 14923

Hello, I am contacting you today in regards to the copper and nickel mining that is being proposed near Hoyt lakes. I am adamantly opposed to opening a mine there. In the past companies that have opened mines like this one have failed to keep the environment adequately during the operation and avoided cleaning up the site after the operation is over. I do not believe current mining techniques can safely remove the copper and nickel without causing great harm to the environment. I have enjoyed the boundry waters many times over the years and with the projected scarcity of water over the next few decades why would we poison our water supply. This mine is irresponsible and the potential benefits are short sited at beSt Joel Bryan Rosemount, MN

Alphabetical by sender's first name

Joel Clasemann 40473

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Alphabetical by sender's first name

Joel Hanson 41017

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Joel Hoffman 44764

March 13, 2014 MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 To Lisa Fay, EIS Project Manager, I am writing to comment on the NorthMet Supplemental Draft Environmental Impact Statement (SDEIS). Based on the NorthMet SDEIS, the proposed project would result in large-scale disruption and degradation of forested wetlands in the headwaters of the St Louis River. The project also represents a serious threat for heavy metal leaching into surrounding ground and possibly surface waters to an area that is already recognized by the state for persistent mercury pollution. These impacts are not adequately addressed in the SDEIS. While the executive summary highlight the direct impact to wetlands (~900 acres), Chapter 4 provides a much more complete picture of the wetland impact. As the SDEIS notes, there will be likely be a much broader affect on wetlands in the region owing to activities associated with the mine pit that would negatively affect wetlands adjacent to the operations (exemplified by the high percent of low quality wetlands adjacent to other facilities in the region) and changes to the underlying water table and hydrology. In the SDEIS, this broader impact is identified in the analysis of Areas 1 and 2 (above and beyond the Northmet project area and Mine Site). The NorthMet Project area includes 177 wetlands (66% rated as moderate or high quality) covering 1,584-9 acres. The Mine Site area includes 87 wetlands covering 1,297-8 acres. According to the SDEIS, these are essentially pristine wetlands: “The vegetation types located at the Mine Site are indicative of pre-settlement conditions and lack hydrologic disturbance.” Area 1 encompasses 465 wetlands covering 11,201 acres. Area 2 contains 373 wetlands covering 8,621-9 acres. In essence, the project will severely impact about 6,000 acres and potentially impact about 20,000 acres of wetlands, including pristine wetlands and high-value forested wetlands whose functionality could be severed degraded by changes in hydrology associated with the mining operations. Nevertheless, the mitigation target is far less (<2,000 acres), and would not necessarily restore the lost functionality to headwater streams or to the St Louis River watershed. This is a severe shorting-coming of the NorthMet SDEIS. The resultant changes in hydrology and ecological function of these wetlands represent a significant impact to the watershed, and would add to the cumulative stress placed on the St Louis River. The SDEIS does not adequately address these downstream impacts. The wetland loss is unacceptable at this scale, especially in light of the large expense committed by the federal and state government to restore wetlands in the lower reaches of the St Louis River. As the executive summary notes, mercury pollution in the St Louis River is of particular concern and potentially represents a serious public health threat. There is already a fish consumption advisory (owing to high mercury concentrations in tissue) posted for fish in the region of the proposed NorthMet project. Although the water quality model developed for the project suggests a net decrease in load of mercury to the St Louis River, these models are reliant on two critical assumptions: a lack of groundwater leaching from the pit and tailings basin, and successful water treatment. It seems likely that at least one failure in the applied technologies will occur during the operational period of the mine. This potential is not evaluated in the SDEIS. Moreover, the mine pit will require a large load of electrical power, likely causing an increase in power generation in the region. Presuming the power will come from a coal-fired power plant, this would likely add to the atmospheric mercury loadings to the region. In conclusion, the SDEIS details substantial environmental impact to the region but fails to adequately consider the full effect of t

Joel K Hoelz 54890

See attachment

Joel Kelly 39225

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Joel Kelly PO Box 181 Montrose, MN 55363-0181 (763) 269-6165

Alphabetical by sender's first name

Joel Kelly 41932

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr joel kelly 111 Center Ave N Montrose, MN 55363-8549

Joel Mamedov 17330

I am absolutely oppose to this project. It should not be granted to go forwaRd The main selling argument for this project is a “job” creation. Yes, it will create some jobs. But, the people who earned some money will spend that money to their cancer treatment or treatment of their children. And that money will not be enough anyway. When you poison an environment there will be some winners (corporations, some employees) but, there will be a lot more losers. Our children will be a biggest losers. So, ask yourself. Do you really love your child.

17331

Dear Ms Fay, Dear Federal and State Agency Leaders: I am absolutely oppose to this project. It should not be granted to go forwaRd The main selling argument for this project is a “job” creation. Yes, it will create some jobs. But, the people who earned some money will spend that money to their cancer treatment or treatment of their children. And that money will not be enough anyway. When you poison an environment there will be some winners (corporations, some employees) but, there will be a lot more losers. Our children will be a biggest losers. So, as yourself. Do you really love you child. Joel Mamedov 5611 bimini dr Minnetonka, MN 55343

Joel Roberts 42887

Ms Lisa Fay: I am attaching a copy of my comments on the PolyMet Mining NorthMet Project SDEIS. Sincerely, Joel Roberts 1150 Ivy Hill Drive Mendota Heights, MN 55118 651-690-5889 roberts@math.umn-edu

Joel Vlaminck 40742

I'm concerned about the mining proposal being put forth. I don't want our state's water sources being polluted for generations to come. Without a plan in place for proper clean-up, I'm concerned of the irreversible damage that will be done to the surrounding ecological systeMs For the benefit of current and future Minnesota residents, please insist on a more thorough plan for keeping the waters safe and clean. If it isn't possible or feasible to keep the waters clean with this mining project, then it shouldn't be done. Respectfully, - Joel Vlaminck, DC, MS HYPERLINK "mailto:drvlaminck@gmail-com"drvlaminck@gmail-com

Alphabetical by sender's first name

Joel Weisberg 19432

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to much longer. Ninety days are not enough to digest and comment upon the enormous document. Water Legacy, which has looked at the document, states the following reasons for lengthening the comment period. They all look reasonable to me. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS seems to be one-sided. Well-documented tribal Major Differences of Opinion call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles and tailings heaps won't seep pollution, that mining won't dry out wetlands and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they are not available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and putting public meetings in January (when bad weather is likely) seems designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just foreign corporations, will matter when the government makes its decisions. Sincerely yours, Joel Weisberg 105 Winona St Northfield, MN 55057 507-645-9112

45191

Dear Ms Fay, Dear Federal and State Agency Leaders: I am writing to you to urge you to stop the proposed PolyMet sulfide mine because it will violate numerous health and environmental standards. Specifically I am asking you to reject the SDEIS and to deny permits to begin it. It is especially unrealistic to expect that the polluted water flowing from the site will be environmentally monitored and treated "in perpetuity," or even "for 500 years," which would be required according to numerous studies (eg DNR Fish and Wildlife). The SDEIS environmental study suggests a number of practices that would be harmful to the environment, including dumping the enormous amount of wastes into unlined pits that would leach dangerous chemicals into the water, harming streams, wetlands, and fisheries; while containing insufficient detail in other cases to determine whether or not the proposed practices would be harmful. Thank you. Sincerely Joel Weisberg 105 Winona St Northfield, MN 55057 Joel Weisberg 105 Winona St Northfield, MN 55057 507-645-9112

Alphabetical by sender's first name

Joey Phillips 38787

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Johann Chemin 9752

Hello, thanks for letting me know if my comments are logged: 1- 500 years of pollution legacy is not worth 20 years of labor 2- Who will foot the bill for the 500y of cleanup when the company folds (because it will, like everything): Minnesotans. 3- No work is worth the pain and suffering that will ensue from people dying from the pollution of our drinking water 4- Nobody would put their glass of water by the urinal. Yet, this project would allow more than just that: the dirty water will go into the biggest reserve of fresh drinking water in the world 5- There is more money and jobs to create by promoting tourism than by polluting. Also, who will want to visit the area if it is polluted, what are going to do the people working off tourism. 6- If Polymet wants some rare minerals, there are in higher concentrations on dump sites: mine there. Sincerely Johann Chemin-Danielson 6039 Beachwood Road Mound, MN 55364

Alphabetical by sender's first name

Johannes Donaubauer 46097

Dear Minnesota Even if I love you a lot, and especially your northern territories are my most loved areas about you, there is something I need to talk with you about. You dear, who do you think you are. What sacrifices are worth trading them for money, short term jobs and resources you can get from recycling processes. Don't you think its time to change our idea of development. Development that creates such amazing things like the selfish capitalism we are living in. The whole thing where I am coming from might be a little bit too big to hang it up just on the polymet story, but if this is goes through its one more big stab to the idea we as human beings, due to our intelligence and power responsible for the worlds health, should treat our environment.. I mean the facts are clear. Everybody who does just minimum research in these mining processes sees the big risks. And everybody who sees clearly understands who the mining will benefit. And everybody who trusts polymet should consider the fact that as fast this company appeared to make that amazing deal, as fast it will disappear if it comes to cleaning up the mess Governments are there to protect people and environment and to regulate institutions and companies. Not the other way around If Minnesota doesn't understand that, who will AGAINST SULFIDE MINING IN NORTHERN MINNESOTA Thank you for listening Minnesota. Your dear friend, Johannes Donaubauer

John 36772

To paraphrase a well known quote: "Ye canna change the laws of chemistry." Exposing sulfides in a moist environment produces acids, which acids in the water, besides being polluting in and of themselves, also leach heavy metals from the surrounding rock, which poisonous metallic compounds also enter the runoff waters. And the process continues as long as the exposure remains. ie for at least centuries, until all exposed material has been fully extracted. Containment, even for relatively short time spans is difficult and expensive, if not impossible, and over the many years of continued hazard the possibility of continuous containment is merely wishful thinking. All permits for this destructive activity in such a vulnerable environment should be denied. Thank you for your attention. John Kronholm 442 Bear Avenue South Vadnais Heights MN 55127

Alphabetical by sender's first name

John & Carol Eding 16103

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

John & Carolyn Forney 38739

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. None of us will be around in two or three hundred years but we can make sure that this mining effort does not become like the "taconite tailings" problem for future generations. Let's make sure all the facts are known and the extent of the possible damage is clearly spelled out. Only then can a good and responsible decision be made. Sincerely, John and Carolyn Forney 12913 Jorissen Rd Hopkins, MN 55343-4102

Alphabetical by sender's first name

John & Debbie Woerheide 10407

Dear Minnesota State and Federal partner links for the preparation of this DEIS: Unfortunately we were not able to attend the public meetings for various reasons beyond our control, including the weather, and resulting road conditions. So our comments need to be expressed in this email. As residents of the Minnesota Arrowhead country, we certainly hope that these comments are considered. We are full time residents of the Minnesota north country, living at Lutsen for the past 26 years,at 5171 Highway 61, and 103 Caribou trail. The very things that attracted us to this gorgeous country include the beautiful boreal forest, clear streams and inland lakes, and of course the unequaled beauty of Lake Superior during all seasons of the year. We didn't come here enticed by new jobs being offered by any resource gobbling industries. We came here and created our own jobs, offering services that the people living here, or coming to visit needed. We have all lived in various parts of the country, such as south central Missouri, southern Illinois, the mountains of New Mexico, the mountains of Colorado, and the spectacular coast of Alaska, So we have seen other beautiful parts of the country, but none to top the Minnesota Arrowhead, Lake Superior country. The father/grand father of this family, John Woerheide served the US Forest Service for 35 years. Various jobs included preparing proposals for designating Wilderness Areas, lands and minerals management, timber management, silvicultural research, recreation resource management, and public affairs. The whole family has witnessed the results of metals mining for such metals as lead, zinc, copper, gold, silver, and many other metals as well. We lived on various National Forests, mostly in remote back country areas. When we lived in Southern Illinois on the Shawnee National Forest we often visited the fluorspar/lead/zinc mines of that area. such as Minerva Number One, and the Crystal mine. At many of these mines the fluorspar was the retained ore mineral, and the lead, zinc, and other metals often made it into the tailings of these operations. That was back in the late 1950s, and of course the people of the area could only see the benefit of the jobs the mines provided. As a result of the careless surface disposal of metal ores, there is now a great deal of water pollution at and around disposal sites, leading to health alerts for such areas as the Minerva No 1 site (see www.atsDradc-gov. Minerva Mine No1) When we lived on the Santa Fe National Forest at Pecos, New Mexico we used to make many trips up the Pecos River to the site of the old Terrero Min about 12 miles north of Pecos . This was an old deep mine under ground where zinc , copper, lead, gold and silver were mined in the past, There were about a dozen other trace minerals involved as well. Waste rock material was spread out in an area about 20 acres in size at the mine site. Higher grade ore was sent by tramway to the Alamitos Mill at Pecos, New Mexico, where the ore was processed, and waste tailings were fed into tailings ponds. Both of these sites have been discovered to be highly polluted. Unacceptable levels of pollutants present in surface areas, and extreme pollution of ground waters are present all the way as far south as Carlsbad on the Pecos River. Water at camp grounds along the Pecos River has been polluted. A person can not even go near the old mine site, or the mill site. There are chain link fences and keep out signs around the areas. As a reference see - New Mexico Geological Society guidebook, 52nd Field Conference, Geology of the Llano Estacato, 2001 = Long Term monitoring of the Geochemistry Of Surface Water, and Stream-Sediment Samples from the Southern Pecos Wilderness to Brantley Dam North Of Carlsbad. Eastern New Mexico - Year Nine. It is absolutely amazing how long this pollution has held on, and how many parts per million there are of the different metals in the water. At Silver City, New Mexico, we lived in c

John Aamodt 38910

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. We in Minnesota take great pride in doing what is right for our state and often lead the nation in many endeavors. If we approve PolyMet to move ahead, we will be condoning a business that could do immeasurable damage to the health of the people, environment and tourism in the northeast region of our state. That will reflect poorly on the leadership of our state who approved such a foolhardy business to operate in such a pristine region. Our wildlands and water is what Minnesota is noted for why would we ever risk it's ruination. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, John Aamodt 35617 County 39 Laporte, MN 56461-4051 (218) 224-3562

Alphabetical by sender's first name

John Amren 3668

Hi Really I just can't imagine this proposed mining project will be allowed .. OK sadly in our misguided way and value system disorder effecting humanity on this earth I can imagine this and it's sad .. Please use logic and shut this insanity down. John Amren 1940 Minnesota Ave Duluth MN 55802 Sent from my iPad

John and Barb Bottger 40658

The facts are clear. This proposition is neither environmentally or financially feasible. It is a huge wake up call to Minnesota to support US companies that are engaged in technology using renewable resources. Let the real work of building a future that we can be proud of passing on to our grandchildren. Barb Bottger 61 Bunn Trail Grand Marais, MN 55604

42277

Dear State Leaders from our Dept. of Natural Resources, our US Forest Service and our US Corps of Engineers, Dear Representative David Dill and Senator Tom Bakk, The PolyMet Supplemental Draft Environmental Impact Statement proves that we are setting ourselves up for one of the most irresponsible decisions for the future of Minnestoa's natural resources for this and future generations. Is it still possible to appeal to your basic sense of what is right and wrong. Should I copy and paste the exhaustive lists of holes in the impact statement. Should I appeal to your philosophical, emotional and spiritual selves. What kind of impact statement can I make that will equal the power of PolyMet. It is this: My husband and I live on the Gunflint Trail in Cook County. We work with you to safeguard the water quality of our watershed. You have taught us this truth - "everything that happens on the land, ultimately ends up in the water". We've had to confront you with your own truth more than once when the offer to trade land overrode your understanding of this truth. It was a small scale battle but ironic in that we have to defend the land from the same people who are teaching us to protect it. It would be so easy to throw in the towel and sacrifice it all. But we do not live in a third world country where international goliaths can leave us with no choice but destroy the land for the wealth of a few. Be the leaders you have chosen to be, make a decision based on what is right for the future not on what is best for a few for awhile. The cost is just too great. I do hope you have ears to hear and the wisdom to listen and the heart to protect the land and safeguard those who inhabit it. Sincerely, Barb Bottger 61 Bunn Trail Grand Marais, MN 55604 218-388-0868 HYPERLINK "mailto:jbbottger@boreal-org"jbbottger@boreal-org

John and Barbara Edgar 57276

Please accept these comments on the Poly Met Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage (AMD) and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as lynx and moose, exchange of federal land within the Superior National Forest, and cumulative impacts from mining. The proposed mine poses unacceptable risks to our waters and communities, and I support the No Action Alternative.

John And Eleanor Lynn 24064

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, RE: PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is NOT in the public interest and the damage CANNOT be reversed. Do not change protection for private economic gain. Sincerely, John And Eleanor Lynn 1215 Crestline Dr Santa Barbara, CA 93105-4604

John and Karen Legenhausen 40804

Please think of our future for our grand children and vote against copper mining in northern MN. Encourage recycling electronics to get the minerals we need for our greedy lifestyle and save our waters. Karen Legenhausen

Alphabetical by sender's first name

John and Kay Buzza 4782

We are unalterably opposed to the PolyMet NorthMet Mining Project. Any such mining for which the clean-up might take hundreds of years is unacceptable. Please reject this project. John and Kay Buzza

John and Patricia Telfer 54841

See attachment

John And Robin 43507

Here are my public comments. I sent it to the wrong address. Thank you. ---Original Message--- From: John And Robin <jandrbellamy@aol-com> To: "info <info"@dnr Sent: Thu, Mar 13, 2014 2:12 pm Subject: public comment for Polymet Mine To whom it may concern: As a Minnesota citizen and taxpayer, I protest the Polymet Mine project and don't want it in Minnesota. I am worried about the toxic pollution (sulfuric acid) that the mine will create and the long-term effects of this pollution, such as the ongoing costs to generations of Minnesotans for its clean-up, as well as the damage to the animals and plants in the area. I think it is a foolish way to use our resources in this way, since tourism is a huge industry for northern Minnesota. Destroying natural resources for only 350 jobs doesn't seem wise. What happens to the tourism industry, if this project goes through. What about water quality to nearby rivers and eventually to Lake Superior. I'm not sure that all angles have been explored, such as effects on our health, particularly cancer. Please do not grant a permit to something that could forever ruin this part of the state. Sincerely, Robin C. Bellamy

43557

To whom it may concern: As a Minnesota citizen and taxpayer, I protest the Polymet Mine project and don't want it in Minnesota. I am worried about the toxic pollution (sulfuric acid) that the mine will create and the long-term effects of this pollution, such as the ongoing costs to generations of Minnesotans for its clean-up, as well as the damage to the animals and plants in the area. I think it is a foolish way to use our resources in this way, since tourism is a huge industry for northern Minnesota. Destroying natural resources for only 350 jobs doesn't seem wise. The relatively small number of jobs created does not off set the 200 plus years of toxic run off and clean up that will need to be done to mitigate the damage th emine will do. What happens to the tourism industry, if this project goes through. What about water quality to nearby rivers and eventually to Lake Superior. I'm not sure that all angles have been explored, such as effects on our health, particularly cancer. Please do not grant a permit to something that could forever ruin this part of the state. Sincerely, John H. Bellamy 1641 Highland Pkwy Saint Paul, MN 55116

John Anderson 15726

See attachment

John Arachikavitz 42005

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, John Arachikavitz Rochester, Minnesota

Alphabetical by sender's first name

John Badger 15644

Feb 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I personally would like to see the issues above resolved and responded to in regards the Impact Statement and how this will be addressed . I thought wetlands can't be destroyed. Digging a pond somewhere else is not the same biodiversity and it's not in the same area. How will the tailing pond protect ducks from landing on it. Hasn't been addressed. What about floods and accidents . There has to be zero tolerance for pollution. I want to see a impact statement on wildlife and moose by a non Polymet third party. The study indicates no nesting eagles but a local person who lives there says there is. Is there endangered plants or animals living there. Need 1-5 million a year for the 500 year time span . IRRRB has to be 100 percent back up to the company's financial assurances. Zero taxpayer liability should be written in. The mining industry must provide like banking and insurance a pooled liability coverage if the company goes out of business. All DNR or MPCA staff who have ever worked for mining needs to exuse themselves from this study and permitting due to conflict of interest . All permit and water violations have to have meaningful fines but also mean immediate shut down until remediated and fines paid. Not gonna see over 300 violations go unenforced like we had with LTV. St Louis River watershed, partridge ,and embarrass rivers can't have any decrease flow from loss of wetlands and their natural ability to clean water. I don't see any plan for tailing pond failure. Needs to be addressed. River flow at the site and down River needs to be redone . It's a big deal . Every model changes with different flow data. Needs re-work. Also put in EIS about planned expansion limits due to existing site limitations and address new mines accumulative effects. Sincerely, Mr John Badger 1341 Valley View Dr Cloquet, MN 55720-2979 (218) 348-3386

Alphabetical by sender's first name

John Becker 43589

Lisa Fay, This may be a great opportunity for PolyMet; it may also be a great opportunity for the Iron Range and Minnesota, however, there are still pitfalls ahead. I've read most of the EIS and attended the meeting of January 28 in St Paul. I talked to someone at every table, learned some new things, and came away with some impressions: the people at the tables knew their material and presented it soundly, without taking a stance on the project itself; the people at PolyMet were less engaging. Going forward, the Partridge River analysis should be redone prior to any permitting process. Without it, that oversight may be indicative of the way the entire project will be managed. While that analysis is being reexamined, I would ask that the following issues be considered and addressed. · What is the breakdown of the cost analysis used to arrive at the figure of $200 million for the 200 to 500 year (perpetuity) water monitoring and treatment cost. The DNR will also need to explain how they are going to manage those funds for "perpetuity". · Current climate models indicate a warming climate trend; what criteria will be used to address the remediation of the landscape, not just when the mining project is finished and shutdown in 20 or 25 years, but so the landscape plantings are viable at the at 50 year mark and beyond. · If severe drought were to affect the region during the time span of the mining project, depleting the available water resources required, what is the secondary resource and how does that affect the existing treatment plan. · Conversely, how is excessive groundwater runoff to be managed in the event of two consecutive years of exceptional snowfall with one 500 year rain deluge in between. · Since this project is a site renovation, becoming a mining operation, and reverting to a site remediation, why is there no mention of any effort to achieve a LEED certification. Not only would LEED certification demonstrate a commitment to the environment, it would serve as an example of how the mining industry and environmentalists can work together in a non-adversarial relationship. · A project of this scope, with a twenty plus year life span, will have a high energy consumption. Why has no effort been made to incorporating solar and/or wind energy produced on site, as well as a minimum requirement for the use of Minnesota produced bio-diesel. If you are going to produce local, then use local. This is not just an opportunity to benefit the Iron Range, but also greater Minnesota. It's disappointing enough when PolyMet misses this opportunity to develop goodwill state wide, but when a state building and construction trades' representative and the Mn Chamber of Commerce ignore it completely, it's not difficult to figure out where the marketing dollars are being spent. In the past few weeks, recent studies on sulfate pollution have come to light regarding the impact of sulfates and hydrogen sulfide on wild rice and the surrounding aquaculture. Since the MPCA announced yesterday, March 12, that further studies and analysis are necessary before new sulfate standards can be applied, it would be in everyone's best interest to delay the permitting process for the PolyMet project until those standards are enacted, so that PolyMet can alter their manufacturing processes accordingly. Until these issues, and others that I may have overlooked, are addressed, I cannot support the permitting process going forward at this time. Sincerely, John Becker Roseville MN

John Brainard 40096

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, John Brainard 519 3rd Ave SE Apt 205 Minneapolis, MN 55414-1654

Alphabetical by sender's first name

John Buschette 18230

My name is John Buschette, that's B-U-S-C-H-E-T-T-E, and I just want to say it makes no sense at all, it's really short-sighted to try to create 50 to 100 jobs or even a couple hundred jobs that will last for 20 years and then destroy the environment to the point where it loses thousands of jobs in the tourism industry, destroying fishing, camping, hunting, other kinds of tourism activities, so that thousands of jobs there will be destroyed for 500 years, and the mining companies have had the same track record everywhere they've been where they set up a subsidiary, give most of the money to their overseas parent companies, and then when they're close to the end of the mine, they spin it off as an independent company, that company declares bankruptcy and the people who live there are stuck with hundreds of years of bills in the billions of dollars trying to pay for the cleanup. So the only one who wins are the fat cats in other countries who come here and pillage our land and leave us with the bill and land that's not safe to live in, fish that are no longer safe to eat and waters that we can't have recreation in. They're laughing all the way to the bank and everybody else is stuck with the bill and stuck living with the consequences. And it's also fitting to remember that the CEO of PolyMet is the same guy who was the CEO of BP when they had their Gulf of Mexico oil spill and his response to the oil spill is, "I just want my life back." Nothing about the people who were affected, nothing about all the harm that was done, nothing about the environment that was damaged and is still damaged. He just wanted his life back. He wanted to just leave everybody else to pay for the consequences of his actions, and he created the environment that when that drilling platform blew up, 11 people died. Nobody's ever had to answer for that. So how many Minnesotans may end up dying in a mine here because of the environment he creates while trying to put profits ahead of everything else? They get rich, we pay the price, and everybody except for a handful of people suffer.

john case 40118

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I am opposed to the proposed PolyMet because of the risks to the lake Superior watershed. The cost of being wrong is too great. Subsequent mines will affect the BWCAW and Quetico watersheds with sulfide mining runoff over many years unless everything works "perfectly." Again the risks are too great. The history of this type of mining is full of environmental damage. Minnesota has a unique resource in those watersheds that is far more important and valuable than the minerals under them. Thank you John Case, 2830 Gale rd, Wayzata, MN 55391 Sincerely, Mr john case 2830 Gale Rd Wayzata, MN 55391-2624

John Clifford 2101

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources RE: NorthMet Supplemental Draft EIS (SDEIS) - Proposed PolyMet Mining, Inc. project (Project) Dear Ms Fay: The SDEIS clearly shows that the Project will impose enormous, long-term financial and environmental risks on the people of Minnesota, while providing only meager, short-term benefits. In exchange for "up to" 360 mining jobs lasting "up to" 20 years at the most, we the people would be burdened with at least 500 years of polluted water (not to mention land and air) in an area whose pristine lakes and rivers are a world-class treasure, and a source of long-term income, pride and enjoyment for all Minnesotans. The concept of "financial assurance" is absurd and meaningless in the context of pollution on the scale expected to be generated by this Project. How can the DNR, or anyone, even begin to guess how much it might cost to carry out 500 years of remediation in the interconnected waterways of Northern Minnesota. Is the DNR aware of any example of financial assurances made in the year 1513 that are still operative and sufficient today. How many private enterprises, governments, nations, and peoples have disappeared from the face of the earth since that time. In effect, we are being asked to accept the permanent destruction of one of the few remaining pristine wilderness areas in the world, in exchange for a few hundred temporary jobs. No deal. The Project should not be allowed to go forwaRd Thank you for giving me the opportunity to comment on the SDEIS. Sincerely, John S. Clifford 1088 Pike Lake Drive New Brighton, MN 55112

Alphabetical by sender's first name

John Coleman (GLIFWC) 48559

Modeling in the SDEIS appears to be of a fatally flawed and discarded tailings basin design, not the currently proposed basin design. The 2014-03-10 Response 4 from ERM re: the Plant Site MODFLOW modeling identified Attachment A of the Water Modeling Data package of March 2013 (SDEIS reference Polymet 2013j) as the documentation of the tailings basin flow modeling for the SDEIS. That response led me to do further research into just what was modeled for the SDEIS. Careful examination of the scant information in the above referenced Attachment A (2011) indicates that the modeling done in 2011 for that attachment was not of the basin as currently proposed. The footprint modeled for attachment A is the footprint of an early basin proposal from 2007 (2007 basin footprint attached) that was supplanted by the basin design developed during the "Mitigation Options" process of 2008- The mitigation basin design was adopted in 2008 (2008 mitigation design footprint attached) and is the current basin footprint assumed in the text of the SDEIS (SDEIS Fig. 3-2-23). In addition to using an old flawed basin design footprint, the modeling in Attachment A also used a crude representation of bedrock that was supplanted by a more refined bedrock representation during the modeling of the 2008 mitigation design (RS13B Draft-01, 2008). The 2007 basin design, that is modeled in Attachment A (2011) of Polymet 2013j, was deemed to be "fatally flawed" by the DNR (Mitigation Table, Arkley email of 2008/12/09) and was replaced by the "mitigation" design developed in 2008- The diagrams and model files supporting Appendix A (2011) further demonstrate that the modeled footprint is of the early flawed basin design (see footprints in layer 1 of 2007 and 2011 models, attached), instead of the mitigation basin design (see footprint in layer 1 of 2008 model, attached). It appears that the SDEIS Goldsim modeling is based on MODFLOW modeling of an old basin design that was deemed fatally flawed and is not modeling of the currently proposed basin design. I am interested in getting feedback on this issue since the complex history of this project makes identification of supporting materials difficult. If I have miss-identified or miss-understood any SDEIS support documents please let me know. Thanks, john - John Coleman, Madison Office of the Great Lakes Indian Fish and Wildlife Commission U.W.-Madison Land Information and Computer Graphics Facility 550 Babcock Drive, Room B102 Madison, WI 53706 608-263-2873 or 265-5639 HYPERLINK "mailto:jcoleman@glifwc-org"jcoleman@glifwc-org Johnson, Bill H (DNR) wrote the following on 3/10/2014 10:31 AM: All, attached please find the follow-up items assigned to ERM coming out of Session IV (03/03/14) of the ongoing water model discussions. Specifically: File: “ERM response to March3 Cooperating Agency Meeting Action Items w Att 3-10-14-pdf” This file contains the responses. Note that Response #1 references the next attachment, which is an Excel spreadsheet. File: “NMetSW002_SW-005_NS data analysis_030714-xlsx” This is the file referenced in Response #1- Please forward this to other staff in your agencies as warranted. That’s it. Bill J. for the Co-lead Agencies Project Managers (Bruner; Jimenez; Fay; Johnson) Bill Johnson, Mining Section Lead Environmental Policy and Review Unit MDNR Division of Ecological and Water Resources, Box 25 500 Lafayette Road St Paul, MN 55155 651-259-5126 HYPERLINK "mailto:Bill.johnson@state.mn.us"bill.johnson@state.mn.us From: Johnson, Bill H (DNR) Sent: Friday, February 28, 2014 2:13 PM To: 'Bruner, Douglas W MVP (HYPERLINK "mailto:Douglas.W.Bruner@usace.army.mil"Douglas.W.Bruner@usace.army.mil)'; 'Jimenez, Michael -FS (HYPERLINK "mailto:mjimenez@fs.fed.us"mjimenez@fs.fed.us)'; 'Ross Vellacott (HYPERLINK "mailto:Ross.Vellacott@erm-com"Ross.Vellacott@erm-com)'; 'David Blaha (HYPERLINK "mailto:David.Blaha@erm-com"David.

Alphabetical by sender's first name

John Crampton 39091

---Original Message--- From: jcrampt@comcaStnet [mailto:jcrampt@comcaStnet] Sent: Monday, March 10, 2014 5:54 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of carbon pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include an updated 500-year storm analysis of both the mine pits and the tailings basin under increasingly violent weather patterns. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. Repeats of the 1999 Straight Line Windstorm with winds over 90 mph in Northeast Minnesota could also destroy critical wastewater treatment facilities. The constant alteration of drought and flood conditions caused by climate change in Minnesota could put strains on the whole water treatment process which wasn't even taken into account in the SDEIS's water modeling (which didn't even taken into account the seasonality of flows in the rivers, streams, wetlands and groundwater) The model which put the flow of the Partridge River at 1/3rd of its actual flow is not fit to be the basis for predicting needs to treat water pollution under climate change scenarios for the next 500 years. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. Make the starting figure $400,000,000 and keep it out of the hands of the IRRB I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. I camp in North East Minnesota and the Boundary Waters. I fish in the St Louis River and Lake Superior. This SDEIS has serious flaws that nee

Alphabetical by sender's first name

John Crampton 43036

To: Lisa Fay, MDNR, Douglas Bruner, US Army Corps of Engineers, Tim Dabney, US Forest Service RE: PolyMet NorthMet Sulfide Mining SDEIS Dear Ms Fay, Mr Bruner and Mr Dabney: Below are my comments about the PolyMet SDEIS. I am John Crampton of 1401 W. 102nd St, Bloomington, MN, 55431- I am 66 years old and have lived in Minnesota all my life. My wife and I raised our two daughters in Bloomington, and we have spent a great deal of time at the North Shore, Ely, Jay Cooke SP, and Boundary Waters areas camping, fishing, canoeing, hiking, skiing, snowshoeing and bird watching. We value the natural beauty, plants, wildlife, clean air and clean water of Northeast Minnesota. Our oldest daughter went to YMCA Camp Menogyn and to Vermillion Community College where she concentrated in environmental biology and outdoor recreation. Our youngest daughter takes frequent camping trips with her friends to the Boundary Waters and Superior National ForeSt I am the President of the Bush Lake Chapter- Izaak Walton League of America with over 160 members, the largest chapter in Minnesota. We IKEs value the strong longtime connection our league has had with the Boundary Waters Canoe Area Wilderness and Northeastern Minnesota over the past 90 years. The purpose of an environmental impact statement is to clearly communicate the environmental impact of a project and to explore possible alternatives and mitigations to lessen these impacts. I believe the PolyMet SDEIS was written to deliberately mask the many terrible and perpetual environmental impacts of the proposed PolyMet sulfide mining project. The flaws in the PolyMet SDEIS are many and very serious as described below. The PolyMet SDEIS is inadequate because hard rock mining has never been done in an environmentally-acceptable and safe manner in a water-rich environment such as the proposed site near Hoyt Lakes and the tributaries of the St Louis River. Almost all of the examples of technologies that PolyMet provides are from dry climate hard rock mining in Utah, Arizona and Montana. There are no actual real life examples of sulfide mining being done in an environmentally-safe manner in water-rich environments. However, there are many catastrophic examples which serve to show that it as an environmental disaster wherever it is attempted at water-rich sites. The surface water flow calculations for the Partridge River underestimate the baseflow conditions by a factor of 3- This is a fatal flaw since the computer model calculations of water flow are at the heart of hydrological estimates of the flow through the mine, tailings ponds, pipelines, water treatment facilities. Will PolyMet need to make the water treatment facilities bigger. Will they have to treat the water for 1,000 years or 2,000 years or forever. We can’t tell because all the calculations are derived from a water flow model based on inaccurate data. The SDEIS should be completely redone or rejected for that reason alone. The PolyMet SDEIS itself foresees the need for perpetual water treatment of 500 years or more requiring continual monitoring, maintenance and high levels of continuous performance by highly complex engineering controls that have never been proven to work in a large scale applications. Think about it 500 years ago Balboa was looking for the Pacific Ocean. Martin Luther was alive and a practicing Catholic. Once hard rock mining is done on a large scale there is no way to stop the heavy metal leaching. PolyMet is proposing to mine for twenty years and then leave to the next 20 generations of Minnesotans the task of keeping its Rube Goldberg collection of technologies running at a high levels of performance (and without any financial assurances) in order to ward off disastrous acid mine pollution dumping into the Partridge, Embarrass, and St Louis Rivers and ultimately Lake Superior, the world’s largest body of fresh water. The risk of this is far too high. For this reason alone, the PolyMet project should be

John Denk 40121

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mr John Denk 17456 Parkside Ave Tinley Park, IL 60477-3045 (708) 357-0211

Alphabetical by sender's first name

John Doberstein 18364

Thank you, Rick. I am John Doberstein. That's J-O-H-N, D-O-B-E-R-S-T-E-I-N. I am from Duluth. I am a volunteer with the Sierra Club. Very happy to be here. And I want thank all the regulatory agencies, all the volunteers, everyone who is working not only long term but short term to make tonight happen. It's pretty exciting. And I want to commend everyone pro, against who has had the courage to come up here and speak this evening. I do feel like this SDEIS is inadequate. And I would please ask that we reevaluate the 500 years of proposed water treatment needs to be addressed. And it is not adequate. It says that it will happen. It does not say how that will be funded, how it will be paid for. And even though we have the minute amount of sulfate in our rock, according to the company, it's a big enough amount to require at least 500 years of treatment according to the modeling. And there is also no contingency plans outlined for expected accidents that occur at all mines of this type. Mishaps such as pipeline spills and accidental releases, failures of water collection, and treatment systems, tailings and basin failure. These are foreseeable events that should have emergency plans developed and articulated to the public so that we have confidence in the company's ability to respond to these crises and potential crises. And I would just ask that we do a little bit better job in the next round. During operations 6.2 million gallons of polluted water a day will be treated. The mining plan does not describe what will happen if the water treatment plants break down. And I would like to see more addressed in that realm. And going back to the financial assurance, I do ask -- I'll reiterate I feel that should be part of this supplemental draft so that the public, the potential entity that will shoulder the responsibility of this cleanup, the public, that we have a chance to comment directly on what the plan is and the cost. How much is this going to cost? What is the dollar amount? How can we do it? I grew up in Two Harbors, Minnesota. I was an Army brat. I moved to Two Harbors at the age of eight from Georgia. And all my family is from Minnesota. I have roots. Even at eight years old I knew that Minnesotans look at the environment different. We don't litter. We protect our environment. We care about it. Everyone in this room here will agree with that statement. I do ask that the regulatory agencies -- I don't envy your position. I know it's really hard. You guys have to protect the environment and distribute the minerals and figure out how to do that. Thank you.

John Dregni 42874

See attachment

John Eckfeldt 39757

Douglas Bruner US Army Corps of Engineers Dear Mr Bruner, I am a professor of Laboratory Medicine and Pathology at the University of Minnesota in Minneapolis, past chief of staff of the University of Minnesota Medical Centers' hospital, and former Chief of Clinical Chemistry and Toxicology at the VA Medical Center Minneapolis. I also own a home in Isabella, Lake County, MN which is now my permanent legal address. I would strongly recommend that the PolyMet SDEIS be rejected for multiple reasons. In my mind, there is no question that sulfide mining will bring great risks to the water quality and lands in northeast Minnesota. In my mind there will be associated risk to the health of those living in the area and those downstream in the watershed, but I will not dwell on the potential risks. PolyMet's pollution mitigation proposals are vague and very well may not work as planned. The mining industry has a record worldwide of polluting an environment and then leaving it for the local citizens and their governmental to deal with the cleanup. I believe that the only way to assure containment of this potential pollution is to require PolyMet to put funds in escrow or supply bonds for potential cleanup costs. I am not a mining engineer, but from what I've read the annual operating costs for some of the proposed water purification systems (reverse osmosis) might be several million dollars per years and cleanup costs should a containment system malfunction could run in to tens of billions of dollars. Furthermore, I have read that is estimated that protection from leakage of toxic waste metals from tailings might be required for hundreds of years. If PolyMet want to mine in Minnesota, which will clearly put Minnesotans at risk if their containment schemes fail to work as expected, require them to provide concrete financial assurances before they start, not after they pollute the groundwater and watershed and "skip town." Sincerely yours, John H. Eckfeldt 9926 National Forest Lodge Rd Isabella, MN 55607 phone: 651-482-0930 (home/mobile) e-mail: eckfe001@umn-edu

Alphabetical by sender's first name

John Eckfeldt 39760

Lisa Fay SDEIS Manager, MN DNR Dear Ms Fay I am a professor of Laboratory Medicine and Pathology at the University of Minnesota in Minneapolis, past chief of staff of the University of Minnesota Medical Centers' hospital, and former Chief of Clinical Chemistry and Toxicology at the VA Medical Center Minneapolis. I also own a home in Isabella, Lake County, MN which is now my permanent legal address. I would strongly recommend that the PolyMet SDEIS be rejected for multiple reasons. In my mind, there is no question that sulfide mining will bring great risks to the water quality and lands in northeast Minnesota. In my mind there will be associated risk to the health of those living in the area and those downstream in the watershed, but I will not dwell on the potential risks. PolyMet's pollution mitigation proposals are vague and very well may not work as planned. The mining industry has a record worldwide of polluting an environment and then leaving it for the local citizens and their governmental to deal with the cleanup. I believe that the only way to assure containment of this potential pollution is to require PolyMet to put funds in escrow or supply bonds for potential cleanup costs. I am not a mining engineer, but from what I've read the annual operating costs for some of the proposed water purification systems (reverse osmosis) might be several million dollars per years and cleanup costs should a containment system malfunction could run in to tens of billions of dollars. Furthermore, I have read that is estimated that protection from leakage of toxic waste metals from tailings might be required for hundreds of years. If PolyMet want to mine in Minnesota, which will clearly put Minnesotans at risk if their containment schemes fail to work as expected, require them to provide concrete financial assurances before they start, not after they pollute the groundwater and watershed and "skip town." Sincerely yours, John H. Eckfeldt, MD, PhD 9926 National Forest Lodge Rd Isabella, MN 55607 phone: 651-482-0930 (home/mobile) e-mail: eckfe001@umn-edu

47791

From: John Eckfeldt [mailto:eckfe001@umn-edu] Sent: Monday, March 10, 2014 10:01 PM To: Periman, Richard -FS Subject: FW: Comment on PolyMet SDEIS Richard Periman Deputy Forest Supervisor Dear Mr Periman, From an auto-reply email, I understand that Mr Dabney has retired from the USFS as of March 4 and that my comments on the SDEIS should be sent to you instead. Sincerely, John H. Eckfeldt 9926 National Forest Lodge Rd Isabella, MN 55607 phone: 651-482-0930 (home/mobile) e-mail: HYPERLINK "mailto:eckfe001@umn-edu"eckfe001@umn-edu From: John Eckfeldt [mailto:eckfe001@umn-edu] Sent: Monday, March 10, 2014 9:40 PM To: 'TDabney@fs.fed.us' Subject: Comment on PolyMet SDEIS Tim Dabney US Forest Service Dear Mr Dabney, I am a professor of Laboratory Medicine and Pathology at the University of Minnesota in Minneapolis, past chief of staff of the University of Minnesota Medical Centers' hospital, and former Chief of Clinical Chemistry and Toxicology at the VA Medical Center Minneapolis. I also own a home in Isabella, Lake County, MN which is now my permanent legal address. I would strongly recommend that the PolyMet SDEIS be rejected for multiple reasons. In my mind, there is no question that sulfide mining will bring great risks to the water quality and lands in northeast Minnesota. In my mind there will be associated risk to the health of those living in the area and those downstream in the watershed, but I will not dwell on the potential risks. PolyMet's pollution mitigation proposals are vague and very well may not work as planned. The mining industry has a record worldwide of polluting an environment and then leaving it for the local citizens and their governmental to deal with the cleanup. I believe that the only way to assure containment of this potential pollution is to require PolyMet to put funds in escrow or supply bonds for potential cleanup costs. I am not a mining engineer, but from what I've read the annual operating costs for some of the proposed water purification systems (reverse osmosis) might be several million dollars per years and cleanup costs should a containment system malfunction could run in to tens of billions of dollars. Furthermore, I have read that is estimated that protection from leakage of toxic waste metals from tailings might be required for hundreds of years. If PolyMet want to mine in Minnesota, which will clearly put Minnesotans at risk if their containment schemes fail to work as expected, require them to provide concrete financial assurances before they start, not after they pollute the groundwater and watershed and "skip town." Sincerely yours, John H. Eckfeldt 9926 National Forest Lodge Rd Isabella, MN 55607 phone: 651-482-0930 (home/mobile) e-mail: HYPERLINK "mailto:eckfe001@umn-edu"eckfe001@umn-edu

Alphabetical by sender's first name

John Eckfeldt 48902

Tim Dabney US Forest Service Dear Mr Dabney, I am a professor of Laboratory Medicine and Pathology at the University of Minnesota in Minneapolis, past chief of staff of the University of Minnesota Medical Centers' hospital, and former Chief of Clinical Chemistry and Toxicology at the VA Medical Center Minneapolis. I also own a home in Isabella, Lake County, MN which is now my permanent legal address. I would strongly recommend that the PolyMet SDEIS be rejected for multiple reasons. In my mind, there is no question that sulfide mining will bring great risks to the water quality and lands in northeast Minnesota. In my mind there will be associated risk to the health of those living in the area and those downstream in the watershed, but I will not dwell on the potential risks. PolyMet's pollution mitigation proposals are vague and very well may not work as planned. The mining industry has a record worldwide of polluting an environment and then leaving it for the local citizens and their governmental to deal with the cleanup. I believe that the only way to assure containment of this potential pollution is to require PolyMet to put funds in escrow or supply bonds for potential cleanup costs. I am not a mining engineer, but from what I've read the annual operating costs for some of the proposed water purification systems (reverse osmosis) might be several million dollars per years and cleanup costs should a containment system malfunction could run in to tens of billions of dollars. Furthermore, I have read that is estimated that protection from leakage of toxic waste metals from tailings might be required for hundreds of years. If PolyMet want to mine in Minnesota, which will clearly put Minnesotans at risk if their containment schemes fail to work as expected, require them to provide concrete financial assurances before they start, not after they pollute the groundwater and watershed and "skip town." Sincerely yours, John H. Eckfeldt 9926 National Forest Lodge Rd Isabella, MN 55607 phone: 651-482-0930 (home/mobile) e-mail: eckfe001@umn-edu

JOHN EDSTROM 38895

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr JOHN EDSTROM 4120 204th Ln NW Oak Grove, MN 55303-8465

John Engel 42835

See attachment

John F Miller 47618

From: John F Miller 844 Pioneer Road, Red Wing, Mn 55066 I am in full support of the Polymet Mining project. It will provide a much needed economic impact to the Iron Range communities. My wife and I have many relatives in the region and they have felt the downward spiral of available skilled jobs and the lower pay scales. We also have property in the area and would consider relocating to the Range for our final working years with intent to retire there. Lack of jobs has created dependence of residents on programs, an increased attitude they will never get ahead, increased crime and drug and alcohol use. We have seen the negative changes in the last decade. I am confident the Polymet Corporation will be diligent in following the proper guidelines spelled out to comply with the environmental regulations.

John F Wetzel 42872

See attachment

Alphabetical by sender's first name

John Fahey 52215

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, John Fahey 8787 Borden Rd Muir, MI 48860

John Fedo 18092

My name is John Fedo, F-E-D-O. For 22 years I've resided on a two-and-a-half-acre lot on Big Sturgeon Lake in Side Lake, Minnesota. I draw my drinking water from a well 30 minutes from the proposed plant site. I'm the former mayor of City of Duluth, former Hibbing City Administrator and a long-time advocate of job creation in Northeastern Minnesota. But more importantly, I am a father of eight and a grandfather of 9, unfortunately, none of whom live on the Iron Range. A mechanical engineer, a biochemical engineer, an attorney, two healthcare professionals, a business degree graduate, a publisher and a law enforcement officer that have been well educated to unfortunately be employed elsewhere. Over 30-plus years, I've participated in many processes such as this. I've heard advocates and critics that site opinions as fact when it suits them. Last week, I attended the previous hearing in Duluth and listened to testimony that I respectfully acknowledge was very long on biased conclusion and very short on science. I heard an individual ascribe stupidity to anyone that wanted to agree with the issuance of a permit to proceed. Not because of the fact that the science was wrong, but because their conclusion was wrong and from her perspective, she did not agree. The point of this EIS procedure, as I've come to understand, is to gather facts and base a permitting decision on the best science and a criteria that does not inhibit the project but, in fact, guides it. I've worked on many job-creation and community-improvement projects in my time, creating many hundreds of jobs in Northeastern Minnesota. A paper plant, a drill plant, hotels, road and freeway projects, apartment buildings, college expansions, commercial projects, tourism projects, bike paths, airport projects, industrial projects, all of those projects involved well-meaning, dedicated community advocates, investors and elected officials. But the most consistent element in those projects was the sense of community improvement and a desire to leave the area better than when we came into it. More jobs, more investment, cleaner water, a better environment, more opportunities and a better life for our children and grandchildren. My whole point tonight is to speak in favor of the moving the PolyMet Project forward and to advocate based on the science and the facts that can make this project viable and not be deterred by well-funded opponents that are ironically funded, in some cases, by the wealth created by the very industry they now claim they oppose. Opponents who, coincidentally, have the very same personal environmental footprint that demands these metals to service their cell phones, clean technology vehicles, et cetera, almost all of which currently comes from third-world providers, with no environmental oversight, and ends up negatively affecting our local environment on a long-distance basis. Terms like financial assurance and 200-year modeling are misstating the true nature of the project and are meant to be a distraction away from the orderly analysis are engaging in. This is not say that those issues will not be addressed, because they will, but as factual resolution as the law prescribes. Finally, we live in the environment that this plant will operate in. We are not going to advocate for a job that will pollute the wells we draw our water from. Thank you.

Alphabetical by sender's first name

John Finazzo 39065

---Original Message--- From: johnfinazzo@yahoo-com [mailto:johnfinazzo@yahoo-com] Sent: Tuesday, March 11, 2014 9:57 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, John Finazzo 1070 North Shore Drive W, Orono, MN Mound, MN 55364-9726

40021

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr John Finazzo 1070 N Shore Dr W Mound, MN 55364-9726 (612) 382-5772

41937

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr John Finazzo 1070 N Shore Dr W Mound, MN 55364-9726

John Finnegan 42797

See attachment

Alphabetical by sender's first name

John Fitzpatrick 22438

I have confidence in the DNR and believe the SDEIS process for PolyMet Minings proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMets project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I'd also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMets plans comply with Minnesota's laws. We cannot afford to miss this job opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. John Fitzpatrick 43 Ash Blvd, Babbitt, MN 55706

John Flaten 11144

Ladies and Gentlemen of The MDNR Environmental Review Unit: My comment letter dated February 3, 2014, addressed to Ms Lisa Fay, was also an attachment to an email addressed and transmitted concurrently to you. For readability I now transmit a corrected version of my earlier comment letter which is re-dated today, February 6, 2014, which simply adds the missing caption Future Financing and Joint and Several Securities Law Liability Among Controlling Person Affilaites and moves the two paragraphs pertaining to this subject without other edit to the penultimate section of my comment letter. I'm sorry for any confusion. Thank you, John P. Flaten 1375 Walsh Road Ely, MN 55731-8034 (218) 365-8801

19305

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I’m writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. A technical paper of over 2,000 pages, regarding our sacred trust environment, documented by over 700 references, will take even the most diligent among us much more than 90 days to absorb and prepare to comment constructively upon. We'll also need a further public meeting to present and discuss those comments at the end of the requested extended comment period. Please don't allow Polymet to co-opt the process before all substantive public issues can be raised and scientifically considered. Thank you. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn’t fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It’s going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn’t explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren’t analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS seems to be one-sided. Well-documented tribal Major Differences of Opinion call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles and tailings heaps won’t seep pollution, that mining won’t dry out wetlands and that mercury contamination of fish and other toxic chemicals won’t increase. * The SDEIS doesn’t allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they are not available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and putting public meetings in January (when bad weather is likely) seems designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just foreign corporations, will matter when the government makes its decisions. Sincerely yours, John Flaten 1375 Walsh Road Ely, MN 55731 218-365-8801

Alphabetical by sender's first name

John Gannett 40043

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr John Gannett 824 Cornwallis Ct Eagan, MN 55123-1961 (612) 239-5250

John Gappa 40282

NorthMet SDEIS Input By John Gappa March 10, 2014 I have had the opportunity to serve as a Chief Financial Officer for 20 years. As CFO, I have reviewed hundreds of millions of dollars of investments creating over 1000 jobs. My role in these investments, some of which were in excess of $100 million each, was to develop the business case, project costs and revenues over a twenty year period, and evaluate the returns and associated risks. While most of these investments were successful, some were not. Over the years, I have learned the hard way that failed projects all have two problems – overestimated benefits and underestimated costs and risks. As I have reviewed the Polymet plan from a CFO perspective, I have struggled to figure out how the numbers can work with a model that has 20 years of benefits and hundreds of years of costs. My conclusion is that the only way the PolyMet model works is to inflate the benefits, underestimate the costs and shift the risks to someone else. For example, I believe the recent issue over the base flow rates in the Partridge River may be a troubling example of underestimating the costs to the environment in order to make the models work. For my own understanding, I wanted to try to model out what 500 years of remediation costs might look like. I attempted to find inputs for my model from the draft supplemental EIS. While PolyMet provided estimates for closing costs and annual post-closure monitoring and maintenance expenses, there was no further detail or mention of ongoing expenses such as ongoing equipment repair and obsolesce. There was also no mention of ongoing capital expenditures that will be required of an operation of this scale and duration such as equipment and facility replacement. Never the less, I built a 100 year model using assumptions derived from my experience with planning complex, capital intensive processing operations. This model produced upfront funding requirements approaching $300 million. What I also found is that the financial assurance model is highly sensitive to very small changes in inputs. For example, · A $1 million increase in annual operating costs results in a $37 million or 13% increase in the future value of funding required · A one percentage point decrease in the reinvestment or discount rate used results in a $83 million or 30% increase in the future value of funding required. · A half a percentage point increase in the inflation rate results in a $71 million increase or a 25% increase in funding required. The point of the matter is that given the significant length of time that remediation will be required, estimating the upfront investment needed to fund the remediation is highly uncertain and very small differences in assumptions have a dramatic impact on the total funding required. Moreover, the detail behind PolyMet's estimates must be disclosed in the final EIS in order for the public to assess the viability of remediation and necessary financial assurance. Another key concern is to ensure that the remediation is fully funded, regardless of when PolyMet stops mining – either after 5, 10 or 20 years. To quote one of the many risk factors that PolyMet included for their investors in a recent filing with the Securities and Exchange Commission: "Because the price of metals fluctuate, if the prices of metals in our ore body decrease below a specified level, it may no longer be profitable to develop our NorthMet Project for those metals and we will cease operations." The State of Minnesota would be wise to heed this risk factor as well. A key difference between PolyMet and most companies making these sorts of investment decisions is that PolyMet exists solely to develop the NorthMet project. Most companies can choose among an array of investments, acquisitions or returning cash to shareholders. PolyMet's motivation is not to pick the best project possible,

John Green 16120

Please see attached document. Name and address at the end. Thank you. John C. Green 1754 Old North Shore Road Duluth, MN 55804

Alphabetical by sender's first name

John Grillo 12959

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for[,] information[,] that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the U[.][S.] Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Mr John Grillo 3 Marsh Ln Apt 21 Orono, ME 04473-5620

John Gronquist 41742

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

John Gustafson 47365

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. The proposed PolyMet mine for copper and other so-called precious metals brings up several issues that need to be seriously considered by the State of Minnesota before any new mining permits are considered. The proposed PolyMet mine should not be allowed in my opinion for at minimum the following reasons: 1)the lifetime of the negative environmental impacts for the proposed mine far exceeds the economic viability of the mine; 2)no human or mechanical method exists to guarantee treatment of the mine's pollution for the time beyond the economic viability of the mine. How does one guarantee that people four hundred years in the future will even know how to operate the water treatment systems, let alone will be able to afford to do so. 3)the global mining industry and particularly the global copper mining industry have earned a severely negative reputation for labor, economic, and environmental impacts over the long term. Look to the Upper Peninsula of Michigan to see the continuing pollution that is ongoing, long after the mines have shut down and vanished. The global mining industry should clean up all of their past pollution "mistakes" before new permits are considered. 4)no method exists to control the political climate that governs the mine's operations over the long term. Look simply to Wisconsin where the Walker administration has in a short time gutted environmental regulations that were thoughtfully and scientifically developed over the long term. 5)the majority of the economic benefits of the proposed mine are short term and will flow out of the State, going to entities that have no interest or personal investment in Minnesota's livelihood. 6)If the PolyMet mine is opened, it will set a sad precedent in Minnesota, perhaps leading to the opening of additional mines of questionable character. The cumulative effects of multiple sulfide-producing mines needs to be seriously considered 7)If Minnesota is to have a long term sustainable economy, Minnesota needs to promote and emphasize potentially sustainable businesses like tourism, forestry and forest products, agriculture, renewable energy resources, and valued-added manufacturing rather than the short term extractive mining of low-valued bulk minerals. The viability of sustainable businesses will be negatively affected by the proposed Polymet mine. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Dr John Gustafson PO Box 62 128 Kendall Road Knife River, MN 55609-0062 (218) 834-3582

John Hadesty 57573

Dear Lisa, with the current war on coal waged by our current administration, projects such as the one PolyMet are proposing need to be approved now. Delaying projects like this could risk the availability of a qualified workforce. As coal mines continue to downsize, qualified miners are retiring or being retrained to take other career positions thus leaving projects like PolyMet to be forced to hire un-qualified, inexperienced miners. Please pass this project. It will create a much needed boom to Minnesota’s economy as miner’s such as myself flock to your state seeking employment. Miners are the exact type of workforce you want in Minnesota: hardworking, responsible, family oriented, friendly people. Always pulling their own weight and not looking for handouts. Please say yes to creating mining jobs. Remember: If it is not grown, it is mined. Please call with any questions. I am an experienced miner of 24 years and currently responsible for the Health and Safety and training at our 8,000 acre mine here in Northeast Pennsylvania. I would be glad to work with you in some capacity overseeing and regulating this project. My son is in his third year at Penn State University studying Mining Engineering and I’m looking for a new challenge and to re-locate. This project looks very inviting. Have a great week. John J. Hadesty Lehigh Anthracite Coal, LLC 1233 E. Broad St (Main Office) 1401 E. Broad St (Mine Entrance) Tamaqua, PA 18252 (570) 645-0254 - Office (570) 645-0292 - Fax (570) 527-1554 - Mobile HYPERLINK "mailto:jhadesty@lehighanthracite-com"jhadesty@lehighanthracite-com

John Haleeska 58105

It is inconceivable that any consideration would be given to the PolyMet proposal. A [ILLEGIBLE] the people of Minnesota will have to deal with an unknowable cost for centuries vs a few jobs for a couple decades. The state would be crazy to allow this.

Alphabetical by sender's first name

John Hanson 40711

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

John Harrington 16277

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

John Helland 42941

My comments are attached below.

Alphabetical by sender's first name

John Herbst 33031

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Wisconsin experienced similar situations back in the 1990's when at first Exxon Minerals, and then a consortium of multinational mining interests including Rio Tinto (and others) tried to convince the state that a lead/copper mine was in the best interests of the state. When it was revealed that the best plan they (the multinational corporations) could come up with to deal with the MASSIVE amount of liquid waste from the industrial scale extraction of minerals from this ore body, was to pump it all directly into the Wolf River in northern WI near Crandon, the uproar began. Besides all the recreation done on the river, boating, rafting, kayaking, this is one of the regions premier fisheries, and also supports significant First Nations peoples traditional hunting/gathering activities guaranteed in the state's treaties with these peoples dating back to the early to mid 1800's. In addition, the tailings pile was calculated to be many times larger THAN THE PYRAMID OF GIZA IN EGYPT. This tailings pile would rupture its containment device before 100 years elapsed after mining operations ceased, and the company, if still extant, would be long gone and difficult, if not impossible, to get remedies from in a court of law to clean up and remediate the contaminated wells, groundwater, cancer clusters, and human epidemiological nightmare resulting from thousands of tons of tailings and resultant leachate percolating through the aquifer for over a 150 square mile area surrounding the tailings pile. When state law required the mine owners to come up with 3 examples of such a mine, that was successful in its execution and DID NOT cause serious environmental contamination and costly/ineffective clean-up efforts afterwards, they submitted examples which were either 1) completely different in soil type and mineral content/hydrodynamics and completely irrelevant to the task at hand, or 2) were easily shown to be an environmental disaster, with costly clean-up, and serious long-term contamination of the environment, aquifer pollution, human health and drinking water warnings, and negative impacts on the native fauna and recreation activities, for many decades after the mines in the examples cited, were shut down. Suffice it to say, all mine owners pulled out of the Crandon area and have never attempted to initiate the mine permit process in the past 15 years. Most certainly this sulfide mine will present similar, or worse contamination problems which cannot be successfully dealt with either, over the long-term. The last thing the Great Lakes region needs now is another failed attempt at siting a sulfide mine which will only give minimal assist to the local economy, and will certainly damage the regions long term economic stability due to another soil/groundwater polluting, Recreational activity spoiling mine, and the environmental wreckage and ruin which is never remedied in a court of law. Learn from Wisconsin's example and accept that the Federal land exchange of pro

John Herold 42751

See attachment

42752

See attachment

54550

Ms. Fay, Polymet’s proposed mining will cost the citizens of Minnesota tremendous financial resources. For 500 years? How long do you think Polymet will pay for 500 years of water treatment? Please re-evaluate the practicality of this plan.

Alphabetical by sender's first name

John Hill 40140

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, John Hill 6719 34th Ave N Crystal, MN 55427-2220

John Ingham 7765

My husband, John Ingham and I, wish to register our opposition to copper-nickel mining in Northern MN. We recall the assurances that Taconite Mining would not pollute the watershed and the attempts of the mining company to deny their actions as the source of asbestos pollution to Lake Superior. Even with the best technology and state of the art methods for capturing sulfide. eventually, perhaps several generations from now, those chemicals will leach into the watershed and Lake Superior. The mining company is not going to take responsibility, even if it still exists as an entity, 100 years from now. And, even if it were to take responsibility, it would not be possible reverse the damage. No amount of money would compensate the people relying on Lake Superior for their potable water. Fresh water is going to be a necessary condition for quality of life in MN long after the miners and the minerals have come and gone. Sincerely, Mary Grove

John Ipsen 40880

Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay, Please accept the attached document, PolyMet SDEIS 2014 Comments, as my official comment on the PolyMet Project Proposed Action. Sincerely, John Ipsen 3726 E. 3Rd St Duluth, MN 55804-1826

John J Weber 54717

See attachment

Alphabetical by sender's first name

John Kennebeck 41620

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, John Kennebeck Lake Wilson, Minnesota

JOHN KENNEDY 44317

I am writing as a "transplant" to Minnesota, having grown up near Boston. I have lived here in the Twin Cities area for 35 years. When our two boys were small, we enjoyed taking them camping "up North" venturing along the shores of Lake Superior and heading inland up the Gunflint Trail. Our travels took us into the region where PolyMet is attempting to persuade Minnesotans to allow a gigantic open pit mine to be put into operation. The idea seems to me to be on a par with suggesting that we should log Yellowstone Park or haul all of the topsoil away from the fertile valleys of California. To allow sulfide mining in the Hoyt Lakes area is a very bad idea for multiple reasons. I will focus on just one reason, which I think is very obvious to me as a newcomer to the state, and that is that it spoils the environment. We stand to lose the beauty of the area, the wildlife, the health of the watershed, the clean air, and the ability of Tribal Nations to carry out their guaranteed rights to hunting, fishing, and gathering wild rice in the region. Please listen to those of us who are pleading on behalf of preserving this area in its pristine condition: Do not allow NorthMet to go forwaRd Now is the time to say "No" to this bad idea. Submitted by Lucy Kennedy 194 Oakview Road W. St Paul, MN 55118

Alphabetical by sender's first name

JOHN KENNEDY 45451

Minnesotans have an ethical responsibility to prevent sulfide mining in our beautiful Arrowhead region. To jeopardize one of the most abundant sources of clean, fresh water in the state and indeed in the world would be a reprehensible, unforgiveable act. Those who are proposing the NorthMet mine and who stand to profit from it may not care about the devastating effects which mining would have on this area and how it would effect our children and our grandchildren, but those of us who live here certainly do. We deserve to live in a healthful environment and to pass along to future generations an environment which has been kept free of pollution and degradation. It is outrageous that this project has been allowed to progress this far, at huge expense. It has diverted attention from other pressing concerns and has caused great upheaval in the lives of all those who have had to come forward and spend hours and hours out of our lives fighting against a proposal that is so deeply flawed as to be inconceivable. It is simply unthinkable that such a hazardous mining operation could ever be compatible with the unique character of the proposed site. Simply stated, water is precious. As demand for drinking water increases due to population growth, global warming, and loss of other clean water sources, it would be unconscionable to put this source of clean and abundant water at risk. The long, drawn-out battle over the proposed PolyMet mine is pitching Minnesota citizens against each other. But this fight is not just about jobs. At the core of this battle is the issue of who gets to decide the future of our state. Who gets to make the decisions which determine what kind of an environment the citizens of Minnesota will bequeath to their children and grandchildren and all future generations. Think about it: Who at the United States Forest Service is authorized to "swap" our public land with mining companies. These lands in the Superior National Forest were purchased under the Weeks Act of 1900 in order to preserve watersheds. Open pit mining is forbidden on such lands. To open these lands to sulfide mining would be a betrayal of the public trust and is clearly illegal. Why then is the land swap being treated as something that could easily be accomplished. These beautiful, pristine lands belong to the American people, who trust the National Forest Service to be good stewards of our public lands. Where is the leadership in the State of Minnesota. Why are our Governor and legislators not taking up this issue with the federal government. Since European explorers first came to the Arrowhead area, the land has suffered the onslaughts of mining and logging interests. The indigenous people who lived here were displaced in a shameful grab for "resources." Although they were forced to cede their lands to the invading miners and loggers, the native populations are guaranteed hunting, fishing, and subsistence rights on Ceded Territories. When we look at the impacts sulfide mining would likely have on wild rice, fish, and game, we can clearly see that these guarantees are meaningless. Again, where is our leadership. Who is standing up for the rights of the Tribal Nations. Indigenous peoples around the world, including in our neighbor Wisconsin, are fighting to save their lands from destruction. Here in Minnesota, we must show good faith to all of our people. Minnesotans- all of us- deserve to have a healthy, clean, sustainable environment to pass along to future generations. Sulfide mining in the Arrowhead destroys all hope for a proud legacy. We must stop PolyMet now.

John Klein 16018

When or where do we see the $ set aside for the environmental insurance. Thanks. John Klein 3448 10th Ave S. Mpls.Mn. 55407

John Knudson 3166

I am excited to see the potential for bringing economic prosperity back to the Iron Range with the Polymet project. I support this project based the positive outlook of the SDEIS and the work that the company has done in the reverse osmosis water treatment. I believe that Polymet has MN best interest in mind in creating a company and project that will bring much needed revenue to the state in an environmentally conscious manner. Best regards, John Knudson

Alphabetical by sender's first name

john koch 41927

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, john koch Litchfield, Minnesota

John Kolander 47516

Please do not proceed with this mining. I am adamantly opposed to this expanded mining. Sincerely, John Kolander 222 2nd St SE. #401 Minnepolis, MN 55414

John Kolstad 47773

Dear Lisa, I cut and pasted my letter, plus I have attached it as an MS Word file. John Kolstad, President Mill City Music 3820 East Lake Street Minneapolis, MN 55406 March 9, 2014 Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us Dear DNR, As a business person I understand that we need economic development and job creation. I have been following the debate and discussion on the PolyMet mining proposal. I withheld any opinion until I could learn a great deal more about this project. There seem to be three main arguments by the proponents: 1- The metals are needed 2- This will create jobs and economic development 3- It is environmentally safe and non-polluting. 1) There is a world full of these and other metals, that could be recycled but are not. If recycling got the same tax breaks mining, there would be an abundant of these metals and others. Recylcing would not pollute the environment or put a region at risk of disaster. 2) This will create a minute number of jobs considering the area, the number who need jobs and the jobs projected even by the proponents. Plus there is no guarantee that any area people will get these jobs or what they will be paid. The Small Business Administration has published job statistics for over 50 years. Over 50% of all USA jobs are with small business. In the latest study by the Minnesota House Research Service, 90% of new jobs are with small business. If Jobs is the issue, then our resources should go to the small business sector. These jobs will be locally based and not be able to move the business or the jobs to China. The Fortune 500 companies have had negative job growth in the US. It is so sad to see the Union Leadership representing people in this area, siding with multi-national corporation who will come in, do what they want, then file bankruptcy and leAve In all the History of Unions, they have always sided with the people and the community and never with the corporations or “Bosses”. That these unions are using their rank and file members to push this project shows this is about money and power and not jobs or the economic well being of the region. 3) The study by PolyMet states that the sites will be polluted for 500 years, but jobs and the operation will only last about 20 years. Who will be here for 500 years to manage this. This is insanity. I know a number of students or young people who have large Student Loan debt and credit card debt. These people are prohibited by federal law from filing bankruptcy and be relieved of debt. So they will owe it until paid off or they die. Yet Mining Corporations, like PolyMet, created just for this project, will be able to declare bankruptcy and walk away and leave the pollution, the unemployed and a devastated community. This makes clear who writes our National Laws. I have been to many industrial or mining towns like this, out West, the Michigan UP, the Cleveland area and many more. Before this project should be considered for a second, the Financiers, stockholders, parent corporations or those receiving any benefits from this project should be permanently responsible until total recovery and liability is satisfied. No opportunity for bankruptcy and walking away scott free. Certainly the people of this area need jobs. Long time history shows that Small Business does by far the best at creating and providing Jobs. The State and Region Resources should be directed to area small business creation that is sustainable into the future and protective of the environment that all their children can grow up in a healthy world. Short term profit producing a disaster vs long term community with sustainable job. A public servant should chose the sustainable path. In my reading and research on this topic, I found stats that 75% of

Alphabetical by sender's first name

John Krenn 58009

It is very important to stop Poly Met! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

John Landgraf 9550

I was glad to lend my voice last night at the Rivercenter. I was also pleased that there were so many others who gave thoughtful presentations arguing against the safety of the plan to mine copper and other metals in northern Minnesota. John E. Landgraf On 1/28/14, *NorthMetSDEIS (DNR) wrote: > Thank you for providing comments on NorthMet Mining Project and Land > Exchange SDEIS. We will review the comments you have provided. Responses > to all substantive comments will be included in the official recoRd If > you have provided your address, you will be included in mailings or > electronic distribution of the recoRd > >

18163

My name is John Landgraf. I am an archeologist. I lived for 15 years in the Middle East. And I studied for nine years in Germany. But I was born here in the US. I just think it would be very nice for many of our workers here, especially with all the unemployment in the United States, to earn more money; but we have an environmental impact that is too great in my opinion. But I would like to just point out where the profits of such mining might go. PolyMet is on the New York Stock Exchange, the world stock exchanges. About 40 percent of PolyMet's money is in Switzerland and the – I mean and, of course, they're at the top 1 percent that have a certain amount of PolyMet here in the United States. I'm just pointing out that most of the profits of PolyMet will go to people not in Minnesota. To the 1 percent. To the people in foreign countries. I would be more inclined maybe if it were possible to mine environmentally clear and if the money, actually the real profits the mining, went to Minnesota. But, ah, it will go to the wealthy stockholders and the foreigners. Thank you.

John Lawrow 39597

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr John Lawrow 5015 Fremont Ave S Minneapolis, MN 55419-1157 (612) 825-7377

Alphabetical by sender's first name

John Leinen 16280

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

John Lhotka 43080

Dear Minnesota DNR - I have lived nearly my entire life in Minnesota and if there is anything I have learned during that time is Minnesota's lakes and rivers are what set us apart. Meeting people from across the country, it is not uncommon for me to get comments like "I LOVE the Boundary Waters" or "I caught my first Walleye in northern Minnesota". Our lakes and rivers are arguably one of our single most important assets, not only from a quality of life perspective, but also because tourism is a significant economic driver for northern Minnesota. I also am a property owner on a lake in the Ely area, so the decisions on the Polymet project may directly impact me, if it negatively impacts the watershed that flows through my lake. Needless to say I am deeply troubled when I hear that the Polymet project could require on-going water treatment for CENTURIES to come. While I understand the desire to acquire more mining jobs in Northern Minnesota, I urge the DNR and other decision-makers to look at the bigger picture to what extent are we willing to jeapordize our lakes and streams for CENTURIES (and the jobs that are linked to tourism that could be lost) for 350 mining jobs that might only last for 2 decades. I can give you my answer: It seems incredibly short-sighted to take that risk. Please do not move forward with this project. Kind Regards, John Lhotka 3817 Lyndale Ave S Minneapolis, MN 55409

Alphabetical by sender's first name

John Lindroos 48758

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. No amount of financial profit (for companies, company executives or or hired employees) justifies or offsets the potential long term damage "sulfide mining " could have on the Northeast Minnesota environment. Any related Mining Process must be proven to be safe for employees, residents and the Environment. Good luck with that. I don't say these things for me. I'm retired, have lived and travelled throughout the country and world. I'd have no problem leaving the area when things around here "go south". I'd do so, however, with unparalled distain for those who willfully or unknowingly, destroyed an unparalled wilderness and unique culture. I sincerely hope PolyMet has the right answers and Government oversight will not be inappropriately influenced by self serving political or financial motivation. Much has to be done right; to get it right. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr John Lindroos 729 S 2nd Ave E Ely, MN 55731-1308 (218) 365-6887

John Linnerson 40435

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota’s Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS’ claims that mercury and sulfates - which increase mercury in the food chain - will be “captured” are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet’s pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year “lifetime” to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet’s air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Alphabetical by sender's first name

John Louis 38622

John Louis 15754 Hayes Trail Apple Valley MN 55124 Short term jobs for long long term problems after all is said and done. Please review the past record of PolyMet and it's owners with other mining operations they have undertaken and think this over, is that how you would want this to turn out. Cleaning up after mining operations has a bad history and the saying goes if one does not study history one will repeat it. Bad idea for a beautiful part of our state that will be lost for generations to come. My time is limited on this earth but others that follow will have to live with this mess. Thank you allowing me to speak on this issue. I pray that you do careful consideration and let your heart lead you not your pocket book.

John Lowen 41715

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

John Lundquist 39413

As a longtime user of the BWCA, I am very disturbed by the PolyMet proposal. Bottom line is that the SDEIS is flawed and does not guarantee that sulfide mining can be done in Minnesota without seriously harming water and habitat. This is classic short-term thinking, ie we will have jobs now and for a relatively short time and risk one on the country's most amazing natural areas for future generations. You should treasure this resource, and not take ANY chance that it will be ruined for the chance to make some short term money. It is not worth it. This project should not go forwaRd Thanks for reading and taking into account my position. John W. Lundquist Fredrikson and Byron, P.A. 200 South Sixth Street Suite 4000 Minneapolis, MN. 55402-1425 612-492-7181 (direct) 612-492-7000 (main) 612-492-7077 (fax) HYPERLINK "mailto:jlundquist@fredlaw-com"jlundquist@fredlaw-com **This is a transmission from the law firm of Fredrikson and Byron, P.A. and may contain information which is privileged, confidential, and protected by the attorney-client or attorney work product privileges. If you are not the addressee, note that any disclosure, copying, distribution, or use of the contents of this message is prohibited. If you have received this transmission in error, please destroy it and notify us immediately at our telephone number (612) 492-7000- The name and biographical data provided above are for informational purposes only and are not intended to be a signature or other indication of an intent by the sender to authenticate the contents of this electronic message.**

John M Ek 52481

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, John M Ek 5076 Hermantown Rd Hermantown, MN 55811

John M Roth 54492

See attachment

Alphabetical by sender's first name

John Matheson 41037

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

41809

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, John Matheson 4550 Central Ave NE Hilltop, MN 55421-2482 (763) 572-2190

Alphabetical by sender's first name

John Matheson 42142

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, John Matheson 4550 Central lot 1244 Hilltop Mn, 55421-2487, MN 55421

John Mette 42076

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, John Mette Minnetonka, Minnesota

Alphabetical by sender's first name

John Metzner 39506

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, John Metzner PO Box 541 Cottage Grove, MN 55016

John Mischke 42458

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. This is too great a risk. There has to be other ways to help Northern Minnesota economically. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. I have often gone to the Boundary Waters and I want this experience for future generations. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr John Mischke 821 Raymond Ave Ste 300 Saint Paul, MN 55114-1525

58128

Any cleanup is unacceptable to me. Northern MN is too precious. Only if Polymet can show past success not polluting would I sign off on mining our wilderness.

John Muehlbauer 7195

I'm a fisherman. I'm a hunter. I'm a father. I plan to live the rest of my days in Minnesota, which includes a lot of outdoor enjoyment in the Arrowhead region. I'm sure the folks up on the Range would like to do the same. Polymet has done their homework on this one. Block out the noise from the radicals who are blind to the environmental protections that Polymet has built into their plan. We can keep improving our environmental quality of life and at the same time, retain the proud heritage of the Iron Range people. John Muehlbauer 3785 Stebner Rd Hermantown, MN 55811 218-390-4898

Alphabetical by sender's first name

John Mugford 38629

Sent from my iPhone On Mar 11, 2014, at 7:04 PM, John Mugford <HYPERLINK "mailto:jbmugford@msn-com"jbmugford@msn-com> DNR I urge you not to accept the SEIS regarding PolyMet for the following reasons I do not think it is in the best interest for the citizens of Minnesota to be responsible for future tax burden as a result of cleanup costs for pollution that will result from poly mets project. The reason I am so concerned about this, in spite of poly met saying that they would be responsible, is that the financial assurances need to remain in place for an extreme amount of time. Financial assurances that need to be in place for 200 to 500 years have not ever been proven. Have there ever been any financial assurance vehicles that have been tested or proven effective for 500 years. I understand that the financial assurance part of this project is actually looked at in the permitting stage, but I strongly feel it is important that it is addressed here as well. The land swap between the forest service and poly met in my mind needs to have its own separate review. The proper amount of time needs to be allotted to this important piece of poly mets project. It cannot be lumped together and hurried through. The use of the national forest has restrictions put on it for a reason. We need to respect that and not put the needs of a corporation ahead of the rights of the citizens of the United States. We were personally involved in a land trade with the federal government. Our land trade took 12 years to go through and it was to trade lakeshore recreational property which was already in use and leased for that purpose. I feel it is a mistake for us to make this trade which would allow non ferrous mining to be done in our national Forrest without a longer period of time for public comment and education on this important change of use. It just does not make logical sense, unless a for profit corporations project does not need to have the same scrutiny as an individual. There is some discrepancy as to the amount of water being released from the project. I would believe the tolerances were put into the model for a good reason therefore it would make sense that the correct numbers be put in and the model be rerun. This is an important part of the EIS. In order to protect our citizens it is only responsible to redo the calculations and do a revision of the model. I am a concerned citizen, who loves this part of Minnesota, and is very troubled by the potential harm this type of mining could bring to northern Minnesota. I believe this harm will not only come to the earth but also would be damaging to the already established tourism environment of that area. This includes businesses as well as cabin owners. The related jobs, as well as construction jobs, taxes and other benefits this tourism economy and vacation home industry brings to the state is sustainable and can be grown. I do not believe that the current tourism economy and vacation home industry could flourish side by side with the nonferrous mining economy which brings pollution and greater industrialization to this unique part of our country. The following are items I would like the DNR to fix in PolyMets mine plan Plan to account for the destruction of moose habitat as well as other natural habitat for the Canadian lynx Plan should call for a detailed plan for financial assurances that protect current and future taxpayers Plan should accurately assess health risks to the public Address the risks of mercury pollution for our children as well as future generations Plan should improve wetland protection and replacements Provide Minnesotans with accurate information about how long polluted waters will require treatment Glencore must be recognized as a responsible party for permitting because of its ties with PolyMet Fix the inaccurate water data used in the model and redo the water model In conclusion it is my

Alphabetical by sender's first name

John Mugford 38634

DNR I urge you not to accept the SEIS regarding PolyMet for the following reasons I do not think it is in the best interest for the citizens of Minnesota to be responsible for future tax burden as a result of cleanup costs for pollution that will result from poly mets project. The reason I am so concerned about this, in spite of poly met saying that they would be responsible, is that the financial assurances need to remain in place for an extreme amount of time. Financial assurances that need to be in place for 200 to 500 years have not ever been proven. Have there ever been any financial assurance vehicles that have been tested or proven effective for 500 years. I understand that the financial assurance part of this project is actually looked at in the permitting stage, but I strongly feel it is important that it is addressed here as well. The land swap between the forest service and poly met in my mind needs to have its own separate review. The proper amount of time needs to be allotted to this important piece of poly mets project. It cannot be lumped together and hurried through. The use of the national forest has restrictions put on it for a reason. We need to respect that and not put the needs of a corporation ahead of the rights of the citizens of the United States. We were personally involved in a land trade with the federal government. Our land trade took 12 years to go through and it was to trade lakeshore recreational property which was already in use and leased for that purpose. I feel it is a mistake for us to make this trade which would allow non ferrous mining to be done in our national Forrest without a longer period of time for public comment and education on this important change of use. It just does not make logical sense, unless a for profit corporations project does not need to have the same scrutiny as an individual. There is some discrepancy as to the amount of water being released from the project. I would believe the tolerances were put into the model for a good reason therefore it would make sense that the correct numbers be put in and the model be rerun. This is an important part of the EIS. In order to protect our citizens it is only responsible to redo the calculations and do a revision of the model. I am a concerned citizen, who loves this part of Minnesota, and is very troubled by the potential harm this type of mining could bring to northern Minnesota. I believe this harm will not only come to the earth but also would be damaging to the already established tourism environment of that area. This includes businesses as well as cabin owners. The related jobs, as well as construction jobs, taxes and other benefits this tourism economy and vacation home industry brings to the state is sustainable and can be grown. I do not believe that the current tourism economy and vacation home industry could flourish side by side with the nonferrous mining economy which brings pollution and greater industrialization to this unique part of our country. The following are items I would like the DNR to fix in PolyMets mine plan Plan to account for the destruction of moose habitat as well as other natural habitat for the Canadian lynx Plan should call for a detailed plan for financial assurances that protect current and future taxpayers Plan should accurately assess health risks to the public Address the risks of mercury pollution for our children as well as future generations Plan should improve wetland protection and replacements Provide Minnesotans with accurate information about how long polluted waters will require treatment Glencore must be recognized as a responsible party for permitting because of its ties with PolyMet Fix the inaccurate water data used in the model and redo the water model In conclusion it is my opinion that the few hundred jobs and monetary gain for a corporation is not worth the perpetual damage and pollution nonferr

Alphabetical by sender's first name

John Munter 18086

My name is John Munter. I'm 64. I work at Delta Airlines. And if you ever need a job, you can come over to Delta. We're hiring continually there and we're one of the best res office -- actually the best res office, according to the CEO of Delta, that we have. So we'll be here for a long time. My grandfather worked at the mines and my great uncle shot deer year-round and netted fish and cut cord wood for moonshiners on county land andlife was good, but my family has moved away and my siblings are gone, and my kids may also move away, but I'll be darned if I want my kids to work on a 500-acre, 20-story slag pile, superfund toxic waste site straddling the continental divide on wetlands surrounded by rivers over an aquifer at the headwaters of the St. Louis River Basin. I think this project is going to fail several reasons. One, it's like signing a nuclear waste dump in your back yard. I mean, why would we do this? Two, the SDEIS is like lipstick on a pig. Everybody likes the pork, but that pig don't fly for some underlying assumptions. And thirdly, there's too many people that are going to sue, I think. The two Indian tribes, I believe, might sue. The people downstream scared about their wells. The environmental groups may sue. One of the problems, for example, is the DNR should require PolyMet to buy, not lease, the mineral rights for the south -- the west pit so that it can be back filled from that 20-story tailing pile and so it can be under water, then, when the financial assurance collapses at some point. And secondly, plastic liners leak. This is one of the assumptions the EIS makes – they don't leak. Well, they do. Faulty heat sealing of seams. Fluid accumulation can push fluid down, even through tiny holes, they can push it through the membranes or bumps and pressure points can cause problems. And the peak pollution won't happen in the sulfur mining -- sulfide mining for 500 years and then there's the downside of the Bell Curve after that. So it's in perpetuity, basically. This brings us to the most bizarre assumption of the EIS. You cannot guarantee financial instruments for 500 years or a thousand years in perpetuity. It's going to cost $3-and-a-half billion -- $3-and-a-half million to $6 million a year for two water-treatment plants. That comes out to $1-and-a-half to $3 billion over 500 years, and of course, we're looking at 1,000 years. You'll need a whole new EIS after PolyMet coughs up the final financial assurance at the eleventh hour. A the 11th hour, and they're currently thinking about roughly $200 million. That's not going to make it. The current SDEIS is a bait and switch. Okay, this is a great EIS, now, can you pay for it? And we may have to cut corners, there, but eventually, the fund will fail, the trees will grow through the plastic, sulfuric acid and heavy metals will fill the rivers. But we're right now in a runaway-global-warming climate cycle. We had a 41 billion-dollar disasters last year. And warm air is upsetting polar vortex. That's why the cold air is hiding out in our backyards. The arctic will be ice free in the summer in a couple years. Methane is already ballooning up the swamps and And the lakes and the shallow seas, which is 70 times worse than warming gas and carbon dioxide. Seventy times, not percent. Insurance companies and economies will fail and you'll be trying to be fish and drink out of the polluted rivers. Mark my word.

Alphabetical by sender's first name

John Munter 41920

From: John M Munter 14860 Bruce Creek Rd Warba, MN 55793 PolyMet: What Happens When The Music Stops. By John Munter Part 1—FollyMet and Pollyanna Even if the DNR in their Copper-Nickel mining computations in Northern Minnesota can determine how many angels can dance on the head of a pin and PolyMet can manipulate them so they don't overflow into the St Louis River Basin—there is a problem. Even if the DNR can rationalize away the implications of the water flow issues that they vastly underestimated even though they were correctly advised for years by tribal experts—there is a problem. Even if some coming lawsuit by the three tribes of the 1854 ceded territories claiming infringement upon their legal rights to harvest local foods and medicines is thrown out in court (a big assumption)—there is a problem. Even if the tremendous rock blasting at the mine site doesn't open up more and wider fractures in the underlying bedrock and the toxic leachates don't penetrate well through the underlying granitic aquifer but flow like hypnotized children of the Pied Piper of PolyMet to be sucked into the pipes and water treatment plants—there is a problem. Even if the forty-six lbs a year of airborne mercury PolyMet creates during the twenty year mine is not judged to be a burden on a region where one in ten babies born already has too high a mercury level—there is a problem. Even if the most reactive rock is back-filled into a hole and only the least reactive rock is piled two hundred feet high--there is a problem. Even if all the plastic is replaced regularly over the five hundred acre site, and all the leachate is collected from the twenty story tall reactive waste rock, and the pipe leaks are repaired quickly, and a fund is established by PolyMet to fund the two water treatment plants that will cost between three and a half to six million dollars a year—there is a problem. Even if the estimated minimum sixteen million gallons of escaped toxic seepage a year into the ground and surface waters isn't considered a problem—there is still a problem. Even if PolyMet isn't just a shell company that will grab the profits and then declare bankruptcy—there is a problem. Even if proposed PolyMet processing facility isn't re-used after twenty years to process ore from a dozen other future copper-nickel mines for a hundred years—there is still a problem. The problem is that the mine becomes a superfund site requiring perpetual treatment for the run-off of antimony (similar to arsenic), sulfates, and heavy metals. DNR admits that the Mine Site will require water treatment for more than two hundred years and the Plant Site will require water treatment for more than five hundred years. However, there is no clear rationale for why water treatment won't be needed for thousands of years rather than hundreds. Perhaps, 'progress' or 'science' will solve all of our problems for us someday but that 'pass the buck' or 'put it on the credit card' methodology hasn't worked very well yet for the problems of nuclear waste, carbon pollution, and all the other sulfide mining sites. This problem of a perpetual waste stream brings up the associated problem of devising a perpetual funding mechanism which can pay out millions of dollars a year indefinitely without spending down the principal. PolyMet seems to be thinking of spending something on the order of two hundred million dollars that would probably be set aside in some kind of a trust fund. Taking the high end of cost estimates by the DNR of six million dollars a year this would run out in about 40 years depending on how much interest was garnered. Of course, there is a limit to how much PolyMet could put into a fund and still make a profit on the mine. But, this isn't the bigge

Alphabetical by sender's first name

John Munter 42229

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

John Nash, Ph.D., L.P. 21168

I support your efforts to extract important resources from this state. However, I think you've got a major trust issue; not just your company, but the mining (including oil) industry in general. Many think you're saying "Trust me, let me get the permits - and then we'll do what we please to make as much money as possible by getting around what regulations we can." Sorry for being so direct, but this is the case. Your PR campaign should focus on factual statements and demonstrations of how large mines can be operated without screwing up the environment. How did the uranium mines around Bancroft, Quebec do. I don't know, but you should. If they happened to do a good job, you could use that to say "Hey, they did it 20 years ago with radioactive waste, we've got better tech now, etc" Of course, if the whole place glows in the dark . oh well. Good luck (p.s. I'm a mineral collector, so gotta love mining, eh. Sign me up for a tour underground when you hit the mineralized zones) John - John K. Nash, Phd, L.P. Senior Fellow, BCIA, Board Certified Neurofeedback Diplomate, QEEG Certification Board President, Behavioral Medicine Associates, Inc. 4820 West 77th Street, Suite 135 Edina, MN 55435 Telephone: 952-844-0619 Facsimile: 952-844-0628 http://www.qeeg-com http://www.minnesotaarttherapy-com Disclaimer: Information in this message or an attachment may be government data and thereby subject to the Minnesota Government Data Practices Act, Minnesota Statutes, Chapter 13, and Federal statute including HIPAA, may be subject to attorney-client or work product privilege, may be confidential, privileged, proprietary, or otherwise protected, and the unauthorized review, copying, retransmission, or other use or disclosure of the information is strictly prohibited. If you are not the intended recipient of this message, please immediately notify the sender of the transmission error and then promptly delete this message from your computer system.

Alphabetical by sender's first name

John Norton 38832

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr John Norton 307 Laurel Ave Saint Paul, MN 55102-2105 (410) 458-3380

john Oertel 42889

Attached is support letter for the PolyMet project John Oertel Numax Resource PO Box 834 Stillwater, MN 55082 Tel: 612-384-4217

John Ottis 41213

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

John Ottis 41214

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. This includes a net loss of 6,026 acres of areas with high biodiversity; 2,030 acres of mature forest – replaced by 2,000 acres of immature forest; 1,400 acres of floodplains and losses of 11 endangered or threatened species. The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade. The PolyMet sulfide mine would reduce lynx habitat by two square miles, kill individual lynx, and impact 2 out of 13 remaining small corridors for wildlife to travel across the Arrowhead region. The PolyMet sulfide mine plan would also destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which dropped precipitously by 35% from 2012 to 2013- Yet, the SDEIS contains no analysis of impacts on moose from the PolyMet project. The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St Louis River and tribal resources. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice. Please take the following actions to protect clean water, ecological communities, public lands and tribal rights: •Reject PolyMet's proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. •Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. •Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. •Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. •Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. No more studies are needed to know that the PolyMet land exchange and sulfide mine should not be approved. The SDEIS plan is also inadequate and should be rejected: •The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. •The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at taxpayer expense. •The SDEIS fails to analyze alternatives, including underground mining, that could reduce impacts on lynx, moose, and other species that are thre

41215

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was "inadequate" and the sulfide mine project would be "environmentally unsatisfactory." The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity." Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely John Ottis John Ottis Box 609 Grand Marais, MN 55604

Alphabetical by sender's first name

John Ottis 41217

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone to assess the impacts of slope and dam failure at the mine site waste rock piles and the tailings piles, instead of just assuming that no failure can happen. (SDEIS, p. 5-546). PolyMet's tailings would be placed on top of huge, leaky and unstable existing tailings piles. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, John Ottis John Ottis Box 609 Grand Marais, MN 55604

John P. Gorski 38866

To Whom It May Concern: I grew up on the Iron Range. My father was a mining engineer. I worked summers in the mines while I attended college. In general I support mining and have witnessed the economic benefits it can affoRd My father was forced into an early retirement in the 80's and his greatest hope was that the copper nickel industry would be his salvation. Despite the hardships my father endured I am glad that the copper/nickel mining did not happen. The technologies available at the time were simply not adequate to to protect the environment. Few people can look back and truthfully say that they regret the delay of these past 25 years. Most can agree that had we mined those minerals with 1980's technologies great environmental damage would have been done. The landscape of Minnesota, its waters, the plants,and animals that inhabit it, and its minerals belong to all who live here today and also to those who will inhabit it in the generations to come. The technologies proposed by PolyMet are vastly superior to those of the past but probably inferior to those of the future. In just the past few years PolyMet has made great progress in its efforts to ensure that our environment can be protected. It is reasonable to believe that wity each ensuing year our knowledge,and PolyMet's, will continue to improve. It is also reasonable to believe that the value of the resource will continue to grow. The Minnesota DNR, our Governor, State Representatives, Senators, and Congressmen have all committed themselves to the highest degree of environmental scrutiny. As of today that has not been accomplished. Questions persist about dust and particulates(asbestos like)drifting into the BWCAW. Questions about the accuracy of aquifer mapping and water migration persiSt Lastly there is great public doubt that contaminated waters can be contained for the many years needed to protect our cherished waters. There is an old saying "near money is dear money" it talks to the very high cost, that is always paid, when cashing in quickly. Lets not make that mistake here. John P. Gorski Grand Marais Mn.

Alphabetical by sender's first name

John Paul Roy 19080

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, John Paul Roy 3231 37th Ave So. 3231 37th Ave So. Minneapolis, MN 55406

Alphabetical by sender's first name

John Paul Roy 40033

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

48174

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, John Paul Roy 3231 37th Ave S Minneapolis, MN 55406

Alphabetical by sender's first name

John Paulson 9632

Supporting the NorthMet SDEIS: Polymet's project has rightly been contrasted against the backdrop of the waters of the State of Minnesota, which serve multiple functions, but most importantly they are the lifeblood of our environment. In contrast, the use of water for consumption, agriculture, recreation, fishing and industry have sustained human cultures for all of history. While our state is a unique entity which possesses some of the world's greatest density of fresh water lakes, streams and wetlands (and has thus been a primary emphasis of the cultures that have populated this region), what sets us apart is that for generations our environmental law and regulation have led the world when it comes to water quality protection. I believe we are leading again with the NorthMet SDEIS, the process for public input, and the ongoing open and honest dialogue related to precious metals mining in Minnesota and the need for environmental protections. In this case, I strongly believe that the State of Minnesota's Department of Natural Resources (DNR) is uniquely qualified in the world to oversee and permit this form of mining and the requisite environmental obligations that are required to protect our state's water quality. With over 100 years of active mining-related experience in the state, the Minnesota DNR has proven it has not lost sight of its multi-faceted obligation to protect the environment while helping to facilitate economic vitality. While the NorthMet project is a new form of mining and processing in Minnesota, it is with our state's unique perspective and experience (that is steeped in a lengthy history of mining regulation and water quality protection) that convinces me this project is in the right hands. As written, I support the SDEIS for Polymet's NorthMet Project and expect (as with all permits to operate within the State of Minnesota) there will be adequate requirements for operational controls that greatly limit the possibility of operational or accidental pollution. I encourage the Minnesota DNR to continue to balance the necessity of human industry and environmental regulations and protections. - John Paulson - 25 East Mankato Street - Duluth, MN 55803

John Peace 41917

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, John Peace St Francis, Minnesota

Alphabetical by sender's first name

John Peck 16822

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, John Peck 12299 Sauk River Rd St Cloud, MN 56301

50161

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, John Peck 12299 Sauk River Rd St Cloud, MN 56301

Alphabetical by sender's first name

John Pegg 6101

Dear Ms Fay, Dear Federal and State Agency Leaders: One of the most profound thinkers of the 20th Century was astrophysicist Carl Sagan. In 1980, he published a book entitled, "Cosmos." In that book, Dr Sagan wrote: The Earth is a place. It is by no means the only place. It is not even a typical place. No planet or star or galaxy can be typical, because the Cosmos is mostly empty. The only typical place is within the vast, cold, universal vacuum, the everlasting night of intergalactic space, a place so strange and desolate that, by comparison, planets and stars and galaxies seem achingly rare and lovely. If we were randomly inserted into the Cosmos, the chance that we would find ourselves on or near a planet would be less than one in a billion trillion trillion (1033, a one followed by 33 zeroes). In everyday life such odds are called compelling. Worlds are precious. And so, I write in grave concern for the effects on our environment and waters by the proposed PolyMet copper sulfide mine (and any others proposed) in Northern Minnesota. In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely John Pegg 1335 Minnesota Ave Duluth, MN 55802 218-349-1786

John PERKINS 10490

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I've been told that form letter emails are not taken seriously by those in government. I hope this is not the true in this case. I am very concerned about PolyMet's plans and would ask you to seriously consider the validity of what their claiming. Get the real data and make an informed decision that is best for the environment AND the fiscal health of MN. All the best, John Perkins 49407 Mini Car Car Lake Rd, Deer River, MN 56636 John PERKINS 49407 Mini Car Car Lake Rd Deer River, MN 56636

18411

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50530

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50531

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John Plumadore 42731

See attachment

Alphabetical by sender's first name

John Pugh 9343

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I grew up in northern Minnesota and lived in Babbitt for 17 years. Until recently, my parents still lived there. My father worked at the taconite mine for 30 years. I love the cool blue lakes. I often bring my family up there to canoe, camp, kayak, fish, ski, hike, and photograph its beauty. We buy local and have given to the community. Why must we support the small communities through a short-term effort (20 years or less) of copper-nickel mining, which will result in long-term loss of environment (200 years or more). Tourism is also a precious commodity, but it will be lost with the advent of sulfide mining. Our children's children should be able to enjoy this precious area. We are devastated over this environmental battle. It should be protected, not eviscerated by mining. This will impact not only the pristine waters of northern Minnesota but, over time, may impact our water quality down the Mississippi River basin. Northern Minnesotans are anxious for jobs and delusional over the possibility of mining and construction jobs. Polymet is promising high-paying jobs, but how many folks who live up there will actually be hired. The residents up there are being misinformed by Polymet. PolyMet's Water Model is Scientifically Unacceptable. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that reli

Alphabetical by sender's first name

John Pugh 18500

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John Quimby 41314

I am quite concerned about the possibly of long-term environmental damage that would result from mining. Please use the utmost caution in approving any mineral extraction that would compromise either water resources or other environmental factors. Thank you, John Quimby former resident of Ely, MN and Deer River, MN

Alphabetical by sender's first name

John Reynolds 47520

Please accept my comments into the public recoRd The groundwater flow model is flawed and must be re-run using corrected data. The model, used to assess the impacts on water resources and how to minimize them, relies upon incorrect assumptions about the amount of groundwater at the site. The model uses a base flow estimate which significantly underestimates flow. As a result, the model likely underestimates the amount of sulfates and heavy metals carried to the Partridge River and Lake Superior. It's not acceptable to base such an important and potentially damaging project on known flawed data. Do it right or don't do it at all. Water channels which is what fractured bedrock is need to be closed to prevent the outward migration of heavy metal laden water. It's not acceptable to base decisions on flawed assumptions when we know better. We know the bedrock is fractured and pretending it isn't is not acceptable. The fractures need to be sealed or the entire basin needs to be lined with peat in adequate thickness to adsorb the heavy metals to prevent their migration from the site. Adequate monitoring and mitigation procedures need to be in place and ready to go if monitoring shows migration from the site. That will require an ironclad financial commitment that is lacking on this project. Monitoring must be part of the permitting process. The permit must require a robust monitoring plan with financial assurances to fund it. The public should be afforded an additional 30 days to take into account the new information. If mineral rights are severed from USFS land swap the project needs to assume that mining will occur on those lands and that needs to be included in this permitting process instead of permitting this as a stand alone project. There are too many flaws in this SDEIS for the project to be permitted. Do it right or don't do it at all. John Reynolds 26385 County Road 3 Merrifield MN 56465

John Richkus 42433

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr John Richkus 206 Congress St Jersey City, NJ 07307-3410

Alphabetical by sender's first name

John Roach 39900

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I have enjoyed the Boundary Waters many times and feel a great responsibility to keep this national resource available for future generations. If there were even a small chance that the copper/nickel mining would harm this resource, it would not be worth taking a chance on losing this rare treasure for future generations of Americans. I do understand the lure of jobs for the next twenty years for citizens who live on the range. However, the Boundary Waters and Superior National Forest and all of the lakes and wetlands that are on state land in this area at risk with this mining. One needs to remember that those lands belong to all Minnesotans including future generations. We do not have the right to put these natural treasures at risk. I believe that PolyMet SDEIS's own research indicates that mining will irrevocably harm these sources for our children and future generations. We simply need to take every measure necessary to protect these treasures for current and future nations. Sincerely, Mr John Roach 8116 Zenith Ct N Brooklyn Park, MN 55443-2749 (763) 566-9387

Alphabetical by sender's first name

John Rookey 9603

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, John Rookey 1605 Wyoming Ave Superior, WI 54880

18508

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, John Rookey 1605 Wyoming Ave Superior, WI 54880

Alphabetical by sender's first name

John Rookey 50590

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, John Rookey 1605 Wyoming Ave Superior, WI 54880

John Roth 42900

Dear Ms Fay: Please find attached by written comments on the PloyMet/NorthMet SDEIS and copies of my letters to Douglas Bruner, US Army Corps of Engineers, and Brenda Halter, Supervisor of Superior National ForeSt My comments have also been sent by US mail. John M. Roth Attorney at Law 3140 Bryant Avenue South, #3 Minneapolis, MN 55408 ph: 612-360-4054

43042

From: John Roth [mailto:johnroth2006@yahoo-com] Sent: Wednesday, March 12, 2014 2:18 PM To: FS-R9 Superior NF Subject: PolyMet/NorthMet SDEIS and proposed land exchange Dear Ms Halter: Please find attached my written comments on the PolyMet/NorthMet SDEIS and proposed land exchange, as well as copies of my letters to Lisa Fay, MDNR, and Douglas Bruner, US Army Corps of Engineers. My comments also have been sent by US mail. John M. Roth Attorney at Law 3140 Bryant Avenue South, #3 Minneapolis, MN 55408 ph: 612-360-4054

48154

See attachment

Alphabetical by sender's first name

John Rust 40151

Dear Lisa Fay, EIS Project Manager, I am writing because I am concerned about what the PolyMet mine site will do to the environment in Northern Minnesota. I am also very concerned about how other future mines (such as Twin Metals) may affect the environment in Northern Minnesota. Northern Minnesota is a water rich environment that supports an ecologically rich set of biodiversity, including 'charismatic mega-fauna' - wolves, bears, moose, lynx etc Northern Minnesota also supports hundreds of other species including deer, eagles, owls, ducks, bobcat, coyotes, as well as fishes, wild rice, and majestic stands of red and white pine, including conifer and boreal forests. Hundreds of thousands of hunters, anglers, and recreationists annually visit Northern Minnesota at all times of the year for recreational opportunities. My family and I are avid users of the North Woods for hiking, canoeing, kayaking, wildlife watching, cross country skiing, snowshoeing, and fishing – since 1970- We have visited Voyagers National Park, the Boundary Waters Canoe Area Wilderness, and Superior National Forest dozens of times in the last 50 years. What we have here in Minnesota is a unique destination that attracts people from all over the United States, but as well from many parts of the world. A PolyMet mine site (and other future copper, nickel, sulfur mine sites) may leak toxic pollutants into the watershed. Consequently damaging and/or destroying the recreational opportunities for thousands of people, and damaging or destroying the habitat and environment for 1000's of species living in the area. I am not against mining these precious metals – because we all use them in vehicles, and electronic devices. However, I believe that there are less sensitive locations to be extracting these metals from the earth. Places that are not so rich in water and biological diversity. Places that do not have the intensive recreational use, and tourism jobs associated with recreational visitors. Arid places like deserts that do not have the water resources, and have fewer visitors are better suited for a mine of this type. I believe that those responsible for making the decisions on the PolyMet mine cannot reasonably assure the public that the site will not be leaking pollution into the environment for 200 – 500 years. Can those responsible for making decision on the PolyMet mine know with any level of confidence that under varying political and environmental conditions that the mine site will not generate pollution for 200 – 500 years. All decisions being made are based on assumptions of the political and environmental conditions. But will they take into account such potentialities as: 1) Climate change that generates storms with torrential rainfalls that exceed 20 inches of rain in a short period of time. 2) All countries have periods of strife and uncertainty. Even the most stable of nation-states and governments experiences crisis of governance including revolution, civil war, invasion, collapse and rebirth. During these periods, the failure of proper governance can last from a year to several years. One is hard pressed to think of a single country that has not experienced some level of uncertainty of governance and strife in the last 200 years. During such periods, will maintenance of mining ponds, tailings, dikes be ongoing. One may not be able to predict. Sincerely, John Rust 9725 Oliver Ave North Brooklyn Park, MN 55444 Board of Directors – Izaak Walton League of America – Minnesota Division _____ This email is intended solely for the recipient. It may contain privileged, proprietary or confidential information or material. If you are not the intended recipient, please delete this email and any attachments and notify the sender of the error.

Alphabetical by sender's first name

John Rust 40154

Dear Lisa Fay, EIS Project Manager, I am writing because I am concerned about what the PolyMet mine site will do to the environment in Northern Minnesota. I am also very concerned about how other future mines (such as Twin Metals) may affect the environment in Northern Minnesota. Northern Minnesota is a water rich environment that supports an ecologically rich set of biodiversity, including 'charismatic mega-fauna' - wolves, bears, moose, lynx etc Northern Minnesota also supports hundreds of other species including deer, eagles, owls, ducks, bobcat, coyotes, as well as fishes, wild rice, and majestic stands of red and white pine, including conifer and boreal forests. Hundreds of thousands of hunters, anglers, and recreationists annually visit Northern Minnesota at all times of the year for recreational opportunities. My family and I are avid users of the North Woods for hiking, canoeing, kayaking, wildlife watching, cross country skiing, snowshoeing, and fishing – since 1970- We have visited Voyagers National Park, the Boundary Waters Canoe Area Wilderness, and Superior National Forest dozens of times in the last 50 years. What we have here in Minnesota is a unique destination that attracts people from all over the United States, but as well from many parts of the world. A PolyMet mine site (and other future copper, nickel, sulfur mine sites) may leak toxic pollutants into the watershed. Consequently damaging and/or destroying the recreational opportunities for thousands of people, and damaging or destroying the habitat and environment for 1000's of species living in the area. I am not against mining these precious metals – because we all use them in vehicles, and electronic devices. However, I believe that there are less sensitive locations to be extracting these metals form the earth. Places that are not so rich in water and biological diversity. Places that do not have the intensive recreational use, and tourism jobs associated with recreational visitors. Arid places like deserts that do not have the water resources, and have fewer visitors are better suited for a mine of this type. I believe that those responsible for making the decisions on the PolyMet mine cannot reasonably assure the public that the site will not be leaking pollution into the environment for 200 – 500 years. Can those responsible for making decision on the PolyMet mine know with any level of confidence that under varying political and environmental conditions that the mine site will not generate pollution for 200 – 500 years. All decisions being made are required based on assumptions of the political and environmental conditions. But will they take into account such potentialities as: 1) Climate change that generates storms with torrential rainfalls that exceed 20 inches of rain in a short period of time. 2) All countries have periods of strife and uncertainty. Even the most stable of nation-states and governments experiences crisis of governance including revolution, civil war, invasion, collapse and rebirth. During these periods, the failure of proper governance can last from a year to several years. One is hard pressed to think of a single country that has not experienced some level of uncertainty of governance and strife in the last 200 years. During such periods, will maintenance of mining ponds, tailings, dikes be ongoing. One may not be able to predict. John - Chinese (PRC) Small John Rust Cell Phone:763-202-3346 Lead Software Engineer, LOCATION Production Services Verisk Insurance Solutions – Underwriting 5353 Gamble Dr, Suite 201 St Louis Park, MN 55416 Office Phone: 952-542-1440 x214 HYPERLINK "mailto:John.Rust@Verisk-com"John.Rust@Verisk-com _____ This email is intended solely for the recipient. It may contain privileged, proprietary or confidential information or material. If you are not the intended recipient, please delete this email and any attachmen

John Sayres 39766

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Furthermore, the area should not be mined at all. The limited amount of copper and minerals to be taken from the area will have a detrimental impact on the environment. The jobs it creates for the time the mine will be operating are far less important the the jobs the tourism industry creates. Sincerely, Mr John Sayres 23783 Clarissa Haven Dr Henning, MN 56551-9438

Alphabetical by sender's first name

John Schmitt 46242

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Dr John Schmitt 5101 Park Ave Minneapolis, MN 55417-1745

John Seymour-Anderson 16771

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, John Seymour-Anderson 3925 Pleasant Avenue South #5 Minneapolis, MN 55409

Alphabetical by sender's first name

John Seymour-Anderson 47637

Dear MInnnesota DNR, Among the concerns I have about the proposed sulfide mining operation are the following: • How will the costs of site management and pollution remediation be handled when the proposal shows no concrete and lasting plan for Financial Assurance. Particularly, what happens if Polymet goes out of business before the 200-500 years of water filtration and other pollution control measures have been fulfilled. • How can an estimated millions of gallons of untreated polluted water per year, if not fully captured and held in ponds and piping, be considered safe. • What calculations have been made for air pollution from the extraction of mineral-laden rock. The particulates created and borne into the air have the potential to affect workers and neighboring communities. • What provisions have been made to fully control the effects of seepage into local aquifers of groundwater, rain and snowmelt when mixed with particulates, sulfide and heavy metals exposed at the mining site during extraction. I hope you give all the concerns expressed by Minnesota citizens full consideration when weighing the merits of the plan at hand. John Seymour-Anderson 3925 Pleasant Avenue south #5 Minneapolis, MN 55409

50122

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, John Seymour-Anderson 3925 Pleasant Avenue South #5 Minneapolis, MN 55409

Alphabetical by sender's first name

John Sippola 19029

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: Let me be blunt.I will never authorize any group to do something that could permanently compromise the largest and best fresh water system in the world. We need time to review these documents. 90 days is not enough. So, I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Rev. John Sippola - Duluth, Minnesota John Sippola 1715 E 2nd st Duluth, MN 55812 218-724-3203

John Skolte 32638

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Why are we trying to protect our forests if projects like this are allowed. For every acre of open pit mine an acre of forest will be lost forever. The potential economic boost from mining jobs is touted. Ask the people who make their living in the mines in the Sudbury region of Ontario, Canada and take their vacations in the Thunder Bay area of Ontario what they think about the environmental impact of mining. I have spoken, many years ago, with one of these miners, while vacationing in Thunder Bay. He painted a very grim picture of what his occupation did to the surrounding lakes, which was why he vacationed in Thunder Bay, far from his home. As a teenager I went to the Boundary Waters three years in a row, and I also took my wife and children there three times during the early years of my marriage. While it has been many years since I was able to go there, and I doubt that I shall ever be able to return again at my age, I consider it extremely important that this area exist in its present pristine state, and be protected, for the benefit of everyone. Sincerely, John Skolte 266 Woodland Dr Owatonna, MN 55060-3152

Alphabetical by sender's first name

John Soghigian 39628

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

john sorensen 41022

Lisa Fay EIS project manager Minnesota DNR Polymet has never operated a mine before and is backed by Glencore Xstara which has a history of Environmental breaches resulting in fines. My information sources tell me that there is no known copper nickel mines in similar environments that have operated without pollution. This type of mining has never been attempted in Minnesota. Mining companies often declare bankruptcy leaving tax payers to cover costs of Environmental Disasters and only 350 jobs are expected after construction. This is too high a risk for such a small rewaRd Please stop and take another look at alternatives, ie underground mines. Thank you for your consideration. John Carl Sorensen 12200 Roosevelt Rd S.E. Bemidji Mn. 56601 cc: Gov. Dayton Rep. John Persell

Alphabetical by sender's first name

John Strand 21279

Feb 24, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I find it difficult to find the words to express how opposed I am to this proposal. Allow me a rhetorical question: In what vision of economy does a proposal like this even begin to be considered. Answer: in an economy where the profit motive overrides all other concerns, such as health (of people, animals, plants, and the larger ecosystem). I keep this short in the (possibly vain) hope that it might actually be read. I say "no," resoundingly to sulfide mining in Minnesota. Minnesota says "no." We will not be another Kentucky or West Virginia to the mining industry. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr John Strand 2112 29th Ave S Minneapolis, MN 55406-1118 (612) 824-1140

50996

Feb 24, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I find it difficult to find the words to express how opposed I am to this proposal. Allow me a rhetorical question: In what vision of economy does a proposal like this even begin to be considered. Answer: in an economy where the profit motive overrides all other concerns, such as health (of people, animals, plants, and the larger ecosystem). I keep this short in the (possibly vain) hope that it might actually be read. I say "no," resoundingly to sulfide mining in Minnesota. Minnesota says "no." We will not be another Kentucky or West Virginia to the mining industry. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr John Strand 2112 29th Ave S Minneapolis, MN 55406-1118 (612) 824-1140

John Strange 58154

I have travelled and camped in the Boundary Waters Canoe Area wilderness for 30 years. I have been there countless times. As a father, a teacher and a lifelong Minnesotan I cannot express my dismay and my opposition to Polymet’s plans in terms strong enough. Allow me to make a few points.1. Every time, to my knowledge, this kind of mining has been done there has been pollution. That fact combined with the location in such close proximity to the finest lake country wilderness in the world is unacceptable.2. I interned on an organic farm 60 miles by road from the proposed mine (and much closer as the crow flies) near Finland, MN. My friends who own the farm grow vegetables and fruits for over 50 families, and they are one of the only vegetable farms on the north shore. I don’t want their water polluted.3. Despite any assurances to the contrary, we know that this company will not be around to deal with the aftermath of their profiteering. Who will pay?For these reasons and so many more I oppose this proposal in the strongest terms.

John Sundstrom 57251

As sulfide mining has yet to be demonstrated that it can be done in an environmentally safe manner – Minnesota should wait until Polymet or other mining companies prove that they can do so by a mine in a less sensitive area. The metals will be there in a decade or two and technology to mine them can be tested. (somewhere else)John Sundstrom1314 East 8th StreetDuluth, MN 55805

Alphabetical by sender's first name

John Sweeney 18122

Greetings everyone. My name is John Sweeney. I'm a Minnesotan, Hoyt Lakes native. I grew up here. I see a lot of members in this gym from growing up here. I am now a small-business owner in Hoyt Lakes. And I actually left the area due to the impending closure of the mining around here and the issues that were going on. I would like to see PolyMet come in and give our youth and our natives here an opportunity to choose to leave if they want to, to go out and find an education, employment in other areas, experience the world but not have to leave. Without PolyMet and other companies like PolyMet we understand that there will be no choice. And as a small-business owner in Hoyt Lakes we can see that if we don't get the industries back into town, in the area, that a lot of us small-business owners will in fact go under. So we are looking forward to having PolyMet come in. And we are looking forward to the checks and balances that are going to be provided to ensure that we do have healthy, clean water; a healthy environment. These chemicals being referred to are not actually leaching into the environment and destroying the environment as many people are claiming. That's about all I have to say. And thank you guys for coming out and giving us an opportunity to express ourself. And I look forward to seeing guys in the future. Thank you.

john syverud 42068

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine, or at the very least, develop and enforce a truly comprehensive set of regulations (along with an escrow) which will ensure when (not if) environmental damage occurs as a result of the mining, it is remediated on PolyMet's dime. I believe this project presents unacceptable environmental risks and should not be allowed, but I am also realistic to understand that money talks and the pressure it is bringing to bear on the question is likely to win the day. This is why I urge you to make sure when damage is done, it is fully PolyMet's revenue which will pay for complete remediatio of that damage. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr john syverud 614 McKinley Pl NE Minneapolis, MN 55413-2610

john szarke 36837

I am strongly against permitting Polymet for the following reasons: 1- Health concerns raised by doctors concerning the effect of sulfate mining (Duluth News 2/28/14) 2- Environmental harm and unknown potential harm too great a risk. 3- Polymet ownership currently 28% is owned by Glencore Xstrada. Oftened referred to as being too large of a conglomerate to legislate. Glencore is large enough to own far more than 28% of Polymet and has a very poor environmental track record in 50 countries. 4- Risk of costly litagation because of health effects and environment concerns effecting water and accidents - 5- Not enough funds put in a Trust to offset the likely litigation that could run into trillions and trillions of dollars. 6- Future mining ownership and their responsibility to inherit fines, clean up and paying for the physical and environmental harm caused by Polymet 7- The proposal does not include the impact to the environment and health of people, fish, wild rice, etc that in addition to the Polymet site there are about 20 other sites on the "drawing board". John Szarke 5115 Wyoming Street Duluth, MN 55804 HYPERLINK "mailto:johnszarke@hotmail-com"johnszarke@hotmail-com

Alphabetical by sender's first name

John Thoennes 40050

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

John Tonsager 9552

I am totally against allowing any sulfide rock mining in Minnesota. The ore will be there and the lure of making money will likewise be locked into the rock for any future mining. The risk of permanent damage to voiceless flora and fauna without even considering the harm to humans and tourism is beyond the ability of industry or government to mitigate. If and when the process is developed to deal with the runoff and contaminants it will be worth rethinking but at the present time I say stop the process and deny the permit. Sincerely John Tonsager 4364 167 Ave NE Ham Lake MN 55304

John Tourville 58159

As we consider this EIS please keep in mind some of the multiple use issues northern MN has faced over the last 50 years. When there is more mercury in the rain water than coming out of a WWT? In northern MN we need to globally address these issues. Go forward with Polymet and sustain employers and employment in Minnesota.

Alphabetical by sender's first name

John Velie 39338

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. 300 jobs is not worth the potential for long term damage to the fragile ecosystem in the Arrowhead region. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, John Velie 4920 Bryant Ave S Minneapolis, MN 55419-5361 (612) 789-4939

48680

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. 300 jobs is not worth the potential for long term damage to the fragile ecosystem in the Arrowhead region. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, John Velie 4920 Bryant Ave S Minneapolis, MN 55419-5361 (612) 789-4939

John W. Vennewitz 43332

Dear Sirs, I concerned that PolyMet's mine plan lacks a comprehensive consideration of chemical contamination of fish and its impact of wetlands also the contamination of drinking water. The health of current and future resident's ride on getting this analysis done completely and competently. Thank you for the opportunity to comment. Regards, John W. Vennewitz 6740 Duck Lake Road Eden Prairie, MN 55346

John walker 42430

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr John walker 4975 Andrews Pl Pleasant Hill, IA 50327-7011 (515) 210-6809

john wendt 43836

My address is 1111 105th Street West Inver Grove Heights, MN 55077 HYPERLINK "mailto:jtwendt@gmail-com"jtwendt@gmail-com On Thu, Mar 13, 2014 at 1:10 PM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd - John T. Wendt

43847

We understand the need for jobs, but the potential downsides of an environmental disaster are just too great. We were assured by BP that everything was safe. We were assured by Exxon that everything was safe. Both those were disasters that are still with us today. The risks are just too great.. We are losing natural habitats daily. We have to put a stop to it.. Take pride in Minnesota and what we have and are. Protect Minnesota - John T. Wendt

Alphabetical by sender's first name

John Wensman 46274

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. Not only is the science bad, but the provisions for long term clean up are financially inadequate as well. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, John Wensman 15740 Upper 34th St S Afton, MN 55001

Alphabetical by sender's first name

John Wensman 46275

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. Not only is the science bad, but the provisions for long term clean up are financially inadequate as well. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, John Wensman 15740 Upper 34th St S Afton, MN 55001

Alphabetical by sender's first name

John Wensman 46276

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. Not only is the science bad, but the provisions for long term clean up are financially inadequate as well. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, John Wensman 15740 Upper 34th St S Afton, MN 55001

Alphabetical by sender's first name

John Wexler 16248

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

John Wheeler 11440

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Dr John Wheeler 651 Huntington Ct S Saint Paul, MN 55119-6765 (651) 735-1805

Alphabetical by sender's first name

John Wheeler 58171

Discovery is always the rape of the natural world…always!Science is now our modern day belief system. And, like the medieval system before it, science is starting not to fit into the world anymore. Science has attained so much power that its practical limits begin to be apparent. Largely through science, billions of us live in one small world. But science cannot help us decide what to do with that world, or now to live. Science can make a nuclear reactor, but it cannot tell us not to build it. Science can make pesticide, but cannot tell us not to use it. (Science can make a copper-nickel mine, but cannot tell us not to dig it) And our world starts to seem polluted in fundamental ways….air and water, and land…because of ungovernable science. Scientists used to believe that prediction was just a function of keeping track of things. If you knew enough you could predict anything. That's been cherished scientific belief since the time of Newton…until chaos theory came long and threw it right out the window.(These words are taken directly from a character in the novel "Jurassic Park;" They accurately reflect my suspicions regarding the viability of the Northmet proposal)The EIS conclusions are based on predictions, on calculations with upwards of 90% confidence. Pretty good odds were not the stakes so high. What we stand to lose can never be regained. For ourselves and for future generations, we must beware that our actions may well have unintended, unpredictable, and potentially disastrous and irreparable consequences.(These words are mine. In my view, the proposal smacks of "ready-Fire_Air"! Can we be completely sure of the project's plan detail? Think Jurassic Park.)

John Wild 36421

I think it is an exceedingly bad idea to place permanent toxic waste dumps in a sensitive area. The creation of a few temporary jobs does not justify doing so. While the area is already been mined and industrialized, there is no guarantee that toxic runoff will not affect other areas that are not now polluted. Iron mining, unlike sulfide mining, does not pose big a threat to surrounding areas. Nice neat environmental reports and all the regulations in the world mean little when in actuality you know things can and will go wrong. Technology simply cannot be relied upon to solve all of the probleMs To sacrifice a part of our state for the benefit of international mining interests is crazy. This is a Pandora's Box we do not need to open. There is no compelling reason, other than political nonsense, to allow sulfide mining in Minnesota. John O. Wild 1123 15th AVE SE Minneapolis, MN 55414-

Johnathan Eisenberg 18138

My name is John Eisenberg. And I'm speaking on behalf of myself, my wife, and our two children. We have made extensive use of the north woods, which we love, including the resources in that area, including the Boundary Waters, the Lake Vermilion area, the area around Grand Marias, the Gunflint Trail, and other areas, state parks, natural forests, and so forth in that area. In fact, we took our honeymoon in Mike, Minnesota, which is -- it's way the heck down the Echo Trail. We bring business to Northern Minnesota. We bring paying business and we bring sustainable business to Northern Minnesota. So I just want to make that point. We're a bit appalled that the Draft Environmental Impact Statement on this project got an F from the Environmental Protection Agency. I don't keep score of these kinds of things, but I don't think that happens very often. Now we have a Supplemental Draft Environmental Impact Statement only to find out that the water quality model is inherently flawed. It's going to have to be redone again. So the water quality model was a base for a lot of the other aspects of the Draft Environmental Impact Statement. If that has to be redone, then a lot of other (inaudible) has to be redone. So we say: Send it back and get it right. And don't advance this project until all of those flaws have been fixed and we have an environmental impact statement that actually accurately assesses the impact of this project. We're looking here at the potential for 500 years of water quality treatment, which in my mind, and I think in the mind of the law, is essentially permanent pollution to Minnesota that would require to be treated permanently. That's not lawful in Minnesota. It shouldn't be allowed. And you shouldn't advance the project unless there is some way that that can be done without that happening. As far as we know, there is no way that that can be done. If that can be done, we would like to see it in the Draft Environmental Impact Statement. We don't see it yet with a realistic water quality model. But we're not aware that that's been done anywhere on the planet. So we don't think it can necessarily be done in the state of Minnesota. Again, if there is a way to do it, bring it on. Let's see it. But let's get it right. Let's do it accurately, scientifically, truthfully so that we can assess it to determine the impacts and get this right. But let's not approve a project that has essentially permanent pollution impacts in the beautiful area of Northern Minnesota that we all love. Thank you.

Alphabetical by sender's first name

Johnna Hyde 19003

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I live in the heart of the experimental drilling area and the new SDEIS is important to me, but to date I have only made it through about 150 pages. I support the Water Legacy request as follows. Please give us more time.. I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Johnna Hyde PO BOX 188 10538 Bandana Lake Rd, Isabella (No Mail) Ely, MN 55731 218 365-3375

54732

See attachment

Johnnie Forrest 18072

I'm Johnnie Forrest and I support the PolyMet project, because according to the water legacy thing, the propaganda in 2009 they said that 84 percent of all mines were done environmentally unsafe. So that means 16 percent can be done environmentally safe. And we're Minnesota, we can make them do it right. And I'm looking for jobs for the future for my daughter. Okay.

Johnny Jones Jr 39794

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Johnny Jones Jr 3523 24th Ave S Minneapolis, MN 55406-2529

Alphabetical by sender's first name

Johnny Jones Jr 40670

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Johnny Jones Jr 3523 24th Ave S Minneapolis, MN 55406-2529

John-Paul Young 43265

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, John-Paul Young 51 Cheever place Brooklyn, NY 11231

Jolane Sundstrom 57273

From the bit of research I've done and talking to others in "the know" this company that plans to do copper-nickel mining in MN has a poor reputation for cleaning up sites where they have done mining before I.E. Sudbury Canada (a total moon scape). In conferring with an environmentalist in Finland (Europe) I was told copper nickel mining uses large volumes of H2O and brings up toxic waste from in the earth. She claims if sales of copper go down and the plant has to shut down temporarily the toxic runoff can continue to pollute the waterway – ground water, streams and lakes. Also, she said it smells terrible – she visits sites around Russia where this type of mining has been a disaster to the environment. She is a top environmentalist for the government. I feel we just have too great a risk here being the beginning of the clean water source for the nation and the quality of life we have come to enjoy here in MN. Much more research is needed it will be too late.Jolane Sundstrom1314 East 8th StreetDuluth, MN 55805

Alphabetical by sender's first name

Jon 45619

Dear Lisa Fay and Members of the MDNR Division of Ecological and Water Resources Environmental Review Unit, I am writing to voice my strong opposition to the proposed PolyMet, NorthMet Project open pit copper, nickel, cobalt and metals mine in Northern Minnesota. Despoiling our priceless ground and surface water, destroying wetlands and other wildlife habitat, and ruining natural beauty in return for mere metals is almost more than I can comprehend. Our most valuable natural resources, including clean air, clean water, wildlife, and unspoiled habitat are being sacrificed and squandered at an alarming rate. They are being squeezed by increasing populations and demand from extractive industries, industries which have a long history of exploiting people and the environment, making themselves and their investors wealthy, then moving on and leaving residents and taxpayers across the country to clean up and pay for their messes. I am originally from Missoula, Montana,and I have seen first-hand the destructiveness of open-pit copper mining. The Milltown Dam (Bonner and Milltown Montana are just outside of Missoula), was over 100 miles from an open-pit copper mine in Butte and a smelting operation in Anaconda, but the pollution from those operations caused dangerous levels of arsenic to appear in drinking water wells around the communities of Bonner and Milltown. Water from the Clark Fork River had also deposited MILLIONS OF TONS of toxic waste behind the Milltown dam that required expensive (Superfund) removal and extensive remediation efforts to clean up. The clean-up was largely paid for by taxpayers. Please see: http://en.wikipedia-org/wiki/Berkeley_Pit http://en.wikipedia-org/wiki/Milltown_Reservoir_Superfund_Site I hope that one day the DNR will become a protector of our natural world instead of a facilitator for its destruction. Sincerely, Jon Read Jon Read 1603 Berkeley Ave Saint Paul, MN 55105 (651) 698-9349 mnjonread@msn-com

Jon and Kia Blumenthal 21375

I am writing to oppose the Polymet mine in Northern Minnesota. I wish there was an environmentally responsible and assured way to provide jobs to the region, but the risks to water-which may wind up being the more precious resource in the earth in the future-outweigh the potential short-term economic benefit. Until a virtually guaranteed method arises to protect water, this proven-damaging mining method is not appropriate given its proximity to vital water resources, such as the Boundary Waters and Lake Superior. The unique water resources in the proximity of the mine are worth protecting for the coming centuries. Once the mine proposal is defeated, I hope effort will be directed to developing the economic vitality of the region, which deserves access to employment opportunities. Thank you. Sincerely, Jon Blumenthal 5941 Grimes Ave S. Minneapolis, MN 55424

Jon Erickson 54675

See attachment

Alphabetical by sender's first name

Jon Erie 16144

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Jon Grinnell 16242

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Jon Hayenga 17210

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jon Hayenga 421 2nd St NW Stewartville, MN 55976

50476

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Jon Hayenga 421 2nd St NW Stewartville, MN 55976

Alphabetical by sender's first name

Jon Jensen 39877

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Jon Jensen 9586 Polaris Ln N Maple Grove, MN 55369-4414 (763) 420-9814

Jon Lee 47561

Hello. I oppose the mine. This area is too good to destroy for short-term economic gain. Leave it alone for future generations to enjoy. Jon Lee 4604 W. 39th Street St Louis Park, MN 55416

Jon Lord 40834

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Jon Marcaccini 47179

In this day and age we all know that it is possible to mine without ruining the environment around the mine. This country needs its own precious metals If we ceded to those who say do not mine think where we would be today . I would be writing this in either Japanese of German because we would not have won WWII. This will be a showplace mine for the world, with hundreds of jobs just for protecting the environment. Jon Marcaccini Rph. President NPI 1194767798 Jon's Drug Inc. 318 Grant Avenue Eveleth, Minnesota 55734-0120 Phone: (218) 744-2774 * Fax: (218) 744-5878 Website: http://www.jonsdrug-com Home 4439 Lakeside Drive Eveleth, MN 55734

Jon Martin 7614

Hello, I just had a question about the schedule of the Polymet discussion in St Paul on January 28th. Your schedule say that from 6:45 - 10:00 HYPERLINK "http://p.m.is"p.m.is the formal presentation and public comment period. I was wondering how much time is allotted for the formal presentation and how much is allotted for the public comment period. Thank you. Regards Jonathan Martin 4125 Dupont ave s Minneapolis, MN 55409 - Jon Martin Matt Freeman for House (C) 612-212-8211 (H) 612-824-6336 HYPERLINK "mailto:jmart1671@gmail-com"jmart1671@gmail-com

Jon Read 44886

Message From: Jon Read Email: mnjonread@msn-com Response requested: No Message: I am writing to voice my strong opposition to the proposed PolyMet, NorthMet Project open pit copper, nickel, cobalt and metals mine in Northern Minnesota. Despoiling our priceless ground and surface water, destroying wetlands and other wildlife habitat, and ruining natural beauty in return for mere metals is almost more than I can comprehend. Our most valuable natural resources, including clean air, clean water, wildlife, and unspoiled habitat are being sacrificed and squandered at an alarming rate. They are being squeezed by increasing populations and demand from extractive industries, industries which have a long history of exploiting people and the environment, making themselves and their investors wealthy, then moving on and leaving residents and taxpayers across the country to clean up and pay for their messes. I am originally from Missoula, Montana,and I have seen first-hand the destructiveness of open-pit copper mining. The Milltown Dam (Bonner and Milltown Montana are just outside of Missoula), was over 100 miles from an open-pit copper mine in Butte and a smelting operation in Anaconda, but the pollution from those operations caused dangerous levels of arsenic to appear in drinking water wells around the communities of Bonner and Milltown. Water from the Clark Fork River had also deposited MILLIONS OF TONS of toxic waste behind the Milltown dam that required expensive (Superfund) removal and extensive remediation efforts to clean up. The clean-up was largely paid for by taxpayers. Please see: http://en.wikipedia-org/wiki/Berkeley_Pit http://en.wikipedia-org/wiki/Milltown_Reservoir_Superfund_Site Sincerely, Jon Read 1603 Berkeley Ave Saint Paul, MN 55105 Classification: UNCLASSIFIED Caveats: NONE

Jon Shern 43693

1- I would like to see a job breakdown for the PolyMet mine to understand what jobs will be in state vs. out of state, and what pay range each job would hAve 2- I would like to see more thorough evaluation of the Sulfuric Acid Polution. What is value of our water resource vs. benefits of the PolyMet mine. a. Example: What if you sold that amount of unpolluted water to drought stricken California. What would come out ahead. 3- The computer model seems to make various assumptions around current conditions. 4- What happens when failure occurs. a. Is there a plan Thanks Jon Shern Software Development Lead – Max Team Cargill Animal Nutrition Office: (952)984-5690 HYPERLINK "mailto:jon_shern@cargill-com"jon_shern@cargill-com

Alphabetical by sender's first name

Jon Stanley 41871

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Jon Stanley Minneapolis, Minnesota

Jonas Dubin 41843

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Jonas Dubin Minneapolis, Minnesota

Jonathan Fribley 43309

I write to ask your consideration of the my concerns with regard to the Polymet mine proposal. Length of Hazard There is simply no precedent for maintenance of toxins for any time span remotely close to the one proposed here - 200-500 years. To make projections that far out can simply not be justified scientifically without enormous error bars. To give one example, you have a difficult time even justifying the proposition that the state of Minnesota will exist in 500 years - what percentage of political bodies are still functioning continually since the year 1514, 500 years ago. What is your contingency for the dissolution of the state of Minnesota. Apply the same awareness of the limits of our knowledge to unknowns about climate, about economics, about social stability, let alone the performance of the retaining membrane, and it seems reasonable that whatever your calculations arrive at as possible risks and costs should be increased by many multiples - truly unknown many multiples. In short, there is simply far too little knowledge to make an informed decision about the risks and costs for the time span that this mine would remain a danger. Consequences of Failure Any time one considers a proposal, one must always ask "what if I am wrong." Despite the best efforts of the DNR, it is entirely possible that time will reveal errors in thinking. This is all the more likely because of the timespan involved. In this instance, the consequence of failure is pollution of the Lake Superior watershed - too high a price for such little gain for anybody except a few Polymet stockholders. Precedent and Context As you are undoubtedly aware, this proposal is almost certainly to be the first of many more, should it be approved. Because of that, it cannot be accurately considered in isolation. The consequences of approval include enabling mining across northern Minnesota, including into the BWCA drainage. The EIS should properly consider the environmental costs of that larger condition of mining across the north of Minnesota. Because of these and numerous other reasons why this mine represents a negative trade-off for this state and its future, an irresponsible mortgaging of the future for a small payoff to the many citizens of the state. I urgently ask you to deny this permit. Jonathan E Fribley 423 16th Ave N St Cloud, MN 56303

Alphabetical by sender's first name

Jonathan Green 39056

---Original Message--- From: jongreen@ameritech-net [mailto:jongreen@ameritech-net] Sent: Tuesday, March 11, 2014 12:03 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Jonathan Green 2310 Rose Ln Ely, MN 55731-2216

Alphabetical by sender's first name

Jonathan Green 39285

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Jonathan Homans 47294

Dear Ms Fay, Mr Westlake: This comment letter is submitted on behalf of the undersigned doctors, nurses and other health professionals. We are concerned that the proposed PolyMet NorthMet copper-nickel mine project could have significant adverse impacts on human health as a result of pollutants released to air, surface water and drinking water. We also believe that the PolyMet NorthMet Supplemental Draft Environmental Impact Statement ("PolyMet SDEIS") fails to adequately assess important risks to human health from the pollutants that would be released from this project. The absence of any professionals from the Minnesota Department of Health from the List of Preparers of the PolyMet SDEIS is particularly troubling. We would respectfully request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks of the proposal. We would further request that, in revising the PolyMet SDEIS, a comprehensive Health Impact Assessment (HIA) be prepared under the guidance of the Minnesota Department of Health. In this letter, we summarize some issues and concerns leading to these requests. Mercury contamination of fish and impacts on neurotoxicity in the developing fetus as well as in infants, children and adults is a significant public health concern in Minnesota. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. The percentage of infants thus at risk for neurologic impairment was higher than in the Lake Superior Region of Wisconsin or Michigan. We are aware that many of the bodies of water downstream of the proposed PolyMet mine and plant are legally impaired due to mercury in fish tissue. The lower reaches of the St Louis River, where the estuary for Lake Superior fish is located, contains a particularly high level of mercury. We also know that other mine facilities release both mercury and the sulfates that increase bioaccumulation of methylmercury. Reviewing the PolyMet SDEIS, we believe that the information on mercury releases and the potential for mercury bioaccumulation is insufficient. The SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of pollutants or of hydrologic changes on mercury bioaccumulation. The SDEIS does not provide evidence to justify its claims about collection and containment of mercury and sulfates. The PolyMet SDEIS also provides an insufficient analysis of the human health risks of other pollutants, such as neurologic morbidity resulting from manganese and lead release; and carcinogenic effects of air emissions of diesel, asbestos-like fibers, nickel and other particulates, and of arsenic releases to water. The PolyMet SDEIS fails to analyze health risks to workers who would work on-site at the PolyMet mine or plant and fails to assess impacts of tailings groundwater seepage on nearby residential. The PolyMet SDEIS does not discuss impacts of exposures to vulnerable populations, such as infants, children, the elderly and persons who rely for subsistence on fish, wild rice or game species where pollutants may bioaccumulate. For these reasons, we would first request that the PolyMet SDEIS be revised to provide more complete information on mercury and sulfate emissions, deposition, and seepage from various sources, and the potential conversion to and bioaccumulation of methylmercury resulting from releases to the environment and hydrological changes from the proposed PolyMet project. We would further request that the PolyMet SDEIS be determined inadequate pending supplementation to include a Health Impact Assessment, under the direction of the Minnesota Health Department. This Health Impact Assessment should include at least the following: 1- Description of the known human health impacts of all pol

Jonathan Lindfors 57221

I'm concerned about long term water pollution at the site and how its mitigation will be funded. How can we guarantee the costs will be paid for by the corporate interests that have profited by the ore extraction – for over 200 years. Also, what will be the long term impact of polluted water runoff that is not captured by the mitigation process.Thank you.Jonathan Lindfors3320 Hill LaneDeephaven, MN 55391

Alphabetical by sender's first name

Jone See 16137

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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Jonelle Ringnalda 16214

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Jordan Johnson 43385

To whom it may concern- You probably are have an inbox full of emails concerning the plan for mining by/in the BWCA. These emails are probably lengthy and full of very strong opinions. The BWCA has and always will, hold a special place in my heart. It is a place that cannot be described but is a place one can only experience. This place taught me what I wanted to do with my life, Ecology, as well as showed me who I was as a person. I understand the need for more jobs in the Arrowhead region, but something unsustainable and not permanent should not be put over something that will forever be here if we continue to manage and sustain its virginity. Jobs are temporary, land is forever. Please do not allow mining in the BWCA region. Sincerely, Jordan Johnson 320 469 0960

Jordan Leslie 11342

HYPERLINK "https://docs.google-com/a/flaschools-org/document/d/1zr3ZlR281G3elSRz3FRoK0v-hDWy9rzK6JZpW4J8lfA/edit.usp=drive_web" Copper Mining

Alphabetical by sender's first name

Jordan Wente 18189

Hi. I'm Emma Zapchenk. I'm a student at the University of Minnesota-Morris, and I'm going to give my time to Jordan Wente. Hello. My name is Jordan Wente, J-O-R-D-A-N, W-E-N-T-E. Now, I go to school at Morris. I'm a student, much like Natalie -- we actually go to the same school -- and I'm thinking about our future. Now, I don't have a career. Like, I'm a student, I'm going into this new world -- I'll be graduating next year -- into this new economy looking for work, and I'm really glad that the tradesmen are here and the unions are here. I think that's great, and I think this is really great we're talking together and I'm really, really thankful to our agencies for putting this on. But PolyMet is a foreign company. This is not a Minnesota company, and as an economic student and a statistics student, I tend to follow the numbers, and I follow the money, and it is not in the economic self-interest to reinvest this money into our local economy; it is not in their economic self-interest to model accurately; and it's not in their economic self-interest to clean up this mess for 500 years. This project is expected to last 20 years. I'm 20 years old. That's my life-span. I was born in 1993. You might look at me and think, "Oh, this guy is talking -- he's naive, he's young he's this college kid," or whatever, but that's not very long. That is not a time that you could have a job and raise a family with, and I'd like to stay in Minnesota. I'd like to live here. I caught a 26-inch northern in the Boundary Waters last summer. Now, this is my home, and this is our home and we need to protect it, and I just cannot -- I cannot believe that this project -- this project will end well. So I guess I'd urge you all to keep pressuring these agencies, to keep pressuring -- keep talking to your neighbors, talking to people who don't agree with you. I would love to go have a couple beers with you guys, like the guys who work over there, but I got to wait for three months. We all want what's best for our state. We want jobs, we want a healthy environment, and I think we can find compromise. Sometimes there are things that just don't make very much sense, and I think this project is one of them. Thank you.

jose melo 41610

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, jose melo bloomington, Minnesota

Joseph Afrhein 18187

My name is Joe. It is an emotional night here. It's really good. Well, I think I wanted to say is, as Minnesotans, I mean, we are better than this. You know, I used to be a union member myself for 20 years, and it's kind of insulting to have these union people here. It's the blind leading the blind, and that's from my heart. But as far as the jobs that people have been talking about that are being sent overseas, well, you could -- why don't you work on ending the tax benefits for the jobs that are in -- the manufacturing instead of worrying about a couple of hundred jobs. That's really nothing on the large scope. Now, I wanted to say, too, that -- oh, yeah, the NorthMet Mining Project, they said they're going to recreate wetlands and they're going to do all these things, but of course, they don't know what the impact will be until they start. Now, that's a lie. I mean, they know what the impact will be. They're just not telling you because they want approval, and then we'll be over our head in problems. Now, there's a survey of the top 10 most cleanest cities in the world, not the United States, the world, and Minneapolis was in the top 10 for clean cities. So what do we think about the tourism, the people coming here to go to a cleaner environment as opposed to an environment we're going to pollute? And I don't think it's fair for these people making these decisions. This is Minnesota's -- the people of Minnesota's land. It's not necessarily these people that are making decisions for us -- against us. And I also want to say I think Governor Mark Dayton's a wonderful governor. We should be really proud of him. We need to carefully -- I want to say, listen, if we can pass gay marriage, we can vote against this.

Alphabetical by sender's first name

Joseph Bauer 40763

Joe Bauer 11010 Pawnee Ave N. Stillwater, MN 55082 612-817-5487 After review of the information on the Poly-met proposed project/mine I support denying a permit to the company and all involved. I am a stock holder in ALLETE and feel the economic benefit is not sufficient to take the risk to our Minnesota environment. The technology proposed is not sufficiently proven for the proposed project. For these reasons please deny the PolyMet Mining Inc Project permit. Thank you, Joe Bauer

Joseph Buglione 16191

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Joseph Cook 39324

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Please remember the literature, foresight, leadership and conservationism of Minnesotans like Oberholtzer and Olson. The work that they and so many countless other organizations and individuals accomplished to preserve the little that this great land has remaining would be for naught should this be allowed to transpire. What side will you be on in regards to legacy for our children and our childrens' children. I know that probably sounds cliche, but it is very true. If those individuals like yourselves do not incorporate sound scientific data and research along with the valuation of listening to the voice of the people-all people who work in and around and enjoy in their free time the Boundary Waters Area-our country is in for a world of hurt, the price of which will be paid ten-fold by future generations. As an avid canoer of the Boundary Waters and northern Minnesota for the past 30 years, I urge you to listen to the voice of the people, follow the science, and think about those Minnesotans who have gone before and who have left a sustainable legacy for all of us to be proud of and in which to believe. Respectfully Joe F. Cook N8962 Hwy 162 Mindoro, WI 54644 Sincerely, Mr Joseph Cook N8962 Hwy 162 Mindoro, WI 54644 (608) 487-3808

Joseph Dahmen 18251

My name is Joseph Dahmen. D-A-H-M-E-N. I live in Aurora, Minnesota. I have property on Partridge River. I work on the Partridge River. I've lived on the Range. I was born on the Range. I hunt, I fish. Am I environmentalist? Yes, I'm an environmentalist. Do I work for a place? We make power on the river, you know, a power company. I am able to kayak home from work sometimes, I'm able to ride my bike to work sometimes living up there. For these people that complain about the pollution, if I live there and play there and work there, I'm sure not going to close my eyes to a company that would pollute. With that, some of the people that come there to visit and they see one little area and say it's beautiful, there's more than one little area that's beautiful. It's more than just the Boundary Waters. It's more than -- I kayak. I probably go down the river 40, 50 times a year, and I maybe see one other person. All these people complaining about mining and that, how come I don't see them on the river kayaking with me? How come they're not there enjoying how beautiful it is that it's a river that flows from the area of the mining. So I've been lucky enough to be able to live, work and enjoy that area. My parents retired from mining. They both -- my father and mother were able to work out there, made a good living, put us through school. I was able to put my three kids through college, through school. One out of the three is able to live up north, a police officer in town, and it would be nice if all three would have good-paying jobs to live up there, but it doesn't work that way. They enjoy to come to visit. They all three hunt with me, up on the Range, right next to the river, but there's more than one area that's beautiful on the Range than just Boundary Waters, and that's where I'm saying we're all watching the PolyMets there. We're not going to just stand by and let them pollute things. We're watching things. Everybody's watching. That's it.

Alphabetical by sender's first name

Joseph Foss 39059

---Original Message--- From: josephrfoss@gmail-com [mailto:josephrfoss@gmail-com] Sent: Tuesday, March 11, 2014 10:32 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Joseph Foss 359 66th Ave NE Minneapolis, MN 55432-4402

Joseph Hann 54557

As a native Minnesotan I am very concerned that our natural resources in Northern Minnesota. Polymet’s plan for mining sulfide-bearing ore will be detrimental. 500 years is NOT possible to treat. You must extend the SDEIS to 180 days. You must take measures to delay this ridiculous attempt at mining.

Alphabetical by sender's first name

Joseph Merz 18897

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Joseph Merz 111 W. Lincoln Ave, #305 #305 Fergus Falls, MN 56537 2189983145

Alphabetical by sender's first name

Joseph Mitchell 46955

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I have been coming into the Boundary Waters Canoe Area Wilderness for 20 years, bringing 1, 2, or 3 groups of youth and adults each year into an area that is as close to true wilderness as is accessible in the United States, particularly for canoeing. When we've spotted soap suds on a shore, or campers got careless and dumped something into the lake, it has been a teaching moment about pollution and care of wilderness. I've asked them to dip a cup into the 'sudsy' water and consider drinking it. I remind them of the over 200,000 campers going through the BWCAW each summer. If a mining company, who has a HUGE vested interest in the facts and assumptions used in compiling an SDEIS, and making decisions on a mining operation upstream from the BWCAW is permitted to be even more careless, or intentionally negligent in its supposedly honest SDEIS statement, I will understand that the EPA, USFS, MNDNR, and the Corp didn't protect the Boundary Waters from profaning this wilderness. This Federally protected wilderness area will no longer be the wilderness area that I, and over 200,000 have enjoyed annually, and I for one, will not be back. The economic development of mining in NE Minnesota is GREAT. Yet not even with zoning restrictions is one landowner allowed to adversely effect a neighbor's property. As a Federally protected Wilderness Area, the BWCAW belongs to all the people of the United States as a very special area of particular significance and value, AS A WILDERNESS AREA. It is not the dumping ground for the likely consequences of mining operations that will almost certainly significantly degrade the wilderness. I would welcome mining around the BWCAW, IF they do not harm or alter the wilderness. Let those who have the power of decisions about this, including those with the mining companies draw all their water for drinking, eating and living from downstream of the mining operations, like the mining company is asking canoers to do if the mining is allowed to move forwaRd Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accur

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Joseph Mitchell 46957

Dear Ms Fay, Mr Bruner and Mr Dabney: I have been coming into the Boundary Waters Canoe Area Wilderness for 20 years, bringing 1, 2, or 3 groups of youth and adults each year into an area that is as close to true wilderness as is accessible in the United States, particularly for canoeing. When we've spotted soap suds on a shore, or campers got careless and dumped something into the lake, it has been a teaching moment about pollution and care of wilderness. I've asked them to dip a cup into the 'sudsy' water and consider drinking it. I remind them of the over 200,000 campers going through the BWCAW each summer. If a mining company, who has a HUGE vested interest in the facts and assumptions used in compiling an SDEIS, and making decisions on a mining operation upstream from the BWCAW is permitted to be even more careless, or intentionally negligent in its supposedly honest SDEIS statement, I will understand that the EPA, USFS, MNDNR, and the Corp didn't protect the Boundary Waters from profaning this wilderness. This Federally protected wilderness area will no longer be the wilderness area that I, and over 200,000 have enjoyed annually, and I for one, will not be back. The economic development of mining in NE Minnesota is GREAT. Yet not even with zoning restrictions is one landowner allowed to adversely effect a neighbor's property. As a Federally protected Wilderness Area, the BWCAW belongs to all the people of the United States as a very special area of particular significance and value, AS A WILDERNESS AREA. It is not the dumping ground for the likely consequences of mining operations that will almost certainly significantly degrade the wilderness. I would welcome mining around the BWCAW, IF they do not harm or alter the wilderness. Let those who have the power of decisions about this, including those with the mining companies draw all their water for drinking, eating and living from downstream of the mining operations, like the mining company is asking canoers to do if the mining is allowed to move forwaRd Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete pre

Joseph Oman 42556

See attachment

Joseph Pratte 54201

My name is Joseph Pratte, I am a student at Como Park Senior High in St. Paul. Paul Danyser[SPELLING] an activist from the Friends of the Boundry Waters organization came to talk to us last Friday in our AP Environmental Science class. Of course as you may guess he ridiculed and criticized the building of the mine. Although I see the economic benefits of this mine and the boost it will bring to the local economy. There are no words to describe my utter disgust and disappointment for the proposed construction of this mine. Since I was in seventh grade I have been visiting the boundary waters every summer. As I have gotten older my love for the outdoors has grown as has my admiration for the north shore. I acknowledge that mining is a necessary and vital part of our economy, but at what cost? I cannot go back to the places that I love in twenty years with my children and see the kind of degradation that this mine will create. I know you will make the right decision and decide to not approve this monstrosity.

Alphabetical by sender's first name

Joseph W. Hejny 6078

MN DNR, 01-16-14 The PolyMet Mining environmental review / supplemental EIS and Executive Summary was well thought out and informative. I support the PolyMet Project. I believe PolyMet will operate a modern mine that will meet or exceed all regulations, safe guard the environment and produce quality jobs and long term tax revenue for the State of Minnesota. I have children in Minnesota colleges and have children who have completed studies at Minnesota colleges. It has never seemed fair that my children have to pay more for a Minnesota college education than in near by states. If the state would promote natural resource development such as PolyMet, my kids student loans and my college debt load would be less. The EIS demonstrates long term impact to the lands and waters of Minnesota will be protected. One of my son - in - law's is a UMD graduate chemical engineer who is employed by General Electric. He has looked at the EIS and believes that reverse osmosis is the best method to treat mine discharge water and that there will not be a down stream impact to Minnesota waters. I have a lake cabin on South Twin Lake, a few miles south of Aurora, MN., I do not fear that my lake will be impacted by PolyMet mining. I work in the explosive manufacturing industry and many of our employees live in the communities of Hoyt lakes, Aurora, Lakeland and Biwabik. Everyone of our 30 employees are for non ferrous mine development, none of us fear PolyMet will harm the environment. I am a PolyMet investor and proud my investment will provide quality jobs for future generations of Minnesotans. I am the father of eight children, all of them live in Minnesota. My children and grand children will need jobs, Polymet Mining could very well be my child's employer. Enough already, PolyMet will meet every regulatory concern, provide taxes and provide employment.. Please permit this mine to move ahead with development. Every employee of PolyMet will be watching out for the Minnesota way of life, PolyMet will be watched by its employees 24 / 7- What more could you ask for. What better place than the former LTV property for a new open pit mining operation. The roads, utilities, RR, water, mill, crusher and tailing basins are all ready to be used again. Hundreds of former LTV employees are ready to go to work, the state needs tax dollars and the EIS shows mining, tourism and recreation can co-exiSt It makes perfect sense to move this mine forward, please approve the mining permits to PolyMet Mining. Best regards, Joseph W. Hejny General Manager / Iron Range Dyno Nobel Inc. A business of Incitec Pivot Limited 2795 East Cottonwood Parkway, Suite 500, Salt Lake City, Utah 84121, USA Office: +1 218 865 6341 | Fax: +1 218 865 4439 | Mobile: +1 218 290 3633 mailto:joe.hejny@am.dynonobel-com HYPERLINK "http://www.dynonobel-com/"http://www.dynonobel-com Groundbreaking Performance Through Practical Innovation

Joseph Wenzel 16617

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Joseph Wenzel 33 Larpenteur Ave E Maplewood, MN 55117

Alphabetical by sender's first name

Joseph Wenzel 50011

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Joseph Wenzel 33 Larpenteur Ave E Maplewood, MN 55117

Joseph Wilson 54217

To Who it may concern, I do not think you should build a mine near the boundary waters. They should be preserved people love to go there. If you build that mine then a lot of people are going to be really mad. And if a lot of people it won't be good for you. You will destroy a very wonderful and thriving ecosystem. You will kill alot if not all aquatic life in the area. Think about all the buisnesses you could potentally ruin. All the people you could end up putting out of a job. Or even the homes you would wreck. You may believe the ecosystem will rebuild itself, which is true but take into consideration how long that would take. There are other places you can build the mine – somewhere else. Please take my opinion into high consideration.

Joseph Woods 38880

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Joseph Woods 5511 Waseca Industrial Rd Duluth, MN 55807-2148 (218) 624-4040

Alphabetical by sender's first name

Josh Capistrant 16143

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Josh G 42973

Josh Gregorich 5217 5th Ave N Grand Forks, ND 58203 March 4, 2014 To Whom It May Concern: I would like to start by saying thank you for the cooperative effort by the co-led government agencies and teams that have dedicated their time and effort in creating the Supplemental Draft Environmental Impact Statement (SDEIS). You may ask yourself, why I've decided to write and comment on the SDEIS. I was born and raised on the Mesabi Iron Range, but currently do not live there due to my current job. Most of my family still resides on the Iron Range and I frequently travel back to visit and enjoy the outdoors. Regardless of where I reside, this area will always be home. It is very important for us, the public to be able to voice our opinions and concerns surrounding projects of this magnitude. After spending time reviewing the SDEIS I have some questions, concerns, and comments which are addressed in the following text. In doing so, I've grouped these by category for easier reading and navigation. Process and Methods Associated with the NorthMet Project The SDEIS mentions that PolyMet will be responsible for monitoring and measuring of air and water quality to ensure compliance to all environmental standards. Will there be oversight from government agencies, such as the Minnesota Pollution Control Agency (MPCA), Minnesota Environmental Protection Agency (MNEPA), or others. Will there be random sampling of water and air within the direct area of the Mine Site, Pit Site, and surrounding areas to guarantee compliance. Next in this category, the proposal is to have PolyMet collect only 90% of the water seepage from the tailings basin and treat the water at a Waste Water Treatment Facility (WWTF) at the Mine Site. Why was 90% of the water seepage used as the basis. Why wouldn't this rate to be higher. Why should any seepage into the environment be accepted. A higher/increased rate of collecting and treating this water will only mitigate downstream effects. How long will the liners at the tailings basin protect the environment. During construction and mine operation, an open pit proposal would remove wetlands and other parts of the ecosystem. Once mining ends after approximately 20 years, part of the reclamation process is that PolyMet would restore parts of the Mine and Plant Sites and the surrounding ecosystem to native habitat. Why wait until mining ends. This would then be approximately 20 years that the ecosystem is not active in removing and/or filtering out environmental contaminants, ie CO2, NOx, and SOx. Even with the proposed Land Exchange, there would be a net loss of wetlands, river habitat, forests, and plant life within the state of Minnesota. Currently the land in the proposed Land Exchange is doing the same, but we still also have the land at the Mine site as a functional wetland. To compensate for the net loss, PolyMet should actively restore displaced habitat even if they help fund restoration elsewhere in the NE portion of the state. During and up until the time which the East Pit would be backfilled, the proposal is to store category 2 – 4 waste rock on liners. What is the potential impact of these high concentration sulfides interacting with the oxygen in the atmosphere throughout this time. Is the only impact that there can be seepage through the waste rock via water and then it would be caught by the liner(s). Also, the category 1 waste rock should be stored on liners to alleviate any seepage. How would the different category waste rock be separated successfully at the Mine Site. What are the environmental consequences if they are not properly separated. During and/or after the 11th year of mining operations, the proposal is to backfill the East Pit with category 2 – 4 waste rock (highest in sulfide concentration). With the idea that this will mitigate sulfates and metals from entering the environment. Why is backfilling the East

Alphabetical by sender's first name

Josh G 42988

Josh Gregorich 5217 5th Ave N Grand Forks, ND 58203 March 4, 2014 To Whom It May Concern: I would like to start by saying thank you for the cooperative effort by the co-led government agencies and teams that have dedicated their time and effort in creating the Supplemental Draft Environmental Impact Statement (SDEIS). You may ask yourself, why I've decided to write and comment on the SDEIS. I was born and raised on the Mesabi Iron Range, but currently do not live there due to my current job. Most of my family still resides on the Iron Range and I frequently travel back to visit and enjoy the outdoors. Regardless of where I reside, this area will always be home. It is very important for us, the public to be able to voice our opinions and concerns surrounding projects of this magnitude. After spending time reviewing the SDEIS I have some questions, concerns, and comments which are addressed in the following text. In doing so, I've grouped these by category for easier reading and navigation. Process and Methods Associated with the NorthMet Project The SDEIS mentions that PolyMet will be responsible for monitoring and measuring of air and water quality to ensure compliance to all environmental standards. Will there be oversight from government agencies, such as the Minnesota Pollution Control Agency (MPCA), Minnesota Environmental Protection Agency (MNEPA), or others. Will there be random sampling of water and air within the direct area of the Mine Site, Pit Site, and surrounding areas to guarantee compliance. Next in this category, the proposal is to have PolyMet collect only 90% of the water seepage from the tailings basin and treat the water at a Waste Water Treatment Facility (WWTF) at the Mine Site. Why was 90% of the water seepage used as the basis. Why wouldn't this rate to be higher. Why should any seepage into the environment be accepted. A higher/increased rate of collecting and treating this water will only mitigate downstream effects. How long will the liners at the tailings basin protect the environment. During construction and mine operation, an open pit proposal would remove wetlands and other parts of the ecosystem. Once mining ends after approximately 20 years, part of the reclamation process is that PolyMet would restore parts of the Mine and Plant Sites and the surrounding ecosystem to native habitat. Why wait until mining ends. This would then be approximately 20 years that the ecosystem is not active in removing and/or filtering out environmental contaminants, ie CO2, NOx, and SOx. Even with the proposed Land Exchange, there would be a net loss of wetlands, river habitat, forests, and plant life within the state of Minnesota. Currently the land in the proposed Land Exchange is doing the same, but we still also have the land at the Mine site as a functional wetland. To compensate for the net loss, PolyMet should actively restore displaced habitat even if they help fund restoration elsewhere in the NE portion of the state. During and up until the time which the East Pit would be backfilled, the proposal is to store category 2 – 4 waste rock on liners. What is the potential impact of these high concentration sulfides interacting with the oxygen in the atmosphere throughout this time. Is the only impact that there can be seepage through the waste rock via water and then it would be caught by the liner(s). Also, the category 1 waste rock should be stored on liners to alleviate any seepage. How would the different category waste rock be separated successfully at the Mine Site. What are the environmental consequences if they are not properly separated. During and/or after the 11th year of mining operations, the proposal is to backfill the East Pit with category 2 – 4 waste rock (highest in sulfide concentration). With the idea that this will mitigate sulfates and metals from entering the environment. Why is backfilling the East

Josh Greenwood 18069

My name is Josh Greenwood. And from what I learned I guess from all the showings and some of the stuff I've learned I would like to see PolyMet go through as long as everything is clean and what they say it is. And I don't have a whole lot to say on the subject. But as long as they follow through with their permitting and everything I think it would be a good thing. I'm from Duluth. I actually worked in the mine once before when they demoed it. And they did a very good job at that time under different ownership. So it would be a good thing to see for the economy and for the future of mining and everybody around it.

Josh Hoban 47017

I just wanted to give our full address, sorry I forgot. I get quite fired up talking about this and thinking about the future devastation. Josh and Tara Hoban 1429 N 7th Ave E Duluth, MN 55805 On Wednesday, March 12, 2014 11:29 AM, *NorthMetSDEIS (DNR) <NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Josh Hoban 47023

Hi my name is Josh Hoban, I live in Duluth, MN. 4 years ago my wife and I bought land up North of Isabella. We chose this area because of the beauty, wildlife, water, and quietness. We have spots to go watch moose,deer,birds, and fish for walleyes. These things will all be greatly impacted if this goes through. I know you guys have heard it all, but I just don't understand why you would ever let this project move forwaRd Big businesses all over the country and world are devastating our lands everyday. Whether it is an oil spill in Michigan, coal sludge contamination in North Carolina, Coal extraction chemical in West Virginia's waters, air pollution in Texas from fracking, water pollution in Pennsylvania from fracking, and the list goes on and on. The list of Sulfide mines also is long whether it is in Montana, Colorado, South Dakota, Wisconsin, Idaho, and of course this list also goes on and on. I don't know why anyone would ever believe this is going to be done safe. They all same the same thing, new technology, this time it will be different, but it is the same result time after time. This project will ruin parts of the North and it will never be the same. The clean up moneys is always about a 1000th of what is actually needed. The pollution fines are just drops in the bucket, never even making them change their practices. O yeah and all that about the jobs and community, of course this will be the usual boom and buSt 20 good years of a couple thousand jobs and forever in bad years and billions in cleanup after Polymet makes their money and moves on. Those resources most likely will not even benefit the US, just sell them to the highest bidder, polymet cares nothing about Minnesota or the US for that matter. It is all about the money who will pay the moSt That's just like the Keystone pipeline saying their minerals are staying in the US. We all know that is laughable, just like Polymets minerals. I don't know why people would even consider 20 years of money for a private company, vs endless years of tourism to a beautiful place and money going directly into the economy and forever making it stronger. I don't believe one word that Polymets say and how can we this practice has never been done safely before, why test it in Minnesota on such a large scale. Why use it anywhere in the world. These companies will cut every corner just to save a buck and we all know that's been proven. Thanks a lot for your time, Josh and Tara Hoban Duluth, MN 55805

Josh Northey 47038

Lisa Fay, I do not have strong opinions on whether the PolyMet project goes forward or not. I trust the state agencies responsible for evaluating whether the proposal meets all applicable environmental standards will do so to the best of their ability. The main thing I want to put a word in is what I feel is fear mongering and hysteria from some opponents of the project. I repeatedly hear claims, privately and in the media, that this project might “ruin the environment of NE MN”, or “destroy the northwoods tourism economy”, or “pollute the whole of Lake Superior” (all actual quotes). As far as I am aware there is zero chance the project will do any of these things in a meaningful way. It has a small footprint, and is using relatively safe low impact technologies, compared to what was done over the past century on the iron range. Moreover, much of that previously mined land is now used recreationally. The majority of the debate concerning the PolyMet project seems to be less about the actual risks/costs/benefits and particulars of the project, and more about giving people a chance to philosophically stake out a position as to whether they value the environment or the economy more. They decide what camp they are in first, and then go looking for arguments/information, rather than the reverse. Certainly, if any large project like this is mismanaged, or willfully flouts the rules, there could be negative impacts. But only focusing on extreme (and at times entirely fanciful) worst case scenarios is not productive. Neither is worrying about what will be going on in the area environmentally 500 years from now. 500 years ago our ancestors were mostly still serfs in Northern Europe without access to plumbing. With the rate of technological change worrying about what people will be doing even 200 years in the future seems obtuse, much less 500 years. If our decendants value the pristineness of this particular patch of land in 500 years, they will be able to clean it up much more easily and cheaply than we can imagine. As someone who grew up in Duluth, but now lives in Saint Paul, I am struck by how much of the opposition to the project comes from people living in the metro area who might use the northern part of the state as a recreation destination, if at all. The idea behind environmental regulations is not that some subset of society should get land use veto on land use decisions in the whole state. Instead it is that you set up a set of rules and requirements, and to the extent projects can meet those, they are allowed to proceed. The northwoods is very big, and this particular project is not going to significantly impact 99-9% of it. Maybe there are real concerns relating to pollution control, or project planning, or management/monitoring infrastructure, I leave that for your experts to decide. In the end the decision here doesn’t matter. There is only so much copper and nickel in the world, and eventually humanity will extract this patch of it, as well as the Manganese under Emily, MN. When just depends on how quickly scarcity drives up the value of the resources, and how quickly technology drives down the cost of extraction and environmental remediation. Joshua Northey 1256 Watson Avenue Saint Paul MN 55116

Alphabetical by sender's first name

Josh Pelkie 39345

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Josh Sarver 54354

Dear Ms. Lisa Fay, EIS Project Manager,I do not support the PolyMet mining project. It could affect multiple wetlands, lakes, and rivers, including: Mud Lake, Yelp Creek, and the Partridge River. It could also cause a decrease of 11 different plant species in the area.Yes, it could make more jobs, and it could help with our mineral capacity, but I still think that wildlife is more ii11portant, but that’s just me.I think that PolyMet has a plan that is good, but can be improved. They have planned out the area and what would happen to that area, but they ignored that they could damage land areas, maybe permanently.I don't think that the mining of copper-sulfate will benefit Minnesota. Copper-sulfate can kill roots, bacteria, plants, and other organic thii1gs. If anything goes wrong, then lots of animals could die. Copper-sulfate could also affect tl1e water, killing many organisms, in the water and otherwise.Certain cultural resources can be affected. The Mesabe Wid) iu (or Laurentian Divide) would be affected, and Beaver Bay would also be affected. Areas given to the Bands, (multiple Native American Tribes), would be affected.I do not agree with tl1e land exchange offers. It occurs in a National Forest, which should be left alone. It also only benefits one company.I do not think that the mining would affect me, because I live far away from where the mining is taking place. If something went wrong, and the lands were polluted, then it could cost my family a lot of money to help the state clean it up.Sincerely, Josh Sarver

Alphabetical by sender's first name

Josh Skelton 18145

My name is Cory Anderson. C-O-R-Y, A-N-D-E-R-S-O-N. I want to give my time to Josh Skelton. Hi. My name is Josh Skelton. I'm from Coleraine, Minnesota, but I originally grew up in Hoyt Lakes. So thank you to the agencies for the opportunity to comment on the SDEIS. Appreciate the hard work your staff that they've completed, and the commitment to better quantify and qualify the environmental impact of this project. I fully trust the review process your agencies have sponsored to best protect our natural surroundings. I'm a licensed professional chemical engineer in the state of Minnesota, like a number of your staff that have contributed to this report. I understand the rigors to obtaining that professional license and the obligation we carry in our work to uphold the integrity. In reviewing these documents supporting the SDEIS, I can appreciate the application of these principles that were used in this compilation and completion. It also gives an insight into as to why the model assumptions are subjected to such rigorous sensitivity analysis and stretched to ensure they cover major areas of concern regarding public health and environmental impact. While not perfect these models identify the impacts and assure that we have the ability to maintain our resources to the standards of today and well into the future based on best engineering practice. I have two general areas I would like to address regarding water quality modeling done as a part of this SDEIS. The first relates to the executive summary and whether water quality standards could be met with this project, and that mechanical water treatment as part of the model of the PolyMet proposed action for the duration of the simulations in 200 years for the mine site and 500 years for the plant site. The intent of the statement and the modeling was not to predict the actual duration of water treatment but rather to determine the impacts of water quality at key points in the watershed over stated periods of time in the model. 200 and 500 years, respectively. The outcome of the model actually is stating that water quality standards will be met well into the future, not defining the timeframe for treatment. A second area of address relates to the recent measured deviation in water quality models for the Partridge River. The baseline assumptions groundwater (inaudible) CFS for a monitoring point 17 miles from the mine site. More recent information is showing that closer to 1.3 to 1.8. Instead of distracting from the validity of the model of the sulfate, more credence should be given to the sensitivity analysis done with the model. Simulations were run with flow as lower in the basin than 0.5 and as high as 2.4 CFS, and they still showed water quality standards will be met. And the new measured data was well within the range of analysis. I feel fortunate (inaudible) Northern Minnesota where I grew up. We are close to losing the passion of the generations that built the communities we live. Without these types of jobs for our young families to build lives and careers, we only face further erosion. The culture of the Iron Range is not seeking a life of luxury by meaning of salary, it's grounded by the ability to work hard and be fairly compensated to earn a living. The luxury is in the neighborhood, schools, and recreation the region offers. (Inaudible) we have high standards of ourselves and others. That's why I believe there's no better time to do this project, no better place to do this project, and no better people to assure it's done right. Thank you.

18351

My name is Josh Skelton. I would like to give my time to Nancy Norr.

Alphabetical by sender's first name

Josh Williams 43103

For the record, my full name and address: Joshua A. Williams 4453 45th Ave S. Minneapolis, MN 55406 Also, I have made a minor addition to my comment. Feel free to disregard my previous email. Sorry for the trouble. Full, amended comment below: In order to adequately evaluate the potential impacts of the proposed project, the SDEIS needs to consider the financial feasibility of remedial activities at and around the mine site. As the project proposer will, of course, be financially responsible for the remedial activities, the SDEIS therefore needs to evaluate whether or not NET profits from the mine (eg. after all capital, laboor, operating expenses etc are covered) will be sufficient to cover remedial costs, and how the required financial assurances for remdial activities will be structured. To be adequate, this analysis needs to consider a wide range of scenarios for mine output, metal prices, and start-up and operational contigency costs. The analysis also needs to consider, in sufficient detail to allow evalution of feasibility, the mechanism by which suffiicient funds for remediation will be held (or access to sufficient funding otherwise secured), how continued access to sufficient funds to covers costs of remediation over time will be ensured (given the potential for hundreds of years of remedial costs), how and at what rate funds will be set aside during the projected 20-year operational life of the mine, and how this last relates to projected profit during the period of mine operation.I believe this might be termed a probablistic analysis. Put another way, engineering controls, no matter how well designed, will not work if they are never put in place, or if they are not maintained. The mine will operate for 20 years, and the impacts to water coming of the site will last 100s. Any evaluation of the potential environmental impacts of the proposed project needs to include consideration of how control of these impacts will be paid for when the mine-and the company that wants to develop it-is long gone. An EIS that fails to consider costs of mitigation-in the form of engineering controls for site remediation and short and long term water quality treatment-as a function of projected project profits would not acheive the statuatory purpose of environmental review to inform permitting. As part of permitting once environmental review is completed, permitting agencies will need to ensure that sufficient financial assurances are in place to cover the cost of mitigation measures identified by the EIS. Such considerations will be of sufficient complexity that they will be impossible to adequately evaluate during a time-constrained permitting process without a thorough analysis, as outlined above, during environmental review. Best, Josh ----- Forwarded message ----- From: Josh Williams <HYPERLINK "mailto:josh.a.williams@gmail-com"josh.a.williams@gmail-com> Date: Thu, Mar 13, 2014 at 3:48 PM Subject: SDEIS comments To: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us In order to adequately evaluate the potential impacts of the proposed project, the SDEIS needs to consider the feasibility of remedial activities at and around the mine site. As the project proposer will, of course, be financially responsible for the remedial activities, the SDEIS therefore needs to evaluate whether or not NET profits from the mine (eg. after all capital, laboor, operating expenses etc are covered) will be sufficient to cover remedial costs. To be adequate, this analysis needs to consider a wide range of scenarios for mine output, metal prices, and start-up and operational contigency costs. The analysis also needs to consider in sufficient detail to allow evalution of feasibility the mechanism by which suffiicient funds for remediation will be held (or access to sufficient funding otherwise secured), how continued access to sufficient funds to covers costs of remediation over time will be ensured (given the

43229

In order to adequately evaluate the potential impacts of the proposed project, the SDEIS needs to consider the feasibility of remedial activities at and around the mine site. As the project proposer will, of course, be financially responsible for the remedial activities, the SDEIS therefore needs to evaluate whether or not NET profits from the mine (eg. after all capital, laboor, operating expenses etc are covered) will be sufficient to cover remedial costs. To be adequate, this analysis needs to consider a wide range of scenarios for mine output, metal prices, and start-up and operational contigency costs. The analysis also needs to consider in sufficient detail to allow evalution of feasibility the mechanism by which suffiicient funds for remediation will be held (or access to sufficient funding otherwise secured), how continued access to sufficient funds to covers costs of remediation over time will be ensured (given the potential for hundreds of years of remedial costs), how and at what rate funds will be set aside during the projected 20-year operational life of the mine, and how this last relates to projected profit during the period of mine operation.I believe this might be termed a probalistic analysis. Put another way, engineering controls, no matter how well designed, will not work if they are never put in place, or if they are not maintained. The mine will operate for 20 years, and the impacts to water coming of the site will last 100s. Any evaluation of the potential environmental impacts of the proposed project needs to include consideration of how control of these impacts will be paid for when the mine-and the company that wants to develop it-is long gone. Best, Josh

Alphabetical by sender's first name

Joshua Borchardt 44359

Good morning, I am strictly apposed to new mining operations near the BWCAW in northern MN. The area is home to the richest wildlife in MN, and major parts of the upper US. The uniqueness of the clean water, solitude, and low populations helps to improve the habitat there, as well as the overall impact in the area. As the US, and MN, continue to increase in population, we need real solutions using alternative energies, recycling programs, and the like- that limits our impact on the environment. It would be quite the contradiction to have one of the most pristine and protected wilderness areas on the planet, surrounded with a perimeter of mining. That is NOT the message to be sending to our young people. I have seen in western ND the impacts of the oil country literally drunk, high people driving around in cars and shooting off guns near hiking trails with significantly increased violent crimes. The sort of community fostered by a materialistic desire for Earth's minerals is not the kind of community that such a beautiful and pristine place deserves. Please, MNDNR, do not allow this mining to continue, we need to say "No," and make better investments for the future of Minnesotans, and the rest of the country. Much appreciated, Josh Borchardt Space Studies MS Student John D. Odegard School of Aerospace Sciences University of North Dakota, Grand Forks B.S. Biology, NDSU 2012 763-516-0561 To those devoid of imagination, a blank place on the map is a useless waste; to others, the most valuable part." - Aldo Leopold TED video of the week: HYPERLINK "http://www.ted-com/playlists/27/to_boldly_go.html"http://www.ted-com/talks/chris_mcknett_the_investment_logic_for_sustainability.html

Joshua Houdek 42482

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Joshua Houdek 2820 37th Ave S Minneapolis, MN 55406-1718

Joshua Knieff 41925

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Joshua Knieff Litchfield, Minnesota

Alphabetical by sender's first name

Joshua Sparber 18253

Hi. My name is Joshua Sparber, S-P-A-R-B-E-R. Two comments. One, I have concerns with the macro understanding of an economic impact on a region driving a singular project. This project is not going to impact the entire -- as the mayor of Hoyt Lakes indicated, empty region, economically-depressed region. Another comment was the entire population of, you know, Tower, Ely, Virginia, Biwabik, the major Iron Range cities, would not currently reach the capacity of the Excel. Well, 400 jobs isn't going to make an impact on such a diverse problem. The environmental possible impact is not worth the minimal economic return to that region. The company is a Canadian company. The majority of the profits will leave the state in terms of reinvestment. Yes, you would have short-term environmental -- excuse me, economic improvement for a very limited amount of people, and there would be a generational -- a one-generational benefit, but as the closing of the taconite mines has shown, you've sustained four generations on those taconite mines, and that built, over many generations, an area. One very small generational window is not going to improve that area, and the amount of economic impact is astronomical. The other similar point I would make is that if you added up, my assumption is of the average wage, if every one of those 400 workers made on average $75,000 a year, you still would get less money over a 20-year period of time, gross, than it's going to cost to build the Vikings stadium. And the Vikings stadium is not going to have a 2- to 500-year environmental possible impact. There is no clean way to mine these resources. If there was more than a 20-year window to do it, I would be more supportive. Such a short window does not equate with such a long impact. Thank you. And a short addition is my impression of the majority of proponents for the project are lobbyists and paid advocates in the industry, and the majority, I would imagine, have already made their comments placed on the record, so they used quite a bit of time to reiterate comments on the record that are well documented. Thank you.

Josiah Loeffler 38501

I find it disturbing that the opposition to PolyMet's project keep bringing up failures from the paSt Technology and information is constantly changing. We can use this new technology and past mistakes to learn from and improve our processes. I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations. Sincerely, Josiah Loeffler Josiah Loeffler 900 5th Ave SW Little Falls, Minnesota 56345 The views and opinions expressed in this message my own. I am solely and individually responsible for the content. This is not intended to represent or reflect anyone else's views or opinions, including those of my employer, ALLETE, Inc.

Josie Kindred 40870

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Josie Kindred PO Box 518 Hurricane, UT 84737-0518 (208) 881-6816

Alphabetical by sender's first name

Josie Lilly 40396

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Josie Lilly 1111 Harrison Ave Apt C Astoria, OR 97103 US

josie nelson 45166

Please do NOT allow the polymet mining project to go forward I am very concerned that the SDEIS is flawed, and that this project will seriously harm water that we all must have to live. I am also saddened that it will destroy a beautiful resource in our state and habitat for animals. Native people will also likely be harmed, since wild rice is sensitive to sulfur. The jobs created by this project will be temporary, but the project will harm generations to come. It doesn't cost anything to leave the minerals in the ground, but we may all pay a tremendous amount to clean up after the potential disastrous results. One small miscalculation could lead to consequences that cannot be reversed. If we allow this to move forward, we are sacrificing the good of all for jobs for a small segment of our population. Thank you for your time. Josie Nelson 239 Peninsula Road Medicine Lake, MN 55441 763-540-6884 https://mail.google-com/mail/u/0/images/cleardot.gif

Josie Winship 10761

Hello, I am writing to strongly oppose the proposed PolyMet Northtmet copper-nickel mining plan. I am not at all convinced that the short term goal of mining is at all worth the inevitable pollution it will cause. Nor am I convinced that that PolyMet will be able to reverse the damage to water and land to it's original healthy state. I vacation every year on Lake Superior, the largest body of water in the world. I cherish it and am proud to live in a state that boasts this gorgeous treasure of a lake. Please think of what is good for the earth and its people and stop this dangerous plan. Thank you for reading this. Sincerely, Joanna Winship 2909 E. 22nd St Minneapolis, MN 55406

Joslyn Hugger 14967

https://docs.google-com/a/flaschools-org/document/d/171ApxhNZbUKhnujfEvxGS4rOiLEuki9j_F-cHEs9y7M/mobilebasic Sent from my iPad 20618 fenston Ave north forest lake mn 55025

Alphabetical by sender's first name

Journey Roberge 15453

Katy Olson: 2345 Woodbridge St Roseville, MN 55113 Copper Mining in Minnesota, Why We Shouldn't Allow It. Copper mining is a process where geologists find the richest deposits of copper that they can locate. Miners then separate the rock with the deposit in it away from the earth, break it all up, then separate the valuable materials from the reSt Once they do this, they concentrate the metals from the deposit. Using a hydro-metallurgical process in a pressure cooker is how the metal is concentrated. This is called sulfide mining. This process is very similar to mining for iron ore. Minnesota is considering mining for copper because there is an estimated 4 billion tons of copper deep under the ground in the Duluth Complex. It is worth far more than one trillion dollars. Copper mining is Minnesota is a dangerous thing and should not be allowed to take place. To start, sulfide mining for copper should not be allowed in Minnesota because of the mining company that would be operating the copper mine, PolyMet, has never operated a mine before. They are going to use unproven techniques to extract the copper from the ground. That to me, is not a reliable process and could prove be harmful. Because something could go wrong and put the whole mine in jeopardy. This is one reason why we should not allow the sulfide mining to take place in Minnesota. The second reason the copper mining should be allowed to start in Minnesota are the environmental concerns. When it rains on sulfide ore waste, sulfuric acid is produced. Unlike iron ore mining, where, when it rains on iron mining waste, it creates ruSt Sulfuric acid can contaminate lakes, rivers, and groundwater but also harm human life, aquatic life, wildlife and damage whole ecosysteMs Even though companies claim that sulfide mining has minimal environmental impacts there has been destroyed wildlife around the world, contaminated drinking water, and much more pollution. Sulfuric acid being produced and harming the environment is the second reason why copper mining shouldn't occur. The final reason sulfide mining for copper shouldn't occur in Minnesota is that mining companies often abandon their mines and leave the cleanup to taxpayers. Even though Minnesota requires companies to provide financial assurances for the cleanup, many mining companies go bankrupt and cannot help with the aftermath of the mines. This popes a large problem because many families don't have much money to start with so paying for the cleanup is a problem. That is my final reason why copper mining in Minnesota should be out of the picture. In conclusion, sulfide mining for copper should not take place in Minnesota because of the environmental concerns with water pollution, the fact the PolyMet has never operated a mine before. Also, most mining companies abandon their mines because they go bankrupt, thus forcing taxpayers to have to pay for the cleanup. My opinion should be considered because I have included the three large reasons why sulfide mining for copper is a bad thing. Sources: Source #1 http://www.dnr.state.mn.us/volunteer/julaug12/nonferrous.html Source #2 http://www.miningtruth-org/minnesotas-environment/#.Uu64uGRDtSS Source #3 http://www.friends-bwca-org/issues/sulfide-mining/

Joy Barth 28695

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The Great Lakes is too large an area to experiment and have the likelihood of an enormous consequence that can't be remedied. For instance they give the figure of 500 yers before the water would be salvaged again and that is likely questionable since we don't have a period of time that length to presenty prove that. At this rate we won't have any pristine water and we'll all depend on the expensive process of desalination. It's a life and death risk. Sincerely, Sister Joy Barth Sincerely, Joy Barth 1001 14th St NW Rochester, MN 55901-2590 (507) 282-7441

Alphabetical by sender's first name

Joy Schochet 19089

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. This document is enormous and the issues are extremely complex. One needs a great deal of time to examine the information and to comment on this information. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Joy Schochet 828 W. George Street Chicago, IL 60657 773-327-6592

Alphabetical by sender's first name

Joy Schochet 46208

Dr Jonathan Green Dr, Joy Schochet 2310 Rose Lane, Ely, Minnesota 55731 828 W. George Street, Chicago, IL 60657 March 11, 2014 Ms Lisa Fay EIS Project Manager MNDNR Division of Ecological and Water Resources Environmental Review Unit Re: Proposed NorthMet Mining Project and Land Exchange Citizen Comments on Supplemental Draft Environmental Impact Statement (SDEIS) Dear Ms Fay: We wish to make the following comments regarding the PolyMet/NorthMet SDEIS. We find that the SDEIS does not address or does not address adequately many of the issues pertinent to the evaluation of this proposal. Among these inadequacies are the following. 1- Copper According to Gavin Mudd (International Journal of Sustainable Development, 2013), the price of copper has steadily declined since 1900- He states in an email to the journal Science: "The critical issues already constraining the copper industry are social, environmental and economic issues. Any process intended to extract a kilogram of metal locked in a ton of rock buried hundreds of meters down invariably raises issues of energy, water consumption, pollution, and local community concerns. And such environmental and societal constraints are getting stronger" (Science, 343:722-724, 2014). Thus, the consequences of copper mining in an environmentally-sensitive and economically-fragile area are such as to preclude such mining activities, particularly in a downward-trending market for the metal. Under such circumstances, copper mines are a risky investment, and mining companies could well close or fail to undertake remediation and restoration as promised, leaving the mining site environmentally compromised at best or destroyed ecologically. 2- Environmental Issues The Superior National Forest (SNF) covers 3-9 million acres, of which over 445,000 acres are water, some 2,000 lakes and rivers and more than 2,000 miles of streaMs It is a national treasure in that, while it is only 0-2% of the contiguous USA land mass, it is home to a disproportionately large fraction of the US's fauna and flora. In addition, it hosts a great number and variety of transient species and provides them with sustenance, shelter, and breeding areas. Moreover, the diversity of landforms in the SNF, compared to its area, is unmatched. The impact of mining on the Superior National Forest and the Boundary Waters, as well as the Quetico Park and Lake Superior, would be substantial and detrimental. The environmental degradation, water and air pollution, the local, national and worldwide impacts of this proposal have been neither adequately appreciated nor discussed in the PolyMet SDEIS. Most significant of all is for us to recognize the value of a scarce ecosystem. Wilderness areas are continually decreasing in size and quality throughout the world, no less here than in the "developing" world. In an increasingly degraded and crowded world, must we not preserve the inherent value of these scarce environments, both for their own sake and for the health of the planet. Not only do they provide innumerable "ecosystem services" to us (and other species), but they provide unexcelled recreation and enjoyment for many and other non-quantifiable benefits. The BWCAW and its surrounding forests are invaluable to our planet, but the BWCAW cannot survive as an isolated "island" amidst ceaseless exploration and exploitation. Its loss will accrue to us all; as we will have sacrificed an irreplaceable resource for the short-term economic gain of others. One of the major impacts of the PolyMet mine would be on wetlands, of which nearly 1000 acres would be completely destroyed. While PolyMet states that they will convert other (distant) areas to wetlands, it has been established by many scientific studies that such "restitution" wetlands are not at all the same as natural wetlands. They are much less biodiverse and provide much less habitat, nutrition and water services than natural wetlands. Therefore, no amount of reconstitution will suffice t

Joy Windseth 43086

I am strongly against and opposed to allow copper mining in Minnesota. Please do not permit this atrocity. To compromise the quality of health and life for all living creatures due to the ramifications of copper mining would be not only a disaster but also an injustice to all future generations. Joy Elizabeth Windseth-Zerr

Joyce Blomquist 41789

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. It is crucial to protect Lake Superior, the watershed and Superior National Forest from toxic pollution. Unless there are proven methods that prevent this, the risk is too great. If this happens I'm concerned that we can never restore the damage. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Joyce Blomquist 1980 Skillman Ave W Roseville, MN 55113-5403 (651) 631-0688

Alphabetical by sender's first name

Joyce Harrington 33155

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining is forbidden in Wisconsin. Up to now it has not been done in Minnesota. There are reasons for those two facts: sulfide mining threatens wetlands, rivers, lakes, and streams where it is done. In Minnesota, that includes all across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. For almost a century, generations within my family have enjoyed the wilderness in this part of northern Minnesota. My Father-in-law went fishing there every year for years. My husband grew up near there and took his canoe into the area with friends as a teen. Together, my husband and I went many summers up into that area, all the way from Indiana, to enjoy the canoeing as well as the botany and wild life of the area, which included black bear, moose, wolves, and nesting bald eagles. My son and daughter both enjoyed several long canoe trips into the area as teens. And now, last summer, one of my grand-children, a teen, went on a long canoe trip there with the girl scouts. She hopes to do it again next summer. Her younger sister also hopes to do it next summer. I would like their children to be able to have their wilderness trips in northern Minnesota, too, as generations of the family hAve However, I am concerned that that might not happen if sulfide mining is done in the area, for Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Inevitably, it would happen in Minnesota. I have grave concerns beyond the impact on my immediate family. This project's potential impacts on that region's natural resources and public health are many, including: 1- risks to water quality 2- loss of wetlands 3- harm to wildlife such as the threatened lynx and declining moose populations 4- many cumulative impacts from mining. There is no doubt that the Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Please do not allow it. Sincerely, Joyce Harrington 1604 Hoover Ave South Bend, IN 46615-1313 (574) 288-8811

Joyce Klees 54484

See attachment

Joyce Malwitz 46290

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Joyce Malwitz 4137 bridgewater circle Vadnais Hts, MN 55126

Alphabetical by sender's first name

Joyce Malwitz 46291

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Joyce Malwitz 4137 bridgewater circle Vadnais Hts, MN 55126

JP Lerner 42230

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr JP Lerner 2222 Harriet Ave Minneapolis, MN 55405-4200

Jr. Evans Connelly 4708

Good Afternoon- I support PolyMet in their efforts to regain the ability to mine and produce products to help build this country. Obviously they have to do it cleanly and an eye to the future and they should be treated fairly by the groups doing the evaluations. Regards- Evans Connelly, Jr. Evans "Chip" Connelly, Jr., CRPC® Connelly Family Wealth Consulting and Management Senior Vice President-Wealth Management Wealth Advisor Chartered Retirement Planning CounselorSM aUBS Financial Services Inc. 444 Cedar Street, Suite 2200 St Paul, MN 55101 651-229-6070/800-444-0582 ext. 6070 HYPERLINK "http://financialservicesinc.ubs-com/team/connellyfamilygroup/index.html.start=/fa/evansconnellyandfawAppID=740andsiteName=Evans%20E.%20Connelly%20Jr.andsiteType=IND"Connelly Family Group Website HYPERLINK "mailto:evans.connelly@ubs-com"evans.connelly@ubs-com The highest compliment we can receive is the referral of your friends, family and colleagues.

Jspence3 21986

I support the PolyMet Mining project in Minnesota. It will be environmentally neutral and will provide numerous jobs. It's time to move forward and do something positive and important for the state and nation. John S. Stephens 13829 Hidden Lake Lane Sugar Land, Tx 77498 281-491-2395 Jspence3@aol-com Sent from my iPhone

Alphabetical by sender's first name

Jt Haines 18376

My name is JT Haines. I'm from St. Paul. I would cede my time to Bob Tanner.

juan cruz 40428

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, juan cruz 2440 Young Ave Bronx, NY 10469 US

Juan M 54224

Dear Lisa Fay: I'm writing this letter to you in regards of the Polymet sulfide mine. We have reviewed the maps as a class and came to conclusion that they should be redrawn and re-looked at because of the bogus scaling and drawing that took place. The map should be carefully looked at, and re-examined because there is a creek connected to the swamp that leads to the boundary waters, and it will pollute the water and diminish the cleanliness of it. Also the water should be tested to make sure that if this event were to happen, we would be able to fight it. Therefore, this should all be looked at and reviewed so we don't have to face this in the future. Lots of economical problems could happen without all this being tooken seriously. I am just a student at Humboldt Senior High, but I'd hate to see my economy get destroyed over some bogus scaling.Sincerely, Juan M. [ILLEGIBLE]

Juanita Nelson 47514

I agree with the Northland Doctors, They say sulfide mining releases toxic pollutants known to cause dangerous health effects like cancer, lung and heart disease. Don't we have enough health hazards and pollution all ready. I don't think we need more. I have read they will be here for 20 years but it will take 50 years to clean up, That is not worth it Juanita Nelson

Alphabetical by sender's first name

Judi 44357

As lifelong residents of this wonderful state, we would like to express our concern over the proposed PolyMet mining in northern Minnesota. We are getting to that retirement age soon and would love to move up north but are concerned about this project and the impact it will have on not just northern Minnesota but the state as a whole. We have put off retiring and moving until we know who's side of this issue Minnesota will land. We really don't want toxic waste in "literally" our backyaRd Minnesota would be "penny wise and pound foolish" to give up so much for a couple hundred jobs for 20 years. It's not worth the risk involved when PolyMet packs their bags and moves on to rape and pillage another wilderness area, leaving Minnesota taxpayers with the cost of cleaning up their mess. The fact that this type of mining has never been done cleanly anywhere in the world without leaving a toxic waste dump should be a giant red flag. Why would we take that chance. It saddens us to think that there are people in this state that think this is a good idea. A few hundred mediocre paying jobs. Really – we're ready to pollute the Boundary Waters, of which there is no other place on the planet like it, for a few hundred jobs. This mining has NEVER been done without leaving toxic waste in river, streams and lakes EVER. We sure hope Minnesota is smart about this and tells PolyMet no. As life-long residents and hoping to stay that way, we would be sad to see this state go down into a dump full of toxic waste. Judi and John Vitek North Branch, Minnesota

Judi Mikolai 45123

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: After reviewing the PolyMet proposal and attending the St Paul comment meeting, I have serious reservations about PolyMet mining in northern MN. There are numerous problems I see. Anyone who has a basement in MN can testify how difficult it is to not have water find its way where it is not wanted. You simply cannot contain water. It seeps into the smallest crack and follows the path of least resistance. Until we have the technology to truly contain water, we cannot produce contaminated waters that endanger our ecosystems, groundwater and surface waters. There is a lot of blind faith and wishful thinking going on with the PolyMet proposal. While we all would like to rely upon such empty hopes, we have to be realistic. When other mines show they can run a clean operation, then, let's consider it for MN, too. PolyMet should have to show proof that the mining can be done without contaminating the site the minerals are, the millions of gallons of water that would have to be used to extract the target products, and the storage ponds that would be used to try to hold the water until it can be cleaned. Other mining sites where the same processes are used are described as a "moon-scape." We love to go to northern MN. We love to camp, canoe and recreate in the quiet and beauty of the wilderness. But, I have to say, if the wilderness WERE to be damaged, we would not be visiting there like we do now. The landscape is anything but a barren wasteland now. The solitude, the extensive forests, the potable lake water, the rugged topography draw us in. If there water were contaminated, if the trees were removed, the land leveled, the wildlife harmed, or the silence replaced by the noise of a 24x7 industrial mining operation, we would look for an alternative site. And it is senseless to mine in northern MN now anyway. From what I understand, there is a surplus of copper and some other substances that are to be mined by PolyMet in Northern MN. The company would greatly, because of the high prices they could get for the minerals and metals, but the price of MN's wilderness is too high a price. The company is not even MN-based - most of the money would follow the company. There would be some taxes paid to MN, but the profits would go to another country. There would be some local jobs, but are the locals going to land the jobs. Miners jobs aren't unskilled labor as they used to be; unless the But, even so, the cost to MN is too great. We can't afford to sacrifice our water. We have to make hard choices and not be lured by money when it has irreconcilable costs. We cannot replace wilderness; we can recover ground, but not water. Where do we find a new source of water. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Judi Mikolai 2080 Long Lake Road New Brighton, MN 55112

Alphabetical by sender's first name

Judi Mikolai 45145

Dear Ms Fay, Mr Bruner and Mr Dabney: After reviewing the PolyMet proposal and attending the St Paul comment meeting, I have serious reservations about PolyMet mining in northern MN. There are numerous problems I see. Anyone who has a basement in MN can testify how difficult it is to not have water find its way where it is not wanted. You simply cannot contain water. It seeps into the smallest crack and follows the path of least resistance. Until we have the technology to truly contain water, we cannot produce contaminated waters that endanger our ecosystems, groundwater and surface waters. There is a lot of blind faith and wishful thinking going on with the PolyMet proposal. While we all would like to rely upon such empty hopes, we have to be realistic. When other mines show they can run a clean operation, then, let's consider it for MN, too. PolyMet should have to show proof that the mining can be done without contaminating the site the minerals are, the millions of gallons of water that would have to be used to extract the target products, and the storage ponds that would be used to try to hold the water until it can be cleaned. Other mining sites where the same processes are used are described as a "moon-scape." We love to go to northern MN. We love to camp, canoe and recreate in the quiet and beauty of the wilderness. But, I have to say, if the wilderness WERE to be damaged, we would not be visiting there like we do now. The landscape is anything but a barren wasteland now. The solitude, the extensive forests, the potable lake water, the rugged topography draw us in. If there water were contaminated, if the trees were removed, the land leveled, the wildlife harmed, or the silence replaced by the noise of a 24x7 industrial mining operation, we would look for an alternative site. And it is senseless to mine in northern MN now anyway. From what I understand, there is a surplus of copper and some other substances that are to be mined by PolyMet in Northern MN. The company would greatly, because of the high prices they could get for the minerals and metals, but the price of MN's wilderness is too high a price. The company is not even MN-based - most of the money would follow the company. There would be some taxes paid to MN, but the profits would go to another country. There would be some local jobs, but are the locals going to land the jobs. Miners jobs aren't unskilled labor as they used to be; unless the But, even so, the cost to MN is too great. We can't afford to sacrifice our water. We have to make hard choices and not be lured by money when it has irreconcilable costs. We cannot replace wilderness; we can recover ground, but not water. Where do we find a new source of water. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Judi Mikolai 2080 Long Lake Road New Brighton, MN 55112

Judi Poulson 10027

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Judi Poulson 1881 Knollwood Drive Fairmont, MN 56031

Alphabetical by sender's first name

Judi Poulson 18769

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Judi Poulson 1881 Knollwood Drive Fairmont, MN 56031

Alphabetical by sender's first name

Judi Poulson 41304

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Judi Poulson 41665

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Judi Poulson 50843

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Judi Poulson 1881 Knollwood Drive Fairmont, MN 56031

Judie Carlson 57949

There is already evidence that privately held land is being destroyed and the owners are suffering the effects of the noise and pollution. This is appalling. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Judith Derauf 54673

See attachment

57966

I believe that water--clean water--is our greatest resource in Minnesota. The value of water will only increase with time. To squander this resource for future generations by contamination now is shortsighted! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Judith Haglund 40372

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Judith Haglund 935 N. Beneva Rd Sarasota, FL 34232 US

Alphabetical by sender's first name

Judith Krause 16077

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Judith M Swenson 54703

See attachment

Alphabetical by sender's first name

Judith Martell 15778

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

21475

thank you. I would appreciate more information on what PolyMet is saying to justify even thinking of opening a mine here. From: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"*NorthMetSDEIS (DNR) Sent: Friday, February 21, 2014 7:03 PM To: HYPERLINK "mailto:jlee41@q-com"Judith Martell Subject: RE: Comment on PolyMet NorthMet SDEIS Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd _____ HYPERLINK "http://www.avast-com/" This email is free from viruses and malware because HYPERLINK "http://www.avast-com/"avaSt Antivirus protection is active.

Alphabetical by sender's first name

Judith Moe 25483

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, The only thing more precious than water on this planet, is our children. If we risk our water with acid mining, some may find considerable profit, buy Things for our children one day, as the water of the planet becomes more and more polluted, irreversibly, and we stand there and think, we were sure this wouldn't happen, what will our children drink. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Judith Moe PO Box 12141 Omaha, NE 68112-0141

Judith Pryor 54825

See attachment

JUDITH SANDSTROM 16198

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Judith Schiller 17072

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Judith Schiller 16747 N Mitchell Lake Road Fifty Lakes, MN 56448

50342

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Judith Schiller 16747 N Mitchell Lake Road Fifty Lakes, MN 56448

Alphabetical by sender's first name

Judith Screaton 39556

Judith Screaton 2474 Oakgreen Ave N Stillwater, MN 55082 651-439-7860 HYPERLINK "mailto:rjscreaton@gmail-com"rjscreaton@gmail-com Dear Ms Fay, There are still so many unanswered questions about the PolyMet Mining proposal that I believe it can not go forward without significantly more questions being answered. 1- How is it possible to sacrifice many, many acres of precious National forest for a commercial venture of questionable benefit to Minnesotans. 2- How many of the 350 proposed jobs would be filled by local residents rather than specialists brought in to run the mine. 3- What has been proposed by the mining company to control pollution in the area. Who would pay for the cleanup. 4- Is it significant that this mining company has NEVER operated a mine before, is run by a foreign company and financed by another foreign company. How is it possible to hold them responsible for the massive pollution that will result from their venture. 5- Safe unpolluted water is one of the most valuable resources we have in Minnesota. We must preserve this important resource, or it will quickly disappear. 6- Other departments of the DNR have recently been cited for not being good guardians of our water supply. Wouldn't it be odd for part of the DNR to work on preserving our water, while another part of the DNR is complicit in possibly creating massive pollution. 7- How many tourists will this displace, and what would be the effect of massive pollution on our tourist industry. I am anxious to hear from you, Sincerely, Judith Screaton

Judith Straub 10086

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Judith Straub 6221 Idylwood Lane Edina, MN 55436

Alphabetical by sender's first name

Judith Straub 18828

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Judith Straub 6221 Idylwood Lane Edina, MN 55436

50902

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Judith Straub 6221 Idylwood Lane Edina, MN 55436

Alphabetical by sender's first name

Judith Sweno 42685

See attachment

Judith Weir 41849

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Judith Weir St Paul, Minnesota

Judith Zetting 29956

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I'm a 77 year resident of two GREAT LAKES STATES and I would like the GREAT LAKES to CONTINUE TO EXIST till the end of the world. I do not want to see Lake Superior, Lake Michigan or any of the others to dru up, become a sewer, or a blight on this earth. THIS GREED to squeeze any and all of anything from the world around us HAS TO STOP, OR THERE WILL BE NOTHING LEFT Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Judith Zetting 6229 W Villa Ln Brown Deer, WI 53223-3454

Judy Ament 16668

I would like to go on record Not to allow this for the sake of preserving the water resources I have been reading pro's and con's- it would be a short term benefit but there are too many concerns for the long term survival and preservation of water. Judy Ament 804 Chestnut Ct St Cloud MN 56303

Judy Baxter 45412

Dear Ms Fay, Dear Federal and State Agency Leaders: I am really seriously concerned about the quality of the analysis of impacts of the mine in the PolyMet SDEIS. How can you propose destroying 900+ acres of irreplaceable wetlands and damaging 7000 without looking into alternatives. These wetlands protect and maintain the area waters, and replacements outside the watershed will not do. Fish in the area already contaminated with mercury so that consumption warnings are issued. Adding more sulfide mining pollutants will make this worse, and is unacceptable. The idea of putting tailings and waste heaps in an unlined tailings basin, designed in the 1950's on top of streams IN ORDER TO LEAK, is totally ridiculous. This is an example of cavalier disregard for preventing or reducing pollution. Of course it would leak acid,sulfate, and toxic metal processing waste. They say for 500 years. Are we supposed to believe that they will mitigate that for so many years after the mine closes. I can't. This SDEIS is totally inadequate - please reject it and deny the permit to mine or a Section 40 wetlands permit. Sincerely, Judy Baxter 1425 W 28th St, Apt. 301 Minneapolis, MN 55408 6128715125

Alphabetical by sender's first name

Judy Bjork 44579

---Original Message--- From: Richards, Jess (DNR) Sent: Thursday, March 13, 2014 8:32 AM To: Fay, Lisa (DNR) Subject: FW: PolyMet mine ---Original Message--- From: *Commissioner (DNR) Sent: Wednesday, March 12, 2014 5:54 PM To: Richards, Jess (DNR) Cc: Hunt, Debbie (DNR) Subject: FW: PolyMet mine FYI ---Original Message--- From: Doug Bjork [mailto:jbjork2@comcaStnet] Sent: Wednesday, March 12, 2014 5:04 PM To: *Commissioner (DNR) Subject: PolyMet mine Dear Mr Landwehr, We hope you will do whatever you can (which is considerable we're sure) to prevent PolyMet from soiling northeast Minnesota (or anywhere) with their open pit copper/nickel mining. Having been to the BWCA we fear for its well being if this company should be allowed to operate. Up North is a destination we've been to often and had hoped to return to. We realize the issue of jobs has been put forth as a reason to operate this mine but we believe that PolyMet will do more to diminish, rather than enhance the overall quality of life for the people in this area. Minnesota deserves the beSt Sincerely, Judy and Doug Bjork Pam Christoferson

Judy Busse 47493

There are two critical reasons why my husband and I are opposed to giving PolyMet what it wants: first, there is no way PolyMet can assure citizens there won't be grave environmental consequences somewhere down the line and while there might be some jobs created for a time, that number could pale in comparison to damage done to people as well as to the land; second, if we don't want PolyMet's project we don't have any reason to want them to receive financial assistance on any level. Sincerely, Judy and David Busse 110 Bank St S.E., Minneapolis, MN 55414

Judy Dickerson 16794

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Judy Dickerson 15641 Dunberry Way Apple Valley, MN 55124

Alphabetical by sender's first name

Judy Dickerson 50140

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Judy Dickerson 15641 Dunberry Way Apple Valley, MN 55124

Judy Galbraith 9558

To: MN DNR From: Judy Galbraith 832 Meadow Lane So Golden Valley, MN 55416 I am writing to express my complete opposition to the proposed PolyMet Mine. This mine will pollute not only Minnesota waters, but the relatively pristine waters of Lake Superior. It would also destroy 900 acres (or more) of wetlands with toxic contamination. There's no way PolyMet can contain or effectively treat contaminated water, which would remain polluted for hundreds of years. Anything they claim to the contrary is defied by past mining records and disasters. They are about one thing and one thing only, and that's making money with little regard to the environment (and the animals and people who depend on it for survival). In addition, the PolyMet mine would have a serious long term negative impact on a large part of the Superior National Forest which is the largest designated Important Bird Area in Minnesota. This area attracts many tourists and residents who value their beauty and environment they live in. Are a few thousand temporary jobs really worth the destruction of one of Minnesota's most valuable natural resources — our clean water and beautiful wilderness. The logical and common sense answer is no. Arguments have been made that we need more and more copper, nickel and mercury. But the absolute truth is that with more comprehensive recycling efforts the demand for these minerals would seriously diminish. Also, many jobs could be created if we developed more recycling prograMs Please deny any and all permits for this proposed mine. Sincerely, Judy Galbraith

Alphabetical by sender's first name

Judy Galbraith 16263

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

40732

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. The short-term job gains are not worth the long-term and permanent environmental damage this mine would cause. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Judy Galbraith 832 Meadow Ln S Golden Valley, MN 55416-3419

Alphabetical by sender's first name

Judy Gribbin 31877

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt WE ALREADY HAVE POUTION IN THE GREAT LAKES WHY WOULD WE ADD TO IT BY ALLOWING THE POLYMET'S MINE COMPANY TO OPEN AND DIG A MINE NEXT O THE PROTECTED AREAS AROUND SUPERIOR NATIONAL FOREST, AND HAVE THERE DRAINAGE TO FLOW INTO THE SMALL STREAMS THAT LEAD INTO BIGGER AND BIGGER STREAMS AND INTO OUR GREAT LAKES AND THEN TO OUR WHOLE WATER SYSTEMS THAT LEADS TO OHIO AND MISSISSIPPI RIVER SHEDS THEN DOWN TO THE GOLF AND OUT TO THE ALANTIC. THIS IS UNPRODUCTIVE THINKING. THERE IS ALREADY TO MUCH CONTAMINATATION IN THE SEAS. PLEASE RETHINK WHAT YOUR DOING ALONG THESE SAVED AREAS AND HAVE SOME THOUGHT TO OUR WILD AREAS AND OUR ANIMALS IN THESE FORRESTS THAT HAVE NO WHERE ELSE TO GO, AND CAUSE HAVICK IN THE SMALL CITYS AND FARM AREAS, THEN THE BECOME PESTS IN THE NEIGHBORHOODS, AND HAVE TO RELOCATED, BUT SEEM TO RETURN TO THE AREAS THAT THEY WHERE BORN INTO. THIS ALSO COST OUR TAX PAYERS TO PAY MORE IN TAXES. THIS IS A ROUND ROBIN THOUGHT. STOP AND THINK THIS OVER AGAIN DO WE NEED THIS HEADACHE . THANK YOU FOR YOUR TIME. Sincerely, Judy Gribbin 820 N Main St Niles, OH 44446-5139 (330) 978-9969

Judy Helgen 48157

See attachment

54794

See attachment

54858

See attachment

Judy Kreag 47536

Dear Ms Fay, Dear Federal and State Agency Leaders: March 8, 2014 To: Waterlegacy-org re: PolyMet Lisa Fay, EIS Project Manager Douglas W. Bruner, US Army Corps of Engineers Tim Dabney, US Forest Services From: Judy Kreag, Citizen of MN and USA Re: PolyMet NorthMet Sulfide Mining SDEIS I sometimes feel that as just one citizen I have little power to make a difference, but when it comes to the water that my children and grandchildren will be drinking I need to speak out. This is big. Polymet’s open-pit sulfide mine plan should be rejected for many reasons but the biggest is that it will pollute the largest freshwater lake in the world, possibly forever. The company has no concrete plan that will make my statement false. It may bring a few jobs to the area for a few decades but will leave us an unheard of problem for anywhere from 300-500 years or more. I live in Duluth. I drink Lake Superior water. My daughter and grandchildren do too. We all deserve clean, fresh water. This earth is all we hAve When the water is no longer drinkable, then what. I read the news with sadness. Many accidents pollute the earth, water and other resources and those large companies that cause it do not take responsibility to correct it. Who suffers. The people close by and in many cases others who are not even that close. I am close by this project and I do not want it to be approved. I hope you will listen to the people who would be the ones to suffer. Life on this planet is not all about money. It is able integrity, compassion, love and care for our earth, the only home we hAve Thank you for listening. Judy Kreag 5127 Wyoming St Duluth, MN 55804 Judy Kreag 5127 Wyoming St Duluth, MN 55804 218-525-0630

Alphabetical by sender's first name

Judy Lane 38437

Mar 6, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. There are too many variables involved. At what cost are you willing to pay with Minnesota lives to have PolyMet in Minnesota. I feel money being the ultimate player here. This is not Vegas, where if Minnesotans lose, they can just walk away as PolyMet would do if they did not get their money from investments. Will they invest in CLEAN-UP AND RECOPVERY PROGRAMS should they arise. Why is it greed that drives every gold-digger (in example) to our state. Our natural resources is the crown jewel we hAve Not those in the ground you cannot see, but the hills, the forest, the lakes, the forest animals, but mostly the people who make this state great. But others love it to death and will not be happy until MN is dead and void. No reason to come back. Use us up and spit us out. For what .for a mine. Think about the responsibility you hAve Department of Natural Resources. Not to exploit but to hold for generations to come. To be enjoyed, not by corporate greed, but by those who can appreciate Minnesota's beauty. Have you been to one of their mines. Go and see what they do. Talk to the people. Is PolyMet a good neighbor. Many corporations ARE NOT. They strip the land and contaminate the water. But the people want to have a job, so they say nothing. Department of Interior , BLM , is selling out to corporate greed in the Western states for mining, big oil, welfare ranching, all in the name of progress, and is exterminating the Wild Horses and Burros from the land. Then there bacame a low to protect them and now the law cannot even protect them. Don't let that happen to Minnesota. Become informed. Sincerely, Mrs Judy Lane 2400 Timberidge Ln SE Rochester, MN 55904-8601

Judy Nordeen 42203

Mar 8, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Judy Nordeen 303 Scott St Ukiah, CA 95482-4319 (707) 367-1465

Judy Ostendorff 54747

See attachment

Alphabetical by sender's first name

Judy Urban 28951

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. My family has fond memories of many camping trips to the Boundary Waters area. To think that our state is willing to irrevocably change the pristine nature of this very special area for the benefit of a multinational corporation whose only goal is profits is unconscionable. No government entity has the right to make decisions that would negatively affect the health, and economic well-being of people for the next 500 years. Do not approve this threat to our state's greatest natural asset. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Judy Urban 1007 Cliff Rd Eagan, MN 55123-1908 (651) 454-3834

Judy Young 52182

To whom it may concern, I am concerned: we do not have sufficient information to guarantee environmental protections to land and water safety for wildlife and people. I lived twelve years on the Range and I also vacation many times a year near Ely. Before allowing consideration of mining proposals, I urge decision makers to be certain that the following clean water and environmental protection principles can be guaranteed: 1- BWCAW waters remain safe and clean; potential impact on health and safety of residents and visitors be studied. 2- Strong safeguards are in place in the event anything goes wrong – for centuries in the future. 3- Mining companies must leave the site maintenance free (in accordance with existing MN mining rules) I strongly urge careful scrutiny of proposals that have the potential to disturb and/or pollute the BWCAW; to disturb habitat for deer, wolves and other mammals and birds; to disturb the fishing climate of anglers of all ages and species. This eco climate and geography is precious to the well- being of future generations; wilderness cannot be replaced with museums of what used to be. Ju Judy Young 6 6711 Lake Shore Drive S. #503 Richfield, MN 55423 612-821-3789 A

Jukka Kukkonen 863

I just wanted to bring your attention to a story of the Talvivaara mine in Finland that can be used as an example what we can expect to happen here in Minnesota with PolyMet. The Talvivaara mine was opened in Finland in 2008- It turned out to be an environmental disaster and the company is now facing bankruptcy. http://en.wikipedia-org/wiki/Talvivaara_Mining_Company It is pretty easy to make a comparison between these projects. Nickel mining, similar climate, etc The environmental disaster was caused by waste water and treatment pond leaks in 2012 and 2013- When we think about the heavy downpours and flooding that Duluth experienced last summer, there is no (financially sustainable) way to build levies that could handle that kind of extra stress. Jukka Kukkonen Highland Park, St Paul

Julaine Heit 20162

The Supplemental Draft Environmental Impact Statement is inadequate. It does not provide any reassurance that this mining will not result in irreparable harm to the environment in Northern Minnesota. Polymet's proposed mine threatens our clean water and public health. Please do not allow this to proceed. Julaine Heit 5205 Upton Ave S Mpls, MN 55410

Julia Billmeier 18268

My name is Julia Billmeier. I am 11. I think that they shouldn't mine because it -- because there is a very, very high risk. 20 years of mining is not worth 500 years of cleaning up and 500 years of nobody being able to use it or have fun or do anything there. And I'm only 11 and I only went there a couple of times and I want to go there a lot more times, and I think if they mine, I won't be able to. Please, please, please do not mine because then it won't be wild anymore.

Alphabetical by sender's first name

Julia Hupperts 20132

Feb 27, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Do not allow this sulfide mining in Minnesota. I do not want even the slim posibility of our great state's water being poluted. Please think of future Minnesotans and keep this mining out of Minnesota. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Julia Hupperts 7 Sunset Ln Saint Paul, MN 55127-6455

49595

Feb 27, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Do not allow this sulfide mining in Minnesota. I do not want even the slim posibility of our great state's water being poluted. Please think of future Minnesotans and keep this mining out of Minnesota. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Julia Hupperts 7 Sunset Ln Saint Paul, MN 55127-6455

Julia Kleppin 23409

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, The PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement is clearly a threat to the water quality and environmental status of large natural areas PLUS Lake Superior. Open pit mining is the most environmentally destructive form of mining and considering that this impacts a large part of a NATIONAL PARK, how can any such permission be given to this project. Also, what is Polymet's history in care of the environment. What will the company be charged for this privilege to destroy a large tourist attraction and public water supply. Who could allow such destruction. It's pure madness - or bribery. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have huge concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining.This project is so harmful to our state. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not at all in the public intereSt Sincerely, Julia Kleppin 7038 N Lincolnshire Cir Milwaukee, WI 53223-6343

Julia Kloehn 47429

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. As a student, I am very concerned about the future environmental and public health of our state. The Polymet mine would reach the end of its useful life within my lifetime, and I think it's unfair that my generation as well as many generations to come would have to suffer the negative consequences of sulfide mining. Minnesota has a lot to lose in terms of precious cultural and natural resources, and it is not in the interest of the people in our state to make such a sacrifice. It's seen over and over again that even when people assure/expect systems to work, systems fail, and when considering the pristine natural resources of our state, this isn't a risk we should be willing to take. Finally, I don't believe it is morally right to destroy irreplaceable natural beauty, clean water, wild rice areas, and animal habitat for the sake of temporary profits. Nor can it be economically right either - taxpayer funded cleanup for hundreds of years is just as shortsighted. Please maintain our state's vital natural resources for my generation and generations to come. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Miss Julia Kloehn 4036 Xerxes Ave S Minneapolis, MN 55410-1146 (612) 926-9968

Alphabetical by sender's first name

Julia Kloehn 48585

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. As a student, I am very concerned about the future environmental and public health of our state. The Polymet mine would reach the end of its useful life within my lifetime, and I think it's unfair that my generation as well as many generations to come would have to suffer the negative consequences of sulfide mining. Minnesota has a lot to lose in terms of precious cultural and natural resources, and it is not in the interest of the people in our state to make such a sacrifice. It's seen over and over again that even when people assure/expect systems to work, systems fail, and when considering the pristine natural resources of our state, this isn't a risk we should be willing to take. Finally, I don't believe it is morally right to destroy irreplaceable natural beauty, clean water, wild rice areas, and animal habitat for the sake of temporary profits. Nor can it be economically right either - taxpayer funded cleanup for hundreds of years is just as shortsighted. Please maintain our state's vital natural resources for my generation and generations to come. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Miss Julia Kloehn 4036 Xerxes Ave S Minneapolis, MN 55410-1146 (612) 926-9968

Julia Nelson 41455

Dear Ms Fay, Dear Federal and State Agency Leaders: I'm concerned about several things with the PolyMet mine. Too many to list in a single comment, as far as I can see. So I'm picking a couple of the major ones. My overall concerns is with the possible contamination of the groundwater and what that means. There are several parts to this. 1- The tailings are destined for unlined pits, including using an existing pit that is known to leak. That doesn't just create the possibility of leaking, it essentially guarantees it. 2- This is the part of the drainage into Lake Superior. The Great Lakes represent 20% of the fresh water in the world. Not the US or even North America, the world. All of the ;projections are that water is going to be a precious resource this century and probably after. Taking any sort of chance on contaminating that large and important a resource is frankly insane. While the Great Lakes are large, poison is ;poison and there are already sources dumping in there. Don't add to it. The importance of the cumulative effect should be considered. 3- Effects on the local biota is also a concern. There has been a recent study (University of MN at Duluth was involved) that shows even low levels of sulfides have a notable and long-term effect on wild rice. There is no reason to think that would be the only effect, and even that is going to affect the living and the finances of the population in the arrowhead region. Plus any effects on the wildlife. 4- Climate change is happening. Even aside from the cause, it's happening and there is going to be continuing change through the century and beyond. One of the predicted effects is a greater frequency of severe rains. The SDEIS does not address this, despite the fairly recent experience in the Duluth area, which is clearly not far away. My preference is to simply not allow the mine. I don't see enough potential advantages to offset the risks. But at a minimum the final EIS should address A. The effects and mitigation of heavy rainfall (of at least the 100-year severity), including having something of that intensity at least on a decadal basis. B. Better control in any case of the tailings and drainage from them. Line the pits, start the reverse osmosis immediately, and impose a significant fine if the standards are not met. Sincerely Julia Nelson Julia Nelson 812 Queen Av N Minneapolis, MN 55411 612 588 8910

Alphabetical by sender's first name

Julia Valero 48202

10 new people recently signed Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota." on Change-org. There are now 329 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 330- Julia Valero Mahtomedi, Minnesota 329- Sam Neubauer Northfield, Minnesota 327- Mackenzie Crumb Mahtomedi, Minnesota 326- Juliann Skarda Northfield, Minnesota 325- Tara Westerlund Andover, Minnesota 324- Rachel Eckert Flagstaff, Arizona 323- Michael Engler Morris, Minnesota 322- Alyssa Powell Chicago Heights, Illinois 321- Sidney Paulson morris, Minnesota 320- Jack Jepsen-DeSpiegelaere Saint Paul, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJmaXZlX2h1bmRyZWQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTI3LCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA0NDUyNTh9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK3FoJgbry3y5jYnoiM93OEmWaBw-2FAqlvcwsZgi8iEBgCmW5Rn6Gjn41ESiHwzYo7RFPWdlJxL0-2FDpcHSYFgm0jqy6NOdiHVwSuPnuyH1sGpEuALDLMEi76Qtm7GbxNB4GBKorC6AD89YFLMapsjpknr6k7Ladub2ZvC87ARob7HSD-2Fa9RgC8nH8soRlKqMGdwgwAuMjJP4vgoCGn-2Fhm4bCwZUwF2ykViRc-2BI0x3P4Q-2F6

Julia Wilber 39678

Dear Lisa Fay, My email today is about the proposed PolyMet NorthMet Mine. I am concerned that the supplemental draft environmental impact statement is inadequate and the proposed mine plan would have unacceptable environmental impacts. I am also concerned that the proposed economic good that will come of the mine won't be seen by the communities that so hope for it. Given the mining industry's history, it is very likely that most of the jobs will be filled by professionals from overseas. This does not allow for economic prosperity to come to the communities in Northern Minnesota, and it also endangers another source of income for the community-the Boundary Waters. People from all over the state, country, and world enjoy the Boundary Waters. This protected wilderness area is a great pride of the State and a resource that should not be treated lightly. 500 years of pollution is a completely unreasonable amount of time to "take responsibility" for something-no company has ever existed for that long, our own nation hasn't. It is not possible take responsibility for something like that, and PolyMet should not be allowed to fake it. In the meantime, the Waters that are already at risk from invasive species and climate change will face another threat, and it not only endangers the environment that both wildlife and humans need, but also the economy of those who depend on tourism. This is not a City Vacationers vs Northern residents debate. The resources of the state, both up and down, belong to all of us together. We need to do what is best for all of us, in the present and for our future. Please reject the mines as proposed and require strict environmental and social standards of any mine proposed. Thank you for your hard work. Julia - Julia Wilber Hamilton College '11 Thomas J. Watson Fellow 2011-2012

Alphabetical by sender's first name

Julian Sellers 43024

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay: This comment pertains to the effects the proposed NorthMet mine would have on two avian species: northern goshawk (Accipiter gentilis) and Boreal Owl (Aegolius funereus). The habitat requirements of these two species are similar, and the proposed mine would affect them similarly. The Supplemental Draft Environmental Impact Statement does not adequately address the status and outlook for these species in Minnesota. Section 4-2-5-1-2, Species of Greatest Conservation Need, of the SDEIS contains the following: Mature upland and lowland forest is the most common habitat type at the NorthMet Project area (primarily at the Mine Site). Section 4-2-4 provides a more detailed discussion of vegetation cover and habitat types. Northern goshawk, spruce grouse, black-backed woodpecker, and boreal owl were observed in these forests (ENSR 2005). These species represent a group that generally requires large forested blocks and/or minimal human intrusion. Section 4-2-5-1-3, Regional Forester Sensitive Species, misstates the status of northern goshawk and boreal owl in Minnesota. That section states: Four of these RFSS species are state-listed ETSC species (ie, gray wolf, bald eagle, wood turtle, and eastern heather vole) and are discussed above. Seven other species are on the SGCN list and are discussed by habitat type in Table 4-2-5-1- These species include the boreal owl (Aegolias [sic] funereus), . And: The northern goshawk (Accipiter gentilis) is not federally or state-listed. In fact, the Minnesota Department of Natural Resources added both species to the list of Special Concern species in August, 2013- The Minnesota DNR defines Special Concern species, in part, as follows: A species is considered a species of special concern if, although the species is not endangered or threatened, it is extremely uncommon in Minnesota, or has unique or highly specific habitat requirements and deserves careful monitoring of its status. Both the northern goshawk and the boreal owl meet this definition. In fact, when the DNR proposed this listing, Audubon Minnesota objected, stating that both species should be listed as Threatened rather than Special Concern. Here is Audubon Minnesota's justification for the Threatened status of both species: Northern Goshawk – Audubon Minnesota believes that the Northern Goshawk should be listed as Threatened. Listing this species on the Special Concern list, as proposed by the DNR, does not properly reflect the current status of this bird and will not provide an appropriate degree of protection to ensure its future in the state. As noted on the Species Status Sheet, there has been an average of only 29 territories found in MN annually in the recent past, in spite of intensive surveys by the DNR and the US Forest Service. Additionally, as the SONAR shows, the Minnesota population has lower productivity than found in populations in other parts of the country. While we recognize that the species habitat needs are not fully understood in this part of North America, there is strong evidence suggesting that large patches of mature forests are very important to the Northern Goshawk. This habitat is currently in decline in Minnesota, and recent land management decisions are likely to exacerbate this slide. There are no plans to increase this habitat type in the future. Boreal Owl – Audubon Minnesota believes that the Boreal Owl should be listed as Threatened. The proposal by the DNR to list this species as Special Concern does not adequately address the needs of this species in the State nor ensure its survival. It is reasonable to believe that this species has never occurred in high numbers in the State, and the decline in numbers over the past decade indicates that the population is in danger

Juliana Day 42047

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Juliana Day st louis park, Minnesota

Julie & Brigg Backer 33924

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, It's not worth the risk for 360 jobs. Sincerely, Julie and Brigg Backer 5336 Ewing Ave S Minneapolis, MN 55410-2011

Alphabetical by sender's first name

Julie A. Vennewitz 43952

As a lifelong Minnesota resident, I do not support the copper mining proposal. The negative environmental impact will long outlast the temporary boost to the economy. It threatens to do permanent damage to Minnesota's recreation and tourism industries. Recreation and tourism could continue to provide jobs for decades to come, much longer than the proposed mining jobs. If the project causes long-lasting damage to our natural resources, especially our water, the tourism and recreation industries could be destroyed. As we have seen in the past, companies come and go, and the promises a company makes disappear when it goes out of business or changes ownership. In the meantime the state, its people and wildlife will suffer the consequences for decades or even centuries to come. Julie Vennewitz Sent from my iPad

Julie Anderson 40367

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Julie Bonham 48181

25 people recently add their names to Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=one_thousand"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota.". That means more than 500 people have signed on. There are now 526 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=one_thousand"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 521- Allison Chock Morris, Minnesota 520- Meagan Rollins North Branch, Minnesota 519- Olivia Ilgar Litchfield, Minnesota 518- Olivia Bennett Morris, Minnesota 517- stephen delahunt milwaukee, Wisconsin 516- Hannah Garrett Chicago, Illinois 515- Joseph Loeffler Minneapolis, Minnesota 511- Kate Stetina Boulder, Colorado 510- Julian Childs-Walker Minneapolis, Minnesota 509- Anna Levy Ridgefield, Connecticut 508- Heather Hilgendorf Bristol, Virginia 507- William Harrington Chicago, Illinois 506- Valerie Skaalrud White Bear Lake, Minnesota 503- Danielle Bishop Winnetka, Illinois 502- Lucia Childs-Walker Northfield, Minnesota 501- Adiroopa Mukherjee Morris, Minnesota 500- Eli Goyke Ashland, Wisconsin 499- Nathan Torell Eden Prairie, Minnesota 497- Jonah Lazarus Oak Park, Illinois 496- Michaelk Moen Wausau, Wisconsin 495- Vera Davis Avondale, Arizona 494- Kari Bull Minneapolis, Minnesota 493- Geoff Perkins Des Moines, Iowa 490- Jeff Powell Anoka, Minnesota 489- Marti McAllister Orange City, Iowa http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJvbmVfdGhvdXNhbmQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTMzLCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA5MjczMjZ9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK-2Bu7R9xv-2FZ3x1TW2PvUe-2BH23AcsK3X9E4NVlYZ79ZFzFx4iT-2BacZYJlubn7C86-2FBI1OO0Rqlugk1UmmIHyO-2BEubRE67KoeMNknWok3Aj533Z419NfzHEdojk-2Bf1-2BLo

Alphabetical by sender's first name

Julie Cahoy 39689

Lisa Fay MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Raod, Box 25 St Paul, MN 55155-4025 Dear Ms Fay, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement(SDEIS). In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. My first concern would be the details of the proposed water treatment systems, specifically is there a system that has been tested that is capable of handling six million gallons a day. Have they tested the systems, how about a back up system, if they have to switch to a back up, can it handle six million gallons a day. How long will the system last, and what are the plans to replace it at regular intervals. What are the contingency plans for mishaps such as pipeline spills, accidental releases, and failures of water collection and treatment systeMs My second concern is how this water treatment system is going to be paid for, and maintained and monitored for up to five centuries. The mining industry is responsible for the largest and cost costly environmental clean-ups in our nation. I would expect at a minimum Minnesota taxpayers are protected. What are the financial safeguards that are proposed. What happens when the company goes out of business, either bankrupt or closed because its useful life has ended. Are they putting up earnest money, if so what percent of the typical cleanup are they putting up, who is going to manage the funds and safeguard them for the general public. Are they buying insurance policies, if so how do we know they will be around in 100 or 200 years. What is being proposed could potentially and negatively effect one of Minnesota's most precious resources, water. Please do not jeopardize Minnesota's water resource in exchange for a short term profit of copper, nickel and other metals unless water is protected for all Minnesotans for 500 years and beyond. Respectfully, Julie Cahoy 16501 30th Ave North Plymouth, MN 55447 HYPERLINK "mailto:jacahoy@hotmail-com"jacahoy@hotmail-com

Julie Greenwood 16265

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Julie Howard 40723

Dear Lisa Fay, I am strongly opposed to the copper, nickel, paladium, and gold mines propsed by Twin Metals and Polymet that would be located south and west of Ely, Minnesota. The Boundary Waters Canoe Area Wilderness is America's most visited wilderness area and one of the oldest designated wilderness areas in the nation. Despite what proponents of the copper-nickel mines say, creating new mines within 50 miles of Ely would be extremely detrimental to our local economy. The mines will not only be an eyesore, they will also increase rail and truck traffic, which would negatively affect tourism in the area. The noise from drilling and moving material destroys the wilderness experience on the southern end of the Wilderness area near Spruce Road and Birch Lake. Most importantly, there is no evidence that our most precious resource, the interconnected system of pristine waterways, will adequately be protected. Acid mine drainage in our waters is unacceptable. Sulfide-bearing rock brought to the surface will turn into sulfuric acid and leach into our waterways, resulting in irreparable damage to our biotic community. DO NOT ALLOW ANY HARD ROCK MINING WITHIN 50 MILES OF ELY MINNESOTA.. Thank you for your time. - Julie Howard Native Fisheries Biologist Utah Division of Wildlife Resources Moab Field Station 1165 S Hwy 191 Suite 4 Moab, UT 84532 HYPERLINK "mailto:juliehoward@utah-gov"juliehoward@utah-gov 435-259-3781 (office) 435-630-1066 (cell)

JULIE HURLBUT 41054

Greetings, It has come to my attention that use of land in northern Minnesota is being considered for the Polymet sulfide mine. I have done my best to educate myself on the issue, being a person who spends nearly all of my vacation time in the far north of the state. The land there is a true treasure for the whole nation. No price can be put on the resources of beauty, serenity, renewal and unspoiled land that is offered in the currently protected areas. We know from so many sources that mining is a dirty, dangerous and negatively transforming activity, that the cost of clean up is high and the time for ecosystems to return to a healthy state is quite long .and sometimes they don't recover completely ever. There is too much at stake to allow Polymet to despoil the land and water of Minnesota. Many people are dependent on well water in the proposed area,and if, as in many other parts of the nation, the wells become toxic, how will they ever be restored. What will the people do. There are some things at this point in history that are too valuable to be jeopardized. Water is one of them. We stand at a point in history where even in this nation there quite likely will be unrest over the issue of water. California, Nevada and other places are coming up against severe shortages and where will they look for additional water. To the aquifers and the Great Lakes, that's where. As water is shared more and more, the need for clean ground water becomes greater and greater. We simply cannot take a chance on the water resources of the northern Minnesota wells. It seems in every quarter, the most basic requirements for human health, clean water and clean air, are being sacrificed in the name of profit and a relatively small number of jobs. When will we begin to take seriously the needs of future generations for these resources. What's the sense of having a job if it means ravaging and polluting the environment which in term leads to the damaging of your children's and your grandchildren's health. Please, please have the decency and courage to stand up for the health of the people and the resources entrusted to you of the beautiful state of Minnesota. Sincerely, Julie Hurlbut 2433 Davisson Street River Grove, Il. 60171 HYPERLINK "mailto:JULS60171@yahoo.cpom"JULS60171@yahoo.cpom

Julie Jeatran 38729

Dear Ms Fay, Dear Federal and State Agency Leaders: I am asking that you reject the exchange of Superior National Forest land that would allow PolyMet to move forward with its proposed open-pit mine for the following reasons: 1) It would conflict with the forest plan for the Superior National Forest which is your primary responsibility and my and my family's heritage to our children. 2) It would violate Federal statutes and laws to create a windfall of profits for a private company, while causing harm to the resources and wildlife in the area. You cannot put a price on this land. 3) The people who are being affected should have a say in over 6,000 acres being given away and traded for what parcels of land. Will they be accessible to us, useable by us for recreation, hunting and fishing, as valuable as what is being traded away, etc. 4) A separate environmental impact statement by law needs to be done investigating the impacts of this exchange. I have the right to see this and comment on it. Thank you for your consideration of my comments. Julie A. Jeatran Julie Jeatran 2121 E. Third Street, #1 Duluth, MN 55812 218-525-4595

Alphabetical by sender's first name

Julie Jeatran 38738

Dear Ms Fay, Dear Sir/Madam: After researching and studying Polymet's SDEIS, I ask that you reject it as inadequate and INACCURATE. The PolyMet SDEIS is an expensive boilerplate document full of fake science. It's size is daunting but it does not deceive if you just consider the following: 1) An independent geological study shows fault lines directly below the (unlined) tailings basins. This means that the amount of seepage that PolyMet estimates has to be inaccurate. I would like to see more studies about this. 2) No studies have been done on the impact of arsenic, mercury, nor asbestos-like fibers that will be a by-product of this open-pit mine on human or animal health. Already endangered moose populate this area. 3) It doesn't analyze the effect of pollution our Northland's most precious resource: WATER. What are the mine's effects on drinking water, surrounding wetlands and/or the rivers and streams we love to fish from (not to mention the contamination of the fish we then eat from them).. 4) Stating that pollution from the mine would need to be treated for 500+ years and saying that they would responsibly do this is pure science fiction. Where would the money come from and where are the guarantees. We can be more creative. There is more copper in our landfills ('mining' which would use much less energy and produce much less waste) than that which is estimated in this mine. Thank you for your consideration of my comments and concerns. Again I ask that you reject PolyMet's SDEIS. Sincerely, Julie A. Jeatran 2121 E. Third Street, #1 Duluth, MN 55812 218-525-4595 Julie Jeatran 2121 E. Third Street, #1 Duluth, MN 55812 218-525-4595

Julie Klassen 58006

Wild Rice, fish, & all living creatures need clean water not polluted water from the mine for 500 years. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Julie Lochowski-Haney 47223

Mar 12, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. PolyMet's study of the impact of their proposed mine states that water from the mine site will need at least 500 years of treatment. 500 years ago - the year 1514 - Henry the Eighth was King of England. What sane person would believe that a modern company could provide 500 years of protection for Minnesota's waters. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Julie Lochowski-Haney 1384 Sargent Ave Saint Paul, MN 55105-2327 (651) 291-0482

48568

Mar 12, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. PolyMet's study of the impact of their proposed mine states that water from the mine site will need at least 500 years of treatment. 500 years ago - the year 1514 - Henry the Eighth was King of England. What sane person would believe that a modern company could provide 500 years of protection for Minnesota's waters. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Julie Lochowski-Haney 1384 Sargent Ave Saint Paul, MN 55105-2327 (651) 291-0482

Alphabetical by sender's first name

Julie MacRae 16976

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Julie MacRae 18900 Rutledge Rd Deephaven, MN 55391

50262

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Julie MacRae 18900 Rutledge Rd Deephaven, MN 55391

Alphabetical by sender's first name

Julie Nelson 39781

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Julie Nelson 240 5th St E Apt 308 Saint Paul, MN 55101-1873 (612) 824-2121

39782

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Julie Nelson 240 5th St E Apt 308 Saint Paul, MN 55101-1873 (612) 824-2121

Alphabetical by sender's first name

Julie Nester 21381

TO: Minnesota Department of Natural Resources HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us FROM: Julie Nester, 4800 Lyndale Ave S, Minneapolis, MN 55419 HYPERLINK "mailto:jnester4800@msn-com"jnester4800@msn-com DATE: 2/23/14 RE: Comment on PolyMet sufide mine SDEIS The PolyMet SDEIS has been shown to rely on an inaccurate water model and provides incomplete information about the health and environmental consequences of its proposed sulfide mine in Minnesota. I feel strongly that Minnesota DNR must require PolyMet to provide a plan that addresses the following: 1- Does the proposed mine plan keep Minnesota's water safe and clean. · The USEPA gave the proposed mine its lowest ranking: Environmentally Unsatisfactory and Inadequate. Polymet's SDEIS clearly shows that after 20 years, there will be three enormous pits up to 696 feet deep full of water polluted with sulfuric acid and toxic heavy metals. Treatment at the mine site will be required for a minimum of 200 years and at the plant site for a minimum of 500 years. Mine tailings will be added to an existing tailings basin that is currently leaking polluted water. I don't think there is anyone arguing that the mine will keep our water safe and clean. In fact, we will be responsible for polluting water for countless future generations. 2- Does the proposed mine plan put safeguards in place for when things go wrong. · There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin failure. These are foreseeable events that should have emergency plans developed and articulated so the public knows if the company has the ability to respond to a crisis. Glencore, PolyMet's largest investor has a long history of environmental pollution. Tony Hayward, the former CEO of BP is the interim chairman of Glencore's boaRd We must require PolyMet to disclose plans for dealing with environmental disasters on the scale of Glencore's and BP's past accidents. · The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates in the Lake Superior watershed. In the event of a likely accident, how would PolyMet prevent polluted water from reaching Lake Superior and the rest of the Great Lakes, which contain 20% of the Earth's fresh water. 3- Does the mine leave the site clean and maintenance free. · A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. How will PolyMet ensure and pay for pumping after the mine is closed. · A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. The SDEIS does not address in sufficient detail the amount of mercury and methylmercury released into the Embarrass River. 4- Does the mine plan protect Minnesota Taxpayers. · We cannot wait until the permitting process to answer this question. It is unfair to Minnesotans that this SDEIS does not address whether the financial assurance is adequate. Given the uncertainty of the amount of anticipated and unanticipated water pollution and the required treatment period, how will Polymet and the DNR protect taxpayers centuries into the future. The financial consequences of this project will outlive everyone, every mining company, and even every governmental institution we know today. The PolyMet SDEIS gives no details of the amount and type of damage deposit adequate to cover the cost of treating water for countess generations into the future. The consequences of our decisions on sulfide mining are guarant

Julie O'Leary 42934

Attached please find a comment on the NorthMet SDEIS Julie O'Leary 5128 Arnold Rd Duluth, MN 55803

Alphabetical by sender's first name

Julie Pavelich 40061

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Julie Pierce 18373

My name is Julie Pierce. I would yield my time to Pat Mullen.

Julie Sheehy 14812

As a resident of Ely, I certainly understand the need for good paying jobs. I feel that allowing this mine could potentially do such harm to our environment that it's not worth the risk. Especially given the fact that our water supply is already dwindling. Thank you.

Alphabetical by sender's first name

Julie Stoltman-Kubes 16156

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Julie Tinberg 41902

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Julie Tinberg 6801 W 83rd Street Ter Bloomington, MN 55438-1240

Alphabetical by sender's first name

Julie Varichak 21406

To whom it may concern: I have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I am a mine engineer with Cliffs Natural Resources and have experienced first-hand the environmental and safety regulations the State and Federal agencies have in place. It is my opinion that PolyMet will be held to the same high standard where the people and the environment will be protected. I find it irresponsible that people hold a double standard when it comes to mining and the minerals required to maintain the lifestyle we have ALL come to rely on. Developing these mineral resources in Minnesota, where we hold a high standard for safety and environmental behavior, ensures that the minerals are extracted responsibly. I support the thorough evaluation completed by numerous agencies, I attended many informational sessions throughout the process, and I support the decision to move forward with PolyMet. Thank you for your efforts in presenting a complete and thorough evaluation- Sincerely, Julie M. Varichak 13149 Watson Bay Rd Side Lake, MN 55781

Julie Viken 47654

I am writing to you with many concerns over the Polymet proposal. First is that the earth only has about .3% freshwater, and Lake Superior would be ruined by this mining. Second is that this proposal does not pose any money for after they mine, and that is very important. Look at WI and see why they restricted mining until they can prove they haven't ruined the environment for 20 years. Finally if this proposal is approved then other similar mining proposal would most likely be fast tracked and the next one would ruin the BWCA, one of the most visited natural areas in the world. Please turn back this idea that jobs are more important than the environment. Thanks, Julie Viken 1964 Prior Ave N Roseville MN 55113

Julie Weisbecker 39749

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Julie Weisbecker 1862 Walsh Ln Saint Paul, MN 55118-4242

Juliette Wilson 57887

I ask you to oppose PolyMet's proposal for sulfide ore mining in the Superior National Forest at the headwaters of the St. Louis River. They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area. The mining will leave square miles of talcum powder-fine waste, piled high. Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock. PolyMet suggests that to prevent pollution of the St. Louis River watershed they will collect the hundreds of millions of gallons of rain and snowmelt waters that filter through the waste every year and run them through water treatment plants ... for up to five centuries. The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project. The cost liability for cleanup over centuries is also a great cause for concern. Please oppose this project. As long as PolyMet (or anyone) says "it's handled"--it isn't. When will we learn to stop making things worse, things that can never be mitigated even though in our hubris we think nothing will go wrong or if it does, it's fixable? Please don't let short-term views override long-term costs.

Alphabetical by sender's first name

June Peterson 41906

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs June Peterson 4300 W River Pkwy Apt 437 Minneapolis, MN 55406-3681

June Stewart 54806

See attachment

Juola (Joe) Haga 40858

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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Justin Atkinson 16318

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Justin Dzelzkalns 23218

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I'm all for the development of out natural resources in safe, ethical ways. I have been enjoying the BWCA for years with my family and friends; it has incorporated itself into a large part of my self identity. Let's use our natural resources in a way that doesn't jeopardize an irreplacable part of our national heritage. I understand that opening a new mine means new jobs and money, but the BWCA is already a large tourist draw and supports the local and state economy. There seems to be limited upside with significant potential downside; fiscally and ethically it doesn't seem like it's worth the risk. If mining must be done, then couldn't a pilot program be run in a less environmentally sensitive part of the state. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Justin Dzelzkalns 4866 N Rockwell St Apt 1w Chicago, IL 60625-2851

Justin Hager 42530

See attachment

Alphabetical by sender's first name

Justin Halverson 39607

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Justin Halverson 701 Fulton St SE Minneapolis, MN 55455-0358 (952) 769-7860

Justin Hockensmith 6039

DNR, I am absolutely against the mining proposal. However, I understand the environmentalists against the project do not offer any alternative to job creations in the north woods. Fully expecting the short-term gratification of job creation, tax revenue, and company profits to silence the obvious negative impact sulfur mining has on the environment, I ask the DNR, state legislators, and the governor to impose extremely harsh financial penalties on PolyMet if, for whatever reason, environmental destruction occurs. Too many times companies involved in this industry get away with "slaps on the wrist" penalties or go to court with their slew of lawyers and gain unjust victories. I want PolyMet to put their money where their mouth is and allow massive financial penalties to occur if the mine does eventually leak sulfur into our state's waters Justin Hockensmith Sent from my iPhone

Justin M Anderson 57253

As a union delegate organizing in Duluth, MN, I cannot support the proposed PolyMet project. Regardless of what the project may be, anything backed and primarily invested in by Glencore or any group involved in anti-union, anti-worker, anti-human rights should and must be opposed. No workforce, including here in the MN northland, should be subject to the exploitations of Polymet and this industry. Justin M. AndersonPO Box 3232Duluth, MN 55803

Justine King 40339

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Justine King 444 East 75th Street #7C New York, FL 33433 US

Alphabetical by sender's first name

Justine Pliska 58136

I wish you comment that I think the mining of heavy metals in the state is bad for Minnesota. Despite good intentions, this action will pillage our fragile environment beyond repair. The negative impacts on human health through water and heavy metal toxins will cost much more than the short-term benefits the jobs will provide. The community throughout the state and adjuacent states will be negatively impacted if this project is allowed to continue.

K Helms 40442

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

K Smith 53557

Protect our water! Hooded Mergansers swim in northeastern Minnesota's pristine marshes, ponds, and rivers, feeding on fish, crayfish, frogs, and insects. PolyMet Corporation is proposing to destroy thousands of acres of pristine habitat to mine sulfide ore at the headwaters of the St. Louis River - a major waterway that flows over 180 miles to Lake Superior. PolyMet's, a company with 0 years experience, proposal calls for 20 years of mining, and they acknowledge that 500 years of toxic runoff will need to be collected and treated. Please do the math. Just like the Hooded Merganser, our children and grandchildren all deserve clean water. Let clean water be our legacy - not toxic pollution from mining! Companies w/many more years of experience mining still walk away from mines they can't afford or don't know how to clean up!

Alphabetical by sender's first name

K Theiss 39871

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. *** As a teen, I first experienced the purity of the Boundary Waters and found out what a gorgeous heritage we share with Canada. My 6 children have also experienced this beauty We are native Minnesotans and do NOT want such mining and its negativity to ruin what we have helped preserve. Too many states give in to the temptation to ruin what nature strives to give us freely. My 4 grandchildren will soon be part of this big picture. There are other ways to create energy that do not destroy nature Clean, available water is obviously becoming a premium item let us PRESERVE it *** I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms K Theiss 2095 Mesabi Ave Saint Paul, MN 55109-1700

K Weller 29792

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Multinational corporation PolyMet is seeking permission for an open pit sulfide mine on National Forest lands near the Boundary Waters Canoe Area Wilderness and Lake Superior. If approved the mine will pollute Lake Superior, threaten our clean water and wildlands, and endanger public health for generations to come. A decision in favor of PolyMet's proposal would open a floodgate for more sulfide mining in a large area near Lake Superior and surrounding the Boundary Waters Wilderness - considered by some as one of the most beautiful wilderness areas in the world. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes, and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, K Weller 533 S 28th St Lafayette, IN 47904-3217

K. Cash Luck 39631

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. It is about time to ignore the dollar and protect our land. Cash Luck Sincerely, K. Cash Luck 6091 Fort Thunder Dr NE Remer, MN 56672-3056 (218) 566-2902

Alphabetical by sender's first name

K.M. Greenwood 15723

Feb 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuri

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Kaare Melby 44984

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I am writing you to ask you to reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. I am concerned that the PolyMet open-pit sulfide mine would damage the wild rice that naturally grows in the Partridge River watershed. My family has harvested and eaten wild rice as a large part of our diet for my entire life. This is a tradition and a way of life that I wish to pass on to my children, and a tradition that would be threatened by the water pollution caused by the PolyMet open-pit sulfide mine. For this reason I ask you to reject the PolyMet NorthMet SDEIS. I am also concerned that the PolyMet open-pit sulfide mine would increase Methylmercury contamination of fish all the way to the St Louis River estuary resulting from mercury and sulfate pollution and impacts to wetlands. Fish is another important staple that I harvest as sustenance for my family. But if the fish become too contaminated with Methylmercury they will no longer be safe for my family to eat, and we would be forced to discontinue this tradition as well. This saddens me because the PolyMet open-pit sulfide mine would threaten my ability to teach my children how to support themselves by fishing and harvesting wild rice. For this reason I ask you to reject the PolyMet NorthMet SDEIS. I am also concerned about the long-term cost of water treatment that will be left to the public at the rate of $3,600,000 - $6,000,000 per year for the next 200 – 500 years. This is a huge expense that should not be left to the public and future generations. Last month 59 groups in Minnesota, Wisconsin and Michigan asked the United States Environmental Protection Agency to do a cumulative analysis of the effects of mining on the Lake Superior Basin. These 59 groups included Duluth businesses, non-profits, and faith groups, like Whole Foods Community Co-op Duluth, Institute for a Sustainable Future, Idle No More Duluth and Peace United Church of Christ Food, Energy and Environment Team. On January 6, Congress woman Betty McCollum sent a letter urging the EPA to use the funds provided by Congress to conduct an assessment and inform the citizens of the "generational consequences of sulfide mining to impacted ecosystems, human health and the basin's tremendous water resource." The PolyMet PSDEIS doesn't study impacts that could affect mercury contamination of fish in the St Louis River estuary, let alone impacts to habitats and tribal resources in the region. A collative effects analysis of mining should be done before the PolyMet SDEIS gets finalized. That would permit us to know the consequences before opening up Minnesota's Northeast to a sulfide mining district. The PolyMet SDEIS artificially limited cumulative effects discussion of water quality to just the Partridge and Embarrass Rivers. The St Louis River was left out completely. This cuts out anyone who fishes or eats fish caught downstream in the St Louis River or Lake Superior and ignores impacts on Fond du Lac tribal waters. It is not good science. The PolyMet project would increase mercury in the Embarrass River and could increase mercury methylation near the mine site as well. Increases in mercury or sulfates at PolyMet could increase mercury in fish in the St Louis River. Both existing LTV tailings seeps and other mine discharges flowing into the St Louis River also carry high levels of specific conductance, which the EPA has found can be toxic to fish. Tribal research shows that specific conductance is a water chemistry "signature" for mining discharge that can take more than 100 miles to dissipate. (SDEIS, Tribal CEA, pp. 16-17). Cumlative analysis of water quality impacts in the SDEIS must include the St Louis River and

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Kacie Carlson 44179

Dear Fellow Leaders of the Minnesota Department of Natural Resources - I write to you not with scientific reasoning as to the numerous reasons why PolyMet's SDEIS is inadequate, but with demands for the DNR to uphold its mission, goals and responsibilities as it has been established to do so and as the leaders of this agency have been entrusted by the State of Minnesota. The DNR mission states, "The mission of the Minnesota Department of Natural Resources (DNR) is to work with the citizens to conserve and manage the state's natural resources, to provide recreation opportunities and provide for commercial uses of natural resources in a way that creates a sustainable quality of life." I hope that the leaders of this PolyMet project recognize that that mission statement is more than a sentence. It is a mission that they are expected to uphold. A definition of "sustainable quality of life" is defined by "a life that can be continued given the natural and social resources available and not at the expense of an acceptable quality of life for current generations, future generations and other nations." To uphold this sustainability, Minnesota law requires that sulfide mines be maintenance free at closure. Leaders of the DNR, uphold your responsibility to create a sustainable quality of life and deny PolyMet's proposal to mine until they can ensure that the entire site be maintenance free at closure. The Minnesota Department of Natural Resource's Strategic Conservation Agenda stated that "Minnesota is predicted to grow by more than 1 million people in the next 20 years. With population growth and associated development come increasing demands on natural systems – our lakes and rivers, forests and grasslands, wetlands and shorelands." It continues to say, "Conservation-based approaches are imperative for creating sustainable developments that protect, restore, and enhance the natural environment – the foundation for long-term economic benefits and quality of life." Conservation-based approaches are imperative. I demand, again, that the current leaders of the DNR uphold their responsibility to carry out these agendas which have been established in the absence of a singular biased event such as this PolyMet proposal, go through numerous government and public layers of review and approval, and are created with purpose - purpose to be utilized and defended in situations like this. Defend the DNR, your, Strategic Conservation Agenda by not allowing vagueness and future uncertainties in PolyMet's promises to be conservation-focused. Leaders before you have done this and we future generations have been burdened with maintaining numerous Superfund sites. Have the leaders who will ultimately allow or deny this proposal intently studied those past projects, their permits and the reality of the aftermath. We have established cleanup initiatives, directed more tax-payer funding and put forth energy not assumed when those Superfund sites were permitted mining actions. Current leaders of the DNR, stop this cycle of history repeating itself for our future generations by denying PolyMet's proposal to mine until there is absolutely no vagueness or uncertainty, and that all possible situations and unexpected events have established procedure that maintain the responsibilities set forth under the original permitted actions. The Strategic Conservation Agenda also states, "Two-thirds of Minnesota's public water supply comes from groundwater. Demand for water is increasing faster than population growth is increasing. As demand grows, some communities are struggling to find adequate supplies of clean water. As testing proceeds, the number of impaired waters will increase and the challenge of restoring them while protecting our healthiest waters will become even greater." One of the three long-term desired outcomes is that, "Groundwater and surface water are used in a way that does not degrade them for future generations." Again

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Kahsha Hyde 36406

Mar 3, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not adequately examine the risks to worker safety and public health from asbestos-like fibers found in the rocks that they propose to mine. I ask the DNR to require a more comprehensive public health assessment of the risk to workers and the public than what PolyMet has provided in the SDEIS. The SDEIS acknowledges that amphibole fibers are present in the rock to be mined, that crushing the rock for processing releases these fibers, and that these fibers are suspected of causing mesothelioma in workers. The SDEIS further acknowledges that there have been few studies of the risk from fibers of the size that would be created at the PolyMet mine and plant site. A number of mesothelioma cases were found in mine workers who worked in the LTV Erie Plant that PolyMet proposes to use as part of their mine plan, and the SDEIS inaccurately characterizes a University of Minnesota study of mesothelioma in mine worker as showing that this risk came exclusively from the use of commercial asbestos products in the mine. In fact, the University of Minnesota did not exonerate dust from crushing ore, and is continuing to study the health impact of exposure to short amphibole fibers of the type contained in the ore that PolyMet would mine and process. Specifically, the DNR should: 1) Revise the SDEIS and conduct a formal health assessment of the risk to public health and worker safety from the amphibole fibers present in the ore at the PolyMet mine site. The SDEIS should specifically conduct a formal health assessment of the risks from asbestos-like fibers less than 5 microns in length 2) Revise the SDEIS to provide details of the air monitoring at the mine and plant site and in nearby communities, and describe contingency plans to address the risk to public health and worker safety if asbestos-like fibers are detected during construction, operation, closure and post-closure 3) Revise the SDEIS to eliminate inaccurate characterizations of the University of Minnesota mesothelioma study. Specifically, eliminate statements that imply that commercial asbestos is the primary risk factor for mesothelioma risk Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I want to urge you to put support behind a deeper investigation on the consequences of the mine. I am not against mining. I am an Ely Minnesota native, a 21 year old who hopes to be able to return to the North Woods with my fiance, to raise my children and make my life. I grew up in the woods, surrounded by healthy trees, lakes and diverse ecosysteMs I am a biologist because of the experiences I had growing up there. I want the future generations to be assured access to these experiences as well. My home is built miles from the nearest highway, we have no power (other than a generator we use to power a battery) or running water/ septic. We drink directly from the lake that borders our property.My family lives well below the poverty line, but we always have plenty to eat. We spend our money on gas to get to work, propane for our lights and other man made necessities. We afford all we need to because our food is mostly grown on our own land or harvested out of the woods around our home. Our vegetable garden needs water, and durning the dry weeks, when we are not able to collect rain water, we haul water from the lake. The average family eats pasta or store bought rice 4 meals a week. Both pasta and store bought brown rice are significantly less nutritious than wild grown wild rice. My family doesn't buy past or rice, we harvest wild rice. Animals, which we hunt and eat, depend upon the water too. This and the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks po

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Kahsha Hyde 36407

Mar 3, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I want to urge you to put support behind a deeper investigation on the consequences of the mine. I am not against mining. I am an Ely Minnesota native, a 21 year old who hopes to be able to return to the North Woods with my fiance, to raise my children and make my life. I grew up in the woods, surrounded by healthy trees, lakes and diverse ecosysteMs I am a biologist because of the experiences I had growing up there. I want the future generations to be assured access to these experiences as well. My home is built miles from the nearest highway, we have no power (other than a generator we use to power a battery) or running water/ septic. We drink directly from the lake that borders our property.My family lives well below the poverty line, but we always have plenty to eat. We spend our money on gas to get to work, propane for our lights and other man made necessities. We afford all we need to because our food is mostly grown on our own land or harvested out of the woods around our home. Our vegetable garden needs water, and durning the dry weeks, when we are not able to collect rain water, we haul water from the lake. The average family eats pasta or store bought rice 4 meals a week. Both pasta and store bought brown rice are significantly less nutritious than wild grown wild rice. My family doesn't buy past or rice, we harvest wild rice. Animals, which we hunt and eat, depend upon the water too. This and the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system. My food source will be extinguished if this happens, an event I cannot sit by and let happen. Once I can be assured that the water systems are 100% free of being poten

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Kahsha Hyde 36408

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. I want to urge you to put support behind a deeper investigation on the consequences of the mine. I am not against mining. I am an Ely Minnesota native, a 21 year old who hopes to be able to return to the North Woods with my fiance, to raise my children and make my life. I grew up in the woods, surrounded by healthy trees, lakes and diverse ecosysteMs I am a biologist because of the experiences I had growing up there. I want the future generations to be assured access to these experiences as well. My home is built miles from the nearest highway, we have no power (other than a generator we use to power a battery) or running water/ septic. We drink directly from the lake that borders our property.My family lives well below the poverty line, but we always have plenty to eat. We spend our money on gas to get to work, propane for our lights and other man made necessities. We afford all we need to because our food is mostly grown on our own land or

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Kahsha Hyde 36410

Mar 3, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I want to urge you to put support behind a deeper investigation on the consequences of the mine. I am not against mining. I am an Ely Minnesota native, a 21 year old who hopes to be able to return to the North Woods with my fiance, to raise my children and make my life. I grew up in the woods, surrounded by healthy trees, lakes and diverse ecosysteMs I am a biologist because of the experiences I had growing up there. I want the future generations to be assured access to these experiences as well. My home is built miles from the nearest highway, we have no power (other than a generator we use to power a battery) or running water/ septic. We drink directly from the lake that borders our property.My family lives well below the poverty line, but we always have plenty to eat. We spend our money on gas to get to work, propane for our lights and other man made necessities. We afford all we need to because our food is mostly grown on our own land or harvested out of the woods around our home. Our vegetable garden needs water, and durning the dry weeks, when we are not able to collect rain water, we haul water from the lake. The average family eats pasta or store bought rice 4 meals a week. Both pasta and store bought brown rice are significantly less nutritious than wild grown wild rice. My family doesn't buy past or rice, we harvest wild rice. Animals, which we hunt and eat, depend upon the water too. This and the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system. My food source will be extinguished if this happens, an event I cannot sit by and let happen. Once I can be assured that the water systems are 100% free of being potentially polluted, I too will support the mine. Until then, I live in fear that someday I will not be able to feed my family or spend my life in the area I have chosen. Ely is a part of the Iron Range and was founded as a mining town, there are large mines in the near by area, these mines are not the same as the proposed polymet mine. Taconite or iron ore mining are in a completely different category than copper sulfate mining. Although neither benefit or promote the surrounding ecosystems the effects of copper sulfate mining are potentially, significantly, vastly more detrimental than those of pit mining. The proposed mines are not responsible for or directly effected by potential problems that may arise. The minerals are not going anywhere - I urge you to move towards further - non bias- research. The development of new, less destructive mining techniques could be just around the corner. Someday the minerals will be safely accessible, then we will be able to h

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Kahsha Hyde 36412

Mar 3, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I want to urge you to put support behind a deeper investigation on the consequences of the mine. I am not against mining. I am an Ely Minnesota native, a 21 year old who hopes to be able to return to the North Woods with my fiance, to raise my children and make my life. I grew up in the woods, surrounded by healthy trees, lakes and diverse ecosysteMs I am a biologist because of the experiences I had growing up there. I want the future generations to be assured access to these experiences as well. My home is built miles from the nearest highway, we have no power (other than a generator we use to power a battery) or running water/ septic. We drink directly from the lake that borders our property.My family lives well below the poverty line, but we always have plenty to eat. We spend our money on gas to get to work, propane for our lights and other man made necessities. We afford all we need to because our food is mostly grown on our own land or harvested out of the woods around our home. Our vegetable garden needs water, and durning the dry weeks, when we are not able to collect rain water, we haul water from the lake. The average family eats pasta or store bought rice 4 meals a week. Both pasta and store bought brown rice are significantly less nutritious than wild grown wild rice. My family doesn't buy past or rice, we harvest wild rice. Animals, which we hunt and eat, depend upon the water too. This and the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system. My food source will be extinguished if this happens, an event I cannot sit by and let happen. Once I can be assured that the water systems are 100% free of being potentially polluted, I too will support the mine. Until then, I live in fear that someday I will not be able to feed my family or spend my life in the area I have chosen. Ely is a part of the Iron Range and was founded as a mining town, there are large mines in the near by area, these mines are not the same as

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Kahsha Hyde 36413

Mar 3, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Wild Rice is Minnesota's state grain, and crucial for its cultural significance and importance for subsistence of Minnesota's Native Americans. Manoomin (wild rice) is recognized as a significant resource for Minnesota's tribes, access to which is protected by the Treaty of 1854- Even low levels of sulfates are proven to affect wild rice stands, a fact recognized by Minnesota's protective wild rice sulfate standaRd The PolyMet mine plan identifies wild rice beds downstream of the mine and plant, including part of the Embarrass and Partridge Rivers and Wynne Lake. Since sulfate levels in wild rice beds downstream of the proposed mine already exceed the standard, the proposal must demonstrate it "would have an acceptably high probability of not increasing sulfate concentrations in these areas" (p. 5-5). The mine plan does not meet this teSt PolyMet claims they will meet this standard by using water treatment (including reverse osmosis) to eliminate sulfates before wastewater is released. However, the mine plan predicts that 5-2 million gallons per year will seep out without treatment at the Mine Site after closure, and 11 million gallons of untreated water per year will escape the Tailings Basin (5-8). This seepage will surface and enter streams and rivers nearby. The standard to protect wild rice is 10 milligrams grams per liter of water. The waste rock left behind at the Mine Site will create runoff with sulfate levels of 2,000 to 4,000 micrograms per liter after closure, 5 million gallons of which will escape untreated every year. In fact, the SDEIS predicts that many years after closure this could violate the sulfate standard to protect wild rice, requiring additional measures (5-142). The SDEIS is contradictory, on the one hand relying on mechanical water treatment for hundreds of years in order to seemingly meet the sulfate standard, but also describing possible passive treatments that may be developed that would seasonally violate the protective sulfate standards. The EIS should eliminate that contradiction. Lastly, the SDEIS inadequately characterizes wild rice waters downstream of the PolyMet sites. The Great Lakes Indian Fish and Wildlife Council has provided additional wild rice sites other than those included in the SDEIS. The EIS should be revised to include these additional wild rice waters. I want to urge you to put support behind a deeper investigation on the consequences of the mine. I am not against mining. I am an Ely Minnesota native, a 21 year old who hopes to be able to return to the North Woods with my fiance, to raise my children and make my life. I grew up in the woods, surrounded by healthy trees, lakes and diverse ecosysteMs I am a biologist because of the experiences I had growing up there. I want the future generations to be assured access to these experiences as well. My home is built miles from the nearest highway, we have no power (other than a generator we use to power a battery) or running water/ septic. We drink directly from the lake that borders our property.My family lives well below the poverty line, but we always have plenty to eat. We spend our money on gas to get to work, propane for our lights and other man made necessities. We afford all we need to because our food is mostly grown on our own land or harvested out of the woods around our home. Our vegetable garden needs water, and durning the dry weeks, when we are not able to collect rain water, we haul water from the lake. The average family eats pasta or store bought rice 4 meals a week. Both pasta and store bought brown rice are significantly less nutritious than wild grown wild rice. My family doesn't buy past or rice, we harvest wild rice. Animals, which we hunt and eat, depend upon the water too. This and the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine

Alphabetical by sender's first name

Kahsha Hyde 36414

Mar 3, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I want to urge you to put support behind a deeper investigation on the consequences of the mine. I am not against mining. I am an Ely Minnesota native, a 21 year old who hopes to be able to return to the North Woods with my fiance, to raise my children and make my life. I grew up in the woods, surrounded by healthy trees, lakes and diverse ecosysteMs I am a biologist because of the experiences I had growing up there. I want the future generations to be assured access to these experiences as well. Ely is a part of the Iron Range and was founded as a mining town, there are large mines in the near by area, these mines are not the same as the proposed polymet mine. Taconite or iron ore mining are in a completely different category than copper sulfate mining. Although neither benefit or promote the surrounding ecosystems the effects of copper sulfate mining are potentially, significantly, vastly more detrimental than those of pit mining. The proposed mines are not responsible for or directly effected by potential problems that may arise. The minerals are not going anywhere - I urge you to move towards further -non bias- research. The development of new, less destructive mining techniques could be just around the corner. Someday the minerals will be safely accessible, then we will be able to have clean water, protected environments and mining. Until then, put the safety of our land, water, and natural systems above that of consumerism and capitalism. Humans, particularly the DNR must act as advocates for the environment and the species that cannot speak for themselves. If you have looked at newspapers in the arrowhead region in the last few years, you will have noticed that the moose population is facing huge depletion. These animals are dying, and although they are being studied to find out why, further stress on their natural habitat could potentially push them over toward endangered. Another species, facing endangered status because of human development is a shame to say the least, but to put our own goals, which will not be affected negatively by waiting 5 to 30 years (other than different people get rich), ahead of a unique species is unforgivable. I thank you for your time and respect. Sincerely, Ms Ka

Alphabetical by sender's first name

Kahsha Hyde 36415

Mar 3, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." I want to urge you to put support behind a deeper investigation on the consequences of the mine. I am not against mining. I am an Ely Minnesota native, a 21 year old who hopes to be able to return to the North Woods with my fiance, to raise my children and make my life. I grew up in the woods, surrounded by healthy trees, lakes and diverse ecosysteMs I am a biologist because of the experiences I had growing up there. I want the future generations to be assured access to these experiences as well. If you have looked at newspapers in the arrowhead region in the last few years, you will have noticed that the moose population is facing huge depletion. These animals are dying, and although they are being studied to find out why, further stress on their natural habitat could potentially push them over toward endangered. Another species, facing endangered status because of human development is a shame to say the least, but to put our own goals, which will not be affected negatively by waiting 5 to 30 years (other than different people get rich), ahead of a unique species is unforgivable. My home is built miles from the nearest highway, we have no power (other than a generator we use to power a battery) or running water/ septic. We drink directly from the lake that borders our property.My family lives well below the poverty line, but we always have plenty to eat. We spend our money on gas to get to work, propane for our lights and other man made necessities. We afford all we need to because our food is mostly grown on our own land or harvested out of the woods around our home. Our vegetable garden needs water, and durning the dry weeks, when we are not able to collect rain water, we haul water from the lake. The average family eats pasta or store bought rice 4 meals a week. Both pasta and store bought brown rice are significantly less nutritious than wild grown wild rice. My family doesn't buy pa

Alphabetical by sender's first name

Kahsha Hyde 36416

Mar 3, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I want to urge you to put support behind a deeper investigation on the consequences of the mine. I am not against mining. I am an Ely Minnesota native, a 21 year old who hopes to be able to return to the North Woods with my fiance, to raise my children and make my life. I grew up in the woods, surrounded by healthy trees, lakes and diverse ecosysteMs I am a biologist because of the experiences I had growing up there. I want the future generations to be assured access to these experiences as well. My home is built miles from the nearest highway, we have no power (other than a generator we use to power a battery) or running water/ septic. We drink directly from the lake that borders our property.My family lives well below the poverty line, but we always have plenty to eat. We spend our money on gas to get to work, propane for our lights and other man made necessities. We afford all we need to because our food is mostly grown on our own land or harvested out of the woods around our home. Our vegetable garden needs water, and durning the dry weeks, when we are not able to collect rain water, we haul water from the lake. The average family eats pasta or store bought rice 4 meals a week. Both pasta and store bought brown rice are significantly less nutritious than wild grown wild rice. My family doesn't buy past or rice, we harvest wild rice. Animals, which we hunt and eat, depend upon the water too. This and the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system. My food source will be extinguished if this happens, an event I cannot sit by and let happen. Once I can be assured that the water systems are 100% free of being potentially polluted, I too will support the mine. Until then, I live in fear that someday I will not be able to feed my family or spend my life in the area I have chosen. Ely is a part of the Iron Range and was founded as a mining town, there are large mines in the near by area, these mines are not the same as the proposed polymet mine. Taconite or iron ore mining are in a completely different category than copper sulfate mining. Although neither benefit or promote the surrounding e

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Kahsha Hyde 36417

Mar 3, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I want to urge you to put support behind a deeper investigation on the consequences of the mine. I am not against mining. I am an Ely Minnesota native, a 21 year old who hopes to be able to return to the North Woods with my fiance, to raise my children and make my life. I grew up in the woods, surrounded by healthy trees, lakes and diverse ecosysteMs I am a biologist because of the experiences I had growing up there. I want the future generations to be assured access to these experiences as well. My home is built miles from the nearest highway, we have no power (other than a generator we use to power a battery) or running water/ septic. We drink directly from the lake that borders our property.My family lives well below the poverty line, but we always have plenty to eat. We spend our money on gas to get to work, propane for our lights and other man made necessities. We afford all we need to because our food is mostly grown on our own land or harvested out of the woods around our home. Our vegetable garden needs water, and durning the dry weeks, when we are not able to collect rain water, we haul water from the lake. The average family eats pasta or store bought ric

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Kahsha Hyde 36418

Mar 3, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of the cumulative effects of habitat fragmentation and loss on the Canada Lynx (Lynx canadensis). The Canada Lynx is a threatened species listed under the federal Endangered Species Act. The NorthMet project area is in designated critical habitat for the lynx, and the SDEIS notes that the proposed action would destroy over 1,400 acres of critical lynx habitat at the mine site. The designation of this area as critical habitat is supposed to trigger analysis of whether the proposed action, and the cumulative effects of other reasonably foreseeable actions place the Canada Lynx in jeopardy. In addition, the incidental death of Canada Lynx due to increased vehicle traffic between the mine and plant site is noted, but inadequate attention is paid to mitigation measures that could limit incidental deaths of lynx. Despite this, the SDEIS contains contradictory statements about the use of roads as travel corridors by lynx. The cumulative effects analysis section of the NorthMet SDEIS fails to adequately account for a number of reasonably foreseeable projects. Specifically, the Twin Metals and Teck American projects are listed as "speculative" in Section 6-2-2-1-21 and are not analyzed for their cumulative effects. No evidence or rationale for excluding these projects from the cumulative effects analysis is offered. In Section 6-2-3-6-4, the Gray Wolf is the only "Special Status Species" for which even limited analysis of cumulative effects is conducted, despite the Canada Lynx's status as a federally threatened species. Please take the following actions: 1) Include the Twin Metals and Teck American projects as reasonably foreseeable projects in the cumulative effects analysis in section 6-2-2, since the disposition of the NorthMet SDEIS and subsequent permitting decisions could make these projects more likely to be built. 2) Include the Canada Lynx as a "Special Status Species" in Section 6-2-3-6-4 and conduct a cumulative effects analysis of the impact on Canada Lynx. 3) Analyze and include mitigations such as tunnels and fencing to limit the possibility of incidental take of Canada Lynx by increased road traffic associated with the NorthMet proposed action. 4) Remove contradictory language in SDEIS about Canada Lynx utilization of roads as travel corridors. For example, on p. 5-628 the SDEIS states "Lynx utilize snow packed trails and roads as travel corridors," while on p. 5-366 it says "this species does not rely on roads for travel." 5) Analyze and include mitigation such as accelerated re-vegetation of the mine site after closure to decrease the amount of time the mine site would be inhospitable to Canada Lynx. I want to urge you to put support behind a deeper investigation on the consequences of the mine. I am not against mining. I am an Ely Minnesota native, a 21 year old who hopes to be able to return to the North Woods with my fiance, to raise my children and make my life. I grew up in the woods, surrounded by healthy trees, lakes and diverse ecosysteMs I am a biologist because of the experiences I had growing up there. I want the future generations to be assured access to these experiences as well. My home is built miles from the nearest highway, we have no power (other than a generator we use to power a battery) or running water/ septic. We drink directly from the lake that borders our property.My family lives well below the poverty line, but we always have plenty to eat. We spend our money on gas to get to work, propane for our lights and other man made necessities. We afford all we need to because our food is mostly grown on our own land or harvested out of the woods around our home. Our vegetable garden needs water, and durning the dry weeks, when we are not able to collect rain water, we haul water from the lake. The average family eats pasta or store bought rice 4

Alphabetical by sender's first name

Kahsha Hyde 36419

Mar 3, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I want to urge you to put support behind a deeper investigation on the consequences of the mine. I am not against mining. I am an Ely Minnesota native, a 21 year old who hopes to be able to return to the North Woods with my fiance, to raise my children and make my life. I grew up in the woods, surrounded by healthy trees, lakes and diverse ecosysteMs I am a biologist because of the experiences I had growing up there. I want the future generations to be assured access to these experiences as well. My home is built miles from the nearest highway, we have no power (other than a generator we use to power a battery) or running water/ septic. We drink directly from the lake that borders our property.My family lives well below the poverty line, but we always have plenty to eat. We spend our money on gas to get to work, propane for our lights and other man made necessities. We afford all we need to because our food is mostly grown on our own land or harvested out of the woods around our home. Our vegetable garden needs water, and durning the dry weeks, when we are not able to collect rain water, we haul water from the lake. The average family eats pasta or store bought rice 4 meals a week. Both pasta and store bought brown rice are significantly less nutritious than wild grown wild rice. My family doesn't buy past or rice, we harvest wild rice. Animals, which we hunt and eat, depend upon the water too. This and the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system. My food source will be extinguished if this happens, an event I cannot sit by and let happen. Once I can be assured that the water systems are 100% free of being potentially polluted, I too will support the mine. Until then, I live in fear that someday I will not be able to feed my family or spend my life in the area I have chosen. Ely is a part of the Iron Range and was founded as a mining town, there are large mines in the near by area, these mines are

Alphabetical by sender's first name

Kahsha Hyde 36420

Mar 3, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I want to urge you to put support behind a deeper investigation on the consequences of the mine. I am not against mining. I am an Ely Minnesota native, a 21 year old who hopes to be able to return to the North Woods with my fiance, to raise my children and make my life. I grew up in the woods, surrounded by healthy trees, lakes and diverse ecosysteMs I am a biologist because of the experiences I had growing up there. I want the future generations to be assured access to these experiences as well. My home is built miles from the nearest highway, we have no power (other than a generator we use to power a battery) or running water/ septic. We drink directly from the lake that borders our property.My family lives well below the poverty line, but we always have plenty to eat. We spend our money on gas to get to work, propane for our lights and other man made necessities. We afford all we need to because our food is mostly grown on our own land or harvested out of the woods around our home. Our vegetable garden needs water, and durning the dry weeks, when we are not able to collect rain water, we haul water from the lake. The average family eats pasta or store bought rice 4 meals a week. Both pasta and store bought brown rice are significantly less nutritious than wild grown wild rice. My family doesn't buy past or rice, we harvest wild rice. Animals, which we hunt and eat, depend upon the water too. This and the surrounding lakes will not be protected and will be polluted past the point of sustaining life when and if the polymet mine leaks pollution into the water system. My food source will be extinguished if this happens, an event I cannot sit by and let happen. Once I can be assured that the water systems are 100% free of being potentially polluted, I too will support the mine. Until then, I live in fear that someday I will not be able to feed my family or spend my life in the area I have chosen. Ely is a part of the Iron Range and was founded as a mining town, there are large mines in the near by area, these mines are not the same as the proposed polymet mine. Taconite or iron ore mining are in a completely different category than copper sulfate mining. Although neither benefit or promote the surrounding ecosystems the effects of copper sulfat

Alphabetical by sender's first name

Kahsha Hyde 49528

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. I want to urge you to put support behind a deeper investigation on the consequences of the mine. I am not against mining. I am an Ely Minnesota native, a 21 year old who hopes to be able to return to the North Woods with my fiance, to raise my children and make my life. I grew up in the woods, surrounded by healthy trees, lakes and diverse ecosysteMs I am a biologist because of the experiences I had growing up there. I want the future generations to be assured access to these experiences as well. My home is built miles from the nearest highway, we have no power (other than a generator we use to power a battery) or running water/ septic. We drink directly from the lake that borders our property.My family lives well below the poverty line, but we always have plenty to eat. We spend our money on gas to get to work, propane for our lights and other man made necessities. We afford all we need to because our food is mostly grown on our own land or h

Kai` Hoffman 4288

Dear DNR I am a 10 year old boy who lives on Lake Superior in Duluth. I know that there have been no known sulfide mines that haven't polluted water systeMs Every year I take a trip to the Boundary Waters where I love to swim in the water and drink the clean water. If sulfide mining starts, all those lakes I love to visit and swim in will eventually be polluted. After many years Lake Superior will be polluted as well. This is where I live and I want to be able to enjoy it for the rest of my life. Others will be harmed as well, and no tourists will want to come to northern Minnesota to see polluted lakes. The lakes will no longer be safe to drink or swim in. Please stop sulfide mining. Kai Hoffman

Kaia Anderson 44603

I am an 18 year old from Prior Lake, Minnesota. As I came to the turning of the age where I can voice my opinion, I will make it clear here. This mine will destroy an area, leave harmful pollutants, and create an unfit environment for the animals living around the area. Even if it brings slight economic benefit do you really think Polynet will remain relevant and support the clean up for 200-500 years. Really. The choice is clear. The Boundary Waters are too valuable. I do not support this mine. Kaia Anderson.

Kaia Knutson 42754

See attachment

Alphabetical by sender's first name

Kaia Lindquist 54534

It took a while for me to collect all the information I thought I needed on this issue. Although I was aware of PolyMet's mining plans, I didn't not completely understand the severity of this issue. After reading, what I believe to be sufficient information, I believe that the costs to sulfide mining proposed by PolyMet dramatically outweigh the benefits reaped from the mining. The mining will inevitably negatively effect the MN environment far into the future. Forever effecting the pH and polluting the waters. In addition, the plans for protecting this pollution are not complete enough to be a safeguard. If the mining were to continue and pollute there are not concrete plans of who would be responsible nor sufficient safeguards to fix what would go wrong. The benefits of the mining would not be worth the potential benefits reaped from the sites.

Kaia Svien 54650

See attachment

58156

The PolyMet mine sounds too destructive of our natural resources to be allowed to go through. Let's put attention to brining in jobs for the Iron Range that are not detrimental to the environment.

Kaija Ornes 44587

I have lived in Minnesota for all my life . 16 years. I can tell you that I have been to this area of Minnesota at least once a year every year starting when I was four. I can say that it is to dense with resources and beauty to ruin it for an economics gain for about 20 years. The consequeses far out live the economic gain. With the time to clean it up being around 500 years. I hope to be able to bring my children up to north east mn. I even have had the idea of getting married up there from the time that I was 10- Economics can change in an area over time but ruining an area for 500 years is a long time. Did any companies from Columbus's time still exist today if so I would love to know. Do we really think that this company will be around to make sure the clean up is up to par, in 500 years. I don't think it will be and this is my point. I am currently in ap environmental science. I have learned a lot about pollution and why it is so deadly. I hope that this will never happen because I want to be able to go north and see the beauty I fell in love with as a kid. Kaija Prior lake

Kaitlyn Culver 54336

Lisa Fay, EIS Project ManagerMNDNR Division of Ecological and Water ResourcesEnvironmental Review Unit500 Lafayette Road, Box 25St.Paul, MN 55155-4025Dear Ms. Lisa Fay, EIS Project Manager,To start off, there are a lot of advantages to the proposal of the land site, but there are a lot of disadvantages. One thing that caught my eye, was the fact that it would affect the Ojibwe people. They are native to the land and1don't think it's fair for them to take their land away. It would also affect the Beaver Bay which could possibly ruin their habitat. Like they said in the fact sheet of cultural resources, is they are not sure whether or not it would affect animals.This land exchange would gain a lot of things such as: 2 plant species, vegetation, 9 additional plant species, etc. I think it's cool how they would gain so many things, but there are also a lot of things that they would lose. Something big that we would lose is 11 plant species. They would also lose about 1,000 acres of floodplains which they aren't super worried about. Something that I noticed was that there is very small deposits of mercury in ore and rock.My opinion would be to not take so much land because there are a lot of plant and animal •life you would take away. Also, the Ojibwe people had the land for a long time and that's their land to have. I would decrease about 1,000 acres in different spots and let the Ojibwe people stay on their land. I don't have a problem with mining the land, but the animals are my biggest concern.Sincerely,Kaitlyn Culver, 8th grade

Alphabetical by sender's first name

Kaitlyn Pommrehn 42066

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kaitlyn Pommrehn St Louis Park, Minnesota

Kaleb Vold 36519

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely Kaleb Vold 4085 Pleasant St SE Prior Lake, MN 55372

Kane Jeffery And Melissa Rust 18241

The name is Kane, K-A-N-E, Jeffery, J-E-F-F-E-R-Y and Melissa R-U-S-T. We are property owners in Finland and Isabella, over 90 acres. This is 20 miles, approximately, east of the location of the mining operation to be proposed. We are against this because we purchased this property in the effort to wipe off our carbon footprint for what we use, and we feel that the actions taken by the mine undermine our personal beliefs in that area, and they outweigh -- our beliefs outweigh the proposed economic input to that area compared to the saving of the natural environment. Period.

Karen & Kalen Johnson 42627

See attachment

Karen B Holden 42721

See attachment

Alphabetical by sender's first name

Karen Baker 39569

Mar 11, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Karen Baker 2 Bindowan cresent Maryland, None 228)

Karen Bell-Brugger 30427

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt There is a lot of talk about PolyMet having to have a fund for future clean-up of our water. What I imagine is the reality of the situation - after PolyMet has retrieved all it can from our land, it will go bankrupt to avoid having to pay for 500 years of polluted water clean-up. Then, Minnesotans in the future will have the opportunity of paying endlessly to do the clean-up work themselves, or they learn to live with a devastated landscape. Sincerely, Karen Bell-Brugger 5207 Humboldt Ave S Minneapolis, MN 55419-1121 (612) 822-4013

Alphabetical by sender's first name

Karen Bell-Brugger 41961

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Karen Bell-Brugger 41995

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

42072

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Karen Bell-Brugger Minneapolis, Minnesota

Alphabetical by sender's first name

Karen Blaha 17173

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Karen Blaha Bryant Mpls., MN 55409

50439

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Karen Blaha Bryant Mpls., MN 55409

Alphabetical by sender's first name

karen callahan 12079

Feb 14, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Karen Cedarmoon 47300

Hello, I live in northern Minnesota. I have to tell you that the feeling up here is overwhelmingly against the copper mine. We see the proposed 500 year damage to the environment as absuRd Our Nation is less than 500 years old. There is not a company that has lasted that length of time yet you are considering allowing this mining company to do that kind of damage with their assurance they will clean it up. Ridiculous. even were they to obtain significant outside insurance it would still be absurd as no company, no amount of money can really reasonably guarantee the clean up and safety of the earth and its people. There is no compensation that provides for the destruction of the earth. The small number of jobs dangled before our eyes does not come anywhere close to the jobs that will be lost due to the loss of environment that no doubt will occur. If this kind of mining can be done safely, then why isn't it being done safely anywhere else. Because it can't be and won't be, because this is all about companies like this one making huge profits and then getting out, leaving disaster in their wake. The bigger picture, for me, is this: when does it stop. When does the greed and voracious gobbling up of the earth stop. Where is the line. When does the earth and its citizens come before corporate greed and market driven need. We do not need the products that have driven this destruction so badly that it compensates for what is lost, lost forever. I'm not going to be around in 500 years and neither are any of you reading this. We can't even conceive of that length of time, yet we feel we can risk it for the money. Minnesota is one of the few places left with some even remotely unspoiled places. I know, I've lived all over the country and I've seen what these kind of choices look like. Lake Superior is the largest body of fresh water on this continent. No one has the right, for money or any other motivation, to destroy that Lake, that Water. We all know that this company, this mine, is just the beginning. We have no right, and no need, to make decisions to serve greed that will take and take and take from the earth, from its inhabitants, from the way of life of indigenous peoples. I urge you to say Minnesota is not for sale. It stops here. Thank you for your time, Karen Cedarmoon Hovland, MN

Alphabetical by sender's first name

karen chartier 40395

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, karen chartier 45 Rivocean Dr Ormond Beach, FL 32176 US

Alphabetical by sender's first name

Karen Cleveland 41600

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Karen Gardner 57981

Toxic sulfates will destroy Minnesota's streams, river, and watersheds. I enjoy spending time in Northern Minnesota and own a house near Lake Superior. I don't want to see the watersheds and the lake become polluted. I want my grandchildren to be able to enjoy an unspoiled environment. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Karen Graham 6342

Dear Ms Fay, Dear Federal and State Agency Leaders: The 2014 plan by PolyMet is still inadequate. After an additional 3 years to provide more in-depth details and planning. The company failed to meet the basic requirements to achieve their ultimate goal. If they won't accept responsibility for producing a quality report, what makes you think they "plan" to do anything different when operating the mine. To put the at least 500 years of toxicity from tons of mine wastes into perspective, consider that our country is 238 years old. At 238 years, the USA hasn't even reached the half-life of the waste produced by this mine. Think of this again, it will take maintaining environmental processing of tons of waste spread out over acres, twice the age of country and then some -- if we're lucky. Go back to the book - stop this plan. Sincerely Karen Graham 11600 37th Ave N Plymouth, MN 55441 763-551-9572

Alphabetical by sender's first name

Karen Graham 6345

Dear Ms Fay, Dear Federal and State Agency Leaders: The 2013 report from PolyMet is inadequate. In spite of the fact that you gave them 3 more years to study and provide more in-depth information. How compliant is the company, if they can't meet the needed standards of a report . Let me put the at least 500 year toxicity producing waste into perspective. Our country is 238 years old. This means that the USA hasn't reached the half life of the toxicity predicted by this plan. Consider this again, the plan will produces tons of waste needing constant environmental control for more than twice the age of our country. Go back to the books - don't allow the PolyMet open pit mining. Sincerely Karen Graham 11600 37th Ave N Plymouth, MN 55441 763-551-9572

38865

From: Karen Graham [mailto:gramkl@comcaStnet] Sent: Tuesday, March 11, 2014 3:30 PM To: Fay, Lisa (DNR) Subject: Re: Reevaluate the PolyMet Mining Proposal Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The plan is flawed, vague handling of data and specifications, and oblique assurances of PolyMet being a good partner in a 500+ year environmental disaster. I respectfully request that the MNDNR and PolyMet answer the questions raised by the Fond du Lac tribe of Chippewa, Water Legacy organization, and the Audubon society to their satisfaction. I request the proposal be rejected until the specifications and requirements are written in a full proposal that meet the above mentioned tribe and organizations, and the requirements of health, water quality, biological survey, and environmental protection agencies and departments of Minnesota and the United States of America. The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity 5) Write a concentration range of sulfide contamination in water treated through the reverse osmosis plant to provide clean water: - specification on the reverse osmosis system for handling the waste water - purity of treated water in holding water. a) Recalculate the number of reverse osmosis systems needed to handle water purification treatment. b) Rewrite to require water treatment facilities be built before mining commences. Proposal stipulates that facilities won't be built for 40 years after the mining process begins. As the mine is expected to operate for about 30 years. It is also only designated to handle the mine's intentional surface water discharge. c) Rewrite proposal defining how the centuries of operations, maintenance, monitoring, and reconstruction of water treatment facilities will be handled and financed. No details are provided in proposal addressing these issues. 6) Develop program to treat seepage from mine pits, waste rock, and tailings piles to be treated to produce cle

Alphabetical by sender's first name

Karen Graham 38965

Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The plan is flawed, vague handling of data and specifications, and oblique assurances of PolyMet being a good partner in a 500+ year environmental disaster. I respectfully request that the MNDNR and PolyMet answer the questions raised by the Fond du Lac tribe of Chippewa, Water Legacy organization, and the Audubon society to their satisfaction. I request the proposal be rejected until the specifications and requirements are written in a full proposal that meet the above mentioned tribe and organizations, and the requirements of health, water quality, biological survey, and environmental protection agencies and departments of Minnesota and the United States of America. The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity 5) Write a concentration range of sulfide contamination in water treated through the reverse osmosis plant to provide clean water: - specification on the reverse osmosis system for handling the waste water - purity of treated water in holding water. a) Recalculate the number of reverse osmosis systems needed to handle water purification treatment. b) Rewrite to require water treatment facilities be built before mining commences. Proposal stipulates that facilities won't be built for 40 years after the mining process begins. As the mine is expected to operate for about 30 years - this action is too little too late. It is also only designated to handle the mine's intentional surface water discharge. To put this in perspective, would you want to swim or drink the water in the holding pond after treatment. I wouldn't. c) Rewrite proposal defining how the centuries of operations, maintenance, monitoring, and reconstruction of water treatment facilities will be handled and financed. No details are provided in proposal addressing these issues. 6) Develop program to treat seepage from mine pits, waste rock, and tailings piles to be treated to produce clean water.

42905

From: Karen Graham [mailto:gramkl@comcaStnet] Sent: Wednesday, March 12, 2014 10:34 AM To: *NorthMetSDEIS (DNR); Fay, Lisa (DNR); rperiman@fs.fed.us; douglas.w.bruner@usace.army.mil Subject: PolyMet NorthMet Sulfide Mining SDEIS Thank you for accepting comments. I trust that you will act responsibly for the state of Minnesota and the health of the citizens of Minnesota. PolyMet's proposal to mine low grade ore by open pit as the only option for the company's economic advantage. Rejecting the SDEIS proposal doesn't necessarily stop bring jobs to the state only bringing jobs by the option favored by PolyMet. The company's mission is not partnering with the state of Minnesota for the benefit of Minnesota. Please include the attached letter in your review process. Thank you, Karen Graham 11600 37th Ave N Plymouth, MN 55441 763-551-9572

47788

From: Karen Graham [mailto:gramkl@comcaStnet] Sent: Wednesday, March 12, 2014 10:34 AM To: NorthMetSDEIS.dnr@state.mn.us; lisa.fay@state.mn.us; Periman, Richard -FS; douglas.w.bruner@usace.army.mil Subject: PolyMet NorthMet Sulfide Mining SDEIS Thank you for accepting comments. I trust that you will act responsibly for the state of Minnesota and the health of the citizens of Minnesota. PolyMet's proposal to mine low grade ore by open pit as the only option for the company's economic advantage. Rejecting the SDEIS proposal doesn't necessarily stop bring jobs to the state only bringing jobs by the option favored by PolyMet. The company's mission is not partnering with the state of Minnesota for the benefit of Minnesota. Please include the attached letter in your review process. Thank you, Karen Graham 11600 37th Ave N Plymouth, MN 55441 763-551-9572

Alphabetical by sender's first name

Karen Graham 48640

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I respectfully request that the MNDNR and PolyMet answer the questions raised by the Fond du Lac tribe of Chippewa, Water Legacy organization, and the Audubon society to their satisfaction. I request the proposal be rejected until the specifications and requirements are written in a full proposal that meet the above mentioned tribe and organizations, and the requirements of health, water quality, biological survey, and environmental protection agencies and departments of Minnesota and the United States of America. The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS.If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment.Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions.Please take the following actions:1) Redo the GoldSim water model using assumptions based on adequate and accurate field data2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 20133) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity 5) Write a concentration range of sulfide contamination in water treated through the reverse osmosis plant to provide clean water: - specification on the reverse osmosis system for handling the waste water - purity of treated water in holding water. a) Recalculate the number of reverse osmosis systems needed to handle water purification treatment. b) Rewrite to require water treatment facilities be built before mining commences. Proposal stipulates that facilities won't be built for 40 years after the mining process begins. As the mine is expected to operate for about 30 years - this action is too little too late. It is also only designated to handle the mine's intentional surface water discharge. To put this in perspective, would you want to swim or drink

Alphabetical by sender's first name

Karen Graham 48641

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. I respectfully request that the MNDNR and PolyMet answer the questions raised by the Fond du Lac tribe of Chippewa, Water Legacy organization, and the Audubon society to their satisfaction. I request the proposal be rejected until the specifications and requirements are written in a full proposal that meet the above mentioned tribe and organizations, and the requirements of health, water quality, biological survey, and environmental protection agencies and departments of Minnesota and the United States of America. The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge Ri

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karen heegaard 21214

Feb 24, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." I am writing to comment on the SDEIS. I have never commented on an EIS before but I am very concerned about the impact of sulfide mining on our Minnesota. I am shocked that we would even consider something that will require careful monitoring and oversight for 500 years. I will write about 3 concerns: clean water, sustainable jobs and long-term oversight and accountability. 1- Clean Water. What is the plan for catching and monitoring all water exposed to sulfide tailings for 500 years given fractured bedrock and fluctuating water tables. How does a mine that needs hundreds of years of monitoring comply with Minnesota law that requires mines to be maintenance free at closure. Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Extend the water pollution model and account for changing water tables and fractured bedrock. 2- Sustainable Work. Jobs are so important in our state and especially in Northern Minnesota. I am concerned that the jobs generated will be short lived, largely utilize imported workers and be divisive in the communities we hope to support. Demand that Polymet and Glencore produce documentation about the numbers of local jobs they expect to produce; to describe how they will train and protect Minnesota laborers, how they will protect existing economies (wild rice, winter and summer tourism, fishing) that depend on clean water, silence, low light pollution; to describe methods for enhancing sense of community rather than creating tension and hostility that we see over and over in communities (most recently in our neighbor North Dakota) where new mining industry disrupts and does extensive damage even while providing jobs to a relatively small number of local workers. Demand that Polymet describe and include local jobs prod

Karen Johnson 33358

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt I'm 75 years old and have loved the BWCA and it's surrounding areas since I was 20 and was a canoe guide taking delinquent kids on canoe trips for a camp. The change in those kids was remarkable and it is in all who experience the wonder of the wilderness. Please don't ruin the water and woods in order for some company to make money. There are things in this world that aren't replaceable and once water, air, and land have been poisoned there is no way back. Surely our next generations deserve to have their inheritance protected. Sincerely, Karen Johnson 28311 County 93 Laporte, MN 56461-4313

Alphabetical by sender's first name

Karen Johnson 39701

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I am 75 and when I was young I guided canoe trips at a camp located at the end of the Gunflint Trail. The young people who came for those trips were church kids and also kids from correctional services. All were amazed at the beauty and wildness of the BWCA. As a social worker later I met some of these kids again who were now young adults and learned from them what life changing trips those had been for them. I grieve that we are so enamored of business and money that we will risk ruining these waterways and woods that cannot be redeemed after businesses ruin them. Surely it is important to take the time to study what is ahead instead of rushing these decisions. Karen Gulsvig Johnson The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Karen Johnson 28311 County 93 Laporte, MN 56461-4313

48866

Mar 10, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I am 75 and when I was young I guided canoe trips at a camp located at the end of the Gunflint Trail. The young people who came for those trips were church kids and also kids from correctional services. All were amazed at the beauty and wildness of the BWCA. As a social worker later I met some of these kids again who were now young adults and learned from them what life changing trips those had been for them. I grieve that we are so enamored of business and money that we will risk ruining these waterways and woods that cannot be redeemed after businesses ruin them. Surely it is important to take the time to study what is ahead instead of rushing these decisions. Karen Gulsvig Johnson The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Karen Johnson 28311 County 93 Laporte, MN 56461-4313

Alphabetical by sender's first name

Karen Kimbrough 41052

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Karen Korslund 42115

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Karen Korslund 515 Huron Blvd SE Minneapolis, MN 55414-3323

Alphabetical by sender's first name

Karen L Dingle 48645

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. People have been asking if Minnesota and the DNR can trust PolyMet to stand behind their mining operations. That is the wrong question. The DNR and other involved officials need to be asking: Can we trust Glencore XStrata, PolyMet's primary owner. A quick review of the XStrata labor and environmental history in the more than 100 copper mines they own world-wide shows that we cannot. They routinely violate laws and standards with impunity and seem to be large enough that they are not held responsible for their actions. There's no reason to believe they would be any more responsible here than they are everywhere else. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Karen L Dingle 3938 Cannon Ball Lake Rd Duluth, MN 55803-8209

Karen Lackner 10854

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I have recently been asked by State Representative Jason Metsa to sit down and write up bullet points . things that need to addressed in the SDEIS and this was one of the very things I was going to bring to the forefront. The exact area where the proposed mine is to be is major moose habitat. Bog Berry Lake. The moose is already on a dangerous path. This mine, if it happens, will destroy what few we have left in the area. Plus I found a statement about eagles in and around the proposed mine site that was a complete fallacy. They obviously were 'not' looking up. My husband and I have seen with our own eyes eagles maturing. That is changing from their brown head to white heads. Hence, there are obviously nests. The same goes for osprey. And I would like to add eagles [do] live, hunt, fish, etc. around small lakes. The report stated "that they are found around large bodies of water so eagles will not be affected." This simply is not true. Sincerely, Karen L. Lackner 302 5th Street South Virginia, MN 55792 Sincerely, Mrs Karen Lackner 302 5th St S Virginia, MN 55792-2731

Karen Ladner 9328

I have been listening to the debates and trying to be objective about whether the PolyMet mining in Northern MN is a good idea. I vacation in the Ely area 2-3 times a year, both winter and summer. I have met many local residents who wish there were more jobs in that area, but allowing this mining to take place does not seem like the best answer. The number of promised jobs is not really that many. And the unknown impact to the land, wildlife and BWCA as a whole is to risky given the facts as they state them to be. Please do not let this mining go through. We can do better by MN and by the people of that area by fostering the tourism and offering incentives to non-mining companies to locate there. These are my humble opinions. Karen Ladner 4024 93rd Ave N Brooklyn Park, MN 55443

Alphabetical by sender's first name

Karen Main 57170

Please do not permit PolyMet as the pioneer in sulfide mining. The company's lack of experience is a red flat for its ability to cleanup, to insure proper pollution controls in the process. Surely the abysmal rating on its initial EPA proposal gives sufficient cause to turn down the application. If sulfide mining is ever approved, please assure it will be on control of an experience, proven company.Karen Main3314 Riley RoadDuluth, MN 55803

Karen Pearson 42757

See attachment

Karen Peterson 54129

I DO NOT support Polymet mining--no way, no shape, no form. Bad for our planet. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

54130

I do NOT support PolyMet mining and shame on you/Allete for doing so. You whitewash the truth for the Almighty Buck.I would rather have less dividends--then getting money from such a bad immoral project! [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

54131

I think there is a grave conflict of interests here that you, Mr. Hodnik, are on PolyMets Board of Directors. I am NOT confident that PolyMet can and will hold dear what Minnesotans hold dear. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

54132

I do NOT support PolyMet mining. Even the name sounds hokey. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Karen Ringsrud 39277

I am concerned and oppose the Polymet mining proposal currently being considered by the DNR. I feel there are too many problems with this proposal, including the fact that sulfide mining of this sort has never been done safely, without environmental damage, anywhere in the world. I urge the DNR to deny the permit to Polymet. Karen Ringsrud 1948 Drew Avenue South Minneapolis, MN 55416 rings001@umn-edu

Karen Stady 57179

I strongly believe that the BWCA needs to be preserved and protected for the enjoyment of all people, now and for future generations. Mining near this area isn't worth the risk of contaminating it. If there is mining in the watershed, contaminants will be washed into the bodies of water. Please put the environment ahead of profits.Karen Stady1950 Palace AveSaint Paul, MN 55105

Karen Stickney 42428

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Karen Stickney 27 Baril St Lewiston, ME 04240-5213 (207) 689-3186

Alphabetical by sender's first name

Karen Thompson 35164

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Public lands are just that public. The land doesn't exist for the purpose of commercial ventures that benefit a few. And, the possibility of a few jobs being prevented doesn't equal hundreds of thousands of people losing their natural resources which were purposely saved for their enjoyment and healthy living. Voting 'NO' is a no-brainer for those who serve the public rather than catering to the few who would destroy anything that gets in their way of amassing wealth. Do the right thing. Sincerely, Karen Thompson 1104 Chestnut Ln NE Ham Lake, MN 55304-4828

Karen Voigt 14659

To whom it may concern, I would like to chime in with my concern and disapproval of allowing the mine in northeast MN. Any possiblity of pollution (even with strict control) is not something I would approve of for that area of our state. We need to leave some things untouched and protected. Chalk me into the disapproval column please. Thank you so much, Karen Voigt Brooklyn Park

Karen Williams 45874

Nonferrous sulfide mining with its consistent historical record of pollution and SDEIS projected 500 years of water cleanup should never be seriously considered. Disastrous consequences would result. This kind of mining has never been successfully nonpolluting in similar environments. A brief Internet search reveals numerous lawsuits against mining companies for environmental damage, water pollution, and human health issues. Because sulfuric acid pollution is toxic to aquatic ecosystems, this area in northeastern Minnesota is a high risk location. Dangerous contamination of water is inevitable which would destroy wetlands, pollute underground water, rivers, and lakes, and endanger fish and animal habitat. The current decline of the moose population may be related to water issues. Of course, human health would be in jeopardy. Economic and financial concerns need to be addressed. Loss of tourism dollars would negatively impact the economy when the recreational opportunities and beauty are lost due to sulfide mining. According to revised information from the mining company, only 25% of the proposed 360 permanent jobs would be local hires. Much is in jeopardy for only 90 jobs. Little financial security has been provided by NorthMet for the inevitable clean up - expected to be more than 500 years worth. It appears that taxpayers, the very people who would be subjected to health problems and ruined environment, would be responsible for the burden of cleanup at astronomical expense. Other states now require hundreds of billions of dollars to he held for reclamation and clean up. Obviously there is too much at stake. Why allow this disaster to happen. No nonferrous sulfide mines should be allowed to exist until mining technology has been proven safe for all - forever. That is the only responsible, ethical, conscientious decision for all of us, including future generations. Karen Williams 6316 N Temple, Indianapolis, IN 46220 9260 Birch Lake Rd, Ely, MN 55731

Kari Block 44300

Greetings, I am not in favor of the proposed PolyMet Mining, Inc. project. I do not want this in our water supply. Nothing is 100% safe. This could cause severe ecological consequences. Thank you, Kari Block Minnesota Resident 612-281-0106 HYPERLINK "mailto:karilynnblock@yahoo-com"karilynnblock@yahoo-com

Kari G Wenger 54516

See attachment

Alphabetical by sender's first name

Kari Hovorka 17057

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kari Hovorka Kari Hovorka 4930 Arrowood Ln N Plymouth, MN 55442

50328

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kari Hovorka Kari Hovorka 4930 Arrowood Ln N Plymouth, MN 55442

Alphabetical by sender's first name

Kari Jacobson 38849

Hello, I am submitting my comments for the NorthMet Mining Project and Land Exchange Supplemental Draft Environmental Impact Statement . My comments are attached to this message, and also pasted below. Kari Jacobson Hedin 1323 N 7th Ave E Duluth, MN 55805 3/11/2014 To whom it may concern, Water quality in the St Louis River Area of Concern has improved in recent decades, due to the cooperative efforts, funding and endless rounds of planning by a multidisciplinary group that includes scientists, resource managers, agencies, and citizens. In his 2014 State of the City Address, Mayor Don Ness portrayed the City of Duluth as having a vibrant future in part because of the improvements to water quality in the St Louis River. All of that work, and the quality of life that comes with improved water quality on the St Louis River, will be lost if PolyMet is allowed to mine in the upper reaches of this watershed. I am deeply concerned by the modeling results in the SDEIS that show water must be treated in perpetuity to prevent the St Louis, Partridge, and Embarrass Rivers from becoming heavily polluted by copper, lead, sulfate, aluminum, and other pollutants. Water treatment for centuries has never been done, and the probability of such long-term water treatment being successful is highly unlikely. To propose such a thing as a matter of course is deeply immoral and saddles future generations with a terrible burden. The precautionary principle puts the onus of responsibility on the project proponents to accurately assess risk to human health and the environment and consider all costs. However, NEPA documents such as the SDEIS for PolyMet have repeatedly shown that they are not reliable in predicting water quality problems (Maest and Kuipers, 2005 Predicting Water Quality at Hardrock Mines). This is glaringly clear in PolyMet's SDEIS, as it was recently discovered that the models predicting flow rates and hydrology in the Partridge River are deeply flawed. The claim in the SDEIS that no water quality exceedances will occur during or after mining is based on this flawed model, and so any predictions about water quality and quantity based on these models must now be ruled out as false. The groundwater models in the SDEIS are also flawed and seem to claim that no impacts will occur outside the area of permitted action. PolyMet seems to be proposing in general that there will be no environmental impacts outside of its area of potential effect, as if the mine operates in a vacuum. Mining proponents claim that sulfide mining is right for Minnesota because of this state's robust set of environmental regulations. However, regulations are only effective if they are enforced. For example, Minntac continues to discharge sulfate from its tailings basin that exceeds the 10 mg/L legal limit for waters that contain wild rice. While this discharge continues, the state of Minnesota is granting them and other mines permits to expand their mining operations. The Minnesota Pollution Control Agency's track record in regulating taconite mines on the Iron Range is not good, and it is likely that there will be little political will to enforce regulations when PolyMet begins to have its own water quality exceedances. PolyMet and mines like it are allowed to dump toxic tailings and overburden into streams and wetlands because of two mining loopholes in the Clean Water Act. I support the National Wildlife Federation's call to the EPA and the US Army Corps of Engineers to close these two loopholes through a rule change. Without a change, PolyMet will be allowed use nearby waters as disposal sites for untreated industrial waste. The Clean Water Act's "waste treatment system exclusion" should apply only to manmade waters and the definition of "fill" should be amended to exclude waste disposal. PolyMet downplays the direct and cumulative impacts the mine will have on the landscape. Losses will include 1,741 acres of Minnesota Biological Survey

Kari Sealund 34650

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I would like to offer some comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement and the GTAC Penokee Range Project in Northern Wisconsin which will both heavily impact the whole Lake Superior watershed in a very negative way. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness and the Penokee Mountain area in Norhthern Wisconsin. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Also in the Penokee Range Mining done by GTAC, rocks containing asbestos form minerals have been found causing much alarm about mining in that area. I have grave concerns about these project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's and GTAC's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Kari Sealund 302 S. Wilshire Lane Arlington Heights, IL 60004

Karin Rea 43085

The SDEIS for the Poly Met Mining Project is flawed and does not guarantee that sulfide mining can be done in Minnesota without seriously harming water and habitat. Please do not let this project should go forwaRd

Alphabetical by sender's first name

Karin Winegar 10751

January 29, 2014 Dear Ms Fay, Mr Bruner and Mr Dabney, I went to the PolyMet event last night, and it was packed-not just with people who oppose the mine, but with people who think jobs should come first at any price. I asked a few questions of the experts at the many displays and learned that Polymet is new, has no mines yet and is owned by Swiss and other international investors. I learned that the numbers used for stream flow were hugely underestimated by the company and the first Environmental Impact Statement therefore got a failure grade by the EPA. The mine would be in our Superior National Forest lands-how can the state consider allowing public lands to be exploited (and certainly polluted, possibly permanently) for private investor profit. It seems to me that it would be saner, safer, cleaner and cheaper to use state funds to employ all these willing workers in green or at least neutral jobs than to allow the destruction of our north country water. Jobs, certainly, are a priority, but not short term and not at this coSt Water is more precious than any other resource on earth and getting moreso as climate change dries up supplies in many states, and fracking destroys water in still more states. Please reject the PolyMet NorthMet SDEIS. The mine will have tragic environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. Sincerely yours, Karin Winegar 1832 Carroll AVe St Paul, MN 55104 -- Original Message-- From: *NorthMetSDEIS (DNR) To: Karin Winegar Sent: Mon, Feb 3, 2014 5:49 pm Subject: RE: Reject PolyMet's NorthMet Mining Proposal Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

15929

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan will have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. The PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS' rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Karin Winegar 1832 Carroll Ave St Paul, MN 55104

Alphabetical by sender's first name

Karin Winegar 15983

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

58169

In the 21st century water is and will be the most precious substance on earth. Our northern water and Superior National Forrest should stay protected and intact. It is a public resource, not a site for corporate exploitation and profit of international investors. It would be wise and more economical both the short and long term to provide good jobs (using state funds of necessary) than to expect or trust a mining company to provide well paying, long term significant numbers of jobs in northern Minnesota. Mining has a long and disastrous history in both environmental damage and job loss.

Karl Koenig 1942

To whom it may concern, I oppose any and all mining activities proposed by PolyMet Mining Inc. The risk of damaging fragile ecosystems is far too great to justify any type of mining activity on National Forest lands. Furthermore, I feel that mining activities are not consistent with the management objectives of any National Forest land areas. Thank You Sincerely, Mr Karl Koenig 108 E. Maple Ave Frazee, MN 56544

Karl W Hodil 57143

DO NOT ALLOW POLYMET MINING IN MN.Karl W. Hodil15 N Chester PkwyDuluth, MN 55805

Alphabetical by sender's first name

Karla 44815

To: DNR, I oppose Polymet's Mining proposal. I do not believe this can be done without serious harm to water quality, wetlands and wildlife habitat. Karla Anderson plymouth, MN

Karla Faith 40168

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. I urge you to reject the PolyMet mine. Mapping done by the PolyMet miss represent the boundary of the 100 mile swamp implying that the drainage of the swamp is in one the direction only and away from the boundary waters. In the maps drawn in the US government atlas www.nationalatlas-gov/streamer the 100 mile swamp flows into two watershed areas. One of which drains to the boundary waters. This contradiction in mapping presents evidence that danger to the boundary waters is being under reported in the environmental impact statement . At a minimum plans for hydrologic testing before operations and continual monitoring of water during mining operations flowing from the swamp in both directions is nessasary. This plan needs to be in place for full understanding and protection of the water quality in the area. Lacking this basic protection PolyMets proposal is deficient for clear assessment of the danger to the water flowing to the boundary waters. Sincerely, Ms Karla Faith 1090 County Road E New Richmond, WI 54017-8409 (651) 247-9100

Karlene Mostek 23803

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Native Americans have a saying: "Not until the last fish has died, and the last river has been polluted will we understand that we cannot eat money." Sincerely, Karlene Mostek 5555 N Sheridan Rd Apt 1008 Chicago, IL 60640-1623

karlene plante Jim Etzel 44897

Minnesota has already seen plenty of destruction with iron ore mining in the Northern tier of the state. The destruction from that will be seen for many years to come. This new proposal should not be considered as it will cause a significant amount of damage to many acres of wild habitat for many creatures, both terrestrial and aquatic. Tell the mining company to start mining the many dumps throughout the United states for the metals they seek. There should be plenty of it there. No more mining in Minnesota .. James Etzel 5652 Bachelor rd NW Hackensack, MN 56452 218-547-4083 earthsteward1@gmail-com

Karol Gresser 54642

See attachment

Alphabetical by sender's first name

Karolyn Redoutey 57590

Jan 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Kat Glessing 39788

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Kat Glessing 1064 Cedar View Dr Minneapolis, MN 55405-2129 (612) 374-3873

Alphabetical by sender's first name

Kate Crowley 6112

January 16, 2014 To: The officials and state and federal agencies reviewing the PolyMet permit I am writing today to express my absolute opposition to the PolyMet Mine. I have many ways that I think of myself: naturalist, author, adventurer, wife, and mother, but the most important title I bear is Grandmother. I am not an American Indian, but I strongly believe in the philosophy of Seven Generations, which means that we do not make any decisions or take any actions which do not take into consideration the impact on those people who will come after us. The owners of this proposed mine can offer us all the assurances in the world that they will be good stewards and guarantee us that the pollution created by the dangerous chemicals created by and used in this mining process will not impact or impair our waters. But all the studies done and experiences with mines such as this in the past prove incontrovertibly that such assurances mean nothing. There WILL be pollution and it WILL make its way into our waters, whether surface or underground. The studies have shown that these polluted waters would have to be treated for hundreds of years. Who of us alive today can guarantee that people in the future will have the funds or ability to sustain this sort of mitigation. Minnesota prides itself, in fact, brags about our freshwater resources. We are the Land of 10,000 Lakes. This is how we advertise ourselves to others – to settle here or at least visit. If those waters become seriously polluted we will have to amend our title and I can't think of a good addendum. Can you. This proposed mining project will give short term financial gain to an international company and some residents of the region, but the overall benefit will be far, far less than the overall negative impact. All we have to do is look to West Virginia to see how a community is affected when its freshwater is ruined by a chemical spill. The ultimate results of that disaster will not be known for a long, long time. So, as I said at the beginning, my values about our environment and the future are absolutely bound to my grandchildren and to all of their friends and classmates and all of the children they will one day hAve We have a moral obligation to protect the water we cannot live without, into perpetuity. This mining project must not go forwaRd Sincerely Kate Crowley 82119 Bennett Rd Willow River, MN 55795 HYPERLINK "http://www.lakesuperiormagazine-com/cat/gfc.html"http://-www.lakesuperiormagazine-com/-cat/gfc.html http://www.lakesuperiormagazine-com/cat/gfc.jpg Available in May Going Full Circle A 1,555-mile Walk Around the World's Largest Lake by Mike Link and Kate Crowley "Earth provides enough to satisfy every man's need, but not every man's greed." Gandhi "I hope you love birds too. It is economical. It saves going to heaven." Emily Dickinson

41759

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Kate Crowley 82119 Bennett Rd Willow River, MN 55795-3079

Alphabetical by sender's first name

Kate Fitzgerald 44597

Dear Ms Fay, As a mother of two young children and long-time resident of Grand Marais, MN, on the edge of the Boundary Waters Canoe Area Wilderness in NE Minnesota, I am acutely concerned about the proposed PolyMet open-pit sulfide mine and wastes proposal. I believe the project's risks to human health would be unacceptable, and it is with great earnestness that I ask you to reject PolyMet NorthMet SDEIS and the mine and wastes proposal. One of my top concerns is mercury. At a time when one out of ten babies in MN's Lake Superior region are being born with dangerous blood levels of mercury, it would be unconscionable to accept a mine and wastes proposal that would only cause that percentage to grow. To support this concern, we only need to look at what has happened downstream of the PolyMet project, where the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes have become legally impaired due to the toxic mercury level in fish. Having attended a very detailed and well-supported presentation by NE Minnesotans for Wilderness advocate Jane Reyer and former State Representative Frank Moe in Grand Marais on Feb. 19, everything I learned leads me to the conclusion that the PolyMet SDEIS analysis of mercury risks is misleading and inadequate. Through Ms Reyer's careful explanation, I learned that he SDEIS' claims that sulfates and mercury and sulfates will be captured are unreliable. I learned that their information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks is extremely poor and full of gaps. I learned that impact of lead, aluminum, and manganese in water causes damage to the human brain. That air emissions of nickel and other particulates, diesel, and asbestos-like fibers can lead to cancer, as can arsenic. I am alarmed that there is no reference in the SDEIS to potential human harm-notably our most vulnerable community members: infants, children and elderly people. Additionally, the SDEIS does not asses worker at-site risks or residential well risks. Its lifetime risk assessment of 30 to 40 years is half what it should be. The SDEIS does not take into account the effect of toxic pollutants when accumulated in fish, game, and wild rice-notably the effects these toxins have on high-level consumers of these products, including regional tribal members, low-income families, hunters, fishermen, and countless children and elderly people. The PolyMet SDEIS fails to adequately assess human health impacts. The proposed PolyMet mine and mine wastes would be an unacceptable risk to our health. That is why I am asking you to please reject the PolyMet SDEIS and the PolyMet mine. Sincerely, Kate Fitzgerald Grand Marais, MN

Kate Flynn-Kitzmann 22678

Due to the unavoidable pollution effects of sulfide mining and high environmental and monetary costs I strongly urge Minnesota to say NO to this mine. There is no way this company will be in existence to cover cleanup costs and the money they set aside will not be enough. Do NOT sell our pristine wilderness, no amount of money would be worth it; allowing this business to ruin our state is short sighted and Minnesota has always planned for long term Many businesses in that area depend on tourism; pollution of the area would cause them to fail. I can't believe this is even up for discussion. If it passes the DNR and those responsible should hang their heads in shame. Kathleen and Gary Kitzmann HYPERLINK "mailto:kfkitz@gmail-com"kfkitz@gmail-com 5230 60th Ave SW Rochester MN 55902

Kate Mader 43070

To begin with, please consider the people and companies involved with this sulfide mine copper nickel and other minerals mine plan. PolyMet is a new foreign company with no experience. It is backed by, controlled by, and has given exclusive rights of sale to a thoroughly disreputable foreign company which is chaired by a thoroughly disreputable man. PolyMet is a Canadian company, funded and controlled by Glencore, a Swiss company which has been involved in environmental disasters, labor violations, and human rights abuses all around the world. Glencore's chairman, Tony Hayward was the BP CEO in charge when the Deepwater Horizon oil rig caused the largest oil spill in history in the Gulf of mexico, while he showed no compassion for the environmental destruction or the people who were so devastated by the disaster. Is this what we want in Minnesota or anywhere in the United States. We have a responsibility to do as little harm as possible to the environment. We have this responsibility to the Creator, to ourselves, to our children, and grandchildren. We have a responsibility to our government. First of all we are responsible to NOT poison our land, our air, our people and our fauna and flora. And that is exactly what sulfide mining does.Secondly we have a responsibility to our government at every level to not give away resources which if used at all should be used for our own benefit. I personally believe they belong left in the earth, that we can live without them as has been done for most of history and obviously will be done in the future. The challenge is to learn to live in peace with nature, not to plunder the earth and poison ourselves and everything on it while scrambling for power, war, and devastation. But I do know that many people separate themselves from moral responsibility when making financial decisions-government personell often feel that personal payoffs are more important than the people they represent. We all know the devastation caused by this mining. We all know that there would be no benefit to the people, and much disaster in the way of poisoning the land, the people the water, the wildlife, the fauna and flora. This is my plea to NOT give any permits to any foreign company to mine our precious earth and destroy our people and land in doing so. Catharine Mader 3152 29th Ave S. Mpls, MN 55406

Alphabetical by sender's first name

Kate Mahonen 54348

Dear Ms. Lisa Fay, EIS Project Manager,I disagree with the PolyMet Mining going to happen in Minnesota. The Copper-Sulfate Mining is a big project and I don't think it will benefit Minnesota enough to make it worth the tune, land, and money that it would take to go through with the mining. Yes, it would create jobs in Northern Minnesota, but is that really the only positive thing that will come out of all this? We use all of this land to create jobs in Northern Minnesota and it's not like the jobs will be there forever. They will be filled for the 20 year span when the mining will take place but after that it will be back to square one with 13,000 acres of land destroyed from mining. The Polymet Mining will have a large effect on the cultural resources being that there are four or five locations that would be affected from this mining process. The Land Exchange is another big problem I see coming from the mining. The company PolyMet, would like to use a bunch of public land as well as gain private land. I don' t think it makes one bit of sense to lose a bunch of public land so that a company can mine it, and then leave it as a piece of crap that will never be the same agan1. This mining would affect me in major ways. We use this land and its what makes Minnesota, Minnesota. I was told to write this paper as a school project, and if this wasn't assigned I would most likely never have looked into this. Thank goodness it was though, because now I realize how many dumb things could happen to our state without the voices of our local citizens being heard.Sincerely, Kate Mahonen

Kate S 16780

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kate S n/a Inver Grove Heights, MN 55077

Alphabetical by sender's first name

Kate S 50129

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kate S n/a Inver Grove Heights, MN 55077

Kate Smith 58152

Without a doubt, a great deal of effort has been expended to generate this extensive plan. Involvement has included several local, state and federal departments as well as PolyMet's mining experts and consultants. Mining copper, nickel and precious metals is a means to an end, money. What seems to be missing in the EIS is an accounting for the flow of money both as future costs and benefits. Without that information, it is impossible to know if the project is viable and environmentally sound.Poly Met• Having already spent $65 million, it is clear that PolyMet expects to make mega-bucks sellingmetals.• Controlling costs is paramount to making a profit. How can the public know if corners are cutduring design, construction or operation?• In the event of a mishap during construction or operation, what penalties can be enforced? Is the amount of money set aside by Poly Met sufficient for monitoring and maintenance for 500years?• If Poly Met goes bankrupt, is dissolved or is purchased by another mining company while still inoperation, what fiscal and environmental protections are in place?3 Is PolyMet responsible for anything in the 500 years following closure?Local People• The SDEIS states that 500 people are expected to be employed during construction of the mineabout one year, 360 employed during operation for 20 years and 322 indirect jobs are expected to becreated in the local community.• How many of the jobs will be technical experts brought in from distant places?• The higher the number of locally hired miners, the fewer indirect jobs will be needed since localpeople already have local services.• The more people that are hired and then move into the area, the more indirect jobs will be created. However, these newcomers will take the mining jobs from the local people.• The number of jobs for local people will be less than the sum of the number of mining jobs added to the indirect jobs, 682. • How many jobs will be lost the tourism industry?Government Entities/ All tax payers• How many tax dollars have already been spent on this project?• What is the anticipated tax revenue generated from 20 years of mining?• How is that divided between Federal, state and local entities?• What is the expected cost of post-mining site management for 500 years?• Who picks up the cost for post-mining site management for 500 years?• What tax funds will be withheld for anticipated post-mining site management?• Who picks up the bill if waste containment is not confined for 500 years?• What is the net gain or loss for combined government entities?• What provisions for future expansion of mining and processing have been inadvertently

Alphabetical by sender's first name

Kate Winsor 44051

The following are my comments on the PolyMet Sulfide Mine DEIS: 1- The proposed mine plan does not keep Minnesota's waters safe and clean. 2- The proposed mine plan does not provide contingency plans should an accident occur. 3- The proposed mine plan does not leave the site clean and maintenance free. 4- The proposed mine plan does not account for how treating polluted waters will be paid. I am especially concerned about the impact such a mine will have on resident, nesting, and migratory birds. I am also concerned about the impact to the Superior National ForeSt Please reject this plan, as it imposes unacceptable risks to Minnesota's environment. Thank you. Kate Winsor

Kate Zimmerman 54360

Dear Ms. Lisa Fay, EIS Project Manager,I am writing you to express my opinion on the PolyMet mining project. I do not support the project for the following reasons. The first reason is that the proposed project could affect the endangered or threatened species that live in this area. They could be affected by the noise, traffic or vibrations caused to their habitats by the projects. Their habitats could also be destroyed or removed by the construction of the mine. They could also be affected by water pollution or changes in the quality of the water or the air caused by the waste products of the proposed mine. Another reason that I do not support the project is the effect it could have on the Ojibwa that live in this area. The waste products from the project could affect the animals and plants in that area. Some resources that they use could be affected as a result of the proposed project. The proposed project could also affect other cultural resources that are located in or near the area of the project. Another reason is that the project will affect the quality of the water in that area. The project is located on a site that is near the Partridge and Embarrass rivers. These rivers then flow into the St. Louis River and from there will flow into Lake Superior. The project could add to the water Mercury that might be present in waste materials. Metals could also be released that will affect organism in the water even if it is a low concentration of the metals. It could also add sulfate to the water from the chemical reactions of the waste products. This sulfate could affect the growth and viability of wild rice that is grown on the rivers. The proposed project could also affect the wild rice that is grown downstream of the site for the project. Wild rice is an important environmental resource of Minnesota and also has a cultural significance to the Ojibwa people of Minnesota. To conclude there are many reasons why I feel that the proposed project is not a good idea. The project will affect different cultural and environmental resources of northeastern Minnesota. Thank you for taking the time to read this letter.Sincerely, Kate Zimmerman

Katelyn Soukkala 15080

Katie Soukkala Ms Olson Chemistry, Hour 4 1/30/14 Copper Mining Aka Contamination. Copper mining is the excavating of a natural resource called copper. Recently, a large copper vein was discovered near Babbitt and Hoyt Lakes, Minnesota. This state has been considering excavating the extremely useful metal. Right now, experts are weighing the effects on the environment versus the profit for our economy. Sulfide mining has a few benefits, however I believe the detrimental impact it will have on our environment outweighs all of the potential gains. I am against copper mining in Minnesota for many reasons. The first reason being that when mining copper, sulfate is released, and when mixed with air and water this creates sulfuric acid. Sulfuric acid will lead to the production of toxic heavy metals in water. This will lead to the methylation of mercury. Methylmercury is the kind that accumulates in fish which can put humans in danger of having mercury toxicity. Another reason that I disagree with letting PolyMet mine in Minnesota is because the mine would be in the Superior National Forest which is rich in peatlands. Cutting down the forest would not only kill many plants and animals, it also would destroy peatlands. Peat is the first stage in the process of creating fossil fuels. In our fossil fuel driven world, we cannot afford to destroy valuable hydrocarbon. The final reason that I oppose mining near Babbitt and Hoyt lakes, Minnesota, is because the mine would only be open for twenty years and there would be over five hundred years of environmental damage. It seems like a huge habitat loss for such little gain. PolyMet should find a cleaner, more eco-friendly way to mine the copper. If they can do this, then maybe it would be more reasonable to possibily consider mining the ore. Harming our delicate ecosystem is not something to be taken lightly. As one can see, I do not agree with PolyMet’s way of mining in Minnesota as of right now. If they were to figure out a way to protect the environment, I would reconsider my opinion. Too much of our ecosystem is at risk with the current mining plan. It is important for you to consider my input as a fellow Minnesotan. This issue will directly affect people that live anywhere near the mine and the watersheds it is located near. Thank you for your time.

Alphabetical by sender's first name

Kateri Trembley 40179

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

katharine odell 40389

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, katharine odell 1415 Vilas ave Madison, WI 553711 US

Katharine Rauk 52349

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Katharine Rauk 1924 Drew Ave S. Minneapolis, MN 55416

Alphabetical by sender's first name

Katherine D. Doerr 19984

I am shocked that the state of Minnesota is considering this proposal in light of evidence that this project threatens the quality of a major water shed and would create serious air pollution in a highly valued tourist area. Please consider the value of our state's public health, especially the air and water resources, which would be prohibitively costly to rectify, if damaged. A private company whose aim is to profit cannot override considerations of public health and safety. The long term costs to our northern communities with the loss of safe drinking, bathing water and breathable air cannot be overlooked. The idea that providing jobs is worth such a trade off is ludicrous and very short sighted. We have an obligation to be good stewards of our natural resources and prevent waste and destruction for private, short term profit at the expense of general welfare. The Department of Natural Resources has a moral duty to protect Minnesota's treasured land and her people. Economic gain from our natural resources needs to be sustainable and safe for everyone. Katherine D. Doerr 112 Edgewood Court Wayzata, MN 55391 612-396-8000 Katherine D. Doerr kadedoe2@gmail-com

Katherine Doyle 41813

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, Although mining jobs are important to Northern Minnesota, a healthy habitat for humans, animals, and plants is certainly more important. At some point, the mining industry may be able to protect Minnesota by treating dangerous pollutants before they are expelled into the environment. This is not currently the case. If this does become mechanically and financially feasible, please make sure the mining companies are able to pay for the substantial costs of dealing with the pollution. The unmeasurable and unpredictable long term costs should not be shifted to the tax payers. As with physicians who must take the Hippocratic Oath, the Minnesota DNR's first job should be to do no harm and protect the environment. Columbus arrived in America a little over 500 years ago. It is impossible for us humans to predict what the world will be like in 100, let alone 500 years. Yes, Minnesota has one of the largest copper nickel deposits in the world, and hopefully someday we will be able to extract these precious metals without the risk of serious environmental harm. At this moment in time, however, the risk is very real and should not be tolerated by an agency with the responsibility of protecting our precious environmental resources. Pollution is not progress, and jobs which pollute the environment are not blessings. I urge you to reject the proposed PolyMet mine, and to make sure all future mines do not endanger our wilderness, watersheds, wildlife, and the personal health of the people you have the responsibility to protect-whether they are currently living or our great, great, great, great, great, great, great, great, great grandchildren. Respectfully Submitted, Katherine Doyle 2232 Vermilion Road Duluth, MN 55803 Sincerely, Ms Katherine Doyle 2232 Vermilion Rd Duluth, MN 55803-2216 (218) 724-0589

Katherine G Lewis 54807

See attachment

Katherine G. Lewis 39022

From: katherine lewis [mailto:kglewis1@gmail-com] Sent: Saturday, March 08, 2014 3:14 PM To: Stine, John (MPCA) Subject: No to PolyMet mine Please do not let centuries of environmental damage occur in exchange for brief commercial gain. We should be recycling our copper rather than selling it abroad and doing unnecessary mining here. Please OPPOSE the POLYMET MINE.. Sincerely, Katherine G. Lewis

Katherine G. Pohlman 43022

Here is my mailing address: Katie Pohlman 908 Curtis Avenue Columbia, MO 65201 email: HYPERLINK "mailto:kgp2q3@mail.missouri-edu"kgp2q3@mail.missouri-edu phone: (301) 529-9911 Katie Pohlman University of Missouri-Columbia Journalism and Environmental Science Major University News Editor, The Maneater HYPERLINK "mailto:kgp2q3@mail.missouri-edu"kgp2q3@mail.missouri-edu

Alphabetical by sender's first name

Katherine Huska 42070

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Katherine Huska 211 N 24th Ave E Duluth, MN 55812-1860

Katherine Krumwiede 38958

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. Lake Superior is one of our most beautiful and valuable resources in Minnesota, and needs our protection from the industrial world. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Katherine Krumwiede 2415 Hennepin Ave Minneapolis, MN 55405-2605

katherine lewis 41821

Please do not let centuries of environmental damage occur in exchange for brief commercial gain. We should be recycling our copper rather than selling it abroad and doing some unnecessary mining here. And on public land, for private profit. OPPOSE the POLYMET MINE. Thank you Katherine G. Lewis

41827

To whom it may concern- Please do not allow centuries of environmental damage to occur in exchange for short-term personal gain. We need to recycle copper, not sell it overseas, and not mine it unnecessarily here. This mine will create some temporary jobs but cause enormous damage on public lands. NO TO POLYMET MINE.. Katherine G. Lewis

Katherine Loban 39626

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Katherine Loban 4772 Oak Dr Moose Lake, MN 55767-9208 (218) 485-8777

Katherine M Lewis 54808

See attachment

Katherine McClure 58125

NO MINING NOW! WAIT UNTIL THE TECHNOLOGY IMPROVES1. New untested mining procedures should not be tested on our state2. 500+ years of pollution is too long for so few jobs and so little money3. We would save money by funding 350 jobs instead of paying for clean up later. Let’s find 350 green jobs or environmental jobs up north.4. You can’t expect to live in pristine wilderness and also necessarily have a good paying job (I moved to the T.C.)5. Why Polymet! Why not a state run mine?

Alphabetical by sender's first name

Katherine Rank 48191

25 people recently add their names to Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=one_thousand"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota.". That means more than 500 people have signed on. There are now 425 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=one_thousand"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 423- Alexandria Brown Morris, Minnesota 422- Emily Sylvestre Saint Paul, Minnesota 421- Miranda Adams St Paul, Minnesota 420- Minah Kim ????, Minnesota 419- Luci Riffel Morris, Minnesota 418- Paul Youngblom Richfield, Minnesota 417- Sophinieng Chea Wyoming, Minnesota 416- Melanie Senum White Bear Lake, Minnesota 415- Amanda Wareham St Paul, Minnesota 414- Jeff Kaplan St Paul, Minnesota 413- Darwin Dyce Ghent, Minnesota 412- Connor Klausing Roseville, Minnesota 411- Jingyang Zheng Minneapolis, Minnesota 410- Katie Mercer-Taylor Falcon Heights, Minnesota 409- Justin Halverson Mpls, Minnesota 408- Laina Breidenbach Minneapolis, Minnesota 407- Roland Welter Minneapolis, Minnesota 406- Noah Shavit-Lonstein St Paul, Minnesota 405- Gwen Ellis Minneapolis, Minnesota 404- Henry Steinhauer St Paul, Minnesota 403- Sadaf Pruitt St Paul, Minnesota 402- Duane Ninneman Montevideo, Minnesota 401- River Ostrow Morris, Minnesota 400- Ben Hoidal Forest Lake, Minnesota 399- Aaron Klegin Coon Rapids, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJvbmVfdGhvdXNhbmQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTMwLCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA3OTY0Nzl9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK5dyUJquzNZZwKAqaVNSLnYgfPiE1qBpjwVzGYxHwoX2jp3FpwfRn4xohAZOPy1Vm-2FnPzo0H-2FEypZL26j2SKLIQvX7Q-2FHcTGnVbYoDawe0ewPlNTRekxVpiIQX8FkAFDR7D8VQW

Katherine Taylor 11265

Katherine Taylor 29421 Hillcrest Drive Stacy, MN, 55079

Kathie Cerra 15751

See attachment

41804

I oppose the Polymet mining project currently under consideration by the DNR. Sulfide mining of this sort has never been done safely, without environmental damage, anywhere in the world. I urge the DNR to deny the permit to Polymet. Kathie Cerra 4522 Arden Ave S. Edina, MN 55424 HYPERLINK "mailto:cerra002@umn-edu"cerra002@umn-edu

Alphabetical by sender's first name

kathleen 44390

To Department of Natural Resources regarding Polymet Environmental Review The following are comments from: Kathleen Anderson 3388 Petrell Rd Brimson, MN 55602 David Olafson 1235 Pequwayan Lake Rd Duluth, MN 55803 Alicia Hachfeld 619 North St Apt 3 St Paul, MN 55106 Brian Hubbard 619 North St Apt 3 St Paul MN 55106 Department of Natural Resources, It is our understanding that there is a mission of the DNR and laws that direct you to protect our natural resources. We also feel that we have a moral obligation to care for the Earth and insure that it is treated in a way that does not harm people and animals. We have great concerns with much of the information in the Environmental Impact Statement and are opposed to granting any permits to Polymet. Regarding Economic Impact, Minnesota law states that sulfide mines be maintenance free at closure. Waste rock and water will need to be contained for hundreds of years. This company has not indicated that it will guarantee that it will be in business this long or that it will pay for the maintenance/clean up for any pollution. How can we be assured that there will be a company or adequate money if there are any problems. This is a concern because in the history of sulfide mining , mining companies are unable to point to a sulfide mine that has ever been developed, operated or closed with out producing polluted drainage. The US EPA identified hardrock mining as our nation's top toxic producing industry. In 2010 the metal mining industry was responsible for 41% of all toxins in the environment. The history of sulfide mining is filled with companies going bankrupt or lacking financial resources to respond to pollution. The Summitville Mine, Colorado, the Zortman Landusky Mine, Montana, the Gilt Edge Mine, South Dakota all bankrupt and the taxpayers are paying millions for clean up. The Flambeau Mine in Wisconsin has surface water runoff and does not meet Wisconsin water quality standards. It is closed and Wisconsin has a moratorium on this mining because it can not be proven to be safe. Polymet has not proven it will not pollute, just because it says it won't and they have a computer analysis that says it won't. There will be water runoff. This is northern Minnesota, there are heavy rains, floods, snowstorms, . the rock and water cannot be contained permanently and safely. There are many statements about computer models. Who has done these models. Are they really done by impartial and totally scientific methods. Has the company had any input, are they reliable. The standards and quality we want have never been met in a real sulfide mine and that is important to consider. The DNR itself has a report confirming what tribal scientists have said for years that the actual rate of ground water base flow is 200-300% higher than in the SDEIS. This puts in question many statements that Polymet has made. It has been shown that this mining has by products of arsenic and thallium which have been linked to increased risk of cancer. We live and work downstream of this proposed mine and do not want our water contaminated and Polymet has not proven that it will not be. Also on the economic impact, we work at a tourism business very close to the proposed Polymet. They may create jobs but they will also negatively impact existing businesses. Our business depends on clean water, clean air, quiet, wildlife and a reputation for these things. Have you really checked out how much tourism exists by sulfide mines. Our guests come from all over the world because of our pristine natural resources. We are being sold out and once we are polluted, it will never be the same. Tourism is a sustainable industry and has not been considered adequately for the negative impact it will have on us. Also have property values been considered. I already know of people who will not buy in this area because of the mine. Another grave concern mentioned

Kathleen A Portugue 54898

See attachment

Kathleen Brown 34910

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt When these toxins reach the air, they will leach into the ground water and int the local rivers, streams and water sources. Minnesota is the home of the Mississippi and of the largest fresh water lake in the world, Lake Superior. Both of these bodies would become contaminated forever. Once we allow permits, Glencor Xstrata is ready to buy out Polymet company and take over. They are known worldwide for their poor quality in care of the environment. They have poured acid directly into the rivers of Africa and Peru is filing lawsuits against them for their destructive policies. We cannot let this happen here. We must stop them before it is too late. Sincerely, Kathleen Brown 7244 York Ave S Apt 130 Edina, MN 55435-4415 (952) 393-6418

Alphabetical by sender's first name

Kathleen Bryant 57217

We have a family home in the mining area. We are concerned that the water for our home will be polluted and the streams and ponds will be negatively impacted. How can homeowners in the area be assured of water quality and what recourse will we have if the water is polluted?Kathleen W. Bryant3320 Hill LaneWayzata, MN 55391

Kathleen Donnelly 16877

Feb 18, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Kathleen Felt 41513

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation" wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1-Underground mining, looking at the full ore deposit and PolyMet's real costs; 2-Putting a liner under the Category 1 waste rock stockpile; 3-Placing all tailings on a new completely lined facility; 4-Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5-Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to

Alphabetical by sender's first name

Kathleen Felt 41514

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation" wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1-Underground mining, looking at the full ore deposit and PolyMet's real costs; 2-Putting a liner under the Category 1 waste rock stockpile; 3-Placing all tailings on a new completely lined facility; 4-Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5-Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to

Kathleen Groh 41878

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I had lived in the Arrowhead for 17 years and watched and witnessed the struggle to reclaim the scarred land from pit and taconite mining. The tailings polluted Lake Superior and no amount of clean up will ever recover all that was loSt Copper mining is even MORE devastating and the years of pollution doesn't begin to justify short-term job gains. It just isn't worth it once the mines are depleted and the waste is left behind for generations. My grandchildren will be left with this and wonder why I ever let it happen. I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Kathleen Groh 114 Bichner Ln Mahtomedi, MN 55115-6810 (651) 777-0991

Kathleen Hamill 35862

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, It is unconscionable to risk irreparable damage to the Boundary Waters region and Lake Superior. Any short-term economic benefit is eclipsed by the possibility of the devastating long-term consequences that may be suffered by our children and our children's children. We should act as the custodians of Earth, not her robber and rapist, not only out of kindness and goodness, but also enlightened self-intereSt Sincerely, Kathleen Hamill 9n639 Koshare Trl Elgin, IL 60124-4305

Alphabetical by sender's first name

Kathleen Hills 47084

Mar 12, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved, because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. If this permit is issued and the project continues, it will be nothing less than a disaster. In addition to the irreparable harm it will do to the water and the wildlife and people who depend on it, the destruction to the landscape will be heartbreaking. Northern Minnesota is already under great risk from climate change. The last thing we need is to add to that. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. This decision should not be based on popular opinion, but on the facts of the situation, which show undoubtedly that the trade-off of twenty years of a few mining jobs for hundreds of years of pollution of sensitive habitats and a permanent ugly blot on the landscape is not worth the risk. Sincerely, Kathleen Hills 2015 Greysolon Rd Duluth, MN 55812-2108 (218) 349-5955

Kathleen J Eggers 54785

See attachment

Kathleen Jones 14833

Feb 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

Kathleen Jones 38959

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. DO WE NEED COPPER. WHAT ABOUT FIBER OPTICS. Sincerely, Ms Kathleen Jones 469 Ferndale Woods Rd Wayzata, MN 55391-1542

kathleen klinkenberg 52241

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, kathleen klinkenberg 712 4th st se apt 2 Minneapolis, MN 55414

Kathleen M. Sullivan 42282

I wish to state unequivocally I am totally AGAINST permitting PolyMet to mine in NE Minnesota. The poses too much of a danger of contaminating the precious waters and watershed of the area that is our one last hope of unspoiled wilderness. The sulfide residue will leach into our waters for way too long a time to risk it for 20 yrs of jobs. NO. No permit. Kathleen Sullivan 28 Mort Meadow Rd Grand Marais, MN 55604

Kathleen McGee 58126

Polymet Sulfide Mine is a bad idea and should be rejected- it is not a sustainable profit model.I am not native to Minnesota and in the past 17 years that I have lived here have slowly discovered the beauty of the north woods. I am used to the heights of the Sierra Nevada but the Boundary Waters is like no place on earth. I tell everyone I can to make sure that the boundary waters are on their list of trips they must take.Why then would anyone agree to risk polluting this amazing wilderness area in order to realize short-term profits that benefit a multi-national company- Glencoe? Would the state really prefer to have jobs in the short term but a polluted landscape in the long run?The negatives are just too great:• There has never been a sulfide mine that did not pollute• The state will have to pay for cleanup after the company is gone so ROI on asulfide mine are greatly diminished• Future water quality standards cannot be guaranteed by the companyThe state would be a fool to move ahead with this project and see the waterways polluted and the beauty of the boundary waters destroyed. If history is a lesson, this pillaging of the land leads to harm to humans, the land and wildlife. The cost is too great. Please do not proceed with this misguided plan.

Alphabetical by sender's first name

Kathleen Mcquillan 15979

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Kathleen Miller 19456

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS seems to be one-sided. Well-documented tribal Major Differences of Opinion call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles and tailings heaps won't seep pollution, that mining won't dry out wetlands and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they are not available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and putting public meetings in January (when bad weather is likely) seems designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just foreign corporations, will matter when the government makes its decisions. Sincerely yours, Kathleen Miller I am a property owner on White Iron Lake and will be affected by these important decisions that are being reviewed. I expect that these meetings will be very well attended and not likely to accurately reflect the interest by residents unless more opportunities are offered. Three meetings is ridiculously few for this important issue. I do health research at the University of Minnesota and am expected to get far more community input for decisions that affect far fewer individuals. Kathleen Miller 153 Sunset Road Ely MN 55731, MN 55731 612-203-2459

43035

Kathleen Miller, BSN, CCRC

Kathleen Moraski 42459

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Kathleen Moraski 7611 Teal Bay Woodbury, MN 55125-1557 (651) 271-2590

43100

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Kathleen Moraski 7611 Teal Bay Saint Paul, MN 55125

Alphabetical by sender's first name

Kathleen Peippo 54701

See attachment

Kathleen Petersen 16136

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Kathleen Smith 52560

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404 " Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation " wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect " wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1- Underground mining, looking at the full ore deposit and PolyMet's real costs; 2- Putting a liner under the Category 1 waste rock stockpile; 3- Placing all tailings on a new completely lined facility; 4- Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5- Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to protect irreplaceabl

Alphabetical by sender's first name

Kathleen Soehl 15951

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kathleen Soehl 65055 340th Ave Lake City, MN 55041

Kathleen Sullivan 42855

See attachment

Kathleen Walker 41859

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. While I myself do not reside in Minnesota, my children, grandchildren and other relatives do. My husband and I are frequent visitors and plan to reside there in the near future. I am always proud to disclose my Minnesota ties to others, not only boasting about the pristine beauty of the many untouched areas in the State, but the fact that The great state of Minnesota cares about preserving and protecting its natural resources for generations to come. I hope I am not wrong. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Kathleen Walker 622 Captains Way Reedville, VA 22539-3236

Alphabetical by sender's first name

Kathleen Zurcher 41972

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kathleen Zurcher Prior Lake, Minnesota

Kathleen Zweber 45003

As a Minnesota citizen, I oppose the mining project proposed by PolyMet because I believe that the risks to the Northern Minnesota ecosystem and to our State’s economy are not worth taking. Although some have pointed out benefits like job creation from this project, such benefits are short-term and there is too much potential for mining profit to come at the expense of existing livelihoods and cost more in the long run especially if Minnesota’s taxpayers end up with a bill for cleaning up after the mine closes. Minnesota’s unique environmental and natural resources are priceless and should be preserved for generations to come. Kathleen J. Zweber 1418 Torgeson Road Duluth, MN 55804 (218) 522-0007

Alphabetical by sender's first name

Kathryn Faley 38961

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Kathryn Hanson 40941

I am submitting comments as a concerned citizen of northern Minnesota. My name and husbands name and address are as follows: Kathryn and Dirk Hanson 1491 Pyhola Ctwy Ely, MN 55731- I have noted specific comments in the attached files. Overall, we are concerned that: 1- The public was not given sufficient time to digest the very long document. 2- Input parameters going into the various numerical models may not reflect the true range of uncertainty and hence the results of the modeling may not accurately represent the hazaRd It would seem that additional analyses or sensitivity studies are warrented to show that the model results are sound. 3- The economic downsides of sulfide mining-impact on recreational property value, tourism, short-term negative impacts on communities of transient workers-are not adequately accounted for. The cache of the lake country around Ely, MN, the reason why I relocated here in 1984 along with a number of key innovators and business owners, is being irreparably damaged by the threat of long-term pollution for short-term mining profits. 4- There is no reason to assume that the State of Minnesota will not be left paying for the pollution that will ultimately ensue. I am not willing to bank on yet unproven mitigation measures and non-mechanical post-closure promises.

Alphabetical by sender's first name

Kathryn Iverson 4614

Jan 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

43034

Please see the attached comments. Thank you, Kathryn J. Iverson

Alphabetical by sender's first name

Kathryn Keiner 40619

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Kathryn Keiner 2688 61st St Fulda, MN 56131-9599 (507) 425-2788

Kathryn L Glessing 42040

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kathryn L Glessing Minneapolis, Minnesota

Kathryn Larson 43256

Thank you for the opportunity to comment on the PolyMet. I have reviewed the SDEIS and believe that while it is not perfect, it is a detailed, thoughtful consideration of environmental, social and economic impacts of the project. I believe the SDEIS shows a need for the project and shows that it can be done successfully, minimizing impact to the environment. I trust the process and I trust the State and Federal Agencies that will be granting permits for the project. I am impressed that PolyMet will use and existing Brownfields site and reuse existing infrastructure. Based on my review of the SDEIS, I am convinced that PolyMet will provide a needed service (producing metals that are in demand) in an environmentally responsible manner that will also generate a positive economic effect on Minnesota and the entire United States. Respectfully Submitted, Kathryn Larson 120 Greenwood Lane Duluth, MN 55803

Alphabetical by sender's first name

Kathryn Lee 57880

I ask you to oppose PolyMet's proposal for sulfide ore mining in the Superior National Forest at the headwaters of the St. Louis River. They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area. The mining will leave square miles of talcum powder-fine waste, piled high. Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock. PolyMet suggests that to prevent pollution of the St. Louis River watershed they will collect the hundreds of millions of gallons of rain and snowmelt waters that filter through the waste every year and run them through water treatment plants ... for up to five centuries. The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project. The cost liability for cleanup over centuries is also a great cause for concern. Please oppose this project. Lake Baikal is at risk already. The world needs MN freshwater protected. Tx facilities require maintaining. We can NOT predict the future. The risks are too great.

Kathryn M Stingl 43097

To whom it may concern: I have grave concerns about preserving the St Louis watershed from any contamination from the results of copper mining. The habitats are pristine. The water all leads to our "Big Lake" Superior. I also have concerns about the effects of closure of the mine on our water sources . Thanks for "listening". Kathryn Stingl Duluth MN 55803 Confidentiality Notice: This E-mail message, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply E-mail and destroy all copies of the original message.

Kathryn Marschalk 40748

I have confidence in the DNR and believe the SDEIS process for PolyMet Mining’s proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet’s project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I’d also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet’s plans comply with Minnesota’s laws. We cannot afford to miss this job opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. Lets get moving . The people are desperate for decent paying jobs. This has been drug out long enough. NAME Kathryn Marschalk ADDRESS 6382Birch StApt 21 North Branch,Minnesota 55056

Alphabetical by sender's first name

Kathryn McMurray 44181

Dear Ms Fay, Dear Federal and State Agency Leaders: Our family owns property and resides ?seasonally near Ely,Minnesota. We believe the PolyMet SDEIS is inadequate and that this destructive project must not proceed as currently proposed because of the 1) widespread and severe environmental damage inherent in the PolyMet project and 2) the failure of the SDEIS to include a cost/benefit analysis and specific provisions regarding amounts and sources of financial assurance. We believe the Supplemental Draft Environmental Impact Statement is inadequate in the following areas: 1) Economic Impacts -The SDEIS contains no cost/benefit analysis of the PolyMet mine. - The SDEIS does not say whether wages paid to mine employees will stay in Minnesota or whether they will go primarily to transient employees who will spend only a fraction of their income in Minnesota. The SDEIS does not discuss the impact of the loss of jobs when the price of copper declines and mining becomes unprofitable, although it acknowledges that such job loss is inevitable: “Mining-related employment is volatile and fluctuates from year to year due to the market price of commodities being extracted.” SDEIS, 4-325—4-326- The SDEIS fails to assess the cost of unemployment benefits and other social services, increased crime rates, and other societal costs associated with volatility in employment. - The model used to calculate the alleged economic benefits of the mine does not take into account the costs to the environment; the displacement of other economic activity, including among other things tribal rights to hunt, fish, and gather under the 1854 Treaty; the infrastructure, government, and social service costs resulting from the mining; and the consequences of the unpredictable influx and outflow of mine employees. - What would be the costs for public infrastructure, lost opportunities to engage in other economic activities incompatible with mining, depressed real estate values, lost recreational opportunities, social upheaval, and perpetual clean-up that the public would be required to bear. 2) Permanent Water Pollution -PolyMet admits that water pollution by sulfuric acid and heavy metals will last for at least 500 years. -Not all of the polluted water will be captured for treatment. Annually, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated. -The SDEIS fails to adequately assess the long-term impacts of the pollution resulting from the release of this untreated water. -The computer model used by PolyMet may understate the actual pollution impact, because it has been shown to be inaccurate in representing current conditions for water quality around the mine site. 3) Absence of Planning for Inevitable Accidents and Failures -The SDEIS fails to provide contingency plans for the kinds of failures and mishaps that routinely occur in mining operations. During operations, at least 6-2 million gallons of polluted water would need to be treated every day. Pipeline spills, accidental releases, failure of water collection and treatment infrastructure, and tailings basins failures are virtual certainties. And because the provisions regarding financial assurance are so plainly inadequate (see below), the SDEIS does not tell us how the costs of responding to such failures will be covered. -The SDEIS provides no details on the impacts to water quality, wildlife, or human health if the water treatment system ceases operations at some time during the 500+ years during which the polluted water is being discharged. The Mine Plan Requires an Absurd and Unachievable Level of Monitoring and Maintenance for Many Centuries -Minnesota Rules 6132-3200 requires that the site must be maintenance-free at closure, but the PolyMet mining plan calls for at least 500 years of active water treatment. -526 acres of land, covered by more than 167 million tons of waste rock, would be covered by a plast

Kathryn Mensing 57266

I would like to see specific research on the impact on women’s health, specifically on breast cancer and toxin deposit in mammal glands. I also would like also a report that takes into consideration the rights, needs, and health effects on Native American Reservations and communities.Kathyn Mensing930 North 13th Ave EastDuluth, MN 55805

Alphabetical by sender's first name

Kathryn Rod 39185

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely, Kathryn Rod Kathryn Rod 4048 Fairview Rd Duluth, MN 55803

Kathryn Rudd 16253

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Kathryn Schmitz 41723

Mar 8, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Kathryn Schmitz 202 Allen Ave Green Bay, WI 54302-4404 (920) 468-8972

Kathryn Sergent 40979

Mar 9, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mrs Kathryn Sergent 300 Charles Ave Amherst, OH 44001-2080 (440) 772-7007

Kathryn Stoneman 41036

Mar 9, 2014 Ms Lisa Fay MN Dear Ms Fay, Not only are Minnesotans, but I also am very concerned,with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. The cost of potential damage to the wetlands, wildlife and habitat to wildlife is a real possibility. In addition, there are far reaching problems with impact on human life and quality of water and soil damage for miles and miles, should there be leakages or inability to handle waste products. This is an extremely real possibility. Are you willing to risk so much on this project. Future generations will have you to thank for this poisonous fiasco should leaks and human mistakes come to pass. I understand that the products gained are important to all of our lives but the risks are too great. Our Federal lands should be protected from this type of exploitation. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mrs Kathryn Stoneman 1501 Claremont Ave Richmond, VA 23227-4031 (804) 264-8709

Alphabetical by sender's first name

Kathryn Yetter 54218

I'm writing to you today to express my views on the proposed copper mine in Northern Minnesota. I attend a Y camp in the boundary waters on Burnside lake. For years I've enjoyed the pristine wilderness. The clean water and the fresh air that I can find in that area away from the city. The opportunity to fish and see wilderness is a novel one for a child raised in the city with parents who are fundamentally opposed to camping. Due to my fantastic experience in that area I oppose the use of sulfide mining. The proposed copper mine would produce 99% waste, far too high a price to pay for the pine trees. It could pollute one of the purest watersheds in the area, far too high a price to pay for the fish. The degradation of the environment would diminish future revenues from ecotourism. Far too high a price to pay for short term, dirty, unsustainable jobs. Please do not approve the copper mine so that future generations can enjoy the wilderness like I have. Any amount of degradation or habitat loss is too high a price to pay.

Kathy Alvig 19999

Dear Sir, I grew up just outside of Duluth. I heard horror stories about iron mining mishaps for miners and companies all the time. When my friends' loved ones started dying from the impact of iron mining, there was nothing any one could do but go to the funerals. The mining companies were always in control. Also, we know there is significant damage to the earth, ground water, and also wildlife habitat that comes from the greed mining operations bring. There is no such thing as real recovery from this. Once the soil earth is damaged, once ancient trees are Knocked down (called overburden by miners), and wildlife habitat is impacted, there is no true reclamation. We lived through the rape of the land during iron mining (still suffer from it) in northern Mn. Take a look around Chisholm and Hibbing and see what the land looks like. Do we want that area looking like a huge open sore. When will the whole state of Mn understand that there is a huge price when there is profit from such mining . When will today's decision makers understand that a decision to support mining does not support current land owners who do not hold mineral rights. There is a huge price to pay. Mining copper in Mn will bring much profit to the mining companies who I understand are based in South America.. Not even from the USA. All of the mining companies profits will go to South America on the backs of the people who live up near Hoyt Lakes. South American companies and share holders will profit on the backs of our childrens safety and good health. This area that makes northern Mn a tourist destination will suffer from air and water pollution, congestion from transportation of the ore, and company controls and bullying. I hope the lobbyists who have been hired by the mining companies do not win. I hope the legislature is smart and strong and does not succumb to pressure regarding this issue. Kathy Alvig Sent from my iPad

Alphabetical by sender's first name

Kathy Baker 16224

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Kathy Burkett 52195

Dear EIS Project Manager Lisa Fay, My understanding is the proposed open pit sulfide mine is to extract copper, nickel and other metals. In other states sulfide mining is associated with long lasting water pollution and has never operated without polluting its nearby waters. Looking at a map, besides the nearby lakes, the Embarrass River runs right by the plant site , flows into the St Louis River and then into Lake Superior. The Partridge River winds around the mine site and does the same. As you must certainly know this type of hard rock mining of sulfide ores react with oxygen in the air and water (precipitation and other water sources) and forms sulfuric acid. We know this acid is harmful to fish and other water organisms and causes toxic heavy metals in the rocks to leach out. We know these toxic heavy metals are harmful to people and wildlife alike. Acid mine drainage can stick around for more than a millennium. Many sulfide mining companies have failed to provide financially for dealing with this long lasting pollution and then go belly up. As a taxpayer I am not willing to be responsible for the liability of clean up. In early 2010 the EPA gave the rating of Environmentally Unsatisfactory and Inadequate for this project plan PolyMet set forth and I am leery that the standards even come close to protecting our waters and environment for the long term. It is disturbing that there were no contingency plans included with their proposal for accidents from failures of collection and treatment systems, tailings basin failure, accidental releases, etc Where is the plan regarding treatment of the water should a plant break down and what is the plan for where the toxic polluted water will go when this inevitably happens. One is left to wonder why was this not included. This lack of information is a red flag. Yearly, 11 million gallons of polluted seepage from the tailings basin plus over 5 million gallons of polluted seepage from the mine site will go untreated into the ground water. I foresee an additional 6-2 + million gallons of contaminated toxic water per day being released directly into the environment when treatment plants breakdown. With something so obviously needed to safeguard environmental safety, yet not included in their proposal, I see no indication that PolyMet is committed to clean mining. I find this of grave concern especially when the waste water treatment plant located off site would need to run for the next 200 years and a long 500 years for the water treatment plant on site. Allowing this mine to go into production for the short anticipated life span of 20 years is clearly for short term gains. 200 years, 500 years and 1000's of years of treating the toxic pollution created by this mine is a long term commitment with long term consequences consequences that we would be forcing upon our future generations. I don't know anyone who would consider this acceptable or ethical. I find this mining process dangerously irresponsible, on a multitude of levels, thus strongly disagree with allowing this to happen anywhere and that includes here in our own back yaRd Sincerely, Kathy Burkett 14820 13th Pl N Plymouth, Mn 55447 763 208 9171

Kathy Glover 39405

Dear Madame or Sir, Please count me among those who oppose mining in this sensitive wilderness. Thank you for making a comment period available to the public. Hoping that long term values (healthy waters, wilderness, respect for the land) will weigh greater than short term goals (money, money, money). Thank you Kathy Glover St Paul MN

Alphabetical by sender's first name

Kathy Holander 18243

Kathy Hollander, K-A-T-H-Y, H-O-L-L-A-N-D-E-R. My name is Kathy Hollander. I'm a Minneapolis resident who also owns lands in St. Louis County in Pequaywan Township. I love the swaying birch and spruce trees of Northern Minnesota and how clean the air smells. My family goes there to escape the smog of the Twin Cities. I have drunk the water from the lake near our land, used it to wash dishes and my child, as well as swim in it. When it came time to put in a well, we did that. I have seen the lake swell to an all-time-high level during unprecedented rains and dwindle down to very low levels during periods of drought. I am concerned about water and land use. At the legislature last year, I heard about some of the wells in Northern Minnesota drying up. I would like to know how much fresh water, both ground and underground this project is scheduled to use. I am not aware of anywhere in the SDEIS where the amount is specified. With climate change coming, there will be areas of drought and areas of heavier-than-normal rainfall that quickly run off. In a drought year, will there be enough water for people and animals to use for drinking water? Will the streams still flow? Will the stream-fed lakes dry up? Will the mining company be able to take all they want even in a drought year? I want this specifics in the SDEIS. And I'm also concerned about the land exchange. By law, an appraisal must be done on the land being lost in the Superior National Forest, and on the new land that will be exchanged to make sure that the new land is worth at least 75 percent of the value of the land being given up. We the people the of Minnesota own the land now, although it belonged to the Anishinaabe people before the European settlers. The Anishinaabe people retained their rights to hunting, fishing and gathering on this land and now even that will be taken from them. What kind of people are we that we do this to the native people of our land. The forest service should disclose to us, the public, all land appraisal information now and extend the comment period so we the taxpayers can comment on this land-exchange issue. On the current land, the state owns the mineral rights. The new lands have split mineral rights. There are no covenants to prevent mining. The land exchange proposed by PolyMet should be rejected since it's not in the public interest. PolyMet must find land where the public owns the mineral rights. No split mineral leases to sell off. And the swap is not equal. We will have a net loss of over 6,000 acres of lands with high biodiversity. We will have a net loss of over 2,000 acres of mature forests and be given less mature forests in exchange. We will lose over 1,400 acres of flood plains. The exchange should be denied as we, the taxpayers, end up with a lot less. It is horrifying that we have to fight you our own government to save the environment as Ansel Adams. Reject the exchange of the Superior National Forest land for the PolyMet project. Thank you.

Kathy Hollander 18228

That's rough being the last speaker. I think I would have rather been the first. My name is Kathy Hollander, and I vacation in St. Louis County. I love the white birch and the white pine trees of Northern Minnesota and how clean the air smells. Many people have spoken about our love for the environment tonight. I have drunk the water from the lake that I have a cabin on, I've used it to wash dishes, I've washed my child with it as well as went swimming in it. I've seen the lake swell to an all-time high level during the last, what was it, 100-year flood in Duluth, and also dwindle down to very low levels during the drought that we had last summer. I am concerned about water and land use. At the legislature last year, I heard about some of the wells north of Duluth are drying up. Who would have guessed? This is drinking water. I would like to know how much fresh water, both ground and underground, this project is scheduled to use. I am not aware of anywhere in the SDEIS where the amount is specified. With climate change coming, there will be areas of drought and areas of heavier than normal rainfall that quickly runs off. In this drought year, will there be enough water for people and animals to use for drinking water? Will the streams still flow? Will the stream-fed lakes dry up? Will the mining company be able to take all the water they want, even in a drought year. I'm reminded of the Aspac River in Northern Canada where the river runs dry when the mining company takes as much water as they need. Also, I'm concerned about the land exchange. By law, an appraisal must be done on the land being given up in the Superior National Forest, and on the new land that will be exchanged to make sure that the new land is worth at least 75 percent of the value of the lands being given up. We the people of Minnesota own that land now, although it belonged to the native people before the European settlers. The native people retained their rights to hunting, fishing and gathering on this land and now even that will be taken from them. What kind of people are we that we do this to the native people of our land? The forest service should disclose to the public all land appraisal information now and extend the comment period so we taxpayers can comment on this land exchange issue. On the current land, the state owns the surface minerals rights. The new lands have split mineral rights. There are no covenants to prevent mining. The PolyMet must find land where the public owns the mineral rights. No mineral leases to sell off. It is horrifying that we have to fight our own government to save the environments that Ansel Adams (inaudible.) We trust exchange of the Superior National Forest of the PolyMet project. It's not in the public interest. Thank you.

Alphabetical by sender's first name

Kathy Iverson 10057

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kathy Iverson 2641 Jersey Avenue South St Louis Park, MN 55426

18274

My name is Kathy Iverson. I am here to submit my perspectives on this big decision. We have had a cabin up by -- well, it is at the end of the Arrowhead Trail in northern Minnesota. So, as a girl I had had an opportunity to play and recreate in that wilderness area and came to appreciate the fishing with my father, with my brothers, and came to appreciate the beautiful woods, with canoeing. And, really, I mean it was so different from urban living, because I lived in Minneapolis my whole life. And so the thought that there are countless lakes and rivers that could be contaminated just, you know, to me is No. 1. That is something so precious that we cannot put a dollar figure on that. It is about heritage. It is about passing on to our children and our grandchildren our legacy that we have experienced in our lives. We have every bit of responsibility in protecting that environment and in ensuring that they are going to have the same experience that we had. That's all I got to say. Thank you.

Alphabetical by sender's first name

Kathy Iverson 18804

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kathy Iverson 2641 Jersey Avenue South St Louis Park, MN 55426

50878

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kathy Iverson 2641 Jersey Avenue South St Louis Park, MN 55426

Alphabetical by sender's first name

Kathy Kahn 47661

All the plans for cleaning up the pollution caused by mining can never make nature as it was before. You can't buy that. Just don't mess it up in the first place. Please, no destructive acid pit mining in that beautiful area.

Kathy Klotz 39353

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs Kathy Klotz 33619 County Road 32 Utica, MN 55979-4503

Alphabetical by sender's first name

Kathy Kormanik 40444

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Kathy Magnuson 42969

Alphabetical by sender's first name

Kathy Murn 47798

From: Kathy Murn [mailto:kmurn09@gmail-com] Sent: Wednesday, March 05, 2014 1:17 PM To: Periman, Richard -FS Subject: PolyMet Dear Sir, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. • Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: • Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. • Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. • Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. • Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1- Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2- Assessment of potential impacts on residential wells from taili

Alphabetical by sender's first name

Kathy Ogle 46728

Lisa Fay MDNR Division of Ecological and Water Resources Kenneth Westlake US Environmental Protection Agency RE: PolyMet NorthMet Sulfide Mining SDEIS Dear Ms Fay, Mr Westlake: This comment letter is submitted on behalf of the undersigned doctors, nurses and other health professionals. We are concerned that the proposed PolyMet NorthMet copper-nickel mine project could have significant adverse impacts on human health as a result of pollutants released to air, surface water and drinking water. We also believe that the PolyMet NorthMet Supplemental Draft Environmental Impact Statement ("PolyMet SDEIS") fails to adequately assess important risks to human health from the pollutants that would be released from this project. The absence of any professionals from the Minnesota Department of Health from the List of Preparers of the PolyMet SDEIS is particularly troubling. We would respectfully request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks of the proposal. We would further request that, in revising the PolyMet SDEIS, a comprehensive Health Impact Assessment (HIA) be prepared under the guidance of the Minnesota Department of Health. In this letter, we summarize some issues and concerns leading to these requests. Mercury contamination of fish and impacts on neurotoxicity in the developing fetus as well as in infants, children and adults is a significant public health concern in Minnesota. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. The percentage of infants thus at risk for neurologic impairment was higher than in the Lake Superior Region of Wisconsin or Michigan. We are aware that many of the bodies of water downstream of the proposed PolyMet mine and plant are legally impaired due to mercury in fish tissue. The lower reaches of the St Louis River, where the estuary for Lake Superior fish is located, contains a particularly high level of mercury. We also know that other mine facilities release both mercury and the sulfates that increase bioaccumulation of methylmercury. Reviewing the PolyMet SDEIS, we believe that the information on mercury releases and the potential for mercury bioaccumulation is insufficient. The SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of pollutants or of hydrologic changes on mercury bioaccumulation. The SDEIS does not provide evidence to justify its claims about collection and containment of mercury and sulfates. The PolyMet SDEIS also provides an insufficient analysis of the human health risks of other pollutants, such as neurologic morbidity resulting from manganese and lead release; and carcinogenic effects of air emissions of diesel, asbestos-like fibers, nickel and other particulates, and of arsenic releases to water. The PolyMet SDEIS fails to analyze health risks to workers who would work on-site at the PolyMet mine or plant and fails to assess impacts of tailings groundwater seepage on nearby residential sites. The PolyMet SDEIS does not discuss impacts of exposures to vulnerable populations, such as infants, children, the elderly and persons who rely for subsistence on fish, wild rice or game species where pollutants may bioaccumulate. For these reasons, we would first request that the PolyMet SDEIS be revised to provide more complete information on mercury and sulfate emissions, deposition, and seepage from various sources, and the potential conversion to and bioaccumulation of methylmercury resulting from releases to the environment and hydrological changes from the proposed PolyMet project. We would further request that the PolyMet SDEIS be determined inadequate pending supplementation to include a Health Impact Assessment, under the direction

Kathy Palmquist 39704

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Kathy Palmquist 803 Glen Ln Winona, MN 55987-4138 (507) 454-5532

Kathy Sidles 9678

I'm against allowing the mining because the acid conctration of the waste water is too high and persists too long. Wildlife is sensitive to acid level, and the potential for destroying the water-dependant wildlife is too great. There is no way the company can guarantee they will pay for what the public - including other private companies - can loose. The risk of pollution and extent of pollution and the time frame for risk is too great. We have to think of other ways to create jobs, and not risk losing existing and potential jobs because of this particular type of pollution. Kathy Sidles 1380 Winchell St Saint Paul, MN 55106 651-771-7528

Alphabetical by sender's first name

Kathy Thonvold 41494

Dear Sirs; I am a resident of Minnesota and our family has long enjoyed trips to Northern Minnesota and particularly the Boundary Waters Canoe Area. I am writing to express my concern in regard to the proposed PolyMet copper mine in the Hoyt Lakes/Ely area. I am opposed to such an operation in that area and am gravely concerned in regard to the effect on not only the pristine Boundary Waters Canoe Area, a national treasure to be sure, but all water in the area and the safeguarding of that area for the generations who follow us. From what I have read, PolyMet does not seem to be able to give 100% guarantees that money will be there for the cleanup after the mining has ended, or that they themselves will even be there to see that the cleanup is done. I am strongly opposed to the proposed mining and would ask that you consider carefully and protect faithfully this beautiful area for ALL of us to enjoy long into the future. Sincerely, Kathleen Thonvold 1316 Co. Rd 9 SE Willmar, MN 56201

Kathy Witherow 39068

---Original Message--- From: Kwithero@umn-edu [mailto:Kwithero@umn-edu] Sent: Tuesday, March 11, 2014 9:32 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Kathy Witherow 12675 Tussock Ct Eden Prairie, MN 55344-3942

Katie Feterl 41039

I am a third-year undergrad who attended a very well put together interactive presentation at Gustavus Adolphus College on the meaning and issues surrounding the proposed PolyMet Mining project near Ely, MN. I am not a resident of Ely, and have only visited the area once (it was beautiful). Even though I have no direct stake in the project, I have been moved to comment. What I learned reaffirmed something I've wanted for a long time—a shift in focus from the immediate short term benefits to the long-term consequences. 20 years of jobs is not worth lifetimes of a destroyed environment that presently largely contributes to the tourism industry of Northern Minnesota. The construction of this mine will only expedite the implementation of future mines in the area, accelerating environmental degradation. Tourism will most likely tank if the area is unhealthy and unsafe. The mine is not the only option for providing jobs. It does not mean the end of Ely if it is not constructed. If people believe that, they have little faith in their own ingenuity and abilities. However, it could put Ely in a much worse position in a few decades should there be large health consequences and/or reduced tourism due to acidic water supply that destroys the life system around it. Weighing the short and long term benefits and consequences, it simply doesn't make sense to take the risk of passing the PolyMet project. Sincerely, Katie Feterl St Peter, MN

Alphabetical by sender's first name

Katie Fournier 58097

Thanks for this opportunity to comment! The limited number of jobs provided by this project for a limited number of years is not a valid trade for the prospect of another economic bust in NE Minn when the mining is finished. We have seen the boom/bust cycle too often from extractive industries in this part of the state. When you add the prospect of remediating, pollution for centuries (when our Republic itself is only ca 230 years old), it seems clear that we in Minn and elsewhere in the world should focus on reuse and recycling of needed materials, rather than putting our waters and landscape at risk. Please see Barton Sutter's comments in the Star Tribune 1/26/14. He said this much better than I can.

Katie Haws 42882

I submit the attached comments for your consideration in the Polyment Mine EIS as part of the public comment recoRd Please respond to my comments and concerns. Thank you, Katherine V. Haws (address on the attached document)

Katie Heitzig 42866

See attachment

42867

See attachment

42875

See attachment

Katie Karbo 54679

See attachment

Katie Krikorian 42641

See attachment

42861

See attachment

47020

thank you. I think you have my address, but just in case its: Katie Krikorian 1313 Missouri Ave Duluth, MN 55811 I really don't believe this kind of mining should be allowed in this region at this time. It's not safe or economical in the long term. Thank you for working so hard on this. On Wed, Mar 5, 2014 at 2:53 PM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Katie Mercer-Taylor 48193

10 new people recently signed Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota." on Change-org. There are now 410 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 410- Katie Mercer-Taylor Falcon Heights, Minnesota 409- Justin Halverson Mpls, Minnesota 408- Laina Breidenbach Minneapolis, Minnesota 407- Roland Welter Minneapolis, Minnesota 406- Noah Shavit-Lonstein St Paul, Minnesota 405- Gwen Ellis Minneapolis, Minnesota 404- Henry Steinhauer St Paul, Minnesota 403- Sadaf Pruitt St Paul, Minnesota 402- Duane Ninneman Montevideo, Minnesota 401- River Ostrow Morris, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJmaXZlX2h1bmRyZWQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTMwLCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA3ODUwMzN9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVKyl7BUgvIjwjTnlQor-2BX-2B6navaMgkLm6UTn4XCGNAoqGbY4AC3Fnuexz06WKR5UjQ9BG8avs28Xs54Kh5E8v-2BDQMZ0G7h2mPQVvvL-2B1KDnhJbb1VfMP39sz6I8Oj9rlY7Zj3xEfA7Zh-2BLBNNtBwAFYTxIKcwd4GVCeW3YPYz4xwiBFQKREw0rvPfdbJ-2FYbSs5EqDgQerqiCVUX1socTbQd9JGB5jdxhmneiMZaAjHwqT

Katie Perkins 39872

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Katie Perkins 11311 133rd Ave N Dayton, MN 55327-9421

Alphabetical by sender's first name

Katie Perkins 39903

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs Katie Perkins 11311 133rd Ave N Dayton, MN 55327-9421

Katie Prock 39880

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Miss Katie Prock 3120 3rd Ave S Minneapolis, MN 55408-3221

Katie Smet 41611

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Katie Smet Rochester, Minnesota

Alphabetical by sender's first name

Katie Weddle Langer 39529

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The fact that this type of mining has not been proven safe is extremely concerning, and the State of Minnesota should not allow it. We can't afford to damage the natural resources that we need in order to live healthy lives. The decision you make will have long term consequences on Minnesotans' quality of life. Please do not allow PolyMet's NorthMet mining project to happen. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Katie Weddle Langer 608 Wilkins St W Stillwater, MN 55082-4459 (612) 730-7849

Katie Williams 42732

See attachment

Katja M Coppetto 54546

I grew up on the South Kiwishink and because of my childhood experiences, I hold the natural Northern Minnesota in a dear place. I know that the natural resources may be available in a finite amount but I'm concerned for the infinite resource of human social, creative capital. The level of pollution over multiple generations will put human life in great danger. Please stop the mines.

Katrine Antolak 43805

I believe the mine is a fabulous idea. It will create a lot of jobs and help our economy a great deal. We need to be less dependent on others for natural resources. Sincerely, Steve Antolak

Katy Kennedy 9737

Hello, Please do not allow the Polymet Mine to happen. Doing so will pollute nearby waters for years to come. It will also destroy the natural beauty of the area with large pits, and piles of excavated waste material. It's just not worth it. Thank you, Katy Kennedy

Alphabetical by sender's first name

Katy Tharaldson 11738

Feb 14, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

Katy Tharaldson 40027

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Katy Wortel 39063

---Original Message--- From: enviros@hickorytech-net [mailto:enviros@hickorytech-net] Sent: Tuesday, March 11, 2014 10:58 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Katy Wortel 1411 Pohl Rd Mankato, MN 56001-5751

Alphabetical by sender's first name

Kay Acton 15762

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Kay Beams 22892

Mar 4, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Their proposal contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. It is time for these analysis to look at the implications to humans-not to their wallets. Greed reigns again. The health of all Minnesotans is at stake here-so a health impact assessment for the PolyMet project needs to be done and the results included in the EIS. The time for leaving out essential studies and information is over. We are tired of incomplete impact studies being done on human and environmental health effects. It is time to start worrying about the health of the citizens of the state of MN. The HIA needs to include an analysis of the social determinants of health. Sincerely, Ms Kay Beams 9539 Hartford Cir Eden Prairie, MN 55347-3149

Alphabetical by sender's first name

Kay Erickson 41880

Minnesota Department of Natural Resources To whom it may concern: I am writing regarding the SDEIS for the PolyMet mining project. The SDEIS is inadequate and doesn't provide any assurance that it won't be harmful to northern Minnesota. Any project that would require treating water for 200-500 years should be rejected out of hand because there is absolutely no guarantee that this will be done. This kind of mining has resulted in contamination of surface and or ground water with heavy metals and sulfates all over the world. PolyMet tailings will be added to an existing tailings basin that is already leaking polluted water. It will destroy bogs, tamarack swamps and degrade 7,300 acres of wetlands. It will leak polluted water into the St Louis River and eventually into Lake Superior. It will pollute our water resources at a time when, due to climate change, those resources are more precious than ever. Lake Superior is a huge source of freshwater, a resource that will absolutely need in the future. It isn't worth 500 years of cleanup for 20 years of mining. I would be somewhat more confident about the project if the companies that pollute our air, water and land would actually pay for the clean up they promise when these projects are approved. From the Gulf of Mexico to West Virginia just recently in the news, companies spend years in costly court battles to avoid efforts to make them pay for cleaning up their pollution and even declare bankruptcy to avoid taking responsibility for cleaning up the messes they make. The track record is abysmal. And it isn't just this mine we need to be concerned about. I have a map that shows at least ten sites in northern Minnesota where mining is being proposed or explored. These projects should be considered as a whole when looking at whether to approve any of them. The cumulative effect of all these projects needs to be considered, especially because it is inevitable that, like pipeline projects, once they get their "foot in the door," they will want to expand and destroy more our forests, waterways and lakes. Until companies can come up with a way to extract copper, nickel and other metals in a way that doesn't pollute our water for 500 years, let those metals stay where they are. Sincerely, Kay Erickson 27930 Smithtown Road Shorewood, MN 55331 _____ HYPERLINK "http://www.avast-com/" This email is free from viruses and malware because HYPERLINK "http://www.avast-com/"avast. Antivirus protection is active.

Kay Kieval 58005

MN regularly ships copper to China in the form of old alternators & motors which China recycles for use in tech mfg. Instead of mining we could do this here. The small amount of natural land that is left once lost is forever. We always use jobs as an excuse for something bad for us. Remember West Virginia. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Kay Kurt-Jankofsky 42755

See attachment

Kay Moore 25320

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I'm Kay Moore, from Idaho, and I have learned the value of clean drinking water, and water cool enough to support fish. The PolyMet Mining Corp. will be similar to Buck Mountain, in Washington. Mining Companies, play up the per't's. The realities are quite different, the mining company did NOT COMPLY, with the water quality, and the land restorations. Each year, the town, has meeting, and the mining company says "YES" , But does NOTHING,,,,only talks, and show up with lawyers, but in essence, STEALS, livelihoods, and life, with polluted streams, and polluted land. IT is A RAPE. of the community, and a theft of the land. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Kay Moore 1029 Colt Rd Moscow, ID 83843-2456 (208) 882-8612

Alphabetical by sender's first name

Kay Nelson 605

Dear Lisa Fay, I am asking that this project does not gain approval. Keeping the water supply clean is too big of a risk for the State of MN to take. Thank you. Kay Nelson 6844 Sheridan Avenue South Richfield, MN 55423-2054

Kaydell Gaasvig 20273

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kaydell Gaasvig P.O. Box 1420 Bemidji, MN 56619

Alphabetical by sender's first name

Kaydell Gaasvig 40390

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Alphabetical by sender's first name

Kayellen Taylor 47142

Please, please do NOT let this happen. Do not allow the PolyMet's proposed open-pit mine and ore processing facility near Hoyt Lakes and Babbitt. ENVIRONMENTAL IMPACT: The environmental impact will be significant and detrimental, and the supposed "clean up" many years down the road is a fantasy, as history shows. How can you actually "clean up" this kind of environmental destruction. The record shows that mining companies rip up and pollute the earth, make their profits, and then walk away or declare bankruptcy, after being permitted to do so by state officials. Please do not do it this time. Global warming has shown us that we must look into the future with a greater scope than we have up to now and this is a case of huge importance and impact. If allowed to go forward, this project and its pollution will be yet another contributor to the Extinction of the Species of Humans on Earth. FINANCIAL ASSURANCE: As Rep Phyllis Kahn has recently pointed out, the issue of financial assurance is also a major concern: She says: I. "In chapter 3, pages 136 to 138, you list information that includes the preliminary cost estimate of closure.The source cited is "Foth 2013-" I've looked at the Foth memo cited in the SDEIS. The Minnesota DNR has simply copied information from PolyMet's hired consultant without confirming or fact-checking their work. If the Minnesota DNR and its co-lead agencies are unable to fact-check the work they presented on financial assurance, how are we to expect that they are capable of the adequately protecting the citizens of Minnesota. II. This project should not go forward unless a third-party insurer, such as Lloyd's of London, can be found. The simple fact is, if a third-party private entity will not take on PolyMet, the state shouldn't. Private insurers have expertise in managing risk that the State of Minnesota can't match. Additionally, policymakers could tap the assurance funds for other purposes. Private insurance is clearly superior to a state managed approach in this case. III. In the SDEIS you say that financial assurance will be done in the Permit to Mine stage. Looking at the most recent MinnTac Permit to Mine document, there is one short paragraph on financial assurance. This project shouldn't go forward without robust public debate, and the opportunity for legislative hearings, if what we can expect is a paragraph from the DNR in the Permit to Mine phase. You must ensure that the public, including financial experts and those elected to represent the citizens of Minnesota, have a chance to weigh in on financial assurance. It has not been your practice to do so in the past; will it be in this case." CONCLUSION: As elected representatives of the taxpayers of the State of Minnesota, do NOT offer POLYMET an opportunity to do this kind of damage, make money from it, and then walk away. Do your research thoroughly and carefully and I think you will find out that it is best to say NO before the irreparable damage is done. Kay Taylor

Kayla Hiller 41824

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kayla Hiller Minneapolis, Minnesota

KC Strang 20109

To whom it may concern; I reside in Omaha, NE and regularly canoe the BWCAW - based on what I've read, Nickle mining often creates serious long-term environmental problem. Please be very sure this is wrong before any approval by MN DNR. I am against any new mining permits there. K C Strang kcstrang@hotmail-com

Alphabetical by sender's first name

Keegan Ramey 52345

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Keegan Ramey 1240 Plummer Road Martinsville, IN 46151

Keelin Kane 58114

This mine should not and must not be allowed. The long term pollution is unacceptable. The "assurances" are more than inadequate – they're ludicrous. To imagine that twenty years of jobs is enough to offset permanent destruction of an irreplaceable landscape! The international conglomerate will reap the money and the benefits and leave a mess behind. Boom, then bust. Northern Minnesota has a thriving tourist industry. People come from all over the world to enjoy it. Don't sell it out. It's a world treasure.

Keely Gelineau 39371

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs Keely Gelineau 709 N Boundary Ave Proctor, MN 55810-2664

Alphabetical by sender's first name

Keely Gelineau 39374

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs Keely Gelineau 709 N Boundary Ave Proctor, MN 55810-2664

Keely King 16282

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Keely King 17146

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Keely King 875 27th ave se Minneapolis, MN 55414

50412

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Keely King 875 27th ave se Minneapolis, MN 55414

Alphabetical by sender's first name

Keith A Haglin 57145

I don't think we should permit this mine as clean-up will cost more than the value of the ore. The trickle down or the pollution will be devastating to watershed to Lake Superior. Taxpayers should not get stuck at the end of the mining.Keith A Haglin701 W. Ideal StDuluth, MN 55811

Keith Erickson 42608

See attachment

Keith Goetzman 43201

I urge the Minnesota Department of Natural Resources to deny permission for the operation of the Polymet Northmet copper-nickel mine in northern Minnesota. The Supplemental Draft Environmental Impact Statement for the proposed mine is insufficient in several regards. To begin with, the SDEIS is overly long and inaccessible as a document to encourage public comment. At 1,800 pages and full of technical language, it at once presents an abundance of data and a dearth of basic, understandable information. The SDEIS does not address exactly how long water treatment will be needed at the mine site, instead presenting a theoretical 500-year model that has done little except to sow public confusion about the actual duration of treatment. The SDEIS uses a flawed model for the amount of contaminated water flowing from the mine site, meaning the project's planned treatment plants may have to process larger volumes of water than expected. The document describes long-term reverse osmosis water treatment that is yet unproven at the scale, use, and time frame proposed. The SDEIS does not describe adequate safeguards against worst-case scenarios that could compromise the integrity the waste and water retention and treatment systeMs Liners can and do fail. Extreme weather can and does occur, lately with increasing frequency. The SDEIS also describes an unacceptable amount of wetlands loss. Mining at the site would destroy approximately 1,500 acres of wetlands, one of the largest wetlands destructions ever permitted by the Army Corps of Engineers. Wetlands are an important resource for sequestering carbon and slowing climate change, and destroying them would release significant carbon into the atmosphere. "New" wetlands created elsewhere in the state to mitigate these losses are not a true replacement. Another reason I urge the DNR to deny permission for the Polymet Northmet proposal: We simply do not have enough information yet, and this comment period is closing before key pieces of information are even in hand. Financial assurances of Polymet's long-term commitment to cleanup and mitigation are key to the proposed project's environmental impact, and yet the public has been asked to let the DNR and Polymet work out financial assurance details after the comment period is closed. The current financial "assurances" outlined in the SDEIS are wholly insubstantial and not assuring to this citizen. Also, the Minnesota Pollution Control Agency has twice delayed its ruling on a state sulfate standard for wild-rice waters, so this vital information is also unavailable as the comment period closes. Finally, I urge the DNR to more closely scrutinize the players in this business proposal. Polymet, which Minnesotans are being asked to entrust with the stewardship of our lands and water, is a newly formed junior mining company that has acknowledged in financial documents that it has no history of mining, has little cash on hand, and can offer no assurance that it will make money. Its largest shareholder is Swiss-based commodities and mining giant Glencore, which has a disturbing history of environmental and ethical behavior. However, the SDEIS does not account for or even mention Glencore, which will own the first five years of minerals from the proposed NorthMet mine. I urge the DNR to require that the PolyMet EIS include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate, and to require that any permit to mine for PolyMet include Glencore. Sincerely, Keith Goetzman 1171 Century Ave S. Maplewood, MN 55119

Keith Haas 58103

I believe the study was done complete and with the best [ILLEGEIBLE] available.

Alphabetical by sender's first name

Keith Jentoft 40992

From: Keith Jentoft 38 Varner Road Gunflint Trail Grand Marais, MN 55604 I am writing to STRONGLY oppose the efforts to mine the Minnesota Arrowhead for copper/nickel using sulfide to extract the metals from the ore. I believe that the study is flawed and unfairly promotes the interests of the mining industry. Specifically, the company proposes to excavate three enormous pits up to 696 feet deep. · Waste rock would be stored next to the pits in 20-story high piles covering 526 acres. · The waste would be added to piles of tailings that are currently leaking polluted water. · The mine will destroy 900 acres of high quality wetlands, eg, coniferous bogs and tamarack swamps, and impact an additional 7,000 acres. · The mine has a projected lifespan of 20 years; polluted water must be treated for 500 years. · Leaking polluted water will flow into tributaries of the St Louis River and finally into Lake Superior. I strongly object to the impact the Sulfate releases will have on the wild rice in the drainage area. Please oppose this project. Regards, Keith Jentoft

KEITH KEMNITZ 11432

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Dr KEITH KEMNITZ 1310 S White Iron Rd Ely, MN 55731-8253 (612) 819-0886

Keith Kuckler 10707

I am a 65 year old resident of Cook County. I have lived here for over thirty years. I have served many years on the Cook

Keith Laken 18231

My name is Keith Laken. K-E-I-T-H, family name L-A-K-E-N, as in November, and I'm from Winona, Minnesota, and I'm here, today -- my public comment that I would like to make is very simple and straightforward. What I would like to see, if any mining permits are approved, that the mining company provide a surety bond for 10 times the estimated reclamation -- cost of the reclamation project, so 10 times. So if the project's going to produce, let's say, $1 million of estimated reclamation for the next 40 years, it's 40 million times, times 10, or $400 million post -- bond would have to be posted just for that specific piece of reclamation for that specific piece of river or land. So the idea is that the companies that are granted these permits cannot just create a shell corporation, issue their dividends to their investors and then walk away from the public. So my interest is basically that the public is served in the long run, not just the short-term interest of the profits for the mining or the resources that are being taken out of the ground, but that the other consequences of the mining that the -- that there's actually a bonding process by which the -- the resources are there to reclaim any damage that's done to the environment. The second thing is that those people that are responsible for approving the -- the project and for running the project, that violation of any federal or state law is a capital offense, not just a minor offense. That individuals and corporations are held accountable from a capital standpoint; in other words, these are severe crimes against humanity. That's my comment. Thank you very much.

Alphabetical by sender's first name

Keith Lusk 39901

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Keith Lusk 701 Horseshoe Ln Braham, MN 55006-3223

Keith Monsaas 39226

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Keith Monsaas 1525 E Superior St Apt B Duluth, MN 55812-1640 (218) 260-3399

Keith Morris 54817

See attachment

Keith Nelson 42733

See attachment

Alphabetical by sender's first name

Keith Thompson 47853

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. As caretakers of the fresh water in this region, our duty lies to protecting the water, not filling the pockets of big corporations who add nothing to our quality of life. Please don't be short sighted on this issue. Your children and grandchildren depend on you to do the right thing. Sincerely yours, Keith Thompson 7223 98th Street S Cottage Grove, MN 55016

Alphabetical by sender's first name

Keith Thompson 48322

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. As caretakers of the fresh water in this region, our duty lies to protecting the water, not filling the pockets of big corporations who add nothing to our quality of life. Please don't be short sighted on this issue. Your children and grandchildren depend on you to do the right thing. Sincerely yours, Keith Thompson 7223 98th Street S Cottage Grove, MN 55016

Alphabetical by sender's first name

Keith Thompson 52350

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Kel 43696

I am very concerned about the environmental impact of letting the current PolyMet mining proposal move forwaRd I don't believe there are enough safety measures in place to adequately protect our wetlands and groundwater sources. Too many companies continue to dump their waste into nearby lakes and wetlands because of loopholes in current regulations. I fear this will end up just the same and cause catastrophic damage to our northern wilderness. Please stop the PolyMet Project Kelly Huxmann 2105 St Anthony Pkwy Minneapolis, MN 55418 Sent from my iPhone

Kellen Giblette 44378

Hi my name is Kellen Giblette. I'm 18 years old and wish to express my opinion on the proposed mine. I feel that the mine will have extremely detrimental effects on the Boundary Waters Wilderness Area. I have been to the Boundary Waters myself and members of my family have been going for years. The BWCA is the most beautiful area in Minnesota, and one of the most beautiful and untouched areas in the country. I would hate for that significant of an area to be ruined in any way for this small economic book to the area. I concede that jobs are good. They stimulate the economy and change families and lives for the better. However, I do not feel that any amount of jobs for any amount of time is worth the possible (and in my opinion inevitable) destruction of such a special piece of land. The claim of your company is that you will financially support the overseeing of the mine for 200-500 years after. This to me is a laughable idea. Can you name many companies that have been around for 500 years. Me neither. I think that the mining industry has built a history of empty promises and deceit. I feel that, not to cast judgement upon your company or any individual persons, you have made such an empty promise. I personally do not feel that it is reasonable to say that you will be financially stable to oversee the mine for 500 years, or even that you as an entity will exist in 500 years. So I implore you to reconsider this proposal.

Alphabetical by sender's first name

Kellen Roberts 1774

To whom it may concern, My name is Kellen Roberts. My home address is 3124 Columbus Ave Minneapolis MN 55407- I am deeply concerned about the environmental impacts of this mining project. I see in the report that Minnesota will be committing itself to treating the water at the site for at least 500 years. I think it is irresponsible to take on such a commitment. We cannot know how much this will cost and who will manage such a long term project. It is reckless to assume that whomever is in charge of that land 500 years from will have the resources or the interest to maintain whatever treatment process is created when the mine is closed. I strongly appose this project unless there is a way to clean it up within a reasonable amount of time after the closure of the mine. We as a state cannot agree to take on this commitment. thank you, - Kellen Roberts

Kelley 47708

Hello, I am writing to strongly oppose the proposed PolyMet Northtmet copper-nickel mining plan. I am not at all convinced that the short term goal of mining is at all worth the inevitable pollution it will cause. Nor am I convinced that PolyMet will be able to reverse the damage to water and land to it's original healthy state. I vacation every year on Lake Superior, the largest body of water in the world. I cherish it and am proud to live in a state that boasts this gorgeous treasure of a lake. I am afraid the pollution will inevitably enter the near by Embarrass River and Partridge River which flows into the St Louis River that then flows into Lake Superior. Please think of what is good for the earth and its people and stop this dangerous plan. Thank you for reading this. Sincerely, Kelley Meister 2427 Chicago Ave,#2 Minneapolis, MN 55404

Kelley Eldien 1768

I support the Polymet project and believe it will bring economic stimulus to our northern MN region and ultimately benefit the entire state and our residents/businesses. I also believe Polymet will perform full due-diligence to ensure operations are done as carefully as possible to minimize all potential environmental impacts to our beautiful north woods/BWCA. Please strongly consider your full support of this project. Kelley Eldien Customer Communications Administrator ALLETE | Minnesota Power 218-355-3548

Kelli Danger 1775

Say NO to non ferrous sulfide mining on the North Shore. Protect the pristine lakes and streams that bring tourism to this beautiful area. Kelli Danger Will Earnie, MN Sent from my iPad

Kelly Amo 42030

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kelly Amo Sauk Rapids, Minnesota

Alphabetical by sender's first name

Kelly Andrle 17344

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate because open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality, and impacts human and animal life. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kelly Andrle Shoreview, MN BWCA Camper Kelly Andrle 1624 Knight St Shoreview, MN 55126

50496

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate because open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality, and impacts human and animal life. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kelly Andrle Shoreview, MN BWCA Camper Kelly Andrle 1624 Knight St Shoreview, MN 55126

Kelly Dalager 41896

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kelly Dalager Monticello, Minnesota

Alphabetical by sender's first name

Kelly Fries 9374

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kelly Fries 4508 Laura Ave Edina, MN 55436

18550

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kelly Fries 4508 Laura Ave Edina, MN 55436

Alphabetical by sender's first name

Kelly Fries 50626

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kelly Fries 4508 Laura Ave Edina, MN 55436

Kelly Hickey 3633

Good Afternoon DNR, I am writing to urge you to please put a stop to the proposed, permanent desecration of our treasured Minnesota Northwoods. I grew up in the Duluth area, left Minnesota for college, adventure, and career and recently returned with my husband to raise a family. I have spent weeks in the Boundary Waters and have always valued our homeland's greatest treasures, the lakes and waterways. The idea that a mining company could destroy the health of our most valuable resource (water, not copper/nickel/other metals) indefinitely (though they only admit to a 500 year issue) for the sake of temporary jobs and revenue is sickening. I have lived all over our nation and have seen the devastation left behind after mining companies closed their doors. Most notable to me is the Berkeley Pit in Butte, Montana, which is now a Superfund site with absolutely staggering environmental consequences. The jobs and money the mine once brought to Butte are but a distant memory, but the "pit of death" (in 1995, a flock of over 300 migrating snow geese landed in the Berkeley Pit and died from internal sores resulting from exposure to the lethal waters) remains, threatening to spill into the water table as its acid bath continues to rise. Polymet will almost certainly leave devastation in its wake, as every hard-rock mine in the United States has before it. History repeats itself. We cannot let it happen in our backyaRd Please protect and preserve the natural beauty and health of the Northland for our children and countless generations to come. Say NO to Polymet Mine. Thank you. Respectfully, Kelly A. Erbach, RN 4020 Clearwater Road, Apt. 213 St Cloud, MN 56301

Kelly Kraemer 42452

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Dr Kelly Kraemer 100 Woodhill Rd Saint Cloud, MN 56301-5132

Alphabetical by sender's first name

Kelly Moran 41855

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kelly Moran Oronoco, Minnesota

Kelly Mormann 16592

Feb 19, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Kelly Nelson 38893

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Kelly Nelson 1535 Central Ave SW Cambridge, MN 55008-2620

Kelly Peteson 40464

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Alphabetical by sender's first name

Kelly Rogers 39608

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The potential short term gain is absolutely not worth the long term pain of what this mining will do to our environment and the health of our communities, both physical and financial. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Kelly Rogers 8818 Logan Ave S Minneapolis, MN 55431-2065

Kelly Strebig 9314

January 31, 2014 To: NorthMet SDEIS and Lisa Fey, EIS Project Manager I attended the public informational PolyMet meeting on January 28, 2014, in St Paul, and had planned to speak; however, my name was not drawn during the allotted three hours. I am therefore sending my comments to you to add to the information you have received from others. I hold a B.S. and an M.S. in mining engineering from the University of Wisconsin-Madison, and have over 30 years experience in improving workers' health, and improving air quality. I also have experience in fugitive dust control and mine land reclamation obtained while working for the US Bureau of Mines and the University of Minnesota. I have followed the PolyMet copper/nickel project for the last seven years. I had visited the site both when it was the Erie taconite mine and after Polymet bought the plant site. As a mining engineer, I agree with the EIS that this is a low-sulfur deposit. I have read the executive summary of the EIS and I find it thorough and that it addresses all the environmental Issues. The dangers posed by environmentalists can and do exist in countries with no laws concerning the environment, and problems may have existed 60 years ago when the United States had few regulations. However, I feel that this mine will not threaten the environment because of the very strict Minnesota regulations, which PolyMet has shown it will meet. Minnesota mines can operate successfully while still protecting our much-loved environment. Therefore, I strongly support the NorthMet project. Kelly Strebig 261 Wentworth Av E W. St Paul, MN 55118

58155

I have a Bachelor and Masters degree in Mining Engineering and 30 years experience in working health and air quality improvement. I strongly support the NorthMet Project because mining and the environment can co exist in Minnesota.

Kelly Weber 6787

I am very disappointed in the State of Minnesota and the continuous roadblocks and delays that they allow to prevent a company like PolyMet from bringing to this State many jobs and tax dollars for both now and future generations. What's with all the delays. PolyMet has been working on this for many years at a tremendous cost of millions of dollars. I have been a Minnesota resident my entire life and certainly believe in protecting the environment. I also believe that the recent SDEIS demonstrates that precious metals can be mined in an environmentally sound manner. We all use these critical metals in almost all day to day activities and it's about time we allow a company (PolyMet), that wants to mine these metals in a safe and proper manner, to get started. The NIMBY thought process that continues to force these metals to be mined in other parts of the world where there are no environmental regulations at all, does not make any sense in today's world. LET'S GIVE POLYMET THE APPROVALS THEY NEED TO GET STARTED. Thank you, Kelvin (Kelly) Weber Sent from my iPad Kelly Weber, OUTSIDE SALES Brock White Company, LLC 4231 West 1st Street, Duluth, MN 55807 P. 1-218-461-4003 F. 1-218-628-2917 M. 1-218-348-9201 www.brockwhite-com kweber@brockwhite-com

Alphabetical by sender's first name

Kelsey L. Reisdorph 43960

Hello, My name is Kelsey Reisdorph and I'm a senior at the University of St Thomas in St Paul, Minnesota. I'm very passionate about protecting the environment because it is where we live, we only have one environment and we only have one life to live in it. Whatever damage we inflict on the environment, we inflict on ourselves. I am emailing to express my concerns about the PolyMet Mining Project here in Minnesota. Based on PolyMet's own report on the consequences of open pit sulfide mining, it will take centuries to fix the damage for only around 20 years of mining. My proposal is that if PolyMet wants to do this project, they should establish a trust fund of an amount established and decided on by a third party and governed by the state, the purpose for which would be to pay for the damage that they are inflicting. Thank you for your time, Kelsey Reisdorph

Ken Bachofer 16250

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

ken chastain 47040

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. 200 years of pollution to keep track of. It's absurd to think you would want to get involved in that kind of responsibility. For the sake of your children's children (Unless you plan to move away with them when this gets out of hand) please reconsider. Sincerely yours, Ken Chastain ken chastain 4728 10th ave S Minneapolis, MN 55407

Alphabetical by sender's first name

ken chastain 47041

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. 200 years of pollution to keep track of. It's absurd to think you would want to get involved in that kind of responsibility. For the sake of your children's children (Unless you plan to move away with them when this gets out of hand) please reconsider. Sincerely yours, Ken Chastain ken chastain 4728 10th ave S Minneapolis, MN 55407

Ken Chervenak 46961

Thank you for this opportunity to again express my major concerns to this proposed debated mine near the BWCAW. It surprises me that the process ever got this far. How could any of the responsible elected officials in the state of Minnesota ever consider putting the Crown Jewel of your state at jeopardy. Anyone who has ever been near or on a wilderness trip in this amazing area knows what I mean. I say NO to this mine now and forever in the future. There are not many areas of wilderness beauty left in this country let alone in this state where people can go to escape the routines of their urban lives to refresh themselves physically and spiritually in this wonderful area known as the Boundary Waters Canoe Area Wilderness. Thank you, Ken Chervenak Rowe Marketing 1200 N. Arlington Heights Rd Suite 430 Itasca IL 60143 p. 630-228-8846 f. 630-228-8852

Ken Engelhart 40936

Minnesota DNR, I am writing to express my opposition to the proposed copper-nickel (sulfide) mining in northeastern Minnesota for the following reasons: § Toxic pollution has happened at every sulfide mine site in the world to date, including the Flambeau mine site near Ladysmith, Wisconsin. Other sulfide mine sites have been declared Superfund sites. With this type of record, it is extremely doubtful that the outcome would be different for Minnesota, even though we are all "above average". § The proposed open pit mine is expected to operate for 20 years and create 300-400 jobs. By comparison, this mine would leave a legacy of millions of gallons of polluted water for hundreds of years in one of the more water-rich areas of the world. Sulfide mining would require measures to "treat" this polluted water for up to 500 years or more. It is unlikely that PolyMet and other current mining companies will exist in 100 years, and unimaginable that they will exist in 500 years. However, it is likely that Minnesota taxpayers will exist, and will ultimately will be the ones left to pay for the cleanup, if possible, of the toxic mess that is left behind after the mining companies are long gone. Other states with sulfide mines have been saddled with billions of dollars in clean-up costs. § Northeast Minnesota generates $1-6 billion annually in tourism income. The BWCAW is the most-visited wilderness in the USA. The waters we have in northeastern Minnesota are unique and precious. The highly toxic process of sulfide mining has great potential to destroy these waters, as well as the tourism trade, native cultural heritage and wild rice that exist because of these precious waters. § In summary, sulfide mining is a highly toxic process that has caused pollution at every sulfide mine site in the world. It is a type of mining that has never been done in Minnesota and that would leave a toxic legacy of millions of gallons of polluted water in one of the most unique and precious water regions of the world. The short term "benefits" of mining do not outweigh the disastrous long-term consequences to our pristine northeastern Minnesota waters and land. I urge you to resist the allure of short-term "gain" for what ultimately will be long-term pain that Minnesotans will deeply regret. Kenneth Engelhart. M.D. 4160 Burton Lane Minneapolis. MN 55406

Ken Halfmann 35232

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. While I haven't yet been to the Boundary Waters Wilderness, I have visited a number of other beautiful sites on the Lake Superior shoreline from the Apostle Islands to Tahquomenon Falls, and can't imagine subjecting any of these places to the degradation that this mining project would bring. Sincerely, Ken Halfmann 1819 Laurel Crst Madison, WI 53705-1066 (608) 238-5284

Alphabetical by sender's first name

Ken Hanson 37145

I'm very concerned about the environmental impact sulfide mining will have on the sensitive eco-system which is northern Minnesota. I understand the industrial need for copper and nickel and the significance of job creation but I find it difficult to accept that either of those issues should take precedence over the preservation of our natural environment-particularly water quality. I would like to believe mining technology has advanced to the point of at least a near guarantee of environmental protection but after following the issue closely for months I don't find in all the literature I've read (for and against the project) any suggestion Polymet or any other mining operation can even begin to assure the beautiful lakes region of northern Minnesota won't be significantly, negatively altered by their sulfide mining operations. The world will exert, I'm sure, heavy demand for the metals proposed to be mined but I find it unacceptable that mining should occur at the expense of our air and water quality. Are these metals really worth more than our clean water. I wish to register my opposition to this and other sulfide process projects planned for northern Minnesota until that time when environmental protections can be reasonably assured. Ken Hanson 2703 Kelly Ave Cloquet MN 55720

Ken Illegible 57279

Please accept thes e comments on the Poly Met Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage (AMD) and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as lynx and moose, exchange of federal land within the Superior National Forest, and cumulative impacts from mining. The proposed mine poses unacceptable risks to our waters and communities, and I support the No Action Alternative. I am concerned that a decision around jobs will outweigh the potential impact on the environment. Concerns around the impact on the environment should be a priority. The proposed mine poses unacceptable risks.

Ken Kaseforth 48088

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and also reject the PolyMet open-pit sulfide mine and wastes proposal. This project would present unacceptable risks to Minnesotans well into the future, in terms of health, environmental contamination and financial liability. All of these long-term risks for about 20 years of mining by a Canadian company funded primarily by a Swiss commodities trading firm, and whose chief customer will be China. It is hard to believe that, absent corruption, this proposal continues to be seriously considered. When you also factor in the inevitable and long-term off-setting losses to neighboring recreational business, this proposal becomes absurd on its face. It is not one that will benefit Minnesota or US citizens in the long-term. Rather, us tax-payers will be left holding an empty but foul bag if this mine is permitted. Very truly yours, Ken Kaseforth 10724 Beard Ave S. Bloomington, MN 55431 952-888-3123

48449

Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and also reject the PolyMet open-pit sulfide mine and wastes proposal. This project would present unacceptable risks to Minnesotans well into the future, in terms of health, environmental contamination and financial liability. All of these long-term risks for about 20 years of mining by a Canadian company funded primarily by a Swiss commodities trading firm, and whose chief customer will be China. It is hard to believe that, absent corruption, this proposal continues to be seriously considered. When you also factor in the inevitable and long-term off-setting losses to neighboring recreational business, this proposal becomes absurd on its face. It is not one that will benefit Minnesota or US citizens in the long-term. Rather, us tax-payers will be left holding an empty but foul bag if this mine is permitted. Very truly yours, Ken Kaseforth 10724 Beard Ave S. Bloomington, MN 55431 952-888-3123

52476

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Alphabetical by sender's first name

Ken Klein 19925

Watch 2 minutes of this instructive video.. Industry reassurances mean little when "accidents" happen. Do more than due diligence to keep this type of tragedy from happening in our great state. Otherwise our license plates might read "The Land of 6,000 Lakes". Thank you. Ken Klein Phd, 12 Meadowlark Ln., St Paul, MN. 55127 http://www.tytnetwork-com/2014/02/26/company-responsible-coal-ash-leak-unsure-can-ever-cleaned/

20043

I believe from reading the SDEIS that assessment of plausible neurotoxic risks associated with the Polymet project(s) has been inadequate. More specifically, I believe that several independent analyses by respected experts needs to be incorporated into the SDEIS, and that the models presented have relied too much upon industry data and speculation. Methyl-mercury contaminants can migrate into water, soil, and air, and their cumulative effects need to be evaluated in the context of other likely discharges (eg other approved mines, industry discharges, ambient poluution, baseline levels of neurotoxins in Lake Superior watershed, etc) No bond or financial guarantee will begin to cover health related sequelae if neurotoxic damage ensues. No mitigation, monitoring, abatement, restoration, reclamation processes and funding can address permanent neurological damage that residues from sulfide mining are known to occasion. One only needs to review recent "accidents" (discharges) in North Dakota, West Virginia, and North Carolina to realize that substandard regulation, permitting, inspections, and enforcement actions have imperiled the public health. This cannot be allowed to happen in Minnesota based upon a less than comprehensive and independent analysis of the risks entailed. The economic benefits to the region and state are paltry when they are viewed in juxtaposition to public health risks lasting centuries into the future. Needless to add, tourism will decline significantly if any "accidents" do occur given the current pristine nature and allure of this unique wilderness area. Thank you for your attention and consideration of my comment. Dr Ken Klein 12 Meadowlark Ln. North Oaks, MN. 55127

21255

Ken Klein Phd 12 Meadowlark Ln. St Paul, Mn. 55127 I've submitted a comment and wish to be on your mailing liSt Thank you. Ken Klein On Mon, Feb 24, 2014 at 10:10 AM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

21257

Dear DNR staff, Please consider health risks associated with the proposed Polymet mining operation. I am requesting that you confer with our Mn. Dept of Health and the MPCA in your deliberations, and commission independent research to evaluate human habitat (eg. health) consequences from mining residues. This is just one very troubling report re: heavy mining in South America. http://www.worstpolluted-org/projects_reports/display/89 Sincerely, Kenneth Klein Phd (St Paul, Mn.)

21524

2/22/2014 Dear DNR, I am very concerned that sulfide mining poses unacceptable risks to "human habitat" in the form of long term health risks from cumulative residues and byproducts (Including methylmercury) which can infiltrate the water supply, food chain, air emissions. These have been documented in the scientific literature by credible researchers writing for juried publications. I implore you to commission independent studies to evaluate these risks, to incorporate already known research findings in your deliberations and permitting process, and to very carefully weigh the costs in human terms (as well as financial burden) if health damage ensues from these operations. Reliance upon industry's own studies and assurances has shown time and again to be myopic. Accidents occurring recently in North Dakota, West Virginia, North Carolina, and elsewhere amply demonstrate the perils of sub-optimal regulation and enforcement. Posting of bonds (no matter the amount) might guarantee some degree of comfort to those contemplating monitoring costs, clean up costs, etc, but will not begin to cover the actual medical, legal, economic, and emotional toll if the health of current and future generations (in Minnesota, and in the surrounding area, eg. Lake Superior region) is imperiled or damaged. Please confer with the Minnesota Dept. of Health (Environmental Division) as you move forwaRd Due diligence now may forestall this matter from winding up in the court system with prolonged litigation. Thank you for your attention and service. Sincerely, Dr Ken Klein 12 Meadowlark Ln. St Paul, MN. 55127

Alphabetical by sender's first name

Ken Klein 40850

Dear DNR Polymet reviewers.. Please consider the full track record of previous heavy mining pollution globally, not just cherry picked data or representations from mining company officials. Cited below is one study of an actual long term operation that led to disastrous results for the environment and public health of the surrounding community. Regulators in Minnesota need to base their decisions upon worst case scenarios, not upon political pressures, or upon incomplete (at best) projections from vested interests which minimize long term risks to our state and future generations. Human habitat (eg health risks) must be foremost in your analysis, relying upon independent comprehensive studies from multiple impartial and knowledgeable experts, comparable to this one in scope and depth. http://eprints.ucm.es/20188/1/Mazarron.pdf We cannot be asleep at the wheel (or turn a blind eye) as recently occurred in North Carolina, with the Duke Energy coal ash "accident" poised to happen from lax regulation. The costs are too great to ignore these disasters. Sincerely, Ken Klein Phd 12 Meadowlark Ln. St Paul, MN. 55127 cc. EPA

46882

FYI http://download.thelancet-com/pdfs/journals/laneur/PIIS1474442213702783-pdf.id=caao-DN-OwMLy49p9n3su No increased risk of neurotoxic exposure to future generations of children in Minnesota and the surrounding sulfide mining watershed can be deemed acceptable. How can economic gain (jobs) trump our kids' health. Pleae involve the CDC and other reputable experts to provide you an independent analysis of these risks before approving any mining permits. This is the only responsible course, given the long term cumulative risks to human habitat associated with heavy metal mining. Thank you for your attention. Sincerely, Kenneth Klein Phd 12 Meadowlark Lane St Paul, MN. 55127

46916

Please peruse this recent article: http://download.thelancet-com/pdfs/journals/laneur/PIIS1474442213702783-pdf.id=caao-DN-OwMLy49p9n3su No increased risk of neurotoxic exposure to future generations of children in Minnesota and in the surrounding sulfide mining watershed can be deemed acceptable. How can economic gain (jobs) possibly trump our kids' health. Please involve the CDC and other health experts to provide you an independent analysis of these risks before approving any mining permits. This is the only responsible course, given long term cumulative risks to human habitat associated with heavy metal mining. Thank you for your attention. Sincerely, Kenneth Klein Phd 12 Meadowlark Ln. St Paul, Minnesota 55127

54736

See attachment

Ken Lucas 38841

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Ken Lucas Platt st Niles, MO 48120 (505) 401-8411

Ken Skrien 54754

See attachment

54755

See attachment

Alphabetical by sender's first name

Ken Swanson 37456

My wife and I have gone to most of the meetings and still have lots of questions about water quality and how any body will clean up after the mining is done. From all the information I've seen to date poly-met does not have a firm plan for keeping run off with in limits and they for sure cannot explain what or how to do it in the future. I have studied what effects sulfide ore does when in contact with air and water,and so far no other mining place has fixed this problem either. I have property about 20 miles from Hoyt lakes .I know how much work means to the range but is it worth destroying the area for years. PLEASE send this eis back to the foreign companies involved and make them understand WE want GOOD JOBS BUT NOT TO RUIN OUR STATE AND OR OUR WATER SUPPLY FOR GENERATIONS. this mine site is on top of three water sheds {Hudson bay,Mississippi,and lake superior} PLEASE DON'T DISTROY THEM FOR OUR GRAND KIDS TO TRY TO FIX IN THE FUTURE. THANKS Ken Swanson

Ken Wainionpaa 36814

Support for Palymet: As a retired USX foreman, I fully support the Poly Met mine undertaking. The project should be passed and given approval to start up. When I worked at Minntac, Mt. Iron, Mn. (USS, USX Pellet plant), we followed all the air, water, and noise rules. Improvements were ongoing. At PolyMet; New, more stringent rules will be followed and if any occurrences threaten the environment, they will be dealt with immediately. This project will bring millions of dollars to the state of Minnesota. Overly strict laws on mining and manufacturing have forced many American producers to out-source to another country. The MPCA is one of the causes of companies out-sourcing their manufacturing to other countries. The USA cannot survive if all of our products are out-sourced. The PolyMet project will follow the most stringent rules. It will not harm the environment. By using modern equipment and testing, the project will be safe. Ken Wainionpaa 6393 Heritage Trail Gilbert Mn., 55741

Alphabetical by sender's first name

Kendall Clevenger 16233

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Kendell Corbett 39087

To who it may concern: I live 6 miles from the proposed mine - I have been actively collecting data and facts on the project since 2004- I have no concerns that the project would be done safely and adhere to the strict regulations and standards set forth by the State of Minnesota. I commend the agencies on the due diligence they have shown in the years of research and testing - it is time now to move forward based on the sound science and facts of the project. I look forward to the permitting of the PolyMet Project. Thank You Ken Corbett 516 Coventry Rd Hoyt Lakes, MN 55750

Kendra Roedl 57196

I'm Kendra, and I am a youth in Minneapolis. I have not yet visited the BWCA, but I would like to someday. Mining there or near there poses too great a risk to one of the most pristine fresh bodies of water in the world, and the people that live there. I am opposed to the sulfide mining.Kendra Roedl4520 33rd Ave SoMinneapolis, MN 55406

Alphabetical by sender's first name

Kenneth Eckstein 19823

Sirs- Thank you for this opportunity to submit comments. I have vacationed and traveled in northeastern Minnesota and enjoyed the BWCA several times. I am concerned about the long-term environmental impacts of mining sulfide-bearing rocks and the effects it will have on the whole area. I have read tmost of the DEIS and my concerns about the adequacy of the DEIS are included below. Please forward the land exchange comments to the Forest Service. · Land Exchange: The DEIS does not adequately address all the biological and land use issues with the land exchange. Additional information on the natural heritage and timber resources of the exchange lands need to be gathered. The public is best served if the public gains much more public land than it gives up. The exchange ratio should be at least 2 to 1 and of high quality parcels. · Storage of Tailings: To prevent the oxidation of sulfide tailings a tailings basin must be designed to secure those tailings forever. Forever is a very long time. No made-made structure can be designed to last forever at this time, so at some point in the future the tailings storage facility will be compromised. At some time in the future the people of Minnesota will have to pay for and clean up the failing tailings storage facility. Large amounts of money put aside today for future remediation will fall short of what is really needed. Millions of dollars today will equate to pennies in the distant future. The DEIS should make very clear that the tailings storage facility will not last forever and at some time in the future the people of Minnesota will either pay huge amounts for a major cleanup or endure sulfide pollution in a large area. Think about the trade off of these few jobs and tax money compared to the value of tourism in this area. Kenneth C. Eckstein 5623 W. Howard Ave Milwaukee, WI 53220

Kenneth Engelhart 54786

See attachment

Kenneth Harris 39546

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Kenneth Harris 5099 157th St N Hugo, MN 55038-8810 (651) 407-7238

Kenneth hegman 46980

I believe the DNR has done all they need to do and will do an excellent job of watching out for the environmental concerns of the people. If the people will let them do what they are supposed to do, and keep the politics out of it.

Kenneth Indrelie 39465

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Kenneth Indrelie 514 Salem Ct Saint Paul, MN 55115-1483

Alphabetical by sender's first name

kenneth jensen 7469

I am in support of the Polymet Project in northern MN. I believe it will bring many good paying jobs to an area that could use them. Many years ago i moved from northern MN, to the metro area, because of the lack of construction work. I also believe Polymet will follow the proper procedures for clean and environmental mining. Sincerely, Kenneth A. Jensen Jr. 11201 112th Sq. NE
Blaine, MN 55434

Kenneth Lapointe 40375

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Kenneth Lapointe 2781 Mozart Ottawa, CA 90210 CA

Alphabetical by sender's first name

Kenneth Lee 39617

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Kenneth Middendorf 40634

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. When are we going to learn from the past and stop doing harmful things to the planet. After all it is the only one we have. Sincerely, Mr Kenneth Middendorf 340 238th St Osceola, WI 54020-5947

Alphabetical by sender's first name

Kenneth Neff 42151

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Kenneth Neff 115 - 9th Ave SE Waseca, MN 56093

Kenneth Nelson 37275

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: My name is Kenneth William Nelson My address is 3716 Norton Road Duluth, MN 55803 Kenwnelson5@yahoo-com 218-464-7512 I am a retired Electrical Engineer with three years of related experience in the design and construction of taconite plants. Based on the PolyMet SDEIS, I request that you deny the PolyMet permit to mine. My wife and I own 21 acres of property on Cadotte Lake within 25 miles of the proposed PolyMet site. We hunt and fish in the area and want to see our grandchildren to do the same. Compromising the quality of the water in the Saint Louis River and Lake Superior water shed is not responsible management of our environment. We are already limited in the size and type of fish that we can safely consume. Our efforts should be to reduce the amount of pollutants and not add to the liSt Any suggestion that the water treatment from the current taconite plants is acceptable and is an example of responsible mining is simply a sad commentary to our intelligence. Although the example of the costly Silver Bay on land tailings pond was better than direct disposal into Lake Superior, it is far from an environmental friendly solution. Sulfide mining presents its own added water treatment problems with even greater costs and challenges which we must solve before we open the flood gates to not only PolyMet but all the other mining operations waiting on the sidelines. A single limited scope sulfide mining operation similar to some of the taconite pilot plants might be something to consider for the first ten years of operation before allowing for full scale operation. Then if careful monitoring of all problems shows that indeed this mining is feasible and environmentally responsible, full scale operation can be considered. Sincerely: Kenneth W. Nelson Marcia C. Nelson Kenneth Nelson 3716 Norton Road Duluth, MN 55803

49551

Dear Ms Fay, Mr Bruner and Mr Dabney: My name is Kenneth William Nelson My address is 3716 Norton Road Duluth, MN 55803 Kenwnelson5@yahoo-com 218-464-7512 I am a retired Electrical Engineer with three years of related experience in the design and construction of taconite plants. Based on the PolyMet SDEIS, I request that you deny the PolyMet permit to mine. My wife and I own 21 acres of property on Cadotte Lake within 25 miles of the proposed PolyMet site. We hunt and fish in the area and want to see our grandchildren to do the same. Compromising the quality of the water in the Saint Louis River and Lake Superior water shed is not responsible management of our environment. We are already limited in the size and type of fish that we can safely consume. Our efforts should be to reduce the amount of pollutants and not add to the liSt Any suggestion that the water treatment from the current taconite plants is acceptable and is an example of responsible mining is simply a sad commentary to our intelligence. Although the example of the costly Silver Bay on land tailings pond was better than direct disposal into Lake Superior, it is far from an environmental friendly solution. Sulfide mining presents its own added water treatment problems with even greater costs and challenges which we must solve before we open the flood gates to not only PolyMet but all the other mining operations waiting on the sidelines. A single limited scope sulfide mining operation similar to some of the taconite pilot plants might be something to consider for the first ten years of operation before allowing for full scale operation. Then if careful monitoring of all problems shows that indeed this mining is feasible and environmentally responsible, full scale operation can be considered. Sincerely: Kenneth W. Nelson Marcia C. Nelson Kenneth Nelson 3716 Norton Road Duluth, MN 55803

Alphabetical by sender's first name

Kenneth Reid 45524

As a contribution to assessing public opinion on the Polymet EIS deliberations please consider the following examination of the Star Tribune Minnesota Poll published on Friday February 21 2014 with the headline "Nearly half favor PolyMet copper mine". The Star Tribune is not renowned for its support of mining and the headline infers that more than half did not vote in favor. However the poll recorded only 21% rejecting the application. Thus equally true headline would have been "Only 21% oppose PolyMet copper mine", or "One in five oppose PolyMet copper mine" The 33% "Not sure" is much higher than typical for this type of public opinion poll where numbers for undecided are generally around 10%. Although it is not possible to know how the 33% would have voted consider how it might have looked if only 11% were not sure and the other 22% had voted. If they voted equally pro and con the result would have been 57% pro, 32% con and 11% undecided. However, if they had been split in the same proportions as the 67% that did vote, either most pro or most con, the results would have been either a) 61%, pro, 28% con, 11% undecided or b) 53% pro, 36% con and 11% undecided Considering these realistic possibilities it would appear that the poll indicates that a majority of the public is in favor of enjoying the economic benefits of permitting mining and relying on government regulations, industry responsibility and good policing to minimize potential environmental risks. I urge DNR to approve the North Met SDEIS. Dr Kenneth J Reid Professor Emeritus, University of Minnesota 11068 Hyland Terrace, Eden Prairie, MN 55344, USA Tel: 952-943-8909 Email: HYPERLINK "mailto:reidx002@umn-edu"reidx002@umn-edu

Kenneth Rosemark 11254

The Boundary Waters Canoe Area Wilderness is a national treasure, just like the Grand Canyon. The BWCAW is the most pristine wilderness area on the planet. The residue left behind by copper mining seeps into the water, kills plant life, fish and wildlife. In a very short period of time, copper mining will ruin 500 Years Of Echo System. There are several mining companies ready to start mining in this area. As soon as one gets permission to begin mining, the other mining companies will be right behind Poly Met Mining Inc. All of these mining companies are not even US COMPANIES. They are for profit organizations and once they are given the green light, they will destroy this Pristine Wilderness Area. I implore you to take a stand, against allowing the mining companies, anywhere near, any waterway, tributary, steam connected to or running into a Boundary Water Area Lake Or Waterway. Several decades ago, one man stood up against a rich and powerful man, who wanted to dam up this area, to create hydro electric power, for the sole purpose of selling it and making even more money. Something's are worth more than money. The peaceful, pristine, soulful wilderness area, called the BWCA is one of them.. On behalf of my children, their children and your great, great, great grandchildren; PLEASE, SAY NO TO THE MINING COMPANIES SAY NO TO BIG MONEY . Carry on the legacy of the man who originally saved the BWCA. You are in a position to make a decision regarding this matter. On behalf of all of us and future generations, make it a good one. Thank you. P.S. Please forward to Lisa Fay, EIS Project Manager , too. Kenneth B. Rosemark, Rochester, MN. Sent from my iPad

11397

The Boundary Waters Canoe Area Wilderness is a national treasure, just like the Grand Canyon. The BWCAW is the most pristine wilderness area on the planet. The residue left behind by copper mining seeps into the water, kills plant life, fish and wildlife. In a very short period of time, copper mining will ruin 500 Years Of Echo System. There are several mining companies ready to start mining in this area. As soon as one gets permission to begin mining, the other mining companies will be right behind Poly Met Mining Inc. All of these mining companies are not even US COMPANIES. They are for profit organizations and once they are given the green light, they will destroy this Pristine Wilderness Area. I implore you to take a stand, against allowing the mining companies, anywhere near, any waterway, tributary, steam connected to or running into a Boundary Water Area Lake Or Waterway. Several decades ago, one man stood up against a rich and powerful man, who wanted to dam up this area, to create hydro electric power, for the sole purpose of selling it and making even more money. Something's are worth more than money. The peaceful, pristine, soulful wilderness area, called the BWCA is one of them.. On behalf of my children, their children and your great, great, great grandchildren; PLEASE, SAY NO TO THE MINING COMPANIES SAY NO TO BIG MONEY . Carry on the legacy of the man who originally saved the BWCA. You are in a position to make a decision regarding this matter. On behalf of all of us and future generations, make it a good one. Thank you. P.S. Please forward to Lisa Fay, EIS Project Manager , too. Kenneth B. Rosemark, Rochester, MN. Sent from my iPad

Alphabetical by sender's first name

Kenneth Thompson 39548

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Kenny Bollis 38926

DNR I urge you not to accept the SEIS regarding PolyMet for the following reasons I do not think it is in the best interest for the citizens of Minnesota to be responsible for future tax burden as a result of cleanup costs for pollution that will result from poly mets project. The reason I am so concerned about this, in spite of poly met saying that they would be responsible, is that the financial assurances need to remain in place for an extreme amount of time. Financial assurances that need to be in place for 200 to 500 years have not ever been proven. Have there ever been any financial assurance vehicles that have been tested or proven effective for 500 years. I understand that the financial assurance part of this project is actually looked at in the permitting stage, but I strongly feel it is important that it is addressed here as well. The land swap between the forest service and poly met in my mind needs to have its own separate review. The proper amount of time needs to be allotted to this important piece of poly mets project. It cannot be lumped together and hurried through. The use of the national forest has restrictions put on it for a reason. We need to respect that and not put the needs of a corporation ahead of the rights of the citizens of the United States. We were personally involved in a land trade with the federal government. Our land trade took 12 years to go through and it was to trade lakeshore recreational property which was already in use and leased for that purpose. I feel it is a mistake for us to make this trade which would allow non ferrous mining to be done in our national Forrest without a longer period of time for public comment and education on this important change of use. It just does not make logical sense, unless a for profit corporations project does not need to have the same scrutiny as an individual. There is some discrepancy as to the amount of water being released from the project. I would believe the tolerances were put into the model for a good reason therefore it would make sense that the correct numbers be put in and the model be rerun. This is an important part of the EIS. In order to protect our citizens it is only responsible to redo the calculations and do a revision of the model. I am a concerned citizen, who loves this part of Minnesota, and is very troubled by the potential harm this type of mining could bring to northern Minnesota. I believe this harm will not only come to the earth but also would be damaging to the already established tourism environment of that area. This includes businesses as well as cabin owners. The related jobs, as well as construction jobs, taxes and other benefits this tourism economy and vacation home industry brings to the state is sustainable and can be grown. I do not believe that the current tourism economy and vacation home industry could flourish side by side with the nonferrous mining economy which brings pollution and greater industrialization to this unique part of our country. The following are items I would like the DNR to fix in PolyMets mine plan Plan to account for the destruction of moose habitat as well as other natural habitat for the Canadian lynx Plan should call for a detailed plan for financial assurances that protect current and future taxpayers Plan should accurately assess health risks to the public Address the risks of mercury pollution for our children as well as future generations Plan should improve wetland protection and replacements Provide Minnesotans with accurate information about how long polluted waters will require treatment Glencore must be recognized as a responsible party for permitting because of its ties with PolyMet Fix the inaccurate water data used in the model and redo the water model In conclusion it is my opinion that the few hundred jobs and monetary gain for a corporation is not worth the perpetual damage and

Kent L Kaiser 10701

cid:image008-png@01CEA8A4-1F7E8010 Kent Kaiser, MAT, MLS, PhD Associate Professor of Communication 3003 Snelling Avenue North, MJ 168 Saint Paul MN 55113 651-286-7685 HYPERLINK "mailto:klkaiser@unwsp-edu"klkaiser@unwsp-edu | HYPERLINK "http://www.unwsp-edu/"www.unwsp-edu

Kent Merkey 3447

Dec 21, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The proposed PolyMet mine would likely bring temporary short-time financial gain to the area, but the area also benefits greatly from tourist dollars and supports many outfitting businesses; these smaller local businesses, which otherwise might last decades, could well be jeopardized, and when the mine pulls out when it's work is done, would leave both its employees and the local environment (including economic and natural) in an overall weakened condition. Thinking critically, this project does not make long-term sense either economically or environmentally. Oppose it. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Kent Merkey 3307 14th Ave S Minneapolis, MN 55407-7200 (952) 454-3253

Alphabetical by sender's first name

Kent Merkey 51643

Dec 21, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The proposed PolyMet mine would likely bring temporary short-time financial gain to the area, but the area also benefits greatly from tourist dollars and supports many outfitting businesses; these smaller local businesses, which otherwise might last decades, could well be jeopardized, and when the mine pulls out when it's work is done, would leave both its employees and the local environment (including economic and natural) in an overall weakened condition. Thinking critically, this project does not make long-term sense either economically or environmentally. Oppose it. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Kent Merkey 3307 14th Ave S Minneapolis, MN 55407-7200 (952) 454-3253

Kent Newman 30965

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please consider these comments, about the PolyMet Mining Corporation., NorthMet mining project, Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota. In its present form, it is a threat to wetlands, rivers, and lakes, across the Arrowhead Region of Minnesota, including Lake Superior, and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore minining has taken place. I am very concerned about this project's potential impacts on this region's natural resources and public health. This inclueds: risks to water quality, and loss of wetlands, and harm to wildlife such as the threatened lynx and declining moose populations. Also there is the concern of the cumulative impacts, from sulfide ore mining. The Federal land exchange, of protected Superior National Forest land to ease the creation of PolyMet's destructive and polluting open pit sulfide mine, is not in the public intereSt Sincerely, Kent Newman 2950 Washtenaw Rd Apt 2b Ypsilanti, MI 48197-1514 (734) 434-8643

39914

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, I am very concerned with protecting our clean water. I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I have worked on efforts to stop, a sulfide mine in the Upper Peninsula of Michigan. I believe that the SDEIS is insufficient. It should not be approved because it is lacks vital information about long-term water treatment and how the treatment will be paid for. All sulfide mines so far, have leaked some acid, into there waterways. Decision makers should keep that in mind. PolyMet would like to mine within the high quality wetland habitat that is owned by the federal government, as a part of the Superior National ForeSt It is the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of bird habitat, sulfuric acid and toxic metals such as mercury, copper and nickel that are not captured for treatment will have a negative effect, on the aquatic organisms and habitats downstream. Birds that eat fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will probably lose habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Sulfide ore mining has not been made safe so far, anywhere it has been done. Twenty years of mining, will likely assure, hundreds of years of water pollution to both sensitive birds and habit. Until sulfide mining is proven safe, it should not be done anywhere. With much better mining technique, this site, is still not worth the risk. Sincerely, Mr Kent Newman 2950 Washtenaw Rd Apt 2b Ypsilanti, MI 48197-1514 (734) 434-8643

Kent Scheer 7706

Dear Ms Fay, Dear Federal and State Agency Leaders: We have obviously entered a time in history when our population and its extraordinary materialism is visibly damaging the environment from which we draw our sustenance. You have all heard the full litany of environmental damage ranging from the dead zone to exhaustion of entire ocean fisheries. This is not the time for intelligent people to permit another massive extraction process risking lasting environmental degradation. Kent Scheer 850 Scheer Drive NE Wadena, MN 56482 218 631 3084

Alphabetical by sender's first name

Kent Scheer 9962

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kent Scheer 850 Scheer Drive NE Wadena, MN 56482

18717

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kent Scheer 850 Scheer Drive NE Wadena, MN 56482

Alphabetical by sender's first name

Kent Scheer 18860

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Kent Scheer 850 Scheer Drive NE Wadena, MN 56482 218 631 3084

Alphabetical by sender's first name

Kent Scheer 18861

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Kent Scheer 850 Scheer Drive NE Wadena, MN 56482 218 631 3084

Alphabetical by sender's first name

Kent Scheer 50792

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kent Scheer 850 Scheer Drive NE Wadena, MN 56482

Kent Simon 2807

Dec 19, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. It's hard to believe that allowing copper sulfide mining is even being considered, given the following: the public hearing period 90 days; but the clean-up period may be up to 500 years only 300+ mining jobs will be created; but how many more jobs rely on tourism, based on the natural beauty of the place, will be lost it's never been done before without environmental damage; but this is different, a special case So what have you been smoking lately The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Kent Simon 4733 Isabel Ave Minneapolis, MN 55406-2946

Alphabetical by sender's first name

Kent Simon 44067

MNDNR: As an architect in professional practice for 34 years, I can say one thing with certainty – stuff leaks and systems fail - I deal with it on a regular basis. So it's a given that any well-designed open pit mining system comprising liners, computer controlled pumps, and block-off walls, will experience failures and will eventually need replacement. Regardless of whether the design is done according to best accepted practices, it cannot accurately account for some factors and will overlook others. It is simply hubris to think otherwise; no army of the best designers and engineers is capable of doing better today. In the design of the Polymet system, one factor that absolutely cannot be accurately accounted for is climate change and how it will affect precipitation and water flow levels. Despite the application of the best modeling tools science has to offer, there is no consensus on the rate of climate change over the next fifty years, let alone five hundred. Simply stated, water flows cannot be predicted with reliable accuracy. The only thing that is certain is that we are not perfect and the best laid schemes do go astray. And every system has an expected useful life, so well-considered contingency plans and replacement plans are critical. The lack of such plans in your report is glaring in its omission, all the more so because a leaking liner and drainage system burdened by a 200 feet mound of mining rubble is, for all intents and purposes, inaccessible. This would of less great concern if not for the fact that there will be a serious detrimental environmental impact when failure occurs. And we're not just talking about one mine here; this decision will be precedent-setting and if the Polyment venture is approved, the gate will be open. How many more mines will we be saddled with maintaining for 500 years. In the near future, better methods of sulfide mining will be developed; and technologies will develop that do not require the extensive use of copper for the manufacture of wind turbines, computers, batteries - you name it. It is prudent to wait until such time rather than to proceed, especially with a new mining company with no track record for anything except marketing. The time will come when the right proposal is made and we will recognize it as such. It will be a proposal that offers considerable economic benefits for all Minnesotans and preserves the environment, Minnesota's most precious natural resource. This is not that this proposal and this is not the time. Kent Simon, RA Vice President MILLER HANSON PARTNERS | ARCHITECTS + PLANNERS 1201 Hawthorne Ave, Minneapolis, MN 55403 Direct: 612-877-7070 | Office: 612-332-5420 | Fax: 612-332-5425 Email: HYPERLINK "blocked::mailto:ksimon@millerhanson-com"ksimon@millerhanson-com | Web: HYPERLINK "blocked::http://www.millerhanson-com/"www.millerhanson-com This message, including attachments, if any, may contain confidential, proprietary information that is legally privileged. If you are not the addressee or authorized to receive this for the addressee, you must not use, copy, disclose, distribute, or take any action based on this message or any information herein. If you have received this email in error, please notify us immediately by telephone at 612-332-5420 or via email by clicking on Reply, indicating that you received the e-mail in error. Please immediately destroy the original message, any attachments and all copies. Thank you.

51986

Dec 19, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. It's hard to believe that allowing copper sulfide mining is even being considered, given the following: the public hearing period 90 days; but the clean-up period may be up to 500 years only 300+ mining jobs will be created; but how many more jobs rely on tourism, based on the natural beauty of the place, will be lost it's never been done before without environmental damage; but this is different, a special case So what have you been smoking lately The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Kent Simon 4733 Isabel Ave Minneapolis, MN 55406-2946

Alphabetical by sender's first name

Kenta Yamamoto 41816

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kenta Yamamoto Minneapolis, Minnesota

Kenzie 54346

Dear Ms.Lisa Fay, EIS Project Manager,I think that the PolyMet Mining has a very good plan in place. I think that it is well thought out, I also think that they have planned every aspect of the project out very thoroughly. I think that this copper-sulfate mining process will definitely benefit Minnesota in some ways.The advantages to this would be that there would be less unemployment, and better lives for many Minnesotans. But there would also be some disadvantages; there is always a risk of population considering how close the mining project would be tho many rivers, lakes, and wildlife.This will affect cultural resources. A segment of the Mesabe Widjiu known as a sacred place to the Ojibwe people, occurs within the project area so it would be affected. A segment of the Beaver Bay to Lake Vermilion Trail, It also exists within the project area so it would be affected. The Project is also located on land that was awarded to the U.S by the Bands under the 1854 Treaty. The Bands reserved the right to hunt, fish, and gather on these lands. Resources like fish, plants, and animals might be affected by the project.The land exchange would involve the transfer of 6,650.2 acres of federal lands from public to private ownership, and up to 6,722.5 acres of land from private to public ownership, depending upon the results of the environmental analysis and federal real estate appraisals. The federal land proposed for exchange is one 6,650 acre tract. Nonfederal land considered for exchange includes five tracts throughout the SNF ranging in size from 32 acres to 4,651 acres. I think that this land exchange is ok. I think that the land that was public that would become private is unfair. I don't know what the public uses the land for , but for example: if I walked my dogs through this public land every day and then all of a sudden they built and mining project on it I wouldn't be happy. This project will not affect me. I think that this is for a good cause and if it needs to happen, it should. i just think that the land exchange should be more fair to the public.Thank you for taking the time to read all of our letters, we really appreciate it!-Kenzie

Keri Lynn Igo 54501

See attachment

Kerry Carter 54117

I do not support Polymet. A few dollars of profit to corporation isn't worth destroying our water resources. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

kerry martineau 40040

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The science as I believe proves there is no safe or environmental safe and sound way to for this mine like mining in Minnesota has been boom and bust no lasting good impact very few jobs no long term good for our water both ground and lakes and streams our lands or the creatures we share them with I vote yes for the life the future of all creatures and No vote for this mine.. Sincerely, Mr kerry martineau 13 Cypress Dr Duluth, MN 55810-1901 (218) 349-6869

Kerry Sage 58049

Really feel this will have a devastating effect on our beautifull lakes & natural environment. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Kerry Waschke Collie 42759

See attachment

Kevin Baker 15742

See attachment

Kevin Brungraber 41605

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Kevin Brungraber 1046 Fountain Dr Sun Prairie, WI 53590-3038 (715) 207-9736

Alphabetical by sender's first name

Kevin G Olsen 9307

I am sending this email in opposition of Polymets proposal for ore mining in the BWCA in northern Minnesota. Myself and a group of high school friends have been enjoying the camping and tranquility of this area for the last 30 years. There is no other place like it. This area is what Minnesota is all about. To have this area ruined by sulfuric waste polluting our waterways and land is unthinkable. Do we really want to have 500 years of cleanup and pollution destroying the last pristine place in Minnesota. I say NO I've read over and over that 100% of sulfur mining projects have polluted the surrounding environments. Granted it may create jobs in a struggling economy, but the ongoing aftermath of such a project doesn't add up. This proposal needs to stop right here and right now. This area needs to be preserved for generations to come. People from all over the country come to Minnesota to enjoy this serene area, so it's not just Minnesota that this mining proposal will effect. A wasteland is not a pretty site..Take the trucks, cranes and front end loaders and keep them in the sandbox where they belong Kevin Olsen This e-mail, including attachments, may include confidential and/or proprietary information, and may be used only by the person or entity to which it is addressed. If the reader of this e-mail is not the intended recipient or his or her authorized agent, the reader is hereby notified that any dissemination, distribution or copying of this e-mail is prohibited. If you have received this e-mail in error, please notify the sender by replying to this message and delete this e-mail immediately.

Kevin Heaslip 46316

From: kheas@charter-net [mailto:kheas@charter-net] Sent: Wednesday, March 12, 2014 2:07 PM To: Fay, Lisa (DNR) Subject: FW: Polymet EIS ---- Begin forwarded message ---- Subject: Polymet EIS Date: 3/12/14 1:39:06 PM From: HYPERLINK "mailto:kheas@charter-net"kheas@charter-net To: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us Dear Sir or Madam, Regarding the comment period for the Polymet EIS, I believe that the upcoming deadline for comment will unsatisfactorily limit input. Such an important issue as sulfide mining in our area needs to be fully examined; setting an arbitrary comment deadline only serves to rush an agenda. The people of Minnesota, and particularly northern Minnesota, will only get one opportunity to get this right. Please let us take our time. Thank you, Kevin Heaslip

46463

Dear Sir or Madam, Regarding the comment period for the Polymet EIS, I believe that the upcoming deadline for comment will unsatisfactorily limit input. Such an important issue as sulfide mining in our area needs to be fully examined; setting an arbitrary comment deadline only serves to rush an agenda. The people of Minnesota, and particularly northern Minnesota, will only get one opportunity to get this right. Please let us take our time. Thank you, Kevin Heaslip

46571

Dear Sir or Madam, Regarding the comment period for the Polymet EIS, I believe that the upcoming deadline for comment will unsatisfactorly limit input. Such an important issue as sulfide mining in our area needs to be fully examined; setting an arbitrary comment deadline only serves to rush an agenda. The people of Minnesota, and particularly northern Minnesota, will only get one opportunity to get this right. Please let us take our time. Thank you, Kevin Heaslip

Kevin Johnson 16328

Polymet must be able to open the mine. This is a huge opportunity for Minnesota and studies have been completed by Polymet as to not to harm the water. Mines have been in northern Minnesota for a hundred years without this issue. Please give them the opportunity to help Minnesota. Thanks.

Kevin Jones 57345

So my statement about the PolyMet project. Obviously, I think it is good for the State of Minnesota. I think it is important for Minnesota, as well as the United States, to show environmental stewardship by bringing leading edge technologies to the mining process. In addition to the many good things that I see the mine creating for not just Minnesota, but the local areas as well, I think it is -- I think it is an important opportunity for the U.S. to be able to showcase that we are really taking a leading, important role in environmental stewardship worldwide. Keeping it positive. You know, in addition, obviously, PolyMet will provide jobs to the area. But kind of going back, I think more important than the jobs and the revenue, and the taxes, and the money side of things, I think it is a great opportunity to really show how things can be done right. And that's it. Okay? Thanks.

Alphabetical by sender's first name

Kevin Jorgenson 38471

The definition of FRAUD: 1- Deceit, trickery, sharp practice, or breach of confidence, perpetrated for profit or to gain some unfair or dishonest advantage 2- A particular instance of such deceit or trickery: mail fraud, election fraud 3- Any deception, trickery or humbug Basically, that's what the PolyMet proposal has come down to fraud. By knowingly allowing an environmental impact statement to use information on water flow that is incorrect and inaccurate, and if the DNR allows that information to be used moving forward, FRAUD is being committed. They are deceiving us about the true potential impact of pollution in attempt to profit by being allowed to mine minerals in Northern Minnesota. Any officials that move forward KNOWING that the information in the impact statement should be tried in a court of law as well. We should not mortgage the next 5 generations futures for the potential of a few hundred people to have jobs for 20 years. What is PolyMet going to do. They are going to pull the minerals out, make a ton of money and then leAve The state really isn't going to benefit, and the long-term costs of trying to prevent our precious waters from being polluted cannot be quantified by experts. Our waters will become polluted, and then not only will the state be burdened with the costs of trying to clean up the water, but that area will lose its beauty and revenue generator - tourism. Time and again we have seen sites become polluted, companies pull out or file bankruptcy and leave the people holding the bag. This company has no history in our state, no ties to us. They only want what is in the ground to make money and then leave the mess for us to deal with. We need to say no to this proposal. Their impact statement is knowingly false and inaccurate regarding water flow information that was used to determine potentials for pollution. If they are incorrect in a basic measurement like water flow, what more complex items in their report are also inaccurate. FRAUD is illegal for a reason. The state should not perpetuate FRAUD nor allow it to happen. Kevin Jorgenson 1421 Wildflower Ln NE Owatonna MN 55060

Kevin Kathmann 40123

_____ From: farmecologist@hotmail-com [farmecologist@hotmail-com] Sent: Monday, March 10, 2014 5:04 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Again, I strongly support the rejection of this proposal. Thank you. Sincerely, Kevin Kathmann 6339 Pebble Ln SW Rochester, MN 55902-2521

Kevin Koschak 43027

Attached you will find comments on the NorthMet project. Kevin Koschak 2384 151st Ave NW Andover, MN 55304

Alphabetical by sender's first name

Kevin Lee 47244

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please don't let PolyMet get away with submitting an analysis that is inadequate. The PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years. Lake Superior and the north shore is a beautiful and unique asset to our state. Don't let the North Shore environment be destroyed by mining that is almost guaranteed to pollute the ground water. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kevin Lee 2149 Temple Court Saint Paul, MN 55104

Kevin Milliken 40350

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Kevin Milliken 6385 138th Place SE Bellevue, WA 98006 US

Alphabetical by sender's first name

Kevin Myers 18874

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: What will your great, great grandchildren say when they hear how nothing was done to stop the destruction of Northern Minnesota. I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Kevin Myers 33 Riverside Dr Duluth, MN 55808 715 520 3085

Kevin Novak 39728

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Kevin Novak 321 Grace St N Ortonville, MN 56278-1212

Alphabetical by sender's first name

Kevin Oak 15444

My input, for what it may be worth It is appalling that PolyMet would wantonly cause egregious harm to critical environmental systems and habitat for the sake of short-term profits. The toxins and poisons they are intending to spew into the environment with callous disregard for life will still be killing long after they are gone from there. Minnesota will be a better state if it takes action to defend these pristine habitats for us and our posterity to enjoy into the future. PolyMet must not be allowed to destroy for their profit what belongs to all Minnesotans. Please protect our legacy. Thank You Kevin Oak 15603 W. Munson Ln Detroit Lakes, MN 56501

Kevin OHalloran 6038

To Whom it May Concern: I am writing to strongly encourage cessation of this project. There is no need to risk any environmental degradation of this part of the state. Please consider halting this project and any others.

Kevin ORourke 43072

Regarding the environmental impact statement in connection to the proposed sulfide mine and tailing to be stored at the south east corner of 100 mile swamp. I saw the map that is currently being used by SDEIS, and when superimposed on an accurate map of the area, it is clear that a crime is taking place in that there is a coverup of the actual environmental degradation that will take place. The SDEIS map shows a part of the marsh area that is much smaller than the actual area, and also shows a flowage under the bridge to the swamp and a flowage out of the swamp. There is no real flowage out of the swamp, as the swamp is continuous into the BWCA. That is the cover up. It appears that PolyMet has a cartographer in their pocket. It is important to remember that PolyMet comes from "old European money", that is from a community that has long hired private mercenaries to go into third world nations, wage war, and take materials. Their ethical standards are a violation of the values of Minnesotans. We could resolve the issue, have the mines, the jobs, and protect the waters if Minnesotans and PolyMet would agree to share the cost of an advanced water purification system, so that no sulfide runoff would occur. It is important to note that once water is acidified by even a small amount, it will no longer sustain trout fisheries. With sulfide runoff going into hundred mile swamp, the chemicals will eventually reach the boundary waters, and the trout habitat destroyed all the way. Signed Kevin O'Rourke 2743-16th Ave South Minneapolis, Minnesota 55407 _____ From: mister.ericm@yahoo-com To: openprogressivemichael@gmail-com; rock@augsburg-edu; cedarislandgirl@gmail-com; thomaskorourke@msn-com Subject: RE: Submit comments about PolyMet and the BWCA before Thursday, March 13 at 4:30 Date: Wed, 12 Mar 2014 20:42:16 -0500 Hi, I just wanted to remind you that comments about PolyMet will only be accepted until 4:30 pm tomorrow, March 13- If you have a few spare moments and are willing to comment, comments can be submitted by email to HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us . Relevant comments speak to the environmental impact statement and require a full name and street address. One important thing to comment on is the maps in the environmental impact statement (SDEIS) are incorrect in a way that makes it appear the mine and the BWCA are isolated geographically when they’re not. Mine runoff that contains acids and metals can percolate will drain to a swamp that is itself drained by two streams, one of which leads to the BWCA. What the incorrect maps do is simply cut off the portion of the swamp that drains to the BWCA. What I and other people are requesting is for the MN DNR correct the mapping discrepancy, do hydraulic testing to determine what the split of waste to the two watersheds are, determine to what extent the BWCA is potentially affected, and to provide some protection for the BWCA by testing water flowing there. I’m attaching some sample comments as an example. I hope you will make some comments if you haven’t already, Thanks, Eric From: Eric Morrison [mailto:mister.ericm@yahoo-com] Sent: Wednesday, March 05, 2014 11:47 PM To: openprogressivemichael@gmail-com; rock@augsburg-edu; 'cedarislandgirl@gmail-com'; Kevin O'Rourke (thomaskorourke@msn-com) Subject: Submit comments about PolyMet and the BWCA before Thursday, March 13 at 4:30 Hi, Please make comments about the PolyMet mine before the deadline, and make sure you tell everyone you know. Facebook and Twitter. Use the Internet. Comments can be submitted at HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us For more information, make sure you visit the website at HYPERLINK "http://www.bwcasulfidemining-org"www.bwcasulf

Alphabetical by sender's first name

Kevin Piron 690

Ms Fay: I have a brief comment regarding the Polymet project and others like it such as Twin Metals. This does not directly pertain to issues of water quality, et al, but rather to our behavior as a civilized, responsible society. I know that the EIS statement is not concerned with what I have to say, but I am trying to get my thoughts into the record where possible. I very much support our efforts to prevent pollution of all types and to maintain the purity of our water and other natural resources. However, when we say that we don't want a project like Polymet to happen in our back yard, we are, in effect, saying that we want it to happen elsewhere where it won't be our concern. To me, elsewhere means many places in the world where people and their environment have little or no protections from mining and industrial practices that would never be permitted in our country. I would propose to say that when we as Americans are ready to give up our I-Phones, all of our personal computing devices, our HD televisions, our GPS, our high-tech vehicles, and all of the myriad tools, medical devices and appliances that depend on a reliable supply of copper and other precious metals, only then ought we to consider not permitting ventures like Polymet to move forward and at least give them the chance to show what they can do to provide these resources while protecting the environment. I believe we have a moral responsibility to provide our own resources when we know that there will be unmitigated human suffering in other countries if we demand that they provide the resources we crave and depend on. It is no coincidence that companies like Apple are in China producing many of their personal electronic devices - a country that has horrifying levels of all types of industrial pollution and the enormously elevated levels of awful diseases that accompany that. With kind regards, Kevin Piron Hibbing, MN Kevin Kevin Piron Creative Director/Architect Architectural Resources, Inc. mailto:kevin.piron@arimn-com HYPERLINK "blocked::http://www.arimn-com/"www.arimn-com 704 East Howard Street Hibbing, MN 55746 tel: 218-263-6868 fax: 218-722-6803 **********Confidentiality Notice********** The information contained in this message (including any attachments) may be privileged and confidential and protected from disclosure. If the reader of this message is not the intended recipient, or an employee or agent responsible for delivering this message to the intended recipient, you are hereby notified that it is strictly prohibited (a) to disseminate, distribute or copy this communication or any of the information contained in it, or (b) to take any action based on the information in it. If you have received this communication in error, please notify us immediately by replying to the message and deleting it from your computer.

Kevin Shannon 42004

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kevin Shannon Minneapolis, Minnesota

Kevin Swanberg 40822

As a citizen and a taxpayer of Minnesota, I strongly oppose the proposed Polymet mine. I feel it is dangerous for our environment. Here in Minnesota, land of sky blue waters, home to (more than) 10,000 lakes, we must treasure and preserve our wetlands, our forests and our waters. They are our greatest natural resource. Not only are they beautiful, they provide jobs in the tourism industry, give us food and keep our state clean. The temporary jobs that the mine will create will destroy many permanent jobs the tourism industry and farming industry give our state. What good is a few hundred jobs that will only last 20 years. Are they worth sacrificing our state's natural resources for. I don't believe so. Please consider this when making a decision on the mine. Don't put the fate of our state in the hands of people who don't even understand what Minnesota stands for. Thank you, Kevin Swanberg 632 E 3rd St Apt G Duluth, MN 55805 - Kevin Swanberg HYPERLINK "mailto:swanb034@d.umn-edu"swanb034@d.umn-edu (218) 260-5091

Alphabetical by sender's first name

kevin tsui 39580

Mar 11, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Mr kevin tsui western ave seattle, WA 98121-2153

Kevin Viken 41876

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Kevin Viken 1964 Prior Ave N Saint Paul, MN 55113-5405

Alphabetical by sender's first name

Kevin Viken 43110

To Whom it may concern about the NorthMet SDEIS, I am writing in regard to the NorthMet Supplemental Draft Environmental Impact Statement. I am concerned with the draft as it stands for the following reasons but I also feel there are opportunities to be had with more changes: 1- The water in the tailings ponds will be highly toxic without regard to the eventual pH of the water. Because the tailings are created from pulverized rock which has had its surface area increased infinitely and exposed to air/water, even slow rates of leaching will result in toxic levels of heavy metals/sulfides that will harm native flora, fauna, microbiota that are all critical for the proper functioning of the local ecosystem. Most importantly, the magnitude of time the toxic water within the tailings ponds has to be determined. At some point it will escape because nothing can be contained in perpetuity. 2- Financial assurance needs to be addressed and well laid out with adequate resources and adequate protections. This cannot be done until item #1, above, has been determined. The reason this is so important is the water WILL leach out without question at some point. Geological changes are slow but unstoppable and severe weather events must be expected and planned for during the term of water sequestration. ie if water is to be sequestered for 500 years plans must expect a 500 year weather event to happen or a 50% chance of a 1,000 year weather event. Cost of such a catastrophic weather event needs to be adequately determined. To have adequate funds 2 things are necessary: a. Ensure adequate funds given different scenarios for the long term economic possibilities. b. Adequate protections of the money that is set aside is critical and requires that how it is handled must enshrined in the constitution. If it is not enshrined in the constitution one only needs to look as far as the state tobacco money to see what will happen eventually 3- I do not see anywhere within the SDEIS where they have taken a survey of the microbiota currently present in the ecosystem and how those organisms will respond to the potential levels of leachate from the tailings ponds. This must be assessed because it has become known recently the important role microbiota play in an ecosystem. 4- I would like the setup of a recycling technology research and production facility to be set up on the iron range so we can learn to effectively mine our waste of these materials. This could stimulate the economy both short and long-term until a way to handle the waste from mining can be found to be safe for the very long term. In reality as it sits currently it would be safer to dispose of radioactive waste on the iron range because that eventually becomes inert ie waste from our nuclear power plants would be dangerous for 10's of thousands of years or less than a 100 years if it was reprocessed for the next level of nuclear power. Waste from the NorthMet project that is leached in the water will be forever toxic because it doesn't have the advantage of radioactive decay that nuclear waste has. 5- Lastly I would like it to be considered that the mine be required to be underground below the water table and the waste be used to backfill the mined tunnels. In my view we currently have the technology for this to be done safely for the very long-term. Sincerely, Kevin Viken 1964 Prior Ave Roseville, MN 55113 Phone: 612 419-6290

Khang Le 54225

Dear Ms. Lisa FayI'm Khang Le, an junior at Humboldt High School on E Baker Street. So Mr. Morrison is one of my helping teacher in my chemistry class. One day, he presented with our class about a topic that make me felt ridiculous and kind of unfair about it. It's about the Polymet's mining and their mining construction at boundary water. I don't know is it illegal if you changing the map and information that provide for the contruction. The map that the polymet company providing is wrong, absolutely wrong, they had been rewriting the map of the swap where the mine, are going to be place on. And also the mining company dumping their rock into a swpp that having sulfite init and when sulfite meet with water they'll produce sulfuride acid that can make a huge damage the impact of the environmental that can change the ecosysterm of living species inthere. Also the company is untruthworthy, the CEO of the company is one of the top ten wanted in FBI and that me have a bad feeling about this. SoI recommend you to tell the company stop or rewrite the map and provide that there will not be anything happen to the boundary water.Khang Le266 Fuller Ave, Apt #12St. Paul, MN 55103

Alphabetical by sender's first name

Kiersten Wilson 54359

Kiersten WilsonEarth Science2/10/2014Dear Ms. Lisa Fay, EIS Project Manager,I strongly disagree with this mining project. There are definitely a lot of pros, but the cons absolutely outweigh them. I'd like to start by stating that the amount of endangered wildlife is horrendous. If there is any chance, which there is, of destroying or affecting this wildlife, the project should come to an immediate hault. We cannot afford to risk losing any wildlife.I do realize the effort to plant the endangered plants on a different piece of land, but what about the endangered mammals, reptiles and birds? What will they do during this project? Even if it doesn't directly affect the animals, the sound, water pollution and deposition of dust will surely affect their lives. I also realize that you plan to plant more wildlife and trees at the site after the mining is over, but what about those twenty years when the animals may be deprived of their homes? What happens when they drink polluted water? As I have said before, we cannot risk the lives of these innocent animals over one mining site in Minnesota.As you can see, it would be a great loss not to have this wonderful mining site in Minnesota, but the lives of the wildlife should come first. The lives of these creatures are at great risk, and it would be silly not to disengage this mining project.Sincerely,

Kim Christensen 57953

If you wreck the water, the copper won't matter. I am concerned about what by-products will be left after this mining is done. I do not trust the plans to clean up the mess. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Kim Hall 41619

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kim Hall MPLS, Minnesota

Kim Keelor 42633

See attachment

Alphabetical by sender's first name

kim klapperich 42017

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, kim klapperich austin, Minnesota _____ There are now 2374 signatures on this petition. Read reasons why people are signing, and respond to National Audubon Society by clicking here: HYPERLINK "http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89bandutm_source=targetandutm_medium=emailandutm_campaign=signature_on_sponsored_petition"http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89b http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJzaWduYXR1cmVfb25fc3BvbnNvcmVkX3BldGl0aW9uIiwiaWQiOiJ1c2VyXzE2MDAyMTUiLCJjaXR5IjoiU2FuIEZyYW5jaXNjbyIsInN0YXRlIjoiQ0EiLCJ6aXBjb2RlIjoiOTQxMTAiLCJjb3VudHJ5X2NvZGUiOiJVUyIsImluY29tcGxldGVfYWRkcmVzcyI6ZmFsc2UsInNpZ251cF9kYXRlIjoiMjAxMC0wOS0yMyIsImxvZ2luX2NvdW50Ijo5NDE2LCJ0b3RhbF9hY3Rpb25zIjo0MzAsImNvbm5lY3RlZF90b19mYWNlYm9vaz8iOmZhbHNlLCJzaWdudXBfY29udGV4dCI6ImFjdGlvblBhcnRpY2lwYW50IiwiZGlzdGluY3RfaWQiOiIyMWQ2MmIwMC1iZTVkLTAxMmYtNjg2ZS00MDQwNjBlNzJhYmIiLCJ0b2tlbiI6IjMwYWEyNmExZDZlOTNhZTE1OGRmYmRjMTZiNDkzMzEyIiwidGltZSI6MTM5NDMwMDMwMn19andip=1andimg=1 http://email.changemail-org/wf/open.upn=aGGv9wQ398j6-2FWVT4grdXbWUo0w-2FupjjjD-2BeyIkg5XeInLuCEKc3fZdho8GXjxxiplFn6SybU80HWYOLHct2MhHcRv7ksg-2F-2Bt-2BBQdFBpjlzKgZ2sCnzsKSYTV-2FuZzCVVo-2FK-2F8Ls94m-2FqDQ-2FuHirJwLfb-2Byq7H5iqO-2FgCaa0ZKz8Q1bu43f5Z8yHDVLFEyGOhi13QRWdhLVl0-2FZH6DMMJbQeNdjTp4yie00ylW6HUSjq917LRbVMWsSUMLirlobwmLXW7yX3omHGTaD-2BcFsYTBrn8fzzN7upNEwLJJ23TTZ7aQpLVidqrk2KP0ugFMHxo

Kim Kokett 42489

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Kim Kokett 2243 Buchanan St NE Minneapolis, MN 55418-3815

Alphabetical by sender's first name

Kim Mickelson 16291

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Kim Schroeder 18285

My name is Kim Schroeder. And my concern is that this is a for-profit company. What if they go out of business? What is our, I guess, guaranty that this mess will be cleaned up if they don't make it to the 40-year mark or the 500-year mark? What is the plan to keep this out of the taxpayers' hands? I'm very concerned about that. Thanks.

Kim Wolff 41267

As a resident of the North Shore I strongly oppose the proposed copper nickel mine in northeastern Minnesota. The eventual loss of jobs from the environmental desecration of our lakes that tourists fish, loss of wildlife that bring people to our area to view, will outweigh the temporary increase in jobs to the area. The environmental impact statement is inaccurate as to poor test sites relating to the rivers that feed our lakes. Projected rises in Mercury levels are not specified. Please ask the questions and demand answers for the what ifs for worse case environmental disasters. Thank you for your efforts. Please Do Not Allow This Mining Project. Kim Kim Wolff, Broker TimberWolff Realty LLC www.timberwolffrealty-com (218) 663-8777 office (887) 664-8777 toll free (218) 663-8778 fax

Alphabetical by sender's first name

kim wood 44681

Hello, I am a citizen of NE Minnesota, a parent, a husband, and one who loves the outdoors. I have also travelled and worked overseas, and am aware of the global issues impacting the use and procurement of metals. I am also a physician. I am sure that you have been bombarded with comments on the proposed mine, both pro and con. My email today is a blessedly brief one. My initial reaction to the mine was fierce opposition. Several months ago, after stepping back a bit from the local impacts, and viewing the mine through a global lens, I supported it. I am now however firmly opposed to the mine for many reasons. The environmental impacts are long lasting. The economic plans to ensure ongoing water quality and mine maintenance after the mine has shut down, are, in my mind, flawed. The health impacts are unclear. This email will be forwarded along to Rick Nolan and Al Franken, our representatives in Washington DC. I will also contact Mark Dayton to let him know of my opposition to this mine. Thank you for your time and careful consideration in this matter. Sincerely, John Wood

Kimberle Ganzer-Wiley 17074

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kimberle Ganzer-Wiley 3839 Vincent Avenue North Minneapolis, MN 55412

Alphabetical by sender's first name

Kimberle Ganzer-Wiley 50345

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Kimberle Ganzer-Wiley 3839 Vincent Avenue North Minneapolis, MN 55412

Kimberley Wagner 41952

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kimberley Wagner Finland, Minnesota

Alphabetical by sender's first name

Kimberlie Calkins 40141

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Kimberlie Calkins 21505 Maple Ave Apt 303 Rogers, MN 55374-9673 (763) 428-9141

Kimberly E Olson 57178

I’m saying STOP! The poisoning of our land, and waters, it is yours too. Please don’t take our Freedom of Nature away from us. We fish, swim, plant gardens, go hunting, hiking, and go camping. People come for vacations as well. The woodlands are great for getting away. Remember that old song called “In the Year 2525 – if man is still alive? This is what is happening to our world. Don’t let the corporation’s pressure you. Do what you know is right. Please leave our 10,000 lakes alone. I bet you would enjoy these lakes yourselves, to get away from it all also.Plus, think about ALL the soul’s you would be hurting. Please don’t poison our lakes and land.Kimberly E. Olson1006 East 3rd Street, #12ADuluth, MN 55805

Kimberly Miller 44875

My family values the environment of northern Minnesota. The plan PolyMet has put forward to deal with contaminated waste water is NOT adequate. I don't want to have to explain to my children that it was "good for the economy" when they see our most unique and valuable ecosystem harmed for generations. Please deny PolyMet a mining permit and ask them to develop a better plan for dealing with waste water. Kimberly Zachman Minneapolis, MN

Kimberly Nieman 39366

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Kimberly Nieman Orchid Circle Plymouth, MN 55446

Alphabetical by sender's first name

Kimberly P 41946

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kimberly P Saint Paul, Minnesota

Kimberly Ped 39904

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Miss Kimberly Ped PO Box 4595 Saint Paul, MN 55101-4595 (651) 366-7451

Alphabetical by sender's first name

Kimberly Swenson-Zakula 15759

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Kira Church 57185

The health of the BWCA and surrounding area is really important part of not only visitors who come to camp, but also Native American culture and all types of ecosystems. It is important that we protect these ecosystems and cultures. Thank you.Kira Church257 Macalester StSt. Paul, MN 55105

Kirby 44497

I believe a “No Action” process should take place at this time. Environmental consequences of air, water, and ground pollution will take place. Lead and mercury will be leached into the land, air and water. I believe this Polymet Mine can take place at a later time when environmental processes and abatement procedures are improved. I don’t believe Polymet can make a case that there is a shortage of Copper or Nickel that necessitates any mining to be conducted now or near term. Another thing is there is not enough transparency on the part of the mines in Northern Minnesota including Polymet. I never see anything published in local newspapers or voiced on the radio as to what the mines do to meet NAAQS and Clean Water Act requirements. Therefore no new Polymet Mine should be allowed to go forth at this time. V/r Kirby Stross 2303 3rd Ave W. Hibbing, MN 55746

Alphabetical by sender's first name

Kirk D. Haldorson 21976

TO: MN Dept. of Natural Resources FROM: Kirk D. Haldorson 202 W. Superior St Suite 510 Duluth MN 55802 Dear MN DNR, I would like to voice my support of the PolyMet Mining Project in Northern Minnesota. I grew up in Silver Bay Minnesota, my father worked for Reserve Mining/Northshore Mining for 43 years. He was able to raise and provide for six children all because of the benefits of having a good paying mining job with benefits. Not one of his six children have ever worked in the mining business or ever have ever worked in a mine. All six of us children though have went on to college, get married, all have children and every one of us, every grandchild, every spouse all live in Minnesota, pay taxes to the state of MN and now, my father has great grandchildren starting to work in the state of MN and pay taxes. Again, all from one mining job. I personally have owned my own company for 21 years and have employed many throughout the years. My oldest brother has created a company in MPLS MN with over 100 employees (mostly engineers) for over 30 years building grain elevators for Cargill throughout the world. When I hear that PolyMet will bring 300 jobs to our wonderful state I step back and think, it's just the tip of an iceberg. If my father would have had to move to another state for a mining job, I can guarantee you none of us six children would probably be living in this state, paying taxes in this state, raising children in this state or creating jobs in this state. All from one mining job. I grew up planting trees for the US Forestry to earn money as a child, fished often in the Boundary Waters, currently live on a lake within 60 miles of the proposed mine, and support the environment as much anyone. I would be the first to say shut the project down if the technology doesn't work, such as what happened to Reserve Mining years ago, but we must give PolyMet and the technology to prove themselves as this project is the utmost important to our state and to our beautiful country. It is time to move this project forwaRd Thank you for taking this into consideration. Sincerely, Kirk D. Haldorson http://mail.aol-com/IM/.sn=kirkdhandlocale=en-usandpd=0 Kirk D. Haldorson

Kirk Haldorson 18369

Hi. My name is Kirk Haldorson. I'm from Duluth, Minnesota. I'm a local business owner. I truly, truly thank you folks for being here, for taking the time to do this. I grew up in a mining family. I grew up in the Boundary Waters, enjoying the Boundary Waters every week probably in the summer. I have planted more trees in the state of Minnesota than I think probably anybody in room in my lifetime. I totally, totally enjoy the environment. But saying that, I grew up in a mining family. My dad put 43 years in the mine. Raised six kids from that one mining job. All six kids of us stayed in this state. I own my own company. I created jobs. My brother created a company in Minneapolis with 100 engineers that builds grain elevators for cargo all over the world. If we wouldn't have had that one mining job, I guarantee you none of us six kids would still be in this state if we had to move. And they did shut down reserve mining when I was growing up, and my dad had to wait for the technology to catch up so they could continue to work in this state. I believe the state can do that. And I don't understand why -- I love the environment like everybody. If it doesn't work, shut it down. But give them a chance. We wouldn't be here today, I guarantee you, without that mining. All six of us work in this state. We're all married. All our spouses work in this state. Every one of our kids stayed in this state. That is lot of revenue from one mining job. I don't want to ruin our environment. I would be the first one to say "shut it down." Honestly. I would never -- and they will shut it down if they don't have the technology to do it. We went through it with reserve mining. So they will do that. But we have to give the time in the sea of the technology. I don't want to be dependent on China or another world. Everybody that took us down here today used copper. Everybody that has a phone has copper. Where are we going to get this from? Our country – our state and our country needs to be independent. So give them a chance. I so much appreciate you guys doing what you do. And I understand the other side. I love the Boundary Waters as much as anybody. I planted probably 2 million trees in Northern Minnesota that some of you are harvesting today. I walk through the forest, I see it. I would never ever support a company or a project if I truly thought it was going to hurt our environment. I've met with the management of PolyMet many times. I've never worked in a mine. The only person that worked in a mine was my father. None of six kids did. We all stayed here. That's a lot of jobs. That's a lot of revenue. When I see grain elevators going up around the world and 100 engineers working in this state because of one mining job, that's really important. And we have to give them a chance. Truly thank you guys for doing this. I appreciate it.

Kirsten Anne 42571

See attachment

Alphabetical by sender's first name

Kirsti Gullickson 39598

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Kirsti Gullickson 4429 Fondell Dr Edina, MN 55435-4151 (952) 928-9730

Kirstin van den Berg 47081

Dear Department of Natural Resources, I live in Grand Marais, Minnesota on the north shore of Lake Superior. Having lived and worked here in Cook County for nearly 20 years I appreciate the opportunity to live where clean water is accessible for recreation purposes and for drinking. My biggest concern with a copper nickel mine is the potential for contamination of our natural water systeMs I understand that a potential water contamination analysis was done, but that it did not reflect the appropriate depths of drilling/mining and its effects on the surrounding water tables. Water tables are infinitely connected. We see that especially here in Cook County, and I would expect similar situations exist in the Babbitt/Hoyt Lakes area. A well that is drilled in one location can have an effect on another neighbor's well several miles away. I am worried that if a contamination situation should occur, that it could be dangerous. I do not believe that Polymet could control the contamination even if they had the financial resources to do it. Our water systems are too interconnected. From reading the fact sheets, they have not demonstrated to my satisfaction that their mining processes are safe and that the risk of contamination is non-existent or even minimal. More and more of our population (especially young people) are getting sick with cancers and other body systems disorders. Everything that we put into our air, soil and water contributes to our well-being. A copper-nickel mine that has so many risk factors is not an industry that will contribute to a healthy living environment in our state. Copper-nickel mining may seem like a good short-term solution for local jobs, but is not a good long-term solution for a state where we pride ourselves on our clean air and clean water. We are the "Land of 10,000 Lakes" and to put any of them at the risk of contamination would be a travesty. Thank you for considering my comments. Kirstin van den Berg 921 West 1st Street Grand Marais, MN 55612

Kit Richardson 54827

See attachment

Kitura Main 44399

The water modeling needs to be reworked. This WILL compromise our health and State. No to polynet

Kiyrie Abernethy 44367

As a young person, I feel that it would be a hasty and poor decision to go forward with the PolyMet Mining project. Though mining is an important economic activity, the proposed mine's economic boons would be short-lived compared to the environmental degradation caused. The project is estimated to create 50-100 jobs, but these jobs would be cyclical, causing an initial boom and then a bust for the workers. The environmental impacts could last 500 years longer than the jobs. Toxic chemicals used to extract copper, nickel, and precious metals can pollute waterways. Mine tailings will have to be treated for generations. Ph sensitive plants such as wild rice will suffer. Finally, this project would threaten the Boundary Waters Wilderness Area, the crown jewel of our beautiful state. We should consider the long term consequences of the PolyMet project before we do something we'll regret as a state. Kiyrie A. Sent from my iPhone

Kjen Fromberg 42526

See attachment

Alphabetical by sender's first name

kkelnberger 20883

I am a member of a board which has as its primary focus protecting the quality of lakes in Northeast MN. We have been studying the proposals and feel that the money that is being set aside for clean-up is not sufficient. The mine will fail. The taxpayers will get the bill. The only ones to make money on this project will be the venture capitalists and company owners.

kkenned2@d.umn.edu 40252

How can the DNR allow this copper mining in MN.. In 2008, Minnesota's voters passed the Clean Water, Land and Legacy Amendment (Legacy Amendment) to the Minnesota Constitution to: protect drinking water sources; to protect, enhance, and restore wetlands, prairies, forests, and fish, game, and wildlife habitat; to preserve arts and cultural heritage; to support parks and trails; and to protect, enhance, and restore lakes, rivers, streams, and groundwater. The fact that you are even continuing with this copper mining permit issues flies in the face of the above amendment. This copper is a want more than a need. We need to find more ways to recycle, reuse and even get into landfills to retrieve copper,. We need to be the state that refused to allow the destruction of our wetlands, forests and lakes for the short term gain of a few jobs and large financial gains for foreign corporations. The DNR appears to have conflict within itself re: this issue. There is no guarantee, and no proof of even one of these copper mining sites has ever left the mining site able to regrow vegetation, much less enhance, restore or improve our environment. For cripes sake read this: Summary of Damage Sites from the Disposal of Mining Wastes, prepared for the US Environmental Protection Agency, January 1984- The DNR appears to have conflict within itself, you are supposed to protect and manager our resources, not sell them out to the highest bidder, and to heck with the devastation it leaves in its wake.

klarstrom 44825

To: Ms Lisa Fay SDEIS Manager MN DNR Dear Ms Fay: I see numerous problems with the NorthMet Polymet SDEIS, and request that it be rejected. The reasons include: 1) The SDEIS does not aedequately take into account bedrock fault lines, which could channel unknown quantities of compromised water in unclear directions. Unforseen negative consequences may result. 2) The capture of polluted water is not necessarily as effective as the SDEIS portrays. The SDEIS should be re-done with a more realistic number. 3) With polluted water needing treatment far, far into the future, a proper financial assurance for funding for this activity must be part of the plan. This must include inflation calculations with a generous margin for error. The taxpayers of the year 2500 (yes, there will still be taxpayers.) do NOT want to carry the burden of miscalculations from 2014- 4) I believe that baseline water flowage data used as a basis for the SDEIS is grossly underestimated. The SDEIS must be re-done with flow rates closer to real-life and worse-case numbers. 5) The human cost to innocents is not adequately reflected in the SDEIS. Unforseen consequences can harm future Minnesotans for centuries into the future. An escrow account large enough to attempt to compensate harmed persons, individually or collectively, whether for medical consequences, loss of tourist trade, or other unforseen harms, needs to be included. It might be needed for 500 years, and should include monies to help defray legal costs so harmed individuals can obtain justice. I believe that the SDEIS is hugely flawed, and must be re-done. I request that you reject it. Thank you. Sincerely, Scott Lagaard MD 600 313th Ln NE Cambridge, MN 55008

44826

To: Ms Lisa Fay SDEIS Manager MN DNR Dear Ms Fay: I see numerous problems with the NorthMet Polymet SDEIS, and request that it be rejected. The reasons include: 1) The SDEIS does not aedequately take into account bedrock fault lines, which could channel unknown quantities of compromised water in unclear directions. Unforseen negative consequences may result. 2) The capture of polluted water is not necessarily as effective as the SDEIS portrays. The SDEIS should be re-done with a more realistic number. 3) With polluted water needing treatment far, far into the future, a proper financial assurance for funding for this activity must be part of the plan. This must include inflation calculations with a generous margin for error. The taxpayers of the year 2500 (yes, there will still be taxpayers.) do NOT want to carry the burden of miscalculations from 2014- 4) I believe that baseline water flowage data used as a basis for the SDEIS is grossly underestimated. The SDEIS must be re-done with flow rates closer to real-life and worse-case numbers. 5) The human cost to innocents is not adequately reflected in the SDEIS. Unforseen consequences can harm future Minnesotans for centuries into the future. An escrow account large enough to attempt to compensate harmed persons, individually or collectively, whether for medical consequences, loss of tourist trade, or other unforseen harms, needs to be included. It might be needed for 500 years, and should include monies to help defray legal costs so harmed individuals can obtain justice. I believe that the SDEIS is hugely flawed, and must be re-done. I request that you reject it. Thank you. Sincerely, Scott Lagaard MD 600 313th Ln NE Cambridge, MN 55008

Alphabetical by sender's first name

knudaj7@yahoo.com 3165

Hi, I am a local Minnesotan living in the Twin Cities. I have heard about PolyMet through the local news and I'm writing this message to support it. PolyMet has shown that it can mine metals in a environmentally safe way while also creating jobs for local Minnesotans. This economical opportunity is what Minnesota needs. PolyMet can create hundreds of jobs that will support the families of northern Minnesota while protecting out beautiful nature in the north. Please allow PolyMet to dig. Thank you, A fellow Minnesotan Sendt fra min iPhone

Kolleen Kennedy 18345

My name is Kolleen Kennedy, Duluth, Minnesota. But I wanted to say, something that was never even addressed was 300 jobs, 300 jobs for 20 years. Cats live longer than 20 years. How many jobs are going to be displaced? Outdoor recreation jobs, which is a huge industry in Minnesota, in 2011 -- I have it written down here somewhere -- Minnesota alone spent 11 billion dollars in outdoor recreation, and that brought in over eight million just in state and local taxes. No one has addressed those jobs that are going away because we are going to have this horrible mine. I am not against mining. I am against this mining. I'm (inaudible). This is a state that voted on a legacy tax, for God's sake. I mean who does that? To keep our water clean. I just feel that this money is unconstitutional. I mean this legacy tax that we voted in was to protect our waters and not to allow them to be destroyed. I don't want to be a state that 50 years from now puts a fence around it, like I think our neighbors are going to have to. I want to say that we were smart, we were smarter than that, and we are not going to do this. Maybe come back in a hundred years. We are going to need jobs in 100 years, too. But right now, this is very unsafe mining and it is wrong. Thank you.

Kory Koch 16987

To whom it may concern: As a person who enjoys the BWCA, and want to see my children enjoy it also, I think it would be a good idea to mine the natural resources. I believe the job creation of good paying positions outweighs the environmental impact by a long shot. I also believe the state of Minnesota needs the economical boost (just look at North Dakota). Kory Koch 18055 Echo Terrace Farmington, MN 55024

Kris Beck 41975

Mar 8, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Kris Beck 6970 Chaparral Ln Chanhassen, MN 55317-9226

Alphabetical by sender's first name

Kris Emly 39779

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Tourism is so important to MN. The last thing we need is another source of pollution. Please do not let this business destroy our waters and land. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Kris Emly 3606 Oliver Ave N Minneapolis, MN 55412-1930

41629

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kris Emly Arden Hills, Minnesota

Kris K. Wilmunen 10313

Can you please tell me the process involved in getting a chance to speak at the PolyMet informational meeting that is to be held at the St Paul RiverCenter tomorrow. Thanks, Kristen K. Wilmunen 1010 East White Street Ely, MN 55731 Kris Wilmunen | Engineering Project Manager | Technology, Consulting and Integration Solutions Unisys | Office: 218-251-4217 | Mobile: 218-235-1327 http://www.youtube-com/theunisyschannel http://www.facebook-com/unisyscorp http://www.linkedin-com/companies/unisys http://www.twitter-com/unisyscorp http://www.unisys-com/ THIS COMMUNICATION MAY CONTAIN CONFIDENTIAL AND/OR OTHERWISE PROPRIETARY MATERIAL and is thus for use only by the intended recipient. If you received this in error, please contact the sender and delete the e-mail and its attachments from all computers.

Kris Peterson 43731

One of our most precious commodities is water and with the way things are going clear water and air are getting more and more important everyday. For the DNR to be even considering a mining project such as this is not only short sighted, it is wrong. I always thought the DNR was supposed to protect our environment and I hope will continue to do so. Please say NO to Poly Met. Kris Peterson 48 Imperial Dr E W St Paul, MN 55118 651-457-4636

Alphabetical by sender's first name

Kris Simonson 47777

Dear Federal and State Agency Leaders, I am not a scientist, but I am a citizen of Duluth who drinks water, swims in local lakes and rivers, and who feels compelled to protect the beauty and integrity of the little space on the planet I have made my home. I am writing to ask that you reject the findings and claims of Polymet's SDEIS, knowing that many have raised doubts in regards to the study's merit and thoroughness. There are just too many unanswered questions and there is no study in the world that can provide us with definite answers about long-term outcomes. Our land, water, and health are simply too valuable to gamble with. Being that I am not a scientist, all of the information I have learned about this project has come from others who have expertise in the environmental impacts of sulfide mining. I know that many of these individuals have written to you with their better-informed arguments about why this is a bad idea, so I will not be duplicitous in repeating the same points I have learned from them. All that I can do is write to you as a living being who depends on the health and balance of the ecosystem where I live. All that I can do is appeal to you at an intuitive level from my heart, and for that reason, my letter may be quickly dismissed since we live in a culture that values science over feeling, economics over heart. I am frightened about the potential (perhaps certain) destruction to my home if companies like Polymet move in to expand on toxic and dangerous mining practices, all for the sake of economic gain. If we have any kind of collective conscience and heart (that we are willing to acknowledge instead of silence), then we know that our duty is to protect and preserve life as our first priority, far above any motives for profit or economic gain. Please take a moment to listen to that voice inside yourselves, as well as the voices of other citizens who are expressing this sentiment. Thank you for taking the time to read this and for considering my input amongst the tens of thousands of letters you have received on this matter. Thoughtfully and Sincerely, Kris Simonson 2316 Wilkyns Avenue Duluth, MN 55803 (218) 590-7182

Kris Tromiczak 38833

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Kris Tromiczak 1600 Willis Ave South St Paul, MN 55075-1057

Krishna Woerheide 43612

I don't believe sulfide mining is a viable undertaking in Minnesota's Northland, nor do I believe the companies involved are entirely honest about the economic gains and the destruction they will cause here. In the history of mining, there has not been one case of a sulfide mine that did not contaminate the area waters, sometimes for hundreds of years after the process. To set about this sort of mining in a watershed which empties into one of the world's largest bodies of fresh water is very risky. Polymet has not shown that they can mine safely in this area, history and documents have shown that they have not done so before. The rock piles will need to be treated for 500 years after mining is complete. Are they willing to make that financial deposit before mining commences. Krishna Woerheide 157 Caribou Trail PO Box 278 Lutsen MN 55612

Alphabetical by sender's first name

krista evans 38869

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Krista Weiland 54358

Dear Ms. Lisa Fay, EIS Project Manager,I have been reading and researching about the proposed mining project in northern Minnesota. After learning more about it I have concluded this project would not be a wise investment for Minnesota. It appears that the benefits of this project will not outweigh the potential risks. My concerns include the following:• Damage to natural resources• The Mesabe Widju ofthe Ojibwe people would be damaged• Animals losing their habitat• Affect on tourism• Water contamination• Effect on wild rice productionThis project would damage Minnesota natural resources such as lakes, forests, and wild rice production. It would also affect historic and cultural icons that are crucial to Minnesota. Many plants, fish, and animal species could be affected, which could affect Minnesota as a whole. This project also could affect wild rice production. Minnesota distributes much of America's wild rice. There could be a potential shortage if the wild rice production is disturbed. Another negative effect of this mining is water contamination. If this happened, you may have a whole city without water. It could possibly affect a larger region as well. This proposed project could cause long term unsettlement for animals and for the local residents. The pollution could even affect all of Minnesota residents. I think that there very few short term advantages and many long term disadvantages. I feel that this proposed project should be reconsidered.Thank you for considering my concerns,Krista Weiland (14)

Alphabetical by sender's first name

Kristan A Wegerson 38584

Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay, Please accept the attached document "Polymet SDEIS 2014" as my official comments on the PolyMet Project Proposed Action. Sincerely, Kris Wegerson 3726 E. 3Rd St Duluth, MN 55804

Kristen Damberg 15753

See attachment

Kristen Meyer 28943

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt WATER is Minnesota's greatest asset and will be the resource most valued in the years ahead; the mines will come, extract, and go, providing relatively short term benefit and long-term negative environmental impact. Certainly job creation is important, but not at the high cost of threatened water quality for generations to come. Let us be patient and wait until we have extraction technology that can TRULY guarantee no negative environmental impact. Sincerely, Kristen Meyer 5133 14th Ave S Minneapolis, MN 55417-1801 (612) 827-1854

39259

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Hundreds of years (500 according to PolyMet) of monitoring and treatment don't justify the short term jobs/resource use gain. PLEASE take the responsible LONG VIEW and make a stand for the State of Minnesota - today and tomorrow. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Kristen Meyer 5133 14th Ave S Minneapolis, MN 55417-1801 (612) 827-1854

Alphabetical by sender's first name

Kristen Vieson 41947

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kristen Vieson Minneapolis, Minnesota

Kristen Wernecke 15423

Feb 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuri

Alphabetical by sender's first name

Kristin Eggerling 22522

--Original Message-- From: keggerling@gmail-com [mailto:keggerling@gmail-com] Sent: Tuesday, March 04, 2014 5:24 PM To: Fay, Lisa (DNR) Subject: PolyMet's SDEIS is poorly planned and needs to go back to the drawing boaRd Dear Ms Fay: I am very concerned about Polymet's proposed sulfide mine. The risk far outweighs the potential benefit. Jobs are important, but few real, long-term jobs will be created. There are many sustainable alternatives to job and industry creation and they can be done with Minnesota companies that keep our money here in Minnesota. Creating jobs that are not sustainable is shortsighted and a waste of our precious resources. Our health and the health of the earth will very likely be negatively impacted. Our ground water, our surface water, our boundary waters are far too critical to gamble. And, the risk will continue for years and years after the mine has closed. How is that fair to our children and our grandchildren and their grandchildren. PolyMet's proposal is fatally flawed. We must be diligent in analyzing their proposal. This diligence reveals how poorly planned this mine is. Please don't sacrifice Minnesota's legacy. It is just not worth it. Sincerely, Kristin Eggerling 425 3rd St SE Hallock, MN 56728-4129

Kristin Foster 43213

Comments on the NorthMet Mining Project and Land Exchange, Supplemental Draft Environmental Impact Statement Directed to: Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay: First of all, thank you for agreeing to extend the comment period. Well aware that you have received tens of thousands of comments already, and that the comment period is almost closed, I will make my comments opposing the approval of this copper-nickel mining proposal as pointed as possible, leaving greater specificity to the many people already provided it. I am a long term pastor serving an ELCA congregation in Mountain Iron, the "taconite capitol of the world", where iron ore was originally discovered, and I well know the importance of mining in the economics of the households and community I serve. While many of the families who have earned their living from mining are categorically supportive of any mining venture, others recognize that corporate profit from exploiting natural resources does not necessarily coincide with the interests of human health, economic and social justice, and community well-being. The fundamental objections could be summarized as this: limited short term gain at the cost of the risk of incalculable long term damage to human and environmental health. From my understanding of the study, major questions remain in the areas of equitable land exchange levels of toxins including carcinogens in water effect in the health of infants and children damage to endangered, threatened, and special concern plant and wildlife species, including our already declining moose population the effects of the introduction of non-native species in reclamation efforts legality of authorizing an operation where clean-up will be ongoing possible negative effects of this mining on other sectors of the local economy As a pastor in this community, I teach stewardship of all that is entrusted to our care. This includes responsibility for the well-being of future generations of people, and the long term health of the land, water, air, and other creatures upon which we fundamentally depend. In the balance, a gain of 300 or so jobs and their spin-off economic gains for the next 20 years, given the above unanswered questions and risks, does not constitute this stewardship. Thank you, The Rev. Kristin Foster Senior Pastor, Messiah Lutheran Church, Mt. Iron Resident of 8580 Johnson Road, Cook, MN 55723

Kristin Lang 25964

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I am writing to express my concerns regarding the the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. We have already seen the damage that this practice can do, including acid mine drainage and heavy metal contamination. I am also concerned about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. In conclusion, the Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Thank you for your time. Sincerely, Kristin Lang 5410 Conn Ave NW Apt 302 Washington, DC 20015-2822 (202) 332-2556

Kristin Larsen 42926

These represent a few additional comments from the Friends of the Cloquet Valley State Forest along with 4 articles that stand for themselves that we submit for the record and caselaw regarding the land owned by the Forest Service that Polymet wishes to build on. -

Alphabetical by sender's first name

Kristin Larson 18346

My name is Kristin Larson and I cede my time to a wonderful DNR, former DNR person.

Kristin Linson 41958

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kristin Linson Maple Grove, Minnesota

Kristin Markert 6548

- Kristin Markert 612-381-2604 home 612-720-7080 cell

kristin palmer 4566

Hello, As a Minnesota resident and supporter of the DNR I implore you to decline PolyMet's proposal for mining. The destruction that will happen (look to all past sulfide mining projects as examples) would destroy not only the livelihoods for the people that live there but also the tourism industry and all the money that brings to the area. The promise of jobs to the area is not permanent, but the pollution will be. The risk of this mining does not out way the benefits. Please do NOT allow this mining project to go forth. Thank you for your consideration, Kristin Palmer 1431 Frankson Ave Saint Paul, MN 55108

Kristin Wharton 45170

To whom it may concern, As a registered nurse who works with pregnant women and children on the North Shore, I am concerned about the potential health impacts of sulfide mining on our communities for generations to come. The impact of sulfide, mercury, and other byproducts of sulfide mining on human health have not been adequately addressed in this process. It is my opinion that a Health Impact Assessment should be conducted on the polymet and other proposed precious metals mines in Northeastern Minnesota. On the North Shore, the Minnesota Department of Health has already identified a high level of mercury in newborns. We are currently a study area of concern. As the fourth generation of my family to live on the North Shore, I can remember back to stories of how my grandmothers father moved to this area after falling ill working in the copper mines of Montana. Clearly mining has changed since it took the life of my great grandfather, months before his daughter (my grandmother) was born. But it is no less dangerous to human health for those of us living in this area. Until the state of Minnesota can assure me that my family, my children, and the future generations of children born on the North Shore will be safe from by products of sulfide mining, it's not a risk that we as a community or state should accept. The potential threat that the polymet mine poses to human health is not a risk that I accept. Respectfully, Kristin DeArruda Wharton, Registered Nurse, International Board Certified Lactation Consultant Po box 1403 Grand Marais, Minnesota 55604 Sent from my iPhone

Alphabetical by sender's first name

Kristin White 9848

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay, I am writing to discuss my concern regarding the proposed PolyMet NorthMet mine and submit the following as comments for review of the joint Army Corps of Engineers, US Forest Service and Department of Natural Resources (DNR) Environmental Impact Study (EIS). For the following 5 reasons I am hoping the DNR will take no action on the mine and prevent PolyMet from opening the NorthMet project. First, I am concerned the EIS is not clear on how long pollution control, reclamation and water treatment will take after the mining operations cease. The EIS estimates that water treatment may take 500 years, but even PolyMet officials have admitted publicly that they are uncertain about the length of time and will not know about potential contaminants until they begin unearthing them. I am gravely concerned about initiating a multi-million dollar project which will have a centuries-long impact on Minnesotans without hard, concrete facts regarding the potential harm to water and river flow in the region. I suggest the DNR prohibit PolyMet operations from commencing until we have more information on the long-term environmental impact. Second, I am concerned the EIS itself contains flawed and/or inaccurate data concerning the effect the mine will have on the Partridge River flow. Recent developments have shown the DNR has admitted that estimates of the proposed mine's impact on the river are nearly three times too low. A study that has a 33% inaccuracy rating should be re-researched, re-reviewed and re-submitted for public commentary as this type of inaccuracy regarding state environmental and fiscal impacts is unacceptable. I would recommend DNR examine the research, redraft the study and analysis and submit the EIS to the public again for a more accurate review of the proposed mine. Third, I believe that the costs of the mine greatly outweigh the benefits and am concerned the DNR did not conduct a proper cost-benefits analysis. Specifically, the small amount of copper and nickel deposits available in the Mesabi range do not warrant excavating 533 million tons of earth. Furthermore, if PolyMet were given notice to proceed, once it began selling nickel on the stock market, the supply would substantially increase, thereby flooding the markets and driving down the price of nickel. This could not only damage the viability of PolyMet as a company, but if the corporation experiences hardship, this could reduce the number of available jobs at the mine. Financial analysts contend that PolyMet has overvalued the price of nickel in its submissions regarding the mine and nickel futures are selling for 60% less than the $10-14 per pound price PolyMet has presented to the public and the DNR. These are the issues that must be investigated further and examined before any mining is allowed to move forwaRd Additionally, copper futures have shown a consistent downward trend on NYSE and other markets, evidencing that it will likely not produce the revenue or return on investment (ROI) that PolyMet has alluded to the public and the state. Fourth, because PolyMet does not have a concrete estimate on how long the environmental reclamation will take, it cannot fully guarantee that it will exist for the next 500 plus years required to restore the environment. To illustrate PolyMet's instability, one must look to its corporate leadership. Glencore Xstrata, a company which owns over 25% of PolyMet's stock, has suggested that - if it fully exercised its rights - it would own 34% of PolyMet. However Glencore is owned by Marc Rich, who has been charged with tax evasion and illegal business dealings. Minnesota prevents businesses who commit fraud from doing business in the state, therefore why would we allow a corporation with illicit leadership to construct this mine. Additionally, PolyMet has not operat

Alphabetical by sender's first name

Kristina Anderson 40430

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Kristina Anderson 6655 Jackson Rd Ann Arbor, MI 48103 US

40431

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Kristina Anderson 6655 Jackson Rd Ann Arbor, MI 48103 US

Alphabetical by sender's first name

Kristina Pogorelc 42087

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kristina Pogorelc Grand Rapids, Minnesota

Kristina Smitten 44371

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I ask that our state agencies take the following actions: actions by the lead agencies: • Reject the SDEIS as inadequate and the PolyMet project as environmentally harmful. • Deny the wetlands destruction permit (Section 404 Permit). • Reject the exchange of Superior National Forest Land that would allow the PolyMet project to move forwaRd • Deny PolyMet a state permit to mine. Having worked my entire life both as a public (DNR Waters, Met Council - collective 12 years) and now private sector (brownfields consultant 9 years) balancing environment and economic considerations in use of our land and resources, this SDEIS is not ready for approval. The lack of clarity in long-term environmental and human impacts as well as lack of full analysis of alternatives,leaves large gaps in ability to provide a solid decision. A decision to approve is not acceptable. It is well understood that we continue to use more resource than is sustainable, and as a result our ecological and climatic times are very uncertain. Reckless/Forced decision-making (lack of full understanding of implications) is the way society historically responded to mining and other possibly impacting applications, it is simply unacceptable to relive this precedence. We cannot continue to favor short-lived economic gains compared to long-lived environmental fragility; as the real long-term economic costs are almost incalculable. I expect and ask our state and federal agencies, with the legislative authority in which you are given, to reject the SDEIS based upon the four bullet points above. Sincerely, Kristina Smitten Marine on St Croix, MN
Kristina Smitten 2333 Jackson Circle Marine on St Croix, MN 55047

44372

Dear Ms Fay, Mr Bruner and Mr Dabney: I ask that our state agencies take the following actions: actions by the lead agencies: • Reject the SDEIS as inadequate and the PolyMet project as environmentally harmful. • Deny the wetlands destruction permit (Section 404 Permit). • Reject the exchange of Superior National Forest Land that would allow the PolyMet project to move forwaRd • Deny PolyMet a state permit to mine. Having worked my entire life both as a public (DNR Waters, Met Council - collective 12 years) and now private sector (brownfields consultant 9 years) balancing environment and economic considerations in use of our land and resources, this SDEIS is not ready for approval. The lack of clarity in long-term environmental and human impacts as well as lack of full analysis of alternatives,leaves large gaps in ability to provide a solid decision. A decision to approve is not acceptable. It is well understood that we continue to use more resource than is sustainable, and as a result our ecological and climatic times are very uncertain. Reckless/Forced decision-making (lack of full understanding of implications) is the way society historically responded to mining and other possibly impacting applications, it is simply unacceptable to relive this precedence. We cannot continue to favor short-lived economic gains compared to long-lived environmental fragility; as the real long-term economic costs are almost incalculable. I expect and ask our state and federal agencies, with the legislative authority in which you are given, to reject the SDEIS based upon the four bullet points above. Sincerely, Kristina Smitten Marine on St Croix, MN Kristina Smitten 2333 Jackson Circle Marine on St Croix, MN 55047

Alphabetical by sender's first name

Kristine Davis 18972

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Kristine Davis 40563 County Road 15 40563 County Road 15 Saint Peter, MN 56082 5072465004

Alphabetical by sender's first name

Kristine M. Maurer 43335

To whom it may concern: My name is Kristine Maurer and I love Minnesota. I grew up in the twin cities but nothing shaped my life more than the time I spent in the woods, on the prairie, in the streams, and on the lakes of Minnesota. Specifically, time hiking the north shore and camping in the Boundary waters inspired a passion for water resources and ultimately a career in environmental science. Minnesota is home to so many beautiful ecosystems and places that are treasured by millions of people and I feel it is only just that these ecosystems are protected and preserved so that future generations of Minnesotans can enjoy and observe them in the same condition and capacity as we do today. Practices that are inherently destructive to the condition of these ecosystems should not be tolerated. Evidence from peer-reviewed research and the environmental consequences observed in states where sulfide mining has been employed, strongly suggest that allowing this type of mining operation to exist in the same watershed as some of Minnesota's most valued wilderness areas and sensitive ecosystems will be catastrophic to the legacy and condition of these areas. Many of the lakes in Northern Minnesota, including Lake Superior and those in the Boundary Waters, have low alkalinity and therefore have a low buffering capacity against changes in pH. When pH decreases (becomes more acidic), say as a result of sulfuric acid in mining effluence, calcium carbonate becomes less available and the solubility of silica is reduced. These consequences of increased acidity can reduce the viability and success of biota such and snails and clams which need calcium carbonate to build their shells, and to diatoms which need silica to build cell walls. Studies have demonstrated that waters acidified by acid mining drainage (AMD) can cause complete changes in the community composition of diatoMs Diatoms are a main primary producer in oligotrophic (low primary production) systems and alterations in their community composition could cascade into issues and changes throughout the food web. Acidification is not the only problem AMD can cause for Lakes and rivers. Because water bodies in northern Minnesota are oligotrophic and often have long water residency times, the influences of mining contaminants can be long-lasting. Decomposition and growth is slow in these systems which can equate to more accumulation of toxins in sediments and increased bioaccumulation of toxins in the tissues of animals such as fish. These consequences could impact the fishing industry and the health of those who consume fish (eg, humans, birds, other wildlife) from areas exposed to AMD. The removal of wetlands is also a serious concern. Wetlands are like ecological kidneys; filtering and decomposing contaminants and retaining sediments that could otherwise end up in streams, rivers, and groundwater. As a result, they play an invaluable role in the condition and safety of municipal water. Removing over 1,000 acres of wetlands for mining would reduce key habitat for migratory birds and would be detrimental to water quality in the surrounding watershed. I recognize there is potential for job development with the success of sulfide mining. However, its economic return is short term. Like hydraulic fracking, sulfide mining is unsustainable and in the end will leave in its wake irreversible and costly destruction. I urge you to think of the billions of dollars the wilderness areas and ecosystems in northeast Minnesota are worth, not only for their tourism and industry value, but for the ecosystem services they provide (eg, mitigating floods, cleaning ground and surface waters, providing critical habitat), and the intrinsic value they hAve Please allow the ecosystems of northeast Minnesota to inspire future generations. Please think of the long term consequences of the action you take. Please set a standard and precedence of intolerance for pra

Kristine Mosher 54488

See attachment

Kristine Norton 46911

I strongly oppose this mining proposal in Minnesota, near the Boundary Waters area. I understand that this company has little experience, is not focused on Minnesota and keeping the area free of contamination, but is instead happy to dig up the land near our pristine wilderness and lakes. I grew up in Cloquet, Minnesota and have spent much time in and near the Boundary Waters Wilderness area. I read, today, in the Star Tribune that PolyMet has a poor environmental and human rights record and has an agreement to sell copper concentrate to China. IS this for real. This is NOT a good move for the State of Minnesota. Sincerely, Kristine Norton, 7007 Cornelia Drive, Edina, MN 55435

Alphabetical by sender's first name

Kristine Osbakken 18083

I'm Kristine Osbakken. I'm not from Glendale; I'm from Duluth. My Uncle Ole worked for decades as a mining engineer on Mesabi. My Aunt Dagmar and Uncle Leif worked for the railroad that brought the ore to the ships. My dad was turned away -- he worked for the railroad in Two Harbors. He was turned away at the gate when he went to talk to the union organizers. He was never given a berth and he never went back to work at Two Harbors. The PolyMet -- I'm a writer and I'm a teacher. PolyMet SDEIS is not a plan. It's an experiment. It would put Minnesota's clean water at risk forever. The SDEIS makes predictions, but it doesn't provide the basic information to support those predictions. These question are not answered. How much polluted wastewater is going back and forth through nine miles of pipes? What is the total volume wastewater in the tailings and the processing residue? Just how polluted is the wastewater and waste rock piles in the pits, pump ponds, tailings basin and the hydro-metallic waste dump? These answers are missing. Without the this basic information, we can't estimate what will happen if PolyMet's own perfect assumptions, not based on anything real, don't come true? The SDEIS admits that this is an experiment. On page after page it says that, "In the event the modeling shows violations of water quality, PolyMet will 'adaptively manage the problem.'" This SDEIS is not adequate. To be adequate, it must reveal wastewater volumes and pollutant levels of every step and it must have facilities from day one to meet standards. Once pollution is in the groundwater, it will be too late to fix. It will affect the Partridge, Embarrass, it will affect the whole entire St. Louis watershed. The estuaries, already, people catch and throw those fish. It will make it even more polluted.

18381

Hello. My name is Kristine Osbakken. Peter Shook talked about the effect of pollution on his drinking water and the drinking water of communities below the Embarrass and the Partridge Rivers. I would like to talk about the effect of the mercury pollution on the lower St. Louis River the raised mercury levels at the proposed PolyMet mine will produce, but the PolyMet SDEIS does not adequately address effect the lower St. Louis River. The SDEIS states that the sulfide mine and the tailings basin will increase mercury in the Embarrass River by approximately 3 percent per year. That's SDEIS page 5-207. PolyMet claims that this increase in mercury to the Embarrass River won't affect mercury in fish in the St. Louis River because of the water treatment plant that will operate when the mine is closed and the west pit is flooded. Referring to SDEIS page 5-8. However, it will be 40 years until the treatment plant kicks in. What about all the mercury pollution within that 40 years? The fish are not fit to eat in the already heavily polluted lower St. Louis River. People catch and throw. The Minnesota Pollution Control Agency studied the St. Louis River mercury crisis and proved that the lower river has higher rates of mercury contamination than nearby waters and then further upstream. The agency, however, did not complete their total maximum daily load study, the TMDL. The PolyMet SDEIS should not be finalized, nor the project approved, until a full study of the TDML of mercury in the St. Louis River proves that PolyMet increased mercury loadings will not increase fish contamination.

58187

My name is Kristine Osbakken and I would like to speak to the raised mercury levels that the proposed PolyMet mine will produce, but that the PolyMet SDEIS does not address. The spelling of my name is Kristine, with a "K." And Osbakken is O-S-B-A-K-K-E-N. First, the SDEIS states that, "The sulfide mine and the tailings basin will increase mercury loading in the Embarrass River by approximately three percent per year." (Reading.) And this refers to SDEIS Page 5-207. "PolyMet claims that this increase in mercury to the Embarrass River won't affect mercury in fish in the St. Louis River because of a water treatment plant that will operate when the mine is closed and the west pit is flooded," according to SDEIS, Page 5-208. (Reading.) "However, it will be 40 years until the treatment plant kicks in." What about all of the mercury pollution within that 40 years? Fish are not fit to eat and they already have polluted the lower St. Louis River. People catch and throw. The Minnesota Pollution Control Agency studied the St. Louis River mercury crisis and proved that the lower river has higher rates of mercury contamination than nearby waters and than further upstream. The agency did not complete their total maximum daily load TMDL study. The PolyMet SDEIS should not be finalized, nor the project approved, until a full study of the TMDL of mercury in the St. Louis River proves that PolyMet's increased mercury loadings will not increase fish contamination. I think I am done. Thank you.

Alphabetical by sender's first name

Kristine Schmitz 40667

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Kristine Schmitz 2004 Randolph Ave Saint Paul, MN 55105-1750

Kristine Vesley 43225

Dear DNR Environmental Impact Statement Reviewers and Decision Makers: I have many concerns about PolyMet's proposed copper-nickel mine in Northern Minnesota, where my brother lives and where I might someday live. All in all, I believe that the risks and wetland losses outweigh the possible (and short-term) economic benefits. I do not believe such a mine is truly necessary at this point in time; as far as I know, there is not a shortage of either of these minerals and recycling has also not been done maximally. The market urgency just is not there to justify this mine in this water-rich location. As for jobs created. Economic considerations must always take a back seat to environmental-resource considerations. The wetlands and waterways that would be lost and/or contaminated are precious to everyone in Minnesota. I say only partly in jest that if we want to create jobs, let's start a public works program and get all our state's potholes filled. In all seriousness, I am conservative enough that I do not believe the state "owes jobs" to any population or region. I would love a job up near Lake Superior - please help me get one. I have been reading a very interesting book by a conservative author titled "How to Think Seriously about the Planet." The author argues that the political right cannot cede environmental issues to the political left. On p. 149, in a discussion of market solutions to environmental problems, he states: "Minerals are not renewable, and rare minerals that are, or have become, vital to human well-being may be depleted at rates that threaten the long-term interests of our species." He notes that copper wire has been largely replaced by cheap glass fibre and suggests with a sense of optimism that other new materials will soon emerge to replace copper in other products. Even if I thought copper was in short supply, and even if I felt the company were a Minnesota company that would care about its legacy here, I would oppose this project. There is no way PolyMet could provide financial assurances sufficient for a real disaster, and we all know real disasters can and do happen. Some disasters cannot be cleaned up with dollar bills. I leave the technical arguments to the many fine tribal and other scientists who have devoted themselves to this cause. I have learned enough to worry about the water issues, including any potential mercury and other pollution of the treasure that is Lake Superior. Sincerely, Kristine Vesley 1598 Edmund Avenue Saint Paul, MN 55104 (651) 645-2606

Kristy M O Neill 42662

See attachment

Alphabetical by sender's first name

Kristy Mock 41928

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Kristy Mock Cologne, Minnesota

Kristy Snyder 58066

No mine pollution! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Kurt 43702

I am not convinced that the SDEIS adequately considered alternatives to the project as designed. The option of an underground mine needs more consideration. The SDEIS did not demonstrate that the technology proposed to prevent acid mine drainage will work at scale and over the many decades necessary to protect Minnesota' s water quality. Nor did it demonstrate that the funding will be available to implement that technology over the next several centuries. Kurt Alan Rusterholz 171 Vernon St St Paul, Mn. 55015 Sent from my iPhone

Kurt Seaberg 44647

The proposed Polymet copper/nickel sulfide mine is a bad deal for Minnesota. The number of jobs generated will be small and temporary and the risk of irreparable damage to Minnesota's environment will be enormous. There has never been a sulfide mine operation anywhere in the world that has not leaked poisons into the watershed. We cannot jeopardize the water quality of our state for the next 500 years. Please deny the permits for this and any other future sulfide mining operation anywhere in the state. Sincerely, Kurt Seaberg, 2000 Seabury Ave, Minneapolis, MN 55406

Kurt Wetzel 54911

See attachment

Alphabetical by sender's first name

Ky Christenson 39957

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely Ky Christenson 12309 fiona ave N White Bear Lake, MN 55110 6124371860

Kyle Crocker 20189

--Original Message-- From: kcrocker@paulbunyan-net [mailto:kcrocker@paulbunyan-net] Sent: Wednesday, February 26, 2014 5:59 PM To: Fay, Lisa (DNR) Subject: PolyMet's SDEIS is poorly planned and needs to go back to the drawing boaRd Dear Ms Fay: I have lived nearly all my adult life in northern Minnesota. During this time I have active in my local lake association, serving as its informal 'science officer.' In this capacity, and in work with other conservation efforts, I have learned a great deal about lake and wetland ecology and hydrology. I have also learned - painfully - about the deep inadequacies of much historical data and the short-comings of many EIS findings. The Supplemental Draft EIS for the PolyMet proposal for the sulfide mining operation based in Hoyt Lake is very deeply flawed. As has been shown, much of its data on the hydrology of the sensitive areas concerned is outdated and/or misconstructed. This is especially true of the proposal to dump tailings from the mining process on top of the former LTV Steel.s tailings basin, which was built in the 1950s on top of three streams, and was designed to leak. There is also general inattention to contingency planning for a number of very possible failures that could have devastating effects on the whole of the St Louis River watershed, as well as related one and Lake Superior itself. Recent events in several extraction industry operations have demonstrated that 'customary practices' assumed safe often lead to 'accidents' and failure to plan complete contingency scenarios have had serious toxic, long-term consequences. With PolyMet the 'long-term' runs to hundreds of years, far beyond any immediate benefits the project might produce. I worked for the State of Minnesota for nearly 30 years, a professor with MnSCU. I have also worked closely with many DNR employees, and count them as friends and colleagues. While I am proud of these activities, I have also witnessed many mistakes, poor decisions, confused priorities, and other organizational failures. Even the seemingly smallest of these can have irreversible consequences for people and our environment. A case in point. When MnDoT took over the jurisdiction of several railroad easements, it also inherited the engineering problems of this once vital industry. On the lake where I was raised, MnDoT's failure to address severely compromised drainage under one of these rail beds brought unprecedented flooding in 1996- The loss of native shoreland vegetation and the erosion has brought problems to this habitat and those of us who live in that can never be corrected. This case represents the smallest kind of parallel to the potential catastrophe of the PolyMet proposal. The slightest inattention to existing or unforeseen practicalities can be compounded beyond any hope of remediation. Life is always about risk calculation. The PolyMet SDEIS does not begin to properly evaluate risk, much less plan for an array of potential and very long-term failures. It must be withdrawn and completely re-envisioned, not simply redrafted. If and when it is resubmitted, the DNR must utterly divorce its science from short-term political distortion. Thank you for your consideration of my comments. Sincerely, Kyle Crocker 806 Balsam Ridge Rd NW Bemidji, MN 56601-5587

Kyle Gillis 42492

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, As Trout fisherman and BWCAW user I STRONGLY urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Kyle Gillis 2645 New Century Pl E Maplewood, MN 55119-6026 (651) 925-6502

Alphabetical by sender's first name

Kyle Lindy 47620

Comment is from Kyle Lind 4176 143rd St w. Rosemount, MN 55068

Kyle R. Crocker 23928

Mar 4, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I have lived nearly all my adult life in northern Minnesota. During this time I have active in my local lake association, serving as its informal 'science officer.' In this capacity, and in work with other conservation efforts, I have learned a great deal about lake and wetland ecology and hydrology. I have also learned - painfully - about the deep inadequacies of much historical data and the short-comings of many EIS findings. The Supplemental Draft EIS for the PolyMet proposal for the sulfide mining operation based in Hoyt Lake is very deeply flawed. As has been shown, much of its data on the hydrology of the sensitive areas concerned is outdated and/or misconstructed. This is especially true of the proposal to dump tailings from the mining process on top of the former LTV Steel's tailings basin, which was built in the 1950s on top of three streams, and was designed to leak. There is also general inattention to contingency planning for a number of very possible failures that could have devastating effects on the whole of the St Louis River watershed, as well as related one and Lake Superior itself. Recent events in several extraction industry operations have demonstrated that 'customary practices' assumed safe often lead to 'accidents' and failure to plan complete contingency scenarios have had serious toxic, long-term consequences. With PolyMet the 'long-term' runs to hundreds of years, far beyond any immediate benefits the project might produce. I worked for the State of Minnesota for nearly 30 years, a professor with MnSCU. I have also worked closely with many DNR employees, and count them as friends and colleagues. While I am proud of these activities, I have also witnessed many mistakes, poor decisions, confused priorities, and other organizational failures. Even the seemingly smallest of these can have irreversible consequences for people and our environment. A case in point. When MnDoT took over the jurisdiction of several railroad easements, it also inherited the engineering problems of this once vital industry. On the lake where I was raised, MnDoT's failure to address severely compromised drainage under one of these rail beds brought unprecedented flooding in 1996- The loss of native shoreland vegetation and the erosion has brought problems to this habitat and those of us who live in that can never be corrected. This case represents the smallest kind of parallel to the potential catastrophe of the PolyMet proposal. The slightest inattention to existing or unforeseen practicalities can be compounded beyond any hope of remediation. Life is always about risk calculation. The PolyMet SDEIS does not begin to properly evaluate risk, much less plan for an array of potential and very long-term failures. It must be withdrawn and completely re-envisioned, not simply redrafted. If and when it is resubmitted, the DNR must utterly divorce its science from short-term political distortion. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Kyle R. Crocker 806 Balsam Ridge Rd NW Bemidji, MN 56601-5587 (218) 444-2589

Alphabetical by sender's first name

Kyle R. Crocker 49486

Mar 4, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I have lived nearly all my adult life in northern Minnesota. During this time I have active in my local lake association, serving as its informal 'science officer.' In this capacity, and in work with other conservation efforts, I have learned a great deal about lake and wetland ecology and hydrology. I have also learned - painfully - about the deep inadequacies of much historical data and the short-comings of many EIS findings. The Supplemental Draft EIS for the PolyMet proposal for the sulfide mining operation based in Hoyt Lake is very deeply flawed. As has been shown, much of its data on the hydrology of the sensitive areas concerned is outdated and/or misconstructed. This is especially true of the proposal to dump tailings from the mining process on top of the former LTV Steel's tailings basin, which was built in the 1950s on top of three streams, and was designed to leak. There is also general inattention to contingency planning for a number of very possible failures that could have devastating effects on the whole of the St Louis River watershed, as well as related one and Lake Superior itself. Recent events in several extraction industry operations have demonstrated that 'customary practices' assumed safe often lead to 'accidents' and failure to plan complete contingency scenarios have had serious toxic, long-term consequences. With PolyMet the 'long-term' runs to hundreds of years, far beyond any immediate benefits the project might produce. I worked for the State of Minnesota for nearly 30 years, a professor with MnSCU. I have also worked closely with many DNR employees, and count them as friends and colleagues. While I am proud of these activities, I have also witnessed many mistakes, poor decisions, confused priorities, and other organizational failures. Even the seemingly smallest of these can have irreversible consequences for people and our environment. A case in point. When MnDoT took over the jurisdiction of several railroad easements, it also inherited the engineering problems of this once vital industry. On the lake where I was raised, MnDoT's failure to address severely compromised drainage under one of these rail beds brought unprecedented flooding in 1996- The loss of native shoreland vegetation and the erosion has brought problems to this habitat and those of us who live in that can never be corrected. This case represents the smallest kind of parallel to the potential catastrophe of the PolyMet proposal. The slightest inattention to existing or unforeseen practicalities can be compounded beyond any hope of remediation. Life is always about risk calculation. The PolyMet SDEIS does not begin to properly evaluate risk, much less plan for an array of potential and very long-term failures. It must be withdrawn and completely re-envisioned, not simply redrafted. If and when it is resubmitted, the DNR must utterly divorce its science from short-term political distortion. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Kyle R. Crocker 806 Balsam Ridge Rd NW Bemidji, MN 56601-5587 (218) 444-2589

Kyle Richard Kopp 43021

Attached is my comment on the SDEIS of the Northmet mining operation -Kyle Kopp

Alphabetical by sender's first name

Kyle Strohmaier 44471

To whom it may concern: Though I was born in the Twin Cities area, I was only a few weeks old the first time I went "up north". My grandparents built a home near Biwabik in 1958, and my parents purchased a neighboring property in more recent years. The area of our state near Hoyt Lakes has been my favorite place on Earth for as long as I can remember. The lakes and rivers have played a primary role in so many people's enjoyment of northern Minnesota. But enjoyment is not the only thing that the water provides. Freshwater is essential to the survival of countless species, and it is growing scarcer day by day. Because most water on Earth is not freshwater, and most freshwater is contained in glaciers, only a fraction of a percent of the water on our planet is available for supporting humans – population 7 billion and growing. Among the world's freshwater lakes, Superior is the largest by surface area and third-largest by volume. The idea of endangering one of the most important freshwater sources on our planet by approving the NorthMet mine proposal is dubious at beSt It is an accepted fact that the byproducts of sulfide mining pose an environmental threat for hundreds of years. It is unsurprising, then, that the practice of sulfide mining has an ugly track record of harming ecosystems worldwide. Even in areas that lack a delicate and pristine water table like the one that surrounds the proposed NorthMet site, sulfide mining has wreaked havoc on the environment. There are three ways in which a disaster like these might be prevented in the case of the proposed NorthMet mine. The first possibility for avoiding environmental havoc is for PolyMet to monitor the NorthMet site and actively prevent any acid mine drainage. PolyMet is a Toronto-based company founded solely for the purposes of extracting resources from Northern Minnesota. A large portion is now owned by Glencore Xstrata, a huge Swiss-based company whose track record is riddled with environmental and social irresponsibility ("Controversial" would be the mildest adjective with which to appropriately describe this secretive multi-national). It is nothing short of ludicrous to think that, hundreds of years from now, either PolyMet or Glencore Xstrata will not only exist but also take responsibility for an area from which they've long since squeezed their last profits. The second possibility is that, given the unlikelihood of centuries of active intervention, PolyMet leaves the NorthMet site with a sound infrastructure to passively prevent acid mine drainage. I am currently completing a Master's Degree in Mechanical Engineering at the University of Minnesota. For my research, I work in a lab which specializes in the mechanical design of hydraulics – extremely durable equipment. As a mechanical engineer, I can assure you that nothing is designed to function for hundreds of years. Nothing. One can attempt to design for long periods of operation, but it is impossible to guarantee such durability. Especially with the sensitive implications protecting freshwater resources, it is either naïve or willfully disingenuous for any engineer to proclaim confidence that his apparatus for acid mine drainage prevention will remain sound for centuries. This brings us to the final way to avoid polluting the water of Northern Minnesota – do not approve the NorthMet mine proposal. I must make it clear that I am in no way "anti-mining". My grandfather was an engineer for Minntac, and my mother and uncle worked in the taconite mines near Virginia, Minnesota. Mining is an essential part of producing the goods we use. But sulfide mining is fundamentally different than taconite mining. I am sympathetic to the economic woes of the Iron Range in recent years, but we must remember that the decision on whether to approve this mine has global impacts. I am twenty-five years old – I have a lot of life ahead of me. My unborn children and grandchildren have their entir

Kyle Wagener 38960

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Kyle Wagener 4520 W 44th St Edina, MN 55424-1001

Alphabetical by sender's first name

Kyra Quillen 11343

Kyra Quillen Adv. Science Miss.Olson 1/29/14 Copper Mining Copper mining is when people are removing copper from mines. Minnesota is considering this option to create more jobs. They are also doing this so that Minnesota would have more copper in their possession. I feel that although this would create jobs, it would not be good for Minnesota. This is what copper mining is and what my opinion is towards it. The NorthMet Project is substandard for Minnesota. Even though the PolyMet Company will provide jobs for 20 years to many people, the taxpayers will be responsible for cleaning up mining sight. This will cost the taxpayers billions of dollars which would force our economy into a recession. This is one of the reasons I am against copper mining in Minnesota. Another reason why this is not in the best interest of our state, is because copper mining will ruin 26 square miles of our beautiful forests. Copper mining will pressure Minnesota to tear down this area and we have already lost plenty of our forests. We will not only be tearing down 26 square miles of our illustrious forests, but much more to build homes for the miners. This is another reason why I am not in favor of this project. If we go through with this plan, the mining will cause 500 years worth of polluted water. This is due to all of the mining equipment and vehicles that will be used in this area. Who is going to keep a close eye on the pollution. The Local hydrologists will be responsible not the PolyMet Company. We will only get 20 years of mining out of this area and it will ruin a great deal of our water. This will definitely destroy this area and will end with a very sizable mess with lots of pollution. This is my third reason that I think this is an atrocious idea. To conclude this is a terrible idea, the PolyMet company will make the taxpayers pay for all of the clean up. We will end up with 500 years of polluted water and over 26 square miles of destroyed forests. This is an unacceptable idea and I think that there should be no hesitation to completely dismiss the copper mining project. Then we can continue to focus on less destructive business proposals. Sources http://www.miningtruth-org/ HYPERLINK "http://www.google-com/url.q=http%3A%2F%2Fwww.polymetmining-com%2Fnorthmet-project%2Foverview%2Fandsa=Dandsntz=1andusg=AFQjCNFKipKIK8m9NNWkFm53fKOjR4IlQQ"http://www.polymetmining-com/northmet-project/overview/ HYPERLINK "http://www.google-com/url.q=http%3A%2F%2Fwww.startribune-com%2Flifestyle%2Fhealth%2F234755311-htmlandsa=Dandsntz=1andusg=AFQjCNH3GRrz9u9U4v_WxaNHuEt0i4z4qg"http://www.startribune-com/lifestyle/health/234755311-html http://www.dnr.state.mn.us/volunteer/julaug12/nonferrous.html ` HYPERLINK "mailto:17kyraqui@flaschools-org"17kyraqui@flaschools-org HYPERLINK "https://docs.google-com/logout"Sign out View in: Mobile | HYPERLINK "https://docs.google-com/a/flaschools-org/unsupported.continue=https://docs.google-com/a/flaschools-org/document/d/1P8BPPWMLzLFJQ-b0zC46q1XFqR3S2YHrh4kr6pFMrvo/edit.overridemobile%3Dtrueandcancel=https://docs.google-com/a/flaschools-org/document/d/1P8BPPWMLzLFJQ-b0zC46q1XFqR3S2YHrh4kr6pFMrvo/mobilebasic"Desktop ©2012 Google

L J 45046

The polymet proposal would be terrible for the environment and would contaminate our most precious resource-WATER. Forget the short-term profits and think about the enormous expense of trying to somewhat reverse the damage in years to come. I am against the polymet plan and ask that you reject the proposal. Leila Jindeel

L Wilbert 39705

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms L Wilbert 1887 Silver Bell Rd Apt 314 Eagan, MN 55122-3109

Alphabetical by sender's first name

L. Becker Grandle 39983

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, L. Becker Grandle 5116 Irving Ave S Minneapolis, MN 55419-1126

L.L. Kauffman 13363

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota, as described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should NOT be approved because it is lacking vital information about long-term water treatment and how it will be funded. This is important information needed for proper evaluation of the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Ms L.L. Kauffman 643 Meridian Cir Unit F Cold Spring, KY 41076-4200

Laird Beaver 42418

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Laird Beaver 5624 Melody Lake Dr Edina, MN 55436-2419

Lake Superior Binational Forum 54762

See attachment

LaMont Johnson 47635

My name is LaMont, I read some of the papers and articles that were handed to me and i feel like the mining could open up more job opportunities and could be very beneficial. hope this email helped in some way. Have a good day. Thanks. 8375 Woodcrest Dr Apt 4 48185 Westland, MI.

Alphabetical by sender's first name

Lance Groth 45639

I am opposed to sulfide mining in Minnesota, for the following reasons: 1) Sulfide mining has never been done, anywhere in the world, without significant environmental damage and water pollution. Never, anywhere. Why would Minnesota gamble that somehow, some way "it will be different this time", when the stakes are a precious and fragile natural environment that is the crown jewel of Minnesota and the clean water that makes it so. Clean freshwater is a precious commodity in the world, and in the coming decades and centuries, with the advent of global warming and an increasingly crowded and polluted world, will become the most precious commodity of all. Wars will be fought over water. To sacrifice it for a handful of jobs and some tax revenue is simply foolish. 2) 300 jobs. When I first saw that number, I thought it was a joke. We're talking about potentially trashing a beautiful ecosystem for 300 jobs. It wouldn't be worth it for 3000 jobs, but 300 is insignificant. I'd be embarrassed to trumpet that as a reason to do this. 3) Centuries of waste water treatment, 200-500 years worth (but they aren't really sure how long, that's just their best guess). I can't believe anyone would seriously entertain the notion of an ongoing project of any kind that would need to be maintained without interruption for *centuries*. The Roman Empire existed for 500 years in total, with the advantage of existing during a time of only a glacial rate of change in conditions and with a monolithic state that could order anything it wanted, and we think we're going to keep a single water treatment operation going for that long. There is no guarantee that the United States or the State of Minnesota as a political entity will still exist in 500 years, and history teaches us that it is very unlikely. Certainly the companies involved will not exist for even a quarter of that time. Long after everyone involved today is dead, future generations will be left holding the bag for a polluted mess, and what recourse will they have. None at all. 4) The cutoff wall. Polymet says they will build a five mile cutoff wall anchored in bedrock to contain water that flows through the tailings. But how can they guarantee there will be no fractures anywhere in the bedrock or the wall, before, during or after construction. People I've talked to who live there and have been involved in mining say that the bedrock contains many fractures. It only takes one to leak. Polymet's entire plan, including the wall, requires perfection to succeed. You don't have to be an expert in anything to know that perfection cannot be achieved. 5) Financial guarantees. At a recent legislative hearing, talk of financial guarantees amounted to vague hand waving about financial instruments and an admonition that "this will be addressed during permitting." Try again. Given a requirement of centuries of ongoing cleanup efforts, any talk of financial instruments that will endure for centuries is laughably foolish. The entire global financial system nearly collapsed in its entirety in 2008- The risk is still just as high, and will grow along with the hypercomplexity and interdependency of the global system. Complexity is the enemy of stability; hypercomplexity inevitably results in a catastrophic failure somewhere in the system. No one can guarantee anything stretching centuries into the future, least of all in financial terMs In any case, no amount of money can compensate for the degradation of ecosysteMs Once the groundwater is contaminated, the damage is done and cannot be undone. 6) Most of the benefits do not stay in Minnesota. PolyMet is a Canadian company that has never operated a mine (.) and that's where the profits will go. Glencore is a Swiss company with commitments to sell copper to China, and that's where the copper will go. Minnesota gets some crumbs in exchange for trashing its environment. That's a bad deal. 7) Glencore's record is abysmal. Th

Lance Hentges 42422

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Lance Hentges 928 Franklin Ter Minneapolis, MN 55406-1101 (612) 387-6724

Alphabetical by sender's first name

Lance Johnson 18227

I'm Amanda Johnson and I'm giving my time to Lance Johnson. Lance Johnson, L-A-N-C-E, J-O-H-N-S-O-N. I want to thank the DNR, US Army Corps of Engineers and the US Forest Service for the years of diligent work that have gone into this environmental review process. In the last couple of days, I noticed a story saying there's a specific data point regarding groundwater contribution to the Birch River. The SDEIS modeling shows groundwater contributing .5 cubic feet per second of flow to the Partridge River. Additional data from a new stream flow gauging stage and different location miles away shows the groundwater contribution of between 1.3 and 1.8 cubic feet per second. However, drain sensitivity analysis scientists utilize numbers as high as 2.4 cubic feet per second. At the 2.4-cubic-feet-per-second level, the model showed no negative effects. This is a testament to the extensive modeling that has been done on this project that in my opinion has gone above and beyond what is needed for this phase of the project. I would like to state that in my opinion, this -- is that the SDEIS is more than sufficient and it is time to expedite the final EIS in preparation for this project. I'd also like to touch on the socioeconomic aspect of this. I'd like to mention what a project would bring to the Iron Range. After graduating from college, a lack of job opportunities on the Iron Range forced me and my family to relocate to the Minneapolis/St. Paul area, where we were for about 12 years. Approximately five years ago, I was able to relocate my family back to the Iron Range because of some companies up there that are willing to reinvest in Northeastern Minnesota and the Iron Range by utilizing new technology to redefine what is possible in the mining and processing industry of the Iron Range. PolyMet will do the same. PolyMet will provide fantastic opportunities on the Iron Range by providing great-paying jobs for their direct-hire employees and -- and not just those 320 jobs, but -- and employees of Iron Range contractors and engineering firms, vendors, and other support industries. PolyMet will also generate millions of dollars in taxes for the State of Minnesota, and more importantly, millions of dollars that will go directly to the school districts and improving educational opportunities for our children. Let's move forward with this project. Thank you.

Lance Kupka 18097

My name is Lance Kupka and I live in Aurora, Minnesota. I teach at Mesabi East and I am very proud to be the president of the -- co-president of the Mesabi East Teachers Union, Education Minnesota, Local 1255. I enjoy the natural beauty of the state and believe mining can co-exist. I want to talk to you tonight about how the PolyMet project can make a huge, positive impact for our schools. It is estimated that PolyMet will pay 15 million dollars in state taxes annually, once mining begins. Six million of those dollars are considered an occupational tax, which is distributed statewide. And 40 percent of the six million will go directly to the elementary and secondary education statewide fund. That means 2.4 million dollars more in our school coffers. This money will help provide more programs for our schools, more technology for our schools, and ultimately more opportunities once -- for the children once they graduate. Seven million of the 15 million in state taxes is a net proceeds tax. It will be distributed locally. 20 percent of that pie, or 1.4 million dollars, goes directly to schools in northeastern Minnesota. Ten percent, or $700,000, will go to the Northeast Range School District. Take each of those numbers times 20, because the mine is being permitted to operate for 20 years, and you get some even more staggering numbers. 48 million dollars for schools statewide. 28 million dollars for schools in northeastern Minnesota. 14 million dollars for schools in the Northeast Range School District. I will do a little bit more math for you and add those numbers up. That's 90 million dollars, for a total of nearly one billion dollars more for our schools in Minnesota. We know that Minnesota has some of the strictest environmental standards in the nation. We know that state and federal regulators have looked at this project from all angles and have published a comprehensive document that shows exactly how the mine will operate. We know that the mine can operate safely and that PolyMet has committed to monitoring and treating the water for as long as need be. What is the decision? This mine will be safe. It will generate great income for the local workforce, and as I have outlined in detail above, it will have a tremendous positive impact on our schools and on our children for decades to come.

Larry 9503

The SDEIS does not address any contingencies for possible problems for the next 200 years at the mine site and the next 500 years at the tailings pond. This is pure foolishness and should not be accepted until potential problems and their solutions are considered. Also, this SDEIS assumes these sites will be superfund sites, paid for by the taxpayers in the future, since no company in existence today can predict they will be in business 40 years from now, much less 200 to 500 years. Based on what I see in the SDEIS I would not be surprised if the government ends up building the reverse osmosis system when it is needed. Politicians seem more interested in reelection and immediate tax revenue than protecting the environment. I am not optimistic on the outcome of this review process and the impact on Minnesota waters. We are headed down the same path as Montana. Larry Kraemer 1025 Maple Grove Rd Duluth, MN 55811

Alphabetical by sender's first name

Larry A. Stone 4289

---Original Message--- From: Larry Stone [mailto:lstone@alpinecom-net] Sent: Monday, December 30, 2013 7:45 AM To: Fay, Lisa (DNR) Subject: polymet Ms Fay: I'm writing to comment on PolyMet Mining Company's proposed NorthMet sulfide mine. As a frequent visitor to northeastern Minnesota, I'm attracted by the clean water and wild character of the region. The proposed mine would jeopardize those natural resources. The supplemental draft EIS does not give adequate assurances either that the mining itself could be carried on without environmental damage, or that the site could be reclaimed in a way that would guarantee long term stability and environmental integrity. I do not believe that the short term gains of extracting the minerals would justify the potential for permanent, long term damage to the natural resources that are the backbone of Minnesota's economy. Thank you for your consideration. Larry A. Stone 23312 295th St Elkader, IA 52043 563-245-1517 cell 563-419-6742 Lstone@alpinecom-net

Larry and Val Johnson 17301

Dear Federal and State Agency Leaders: According To the SDEIS: PolyMet's water pollution from the permanent mines site waste rock pile would need treatment for at least 200 years and pollution from the tailings piles would require treatment for at least 500 years. Pollution seeping out of the mine pits would "continue in perpetuity." Forever. According to Minnesota Administrative Rules 6132-3200 CLOSURE AND POSTCLOSURE MAINTENANCE. Subpart 1 Goal: The mining area shall be closed so that it is stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free. How can 200 to 500 years of water treatment be considered maintenance free. Please protect Minnesota's water, our most important resource and deny permits for this proposal. Thank You, Lawrence L Johnson 3421 East Alger Grade Two Harbors, Mn 55616 HYPERLINK "mailto:silvercreek73@gmail-com"silvercreek73@gmail-com 218-834-5456

Larry Anderson 39454

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Larry D. Anderson D.V.M. Larry Anderson 1385 Peninsula Road Ely, MN 55731

Alphabetical by sender's first name

Larry Beck 39786

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Larry Beck 8876 Compton Ln Inver Grove Heights, MN 55076-3397 (651) 451-3273

Larry Bogolub 18280

My name is Larry Bogolub. It is B, as in boy, O-G-O-L-U-B. And I am making a statement for my son, Louis Bogolub, who is 16 years old, who wrote this letter to the editor of our local newspaper. "Over the past four summers I have gone on multiple trips to the Boundary Waters Canoe Area (BWCA). The trips have been some of the most memorable weeks in my life. The beauty and peacefulness of the lakes, rivers and forests on which I traveled are unmatched by anything else I've experienced in my 16 years. I sincerely hope that the future visitors will be able to experience the BWCA in the same way. It is because of this hope that I am against the proposed copper-nickel mining in northeastern Minnesota. The potential for harm to the BWCA is too high. It would be shameful to risk the eternal well-being of a national treasure for a short-term economic expansion. With the hustle and bustle of our daily lives, the BWCA is one of the few places where one can truly escape from it all. It is a testament to the wisdom and foresight of the American people that we protect this area for futuregenerations." (Reading.)

Alphabetical by sender's first name

Larry Bogolub 40064

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

42272

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Larry Bogolub 1424 Lincoln Ave Saint Paul, MN 55105-2216

Alphabetical by sender's first name

Larry Chial 41974

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Larry Chial Moorhead, Minnesota

Larry Cuffe 18128

Thank you. My name is Larry Cuffe, C-U-F-F-E, and I'm a resident of the City of Virginia and I'm also on the City of Virginia City Council. I've been here ever since this place opened up, and I have a speech prepared and something to talk about here, but it's going to be redundant of what everybody else has already said. I'm a fourth-generation Iron Ranger. My father is of Italian dissent and my mother is Ojibwa. We have a very strong family background, a strong family heritage. Mining has been in our family for years. My grandfather was a miner, my other grandfather was a miner. We all shared those experiences. If it wasn't for mining, my grandfather wouldn't be here, my father wouldn't be here. My family would not be here, and if you look at the iron ore mining and compare it to the PolyMet Project, there is a comparison here. Now, there's been a lot of talk about opposition about the water, about not having the study done properly, but what I'm telling you right now, we live in the United States of America. The most advanced industrialized nation in the world. We have the cleanest water. We have the cleanest environmental protection. We have the Minnesota Pollution Control Agency that's a pain it our butt, but it's necessary because they do their due diligence. I rely on experts to make decisions. Every time you take a risk in life there's a risk. There's never going to be an absolute, but when you take every precaution and you spend hundreds of millions of dollars and 10 years of investment in order to do something that's going to be economically boon to a community that is dying on the vine. The City of Virginia had a population when I was growing up of about 18,000 people when the mines were booming and the construct was going on. Now, we have about 8,800 people. We have a housing crisis in Virginia. These houses are abandoned. People left because there are no jobs. This United States of America is built on the people. And I heard it spoken from other kind -- everybody here, it's -- it's the people working together. Well, we have a community here; Virginia, Eveleth, Gilbert, Biwabik, Aurora, Hoyt Lakes, all across this Iron Range is based upon our bread and butter, our way of life in order for us to live. Mining is the major contributing factor to our ability to survive and to raise our family. We as a City Council, we as a family, all my friends, we all support the PolyMet Project. There's a lot of things to say about the water, the quality. I read through the EIS study. I find that this is just -- they've done their due diligence. Let's move forward.

Larry Derksen 41599

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Larry Derksen New Ulm, Minnesota

Alphabetical by sender's first name

Larry Dolphin 45336

To: Minnesota DNR From: Larry Dolphin 54769 180th St Austin, Minnesota 55912 E-mail address: alphaflipr@gmail-com Subject: Comment on Proposed Polymet Environmental Impact Statement I will keep this brief. We are blessed with some of the most abundant freshwater in the world. Why would we want to jeopardize the purity of our water. This is what concerns me most about the Polymet proposal is the need for Polymet to treat the water for at least 500 years and provide the financial wherewithal to accomplish it. It is not realistic and in fact it is ludicrous to expect that to be accomplished. Based on that information alone I believe the permit cannot be awarded. " A society that is satisfied with short term economics while deciding the source of its own survival cannot laSt" --Mary Berry- Water is essential for all life. Respectfully submitted, Larry Dolphin

Larry Hennis 6706

Please - no mining is necessary. We need to stop selling out our futures to short sighted, short term profit interests. The environment is just too important to allow a project like this. Thank you. - Larry Hennis ljhennis@fastmail.fm Larry Hennis 630 S Aspen Ct Saint Peter, MN 56082-1687

17041

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Larry Hennis 630 S Aspen Ct Saint Peter, MN 56082

Alphabetical by sender's first name

Larry Hennis 50314

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Larry Hennis 630 S Aspen Ct Saint Peter, MN 56082

Alphabetical by sender's first name

Larry Hylton 17246

Feb 17, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Larry J Ronning 42672

See attachment

Larry Johnson 19521

I'm Larry Johnson from Superior, Wisconsin, and I believe that we all use copper nickel in our lives, so we need to get it from somewhere. So is it okay to get it from somewhere else? And the nickel, don't forget about the nickel. We have to import 100 percent of the nickel in this country right now. I love the Boundary Waters, I love the environment, and this will be the cleanest place to get it, and it will benefit all of our citizens in this area. So that's my statement. Thank you.

Larry Kraemer 42639

See attachment

Alphabetical by sender's first name

Larry Krohn 39498

Hello, Thank you for the concern, research, and dedication of your team for the citizens of Minnesota, as well as the well-being of this country. Having attended most presentations, talked to professionals in the mining industry, researching past and present mining operations, having read the documentation as outlined in the SDEIS, it is my professional opinion we can be assured the impacts to the air, water and land will be minimal, and most likely superior to the existing ecology. This SDEIS demonstrates PolyMet can develop this resource in a sustainable manner with logical, engineered solutions proposed for any potential impacts. PolyMet will generate millions of dollars in local and state taxes for the support of our communities and educational institutions. The result of this project will contribute to the state and local economy at this time when we need jobs and a sustainable economic growth. This project, using the existing infrastructure and land is the ultimate in recycling. I am impressed by the extraordinary precautions proposed by PolyMet such as proven reverse osmosis technology and look forward to having them in our community. I am confident the professional team assembled by PolyMet will provide financial assurance to cover all required closure costs. Sincerely, Larry Krohn 506 Mission Road, West Bloomington, Minnesota 55420 Rockbottom506@me-com

39539

Hello, I would like to thank you for the great job you are doing. I am writing in regards to the PolyMet mining project in northern Minnesota, I am in full support of this project, I started out skeptical. However after reading the ESS reports and all of the steps PolyMet has taken to ensure no water contamination, safe holding ponds and safe mining practices, I feel they have gone above and beyond. I am now in Full Support of this project, for jobs, MN growth, revenue, even a kickback will go to MN schools (Land Use Trust /PSF from the founding of MN 1858). It looks like a win win to me. Thank you for your time. Sincerely, Larry Krohn Bloomington, Minnesota

Larry Long 18154

I'm so honored to be here. Today we lost a very great American, Pete Seeger. And I stand before you in the spirit of Pete and I speak this in song. So this is a song that I wrote for this gathering. (Sings a song).

Alphabetical by sender's first name

Larry Nelson 16147

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Larry OConnell 15302

To Whom It May Concern: I have done a lot of studying of this project because I have friends that live in the area of Hoyt Lakes. Polymet in my opinion has done all of it’s homework. I am convinced they have the technology, financial means, and moral intentions to properly operate safely the proposed mine.. If you haven’t visited the “Range” lately than you should take a trip up there (unless of course you live north,east,or west of the site) This area needs the economic input that Polymet will provide. The jobs that polymet provides are only the beginning of the job growth for this area. The housing market will benefit as well as retailand the list goes on . The facts of other mines whether good or bad are only relevant if Polymet plans to do the same things that they did. Polymet has in my opinion gone above and beyond anything that any other mine has ever done, to insure safe clean nontoxic mining. Besides the fact that they are willing to put money in an escrow account in case that any emergency may arise. Signed Larry OConnell

Larry Penk 54128

I do not support nor do I believe the review process has been sound. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Larry Perrott 32366

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Don't allow it. Please. Sincerely, Larry Perrott 500 Maple St Farmington, MN 55024-1565

Larry Petersen 26357

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. IThe Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Larry Petersen 1000 NW 3rd St Gresham, OR 97030-6910 (503) 666-8656

Larry Popovich 7630

To the DNR, First of all, may I commend your agency on all of the hard work done in this process to date. Being in a business that works with the DNR, the MPCA and EPA, I can say first hand that the methods used by the agencies promote “best practices” for operation of companies in Minnesota. This will be no different for Polymet and the production of copper/nickel and precious metals on the area of Northeastern Minnesota. Technology continues to advance and so it will with the Polymet project. As required, they will be monitoring their process and doing the correct treatments to minimize any effects of mining. As time passes, technologies and treatments will continue to improve and we will end up with an even greater outcome. The “do nothing” option offered up by protesters of the project is the worst approach possible. We have the perfect opportunity to have a business come in to a brownfield site, prepare the site and do treatment on it for years to come. The money paid out in taxes and fees will support this treatment, along with millions of dollars for the communities and schools in our state. Let us not forget the jobs that will come with it, along with spin-off jobs resulting in mining; these communities desperately need help, as they have suffered with declines in many areas for years. We must support this project and will the laws in place and the great people we have at the agencies monitoring this process, we will have a successful outcome. Thank you for the opportunity to express my opinion, Larry D. Popovich Lead Production Coordinator Laskin Energy Center Minnesota Power/Allete Extension 4804 (218-225-4804) Cell 218-491-3222

Alphabetical by sender's first name

larry ronning 40845

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. We have heard of the problems with sulfates and there longterm affects on our watersheds. I have heard nothing of all the other chemicals that are required to extract metals from the tailings. What other chemicals will be used and therefor added to our water.. Thank You, Larry J Ronning 1203Ronning Dr Two Harbors Mn. 55616 Sincerely, larry ronning 1203 Ronning Dr Two Harbors, MN 55616-3013 (218) 834-3249

Larry Smith 37868

We are homeowners on White Iron Lake in Ely, Minnesota. We are writing to comment on the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS). We are very concerned about plans to develop copper/nickel mining in our area. Specifically we are opposed to the PolyMet mine proposal. We are opposed for the following reasons: 1- Permanent water pollution will occur – Copper/Nickel mining is different from iron ore mining. To our knowledge this type of mining has never been done without doing severe environmental damage. And to do this type of mining here so near to the Boundary Water is risky at beSt Why would we take a chance of permanently polluting this wonderful ecosystem. As Lutheran Pastors we are personally aware of the current copper mine remediation going on north of Chelan, Washington. Holden Village is completely closed to visitors as crews try to clean up and reroute creeks. We will face similar problems in our area if copper and nickel are mined here. It is virtually impossible to prevent seepage from the mine and tailings. Perhaps millions of gallons of seepage from tailings and the mine site itself will enter ground water without being treated. PolyMet admits that water pollution by sulfuric acid will last for at least 500 years. The Gutenberg printing press was invented 500 years ago. The United States of America is 238 years old. How can we possibly plan for pollution that will last over 500 years. 2- Mining companies do not have a good history of protecting the environment - Just this week we have learned that one of the nation's largest coal producers will pay a $27-5 million fine and spend $200 million to reduce illegal toxic discharges into hundreds of waterways across five Appalachian states. Who will pay for the ongoing cleanup here. This type of mining company behavior does not bode well for copper/nickel mining in our area. 3- PolyMet fails to plan for inevitable accidents and failures – Pipeline spills, accidental releases, failure of water collection and treatment infrastructure and tailings basins failures are virtual certainties. There are no details in the PolyMet plan how to deal with these situations. 4- Social costs and decline of property values – We are not convinced that local Ely people will benefit from copper/nickel mining. PolyMet does not commit to the number of jobs available for local people. There may be an influx of the number of people coming to Ely, but these folks will come and go elsewhere when the mining jobs aren't here. Mining is a Boom Bust economy. Ely will not benefit in the long run. Those of us that have property on the area lakes will likely suffer decline in property values. We have planned retirement on White Iron Lake for 25 years and have recently built a new home here. Polluted waters will make our property and home undesirable. And the attraction of the Boundary Waters will decline. 5- Inadequate comment period - Please increase the length of the comment period for the SDEIS from 90 days to 180 days. Allow for more comment time. Please listen to the community – there is too much at stake to rush this. For these and other reasons we are opposed to copper/nickel mining in our area. Sincerely, Pastors Larry and Susan Smith 3217 Big Rock Dr Ely, MN 55731

Alphabetical by sender's first name

Larry Wamstad 6019

From what I've read, I believe PolyMet should be allowed to proceed with their mining operation. New jobs have a trickle down affect and it appears this company has done it's homework. I support PolyMet and believe they will follow all established rules and regulations. Larry Wamstad Sent from my iPad

Larry Wannebo 37902

We do not support the PolyMet Mining project, now or in the future. It is apparent that science and the politics don't mix well; they represent different worlds. Neither do harmful chemicals and pure water. Sometimes, it takes many years to see the negative impacts in our waters. But, you should learn from your mistakes when it comes to damaging Minnesota's waters. There are many examples to learn from in Minnesota. Cities used to drain sewage into rivers and lakes. It was acceptable science of the time. Highway departments built curb and gutters to drain road run-off (oil, gas, salt) right into the lakes and rivers. It was a cheap way to make roads safer. Businesses, like 3M, disposed of "waste products" into the soil and ultimately, into ground water. Profits were so huge that the cost of clean-up was just the cost of doing business. Did you learn from your mistakes. From experience, you should know that you are not as smart as you think. When someone dangles dollars and votes in front of politicians, the politicians cause the water to boil like a school of piranhas. Politicians subtly threaten environmental staff to approve bad ideas in the name of economic development. It is wrong that environmental issues are decided by politicians for short-term economic gains. A wise person said: "I believe there is only one conflict, and that is between short-term and long-term thinking. In the long term, the economy and the environment are the same thing. If it is unenvironmental is it uneconomic. That is a rule of nature." Mollie Beattie (1947-1996, former director US Fish and Wildlife Service If the state agencies and politicians do not approve of the project, I assume that PolyMet will sue the good people of Minnesota. This would be a bullying tactic. But, it might be better to be tied –up in court for a few years, rather than have our waters destroyed for ever. The preponderance of evidence in the PolyMet case, both scientific and social evidence, proves that the vast majority of the informed citizens in Minnesota do not want to risk the long-term quality of their water and related eco-systems for a few hundred short-term jobs. Everything else discussed in this search for a solution is nothing but smoke to confuse the issue. If approved, PolyMet will be followed by applications for more exploitation of our natural resources in the name of jobs. This is the REAL cumulative impact of a PolyMet mine. We urge MDNR to deny the permit to mine and all of the other permits associated with this project. Larry and Marilyn Wannebo 39911 County Road 66 Manhattan Beach, MN 56442 218-533-4622

Alphabetical by sender's first name

Larry Werner 16197

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

larry yank 42117

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr larry yank 171 McKnight Rd N Saint Paul, MN 55119-4663

Larry Zelenz 10724

After reviewing the fact sheets and executive summaries on this project, it seems to me that what may be critical is how effectively Polymet's performance is monitored with regard to the safeguards they intend to put in place. Woefully underfunded government agencies, constrained by bureaucracy with weak punitive powers may be ineffective in assuring that the stated standards are met. I would suggest that Polymet be required to fund an independent group that includes representatives from the DNR, USFS, USACE, MPCA and citizens representing environmental groups with interest in the region acting jointly, to monitor the project on a full time basis in perpetuity. This entity should have the power to curtail or shut down operations and have standing with regard to directing punitive measures if Polymet fails to meet stated environmental safeguards. Larry Zelenz 323 Wildwood Drive Duluth, MN 55811 HYPERLINK "mailto:larry.zelenz@gmail-com"larry.zelenz@gmail-com 507-382-7793

Alphabetical by sender's first name

Larry Zelenz 39524

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Larry Zelenz Larry Zelenz 323 Wildwood Drive Duluth, MN 55811

48769

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Larry Zelenz Larry Zelenz 323 Wildwood Drive Duluth, MN 55811

Alphabetical by sender's first name

Larry-bob Roberts 43139

The potential benefits in terms of a small number of jobs over a short range of time and extracted minerals versus the long-term impact of pollution is not worthwhile. I know that people who have been examining the environmental impact reports much more than I do have much more insightful things to say, so I won't elaborate further here. I hope you will carefully examine the issues of whether the estimates of 90% of the water being captured are at all accurate and experimentally verifiable, or are just plugging in the required numbers to come to the desired result. Larry Roberts

Laska Nygaard 43221

I neglected to include my name and contact information below. They are: Ms Laska Nygaard 1088 Hyacinth Ave E St Paul, MN 55106 612-518-8371 HYPERLINK "mailto:laskaandbrent@comcaStnet"laskaandbrent@comcaStnet Thanks. _____ From: laskaandbrent@comcaStnet To: "NorthMetSDEIS dnr" <NorthMetSDEIS.dnr@state.mn.us> Sent: Thursday, March 13, 2014 3:47:03 PM Subject: polymet - paying for the pollution Do not permit the PolyMet mine. The proposed PolyMet mine is not the way to test out the first sulfide mine in Minnesota. The proposed location is located in sensitive environmental areas in Minnesota. These are precisely the types of areas that we need to protect and maintain in Minnesota. These are the areas we need to protect in order to protect citizens' health, in order to keep the tourist industry we hAve Minnesota has a history of thinking carefully and not permitting to-good-to-be-possible projects; it has a history of protecting its people and assets. This history must be continued. There is no way to guarantee that PolyMet would complete 200 to 500 years of necessary cleanup. There is no way to be certain 200/500 years in the future the extent of the damages that would need to be assessed and addressed. Duration of the environmental harm. If PolyMet is allowed to have the mine, Minnesotans and Americans will be required to have a polluted area of a current NATIONAL FOREST for 200 to 500 years. A national forest is intended to be protected. Treating it in a way such that it is harmed for ten to 50 generations puts unacceptable burdens on those generations: (1) the area would not be free from harm and therefore unable to rehabilitate as a safe environment over the lengthy period of time; (2) there is no telling whether the procedures and actions necessary to keep on cleaning the pollutants for 200/500 years would be completed, as we cannot see into the future; (3) there is no way to ensure PolyMet would pay for the cleanup or other remedies for the environmental damage. Perhaps 100 years would be a different matter, given that the actual people involved in the operations would be removed from the polluting acts by approximately only 5 generations, and we can only hope the world will not have changed as drastically by then. Forcing 500 years' of Minnesotans to suffer for the decision of making money now over a period of a mere 20 years - ONE generation - is illogical. Forcing them to live on hope of having the damages taken care of is illogical. The number of things impossible to foresee and that therefore could go wrong in 500 years in incalculable. Under the proposed plan, water treatment at the mine would be required for 200 years, and 500 years at the facility. So we know the duration would be AT LEAST 500 years, and we know the pollution would be BAD;they could be much worse. 200 years ago the world was not industrialized, the levels of pollution we have now were inconceivable then. We now have the ability to inflict progressively more and worse environmental harm more efficiently, quickly and easily, only we have many times more the population than 200 years ago and many times less the clean, healthy environment. No telling how our ability to exploit will grow, no telling how damage in one area can affect another. Betting on cleaning up over 200 and 500 years to be the same as now is fool-hardy. The world will be a very different place by the time those eras are reached. Money is good. I do not begrudge PolyMet it's wanting to make money. I begrudge it wanting to make money in such an inherently dangerous fashion, in an area of vulnerable environment, in an industry in which the history of cleanup is poor, such that states in which such mines exist/have existed before (and so suffer from pollution, particularly water pollution) have suffered from the pollution AND companies have failed to pay for and ensure the cleanups. When the companies cease to exist, what can a state or a peop

Alphabetical by sender's first name

Laska Nygaard 43233

Do not permit the PolyMet mine. The proposed PolyMet mine is not the way to test out the first sulfide mine in Minnesota. The proposed location is located in sensitive environmental areas in Minnesota. These are precisely the types of areas that we need to protect and maintain in Minnesota. These are the areas we need to protect in order to protect citizens' health, in order to keep the tourist industry we hAve Minnesota has a history of thinking carefully and not permitting to-good-to-be-possible projects; it has a history of protecting its people and assets. This history must be continued. There is no way to guarantee that PolyMet would complete 200 to 500 years of necessary cleanup. There is no way to be certain 200/500 years in the future the extent of the damages that would need to be assessed and addressed. Duration of the environmental harm. If PolyMet is allowed to have the mine, Minnesotans and Americans will be required to have a polluted area of a current NATIONAL FOREST for 200 to 500 years. A national forest is intended to be protected. Treating it in a way such that it is harmed for ten to 50 generations puts unacceptable burdens on those generations: (1) the area would not be free from harm and therefore unable to rehabilitate as a safe environment over the lengthy period of time; (2) there is no telling whether the procedures and actions necessary to keep on cleaning the pollutants for 200/500 years would be completed, as we cannot see into the future; (3) there is no way to ensure PolyMet would pay for the cleanup or other remedies for the environmental damage. Perhaps 100 years would be a different matter, given that the actual people involved in the operations would be removed from the polluting acts by approximately only 5 generations, and we can only hope the world will not have changed as drastically by then. Forcing 500 years' of Minnesotans to suffer for the decision of making money now over a period of a mere 20 years - ONE generation - is illogical. Forcing them to live on hope of having the damages taken care of is illogical. The number of things impossible to foresee and that therefore could go wrong in 500 years in incalculable. Under the proposed plan, water treatment at the mine would be required for 200 years, and 500 years at the facility. So we know the duration would be AT LEAST 500 years, and we know the pollution would be BAD;they could be much worse. 200 years ago the world was not industrialized, the levels of pollution we have now were inconceivable then. We now have the ability to inflict progressively more and worse environmental harm more efficiently, quickly and easily, only we have many times more the population than 200 years ago and many times less the clean, healthy environment. No telling how our ability to exploit will grow, no telling how damage in one area can affect another. Betting on cleaning up over 200 and 500 years to be the same as now is fool-hardy. The world will be a very different place by the time those eras are reached. Money is good. I do not begrudge PolyMet it's wanting to make money. I begrudge it wanting to make money in such an inherently dangerous fashion, in an area of vulnerable environment, in an industry in which the history of cleanup is poor, such that states in which such mines exist/have existed before (and so suffer from pollution, particularly water pollution) have suffered from the pollution AND companies have failed to pay for and ensure the cleanups. When the companies cease to exist, what can a state or a people can do to make it meet its obligations to clean up, moral, ethical and financial. All cleanup costs - those for the 200 and 500 year durations - should be paid by PolyMet up front. If this is not feasible for PolyMet, then Polymet should understand that the plan is not feasible. Note in addition that the costs of clean up are often underestimated, particularly given the impossibility of knowing actual d

Alphabetical by sender's first name

Laszlo Fulop 40180

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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Laura and Mr. Neal Deaton 40138

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The most precious and life-giving commodity that we have on the planet is water. No amount of rationalizing can prove that this proposed project will bring about more benefits than irreparable damage. Sincerely, Mrs Laura and Mr Neal Deaton 3820 Forestview Ln N Plymouth, MN 55441-1337

Laura B Melander 54740

See attachment

Alphabetical by sender's first name

Laura Berglund 44421

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting. 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be. 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data. 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage. Sincerely, Ms Laura Berglund 1180 California Dr Saint Paul, MN 55108-2261

Alphabetical by sender's first name

Laura Berglund 44428

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have been stuck with billions in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1) Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2) Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3) Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Sincerely, Ms Laura Berglund 1180 California Dr Saint Paul, MN 55108-2261

Alphabetical by sender's first name

Laura Berglund 44438

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. I am particularly concerned about the public health effects of contaminants that will be generated by the PolyMet project. Sulfates, sulfides, mercury and methyl mercury, and asbestos fibers are not things I want in my groundwater or surface water, the air I breathe, or the food I eat. Please conduct a detailed, thorough, comprehensive health impact assessment of the proposed project. Sincerely, Ms Laura Berglund 1180 California Dr Saint Paul, MN 55108-2261

Alphabetical by sender's first name

Laura Berglund 44444

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation

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Laura Berglund 44483

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The financial assurance section of the SDEIS is inadequate and needs to be changed to reflect details about how much money would be required to pay for cleanup and in what form it would be held. In 2010, the US Environmental Protection Agency called PolyMet's first draft Environmental Impact Statement "inadequate." One significant reason was that the 2010 DEIS did not show that financial assurance would be enough to cover the cost of long-term water treatment at the site. "EPA believes that the adequacy of financial assurance for these activities could make the difference between a project adequately managed over the long-term by the site operator, or an unfunded or underfunded contaminated site that becomes a liability for the federal government and the public " As your revise the SDEIS, please take the following actions: 1) Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs in the current draft 2) Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for hundreds of years of water treatment 3) Identify other responsible parties (eg major investors like Glencore) that will be held responsible for long-term cleanup should PolyMet go bankrupt or be unable to meet their obligations 4) Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation for the what would constitute adequate treatment Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The financial assurance section of the SDEIS is inadequate and needs to be changed to reflect details about how much money would be required to pay for cleanup and in what form it would be held. In 2010, the US Environmental Protection Agency called PolyMet's first draft Environmental Impact Statement "inadequate." One significant reason was that the 2010 DEIS did not show that financial assurance would be enough to cover the cost of long-term water treatment at the site. "EPA believes that the adequacy of financial assurance for these activities could make the difference between a project adequately managed over the long-term by the site operator, or an unfunded or underfunded contaminated site that becomes a liability for the federal government and the public " As your revise the SDEIS, please take the following actions: 1) Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs in the current draft. 2) Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for hundreds of years of water treatment. 3) Identify other responsible parties (eg major investors like Glencore) that will be held responsible for long-term cleanup should PolyMet go bankrupt or be unable to meet their obligations. 4) Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation for the what would constitute adequate treatment. I ask you to consider what has happened with similar mines in other states. Summitville Gold Mine, Colorado The company filed for bankruptcy, leaving cleanup costs to the public. Costs expected to be about $235 million and take at least 100 years. Zortman Landusky Mine, Montana In 1998, the company abandoned the site and filed for bankruptcy. After several lawsuits against the mining company and its creditors following the company's bankruptcy, Montana's taxpayers are still liable for anywhere from $8 million to $90 million. Gilt Edge Mine, South Dakota The parent company, Dakota Mi

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Laura Berglund 44487

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for

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Laura Berglund 44490

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Wild Rice is Minnesota's state grain, and crucial for its cultural significance and importance for subsistence of Minnesota's Native Americans. Manoomin (wild rice) is recognized as a significant resource for Minnesota's tribes, access to which is protected by the Treaty of 1854- Even low levels of sulfates are proven to affect wild rice stands, a fact recognized by Minnesota's protective wild rice sulfate standaRd The PolyMet mine plan identifies wild rice beds downstream of the mine and plant, including part of the Embarrass and Partridge Rivers and Wynne Lake. Since sulfate levels in wild rice beds downstream of the proposed mine already exceed the standard, the proposal must demonstrate it "would have an acceptably high probability of not increasing sulfate concentrations in these areas" (p. 5-5). The mine plan does not meet this teSt PolyMet claims they will meet this standard by using water treatment (including reverse osmosis) to eliminate sulfates before wastewater is released. However, the mine plan predicts that 5-2 million gallons per year will seep out without treatment at the Mine Site after closure, and 11 million gallons of untreated water per year will escape the Tailings Basin (5-8). This seepage will surface and enter streams and rivers nearby. The standard to protect wild rice is 10 milligrams grams per liter of water. The waste rock left behind at the Mine Site will create runoff with sulfate levels of 2,000 to 4,000 micrograms per liter after closure, 5 million gallons of which will escape untreated every year. In fact, the SDEIS predicts that many years after closure this could violate the sulfate standard to protect wild rice, requiring additional measures (5-142). The SDEIS is contradictory, on the one hand relying on mechanical water treatment for hundreds of years in order to seemingly meet the sulfate standard, but also describing possible passive treatments that may be developed that would seasonally violate the protective sulfate standards. The EIS should eliminate that contradiction. Lastly, the SDEIS inadequately characterizes wild rice waters downstream of the PolyMet sites. The Great Lakes Indian Fish and Wildlife Council has provided additional wild rice sites other than those included in the SDEIS. The EIS should be revised to include these additional wild rice waters. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Wild Rice is Minnesota's state grain, and crucial for its cultural significance and importance for subsistence of Minnesota's Native Americans. Even low levels of sulfates are proven to affect wild rice stands, a fact recognized by Minnesota's protective wild rice sulfate standaRd The PolyMet mine plan identifies wild rice beds downstream of the mine and plant, including part of the Embarrass and Partridge Rivers and Wynne Lake. Since sulfate levels in wild rice beds downstream of the proposed mine already exceed the standard, the proposal must demonstrate it "would have an acceptably high probability of not increasing sulfate concentrations in these areas" (p. 5-5). The mine plan does not meet this teSt PolyMet claims they will meet this standard by using water treatment (including reverse osmosis) to eliminate sulfates before wastewater is released. However, the mine plan predicts that 5-2 million gallons per year will seep out without treatment at the Mine Site after closure, and 11 million gallons of untreated water per year will escape the Tailings Basin (5-8). This seepage will surface and enter streams and rivers nearby. The standard to protect wild rice is 10 milligrams grams per liter of water. The waste rock left behind at the Mine Site will create runoff with sulfate levels of 2,000 to 4,000 micrograms per liter after closure

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Laura Berglund 44496

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project. 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Sincerely, Ms Laura Berglund 1180 California Dr Saint Paul, MN 55108-2261

Alphabetical by sender's first name

Laura Berglund 44556

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not adequately examine the risks to worker safety and public health from asbestos-like fibers found in the rocks that they propose to mine. I ask the DNR to require a more comprehensive public health assessment of the risk to workers and the public than what PolyMet has provided in the SDEIS. The SDEIS acknowledges that amphibole fibers are present in the rock to be mined, that crushing the rock for processing releases these fibers, and that these fibers are suspected of causing mesothelioma in workers. The SDEIS further acknowledges that there have been few studies of the risk from fibers of the size that would be created at the PolyMet mine and plant site. A number of mesothelioma cases were found in mine workers who worked in the LTV Erie Plant that PolyMet proposes to use as part of their mine plan, and the SDEIS inaccurately characterizes a University of Minnesota study of mesothelioma in mine worker as showing that this risk came exclusively from the use of commercial asbestos products in the mine. In fact, the University of Minnesota did not exonerate dust from crushing ore, and is continuing to study the health impact of exposure to short amphibole fibers of the type contained in the ore that PolyMet would mine and process. Specifically, the DNR should: 1) Revise the SDEIS and conduct a formal health assessment of the risk to public health and worker safety from the amphibole fibers present in the ore at the PolyMet mine site. The SDEIS should specifically conduct a formal health assessment of the risks from asbestos-like fibers less than 5 microns in length 2) Revise the SDEIS to provide details of the air monitoring at the mine and plant site and in nearby communities, and describe contingency plans to address the risk to public health and worker safety if asbestos-like fibers are detected during construction, operation, closure and post-closure 3) Revise the SDEIS to eliminate inaccurate characterizations of the University of Minnesota mesothelioma study. Specifically, eliminate statements that imply that commercial asbestos is the primary risk factor for mesothelioma risk Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Please require PolyMet to prove there is no added mesothelioma risk to workers and the public. The PolyMet NorthMet SDEIS does not adequately examine the risks to worker safety and public health from asbestos-like fibers found in the rocks that they propose to mine. I ask the DNR to require a more comprehensive public health assessment of the risk to workers and the public than what PolyMet has provided in the SDEIS. The SDEIS acknowledges that amphibole fibers are present in the rock to be mined, that crushing the rock for processing releases these fibers, and that these fibers are suspected of causing mesothelioma in workers. The SDEIS further acknowledges that there have been few studies of the risk from fibers of the size that would be created at the PolyMet mine and plant site. A number of mesothelioma cases were found in mine workers who worked in the LTV Erie Plant that PolyMet proposes to use as part of their mine plan, and the SDEIS inaccurately characterizes a University of Minnesota study of mesothelioma in mine workers as showing that this risk came exclusively from the use of commercial asbestos products in the mine. In fact, the University of Minnesota did not exonerate dust from crushing ore, and is continuing to study the health impact of exposure to short amphibole fibers of the type contained in the ore that PolyMet would mine and process. Specifically, the DNR should: 1) Revise the SDEIS and conduct a formal health assessment of the risk to public health and worker safety from the amphibole fibers pre

Alphabetical by sender's first name

Laura Berglund 44565

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Please fix the inaccurate water data and redo the water model in PolyMet's mine plan. The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data. 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013- 3) Recalculate and rewrite sections of the SDEI

Alphabetical by sender's first name

Laura Carrero 12055

Feb 14, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

30211

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt I have read that PolyMet believes that it will have sufficient safeguards in place to prevent contamination; however, I do not have confidence that this the case. It is my understanding that there is potential for contamination to occur for the next 500 years and I don't think it is realistic for us to believe we can prevent any water pollution from occurring over such a long period of time. Over 500 years, there will be many variables that we cannot predict. This is too big of a risk us and for future generations. I read that the jobs created by this project will last for 20 years. That seems great now but, if you look at the big picture, I do not believe it is worth the risk. Sincerely, Laura Carrero 956 Gorman Ave Saint Paul, MN 55118-1412 (651) 457-7980

Alphabetical by sender's first name

Laura Dahl Popkes 41069

To Ms Lisa Fay and the Minnesota Department of Natural Resources: I am registering my OPPOSITION to the proposal by PolyMet to engage in sulfide mining in the state of Minnesota. The very FACT that sulfide mining produces corrosive acid destruction to our lands and waters should be enough reason to say NO to PolyMet. I urge our Department of NATURAL RESOURCES to keep protecting our environment; allowing this mining will do exactly the opposite. We live in Cook County, on Birch Lake, on the Gunflint Trail. Like many of our neighbors in Cook County, our lakes are our ONLY source of water. Yes indeed, Birch Lake is clean and clear and, using only a modest filtration system, perfectly safe to drink. The fact that water contaminated by sulfide mining will require treatment for as many as 200 to 500 years makes it abundantly clear to me that only a few will 'benefit' from the economic ramifications of PolyMet's industry, but we ALL will pay the environment price. That is certainly not fair, nor does it make sense. Please do not allow PolyMet to proceed. Sincerely, Laura Popkes 69 Birch Lake Rd Grand Marais, MN 55604 218-388-9491

Laura Espondaburu 40661

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Laura Espondaburu 1224 E 22nd St Minneapolis, MN 55404-2945 (612) 205-3572

Laura Ferenci 57977

Our resources cannot be contaminated. Please do not allow PolyMet to mine. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Laura Feuerborn 40861

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Dr Laura Feuerborn 8816 38th Ave SW Seattle, WA 98126-3619 (206) 854-4182

Laura Flynn 40000

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Laura Flynn 5805 Prince Dr NW Byron, MN 55920-4106 (507) 775-6489

Laura Gauger 41963

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Laura Gauger 1321 E 1st St Apt 201 Duluth, MN 55805-2442

57355

see attachment

Alphabetical by sender's first name

Laura Grangaard 15993

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Minnesota's public lands and water resources are part of what makes our state so incredibly unique. They are assets both now and in the future, and across the country and the world we are known for our blue waters, our beautiful forests, and our wilderness. It just seems so shortsighted to cause such an enormous blight on such an amazing resource for the short-term good of a relative few. Speculating on how this mine could be made safer than the examples of the past is not worth the potential destruction it could have on our state's natural resources. Mining in this way has yet to be done safely. Even if PolyMet states that they have a solution, do we really want them to debut their solution in a location that could destroy so many of the resources around it, if their claims are incorrect. Trusting a company to provide cleanup for the next hundreds of years is tenuous at beSt Economic growth is important to consider, but at what expense over the next short term period of time (20 years seems to be the popular number), when that expense could impact us far beyond what we can see. It's just not worth the uncertainty and the risk to move forward with this. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely, Laura Grangaard Laura Grangaard 1900 Colfax Ave S Minneapolis, MN 55403

Laura Hedlund 43850

We need to think of more than our needs RIGHT NOW. How can we with open eyes and a full heart even consider something SO RECKLESS as the polymet proposal which will pollute for more than 500 years. The need for jobs is based on economic system which we can change. There has been a slow movement toward local beer creating more than 500 jobs. We do not have to sacrifice our environment for temporary and PERCEIVED economy gains. let's start doing the hard work to fight for a just working economic system. I love the Made On the Range website. Let's support real, sustainable jobs that do not compromise our environment. We all do better when we all better. The pollution from the polymet proposal is likely to impact fishing and hunting rights - the true sustainable economy. Please say no to recklessness. Laura Hedlund 1364 Wilderness Run Drive Eagan, MN 55123 651 755 5253

Alphabetical by sender's first name

Laura L. Hagen 45686

4/12/14 Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Email: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us Re: NorthMet Supplemental Draft Environmental Impact Statement Dear Ms Fay, I am a biological sciences major and environmental science minor at University of Missouri-Columbia and am writing to you about my concern with the NorthMet Proposed Action in Superior National ForeSt With my interest and concern with the environment, I believe that there should be no action taken in the Superior National ForeSt I am mainly concerned with the effects that the copper-nickel mining would have on wildlife habitat, native species of the area, nature of the land, and water quality. First, the amount of wetlands that would be destroyed is incredibly significant and would affect the organisms that inhabit them. Many species such as the lynx, bald eagle, gray wolf, eastern heather vole, wood turtle, yellow rail and many more could be affected by the mining. The executive summary itself says these species may be affected by the project and that restoration of the areas after the project could take decades. These species may not even be able to re-inhabit the areas, due to extinction or altered adaptations due to changes in the area. Aquatic organisms that find their home in the streams and rivers connected to the wetland would most likely be adversely affected with the change in streamflow, loss of connectivity of the streams and the poor water quality. Although there are no known endangered or threatened species in the area that would be affected, there is no way to predict how the species already present would be affected. There may be more species added to the threatened species list once the mining would begin. Another concern is the affect on the water quality in the area. There are already high levels of mercury in fish tissue without mining operations. The copper-nickel is locked in to the rock with sulfides. When sulfide comes into contact with oxygen, it produces sulfuric acid and releases soluble metals including mercury, iron, copper and nickel. This would increase the already high levels of mercury in the water. Contaminants like these could leach into groundwater and surface water even after the mining operation would end. This could be lethal for the citizens of the area, as mercury targets the nervous system of humans as well as aquatic organisMs With an increase in sulfides in the water bodies, the wild rice that is grown in the area would be adversely affected and possibly wiped out. This wild rice feeds many in the region, including tribes in the area, citizens of Minnesota and migrating birds. PolyMet themselves say that treatment of the water will continue for decades and possibly even centuries. Economically, the PolyMet mining would create many jobs for local citizens. This is an incredibly valuable reason to establish the mining operation. Citizens of Northern Minnesota need jobs and there would be $332 million made per year from the extracted minerals. Although these are significant short-term benefits they are outweighed by the long-term costs. It will cost $200 million to close the mine after 20 years of operating and an estimated $3-5-6 million to annually treat the water, which could take decades or centuries. Overall, the costs to remedy the damage done by the mine would cost more in the long run than the earnings during the 20 years of operations. There are also factors that are of crucial importance that are difficult to put a price tag on. What is the value of native species and a thriving national park. What is the value of clean water and the health of our children and grandchildren. These are the questions that must be considered before deciding to build the NorthMet mine. Overall, I believe that the NorthMet mine operation shou

Alphabetical by sender's first name

Laura Malwitz 44159

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Laura Millberg 40882

Mar 9, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, Please reject the proposed PolyMet mine. The project presents unacceptable environmental risks. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. Economic development that threatens tourism and many of our natural resources is not a good decision for the state of MN. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Laura Millberg 1504 Summit Ave Saint Paul, MN 55105-2241

Alphabetical by sender's first name

Laura Nelson 48188

10 new people recently signed Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota." on Change-org. There are now 450 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 450- Laura Nelson Seattle, Washington 448- Adrienne Testa Chicago, Illinois 446- Taya Beattie Hazelhurst, Wisconsin 444- Mira Ensley-Field Saint Paul, Minnesota 443- Jeffrey Perala-Dewey Saint Paul, Minnesota 442- Jessica Hemmer Saint Cloud, Minnesota 441- david baldus minneapolis, Minnesota 439- Rachel Perry Saint Paul, United States Minor Outlying Islands 438- Anna Lichtiger St Paul, Minnesota 437- Cynthia Steinhauer Williamsburg, Virginia http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJmaXZlX2h1bmRyZWQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTMwLCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA4NDcyOTZ9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK6uIQYKMMdte9cwXEboA8y-2FHQZrmUp75s5qprusyK3dLh92zzyMaOL2I7Fvw31eHbyJZL1X-2FrRfUtzhyaumTIv4-2BM8MNAh77-2FE439LXSI-2FjjVS9UuyokvfOWE4psx9YY-2Fnwmndf-2Bk08RieF4jn0PDXsD7Y4R-2BpOl2QfKeZVKr8zMo8BojqqqNvFmF-2Bsx2KYQvqhe3edSqsAKPhij8296rj-2B1iRtJUgItuylKsCWqwCpK

Alphabetical by sender's first name

Laura Platcek 40095

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs Laura Platcek 331 3rd Ave Two Harbors, MN 55616-1626 (218) 834-0788

Laura Salyards-Fryberger Mullen 57271

Dislike anything that requires 500 years of environmental cleanup for not many MN jobs over not many years by comparison. Also think that human ingenuity will find a better way to mine Minnesota’s copper in the future that will be better for all – Protect our water please . Wait for a better way.Laura Salyards-Fryberg MullenPO Box 3167 Duluth, MN 55803

Laura Schauland 9408

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I’m also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet’s own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won’t allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Laura Schauland 9609 Arrowhead Road Isabella, MN 55607

Alphabetical by sender's first name

Laura Schauland 18713

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Laura Schauland 9609 Arrowhead Road Isabella, MN 55607

50788

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Alphabetical by sender's first name

Laura Smith 47912

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Alphabetical by sender's first name

Laura Smith 48377

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. We can't allow bad assumptions in something this important to our environment or economy. If these numbers are so fuzzy, can we trust any of their numbers. Make them do it right. Thank you. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Laura Smith 2127 Iglehart Ave Saint Paul, MN 55104

Alphabetical by sender's first name

Laura Smith 52405

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Laura Stramer 58153

I oppose the the PolyMet open pit mine for the following reasons: 1. Pollution on an unprecedented scale in MN, and in perpetuity, according to PolyMet's own revised environmental impact statement and review of existing U.S. sulfide mining superfund sites. 100% of sulfide mining operations in the U.S. have violated water quality standards and are currently the costliest to the U.S. Taxpayer of all superfund liability, estimated by the EPA at between 20-54 billion dollars. 2. I oppose the permanent loss of our water quality in the most important fresh water resource on the planet, The Great Lakes. This project would impact Lake Superior, the largest fresh water lake in the world by surface area, and impact the St. Louis River watershed, its largest tributary and home to multiple species of fish. In addition this mine would destroy more than 1300 acres of high value wetlands and convert more than 6,650 acres of what are now public and tribal lands to private mining company property. Drinking water would be subject to toxic levels of mercury, arsenic and manganese. The mine would produce high concentrations of sulfuric acid and result in acid mine drainage, leeching chemicals out of rock which are toxic to water, ecosystems and toxic to wild rice. 3. For too long tribal peoples have been the test case against corporate rape of the land. The very placement of reservations was influenced by the distribution of wild rice, fishing and hunting places. The treaties of 1837 and 1854 which have been upheld by the U.S. Supreme Court guarantee the tribal rights of hunting, fishing and ricing upon these lands, rivers and lakes. The PolyMet open pit mine would interfere with these treaty rights by ceding surface rights of tribal lands into corporate hands and polluting tribal lands and waters of the Anishinaabe. The PolyMet mine and tailings would also increase mercury levels in the downstream reservation waters of the du Lac nation and places where the Grand Portage people fish. I oppose the mine project in support of the position that the Wild Rice/Sulfate Water Quality Standards of the Clean Water Act which was previously upheld in multiple courts must be maintained to ensure the health and well-being of the Ojibwe-Anishinaabe nationls and the affected Fond du lac tribes downstream. I would also remind decision makers that according tp Federal Land Management policy, National Forest Management policy, and National Environmental policy, full consultation with affected sovereign tribal governments is required for consensus on matters concerning tribal nations.

Alphabetical by sender's first name

Laura Whitney 41613

Dear DNR: I do not support Polymet as environmental risks outweigh benefit locally. Laura Whitney 330 North 60th AVE E Duluth MN 55804

Laura Wolden 46192

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the SDEIS. The PolyMet sulfide mine plan would bring long-term if not permanent pollution to Minnesota. This project would violate water quality standards for generations to come. Thousands of Minnesotans are in opposition to this mining project because it will damage the very important and limited public resource of water. We do not want to live with the consequences of poor research and decisions, nor leave this legacy for the future. Sincerely yours, Laura Wolden Laura Wolden 7780 E Rockmont Rd Poplar, WI 54864

46193

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the SDEIS. The PolyMet sulfide mine plan would bring long-term if not permanent pollution to Minnesota. This project would violate water quality standards for generations to come. Thousands of Minnesotans are in opposition to this mining project because it will damage the very important and limited public resource of water. We do not want to live with the consequences of poor research and decisions, nor leave this legacy for the future. Sincerely yours, Laura Wolden Laura Wolden 7780 E Rockmont Rd Poplar, WI 54864

Laura Zimmerman 40318

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Laura Zimmerman 3515 KINSROW AVE APT 210 EUGENE, OR 97401 US

Laura-Christina Cobb 26314

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I'm writing about the PolyMet Mining Corporation North Met mining project's Supplemental Draft Environmental Impact Statement. Sulfide mining would put at risk the wetlands, lakes and waterways throughout the Arrowhead Region of Minnesota, and most significantly, Lake Superior and the Boundary Waters Canoe Area Wilderness. Heavy metal contamination and acid mine fluids have polluted waters everywhere that sulfide ore mining has been done. We know what's at stake, and we know the irreversible damage that'll be done. Do not allow PolyMet's open pit sulfide mine: it promises to ruin this extraordinary natural area - that belongs to the public - and is definitely not in the public intereSt Thank you for making the right decision for the greater good. Laura-Christina Cobb Sincerely, Laura-Christina Cobb 260 E 10th St New York, NY 10009-4802

Alphabetical by sender's first name

Laureen Guyer 16567

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Our forests in Minnesota are more precious than gold. We depend on a clean environment for so many things: the air we breathe, the water we drink, the foods we grow, and the fish and game animals who thrive here. The birds, fish, insects and other animals also depend on a clean environment to thrive. There is nothing more important or precious to living things than a clean environment. Minnesota's forests and farmland are important not only to those of us who live and work here, they are important to our country, indeed the world, to provide wild places to visit and oxygen to the atmosphere. The mines PolyMet proposes are not conducive to any of the above. Please reject their proposals as a citizen in good conscience and for the future generations who want nothing more than a chance to live healthy. Sincerely yours, Laureen Guyer Laureen Guyer 419 S 19th Ave E Duluth, MN 55812

49977

Dear Ms Fay, Mr Bruner and Mr Dabney: Our forests in Minnesota are more precious than gold. We depend on a clean environment for so many things: the air we breathe, the water we drink, the foods we grow, and the fish and game animals who thrive here. The birds, fish, insects and other animals also depend on a clean environment to thrive. There is nothing more important or precious to living things than a clean environment. Minnesota's forests and farmland are important not only to those of us who live and work here, they are important to our country, indeed the world, to provide wild places to visit and oxygen to the atmosphere. The mines PolyMet proposes are not conducive to any of the above. Please reject their proposals as a citizen in good conscience and for the future generations who want nothing more than a chance to live healthy. Sincerely yours, Laureen Guyer Laureen Guyer 419 S 19th Ave E Duluth, MN 55812

Laurel & Bill Ehlert 39997

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Laurel and Bill Ehlert 3908 Avondale St Minnetonka, MN 55345-1803 (952) 200-2091

Laurel Hyvonen 42621

See attachment

Alphabetical by sender's first name

Laurella Scott 15982

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Lauren Bywater 42302

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Lauren Bywater 25 Bowling Green Close Birmingham, ot B23 5QU GB

Lauren Gedlinske 21340

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lauren Gedlinske 13476 Georgia Ct Apple Valley, MN 55124

Alphabetical by sender's first name

Lauren Gedlinske 49878

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lauren Gedlinske 13476 Georgia Ct Apple Valley, MN 55124

Lauren Hammer 17671

Feb 15, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, The law requires that you thoroughly evaluate the environmental effects of any proposal, particularly in high quality wetland habitat under federal ownership as a part of the Superior National Forest-more than 900 acres of wetlands with an additional ten square miles downstream to Lake Superior. Birds that need this habitat include: Belted Kingfishers, Hooded Mergansers, Common Terns, Common Loons, Black-backed Woodpeckers, Spruce Grouse, Northern Goshawks and Boreal Owls. As a concerned citizen of the USA, I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering mankind's future. Sincerely, Ms Lauren Hammer 2900 4th St Apt 16 Santa Monica, CA 90405-5513

Lauren Lederle 9606

Hello, I was born and raised in MN. I now live in California, and I come home every summer to travel to the boundary waters with friends and family. The BWCA is my true home in MN, and I know many other MN natives feel the same way. The tourism that the BWCA, not to mention the clean water and plant and wildlife, provide much more for the state of MN than a Mine ever will. The polymet mine risks the safety of drinking water for northern parts of the state indefinitely. Please keep the BWCA safe, as a place where young minnesotans can go to be stewards of the wilderness, and a place that inspires them to become environmental leaders where ever they go. If this mine is allowed to move forward it would be a tragedy for me personally, for the state of MN and for future generations. Please reconsider. Sincerely, Lauren

Alphabetical by sender's first name

Lauren Satterlee 41007

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I am writing as a life-long resident of Minnesota, including a 4-year resident and frequent visitor of Duluth and the North Shore of Lake Superior. The backbone of Northern Minnesota's beauty and economy is the integrity of its environment. We must protect its integrity from contamination that may take hundreds of years to reverse, if it is possible to reverse at all. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lauren Satterlee 6301 St Johns Ave Minneapolis, MN 55424

Alphabetical by sender's first name

Lauren Satterlee 41008

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I am writing as a life-long resident of Minnesota, including a 4-year resident and frequent visitor of Duluth and the North Shore of Lake Superior. The backbone of Northern Minnesota's beauty and economy is the integrity of its environment. We must protect its integrity from contamination that may take hundreds of years to reverse, if it is possible to reverse at all. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lauren Satterlee 6301 St Johns Ave Minneapolis, MN 55424

Alphabetical by sender's first name

Lauren Satterlee 49091

Dear Ms Fay, Mr Bruner and Mr Dabney: I am writing as a life-long resident of Minnesota, including a 4-year resident and frequent visitor of Duluth and the North Shore of Lake Superior. The backbone of Northern Minnesota's beauty and economy is the integrity of its environment. We must protect its integrity from contamination that may take hundreds of years to reverse, if it is possible to reverse at all. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lauren Satterlee 6301 St Johns Ave Minneapolis, MN 55424

Alphabetical by sender's first name

Lauren Satterlee 49092

Dear Ms Fay, Mr Bruner and Mr Dabney: I am writing as a life-long resident of Minnesota, including a 4-year resident and frequent visitor of Duluth and the North Shore of Lake Superior. The backbone of Northern Minnesota's beauty and economy is the integrity of its environment. We must protect its integrity from contamination that may take hundreds of years to reverse, if it is possible to reverse at all. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lauren Satterlee 6301 St Johns Ave Minneapolis, MN 55424

Laurence Risser 39815

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. For 350 jobs we are willing to sell the environmental integrity of the BWCA. Never has a more short-term, ill-conceived bargain been made since Esau sold his birthright to Jacob. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Laurence Risser 4904 Thomas Ave S Minneapolis, MN 55410-1804 (612) 922-6596

Laurentian Chamber of Commerce 54763

See attachment

Alphabetical by sender's first name

Laurice Jamieson 39616

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

47431

I have serious concerns about the inadequate Financial assurance and the careless disregard for potential disastrous environmental effects. This should not go forward without public discussions about these issues. Legislator Kahn has brought up the need for a third party insurer. The proposal is sorely lacking in both instances, it's inadequacies are dangerous. Please do not proceed with such a poorly thought out proposal. You owe further examination of these issues to the citizens of Minnesota Sincerely, Laurice Jamieson 610 SE Sixth Street Minneapolis MN 55414

Laurie Bailey 42715

See attachment

Alphabetical by sender's first name

Laurie Bruno 44384

From: laurieb@tcq-net [mailto:laurieb@tcq-net] Sent: Wednesday, March 12, 2014 9:44 PM To: Fay, Lisa (DNR) Subject: Polymet mine To [Decision Maker], The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. - Laurie B runo 7532 Oakland Ave So Richfield, MN 55423

Laurie Gaudino 38884

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Laurie Gaudino 2545 Anderson Rd Duluth, MN 55811-3808 (218) 341-4544

Laurie Matson 40020

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Laurie Matson 409 5th Ave SW Waseca, MN 56093-2105

Laurie patrick 38888

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Laurie patrick 430 Wedgewood Dr Mahtomedi, MN 55115-1787

Laurie Sugiarto 47609

Please do not allow the PolyMet mine to be built. I prefer to have clean water and no mining. I am an avid Northern Minnesota recreational user and also with rental property in Cook County, MN. Please do not allow this mine to happen. Protect our wilderness and our water. Thank you, Laurie Sugiarto 4200 49th Ave S Minneapolis, MN 55406

Alphabetical by sender's first name

Laurie Valesano 40112

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Lawrence A Martin 54486

See attachment

Lawrence Aho 54718

See attachment

Lawrence Eisinger 42500

Please see the attached document.

Lawrence F Eisinger 42864

See attachment

Lawrence L Johnson 42628

See attachment

Alphabetical by sender's first name

Lawrence Morgan 58025

As a taxpayer of Minnesota this toxic mine would take our minerals for export and leave the rest of us with the financial burden. =Corporate profits over the health and beauty of our state! No to the destruction and desecration of Minnesota! And no to a precedence it would start. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Lawrence Severt 54156

No I don't! I don't believe the mining industry is capable of honesty. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Lawrence Spears 57609

The Spears 2132 Miller Creek Drive Duluth, MN 55811-1882 212-727-8462 HYPERLINK "mailto:spears@btinet-net"spears@btinet-net January 9, 2014 Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 Saint Paul, MN 55155-4025 HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us Subject: Oppose PolyMet NorthMet Copper-Nickel Mine Lisa Fay, We oppose the issuance of the permit for any PolyMet NorthMet Copper-Nickel Mine near Hoyt Lakes. The sulfur pollution is long-term and devastating to the environment. The promised mining jobs are few, short-term and phantom. The copper extracted is very small. The benefits to Minnesota will be minimal. The mining company is likely to disappear in bankruptcy leaving no protection against the long-term environmental destruction. There is no demonstrated significant national resource interest in this mining in Minnesota. Please deny the permit for any PolyMet NorthMet Copper-Nickel Mine near Hoyt Lakes. Joanne and Larry Spears Cc: Senator Franken Senator Klobuchar Representative Nolan

Lawrence Suchy 39845

Dear sirs: my wife and I have a second home on Echo Trail north of Ely. We spend more than half oh each year there. I've read all available articles on the proposed mine, and heard many diverging opinions on that mine. I believe that there is too much to lose in the environment if something goes wrong during the life of the mine, and the centurys after. As now proposed, I wish for the proposed mine to be turned down. Respectfully yours. Lawrence Suchy 10803 Linwood Forest Drive, Champlin, mn. 55316- Sent from my iPhone

Lawrence Thompson 11894

Feb 14, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. PolyMet wants to mine in wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The Supplemental Draft Environmental Impact Statement (SDEIS) proposes NO mitigation for the indirect wetland impacts. In addition to wetland destruction, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will damage the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: BLACK-BACKED WOODPECKER, SPRUCE GROUSE, NORTHERN GOSHAWK AND BOREAL OWL. Thank you. Sincerely, Dr Lawrence Thompson 1069 Felicia Ct Livermore, CA 94550-8134

Alphabetical by sender's first name

Lawrence Thompson 26213

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Sulfide mining in Minnesota by the PolyMet Mining Corp would threatens wetlands, lakes and rivers in the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. I have deep concerns about this project's potential impacts on our region's natural resources and public health because acid mine drainage and heavy metal contamination have polluted waters everywhere sulfide ore mining has occurred. Therefore, the Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine would be completely against the public intereSt Sincerely, Lawrence Thompson 1069 Felicia Ct Livermore, CA 94550-8134 (925) 455-9473

Leah Robshaw 20202

Dear DNR leadership, I am writing to ask that you do not allow PolyMet Mining to open up a Copper-Nickel mine in Northern Minnesota. I am thankful that the USFS does not believe that the mineral estate gives PolyMet the right to surface mine NFS land to access the minerals below. I believe national lands should be used to support the long term interests of the plants, animals and people of the United States. The proposed Copper-Nickel mine does not achieve this goal. I reviewed the environmental impact reports compiled by the Environmental Impact Statement. I am concerned about the destruction of wetland habitat within the Embarrass River and Partridge River watersheds which will disrupt the plants and animals who live there. Likewise, the increased levels of aluminum and lead in the water impacts the entire food chain of species - including birds of prey and larger carnivores. I am also extremely wary of the so called financial assurances that PolyMet would set aside to mitigate futher environmental destruction. The amount of funds needed to clean up a mine site and/or prevent intense pollution is not a known amount. What if the amount of funds PolyMet agrees to set aside is not enough. What if they go bankrupts and jump ship mid way. Who is left to foot the bill. Taxpayers. PolyMet is not interested in this mining project because they care about the long term economic or environmental health of this region. They care about the profits they can make. They will exploit every loophole and squeeze taxpayers of every dollar possible so they can increase their profit margins. Please help conserve and preserve our government lands and watersheds for future generations. Do not approve the PolyMet Copper-Nickel Mine. Sincerely, Leah Robinson 3210 W 44th St Minneapolis, MN 55410 612-729-9831

Leah Rogne 43366

I would like to register my opposition to the proposed PolyMet Mining project in northern Minnesota. I do not believe that the risk to the environment, particularly to the water in the region, is justified. I have not seen evidence that the company has the capacity to monitor and remediate the problems that are expected to occur for centuries to come. The natural resources in this region are too precious and the health of humans and animals too much at risk. Please do not allow this project to move forwaRd Thank you. Leah Rogne, Phd 3460 N. Range Line Road Gheen, MN 55771 Phone: 218-787-2212

Leah Stroup 41559

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, Hello- Thank you for reading our plea - Lake Superior is one of Minnesota's most authentic and pristine attractions to people and nature Please do not ruin this treasure all for just a short term goal - One day, if this type of disregard for mother nature's gems continues, nothing will be left or sacred. Do not contine the world's ugly trend and invest instead in keeping our lands healthy for generations to cime. All of our children's future sincerely depends on this battle cry. Please do not turn a blind eye or risk being added to a long list of the world's worst offenders. Mother nature does not forgive, forget nor revive after assualts made that cannot be undone .. I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Leah Stroup 6224 Magnolia Ln N Maple Grove, MN 55369-6314 (612) 978-6860

Alphabetical by sender's first name

Leah Stroup 41562

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, Hello- Thank you for reading our plea - Lake Superior is one of Minnesota's most authentic and pristine attractions to people and nature Please do not ruin this treasure all for just a short term goal - One day, if this type of disregard for mother nature's gems continues, nothing will be left or sacred. Do not contine the world's ugly trend and invest instead in keeping our lands healthy for generations to cime. All of our children's future sincerely depends on this battle cry. Please do not turn a blind eye or risk being added to a long list of the world's worst offenders. Mother nature does not forgive, forget nor revive after assualts made that cannot be undone .. I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Leah Stroup 6224 Magnolia Ln N Maple Grove, MN 55369-6314 (612) 978-6860

Lee Ann Landstrom 16124

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Lee Ann Landstrom 52604

Protect our water. Hooded Mergansers swim in northeastern Minnesota's pristine marshes, ponds, and rivers, feeding on fish, crayfish, frogs, and insects. PolyMet Corporation is proposing to destroy thousands of acres of pristine habitat to mine sulfide ore at the headwaters of the St Louis River - a major waterway that flows over 180 miles to Lake Superior. PolyMet's proposal calls for 20 years of mining, and they acknowledge that 500 years of toxic runoff will need to be collected and treated. Just like the Hooded Merganser, our children and grandchildren all deserve clean water. Let clean water be our legacy - not toxic pollution from mining. I'm tired of permanently destroying and poisoning the environment in the name of JOBS.

Lee Beaty 48019

Dear Ms Fay, Dear Federal and State Agency Leaders: Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan, I believe the mine should not be built as described. The entire process is Far Too Risky. The most important resource on earth is WATER. We need clean water to survive. It is also the "crown jewel" of our state. Do not allow anything to jeopardize our most precious resource. We must protect the people, environment, wildlife ,etc We must think in terms of the long-run, not the short-sited monetary gains which will help only a small handful of MN residents for a short while. And then "poof" we'll be left with devastation on many fronts: our land, our pristine water, our tourism industry (long-term income), and our great Northern Sanctuary. Remember that old saying: "Penny Wise and Pound ($$) Foolish". Please Do Not Grant PolyMet Any Permits for anything until you have in your hands thoroughly-documented, absolute, and long-term evidence/facts that their processes are 100% safe. Please not sell out the well-being of Minnesota and all her inhabitants for a small pocketful of cash. It is critical that we protect our resources, not squander them. In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely, Lee Beaty (concerned citizen of MN and resident since 1968) Lee Beaty 2801 42nd Ave So. Minneapolis, MN 55406 612-721-7108

Lee George Aide 44083

Dear Minnesota DNR: I am requesting that the PolyMet Mining Project be stopped because of the great environmental coSt This area of Minnesota is internationally known and very ecologically fragile. The cost are too great to move forward on this project. I am requesting that PolyMet be terminated as it now stands. Thank you and best regards, Lee George Aide 5549 Dupont Avenue South Minneapolis, MN 55419

Lee Gilbert 54481

See attachment

lee k anderson 4367

It would be a major mistake for this new mine proposal to be approved. We do not need 200 or more years of cleanup which might never work. Remember when they told us it would be safe to dump Iron Ore tailings into lake Superior. The 300 or 400 good paying jobs for 20 years is a terrible trade for long term pollution exposure we face. There are 1,000’s of good paying jobs in North Dakota. The Range needs to realize that it’s major resource is the adventure people have in visiting the Wilderness and not another Pit. This only benefits the owners of the mine and the world does not need any more copper and other metal that will be recovered. Look at the price of copper today and who needs another mine producing more. Please don’t allow this to go further. LA

Alphabetical by sender's first name

Lee Kaplan 48708

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. As a resident of Northeastern Minnesota, I am disturbed by the deception used in promoting the PolyMet Mining proposal. Despite their repeated insistence that mining has been done safely in Minnesota for years and that we have the strictest environmental regulation in the country, they are doing everything they can to bypass these regulations with a completely untested technology that is nothing like the mining practices that have been used in the state before. This technology threatens our water supply, along with the timber industry, the tourism industry, wildlife, and our basic way of life in this part of the state. While sulfide mining has never been tried in Minnesota, its history in other parts of the country is clear - acid mining byproducts and heavy metal contamination have polluted waters in all other places where sulfide ore mining techniques have been used. I am, frankly, amazed than anyone who is not directly on the payroll of PolyMet would think this is a good idea. Please stop this absurd project before it is too late. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Lee Kaplan 2175 Pinewood Rd Duluth, MN 55803-8722

Lee Keeley 16179

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Lee Schatschneider 616

I am confident that PolyMet will be long gone and Minnesota will be left holding the cleanup bag in this case. Our country has been around for ~225 years - less than half the time that PolyMet has admitted will be needed to mitigate water pollution. It truly is crazy that this is the best plan they have to offer. If PolyMet cannot offer a plan that could mitigate the pollution threat in a more reasonable timeframe that would lend confidence that a) pollution will actually be dealt with and B) the mining company will actually pay for it - then I am strongly against this plan. I would say that 50-75 years would be more reasonable - with commensurate costs to fully mitigate in that timeframe. As it currently stands, the future costs of mitigation seem WAY undervalued and are so far in the future - it truly is unfathomable to human beings. I am firmly against this proposal as it currently stands. Sincerely, Lee Schatschneider 420 7th Ave NE Minneapolis, MN 55413

LeeKeeley 15804

Lee Keeley 16525 Birch Briar Trail Plymouth, MN 55447-3600 Thank you. HYPERLINK "http://www.Wandering"WWW.Wandering Watershed Woman LeeKeeley lekelee@aol-com ---Original Message--- From: *NorthMetSDEIS (DNR) <NorthMetSDEIS.dnr@state.mn.us> To: Lee Keeley <lekelee@aol-com> Sent: Thu, Feb 20, 2014 1:30 pm Subject: RE: Comment on PolyMet NorthMet SDEIS Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Leh Leh Win 54235

Dear Ms. Fay,I'm a student at Humboldt High School in St. Paul Minnesota. I would like to inform about the problem with the environmental impact statement on PolyMet Mine. As a student at a environmental school I'm concerned about what PolyMet Mine will do to our environment.The map on the PolyMet Mine set is wrong. The map mislead the public so they don't know about how dangerous it can be and their children lives. They need to fix the map and give people the right information. For the safty of everyone and benefit everyone in the future. Thank for taking your time to read this letter.Sincerely,Leh Leh Win

Leif Bjornson 16075

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Leif Bjornson 5151 Alameda St Shoreview, MN 55126

Alphabetical by sender's first name

Leif Bjornson 49912

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Leif Bjornson 5151 Alameda St Shoreview, MN 55126

Leif Eugen 40356

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Leif Eugen ginstvägen 3 Ystad, ot 27171 SE

Alphabetical by sender's first name

Leila Jindeel 52398

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Leila Jindeel Leila Jindeel 1626 London Road #741 Duluth, MN 55812

Leisha Ingdal 14886

To Whom It May Concern, The people of Minnesota deserve better than a short term employment gain at the cost of polluted water for 200 years. It is astounding to me that we are even considering allowing this mining to happen. As you are well aware, clean water is becoming the single most important issue worldwide. Look at what is going on in California and the chemical spill in Charleston, WV where residents are not confident in their water supply. And also remember that people are still suffering from the BP oil spill and the man that "wanted his life back" is now involved with Polymet. Do not take a short term gains approach. Our resources need to be managed well because our children and grandchildren deserve to live in a clean environment where they can breathe clean air and drink the water. You are responsible for keeping our environment clean for all. Leisha Ingdal New Brighton resident _____ Company registration details and disclaimer: HYPERLINK "http://disclaimer.csmbaking-com/"http://disclaimer.csmbaking-com

Alphabetical by sender's first name

Len & Mimi Jennings 21834

The proposed Poly Met mine should not go forward because the SDEIS, which is seriously flawed, has not shown that mining of precious metals in rocks with sulfide can be done safely in this environment, without serious water contamination and destruction to wetlands and habitat. Recent DNR documents agree that the water flow model of the current SDEIS is inaccurate. This calls into question many of the forecasted impacts to water quality, wetlands, and rare habitats. With more water moving through the site, polluted water from pits and waste rock will more easily and quickly reach lakes and rivers. It is thus likely that more area will be polluted, and that the pollution will be greater than anticipated. The SDEIS seriously underestimates the destruction of wetlands, and has an almost “fantastical” proposal for mitigation. The size of the potential wetland destruction (up to 6000 acres) is breathtaking. Much of the modeling was based on inaccurate water flows, so more wetlands would likely be destroyed. Secondly, bogs and coniferous swamps which will be affected, are extremely difficult to restore. Do we actually know it can be done. In addition, the land swap is not a swap of equal value. Habitat destruction is also not adequately addressed. In addition to the issue of more water flow than expected destroying more wetlands than expected, the number of trucks going back and forth, the 24/7 noise and vibrations of running the plant and the mine will disrupt habitat. The assumed performance of water capture systems in the SDEIS is of 90% or greater. This high level of performance is not realistic. Engineering controls include the seepage capture system at the flotation tailings basin, the cap and liner system and the hydrometallurgical tailings basin, and the discharge control feature for the west pit lake. Failure or under-performance of any of these features will result in water quality impacts that are not described in the SDEIS. How can we know we can treat polluted water for several hundreds of years, let alone into “perpetuity”. Think of how much change occurs in our lives in just 50 years, let alone 500- The assumption that human constructed water capture and treatment facilities will last 100 years is not believable. Do we seriously think Poly Met is going to be around 300, or 500 years from now. False Assumption: We’ve studied this for so long that we know enough and should just get going. Actually, the opposite is true. If Poly Met were able to mine without problems, their project would have been approved years ago. We should not take one of the most beautiful, natural areas of the world and will destroy it forever. Do we really want to pollute our rivers, underground water and Lake Superior. This is the opening to vast areas of mining. Should we aspire to be the next Pennsylvania or West Virginia. The beauty of this area is what makes our state unique. I see a lot of “magical thinking” (predicting) in this project. It’s not worth the risk. Len Jennings, 2222 Hillside Ave, St Paul, MN 55108

Alphabetical by sender's first name

Len Anderson 19512

LEN ANDERSON: My name is Len Anderson. I live at 130 Twin Lakes Drive, Cloquet, Minnesota. I would like to speak to the lack of cumulative impact in the EIS. Cumulative impact is mandated by NEPA, and I think the attempts at cumulative impact were not adequate to what NEPA policy demands. I'll give examples of that. Cumulative impact for sulfate and methylation of mercury I think is one of the biggest weaknesses of the document. The cumulative impact is calculated and discussed for the Partridge River and the Embarrass River and then stops at the mouth of each of those rivers, and it appears that the authors think that the movement of sulfate stops at the mouth of those rivers, but in fact, it continues all the way down the St. Louis River to the estuary, and the modeling for cumulative impact of sulfate on methylation of mercury needs to be done all the way down to the estuary. We have fish consumption advisories. This body of water is listed under 303(D) of the Clean Water Act as impaired from mercury, and our children are being born with dangerous levels of mercury in their cord blood. There is no TMDL yet for the St. Louis River, even though it has been a work in progress for 16 years. The MPCA said in February of 2013 that we do not know enough to do a mercury TMDL for this watershed, but now as I read the SDEIS, they claim that we know enough about mercury in this watershed to permit this mine which will be generating mercury and sulfate. Somebody is wrong. Is it that we don't know enough for the TMDL? Or if that's the case, how do we know enough to permit the mine? The mercury TMDL is scheduled for the Embarrass chain of lakes for 2015. If permitting cannot wait, if we have to permit it now, then the adaptive water management plan has to be changed so that it can accommodate recommendation from those TMDLs. Cumulative mercury impacts were addressed in the EIS but there was no accommodation made for the recommendations that would come out of the TMDLs, and that change has to be made in the adaptive water management plan. A permit must not grandfather in mercury and sulfate releases that then compromise those TMDLs. I'd like to also address the need for an extension of this comment period. I can give an example from the impact of sulfate on wild rice. We all know that at certain levels, sulfate damages wild rice. The State of Minnesota Legislature allocated funding for two years of study of sulfate impact on wild rice. Those two years are coming to an end now. The Wild Rice Research Team will be doing a review of study results and preliminary recommendation from the last two years of research in the spring of 2014. For example, the projected seasonal release of high sulfate water appears in the EIS to be just a wild guess about when it would, if ever, be appropriate. There is no research cited that if you release large amounts of sulfate water in the months of September and October, that you're home-free for impacting the sulfide in the sediments of those waters. Nathan Johnson has been researching the seasonality of sulfate impact on sediment chemistry but is not complete and he's not even referenced in the EIS. Sometime this spring, we should get those results, and our 90 days are going to be up. So I am asking for an extension of the comment period, and I'm just giving that one example of additional research that is coming -- really significant research that's coming online sometime shortly after the comment period is over. Thank you.

Len Jennings 21780

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Would you really consent to getting into "bed" (business) with GlencoreXstrata, the company whose CEO Ivan Glasenberg, worth $6-6 billion, reaped a 2013 dividend of $182 million after receiving $173 million for 2012- Whose vilified ex-BP boss, Tony "I want my life back" Hayward, hired to oversee environment and safety, was given a British university award as a "distinguished leader" but whose award ceremony was stopped on multiple occasions by jeers and walk-outs. The above company is so corrupt, so wallowing in cash, that it could hire this man (He entered a yacht race while BP Horizon gushed.) without a question. This guy in Minnesota. He's not us. Doesn't get us. How will this company guarantee our lakes and waters for the next 500 years. Please look again. (Warning: Hold your nose.) Len Jennings 2222 Hillside St Paul, MN 55108 612 963 2733

40091

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Len Jennings 2222 Hillside Ave Saint Paul, MN 55108-1609

Alphabetical by sender's first name

Len Jennings 49272

Dear Ms Fay, Mr Bruner and Mr Dabney: Would you really consent to getting into "bed" (business) with GlencoreXstrata, the company whose CEO Ivan Glasenberg, worth $6-6 billion, reaped a 2013 dividend of $182 million after receiving $173 million for 2012- Whose vilified ex-BP boss, Tony "I want my life back" Hayward, hired to oversee environment and safety, was given a British university award as a "distinguished leader" but whose award ceremony was stopped on multiple occasions by jeers and walk-outs. The above company is so corrupt, so wallowing in cash, that it could hire this man (He entered a yacht race while BP Horizon gushed.) without a question. This guy in Minnesota. He's not us. Doesn't get us. How will this company guarantee our lakes and waters for the next 500 years. Please look again. (Warning: Hold your nose.) Len Jennings 2222 Hillside St Paul, MN 55108 612 963 2733

Lena K Gardner 58099

I believe that it is an error to base a decision that will have such big impacts on a flawed water study. I encourage the MNDNR to consider the impacts of long term pollution. And that cost isn’t worth the short-term employment gains, especially at a time when the company PolyMet is showing signs of economic instability and historically when mining companies go bankrupt. The public foots the bill and leaves an even worse economic situation.

Lenore Reeves 41936

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Lenore Reeves 19934 Hickory Stick Ln Mokena, IL 60448-1368

Alphabetical by sender's first name

Leo Babeu 19307

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Although I write you as a member of Water Legacy, I also write as a concerned citizen of northeast Minnesota,as a trained environmental scientist who is familiar with the need to evaluate the veracity of data, hydrological and biogeochemical activity models and their assumptions and flaws, and most of all as a disappointed witness to the kind of political pressure being brought to bear on our regulatory structure and your fellow professionals entrusted with environmental review of this landmark project. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS seems to be one-sided. Well-documented tribal Major Differences of Opinion call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles and tailings heaps won't seep pollution, that mining won't dry out wetlands and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they are not available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and putting public meetings in January (when bad weather is likely) seems designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just foreign corporations, will matter when the government makes its decisions. Sincerely yours, Leo Babeu 7100 Mikkonen Road Two Harbors, MN 55616 218 834 2247

42517

See attachment

Alphabetical by sender's first name

Leo Babeu 43116

Dear Lead Agency contacts: My name is Patricia Schmieder, of 7100 Mikkonen Rd Two Harbors MN 55616- I want to list the areas of my greatest concerns about the issues inadequately addressed or left out of the Polymet NorthMet Mine SDEIS 1- I want to see considerably more analysis of the details of the greenhouse gas emissions impact of all the activities, from electrical to mechanical to long-term treatment systems of the 200 plus year horizon of all activities related to the project. 2- I would like to see better details and more complete impact analysis on the health risks from the following: fugitive air emissions of dust and asbestos-like fibers, the exposure profiles for workers and residents of the area evaluation of the cancer risk from the exposures to fibers, dust, nickel, and other contaminants expected to arise from the mine activity. the risk to drinking water from priority pollutants like arsenic and other minerals (eg manganese), both in local surface waters such as Colby Lake, and in ground water susceptible to mine and waste rock pad and tailings pond leaks and seepage the risk of both new sources of mercury and the prospects for increased mobilization of mercury already in the receiving waters, eg the Embarrass River, the Partridge River, the St Louis River, and the Lake Superior Basin. That mobilization can be expected to involve both ` increased methylation of historical loads of mercury and new mercury inputs, as well as bioaccumulation by migrating and resident fish species. 3- I would like to have the authors justify the use of active treatment processes for resolving potential contamination over the 200-500 year horizon. This is in direct conflict with stated statutory provisions for permitting a mine project. 4- I object to the replacement of intact functioning wetlands with less diverse and healthy wetlands within the watershed and find the replacement of over 2/3 of the acreage of wetlands outside the Lake Superior basin to be of very low functional ecological benefit. Additionally, the 5,000 plus acres that will be indirectly impacted by redirection of ground water and other impacts are not subject to replacement or a mitigation plan in the SDEIS. 5- The land exhange with USFS provides fragmented tracts, does not maintain the value of public assets, gives us public land with severed mineral rights and thus poor protections, and comes nowhere near replacing the ecological functions lost in the St Louis River Watershed. 6- I use predictive models in my own work. I understand that all models are wrong, but some are useful. I find the use of a water quality model that can't predict current WQ parameters to be highly problematic. Please beef up and redo the application of the GoldSim if necessary. 7- Most of the optimistic projections for the protection of water quality in the receiving waters around this project rely heavily on estimates of average and seasonal flows over, through, and under the site. Accurate groundwater flow rates are crucial to realistically predict pollution and seepage from PolyMet's mine pits and waste rock piles to the Partridge River. As I understand it, the XPSWMM model underestimates by at least three-fold the volume and rate of flow across the relevant site terrain. I recognize that these models can be improved, but the data for improving them and the ensuing adjustments of base flow and the assumptions they change about water quality impacts must be thoroughly, systematically evaluated to determine what the real impacts on metal solutes contamination and elevation of sulfate in the downstream reaches may be for the centuries beyond active mine operation. 8- Please amend the SDEIS to adequately enumerate fully the direct and indirect potential losses to hunting, fishing, and gathering rights, as well as access to culturally sensitive areas, for the tribal members who ha

Alphabetical by sender's first name

Leo Babeu 43383

Hello Lead Agencies, MDNR, USACE, and USFS: My name is Leo Babeu, and I reside at 7100 Mikkonen Rd, Two Harbors MN 55616- I have worked in both federal and state environmental protection entities (primarily in research, not regulation), so I am well aware of the burden placed upon the employees of such agencies. I also have a high regard for the vast majority of individuals working for these institutions, often under significant implied pressure to move projects along to some deliverable outcome. My sharp criticisms of the Polymet environmental review process is focused on what I perceive as the dangerous outcome and precedent for future negative outcomes that I believe the process embodied in the SDEIS produces for Minnesota's ecosytems and residents. I do not mean to say that any lead agency's employees willfully produced an overly optimistic or inadequate document, rather that a host of factors led to a collective process and product that portrays an unprecedented project and proponent, whose outcome is fraught with risk and uncertainty, as technically and ecologically tenable for the proposed project area. This comment period should have been expanded for at least another 60 days. The DNR Commissioner has repeatedly emphasized the need for comments to be technically relevant if they are to be useful. That means plowing through 2,169 pages of material which is not in a format the average lay person can readily absorb. Given that at least 30% of Minnesotans have very poor internet service, ie no broadband, the process of reviewing and responding to the SDEIS is a greater burden for many outside the Metro areas. These extra days of review would really make but a small difference in the total project development time, and would assure every relevant perspective is heaRd Pressure to bring this project to fruition should not be allowed to disadvantage the average citizen, who is not to blame for the checkered past of the 2009 DEIS or subsequent work required to address the original inadequacies of the review process. I am very disappointed in the co-lead agencies' resistance to extending the comment period, and the holding of the three public hearing so soon after the release of the SDEIS. I also wish to request that you consider each area of concern that I and others raise in the context of what's best for the public, as opposed to how the status of the lead agencies may be affected by the critique. The 33 pages of Appendix A raise concerns that you already have a rubric for sorting a host of relevant public comment concerns into schematic boxes that you believe have been adequately responded to in the 155 or so thematic responses that you have prepared. How will you weigh the validity of those most frequently and intensely expressed concerns as you move forward. Reliance on reference in the thematic responses to the section and page where an issue is addressed becomes, at some threshold of expressed public concern, an insufficient response to a broadly perceived weakness in the evaluation of the project. What are the metrics and feedback built into the next stage of environmental review that could give weight to public perception of future mine related externalized financial and environmental costs, such that additional supporting materials should be made public, or further studies and revision and ground-truthing of models required. Having made my biased critique of the comment process and the institutional resistance to careful weighing of those comments, I offer my own issue specific concerns over the SDEIS. However, it requires me to step back and consider the totality of the problems entailed in reviewing a proposal to site, operate, close, and eventually reclaim a copper-nickel mining operation near the Laurentian Divide in a water-rich environment. The issue that this SDEIS cannot and does not address is the existential case of whether, all knowable physical and socio-economic facts and historical trend

Alphabetical by sender's first name

Leo Bulger 11705

Feb 14, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

leo gross 6606

To whom it may concern, I am Leo Gross Jr. I've been paying attention to what has been going on with polymet for a few years now. Polymet can do the process safe I don't see any reason it should not go forwaRd I believe the SDEIS is complete and gives regulators what they need to give polymet the permits to move forwaRd I have family and friends that live on the range and they could use the good paying jobs in that area and we all know the state can use the extra revenue. I've seen what a lack of good paying jobs can do to a town after we lost 3 OSB mills here in northern MN. Leo Gross Jr 27087 Obrien CK RD NE Hines, MN 56647 Sent from Windows Mail

Leo Trunt 42856

See attachment

Alphabetical by sender's first name

Leonard Anderson 43200

My name is Leonard Anderson and as I mentioned in my previous comments, I have a M.S. in Biology from St Mary's University in Winona Minnesota, with an emphasis in aquatic and terrestrial ecology. My professional career was teaching at the high school and college level. I have studied the ecological dynamics of the St Louis River watershed for forty years. I apologize for sending these additional comments in at the very last minute, but there has been two big developments in the last two days that have a strong bearing on the PolyMet proposal. First, was the EPA announcement that they have dropped their approval of the Mesabi Nugget variance for how much sulfate they can dump into Second Creek which is a tributary of the Partridge River. One aspect of that variance that is now disallowed, was to allow them to store high sulfate waters during the summer growing season and then dump high sulfate loadings in the fall. The PolyMet proposal submits on page 5-216 of the SDEIS that they will use the same seasonality approach for their release of sulfate to waters used for the production of wild rice. They have no data to show a complete year long surface water sulfate-porewater sulfide mass balance to support such a high sulfate release after the growing season. They must be forced to meet the wild rice sulfate standard of 10 mg/L at a minimum, at all times. The second big development in the last two days was the release yesterday, 3-12-14, by the MPCA of the Preliminary Analysis of the Wild Rice Sulfate Standard Study. Table #1 of that report shows that for wild rice the protective concentration for sulfide lies in a range between 150 and 300 micrograms/L derived from the hydroponic exposure experiments". Figure 3 shows that as sediment porewater sulfide concentrations increase, there is a decrease in wild rice coverage in the field. They conclude that the "field data as represented in Figure 3 are broadly compatible with the likely protective sulfide concentration range of 150 to 300 microgram/L. It shows that wild rice coverage decreases as sulfate concentrations increase. Then on page 16, they tie sulfate to sulfide production. They say, "Higher quantile percentages predict that sulfide concentrations of 150 to 300 micrograms/L relate to sulfate concentrations below 10 mg/L. This is supported by Figure 10 which shows a decline in wild rice coverage with even small increases in surface water sulfate concentrations. In conclusion, from the lab to muck, this research has shown that surface water sulfate by way of porewater, sulfide damages wild rice. If you are going to deviate from that conclusion, you have to integrate a complete suite of factors, including stream velocity and wave action, upwelling of ground water, abundance of dissolved iron, oxygen penetration of sediments, presence of available carbon and temperature. The PolyMet proposal has not done that for either the Partridge or Embarrass River rice beds and therefore should be held to releases of 10 mg/L or as this new research indicates, less than 10 mg/L of sulfate. Now that we are relating sulfate to sulfide, we need to look at the impacts to freshwater fauna as well. We need to consider animals living immediately on or in the sediments that would be contacted by sulfides produced in the porewater. Macro invertebrates such as Ephemeroptera and Odonata larva are present in PolyMet receiving water sediments. Also fish lay their eggs on those sediments. Remember that sulfate levels below 10 mg/L produced sulfide concentrations between 150 and 300 micrograms/L. The EPA National Recommended Water Quality Criteria for sulfide is only 2 microgram/L. This is backed up by research. Colby and Smiti-i (1967) found that concentrations as high as .1 to .02 mg/L were common within the first 2 mm of water above the sediment. Walleye (Stizostedion vitreum) eggs held in trays in this zone did not hatch. Adelman and Smith (1970) reported that th

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Leonard Anderson 47782

My name is Leonard Anderson and as I mentioned in my previous comments, I have a M.S. in Biology from St Mary's University in Winona Minnesota, with an emphasis in aquatic and terrestrial ecology. My professional career was teaching at the high school and college level. I have studied the ecological dynamics of the St Louis River watershed for forty years. I apologize for sending these additional comments in at the very last minute, but there has been two big developments in the last two days that have a strong bearing on the PolyMet proposal. First, was the EPA announcement that they have dropped their approval of the Mesabi Nugget variance for how much sulfate they can dump into Second Creek which is a tributary of the Partridge River. One aspect of that variance that is now disallowed, was to allow them to store high sulfate waters during the summer growing season and then dump high sulfate loadings in the fall. The PolyMet proposal submits on page 5-216 of the SDEIS that they will use the same seasonality approach for their release of sulfate to waters used for the production of wild rice. They have no data to show a complete year long surface water sulfate-porewater sulfide mass balance to support such a high sulfate release after the growing season. They must be forced to meet the wild rice sulfate standard of 10 mg/L at a minimum, at all times. The second big development in the last two days was the release yesterday, 3-12-14, by the MPCA of the Preliminary Analysis of the Wild Rice Sulfate Standard Study. Table #1 of that report shows that for wild rice the protective concentration for sulfide lies in a range between 150 and 300 micrograms/L derived from the hydroponic exposure experiments". Figure 3 shows that as sediment porewater sulfide concentrations increase, there is a decrease in wild rice coverage in the field. They conclude that the "field data as represented in Figure 3 are broadly compatible with the likely protective sulfide concentration range of 150 to 300 microgram/L. It shows that wild rice coverage decreases as sulfate concentrations increase. Then on page 16, they tie sulfate to sulfide production. They say, "Higher quantile percentages predict that sulfide concentrations of 150 to 300 micrograms/L relate to sulfate concentrations below 10 mg/L. This is supported by Figure 10 which shows a decline in wild rice coverage with even small increases in surface water sulfate concentrations. In conclusion, from the lab to muck, this research has shown that surface water sulfate by way of porewater, sulfide damages wild rice. If you are going to deviate from that conclusion, you have to integrate a complete suite of factors, including stream velocity and wave action, upwelling of ground water, abundance of dissolved iron, oxygen penetration of sediments, presence of available carbon and temperature. The PolyMet proposal has not done that for either the Partridge or Embarrass River rice beds and therefore should be held to releases of 10 mg/L or as this new research indicates, less than 10 mg/L of sulfate. Now that we are relating sulfate to sulfide, we need to look at the impacts to freshwater fauna as well. We need to consider animals living immediately on or in the sediments that would be contacted by sulfides produced in the porewater. Macro invertebrates such as Ephemeroptera and Odonata larva are present in PolyMet receiving water sediments. Also fish lay their eggs on those sediments. Remember that sulfate levels below 10 mg/L produced sulfide concentrations between 150 and 300 micrograms/L. The EPA National Recommended Water Quality Criteria for sulfide is only 2 microgram/L. This is backed up by research. Colby and Smiti-i (1967) found that concentrations as high as .1 to .02 mg/L were common within the first 2 mm of water above the sediment. Walleye (Stizostedion vitreum) eggs held in trays in this zone did not hatch. Adelman and Smith (1970) reported that th

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Leonard Madsen 9818

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Leonard Madsen Leonard Madsen 233 Page St E Saint Paul, MN 55107

Alphabetical by sender's first name

Leonard Major 45027

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Please specifically address the issues of 1) the long-term need for protection from the toxic material in the crushed and pulverized mining wastes produced by the proposed PolyMet mine and 2) the degree of effectiveness of their proposed system for keeping the entirety of the wastes produced over the lifetime of the mine separated from and completely sealed off from the natural environment over the time-period the wastes will remain toxic. Please consider the very serious likelihood that the approval of the PolyMet mine will require between 200 to 500+ years, or between 10 to 25+ generations, of scrupulous, 100% effective large-scale environmental protection to keep huge areas of northern Minnesota ground water free from highly toxic pollutants. If there were even a moderate or mild possibility that this mine could exact such a burden upon your great grandchildren's great grandchildren's great great grandchildren, conservatively estimated, with the risk of failure being devastating destruction to our precious natural resources and life supporting eco-systems, how can you possibly not exercise the utmost due diligence in determining the long-term consequences of approving the PolyMet mine proposal. Putting the viability and environmental safety of a great portion of northern Minnesota at risk for a period of 200 to 500 years or longer is a moral and ethical responsibility that tens of thousands of Minnesotans like myself believe absolutely overrides the economic benefits of 20 years or so of operating the PolyMet mine. I look forward to your response to my concerns in a revised PolyMet NorthMet SDEIS. Sincerely, Mr Leonard Major 8435 Red Oak Dr Mounds View, MN 55112-6148 (763) 717-9168

Les Herman 44368

Mining all across northern Minnesota should be allowed. The people need the jobs, and the State needs the Tax revenue. I know that between the State and the companies they will do a fantastic job to protect the environment, and as the mining is going on and after, access to hunting and fishing areas will be improved. Thank-you for the chance to state my opinion, Les Herman HYPERLINK "mailto:lesherman10@yahoo-com"lesherman10@yahoo-com

Lesley Stansfield 39627

Mar 10, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Lesley Stansfield 681 27th St San Francisco, CA 94131-1811 (415) 641-8824

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Leslie Amundson 3607

My concern is that ALL previous mines like this proposed one have had failures, with toxic chemicals leaking into the water supply - 100% failure rate. Leslie Amundson 1124 Rose Place Roseville MN 55113

Leslie Baken 24432

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I am writing to comment on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. 1- Sulfide mining is untested in Minnesota, a region rich with wetlands. This project unjustifiably threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. 2- Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I oppose the Federal land exchange of protected Superior National Forest land to facilitate PolyMet's open pit sulfide mine. This is definitely not in the public interest nor it is an environmentally sound venture. Our wetlands, including Lake Superior and The Boundary Waters are national resources which must have their protection above all other interests. This area is both a critical source of fresh, clean water to its residents and the local environment, and contains unique and pristine national parks. Sincerely, Leslie Baken 4316 Glencrest Rd Golden Valley, MN 55416-3319 (763) 374-2381

Leslie Davis 44929

Earth Protector, Inc. P.O. Box 11688 622 Lowry Avenue North Minneapolis, MN 55411 612/529-5253 March 13, 2014 Ms Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Re: Comment on PolyMet Draft Environmental Impact Statement Dear Ms Fay, When I came to Minnesota with my family in August 1962, and saw the vast fields of corn and soybeans, the enormous water resources of Lake Superior and the Mississippi River, and our under-ground water supplies, it was breathtaking. One day I took my family to the Mississippi River shoreline in the Twin Cities where we saw signs that read, don't swim in the river, don't eat the fish, and don't drink the water. The Mississippi River. How could that be. This wasn't Bayonne, New Jersey and the Hudson River. It was the Mighty Mississippi in pristine Minnesota. An open sewer in the heartland that rivaled any sewer in the eaSt Who did it. Why was it allowed. Why is it still allowed. What I learned over time was that our impressive resources were polluted with chemicals ranging from arsenic and atrazine to lead and mercury, and hundreds more. How could that be. Who was protecting these resources. How could companies like 3M and Koch Refining each be allowed to take 3 billion gallons of publicly owned under-ground water for practically nothing, turn it into toxic slop after using it in their manufacture processes, and then dump it into the Mississippi River where it makes its way to Lake Pepin in Wisconsin and on to likely add to the dead zone in the Gulf of Mexico. I found that all much more breathtaking than my first impression of Minnesota's resources. Over time I learned how this happened, and how it continues to happen. It's because the people want it. The people want it and Koch Refining and 3M are delighted to provide it. They also provide thousands of jobs, lots of taxes, stock for shareholders and pension plans to fatten up on, and an army of governmental lobbyists and lawyers to make certain that no one stands in their way of providing their products without interruption. Because the people want it. The people want the gasoline from Koch Refining, the tape from 3M, the electricity from the nukes, the chicken legs from the anti-biotic stuffed chickens raised in confinement barns, and the pieces of hogs whose only chance in life to see the sun is if it's out on their trip to the slaughter house and the horror awaiting them. The people want it and the Department of Natural Resources (DNR), Pollution Control Agency (PCA), Army Corps of Engineers, and a multitude of other agencies, screeners, and authorities, at every level of government, make sure they get it. That's their job. Make sure that industry can provide what the people want. For example, the people of Minneapolis want to dump their garbage, with minimal effort, into a big bucket, and have the garbage fairy take it away to a huge burner in the heart of the city, where it's burned for them, and the most toxic air emissions mankind ever produced are spewed from huge smokestacks, directly into the air intake ventilation systems of nearby buildings and neighborhoods, and onto the pitchers mound of their neighbor, the Minnesota Twins ballpark. The people want it that way and the City of Minneapolis, Hennepin County, Metropolitan Council, Pollution Control Agency, state legislature, all made sure they got it and that they're protected. Now PolyMet says the people want copper, as if there's not enough copper available from around the world. Copper for wind turbines, lap tops, electric cars, and other gadgets. Now the multitude of companies waiting in the wings for PolyMet to clear the way for them so they can also please the people with gobs of copper, enlisted their union allies and their connections, the school leaders destined to get a piece of the action, and all their political friends, union buddies, and r

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Leslie Distad 11721

Feb 14, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Leslie Stewart 41881

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Leslie Stewart Saint Paul, Minnesota

Alphabetical by sender's first name

Lester Haveri 37831

I have the misfortune to have a polymet employee,neighbor from hell -thief,lier anything to get more land,along with another land trickster accompless polymet worker. I don't know if polymet looks for people of this callibr,the trickster likes to attact old land deads (back then the lag. and lat. numbers had to be figred out with pencle and paper) -with the gps all of the real old deads are off -but the land was bought,and aggred apon by the seller and the buyer - my neighbor from hell destroyed the old property fence which was older then he was and then lied about it's even being there - all the good neighors know better. The point is can we trust polymet land trust with people like that or is that the norm for this kind of company.

40165

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described.I believe polymet,LTV are just company raiders that have a bad track recoRd I worked for Erie Mining and then LTV for 33 1/2 years. First off the concentrator was leaking acid years ago,and all floor wash goes out to the tailings pond,which was course to-fine ground waste rock,the water flowed through the dike,and into the Embarrass. Polymet is way to slopply to trust the prime wildlife habitat , the moose ,deer herds ,large fish in the old abanboned ore pits,and the birds from the eagles ,partridge, ducks, geese and many kinds of small birds. I have seen wolves,fox,and bear on the property . With the more dangerous chemicals ,needed for polymet to extract the metals thay want , would poison the water supply of the whole state. I have the misfortune to have a polymet self proclaimed big shot neighbor or better known as the neighbor from hell ,and if he is a prevew of coming events ,polymet shoud not be permited to operate in this state. People what don't respect property lines, destroy boundry fences = are criminals,thieves = this is to important ,to trust trickters ,thay want more freedees, and thay don't plan to pay any cleanup for the mess thay will cause to the habitat, all the wild habitat will die,the groung water will be poisoned for five houndred years may be forever. Sincerely, Mr Lester Haveri 5179 Road 51 Aurora, MN 55705-8434 (218) 229-2784

Letitia Noel 41608

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Letitia Noel 55 W Goethe St Chicago, IL 60610-7406

Alphabetical by sender's first name

Levi Hurley 6308

My mailing address is 13 Oxford Place, St Albert, AB T8N 6K5 Thank you for hearing my comments. Levi From: Levi Hurley [mailto:marcuus@shaw.ca] Sent: Tuesday, January 14, 2014 9:33 PM To: 'NorthMetSDEIS.dnr@state.mn.us' Subject: I Support Polymet To Whom It May Concern; I believe Polymet have met every requirement to make this a viable and safe project. It has been at least 6 years of work, with all requirements being addressed and resolved. I would not support the permitting approvals if I thought this had been a rushed and potentially flawed process. On the contrary, it has been a long and well managed one. I can't fathom why the project would not be permitted and move forward in the near future. The local area can certainly use the employment opportunities in these trying times. Levi Hurley St Albert, Alberta, Canada

6310

To Whom It May Concern; I believe Polymet have met every requirement to make this a viable and safe project. It has been at least 6 years of work, with all requirements being addressed and resolved. I would not support the permitting approvals if I thought this had been a rushed and potentially flawed process. On the contrary, it has been a long and well managed one. I can't fathom why the project would not be permitted and move forward in the near future. The local area can certainly use the employment opportunities in these trying times. Levi Hurley St Albert, Alberta, Canada

Lewis Hotchkiss 41655

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Leya Klingsporn 39266

Mar 11, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Leya Klingsporn 1830 County Road D W Saint Paul, MN 55112-3515 (651) 955-3914

Liese Reisinger 39803

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Liese Reisinger 2215 Blaisdell Ave Minneapolis, MN 55404-3359

Lila&Virg Boehland 14595

SDEIS Input, Has PolyMet done this type, sulfide mining, of extraction before. Does PolyMet have a track recoRd How long have the primary 20 executives for PolyMet been working together. What other mines has PolyMet worked with. What other mining operations have the people in charge of PolyMet worked for. How have those other mining operations done. Is there a track record for the type of mining that PolyMet is proposing. Where has PolyMet operated, successfully, in the paSt Who are PolyMet's environmental protection employees. Where have PolyMet's environmental protection employees been employee most recently. What other mining companies have PolyMet's environmental protection employees worked at over the past 20 years. Thank you, Virgil Boehland 9 Amber Lane Esko, MN 55733 218-260-0784

Alphabetical by sender's first name

Lilli Sprintz 16245

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Lilly Bubser 57946

We love nature! Don't ruin it! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Lilly Otto 52545

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404 " Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation " wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect " wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1- Underground mining, looking at the full ore deposit and PolyMet's real costs; 2- Putting a liner under the Category 1 waste rock stockpile; 3- Placing all tailings on a new completely lined facility; 4- Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5- Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to protect irreplaceabl

Lily 54194

I think the mine is a bad idea. It does not guarantee any longterm jobs and will destroy the already striving economy and culture up there. There is evidence that it's not going to work so don't do it.

Alphabetical by sender's first name

Lily 54347

Dear Ms. Lisa Fay, EIS Project ManagerI think that if the Polymet Mining plan were followed exactly then everything would wonderful, but it seems like that is unlikely. Although the jobs the project promises would be good for Minnesota, likely quite a few would temporary jobs, and it seems like there wouldn't be very many permanent jobs. So the jobs wouldn't really be very beneficial to the state if they are just temporary.The environmental effects of this mine seem as if they would be devastating and permanent,Impacting the state for hundreds of years. It seems extremely unlikely that it would be possible for Polymet to continue the water rehabilitation for the two-hundred plus years that would be needed. As someone who lives in Minnesota, I was sad to see that the plan for this mining includes the complete destruction of nine hundred and thirteen acres of wetlands. Especially since wetlands hold so many of our native plant and animal species. I was also sad to see that the plan included the possible destruction of several already endangered species and eleven different plants, since wildlife means so much in Minnesota.Yet another thing that I was appalled to see, was that the mining might prevent the control ofInvasive species, while so many native ones would be destroyed. Another major concern of mine was that there seemed to be a pretty large amount of the Superior National Forest that would be destroyed once the mining was done. I read a public opinion piece that stated that the value of these minerals will only increase over time, since I believe this is true I think that the mining should be halted until Polymet can come up with a plan that significantly decreases the harmful lasting effects. As a young adult who cares about the future, I was appalled and alarmed that the plan included some possibly harmful and lasting air pollution that would be incredibly hard to undo in the future. Especially after the PolyMet had moved on to another project. I have the same concern about the pollution that would be deposited in the rivers in Mi1mesota, because water is a necessity of today and tomorrow. And once water is polluted it becomes harder and harder to undo, just like air pollution.Please don't go forward with this mine. I don't think the harmful outcomes make it worth it.Sincerly,Lily

Lily Nelson-Pedersen 39805

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Lily Nelson-Pedersen 1366 School House Rd Grand Marais, MN 55604-2278 (218) 370-8283

Lin Hipp 39350

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The financial assurance section of the SDEIS is inadequate and needs to be changed to reflect details about how much money would be required to pay for cleanup and in what form it would be held. In 2010, the US Environmental Protection Agency called PolyMet's first draft Environmental Impact Statement "inadequate." One significant reason was that the 2010 DEIS did not show that financial assurance would be enough to cover the cost of long-term water treatment at the site. "EPA believes that the adequacy of financial assurance for these activities could make the difference between a project adequately managed over the long-term by the site operator, or an unfunded or underfunded contaminated site that becomes a liability for the federal government and the public " As your revise the SDEIS, please take the following actions: 1) Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs in the current draft 2) Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for hundreds of years of water treatment 3) Identify other responsible parties (eg major investors like Glencore) that will be held responsible for long-term cleanup should PolyMet go bankrupt or be unable to meet their obligations 4) Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation for the what would constitute adequate treatment Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Lin Hipp 33129 Nueman Trl Lindstrom, MN 55045-9121 (651) 308-8787

Alphabetical by sender's first name

Lin Hipp 39351

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Lin Hipp 33129 Nueman Trl Lindstrom, MN 55045-9121 (651) 308-8787

Lincoln Brown 18289

Lincoln Brown. I am six. I just turned six in January. I just think that they shouldn't be mining that.

Linda & Michael Sweno 42686

See attachment

Linda A Forsland 20058

I will make this short. Copper nickel mining is not worth the price we will have to pay. 20 years of jobs is not worth potentially ruining our water for 200-500 years. We don’t even know if Polymet will be around to clean up any mess. It is just not worth it. Linda and Jim Forsland 8124 W 102nd Street Bloomington, MN 55438 Linda Forsland Executive Offices Fairview Southdale Hospital 952-924-5772 952-924-5382 (fax) Think before printing this e-mail, is it necessary. Think Green. Fairview Southdale Hospital is a 2009 recipient of the Minnesota Hospital Association’s Patient Safety Excellence Award, for best practices in patient safety The information transmitted in this e-mail is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material, including 'protected health information'. If you are not the intended recipient, you are hereby notified that any review, retransmission, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please destroy and delete this message from any computer and contact us immediately by return e-mail.

Linda and Ed Hendrickson 57260

We urge you to reject the Polymet mining proposal for these reasons:1.If this project goes ahead, then in subsequent years even lower grade [ILLEGIBLE] of ore will be targeted with even more dire consequences.2.The state doesn’t even make taconite plants meet all their environmental standards which is bad enough already.3.Once the environment is destroyed for a few short term jobs, you can’t get it back.Linda & Ed Hendrickson7405 Hwy 8Saginaw, MN 55779

Linda Blaine 3638

Dear DNR, Your job is to protect MN's natural resources. In this state, clean water and air are your main jobs. The mining proposed in Northeast MN will almost certainly pollute our water- likely for 500 years. This must not happen. I believe that anyone who is rushing to facillitate the mining is in a rush to line their pockets with MN gold. The minerals aren't going anywhere, let us wait to extract them when it can be done with No harm to our clean environment. Job Number 1 for the DNR: protect our natural resources. Sincerely, Linda Blaine 2658 E Hwy 61 Grand Marais, MN 55604 Lake Craft HYPERLINK "mailto:lakecraft@boreal-org"mailto:lakecraft@boreal-org

Alphabetical by sender's first name

Linda Centorrinio 40481

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Linda Centorrinio 10002 TERRY ST FAIRFAX, VA 22031 US

Linda Cooke 29961

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining is a dangerous chance to take with our precious water resources. It threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I am deeply concerned about this project's very likely harmful impacts on our region's natural resources and public health, including: damage to human health, risks to water quality, loss of wetlands, harm to wildlife, and cumulative damage to the environment from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Linda Cooke 8570 Greenway Blvd Apt 306 Middleton, WI 53562-4738

Linda Dehrer-Wendt 43833

My address is 1111 105th Street West Inver Grove Heights, MN 55077 HYPERLINK "mailto:ldehrerwendt@gmail-com"ldehrerwendt@gmail-com Linda https://mail.google-com/mail/u/1/e/gtalk.35C Have a Great Day. Be practical as well as generous in your ideals. Keep your eyes on the stars, but remember to keep your feet on the ground. - Theodore Roosevelt On Thu, Mar 13, 2014 at 1:07 PM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

43855

We understand the need for jobs, but the potential downsides of an environmental disaster are just too great. We were assured by BP that everything was safe. We were assured by Exxon that everything was safe. Both those were disasters that are still with us today. The risks are just too great.. We are losing natural habitats daily. We have to put a stop to it.. Take pride in Minnesota and what we have and are. Protect Minnesota Linda https://mail.google-com/mail/u/1/e/gtalk.35C Have a Great Day. Be practical as well as generous in your ideals. Keep your eyes on the stars, but remember to keep your feet on the ground. - Theodore Roosevelt

Alphabetical by sender's first name

Linda Dietz Fredlund 54787

See attachment

Linda Esala 16168

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Linda Forcier 7055

I strongly oppose the proposed mining of copper etc in northern Minnesota. The paper has reported it will bring 300 jobs for 20 years to the area. This is very shortsighted compared to the hundreds of years of possible pollution. After 20 years the area will not only be possibly devastated by pollution but also be more destitute of jobs than now. Especially if the mining decreases tourism. The risks to trees, wild rice, animals, birds, and even people cannot be ignored. With the global threats related to earth warming, this is not the right time to add to the probleMs We should be learning from the W. Virginia spill that companies will NOT be around to clean up. Thank you. Linda and John Forcier, 5411 O'Brien N, Stillwater MN 55082, 651-439-6366

Linda G Powless 57234

Please do not allow PolyMet in No Minn. Our land & waters must be preserved. I was raised in the copper country of NE Mich and know how the land/water is ravaged – and the money sent elsewhere.Linda G. Powless4912 Wyoming StDuluth, MN 55804

Alphabetical by sender's first name

Linda Garrison 41903

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Linda Garrison Winona, Minnesota

Linda Glaser 21514

Dear Ms Fay, Dear Federal and State Agency Leaders: I'm very concerned and horrified that we are considering the PolyMet sulfide mine proposal. Is it right to put our water resources at risk, when clean water is a when the risks will impact generations long after we are long gone. No amount of clean up money can restore the loss and contamination of ground and surface waters, along with the loss of forests, wetlands, and wildlife. Land dominated by leaching mine waste rock piles, tailings basins, and open pits is no longer usable. PolyMet's SDEIS needs to be shelved. The PolyMet SDEIS doesn’t even analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t even examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. We can't accept a proposal that allows pollution to seep from mine pits into the Partridge River surficial waters “in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely, Linda Glaser Linda Glaser 4215 Luverne Street Duluth, MN 55804 218 525-4986

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I am very concerned that the SDEIS states that 200-500 years of clean up will be required. Yet the MN Rule 6132.3200 does not allow perpetual treatment. It requires that once a mine is closed, it must be maintenance free. This proposal is irresponsible and frightening. Please address this issue before giving permission to mine.

Alphabetical by sender's first name

Linda Gridley 42010

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Linda Gridley 607 Clifford St Saint Paul, MN 55104-4907 (651) 341-0908

Linda Hamilton 54914

See attachment

Linda Hansen 40989

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Linda Hansen Linda Hansen 2021 Carnelian Ln Eagan, MN 55122

Alphabetical by sender's first name

Linda Hansen 49090

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Linda Hansen Linda Hansen 2021 Carnelian Ln Eagan, MN 55122

Linda Henderson 38719

Mar 11, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. Think of the future generations. We only have one world. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Linda Henderson 4510 N Greenview Ave Chicago, IL 60640-5476 (773) 784-2613

Linda Hendrickson 54139

We do not support sulfide mining in NE Minnesota. If this project goes ahead, it will pave the way to mine even lower grade ore bodies causing even more damage. DO NOT APPROVE THIS PROJECT! Reduced population = reduced demand. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Linda Herron 40593

See attachment

Alphabetical by sender's first name

Linda Herron 43058

March 2, 2014Tim DabneyU.S. Forest ServiceSuperior National Forest8901 Grand Ave. PlaceDuluth, MN 55808Dear Mr. Dabney,As a concerned citizen of Minnesota, I believe in supporting what is best for the people of Minnesota. We are known for our strong environmental laws which were legislated to protect our beautiful natural resources. Unfortunately, these laws have not been uniformly enforced. In this regard, I have some comments on the proposed PolyMet NorthMet Mine Proposal as described in the SDEIS.I am concerned about the loss of high-quality wetlands in exchange for moderate and low-quality wetlands in the land exchange. Wetlands keep our waters clean, prevent soil erosion, sequester carbon dioxide and provide vital habitat for waterfowl and other wildlife. These some 6,000 + acres will be adversely affected both directly and indirectly by the NorthMet Mine.How are carbon releases from impacted wetlands measured?How can we allow for such a large loss of wildlife habitat and the negative impact onwildlife travel corridors?Where is the data on the effects on migratory bird species?Additionally, I have difficulty understanding how MN Rule 6132.3200 can allow for a perpetual water treatment following a mine closing. It seems to be a matter of semantics whether it is called "long term" or perpetual: 500 years says perpetuity to me.Thirdly, what are the contingency plans for accidents which occur at most mines of this type? Such accidents include pipeline spills, failure of water treatment systems, accidental releases of contaminated water and tailings basin failures. What about the known fractures and faults in the area of the tailings basin? Contingency plans need to be detailed in the SDEIS so that the citizens of Minnesota have all pertinent information before permitting begins.In conclusion, when the risks to the environment over hundreds if not thousands of years are weighed against the relatively short term and unimpressive economic gains, it is clear that the public will not benefit. I urge you as one of the agencies responsible for the protection of our precious resources, to refuse the land exchange and thereby deny the permitting process to the PolyMet NorthMet Mine.Thank you for your consideration of my request,Linda Herron2617 E. Fifth St.Duluth, MN 55812

49592

Dear Mr Dabney, As a concerned citizen of Minnesota, I have been examining the SDEIS pertinent to the PolyMet NorthMet proposed mine and the US Army Corps of Engineeers Clean Water Act Section 404 wetlands dredge and fill permit. I find that due to the following, I am unable to complete my examination by the March 13, 2014 deadline: 1- the SDEIS is extraordinarily long 2- it is complicated and difficult for a non-scientific person to understand; it appears to be written for the scientific community rather than the general public 3- information on geological conditions such as earth fractures under tailings pits is missing 4- water flow data on the Partidge River has been questioned by the tribal community and therefore this data needs to be re-examined by the USACE 5- data on carbon losses due to destruction of wetlands is missing In light of these reasons, I ask that a 90- day extension be made for comments on the SDEIS and the Section 404 wetlands permit. Thank you for considering my request as quickly as possible. Sincerely, Linda Herron 2617 E. Fifth St Duluth, MN 55812

54677

See attachment

Linda Huhn 42499

Please see the attached document.

42860

See attachment

Alphabetical by sender's first name

Linda Huhn 43056

Ms. Lisa FayDNR Mining Project ManagerMr. Ken WestlakeTJSRPAMr. Douglas BrunerUS Army Corps of EngineerSMr. Tim DabneyTJS Forest ServiceDear Madame and Gentlemen,As a life-long Minnesota (65) years I want to express my great concern about the well documented dangers of sulfide mining, and ask you to re.iect the Poly Met NorthMet SDEIS as inadequate.Research and experience show the proposed mining operation would probably poison our groundwater forever. I'm a r~ular consumer of band harvested Minnesota wild rice, which I understand cannot grow in water with elevated sulfate levels.I'm not too excited about elevated mercury levels in children either.This type of pollution would also have a negative effect on tourism and fishing, making it additionally an economic issue.I hear that recent news of internal DNR documents show serious flaws in the research on this project, leading me to question whether any research was based on sound science.Please do the right thing for our beautiful Minnesota environment, for our economy, for our food sources and for future generations.Please reject the Poly Met NorthMet SDEIS. Thank you for your attention to this issue.Sincerely,Linda M. Huhn

Linda Johnson 15390

Feb 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The eroding conditions of the planet demand that we are prudent in our activities from now on. With an increasing world population, we need more not less from our natural resources. The top of the list is water to sustain life and likewise, air. There seems to be a growing 'need' to have mined products like copper, uranium, etc to create and power all of our 'first world' wants (not truly needs). Of course I understand that the materials are vital for our world today, but I'm sure there are remedies to be found that are better for the environment, even if it's costlier. This shouldn't be an all or nothing situation. Before any mining is allowed in a protected area, it should be mandatory to use known methods that are better, not cheaper. Owners and others who profit should pay in advance for truly independent inspections with 'conflict of interest' clauses enforced. There have been many cases of the mine owner(s) reaping the profits and not helping the workers when there are accidents. This should be fixed, now. Safety trumps profit. Regulators should also be required to fully disclose the dangers and provide (at the owners expense) for monitoring and care for anyone impacted by the mining activities such as cancer clusters for instance. If this mining activity is allowed, we will be poisoning our environment further, including the non replaceable fresh water which is a known casualty already. 500 years cleanup. If we continue on this path, we may not be around in 500 years. I believe it is immoral to continue plundering for profit without having the ability to successfully mitigate the results. This has to be evaluated carefully. I believe it is in the best interest of our State and the Country to say no; or at least not until you can prove a more successful mitigation for this project. A very limited number of people will reap the lucrative benefits while destroying an environment that benefits everyone, practically forever. If they can't do it responsibly now, they should be denied a permit at this time. Short and quick profit resulting in destroying pristine lands forever is penny wise and pound foolish.. A slowdown on this may provide the opportunity for entrepreneurs to develop and implement bette

54144

NO I don't support mining. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Linda Laumb 45949

Lisa Fay, EIS Project Manager DNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Ms Fay, My husband and I own a cabin on the shores of White Iron Lake, which is a prime walleye lake east of Ely, Minnesota. We have spent the last eleven years investing several hundred thousand dollars in the local economy while developing this valuable property. We feel we have much at stake in the protection of our investment and our enjoyment of the clean waters of this lake where one day we plan to retire. There is currently exploration and development occurring just south of White Iron Lake around and under Birch Lake. The waters flow north in this area and the Kawishiwi River flows directly from Birch into and through White Iron Lake on up to Farm, Garden and Fall Lakes into the BWCA. The proposal made by PolyMet, if approved, opens the door to mining all along Birch Lake, South Kawishiwi and other areas on north to the BWCA. We have seen the devastation that copper/nickel mining has caused in areas such as Sudbury, Ontario, Canada and how a community suffers when left to clean up the waste of companies who have no interest in the area once they have taken from it what they want. We do not feel that any precautions PolyMet is proposing will be adequate to prevent devastation to the land and waterways as well as the economy in our beautiful area. As you know, if there is the slightest chance that waters will be polluted the fishing guides, resorts and outfitters will lose much more revenue than the region will gain from the few hundred permanent jobs PolyMet is proposing for the area. If you were planning a fishing or camping trip would you go to a region where there is a "possibility" of polluted water. Had we known of the proposed copper/nickel mining eleven years ago, we would not have chosen this area to build our cabin. Real estate values could suffer dramatically, which will affect the tax base for waterfront properties in the region as well as homes and businesses in the cities in these regions. If the drinking water is affected, that will add even more devastation to the area. Other items that need to be considered are the effects from noise and air pollution. With the amount of mining that is proposed, this type of pollution is inevitable to an area where people come to enjoy clean air and peaceful quiet days. Please consider all of these aspects in addition to the other provisions that PolyMet has failed to address adequately in their proposal. As in all things it is better to be proactive than reactive when it comes to the environment and our natural resources. Thank you, Linda Laumb 7870 Guild Ct. Apple Valley, MN 55124

Linda Malick 39296

Dear Lisa Fay, I am strongly opposed to the copper, nickel, paladium, and gold mines propsed by Twin Metals and Polymet that would be located south and west of Ely, Minnesota. The Boundary Waters Canoe Area Wilderness is America's most visited wilderness area and one of the oldest designated wilderness areas in the nation. Despite what proponents of the copper-nickel mines say, creating new mines within 50 miles of Ely would be extremely detrimental to our local economy. The mines will not only be an eyesore, they will also increase rail and truck traffic, which would negatively affect tourism in the area. The noise from drilling and moving material destroys the wilderness experience on the southern end of the Wilderness area near Spruce Road and Birch Lake. Most importantly, there is no evidence that our most precious resource, the interconnected system of pristine waterways, will adequately be protected. Acid mine drainage in our waters is unacceptable. Sulfide-bearing rock brought to the surface will turn into sulfuric acid and leach into our waterways, resulting in irreparable damage to our biotic community. DO NOT ALLOW ANY HARD ROCK MINING WITHIN 50 MILES OF ELY MINNESOTA.. Thank you, Linda Malick - Linda Malick 715 386 5962 malicklinda@baldwin-telecom-net

Linda Morgan 40890

Mar 9, 2014 Ms Lisa Fay MN Dear Ms Fay, Like many people, I am very concerned with protecting our clean water. I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Linda Morgan 10 Cherrywood Ct San Pablo, CA 94806-3767 (510) 236-4022

Alphabetical by sender's first name

Linda Morgan 40892

Mar 9, 2014 Ms Lisa Fay MN Dear Ms Fay, Like many people, I am very concerned with protecting our clean water. I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Linda Morgan 10 Cherrywood Ct San Pablo, CA 94806-3767 (510) 236-4022

Linda Morris 9817

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Linda Morris 3229 Colorado Ave S 3229 Colorado Ave So St Louis Park, MN 55416

Alphabetical by sender's first name

Linda Morris 18611

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Linda Morris 3229 Colorado Ave S 3229 Colorado Ave So St Louis Park, MN 55416

Alphabetical by sender's first name

Linda Morris 18917

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Linda Morris 3229 Colorado Ave S 3229 Colorado Ave So St Louis Park, MN 55416

39888

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Linda Morris 3229 Colorado Ave S St Louis Park, MN 55416-2052 (763) 525-0311

Alphabetical by sender's first name

Linda Morris 50687

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Linda Morris 3229 Colorado Ave S 3229 Colorado Ave So St Louis Park, MN 55416

Linda Raab 40005

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Linda Raab 12656 Florida Ln Saint Paul, MN 55124-5332

Alphabetical by sender's first name

Linda Rolf 18955

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Linda Rolf 1900 1st Ave S Apt 26 Minneapolis, MN 55403 7636567758

Linda Ronchetti 12736

Dear Ms Fay, Dear Federal and State Agency Leaders: To give away our natural heritage for the generations to come, for a few years of profit and destruction is maimed thinking. Please put the environments health, over a few years of profit, as the priority. I am totally against this fiasco and will consider moving away if it comes to pass. We all know this has never been safely done so how can they have the gall to state they can do so. And even if they would have the money to clean up the mess, I personally do not want the mess to destroy MN treasures of clean water, the woods, my wild rice, my clean air etc for generations to come. We have a responsibility to the people who come after us and to the earth. In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was "inadequate" and the sulfide mine project would be "environmentally unsatisfactory." The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity." Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely Linda Ronchetti 15 N. Erie Street Aurora, MN 55705 2182293782

Alphabetical by sender's first name

Linda Rossin 27586

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining in Minnesota threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. It is a known fact that acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. What can be so important about this mine's harvestings that we are willing to pollute our land and the water we drink again and again. The serious concequences of such a project as sulfide mining, especially in our wilderness areas, is incomprehencible to me, which leads me to having grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Linda Rossin 13 Alpine Dr Lake Hopatcong, NJ 07849-1248 (973) 663-1645

Linda S Budd 54695

See attachment

Linda Salazar 39868

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Linda Salazar 5352 Nokomis Ave Minneapolis, MN 55417-2059

39875

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Linda Salazar 5352 Nokomis Ave Minneapolis, MN 55417-2059

Alphabetical by sender's first name

Linda Sarat 40837

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mrs Linda Sarat 131 Vineyard Dr Rochester, NY 14616-2007 (585) 663-5113

Linda Sexton 40877

Mar 9, 2014 Ms Lisa Fay MN Dear Ms Fay, Other Americans, along with Minnesotans want to protect clean water. PolyMet's plans to mine sulfide ore in northeastern Minnesota is too risky. Risking high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest makes no sense. PolyMet targets the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. People as well as wildlife depend on clean water; once ruined, we may spend decades getting it cleaned-if ever it happens at all in our children's lifetimes. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. Please reject PolyMet's plans to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mrs Linda Sexton 702 Morningside Dr Norman, OK 73071-4920 (405) 360-1067

Alphabetical by sender's first name

Linda Spyhalski 40041

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Stop this mine and the damage it will do to our environment. The state will have to spend taxpayers money to clean up the mess made by this mine. Sincerely, Ms Linda Spyhalski 11136 187th Ave NW Elk River, MN 55330-7805

Linda Stephan 29364

I sent a form letter, but would like to add: It seems absurd to risk YOUR spectacular heritage, the Boundary Waters Area, in order to allow a private entity to exploit it for short term profit. The risk is just too great. The area in question attracts many tourists and sportsmen to your state. Birders too, and I am one. We spend alot of money there. This is a long-term benefit to you and it will cease if the area is defiled. Thank you. Linda Stephan, HYPERLINK "mailto:lstephan9942@gmail-com"lstephan9942@gmail-com. On Mon, Mar 3, 2014 at 5:37 PM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Linda Tauer 39741

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Linda Tauer 909 1st Ave S Sleepy Eye, MN 56085-1803

Alphabetical by sender's first name

Linda Tyssen 10739

On Saturday, February 1, 2014 2:17 PM, Linda Tyssen wrote: I am all in favor of the PolyMet project. I believe the PolyMet officials have followed the procedures to the letter. Both sides of the issue have had ample opportunity to voice their opinions. As a 30-year reporter at the Mesabi Daily News and a proud member of the Steelworkers Union, I have seen the boom times and the bust times in the mining industry. In the mid-1980s scores of Mesabi Iron Range people lost their jobs at the mines and moved away from the area, with the closure of the Butler Taconite on the west end and of Reserve Mining Co. in Babbitt on the east end, and in 2001 the permanent shutdown of LTV, the former Erie Mining Co., was devastating news for thousands of Range people. PolyMet would be - no, will be - vital to the future of the Mesabi Iron Range. Thank you. Linda Tyssen Gilbert 780-5428

Linda Unsworth 42088

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Linda Unsworth Minneapolis, Minnesota

Linda Uscola 9600

Dear DNR: No one seems to be emphasizing that in MN the environment IS also an industry .it's called tourism. Why risk this major industry, which affects thousands of small businesses and individuals, to aid a private, big business. Virtually all big businesses involved with the environment promise to protect it. Just like BP did in the Gulf. No matter how much BP pays back to those communities/individuals, BP will never make up for the damages their greed caused. Please, protect our environment AND THE TOURISM INDUSTRY. Say no to Polymet. Sincerely, Linda Uscola 15732 130th St Menahga, MN 56464

Linda Wadsworth 39795

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Linda Wadsworth 10311 230th St N Scandia, MN 55073-9550 (651) 433-5101

Linda Wiig 42939

I have attached my comment regarding this mine application. I hope that the state DNR will see its way to addressing more concerns that many people have in regards to the development of this type of mine. Thank you, Linda Wiig Sent from Windows Mail

Alphabetical by sender's first name

lindag lindag 13483

Hello, I have retired as of 12/31/13- To contact Operations staff, please email HYPERLINK "mailto:fdmoperations@ucsc-edu"fdmoperations@ucsc-edu. Or contact Woody Carroll at 459-4062- Thank you. Linda Garfield

LindaMay Patterson 37204

Mar 1, 2014 Ms Lisa Fay MN Dear Ms Fay, As a Minnesotan, I am very concerned about protecting our clean water. I am particularly concerned about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe this statement is inadequate at best and terribly flawed. It should not be approved because various environmental disasters have proven that trying to contain contaminated water and soil over the long term is impossible. It is only a matter of time before a failure occurs releasing toxins into the surrounding water and soil. Why our state would let PolyMet mine in high quality wetland habitat only proves that at little money and a few jobs is more important than our long term concern for the environment. This mine would be in the largest designated Important Bird Area in Minnesota. Why would you risk destroying this area. Also consider that all the chemicals and toxic metals such as mercury, copper and nickel that would be unleashed into our environment affecting the aquatic organisms and habitats downstream. The food chain would be disrupted, birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Just think 20 years of mining and (350 jobs over the short term) threaten hundreds of years of water pollution to sensitive birds and habitats. The trade-off of some copper and jobs IS NOT worth the risk. Sincerely, Ms LindaMay Patterson 1919 Cabernet Ln NW Rochester, MN 55901-1906 (507) 206-0209

Lindsay Dean 18327

My name is Lindsay Dean. And I pass my time to Don Arnosti.

42605

See attachment

Lindsay Groves 52189

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Lindsay Groves 1246 Minnow Cove Skaneateles, NY 13152

Lindsay Sovil 4055

Hello, I am writing to state that I am completely opposed to the PolyMet project in northern Minnesota. Copper mining absolutely does not belong in this water-rich area. The pollution generated by the mine would cause damage for over 500 years, or forever. I live in Ely, MN and I value the clean water in our area. The few short term jobs created by this project in no way compensate the state of Minnesota for the loss of one of the most beautiful wilderness areas in the country. For centuries into the future, the people of this state will be regretting what this generation did in the name of a brief period of profits. Sincerely, Lindsay Sovil 1197 Kawishiwi Trail P.O. Box 757 Ely, MN 55731 (218) 365-2525

Alphabetical by sender's first name

Linne Jensen 47517

Lisa Fay, EIS Project Manager: I have reviewed information provided by a number of organizations concerning copper-nickel mining in northern Minnesota. I am concerned about the damage such mining has historically done to the landscape and to the health of area residents. In addition, I am concerned about the pollution that is left behind for hundreds of years after mining ceases, especially water pollution. Northern Minnesota is the site of 3 major watersheds. We and many states downstream from us need fresh clean water. In particular, I am concerned that the proposal under consideration from PolyMet for a facility in the Hoyt Lakes area will cause unmitigated damage, and that it will be followed by other such proposals from other corporations which will cause additional damage. Northern Minnesota is NOT the area in which to provide mining rights to an outside corporation that cannot possibly provide provide adequate stewardship for the water and environment in this area. Jobs are important. I support jobs in northern Minnesota that are sustainable to all life in the area, and I encourage the Minnesota Department of Natural Resources to take a leadership role is promoting sustainable industry. I request that the MDNR deny approval for all copper-nickel mining projects in northern Minnesota. Thank you for taking comments and for including my comments in your deliberations. Linne Jensen 20 Park Drive Northfield MN 55057

54483

See attachment

Linnea Mohn 46301

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: My name is Linnea Mohn. After careful review it seems plain to me that the risks outweigh potential benefits of this proposal as it currently is. There are so few places left in MN (in the world for that matter) that even come close to pristine. The BWCA is it and we have to protect it for future generations to know what was and what could be again. This plan is dangerous and the potential long term damage is terrifying. We can do better. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Linnea Mohn MN Resident and lover of the north woods. Linnea Mohn 5648 21st Ave S Minneapolis, MN 55417

Alphabetical by sender's first name

Linnea Mohn 46303

Dear Ms Fay, Mr Bruner and Mr Dabney: My name is Linnea Mohn. After careful review it seems plain to me that the risks outweigh potential benefits of this proposal as it currently is. There are so few places left in MN (in the world for that matter) that even come close to pristine. The BWCA is it and we have to protect it for future generations to know what was and what could be again. This plan is dangerous and the potential long term damage is terrifying. We can do better. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Linnea Mohn MN Resident and lover of the north woods. Linnea Mohn 5648 21st Ave S Minneapolis, MN 55417

Lisa 54331

Dear Ms. Lisa Fay, EIS Project Manager,Hello Ms. Lisa! I am a student Southwest Junior High, in Forest Lake, Minnesota. I am in eighth grade. I wanted to give you my input on how this could effect Minnesota.I have done much research in order to write to you, and what your plans are for the mining that may begin to occur. You make the plans sound very "green" as one would say. I have also gathered the information that there will be a few (or more) rivers affected, and a good amount of forests. Please consider how each decision you make will affect the people not only just in your area, but also the entire state, nation, and potentially the entire world. I know it seems quite drastic, but always consider what could happen.I think that having the mining start will benefit Minnesota's economy, but will it benefit our wildlife? Who knows, maybe it will affect more things than you know. Some of the advantages would be that it will be a big moneymaker, it will supply many jobs, and it will help our economy. Some disadvantages will be the wildlife, pollution, and nature in general will be affected. The cultural resources in the area will be affected. Mostly the historic and cultural resources. There will also be a lot of noise, dust, visual obstructions, and access restrictions to certain areas. People may not like that who live near to the area. They may think you're invading their space, which will not be such a plus for you. Like I said before, please plan out every single detail before any harsh decisions are made.The Land Exchange offers that are being made seem quite drastic. Sounds like you need a whole lot of land. The land you all are using is going to take up a lot of space. Be careful, and consider the outcome. Like I said earlier, it will not only affect this one area, it will affect possibly all of Minnesota and all of the states around it. Please take notice of all of effects, and be wise.Sincerely,Eighth Grade Student

Alphabetical by sender's first name

Lisa Atkins 40309

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Lisa Atkins 185 Hall St Brooklyn, NY 11205 US

Lisa Boulay 48119

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, We are in no hurry to get minerals out of the ground. Deny PolyMet permits till they prove that it can be done safely. The wetlands of Minnesota are no place for an experiment . The minerals in the ground will still be there 100's of years from now. So have PolyMet prove their operations before they are given a permit. I have not seen the estimate of how much money PolyMet would have to escrow to clean up the site . How do you estimate how much it would take to monitor for 500 years . I will not be around then but our future generations will.They deserve a safe place to live as I do. The health risks of the mine have not been adequately study. We need to know the cancer risks. I am not agianst jobs. It has not been shown that this will bring high numbers of long term jobs. The risk to the environment is not worth the few jobs it would provide " this is not your grandfather's iron mine ". I could keep going but I think you got my point. Please reject the PolyMet SDEIS. We all are here to protect our planet. You can do you part and protect Minnesota and all who live her by rejecting the PolyMet mine. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all “compensation” mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1-Underground mining, looking at the full ore deposit and PolyMet’s real costs; 2-Putting a liner under the Category 1 waste rock stockpile; 3-Placing all tailings on a new completely lined facility; 4-Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5-Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet’s SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to protect irreplaceable wetlands and fresh water resources in the Lake Superior Basin for generations to come. Repectfly, Lisa M Boulay Lisa Boulay 6214 Lavinia RD NE Bemidji, MN 56601 (218) 760-1502

Alphabetical by sender's first name

Lisa Boulay 48470

Dear Mr Bruner, Ms Fay and Mr Dabney, We are in no hurry to get minerals out of the ground. Deny PolyMet permits till they prove that it can be done safely. The wetlands of Minnesota are no place for an experiment . The minerals in the ground will still be there 100's of years from now. So have PolyMet prove their operations before they are given a permit. I have not seen the estimate of how much money PolyMet would have to escrow to clean up the site . How do you estimate how much it would take to monitor for 500 years . I will not be around then but our future generations will.They deserve a safe place to live as I do. The health risks of the mine have not been adequately study. We need to know the cancer risks. I am not agianst jobs. It has not been shown that this will bring high numbers of long term jobs. The risk to the environment is not worth the few jobs it would provide " this is not your grandfather's iron mine ". I could keep going but I think you got my point. Please reject the PolyMet SDEIS. We all are here to protect our planet. You can do you part and protect Minnesota and all who live her by rejecting the PolyMet mine. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all “compensation” mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1-Underground mining, looking at the full ore deposit and PolyMet’s real costs; 2-Putting a liner under the Category 1 waste rock stockpile; 3-Placing all tailings on a new completely lined facility; 4-Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5-Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet’s SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to protect irreplaceable wetlands and fresh water resources in the Lake Superior Basin for generations to come. Repectfly, Lisa M Boulay Lisa Boulay 6214 Lavinia RD NE Bemidji, MN 56601 (218) 760-1502

52497

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Alphabetical by sender's first name

Lisa Coons 16965

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lisa Coons 418 W. Pleasant St Manakto, MN 56001

50256

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lisa Coons 418 W. Pleasant St Manakto, MN 56001

Alphabetical by sender's first name

Lisa Daniels 41714

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Lisa Erickson 39542

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. "PolyMet's own study says that the water from the mine site would need at least 500 years of treatment." Wisconsin has banned this type of mining until it can be proven safe. Proven safe, this is what needs to start happening before corporations, American, Canadian, and any others, are allowed to act. In the courts we know it's innocent until proven guilty; this does not work with choices like these that severely impact, our clean water, health, threatened wildlife, and our needed and declining wetlands. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Lisa Erickson 5651 Fremont Ave N Minneapolis, MN 55430-3163 (763) 486-9731

Alphabetical by sender's first name

Lisa Fitzpatrick 18864

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: Please increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is happening) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Lisa Fitzpatrick Lisa Fitzpatrick 5229 Peabody St Duluth, MN 55804

42610

See attachment

Lisa Fralish 41857

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Lisa Fralish 1086 Como Pl Apt 5 Saint Paul, MN 55103-1374 (507) 381-6334

Alphabetical by sender's first name

Lisa Heyman 38741

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Lisa Jurgens 45527

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lisa Jurgens 2213 West 18th Place Apt #3F Chicago, IL 60608

Lisa Kucukdogerli 40440

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Lisa Kucukdogerli 235 Westlake Ctr Daly City, CA 94015 US

Alphabetical by sender's first name

Lisa Luttinen 2075

I object to the PolyMet mine proposal. They will never follow through on keeping our water safe for 20 years let alone 500- No Mine. Lisa Luttinen Grand Marais, MN Sent from my iPhone

Lisa Nebenzahl 43479

Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lisa Nebenzahl 7210 Dupont Avenue South Richfield, MN 55423

Lisa Neste 42160

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Lisa Neste 4437 Garden Club St High Point, NC 27265-1196

Lisa Proechel 42817

See attachment

Alphabetical by sender's first name

Lisa Pugh 21449

Good evening, I'm writing to state my opinion on the proposed copper mines in Northern Minnesota. I will be brief. Who I am: I am a 27 year old woman, originally from the Twin Cities area. I graduated from the U of MN with a degree in Fisheries and Wildlife. I've worked for several government agencies over the last 8 years and am currently working for a non-profit expeditionary learning school based in Ely, MN. I have been living and working just outside of Ely since 2011- My line of work: I lead wilderness expeditions from 4-50 days in length in the BWCAW and Superior National ForeSt Our students range in age from 14-60- Teenagers, families, young adults, military veterans, educators, adults, struggling youth and anyone in between represent our student population. We travel by canoe, dogsled, nordic skis, snowshoes, sea kayaks, and on foot. The majority of our expeditions are run unsupported. Students come to our school for self-discovery, to reveal character, to challenge themselves, to see and appreciate the beauty and majesty of the wilderness, among other things. We have been here changing lives since the 1960's and plan to continue our good work well into the next century. What I ask: I need to know exactly what to expect from PolyMet. Even though the mines will not be located within the BWCAW, their proposed locations have the potential to cause irreversible harm to the surrounding watershed(s). I need to know, beyond a shadow of a doubt, that this company will not contaminate our water. I need a guarantee backed by conclusive, repeatable scientific analysis that what PolyMet is proposing will not contaminate our water. I am asking for the best possible collection and analysis of data from unbiased sources about how this mining operation could impact our environment and thus, our quality of life. I need to know that if it is deemed safe by our government that PolyMet has a plan to be financially responsible for the entire operation from start to well beyond the finish and that taxpayers would never be liable for cleaning up mine pollution. Bottom line: The BWCAW and community that surrounds it, is of tantamount importance to me, both personally and professionally. If the proposed mines risk contaminating the waters that flow where I live; where my community of friends and neighbors live; where my students come to learn their potential, then we cannot allow it. We, as Minnesotans, need to protect the resources that serve us. I am not saying "no" to economic opportunity, but I am taking a stand against potential groundwater contamination, waste-rock pollution, taxpayer liability, long-term water monitoring and treatment, unstable employment opportunities, and unpredictable outcomes. I do not believe it can be done safely and I am asking of my government to consider our long-term safety and the safety of our resources above all else. Thank you for your time, Lisa - Lisa Pugh 952-237-6714 HYPERLINK "mailto:lisa.a.pugh@gmail-com"lisa.a.pugh@gmail-com

Lisa Salazar 39467

Mar 11, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Lisa Salazar 1125 Balclutha Dr Apt 107 Foster City, CA 94404-1733

Alphabetical by sender's first name

Lisa Umhoefer 17030

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lisa Umhoefer Thomas Circle Minneapolis, MN 55410

17031

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lisa Umhoefer Thomas Circle Minneapolis, MN 55410

Alphabetical by sender's first name

Lisa Umhoefer 50304

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lisa Umhoefer Thomas Circle Minneapolis, MN 55410

50305

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lisa Umhoefer Thomas Circle Minneapolis, MN 55410

Alphabetical by sender's first name

Lisa Welch 40843

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Lisa Welch 118 Cashin Dr Fayetteville, NY 13066-1514 (315) 406-1610

Lisa Wersal 6147

Lisa: Please find below comments regarding the proposed Polymet mine in northern MN. We know that, by their own admission, Polymet's system will allow millions of gallons of untreated wastewater, with heavy metals and acid, into our surface and groundwaters. Eventually, this water may make its way even to Lake Superior. Are we prepared, not only for the cleanup costs, but for the inevitable lawsuits that we will face, from residents and businesses, and possibly other states surrounding Lake Superior. We just don't know how bad the damage will be, and that's worrisome. Better to let Polymet work out the kinks of their new, untried system, SOMEWHERE ELSE. Our nickel and copper deposits are not going anywhere. Mining companies will be back with more proposals. We don't need to rush. Lisa Wersal 4525 Birch Ridge Rd Vadnais Heights, MN 55127 651-407-6247 wersa007@umn-edu

42743

See attachment

54667

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57619

Dear Lisa: I am amazed that the copper-nickel mining proposal has gotten this far. I can't imagine that any other industry would be allowed to suggest a project that will require 500 years of water cleanup. It's unfathomable. Computer models show that water from the mine and the processing plant will be contaminated with heavy metals and sulfates. PolyMet's own mine plan shows that millions of gallons of polluted water will seep off site, untreated. Additionally, millions of gallons of polluted water will be treated for hundreds of years. It's ludicrous to suggest that water can be contained well enough for over 500 years to make this project safe. Think of the recent floods of Duluth. Natural forces always surprise us with their capacity to overflow, wash out, or flood away the "failsafe" structures we have built. There’s no precedent anywhere of a mining company being able to capture all the contaminated water and treat it properly, least of all a company like PolyMet that has never operated a mine before. Lisa Wersal ********** Lisa Wersal 4525 Birch Ridge Rd Vadnais Heights, MN 55127 651-407-6247 wersa007@umn-edu

Alphabetical by sender's first name

Lisa Wersal 57872

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Ellen Thrasher 100 Hinkle Ct Lipan, TX 76462-2222 (682) 552-3027

Lisa Workman 54693

See attachment

Lise Abazs 47929

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I am an organic farmer and a wild rice harvester and I live in the Lake Superior watershed. My occupation, my recreation and my sustenance depend on a healthy environment. The proposed PolyMet sulfide mine would irrevocably change the character and health of this region. When I received my Environmental Science degree many years ago, I learned that ecosystems are interdependent in ways that we are still trying to completely understand. PolyMet's SDEIS attempts to model and predict how its mine pits and waste rock piles will effect the environment but they are woefully inadequate. They greatly underestimate the actual rate of groundwater base flow and therefore cannot possibly realistically predict the consequences to ecosystems downstream. This error could have drastic and irreversible consequences to water quality and wild rice beds. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone to assess the impacts of slope and dam failure at the mine site waste rock piles and the tailings piles, instead of just assuming that no failure can happen. (SDEIS, p. 5-546). PolyMet’s tailings would be placed on top of huge, leaky and unstable existing tailings piles. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet’s own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won’t allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lise Abazs Lise Abazs 5879 Nikolai Road Finland, MN 55603

Alphabetical by sender's first name

Liv Bly 16039

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Liz Campbell 43331

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Liz Campbell 605 n 64th st seattle, WA 98103

Liz Nordling 21227

To: Lisa Fay EIS Project Manager Dear Ms Fay. I write in opposition to the proposed sulfide mine proposed by PolyMet in NE Minnesota. I believe that our water is our most precious resource in Minnesota and this mine would do irreparable harm to it. Please do not allow PolyMet or any other mining company to harm our environment by establishing a copper/nickel mine in the Superior National ForeSt Thank you. Elizabeth M. Nordling 7477 115th St N White Bear Lake, MN 55110

Alphabetical by sender's first name

Liz White 14406

Feb 13, 2014 Ms Lisa Fay MN Dear Ms Fay, As a born and raised Minnesotan (now residing in Florida, earning my PhD in Ecology), I want to say that I hope the potential long-term ramifications of this action are truly being taken into account. My entire family still resides in Minneapolis, and I speak on behalf of them. There is money to be made and some people will get jobs, but in the long run, what are the real costs and benefits. Clean water and natural lands are not something that can be replaced, and every loss needs to be viewed as cumulative (a thousand cuts). Clean water is something that we all absolutely need, and that everyone benefits from. Who ultimately will get the greatest benefit from this mining. It's not Minnesotans or our wildlife. Everything is connected, and as we continue to degrade the natural world, each tradeoff between exploitation and conservation becomes more important. Please consider the long term effects, and weigh these relatively short-term benefits against the permanent losses that will occur. Once something is gone, you can't get it back. Sincerely, Liz White 101 NE 9th St Gainesville, FL 32601-5526 (203) 691-8755

lizz 46924

We are writing to state our opposition to the PolyMet proposal. While we might all want to assume that Minnesota is water-rich and that our state has no issues with water-quality or quantity, that is simply not true. The threats to our water that are part and parcel of the PolyMet proposal are real. We ask that this proposal be denied and that further investigation be ordered. Respectfully, Curtis A. and Elizabeth Levang 4010 Bayside Road Maple Plain, Minnesota 55359 952/476-4123 clevang@aol-com

LK Woodruff 35700

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I am sick to death of everything being done for profits, while our sacred earth is being plundered into oblivion. The true COST is simply too great. So STOP IT NOW. Seriously consider these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement: Sulfide mining has never been done in Minnesota. Why. Because it threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. ->There goes tourism. Acid Mine Drainage and heavy metal contamination have horrifically polluted waters in all other places where sulfide ore mining has occurred. ->Once that has been done - how do you FIX IT.. I have grave concerns about this project's potential impacts on our region's natural resources and public health, LONGTERM, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Not now. Not ever. Sincerely, LK Woodruff 2884 138th St W Rosemount, MN 55068-3465 (651) 295-0935

Alphabetical by sender's first name

Lloyd Hansen 43248

Dear Mr Westlake, Ms Fay, Mr Bruner and MrJimenez:: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. It would thereby adversely affect the health of people, plants and animals in the area. I'll first address the duration of the threat from toxic waste with several (lengthy) quotes from scientific journals. The first is from www.geographical.co.uk, the website created to complement Geographical, the official magazine of the Royal Geographical Society: "Wadi Faynan, Jordan - An ancieint coper-mining center around 50 kilometres south of the Dead Sea. Mining at the site started in the third millennium BC but expanded greatly under the Romans The Remains of the town, the mines themselves, agricultural terracing and a vast, 30-metre high, 200,000-cubic-metre slag heap still survives. The Roman Empire's industrial revolution continues to pose a threat today. Analysis of modern plants and animals in and around Wadi Faynan has revealed that the 2,000-year-old pollution is just as harmful in the 21st century as it was in the firSt The growth of plants is stunted and their reproductive systems are severely damaged with very low seed production. Sheep grazing in the area had high concentrations of copper in their feces (up to 25 parts per million) as well as in their urine and milk." The second quote concerns the same site and comes from the international journal Toxicology and Industrial Health 2002: " toxicologiclal implications of ancient coper mining and smelting in Wadi Faynan, southwestern Jordan the pollution legacy of ancient metal extraction activities remains considerable (Gee et al., 1997; Maskall and Thornton, 1998) Pyatt and Grattan (2002) noted that traditional foods prepared by the Bedouin of the area may be contaminated with high concentrations of lead and copper; while Grattan et al. (2003a) have reported significant enhancements of heavy metals within the floor sediments of Bedouin tents pitched within a kilometre of Khirbet Faynan; copper concentrations reached 2849 mg/kg soil, with the highest values measured around the hearths where food is prepared. The exceptional enhancement around the cooking hearths probably resulted from the combustion of plants as fuel, which contain high levels of absorbed metals; copper in the stem of Ephedra alta, frequently burned in these fires, was measured at 603 mg/kg dried plant (Pyatt et al., 2000). Ingestion of plants containing metal burdens also appears to be contaminating the modern invertebrate food chain (Pyatt et al., 2002); the accumulation of metals by modern vertebrates is discussed in Pyatt et al. (1999), where modern goat skeletons were shown to contain lead and copper in excess of 100 µg/g bone. These studies suggest that in the present day several pathways operate by which organisms may accumulate body burdens of heavy metals emitted by ancient industrial activities (Pyatt and Grattan, 2001). These include the direct ingestion/inhalation of airborne metalliferrous dusts; the ingestion of food contaminated during preparation by metal-rich dusts in the air, on the ground and via the release of absorbed metals during the combustion of plant material during cooking; the ingestion of food, both animal and and plant derived, containing metals absorbed during growth (Leita et al., 1991; Ylaranta, 1996; Moustakas et al., 1997) It is clear that modern exposure to metals derived from ancient industrial activities is considerable Analysis of buried palaeosols, sediments which have accumulated in archaeological features and mines and smelting waste suggest that during ancient times the region was highly polluted; copper and lead concentrations ranged as high as 11961 µg/g soil and 15205 µg/g soil, respectively (Pyatt et al., 2000). In the developed world, contaminant values at these leve

Alphabetical by sender's first name

Lloyd Hansen 47784

Dear Mr Westlake, Ms Fay, Mr Bruner and MrJimenez:: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. It would thereby adversely affect the health of people, plants and animals in the area. I'll first address the duration of the threat from toxic waste with several (lengthy) quotes from scientific journals. The first is from www.geographical.co.uk, the website created to complement Geographical, the official magazine of the Royal Geographical Society: "Wadi Faynan, Jordan - An ancieint coper-mining center around 50 kilometres south of the Dead Sea. Mining at the site started in the third millennium BC but expanded greatly under the Romans The Remains of the town, the mines themselves, agricultural terracing and a vast, 30-metre high, 200,000-cubic-metre slag heap still survives. The Roman Empire's industrial revolution continues to pose a threat today. Analysis of modern plants and animals in and around Wadi Faynan has revealed that the 2,000-year-old pollution is just as harmful in the 21st century as it was in the firSt The growth of plants is stunted and their reproductive systems are severely damaged with very low seed production. Sheep grazing in the area had high concentrations of copper in their feces (up to 25 parts per million) as well as in their urine and milk." The second quote concerns the same site and comes from the international journal Toxicology and Industrial Health 2002: " toxicologiclal implications of ancient coper mining and smelting in Wadi Faynan, southwestern Jordan the pollution legacy of ancient metal extraction activities remains considerable (Gee et al., 1997; Maskall and Thornton, 1998) Pyatt and Grattan (2002) noted that traditional foods prepared by the Bedouin of the area may be contaminated with high concentrations of lead and copper; while Grattan et al. (2003a) have reported significant enhancements of heavy metals within the floor sediments of Bedouin tents pitched within a kilometre of Khirbet Faynan; copper concentrations reached 2849 mg/kg soil, with the highest values measured around the hearths where food is prepared. The exceptional enhancement around the cooking hearths probably resulted from the combustion of plants as fuel, which contain high levels of absorbed metals; copper in the stem of Ephedra alta, frequently burned in these fires, was measured at 603 mg/kg dried plant (Pyatt et al., 2000). Ingestion of plants containing metal burdens also appears to be contaminating the modern invertebrate food chain (Pyatt et al., 2002); the accumulation of metals by modern vertebrates is discussed in Pyatt et al. (1999), where modern goat skeletons were shown to contain lead and copper in excess of 100 µg/g bone. These studies suggest that in the present day several pathways operate by which organisms may accumulate body burdens of heavy metals emitted by ancient industrial activities (Pyatt and Grattan, 2001). These include the direct ingestion/inhalation of airborne metalliferrous dusts; the ingestion of food contaminated during preparation by metal-rich dusts in the air, on the ground and via the release of absorbed metals during the combustion of plant material during cooking; the ingestion of food, both animal and and plant derived, containing metals absorbed during growth (Leita et al., 1991; Ylaranta, 1996; Moustakas et al., 1997) It is clear that modern exposure to metals derived from ancient industrial activities is considerable Analysis of buried palaeosols, sediments which have accumulated in archaeological features and mines and smelting waste suggest that during ancient times the region was highly polluted; copper and lead concentrations ranged as high as 11961 µg/g soil and 15205 µg/g soil, respectively (Pyatt et al., 2000). In the developed world, contaminant values at these leve

Alphabetical by sender's first name

Lloyd Hoeft 18215

My name is Frank Ongaro and I'm giving my time to Lloyd Hoeft. Thank you, Frank. There are no simple solutions, only intelligent choices. My name is Lloyd Hoeft, L-L-O-Y-D, H-O-E-F-T, and I'm honored to have the opportunity to speak tonight as a Minnesotan in full support of PolyMet. I'm also speaking as someone who is part of the local mining industry as an employee of Cat. Caterpillar has a strong commitment to the mining industry and has a long history of developing environmentally-efficient equipment and solutions. In today's global economy, copper and nickel have become common elements in nearly everything we use, from cell phones, wind turbines to hybrid cars. The mining of these metals will help support key uses such as green technology, healthcare and manufacturing. The economic opportunities that copper-nickel mining brings is exactly what our state needs to both jobs and mine the minerals we use in our daily lives. Minnesota has some of the nation's strongest environmental laws and financial assurance regulations. Combining these strict standards with the lengthy and thorough environmental review process will ensure the copper-nickel mining will be done right. PolyMet's a resourceful project. The reuse of (inaudible) infrastructure greatly reduces the environmental impact. Many third-world countries mine the same minerals with little or no regard to the impact it has on the environment or its people. We are fortunate to have regulations in place and a company whose first concern is the environment and the citizens. The Polymet team is made up of Minnesotans with strong values and character who not only have faith in this project but also are members of the local community. They're the last people who would jeopardize environment, especially in their own backyard. Let's be good stewards of the natural resources we have. Many other countries and states wish for an opportunity to mine one of the largest copper deposits in the world. This project will employ 360 people, create 600 more spinoff jobs and over the next 20 years, generate 721 in wages and benefits, in addition, there will be $10.3 billion in economic benefits to St. Louis County, as well as $300 million in local and state tax revenue, and $900 million in the federal tax revenue. That's a lot money that we can reinvest into our state. Let's use this opportunity to build a stronger sustainable industry that will allow future generations to grow and prosper in the Iron Range for generations to come. I've been to every hearing and continue to appreciate this project more and more each time. The support of the local community is admirable. There are local residents whose businesses are reliant on the clean water and they support this project. There's a lot of misinformation being thrown around, but look into the facts for yourself and you will find that most heated topics have already been addressed. We're all united here tonight because we care, so let's trust the professionals and unite the plan to mine these resources safely and responsibly. I want to conclude with a simple comment that CEO of PolyMet, John Cherry, said, "The debate isn't whether we should mine but how we mine." Thank you and have a good night.

Lloyd Kongsjord 36480

--- Forwarded message --- From: "Lloyd Kongsjord" Date: Mar 3, 2014 11:23 AM Subject: I Support Polymet To: Cc: > I work for and with the mndnr. I believe with their rules and regulations there is no reason not to permit this mine for northern Minnesota and polymet. Let's get this permitted and moving > Lloyd Kongsjord Po box 2 Talmoon MN 56637

36481

I work for and with the mndnr. I believe with their rules and regulations there is no reason not to permit this mine for northern Minnesota and polymet. Let's get this permitted and moving Lloyd Kongsjord

Lloyd Schallberg 47619

The gamble of maintaining a fresh water supply in Northeast Minnesota is too great to allow the mining of copper-nickel here. Purifying polluted water for hundreds of years is not part of a sustainable industry and does not make common sense. More effort should go to recycling, reusing copper and nickel and other metals that have already been refined and manufactured into products. Sincerely, Lloyd Schallberg 4901 Grand Ave #1004 Duluth, MN 55807

Alphabetical by sender's first name

Lobbies Luther 42032

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Lobbies Luther Minneapolis, Minnesota

Lobsang Dhondup 39332

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Lobsang Dhondup 4820 Madison St NE Minneapolis, MN 55421-2332

Logan Olson 54349

Dear Ms. Lisa Fay, EIS Project Manager,I don't believe that the NorthMet project is the right choice for Minnesota. While researching the project, I found that the pros were heavily outweighed by the cons. I found that I the environmental impact and the impact on Minnesota's many sites of cultural importance could be drastic.I know that the mining project would create jobs and a potentially stronger economy for Minnesota, but what will we be left with after the twenty years? We'll be left with people who no longer have jobs, and one of the state's treasured natural habitats left nearly destroyed. Even the current land exchange offers wouldn't be able to make up for this loss of land and habitat for Minnesota's beloved wildlife. Not only could wildlife on land be affected, but also the wildlife of surrounding lakes, rivers, and streams. The waterways of this state are important to all of its citizens and we all want to ensure that they are kept safe from pollution and harmful chemicals that could create potentially deadly chemical reactions.There are more things that would be affected by this mining project than just the environment. There are also many sites of cultural importance to Minnesotans that could be at risk by the mining project. The three identified sites are The Sugarbush, Beaver Bay to Lake Vermilion Trail, and Mesabe Widjiu which is sacred to the Ojibwe people. Losing these lands would be a huge loss for the people of the area. Also, there are several historical sites in the area. We should try to protect these important sites instead of putting them at risk.The project would have many effects on air and water quality. The air quality would decrease which could cause problems for wildlife as well as humans. Also, mercury that rubs off when the ore comes into contact can pollute water, killing fish and vegetation. These are huge risks that I don't think Minnesota is ready to take.I hope you consider my thoughts and the thoughts of all Minnesotans and make the right decision.Sincerely,Logan Olson

Alphabetical by sender's first name

Loi Kemp 44090

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. As a former member of the MPCA Board and an environmental consultant with 35 years of experience on water policy, I have been involved in a wide variety of development proposals and environmental reviews. I am convinced that this proposal is dangerous, and that the environmental review is seriously and legally deficient. In addition, as a citizen who treasures the Boundary Waters Canoe Area, Superior National Forest, and our extended family's land and cabin on Burntside Lake near Ely, I have a personal stake in protecting the waters of this region. My concerns are myriad, but I will focus on two: water quality related health impacts, and the deficiencies in the SDEIS. Mercury and sulfate emissions are a major threat from this mine. Minnesota has been trying to rein in mercury for decades, placing significant restrictions on power plants and incinerators to limit added airborne mercury. Nevertheless, ten percent of infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood, according to the MN Department of Health. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Specifically impacted by the PolyMet project are surface waters already legally impaired due to mercury in fish. These include the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes. Opening this mine in this location would add a terrible mercury burden to the waters and future health of Minnesota's residents and the ecosystem. The threat of sulfide water pollution, the unique and nearly everlasting concern of acid drainage from metal mining and the waste rock it leaves behind, will multiply in its impacts on the region's waters, beginning with how it increases mercury in the food chain. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. We need to know what mercury concentration levels will result from seepage from waste rock, peat overburden, tailings and liner leaks. Yet the SDEIS fails to provide this critical information. A promise to "control" or "capture" is meaningless. We need precise information on untreated versus treated levels, and detailed scientific information on how the capture takes place, and where residues end up. The SDEIS does not fully assess human health impacts of PolyMet's pollution. In addition to mercury in fish, manganese, lead and aluminum in water can affect the brain. Air emissions of asbestos-like fibers, nickel and other particulates can be carcinogenic. Arsenic can cause cancer. The SDEIS does not analyze harm to human beings, particularly for vulnerable populations. The SDEIS omits analysis of risks to workers on-site at the PolyMet mine or plant. The SDEIS omits analysis of risks to groundwater affecting nearby private wells coming from the tailings basin. The SDEIS apparently halved the normal 70-year "lifetime" used for cancer analyses to 30 or 40 years, and I urge you to investigate and correct that assumption. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved gaps on human health impacts. My second major concern with the SDEIS Is that it fails to carry out a full analysis of a range of alternatives. This is the heart and soul of the environmental review process. Significant alterations in activity or scope or mitigation should be fully disclosed and analyzed as to their impact on all aspects of the project. The "Do Nothing" alternative, to not build a mine at all, is to always be included and compared to the impacts of the proposal. That is how decision makers can make decisions on whether to permit an operation. Is the social and economic benefit large enough to justify an acceptable amount of environment harm. M

Alphabetical by sender's first name

Loi Kemp 44092

Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. As a former member of the MPCA Board and an environmental consultant with 35 years of experience on water policy, I have been involved in a wide variety of development proposals and environmental reviews. I am convinced that this proposal is dangerous, and that the environmental review is seriously and legally deficient. In addition, as a citizen who treasures the Boundary Waters Canoe Area, Superior National Forest, and our extended family's land and cabin on Burntside Lake near Ely, I have a personal stake in protecting the waters of this region. My concerns are myriad, but I will focus on two: water quality related health impacts, and the deficiencies in the SDEIS. Mercury and sulfate emissions are a major threat from this mine. Minnesota has been trying to rein in mercury for decades, placing significant restrictions on power plants and incinerators to limit added airborne mercury. Nevertheless, ten percent of infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood, according to the MN Department of Health. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Specifically impacted by the PolyMet project are surface waters already legally impaired due to mercury in fish. These include the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes. Opening this mine in this location would add a terrible mercury burden to the waters and future health of Minnesota's residents and the ecosystem. The threat of sulfide water pollution, the unique and nearly everlasting concern of acid drainage from metal mining and the waste rock it leaves behind, will multiply in its impacts on the region's waters, beginning with how it increases mercury in the food chain. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. We need to know what mercury concentration levels will result from seepage from waste rock, peat overburden, tailings and liner leaks. Yet the SDEIS fails to provide this critical information. A promise to "control" or "capture" is meaningless. We need precise information on untreated versus treated levels, and detailed scientific information on how the capture takes place, and where residues end up. The SDEIS does not fully assess human health impacts of PolyMet's pollution. In addition to mercury in fish, manganese, lead and aluminum in water can affect the brain. Air emissions of asbestos-like fibers, nickel and other particulates can be carcinogenic. Arsenic can cause cancer. The SDEIS does not analyze harm to human beings, particularly for vulnerable populations. The SDEIS omits analysis of risks to workers on-site at the PolyMet mine or plant. The SDEIS omits analysis of risks to groundwater affecting nearby private wells coming from the tailings basin. The SDEIS apparently halved the normal 70-year "lifetime" used for cancer analyses to 30 or 40 years, and I urge you to investigate and correct that assumption. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved gaps on human health impacts. My second major concern with the SDEIS Is that it fails to carry out a full analysis of a range of alternatives. This is the heart and soul of the environmental review process. Significant alterations in activity or scope or mitigation should be fully disclosed and analyzed as to their impact on all aspects of the project. The "Do Nothing" alternative, to not build a mine at all, is to always be included and compared to the impacts of the proposal. That is how decision makers can make decisions on whether to permit an operation. Is the social and economic benefit large enough to justify an acceptable amount of environment harm. My prediction is that

Lois Braun 6191

Dear Ms Fay, Dear Federal and State Agency Leaders: I find it astounding that a copper sulfide mine of the type proposed by PolyMet is even being considered in a part of the country dominated by wetlands. Copper sulfide mining has never been carried out safely in wet ecosysteMs After its first Environmental Impact Statement received a failing grade, its current SDEIS is hardly better. Good paperwork cannot cover up a flawed plan. The SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. That is more than twice the age of our country. Pollution seeping from mine pits into the Partridge River "would continue in perpetuity." Even if we could manage this seepage in the present, there is no way that any human being alive today can guarantee continued management that far in the future. Although I recognize the need for copper and other precious metals, especially because of their role in renewable energy technologies, the lake country of Northern Minnesota is not the place to mine for them. Arid areas of the Southwestern US would be far better. If not there, then we will simply have to learn to be more economical in our use of these substances, or find alternatives. They are simply not worth the perpetual pollution they would cause in northern Minnesota. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely Lois Braun 1988 Brewster St #109 St Paul, MN 55108

Alphabetical by sender's first name

Lois Braun 16126

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Lois Braun 19212

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they are not available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and putting public meetings in January (when bad weather is likely) seems designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just foreign corporations, will matter when the government makes its decisions. Sincerely yours, Lois Braun 1988 Brewster St #109 St Paul, MN 55108

Lois Gertz 39565

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Lois Gertz 8515 Haeg Cir Bloomington, MN 55431-1714 (612) 227-1720

Lois I Hamilton 54889

See attachment

Alphabetical by sender's first name

Lois Norrgard 16101

Dear Federal and State Agency Leaders, Co: Lisa Fay, EIS Project Manager, I am asking for an extension to the comment period on the Polymet Northmet SDEIS. March is fast approaching and I find that reading 2000 + pages - and trying to understand all that this project means to Minnesotans, it time consuming. I feel that the citizens of this state have a large stake in the outcome of this process and could use more time to do a thorough and comprehensive look at the documents Polymet has provided. This is a note I found on a "comments" section to a recent Daily Planet article: SUBMITTED BY PAT BRADY ON FEBRUARY 15, 2014 - 1:49PM. Thanks for the links from both of you above. The more I read, the more questions I have about these mining permits process on so many levels. And I am just an average citizen. Aren't our elected officials watching them like a hawk. This is more than an economic issue of 300+ jobs, it is about the future of our state. And a full discussion should be had ,not just a 60 day comment period of three town hall meetings. I agree wholeheartedly with the author. This project has far-reaching implications for the future of Minnesota, our arrowhead region, and I need to understand better the economics of a short term and very destructive extraction process compared to sustainable resource uses in perpetuity – uses that would not impact the health of the land, waters, wildlife and people of our state. Please extend the timeframe for Minnesotans to understand this project. We really need at least double the time that has been given so far. Sincerely Lois Norrgard 952-881-7282

43594

March 13, 2014 Lisa Fay EIS Project Manager Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 Saint Paul, Minnesota 55155-4025 RE: the PolyMet SDEIS for the Northmet Mining Project Dear Lisa Fay, Federal and State Agency Decision-makers, Comment additions: please include this “addendum” to my previous comments. I am insisting that the SDEIS address this problem. Lois Norrgard 10368 Columbus Circle Bloomington MN 55420 HYPERLINK "mailto:lnorrgard@lnmn10-com"lnorrgard@lnmn10-com COMMUNITY VOICES | It’s a whopper: PolyMet’s myth of 99-38% tailings seepage collection By HYPERLINK "http://www.tcdailyplanet-net/profiles/carla-arneson"Carla Arneson, HYPERLINK "http://www.tcdailyplanet-net/partners/community-voices"Community Voices March 12, 2014 HYPERLINK "http://www.tcdailyplanet-net/sites/tcdailyplanet-net/files/imagecache/HugeColorbox/14/12/fig_1_faulted_bedrock_and_surface_topography_-_northmet.jpg"http://www.tcdailyplanet-net/sites/tcdailyplanet-net/files/imagecache/NewArticlePic/14/12/fig_1_faulted_bedrock_and_surface_topography_-_northmet.jpg Map was prepared by Geologist J.D. Lehr In January, the Ely Timberjay broke the story that PolyMet’s Supplemental Draft Environmental Impact Statement (SDEIS) had a problem; its water flow modeling was flawed. Definitely a big problem when the Minnesota Department of Natural Resources (DNR) seriously underestimated the amount of water available to transport pollutants. Perhaps a show-stopping problem; the DNR is not talking. The Tribes have been saying for years that water flow numbers were wrong. The DNR’s troubles have just begun. PolyMet’s SDEIS has yet another flaw. This flaw could prove to be fatal, ending PolyMet’s Project. Symbolically, the Ides of March is coming up. Critical miscalculations PolyMet’s SDEIS has sprung a leak. The projected seepage from PolyMet’s tailings basin and the Mine Site Category 1 waste rock stockpile has been grossly underestimated. “PolyMet does not propose to line the Tailings Basin, nor is the existing LTVSMC Tailings Basin lined.” (SDEIS, p. 5-161) Just reading that a proposed tailings basin of approximately 2,900 acres in size, or four-and-a-half square miles, would be situated, unlined, on top of an existing, leaking, unstable tailings basin, also unlined, screams BIG TROUBLE. As WaterLegacy’s attorney, Paula Maccabee, summed it up, “The SDEIS assumption of nearly perfect seepage collection is the critical foundation upon which all claims that PolyMet might comply with water quality standards downstream of the tailings piles rely. This assumption is unreasonable, unfounded, inconsistent with site conditions and inconsistent with the Modeling Work Plan methodology adopted by PolyMet” Mind-boggling; the SDEIS for a proposed sulfide mining project – in water-rich Minnesota – now has two flawed key components: water flowage and water seepage. The Co-Lead Agencies have not only made incorrect assumptions for base water flow, they have made incorrect assumptions for seepage of contaminated water (uncaptured and untreated). Simply put, they do not know how much surface and groundwater flows through the area; how fast, far, and where it flows; or how much contaminated water is escaping. Major underpinnings of the PolyMet Project knocked flying by the numbers. PolyMet’s house of cards has collapsed. The numbers The claim that 99-38 percent of total seepage from the tailings piles will be collected and treated is reflected in, “Table 5-2-2-36 NorthMet Project Proposed Action Tailings Basin Seepage (gpm) During Operations,” on page 5-159 of the PolyMet SDEIS. This table states that, under existing conditions, there is a total of 2,020 gallons per minute (gpm) of seepage through the north, west and northwest flow paths, 1,811 gpm in surface seepage and 209 gpm in groundwater seepage. This Table and accompanying narrative then predicts that during operations, total seepage in these flow paths will incr

Alphabetical by sender's first name

Lois Norrgard 44178

March 13, 2014 Lisa Fay EIS Project Manager Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 Saint Paul, Minnesota 55155-4025 RE: the PolyMet SDEIS for the Northmet Mining Project Dear Lisa Fay, Federal and State Agency Decision-makers, I am a resident of Bloomington Minnesota, a citizen of Minnesota. I care deeply about the natural environment, birds and other wildlife and human communities of this state. I believe that the SDEIS has shown that this project should not move forward, there are many instances of missing, inadequate, and even false information contained within this document, even with that what is included has proven that this project is too great a risk to our waters, wildlife, air, environment and local communities to move forward and must be denied. 1) I urge that the Minnesota Department of Natural Resources (DNR) find the Supplemental Draft Environmental Impact Statement (SDEIS) for the NorthMet Mining Project, incomplete and inadequate due to many shortcomings, detailed in following comments, and that it should be rejected; and 2) I urge the United States Forest Service (USFS) to reject the proposed land exchange as not in the public interest, with reasoning to follow in these comments; and 3) I urge the United States Army Corps of Engineers (Corps) to deny the Section 404 permit due to the unacceptable adverse impacts to thousands of acres of wetlands and inadequate replacement plans. Comments: I know much of what I include in my comments you've heard before, from the thousands of other very concerned citizens and those amazing non-profit organizations that have driven and passionate staff looking into this threat with great depth. I wonder and am incredulous that we even "need" to have to try to "convince" our state and federal agencies of the real threats and illogical direction that this and any following sulfide mining projects would be for our state, and all those people and states "down river" from us. You are deciding a future. Your legacy will be far-reaching, either a turn towards a more sane way of living with our natural world, or an irreversible pollution that will be impacting our waters and health "AT LEAST" 500 years into the future. Your legacy will be asking Minnesotans to commit future generations to a significant, persistent pollution risk – I say no. You will be remembered. I know that it might seem far-fetched, foreign thinking for us humans, or even "crazy" to say this, but we need a new future. Industry (and all of us thinking we are beholden to industry) needs to clean up its act. We no longer can accept the destruction of what is left of our natural world if we are to continue to live on a "livable" planet. We are stuck in a paradigm, but it is through our own negligence, possible laziness and lack of knowledge. Well, and the lack of Will from our elected and public leaders. You might think this is far too big of a scope to use for this one project - but it is not. We are now in a tipping point of over-consumption of resources that the 6th mass extinction (http://www.nytimes-com/2014/02/11/science/the-sixth-extinction-looks-at-human-impact-on-the-environment.html._r=0 or just google "The 6th Extinction") and climate change with its melting glaciers and rising water levels, catastrophic fires, droughts, and storms, and everything else that it entails, are really only just symptoms of - a far greater problem. We are using up the planet and cannot continue down this path. Projects, like this one, that bring far more costs, impacts, and destruction than they do value to us and future generations should be stopped. A new scope to use is using creativity and our human ingenuity to create good jobs that do not destroy the health of the people doing them. Period. Do not believe that we cannot do this – we can. And this project is a first step for the iron range and arrowhead region of Minnesota. Our Governor, Legislature, and public agen

Lois Peschel 54749

See attachment

Lois Quam 27456

Attn: Lisa Fay I believe that the Supplemental Draft Environmental Impact Statement is not adequate to address the potential harm to our northern Minnesota watery environment, and I encourage you to reject it. Lois Quam 6421 James Ave S. Richfield, MN 55423

Alphabetical by sender's first name

Lois Rosenthal 41831

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Lois Schadewald 17363

Feb 17, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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Lois Schadewald 44190

Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. In my view, the proposed mine plan would have unacceptable environmental impacts. The proposed site is in a peat bog which is an irreplaceable wetland and I'm concerned about the loss of this wetland and the potential damage to the water surrounding it. I know that Polymet is mandated to address water pollution concerns, but practically speaking how can massive pollution possibly be avoided. You can write anything on paper and state that you have all sorts of contingency plans, but the day to day operations themselves are already toxic enough - how can it be environmentally responsible to extract and grind 1000 pounds of rock for every 3 to 4 pounds of mineral that will be eventually sold (by this company to the highest bidder; the transaction itself taking place from China because that is where they are exporting the enriched material to be smelted). I heard the above information firsthand at the public comment session held in St Paul from a representative for Polymet. I asked him what was the largest percentage of mineral they expected to find and he answered .3 to .4% and then explained it will take 1000 pounds of rock to obtain 3 to 4 pounds of mineral. He also explained that Polymet would enrich the percentage of mineral to around 30% here in Minnesota and then would send the resulting enriched mineral to China (he thought) for smelting because (in his words) the smelting operations in the US were already operating at maximum capacity. Also, how can Polymet be certain that they will be able to protect the environment in the event of another "500 year" flood like the one that just occured in this area. That type of event is more and more prevalent in these times of changing climate and as far as I can see could only lead to disaster at this mining site. A wetland is about the only natural habitat that could effectively mitigate the damage done by a torrential rain event - and that is exactly what is being put up for destruction with this mining proposal. Also, the Polymet proposal to protect the surrounding water is to place their waste in plastic lined pits and then put barriers to groundwater seepage (if I understand right, this means clay) around it. How is this going to protect anything in the event of torrential rains. There was a disasterous coal ash spill in Tennessee in 2008 that ended up destroying countless miles of rivers and killing entire lakes and another coal ash spill in North Carolina last month . I know that I am mixing the concept of coal ash with mine tailings, but these tailings are going to contain high sulfur content and everything else that has been sequestered in the earth of this peat bog for the last 8,000 years or so. Peat is the precursor to coal, so I believe that the concern of a toxic spill similar to what happened in Tennessee and North Carolina is valid. I have read about the land exchange that would need to occur for this mining to begin, and also about the replacement of wetlands that would be required of Polymet. However, if these proposed replacement wetlands are peatbogs, it's my understanding that they are already protected under state and federal law and should not be acceptable as replacements. If they are not peatbogs, they should not be acceptable as replacements, because bogs like this require thousands of years to form. The idea that anyone could create or restore a peat bog on some other site is laughable. According to Elanne Palcich, writing in MINNPOST on April 29, 2013, "the loss of wetlands for the proposed PolyMet mine (1,400 affected acres) would be the largest single loss in the history of the Army Corps of Engineers." According to the DNR factsheet this wetland provides habitat for the Canada lynx and the northern long-eared bat. I didn't see a mention of the moose in this factsheet, but they will also lose habitat if this land exchange g

Alphabetical by sender's first name

Lola S. 16112

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Loni Coppin 54723

See attachment

Alphabetical by sender's first name

Lonie Miesner 15891

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lonie Miesner 912 4th Street S.W. Apartment #11 Forest Lake, MN 55025

Alphabetical by sender's first name

Lora Wichser 45467

Lisa Fay MDNR Division of Ecological and Water Resources Kenneth Westlake US Environmental Protection Agency RE: PolyMet NorthMet Sulfide Mining SDEIS Dear Ms Fay, Mr Westlake: This comment letter is submitted on behalf of the undersigned doctors, nurses and other health professionals. We are concerned that the proposed PolyMet NorthMet copper-nickel mine project could have significant adverse impacts on human health as a result of pollutants released to air, surface water and drinking water. We also believe that the PolyMet NorthMet Supplemental Draft Environmental Impact Statement ("PolyMet SDEIS") fails to adequately assess important risks to human health from the pollutants that would be released from this project. The absence of any professionals from the Minnesota Department of Health from the List of Preparers of the PolyMet SDEIS is particularly troubling. We would respectfully request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks of the proposal. We would further request that, in revising the PolyMet SDEIS, a comprehensive Health Impact Assessment (HIA) be prepared under the guidance of the Minnesota Department of Health. In this letter, we summarize some issues and concerns leading to these requests. Mercury contamination of fish and impacts on neurotoxicity in the developing fetus as well as in infants, children and adults is a significant public health concern in Minnesota. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. The percentage of infants thus at risk for neurologic impairment was higher than in the Lake Superior Region of Wisconsin or Michigan. We are aware that many of the bodies of water downstream of the proposed PolyMet mine and plant are legally impaired due to mercury in fish tissue. The lower reaches of the St Louis River, where the estuary for Lake Superior fish is located, contains a particularly high level of mercury. We also know that other mine facilities release both mercury and the sulfates that increase bioaccumulation of methylmercury. Reviewing the PolyMet SDEIS, we believe that the information on mercury releases and the potential for mercury bioaccumulation is insufficient. The SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of pollutants or of hydrologic changes on mercury bioaccumulation. The SDEIS does not provide evidence to justify its claims about collection and containment of mercury and sulfates. The PolyMet SDEIS also provides an insufficient analysis of the human health risks of other pollutants, such as neurologic morbidity resulting from manganese and lead release; and carcinogenic effects of air emissions of diesel, asbestos-like fibers, nickel and other particulates, and of arsenic releases to water. The PolyMet SDEIS fails to analyze health risks to workers who would work on-site at the PolyMet mine or plant and fails to assess impacts of tailings groundwater seepage on nearby residential. The PolyMet SDEIS does not discuss impacts of exposures to vulnerable populations, such as infants, children, the elderly and persons who rely for subsistence on fish, wild rice or game species where pollutants may bioaccumulate. For these reasons, we would first request that the PolyMet SDEIS be revised to provide more complete information on mercury and sulfate emissions, deposition, and seepage from various sources, and the potential conversion to and bioaccumulation of methylmercury resulting from releases to the environment and hydrological changes from the proposed PolyMet project. We would further request that the PolyMet SDEIS be determined inadequate pending supplementation to include a Health Impact Assessment, under the direction of the

Lore Frye 42069

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Lore Frye Minneapolis, Minnesota

Alphabetical by sender's first name

Loree Kalliainen 42453

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, Please reject the proposal to allow sulfide mining in northern Minnesota. The proximity to both the Boundary Waters and to Lake Superior mean that the risk benefit ratio needs to lean heavily to benefit over risk. The benefits: a relatively small # of jobs for a few decades, maximum, benefit to the mining company's profit. The risks: contamination of 10% of the world's fresh water, long term risk and need for active management (for longer than the US has been a nation), damage to a heritage site. This will not help the residents in the region and has unacceptable risk of harm. Please use common sense and say "no". Sincerely, Dr Loree Kalliainen 7920 Hill Trl N Lake Elmo, MN 55042-9533 (651) 777-2300

Loren Espeland 16164

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Loren Eugene Sharp 54561

I don’t trust the mining companies who are trying to further rape the mother earth, for monetary reasons. It sounds like the only thing is that the “mighty buck” prevails over sanity. I have used the BWCAW area for recreational reasons and do care about the area being preserved for our children and grand children and I don’t want to leave a deadly legacy.

Alphabetical by sender's first name

Loren Loberg 42008

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

lorenz steininger 42425

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr lorenz steininger waldstr. hohenwart, None 86558

Loretta Holscher 16717

Thank for responding. Loretta Holscher Sent from my iPad On Feb 18, 2014, at 5:07 PM, "*NorthMetSDEIS (DNR)" <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Lori Andresen 43511

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Lori Andresen 3025 E Superior St Duluth, MN 55812

48487

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Lori Blauwet 48178

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Alphabetical by sender's first name

Lori Byrne 40965

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Lori Johnson 3573

I urge you to carefully consider any and all mining projects in Minnesota. Our water quality must not be jeopardized for a few mining jobs. The BWCA and Lake Superior are more important than the mining and the jobs it will bring. I am a home owner in the west Metro and in Ely, MN. I have a vested interest in the economy and future of both areas. This interest leads me to object to mining that has even a chance of harming our environment and water quality. Please preserve our environment for the future.. Delores Johnson 4331 Highland Road, Minnetonka, MN 55345 lori@sandlor-com 952-935-3961

Alphabetical by sender's first name

Lori Johnson 6275

Regarding the PolyMet Mining Proposal As a home owner in both Ely and Minnetonka, I have evaluated the PolyMet proposed mining from both the Iron Range and Metropolitan prospective. From those positions I conclude that this mining would NOT be beneficial to Minnesota. I believe it would do more harm than good.. It would greatly benefit an international company, permanently scare the landscape, provide only a few jobs for a short time, and forever destroy Minnesota's water quality. There are just no proven and time tested methods to treat the amount of acid that needs to be processed over such a long period of time. Once the water quality is gone, no amount of money and "insurance" from PolyMet will bring it back. The few jobs that it would bring to the Ely area would be drastically over shadowed by the NEGATVE impact the PolyMet Mining operation would have on Minnesota, Lake Superior, the Boundary Waters Canoe Area Wilderness and surrounding area lakes. Please do not jeopardize our water quality for a short 20-30 year gain. Once our water is polluted, it will never again be reclaimed. We will no longer be the "Land of Lakes" but only a range of polluted ponds. Please preserve and save our water quality at the highest level. Delores Johnson - HYPERLINK "mailto:lori@sandlor-com"lori@sandlor-com - 952-935-3961 4331 Highland Road, Minnetonka, MN 55345 9 West Harvey Street, Ely, MN 555731 _____ Information from ESET Smart Security, version of virus signature database 9293 (20140115) _____ The message was checked by ESET Smart Security. http://www.eset-com

Lori Olinger 45007

Lori Olinger 25 Deer Hills Drive North Oaks, MN 55127 651-490-0769 I would like to submit the following comments regarding the SDEIS for the PolyMet Mining Project: Wild Rice: A wild rice-sulfate study was recently released that could result in a change in the state's current level of 10 parts per million sulfate in waters that hold wild rice stands. I think the permit should not be issued to PolyMet until the decision is made regarding current limits and whether or not they should be updated. If a permit is given to PolyMet, it should include a provision that PolyMet would have to meet the current standards, even if they are changed by the PCA after the PolyMet permit is issued. I am also concerned that 10 taconite mines currently do not meet the current standaRd The DNR Wild Rice Fact sheet stated that PolyMet would monitor both groundwater and surface water. An organization other than PolyMet should also have responsibility for monitoring groundwater and surface water so that any problems be identified and mitigated as soon possible. If PolyMet does a good job monitoring, that is great but a separate group should also verify since so much is at stake with this project. There are many examples of pollution problems that were not identified early and resulted in significant pollution probleMs The Wild Rice Fact sheet also stated that the PolyMet project would be expected to increase concentrations in the Partridge River but only by .1 percent over existing levels. The current level in the Partridge River is currently above the required limit. PolyMet should not be allowed to contribute to the problem with the Partridge River even if it is expected to be a small amount. The tribe has sovereign authority, under the Clean Water Act, to protect its wild rice from mining pollution. This project should not move forward if there is going to be any negative impact on wild rice. Flambeau: When I asked a DNR official if there were examples of copper mines that have not caused pollution problems, he replied that Flambeau is one example of a successful sulfide mining operation. All of the articles that I have read regarding Flambeau are similar to these comments from the Milwaukee Journal Sentinel. clip_image001 clip_image002 Here is another article from the Duluth News Tribune. clip_image003 When I hear that Flambeau is an example of a successful sulfide mining operation, I am very concerned that the DNR is not being realistic about the problems that can and will occur. Flambeau is a much smaller operation than PolyMet and was open for only 4 years. There are a lot of examples of sulfide mine operations that are now Superfund sites. $80 million has been spent at the Butte – Silver Bow Creek site and work is not complete. At the Berkeley Pit in Butte , Montana, the mine was operated by Anaconda Copper and then by ARCO until it closed in 1982 and the water pumps shut down. Now the pit has become a tourist attraction as one of the largest Superfund sites in the country. The pit is a mile long and water level continues to rise and threatens the water table. Before approving the PolyMet permit, the DNR should take a field trip to Butte to see first-hand the result of copper mining. Talk to the residents of Butte. Ask about the long-term financial impact it has had. They certainly never expected anything like that to happen there. I would hate to have something similar happen in Minnesota. The PolyMet site is in a water rich part of the country that is subjected to freeze and thaw conditions. This will cause extreme challenges to be able to prevent pollution. What can go wrong, will go wrong. With so much at stake this project needs to ensure that every possibility is covered and the worst expected so that we can prevent the worst from actually happening. I am a concerned Minnesotan who wants to ensure that we don't overestimate the benefits of this project and underes

Alphabetical by sender's first name

Lori Petree 41639

Mar 8, 2014 Ms Lisa Fay MN Dear Ms Fay, Not just Minnesotans, but people from all over the country are very concerned with protecting clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. No mining company exists with sufficient funding to cover the astronomical costs that this cleanup will entail. Mining companies are likely to claim bankruptcy rather than ensure responsible ongoing reclamation. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to REJECT this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. My husband and children have canoed this area with their Boy Scout troop, and desperately would like to see it preserved for future generations. Sincerely, Mrs Lori Petree 8308 S Alsab Trl Evergreen, CO 80439-6311 (303) 674-7353

Lori Rosenthal 30769

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt And while Republicans believe that clean up responsibility is nothing to address it is of the utmost importance to have those discussions now rather than dump millions of dollars on to the tax payer. One crystal clear option to avoid all of this mess is to stop the project NOW. Not one job is worth the toxic environmental devastation that PolyMet and NorthMet will surely bring to our state. We depend on you to protect our waters and uphold the laws/regulations already in place to do so. Sincerely, Lori Rosenthal 3936 N Enchanted Dr NW Andover, MN 55304-2316

Alphabetical by sender's first name

Lori Steckervetz 40060

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Loriann Wright Gumm 47032

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Loriann Wright Gumm 6451 w bell road apt 1112 glendale, AZ 85308

47033

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Loriann Wright Gumm 6451 w bell road apt 1112 glendale, AZ 85308

Alphabetical by sender's first name

Lorie Badiyan 41741

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Lorraine Blaszczak 40330

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Lorraine Blaszczak 20 Potash Road Oakland, NJ 07436 US

Alphabetical by sender's first name

Lorraine Delehanty 40377

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Lorraine E Johnson 57239

Expect bankruptcy at end of PolyMet operations. It's what they do, put it on the people of the state to clean things up! Leave the precious metals in the earth. We don't need PolyMet!Lorraine E. Johnson2006 Adirondack StDuluth, MN 55811

Lorraine Norrgard 42661

See attachment

Alphabetical by sender's first name

Lorraine Redig 39242

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

LORRAINE Stofa 40635

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mrs LORRAINE Stofa 4464 Rue Elgin Pierrefonds, QC H9H 1V2 (514) 555-1212

Alphabetical by sender's first name

Lorrie Ogren 43264

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Lorrie Ogren 300 w main c6 Northboro, MA 01532

Lory Fedo 18182

My name is Lory Fedo. Lory, L-O-R-Y. Fedo, F-E-D-O. I am the president of the Hibbing Area Chamber of Commerce. I was not paid to be here. And I live 30 miles south of the PolyMet mining site. I want to thank all the chambers that are here this evening. Shout out to the trades. Thank you for being here in support of this project. I grew up in a small mining town. All the mines closed when I was in grade school, and I saw my community dwindle to one-third of its populating. City leaders struggled to bring in tourism and wood products job; but wages and investments of those businesses could not replace the mining and industry jobs. As we now know, it takes all types of businesses to build a healthy economy. Growing up there was hard and I have spent much of my life praying for the day we can safely mine while protecting our environment so that we can rebuild our communities. That day has come. Like many others here, I trust the science behind the SDEIS and many thousands of hours of research that have gone into it. I believe in our DNR and I trust my friends and neighbors who work in multiple government agencies and are a part of the SDEIS work team. Gosh I'm nervous. My personal message is more direct. The word "jobs" has become political jargon. A word that's on a candidate's brochure. It no longer has a face. I would like to talk about the faces behind the jobs that will be created and the faces of those who will benefit. Like the face of an ironworker who has been struggling and is collecting unemployment and trying to pay his heating bill. He does not want to move to the Dakotas and may not have to if PolyMet is a go. Or the face of a grandmother who lives alone because her children have moved to other parts of the country for work. Mine. If this job goes, her oldest grandchild hopes to move back home to get a job at the mine and help out. Or the face of children on the Iron Range who love where they live and want mom and dad to live here forever so they can fish, swim, and ski. Most of them will likely need to move out of the area for work without more jobs on the horizon. Or the thoughtful faces of scientists, geologists, and engineers who want to move their families here so they can work on this very exciting project. Or the face of a main-street clothier who fears he will need to close his store because of dwindling sales. The possibility of this project brings him hope. And finally, the hundreds of faces of people across the state of Minnesota who could be destined for poverty. With the jobs that this project could provide many would learn a trade, would work and feed their families, and contribute to a community. Sometimes we forget the faces in the midst of all the media hype and drama. I'm just asking that we remember them as we move forward and that we move on with this project so they can get to work. Thank you.

Alphabetical by sender's first name

Lou Ferreri 4534

To: Lisa Fay, EIS Project Manager From: Louis Ferreri HYPERLINK "x-apple-data-detectors://2"1245 Fairmount Ave HYPERLINK "x-apple-data-detectors://2"St Paul, MN 55105 What current jobs could be lost as a result of environmental changes. For instance, will tourism be disrupted by changes in land use and traffic in the region. What is the potential economic impact of a percentage decrease in tourism. What other livelihoods could decline as a result of changes in lands and waters. For instance, could fisheries decline. Could wild rice stands decrease. If so, to what extent. What is the estimated cost of building and maintaining the public infrastructure to support this project. For example, who builds roads and pays for maintenance. Who pays for public services to support workers and families moving to the area. What, if any, portion of this expense has PolyMet been asked to cover. If not, why not. What, if any, guarantee has PolyMet made to ensure that Minnesotans will be hired for mining work. Will they be union workers. What will be the wage differential between the highest paid executives and the lowest paid workers. Before granting any permits will the State of Minnesota make its own estimate of financial reassurance. And if so, will it be more in line with the Grand Portage Band of Ojibwe's estimate of $90-5 billion set aside at the outset. If not, why not. Why would the State of Minnesota assume the risk of permitting a hard-rock mine when not a single one has ever operated without gross pollution. What is the specific cost/benefit analysis. Because PolyMet says water pollution will last at least 500 years and millions of gallons of polluted seepage will enter groundwater each year, the State of Minnesota will be accepting risks for at least seven generations of Minnesotans if it permits this mining operation. What is the specific cost/benefit analysis that justifies this long-term risk. PolyMet calls for at least 500 years of treatment of polluted water. Minnesota Rules require the site to be maintenance-free at closure. Does this mean PolyMet will be keeping the mine open for at least 500 years. What company—national or international—has been around for at least 500 years. How can financial assurance exist if a company no longer exists. What laws, international and national, might prevent PolyMet from going bankrupt, closing its doors, or otherwise failing to meet the terms of this agreement. Sent from my iPad

Louis Asher 15741

See attachment

18255

My name is Louis Asher, Vadnais Heights, Minnesota. What I want to say is that it is absolutely insanity to assume that we can trade a few hundred jobs over twenty years for an eternity of pollution, and that's what it is going to be. I worked at 3M for 39 years and there is a few things that I learned there as a statistician and researcher. And one of the biggest things that I learned was that you can't make up facts. You take the data and then you take the information and you create real facts. That's how a company stays in business and that's why 3M is such a great company. PolyMet is lying through their teeth and I'm just disgusted by the whole thing. Thank you very much for listening. Thank you.

Alphabetical by sender's first name

Louis Asher 19878

Across the country, there is no example where a sulfide mine has been operated and closed without polluting surface or groundwater with acid mine drainage, sulfuric acid and/or toxic metals. The risk of pollution is greatest in a water-rich environment like Northern Minnesota, which contains watersheds for the Boundary Waters Wilderness, Lake Superior and the Mississippi River basin. The PolyMet open-pit sulfide mine is the first sulfide mine proposed in Minnesota. Pollution from this project would impact the Lake Superior watershed. Based on PolyMet's recent technical documents: •PolyMet's open-pit sulfide mine would impact as much as 8,000 acres of high quality wetlands. These wetlands ensure clean water and protect fishing in the St Louis River and Lake Superior. This would be the largest permitted destruction of wetlands in Minnesota history. •The ore is very lean, so more than 99% of the rock that is dug out of PolyMet's open pit mine will end up as waste. •PolyMet's sulfide mine would create a permanent waste rock heap of 168,000,000 tons and dump 228,000,000 tons of tailings on top of a tailings basin that is already leaking and violating water quality standards. •Pollutants from PolyMet's waste rock heaps, mine pits and tailings dump are likely to seep, leak and propagate through fractures in rock. These pollutants include arsenic, lead, manganese and mercury, which harm human health, as well as sulfates and metals that are toxic to wild rice or aquatic species. •Pollutants at the PolyMet mine site and tailings dump would exceed water quality standards for 500 hundred years if not eternity. •PolyMet is suggesting that it will treat some of its mining pollution essentially forever – using untested technology. •Glencore, a global commodities giant with a record of environmental, financial, and human and worker rights violations, now owns about 34-9% of PolyMet and is likely to own more. In its merger with Xstrata, Glencore committed to provide copper concentrate to China for the next 8 years. Metals and profits would go abroad, leaving pollution for local communities. Benefits to the community. PolyMet claims it would hire a few hundred local residents at the mine. The mine is currently proposed to operate for 20 years. This will be followed by an eternity of pollution. Sincerely yours, Louis Asher 4525 Birch Ridge Road Vadnais Heights, MN 55127

Louis B Asher 42847

See attachment

57168

The history of sulfide mining is one of toxic environmental degradation. There is no evidence that sulfide mining can be done without great environmental damage – especially in a water-rich area such as NE Minnesota.Louis B. Asher4525 Birch Ridge RdVadnais Heights, MN 55127

Louis Hilgemann 27340

Dear project manager, I have some serious concerns with with Polymet Supplemental Draft Environmental Impact Statement. First, the SDEIS doesn't take into account the cumulative effects of all the sulfide ore mining proposals and expansions of mines in the area. This cumulative effect will have a much large impact than this one specific project, and needs to be addressed in the final EIS. Also, the model used for analyzing the impact on water quality is completely erroneous. This model doesn't use the actual hydrology of the area. it is based on a much lower water quantity than truly exists, and does not account for major rain events which are sure to continue into the future (recent Duluth flood). These issues need to be addressed in the final Polymet EIS statement. Sincerely, Louis Hilgemann 3006 Woodland St Ames, IA 50014

Alphabetical by sender's first name

Louis Hilgemann 27584

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Louis Hilgemann Louis Hilgemann 3006 Woodland St Ames, IA 50010

49516

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Louis Hilgemann Louis Hilgemann 3006 Woodland St Ames, IA 50010

Alphabetical by sender's first name

Louis Hoerr 39228

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. I think it important to inform you that the reason my wife and I moved here from Missouri is in fact due to the BWCAWA. We drove many hours, that first time 30 years ago to spend a week enjoying the unspoiled pristine wilderness. We decided after that trip to live in Mpls. She asked for and received a transfer by Ralsto Purina Corp. and here we are in 2014 with no plans of moving to any other place in no small part due to our state's historically unique strong environmental positions. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Louis Hoerr 5906 W 39th St St Louis Park, MN 55416-2840 (612) 710-2278

Louis Kirkbride 41782

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Louis Lelchuk 18891

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Louis Lelchuk 3943 Bryant Ave S. Apt. 9 Minneapolis, MN 55409 6128248240

Alphabetical by sender's first name

Louis Mielke 48199

10 new people recently signed Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota." on Change-org. There are now 359 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 360- Louis Mielke Minneapolis, Minnesota 359- Laura Loucks Eagle, Wisconsin 358- Dorothy Janovyak Fort Wayne, Indiana 357- Joseph Brandl La Farge, Wisconsin 356- Savanna Richter Highland Park, Illinois 355- Grace Scribner-O'Pray Minneapolis, Minnesota 354- Matt Boys Eden Prairie, Minnesota 353- Julia Kuebelbeck St Cloud, Minnesota 351- Treana Mayer Minneapolis, Minnesota 350- Jennifer Steffen St Peter, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJmaXZlX2h1bmRyZWQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTI5LCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA2MDQ0OTN9fQ==and ip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVKzweybhsKlXmOwWzzG1f4uaUHVoRqDfywFl2jecXMyZ0b8rjkOTQfKkZ42eRKjdDg7ZidxbNJu3OCVwAMSpmYe3IFje9PcX29QMcT9Qc-2BuTiY2w6QW3DnLCh5G1A-2Bd8r4Tpe7c7tZjZYCW5E76RxXP4Vh44q0FvH5nitemmaXaukz1Y2kfe1YKX1dRHFg9nYRKMM-2Br2QSew-2B1ZCNzm4FZ6Cw4Le34zMpejBaWAHPutIw

Louis R Karakash 42766

See attachment

Alphabetical by sender's first name

Louise Dahlgren 17208

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Louise Dahlgren 6201 Magda Drive Maple Grove, MN 55369

50474

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Louise Dahlgren 6201 Magda Drive Maple Grove, MN 55369

Alphabetical by sender's first name

Louise Waddick 16293

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Lowell Harp 32909

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Lowell Harp 209 S 7th St Oregon, IL 61061-1701 (815) 732-3953

Alphabetical by sender's first name

Lowell Johnson 39559

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Luann LaValley 15794

· To Lisa Fay, I'm writing to submit a comment on the Supplemental Draft Environmental Impact Statement (SDEIS) for PolyMet Mining's proposed NorthMet project. First, I want to express my confidence in your agency to thoroughly evaluate the project and its ability to mitigate potential environmental impacts. I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. Additionally, I'd like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out – all the more reason to support it. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws – some of the strictest environmental regulations in the country. Minnesota is home to a world-class deposit of copper, nickel, platinum, palladium and gold. This is an economic opportunity right below our feet that will benefit the state's economy for future generations. PolyMet will produce these metals in an environmentally sound way and generate significant economic activity, expanding and diversifying our economy and creating hundreds of jobs that can support families and sustain communities. We cannot afford to miss this job opportunity. This project would mean 2 million construction hours, 360 full-time mining jobs and more than 600 related jobs – jobs that our state needs. Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. Based on my review and the level of detail included in the draft EIS it appears that a thorough evaluation of the project and potential impacts has been completed. Although I am from a neighboring state I do work in Minnesota and have been following this project. I see the value of adding these jobs into our region. Luann LaValley 1501 N 76th Street Superior, WI 54880

Luca Rossetto Casel 40402

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Luca Rossetto Casel via Torino, 286 – 10050 Sant'Antonino di Susa (Torino) Sant'Antonino di Susa, ot 10050 IT

Alphabetical by sender's first name

Lucas Lundgren 43732

I have worked as a geologist for the past 4 years, and I was fortunate enough to start my career working for PolyMet. At the end of 2009 I graduated form UMD and was hired by PolyMet to work on a drilling program for the exploration of the ore body. The experience was invaluable to me. Since the completion of of that project I have been on the road working from the mines in Nevada to the oil fields of North Dakota, all the while waiting for the chance to go back to work for PolyMet. There is no company in the world that will be held to such strict environmental standards. Let PolyMet be the model for the rest of the world. Let other students have to opportunity to actually get a job when they graduate, just as I did. Please grant this great company the permit to mine. Thank you, Lucas Lundgren

Lucas Runquist 54353

Dear Ms. Lisa Fay, EIS Project ManagerMy name is Lucas Runquist. I am a student at Southwest Jr. High, Forest Lake, MN. I am writing this letter to you for a project we are doing in class. I will inform you on my opinion on the PolyMet Mining Inc. project. I hope you can find it useful!First off, I would like to clarify that this company has an excellent plan in place. It would benefit our state of Minnesota in several ways. It would be the first one in our state as well. This project could help our economy, and Northern Minnesota's water supply. However, many things would be affected in the process in the making of this project.If we went on through with this project, many natural resources, such as forests, lakes, etc. This would include the land that the Ojibwe people consider sacred. Also, the natural habitats of some species of animals, fish, insects, etc could be damaged. I am aware of the plans that could potentially minimize the effects of these risks.If the DNR is willing to go through with this idea, then I will support them. If they decide not to, I'm all for it! Either way could help shape the future of our beloved state. I hope you found my information useful! Thank you for your time!Sincerly,Lucas Runquist

Lucia Reid 44638

I sincerely hope this project will NOT be allowed. Our environment is being rapidly destroyed by projects similar to this. There are very, very few jobs created and possibly 200+ years of cleanup. EVERYONE who visits Minnesota as well as residents will be exposed to the contamination created. If passed, this will be a serious environmental disaster to land, water and wildlife (who are already in danger). Thank you, Lucia Reid Creativecrystal-com 73 South Palm Avenue #222 Sarasota, FL 34236 941-388-7770 FAX 941-388-7774

Lucinda West 57201

Water’s precious, we shouldn’t hurt it. That’s all. There’s many, many details in that, but that’s the basis of it.Lucinda West1507 Chelsea StSt. Paul, MN 55108

Lucy Duroche 42154

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Lucy Duroche 3542 4th Ave S Minneapolis, MN 55408-4511

Alphabetical by sender's first name

Lucy Knoll 40805

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I send this to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt It is crucial that PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. The wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation" wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1-Underground mining, looking at the full ore deposit and PolyMet's real costs; 2-Putting a liner under the Category 1 waste rock stockpile; 3-Placing all tailings on a new completely lined facility; 4-Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5-Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important wat

Alphabetical by sender's first name

Lucy Knoll 49934

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lucy Knoll 2580 Kenzie Terr. Minneapolis, MN 55418

Lucy Sedgwick 18366

My name is Lucy Sedgwick. I am giving my time to Howard Markus.

Alphabetical by sender's first name

Lucy Sedgwick 19529

So my name is Lucy Sedgwick, L-U-C-Y, S-E-D-G-W-I-C-K, and I recently moved to 1722 Princeton Avenue in St. Paul. And I would like to make a statement that this SDEIS is insufficient and should not be approved. I'm speaking not only for myself, but also as a staff member of Audubon Minnesota, so I'm also speaking on behalf of our 12,000 members across the State. The reasons that I think it shouldn't be approved is it doesn't provide important information. A lot of the comments that I've heard earlier tonight are talking about how they believe in the science that's being put forward and they trust in the agencies that are putting this forward, and I definitely believe in science, and I definitely believe in the agencies that are doing this, but the proposal as it currently stands is not enough. For instance, PolyMet claims to have made minimized -- claims to have minimized destruction of wetlands in their mining plan. They basically say, "This is the best thing we've got." However, an underground mine would actually disturb far fewer acres to access the ore in the headwaters of the St. Louis River. So in my opinion, the ore should probably sit in the ground until the value rises sufficiently to allow less destructive mining techniques to access tithe reason PolyMet isn't saying, "Hey, we could go underground and do less damage to our environment" is because, for them, it doesn't make economic sense. Well, in that case, they've clearly not minimized the destruction. If they were actually going to do that, they would go after it in another direction. And this is actually in reference to Section 8, pages 7 through 8, Appendix B and Casco another area that I think is a problem, especially representing Audubon Minnesota, we care deeply about our birds. It's, in fact, in our mission statement. Our mission is to conserve and restore natural ecosystems, focusing on birds, other wildlife and their habitats for the benefits of humanity and the earth's biological diversity. I mention our mission statement because we do have 12,000 members across the State, many of whom have been members for decades and who are literally all over the beautiful State of Minnesota. And right now, I do not think that this SDEIS is sufficient. I don't think that it fully protects and replaces loss of significant habitats and species. For instance, the entire 3,013-acre mine site had been classified by the Minnesota Biological Survey as of high biodiversity significance. So basically, there are two state-endangered, two state-threatened and seven state-special concern plant species that are actually found on the mine site. So six regional forester-sensitive species -- and what that basically means is they're a federal forest plant species of concern. So these are plants that have been identified by the federal government, by the state government to be in trouble -- are found on the mine site, the mine site that PolyMet proposes to completely destroy, and you can find this in SDEIS Section 4, pages 173 through 188.The SDEIS generally describes the impact as too small to be considered significant. Well, if the species were not significant, what the heck are they doing on all of those lists? They're important to people, they're important to our government, to our federal government, to our state government and to the people of Minnesota, and you can see this in Section SDEIS Section 5, pages 339 through 354.The last thing that I want to say, this is coming from me personally. I'm going to have my 25th birthday in a little under a week, and I noticed that a lot of people that were getting up and testifying today were quite a lot older than that. I have a lot of time -- fingers crossed -- left on this planet, and I intend to have kids, and I do not want to bring them into a world where they do not have access to clean drinking water and cannot go out and enjoy the species that I've been able to go out and enjoy through my childhood. So I urge all parties to reject this EIS as it stands. It is insufficient and should be rejected. Thank you.

Alphabetical by sender's first name

Lucy Soderstrom 44629

Thank you for accepting my comments on the PolyMet NorthMet SDEIS. Although I do support a lot of the iron mining currently in Minnesota, copper mining has a much greater environmental impact, and due to the EIS' lapses in addressing serious concerns, I do not support the NorthMet mine. One of the biggest issues is the necessary ongoing treatment of contaminated water after the mine is closed. The model used by the SDEIS measured 200-500 years into the future with no decrease in contamination. Although PolyMet states that it will cover the costs for water treatment, it does not give any explanation as to how the treatment mechanisms will be maintained for hundreds of years. The EIS does not state how long the geomembrane covers and membranes will last, how they will be replaced and what replacement will coSt Neither does it state how long the equipment doing the treatment will last or how that will be replaced. There is no information as to how PolyMet will maintain the physical plant after operations. In general, it doesn't provide adequate information for the public, voters, and regulating agencies to evaluate whether PolyMet will be able to treat contaminated water as projected. In the 2013 Annual Report, Polymet stated it has no experience with mining or treating contaminated, thus the EIS should be required to inform the public in more detail as to how they will maintain water treatment for 500 or more years. The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuries of costly water treatment, or how the public will be protected from liability. Furthermore, not all polluted water can be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. Mitigation plans for these seepages must be accounted for. Because PolyMet has no mining experience or financial capacity to develop and maintain a copper mine, it is likely that control of their decisions and operations will fall to the established mining entities that will ultimately fund the operations. So why isn't Minnesota requiring that the controlling company to make the commitments needed for such a massive mining operation. Why Glencore Xstrata and other mining giants set up their quasi-affiliates as they do is fully understandable, but that doesn't mean the DNR cannot require clear accountability from named funding entities. It's irresponsible to do otherwise. Glencore Xstrata will be among the primary beneficiaries of permits granted and as such should be the applicant and be subject to legal recourse by the state of MN for any failures to comply with the permits or other violations of law. Not all potential consequences can be anticipated at this point, however, in these circumstances with technology and processes largely untested on this scale, considerably more contingency planning is warranted. For an entity with no mining experience, asking for the immense responsibility of protecting the water rich environment they seek to mine requires greater and more confident planning and demonstrated ability to address inevitable, unexpected breaches in the mitigation mechanisms outlined in the EIS. There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foresee

Luis Ortega 43987

I would just like to say that I am strongly opposed to the idea of establishing another mine in Minnesota, for a number of reasons. The short-term benefit to the few entities with economic interests in this issue should hold no weight over the right for Minnesotans to keep their environment sustainable and clean. If Polymet has any right to establish this mine, they should be obligated to establish a trust fund (handled by an independent third party and mediated by the state government) to assure that Polymet will act with the highest integrity in their part of stewardship for the environment. Regards, Luis Ortega University of St Thomas | Class of 2014 | Neuroscience Major w/Justice and Peace Studies Minor Hana - Vice President of Operations Maysha - Education Program Director; Research and Evaluation Chair Minneapolis Heart Institute Foundation - Clinical Research Intern Minnesota's Future Doctors Scholar Cell: (612)-382-8358 "The task of leadership is not to put greatness into humanity, but to elicit it, for the greatness is already there." ~John Buchan

Luke Borkenhagen 44688

This is a firm NO on PolyMet. Whatever the facts, whatever happens down the road, one thing is clear: The BWCAW is one of the most beautiful places in the world - and should be protected MORE, not LESS. Thank you. Luke Borkenhagen 2817 Pleasant Ave Minneapolis, MN 55408

Alphabetical by sender's first name

Luke Christenson 47295

Dear Ms Fay, Dear Federal and State Agency Leaders: Please don't take a risk at permanently damaging our beautiful natural resoruces in Minnesota - it is an advantage we have in the state that will increase in value over time. It wil reamain a powerful tourism draw int he years ahead. It is why I am proud to be a Minnesota tax payer. All you have to do is travel around the world and look at remanents of the messes they have left behind. It is like the invasive species - once here no going back - but at a more massive and dangerous scale. I love our lakes - fishing and incredible beauty of the north woods - as a proud taxpayer I am counting on you to protect them for our next generations. Sincerely Luke Christenson Luke Christenson 12309 Fiona AVe N. White Bear Lake, MN 55110 651-260-4760

Luke Jacobs 38716

Mar 11, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Luke Jacobs 411 S. 9th St Bird Island, MN 55310 (218) 393-0276

Luke Johnson 18299

My name is Luke Johnson. I am from Minneapolis, Minnesota. My stance on this issue is pro jobs. I am a 26-year-old, unemployed, and I represent some of the 44 percent of young Americans between the age of 18 and 28 who are under employed. This includes any job that is not directly related or requires their degree or qualifications of study. 360 jobs is not an adequate amount for any project, for me to consider it beneficial for my age group. A small fraction of the 360 will be Minnesotan jobs. I recently worked in Nicaragua for four months on a fisheries project and a freshwater lake system. I am very familiar with the concept of exporting environmental externalities. However, I feel it is our responsibility to utilize the full effect of our Environmental Impact Statement to reciprocate for the externalities that we are exporting. And one of the full force aspects of the Environmental Impact Statement should be exercising 23 the full 180-day review process. I think those are two good points. Cool. Thanks.

Alphabetical by sender's first name

Luke Johnson 39438

---Original Message--- From: luke.warrenjohnson@gmail-com [mailto:luke.warrenjohnson@gmail-com] Sent: Monday, March 10, 2014 9:30 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: Before I am able to adequately assess the full potential of this proposed mining project, and the many others soon to follow if this project is approved, I and every other Minnesotan need to see an adequate environmental review. A) The DNR has not allowed sufficient time for third parties, other than those hired through Polymet and/or DNR, to model and measure the projected water quality impacts. A 200 year hydrologic model should be vetted by numerous experts from a number of different parties and interests. No other agency, person, or organization has had the time to check whether or not the 200 year model is accurate and sufficient. A 90 day public comment period is too short. The public, including other experts, need more time to fully process these proposed benefits and impacts. B) The GIS maps used in the 100 mile swamp are wrong. The shapefiles in the SDEIS used to delineate the supposed USGS 100 mile swamp are not correctly georeferenced nor do the UTMs of the waypoints match those any other literature on this 100 mile swamp area. Thus DNR should correct its swamp delineation in order to more precisely predict the potential swamp impacts. C) Minnesota is dramatically changing because of climate change and this project will contribute to the root of the problem: greenhouse gas emissions. D) At age 26, I am unemployed and living in my Mom's basement. I encourage new job growth. As a fish biologist and GIS technician I may be eligible to gain employment from this Polymet project, though very unlikely due to the small number of projected jobs created. The type of boom bust development this project embodies is part of the reason my generation suffers a 26% unemployment rate. I would rather pay more taxes now, on the little income I make, to fund sustainable economic development in Northeast Minnesota. This is a much better alternative than me, my children, grandchildren, or great children paying for the inevitable restoration and cleanup efforts that will someday be required. This project is not sustainable growth and will do more harm than good. Sincerely, Luke Johnson 253 Washburn Ave N Minneapolis, MN 55405

Luke Laaveg 6334

Dear Ms Fay, Look, this obviously isn't going to work. I can certainly see the immediate benefits of this plan. Since when, though, has Minnesota ever been one to act on immediate financial impulse by way of throwing the health of it's people, environment, and pride by the wayside. This is an awful decision. Please understand the depth of disaster this permit can create for centuries to come. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Thank you for your time. Sincerely, Luke Laaveg Luke Laaveg 612 16th St Apt 1 Des Moines, IA 50309

Luke Peterson 6076

A responsible approach to mining should be followed in the State of Minnesota. This approach balances responsibility to the environment we all enjoy and job creation and economic growth. I applaud the DNR for following this balanced approach and leaving emotional, political, and unsubstantiated rhetoric outside of the approval of the EIS. Congratulations on a leading the state in a collaborative process that will continue to move our State forward in responsible mining. The right results, the right way. Sincerely, Luke J. Peterson 12577 West Skyline Parkway Duluth, MN 55810 Luke J. Peterson Financial Analyst - ALLETE, Inc. E-mail: ljpeterson@allete-com Tel: (218) 355-3216

Lura and Daniel Anderson 54668

See attachment

Alphabetical by sender's first name

Lura Wilson 21029

Dear Lisa, I'm writing in hopes that the PolyMet NorthMet sulfide mine project gets denied. If this project goes through it will destroy this beautiful wilderness that we enjoy and need, including jobs. This area depends highly on tourism. My husband and I run a small lodging business and a Bed and Breakfast where people come from all over the world to enjoy. If Polymet is allowed to mine it will destroy our business and many others. Tourism in this area will last a life time where the mining project, if allowed, will only provide temporary jobs and potentially ruin the landscape FOREVER. I have heard the plans for clean up but that will cost our children and grandchild dearly and realistically there is no guarantee that the destruction caused by mining can be cleaned up. I personal believe we will lose the beauty for ever along with many jobs if this project comes to fruition. SDEIS admits that PolyMet would directly destroy thousands of acres of wetlands in the Superior National forest not to mention our drinking water, wildlife, including moose whose population is already at risk, birds, fish, and eventually even our big Lake Superior That is incredibly sad. PLEASE reject the PolyMet's Open Pit sulfide mine project due to its unacceptable negative impacts that will permanently destroy this beautiful area. Sincerely, Lura Wilson 6125 Highway 1 Silver Bay, Mn. 55614 218-353-0346 Lura Wilson

21033

Dear Doug, I'm writing in hopes that the PolyMet NorthMet sulfide mine project gets denied. If this project goes through it will destroy this beautiful wilderness that we enjoy and need, including jobs. This area depends highly on tourism. My husband and I run a small lodging business and a Bed and Breakfast where people come from all over the world to enjoy. If Polymet is allowed to mine it will destroy our business and many others. Tourism in this area will last a life time where the mining project, if allowed, will only provide temporary jobs and potentially ruin the landscape FOREVER. I have heard the plans for clean up but that will cost our children and grandchild dearly and realistically there is no guarantee that the destruction caused by mining can be cleaned up. I personal believe we will lose the beauty for ever along with many jobs if this project comes to fruition. SDEIS admits that PolyMet would directly destroy thousands of acres of wetlands in the Superior National forest not to mention our drinking water, wildlife, including moose whose population is already at risk, birds, fish, and eventually even our big Lake Superior That is incredibly sad. PLEASE reject the PolyMet's Open Pit sulfide mine project due to its unacceptable negative impacts that will permanently destroy this beautiful area. Sincerely, Lura Wilson 6125 Highway 1 Silver Bay, Mn. 55614 218 353-0346

49797

Dear Mr Tim I'm writing in hopes that the PolyMet NorthMet sulfide mine project gets denied. If this project goes through it will destroy this beautiful wilderness that we enjoy and need, including jobs. This area depends highly on tourism. My husband and I run a small lodging business and a Bed and Breakfast where people come from all over the world to enjoy. If Polymet is allowed to mine it will destroy our business and many others. Tourism in this area will last a life time where the mining project, if allowed, will only provide temporary jobs and potentially ruin the landscape FOREVER. I have heard the plans for clean up but that will cost our children and grandchild dearly and realistically there is no guarantee that the destruction caused by mining can be cleaned up. I personal believe we will lose the beauty for ever along with many jobs if this project comes to fruition. SDEIS admits that PolyMet would directly destroy thousands of acres of wetlands in the Superior National forest not to mention our drinking water, wildlife, including moose whose population is already at risk, birds, fish, and eventually even our big Lake Superior That is incredibly sad. PLEASE reject the PolyMet's Open Pit sulfide mine project due to its unacceptable negative impacts that will permanently destroy this beautiful area. Sincerely, Lura Wilson 6125 Highway 1 Silver Bay, Mn. 55614 Lura Wilson

Lydia Holsten 42152

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Lydia Holsten 6400 Smithtown Rd Excelsior, MN 55331-8211 (952) 474-5780

Alphabetical by sender's first name

Lydia Kulesov 15414

Feb 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuri

Alphabetical by sender's first name

Lydia Morken 16630

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lydia Morken 2313 141ST LN NE ANDOVER, MN 55304

50018

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lydia Morken 2313 141ST LN NE ANDOVER, MN 55304

Alphabetical by sender's first name

Lydia Neus 54197

I will not write this letter with the message that I do not understand the reasons for which you chose to let the mining commence in the Boundary Waters. I get it, but the future possibilities of what may come from this new reality is both shocking and fear inducing. Though this may bring jobs to the area (for a time) and may increase the amount of metals, at what cost is this happening to my world? The Boundary Waters are an escape for many. A safe haven where the land is untouched by the damaging hand of man and where the beauty of nature is purely exposed. As a person unable to visit it is daunting that adults can make decisions like this that may begin a domino affect changing the lives of many, possibly my own, as well as those of my offspring. Think not only if solving an issue, think of how this may hurt the children of tomorrow. The beginning of this sulfuric mining will degrade not only the water supply, but also the tourism that the area often depends on. If this area is changed astronomically and the jobs produced may not last. There is not a long term solution, their “solution” will only lead to more problems. The water in the Boundary Waters is one of our state’s purest watersheds and the world only has .024% of the total water supply that is easily drinkable. Are you really willing to risk the purity of this resource and necessity to human life? I only ask that you think of how this decision will change the lives of so many down the road. One day people will be wondering what in the world possessed you to make this decision. It will go down in history though for its hurt and not its aid.

Lyle Bradley 18168

Good evening. I was wrong when I came down here. I told the guys there would be a very small crowd tonight because of the cold weather. In Minnesota weather doesn't seem to bother us. I worked for the Smithsonian Institute several years ago when they came to Minnesota. And I remember one of the saying, "I can't believe it. You have more people out for this program than in Los Angeles." People in Minnesota are concerned about history and the environment. So I want to congratulate everyone that came tonight. I'm a half-lifer. I spent half of my life in Iowa and half of my life in Minnesota. Don't hold that against me. But in Iowa if you don't deal with agriculture, you don't get very far. In Minnesota we have such a tremendous diversity of jobs and so on that we cover the whole gamut. And that I think is a real congratulatory thing for Minnesota. Let's keep it up. Half of my half life I spent in the Marine Corps. And half of my life I spent teaching kids in high school. And I look at that past history that I've had and I feel that I spent part of my life protecting this country and part of my life protecting the future with good generations. And we have a lot of good scientists coming up. I've been involved with science all the way through my college and work schedule. And I've been very concerned because this particular project is going to load us with things that are not very good. Sulfide mining brings sulfuric acid. Have you ever tried swimming in sulfuric acid? Now not only sulfuric acid but also from sulfide mining we get a lot of other good ones, like a little mercury and a little so on. So this is something that is of great concern to me, because when I'm thinking about future generations -- I have five of my own kids plus the thousands of kids that I taught -- we should give them as good an environment as is possible to have; and we cannot do it when we are going to pollute our area with some of these very powerful chemicals. We have to take care of people's jobs. And I lived through the 1930's when we had the interesting job markets, the people standing in food lines, and so on. I know what that is about. But we can handle this thing. Jobs are short lived. Water is long lived.

Alphabetical by sender's first name

Lyle Brandt 39073

---Original Message--- From: Lbrandt@uspsoig-gov [mailto:Lbrandt@uspsoig-gov] Sent: Tuesday, March 11, 2014 8:02 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Lyle Brandt 5820 Amy Ln Maple Plain, MN 55359-9303

43217

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Lyle Brandt 5820 Amy Lane Maple Plain, MN 55359

Lyle Raustadt 12837

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, Be carefull with any waste. Thank you for considering my comments. Sincerely, Mr Lyle Raustadt 5250 Colfax Ave N Minneapolis, MN 55430-3573

Lyle Salmi 15241

To Whom it may Concern: This project is way too risky for the potential to pollute our cherished lakes and streaMs To consider trading 20 years of jobs for 500 years or more of pollution is not acceptable, nor does it make good sense. The so -called assurances from the DNR for the parent company to provide .what specifically are they. In most instances, the parent company pillages the resources, then leaves. Holding them responsible for long term cleanup is impossible, since after they make their profits, they will file for bankruptcy protection. So who then pays. Us the taxpayers, to clean up the mess, if it can even be restored. The companies go off in search of another area of the world to exploit. Enough is Enough. P.S. I own a cabin on Bear Island Lake that has been in my family since 1962- I do not wish to see this area become a corporate wasteland. Sincerely, Lyle J. Salmi 11 Lincoln Place Decatur IL 62522

Alphabetical by sender's first name

Lyn Pegg 39071

---Original Message--- From: carolynpegg@yahoo-com [mailto:carolynpegg@yahoo-com] Sent: Tuesday, March 11, 2014 8:37 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Lyn Pegg 1335 Minnesota Ave Duluth, MN 55802-2425

Lyn Yount 46868

To whom it may concern, Please do not authorize PolyMet’s draft mine plan. There is too much at stake to accept a plan that does not take into account, and will damage the health of Minnesotan citizens, will cause damage to already stressed Lynx and Moose populations as well as other wildlife, and will poison and destroy wetlands, forest and our water table. We don’t want more air and water pollution, and even if PolyMet does manage to provide so called “safeguards” against large scale mercury or asbestos disasters, no mine is able to cause no pollution. Every water source, table, creek, lake, pond, and wetland in the area of the mine will be affected, with wide reaching effects to the aquifer. Whether from direct pollution and chemical runoff or spills, or poisoned by the chemicals in the air from the machines and mining extraction processes, Minnesota’s water will be harmed, and the people, animals and plants that depend on it as well. PolyMet will make a great deal of money, share a comparatively small amount with their “new employees,” and leave Minnesota scarred, dirty, with centuries of cleanup, especially water treatment, untold health issues, and with all the bills. We’ve seen this happen in the south, in the Smoky Mountains, in the west, in Canada and the northeaSt The mining companies take, and leave devastation behind, and the money leaves with the business. This is unacceptable. Please direct our new jobs, corporate business developments, and state monetary development programs toward renewable, sustainable, environmentally healthy, green businesses. Thank you, Lyn Yount CTS (Certified Technology Specialist) Technical Support/Customer Service Milestone AV Technologies HYPERLINK "mailto:lyn.yount@milestone-com"lyn.yount@milestone-com P +1-952-225-6879 http://www.milestone-com/ cid:image002-jpg@01CAABF1-05A83C20please consider our environmental responsibility before printing this email

Alphabetical by sender's first name

Lynda Dahl 41886

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Lynda Dahl White Bear Township, Minnesota

Lynda Fedeler 38129

Mar 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Lynda Fedeler 5977 Eagle Lake Rd Duluth, MN 55803-9744

Alphabetical by sender's first name

Lynda Haemig 41660

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Lynda McDonnell 39771

Dear state evaluator, I am not a scientist, but I have read enough about the potential damage the PolyMet mine could do to Minnesota's water and wetland resources that I urge you not to approve this project and related ones that could follow. Sulfide mining releases acid and heavy metals that harm aquatic plants, fish and waterfowl. And there's a great risk that the damage and cost of clean-up could far exceed the value of several dozen jobs for 20 years. I recognize that northeastern Minnesota badly needs good jobs for its people and communities. But increased spending for high-speed internet service and other strategic investments seems far wiser and more productive than authorizing a mining project that could endanger our water, forests, animals and people. Sincerely, Lynda McDonnell 3916 Pleasant Av. S. Minneapolis, Mn. 55409

Alphabetical by sender's first name

Lynda Pauling 40441

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a big concern. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. The PolyMet SDEIS is an inadequate assessment of human health impacts and the PolyMet sulfide mine and mine wastes proposal poses an unacceptable risk to the health of fetuses, infants, children and adults in Minnesota. Please reject both the PolyMet SDEIS and the PolyMet mine. Very truly yours, Lynda Pauling 5812 Olene Ave N Oak Park Heights, MN 55082

Lynda Withbroe 43040

Lynda and George Withbroe6943 Newbury RoadWoodbury, MN 55125March 9, 2014Dear Ms. Fey,I am writing to ask you to reject the PolyMet mine's proposal / mine in one of our state's greatest natural resources, the BWCA. As fairly new residents of Minnesota, my husband and I have visited the BWCA. We have read and researched the dreadful consequences of permitting this company to damage our land and water.Only 360 jobs will be created while hundreds of years of damage will result.Sincerely,Lynda Withbroe

54776

See attachment

Lynden Gerdes 36800

Please find my comments to the NorthMet Mining Project and Land Exchange attached. Thanks for the opportunity to comment. Lynden Gerdes 10566 Hwy. 1 Isabella, MN 55607 Lisa Fay SDEIS Manager, MN DNR Email: NorthMetSDEIS.dnr@state.mn.us CC: Douglas Bruner US Army Corps of Engineers Email: Douglas.W.Bruner@usace.army.mil CC: Tim Dabney US Forest Service Email: TDabney@fs.fed.us CC: Ken Westlake US Environmental Protection Agency Region 5 Email: westlake.kenneth@epa-gov Lynden Gerdes lbgerdes@frontier-com

40963

Dear Lisa et al., Please accept the attached comments on the NorthMet Mining Project and Land Exchange. Thank you, Lynden Gerdes lbgerdes@frontier-com Lynden B. Gerdes 10566 Highway 1 Isabella, MN 55607 CC: Douglas Bruner US Army Corps of Engineers Email: Douglas.W.Bruner@usace.army.mil CC: Deputy Forest Supervisor Richard Periman US Forest Service Email: rperiman@fs.fed.us CC: Ken Westlake US Environmental Protection Agency Region 5 Email: westlake.kenneth@epa-gov

Lynette Peterson 54490

The long term health effects of allowing the mining proposed by Polymet are substantial. More research is needed as well as more answers. As a health care professional and a resident of Minnesota, I ask that another look be taken at the short and long term effects of PolyMet being allowed to mine in Minnesota.

Lynn Bishop 38803

Dear Readers: In addition to the jobs it will create and the boost to the overall economy, this project will demonstrate a cleaner way of mining nickel for mines all over the world to follow. Lynnette Bishop 4945 Jamilee Dr Hermantown, MN 55811

Lynn Boggie 54694

See attachment

Alphabetical by sender's first name

Lynn C. Lang 39566

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

42460

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Lynn C. Lang 1721 Polaris Ct Saint Cloud, MN 56303-1375 (320) 202-0341

42461

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Lynn C. Lang 1721 Polaris Ct Saint Cloud, MN 56303-1375 (320) 202-0341

Alphabetical by sender's first name

Lynn Clark Pegg 42597

See attachment

Lynn Erkelenz 21783

Hi -This is Lynn with Midwest Radio in Hibbing - can someone contact me. 263-7531

Lynn Evenson 3524

Dear Folk, As a resident of Ely, please accept my comments of profound concern regarding PolyMet's most recent attempt at an Environmental Impact Statement. My father's apt observation, "Figures don't lie, but liars figure" continues to echo in my head. PolyMet plays fast and loose with established, verifiable facts, including the biggest drawback to their proposal: nowhere in the world, at no time, in no way, has acid mine drainage been successfully contained long term. It cannot be done; this has been proven beyond any doubt. PolyMet's constant attempts to distract us from this glaringly obvious hazard do nothing to enhance their credibility. I have long since dismissed their promises to do better this time as so much hot air. This type of mine waste cannot be contained. It is that simple and that black-and-white. The companies involved in sulfide mining know this; that's why they dissolve, go bankrupt (they say) or otherwise disappear when things look like they're about to go wrong. That way, they can never be held accountable (read, made to pay to clean up their mess) for the widely documented disasters they leave behind when they close their mines. Take the money and run, indeed. No, PolyMet is not to be trusted. Yes, we need jobs, but not these jobs, which may or may not even be offered to my friends and neighbors. If one mine is drilled, and its waste problems spring one leak, the Boundary Waters and our drinking water are ruined. This too-long-standing conflict is having an impact on Ely, as well. Hostility is common, an ugly fact of life in a small town. As bad if not worse, rumors abound in the outside world that we're an armed camp up here; that mines are already operating and fouling the Boundary Waters; and it's shrinking our tourist business. At the moment, that's what's keeping us alive, and it's beginning to wheeze and stumble thanks to bad, inaccurate publicity. I blame the mining companies for this state of affairs. A local organization sells yard signs saying, " We support mining and clean water. We can have both." All the evidence, all of it, says otherwise. Please stand with the EPA and force PolyMet to do the right thing: go away. Thank you for your time. Sincerely, Ms Lynn Evenson 206 E. James St Ely, MN 55731

Alphabetical by sender's first name

Lynn Evenson 41670

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Lynn Glesne 41701

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

lynn grano 11238

2014 February 6, 2014 Attention: Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 RE: Public / Written Comment re the PolyMet Project Supplemental Draft Environmental Impact Statement Dear Ms Fay, Please submit / include the herein comments to the public record regarding PolyMet's proposed copper-nickel mining project and the Supplemental Draft Environmental Impact Statement ("SDEIS"). If one wants to quickly grasp the inherent absurdity of the proposed project, all that's required is to ask a simple question, namely-'what financial assurance instruments in operation in the year 1514 still function today.' Answer, none. Take a little 500-year trip down history's memory lane: Columbus has only recently landed in San Salvador; Ferdinand Magellan is meandering the Pacific in his wooden boat for the Portuguese; King Henry VIII is dispatching wives while Thomas More is writing "Utopia"; Luther hasn't started the Reformation yet, and another 65 years must transpire before William Shakespeare could start writing sonnets. More to the point, neither the United States dollar, nor any other present currency, exists. There is no United States Treasury to issue bonds, or Munich Re, AIG, or Lloyds of London to provide surety, project insurance bonds, or any other type of 'financial assurance'. And yet the proposed PolyMet project assumes a level of "financial assurance" stability going forward over the next 500 years that has never existed in history, or for even much shorter durations of time. Need anyone be reminded, within just the past 5 years, one of the largest providers of such "financial assurances" products, the American International Group ("AIG"), only staved off bankrupt ruin and closure because the federal government bailed the corporation out in excess of $100 billion dollars. But for that bailout, all the prior issued AIG insurance policies, surety bonds, and/or other financial instruments (the very same type that PolyMet will presumably rely upon to meet their 'financial assurance' obligation to the State) would likely be worthless. Given that the SDEIS concludes that it is possible that mechanical water treatment might well be needed "for the duration of 200 years at the mine site and 500 years at the plant site" what possible "financial assurance" as required by Minnesota State law could, in fact, actually provide real assurance that the environmental mess this project may well create will be effectively dealt with. The answer is obvious. No such extremely long-term financial assurance exists today. It has never existed in the paSt And it will never exist in the future. If one wants real life confirmation of the inherent ridiculous nature of PolyMet providing "financial assurance" that will indeed last until 2514, try getting your State Farm agent to write a car or homeowner's insurance policy for the period 2014 to 2514 or call your Senator and ask them why the US Treasury doesn't issue 500-year T-bills in addition to their 10 and 30 year government bonds. Their respective chuckling responses will tell you all you need to know about the ludicrous nature of extremely long-term financial instruments / assurances. Moreover, rather than address this issue, the SDEIS offers only a pathetic punt of the problem: The level of engineering design and planning required to calculate detailed financial assurance amounts is typically made available during the permitting process and was not available at the time this SDEIS was prepared. (SDEIS, at 3-2-2-4) How, pray tell, is an informed citizenry expected to reasonably evaluate the proposed project's potential impacts if they are not provided with any meaningful ability to assess how PolyMet might possibly cover potential liabilities arising over the course of some five hundred years in the future, apart from being offered some banal recitation within the SDEIS to PolyMet possibly c

Lynn Johnson 35392

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Lynn Johnson 200 Oak St SE Minneapolis, MN 55455-2009 (952) 906-0554

Lynn Moyer 13246

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Living along lake Erie I am very concerned with the constant assault on our valuable fresh water "Great Lakes' ,from farm runoff, factories, the asian carp threat,mercury levels in the fish,etc,etc How can we justify this mine., especially when we consider It should be protected, since it is a National forest . Thank you for considering my comments. Sincerely, Mrs Lynn Moyer 399 Riverside Dr Fremont, OH 43420-9495

Alphabetical by sender's first name

Lynn Pykkonen 16068

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Lynn Shoemaker 40416

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Lynn Voss 6020

I just left public comment session in Duluth. Was disappointed that there was no one speaking that actually lived near Polymet/Hoyt Lakes. I live in Hoyt Lakes, I work in Aurora. I have full confidence in the DNR's ability to do the research and monitor, We are an area that needs mining. The jobs are necessary, our economy needs it, Too long have we seen our children leave our area because they can't find jobs. Too long have we bought other countries resources, and improved their economies. Now, is the time. Safe mining. My husband and I live 5 blks. From the Partridge River. We fish and boat there, We don't take our beautiful environment lightly. Our vote is YES. WE SUPPORT MINING. Larry and Lynn Voss Hoyt Lakes, MN

Alphabetical by sender's first name

LynnAnne Vesper 38806

Resending with contact information: LynnAnne Vesper 14038 Fall Lake Rd Ely, MN 55731 HYPERLINK "mailto:lavesper@gmail-com"lavesper@gmail-com I am submitting comments regarding the Supplemental Draft Environmental Impact Statement for the NorthMet project. I own land and reside year-round near Ely, Minnesota. I believe the Supplemental Draft Environmental Impact Statement is inadequate in the following areas: 1- Economic Impacts 2- Land Exchange, wetland quality, and water pollution 3- Environmental impacts to be addressed at a later date 4- Financial assurance requires additional analysis My primary concern is in the area of economic impacts, mainly in the area of financial assurance. Polymet routinely cites figures indicating how much they have spent so far on the permitting process, as if this number should justify the issuance of a permit. The DNR and other agencies have a responsibility to see to it that issues are addressed during the planning phase; otherwise no permit should be issued, regardless of the amount Polymet has spent on analysis. Further, regarding the proposed land exchange, the Forest Supervisor bears the responsibility for determining if the proposed land exchange benefits the public. The Forest Supervisor must make the determination that the land exchange is for the express purpose of directly furthering the financial interests of private and foreign economic interests and is clearly NOT in the public intereSt The land exchange should not be permitted to proceed. Wetlands exchanged are not of the same quality as wetlands destroyed. I have a friend in Southern Minnesota who has created a wetland "bank" from some reclaimed farmland. These wetlands created for the purpose of the wetland crediting system are by far inferior to those created over many hundreds if not thousands of years by natural processes. The artificiality of the wetland crediting system must be taken into consideration when determining the quality and quantity of wetlands to be exchanged for wetlands permanently destroyed or disabled by mining processes. 1) Economic Impacts -The SDEIS contains no cost/benefit analysis of the PolyMet mine. - The SDEIS does not say whether wages paid to mine employees will stay in Minnesota or whether they will go primarily to transient employees who will spend only a fraction of their income in Minnesota. The SDEIS does not discuss the impact of the loss of jobs when the price of copper declines and mining becomes unprofitable, although it acknowledges that such job loss is inevitable: “Mining-related employment is volatile and fluctuates from year to year due to the market price of commodities being extracted.” SDEIS, 4-325—4-326- The SDEIS fails to assess the cost of unemployment benefits and other social services, increased crime rates, and other societal costs associated with volatility in employment. - The model used to calculate the alleged economic benefits of the mine does not take into account the costs to the environment; the displacement of other economic activity, including among other things tribal rights to hunt, fish, and gather under the 1854 Treaty; the infrastructure, government, and social service costs resulting from the mining; and the consequences of the unpredictable influx and outflow of mine employees. - What would be the costs for public infrastructure, lost opportunities to engage in other economic activities incompatible with mining, depressed real estate values, lost recreational opportunities, social upheaval, and perpetual clean-up that the public would be required to bear. 2) Permanent Water Pollution -PolyMet admits that water pollution by sulfuric acid and heavy metals will last for at least 500 years. -Not all of the polluted water will be captured for treatment. Annually, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated. -The SDEIS

Alphabetical by sender's first name

LynnAnne Vesper 38810

I am submitting comments regarding the Supplemental Draft Environmental Impact Statement for the NorthMet project. I own land and reside year-round near Ely, Minnesota. I believe the Supplemental Draft Environmental Impact Statement is inadequate in the following areas: 1- Economic Impacts 2- Land Exchange, wetland quality, and water pollution 3- Environmental impacts to be addressed at a later date 4- Financial assurance requires additional analysis My primary concern is in the area of economic impacts, mainly in the area of financial assurance. Polymet routinely cites figures indicating how much they have spent so far on the permitting process, as if this number should justify the issuance of a permit. The DNR and other agencies have a responsibility to see to it that issues are addressed during the planning phase; otherwise no permit should be issued, regardless of the amount Polymet has spent on analysis. Further, regarding the proposed land exchange, the Forest Supervisor bears the responsibility for determining if the proposed land exchange benefits the public. The Forest Supervisor must make the determination that the land exchange is for the express purpose of directly furthering the financial interests of private and foreign economic interests and is clearly NOT in the public intereSt The land exchange should not be permitted to proceed. Wetlands exchanged are not of the same quality as wetlands destroyed. I have a friend in Southern Minnesota who has created a wetland "bank" from some reclaimed farmland. These wetlands created for the purpose of the wetland crediting system are by far inferior to those created over many hundreds if not thousands of years by natural processes. The artificiality of the wetland crediting system must be taken into consideration when determining the quality and quantity of wetlands to be exchanged for wetlands permanently destroyed or disabled by mining processes. 1) Economic Impacts -The SDEIS contains no cost/benefit analysis of the PolyMet mine. - The SDEIS does not say whether wages paid to mine employees will stay in Minnesota or whether they will go primarily to transient employees who will spend only a fraction of their income in Minnesota. The SDEIS does not discuss the impact of the loss of jobs when the price of copper declines and mining becomes unprofitable, although it acknowledges that such job loss is inevitable: “Mining-related employment is volatile and fluctuates from year to year due to the market price of commodities being extracted.” SDEIS, 4-325—4-326- The SDEIS fails to assess the cost of unemployment benefits and other social services, increased crime rates, and other societal costs associated with volatility in employment. - The model used to calculate the alleged economic benefits of the mine does not take into account the costs to the environment; the displacement of other economic activity, including among other things tribal rights to hunt, fish, and gather under the 1854 Treaty; the infrastructure, government, and social service costs resulting from the mining; and the consequences of the unpredictable influx and outflow of mine employees. - What would be the costs for public infrastructure, lost opportunities to engage in other economic activities incompatible with mining, depressed real estate values, lost recreational opportunities, social upheaval, and perpetual clean-up that the public would be required to bear. 2) Permanent Water Pollution -PolyMet admits that water pollution by sulfuric acid and heavy metals will last for at least 500 years. -Not all of the polluted water will be captured for treatment. Annually, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated. -The SDEIS fails to adequately assess the long-term impacts of the pollution resulting from the release of this untreated water. -The computer model u

Alphabetical by sender's first name

Lynne Christensen` 44216

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lynne Christensen` 221 River Ridge Circle Burnsville, MN 55337

44220

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Lynne Christensen` 221 River Ridge Circle Burnsville, MN 55337

Alphabetical by sender's first name

Lynne Lokken 42463

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Lynne Lokken 3900 Sunnyside Rd Apt 3 Edina, MN 55424-1264

Lynne Markus 54810

See attachment

M Argaret Mousley 16097

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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M Hagen 15959

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

M Negus 47383

I am a professional Fisheries Biologist and am opposed to further development of the Poly-met mine. I have read the EIS and find it does not go into the detail necessary to answer critical questions of sulfide run-off and potential long term effects on the aquatic environment (wild rice, invertebrate, fish and wildlife). In addition, any project that takes 500 years to abate its pollution is not something rational Minnesotan's want to pass on to their children and grand children. At the very least this company under the supervision of the MNDNR needs answer the critical and unanswered questions on sulfide mining and potential for sulfide runoff posed by the chemical and ecological experts (of which I am not one). They also need to expand on the contingency plans which are vague in the EIS, should an unforeseen event such as a train derailment, extreme precipitation event, or explosion occurs. In addition, details need to be shared with the public on what process and how much funding will be set aside to address the long term clean up after this main development occurs and the mine is no longer operating and the company has either been sold, dismantled or gone into bankruptcy. Remember this is an extraction industry and the natural resources the mine is based on will run out. I am tired of spending taxpayer money to clean up after businesses rape our land, pocket the monetary profits and then leave the area or dissolve as mentioned previously. A prime example is the massive amount of money being spent to clean up the pollution that took place by logging, timber and steel companies over 100 years ago in the St Louis River. Ironically the watershed the Poly-met mine will be developed in is the St Louis River/Lake Superior watershed and after spending millions, we plan to risk polluting this system yet again. Will we ever learn. Allowing the Poly-met mine with only the information provided in the EIS appears to be another example of short sighted gains vs long term detrimental consequences. Thank you for the opportunity to comment and I hope you look out for future generations, not just the short term job gains that will only last 15-20 years at the moSt

Alphabetical by sender's first name

M.T. Mason 43081

To DNR of Minnesota, Relevant to the Polymet copper/nickel mining economic impact, new media information indicates there is no shortage of either mineral that requires urgent demand for mining in Minnesota: A Wall Street Journal 3/11/14 article reveals demand for copper in China is based on its warehousing for collateral in a shadow-banking system rather than for actual manufacturing. As well, Indonesia has recently banned export of nickel raw metal to China due to ecological and resource-nationalism reasons; shortened supply has not caused market havoc. Since this mineral market is unpredictable, without demand driving the mining schedule, Minnesoata has leverage to demand upfront economic concessions from Polymet (rather than looking like the proverbial hayseed in an international mining conglomerate). A reasonable alternative would be For Minnesota to copy Indonesia and employ "resource-nationalism" by keeping the operation owned and operated by our own State. What is the advantage in using a foreign corporation such as Glencore Xstrata (with suspect ecological track record), where we would get all the pollution but none of the wealth. We should not trade the unpredictable economic viability of copper/nickel mining for our current tourism trade which is based on Minnesota's water-economy. Thank you for your stewardship, M.T. Mason

Mac Meade 39336

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I am opposed to the Polymet mining operation for many reasons, all of which I am sure have been stated numerous times by others. So I am only going to list one here. This is not the last time we are going to have the opportunity to capitalize on this significant resource. The value of the metals will only continue to increase. There will be plenty of "suitors" willing to mine for as long as that resources is there. As protectors of all Minnesota resources, we should wait until we are as close to 100% sure as we can be that the operation will cause no environmental harm. Technology will catch up to this, and there will be cost-effective mining techniques that will provide proven safeguards. If we demand absolute proof, the value of the resource and potential for profit will drive the research and technology until absolute proof is achieved. Please do no take this gamble with such an amazing environmental treasure. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mac Meade 388 McCarrons Blvd S Saint Paul, MN 55113-6912 (651) 488-7958

48682

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I am opposed to the Polymet mining operation for many reasons, all of which I am sure have been stated numerous times by others. So I am only going to list one here. This is not the last time we are going to have the opportunity to capitalize on this significant resource. The value of the metals will only continue to increase. There will be plenty of "suitors" willing to mine for as long as that resources is there. As protectors of all Minnesota resources, we should wait until we are as close to 100% sure as we can be that the operation will cause no environmental harm. Technology will catch up to this, and there will be cost-effective mining techniques that will provide proven safeguards. If we demand absolute proof, the value of the resource and potential for profit will drive the research and technology until absolute proof is achieved. Please do no take this gamble with such an amazing environmental treasure. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mac Meade 388 McCarrons Blvd S Saint Paul, MN 55113-6912 (651) 488-7958

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MacKenzie Dwyer 12733

Feb 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Maddy Greeley 54184

I really think you should do this to the boundrie waters. Your killing the fish because of the pollutes H2O with sulfuric acid (PH). Your taking away fishing and tourism when will make it lose money. This has been around and protected sense 1978. Your taking away to many beautiful things away! Your going to build this mine then get what you want in 200um years then leave a huge environmental problem.

Madeline Baird 21507

Water quality in MN is too important to take a risk. Environmentally Unsatisfactory (EU) indicates that our review has identified adverse environmental impacts that are of sufficient magnitude that the EPA believes the proposed action must not proceed. Why ask for a study to just ignore it. Does Polymet know more than an impartial organization whose interest is protecting the public. Madeline Baird 26175 160th Ave Way Welch, MN 55089

Alphabetical by sender's first name

Madeline Buck 39780

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Madeline Buck 6104 Wilryan Ave Edina, MN 55436-2647

Madeline Gardner 57982

This project will pollute our valuable water resources & cause hundreds of yrs of cleanup. The risk is not worth it. I enjoy the BWCA several times a yr & used to work as a wilderness guide there for teens. Pollution of the water would take this experience away. Its not worth the risk. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Madeline Seveland 9799

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Madeline Seveland 14418 Wildcrest Rd Minnetonka, MN 55345

Alphabetical by sender's first name

Madeline Seveland 18600

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Madeline Seveland 14418 Wildcrest Rd Minnetonka, MN 55345

43378

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Alphabetical by sender's first name

Madeline Seveland 50676

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Madeline Seveland 14418 Wildcrest Rd Minnetonka, MN 55345

Madelyn 43104

The Boundary Waters of Minnesota is a treasured part of our state. Part of its value lies in the beauty of its untouched nature. I will not stand for the destruction of an environment that means so much to me, my family, and many other Minnesotans. This land has been the backdrop of countless family vacations and memories for me. Its degradation is not worth the benefits this project proposes.

47657

The Boundary Waters of Minnesota is a treasured part of our state. Part of its value lies in the beauty of its untouched nature. I will not stand for the destruction of an environment that means so much to me, my family, and many other Minnesotans. This land has been the backdrop of countless family vacations and memories for me. Its degradation is not worth the benefits this project proposes.

Madelyn Larsin 43069

The Boundary Waters of Minnesota is a treasured part of our state. Part of its value lies in the beauty of its untouched nature. I will not stand for the destruction of an environment that means so much to me, my family, and many other Minnesotans. This land has been the backdrop of countless family vacations and memories for me. Its degradation is not worth the benefits this project proposes. Sincerely, Madelyn Larsin On Thu, Mar 13, 2014 at 4:18 PM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Madi Malone 41627

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Madi Malone Maple Grove, Minnesota

Madison Kolbow 15240

Maggie Nelson 47988

Hello, My name is Margaret Nelson and I am a senior at Prior Lake High School. I think the mining so close to the boundary water is a bad idea because the amount of money that would need to go into clean up is unfathomable. If the estimated clean up and regulation could be 500 years, going back that far would be Columbus's time. Can you name a company that is still around from that time. Further more after inflation of 500 years, the money put aside would not be enough to cover the cost of the regulation and clean up for that period of time. Because of this, I fear our beloved boundary will be damaged and not restored to the current beauty. Thank you for reading my concerns, Margaret Nelson

Maggie Rozycki 45851

What can be more important than preserving clean water. This resource will soon be even more scarce than oil. In a HYPERLINK "http://www.dnr.state.mn.us/input/environmentalreview/polymet/index.html"Supplemental Draft Environmental Impact Statement (SDEIS) thePolyMet NorthMet project is predicted to contaminate this watershed for anywhere from 250 to 500 years. To knowingly pollute the Lake Superior Basin watershed, seems very short-sighted. Maggie rozycki Sent from my iPad

Magree Melvyn 3632

"The proposal of any new law or regulation of commerce which comes from [those who live by profit or who profited from the BP spill], ought always to be listened to with great precaution, and ought never to be adopted till after having been long and carefully examined, not only with the most scrupulous, but with the most suspicious attention. It comes from an order of men, whose interest is never exactly the same with that of the public, who have generally an interest to deceive and even to oppress the public, and who accordingly have, upon many occasions, both deceived and oppressed it." – Adam Smith, Wealth of Nations, 1776 For more observations ignored by those who live by profit, see "The Invisible Adam Smith" http://magree.blogspot-com/2012/10/the-invisible-adam-smith.html. Melvyn D. Magree 1925 E 8th St Duluth MN 55812 - Mel You can find more of my thoughts at http://magree.blogspot-com

Alphabetical by sender's first name

Magree Melvyn 15288

I submitted the following to the Reader Weekly of Duluth (HYPERLINK "http://duluthreader-com/articles/2014/02/06/2872_what_do_you_think_of_the_twins_who_had_twins"http://duluthreader-com) for the Feb. 13 issue and posted it on my blog as http://magree.blogspot-com/2014/02/does-environmentally-friendly-copper.html. Does "environmentally friendly copper mining" exiSt I did a Google search on the phrase "environmentally friendly copper mining". I received a large variety of references, some of them enthusiastic about the process, some very skeptical of its “environmentally friendly” results. "In-Situ Recovery", Excelsior Mining http://www.excelsiormining-com/index.php/in-situ-recovery This process consists of drilling sets of holes to push an acidic solution down a central hole and then pulling it back up with four nearby holes. The acidic solution dissolves the minerals. This process requires fracturing and must be below the water table. It supposedly can be permitted in 18 months and built in a year. At the end, wells are flushed and then filled with cement. This article enthusiastically states, “The San Manuel copper mine, owned by BHP Billiton, was a successful operation ” However, BHP Billiton admits, “The water quality of the future lake is expected to be affected by spent process solutions that remain in the former open pit mine as a result of in situ mining on the benches. . . . the pit lake pH is expected to approach 5-0, and dissolved metals will still be present in the water.” http://protectourwaterourfuture-com/index.php/2011/03/18/report-isl-operations-comparable-to-curis-project/ "Copper and Sustainability", Copper Development Association http://www.copperinfo.co.uk/environment/sustainability.shtml Mostly about the usefulness of copper. Small nod to recycling. "Copper Mining In A Cotton Field. The Florence In-Situ Mine" by John Kline, the environmental project manager at BHP Copper's Florence site http://www.copper-org/environment/impact/casestudies/cottonfield.html Reprinted from "On CU", January - March, 1997, Vol. 1, No. 2- "On CU" is the quarterly publication of BHP Copper, a business group of The Broken Hill Proprietary Corp., Ltd. This article is very positive about in-situ mining. For example, “Its hard to imagine putting a sulfuric acid solution into the ground, and protecting the environment. But the permitting process makes sure the environment is protected.” On the other hand, we have "Proposed Florence In-Situ copper Mine a Bad Idea", Arizona Mining Reform Coalition, "Working to ensure mining is done responsibly to protect communities and the environment in Arizona." http://www.azminingreform-org/content/proposed-florence-situ-copper-mine-bad-idea In 2011, fourteen years after it was proposed, this mine still had opposition, including changing the zoning of a residential area and complaints that the mine will contaminate groundwater. See also "Underground acid mining threatens Florence communities", http://www.azcentral-com/arizonarepublic/opinions/articles/2011/08/28/20110828florence-con29-html Dan Steuter, conservation chair of the Grand Canyon Chapter of the Sierra Club, Arizona Republic, 2011-08-28- As of January 2014, the project had not been fully started. See "Florence Copper Project". HYPERLINK "http://www.florenc"http://www.florencecopperproject-com/s/Home.asp What was that about 18 months to obtain all necessary permits. The Saskatchewan Eco Network offers several steps to reduce the need of mined products and to minimize the impact of mining. http://econet.ca/issues/mining/whatyoucando.html "Is green mining possible." http://www.greenlivingonline-com/article/green-mining-possible Max Mallet, Green Living. The article is undated but the page copyright is 2014- He wrote that a "good mining company" "is actually a recycling company". He stated that mining companies have too much "secrecy in reporting toxic mining waste". "[T]he industry has a long way to go before it can even be considered remote

Mahyar Sorour 54542

Please stop sulfide mining in the Boundary Waters! As someone who has lived in Minnesota their entire life, and has been a frequent visitor to the BWCA, it pains me to see such a beautiful place destroyed by greed and pollution. Please help preserve this peaceful and captivating land of nature! Creating more jobs isn’t worth destroying the land, please save it!

Mai Her 54187

I am writing you this letter in respond to debate about whether we should put a mining on the boundary [ILLEGIBLE] of the lake not not. I say that we shouldn’t. Why? Well first, let’s consider about our environment. If we put a mine there what will happen to the water and the wilderness in that area. The acid in the air will cause the lake water PH to drop and probably change their colors. Animals will died from drinking those polluted water. This will ruin the whole beauty of the wilderness. We’ve been protecting that place for 30 years and now we’re just going to give that place up? Is the environment worth less than precious copper and metals? I don’t believe so.

54188

I don’t think sulfide mining is a good idea. Sulfide mining pollute H2O with sulfuric acid (PH). People fishing/tourism/$ there. Since it was 1978 wilderness in MN. It affect lakes and rivers. People love that place so please don’t do it in that place. Do it in some other place.

Alphabetical by sender's first name

Maija Schaefer 14071

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, I am writing to express my serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota. I feel that the Supplemental Draft Environmental Impact Statement (SDEIS) lacks vital information about long-term water treatment, and how this treatment will be funded. By the mining company's own admission, the mining operation would ooze toxins into the region's waterways for as long as 500 years. The mining site would require constant and expensive water treatment for that entire period. PolyMet's plan will directly destroy more than 900 acres of valuable wetland habitat, and an additional 10 square miles will likely be damaged by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. I urge you to deny the Section 404 wetlands permit, and ask the Minnesota Department of Natural Resources to reject this risky proposal. Thank you for your consideration. Sincerely, Ms Maija Schaefer 2 Adobe Ct Novato, CA 94945-1314

Maja Black 45921

Greetings, My name is Maja Black, and I wish to respectfully participate in the discussion regarding the projected impact of the PolyMet mine in Northern Minnesota. I am a college student, currently attending Carleton College, in Northfield, Minnesota. I feel strongly about this issue, as it is both close to my heart and close to my home. As a native of the rural Midwest, I recognize that the promise of jobs and a boosted economy in this time sounds like the promise of a lifetime. When there isn't much to offer in one's town, the promise of new jobs is often the difference between sending your kids to college or not. Having a permanent job means the potential for health care coverage, and better lives for the ones you love. In a time when towns that came from a historic relationship with mining are now struggling financially, there is no way to easily say that you really need this help. A passionate argument for the preservation of the Boundary Waters might not resonate with you, as a more practical relationship with the land might not bring the same connection to the place for you as it does for the thousands of tourists that paddle through every year. PolyMet is promising 360 permanent jobs, as well as thousands more hours of temporary labor. Jobs mean money, and money means opportunities. Additionally, the materials to be extracted from the land are resources that we very much depend on in the modern world. I could not be typing this comment on my computer without the mined materials used to build the hardware. We cannot deny the importance of these materials in today's society. I recognize all of these are very persuasive reasons for building the mine. However, I beg that this step not be taken too hastily. There is no worse way to be steered wrong than to enthusiastically support something while only looking at the benefits, while ignoring the potential pitfalls. When the intention is right, but the action is wrong, who can we blame but ourselves for the mess that has appeared. To accurately examine the pitfalls, we need to look at the arguments both for and against the mine. At the bottom of each side of the argument, we can find the same priorities. Those who support the mining do so with the belief in the "vast economic benefits the project will bring," as cited from the Jobs for Minnesotans statement on their webpage. They also cite a survey that says most Minnesotans trust the DNR to avoid the environmental pitfalls implied by the Environmental Impact Statement. Trusting the DNR and the statements of the SDEIS means a trust in our society, a trust in those who are supposed to know how to interpret this information. That trust is not illfounded, it means that we live in a society that functions as it is supposed to. However, if we look back to the SDEIS, we can find beyond a reasonable doubt cause to postpone the mine. It is one thing to trust the DNR to identify the potential impacts of the mine, it is another thing to trust the DNR to interpret this information adequately, in a way that keeps us, as the residents and caretakers of this land, safe. On the other side of the argument, it seems overcautious to condemn the proposed mine on the basis of the past impacts of mining and environmental concerns. It is true that the technology has improved in recent times, and that there are benefits to having industrial labor providing jobs for the community. However, the concerns raised by the environmentalists have a legitimacy to them, and we cannot deny them just because we might not agree with the sentiments of those who voiced them. Dividing the discussion into distinct sides hinders us from discussing what is truly important. Those who are speaking in defense of the Boundary Waters are not only concerned about the aesthetic beauty of a wilderness area. If the toxic water projected to be treated for upwards of 500 years were to be released in an accident, it not only would destroy the Boundary Waters, but it would

Alphabetical by sender's first name

Malcolm McCutcheon 7682

I have several concerns that I wish to express concerning the Polymet mining proposal in northern Minnesota. 1- Even if Polymet meets all the DNR requirements for mining sulfide ore in MN, including a bond to cover 500 years of contamination management, will other companies also eager to mine be held to the same requirements. The more companies involved in mining the greater the chance of a contamination accident. 2- Drought is a serious problem in the world, including the USA. Chancing a long term contamination of Lake Superior, the largest fresh water source in the country for a 20 year mining project seems illogical. Because of its size and volume the Lake cannot cleanse itself of contamination the way shallower Great Lakes can. Please protect this precious resource. Malcolm McCutcheon. MD 3121 MN Ave Duluth MN 55802 218-393-2282

malcolm nazareth 40905

Mar 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Malerie Wirey 40379

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Malerie Wirey 13 Allison Ave Ellsworth, ME 04605 US

Maley Neil 38808

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Maley Neil 3218 35th Ave S Minneapolis, MN 55406-2116

Malia Burkhart 57948

Please lead the way in protecting our water and fragile environments. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Malik Holt 57998

[I am] originally from Illinois now in Minneapolis. I agree with these comments below and I've been following this development through water Legacy .org. Hard to believe this development. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Mandy Marshall 42551

See attachment

Manel Dias 40281

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Manel Dias Mt.McKenzie Drive Calgary, AB T2Z3C CA

Mao Vang 54232

Dear Ms. Fay,Hello. My name is Mao Vang and I’m a sophomore at Humboldt High School. I’m writing to talk about the environmental Impact statement and the mining that PolyMet wants to start at the 100 mile swamp. I want to talk about this because the map that was done that shoes the drainage at the mining not affecting other lakes and streams in the marsh. From this view, people would mine in okay. But it actually not because the map is wrong which can fool more who don’t know the natural lakes.The environmental Impact Statement also should that there are high levels of toxic in the water after the mining. That’ll stay for about 500 years and will cost billions of dollars to clean up and which is impossible because when sulfuric acid gest into the water it can’t be removed. So it‘ll just keep flowing down the streams and lakes. Which will kill off many species of plants and animals.The mining will destroy our resources that we have in Minnesota. It will also take away part of our waters at Minnesota. The drainage will forever permanently cause us to suffer if we live on the land of environment that won’t support us. Taking away what could be affected by generations to come.Sincerely,Mao Vang734 Chippewa AveSt. Paul, MN 55107

Mao Vue 54233

Dear Ms. Fay,My name is Mao Vue. I am a student from Humboldt High School. The map in the environmental impact statement is wrong. PolyMet people drew maps of the one hundred mile swamp; their map compared with the U.S. National Atlas shows that the PolyMet has left out half of the swamp. They are immorally lying just to get jobs and it is affecting the BWCA in a very negative way. The BWCA is left unprotected from acid mine drainage. A place with water so pure like the BWCA being polluted would be very sad and I don’t want that to happen because once it is polluted it’ll be impossible to recover. In order to protect the BWCA I’ll need your help. Possible solutions to fix this issue are: correct the maps that PolyMet has created, test the water in Langley Creek to make sure there’s no pollution seeping through the swamp.Sincerely,Mao Vue1569 Hyde Ave SoCottage Grove, MN 55016

Alphabetical by sender's first name

Marc Fink 18321

I am Marc Fink. I am with the Center for Biological Diversity. I live here in Duluth. The first thing I would like to add is, Minnesota law requires that mines leave an area maintenance free at the time of closure. The PolyMet Mine, however, mechanical water treatment would be needed for more than 200 years at the mine site and over 500 years at the plant site, which would be in violation of state law. Funding for mitigation under (inaudible) is critical for ensuring informed decision making. Unfortunately the EIS is completely silent as to how PolyMet would fund the hundreds of years of mitigation repair and maintenance for the hundreds of years of pollution control. I believe it is unfair to impose on our grandchildren and future generations the responsibility to fund and maintain the water treatment plants that are going to be required at this site. I think it's also illogical to think that there is not going to be more pollution problems for hundreds of years at this site. The Clean Water Act does not allow permits to be issued where a discharge can cause or contribute to water quality violations. The areas downstream of the proposed site are already in violation of water quality standards; and, therefore, no more pollution can be allowed. The Clean Water Act sets forth a pretty straightforward program where you first clean up existing pollution before you can allow further pollution. And up there there is already mercury and sulfate pollution. Under the National Environmental Policy Act agencies are required to look at the cumulative impacts of the projects. As we all know, there's a lot of mining projects up there that have already had significant impacts on the area and downstream into the St. Louis River Watershed. I believe the limited impact analysis under NEPA needs to include the St. Louis Watershed to encompass all this pollution. The National Environmental Policy Act Limited Impact Analysis for Moose completely does not mention the species whatsoever. That's a glaring defect in the analysis. Research shows moose are declining dramatically across the state and yet they are not even mentioned. I believe both the EIS and the 404 permit need to rejected by the agencies, go back to the drawing board, and come up with a better analysis or reject the permit outright. Thank you.

Marc McLennan 57623

We need Polymet to get the mining industry back where it used to be. Marc J McLennan Branch Manager Border States Electric (BSE) 218-576-3766 – Direct mmclennan@borderstates-com HYPERLINK "http://www.borderstateselectric-com/"www.borderstateselectric-com Description: BSE_SCS_Horiz_TMandR_541and199

Marc Olson 52313

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Marc Olson PO Box 185 Barrett, MN 56531

Alphabetical by sender's first name

Marc Schoen 14874

Feb 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Marci Hoff 47066

Lisa Fy, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 We are writing as residents of northeast Minnesota to express our significant concerns about the proposed PolyMet project. We believe that the PolyMet project could destroy or severely damage irreplaceable wetlands in the St Louis River watershed. We are very concerned that this project would be harmful to drinking water supplies and put human health at risk due to increased arsenic and other contaminants. The fish habitat, natural wild rice, and tribal resources are threatened by PolyMet. The pollution and need for pollution treatment are major concerns. We are aware of the fact that sulfide mines located in water-rich environments, like Minnesota, have polluted surface or groundwater with acid drainage and/or toxic metals. This makes us very fearful for future generations who will reside in northeast Minnesota. Therefore, we ask that the SDEIS be deemed inadequate and the PolyMet project as environmentally harmful. We ask that the exchange of Superior National Forest Land for the PolyMet project be rejected. We do not support allowing PolyMet a state permit to mine in Minnesota. Thank you for consideration of these significant concerns. Marcia Hoff and Paul Hoff 2122 Princeton Place Duluth, MN 55803

Alphabetical by sender's first name

Marcia Eiynck 15380

Feb 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuri

Alphabetical by sender's first name

Marcia Jacobs 16753

Feb 18, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Marcia Jacobs 17107

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Marcia Jacobs 1520 Koester Ct. #56 Northfield, MN 55057

50376

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Marcia Jacobs 1520 Koester Ct. #56 Northfield, MN 55057

Alphabetical by sender's first name

Marcia Mitcheltree 40423

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Marcia Mitcheltree 415 Cogan House RD Trout Run, PA 17771 US

Alphabetical by sender's first name

Marcia Nermoe 15769

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Marco Good 42922

Marcus Imes 40098

Hello noble DNR representative, I have followed the Polymet story for the last couple years and still have concerns about the proposed project. I know the Iron range needs jobs, but this project will only provide jobs for around 20 years and will leave us with cleanup for centuries. Polymet has a decent plan for containing the acidic and heavy metal waste, but few things in life go perfectly to plan. That is my concern about the mitigation plan; if any little thing goes wrong, a lot of toxic water or slurry will be released into a nearly pristine watershed, which is irreversible. I believe the cleanup plan calls for 200-400 years of water treatment. I am extremely skeptical that everything will 'go to plan' over that period of time. Acts of god (the Duluth floods), unforeseen circumstances (cracks in the bedrock developing), or accidental oversights (circumstances like the ones that led to the 35w bridge collapse) are likely to create an environmental disaster in the next 200-400 years. Based on a reasonable expectation that something unforeseen and catastrophic will happen over the next 220+ years, I encourage the DNR to deny the permit, or get a very very substantial up front payment to ensure the future health of our environment (a larger payment than currently proposed). Thanks for listening, Marcus Imes

Alphabetical by sender's first name

Marcy Leussler 42493

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Marcy Leussler 4456 5th Ave S Minneapolis, MN 55419-5124 (612) 824-3240

MARDI Ringquist 41699

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Maren Anderson 41275

to Whom It May Concern, I wholeheartedly oppose the PolyMet mining location. There are not enough jobs that will be created to validate the absolute destruction of our natural resources. Please, DNR. Protect our water, our land, our fish, birds and mammals. Make a stand for the environment. We NEED it. I am sick of our environment losing to corporate greed. If we keep this up, there won't be any pristine wilderness left. Thank you, Maren Anderson - Maren Anderson | Photo Stylist HYPERLINK "http://www.marenandersonstylist-com"www.marenandersonstylist-com 612-237-8147

Alphabetical by sender's first name

Maren Hinderlie 18153

My name is Maren Hinderlie. And you can see it's spelled "Hinderlie." And what I stand for -- so I've invited Larry Long -- I'm deferring to Larry Long to sing a song for us. LARRY LONG: I'm so honored to be here. Today we lost a very great American, Pete Seeger. And I stand before you in the spirit of Pete and I speak this in song. this is a song that I wrote for this gathering. (Sings a song).

Margarate A. Gillen 39916

DNR, I am highly against the proposal to allow PolyMet to operate mines in Minnesota. I have lived in the Twin Cities for 23 years and I love the beautiful lakes, trees, wildlife, and clean air. My family has camped in the Boundary Waters and experienced its beauty and peacefulness. We cannot afford to have this resource polluted by mining companies who lamely promote job growth but are really counting profits. I, and many others, are counting on you to represent the best interests of Minnesota families in the face pressure from these big companies and their slick staff. Please say NO to Polymet and preserve Minnesota's beauty for generations to come. Thank you, Molly Gillen

Margaret 18125

My name is Margaret (inaudible). I am a native of Aurora. I work for Minnesota Power as vice president of regulatory and legislative affairs. Minnesota Power strongly supports the PolyMet project and the SDEIS. (Inaudible) his job staples of middle class life, food closing, health care, college education. And because of mining strong schools and community and help us become educated, (inaudible) and able to stay in Northeastern Minnesota. Because of mining also blessed with endless opportunities to appreciate nature and recreate right out our front door. (Inaudible) while I grew up here I also lived in the metro area where the presence of quality jobs and the life that comes with them is a given the rest of the state doesn't have. Mining brings economic opportunity to places like the Arrowhead, Hoyt Lakes. The opportunities for a quality of life here that is too often only available in the largest cities. (Inaudible) tremendous opportunity to create high quality employment for people living a high quality of life here. (Inaudible) after the professional and public review of the PolyMet EIS through this process I am a confident state and federal agencies (inaudible) and confident because I know our agencies carry out regulatory responsibilities competently and thoroughly and with the highest integrity. (Inaudible) society clearly needs PolyMet (inaudible).

Alphabetical by sender's first name

Margaret A. Redmond 39221

From: Margaret A. Redmond 1455 Rose Place, Roseville, MN 55113 March 10, 2014 Comments regarding PolyMet SDEIS Despite the huge economic and political pressures to develop a major Copper Nickel mining industry in Northeastern Minnesota, the flagship permit request by PolyMet–and the resulting SDEIS–are full of very troubling probleMs These include issues which appear to be sloppy science, issues of modeling, and vital issues that are not addressed–or are addressed inadequately. The underlying science is supposed to be the basis for mitigation efforts for mining impacts and for contingency planning for a range of complicating (and foreseeable) situations that might arise. When the science, modeling, and serious degree of omitted factors is at the substandard level of this SDEIS report, a decision to allow mining to take place can become a very grim forecast for serious resultant environmental and/or health probleMs Further analysis of several issues is essential to be able to avoid them or plan for realistic and effective solutions. Basing a major, environment-changing project on a foundation like this can be compared to house-building–those built on lousy foundations never quit causing problems and draining funds. They are not bargains. And they can be toxic to their residents. In addition, there are other issues which would indictate that ALL aspects of this second EIS and the proposed mitigation measures therein should be of absolute, stellar, impeccable quality. These are perhaps just as important as the science issues, and, are just as damaging to the increasingly marginal credibility of this SDEIS. 1- SOME SCIENCE ISSUES There are several issues in the SDEIS that leave me very concerned regarding its basic usefulness as a tool to even assess the CURRENT status of the areas to be mined and to be utilized for waste rock disposal and for treatment ponds. Those insufficiences lead me to real disbelief about its valid use as a predictive instrument for future conditions once mining actually begins. A. There are basic problems in the water modeling–in terms of assumptions and in terms of total failure to authenticate the model presented for the Partridge River. B. The models handle the possibility of extreme weather events very poorly, and–in the brevity of their handling–very dismissively. C. Although the DNR (in its other divisions, eg Forestry) does acknowledge the reality of climate change, this SDEIS and the models it is built on barely acknowledge any possible impacts. Clearly, there ARE some climate change impacts which would need advance contingency planning to avoid environmental contamination. D. Previous mining in Minnesota–ie, taconite–has had to take measures to protect the population from harmful fibers released in mining and milling. Specifically, asbestiform minerals are found in some of the rock bodies. There is not much discussion of this potential hazaRd 2- EXPANSION OF CONCERNS REGARDING SDEIS METHODS and CONTENT A. Some basic problems in the water modeling: (1). The Water Quality modeling for the mine area is NOT based on the actual MEASURED flows in the Partridge River. Flows measured by the DNR exist, but the model vastly understates (underestimates) the amount coming in as groundwater. This unexplained mismatch of data actual and data assumed casts doubt on other numbers used throughout the SDEIS. (2). In addition to the mismatch in data sets, there has been a failure to collect the data which would be needed to validate a model in the real world. Often, to validate a model (that is, to check whether it has predictive value for the future), the researcher constructs the model, then runs it "backward" on data that's already been collected in past years. The model is "valid" if the model can actually "predict" the observations of the data in the paSt In the time between the first EIS in 2010 and this revised EIS of 2

Alphabetical by sender's first name

Margaret and James Stevenson 39243

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Margaret Ann Nelson 47080

Lisa Fay and the DNR in general, Just a quick word to add my voice to those calling for a refusal to let PolyMet establish mining activity in the state of Minnesota. This is way too dangerous, with way too many unknowns, for our state to risk the future health of our lands for relatively short-term gain. Many more jobs would eventually be lost as we lose the wilderness we are so fortunate to be the stewards of. I am strongly opposed to this project and request the greatest caution going forwaRd The promise of jobs should not occult the eventual risks involved. Thank You, Margaret Ann Nelson PO Box 1196 Grand Marais, MN 55604

Alphabetical by sender's first name

Margaret Beegle 9927

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Margaret Beegle 550 Varner Circle North Golden Valley, MN 55427

18698

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Margaret Beegle 550 Varner Circle North Golden Valley, MN 55427

Alphabetical by sender's first name

Margaret Beegle 50773

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Margaret Beegle 550 Varner Circle North Golden Valley, MN 55427

Margaret Bujold 42762

See attachment

Margaret Clemence 57955

Please protect the Boundary Waters--no sulfide mining! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Margaret Fait 43598

Environmental potential disaster and Ethically corrupt

Margaret Farr 42420

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Dr Margaret Farr 1929 valhallar Duluth, MN 55811

Alphabetical by sender's first name

Margaret Haapoja 7767

As Rangers born and bred, my husband and I are very skeptical about the PolyMet project and its effect on the sensitive environment of northern Minnesota. It is our understanding that once the pollution has developed from a sulfide mining operation there has never been a successful way to get rid of the toxic waste. It is hard for us to believe that PolyMet will cover the cost of this clean up for 500 years or longer. What happens when this company disappears or goes bankrupt. Our precious northwoods and BWCA are too valuable to risk no matter how many jobs this company promises. When we see the water shortages in the southwest and California, we realize clean water is at a premium in many parts of the country. We don't want our pure water polluted. If the PolyMet process is safe, why can't they prove it by building a pilot plant that will show everyone they can safely mine these metals. Sincerely, Don and Margaret Haapoja 20043 County Road 70 Bovey, MN 55709 218-247-7830

Margaret Hayden 54913

See attachment

Margaret Hodnik 38514

Good Morning, Attached is a letter from: Margaret Hodnik 1811 Tyrol Street Duluth, MN 55811 Thank you, Patti Schuman Minnesota Power 30 W. Superior St Duluth, MN 55802 218-355-3344 pschuman@mnpower-com

Margaret Jewell 42539

See attachment

Margaret Jo Anderson 54885

See attachment

Margaret Kirtley-Sternberg 10380

I don't think this type of sulfide mining should be tried here until it has been successfully done somewhere without severe environmental damage. Given the track record of the mining industry, there is no reason to believe this mining will be accomplished without destroying water quality, even if the technology exists to do so. A several hundred year consistent clean-up is unrealistic.

40113

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Margaret Kirtley-Sternberg 320 E Buffalo St Duluth, MN 55811-2437 (218) 724-4328

Alphabetical by sender's first name

Margaret Merkow 16033

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Margaret Nelson 30186

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. The Great Lakes are the source of drinking water for millions of Americans and Canadians. Allowing PolyMet Mining to pollute Lake Superior, the upper lake in the Great Lakes flow, would mean severe degradation of water quality, with consequent threats to human health all along the watershed. There are other concerns about this project's potential impact on our region, including: loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and permanent ruin of the land stripped for the open pit. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Margaret Nelson 2206 Green Bay Rd Evanston, IL 60201-3027 (847) 425-9412

Margaret O'Loughlin 3472

Dear DNR representative, I'm writing to express my opposition to the Poly Met Mining Project. The project seems like a terrible choice for the North Shore location for the following reasons: - the toxic and lasting effects of water pollution - the absence of long range planning for inevitable accidents and system failures - the tax burden Please don't be complicit in degrading yet another tract of wilderness in our state. Thank you, Margaret O'Loughlin 2721 39th Avenue S. Mpls. 55406

Alphabetical by sender's first name

Margaret Sears 40980

Mar 9, 2014 Ms Lisa Fay MN Dear Ms Fay, I do not live in Minnesota but I have relatives that do. I care deeply about the condition of waters in every single state that our birds use; whether they live in or are migrating through, Minnesota. I feel that this project is just going to be a slow death for all birds. Please do all you can to stop it before it can harm anything. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mrs Margaret Sears 1648 Arbor Knoll Loop Trinity, FL 34655-7182 (727) 375-8795

margaret sorensen 11926

Feb 14, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

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Margaret Thilmany 16104

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Margaret Wilcox Browning 54901

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Alphabetical by sender's first name

Marge Danielson 40827

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Margi Preus 41128

Dear Ms Fay and MN DNR; I want to express my concern and opposition to the proposed PolyMet mine. My concerns center on the documented concentration of sulfur in the holding ponds which is a result of the mining process, as reviewed in the EIS. The likely leaching of this highly toxic sulfur into the surrounding lakes and streams would severely damage the ecology of our area. Elevated sulfur levels would decimate fish populations and reduce or eliminate other aquatic species. These waterways would change from the clear pristine watershed we all know and value. And rely upon. The company has argued that all of this highly toxic water borne sulfur can be contained. Similar mines in other parts of the world and not situated in a massive fresh water basin have been unsuccessful in this regaRd The EIS states a need to monitor and repair the holding ponds for at least 500 years. Clearly, no current corporation will likely be around 500 years from now Even the posting of bonds or setting up trust accounts would be unlikely to stop the dispersing of this very toxic pollutant. I'm reminded of the radioactive water, currently stored in a variety of containers throughout the US In the last 60 years (about 11% of the 500 year projection) those storage vessels have been seriously deteriorating. We had a short term need for electric power and now we have a 10,000 year pollutant to warehouse for the forseeable future of mankind. I see little reason to think that mining precious metals in a pristine watershed that connects to our Great Lakes is a necessity. The short term financial gains and some employment aren't remotely sufficient to risk the inevitable pollution of our watershed. Once introduced into the watershed these pollutants will rapidly disperse, and we have no foreseeable technology to remove sulfur from billions of cubic feet of water. I would urge you to deny this application and spare our region our country and the planet from this very unwise mining activity. Sincerely, Arno Kahn

Alphabetical by sender's first name

Margi Preus 42261

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Margi Preus 1747 Columbus Ave Duluth, MN 55803-2517 (218) 728-4780

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Margie Ritter 9416

I am a life-long resident of Minnesota and much of my professional career was related to science and industry including environmental compliance. I have read the SDEIS for the proposed NorthMet Project and Land Exchange and want to complement you on the work done and the completeness of the project as outlined. This is a large important project for the region and it appears to me that most everything that one could imagine to look at and analyze has been done. I am in favor of this project because the State of Minnesota is one of the most stringent regulators in the nation and in the world. I believe that if we are to utilize precious metals in our everyday life and ask for greater technology and energy savings that use these metals, then we should also bear the cost of the mining that these metals will bring. To do anything less is hypocritical on the part of our society. We live on a world that is round and what happens in far-away lands does ultimately affect us. I believe that the EIS outlines that this project can be done safely .after all is a project that deals with inorganic agents which are easily removed by simple chemical means. Certainly, there will be unknowns, with a project of this size that is to be expected. However, I believe that with work on the part of the company and the regulators any problem can be solved with a good outcome. As I mother and perhaps one day, a grandmother, I am not afraid that this will ruin our land for future generations. Instead I see this as an opportunity to show the world that this substance can be safely mined, that it will be a world-class model for environmental compliance and will provide increased technological breakthroughs for the future generations. Thank you for your consideration. Margie Ritter 32 NW 4th Street Grand Rapids, MN

Alphabetical by sender's first name

Margit Johnson 21439

Dear Ms Fay, I am opposed to the proposed PolyMet metal mining project in northern Minnesota. I urge you to deny the permit needed to allow the proposed land swap and open pit sulfide mine. My reasons are numerous, and you have probably heard them from many other concerned Minnesotans. - The land exchange circumvents federal law that protects national forests and watersheds therein. - The impact of the mining operation on surface and ground waters, wildlife, air quality and sensitive habitats will be significant. PolyMet's proposal includes clean-up and monitoring for hundreds of years, which defies logic, financial responsibility and good stewardship. I understand that the DNR is scrutinizing only the environmental impact at this stage. But the huge costs and super-human time scale cannot be ignored, as they reflect the serious environmental consequences of mining in a water-rich environment. - While valuable metals are, indeed, among Minnesota's natural resources, their extraction must be weighed against other natural resources such as wetlands, groundwater, rivers, Lake Superior, the boreal forest and all the flora and fauna that supports, and the air quality throughout the area. A balance is in order here. Yes, we need more copper and other valuable metals. But Minnesota ranks quite low on a national scale of valuable metal reserves. Much larger copper mines elsewhere currently produce and will continue to produce much more product than this mine will ever yield in its 20-30 year life span. - Air emissions and water effluent from such a project would include sulfates and asbestos-like materials that will seep or stray far from the proposed project site and have long-lasting consequences. These byproducts will impact not only the flora and fauna of the entire area, but also the employees, their families and other residents and visitors to this precious part of our state. In short, the environmental review process has not fully or accurately addressed the impact of this proposal on the water, air, wildlife, land and other natural resources that you and all of us are responsible for now and into the future. I urge you to deny the permit. Sincerely, Margit Johnson 613 Union St Northfield MN 55057 Cc: Representative David Bly and Senator Kevin Dahle

Margot Monson 18208

Bjorn Monson, B-J-O-R-N, M-O-N-S-O-N, and I want to cede my time to my better half. MARGOT MONSON: Margot Monson, M-A-R-G-O-T, M-O-N-S-O N. I have a master's degree in entomology with research experience in wetlands. As a biologist, I'm speaking to Section 404 of the Clean Water Act and the Wetland Conservation Act which states that, "There shall be no net loss in quality, quantity or biological diversity in Minnesota's existing wetlands." The supplemental EIS states that in addition to a 912 wetland acres destroyed directly at the PolyMet NorthMet site, there will be an additional 7,000-some acres destroyed indirectly from the effects of air and water pollution. Mining has been revealed that indirect effects of mines on wetlands are real. For none of these aquatic resources exist in isolation. They are all interconnected, and they are what make watersheds strong and functional. At the very least, any wetland compensation should occur within the same watershed and include the St. Louis River watershed at the Lake Superior Basin. According to Chapter 5 in the Supplemental EIS, 68 percent of the wetland replacement areas are outside the Lake Superior Basin, 72 percent of the credits are off. The Supplemental EIS only commits to replacement of 26.9 acres out of the over 7,000 acres. These losses will mean that the very serious destruction of peatlands found in this ecosystem, and these take hundreds, thousands of years, sometimes, to develop. The land suggested for the replacement value is from old sod farms. Surely, not in any way equal in quality or biodiversity. In order for an agency to determine wetlands to use for replacement, they must have data that documents the biodiversity of these lands, and having done wetlands research, I know that Minnesota does not have any comprehensive inventories of such diversity anywhere in Minnesota aquatics has this, let alone in our nearly pristine BWCA in Lake Superior watersheds. Some have been done on a spiritual task list. My work, and along with my colleagues, studied caddisflies. Caddisflies are important in water quality, but these important inventories document just a fraction of the millions of organisms that live there and take years to complete. Furthermore, the Army Core admits it has no experience in requiring wetland compensation after a project is built to mitigate indirect loss of wetlands. As scientists, you must know that all wetlands are not created equal in function and biodiversity, and wetlands in Northern Minnesota are far different than those that we can find in other regions of the state. This wilderness is unique in the entire US. We have one BWCA and one Lake Superior. So, my question for you, as scientists responsible for making these decisions to ask, to the future of our variable wetlands, how can you in good conscience allow the destruction of thousands of wetlands knowing they are truly irreplaceable? If this kind of destruction is permitted, it will be not based on real science, but wishful thinking, and our descendants will suffer.

Alphabetical by sender's first name

Margot Monson 43060

Tim Dabney, Deputy Forest SupervisorU.S. Forest Service, Superior National Forest8901 Grand Avenue PlaceDuluth, MN 55808Dear Sir:March 9, 2014I've written to you because we were originally advised that the U.S. Forest Service will weigh in on the decisions for permitting sulfide mining in MN, and the forests are ecologically integrated with the wetlands. I have lived in Minnesota all but three of my 68 years and d> not own any land within the BWCA or Lake Superior watersheds. I have only visited there enjoying the as-pristine-as-we-have-in-MN wilderness, but my children and grandchildren have camped and hiked in this region and will be there again this summer. This part of our state is very special to us and visited by tourists from all over the U.S. and world, not only for its wild beauty but for the ecological health of the forests, wetlands,streams, rivers, and lakes.If the idea that perpetual treatment of water contaminated by the sulfuric acid produced by the mining processes may be necessary for centuries is not outrageous enough to stop you dead in your tracks and cause you to reject it, the very fact that the financial assurances will not be stated publicly until the permitting process begins is disingenuous and an insult to Minnesotans. The fact is that 80% of sulfide mining operations in the U.S. have closed with massive environmental degradation, all have left water pollution behind, and some filed for bankruptcy leaving taxpayers to foot the bill. For these reasons and that PolyMet has never operated a sulfide mine, is owned by foreign companies, and Glencore is a major investor with horrific environmental and financial track records in foreign countries, should be more than enough evidence for Minnesotans to reject this type of mining and this company at the outset.I am most disturbed by the inevitable loss of wetlands, so critical to the function of aquatic ecosystems. I studied in these amazing places as an aquatic biologist doing research in wetlands as a grad student in the UMN Dept of Entomology. I know that each wetland functions as it does because of its evolution over thousands of years involving millions of interactions between invertebrates, aquatic and terrestrial plants, and the particular soils, minerals, substrates, and water chemistries. This does not begin to adequately describe the immense complexity of an ecologically healthy wetland, and my professional experience working in them fuels my passion for these habitats so critically important in maintaining natural functions in these wild places. If sulfide mines are permitted in MN, this will mean the permanent destruction of thousands of acres of valuable and irreplaceable wetlands. These are not just any wetlands one casually drives by in the city or rural areas but places wild and undisturbed, primarily reached only by hiking, canoeing, portaging, and each unique in its watershed. The fact that the plan calls for the "replacement" of the destroyed wetlands with land far removed and in different counties, much apparently in previously drained and farmed land, is ludicrous from a scientific perspective. Even if the natural flowage eventually resumes, it will be hundreds of years before the hydrology is restored to its original function, nor will it be the same in quality and biodiversity as the destroyed wetlands once were. There may be a plan to increase the acreage of the "replaced" land to be greater than that destroyed, but increasing it does not justify it, because it is different land in a different habitat ecologically, and this is an insulting mollification. The Wetland Conservation Act, states that there be "no net loss in quantity, quality and biological diversity" for the land chosen to replace the destroyed wetlands. Where are the biological inventories of all the critical species of wetland plants, animals, fungi, etc. that would have to be used to determine equal biological diversity? There may be some for plant spe

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Alphabetical by sender's first name

Margret Fox 42061

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs Margret Fox 3262 Wilder Rd Santa Rosa, CA 95407-7748 (707) 545-8961

Maria 54870

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Maria Antonescu 16228

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Maria dels Angels Beltran 40374

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Maria dels Angels Beltran C/. de la Pineda, 32-34 Palau-solità i Plegamans, ot 08184 ES

Maria DOnofrio 15817

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Maria DOnofrio 9585 Pawnee Ave N Stillwater, MN 55082

Alphabetical by sender's first name

Maria DOnofrio 40387

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Maria E. May 45714

Dear DNR Committee for the Review of PolyMet Mining Project, Foreign mining interests and big money should not determine how we manage public land in Minnesota. There's no amount of compensation that would be enough for the kind of damage this kind of mining could cause. I know that many of you must share my conviction that the number of jobs temporarily created are not enough to justify ruining the watershed, one of our most vital and irreplaceable resources. The SDEIS report released to the public failed to report accurately on the inadequacy of collection pumps to catch all or most of surface and ground water waste,. The same report made no mention of the geologic fractures under the tailings basin itself. Many Minnesotans think that even this invitation for public commentary is a sham. What do you think. Please bear in mind that public works on this scale are now conducted in a climate of unprecedented transparency. Interest in what happens here is not about to go away, and it will take more than a few fudged reports to hide the potential for disastrous consequences for all Minnesotans. I urge you to turn PolyMet away. Please don't approve this project. Thank you, Maria May St Paul, MN

Alphabetical by sender's first name

Maria Freund 38376

Dear Governor Dayton and Minnesota Department of Natural Resources: I am very concerned about the impact PolyMet's mining plans in northeastern Minnesota will have on environmental and socioeconomic resources and I urge you to reject the NorthMet project proposal in its current state. The Supplemental Draft Environmental Impact Statement clearly identifies the effects the plan will have on water, bio resources, and socioeconomic resources. I am not in favor of a plan that would: · Elevate aluminum and lead levels in our water. · "Directly affect 912-5 acres of wetlands located within the NorthMet Project area, mostly within the Mine Site, as a result of activities such as filling, excavation, and installation of a containment system within the wetland boundary, and, therefore, these wetlands would be permanently lost" (ES37). · "Directly affect up to 1,741-1 acres of Minnesota Biological Survey Sites of High Biodiversity Significance, 698-2 acres of “imperiled” or “vulnerable” native plant communities, and 2 acres of “widespread and secure” native plant communities" (ES38). · [Impact bio life] "There are 11 state-listed plant species, all at the Mine Site; nine species would be directly affected and two would be indirectly affected by the NorthMet Project Proposed Action" (ES38). · "Potentially affect aquatic physical habitat via changes in streamflow, affect riparian and aquatic connectivity via construction activities within the riparian zone, and affect water quality by increasing solute concentrations above Class 2B (aquatic life) standards" (ES38). · [Potentially impact/ Impact] "One federally listed wildlife species, the Canada lynx, may be affected by localized direct decrease and fragmentation of designated critical habitat Four additional state-listed species—including the gray wolf, eastern heather vole, wood turtle, and yellow rail—may be affected by the NorthMet Project Proposed Action" (ES39). · [Impact] "The territory ceded by the Chippewa of Lake Superior to the United States in 1854- The Chippewa reserve rights to hunt, fish, and gather on lands in the 1854 Ceded Territory. Natural resources and the lands on which they are gathered are important to the Bands for a number of reasons, including their cultural, spiritual, and/or historic meanings, and will be considered under federal agency tribal trust responsibilities as outlined above and also as cultural resources under NEPA" (ES39). I recognize that implementing the proposed plan would create jobs and positively impact the greater Minnesota economy; however, I believe that PolyMet can produce a better project plan for this mining initiative, one that involves less environmental damage/risk, does not threaten our state's defining clean fresh water characteristic, and does not require 500 years of water treatment post-mining operations. Please reject the PolyMet proposal and ask NorthMet to revise their project plan with greater consideration for environmental and socioeconomic and cultural impact. Sincerely, Maria Freund 2313 Barton Ave NW Buffalo, MN 55313 This e-mail is intended only for the addressee(s) and may contain confidential information. If you are not the intended recipient, you are hereby notified that the use of this information or dissemination, distribution or copying of this e-mail is strictly prohibited. If you have received this e-mail in error, please notify the sender immediately by return e-mail and delete the original message. Thank you.

maria galbiati 40433

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, maria galbiati rembrandt 22 Milano, ot 20148 IT

Alphabetical by sender's first name

Maria M. Pierz 45525

From: Maria M. Pierz, 331 Coolidge St Anoka, MN 55303 March12, 2014 To All Concerned, Once the big machines come into the Babbitt and Hoyt Lakes area, all bets are off. There are no guarantees that PolyMet's new technology and water treatment facilities will not have an adverse affect on the surrounding environment. I find myself in the category of the "No Action Alternative'. Two major problems with the copper/nickel mining is that seepage into the water table will have major consequences for the pristine wilderness; and the mining will impact three watersheds with wetlands and forests, potentially even the BWCAW. My point is that with all the scientific studies there is no positive evidence that the mining will not have a negative impact on the areas. Minnesota is known as the "land of sky blue water", an area that offers recreation and serenity to all who come to the northwoods. 90% of the area mined will only bring 10% of the copper, and the rest is sulfide and other dangerous minerals (ie mercury). The impact will endanger the aquatic plants, fish, vegetation, and wildlife. Over the years there can be a cummulative effect on the surrounding waters and habitats. Reclaiming the area will be impossible even over the 500 year plan. Even climate change cannot be predicated with 100% accuracy. By 2040, the 350 jobs that are gained in the short run will be gone for future generations. Money matters, but the focus should be on the long term and not be part of short term gains. The Superfund clean-up is in the billions of dollars. We cannot let profits rule our decisions. Water Quality is certainly an issue for continuation of legal rights to the Native Americans in the area especially concerning hunting, fishing and wild ricing, in accordance with the Treaty of 1854- Wild rice is a tender crop that can be washed away with the pollution of waters. Habitat loss will impact the wildlife. Certainly, the negative effects of the copper/nickel mining will damage a beautiful area for camping, canoeing in the BWCAW. Everyone loses in this proposition. Please protect our our wild and scenic places and preserve it for future generations. Maria M. Pierz 763-427-0332

maria thompson 39267

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms maria thompson 11152 164th St W Lakeville, MN 55044-8937 (952) 465-8836

Marian Gordin 13628

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, Please choose clean water and a healthy environment for all of us by denying PolyMet's proposal to mine sulfide ore at the headwaters of the St Louis River, which will damage the watershed all the way to Lake Superior. This operation will destroy wetlands directly and contaminate air, water, and soil over a large area. Think about the recent industrial "accidents" in West Virginia and North Carolina/Virginia. Don't let profits and greed override the health and standard of living for all Americans. Jobs are good, but NOT at any price. Please deny the Section 404 wetlands permit described in the Supplemental Draft Environmental Impact Statement (SDEIS) being considered by the Corps of Engineers and the Minnesota Department of Natural Resources. Birds, fish, forest and aquatic animals and plants, as well as children, grandparents, and communities will suffer incalculable short- and long-term problems if we (that is, our government agencies) continue to bow to corporate pressures for such projects. Thank you for considering my comments. Sincerely, Ms Marian Gordin 1654 Rainier Falls Dr NE Atlanta, GA 30329-4108

Marian Puglisi 54145

The effects on human health haven't been adequately addressed in the PolyMet environmental review. It fails to define the human health oeffects of increased mercury emissions, exposure to asbesdos-like mineral fibers and arsenic. The World Health Organization lists 10 chemicals of major public health concern. Sulfide (copper) mining involves 5 of them including mercury, arsenic, lead, asbesdos, and air pollution. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Marian Van Dellen 14580

Feb 12, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesota's greatest resource is pure water and unspoiled natural areas. Please do not allow mining to threaten that. We need clean water much more than we need minerals. Please say no to the PolyMet mine. Sincerely, Ms Marian Van Dellen 600 4th St SW Apt 306 Rochester, MN 55902-3245 (507) 282-4565

mariana morgan-sawyer 38903

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms mariana morgan-sawyer 1725 Graham Ave Apt 136 Saint Paul, MN 55116-3276

Maribeth Schulke 39369

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Maribeth Schulke 8481 Hiawatha Ave Eden Prairie, MN 55347-1549 (952) 949-2021

Marie A Braun 57275

Please accept these comments on the Poly Met Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage (AMD) and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as lynx and moose, exchange of federal land within the Superior National Forest, and cumulative impacts from mining. The proposed mine poses unacceptable risks to our waters and communities, and I support the No Action Alternative.

Marie Beckner 35908

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt I and my husband have visited Lake Superior to see the Pictured Rocks National Lakeshore and its beauty astounded us. I am so sad to hear that you are now taking steps that will risk and possibly spoil the natural beauty of this exotic and beautiful place. It is irreplaceable. Most people do not know of its existence. All of the surrounding regions were also beautiful and fragile so that I was thankful that they were relatively isolated. This is a part of our world that needs protection. The plant and animal life have adapted to the harsh winter climate over eons of time and we can undo it so easily and carelessly. Please take care to protect this wonderful place. Sincerely, Marie Beckner 2540 Chagrin Dr Willoughby Hills, OH 44094-9632 (440) 525-5077

Alphabetical by sender's first name

marie grenu 40381

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, marie grenu la bagottiere Breel, ot 61100 FR

Marie Leven 36145

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt What are you thinking. You would pollute wetlands and National Forests so a foreign company can make profits. Smells like some big money going under the table. Then what about Lake Superior, our Great Lakes are polluted enough as it is and there is a warning about eating any fish caught there already. A lotos us get our drinking water from the Great Lakes so what is your plan when we can no longer drink the water. It sis long overdue to just say no. Sincerely, Marie Leven 321 Bellewood Dr Flushing, MI 48433-1879 (810) 659-4471

Marie-Dominique Ostrowski 43247

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Marie-Dominique Ostrowski 9054 S. Lakeshore Drive Tempe, AZ 85284

Alphabetical by sender's first name

Marilla MacGregor 15856

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Marilla MacGregor P.O. Box 226 Kasota, MN 56050

Marilyn Andersen 46203

Thank you for this opportunity for input. Please prevent further mining destruction in our North Woods and Waters, and do not the PolyMet SDEIS. The mining itself in totally unacceptable. Accidents always happen, despite precautions and our best analysis and fat bank accounts waiting to take care of damages. Those facts are incontrovertible, without need of analysis. In regard to issues in the SDIE, I do not approve of: open pit operations that permanently scar the earth and destroy our forests and habitat. acid run-off-which can't be assured for 500 years, no matter what price. habitat destruction for native plants and animals pollution, such as sulfates in our wetlands, which become toxic to plants and animals, and production of mercury methylate, which further poisons aquatic life further infringement of Indian rights on legally ceded territories, including hunting and ricing activities "streamlining" public processes such as hearings, etc to make it easier for wealthy corporations to pull off huge projects such as this without having to deal with public opinion. In our current system we let big money rule everything and destroy the earth that was our legacy. Whose pockets will benefit from this project. The copper will be gone, the jobs will be gone, and so will the earth, deeply impoverishing our citizens and the environment. Minnesota will get a pittance of the money that mining companies make. When China runs out of copper for its production, someone will discover another product, perhaps an artificial synthetic, that works just as well. Corporations have the wealth and resources to figure that out-let them do that now. Protect our birthright now, before it is destroyed. Thank you for the opportunity for input. Marilyn Andersen 651-777-6282 1717 McKnight Lane Maplewood, MN 55109

Alphabetical by sender's first name

Marilyn Berling 27169

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt We believe that you know only too well what is in this letter. We wonder why you would ever consider an open pit sulfide mine on National Forests Land. Doesn't this land belong to all of us. Aren't you the people who are responsible for protecting our intereSt Allowing a multinational corporation access to make a profit on "our" forest land is not in our best interest as it seriously negatively effects the environment, particularly the wilderness areas and Lake Superior. Please do your job. Protect our interest, our national forests. If you need help to do this, call on those of us who write to you. You have our information and can reach us. Sincerely, Marilyn Berling 9114 Woodbridge Ct Indianapolis, IN 46260-1235 (317) 727-4768

Marilyn J Benson 54569

Please, let’s not trade clean water in perpetuity for 300+ jobs—for 20 years! Leave the minerals in the ground so that we, our children and our great-grandchildren will have clean water. Let’s recycle, re-use, and curtail our use of the se metals.

Alphabetical by sender's first name

Marilyn Magnuson 16163

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Marilyn Rahn 41712

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Marilyn Smith 40310

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Marilyn Smith 4449 Toro N. LV, NV 89031 US

Marilynn Smith 40457

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Marilynn Smith 1071 Candlelight Blvd D49 Brooksville, FL 34601 US

Alphabetical by sender's first name

Marilynn Torkelson 42476

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Marilynn Torkelson 8956 Braxton Dr Eden Prairie, MN 55347-5344

Mario Velarde 40302

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Mario Velarde 19860 NW 64th CT RD Miami Lakes, FL 33015 US

Marion Cartwright 41084

Mar 9, 2014 Ms Lisa Fay MN Dear Ms Fay, There are serious problems with PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. This region's copper-nickel is locked in a sulfide-containing matrix. Once exposed to oxygen and water, sulfides oxidize to produce sulfuric acid and release metals in soluble forms, including mercury, copper,iron and nickel. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. It could also wipe out wild-rice beds in the watersed. The trade-off is not worth the risk. Sincerely, Mrs Marion Cartwright 205 N Sheridan Rd Lake Forest, IL 60045-2474 (847) 235-2803

Alphabetical by sender's first name

Marion Scott 40161

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Marion Scott 1691 Princeton Ave Saint Paul, MN 55105-1943 (651) 470-7923

Alphabetical by sender's first name

Marit Witt 52573

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404 " Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation " wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect " wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1- Underground mining, looking at the full ore deposit and PolyMet's real costs; 2- Putting a liner under the Category 1 waste rock stockpile; 3- Placing all tailings on a new completely lined facility; 4- Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5- Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to protect irreplaceabl

Marjorie Pitz 11328

I attended the St Paul open house, and reviewed the film, which was very helpful. Thank you. I don't believe that contractors have the skill to create a fully functioning sealed barrier beneath the storage pools of toxic waste-no matter what engineers might believe. For that reason, I oppose the PolyMet development, as the risk to water resources is too great. I hired contractors to create a pond system at IRRB's Ironworld USA, using a product we thought was fail-proof to line the bottoms of the ponds. It was fraught with so many unexpected problems, and leaked like a sieve. We had problems with: air temperatures being too low due to the short construction season (temps above 50 were required for the seam sealants) humidity being too high at the pond bottoms where soil was saturated (humidity made the curing process incomplete) water in the pond basins made them too mushy even after pumping out the water, so the basin was not compacted well wrinkles in the fabric created trapped areas that did not get sealed properly (it is impossible to avoid wrinkles) contractor was pushed to work outside the proper temperatures, due to the short season and impending deadlines contractors became high from working with toxic products, and their judgement suffered, leaving pin holes pin holes occurred in many places, but there were no more obvious leaks the ponds leaked so fast it caused damage to nearby buildings no one could trace where the water leaked to, as the mining dump material beneath the ponds allowed the water to escape deep below the surface immediately the contractor was pressed to re-do huge areas without reimbursement, and went bankrupt All in all, the concept of creating a sealed basin sounds appealing, but there will always be seams and wrinkles, improper applications, and weather struggles, and a perfect seal is not possible. Nor is a sealed basin's life span going to be long enough to deal with the toxin life above. Nature can erode any material we invent, with enough time. Marjorie Pitz Martin and Pitz Assoc., Inc. 1409 Willow St Minneapolis, MN 55403 651-778-9558

Alphabetical by sender's first name

Marjorie Savage 18905

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: Please increase the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS). I would like time to review and consider this plan, but the length of the document requires more than 90 days for the average citizen to read this complex plan. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place at a later date. As a Minnesota resident and a former landowner adjacent to the St Louis River, I have a strong and personal interest in sustaining water quality and preserving the natural environment along the river. I would like the time to properly review the document and provide educated comments. Sincerely yours, Marjorie Savage Marjorie Savage 6911 Booth Avenue Inver Grove Heights, MN 55076 612-709-8713

18906

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: Please increase the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS). I would like time to review and consider this plan, but the length of the document requires more than 90 days for the average citizen to read this complex plan. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place at a later date. As a Minnesota resident and a former landowner adjacent to the St Louis River, I have a strong and personal interest in sustaining water quality and preserving the natural environment along the river. I would like the time to properly review the document and provide educated comments. Sincerely yours, Marjorie Savage Marjorie Savage 6911 Booth Avenue Inver Grove Heights, MN 55076 612-709-8713

Marjorie Simon 16262

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Mark 20826

Thank you for taking my comments: I do not believe that PolyMet is capitalized to the point that if groundwater contamination happened, they would be able to provide long term protection to the citizens of MN. If it's already too late to stop the project, any amount of money that is required to be set aside must be indexed for inflation, so $100M determined to be sufficient today will grow as the costs for the eventual clean up grow. This amount must be revised on an annual basis with the State on MN holding the money in escrow. Fresh water is a valuable resource in and of itself, much more than nonferrous metals in MN. The risk of environmental damage is great, the likelihood that PolyMet will not be able to adequately address the issue is also great . . . just say NO to this mining project and continue to allow one of the world's great natural resources continue to be enjoyed by thousands of people each year. Mark Anderson 1620 N. 4th Street Mankato, MN 56001 (H) 507-345-1855 (c) 507-340-7677

Mark A. Kaprelian 47622

Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Re: Polymet Mining, Inc. NorthMet Mining Project and Land Exchange (the "Project") Dear Ms Fay: I write to call attention to certain material facts about the financial condition of Polymet Mining, Inc. (Polymet) which are not addressed in the Supplemental Draft Environmental Impact Statement (SDEIS) dated November 2013 and issued for public comment on December 6, 2013- The failure to give these facts adequate consideration in the SDEIS undermines its quality and usefulness to permitting authorities, other policymakers and the public. I strongly urge the Co-lead Agencies to address these facts before proceeding any further with the Project. In its financial statements and related disclosures filed with the United States Securities Exchange Commission, Polymet states: While we were incorporated in 1981, we have no history of producing minerals. We have not developed or operated any mines, and we have no operating history upon which an evaluation of our future success or failure can be made. We currently have no mining operations of any kind. Our ability to achieve and maintain profitable mining operations is dependent upon a number of factors, including our ability to successfully build and operate mines, processing plants and related infrastructure ourselves. We may not successfully establish mining operations or profitably produce metals at any of our properties. (Polymet Mining Corp. January 31, 2013, Form 20-F at 9 (filed April xx, 2013)). In other words, Polymet has no demonstrable capacity to establish or sustain a viable mining operation. Furthermore, Polymet's financial resources are, to put it charitably, extremely limited. Polymet has an accumulated deficit of $88-4 million, it has no operating revenue (Id. At 9, 13, 34, 35) and its "only source of liquidity consists primarily of cash from project debt, other debt and equity financing" (Id. At 35). It states "we currently do not have a source of revenue" (Id. At 11), and "we do not know if we will ever generate revenue" (Id. At 8). In its most recent interim financial statements, PolyMet disclosed that it will need to renegotiate a convertible debenture held by a Swiss investor, Glencore AG, or raise sufficient funds to meet its current obligations and to fund planned development, capital expenditures and administration expenses for the next year. (Polymet Mining Corp. October 31, 2013, Condensed Interim Consolidated Financial Statements Note 1 at 1 (filed April 22-, 2013)). Significantly, Polymet's development of the NorthMet Project and the nearby Erie Plant is Polymet's only business (Id. At 13-16). In other words, unlike, say, British Petroleum, Exxon Mobil or General Electric, Polymet has scant capital and no other resources to absorb financial losses or other adverse contingencies relating to the NorthMet Project, such as a prolonged collapse in prices or a catastrophic environmental accident. Polymet acknowledges that if the prices of metals in our ore body decrease below a specified level, it may no longer be profitable to develop our North Met Project for those metals and we will cease operations. Polymet Mining Corp., January 31, 2013 Form 20-F at 7- And Polymet acknowledges, as it must, that its business is subject to various risks and hazards, including environmental hazards, that could result in damage to, or destruction of, mineral properties, production facilities, transportation facilities, or equipment. They could also result in personal injury or death, environmental damage, waste of resources or intermediate products, delays or interruption in mining, production or transportation activities, monetary losses and possible legal liability. The insurance we maintain against risks that are typical in our business may not provide adequate coverage. Insurance against

Alphabetical by sender's first name

Mark A. Snidarich 43842

I have confidence in the DNR and believe the SDEIS process for PolyMet Minings proposed NorthMet project has been thorough. The state and federal regulators will ensure that PolyMets project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I'm very familliar with, and have faith in, the proposed reverse osmosis water treatment technology and believe that if any further water treatment would become necessary that simple ozonation of discharged water in holding ponds would complete the process to comply with even the strictest water quality standards. The same ozonation technics hold true for air quallity. Fact: OZONE oxidizes and decomposes organic and inorganic contaminants at a higher rate than other reagents. Also, OZONE is used for eliminating heavy metals from the effluent produced by many types of industry such as mineral extraction plants. And over 4000 cities worldwide use ozone to treat their municipal water and/or sewage. There are ways to clean up air and water discharge simply and effectively from most industry if only implemented. These technics would also benifit Wild Rice growth. We cannot afford to miss this job opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. We cannot let the sins of past copper mining keep us from moving forward into a new safe way of doing bussiness. My hopes would be to keep PolyMets mined resources in the United States and working here to keep us the "greatest country in the world." Thank you. Mark A. Snidarich 3912 Peary Rd Eveleth, MN.

Mark Anderson 40638

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mr Mark Anderson 125 Century Trl Lino Lakes, MN 55014-7002 (651) 784-3205

45617

Mar 12, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The question here is whether clean water and sulfide mining can coexiSt The simple answer is no. The complicated answer is, "simply" no. Every sulfide mine ever operated has polluted the water around it. There will be pollution. This is acknowledged in the EIS. Polymet claims it can control the amount of contamination. It cannot , however, control nature for 500 years. The massive rain event of 2012 should teach us even greater respect for nature. Regulations can look good on paper, but they are no match for a force of nature. Also, they are no guarantee a catastrophe won't happen. They only provide for the cleanup, if possible. No amount of economic gain is worth the risk to perhaps Minnesota's greatest resource, clean water. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Mark Anderson 4501 Cambridge St Duluth, MN 55804-2314 (218) 724-6375

Alphabetical by sender's first name

Mark Anderson 48539

Mar 12, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The question here is whether clean water and sulfide mining can coexiSt The simple answer is no. The complicated answer is, "simply" no. Every sulfide mine ever operated has polluted the water around it. There will be pollution. This is acknowledged in the EIS. Polymet claims it can control the amount of contamination. It cannot , however, control nature for 500 years. The massive rain event of 2012 should teach us even greater respect for nature. Regulations can look good on paper, but they are no match for a force of nature. Also, they are no guarantee a catastrophe won't happen. They only provide for the cleanup, if possible. No amount of economic gain is worth the risk to perhaps Minnesota's greatest resource, clean water. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Mark Anderson 4501 Cambridge St Duluth, MN 55804-2314 (218) 724-6375

Mark Arneson 44235

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." I currently work in Central America building water projects and providing treatment for drinking water. I have seen so many ways that problems can derail a project.s planned expectation. While the plan to capture water run-off and treat it by membrane filtration may work well on paper and may work fairly well in practice (although the track record for sulfate rock mining is poor, in my research I have not found one example that did not pollute beyond intended levels). However, it is a remarkable position to consider a which tech solution for this newly created environmental problem. It is as if Christopher Columbus put this in place in 1492 when he sailed the ocean blue, and we Minnesotans are dutifully maintaining and operating the equipment today for the relatively small and short lived gain for those Spaniards. A crazy notion to consider. Proposing the creation of a new environmental problem that demands treatment for so very long can not rely on a high tech solution. There are too many things to go wrong, both things thought of and those not yet imagined. There needs to be a proven, effective low tech solution that will clean up the fallout of this mining operation. I admit that this may be hard to do, but the mining operation and the created environmental problem do not need to happen. An extraordinary request to create an environmental problem for Minnesota to deal with into perpetuity requires an extraordinary demand - the mining and exposure of this acid producing rock is permitted only if it can be treated in a proven, low tech, fail safe manner without continual human input. The SDEIS needs to include this fail safe treatment option. Sincerely, Dr Mark Arneson 2101 27th Ave S Minneapolis, MN 55406-1273

Alphabetical by sender's first name

Mark B 47108

As a life long MN resident and frequent visitor to it's many recreational opportunities I am very much concerned with a possible Poly Met mining project. My greatest worries concern the long term harmful environment impacts that such mining will cause. These fears are due to the companies reported lack of experience in this type of mining and it's troublesome history of implementing adequate environment protections. Minnesota's north woods is truly unique and in my opinion worth immensely more than the mineral value or job creation that is purported to be produced. Now is not the time to move ahead with this project. These minerals aren't going anywhere. I'm suggesting waiting, hopefully until better pollution controls exist to ensure that these precious natural resources remain available for future generations. It is my desire that this project not presently be approved. Thank you. Mark Butala 10575 St Croix Tr. No. Stillwater, MN 55082

Mark Bakk 18210

My name is Mike Birkeland. I'll be giving my time to my friend and fellow Northern Minnesotan, Mark Bakk, who drove down here with me tonight. Thank you, Mike. My name is Mark Bakk, M-A-R-K, B-A-K-K. While I can't play guitar and I'm not an eagle scout, but I did just save a bunch of money on my car insurance. I'm here tonight representing the board of directors and the nearly 43,000 members of Lake Country Power, a rural electric distribution cooperative that serves eight counties in Northeastern Minnesota and most of the rural areas surrounding the project that we're talking about here. In 2010, our board took the position of supporting non-ferrous mining projects if they demonstrated appropriate environmental safeguards. We believe the PolyMet Supplemental EIS conforms to that standard. Our electric service territory doesn't include this project, so our cooperative and our members won't gain directly, financially, from approval of this project. But we support the science, the data and the outcomes. Lake Country Power also supports moving forward with the project because of the moral dilemmas that defy logic if we don't. Dilemma Number 1. Many in this room are supporters of renewable energy and the state's renewable energy mandate that requires 25 percent of Minnesota's energy be generated from renewable sources by 2025. This is a worthy goal, and like electric cooperatives, are well on our way to meeting this requirement. But there's a moral argument to consider because it's unjust to push this demand for renewable generation sources that drive up the price of electricity yet be against the extraction of the very minerals that go into what most of us in this room would call clean and green energy sources. Whether it's wind energy, solar energy or battery storage, it takes precious metals mined from the earth to capture renewable energy and make it work. If we're opposed to taking these resources out of the ground to meet renewable energy mandates and expand alternative options, is the outcome truly clean or green. Dilemma Number 2. It's contradictory to be for one form of environmental science that suits our ideals, yet opposed to the same science that doesn't. For example, climate scientists have tested and modeled data for years to validate predictions about the earth and our atmosphere. Some of the data's been adjusted, yet we continue to accept their findings as fact. The SDEIS uses the same methodology to predict outcomes for modeling data that has been tested, verified, and repeated, but in this case, to protect our environment. Science, if applied correctly, uses logic and recognized methodology to predict outcomes. Are we willing to accept and support the science in one case but not in the other just because one example aligns with our values and the other does not. Lastly, Dilemma Number 3. Is it morally acceptable to allow mining for precious metals elsewhere where we can't verify the environmental outcomes? How could we be more for the very products and technology that helped make the opposition to this project be so well heard, yet be against the most scrutinized venture of this type in the world. When we transfer this demand, it's like burying our heads in the sand. If you have a Smart Phone in your pocket right now --

Mark Baldwin 42147

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Mark Baldwin 1801 Hague Ave Saint Paul, MN 55104-7397 (651) 808-4350

Mark Bauerly 10752

I support the project 100%. I know that the mine be environmentally safe. It will have a huge positive economic impact on Minnesota and the US We need to mine our own minerals in the US for our balance of trade as well as our national security. Mark D Bauerly

Alphabetical by sender's first name

Mark Berg 39747

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Mark Berg 320 Blake Rd N Hopkins, MN 55343-3402

Mark Bouchard 38791

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Mark Bouchard 3517 16th Ave S Minneapolis, MN 55407-2305 (612) 366-2049

Mark Brice 37026

I am pro-mining, pro-environment and pro-BWCAW. I believe that Polymet will provide immense economic benefits to the state of MN, especially the iron range region. I've sought expert opinion from parties who have read the EIS. These parties are not directly involved in the project or with any of the environmental groups opposed to it. To my knowledge the plan for the mine is smart, safe, financially viable and extremely unlikely to cause material harm to the environment during or after operations. I am 30 years old and have enjoyed time in the Wilderness for the last 22 years over approximately 35 trips. I am grateful for the financial position my family has been in over these decades as it has allowed me to enjoy these trips. As a "Twin Cities" resident I am an environmental stakeholder in this project because I want to continue to enjoy time in the BWCAW. However, do not stand to substantially benefit from an enhanced economy in the iron range. While I know that if this project go forward, my continual enjoyment of the BWCAW is ensured. However, Twin Cities residents have no right to impose unnecessary environmental restrictions to this project. Doing so only prevents financial benefits to families living on the iron range. This project is a fair compromise for all stakeholders and should move forwaRd Thank you for consideration of my comment. Mark Brice 5025 12th Ave S. Minneapolis, MN 55417

Alphabetical by sender's first name

Mark Bridge 16749

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mark Bridge 610 Gilbert Avenue South Park Rapids, MN 56470

Mark Brown 4785

Please see attachment

Mark C Wihriala 18319

My name is Mark Christopher Wihriala, W-I-H-R-I-A-L-A. I live at 710 12th Avenue, Two Harbors, Minnesota 55616.I am a fisherman, a canoeist and an outdoor enthusiast who loves Minnesota. I am here tonight because I'm concerned about the water quality of Minnesota's rivers, streams and lakes. I fish in these waters, I drink these waters, and I swim in these waters. I do not want them to be polluted, and I do not believe that the SDEIS is a sufficient cumulative analysis of water quality impact from PolyMet Mining. I am requesting that the State and Minnesota deny the wetlands destruction permit. The Section 404 permit should be denied because PolyMet's discharge would violate water quality standards, destroy animal and fish habitats and threaten natural resources for centuries to come.

42697

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Alphabetical by sender's first name

Mark Calabria 16065

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Mark Catron 39541

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. As one who values our state's natural resources and wants them preserved for our grandchildren I strongly urge you as decision-makers to reject the ill-conceived PolyMet proposal to mine in the Arrowhead. This is a shockingly bad idea: combining the exposure and deposition of sulfide rock, in a wet environment, located in a fragile watershed, to cause leaching of acids for generations to come, hoping that technology will somehow prevail. When in all of recorded history has a piece of technology, no matter how well conceived, withstood 200 to 500 years of daily challenge. In fact, with one environmental disaster after another, we continually prove how arrogantly short-sighted man can be. Precious metal mining always pollutes. It is currently the single most toxic endeavor we engage in. And our "partner" in this boondoggle, for the next several hundred years, is to be Glencore, one of the world's most notorious polluters ever. Why would we think this would end well. Please don't sacrifice the priceless legacy of a pristine North Country for a few million in taxes and twenty years of jobs. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Mark Catron 4731 Bouleau Rd Saint Paul, MN 55110-3371 (651) 483-1266

Alphabetical by sender's first name

Mark Catron 48779

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. As one who values our state's natural resources and wants them preserved for our grandchildren I strongly urge you as decision-makers to reject the ill-conceived PolyMet proposal to mine in the Arrowhead. This is a shockingly bad idea: combining the exposure and deposition of sulfide rock, in a wet environment, located in a fragile watershed, to cause leaching of acids for generations to come, hoping that technology will somehow prevail. When in all of recorded history has a piece of technology, no matter how well conceived, withstood 200 to 500 years of daily challenge. In fact, with one environmental disaster after another, we continually prove how arrogantly short-sighted man can be. Precious metal mining always pollutes. It is currently the single most toxic endeavor we engage in. And our "partner" in this boondoggle, for the next several hundred years, is to be Glencore, one of the world's most notorious polluters ever. Why would we think this would end well. Please don't sacrifice the priceless legacy of a pristine North Country for a few million in taxes and twenty years of jobs. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Mark Catron 4731 Bouleau Rd Saint Paul, MN 55110-3371 (651) 483-1266

Mark D Dickinson 54758

See attachment

Mark D Jackson 42538

See attachment

Mark D. Dickinson 43046

March 10, 2014Mr. Tim DabneySuperior National Forest8901 Grand Avenue PlaceDuluth, MN 55808Dear Mr. Dabney,I am opposed to the proposed PolyMet large scale copper-nickel sulfide mining operations near Hoyt Lakes and Babbit, Minnesota.Simply stated, I do not believe the "BENEFITS" outweigh the "COSTS". Mining companies engage in exploration and complete cost/benefit analyses of projects. Often they determine the costs are too great and do not justify a project- even though there are valuable raw materials. While there is copper/nickel,this is NOT the only valuable resource.As a citizen of Minnesota and user of the BWCA and other northern MN areas, I do not believe the "costs", to the environment and the tax payers for the 200 to 500 years after mine closure, are warranted.My objections to the project are summarized as:Short term benefits of relatively few jobs do not outweigh long term costs of pollutant monitoring and clean up. (Are we that optimistic to think a mining company will provide financial support for 200 to 500 years? That is not optimistic, it is "dumb"- no company is going to last that long nor provide the financial resources for that time period!)The copper-nickel is not needed, we can derive what is needed from recycling.The copper-nickel will not be used in MN, or the US, and therefore will not directly benefit MN.Mining companies have documented histories of pollution and significant impact to the land and environment.PolyMet has NO documented contingency plans for accidents/disasters.Again, from a "cost/benefit" perspective, this projects does not make sense. I strongly urge you to reject the PolyMet proposal.Respectfully,Mark D. Dickinson1674 Princeton AvenueSt. Paul, MN 55105

Mark Domerchie 47462

Markdomerchie@tahoo-com Duluth MN 55803 Sent from my iPhone

Alphabetical by sender's first name

Mark E. Vesley 43462

To the Minnesota Department of Natural Resources: On page 569 of the SDEIS we find the following: “A Contingency Action Plan has been prepared as part of the Flotation Tailings Management Plan (PolyMet 2013m). The plan provides guidance to on-site personnel and emergency responders in the case of unplanned occurrences at the Tailings Basin. The plan defines 3- Level 3 is defined by either imminent failure of the Tailings Basin or a significant component thereof. The first actions in the event of any Level 3 condition are to check all persons who could potentially be affected are safe, initiate the appropriate chain of communications, and immediately undertake appropriate response actions.” What exactly does the phrase “appropriate response actions” mean. Why are the Flotation Tailings Management Plan’s disaster provisions not covered more fully in the SDEIS. This is grossly inadequate. As “100-“ and “500-year” floods begin to occur every few years in northern Minnesota, it is clear that extreme weather could cause failures in treatment systems that enable pollutant release from mine tailing pits far in excess of any rosy PolyMet projections. Will PolyMet, a mere shell company, be responsible for guarding against these inevitable events for the next 500 years. What financial assurance for disaster mitigation can PolyMet possibly provide that would cover such an immense period of time. What assurances has the DHR confirmed thus far to pay for mitigation of even the “normal” amount of acid and heavy-metal environmental damage in ensuing years that sulfide mining always produces. Until such time as proper financing for much more robust water safety measures can be guaranteed, permits for this project should be denied. Thank you. Mark E. Vesley 1598 Edmund Avenue Saint Paul, MN 55104-2234 HYPERLINK "mailto:mvesley@minncle-org"mvesley@minncle-org

Mark Engebretson 47124

To: Minnesota DNR Human beings are bad at weighing the potential for a current gain against the potential for a future loss. This failing skews the analysis of environmental issues, all the way from overarching topics like climate change down to specific projects like mines. It is hard for us to compare effectively a clear near-term benefit (Jobs., usually), against a foggy long-term detriment, even, in the case of hard rock mining, with plenty of past examples of cases where the scales have been poorly calibrated. With this dynamic in mind, we urge the Department to go out of its way to lean on the scales in favor of future protection and recovery of the landscape that will hold this mine. There is a good Minnesota statute directing the Department to do that, and there is no requirement that the provisions and fundings for future protection and recovery leave room for a profit for the miner. These minerals are not going anywhere, and even if if extra-prudent and especially tough requirements discourage extraction now, there will certainly come a time when those requirements will fit a sensible and profitable mining outcome. We have tried to follow this mining proposal and the resultant environmental concerns, and are sorry that we have not seen a financial proposal for future protection and recovery from someone that we can refer to or endorse. We would rather our message be "please don't do that - do this" than "please worry about this somehow." But in this specific case that very lack of alternative proposals for the future seems to show how uncertain and underweighted the future is in the analysis so far. We hope that the Department can insist on a financial plan for future protection and recovery that escapes the usual human tendency to discount the future, and that sets an especially tough and thoughtful standard for this mine and the Twin Metals mine that will soon follow, and for other states as well. We thank the Department staff for its work on the huge task of dealing with this proposal. Mark and Carol Engebretson 153 Lakeview Ln. Wayzata, MN 55391

Alphabetical by sender's first name

Mark English 42019

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mark English Brooklyn Park, Minnesota _____ There are now 2370 signatures on this petition. Read reasons why people are signing, and respond to National Audubon Society by clicking here: HYPERLINK "http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89bandutm_source=targetandutm_medium=emailandutm_campaign=signature_on_sponsored_petition"http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89b http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJzaWduYXR1cmVfb25fc3BvbnNvcmVkX3BldGl0aW9uIiwiaWQiOiJ1c2VyXzE2MDAyMTUiLCJjaXR5IjoiU2FuIEZyYW5jaXNjbyIsInN0YXRlIjoiQ0EiLCJ6aXBjb2RlIjoiOTQxMTAiLCJjb3VudHJ5X2NvZGUiOiJVUyIsImluY29tcGxldGVfYWRkcmVzcyI6ZmFsc2UsInNpZ251cF9kYXRlIjoiMjAxMC0wOS0yMyIsImxvZ2luX2NvdW50Ijo5NDE2LCJ0b3RhbF9hY3Rpb25zIjo0MzAsImNvbm5lY3RlZF90b19mYWNlYm9vaz8iOmZhbHNlLCJzaWdudXBfY29udGV4dCI6ImFjdGlvblBhcnRpY2lwYW50IiwiZGlzdGluY3RfaWQiOiIyMWQ2MmIwMC1iZTVkLTAxMmYtNjg2ZS00MDQwNjBlNzJhYmIiLCJ0b2tlbiI6IjMwYWEyNmExZDZlOTNhZTE1OGRmYmRjMTZiNDkzMzEyIiwidGltZSI6MTM5NDMwMDIyNH19andip=1andimg=1 http://email.changemail-org/wf/open.upn=aGGv9wQ398j6-2FWVT4grdXbWUo0w-2FupjjjD-2BeyIkg5XeInLuCEKc3fZdho8GXjxxiplFn6SybU80HWYOLHct2MhHcRv7ksg-2F-2Bt-2BBQdFBpjlz7Dv4Yv9u2C-2F53BIepKegTyrk4Yam5RSdUuPEAvLjKyaLi9rCN5szllnxvrlb5g-2BTsj7E5rt0MJg-2ForQ5xWDwPcAmXbUdguSYNbQUutbHpEdHldkeVximywL5Rhix5CK7b7pLh9UDT65LTQUzeAFlbj-2FlDuxB7ptX0QnrOVd8il0-2FoDbdRUjlALop3aWEJwGOKvezk7uOuT-2FILkezlHHCG

mark gibson 22294

Vote No on the Poly Met mine project in NE Minnesota. Risks are too high for the potential rewards. sincerely, Mark Gibson St Paul MN

Alphabetical by sender's first name

Mark Haider 18297

My name for the record is Mark Haider, M-A-R-K H-A-I-D-E-R. And the reason I'm commenting on this is I think it needs to be commented on because there are a lot of false premises that people are going on. Like PolyMet is a new company and they are bringing new things in. Well, actually, most of the people have been part of other things around the whole world. Just because they polluted around the whole world, they are going to come here and not pollute? Okay, I'm not believing that. The last thing they set up, and if you look and read the list of names that are involved in this PolyMet operation, they are the same people that set up the Eagle Mine in Michigan. Okay? To show what short-term commitment they have, they have already sold it, and it is not even up and operating yet. They sold it in January of 2013 and the plant isn't even up and operating yet, in Michigan. Okay? Their company is also involved along the Flambeau River in Wisconsin. They are reopening a mine over there so that they can get more minerals out of it. Okay? But because the mine was put in in 1980, pollution control standards, they only have to use the 1980 ones. Because if they had to do the same thing and apply now to get a permit, they couldn't get a permit. The mine over there is only 140 feet from the Flambeau River. Okay? Do these people really care about Minnesota or Wisconsin or Michigan? Or do they care about themselves? Okay. And there are a number of different corporations that they fall under; Rio Tinto (phonetic), PolyMet. And PolyMet had a previous name. Okay? They have already changed the name once in this thing in Minnesota. And they have a number of names. Okay? So, you know, can they be trusted? Well, if you look back to the last thing they did in Michigan, they sold it before it opened up. Okay? To me, when you are dealing with people like that, you know, who can deal with that? They can't be trusted. Okay? I said, you know, that's the first thing when I'm dealing with somebody, it is that I have to know that they can be trusted. Okay. Which we are talking 550 years here. You know, 500 years. How about one year? We are not even going to be sure that they are going to have it a year after it opens. Because they -- if you look at their past record, these people, the No. 1 guy for PolyMet, he worked on the Eagle Mine project in Michigan. Okay. He is working on this one. Okay. So, it is a corporation. So, they could sell it next week. They could sell it right after they got the approval. Okay. So, you know, you can't -- you can't trust them. Okay. It is, you know, that's all I got to say. Thanks.

28725

Mar 4, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Minnesota is second largest user of underground water reserves used in mining of all states because of iron ore mining and now we have already started to pump well water to neutralize the acid derived from iron ore mining. Why would the state of Minnesota assume the full risk of cleaning up Poly Met mine site: Poly Met or another business entity which could own the mine site in the future would surely walk away from the massive undetermined liabilities. Poly Met isn't even committed to start cleaning up the mine site until after the mine site would be closed. What water would Minnesota be cleaning up with a reverse osmosis plant proposed for the site; polluted well water or/and polluted surface water . An undermined amount of jobs for an undetermined amount of years We would be better off to building a water bottling plant to produce water to ship to California for 500 years. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Mark Haider 3988 Woodview Dr Vadnais Heights, MN 55127-4115

Alphabetical by sender's first name

Mark Haider 49522

Mar 4, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Minnesota is second largest user of underground water reserves used in mining of all states because of iron ore mining and now we have already started to pump well water to neutralize the acid derived from iron ore mining. Why would the state of Minnesota assume the full risk of cleaning up Poly Met mine site: Poly Met or another business entity which could own the mine site in the future would surely walk away from the massive undetermined liabilities. Poly Met isn't even committed to start cleaning up the mine site until after the mine site would be closed. What water would Minnesota be cleaning up with a reverse osmosis plant proposed for the site; polluted well water or/and polluted surface water . An undermined amount of jobs for an undetermined amount of years We would be better off to building a water bottling plant to produce water to ship to California for 500 years. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Mark Haider 3988 Woodview Dr Vadnais Heights, MN 55127-4115

Mark Hall 42993

Please accept my comments on the Polymet project attached hereto. Mark Hall 380 St Peter Street Suite 740 St Paul, MN 55102

Mark Harris 22931

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Multinational corporation, PolyMet, is seeking permission for an open pit sulfide mine on National Forest lands near the Boundary Waters Canoe Area Wilderness and Lake Superior. If approved the mine will pollute the largest of our Great Lakes, Lake Superior, threaten local clean water and wildlands, and endanger public health for generations to come. A decision in favor of PolyMet's proposal would open a floodgate for more sulfide mining in a large area near Lake Superior and surrounding the Boundary Waters Wilderness - considered by some as one of the most beautiful wilderness areas in the world. This is a dangerous proposal. Please protect the Lake Superior and the Boundary Waters Canoe Area Wilderness from dangerous sulfide mining pollution. Sincerely, Mark Harris 3855 Blair Mill Rd Apt 204d Horsham, PA 19044-2905

23737

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, PolyMet, a multinational corporation, is seeking permission for an open-pit sulfide mine on national forest lands near the Boundary Waters Canoe Area Wilderness and Lake Superior. If approved, the mine will pollute the largest of our Great Lakes, threaten clean water and wilderness areas, and endanger public health for generations to come. A decision in favor of PolyMet's proposal would open a floodgate for more sulfide mining in this region, considered by some as one of the most beautiful wilderness areas in the world. Please protect the Boundary Waters Canoe Area Wilderness and Lake Superior from dangerous sulfide mining pollution. Thank you for your consideration on these matters. Sincerely, Mark Harris 3855 Blair Mill Rd Apt 204d Horsham, PA 19044-2905

Alphabetical by sender's first name

Mark Haugland, M.D. 45856

Lisa Fay MDNR Division of Ecological and Water Resources Kenneth Westlake US Environmental Protection Agency RE: PolyMet NorthMet Sulfide Mining SDEIS Dear Ms Fay, Mr Westlake: This comment letter is submitted on behalf of the undersigned doctors, nurses and other health professionals. We are concerned that the proposed PolyMet NorthMet copper-nickel mine project could have significant adverse impacts on human health as a result of pollutants released to air, surface water and drinking water. We also believe that the PolyMet NorthMet Supplemental Draft Environmental Impact Statement ("PolyMet SDEIS") fails to adequately assess important risks to human health from the pollutants that would be released from this project. The absence of any professionals from the Minnesota Department of Health from the List of Preparers of the PolyMet SDEIS is particularly troubling. We would respectfully request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks of the proposal. We would further request that, in revising the PolyMet SDEIS, a comprehensive Health Impact Assessment (HIA) be prepared under the guidance of the Minnesota Department of Health. In this letter, we summarize some issues and concerns leading to these requests. Mercury contamination of fish and impacts on neurotoxicity in the developing fetus as well as in infants, children and adults is a significant public health concern in Minnesota. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. The percentage of infants thus at risk for neurologic impairment was higher than in the Lake Superior Region of Wisconsin or Michigan. We are aware that many of the bodies of water downstream of the proposed PolyMet mine and plant are legally impaired due to mercury in fish tissue. The lower reaches of the St Louis River, where the estuary for Lake Superior fish is located, contains a particularly high level of mercury. We also know that other mine facilities release both mercury and the sulfates that increase bioaccumulation of methylmercury. Reviewing the PolyMet SDEIS, we believe that the information on mercury releases and the potential for mercury bioaccumulation is insufficient. The SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of pollutants or of hydrologic changes on mercury bioaccumulation. The SDEIS does not provide evidence to justify its claims about collection and containment of mercury and sulfates. The PolyMet SDEIS also provides an insufficient analysis of the human health risks of other pollutants, such as neurologic morbidity resulting from manganese and lead release; and carcinogenic effects of air emissions of diesel, asbestos-like fibers, nickel and other particulates, and of arsenic releases to water. The PolyMet SDEIS fails to analyze health risks to workers who would work on-site at the PolyMet mine or plant and fails to assess impacts of tailings groundwater seepage on nearby residential. The PolyMet SDEIS does not discuss impacts of exposures to vulnerable populations, such as infants, children, the elderly and persons who rely for subsistence on fish, wild rice or game species where pollutants may bioaccumulate. For these reasons, we would first request that the PolyMet SDEIS be revised to provide more complete information on mercury and sulfate emissions, deposition, and seepage from various sources, and the potential conversion to and bioaccumulation of methylmercury resulting from releases to the environment and hydrological changes from the proposed PolyMet project. We would further request that the PolyMet SDEIS be determined inadequate pending supplementation to include a Health Impact Assessment, under the direction of t

Alphabetical by sender's first name

Mark Imsdahl 9640

Hello DNR My feelings about the proposed Polymet mine situation: First, unlike what some mine proponents speakers suggested last night, most of us "environmentalists" do not hate miners nor mines. I see it as their right to mine, but in this case, only under the condition that they have a 100% ironclad guarantee that no sulfuric acid can escape into the surrounding environment. During last night's meeting, the mining side of the debate constantly brought up the notion that they trust the process, that they trust the agencies involved do whatever is necessary to ensure that no disaster will occur, now or in the future. I sincerely believe that the miner's and Polymet are doing everything required to make this happen. No doubt, they don't want to pollute their "own backyards", nor see their plant shut down and jobs lost during the mining process. Regardless, history has proven that despite the best efforts of leading professionals, disasters happen. Case in point: 35W bridge collapse. Based on historical fact, their reasoning is flawed and their position is irresponsible. I have no faith in ANY proposed system that is required to monitor and safeguard the waste for 500+ years. A year of two maybe, but 500 years. Seriously. If indeed, that it what is required, that is ridiculous, and we all know it. Frankly, I'd like to know what incentives Polymet will have to maintain an abandoned mine 400 years after any person who benefitted from it or had anything to do with it is dead. I saw a sign last night that read "500 Years Ago, Martin Luther Was a Catholic". Sarcastic, but it makes another good point. I've read over and over that 100% of sulfur mining projects have polluted the surrounding environments. If I were on the panel of DNR personnel responsible for this decision, I would want to know what happens in a worst case scenario. What happens if some terrorist group comes into northern MN 200 years from now and bombs one of these containment facilities, for instance. Again, if what I've read is true, "100% failure rate", how in the world can this even be considered.. We're being asked to be guinea pigs. Please, do not let them mine until they have the technology to immediately, cleanly, and completely dispose of the waste products. That copper has been there for millions of years and is not going anyplace. Just wait. Be prudent. Be conservative. Be smart. We all know that copper is coming out of the ground sooner or later. It will only become more valuable as the years pass. This is your legacy. Sincerely, Mark Imsdah

10706

--Original Message-- From: Imsdahl's [mailto:mimsdahl@frontiernet-net] Sent: Wednesday, January 29, 2014 8:59 AM To: *Info (DNR) Subject: Re: Proposed Mine A slight correction: my last name is spelled Imsdahl, with an "L" on the end On Jan 29, 2014, at 8:45 AM, Imsdahl's wrote: > Hello DNR > > My feelings about the proposed Polymet mine situation: > > First, unlike what some mine proponents speakers suggested last night, most of us "environmentalists" do not hate miners nor mines. I see it as their right to mine, but in this case, only under the condition that they have a 100% ironclad guarantee that no sulfuric acid can escape into the surrounding environment. > > During last night's meeting, the mining side of the debate constantly brought up the notion that they trust the process, that they trust the agencies involved do whatever is necessary to ensure that no disaster will occur, now or in the future. I sincerely believe that the miner's and Polymet are doing everything required to make this happen. No doubt, they don't want to pollute their "own backyards", nor see their plant shut down and jobs lost during the mining process. Regardless, history has proven that despite the best efforts of leading professionals, disasters happen. Case in point: 35W bridge collapse. Based on historical fact, their reasoning is flawed and their position is irresponsible. > > I have no faith in ANY proposed system that is required to monitor and safeguard the waste for 500+ years. A year of two maybe, but 500 years. Seriously. If indeed, that it what is required, that is ridiculous, and we all know it. Frankly, I'd like to know what incentives Polymet will have to maintain an abandoned mine 400 years after any person who benefitted from it or had anything to do with it is dead. I saw a sign last night that read "500 Years Ago, Martin Luther Was a Catholic". Sarcastic, but it makes another good point. > > I've read over and over that 100% of sulfur mining projects have polluted the surrounding environments. If I were on the panel of DNR personnel responsible for this decision, I would want to know what happens in a worst case scenario. What happens if some terrorist group comes into northern MN 200 years from now and bombs one of these containment facilities, for instance. Again, if what I've read is true, "100% failure rate", how in the world can this even be considered.. We're being asked to be guinea pigs. > > Please, do not let them mine until they have the technology to immediately, cleanly, and completely dispose of the waste products. That copper has been there for millions of years and is not going anyplace. Just wait. Be prudent. Be conservative. Be smart. We all know that copper is coming out of the ground sooner or later. It will only become more valuable as the years pass. This is your legacy. > > Sincerely, > > Mark Imsdah > > > > > > >

Alphabetical by sender's first name

Mark Klausner 40269

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Mark Klausner 3854 gateway dr Greenbelt, MD 20770 US

40426

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Mark Klausner 3305 Gateway Dr Greenbelt, PA 19104 US

Alphabetical by sender's first name

Mark Klugiewicz 40977

Mar 9, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Mark Klugiewicz 32905 Sunrise Dr Magnolia, TX 77354-2628 (281) 259-6555

Mark Larson 43023

Attached are my comments on the PolyMet project. Thank you very much. Mark Larson 556 Summit Avenue St Paul, MN 55102 Mobile 612-963-0111 Email HYPERLINK "mailto:lars77@outlook-com"lars77@outlook-com

Mark Lauderbaugh 9867

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mark Lauderbaugh 12501 Nicollet Ave Unit 414 Burnsville, MN 55337

Alphabetical by sender's first name

Mark Lauderbaugh 18639

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mark Lauderbaugh 12501 Nicollet Ave Unit 414 Burnsville, MN 55337

42909

Lisa Fay please see attached Mark Lauderbaugh Trident Process Inc. 10800 Lyndale Ave So. Ste 381 Bloomington, MN 55420 952-881-7271 Phone 952-881-4219 Fax 612-270-0878 Cell Trident 2c logo

42989

I would like to add the additional comment on the Polymet EIS. The impact of sulfates which will be produced by the Polymet mine on wild rice have not yet been determined by the PCA (see attached). Until they are the Polymet EIS is invalid and needs more study. . Lisa Fay please see attached Mark Lauderbaugh Trident Process Inc. 10800 Lyndale Ave So. Ste 381 Bloomington, MN 55420 952-881-7271 Phone 952-881-4219 Fax 612-270-0878 Cell Trident 2c logo

Alphabetical by sender's first name

Mark Lauderbaugh 50715

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mark Lauderbaugh 12501 Nicollet Ave Unit 414 Burnsville, MN 55337

Mark Lundberg 6625

To whom it may concern. I believe Polymet corportation's due diligence has been over and above. I believe their plans on keeping the mining and run-off areas environmentally safe are legitimate. Like the mines today, they are policed for possible harmful issues created by mining. There is no doubt that this is a good thing for our future. If the Polymet mining goes through, there should be aggressive measures created to police the air, water, and land issues. Measures that will shut down the mining operation, if there is evidence of any possible breaches in Polymet's assurances. I believe the State of Minnesota and the Polymet company will work together to make it work. I firmly believe that this opportunity should come to fruition. I could get into the jobs, the local and state taxes, the future of our children, Polymet's being a good custodian but this means nothing to me, if we are left with a bad environment to live in. I do believe Polymet is all in to providing safeguards to the environment. I also believe that Minnesota's checks and balances and Polymet's pro-activeness will make this venture work. I firmly believe in the Polymet plan, and hope for Northern Minnesota and it's people to grow with the mine. - Mark Lundberg Products Manager TerraMar Ingredients, LLC 4920 Queen Avenue South Minneapolis, MN 55410 218-750-7945

Alphabetical by sender's first name

Mark Luttinen 689

I wanted to note my opposition to the proposed copper-nickel mine in NE Minnesota based on the information from the SDEIS. 1) I don't believe there is adequate funding set aside to cover the 200 to 500 years of waste water cleaning, monitoring. This will eventually fall into the hands of the state when the cost overruns what is set aside and the mining companies have provided what they can afford to cover without going bankrupt. It looks like a planned superfund cleanup site is the result of this mine. 2) I was encouraged about the changes to the holding pond but realized they are only offering a partial solution. There isn't enough information about how it would hold up to huge rainfalls and sudden flooding conditions. Rains in Duluth last summer caused huge washouts, flooding, loss of property, etc that could not have been predicted/expected. There is no secondary capture in place and if a overflow or breach occurred, it would flow into the St Louis River watershed. 3) Not enough information on the reverse osmosis process to clean the water. The idea is great but it will require a huge amount of energy to run this type of system. Is this within the ability of the local power grid. Are they going to create electricity onsite to power this. Has this been tested on the scale that will allow them to profitably process the volume of ore that is planned. I know the jobs provided are a great boon to the range cities and this will also provide a great new resource for the state but we need to be able to do this where the mine can still profit and the environment is not tainted for the next couple of hundred years. Thanks for listening. Mark Alan Luttinen 40 Taylor Lane Grand Marais, MN 55604

Mark Lystig 18245

My name is Mark Lystig, L-Y-S-T-I-G. I live in Eagan, Minnesota. I have not recently been to the Range, but I lived in Virginia for two years, and I am familiar with the problems with employment, or lack thereof, on the range, but I think this is an opportunity that we can take a stand to protect a really unique environment and that if we don’t do it now, we will not have the opportunity. It’s not just a matter of there being minerals up there. There are minerals up there, true, but there are other aesthetic features of the area that do not occur anywhere else, and we need, as a community, as a country, as a world, to protect the earth, and this the time to do it. Thank you.

Mark Mansfield 40048

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mr Mark Mansfield 37 Madison St Geneva, NY 14456-2853 (315) 789-2829

Mark Matheny 18282

My name is Mark, M-A-R-K, Metheny, M-E-T-H-E-N-Y. I, Mark Metheny, resident of Minneapolis, Minnesota, Hennepin County, spend a fair amount of time on vacation in the Ely area and I would rather not have copper sulfide mining occurring within the watershed of this area that is proposed. That's good. REBECCA LYSTIG

Mark McGuire 5906

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. I believe that PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. Thank you, Mark McGuire 1610 Brookside Lane Waunakee, WI 53597 US

Alphabetical by sender's first name

Mark McKeehan 39534

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mark McKeehan 29827 Hardwood Road Chatfield, MN 55923

Alphabetical by sender's first name

Mark Moehlenbrock 43025

Dear Lisa Fay or Whom it May Concern: Please accept my comments on the Northmet Mining Project and Land Exchange Supplemental Draft Environmental Impact Statement. My comments are listed below and in the attached pdf document. Northmet Supplemental Draft Environmental Impact Statement Comments Mark C. Moehlenbrock 630 Orchid Lane North Plymouth, MN 55447 To Whom it May Concern: My primary area of concern regarding this project is its potential long-term effects to water quality. The plan to mitigate detrimental effects to water quality appears to have several shortcomings. Long Term Water Treatment "Mechanical water treatment is part of the modeled NorthMet Project Proposed Action for the duration of the simulations (200 years at the Mine Site, and 500 years at the Plant Site). The duration of the simulations was determined based on capturing the highest predicted concentrations of the modeled NorthMet Project Proposed Action. It is uncertain how long the NorthMet Project Proposed Action would require water treatment, but it is expected to be long term; actual treatment requirements would be based on measured, rather than modeled, NorthMet Project water quality performance, as determined through monitoring requirements. PolyMet would be held accountable for maintenance and monitoring required under any permit and would not be released until all conditions have been met." (Page 5-7) "In this SDEIS, non-mechanical treatment systems are not described in detail because the NorthMet Project Proposed Action is based on mechanical treatment only. However, implementation of non-mechanical systems is considered a long-term goal for closure." (Page 5-7) Comments: Minnesota laws governing mine permitting expressly forbid granting a permit to any project that requires perpetual water treatment. By Polymet's own calculations, their waste water would require water treatment for at least 500 years; their models didn't calculate what would happen after that. Surely this is in violation of Minnesota's mine permitting laws. The SDEIS vaguely references non-mechanical treatment, but doesn't explain what that treatment method might be or when it will be able to be employed. Polymet claims to be very concerned with post-reclamation water quality, but in 50 years, when there is no more money to be made, who is going to make them accountable. 500 years is longer than any of us can fathom, and the idea that Polymet will be on site for half a millennium, diligently maintaining their waste water treatment facility, is absuRd Mercury in the Embarrass River "Several lakes downstream of the NorthMet Project area within the chain of lakes are on the 303(d) list for "mercury in fish tissue" impairment, including Sabin, Wynne, Embarrass, and Esquagama lakes" (Page 4-133) "The NorthMet Project Proposed Action is predicted to result in a net increase in mercury loadings to the Embarrass River of up to 0-6 grams per year (from 22-3 to 22-9 grams per year), about a 3 percent increase." (Page 5-207) "Research suggests that total mercury concentrations in streams and methylmercury content in fish are roughly proportional within individual watersheds (USGS 2010), such that, for example, a 5 percent increase in total mercury in water would be expected to result in about a 5 percent increase in mercury content in fish within that watershed" (Page 5-21) Comments: Mercury loading in the Embarrass River is expected to increase. The Embarrass River watershed is already impaired by excess mercury in fish tissue. The SDEIS justifies this by saying that, because mercury loading to the Partridge River will decrease, the net effect is less mercury in the Saint Louis River. This is small comfort to people who live and recreate on the Embarrass River system. Because of the existing impairment for excess mercury in fish tissue, any project that anticipates adding further mercury to the Embarrass River should not be deemed acceptable. O

Mark Morrissey 747

Very concerned about endangering water table for generations to come. Come back with better technology in 50 years. This is reckless dangerous planning to go ahead with unproven technology. Mark Morrissey bemidji man Sent from my iPhone

Mark N. Lazar 14785

This project is a horrible idea. We are risking an environmental catastrophe that would destroy a wilderness treasure. There is no reason to trust PolyMet will continue to protect the BWCAW. Please don't allow this to happen. Mark Lazar 3500 Aldrich Ave S Minneapolis, MN 55408 612-824-7936

Alphabetical by sender's first name

Mark Pelham 1379

To Whom It May Concern My comments on the Polymet SEIS for public record are as follows: I have read several sections of the report and the lack of detail regarding financial assurance is troubling. It sounds like this information will not be given until the permitting phase, which is quite late in the game. The wastewater treatment may need to continue for hundreds of years, so the estimate of $3-5-6 million annually is meaningless. How much will treatment cost in 100 years. 200 years. I cannot envision any scenario where Polymet could afford to set aside enough money to cover the cost of an open-ended treatment period. The document is remarkably vague about the length of time required for water treatment, so I must assume that no one knows with any certainty. My second concern is the complete lack of consideration for underground mining as an alternative. How many large, open pit mines do we want in the area. If we allow one, what right do we have to deny others. Taconite mining has already decimated part of the landscape in the area; must we now destroy the surface of more land. Underground mining may cost more, but without including it as an option, how will we know. I am not opposed to mineral extraction in NE Minnesota, but it must be done right, or not at all. The SEIS is based on the assumption that all will go according to plan. I don't see any room for errors, accidents, spills, etc, yet there will almost certainly be unplanned events during a project of this size and duration. The environmental risk seems much higher than the document admits to. I respectfully submit my opinion that the proposed project should not go forward in it's current design. The environmental risks are too high, the financial assurance is no more than wishful thinking at this point, and we should not set a precedent by allowing an open pit mine now, to be followed by an unknown number of other open pit projects. Thank you for considering my comments. Mark Pelham 400 Sigrid Drive, Buffalo MN 55313 mepelham@hotmail-com

Mark Peltan 40294

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Mark Peltan 23334 Lakewood Clinton Township, MI 48035 US

Mark Perry 38595

Dear Sir/Madam, I am an environmental regulator and am familiar with the environmental review process. I believe that the environment review process has been sound and thorough. The state and federal regulators will ensure the PolyMet’s project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations. I believe that this project is environmentally sound and will benefit the state economically. Sincerely, Mark L Perry, WDC Natural Resources Specialist Bolton and Menk, Inc. Consulting Engineers and Surveyors 2638 Shadow Lane, Suite 200 Chaska, MN 55318 Office: 952-448-8838 ext. 2741 Fax: 952-448-8805 Cell: 612-756-3795 _____ This email has been scanned by the Symantec Email Security.cloud service. For more information please visit http://www.symanteccloud-com

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Alphabetical by sender's first name

Mark Phillips 18221

My name is a Dave Lislgar, and I yield my time to Mark Phillips. Good evening. My name is Mark Phillips, M-A-R-K, P-H-I-L-L-I-P-S. They list that I'm from Oakdale, Minnesota, that's where I currently reside, but I'm a native of Eveleth, Minnesota, and spent the first 55 years of my life on the Iron Range, and actually plan to return to that area in my retirement in just the not-too-distant future. Both my grandfathers were hard-rock minors in the Iron Range and most of my family and extended family made a living off iron-ore mining for their whole lives. I spent most of my career, about 30 years, in the field of economic development. The majority of that time, trying to encourage job growth in Northeastern Minnesota, and to quote somebody that was up here earlier, that's not an easy task. I was privileged to serve nearly two years in the Dayton Administration cabinet as the Commissioner of the Department of Employment and Economic Development. During that period, I served on the governor's sub-cabinet on mining and also on the Environmental Quality Board, the EQB. This engagement provided me with many unique opportunities to receive firsthand high-level briefings from most of the DNR and MPCA and other agencies, as well as from PolyMet, on the proposed project. During this period, I developed a deep respect and confidence in the environmental review process in Minnesota and in the agencies involved in these processes. I also observed that PolyMet has worked diligently to respond to both the State Federal agencies to ensure a project meets all of Minnesota's and federal environmental standards. I was also comforted that PolyMet was proposing to use proven technology to remove any contaminants before returning collected and processed water to the environment. I also appreciated that PolyMet was willing to meet the state's somewhat arbitrary wild rice standards. Based on these and other firsthand obligations, I support the PolyMet project. I believe the agencies, both state and federal, should find the SDEIS adequate and move forward with permitting. Let's bring these needed jobs back to the Iron Range, as well as protect the environment we all love. Thank you for giving me this opportunity.

Mark R Brown 3163

I have been following the progress that PolyMet Mining has made in anticipation of operation. I am impressed and confident that the preparations and precautions proposed by PolyMet through processes like reverse osmosis will protect the environment today and well into the future. Minnesota's Iron Range, my home has had continuous mining activity since this country was settled. Then as now the quality of life, the environment and the natural beauty of Northern Minnesota has been cherished and protected by the mines, their workers and those in the community that work and support this critical industry. This will not change with PolyMet Mining. I am confident that PolyMets mining operation as outlined in the SDEIS will have minimal if any long term adverse effect on the water, air or land. I believe that PolyMet will provide real living wage jobs for residents of the area, support education, local charities and initiatives, youth activities and opportunities all the while safely and responsibly mining important metals that are essential to the local; and global economy. I am in support of this project. With Kind Regards, Mark Mark R. Brown 742 Ridgewood Road Duluth, MN 55804 218-591-9093 Mark R. Brown Morgan Stanley Wealth Management Associate Vice President Financial Advisor Portfolio Manager 11 East Superior Street Suite 580 Duluth, MN 55802 218-720-0144 HYPERLINK "mailto:mark.r.brown@morganstanley-com"mark.r.brown@morganstanley-com www.morganstanleyfa-com/mark.r.brown/ http://www.morganstanleyfa-com/mark.r.brown/videobrochure.htm _____ Important Notice to Recipients: Please do not use e-mail to request, authorize or effect the purchase or sale of any security or commodity. Unfortunately, we cannot execute such instructions provided in e-mail. Thank you. The sender of this e-mail is an employee of Morgan Stanley Smith Barney LLC ("Morgan Stanley"). If you have received this communication in error, please destroy all electronic and paper copies and notify the sender immediately. Erroneous transmission is not intended to waive confidentiality or privilege. Morgan Stanley reserves the right, to the extent permitted under applicable law, to monitor electronic communications. This message is subject to terms available at the following link: http://www.morganstanley-com/disclaimers/mssbemail.html. If you cannot access this link, please notify us by reply message and we will send the contents to you. By messaging with Morgan Stanley you consent to the foregoing.

Alphabetical by sender's first name

Mark R Brown 57361

I have been following the progress that PolyMet Mining has made in anticipation of operation. I am impressed and confident that the preparations and precautions proposed by PolyMet through processes like reverse osmosis will protect the environment today and well into the future. Minnesota's Iron Range, my home has had continuous mining activity since this country was settled. Then as now the quality of life, the environment and the natural beauty of Northern Minnesota has been cherished and protected by the mines, their workers and those in the community that work and support this critical industry. This will not change with PolyMet Mining. I am confident that PolyMets mining operation as outlined in the SDEIS will have minimal if any long term adverse effect on the water, air or land. I believe that PolyMet will provide real living wage jobs for residents of the area, support education, local charities and initiatives, youth activities and opportunities all the while safely and responsibly mining important metals that are essential to the local; and global economy. I am in support of this project. With Kind Regards, Mark Mark R. Brown 742 Ridgewood Road Duluth, MN 55804 218-591-9093 Mark R. Brown Morgan Stanley Wealth Management Associate Vice President Financial Advisor Portfolio Manager 11 East Superior Street Suite 580 Duluth, MN 55802 218-720-0144 HYPERLINK "mailto:mark.r.brown@morganstanley-com"mark.r.brown@morganstanley-com www.morganstanleyfa-com/mark.r.brown/ http://www.morganstanleyfa-com/mark.r.brown/videobrochure.htm _____ Important Notice to Recipients: Please do not use e-mail to request, authorize or effect the purchase or sale of any security or commodity. Unfortunately, we cannot execute such instructions provided in e-mail. Thank you. The sender of this e-mail is an employee of Morgan Stanley Smith Barney LLC ("Morgan Stanley"). If you have received this communication in error, please destroy all electronic and paper copies and notify the sender immediately. Erroneous transmission is not intended to waive confidentiality or privilege. Morgan Stanley reserves the right, to the extent permitted under applicable law, to monitor electronic communications. This message is subject to terms available at the following link: http://www.morganstanley-com/disclaimers/mssbemail.html. If you cannot access this link, please notify us by reply message and we will send the contents to you. By messaging with Morgan Stanley you consent to the foregoing.

Mark Raulston 33238

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I spent one of the best weeks of my life canoeing in the Boundary Waters and Quetico-Superior, and have done other outdoors activities along Lake Superior between Duluth and Thunder Bay: canoeing, rock climbing, biking and swimming in Lake Superior. Though I wouldn't really recommend that unless you like ice baths. I now live on another of the Great Lakes in Chicago. I greatly appreciate the ecological, economic, and recreational value of the lakes. Even from a strictly business perspective, when you put a proper value on these services that the lakes provide, keeping sulfide mining is the right thing to do. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Mark Raulston 2543 N Bernard St Chicago, IL 60647-1201

Mark Rieder 11341

Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Lisa, Please note my opposition to the Poly Met mine. The short term economic benefits do not outweigh the long term environmental coSt I have recently seen claims from Poly Met that the economic benefit surpasses that of the Mayo/DMC project. I do not dispute those figures, but I do know that in Mayo's 150 year history it has not been a polluter of the environment, and will be in business long after Poly met runs out of things to mine. Please express my opposition to those who will decide on the value of this mine to the citizens of Minnesota. Respectfully, Mark Rieder 1069 Golfers Ct SE Rochester, MN 55904

Alphabetical by sender's first name

Mark Roalson 57340

Mark Roalson, R-O-A-L-S-O-N. My main concern is the existing Dunka Pit, D-U-N-K-A. It is near PolyMet lands, but it is owned by Cliffs Natural Resources. It is a pit that had sulfuric rock, copper-nickel ore in it in the 1960s. They dug it up in the sixties and it wasn't iron, like they thought it was, it was copper-nickel ore. So it has been sitting around the pit, on the outside, and it has been bermed and diked, and there is a water treatment plant there, but it still leaks sulfuric acid, sulfates and heavy metals. And Cleveland -- or Cliffs Natural Resources has been fined at least once for letting this seep into the watershed that goes into Birch Lake. The MPCA and the DNR are responsible for making Cliffs Natural Resources clean this up, but they haven't done so. It still keeps leaking. So my main concern is if the regulating agencies, like the MPCA and the Minnesota DNR cannot make Cliffs Natural Resources clean this up before PolyMet, how are they going to regulate PolyMet, that is going to be a lot bigger operation? I don't know if I made that clear. Let's see what else I have on here. Another thing that concerns me about the PolyMet mine is that there doesn't appear to be any emergency plans in case of catastrophic events, like heavy rainfall, heavy winds that might damage or cause leaking in tailings ponds or in any treatment plants. In case there is heavy rains or heavy winds, they need to have emergency plans in place to prevent leaking or spillage. Also, on the PolyMet mine lands, there is going to be large containers of chemicals stored, like sulfuric acid and other chemicals to process the mine ore. And these things need to be bermed and contained, and there needs to be emergency plans in case some of those break, from whatever cause it might be. That's pretty much it. Oh, can I add one more thing? Minnesota has a law on the books stating that when you sink a hole in the ground, like exploratory drilling, to take ore samples out in the form of a core, that these exploratory holes have to be grouted, cemented from the bottom to the top to prevent cross aquifer contamination. But the Minnesota Department of Health has issued a waiver to the exploratory drilling companies that they don't have to grout these holes for ten years. So, one of my concerns is if they are giving waivers now and making exceptions, what other exceptions are they going to make in the mining process if things don't go according to plan? Alright. That should do it. Thank you.

57408

DNR: One factor that I couldn't find addressed in the latest PolyMet SDEIS is the issue of mitigating the results of natural disasters. While dealing with the acid water, heavy metals, waste rock and other concerns are listed, none take into account of what emergency efforts would take effect if there was a major flood. While the area to be mined is not located on a flood plain, neither is Duluth, MN. Only last year there was record summer rainfall in a short period of time and there was flooding to the extent never before recorded in Duluth's history. Whole paved streets were opened up and washed out. Sewers were overwhelmed. Cars floated away. A child was sucked into a sewer and miraculously came out an opening many blocks away, still alive, fortunately.I even experienced this in Brimson, MN, near the Iron Range where country roads were completely flooded and reamed out overnight to bedrock during the same time as the Duluth flooding. I am sure if you check the records at the MPCA, you will find that an already existing stockpile of copper-nickel ore stored within a berm (set aside by the former LTV mine on what is now Polymet) has several times had acid drainage wash over its walls and into tributaries going north to Birch Lake. Plankton, insects, and small fish life were the casualties. While earthquakes and tornadoes are very unlikely to happen in the northland, they are possibilities. Flooding, however, should definitely be considered in the emergency plans to contain waste and untreated water of all types. Thank you. Sincerely, Mark S. Roalson 218-225-8897 900 Dorchester Drive Hoyt Lakes, MN 55750

Mark S Jensen 54521

PolyMet has not proven that they can contain or dispose of the waste rock and other materials associated with the mining process.

Mark S Roalson 42805

See attachment

Alphabetical by sender's first name

Mark S. Roalson 19100

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Mark S. Roalson 900 Dorchester Drive Hoyt Lakes, MN 55750 Hoyt Lakes, MN 55750 218 255 8897

Mark Saastad 39575

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Mark Saastad 12272 Jack Pine Trl Eden Prairie, MN 55347-4631 (952) 828-5054

Mark Sanstead 18301

I am Mark Sanstead, fourth generation of Swedish immigrants to Minnesota. I'm proud of our state in terms of its legacy, amendments, and how our citizens would be taxed to protect our natural resources. As we look at mining ahead in the Minnesota future, I think we are at an important decision point. We are kind of weighing our heritage of natural resources, the water, the air, versus a short-term perspective of 300 jobs for a 20-year period by a company looking to start their very first mining operation. I hope that we can take a long-term view of our heritage and our resources, in terms of our quality of life in Minnesota, and be wise stewards of these resources. That's it.

Alphabetical by sender's first name

Mark Sanstead 43317

I am very concerned about denigrating our water resources for decades ahead for the short term benefit of mining. I fear the costs will far out way the benefits to our state and our natural resources . I see few examples of successful copper mine reclamation. Please make sure we will not be paying a cost for generations. Let’s not damage our Minnesota legacy. Mark Santead Phd Director Mental Health Hazelden Betty Ford Foundation

Mark Schoenecker 19957

Forgot to put a mailing address on my email so here it is Mark Schoenecker 18802 Brown's Lake Road Richmond Minnesota 56368 Sent from my iPad

19958

I am for the mining so jobs can be created I think we have more than enough protections in place to protect the environment. Get more people working in this state to help take the burden of high taxes off the rest of us working people.You democrats promised to lower property taxes which seem's to have gone out the window another broken promise. I am hoping the mining takes place and that a bunch of government regulation's does not put a stop to another opportunity to move this state forwaRdWe need more private sector job's people need to work in this state it only makes sense to go through with letting them mine in northern Minnesota.I think every one cares about protecting the environment and it can be done if we put our minds to it.Mining and protecting the environment could work if you get the rite people making the decision's.If this fall's through God help us all I may have to leave this state I am getting sick and tired of paying higher than usual taxes in a state that can't seem to move forward in other places than just the twin cities area. May God Bless us all bye for now thanks Mark Sent from my iPad

Mark Skelton 18078

Good evening. I'm Mark Skelton. I'm the Mayor of Hoyt Lakes and I'd like to begin by thanking the co-lead agencies, and all the agencies that have gotten us to this point, today, after nine years of hard work. I can't stand before you today and speak on the expertise of mining precious metals, but I am glad I live in a state and a country that have the experts to do what they've done to get us to this point, today. I do feel that I have some expertise to talk about the socioeconomics of this project, and I can start with the town about five miles from here called White Lakes that was a town of the '50s, new technology in mining, and how they closed that plant in 2001. In 2001, they closed that plant. But what I'm here to talk about is not our city. I'm here to talk about the socioeconomic impact of this statement. They talked about us as a region. Nine communities, three counties. They talk about us as a region, which they should, and as a region, did you know that we have 23,000 less citizens than we had in 1980? We have lost 10 percent of our population in this region. Ten percent. When our state sports 30-percent increase in population. Thirty percent increase versus a 10 percent. It's time to move forward. The socioeconomic impacts. Imagine. It is my hope -- it is my hope that the powers to be will look at this and will weigh, proportionately, the socioeconomic impacts to the science of this project. It is so important to us. Imagine, if you will. Imagine, if you will, two million man hours of construction, $82 million of new federal, state and local taxes, $232 million of direct wages, and so forth. $330-plus million a year in direct output or the value of the metals coming out of the ground. That doesn't count the indirect -- the $99 million in indirect wages, or the $182 million in indirect output. It's time to do this project right, it's time to do this project now, and it's time to do this project here. Thank you.

Alphabetical by sender's first name

Mark Skelton 18152

My name is Rory Lentsch. I represent the Local 512 Union Ironworkers Program. (Inaudible) apprenticeship program best program in the nation. I yield my time to Mark Skelton. Hi. My name is Mark Skelton. I'm the mayor of Hoyt Lakes, Minnesota. Skelton is S-K-E-L-T-O-N. I understand that this project a risk. I took a risk crossing that highway out there in the roads a little while ago. I have to tell you that as far as a risk goes the consequences of taking that risk I believe is a risk we have to take. We have nine years of science. We have nine years of technology. We've got nine years of work from all these people. And we have regulatory agencies that are going to keep an eye on making sure this project is done. We cannot take the risk. We can say we're not going to do it. Yep. We're all going to use our phones. We're all going to use our computers. We're all going to use the medical technology. It's a risk that I believe has to be taken. I also have heard that Hoyt Lakes or the Iron Range needs to diversify their economy. They have to think outside the box and diversify their economy. I understand that people don't live there making a comment like that. If you live there, I think you've been living with your head in a box. Because the fact is we have been trying to diversify our economy for years, for decades. We have an agency called the Iron Range Resource Rehabilitation Board that has worked tirelessly for years. We have economic development people that we pay from small-town budgets to diversify our economy. We even built industrial parks. And my industrial park in my community has every amenity that you can possibly think of. And we have a marketing team that is awesome. But, you know what? The old analogy, "build it and they will come," we built it, nobody came. I will give you a little comparison. A little comparison of what is going on on The Range. My wife and I came down to the Excel Energy Center a few weeks ago and went to the Wild game. It was awesome. They announced that there were 20,000 fans. That is 20,000 more people than we have living in the cities of Virginia, Gilbert, Biwabik, Aurora, Hoyt Lakes, Babbitt, Tower, and Ely combined. This is a project that is about diversifying our economy. It's about stabilizing the economy. It's a project we need to do. Thank you.

Mark Snyder 58067

I'm very concerned about the loss of wetlands that would resort from the PolyMet mine as well as the risk this places on nearby water resources. Wisconsin has a moratorium on sulfide mining due to its track record. How can we be sure PolyMet will do better? Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Mark Sorenson 40654

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, Are you guys nuts. There is very little in this mine proposal that even warrants discussion, let alone consideration. "Water, water everywhere, and not a drop to drink." I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Dr Mark Sorenson 2987 W Owasso Blvd Saint Paul, MN 55113-2160

Mark Stratman 38955

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Mark Stratman 110 Lakeview Ave Excelsior, MN 55331-9540

Alphabetical by sender's first name

Mark Sutich 18358

Hello. My name is Mark Sutich. S-U-T-I-C-H. I'm a third-generation Iron Range bulldog. I've been involved in the mining industry off and on for 50 some years since I was a little kid. Got involved in some projects. I'm currently on site. I have -- my company leases property adjoining the PolyMet sites. We do quite a few project. I came prepared to talk to everybody tonight, but as I listened to everybody talk and bring up points, they're valid points; however, I think a lot of them might be selfish. You know, we want jobs on the Iron Range. Of course we do. We want to protect our water. We want to protect our forests. I don't think there's anybody in this building that wants to see environmental issues. I started at a mining company in '73. I watched many, many environmental issues come up and be addressed. These companies are responsible. Just like the regulatory organizations that are scrutinizing every move they make. They are going to be under a microscope. One of the things that my company does -- I've been involved with mining and mining people from all over the world. I recently talked to a gentleman who was a mining consultant worldwide. I met him -- I've known him for years. I met him at the Northern Green Expo at the Minneapolis Convention Center. He brought a point up to me. And I've heard it before. The world looks at the Mesabi Iron Range in Minnesota, the mining world, looks at it as the mecca of mining. The Australian mining -- there is nobody big technology other than Minnesota mining. South America relies on Minnesota mining. We are technically advanced in mining. When we look at this project, I have 300 jobs for 20 years, that's not true. It could be thousands of jobs for centuries. There are standards being set here. And in the true fashion of Minnesota, we're setting 14 the mining standards. We're setting cutting-edge technology that is going to pass through the world. We look at environmental issues. Let's bring these issues to South America. Let's bring them to China. I hear somebody say foreign countries are polluting our air. We're the people that have the capabilities of doing this. And, you know, we look at our whole situation, 60 years ago taconite was a dream; but it was our technology that developed that kind of mining. It's done all over the world today by our standards. We set those standards. We developed them. And we can do the same with this. And this is very important. And I think Minnesota needs to keep setting the standards in mining for the rest of the world to follow.

Mark Thurlo 41856

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Mark Thurlo 1135 Loma Linda Ave Mound, MN 55364-9759

Mark Trainor 19973

I am a resident of Minnesota for the past 54 years..born here 1959 and never left I spend my summers and have a cabin in Ely MN I am 100% against this mining I am 100% sure the approval will go through no matter what we say or how many say it Why. Because there is 1 trillion dollars worth of Cu/Ni in the ground Mark Trainor 10540 Raven Loop Foley, MN. 56329 783 Kawishiwi Trail Ely, MN mgtrainor@gmail-com

Mark Trumper 45775

Dear DNR folks, One of the most important places in my life is the BWCA. It is a place of majestic beauty and clean clear waters. The polymet project is too close to this wilderness. It is too risky. The amount of time to treat the water is unreasonable, costly and unproven. The science has been called junk science by experts in environmental science. Importantly as well, the big promise, getting some to buy into this project, is the prospect of jobs in an economically depressed area. This is a short sighted advantage. The jobs are few and short lived. This is a bad project. When you decide if this goes through or not, the question is: is it the right thing to do. That's easy. No. It is wrong because the benefits are minimal and the long term costs are too high. It is risky and unproven. The foundation of the environmental protections are built on junk science. Don't approve Polymet. It is morally and economically wrong. Mark Trumper Sent from my iPad

Alphabetical by sender's first name

mark voorhees 38872

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Ask a question of Polymet "how many mines have been mined/on-going with the Polymet name". What is their track record. Sincerely, Mr mark voorhees 7660 Heritage Rd Eden Prairie, MN 55346-4426 (952) 949-0276

Mark Walters 42044

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mark Walters Hibbing, Minnesota

Mark Weis 3385

With the PolyMet proposal that says we might be treating this water for up to 500 years, is 20 years of mining really worth it. There has never been a successful mine of this type that the mining company has not filed for bankruptcy prior to the mine being successfully closed. Why doesn't the State of Minnesota do what Wisconsin has done and put a ban on this type of mining until a mine can be run for at least ten years and then shut down for at least ten years with no problems. PLEASE, PLEASE, PLEASE do not allow this mine to open. We are only going to get one chance to do this right. Thank you, Mark Weis

Alphabetical by sender's first name

Mark Wihriala 9585

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. In closing , I ask you to take a personal interest in protecting us from corporate interest in the short term and provide us long lasting water quality that we all can live with. Sincerely yours, Mark C Wihriala 710 12 ave Two Harbors Mn 55616 Mark Wihriala 710 12th Avenue North Duluth, MN 55616

Alphabetical by sender's first name

Mark Wihriala 18498

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. In closing , I ask you to take a personal interest in protecting us from corporate interest in the short term and provide us long lasting water quality that we all can live with. Sincerely yours, Mark C Wihriala 710 12 ave Two Harbors Mn 55616 Mark Wihriala 710 12th Avenue North Duluth, MN 55616

Alphabetical by sender's first name

Mark Wihriala 50582

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. In closing , I ask you to take a personal interest in protecting us from corporate interest in the short term and provide us long lasting water quality that we all can live with. Sincerely yours, Mark C Wihriala 710 12 ave Two Harbors Mn 55616 Mark Wihriala 710 12th Avenue North Duluth, MN 55616

Mark Wihviala 19519

My name is Mark Wihviala. I'm a Finlander like most of you out here. So I'm an outdoorsman, a fisher, canoeist. I love Minnesota. I've been here all my life. But I am here tonight because I am concerned about the water quality of Minnesota's rivers, streams, and lakes. I fish these waters. I drink these waters. And I swim these waters. I do not want them to be polluted. But I do not believe that the SDEIS is a sufficient, cumulative assessment of the water quality impact from PolyMet Mining. I am requesting the state and Minnesota to deny the wetlands destruction permit, Section 404 Permit to be denied since PolyMet's discharge would violate water quality standards, destroy animal and fish habitat, and threaten national resources for centuries to come. Thank you.

Markus (Blom) Dandy 57255

75% of people oppose this process around the Grand Canyon area….Lake Superior and the BWCA are at least as important to Minnesotans (& humans as well as other animals – that require clean water to live) Short term employment is nothing compared to the long term loss(es).

marla kennedy 38902

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs marla kennedy 2259 Summit Ave Saint Paul, MN 55105-1002 (651) 645-3303

Alphabetical by sender's first name

Marlene Lorraine Johnson 57220

I am totally against any of the proposed mining projects. It will damage the environment and not worth it. Stop it please!Marlene Lorraine Johnson1903 Old N. Shore RdDuluth, MN 55804

Marlene Voita 18234

Marlene Voita. I am a Sierra Club board member concerned about the environment and that for 300 jobs to have environmental effect for 300 to 500 years when we won't be here and the company won't be here and how long will the company last? Twenty years at most? I really think that this has to be rethought, especially with the state-of-the-art now where PolyMet has never had a facility like this before, and none of the plants that currently exist can show that they have no environmental effect. In fact, they have grave environmental effect on the land and water resources. Very concerned that this project would go forward, and I have experience working with environmental impact statements for the Pollution Control Agency, formerly, and I just don't think that it's appropriate to trade our future for 300 jobs and ruination of our land by the Boundary Waters or in the northern part of the state. The next project will be closer to the Boundary Waters. I know this is a different watershed but to ruin a watershed over a project like this. That's all I have to say. And we have a cabin in the Silver Bay area, so we're concerned about watershed.

Marlene Warkoczewski 43107

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Marlene Warkoczewski 126 Union Road Coatesville, PA 19320

Alphabetical by sender's first name

Marlin Maas 41672

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Marsha Bezold 24784

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I am writing this to urge you NOT to allow this mining in the Arrowhead and Boundary Waters Canoe Area Wilderness. This beautiful area should be preserved for our grandchildren and great grandchildren and beyond. Did you know that the Boundary Waters area is one of 3 national high adventure camping trips that Boy Scouts can partake in. Let me tell you it is the experience of a lifetime. Please protect these areas for US, the taxpayers and the everyday people of this country to enjoy. Don't give away our God given wilderness to those who would exploit it for their own profit and leave the mess for the American people to clean up. Please do the right thing and protect this land. Sincerely, Marsha Bezold 100 Lantern Trl Midway, KY 40347-9030

Alphabetical by sender's first name

Martha Baxter 19819

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Martha Baxter 3709 Grand Way 218 St Louis Park, MN 55416

49556

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Martha Baxter 3709 Grand Way 218 St Louis Park, MN 55416

Alphabetical by sender's first name

Martha Brummitt 18298

Martha Brummitt. At age 24, and as a graduate with a Bachelor's degree in geology, I understand the benefits of exploration mining. However, when I entered the poor job economy a few years ago, I thought about the far future and the state of the planet and what's important to me, exploring our natural environment. Instead of taking a job in geology with a high salary, I decided to explore. I chose to pursue an environmental education, using my geology background, the study of earth, to educate people. Using wilderness travel as an avenue for educating others, I earn a living by leading youth in the Boundary Waters, teaching watershed education and exposing people to the pristine resources we have left. If this goes negatively, it could negatively affect my job security. Let's not pollute it. Let's recycle what we have already stripped. On behalf of my generation, do not allow the PolyMet project to get passed. Because it will negatively impact the Boundary Water Canoe Area and our planet. Thanks.

Martha Cleveland 38449

The pollution concerns are monumental. The proposed solutions are ludicrous. This whole idea is a travesty. vote NO. Martha Cleveland Minnetonka MN

Martha Henrickson 54859

See attachment

54863

See attachment

54879

See attachment

Martha Krikava 17012

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Martha Krikava 9696 101st St N 9696 101st St N Grant, MN 55082

Alphabetical by sender's first name

Martha Krikava 50287

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Martha Krikava 9696 101st St N 9696 101st St N Grant, MN 55082

Alphabetical by sender's first name

Martha Langer 16063

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Martha M Bjornson 57147

Please do not let this mining happen. We must preserve our water, our wildlife and our wilderness.Martha M. Bjornson327 Wildwood DriveDuluth, MN 55811

Martha M Ritter 57270

The historical record (real data) show that no sulfide mining has been done without destroying associated ground and surface waters for unknown 100’s of years hence. The proposed mines will be viable for +/- 20 years. Why would we sacrifice our land, fresh waters (eventually including Lake Superior) for 100’s (at least 500 years) with no proof (data) indicating this can be done without system pollution? Where is the proof that initiating companies can and will afford and carry out appropriate remediation and how do the people who live here (along with other life forms that are to be protected under EPA dictates) do for potable H2O in the meantime over our future 100’s of years?Martha M. Ritter3750 Huckleberry LaneDuluth, MN 55803

Alphabetical by sender's first name

Martha Morse 43721

1172 Parkwood Lane Stillwater, MN 55082 March 13, 2014 To the staff at the Minnesota DNR, US Army Corp of Engineers, and the US Forest Service: Thank you for your hard work in preparing the SDEIS for the proposed NorthMet/PolyMet Mining Project and for this opportunity to provide input. I am opposed to the proposed NorthMet/PolyMet mine in northern Minnesota. The statistical model which was used to determine the mine's environmental impact is flawed in that it does not take into account the worst case scenario but only outcomes with the greatest probabilities. Consequently, the SDEIS underestimates the potential human, environmental, and remediation costs. Recent environmental disasters demonstrate that we need to consider the impact of the worst possible outcomes, such as the "not-in-a-thousand-years" seepage of pollutants into Athabasca River and groundwater from tailings ponds in Alberta, Canada (The Canadian Press, February 20, 2014), and the discharge of toxic chemicals into the Elk River in West Virginia in January 2014 (causing the governor to order the National Guard to truck bottled water to residents and restaurants for drinking and bathing). The probable scenarios in the NorthMet/PolyMet SDEIS do not account for less frequent but certainly occurring real events, such as Duluth's recent 500-year flood which could cause an overflow of the tailings ponds. The tailings ponds and mining and mitigation plans in the NorthMet/PolyMet proposal do not adequately protect the public or the environment against the effects of such infrequent but certainly occurring events. Research shows that risks and costs are often underestimated. According to an article in the Canadian Press ("Federal study confirms oilsands ponds leaking," February 20, 2014), "Industry has acknowledged that seepage can occur and previous studies using models have estimated it at 6-5 million litres a day from a single pond." According to an article in the New York Times ("Alberta's Tar Sands, the Dead Duck Trial," March 1, 2014), "RiskMetrics, a financial research firm, recently put out a report indicating that tailings ponds represent an unknown liability for investors because producers have tended to underestimate remediation costs." Please do not trade short-term gains for long-term costs. Thank you. Sincerely, Martha Morse (Ely/Burntside Lake property owner)

Alphabetical by sender's first name

Martha Roberts 43118

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025
Ms Lisa Fay: I am providing comments regarding the proposed NorthMet Mining Project and Land Exchange Supplemental Draft Environmental Impact Statement. Reframing Minnesota's Priorities to Recognize and Support the Vital Role of Biodiversity, Wild Lands and Eco-systems in Maintaining Human Security and Health The people of Minnesota need to re-frame how they view economic development and how they balance economic growth with environmental protection priorities for the state. With the very real threat of climate change and human population pressures on our natural resources, it is past time for us to move to a much more sophisticated world view of how we protect and maintain the quality and health of our natural ecosystems and wild lands. We need to recognize that not only our economic well-being and sustainability, but also human survival, depends on protecting and restoring the natural environment and the biological systems that create and maintain life. Minnesota is part of a global ecosystem and climate, and we will not exist as a species without this ecosystem remaining in balance. PolyMet's Financial Assurance and Reclamation Plan Are a Shell Game (Con Job) PolyMet Mining cannot guarantee the protection of northern Minnesota's environment, bio-diversity, water quality and the health of people and animals exposed to the inevitable resulting toxic pollution from mining. The proposed mine will ultimately destroy a significant amount of wetland and forest habitat in the middle of northern Minnesota, in the Superior National Forest, and Minnesota tax payers will end up covering the cost of the LONG TERM environmental damage incurred. Minnesota needs to move away from accommodating multi-international extraction industry financial interests and sacrificing the natural environment, public health, well-being and long term economic interest of Minnesotans. There is no level of "financial assurance" that PolyMet can give Minnesota that will assure the ongoing LONG TERM protection of northern Minnesota's wetlands, Superior Forest land, surface water and ground water quality, and the protection of threatened wildlife that depend on these natural habitats. Humans exposed to mining ground water pollutants face serious long-term health risks, and we have already seen (and should have learned from) the increased Mesothelioma Cancer risk for miners exposed to toxic air quality in mining work sites in northern Minnesota. Multi-international mining corporations are notorious for leaving environmental messes and toxic waste behind, after they have used up natural resources and moved on. The state of Minnesota is kidding itself (and is highly irresponsible) if it thinks it will have any legal standing to hold a multi-international mining company accountable for continuing to pay for and implement pollution mitigation after they are done extracting a projected 533 million tons of ore and waste rock over a 20-year period. It is ridiculous to think PolyMet would be responsible for what realistically would require hundreds of years, if not longer, of polluted water treatment to "assure" that watershed streams (Saint Louis River, Lake Superior, and other tributaries) and ground water are not contaminated. In addition, the proposed plan for water treatment of surface waters does not address the very high risk of polluting ground water, especially when you consider what the plan is for "reclamation." The DNR's description of PolyMet supposedly "reclaiming" its buried waste by covering it with a plastic membrane, filling up the mining pits with back water and then topping them off with a "reclaimed wetland" is science fiction. This is a ground water disaster waiting to happen. The state can't seriously claim that Minnesota will have any realistic legal standing to hold Po

Alphabetical by sender's first name

Martha Vest 16882

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Martha Vest 63 Fairview Avenue S. St Paul, MN 55105

43460

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Martha Vest 63 Fairview Avenue S. St Paul, MN 55105

Alphabetical by sender's first name

Martha Vest 50196

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Martha Vest 63 Fairview Avenue S. St Paul, MN 55105

Martin and Teresa Theobald 44682

PolyMet has not shown that they can protect the environment adequately. They continually try to cloud the topic of environmental protection with talks of new jobs. That is irrelevant. When the mines are long gone, tourism will be the industry that keeps Ely and other small range towns alive. I will not support sulfide mining in MN until the techniques have proven safe in other states. Martin Theobald

Martin Anderson 57931

Keep our waters clean!! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Martin Cooney 45167

Dear Ms Fay- My name is Martin Cooney. I live at 2912 Cherokee Place in Golden Valley, Minnesota. My zip code is 55422- I am a 35-year resident of Minnesota. I moved here in my early 20's because I wanted to raise a family and pursue a career in a state that valued and protected its natural resources and provided me and my family with a place to paddle and camp in the wilderness and the state's rivers, lakes and forests. I also wanted to settle here because I felt that the government would represent the interests of the people of this state would be represented with firmness and strength against the concentrated financial and political power of large corporations which, in too many cases, overwhelm the divided voices of individuals and community groups that don't have the money or the expertise to muster slick, expensive publicity campaigns or to pay local well-connected lawyers. Polymet is proposing to create jobs in Minnesota for a maximum of twenty years, at beSt When Polymet is gone, by their own admission, they will have left an environmental mess that will cost millions to clean up. There is no mention of where the clean-up money will come from. The technology that Polymet claims will insulate Minnesota's waters for the inevitable pollution produced by their mining venture is experimental and unproven. Most of the money coming out of the earth will have gone to Switzerland and parts unknown after passing through Canada. The water that has been poisoned by Polymet will have to be filtered for two hundred years - or more. The local economy will be more or less where it is now, suffering once again from unemployment because of the departure of a short-term mining venture. Only this time it will be Polymet that played out the mines. But what will be different from the down-sizing of the iron ore mining operations will be the risk that the State's most vulnerable waters will be polluted beyond recovery, the State's recreation and tourist industry crippled, and the local communities hurting once again from boom and bust mining. Require a very conservative level of financial assurance escrowed up-front I am writing to urge you to deny a permit to Polymet, a corporation that is owned by who-knows-what other mining interests that have insulated themselves from financial risk of this mining venture, unless Polymet's investors produce an amount of money equal to the the present value of the conservatively estimated costs of decommissioning the mine once Polymet is done with it. This amount must be conservatively estimated by impartial financial advisors retained by the State, and not by Polymet or its affiliated, associated, hired, or otherwise related or interested parties. This financial assurance amount must be put under the control of the state, invested in US Treasury bonds and completely insulated from any and all risks. I understand that the laws of the State of Minnesota require that Polymet or any comparable venture fully insulate Minnesota's tax-payers from the costs of cleaning up Polymet's mess once the venture has exhausted the mineral deposits, dividended the profits of the mining venture to their shareholders, and run out of cash. The only way to do this is to require that Polymet escrow the full amount of the financial assurance up front, before the operation begins. If, as Polymet maintains, there are "billions of dollars" of minerals on the Range, there can be little risk of recouping the carrying cost of the financial assurance. They are committed to spend the principal in decommissioning the mine and cleaning the environment for God-knows-how long after they've left. If there is a risk of recouping the carrying costs, then it should be Polymet that bears that risk and not Minnesota's taxpayers. Experimental and innovative techniques to control pollution The abundance of Minnesota's waters: rivers, lakes, streams, and groundwater, make it especially vulnerable to the kind of mining proposed by Pol

martin dahlke 21517

Feb 22, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The financial assurance section of the SDEIS is inadequate and needs to be changed to reflect details about how much money would be required to pay for cleanup and in what form it would be held. In 2010, the US Environmental Protection Agency called PolyMet's first draft Environmental Impact Statement "inadequate." One significant reason was that the 2010 DEIS did not show that financial assurance would be enough to cover the cost of long-term water treatment at the site. "EPA believes that the adequacy of financial assurance for these activities could make the difference between a project adequately managed over the long-term by the site operator, or an unfunded or underfunded contaminated site that becomes a liability for the federal government and the public " As your revise the SDEIS, please take the following actions: 1) Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs in the current draft 2) Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for hundreds of years of water treatment 3) Identify other responsible parties (eg major investors like Glencore) that will be held responsible for long-term cleanup should PolyMet go bankrupt or be unable to meet their obligations 4) Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation for the what would constitute adequate treatment Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. And while I'd rather not see the mine built in my backyard at all I wouldn't be able to oppose it if there was a clear case the our public institutions will be left holding the bag of pollution when the corporate interests are done collecting profits. Sincerely, martin dahlke 813 12th St Hudson, WI 54016-1803 (715) 690-1090

Alphabetical by sender's first name

Martin Dietl 36727

Dear Sir/Madam: I write to please encourage you to deny Polymet a permit to mine in Northern Minnesota. The BWCA is far too precious a resource to risk to a company and an industry that has a long history of polluting and ruining the environment. Thank you for your consideration, Martin Dietl 3309 47th Ave So. Minneapolis, MN 55406

Martin Makinen 9309

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Martin Makinen 12125 Kenyon Ct. NE Street 2 Blaine, MN 55449

Alphabetical by sender's first name

Martin Makinen 18420

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Martin Makinen 12125 Kenyon Ct. NE Street 2 Blaine, MN 55449

50539

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Martin Makinen 12125 Kenyon Ct. NE Street 2 Blaine, MN 55449

Alphabetical by sender's first name

Martin Rigney 45420

To Whom It May Concern: First of all, I understand that name and legal mailing address are required for my comments to be valid. Martin P. Rigney, Phd 1027 Sherren Street W Roseville, MN 55113 I am writing to comment on PolyMet's request for a permit to discharge mining runoff into a wetland called the One Hundred Mile Swamp. By way of context, I am a transplanted Minnesotan born in Iowa who has, at various times in the last 58 years, called Iowa, Georgia, Illinois, Germany, Switzerland and Minnesota home. From my perspective, the single most remarkable feature of Minnesota as a place to call home is the Boundary Waters Canoe Area. When I have been in state I have been at least an annual visitor to the BWCA and look forward all year to my birthday trip to the BWCA. I am a chemist by training and an RandD executive at a major Minnesota company with significant business in the mining industry. I am neither anti-mining nor what I would call an avowed environmentaliSt Each year I watch the Forest Service video encouraging me to "leave no trace" and take pride in always leaving a campsite in better repair than I find it. Having reviewed the pertinent facts, I am not convinced that PolyMet is being held to the same standard as an individual visitor to the BWCA despite the obviously potential for more significant and long term damage from their mining operation. I have been following the PolyMet controversy as reported in the mainstream media without forming an opinion one way or another but rather viewing it as the classic debate between local economic benefit and inevitable – and fiercely debated – environmental impact. I have recently dug a bit deeper and my position is a simple one – the burden should be – but has not been - placed on PolyMet to prove not that there will be no impact but that the future impact has been carefully and completely modeled in a scientifically rigorous manner such that a decision is made with a full understanding of the balance between positive economic impact and measurable but well understood negative environmental impact. In this regard, I am guided by the adage grilled into me in graduate school – theory guides but experiment decides. Given the value of this natural wonder I can imaging no justifiable reason not to require specific testing to confirm that water discharged from the mine site does not and indeed cannot enter the BWCA and I see no indication of this plan in the SDEIS. I admit that I have not read the SDEIP statement word for word but visual and electronic searches have failed to locate any data in the document to confirm that the mine site is geologically and hydrologically isolated from the Rainy Lake/BWCA watershed. I am sure you are aware of the concern about the accuracy of the maps contained within the SDEIS as referenced to the National Atlas and this only further compels that an experimental study of mine drainage be conducted. Before permitting can move forward, I encourage that experimental data are generated that are a more reliable predictor of the impact of the mine on the BWCA than the at best incomplete and at worst intentionally misleading information currently contained in the SDEIS. Best regards, Martin Rigney CONFIDENTIALITY NOTICE: This e-mail communication and any attachments may contain proprietary and privileged information for the use of the designated recipients named above. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message.

Martin Running 18325

My name is Martin Running. I live in Duluth. I want to thank Army Corps of Engineers and the DNR to let us have this public input here. I wasn't planning on speaking tonight, but I was looking at all the stickers on everybody and I was noticing several of these people had "clean water" stickers on. These are the same people I saw at a previous meeting that were against a cell tower that was going to be put up outside the Boundary Waters Canoe Area. They didn't want to be able to see the tower (inaudible). This is a tremendous opportunity for the state of Minnesota and local people. I don't think we should let this go. And I don't think that we should have that much land tied up just so a few people can paddle canoes around. Thank you.

Martin Sterner 42806

See attachment

Martin von Euw 43030

Alphabetical by sender's first name

Marty Kauls 42086

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Marty Kauls St Paul, Minnesota

Marty Seifert 42676

See attachment

marv schuety 45557

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described and should not be built anywhere that would impact any wildlife in the state of minnesota or any other state . the wildlife has sufferd greatly just from home builders ,not to mention other busnesses that are built in wildlife areas . the declineing moose population should speak for itself in this matter without any input from the public ,unless your goul is to make the moose and other animals exstinct in minnesota .i know the pollititions dont care because they get paid under the table to make this and other projects go thru no matter what the publics vote says they lie cheat and steal from us tax payers for there own gain .i think that the public should be in on all the helping decide where and what happens with our country wildlife or not .i vote to protect the land from being robbed of the minerals and destroying the moose and other wildlife popultion in this or any other area im strongly against the mining of any thing in the area describe here . Sincerely, Mr marv schuety 6817 Barrows Ave Brainerd, MN 56401-1776

Mary Alice Harvey 42760

See attachment

Alphabetical by sender's first name

Mary Amundson 44204

Mar 13, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I also have other concerns about pollution. Once land, water, air and wildlife are destroyed, they never are completely be pristine any more and the dangers from the pollution go on for a long, long time. Also, corporations promise to clean up the messes that they create and often it is done partially or not at all because they don't have the knowledge to do the job correctly; sometimes there is no good way to clean up the problem created. Sometimes tax payers bear the cost of whatever cleanup must be done. Also, there is the issue of health related problems from pollution which can be permanent and sometimes fatal. None of the benefits from this mining can ever offset the detriments to health or pollution of the environment, locally or globally, and the effects on wildlife. Our planet is already in serious trouble from pollution; we do not need to contribute to it with more pollution. We need to be caretakers of this precious land. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Mary Amundson 10012 Drew Ave S Bloomington, MN 55431-2728

48500

Mar 13, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I also have other concerns about pollution. Once land, water, air and wildlife are destroyed, they never are completely be pristine any more and the dangers from the pollution go on for a long, long time. Also, corporations promise to clean up the messes that they create and often it is done partially or not at all because they don't have the knowledge to do the job correctly; sometimes there is no good way to clean up the problem created. Sometimes tax payers bear the cost of whatever cleanup must be done. Also, there is the issue of health related problems from pollution which can be permanent and sometimes fatal. None of the benefits from this mining can ever offset the detriments to health or pollution of the environment, locally or globally, and the effects on wildlife. Our planet is already in serious trouble from pollution; we do not need to contribute to it with more pollution. We need to be caretakers of this precious land. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Mary Amundson 10012 Drew Ave S Bloomington, MN 55431-2728

Mary Anderson 43860

I am opposed to PolyMet's proposed open pit mine in Northern MN, due to my concerns for the negative impact that it would have on the environment. I strongly oppose this project. Mary Anderson,15124 Lynn Terrace, Minnetonka, MN 55345 Thank you, - Mary Anderson

Mary Ann Lundquist 38699

Northern Minnesota is an irreplaceable gem with its pristine lakes, forests, and wetlands. Though a few hundred jobs for up to twenty years would be important in the short term it makes no sense to risk the disastrous pollution for up to 500 years. I cannot get over the admitted fact that there has NEVER been a copper nickel sulfide mine that has not leaked. We need to protect our land and water. I strongly urge our law makers to look at developing jobs in the clean energy area. It is sad that the new battery plant that will manufacture batteries for the Tesla car will be in Arizona. The plant alone will employ over 1,000 people. In Connecticut, Fuel Cell Energy Power is building hydrogen power plants to generate electricity and heat to power homes and industry. We need long lasting jobs here in Minnesota in industries that are forward looking and do not destroy our land and water. Mary Ann Lundquist

Alphabetical by sender's first name

MARY ANN RANDALL 42090

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, MARY ANN RANDALL North Oaks, Minnesota

Mary Arps Thompson 10037

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Again PolyMet has prepared an SDEIS with flawed data and inaccurate information. If they can't get this right, how will they protect the most precious resource we have, our water. Mary Arps Thompson 1370 White Lake Dr 1370 White Lake Dr Duluth, MN 55803

18786

Dear Ms Fay, Mr Bruner and Mr Dabney: Again PolyMet has prepared an SDEIS with flawed data and inaccurate information. If they can't get this right, how will they protect the most precious resource we have, our water. Mary Arps Thompson 1370 White Lake Dr 1370 White Lake Dr Duluth, MN 55803

45143

Mar 12, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Please have the courage to say NO to sulfide ore mining. Who do you believe. An industry with a terrible, costly, environmental recoRd They always say "It will be different this time, we have NEW technology." But do we want to be the experiment, risking our precious waters. Managing the state"s natural resources does not mean they have to be taken. Sometimes the best management is leaving resources where they are. Especially when removing them means damaging an even more valuable resource, our clean water. When we can't drink the water, it is too late. Economics what will be the cost of cleanup and who will pay. A shell corporation with no real assets. And why do we want another industry to lead us down the road of boom and bust again. Please have the courage to say NO to sulfide ore mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Mary Arps Thompson 1370 White Lake Dr Duluth, MN 55803-9712

48522

Mar 12, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Please have the courage to say NO to sulfide ore mining. Who do you believe. An industry with a terrible, costly, environmental recoRd They always say "It will be different this time, we have NEW technology." But do we want to be the experiment, risking our precious waters. Managing the state"s natural resources does not mean they have to be taken. Sometimes the best management is leaving resources where they are. Especially when removing them means damaging an even more valuable resource, our clean water. When we can't drink the water, it is too late. Economics what will be the cost of cleanup and who will pay. A shell corporation with no real assets. And why do we want another industry to lead us down the road of boom and bust again. Please have the courage to say NO to sulfide ore mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Mary Arps Thompson 1370 White Lake Dr Duluth, MN 55803-9712

Alphabetical by sender's first name

Mary Arps Thompson 50859

Dear Ms Fay, Mr Bruner and Mr Dabney: Again PolyMet has prepared an SDEIS with flawed data and inaccurate information. If they can't get this right, how will they protect the most precious resource we have, our water. Mary Arps Thompson 1370 White Lake Dr 1370 White Lake Dr Duluth, MN 55803

Mary Becker 52296

I have reviewed the EIS ,and would like this project to go forward. The regulating agencies need to base their decision on science and facts. I feel I am a very strong environmentalist and I am all for clean water. The citizens of Minnesota have to trust in our government regulating agencies to do a good job of overseeing, monitoring, and regulating. We can only look at all the industries in Minnesota that do a of good job of minimizing their impact on the environment to see that this mine could do the same. My hope would be that the "not in my backyard" mentality rules over facts and good science. Vernon Becker 39679 592 ave Eden Valley MN 55329 320-282-5227

Mary Bjorngjeld 30266

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please protect our fresh water in BWCA and Lake Superior. This mining that is proposed is a dirty deal that threatens the health of watersheds and eco-systems for miles around the proposed site. Just say NO it is not worth the threat to natural resources(including wildlife) and public health. Say NO to big business. Say NO to pollution. Say NO to sulfide mining in MN. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public interest and we do not want it . Sincerely, Mary Bjorngjeld 1201 Pearson Pkwy Brooklyn Park, MN 55444-1757 (763) 566-8255

Mary Boranian 54850

See attachment

Mary Boyd-Brent 38881

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Mary Boyd-Brent 2233 Scudder St Saint Paul, MN 55108-1919

Mary C Kaeter 54760

See attachment

Mary Campbell 52225

My husband and I are totally opposed to the mining. While there may be some positives in terms of jobs for a few people, the long term effects are likely to be devastating. Please do not allow this mine to go forwaRd Stuart and Mary Campbell 7125 Boyd Avenue Eden Prairie, MN 565346 612-877-0966

Mary Carlson 54116

I do not support copper mining in Minnesota. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Mary Cunningham 44305

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit I disagree with the way the current (Supplemental) Draft EIS disregards the concerns of the Fond du Lac and Grand Portage Tribal Governments, the 1854 Treaty Authority, and the Great Lakes Indian Fish and Wildlife Commission. Furthermore, the PolyMet review process used incorrect maps in the environmental impact statement that give the impression that mine waste is geographically isolated from the BWCA watershed when it is not. The maps used include incorrect outlines of the One Hundred Mile Swamp which is downhill from the mine site and will collect acid and heavy metal laced run off from the mine. I believe the environmental impact statement is inadequate, and I ask you to suspend any decision about the Draft EIS until these problems have been corrected. Sincerely, Mary Cunningham 1764 Lindig St Falcon Heights, MN 55113

Mary Davis 16724

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mary Davis 6674 Boyd Avenue Eden Prairie, MN 55346

Alphabetical by sender's first name

Mary Davis 50088

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mary Davis 6674 Boyd Avenue Eden Prairie, MN 55346

Mary Dickson 44537

Dear Sirs: I am voicing my opposition to the Poly Met operation. I do not think it is well thought out and think we should wait until the operation is safer. They cannot guarantee that they will be around for the next 500 years. Our water, our wildlife is our most valuable resource and we cannot put it in further danger. I cannot believe you are even considering this operation. Mary Dickson

Mary Disch 18266

My name is Mary Disch, D-I-S-C-H. I have some concerns about the Mining Project. At this point I am not in favor because my concern primarily is pollution affecting the watershed for Lake Superior and especially the wild rice area in that sense. And I'm concerned about whether the assurance will be enough to clean up, because the pollution is inevitable. That I'm not sure how the amount is determined and whether that will be a sufficient amount, given that the project is only 20 years, but the pollution may occur for quite a bit after that, and will. I think that's probably the environmental effects. I'm concerned whether PolyMet is -- I know it is a new company, but it is funded by other companies' money, and what their track record has been. My concern, too, is that opening this area to copper sulfide mining might open it up to more of that, and what the cumulative effects might be, and my concerns of the cumulative effects on the people that live nearby and the water quality of the Hoyt Lakes, which I think is pretty close. I would just like to see more concern and overseeing what -- my question is when PolyMet says they are going to do this, how often does that happen? And is there a way of assuring that that happens? What they say -- I know in reality what people say and then nature has its own ways of eroding things, and who oversees that, I'm not quite sure that I have gotten that question answered, as to who monitors and how well is the monitoring done in order to provide that we have clean water, especially how it is affecting Lake Superior and affecting the wild rice in the area. And my concern, too, that wild rice, when I talk to people, it moves around, so it is not like you can say this specific area has wild rice. So it is essential that the area has clean water so that wild rice can move to where it needs to move. And I heard that the mercury is more up, and fish, with the higher sulfate levels, and so that's part of my concern, whether those levels will be safe enough for fish. Thank you.

Alphabetical by sender's first name

Mary Dosch 19508

My name is Mary Dosch, address 5523 London Road, Duluth, Minnesota 55804, D-O-S-C-H. So these are my PolyMet NorthMet comments regarding moose. Like most Minnesotans, I'm proud of our outstanding natural heritage including our iconic moose populations. However, the PolyMet SDEIS acknowledges that overall moose population in Minnesota declined 35 percent from 2012 to 2013, and now moose are a state species of concern. The PolyMet project would harm moose due to habitat fragmentation and loss. The key habitat types considered moose habitat include mature forest, grassland and brushland and aquatic environment. A total of 2,775.2 acres of these habitat types would be directly affected by the NorthMet Project -- by the NorthMet Project proposed action, and thus, would affect individual moose in the vicinity through habitat loss and fragmentation. Moose are important to the Indian bands under treaties and for subsistence. The SDEIS says that impacts on moose will be discussed in the Cultural Resources Section 5.2.9. However, neither that Cultural Resources Section nor the Cumulative Impact Section mention one word about moose. The PolyMet SDEIS is inadequate in that it needs to be redone to study cultural effects of loss of moose habitat at the PolyMet mine site and the cumulative adverse impact on moose. I'm sure we all want moose in Minnesota to survive so that our descendants will not have to learn that moose have gone the way of the passenger pigeon.

37853

Greetings: I am opposed to the proposed PolyMet mine for many reasons, including the fact that I'm an animal lover who wants to know that our precious wildlife will be here for future generations. For example, moose are already in substantial decline and the habitat loss that would inevitably occur if PolyMet were to mine would expedite further losses for our priceless moose population. In addition, many species of birds whose homes would be in harm's way, eg, birds in the St Louis River Estuary like Common Loons, Hooded Mergansers and Belted Kingfishers, need to be considered when weighing the pros and cons of this proposed mining project. Given the potential for great harm to wildlife, including moose, birds and fish, due to loss of habitat and/or pollution of habitat, I respectfully ask that ALTERNATIVES to the open pit mine, specifically an UNDERGROUND MINE, be studied. Since PolyMet has acknowledged that an underground mine could access copper and nickel, and since an underground mine would be far less destructive to the habitats of wildlife species in impacted areas, I further ask that PolyMet's SDEIS be rejected as INADEQUATE since it did not adequately address the possibility of an underground mine. Sincerely, Mary E. Dosch 5523 London Road Duluth, MN 55804 - "The eyes of the future are looking back at us and they are praying for us to see beyond our own time." - By Terry Tempest Williams

37857

Greetings: Among the numerous concerns I have about the proposed PolyMet project and its SDEIS and the Section 404 Permit is the impact that it would have on wetlands. Also, two areas that are downstream from the proposed PolyMet mine that would be adversely impacted by it are the Sax-Zim Bog and the St Louis River with its priceless estuary. PolyMet's plan for an open pit mine would directly destroy more than 900 acres of wetlands and could indirectly destroy more than 7,351 additional acres of wetlands in the Partridge and Embarrass River watersheds due to pollution and changes in hydrology. The proposed wetland mitigation only covers the 912-5 acres of direct wetland impacts. Therefore, the more than ten miles of additional wetlands projected to be "indirectly" impacted by water drawdowns and toxic materials will likely be permanently harmed as the bogs and coniferous swamps in harm's way are extremely difficult to restore. Thus the SDEIS, by not addressing the impacts on these "indirectly" impacted wetlands, is INADEQUATE in that respect. Also, where pollution from the mine pits, mine wastes and tailings piles seeps up from surface ground water flow to wetlands, it is virtually certain that PolyMet's discharge would violate water quality standards. Furthermore, PolyMet's excavation and thus changing hydrology in wetlands would increase mercury loading to wetlands and streams and increase mercury bioaccumulation in fish, thus putting human health at risk. Given the harmful outcomes discussed above, I respectfully ask that you a) REJECT PolyMet's SDEIS as INADEQUATE and the PolyMet project as ENVIRONMENTALLY HARMFUL; b) DENY the wetlands destruction permit (Section 404 permit); and c) DENY PolyMet a state permit to mine. Sincerely, Mary E. Dosch 5523 London Road Duluth, MN 55804 - "The eyes of the future are looking back at us and they are praying for us to see beyond our own time." - By Terry Tempest Williams

Alphabetical by sender's first name

Mary Dosch 37864

Greetings: I am extremely concerned about what will occur if PolyMet is given permission to mine for copper and nickel in the priceless region between the Boundary Waters and Lake Superior. Given that PolyMet's own mine plan admits that millions of gallons of polluted water will seep off site, uncaptured and untreated, and that this will continue for hundreds of years, I have to ask how we can even consider giving PolyMet the green light. PolyMet's water pollution from the permanent mine's waste rock pile would need treatment for at least 200 years and pollution from the tailings piles would require treatment for at least 500 years and the pollution seeping out of the mine pits would continue in perpetuity = FOREVER. In other words, by giving PolyMet the go-ahead, we would be getting 20 years worth of mining jobs (SHORT-TERM GAIN) while incurring at least 500 years of pollution and perpetual water treatment (LONG-TERM LOSS). Furthermore, perpetual water treatment is not maintenance free. Currently the region that would be impacted by the PolyMet mine is a haven for tourists, fishermen, and outdoor enthusiasts like me, people who appreciate our beautiful region and who value its environmental integrity, its unique attributes, and its ability to restore their spirits on an increasingly polluted and beleaguered planet. By giving PolyMet the green light and thus setting a precedent for numerous other mining companies to follow suit, the seeds of our own destruction as a place of retreat and purity and sanity will be sown. I therefore respectfully ask that you REJECT the PolyMet project as environmentally harmful and I ask that you DENY PolyMet a state permit to mine given that in addition to the at least 200 and 500 years of pollution that PolyMet admits, their assumptions about the percentage of seepage collection at the tailings basin is unsubstantiated and thus the SDEIS must be rejected as INADEQUATE. Furthermore, the SDEIS should be rejected as it gives no detailed information as to how 500 years of water treatment will be paid for. Sincerely, Mary E. Dosch 5523 London Road Duluth, MN 55804 - "The eyes of the future are looking back at us and they are praying for us to see beyond our own time." - By Terry Tempest Williams

mary durando 41719

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Dr mary durando 523 Chesterville Rd Landenberg, PA 19350-1575

Mary E Stoick 54836

See attachment

Mary E. Dosch 10336

Dear Ms Fay, Dear Federal and State Agency Leaders: I am alarmed at PolyMet's SDEIS as it's essentially an experiment which, if allowed to proceed, would be a disaster waiting to happen and would put Minnesota's clean water at risk forever. The SDEIS doesn't provide even the most basic information to support its predictions. How much polluted wastewater would be going back and forth through nine miles of pipes. What is the total volume of wastewater in tailings and processing residue. Just how polluted is the wastewater in waste rock piles, pits, sump ponds, the tailings basin and the hydrometallic waste dump. Without this basic information, we can't estimate what would happen if PolyMet's almost perfect assumptions - not based on anything in the real world - don't come true. The SDEIS admits that it is an experiment. On page after page it says that in the event that modeling shows violations of water quality, PolyMet will "adaptively manage" the problem. BP "adaptively managed" that oil spill in the Gulf of Mexico with catastrophic results to the Gulf's ecosystem. This SDEIS is completely inadequate. The SDEIS must reveal wastewater volumes and pollutant levels at every step. Also, the SDEIS must have facilities from day one to meet standards. Once pollution is in groundwater it is TOO LATE to fix. I therefore ask that the PolyMet SDEIS be rejected as woefully inadequate and the PolyMet project as environmentally harmful due to the experimental nature of their proposed plan. Therefore I also ask that PolyMet not be granted a state permit to mine at this time given that their proposed "adaptive management" of any violations of water quality would put our priceless watersheds at risk of permanent contamination. Access to clean water should be the birthright of all - humans and non-humans alike. We have no right to jeopardize that birthright. Sincerely, Mary Elizabeth Dosch 5523 London Road Duluth, MN 55804 Mary E. Dosch 5523 London Road 4365 Kingston Road Duluth, MN 55804 218 269 4632

Alphabetical by sender's first name

Mary E. Dosch 19001

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Mary E. Dosch 5523 London Road 4365 Kingston Road Duluth, MN 55804 218 269 4632

Alphabetical by sender's first name

Mary E. Dosch 37903

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mary E. Dosch 5523 London Road 4365 Kingston Road Duluth, MN 55804

49110

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mary E. Dosch 5523 London Road 4365 Kingston Road Duluth, MN 55804

Alphabetical by sender's first name

Mary Ellen Kremposky 22900

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Also, Lake Superior retains water for about 200 years. Any mining waste inputs would last for centuries. Also, as shown by the severe drought in California, fresh water for agriculture, human and wildlife usage is imperiled. The largest fresh water lake in the world should be protected at our own society's peril. Just say no to this mine. Also, tourism is a big source of income and should be protected not damaged by mining operations. Sincerely, Mary Ellen Kremposky 419 N Gainsborough Ave Royal Oak, MI 48067-4220 (248) 565-8100

Mary Elling 39897

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Mary Engen 39362

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Mary Engen 3136 38th Ave S Minneapolis, MN 55406-2143 (612) 721-7181

Mary Everest 44551

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: The PolyMet mine would violate the 1854 Treaty between the United States and Minnesota Ojibwe bands. This treaty guarantees the right to hunt, fish, and gather in the location of the proposed mine. However, the proposed mine would destroy wetlands and habitat for animals and plants fundamental to Ojibwe life. In addition to habitat destruction and removal, the proposed mine would generate unacceptable levels of mercury and sulfuric acid contamination in the watershed, subsequently turning food into poison. The treaty is a legally binding agreement between the United States and a sovereign nation. In short, it is your duty to protect this land. The land must remain intact, including the animals and plants that the Ojibwe hunt, fish, and gather. The PolyMet mine project and proposed exchange of 6,650 acres of Superior National Forest lands MUST be rejected in order to comply with federal law and fiduciary responsibilities to tribes. •Reject PolyMet’s proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. •Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. •Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. •Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. •Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. The SDEIS is also inadequate and should be rejected: •The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. •The SDEIS fails to provide a cumulative analysis of impacts to clean water, plants and mammals that are significant to tribes and protected under treaties, throughout the tribal Ceded Territories in the Lake Superior Basin. In summary, please reject the PolyMet SDEIS as inadequate and reject the proposed PolyMet mine and Land Exchange as destructive to the public interest and harmful to tribal rights, clean water, vital habitats and the health of future generations. Sincerely Mary Everest 4015 STANDISH AVENUE MINNEAPOLIS, MN 55407

Mary Faulkner 39793

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mary Faulkner 4921 Girard Ave S Minneapolis, MN 55419-5216

Alphabetical by sender's first name

Mary Gallet 42507

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mary Gallet 100 Elizabeth St Duluth, MN 55803

mary garbutt 19920

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, mary garbutt 12310 49th Ave N Plymouth, MN 55442

Alphabetical by sender's first name

mary garbutt 47051

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, mary garbutt 12310 49th Ave N Plymouth, MN 55442

47052

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Alphabetical by sender's first name

mary garbutt 47053

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47055

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Alphabetical by sender's first name

mary garbutt 49565

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, mary garbutt 12310 49th Ave N Plymouth, MN 55442

Mary Gover 40969

I understand (from the program on MPR) that large piles of tailings remain from past PolyMet mining, and that the effluent from these tailings fails to meet MN water standards. Accordingly, I urge the DNR to require that PolyMet clean up the existing tailings before it is allowed to generate any more. The SDEIS for this project is inadequate. It fails to give appropriate weight to the fact that every copper/nickel sulfide mine located in a watery environment has resulted in contamination of surface and/or ground water. We should not subject Minnesota's waters to a known source of contamination. Thank you for your attention. Mary Gover 6711 Lake Shore Dr S, Apt 1007, Richfield, MN 55423

Mary Grandmaison 54791

See attachment

Alphabetical by sender's first name

Mary Green 40382

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Mary Green 628 N. 18th Avenue Sturgeon Bay, WI 54235 US

Alphabetical by sender's first name

mary hagen 41748

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Mary Haltvick 47379

Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to express my concern about the proposed PolyMet project in northeastern Minnesota. I am originally from the area and still own property there so it is an issue which greatly worries me. In addition, members of my family live in the Embarrass River watershed. I believe that PolyMet's plan for sulfide mining does not sufficiently address its potential to do irreversible damage to the environment and the health of the people who live and work in the communities that would be affected. My first concern refers to the permitting required by Section 404 of the Clean Water Act. The wetlands proposed for destruction are priceless and form part of a broader biotic system. The 913 acres to be destroyed and the additional over 7000 acres at risk of being degraded by subsequent air and water pollution from the mining operations represent an unprecedented loss of wetlands for Minnesota. On paper the plan to replace these precious wetlands might look like a fair "exchange" if one is just counting acreage and size, but what is lost is an acuatic ecosystem of rivers, creeks, streams, ponds, swamps, land and vegetation that provide habitat for wildlife and maintain the quality of the watershed. Can the lands offered in the land exchange proposal really compensate for a lost ecosystem, especially if those lands are outside the affected watershed. The SDEIS does not factor the real value of the lost ecosystem into its calculations. Land has value but so do nature and natural processes. The science of economics rarely makes this kind of calculation. The SDEIS has not made it either. But it does not mean that such value does not exiSt It just hasn't been calculated. I ask that you deny any permit to destroy or degrade the wetlands since we really do not know the value of what we are being asked to give up. In addition, I ask that you reject the Land Exchange Proposed Action. Also of concern are the opportunities for pollution that the proposed mining site offers. This area is rich in water but unfortunately many of the bodies of water in the area are already identified by the MPCA as "impaired waters" due to elevated levels of mercury. This, therefore, is a proposal to mine in an already compromised area that mining will put at further risk. The water quality models used by PolyMet are guesses and assumptions about how mining might affect the water, but they are unsubstantiated and without evidence. The historical record, on the other hand, shows that sulfide mining in a water-rich environment has historically resulted in surface and ground water pollution with toxins that are harmful to human life. In short, no one on the planet has been able to do this type of mining without degrading water quality. I don't believe the SDEIS sufficiently addresses the risks of this kind of mining in a water-rich environment. What happens if and when the water is polluted, a very distinct possibility since the proposal is for unlined storage of waste rock. Then what. I urge you to not recommend a permit to mine for PolyMet. Our waters are precious. What I have written is sincere and reflect my best attempt to understand the proposal. Please give it your closest attention. Thank you. Mary Haltvick 713 Heather Drive Shoreview, MN 55126

Mary Halvorson 44630

Mar 13, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. I am concerned about the long range affects this proposal will have on our environment for future generations. I am not at all convinced in plans for clean up and oversight. This is an endeavor fraught with too many probleMs Please reject this proposal and choose health for our entire ecosystem Sincerely, Ms Mary Halvorson 324 Harvard St SE Minneapolis, MN 55414-2920

Alphabetical by sender's first name

Mary Heise 46594

Dear Lisa Fay, I have serious concerns and doubt that adequate funding will be available to address any accidents or incidents that occur during mine operations and especially after the mine closes. Secured funding also needs to be available for the lengthy water treatment process after mine closure. How is the funding guaranteed to be there even hundreds of years after mine operations cease. It is important to have all of the necessary funds readily available throughout the entire water treatment period of 500+ years so that clean-up costs do not become a burden on Minnesotan residents. How is inflation and any unforeseen complications of treatment being calculated into Polymet's closure costs. How can a person predict the value of the dollar that far in the future. In addition, I also believe the SDEIS is inadequate in the following areas: It does not adequately look at reducing impacts to wetlands by considering underground mining vs. open pit mining. Economic feasibility is not supposed to be the primary factor for alternative methods in an EIS. What evidence is there that the proposed treatment of contaminated water by reverse osmosis actually works on projects of this scale. The water treatment process is not specific enough. What are the plans for the toxic sludge generated by reverse osmosis. How is the reverse osmosis system guaranteed to keep up with the quantity and continuous supply of contaminated water. The proposed wetland reclamation and regeneration would not equal the high quality wetlands that the mine will destroy. What are the effects on human health, especially in the unborn and very young, of exposure to the pollutants emitted into the air and water, especially as these pollutants accumulate to higher levels. What insurance is there against underground drinking water contamination and what procedures will be followed to clean up any contamination that occurs. As abundant clean water becomes more scarce world-wide and thus more valuable, this resource should be weighted higher for impact considerations the farther the timeline of impacts goes into the future. For example, clean water is likely to be more economically and environmentally valuable 100 years from now than it is today, therefore, any long term negative impacts done now should be assessed as more harmful than is currently considered. What are the health risks to employees who are exposed to sulfide mining conditions. What is the potential for soil contamination away from the mine site and what health risks are present for people who come into contact with this soil, especially for those growing their own food. The Superior National Forest is a national asset and the proposed land exchange is not adequate compensation for US citizens. How will the survival and reintroduction of rare species found in the disturbed wetlands be assured after mine closure. Thank you for addressing these concerns, Mary Heise 2105 E. Superior St Apt 3 Duluth MN, 55812

Mary Helen Stephens 10764

I cannot find the original site when I made the comments, but I don't recall giving my address. I am interested in receiving updates on the program of stopping them. My email address will be on this page to you Mary Helen Stephens. _____ From: NorthMetSDEIS.dnr@state.mn.us To: maryhelenstephens@hotmail-com Subject: RE: Reject PolyMet's NorthMet Mining Proposal Date: Fri, 24 Jan 2014 18:39:29 +0000 Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Mary Helen Stephens 38874

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Since we know that water continues to flow downstream forever till it reaches oceans, how can we protect those, especially children who live downstream from this proposed mine from the Mercury that will follow the waterways out of Minn. There must be some way to collect the chemical before it leaves the mine site, forever, not in a land based ground storage pit. DNR has a big job ahead of them. So many protections to human health, wildlife protections, environmental health protections, taxpayer protections, CleanWater Act Protections, Wild rice protections, etc Don't think a few jobs are worth it. Stop the PolyMet mine before it causes damage to Minnesota. Listen to independent, unbiased science. Sincerely, Mrs Mary Helen Stephens PO Box 1272 Valdez, AK 99686-1272

38936

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The financial assurance section of the SDEIS is inadequate and needs to be changed to reflect details about how much money would be required to pay for cleanup and in what form it would be held. In 2010, the US Environmental Protection Agency called PolyMet's first draft Environmental Impact Statement "inadequate." One significant reason was that the 2010 DEIS did not show that financial assurance would be enough to cover the cost of long-term water treatment at the site. "EPA believes that the adequacy of financial assurance for these activities could make the difference between a project adequately managed over the long-term by the site operator, or an unfunded or underfunded contaminated site that becomes a liability for the federal government and the public " As your revise the SDEIS, please take the following actions: 1) Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs in the current draft 2) Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for hundreds of years of water treatment 3) Identify other responsible parties (eg major investors like Glencore) that will be held responsible for long-term cleanup should PolyMet go bankrupt or be unable to meet their obligations 4) Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation for the what would constitute adequate treatment Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The DNR needs to give absolute assurance to Minnesota taxpayers that they will not be responsible for any problems in the future with the PolyMet SDEIS Mine.Without that given, the plan for the mine should not be allowed. Sincerely, Mrs Mary Helen Stephens PO Box 1272 Valdez, AK 99686-1272

Alphabetical by sender's first name

Mary Helen Stephens 38940

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I am an Alaskan resident but still revisit Minnesota at least once a year. I am concerned about the water studies necessary for your DNR to approve this mine. Water studies science can lead to different results. We have found that they are inaccurate in our proposed Pebble Mine up here in Alaska. We have found erroneous water science being pushed through our DEC to accept for the mine proposal. I want your DNR to be very careful with the science "proving" how this mine will be able to protect your northern waters with GUARANTEED assurance before moving forwaRd There is a lot at stake here - water carrying pollutants into the Boundary Waters to Lake Superior is not to be allowed at any possibility. Clean-ups are always impossible. Water carries everything along the routes, leaving deposits everywhere. I know you are aware of this, but the extractive folks are good only at extraction. They really do not have any, so far, capability of recovering product pollutants once lost into water. No way at all. It is common knowledge that Exxon recovered only about 1/10th of the 11,2 million gallons of crude oil they released into Prince William Sound. The rest is still showing up every year. Lake Superior doesn't just belong to Minnesota - it is a National Treasure. It needs to be protected for ALL of us - FOREVER. THANK YOU FOR LETTING A CARING ALASKAN EXPRESS HER CONCERNS. Sincerely, Mrs Mary Helen Stephens PO Box 1272 Valdez, AK 99686-1272

Alphabetical by sender's first name

Mary Helen Stephens 39011

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I certainly do not assume to be at all informed about the Glencore Company's Management history, but I see the name Tony Hayward listed as one sitting at the head of it. I only know him through the press at the time of the BP disaster in the Gulf of Mexico a few years back. I was totally not impressed with his skills at being a spokesman for BP nor of his ability to react under pressure. I recall his putting his loss of not being able to do what he wanted instead of taking care of his job ahead of taking care of the mess his company caused. I certainly do not have any confidence he would be any better if any accidents would occur in the beautiful Northern Minnesota country I remember enjoying. . The extractive industries - coal, gas, oil, mining - are pretty good at means of getting the desired substances out of the ground but have NO capability of doing anything when an accident occurs. We had our Exxon Valdez Oil Spill in Alaska-(I live in Valdez), the BP=Horizon disaster in off shore of our South's waters, the coal ash disruptions into the rivers of our country, storage tanks of chemicals leaking into waters used for human consumption. In no case were the companies able to recover the contaminating products. They really never include that aspect of contingency planning. But accidents happen because of poor planning and in every situation and people's health suffers, the environment suffers and they always say "We are sorry". Until we see GUARANTEES that NONE of the above WiLL HAPPEN, I cannot see allowing this mine plan moving forwaRd Thank you Sincerely, Mrs Mary Helen Stephens PO Box 1272 Valdez, AK 99686-1272

39132

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Ii would look more favorably toward the project of the proposed PolyMet if I could see a plan which considers the wildlife of Northern Minnesota. So far I do not see a reasonable plan to offer protection to the Moose population in Northern Minnesota. The moose are finally increasing their numbers up there and that is one issue I would like to see considered in their plans. Sincerely, Mrs Mary Helen Stephens PO Box 1272 Valdez, AK 99686-1272

Alphabetical by sender's first name

Mary Helen Stephens 39133

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. I live in Alaska but return to MN to visit my sister and her family every year. We have our problems with the proposed Pebble Mine and their plans. I am a bit involved with MN's proposed PolyMed Mine for a number of reasons. Up here water resources is a big issue = the possibility of the mining efforts to contaminate our waters and using an inordinate amount of available water. This mine in Northern Minnesota will use an inordinate amount of coal for powering the high use of electricity needed for their operations. In this day and age when we are striving for clean, renewable sources for energy and working toward cutting back on the use of more dirty coal for power, it appears to me to be off to a bad start in that given area. Our planet does not need a vast increased output of CO2- Please ask DNR to require PolyMet to find a better source of power and leave the coal industry out of the picture. Thank you I cannot get this to change the salutation at the bottom. I will sign off here.' Sincerely, Mary Helen Stephens PO Box 1272 Valdez, AK 99686 Sincerely, Mrs Mary Helen Stephens PO Box 1272 Valdez, AK 99686-1272

mary hoffman 47054

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to stop the PolyMet NorthMet sulfide mine. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1-Underground mining, looking at the full ore deposit and PolyMet's real costs; 2-Putting a liner under the Category 1 waste rock stockpile; 3-Placing all tailings on a new completely lined facility; 4-Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5-Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to protect irreplaceable wetlands and fresh water resources in the Lake Superior Basin for generations to come. Respectfuly yours, mary hoffman 12522 parkwood drive burnsville, MN 55337

Alphabetical by sender's first name

mary hoffman 47056

Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to stop the PolyMet NorthMet sulfide mine. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1- Underground mining, looking at the full ore deposit and PolyMet's real costs; 2- Putting a liner under the Category 1 waste rock stockpile; 3- Placing all tailings on a new completely lined facility; 4- Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5- Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to protect irreplaceable wetlands and fresh water resources in the Lake Superior Basin for generations to come. Respectfuly yours, mary hoffman 12522 parkwood drive burnsville, MN 55337

Mary Hogan 40333

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Mary Hogan 3076 S. Rodehaver Rd Guysville, OH 45735 US

Alphabetical by sender's first name

Mary Holm 39873

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. This is madness. Protect the Earth, don't rape it for the profit of a corporation and its shareholders. This kind of violence to our source, ripping it apart for materials to make objects which will in short order, relatively speaking, become obsolete, will only bring our own destruction. This mine will break forever the beauty of our North Woods, one of our most valuable industries in tourism and forestry products. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Mary Holm 5240 Kimberly Rd Minnetonka, MN 55345-4429

Mary Jane Manion 41601

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Mary Jane Nelson 54897

See attachment

Alphabetical by sender's first name

Mary Jo Kingston 35689

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. With the history of desecration of our clean forests, lakes and rivers perpetrated by mining companies, it is not unreasonable to wonder what the hurry is in opening this mine. A delay of 10 or 20 years before undertaking this project would allow development and proof that they have indeed found ways to mine these elements safely and without damage to the environment. Let them demonstrate on other sites just how safe it is and how the environment can be protected as they assert. We will only have one chance to get this right so tell them to go practice somewhere else and come back with evidence that the processes they are proposing actually work. There will be no opportunity for a do-over if they make a mistake. Sincerely, Mary Jo Kingston 7774 Lochmere Ter Edina, MN 55439-2618 (952) 944-9022

mary Jo straub 39886

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Those who live in the horrible drought conditions of the west know how extremely valuable water is, especially clean pristine water such as ours. Why on earth would we want to sully and poison our water gem. It's total insanity. No amount of jobs are worth ruining, or even risking the ruin of, our precious natural resource. The Boundary Waters--one of the wonders of the world. Invaluable. Lake Superior-an even greater possession. Why risk it. If people need jobs give them jobs through rebuilding our infrastructure and installing renewable energy. That could happen easily and quickly if the political will exists. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms mary Jo straub 4520 Andover Rd Edina, MN 55435-4032 (952) 922-2403

Mary Joy Breton 42735

See attachment

Mary Judd 36629

Mar 2, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Many aspects of the impact of the mining have been swept under the rug. Enough covering up has happened in various "schemes" for pushing through projects that hurt people, the earth, environment, and air that people are not so easily scammed as before. What the mining company says will not happen and what actually will happen are two different outcomes. Northern Minnesota is an unspoiled area of this world that is becoming a "novelty" not a common occurrence across the countries of this world. The pureness of this area will be destroyed, the waters will be polluted, the animals will be affected in the worst way possible, the flora and fauna will change, people will become ill. Studies on the factors affecting humans needs to be studied. More studies by environmental protectors need to be done and provided to the public without the results being altered. The people who are trying to push this project through are being paid off by the very companies who are wanting to destroy our state.. It is a dishonest and criminal act that needs to be stopped. Please let's be sensible about this ..the ore that is going to be mined is going to China What is that all about Please give the honest answers.. Sincerely, Miss Mary Judd 207 5th St SW Braham, MN 55006-3058

Alphabetical by sender's first name

Mary Kade 43268

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Please stop destroying environments that I want my future children to be able to utilize for educational and even just exploratory purposes. Save our communities. Sincerely, Mary Kade P.O. Box 396 Effingham, IL 62401

Mary Kamps 27394

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please block Polymet's oprn-pit sulfide ore mining project. It means quick profit for PolyMet and polluted waters across a wide swathe of Minnesota. We need to live within our means. Mary Kamps, Milwaukee Sincerely, Mary Kamps 3922 N Ridgefield Cir Milwaukee, WI 53211-2450 (414) 964-7128

Mary Kanuit 15923

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mary Kanuit 711stonebridge circle St Paul, MN 55123

Mary Kanut 11250

To whom it may concern: this proposed site or any site for that matter for mining is basically game over for our climate, for our Boundry Waters, our drinking water, air quality and the list goes on and on.. Oh did I say tourism . And for what More dirty energy, a few more jobs. When will the madness end Do you have any idea the impact to habitat, water quality, air quality, our tourism The 1st three we will never be able to get back once compromised .. I will fight against this to the bitter end PLEASE DO THE RIGHT THING-DO NOT LET THIS GO THROUGH Oh and I love how the report purposely leaves out pages. What do these pages contain that the DNR doesn't want people to see. Respectively, Mary Kanut Sent from my iPad

Alphabetical by sender's first name

Mary Kay Harris 44538

To the DNR, I hereby voice my opinion IN OPPOSITION to the proposed Polymet mine in NE MN. The much-touted advantages are short-lived, if that. In more likelihood they are illusory. Let’s protect one of the most beautiful places on the face of the earth and be proud that it lies within Minnesota. Mary Kay Harris, Librarian Hennepin County Library Disclaimer: Information in this message or an attachment may be government data and thereby subject to the Minnesota Government Data Practices Act, Minnesota Statutes, Chapter 13, may be subject to attorney-client or work product privilege, may be confidential, privileged, proprietary, or otherwise protected, and the unauthorized review, copying, retransmission, or other use or disclosure of the information is strictly prohibited. If you are not the intended recipient of this message, please immediately notify the sender of the transmission error and then promptly delete this message from your computer system.

Mary Klausen 37780

Mar 1, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Dirty energy is not the answer to our energy probleMs Wind and solar would create as many or more jobs for Americans and keep our air and water clean while keeping us in clean energy for the long haul - longer than 20 - 30 years AND no clean up to worry about saving billions of dollars in clean up and future health care costs to Minnesotans and the fish and wildlife (some of us eat fish and venison). Can't we just be smart and reasonable for once instead of getting yanked around by the promise of campaign funding or a trip to wherever Come on, it's time to get real and listen to the science. THERE IS NO CORRECT, GREEN, CLEAN, GOOD WAY TO SULFIDE MINE. PERIOD. THAT GOES FOR TAR SANDS OIL TOO. None of it will ever come to any good whatsoever and will only to serve to kill off tourism in Northern MN, one of the last pristine places on earth where man hasn't mucked it up yet. It's just the most unbelievable, ridiculous - can't even fathom it's actually being remotely considered idea I've ever imagined taking place in our watershed backyaRd Idiocy is too kind a word in this insane debacle. The cost to the environment will never be able to be recovered. EVER. Are we so self important that we can just wipe out what took millions of years to get that way for some freakin' copper, so we can build more shit to text more bullshit to each other while driving.. I can only hope reason will prevail before it's too late. The science has already been known since ancient times. You don't shit in your clean glass of water and then drink it. Sincerely, Mary Klausen Two Harbors MN Sincerely, Mary Klausen 404 Valley Rd Two Harbors, MN 55616-1480 (218) 834-2483

Mary Lagaard 38280

For 20 years my family has been spending some days between Christmas and New Years in the Boundary Waters Wilderness. We stay close to the hundred mile swamp which has been purported to be a filter for the run off from the holding ponds.This fragile ecosystem will be compromised by even low levels of uranium, radium, and radon. Additionally ground water supplies may be polluted by the listed materials. Minnesota's identity has been clean water. We loose not only an ecosystem, but a way of hunting, fishing, skiing, sledding, skating, kayaking which is part of our culture. Why can we not challenge ourselves to find a way to mine copper without water. - Mary Wotzka Lagaard, RN, CNP, DNP Assistant Professor 435 Whitby Hall Department of Nursing St Catherine University 2004 Randolph Street St Paul, Minnesota (651) 690-6126

Alphabetical by sender's first name

mary lawry 30511

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Have the proper environmental studies been done by an UNBIASED source. Open pit mining is a source of much pollution and destruction of environment. Have the company's methods of extracting content and proper handling of waste been reviewed. and their proposed response to any "accidental" discharge of same. the effect of said discharge on the environment. the cost to surrounding communities. Are the above in a written contract with a sizable monetary deposit (non-withdrawable) to begin cleanup of "accidental" discharges. What effects will Michigan and Wisconsin experience, since Lake Superior affects these States as well. Have you considered the drift of pollutants into the waters of the entire Great Lakes. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, mary lawry 903 N Hanover St Hastings, MI 49058-1327

Mary Lawson 39708

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mary Lawson 4801 Jay St Duluth, MN 55804-2463

Alphabetical by sender's first name

Mary Ledford 41779

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Mary Lein 39545

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Please do not begin the slow destruction of these beautiful wetlands, rivers, lakes, and streams in Minnesota. The impact on Minnesota's natural resources and public health, including risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Areas such as these must be preserved for all of the above reasons, and for future generations to love, appreciate, and enjoy. Reconsider your plans and leave this pristine beauty in tact. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mary Lein 81 Grande Isle Ave SW Rochester, MN 55902-3053 (507) 288-6009

Alphabetical by sender's first name

Mary Lein 40397

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Mary Lein 81 Grande Isle Ave SW 2612 Rochester, MN 55902 US

48777

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Please do not begin the slow destruction of these beautiful wetlands, rivers, lakes, and streams in Minnesota. The impact on Minnesota's natural resources and public health, including risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Areas such as these must be preserved for all of the above reasons, and for future generations to love, appreciate, and enjoy. Reconsider your plans and leave this pristine beauty in tact. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mary Lein 81 Grande Isle Ave SW Rochester, MN 55902-3053 (507) 288-6009

Alphabetical by sender's first name

MARY LINDEN 16048

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

MARY LINDEN 45543

To the staff taking comments on the Polymet Copper sulfide mine: For the last two weeks at work I have toiled in front of a copy of the EIS for the Northmet copper sulfide mine. I've looked at it of course, but I still come to the same conclusion. The mine should not be permitted in Northern Minnesota. Much of the water in northern Minnesota eventually flows toward Lake Superior. People obtain their drinking water from Lake Superior. It is one of the largest bodies of fresh water in the world. Fresh, clean water is infinitely precious in our overcrowded world. According to Mark Seeley, the state climatologist, Minnesota will face more of an impact from climate change than states at more southern latitudes. That could mean a disruption in our normal temperature and rainfall ranges. Is this a time to permit a Canadian company to come in to our state and endanger our water resources. I don't think so. The company says they will have a long wall to contain waste water down to the bedrock. Walls develop cracks over time. It has always happened and will happen again. I don't think the wall they build will last long enough to contain all the polluted water that is created. The company says they will force the polluted water through a filtration sheet, but these filters get gummed up, they clog, they can tear, they need constant maintenance. Who will maintain the filters and the wall after the company takes our minerals, makes their profit and leaves the state. To build such a mine near the Boundary Waters Canoe Area will bring additional development to the doorstep of an important Wilderness Area, degrading its pristine nature. Throughout the history of the United States, profiteers big and small have argued for and obtained the ability and the opportunity to exploit nature for their own benefit, leaving our natural heritage greatly diminished. This has to stop before we deplete the natural diversity that sustains us. The Polymet/ Northmet mining project is an excellent place for this exploitation to be stopped before it starts. In addition, the Native American people who rightly claim the authority to harvest wild rice, should not find lakes and waters that sustain them now, polluted by increased sulfides due to copper mining. Early in the debate about the mine the company reported that they would create new wetlands to make up for the ones they destroy during their project. To me it seems unlikely that a man-made wetland will ever truly replicate a natural wetland. Each place has its own unique mix of substrate, water chemistry, micro-organisms, plant and animal life. For example salamanders are thought to follow the same chemical trails to the same wetlands to breed every year. A man-made wetland somewhere else doesn't really accommodate them does it. While copper is used in industry and even in the plumbing of many homes in Minnesota, how much copper from the Northmet mine will be needed or used by Minnesotans. Polymet is a Canadian company with big contracts with China. Both countries have terrible pollution records: For Canada think of the Tar Sands project, or the clubbing of fur seal pups or the fact that when a Beluga Whale dies in the St Lawrence Seaway it's body is considered a hazardous waste because the water it lived in is so polluted. In China the air pollution is terrible, fragile lands are overgrazed, wildlife is exploited etc What do we want for Minnesota. Some people want mining jobs. I can understand wanting a job, especially one in the area where you are a resident. I would like to live surrounded by the beauty of Northern Minnesota, but I don't because I could never find a job up there. If there are no jobs in a certain region, the people there can make the choice to move to where there are more jobs. It sounds harsh, but people all over the globe are in motion looking for better opportunities, just as our immigrant ancestors did. Also people naturally see things with reference t

Mary Lou Hoff 42231

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Mary Lou Hoff 17844 Townline Rd Minnetonka, MN 55345-6147

Mary Lou Salawater 45115

Please do not allow Polymet to mine in Minnesota. Lots of money has recently been spent in efforts to clean up the St Louis river, why would we now allow a mining company to pollute it some more CRAZY we can do better things with our money if we would just try. Only a few will profit and we will all lose our natural resources. Our children deserve a world with less pollution. Sincerely, Mary Lou Salawater 70325 Caville Road Ashland, WI 54806

Alphabetical by sender's first name

Mary M Anderson 57932

Please Please Please do not allow toxic mining of copper-nickel sulfide! I am gravely concerned about irreversible damage to our amazing water RICH environment. Let's not make a mistake under Birch Lake! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Mary Manns 43695

Please don't allow Polymet to mine and destroy our beautiful north woods. Mary Manns

Mary Marcan 40207

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Mary McGilligan 9671

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, MARY MCGILLIGAN 814 5TH AVE TWO HARBORS, MN 55616

18537

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, MARY MCGILLIGAN 814 5TH AVE TWO HARBORS, MN 55616

Alphabetical by sender's first name

Mary McGilligan 19055

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: This is a very serious decision about to be made. I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, MARY MCGILLIGAN 814 5TH AVE TWO HARBORS, MN 55616 218-834-4891

42648

See attachment

Alphabetical by sender's first name

Mary McGilligan 50613

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, MARY MCGILLIGAN 814 5TH AVE TWO HARBORS, MN 55616

Mary Megan 41900

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Mary Megan 17180 Gannon Way W Rosemount, MN 55068-5136

Alphabetical by sender's first name

MARY MOCHINSKI 40616

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. WE SIMPLY CAN'T TRUST BIG BUSINESS TO PROTECT THE ENVIRONMENT SO WE MUST ALLWAYS BE VIGILANT. Sincerely, MARY MOCHINSKI 1829 10th Ave S Apt 9a Minneapolis, MN 55404-2005

Mary Ness 42654

See attachment

42655

See attachment

Alphabetical by sender's first name

Mary P Disch 44956

Mar 13, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. I have concerns about the pollution of waters where wild rice grows. Since wild rice moves around and does not stay in one area, it is crucial to protect the waters in areas beyond where wild rice is presently growing. Who will monitor these waters. I am concern about the present pollution in the former taconite mine area where Poly Met plans to mine. Will there be clean up of the site before Poly Met would be allowed to startup. Who pays for the cleanup. There seemed to be data that says there is already pollution into neighboring streams from the former taconite site at the planned Poly Met site. Are holding ponds for tailings and debris of Poly Met's mining lined underneath to prevent leaching into the groundwater. I saw plans for covering the mine debris and catching the runoff to filter, but I am unsure of what is under the tailings and the holding ponds to prevent leaching of toxins into the groundwater. How often are covers replaced as they deteriate over time. Is there plans for replacement of covers. Is the present plan to use reverse osmosis to clean the runoff a viable process. Has it been used and shown to prevent toxins and pollutants from entering water from the mining area. If the reverse osmosis process is put in place and fails to keep runoff within water quality standards, are there alternative methods to clean the runoff. Will enough money be collected from Poly Met to pay for the continuing cleanup of pollution of the water in the area and for how long. Who will pay these costs if Poly Met fails to. Will taxpayers pay for poor planning of cleanup costs. How accurate are models that project cleanup processes. Is there an ongoing monitoring that corrects the models to represent the reality of the pollution being created. Is there accurate monitoring of runoff and water in the area to check pollution levels. Who monitors. Self monitoring by some companies has not always been up to standards. Will Poly Met self monitor or is there monitoring by outside reliable sources. How thorough is the regulatory process in Minnesota. Is this type of monitoring water quality in regards to mining already in place in Minnesota and has it been able to prevent water pollution from exceeding standards and reduce pollution that exceeds standards. Will the surrounding residents be exposed to air pollution from the dust created by the mining and extraction process. Can there be more aggressive ways to recycle the many minerals that are thrown into landfills every day in Minnesota, before mining for more minerals. I have huge concerns about creating more pollution from Poly Met's planned mine. The St Louis watershed affects Lake Superior's water quality. We cannot afford to pollute the largest fresh water in the world. I am afraid allowing Poly Met's planned mining operation will open new mines closer to the Boundary Waters area, a very sensitive area needing high water quality. I am not in favor of mining in the Boundary Waters watershed. Minnesota needs clean water to protect our health and our lives and our fishing, birding, and tourism industries. Sincerely, Ms Mary P Disch 8308 York Ave N Brooklyn Park, MN 55443-2747 (763) 560-6793

mary q mccallum 44958

Hello. I am a concerned Minnesotan writing to voice my opposition to the Polymet mine. While I understand the economic boon it could create, I feel that this is very short sighted. There is simply not enough evidence to support this type of serious endeavor. The land, the water, the people, all need to be taken into account for the long term. We won’t get a second chance. With any sulfide mine there is risk of HYPERLINK "http://savethewildup-org/2007/01/acid-mines-are-never-safe/"acid mine drainage. Sulfide mining in water-intensive areas has never been done without contaminating surrounding waters. The proposed “NorthMet” mine site (near Hoyt Lakes) is part of the St Louis River watershed, which flows into Lake Superior. Groundwater would be contaminated in the mining process, the question is how badly and for how long. Pollution from acid mine drainage can persist indefinitely (HYPERLINK "http://savethewildup-org/issues/sulfide-mining-101/"2500-10,000 years). One of the best things about living in this state is it’s natural beauty, our access to natural resources for living, for recreation. YOU are the Department of Natural Resources. Once they are gone, they’re gone. I urge you for myself, for my children, and for the communities across this great state, to NOT proceed with any sulfide mining. Be heroes to all, not just to some. If you listen to the voice of the people, not the voice of the money, you will do the right thing. I say this as a MN resident, parent, small business owner, MN state tourist, voter, and fan of the great state of Minnesota in all it’s glory. Sincerely, Mary Quinn McCallum 1520 Fairmount Ave St Paul, MN 55105 tel: 612-968-0558

Alphabetical by sender's first name

Mary Rose Fillip 38891

Mar 11, 2014 Ms Lisa Fay MN Dear Ms Fay, Please carefully consider the world you are gifting to future generations. I tremendously enjoy seeing wildlife and the opportunity to get out into nature. With 500 years of toxic runoff, how would that be possible. The earth and its creatures are a gift, we are duty-bound to do our very best to protect it. The heading states "protect our water". I may not live in Minnesota, but those pristine places belong to all of us. They were set aside to remain pristine places so they would be there for future generations. I don't see why you believe you have the right to destroy that with your name scrawled with a pen. Even if you have no offspring to gift this legacy to, we your fellow Americans, intend on fighting for these pristine places. Last year, I received the greatest blessing in my life and took a five day Eco-journey to Ely, MN. During one of hikes I set my feet in the Boundary Waters; that experience gave me the drive to fight for those incredibly beautiful wild places. Please join me in the fight to keep these places pristine and do not fall under the spell of big mining business. If the people of MN need jobs, I propose Eco-tourism to bring others to see the magnificent wild places within in the boundaries of your great state. Blessings, Mary Rose Fillip Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mary Rose Fillip 7704 Creek Bnd Rockford, IL 61114-6668 (815) 520-2082

Mary Ruch 6547

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the EPA gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” I am very concerned about mining where spills and runoff can flow into Lake Superior or its tributaries. The recent water contamination from coal in West Virginia truly demonstrates how widespread pollution of waterways can be. Please ensure that the environmental impact studies are truly adequate and based on reasonable and truthful information. Sincerely Mary Ruch 1124 Nightingale Blvd Stillwater, MN 55082 651-253-4131

Alphabetical by sender's first name

Mary Rummel 41744

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Mary Scheibel 15805

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Mary Scheibel 5305 Elliot Ave Minneapolis, MN 55417-1741

Alphabetical by sender's first name

Mary Schoos 39348

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs Mary Schoos 21503 Arcadian Hill Rd Hancock, MI 49930-9696 (906) 370-0264

39375

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs Mary Schoos 21503 Arcadian Hill Rd Hancock, MI 49930-9696 (906) 370-0264

Mary Scott 58148

At the St Paul public hearing I heard some very troubling facts about the SDEIS. It seems that some very basic requirements are missing. In addition there is a complete lack of backup plans if there are accidents polluting the environment with these heavy metals. Polymet has a history of polluting through mining. Our water resources are the most precious of natural resources. 100% of sulfide mining around the world pollutes massively. Why would we even think of doing this type of mining at the heart of our fresh water that’s unparalled in the world? The wars of the not too distant future will be over fresh water. We must protect ours allowing this mine will not do that. It’s an unsound and far too distinctive to Minnesota.

Mary Sitko 18149

My name is Mary Sitko, M-A-R-Y, S-I-T-K-O. Thanks for the opportunity speak tonight. I work as regional sales manager for Pace Analytical. Pace is a nationwide network with certified environmental laboratories headquartered in Minneapolis, Minnesota. I also live in Minneapolis, Minnesota. We have two locations in Northern Minnesota in Virginia, Minnesota, as well. Pace supports the PolyMet project. We have worked with PolyMet for a number of years providing quality data in support of their environmental testing needs. Work from PolyMet has allowed us to expand operations in our Northern Minnesota laboratories as well as several high-quality, high-paying jobs to the area. We will continue to support PolyMet and other mining companies in Northern Minnesota. As they continue to grow, we plan to grow with them adding jobs to the area. Thank you.

Alphabetical by sender's first name

Mary Slattery 45240

Ms Llisa FAy, EIS Project Manager , Environmental Review Unit. So much has been written and discussed on the problems of sulfide mining in water rich environments such as ours, that Polymet needs to do further work to convince you that their mine will be safe. Water will only become more precious as time goes by and populations grow. I suggest that PolyMet put in escrow the full amount of money it would take to do their 500 years of water clean up by reverse osmosis ,before they are able to get a permit to make the hugh profits they expect to make from the mine. The Durka mine pits are not cleaned up yet, and no agency is demanding it be done. 20 years of jobs are not more important than our water.. We need to put as much effort to come up with solutions, and more creative efforts than we have so far, to ending unemployment. We might find answers if we put as much effort into that, as Polymet is putting into pushing the mines without viable solutions. Please continue to demand they give better answers to the problems that will be created. THank you ,Mary Slattery ,2105 E. Superior St , Duluth, Mn. 55812

Mary Smith 19026

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Mary Smith 13998 165TH St 13998 165th St LITTLE FALLS, MN 56345

Mary Sorensen 42435

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Mary Sorensen 3801 Vincent Ave N Minneapolis, MN 55412-1816

Alphabetical by sender's first name

Mary St. Michael 49434

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. • Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: • Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. • Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. • Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. • Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1- Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2- Assessment of potential impacts on residential wells from tailings seepage. 3- Health risk assessment for on-site workers at both the PolyMet mine and plant. 4- Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury in fish.

Alphabetical by sender's first name

Mary Suelflow 43964

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: My daughter lives in northern Minnesota and my husband and I enjoy getting back to nature when we go to visit her. She also rices in the area. Once you eat hand harvested wild rice from Minnesota lakes, you will never be able to eat commercial rice again. It would be a shame to lose this natural and healthy food to mining. I am amazed that destoying this area is even being considered. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mary Suelflow 508 Jewett Street Marshall, MN 56258

Alphabetical by sender's first name

Mary Suelflow 43966

Dear Ms Fay, Mr Bruner and Mr Dabney: My daughter lives in northern Minnesota and my husband and I enjoy getting back to nature when we go to visit her. She also rices in the area. Once you eat hand harvested wild rice from Minnesota lakes, you will never be able to eat commercial rice again. It would be a shame to lose this natural and healthy food to mining. I am amazed that destoying this area is even being considered. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mary Suelflow 508 Jewett Street Marshall, MN 56258

Alphabetical by sender's first name

Mary Suelflow 43985

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mary Suelflow Mary Suelflow 508 Jewett Street Marshall, MN 56258

43986

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mary Suelflow Mary Suelflow 508 Jewett Street Marshall, MN 56258

Alphabetical by sender's first name

Mary Tacheny 39736

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Mary Tacheny 200 Nolden Ln Jordan, MN 55352-1722 (952) 492-5964

Mary Tambornino 37814

Attached is a letter asking that the PolyMet Mining proposal be denied. I will put it in the mail to Lisa Fay tomorrow. She should have it by Monday. I am sending it by e mail to make sure it gets to you. Mary Tambornino 3852 Susan Lane Minnetonka, MN 55345 HYPERLINK "mailto:mary@lakecast-com"mary@lakecast-com Phone: 952-473-2972

54772

See attachment

Alphabetical by sender's first name

Mary Tennis 41664

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Mary Texer 39023

From: Mary Texer [mailto:mtexer@visi-com] Sent: Sunday, March 09, 2014 2:24 PM To: Stein, John (DOT); Stine, John (MPCA) Subject: Sulfide Mining - DO NOT PERMIT Mary E. Texer 113 Farrington Street St Paul, MN 55102 March 9, 2014 John Stein Commissioner Minnesota Pollution Control Agency 520 Lafayette Road No. St Paul, Mn 55155 RE: Sulfide Mining In The Boundary Waters and Lake Superior Watersheds – DO NOT PERMIT. Commissioner Stein: The request to allow sulfide mining in the Boundary Waters and Lake Superior Watersheds flies in the face of logic, documented environmental disasters and the science around this practice. We must not allow our environment and our water to be destroyed by this practice. It is our responsibility to defend and protect Minnesota’s resources in perpetuity. If sulfide mining is allowed to go forward it is not a matter of if but when the disaster will happen. By looking only short term we would ultimately destroy some of Minnesota’s greatest assets. There are other ways to address the needs for jobs in these areas. Thank you. Mary E. Texer Mary E. Texer

Alphabetical by sender's first name

Mary Texer 40766

From: Mary Texer [mailto:mtexer@visi-com] Sent: Sunday, March 09, 2014 2:17 PM To: Fay, Lisa (DNR) Subject: Sulfide Mining - DO NOT PERMIT Mary E. Texer 113 Farrington Street St Paul, MN 55102 March 9, 2014 Lisa Fay Environmental Impact Statement Manager Minnesota Department of Natural Resources 500 Lafayette Road St Paul, MN 55155-4025 RE: Sulfide Mining In The Boundary Waters and Lake Superior Watersheds – DO NOT PERMIT. Ms Fay: The request to allow sulfide mining in the Boundary Waters and Lake Superior Watersheds flies in the face of logic, documented environmental disasters and the science around this practice. We must not allow our environment and our water to be destroyed by this practice. It is our responsibility to defend and protect Minnesota's resources in perpetuity. If sulfide mining is allowed to go forward it is not a matter of if but when the disaster will happen. By looking only short term we would ultimately destroy some of Minnesota's greatest assets. The DNR is responsible for protecting the environment and up to now has done an excellent job. Please do not stop now. DO NOT ALLOW any sulfide mining permits. Thank you. Mary E. Texer Mary E. Texer

41110

Mary E. Texer 113 Farrington Street St Paul, MN 55102 March 9, 2014 Douglas Bruner Project Manager US Army Corps of Engineers Regulatory Branch, St Paul District 180 5th Street East, Suite 700 St Paul, MN 55101-1638 RE: Sulfide Mining In The Boundary Waters and Lake Superior Watersheds – DO NOT PERMIT. Mr Bruner: The request to allow sulfide mining in the Boundary Waters and Lake Superior Watersheds flies in the face of logic, documented environmental disasters and the science around this practice. We must not allow our environment and our water to be destroyed by this practice. It is our responsibility to defend and protect Minnesota's resources in perpetuity. If sulfide mining is allowed to go forward it is not a matter of if but when the disaster will happen. By looking only short term we would ultimately destroy some of Minnesota's greatest assets. There are other ways to address the needs for jobs in these areas. Thank you. Mary E. Texer Mary E. Texer

Mary Theresa Downing 47443

Dear Ms Fay, Dear Federal and State Agency Leaders: The PolyMet sulfide mine environmental study received a failing grade from the U.S Environmental Protection Agency in 2010 and nothing has changed. It is still inadequate. There is no analysis of effect of its pollution on workers or on nearby wells. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. How can a few hundred jobs lasting only 20 years be worth that price. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely Mary Theresa Downing 19522 Waterford Court Excelsior, MN 55331 952-470-1301

Mary Trippler 10359

My two major concerns are, first, the lack of real cost benefit analysis and, second, the lack of a definitive answer on who will pay the costs of clean up over the 500 years remediation will be necessary. The minerals are part of Minnesota's legacy, and it seems like Minnesota citizens should reap a benefit equal to the costs to our natural environment. But how many jobs will actually go to Minnesota's residents. What kind of jobs will they be. How long will the jobs laSt What kind of income do we earn from the leases. What kind of continuing income will come to the state from mining profits. It seems that the mining industry takes more than it gives in return to the detriment of the citizens of the state. As I understand it, remediation will be necessary for up to 500 years. What sums will be escrowed to cover those costs. What responsibilities will the mining companies have in perpetuity to care for the mess they leave behind. We who live here care about this state. What incentive does a foreign, for-profit corporation have in leaving the land and water safe and usable for those who come after us. Thank you. Mary Trippler 1931 Crestview Circle Excelsior MN. 55331 Sent from my iPad

Alphabetical by sender's first name

Mary Voight 20878

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: THE RISKS ARE TOO GREAT, just look at how many huge spills and leaks we have already experienced. Why continue to trust and hope "safe destruction" can be built. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mary Voight 951 McKnight Road South St Paul, MN 55119

49681

Dear Ms Fay, Mr Bruner and Mr Dabney: THE RISKS ARE TOO GREAT, just look at how many huge spills and leaks we have already experienced. Why continue to trust and hope "safe destruction" can be built. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Mary Voight 951 McKnight Road South St Paul, MN 55119

Mary Vollmar 42472

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Mary Vollmar 4945 3rd Ave S Minneapolis, MN 55419-5629

Mary White 46152

Mar 12, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I believe the Drs and Nurses. Forty-six Drs. and Nurses from the Duluth MN area have raised questions about the added chemicals into our air, soil, water and fish and how they may impact the quality of health for an entire region of the state. I don't believe the impact statement adequately addresses these concerns nor does it specify who will treat the polluted water and for how long. I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Mary White Clinton Avenue Minneapolis, MN 55419

Alphabetical by sender's first name

mary wilm 10406

Dear Lisa Fay and NorthMetSDEIS, My comment is that the SDEIS does not require the absolutely essential step which is to make absolutely certain that the nonferrous mining companies pay the costs of ongoing and final cleanup up front, before any more steps authorizing their mining leases, facilities etc It's too easy for them to liquidate through bankruptcy after the fact after ruining our water, Lake Superior and the BWCA lakes and rivers among other things. I think this assurance needs to be created as a state water trust fund which will generate interest or which goes into something like our state's general fund. In reading Rebecca Otto's Nov. 21 oped in the Star Trib, it sounds like 31 recently granted nonferrous mineral exploration leases also lack this environmental protection (WHY..), but back to the SDEIS. Why doesn't it include essential environmental protections. It reeks of pandering to the international mining companies at the expense our precious resource, a basic human necessity, water. I find myself as always when writing to advocate for WATER, our most precious resource, a basic human necessity, WHY don't the authors of the SDEIS and all other water users get this. These proposed nonferrous mining practices will create sulfates and acid drainage, as well as open the door to a myriad of greedy land and water exploiters. They are far too risky to exchange for the estimated 350 jobs. Please, let's get this one right. Thank you for this open comment period. Mary Lou Wilm

Mary Wolszon 46187

Thank you so much for your review of what is proposed by Polymet concerning Sulfite Mining. My name is Mary Wolszon. I live at 653 Lincoln Ave in St Paul, 55105- My husband's family owns a cabin in Northern Minnesota on the edge of the Boundary Waters. We go there every summer to enjoy life on Bear Island Lake and it's surroundings. My husband and I, when younger, went to the boundary waters every year with friends. I am opposed to the Polymet proposal for many reasons, primarily because it seems a poor trade off for a project with a 20 year life span verses a project that could harm a precious natural resource for possibly hundreds of years. It's not even primarily an American venture. This Canadian company, with Swiss backing, will be hard to go after if things go wrong. Company chair, Tolry Hayward, has a particularly bad history to be making proposals from. The proceeds from the waste tailings are to be placed in bins that I understand are already leaking. Even if not true, the potential for that in the future is very great. This project endangers many rivers as well, including Partridge and the Embarrass Rivers. The E.P.A. Identified hard rock mining as the largest toxic water processing industry in the country. The E.P.A. review of Polyment described it as inadequate and unacceptable. The history of sulfite mining in other areas is not good, associated with significant pollution. As a Minnesotan who goes to Ely often, I like what I see of how they are promoting eco-tourism. I believe many more jobs can be created in the long term if we have healthy forests and pure water ways. The Boundary Waters area is a national treasure. People come from all over to be in this environment which will become more of a treasure as the years go by, unless, by short sightedness, we fall for projects such as Polymet's, the Northmet Project and Twin Metals, LLC. I look for you all to be good stewards of our land and allow industry the opportunity to find more suitable sources of copper, nickel and other metals. Thank you.

Alphabetical by sender's first name

MaryAnna Foskett 40305

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, MaryAnna Foskett 101 Brantwood Road Arlington, MA 02476 US

maryc 19908

Hello DNR reps. We live in Houston County, too far south to be “directly” impacted by mining in northern Minnesota except that we use the north as our vacation, camping, hiking and biking getaways and we love the wild rice supplied to us by our Ojibwe neighbors to the north and we value clean water and healthy air in all parts of this state and scientists and geologists have noted that the PolyMet company can in no way guarantee the health and protection of the resources in northern Minnesota. Please deny this permit. The trade-offs are not worth it to us or our future generations. Thanks for hearing us out. Tim and Mary Crane Brownsville, MN 55919 tmcrane@acegroup.cc

MaryCarol Dart 40831

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this DIRECT DESTRUCTION OF HABITAT,sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms MaryCarol Dart 149 Western Ave Cambridge, MA 02139-3702 (517) 464-1111

Alphabetical by sender's first name

marycarols2 . 43212

Our northern Minnesota legislators and those supporting sulfide mining do not seem to seriously consider the implications of sulfide mining and its effects on the waters of Minnesota, a state that is known for its "10,000 Lakes." Our lakes, rivers, and streams define us. Will we show the rest of the world the protection of our waters comes first. Asking questions is not about being against mining or jobs. It is about being for the lakes and for the health of our citizens. Rep. Tom Rukavina was mistaken when he said, "This is a policy issue and not something for citizens to decide." Who has more right to decide than the citizens of Minnesota. Mining may provide some short-term jobs, but it can also drive away creative professionals and knowledge workers, destroy entrepreneurial culture, diminish quality of life and damage long-term economic vitality. Sulfide mining, as it exists today, is not safe. Minnesota could learn from the disasters that have occurred in other states and in other countries. Or are we required to have our own disaster. Why not wait until sulfide mining can be proven safe and done without damaging our waters. There would be 500 years of cleanup. Who will pay for that. Certainly not Polymet. Just imagine, in the year 2540, PolyMet is still standing by, guarding the water supply. It is far more likely, though, that after mine is no longer producing maximum profit, or maybe a little while after that, PolyMet, or its parent corporation, Glencore, will tire of pumping water and will just abandon the mine. We have a name for orphan mines like this — Superfund sites. Cynthia Peterson 518 N 23rd Ave W Duluth Let us put our minds together and see what kind of life we can make for our children. Sitting Bull

43255

Sulfide-ore mining would be seriously harmful to the North Woods, the Boundary Waters Canoe Area Wilderness, to our Northwoods economy, and to the quality of our lives. Since the last Ely mine closed in 1967 and mining employment in Minnesota dropped from 12-600 in 1980 to 5-600 today, Ely has seen an upswing in industries based on the natural beauty (Boundary Waters and Superior NF) including manufacturing, a large increase in summer home development with its associated construction jobs and ongoing service jobs and support of main street businesses, large upswing in retirees moving to the area and supporting main street businesses and local volunteer-run community groups, and new residents who telecommute and/or start new businesses. In fact, the 3-county Arrowhead area is above average in entrepreneurial and creative people. We have the necessary attributes to be successful and have a stable, sustainable, and diverse economy; this is happening organically now. By supporting our local businesses and encouraging people to move to the Northwoods because it is a great place to live, we can help the community to prosper. But the big problem is sulfide-ore mining. If current prospecting and mining holdings are developed, the Northwoods will be surrounded by a massive industrial mining district. The forests would be transformed and lost forever. No sulfide-ore mine has avoided extensive toxic pollution to waters, and the Northwoods is a high risk area for water pollution. At risk are more than numerous resorts, camps, and campgrounds downstream of sulfide-ore mining, as is the Boundary Waters. The path of pollution will flow into Basswood Lake, damaging a world-class fisheries and exposing humans to the toxic effects of methymercury. What will the Northwoods lose. Its economy (summer/winter tourism is an important part but the Northwoods' economy is broader and based on being a great place to live and the entire economy will be harmed) its culture, and its healthy waters and forests. the Northwoods will displace its current economy and much of its new population with the boom and bust of sulfide mining, social upheaval, and man-camps. Is mining inevitable. I think not. These are low grade deposits and are dependent on high prices and low costs. If China slows down, the numbers won't work unless the costs drop dramatically. The trend is for recycling (at least 1/3 of every product). All of this is the reason I say our Northwoods area is too valuable to gamble on the most toxic form of mining with little return and a lot of cost to us. Cynthia Peterson 518 N 23rd Ave W Duluth

43257

Northern Minnesota has a strong mining heritage. Iron Rangers have a right to be proud of their contribution to our country. But that contribution came at a price. One effect of mining has been the corresponding removal of other employment options. When the minerals are gone, the mines close, and there is little reason for other businesses to locate in areas stripped of a landscape that draws people to a community. Mining is the only option, but without minerals that option no longer exists either. Sulfide mining will not bring stability. The minerals are finite. When they are gone the mining areas will again be left struggling to find viable options. And this time our lakes will need perpetual treatment for acid and toxic heavy metals. Is this what we want for future generations. Let us assume for a moment that PolyMet manages against the odds — and they are really long odds — to contain all the sulfuric acid that it produces during mine operation. What happens when the mine closes. If Freedom Industries, the Department of Homeland Security and other government entities can't keep track of one storage tank in West Virginia for less than a quarter century, how are we going to keep track of a toxic site on Lake Superior for five centuries. Cynthia Peterson 518 N 23rd Ave W Duluth - Let us put our minds together and see what kind of life we can make for our children. Sitting Bull

Alphabetical by sender's first name

Marylee Fithian 40110

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Marylee Fithian 3735 Pillsbury Ave S Minneapolis, MN 55409-1220

marylougofcfp@aol.com 43230

AS A LONGTIME RESIDENT OF NORTHEASTERN MINNESOTA, I FIND IT IRONIC THAT WE ARE SPENDING MILLIONS OF DOLLARS IN RESTORING OUR POLLUTED WATERS, WHILE CONTEMPLATING A COPPER SULFATE MINE IN NORTHERN MINNESOTA. THE MINE HAS THE POTENTIAL TO DESTROY EFFORTS THAT ARE BEING UNDERTAKEN AT THIS TIME. THERE IS NO COPPER MINE IN EXISTENCE THAT HAS NOT HAD MAJOR EFFECTS IN DAMAGING THE ENVIRONMENT. WE WOULD BETTER OFF RECYCLING THE TONS OF PRECIOUS METALS THAT ARE BEING DUMPED IN LANDFILLS; AND IN THE PROCESS EMPLOYING PEOPLE IN AN INDUSTRY THAT RECLAIMS RATHER THAN ADDS TO THE DEVASTATION OF OUR ENVIRONMENT. THIS CORPORATION HAS NO ALLEGIANCE TO OUR STATE, AND AS A MULTINATIONAL WILL TAKE ITS PROFITS AND LEAVE US WITH THE RECLAMATION. PLEASE DENY THIS PERMIT.

Marylyn Irrgang 48170

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Marylyn Irrgang 170 Good Counsel Drive Mankato, MN 56001

Alphabetical by sender's first name

Mason and Gwen Myers 45918

Mason C. Myers - 12009 Hilloway Road West - Minnetonka, MN 55305 Email: salmyers@ix-netcom-com March 12, 2014 Douglas Bruner, US Army Corps of Engineers Lisa Fay, MNDNR Division of Ecological and Water Resources Tim Dabney, US Forest Service RE: PolyMet NorthMet Sulfide Mining SDEIS Dear Mr Bruner, Ms Fay, Mr Dabney, Thank you for the opportunity to comment on the Supplemental Draft Environmental Impact Statement for the proposed PolyMet NorthMet Mine. My comments are to the SDEIS and the Army Corps "Section 404" Clean Water Act Permit that would allow wetland destruction in the Superior National ForeSt My Background: I am a retired mechanical engineer, P.E., with 37 years practice in design of heavy equipment, bulk material handling systems, piping, plumbing, heating, ventilating and air conditioning. My association with the Boundary Waters almost antedates my birth because my parents canoed the area while teaching in Proctor.. MN, before they married. I now look forward to my 51st season at the family cabin in the Superior National Forest Summer Home Group on Hungry Jack Lake The PolyMet mine is the poster boy for many similar mines waiting to follow approval of it and the SDEIS will be the model for EIS' to follow. It is important that the document set a high standaRd The failure in EPA review of the original document and subsequent reports in the press and from reviews of environmental groups indicate that the SDEIS is a flawed document as follows: 1- Bedrock Fissures: Fissures in the bed rock that may open to the aquifer are incompletely and inaccurately mapped; better data is reported to be available from Canadian maps. I ASK that the SDEIS include accurate fissure mapping. 2- Reusing Storage Site: Sulfide process tailings will be stored on an existing taconite tailings site that is known already to be leaking to the environment. Sulfide leakage should be expected. 3- Storage Basins a: I attended the meeting in St Paul and saw the diagram of the proposed system of sealing the bottom of a storage basin. The diagram showed a subterranean geomembrane intended to prevent leakage down to the aquifer and another geomembrane covering the pile to prevent rain from entering it. Very little made by man has survived 200 years and I doubt these membranes have been so tested. The cover is available for replacement but the underground one is not. The protection intended seems inadequate. I ASK that the SDEIS include consideration of leakage control with a punctured underground membrane. 4- Storage Basins b: I understand the SDEIS does not address the possible failure of storage site containment methods, whereas the history of containing dangerous materials is a litany of failure. Note particularly boiler fly ash in Kentucky, coal treating chemicals in West Virginia, above ground nuclear waste in Hanford, OR and liquid manure in countless Confined Animal Feeding Operations. Failure should be expected at this site sometime in 200 years, if not during actual operations. I ASK that the SDEIS Consider modes of failure and demonstrate capability to respond so as to protect the environment. 5- Model Flaw: The design model makes assumptions that seem intended to deliver the desired result, for instance, that 90% of drainage from storage basins will be captured and delivered to a treatment facility. This would require that underground piping would be installed and maintained so as not to fail in 200 years. It seems an overoptimistic assumption. Recall that the Canadian company Enbridge's failure record for its underground piping is not enviable. I ASK that the SDEIS include the costs of repairing/replacing the system piping at 30 year intervals to account for breakage due to settlement of the piles. 6- Reverse Osmosis: I encountered the reverse osmosis process on an office building project where it was considered for pretreating humidification water. I learned that the product stream is about 10% of the input, the concentrated 9

mason burch 41614

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, mason burch Steen, Minnesota

Alphabetical by sender's first name

Mason C and Gwen S Myers 21552

Gwen Salisbury Myers 12009 Hilloway Road West Minnetonka, Minnesota 55305 March 4, 2014 Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, Minnesota 55155-4025 Re: PolyMet NorthMet Sulfide Mining SDEIS Dear Ms Fay: Thank you for the opportunity to comment on the Supplemental Draft Environmental Impact Statement on the PolyMet Project. I have many concerns about this project and find the SDEIS to be completely inadequate, leaving me with endless questions. To focus on one area of concern, the proposed project, located in the Lake Superior watershed, will destroy or degrade thousands of acres of high-quality wetlands and cause permanent water pollution with sulfuric acid and toxic wastes. To be specific, the PolyMet Project would completely destroy 912 acres of wetlands, 65% of which the DNR describes as high-quality. High quality wetlands, such as the coniferous bog wetlands that make up 56% of the wetlands impacted, have a rich diversity of plants and provide a range of services to the ecosystem. These include reducing the severity of floods, water filtration, carbon sequestration and animal habitat. In addition to the 912 acres, the SDEIS admits that an additional 7,351 acres of wetlands would be degraded due to air and water pollution, mine dewatering and diverting water from wetlands. This could be the largest single wetland loss ever proposed in Minnesota. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been unchanged for thousands of years and are important for water quality and for habitat for moose, lynx and other at-risk species. In addition, these wetlands bind up mercury, thus protecting the fish downstream and prevent further harm to the brain development of our children who eat fish from the St Louis River and Lake Superior. The wetlands that would be destroyed or harmed by the PolyMet mine are water resources of national and international importance. Though the environmental review process should propose alternatives, nothing is suggested to reduce impacts to wetlands in the SDEIS. The required wetland replacement for this loss is completely inadequate. There is no mitigation for the indirect wetland destruction and 2/3 of the replacement wetlands are outside the Lake Superior watershed. Under the circumstances, please: (1) Reject the PolyMet proposal due to unacceptable impacts on wetlands and water resources; (2) Reject the PolyMet SDEIS due to the fact that there are no alternatives proposed that would reduce this harm; (3) Deny the PolyMet Section 404 permit unless all replacement wetlands are in the Lake Superior watershed; and (4) Require the SDEIS to be redone to analyze alternatives that would avoid, minimize or mitigate impacts on the Partridge River watershed. In sum, please reject PolyMet’s SDEIS as inadequate and reject PolyMet’s copper/nickel “sulfide” mining plan. Very truly yours, Gwen S. Myers

Mason C Myers 58131

The Polymet Mine Proposal threatens water purity of northeastern Minnesota and paves the way for additional mine proposals waiting off stage. Consider.1. Protective measures consists of products and equipment made by man which we are asked to believe will serve for hundreds of years. In face nothing man-made has lasted 500 years, most have crumbled in less than 2002. Review of the EIS shows that the supporting technology is based on incomplete mineral data and inaccurate water modeling data.3. No hard rock mine to date has failed to deliver and to the environment. Why has not this new technology been rushed to field testing on an existing mine to prove its worth?Is Minnesota’s pure water supply to be the test medium for unproven technology? NO WAY. Technical preparation for protection is incomplete so we are not ready for full scale mining now. The project should be denied!

Mathews Hollinshead 28646

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Launching sulfuric acid into northern MN aquifers and watersheds is self-evidently stupid and immoral on any number of grounds that are being well-documented by qualified parties. A 500-year event horizon for sulfide waste might as well be nuclear. That's the level of arrogant idiocy we're contemplating. What's driving it of course is greed, not science or reality. Minnesota's tourism industry and general health apparently count for nothing against a few unions who know the mining jobs probably won't even be union jobs, and shell mining companies that have nothing else to do with MN. Humans can live without copper, but not without water. For those supporters who want me to "prove" my honesty by giving up my cell phone because it may contain copper I ask, do they wear cotton. I bet that in 1860, slavery supporters said there'd be no cotton without slavery. So, miners, if you wear cotton, you must support slavery, right. There will be no positive jobs, union or otherwise, in the giant superfund site this will become. The only work will be monitoring and vainly trying to make things appear as if the damages can be cleaned up. All the rest of us schmucks will have to show is our escalating tax bills and the far-off memory of a time when you could actually use the water in northern MN. Sincerely, Mathews Hollinshead 2114 Pinehurst Ave Saint Paul, MN 55116-1315 (651) 698-0260

Alphabetical by sender's first name

Matt Anderson 43122

I am writing to express concern about the Northmet Mining Project and Land Exchange. I attended the public informational meeting at the St Paul Rivercentre and heard comments both for and against the proposal. But it seems pretty clear that this deal is not worth the price. It just seems that 20 years of employment is not worth basically permanent damage to an important part of this state. Drier areas like Arizona may provide reasonable risk for similar projects. But recent accidents in North Dakota, West Virginia, and the Gulf of Mexico prove these operations are not reliable. Any contamination of the surface or groundwater in northern Minnesota has the potential to spread and include areas far from the mining site. Glencore has a history of lack of concern for human rights, as well as environmental protection. A little searching quickly turns up a number of disturbing articles about Glencore projects in places like Columbia, Bolivia, Zambia, Ecuador, and the Democratic Republic of the Congo. Here are a few quotes from these articles: In a remarkably robust comment, [The Times Business Editor, Ian King] damned Glencore as " a business with dubious morals. It trades grain amid food riots and has been accused of profiteering and environmental offences in numerous poor and war-torn countries". He went on: "Most of those signing up to buy shares in Glencore's flotation are major Middle Eastern and Far Eastern investors. Few of the traditional City institutions will touch the shares with a bargepole " http://moneytometal-org/index.php/Glencore The giant commodity company remained controversial even after Marc Rich left in 1994- The Daily Mail called Glencore "morally dubious" in an article Zambia accused the powerful company for trying to manipulate the financial accounts to reduce the taxes and "deliberately depriving that poverty-stricken nation of much-needed income." The article also pointed out that the company sold to African dictators, Cuban communists and South Africa during the apartheid. The controversy that Rich had brought to the company trailed on after he had left Glencore. http://www.globaljournalist-org/stories/2013/11/22/profile-glencore-in-zambia/ In Australia, Glencore Xstrata has been facing accusations that its Mount Asa smelter in Queensland is responsible for elevated blood levels of lead in children living nearby. In one lawsuit brought on behalf of a six-year-old girl, the plaintiff's lawyers successfully pressured the company to hand over internal documents about the matter. The case is pending. http://www.wri-irg-org/node/22681 It seems like Minnesota should not allow a company like this to damage any part of our state. Thank you for the opportunity to comment on this proposal. Sincerely, Matt Anderson 1875 Oxford St N Roseville, MN 55113

Alphabetical by sender's first name

Matt Beachey 38745

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Matt Bollis 38927

DNR I urge you not to accept the SEIS regarding PolyMet for the following reasons I do not think it is in the best interest for the citizens of Minnesota to be responsible for future tax burden as a result of cleanup costs for pollution that will result from poly mets project. The reason I am so concerned about this, in spite of poly met saying that they would be responsible, is that the financial assurances need to remain in place for an extreme amount of time. Financial assurances that need to be in place for 200 to 500 years have not ever been proven. Have there ever been any financial assurance vehicles that have been tested or proven effective for 500 years. I understand that the financial assurance part of this project is actually looked at in the permitting stage, but I strongly feel it is important that it is addressed here as well. The land swap between the forest service and poly met in my mind needs to have its own separate review. The proper amount of time needs to be allotted to this important piece of poly mets project. It cannot be lumped together and hurried through. The use of the national forest has restrictions put on it for a reason. We need to respect that and not put the needs of a corporation ahead of the rights of the citizens of the United States. We were personally involved in a land trade with the federal government. Our land trade took 12 years to go through and it was to trade lakeshore recreational property which was already in use and leased for that purpose. I feel it is a mistake for us to make this trade which would allow non ferrous mining to be done in our national Forrest without a longer period of time for public comment and education on this important change of use. It just does not make logical sense, unless a for profit corporations project does not need to have the same scrutiny as an individual. There is some discrepancy as to the amount of water being released from the project. I would believe the tolerances were put into the model for a good reason therefore it would make sense that the correct numbers be put in and the model be rerun. This is an important part of the EIS. In order to protect our citizens it is only responsible to redo the calculations and do a revision of the model. I am a concerned citizen, who loves this part of Minnesota, and is very troubled by the potential harm this type of mining could bring to northern Minnesota. I believe this harm will not only come to the earth but also would be damaging to the already established tourism environment of that area. This includes businesses as well as cabin owners. The related jobs, as well as construction jobs, taxes and other benefits this tourism economy and vacation home industry brings to the state is sustainable and can be grown. I do not believe that the current tourism economy and vacation home industry could flourish side by side with the nonferrous mining economy which brings pollution and greater industrialization to this unique part of our country. The following are items I would like the DNR to fix in PolyMets mine plan Plan to account for the destruction of moose habitat as well as other natural habitat for the Canadian lynx Plan should call for a detailed plan for financial assurances that protect current and future taxpayers Plan should accurately assess health risks to the public Address the risks of mercury pollution for our children as well as future generations Plan should improve wetland protection and replacements Provide Minnesotans with accurate information about how long polluted waters will require treatment Glencore must be recognized as a responsible party for permitting because of its ties with PolyMet Fix the inaccurate water data used in the model and redo the water model In conclusion it is my opinion that the few hundred jobs and monetary gain for a corporation is not worth the perpetual damage and pollution nonferrous mining will cause to Minnesota's environment. Ou

Matt Dahlhauser 22160

Say NO to the proposed mine plan. Matthew Dahlhauser Senior Project Manager HYPERLINK "http://qtcommercial-com/"cid:image001-jpg@01CE6205-1B437F90 6909 Winnetka Ave N Brooklyn Park, MN 55428 HYPERLINK "http://www.qtcommercial-com/"www.qtcommercial-com O: 763-535-5831 C: 612-290-3155 F: 763-971-9883 HYPERLINK "http://www.facebook-com/pages/QT-Commercial-Roofing-and-Construction/142322269183468"cid:image002-png@01CD65CF.A5A2ADB0HYPERLINK "http://www.linkedin-com/company/quality-trusted-commercial-roofing-inc"cid:image003-png@01CD65CF.A5A2ADB0HYPERLINK "http://r20-rs6-net/tn.jsp.llr=od7t9xiabandet=1108901970510ands=0ande=001sXjGGN0kRd8ZtiUzI2rjeKbsSRQ0FokGRL4i8L62MAPbE_RVnFchq6_NdKYPvN0yJxgNJftMWQlvbn14xQGjb1a8rQaexYoUXwvUHLqiJaUOfX3zULa6GJWn0eVro5vO"cid:image004-png@01CD65CF.A5A2ADB0

Alphabetical by sender's first name

Matt Englund 38777

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Matt Goblish 41874

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Matt Goblish Maple Grove, Minnesota

Alphabetical by sender's first name

Matt Goodman 14483

Dear Minnesota Department of Natural Resources, I would like to express my dissatisfaction with the SDEIS, the proposed PolyMet/NorthMet mine actions, as well as the proposed USFS land exchange. I believe that the costs far outweigh the benefits. The aesthetic toll cannot be measured and the economic benefits are negligible. Please, take another look at the online aerial imagery of the current/former mining sites on the Iron Range. Zoom out to see the entire state and then zoom back in to the Iron Range. This is what we have done to our land, for better or for worse. Next, imagine a drive through one of these towns. The impression one gets is that something big happened here, and whatever it was, it left a lot of destruction in its wake. Not only is the land is permanently scarred - especially aesthetically - but the economy is so depressed. In fact, the only thing that seems to be able to inject a little life back into these Iron Range cities is another shot of mining, which only starts the vicious cycle over again. The only real benefit being touted by this proposed mining operation is economic and the anticipated impact is impressively feeble, especially in consideration of the scars that will be left behind. Won't this operation simply create another false/temporary economy. So what if 500 people have decent paying jobs for 20 years. When the jig is up, they'll find themselves jobless in a economically depressed wasteland. Minnesota has to stop sacrificing its land for a few meager (and essentially temporary) jobs. If these truly are our natural resources (the state tax-payers), then my vote is to please leave them where they are, in the ground. I appreciate your consideration, Matt Goodman 321 Minneapolis Ave Duluth, MN 55803

Matt Johansen 41560

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Matt Johnson 19070

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Matt Johnson 3243 Grand Ave S Apt #1 Minneapolis, MN 55408 6122985509

41833

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Matt Johnson 3243 Grand Ave S # 1 Minneapolis, MN 55408-3708 (612) 298-5509

43447

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Matt Johnson 3243 Grand Ave S Apt #1 Minneapolis, MN 55408

Alphabetical by sender's first name

Matt Jones 21

To whom it may concern, I wanted to express my concerns for the future of the Boundary Waters Canoe Area. The Boundary Waters is one of Minnesota's greatest treasure. It is one of the hallmarks of our state. It is a far more valuable resource than the sulfides that it contains. This is in both an economic and sentimental sense. The preservation of the beauty of the Boundary Waters guarantees tourism revenue for as long as we can preserve it, which is undoubtedly significantly longer than the mining will laSt Whats more, I have many personal memories in the boundary waters and I want my children to have the same experiences that I had. I do not want to see Minnesota turn into a state that permanently destroys its beautiful wilderness for short lived economic benefit; we are better than that. Thanks, -Matt Jones

Matt Lauseng 40236

HI, I would like to take a minuet to voice my support in the Polymet mine project. I have read the summery SDEIS report. I find no reason to hold this project up further. From what I see in the report the home work has been done and all effects to the environment have been looked at. I attended two of the three hearings and did not hear any anything that would give me concern with this mine. I can see this being a good thing for the people and businesses in the area. Some sacrifices will be made yes, but they are minimal when the size of the payoff for the area are taken into account. I live, hunt, fish, and raise a family in the area and would be one of the first people to stand up against this if it appeared to be a bad thing for the area. I wouldn't want my home destroyed in any way. Please don't allow influence from groups outside the area or ones in areas that this will not affect to put a stop to a greatly needed expansion of mining on the iron range. Thank You. Matt Lauseng 100 4th Ave N #358 Biwabik, MN 55708

Matt Miller 22128

Good day, My name is Matt Miller. I work for B. Miller Products in Hibbing, MN, and reside here as well. We are a 3rd generation family run company that supplies building maintenance and industrial supplies to businesses in the Northland. Northern Minnesota is rich in natural resources, and mining has been a way of life here for many generations. With the combination of today's strict state and federal regulations, I think this is the best place to pursue the Polymet project and this new era of mining in general. I trust and have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. The positive effects from a project of this magnitude have on our region and state, far outway any negative. We cannot afford to miss this job opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. Let's make this project a reality. Thank you for your time and support of this project. - Matt Matt Miller cid:644412017@02102013-1EE2 ESt 1960 Janitorial – Paper – Cleaning Equipment and Repair – Safety 218-263-8958 Hibbing Office 218-263-8583 Fax 218-969-5563 mobile phone HYPERLINK "mailto:mrmiller@bmillerproducts-com"mrmiller@bmillerproducts-com HYPERLINK "http://www.bmillerproducts-com/"www.bmillerproducts-com cid:644412017@02102013-1EE9

Matt Mlinar 38879

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I believe that the PolyMet mining project can be done in an environmentally sound manner. One of the safest sulfide mining operations in the world is being constructed in Upper Michigan and I believe that will also result in an environmentally sound mining operation. I urge you to please look at facts, not fear. The excuse "it's never been done before" draws upon horrible examples of past operations that are not a true indicator of mining today. I've worked at mining operations in Minnesota and copper-nickel-sulfide research and I believe mining this reserve IS in Minnesota's best intereSt Sincerely, Mr Matt Mlinar 19337 N Gama Beach Rd Grand Rapids, MN 55744-4966 (906) 361-5432

Alphabetical by sender's first name

matt pearsom 41597

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, matt pearsom minneapolis, Minnesota

Matt Schmitt 58147

I feel this is a bad idea for many reasons and should not be allowed.The following are just a few of my reasons.1) Production of Sulfide Acid.2) Never has there been a copper/nickel mine anywhere in the world that has not polluted water.3) Polymet has never operated a mining operation.4) The mine would be located 20 miles upstream from the largest fresh water lake in the world.5) 20 years of mining with 500 years of monitoring is an unrealistic thought.6) Threat to thousands of jobs in the recreational and tourist industry over the next 200 years,for a handful of 20 year mining jobs.

Matt Slawson 41598

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Matt Slawson Burnsville, Minnesota

Alphabetical by sender's first name

Matt Straw 3474

Dec 21, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Mining companies: NEVER hire as many people as they say they will, and the jobs are impermanent, creating a future unemployment problem. NEVER clean up after themselves, leaving a toxic, deadly mess for taxpayers to deal with for decades-sometimes centuries. NEVER aid tourism in the states or local areas where they are allowed to mine. NEVER end up having a positive effect on any economies, local or otherwise, in the long run. NEVER find less invasive or less toxic methods to mine, always opting for larger equipment, fewer employees, faster methods, and a much wider impact in terms of carbon footprints and environmental destruction-that's what they call "progress." Five hundred years ago, there was no United States. America had just been discovered. Most Europeans thought the world was flat. Expecting Minnesota to keep those chemicals from poisoning an entire region for 500 years is nothing short of absuRd Nothing short of pure, stupid greed. You should be forcing mining companies to develop less invasive methods for smaller profits doled out over much, much longer periods of time, rather than allowing that tiny tail to wag an entire state. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Matt Straw 315 Bluff Ave Brainerd, MN 56401-2648 (218) 828-8136

51658

Dec 21, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Mining companies: NEVER hire as many people as they say they will, and the jobs are impermanent, creating a future unemployment problem. NEVER clean up after themselves, leaving a toxic, deadly mess for taxpayers to deal with for decades-sometimes centuries. NEVER aid tourism in the states or local areas where they are allowed to mine. NEVER end up having a positive effect on any economies, local or otherwise, in the long run. NEVER find less invasive or less toxic methods to mine, always opting for larger equipment, fewer employees, faster methods, and a much wider impact in terms of carbon footprints and environmental destruction-that's what they call "progress." Five hundred years ago, there was no United States. America had just been discovered. Most Europeans thought the world was flat. Expecting Minnesota to keep those chemicals from poisoning an entire region for 500 years is nothing short of absuRd Nothing short of pure, stupid greed. You should be forcing mining companies to develop less invasive methods for smaller profits doled out over much, much longer periods of time, rather than allowing that tiny tail to wag an entire state. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Matt Straw 315 Bluff Ave Brainerd, MN 56401-2648 (218) 828-8136

54136

I do nto believe the potential for 500 years of poisoned water, ruined tourism, destroyed habitat, and ravaged state and local economies is a good trade for any benefits from any mine. Water is life. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

matt tuccitto 47428

My name is Matt Tuccitto, age 35, and I have lived in Minnesota my entire life including 4 years of college at Gustavus Adolphus College in St Peter, MN. I've done my best over the last few years to gather all information available on this project and the answer seems simple: issue Polymet a permit. I love the outdoors and have visited the BWCA 30+ times this mine plan will NOT harm the water in northern MN. The management of Polymet is capable of making this project great for MN. Northern MN is struggling and there are almost 0 jobs available for college educated people. This is tearing children and grandchildren away from grandparents who live in Northern MN. Our state has a valuable resource located beneath the surface (copper, nickel, platinum, etc) and its our job to extract it as environmentally friendly and responsible as possible. Polymet mining will ensure that is done. Its time to make MN great again and attract tax paying families and corporations from other states similar to what North Dakota has accomplished in the last 10 years. GRANT POLYMET A PERMIT, they will not disappoint. Regards, Matt Tuccitto

Alphabetical by sender's first name

Matt Tyler 18084

Hello. I'm Matt Tyler, T-Y-L-E-R, and I live in Finland, Minnesota, and I want to thank all my union brothers and sisters for coming out tonight. I see a lot of folks in the audience. Although I'm not currently in a union, I grew up in a union family and I know that union wages helped pay for my college, and I got a degree in natural resources and forestry and so I'm reasonably scientifically literate, and I agree with a lot of what's been said here, David Dill and others, that we really should be paying attention to the data, and we have to make decisions based on data, not on emotion. I think -- I think that's sound. But having read through this, I've seen a lot of things that are pretty questionable, and I have friends that are professional hydrogeologists that clean up EPA superfund sites and I've looked at it with them and they've said, "Well, you know, there's not enough wells here, there's – they didn't do this right, they didn't do" -- there's a number of things they pointed out, and one thing I'd want to focus on is that something that's not been talked about is that this SDEIS, if you actually work through it, didn't have any analysis of worker safety in there. Now, in a lot of other SDEISes for other projects, like when they redid the nuclear plant down in Monticello, they had that in there. When they've done environmental cleanup cases from Chevron, they've looked at worker safety. Now, they looked at, you know, what might happen with residents of Hoyt Lakes, but they haven't actually looked at worker safety in here and I think that's pretty grossly inadequate. I think, also, we know that that study came from out from of U of M recently about, you know, mesothelioma and so forth, and we know that a lot of folks on the Range who worked in the mines got mesothelioma about three times more often than average folks and I lived near Silver Bay, and I've had a lot of friends that have worked in the mines over the years and I've seen some people die of that. They were from strokes and heart attacks, and so I think we have to look at this critically and one of the reasons they might not have put worker safety in there is because their own data in the SDEIS, page 5 -- 439 -- to 4 – 438 to 439, points out that about nine percent of the ore tailing and process water have those asbestos-like fibers in them, and you know, they didn't really look at what's that going to go to folks in the plant. They didn't really look at what the air treatment mechanisms are going to be. So I think before we sign up on this, we should really think critically about that and we should with be skeptical, because, you know, the companies aren't always right. They don't always honor your pensions. They don't always admit to stuff. Thank you.

18354

My name is Matt Tyler and I live in Finland, Minnesota and I am a professional enforcer by trade, so I am involved in resource extractions. And I do believe that we should use our resources.Having said that, we have to use them responsibly. The enforcer's credo is, you know, "The greatest good for the greatest number for the long-term." If I look at this proposal from that perspective, I don't really see it meeting that test.I think if you looked at the EISes before, very, very rarely do you see an EIS that has its own chapter where the agencies say, "We disagree with this, we disagree with this, we disagree with this." If you look at Appendix C, it is about 250 or 200 pages of the tribe saying all of the things that are wrong with the EIS, based on science and citations with their own models.Now, if we are going to say that that is adequate, and we have that much dissent, then that is purely illogical and ridiculous.The other thing that I want to say is I live right next to the taconite, you know, I live next to Silver Bay. And a lot of my friends and neighbors work in the plant over there. And, you know, it's been good to us and it's been bad for us, you know.And I think one thing that doesn't get talked about a lot, you know, is the mesothelioma and the increased risk of heart attack and stroke, you know, that a lot of people have experienced. And that is not really reflected in here very well.Someone earlier said that the risks are basically left out on purpose to detract (phonetic) from telling other people or from pointing this out on what they used to base those models. No other EIS has this little mention in it to workers' safety.Now, I would like to thank all of my union brothers and sisters for coming down here, but to be fair, I don't think the union movement existed to call for a project that is not safe for workers.I would encourage the folks to say, you know, "Until we fix these worker safety issues and until we get a project labor agreement for the adequate operation of this land," we shouldn't be endorsing it.So, you know, I just want to put that out there and say I'm not against mining, but this mine, this mine is a bad deal for the workers, it's a bad deal for our community, it's a bad deal for the taxpayers.And since I am also supposed to say something also substantial about the wetlands,I will just point out, the way they analyzed the wetlands impact on this thing is kind of ridiculous. I am friends with a professional hydrologist and he has told me time and time again, if you want to look at a wetlands study, you have to do a hydrological study, do a pump test, you have to do a laser test. They didn't do that. Why? Because they were lazy. They wanted to rush to get this done, and now it is still incomplete. The reason it takes such a long time is because it is a good project, it's a regular study (phonetic), it's because it is a bad mine.And thank you.

Alphabetical by sender's first name

Matt Tyler 42895

Ms Fey, Mr Jimenez, and Mr Brunner, Attached, please find a technical memo I developed to comment on Financial Assurance in the PolyMet NorthMet SDEIS. My key findings include: * The annual long-term operating and maintenance post-closure cost estimates in the PolyMet SDEIS are significantly lower than the lowest estimates calculated from published estimates for similar reverse osmosis plants on the LTV property. This is a significant problem. Independent estimates of long-term annual OandM post-closure costs range from $6-1 to $10-6 million. * Lacking specific, detailed treatment water treatment plant plans specific to the NorthMet Project, there is still considerable uncertainty about annual long-term treatment costs. * Stochastic simulation of volatile investment returns and inflation rates show that the minimum beginning balance for the Long Term Treatment Fund required to ensure water treatment for 500 years after closure is between $333 and $694 million. * The Long Term Treatment Fund set aside is above and beyond the estimated $50-$200 million mine closure and reclamation cost estimates in the SDEIS (SDEIS, pg. 3-138). The SDEIS also fails to include an estimate of a financial assurance funds for accidents, natural disasters, and other unforeseen events. Not including additional contingency funds, the total financial assurance package should be at least $383-$700 million. Please acknowledge receipt of this email and technical Memo. Thank you, Matt Tyler Professional Consulting Forester PO BOX 511, Finland, MN 55603

Matt Zimmerman 54361

Dear Ms. Lisa Fay, EIS Project Manager,I think that PolyMet Mining has a great plan for the reduction of environmental side effects and the output of ore. They appear to be trying to limit cultural and environmental damage through engineering.This mining would greatly benefit our state. It would create numerous jobs and help boost our economy. It would offer a lot of potential for future copper mines and would be one of the most productive.The apparent lack of disadvantages is a point that proves that PolyMet has a lot of experience in 1nining and limiting damage. The advantages of such a plan would be more jobs, money, copper production and mining in the state.This will have a 1ninimal impact on cultural resources in the area. It might affect a segment of the Mesabi Widjiu. Other than that it wouldn't affect important cultural resources that are valuable to America.The land exchange offers seem fair. They appear to trade the same amount of land between both groups. The offers would add to the Superior Forest. They would also add to PolyMet's mines.PolyMet Mining's plans seem to be fair and have as little impact on the environment and cultural resources in the area.Thank you for your• time,Matt Zimmerman

Matthew Davidson 6011

To whom it may concern, I live in the twin cities. I don't struggle to find a job like the neighbors to the north. It is a retreat and as someone who has worked in the outdoor retail and boat manufacturing industry, I've had the pleasure of meeting people from all over the country who have shared stories of their trips up north. We already have a valuable resources up north. I believe allowing a mining company in will destroy a part of our state and kill an industry that runs indefinitely. Trading a generations worth of jobs for 5 generations of clean up and monitoring seems foolish to me. Please don't allow polymet to ruin our home. Matthew Davidson

Alphabetical by sender's first name

Matthew Davis 15990

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Matthew Hennen 44007

There appears several key components to this project that are not adequately addressed in the Suplemental Draft EIS. My primary concern is that there is a severe lack of fisheries and aquatic organism related information and data collected in the document. Without this information I am not sure how this project would be allowed to move forward given the massive implications on a highly connected aquatic system. From what I can gather, the information that is provided is extremely topical (and in some cases outdated and unconfirmed [eg, assessing aquatic vegetation using aerial photographs] and does little to address potential impacts on aquatic organisMs From what I can gather, essentially just species presence and mercury accumulation information is provided which barely scratches the surface of the data that needs to be collected. Sensitive aquatic indicator species should be identified and monitored on much more frequent basis in order to make inferences about potential impacts. Massive amounts of research including fish behavior, recruitment, growth, mortality, etc needs to be done on waters potentially affected by this project. Until this information is collected and provided in the document, then the document is incomplete. Matthew J. Hennen 5430 Mineral Avenue Mountain Iron, MN 55768

Matthew J Eckman 54524

1.Have a balanced SCIENCE (i.e., geology, chemistry, hydrology, ENGINEERS) group travel to several active copper/nickel mining sites of PolyMet (or their “parent” company) to review for current or residual problems with sulfides/pollution.2.If PolyMet is a subsidiary and declares bankruptcy, then who pays cleanup?

Alphabetical by sender's first name

Matthew Johnson 38951

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Matthew Johnson 3244 44th Ave S Minneapolis, MN 55406-4317 (612) 703-8686

Matthew Kilibarda 44121

To whom it may concern, I'm against this proposal to mine copper and nickel in Northern MN based on this proposal for a number of reasons. 1- Water quality, especially fresh water, is a hot topic these days. Our usage of it continues to increase at an alarming rate, beyond what is available in many areas. There are shortages all across the US and the world. I don't understand why we would take such a big risk polluting a resource that is going to be even more valuable and hard to come by in the future. 2- I keep hearing how we should do this mining here because we will do it right. Even if that were the case, and I'm not confident it is, to do it right will cost more, meaning the copper/nickel will cost more leading to issues we have had with other mining industries. We won't be competitive with these other countries. When we are not able to compete PolyMet and other companies will ask for concessions or worse cut corners in hopes they won't be caught. Many times the fines are more cost effective to pay than to invest in proper equipment to keep our environment safe. 3- I grew up in the Northland and still frequent this beautiful land to hunt, fish, camp and enjoy the peace and quiet. The long term effects of this type of mining are of major concern. Not only to the beauty of this land, but to the impact on game hunting and again water quality which will likely impact fishing, swimming and other water activities. 4- With the amount of jobs this project is promising to create (Depends on who you talk to, but around 200-300) it just does not make sense that for such few jobs we would take such a big risk with a much more important recreational industry and a fresh water system that will be a valuable resource in the near future. Matt Kilibarda Afton, MN (651) 436-2730 mnkilibarda@gmail-com Confidentiality Notice: This e-mail message, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information. It is intended solely for the use of the individual or entity to whom it is addressed. If you are not the intended recipient or the individual responsible for delivering the e-mail to the intended recipient, please be advised that you have received this e-mail in error and that any use, dissemination, forwarding, printing, or copying of this e-mail is strictly prohibited. If you received this message in error, please notify the sender immediately, delete the message, and return any hard copy print-outs.

Matthew Mcdonough 39334

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Minnesota greatest natural resource, and source of tourism revenue is the clean and pristine waters of the BWCA, and lake Superior. Any propose minning that slightly poses a danger to that is not worth doing. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Matthew Mcdonough 3109 Columbus Ave Minneapolis, MN 55407-1534

Matthew Ott 19919

The risks of the Polymet mine outweigh the benefits. Matthew Ott 2121 Garfield Ave S. Apt. 201 Minneapolis, MN 55405

Alphabetical by sender's first name

Matthew Schaut 16384

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Matthew Schaut 3720 27th Ave S Minneapolis, MN 55406

42274

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Matthew Schaut 3720 27th Ave S Minneapolis, MN 55406-2512

Alphabetical by sender's first name

Matthew Schaut 49949

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Matthew Schaut 3720 27th Ave S Minneapolis, MN 55406

Alphabetical by sender's first name

Matthew Straw 40712

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Matthew Webster 44283

As an avid backpacker on the North Shore and as someone who has cherished memories of many canoeing trips in the Boundary Waters, I write to voice my concern with the PolyMet mine proposal. Namely, I believe the positive short-term fiscal impact from a 20-year operation is significantly outweighed by what I understand to be the exponentially longer period of remediation and environmental impact. I am concerned that, even with the best intentions, PolyMet may not be available to continue monitoring and funding these remediations in 50 years or 100 years, and that therefore the cost of this would fall either on Minnesota taxpayers or on this fragile yet beautiful environment itself. While I understand and support the quest for quality, long-term jobs for individuals on the North Shore and the Iron Range, I do not believe that the short-term commitment of PolyMet meets that criteria, and it comes with a significant and as yet unknown price tag. Respectfully, Matthew - Matthew Webster 982 Laurel Avenue St Paul, MN 55104 612-716-3503

Alphabetical by sender's first name

Maura Dilley 40668

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Minnesota's identity, heritage and future is water. Growing up in Norther MN, my family's drinking water came directly from a pump in the lake. The proposed PolyMet mine means that never again will members of my family have the same connection to Nature. That is prospect is devastating and unacceptable to me. This path is ignoble. There is a better way. We should swim, fish and admire our spectacular water systems, not live in horrible fear of their toxic finger print. Sincerely, Ms Maura Dilley 7300 Rolling Acres Rd Excelsior, MN 55331-7722

Maureen Jensen 19355

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I’m writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn’t fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is 2,169 pages long and contains a great deal of technical details that need to be carefully read. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It’s going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn’t allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they are not available to the public. These should be made available so that we can conduct the proper review. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and putting public meetings in January (when bad weather is likely) seems designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about the ability to conduct this mining in a environmentally safe way that will not do substantial harm to one of the most valuable resources on the planet: clean water. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just foreign corporations, will matter when the government makes its decisions. Sincerely yours, Maureen Jensen 1120 Schooner Way Woodbury, MN 55125 Maureen Jensen 1120 Schooner Way Woodbury, MN 55125 651-261-9007

Maureen Johnson 43000

A note back that this was received will be appreciated. Thank you. Maureen Johnson ---- Original Message ---- Subject: comments from Maureen Johnson Date: Thu, 13 Mar 2014 10:16:27 -0500 From: Maureen Johnson HYPERLINK "mailto:mjsciled@earthlink-net"<mjsciled@earthlink-net> To: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us I'd appreciate a note back that this was received. It was sent in the morning of 3/13/14-

Alphabetical by sender's first name

Maureen Johnson 43003

A note back that you received this would be appreciated. Thank you. Bruce Johnson

Maureen Keogh 12417

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. As you are no doubt aware, there has been much media coverage lately regarding polluted ground water in North Dakota as well as in other states and how it is affecting the human population which is fearful to use its tap water. It would be a shame to add Minnesota to the list of states that is unable to provide potable tap water to its residents due to a decision to allow a private mining company to mine federal lands. It gives the impression that the government cares more about profit rather than its resiidents and future generations. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. As a resident of Florida, I know of the dangers of man interfering with the environment. Thanks to Big Sugar and other commercial enterprises, the Florida Everglades which is a huge wetland is a fraction of its original size and much of it is polluted due to the run off from agriculture concerns. The Florida legislature now realizes that something has to be done to restore the Everglades and is trying to buy back land, but it is an extremely expensive and time consuming process and there are doubts whether this course of action will even be successful because of the extent of the damage. I sincerely hope that Minnesota learns from Florida's mistake and decides against allowing federal lands to be mined by PolyMet. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Ms Maureen Keogh 5225 Versailles Ct Cape Coral, FL 33904-5666

Maureen Lahiff 13569

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, I used to live in Minnesota and still have strong connections to the people and the land. I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Ms Maureen Lahiff 3800 Maybelle Ave Apt 9 Oakland, CA 94619-2152

Alphabetical by sender's first name

Maureen McCarter 39082

---Original Message--- From: maureenmccarter@charter-net [mailto:maureenmccarter@charter-net] Sent: Monday, March 10, 2014 7:34 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Maureen McCarter 1931 17th St S Saint Cloud, MN 56301-4949

maureen polyner 9629

To Whom it May Concern: I am 65 years old, a resident of Ely, and lived my entire life in that area with the exception of military duty and pursuing an education. I worked for the tourist industry at a canoe trip outfitter while in high school and worked at a couple of mines as a young adult. One mine was a taconite venture and the other was a COPPER/NICKEL exploration mine (AMAX Exploration) at the exact site that Polymet is proposing to mine. Your records will show that we sunk a 1700' shaft and developed approximately a mile network of underground drifts. This was from 1977 to 1981 - 37 years ago. We did encounter, and dealt with, the problems associated with sulphides. Water pumped to the surface had a chemical (Alum) injected to the flow which settled out the sulphur particles in a retaining pond. The extracted ore, that was kept on site, was placed on sand and hypalon fabric to monitor the runoff.This was closely monitored by our environmental group as well as a group of your folks (Bruce Johnson, Steve Lampman, and Ann Wier) that shared office/lab space with AMAX. This was successfully done 40 years ago. Considering the tremendous improvement in technolgy since then, I am 100% confident that this area can be safely mined with NO ADVERSE AFFECTS to the area that we choose to live in. We are miners, That is how we have chose to EARN our living for generations. That is what we do. The mines provide us with an opportunity to make an acceptable living in a quiet, slower paced part of Minnesota that WE take care of. Thank you for your consideration and your time, Larry Polyner Larry Polyner 1560 North 20th Ave E Ely, MN 55731 218-365-3668

Alphabetical by sender's first name

Maureen Rooney 41983

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Maureen Rooney North Branch, Minnesota

Maureen Skelly 18258

My name is Maureen Skelly. I am a native Minnesota. For years I have watched the exodus of half of the cities of Minneapolis and St. Paul go up to the Northwoods on Memorial Day and Labor Day Weekend. I wanted to just suggest that there may be some alternatives to another mine in northern Minnesota. I know that a lot of the small towns are having a hard time. There was a successful granola company in Ely with some creative marketing. So, I wanted to suggest that perhaps we come up with a plan where some of the 350 or 500 people that might apply for the jobs the mine is offering would consider creating some other jobs for themselves connected to the tourism industry; the fishing, the hunting, the canoeing, where people that go up there could commit to supporting them. Someone suggested green bucks that would be used only for hunting, fishing, canoeing. There are so many of us that love and use the north country. I would commit to going up once or twice a year to a specific bed and breakfast, if that would help to create a livable wage for somebody up there in lieu of such a destructive proposal as the mine. So, I just wanted to put forth the idea of the people sticking together, getting creative, using the mine proposal as an excuse to get serious about this, to help support the people in northern Minnesota that need jobs so badly. It would be much more destructive to our economy if the water becomes all polluted and the tourist industry all goes down and all of the other aspects of the tourism industry falls because of everything is polluted. That would be much more of an economic loss than whatever is being offered as a gain economically by this mine. I am a grandmother. I have the brightest grandchildren. I believe that the impact on future generations should be one of the primary concerns in debating whether or not to accept this proposal. I worked a summer at Isle Royale, I-S-L-E R-O-Y-A-L-E, Isle Royale National Park, which is an international biosphere preserve. The Aisle Royale is in Lake Superior, which I believe would receive pollution from the St. Louis River. We in Minnesota have a responsibility to protect the water, the land of 10,000 lakes, the source of the largest river in the North American continent and home to the largest freshwater lake in the world. It is a time period in history where water is becoming more -- fresh water is becoming more and more of an issue. Wars have been fought about it already. We need to protect our fresh water. We can't afford a proposal as dangerous as this, where there is a moratorium on this type of a mine in Wisconsin. And it has not been proven that this mine will be safe or non-destructive to the environment. That's all. I'm longwinded here.

Alphabetical by sender's first name

Maurice Menzel 16266

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

mauricio carvajal 40340

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, mauricio carvajal viento norte 4018 santiago, ot 9291583 CL

Alphabetical by sender's first name

Maurita Niedzielski 16004

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Maury Aaseng 11457

I would like to hear three conversations that I have not heard discussed much. 1). I would like to hear from those who are against the mine. I would like to hear what arguments they have heard from the pro-mining faction that they consider valid, and how they would address those legitimate points that are being made. 2). I would also like to hear from those who are for the mine. I would like to hear what arguments they have listened to from those who are against this mine that they consider valid, and how they would address these legitimate points. 3). Thirdly, I would like to hear people talk about solutions that take into account the economic need of the people in the region who stand to benefit from the mine while protecting against environmental damage apd long term costs that many in the state object to. One idea that I suggest is to examine the viability of opening a precious metal recycling plant that would preserve the environment, provide needed metals, and provide jobs and industry. According to a recent publication by the Smithsonian Institute, there is an estimated 40 million tons of electronic waste generated annually that contain the metals we could use for these purposes. Consider what other solutions we could come up with if we work together instead of becoming polarized. Maury Aaseng Duluth, MN

Alphabetical by sender's first name

Maury Aaseng 18068

My name is Maury Aaseng. I am from Duluth. And I guess my concern is that there is a lot of talk about jumping to mining for the metals, which we all use, but I don't hear a lot about using the metals that have already been in existence. All of our electronics already have all these metals in them. And I recently read that 40 million tons of electronic waste is generated annually. And that's just tossed. All of which contain these metals. So before we go to having a problem where we pit jobs versus the environment, I don't know why we aren't opening a recycling plant that takes these millions of tons of precious metals in electronics and using them that way. In the same way we don't cut down a forest every time we want to have paper, we have recycling for paper. And then what we can't make up from the recycling then look into mining for that. But it seems that we're kind of putting the cart before the horse. Anyway that's one big concern I got. I just don't see it being addressed where the recycling plays into all this. It seems we've got twin ports or an international port. And waste is generated worldwide. So we have access to that material. And I have not heard myself about other people doing it. So it's an untapped resource. And unlike a mine, which has a lifespan of 20 years, a recycling plant that continues to generate electronic waste, because cell phones and computers aren't going anywhere, could operate potentially in a much longer term. So I see it as a win for the environment, a win for longer term jobs. And I'm failing to see a down side. But yet I'm failing to hear anybody talk about it. That's I think my comment.

Max Jodeit 2718

Dec 19, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. FIVE HUNDRED YEARS recovery. Please, please do not allow this.. It would be fine with me if tthree things happened: (1) new technology that would allow recovery within two years, when any mining stops and (2) DOUBLY sufficient money is deposited in an account controlled by the State of Minnesota DNR (for example) to ENSURE that the technology works and that recovery is essentially complete after two years, whereupon some of the deposit would be returned to the miners; half the original deposit if recovery is ACTUALLY complete, and an appropriate amount kept back temporarily to check the last steps. Otherwise, the whole amount would be used to complete the recovery work. (3) Penalties large enough to make the mining company think their project through for the long term should be agreed to by the company. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Max Jodeit 6025 Medicine Lake Rd Crystal, MN 55422-3329

51903

Dec 19, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. FIVE HUNDRED YEARS recovery. Please, please do not allow this.. It would be fine with me if tthree things happened: (1) new technology that would allow recovery within two years, when any mining stops and (2) DOUBLY sufficient money is deposited in an account controlled by the State of Minnesota DNR (for example) to ENSURE that the technology works and that recovery is essentially complete after two years, whereupon some of the deposit would be returned to the miners; half the original deposit if recovery is ACTUALLY complete, and an appropriate amount kept back temporarily to check the last steps. Otherwise, the whole amount would be used to complete the recovery work. (3) Penalties large enough to make the mining company think their project through for the long term should be agreed to by the company. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Max Jodeit 6025 Medicine Lake Rd Crystal, MN 55422-3329

Alphabetical by sender's first name

Maxene Linehan 9692

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. Minnesota's interconnected water table, lakes, rivers, streams and watersheds (including Lake Superior) are too precious to the future of Minnesota to allow feckless exploitation. Sulfide producing mines are better managed in dry regions. Please listen to all the scientists who are alarmed by Polymet's proposal and faulty research. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Sincerely yours, Maxene Linehan Hovland, Cook County, MN Maxene Linehan P.O. Box 278 Hovland, MN 55606

Maxine Hughes 41836

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Maxine Hughes 1950 Selby Ave Saint Paul, MN 55104-5821

Maxwell Helmberger 57259

Polymet's promises are suspect at best. This project threatens to destroy wetlands, pollute our waters, and kill our wild rice stands. The loss of these ecological and cultural resources is not worth the metal from the ground, especially if the pollution remains here in the state long after the last speck of ore is carted away.Maxwell Helmberger181 Vermilion Hall1105 Kirby DrDuluth, MN 55812

Alphabetical by sender's first name

May Britt Lundstad 40314

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, May Britt Lundstad Torderødalleen 16 MOSS, ot 1511 NO

Mckenzie Merges 39262

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Mckenzie Merges 804 Juno Ave Saint Paul, MN 55102-3822

McKenzie Schultz 41897

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, McKenzie Schultz Minneapolis, Minnesota

Alphabetical by sender's first name

McLaughlins 6527

Let’s move forward with Polymet. The Iron Range needs an economic boost and Polymet will have a huge positive impact in our area of the state. Undoubtedly, Polymet will be responsible in their actions and, in turn, we, the residents of this area, need to be open minded about initiatives like this. Go Polymet. Kim and Paul McLaughlin Hibbing, MN

MEAGAN GILL 40342

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, MEAGAN GILL 209 S 100 E WELLSVILLE, UT 84339 US

Meagan Johnson 41882

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Meagan Johnson Audubon, Minnesota

Alphabetical by sender's first name

Meg Anderson 40709

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Megan Dawson 57964

I strongly oppose the PolyMet Mining Corp. NorthMet Project, specifically the impacts it will have on water quality for hundreds of years to come. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Megan Locklear 41955

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Megan Locklear Minneapolis, Minnesota

Megan McGuire 44862

I have commented once already, but I would like to add more detail to my previous comment. This comment is regarding the lack of risk analysis in the document. While the standard processes may call for detailed risk analysis during a later stage of permitting, that would provide inadequate opportunity for the public to review and comment on the risk analysis. I would implore the agencies to conduct and thorough, detailed, and complete risk analysis to be included in the EIS to allow the public to comment on the analysis. A risk analysis is needed for many areas of the EIS and should be added. Potential impacts to water quality, habitat, and human health are discussed, but there is no risk analysis for these and other subject areas. I suggest that the risk assessment should follow the principles used by the Corps of Engineers for risk analysis. The analysis should include all potential avenues for harm to public health, environmental resources, and workers. These risks should include many forms of risk, such as events (eg extreme storms or mechanical failture), incomplete information (the risk of incorrect analysis), and human behavior (eg human error in operating systems, or the risk of political institutions changing before the contaminated water is mediated). These risks should then be described based on the likelihood of each risk occurring, the consequences, and the response. Event-based risks to be analyzed include, for example: the risk of leaching, the risk of mechanical failure in the system (eg pumps), the risk of a large rain event overtopping the basins, the risk of human error in system operation, etc These risks should then be analyzed with the following: 1) quantify the likelihood of each event happening over the first 50 years, the first 100 years, and the first 500 years, 2) determine the effects of each risk, both quantitatively and qualitatively, and 3) describe how this event would be addressed if it should occur. To summarize, there are many potential effects to human health, the environment, workers, endangered species, recreation, etc These effects should be analyzed with a risk framework that includes the LIKELIHOOD of each risk occurring, the CONSEQUENCES of each risk occurring, and the RESPONSE that would occur to minimize the effects of the event. This analysis is extremely important. While some worst-case-scenario events may be very unlikely, their consequences could be severe. The likelihood must be compared to the consequences. As a member of the public, I cannot have an informed understanding of this project if I don't understand the probability and consequences of various risks. Thank you, Megan McGuire Biologist

megan williamson 28957

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please DO NOT endanger Lake Superior How can protecting our largest body of fresh water not be a top priority. Sincerely, megan williamson 202 W Crystal St chicago, IL 60622

Alphabetical by sender's first name

Meghan Ihfe 54341

Dear Ms. Lisa Fay, EIS Project Manager,From reading about PGE mining I would agree that it is a hard choice to make. If I were you, I would do the project. I would do the project because not only is it going to benefit us it is also going to give us some disadvantages. If we do this project, we will be getting rid of some waste that is found in our earth. I think that the plan that they have right now would work out perfectly fine. I think it will also help Minnesota by, getting rid of our wastes and also earning more money for the copper-sulfate. Some disadvantages are how long this process is going to take, but at least we get something good out of it right? This project probably will not effect me but it will affect others. It will affect others by how close they are doing this project to their home town. It will also affect some others because if they do not agree with the project then they will want to make it difficult for the project to carry on. Afterall, I say get the project going as soon as possible and hope for the best of it. My final opinion is to do the project and make any changes if its needed. I have a feeling that if we do not do the project then we will regret not doing it because it will benefit us in many more was than disadvantage us. I would love to hear what the decision ends up being. Thanks,Meghan lhfe (8th grade student)

Mehgan Blair 42590

See attachment

Mel Lahr 46052

Dear Mr Bruner, I would like to voice a few concerns I have with PolyMets ‘s Environmental Impact Statement While this is a large document it is still missing a lot of crucial information. Levels of contamination, acidity and corrosion that will result from the waste which would go into the HRF (hydrometallurgical residue facility) are not revealed in this report. We know that the waste will be hazardous though and therefore the site should be regulated as a hazardous waste landfill. Storage and disposal of such waste requires a separate permit in Minnesota. (Minn. Stat. 116-06, subd. 11) Minnesota rules protect water quality and human health by requiring that wastes must be solidified and stabilized after closure so they won’t leak but PolyMet is proposing to use various types of liners including Geomembrane (which is known to degrade over time) and leave the waste in a toxic pond. PolyMet must be required to specify all HRF wastes and plan to treat their wastes as hazardous. The EIS states, “adaptive management would be implemented , if necessary, to protect the environment for the long term.” What is “adaptive management.” What if something happens in 40 years. Or 100 years. It is unlikely PolyMet still be around to practice this adaptive management. Other industries with similar risks, such as offshore drilling and nuclear industries, must include a Safety Emergency Management System (SEMS). PolyMet should also be required to layout safety precautions for possible scenarios instead of just saying we will use “adaptive management” when the time comes. Thank you for your time. Melanie Lahr 420 E. 9th Street Duluth, MN 55805

46056

Dear Ms Fay, I would like to voice a few concerns I have with PolyMets ‘s Environmental Impact Statement While this is a large document it is still missing a lot of crucial information. Levels of contamination, acidity and corrosion that will result from the waste which would go into the HRF (hydrometallurgical residue facility) are not revealed in this report. We know that the waste will be hazardous though and therefore the site should be regulated as a hazardous waste landfill. Storage and disposal of such waste requires a separate permit in Minnesota. (Minn. Stat. 116-06, subd. 11) Minnesota rules protect water quality and human health by requiring that wastes must be solidified and stabilized after closure so they won’t leak but PolyMet is proposing to use various types of liners including Geomembrane (which is known to degrade over time) and leave the waste in a toxic pond. PolyMet must be required to specify all HRF wastes and plan to treat their wastes as hazardous. The EIS states, “adaptive management would be implemented , if necessary, to protect the environment for the long term.” What is “adaptive management.” What if something happens in 40 years. Or 100 years. It is unlikely PolyMet still be around to practice this adaptive management. Other industries with similar risks, such as offshore drilling and nuclear industries, must include a Safety Emergency Management System (SEMS). PolyMet should also be required to layout safety precautions for possible scenarios instead of just saying we will use “adaptive management” when the time comes. Thank you for your time. Melanie Lahr 420 E. 9th Street Duluth, MN 55805

Melanie Erickson 52294

I am not in support of this mining project. The risk to ruining this precious area and even more precious water out weighs the benefits by far. Water will likely be a very precious resource in the future. Our technology is not yet advanced enough to extract the resources. The mining resources will wait and not disappear. The damage to water my be devastating and last for hundreds of years. Thank you. Melanie Erickson Little falls. Mn. 56345

Alphabetical by sender's first name

Melanie Lahr 18322

Hi, I am Melanie Lahr. I am from Duluth. I want to voice concerns I have with the environmental impact statement. It's a very large document. But if you look at some of the criticisms of it that there's holes, that there's discrepancies, you can actually find those in the EIS. Even a layperson can. Levels of contamination, acidity, that will result from the waste which would go into the HRF are not revealed in this report. We know that the waste will be hazardous though; and, therefore, the site should be regulated as a hazardous waste landfill. Storage and disposal of such waste requires a separate permit from Minnesota. Minnesota rules protect water quality and human health by requiring that waste must be solidified and stabilized after closure. So they won't be. But PolyMet is proposing to use various types of liners, including the geomembrane, which is known to degrade over time and leave the waste in a toxic pond. PolyMet must be required to specify all HRF waste and plan to treat their waste as hazardous. The EIS states, "Adaptive management would be implemented if necessary to protect the environment for the long term." What is "adaptive management"? What if something happens in 40 or 100 years? It is unlikely PolyMet will still be around to practice this adaptive management. Other industries with similar -- such as off-shore drilling and nuclear industry must include a safety and emergency management system. PolyMet should also be required to layout safety precautions for possible scenarios instead of just saying, "We will use adaptive management when it happens." Thank you for your time.

Melanie McPherson 40047

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Melanie McPherson 3227 Halifax Ave N Robbinsdale, MN 55422-3102 (612) 245-3590

Melanie Peterson-Nafziger 40559

Dear DNR, EPA, and other associated decision makers, I am contacting you because I am very concerned about the impact of the proposed PolyMet mines in northern Minnesota. In particular, the exchange of protected wilderness lands in tracts 3, 4 and 5 increase the risk of pollution in the Boundary Waters Wilderness Area, the most pristine waters we have in Minnesota. Of course, the proposed PolyMet sites also endanger Lake Superior and the rivers that flow into it in that region of Minnesota. The trade off to create short-term jobs and tax revenue in Minnesota by permanently damaging our land; endangering our most precious wilderness areas; potentially endangering our human health and our resources due to acid mine drainage, sulfates pollution, and mercury and other heavy metals release; and exposing our region to unforeseen but somewhat predictable long-term impacts of the mine is not worth it. I am opposed to the development of the PolyMet mines in northern Minnesota as well as the land exchanges for the NorthMet project. Thanks for gathering and considering my feedback. Warmly, Melanie Peterson-Nafziger 1386 Saint Clair Ave Saint Paul, MN 55105

Melanie Tauring 38752

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Melanie Tauring 3843 Upton Ave N Minneapolis, MN 55412-1810 (612) 670-6751

Alphabetical by sender's first name

Melia Derrick 57885

I ask you to oppose PolyMet's proposal for sulfide ore mining in the Superior National Forest at the headwaters of the St. Louis River. They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area. The mining will leave square miles of talcum powder-fine waste, piled high. Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock. PolyMet suggests that to prevent pollution of the St. Louis River watershed they will collect the hundreds of millions of gallons of rain and snowmelt waters that filter through the waste every year and run them through water treatment plants ... for up to five centuries. The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project. The cost liability for cleanup over centuries is also a great cause for concern. Please oppose this project.

Melinda Suelflow 41053

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

43578

I'm not sure that I included my personal address. Here it is: Melinda Suelflow 6971 Cramer Road/ PO Box 503 Finland, MN 55603 218-353-7374 From: *NorthMetSDEIS (DNR) [mailto:NorthMetSDEIS.dnr@state.mn.us] Sent: Thursday, March 13, 2014 2:20 PM To: Melinda Suelflow Subject: RE: Polymet SDEIS Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd _____ HYPERLINK "http://www.avast-com/" This email is free from viruses and malware because HYPERLINK "http://www.avast-com/"avast. Antivirus protection is active.

Alphabetical by sender's first name

Melinda Suelflow 43587

Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health and the environment. I work for the Organic Consumers Association and I live in Finland, MN, not too many miles away from the proposed mine site. I also harvest wild rice, it is a staple of my diet. The Organic Consumers Association has over 10,000 supporters in Minnesota who care about access to clean drinking water and safe, healthy and sustainable food. Wild rice and fish are common dietary staples in northern Minnesota. Fractures and Seepage The PolyMet tailings basin is proposed to be unlined, yet the SDEIS doesn't include the possibility that fractures beneath the tailings site would transport pollutants. This is an astonishing omission. Here is Finland we are finding out that pollutants from an old Air Base are being transported through fractures in the bedrock downhill from the Base site and into our community. It is also well known that fractures beneath tailings basins can transport pollutants. For example, in the Chevron Molycorp Superfund remediation, the EPA concluded, "the pathway for contaminant migration is the leaching of tailings seepage downward from the tailing facility to ground water that migrates through fractures to surface water." It is wrong to assume that the PolyMet tailings site has no potential to transport pollution through fracures. Existing tailings seepage already exceeds groundwater standards. In addition, on the LTV site, adjacent to the tailings, the SDEIS has documented that Area of Concern #8 has a plume of pollution propagating through fractures. (SDEIS, p. 4-12). Another problem is the lack of analysis of tailings seepage to residential wells. The SDEIS reports that there are 27 residential wells downstream of the tailings basin, before the Embarrass River. Some of these drinking water wells already have high levels of toxic metals (SDEIS chapter 4, page 403-411). PolyMet's tailings pile would seep high levels of manganese and lead into groundwater. At its northern edge, lead in PolyMet tailings basin seeps would be more than 5 times as high as existing conditions. Manganese, already far above MN's health risk limit at the LTV tailings basin would increase by 45 percent. This is in the SDEIS at page 169 of Chapter 5- We all know that lead in drinking water causes brain damage. The MN Department of Health set a limit on manganese in drinking water because it causes neurological damage and reduces IQ in children. The SDEIS must anticipate that tailings contaminants will propagate through fractures and clearly disclose the impacts of leaching through fractures on surface and groundwater quality. The SDEIS must also be redone to analyze potential impacts of tailings basin seeps to groundwater on residential wells. Mercury Mercury is a big concern for me. I am also concerned about sulfates being released from the mine site and impacting the already impaired wild rice waters and fish in the St Louis River. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS doesn't include the information it should on how much mercury would be released into surface waters from mine pits, waste rock, draining piles of peat and polluted swamps. See for yourself at pages 5-107, 5-109 and 5-129- Mercury isn't even listed. PolyMet also doesn't tell us how much mercury pollution will be seeping out of the PolyMet tailings into surficial waters flowpaths right next to the huge n

Alphabetical by sender's first name

Melinda Suelflow 43590

Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health and the environment. I work for the Organic Consumers Association and I live in Finland, MN, not too many miles away from the proposed mine site. I also harvest wild rice, it is a staple of my diet. The Organic Consumers Association has over 10,000 supporters in Minnesota who care about access to clean drinking water and safe, healthy and sustainable food. Wild rice and fish are common dietary staples in northern Minnesota. Fractures and Seepage The PolyMet tailings basin is proposed to be unlined, yet the SDEIS doesn't include the possibility that fractures beneath the tailings site would transport pollutants. This is an astonishing omission. Here is Finland we are finding out that pollutants from an old Air Base are being transported through fractures in the bedrock downhill from the Base site and into our community. It is also well known that fractures beneath tailings basins can transport pollutants. For example, in the Chevron Molycorp Superfund remediation, the EPA concluded, "the pathway for contaminant migration is the leaching of tailings seepage downward from the tailing facility to ground water that migrates through fractures to surface water." It is wrong to assume that the PolyMet tailings site has no potential to transport pollution through fracures. Existing tailings seepage already exceeds groundwater standards. In addition, on the LTV site, adjacent to the tailings, the SDEIS has documented that Area of Concern #8 has a plume of pollution propagating through fractures. (SDEIS, p. 4-12). Another problem is the lack of analysis of tailings seepage to residential wells. The SDEIS reports that there are 27 residential wells downstream of the tailings basin, before the Embarrass River. Some of these drinking water wells already have high levels of toxic metals (SDEIS chapter 4, page 403-411). PolyMet's tailings pile would seep high levels of manganese and lead into groundwater. At its northern edge, lead in PolyMet tailings basin seeps would be more than 5 times as high as existing conditions. Manganese, already far above MN's health risk limit at the LTV tailings basin would increase by 45 percent. This is in the SDEIS at page 169 of Chapter 5- We all know that lead in drinking water causes brain damage. The MN Department of Health set a limit on manganese in drinking water because it causes neurological damage and reduces IQ in children. The SDEIS must anticipate that tailings contaminants will propagate through fractures and clearly disclose the impacts of leaching through fractures on surface and groundwater quality. The SDEIS must also be redone to analyze potential impacts of tailings basin seeps to groundwater on residential wells. Mercury Mercury is a big concern for me. I am also concerned about sulfates being released from the mine site and impacting the already impaired wild rice waters and fish in the St Louis River. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS doesn't include the information it should on how much mercury would be released into surface waters from mine pits, waste rock, draining piles of peat and polluted swamps. See for yourself at pages 5-107, 5-109 and 5-129- Mercury isn't even listed. PolyMet also doesn't tell us how much mercury pollution will be seeping out of the PolyMet tailings into surficial waters flowpaths right next to the huge n

Alphabetical by sender's first name

Melissa Cathcart 39089

---Original Message--- From: melcathcart@hotmail-com [mailto:melcathcart@hotmail-com] Sent: Monday, March 10, 2014 6:34 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Melissa Cathcart 3018 38 Ave S Minneapolis, MN 55406-2141

42014

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Melissa Cathcart 3018 38th Ave S Minneapolis, MN 55406-2141

Alphabetical by sender's first name

Melissa Cleaver 40415

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Melissa Cleaver 13115 Walnut Lake Road Houston, TX 77065 US

Melissa Engel 42836

See attachment

Alphabetical by sender's first name

Melissa Griffith 16069

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Melissa Harry 52262

Hello, I just realized I missed the end of the comment period. I am a very busy PhD student in Boston who is originally from Northern Minnesota and is returning home to live in Duluth over the summer. I also hope to return permanently once I finish my PhD. My primary concern with the PolyMet sulfide mining is the lack of 100% surety over the longterm environmental and water quality repercussions. What if another historic flood hits the area like what happened to Duluth in 2012- What would happen to water quality them. How do we know what the world will even be like in 100 or 200 years. Sure a few hundred jobs for a few decades would come from this mining, perhaps more if other projects are approved, but the bulk of the money won't go to northern Minnesota. It will go to companies like PolyMet. As far as I can tell, the cost of swapping land with the Superior Natural Forest should take into account the value of the minerals and other resources PolyMet expects to extract. Minnesota truly will be getting the short end of the deal if this project goes through. I am sure my comments will be ignored as I missed the deadline due to my hectic schedule. But if something horrible happens because of sort of mining, the first sulfide mining in Minnesota, and our comments are not considered (including those that made the deadline), I can only imagine the scale of the massive class action lawsuits that could hit not only PolyMet, but the DNR as well. Of course, if that happens it means the worst case scenario and our state's environment will be damaged. Will it be worth it. I don't think so. Find some other way to revive the state's economy. Dump this idea of sulfide mining. Thank you, Melissa Harry, MSW, LCSW Doctoral Student Boston College Graduate School of Social Work 617-393-0229

Alphabetical by sender's first name

Melissa Hodnik 18217

My name is Kevin Grotheim, and I'm going cede my time to Melissa Hodnik. My name is Melissa Hodnik, H-O-D-N-I-K, and I currently reside in Minneapolis, but I was born and raised in Aurora, one of the greatest towns on the Iron Range. I'm an environmentalist because I care about sustaining natural beauty and resources of the area and believe that mining can co-exist in that world. I also support the PolyMet project. For 18 years, I was able to grow up in a town filled with those who relish the outdoor opportunities that Northern Minnesota has to offer. From the biking trails to the picturesque lakes, the choices were endless. An area full of many different types of resources that we could share with one another. Right alongside those wonders of nature beats the heart of the Iron Range and another human resource, mining. Drive into any one of the small towns that dot the landscape and can see its footprints. From the skyline in Virginia to the railroad tracks running down to Lake Superior, our region is proud to have depended on the resources in the ground to sustain the area. Over time, the landscape has changed. This is because of the progress we've made working together to use the minerals we've been blessed with. But also to give back to an area that has been our way of life for over 100 years. For example, right next to Minntac, a premiere producer of pellets used for steel, are windmills dotting the horizon. It strikes a chord with me that the two can share the same plot of land and serve as just one piece of proof that we are in the business of sustaining, a reminder of our past and the telltale signs of our future. This is just one small example of the high standards the Iron Range sets for itself, not wanting to sacrifice its beauty for industry. A lot has been said about PolyMet over the course of eight years, some good and some bad. But what I feel makes this project different than other mining projects of the past is the disclosure piece. We live in state that requires the in-depth review of environmental impact. While it may be true that our ancestry did not have the technology to fully understand the impact of what they were doing, in contrast, we do. Everything written in the SDEIS statement that we are viewing today is based off of true science and longitudinal studies by respected government regulators, alongside of the PolyMet team. In short, they have collaborated with experts to ensure that every angle is tested and can be bumped up alongside any governmental standard of today. Even better, this is not a new site proposed for use. This will be a recycling of a piece of our past rebuilt to a higher standard. The idea has always been to do the right thing and to bring jobs to an area which desperately needs them. In closing, I want to stress that I am in full support of the PolyMet project. This means jobs for the many communities that are starved for work, done the right way, and an opportunity for the Iron Range to share the legacy that the Twin Cities offers so many of us today. I'm a firm believer that we can balance the good intentions of both sides and make this a reality and do so now. To say that those of us in support of this project do not care about what happens in our backyards is not only false but insulting. I support PolyMet, not an all-or-nothing proposition but the best chance for sustainable future here in Minnesota. Thank you.

Alphabetical by sender's first name

Melissa Jansen 38222

Ms Lisa Fay, I am concerned that the DNR role in this process seems to be one of promoting mining, and that promoting environmental protection is secondary. Somehow this seems backwards. At the very least, the DNR (especially the Division of Ecological and Water Resources) should take a neutral stance. Comments by those in charge of the EIS to the effect of 'it is our role to work with PolyMet to help them through the process' leave one with the notion that DNR has already decided that this mining project is a good thing and that it is in the best interest of the state to see that it happens. Whether one is for or against this project, they should question how the DNR has defined its role. I am concerned with the lack of a defined and dedicated funding source (one that is set up by the mining company, and not affected by future financial hardships the company may experience) for the treatment of sulfate- and other pollutant-laden wastewater / runoff from the mining operation. Leaving this major detail for the permitting process seems like a young couple deciding to have children but waiting until a few months after their child is born to figure out how/if they can financially afford to raise a family. The welfare analogy comes to mind here- will the public be left to pick up the tab for a decision made without proper planning and financial preparation. I am also concerned about wetland loss and other destruction of natural habitat. These seem to be viewed as expendable when it comes to mining. The natural forests and wetlands that will be destroyed are not replaceable. We can try to plant something that looks like what we destroyed, but it is always a poor substitute at best, at worst a sterile biological desert or weed-infested barrens. (Nonnative and potentially invasive plants are already turning up at many of the drill core test sites that are increasingly scattered through the forests of this part of the state.) I understand that if the decision is made to go forward with this mining project that natural habitats will have to be destroyed. I could better accept this fact if their true value was represented in the cost side of the mining equation. Finally, I am concerned that we too easily buy into assurances from the mining industry that things like this can be done in an environmentally friendly manner. There has never been a mine that has not polluted, nor a oil field that has not polluted despite the same sort of environmental assurances. If we weigh all the options and still decide to move ahead with this project, we owe it to out children to put the proper safeguards in place so that environmental accidents do not happen, or more likely, can be quickly and safely dealt with when they inevitably do occur. Regulation and oversight will be key here, and again not something that should be left to the permitting process. I think we need to step back and ask ourselves- is this is really the right project at the right time. Is this as good a proposal as the people of Minnesota can expect, or more aptly- as we deserve. Is leaving the minerals in the ground at this time a better option, one that assures a better environmental outcome. Leaving the minerals in the ground now is not a defacto moratorium on this type of mining; it may actually be the best way to keep our future options open, both environmentally, and economically. Thank you for your consideration. M. D. Jansen-Lee 1026 Sunset Ridge Rd St Cloud, MN 56303

Melissa Orr 41628

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Melissa Orr Minneapolis, Minnesota

Alphabetical by sender's first name

Melissa Roach 15887

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. . Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. Here are a few critical failures: •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. •The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. Sincerely yours, Melissa Roach 1544 hwy 5 Cook, MN 55723

Melissa Weisser 57274

The decision to mine – pollute – this region or any other, belong to the PEOPLE who live and work in the region. My livelihood depends on the tourist trade and natural assets that make our region unique. Keep Polymet out or I will use my vote and influence others to vote against you.Melissa Weisser4102 Gilliat StreetDuluth, MN

Melody Exsted 36792

Corey Exsted 57914 highway 23 sandstone MN 55072 320 216-5530 On Sunday, March 2, 2014 10:01 AM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

36793

Lisa, We are the property owners just south of the current mine sit off of 117- We were not notified so we didn't get to attend any of the meetings. We bought this property about a year ago Corey a Exsted and Melody j Exsted. We have many concerns, we bought 165 acres for hunting,fishing, recreational use and our retirement. From what we can tell our land is in or very close to the new mine site.Our one whole side runs along the partridge river. We don't know what we need to do. Our concerns are about the wild life and water quality of the river and ground water if and when something goes wrong our land will be useless and not worth anything. We are one of the first properties down river if something goes wrong. When this mine starts up, their will be no one who will want to buy this land, no one will want to take the risk. I bought this land because I have seen moose,wolves,deer,grouse,bobcats and lots of other animals that cant be fixed if some of the toxins get out.They are just dead. Not to many of us would take the chance and drink the water that is coming off the mine site, but these animals will be forced to. I realize this would be great for the community and the state, but with all the protection around the nuclear plants their are still accidents. I don't think its worth the potential cost for just 20 years of gain. What happens when oops we were wrong and the toxins do leach out of these tailings even under water it just takes 50 or 100 years. If this mine starts I will be forced to move because i can't take that risk. It also will be very hard to get fair price for land. Please let us know what we can do, if anything. Thank you Corey and Melody Exsted

Alphabetical by sender's first name

Melody Tilton 16300

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Melody Tilton 7916 64th Ave N Brooklyn Park, MN 55428

49929

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Melody Tilton 7916 64th Ave N Brooklyn Park, MN 55428

Alphabetical by sender's first name

Melva Schueller 58055

No mines - I prefer the clean BWCA and rivers! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Melvin Giles 42021

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Melvin Giles St Paul, Minnesota _____ There are now 2369 signatures on this petition. Read reasons why people are signing, and respond to National Audubon Society by clicking here: HYPERLINK "http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89bandutm_source=targetandutm_medium=emailandutm_campaign=signature_on_sponsored_petition"http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89b http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJzaWduYXR1cmVfb25fc3BvbnNvcmVkX3BldGl0aW9uIiwiaWQiOiJ1c2VyXzE2MDAyMTUiLCJjaXR5IjoiU2FuIEZyYW5jaXNjbyIsInN0YXRlIjoiQ0EiLCJ6aXBjb2RlIjoiOTQxMTAiLCJjb3VudHJ5X2NvZGUiOiJVUyIsImluY29tcGxldGVfYWRkcmVzcyI6ZmFsc2UsInNpZ251cF9kYXRlIjoiMjAxMC0wOS0yMyIsImxvZ2luX2NvdW50Ijo5NDE2LCJ0b3RhbF9hY3Rpb25zIjo0MzAsImNvbm5lY3RlZF90b19mYWNlYm9vaz8iOmZhbHNlLCJzaWdudXBfY29udGV4dCI6ImFjdGlvblBhcnRpY2lwYW50IiwiZGlzdGluY3RfaWQiOiIyMWQ2MmIwMC1iZTVkLTAxMmYtNjg2ZS00MDQwNjBlNzJhYmIiLCJ0b2tlbiI6IjMwYWEyNmExZDZlOTNhZTE1OGRmYmRjMTZiNDkzMzEyIiwidGltZSI6MTM5NDMwMDIwNX19andip=1andimg=1 http://email.changemail-org/wf/open.upn=aGGv9wQ398j6-2FWVT4grdXbWUo0w-2FupjjjD-2BeyIkg5XeInLuCEKc3fZdho8GXjxxiplFn6SybU80HWYOLHct2MhHcRv7ksg-2F-2Bt-2BBQdFBpjlzL5JRAAFAGBDXf4-2B-2Fcrihks7B3gqnED5CAK9mqMH5xhyKcaoqOkAXDgAaZgS8qQQD70RcSvdic-2FiFyi-2FH0So657lhX0FudxTI9dJKpLWM4oWHCVkJe6RV1BQXlvMtPztdR2TXLjy1m-2B27EpyRIvyV2R6GYgkaSTQcEM3jBhgQXTVcOSD8-2FSGGNalfvlUyMCVqnlfPHakVnbHQBXjYON-2FP4

Melvyn Magree 54109

I've already sent comments questioning the long term impact of this project. Alan Hadnick has a conflict of interest as a member of PolyMet's board. This card came from Allete. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

mercy myers 14526

Feb 12, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms mercy myers 1880 Grand Ave Apt 206 Saint Paul, MN 55105-1458 (612) 363-5346

40664

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms mercy myers 1880 grand ave 206 206 St paul, MN 55105 (612) 363-5346

42434

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, WE DON'T NEED PROFITS FROM POLLUTERS LIKE YOU SLIME OFF I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms mercy myers 1880 grand ave 206 206 St paul, MN 55105 (612) 363-5346

Alphabetical by sender's first name

Meredith Kolar 30448

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I have spent time studying the wildlife and habitats of the Boundary Waters Canoe Area Wilderness, and it is one of the few true wilderness areas of its type left. Its natural resources are crucial to the balance of the entire region, a natural balance which affects us humans, too. This precious wilderness area especially means so much to those of us who have spent time in it and observed its natural riches. I would be devastated to see any of this area be poisoned and destroyed by corporate interests. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Meredith Kolar 20450 Crooked Rd Butler, OH 44822-9488

Meredith Lorig 44882

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It is putting many Minnesotans at risk for years to come. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. As a fisher who frequently catches and eats wallie the PolyMet sulfide mine plan is of concern. The proposed waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. All of these are a concern especially the toxic metals and the effect bioaccumlation could have in people. One of my concerns is that the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” I don't know how it would be feasable to keep water clean from seeping for that long. I ask that you investigate further the PolyMet SDEIS and look closely at permits for the waste water discharge. I ask that written into the permit is that water quality is held to Minnesota standards. That if the water quality dose not meet standards that the mining has to stop until the water quality meets state standards. I ask that penalties for permit violations are not just financial but are mandated to be fixed. I am pround to come from the land of 10,000 lakes and hope the lakes can be used for centuries for fishing wallie. Thank you for listening, Meredith Lorig 5613 Interlacen circle Edina, MN 55436

Meredith Sommers 16492

February 19, 2014 In the 1960s, I was involved in a study of Taconite mining in the Arrowhead region of Minnesota. The resulting report believed that this mining could be done without extensive harm to the land and water. We believed that the company, Minntac, and the DNR would oversee water quality standards. We believed that hundreds of people would be employed for decades and their quality of life would improve. We were wrong. Open pits remain; tailings have leached toxic heavy metals and sulfuric acid that eventually have reached Lake Superior; drinking water in the area is unsafe; unemployment in the area is still high. Why should we believe that the proposal presented by PolyMet Mining and its financier, Glencore, will be different. Glencore has a record of environmental disasters, plus irresponsible safety standards. PolyMet has no track record of operating mines like the ones proposed in Minnesota. I strongly oppose the proposal for these, and many other reasons. And I have a suggestion to address the need for employment in the Arrowhead region. Instead of mining for copper, nickel and other metals, the state of Minnesota could jump-start a facility for reclaiming and recycling metals from existing electronic devices, rather than sending them to China and Winnipeg. The Arrowhead is a treasure for millions of folks who live and travel there. The pristine nature would be destroyed by the noise, the truck traffic, the dynamite, polluted waters and disrupted land. Tourism, which is a sustainable industry, would be drastically impacted Please make your decision based upon what is best for all of Minnesota in decades to come. Meredith Sommers 921 Bayless Ave C St Paul, MN 55114

Alphabetical by sender's first name

Meredith Sommers 42827

To Lisa Fay. EIS Project Manager Re. Copper/Nickel Mining in Minnesota. In the 1960s, I was involved in a study of Taconite mining in the Arrowhead region of Minnesota. The resulting report believed that this mining could be done without extensive harm to the land and water. We believed that the company, Minntac, and the DNR would oversee water quality standards. We believed that hundreds of people would be employed for decades and their quality of life would improve. We were wrong! Open pits remain; tailings have leached toxic heavy metals and sulfuric acid that eventually have reached Lake Superior; drinking water in the area is unsafe: unemployment in the area is still high. Why should we believe that the proposal presented by PolyMet Mining and its financier, Glencore. will be different? Glencore has a record of environmental disasters, plus irresponsible safety standards. Poly Met has no track record of operating mines like the ones proposed in Minnesota. I strongly oppose the proposal for these, and many other reasons. And I have a suggestion to address the need for employment in the Arrowhead region. Instead of mining for copper, nickel and other metals, the state of Minnesota could jump-start a facility for reclaiming and recycling metals from existing electronic devices, rather than sending them to China and Winnipeg. The Arrowhead is a treasure for millions of folks who live and travel there. The pristine nature would be destroyed by the noise, the truck traffic, the dynamite, polluted waters and disrupted land. Tourism, which is a sustainable industry. would be drastically impacted. Please make your decision based upon what is best for all of Minnesota in decades to come. Meredith Sommers 921 Bayless Ave. C St Pau, MN 55114

Merle G and Mary C Wovcha 54657

See attachment

Merv & Suzanne- Joy Curran 39298

Lisa Fay, EIS Project Manager: After listening to debate on this issue on TPT, reading and discussing this in our faith-based community, and listening to many of those who live in that area of the state, we wish to send a comment which we hope will be seriously considered. Northern Minnesota is the site of 3 major watersheds. We and many states below us need fresh clean water. Northern Minnesota is NOT the area in which to provide mining rights to an outside corporation that cannot possibly provide provide adequate stewardship for the water and environment in this area. We do think jobs are important and we will support jobs in Northern Minnesota that are sustainable to all life in that area. We urge Minnesota to take leadership in promoting sustainable industry. This should not include copper-nickel mining in Northern Minnesota. Thank you for taking comments. Mervyn and Joy Curran 5146 Lonsdale Blvd. Webster, MN 55088

Mettameyer 44533

I am opposed to Polymet's plan for pollution management. The very idea that they can be responsible and held accountable for centuries into the future is crazy. Minnesotans will bear the practical and ongoing financial costs of this venture, and it's a bad deal for the environment and the taxpayers. Sincerely, Margaret Etta Meyer 225 E 9th St Unit 106 St Paul, MN. 55101 651-222-7859

MGK612 . 41647

To whoever is destroying Minnesota's future, Do not, DO NOT, allow PolyMet to mine. You KNOW it will destroy the environment for many, MANY years to come. I am completely against it. Archibald Kelley Benham IV Minneapolis, MN Full of disgust, Archie

Alphabetical by sender's first name

mia schillace nelson 43958

To whom it may concern, which in my opinion is the entire state of Minnesota and its future citizens. I have carefully examined the available evidence both for and against the Polymet proposal for a copper sulfide mine in Northeastern Minnesota. It is my opinion that at this time this project should absolutely not go forwaRd We as a state are not in a good position to trust that Polymet and its associates will be able to provide us with the environmental and financial assurances that we absolutely need to have before a permit to Mine is granted. One question that has been asked over and over and has gone unanswered is "Please give us an example of this type of mining that has not contaminated the watershed." No one has been able to show an example. Saying that this will be the first copper sulfide mine that won't contaminate the watershed and pollute the air is unacceptable. We have never mined copper in Minnesota and based on the fact that there is currently a global surplus of copper and nickel right now tells me that the risk isn't worth the rewaRd Particularly when it comes to who will actually capitalize the most on this project if it were to go forwaRd There is little in this for the state of Minnesota or its workforce. I know people on the range need jobs but this will not change the economy on the range based on the number of jobs it would create. This is also not a typical range project so it is very likely that many of the jobs created wouldn't be filled by locals. It is well known that Polymet has never operated a mine before but their largest shareholder Glencore has with a very bad history of contaminating the communities that it has mined. I think that they will not be able to guarantee 200-500 years of financing for monitoring and treating the water at both the plant and mine sites. The only thing I would consider guaranteed by them as that they will maximize profits for their shareholders, which is the primary mission of any for profit corporation. Jobs will be kept at an absolute minimum. I have yet to see an economic impact statement that wasn't created by the company itself in a best case scenario sensibility. There seem to be a great number of questions that have to be answered before a permit to mine is granted. These questions remain unanswered up to this point and therefore a permit should not be issued. If you can expect technology to change significantly in the years to come than let's wait until technology is advanced enough to do this safely. Copper will undoubtedly be worth more in the future and perhaps we can get a US company to do this so it's better for all of us in terms of economics as well as environmental and public health. These are the most obvious problems within the current SDEIS "The PolyMet mine plan is riddled with problems that must be fixed: PolyMet would require hundreds of years of expensive treatment of polluted water PolyMet would destroy thousands of acres of habitat used by threatened moose and lynx PolyMet’s mine plan lacks analysis of human health impacts from mercury and asbestos-like fibers PolyMet’s studies contain inaccurate water data that need to be corrected There are many more problems with PolyMet's mine plan. All we want is to make sure that any sulfide mines opened in Northern Minnesota are safe, clean, and don't leave taxpayers with a bill. If we don't get this right the first time, the next 17 generations of Minnesotans will have to live with the consequences." The world keeps getting smaller and I think most of us Minnesotans feel that this is in our backyaRd I'll ask again to find an example of this type of mining that hasn't contaminated the watershed. It's a simple question that no one has been able to provide an answer to. The risk must not outweigh the rewaRd Right now it's not worth it. We need absolute guarantees that they will finance and clean up the mess that this WILL create. In the not too distant future good, clean water wil

Micah Elder 30814

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. At some point, we as a people (Americans) have to stop thinking about the short term and start thinking long term, ie, what type of future environment are we leaving for our children and their children. Profit has got to take a back seat some time, and those who argue only for profit are (of course) arguing for their own profit and no one else's. Therefore, we should be suspicious of their statements. As such, I urge you to protect the environment. I have spent some time in Lake Superior and I have always wanted to go to the Boundary Waters. But not if the water is poisoned. Micah Sincerely, Micah Elder 3716 Latimore Rd Shaker Heights, OH 44122-5025 (216) 371-3846

Michael 46936

I am for this project. The state has mined extensively in this area for a hundred years. We have learned lots about mitigation and it seems, in this case there is a good plan for control of pollution. The country needs these metals. A woman compared this to dumping tailings in lake superior. That is absuRd I live in Grand Rapids and have hunting land north of Orr. If I thought this project would ruin the area I'd be against it. Michael N. Felix 38664 Co Rd 19, PO 642 Grand Rapids MN 55744

Alphabetical by sender's first name

Michael Alexander 39985

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Michael Alexander 78 10th St E Saint Paul, MN 55101-2247

Michael Ander 28920

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Working as an environmental scientist for over 40 years, I have first-hand experience on the creation and effects of acid mine drainage. Therefore, I anticipate the environmental impacts created by the proposed PolyMet Mining project will be similar and, therefore, unacceptable. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. The hydrology of this region is a complex and interconnected system of surface and groundwater that cannot help but be impacted by the proposed mine. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sincerely, Michael Ander 218 Sharon Dr Sleepy Hollow, IL 60118-1719 (847) 428-1647

Michael Anderson 5971

Dear Ms Fay, I came here from Alaska in 1975- Recently, the Environmentadl Protection Agency release a very critical assessment of the proposed Pebble mine, a copper sulphide mine, in the pristine Bristol Bay watershed area. It found that such mining was incompatible with the watershed and posed unacceptable risks for contamination of water and destruction of watershed habitat for fish, especially salmon. I am very familiar with Bristol Bay and it's lands and, other than the salmon, I see little diffence between the pristine beauty of the area and the Minnesota BWCA ands the Canadian Quetico. In addition, the hydrology of the watershed in the Mininesota Iron Range is remarkably vulnerable to the same kind of perpetual pollution described in the Pebble Mine EPA report. Please review the Pebble Mine study and consider it and it's findings as you look at sulphide mining in Minnesota. Michael Anderson 2554 Deer Path Red Wing, MN 55066

41892

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Michael Anderson Shoreview, Minnesota

Alphabetical by sender's first name

Michael Asuma 42516

See attachment

Michael Barrett 48153

See attachment

54781

See attachment

54848

See attachment

Michael Beauchaine 42582

See attachment

Michael Berglund 38742

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. My entire life I've enjoyed the pristine wilderness of the BWCA. Please do not allow the PolyMet mine to proceed. It is not worth the risk. Sincerely, Mr Michael Berglund 18410 Kirk Ave N Marine ON Saint Croix, MN 55047-9618 (651) 295-4607

Michael Booth 38754

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Michael Booth 4413 Nokomis Ave Minneapolis, MN 55406-3719 (612) 483-9669

Alphabetical by sender's first name

Michael Broton 47845

I have reviewed and entirely agree with the concerns and sentiments of the letter from Dr Youmans. I would reiterate the point that consumption of fish is already to be limited, especially to pregnant women and children. For many people in the state including our most low income populations, this can be a healthy supplement to the diet. Vascular diseases are still the number one preventable cause of chronic disease and death in the state and fish are our native low saturated fat nutrient source of meat. Thank you for your work on the matter. Sincerely, Michael Broton, MD, Caq Sports Medicine 569 36 1/2 ave Minneapolis, MN 55418 Begin forwarded message: From: william youmans <HYPERLINK "mailto:youma001@umn-edu"youma001@umn-edu> Date: March 12, 2014 at 10:05:35 PM CDT To: Mike Broton <HYPERLINK "mailto:michaelbroton@gmail-com"michaelbroton@gmail-com>, HYPERLINK "mailto:holly.stenzel@northmemorial-com"holly.stenzel@northmemorial-com, HYPERLINK "mailto:kristen.helvig@northmemorial-com"kristen.helvig@northmemorial-com Subject: Sign and send with your own signature if you agree Begin forwarded message: From: william youmans <HYPERLINK "mailto:youma001@umn-edu"youma001@umn-edu> Subject: Concerns about the PolyMet NorthMet Statement Date: March 12, 2014 at 3:30:13 PM CDT To: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us Dear Ms Fay and Mr Westlake: MDNR Division of Ecological and Water Resources Kenneth Westlake US Environmental Protection Agency RE: PolyMet NorthMet Sulfide Mining SDEIS Dear Ms Fay, Mr Westlake: This comment letter is submitted on behalf of the undersigned doctors, nurses and other health professionals. We are concerned that the proposed PolyMet NorthMet copper-nickel mine project could have significant adverse impacts on human health as a result of pollutants released to air, surface water and drinking water. We also believe that the PolyMet NorthMet Supplemental Draft Environmental Impact Statement ("PolyMet SDEIS") fails to adequately assess important risks to human health from the pollutants that would be released from this project. The absence of any professionals from the Minnesota Department of Health from the List of Preparers of the PolyMet SDEIS is particularly troubling. We would respectfully request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks of the proposal. We would further request that, in revising the PolyMet SDEIS, a comprehensive Health Impact Assessment (HIA) be prepared under the guidance of the Minnesota Department of Health. In this letter, we summarize some issues and concerns leading to these requests. Mercury contamination of fish and impacts on neurotoxicity in the developing fetus as well as in infants, children and adults is a significant public health concern in Minnesota. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. The percentage of infants thus at risk for neurologic impairment was higher than in the Lake Superior Region of Wisconsin or Michigan. We are aware that many of the bodies of water downstream of the proposed PolyMet mine and plant are legally impaired due to mercury in fish tissue. The lower reaches of the St Louis River, where the estuary for Lake Superior fish is located, contains a particularly high level of mercury. We also know that other mine facilities release both mercury and the sulfates that increase bioaccumulation of methylmercury. Reviewing the PolyMet SDEIS, we believe that the information on mercury releases and the potential for mercury bioaccumulation is insufficient. The SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of pollutants or of hydrologic changes on mercury bioaccumulation. The SDEIS does not provi

Alphabetical by sender's first name

Michael Brouillette 39962

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Michael Buelow 38796

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, Please, I urge you to reject the proposed PolyMet mine. Their dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals and endangers clean water and habitat in the Lake Superior basin. The project presents unacceptable environmental risks to us and should not be allowed. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Very Sincerely, R. Michael Buelow 651-260-5528 1645 Palace Avenue Saint Paul, MN 55105 Sincerely, Mr Michael Buelow 1645 Palace Ave Saint Paul, MN 55105-2136 (651) 260-5528

Alphabetical by sender's first name

Michael Caldwell 42001

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Michael Caldwell St Paul, Minnesota

Michael Carpenter 16037

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Michael Chesla 38870

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Michael D. Anderson 37676

Please forward his to the Commissioner and anyone working on the issue at DNR. Thank you. Sent from my iPad Begin forwarded message: From: "Michael D. Anderson" Date: March 1, 2014 at 8:28:57 AM CST To: "HYPERLINK "mailto:dnr.updates@updates.mndnr-gov"dnr.updates@updates.mndnr-gov" Subject: Re: PolyMet Supplemental Draft EIS comment period deadline To be very candid, this neither surprises me nor does it show respect for the citizens of Minnesota. The issue was never about the need for the DNR to meet it's prescribed timeline. It was always about citizens, citizens who want to provide more information and even if the information appears to to be what you have heard before, you would have heard more citizens views. Would 60 more days have disrupted your timeline. No. Your unresponsiveness is poor environmental science and even worse government. But it doesn't really matter. Truly. And do you know why. Because most of us opposed to sulfide mining believe that the DNR Commissioner operates on the basis of serving constituencies and the constituency he wants to serve in this case is mining interests. Period. We've never had much faith in our own DNR on this matter and have always assumed the decision to allow mining had already been made. We all just going through the motions. The recourse for those who oppose this disastrous form of mining in our northern watershed is the EPA and the Federal Courts. What a disgrace for the State of Minnesota. What a disgrace for the DNR. Please forward this to the Commissioner. Thank you. Sent from my iPad On Feb 27, 2014, at 2:41 PM, "MN Department of Natural Resources" wrote: HYPERLINK "http://links-govdelivery-com:80/track.type=clickandenid=ZWFzPTEmbWFpbGluZ2lkPTIwMTQwMjI3LjI5NDUwMDAxJm1lc3NhZ2VpZD1NREItUFJELUJVTC0yMDE0MDIyNy4yOTQ1MDAwMSZkYXRhYmFzZWlkPTEwMDEmc2VyaWFsPTE2OTA2NjQ5JmVtYWlsaWQ9bWRhcmFuZ2VyOEBnbWFpbC5jb20mdXNlcmlkPW1kYXJhbmdlcjhAZ21haWwuY29tJmZsPSZleHRyYT1NdWx0aXZhcmlhdGVJZD0mJiY=andandand100andandandhttp://www.mndnr-gov"Minnesota Department of Natural Resources header DNR NEWS – FOR IMMEDIATE RELEASE Feb. 27, 2014 Comment period for copper-nickel mine Supplemental Draft EIS closes March 13 The 90-day public comment period for the NorthMet Mining Project and Land Exchange Supplemental Draft Environmental Impact Statement (SDEIS) will end March 13, according to the Minnesota Department of Natural Resources. So far, the agency has received more than 19,000 comments. While the co-lead agencies – the DNR, the US Army Corps of Engineers and the US Forest Service – received and carefully considered requests to extend the comment period, the deadline will not be extended. The requests received did not include any substantive arguments or rationales that were not already fully considered in the design of the original public comment period. The co-lead agencies appreciate the high level of public interest in the SDEIS and have made efforts to ensure the public has had ample opportunity to review and comment on the document. Those measures include a comment period that is twice as long as required, three public meetings and supplemental materials such as videos and fact sheets. The SDEIS provides an analysis of the environmental effects of PolyMet Mining Inc.'s proposed NorthMet project. The copper-nickel mine would be located in northeastern Minnesota, near Hoyt Lakes and Babbitt. Public input on the SDEIS is a critical component to informing governmental decision makers about potential environmental consequences of the proposed mining project and associated land exchange. The co-lead agencies encourage the public to continue to provide comments until the deadline on March 13- Email comments can be submitted to HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us. Email submissions should include a full name and legal mailing address. Written comments may also be submitted to: Lisa Fay, EIS project manager, DNR Ecological and Water Resources Division, Environment

Michael D. McNally 40448

Attached please find a word document, together with an email text version below, of my comments on the Northmet SDEIS. I write with some expertise in NEPA review procedures, so you won't find mere rant. Thanks, Michael McNally - Michael D. McNally Professor Religion Department Carleton College Northfield, MN 55057 TEXT ALSO HERE:

Alphabetical by sender's first name

Michael Dahl 18372

(Spoke foreign language.) I will speak English. My name is Michael Dahl, spelled D-A-H-L. I come from (inaudible). I am not Slovenian. My relatives have been here by far longer than anybody in this room. I'm standing up here on behalf of my people as a whole because of a number of things. Okay. Our family and our people have rights to these lands for thousands of years, not for generations. Thousands. These same lakes, these same rivers, these same streams, the same strains of rice we have raised here. My brother and I rice this area. As a people on average our families will finish upwards of 300 pounds of finished rice a year with an annual income to each household of upwards of anywhere to 2 to $10,000. There are still people that make a living off of wild rice. As a people we came to this area and have been here for thousands of years. The same rice. The Sturgeon have already left this area once due to contamination and over fishing by non-native people. The moose are also becoming more and more rare. We do not want to see history repeat itself. The risk is unmeasurable. Science cannot prove the risk. Science does not know what we know. Our teachings and our legends told us for thousands of years any time we eat fish to eat it with a serving of wild rice and/or a serving of berries. Science comes along and proves the nutritional factors of rice and berries cancels the mercury in fish. Thus science has caught up to us and proven us right. We do not want to see that happen again. I have to refer to my notes. This is good. We are asking science not to wait to catch up to us again and prove us right again. For the first time in history pay respect and listen to the knowledge of this land and its qualities by its original indigenous inhabitants. This is ours. We managed it for thousands of years. The potential profits of mining to be made by few and enjoyed by few will never outweigh the proven risks to unmeasurable amounts of people, water, plants, and animals. Thank you.

Michael Donais 41743

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Michael Doyle 42038

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Michael Doyle Bagley, Minnesota

Michael Dunn 16773

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Michael Dunn 7330 Butterscotch Rd Eden Prairie, MN 55346

Alphabetical by sender's first name

Michael Dunn 50124

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Michael Dunn 7330 Butterscotch Rd Eden Prairie, MN 55346

Michael E Kaszynski 10238

We own property in St Louis County at 8709 S. Strand Lake Road, Cotton, MN. We are completely and utterly opposed to the proposed mining operation. It is too close to the Cloquet valley and huge tracts of wetlands. We think the project would eventually pollute the entire region. Perhaps not in our lifetime but eventually when the tailings containment systems fail and the company responsible is long gone. Mining operations in general never clean up the mess that they leave in their wake. It is not economically feasible to do so. The iron range itself is an unsightly mess and we don't need another environmental catastrophe for hundreds of years in the future for the sake of a few jobs. The BWCA area is a jewel that should be preserved for future generations - not exploited for the gains of a few. We are completely opposed to the project. Sincerely, Michael and Kerrill Kaszynski 13533 6th Street N. West Lakeland Twp, MN, 55082

Alphabetical by sender's first name

Michael Fisch 17715

Feb 15, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. The revelations about Polymet just keep getting worse. Please do not open up the territory to mining for Polymet or any other company. There is no such thing as technology without accidents. Where there are cars, there are car accidents, where there are planes, there are plane accidents and so on. This is not to say that we should refuse technology. In fact, I've devoted my career to developing sustainable technology. Rather, it is to say that we can't be so naive anymore so as to think that there can be mining without environmental damage. So I ask you, is it worth it. Are a few years of jobs and profits worth hundreds of years of pollution that translates into generations of children who will never know what its like to have a big trout or walleye on their fishing line and who will never know what its like to taste one of those fish or to drink directly from the lakes of the BWCA. Is it worth it. Sincerely Michael Fisch Assistant Professor, Anthropology University of Chicago Haskell M-134 1126 E. 59th St Chicago, Il 60637 Tel: 773 702 2128 mail: mfisch@uchicago-edu Sincerely, Dr Michael Fisch 1126 E 59th St Chicago, IL 60637-1580 (773) 702-2128

Alphabetical by sender's first name

Michael Foss 13943

Feb 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

michael fritsche 46952

I want to voice my opposition to the mine. I think it is a terrible idea. We all can look at what happens to mines eventually, they contaminate the area around it. Our forefathers were smart enough to protect this area from ourselves lets not undo the good they have done for our children's sake. I hope that my great great grand kids can enjoy the same BWCA that I am able to. Do the right thing. Vote this mine down. Thank you

Michael Gallagher 5947

We know you must be receiving thousands of comments on this controversial issue, so we will make this short. It is unbelievable to us that anyone would want to risk our precious north woods, including the BWCA, and the greatest lake in the world, Lake Superior, to the incredible dangers this mining operation would present. A mining operation that would require centuries of water clean up should be enough of a deterrent by itself without even mentioning the open pit mine scar that would be left behind for millennia. This is another Superfund site just waiting to happen. What happens when PolyMet goes bankrupt and leaves behind a unfathomable mess which can NEVER be cleaned-up. How would you go about cleaning Lake Superior, or “fixing” the BWCA. It cannot be done. Ever. Impossible. Conclusion: No Mine. Mike Gallagher Linda Cullen 530 Deer Ridge Lane S, Maplewood MN 55119

Alphabetical by sender's first name

Michael Garbisch 54143

No way! 20 years of jobs for 200 years of on-going monitoring and remediation? This is crazy. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Michael Gorman 29636

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I oppose the PolyMet Mining Corp. NorthMet mining project. This scheme endangers natural resources and public health in northern Minnesota and the Lake Superior region. My homeland. The risks it poses to water quality, habitat, and wildlife (including populations of lynx and Moose as well as spawning grounds for several species of fish) are simply too great. Everywhere sulfide ore mining has taken place has suffered from Acid Mine Drainage and heavy metal contamination. Sulfide mining, therefore, poses a grave threat to Lake Superior and the Boundary Water Canoe Area as well as the wetlands, rivers, lakes and streams surrounding (and feeding into) these natural wonders. The disastrous consequences of open pit sulfide mining outweigh all potential benefits. I vehemently oppose any Federal land exchange of protected Superior National Forest land for this future environmental catastrophe. The health of our citizens, our wildlife, and our water are too precious to jeopardize. Sincerely, Michael Gorman 121 E Bayfield St Washburn, WI 54891-1132

Michael Hamilton 42531

See attachment

Michael Hentley 3237

---Original Message--- From: randall.doneen@dnr.state.mn.us [mailto:randall.doneen@dnr.state.mn.us] Sent: Tuesday, December 17, 2013 1:57 PM To: Fay, Lisa (DNR) Subject: This E-mail was sent from "RNPF60159" (Aficio MP C2050). Scan Date: 12-17-2013 13:57:10 (-0600) Queries to: randall.doneen@dnr.state.mn.us

Michael Herman 38608

Dear Ms Fay, Dear Federal and State Agency Leaders: Minnesota is a state that prides itself on being healthy and environmentally conscious. We value our outdoor experiences and wish to preserve our excellent environment and water quality for future generations. Mining operations that are so destructive and have negative impacts for hundreds of years have no place here. Severe pollution and groundwater contamination along with environmental destruction should not be allowed to go forwaRd In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely Michael Herman 2812 Devon LN NE Rochester, MN 55906

Alphabetical by sender's first name

Michael Hostetler 4642

My name is Michael Hostetler. I live at 209 Fairview Avenue South in St Paul, MN 55105- I am a proponent of the mining projects in northern Minnesota. I believe this project will create much needed jobs in the region, provide tax revenues for the state, bring investment dollars into the state, and it will provide opportunities for educated young people to find fulfilling, challenging employment in MN - so they decide to stay and raise their families here rather than move away. This is the single, greatest economic opportunity we will see in our lifetime to help our children prepare for Minnesota's future. I was fortunate enough to benefit from a similar economic situation over the last 20 years working in the medical device industry, which has been a tremendous benefit for the state and its residents. The mining projects will have a similar economic effect for the people of this great state. However, if the investment is not made in the mining projects, many will be forced to leave and find work elsewhere (eg, North Dakota, Texas, Florida), and many more will follow when the state turns to them for new tax revenues. Am I concerned about the environmental impact. Absolutely. My wife, four children, and I spend every summer vacation in northern MN enjoying its beauty. It is where we plan to live when we retire. I also studied at the University of Minnesota's Biological Station while attending college at the "U" and can appreciate the concerns many have with mining. But this is 2014, not 1970- We now have significantly tighter environmental controls. We have government oversight and watchdog groups. We also have an extensive, detailed SDEIS and countless precautions proposed such as employing reverse osmosis technology and advanced emission-control devices on mining equipment. So based on the documentation in the SDEIS and the commitments made by PolyMet, I am confident that impacts to the air, water or land will be minimal, if any, so my family and their families will be able to enjoy Minnesota's beauty well into the future. I am very pleased, as others should be, to see such a competent team leading this project to ensure Minnesota's environmental future. I congratulate and thank all those involved in producing such a thorough and comprehensive report. Respectfully, Michael Hostetler

Michael Hughes 43502

Please do not move forward with the proposed PolyMet mine in northern Minnesota. It is a bad bet to think the state will win in this deal when weighing the short-term revenues against the big and most likely high, long-term costs to the state. The EIR statistical model used to determine its environmental impact admittedly (per its staff drafters) does not take into account the less-frequent but certainly occurring devastating scenarios. It is a sham. All of the draft EIR's models only contemplate the most likely environmental impacts and not the less frequently occurring events (but it should include the more remote events which will occur in the longer time periods during which the project's risks will still be present). I hope we have learned from recent environmental disasters that we need to consider the impact of the worst possible outcomes, such as industry's assurance that "never-in-a-million-years" could there be leaching of pollutants into the groundwater from the Alberta Sands tailings ponds in Canada, and the discharge of toxic chemicals into the River in West Virginia (requiring the National Guard to truck bottled water to residents and restaurants for drinking and bathing). The probable scenarios do not account for less frequent but certainly occurring events, such as Duluth’s recent 500-year flood. The holding ponds and mining and mitigation plans in the PolyMet proposal do not adequately protect against the effects of infrequent but certainly occurring events. Please do not trade short-term gains for long-term costs. Do not exchange public land for damaged quality of life of life in the state's future. Thank you. Sincerely, Michael Hughes Burntside Lake and Stillwater, Minnesota resident

Michael J Husnik 3064

Sirs, This is a very important cross road for our economy in Minnesota. I am confident that by going through all of the rigorous testing and analyticals to protect our environment these kinds of new protections for water and air will be more than sufficient to protect the lands under proposed mining companies sites. Let the process proceed to the final stages and now pass the final permits to get the projects going. Michael J Husnik Stacy, Minnesota

Michael J Kieffer 54802

See attachment

Alphabetical by sender's first name

Michael Jordan 7408

DNR Personnel, I am a biologist from the University of California, Davis. My wife and I have lived on Birch Lake, between Ely and Babbitt, for the past 14 years. I am writing to express my concern regarding the PolyMet proposal. After reviewing the history of sulfide mining and the PolyMet proposal specifically, my question is this : can the DNR and the state of Minnesota state unequivocally that our lakes, rivers and wildlife will not be harmed by this short sighted business proposition. The answer is clearly no. Since taconite mining and its tailings involved relatively inert substances, the mining process represented virtually no risk to our environment. By contrast, with sulfide mining the chemical processes are not inert, they are very chemically reactive and very harmful to our watershed. The supporters of the sulfide mines are attempting to equate taconite and sulfide mining as a means of placating and fooling the public. The DNR must use rigorous scientific reviews to analyze this proposal. The DNR must, first and foremost, protect our environment. The benefit to risk ratio of this proposal, minimal jobs and deleterious environmental impact, does not justify approval of this mining process in Minnesota. We have an obligation to protect our lakes and not implement a plan which requires a 500 year clean up due to the polluting hazards involved with the Polymet proposal. Our arrogance in thinking current technology will prevent environmental damage is foolish. We have made that claim, historically, only to realize our inability to prevent certain hazards. We cannot risk our lakes by allowing sulfide mining in Minnesota. Sincerely, Michael Jordan 218-827-8193 "Chance favors the prepared mind" Louis Pasteur

Michael Kahn 12453

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, This mine proposal is a shamefully shortsighted, terrible idea. Protecting our environment, as well as the massive tourism industry that thrives because of the boundary waters shouldn't be jeopardized. As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Michael Kahn 1747 Columbus Ave Duluth, MN 55803-2517

Alphabetical by sender's first name

Michael Killian 39015

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Michael Kinzer 5988

The proposed copper-nickel mining and processing proposals by Polymet (to be followed by others) is a very bad idea and should be rejected completely for the safety of all Minnesota citizens and our descendants. I own a home in Minneapolis, and a cabin in Lutsen. I travel to the north woods with my family many times per year. We love to canoe in the BWCA and surrounding lakes and parks. We hike, fish, ski, and watch nature. I would not feel safe doing this if the Polymet proposal is approved in any form. I would blame the State of Minnesota for allowing such a catastrophe to occur. You might think I am just being overly concerned. I am not, I assure you. In my previous career, I was a construction lawyer for many many years. As part of my work, I represented contractors who performed work on these kinds of mines in Colorado. One such mine was the Climax Molybdenum Mine in Climax Colorado. Your staff should visit this site. I hAve Visit the leach ponds, where cocktails of arsenic, cyanide, acids and other disastrous chemicals still leak into the local watershed. Please do not pretend Polymet, or any of the other businesses that would temporarily benefit from this mine have any ANY intention (or capacity) to responsibly clean up the mess after they have created it. They won't. They probably can't. Our descendants will live for hundreds and yes, even thousands of years with this sickening, festering, leaching, ugly, dangerous mess in our most pristine lands. How many hundreds or thousands of lakes and streams are you willing to destroy in order to create a few hundred jobs for a decade or two. In 50 years, when Polymet and all the others are long gone, either bankrupt, merged, swallowed up, or just mining elsewhere, and we are left with the sinking leaching pools of filthy nasty chemicals, who will remember the small bump in economic activity. No one. They will remember though that you let this happen. They will. This is not New Mexico, Arizona, Nevada. This is northern Minnesota. The environment is far too fragile. Please reject this for all of us, and our children. Thanks, Michael Kinzer 4249 27th Avenue South Minneapolis, MN 55406 and 180 Caribou Trail Lutsen, MN 55612

Alphabetical by sender's first name

Michael Kohout 39800

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, MICHAEL KOHOUT 8205 Able St NE Spring Lake Park, MN 55432-2058

43077

Hello- My name is Michael William Kohout, and I live at 4360 Brookside Court #116 Edina, MN 55436- I'm writing to convince the DNR to deny Polymet's mining permit. Given the extremely long maintenance period to protect the area from runoff, as well as the lack of any positive track record by this company in this type of operation the risk seems to high and the reward of only 300 long-term jobs seems too low this operation should be denied or delayed. Until the long term effects of their techniques and technologies can be determined (hopefully elsewhere), any report that attempts to define it is based only on conjecture and should not be considered sufficient enough to be used as the basis of this activity. thanks, Michael W Kohout 4360 Brookside Court #116 Edina, MN 55436

Michael Koppey 18344

Michael Koppe, K-O-P-P-E-Y. I am here to voice my concern regarding the proposed copper-nickel mine in northern Minnesota. According to the SDEIS, the proposed mine data says it is approximately 700 feet. There has been two studies on the plant sites. There have been no studies on the plant sites' subterranean water migration and whether mining elements and contaminants would be carried through these frackings (phonetic) throughout our fresh water aquifers and our systems. This must be a concern because of the natural falls running through Minnesota. The EIS 36, paragraph two, it states, "Storm water runoff will include lead above the acceptable levels." Also in EIS 36, paragraph five, it states that, "The project will increase the (inaudible) time to the Embarrass River." Finally, the EIS 39, paragraph four, it states, "Species will not be affected by all of this infiltration." It is hard to imagine that adding deadly chemicals, like lead and mercury, into the St. Louis watershed will have no effect on our wildlife and our people. We already have a high level of mercury in the St. Louis River. Should we be adding more contaminants without a proper study? We live in Minnesota, the "Land of 10,000 Lakes," more like 13,000, and next to the freshest water, biggest freshwater lake in the world; Lake Superior. I do not want to risk doing damage to these valuable natural resources. EIS 24, paragraph three, it states that this facility will be capped and double-mined for 500 years for toxicity. This is longer than the State of Minnesota has existed. No known studies have shown that a manmade structure can stand for this duration of time, or especially 500 years, especially when we (inaudible) and biodegrade. EIS 24, paragraph three, also states that, "Adaptive measures will be implemented, if necessary, to protect the environment for the long term." This statement acknowledges that the system may fail as designed and is an uncontrolled experiment. That means that we, the taxpayers, will be responsible for the costs of any failure and that our fresh water and all that depend on it will be threatened. You, the members of the DNR, are charged with protecting the natural resources of Minnesota and the people that live here. This SDEIS by PolyMet is inaccurate, ignores many of the critical questions and fails to protect the public interest. Therefore, I ask that you reject this SDEIS. Thank you.

Alphabetical by sender's first name

Michael Koppy 42637

See attachment

42729

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42784

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54485

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54644

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Michael L Karels 6631

Based on the extensive documentation as outlined in the SDEIS, I am confident impacts to the air, water or land will be minimal, if any. Environmentalists vote every mining project down regardless. Half the time making baseless comments and publications in the newspapers and various other media without providing any real facts about the process. This project is being set up to do it right. Environmentalists want solar and wind energy and various other energy alternatives but don't take into account where the guts of these products come from or what minerals are used. If you are an environmentalist but you are ok with these minerals coming from China or elsewhere but don't care how they extract it they you are a hypocrite. America wasn't built without taking some risk and our advancement as a society will not come without risk. Let's get this project approved and show we know how to mine in this state in a way that is long term environmentally right. Michael L. Karels CFP Vice President - Financial Consultant RBC Wealth Management 612-371-7783 Direct 800-678-3246 Toll Free HYPERLINK "mailto:greg.s.johnson@rbc-com"michael.l.karels@rbc-com RBC Plaza 60 South Sixth Street Minneapolis, MN 55402-4422 612-371-2722 Fax Visit our website: http://rbcfc-com/johnsonkarelsgroup/ HYPERLINK "http://infonet/contents/MarketingPR/Statements/WM1211-004-PDF"Client Support Services Team 800-933-9946 Our client support service areas now have one toll-free number that you can call for help with your cash, banking and online needs. Service hours include evening, Saturdays and during tax season, Sundays. _____ RBC Wealth Management has been ranked "Highest in Investor Satisfaction with Full Service Brokerage Firms" in the J.D. Power and Associates 2013 US Full Service Investor Satisfaction StudySM. We believe this achievement reflects our firm's strong commitment to putting client interests first and carefully managing the wealth that clients entrust to our care. View the HYPERLINK "https://www.rbcwm-usa-com/news/cid-342360-html"press release to learn more. RBC Wealth Management does not accept buy, sell, or cancel orders by email, or any instructions by email that would require your signature. Please visit HYPERLINK "https://www.rbcwealthmanagement-com/usa/legal/cid-277586-html"RBC Wealth Management Email Disclosures for material details about our products and accounts, as well as for other important information. Disclosure information regarding potential conflicts of interest on the part of RBC Capital Markets, LLC in connection with companies that are the subject of any third-party research report included in this email message may be found at HYPERLINK "https://www.rbccm-com/GLDisclosure/PublicWeb/DisclosureLookup.aspx.EntityID=2"Third-Party Research Disclosures. RBC Wealth Management, a division of RBC Capital Markets, LLC, Member NYSE/FINRA/SIPC.

Alphabetical by sender's first name

MICHAEL LANDWEHR 15799

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

15800

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr MICHAEL LANDWEHR 541 4th Ave N Foley, MN 56329-8433 (320) 968-7434

Alphabetical by sender's first name

Michael Larmee 32791

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Our vacations over the last five years nave moved from Lake Michigan due to poor water conditions to Lake Superior. Algae of different types, low water levels and Zebra Mussels have harmed Lake Michigan. It was hard giving up Lake Michigan because we have lake front property on Beaver Island. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Please do not harm Lake Superior and all the waters down flow from the lake. Sincerely, Michael Larmee 19670 Donna St Livonia, MI 48152-1504 (248) 477-1440

Michael Latvala 38422

The depth and breadth of study in relation to the NorthMet project has been well conducted and thorough. I believe that the NorthMet project can be permitted in a way that thoroughly addresses potential environmental impacts while putting a vast, untapped natural resource to greatly beneficial use. This project will provide minerals that are unquestionably necessary for the existence of modern humans, and of critical importance for the future of “green” economies. The project will set new benchmarks for safely extracting and processing these minerals, and should become the new benchmark for copper-nickel mining worldwide. Michael Charles Latvala, PE 311 7th St, Two Harbors, MN 55616

Alphabetical by sender's first name

Michael Lavely 16229

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Michael Leeling 40341

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Michael Leeling 829 Route 113 Souderton, PA 18964 US

Michael Lieberman 11372

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Michael Lieberman 250 Jersey Ave S Golden Valley, MN 55426-1530 (612) 408-9430

Michael Line 47163

Lets get people to work. Its a fact that these metals will be mined someplace in the world if we don't open this mine. It is almost assured that it will be done with less environmental regulation if that happens in another country. So lets have the mine here and benefit from the jobs and the economic impact for our state. The more than a decade review is enough.. Michael Line Barnum, MN 55707 218-389-0169

Michael M Greulich 42716

See attachment

Alphabetical by sender's first name

Michael McCormick 43224

Dear Minnesota and Federal Agency Leaders: I am writing to express my strongest possible opposition to the proposed PolyMet mining project. Please reject the PolyMet SDEIS as inadequate and the PolyMet project as environmentally harmful. Please deny any permit to mine or a Section 404 wetlands permit. Please reject the proposed exchange of Superior National Forest land. PolyMet would be the wrong mine in the wrong place. The PolyMet mine would destroy thousands of acres of wetlands, create an immense and permanent industrial mining district in Minnesota's uniquely beautiful and most environmentally sensitive areas, and create a burden of environmental damage of mine dumps, pits, tailings ponds and acid runoff that would blight the landscape for generations and generations, and probably forever. I was drawn to move my family to Minnesota, and to raise my children as Minnesotans, by the promise of the unique natural beauty of the North. Since we moved here 25 years ago, several generations of our extended family have moved to Minnesota as well. Our experiences in the natural beauty of northern Minnesota are some of our most cherished experiences of our lives. We bring our friends and family from other parts of the US and the world to experience the unique beauty and solitude of northern Minnesota. We have seen many changes come to northern Minnesota in the last decades and have friends in those communities, and I am shocked by the existential threat posed now by the PolyMet mining proposal. I have read the various EIS documents and attended PolyMet events, including the open house in Hoyt Lakes in May 2013- I have talked with many people in northeastern Minnesota and farther afield about the proposals. I rode the bus to the LTV site with former LTV miners, who asked me if I was also a former miner, and who are now small investors in PolyMet hoping for their investment to bear fruit. I am worried about the economic opportunities for northern Minnesota. But the PolyMet mine is not the right thing to address that. Proponents of hard rock mining in northern Minnesota claim that opposition to mining equates with opposition to jobs for those communities. This is a fundamentally false and manipulative opposition. Local economies built on mining are boom and bust economies. First, the claimed short-term economic benefits of mining are dubious. PolyMet's claims of job creation deserve skepticism, as automation on the mines reduces the number of jobs, produces short-term low skill jobs, or requires workers with special skills from outside Minnesota. Then invariably the bust comes - relative to the lasting burden of damage, that bust comes in the very short term of 5 or 10 or 20 years. And the bust then endures in the form of impaired communities that people do not want to live in. Northern Minnesota is developing - and needs to continue to develop - a diverse and vibrant 21st century economy where tourism, retirees, telecommuters, service providers, artists, creative people, small businesses, and others can thrive in a way that is sustainable, and that is connected to Duluth, the Twin Cities and the wider world. That type of economy needs to be promoted, not an economy that will suffer the devastation of the other mining areas on the Range that are unlikely ever to thrive again. We are the custodians of what is already a damaged environment for our children and our children's children, and we cannot indulge short-term thinking for the dubious benefits of boom and bust industry. The "us versus them" arguments that pose the Range against "612ers" and others from outside northern Minnesota is also a false opposition. Many people on the Range oppose mining, many people actively go back and forth between these areas, the beautiful and important areas of northern Minnesota are the birthright of all Minnesotans and citizens of the world, and you are the guardians of all of those important places. I am alarmed at how PolyMet asks

Alphabetical by sender's first name

Michael McKenna 11007

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. This includes a net loss of 6,026 acres of areas with high biodiversity; 2,030 acres of mature forest – replaced by 2,000 acres of immature forest; 1,400 acres of floodplains and losses of 11 endangered or threatened species. The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade. The PolyMet sulfide mine would reduce lynx habitat by two square miles, kill individual lynx, and impact 2 out of 13 remaining small corridors for wildlife to travel across the Arrowhead region. The PolyMet sulfide mine plan would also destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which dropped precipitously by 35% from 2012 to 2013- Yet, the SDEIS contains no analysis of impacts on moose from the PolyMet project. The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St Louis River and tribal resources. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice. Please take the following actions to protect clean water, ecological communities, public lands and tribal rights: •Reject PolyMet's proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. •Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. •Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. •Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. •Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. No more studies are needed to know that the PolyMet land exchange and sulfide mine should not be approved. The SDEIS plan is also inadequate and should be rejected: •The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. •The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at taxpayer expense. •The SDEIS fails to analyze alternatives, including underground mining, that could reduce impacts on lynx, moose, and other species that are threatened, endangered or of

Alphabetical by sender's first name

michael michel 40296

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, michael michel 6235 kester ave #228 van nuys, CA 91411 US

Michael Mlinar 9483

My name is Mike Mlinar. I've worked in the mining industry for nearly 40 years. I live in Duluth. I'm representing myself and will offer my personal opinion. Thank you for the opportunity to comment on the SDEIS for the Polymet Project. My comments are primarily targeted towards the language that relates to the modeling of compliance for an extended period after the operations are suspended. To frame my comments let me first state the obvious and undeniable need for a solid mining industry to support our US lifestyle. Everything we rely on every day of our lives has its source in mining, farming, timbering, or fishing. And it's important to recognize that all of these resource-based activities impact our environment. Specific to the Polymet project, valueless rock will be dug from the ground and processed to produce metals that can then be further transformed into products that we use everyday. So the real question to be answered before this project can proceed is "can it be done safely without significant harm to our environment." I believe the project can and will be successful in properly managing the environmental impacts for a couple of reasons. First, the people who make up the senior leadership of Polymet's Northmet project are all dedicated, credible, and proven mining professionals. I have worked directly with several and indirectly with most of the remainder. They are committed to complete this project in a safe manner with minimal impact to the environment. I trust them. However, even with the confidence that I have in the people who make up the Polymet organization, I was still concerned by the comments I heard by several speakers during the Duluth public hearing regarding the need for 100's of years of mechanical treatment of the waste water, post operation. In fact, my concerns led me to further investigate these claiMs What I discovered through careful review of the SDEIS and through discussion with Polymet was that the SDEIS submittal included modeling of the all discharge water quality for an extended period beyond closure. And that modeling was done in an extremely conservative fashion including the highest possible predicted discharge concentrations, far in excess of what will reasonably be experienced. And the modeling included mechanical (active) rather than non-mechanical (passive) treatment as a worst-case scenario. And even given these extremely unlikely conditions the modeling did demonstrate compliance to all water quality parameter requirements. Therefore since the work done for the SDEIS demonstrates compliance even in the most extreme prediction of conditions, and that it further includes a commitment for treatment as long as necessary to meet regulatory compliance standards, I believe the project will minimally impact the environment and should proceed. Thank you for the opportunity to voice my opinion of strong support for the agencies' approval of the Polymet project. Mike Mlinar, PE

Alphabetical by sender's first name

Michael Moore 52292

I am a Minneapolis resident and a regular visitor to NE Minnesota and the BWCAW area. My in-laws live in the Duluth area and my wife grew up in Two Harbors. Why do we have to mine this resource right now. Why don't we wait till they have the technology to leave no clean up. Not leave a mess for my children and the next generation to worry about for the next five hundred years. I think this mine is a bad idea is such a water rich environment. Where contamination could be so easy and potentially disastrous. Thank you for listening.

Michael Noble 16246

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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Michael O. Tichy 2239

I just want to say POLYMET would be great for Minnesota . I have worked in the mines for over 38 years it has been wonderful for myself and my family. The mines provide a great way of life for the people of the range. Mike Tichy

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Michael Okerstrom 21470

Comments regarding the SDEIS for proposed NorthMet Mining Project from: Paula Okerstrom 2537 34th Ave So. Minneapolis, MN 55406 Hello, I am a resident of Minnesota, homeowner, and landowner in Northern Minnesota near Babbitt, MN. I am concerned about the proposed NorthMet Mining Project in Northern Minnesota. I question and wonder about the accuracy of the information in the SDEIS, and thus, its pollution affect on the land and water in that area. I question the sulfate, metals and mercury discharge containment and possible pollution to the land and waters in that area of our state. I questions the direct and indirect impact that sulfide mining will have on the nearby wetlands, lakes, water table, and ultimately water shed. As a cabin owner, on Birch Lake, near Babbitt, Minnesota, I question the effectiveness of the drainage of mercury into Birch lake, and that effect on the fish and wildlife, from the taconite mining in the past that has not been effectively dealt with over the years. If we are not doing it well, now, how do we trust another complex operation will be correctly watched and dealt with into the future. If copper mining has not ever been done successfully elsewhere without damaging lakes and streams in the past, we must be even more certain of the accuracy in the SDEIS now and it's possible negative affect on our resources. I question the financial commitment of International Corporations assurance to clean up the mess they will make in the future. These companies must be deeply invested to put up assurance monies to clean up the possible pollution on land and water. We must require them to put up greater sums of money to ensure their honesty and truth, so they don't walk away with the profits and leave the tax payers with the clean up. Thank you. Paula Okerstrom 2537 34th Ave So. Mpls., MN 55406 612-724-2729

46350

My name is Michael Okerstrom. I am a lifelong resident of Minnesota. I own land near Birch lake outside of Babbitt. Heavy Metal rock piles, rained on, make pollution. Heavy metal rock piles rained on create water pollution for many years. The Minnesota DNR has trouble getting the Bobs Bay problem on Birch lake taken care of. The mining company's leave with the profits but leave the pollution problem behind. They seem to become bankrupt or somehow untouchable and refuse responsibility. The Polymet proposal must provide details on financial assurance that the pollution they create they can take care of properly. Sulphide mining will create huge amounts of waste rock. Perhaps we are lucky as Minnesotans to have this valuable mineral deposit, - Perhaps not. As we all know, the track record for sulphide mining polluting surrounding surface waters is a fact that overshadows this whole proposal. This a water rich area of the earth. The border waters, Lake Superior, the many rivers. There is no rush to start such a high risk operation. The rocks have been there a long time. They are not going anywhere. The science and analysis of the Polymet proposal must be done correctly. Because the downside, the risk factor to the water, is too great. The time period of polluting too long. The methods and techniques are not proven. Polymet has never operated a mine before. The lead agencies must require any potential sulfide mining operators to demonstrate a successful sulphide mining facility. Based on the information, and lack of information provided by Polymet I do not believe Polymet can operate its proposed facility without damaging the surrounding water, nor take care of the waste rock and tailings for the hundred some years required. Another point no one is talking about is the amount of coal that will be burned in 20 years of operation. This should be calculated and be a consideration of this proposal. Polymet has little to lose and privatized profits to gain. The State of Minnesota and its water has much to lose. Let the minerals stay in the ground until they can be safely harvested. It appears they will only go up in value. The lead agencies should reject the Polymet project as environmentally harmful. The lead agencies should not allow Polymet a state permit to mine. The lead agencies should not allow any sulphide mining operations until the operator has a proven facility and provides proper financial assurance. Thank you for your valuable work. Michael Okerstrom 2537 34th Ave So. Minneapolis, Minnesota 55406

Alphabetical by sender's first name

Michael Osberg 15796

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Michael Overend 6027

Dear Ms Fay, Dear Federal and State Agency Leaders: The PolyMet mine offers the lure of construction and jobs for people that are eager for this opportunity. The PolyMet mine also has the potential to create an environmental impact on 3 major watersheds, with no concrete certainty of the nature or degree of this impact. There is the potential benefit of many millions of dollars in construction and payroll over the next 20 years. In contrast, Lake Superior, the single largest body of fresh water on the face of the planet stands at potential risk of becoming adversely affected for generations of future citizens. If this body of water, or its neighboring watersheds, are damaged by this mining operation, the costs to reverse the damage will dwarf the potential economic benefits to the region. These potential environmental costs should be borne by the individuals that seek to profit from the mining. However, the mining industry has a history that does not inspire confidence in carrying out this responsibility. American taxpayers have shouldered the economic burden of dealing with EPA categorized Superfund sites as detailed below from companies that oftentimes denied their responsibility after causing environmental damages on an epic scale. As of November 29, 2010, there were 1280 Superfund sites on the National Priorities List in the United States.[2] Sixty-two additional sites have been proposed for entry on the liSt[2] As of November 29, 2010, 347 sites have been cleaned up and removed from the liSt Due to the risk for centuries of potential work necessary to address the potential damage, there is no conceivable way that PolyMet can guarantee that they will address any and all damage that results from their mine. As a citizen of the region, my wife, children and I stand opposed to the PolyMet mine plan because of the risk to the priceless, and irreplaceable natural resources that it potentially jeopardizes. Sincerely, Dr Michael Overend 557 Scenic Drive Two Harbors, MN 55616 Michael Overend 557 Scenic Drive Two Harbors Minnesota, MN 55616 (218) 591-2514

Alphabetical by sender's first name

Michael P Savage 42761

See attachment

Michael P. Carlin 19974

To Whom It May Concern; I am contacting in regards to the proposal of the PolyMet mine in northern Minnesota. I am in opposition of the mine due to copper cobalt mines history of pollution. I also think that past performance is a direct indication of future output. Currently the water monitoring in West Virginia has failed to adequately protect its citizens and with governmental programs starved for cash flow it would be a poor decision to jeopardize the water quality. I do not support the PolyMet mine. I want to thank you for taking my email and as well as my thoughts on this matter. Best regards, Michael Carlin (952) 221 4672

37574

To Whom It May Concern; My full name is Michael P. Carlin. My address is 6901 Hillcrest Lane, Edina, MN 55435- I do not support the copper cobalt mine in Northern Minnesota. Never has there been a copper cobalt mine in the history of our planet that has not polluted. The PolyMet mine proposal will be no different. The idea of testing the water quality for 500 years is quite daunting considering the benefit of jobs in the short-term. Please do not let this mine destroy our biggest asset in North America: fresh water. Currently we are using fresh water at a rate faster than aquifers can replenish, and to threaten the little amount of clean fresh water we have would be detrimental. We would be doing irrevocable damage to our ecosystems, threatening wildlife as well as industry centered around a healthy environment. Minnesota as a northern most state, needs to set a precedent on water and habitat management. Thanks, Michael Carlin (952) 221-4672

Michael P. Savage 18989

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Michael P. Savage P.O. Box 115 1209 Lincoln St Superior, WI 54880 218-391-3070

Alphabetical by sender's first name

Michael Patchin 10069

MN Department of Natural Resources: Please see attached correspondence relative to the above matter. Michael J. Patchin Colosimo, Patchin, Kearney and Brunfelt, Ltd. 301 Chestnut Street Virginia, MN 55792 Phone: 218-741-4500 Fax: 218-741-4508 _____ HYPERLINK "http://www.avast-com/" This email is free from viruses and malware because HYPERLINK "http://www.avast-com/"avaSt Antivirus protection is active.

Michael Paulson 41887

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Michael Paulson Wadena, Minnesota

michael PRIEST 38898

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to ALLOW the proposed PolyMet mine. The project presents acceptable environmental risks and should be allowed. This sulfide mining operation IS needed for the future of America. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines . For all these reasons, I urge you to accept the PolyMet mine. Sincerely, Mr michael PRIEST 4326 Miller Trunk Rd Eveleth, MN 55734-4044 (218) 744-5637

Michael R Boyd 57235

For the sake of argument, let’s say the water can be treated to a standard of 100% clean and safe. Others can argue on that. I am all for mining (and logging) in the US if done correctly and envir safe. We need mining jobs for at least 2 reasons: 1. Minerals needed for our industry coming from inside the US (national defense) 2. Jobs for Americans. However, how can any corp put aside money to treat water for the next 200-500 years for a mining operation that will last 30-40 years? How do you invest that money over that time period? In 1814 the “high” wage for a laborer was $1.35/day or about $450.00/year (Google in report on statistics of Labor – Mass Dept of Labor – 1885 – Labor Movement) They could have put $45,000 in 1814 to reclaim a pit and water restoration for 200 years – do you think the money would have be invested wisely? In what form? Remember the countless “panics”, recessing depression (1929 & 2008) in the last 200 years. What will the inflation rate be over 200 years? The US dollar has lost 95% of its value since 1913 to present! My prediction: PolyMet will mine, put away some money, go bankrupt, money (thru inflation and recession) will be used up 25 years after bankruptcy, all Minnesota residents will pay for the next 125 years, minimum. I say leave it in the ground until a tried and true method is found. It’s not going anywhere.Michael R. Boyd6689 Hwy 21Embarrass, MN 55732

Alphabetical by sender's first name

Michael R. Huber 20182

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Ms Fay: Thank you for the opportunity to comment on the PolyMet project. I find the SDEIS to be quite alarming. Major points of concern harvested from the document revolve around the centuries long period during which remediation will be required as a consequence of planned mining operations, and the speculative nature of the proposed remediation measures. The sustained pollution from proposed operations can, over a five century period, be expected to escape. To pursue such an operation at the headwaters of some of the largest freshwater reserves in North America strikes me as the height of folly. The ultimate costs in human terms alone will far exceed whatever employment/economic benefits might be realized in the next few decades. Add to that the reasonably anticipated damage to the state's natural resources, and you have an almost perfect picture of a losing proposition for the citizens of Minnesota and the Upper MidweSt Please count me as one Minnesota citizen emphatically opposed to having the PolyMet proposal move forwaRd Best regards, Michael R. Huber 3810 Vermilion Court South Eagan, MN 55122-3156

Michael Ramsey 6645

Dear Sirs, I have listened to a presentation by President, CEO and Director of PolyMet, Jon Cherry. Mr Cherry’s presentation was well informed, thought provoking and insightful to this type of mining. As a previous supervisor from the paper industry, I can attest to the difficulties of running an operation while meeting the stringent requirements of a manufacturing process. The requirements include meeting air and water constraints while maintaining a safe operational environment for both the workers and the community that borders the plant. Without a doubt, this mining can be done safely and comply with the rulings placed upon it. No company would fail at its environmental stewardship while risking large amounts of capital. As a final testament, Mr Cherry did not push the doubters of the project aside, but answered to their concerns which show us the type of leadership we can expect from PolyMet. Let PolyMet proceed with the project. Thank you, Michael Ramsey Michael Ramsey 221 Bluffs Ridge Court Duluth, Minnesota 55811 The views and opinions expressed in this message my own. I am solely and individually responsible for the content. This is not intended to represent or reflect anyone else’s views or opinions, including those of my employer, ALLETE, Inc.

Alphabetical by sender's first name

Michael Rentz 43123

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Ms Fay et al.: I write to express my thoughts on the NorthMet SDEIS. Thank you for providing us this (legally mandated) opportunity. I have some concerns I will outline below Minnesota Biological Survey: The SDEIS identifies that the mine site includes over 1,000 acres of habitat identified by the MBS as “Sites of High Biodiversity Significance” The SDEIS attempts to rationalize/minimize the acreage by arguing that the affected acres are a small fraction of all land identified as of “High Biodiversity Significance” and small fractions of the habitat types overall in the region. This represents a fundamental misunderstanding of what a site of “High Biodiversity Significance” means. These sites are identified as areas that are among the best examples of the habitat in the state. It is not meaningful to compare these habitats with others in other parts of the state, as they do not perform the same ecological function. Also, as units considered to be of “High Biodiversity Significance” they cannot simply be swapped out with less significant examples of the same habitat that are, by definition, of lesser ecological integrity. Non-invasive plants: I applaud the stated intention to control erosion and potential invasion through re-vegetation, but have some concerns with the proposed species mix. Several of the proposed re-vegetation species are known to be invasive, and simply co-planting with native species and hoping the natives win out is unacceptable. The referenced mitigation measures to control for potential non-native invasives is vague, referencing a “monitoring and control program” with no details on how this would occur, nor any definitions of what would be considered an unacceptable level of non-native species in the reclamation, and at what date that target would need to be met to trigger the “monitoring and control program.” I would like to see a target date for the assessment of reclamation, and a level of non-native ground cover and species that would trigger control. Lynx: The analysis of impact on this species does consider possible increased mortality as a result of increased vehicle traffic, a good example of deeper thinking. No mention is made, however, of the impact on this species of increased noise. If the animal is “spooked” by the mining noise, the effectively lost habitat could be greater than that which is simply within the direct footprint of the mine. Noise: I was pleased to see the effect of noise on wildlife considered. However I would like to see this concern married with the noise level maps from previous sections to determine the total possible habitat loss, or lower use of habitat by mobile species such as the lynx, eagle, and other birds. Moose: Little mention is made of moose in the wildlife section. What affect would the increased noise have on moose in the surrounding Forest. I have directly observed moose in the Skibo/Seven Beavers area, which could potentially be within the noise footprint. Given the decline in moose in Minnesota, any action which impacts this species needs to be approached with caution. I would like to see some effort made to address noise and vehicle/rail impacts on this animal. SGCN: The list of possible SGCN does include the heather vole, but does not include 3 other SGCN mammals that may inhabit the region: 1) Microtus chrotorrhinus, 2) Mustela nivalis, 3) Sorex fumeus. The DNR does sample small mammals in the area of the mine (John Erb) and while none of us have captured these species near the mine, an absence of proof is not proof of absence. The last surveys which directly searched for any of these species are many years in the past, including those referenced for the heather vole (Christian 1993; Jannett 1998). Thank you for your time and consideration. M

Michael Ripberger 27520

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Sirs/Ma'ams, Please accept these comments concerning the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Not just some, but ALL places where sulfide ore mining has occurred. Being that sulfide mining has never been done in Minnesota, based on its history it therefore poses a real and direct threat to wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. If it poses a threat to Lake Superior, would this not pose a threat to the other Great Lakes as well. How many citizens, industries, farms and how much wildlife, water sources and acres of soil would this adversely affect, not just in Minnesota but neighborning states as well. Remember, our fresh water is finite, not infinite. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Please place the health and well-being of citizens over those of corporate profits. Thank you very much. Sincerely, Michael Ripberger 1977 Cerro Crest Ct NW Los Lunas, NM 87031-8318 (505) 565-0379

Alphabetical by sender's first name

michael rose 41889

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, michael rose lauderdale, Minnesota

Michael Rota 14905

Feb 11, 2014 Ms Lisa Fay MN Dear Ms Fay, I urge decision-makers to reject the PolyMet proposal to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Let's not sacrifice the long-term well-being of our state for some short-term economic gain, which only benefit a few. Sincerely, Dr Michael Rota 2143 Eleanor Ave Saint Paul, MN 55116-1357

Michael Saima 9663

My name is Mike Saima, I live at 1380 Terrace Dr apt 302 Roseville, MN 55113, and I am e-mailing you because I saw on Channel 4 News the proposal being reviewed to mine in North East Minnesota's Iron Range for copper and nickel. I am strongly against this as well as my family and friends for this proposal. The damage it would do to the environment is not worth this endeavor. Too much has already been done to this planet to extract and ravish the environment for material and monetary gain, it comes across as greedy and inconsiderate. I would never vote for any politician that would support big business over the environment. Can't you people have the foresight to see that preserving the environment is the best for our future generations. Our children and grand children will being judging us on how we treat this planet and in what condition we leave this planet for them. I hope you make the right decision and decide against this project and the potential damage it would do to the water system, that should not be overlooked. There are more people in the state of Minnesota who oppose this measure then support it and their voices should not be disregarded. We'll be monitoring your decision and if you choose wrong the people won't forget and may not forgive. Thank You, Sincerely Mike Saima

Michael Schelmeske 54829

See attachment

Alphabetical by sender's first name

Michael Smith 2859

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Lisa Fay, As a property owner in Lake County, I certainly feel that I have a vested interest in PolyMet's proposed copper-nickel mining operation near Hoyt Lakes, Minnesota. I'm also a private business owner and resident of Hennepin County. I understand Senator David Tomassoni's position that, "New mining opportunities provide critical jobs for Iron Rangers " I will acknowledge there is an ever-increasing demand for metals like copper and the benefits of tax revenues can't be ignored. However, these are hardly justifications to move forward with a plan that says next to nothing about the financial assurance of this proposed mining operation. If the role of the DNR is to protect and manage our natural resources, then why hasn't the DNR requested a more detailed financial assurance analysis. How these amounts were determined for example. In addition to the proposed cost to shut down operations, contain the waste, monitor the water quality and treat the water that becomes polluted, I have concerns about the "reclamation process." If I understand the report correctly, the reclamation process would consist of a need to monitor and treat the water for a minimum of 200 years at the mining site and 500 years at the processing facility. Even if the high-end cost-estimate of $200 million were adequate to complete the reclamation process, 500 years is unimaginable. It makes absolutely no sense for the state of Minnesota to even consider such a proposal. PolyMet's proposed mine is not Minnesota's typical mine, but a new toxic producing mine. The long term environmental impact for the state of Minnesota could be HYPERLINK "https://www.google-com/search.client=firefox-aandhs=ddnandrls=org.mozilla:en-US:officialandq=define+catastrophicandsa=Xandei=PXKzUpyAGcqv2QXqkoDoBwandved=0CC0Q_SowAA"catastrophic, leading to the impairment of wetlands and aquatic ecosystems, toxic pollution of drinking water, ground and surface water. Mercury contamination of fish and threats to endangered species. I think it's a safe bet that PolyMet's open pit sulfide mine and tailings basin will leave behind a mess, whether the reclamation process is adequately funded or not. As a Minnesota tax payer I don't want to be a part of PolyMet's proposed mining operation and I urge the DNR to act in the best interest of the taxpayers of Minnesota not the PolyMet corporation. Sincerely, Michael Smith 4952 Newton Avenue South Mpls, MN 55419

42717

See attachment

michael sobania 41868

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, michael sobania Stpaul, Minnesota

Michael Stoos 47166

Mar 12, 2014 Ms Lisa Fay MN Dear Ms Fay, Please reject the risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats, and Polymet will be long gone before they have to account for any of the damage done to our state. Sincerely, Michael Stoos 6072 Meadowood Ct Savage, MN 55378-3604 (952) 440-8610

Alphabetical by sender's first name

Michael Tempel 42441

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Michael Tempel 8749 Stratford Xing Minneapolis, MN 55443-3842 (612) 703-8874

Michael Tezla 38949

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Michael Tezla 1876 Yorkshire Ave Saint Paul, MN 55116-2404 (651) 699-0361

43258

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Michael Tezla 1876 Yorkshire Avenue Saint Paul, MN 55116

Michael Torp 54538

I am very concerned about any plan that calls for 200 or 500 years of remediation/maintenance by a private or public corporation. This is unprecedented and goes beyond any realistic that any entity could fulfil this type of obligation. In addition, the EIS does not address the plan, or lack thereof, how you plan to secure a 500 year financial commitment that is irrevocable to Polymet.

Michael Vanderford 19802

Feb 28, 2014 Ms Lisa Fay MN Dear Ms Fay, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. For 20 years PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream literally for hundreds of years. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Michael Vanderford 4154 Blaisdell Ave Minneapolis, MN 55409-1513 (612) 827-3014

Michael W Youngquist 57247

My wife and I are strongly opposed to this mining operation. The actual and potential damage to our environment will be significant and long term regardless of their EIS. We cannot trade a few short term jobs for our beautiful and healthy northern Minnesota.Michael W. Youngquist79 Maple Hill DrGrand Marais MN 55604

Alphabetical by sender's first name

Michael Walker 39984

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Michael Walker 17762 Keystone Ave Lakeville, MN 55044-9365 (952) 435-0164

Michael Willemsen 39061

---Original Message--- From: michael_willemsen@yahoo-com [mailto:michael_willemsen@yahoo-com] Sent: Tuesday, March 11, 2014 10:58 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. I hope this information is correct I haven't read all of it - I just heard some bad things from a really nice guy who came to one of our Sierra Club North Star Chapter meetings a while ago. I have a "No Sulfide Mining" button. I trust his expertise. i hope you're having a good day. Be well Sincerely, Michael Willemsen 208 9th Ave South Sauk Rapids, MN 56379-1846

Alphabetical by sender's first name

Michael Wozniak 16283

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

micheal erickson 40706

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Michele Bevis 44380

---Original Message--- From: mbevis@fmr-org [mailto:mbevis@fmr-org] Sent: Wednesday, March 12, 2014 3:59 PM To: Fay, Lisa (DNR) Subject: PolyMet's SDEIS is poorly planned and needs to go back to the drawing boaRd Dear Ms Fay: Long after the mining has stopped, PolyMet would pose an ongoing risk to fresh water. The Embarrass, the Partridge, and the St Louis Rivers, as well as Lake Superior, are far too precious to be put at risk for so long by PolyMet in its present form. PolyMet should not be permitted unless, when the proposed mining stops, the groundwater and surface water is left in a clean condition, and surrounding streams, rivers, and Lake Superior are safe from risk of sulfide mine pollution. Work for Minnesota's environmental long term health. Sincerely, Michele Bevis 3442 35th Ave S. Saint Paul, MN 55101

Alphabetical by sender's first name

Michele Bevis 47198

---Original Message--- From: mbevis@fmr-org [mailto:mbevis@fmr-org] Sent: Wednesday, March 12, 2014 9:03 AM To: Fay, Lisa (DNR) Subject: PolyMet's SDEIS is poorly planned and needs to go back to the drawing boaRd Dear Ms Fay: Dear Decision-makers for the PolyMet Sulfide Mine; In January, 2014, I attended the StPaul hearing for the proposed PolyMet Mine in northern Minnesota. I was struck by the desperation of the citizens that want the mine for the sole purpose of providing themselves and their community with jobs for 20 years. As much as my heart goes out to them, I believe it is short-sighted and unsustainable to want jobs for a mere 20 years, then to have your children and grandchildren, and their children's children, deal with eternal water pollution that will affect them, even harm them, and possibly destroy or at least seriously alter, the environment that they profess to love. Not to mention the rest of the citizens of Minnesota who will be paying the taxes for eternal clean up. I do not believe that one of the purest watersheds IN THE WHOLE WORLD is a good place to take such a RISK.. of contamination. I do not believe that PolyMet will be the first, or one of the first, companies to operate a sulfide mine without creating dangerous pollution. They apparently have a questionable reputation in other parts of the world. What' in it for them to care about our community.. It is notable that within the last few days, a coalition of MN doctors and health care agents have expressed serious concerns about the potential chemical contamination and this health effect on Minnesotans. Please listen to these concerns. Please error on the safe side of this decision. If it's true that we only recycle 25% of available copper, why not create a copper recycling industry in northern Minnesota. Why not focus the best and brightest minds on creating sustainable, essential industries in this region, that will not harm the environment or our people. Thank you for holding public hearings on this serious, serious matter. Thank for all your efforts to listen to all concerns and be fair in your assessments as to what is the right thing to do. PLEASE, PLEASE, PLEASE, do not allow this sulfide mine to happen in northern Minnesota. Not to mention that this would open the door to the other sulfide mines waiting in the wings for this decision. Thank you. Michele Bevis Sincerely, Michele Bevis 3442 35th Ave S. Minneapolis, MN 55406-2741

Michele Braley 10005

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Michele Braley 2215 - 27th Avenue S. Minneapolis, MN 55406

Alphabetical by sender's first name

Michele Braley 18751

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Michele Braley 2215 - 27th Avenue S. Minneapolis, MN 55406

50825

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Michele Braley 2215 - 27th Avenue S. Minneapolis, MN 55406

Alphabetical by sender's first name

Michele Gonyea 52366

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. My family and I have been camping in the BWCA for many years. I hate to think of the waters up there being destroyed and us not being able to enjoy the BWCA anymore. Please reject any possibility of mining in that area to help preserve the wonderful area that it is. Sincerely yours, Michele Gonyea Michele Gonyea 3775 Black Oaks Lane N Plymouth, MN 55446

Alphabetical by sender's first name

Michele Jimenez 52439

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Michele Jimenez Ellice Trail Apple Valley, MN 55124

Alphabetical by sender's first name

MICHELLE ANDERSON 16274

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

michelle coughlan 41623

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, michelle coughlan north mankato, Minnesota

Alphabetical by sender's first name

Michelle Duhant 43485

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I grew up on the Iron Range during the days of orange drinking water, blasts that broke windows and open pit mines that seemed to go on forever. Looking back, the environmental impacts were minimal compared the concerns I have with this operation. I now live in Finland, MN and enjoy clean water, pristine rivers, a crop of wild rice that is safe and air that is sweet to breathe. This operation may compromise the water, as the tailing's basin seeps into the ground water and could go in every direction. We are already home to a Super Fund site because of the previous Federal Air Base that was here for over three decades. People's health has been compromised and many deaths have occurred because of lack of vision and and a blind eye turned to the toxic waste in wells, soil and the ground water. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Michelle Duhant Michelle Duhant P O Box 486 Finland, MN 55603

Alphabetical by sender's first name

Michelle Duhant 43489

Dear Ms Fay, Mr Bruner and Mr Dabney: I grew up on the Iron Range during the days of orange drinking water, blasts that broke windows and open pit mines that seemed to go on forever. Looking back, the environmental impacts were minimal compared the concerns I have with this operation. I now live in Finland, MN and enjoy clean water, pristine rivers, a crop of wild rice that is safe and air that is sweet to breathe. This operation may compromise the water, as the tailing's basin seeps into the ground water and could go in every direction. We are already home to a Super Fund site because of the previous Federal Air Base that was here for over three decades. People's health has been compromised and many deaths have occurred because of lack of vision and and a blind eye turned to the toxic waste in wells, soil and the ground water. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Michelle Duhant Michelle Duhant P O Box 486 Finland, MN 55603

Alphabetical by sender's first name

Michelle Finn 40288

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Michelle Finn 1273 Prospect Place Cincinnati, OH 45231 US

Alphabetical by sender's first name

Michelle Franzel 15299

Feb 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Michelle Guyett 40120

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, People all over the United States are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Michelle Guyett 4140 N 35th Pl Phoenix, AZ 85018-4708 (602) 522-1680

Alphabetical by sender's first name

Michelle Haunsperger 15853

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Michelle Haunsperger 3549 Noble AveN. Robbinsdale, MN 55422

Alphabetical by sender's first name

Michelle Hensley 41778

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

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Michelle Javorina 41746

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Michelle Loseke 38512

I want to register my objections to allowing this mine to proceed. From what I've read, the companies and people involved either have dismal records on safety or have no record at all as this is their first foray into this kind of mining. Clean water is more previous than any ore or gas or oil - we won't truly realize this until we loose it, but then it will be too late. Respectfully, Michelle Loseke 2701 E Thomas Circle Sioux Falls, SD 57103

Michelle Raskovich 19526

My name is Michelle, M-I-C-H-E-L-L-E, Raskovich, R-A-S-K-O-V-I-C-H. I live at 1539 North 9th Avenue East, Duluth, Minnesota. I am greatly concerned about the water quality impact and what will happen over the years after PolyMet leaves. I feel that over 20 years of mining and we have to spend over 500 years with contamination that will be leaking continuously into our water. It just doesn't impact a small part of Minnesota. The waters continue to flow and flow for generations, spewing toxic waste. And there is no guarantee of containment, there is no follow-up on how they're going to pay for all of that, and when we're talking about our environment and our children and the generations to come, the 20 years of mining is a small -- small, ridiculous suggestion. That’s it.

Alphabetical by sender's first name

Michelle Raskovich 39898

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Michelle Wendling 42039

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Michelle Wendling Rothsay, Minnesota

Alphabetical by sender's first name

Mick 44373

America was founded on the idea of stealing lands, cheating hard working people, making quick profits, and being corrupt. It is a long standing tradition. Your company follows perfectly with this idea. Keep up the good work. Way to destroy our natural lands in order to make a quick buck. I'm happy for you as a large controlling company. I love swimming in arsenic polluted lakes and destroying the the lively hoods of hard working Americans in the tourism industry. In conclusion your mine will only hurt people, the economy, and most importantly the land and water surrounding our beautiful state. -Mick Lundquist

Miguel Bordayo 54176

The reason why you shouldn't drill for copper and nickel is because all the rocks and dirt has sulfuric acid and you are going to wash that into a river, and all that water will turn yellow and kill so much water life. And the TNT you are going to use, to make a 20 story building and a length of 5 football field you are going to kill everything. We all have been protecting that site for 30+ years and your [ILLEGIBLE] stay there for 20. All that damage is going to hurt the environment. It's never gonna come too life, its gonna stay dead forever.

Miia Suuronen 40357

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Miia Suuronen Muroleenkatu 12 b 28 Tampere, ot 33720 FI

Mikayla Rue 54352

Dear Ms. Lisa Fay,I have read your website on the mining project in Northern Minnesota and I agree with this project's idea. I think this would benefit Minnesota in many ways. Some advantages are that it would upgrade utilities, roads, and railroads. It could also benefit the economy! The project could make 18,000 tons of nickel/copper hydroxide, 113,000 tons of copper concentrate, 32,000 tons of ore, and 500 tons of PGE precipitate each year. In some ways this can be bad, but for our growing economy we need to collect this stuff for manufacturing.Now there are some disadvantages with this project. There is land-clearing, which can be hard on the environment. We need to protect the land, it helps us in several ways. If the land is cleared this could allow erosion to happen without the trees there to protect the earth.This project could also affect cultural resources. The land is important to the Indian people for hunting, fishing, and planting. People also, don't like the noise, dust, earth-moving, vibration, visual obstruction, and excavation.The land exchanges would make sense. It would involve the transfer of 6,650.2 acres of federal lands from public to private ownership, and up to 6,722.5 acres of land to private to public ownership. But this would depend upon the results of the environmental analysis and federal real estate appraisals.This project would not affect me much. Mostly because I'm at a young age and I'm not part of the work force yet. I don't see this stuff happening. But I do think this project is a good idea! It will hopefully help our state in many ways.Sincerely,Mikayla Rue

Alphabetical by sender's first name

Mike 4268

Public Comment for PolyMet's SDEIS I would like to submit my public comments in support of PolyMet Mining. In order to support my standing on granting a permit to the PolyMet Corporation, a few items are listed below: First and foremost, science is a wonderful profession. My background is medical which I have been practicing since 1989- I see first-hand new technologies that at the start of my career were mind blowing and so "unknown" that people would say that would never happen. Today however, many of those things are now in mainstream practice and we look back thinking WOW . An example of this is genetics and our ability to actually change our chemistry (genetics) to cure a disease. Another is stem cell research where we can take the base cell of human existence and turn it into any organ we want. Another is the invention of 3-D printing where we are actually printing organs and tissue – you can read about the ear transplant that was created by a 3-D printer. In an era of great advances in science and engineering, we should never go in with blinders and say something is a bad thing. As a society, we should be open minded and say "how can we improve the current situation with current and / or experimental technologies and make it a viable operation that could potentially leave the environment in a better place than when we started." PolyMet has done their research. They have systems in place that not only will meet or exceed standards for environmental protection, but they may actually set the bar higher for other mining companies to keep our natural resources intact. Reverse osmosis is clearly a winning technology that will win the hearts of all living creatures in the area, including humans. I have reviewed the SDEIS, visited with company leaders and toured the mine and property, I am confident that PolyMet is a conscientious partner to have in the mining industry. Next of course is the economic impact that this mine will have on the communities involved. It is no secret the mine itself will be great asset to both the local area as well as the state of Minnesota. But the impact this project will have in the country will also be established as we see industries moving back to the United States from overseas. Our energy landscape has dramatically improved in the last couple years and because of that, interest in investing in America is returning. Resources found at the PolyMet site are required for America to rebuild and grow. The local job creation is directly obvious. The indirect job creation this country will see by having the combination of cheaper energy alternatives, as well as the domestic resources mined by PolyMet for building and retooling American companies will be impressive. PolyMet is a key player that holds the resources needed for innovation, rebuilding and science advancement. Having companies like PolyMet in areas like Minnesota are a great benefit for all, especially those of us in this country. Not only will we benefit from the economic boost that this mine will bring, but we will be reassured that quality measures are in place to keep the entire planet cleaner and greener. Having been able to see firsthand, the potential of this mine as well as the safeguards in place to keep Minnesota's natural resources protected, I have given my support by investing in PolyMet by becoming a shareholder. I believe the approval of this mine will be a game changing event in many ways for Locals, Minnesotans as well as Americans as a whole. With the permit approval, we will see; improved job markets and decreased unemployment, increased tax revenues, more conscientious partners in the mining sector, better advances in water purification, and understanding of the mining resource requirements needed in all industries. Respectfully submitted, Mike Tonne 7749 Meadow Lane Minocqua, WI 54548

Mike & Mary Anderson 3854

This is the 21st Century, not 1900- The greatly improved techniques for mining and our concern for the future of this planet go hand in hand. We can enjoy the benefits that our planet provides without destroying it. We just had our 1st great grandchild. We would support nothing in the name of greed that would not assure her of a future of fresh air and fresh drinking water. There is a new term that we have come to use frequently. "CAVE" People "Citizens Against Virtually Everything." We have become a nation of bitchers, not doers. Move forward with this project. Create jobs. Create resources for our factories. And protect the Environment. Are we a great nation or does China now rule the world. Mike and Mary Anderson 484 N 600 E Angola, IN 46702 260-665-9376

Mike and Judy Peterzen 54876

See attachment

Mike Bergh 42584

See attachment

44376

One part I noticed that was not mentioned often enough, was that when they bury the waste ore, they can ad limestone to neutralize the sulfate acid if there is a problem. Maybe this should be standard practice to help insure limiting potential pollution run off. Thank you. Mike Bergh 424 E. 9th Street Duluth, MN 55805

Alphabetical by sender's first name

Mike Bergh 44377

One part I noticed that was not mentioned often enough, was that when they bury the waste ore, they can ad limestone to neutralize the sulfate acid if there is a problem. Maybe this should be standard practice to help insure limiting potential pollution run off. Thank you.

Mike Berkowitz 26516

I think I have received this message in error. I live in Michigan, not MN. Mike Berkowitz Legislative and Political Director Sierra Club Michigan Chapter 109 E. Grand River Ave Lansing, MI 48906 Office: (517) 484-2372 Ext. 13 Cell: (248) 345-9808 HYPERLINK "http://www.facebook-com/SierraClubMichigan"Like us on Facebook. On Tue, Mar 4, 2014 at 12:01 PM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Mike Carr 40062

I am sending my comment and recommendation to not allow PolyMet to risk the future by mining copper and nickel. I think the following quote sums up my opinion as well: Trading 500 years worth of mining pollution for 20 years worth of jobs is irresponsible," argued Hillary Peterson of Sturgeon Lake, during the hearing in Duluth earlier this month. This is a place where I think government plays a very important role to protect the future of this state. Access to clean water is already a world wide problem, so I can't conceive why projects like this PolyMet proposal would gain consideration. Mike Carr Director Global Finance Solutions General Mills - 763-764-7510 Cell 612-803-5033 Mike.carr@genmills-com

Mike Dahlheimer 10895

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. DO NOT BUILD. MN DOES NOT WANT POLYMET. Sincerely, Mr Mike Dahlheimer 2760 Lancaster Ln N Minneapolis, MN 55441-3282

Mike Ferguson 42431

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Mike Ferguson 418 W Pleasant St Mankato, MN 56001-2509

Mike Filipczak 42609

See attachment

Alphabetical by sender's first name

Mike Forsman 18074

Thank you, Mari. She's probably do a better job than I will, but I'm going to try anyway. I'm a lifelong four-generation ranger. I'm now in any 32nd year as the local elected official, the 20th year as the 4th District County Commissioner. I say that because I've represented the people of this area for many years, now. In fact, I can't remember not representing them. First of all, thank you all for putting this on. I mean, one of the things that I -- that I wanted to say is that I also spent 34 years as a United States steel worker. I retired, actually kicked out of the Reserve Mining Company when they closed the -- the doors there and then ultimately retired from a Minorca. I worked for five mining companies. Still kept the same locker as they kept changing names there, but at any rate, I've reviewed the EIS, read most of it, and I've attended most, if not all, of every informational meeting that has been held on the Range, in Duluth, and St. Paul. I have been to nearly every one of them, and as I've been to them, I've certainly become -- I'm not a scientist, so I rely a lot on the scientific knowledge that we get from NRI, from all of those people that have taken -- taken the time out to take and try to find out is this a good project. And among the scientists, and I don't mean among the people that are against this project and do not have the scientific background, maybe there are some that do, but to the scientists that have really looked into it, I think that I've developed a trust that this supplemental EIS and the people that have worked on it, Commissioner, Supervisor Halter and Colonel, we appreciate you being here, but I think that your offices have really worked to try to make this supplemental EIS and, as I read it, it says that this project is ready for permitting. That's what I saw out of it. I hear detractors that tell me about 500 years of monitoring, et cetera, et cetera, and you know, I was offered -- I did want the clean water thing because I believe in clean water, but I was offered the 500-plus years, you know, and the 20-some years that this mine's going to be on and I looked at myself and I thought to myself, you know, we started mining in Ely, Minnesota, over 100 years ago and that mine was going to -- they -- if they had environmentalists back then, I don't know if they did or not, not but it they did, they probably told them at that time that was going to be a five-year plan in Ely. Thank you.

42611

See attachment

Mike Garramone 19509

Mike Garramone, G-A-R-R-A-M-O-N-E, 4225 West Fifth Street, Duluth, Minnesota 55807. Phone Number 218-624-1280.My concern over the permit issue is I feel that this reverse osmosis creates a pretty toxic sludge or byproduct from the filtration of the water, and they're going to bury it, and three years later, they're going to rebury it in an on-site double-lined area. My concern is, I think in this permit they should have a shutdown clause, and the reason why I'm saying this is because a lot of these companies, it's easier to pay a fine than it is to fix a problem, so if the permit has a shutdown clause, like three violations and you're done until they fix it, that's what I believe should be instilled here somewhere. And I brought this up when they had an open public forum at the Concordia Lutheran Church in Duluth here, and they addressed my comments, but they didn't give me an answer as to whether or not that could be done. And what this instilled in the permit, it's a no-brainer.

Alphabetical by sender's first name

Mike Geisdorf 4011

To the residents of the State of Minnesota, In the past 40 years, I have seen the promise of numerous “big” projects come and go with the potential of hundreds or even thousands of jobs come and go right with them. Sometimes it was prospects for new technologies; Endotronics, Excelsior Energy. Other times it’s a new economic development entirely; a new Army National Guard base, NW Airline Maintenance Base in Hibbing, Paulucci projects X, Y and Z. ect ect. Besides the wood products industry, the only reliable economic development in Northern Minnesota was in the mining industry. They would come, plan, study and then build, with hundreds or thousands of jobs that came directly from the project. But today, the boom of the 1960s seems a distant memory supplanted by contraction, closure and crisis. Once thriving communities’ now just sign-posts along a highway, have become small bedroom communities with barely a local convenience store and a post office. Their schools and playgrounds closed, torn down and grown over as residents left to look for work elsewhere. The roads are a patchwork of torn up streets and alleys with asphalt patches and potholes the rule not the exception. The water and sewer systems in many cases are WPA products of 1930’s and 40’s but are now substandard in the best cases and essentially antiquated in the worSt The overflowing schools of the 60’s and 70’s are unrecognizable in name as district after district have consolidated with the loss of enrollment and the funding that comes with it. Lastly the churches of our communities, the pillars of the town, have withered away right with the rest of the town. The Polymet “Northmet” project represents a change in the fortunes of the Iron Range and Northern Minnesota. With the recent release of the SDEIS, the issues once troubling both residents and environmentalist alike have been addressed. The studies and engineering completed by the US Army Corps of Engineers, Minnesota Pollution Control Agency, Minnesota DNR, Barr Engineering, ERM and others have finally addressed the numerous water effluent issues of the active mine site. The studies completed by Polymet Mining with the reverse osmosis systems answers the water quality problems with a system that’s quite simple. The money Polymet will be setting aside address’s the legacy water issues for generations to come. This project and the resulting economic boom that comes with it, represents far more that just a few hundred jobs, it represents vibrant thriving communities with local business districts bustling. It represents modern environmentally friendly sewer systems and potable water treatment systems in our towns on par with the best in the state. It represents residents and travelers driving on clean new intact streets with modern storm sewer systems that direct heavy rains and runoff into proper drainage systems that don’t overflow our sewage plants. It represents school systems with modern amenities’ of fiber optics, high tech computer systems and modern science departments. But most important, our kids have hope. They have hope that remaining in our area will not lead to poverty on their part to remain up north, their home. They have hope that they will be able to raise families on incomes that will afford them a decent standard of living. That having a large family won’t penalize them allowing them to remain around parents and grand parents. That our schools will again become revitalized with children of people who have chose to stay up north for the clean air and water. We, the residents of Northern Minnesota, outdoorsmen, hunters and fishermen love our land, waters and the air we breathe. Nobody wants to see the unchecked environmental devastation of Sudbury Ontario. But this isn’t Sudbury, and Polymet is not INCO/VALE, Xstrada or their predecessors. We have demanded that this not be and Polymet has stepped up and answered our concerns. I and my wife finally believe in Poly

Alphabetical by sender's first name

Mike Geisdorf 18093

My name is Mike Geisdorf and I'm from Aurora. I fully support the science behind the SDEIS, and I believe that it does address the environmental concerns of the people. Civilized societies advance because the needs of subsistence living was the mother of invention, the outcome of which are today's modern conveniences. My question to you antis are these: When to mine? Modern medicine -- and we heard the doctor speak -- modern medicine has revolutionized human life allowing us, in just 100 years, to move from subsistence life expectancy of some 40 years to soon approaching a hundred years, having mapped the human genome because someone said when was now, by utilizing our natural resources like copper-nickel, platinum, and palladium. Modern transportation has allowed mankind in that same hundred years to go from horse and carriage to now leave Aurora, Minnesota and be in Beijing, China and put our head down on a pillow that night and go to bed, all because of someone saying when was now by utilizing our natural resources copper-nickel, platinum and palladium. Modern communication, which we all have right here, and I see a lot of you guys out – the antis having this, modern communication has advanced in the last 100 hundred years from hearing news from weeks ago in the newsprint to now receiving instantaneous communications from around the world, in Beijing, China, of unchecked pollution because someone said when was now, utilizing our natural resources like copper-nickel, platinum, and palladium. Modern electrical systems have made, in that same 100 years, the life of the common man equal to the wealthiest man amongst us, giving us all the same modern necessities, due to all of the things I've already mentioned, but also due to central heat, air-conditioning, modern water systems, modern sewer systems, which we need, because someone said when was now, by utilizing our natural resources like copper-nickel, platinum, and palladium. Modern scientific advances of 100 years ago began having discovered began mastering entropy, electromagnetism, X-rays, radioactivity, special relativity, quantum physics, to now, we're actually sending probes out of our solar system, doing scientific experiments on Mars, discovering the Higgs boson and utilizing super conductivity because someone said now was the time by using our natural resources like copper-nickel, platinum, and palladium. We talk about sustainability but forget about responsibility. Let me ask you antis this. Where to mine? You who all utilize the same modern inventions the rest of us do. Which third-world mine and where do you want your copper-nickel coming from? The Norilsk mines in Russia? The South African mines? The Chilean mines? The Chinese mines? There's limited choices. Sustainability comes with responsibility and here in Minnesota, in our time, with the best pollution control agency in the world, we can do this right.

Mike Harrington 38843

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Mike Harrington 1392 Pine Tree Dr Maplewood, MN 55119-7115 (651) 214-5309

Mike Higgins 42534

See attachment

mike hughes 36944

i am writing to comment on the proposed precious metals mining that is proposed for northeastern minnesota by polymet. i believe that the permitting should be granted and that the environmental reviews, coupled with governmental oversight, will protect the natural resources from harm. thank you for allowing me to comment. mike hughes 35599 west mcavity lake Rd grand rapids, mn. 55744

Alphabetical by sender's first name

Mike Johnson 18109

My name is Mike Johnson. I'm the current president of the Engineer's Club of Northern Minnesota. The Engineer's Club of Northern Minnesota is in support of the PolyMet Mine. (Inaudible). PolyMet has provided a positive economic impact to the region (inaudible). The engineering club members have been involved in every step of this process and consider the project as described to be economically viable and environmentally sound. The Engineer's Club of Northern Minnesota is in its 100th year of organization. We are dedicated to the advancement (inaudible) economical return, societal growth, and environmental protection. We believe the PolyMet project is respectful in the great tradition of mining in Northern Minnesota while at the same time continuing to improve the various mining processes and results. Minnesota and the United States of America have a process for approving projects such as this. PolyMet has gone to incredible lengths to satisfy the regulations and the law. It is time for the DNR and other agencies to create a positive decision (inaudible) will allow the benefits of the project to be one step closer to reality for the individual businesses and communities for Minnesota and the United States. Thank you.

mike kaufman 40209

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr mike kaufman 1 Winona St W Saint Paul, MN 55107-3354

Mike Klein 39444

Please accept these comments into the public record on the Supplemental Draft Environmental Impact Statement on the NorthMet Mining Project and Land Exchange. Having reviewed the SDEIS, and the significant environmental impacts of the proposed project, I am concerned that the potential environmental risks and economic, environmental, and social costs associated with the project outweigh the potential economic benefit. To encourage careful accounting of costs internal and external, short- and long-term, I propose that a trust fund be established by the mining interest, in an amount determined by a third party assessor, and to be administered by the state, to set aside adequate funds to cover potential environmental impacts over the entire span of project - and subsequent impact - upon the land and waters of the project area. Calculations for the fund are certain to be contentious, but the calculation process would allow all parties to fully assess the predictable environmental impact and unintended consequences of the project, and to internalize those costs that might otherwise be externalized; ie: to other landholders, to water treatment facilities, or to future generations who will not benefit economically, but will be impacted by the long-term timeline established in the SDEIS. Thank you for the opportunity to comment on this significant and long-term project. Sincerely, Dr Mike Klein 1790 Jefferson Avenue Saint Paul, MN 55105

Alphabetical by sender's first name

Mike Kuitu 6270

Dear Ms Fay, Dear Ms Fay, My name is Mike Kuitu, I live at 1114 w 6th St in Duluth 55806- I ask that you reject the Polymet SDEIS and deny permits to Polymet to proceed with their Northmet Mine. I have worked all over the State of Minnesota on construction sites, My very first construction job was at The Minntac Mine in 1974, my last was at the Mesaba Nugget mine in 2011, shortly before I retired. Throughout my career, and particularly at the taconite mines, we workers were informed of the environmental hazards at the Jobsite. Mitigation methods for these hazards were presented to us and their use made mandatory and non-compliance often resulted in termination. There is no identification of the specific environmental hazards present to the workers working at the Northmet Minesite, let alone the levels of toxicity. There is no mention of asbestos or asbestos like fibers becoming airborne. If this is present all over the Mesaba Range, one should conclude that, they will exist at the Northmet mine. There is no mention of how Polymet will protect these workers from that plus arsenic, mercury, and sulfuric acid. There is no mention of the cumulative effects of these hazards on workers health. Because of these omissions, one must conclude that Polymet does not respect workers and their health. We must deny any permits to Polymet. Sincerely Mike Kuitu Mike Kuitu 1114 W.6th St Duluth, MN 55806 (218)391-6367

18387

Hello, everybody. It's sure been a long night. My name is Mike Kuitu. I was raised in Cloquet and I live in Duluth right now. I've been -- I'm a retired operating engineer, which is I was a building trades member while I was working. And you all heard the president of the building trades, Craig Olson, talk about the good paying jobs. And honest to God the construction workers that work at PolyMet will have good paying jobs. But that's where it ends. We don't know what PolyMet is going to pay their lowest paid workers. And that's what scares the heck out of me. Right next door to PolyMet is the Mesabi Nugget Mine. It's a taconite mine. It's a direct reduction facility. And at times those workers have been paid only $11 an hour. And they disguise that by giving them a lot of overtime. And whatever happened to the 40-hour week? So you give people a 60-hour week and so now it seems like they are starting to get a halfway decent job. I really have a problem with that. The SDEIS does not recognize some of these environmental -- these economic environmental hazards that are going to drawdown the rest of The Range and Northeastern Minnesota. Let's consider this: You have the Nugget Mine that's already non-union. There are no agreements for PolyMet to be a union mine. There's no secret agreement with a union where that mine is going to be union right off the bat. And it's not likely that an organizing vote is going to go well there, because the Nugget Mine right next door just turned down an organizing drive two to one. So you got the PolyMet Mine, if that goes non-union -- and I don't know what the plan is at SR or when you get to Twin Metals. I don't know. But if you start getting all these mines together and they're paying $11 an hour, what kind of impact is that going to be to the union mines, Minntac, and ArcelorMital, and United Taconite, and all those folks that are making $20 an hour at a minimum. And those $20-an-hour jobs, those are premium jobs. That's family sustaining. Those miners don't have to go back to moms and dads and say, "Can you buy me a cell phone?" Or "Can you make my car payment this month? "Or something like that. So I would like to see -- I would like to ask this question of PolyMet: What is the lowest wage you're going to pay?

Mike Larson 58120

I am a life long Iron Ranger and have been involved in mining my entire life. I am fully supportive of the Polymet Project. I firmly believe that mining can be undertaken in a fashion that is not harmful to our environment. We need jobs that pay liveable wages.

Alphabetical by sender's first name

Mike Ledin 16055

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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Mike Lein 45324

I offer these comments on the NorthMet SDEIS as a degreed professional who has worked in the environmental protection field for 38 years. This experience includes water quality protection work with the US Forest Service, a private company, and two Minnesota counties. Along the way I have worked alongside of staff of all Minnesota environment and natural resources agencies and many private consultants. If I could state that only one lesson I have learned from all this private experience, it would be that things go wrong. Again, despite all the best laid plans, the latest technology, and stringent local, state, and federal permit conditions, things go wrong. And the second lesson would be that when things go wrong, there are not always easy ways to fix the wrongs. I have traveled in western states and seen miles of western state trout streams ruined by mining runoff and not yet "fixed" after more than a century. I have personally seen the Zotrman Mine in Montana and the impacts it's operation, closing, and pollution has had on the local environment and people. I have operated water treatment plants where equipment broke, concrete crumbled, and dikes were breached. I have dealt with major companies who were allowed to continue operating and polluting for years under outdated or expired permits due to lack of political will, lack of enforcement resources, and lack of funds to implement expensive changes that might shut a facility and kill jobs. So I am suspicious of this proposal that allow a mining technique that has a proven track record of failure and pollution to operate in Minnesota, to be operated by a company with no previous experience, and to be operated with no specific backup or contingence plans. Viewing the document presented on the SDEIS has brought little comfort. Even for a seasoned professional such as myself, there is too much to absorb and comment on during a 90 comment period. And at the same time, despite the hefty stack of documentation, there isn't enough data to make a determination even if the time allowed and I were an absolute expert on that particular chapter of the SDEIS. It's a classic case of "show your work". This hasn't been done. Where's the documentation of consideration of worst case scenarios. It can't be found – at least by me. The scale of the treatment technology when considered over 500 years and the sheer size of the project – even without planned expansions – is untested in the world – at least as far as I can determine. The complexity of the work and modeling has added to the confusion surrounding the project. One day we hear that the water quality model used incorrect flow data and needs to be corrected. The next week we hear that the correct data was used, but it was buried so deep in the model that it took the experts a week to find out is was correct. At a minimum, slow the project down - extend the comment period and offer details on financial assurance, even if not legally needed now. Once again, show us that State employees have done their homework on an immense project that has no proven track record other than failure, operated by a foreign company with no operational experience, that will need care and maintenance for 500 years or more. Mike Lein 513 Casper Circle Norwood Young America, Minnesota 55368 fishlein@mchsi-com

Alphabetical by sender's first name

Mike Link 6126

To the hearing officials and state and federal agencies reviewing the PolyMet permits I need to make sure there is no confusion about my position. I oppose the Polymet Mining projects in Minnesota unequivocally. The rationale for these mines has one basic flaw – and that is that they cannot help but harm the only planet I can live on. The location of these proposed mines raises the immediate concern for two of our regions greatest resources – the Boundary Waters Canoe Area – and Lake Superior. In January 2012 the Environmental Protection Agency released its annual survey of pollution discharges in the country. Mining operations similar to what PolyMet and Twin Metals propose were once again identified as the single biggest polluter in the country, responsible for 41 percent of all toxic releases. The EPA report for Mining Operations as Nonpoint Source Pollution in the Mid-Atlantic Region states that in the Eastern United States, "More than 5,150 stream miles have been contaminated, causing the loss of aquatic life and restricting stream use for recreation, public drinking water and industrial water supplies." This acidification is caused by two sources – again according to the EPA "abandoned mine drainage - which results from water flowing over or through abandoned mines, and by acid air deposition - primarily from the burning of fossil fuel; this produces acid rain." The source of this information is http://www.epa-gov/reg3wapd/nps/mining.html. The impact of the mine will have a positive economic impact for the community in the short run, however, let's be clear – these are International companies and as we know the laborers do not get the majority of earnings. These companies have no concern, no commitment to our resources – they simply see profit. But profit for the mines actually means loss to the state and nation. Our resources will be diminished and our state and federal taxes will be required for the infinite treatment of their wastes. And I would like to emphasize – INFINITE. There is no expiration date for the wastes, no time when they convert to some innocuous compounds – this is a forever commitment that we should not make and one that we know the corporation cannot make. Should they decide to convert their company and sell off the assets they can declare bankruptcy and we will still have the problem. The fact that we have had Iron Ore mining in this region is not sufficient justification - when rain falls on the waste from iron mining, it makes rust; when rain falls on sulfide ore waste, sulfuric acid is produced. - See more at: http://www.friends-bwca-org/issues/sulfide-mining/#sthash.U6R6aaYl.dpuf The real economic engine of this state is the unspoiled landscape and waters of the canoe country and Lake Superior. In a time when we know there is a coming water shortage on this planet we cannot afford to compromise the quality of our water. We cannot afford to see degradation and diminishing fresh water resources. We cannot canoe in bottled water, we cannot sit beside bottled water and enjoy the fresh breezes and breaking waves, nor can we swim and fish in an aquarium. When my wife and I walked around Lake Superior we chose to emphasize the fragility and importance of Fresh Water. We saw how much effort and money is needed to clean up bays if they are polluted, but more than anything we saw that the people really cared about their lake and the same can be said for the Boundary Waters. These are not anonymous places, they are in our heart and they are places the state and nation are obligated to protect. Say NO to the mine. Mike Link 82119 Bennett Road Willow River, MN 55795

40026

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I never feel that my responses are adequate. Everyday we learn new lies. We find more coverups. Just say no to this unethical corporation. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Mike Link 82119 Bennett Rd Willow River, MN 55795-3079 (218) 372-3507

49074

Mar 10, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I never feel that my responses are adequate. Everyday we learn new lies. We find more coverups. Just say no to this unethical corporation. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Mike Link 82119 Bennett Rd Willow River, MN 55795-3079 (218) 372-3507

Alphabetical by sender's first name

mike love & jeanine kelley 41359

Dear Ms Fay, Mr Bruner and Mr Dabney, We have grave concerns about the SDEIS and the potential mine and wetland destruction permits for the NorthMet mine operation. Protection of the area's wetlands and water should be the number one concern when considering the permits. The US and the state of Minnesota have lost too many important wetlands already. PolyMet proposes to create 913 acres of destroyed wetlands, but manmade wetlands never have nearly the biodiversity of natural ones that have developed over hundreds of years. The bogs and peatlands in the area will be especially difficult to replace. In addition, there is no plan to repair damage from pollution and reduced water flow to several thousand acres of other wetlands. It is our understanding also that most of the mitigation will be outside the Lake Superior basin. Lake Superior is the most vulnerable of the great lake to pollution because of its cold temperature and lessened ability to clean itself. The Lake Superior Basin needs more wetlands, not less. This is an unacceptable environmental degradation and we request that you deny the wetland destruction section 404 permit. Minnesota Rule 6132-3200 states that a mine must be maintenance free when it is shut down. The timeframe for treating the water from the mining site and the tailings site is several centuries. How can this plan comply with state law and how can it be taken seriously. No one today can guarantee that the treatment will be continued that far into the future and that the company can put up enough money to ensure this. How can we know the current amount of money that will be sufficient to monitor and treat these sites for that long. We don't even know all of the details of the current treatment plans or how adequate they will be for keeping pollution out of our surface and ground water. Sulfide mining has never been done before in water abundant areas without causing pollution. What proof is there that the proposed treatments will be effective enough. Will there be backup equipment for immediate use in case of equipment failure. We think there should be stringent and frequent monitoring of the surface and ground water for pollutants and continuous monitoring of all discharges into the local rivers. What plans are in place to repair damage and stop the mining process if excess pollution is found. If the pollution control plans don't work as advertised, will a correction be possible. We don't believe that the cumulative effects analysis area was large enough. Along with the Partridge and Embarrass Rivers, the St Louis River should be studied for the cumulative effects from the proposed NorthMet mine. The city of Duluth has spent millions to clean up the St Louis River for recreation and plans to spend millions more in the future. With all of that effort, it would be a shame for PolyMet mine to add more pollution to the St Louis and Lake Superior. Our country has had a poor history of honoring the treaties with and rights of Native Americans. We are troubled that the local Minnesota Indian tribes disagree with many of the findings in the SDEIS. The rights of Native Americans should not be impeded to live off of their lands without serious concerns about the water quality for drinking, fishing and wild rice harvesting. Wild rice has been declining in the state and a safe sulfite standard has not yet been definitely determined. The state should err on the side of caution. Wild rice is part of our state heritage. PolyMet has never mined before. The major company hiding behind them, Glencor, has a bad track record for pollution, lack of clean up and poor working conditions. There has never been a sulfide mine that has not polluted the near by waters. Wetlands that protect other waters will be eliminated and impaired by the proposed mine. We don't believe that the alternative of an underground mine was fully studied. Native Americans and all area water users are afraid of the consequences of the mine and ta

Mike Lundstrom 6136

PolyMet Project Comment In the dialogue about allowing the PolyMet copper mine project in Northern Minnesota, It is important that we turn down the volume of rhetorical extremism from both sides of the spectrum. The policy decision cannot be driven by those who believe that this process should be allowed without question or those who believe that any measure of risk should not be tolerated. To me it comes down to facts and truSt Lay people cannot begin to wrap ourselves around the research and data generated by the 2169 page EIS report required by regulators. I take solace in the fact that Minnesota has some of the most stringent policies in the nation regarding the permitting of mining. I also recognize that with any progress made in life, there is some inherent risk in moving forwaRd We cannot expect or guarantee absolutes in outcomes. We can, however, with the proper research and monitoring minimize potential negative consequences for the greater good of our society and for the quality of life in this region. We must trust in our process and in our governmental institutions to make wise policy decisions as a necessity to a functional society. From everything I have read and heard, the PolyMet project can and will be managed and scrutinized in a manner that will be of low risk for a high gain to the local and the national economy. Please permit this important project. Mike Lundstrom Executive Director Hermantown Area Chamber 218-729-6843 HYPERLINK "http://www.hermantownchamber-com/"www.HermantownChamber-com Description: HERMANTOWN CHAMBER LOGO WITH BLUE BACKGROUND

Alphabetical by sender's first name

Mike Maleska 19525

My name is Mike Maleska, M-A-L-E-S-K-A, and I'm from Hibbing. If this type of mining is allowed to proceed, these communities will fill up with families and churches and other industries and groups and interests, and that's an economy. What I want to know is what entity will have the authority, or more specifically, the courage to call a halt to this mine when a disaster occurs? Who will tell the workers in their communities that it's all over? What politician wants that responsibility? Is it going to be the Forest Service? Is it going to be the DNR? Is it going to be the U.S. Army Corps of Engineers? I stand up for whistle-blowers and any other entity that wants to make what is needed to be done on a disaster of any size. What magnitude of disaster will it take to -- to have this mining process stopped and halted and repaired forever? Is a little poison for a little while okay? Is a little poison for a long time okay? Is a lot of poison for a little while okay? And again, what magnitude of disaster does it take to make people realize that this is a permanent change to the ecology and the environment? That’s all I have to say.

Mike Malling 52314

I'm concerned about the long term impacts of the project. Noise, water pollution, long term contingency plans if the project fails, the endangered lynx, and the fact that this type of mining has never been done without impacts to water are concerns. I'm a biologist and understand the project. I don't understand why the forest service would consider this project. By the way, your commercials are less than effective and poorly timed. Thank you Sent from my iPhone Mike Malling

Mike Markell 16202

Thank you for the opportunity to comment. I'm 69 years old and have been user of the BWCAW for 50 years. My father was a user and guide before me in the 1930's. Although not opposed to mining in Minnesota, I am opposed to this project. There is no scientific evidence that the waters of the BWCAW will be protected and preserved under this proposal. This is of utmost concern to me. I'm not convinced that the cleanup projected to take maybe 500 years (hard to comprehend) is even viable. Companies come and go and how can we ensure that there are enough funds to first, protect Minnesota's treasured lands and waters and second, if the proposed project is approved that there will be enough dollars to for protection in the short term and clean up longterm. If we need 300 jobs in Northern Minnesota let's have the Legislature approve a CCC type project (with corresponding funding) of good paying jobs rather than use that as an argument to approve this project. Give the IRRRB the funds and have conservation related jobs created. Mike Markell 17809 Covington Road Minnetonka,MN 55345

Mike McGill 39236

Please see the attached letter reflecting our opposition to the proposed PolyMet mining project and the inadequacy of the PolyMet SDEIS. Thank you. Mike McGill

Mike Mcparlan 18170

I'm Ed Borchardt. I and I yield my time Mike McParlan. Like he said, I'm Mike McParlan. That's M-C, capital P-A-R-L-A-N. I would like to start my time by telling you I guess a little bit about myself and what I do. I think it will add context to my remarks. I was born in Duluth, Minnesota. I've lived all my life in Duluth. My wife, Mary, and I have raised five children in Northern Minnesota. Like many of us here in Minnesota I care a lot about the outdoors. It's a major part of my life. We began with our children in Bear Head Lake State Park. And as they got old enough to carry the canoes and paddles and gear, we graduated to the Boundary Waters. And we've raised all of our children enjoying the outdoors of Minnesota. I also work in Northern Minnesota. I work in construction. My job is -- I'm a COO for API Group, which is a parent for numerous construction companies throughout North America and the UK. 15 of those companies are based in Minnesota. Four of them in Northern Minnesota. My whole career has been in construction. And I guess to add context to my remarks, I really feel the need and the benefit for the jobs and the economic and the input that we will get from a project like this. But having grown up in Northern Minnesota, I also highly value the environment and the quality of life that we have. And I wouldn't change that for anything. I wouldn't trade that away for anything. But thankfully in this process I feel that we have an opportunity to repurpose an existing mine site. And I think we have the technology and the capabilities to do this right. I put my faith in the process. And I look at the room here tonight and the push and pull between different points of view. I believe we in Minnesota can assure that this project is delivered safely; and that we have the capabilities to hold ourselves and the company accountable for a safe, long-lasting, positive project for our future. Thank you.

Alphabetical by sender's first name

Mike Menzel 18273

Mike Menzel, Edina, Minnesota. I understand that this is a very difficult process, given the unemployment rate up in northern Minnesota. And that is being balanced against environmental concerns. However, I feel that we need to explore other job opportunities for the folks up north because this mine has great potential for being an environmental catastrophe. Many great points have already been submitted about why the mine should not go through. Most of them refer to water quality and toxic sulfides and other chemicals ending up in the watershed. And I understand that there has never been a sulfide mine in a water intensive area ever before that has not resulted in contamination or pollution to our waters. One point I have not seen brought up is, that I feel needs to be addressed in the EIS, is the high likelihood of catastrophic climate events. And I am referring to the fact that we have already had four one thousand year floods since 2004 in the State of Minnesota. We have seen massive winds, with terrific blow downs up in northern Minnesota, leaving the potential for epic fires. We also know from university scientists that our Boreal forest is dying off rapidly; massive dying of trees. That also will result in epic fires. And I don't see that there is any way to prepare for any of these climatic disasters. We will see. We have a great likelihood of massive flooding in the mine site, as well as epic fires that could cause the operation to shut down, with loss of electrical power. And who knows what will happen to the mines that we have during that period of time. Thank you.

43033

Please see the attached comments. Thank You, M. Michael Menzel

Mike Miklas 41866

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mike Miklas Shakopee, Minnesota

Mike Neaton 17576

Feb 16, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. The Supplementary Draft Environmental Impact Statement has many failures: 1)to address the correct flow of base water, 2)specify the under water crevices that will allow water to flow in pathways that are sited as clay, 3)show the correct flow to the 100 mile swamp feeding eventually to the WCA and 4)fails to address the health regarding the working conditions. If these and many other aspects are not failures to protect the public, the purposed operation is expecting a public monitoring for 500 years and counting.. No business enters a contract with liabilities that extend for a time period of this length. This suggestion is both ridiculous and irresponsible. The primary concern is the requirements and satisfaction to offer the public an environmental analysis to assure the public. It's many lacking and incorrect information should stop this now. Lastly the state of Minnesota will be in partnership with Glencore/Polymet with an environmental history and ruthless business profile that should make anyone realize this is dancing with the devil. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Mike Neaton 4433 Upton Ave S Minneapolis, MN 55410-1931 (612) 226-3801

Alphabetical by sender's first name

MIKE NIES 36482

Our Address is Mike Nies Nies Electric P.O. Box 6211 St Cloud MN 56302 On Mon, Mar 3, 2014 at 10:35 AM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd - Mike Nies Nies Electric

36496

Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resoures Environmental Review Unit 500 Lafayette Road, box25 St Paul MN 55155 Dear Ms Fay, I am writing the email in support of the Polymet Mineing Project. Minnesota has a long history of Mining. It has not been without probleMs The rise and fall of the employment at the iron Mines. the tailings piles of generations past, just to name a few. Though out all of this Minnesota has developed the models for the regulation of the industry. I am in the construction industy. The recession hit us haRd many of us lost our homes. Many more lost jobs, forcing them to move out of state. The financial impact will be here for generations. This project will generate over 800 million in wages and benifits to workers like me. Therre will be Billions in economic benefits over the life of the project. There will be tax revenues for the local cities and the state. I have a hard time with the premise that there is not a way to do this and deal with the impact in a manner that is environmentaly sound. We are and always have been environmentally concious. We can find a way. Please help me support this Project - Mike Nies Nies Electric

Mike Nordin 47796

Mike Nordin [mailto:mnordin41@gmail-com] Sent: Wednesday, March 05, 2014 8:19 PM To: Periman, Richard -FS Subject: Polymet Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. • Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: • Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. • Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. • Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. • Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1- Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2- Assessment of potential impacts on residential wells from tailings seepage. 3- Health risk assessment for on-site workers at both the PolyMet mine and plan

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Mike Perala 18105

Good evening everyone. My name is Mike Perala and I'm from Virginia. I have deep roots in both Ely, as well as the Twin Cities (inaudible). I speak to you tonight in support of the review process put forth here, as well as in support of one of the most extensive and expansive recycling projects in Minnesota history; the PolyMet project. I have a keen perspective and interest in the project area. As many in the audience know, I once wore an orange hard hat proudly as an employee of LTV. The final pellets produced in the area glomerator (phonetic) were done under my watch. And through my work experience there, I gained a deep and unique knowledge of the infrastructure and of the mine site. I've seen firsthand the devastating impacts that the LTV closure has had on the east range. You know, I was one of the lucky few, because I found a job in short order. In my role at Minnesota Power now, I'm able to do what I can to add value to the region and the PolyMet project. Excuse me. I speak tonight in support of the review process managed by the Minnesota DNR. Some people think it a long process. I think that the length of the process has been dictated appropriately by the complexity of the project and the robustness of the area mine site. Admittedly, it has also been partially driven by corrections along the way. As best said in last week's comments by former Ely mayor, Mayor Scraba (phonetic), and I paraphrase, "The process is being conducted by professionals, with input from experts, and if at the end of the day the project receives a determination of adequacy, then it certainly should go forward. On the other hand, if the process requires further review, then that review should take place. And that echoes my sentiments to the tee. Review of the process indicates that accepted study practices have been followed in all steps. You know, I'm really amused by the misrepresentation behind the 200-year and 500-year impact numbers being bandied about by the media and the project opponents. I see the only relevance of those numbers, of any significance, as to provide parameters beyond those of reasonable impact. Sound science and basic design of experiments both indicate that you want to extend a study period beyond that time frame of which you reasonably expect impacts to occur. I point to the treatment station at the Dunka Pit as a prime example of this. A facility originally intended to treat discharge based on threshold measurement, which hasn't needed to run for years based on those ongoing measurements and due diligence. I also speak tonight in support of the PolyMet project. I have been personally involved with the PolyMet project since 2005, and coupling my work experience, my background as an engineer and a project manager and my working relationship with PolyMet, altogether has lead me to conclude that the project is a strong one. There is a level of responsibility, ethics and competency with John, Joe and their team, and it is at least on par as that with our other mining companies. In closing, I look forward to the successful completion of the public process and the decision of adequacy. I want to stand on the Rod Mill (phonetic) deck and watch the mills go around in this area. Thank you.

Alphabetical by sender's first name

Mike Schrage 45109

March 12, 2014, Dear Ms Fay, Mr Bruner, and Mr Jiminez: As a resident of northeast Minnesota I have many concerns about the proposed NorthMet project. The greatest natural resources we have are our abundant public lands, clean water and healthy populations of fish and wildlife. These resources have both economic and intrinsic value and properly cared for they are infinitely renewable. They should not be put at risk for comparatively short term profits. I don't feel the SDEIS adequately considered the costs and benefits of alternatives (including not doing the project at all) to open pit mining. The lead agencies should at least give full consideration to the costs and benefits of extracting this ore by other means including underground mining. Just because open pit mining is the most economically feasible way to get this ore does not mean it's the best way when all other concerns are considered. I don't believe the SDEIS has provided adequate financial assurances the residents of Minnesota won't be stuck with clean up and reclamation costs following the mine's closure. Whether the horizon is 50 or 500 years in the future, it's clear the consequences of this project will last a long time. I remain unconvinced PolyMet and its stakeholders can or will be held responsible for any unforeseen consequences or failures in cleanup strategies after the mine is closed, profits have gone elsewhere and no one alive today is still around. The proposed land exchange should not include 382 acres of Lake County land. This represents a net loss of public land opened for hunting, fishing, trapping and other forms of outdoor recreation. The Forest Service land is lost to mine development, and the County land simply changes government ownership. No part of this or future mining projects should result in a decrease of public lands. The Biological Assessment and the Biological Evaluation accompanying the SDEIS are limited to discussions of impacts to federally listed species and Regional Forester Sensitive Species. The SDEIS does not adequately discuss impacts to outdoor recreational pursuits such as hunting and trapping nor does it adequately discuss impacts to traditional game and furbearer populations. This is a major discrepancy in these documents as healthy wildlife populations of all species, not just rare or sensitive ones, is critical for many residents and visitors to northeast Minnesota. The existing wildlife corridors are inadequate to maintain connectivity across the Iron Range. As evidenced from aerial photographs, they're narrow and often heavily intruded upon by roads, utility corridors, mine pits and urban development. These features serve as barriers to many kinds of wildlife. While the existing corridors may function well enough for large, mobile species like deer or wolves, they are inadequate for smaller, less mobile species. The SDEIS admits increasing development of urban areas alongside the corridors will render some of the existing corridors less suitable for wildlife in the future. Increased urban development and associated transportation and utility infrastructure should be expected if the project provides the economic benefits stated in the SDEIS. This issue should be mitigated before NorthMet or additional mine development goes forward through the establishment of dedicated and protected wildlife corridors and the reclamation of existing mine land. It's clear NorthMet is only the first of these new mines to come. The SDEIS shows ore deposits that are increasingly distant from existing mines and on landscapes in more pristine condition. Future mines may seek to exploit these deposits and will use the environmental review process for this project as a template. While any individual mine may not have significant impacts on the landscape or natural resources by itself, the cumulative impacts of habitat loss will begin to add up for populations of fish and wildlife and our access to the

Mike Williams 42082

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mike Williams Moorhead, Minnesota

Alphabetical by sender's first name

Mike Zicus 38487

I have 3 questions. 1- If comments are sent by mail, is a postmark of March 13th OK. 2- If the comments are emailed, to whom should the email be sent. 3- Is there a list of reference citations someplace. I've searched all over and couldn't find any. I found some documentation that I think is questionable and I'd like to see the original source of the citation. Thanks

42908

Comments are attached.

mikem28 38400

Michael Mardirossian 3001 lake east Dr apt 2118 Las Vegas, NV 89117 Although not a native of Minnesota, I have had close friends in the area for years. The financial benefits are a deciding factor in my opinion to approve. You just need to make sure the environmental factors are accounted for. As long as the company can take responsibility for their actions, the economy needs a boost in jobs and tax revenue. Thank you. Sent from my MetroPCS 4G Android device

39660

I am no longer a resident of Minnesota but I have close friends there. Please approve pPolymet. I don't want MN to end of looking like Detroit. Had industry in the past but no longer..thanks Michael Mardirossian 3001 lake east Dr apt 2118 Las Vegas NV 89117 Sent from my MetroPCS 4G Android device

miles holets 21979

I wish to add my voice of support to the PolyMet project. It seems that this company is aware of the environmental implications and is willing to comply with all standards required. I believe they will be excellent stewards of this land and water that I grew up with. I am a life long resident of northeastern Minnesota and love the area I call home. I support the development primarily for two reasons: 1- Our country is stronger when we do not need to rely on foreign countries for our infrastructure minerals and materials. 2- Economic strength jobs and taxes will provide. Thank you for your work on behalf of us all. Miles J. Holets 3777 Keene Creek Lane Hermantown , MN 55811

Miles Kramer 41807

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. We cannot, for our sake and the sake of our children, put short-term small-scale economic progress ahead of long-term, large-scale ecological devastation. Thank you for your time. Sincerely, Miles Kramer 44 Bates Ave Saint Paul, MN 55106-6339

Alphabetical by sender's first name

Miles Kramer 41828

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Miles Kramer 44 Bates Ave Saint Paul, MN 55106

Miller 54741

See attachment

Milt Sundeen 22063

it is obvious that polymet has met the burden of proof that they can do this project while meeting all the standards that the state would like, hopefully we can proceed to make this another wonderful asset to the state of minnesota milton sundeen motorhead@q-com

Mimi Jennings 10715

Dear Ms Fay, I'm a longtime resident of Saint Paul, a mother and grandmother, a public school teacher, a union member who's walked picket lines twice. Everywhere I turn I find reasons against sulfide mining in northern Minnesota. I wish to draw your attention to one of many, many arguments against this proposal. I'll focus on its parent company. Most galling: while PolyMet has never operated a mine anywhere, it's owned primarily a known quantity with an abysmal environmental, ethical and labor record: the Swiss international commodities and mining giant (50% of all mines worldwide), GlencoreXstrata. Glencore was originally called the Marc Rich Company (charged with tax evasion, accused of doing business with Iran during the hostage crisis, pardoned by President Clinton right before he left office – that Marc Rich). Now Tony Hayward is chairman of Glencore's Board of Directors. He's the guy who was running BP at the time of the Deepwater Horizon oil spill. Remember that he botched the handling of the fire and then attended a yacht race while oil polluted the Gulf, announcing that he "wanted his life back." That Tony HaywaRd Some Glencore history: · BBC investigation accusing Glencore of dumping copper refinery acid into a river in the Democratic Republic of Congo · more than a million dollars in environmental fines worldwide since 2010 · 500,000 Euro Belgian court fine in a corruption case · various contracts with Iran during sanctions · named the number one most difficult company to do business with by an international coalition of environmentalists · Glencore subsidiary fined for violating copper trading rules. Why do we even want these guys in our state, let alone undertaking such delicate operations in our pristine waters. It's like letting a known child molester babysit your own kid. Not wise. Wrong. Bad decision. Please stand up for what's right. Please look impartially (as the EPA has done) at this deal (warning: hold your nose). Pleadingly, Mimi Jennings

Alphabetical by sender's first name

Mimi Jennings 19395

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: Please increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please also reschedule the public meetings proposed for January 2014 so that they take place later in the comment period. Please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This simply isn't fair. Please also make available to the public the long list of references in the document claimed to support the SDEIS conclusions but not found there. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS, at 2,169 pages long. * The SDEIS is not well written. It is neither clear nor concise. It obfuscates, repeating the same information over and over without once providing the basis for its conclusions. Much work is needed just to make sense of what is there. * The SDEIS doesn't explain some of the most important issues, for instance, why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed or why the level of financial assurance proposed is needed. * The SDEIS does not respond to, not even to dismiss, well-documented Tribal Major Differences of Opinion which call into question main points, such as claims that mine pits, waste rock piles and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS has a long list of references, but they are not available to the public. The public must be allowed to find and check on references claimed to support the SDEIS conclusions. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and putting public meetings in January (when bad weather is likely) make it hard for us to both review the documents and to travel to hearings. Given the level of public mistrust we fear this is by design. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of suspicion that government decision-makers are not impartial - not at all interested in either the science, the financial risk, or what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period are essential in reassuring us that the PolyMet sulfide mine project will receive a fair evaluation. Science and the opinions of Minnesota citizens, not just short-term gain and ideas of foreign corporations, must matter when the government makes its decisions. Sincerely yours, Mimi Jennings 2222 Hillside St Paul, MN 55108 651 644 4510

21456

Feb 22, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, I have serious concerns about PolyMet's alarming plans to mine sulfide ore in northeastern Minnesota. The Supplemental Draft Environmental Impact Statement (SDEIS) is insufficient and should not be approved because, among many reasons, it lacks vital information about centuries-long water treatment and how it might be assured-information that is necessary to evaluate the environmental effects of this proposal. How can anybody seriously entertain a proposal to assure water quality for longer into the future than our country has existed. What person or agency can reliably follow up on transgressions or mishaps over that time. It's almost comic. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt No precious-metal mine anywhere in the world has ever operated successfully in wetlands. More than 900 acres of wetlands would be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment would affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food would be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need would likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. As an Audubon Society member, I take seriously the duty to protect avian wildlife. I ask the US Army Corps of Engineers to explain their reasoning for supporting the Section 404 wetlands permit. I ask the Minnesota Department of Natural Resources to reject this dangerous proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Ms Mimi Jennings 2222 Hillside Ave Saint Paul, MN 55108-1609

Alphabetical by sender's first name

Mimi Jennings 40898

Mar 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. This is an exceedingly risky proposal with little upside, which is reason enough to distrust estimates provided by PolyMet without independent state verification. In addition, its parent company's checkered history and that of its board chair demand extra vigilance. That is what I ask you to carry out. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Mimi Jennings 2222 Hillside Ave Saint Paul, MN 55108-1609

Alphabetical by sender's first name

Minah Kim 48192

10 new people recently signed Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota." on Change-org. There are now 419 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 420- Minah Kim ????, Minnesota 419- Luci Riffel Morris, Minnesota 418- Paul Youngblom Richfield, Minnesota 417- Sophinieng Chea Wyoming, Minnesota 416- Melanie Senum White Bear Lake, Minnesota 415- Amanda Wareham St Paul, Minnesota 414- Jeff Kaplan St Paul, Minnesota 413- Darwin Dyce Ghent, Minnesota 412- Connor Klausing Roseville, Minnesota 411- Jingyang Zheng Minneapolis, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJmaXZlX2h1bmRyZWQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTMwLCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA3OTU5NjJ9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVKxDbymLHYVw4Yub2B8RQ5Xfv8B2ai6tJ3DuXTwa-2BadmoEIILGGsBNGN1dGRvTpIlgMSvgWnxDuQN81Q-2F4Hsa-2F-2BCJCnF1NCvl1wkoW15Y9RkBDFnkT5BF6xMnjPDkaPucs4hEcyvC8JNTayGLpvdjhjIItZ-2ByxNykPpMw5U9DWDe5qc6J0bnoUZiFDanxhNVaxvN9FQ4GmrAhc3V-2B3ySpFnSZ-2Ff0MEIxNoapj55RjzGL7

Minh Cat Thai 54229

Dear Ms. Lisa FayI am a senior in Humboldt high school. Here is my thought about the PolyMet mine. Environment is very important. To able to live a healthy life, we need a fresh environment and clean water to survive. The Poly Met Mine needs to test the water’s quality to make sure the water is still fresh and clean. Pollution in water not only affects the fish and small animals. It is also affected our life negatively.Sincerely,Minh Cat Thai449 Sherburne AveSaint Paul, MN 55103

Mining Minnesota 42956

Attached, please find the MiningMinnesota comments for the PolyMet SDEIS. The letter contains my signature and our address. Thank you. Frank Ongaro

Minnesota Center for Environmental Ad 52185

open file to view

Minnesota COLA 38649

Please see attached correspondence

Alphabetical by sender's first name

Minnesota Department of Health 42933

Please find a revised comment letter from MDH is attached – the previous version did not have a figure attachment. Thank you. Michele Ross Phone: (651) 201-4927 Email: HYPERLINK "mailto:michele.ross@state.mn.us"michele.ross@state.mn.us From: Ross, Michele (MDH) Sent: Thursday, March 13, 2014 1:54 PM To: *NorthMetSDEIS (DNR) Cc: Fay, Lisa (DNR) Subject: MDH Comments - NorthMet SDEIS Ms Fay, Please find the Minnesota Department of Health's comments on the NorthMet SDEIS attached. Thank you for this opportunity to review this project and please feel free to contact me with questions regarding this comment letter or any other questions related to health impacts. Thank you. Michele Ross Environmental Review Coordinator Health Risk Assessment Unit Environmental Health Division Minnesota Department of Health 625 North Robert Street PO Box 64975 Saint Paul, MN 55164-0975 Phone: (651) 201-4927 Fax: (651) 201-4727 Email: HYPERLINK "mailto:michele.ross@state.mn.us"michele.ross@state.mn.us

Minnesota Environmental Partnership 19176

Good afternoon: Please find attached MEP's request for an extension of the PolyMet/NorthMet comment period. Please do not hesitate to contact Steve Morse, or me, with any questions. Sincerely, -Matt Matt Norton - Campaign Director HYPERLINK "mailto:mattnorton@mepartnership-org"mattnorton@mepartnership-org || direct line: 651-789-0651 HYPERLINK "BLOCKED::mepartnership-org"Minnesota Environmental Partnership || main: 651-290-0154 cid:image002-jpg@01CDCD7A.6DCA6FA0 MEP was rated the HYPERLINK "http://bit.ly/vTFltd"#1 high impact environmental nonprofit in Minnesota by local experts. – Philanthropedia The Minnesota Environmental Partnership is a coalition of more than 75 environmental and conservation organizations working together for clean water, clean energy and protection of our Great Outdoors. We engage state leaders, unite environmental efforts and help citizens take action for the Minnesota they love.

43052

See attached

54503

See attachment

54504

See attachment

Alphabetical by sender's first name

Minnesota Geological Survey 43014

Attached to this email, and also copied below, are comments on the NorthMet SDEIS Sincerely, Anthony Runkel Chief Geologist Minnesota Geological Survey 2642 University Avenue West St Paul, Minnesota 55114 612-627-4780 ext 222 Comment on the NorthMet Supplemental Draft Environmental Impact Statement I recently read much of the November 2013 Supplemental Draft Environmental Impact Statement (SDEIS) entitled "NorthMet Mining Project and Land Exchange", as well as several of the reports referenced in the document. The purpose of this commentary is to offer some suggestions that can be considered for improving the conceptual model of hydrogeologic conditions at the proposed Mine Site and Plant Site/Tailings Basin area. Improving the quality of the conceptual model will lead to improved prediction of potential impacts to groundwater, engineering of containment systems, and design of monitoring systeMs Broadly summarized, my comments focus on improving the understanding of flow through fractured bedrock. The current conceptual models in the SDEIS characterize the Duluth Complex and Giants Range Batholith bedrock as bulk masses of rock with low, uniform permeability. Although this type of characterization is sometimes deemed sufficient for some purposes, such as numerical modeling of water budgets (flux) at relatively large scales, it has well known deficiencies when applied to numerical modelling of smaller-scale sites, especially for predicting solute transport. Instead, the development of conceptual models that employ techniques whereby discrete fractures or fracture zones are more fully considered, results in improved prediction of solute transport, including better estimates of travel times, and recognition of variation in flow directions and discrete pathways in three dimensions. Investigations aimed at characterizing the hydrogeologic conditions of fractured bedrock for the purposes of predicting solute transport in crystalline bedrock elsewhere on the Canadian Shield routinely use a number of well-known techniques that were not applied in the hydrogeologic studies at the NorthMet Mine Site and Plant Site/Tailings Basin area. A key component of those investigations is the acquisition of hydraulic and water chemistry data at relatively discrete intervals of bedrock, with the focus on fracture characterization. In part this is accomplished through testing and water sampling of boreholes constructed with relatively short open hole intervals at variable depths (eg "nested" wells) and/or discrete interval packer testing and water sampling of long open holes. When these techniques have been used in generally similar hydrogeologic settings elsewhere on the Canadian Shield, the results support hydrogeologic conceptual models that differ substantially from those proposed for the Duluth Complex and Giants Range Batholith described in the SDEIS. Of particular significance for solute transport, the conceptual models commonly include key fractures or fracture zones of relatively high hydraulic conductivity, and multiple flow systems within the bedrock at individual sites. These flow systems are variably connected to the surface water system, have variable residence times, can have upward and downward vertical gradients within a local area, and horizontal flow directions that differ from one another. The data collected thus far from the proposed NorthMet Mine Site and Plant Site/Tailings Basin area are not sufficient to recognize the kinds of hydrogeologic features known to be characteristic of other crystalline bedrock settings on the Canadian Shield, described above. Nor are the data sufficient to adequately support the simpler conceptual model currently depicted in the SDEIS. The comments below specifically address where improvements could be made to the conceptual models for the Mine Site and Plant Site/Tailings basin area. Mine site The SDEIS indicates that hydrogeologic characterization of the mine site i

Minnesota Historical Society 42937

Attached is our comment letter dated 13 March 2013, regarding the Supplemental Draft EIS prepared for the NorthMet Mining Project. -Sarah Beimers Sarah J. Beimers Manager of Government Programs and Compliance | State Historic Preservation Office Minnesota Historical Society | 345 Kellogg Blvd W | St Paul MN 55102 tel: 651-259-3456 | fax: 651-282-2374 | e: HYPERLINK "https://mail.google-com/mail/.view=cmandfs=1andtf=1andto=sarah.beimers@mnhs-org"sarah.beimers@mnhs-org

Minnesota Izaak Walton League 38074

Ms Fay; Please find in the enclosed attachment, comments on North Met SDEIS on behalf of the Minnesota Division of the Izaak Walton League. I also sent you a hard copy via UPS yesterday afternoon with instructions for over-night delivery. This email forward is simply redundancy given the nearness of the 3-13-14 deadline. I have presumed that MDNR will deliver all comments to Co-Lead agencies. Please confirm. On behalf of MN IWLA Dave Zentner, Past National President 2116 Columbus Avenue Duluth, MN 55803 218-724-3926 218-391-6918-cell dzentner@charter-net From: RICHARD AND CAROL STAFFON [mailto:rcstaffon@msn-com] Sent: Monday, March 03, 2014 1:53 PM To: David and Margo Zentner Subject: SDEIS Comments Here you go DAve Rich

Alphabetical by sender's first name

Minnesota Nurses Association 40485

Please review the attached letter from the Minnesota Nurses Association in regard to the proposed PolyMet Mining project. Linda Hamilton, RN, President Minnesota Nurses Association 345 Randolph Avenue #200 St Paul, MN 55102 _____ The information contained in this e-mail and any attachments may be proprietary and/or confidential information. If the reader of this e-mail is not the intended recipient, you are hereby notified that any copying, distribution, or use of this e-mail, any attachments, and/or any contents thereof is strictly prohibited. If you received this transmission in error, please immediately notify us at the e-mail address above.

Minnesota Power 42892

Dear Ms Fay, Please find attached my comments relating to the NorthMet project and land exchange SDEIS. Should you have any questions, do not hesitate to contact me at 218-341-6004- Al Rudeck

54767

See attachment

54813

See attachment

Miranda Steinmetz 38885

Mar 11, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Miranda Steinmetz 1239 Brainerd Ave Duluth, MN 55811-2427 (715) 271-3183

Miriam Snyder 58068

Stop the mines! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Missy Bailey 43597

Dear Ms Fay, To all who have a vote, Will you please consider the environment above all else and deny the permit for PolyMet. I am not going to restate the reasons that so many others have written but simply say, I live on White Iron Lake in Ely and it is one of the most beautiful places on earth. We have direct access to the BWCA and have enjoyed the peaceful forest and lakes for over 30 years. Please help us preserve the waters in the BWCA. There is no other place like it in the United States and my hope is it will continue to be enjoyed in its pristine state by many generations to come. Thank you for your consideration. Missy Bailey Missy Bailey 1620 Hill Ridge Terrace Minnetonka, MN 55305

Alphabetical by sender's first name

Mitch Gunderson-Palmer 10754

My major concern with this proposal is the possible impacts on groundwater. Minnesota still has one of the most unspoiled natural environments and a wealth of clean fresh water. I predict that in the not too distant future clean water will become the most valuable resource on the planet. Any short-term economic gain from the mine would be worthless to us if it contaminated our water and environment. Please be careful.

Mitch Kezar 40211

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Mitchell Brunfelt 43580

Dear Sir/Madam: My name is Mitchell J. Brunfelt and I reside at 5751 Rocky Road, Aurora, MN 55705- My e-mail address is mbrunfelt@colosimolaw-com I am submitting this e-mail, as part of the public comment process, to confirm my support for the Polymet draft EIS. First, I would like to note that, as a resident of the eastern end of the Iron Range, I live relatively close to the site of Polymet's proposed processing facilities. In addition, I am an avid outdoorsman and conservationiSt My family and I spend a considerable amount of time enjoying and engaging in various outdoor, recreational activities in the area fairly close to Polymet's proposed mine site, as members of my family have seasonal cabins in the area of the Skibo road (Partridge River/Colvin Creek area) and between Skibo road County Rd 16- So, we have a deep interest in protecting the environment, particularly in that area. With that being said, I believe that the Polymet draft EIS demonstrates and proves that the science is there to proceed forward with this very worthwhile project and that it can be done while at the same time protecting the local environment. This very detailed and thorough draft EIS shows that modern day science and engineering allow for this type of non-ferrous mining to be done in a way that protects and safeguards the environment. From the draft EIS, it is very clear that Polymet intends to employ the latest advancements in technology, science and engineering to make certain that this project fulfills all environmental safeguards and regulations. Finally, there needs to be a note of reminder here that the site of Polymet's proposed processing facilities (utilizing the former LTV property), and the area surrounding those facilities, already is an existing brownfield, industrial site. Polymet's proposed project will put that site back into a productive use and a use which (with modern day advancements in technology, science and engineering) will likely be more environmentally sound than the existing state of that site. Thank you for the opportunity to submit this commentary in support of the Polymet draft EIS and in support of this very worthwhile and important project. Mitchell J. Brunfelt

MK 39679

I was skeptical at first, but after reading reports and various research I now believe this Project is a wonderful venture. It will give many people jobs and help our local, state and federal economy. Also I read there is a kickback to MN schools fund with the use of the land. This is a great investment for MN growth in many many ways. Keep up the Great work PolyMet.. Michael Krohn 2108 55 St NE Buffalo, MN 55313

MK Smith MD 16611

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, MK Smith MD PleaseUseEmail Mankato, MN 56001

Alphabetical by sender's first name

MK Smith MD 50005

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, MK Smith MD PleaseUseEmail Mankato, MN 56001

mlanger@goldengate.net 44518

Please do not allow mining in the BWCA. It is a fragile environment and will suffer under this kind of mining. As a resident of Minnesota and a person who enjoys the wilderness, I believe this project should not go forwaRd Thank you.

MN Chamber of Commerce 42906

From: Harmon, Joan [mailto:JHarmon@mnchamber-com] Sent: Wednesday, March 12, 2014 11:13 AM To: Fay, Lisa (DNR) Cc: Kwilas, Tony Subject: Letter Lisa, Please see the attached letter regarding the SDEOIS from Tony Kwilas, Director of Environment Policy at the Minnesota Chamber of Commerce. The original letter is being mailed to your office for you as well. Please contact us if you have any questions. Thank you. JOAN HARMON Public Policy Assistant Minnesota Chamber of Commerce 400 Robert Street North Suite 1500 St Paul, MN 55101 P: 651-292-4695 F: 651-292-4656 HYPERLINK "mailto:jharmon@mnchamber-com"jharmon@mnchamber-com HYPERLINK "http://www.mnchamber-com/"www.mnchamber-com If you print this email, please recycle it. Only a few other materials are as renewable, sustainable and recyclable as paper.

Molly BARTZEN 47092

Mar 12, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the PolyMet mine. As someone who loves to enjoy the beauty and safety of the North Shore and Boundary Waters I ask you to please consider what we are risking. The damage this mine could cause could last until my great grand children's generation. The costs outweigh the benefits. PolyMet will no be creating long-term jobs for Minnesotans or benefiting the communities they could potentially destroy. Please carefully consider the stakes of this matter. I hope you're not really to risk it either. Sincerely, Ms Molly BARTZEN 6312 Overlook Ct Savage, MN 55378-3617

Alphabetical by sender's first name

Molly Bugamelli 35573

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Threats to the Great Lakes impact not only my home state of Michigan but all of the surrounding states. So much depends upon maintaining the health and integrity of these waters for tourism, the enjoyment of future generations and the surrounding ecosystem. The implications of so much that is done in the name of profit to our waterways is only beginning to be understood. I have watched throughout my lifetime as beaches, lakes and rivers have become unsafe for swimming, their fish unsafe for eating and the environment toxic to the wildlife that have become dependent upon us for their future survival. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Molly Bugamelli 39323 Columbia St Harrison Township, MI 48045-1745 (586) 954-0920

Molly Cooney 42075

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Molly Cooney Minneapolis, Minnesota

Alphabetical by sender's first name

Molly Johnston 45875

Good afternoons, I am writing to express my concern with the proposed PolyMet copper nickel mine operation in NE MN. I have the following concerns and respectfully request a considerable slowdown on the permitting process to adequately address these concerns. Revise the PolyMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrological impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." I understand the regulations are in place to ensure adequate safety and environmental standards. I have not seen evidence that PolyMet will be able to responsibly (Financially or environmentally deal with "accidents" that will happen whether true bizarre accidents, or acts of human negligence. I live in Ely, am raising 2 young children and are happy to call this home. We owe it to ourselves and our children's' children to not do anything that will cause irreparable damage to the state and region. We are trusting you and others to watch out for the well being of our community, region and state. Sincerely, Molly Johnston Molly Johnston 737 S. 5th Ave E Ely, MN 55731 218-235-8209 cell: 612-730-0828

Molly Streiff 54838

See attachment

Mona Lee 42644

See attachment

Monaya 40726

I am absolutely opposed to the Polymet mine. How can a few hundred jobs for 20 or so years compare at all to 500 years of pollution. Let’s get our priorities straight here. We should be encouraging green energy industries and getting jobs related to those up to the people on the range rather than risking our most precious resource – our water - with such a dangerous undertaking. I am stunned that this project is even being considered. Thank you. Monaya Lund Frazee-Vergas Forum Advertising HYPERLINK "mailto:ads@frazeeforum-com"ads@frazeeforum-com 218-841-7519 _____ HYPERLINK "http://www.avast-com/" This email is free from viruses and malware because HYPERLINK "http://www.avast-com/"avast. Antivirus protection is active.

Alphabetical by sender's first name

Monica Hansmeyer 15788

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Monique Reed 27174

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I spent a wonderful summer in northern Minnestoa one year, so I know what's at risk. PolyMet Mining Corp.'s NorthMet mining project is not in the best interest of the health of the ecosystem-or the residents of the area. S Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Why should we expect it to be different here. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Monique Reed 1414 Southern Plantation Dr College Station, TX 77845-8775

Alphabetical by sender's first name

Monique Yenamandra 16109

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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Monique Yenamandra 16110

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Montana D 15280

Are you guys crazy. No to copper and nickel mining in northern Minnesota.

Morgan Ekmark 46013

Hello, My name is Morgan Ekmark and I am a second year Metallurgical Engineering Student, minoring in Geology, at South Dakota School of Mines and Technology in Rapid City. I graduated from North Woods High School (first graduating class) in 2012 from Cook Minnesota. I full heartily support Polymet. Here are a few reasons why; 1- Increase in Jobs. 2- Polymet has worked hard in improving its environmental impact. (Environmental Impact Statement (EIS), DNR, 2013) 3- Polymet plans on "refurbishing" the land that will be mined after the project is completed. 4- Mining has changed a great deal since the start of environmental protection acts. 5- A large group of people who are apposing this plan do not even live in the Iron Range area and have no education towards the processes and chemistry involved with sulfide mining. HYPERLINK "mailto:morgan.ekmark@mines.sdsmt-edu"morgan.ekmark@mines.sdsmt-edu Cell: (218) 966-0928 chrome-extension://lifbciblllhkdhoafpjfnlhfpfgnpldfl/call_skype_logo.png(218) 966-0928

Alphabetical by sender's first name

morgii.muraski@yahoo.com 44290

To whom it may concern: I am writing on behalf of young Minnesotans (I myself am a high school senior) who are concerned about the proposal for the copper nickel mine Polymet is attempting to construct. Personally, I firmly stand against the building of such an establishment. The reasons bolstering this opinion are varied and abundant. Firstly, Polymet has no experience dealing with mines of this sort, and building a mine of this magnitude as a "test run" could have devastating consequences. Polymet's promise to maintain and rehabilitate the area during and after mining seems far fetched to say the leaSt The people of Minnesota have no assurance that Polymet will even be in operation hundreds of years into the future (when the clean up would still be occuring). Further speaking on environmental facets, this mine is essentially an assurance that the Boundary Waters, Minnesota's ecological crown jewel, will be urbanized or destroyed in part. Copper nickel tailings, as you must well know, are extremely dangerous to ecological systeMs The environmental impacts are inextricably linked with economic ones. It is clear that Polymet will glean an incredible profit from the mine, but it must be realized that this compay boom comes at the expense of stability in neighboring rural communities. Mines such as this perpetuate the boom and bust cycle that plagues mining towns not only in Minnesota, but across the nation. This is not even to touch on the fact that the proposed mine would create far too few jobs for that to be considered an initial benefit. Polymet is preying earnestly on those that are less economically established, and this portrays a devastating lack of propriety on the part of the company. In short, Polymet has neither the means nor the ethical rights to construct this mine. Mining institutions such as this desecrate valuable natural environments and essential ecological resources. Economically speaking, this mine benefits no entity but Polymet. The domineering nature of the proposal is in itself alarming, and Polymet's horridly evident lack of experience does nothing to quell the fears of those who will be impacted by it for hundreds of years to come. The legalities may, in the end, work out in favor of Polymet. However, it can be ascertained by common sense that no company wants to be remembered as one who destroyed lives or the world which we all share.

Moriah Ulbricht 54355

Moriah UlbrichtAdv. Science; Hour 4Mrs. ChristophersonFebruary 11th, 2014Dear Ms. Lisa Fey, EIS Project Manager.My name is Moriah Ulbricht and
I was excited to know that we were writing these letters for science. Why? I already knew about the mining that might take place and I was already quite unhappy about it. I ask that you read this letter, thinking about my statements and opinions with an open mind instead of merely as another childs uneducated thoughts.To begin, have a few questions about the effects of the mining.• How does this affect the BWCA? This is my main concern about the mining and it's how I knew about it in the first place. Your website stated that, "Neither the proposed mine nor the processing facility is in the watershed containing the Boundary Waters Canoe Area Wilderness." This may be true but we all know that harmful toxins can be carried away from the miningsite by streams or rivers. So, in thinking that the worst will happen, does the site affect the BWCA in any way shape or form?• Does the mining site affect any other water bodies?• Do the mine's benefits outweigh the disadvantages?I am happy to hear that "PolyMet proposes to avoid and minimize wetland effects by optimizing the placement of mining features such as the mine pits, waste rock and overburden stockpiles, haul roads, water management systems, and supporting infrastructure." I am also pleased that PolyMet wants to minimize their effect on cultural resources.I have one final concern. I feel as though after the 20 or so years of mining; in addition to the 18 mos. of preparation, it would leave about 6,700 acres of land stripped and demolished. Including 913 acres of wetlands that would be permanently lost. That sounds like an awful lot of lost land and it leaves me to wonder, is it worth it?To conclude, if proper safety precautions take place, I am not entirely opposed. However, I am still not in favor of the mining to take place.

Alphabetical by sender's first name

mose Picard 6162

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” Reading about the proposed mining project greatly worries me, as a young person, 18 years old, I will live through the effects of this project longer than those who are planning to gain from it. We would not benefit from this in the long run, long after everything is mined deemed of value the effects of this hazardous operation will remain. I am worried about our ecosystems, wildlife will be greatly impacted. Wildlife is not something for us to look at and think it is pleasant, and sacrifice it for short term profit, for short-term jobs. Without our wildlife, there would be nothing. We cannot risk to poison what we have left of our precious wildlife, which is still home to many beautiful species. I am worried that Polymet will poison our waters, our animals, our plants, which has been food and medicine for countless generations. We cannot continue to separate ourselves from the natural world, because after all that can be mined is mined, and there are no jobs, except for toxic clean up jobs, we will realize we have poisoned our precious earth that provided health and happiness, and what is life without that. The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely Mose Picard mose Picard 2826 Fillmore st NE. Minneapolis, MN 55418

Alphabetical by sender's first name

Mr. Evans 41786

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

mr. g. west 40329

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Mr g. west everett wa everett, WA 98201 US

Ms. Melody Scott 41624

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Melody Scott Perham, Minnesota

Alphabetical by sender's first name

Ms. P. Sullivan 16087

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Muriel 43561

Considering the prospect of disturbing even more of this fragile environment equipped with the present level of human understanding is a true measure of our damning "Un-civilization". The everlasting detriment far outweighs the prospect of any (fleetingly) happy corporation stockholders and the temporary jobs (which will Peter out after maybe one generation or two). Every rock turned over to satisfy man's greedy quest is an insult to this Earth we happen to inhabit.. Please do not proceed. We do no know enough to risk so much..

Musa Abdel-Rahman 42790

See attachment

Alphabetical by sender's first name

Mylee Khristoforov 40456

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Mylee Khristoforov Trenton Denver, CO 80231 US

Myra Arnold 4070

I would like to comment on the proposed mining project in Northern Minnesota. I think we should not go ahead with this project until Polymet comes up with a better plan to monitor and maintain the toxic seepage caused by the mine. So far the mine plan requires an absurd and unachievable level of monitoring and maintenance for many centuries to come. Taxpayers could be left with enormous clean-up costs, polluted water and land and economic disaster. The natural resources in the watershed of Lake Superior are too precious of a national treasure to jeopardize their well-being for centuries to come. Please do your job, DNR, of protecting our natural resources and do not let the plan go forward as it is. Myra Arnold HYPERLINK "mailto:arnol005@umn-edu"arnol005@umn-edu

Myra Theimer 47655

Dear Ms Fay, I am concerned that the PolyMet SDEIS does not reveal the effects of fibers in the rock at the Mine Site. If these fibers are toxic and are dug up and released into the air it could pose a significant health risk to Minnesotans that breathe the air either locally or carried in the wind. There are so many unpredictable events that could happen in the next 200 to 500 years, especially with global warming. I can't see how the project can estimate and protect various pollutants, such as mercury, from eventually negatively affecting the ground water. We should be extremely vigilant of protecting our water especially in light of how precious it will be in a warming climate. I think this project and the other projects that are being proposed combined will certainly have a negative effect to human health. Thank you for taking my comments, Myra Theimer Box 1452, Grand Marais, MN mtheimer@boreal-org Boreal Access Web Mailer

Myrl Moran 58024

I think the risks far outweigh the benefits. Let's not do it. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

n. w. hyslop 44312

hi there, i'm writing to register my concerns about the polymet mine proposal. my primary concern is that it seems very shortsighted with respect to environmental impact. while we may only get a few decades-worth of commercial benefit from the mine, minnesotans may be dealing with environmental consequences ranging from water contamination and species dislocation for hundreds of years. we need to be better stewards of our natural resources for the coming generations. thanks for your thoughtful consideration of this project, n. w. hyslop minneapolis

Nadine Lee 11424

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs Nadine Lee PO Box 205 Saint Francis, MN 55070-0205

Alphabetical by sender's first name

Najeeb Jindeel 45059

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Najeeb Jindeel 1626 London road #741 Duluth, MN 55812

45060

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Najeeb Jindeel 1626 London road #741 Duluth, MN 55812

Alphabetical by sender's first name

nalco 39249

My mailing address is: NALCO Printing Company – 1 West Water Street Suite 90 – St Paul, MN 55107- _____ From: *NorthMetSDEIS (DNR) [mailto:NorthMetSDEIS.dnr@state.mn.us] Sent: Tuesday, March 11, 2014 12:15 PM To: nalco Subject: RE: Poly Met mining Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd No virus found in this incoming message. Checked by AVG - www.avg-com Version: 9-0-932 / Virus Database: 3722-1-1/6671 - Release Date: 03/09/14 07:57:00

39268

To the DNR officials considering Copper/Nickel mining in northern Minnesota: Although being sensitive to the issues of employment and future job opportunities in the northern Minnesota area, I have many questions and concerns regarding the environmental impact of copper nickel mining in northern Minnesota. The impact of mining sulphite ores was first brought to my attention while traveling about 35-40 years ago through the Sudbury Ontario area of Canada. While I realize that there have been improvements in mining methods and techniques I was absolutely astounded by the moonscape appearance of the area. The effects of sulphite mining and the potential for polluting the lakes, rivers, underground water tables and the wild rice beds in our state worries many of us. Our family travels north often during the course of the year to utilize the BWCA and park areas in and around Ely and Lake Superior. We are indeed blessed to have these pristine areas in our state. The concerns of many people that I have talked with are that too often officials and agencies have assured us that all the safeguards and sure fired protections are in place on projects such as this. However, we have come to realize that through the use of official variances, oversights and just human error the environment has been degraded and compromised. I believe it is time that we consider the environmental impact of this type of mining, weighing the short term unsustainable gains as opposed to becoming true stewards of our environment. Please be thoughtful and deliberate in making your decisions. Stephen Nippolt President of NALCO Printing Co.

Name Illegible 54123

All this just so someone with lots already can get more? [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Nan Corliss 2757

Dec 19, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I have been a Boundary Waters tourist for many years and to even think about this area being compromised (and it will there is no doubt) makes me sick. The area is a treasure to our state and country and a mine that will pollute the waters and land for years, a mine where accidents WILL happen and leaching WILL take place and polluted waters will stand and seep and damage for many years is unthinkable. How can anyone with a conscience approve such a plan. I don't care how much money a company would put aside for clean up. This does not do anything for clean water and land, a healthy environment or a bright future for tourism or businesses which have to reside and make a living in a damaged area for years. Does it make sense to anyone. NO. Don't let it happen. There will be more regrets than praises in the end. And it will be too late.. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Nan Corliss 10300 Morris Rd Bloomington, MN 55437-2825 (952) 835-6832

Alphabetical by sender's first name

Nan Corliss 15819

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Nan Corliss 10300 Morris Rd 10300 Morris Rd, Bloomington, MN Bloomington, MN 55437

51943

Dec 19, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I have been a Boundary Waters tourist for many years and to even think about this area being compromised (and it will there is no doubt) makes me sick. The area is a treasure to our state and country and a mine that will pollute the waters and land for years, a mine where accidents WILL happen and leaching WILL take place and polluted waters will stand and seep and damage for many years is unthinkable. How can anyone with a conscience approve such a plan. I don't care how much money a company would put aside for clean up. This does not do anything for clean water and land, a healthy environment or a bright future for tourism or businesses which have to reside and make a living in a damaged area for years. Does it make sense to anyone. NO. Don't let it happen. There will be more regrets than praises in the end. And it will be too late.. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Nan Corliss 10300 Morris Rd Bloomington, MN 55437-2825 (952) 835-6832

Alphabetical by sender's first name

Nan Langevin 17876

To whom it may concern, As a lifelong Minnesota native, I am writing to express my great concern and dismay at the prospect of the Polymet copper mine. The possible environmental issues that may plague our beautiful and beloved natural areas for years to come - for the sake a 'blink of the eye' 20+ year job producer - is ridiculous. The mere fact that 500 years is even mentioned as a possible time frame for remediation and clean up processes is a dead give away that the project is completely and absurdly unrealistic. Our country isn't even 500 years old, does anyone actually think that a company entity will last that long. And if they did, that they would cheerfully and willingly pay to clean up their putrid, toxic mess for such an unimaginably long time frame. Honestly, who in good faith could ever realistically propose such a preposterous idea. And for what. Twenty some years of work for a relatively small group of people. People in Northern Minnesota do need good work with liveable wages, but this is not a good solution. It Is a solution proposed by greed and supported by those in desperation. We can do better. Minnesota is innovative and forward thinking. if this is really a priority to our state, then we need to put some effort and resources into finding a healthy, long term, innovative strategy to not just create a few short term jobs, but bolster the economy and nurture the people of our state. I am urging those that have the power at the DNR to please come to their common senses and reject this dangerous, short sighted, small profiting yet incredibly giantly consequential project. Most sincerely, Nan Langevin St Paul, Mn Sent from my iPad

Nan Lightner 46124

I am writing to urge very careful consideration for mining operations in Minnesota. We must think Long term consequences so our children's children will not be grappling with sad and irretrievable outcomes. Good water is "gold", scarce and a necessity for the World. Please do not let your decisions jeopardize its future. Thank you. Sincerely, Nan Lightner 1758 Goodrich Avenue; St Paul, Minnesota 55105

Nan Snyder 42562

See attachment

nan stevenson 7164

I truly oppose any mining activity in the beautiful Minnesota wilderness. Yes, it creates jobs, but only in the short-term and it will pollute the watershed for hundreds of years. Not a good trade-off. We have the ability to recycle old minerals and use renewable sources for energy. I suggest we do that. I do not want to see mining in this area EVER. thank you. Nan Stevenson, M.A., M.A.R.T., C.E.A.P., B.C.C. Chaplain, U of M Amplatz Children's Hospital "If I keep a green bough in my heart, the singing bird will come." Chinese proverb "Faith is not about everything turning out OK; Faith is about being OK no matter how things turn out."Anon. "To love a person is to know the song that is in their heart, and to sing it to them when they have forgotten." Anon. "Be kinder than necessary, for everyone you meet is fighting some kind of battle, so live simply, love generously, care deeply, speak kindly." Anon.

nanakay@unitelc.com 39824

See attachment

Alphabetical by sender's first name

Nancy Alfuth 17037

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Nancy Alfuth 421 SW 5th Avenue Grand Rapids, MN 55744

50310

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Nancy Alfuth 421 SW 5th Avenue Grand Rapids, MN 55744

Alphabetical by sender's first name

Nancy and Jim Ellis 42858

See attachment

nancy atzen 44940

I am concerned that underwater storage of the most toxic category 2/3 and 4 stockpiles will lead to groundwater contamination and potential surface contamination. Once this material is disposed of in this manner it will be impossible to mitigate any unforeseen consequences. If this disposal method is to be followed it must be done with an extremely high level of analysis of the surrounding and underlying rock, any rock fracturing, and hydrologic conditions in and near the pit. If necessary any potential toxic migration must be prevented by sealing or encapsulating the waste mass. If this isn't possible, alternative above ground disposal methods that confine these toxics would need to be evaluated before the project proceeds. Would a benzoate seal on the walls be possible or useful. Perhaps fine grained layers between the more and less toxic wastes would also protect the pond above from seepage of toxics into the surface waters. Thanks for all the hard work on this project. Nancy Atzen 600 west superior st apt 1105 duluth, mn 55802

Nancy Bottorff 38844

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Nancy Bottorff 4128 Sheridan Ave S Minneapolis, MN 55410-1257 (612) 929-2440

Nancy Bratrud 18343

Hello. My name is Nancy Bratrud. I'm ceding my time to Michael Koppey.

Nancy Brown 18288

My name is Nancy Brown. There is a long history of mining companies declaring bankruptcy to avoid the cleanup of their sites. I feel that if we are going to sign up for 500 or more years of pollution, I would rather take this money, the taxpayer money, that will be spent to clean up that pollution and pay the people who need jobs up north right now. They could work in industries that will promote the long term resilience of the Iron Range and will be supporting the local economy, while preventing my tax dollars and my childrens' tax dollars from going into cleaning up this mine site for hundreds of years to come. That's my statement.

Nancy Carpenter 991

Greetings, My concern is simply put. Any project that relies on several hundred years of continuous water treatment should not be given a moment's consideration. As a society, we can't even count on a company's existence for a few decades, much less 2-5 centuries. The environmental risks and costs are far too great to even come close to balancing out the jobs and boost to the northern Minnesota economy. The mining jobs will mean very little when, not if, but when the contaminated water begins to show its effects. The tourism and hospitality industries of the northland, not to mention the life in the northern wilderness, cannot cope with the inevitable environmental disaster that a mine like this would create. Human beings are not capable of designing and carrying out a flawless plan, and that is what this mine would require. My 2 cents. Nancy P Carpenter 32425 151st Ave Montgomery, MN 56069 651-387-5161 HYPERLINK "mailto:puschcarpenter@gmail-com"puschcarpenter@gmail-com HYPERLINK "mailto:nancy.carpenter@spps-org"nancy.carpenter@spps-org

Alphabetical by sender's first name

Nancy Casey 15795

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Nancy Conger 41805

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Nancy Conger North Branch, Minnesota

Alphabetical by sender's first name

Nancy Dowling 36801

Minnesota's natural spaces are too valuable to jeopardize them for the sake of mining. There are far too many risks involved, and history has proven that mining companies often disregard rules and laws created to protect the environment. The SDEIS is insufficient, and should be rejected. It does not provide important information, such as the details of the proposed water treatment systems or how the centuries of operations, maintenance, monitoring and reconstruction of water treatment facilities will be paid for. Sincerely, Nancy Dowling

Nancy Ellis 38713

Not only am I concerned about the mining because of the pollution of the lakes and rivers, but the jobs that are already there, like the Baptism River Inn,the National Forest Lodge, the rice the Indians harvest, the canoe outfitters and camp grounds and many others. Let's try to find other ways of providing jobs that some seem to be so concerned about regardless of what happens to our waters in Minnesota.I am 78 years old and my family and I care about jobs, of course, but not mining sulfide ore in the Boundary Waters watershed and the Lake Superior watershed. That is not the place for it. Nancy Ellis and James J. Ellis, 11051 Russell Ave S Bloomington, Mn. 55431 952 888 3340 On Tue, Mar 11, 2014 at 4:55 PM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Nancy Gibson 18336

I guess I need a class in penmanship. Thank you. Good evening, everybody. My name is Nancy Gibson and I am the co-chair of the Legislative Citizens Commission on Minnesota Resources. In addition, I'm the co-founder of the International Wolf Center. But I want to make it clear that I'm not speaking on behalf of either one of those organizations. However, as a recipient of extensive knowledge from the Geological Service, via the Environmental Trust Fund, I speak with considerable concern for the proposed PolyMet project. Here is what I know: Water will be the agent that will carry any contaminants; No. 2, the proposed project has admitted to some water contamination, via the water modeling data package; No. 3, there are no guarantees that there will not be an unforeseen mishap with water. But here is what we don't know and where there are some faults with the SDEIS. The geological complexity of northeastern Minnesota lacks a high level of investigation, execution me, and testing to achieve stringent management of potential contaminants. The work today doesn't address fracking in the subsurface areas and fracking adequate levels. Three, there are no robust characterizations of those fracking at the mine and processing sites. Four, the monitoring for potential contaminant releases will be difficult or ineffective, yet needs to be examined. Five, lack of effective groundwater maps above the bedrock need to be assessed to better understand the distribution of aquifer and non-aquifer sediments. In summary, this is a (inaudible) system and must be mapped as accurately as possible. This includes the subsurface area for containment and contaminants and meaningful monitoring for it to be achieved. Therefore, I advocate for additional work to characterize those systems. And in addition, there needs to be a development of approximate containment of monitoring systems. While not a perfect science, it will give us one more tool for monitoring of contamination. I will close with what our governor said last week at the Department of Natural Resources Roundtable. The 2008 legislature (inaudible) was the ultimate testament that Minnesotans care deeply about our natural resources. We need to apply an unbiased approach to our natural resources and measure and evaluate all likely outcomes. We need as much scrutiny as possible so that people are getting their monies' worth and that we examine all possible results. Please, advocate for more science. Thank you.

47107

The sulfate standards 10mg/liter has just been re-established as sound science after a 3-year study. These standards are at the upper level limit for the healthy production of wild rice. Sulfides released from mines that interact with sediment bacteria produces high levels of sulfates thus destroying surrounding wild rice plants that need a strong root system. These valuable plants are a good source of food for wildlife and humans. Polymet needs to address the sulfate standards and how they will comply to protect the existing stands of water bodies that were previously documented stands present within a water body dating back to November 28, 1975- The SDEIS lack this compliance issue. Nancy Gibson St Louis Park

Alphabetical by sender's first name

Nancy Gibson 58100

I am co-chair of the Legislative Citizens Commission of Minnesota Resources; however I want to make clear that I do not speak for the Commission. Yet, I do speak as a member who has endorsed and supported the accelerated funding of the Minnesota Geologic Service from these lottery proceeds. As a recipient of extensive knowledge from this Geologic Service, I speak with considerable concern about the proposed Polymet project.Here is what we know: Water is the agent that will carry any contaminants. The proposed project has admitted to some water contamination via the water modeling data package.3.There are no guarantees that there will not be an unforeseen mishap.Here is what we don't know: 1.The geologic complexity of northeastern Minnesota lacks a high level of investigation and testing to achieve stringent management of potential contaminants. 2. The work to date doesn't address fractures in the subsurface areas and their effects to an adequate level. 3. There are no robust characterizations of those fractures at mine and processing sites. 4. The monitoring for potential contaminant releases will be difficult or ineffective yet needs to be examined. 5. Lack of effective groundwater maps above the bedrock needs to be assessed to better understand the distribution of aquifer and non-aquifer sediment types. In summa this is a complex system and must be mapped as effectively as possible. This includes the subsurface areas if containment of contaminants and meaningful monitoring are to be achieved.Therefore, I advocate for additional work to characterize these systems. In addition, there needs to be development of approximate containment and monitoring systems. While not a perfect science, it will give us one more tool of necessary information in this area so that Minnesotans have more knowledge and confidence to make these serious decisions.

58101

A critical omission of the SDEIS is the study of moose and the impact on its population dynamics. The initial Polymet project proposes to drain 93 wetlands in moose habitat. Where will those wetlands be replaced? The trade-off in wetlands may or more likely not aid our dwindling moose population. Are we willing to make that gamble? The SDEIS does not mention Minnesota's latest designation of moose as a species of special concern: a species that has been decreasing in alarming numbers. Yet/ a species that has also garnered significant state research dollars/ some of which comes from the State's Environmental Trust Fund that I co-chair. A current study with radio-collared moose will map locations that will give us an applicable estimate of wetland use in this region.Water and moose are inseparable.1. To date, there has been a lot moose research conducted in northern Minnesota more in Royale located miles the coast Minnesota. Isle Roya has similar habitat to northeastern Minnesota with bedrock and sedimentary layering that creates ample forms of water. To maximize reserves for survival, moose rely on high quality forage summer months. Aquatic habitats are readily selected because 20% higher crude protein and times more nitrogen ca atom comparison to terrestrial plants. In a 2011 published study, it was found that moose slightly prefer submergent vegetation such as yellow pond lily, they did not discriminate amongst rhizomes, stems and flowers from the 88 species observed. Most of the activity between moose and aquatic foraging occurred on the inland western region of the Island that is rich wetlands and small ponds. This summer intake of nutrients is important for pregnancy rates the subsequent year.What we don't know??? How will sulfides vegetation needed for moose survival?copper mining affect the aquatic vegetation needed for moose survival?2. A 1983 scientific paper published by noted researcher Rolf Peterson and P. Stephens, summarized that moose calves are born near water. It is a critical predator avoidance strategy for moose.What we don't know??? How will fewer water resources affect the calf/cow ratio?3. In 1987, researcher Timothy Ackerman showed that the radio-collared moose suffer from heat related stress and need the wetlands and other waterways to cool their bodies.What we don't know??? Will fewer heat sink water resources cause additional stress for moose?4. The final paper I will site is by Clifford and Witmer (2004} which describes the facial anatomy of the moose that ends with a long overhanging nose that is specifically adapted to aquatic feeding up to 16 feet below the surface.What we don't know??? Will the sulfides sink to the lower water levels affecting the nutritional value of aquatic vegetation and for how long? The interrelationship between water and moose is a gaping hole in this document a can make me if other aquatic species such as amphibians, turtles, mussels a fish have received any attention and scientific on their survival needs.

Alphabetical by sender's first name

Nancy Giguere 18947

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Nancy Giguere 1471 Edmund Ave 1471 Edmund Ave St Paul, MN 55104 651-642-1378

Nancy Graham Rich 38430

Thank you for giving the people of Minnesota the opportunity to weigh in on this issue. I have been going to the BWCA off and on for many years, and I can't believe that mining as described will in any way NOT affect the BWCA area, the water and the future for that area. The small amount of jobs that would occur with the mining for the short period of time that they are mining does not seem like a good balance for the state and nation in this area. There is also NO confirmation that the people getting the jobs would be from the northern area of Minnesota at all. The jobs could go to people out of state and therefore would be of no benefit to the people of that area. Even if they set aside a billion dollars for clean-up of the area after the mining, it will no longer be the pristine area that it is now. You can't take back what you destroy in nature. We want to preserve that area for our grandchildren and beyond, so that they can learn to appreciate and enjoy what a national treasure that is there. Please listen carefully to the people opposed to this mining operation because what you do if you allow the mining to occur cannot change our environment back to what it is now clean and untouched by man. We need to be good stewards of God's environment and all he has entrusted to us. Thank you, Nancy Graham Rich 20891 Aztec St NW Anoka, MN 55303 763-753-1225

Alphabetical by sender's first name

Nancy Hauer 14806

Feb 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Nancy Homdron 57883

I ask you to oppose PolyMet's proposal for sulfide ore mining in the Superior National Forest at the headwaters of the St. Louis River. They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area. The mining will leave square miles of talcum powder-fine waste, piled high. Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock. PolyMet suggests that to prevent pollution of the St. Louis River watershed they will collect the hundreds of millions of gallons of rain and snowmelt waters that filter through the waste every year and run them through water treatment plants ... for up to five centuries. The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project. The cost liability for cleanup over centuries is also a great cause for concern. Please oppose this project.

Alphabetical by sender's first name

Nancy Karjalahti 12111

Feb 14, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Nancy L Eisinger 54726

See attachment

nancy locken 41815

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, nancy locken Minneapolis, Minnesota

Alphabetical by sender's first name

Nancy Long 39584

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Nancy Long 39650

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

nancy lt rosenbower 47667

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. i am unable to decide a hierarchy of importance when it comes to issues related to the polymer mining and future mining/exploitative industries in the area. thus, i have chosen this particular area to address. over the years, my family and i have spent much time in the mountains of colorado and the deserts of utah. to see the leftovers and the unintended consequences of the silver, nickel, gold, uranium and copper mining is eye opening. there is no way that what appears to be quite a slippery company and an equally slippery plan should be allowed to further destroy our planet and its inhabitants. There has been enough done. They say there will be an excellent economic impact (jobs). well, that's great for 10- 20 years not mining. then, perhaps there will be further job security if you are in the business of cleaning up poisons and treating horrific medical conditions. maybe even a mortician. ad all of the beautiful creatures that share this magnificent jewel in space need to have advocates assuring their interests will be considered. the children, the moose, the lynx, the squirrel, the wolf, eagle, and so many, many from microscopic to giant are counting on us to stand between them and their nearly certain destruction. we have no obligation to green the pockets of these film-flam men/women. i have read some of their papers presented to groups of others representing their interests. they are not in this for the good of the many. they are in this purely for the dollars. they have spoken about the fact that there is an increasing amount of regulation on mining interests, causing the profitability to drop. they have even go so far as to explain to their peers that the next big thing would be fracking and the mining of tracking sand. due to the fact

Nancy McReady 6602

Attach are the comments from our organization Conservationists with Common Sense (CWCS). Nancy McReady CWCS President HYPERLINK "http://www.cwcs-org/"www.cwcs-org 218-365-5764 218-365-2922 Conservationists with Common Sense "Preserving access to and multiple use of public lands and waters"

Alphabetical by sender's first name

Nancy McReady 18124

My name is Nancy McReady. I'm from Ely. Actually I live on Fall Lake which is in the (inaudible) 4,000 people all across the United States. Back in the 1970's environmental organizations made us a little bit more aware of pollution and environmental issues. We have the Clean Water and Air Act due to their efforts. Also in the 1970's there was much talk about wanting to mine copper-nickel. Well, that didn't happen as we didn't have strict pollution regulations. Times have changed. We have more pollution and environmental regulations to protect our water and air than we did 40 years ago. And right along with those regulations we have far better mining technology. So-called environmental groups are making the same arguments today as they did 40 years ago. "It's never been done before." "All copper-nickel mines pollute." They have become extreme preservation groups against economic development. These preservation groups refuse to acknowledge advances in mining technology instead of embracing new technology and working with PolyMet and others. They have done the same with lobbying. These are the same groups that have opposed a cell phone tower near Fall Lake (inaudible). This is all outside of the Bound Waters. "Too close to the Boundary Waters." The Boundary Waters has no buffer zone. The environmental community should be ashamed of themselves. They should be embracing new technology and working together to make this project happen. Conservation and common sense supports the SDEIS and the permitting process of the PolyMet project. We support scientific data and objective analysis of the government agencies and the elected officials when making and implementing land management and environmental policies. Public input is also important. But hopefully science will prove or disprove if PolyMet can be done safely. And that decision making isn't left up to the courts and environmental (inaudible). Enough with the delays. Let's get this project going. Thank you.

46937

Dear Ms Fay, My husband and I have lived on Fall Lake (in the Kawishiwi watershed) for nearly forty years. We care very much about the Boundary Waters and we do have concerns about the water in our lake, but the PolyMet copper/nickel mining project is not one of them. We know PolyMet is not in the same watershed as the Boundary Waters. We have followed the progress of PolyMet for over eight years. We believe the SDEIS prepared by the three agencies is a good document and addresses environmental issues thoroughly. The technology of today is far superior to that which was used in the copper mines of years ago. There are several precious metal mines that are operating today, or which have operated recently, without harm to the surrounding environment. For environmental groups to say that precious metal mining has never been done safely is not true. Flambeau Copper Mine in Wisconsin, Stillwater platinum-palladium sulfide in Montana near Yellowstone National Park, McLaughlin Gold Mine in California, Viburnum Zinc Mine in Wisconsin, the Cannon Gold Mine in Washington – all of these mines have taken great care of the environment. Some even have partnerships with environmental groups to make sure the environment is not harmed. We support the SDEIS process the PolyMet project is going through and have faith in the agencies to approve the permit to mine if the science is there to prove that PolyMet can do the mining right. Thank you for the opportunity to comment. Nancy and Doug McReady P O Box 252 Ely, MN 55731

47621

Dear Ms Fay, One thing we forgot to mention in our comments on the PolyMet SDEIS is the fact that mining these strategic metals here in Minnesota, where there are strict environmental regulations, is a matter of national security. In an article from 2012, http://www.wired-com/dangerroom/2012/08/rare-earth-elements/ it was stated that in 2009, Congress was asking the Pentagon HYPERLINK "http://www.wired-com/dangerroom/2009/08/defense-geeks-fret-over-rare-earth-metal-supplies/"to look for alternatives and lessen the US dependency on foreign imports after the Chinese government said HYPERLINK "http://www.wired-com/dangerroom/2009/08/china-all-your-rare-earth-metals-belong-to-us/"it was considering limiting exports of the minerals. China has 95% control of many of the precious metals that are needed for our national defense. The article goes on to say, “The DoD would like to find ways to produce more rare earth elements here in the States. The first proposal is to find a way to improve separation. Efficiency is not the only concern. The Pentagon wants new, environmentally “less-aggressive techniques,” to separate rare earth elements from minerals. Finding new ways to do it “would improve the availability, decrease the costs of extraction, and decrease the environmental impact of the extraction,” says the proposal.” We believe the new technology is available and PolyMet, and Twin Metals to follow, will be able to aid the Pentagon with recovery of these precious metals and make the United State strategic metal independent. Thank you for the opportunity to comment. Nancy and Doug McReady P O Box 252 Ely, MN 55731

Alphabetical by sender's first name

nancy miller 39699

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. PolyMet is a disaster in the making, no matter what protestations of prevention and repair PolyMet is making. The cost is too great, exchanging our beautiful natural resources for a handful of jobs for the short haul. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Nancy Miller 1201 Yale Pl Apt 611 Minneapolis, MN 55403-1956 (612) 333-5135

47483

To whom it may concern, Please stop Polymet. I am for responsible mining, and the proposed mine will further pollute our waters. I know 2 men who died from cancer within the past 9 months who lived in Aurora. In my own neighborhood near Eveleth, 5 people within a 3 block radius have died from various cancers and another 5 others who have had cancer / or tumors including myself twice, who are surviving. Please listen to us- these decisions are irreversible in our lifetime, have little economic benefit, and definitely have a heavy financial and health cost that seriously outweighs the economic benefit. Please listen to reason. Sincerely, Nancy Miller

Nancy Norr 18352

Thank you. My name is Nancy Norr. N-O-R-R. I am the director of regional development for Minnesota Power. I have a master's degree in agricultural economics from the University of Wisconsin-Madison. I spent a quarter of a century as an economic development professional in this region. Also currently my (inaudible) jobs as a Minnesotan. A state-wide coalition of labor, business and local industry, as well as units of government. And on behalf of those 55,000 labor union members, and as well as the 2500 businesses and other organizations that we represent, I want to commend the regulatory agencies for working closely together to reach this important milestone. The economic basis in this region is and always will be mining. The growth of this industry is critical to the this region and will support a way of life for generations to come. In the SDEIS is the economical impact of the NorthMet project, EIS Section 5.2.10, and refers to these impacts in other sections of the report. The report quantifies the direct, indirect and induced employment effects of the construction and operating phases of the employment effects and the mine utilizing the implant model. The University of Minnesota-Duluth Department of Labor and Bureau of Economic Research performed an analysis using prudent and reasonable assumptions and was conducted in accordance to the requirements under the law. The integrity of the model and research team that performed the work was the highest caliber. The implant model was designed in the 1970's under the auspices of the Forest Service and updated over time with the University of Minnesota. The model has been used extensively since its inception by prior businesses, as well as state and federal government entities, including the Obama Administration, the EPA and Federal Reserve Bank. Users of the model, including schools, gather regularly to share information and to work together to enhance its features and its peer reviews. Critics of the SDEIS (inaudible) in mining closure have to be factored in. I would suggest that although the permitting process has been based on a 20-year mining plan, the vast resources of the Duluth complex indicates that responsible mining can continue for centuries to come, just as iron mining has been conducted here for years. In my day-to-day work at (inaudible), I see the no-action alternative. The "no-action alternative" is a death sentence for the communities of the east Iron Range. I don't know how you quantify empty storefronts and classrooms and boarded up houses. I don't know how you quantify families moving away. This is a thorough SDEIS and we are prepared to move forward in the permitting phase. Thank you.

Alphabetical by sender's first name

Nancy Norr 47282

Dear Ms Fay: On behalf of your colleagues at the DNR, EMS, the US Forest Service,and Army Corps of Engineers, please accept my sincere thanks and appreciation for the highly professional handling of the information sharing on the PolyMet project. The three public events were very well managed and provided the public with incredible resources. The web site information, fact sheets and videos have also raised the bar on how projects of complex and often controversial nature should be handled. In my 25 years of experience as an economic development professional, I've never come across an opportunity as important to northeastern Minnesota's economic future as copper-nickel mining. A significant economic base for this region is and will remain mining. The growth of this industry is critical to the long term success of the region and will support a way of life for generations to come. The economic opportunity stretches from the environmental technician at the mine site in Hoyt Lakes to the engineering professionals located in downtown Duluth. PolyMet Mining's proposed NorthMet project represents a continuation of our strong mining tradition. As the public comment period for the project's Supplemental Draft Environmental Impact Statement (SDEIS) comes to a close, we are one step closer to bringing 360 full-time mining jobs to the Range and more than 600 spinoff jobs in other industries. These are career opportunities that our young people need to support families. Too often in Greater Minnesota we see empty storefronts and classrooms and industrial parks. Long-time residents are forced to move their families out of town to find work. This is the present, but it does not have to be the future – we can have thriving communities again. Every development – from new office buildings to housing developments to airports to the highways that bring vacationers to northern Minnesota – impacts the landscape. All businesses and industries in this region, including those that transport and process natural resources, potentially impact on the environment and human health. That is why we have multiple local, state and federal agencies tasked with ensuring each project is designed adequately to address its ability to mitigate potential environmental impacts. Our former mines are now lakes that enhance our environment and by bringing mining companies and communities together, the Laurentian Vision Partnership guides future land use after mining closure. The nay-sayers keep referring to a 20-year mine and suggest the benefits are temporary. But the vast resources of the Duluth Complex indicate responsible mining could continue for many more years – just as iron mining has existed for a century. The benefits from copper-nickel mining will be felt by generations of hard-working Minnesotans. Copper-nickel mining will provide millions of dollars in local and state taxes to support our communities and educational systems and will create a domestic source for metals essential to our quality of life. Furthermore, our state has some of the strictest environmental regulations in the country, and the environmental review process for the NorthMet project has been sound and thorough. Keeping jobs here and doing mining the right way is arguably the real definition of economic and environmental justice. It would be irresponsible to import these metals from countries that do not have strict environmental standards when Minnesota has the opportunity to mine responsibly. As a state, we have the opportunity to enter a new era of mining that will create hundreds of jobs, foster a strong economic future for Minnesota families and bring families back to this area. These families will sustain and build the future vitality of this region. We do not have to choose between economic growth and protecting our environment. We can have both. Please share my thanks with Commissioner Landwehr. Sincerely, Nancy Norr cc: Rep. Tom Huntley Sen. Roger Reinert Nancy Norr 3

Nancy O'Bryan 23130

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Please make very sure that this project will not harm the quality of Great Lakes water before you approve the Federal land exchange of protected Superior National Forest land to facilitate PolyMet's open pit sulfide mine. Sincerely, Nancy O'Bryan 8635 Silver Creek Dr Novelty, OH 44072-9694 (440) 338-5350

Nancy Olson 58034

I do not agree with Poly Met's environmental impact statement. I have seen the "deal river" with trout fishing a vegetation destroyed by copper mining, which is the clark fork River that's flows on the Eastside of Missoula Mt. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Nancy Patrick 385

Dec 10, 2013 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Nancy Pena 39555

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Nancy Pena 535 Kim Ln Owatonna, MN 55060-2743

Alphabetical by sender's first name

Nancy Pius 6178

http://www.nmworg-org/ The Supplemental Draft Environmental Impact Statement is Inadequate Economic Impacts The SDEIS contains no cost/benefit analysis of the PolyMet mine. The SDEIS does not say whether wages paid to mine employees will stay in Minnesota or whether they will go primarily to transient employees who will spend only a fraction of their income in Minnesota. The SDEIS does not discuss the impact of the loss of jobs when the price of copper declines and mining becomes unprofitable, although it acknowledges that such job loss is inevitable: "Mining-related employment is volatile and fluctuates from year to year due to the market price of commodities being extracted." SDEIS, 4-325—4-326- The SDEIS fails to assess the cost of unemployment benefits and other social services, increased crime rates, and other societal costs associated with volatility in employment. The model used to calculate the alleged economic benefits of the mine does not take into account the costs to the environment; the displacement of other economic activity, including among other things tribal rights to hunt, fish, and gather under the 1854 Treaty; the infrastructure, government, and social service costs resulting from the mining; and the consequences of the unpredictable influx and outflow of mine employees. What would be the costs for public infrastructure, lost opportunities to engage in other economic activities incompatible with mining, depressed real estate values, lost recreational opportunities, social upheaval, and perpetual clean-up that the public would be required to bear. Permanent Water Pollution PolyMet admits that water pollution by sulfuric acid and heavy metals will last for at least 500 years. Not all of the polluted water will be captured for treatment. Annually, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated. Annually, 5 million gallons of polluted seepage from the mine site will enter groundwater without being treated. The SDEIS fails to adequately assess the long-term impacts of the pollution resulting from the release of this untreated water. The computer model used by PolyMet may understate the actual pollution impact, because it has been shown to be inaccurate in representing current conditions for water quality around the mine site. Absence of Planning for Inevitable Accidents and Failures The SDEIS fails to provide contingency plans for the kinds of failures and mishaps that routinely occur in mining operations. During operations, at least 6-2 million gallons of polluted water would need to be treated every day. Pipeline spills, accidental releases, failure of water collection and treatment infrastructure, and tailings basins failures are virtual certainties. And because the provisions regarding financial assurance are so plainly inadequate (see below), the SDEIS does not tell us how the costs of responding to such failures will be covered. The SDEIS provides no details on the impacts to water quality, wildlife, or human health if the water treatment system ceases operations at some time during the 500+ years during which the polluted water is being discharged. The Mine Plan Requires an Absurd and Unachievable Level of Monitoring and Maintenance for Many Centuries Minnesota Rules 6132-3200 requires that the site must be maintenance-free at closure, but the PolyMet mining plan calls for at least 500 years of active water treatment. 526 acres of land, covered by more than 167 million tons of waste rock, would be covered by a plastic sheet and surrounded by a system that would supposedly collect contaminated seepage. All would require monitoring and maintenance constantly for hundreds of years to fix leaks, repair perforations, and remove deep-rooted plants. A mining pit "lake" would require pumping to prevent the toxic brew of acid and heavy metals from spilling into the nearby Partridge River, and a tailings basin pond would require

Nancy Sampson 57214

Let clean water be our legacy – not toxic pollution from mining!NO to PolyMet's 20 years of mining @ the headwaters of the St. Louis River – NO to 500 years of toxic runoff. REJECT the land exchange.Nancy Sampson2508 East 22nd StMinneapolis, MN 55406

Nancy Schuldt 48546

Good afternoon: I certainly didn't need any more conflicting information to process at this moment while I am trying to complete comments on behalf of the Fond du Lac Band, but this is very troubling to me. John's 'discovery' is also relevant to a comment I've been struggling to articulate, regarding how the ash dump is proposed to be dealt with under the proposed project; like many other issues in the SDEIS, it seems to be getting kicked down the road for future permitting discussions. But if the plant site model has been constructed to not incorporate the ash dump (which is full of toxics), when in fact it does, this is another significant potential source of contaminant loading that is not accounted for in the water modeling and water quality predictions. At literally the eleventh hour of a 90-day public comment period, we just shouldn't be trying to figure out basic model construction, source loads, and water quality impacts; it should be clear in the SDEIS. To the extent that you can provide any feedback to John's discovery or my question before 4:30 tomorrow, I would very much appreciate it. Otherwise, you might re-consider extending the comment period to allow all of us the time we need to truly understand how the models have informed environmental impact predictions. Thank you, Nancy Schuldt Water Projects Coordinator Fond du Lac Environmental Program 1720 Big Lake Road Cloquet, MN 55720 218-878-7110 ph 218-878-7168 fax

Alphabetical by sender's first name

Nancy Schultz 40896

Dear Ms Fay, Mr Bruner and Mr Dabney: Nancy Gail Schultz 9926 National Forest Lodge Rd Isabella, MN 55607 All the reasons that support the permitting of the PolyMet mine will disappear when we have destroyed the natural resources which we depend on to keep us healthy. The PolyMet SDEIS completed by the world's most polluting industry suggest that they now have a way to preform extraction of sulfide containing metals safely, this however has no credible foundation in which to support this statement. In fact, there is more data to suggest just the opposite. All the proposed methods in this SDEIS are not new, and if they were, testing them in a highly sensitive wetland and environmentally rich native wild rice ecosystem sounds like a really bad idea. The consequences of polluting our water, with its highly varied flow patterns and rates system, is too great for the short term gains of a mining economy. I am an owner of a small business that serves public entities in creating sustainable improvement solutions for their facility infrastructure. Our services rely heavy on the integrated assessment of all systems that impact the operation of a portfolio of buildings. One of our first lines of defense in creating a sustainable building is to focus first on conservation measures. Reducing the need for energy to operate a buildings greatly reduces our need to depend on unstable energy costs and expensive/environmentally destructive mechanical and electrical systems needed to keep its occupants comfortable. This is one of many ways we can reduce the need for materials that are obtained at great risks to our natural resources, such as what is being proposed by this SDEIS. Ultimately a sustainable business practice is a closed loop systems that has no waste/pollution. Being fully aware that this is an ever evolving lofty goal, it is one of that provides little down side. This proven approach is good for the economy, good for our health and good for the environment. To move us in this direction, we should not be taking risks that have irreparable damage and depend on quality control processes that must be in place forever. Following are a list of questions that summarize why I do not think the SDEIS effectively manages the risk associated with irreparable destruction of our natural resources: •Why doesn't the statement require that the 939 acres of wetland being destroyed, at the very least be replaced with wetlands that do the same job and serve the same habitat and the same streaMs It doesn't deliver this hence destroying 68% of the wetlands by not having them associated with the Lake Superior Basin at all. •The SDEIS admits that the sulfide mine will directly destroy 913 acres of wetlands. It then says that as much as another 7,351 acres of wetlands could be lost due to pollution and changes to water patterns in the mina dn tailings site. Why aren't there alternatives provided in the SDEIS to avoid or minimize this wetlands loss. •When flooding occurs during the 10 and 100-year rains, why isn't there a plan or indication of impacts for how the waste area will impact the waters when this massive acres of waste storage is flooded. •PolyMet sulfide mine tailings will be stored on top of the old, already leaking, LTV tailings dump. This site is an unlined pile about two miles across set on top of peat and streaMs It was built for taconite, not for sulfide mining, at a time when they wanted tailings piles to leak so they would be less unstable. There will be no liner under the new sulfide mine tailings. This tailings pile will need to be treated forever, how do you put a cost and sureties on forever. •The tailings basin is proposed to be completely unlined, there is no indication that fractures beneath the tailings site would transport pollutants, which is completely unrealistic. Further indicating the high level risk we are going to take because of these assumption that the tailings site has no potential of transporting polluti

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Nancy Schultz 40897

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Nancy Schultz 49087

Dear Ms Fay, Mr Bruner and Mr Dabney: Nancy Gail Schultz 9926 National Forest Lodge Rd Isabella, MN 55607 All the reasons that support the permitting of the PolyMet mine will disappear when we have destroyed the natural resources which we depend on to keep us healthy. The PolyMet SDEIS completed by the world's most polluting industry suggest that they now have a way to preform extraction of sulfide containing metals safely, this however has no credible foundation in which to support this statement. In fact, there is more data to suggest just the opposite. All the proposed methods in this SDEIS are not new, and if they were, testing them in a highly sensitive wetland and environmentally rich native wild rice ecosystem sounds like a really bad idea. The consequences of polluting our water, with its highly varied flow patterns and rates system, is too great for the short term gains of a mining economy. I am an owner of a small business that serves public entities in creating sustainable improvement solutions for their facility infrastructure. Our services rely heavy on the integrated assessment of all systems that impact the operation of a portfolio of buildings. One of our first lines of defense in creating a sustainable building is to focus first on conservation measures. Reducing the need for energy to operate a buildings greatly reduces our need to depend on unstable energy costs and expensive/environmentally destructive mechanical and electrical systems needed to keep its occupants comfortable. This is one of many ways we can reduce the need for materials that are obtained at great risks to our natural resources, such as what is being proposed by this SDEIS. Ultimately a sustainable business practice is a closed loop systems that has no waste/pollution. Being fully aware that this is an ever evolving lofty goal, it is one of that provides little down side. This proven approach is good for the economy, good for our health and good for the environment. To move us in this direction, we should not be taking risks that have irreparable damage and depend on quality control processes that must be in place forever. Following are a list of questions that summarize why I do not think the SDEIS effectively manages the risk associated with irreparable destruction of our natural resources: • Why doesn't the statement require that the 939 acres of wetland being destroyed, at the very least be replaced with wetlands that do the same job and serve the same habitat and the same streaMs It doesn't deliver this hence destroying 68% of the wetlands by not having them associated with the Lake Superior Basin at all. • The SDEIS admits that the sulfide mine will directly destroy 913 acres of wetlands. It then says that as much as another 7,351 acres of wetlands could be lost due to pollution and changes to water patterns in the mina dn tailings site. Why aren't there alternatives provided in the SDEIS to avoid or minimize this wetlands loss. • When flooding occurs during the 10 and 100-year rains, why isn't there a plan or indication of impacts for how the waste area will impact the waters when this massive acres of waste storage is flooded. • PolyMet sulfide mine tailings will be stored on top of the old, already leaking, LTV tailings dump. This site is an unlined pile about two miles across set on top of peat and streaMs It was built for taconite, not for sulfide mining, at a time when they wanted tailings piles to leak so they would be less unstable. There will be no liner under the new sulfide mine tailings. This tailings pile will need to be treated forever, how do you put a cost and sureties on forever. • The tailings basin is proposed to be completely unlined, there is no indication that fractures beneath the tailings site would transport pollutants, which is completely unrealistic. Further indicating the high level risk we are going to take because of these assumption that the tailings site has no potential of transporting pollutio

Alphabetical by sender's first name

Nancy Shih-Knodel 16089

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Nancy Solberg 41966

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Nancy Solberg 1211 Archibald Ct Northfield, MN 55057-2808

Alphabetical by sender's first name

Nancy Songer 39187

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: It's legacy time, folks. If you approve a faulty water model, inaccurate water flow assumptions, and all the other problems inherent in the PolyMet NorthMet SDEIS, you will be sentencing current and future humans (not just Minnesotans.) to a legacy of poisoning in the foundation of all life, water. Not even close to worth the risk. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone to assess the impacts of slope and dam failure at the mine site waste rock piles and the tailings piles, instead of just assuming that no failure can happen. (SDEIS, p. 5-546). PolyMet's tailings would be placed on top of huge, leaky and unstable existing tailings piles. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Nancy Songer 8010 275th Ave NE North Branch, MN 55056

Nancy Youngdahl 10790

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I am also concerned about the Moose population impact and the effect on wild rice production. Nancy Youngdahl 3712 W. 57th Street Edina,MN 55410 Sincerely, Mrs Nancy Youngdahl 3712 W 57th St Edina, MN 55410-2332

Alphabetical by sender's first name

NAOMI LITTELL 40361

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, NAOMI LITTELL 514 N 41ST ST PHILADELPHIA, PA 19104 US

Natali Kraeva 40292

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Natali Kraeva Colonial dr Tampa, FL 33613 US

Alphabetical by sender's first name

Natalie A Carter 42490

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Natalie A Carter 562 Maple Ave Newark, OH 43055-5936

Natalie Alexander 42469

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Natalie Alexander 707 Cantor Irvine, CA 92620-3846

Natalie Duncan 44813

Natalie Duncan 1740 Bohland Avenue St Paul, Minnesota 5516 How many years will it take to clean up the mess the PolymMet mining project is certain to create. Multiple organizations and individuals, from nonprofits to passionate environmentalists, have repeatedly warned on the cons if this project goes through. To name a few, the destruction of the habitats of Minnesota's wildlife, and the irreversible and indisputable damage to the nearby water sources. Are we really willing to pay the cost for small and short-term benefits. Some of PolyMet's stated benefits include the extraction of abundant copper-nickle and more job creation. The natural resources up north are rich, but the resources will not last forever. In fact, PolyMet has put out no information on how long the copper-nickle will last and when they will have to strike again. They also say that many jobs will be reared. In reality, it is only around 350 jobs and in the long-run these jobs are not solutions to the job crisis. The so-called benefits are flawed and outweighed by the cons.

Alphabetical by sender's first name

Natalie Fine 48187

10 new people recently signed Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota." on Change-org. There are now 460 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 459- Mary Garcia East Lansing, Michigan 458- Deidre Hall Saint Paul, Minnesota 457- Josh Marcus Carmel, California 456- Emily McCarthy wilmette, Illinois 454- Stephanie Cotherman Chicago, Illinois 453- Christine Stott Rockford, Illinois 452- Maggie Miller Cedarburg, Wisconsin 450- Laura Nelson Seattle, Washington 448- Adrienne Testa Chicago, Illinois 446- Taya Beattie Hazelhurst, Wisconsin http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJmaXZlX2h1bmRyZWQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTMwLCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA4NDgyODF9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK7A9HaB-2FLIbVgymJkcJrqqPLrU-2Bh9geAg9tPi5G1tC-2FZ7qayQLi4R1qWWMp2BhGE6YAZc8yCf3I12si8ZbDaZk23rFczswv-2FuEXJz-2F8A8SbCK1RMD00kYQonvfr-2B2ULEC-2Bq4bO4sPnwHWadUhtQ0b1vv6XDd42btWF2z6wMNSDyNprSLVrDdnb9CRRO6EiSyJw2FQv5aNqEzfS7BGP28KVI8Pt6Loxq2g7IJG3f0TYFD

Natalie Griffith 58102

1. ES24-ES-25 What data demonstrating success of these remarks used on similar mining [ILLEGIBLE] for control of same solutes.2. ES-37 Replacement Wetlands have not been demonstrated to be of equal quality to original for support of vertebrae and invertebrate life and effect on water quality, run off, and re-charging water table – regardless of replacement credits.3. ES-39 Sustained reduced stream flows do not have the same impact on aquatic life, [ILLEGIBLE] envisions, and wildlife causing them a seasonal fluctuations.4. ES-38 Inadequate mitigation designation for controlling solute concentrations above class 2135. ES-23 Want data on estimated solute quality6. Need study of solutes predicted movement in a phase typical to the standard substrate structure or the area

Natalie Hodapp 42013

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Natalie Hodapp 19398 599th Ave Mankato, MN 56001-8498

Alphabetical by sender's first name

Natalie Hoidal 47018

Hello, My name is Natalie. I'm a student at the University of Minnesota, Morris studying biology and environmental studies. I have grown up in Minnesota, and much of my family is from the iron range. In fact, my family came to Minnesota in the first place because of mining jobs. While I appreciate and respect our Northern communities and the work that sustains them, I have also studied our Northern ecosysteMs I completed my senior seminar this year on sulfide cycling in wetlands, and as a part of this process I analyzed the Polymet proposal and the ecosystems surrounding the proposed mine site. As you are well aware, sulfates and sulfides are incredibly toxic under the proper conditions, primarily in wetlands. If anything were to go wrong with this project as sulfides were to leak faster or in greater quantities than expected, the surrounding habitats would be forever loSt Sulfides are directly toxic to the arenchyma tissue of aquatic plants like wild rice. However, generalist species such as cattails are better adapted to toxic environments. Polymet admits in its plan that 1600 acres of wetlands will be impaired by the process, which will lead to the destruction of current habitat, but will also allow more invasive species to take hold, which will have impacts far beyond the 1600 acres. In addition, the fact that Polymet has asked the state to reconsider the sulfide standard, which has been universally accepted in the scientific community since John Moyle's discovery of sulfide toxicity in wetlands in the 1930s and 40s, begs the question of whether or not it is truly in Polymet's best interest to follow our state's standards. In addition, while the project will inevitably create jobs, the wild rice in its proximity also supports the livelihoods and cultural identity of hundreds of individuals. If this company impacts the wild rice, will the jobs be worth it. Secondly, the EPA estimates that Americans only recycle 25% of their electronics. This means that as we stand currently, there is no need to mine these metals. We already have abundant metals in our homes and in landfills. Before mining, why don't we set up better recycling programs (which would create jobs) and prove that we actually know how to use our resources before exploiting our fragile ecosystems for more. As a young person in Minnesota, I have fought tirelessly for renewable energy, pipeline regulation, and a cleaner, healthier environment. Minnesota has some of the best environmental regulations in the world, so we're in a great place to continue that tradition and to lead the country in renewable technologies. This company has no reason to carry on that legacy. I believe that at some point, the Duluth complex will be mined. So while I'm not inherently opposed to mining, this company is not the one to do the job. Minnesota has great regulations, but Polymet does not. Their subsidiary Glencore has a horrible human rights record as well as a poor environmental recoRd The company has no financial incentives to invest in keeping Minnesota clean and beautiful, to employ local workers, or to keep the money generated in our communities. At a recent Enbridge hearing, a commissioner on the PUC told the company "Minnesota does not need your company, you need our state." We don't need Polymet, they need our minerals. So to settle for a company with a terrible track record that has already asked our state to reconsider our standards seems crazy. Thank you for reading so many comments and allowing Minnesotans to be a part of this process, Natalie Hoidal Sources: 2004- Sulfate in Drinking-water: Background document for development of WHO Guidelines for Drinking-water Quality, in: Organization, W.H. (Ed.). 2011- The sulfate standard to protect wild rice: study protocol - DRAFT, in: Agency, M.P.C. (Ed.). Agency, M.P.C., 2011- The sulfate standard to protect wild rice: study protocol. DRAFT. Engstrom, D.R., 2010- A review of the NorthMet draft environmental im

Alphabetical by sender's first name

Natalie Holdal 18186

My name is Noah Shavit-Lonstein. I'm from St. Paul, Minnesota. And I would like to actually cede my time to someone not wearing a suit. And that is my friend Natalie Holdal. Hi. My name is Natalie Holdal. N-A-T-A-L-I-E, H-O-L-D-A-L. I'm a student at the University of Minnesota (inaudible). I want to thank the DNR. I think it's pretty cool that we live in a state where we can all get together in a room and talk like this. One of the things that is missing in this room is youth representation. And we anticipated that coming into this. A couple of friends and I this month came up with a youth petition. And over the last two weeks we have gotten over 500 student signatures against sulfide mining. And given that we the young people in this state inherit the consequences of this decision, I think it's pretty important to consider what we are saying. And when (inaudible) who pays for pollution, and that is going to be us. So I'm just going to give two of my personal reasons for opposing this. The first is, I admit I use a cell phone. I have a computer. There is a need for these metals. But these metals already exist. The EPA estimates that only 25 percent of our electronics are actually recycled. And so it seems a little bit wasteful that we are continuing to mine for more when we haven't figured out how to use the ones that we already have. Secondly, I am a biology student. And this last semester a seminar on sulfides cycling through wetlands. And one of the things studied -- I studied a little bit of the PolyMet proposal, but also impacts on wild rice. And the DNR obviously has more qualifications than I do as an undergrad to analyze that. But I found that wild rice is incredibly fragile. And if anything goes wrong with this proposal, the wild rice that brought people to Northern Minnesota in the first place, and that continues to sustain the livelihood and the cultures of thousands, maybe hundreds, of people, if that is destroyed, then this project is completely disastrous. And so a couple people have gotten up and said, "Minnesota has the best environmental regulations in the world. Why are we not doing it here if the alternatives are shipping it overseas?" And I would like to point out that Glencore, one of the primary investors behind this project, has a mine in Zambia where they are currently polluting the water. And so I just want to conclude by saying that these are huge risks that this project has. And I don't want to live the rest of my life dealing with those consequences, and neither do these 500 young people.

Natalie Obee 9619

I do not support the PolyMet Mining Project in northern Minnesota. The other issues notwithstanding, the potential 500-year clean up and the undetermined nature of who pays for that clean up, are reason enough to not green light this project. Minnesota and its inhabitants are justifiably proud of our natural environment; letting business interests pull mineral resources out and leave us, the taxpayers, to foot the bill in the event of an environmental problem, is absolutely and completely irresponsible. Watching our state agencies and some of the public be swayed by the lure of a paltry few hundred jobs, is pathetic in light of the potential devastation this mine could bring to Minnesota. The economic sustainability of our natural environment and the tourism dollars that that environment makes possible should take precedent over any potential, short-term gains from the mine. I am a Minnesotan, born and bred, and I do not support this project. Natalie Obee 924 Hague Avenue St Paul, MN 55104 Natalie Obee | Finance and Human Resources Director | Neighborhood Energy Connection | making energy conservation easy | HYPERLINK "http://651-789-5711/"651-789-5711 | 1754 University Avenue West | Saint Paul, MN 55104 | HYPERLINK "http://www.thenec-org/"www.TheNEC-org

Natalie Steen 39911

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. Please do not allow this mine to happen. The Boundary Waters is an exceptionally rare place and this mine could have irreversible consequences on one of the most unique places in Minnesota. Sincerely, Ms Natalie Steen 700 College St Beloit, WI 53511-5509

Natasha Gindorff 38945

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Natasha Gindorff 1122 Churchill St Saint Paul, MN 55103-1008 (651) 487-9411

Alphabetical by sender's first name

Natasha Villanueva 18916

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Natasha Villanueva Natasha Villanueva 1125 W. 28th Street Apt. 108 Minneapolis, MN 55403

Nate Schleif 58051

It is imperative that we protect our natural resources, if we don't we shall lose it! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Nathan Anderson 10885

Thank you, I have additional concerns that there has been incomplete analysis of the impact of mining using real weather pattern models that include climate change. Aquifers can be affected when climate change is accurately assessed particularly when observed under a worst case scenario basis. Please analyze the impact of mining under the conditions of flood and drought that are an unpredictable possibility in the future as a result of unprecedented climate change. Thanks again Nathan Anderson Sent from my iPad On Feb 7, 2014, at 12:03 PM, "*NorthMetSDEIS (DNR)" wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Nathan Anderson 15961

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Please apply the same worst case scenario basis as is adopted by the EPA for the purposes of public safety and prevention of exposure to lead. Sincerely, Mr nathan anderson 3565 Rustic Pl Saint Paul, MN 55126-3038

Nathan Bronk 18902

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Nathan Bronk 2019 E. 1st S Duluth, MN 55812 651 717 5084

Alphabetical by sender's first name

Nathan Bronk 18903

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Nathan Bronk 2019 E. 1st S Duluth, MN 55812 651 717 5084

Alphabetical by sender's first name

Nathan Bronk 18904

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Nathan Bronk 2019 E. 1st S Duluth, MN 55812 651 717 5084

Nathan Carroll 38771

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Nathan Carroll 5129 Abbott Ave S Minneapolis, MN 55410-2144 (612) 850-3551

Alphabetical by sender's first name

Nathan Fritz 40864

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Nathan Fritz 919 Birch St Niles, MI 49120-3118 (351) 025-1464

Nathan Indresano 11025

Feb 6, 2014 Ms Lisa Fay MN Dear Ms Fay, While yes, I am jumping on a generalized note, I hope you take the time to read this message. I write you as a 20 year old college kid who, like most my generation, is being brought down apathy, brought on by a bleak future. When we think about our future, we not only have to fear high unemployment (a familiar economic problem), but we are faced with changing ecosystems that humanity will struggle to adapt to. A quick look around will show that we are already struggling to cope. Polynesian nations are planning evacuations. Places around the globe are regularly experiencing weather events that previously might not of occurred in a life time. Cancer rates and pollution related disease are ever rising. Many of my generation envision a dystopian future of great hardship. By preventing this sulfide mine from going ahead, you are helping make sure that we are actively pursuing a disastrous future. Better yet, when you make the right decision in the end, make sure to capitalize on the victory. Use the political steam to push Minnesota to a sustainable future. Help make a future that inspire the next generation not push it to hopelessness. Sincerely, Mr Nathan Indresano 1104 23rd Ave SE Minneapolis, MN 55414-2629

Nathan Keller 38824

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, Please do not allow the PolyMet mine. Think about the future generations that this decision will affect. The Earth is one of a kind do not destroy its valuable resources by allowing the PolyMet mine. Think about the future our kids, our grand kids, their grand kids. Their are other ways to create jobs and make money don't do it while destroying something we will not be able to recreate. Sincerely, Mr Nathan Keller 299 14th Ave SE Apt 104 Saint Cloud, MN 56304-1128 (612) 986-8607

Nathan Lovas 42042

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Nathan Lovas Eden Prairie, Minnesota

Alphabetical by sender's first name

Nathan Mielke 1777

Dec 9, 2013 Ms Lisa Fay, Deparment of Natural Resources To Ms Fay, Deparment of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible

Nathan Peters 9538

Dear Commissioner Fay, I am writing to oppose the proposed PolyMet project. First, the SDEIS must be revisited and updated. New water modeling is absolutely necessary. Data from the 1980's is insufficient and useless for making accurate analyses and predictions about future water flows and pollution escaping from the mine site and rubble stockpiles. Perhaps we will have technology and means to extract these metals safely someday, but we are not there yet. Our freshwater and groundwater are far more precious than 20 years of mining. The complex ecosystems of Northern Minnesota have suffered enough from previous mines that already leak and pollute our water. This type of mining has never been done safely or well. 500 years of monitoring and water treatment are ridiculous burdens for the state to take on. The head of the parent company that owns PolyMet is Tony Hayward, the former head of BP. He is the chairman of CompactGTL. He was at the helm when BP committed the largest crime against the Earth and against humanity as its Deepwater Horizon rig burst into flames and spewed oil for months. In short, PolyMet cannot be trusted. Your own scientists have said that major parts of the SDEIS need to be re-done. Tell PolyMet "No." Tell them to go away. There are already enough resources for everyone. We do not need to mine more minerals from the Earth. We need to work on our distribution of wealth and resources. We do not need to poison and permanently pollute the precious waters and groundwaters of Northern Minnesota. At a minimum, please require accurate modeling with useful and relevant data. Please require PolyMet to set aside billions of dollars in advance for the hundreds of years of remediation. Please require PolyMet to be more careful when mining and operating. Thank you for safeguarding Minnesota's precious resources. Respectfully submitted, Nathan Peters 2616 Blaisdell Ave #4 Minneapolis, MN 55408 J.D. expected May 2015 University of St Thomas School of Law

Alphabetical by sender's first name

Nathan Roy 39711

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's likely impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Nathan Roy 208 4th St NE Dilworth, MN 56529-1218 (701) 205-6401

Nathaniel Brown 48184

10 new people recently signed Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota." on Change-org. There are now 480 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 479- Anna Sobocinski Denver, Colorado 478- amanda drish Des Moines, Iowa 476- Morgan Pothast Chicago, Illinois 474- Mia Tornatore Chicago, Illinois 473- Stephanie Shimota St Paul, Minnesota 472- Shana Rubenstein Chicago, Illinois 468- Daly Johnson Lewiston, Maine 467- Mary Jane Brummitt Pueblo, Colorado 466- Charles Brummitt Milwaukee, Wisconsin 465- Martha Mulcahy St Paul, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJmaXZlX2h1bmRyZWQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTMwLCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA4NTg4MzN9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK3DMqZmoVJtw48LF0ApQVJ9dEyURiwcedVos0BwrzLpSanrvoxhm5XLUHsoXloEbhGsLZM8EaotjwYKhTC3lUh4lWUMoWm8TVxqk6BH68PbgoebX-2B4S74SzMmZ9dIOzSgtBp7SuyHJVYemoAajPPyPt8tonmGjNRwmXeu3o12R9s4IfILozx2ib25WWxDmLRsqQzmvyFm9plpzzdF-2Bi-2F8XsRgo43Gi1HU52XQiMjJWjO

Alphabetical by sender's first name

Nathaniel Stauber 15758

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

National Audubon Society 19866

Dear Minnesota Department of Natural Resources, National Audubon Society started a petition waters/responses/new.response=f09da092d89bandutm_source=targetandutm_medium=emailandutm_campaign=added_as_petition_target"Say No to Oozing Toxins in Minnesota's Waters." targeting you on Change-org that's starting to pick up steam. Change-org is the world's largest petition platform that gives anyone, anywhere the tools they need to start, join and win campaigns for change. Change-org never starts petitions on our own - petitions on the website, like waters/responses/new.response=f09da092d89bandutm_source=targetandutm_medium=emailandutm_campaign=added_as_petition_target"Say No to Oozing Toxins in Minnesota's Waters.", are started by users. While waters/responses/new.response=f09da092d89bandutm_source=targetandutm_medium=emailandutm_campaign=added_as_petition_target"Say No to Oozing Toxins in Minnesota's Waters." is active, you'll receive an email each time a signer leaves a comment explaining why he or she is signing. You'll also receive periodic updates about the petition's status. Here's what you can do right now to resolve the petition: Review the petition. Here's a link: HYPERLINK "http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters.utm_source=targetandutm_medium=emailandutm_campaign=added_as_petition_target"http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters See the 5 signers and their reasons for signing on the petition page. Respond to the petition creator by sending a message here: HYPERLINK "http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89bandutm_source=targetandutm_medium=emailandutm_campaign=added_as_petition_target"http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89b Sincerely, Change-org _____ There are now 5 signatures on this petition. Read reasons why people are signing, and respond to National Audubon Society by clicking here: HYPERLINK "http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89bandutm_source=targetandutm_medium=emailandutm_campaign=added_as_petition_target"http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89b http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJhZGRlZF9hc19wZXRpdGlvbl90YXJnZXQiLCJpZCI6InVzZXJfMTYwMDIxNSIsImNpdHkiOiJTYW4gRnJhbmNpc2NvIiwic3RhdGUiOiJDQSIsInppcGNvZGUiOiI5NDExMCIsImNvdW50cnlfY29kZSI6IlVTIiwiaW5jb21wbGV0ZV9hZGRyZXNzIjpmYWxzZSwic2lnbnVwX2RhdGUiOiIyMDEwLTA5LTIzIiwibG9naW5fY291bnQiOjkzNTIsInRvdGFsX2FjdGlvbnMiOjQzMCwiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6ZmFsc2UsInNpZ251cF9jb250ZXh0IjoiYWN0aW9uUGFydGljaXBhbnQiLCJkaXN0aW5jdF9pZCI6IjIxZDYyYjAwLWJlNWQtMDEyZi02ODZlLTQwNDA2MGU3MmFiYiIsInRva2VuIjoiMzBhYTI2YTFkNmU5M2FlMTU4ZGZiZGMxNmI0OTMzMTIiLCJ0aW1lIjoxMzkzNjI5MjA3fX0=andip=1andimg=1 http://email.changemail-org/wf/open.upn=aGGv9wQ398j6-2FWVT4grdXbWUo0w-2FupjjjD-2BeyIkg5XeInLuCEKc3fZdho8GXjxxiplFn6SybU80HWYOLHct2MhHcRv7ksg-2F-2Bt-2BBQdFBpjlxYy8BlNja00f1RJTVAu3lSqm-2BqvPxO7wI2JyU5FUvkKcb-2FLDKVUkVdXeUGNGSZIeEZvqOtB5KadH05O0VfPT4K-2FyJ1AotKfF-2FIw3YL2ugKugREL1BAd0g25tRSknYrW4hhu9SYa7OF7x3aSwJF1XgjgwcSK5R5i0-2BOfa8kJ5iUbXGurRtbw7BzhXj56lhFCITBJmnO-2FCRTOtN5hGmcjcPH

National Parks Conservation Association 42888

Attached please find NPCA’s comments on the NorthMet SDEIS. Thank you. Best, Christine R. Goepfert Upper Midwest Program Manager National Parks Conservation Association 546 Rice Street, Suite 100 St Paul, MN 55103 (612) 270-8564 (office) (651) 290-0167 (fax) HYPERLINK "mailto:cgoepfert@npca-org"cgoepfert@npca-org

Alphabetical by sender's first name

Neal M & Linda S Adams 26504

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt National Forest lands belong to all the people of this country. They are vital to the preservation of the natural heritage of the United States which is the birthright of all our citizens, present and future. Far too much damage has already been done to the land and resources of this nation in the name of corporate profit. Whether the threat is fracking, the Keystone XL pipeline, or the Pebble Mine in Alaska, concerned citizens are ready to take a stand and say that enough is enough. We are prepared to speak out for wildlife, wild lands and all other aspects of our environment. No sulfide mine in the Superior National Forest - now or ever. Sincerely, Neal M and Linda S Adams 6 Hollow Oak Ln Brookfield, CT 06804-2511 (203) 775-2870

Ned Bouril 9787

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the entire experiment in the long-term, to ensure that the permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota, is otherwise never realized. This project would violate water quality standards for generations to come. Sincerely yours, Ned Bouril Ned Bouril 3618 Xenia Ave N Street 2 Crystal, MN 55422

Alphabetical by sender's first name

Ned Bouril 18594

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the entire experiment in the long-term, to ensure that the permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota, is otherwise never realized. This project would violate water quality standards for generations to come. Sincerely yours, Ned Bouril Ned Bouril 3618 Xenia Ave N Street 2 Crystal, MN 55422

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Ned Bouril 39710

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. To reiterate the spirit of many comments from previous public forums, the basic tenets of the current PolyMet Mine project and its inadequate SDEIS proposal beg credulity on an epic scale. Even if every proposed detail of every phase of this project were to be flawlessly implemented for even the first 100 years of the proposed 500, there cannot possibly be any reasonable belief that "we" could predict that the subsequent 400+ years of sulfide mining pollution remediation would continue without issues as planned. For example, in the SDEIS, the lack of any substantive financial assurances designated for any toxic seepage which may escape the mine site boundaries or its intended storage facilities should be enough of a red flag to halt and abort this excursion into the absuRd Settings aside the environmental, scientific, and public health aspects, just the logistics of this proposal alone are incredulous, as it has all of the earmarks of a classic "cut and run", in this case most likely realized by some form of an "unanticipated" bankruptcy, leaving not PolyMet, but the State's citizens to pick up the pieces financially. And on a geo-political level, is it not possible that the bulk of the extraction profits will not only be leaving MN but most likely the USA as well, via the mufti-national PolyMet parent investor Glencore and its partner Xtrata. And after trading 20 years of temporary employment for 500 years of toxic remediation, who, ultimately will benefit from this arrangement. And to those who piously declare that it is our own techno-centric culture which is the primary force driving the need for further exploration and extraction of these minerals so necessary to make our electronic gadgets (gizmos) run well, I would ask them to review current metal recycling technologies and their ensuing economies as implemented in many industrialized countries as well as revisit the phenomenon of commodity stock piling and the boom and bust cycles created by international commodity price fluxuations. Even a cursory examination of these latter issues may unveil what is really motivating multinational corporations such as PolyMet and Glencore. Globally, the world of the "extraction industries" has for decades been awash in technical mishaps, catastrophic failures, and the willingness to violate multiple federal, state, provincial, and local safety/health codes and laws, often resulting in the permanent devastation of pristine lands and/or natural resources and the toxification and displacement of local populations. Since the proposed PolyMet mining techniques have never been successfully implemented anywhere else globally, why would the MNDNR be willing to approve this pristine watershed to be ground zero for what is clearly an ill-conceived and unproven "experiment" in post-peak mineral extraction technologies. It is a shame that the Polymet engineers and the various governmental authorities providing oversight didn't first locate rich veins of logic and common sense as well as the minute percentages of target minerals they sought when first engaged in their exploratory drilling. I would ask you deny approval of this particular mine as planned in the SDEIS

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Ned Bouril 39713

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Ned Bouril 48872

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Ned Bouril 48875

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Ned Bouril 50669

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the entire experiment in the long-term, to ensure that the permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota, is otherwise never realized. This project would violate water quality standards for generations to come. Sincerely yours, Ned Bouril Ned Bouril 3618 Xenia Ave N Street 2 Crystal, MN 55422

Ned Gatzke 31952

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. There is no evidence anywhere that sulfide host rock mining can be accomplished in an environmentally responsible manner. The minimum standard for Wisconsin metallic mineral mining in sulfide ore bodies is evidence of no pollution in ten years of operation and after ten years of abandonment. No permit applicant has been able to show evidence of either of these standards anywhere in North America.Mining pollution does not go away and compromises environmental quality for short term profits that do not benefit local communities. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Ned Gatzke 10498 Jancing Ave Sparta, WI 54656-4465 (608) 269-2033

Alphabetical by sender's first name

Nedra Nicholls 12203

Feb 14, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Neil Billington 23599

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I have concerns about the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. We are All Connected. Therefore, We are All AFFECTED. We're not only talking about the dangerous effects of Sulfide mining and Acid Mine Drainage in Minnesota, we are also talking about the affects it will have on ALL Other Surrounding and Connecting Areas, like Michigan and Canada. WHY would anyone want to destroy the very thing that sustains life. WATER is Priceless and should guards and protected. This Decision should not be based upon Profits to a handful of greedy evildoers. This Decision is a lot bigger and needs to be carefully considered. As it will surely painfully Destroy Our Planet and seal the faith of death to generations to come. I have grave concerns about this project's potential impacts on our region's natural beauty and resources as well as ALL walks of Life. After all, we all know there will always be some sort of "Human Error" to factor in AND IT's Not Worth the Risk. Facilitating PolyMet's destructive and polluting open pit sulfide mine is NOT in the Best Interest of the Public or our Planet. Do Not Allow this Dark and Destructive Force to Overcome Us. STAND STRONG Thank you. Neil and Cherie Billington Sincerely, Neil Billington 4031 Gleason Rd Waterford, MI 48329-1209

Alphabetical by sender's first name

Neil Gardner 40614

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Repair the errors and omissions. This is the precedent for perhaps many more . Take the time to do it right again. For as long as it takes. Plenty of poor stewardship worldwide as examples done wrong by same few multinational companies. Careful , thanks , Neil Gardner Sincerely, Neil Gardner 8069 Mark Lake Rd Side Lake, MN 55781-7401 (218) 254-3702

Neil Huppert 21972

Good afternoon. What a great opportunity the Polymet project is Minnesota. We could use some economic prosperity in on the Range. Lots of infrastructure to build and permanent, good paying jobs will be had. I'm behind the project 100%. Let's mine Minnesota. Neil Huppert 3048 Cuneen Ct Inver Grove Heights, MN 55076

Neil R Gardner 54548

Sulfide mining has never worked without polluting. Why would we do this—particularly by a national treasure like the BWCA? The PolyMet pollution study is inadequate at best. No-no-no. Short term gains, long term disaster.

Alphabetical by sender's first name

NEIL STECKER 39291

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. A friend of mine, an electrician, died from IT HAS BEEN ABATED ABUSED AND DISCUSSED AND LAWYER UP BOTH SIDES, going out of their way, they wait for the patient to DIE. AND DEVIDE HIS ASSETS AND AWARDS. Then there are no wittiness to the crime. PLEASE, Don't do it. Sincerely yours, NEIL STECKER 49739 153RD PLACE ISLAND LAKE TAMARACK, MN 55787

Alphabetical by sender's first name

NEIL STECKER 39329

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Nell Bartzen 44523

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit HYPERLINK "x-apple-data-detectors://0"500 Lafayette Road, Box 25 HYPERLINK "x-apple-data-detectors://1"St Paul, MN 55155-4025 Miss Fay and Esteemed Colleagues, I am a wannabe techie from the millennial generation. I live my day with an expectation of instant gratification. I text my mom for an address while I'm at the postoffice. I call Jimmy Johns and in 3 mins I'm chowing down and watching the latest movie on Netflix. If it's an afternoon kayaking the river to a brewery tour I'm making reservations, checking the forecast, and getting directions to the kayak spot, while sending snapchat invites to all my pals. Then of course you look for the app that will do all of that for you. And if it's not possible with current technology – create an app for it. Create it being the real lesson of my generation. You do not have to accept the status quo, you can change it to suit your well-being, think of a better way, create a way to make it right. This is also the principal that needs to be considered for the NorthMet Open-pit copper, nickel and PGE mine project – commonly referred to as the sulfide mine. Is the technology there to reap the benefits of Minnesota's expansive mineral deposits while protecting the diverse but unique land of northern Minnesota. Based on the SDEIS, the answer remains no. On first reviewing the document and factsheet, my instant-gratification-mind thought, "not too shabby." With the proposal we will be gaining millions of dollars for the education system, we'll actually gain national forest property, and PolyMet promises to clean up – sounds like a win, for an instant. But the glaring statistic that is tainting the appearance of the "win" is that we are risking our land based on 90% models and predictions. The Water Quantity Fact Sheet of the NorthMet SDEIS states that, "Polymet would install and operate a system to capture at least 90 percent of the groundwater seepage at the proposed tailings basin and the permanent waste rock stockpile." Section 5-2-2-39 of the SDEIS states that, "the estimate total discharge rate of the flowpath groundwater into the Embarrass River is 292 gallons per minute." I acknowledge that I am not a statistician however: 292 gallons per minute for the 20 year duration of the proposed NorthMet Mining Project and Land Exchange is equal to 3,069,540,000 gallons of flowpath groundwater into the Embarrass River. All fine and good, but as the models PolyMet is using to support their environment protective strategy are based on 90% assurance. This leaves 10% up to chance. 10% is equal to 306,954,000 gallons of water that the proposed models are leaving up crossed fingers and high hopes. 306,954,000 gallons just of the flowpath groundwater into the Embarrass River, this doesn't even include the rate into the tributaries. 10% of groundwater seepage that the company is saying they have no means, or no interest, in capturing, and that coming from a junior mining company that has never operated a mine before. Pardon the jargon of my generation, but WTF. Why the first. Where is an example of a large-scale surface open-pit sulfide mining project that has operated effectively, protected the natural surroundings, and not left tax payers with the clean-up burden for unknown centuries to come. Please, let's not make Minnesota the guineau pig in this project. Let's wait for a proposal that can uphold the instant ideal of my generation. When the mine closes, after 20 years of operation, that should be the end of it. If the minerals are worth enough to the Swiss-based Glencore company and Canada's PolyMet, they should create the technology that allows instant purification of byproducts to a environmentally stable state. If the company is about to put billions of dollars on the table to harvest 1% of what's in Minnesota's treasured northland, they should be willing to put a little mor

Nels Ojard 7185

To Whom it May Concern: As a local citizen, business owner, and engineering professional, I am keenly aware of the opportunities, sensitivities, concerns and benefits that are being debated by the impacted communities. After careful review of the Supplemental Draft EIS report, I am writing to demonstrate my support for Polymet's Northmet project. Minnesota is a state with a strong tradition of responsible environmental protection and responsible resource development. These two values are not mutually exclusive, but have a demonstrated history of integrated success over 100-years. The regulatory structure, compliance management, and strong values of the people of this State give society the opportunity to develop a much needed resource to responsibly serve the needs of local, national, and international Society. Specific to the Northmet Supplemental Draft EIS and non-ferrous mining in general, the State of Minnesota, after much thought and debate, implemented regulatory standards for these activities within our borders. The Federal government has regulatory standards that further measure impacts and compliance for these activities. These regulations and the best available science and planning processes are the tools Society uses to measure the impacts and benefits. As a Engineering Professional, and citizen of this region, involved in the study and planning of resource projects around the world and the Northmet project locally, it is my belief that the science of the study and its reflection on the natural environment and communities of the area reflect the best available science, engineering, and impact/benefit analysis available to the process. The people involved in the process are not just experts in their fields, but have a further personal interest in ensuring the development of these resources are done to protect the interest of their families, communities, and the environment that sustains us. Polymet's Northmet project is an example of successful development balanced with sound planning and environmental sustainability. To that end, I strongly support the projects Draft Supplemental EIS. Sincerely, Nels J. Ojard 4976 Pike Lake Place Duluth, MN 55811

Alphabetical by sender's first name

nelson myers 40398

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, nelson myers 2802 george st harrisburg, PA 17109 US

Nenagh O'Leary 54199

The boundary waters are a beautiful area for family’s and camp companies can go to enjoy the outdoors, it’s a place to make memories, why build a mine and effect family bonding, to effect the earth negatively. Basically what I’m asking to do is not allow this mine to be built.

Alphabetical by sender's first name

Nettie Monroe 39894

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

New Progressive Alliance 3384

Attached is the comment of the New Progressive Alliance concerning PolyMet's Supplemental Draft Environmental Impact Statement. If there are any questions, please let us know. Sincerely, Ed Griffith New Progressive Alliance

Newood Gilk 7167

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was "inadequate" and the sulfide mine project would be "environmentally unsatisfactory." The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity." Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely Woody Gilk Newood Gilk 698 West 5th Street Grand Marais, MN 55604 218-461-0465

Alphabetical by sender's first name

Nic Kramer 44374

Being a Minnesota native, I have an inherent love for the beauty and nature Minnesota has to offer. Planning to mine is a terrible idea for a number of reasons. One main reason is the risk you are putting towards harming the boundary waters, which are a huge aesthetic haven for both Minnesotans and people visiting Minnesota. The boundary waters are no doubt the crown jewel of the state of Minnesota. Now, apart from this being a horrible idea ecologically, it is also a horrible idea economically. This would only provided about a hundred jobs for about twenty years, then what is to happen after that. Also, you say you will monitor the mine for about 200 - 500 years, where will this money come from.There's no possible way to predict the price of monitoring 100 years from now, so there's no possible guarantee you can give that you will have the money to do so. Please, do not begin the mining process in this beautiful state of Minnesota. Sincerely, Nic Kramer (Prior Lake High School, Senior)

Nicholas Banovetz 47254

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Thank you for providing this important opportunity to comment on Polymet. I have significant concerns about Polyment and copper-knickle/sulfide mining. My connection is quite strong. While my address on this form is St Paul, my family is from Ely, MN, and Silver Bay, MN. My grandpa is the former president of the Reserve Mining Company; he and my great-grandfathers mined in NE Minnesota. I know mining well and understand the "need" in the Arrowhead. However, I also understand that sulfide mining is drastically different than taconite mining, and that our waters are in jeopardy. And my family understands this, too. My grandpa passed away last summer and now my family is trying to figure out what to do with the cabin that he and my grandma own, which my great- great-grandfather built in the 1920s. I have spent a considerable amount of my life and disposable income on the cabin and in Babbitt and Ely; I've even lived at the cabin for periods of time over the years. My family treasures this placeI can't underscore this enough. We really want to keep it in the family, but most of my extended family is so afraid to own property on Birch Lake because of the sulfide mining. And now the cabin on the market with the hopes that we can cash out before the cabin is worth nothing or very little. Already we hear from our realtor, Wendy Johnson, that buyers are turning to other areas because they're reading the news about the pending mine. I've seen very little in the news about the affect sulfide mining could have on area real estate. While my example is anecdotal, I believe it speaks volumes. My fiancé and I have been toying around with buying the cabin ourselves. We could pull this off, but we'e in our ear

54545

My great great grandfather built my family’s cabin on Birch Lake outside of Babbitt. I have spent a solid chunk of my life on Birch Lake. From a nostalgic/family history AND real estate perspective, is the state confident that our cabin/Birch Lake are safe? How? I’m very concerned.

Nicholas Bowlin 54543

Ms. Fay, I’m writing because I think the BWCA is special and that the Poly Met mine poses a serious threat to the wilderness of Northern Minnesota. It is largely untouched by humans, and there are few places like that left. I encourage you to do whatever you can to block the Poly Met Mine.

Alphabetical by sender's first name

Nicholas Eltgroth 15903

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Nicholas Eltgroth 36399 Burr Oak Blvd Cohasset, MN 55721

43321

Stop Polymet now. The pollution they will generate will destroy our water and the surrounding land. Please read the studies about ground water leakage and how it will destroy our drinking water. Sincerely, Nicholas Eltgroth, Cohasset, MN

Alphabetical by sender's first name

Nicholas James Stephan 9569

Dear NorthMet, **This specific email will only address your reclamation process.** I understand that your company has proposed a copper-nickel mine in northeast Minnesota. As a lifelong resident to the State of Minnesota and an Environmental Science undergraduate, I STRONG OPPOSE the construction of your mine and any additional facilities. It is well known that there are serious environmental hazards associated with mining operations (eg, acid mine drainage). I noticed the proposed mine site is situated among, and completely surrounded by, a number of lakes, streams and other tributaries. Could you please explain how "capturing and treating affected water using mechanical and/or non-mechanical methods for as long as needed" will truly protect surface waters located near the site, and how far off site will monitoring take place. Also, could you please define "as long as needed." It is imperative that there is a legal definition for "as long as needed." In the unfortunate event that your company is granted a permit, citizens must be able to hold your company accountable for contaminating surface waters and potential sources of ground water. We as citizens must fully understand the criteria NorthMet will follow when determining the adequacy of your treatment techniques. Additional questions: 1- What type of vegetation will be planted in the reclamation areas and will it all be vegetation native to Minnesota. 2-How effective or what is the efficiency of the "covers" that will be used to protect water seepage from getting into the rock stockpiles, tailings basin, and hydrometallurgical residue facility. 3- What is a hydrometallurgical residue facility. 4- How will storm water be managed to prevent erosion and pollution flowing off site. 5- What kinds of pollution, toxins or other harmful chemicals could potentially become released into the environment (please supply list). 6- What will be done with the demolished buildings. 7- Regarding the destruction of wetlands, what is the approximate size in hectares that your company intends to destroy. 8- How does your company intend to "establish new wetlands." 9- According to your financial assurance plan, you estimate that roughly $200 million will adequately compensate environmental contamination and the destruction of numerous ecosysteMs How did your company determine $200 million would be adequate. What method did your company use to place a price on nature. 10- Define "environmentally acceptable condition." 11- Define "free of hazards" (because it is obvious that the site will not be truly clear of hazards regarding environmental pollutants). 12- Will you be mining in an aquifer or groundwater. 13- How will the water be captured for treatment. 14- What additional methods will your company employ to minimize hydrological impacts. 15- Regarding erosion, in what quantities or volumes of sediment does your company anticipate could potentially contaminate surface water. Sincerely, Nicholas James Stephan 209 Center Street Mankato, MN 56001

Nicholas Lamon 42642

See attachment

Alphabetical by sender's first name

Nicholas Larkins 38707

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Nicholas Legg 44013

Dear Environmental Committee, I urge you to decide against copper-nickel mining in northeastern Minnesota. I cherish the woods and waters of the northeastern Minnesota, a connection I know is shared by many around the world. But protecting some of our most prized landscapes is not only about those who know its value, it is about protecting the resource for those who have yet to discover it. As a user of products that require copper and nickel, and as a geologist who has worked on copper mines, I understand that metal extraction must occur. But it is also important that we consider the costs of extraction and realize that our demand must be met pragmatically. Certain landscapes, like those of northeast Minnesota, are too sensitive to the negative side effects of sulfide mines. The risks are just too great. This decision comes down to values, as well as numbers. At face value, the numbers alone demonstrate the disparity in costs and benefits of proposed mining. The enormous amount of money proposed to be held for future cleanup alone demonstrates the environmental risks. When compared to the relatively few jobs created, it is clear Minnesotans collectively stand to lose much more than they will gain from mining. You have a difficult and momentous decision ahead of you. Your decision will set a precedent for sulfide mines proposed in northern Minnesota's future. Therefore, the burden of proof that mining will cause no lasting harm must be greatest now. The negative effects of deciding to allow sulfide mine will only compound into the future as more mines are developed. Thanks for your careful consideration, and for your work in protecting Minnesota's land, air, and water. Sincerely, Nicholas T Legg 5258 N Commercial Avenue Portland, Oregon 97217 HYPERLINK "mailto:ntlegg@gmail-com"ntlegg@gmail-com HYPERLINK "tel:763-350-3052"763-350-3052 (mobile)

Alphabetical by sender's first name

Nicholas Loch 6102

Dear DNR, I am opposed to this project. Though I understand the short term benefits for the economy and the jobs this project would provide, the long term effects will have a negative impact on the environment, and these negative effects far outweigh the positive ones. The beautiful natural resources of Northern Minnesota, including the BWCA and other protected forests are the most valuable resource for the Northern Minnesota region. The perennial tourist dollars these natural wonders bring must not be put in jeopardy A benevolent denial of any requests to mine the area is urgently needed. Copper mining unleashes hazardous materials for hundreds or thousands of years and will pose a direct threat to the natural wonders, the tourism, and the economic viability of the region. No short term get rich scheme is worth those negative consequences. If people need jobs, then lets find a way to get them jobs preserving the environment, rather than destroying it. Why destroy the area for some precious metals under the ground. Once the precious metal is gone we will have a cesspool that poisons the surrounding area, and no techniques for being careful or mitigating the leaching of hazardous material will be successful enough to prevent that from happening. PolyMet either has false hope or is lying if they think they can prevent this. Citizens have a legitimate need for jobs, but those needs do not justify the destruction of the natural area that provides plenty of jobs and economic benefit for the local area already. Do you really think this company will be around to pay the bills for cleanup 200 years from now. Does the Hudson Bay Company or the Dutch West Indies company still pay for their mistakes or wrongdoings. NO. Please DENY the PolyMet/NorthMet Mining Project and Land Exchange..
********** Also, I don't know what the mission statement or motto for the DNR is, but I think it is weird that it seems the DNR is always working hand in hand with people or organizations that threaten to destroy the natural resources of our great state. The first objective of the DNR should be preservation. The DNR should not be the facilitator that provides access to destroy everything, or kill everything. Stop holding hands with these people. I don't care what economic benefits you think this will bring, and you're lying to yourself or lying to the public if you think this mining project is worth hundreds of years ruin.
********** Thank You, Nicholas Loch Minnesota Resident 7328 Fremont Avenue S Richfield, MN 55423 HYPERLINK "mailto:nloch@umn-edu"nloch@umn-edu

Nicholas Olson 47352

Mar 11, 2014 Ms Lisa Fay MN Dear Ms Fay, I am a great advocate for Minnesota and all that it has to offer. In fact, I think it is a hidden gem. After years of travel and residing in other places, I am happy to call Minnesota my home again and the place I have chosen to raise a family. It brings me great concern to think that the Minnesota and the BWCA is going to be threatened by a short sighted mining project that uses job creation as its major selling point to our state. I can think of a lot of other places in which job creation would have a greater overall impact to our state and at the same time directly improve our environment. As the father of two small children, I want to make sure that Minnesota's waters, especially those of the BWCA are kept pristine and clean for their enjoyment and exploration. Let's consider the gift we have been given by the leaders of this state before us and pay this gift of clean water and wilderness forwaRd On a related note, this is also a racial justice issue. The direct impact on wild rice should be enough to stop this project immediately. Let's not continue our legacy of racial injustice by destroying a sacred food source of our Ojibwa community. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mr Nicholas Olson 61369 223rd St Litchfield, MN 55355-5801 (320) 693-5502

Nicholas Parker 21723

Nicholas Parker and the whole Parker family, We have been waiting a long time for this moment. Minnesota is a land of untapped resources. I'm so excited to see this project grow. Nicholas Parker 2711 Idaho Road Naperville IL, 60564 Sent from my iPhone

Nicholas Rowse 47831

See attachment

Alphabetical by sender's first name

Nicholas Skrowaczewski 38744

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Nicholas W Illegible 42623

See attachment

Alphabetical by sender's first name

Nick Balcom Raleigh 18183

My name is Nick Balcom Raleigh. N-I-C-K, B-A-L-C-O-M, R-A-L-E-I-G-H. I'm a futurist facilitator. I'm the founder of Future Space, an organization that promotes futuring literacy among people. This is the largest group I've ever facilitated any sort of exercise with. But I'm going to invite you to participate in a exercise that I've made for this specific moment. A specific intersection of possible futures. There are many. There are some that are dire. There are some that are beautiful. They all exit right now in this moment. So if you are willing to come along with me for this ride in two minutes, I invite you to close your eyes and follow along. I would like you to imagine what is happening 12 months from now in your life. What are you doing? Who are you with? Where do you live? Who is around you? Now I want you to imagine five years from now. What are you doing for work? Who is around with you now? What is PolyMet like to work for, if that's what you're imagining? How pristine are these environments, if that's what you're imagine now? I would like to fast forward a little bit. A little faster. You are now elderly, if you are not now. It's 2030. What is happening now? Are you retired? Do you have grandchildren? Do you have people that you care about in your life? What is the environment like? What is the weather like? What is the climate like? Do you have any technology and devices around you? Do you have electricity? I want you to imagine these things for a moment. Now I'm going to fast forward us even further to a scarier year. The year 2100. It's only scary because we're not there. I want you to imagine who is there. Who are these future people? You may know some of their relatives. You may know some of them. Some infants might live that long. What do you imagine that they are doing? What messes are they cleaning up? What work are they doing? What governments do they have? Do they vote? Do they cybernetically connect with each? How do you imagine this world to be? Now fast forward again to 2514. These are the decendents of these people that you imagined earlier. What do they do?

Nick Bougalis 10073

Our environmental standards are the strictest in the world. Polymet has spent millions to ensure that all of the standards will be exceeded. The project is necessary for our regional economy. Myself and my company wholeheartedly support the project. - Nick Bougalis Construction Inc. (218) 969-7424 / HYPERLINK "http://www.BougalisConstructionInc-com"www.BougalisConstructionInc-com http://www.bougalisconstructioninc-com/logo-bci-color-150px.png

Nick Boyd 3959

Hi DNR. Thanks for taking comments from the public. I'm glad it is an important part of the review process. My comment is as follows: Based on a 2010 survey of US miners' salaries, providing 360 jobs over 20 years would yield a total of about $275,000,000 in pay. The cost of cleanup to taxpayers of similar sulfide mines across the United States in several cases has surpassed 225 million dollars. The ecotourism that this region benefits from could also be negatively affected in the long run. With all these points considered, is the allure of the monetary benefits of sulfide mining still validated. Nick Boyd 4900 Otter Lake Rd White Bear Lake, MN 55110

Alphabetical by sender's first name

Nick Lavely 38823

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Nick Loch 19969

To Whom it May Concern, I would like to add to the public record my opposition to the PolyMet copper-nickel mine in Northern Minnesota. This whole thing is ridiculous and short sighted. The investors will benefit the moSt The locals that work on the job may benefit for a little while, however, in the long run this project will have a disastrous impact on the natural wonders that are the most important economic resource for Northern Minnesota. No mitigation of the negative effects from copper-nickel mining will be enough to prevent this. Just leave it alone. I don't care if the negative effects last 20, 200, or 2,000 years. The idea is to keep untouched pristine areas that way. We aren't fighting WWII here. We aren't trying to win a war with taconite mining that will build tanks. Business prospectors in Europe and the US are trying to exploit the land for raw materials with no "true" care for the negative effects that will come from it. My faith in the DNR actually protecting anything is non-existent. How many hunters, cronies and businessmen have weaseled their way into your ranks. Just stop. Stop man from destroying everything. Nicholas Loch 7328 Fremont Avenue S Richfield, MN 55423

Alphabetical by sender's first name

Nick Rowse 47703

10704 Prescott Ct. Burnsville, MN 55337 Ms Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 March 13, 2014 Dear Ms Fay: This letter is to comment on the NorthMet Mining Project and Land Exchange, Supplemental Draft Environmental Impact Statement (SDEIS). I have several major concerns about the proposed mining project and land exchange that were not fully analyzed and discussed in the SDEIS. A major concern is the proposed land exchange of 6,650 acres of federal land with up to 6,722 acres of privately owned land of a combined equal value, located within the 1854 Ceded Territory in Minnesota. As was stated in the Executive Summary, the US Forest Service (USFS) does not believe that the mineral reservation gives PolyMet Mining, Inc. (PolyMet) a right to surface mine National Forest Service (NFS) land to access the minerals. Allowing private surface mining would be inconsistent with USFS legal mandates for acquiring and managing these lands. This legal issue must be resolved prior to the project being authorized by the USFS. The inconsistency as stated by the USFS is not acceptable without resolution. PolyMet intends to exercise private mineral rights that were reserved when lands for the Superior National Forest lands were conveyed to the United States and now PolyMet is proposing to develop a surface mine. The USFS has taken the position that the mineral rights that were reserved do not include the right to surface mine as proposed by PolyMet. Also of concern, is the approval by the Iron Range Resources and Rehabilitation Board (IRRRB), of a $4 million loan to PolyMet for the acquisition of both a 5,272-acre tract of land and a 32-acre tract of land, both of which would be used for a proposed land exchange with the USFS to allow surface mining of non-ferrous materials near Hoyt Lakes, Minnesota. As the IRRRB is under control of the Minnesota Legislature, it is inconsistent with the both the National Environmental Policy Act (NEPA) rules and Minnesota Environmental Policy Act (MEPA) rules that significant monetary resources have been put towards the development of this proposed project by PolyMet prior to a Record of Decision by the USFS and the US Army Corps of Engineers; along with the Minnesota Department of Natural Resources. The information regarding financial assurances for the proposed project are inadequate for the purposes of making any decisions regarding mine operations and closure in the SDEIS. Simply stating that the engineering and design planning required to calculate a detailed financial assurance analysis was not available in the SDEIS and would be done during the permitting stage makes a huge assumption about the ability of PolyMet to mitigate land and water pollution should the project get approved. The preliminary cost estimates for mine close do not appear to be based on actual data and the time frames used (up to 20 years) are conjecture. In the Economic Assessment of the Underground Mining Option, a 2012 report was quoted as concluding that underground mining would not be economically feasible. This conclusion seemed only to be based on metal prices and similar operations elsewhere. No information was provided in the SDEIS that valued the impacts to recreation on USFS lands both at the project site and within the nearby federally designated wilderness area (ie the Boundary Waters Canoe Area Wilderness). As opportunities for quiet and primitive recreation becomes less available, the economic analysis must include these values. Canada lynx, which are currently listed as federally threatened under the Endangered Species Act (ESA), were documented in 2010 by the USFS and the US Fish and Wildlife Service (USFWS) within the proposed mine site. Only the USFS was mentioned by the SDEIS. In 2013, the USFWS proposed the northern long-eared bat for listing as endang

Nick Voss 16254

Hello, I don’t appreciate that the Polymet website puts default words into my message. I wanted to comment that the Polymet website’s tone and phrasing, to me, complicates the issue. As it’s currently posted, Polymet is not appearing to display a cooperation with the DNR, EPA, or MPCA, at least it’s not apparent enough. I feel this way because the site’s terminology doesn’t directly reflect theirs. I shouldn’t have to scrounge around the website in a confused state to find concrete ways they’re following up on environmental standards. Instead, there are phrases like “major milestone reached” that seem to carry a sense of authority but come out of thin air. I want to see, right up front on the Polymet website, concrete, set dollar amounts of how much money they’re putting down upfront to protect Minnesota’s environment. This should be coupled with a set number of years they’ll stay committed after the mining project concludes. Something else that would be beneficial would be a statement of their in-depth ecological understanding of the area. However this understanding mustn’t simply come from a Polymet expert, but should be documented to be in cooperation with the DNR, the EPA and the MPCA. Again, having all of this more easily accessible on the main page would be the best case scenario, and much more respectable as the decision-making process moves forwaRd Because this level of concrete assurance is needed, I feel that if pressure is placed to get it posted on the website, it will have added incentive to be a reality behind the scenes as well. As for the DNR, please don’t proceed with the mining project until such concrete details are pinned, with liability and accountability to back them up. Lastly, I’m not sure as to the origin of Polymet, but with Twin Metals LLC being a Canadian and Chilean company, I would respect a completely US-based, Minnesotan company to carry out such projects. Thank you for your time. Nick

Alphabetical by sender's first name

Nick Wharton 45237

The proposed copper-nickel mine is short sighted thinking and I oppose its development. The risk to water quality is too high no matter how much metal is in the ground. That metal will be used for some electronic gadget for someone today and generations of people after will be left with the pollution from its extraction. What's the rush anyway. Copper does not spoil if left in the ground. Maybe someday a truly safe way to extract it will be developed. At the moment, the technology that the mining companies use has proven to make its shareholders rich and the local people and environment poorer afterwards. The jobs it creates will come and go as all the others have and they will lie to the workers about their safety and their families safety. The people who do the work will be taken advantage of and the people giving the orders will profit heavily. That is not what Minnesota represents and that is not what I want my tax dollars supporting. Again, I oppose this mine and any other copper-nickel mine that might be proposed. Nick Wharton PO box 1403 Grand Marais, MN 55604 Sent from my iPhone

Nicklas Sandstrom 41942

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Nicklas Sandstrom Chanhassen, Minnesota

Nickolas Felten 40201

Hello, I like many other Minnesotans want to voice my humble opinion about the PolyMet Sulfide Mine proposal. Yes, the mine will provide more jobs. However, I believe this is a very short sighted view. After all, cleaning up the poisoned waters of Norther MN will provide jobs too. I simply wish to say that I am wholeheartedly against the proposal allowing PolyMet to open new mines. I believe that such mining activities will put a great Minnesotan treasure, known as the Boundary Waters, in great jeopardy. Once ruined, these freshwater ecosystems cannot be brought back quickly and easily, if ever. Please consider the long term effects that PolyMet will have before allowing them to mine and then regretting the decision for generations to come. Thank you. Nickolas Felten 995 Jefferson Commons Circle, St Paul, MN.

Nickolas Kelley 54865

See attachment

Nicktae Marroquin 54871

See attachment

Nicole Hall 54185

I am a senior at Como Park Senior high in St. Paul and we had a speaker in our AP Environmental class about the mine they are thinking about putting in and I don’t think it is a good idea. The Boundary Waters is a beautiful place that has many tourists and it brings people from all around. The mine might make the waters dirty and not as beautiful.

Alphabetical by sender's first name

Nicole Hamilton 16331

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Nicole Hamilton stanley rd Bloomington, MN 55437

49936

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Nicole Hamilton stanley rd Bloomington, MN 55437

Alphabetical by sender's first name

Nicole Hendrickson 19822

To Whom It May Concern, I'm concerned about the wild rice and the fact that that area has a lot of water ways. I respectfully ask please, please, do not move forward with the Polymet mine. Thank you, Nicole Hendrickson 5722 Bemidji Ave #b Bemidji, MN 56601 Phone: 612-913-6603

Nicole Johnson 19924

Polymet could potentially ruin the forests of the animals that inhabit in this area, we are already really low in moose numbers and with this proposed mining it could really effect numbers more. There are also health effects that will increase in this area in which we have a clean environment; this will cause the tree huggers of this area which is a high number to not want to be here anymore. I am not a tree hugger by any means but I don't want to be breathing in harmful chemicals. We will be breathing in increased mercury emissions, have exposure to asbestos-like mineral fibers, lead, and arsenic from copper mining. I feel it would not be best to do this in Northeastern Minnesota, I love living here and enjoying the outdoors and I do not want this experience ruined. Thank you for your time, Nicole A Johnson 1718 8th Avenue Two Harbors, MN 55616 Nicole Johnson Technical Services Analyst 1 (218)726-2238 HYPERLINK "mailto:johnsonn@stlouiscountymn-gov"johnsonn@stlouiscountymn-gov

Nicole Lindberg 9709

I am writing regarding the PolyMet NorthMet environmental impact statement, which, in my view, is inadequate and demonstrates unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet 4 fundamental clean water principles (principles the mining industry previously agreed to). 1) The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. In addition, the model used to predict impacts to water quality significantly under-represent pollution risks and used inaccurate conditions for water quality surrounding the mine site, demonstrating an unreliability in accurately predicting future water conditions. 2) The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. As recent history demonstrates, accidents happen, and having a plan in place is a small start at safeguarding our natural resources. 3) The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. Millions of tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. Not to mention the pit "lake" and the lengthy network of pipelines that would need to be monitored and maintained for hundreds of years. 4) The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about who will pay for and be responsible for it. It can be assumed, that it will end up being the taxpayer, as it is hard to imagine how the company could be held responsible for centuries of costly water treatment, or how the public will be protected from liability. Please protect the longterm livability of our State, and not be blinded by short-term jobs. Truly, Nicole Lindberg 5729 Oliver Ave S. Minneapolis, MN 55419 612-929-2188 (cell) 612-207-8489 HYPERLINK "mailto:nicole.lindberg@comcaStnet"nicole.lindberg@comcaStnet

Nicole Nordman 54198

I strongly disagree with you letting them start mining. This is a beautiful place and if you mine here you'll be taking away the beauty. Many people enjoy the boundary waters; mining here will make this place somewhere nobody wants to go. This is a popular place by mining here you'll make this place somewhere people will not want to be around. We drew lines on a map saying that we wouldn't mine here, that we'd keep this place clean. We can find other places to mined but we may not find another place as beautiful and as pure as the boundry waters. The effects of mining will destroy the river and the economy around there. You'll be digging really deep for something we don't need all that bad. I'd rather have beautiful landscape. We need to think about more then just money, we need to be thinking about what we're doing to our economy. Please take this into consideration. Thank you.

Alphabetical by sender's first name

Nicole Ogborn 44594

Hello, I am a young adult in the great state of Minnesota, and I personally feel that the Polymet copper-nickel mine is not a good fit for our state. We are constantly releasing a large amount of harmful toxins into the atmosphere, and adding another mine would do exactly what we're trying to prevent. Although positions for the unemployed are important, and mines as well, I feel as though there are already enough mines in the area Is there an absolute need for this mine, or can we try to procrastinate our somewhat clean air for just a tad longer As a high school student, this subject is extremely important to me, and I greatly appreciate your time and consideration. Prior Lake Student, Nicole Ogborn

Nicole Sippola 57351

Nicole Sippola. I am against the PolyMet mine proposal despite their promises that they will be funding the cleanup. I find it difficult to trust that they will be there for the next 500 plus years, funding cleanup that may or may not be complete inside that amount of time. The proposal clearly states that our water will be contaminated for at least that long, too, if not longer. Reading through the 200-page proposal, there are areas of pollution where it clearly states the status is unknown or there has been, "no action to date." Is this something that we are willing to leave our descendants with? Our world is in need of care. By adding to the pollution with our planet, we will be the ones responsible for the destruction of our planet. As a Minnesota native, I have grown up enjoying the outdoors, swimming in our many lakes and streams, as many others have done. I want to be able to share this love for the environment we live in with my children and grandchildren and I want to see this passed down for many generations to come. To think that these precious resources are at risk of being lost in exchange for 20 years' worth of jobs and only 25 percent of them promised to local Minnesotans is heartbreaking to me. While I understand that times are tough right now for many people, the fears that I have heard expressed that without the mine, these towns will become ghost towns, will be inevitable if this mine is built. With the amount of pollution that it will cause in the water and the wetlands of these communities, it will be more devastating for years to come. Can we, as a community, rise up against the pollution of our water and of our wetlands and stand up for something that cannot stand up for itself? I encourage the DNR to rethink the destruction that this mine would cause. Please do not let it happen. That's all.

Nicole Swensen 44604

Hello, my name is Nicole Swensen, I am a senior in high school. I believe that mining the area near the boundary waters would be a very bad idea. That area needs to be preserved . If we mine that area, we only get twenty years out of it and have 200-500 years of cleaning it up. Tell me if I'm wrong but doesn't that sound crazy. A beautiful Minnesotan area will be turned into a mine that can possibly pollute the boundary waters, a beautiful place where people can visit. Let's keep the mine away from the boundary waters because it is not needed. Let's preserve Minnesota's beauty instead of killing it. Sent from my iPhone

Nijah Williams 54215

Dear DNR, please do not go through with Mineing the Boundry Waters is a big part of the community Many people like to go there to get away from there everyday lives. There are many different wildlife and if this goes through they will have no where to go Also mineing will cause a lot of pollution in the environment as shown in other places So we the students of como park senior ask that you do not do this kind of mining and not pollut our water with sufferic acid.

Nikki Crow 18120

My name is a Nikki Crow. N-I-K-K-I, C-R-O-W. I bet you think I'm here to talk about wild rice. Nope. What is missing from the SDEIS is a socioeconomic impact (inaudible). I'm talking about the rise in sex trafficking and with that an increase the need for increased policing and education of police when called to help prostituted victims and victims of sexual violence and for sexual assault nurse examiners to be available, including housing for victims will be necessary. This is a quote from (inaudible). It is generally believed that human trafficking is a human rights abuse which fundamentally (inaudible). The reality today is sex trafficking is a mining issue and an environmental issue. How would PolyMet work to protect the vulnerable population of the communities they will be moving in? How will they help fund the organizations that work to help victims of trafficking and rape? How will they help to educate employees? The SDEIS is not complete until these impacts are addressed.

Alphabetical by sender's first name

Nikki Crowe 42932

Hello Lisa, Please see attached for the Polymet public comment. Miigwech, Nikki Nikki M Crowe 13 Moons Program Coordinator FDLTC Extension Program 1720 Big Lake Road Cloquet, MN 55720 218-878-7148 office 218-341-5863 cell

Nikki Heikke 41806

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Nikki Heikke Brooklyn Center, Minnesota

Nikolas Bayuk 38118

I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet’s project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations. Minnesotans have a history of solid and safe mining practices and there is no reason to think this project would be any different. Polymet has passed the strong regulations set by all of thier regulators and this should go straight to approval to start work. The Iron Range needs these jobs, the surrounding area's will benefit from the revinue, and the country will benefit from the resources. Thank you for your consideration, Nikolas Bayuk Nikolas Bayuk 12 E Faribault St Duluth, Minnesota 55803 The views and opinions expressed in this message my own. I am solely and individually responsible for the content. This is not intended to represent or reflect anyone else’s views or opinions, including those of my employer, ALLETE, Inc.

nino ritchi 40373

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, nino ritchi musketruwe 54e maastricht, ot 6218TW NL

Alphabetical by sender's first name

Nissa Manley 42053

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Nissa Manley Plymouth, Minnesota

Nissa Sandley 38914

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Nissa Sandley 2719 S 8th St Minneapolis, MN 55454-1412 (612) 386-9299

No Name Provided 57879

I ask you to oppose PolyMet's proposal for sulfide ore mining in the Superior National Forest at the headwaters of the St. Louis River. They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area. The mining will leave square miles of talcum powder-fine waste, piled high. Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock. PolyMet suggests that to prevent pollution of the St. Louis River watershed they will collect the hundreds of millions of gallons of rain and snowmelt waters that filter through the waste every year and run them through water treatment plants ... for up to five centuries. The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project. The cost liability for cleanup over centuries is also a great cause for concern. Please oppose this project.

57886

I ask you to oppose PolyMet's proposal for sulfide ore mining in the Superior National Forest at the headwaters of the St. Louis River. They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area. The mining will leave square miles of talcum powder-fine waste, piled high. Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock. PolyMet suggests that to prevent pollution of the St. Louis River watershed they will collect the hundreds of millions of gallons of rain and snowmelt waters that filter through the waste every year and run them through water treatment plants ... for up to five centuries. The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project. The cost liability for cleanup over centuries is also a great cause for concern. Please oppose this project.

Alphabetical by sender's first name

Noah Filla 54338

Lisa Fay, EIS Project ManagerMNDNR Division of Ecological and Water ResourcesEnvironmental Review Unit500 Lafayette Road, Box 25St. Paul, MN 55155-4025Dear Ms. Lisa Fay, EIS Project Manager:I am writing concerning the EIS mining project. I am 13 years old and in the 8sth grade. I have read the documentation on your site and do not think the project is a good idea. On the surface, the plan sounds great. It first appears that many new jobs would be created and that everything possible would be done to protect the environment. However, upon reading the material, there is no solid documentation of how long the clean up after the project would last, exactly what it would entail, and what if there are more issues than are predetermined?I think my biggest concern is your plan to borrow water from Colby Lake if there is a shortage. As stated in your facts document, shortfall in water requirements would be made up by withdrawing raw water from Colby Lake using an existing pump station and pipeline. What happens if there is a problem with the existing pump and pipeline? What happens if they break? How do you then make up the water shortage? What other source do you have as a back-up? I understand the computer models showed it the water requirements would effect the area, but there is no way this can be guaranteed. Colby Lake, as stated in the fact's document has many tributary streams. This project could have negative effects on all of them if there are any problems.My other big concern is how this project will effect the wetlands. At a minimum if damage, Polymet, is required to replace only 913 acres near, but not on the project site. Also, the document doesn't cover how the wildlife of the wetlands is affected. It only covers the seepage, waste rock, overburden stockpiles. In summary, it seems to only cover the fragmentation of the wetlands, not how it could actually hurt the wildlife of those wetlands.In summary, I am for a project that will create jobs because I understand there is a great need for jobs in this state and all other states. However, I am not for destroying the environment without more documentation on how it will affect water quantity and quality. My other concern is how the wildlife in the area will be affected. Overall, I am not for this project. I don't think there are enough solid facts to show that the environment will be unaffected or noticeably unaffected.Thank you in advance for considering my opinion on this project.Sincerely,Noah Filla

Noah Shavit-Lonstein 58149

I think it is absurd to destroy five centuries of water for 360 jobs (or less) that will disappear quickly. As our state auditor has said, we cannot afford this mine.

noelle olson 42446

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. No no no. no If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms noelle olson 2016 Yorkshire Ave Saint Paul, MN 55116-2588

Alphabetical by sender's first name

Noelle Reed 40185

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Nora Nell Hamburge 17127

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Nora Nell Hamburge 1752 Montreal Ave St Paul, MN 55116

Alphabetical by sender's first name

Nora Nell Hamburge 40424

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation" wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1-Underground mining, looking at the full ore deposit and PolyMet's real costs; 2-Putting a liner under the Category 1 waste rock stockpile; 3-Placing all tailings on a new completely lined facility; 4-Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5-Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to

Alphabetical by sender's first name

Nora Nell Hamburge 50394

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Nora Nell Hamburge 1752 Montreal Ave St Paul, MN 55116

Nora Smyth 16938

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Nora Smyth 2077 Highland pkwy StPaul, MN 55116

Alphabetical by sender's first name

Nora Smyth 50231

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Nora Smyth 2077 Highland pkwy StPaul, MN 55116

Nora Snyder 58069

Stop the mining - save the water! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

norbert heimann 47174

To State Officials working on the Polymet Mine Proposal, The minerals that Polymet proposes to mine are not going anywhere. The minerals most likely will not become less valuable. Elements of the proposal and the environmental safeguards involve monitoring waste and waste water for decades, perhaps centuries. The overall costs to monitor and/or treat waste products is not and cannot be realistically estimated. The history of open pit mining operations and its aftereffects is extremely dismal. I am strongly against the Polymet Mining Proposal in its current configuration. Sincerely, Norbert Heimann

Alphabetical by sender's first name

NOREEN SHAUGHNESSY 41657

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Norm Herron 21540

Please see the attached document.

42728

See attachment

Alphabetical by sender's first name

Norm Herron 43059

February 7, 2014AdministratorU.S.D.A. Forest ServiceRegion 9626 East Wisconsin Ave.Milwaukee, WI 53202RE: This letter was submitted to the Minnesota DNRDear Administrator:I am writing to convey my questions and concerns related to the Polymet Sulfide Mine proposal presented to the Minnesota Department ofNatural Resources (DNR) to extract copper, nickel and other metals in northern Minnesota.I. Can the DNR be assured that any leakage of toxic chemicals into all land and waters adjacent to the mine site be monitored by either a third party or the DNR to be cleaned as soon as detected?2. Will Polymet be responsible for the cost of cleaning up all toxic discharges indefinitely?3. Will the residents of Minnesota have first priority for the employment related to the construction and extraction process?4. Will the DNR be assured that the natural attraction of the Boundary Waters Canoe Wilderness and adjacent lakes and rivers be protected from any degradation?5. Will the DNR be assured that tourism will not be adversely affected by the mining?6. Will the DNR be assured that the wild rice areas will be protected from toxic chemicals?As a resident of Minnesota I am placing my trust in the DNR to have in its best interest the protection of our land, waters and fauna of Minnesota.Personally, I do not support sulfide mining in an area so rich in clean waters. I understand the need for mineral exploration to meet the global demand for copper, but I am wary of mining in a fragile and vulnerable area such as northern Minnesota.Sincerely,Norm Herron2617 E. Fifth St.Duluth, MN 55812-1536

Norm Voorhees 18337

Hello. My name is Norm Vorhees. The last named is spelled "V," as in Victor, O-O-R-H-E-E-S. I am a born and raised Duluth resident. I am also a representative for Ironworkers Local 512. I have been an ironworker for 27 years. It has enabled me to earn a decent living, provide for my family, put my daughters through college. I am also a representative for Ironworkers Local 512 for the last 11 years. And being involved in that aspect, it has allowed me to be actively recruiting ironworkers and giving young people in northern Minnesota the opportunity that I had to earn a decent living, building in Minnesota. I have been to several meetings regarding PolyMet. I toured the facility two times; at the old LVT site. It is a brown field. It is open and sitting there. PolyMet to me seems that they are proposing to do something responsibly from everything that I have been able to learn. And we have got the regulatory agencies here to make sure that that happens. If you look at pictures from the turn of the century, late 1800s, of Duluth, it looks nothing like it does now. To me, it looks like rape and pillage. And over the years we have evolved and have been able to utilize our resources, create good jobs, create living-wage jobs, and respect the environment and be able to have the best quality of life in the country. I have had to travel around the United States when there was no work here and I have seen how things are done in other parts of the country and I think Minnesota is the best place that you can live in the United States. If you look at what happens in other parts of the world, there is -- there is no regulatory structures in place, like China, Brazil. These precious metals are needed for our society right now. Hopefully, with the great learning institutions that we have in Minnesota and the young people going through them, we may be able to trend away from them, but right now we can't. We are all using them. Even everybody that is opposed to this mine. You know, it is your cell phones, your cars that you drove to get here, your ride in a canoe in the Boundary Waters. So, I stand in support of this project. And thank you.

47021

I have confidence in the DNR and believe the SDEIS process for PolyMet Mining’s proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet’s project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I’d also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet’s plans comply with Minnesota’s laws. We cannot afford to miss this job opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. NormVoorhees 1321-104th Ave W Duluth,MN 55808 Sent from my iPhone

Alphabetical by sender's first name

Norma Holmstrom 16146

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Norman Berghuis 18287

Norman Berghuis, Lakeville, Minnesota. 250 years ago what there was of this country and nation was about a thousand miles from here. At that time, and thousands of years before that, what is now Minnesota, and thousands of miles around us, was ruled by Native American nations or no humans at all. Now PolyMet is a company that is owned and controlled by foreign corporations and was formed only for the purpose of the toxic sulfide mine. Only 20 years after they begin mining, the copper and nickel will be depleted; however, the pollution will continue for 500 years. It will need to be contained and cleaned up somehow, but it appears that nobody really knows how. Now, in 20 years, when mining has ended and there are no more profits from this mine, anybody that believes that this foreign company called PolyMet will still be around probably also believes in Big Foot, the Lochness Monster and Santa Clause. The PolyMet sulfide mine is a very bad project for Minnesota.

42791

See attachment

Alphabetical by sender's first name

Norman Petrik 40445

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

North American Water Office 42903

Omitted the attachment file that accompanies the comment. Here it is. Begin forwarded message: From: Lea Foushee <HYPERLINK "mailto:lfoushee@nawo-org"lfoushee@nawo-org> Subject: NAWO Comment on Polymet Date: March 12, 2014 11:44:10 AM CDT To: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us Cc: George Crocker <HYPERLINK "mailto:gwillc@nawo-org"gwillc@nawo-org>

Northeastern Minnesotans for Wildernes 42985

Dear Ms Fay, Mr Bruner, and Mr Dabney, Attached please find comments on the Supplemental Draft Environmental Impact Statement for the NorthMet project, along with a cover letter, submitted on behalf of Northeastern Minnesotans for Wilderness. A hard copy of this submission will be sent by US mail today, with a compact disc containing all exhibits. Please include Marc Fink and Rebecca Rom as well as myself on any future announcements or correspondence regarding this matter. Contact information is included within the submission; in addition I am copying Mr Fink and Ms Rom on this email for your convenience. Thank you for your attention to the concerns expressed in these comments. Sincerely, Jane Reyer

52179

See attachment

Alphabetical by sender's first name

Northern Organizations 42997

Dear Ms Fay, Mr Bruner, and Mr Dabney, Attached please find comments on the Supplemental Draft Environmental Impact Statement for the NorthMet project, submitted on behalf of the organizations Save Our Sky Blue Waters, Save Lake Superior Association, Center for Biological Diversity, Friends of the Cloquet Valley State Forest, and the Sierra Club. Also attached is a cover document that includes statements from each organization. Finally, I am also attaching an Expert Statement from Steve Ring. A hard copy of this submission will be sent by US mail today, with a compact disc containing all exhibits. Please include all signatories on the cover letters on your mailing and email list for this project.The signatories are all copied on this email for your convenience. Thank you for your attention to the concerns raised in these comments. I would also particularly like to thank Ms Fay for her patience and help through this process. Sincerely, Jane Reyer

52184

open file to view

Novelett Jensen 39590

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Say NO to Polymet and say YES to a beautiful, healthy Minnesota for our generation and generations to come, PLEASE. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Miss Novelett Jensen 3012 Dupont Ave N Minneapolis, MN 55411-1346

Nurmi Family 5

Hello, Like dozens of people I talk to daily up here, I am appalled at the cost incurred by Polymet for a permit to provide jobs. Mining is what we have up here. I do not voice my opinion for how people, cities, or government abuse the land for highways or whatever in other areas. I could care less if $apolis sank in the ground. THEY CAN HANDLE THEIR AFAIRS, just let us handle ours. By the way, I am not impressed with that ungodly mess they have in the cities; however, it is not my right to object. Naturally, I do care about our environment up here in God’s Country. I know of no one whom wants to see a Sudsbury. However, I believe it is the responsibility of our state DNR to give out or deny permits in a timely manner. That is why the get paid (salary) with our tax dollars. There should be no place for special interest groups or even guys like me. Until Polymet refuses to follow their guidelines or does something criminal, give them the permit and let’s at least attempt to bring life back up here on the ‘Iron Range’. I do not believe in vigilante like groups trying to impose their might. If the DNR does not believe Copper/Nickel Mining has more benefits than downs, pay Polymet back for the costs incurred and stop the whole thing. We have so many examples of cost vs benefit. Police speed and hurt people. Good or bad, we need them and live with it. Politicians can hardly ever get a large majority to agree with them. They sell out and trade favors for votes. We put up with them. Lots of examples out there. Maybe it is time to try it and see with safe guards in place. Thank you, Lyndon Nurmi 8992 Posimoke Drive Britt, Mn 55710 218-749-4033 Posimoke@accessmn-com

nursnews 7056

To the DNR – Please do not let Polymet or any other mining entity exploit one of the finite and few semi-pristine wilderness environments left in the country. Please consider what can and likely will go wrong in the plan to “contain” contaminated water for hundreds of years. The environmental impact of this proposal on the lakes, the air, the sound and the sights in the Ely area will be devastating. Please let rational minds who care about future generations prevail. Once this direction is set, there is no turning back time only you and your legacy of shortsightedness and devastation. We believe in you, DNR. Do the right thing. Barbara Schlaefer 612-618-6797 5404 Park Place Edina, MN 55424

Alphabetical by sender's first name

Nyla Lewis 16045

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Oeljen Vicki 44636

Dear DNR, Please add my voice of concern about the long term effects of the Polymet project. I have grave misgivings about the short and long range damage to Minnesota’s natural environment. I believe we are trading short term financial advantages for irreversible environmental challenges for generations to come. Vicki Oeljen

Olga Efremova 6650

Dear Ms Lisa Fay, ... PolyMet . NorthMet . .. - , ... - . . .., ... (SDEIS) ..- .. .. . PolyMet . .. . , ... PolyMet .. .., ... 600 . .. 1000 .. ..- .. .., .. ., ..., ...- .. .., ..., ... SDEIS .., ... " " .. . 4000 .. ..- . . .., ..., ..., ... " .. .. . ". .. ., ..., ... , ..., SDEIS .., PolyMet .. . . , ..., 500 . .. SDEIS .. . , PolyMet .. . .. . , ..., ... EPA, . ..- . .. .., . 40 . .. . PolyMet . ..- .. . SDEIS .. . ., ., ... , .., ..., ..., , ... PolyMet, .. , ... exchange ., .. , ..., SDEIS .. . , PolyMet ., ..., ..., - . . .. , Olga Efremova Moscow Moscow, ot 181200 RU

Alphabetical by sender's first name

Oliver Garrison 39326

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I'm also of the belief that the short-term economic gain produced by mining will be lost many times over with long-term scarring of the countryside that we as Minnesotans hold to such high regaRd Sincerely, Mr Oliver Garrison 622 4th St SE Apt 301 Minneapolis, MN 55414-1836

Olivia (Vivi) Grieco 57172

My name is Vivi, I'm a high school student in Minneapolis, and I am passionate about developing economic equity in an environmentally sustainable way. It is vital that we think beyond the next 20 years and think about clean water in our state for our children and grandchildren.Olivia (Vivi) Grieco3046 15th Ave SoMinneapolis, MN 55407

Olivia Jane Riggins 57195

Allowing the Polymet mine to be built would mean taking huge, unjust risks. Not only is it incredibly short-sighted to believe that PolyMet will continue the necessary cleanup, but in any case, the PolyMet mine would be a threat to future generations and current American Indian groups.Olivia Jane Riggins900 Water St SNorthfield, MN 55057

Olivia Ridge 42557

See attachment

Oona Malle-Barlow 57191

See attachment

Alphabetical by sender's first name

Opel McCarthy 58124

This world is not simply made of resources for humans to exploit at will. Our primary support system – wry of thriving as human beings – is the sun, the earth, the water, and the plants and animals that live within its system. The Polymet sulfide mining project would critically damage three of then from systems which we depend upon to survive. How much long term damage are we willing to inflict to our national support structure for a short term monetary given? PolyMet's own studies report that sulfide mining will create "acid mine drainage," leaking mercury, arsenic, lead and sulfuric acid into Minnesota waters. The decision that we make now will not only seriously impact the lives and wellbeing of ourselves and generations to come, but allow set a precedent for the way we treat our natural home into the future. In a time of perceived [ILLEGIBLE] when many voices demand that we strip the gift and beauty from our world in the name of limitless consumption we believe its still possible to choose to conserve and recycle rather than export and deplete. We implore you to see how the damage of sulfide mining for outweighs the benefits. Please make the courageous decision to reject PolyMet proposed sulfide mining and protect the irreplaceable gift we have been entrusted with as Minnesotans. Thank you for making the decision based upon all of our perspectives.

Oren Olson 46698

I support PolyMet mining for several reasons. Minnesota needs good paying jobs. We have plenty of minimum wage jobs. the sdeis has been a very long and involved process. I trust the state and federal agencies have figured out a way to mine safely. If so I can see no downside to this project. Minnesota can not afford to let this opportunity slip by. Thank you, Oren G. Olson 8205 Demenge Rd Cloquet Mn. 55720

Oscar Diaz 57186

I hear the boundary water is a great place to go. Please save so I can go someday.Oscar Diaz5365 5th StreetFridley, Anoka

Alphabetical by sender's first name

Osha Karow 17006

Feb 18, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Ove Kahn 44519

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. This cannot be accepted merely for a short term economic gain. In fact, no economic gain gain compensate for the vastly negative outcomes of this mine. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come and would substantially damage the quality of life for those that live in the region. These concerns must be paramount, and the proposal must be rejected. Sincerely yours, Ove Kahn Ove Kahn 1747 Columbus Ave Duluth, MN 55803

Owen 11262

polymet mine should only get the go ahead if all lands currently proposed are given for the federal lands and under the condition that all federal lands revert back to federal ownership after the 20 year period and after polymet does land reclamation. also giving lands that already exist does not make up for destroying an equivalent amount of land, so polymet should have to pay an additional fee of 3,000 an acre to the dnr to make up for the destruction of habitat that will occure

Owner 46038

Dear Lisa, My husband Jerry and I want to convey our opposition to the Polymet mining proposal that is currently under review by the DNR. We have concluded after studying the issue at length, and in depth, that the risks in a human endeavor such as this is not worth the irreparable harm to our beloved Minnesota environment. Given the imperfect nature of all human projects, it is not IF but WHEN problems arise. Short-term gains will go mainly to the multinational corporations that champion this project, but the resultant problems will accrue to ordinary Minnesotans. PolyMet has never operated a mine, functioning as a front group for the Swiss investor Glencore. It's main selling point seems to be jobs, but the best, and most, of these will go to professionals from around the globe. We realize the DNR is tasked with conflicting goals, but we ask that you have the courage to speak for the powerless, for the ecosystems that cannot speak for themselves. Powerful corporations have a loud voice, and a very large footprint, and repeatedly show that they can get their way. But not now, please. Thank you for reading this, and for taking our views seriously. Jerry and Laura Raedeke PO Box 89 Nisswa, MN 56468 218-963-3877

Alphabetical by sender's first name

Owners Computer 10227

Sirs, It has come to my attention that the project for mining heavy metals is a hazard to our health by negatively affecting the increase in pollutants in our envirronment. The metals themselves are toxic and the process that claims them with sulfuric acid is bad. Other sites around this country and other country's demonstrates the destruction that ensues. Not only is there the fallout on contaminates from this, but it just adds to the other 5,000 toxins in our environment and this is why there is an approximately 30% increase in cancers and immune disorders which are growing annually. The accumulative affect from all the toxins is horrible beyond belief and I fail to approve of the surge in mining or drilling to increase profits when it is costing every individual in the country his life. I am against this project. Judith Long 4627 Otsego St Duluth, MN 55804

P May 45536

Dear DNR PolyMet Mine Review Committee, This is a terrible idea. I'm sorry to be so blunt, but there's really no other way to say it. Poisoning our beautiful land for short-term gain is a really, really terrible idea. Sulfide mining brings with it a risk of acid mine drainage. This risk is particularly high in areas with lots of water, such as Superior National ForeSt This pollution can last for anywhere from 2,500 to 10,000 years. This mine will only create around 360 jobs. But you know all this already, don't you. I won't insult your intelligence by presuming otherwise. You know all of this, and yet you're still willing to give this plan the go-ahead. I am not privy to your motives, but looking at it as a Minnesotan, an environmentalist, and a young person about to enter the workforce. This whole plan borders on insanity. Twenty years of work, and then what. Poisoned waters and devastated land. A future significantly darker than it was before. You know children, surely. Young people. Think about them for a second. They're the ones who are going to have to live with your decision, one way or another. I plan to go into environmental work when I graduate from college. The other day a friend of mine who is in the same field looked at me and laughed bitterly. "Why do we do this to ourselves." she asked. We're young. We're supposed to feel hopeful about the future, but we aren't. We're cynical. We've seen too many good people–people like you–make the wrong choices over and over again. Just this once, give us a reason to believe in the people in power. Please don't poison us. Thank you for your time, Phoebe Ward

Pa Yao Vue 54234

Dear Ms. Fay,I'm a student from Humboldt High School. I'm very concern with polymet's environmental impact statement. The map in the environmental impact statement is wrong, They can't just redraw a map. Take a look at the map again. The polymet people left out 100 miles of the swamp. Governor Dayton needs to make the MN DNR do its job correctly. Use the correct map and measure the perculation of the water. They have to prove that the mine will NOT pollute the boundary water. I don't want the boundary water to be polluted for the next 500 years or so.Sincerely,Pa Yoa Vue1498 Jackson St, #BSt. Paul, MN 55117

Palmira Brummett 40741

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, As a US citizen I am very concerned with protecting our clean water. I have spent wonderful days in the Boundary Waters and have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Please keep in mind that wetlands once destroyed take generations and more to redeem, if they are redeemable at all. As a nation, we cannot afford to poison the protected lands and waters that we have left for the personal gain of a few. Please reconsider - do not facilitate the poisoning of our people, our birds, and our animals. Sincerely, Palmira Brummett, 198 Slater Ave, Providence RI 02906 Sincerely, Dr Palmira Brummett 198 Slater Ave Providence, RI 02906-5812 (865) 556-2426

Alphabetical by sender's first name

Pam Backstrom 4272

30 December, 2013 I would like to comment in support of the SDEIS for the proposed NorthMet mine. This has been studied and evaluated by several agencies of the State of Minnesota and the Federal Government. The proposal for a mine, as laid out in the SDEIS, meets the standards that are set by all the agencies involved. The following are my reasons for supporting the project: First: The land exchange will be a good one for both Minnesota and the USFS. It will reclaim and add to state wetlands in exchange for the wetlands taken over by the mine. It results in a net gain in wetland acreage. Second: The effect on water resources in the mine area, and in the Lake Superior basin has been thoroughly reviewed by the agencies involved, and has been deemed to be satisfactory. The proposed mine meets or exceeds the standards set in Minnesota state law and federal initiatives. Third: The mine will meet air quality standards, as laid out in the SDEIS. It will not affect air quality in the BWCAW. It will also meet applicable noise standards. Fourth: It is a logical re-use of a brownfield site in the plant location and in parts of the mine site, as well as existing rail lines. Fifth: Approval of the proposed mine will create many direct jobs in the eastern end of the Iron Range, and will contribute many dollars in tax revenue to the State of Minnesota, the Federal government and to the local communities. In addition, indirect jobs will be created and the unemployment rate in Northeastern Minnesota will decline. Sixth: There will be up-front monetary guarantees for the monitoring of water, air, wetlands, etc after the mine closes. The mine closure plan is sufficient to maintain all the water quality standards that are now in place. I would like to encourage the US Corps of Engineers, USFS, and the DNR to publish a final EIS in a timely manner. I also want to urge the Commissioner of the DNR to declare the EIS adequate, and everyone involved to move the permitting process forwaRd Yours truly, Pamela S. Backstrom Mailing address: 115 S. 14-1/2 Ave W. Virginia, MN 55792 Phone 218-780-6227 Email pam@ideadrilling-com Home address: 17 W. 3rd Ave N. Aurora, MN 55705

Pam Barker 21562

Mar 5, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Stop mining that will endanger our environment. Sincerely, Pam Barker 7084 Bluebush Rd Monroe, MI 48162-9124

Pam Curtis 40458

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Pam Curtis 5315 Clark Rd Conesus, NY 14435 US

Alphabetical by sender's first name

Pam Fischer, RN 34976

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Have you EVER been to the Boundary Waters of upper Minnesota. They are wild and beautiful and CLEAN. They are full of waters that flow to Lake Superior and many of the other lakes in this area, to streams, to wetlands. It is one of the few places barely touched by noise pollution, one of the few places left on the N. American continent that is pristine, where people can go to reconnect with Mother Earth, where the animals, plants, fish and other creatures are able to live in their natural states. THIS IS NOT A PLACE TO PUT EVEN ONE OPEN PIT SULFUR MINE. Sulfur mines pollute EVERYTHING. They send toxins into the waters, the air and the land. The put the entire area at risk of dying, they put people who live anywhere in the area or who come to enjoy the wilderness at risk of becoming ill or dying. There are so many other ways economic growth can be created and managed, WHY do people in power keep thinking in terms of the dark ages.. We have the threat of radiation drifting to our shores from the melt down at Fukushima. We have massive droughts in the west turning grasslands, farms, meadows and prairie pastures into desert sands. We have dirty tar sands oil leaks and accidents all over the country polluting our rivers and lands, ruining peoples' homes and making them sick. We have well waters contaminated by gas frac mining in the north east and coal sludge making the waters of W. Virginia unfit to drink. The western borders of WI are being polluted by sand mining, spewing silica sand particles into the air and into people homes where breathing in even a small amount causes a deadly illness called silicosis. YOU ARE SUPPOSED TO BE MANAGING THIS COUNTRY AND PROTECTING OUR RESOURCES IN THE BEST INTEREST OF ALL OF US and yet, every time I turn around I read about one more precious resource, one more of the few remaining clean and wild forests, mountains or wetlands areas being sold out from under our feet to outside interests who will keep the profits and leave us with the cost of cleaning up the environmental and human health catastrophes. I am 60 years old. I have lived through times of intense political upheaval. I have fought over and over again to protect our communities from social, economic, health and environmental dangers. But never in all those years have I been so afraid of losing my country, my home, my health because greed is turning this beautiful majestic country into a wasteland of trash, waste and devastation. STOP IT before this country we are so proud of, which has been a shining jewel in the universe, is nothing more than a sludge pit. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Pam Fischer, RN 1344 Russell St Green Bay, WI 54304-3132

Pam Frink 17511

To Whom it May Concern, I believe the SDEIS is not sufficient and should not be approved for various reason. The primary reason as it does not provide details as how up to 500 years of operating, maintenance and monitoring will occur and be paid for water treatment facilities. There has not been a financial institution that has lasted even 100 years let alone 500 years. Many mining projects have resulted in the largest and most costly environmental clean-ups in the nation. What will happen if Polymet and its backers decide they want to abandon this project in say 50 years. What guarantee is there that someone will continue to monitor and treat polluted waters for the remaining 450 years. Another reason I feel the SDEIS should not be approved is the inaccurate water flow model that was used in the impact statement. This error causes many of the assumptions about future mercury levels to be questioned. This data must be corrected and resubmitted for further study by the public. Mercury is a very hazardous element to humans and wildlife. I did not see where any study was made of an underground mine instead of an open pit mine was considered. Underground mines greatly reduce the impact on wildlife, forests and wetland loses. I believe an underground mine would be less destructive than the proposed open pit mine. Considering wetland losses, only some (912-5 acres) of the wetland affected is covered by the SDEIS. What about the more than ten square miles of other wetlands that are indirectly impacted by the toxic minerals and water use by this open pit mine. Bogs and swamps are very difficult to restore or rebuild. Once lost, there is a great likelihood that cannot be restored. The SDEIS does not address these issues. Finally, there are several endangered or threatened and special concern species of plants and animals on the mine site that will be affected by this mine. The area has been classified as a 'High Biodiversity Significance' area by the Minnesota Biological Survey and the SDEIS considers the impacts to be insignificant which I find impossible to believe. How can they claim over a dozen species of plants or animals as insignificant. The SDEIS needs to address this issue as well. In conclusion, I feel the SDEIS does not adequately address the above issues regarding environmental impacts and must be rejected. Sincerely, Pam Larson Frink 2228 Reiling Rd White Bear Lake, MN 55110

Alphabetical by sender's first name

Pam Larson Nippolt 7181

Hello Ms Fay - I am writing to express my alarm over the possibility that the proposed PolyMet mining project will be approved in Northeastern Minnesota. I am opposed to the proposal for one simple reason - I believe that the water sources in Minnesota, and the surrounding watershed, are being put at extreme risk. I believe that water is such a basic, life sustaining resource that we cannot move ahead with the water storage/reverse osmosis plan in good conscience. There is no precedence for this being an effective approach and the long term maintenance suggested (500 years) is preposterous. Water is essential to life and we are risking the lives of our children, our children's children and generations to come by not stewarding our water source properly. I am very sympathetic to the economic plight of those in the surrounding communities who are hoping for additional jobs, but I feel strongly that the stewardship of our greatest life sustaining resource - water - has to take priority over the possibility of a generation of improved economic and employment viability of the current population. I don't believe that these individuals and PolyMet advocates have the right to take such risky actions involving the resource of so many and for so long and the proposal should be denied. Please note my comments as strongly opposed to the PolyMet proposal. Sincerely, Pamela Larson Nippolt 369 Winslow Avenue Saint Paul, MN 55107

Pam Leland 16707

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Pam Leland 1783 Randolph Ave Saint Paul, MN 55105

Alphabetical by sender's first name

Pam Leland 51032

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Pam Leland 1783 Randolph Ave Saint Paul, MN 55105

Pam Lynn 40478

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Pam Lynn 9 Longwood Lake Road Oak Ridge, NJ 07438 US

Alphabetical by sender's first name

Pam McLaughlin 34221

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt I have canoed in the Boundary Waters Wilderness Area, that whole area is so beautiful and absolutely irreplaceable. And the contamination of one area of these waterways will affect the whole region, not just that specific area in Minnesota. We have got to start thinking of the larger picture when we make decisions and let the good of all living things for generations to come, guide our decisions, and not the desire for short term money gain. PLEASE think about the good of ALL living things when you make your decisions. Thank you. Sincerely, Pam McLaughlin 14 Merrill Crest Dr Madison, WI 53705-2704 (608) 231-1666

Pam Videen 43320

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Pam Videen 4305 Parkview Court Vadnais Heights, MN 55127

Alphabetical by sender's first name

Pam` Dorris 40366

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Alphabetical by sender's first name

Pam` Dorris 40414

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Alphabetical by sender's first name

Pamela Arnold 39439

Dear Ms Fay: I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. We have experienced an EIS here is Scandia. Our experience showed us that mining companies, and other applicants, have a tremendous advantage over the environment. Many issues that face the environment fall outside the requirements, and therefor do not get adequately addressed. An alternative use for the proposed mining site has not been considered, including economic and environmental projects for an alternative use. The "NO BUILD" alternative should be given its due position among the considerations. The long term consequences of any undisclosed potential for error, contamination to ground water, ambient air pollution, dredging peat bogs cannot be measured against the very few proposed economic benefits to the local economy. A comprehensive EIS should include a state-wide economic and environmental overlay, with an alternative scenario for comparison. If there were a proposal to build a business that added natural resource benefits, jobs and a sustainable model for long-term environmental improvements, we would feel much better about a decision to approve or deny the SDEIS. As it stands, the SDEIS truly benefits the applicant. It does not fulfill our expectations for a complete picture including alternatives. Because the consequences could be so costly to the environment region-wide, the SDEIS should be challenged, and if no revisions are offered to support an alternative, it should be rejected in perpetuity. Frankly, the situation is heart breaking. There is NO SUSTAINABLE Sulfide Mining. John Cherry, who works now for PolyMet, has worked for many mining companies. He is a hired man, working to get approvals that meet other state and local authority conditions for mining operations. We are simply out gunned against these huge interests. All we have is hope that the DNR and State of Minnesota will have the courage to reject this proposal, against local enthusiasm for it. And, using it's lobbying effort, find an economic alternative for this region, which clearly needs an economic booSt We must protect some of our waters, and wild areas. This seems to be an opportunity for creativity. But it will require courage, and smarts. Thank you. Sincerely, Pamela Arnold 16560 220th St N Scandia, MN 55073-9434

Pamela Deck 7223

wow, that was about 6 months ago.. but yes., I am still concerned . On Wed, Jan 22, 2014 at 7:25 PM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Pamela M and Frederick J and Alexandr 54691

See attachment

Alphabetical by sender's first name

Pamela Miller 40286

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Pamela Miller 6230 Thomas Ct Tolar, TX 76476 US

40347

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Pamela Miller 39362 San Thomas ct Murrieta, CA 92562 US

Alphabetical by sender's first name

Pamela Skaar 31784

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept my comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota. If approved, it will impact wetlands across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area. Since acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred, I have grave concerns about this project's potential impacts on the Arrowhead Region's natural resources and public health. Approving sulfide mining will present:risks to water quality and harm to wildlife, including the threatened lynx and declining moose populations. Water supply systems, personal and public, may be impacted, requiring more expense to process to meet regulatory standards. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Pamela Skaar 2046 Helena St Madison, WI 53704-5520 (608) 241-5332

Pamela Thinesen 14735

Feb 12, 2014 Ms Lisa Fay MN Dear Ms Fay, I, like most people, am very concerned with protecting our clean water. I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Pamela Thinesen 6165 Green Valley Rd Ramsey, MN 55303-3272 (651) 779-3476

Alphabetical by sender's first name

Pamela Thinesen 39064

---Original Message--- From: pamela.thinesen@century-edu [mailto:pamela.thinesen@century-edu] Sent: Tuesday, March 11, 2014 10:03 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Pamela Thinesen 6165 Green Valley Rd Anoka, MN 55303-3272

Pamela Voigt 15616

Feb 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. We truly value the protection of all creature. Sincerely, Ms Pamela Voigt 13287 37th St Clear Lake, MN 55319-9228

Alphabetical by sender's first name

Pat 38315

Dear Ms Fay, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuries of costly water treatment, or how the public will be protected from liability. PLEASE

Pat Combs 43472

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Pat Combs Mpls Mpls, MN 55455

Alphabetical by sender's first name

Pat Fillmore 41067

Dear Ms Fay, Dear Federal and State Agency Leaders: Let's Prioritize our Resources with emphasis on Healthy Lives. Human's cannot live without clean water and air, and our immune system tend to break down as chemicals are added. In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely pat fillmore lindsay court St Cloud, MN 56301 320 2590542

41082

Let's Prioritize our Resources with emphasis on Healthy Lives. Humans can not live and be healthy without clean water and air. Pat Fillmore 16 Lindsay Ct. St Cloud, Mn 56301

Pat Lukensmeyer 26065

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Please remember: President Lyndon B. Johnson, on signing the Wilderness Act of 1964 - "If future generations are to remember us with gratitude rather than contempt, we must leave them something more than the miracles of technology. We must leave them a glimpse of the world as it was in the beginning, not just after we got through with it." Sincerely, Pat Lukensmeyer 3849 E Broadway Blvd Tucson, AZ 85716-5407

Alphabetical by sender's first name

Pat Makowski 16047

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Pat Makowski 5245 Neal Ave N. Stillwater, MN 55082

49908

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Pat Makowski 5245 Neal Ave N. Stillwater, MN 55082

Alphabetical by sender's first name

Pat Mullen 18374

I'm Pat Mullen. I'm a lifelong resident of the Duluth area. Living in Northern Minnesota being an avid runner I can't think of a better place to live and work. I'm employed by Minnesota Power as vice president of marketing, corporate communications, and energy supply. And Minnesota Power, like any electric utility, is heavily regulated by various government agencies. Even the basic price of what we charge for our product must be studied by regulators and brought before public hearing, and then testified to. I know that sometimes it takes a lot of input to reach a sound decision, and that's fine. So please let this work that way through this review process. There are many issues to examine around the state's copper-nickel mine. And our government representatives certainly gave the PolyMet proposal due diligence over the many years of reviews, studies, and meetings. For the over 2,000 pages prepared by the various agencies, I say thank you for looking at the PolyMet Mine from all angles. I have a great deal of confidence in the processes, the outcome of this study. And I do support PolyMet. More specifically, my comments this evening pertains to the adequacy of the review in terms of water quality, containment, and treatment. I know that has been an important aspect of this process and has created much concern. Minnesota Power also has the largest mining and natural resource based customers in paper, pulp, and energy that have extensive expertise in meeting rigorous federal and state standards and technology and project design as used in chapter 3 or further described in other portions of the report are very similar to those utilized successfully by different industries. In addition to the well-trained and experienced staff employed and available to the company for future needs, PolyMet will be operating in a region with extensive and environmental testing, consulting support with equipment maintenance services. Industrial processes, once operational, are extensively monitored and recorded hourly, daily, and often times continuously. In my opinion the checks and balances designed by the PolyMet proposal design will stand the test of time. Also, Minnesota has some of the most rigorous environmental standards in the nation. And a process that ensures a very thorough review of all the facts. The companies and the people who work for and support the industry have the know-how and the determination to meet our state's environmental standards even as we produce the metals, the forest products, and the energy we consume and demand every single day. Finally, it is my belief that our nation needs to be more engaged in actively mining precious metals that are needed for today's technology. The United States lags in mining the very resources that we have an abundant supply of in the Duluth complex on the Iron Range. This study confirms that Minnesota can be a leader in the responsible mining of these metals. I support this study and I support PolyMet Mining and I thank you for the opportunity to share my comments with you tonight.

Pat Nudd 39887

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Pat Nudd 2365 Lake George Dr NW Cedar, MN 55011-4216

Alphabetical by sender's first name

Pat Rogowski 47794

Dear Mr Periman, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuries of costly water treatment, or how the public will be protected from li

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Pat Rogowski 49120

Dear Mr Dabney, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuries of costly water treatment, or how the public will be protected from lia

Alphabetical by sender's first name

Pat Stevesand 9405

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Pat Stevesand 13109 Walnut Cir 13109 Walnut Cir Burnsville, MN 55337

18782

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Pat Stevesand 13109 Walnut Cir 13109 Walnut Cir Burnsville, MN 55337

Alphabetical by sender's first name

Pat Stevesand 19072

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Pat Stevesand 13109 Walnut Cir 13109 Walnut Cir Burnsville, MN 55337 952-895-0433

Alphabetical by sender's first name

Pat Stevesand 39437

---Original Message--- From: ptstvsnd@comcaStnet [mailto:ptstvsnd@comcaStnet] Sent: Monday, March 10, 2014 6:44 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Pat Stevesand 13109 Walnut Cir Burnsville, MN 55337-3885

Alphabetical by sender's first name

Pat Stevesand 39442

---Original Message--- From: ptstvsnd@comcaStnet [mailto:ptstvsnd@comcaStnet] Sent: Monday, March 10, 2014 6:44 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Pat Stevesand 13109 Walnut Cir Burnsville, MN 55337-3885

Alphabetical by sender's first name

Pat Stevesand 50856

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Pat Stevesand 13109 Walnut Cir 13109 Walnut Cir Burnsville, MN 55337

Pat Tammen 42771

See attachment

pat thomas 16303

please consider and protect our land, water and air. do not cave to big business. i truly believe this is all a 'done-deal', but have to voice my comments. pat thomas duluth, mn On Tue, Feb 18, 2014 at 9:14 AM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd - The effect of a butterfly's wing is felt across the world anonymous https://mail.google-com/mail/e/B60 https://mail.google-com/mail/e/B60 https://mail.google-com/mail/e/B60 https://mail.google-com/mail/e/B60 https://mail.google-com/mail/e/B60 https://mail.google-com/mail/e/B60 https://mail.google-com/mail/e/B60 https://mail.google-com/mail/e/B68 https://mail.google-com/mail/e/B60 https://mail.google-com/mail/e/B60 https://mail.google-com/mail/e/B60 https://mail.google-com/mail/e/B60

Alphabetical by sender's first name

pat thomas 17055

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, pat thomas 6219 E. Superior St Duluth, MN 55804

50326

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, pat thomas 6219 E. Superior St Duluth, MN 55804

Alphabetical by sender's first name

Pat.Burow 12076

So, you really want to take a chance that our groundwater and surface water will be polluted because of sulfide mining in one of out most pristine areas in Minnesota and an area that attracts people from all over the world. It is difficult to fathom .. I am concerned, not only for the quality of water to be preserved, but also for the towns, most particularly Ely. Have you visited Wiliston, North Dakota or Dickenson, North Dakota. You would see towns that have changed, and not for the good. So, ask yourselves if 350 jobs lasting for 20 years is worth it. And, ask yourselves if destroying wilderness areas and water quality for years to come is worth it. It is time to say STOP to those who are greedy for money and have little concern for quality of environment that should be available for generations to come. Pat Burow Mendota Heights, MN

Patrice Hundstad 39879

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Patrice Hundstad 1319 Warren St Mankato, MN 56001-4948

Patricia B Olson 54746

See attachment

Patricia B Penshorn 54821

See attachment

54822

See attachment

Patricia Bacon 30188

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, There was a time when Lake Superior was once the standard for clean water in Michigan. It is still one of the cleaner bodies of water we have left. At a time when CA, NV and many other areas are experiencing droughts and water pollution, why would there even be any consideration to allow such a polluting industry to put this risk and probable inevitability of contamination of such a priceless gift as Lake Superior and the entire Great Lakes ecosystem over the welfare of 20% of the population of the USA.. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Patricia Bacon 1100 Cottage Row Hancock, MI 49930-1125

Alphabetical by sender's first name

patricia benson 15997

On behalf of the moose, and in light of the dubious projections of the positive economic impact of mining for the region, I am finally chiming in. NO to PolyMet. Yes, it is complex analysis of the benefits vs. harmful consequences. But it is a simple proposition: Short-term (20 years)thinking vs. long-term action on behalf of future generations, human and non-human, the future of the watershed, the future of Mother Earth. Respectfully, Pat Benson Patricia Benson HYPERLINK "mailto:pjbenson@frontiernet-net"pjbenson@frontiernet-net 651-433-4126 (c) 651-303-9280 14281 St Croix Trl. N. Stillwater, MN 55082 “Few are the giants of the soul who actually feel that the human race is their family circle.” Freya Stark, explorer and writer (1893-1993)

Patricia Buck 18919

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I’m writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) to 180 days. 90 days simply is not long enough to read and comment on the document. Please listen to the people who live here.– there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn’t fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It’s going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn’t explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren’t analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal “Major Differences of Opinion” call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won’t seep pollution; that mining won’t dry out wetlands; and that mercury contamination of fish and other toxic chemicals won’t increase. * The SDEIS doesn’t allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Patricia Buck Patricia Buck 8215 Kelsey Whiteface Road Kelsey, MN 55724

Alphabetical by sender's first name

Patricia Donnelly 40157

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I am also concerned that besides all the possible pollution, we will be paying for hundreds of years of cleanup when the use for copper may be replaced with another product in a few years, just like has happened to so many other products that we used to use. Minnesotans have worked hard to preserve our natural resources and I don't want to see ll that work undone for a few hundred jobs. When the internet reaches this area there will no longer be a need for unhealthy mining jobs. Thank you for voting this issue down. Patricia Donnelly 9141 3rd Ave So. Bloomington, MN 55420 Sincerely, Miss Patricia Donnelly 9141 3rd Ave S Bloomington, MN 55420-3739 (952) 884-4915

Alphabetical by sender's first name

Patricia Feld 16189

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Patricia Fletcher 54120

I do not support PolyMet Mining. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

patricia flynn 45541

After going to a number of open sessions, both pro and con, and reading and hearing much info about what PolyMet would do to our wonderful state of MN, I could write a dissertation on why not to allow such a project to happen.. It sounds to me that PolyMet would come to Northern MN for approximately 20 years and put their profits from our minerals in a Swiss bank, and walk away, leaving behind up to approximately 500 years of destruction to our northern area. Why would anyone with good common sense allow such a thing to happen. It sounds to me like another major mistake our DNR Commissioner is willing to approve without listening to the constituents of MN. Look at the statistics in this case and then follow the feedback of what the majority Minnesota's population is giving you. DO NOT APPROVE THIS MINING PROJECT. Thank you. Darryl J. Schwerzler 7524 E. Borman Ct. Inver Grove Heights, MN 55076

Alphabetical by sender's first name

patricia flynn 45595

I'm writing to express my opposition to the proposed NorthMet Mining Project. Twenty years of mining and 200 jobs at the mine aren't worth the devastation that will occur, at sometime, in the pristine area of MN where the mine will be located. The people who live in the area and want this aren't thinking about the future of their children and grandchildren, not alone all the other people who vacation and enjoy this beautiful area of MN. The wild rice paddies and the Native Americans are another reason not to proceed. This is sacred ground to them and they have been there longer than the white man, and will be there long after NorthMet leaves its mark. There are no guarantees that something unforeseen won't happen. NorthMet can file bankruptcy and be out of the picture and leave the potential clean up for all of us to pay for. Some things in this world are worth more than money, and this area of MN is one of them. The people who live in the area need to do what I had to do; go to school and get retrained in a different career. Thank you. Patricia A. Flynn 7524 E. Borman Ct. Inver Grove Heights, MN 55076

Patricia Gunderson 7121

Hi, - The SDEIS is inadequate; it does not provide any reassurance that this mining will not result in irreparable harm to the watery environment in our Arrowhead. PolyMet issues as noted in the SDEIS: The PolyMet SDEIS describes significant environmental issues associated with this proposed mine. Please don not move forward with this plan unless there are assurances no harm will come to our water. Thank you. Patricia Gunderson 390 Harriet Ave Shoreview MN 55126

Patricia Hammel 44970

Dear Ms Fay, Dear Federal and State Agency Leaders: I am a Wisconsin resident and am very concerned about the effects of sulfide mining on the Lake Superior watershed and Lake Superior itself. Lake Superior is an exceptional freshwater resource of global importance for which we are responsible. The likelihood that the Polymet mine will result in sulfuric mine drainage, methylmercury pollution and asbestiform discharges into Lake Superior tributaries is an unacceptable risk. Polymet's prior environmental analysis was unacceptable to the EPA. The current SDEIS is also inadequate as it is based on unrealistic groundwater/hydrology models and assumptions about the capacity and integrity of tailings ponds. Mining is the primary source of mercury pollution in the Lake Superior region. The United States has both signed and ratified the Minimata Convention on mercury pollution pledging to limit new emissions of mercury and to clean up existing mercury sources. Allowing Polymet to obtain a mining permit without stringent safeguards to prevent mercury emissions violates our commitment to the Minimata convention. Last but not least the possible presence of asbestiform minerals in the mine area compels us to consider the health of the mine workers and local communities who, based on past experience, will bear the brunt of the release of asbestiform particles into the environment of the mine. Indigenous people living near the mine will be most heavily impacted because they live on their traditional lands and rely on wild rice and fish for food and cultural survival. Require that the SDEIS address these concerns, or deny Polymet's permit application. Sincerely Patricia Hammel 1424 Jenifer Street Madison, WI 53703 608 258-1441

Alphabetical by sender's first name

Patricia Harlan-Marks 20062

From: hmfamily@aol-com [mailto:hmfamily@aol-com] Sent: Tuesday, February 25, 2014 4:05 PM To: Fay, Lisa (DNR) Subject: Concern re: proposed Poly Met mining in northeastern MN Dear Ms Fay, I am writing to express my concerns regarding the proposed PolyMet Mining open-pit mines on 67,000 acres of Superior National ForeSt If permitted, these mines would leave behind sulfide-bearing waste rock that could result in sulfuric acid mine drainage and would require treatment of polluted water for hundreds of years. I seriously doubt that the mining can be done without toxic pollutants poisoning our fish, killing our wild rice and contaminating our ground water. My concerns are based on the following: 1- The newest DEIS provides no assurance that this mining can be done without irreparable harm to the watery environment in our Arrowhead. 2- There is no example in the world of a copper/nickel sulfide mine in a water-rich environment that has not resulted in contamination of surface and/or ground water with sulfates and toxic heavy metals. 3- When sulfide ore comes in contact with air and water it produces sulfuric acid, which kills all flora and leaches heavy metals from the soil, including mercury and arsenic. 4- Claims that sulfide mines have operated without violating water standards are based on mines located in deserts or mines that were exempted from ordinary water quality standards. 5- This kind of mine has never been tried in Minnesota; iron mines do not produce sulfide waste. 6- Mining companies routinely declare bankruptcy as the mine is exhausted, leaving the taxpayers to pick up the tab for attempts to clean up the environment. 7- PolyMet is a junior mining company headquartered in Vancouver, Canada. It has never operated a mine before and is backed financially by the Swiss company Glencore Xstrata. Glencore has a record of massive tax evasion in third world countries. Additionally, Glencore has suffered dozens of fatalities and been subject to six-figure fines for environmental breaches – 2008-2010- 8-Sulfide mining threatens our remaining stands of natural wild rice in the St Louis River. The sulfate standard for wild rice is 10 mg/liter, a standard the waste water from the mine could not meet. 9- The mine will impact over 4000 acres of prime wildlife habitat and impair wildlife movement through the area. 10-Processing the ore would increase Minnesota's greenhouse gas emissions significantly. It is imperative that our state make decisions which ensure the health of our environment for generations to come. The risks of damage which may be caused by the open pit mines are formidable. Please deny the request for Sulfide Mining by PolyMet. Our State must depend on wise stewardship to protect the environment and ensure that projects which may yield short-term gain will not result in long-term, irreversible damage to our forests, our land, our waterways, and our environment. Sincerely, Patricia Harlan-Marks

Patricia Hauser 7362

Patricia Hauser 5805 Minnetonka Drive Shorewood, MN 55331-2945 Lisa Fay, EIS Project Manager 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 January 22, 2014 Dear EIS Project Manager, Lisa Fay, I believe any sulfide mining must be done without polluting our environment. The current Supplemental Draft Environmental Impact Statement regarding PolyMet is inadequate. It provides no reassurance that this mining will not cause irreparable damage to our Minnesota waters for hundreds of years. What are people thinking. Is it about 20 years of jobs (the projected time PolyMet Inc. wants to mine) versus up to 500 years of treating the polluted water caused by the mining process. Our country isn't even as old as it will take to clean up the poisoned water. And what about the birds, insects, animals and plants that use the water, where is the wildlife considered in this equation. As I understand it, leaking polluted water will get into the tributaries of the St Louis River (thus threatening the wild rice) and eventually into Lake Superior. What about our fish and other aquatic life. What about the people who make a living on tourism and fishing connected to Lake Superior. What about their jobs. What about the fact that Lake Superior needs to be protected and treasured. Do we really want dead zones there like we have in the Mississippi River. Do we really want to jeopardize that Great Lake for a measly 20 years of mining. Another thing, PolyMet is headquartered in Canada and has never operated a mine before. So there's no track record or mining experience. But it is financed by the Swiss company, Glencore, which has been implicated in past environmental disasters, labor violations and human right abuses around the world. Great, yet another rogue multinational company willing to trash our environment and walk away. In summary, the SDEIS should be sent back for improvements until PolyMet Inc. proves it can definitely be operated safely without any environmental damage. Sincerely, Patricia Hauser 5805 Minnetonka Dr Shorewood, MN 55331

Alphabetical by sender's first name

Patricia Johnson 52277

To Whom it May Concern, I am not in favor of giving Polymet approval to open the copper nickel mine. The mining industry does not have a good track record in taking care of environmental concerns. I am concerned about air and water pollution and what happens in the future after the fresh water and clean air are so damaged and that it is unsafe to use. What happens when some unexpected event occurs to further contaminate the environment and the money Polymet originally sets aside runs out. Will Polymet be around to clean up the mess. In my opinion the company will be long gone and the state, which means the taxpayers, will be left to try to "fix" the mess left behind by the mining company. I understand the local citizens would like to see the employment opportunities come to their communities and that those jobs would enhance the local economies but the long term cost is just too high. I would like to see some other industry locate in northern Minnesota that could provide jobs for the residents there. Please do not allow Polymet to open the copper nickel mine. Clean air and water are essential. Please don't take chances with our most precious resources. Thank you for considering my requeSt Patricia Johnson 13940 71st Ave N Maple Grove, MN 55311 Sent from my iPad

Patricia L. Feld 16183

thanks for your quick response. I know it's a robo-response, but getting it lets me know that the DNR is listening. if PolyMet NorthMet SDEIS is not around in 500 years, who will be cleaning up for that generation of Minnesotans. Patricia L. Feld On Thursday, February 20, 2014 1:00 PM, *NorthMetSDEIS (DNR) <NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Patricia Loverink 39712

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Patricia Loverink 403 19th St NE Austin, MN 55912-4147

Patricia Makowski 39589

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Patricia Makowski 5245 Neal Ave N Stillwater, MN 55082-2112

Alphabetical by sender's first name

Patricia Markert 16791

As someone whose family has lived in the northern counties of Minnesota over the years, and seen the landscape ruined by the mines return somewhat to its former self, I am newly concerned at the environmental proposal for copper and nickel mining in this delicate region. Here are my questions with regard to the SDEIS: Are you sure that five hundred years is a proper window within which to return a forest to itself. Who would pay for the clean up once this company is no longer in business. How would you ensure the accountability of any owner of the property for such a long period. How can you be sure that the ground water will not accelerate the flow of run off of contaminated water into rivers and lakes. It is clear that the region has been depressed and looking for ways to make money. However, it does not make sense for the region to bring in a business that returns to old and polluting methods of mining. Sincerely, ?- Patricia Markert Aakre HYPERLINK "mailto:pmarkert@fastmail.fm"pmarkert@fastmail.fm

Patricia McDonald 41761

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Patricia McDonald 2348 Summerfield Rd Winter Park, FL 32792-5009

Patricia McNabb 14562

Thanks, Pat McNabb From: *NorthMetSDEIS (DNR) [mailto:NorthMetSDEIS.dnr@state.mn.us] Sent: Wednesday, February 12, 2014 7:47 PM To: Patricia McNabb Subject: RE: Protect our Water from the Proposed PolyMet Mine Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Patricia Moore 10927

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Patricia Moore 914 Greeley St S Stillwater, MN 55082-5969 (612) 386-7190

Alphabetical by sender's first name

Patricia Mulcahy 39893

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Patricia Mulcahy 18507 Beaver Trl Minnetonka, MN 55345-3109

patricia mundy 17151

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, patricia mundy 803 smetana rd Apt 1 hopkins, MN 55343

Alphabetical by sender's first name

patricia mundy 50418

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, patricia mundy 803 smetana rd Apt 1 hopkins, MN 55343

Patricia Nelson 40014

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. In summary, I am concerned about the environmental impact the sulfide mining will have during the mining years as well as down the line. It is too much of an unknown when it's affecting the Minnesota environment. We can, and should, live without sulfide mining in Minnesota. Thanks you. Patricia Nelson The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Patricia Nelson 5457 44th Ave S Minneapolis, MN 55417-2203

Alphabetical by sender's first name

Patricia Noble-Olson 39554

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Patricia Penshor 48156

See attachment

Patricia Phillips 40819

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Patricia Phillips 487 Wolcott Ave Kent, OH 44240-2355 (330) 678-6962

Alphabetical by sender's first name

Patricia Richard-Amato 16738

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Patricia Richard-Amato 4004 London Rd Apt. 1111 Duluth, MN 55804

43117

Thank you so much for giving me this opportunity to express my environmental concerns about the proposed PolyMet copper mine. I am not a scientist myself, but I know what having a relatively unpolluted environment means to me and to my family, friends, and neighbors here on the shores of Lake Superior. We have only one EARTH and one Lake Superior. Why not protect them. The PolyMet sulfide mine plan is riddled with many issues and concerns: 1- Sulfate discharges in our wetlands could bring the levels of mercury in our fish up to dangerous levels. 2- One in 10 babies born in our area already has unsafe levels of mercury in its blood (please see the report by the Minnesota Health Department). 3- Hoyt Lakes itself could have its drinking water made unsafe to due to the mine waste piles proposed by PolyMet. 4- Huge areas of habitat for our wildlife would be threatened. 5- A full study of health effects on humans from mercury and asbestos-like fibers from rock at the mine site has not been done. Much of it could eventually leach into Lake Superior and into many of our rivers and streaMs 6- We don't know what the cost of treatment of polluted water will be and for how many hundreds of years. I am very much against moving forward with the plan proposed for the PolyMet mine. There are too many unanswered questions and the risks are far too great, not only for us, but for future generations. Sincerely yours, Patricia A. Richard-Amato 4004 London Rd Apt. 1111 Duluth, MN 55804 (218) 625-8340 HYPERLINK "mailto:prichardamato@gmail-com"prichardamato@gmail-com

Alphabetical by sender's first name

Patricia Richard-Amato 50098

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Patricia Richard-Amato 4004 London Rd Apt. 1111 Duluth, MN 55804

Patricia Rossetti 57225

We need to protect our forest and wildlife and Minnesota's precious water. We need to protect our lakes and rivers. We allow companies to disrupt our natural habitats. What is going to happen to our future generation. I say stop the sulfide mining.Patricia Rossetti2015 Stanford AveDuluth, MN 55811

Patricia S Anderson 57933

What could you be thinking!!! NO, NO, NO, Think of the total waste of Sudbury, Ontario. This pristine wilderness is worth far more unspoilt. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Patricia Sannes 48177

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Patricia Sannes 729 Washington Avenue Crookston, MN 56716

Alphabetical by sender's first name

Patricia Shepard 39600

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Patricia Stock 40301

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Patricia Stock 27001 Oakwood Drvie Olmsted Falls, OH 44138 US

Patricia Walter 33041

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, and harm to wildlife. PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Patricia Walter 12101 Dodd Blvd Rosemount, MN 55068-3255 (612) 483-3101

33071

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, and harm to wildlife. PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Patricia Walter 12101 Dodd Blvd Rosemount, MN 55068-3255 (612) 483-3101

Alphabetical by sender's first name

Patrick & Brenda Alcorn 39603

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Dr Patrick and Brenda Alcorn PO Box 236 Red Lake Falls, MN 56750-0236 (218) 253-2094

Patrick Anderson 15727

See attachment

Alphabetical by sender's first name

Patrick Anderson 40102

_____ From: anderick1@gmail-com [anderick1@gmail-com] Sent: Monday, March 10, 2014 5:43 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. In addition, there is no factual basis for the cost per year figures ($3-9 t0 $6 M) put forth by Polymet. This is a fundamental flaw since it deprives the public an opportunity to adequately and appropriately review the accuracy of those figures. This flaw along with the ambiguous calculations for length of water treatment make it impossible to determine adequate financial assurances. While financial assurances will also be part of the permitting process, the factual basis for those calculations should be determined during the EIS phase. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Patrick Anderson 267 Peninsula Rd Minneapolis, MN 55441-4179

Alphabetical by sender's first name

Patrick Anderson 40103

_____ From: anderick1@gmail-com [anderick1@gmail-com] Sent: Monday, March 10, 2014 5:43 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. In addition, there is no factual basis for the cost per year figures ($3-9 t0 $6 M) put forth by Polymet. This is a fundamental flaw since it deprives the public an opportunity to adequately and appropriately review the accuracy of those figures. This flaw along with the ambiguous calculations for length of water treatment make it impossible to determine adequate financial assurances. While financial assurances will also be part of the permitting process, the factual basis for those calculations should be determined during the EIS phase. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Patrick Anderson 267 Peninsula Rd Minneapolis, MN 55441-4179

Alphabetical by sender's first name

Patrick Brezonik 16258

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Patrick Byron 39917

DNR and related staff, As a Minnesotan and frequent user of the BWCA, I have GRAVE concerns regarding the proposed PolyMet project. With a brother and sister-in-law having first hand knowledge of the mining related issues in the state of Montana and the HORRORS of corporate irresponsibility regarding water quality, I am unequivocally OPPOSED to this project. Even with promised jobs and development, the remote chance of tainting waters in the BWCA is too much of a risk to take. I have concerns about the data that exists on this project as well, in short, worst case scenarios have NOT been addressed. I have real fears that beyond the destruction of the environment, the people of Minnesota will be left with a clean-up bill and/or legal issues that would NOT be in the best interest of our state. This is NOT a project that serves the interests of ALL Minnesotans. Patrick Byron 157 West Third Street # 104 Winona, MN 55987 https://mail.google-com/mail/u/0/images/cleardot.gif

39955

DNR and related staff, As a Minnesotan and frequent user of the BWCA, I have GRAVE concerns regarding the proposed PolyMet project. With a brother and sister-in-law having first hand knowledge of the mining related issues in the state of Montana and the HORRORS of corporate irresponsibility regarding water quality, I am unequivocally OPPOSED to this project. Even with promised jobs and development, the remote chance of tainting waters in the BWCA is too much of a risk to take. I have concerns about the data that exists on this project as well, in short, worst case scenarios have NOT been addressed. I have real fears that beyond the destruction of the environment, the people of Minnesota will be left with a clean-up bill and/or legal issues that would NOT be in the best interest of our state. This is NOT a project that serves the interests of ALL Minnesotans. Patrick Byron HYPERLINK "mailto:pabyron@gmail-com"pabyron@gmail-com

Alphabetical by sender's first name

Patrick Chase 30098

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt To create and leave a cleanup mess for the next ten generations is not right - simply not right. It is one thing to say we didn't know the side affects of abestoes or PCPs, but here we do know and there no way we can justifiie it. We have to say, "Not here, Not today, we have made too many mistakes. Lets leave it for future generations to decide." Sincerely, Patrick Chase 291 Rice Creek Ter NE Fridley, MN 55432-4329 (763) 572-8762

37629

I am against it on three grounds. First, the mining operation is to last twenty plus years and the reclamation period is hundreds of years. The persons involved in signing off will be long gone, legal issues of blame and cost will be in the courts for years. In twenty years there will be another pressing need for those jobs. Second, in a similar ecosystem has copper mining not polluted the surrounding environment. Third, the recent experience of the DNR handling the clear violation of Lutzen Ski Resort pulling water from a trout stream demonstrates the DNR's conflict between preserving nature and economic realities. The DNR chose jobs over preserving the natural environment. We are at that same pivotal point. We have a budget surplus, use part of that money to retrain the workforce in Northeast Minnesota. Or use some of the money to improve the infrastructure in that part of the state. It is a political tradeoff letting future generations make their choice when times are more stressful. With an unemployment rate of 6 %, we are not in position to gamble our resources for a few,jobs today. I do go to the BWCA every year for it is a unique place. Patrick Chase 291 Rice Creek Terrace Fridley, Minn. 55432 Sent from my iPad

Patrick Connolly 54672

See attachment

Patrick Cutshall 22054

We all use copper, nickel, etc every day. So if it is not mined in Minnesota’s Iron Range it will be mined somewhere else. I have confidence in the state of Minnesota and Polymet that it will be mined in the right way for both job creation and the environment. If it is not mined here but somewhere else not only will those good paying jobs and the taxes go somewhere but the environment would actually be more polluted. We cannot afford to miss this job opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. Pat Cutshall 116 Northfield Street, Duluth MN, 55803

Patrick Dehart 15755

See attachment

Alphabetical by sender's first name

Patrick Doss-Smith 20067

--Original Message-- From: pdosssmith@live-com [mailto:pdosssmith@live-com] Sent: Wednesday, February 26, 2014 2:43 PM To: Fay, Lisa (DNR) Subject: PolyMet's SDEIS is poorly planned and needs to go back to the drawing boaRd Dear Ms Fay: PolyMet proposes a complex mechanical system of pumps, pipelines, and filters that it says will capture and hold back the water pollution from getting into our rivers. PolyMet assumes the proposed expensive and complicated water treatment system will continue to operate effectively for long, long after the mining has stopped. It should be expected that mechanical systems like pumps, filters and pipes will eventually fail. In a 2007 report, an organization called Earthworks analyzed the records of 14 modern copper mines in five states found that 100% of these mines experienced pipeline spills or other accidental releases. 92% had failures of water collection and treatment systems that resulted in releases of contaminated mine seepage that significantly impacted water quality. But Polymet's SDEIS lacks contingency plans for predictable failures in the proposed piping, pumping, and filtration equipment. By assuming that a complicated water treatment system will function indefinitely without fail, the SDEIS has failed to take the hard look required at the proposed PolyMet sulfide mine. Please send the SDEIS and PolyMet back to the drawing board with directions to include contingency plans for predictable failures in the water pumping and treatment system, and the power supply to run that system.In addition, the SDEIS proposes to dump tailings from the mining process on top of the former LTV Steel.s tailings basin, which was built in the 1950s on top of three streams, was designed to leak. In fact, the existing tailings basin is already leaking millions of gallons of untreated water, yet the chemical composition of that large volume of leaking water has not been tested and characterized. The failure to test and account for known leaks of untreated tailings basin water from the existing LTV Steel tailings basin is another major problem with the SDEIS. Moreover, the tailings basin and the dam holding it back from flowing downstream are recognized to be unstable. If the tailings basin dam were to fail, vast quantities of contaminated tailings, sulfates, and heavy metals would be released into the headwaters of the St Louis River. In other mines, such tailings basin failures have sent a flood of millions of cubic yards of toxic debris as much as hundreds of miles downstream. The failure of the SDEIS to fully consider the potential for . and the consequences of . a tailings dam failure is a deadly flaw in the SDEIS. Sincerely, Patrick Doss-Smith 3959 27th Ave S Minneapolis, MN 55406-3043

39060

---Original Message--- From: pdosssmith@live-com [mailto:pdosssmith@live-com] Sent: Tuesday, March 11, 2014 10:23 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Patrick Doss-Smith 3959 27th Ave S Minneapolis, MN 55406-3043

Alphabetical by sender's first name

Patrick Drescich 15757

See attachment

Patrick Gibbons 44064

Mar 13, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. The Boundary Waters are a treasure not only for Minnesota but for the rest of the world, and anything that damages the environment in this area is a bad idea. Also, while the employment opportunities arising from sulfide mining may be attractive in the short-term, in the long term the damage done would far outweigh these advantages and destroy the natural beauty that the local tourism industry depends on. -PG Sincerely, Mr Patrick Gibbons PO Box 626 Collegeville, MN 56321-0626

Patrick Knight 42851

See attachment

Patrick M Radzak 42714

See attachment

Alphabetical by sender's first name

Patrick Mulloy 43991

Mar 13, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for generations and endangers clean water and habitat in the Lake Superior basin. Environmental hazards are present during every step of the open-pit mining process. Hardrock mining exposes rock that has lain unexposed for geological eras. When crushed, these rocks expose radioactive elements, asbestos-like minerals, and metallic duSt During separation, residual rock slurries, which are mixtures of pulverized rock and liquid, are produced as tailings, toxic and radioactive elements from these liquids can leak into bedrock if not properly contained. The Polymet Draft Plan is in large part science fiction, based on assumptions long into the future that are unverifiable. The facility will require environmental stewardship long into the future - long past the projected 500 years of water treatment discussed in the EIS. No corporation has lasted that long and few governments hAve According to Earthworks, 40 existing hardrock mines will annually generate 17 to 27 billion gallons of polluted water forever. The Polymet project will annually generate an estimated 93 to 256 million gallons of wastewater per year in perpetuity. In general, despite all precautions, these mines do not have a good track recoRd A review of the historical record suggests that catastrophic failure is the normal state of affairs and that in the end, the tax payers usually end up holding the bag. Some examples: Butte, Montana's Berkeley Pit mine is now one of the nation's largest superfund sites. Midnight Mine, operating from 1955 to 1988 is still a superfund site with remediation to continue far into the future. At 10 a.m. on February 10, 2011, disaster struck the Çöllolar coalfield in central Turkey, near the city of Elbistan. The northeastern wall of an open-pit mine collapsed, sending about 50 million tons of material into the mine. The debris buried and killed ten workers. Maine's Callahan Mine Site, now a superfund site, is the only open pit mine built in an estuary system. The mine operated from 1968 to 1972 and a recent Dartmouth College study indicates that dangerous concentrations of toxic metals continue to seep into the estuary from the mine site. New Mexico's Chevron Questa Mine, operated as an open pit from 1965 to 1983, produced over 328 million tons of acid generating rock waste stored in nine piles located around the pit and producing over 100 million tons of tailing stored in tailing ponds on the site. South Dakota's recently closed Gilt Edge Mine has already cost tax payers over $30 million in cleanup costs and acidic mine wastes laced with heavy metals continue to threaten ground and surface water. A waste water treatment plant has been treating wastes from a capped waste rock pile but the entire site is toxic. California's Sulphur Bank Mercury Mine site initially was mined for sulfur from 1865 to 1871- Mercury ore was mined intermittently by underground methods from 1873 to 1905- The site was intermittently open pit mined from 1915 to 1957- It is now a Superfund site. Colorado's Summitville Mine operated as an open pit mine from 1984 through 1991 and became a Superfund Site in 1994- Toxic releases from the site killed most aquatic life along a 17 mile stretch of the Alamosa River in 1991 with additional kills recorded in 1992- The company declared bankruptcy in 1992 and walks away. To date, tax payers have spent $150 billion in clean up costs. February 2, 2014 Duke Energy's tailings pond failed sending 82,000 tons of toxic coal ash and 27 million gallons of contaminated water flowing into the North Carolina's Dan river. 9:30 pm on April 11, 2013 165 million tons of rock s

Patrick Murn 10698

Dear Ms Fay, Dear Federal and State Agency Leaders: With all due respect to the state of Minnesota and the right of it's people to use the state resources it possesses, please reject the permit requests for copper sulphide mining by PolyMet and all applicant mining companies. Copper-sulphide mining is way too contaminating to be considered in such a pristine and rare wilderness natural resource. I grew up in the area and my parents and grandparents lived in Ely. There is just no way in good conscious I can recommend this type of mining in such a delicate and vulnerable ecosystem. Please don't destroy this wonderful national treasure by approving permits for such an environmental devastating type of hard rock mining. Although we need and use the precious metals and we also need the jobs in the region, the environmental destruction that historically and inevitably happens every time this type of mining is performed is not worth the environmental coSt Please vote with your logical thinking and your heart. We all know that it has and will destroy these precious lands and waters. With all due respect, do not be manipulated into thinking otherwise. Sincerely and successfully, Patrick G. Murn Patrick Murn 14017 Romberg shores Ely, MN 55731 320 260 1130

Alphabetical by sender's first name

Patrick Murn 14906

Feb 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

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Patrick Murn 14908

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Patrick Murn 14910

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Patrick Murn 14912

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patrick Needham 39574

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. if our state were a person, he would need dialysis after this mining. dialysis is not cheap. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr patrick Needham 4132 19th Ave S Minneapolis, MN 55407-3422

Alphabetical by sender's first name

Patrick Witherow 43692

Destruction of the BWCAW due to manmade toxic sulfide would be an unforgivable crime against nature and Minnesota. Think about the jobs and tourism lost to the Ely area if the BWCAW becomes polluted, or worse. The past article in the Star newspaper that Ely is dying because of the lack of jobs has been strongly refuted by most of the residents who also feel a great loss will ensue if this mining goes through. Just look at the radioactive waste that is currently contaminating North Dakota and you get an idea of how the Ely area will look after the miners are gone. I've been told that there has never been a copper mining operation anywhere that has not resulted in a disaster to the environment. Can't we find another alternative. Some "clean" industry to start up there instead. I've also been told that PolyMet is owned by a Swedish company that has destroyed thousands of acres of Swedish landscape with their mining efforts. And you want to trust a foreign company with the health of the Minnesota environment. I say nay, please say nay. Live in the Light Patrick Witherow pwithero@comcaStnet http://www.patwitherowimages-com

Patti Donaldson 16939

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Patti Donaldson 36413 370 Street Richville, MN 56576

Alphabetical by sender's first name

Patti Donaldson 50232

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Patti Donaldson 36413 370 Street Richville, MN 56576

52240

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Patti Donaldson 36413 370th Street Richville, MN 56576

Alphabetical by sender's first name

Patti Eckert 41713

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Patti Isaacs 9851

While we cannot ignore the need for employment in the region, I don't see how a twenty year supply of copper and nickel—and profit for a single company—balances five centuries of pollution of Minnesota's most precious resource, water. This mine should not be approved, but the state needs to explore other more sustainable ways to bring jobs to northeasten Minnesota. Patricia Isaacs 13720 Paragon Ave N. Stillwater, MN 55082

Patti Packer 42852

See attachment

patty bracey 43492

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, patty bracey 16600 Lehn U-Trail Brandon, MN 56315, MN 56315

Alphabetical by sender's first name

Patty Flynn 10722

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Patty Flynn 7524 Borman Ct Inver Grove Heights, MN 55076

18403

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Patty Flynn 7524 Borman Ct Inver Grove Heights, MN 55076

Alphabetical by sender's first name

Patty Flynn 50522

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Patty Flynn 7524 Borman Ct Inver Grove Heights, MN 55076

Patty Lange 44858

Hello, It has been brought to my attention that the maps outlining the drainage area around the proposed mine in the environmental study for the Polymet mine are incorrect. The maps include incorrect outlines of the One Hundred Mile Swamp which is downhill from the mine site and will collect acid and heavy metal laced run off from the mine. While the true One Hundred Mile Swamp is over 10 miles long and drains out of its east end to the BWCA, PolyMet environmental impact statement maps draw a much smaller swamp less than 6 miles long that cuts off the eastern portion of the swamp, creating the illusion that the mine and BWCA are not connected. The fact that the incorrect maps outline the swamp with a dashed teal line on satellite maps with green backgrounds makes it extremely difficult to see. This discrepancy between the environmental impact statement maps and US government maps makes this environmental impact study inadequate. These maps are wrong and the environmental impact statement is inadequate until the maps have been corrected. Thank you for your time, Best Regards, Patricia Lange 2063 Ames Ave Saint Paul, Mn 55119 Sent from my iPhone

Alphabetical by sender's first name

Patty Mac 43471

I do not want to see copper mining in Minnesota. No matter what the company says they cannot predict the future. Despite their best laid plans; what would happen if a truck with sulfuric acid overturned near the water. What about the weather. Horrible tornadoes. Another winter like this one (or two or three). What about fires. What about human error. Remember Fukushima. That nuclear disaster wasn't supposed to happen And what about something more recent and closer to home-the water crisis in Charleston, West Virginia-that wasn't supposed to happen either, but who is paying for it now - in dollars, health and stress. Freedom Industries has filed chapter 11, so they will be minimizing their payouts-so it's not them; the weight of the crisis falls on the citizens, as it will when something happens at a copper mine in northern Minnesota. Glencore, the company that it looks like will be heavily involved or end up with a large share of the mine, has a horrible track recoRd If any of the things that happened at their Mapani mine happen here it would be devastating-environmental problems, health hazards, death of miners. And that mine is just a small part of the trail of environmental hazards, human hardship and financial costs it leaves in the local communities it does "business" in. Not too mention the big gaping hole the mining leaves in the earth-have you seen the pictures of current copper mines. They are horrid. Our water and natural environment are two of our greatest resources-in fact fresh water could be THE greatest resource-do we really want to risk our long term future for a short term benefit. If it's jobs you are trying to bring to that area of the state-there has got to be a better way. There are new (and green) technologies being developed all of the time-invest your time, effort and money into one of these technologies that can benefit all groups, now and in the future. Patty McDonald 2150 Mailand Road St Paul, MN 55119 651-739-5006

Patty Moses and Tom Haller 43017

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit Dear Ms Fay: Attached is my comment on the NorthMet Mining Project and Land Exchange SDEIS. Thank you for your serious consideration of comments from myself and the public at large. Patricia A. Moses 478 Bayview Dr Roseville, MN 55113

Patty Murn 36627

Dear Ms Fey, Do you really want this legacy. Opening up the first future Superfund site in Minnesota. Why. Polymet has told you that the water will be polluted for 200-500 years. What kind of a statement is that. And what kind of a steward of natural resources would qualify it with consideration. Mark Twain said that a mine was a liar standing next to a hole. He was right. Polymet has never operated a mine before, and is backed financially by the Swiss company Glencore. Glencore has a significant financial stake in the company, and has an exclusive agreement to sell the mine’s metals on the global commodities market. While PolyMet doesn’t have a track record to consider, Glencore does. The company was founded by Marc Rich, the financier embroiled in scandal and pardoned by President Bill Clinton. The company has been implicated in environmental disasters, labor violations, and human rights abuses around the world. Certainly you've heard the plight of the neighbors of the fracking in the Dakotas. It's horrible and once the mining company moves in you cannot control them at all. What about the St Lawrence river, the wild ricing that will disappear, and the pollution of Lake Superior. The Great Lakes comprise 1/5 of the worlds fresh water. It is unbelievable. Why have a comment period of the comments are ignored. Your children and grandchildren won't have a wilderness to go to. You're probably too young to remember the Joni Mitchell song "Paved paradise put in a parking lot." Please take a minute to watch this video. http://www.youtube-com/watch.v=3V3im2h89F8 Sincerely, Patty Murn

Patty O'keefe 47692

Mar 13, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. First of all, why in the world are we doing this when only 25% of copper nickel products are recycled. Second, it's time for commissioners at the DNR to stop acting like politicians in making decisions with short term gains in mind. There's no reason why we should be risking polluting water at a time when climate change is causing the largest amount of global water scarcity since the existence of humans. The decision does define who you all are as individuals and what kind of legacy you will leAve Give it some real thought. Sincerely, Patty O'Keefe, Age: 24 8113 Virginia Circle North, St Louis Park, MN, 55426 The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Patty O'keefe 8113 Virginia Cir N St Louis Park, MN 55426-2443 (952) 221-3977

Alphabetical by sender's first name

Patty O'keefe 48480

Mar 13, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. First of all, why in the world are we doing this when only 25% of copper nickel products are recycled. Second, it's time for commissioners at the DNR to stop acting like politicians in making decisions with short term gains in mind. There's no reason why we should be risking polluting water at a time when climate change is causing the largest amount of global water scarcity since the existence of humans. The decision does define who you all are as individuals and what kind of legacy you will leAve Give it some real thought. Sincerely, Patty O'Keefe, Age: 24 8113 Virginia Circle North, St Louis Park, MN, 55426 The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Patty O'keefe 8113 Virginia Cir N St Louis Park, MN 55426-2443 (952) 221-3977

Paul J. Wotzka 43312

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources The DNR is performing its duties in the SDEIS as a trustee for the water resources of the State. The groundwater, rivers, streams and wetlands are public assets and as trustees of those assets, The DNR must not deplete or destroy them. They must perform their duties as trustees of our waters for the people of Minnesota - not Polymet's. When I read about the DNR's role in the draining of White Bear Lake or the crash of the walleye population in Mille Lacs or the decimation of the moose in NE MN, I believe that the DNR has regulated itself to a role of firefighter - trying to saving what they can before its gone. The people of Minnesota expect more from the DNR and their tax dollars especially when it comes to protecting the most pristine water we have left. The SDEIS for the Polymet project is inadequate, incomplete, and based on many false and misleading assumptions and therefore must be rejected. Please note the specific issues below: The following are the main issues with the PolyMet SDEIS concerning environmental impacts to wetlands and watersheds: The main reason given for establishment of the Superior National Forest and the purchase of Federal lands through the Weeks Act was to protect the headwaters of the St Louis River. The proposed land exchange and destruction of wetlands in these headwaters is a violation of the intended purpose of these Federal lands. The land exchange sets a bad precedent and it is unknown how many additional land exchanges may be needed for future mine proposals. Allowing the loss of so much forest and wetland cover in these headwaters and the potential impacts to their hydrology and water quality are counter-productive to the MN DNR's mission of long-term protection of the state's surface and groundwater resources. Too much wetland and stream area will be destroyed or impacted by this project to be considered an environmentally responsible mine. The ecological quality of the stream and wetland complex that would be impacted by this project is very high and deserves the highest level of wetland mitigation. The proposed mitigation does not compensate for the loss of wetland functions and values in these headwaters. The potential toxic effects of sulfur and heavy metals upon wetland vegetation from fugitive dust and precipitation are not adequately considered or evaluated. It is not accurate to use the natural range of variation of stream levels as a way to measure potential impacts to riparian wetlands from long-term water level changes caused by mining. The failure of state agency regulation of iron and taconite mines to correct current pollution issues does not give us confidence that future problems with sulfide mines will be adequately addressed. The SDEIS gives inadequate consideration to the "No Action Alternative" of the land exchange. The No Action Alternative must be reconsidered because: The mining proposal as currently outlined in the SDEIS fails to meet multiple environmental regulations which would lead to destruction of the land and pollution of the waters for many centuries It fails to protect the rights of the tribes as guaranteed in the Treaty of 1854 There is inadequate review of human health impacts at the mine, in surrounding communities, and in the watersheds below the mine There is inadequate review of cumulative impacts resulting from all previous and existing mines, and for all proposed mines that could be permitted over the next 10-15 years in this watershed The economic analysis was biased by only modeling the benefits, with inadequate analysis of the practical projects costs The intent of Congress in acquiring the lands within the Superior National Forest under the Weeks Law were to protect the waters and promote the growth of forests, in perpetuity The exchange only marginally improves the conflict in the severed estates, and fails to fully resolve this confl

Alphabetical by sender's first name

Paul and Liz Buettner 9803

To Lisa Fay, EIS Project Manager Dear Ms Fay, I find the SDEIS overall to be impressive in scope and detail. I have done my best to digest the contents of the full SDEIS, as it has been made available by the MNDNR. In this process I have been able to identify my own primary concerns. Thank you for the opportunity to share them in the following comments. I will focus on two sorts of issues: "A" (comments 1-4), relating to the science and logic of the SDEIS's proposal; and "B" (comments 5-9), considering issues of more philosophical and moral character, since this proposal raises primary questions of economic value, quality of life, and environmental justice in northeastern Minnesota. A. ISSUES PRIMARILY OF SCIENCE AND LOGIC. 1- The SDEIS states, "It is uncertain how long the NorthMet Project Proposed Action would require water treatment, but it is expected to be long term; actual treatment requirements would be based on measured, rather than modeled, NorthMet Project water quality performance, as determined through monitoring requirements. PolyMet would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions have been met." This statement does not make sense. Although the predictive model referenced in the SDEIS makes use of simulations in which water treatment may be required for 200 and 500 years at the proposed mine and plant sites, supporters of the proposed actions have been quick to point out that these are only modeled predictions, and that no one really expects that water treatment will be needed for that long. Yet SDEIS also states that no one does or can know how long water treatment will be needed, except to say that it is expected to be a long time. Polymet has been created as a corporation solely for the purpose of designing, operating, and, in approximately 20 years, shutting down this specific mining project. Based on previous histories of such ventures, no one can reasonably expect that Polymet will even exist "long term." Yet the SDEIS states that Polymet will be held accountable for post-closure maintenance and monitoring "until all conditions have been met." If it cannot be assumed that Polymet will exist to conduct long term maintenance and monitoring which Polymet does acknowledge will need to occur, then who, or what corporate or public entity, will be responsible for seeing this necessary activity through to an acceptable conclusion. It seems that Polymet must somehow be held accountable for this promise prior to the granting of any permits for its proposed action. Yet, exactly how can Polymet be held accountable prior to permitting for activities which are proposed to take place only upon and following closure of the mining project. It would seem that financial assurance instruments should provide such a structure of accountability. But who can accurately estimate how much financial assurance needs to be provided to underwrite post-closure maintenance and monitoring that is projected to be necessary for an indefinite period of time. If we do not and cannot know these things, how can we then have any assurance that anyone at all will be held accountable to mitigate and restore potentially damaged lands, wildlife, resources, and communities, quite possibly several generations, or even centuries, into the future. Such a claim is logically nonsensical. This question must be resolved in a sensible and understandable way prior to the granting of any permits for Polymet's proposed action. 2- The SDEIS states, "The level of engineering design and planning required to calculate detailed financial assurance amounts is typically made available during the permitting process and was not available at the time that this SDEIS was prepared." Polymet is therefore suggesting that concerns about financial assurance should be addressed during, and not prior to, the permitting process. I strongly disagree. It is only reasonable to require that Polymet provide ade

Paul Arhur Fleming 54531

As stated by Ted Kennedy: When will the greed end? Apparently never. As a 5th and 6th grade teacher I took my students to the Environmental Learning Center at Isabella and then Wolf Ridge MN each year. Instructing them in regards to conservation and protecting natural resources. This sulfide mining activity does irreparable damage to the water, wildlife and people living in the vicinity and outreaching areas. Hasn't anyone considered our children and grandchildren. Maybe not or they just don't care. It always comes down to the bottom line. Making wealthy people wealthier, and besides they won't have to live here. We do. Stand firm. Stay the course. Reject this proposel.

Paul Aslanian 46159

Dear DNR, For many substantial reasons I am OPPOSED to Polymet Acid Rock Mining in MN. Paul J Aslanian 1673 Princeton Ave St Paul, MN 55105 Thanks- PJA - Paul J. Aslanian Professor Emeritus, Economics Macalester College St Paul, MN 55105

Alphabetical by sender's first name

Paul Bauer 43586

I have reviewed the NorthMet SDEIS and was impressed by its thoroughness and professionalism. I have full confidence that the Minnesota DNR, the US Army Corp of Engineers, the US Forest Service and all other involved agencies can, and will, provide the needed oversight and regulation to allow safe, successful mining of the NorthMet Mining Project. We need the minerals. We need the jobs. And, we need the project to be done correctly. I am disturbed by the misreporting and misrepresentation put forth by the anti-mining interests. I want to see the project go forward, to be permitted, and to begin operations. Thank you. Paul S. Bauer 2479 Dunlap St N Roseville, MN 55113 612-719-7671

Paul Benwell 4514

I am a follower of the Polymet story and have been for a number of years .Management is very capable of moving this project forward .I have reviewed the SDEIS and am confident that everything has been addressed to the best of everyone's ability and that the permitting process should take place Thank you for your time Regards Paul Benwell 514-233-1036 Market Awareness and Introductions

4535

I have followed Polymet Mining for a few years and after visiting the site and listening to and questioning management I am very confident in their ability to move forward in a safe and secure manner. Thank you Paul Benwell and Associates 514-233-1036 Market Awareness and Introductions

Paul Danicic 40665

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity I appreciate the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described for the following reasons. A) Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mecha

Alphabetical by sender's first name

Paul Davies 52236

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Paul Davies 3110 E Chattaroy Rd #24 Chattaroy, WA 99003

Paul Densmore 42442

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Paul Densmore 3435 Colfax Ave S Apt 102 Minneapolis, MN 55408-4043 (678) 381-3341

Paul Doffing 45180

My name is: Paul Doffing 13100 Pleasant Pl Burnsville, MN 55337 Comment: The SDEIS needs to be corrected and added to in order to address issues of mapping and lack of financial assurance. The Environmental Impact Statement is deficient in that it inaccurately portrays the effects of the mine/ watershed on the 100 Miles Swamp Area. According to US Government maps, the One Hundred Mile Swamp downhill from the mine is 10-4 miles long and drains to both the Saint Louis and Rainy Lake (BWCA) watersheds but SDEIS maps show a shorter 5-5 mile long swamp that is missing the portion of the swamp that drains to the BWCA. Omitting the portion of the swamp that drains to the BWCA supports PolyMet’s conclusion that seepage of mine waste water to the BWCA watershed will not occur. Marking of important map features in such an obscure way may be seen as evidence of intent to avoid connecting an environmentally risky mine with the fragile and iconic BWCA wilderness. We, the community members of Minnesota, demand a longer public review period for the environmental impacts of PolyMet’s proposed sulfide mine, and are more assured than ever before of the detrimental effects it would have on the Boundary Waters wilderness and the nearby waters of our beloved state. Polymet cannot control the contaminants it will release in this mining project. We are unwilling to allow mining that will effect not only the health and livelihood of nearby citizens of out state, but also may damage our fragile and iconic wilderness areas. Maximizing profits at the cost of human health and the environment is a short sighted, self serving choice. If Polymet cannot give financial and scientific assurance that our environment will not be damaged by their mine, they should not be allowed to mine. Period. They cannot give this assurance. Paul Doffing mobile: 612-709-6722

Alphabetical by sender's first name

Paul Erdmann 41883

Ms Lisa Fay Project Manager, PolyMet SDEIS MN DNR – Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road Box 25 St Paul, MN 55155 Dear Ms Fay: My name is Paul Erdmann; I have a Bachelor of Science degree in Conservation. I have worked for many years to protect our environment, restore ecosystems, provide habitat for wildlife, and educate the public on environmental issues. I am deeply concerned about the proposed PolyMet mine. I have reviewed the NorthMet SDEIS, the Executive Summaries, and many of the factsheets. In general, my comment to you on this proposal could be summed up as "not here, not now." The SDEIS does not adequately address many of the environmental ramifications that would occur if the mine is approved, in a critical area of our country's National Forest- the headwaters of a watershed that many people are working to address environmental damage that has already taken place. I have chosen to focus my comments on the proposed wetland impacts and destruction that would occur or have the potential to occur if the project is approved. Although this SDEIS is vastly improved compared to the original DEIS, more work has to be done to ensure that our critical wetland resources are protected. The SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. Taking these points into consideration, I would propose that the SDEIS be revised or amended to include the following: 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage Our state has destroyed how many wetlands before we discovered the error of our ways. Our state continues to destroy and drain wetlands at an alarming rate. That we would now allow the largest permitted destruction of wetlands in Minnesota history is unconscionable and unacceptable. Even if PolyMet "mitigates" or "replaces" wetlands that are destroyed or damaged by this proposed mining activity at a ratio of 1 acre wetland loss to 1-5 acres of wetland "creation," studies and experience have shown that these newly created wetlands have only a portion of the biological and water quality value of the natural wetlands. The state of Minnesota, federal agencies, and local government units that regulate these activities do not have adequate staff, funding, or time to ensure that these mitigation wetlands provide as much value as the natural wetlands that took thousands of years to evolve. Thank you for the opportunity to provide input on the PolyMet SDEIS.

Paul F. Tanghe 11242

Sir or Ma'am- I am writing to oppose the proposed copper-nickel mine. I am a Minnesota resident and a political scientist specializing in the study of environmental agreements and common pool resource probleMs Any potential benefits of this project, which will be largely captured by the PolyMet corporation, simply do not justify potential environmental impacts whose cost will be born by the residents of Minnesota as well as the surrounding US and Canadian regions. Please do not allow this regulatory capture by the narrow interests of PolyMet. Thank you. Yours Paul Paul F. Tanghe PhD Student Sié Fellow Josef Korbel School of International Studies University of Denver paul.tanghe@du-edu

Alphabetical by sender's first name

Paul Finsness 35444

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I have seen the effects of sulfide mining at the Ray Mine near Kelvin, Arizona. Before mining companies fully appreciated the hazard they were creating there, rainfall resulted in sulphuric acid flow into Mineral Creek and the Gila River. As a commodity, the price of copper fluctuates widely. There is no guarantee that the PolyMet mine will be open for its projected twenty year life-span. The taxpayers of Minnesota will be required to protect the watershed for 500 years for a mine project that may not be viable for more than 5 years. Again, look to Arizona for the effect of fluctuating copper prices on the viability of copper mines controlled by foreign owners. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Paul Finsness 734 Larpenteur Ave E Saint Paul, MN 55117-2528

58093

Why isn’t this meeting interpreted for the hearing impaired?

Paul Forsman 18077

Hello. I'm Paul Forsman from Ely. I just wanted to make a couple of comments. I saw the land-exchange data, but I see from real estate, I'm a little bit involved, I think the corp service has done a great job are for us. And other things I wanted to say, we've talked about wetlands, here. I worked 30 years at the Minnesota mine here, close to Virginia, and when I was there, they came over this Gilbert Pit, six miles away, and the government, in their infinite wisdom, they said, we can't cross the swamps that made the headwaters in the Pipe River. We have to cross the river closer to where it's -- where we can cross it with one bridge and not ago across, put a quarter-mile extra in the distance to the mine were all in rock do, but at least we didn't disturb those headwaters for that river and everybody knows that we don't want to disturb those mosquito-breeding grounds, you know. We want as many mosquitos to breed as we can, you know, it's good for Minnesota. But the thing is, is that in that infinite wisdom for 25 years each haul truck that gobbles 100 gallons of fuel a day -- an hour, is going a half a mile farther than it had to, creating a greater carbon index than ever needed to be, so when you're thinking about, you know, the mining company has to pay for it, think of the environmental big picture. I think that's very important. I mean, maybe it's still the right decision, but you know, I kind of question it when you have to burn so much are carbon for that. The other thing I wanted to say is that when I worked at the mine, they were, you know, digging the big pit, getting the road and had their dumps and stuff, and I always thought to myself, you got all this big equipment running around. Can't we put a little forethought into maybe when we're digging these pits, maybe we can put the dumps above it, maybe design a ski hill in the future or a trout fishing pond, something that this land could be when the mines are gone, into something that would beneficial for the local economy? Put those kind of thoughts into your process of the -- of the EIS and not just what's mine, where they going to put it. Let's look at big picture in the long run and see if we can do this very right and be better than we've ever been before. Thank you.

Alphabetical by sender's first name

Paul Forsman 57339

My name is Paul Forsman. F-O-R-S-M-A-N. This would be directed at the DNR or the Army Corp of Engineers, I'm not sure who does the organizing of it. I worked at Arcelor Mittal Mining Company. When we came over to the Gilbert pit, the DNR, or whoever it is that signs this stuff, there was wetlands of the beginning of the headwaters of the Pike River that were going to get affected by it and the wildlife, and then the floodwaters of the Pike River. The government decided that if the mining company moved a quarter mile down the road, they could cross the river and not the wetlands, where the wetlands drained into the river, and that they could cross the river. It was a quarter-mile out of the way from a direct route to the new mine pit. So, to protect those wetlands, they went a quarter-mile out of their way to -- and they crossed at where it was actually a river, so it didn't affect the wetlands. I thought the government did the wrong thing in this way: They saved the wetlands, the swamp that is combined to make the headwaters of the Pike River, but they caused each haul truck to drive a quarter-mile further. And what is the – and greatly saved the wetland. Everybody likes someplace for the mosquitoes to breed. But they made each haul or each truck drive a quarter-mile or a half-mile farther per roundtrip. And those trucks burn a ton of fuel. And was the thinking right to save the ponds that make the headwaters? Did that justify wasting all of that extra carbon fuel to – to satisfy the environment? I don't -- I don't think that that was well thought out. I think that the environment was better off serviced if they just put culverts in over the ponds that they were crossing and maybe went the straight route. But grant it, you know, everybody says, "Oh, save the wetlands," and it is okay for to save the wetlands, and, "The mining company is going to pay, it doesn't matter," but you are going to have to think about the big picture though. All of the extra carbon that was burned to satisfy a wetland that really wouldn't have been more affected anyways. That's all I wanted to say. Thank you.

Paul Freese 54788

See attachment

Paul G Jorgensen 54522

1.How is this mine going to benefit me? Lower taxes?2.Are the citizens of Minnesota going to pay for cleanup after Polymet has left the state?3.When there is an accident, how is it going to be taken care of?4.Do the benefits outweigh the risks?

Paul Harcey 39625

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Paul Harcey 1703 Griffing Park Rd Buffalo, MN 55313-2028 (612) 860-2032

Paul Harman 23436

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, The month I turned 15, I traveled hundreds of miles from another state to northern Minnesota to canoe in the Boundary Waters Wilderness Canoe Area. My group and I spent a week canoeing on the lakes there, and getting our drinking water straight from them. Thirty-five years later, I consider my time in the Boundary Waters to be one of the highlights of my life. Do not let ANY company or organization pollute the land, water, or air of the Boundary Waters Wilderness Canoe Area. Paul Harman Sincerely, Paul Harman 331 Bellford Ct Cranberry Township, PA 16066-4403

Alphabetical by sender's first name

paul helbach 39315

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely paul helbach p o 152 brule 152, WI 54820 715 372 5027

Paul Hunter 38829

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Paul Hunter 2301 5th St NE # 2 Minneapolis, MN 55418-3503

Paul Jarvis 41996

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Paul Jarvis Rosemount, Minnesota

Alphabetical by sender's first name

Paul Jerome 40384

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Paul Jerome 5027 Strain Ct El Paso, TX 79924 US

Paul Johnson 46930

Paul Johnson 4351 Sheridan Ave N Minneapolis, MN 55412 I have studied the mine proposal and have decided that it is a poor deal for Minnesota for the following reasons: 1- The Canadian company and their Swiss financiers have a poor environmental recoRd 2- Recreational land is highly valued in Minnesota. Because of high natural runoff in the area the risk of major pollution would be high. If it happened I believe it is unlikely that any cleanup funds would be adequate to repair the damage. 3- After the mine closes the site may well have to be monitored for generations until the threat of pollution will have passed. Please take my concerns into account when deciding whether to approve the mine. Sincerely, Paul Johnson

Paul Laasko 3787

Dec 20, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. My family living in the Ely area over the years depended on the water and forest not just for recreation but for food on their table. When this area is disposed of for short term profit, that wonderful resource resource will be gone as well as the money. The enormous cost of (a doubtful) restoration and restitution will be borne by children not yet born for many generations. Please keep them in mind. Thank you. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Paul Laasko 4832 10th Ave S Minneapolis, MN 55417-1163 (612) 824-1284

Alphabetical by sender's first name

Paul Laasko 51857

Dec 20, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. My family living in the Ely area over the years depended on the water and forest not just for recreation but for food on their table. When this area is disposed of for short term profit, that wonderful resource resource will be gone as well as the money. The enormous cost of (a doubtful) restoration and restitution will be borne by children not yet born for many generations. Please keep them in mind. Thank you. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Paul Laasko 4832 10th Ave S Minneapolis, MN 55417-1163 (612) 824-1284

Paul Love 39690

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Paul Magee 42011

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. We should never authorize a project that will require several generations of monitoring and clean-up. We owe our children and grandchildren not to mortgage their futures. Sincerely, Mr Paul Magee 764 Lincoln Ave Saint Paul, MN 55105-3347

Alphabetical by sender's first name

Paul Martz 13948

I am writing today in opposition to the PolyMet mine. Many many many people, including my father-in-law and my sister-in-law, use enjoy the Boundary Waters. I do not believe for one second that the mining company will be around for the 200 years they say the waste water will need to be treated. Please do not threaten one of the upper midwest's great natural treasures. Sincerely, Paul Martz 2408 Chestnut St Harrisburg, PA 17104

Paul Nasvik 42898

To whom it may concern, Please accept my attached letter for inclusion to the public record against the Polymet Sulfide Mine Application. - Paul Nasvik 320 River Rd, Hudson, WI 54016

Paul Neimann 46135

Dear DNR, Putting the boundary waters, The Superior National Forest, Lake Superior, the St Louis River and other lands at risk for acid pollution as a result of mining copper is a poor decision and should not be taken. As a former resident of Pennsylvania, counsel for one of the largest coal companies in this country and as a person who has visited the coalfields of Pennsylvania, West Virginia and Kentucky I am familiar with the environmental damage caused by the acid derived from mining which for all practical purposes is permanent. The harm from copper mining will be no different. It is difficult to understand why we would put at risk our unique natural environment to create wealth for foreign corporations who will soon leave the state leaving the citizens with a permanent and ongoing mess to clean up. Every effort should be made to support a business environment which will create jobs, but not at the expense of our priceless natural inheritance. Thank You Paul Neimann HYPERLINK "mailto:Paulneimann@yahoo-com"Paulneimann@yahoo-com 2720 Glenhurst Ave S. Minneapolis, Mn. 55416 952 926 4254 _____ HYPERLINK "http://www.avast-com/" This email is free from viruses and malware because HYPERLINK "http://www.avast-com/"avast. Antivirus protection is active.

Paul Nelson 38830

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, As a Minnesotan, I regularly travel to the Boundary Waters and northern Minnesota for camping, fishing, and outdoor activities. It would be a terribly short-sighted plan to risk one of the only truly natural environments that Minnesota has left for the sake of a few hundred jobs. If PolyMet's proposal was more reasonable, I could see how this would be a difficult decision. However, knowing that 500 years of water treatment will be needed makes their proposal almost laughable. 500 years ago Columbus had just sailed to America, the Renaissance was still taking place, and Shakespeare hadn't even been born yet. To think of potentially ruining an environment, or at least making it a place that requires constant clean-up, for the next 500 years so that a business can make a profit is not a responsible use of our state's resources. I urge you to reject the proposed PolyMet mine. Not only is the PolyMet mine a bad idea, but it would establish a dangerous precedent of allowing new mining interests into Minnesota nature. I want better than that for the future of Minnesota. Sincerely, Mr Paul Nelson 2004 Edgerton St Maplewood, MN 55117-2112

Alphabetical by sender's first name

Paul Nelson 41962

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Paul Nelson 1531 Madison St NE Minneapolis, MN 55413-1426 (612) 781-8054

43520

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The financial assurance section of the SDEIS is inadequate and needs to be changed to reflect details about how much money would be required to pay for cleanup and in what form it would be held. In 2010, the US Environmental Protection Agency called PolyMet's first draft Environmental Impact Statement "inadequate." One significant reason was that the 2010 DEIS did not show that financial assurance would be enough to cover the cost of long-term water treatment at the site. "EPA believes that the adequacy of financial assurance for these activities could make the difference between a project adequately managed over the long-term by the site operator, or an unfunded or underfunded contaminated site that becomes a liability for the federal government and the public " As your revise the SDEIS, please take the following actions: 1) Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs in the current draft 2) Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for hundreds of years of water treatment 3) Identify other responsible parties (eg major investors like Glencore) that will be held responsible for long-term cleanup should PolyMet go bankrupt or be unable to meet their obligations 4) Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation for the what would constitute adequate treatment Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. To whom it may concern, which in my opinion is the entire state of Minnesota and its future citizens. I have carefully examined the available evidence both for and against the Polymet proposal for a copper sulfide mine in Northeastern Minnesota. It is my opinion that at this time this project should absolutely not go forwaRd We as a state are not in a good position to trust that Polymet and its associates will be able to provide us with the environmental and financial assurances that we absolutely need to have before a permit to Mine is granted. One question that has been asked over and over and has gone unanswered is "Please give us an example of this type of mining that has not contaminated the watershed." No one has been able to show an example. Saying that this will be the first copper sulfide mine that won't contaminate the watershed and pollute the air is unacceptable. We have never mined copper in Minnesota and based on the fact that there is currently a global surplus of copper and nickel right now tells me that the risk isn't worth the rewaRd Particularly when it comes to who will actually capitalize the most on this project if it were to go forwaRd There is little in this for the state of Minnesota or its workforce. I know people on the range need jobs but this will not change the economy on the range based on the number of jobs it would create. This is also not a typical range project so it is very likely that many of the jobs created wouldn't be filled by locals. It is well known that Polymet has never operated a mine before but their largest shareholder Glencore has with a very bad history of contaminating the communities that it has mined. I think that they will not be able to guarantee 200-500 years of financing for monitoring and treating the water at both the plant and mine sites. The only thing I would consider guaranteed by them as that they will maximize profits for their shareholders, which is the primary mission of any for profit corporation. Jobs will be kept at an absolute minimum. I have yet to see an economic impact statement that wasn't created by the company itself in a best case scena

Alphabetical by sender's first name

Paul Nelson 44763

To whom it may concern, which in my opinion is the entire state of Minnesota and its future citizens. I have carefully examined the available evidence both for and against the Polymet proposal for a copper sulfide mine in Northeastern Minnesota. It is my opinion that at this time this project should absolutely not go forwaRd We as a state are not in a good position to trust that Polymet and its associates will be able to provide us with the environmental and financial assurances that we absolutely need to have before a permit to Mine is granted. One question that has been asked over and over and has gone unanswered is "Please give us an example of this type of mining that has not contaminated the watershed." No one has been able to show an example. Saying that this will be the first copper sulfide mine that won't contaminate the watershed and pollute the air is unacceptable. We have never mined copper in Minnesota and based on the fact that there is currently a global surplus of copper and nickel right now tells me that the risk isn't worth the rewaRd Particularly when it comes to who will actually capitalize the most on this project if it were to go forwaRd There is little in this for the state of Minnesota or its workforce. I know people on the range need jobs but this will not change the economy on the range based on the number of jobs it would create. This is also not a typical range project so it is very likely that many of the jobs created wouldn't be filled by locals. It is well known that Polymet has never operated a mine before but their largest shareholder Glencore has with a very bad history of contaminating the communities that it has mined. I think that they will not be able to guarantee 200-500 years of financing for monitoring and treating the water at both the plant and mine sites. The only thing I would consider guaranteed by them as that they will maximize profits for their shareholders, which is the primary mission of any for profit corporation. Jobs will be kept at an absolute minimum. I have yet to see an economic impact statement that wasn't created by the company itself in a best case scenario sensibility. There seem to be a great number of questions that have to be answered before a permit to mine is granted. These questions remain unanswered up to this point and therefore a permit should not be issued. If you can expect technology to change significantly in the years to come than let's wait until technology is advanced enough to do this safely. Copper will undoubtedly be worth more in the future and perhaps we can get a US company to do this so it's better for all of us in terms of economics as well as environmental and public health. These are the most obvious problems within the current SDEIS "The PolyMet mine plan is riddled with problems that must be fixed: PolyMet would require hundreds of years of expensive treatment of polluted water PolyMet would destroy thousands of acres of habitat used by threatened moose and lynx PolyMet’s mine plan lacks analysis of human health impacts from mercury and asbestos-like fibers PolyMet’s studies contain inaccurate water data that need to be corrected There are many more problems with PolyMet's mine plan. All we want is to make sure that any sulfide mines opened in Northern Minnesota are safe, clean, and don't leave taxpayers with a bill. If we don't get this right the first time, the next 17 generations of Minnesotans will have to live with the consequences." The world keeps getting smaller and I think most of us Minnesotans feel that this is in our backyaRd I'll ask again to find an example of this type of mining that hasn't contaminated the watershed. It's a simple question that no one has been able to provide an answer to. The risk must not outweigh the rewaRd Right now it's not worth it. We need absolute guarantees that they will finance and clean up the mess that this WILL create. In the not too distant future good, clean water wil

Paul Neslund 9715

I would like to state my support for the mining project Polymet is attempting to get started. I grew up in the area, my Father worked as a machinist at the Erie location, I wish I would have had the same oppertunity to stay in the area. The beauty of the area was compromised 150 years ago by open pit mining, but the area has recovered and is still some of the best the state has to offer. If Iron ore had not been allowed the outcome of two world wars would have been in question. The lessons learned through open pit mining in the past is only going to achieve success without hurting the enviroment. The jobs created, and the product produced are both critical to the area and to the world. The people of the area should have the most influence, not the Metro area, not the State politicians, or Politicians in general. Let the local people decide, not the enviromentalist who don't live in the area. Thank you, Paul D. Neslund 16787 100th St Oak Park, MN. 56357

Alphabetical by sender's first name

PAUL PUTTLITZ 41634

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Paul R Iversen 54799

See attachment

Paul Roth 7046

Dear Sirs/Madams, I am against the proposed PolyMet mine near Babbitt. Preserving and protecting Minnesota’s natural environment is more important than the profits of a mining company. Clearly, no one knows what will need to be done, and how many hundreds of years it will need to be done, to keep the witch’s brew of effluent from poisoning water, soil, and air. It’s as if the mining company proposes to dump radioactive waste on the ground and hopes the state will let them figure out later exactly how to contain it. The mining company will cease to exist long before the site loses toxicity and the ability to ruin the environment. The state of Minnesota will be left with an environmental train wreck, and the citizens of the state will have no choice but to pay for containment and remediation. Please do not allow this project to happen. Sincerely, Paul Roth 3985 Balsam Lane N. Plymouth, MN 55441

Alphabetical by sender's first name

Paul Sanford 22073

Greetings, I support proceeding with the environmental impact study approval for Polymet. From what I see they have gone above and beyond expectations by making superb efforts to control risk of environmental danger. The sooner we get the Polymet project going the sooner we are not dependent on foreign powers for our badly needed copper used In clean energy production. Thank you Paul Sanford MD 3112 E 1st St Duluth, MN 55812 This St Lukes communication is intended for the use of the person or entity to whom it is addressed and may contain information that is privileged and confidential, the disclosure of which is governed by applicable law. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering it to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this information is prohibited. If you have received this message in error, please notify sender immediately.

Paul Sasik 42077

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Paul Sasik Minnetonka, Minnesota

Paul Schlaefer 39726

To whom it may concern, I am strongly opposed to the polymet mining proposal. It is my opinion that mining in this area with present technology is risky to the water quality. Clean water is the states most important asset and we need to be assured that future generations can drink it safely. More work needs to be done on the environmental impact of storing poluted waste safely in this fragile area. Like any big corporation, Polymet's primary concern is profit for it's shareholders. // Please see that my great great grandchildren are not effected by unwise decisions. Sincerely, Dr Paul Schlaefer

Paul Schrieber 44475

Hi, I just want to say that I do not agree with what PolyMet wants to do in Northern Minnesota. My Family has had a cabin on McFarland Lake(proposed land swap area) for 60 years. Although it is a great Land Swap proposal to McFarland lake area. I feel the bigger picture is not worth the environmental impact that this open pit mine can do. Please say no to the mining. Paul Schrieber 319 3rd Ave S. Cold Spring, MN Sent from my iPhone

Alphabetical by sender's first name

Paul Schurke 18075

Thank you. My name is Paul Schurke. I'm from Ely, Minnesota and I'm very proud, especially tonight, to be an Iron Ranger; just to be here and be part of the due process and democracy is extremely heartwarming and gratifying, I'm sure, for all of us, and it speaks heartily to how seriously we're all taking this matter because we need jobs and we need water and we need the beautiful environment that we call home. And I'm very proud to be representing, I think, those issues that we all share in common, here, tonight. My wife, Susie, and I, as you may know, we operate a couple of businesses in Ely and have for some 30 years. We founded Wintergreen Northern Wear 30 years back, along with Wintergreen Dogsled Lodge on White Iron Lake. Wintergreen Northern Wear was sold to another family five years ago and it sadly has just recently gone out of business, but I'm pleased to share with you tonight that I'm hopeful to rebooting it next spring to bring those jobs back to our town, just like the jobs we were able to offer through our dogsledding lodge now. But tonight's issue is not about that, it's about our concerns about the PolyMet Project and the EIS involved, we've all had a chance to review now. And I think we all agree that water, the purity of our water and the integrity of our lakes in the future is central to that issue and my key concern in that SDEIS, is if we're relying on the scientists as our great Commissioner, Mike Forsman with you and I share with him that I rely on that science and am counting on that science to be right because our future and the integrity of this ecosystem depends on that science, and I'm here to share with you, as many of you may know now, there are some significant flaws in the science on which the SDEIS is based. Most prominently, I feel, are the graphs and tables, particularly those, if I might cite from the report, Table 4.2.2-9 and others that compare the flow into Partridge River with which they have projected through their computer modeling and it is fatally flawed and the DNR has acknowledged that and it's a significant serious error and how well this SDEIS is going to give us a picture of what's can become of the water quality in these lakes and streams in the future to come. The values used in the modeling significantly are at odds with the latest data from stream flows. It has been acknowledged by the DNR as a serious flaw. The modeling has failed -- failed to predict what is currently known for its own existing standards being flow, how can we possibly rely on the same computer modeling to predict what's going to happen in 200 or 500 years. It simply can't be done. And again, I think we agree that water quality issues are central to this issue. Furthermore, particularly disturbing to me, is the fact that tribal scientists, that's the Grand Portage Band and the Bois Forte Band, have been telling the scientists working on this project for years that the groundwater data on the flowage of the Partridge River is seriously flawed, that they're off. Nobody knows better what's going on in the ground out there than the tribal folks, but somehow their input has been disregarded right along in this process. The scientists who were putting that modeling together were wrong -- the first SDEIS, now, they've got it wrong again. How can we trust them to get it right on the third go round? If we are to rest assured that the water -- (clapping) -- the data must be measured accurately.

Alphabetical by sender's first name

Paul Schurke 47232

Lisa Fay, EIS Project Manager DNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 FR: Paul Schurke, 1101 Ringrock Road, Ely, MN 55731 RE: PolyMet SDEIS Response To whomever it may concern: I am a resident and business owner in Ely, MN. I believe the PolyMet SDEIS is inadequate and that this destructive project must not proceed as currently proposed because of the 1) widespread and severe environmental damage inherent in the PolyMet project and 2) the failure of the SDEIS to include a cost/benefit analysis and specific provisions regarding amounts and sources of financial assurance. I believe the Supplemental Draft Environmental Impact Statement is inadequate in the following areas: 1) Economic Impacts -The SDEIS contains no cost/benefit analysis of the PolyMet mine. - The SDEIS does not say whether wages paid to mine employees will stay in Minnesota or whether they will go primarily to transient employees who will spend only a fraction of their income in Minnesota. The SDEIS does not discuss the impact of the loss of jobs when the price of copper declines and mining becomes unprofitable, although it acknowledges that such job loss is inevitable: "Mining-related employment is volatile and fluctuates from year to year due to the market price of commodities being extracted." SDEIS, 4-325—4-326- The SDEIS fails to assess the cost of unemployment benefits and other social services, increased crime rates, and other societal costs associated with volatility in employment. - The model used to calculate the alleged economic benefits of the mine does not take into account the costs to the environment; the displacement of other economic activity, including among other things tribal rights to hunt, fish, and gather under the 1854 Treaty; the infrastructure, government, and social service costs resulting from the mining; and the consequences of the unpredictable influx and outflow of mine employees. - What would be the costs for public infrastructure, lost opportunities to engage in other economic activities incompatible with mining, depressed real estate values, lost recreational opportunities, social upheaval, and perpetual clean-up that the public would be required to bear. 2) Permanent Water Pollution -PolyMet admits that water pollution by sulfuric acid and heavy metals will last for at least 500 years. -Not all of the polluted water will be captured for treatment. Annually, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated. -The SDEIS fails to adequately assess the long-term impacts of the pollution resulting from the release of this untreated water. -The computer model used by PolyMet may understate the actual pollution impact, because it has been shown to be inaccurate in representing current conditions for water quality around the mine site. 3) Absence of Planning for Inevitable Accidents and Failures -The SDEIS fails to provide contingency plans for the kinds of failures and mishaps that routinely occur in mining operations. During operations, at least 6-2 million gallons of polluted water would need to be treated every day. Pipeline spills, accidental releases, failure of water collection and treatment infrastructure, and tailings basins failures are virtual certainties. And because the provisions regarding financial assurance are so plainly inadequate (see below), the SDEIS does not tell us how the costs of responding to such failures will be covered. -The SDEIS provides no details on the impacts to water quality, wildlife, or human health if the water treatment system ceases operations at some time during the 500+ years during which the polluted water is being discharged. The Mine Plan Requires an Absurd and Unachievable Level of Monitoring and Maintenance for Many Centuries -Minnesota

Paul Smith 22028

I have owned Polymet shares for over 4 years. I believe in the project, domestic material resourcing and creating jobs. Polymet has patiently responded to all the requirements set before them for the environment. The company will be a good steward I am certain. Damage to the environment is always a sensate issue. Though the years we have witnessed so many damaging events whether caused by man or nature. I am always amazed how well we are able to respond and improve for the future when these occur. Hopefully, not a problem in the case of Polymet, but should issues arise, their sensitivity to the issue will minimize damage and expedite reparation. More can not be asked of them than that. Sincerely, Paul Smith, MAS Chairman, Calconix, Inc. 821 Aubrey Ave, Ardmore PA 19003 USA 610 642 5921 Fax 610 642 5928

Paul Stolen 54517

See attachment

Paul T Mullen 57267

The Boundary Waters is one of the last places on this planet that humans can confidently expect to find all natural, unspoiled wilderness. We need to protect that with our lives, if necessary. Let's wait! There will be safer extraction methods in time if we still need these minerals. Don't let money gain unfair access to our lawmakers as it usually does.Paul T. Mullen3017 Hillsboro Ave SoSt. Louis Park, MN 55426

Alphabetical by sender's first name

Paul Tine and Sherry Phillips 42883

Attached are our comments on the NorthMet SDEIS. Sherry Phillips Paul Tine' 2102 Elo Road Brimson, MN 55602

Paul Underland 18165

My name is Richard O'Brien. I'm a 40-year member with Local 49 Operating Engineers. I would like to cede my time to Paul Underland who is with Minnesota Power. Paul. Good evening. My name is Paul Underland; and I'm from Aurora, Minnesota. I care about the environment and I support the PolyMet project. I also own land that is in the Partridge River Watershed where I have enjoyed outdoor activities with my friends and family. This land has been in our family for generations. It holds a very special place in our hearts. It's where my dad took me hunting and fishing when I was growing up; and it is where I have taken my kids to enjoy the same outdoor activities; and where I plan to introduce my grandkids to the outdoors. It's unacceptable to me to have this pristine area impacted. I'm also an engineer, and I believe in technology and the benefits of it. PolyMet is using proven mining technology and proven water treatment technology in their processes. The SDEIS also uses proven technology in developing the models used to determine if there will be any environmental impacts because of this project. The SDEIS is adequate and covers all impacts. Thank you to the DNR, Army Corps of Engineers, and the US Forest Service for doing a thorough job. There's a couple items from the SDEIS that have been taken out of context by opponents of this project. First, part of the SDEIS modeling has recently been challenged. The amount of groundwater flow that has been added to the Partridge River this was originally measured at .5 cubic feet per second. New data now shows that (inaudible) between 1.3 and 1.6 cubic feet per second. This does not mean the SDEIS is wrong, because part of modeling is using a band of flow ranges. In doing so scientists plug in lower numbers than .5 cubic feet per second and numbers as high as 2.4 cubic feet per second. And even at the higher level, the model showed no negative impacts. In other words, this new data is not likely to change the assessment of the project relative to the project's ability to meet water-quality standards. Second, others who do not want mining in our state are trying to create fear and doubt by saying the mine is going to require water treatment for 500 years. That's not what the SDEIS says. The models weren't designed to accomplish this, nor is it what they indicate. The models were actually designed to determine the impacts to water quality at key reference points in the watershed, not the length of water treatment. This SDEIS is clear on this matter, and it shows that even 500 years from now water-quality standards will be met. Because of the diligence of PolyMet and the sound application of science and engineering it has been proven that there will be no environmental impact to the area that I and others cherish. Thank you.

Paul Vonharnish 17020

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Let's just face it: The proposals to further degrade the environment for ANY mining operations is patently insane and suicidal. It is obvious that the water tables in Minnesota and Wisconsin are both extremely vulnerable to pollutants spreading through ancient underground aquifers. Permanent moratoriums on all mining operations should become mandatory. Further studies are a waste of money, and you know it. The majority of citizens in Northern Minnesota are firmly against this process. Why should you or any other agency have the power to supercede the will of the people you supposedly serve. It is also obvious that any profits derived by these environmentally exploitive enterprises, will never be seen by the citizens of Minnesota, much less the American people. These profits are leached out of our economy and go right into the coffers of international banking cartels. These cartels don't give a damn about clean water or the rights of States to reject these activities. Put an end to this planetary rape, and quit flogging a dead horse. Sincerely yours, Paul Vonharnish Paul Vonharnish 11 E 3rd ST Grand Marais, MN 55604

50294

Dear Ms Fay, Mr Bruner and Mr Dabney: Let's just face it: The proposals to further degrade the environment for ANY mining operations is patently insane and suicidal. It is obvious that the water tables in Minnesota and Wisconsin are both extremely vulnerable to pollutants spreading through ancient underground aquifers. Permanent moratoriums on all mining operations should become mandatory. Further studies are a waste of money, and you know it. The majority of citizens in Northern Minnesota are firmly against this process. Why should you or any other agency have the power to supercede the will of the people you supposedly serve. It is also obvious that any profits derived by these environmentally exploitive enterprises, will never be seen by the citizens of Minnesota, much less the American people. These profits are leached out of our economy and go right into the coffers of international banking cartels. These cartels don't give a damn about clean water or the rights of States to reject these activities. Put an end to this planetary rape, and quit flogging a dead horse. Sincerely yours, Paul Vonharnish Paul Vonharnish 11 E 3rd ST Grand Marais, MN 55604

Alphabetical by sender's first name

Paul Wagner 58170

I am writing to voice my strongest possible support for the proposed PolyMet mining project. As Chairman and CEO of a thriving, high-technology Minnesota firm, I speak from first-hand experience regarding the significant challenges - and opportunities - our state faces with regard to sustaining a healthy competitive economy in a globally-competitive market. I have toured the Poly Met facility and understand the rich history and suggested changes. Leadership is in place to secure strict adherence to environmental concerns. I have participated in many trips deep into the BWCA and have a sincere appreciation for passing this virgin wilderness on to my five kids. I look forward to a more vibrant north-woods that PolyMet will bring. The PolyMet project represents an opportunity to not only help the state remain competitive, but to lead. Minnesota Wire truly understands leadership in the technology sector: the company has no equal in obtaining federal R&D contracts, achieving a capture rate on proposals eight times the national average; and operating one of only three Advanced Defense Technology Clusters in the nation, funded by the U.S. Small Business Administration (SBA). We understand that a vibrant economy demands constant, aggressive pursuit of opportunities like the PolyMet mining project. This type of mining will help to broaden a state economy that has lost much of its technology diversity over the past generation. Not only will the mines be a source of critically-needed metals to growing and emerging industries; but they will also help to create jobs in a region that has struggled to contribute to the economy, but remains eager to do so. We cannot afford to let this level of opportunity pass us by- especially given that the exhaustive environmental review has led to overwhelmingly positive results. Our company respects, and in fact is an integral part of the state's proud history of environmentalism; but in this case the economic development benefits derived far outweigh any of the concerns for negative outcomes, as the review makes clear. Minnesota needs to be aggressive with its economic development efforts given the relentless acceleration of a global technology market. This company has certainly done so, and we expect that the rest of the state would follow our example and move ahead with the Poly Met mining project. We stand ready to support the effort in any way we can.

Paul Walker 11333

Dear Ms Fay, Statement of Dr Paul O. Walker My name is Paul Walker. I live at 4115 Reiland Lane in Shoreview for about half the year and the other half I live at 1372 Trygg Road in Eagles Nest Township on Eagles Nest Lake. At the last DFL Convention in 2012, the session opened with a prayer from an Anishinaabe leader. However, shortly afterwards, the candidates quickly abandoned any consideration of Mother Earth and began kowtowing for the support of the loudest Iron Range clique. Although in and around Ely, the local support seems to running in favor of those who are willing to sacrifice Mother Earth in favor of 200-300 short term, twenty-year jobs many of which will be filled by non-Minnesotans, there are plenty of us that view this proposal for mining as a dangerous and foolhardy operation, especially when the usable yield is only 1%, leaving 99% as contaminated waste. Nowhere on this planet has copper-nickel, sulfide mining been done without contaminating the waters. And this contamination is eternal, or if you believe the EIS requiring reverse osmosis for "only" for 200- 500 years. I might offer a reminder that Minnesota has only been a state since 1858, that is 156 years. How can any reasonably bright person believe that PolyMet or whom-ever their real owners are, will carry out reverse osmosis in this fragile eco-system, for 200 years at the mine and 500 years at the plant. It is unfortunate that this debate is taking place during an election year when Klobuchar, Franken, Nolen and Dayton are all playing politics with the environment. If PolyMet is allowed to sufide-mine, the aquifers and watersheds of the Ely area will be eternally polluted and thus, sadly cause the eventual demise of the BWCAW and the tourism industry. This will be the legacy of Klobuchar, Franken, Nolen and Dayton. They truly should be ashamed. Glencore, a company headquartered in Switzerland funds Polymet. Glencore's history of world-wide wanton disregard for the environment and human rights atrocities, including child labor, are well documented. Does Minnesota want to get in bed with a company such as Glencore. I urge Governor Dayton, the Department of Natural Resources and the US Army Corps of Engineers to protect Minnesota's fresh water and the BWCAW by rejecting Polymet's proposal. My hope is that someone in the Department of Natural Resources will demonstrate an environmental ethos and compass and will see the foolhardiness of this proposal and not allow it to proceed. If I had confidence that the DNR was infallible, I'd be a bit more comfortable, but I don't. There have been too many bad decisions over the years. Paul Walker 4115 Reiland Lane Shoreview, MN 55126 651-484-8789

Alphabetical by sender's first name

Paul Winslow 38250

Paul Winslow 237 7th Ave N. Hopkins, MN 55343 I am writing to express my concern about moving forward with the PolyMet mining proposal. The proximity to the BWCA is one of my primary issues. I value the pristine environment of the BWCA above the temporary nature of the proposed mine. Twenty of years of mining will have long lasting effects on the environment of the BWCA as run off from the mine finds its way to the watershed, and adds acid to the water flowing to the BWCA. I want the BWCA to last forever, and the short term nature of 20 years of mining and 500 years of clean up. Please consider these issues when deciding on the PolyMet mining proposal. Paul Winslow

Paula Allmaras 7149

I am adamantly opposed to a copper mine in Superior National Forest Lands. Acid mine drainage would pollute surrounding water. ADM's leach out heavy metals toxic to fish and humans. I am not willing to risk the boundary waters, Lake Superior or any ground water close to the proposed copper mine for a million jobs. Paula Allmaras

Paula and Jim Nessa 39797

As a grandmother I think about our grandchildren's future. Worry that the pristine sanctity of our northern Minnesota is being traded away for a few jobs. Our son and his friend canoed the boundary waters improvising a surf and turf menu for their first meal. They brought in steak and caught some crawfish. Will his children ever be able to do that. We have to think long term, not just 20 years. Will the mine owners be there to continue the clean up when the mine closes and there is no income from the copper ore. They have failed to do this in other operations. We need to know how much income the state will receive in exchange for the ore. Sincerely, Paula J. Nessa 588 Mt. Curve Blvd. St Paul, Minnesota 55116

Paula Angela 21612

Paula Angela, 8279 560th St, Pine City, .MN 55063

21614

No mining should be permitted as high risk of environmental damage. Minnesota needs to protect our natural resources and not give way to corporate interests and the flimsy guise of job creation. Thank you.

Paula Bidle 48479

PolyMet Mining Corp. has proposed large open-pit mines on 67,000 acres of Superior National ForeSt If permitted, these mines would leave behind sulfide-bearing waste rock that could result in sulfuric acid mine drainage and would require treatment of polluted water for hundreds of years. While PolyMet will provide a few jobs for a few years, the overall deal is that they will profit immensely from the project, while leaving the people of the state of Minnesota to deal with clean-up and healthcare costs due to water pollution for years after PolyMet is no longer in existence. This is not a viable project. Please use your influence to “just say no” to it on both moral and economic grounds. Sincerely, Rev. Paula Bidle MInneapolis

Paula Connolly 42478

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Paula Connolly 3338 Bryant Ave Anoka, MN 55303-1453

Alphabetical by sender's first name

Paula Frakes 15907

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Paula Frakes 529 84th LN NW Coon Rapids, MN 55433

Paula Gregg 4533

Dear Sirs, I am a resident of Minnesota and a voter. I want specifics on how PolyMet will pay the costs of treatment in the centuries to come, for the residual rock and water contamination. This is something I do not want the MDNP and the federal agencies to delay in getting; the specifics for the financial assurances of how PolyMet will pay the costs of treatment in the centuries to come. Minnesota law prohibits permits to mines that require perpetual maintenance after closure. Perhaps the mine itself will not require treatment for undisclosed centuries, but the treatment plant and its rock and water residue will go on in perpetuity. How many other mines will send their rock to be treated at this treatment plant. Yes, it is better to only have one treatment plant, but what will be the result to Minnesota in the centuries to come. You can't be naïve enough to think they are putting all this money into the treatment plant to only treat the rock from one mine. Get the financial specifics before this goes any further. Thank you. Paula B. Gregg 13517 315th Street Cannon Falls, MN 55009 651-258-4170

Paula Kay Pettit 54552

I feel our precious waters are too valuable to take any chances with unproven mining techniques. I strongly oppose the Twin Metals mining project proposed by PolyMet. Our water is our most precious resource.

Alphabetical by sender's first name

Paula Kwakenat 357

Dec 10, 2013 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Paula Nelson 47031

To Whom it May Concern; PLEASE do not allow this dangerous mining to take place in the Arrowhead. The destruction of beautiful land and the years of pollution simply cannot be justified. I own a cabin in the Superior National Forest which I hope will be around for future generations. Please do what you can to block copper/nickel sulfide mining. Thank you. Sincerely, Paula Nelson 972 Saint Clair Avenue St Paul, MN 55105 651-698-4152

Alphabetical by sender's first name

Paula Okerstrom 18948

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Michael Okerstrom Paula Okerstrom 2537 34th Av. So. Minneapolis, MN 55406 612-724-2729

Alphabetical by sender's first name

Paula Okerstrom 18952

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to say that you need to extend the comment period for all of us Minnesotans that need MORE TIME to consider the destruction ahead of us. My cabin is located in your ground zero area, and because I work, and have a family, and other things in life to tend too, I need more time to study this complicated impact statement. Many other people also need more time, as you know, it took you guys quite some time to put it together too, right. Don't rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Mike and Paula Okerstrom Minneapolis, MN 55406 Paula Okerstrom 2537 34th Av. So. Minneapolis, MN 55406 612-724-2729

Paula Slomer 39774

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Paula Slomer 103 Windsor Dr Butler, PA 16002-3832 (724) 282-7504

Alphabetical by sender's first name

Pauline Gowing 13150

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, I am from Australia. I am highly concerned about this habitat being compromised. We only have one world. We need to care for it and it's inhabitants. Once gone there is no getting it back. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Pauline Gowing Sincerely, Pauline Gowing 69 Wharf Road Johns River, None 02443

Pauline Laybourn 31676

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Stop your profit machine from destroying our planet. Note these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. It is sickening to see what power corporations have to destroy our planet. All for PROFIT and GREED. Too many risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Pauline Laybourn PO Box 205 Bagdad, FL 32530-0205

Pauline Wahlquist 39368

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Pauline Wahlquist 10979 State Highway 23 Brook Park, MN 55007-4726 (320) 679-0879

Alphabetical by sender's first name

Paulissa Jirik 38706

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Paulissa Jirik 222 Wentworth Ave W Apt 203 Saint Paul, MN 55118-3858 (651) 450-9012

Peder Gear 41907

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Peder Gear 167 Congress St W Saint Paul, MN 55107-2151 (651) 494-4740

Alphabetical by sender's first name

Peder Otterson 14888

7113 Muirfield Lane Eden Prairie, MN 55346 01 February 2014 I'm sorry I wasn't able to attend any of the public meetings, but have the following comments that I wish you to consider. I am a retired DNR hydrologist who began his work with the State of Minnesota on the Regional Copper Nickel Study in the mid-1970's when I was hired as a research scientist to do field studies in the Babbitt area where USS and Minnamax had some interest in copper nickel mining. Much of my work centered on the waste rock stockpile at the Dunka Pit of Erie Mining Company where the copper sulfide bearing rock of the Duluth Gabbro was stripped to access the underneath taconite. We monitored the leachate coming from the waste rock stockpile that was high in dissolved metals and sulfate. We tracked it through surface flow and subsurface flow through an adjacent bog to Bob Bay in Birch Lake. We monitored other sites including the Minnamax test site. We also put in groundwater observation wells and collected lake sediment samples and tested them for trace metals. This was all part of a much broader study that included field sampling of biota, flora, air and water quality, mining, sociology, etc If done now, it would probably be called a "generic EIS." DNR Minerals under the leadership of Paul Eger led the work that I was involved in. Bruce Johnson up at Ely did most of the extensive field monitoring. The UM School of Civil Engineering under professors Eisenreich and Hoffmann conducted bench studies of bog samples to determine the adsorption capability of the peat to take up the trace metals found in the leachate. My point in mentioning all of this is that there is a wealth of base line information that was gathered nearly 50 years ago that might help answer some of the questions that the current proposal to mine leave hanging. I would like some assurance that all the good work done on the Regional Copper Study was not in vain. Secondly, as a former Area Hydrologist for NE Minnesota and a person who was born in Duluth and spent much of his youth in NE Minnesota and the area that later became the BWCA, I have my own personal and professional observations that I wish to share based on my work with the Regional Copper Nickel Study, review of the Reserve Mining Company court case and general love for NE Minnesota. I can remember when Silver Bay and its islets were all that was to be seen there. I also remember the effects that the dumping of tailings had upon Lake Superior. Anyone could easily see the effect as much of the lake became a turquoise color because of the suspension of the fine sediment in the water. As a geologist, I would say the closest parallel would be in the small lakes and streams that are fed by glacial meltwater. "Rock flour" we called it. Who knows what effect it had upon the habitat and biota of Lake Superior. However, that alone would not have prevented Reserve Mining from continuing to dump its tailings into Lake Superior. It took the added health risk of the asbestiform fibers found in the tailings to finally force Reserve to move to an inland site at Milepost Seven to dump its tailings. How does that relate to the PolyMet proposal. Unforeseen consequences. A casual reading of the reports and discussions around them suggest to me that much is still unknown to allow this new and potentially hazardous operation to proceed without a strict set of checks and balances to guard against unexpected consequences that might topple the fragile ecology of the area that is already stressed by global climate change. While on the Copper Nickel Study, I also reviewed studies of other northern sites where mining of sulfide ore was either proposed or had taken place. Sudbury, Ontario, stands out as a worst case example of what a smelter can do to the surrounding countryside. One begins to see the effects on the vegetation hundreds of miles from the smelter. Closer

Peg Apka 20037

Dear DNR and anyone else who will listen What is the percentage of the world's fresh water through and from the Boundary Waters. Over the years I have heard percentages from 15 percent to 20 percent. Does any of that water flow into Lake Superior. And how much of the fresh water is contained in Lake Superior 15%, 25% more. How could we even think of having a project in Minnesota that would take a chance on polluting a third or more of the world's fresh water. I do not believe it is possible to proceed with this mining project and not cause pollution. And I do not understand how a mining company would have the resources to provide for clean up costs for 500 years. If they had that kind of money up front why don't they put it into research to find alternatives to these precious metals so we would not have to mine so close to our clean water. And if Polymet did have the money to cover costs for 500 years, does anyone really believe that it is really possible to clean up all the lakes and shorelines that would be affected. It is not logical that this could be done. One could imagine it on paper, but the physical reality of the magnitude of such a clean up paints a different picture. Is the DNR not supposed to help us protect our natural resources and use them wisely. Please help us out and do what is necessary to prevent this mining. Thank you Peg Apka 7940 Pequaywan Lake Road Duluth MN 55803

Peggy and Larry Smith 54567

In a few short years our water will be worth more than any mineral mined from the earth. If mining, FRACKING and drilling equals water pollution—we are against it. We won't be here to see the destruction, however, our children & grandchildren will.

Alphabetical by sender's first name

Peggy Endres 38901

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, Money: even the hogs won't eat it. What we do affects everyone's ability to live on the earth. I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Peggy Endres 943 Wilder St S Saint Paul, MN 55116-2026

Peggy Knapp 46527

Dear Lisa, and others making the decision on the PolyMet proposal- What is more important than water. Nothing. This is not a trick question. The proposal by Polymet puts water at risk, now and in the future. There is no good example anywhere on this planet of a facility such as the one proposed by Polymet that has not left a legacy of pollution behind. At a time when water resources are being depleted, when the state of MN is already struggling to reduce nitrogen, phosphorus, sediments and other system-wide pollutants, it is sheer lunacy to permit mining on this scale, and in such a fragile area. I urge you in the strongest possible terms to deny the Polymet project to proceed. Respectfully submitted, Peggy Knapp

Peggy Rae Hodil 57144

DO NOT ALLOW POLYMET MINING IN MINNESOTAPeggy Rae Hodil15 N. Chester PkwyDuluth, MN 55805

Alphabetical by sender's first name

Peggy Smith 42260

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Peggy Trezona 7737

To Whom It May Concern: I appreciate being able to register my grave concerns regarding the environmental damage that Minnesota is risking if the Polymet mine is allowed to proceed. The fact that water treatment will need to continue for many years post-mining reflects the gravity of the risks to our watershed and the health of human beings. I do not believe that increased jobs for a couple of decades can offset hundreds of years (maybe longer) of damage to the environment. I was born on the Iron Range. My family was in mining for generations. I have seen the ups and downs of the economic health of the Range over the last 50 years. And, I still believe that the short term uptick in jobs is just not worth the very high risk of long term grave environmental damage. Peggy Trezona

Pehrson Lodge 36707

I am resending message to be included in future correspondence. Eric Hanson 1512 Vermilion Rd Duluth, MN 55812 HYPERLINK "mailto:vacation@pehrsonlodge-com"vacation@pehrsonlodge-com Thank You, Eric Begin forwarded message: From: Pehrson Lodge Subject: Polymet coment Date: March 2, 2014 at 12:29:35 PM CST To: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us To whom it may concern, I feel the value of water as a critical resource will only increase over time. Our water resource will, hopefully, provide for hundreds of generations to come. I think it is very unwise to risk the well-being of many generations to come over 20 or 30 or 40 years of profits. We need to be thinking in terms centuries. To seriously consider the Polymet proposal, Polymet must be able to absolutely guarantee that they will not negatively impact our water resource, and I do not believe such a guarantee is possible. Please do not permit this, or other sulfide mining efforts in the Lake Superior watershed. Thank You, Eric Hanson

Alphabetical by sender's first name

Pehrson Lodge 36737

To whom it may concern, I feel the value of water as a critical resource will only increase over time. Our water resource will, hopefully, provide for hundreds of generations to come. I think it is very unwise to risk the well-being of many generations to come over 20 or 30 or 40 years of profits. We need to be thinking in terms centuries. To seriously consider the Polymet proposal, Polymet must be able to absolutely guarantee that they will not negatively impact our water resource, and I do not believe such a guarantee is possible. Please do not permit this, or other sulfide mining efforts in the Lake Superior watershed. Thank You, Eric Hanson

Penny Cragun 40178

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Our water is far too precious. I want my grandchildren and future generations to be able to enjoy safe water. Sincerely, Ms Penny Cragun 927 N 8th Ave E Duluth, MN 55805-1425

42602

See attachment

Penny Fuller 37527

Mar 1, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. Historically there has never been safe operation of the mines in the sense of how the environment is impacted (aside from the safety of workers). Furthermore those financially benefitting from the mining are never held accountable in a meaningful way (equal recompense when the inevitable contamination occurs). There is no evidence that this would be any different. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Please don't give in to the pressures from those who stand only to benefit from this move. Protect our lands and water. Sincerely, Mrs Penny Fuller 4106 Burton Ln Minneapolis, MN 55406-3638

pepe 45088

It is absolutely *SHOCKING* that Minnesota is even considering allowing the PolyMet mining project. Even a cursory review of the facts-and of history-show clearly that it is likely to result in environmental catastrophe. And to take such a long term, high stakes gamble for so few jobs created. It is truly beyond comprehension. There are other states I would expect to cave to narrow private interests, veiled in supposed "job creation", but Minnesota is not one of them. - Stephen Pepe pepe@alumni.brown-edu

Alphabetical by sender's first name

PERRY CARPENTER 14846

Feb 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Personal Gmail 41731

Lisa, The state of Minnesota does not have the right to gamble with our health. As everybody knows, sulfide mining causes long lasting water pollution that can cause serious health probleMs Given the agency for whom you work, you might also know that tourism is the leading economic industry in our state. And people aren't vacationing here because of our dirty, polluted waters, but rather to escape the filth they probably live in in their home state. Maybe you and your supporters should reread the fable, The Goose That Laid The Golden Egg. There is a good lesson in there for you. Do your grandkids proud and stop PolyMet, Dan Roberts Sent from my iPad

Pete Fleming 15412

Attached is a comment on the Polymet sDeis. _____
Pete Fleming 6517 Crackleberry Tr Woodbury,MN 55129 tel: 651-459-0658

Alphabetical by sender's first name

Pete Pellinen 40817

My name is Pete Pellinen, 724 16th Street North, Virginia, MN 55792- There seem to be inconsistencies between agencies regarding acceptable levels of metals and chemicals in water systems, and what is acceptable. Regardless, I believe that levels are beings researched, and will be controlled. With the State requirements imposed in Minnesota, and developing techniques for mining, I trust that a system can and will be created that will successfully extract the metals, while protecting our waters and air. If such a process can be developed, it will probably only happen here, in Minnesota, but, it can then be used by operations in other parts of the world so that they can clean up their act. As a resident of this region, owning land on the Embarrass River, and a frequent visitor to what is now known as the Boundary Waters Canoe Area Wilderness, I am concerned that these resources be protected. I believe they can. Thank you.

Pete Seng 39337

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. We don't need a future "SuperFund" site in Minnesota. Northeast MN is blessed with pure clean water that flows north to Canada and east to Lake Superior and beyond, and I would like to keep it clean and safe for future generations. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Pete Seng 4522 Drexel Ave Minneapolis, MN 55424-1130 (952) 915-9030

Pete Stauber 18111

My name is Pete Stauber, S-T-A-U-B-E-R. I live in Hermantown, Minnesota. I'm a married father of four. And I'm a St. Louis County Commissioner. Thank you for bringing your delegation here to allow us to have this civil process. I'm tired of hearing the untruths from the anti-mining crowd that the water treatment will be required for 100 years and cost billions of dollars. From what I read in the SDEIS that is a gross exaggeration. On pages three and four of the SDEIS it states, "It is uncertain how long the NorthMet project proposed action would require water treatment, but it is expected to be long term. Actual treatment requirement will be based on measured rather than modeled NorthMet project water quality performance as determined through monitoring requirements. PolyMet will be held accountable to maintenance and monitoring requirements and would not be released until all conditions have been met." It does not say, "treatment will be required for 500 years." It says "treatment will be determined using measured results." Which is the way the law is designed to responsibly handle it. Isn't that logical? The SDEIS shows that PolyMet built and operated a piling reverse osmosis water treatment plan to show that it can successfully treat the kind of water it will have on the project. The plan worked. It's proven technology that's been used in lots of other municipalities and industrial applications. PolyMet has been working with regulators for nearly 10 years to ensure compliance. Any holes that were discovered during the EIS have been addressed in the SDEIS. The SDEIS is a clear reflection of PolyMet's and the agency's work to develop a successful copper-nickel mine bringing an important investment to St. Louis County. I'm confident based on the SDEIS that water quality standards will be met for many generations of the mine and plant site; and that mining will not compromise the beauty of the area or our natural resources. I hope the DNR will listen to its own scientists and not the fabrications from the anti-mining crowd. I have confidence in the environmental review process and faith in the regulations and regulators to hold the company accountable. Mr. Commissioner, the good Lord has blessed this region with these precious metals. They are ready to be mined by our working men and women of Northeastern Minnesota. Our men and women need the jobs. The range delegation of the building and trades, the Duluth area of trades are the best men and women to work it. Thank you.

Pete Vanderlinden 21533

My name is Peter Vanderlinden. I am strongly opposed to Polymet or any other mining near our precious wet lands and water resources here in MN. If you have any other information for me as a Minnesotan in love with our state parks and wetlands as far as how to better oppose this I am all ears. Thanks for your time, Peter Vanderlinden, RN, BSN

Alphabetical by sender's first name

Pete Wohlers 15001

Greetings, We have a permitting process in place. If that process is followed and a business provides all necessary information the permits should be approved. Polymet has gone above and beyond what they should have to. Please approve this project and issue the proper permits. Sincerely, Pete Wohlers 28566 East Bass Lake Road Grand Rapids MN 55744 Pete Wohlers Industrial Lubricant Company HYPERLINK "http://www.industriallubricant-com/"www.industriallubricant-com 35108 Hwy 2 West – Grand Rapids, MN 55744 Cell: 218-259-3115 – Office: 218-328-0278 HYPERLINK "mailto:pwohlers@indlube-com"pwohlers@indlube-com IND_LUBE_v5

Peter A Sethre 42775

See attachment

Peter Alan Haugan 57233

I remember a sense of toxicity in the people from its northern industrial cities. Those cities have been cleaning up and hopefully the next generation will be healthier. Heavy metal contamination makes a real and negative effect in people's lives. To create a situation of long term heavy metal pollution costs a lot in people's pain and suffering. Have the company pay more or better yet, only allow that kind of toxic mining.If the government does it and the profit goes to the people – perhaps for the U.S. debt?Peter Alan Haugan1161 Oakcrest Roseville, MN 55113

Peter Berridge 40615

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I know the message contains a lot of technical information. Bottom line, regardless of the specifics above, this type of mining is unsafe, detrimental to our ecology - which we value highly in Minnesota - and is not worth the small number of jobs that are produced for such a limited period of time. You'll be remembered for the actions you take now. Sincerely, Mr Peter Berridge 2522 Lost Lake Rd Mound, MN 55364-1679 (952) 472-2386

Alphabetical by sender's first name

Peter Borchard 24547

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Attention Polymet Corporation: Whoever it was that originally came up with the whole idea about Murphy's Law must have been thinking about modern industry in general and the Mining Industry more specifically. To promise the population of where they are planning to work that there won't be any accidents or harmful pollution is pure fantasy. And the purity of Lake Superior is a very fragile thing. Back in the 1960's when the pollution of Lake Erie was setting off alarm warnings all over the Midwest and adjoining Canadian region people were warning that it would take 30 or 40 years to clean up, and they were right. But it was only possible because Lake Erie had three bigger lakes with 8 or 9 times more water upstream to clean it out . We won't get that kind of chance with Lake Superior. Lake Superior it at the "headwater" of the Great Lakes system of our water supply and would take over a hundred years for Mother Nature to clean out. My children and grandchildren don't have that kind of time to spare; and I'm sure they don't want to risk the possibility of developing cancer or some other hideous health problem. How about you people at Polymet . Do you or your families want to risk your good health by digging up some more strong chemicals out of our earth. I think the price of a loved one's health is higher than I would want to risk. Sincerely, Peter Borchard 1420 E Lowden Ln Mt Prospect, IL 60056-2608 (847) 921-0037

peter bormuth 43002

Dear DNR Please accept the attached document as my public comments on the proposed NorthMet Mine and SDEIS I would like verification that you received this document and that it is being included in your file. Peter Bormuth

Peter Branca 54165

I do not support this mining. This is a mass mailing by MPL CEO Alan Hodnik who is also on the board of directors for PolyMet. This mining is not safe and this company has no financial backbone to mine safe or for cleanup cost. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

57342

My name is Peter Branca. I am from Duluth, Minnesota. My concern is twofold: One is the financial stability of PolyMet. I happened to look at PolyMet's stock today and it is selling for 1.01, or just over a dollar a share. My other names, like Apple, is 500 some dollars and Google is well over a thousand. I checked the financials of PolyMet and over the last ten years, their stock has been only as high as $4.50. Since I'm not a financial analyst, I'm not sure what this all means. But common sense would tell me it has very little financial stability. Especially for the long term. As well as how can they meet the cost of a consequence, a negative consequence or pending lawsuits? Since this is a very risky and expensive operation and has inherent dangers over the years, I feel very uncomfortable having a company come in to -- since I am a stockholder in the State of Minnesota -- come into my state, with little or no financial reserves to back them up. Also, I've been to Utah and Arizona, where the vast majority of copper mines are in this country, and they're three-quarters of a mile to a mile and a half deep, and the reason why is they don't have a water issue. Their water table is not a factor. In Minnesota, where PolyMet will be mining in a literal swamp, with literally no water table, and my feeling is the consequences will be severe to this, regardless of the amount of osmosis and filtration or holding ponds and pits. Fine metals will seep through the ground, into the water table, into the rivers, and eventually into Lake Superior. Since I'm a stockholder in the State of Minnesota, I feel the consequences well outweigh the gain.

Alphabetical by sender's first name

Peter Brask 4778

Here is a copy of a note I sent to the people opposing the Polymet expansion. I FIRMLY believe in approving the copper/nickel expansion at Polymet. Thanks for allowing me to comment. Here is the link I responded to http://www.miningtruth-org/thank-you/#.UsiZTRx7QwY My Note .. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine SHOULD be built as described. This mine SHOULD be allowed to be built and expanded. Just remember, EVERYTHING we have in our advanced society is either mined or grown. We need both. Once we allow special interest groups to influence major decisions, just as this, we are doomed to become a third world country. If we didn't mine the iron ore, resources from northern Minnesota in the early 1900's, we would not have been able to build the ships and planes that allowed us to win WW-1 and WW-2- The copper and nickel resources in northern Minnesota are still a very important resource to our entire country - not detrimental to a few environmentalists that think the project that would ruin the northland. The small number of environmentalists should not be allowed to influence the rest of the residents, workers, and support infrastructure that is in place to ensure that the mining is done safely and in compliance with our guidelines and laws. Just look at Minntac . 1400+ jobs and they are on the road to expansion. Polymet would provide jobs and tax revenue with the copper/ nickel expansion and contribute, not deter from tax revenue. I am not an "Iron Ranger". I am just an informed realist that understands the impact to our future and economy. Bottom line When Polymet gets to expand, we MUST ensure we have procedures in place to ensure they comply with our pollution guidelines. Thank You for allowing me to express my opinion.. Best Regards, Peter Brask Peter Brask Minnetrista, Minnesota

Peter D Doran 54725

See attachment

Peter Doughty 47235

Mar 12, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. It comes down to this: Assurances of corporate ability and intention to provide for cleanup of "possible" spills, as long as necessary, are ludicrous. If the long view is to preserve and protect the vital northern waters upon which ecological health and human life depend, then the only sensible course is to refuse to allow any sulfide mining operation in the region. Sincerely, Mr Peter Doughty 3617 Architect Ave Minneapolis, MN 55418-1207

peter faure 42232

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr peter faure 34 st mary st tarxien, CA 90210-4119

Peter Fleischacker 18236

My name is Peter Fleischacker, F-L-E-I-S-C-H-A-C-K-E-R. I'm really troubled by this because there appears to be no way that the public is assured that their response to the whole issue is even considered. I think it's a done deal and this is a farce, and I'm really troubled by that, and I hold the media and the politicians responsible for that, and that's really all I have to say. I'm just here to see what happens.

Peter Fleischhacker 58095

I can't think of anything that is worse than this. 300? Jobs? And all the profits go where? The only support seems to be from the unions. What!!! They must not know that their days are numbered. Commenting on the SDEIS? What a joke. The DNR is already sold on the project. Real Problems. A) Children born with pollution in their system. Everything else is gravy. We do not need this in any form.

Alphabetical by sender's first name

Peter Gemuenden 20047

Thanks for your continued efforts to bring a final date for conclusion. Please stay the course and approve the Polymet project. Sent from my iPhone Kindest Regards. Pete Gemuenden 1202 W 8th St Duluth, Mn 55806

Peter Gesell 18371

I'm Peter Gesell. I live in Duluth. And I'm going to cede my time to Michael Dahl.

Peter Harle 41912

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Peter Harle Minneapolis, Minnesota

Peter Henry 54731

See attachment

Peter Krause 18382

Thank you to the regulators for bringing this hearing to Duluth. And thank you to the members of the Northland communities for coming and attending here today and staying along. My name is Peter Krause. I'm from the Duluth area. My concerns are not based on hard science, like parts per billion of water purity. Rather I am concerned with the social and historical factors. 500 years. Even if it's only 200 years, future generations are not going to be pleased to be committed to cleaning up this mess. As in the past, great changes are bound to happen. Wars, changes of government, climate change, civil collapse. Future generations may not even be able to maintain the system nor schedule of monitoring and repair. Failures and accidents happen. Just this last week in West Virginia and before that the BP spill in the Gulf, Exxon in Alaska, Three Mile Island, Chernobyl. The list is endless and inevitable. Copper-nickel has had nearly 100 percent failure rate in Montana, Canada, and around this globe. This is a great risk and the Boundary Waters we are gambling with. We are playing with high stakes for short-term gain. I strongly encourage rejection of this plan. Thank you. Good night.

42640

See attachment

Alphabetical by sender's first name

Peter L. Gove 9618

I attended the St Paul hearing last evening and picked up a copy of the executive summary. I noticed on the Figure I map, there is a category for "national park" and a portion of Voyageurs National Park is noted on that map. However, Isle Royale National Park is not on the Lake Superior map and while several of the Apostle Islands are on this map, the Apostle Islands National Lakeshore is not noted. While the Grand Portage reservation is on the map, Grand Portage National Historic Site is not. I also question why the several state parks located on Lake Superior are not on this map. Perhaps in the full document there is a map with these key federal and state natural resources located in the impact area from this project included. However, given the potential impact to Lake Superior from surface and groundwater sulfide pollution from this project, I suggest these designated federal and state protected areas be included. Thank you. Peter L. Gove 14 Pearson Place North Oaks, MN 55127 P 6513408080 F 6513408081 C 6512465939 pmgove@comcaStnet

Peter M Leschak 42785

See attachment

Peter Mattson 38610

Mar 11, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I grew up in a hard-rock underground mining area in Upper Michigan. There is still acid mine water from several mines closed 100 or so years ago discharging into the Iron River, which ends up in Lake Michigan. The mining companies are long gone. That story is repeated in every location where sulfide mining is done. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mr Peter Mattson 28072 550th Ave Austin, MN 55912-6580 (507) 567-2570

Peter Mitchell 54814

See attachment

Peter Molenda 44640

To Whom it May Concern, I forgot to include our contact information on the email I just sent. Peter and Rosalise Molenda 5209 Drew Ave S. Minneapolis, Mn. 55410

44668

To Whom it May Concern, We are deeply concerned about the damage to Northern Minnesota that would probably occur if PolyMet is allowed to mine various minerals. That area of our beautiful State is a National treasure, allowing both Minnesotans and citizens from across our country a chance to experience a true wilderness experience, with clean water and air a gift to all. We believe that allowing PolyMet and others to mine in Minnesota, creating a limited number of local jobs for a limited period of time, is not nearly enough to counterbalance the long term negative environmental impact such mining would have on that area. In addition, such mining would probably have a detrimental effect on the tourist trade that Northern Minnesota relies upon to help keep the area economically viable for those who currently live there. We ask that the DNR reject such mining in Northern Minnesota for the good of all Minnesotans, those here now and future generations. Sincerely, Rosalise and Peter Molenda

Alphabetical by sender's first name

Peter Murphy 42475

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, It would extremely reckless to allow a mine such as this to threaten the pristine environment of the North Shore. I have vacationed up there for 30 years and appreciate the area's unique offerings. There has never been a mine of this size that has not caused damage. They can not assure that THIS ONE IS DIFFERENT. It is folly to think so. The gamble is not worth it. There won't even be that many jobs in automated operations like this. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Peter Murphy 4851 5th Ave S Minneapolis, MN 55419-5642

Peter O'Gorman 40618

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Peter O'Gorman 2224 3rd St White Bear Lake, MN 55110-3211

Peter Oja 38356

To Whom it May Concern, My name is Peter Oja and I just wanted to email my support of Polymet Mining. I grew up in northern Minnesota and know how important mining is to the north. I know that area is in a great need for jobs and this provides that opportunity. I know that with mining there is negatives, but in this case I feel that the positives are what we should concentrate on. Thanks for your time, Peter

peter pawlowski 39909

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr peter pawlowski 1209 E. Hennepin Ave MInneapolis, MN 55413

Alphabetical by sender's first name

Peter Pfarr 16080

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Peter Schurke 48121

Dear Ms Fay, I was born and raised in Ely, Minnesota and I am a biology student at the College of St Scholastica in Duluth. I am very concerned about the effects this proposed Copper Sulfide mining project will have on the waters near my home. Ely is not very far away from PolyMet’s mining site. It is expected that lead in PolyMet’s tailing basin seeps will be 5 times or more higher in groundwater than the levels currently are. At the LTV tailings basin manganese is already far above Minnesota’s health risk limit, but that is also expected to increase by 45 percent. All of this is in the SDEIS pg 169 of Chapter 5- Lead in drinking water is known to cause brain damage. Manganese in drinking water causes neurological damage and can reduce IQ in children. This is very concerning to my family and me as PolyMet’s SDEIS reports of 27 residential wells downstream of the tailings basin. Citizens just downstream of the tailings basin will be drinking this water; some of the wells already have high levels of toxic metals. SDEIS Chapter 4- The SDEIS does not contain any analysis of whether or not pollution from the tailings basin could affect these wells. The SDEIS must be redone to analyze the potential impacts of tailing basin seeps to groundwater of the wells that my family and friends drink from. Why has there not been an analysis of this dangerous pollution to the drinking wells of Minnesotan citizens just downstream from the tailings basin. What is protecting the water that my family, friends, and I drink, year round day after day. Peter Schurke 1101 Ring Rock Road Ely, MN 55731 2183656022

Peter Seppanen 42677

See attachment

Alphabetical by sender's first name

Peter Smead 38911

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The fact that PolyMet needed to underwrite the high school hockey tournament as a PR move tells me this is not a good deal for Minnesota. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Peter Smead 4704 Hibiscus Ave Minneapolis, MN 55435-4002 (612) 226-8213

Peter Spooner 39615

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Peter Tanghe 10934

To whom it may concern I am writing to oppose the proposed copper-nickel mine as it is planned. I am a Minnesota resident and previously lived in Ely, MN. Any potential benefits of this project, which will be largely captured by the PolyMet corporation, simply do not justify potential environmental impacts whose cost will be borne by the residents of Minnesota as well as the surrounding US and Canadian regions. I am concerned that the changes to air quality and the watershed do not seem to have enough safeguards to protect myself, my neighbors and our natural resources. Please do not allow this regulatory capture by the narrow interests of PolyMet. Thank you. Pete Pete Tanghe 234 Ryan Ave St Paul, MN 55102 http://files.dnr.state.mn.us/input/environmentalreview/polymet/sdeis/fact_sheets/cumulative.pdf The information included in this e-mail message, including any attachments, is intended only for the person or organization to which it is addressed. This e-mail message may contain information that is privileged or confidential. If you receive this e-mail message and are not the intended recipient or responsible for delivering the message to the intended recipient, you may not use, disseminate, distribute or copy the information included in this e-mail and any attachments. If you received this e-mail message by mistake, please reply by e-mail and destroy all copies of this message and any attachments. Thank you.

Peter Thibault 54137

I don't believe that PolyMet's project design and controls will keep the environment safe. We can live without the mine but we need clean water. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Peter Thompson 54653

See attachment

Peter Uzelac 54900

See attachment

Alphabetical by sender's first name

Petyer Dziuk 19078

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: Its not a moment to rush when a project such as this that can have an environmental impact for centuries- long after you and I will be dead. I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Peter M. Dziuk Petyer Dziuk 1590 Long Lake Road New, MN 55112 651-262-8654

Pewter Katts 39461

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Pewter Katts 1027 16th Ave SE Minneapolis, MN 55414-2409

pham thihoa 40879

Dear Sir, I'd like to express strong opposition to any mining permits in the vicinity of the BCWA. It is a pity that this is happening and I sincerely hope that you will consider the many years of the future. Minnesota is precious because of its waters. Water is short everywhere. Please protect the waters and the living species that depend on waters, most of all us. Thank you. Pham Thi Hoa 8729 bentwood drive EP MN 55344

Alphabetical by sender's first name

pharmbw tds.net 46569

I believe there is no way that PolyMet can mine for 25-35 years and then guarantee there will be funds available to cleanup any pollution spill up to 500 years in the future. The cost to our children's future and environment is too great a risk. We can't let this happen. Graden R West, Rebecca A West, PO BX 422, 15625 56th St NE, New London, MN 56273, 320 354 5373

Phil Bergh 42706

See attachment

42708

See attachment

54887

See attachment

Phil Chambadal 38733

Mar 11, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Mr Phil Chambadal 151 W 17th St New York, NY 10011-5414

Phil Hogan 45263

To: Lisa Fay, MDNR Project Manager, There has been considerable hope placed on reverse osmosis to control sulfide mining pollution. Reverse osmosis is not a filter process, it is essentially a separation process. It separates an input stream of polluted water into two output streams, one being almost pure water, and the other being a stream of water in which the pollutant is more concentrated. The total amount of water contained in the two output streams is the same as that contained in the input stream, and, more importantly, the total amount of pollutant contained in the concentrate output stream is that same as that contained in the input stream. The reverse osmosis process does not reduce the total amount of pollutant. Of course the output of the pollutant concentrate stream could be further concentrated by further passing it through a second reverse osmosis process, but the total amount of pollutant remains the same, just further concentrated. So the important question is what happens to the pollutant contained in the final concentrate stream in which the total amount of pollutant has been concentrated but not reduced, . How is the concentrate stream processed. In what form will it be. How much will there be. How will it be handled, used or stored, and where will its final resting place be. Who will be responsible to perform this task of processing the output concentrate stream, and for how long. What will be the total operation, maintenance, and replacement costs for the life of the need for pollution mitigation. Respectively submitted, Philip A. Hogan 1902 Pine Tree Trail Ely, MN 55731

Alphabetical by sender's first name

Phil Larson 18323

Hello. My name is Phil Larson. I reside in the City of Duluth. I am a fifth generation resident of Northeastern Minnesota. And many of my – in all five generations we have worked in the resource industry. I work in the resource industry today. So I understand how important the resource industry, mining, and logging, are to our way of life. I'm proud to live in the state of Minnesota, which has adapted some of the most stringent environmental laws and regulations in the world, in particular with regards to mining. A lot of comments have been directed toward the environmental consequences of this project. And that is part of this SDEIS. However, there is also an aspect of the need of the project. And the only thing I have to say about that is this: Since PolyMet initially submitted their environmental scoping document in 2004 -- they've been in some form of environmental review for 10 years now -- the population of the US has grown by 24 million. We know that per capita copper consumption in the United States is about 12 pounds per person. PolyMet is projected to produce -- just doing the calculations on my calculator, so correct me if I'm wrong; but they are projected to produce about 72 million pounds of copper a year. The number of people who have come into our country in the last 10 years, more than -- will more than consume the additional production that PolyMet will bring to the market. And the reason I say this is it's important to understand that we need -- we are global citizens. We live in a world where we consume resources. And we can consume them from here at home where we control the process. And we have control over how things are done. And we can step in and correct things when there are problems or we can consume these resources from a global market where we have no control over that. And I think it's our responsibility to take this into consideration in this EIS. Thank you.

42998

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay, The following constitute my comments on the NorthMet Mining Project and Land Exchange SDEIS. I touch on a number of topics; for your convenience I have organized comments according to the section of the document to which they refer. Please do not hesitate to contact me if you desire copies of some or all of the documents I reference. Best Regards, Phil Larson Senior Geologist Duluth Metals Limited 306 W Superior Street, Suite 610 Duluth MN 55802 M: +1-218-491-1378 email: plarson@duluthmetals-com

Phil Ledermann 10702

Dear Ms Fay, Dear DNR, From a relatively uninformed but interested citizen, the SDEIS does not sound well done. How can an accurate prediction of long term impact be made when the science does not seem sound. I am very concerned that long term impacts are addressed now not 20-30 years from now. On the other hand I understand the need to gather materials for our industries and provide good jobs. Please reject the PolyMet NorthMet SDEIS as inadequate and require the study to be re-done with more realistic and recent data. Sincerely yours, Phil Ledermann Phil Ledermann 534 Saratoga St S St Paul, MN 55116

51494

Dear DNR, From a relatively uninformed but interested citizen, the SDEIS does not sound well done. How can an accurate prediction of long term impact be made when the science does not seem sound. I am very concerned that long term impacts are addressed now not 20-30 years from now. On the other hand I understand the need to gather materials for our industries and provide good jobs. Please reject the PolyMet NorthMet SDEIS as inadequate and require the study to be re-done with more realistic and recent data. Sincerely yours, Phil Ledermann Phil Ledermann 534 Saratoga St S St Paul, MN 55116

Phil Martens 42429

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I have my entire life traveled to the North Shore of Superior on vacations and believe it is one of the most beautiful and pristine places on our planet. The PolyMet mining project is unacceptably dangerous to the environment environmental risks and should be stopped. In a state known for its lakes we already have countless that are polluted and damaged by chemicals to an unacceptable level. PolyMet will do the same I have little doubt. And even with substantial 'protections' in place and 'allowable and non-harmful levels' of the pollution they will inevitably produce, it only takes one accident to damage the lake and surrounding areas for hundreds even thousands of years. Please do not allow this in our state. It is in the welfare of all the animals, the health of the boundary waters and the ever growing tourism industry to that area that you block PolyMet. Sincerely Phil Martens 3401 NE Lincoln St Mpls 55418 Sincerely, Dr Phil Martens 3401 NE Mpls, MN 55418

Alphabetical by sender's first name

Philip Hult 31985

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. An open pit sulfide mine will release toxic metals into our rivers and groundwater for hundreds of years - long after the products are spent and buried in landfills. PolyMet's own study says that the water from the mine site would need at least 500 years of treatment.[Marcotty, Josephine, "Iron Range mine could pollute water for up to 500 years," StarTribune. 7 October 2013-] I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Philip Hult 401a County Road 2425 N Mahomet, IL 61853-9704

Philip Rampi 16792

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Philip Rampi 2150 Jefferson Avenue Saint Paul, MN 55105

Alphabetical by sender's first name

Philip Rampi 50138

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Philip Rampi 2150 Jefferson Avenue Saint Paul, MN 55105

Philip Ricketts 38800

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Philip Ricketts 2025 Zealand Ave N Golden Valley, MN 55427-3344 (763) 546-6790

Alphabetical by sender's first name

Philip Rogosheske 39058

---Original Message--- From: pvrogo@gmail-com [mailto:pvrogo@gmail-com] Sent: Tuesday, March 11, 2014 12:03 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Philip Rogosheske 517 9th Ave S Saint Cloud, MN 56301-4238

Alphabetical by sender's first name

Philip Spensley 40206

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Philipp Gross 47269

Philipp Gross 666 Hague Ave, Apt 1 Saint Paul, MN 55104 USA HYPERLINK "mailto:philipp@theneighborhoodwoodshop-com"philipp@theneighborhoodwoodshop-com (651) 233-0242 To whom it may concern, I am, as many, deeply concerned with the proposed sulfide mining project of Polymet. Following are my comments regarding the SDEIS: 1) Water quality The SDEIS states: "Both mechanical and non- mechanical treatment would require periodic maintenance and monitoring activities. Mechanical water treatment is part of the modeled NorthMet Project Proposed Action for the duration of the simulations (200 years at the Mine Site, and 500 years at the Plant Site). The duration of the simulations was determined based on capturing the highest predicted concentrations of the modeled NorthMet Project Proposed Action. It is uncertain how long the NorthMet Project Proposed Action would require water treatment, but it is expected to be long term; actual treatment requirements would be based on measured, rather than modelled" My concern is that all this is just based on modelling software and does not state any real world experiences. Who ran those models and how reliable are they. How is Polymet held responsible to the long term water treatment. Is it not true that Polymet has formed recently and actually has not earned any money yet and is likely to file bankruptcy after the proposed mine site closes (no more income). How much money do they put aside for the clean up and if any where are the estimates that this money is enough for the worst case scenario cleanup needs. What does long term water treatment mean, 10 yr, 50 yr, 500 yr. If we don`t know that should we not figure this out first. 2) Jobs/ profit The SDEIS states: "According to PolyMet, the NorthMet Project Proposed Action would create up to 500 direct jobs during peak construction and 360 direct jobs during operations. These direct jobs would generate additional indirect and induced employment, estimated to be 332 additional construction-phase jobs and 631 additional operations-phase jobs. Indirect and induced effect employment numbers are calculated by IMPLAN and may include temporary, part-time, full-time, long-term, or short-term jobs. While some skilled workers would be involved only temporarily and would possibly relocate from outside the region, the majority of the NorthMet Project Proposed Action-related jobs are expected to be filled by those currently residing in the Arrowhead region." Besides the point that I do not think that this is even close to the number of jobs that would justify the risk I would like to see what those jobs are, how well they are getting paid (each position). It mentions further: "Federal, state, and local taxes would total an estimated $80 million annually. During operations, there would be approximately $231 million per year in direct value added through wages and rents and $332 million per year in direct output related to the value of the extracted minerals. As with employment, these direct economic contributions would create indirect and induced contributions, estimated at $99 million in value added and $182 million in output." These numbers mean to me that the profit margin of Polymet is huge for only so few workers. If the argument is that we need these minerals for survival/ green energy etc should we not figure out a way how Minnesotans profit the most of these minerals. And maybe this means that the operation should be run by a non-for profit company or even the state and all the theoretical "profit" should be put in a trust fund until clean up is completed. I would still be very critical of any copper mining in Minnesota but at least I would know that the business is not just ran by the principle of maximising profit for share holders. 3) Policy Last but not least I would like to propose that a decision like this (permit or not) should be made by the majority in a voting procedure. In addition to this we need to make sure that the voters ar

Phillip A. Lermon 7447

MN DNR Please accept this comment on the proposed copper/nickel mine. This proposal reminds me of the runnup to the Hinkley fire and disaster when large corporations came to take all available lumber resources without thought for the future. The companies came in and gave no thought to the slash left behind as long as production and profits flowed. Then when the trees were gone and the slash started burning the lumber companies were long gone, leaving destruction and death to the local population. Freedom Industries in West Virginia is recent example of private companies not able to ever pay for the destruction they cause when poisoning the environment. This proposal is not economically feasible when the future costs are added to the picture. Once it is up and running there will be ways for Poly-Met to pay off regulators. Phil Lermon

Alphabetical by sender's first name

Phillip Sterner 18959

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Phillip Sterner 7373 147th Street West, #158 Apple Valley, MN 55124 6127512973

Pho Lay Thao 54207

I think it's a bad idea to mine near the boundary waters because the boundary waters is our only protected wilderness. Mining near it will be bad because the water will be contaminated with acid and will kill all the animals there. We've killed many animals and destroyed many of their homes. Why would we keep destroying more? Why do we want so much that we can't think of nature. If the acids go into the rivers then it would go to Lake Superior which has the most fresh water of all the great lakes. If we keep destroying the homes of these animals, where would they go? There are many places to go to but you always have to realize that, there's no place like home. Let's keep our waters and rivers clean so that we can be good to nature. We could also prevent global warming which is also a worldwide problem for us.

Phoebe Cushman 38831

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Phoebe Cushman 4600 Midmoor Rd Monona, WI 53716-2044

Phyllis Annoni 54707

See attachment

Alphabetical by sender's first name

Phyllis Mead 42649

See attachment

Phyllis Saliin 45043

Dear DNR, I am strongly opposed to the PolyMet Mine. I believe that it will have an extremely detrimental and long lasting negative effect on the environment and to the overall health of people. The pollution it would bring to land and water would affect many generations to come. The damage that would occur would far outweigh any jobs that would be generated. Also, clean up of toxins would be a huge burden to bear financially. We have many environmental treasures here in Minnesota and we can't afford to do harm to our lakes and wilderness areas. We need to learn lessons from the past, as we still continue today to clean up our environment of contaminants from previous industrial sites. Minnesota also brings in a substantial income from tourism and that would be in jeopardy. We need to make sure that the health of the people and of the natural environment in our state are our priority. Sincerely, Phyllis Saliin 5309 Otsego St Duluth MN 55804 218-310-2753 prsaliin@gmail-com Sent from my iPhone

pieplace@boreal.org 47636

Dear DNR, Thank you for responding to my email. Would you be able to tell me what permitting requirements would need to be changed in order to stop PolyMet and others from mining in Minnesota. Also, who would be able to make the changes (Legislature, a State government committee, DNR, local government.). Thanks

Piper Donlin 39572

To whom this may concern, I am a native of Minnesota now living in Oslo, Norway, where I am a researcher at the University of Oslo. I spent much of my childhood canoeing and camping in the BWCAW. This area means a great deal to me and is a cultural and historical landmark in Minnesota. Despite my distance, I have been following this fight closely, as I care deeply about the fate of my home. It is up to the DNR, USFS, and the USACE to fulfill ethical and legal obligations and defend the natural "commons" and "public trust" that your agencies are sworn to protect on behalf of the citizens of this state. Instead, as in other places, the universal rights of both human and non-human inhabitants are being trampled to serve the property/profit interests of the rich international corporations who have lied and bribed their way into "legal personhood" and political control in Minnesota. Here is the short list associated with copper-sulfide mining operations. This is the ecological, social and economic legacy footprint that will impact OUR STATE for hundreds of years; that’s a scary prospect when Polymet, Northmet and their cohorts will be long gone by the year 2040 or so, without intention or means to pay for the superfund site they leave behind for us. Their track records should be enough to convince the State of Minnesota to drive them away before they do any more damage than they already hAve • Water pollution -fresh water is the world’s most precious natural resource; now threatened in many places. • Impacts to three watersheds. • Loss of pristine wetlands and foreSt • Impacts on wildlife. • Climate change due to carbon emissions. • Serious health threats to people including cancers and respiratory ailments. • Mercury poisoning- people who live in the Superior Basin are already exhibiting dangerous levels. • Loss of public lands. • Devastating aesthetic impacts. • Loss of wilderness. • Loss of northeastern economy based on eco-tourism. • Loss of wilderness jobs- thousands of people depend on ecology and wilderness for their wages (compared to three hundred jobs that will last a couple of decades—and then where will the miners go when the last traces of mineral are gone.) • A strange lack of any cost/benefit analysis is a dangerous red flag. • Superfund cleanup to the tune of billions of dollars for hundreds of years. Thank you, Piper Donlin Nedre Silkestrå 18 0375, Oslo Norway

pmetcalf@tcq.net 12

My concern with the new mining facilities in N Minnesota is water use. If they are going to use water that feeds into Lake Vermilion for their production or manufacturing uses, that may reduce the lake level. In the Fall, Lake Vermilion level gets very low, and dangerous for boating in some areas. Currently the water level range seems to be about 3 feet between high water mark in the Spring and low water mark in the Fall. If water is removed from any of Lake Vermilions watershed, river sources, this may affect the level of the lake, and potentially very negatively in the Fall. Also if the company removes water out of the aquifer (or river) and cleans it then puts it back in, my concern would be if they put back less than they took out.

Alphabetical by sender's first name

Pooja Shah 39328

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Miss Pooja Shah 2004 Randolph Ave Saint Paul, MN 55105-1750

Prospect Hill Friends 54689

See attachment

Protect our Manoomin 42976

Protect Our Manoomin Comments for the NorthMet SDEIS are enclosed in attached Word document file. Thank you.

PXB 54158

NO NO NO [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Quinn Kilanowski 44306

Hello, As a young Minnesotan of legal voting age who enjoys my state and it's bountiful parks, I must say I disagree that a mine very near the states crown jewel would not be ecologically or economically worth it. With not very many jobs being created, they would not last very long. The project would only last a limited amount of time, then where are those workers going to be working afterwords. Would you continue to employ them after the project is complete. Or possibly compensate them beyond their work. With methods of mining having things to do with acids, this mine could effect the aquatic life which would snowball into hundreds of problems including eagle populations, wild rice harvest, and the quality of the overall environment for tourists visiting the area. That is something that would be more sustainable, having people visit the park. While you claim the mining project would last a while, the park could last forever. FOREVER. That is definitely more economically sound than employing near a hundred people for a short amount of time. Having people with a set of work skills that are strictly for the mining industry are going to have a hard time finding employment afterwords. With Minnesota having a decently low unemployment rate, you would be putting that in jeopardy by having to eliminate the jobs when you are done. With the mine only being there for a short time, the ecosystem will (hopefully) be there for hundreds and hundreds of years. A project that will probably only last a few decades will compromise everything living there and everything that ever will. It does not matter how many steps are taken to prevent ecological damage, damage will be done. And seeing as this would be your first mining project I'm sure it will be damaging beyond what you estimate. I appreciate the time taken for the company to take the time to listen to actual Minnesotan voices fighting for their states most precious natural resource. Quinn Kilanowski

R Nicholas Rowse 58047

This proposed mine would cause severe degridation to NE MN & the BWCA. I do not want this to happen. Project our natural resources. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

R Rita Caruso-Santamaria 20748

To whom It May Concern, I consider myself a citizen of the world and the USA. I want the best for both: prosperous and sustainable lives for all the people and creatures, safe extrusion of precious materials from the earth, and maintenance of earth's wise and delicate balance. In regards to the proposed mining in Minnesota by PolyMet, I would like to address some things: 1- Is it worth risking polluting the environment for 500 years and the subsequent health effects in exchange for any kind of profit. 2- Is it worth risking the lives of thousands of people and mass environmental contamination for profits that are not going to remain in the USA. 3- We have been entrusted with this beautiful land. We do not have the right to use and destroy resources. We have the priviledge and responsibility to care and protect the resources entrusted to us, the human race. 4- What is going to happen when the environmental balance is severely disrupted thanks to our irresponsible contributions. 5- Who is going to protect us from the earth's wrath when there are no more natural checks and balances. I propose that the job creation and economy be gueared to cleaning up the existing contamination in our lands. I also propose to promote an economy that is in synchrony with earth's balance. We need to balance environmental and economic interests, renewable technology to produce energy that is not going to take humanity and the world to self-destruction. Sincerely, Rita Caruso-Santamaria 1645 Hazelwood St St Paul, MN, 55106 Tel. 651-231-8461 HYPERLINK "mailto:rcwhitgr@smumn-edu"rcwhitgr@smumn-edu

R Scott Thiem 54652

See attachment

54704

See attachment

R. Fitzgerald 39570

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr R. Fitzgerald 123 Privacy Blvd. Rochester, MN 55906-4456

R. Nicholas Rowse 57356

This proposed mine would cause severe degradation to NE MN & the BWCA. I do not want this to happen. Protect our natural resources. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage (AMD) and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as lynx and moose, exchange of federal land within the Superior National Forest, and cumulative impacts from mining. The proposed mine poses unacceptable risks to our waters and communities, and I support the No Action Alternative.

Alphabetical by sender's first name

R. Yaeger 57666

To whom it may concern: Scientific evidence and analysis of the PolyMet project SDEIS indicates that the issues below still have NOT been satisfactorily addressed: 1- Inadequate assurance that Minnesota's water will stay safe and clean PolyMet will pollute Minnesota's waters for at least 500 years by their own estimate. Their reverse osmosis plan has never been tried on this scale and there is no proof that it will work as advertised. Is it right to put a National Park at risk just to see if this "experiment" works. 2- No strong safeguards in place for when things go wrong PolyMet's mine plan doesn't include anything for basic, common sense contingencies. Historically, things have gone wrong at these mines with dismaying regularity in nearly all cases. 3- Inadequate assurance that PolyMet will leave the site clean and maintenance free PolyMet would leave behind a site requiring very expensive maintenance for centuries. No open pit sulfide mine has left clean water and healthy, fertile land behind when they've gone, and the majority have left highly polluted and infertile sites. A cosmetic top dressing with a few non-native hardy grasses on it is NOT fertile, useful soil. 4- Virtually no assurance that Minnesota's taxpayers be protected from clean up costs Granted that the SDEIS is not about cost benefit ratios, but the proposed plan contains almost no information about financial assurance. There is no assurance that PolyMet won't just declare bankruptcy, and once again, taxpayers will be stuck with billions in cleanup costs for untold decades. Damage deposits left by previous mines have been laughably inadequate to cover the actual clean up costs. Twenty years of (likely) way fewer local job opportunities than currently advertised, is in no way worth the loss of likely as many other jobs in the tourism and guiding industries forever. These jobs will not simply resume when the mine folds. How could they when the mine has left behind an ugly mess of polluted land and water with few of the most popular sport fishes, charismatic animals, or its iconic forests and wetlands. Respectfully, R. Yaeger 3750 Hill Ct NE Rochester, MN 55906

R.M. 57874

I ask you to oppose PolyMet's proposal for sulfide ore mining in the Superior National Forest at the headwaters of the St. Louis River. They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area. The mining will leave square miles of talcum powder-fine waste, piled high. Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock. PolyMet suggests that to prevent pollution of the St. Louis River watershed they will collect the hundreds of millions of gallons of rain and snowmelt waters that filter through the waste every year and run them through water treatment plants ... for up to five centuries. The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project. The cost liability for cleanup over centuries is also a great cause for concern. Please oppose this project. This type of mining is not worth it, we need to protect our natural resources, especially water quality.

Rachael Lehman 18098

Rachel Lehman. I am Rachel Lehman and I am going to uncharacteristically give my time to my husband to speak.

Alphabetical by sender's first name

Rachael Sarto 45613

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Rachael Sarto 3817 22nd ave s Minneapolis, MN 55407

45614

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Rachael Sarto 3817 22nd ave s Minneapolis, MN 55407

Alphabetical by sender's first name

Rachel and Don Christensen 54475

See attachment

Rachel Bollis 46049

DNR I urge you NOT to accept the SDEIS regarding PolyMet for the following reasons I do not think it is in the best interest for the citizens of Minnesota to be responsible for future tax burden as a result of cleanup costs for pollution that will result from poly mets project. The reason I am so concerned about this, in spite of poly met saying that they would be responsible, is that the financial assurances need to remain in place for an extreme amount of time. Financial assurances that need to be in place for 200 to 500 years have not ever been proven. Have there ever been any financial assurance vehicles that have been tested or proven effective for 500 years. I understand that the financial assurance part of this project is actually looked at in the permitting stage, but I strongly feel it is important that it is addressed here as well. The land swap between the forest service and poly met in my mind needs to have its own separate review. The proper amount of time needs to be allotted to this important piece of poly mets project. It cannot be lumped together and hurried through. The use of the national forest has restrictions put on it for a reason. We need to respect that and not put the needs of a corporation ahead of the rights of the citizens of the United States. We were personally involved in a land trade with the federal government. Our land trade took 12 years to go through and it was to trade lakeshore recreational property which was already in use and leased for that purpose. I feel it is a mistake for us to make this trade which would allow non ferrous mining to be done in our national Forrest without a longer period of time for public comment and education on this important change of use. It just does not make logical sense, unless a for profit corporations project does not need to have the same scrutiny as an individual. There is some discrepancy as to the amount of water being released from the project. I would believe the tolerances were put into the model for a good reason therefore it would make sense that the correct numbers be put in and the model be rerun. This is an important part of the EIS. In order to protect our citizens it is only responsible to redo the calculations and do a revision of the model. I am a concerned citizen, who loves this part of Minnesota, and is very troubled by the potential harm this type of mining could bring to northern Minnesota. I believe this harm will not only come to the earth but also would be damaging to the already established tourism environment of that area. This includes businesses as well as cabin owners. The related jobs, as well as construction jobs, taxes and other benefits this tourism economy and vacation home industry brings to the state is sustainable and can be grown. I do not believe that the current tourism economy and vacation home industry could flourish side by side with the nonferrous mining economy which brings pollution and greater industrialization to this unique part of our country. The following are items I would like the DNR to fix in PolyMets mine plan Plan to account for the destruction of moose habitat as well as other natural habitat for the Canadian lynx Plan should call for a detailed plan for financial assurances that protect current and future taxpayers Plan should accurately assess health risks to the public Address the risks of mercury pollution for our children as well as future generations Plan should improve wetland protection and replacements Provide Minnesotans with accurate information about how long polluted waters will require treatment Glencore must be recognized as a responsible party for permitting because of its ties with PolyMet Fix the inaccurate water data used in the model and redo the water model In conclusion it is my opinion that the few hundred jobs and monetary gain for a corporation is not worth the perpetual damage a

Rachel Butler 27517

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Lake Superior and the Boundary Waters are a national treasure and a refuge. I grew up on the shore of Lake Superior and return every year for its solitude and clean environment. With pollution and industry affecting so many of our natural places, our public lands need to stay public, and not be given away for the benefit of a few in industry. Please keep these lands protected for public enjoyment rather than private benefit and reject the open pit sulfide mine. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Rachel Butler 987 61st St Oakland, CA 94608-2307 (262) 565-8819

Alphabetical by sender's first name

Rachel Christensen 48159

See attachment

48303

FYI

Rachel Eckert 57970

Save the beautiful boundary waters. They are one of the most beautiful places in Minnesota that more people deserve to enjoy. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Rachel Garwin 41913

Dear Ms Fay, Please accept these comments on the PolyMet/NorthMet SDEIS. They represent my personal opinion and expertise as a conservation scientist (I hold an M.S. in Natural Resources from the University of Vermont) and an outdoor professional (I have worked for the Voyageur Outward Bound School as an instructor for 5 years). Cumulative Effects Insufficiently Examined CEQ defines cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other action." The SDEIS considers actions related to the taconite industry and public sector in this section. The SDEIS, however, fails to account for any additional copper-nickel sulfide mining activity related to the NorthMet project, and it is thus inadequate. I recognize that the NorthMet project's location in the Lake Superior Basin will have little direct effect within the BWCAW watershed. I am concerned, however, that approving the NorthMet project will make it easier for other projects (such as the Twin Metals Minnesota, LLC, project along Spruce Road) in the BWCAW watershed to go forwaRd Twin Metals has already proposed using the LTVSMC processing plant, assuming that the NorthMet project goes forwaRd Since retrofitting an existing processing plant to process new materials would make it a hub for more proposed copper-nickel sulfide mines than just NorthMet, this action should be considered as connected to other foreseeable projects, including those in the BWCAW watershed. The co-lead agencies should properly study the cumulative impact of all related copper-nickel sulfide mining projects facilitated by the approval of the NorthMet project. SDEIS Inadequate as Model Process As the NorthMet project is the first copper-nickel sulfide mine to undergo environmental review in the State of Minnesota, this process will serve as a model for those that follow. I am deeply concerned about sulfide mining projects that will be proposed in the future, and I would like to have faith in the scientific rigor with which the NEPA process is undertaken. After a thorough reading the SDEIS, it is clear that it remains lacking in several respects. First, the degree of unknown associated with the NorthMet project is still too high. The SDEIS should include estimates for the length of time and amount of money necessary to treat the water in order to meet Clean Water Act standards. Instead of dodging the 200/500 years of pollution question, the SDEIS should have been designed to provide some guidance to the citizens of Minnesota as to how long environmental mitigation would have to laSt The lack of this crucial piece of information makes it impossible for the public to accurately weigh costs and benefits. Waiting until the permitting stage of the process is too late, as so much momentum will have built behind the NorthMet project that it will almost necessarily go forward at that point. The co-lead agencies should revisit this question and give the public a reasonable estimate of the estimated time and cost associated with treating the pollution associated with the NorthMet project. Second, the SDEIS uses a low-quality, unreliable study to support its socioeconomic impact analysis. The Bureau of Business and Economic Research (BBER) 2009 and 2012 studies are inadequate to the task of informing public policy, as they only consider assumed benefits of expanded mining activity in the region and do not assess costs. Buried in Appendix B, the authors admit, "Readers are encouraged to remember the BBER is providing an economic impact analysis. Policy recommendations should be based on the 'big picture' of total impact, and a cost-benefit analysis would be needed to assess the environmental, social, and governmental impacts of ferrous and non-ferrous mining in the State" (p. A-16).

Alphabetical by sender's first name

Rachel Imholte 40446

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Rachel Johnson 41923

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Rachel Johnson Minneapolis, Minnesota

Alphabetical by sender's first name

Rachel Katkar 38759

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, My hope is to bring my children to experience Lake Superior as I did growing up. We must make decisions that positively impact future generations, not pollute and irreparably destroy our world. I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Rachel Katkar 773 Ohio St Saint Paul, MN 55107-3423

Rachel Kinnunen 42455

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, Please, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. This gift of nature is too precious to jeopardize. For all these reasons, again I urge you to reject the PolyMet mine. Thanks for your concern. Sincerely, Ms Rachel Kinnunen 1415 8th St SE Minneapolis, MN 55414-1557

Rachel Lee 54544

I work on a lake right outside of the BWCA and I also spend time on Lake Superior. These places mean so much to me—more than could ever fit on this card. They help people grow and they help people learn about respect and wonder. We have to protect these places for us and for the future.

Rachel Lord 54869

See attachment

Rachel Nelson 42825

See attachment

Rachel Rausch 39753

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. The containment of mining wastes is a problem that cannot be solved definitively. The magnitude of waste created by sulfide mining would make it impossible to guarantee that pollution of the fragile ecosystem would not occur. Once mining wastes have been created, they continue to persist in the environment for decades to centuries and continue to pose a threat to the environment long after the mining operations have been abandoned. Once mining is done, will PolyMet be diligent enough to ensure that the waste from its operations have been taken care of. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Rachel Rausch 516 4th St SE Minneapolis, MN 55414-1718

Alphabetical by sender's first name

Rachel Rostad 42031

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Rachel Rostad St Paul, Minnesota

Rachel Schramm 40891

Mar 9, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Rachel Schramm 711 S Inglewood Ave Inglewood, CA 90301-3203 (513) 593-2725

Rae Busch 14453

You must be CRAZY if you think we TRUST INDUSTRY to self-regulate, take any responsibility for cleanup, or to do the right thing in ANY way. Look at what has happened in our nation due to LACK OF REGULATION, lack of oversight, under-funded OSHA and EPA, and continued coddling of big business in this nation: West, Texas - 15 DEAD Enid, Oklahoma - 2 DEAD Ghent, West Virginia - 4 DEAD Upper Big Branch Mine, West Virginia - 29 DEAD Bayer, Institute, West Virginia - 2 DEAD Deepwater Horizon - 11 DEAD West Virginia - poisoned water for 300,000 people, "Freedom" Industries declares bankruptcy, dodges hearings North Carolina "Patriot" Coal - toxic sludge in the water, but hey, it's all OK: the GOVERNOR OWNS STOCK in the energy company and has helped it to avoid ANY consequences for its actions The HALLIBURTON RULE that exempts fracking companies from any responsibility for cleanup. Those are just examples I can think of off the TOP OF MY HEAD. No research needed. Give me an hour and I'll find you a THOUSAND OTHERS. Trains derail because we don't spend money on infrastructure, too busy giving that money away hand over fist to the POLLUTERS. Pipelines rupture because the companies that build them do NOT CARE ABOUT THE ENVIRONMENT: they WORSHIP profits. NO. NO, I do NOT support you. NO, we do NOT want our beautiful state to turn into a waste dump so YOU can make MONEY. NO. NO. NO. NO.

Alphabetical by sender's first name

Raechel Murphy 42225

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

rafael johnson 15918

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, rafael johnson 322 lake st apt 307 excelsior, MN 55331

Raia Meltzer 54873

See attachment

Ralph Butkowski 43067

852 Brenner Ave Roseville MN 55113 MN DNR I have read most of the readily available SDEIS and other summary documentation, and wish to express some thoughts and concerns about the project analysis. Understandably it may not be possible for the agencies involved to provide detailed technical information, however the lack of specific information in the report also invites the concern that details are either not determined or they are being kept from view. The lack of knowledge about impacts of the mining project is suggested by Eric Carlson's statement that "details would be further worked out" on how one would manage the 3 main pollutants identified by the MPCA. I am concerned that the metals (some of which are highly toxic) are grouped into one category while mercury is a separate category. MPCA surely knows that several of the unnamed metals are far more toxic than is mercury, but seems to overlook this fact. With details to be worked out after a mining permit is granted suggests a lack of understanding about how things are likely to go after mining has begun. The land exchange program lacks an apparent realization that dollar equity exchange for land does not equate to environmental impact equity. The land exchange plan, like the pollution issue, is a plan "to be further developed". Only superficial mention is made of habitat fragmentation and how to compensate for its effects. The lack of a confident plan suggests that this assessment is premature. Personally I believe this is a high rick project for short term gains, and I do not currently support its implementation. Sincerely, Ralph Butkowski

Alphabetical by sender's first name

Ralph Karsten 16850

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I must protest this mining proposal. A few hundred jobs are being offered in exhange for the loss of environment that is enjoyed by thousands in this state; these thousands support the tourism in this area. You will actually **loose** jobs, not gain them. In addition, we will have to monitor the waste for a period longer than our country has even been around. What are you thinking.. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Ralph Karsten Ralph Karsten 160 So. Wheeler St Paul, MN 55105

Alphabetical by sender's first name

Ralph Karsten 50182

Dear Ms Fay, Mr Bruner and Mr Dabney: I must protest this mining proposal. A few hundred jobs are being offered in exhange for the loss of environment that is enjoyed by thousands in this state; these thousands support the tourism in this area. You will actually **loose** jobs, not gain them. In addition, we will have to monitor the waste for a period longer than our country has even been around. What are you thinking.. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Ralph Karsten Ralph Karsten 160 So. Wheeler St Paul, MN 55105

Ralph Wyman 43349

Mar 13, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I am writing to urge the MN DNR to not approve the PolyMet mine application. It is not credible that surface water treatment for hundreds of years will be paid for my a mining company that will have made it's profits and departed the region within a few decades. The United States is littered with mining and other industrial polluters who make short term profits and then declare strategic bankruptcy. We are saddled with things like Superfund sites that spend public dollars, and even then, take decades or longer to remediate what damages businesses do in mere years. Our state can develop it's natural resources in other ways, through tourism, through renewable energy production, and continued innovation in things like healthcare. We do not need the short term jobs and the long-term damage. Sincerely, Mr Ralph Wyman 400 Groveland Ave Apt 407 Minneapolis, MN 55403-3243 (612) 805-7314

Ramon Torres-Ortiz 41760

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Ramon Torres-Ortiz 3142 Lyndale Ave S Apt 32 Minneapolis, MN 55408-2943 (612) 309-9280

Alphabetical by sender's first name

Randall Heldreth 31017

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt And while we're discussing it, can you please try and shutdown the very same kind of mining that is going on in the Upper Peninsula of Michigan. It will only end with another Superfund cleanup situation. Why should the government keep having to use our tax dollars to cleanup corporate America's messes. Stop them in the first place and save us all huge financial and environmental burden. Sincerely, Randall Heldreth 367 E Hewitt Ave Marquette, MI 49855-3711

Randall Wright 39593

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Randall Wright 5212 Knollwood Dr NE Bemidji, MN 56601

Randolph Gaul 19953

Feb 28, 2014 Ms Lisa Fay MN Dear Ms Fay, Many years ago I canoed in the Boundary Waters. It is kind of a holy place in my memory. And learning of a mining operation that would threaten not only the Boundary Waters, but also waterways that lead to non other than Lake Superior itself is an absolute nightmare. Decades (or Centuries.) of reclamation is not worth the ore that would come from the PolyMet mine. I personally object. Sincerely, Mr Randolph Gaul 4120 Morrison Ct Baltimore, MD 21226-1315 (410) 636-0212

Alphabetical by sender's first name

randy hauserman 41126

DNR ..regarding this proposal, I looked at the risks/rewards of this project from a business and environmental impact, reviewed the overall pros and cons of this issue and find the risks out weight the rewards. Analyzing the investment and assuming my facts are correct, Polymet is a Canadian company based in Vancouver even though it seems they want you to believe they are based in St Paul. I also believe that a large portion of their financial investment is from a Swiss company that stock trades around a $1- When I review the economy issues it's always a positive to have jobs created but when it's limited to just 20 years, that to me doesn't sound like a good investment when measured against the risks. What I would prefer as a solution for long term employment in the area is like the NWA/Delta reservation center in Chisholm that is green with no environmental risks and is not limited to just 20 years. I believe the state should seek out investments in these types of industries that don't have the environmental risks or potential negative impacts. Regarding the potential harm to the environment, if there are problems, there are no do over's and Minnesota's taxpayers could take a big hit. Damage to the environment, so close to one of our most precious resources, the BCWA might be forever. Is the state ready to take that risk. There are better, cleaner ways to increase long term employment and not just limited to 20 years the Polymet payback to the state is minimal at best and could do harm forever. You can never have enough financial guarantees when dealing with a precious resource like the environment certainly more than the minerals Polymet intends to extract. You cannot place a price tag on mother earth. The fact that they are proposing at least 200 years of water treatment should be the biggest red flag and for what, 20 years of operations. The state should be thinking about generational job growth, not just short term of 20 years. Also look what has happened in other issues around the country, what happens if they file for bankruptcy. All of the potential EPA fines, etc are worthless. Look at the water issues in the Appalachian states because of neglect in the coal industry and there are many other examples of similar scenario's around the country. With a proposal like this, the state has to look long term, fully weigh the potential negative impacts and protect one of Minnesota's most precious assets ..the environment. Randy Hauserman 72 Birnamwood Drive Burnsville MN 55337

Randy Holland 43243

Hello, The past two summers I've spent three months at a cabin in the Arrowhead region. After reading about this issue my concern is that sulfide mining permits for ALL mines (not just Polymet) is being rushed before the DNR can do more site-specific studies of underground aquifers. It's been pointed out that generic water flow assumptions are being used that may underestimate required site-specific treatment facilities. Furthermore, given that sulfide mining may require the longest water treatment plan in history, it's shocking that there is little scientific basis for the estimates of 500 years or more of treatment. Lastly, it is truly stunning to me that the mining job estimates don't factor in the risk to the much larger tourism industry. Collectively, these reasons beg that more time and science is allowed to ensure no environmental disasters occur, ultimately reducing taxpayer cleanup risks and possible harm to local wildlife, citizens, and Minnesota's future economy. I would also argue that any licensing revenue for the state goes into a trust fund that spreads out the revenues over the life of the water treatment. Otherwise this is simply pillaging Minnesota's resources for short-term gain that no one can deny puts future Minnesotans at risk (even if small) of paying for an epic cleanup. The reason is funds put aside may not be enough since corporations never remain static for centuries. Thus it's certain that Polyment and other mining companies won't exist in their present form centuries from now so restitution seems unlikely in case of disaster, leaving future generations to pay for the benefit of existing Minnesotans. If skeptical of this scenario, imagine Polymet being acquired or it's "risky" business segments being spun off and then later declaring bankruptcy. The legacy of Minnesota's current government is at stake to show that they have thought of all scenarios. Given the Arrowhead region's total mineral deposit potential, spending another 6-12 months to inject more science and facts into this discussion would show that short-sighted greed by both the state's budget and mining special interest won't trump the risk of polluting the Boundary Waters, Arrowhead region, and Great Lakes watersheds. If the science is reassuring, then few will protest if proper precautions are made. Rushing matters is a sign that the science and facts in favor of mining are weak. Please show Minnesota isn't afraid of science and continue studying whether this mineral opportunity is worth the risks. Thank you for reading my concerns about the Northmet SDEIS. Sincerely, Randy Holland 13225 Thomas Drive Little Falls, MN 56345 612-840-6914

Alphabetical by sender's first name

Randy Lasky 38851

To: Lisa Fay, EIS Project Manager: From: Randy Lasky, Northspan Group, Inc. My name is Randy Lasky, President and CEO of the Northspan Group, Inc. Our address is 221 West First Street, Duluth Minnesota. Northspan is a private non-profit, 501(c) 4 business and community development corporation serving northeast Minnesota since 1985- On behalf of the Board, I am submitting comments on the proposed PolyMet project and Supplemental Draft Environmental Impact Statement (SDEIS). First and foremost, we support this project based on our analysis of the SDEIS documentation; we feel PolyMet is prepared to use modern mining technology to responsibly and economically mine the significant non-ferrous mineral deposit in our region in an environmentally safe and responsible manner. We have relied on the sound work done by our agency regulators and acknowledge your modeling and findings to be supportive of approving this document and authorizing the project to move to the permitting stage. In those areas of the SDEIS document where we have some expertise including understanding the modeling and findings shared about the potential local, regional, statewide and federal economic impacts of this project as well as current state law and the process to set financial assurances as part of the permitting process, we feel confident in sharing our perspective and support in these two areas. First, we feel the project has demonstrated via credible economic impact modeling, that it will deliver a significant economic impact over the 20 year planning period and beyond. This economic assessment modeling and significant returns must be recognized in its importance to the State as we also recognize the importance and value of meeting all of the regulatory standards, mitigation requirements and assurances that will eventually be imposed and monitored for years to come. Economic impacts such as an upfront investment of $500 million in construction of the plant site as well as redeveloping a former iron mining area into a viable new non-ferrous mining operation improves the area, leverages the current physical assets, and improves the conditions of the mine site now and into the future as the area is reclaimed. It's about jobs and the environment and with the addition of 360 new, quality skilled mining jobs as well as over 600 indirect, valued-added, living wage jobs that can support families; this is significant in a region dependent on our natural resources for upwards of 50% of our regional Gross Domestic Product (GDP). If we look at direct financial impacts on the schools statewide and in the region, as well as tax revenues to local, state and federal government of approximately $55 million annually, this is a win-win for us all. Second, in terms of financial assurances, we understand laws currently exist to provide permitting agencies the flexibility needed to make sure that the State and all of us are not forced to deal with a bankrupt situation and major environmental problems should something happen to PolyMet and this project. Those safeguards for non-ferrous mining can and will be imposed by Minnesota Department of Natural Resources (MDNR) during the permitting stage. In terms of flexibility to hold PolyMet accountable, appropriate assurances can be determined and implemented; under the law, MDNR could select from any number of financial assurance tools including trust funds or escrow accounts, surety bonds, letters of credit, certificates of deposit or insurance policies. Whatever instrument is selected, we agree it has to be bankruptcy proof, held in title by the State, continuously in place, annually updated and readily available to regulators to safeguard the State's interests. To further monitor and adjust assurance requirements for the long term, we understand the law provides MDNR the ability to conduct a detailed review of all of the costs of reclamation annually, and can adjust the financial requirements of the compa

Alphabetical by sender's first name

Randy Mahurin 40322

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Randy Mahurin 1021 Greenturf Rd Spring Hill, FL 34608 US

Randy Wenthold 37877

My name is Randy Wenthold 38771 189th Ave Menahga MN 56464 612-817-4873 I must oppose the copper mine based upon what I am aware of in the taconite mining industry. I am a chemical engineer and represent a small company with chemistry technology to precipitate fine materials (flocculate) in water. I've worked with the US Steel facility and at the Minntac plant where nearly 45,000 gallons per minute of dirty water used to rinse the crushed ore is treated with a 1-4 million pounds per year of a chemical commonly called DADMAC (Diallyl dimethyl ammonium chloride) which is added to this dirty water to recover the solids that are suspended in the water being pumped to a settling pond 5 miles x 5 miles in size. I visited the Minntac facility and then obtained samples of this process water to show the company representatives what can be accomplished via the use of my companies chemistry. US Steel representatives provided us with samples of this water and samples of the Nalco company DADMAC chemical material currently in use. Note: Nalco is a large chemical company that provides this material to all the taconite facilities in MN and the paper mills as well. My company produced results that show our product would reduce the DADMAC consumption by 1/12 of present Nalco company product use and save US Steel an estimated $200K per year in chemical expense plus shipping expense of 1/12th the present amount. US Steel representatives have decided not to move to my companies material. So the mining industry will continue to use 12X DADMAC material and discharge this chemistry into the environment vs. moving to a new DADMAC product chemistry that is readily available. It can be assumed the same situation/condition will be established at the copper mine (ie large chemical company establishing the use of their products which results in 12X the discharge of DADMAC chemical into the environment). The mining companies must use DADMAC and other polymer products to help recover the suspended solids as part of the mining and ore rinsing process. This cannot be avoided. What can be avoided is the use of massive amounts of the material vs. alternate suppliers.

Alphabetical by sender's first name

Ravi Katkar 41848

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ravi Katkar St Paul, Minnesota

ray 15779

I support the Polymet project: My concern is in the comment process, and the ability of the DNR to remove the political pressure based on the number of comments. Please, evaluate only on the technical validity of individual comments. I believe that you will be flooded with comments beyond out borders which could distort the project decisions and cause delays for another year of two. Ray Yuzna

15780

I have confidence in the DNR and believe the SDEIS process for PolyMet Mining’s proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet’s project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I’d also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet’s plans comply with Minnesota’s laws. We cannot afford to miss this job opportunity. Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands.

15781

Ray Yuzna 8016 32nd place Crystal, Mn 55427 I believe that the NorthMet SDEIS. and eventual operation of the reverse osmosis water purification will provide a research platform for future pollution control other than mining. Minnesota could become a leader in solving water pollution problems worldwide. Lets build this mine and see where it leads the world.

15782

Please consider, the Polymet process to control water pollution is a perfect platform for learning and moving Minnesota into the world stage of this type of pollution control. I believe that eventually it could be a new industry for Minnesota above and beyond mining world wide.

15783

I believe that the SDEIS is a complete document. My concern is the comment process, and the political weight DNR will place on the number of responses instead of the validity of content .

Alphabetical by sender's first name

ray 21538

I support the Polymet project: My concern is in the comment process, and the ability of the DNR to remove the political pressure based on the number of comments. Please, evaluate only on the technical validity of individual comments. I believe that you will be flooded with comments beyond out borders which could distort the project decisions and cause delays for another year of two Ray Yuzna

Ray Allard 15974

Ms Fay: attached please find a letter of concern about the Polymet plan. I will follow this up with a copy sent through the postal service. Ray Allard Visit our website www.WilliardWorks-com to - See: Ray Allard's Artwork Gallery - Hear: Gerri Williams' Audio Productions -Read: Columns, Blogs and More

Ray Fenner 16726

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Ray Fenner 52962 Erickson Lane Sandstone, MN 55072

Alphabetical by sender's first name

Ray Fenner 50090

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Ray Fenner 52962 Erickson Lane Sandstone, MN 55072

Ray Lewis 52229

When the science of the long-term health and environmental impact is uncertain, I would recommend delaying development. The minerals will still be there until we can be sure the shared resources of the state can be maintained in as an original state as possible. Ray R. Lewis 2 Circle Drive Circle Pines, MN 612-227-4209 http://www.linkedin-com/in/rayrlewis

Ray Schmitz 43740

While I have significant concerns about the proposed mitigation involved in this mine and processing my comments are addressed to the issue of long time protection of the environment by guarantees. While it appears that some of the proposed assurances would be fleshed out in later documents, there is nothing the assures me that there is any legal framework or financial instrument capable of assuring its existence for the time periods involved. With the possible exception of the British East Indian Company formed in the days of the raj, there is no corporation or other legal framework that has existed for the time periods involved. What is to prevent a future court or legislature from excusing the commitments in the future, and even if they did not do so, the corporation or other institution could simply stop preforming. Even with financial assurances they are no more valuable than the underlying institution issuing them, and unfortunately those do fail. I urge you to not approve these permits or allow this to continue until there is some assurance that the taxpayers are fully protected. Ray Schmitz 210 14th St NE Rochester, MN 55906 507 288 3948

Alphabetical by sender's first name

Ray Yuzna 3424

I support Polymet for the following reasons: First, I have a personnel interest, I own stock. Second - I have invested in Minnesota, especially the Iron Range for the following reasons: *The project will bring in tax dollars and boost the economy in support of future development in the state. *A University research platform for future state wide environmental issues. Consider using the reverse osmosis processes designed in removing effects phosphate from farm lands which is now a much greater source of water pollution than Polymet. Also, the possibility of recovery of fertilizer, recycling it to provide cost reduction of the processing plants. *Polymet could provide a practical training aid in environmental engineering. *Controlling the existing pollution from the old LTV operation and refurbishing the plant and area. Last – Its good for the DFL party because: * The people living the area want the mine. The young people need a reason to stay in the area. Failure to pass the permits will give the GOP ammunition. Most of the environmental activists are not from Minnesota and do not contribute to the tax base. I hope you understand the great opportunity that Minnesota has to secure the future and protect the environment. Ray Yuzna

raybryan 14937

Do you really think that PolyMet will clean up the toxic waste generated by copper/nickel mining for the next 500 years. This is proposed for a very sensitive environment that if upset would destroy an entire _current_ industry for a half millennium - Tourism. Allowing the mining to proceed with such plans using current technology is short-sighted in the extreme and wasteful of valuable natural resources for the long-term future. Raymond C. Bryan

Rayma Cooley 52362

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Rayma Cooley 2520 Hunt St Unit 1 Ames, IA 50014

Alphabetical by sender's first name

Raymond Asomani-Boateng 39331

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Raymond Asomani-Boateng Urban And Regional Studies Ins Mankato, MN 56001 (150) 738-9503

Raymond Carlson 39770

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Raymond Carlson 337 W Sycamore St Sycamore, IL 60178-1412

Raymond George Salin 57197

I don’t want to see any hazardous materials coming out of our ground, polluting our water, put the grave to rest.Raymond George Salin9654 Zim Rd Zim, MN 55738

Raymond H Allard 42828

See attachment

Raymond Klosowski 41230

Mar 9, 2014 Ms Lisa Fay MN Dear Ms Fay, Dear Governor Dayton, I urge you to provide your strongest support for the planned Poly Met mineral mining project. It will give Minnesota citizens a long term economic benefit with stabile high paying jobs, increase the annual state revenue intake providing funding for critical infrastructure improvements, health care, and education while precluding adverse impacts to our environment. The results of the eight year long 50 million dollar environmental review and assessment indicate the projected Poly Met project can meet Minnesota's stringent environmental requirements. Sincerely, Ray Klosowski 3509 Maxwell Ave Duluth MN 55803 Sincerely, Raymond Klosowski 3509 Maxwell Ave Duluth, MN 55803-1940

Alphabetical by sender's first name

Raymond Nevison 16932

Feb 18, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Raymond Nuesch 40308

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Raymond Nuesch 2000 16th Street NW Washington, DC 20009 US

Raymond Olson 54820

See attachment

Raymond Shelerud 57199

I am truly worried about the after effects of sulfide mining. The length of the project does not warrant the lifetime of cleanup from the effects of this type of mining. Sulfide mining has never been proven to be safe for the environment. Until it has, I never will be for this project.Raymond Shelerud6403 Nashua StDuluth, MN 55807

Rebecca & John Gaertner 31655

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I remember the taconite tailings from Silver Bay in Lake Superior when I was a child. It took years before Reserve Mining was disciplined. I don't think we can trust these out of state companies. We all know they will file bankruptcy as soon as they are required to be responsible for their environmental messes. Profit is all companies like this care about. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Rebecca and John Gaertner 4717 Dupont Ave S Minneapolis, MN 55419-5323 (612) 822-5763

Alphabetical by sender's first name

Rebecca Borrud 41618

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Rebecca Borrud Minneapolis, Minnesota

Rebecca Branham 16814

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Protect us from the mine. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Rebecca Branham 2310 10th St S. Apt. 11 Moorhead, MN 56560

Alphabetical by sender's first name

Rebecca Branham 50155

Dear Ms Fay, Mr Bruner and Mr Dabney: Protect us from the mine. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Rebecca Branham 2310 10th St S. Apt. 11 Moorhead, MN 56560

Rebecca Burich and David Zins 42881

See attachment

Alphabetical by sender's first name

Rebecca Carlson 38709

Lisa Fay, EIS Project Manager DNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 FR: Rebecca Carlson, 7445 110th St E, Northfield MN 55057 RE: PolyMet SDEIS Response To whomever it may concern: Our family owns property and resides seasonally near Ely, Minnesota. We believe the PolyMet SDEIS is inadequate and that this destructive project must not proceed as currently proposed because of the 1) widespread and severe environmental damage inherent in the PolyMet project and 2) the failure of the SDEIS to include a cost/benefit analysis and specific provisions regarding amounts and sources of financial assurance. We believe the Supplemental Draft Environmental Impact Statement is inadequate in the following areas: 1) Economic Impacts -The SDEIS contains no cost/benefit analysis of the PolyMet mine. - The SDEIS does not say whether wages paid to mine employees will stay in Minnesota or whether they will go primarily to transient employees who will spend only a fraction of their income in Minnesota. The SDEIS does not discuss the impact of the loss of jobs when the price of copper declines and mining becomes unprofitable, although it acknowledges that such job loss is inevitable: “Mining-related employment is volatile and fluctuates from year to year due to the market price of commodities being extracted.” SDEIS, 4-325—4-326- The SDEIS fails to assess the cost of unemployment benefits and other social services, increased crime rates, and other societal costs associated with volatility in employment. - The model used to calculate the alleged economic benefits of the mine does not take into account the costs to the environment; the displacement of other economic activity, including among other things tribal rights to hunt, fish, and gather under the 1854 Treaty; the infrastructure, government, and social service costs resulting from the mining; and the consequences of the unpredictable influx and outflow of mine employees. - What would be the costs for public infrastructure, lost opportunities to engage in other economic activities incompatible with mining, depressed real estate values, lost recreational opportunities, social upheaval, and perpetual clean-up that the public would be required to bear. 2) Permanent Water Pollution -PolyMet admits that water pollution by sulfuric acid and heavy metals will last for at least 500 years. -Not all of the polluted water will be captured for treatment. Annually, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated. -The SDEIS fails to adequately assess the long-term impacts of the pollution resulting from the release of this untreated water. -The computer model used by PolyMet may understate the actual pollution impact, because it has been shown to be inaccurate in representing current conditions for water quality around the mine site. 3) Absence of Planning for Inevitable Accidents and Failures -The SDEIS fails to provide contingency plans for the kinds of failures and mishaps that routinely occur in mining operations. During operations, at least 6-2 million gallons of polluted water would need to be treated every day. Pipeline spills, accidental releases, failure of water collection and treatment infrastructure, and tailings basins failures are virtual certainties. And because the provisions regarding financial assurance are so plainly inadequate (see below), the SDEIS does not tell us how the costs of responding to such failures will be covered. -The SDEIS provides no details on the impacts to water quality, wildlife, or human health if the water treatment system ceases operations at some time during the 500+ years during which the polluted water is being discharged. The Mine Plan Requires an Absurd and Unachievable Level of Monitoring and Maintenance for

Rebecca Cramer 10204

Thank you for providing this space to comment. From the information I have read, mining for copper and nickel so close to the boundary waters and other watersheds is not advisable. The risk of contaminating vital waters needed for the present and future generations of people and animals outweighs any short-term gain of employment. Secondly, it would behoove our federal and state governments to support industries which safely "mine" for these precious metals in the discarded equipment that has already been manufactured. We need a comprehensive solution to the waste and current mismanagement of our industries that allows valuable components to be put into landfills instead of recycled for reuse. Minnesotans must take care of the natural resources that grace our state: first and foremost is the water and the biodiversity of our Northern tier. Jobs will be created in the realm of ecotourism and sustainable use of our forest resources. That is the trend we must believe in and plan for. Respectfully, Rebecca Cramer 3148 29th Ave S. Minneapolis, MN 55406

Rebecca E. Berg 42921

Erik Berg 1300 10th street S.E. St Cloud, MN 56304

Alphabetical by sender's first name

Rebecca Ekmark 46475

Good afternoon, I am writing in support of the Polymet mining initiative. My belief is that the Polymet group has done extensive environmental research and has proven successfully that the techniques used and preventative measures they plan to use are going to help keep our waterways clean. The groups fighting Polymet are mostly people who do not have a vested interest in the success of this area. I personally want beautiful lakes and clean water, and as well, I know that mining keeps this area vital. Thank you, Rebecca Ekmark raekmark@gmail-com

rebecca jorgensen 34921

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt our great lakes are our greatest treasure. look around at the droughts, and the housing developments in the western states they want our water. do we want our lakes to end up looking like the river in west Virginia, or the lake and river in north/south Carolina. remember the tar sands spill in kalamazoo. well it is STILL polluting, and it needs to continue to be cleaned up. les't start protecting what is a great natural resource. Sincerely, rebecca jorgensen 6830 Apache Trl Westland, MI 48185-2802 (734) 748-3873

Rebecca Kemling 40189

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Rebecca Kemling PO Box 205 Ottertail, MN 56571-0205

Rebecca L Rom 42671

See attachment

Alphabetical by sender's first name

Rebecca Luxenberg 16305

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Rebecca Lystig 18246

R-E-B-E-C-C-A, L-Y-S-T-I-G. PolyMet’s plan for an open-pit mine will directly destroy more than 900 acres of wetlands and threaten more than 10 square miles of additional wetlands with toxic contamination and drainage. No information is provided in the SDEIS about the amount and form of financial assurance damage deposit that PolyMet will be required to provide to cover cleanup costs extending over centuries. Abandoned mining sites across our nation are the single most costly environmental liabilities left to taxpayers. When funds are not available, waters, lands, wildlife and people in the area suffer toxic effects for generations. Instead of opening new mines which will cost taxpayers and the environment, we could greatly increase recycling of copper, nickel and other metals with less impact to the environment, reduced emissions of global-warming gases and provide greater potential for jobs. The US is presently recycling far less than half of the copper and nickel we discard every year.

Alphabetical by sender's first name

Rebecca Nash 39072

---Original Message--- From: RMNHOME@aol-com [mailto:RMNHOME@aol-com] Sent: Tuesday, March 11, 2014 7:47 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Rebecca Nash 4632 Columbus Ave Minneapolis, MN 55407-3528

Rebecca Otto 42929

Name and legal mailing address as required: Rebecca Otto State Auditor 525 Park St Suite 500 St Paul, MN 55113 Comment attached. Sincerely, Rebecca Otto State Auditor (651)296-2551 (651)296-4755 (fax) 525 Park St Suite 500 St Paul, MN 55103 Caution: This e-mail may contain CONFIDENTIAL information or information protected by state or federal law. If you have received this e-mail by mistake, please do not read, distribute, or reproduce it (including any attachments). Please notify us immediately by return e-mail, and then delete it from your system. Thank you.

Alphabetical by sender's first name

Rebecca Ratcliff 45646

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Glencore should be a responsible party for financial assurance in PolyMet's mine plan To [Decision Maker], The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Rebecca Ratcliff Sincerely, Dr Rebecca Ratcliff 1058 Hague Ave Saint Paul, MN 55104-6519

Rebecca Rom 18375

Hi. I'm Rebecca Rom. My last name is spelled R-O-M. I'm from Ely, Minnesota. I'm a third-generation Slovenian from Ely. My grandfather was an iron ore miner. I want to talk about how the project, the PolyMet-NorthMet project, as described in the supplemental EIS violates Minnesota law. The provisions that it violates relate to perpetual treatment. Minnesota rules 6132.3200 does not allow perpetual treatment. It reads, "To receive a permit to mine, the permittee must be able to close the mine in such a way that it is stable, free of hazards, minimizes hydrological impact and release of substances, and is maintenance free." The project features that require perpetual maintenance and monitoring are these: The hydrometallurgical tailings facility will contain highly reactive waste and must be isolated from the surrounding environment in perpetuity. The floatation tailings basin seek-and-to-capture system must operate at peak efficiency for at least 500 years. The category-one waste rock stockpile cap-and-seek-to-capture system must operate at peak efficiency in perpetuity. The tailings basin and mine site reverse osmosis water treatment systems must operate for at least 500 years. The West Pit outlet structure must operate in perpetuity. Monitoring of water quality must occur at all receiving waters and groundwater points of compliance until the (inaudible) from mine areas meet water quality standards without treatment, which is over 200 years. The monitoring of the wetland vegetation must occur until the hydrology reaches a steady state, which is decades or more. And until (inaudible) from the project meets water quality standards without treatment, which is 500 years or more. The PolyMet SDEIS states that long-term treatment of wastewater is aided, which means the site will not be maintenance free at closure. This is over 500 years of treatment at the plant site and over 200 years of treatment at the mine site. (Inaudible) federal testimony before the US Senate committee on energy and national resources presented findings that the federal government spent at least $2.6 billion to remediate hard rock mine sites from 1998 to 2007. In 2009 the US Environmental Protection Agency cost estimate for existing hard rock mine pollution cleanup was 20 to $54 billion. In 2009 as part of the largest environmental bankruptcy case in history, the mining company was ordered to pay $194 million in damages.

Alphabetical by sender's first name

Rebecca Scott-Rudnick 54665

See attachment

Rebecca Skouge 17034

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Rebecca A. Skouge Bloomington, MN Rebecca Skouge 8620 3rd Ave S. 8620 3rd Ave S. Bloomington, MN 55420

Alphabetical by sender's first name

Rebecca Skouge 50309

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Rebecca A. Skouge Bloomington, MN Rebecca Skouge 8620 3rd Ave S. 8620 3rd Ave S. Bloomington, MN 55420

Rebecca Stoner 54837

See attachment

Rebecca Tollefson 43857

I am a 27 year old woman born and raised in Minnesota all of my life. Some of my earliest memories include camping. We used to go to the Untainted Beautiful Waters of the Boundary Waters and enjoy our summers. If I was ever thirsty I would stick my hand in the water and get a drink, just like the animals do. We did not purify our water in the 80's. My family always told me stories about how the animals live here naturally with no pollution and these are some of the cleanest fresh waters in the world. Time has passed and I have gotten older, but the Boundary Waters is as pristine as ever. There are times that I still drink the natural waters. After the mining starts would you drink the polluted water. Is filtering it going to be enough. How about the animals. Do they have the ability to filter their water before drinking. NO. I would challenge anyone after this starts to come and drink the water now. Its more common than not unfortunately that after mankind starts to mine, log and destruct the natural habitat that horrible catastrophic effects on Mother Nature and all of her inhabits. I would urge everyone to reconsider this proposal for all of the reasons. I hate having to just comment on one, I could comment on everyone. Save our forests and wetlands for generations to come. Rebecca Naomi Tollefson 3109 Utah Ave South StLouis Park, MN 55426 Sent from my iPad

Red Cliff Band 42974

Ms Fay, Please accept the Red Cliff Band of Lake Superior Chippewa's comments on the NorthMet SDEIS in the attachment as a PDF. The Red Cliff Band is a Chippewa tribe that is guaranteed the right to exercise our treaty rights with the ceded territory of 1854 where the proposed project is located. The tribe's mailing address is as follows: Red Cliff Band of Lake Superior Chippewa 88385 Pike Rd, Hwy 13 Bayfield, WI 54814 Thank you and best regards, Anastasia Walhovd Tribal Mining Resource Specialist Red Cliff Band of Lake Superior Chippewa 88385 Pike Rd, Hwy 13 Bayfield, WI 54814 Work: HYPERLINK "mailto:715-779-3650%20%0bCell:%20715-292-1733%0bawalhovd@redcliff-nsn-gov"715-779-3650 Cell: 715-292-1733 awalhovd@redcliff-nsn-gov

Alphabetical by sender's first name

Reed Heffelfinger 38840

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Reed Heffelfinger W 44th St Minneapolis, MN 55424-1025

Regan J Scuffy 54647

See attachment

Reginald Defoe 19511

Reginald Defoe R-E-G-I-N-A-L-D, D-E-F-O-E, 55 Morning Star Lane, Cloquet, Minnesota, 55720.Okay. I'm just -- how I'm kind of equating this is like to the Lower St. Louis Estuary and old Fond Du Lac, let's say, is where they used to have thousands of acres of wild rice stands and plants, and now you look at that area today, and it's just remnants of wild rice and a few plants here and there. And I remember when my folks used to tell me they used to harvest rice down there back in the '50s and '60s, and 1950s and 1960s, and now you go down there and look, and there's nothing there. So what happened is from industrialization and pollutions and over the years, and this is part of the watershed that extends up to the mining areas and PolyMet areas, and that's the headwaters up there, and everything down here degraded, and what we're going to do now is spend millions and millions of dollars to try to clean up that area in the Lower St. Louis River area. Lots of different agencies are in the process of cleaning up that area, get rid of all that pollution, all those contaminants that came down through that watershed. Now, what that makes me think is why would we further damage the area, the watershed, by opening up the sulfuric mining operations and to damage it any further when we're spending millions and millions of dollars on cleaning up an area that once used to be pristine with thousands and thousands of acres of wild rice. So to me, it doesn't make sense why you would further destruct a watershed and wildlife and that kind of stuff. And that's about it. Thank you.

Reid Carron 18316

My name is Reid Carron. I am from Ely, Minnesota. I'm married to a Slovenian. The SDEIS is wholly inadequate in a great number of ways to reflect the real environment and the economic cost of the proposed project. This comment is on focused on the inadequacy in the SDEIS with respect to certain socioeconomic considerations. The SDEIS does not attempt to correct the effects of the proposed exchange of Superior National Forest lands and of the destruction of wetlands with the protection provided to citizens by the Federal WEEKS Act, the National Environmental Policy Act, the Minnesota Environmental Rights Act, and the Minnesota Environmental Policy Act. (Inaudible) near the mine site project would destroy 913 acres of unique wetlands, plus many hundreds of acres of lands of high (inaudible), including (inaudible). These lands are currently owned by the US Forest Service in the Lake Superior Basin. Virtually all of the wetlands in mitigation in that site and basin are substantial distances from the habitat that would be fragmented and destroyed by the mine. The project indirectly affects thousands of acres of other wetlands in the Partridge and Embarrass River Watershed by pollution and changes in hydrology. The SDEIS fails to address any mitigation of a great majority of this wetlands exchange except to say that they have to be monitored after permitting and additional compensation may be required. The SDEIS admits that allowing private surface mining would be inconsistent with the US Forest Service legal mandate for acquiring and managing these lands. The SDEIS fails to address adequately the socioeconomic cost of the loss of intact contiguous existing habitat at the mine site or the relative value to non-contiguous lands to be acquired in exchange. The currently intact land exchange at the mine site has significant socioeconomic value for wildlife habitat, watershed protection. The SDEIS does not explain how the Forest Service could abandon its responsibilities to manage (inaudible) watershed protection. And there lies inflict harm upon the socioeconomic wellbeing of the citizens through the simple exchange that does not even pretend to provide replacement land in the Lake Superior Basin. Further, the SDEIS is inadequate because of its failure to acknowledge – the proposed project ignores basic rights to a clean environment guaranteed by Minnesota law. It acknowledges that the project will destroy or impair thousands of acres of land, pollute the water for at least hundreds of years. It will create other harmful environmental impacts such as pollution. The legislature declared in Section 116B4 of the Minnesota Environmental Rights Act that the state has a paramount concern for the protection of its air, water, land, and other natural resources from pollution, impairment, or destruction. The statute explicitly states economic considerations alone shall not constitute a defense to violations of the Environment Rights Act.

Alphabetical by sender's first name

Reid Carron 29860

Comment letter attached. Reid Carron 3100 Hartley Point Road Ely, Minnesota 55731 cell 218-232-0622 resource://skype_ff_extension-at-jetpack/skype_ff_extension/data/call_skype_logo.png218-232-0622 landline 218-365-5399 resource://skype_ff_extension-at-jetpack/skype_ff_extension/data/call_skype_logo.png218-365-5399 Call Send SMS Add to Skype You'll need Skype CreditFree via Skype

42519

See attachment

42596

See attachment

Reid Larimore 40345

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Reid Larimore 2915 Reed Ave Cheyenne, WY 82001 US

Alphabetical by sender's first name

Reka Crohn 14680

Feb 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Remy Lee 42645

See attachment

Renae Rodgers 42917

To whom it may concern, Please find attached to this email my submission for the public comment period on the proposed PolyMet mining project for northern Minnesota. Best Regards, Renae Rodgers 1319 Franklin Ave SE Apt 1 Minneapolis MN 55414

Alphabetical by sender's first name

Rene Gelecinskyj 45342

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Rene Gelecinskyj 2901 w 93rd st Bloomington, MN 55431

45343

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Rene Gelecinskyj 2901 w 93rd st Bloomington, MN 55431

Alphabetical by sender's first name

Renee Aro 19907

To Minnesota's Department of Natural Resources, I was born and raised in Virginia, MN and have always loved the Iron Range. I am in tears when I see our wonderful small towns withering away. I want jobs, just as most of us do. However, I want quality and honorable investors in our area, not those who abuse the system. In my research, which is just the tip of an iceberg, I found the following: GLENCORE XSTRATA "While only few were paying attention to the price of aluminum, some important industry players such as Goldman Sachs, JPMorgan Chase and Co and Glencore Xstrata, were allegedly inflating prices and disrupting supplies for the commodity. This is the central claim of HYPERLINK "http://www.reuters-com/article/2013/08/07/lme-warehousing-idUSL6N0G82Q120130807"a growing number of lawsuits, which state the named institutions conspired with the London Metal Exchange in hoarding aluminum and violating antitrust laws. The legal actions, brought by small aluminum manufacturers in the United States, include one filed Wednesday in Florida against Goldman, JP Morgan, the LME and Glencore Xstrata, as well as one against Goldman and the LME in Michigan." - etc, etc, (See article at: http://www.mining-com/lawsuits-against-goldman-jpmorgan-glencore-xstrata-for-suspected-aluminum-price-manipulation-pile-up-57037/) It is my understanding that Polymet has never operated a mine before so they have no track recoRd But Glencore's record is rather unsavory beginning with its association with MARC RICH "The Marc Rich Group History and company profile The Marc Rich Group is internationally active and engaged in the management of a diversified portfolio of financial market instruments and real estate projects. Its business includes direct investments in stocks, investment funds, currencies and the construction of residential, office and shop buildings. Recently, the Marc Rich Group is engaged and active in the international art market through MR Art Trading GmbH, Zug. In 1974, Marc Rich, together with his partners Pincus Green and Alec Hackel, founded the Marc Rich + Co AG (company limited by shares) in Zug, Switzerland, a commodity trading company which was renamed Marc Rich + Co Holding AG in 1987, while the commodity trading business continued to operate as Marc Rich + Co AG. In 1997, the Marc Rich + Co Holding AG was reorganised as a GmbH (limited partnership) which it remains to date. In 1993/94, Marc Rich sold his interest in the Marc Rich + Co AG to the company’s senior traders. The company was renamed Glencore International after the sale. Glencore, the former Marc Rich + Co AG, also held a 53% interest in Südelektra Holding AG, which is today known as Xstrata. In 1996, Marc Rich returned to the commodity business arena by forming a smaller commodities trading group, which was sold to its management in 2003- Marc Rich, in close partnership with Denise Rich, Libby and Pincus Green and Val and Alec Hackel, founded The Rich Foundations. The Rich Foundations are made up of The Marc Rich Foundation for Education, Culture and Welfare, The Gabrielle Rich Leukemia Research Foundation and The Swiss Foundation for the Doron Prize. For over 20 years more than $150'000'000 were allocated to approximately 4000 projects and individuals engaged in non-profit work in education, culture, social welfare and healthcare as well as in building up democracy and civil society." (See http://www.marcrich.ch/mrh_profile.html) "HYPERLINK "http://en.wikipedia-org/wiki/Marc_Rich"Marc Rich, a HYPERLINK "http://en.wikipedia-org/wiki/Fugitive"fugitive who had fled the US during his prosecution, was residing in Switzerland. Rich owed $48 million in taxes and was charged with 51 counts of tax fraud, was pardoned of HYPERLINK "http://en.wikipedia-org/wiki/Tax_evasion"tax evasion. He was required to pay a $100 million fine and waive any use of the pardon as a defense against any future civil charges that were filed against him in the same case. Critics complained that HYPERLI

42513

See attachment

Renee M Manning 3075

To Whom it May Concern; I am writing in support of PolyMet Mining and their current Minnesota project under review. I am strongly in support of environmental issues and fully support PolyMet. I have been closely following published information and know several people involved with the project. They are committed to the highest standards and working diligently to support and provide Minnesota with a clean and environmentally sound mine. They will produce needed metals and create hundreds of jobs that can support families and sustain communities. PolyMet is committed to utilizing the best available emission control devices possible on all their mobile mining equipment. I back this project 100% and believe in PolyMet to fulfill their promises while proving needed metals and job opportunities. Please issue PolyMet the needed permits to proceed. Sincerely, Renee Manning Renee Manning, RN, BSN Nurse Clinician * United Heart and Vascular Clinic * United Hospital, part of Allina Health Phone: 651-241-2963 * Pager: 612-510-8333 * Fax: 651-241-2980 * renee.manning@allina-com Mail Route 65500 * 225 Smith Ave N, Suite 400 * St Paul, MN 55102 This message contains information that is confidential and may be privileged. Unless you are the addressee (or authorized to receive for the addressee), you may not use, copy or disclose to anyone the message or any information contained in the message. If you have received the message in error, please advise the sender by reply e-mail and delete the message.

Alphabetical by sender's first name

Renee Reece-Murray 39981

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Renee Reece-Murray 20343 Nightingale St NW Cedar, MN 55011-9377

Renee Rumler 41992

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Renee Rumler Owatonna, Minnesota

Renee Valois 21574

Mar 5, 2014 Ms Lisa Fay MN Dear Ms Fay, Like all Minnesotans, I am concerned with protecting our clean water. PolyMet's plans to mine sulfide ore in northeastern Minnesota as described in the Supplemental Draft Environmental Impact Statement (SDEIS) are problematic. The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to make a smart decision. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest-the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. A paltry twenty years of profit for that company could create hundreds of years of toxic runoff and water pollution. If you do the math, that does NOT make sense. I care about this state which I live in-unlike the PolyMet people. Please do not let them sacrifice our quality of life for their short-term gain. Reject the PolyMet mining proposal. Sincerely, Ms Renee Valois 2014 Cleveland Ave N Roseville, MN 55113-5309 (651) 631-0499

Alphabetical by sender's first name

Rep David Hill 18082

Thank you very much, Mark. Tonight, I am here representing the views and opinions of the Iron Range Delegation of Legislators. The Iron Range Delegation of Legislators encompass virtually 100 percent representation of all ferrous and non-ferrous metals in the State of Minnesota, and I'm here to tell you that Representative Didovich, Representative Anzelc, Representative Melin, Representative Metsa, Senator Saxhaug, Senator Tomassoni, and Senator Bakk, and I all have a position that we are here and it is our job to do the very best that we can for you folks and the taxpayers of this entire state to add value to the natural resources that we have, whether they be ferrous and non-ferrous, wood, tourism, the water, the use of the water. That is our principal job and that's what we strive for every single day and every single year. We are confident, all of us, that this process will move forward based on data-driven outcomes and that the emotions of the project will be set aside so that those outcomes can prevail and lead this project either to happen or not to happen. So in short and in closing, first I'd like to thank the former members of the legislature that are here tonight; Rukavinas, and Begich and Senator Dicklich. I know that they feel similar if not exactly the same. But we are here tonight as a group to tell you people that we unilaterally and unequivocally support the development of non-ferrous minerals in Minnesota until such time it is proven by the data-driven outcomes that it cannot be done, and then we are unilaterally against it until such time that we can prove that it is feasible, environmentally and financially. That is our position. We've held that position the entire time. This project has gone on for nine years, and I hope that people can understand that, embrace that, and that we can move forward with this project. Thank you, very much.

Rep. Barb Yarusso 42916

From: Rep. Barb Yarusso 201 Bridge St Shoreview, MN 55126 My comments are contained in the attached PDF file, but also printed below: Comments and Questions Regarding the NorthMet Mining Project and Land Exchange Supplemental Draft Environmental Impact Statement (SDEIS) From: Representative Barb Yarusso rep.barb.yarusso@house.mn 1- From the point of view of a chemical engineer, the SDEIS does not adequately account for all of the material outputs of the project. Amounts consumed by the process are listed for a variety of process chemicals, but there is no description of where they will end up. They can't just disappear. Will they degrade (into what.). End up in the tailings, concentrate, sludge disposed of offsite, discharged water. 2- The assessment of the probability of a spill of potassium amyl xanthate (PAX) during transportation to the site is judged to be "moderate". According to the modeling estimate, there is approximately a 1/60 chance of a spill due to a highway accident over the 20 year working period of the mine. The consequences of such a spill of course depend on location. However, they may be significant, since PAX is highly flammable and produces hydrogen sulfide on contact with water. Are local communities prepared to handle these specific hazards. 3- Will there be residual PAX on the copper concentrate which is to be shipped out by rail. Will this cause an odor issue as it degrades and gives off hydrogen sulfide. 4- The bedrock under the tailings basin is assumed to be a "no flow boundary". What effect will the possible lowering of the pH in the basin over time due to the addition of acid-producing tailings be on this. Will it have any effect on whether small fissures grow, or on the integrity of the boundary between the bedrock and the bentonite barrier at the walls. 5- Is there any historical data or anecdotal information to indicate that well water quality in the area changed after the start of previous mining operations at the site. 6- Descriptions of the use of reverse osmosis to treat water for discharge focus on sulfate concentrations. Will the process also remove copper, nickel, and other heavy metals. 7- What is the potential environmental impact of concentrate spilled along the railway when it is shipped out for processing. The area between the plant and Lake Superior has several trout streaMs How close are the tracks to these or other streams or rivers, do tracks cross any of them, what would the cumulative impact of spills be on aquatic life. 8- Is there ever going to be a time when the potential of environmental harm from the tailings and other materials left behind will cease. The modeling did not address this question, but Minnesota law doesn't allow for perpetual harm. There should be modeling of the long term time evolution of the concentrations of components of intereSt 9- There is the hope (but not a guarantee) of development of a passive, biological system – is this to address sulfate issues. I can't see how it could help with heavy metals, because you can't make them go away. 10- Would it make more economic (and environmental) sense to use a system that increases rather than minimizes oxygen contact with the tailings in order to exhaust the potential for sulfate formation, while treating the water, to eliminate the indefinite treatment of polluted water at the site. 11- Is there any point along the Embarrass, Partridge, or St Louis Rivers where heavy metals would tend to precipitate (due to local chemistry) and accumulate. 12- What is the oldest facility that has a liner of the type to be used for the hydrometallurgic residue facility. What does the manufacturer say about the expected lifetime.

Alphabetical by sender's first name

Rep. Diane Loeffler 44962

I am writing in response to the request for public comments. 1) Not enough science and successful modeling has been presented to give confidence to the public on the scientific basis on which to assure sufficient protection of the waters of northern Minnesota. The limited availability of proven models supports a more cautious approach that requires demonstration sites and laboratory demonstrated sustainability. Why have small demonstration sites and implementation models of the proposed processes not been required as part of the establishment of a scientific analysis of the validity of the proposed protections. 2) There is insufficient sensitivity analysis of the groundwater modeling. Why weren't more sophisticated approaches used and required. 3) It is noted that exceedences on lead levels can be expected during times when there is a lot of natural runoff in addition to that created on site. Lead is one of the best documented pollutants and can result in lasting impacts in lowering human intelligence and having major other impacts on human and animal health. Why should exceedences on this known dangerous pollutant be in any way acceptable and why were these not flagged as unacceptable and in need of lasting prevention and mitigation. 4) The recent studies of wild rice impacts of the expected pollutants threatens a historic and cultural resource to the Native Americans and all residents of our state and a valueable source of food and habitat for key Minnesota species. Insufficient assessment of alternatives that would preserve, not mitigate this unique historic, cultural, diet, and habitat resource are noted and deserve specificity and the honoring of Treaty rights. Why has this area not been more sufficiently analyzed. 5) There is no demonstrated capacity for the state to develop and implement models of financial assurance that will adequately enable continuous monitoring and environmental response for many centuries. That greatly exceeds the time period that our country and its rules of laws have existed. No economic models that are accepted broadly within that field of science can establish confidence in predicting future costs and revenues over that period of time. Therefore acceptable risk levels cannot be determined and financial advance funding cannot be adequately planned for. What economists and economic research can support the assumptions for financial assurance. What legal structures for enforcement are needed at the federal, state, and international levels to enforce accountability over the next five centuries. Given that the company proposing the mine has international ownership, is US and MN law sufficient to enforce actions against that entity and or its successors. Should the "no action" alternative be adopted until such time as there is established scientific confidence that risks can be managed and funded within a time period of less than 75 years. 6) The Minnesota Constitution clearly limits the purposes and processes for long term obligations of the state. Can the need to maintain, monitor, and fund risk related activities for periods measured in centuries be defined as a ongoing financial obligation of the state. If so, under what authority other than specific, direct legislative act can authorize such longterm obligations and is that able to be delegated. How is that supported by recent Supreme Court rulings. 7) Minnesota has a long history of "pollutor pays" even for clean up of environmental risks that were not known or identified at the time of the polluting event or processes. How can that be enforced against pollution risks not identified or anticipated at this time. How will that added potential risk and obligation be accomodated in financial assurance. 8) What testing evidence is available that the proposed liners, membranes, and other containment and protection materials are sufficient to last through 500 or more centuries without deterioration, cracks,

Rep. Jean Wagenius 42901

I'm officially submitting these questions, from our February 10th meeting, for comment on the NorthMet PolyMet mine project. Jean Wagenius Jean Wagenius State Representative, District 63B 449 State Office Building 100 Rev. Dr Martin Luther King Jr. Blvd. St Paul, MN 55155 (651) 296-4200 HYPERLINK "mailto:rep.jean.wagenius@house.mn"rep.jean.wagenius@house.mn Please join me for "Second Saturday" Sept - May at 9:30 a.m. -11:30 a.m. Mayflower Church 35W and Diamond Lake Rd (come for a few minutes or stay for the whole meeting) Questions. Contact Nanette 651-296-5402 If you would like to receive my email updates please sign up here: http://www.house.leg.state.mn.us/members/join.asp.id=10690

42977

In addition to my questions, I'm submitting these comments. Thank you, Jean Wagenius Jean Wagenius State Representative, District 63B 449 State Office Building 100 Rev. Dr Martin Luther King Jr. Blvd. St Paul, MN 55155 (651) 296-4200 HYPERLINK "mailto:rep.jean.wagenius@house.mn"rep.jean.wagenius@house.mn Please join me for "Second Saturday" Sept - May at 9:30 a.m. -11:30 a.m. Mayflower Church 35W and Diamond Lake Rd (come for a few minutes or stay for the whole meeting) Questions. Contact Nanette 651-296-5402 If you would like to receive my email updates please sign up here: http://www.house.leg.state.mn.us/members/join.asp.id=10690

Alphabetical by sender's first name

Rep. Jim Swiderski 42886

Attention: Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Email: NorthMetSDEIS.dnr@state.mn.us Dear Lisa, Attached please find the Statement by Congressman Richard M. Nolan 2447 Rayburn House Office Building Washington, DC 20515 202-225-6211 on the Supplemental Draft Environmental Impact Statement for The NorthMet Mining Project and Land Exchange Proposed for portions of St Louis and Lake County, Minnesota Please confirm receipt and contact me with any questions. Jim Jim Swiderski Legislative Director US Representative Rick Nolan 2447 Rayburn HOB Washington, DC 20515 HYPERLINK "mailto:Jim.swiderski@mail.house-gov"Jim.swiderski@mail.house-gov 202-225-6211

Rep. Phyllis Kahn 37929

Please find my comments attached.

Rev. Canon John Rettger 54146

NO POLYMET. TOO DANGEROUS LONG TERM [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Rev. Charles Flynn 57341

My name is Father Charlie Flynn. I am the priest in Gilbert and Eveleth. And I suppose one thing that I would like to do in a gathering like this is to get a big collection, but I'm not going to do that. In the last year I have presided over 55 funerals and seven baptisms. The range is dying. The people are dying. Its population has been like that. And I would like to have something like PolyMet come in that could possibly reverse that and resuscitate our communities that are dying. So, hopefully, I am fully in support of PolyMet and providing jobs to our dying communities. I looked up the environmental review statement. It seems to be very much in accord with preserving God's creation and making sure that nothing bad happens to it. There seems like there are more rules out there than our church has rules and they have more power out there than the Inquisition ever had, so basically, the whole thing seems like it is going to preserve our clean water, preserve our environment and keep everything the way it should be. So, again, I have no fears that that will happen because the long arm of the law is out there. And I am fully in support of clean water, as well as PolyMet. So, I believe that's going to happen. Good luck with PolyMet. I hope it happens. Okay? Thank you.

Alphabetical by sender's first name

Rev. Myo-O Habermas-Scher 41752

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Rev. Wendy Jerome 51615

Dec 22, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The public may be easily misled into welcoming sulfide mining into the state, since we have a long history with iron ore mining and taconite. However, sulfide ore mining will change the face of northern Minnesota forever. Our watersheds are huge porous underground resources that sustain a world-celebrated wilderness. 100% of sulfide mines leak toxic carcinogens and sulfuric acid. The ancient Greek and Roman mines around the Mediterranean are still leaking today. We can count on the death of aquatic life and the terrestrial life - including human beings - dependent on it, if sulfide mining is allowed in Minnesota. Some think that sulfide mining would bring jobs to MN. On the contrary, it would bring a few hundred part time and full time jobs, that would be intermittent, given world ore prices. The mining would last 20 years. Minnesota would loose a slowly, but steadily growing recreation economy - and wilderness that is a world treasure for the world. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Rev. Wendy Jerome 37 Upton Ave S Minneapolis, MN 55405-1943

Alphabetical by sender's first name

RH Smith 40644

Dear Ms Fay, Dear Ms Fay and Mr Bruner, You know all the good scientific and health reasons for rejecting the PolyMet Mining project. They're all listed below. I just have one question: Do you want a 500 yr legacy of sulfide pollution of northeastern Minnesota and Lake Superior TO BE YOUR LEGACY. Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessmen

Rhoda Drake 38447

I strongly oppose the Polymet Mining Project in Northern Minnesota. The potential pollution problems and destruction of the environment are my main concerns. The clean water and natural environment should be protected. Please do not permit the Polymet project. Thank you for your consideration. Rhoda Drake 20235 See Gull Rd Brainerd, MN 56401

Rhonda Baack 54669

See attachment

Alphabetical by sender's first name

Rhonwen Tas 39715

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to provide a reasonable range of probabilities for liner leakage at the hydrometallurgical waste dump, rather than just assuming zero leaks forever. The SDEIS should also disclose the volume and level of contamination of this permanent, highly toxic waste facility. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Rhonwen Tas 4896 kent drive shoreview, MN 55126

Ri Zoldak 42473

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Ri Zoldak 3339 Emerson Ave S Minneapolis, MN 55408-3528

Rich 38360

To whom it may concern,I'd like to share my support for Polymet and to tell you that they are committed to keeping a clean,safe operation that will employ thousands to begin with and hundreds for a long,long time. Please grant Polymet the permits that they're requesting. Myself,family and friends all want to work for Polymet or a vendor/supplier/ contractor of Polymet. Thank you Richard Wright 4906 hwy 100 Aurora,MN 55705 218-229-2249 218-290-5910 Fatfrank@rocketmail-com

Alphabetical by sender's first name

Rich Femling 39263

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Rich Femling 1946 Tatum St Saint Paul, MN 55113-5442 (651) 647-1860

Rich Grover 21877

HYPERLINK "mailto:waterfly23@gmail-com"waterfly23@gmail-com rich grover 52 minnesota St rochester, n.y. 14609 On Tue, Mar 4, 2014 at 12:14 PM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Rich Libbey 43026

I would like to submit the attached study of using FLY ASH from coal fired power plants in closing mines with acid mine run off as part of the Polymet mine EIS review. The study analyses the effectiveness of using coal fired power plant fly ash in preventing acid mine run off. Minnesota Power land fills 100% of its millions of tons of fly ash in their ash ponds. THE EIS FAILS TO CONSIDER THE USE OF FLY ASH AS A SOLUTION TO POTENTIAL ACID MINE DRAINAGE AND USE AS A MINE CAP CLOSURE ALTERNATIVE AND US AS A NEUTRALIZING AGENT IN THE MINE PIT. Richard Libbey—18603 Hale Lake Drive—Grand Rapids MN. 55744

Alphabetical by sender's first name

Rich Libbey 44953

I am commenting as an individual saying the only option is zero treatment after closure. If this is not possible then no mine should be permitted. Rather than refilling the pit with sulfate laden crushed waste rock like mixing a martini in a glass with class 2-4 ore piles high is sulfur to instead completely enclose the stock pile with a bottom liner and impervious overlay of geomembrane and concrete plus soil overlay --. The EIS needs to consider the use of fly ash from Minnesota Power's electric power plants which is high in PH and now put in tailings basins to be mixed with the concrete mixture. If we can keep the sulfides from air and water it might work. The runoff during stockpiling before mine closure would have to be treated. --- If the Polymet mine can't develop a plan with zero discharge after closure then leave the ore body in the ground for future generations. ---I question the ground water migration figures and suggest test wells be drilled and pumping from the fracture zones to measure the ground water movements and fracture zones. This will give a more accurate basis to determine ground water migration. -- What is the predicted out flow of the mine pit after closure and the water quality with and without refilling it with waste rock. --I worked for Minnesota Power for 25 years and was a control room operator at Cohasset's Boswell Coal Fired plant . We are the second largest power company in the state behind Excel. We recently installed a reverse osmosis system to treat well water similar to what Polymet plans to use for water treatment for as long as necessary. It is a high maintenance system computer controlled with pumps constantly running and filters to be changed once a week. The Polymet water treatment plant would have to be manned 24 hours a day with at least 4 full time employees if one person is on per shift plus fill in for the weekend coverage plus vacation coverage plus needed maintenance personnel. One of the most common alarms I got in the control room was the ''Reverse Osmosis System Trouble alarm''. A plant employee would be dispatched to attempt to correct the reverse osmosis problem. I'm not sure how long these can run before they wear out and become obsolete and require complete replacement. Also a back up power supply is necessary and the electric grid may have to remain intact for 200 plus years.The contaminates that are removed from the water have to be disposed of somewhere. How is Polymet going to handle the dirty contaminates that are removed from the water.Also I would suggest at least 500 million guaranteed up front bond tied to the consumer price index. The labor expense alone needs to be calculated. I would estimate at least $250,000 per year in operator wages. --DEMONSTRATION MINE TO PROVE SAFE MINING AND SUCCESSFUL CLOSURE—NO MORE MINES SHALL BE PERMITTED UNTIL ONE MINE CAN OPERATE AND PROVE NO DISCHARGE OF POLLUTANTS AFTER CLOSURE-If the EIS predicts mining can be done with no negative environmental affects only one mine be permitted until successful closure can be demonstrated for a demonstration mine. Prove it can be done before the floodgates open. - Also under environmental law related actions and cumulative affects are to be considered. The draft EIS does not consider the total impacts of possible future mines in the Duluth complex that is a certainty if Polymet is approved. - I would also suggest that we pass a law similar to Wisconsin's that requires citing a similar mine that has operated at least 10 years and has showed successful closure for ten years any where in the world before applying for a permit to mine. No applicants have been able to demonstrate this to date in Wisconsin. Respectfully submitted-Richard Libbey-18603 Hale Lake Drive-Grand Rapids MN 55744

45000

Information on using waste fly ash [CCP'S] in mine closures. This should be considered in the Polymet EIS. The EIS is incomplete without considering all alternatives. Extensive research conducted by the Surface Mining Control and Reclamation Act (SMCRA) indicate that the placement of coal combustion by-products (CCP'S) on the mine site usually result in a beneficial impact to human health and the environment when used to mitigate other potential mining hazards. This activity can also improve the economics of mining when used as a non-toxic fill within the spoil area prior to grading and final reclamation. Current beneficial mining related CCP applications are as follows: An alkaline seal or fill material to contain acid forming materials and prevent the formation of acid mine drainage. An agricultural supplement to create artificial soil on abandoned mine lands where native soils are not available. A flowable fill that seals and stabilizes abandoned underground mines to prevent subsidence and the production of acid mine drainage. A construction material for dams where such materials are needed to create a compact and durable base. A non-toxic fill material for final pits within the spoil area to reduce reclamation coSt Richard Libbey-18603 Hale Lake Drive-Grand Rapids MN-55744

Alphabetical by sender's first name

Rich Libbey 45061

I Feel the SDEIS is inadequate because it does not analyze a ZERO discharge upon closure option. The current option of indefinite treatment by Reverse Osmosis is totally unacceptable. The only way this mine can be permitted responsibly is a NO ACTIVE TREATMENT OPTION. I propose placing the waste rock in class 2-4 be placed on an impervious bottom liner with a collection system in case of failure. Plus totally encapsulating the top of the waste pile with another impervious layer rather than back filling it in the East pit. The composition of the protective cover should consider the use of Minnesota Power's FLY ASH that has a high PH and when combined with Calcium Carbonate or Portland cement forms an impervious solid barrier. The EIS should also consider using Minnesota Powers fly ash as a neutralizing agent either on the waste rock pile or adding it to the mine pit water. It has a PH of 10-12 but contains trace amounts of heavy metals. Fly ash has been used to successfully close coal mines and has been shown to neutralize the acid mine runoff. The fly ash is currently placed in an ash pond . To prevent acid mine drainage the pile has to avoid exposure to oxygen and water in combination. THE SDEIS SHOULD ANALYZE THE FEASIBILITY OF TOTALLY ISOLATING THE SULFATE BEARING WASTE FROM AIR AND WATER. IT DOES NOT DO THIS AND IS THEREFOR INADEQUATE. A concrete and fly ash mixture could be used in conjunction with a geomembrane and a top cover of native soils with vegetation. The EIS should consider a concrete-fly ash cover of sufficient thickness to prevent water in filtration. If the Russians can entomb the highly radioactive Chernobyl site we should be able to encase a pile of waste rock.The soil layer would have to be of sufficient depth to prevent the penetration by mature tree roots. The cost of such a system would be high up front but when compared to long term maintenance as proposed for water treatment and vegetative removal could be feasible a long term solution. This should be analyzed as an alternative in the final EIS. The proposed action of filling the East pit with the sulfate bearing waste rock is a recipe for disaster. It is like putting crushed ice in a martini glass. The surface area of the rock mixed with oxygen rich water will produce acid and sulfate runoff. THE FINAL EIS NEEDS TO PREDICT THE WATER QUALITY OF THE EAST PIT WHEN FILLED WITH WASTE ROCK AND WHAT IT WOULD BE WITHOUT THE WASTE ROCK BACK FILLED INTO IT. THE FINAL EIS NEEDS TO DETERMINE IF THE PIT WILL OVERFLOW IN PERPETUITY AS THE CANISTEO IRON MINE ON THE NORTH SIDE OF BOVEY IS DOING AND COSTING TAX PAYERS MILLIONS OF DOLLARS TO CONTROL EVEN THOUGH THE WATER IS SOME OF THE HIGHEST QUALITY IN THE STATE. IF THE POLYMET MINE OVERFLOWS WITH TOXIC RUNOFF THE PROBLEM WILL BE UN MANAGEABLE. Thank You for this opportunity to comment-First the environment-Second jobs and business profits. A life long Ranger. Richard Libbey - 18603 Hale Lake Drive - Grand Rapids, Minnesota 55744

52238

Hi I sent 4 additional comments yesterday and today on Polymet and was only noticed of receipt of one of them at 4:33 Pm today. Did you receive my earlier comments. My "sent " email box shows they were sent. Thanks Richard Libbey 18603 Hale Lake Drive- Grand Rapids Mn-55744 From: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"*NorthMetSDEIS (DNR) Sent: Thursday, March 13, 2014 4:33 PM To: HYPERLINK "mailto:rdlibbey@mchsi-com"Richard Libbey Subject: RE: Please consider alternatives like underground mining in the PolyMet mine plan Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Rich Sill 43686

Five years ago I visited the former LTV site and toured the mine area to learn more about Polymet,s plans. I was impressed with their presentation and felt the local people involved were sincere in their belief that no environmental damage would occur because of the operation. Upon returning home I purchased 100 shares of Polymet stock. I acquired the stock for two reasons. First, I feel strongly that if we, as Americans, are going to continue to demand gold, copper, platinum, paladium, etc we need to be responsible for mining those minerals here and be willing to take ownership of the problems associated with that mining. It seemed unethical to throw our demand on other counties, many of which do not have adequate environmental or labor laws to protect either their land or their people. Secondly, since I felt I a personal responsibility I wanted to make sure if my opinion changed I would be able to have a say, even though it would be a limited one, in how the company was run and have an avenue for expression. After reviewing the SDEIS I am becoming increasingly concerned about the mines effect on wild rice. The latest report shows the 10 parts per million limit as probably a sensible amount of sulfite in the water. I am seriously concerned that their will be an aggressive action by certain parties to increase that greatly (in some reported cases to as much as thousands of parts). This is a vary troubling development. Wild rice is a sacred grain to the Ojibway people of this area and is protected by treaty. If the permit is granted I would strongly feel very strong ongoing monitoring be required. Wild rice is a valuable resource in itself and should not be sacrificed in order to extract other resources such as copper. Lastly, though this is not so much an environmental concern, I am deeply troubled by what I am currently hearing regarding the fact that nearly all the copper is scheduled for transport to China. I supported the mine originally because I believed we would be using these minerals primarily for domestic use. Rich Sill French River, MN 218 525-6458 Sent from my iPad

Rich Staffon 42681

See attachment

Richard & Carol Colburn 42764

See attachment

Richard & Justine Kingham 40204

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Minnesota is too fragile yet important a natural resource to threaten with this. Sincerely, Richard and Justine Kingham 4821 Dexter St NW Washington, DC 20007-1018

Alphabetical by sender's first name

Richard Adams 40844

Mar 10, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Richard Adams 2257 Gibbs Rd Traverse City, MI 49696-8056 (231) 421-8275

Richard Amey 39989

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Richard Amey 710 14th Ave SE Minneapolis, MN 55414-1595 (612) 304-8315

Richard and Katherine Collman 636

Dear Lisa Fay, In a Dec. 5 letter, opinions are sought, so here is mine. What price wilderness. What price our nation's great parks. What price pollution in our lovely northern waters. What price put on the short term vision for copper and nickel for world computers only to ruin some waters and woods in the next 100-500 years. We can put a price on short terms needs and suffer in the generations to come. What will the fourth generation from us think of our decision now. Will they bless us or curse us. Will we sell our souls for short term profit. It was done with the buffalo. It was done with the white pine. I cannot believe it will again be done with minerals under the earth in spite of promises of mining companies to clean up their acts against the environment. Fracking be damned if that is even possible.. To quote Mark Twain (.) "A mine is just a hole in the ground with a liar standing next to it." When will we wake up. Thank you, someone, for listening. I have never yet heard back from DNR on any issue I have written them about, but I did want to register my opinion. I grew up just west of Duluth. Rev. Richard F. Collman 15 Fareway Drive Northfield, MN 55057 507-645-1357

richard anderson 41170

Please do not permit PolyMet to proceed with the proposed project of sulfide mining. . I strongly believe that preserving our natural resources, including uncontaminated water, is more important than temporary financial gain. Respectfully submitted, Richard A. Anderson 6880 East Highway 61 PO Box 215 Grand Portage, MN 55605

Alphabetical by sender's first name

Richard Arne 16226

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Richard Bergman 9951

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Richard Bergman 317 Valley Rd Two Harbors, MN 55616

18705

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Richard Bergman 317 Valley Rd Two Harbors, MN 55616

Alphabetical by sender's first name

Richard Bergman 50780

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Richard Bergman 317 Valley Rd Two Harbors, MN 55616

Richard Bradford 6686

While I understand the passion of those that are focused on environmental issues, I have a difficult time accepting this narrow perspective. I would really like to put a box in front of the hearing sites suggesting that those who are absolutely opposed to the project deposit their computers, cellphones, car keys, medical devices, etc into the box. Anyone that would do that may not have my agreement, but they would have my respect. For those that don't use the box, you have to assume that mining for materials for these products is ok as long as it is done in some other country. Is it fair though to the folks in these other countries if there is really no safe way to do this mining. I don't see how you can have it both ways. We need what Polymet will mine and this mining can not be done more safely in any other part of the world. I believe that the review process is as complete as it can possibly be. Let's get the project moving. Richard Bradford, 315 Dorchester Drive, Hoyt Lakes, MN 55750

Alphabetical by sender's first name

Richard Brainerd 16171

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Richard C Staffon 42682

See attachment

Richard Carlson 39463

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Richard Carlson 12521 74th Ave N Maple Grove, MN 55369-5282

Alphabetical by sender's first name

Richard Carlson 40213

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Richard Carlson 12521 74th Ave N Maple Grove, MN 55369-5282

richard carothers 10

This project is not worth the cost of our sacred forest and waters.I'm an outdoorsman along with my family.We say no to the mine.The jobs are not there now so what's the difference.To big of a gamble . Sent from my iPad

Richard Cooter 54659

See attachment

Alphabetical by sender's first name

Richard Daly 16240

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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Richard Decoster 14900

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Alphabetical by sender's first name

Richard Flesvig 18067

My name is Richard Flesvig, F-L-E-S-V-I-G. I'm a resident of Eagle's Nest Township near Ely. I'm here to express my strong opposition to the acceptance of the SDEIS. I'm here because the law requires me to speak out. According to section 116B.01 of the Minnesota Environmental Rights Act, the legislature finds and declares that each person is entitled by right to the protection, preservation, and enhancement of air, water, land, and other natural resources located within the state; and that each person has the responsibility to contribute to the protection, preservation, and enhancement thereof. The proposed SDEIS must be rejected because it is significantly flawed in many sections. I will briefly speak to a few of these flaws. By express admission in the SDEIS significant water pollution will last for 200, 500 or longer in terms of years; and will require perpetual water treatment. Not all of the polluted water will be treated. Respective to perpetual environmental contamination. The 90 percent capture rate of polluted water bears no scientific proof or substantiation. So the SDEIS must be rejected. Again, according to section 116D.04, subsection 6 of the Minnesota Environmental Policy Act states, "No state action significantly affecting the quality of the environment should be allowed nor shall any permit for natural resource management and development be granted where such action or permit has caused or is likely to cause pollution, impairment or destruction of the air, water, land, or other natural resources located within the state so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public, health, safety, and welfare. And the state's paramount concern for the protection of it's air, water, land, and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct." No such conduct is provided – no such alternative is provided in the SDEIS. The SDEIS indicates that the details of the financial assurances required to sustain a 200- or 500-year period will not be disclosed until the permitting process commences. This is unfortunate as I seriously question how anyone can properly calculate the staggering dollar amount let alone provide a financial assurance for this long term of a period. Based on these flaws on the SDEIS must be rejected. Thank you.

54478

See attachment

Richard Frase 39695

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining must be banned in Minnesota until it can be proven safe. And it has not been. This type of mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Richard Frase 2831 James Ave S Minneapolis, MN 55408-2158 (612) 872-8559

Richard Fryberger 57257

I have to ask myself what do I value the most – and our fresh water resources are at best endangered. Iron mining ok – sulfide copper extraction no – please don’t allow this to happen here.Thank you.Richard Fryberger3399 Riley RoadDuluth, MN 55803

Alphabetical by sender's first name

Richard Fuller 7673

Dear Ms Fay, Dear Lisa Fay and others interested inthe PolyMet SDEIS The PolyMet SDEIS is inadequate. It makes claims without facts behind them. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity." Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely Richard Fuller 1081 Laurel Ave St Paul, MN 55104

15272

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade. The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St Louis River and tribal resources. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice. Please take the following actions to protect clean water, ecological communities, public lands and tribal rights: •Reject PolyMet's proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. •Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. •Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. •Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. •Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. No more studies are needed to know that the PolyMet land exchange and sulfide mine should not be approved. The SDEIS plan is also inadequate and should be rejected: •The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. •The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at taxpayer expense. •The SDEIS fails to analyze alternatives, including underground mining, that could reduce impacts on lynx, moose, and other species that are threatened, endangered or of significance to tribes. •The SDEIS fails to study cumulative adverse impacts on moose of the PolyMet project and other activities that destroy habitat and increase global climate change. •The SDEIS fails to provide a cumulative analysis of impacts to clean water, plants and mammals that are significant to tribes and protected under treaties, throughout the tribal Ceded Territories in the Lake Superior Basin. In summary, please reject the PolyMet SDEIS as inadequate and reject the proposed PolyMet sulfide mine and Land Exchange as destructive to the public interest and harmful to tribal rights, clean water, vital habitats and the health of future generations. Sincerely Richard Fuller 1081 Laurel Ave St Paul, MN 55104

Alphabetical by sender's first name

Richard Fuller 51102

Dear Mr Dabney, Mr Bruner and Ms Fay: I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade. The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St Louis River and tribal resources. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice. Please take the following actions to protect clean water, ecological communities, public lands and tribal rights: • Reject PolyMet's proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. • Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. • Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. • Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. • Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. No more studies are needed to know that the PolyMet land exchange and sulfide mine should not be approved. The SDEIS plan is also inadequate and should be rejected: • The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. • The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at taxpayer expense. • The SDEIS fails to analyze alternatives, including underground mining, that could reduce impacts on lynx, moose, and other species that are threatened, endangered or of significance to tribes. • The SDEIS fails to study cumulative adverse impacts on moose of the PolyMet project and other activities that destroy habitat and increase global climate change. • The SDEIS fails to provide a cumulative analysis of impacts to clean water, plants and mammals that are significant to tribes and protected under treaties, throughout the tribal Ceded Territories in the Lake Superior Basin. In summary, please reject the PolyMet SDEIS as inadequate and reject the proposed PolyMet sulfide mine and Land Exchange as destructive to the public interest and harmful to tribal rights, clean water, vital habitats and the health of future generations. Sincerely Richard Fuller 1081 Laurel Ave St Paul, MN 55104

Alphabetical by sender's first name

Richard Gravrok 18940

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Richard Gravrok 2925 Monterey Ave Apt. 102 St Louis Park, MN 55416 952-926-6655

Richard H Hudelson 54892

See attachment

Richard Harris 54643

See attachment

Richard Henke 7161

I am writing today in support of the Polymet Mining proposal for Northeast Minnesota. There is no question that this area is in need of the jobs this mine will create and support in the surrounding communities. It appears the company has addressed the environmental concerns with this recent Environmental Impact Statement and has reasonable plans in place to address these concerns. Having visited a number of copper mining areas around the world both during mining and smelting periods and after, I am convinced that the industry has come a long way in addressing environmental damage it caused and now is better prepared to minimize such damage from newer operations such as Polymet is proposing. I grew up in Virginia, MN and still enjoy visiting the North Shore of Lake Superior and the boundary waters lakes every year. I certainly do not want the quality of my visits affected and I do not think they will be by this project. This review process has gone on long enough. It is time to move ahead and provide this needed economic boost to Minnesota. Dick Henke 1077 Sibley Memorial Hwy #607 Lilydale, MN 55118

Alphabetical by sender's first name

Richard Hjort 16217

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

39531

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Richard Hjort 9506 270th St Chisago City, MN 55013-7315 (651) 257-2553

Richard K Newkomet 57207

Only thing this is going to benefit is the politician’s pocket books. This mining is going to pollute the land and waters so my grandkids will not enjoy what I have. And when they are done making their millions of dollars they will pull out and leave the taxpayers to clean their mess up. Just like Duluth’s steel plant cleanup and cement plant cleanup.Gregory N. Rautell5557 N. Cloquet RdDuluth, MN 55810

Alphabetical by sender's first name

Richard Lee Hallfrisch 54570

I would not trust these high [illegible] money people as far as I could throw anyone of them Money is the only motive for them to be allowed to destroy parts of our north country for years to come. Send them packing down the road to destroy some other area.

Richard Lutes 33843

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Concerning the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement - I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is NOT IN THE PUBLIC INTERESt Sincerely, Richard Lutes 23670 McAllister St Southfield, MI 48033-2962

Richard Mammel 1091

Thanks instead to you folks . You are a splendid crew. It is simply outrageous to find that PolyMet, or any industry, can manage to worm its way as far as it has into mutilating this state's environmental values and policies, to actually be considered to exploit all the citizens of this state for the financial gain of a very few. Rick Mammel 1209 Birch Hill Drive Albert Lea, MN 56007 Ph: 507-377-5046 On Mon, Dec 9, 2013 at 4:25 PM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

4869

Thanks so very much for the good work you folks are doing on behalf of all citizenry not only of the U. S. but of the entire planet It seems to many of us that as Minnesotans voted for the Water Legacy Act only about five years ago that having this PolyMet issue pop up is a total contradiction as well as violation of policy, good sense, and ethics as well. Rick Mammel 1209 Birch Hill Drive Albert Lea, MN 56007 On Fri, Jan 10, 2014 at 7:52 AM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Richard Mammel 39079

---Original Message--- From: mudman0007@gmail-com [mailto:mudman0007@gmail-com] Sent: Monday, March 10, 2014 8:05 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Richard Mammel 1209 Birch Hill Dr Albert Lea, MN 56007-1802

57672

Thanks so very much for the good work you folks are doing on behalf of all citizenry not only of the U. S. but of the entire planet It seems to many of us that as Minnesotans voted for the Water Legacy Act only about five years ago that having this PolyMet issue pop up is a total contradiction as well as violation of policy, good sense, and ethics as well. Rick Mammel 1209 Birch Hill Drive Albert Lea, MN 56007 On Fri, Jan 10, 2014 at 7:52 AM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Richard Martin 42940

Please include the attached letter as part of the decision on the Polymet proposed mining project. Thank you, Richard Martin

Richard McGehee 3617

The Boundary Waters Canoe Area is a unique wilderness treasure. My family enjoys camping trips there every summer. Please do not allow the pollution inevitably produced by these dirty mines. Please reject the proposed PolyMet project. Richard McGehee 77 Mid Oaks Lane Roseville, MN 55113

Alphabetical by sender's first name

Richard Morrison 44360

Lisa Fay EIS Project Manager MNDR Division of Ecological and Water Resources Environmental Review Unit I am writing to request an extension for further review of the Polymet Plan for sulfide mining adjacent to the Boundary Waters area of Minnesota. I am concerned because of a decades-long personal association with the BWCA of Minnesota and also because of my concern about the long-term potential public financial obligation for remediation of damage to the BWCA. I am urging an extension of the time for public review of the Polymet sulfide mining plan for the following reasons: 1) Allow time to review and correct the misleading statements about drainage from the 100 mile swamp. It is clear from expert geological review that the swamp drains in part via Langley Creek into the BWCA. This is a fact which Polymet has omitted from its plan. Mining wastes, which will certainly flow into the100 Mile Swamp will therefore ultimately flow at least in part, into the BWCA. 2) Provide time to plan and execute, before operations begin, water flowage tests within and out of the 100 Mile swamp. These would presumably include both water volume flow rates at appropriate times and also potential contaminant migration rates. 3) Provide for a secure funding source in the event that remediation is found to be necessary at some future time. I do not have financial expertise, but it seems that this should be in the form of bonding rather than dependence on a corporate balance sheet subject to the vagaries of a bankruptcy court. This remediation, if ever needed, should not become a public expense. Sincerely, Richard D. Morrison N7120, County Rd F Menomonie, WI 54751

Richard Morse 44542

To whom it may concern, I am vehemently opposed to the Polymet mine project. I fear that my beloved BWCAW will be forever spoiled for short term profits. I moved to Minnesota in 1974, immediately after college. My primary reason for selecting the local job over a job in a different area was Northern Minnesota. I currently have a cabin in the Ely area on Burntside Lake. Not enough emphasis has been given to the fact that this mine is not only putting the jobs of the tourism area at risk, but many, many people like me would not relocate here if the environment is spoiled. I enjoy a BWCAW trip every year and if that is taken away because of pollution I will relocate to an area that values pristine wilderness more than the State of Minnesota. I know the lure of jobs and economic prosperity is great. If you decide to proceed with this mine, my advice is this. Have Polymet run their mine for 1 year and then monitor the effects on the environment for 5 or 10 years. Let's face it, those precious metals are not going anywhere and they also become more valuable the longer they stay put. This will test out the theory that Polymet can mine the sulfide laden rock without polluting the valuable waters of Minnesota. Trust, but verify. Please, please do not trust the mining industry. Many broken promises have been made. Are you prepared for the brain drain that would occur if the environment is polluted. Thanks. Rich Morse 1405 29th Ave NW New Brighton, MN 55112

Richard Newmark 42815

See attachment

Alphabetical by sender's first name

Richard Olson 19119

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Richard Olson 45 University Ave SE Unit 610 Minneapolis, MN 55414 612 331-9798

Alphabetical by sender's first name

Richard Olson 39154

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

42486

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Richard Olson 45 University Ave SE Unit 610 Minneapolis, MN 55414-1196 (612) 331-9798

Richard O'Neil 38756

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Is there no part of our environment and heritage that is sacred to you, your children, and grandchildren. Sincerely, Mr Richard O'Neil 3530 Rustic Pl Shoreview, MN 55126-3018 (651) 481-1591

Alphabetical by sender's first name

Richard Pierce 32893

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt With the midwest poisoning their water supplies with herbicides, pesticides and other chemicals. Other states having water supplies contaminated from fracking or having water supplis rationed due to drought and climate change disrupting weather patterns throughout the world, plus human population of earth nearig 8 billion, it is no longer prudent to endanger our GREAT LAKES with further pollution. I will remember your decisions and party affiliation in future elections. Sincerely, Richard Pierce 1060 Georgina Dr Ypsilanti, MI 48198-6312

Richard R Lund 57264

Is it worth it?? Would it be economically more feasible to subsidize mine workers (unemployed) than to pay for environmental cleanup for 100 years? With residual damage really beyond restoration.Richard R. Lund8104 Highwood Dr, G121Bloomington, MN 55438

Richard Spyhalski 41787

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Richard Staffon 18347

My name is Rich Staffon. I am a resident of Cloquet, Minnesota. I lived in -- it is Rich, R-I-C-H, Staffon, S-T-A-F-F-O-N. I have lived here in northeastern Minnesota most of my life. I grew up hunting, fishing, camping and canoeing in the beautiful forest here in our northeastern part of our state. These comments reflect my personal view and I think it is important that the people of Minnesota have the opportunity to comment on the PolyMet sulfide ore mine project because the land on which this mine will be built is our land, the mine's wealth and the earth beneath is our mineral wealth, and the forest, fish and wildlife and waters of this land are owned by us, the people of Minnesota. We have the right to expect the federal and state natural resources agencies that we fund that they will, with our sacred trust, preserve, protect and wisely use these resources. This mining proposal I believe does not live up to this sacred trust. It will destroy at least three square miles of high-quality sufficient wildlife habitat, including forests, wetlands and streams. This habitat would cost several million dollars if you went out and tried to buy it in the open market today. And the project may impact a much larger area of land. This project will increase mercury and water pollution in the St. Louis River Watershed, which is already impaired by these pollutants. This has serious implications for human health, especially fetal development (phonetic) in northeastern Minnesota, for people who eat fish, and it will also impact wild rice. And finally, it will leave a legacy of polluting the soil and water in the St. Louis River Watershed that will need to be treated at great costs for possibly hundreds of years. Millions of dollars have been spent to clean up the legacy of industrial pollution that was left right here in the lower St. Louis River several years ago. Much progress has been made, but yet much work is left to be done to clean up this mess. Have we learned so little, that now we are willing to create the same problem in the upper regions of this watershed? I am not opposed to mining, but I am opposed to an irresponsible mining project that destroys too much land, leaves us with a long-term legacy of pollution and increases the enforcement nightmare for our public agencies. These agencies are unlikely to have the ability to monitor and to require the mining companies to actually do what they promised. Let's leave these minerals in the ground for now. They are like money in the bank and they will only grow in value over time. We need to learn how to mine them responsibly. Thank you.

richard taylor 39145

Mar 11, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mr richard taylor 1619 E 6th St Duluth, MN 55812-1210 (218) 428-8233

Richard W. Swanson 47025

I stand with the Minnesota Center for Environmental Advocacy and the Mining Truth folks in opposition to allowing the permitting process to go forward, for all of the reasons stated by those entities. We simply cannot afford to risk our environment for “progress and jobs.” Those two elements cannot be allowed to drive everything and outweigh serious concerns about environmental and health dangers. If there is any doubt, the doubts must be resolved in favor of the environment and health. There certainly have been doubts raised in the EIS and subsequent comments. Please do not sweep those doubts aside in favor of economic gain or the technical “needs” of our modern lifestyle. Demand more. Thank you for listening. Richard W. Swanson PO Box 508 Grand Marais, MN 55604-0508 h(218) 387-1862 w(218) 387 2902 cell(218) 370-1119 _____ Information from ESET NOD32 Antivirus, version of virus signature database 9533 (20140312) _____ The message was checked by ESET NOD32 Antivirus. http://www.eset-com

Alphabetical by sender's first name

Richard Watson 3687

Dec 20, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. There could not be a worse time in our countries history to even contemplate putting sulfide ore mining in the Arrowhead Region of Minnesota. We are just beginning to understand how badly we have fragmented the forest here, how impaired our waters are already, and how even iron mining has degraded the health of citizens in this region. Our efforts should be put to cleaning up what we have already mucked up and not trying to determine just how much more pollution we can tolerate. This is the worst type of mining at the worst possible time in our history. The myth of "strong regulations" in Minnesota must be scientifically evaluated, mining company variances denied, and corporate polluters held totally accountable before we embark on further pollution of this region. I strongly suggest we need to hold off on sulfide ore mining in this region until we have a much better plan in place than offered by Polymet. Let's begin to create a living zone in N.E. Minnesota rather than another dead zone. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Richard Watson 114 E Boundary St Ely, MN 55731-1331 (218) 365-5511

44623

http://beforeitsnews-com/environment/2014/03/polymet-environmental-impact-statement-has-incorrect-maps-2495246-html A website that provides more detailed information about the mapping issue atHYPERLINK "http://beforeitsnews-com/r2/.url=http://www.bwcasulfidemining-org/"www.bwcasulfidemining-org is receiving increasingly serious attention. The website documents that the first incorrect map in the SDEIS appears as Figure 4-2-3-1 on page 472 and that a comparative government map of the swamp area is available at HYPERLINK "http://beforeitsnews-com/r2/.url=http://www.nationalatlas-gov/streamer"www.nationalatlas-gov/streamer. The downstream flow mapping feature of the HYPERLINK "http://beforeitsnews-com/r2/.url=http://www.nationalatlas-gov/streamer"www.nationalatlas-gov/streamer map was used to show that the eastern portion of the One Hundred Mile Swamp drains via Langley Creek and the Dunka River to the BWCA, and that the drainage will also affect the Quetico Provincial Park along the US – Canada border. Real life understanding of the effect of the proposed mine on the BWCA requires determining the split of waste drainage in the swamp that goes to the St Louis River and BWCA watersheds by hydraulic conductivity testing which has not been done. Ongoing protection of the BWCA requires periodic water testing for mine waste at Langley Creek and the Dunka River which is not provided for in the uncorrected SDEIS. Rwatason HYPERLINK "mailto:rwatson@elyminnesota-com"rwatson@elyminnesota-com 218-365-5511

Alphabetical by sender's first name

Richard Watson 45689

I've commented before on other issues but have discovered other issues with the SDEIS that should be brought to your attention. The Polymet SDEIS should not be approved and will require significant clarification, changes, and research in an attempt to rectify, if that is even possible. The Beneficiation Process requires Ore Crushing and Ore Grinding both of which are not designed specifically for low grade sulfide ore. The SDEIS claims: Ore Crushing "The existing coarse- and fine-crushing building emission control systems would be replaced with components that meet or exceed the particulate emission standard required of new sources at taconite plants." Ore Grinding "The existing ore-grinding emission control systems would be replaced with components that meet or exceeded the particulate emission standard required of new sources at taconite plants." Those comments in the SDEIS relating to the emission control systems for the ore crushing and grinding operations of low grade sulfide bearing ores shows a basic lack of concern or knowledge of the basic differences between iron mining and low grade sulfide ore mining and processing. It should not have to be stated the two are significantly different. The chemical and physical characteristics of the low grade ore crushing and grinding will, of course, have a different chemical composition and will also have a different particle size profile with the possibility of much greater quantities of dust and fine particles, possibly even Ultra Fine Particles that should be handled in a different manner than at a taconite plant. At the very least, the physical and chemical differences should be tested and defined for appropriate and specific design of the emission control system for the low grade sulfide ore crushing and grinding operations and not rely on taconite plant designs. Additionally, I could find no mention of Ultra Fine Particles in the SDEIS. The science is well understood. Ultra Fine Particles are toxic due to their size and not necessarily their chemical makeup. Nano Particles or Ultra Fine Particles which may be present in crushing and grinding operations are definitely produced when high explosives are used to blast rock and are present in diesel exhauSt Testing for UFP's at all physical handling stages, blasting, crushing, grinding, and transport should be standaRd And, elimination or control of UFPs, a known health hazard, must be accomplished. Could UFP's be partially responsible for the higher than average incidents of certain cancers in the mining areas of Minnesota. Current research shows that with nanoparticles comes nanotoxicity. These UFPs may be as hazardous or more hazardous that amphibole asbestos. Any EIS must include a consideration of all sources of UFP's, quantities of UFP's generated by each source, and a method for controlling such particles to eliminate human exposure to UFPs. In studying the Beneficiation Process, we discover that there is a list of chemicals that are listed as "Consumed." This list amounts to a total of 29,738-5 tpy (tons per year) of additional chemicals, of varying degrees of toxicity, that will be added to the tailings basin according to a reply I received from the DNR. The destination of these process chemicals are not listed in the SDEIS. These chemicals are not innocuous as their MSDSs show. This is problematic in itself, a large quantity of varying degrees of chemical toxicity that have essentially been unaccounted for and is not included in modeling and could have a significant impact on chemical interaction in the tailings basins. The modeling of what happens in the tailings basin is therefore incomplete and misleading. The complexity of the total chemical and biological (microbial) makeup of the tailings basin is far from realistic or representational. The current SDEIS is flawed, incomplete, and not acceptable for the protection of workers, the watersheds of Minn

51774

Dec 20, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. There could not be a worse time in our countries history to even contemplate putting sulfide ore mining in the Arrowhead Region of Minnesota. We are just beginning to understand how badly we have fragmented the forest here, how impaired our waters are already, and how even iron mining has degraded the health of citizens in this region. Our efforts should be put to cleaning up what we have already mucked up and not trying to determine just how much more pollution we can tolerate. This is the worst type of mining at the worst possible time in our history. The myth of "strong regulations" in Minnesota must be scientifically evaluated, mining company variances denied, and corporate polluters held totally accountable before we embark on further pollution of this region. I strongly suggest we need to hold off on sulfide ore mining in this region until we have a much better plan in place than offered by Polymet. Let's begin to create a living zone in N.E. Minnesota rather than another dead zone. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Richard Watson 114 E Boundary St Ely, MN 55731-1331 (218) 365-5511

Richard White 40767

Hey all- So PolyMet is definitely going to fuck up the environment. Probably better to stay on the safe side than the "destroy the planet" side, right. PolyMet can go wreck North Dakota or wherever they don't care about fracking.

Alphabetical by sender's first name

Rick 39533

Hello, I would like to address the issue of backfilling the East Pit after year 11- Section 5-2-2-3-1 of the EIS. Common sense tells you that the aquifer in the area and in the pit will be affected by such an operation. There is no way the current compaction levels can be redone to seal off any contaminants from entering the aquifer. The plan calls for pumping water back in it including "treated water" from the WWTF. The word limit is in the EIS. Limit to me means not quite as much. There should be no oxidation of the sulfide minerals. To allow this type of operation to proceed would lead to a direct injection of sulfides and heavy metals into the aquifer. Minnesota has worked hard to clean up and update old septic systems and municipal waste water treatment system that can contaminate the aquifer. Now is not the time to start another contaminator of the aquifer that will have to be addressed and paid for by future generations. 500 years plus is a long time with prohibitive costs that will be a burdon on future taxpayers. Thank you, Rick Fry 9322 West Branch Road Duluth, MN 55803

Rick Brandenburg 54658

See attachment

Rick Cannata 18203

I'm Dennis Loosbruck. I'm a member of the Local 49 Operating Engineers, and I'd like to turn my time over to Rick Cannata, a fellow union member. I do support the mining industry. Thank you, Dennis. My name is Rick Cannata. I've been a member of Minnesota-North Dakota's Laborer's Union for 35 years, and I'm actually wearing a dual hat. I'm the mayor of Hibbing, Minnesota, too. I was born and raised on the Iron Range. I've been in construction, in the laborer's union, like I said, for 35 years. My grandfather was a miner, an underground miner. My father-in-law owns a cattle farm that's a quarter mile from Hibbing Tap, when mines are built without the studies and all the precautions there is. I support PolyMet Mining. I support and believe in the agencies from the State to Federal that did the studies. And I can -- one thing I want to make clear. Someone was up here that said, "I wonder if PolyMet is going to use union workers." Well, they are going to use union workers. They've talked to us about a project labor agreement, so that's a myth right there alone. Another thing is, I've been hunting and fishing since I could walk up in Northern Minnesota. I enjoy the outdoors, and I live up there, my family lives up there. If I didn't believe in this project, I would be against it, but they've done the studies, and it's a proven fact. They spent many years right now, a lot of money to get this project going. We need the jobs in Northern Minnesota, not just the construction jobs and the mining jobs, but it's all here, the manufacturing, all the spinoff jobs, because like the mayor of Hoyt Lakes said, we have thought outside the box. We're a way bigger town than Hoyt Lakes. We have economic developers. We've tried everything up there. The IRRRB helps us out. Mining is what Northern Minnesota is. And for all you people that are against this project and all mining, like Tom Rukavina said, you might as well throw your phones on the ground right now and stomp them because this is what the future is, and if you want to make the Iron Range profitable and see this country grow, you've got to let this project go ahead and quit fighting about it and let them build it and show what the future holds. So thank you very much. That's all I have to say. Thank you.

Rick Dahn 15962

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Rick Dahn 50 Hays Cir Silver Bay, MN 55614-1242

Rick Edwards 18363

I am Rick Edwards. I would like to give my time to John Doberstein.

Alphabetical by sender's first name

Rick Gravrok 19959

- Rick Gravrok St Louis Park, MN

Rick Holcomb 48165

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Rick Holcomb 1701 Madison St NE #403 Minneapolis, MN 55413

Rick Liljegren 37521

I believe the review process has been thorough, and that regulators will ensure Polymet’s planning, design, and controls will address environmental impacts. Our regulators have shown they have a clear understanding of mining issues, have done an excellent job to date ensuring existing mining controls protect our environment, and have no doubt they can continue to do the same at the Polymet site. This project is good for Northern Minnesota, Minnesota as a whole, and the country, and should move forwaRd Rick Liljegren 130 Ropponen Road Esko, Minnesota 55733

Rick Mayerich 22275

I have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I would also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws. We cannot afford to miss this job opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. Richard Mayerich 11739 Townline Road Hibbing MN 55746 Rick Mayerich CWI Industrial Systems Technology Department Head Program Instructor Hibbing Community College 1515 E. 25th Street Hibbing, MN 55746 218-262-7358 Email: rickmayerich@hibbing-edu

Rick Olson 44693

The risk to water quality, wild rice, fish, birds, other wildlife, and other segments of the environment are too high to permit sulfite mining in northern Minnesota. I am convinced PolyMet can't conduct mining operations and at the same time not damage the environment. How is the DNR assured PolyMet will be able to pay for environmental cleanup years after the jobs are gone and the environment is severely damaged. What is the economic impact on the region. Are the top jobs for Canadian's. Jobs would be created by mining; however the potential to loose jobs in the area is a factor. The net gain of jobs is not known. Tourism and recreation jobs may be loSt Land and property values may decline or increase in some areas. Potential benefits of sulfide mining is not worth the potential to severely damage a watershed that connects to the largest fresh water lake in North America. Richard E. Olson

Alphabetical by sender's first name

Rick Putnam 39076

DNR I urge you not to accept the SEIS regarding PolyMet for the following reasons I do not think it is in the best interest for the citizens of Minnesota to be responsible for future tax burden as a result of cleanup costs for pollution that will result from poly mets project. The reason I am so concerned about this, in spite of poly met saying that they would be responsible, is that the financial assurances need to remain in place for an extreme amount of time. Financial assurances that need to be in place for 200 to 500 years have not ever been proven. Have there ever been any financial assurance vehicles that have been tested or proven effective for 500 years. I understand that the financial assurance part of this project is actually looked at in the permitting stage, but I strongly feel it is important that it is addressed here as well. The land swap between the forest service and poly met in my mind needs to have its own separate review. The proper amount of time needs to be allotted to this important piece of poly mets project. It cannot be lumped together and hurried through. The use of the national forest has restrictions put on it for a reason. We need to respect that and not put the needs of a corporation ahead of the rights of the citizens of the United States. We were personally involved in a land trade with the federal government. Our land trade took 12 years to go through and it was to trade lakeshore recreational property which was already in use and leased for that purpose. I feel it is a mistake for us to make this trade which would allow non ferrous mining to be done in our national Forrest without a longer period of time for public comment and education on this important change of use. It just does not make logical sense, unless a for profit corporations project does not need to have the same scrutiny as an individual. There is some discrepancy as to the amount of water being released from the project. I would believe the tolerances were put into the model for a good reason therefore it would make sense that the correct numbers be put in and the model be rerun. This is an important part of the EIS. In order to protect our citizens it is only responsible to redo the calculations and do a revision of the model. I am a concerned citizen, who loves this part of Minnesota, and is very troubled by the potential harm this type of mining could bring to northern Minnesota. I believe this harm will not only come to the earth but also would be damaging to the already established tourism environment of that area. This includes businesses as well as cabin owners. The related jobs, as well as construction jobs, taxes and other benefits this tourism economy and vacation home industry brings to the state is sustainable and can be grown. I do not believe that the current tourism economy and vacation home industry could flourish side by side with the nonferrous mining economy which brings pollution and greater industrialization to this unique part of our country. The following are items I would like the DNR to fix in PolyMets mine plan Plan to account for the destruction of moose habitat as well as other natural habitat for the Canadian lynx Plan should call for a detailed plan for financial assurances that protect current and future taxpayers Plan should accurately assess health risks to the public Address the risks of mercury pollution for our children as well as future generations Plan should improve wetland protection and replacements Provide Minnesotans with accurate information about how long polluted waters will require treatment Glencore must be recognized as a responsible party for permitting because of its ties with PolyMet Fix the inaccurate water data used in the model and redo the water model In conclusion it is my opinion that the few hundred jobs and monetary gain for a corporation is not worth the perpetual damage and pollution non

Rick Schroeder 21201

I am adamantly opposed to the Polymet mine and others like it currently being considered in Northeastern Minnesota. Pollution is caused by either bad laws allowing people or companies to pollute legally or people or companies breaking the law by making poor decisions, be it through ignorance or greed or both. I am under the impression the mining of these minerals has never successfully been completed without significant pollution. Evidence of this is the outlawing of this type of mining in other states. I hope through your due diligence you have an opportunity to discuss the concerns of law makers and residents of these other states to understand the experience they gained and what they would do differently. The BWCAWA was an unbelievable achievement, creates lifetime memories and, can provide extraordinary opportunities for centuries to come if, and only if, you make the right decision. Let’s hope you do and we are not (especially those who are making the decision) made a fool of. Rick Schroeder - Vice President of Construction ROBERT MUIR COMPANY | 7650 Edinborough Way, Suite 375 | Edina, MN 55435 direct 952-857-2809 | cell 612-670-5169 | fax 952-857-2801

Rick Skoog 54515

See attachment

Alphabetical by sender's first name

Rick Skoog 57347

My name is Rick Skoog, S-K-O-O-G. I guess my main point is I really find it hard to believe that a for-profit company, who is a foreign corporation, is going to put up the money, and they fully admit that it is probably going to be for 200 years' worth of water treatment. I really find it hard to believe that a for-profit corporation is going to put up that amount of money and guaranty that amount of money. And I find it hard to believe that that amount of money can be put in a safe place, without some politician stealing from this, "We have got a big fund here and it is just sitting here and it is not doing anything, so we better borrow from that fund." I really find that hard to believe. Plus, during that time, all of that waste rock isn't going anywhere. It is just staying right there. They are only treating the water problem. They are not treating nothing. They are not treating the problem. They are just treating the runoff from the water. I just find it completely hard to believe that a for-profit company is going to put up the money and the financial assurance to make this happen, because they are a for-profit company and they are in it for the money. And, plus, it is a foreign corporation. And the second that anything goes bad, they can go back to Chile, they can go back to Switzerland, and they totally leave the state taxpayer or the federal taxpayer for the cleanup. And I just don't see any reason that -- no compelling reason to have 20 years' worth of mining that is going to end up producing 200 years' of pollution.

Rick Upton 40225

Ricki Disdier 16569

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Listen, we need nature. We need it. Let's not destroy it for yet more profit. Please reject SDEIS. Sincerely yours, Ricki Disdier 1149 14th Ave SE Minneapolis, MN 55414

Alphabetical by sender's first name

Ricki Disdier 49979

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Listen, we need nature. We need it. Let's not destroy it for yet more profit. Please reject SDEIS. Sincerely yours, Ricki Disdier 1149 14th Ave SE Minneapolis, MN 55414

Alphabetical by sender's first name

Ridge Pidde 41706

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Rita Ann Youngs 9591

Hi. NO. I am totally AGAINST this project. There is nothing more important than our most precious resource, clean water. We cannot leave future generations of Minnesotans strapped with polluted water. Industries are dumping some very hazardous chemicals into the ground around the USA when fracking. It will come back to bite this country in future years. Then where will communities turn for fresh drinking water. Minnesota and the Great Lakes. We need to do more recycling and reusing materials versus digging into this precious land. I do want the people of Ely and surrounding areas to have jobs and commerce. There has to be some other "clean" industries that can help the area with creating jobs. Please put my "NO" vote into the recoRd I am TOTALLY against this project. Rita Ann Youngs 11247 Cedar Pointe Dr S. Minnetonka, MN 55305 P.S. Please confirm receipt of this e-mail.

Alphabetical by sender's first name

Rita Bauer 39325

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. We need to seriously consider the impact on wildlife and the environment as well as humans. I do not feel this is too much to ask. It is the minimum . Sincerely, Rita Bauer 4119 Excelsior Blvd St Louis Park, MN 55416-4726

Rita Jarrard 20706

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: The proposal by Polymet to trade acreage in the Superior National Forest for other land in northeastern MN sounds unlawful and dangerous. 1- These other lands include those "protected" by treaties with Ojibwe Indians. How many more times will people of power vote to disrespect our early Americans. 2- Pollution from such mines would destroy the land for hunting, fishing and growing of crops by the Ojibwe, and create untold health hazards for ALL future generations of Americans. 3- Meanwhile, big oil companies get richer and more careless . HELP. Do not approve this proposal. Sincerely Rita Jarrard 976 Cortland Dr S Apple Valley, MN 55124 952-236-8996

Rita Kovtun 43220

To whom it may concern, I would like to add my comments on the PolyMet Mining Inc Project: For the safety of Minnesotans and Americans for generations to come, I do not believe that this project should be continued. Sulfide mining releases toxic metals and can create Acid Mine Drainage (AMD), polluting our rivers and groundwater for hundreds of years - long after the profits are spent and the products buried in landfills. PolyMet's own study says that the water from the mine site would need at least 500 years of treatment. When weighing the pros and cons of the project, it seems logical to discontinue the project as the number of years of profit are only a fraction of the number of years of treatment and rehabilitation of water and land. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Please try to weigh the project in terms of the effect on your own future daughters, sons, grandchildren, and all those that come after them. Thank you for taking the time to consider my comments. Rita Kovtun 10652 Alison Way Inver Grove Heights, MN 55077

Alphabetical by sender's first name

Rita OConnell 47774

FROM: Dr Rita O'Connell 5378 Ugstad Road Duluth, Minnesota 55811 218-729-6250 HYPERLINK "mailto:oconnell12345@gmail-com"oconnell12345@gmail-com March 13, 2014 RE: NorthMet Mining Project and Land Exchange: Supplemental Draft Environmental Impact Statement (SDEIS), November 2013 I am Rita O'Connell, D.Env. (Doctor of Environmental Science and Engineering from UCLA), a biology and environmental science instructor at Lake Superior College, Duluth, Minnesota. I also worked for many years at the Minnesota Pollution Control Agency, specializing in water quality protection, both surface and ground water. I am also a native and long-time resident of northeastern Minnesota. I have no objection to harvesting the resources of this beautiful region by mining, logging, etc, but am also very concerned that we protect our environment, for human enjoyment AND the continued health of our ecosystems, as well as the important ecological services they provide. I commented on the previous EIS for this mining project, and found reading this new SEIS an even more formidable task than reading the EIS. I have a number of concerns, but have limited my comments to a few, all related to water quality issues. COMMENT 1 – WATER QUALITY TREATMENT TIMELINE: Providing water quality treatment for 200 to 500 years (or more) is incomprehensible to me. Questions it raises include: Do you really think the company will be around or responsible for that long. Will the state of Minnesota be around in 500 years. Look back at what was happening 200 years ago (1814) or 500 years ago (1514), and could people in those times accurately predict what would happen today. No, and no more can we predict our distant future. So can we really, in good conscience, even consider permitting a mining action whose wastewater discharges do not meet water quality standards without mechanical treatment at the time of or shortly after closure. Is it legal to permit a facility with such a long-term timeline. If the company is still in existence in 200-500 years, its own estimate of postclosure costs is $3-5-6 million per year (Table 3-2-15), which multiplied by 200 years is $700 million to $1-2 billion. Will the company's profits from 20 years of mining be sufficient to pay for that. It seems to me that this is an indication that they don't expect to need to pay these costs. Or will they prepay those entire cost in an upfront manner ("Financial Assurance Instruments described in 3-2-2-4-2) – $3 billion for 500 years. Will this instead become like Minnesota's Closed Landfill Program (authorized by the Landfill Cleanup Act of 1994, which resulted in the state taking over the responsibility (and costs) for proper closure and postclosure care at many landfills around the state. As in that case, the state's citizens will again foot the bill. Will this mine do any better job treating their wastes than any in the past. For examples, how about the 5,000 years of acidity and toxic dissolved metals in the Rio Tinto district in Spain where the river pH reaches as low as 2-2-5 or the 2-37-2-57 pH and toxic dissolved metals in the abandoned open-pit copper mine called the Berkeley Pit in Butte, Montana. I think we should adopt Wisconsin's position – a "ban" on future sulfide rock mines until they're PROVEN safe. No mine has yet done so. COMMENT 2 – WATER QUALITY TREATMENT METHODOLGY: I have several concerns on this issue: REVERSE OSMOSIS (RO) – I was surprised when I heard, via our local Duluth news sources, that Polymet had chosen RO as the water treatment process to be used after closure (page 3-52). This is a very expensive process. It also produces a concentrated waste product that must be removed to "appropriate off-site facilities" (page 3-72). There is likely to be a very large volume of those wastes, and they are easily water soluble, since they were dissolved in the water that was processed in the RO facility in the first place

Rita Powers 47305

To Whom it May Concern, I am writing to share my strong opinion against PolyMet mining proposal near Babbitt and Hoyt Lakes, MN. Please do not allow this mining to take place. Thank you, Rita and Lyle Powers 320 1st St SW Elgin, MN 55932 507 876-2777 HYPERLINK "mailto:rfpowers7@gmail-com"rfpowers7@gmail-com

Alphabetical by sender's first name

River Gordon 16874

Feb 18, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

River Point Resort & Outfitting Co. 7653

Dear Commissioner Landwehr and DNR Staff, I am writing to request that at the next two Public Meetings for PolyMet's North Met mine plan in Aurora and in St Paul that the your agency enforce your guideline that no signage will be allowed in the public meeting rooMs It was most disconcerting to have pro mining people in the large hall at the Duluth meeting displaying their signs toward the back of the hall. Following repeated direction by the police in attendance to remove their signs, these people did so for a short period of time and then displayed them as soon as the police moved to a different area. Signage was only to be displayed outside of the entrance to the DECC is my understanding. This could have been easily controlled by a simple announcement in the large hall that anyone displaying a sign will be escorted out of the hall. Rules are only good if they are enforced. The media made sure to have images of these signs in the various papers following the event. This sends a message that it is OK to have a sign and the next Public Comment Period in Aurora could possibly be a sea of pro mining signs. Everything else about the event last Thursday evening was well organized, informative, and beneficial. Please let me know if this issue will be resolved for the next two meetings. Thank you. Jane Koschak PO Box 397 Ely, MN 55731 218-365-6625

39586

Lisa Fey EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit Please accept the attached letter as my comment on the SDEIS PolyMet NorthMet Project. Thank you. Jane Koschak PO Box 397 Ely, MN 55731

Alphabetical by sender's first name

River Point Resort & Outfitting Co. 42884

Lisa Fay, SDEIS Project Manager, MN DNR Kenneth Westlake, US Environmental Protection Agency Region 5 Douglas Bruner, US Army Corps of Engineeers Michael Jimenez, US Forest Service-Superior National Forest Please accept the two attached letters as our comment on the SDEIS PolyMet NorthMet Mining Project and Land Exchange. Thank you. Jane and Steve Koschak PO Box 397 Ely, MN 55731

42945

RE: Public Comment Submittal: Supplemental Draft Environemental Impact Statement, PolyMet Mining, Inc. – NorthMet Mining Project and Land Exchange Email directed to: HYPERLINK "mailto:NorthMetSDIES.drn@state.mn.us"NorthMetSDIES.drn@state.mn.us HYPERLINK "mailto:Westlake.Kenneth@epa-gov"Westlake.Kenneth@epa-gov HYPERLINK "mailto:Douglas.W.Bruner@usace.army.mil"Douglas.W.Bruner@usace.army.mil HYPERLINK "mailto:MJimenez@fs.fed.us"MJimenez@fs.fed.us From Jane and Steve Koschak PO Box 397 Ely, Minnesota 55731 Dear Ms Fay, Mr Westlake, Mr Burner, and Mr Jimenez, Please find attached a crucial and timely letter from Carla Arneson published today in the Duluth Reader and also the Twin Cities Daily Planet in Minnesota. Here is the link from the Twin Cities Daily Planet. http://www.tcdailyplanet-net/news/2014/03/12/community-voices-it-s-whopper-polymet-s-myth-9938-tailings-seepage-collection PolyMet's SDEIS has a flawed water flow model. And, now with this latest research of the SDEIS coordinated by Paula Maccabee, WaterLegacy attorney, it is apparent that the SDEIS also has another flaw – water seepage. "The projected seepage from PolyMet's tailings basin and the Mine Site Category 1 waste rock stockpile has been grossly underestimated. "PolyMet does not propose to line the Tailings Basin, nor is the existing LTVSMC Tailings Basin Lines." (SDEIS, p.5-161) A proposed tailings basin of some 2,900 acres will sit, unlined, on top of an existing, leaking and unstable, tailings basin. Foolhardy. Ridiculous comes to mind. As WaterLegacy's attorney Paula Maccabee summed it up, "The SDEIS assumption of nearly perfect seepage collection is the critical foundation upon which all claims that PolyMet might comply with water quality standards downstream of the tailings piles rely. This assumption is unreasonable, unfounded, inconsistent with site conditions and inconsistent with the Modeling Work Plan methodology adopted by PolyMet." The SDEIS claims that 99-38% of the total seepage from the tailings piles will be collected and treated is reflected in "Table 5-2-2-36 NorthMet Project Proposed Action Tailings Basin Seepage (gpm) During Operations" on page 5-159 of the DEIS. As they have done before, tribal staff questioned whether the claims for capture and treatment of groundwater were realistic in the summer of 2013 when the preliminary SDEIS was issued. Co-lead agencies responded that the same plan of using groundwater containment with slurry walls and permeable trenches had been routinely used for 50 years at various mine and industrial sites. Hundreds of operating systems in place, they indicated, and that "it is typical to achieve greater than 90 percent groundwater capture." (SDEIS) However, no examples of those "hundreds of currently operating systems" are listed in the SDEIS. As Ms Arneson states in this attached letter: " it was discovered that the only example the lead agencies had (of field experience with tailing seepage pump-back) was a study to estimate possible seepage collection at the Minntac tailings basin. And records obtained from the US Army Corp of Engineers through a Freedom of Information Act Request indicate that the seepage collection system at Minntac had an approximate return rate of only 50 percent." 50 percent is sure a lot less than the 99-38 per cent claimed in PolyMet's SDEIS. Inaccurate, flawed information. And, from those hundreds of operating systems lauded by the SDEIS, only one could be found. Amazing. PolyMet's Website has a "Water Quality Fact Sheet". It states the following: "Water control and treatment methods have been used successfully in mining and many other industrial and municipal applications for decades. They will be used at the PolyMet site to meet all applicable water quality requirements." Deceitful. Lies of omissions. The Public is being sold a "bill of goods". If this is the best this SD

Alphabetical by sender's first name

River Point Resort & Outfitting Co. 43084

March 13, 2014 From: Jane and Steve Koschak Po Box 397 Ely, MN 55731 Dear Ms Fay, Mr Westlake, Mr Burner, Mr Jimenez, The Maps used in the SDEIS are flawed. We live at the confluence of Birch Lake and the South Kawishiwi River, and have lived here and operated our two tourism recreational businesses for 38 years. We lie directly adjacent to the Boundary Waters Canoe Area Wilderness (BWCAW). We have been most concerned about incorrect maps being used in this SDEIS for some time. "Maps in the SDEIS released on December 6, 2013 make it appear that sulfuric acid and heavy metal containing mine runoff will drain only into the already impaired Saint Louis River watershed when in fact drainage can go to two watersheds, one of which includes the unspoiled Boundary Waters Canoe Area wilderness. The SDEIS maps draw a much smaller swamp downhill from the mine compared to existing government maps. According to US Government maps, the One Hundred Mile Swamp downhill from the mine is 10-4 miles long and drains to both the Saint Louis and Rainy Lake (BWCA) watersheds but SDEIS maps show a shorter 5-5 mile long swamp that is missing the portion of the swamp that drains to the BWCA. Omitting the portion of the swamp that drains to the BWCA supports PolyMet's conclusion that seepage of mine waste water to the BWCA watershed will not occur. Dashed, teal colored outlines of the One Hundred Mile Swamp on green satellite image maps are difficult to see and it might have been expected that the mapping discrepancy would go undetected in the 90 day public review period. Marking of important map features in such an obscure way may be seen as evidence of intent to avoid connecting an environmentally risky mine with the fragile and iconic BWCA wilderness. A website that provides more detailed information about the mapping issue at www.bwcasulfidemining-org is receiving increasingly serious attention. The website documents that the first incorrect map in the SDEIS appears as Figure 4-2-3-1 on page 472 and that a comparative government map of the swamp area is available at HYPERLINK "http://www.nationalatlas-gov/streamer"www.nationalatlas-gov/streamer. The downstream flow mapping feature of the www.nationalatlas-gov/streamer map was used to show that the eastern portion of the One Hundred Mile Swamp drains via Langley Creek and the Dunka River to the BWCA, and that the drainage will also affect the Quetico Provincial Park along the US – Canada border. Real life understanding of the effect of the proposed mine on the BWCA requires determining the split of waste drainage in the swamp that goes to the St Louis River and BWCA watersheds by hydraulic conductivity testing which has not been done. Ongoing protection of the BWCA requires periodic water testing for mine waste at Langley Creek and the Dunka River which is not provided for in the uncorrected SDEIS." (Before It's News) The Boundary Waters is a designated wilderness area of National Significance. It is the most widely visited park in all the US with some 250,000 annual visitors. Untrustworthy conclusions about sulfide mining pollution from PolyMet's proposed mine can't go unresolved. The incorrect mapping in the SDEIS is a huge issue. This DEIS is flawed and must be rejected. Public Sources: PolyMet Environmental Impact Statement Has Incorrect Maps. Before It's News, St Paul, Minnesota. March 11, 2014- http://beforeitsnews-com/environment/2014/03/polymet-environmental-impact-statement-has-incorrect-maps-2495246-html PolyMet SDEIS: Public Comment Jane and Steve Koschak, 3-13-14

RJoa 3951

I have two main concerns about the proposed mine in Northern Minnesota; quality wetlands and truSt First, I don't believe wetlands are replaceable. The wetlands in the proposed mine area are imperative for wildlife of all kinds as well as migrating fowl. It is my understanding that there is proportionally only a small quantity of wetlands in the watershed of the area. Replacing this biologically priceless land with a larger chunk of essentially man-made wetland that has already been robbed of its wealth in another part of the state could never be a "fair" trade. Sub-par is the nicest way to describe this practice. Second, there are stories all over the country of mining companies not doing what they've agreed to do as far as pollution mitigation. They go for years without supervision or inspections from federal or state authorities. When they are finally held accountable they simply say it is too expensive to correct and will cut into profits for shareholders or company owners. They pay a small fine and continue business as usual. Profits are considered a good reason to destroy the health of local people and lands. Thank you, Roseanne Joa 2320 130th Ave NW Coon Rapids, MN 55448

Alphabetical by sender's first name

roadrunnerkappes@netscape.net 36861

I live north of the stock pile ponds in Waassa Township, which has the Embarrass river and the Trimble creek waterways running through them. Living close to both of these water tributaries has me worried to what will happen to the area if this mining project goes through. I will be long gone before any effects from this project, whether negative or positive occur. I am looking more to the future than the present. From reading and researching all the different scenarios that could happen, more negative than positive attributes occur. First off the Polymet Corporation says that they will not pollute the area[,which flows North of their mining operations, which includes the Trimble Creek and the Embarrass River area. This area flows into the Saint Louis River Basin, plus the Partridge River waterway, which flows south, and eventually ends up into Lake Superior.] For a process that can only be (not proved} shown on paper Everything that Polymet assumes is just a projection, and the DNR and the MPCA has to take these projections, and make a decision if it benefits the area for future expansion. Let's look at what Polymet says they will do to our economy\; 200 permanent jobs Just a number. I worked for a iron mining company for 31 years and realize that the 200 job number is probably high and it is probably in the 150 employment range. Remember profit is the goal for any company in order to stay in business. The spin off number of jobs for this project is also a prediction. These are my thoughts. {Aurora, Hoyt Lakes, Babbitt, Biwabik},went through these times before Polymet says they will employee 200 employees for 20 years for the lifetime of the plant which equates to 10 employee per year for the 20 year life of the plant: To the residents of these communities: When you look at the added number of permanent jobs, Which Polymet forecasts, that they will employee [10 employees fore 20 Years A 20 year To the residents of Aurora And Hoyt Lakes. You need to look into the future.Polymet is not the answer Polymet says they will employee 200 permanent employees for 20 years. This equates to 10 employees per year This is a pretty poor number for employment when you look at the number of negative ads/products Sent from Windows Mail

Rob Adams 39149

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. Please reject the PolyMet SDEIS as inadequate and reject the proposed PolyMet sulfide mine and Land Exchange as destructive to the public interest and harmful to tribal rights, clean water, vital habitats and the health of future generations. Sincerely Rob Adams 2011 E. 2nd St Duluth, MN 55812 541-683-0851

48086

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. It is our job to protect irreplaceable wetlands and fresh water resources in the Lake Superior Basin for generations to come. Pease turn down the PolyMet project. Very truly yours, Rob Adams 2011 E. 2nd St Duluth, MN 55812

Alphabetical by sender's first name

Rob Adams 48648

Dear Mr Dabney, Mr Bruner and Ms Fay: I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. Please reject the PolyMet SDEIS as inadequate and reject the proposed PolyMet sulfide mine and Land Exchange as destructive to the public interest and harmful to tribal rights, clean water, vital habitats and the health of future generations. Sincerely Rob Adams 2011 E. 2nd St Duluth, MN 55812 541-683-0851

Rob Davis 18136

This is by far the biggest thing I've ever done. So I won the public speaking lottery tonight. And I was not expecting that. Hi. Good evening. I'm Rob Davis. I might have the easiest name to spell. R-O-B, D-A-V-I-S. There's probably a few other Rob Davises in the crowd. It's good to see you all. I am a business person and an eagle scout and also a Minnesotan. And so I'm speaking from those three perspectives tonight. As a business person, I absolutely appreciate jobs and economic growth. I'm a marketer. I help people tell their stories. And I love the diversities of businesses that we have in Minnesota. And we need to keep Minnesota's economy absolutely strong and growing. I'm also an eagle scout. And as an eagle scout, I learned the value of wilderness and water and air. And I learned the value of quiet places. And if you haven't been to one, absolutely go. It is completely, completely transformative. And also as a Minnesotan I'm proud, I'm really, really proud that we have a crowd like this frankly on a night like tonight. I'm really proud of this state for having such a diversity of growth and ways to build its own economy. And I'm proud of how critical we are about the way that we want to grow. On PolyMet, as a Minnesotan it's a near certainty -- we all have to embrace the facts. And it's a near certainty that there will be millions of dollars of cleanup. That's just a trade off. We're thinking about jobs and we're thinking about how much it's going to cost. Minnesotans, I would challenge us -- I would challenge Minnesotans to say, "There is a different way we can spend that money." There is a different way that we can spend that money. Broadband is coming to Ely next summer. That's what they tell me. And not only that, if you're going to invest millions of dollars in cleaning up over the next 500 years, let's invest millions of dollars creating clean, renewable jobs. Jobs that last 500 years in the state of Minnesota. PolyMet is not a Minnesota company. I get it. That's great that other companies want to invest in Minnesota. But you have to do business the way Minnesotans do business. And we do it the smart way. We don't want something that is going to be here today and gone tomorrow. We want things that last. The Minnesota State Fair is a fantastic tradition that has been around for more than 100 years. There is so many great things that have been around for a long time. PolyMet is not a Minnesota company. It's just not a good deal for Minnesota.

Alphabetical by sender's first name

Rob Grunewald 47779

March 13, 2014 Dear staff at the Department of Natural Resources: This is my second e-mail with comments on the PolyMet NorthMet supplemental draft environmental impact statement. My earlier comments were submitted on January 15, 2014, and are included at the bottom as reference. The EIS should specify what would happen during a large flood. The EIS should specify in detail the impact of a large flood or other extreme weather event on PolyMet's proposed water filtration process. Over a 500 year period there is high risk that an extreme weather event would happen in the proposed mine area, especially with the prospects for increased weather volatility in the context of climate change. As recently as June 2012, 10 inches of rain fell in Duluth during a short time causing a great deal of damage. The staff I talked with at the January 28 public hearing in St Paul noted that a flood of that size would likely overwhelm PolyMet's proposed water filtration system. This would result in toxins spilling over into several water sources. The number of jobs created by PolyMet's mine should not be considered a tradeoff for a clean environment. Minnesota can wait as long as it takes until mining and containment technologies are proven to be effective. Mining jobs are time limited. Whether the proposed mine is started today or in 10 or 20 years from now, Minnesotans will have the same amount of jobs and those jobs will last the length of the life of the mine. In 10, 20 or even more years from now a generation of Minnesotans will be ready to work the good paying mining jobs at this site. The state can and should wait until the sulfide mine water filtration technology has been tested and used in a multi-year project with absolute perfection in another location before trying it in Minnesota. We need time to reduce risks that ultimately the taxpayers of Minnesota would have to pay if PolyMet's proposed environmental clean-up plans fail. Granted as mining technology improves, the number of jobs could be smaller in the future, but in that case the jobs will likely be even higher paying and safer. The EIS should assess the risk and implications for the environment if PolyMet is sold or goes into bankruptcy. Mining companies like PolyMet that get projects off the ground can be bought out by larger multi-national corporations that have less investment in the local community. There is risk that if PolyMet is purchased by a large mining firm that the new owner will not show as much good faith in adhering to promises to safeguard water sources from contamination. The EIS should consider potential mining firms that could someday purchase PolyMet and how environmental clean-up responsibilities would be transferred to these companies. There is also risk that PolyMet could enter into bankruptcy, go out of business and no longer have financial resources to keep the area's water clean. The EIS should spell out contingencies should these economic events happen. A buyout or a bankruptcy has environmental implications due to the 500 years or longer of time required to maintain clean water at the mine site and surrounding area. Thank you for your thoughtful consideration of these issues. Rob Grunewald 2561 Burnham Road Minneapolis, MN 55416 --- Message sent on Jan. 15, 2014 Dear staff at the Department of Natural Resources: I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. As an economist, I find the PolyMet mine proposal does not meet the cost-benefit teSt The costs to Minnesota in the long run are much larger than the proposed benefits of adding jobs to this region in the short run. Furthermore, a detrioration in the water quality and environment generally puts future generations at risk and also other sustainable economic purposes for the area. PolyMet Mining Company's proposed NorthMet sulfide mine does not keep Minnesota's water safe and clean. The best case scenario for the mine anticipates at leas

Rob Kutsi 7358

My name is Robert Kutsi and I have reviewed all of the information. Currently I am serving on the Gilbert City Council and am a father of four. I support the Polymet project. Being a father of four I am very concerned about our land, upon review I feel very safe with the future of Polymet and securing jobs for our future. Thank you. Robert Kutsi Gilbert City Council

Rob Ramer 57283

Please accept these comments on the Poly Met Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage (AMD) and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as lynx and moose, exchange of federal land within the Superior National Forest, and cumulative impacts from mining. The proposed mine poses unacceptable risks to our waters and communities, and I support the No Action Alternative.

Alphabetical by sender's first name

Rob Simonich 38377

Hi my name is Rob Simonich, I've lived in Babbitt, Mn. my entire life. I went school there, I worked a Reserve Mining while in high school. I belonged to the union, and now I'm in my 25th. year as a teacher at Ely. I've always used the outdoors, and have a cabin in the area. I do not have a problem with Poly Met developing a mine in the area. Based on the impact statement, I have total confidence in Poly Met and our DNR to do the right thing. No one wants to destroy what we hAve That's why we live here. Please let Poly Met continue to do the good work they do to develop a mine here. It would would mean very much to let our schools grow, along with our communities. Please issue the permits, in a timely manner. Thank You Rob simonich, 52 Astor Road, Babbitt Mn. 55706

Robbin Zimmerman 15937

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: We currently live in one of the higher taxed states. Why are we not utilizing public funding to preserve our state for future generations. We don't need businesses coming here and ruining our water and natural habitats. If Minnesota needs more money I would bet a paycheck that there are cleaner, healthier businesses to deal with. We need not be tramps and/or enviromental whores with our decision making - not when it stands to effect future generations so substaintially. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Robbin Zimmerman 8716 Midway St NE Blaine, MN 55449

Robby Bragg 40586

Hello, I am writing as a Minnesota citizen speaking out against the Polymet mine. The affects of this mine will be detrimental to not only the environment but will not help the economy or jobs in the long run either. Since the mine is a temporary endeavor so would be the workers' contracts. Unless you are planning on the environmental destruction that would be caused by this mine and the jobs that would come of that. If so, I think that is a pretty hypocritical precedent to set for our children. This mine will not stand, Your Minnesota Citizen

Robert 54862

See attachment

Alphabetical by sender's first name

ROBERT A BRODIE 14782

I would just like to submit a comment regarding the possible mining operation in Northern Minnesota. I am a member of several environmental groups, and have read with some dismay about the likelihood of the mining operations disrupting the water tables and creating havoc to populations of people and wildlife in the future. It is difficult for me to understand the shortsightedness of these operations. I have read of many mining companies going bankrupt and leaving the states to clean up massive spills, after the companies have made their profits. Our water is a precious unrenewable commodity and the few FULL time jobs that will result in this endeavor will not be worth the likely leakage of heavy metals into the water. It is in the foreseeable future that water shortages will become an economic reality, with talk of getting water supplied to other states from Lake Superior. Really. We should be aware that our clean water is an important source of life, not only for Minnesota's people and environment, but also as a viable economic tool for the future. Our children deserve a healthy life with clean air and water. Thank you for your time. Sincerely, Debra Gerads-Brodie, 365 Oak Hill Drive, Red Wing, MN 55066

Robert A Johnson 42629

See attachment

Robert Ambler 42089

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Robert Ambler Minneapolis, Minnesota

Robert and Barbara Baldrica 42829

See attachment

Robert and Kathryn Stodala 57209

Regarding the SDEIS, specifically the Partridge River baseline base flow and the XP-SWMM model predictions, we feel that base flow has been underestimated in the Partridge River by 3 to 4 times. This would mean transport of greater quantities of pollutants. Current base flow projections are outdated and do not align with the rating curve from the new MDNR winter monitoring data or data from the Dunka Rd gauge.Robert A. & Kathryn Z. Stodola131 N. Hawthorne RdDuluth, MN 55812

Alphabetical by sender's first name

Robert Bartholomew 18213

Hi. My name is Robert Bartholomew, B-A-R-T-H-O-L-O-M-E-W. I'm from Hoyt Lakes, Minnesota, and I just feel as heartfelt as she does about this mine. So let me tell you what I am. I'm president of the Hoyt Lakes Chamber of Commerce. I'm also a retired steel worker. Thirty-five years I worked in the steel mines up there. I'm also a proud union member for the last 50 years, and I wouldn't trade it for anything. When they started the tac mines in Hoyt Lakes, it was a polluter. Iron mining was not the most kindest to this environment, but through the years and through our union and through people that cared that actually worked at this plant, it got changed. Pollution went down tremendously. I feel we can do the same thing at this new mine. This is up to the people that work there. Do you actually think that people that work there are going to let this mine destroy our area, our environment? No, they're not. You're wrong. I know you have feelings, but that's not the way it's going to be. For the last eight years, I've been wondering what's going on, what's happening. I get three minutes up here. It's taken nine years of my life to decide on if this mine is safe or not. So far it's pointing to yes, it can be safe, and there's policies in place to make sure it is safe. I don't think these three entities that work for us, us, the people of Minnesota, the DNR, the Corps of Engineers, I don't think they have any vested interest in this other than ours, and if we don't have faith in them, what do we have faith in. I can't believe that we can't trust outfits that are designed to protect us; let them go ahead and protect us. Okay. Well, I, for one don't have all the answers about this, and we won't have until we see the operation of this mine in full swing. Too late, maybe? I don't think so. And that can only happen if we believe in our system. And we do. And I do. I believe in this system. They've done their job. Now let's hope we can do ours and put this plant in operation for some honest, good, hard-working people. Thank you.

Robert Baxton 9411

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I’m also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet’s own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won’t allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Robert Baxton 721 East 9th Street Duluth, MN 55805

Alphabetical by sender's first name

Robert Baxton 18739

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Robert Baxton 721 East 9th Street Duluth, MN 55805

50812

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Alphabetical by sender's first name

Robert Brandon 15748

See attachment

Robert Bruner 33192

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, The opportunity for PolyMet Mining Corp. to make some money in the NorthMet mining project is attractive, naturally. Everyone is in favor of more jobs and economic activity. However, it is a forgone conclusion that the project will end up polluting the waters of the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness, since Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Reassurances that this will not happen mean nothing once the damage has been done. This ends up being a tradeoff between water quality which serves everyone forever if we protect it, and short term economic gain for a small number. Therefore, I conclude that the Federal land exchange of protected Superior National Forest land to facilitate PolyMet's open pit sulfide mine is not in the public intereSt Sincerely, Robert Bruner 1102 N Pleasant St Royal Oak, MI 48067-4332

33203

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, The opportunity for PolyMet Mining Corp. to make some money in the NorthMet mining project is attractive, naturally. Everyone is in favor of more jobs and economic activity. However, it is a forgone conclusion that the project will end up polluting the waters of the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness, since Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Reassurances that this will not happen mean nothing once the damage has been done. This ends up being a tradeoff between water quality which serves everyone forever if we protect it, and short term economic gain for a small number. Therefore, I conclude that the Federal land exchange of protected Superior National Forest land to facilitate PolyMet's open pit sulfide mine is not in the public intereSt Sincerely, Robert Bruner 1102 N Pleasant St Royal Oak, MI 48067-4332

Robert Bullis 11280

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I’m also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet’s own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won’t allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Robert Bullis 19088 Dodge St NW 19088 Dodge St NW Elk River, MN 55330

Alphabetical by sender's first name

Robert Bullis 18398

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Robert Bullis 19088 Dodge St NW 19088 Dodge St NW Elk River, MN 55330

Alphabetical by sender's first name

Robert Bullis 19007

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Robert Bullis 19088 Dodge St NW 19088 Dodge St NW Elk River, MN 55330 763 441 0565

Alphabetical by sender's first name

Robert Bullis 50517

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Robert Bullis 19088 Dodge St NW 19088 Dodge St NW Elk River, MN 55330

Robert C. Jackson 47356

DNR, I grew up in Minnesota and return every year to enjoy the beauty of northern Minnesota's lake country. This proposal for a first Minnesota open-pit, copper-nickel mine is a big undertaking, and I appreciate the diligence you are using to assess the proposal. That said, the proposal is still a huge gamble. In an operation this complex and long-running, the risks to the immediate and downstream environment, as well as to the people working the mine and processing plant and to the people who live, work, and recreate nearby, stare us all in the face. Complex risk assessments in any human endeavor are rarely one hundred per cent accurate. We here in Washington are spending generations and seemingly endless amounts of money to clean up places like Puget Sound and the Hanford Nuclear Reservation from those complex human endeavors that turned out to have significant adverse consequences. If we must err, let's err on the side of safety and high quality of life. Specifically, in response to the SDEIS, I ask that you please do the following : 1) Let the MN Department of Health do a health impact assessment of the proposal. Northern Minnesota babies are already born too often with hazardous levels of mercury in the blood, probably from mothers consuming mercury-contaminated fish. The operation will release mercury into air and water. No containment system can guarantee capturing all of it. Also the risks of lung problems from amphibole mineral fibers released during rock-crushing operations seem unknown. 2) Rethink the proposed land swap and mitigation plan. If I understand your video correctly, Polymet's plan is to draw down the groundwater level under 913 acres of coniferous peat bogs and mitigate their activity by restoring wetlands elsewhere; then to trade another pool of lands for ownership of the land on which they own the mineral rights for the proposed mining. Peat bogs are ancient with unique plant communities which cannot be replaced, at least not for thousands of years. Restoring wetlands elsewhere is not a good bargain. 3) Add weighted valuation to your overall damage risk strategy of avoidance, minimization, and compensation. In my value system avoidance has a much higher weighted value than minimization. Compensation, no matter what the dollar amount, is a last resort with almost no value compared to the loss or degradation of habitat for threatened animals, numerous plant species including wild rice, human health via air and water quality, and the land itself. 4) Make a serious study of tunnel mining as an alternative. 5) Don't be committed to saying yes to Polymet's plan. If the cost's are too high, deny the permits. Thank you for considering my concerns, Robert C. Jackson 717-33rd St Everett, WA 98201-

Alphabetical by sender's first name

Robert Chapman 16775

Feb 18, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Robert Craft 39088

---Original Message--- From: bobcraft01@msn-com [mailto:bobcraft01@msn-com] Sent: Monday, March 10, 2014 7:09 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Robert Craft 100 King Street West Saint Paul, MN 55107-3656

Robert Cramer 42484

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Robert Cramer 29865 cty 25 Peterson, MN 55962 (507) 875-2313

Robert Davis 40004

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Robert Davis 4127 Colorado Ave S Saint Louis Park, MN 55416-3135

Alphabetical by sender's first name

Robert Devine 4350

As a resident of MN for all but 3 of my 46 years (born and raised here) I expect more of Minnesota State government than the usual DNR 'rubber stamp' of yet another proposal to destroy the wilderness. The DNR should have learned a lesson from the White Bear lake aquifer depletion debacle. They 'rubber-stamped' every request to pump water from that aquifer and the citizens suffered while the wealthy few benefited. Now your commissioner is being sued by the White Bear lake association. This PolyMet proposal will be similarly 'rubber-stamped' by your leadership and no doubt all the public comments will be dutifully ignored as you serve your corporate masters. This will become another Love Canal or Armley Asbestos disaster where the executives walk away with millions leaving someone else to suffer the environmental damage, birth defects and cleanup costs. Please acknowledge receipt of my comment so this can be used as evidence in the coming (hopefully) criminal trial of your negligence. Gratefully submitted December 29th, 2013- Bob Devine Web/Application Developer

Robert E McKlveen 42786

See attachment

Robert E Powless 57269

I would like more information.Dr. Robert E. Powless4911 Wyoming StreetDuluth, MN 55804

Robert E. McKlveen 43049

Dear Mr. Dabney,I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement.In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental and economic impacts.I have been a frequent visitor to the area of the proposed mine for many years, enjoying the natural beauty, pristine conditions, and quiet of the area. My children have attended wilderness camp in the area, I have traveled many times to the Boundary Waters, and I continue to visit the area to enjoy its scenic and natural beauty.Over the course of the last twenty years, I would estimate that my own personal contribution to the local economy through spending on these various recreational activities has been approximately $100,000. Through that spending, I have supported the local economy and local jobs.The SDEIS fails to adequately and accurately account for the impact that the thousands of people like me have on the local economy, and the harm to the economy if the mine is built under the currently proposed conditions and restrictions. The current SDEIS fails to appropriately quantify the decrease in recreational economic activity that WILL occur if the mine is built. If the waters or air of the BWCAW and the surrounding area are damaged by this mine or its aftermath, fewer visitors (including myself) will come to the area. This would have a significant negative impact on the economy of the area that will outlast the productive life of the mine by decades or centuries. The SDEIS needs to account for this negative impact in a meaningful way.Furthermore, PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to.The proposed mine plan does not keep Minnesota's water safe and clean:The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated.In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site, undermining confidence that it can accurately predict future water conditions. There is evidence that the current surface and groundwater flows in the Partridge River basin that were used in the SDEIS were flawed. Correction of those errors may significantly impact the conclusions of the SDEIS.The proposed mine plan does not put safeguards in place for when things go wrongThere are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6.2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment? The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. History tells us that such system failures DO occur, with regularity.

Alphabetical by sender's first name

Robert Ellies 4287

I appreciate the hard work that has taken place by all groups involved. I believe that we should now permit this project. Bob Ellies 42410 west sand lake drive Bovey mn 55709

Robert Ellis Dye 39567

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Robert Ellis Dye 1305 Fairmount Ave Saint Paul, MN 55105-2704 (651) 698-5046

Robert Flynn 33919

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage and heavy metal contamination have POLLUTED WATERS IN ALL OTHER PLACES WHERE SULFIDE ORE MINING HAS OCCURRED. NO technology exists to prevent that here in Minnesota. It threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is based on inaccurate data, manipulated by the "researchers." PolyMet mine is NOT not in the public intereSt That conclusion is quite obvious to all who are not motivated by money and influence. Sincerely, Robert Flynn 3604 14th Ave S Minneapolis, MN 55407-2712 (612) 827-5061

Alphabetical by sender's first name

Robert Ford 16187

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

robert fors 57676

My name is Robert Fors. I live at 16445 Gerdine Path, Lakeville, MN 55068- I am in favor of the mining projects in northern Minnesota. I believe this project will create much needed jobs in the region, provide tax revenues for the state, bring investment dollars into the state, and it will provide opportunities for educated young people to find employment in MN. Sincerely, Robert Fors

Robert Frame 46787

The costs of trying to keep this copper mine (and its openly anticipated expansion) from being hugely damaging to water quality and from causing other environmental degradation is unknown, and unknowable. Therefore, the most stringent review as well as limitations/requirements on the company need to be the guiding principle for the DNR and the whole state. You must absolutely not be cowed into approving the project against realistic evidence and projections, and must be willing if necessary to flatly deny permission. Frankly, it does not help that the industry has been unreliable, even duplicitous, in the paSt (I make no claims about PolyMet's managing company, as I did not research them. But they cannot simply reject the reality of false claims and deliberate environmental damage of others in their industry as not reflecting on them and creating the context for Minnesota's review and decisions.) Robert Frame 2530 Blaisdell Ave, Minneapolis, MN 55404

Alphabetical by sender's first name

Robert Haarman 38790

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Robert Haarman 2503 Brighton Ave NE Minneapolis, MN 55418-3924

Robert Hardman 9983

Jan 28, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Robert Herling 44923

To Mr Dabney, Mr Bruner, and Ms Fay: I would like you to reject the PolyMet Northmet sulfide mine project based on the extensive risk to water resources and human health in the Lake Superior Basin. PolyMet’s SDEIS does not provide a comprehensive enough analysis of the long-standing impacts to clean water, ecological integrity, and human health. In addition, I do not believe that enough consideration has been given to the long-standing economic impacts to Northeast Minnesota, and the state taxpayers at large. While the PolyMet project may increase economic activity in the region, those economic benefits would be very temporary and largely go outside of the state. Meanwhile, the economic risks due to environmental clean-up would be virtually permanent and ultimately rest on the shoulders of Minnesota’s taxpayers. Thank you for your consideration of these concerns. Robert Herling 1226 E 2nd St Apt. F Duluth, MN 55805

Alphabetical by sender's first name

Robert Hershovitz 18286

My name is Bob Herskovitz, Robert Herskovitz. I am a citizen of St. Paul. I work in historic preservation and I am concerned about irrevocable damage to cultural resources as a result of this project. Some of the cultural resources are very fragile and the damage cannot be undone. For example, if there is a faint historic trail that gets disturbed or destroyed, you can't restore it. It is gone. Like an archeological resource, once it is disturbed, its value in terms of providing data, its value is diminished, if not lost. So, from a professional standpoint, I am concerned that there isn't adequate protection. I'm not sure that it is possible to have adequate protection for some of those lost resources. My other comment is not professional, it is just a personal opinion. It is that this is not really tried and true technology. As a museum conservator, we work on artifacts that are important for us as cultural resources. And what we do as conservators, we try and do so that our actions are reversible. That's the goal. It is an ideal. It is not always possible. That's what I'm concerned about here. It is that these things are even more fragile than an artifact or an object, which can be at least partially restored. I am concerned that the corporation that causes, for example, environmental damage really in the long run is not responsible for that damage and it can declare bankruptcy and walk away, and the citizens of the state are left holding the bag to pay for the cleanup for however many years. If the potential costs of cleanup could be calculated and the company would be willing to put up a surety bond for even 200 or 250 years, 500 years ideally, then the citizens would have some assurance that we will not have to pay for the damage caused in the obtaining of corporate profits; the water quality, the cultural resources, the destruction of land. And those are my concerns.

Robert Hoekstra 34903

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, PolyMet's destructive and polluting open pit sulfide mining cannot be allowed to negatively impact the region's natural resources and public health of the Superior National ForeSt Sulfide mining in Minnesota threatens wetlands, rivers, lakes and streaMs The Arrowhead Region of Minnesota including Lake Superior and the Boundary Waters Canoe Area Wilderness will be adversely effected. The risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations will be significant. Acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred, and it is not in the better interests of anybody or anything living in that area of Minnesota to have sulfide mining devastating the region too. Sincerely, Robert Hoekstra 965 Vassar Ave Holland, MI 49423-5304 (616) 394-0684

Alphabetical by sender's first name

Robert Hurt 39378

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Robert Johnson 11946

Feb 14, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

Robert Johnson 16122

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Robert Johnson 19510

My name is Robert A. Johnson, J-O-H-N-S-O-N. And my address, I live at 120 North 42nd Avenue East, Duluth, Minnesota 55804.First of all, when we first heard when Cravaack won over Oberstar, the first thing we heard about was that this proposal of mining up north, we were going to weaken all the environmental standards, and there was a really big push for that, and that worried me right from the start. And then I heard from the Sierra Club that one of the things about sulfide mining is that it will cause problems in breathing for a large part of our area and that more and more people will need inhalers, including our kids. And I use an inhaler right now. Okay. Then from there, as this thing is going on, I'm really worried about our kids' future. The Boundary Waters is just a pristine area, and we know with global warming that 30 years from now, fresh water is going to be a high commodity, and this area, if it was left pristine, could make more money than could ever be done with this mining by keeping the area pristine and keeping it open for people and keeping it as a clean area for our kids growing up. Instead, we're sacrificing our children's future, we're sacrificing the land itself, and we're sacrificing all the wildlife in it. Sulfide mining is a very dirty process, and it should not be done in Northern Minnesota. It shouldn't be done at all. You know, we should save these pristine areas when the climate really gets bad. We don't know what the future holds. There could be a depression in the future. One of the things I heard about this PolyMet thing lately is that they expect the people of Minnesota to pay for the cleanup. Now, how is it that a foreign corporation can come into Minnesota, make profits off our land, leave, and leave us with the cost of cleaning it up? That just doesn't seem right at all. The problem we have is I don't think we have a democracy anymore. We really don't. I don't believe that our representatives actually represent us; I think they represent the corporations. The rich are never going to represent the poor at all, and I think something like this that's going to affect us, the wildlife and our children's future should be voted upon by the whole state. We should take a vote from every person in the state, and we should vote whether we should let PolyMet destroy our environment. I don't think it's right to let a few representatives who can be bought decide our future. I think it's really wrong, and I think it should be stopped, and I can't believe that they're allowing this to happen. It's just ridiculous. That's all, I guess, I wanted to say. But I do believe Minnesota should vote on this and not just a couple representatives who supposedly represent us. Thank you.

Robert Jones 54893

See attachment

Robert Kaiser 13069

I am writing to you my concerns about the proposed Mining Project. What continues to confuse me is the fact that water is the most precious resource we Minnesotans need to cherish and protect, and yet this mining proposal is for an area surrounded by our lakes, rivers, streams, and marshes - the very resource that defines our state more than anything else. How can the MN DNR and the US Forest Service even consider the possibility that such a dangerous proposition for our state would be worth the jobs it could produce. Where is the leadership at the state level that makes it clear that we Minnesotans cannot sacrifice our most valuable commodity at any price whatsoever. We must be constantly reminded of all the water pollution questions that this project proposes, not how much money can be made from mining minerals. And we only need to look to the ongoing drought in the west, and the continued chemical leakage problem in the state of Virginia as sober reminders of how valuable water is to us human beings, and how blessed we are in this state to have such an abundance of clean water. Our water must be forever protected. This mining project will endanger our most valuable resource. Thank you for this opportunity to comment. Sincerely, Robert Kaiser 1064 Pleasant Avenue St Paul, MN 55102

Alphabetical by sender's first name

Robert Kaiser 39066

---Original Message--- From: meanderlodge@comcaStnet [mailto:meanderlodge@comcaStnet] Sent: Tuesday, March 11, 2014 9:47 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Robert Kaiser 1064 Pleasant Ave Saint Paul, MN 55102-3311

Robert Kosuth 57206

Problems:Flaws in the study re water flow200-500 year timeline = total irrationality – similar to nuke waste storageSolution:Sulfide mining is not worth the costRobert Kosuth1224 East 11th StDuluth, MN 55805

Robert Lawrence Dryke 57149

Please reenergize the ground water pollution problems of coal mining operations in KY, WV, PA, VA, NC that shut down because cleanup was ineffective, thus causing uninhabitable lands for humans and species of plant and life matter this is very problematic, has it been corrected by the past profits of coal mining corporations? Will Twin Metals, PolyMet provide continuous insurance, bonds and monies for the future problems and effects the ore processing causes that are unknown? Clean water for delusion is not the solution for controlling pollution.Robert Lawrence Dryke4827 Howard Green RdDuluth, MN 55803

Alphabetical by sender's first name

Robert Lohman 18265

Robert Lohman, Motley, Minnesota. Over the years there have been a lot of really bad plans presented in Minnesota by corporations, by government agencies, sometimes by individuals. 30 some years ago, 33 years ago now, I was working with a lot of other people in stopping nuclear waste from being buried in old granite quarries. A lot of people came out, and it took a long time, but that plan was never implemented. Then maybe six or seven years later, the State of Minnesota came up with the idea of setting up a hazardous waste site somewhere. And at that time 11 counties, they wanted to be that particular location. And again, a lot of people came out, spoke out time and time again, and finally after about three, three and a half years, that program was dead. Now, there have been a lot of other potentially disastrous plans presented. But I think the PolyMet mining proposal ranks right up there with having a hazardous waste site and it is pretty close to having a nuclear waste site in Minnesota. I can't understand how anybody is willing to put Lake Superior, the Boundary Waters wilderness, various wetlands, plants and animals at risk. For what? 350 jobs, 500 jobs for 20 years? Another thing I can't understand is why would we even be talking to PolyMet, who has never operated a plant? To me, that's like if you need an operation and you are talking to your doctor and he says, "Well, actually, I've never done an operation like that before." And you say to him, "Hey, that's no problem. Give it a shot. Let's see what happens." That's what we are doing with PolyMet. I was also thinking about Glencore (phonetic). Apparently, Glencore is the corporation that has the money. They also have Tony Hayward as their Chief Executive Officer. You probably remember Tony, he was CEO of British Petroleum during the great oil spill of the Gulf of Mexico. And he famously said at one point, "You know, I'm really tired of this oil spill thing. I want to get my life back. I've got a lot of other things to do." So, we're inviting corporations like this into Minnesota and we are going to take their word for the fact that they have state-of-the-art technology and nothing is going to happen? However, with bisulfide mines all over the world, bad things have happened. The environment has been wrecked all over the place. So my hope is, I don't think these hearings will do anything. There is so much money involved, I think -- I think this project will be approved, and once it is, there is probably six or seven other projects in the wings that will come forward. And once you approve one, it will be a lot easier to approve the other half a dozen. My only hope is that a lot of people come to northern Minnesota and they come to PolyMet's corporate office in the Twin Cities and they just keep coming until the thing is stopped. Stop the mine from hell. Hallelujah.

Robert Mahutga 39891

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Robert Mahutga 379174 County 1 Eagle Bend, MN 56466

Robert McCaa 58019

No copper mining near Minnesota Lakes. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Robert McKlveen 9305

18388

Please see the attached document.

Alphabetical by sender's first name

Robert McPherson 40117

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mr Robert McPherson PO Box 2212 Tofte, MN 55615-2212

Robert Meyer 14681

Feb 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

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Robert Nanti 7376

I am writing in support of the PolyMet project in northern Minnesota. I know, personally, many of the principal people involved with the development of the project and believe that they would not be involved with a project that would jeopardize the very environment in which they live – and more importantly, where I live; a stone's throw from the St Louis River, upon whose headwaters the project will be located. I am writing in support of the environmental review process in place that is evaluating the project, ensuring that the project will comply with existing regulations. Minnesota, for many years, has been a leader in protecting its environment. I have found the SDEIS process, although lengthy, to be a sound and detailed process, based upon scientific principles and not prone to political maneuvering. I think the people of Minnesota should rest assured that their environment will be protected. Many opponents of the project have used the transgressions of previous mining ventures in other locations to impugn the reputation of both PolyMet and the regulating agencies. I am confident that the agencies will evaluate this project on its merits alone, and not engage in "punishing the son for the sins of the father" or finding it guilty by association to secondary parties. We, as a society, have learned from past mistakes, and are technically more sophisticated than 50 or 100 years ago. The technologies proposed in the project will allow us, as a society, to have the minerals we need, and protect our environment. I wanted to comment a bit on the economics of PolyMet to the region. I realize that this is not pertinent to the SDEIS or the work of the agencies. However, given what I have seen in the public hearings regarding this project, it is evident that the topic is important to others who may have some sway going forwaRd Much has been made of the boom and bust cycle of mining, and it has been put forth as a reason not to do more of it in northern Minnesota. I think it's important to remember that all industries experience this issue. We have seen it in housing just recently. We have seen it in autos and steel and other manufacturing over the past 30 years. The Twin Cities area was, at one time, a hub of milling, railroads and farm implement manufacturing. Industries that faced decline and replaced with high-tech and medical. Yet, I would venture to guess if someone like John Deere wanted to place a facility there and employ 400 people the people of the Twin Cities wouldn't tell them, "No thanks, we've experienced this boom and bust before – not interested". The Iron Range is first, and foremost, a mining district. Its location and small population does not support a vibrant service economy or service industries, which can be done anywhere and tend to gravitate to large population centers with amenities. Tourism has been put forth as a way to diversify the economy, but wages and benefits in this industry pale in comparison to the compensation in the mining sector. A person with a mining career will easily make above $50,000/year with full benefits. I seriously doubt that most people in tourism are making this. No resort owner can afford to pay someone that kind of money to bring out breakfast or change the bed sheets. I was an employee at LTV when it closed in 2001- I was fortunate to land in a comparable career. Most of my co-workers were not so lucky. And I can tell you they were not excited about their financial future as they investigated employment in the area outside of mining. Diversification is an admirable goal, but not at the exclusion of present economic realities. PolyMet is presenting the area with the opportunity for 350 living wage jobs. The very sort of jobs the country has been talking about and looking for. I realize this is an environmental issue at this point. But it should not be forgotten that there are people in this and people matt

Robert Nobrega 40824

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Robert Nobrega 441 Montana Ave Davenport, FL 33897-5627 (401) 521-7171

Alphabetical by sender's first name

Robert Puls 41603

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Robert Puls 133 3rd Ave SW Apt 616 Hutchinson, MN 55350-2471 (320) 587-8055

Robert Risch 44099

One of the biggest concerns that I personally have with the PolyMet proposal relates to sulfide mining's real potential to create long term pollution as waste materials are exposed to water over the years. This will happen both from rain water and from the mine being located in an extremely high, water-rich environment. Financial assurances, to deal with this long term reality, would have to extend beyond the lifetime of anyone alive today, To my knowledge, no financial assurance, of this open ended duration, by a corporation, has ever been enacted and/or is still successfully being carried out. To believe that Glencore / PolyMet would be the first corporation to stand behind their financial commitment, beyond their abandonment of their active mining, is but wishful thinking. Thank you for the opportunity to comment. Robert Risch 2870 Hwy 61 Two Harbors, Minnesota 55616 218-348-6284

Alphabetical by sender's first name

Robert Rodenz 16830

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Robert Rodenz 150 5th Ave SE, Apt 4 Spring Grove, MN 55974

50164

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Robert Rodenz 150 5th Ave SE, Apt 4 Spring Grove, MN 55974

Alphabetical by sender's first name

Robert Rydell 16215

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Robert Schmitz 16653

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Robert Schmitz 7961 15th St N Oakdale, MN 55128

50036

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Robert Schmitz 7961 15th St N Oakdale, MN 55128

Alphabetical by sender's first name

Robert Schmitz 50037

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Robert Schmitz 7961 15th St N Oakdale, MN 55128

Robert Sothern 38720

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Robert Sothern 1903 Selby Ave Saint Paul, MN 55104-5945 (651) 644-5438

Alphabetical by sender's first name

Robert Stevens 16722

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Robert Stevens 4267 diamond dr eagan, MN 55122

50086

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Robert Stevens 4267 diamond dr eagan, MN 55122

Alphabetical by sender's first name

Robert Stodola 54835

See attachment

Robert Tammen 54840

See attachment

Robert Taylor 41945

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Robert Taylor Saint Paul, Minnesota

Robert Thomas 3452

I encourage you to prevent the Poly Met mining operation. Damage to the water and the soil and the atmosphere would result from this type of mining. Its impact on the environment would be catastrophic and the cost of the damage would be extremely high. Theodor Thomas 20 Exchange St E, Apt A1107 St Paul MN 55101-5228

Robert Tipping 43010

Comments on the Northmet SDEIS are in the attached document and copied in this email. Sincerely, Bob Robert G. Tipping 1837 Berkeley Ave Saint Paul, MN 55105 With regard to saline groundwater, the SDEIS states “The concern for the NorthMet Project Proposed Action is whether excavation of the East Pit and West Pit could penetrate zones of saline or briny groundwater or otherwise draw these waters to the surface, thereby increasing the salinity of the West Pit water, which is proposed for treatment at the WWTF” (SDEIS 5-113). While the impact of saline water on the chemistry of the mine pit is a concern, the presence of saline water has broader implications regarding the modeling characterization of the Duluth Complex in the SDEIS as a homogeneous low-permeability hydrogeologic unit. Saline water often is encountered at depths greater than the proposed mine pit depth throughout the Canadian Shield. It is also known to occur near the land surface in areas where structural and hydraulic conditions allow for it. In Minnesota, this occurs in places along the North Shore, but also has been found within the Arrowhead interior along contacts between intrusive (dikes) and host rocks, and in or near contacts between rock units. Measured chloride concentration in water samples is a good tool for identifying saline waters; near-surface waters have concentrations typically less than 10 mg/L. Concentrations above this level, even as low as 50 mg/L can indicate some admixture of saline water. Comparing the ratio of chloride to bromide in water can help distinguish between higher chloride concentrations due to some contribution from a saline source, and chloride from anthropogenic sources. The conceptual hydrogeologic model presented in the SDEIS of the mine, plant and tailings basin site, particularly with regard to solute transport, would be improved with an inventory of chloride to bromide ratios for surface water and groundwater. This inventory should include sampling from discrete intervals in long open holes. Elevated chloride concentrations have been encountered in both groundwater and surface water at and near the site (SDEIS 5-113; Barr, 1976). The presence of some admixture of these waters in the near surface (less than 500 feet) indicates there may be hydraulically active fractures in the bedrock.

Alphabetical by sender's first name

Robert Tomassoni 18259

I am Robert Tomassoni from Virginia, Minnesota. I'm formerly from Eveleth and a lifelong Iron Ranger. I worked for United States Steel for over 35 years and have seen unbelievable changes in those years. I am proud of my mining past and understand and know the history of the Iron Range and mining. I know what we can do and what we can't do. I consider myself an environmentalist. I believe in protecting and safeguarding our environment. I have read the Environmental Impact Study and truly believe in my mind, heart and soul that we can mine these precious minerals in a safe and environmentally sound manner. The other part of my comment is to tell you about the men and women that work for PolyMet. I have worked with a majority of them. Joe Scipioni, Jim Tieberg, Paul Brunfelt, Dave Draves, Latisha Gitzen and the DeVaneys. They are all professional, dedicated, hard-working individuals that I have known and trust. They are second, third and fourth generation Iron Ranger and miners. They are honest people with high integrity that I fully trust and respect. These same people are the leaders and pillars in our communities that live on the Iron Range. They are raising their children and grandchildren on the Iron Range. They love northern Minnesota. I know they would never do anything to endanger our environment and the wonderful way of life in northeastern Minnesota. The PolyMet plan is built on the latest science, mechanics and world-class engineering. We can build a world-class mining facility in northern Minnesota. We can mine copper, nickel, gold, and other precious metals better than anyone else in the world and we can do it safely and in an environmentally friendly manner. Help Minnesota grow. Help the Iron Range grow good paying jobs for future generations of miners. Help make PolyMet a reality. Go PolyMet. Thank you.

58158

I worked for US Steel for over 35 years! I know mining as a wage employee and as a manager. I've seen unbelievable changes in those years. All for the better for workers and the environment. I've read the EIS and believe with our caveat knowledge which includes Engineering in all degrees of Engineering! I consider myself an environmentalist. I believe in protecting and safe guarding our environment. We have the knowledge and know how. The experts have reviewed this permit and we can do this properly. Enough is enough. Let's move forward to protect our country, to create good paying jobs while mining these minerals in a safe and environmentally safe mine. We can do this right. We are a world class mining operation at Polymet.

Robert Topliff 9497

Dear Lisa Fay: As someone who has always appreciated the environment that we are blessed with here in Northern Minnesota, I am most concerned about losing that, should things go wrong with the Polymet and other possible projects. We share the Great Lakes with all of our neighbors, and do not have the right to contaminate any of them, nor the surrounding waterways. Without usable water for human consumption, we are nothing, and the economy is worthless. Unfortunately, history does NOT show these types of projects in a good, non damaging light. This is why we look with a critical eye, and are not so easily buying their promises, which in the past have been broken, and the areas left to try and clean up the damage. Lake Superior is sacred, and we cannot take the risk of contamination again. Thank you for your consideration. I hope and trust that the DNR will consider these points. Sincerely, Faye A. Topliff

9504

Dear Lisa Fay, As a native of MInnesota (over 70 Years), and having traveled extensively, I have grown to appreciate what we have in Minnesota, a better environment than a lot of other places. I have worked with others to correct the Silver Bay Taconite tailings in the lake issue and other regrettable environmental fiascoes in other parts of our country and World Wide. I would ask you and the rest of the DNR personnel who are working on this issue to consider the following. "What if we are WRONG on this issue." "What if any damage is catastrophic and CANNOT be corrected or reversed." What ever is done here affects everything downstream. Consider the Mississippi rivers change from the Headwaters down. Final comment, we need clean water and clean air to survive. Sincerely, Robert D. Topliff

54149

I do NOT! [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Robert W Trevis 4710

Although I am personally environmentally oriented, I am not opposed to the PolyMet mining plans, so long as there is continuous oversight by State of Minnesota employees during construction of any retention/holding water bodies, as well as continued inspection/oversight on a weekly basis so long as the mine operates. Due diligence on the state's part should allow the northeast region of the state to recover somewhat economically. Thank you. Robert W. Trevis Eagan, MN

Robert Walker 18218

My name is Robert Walker, and I live in Oakdale and I've been a resident of Minnesota for the past 40 years, and one of the resources we have in this state is very valuable and is becoming more valuable through the world is relatively clean water. Lake Superior is the largest body of fresh water in the world, and we need to protect that water, and the way we can do that is to make sure that we develop our economy in ways that will not pollute that water, and there hasn't been a sulfide mine anywhere that hasn't had the problems that so many others have spoken about here, tonight, and I think it really -- the SDEIS addresses some things and points out things that are an issue, but it doesn't give solutions in there. Treating the water for 500 years? That's not a realistic possibility, and we need to be assured ahead of time that anything of this nature will not pollute that lake and the other waters in that area because water is something we cannot live without. That's all I have. Thank you.

Robert Walsh 16177

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Robert Warhol 16264

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Robert Watson 13597

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, More industrial pollution of our environment is not the answer. Clean water is not a negotiable commodity. Just look at the disaster in West Virginia. People may want the "benefits" they believe that come from certain industries but the damage can be very long term and costly in terms of clean up, if at all possible. I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Sincerely, Mr Robert Watson 3501 Marwick Dr Plano, TX 75075-6224

Alphabetical by sender's first name

roberta cassidy 16496

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, roberta cassidy 3405 west 49th street minneapolis, MN 55410

49955

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, roberta cassidy 3405 west 49th street minneapolis, MN 55410

Alphabetical by sender's first name

Roberta Dale 57963

Though a few jobs will be gained in the short term, the long term consequences for water quality and wildlife are far more critical issues. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Roberta E. Newman 40408

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Roberta E. Newman 300 Monte Vista Ave Mill Valley, CA 94941 USA

Roberta Haskin 40017

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Roberta Haskin 9641 Vincent Ave S Minneapolis, MN 55431-2458 (952) 836-6586

Alphabetical by sender's first name

Roberta Hodgdon 16134

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Roberta Mistretta 19945

Hasn’t history taught money hungry grabbers that this is the ONLY home we hAve This will RUIN our ground waters, you KNOW it but continue to PRETEND there is nothing to be concerned about. I thought Minnesota was better than that. Roberta Mistretta 3954 Maple Drive Barnum, Mn 55707 _____ HYPERLINK "http://www.avast-com/" This email is free from viruses and malware because HYPERLINK "http://www.avast-com/"avaSt Antivirus protection is active. _____ HYPERLINK "http://www-netzero-net/.refcd=NZINTISP0512T4GOUT2"Fast, Secure, NetZero 4G Mobile Broadband. Try it.

Roberta Nye 35280

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I am concerned about this project's potential impacts on the Great Lakes region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Deny any such permission to mine in this area. Sincerely, Roberta Nye 6239 S Nashville Ave Chicago, IL 60638-4111 (773) 586-0000

Alphabetical by sender's first name

Roberta Otto 54748

See attachment

Roberta Ryan 44692

Hello. I've been exploring the mining proposal as a project for one of my college classes. After reviewing much of the available information, I'm vehemently opposed to the project. While economics are important, this endeavor simply isn't worth the possible risks. No matter how tight regulations are or how careful everyone is, it's impossible to control everything all of the time. I'm not willing to gamble Minnesota's wildlands for profit and prosperity. I hope the state isn't, either. A heartfelt thank you to those taking the time to review these comments. You are very much appreciated. Roberta Ryan 310 139th Ave NW Andover, MN 55304

Roberta Tietge 42688

See attachment

Robin Bunney 9592

After attending open houses in Duluth and Aurora, I support this project, as well as the process that got us to this point. The information tables really helped put the process into layman terMs I was impressed by the depth of research. This project should move forwaRd Those who feel more time is needed to understand project, should have taken the time to go, listen, read and be truly informed. We can, and will do this right. Scott M. Bunney 2445 Echo Trail Ely, MN 55731 218-410-2219

Robin Grinnell 40164

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Dr Robin Grinnell 211 Woodhaven Ln Mankato, MN 56001-5786 (507) 934-0916

Alphabetical by sender's first name

robin hensel 12947

Feb 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

robin hensel 17099

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, robin hensel 807 first st s e little falls, MN 56345

50369

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, robin hensel 807 first st s e little falls, MN 56345

Alphabetical by sender's first name

Robin Peterson 54511

What measures will be taken to assure that wildlife, both aquatic and land animals will not be exposed to the by products of this mining process? Mercury, sulfur, etc!

Robin Poppe 38906

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Robin Poppe 3249 Sandy Pines Rd Barnum, MN 55707-8766

42769

See attachment

Robin Raplinger 40459

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. The Cooperating agencies have been correct, as one co-lead agency MDRN now recognizes, in there objection to relying on the deficient and misleading reliance on XP-SWMM model used to extrapolate flow data. This model is flawed, as direct observation shows. The SDEIS must be reworked and revised concerning this aspect. Sincerely yours, Robin Raplinger 916 17th St N Virginia, MN, MN 55792

Alphabetical by sender's first name

Robin Raplinger 43019

Greetings, Please find attached my comments on the PolyMet SDEIS. Robin Raplinger 916 17th StN Virginia,MN 55792 218-741-3569

45883

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. I am not against mining. I am not against construction jobs. I am against tax payers funding cleanup costs of corporations. The proposed PolyMet project's Supplemental Draft Environmental Impact Statement (SDEIS) tells that mechanical water treatment is part of the modeled project and that it is to last 200 years for the for the mine site and 500 years for the plant site. They are uncertain how long this water treatment would actually be needed, but it is stated that "PolyMet would be held accountable to maintenance and monitoring required under the permit and would not be released until all conditions have been met." SDEIS 3-2-2-3-12 or p.3-124 (SDEIS pdf p. 285) In a following section 3-2-2-4 Financial Assurance, it is explained that "financial assurance instruments covering the estimated cost of reclamation" is required. An estimation of 120-170 million dollars at closure and 3-5-6 million dollars per year after closure. All of the hundreds of millions of dollars of financial assurance are to be fully valid, binding, and enforceable under state and federal law and not be dischargeable through bankruptcy. How could such an estimate of costs ever be accurate and guaranteed for 200-500 years or more. We have no idea what changes in law and the economy could take place in 200-500 years. PolyMet does not have the resources to guarantee those immense liabilities and could be described as a "shell corporation" when the major investors, including Glencore, enjoy that protection. What this proposal asks you to accept is 20 yrs of 200-300 jobs and promise that PolyMet will fund everything for 200-500 yrs. Could anybody believe PolyMet or their "financial assurance" will be around hundreds of years after the mine operation, and its value, is gone. This externality, the cost of reclamation as well as health and environmental degradation, will likely be borne by future generations and their grandchildren, great grandchildren and so on for many generations if proper steps are not taken now. Please require Glencore is liable through written documentation to the same degree , reference in the above paragraphs, as Polymet. . Sincerely, Mr Robin Raplinger 916 17th St N Virginia, MN 55792-2137

Robin Stark 5969

I attended the first of three hearings that are set up to address the EIS for the Polymet Project. I stand behind and trust the state and federal agencies that are involved in preparing this document. We all know how strict the state of MN is. I am concerned about our environment, who isn't. I, however, do know a few of the people who are instrumental in this project, and they themselves have families to be concerned about. I believe and trust that they themselves would not support this project if they felt their future families would be hurt. We need the jobs, the economic growth, and spin offs from this project. I say let's go forward and permit this project. - Robin Stark, Realtor, Licensed in Minnesota Village Realty Inc. 4325 E 9th Ave Hibbing, MN 55746 218-263-8877 HYPERLINK "http://www.villagerealty.us"www.villagerealty.us Robin's cell 218-969-4048

Alphabetical by sender's first name

Robin Vora 21380

Thank you for the opportunity to comment on the draft Environmental Impact Statement (EIS) for the PolyMet NorthMet Mining Project and the associated Land Exchange. I own properties outside Aurora and Ely, Minnesota that will be directly or indirectly impacted by the proposal. No mitigation or pollution control measures are perfect. My property on the St Louis River may be directly impacted by any water pollution. First of all, I don't believe the short-term economic benefits, including possibly increased valuation of my property near Aurora, justify the potential long-term adverse impacts to the environment. I am not convinced that over time water quality will be protected. Increased aluminum, lead,mercury, copper, cobalt, nickel and sulfate concentrations in wetlands, including lakes, rivers and groundwater are unacceptable. Besides damage to water quality, the project would result in: net loss of forest, natural wetlands, and wildlife habitat; direct harm to rare plants and their habitats; loss of areas of high biodiversity significance, reduced carbon sequestration and increased carbon emissions; and air pollution. The EIS does not address mitigation of reduction of lands available to tribal members to hunt, fish and gather, or how adverse environmental effects may be exacerbated by potential climate change. It is unlikely that proposed mitigation measures will be 100% effective. The long-term public benefit of these lands would be reduced significantly by this project. The amounts of insurance and the reclamation bond are inadequate. The mining company must have sufficient insurance and a large enough bond to cover all potential accidents, repairs, insufficient mitigations measures, and site restoration when mining is completed. The EIS has an inadequate range of alternatives. There must be other practical alternatives that reduce impacts on wetlands, forests, and wildlife habitats. The proposed land exchange with the Superior National Forest is not fair to the taxpayer or the resource. Besides contributing to the environmental problems I list above, a near 1:1 land exchange is not justified. Lands used for mining are worth far more in dollars than forest lands. Government policies require land exchanges be of lands of equal value, not equal area. The EIS needs to include a real and comprehensive economic analysis of land values. The Superior National Forest should gain many more acres from the land exchange than proposed or the mining project should be reduced significantly in size if transferring only 6,722 acres from private to public ownership. For example, I recall a land exchange in the 1990s in which LTV Mining provided the US Forest Service with about 5,000 acres in exchange for 40 acres within the LTV mine. The proposed PolyMet land exchange does not serve the public intereSt I urge the federal and state authorities to reject the EIS and the project. If an unfortunate decision is made to go ahead with the project, it must include a comprehensive monitoring and evaluation plan that focuses on the environmental concerns I listed and has trigger points to halt or shut down the project when environmental consequences become unacceptable by exceeding prescribed thresholds. Thank you for your time and consideration. Sincerely, Robin Vora 1679 NE Daphne Dr Bend, OR 97701

Robyn Dochterman 40016

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Robyn Dochterman 16277 Quality Trl N Scandia, MN 55073-9723

Rod Fisher 42273

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I have been in and around the BWCA many times. I am a chemical engineer that understands the potential economic value and potential environmental costs of such operations. This is simply not worth the risk to such an important region. Please reject the polymet mine. Sincerely, Dr Rod Fisher 16820 S Shore Ln Eden Prairie, MN 55346-3639 (952) 913-8095

Alphabetical by sender's first name

Rodd Ringquist 16117

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Rodger and Kathryn Ringham 43008

Attached are my comments. Thank you, Rodger Ringham Minneapolis amd Lutsen

Rodger F Ringham 54512

See attachment

Rodney Bleifuss 46884

Just say "NO". There is no way to justify this development based on current studies. The potential environmental impacts simply outweigh the economic benefits to Minnesotans. Meredith G. Bleifuss 20839 North Mishawaka Shores Drive Grand Rapids, MN 55744 218-326-4282

Alphabetical by sender's first name

Rodney Monson 20172

I have lived in the Duluth area all of my life, 73 years. As I travel around the country and see all of the economic expansion, new businesses, new buildings, new housing, new schools and new roads being built. I wonder why is it that in all my years living in Minnesota, I have never seen that kind of prosperity and economic progress. I am in favor of the Poly Met Mining project becoming a reality. What an opportunity for the State of Minnesota to show us Minnesotans and the rest of the country that we are indeed interested in bring good pay jobs to our State. If the Poly Met Mining project it is rejected, I will most definitely have the answer to my question. Rodney Monson 4313 Lavaque Road Hermantown, MN 55811

Rodney Olsen 57281

Please accept these comments on the Poly Met Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage (AMD) and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as lynx and moose, exchange of federal land within the Superior National Forest, and cumulative impacts from mining. The proposed mine poses unacceptable risks to our waters and communities, and I support the No Action Alternative.

Roger A Morrison 52295

Roger Morrison 2900 14th Street SE Austin, Minnesota 55912 March 12, 2014 To: NorthMetSDEIS.dnr (HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us) As a lover of the Boundary Waters Canoe Area (BWCA), I have made many trips to the BWCA to canoe, fish and be in the most beautiful natural environment that I have encountered. I think what impressive me the most is the lack of motorized transport in this area, it makes it pristine like no other place I have been. Know this is a fragile ecosystem I am worried about the possible impact on the BWCA posed by mine drainage at the PolyMet's NorthMet project. The data I have reviewed from PolyMet's shows that water that will be discharged from the project site would not enter the BWCA lakes or streaMs In my review of the government maps of this area it shows a need to determine the actual effect of mine drainage into the waterways on the edge of the Boundary Waters. The proposed mine site is uphill from the One Hundred Mile Swamp, which drains into the BWCA watershed. There is a lack of testing and research to on the part of PolyMet to show that water entering One Hundred Mile Swamp will not then flow into Rainy Lake and the BWCA watershed. This is evident by the authors of the Supplemental Draft Environmental Impact Statement (SDEIS) using incorrect maps which contradict the government maps along with omitting sections of the One Hundred Mile Swamp. I also have concerns that there is little or no assurance that PolyMet LLC has the financial resources to ensure that any damage done to the environment will be adequately and properly cleaned up. For these reasons I think that PolyMet needs to complete a new SDEIS using the correct maps and the project should not be allowed to progress until the new information can be reviewed. Additionally PolyMet must ensure they are completely vested in all cleanup related cost if there were to be some accident or issue. Very Respectfully, Roger Morrison LTC Roger A. Morrison 11th BN 95th RGT OES Work: 507 437 - 5768 Cell: 507 219 - 8194 AKO: HYPERLINK "mailto:roger.a.morrison4-mil@mail.mil"roger.a.morrison4-mil@mail.mil work: HYPERLINK "mailto:ramorrison@hormel-com"ramorrison@hormel-com

Roger and Maxene Linehan 54662

See attachment

Roger B Carlson 10312

I support mining in NE Minnesota When I was a child the mines were booming, lots of work for everybody. Now the Range does not have enough jobs to keep the young people in the area and culture they know and love. Keep the Range unique and safe and healthy and prosperous, Minnesota too. Go forward with the proposed Polymet Mine If the minerals are not taken now it seems to me that some future generations will Have to extract the mineral so why now., why not us. If Science can land a satellite on a Comet Science should be able to keep the water clean Roger B Carlson 14072 Dellwood Road Stillwater MN 55082 651 271 9116 or Box 682 Eveleth MN 55734

Alphabetical by sender's first name

Roger Bergh 42585

See attachment

Roger Clemence 57956

The contamination will last forever (if the past tells us anything). Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Roger Dahlin 47181

Mar 12, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. As a harvester of wild rice for more than thirty years, I have personally observed the sensitivity of that species to changes in water conditions. Research has demonstrated that wild rice is negatively affected by even mildly elevated levels of sulfide in the waters in which it grows. The region surrounding the proposed PolyMet mine has many lakes and streams in which wild rice forms the basis for rich aquatic ecosystems and provides an important food source for many waterfowl, including swans, geese, and several species of ducks. Significant damage to stands of wild rice in this area would profoundly impoverish habitat for many other species, constituting a tragic diminution of biological diversity. Aside from the environmental damage which would occur as a result of harm to wild rice, there is a notable cultural consideration to be made. Native Americans living in areas where wild rice grows have for many centuries harvested and eaten it. After being parched and hulled, the grain keeps for long periods of time, which makes it an important food for surviving long northern winters. The harvesting and processing of wild rice has long been integral to the hunting/gathering culture of northern woodlands tribes. Many continue to practice it, as do other Minnesota residents. The potential for damage to this natural crop represents a threat to both native cultures and natural harvest traditions of many others. I am not satisfied by assertions that water polluted by the proposed mining will be treated to meet strict quality standards. Such assurances mean nothing when something goes wrong and contamination spreads. Such things do happen. I'm not willing, without much more convincing evidence that any such accident will be immediately contained and its effects negated, to tolerate the risks to our environment and heritage that an open pit sulfide mine would bring to northern Minnesota. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Roger Dahlin 1533 Gilmore Valley Rd Winona, MN 55987-7610

Alphabetical by sender's first name

Roger Dahlin 48567

Mar 12, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. As a harvester of wild rice for more than thirty years, I have personally observed the sensitivity of that species to changes in water conditions. Research has demonstrated that wild rice is negatively affected by even mildly elevated levels of sulfide in the waters in which it grows. The region surrounding the proposed PolyMet mine has many lakes and streams in which wild rice forms the basis for rich aquatic ecosystems and provides an important food source for many waterfowl, including swans, geese, and several species of ducks. Significant damage to stands of wild rice in this area would profoundly impoverish habitat for many other species, constituting a tragic diminution of biological diversity. Aside from the environmental damage which would occur as a result of harm to wild rice, there is a notable cultural consideration to be made. Native Americans living in areas where wild rice grows have for many centuries harvested and eaten it. After being parched and hulled, the grain keeps for long periods of time, which makes it an important food for surviving long northern winters. The harvesting and processing of wild rice has long been integral to the hunting/gathering culture of northern woodlands tribes. Many continue to practice it, as do other Minnesota residents. The potential for damage to this natural crop represents a threat to both native cultures and natural harvest traditions of many others. I am not satisfied by assertions that water polluted by the proposed mining will be treated to meet strict quality standards. Such assurances mean nothing when something goes wrong and contamination spreads. Such things do happen. I'm not willing, without much more convincing evidence that any such accident will be immediately contained and its effects negated, to tolerate the risks to our environment and heritage that an open pit sulfide mine would bring to northern Minnesota. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Roger Dahlin 1533 Gilmore Valley Rd Winona, MN 55987-7610

Roger F Heegaard 54793

See attachment

Alphabetical by sender's first name

Roger Garton 21699

Mar 5, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Not only does the proposed PolyMet mining project present serious environmental risks to the ground water and overall ecosystems of the northeast part of Minnesota, this project will increase the amount of pollution that is added to our atmosphere through coal generated electric consumption. In addition to securities and protections for Minnesota's ground water and ecosystems that are in jeopardy as a result of this project, PolyMet should be required to present a means for offsetting all of the additional coal generated electricity that they will consume. This means could be through contribution to the Conservation Improvement Program (CIP) fund, or through direct deployment of renewable energy generation such as solar or wind power. We must insure that this project is in the best interest for all of Minnesota before it is allowed to move forwaRd Letting a small few compromise the natural beauty and ecosystems of our state for their personal profits and leaving the tax payers holding the bill for the cleanup efforts is not an option. Please consider all aspects of this project and how it will impact Minnesota in the coming centuries. Sincerely, Mr Roger Garton 33650 190th St Akeley, MN 56433-8448

Roger Heegaard 40672

To whom it may concern, I am writing to express my deep concern and opposition to the Polymet Mine project. Sincerely, Roger W. Heegaard President Enova Illumination 1839 Buerkle Rd Saint Paul, Minnesota 55110 Office: 651-236-8859 Mobile: 612-205-2226

Roger Hiller 40825

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Please protect our wilderness area and our waters. We have heard before, the promises of containment, and we know from experience what happens. Sincerely, Mr Roger Hiller 1794 Van Buren Ave Saint Paul, MN 55104-1731

Alphabetical by sender's first name

Roger Johnston 16098

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Roger Klisch 15352

Dear DNR, As a citizen of Minnesota who uses the BWCA annually, I am opposed to mining in the area. We need to keep what little is left of the natural world pristine and available for wilderness experience. We cannot put our water resources at risk, as this mining operation would surely do. Thank You, Roger Klisch 1180 Norell Ave Stillwater, MN 55082

Roger Meyer 47301

Mar 12, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The environmental impact of the mine and the long term economic impact of such an operation require that the PolyMet mine not be allowed. The current and future citizens of Minnesota have the right to clean water and a sustainable economy. The extraction of resources will cause environmental damage during extraction and leave the citizens of Minnesota monitoring and/or cleaning up the site for centuries after operations cease. This has not been proven to be possible for the duration required by this mining operation. The short-term economic gain from this project does not come close to off-setting the short-term environmental impact and the long-term risk. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Roger Meyer 1692 Dayton Ave Saint Paul, MN 55104-6104

Alphabetical by sender's first name

Roger Murawski 2258

From: Motel Ely [mailto:info@motelely-com] Sent: Thursday, December 12, 2013 12:19 PM To: Fay, Lisa (DNR) Subject: Yes to mining Ms Fay, I received an email from the Friends of the Boundary Waters asking me to send an email against mining. They are claiming 20 years of mining and 500 years of clean up. I believe they are full of BS. We are in total agreement to mine and believe we can have both, clean water and jobs. We are dying up here. I don't understand why they think they know more than the experts. People will follow anyone if they are spewing what they want to hear. Thanks, Deb Roger and Debra Murawski Motel Ely – Budget Host 1047 E. Sheridan St Ely, MN 55731 p: 218-365-3237 f: 218-365-3099 e: HYPERLINK "mailto:info@motelely-com"info@motelely-com w: HYPERLINK "http://www.motelely-com/"www.motelely-com

Roger Skraba 18311

Roger Skraba, S-K-R-A-B-A, Slovenian, from Ely, Minnesota. I rise in support of this SDEIS. And I do that as a wilderness guide that makes my living in the wilderness. I need that in order to survive in Minnesota because there's so many jobs here. Not. What I want to speak to about the tourism, because we've always gotten along and we always will get along, we just have to tolerate each other. And as mayor of Ely I used to have to listen to both sides and come to a decision. And if I pick one side and say, "The anti-mining people are absolutely correct and the mining people are wrong," I'm wrong. You have to look at it from both sides. There is a solution. And one of the solutions is -- and I think all of us here -- and I appreciate what this document is, is a science document. I don't have the knowledge to make these decisions that regulatory agencies do. I'm trusting them. If they come out and say "It can't be done. The numbers can't prove it." Then it can't be done. And we'll wait for another day when people are smarter and there's another process. As of right now the process that they applied for and are being scrutinized on, if it happens, it happens. It's not something that our passions can make it happen either way. The science is going to solve this problem and we have to trust that science. And I trust the process. Whether it supports my beliefs or not, that's here nor there. But as a wilderness fishing guide, I am not concerned. I trust that the mining, when it happens, is going to be done properly. And if it's not, then I'm out of a job. So I rise in support. One issue -- the other thing I wanted to discuss a little bit was the mercury content. The number is 1.3 nanograms. And one of the concerns I have about that is -- again former mayor -- we have a wastewater treatment plant and we have to be concerned about our mercury that we put into the water. And I'm always kind of wondering about the stuff in the air. How do we measure that it comes from foreign countries or from ourselves? And how does that go into this EIS? And I didn't catch it all. I don't know how that is measured. But I think we need to all look at that. And if guys already did the math on it and did the science, I appreciate that. It's something that I'm concerned about. That maybe the standards that we set for ourselves are so high that it's not attainable. And I'm not saying that we should allow mercury. I'm saying we need to look at where is the point source. If it is coming from the air, then we have to take that into account and not just the point source. I truly believe that the process that we're going through right now is something that I can support. And I hope we all can get together and find a common thread for all of us. Thank you.

Roger Strand 7352

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade. Not surprisingly for this type of mine, the PolyMet SDEIS is still inadequate. Just for openers, it fails to adequately address dangers to workers' health and to the citizens of the affected area who look to our State Agency leaders to protect the source of their drinking water. I'm a retired physician. I was born, raised, and spent nearly all of my working life in Minnesota. It is my chosen water-filled habitat. I just read a news article about a serious local drinking water problem in West Virginia. It is apparently just one of a long list of health problems in that state which can easily be traced to a long-standing culture of lax pollution control of industry and mining operations. Well, this is not West Virginia. I like to believe that we, our children and our grandchildren can expect better treatment from our elected and appointed leaders in Minnesota. Please reject the PolyMet SDEIS and deny the permits that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely. Roger W. Strand, M.D. Roger Strand 20901 Hwy 71 NE New London, MN 56273

Alphabetical by sender's first name

Roger Thoma 42046

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I am a resident of Ohio and I am concerned about the possibility of increased open pit mining in the Minnesota area, specifically the plans for the PolyMet project. I have worked in the environmental field for over 30 years as a fisheries biologist for the Ohio Environmental Protection Agency (OEPA) in the capacity of Environmental ScientiSt Most of my work for OEPA focused on environmental quality in Lake Erie where I studied the Lake's fish communities and the impacts of pollutants on their structure, physical health, and tissue contamination. I have since retired. In Ohio we endeavored to reduce the levels of contaminants in our fishes for many years, requiring dischargers of mercury to reduce and eliminate any mercury in their effluents and air releases. We have a long way yet to go. Currently all fish species in all waters of the State are listed for consumption restrictions due to the pervasive nature of mercury pollution in our area. This pervasive condition is the result of air deposition derived from air discharges in states west of Ohio, such as Minnesota. It will not be possible for Ohio to meet the requirements of the USEPA as long as air born mercury is transported to our state. As long as such conditions continue Ohio will be in Non Compliance for all of its waters. This is, as you know, a violation of law. It is my understanding from a review of available information that the state of Minnesota has not yet established compliance with its mercury discharge regulations and that many of its mining operations are exceeding their permit limits for mercury. For Ohio this is an unacceptable proposition. Minnesota is contributing to the damage of Ohio's environment and disenfranchisement of its people to clean waters and edible fish as required by the Clean Water Act and its legal permutations. As part of my duties at OEPA I participated in the International Joint Commission's (IJC) Lake Erie LaMP process as a member of the Ecosystems Objectives subcommittee. Our subcommittee clearly indicated that tissue contamination in Lake Erie's fish community has to be eliminated and that a zero discharge of toxic chemicals and tissue contaminating materials be achieved. The activities of Minnesota, by failing to enforce its own laws, is a clear violation of the objectives put forth by the IJC. MInnesota is a member of the IJC and has agreed to cooperate with the other members in achieving their goals. For these reasons I am requesting the state of Minnesota place a moratorium on all future permits requested in your state until full compliance with mercury discharge regulations is achieved. I specifically request the permit for the PolyMet open pit mine not be approved. Sincerely yours, Roger Thoma 3015 Creekside Dr Westlake, OH 44145

Rolf Carlsen 45432

Hello. Please add me to the long list of those who think this mining proposal is not in the long term interests of any MN resident. It is a short-sighted proposal with huge long-term problems for the residents of this state. Thanks for listening - I hope you make the right decision and stop this proposal in its tracks. Rolf Carlsen

Roma Leuty 7207

Dear Ms Fay, Dear Federal and State Agency Leaders: The PolyMet sulfide mine plan would end up like the Reserve Mining debackle that we had to deal with. It took years to stop the dumping of tailings in Lake Superior. This mine has the potential to be much serious. STOP the rape of our environment. Roma Leuty 161 Ave NW Andover, MN 55304 763 434 3295

Rome Hutchings 10918

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not ever be built. Sincerely, Mr Rome Hutchings 13633 Ferman Ave NW Clearwater, MN 55320-6125 (763) 878-1694

Alphabetical by sender's first name

Rome Hutchings 24395

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Rome Hutchings 13633 Ferman Avenue NW Clearwater, MN 55320

Alphabetical by sender's first name

Rome Hutchings 40810

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Rome Hutchings 49515

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Rome Hutchings 13633 Ferman Avenue NW Clearwater, MN 55320

Romola Newport 40404

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Romola Newport 5 Cardwell Street Greymouth, ot 7802 NZ

Alphabetical by sender's first name

Ron Bergh 7346

I attended the Duluth meeting on 1-16-14- I was impressed with the thoroughness of the material presented. All of my questions were answered. The project has great merit and I feel the changes to the environment will not be harmful to the effect as to stop the project from proceeding. We need the plant and the good it will create. Thank you, Erick Bergh

15643

I attended the meeting on polymet , I think the study and plans presented covered the environmental concerns. I hope the permits are issued soon so the people of MN can start reaping the benefits. A study should be made about the costs of all this delay. Jodie Bergh Duluth,MN

15655

I attended the meeting on polymet , I think the study and plans presented adequately addessed the environmental concerns. I hope the permits are issued soon so the people of MN can start reaping the benefits. A study should be made about the costs of all this delay. Quinten Rimolde, 4507 Kruger road, Duluth,MN 55811

15656

I attended the meeting on polymet , I think the study and plans presented covered the environmental concerns. I hope the permits are issued soon so the people of MN can start reaping the benefits. A study should be made about the costs of all this delay. Michael Bergh 424 EAST 9th St, Duluth,MN 55805

15657

I attended the meeting on polymet , I think the study and plans presented covered the environmental concerns. I hope the permits are issued soon so the people of MN can start reaping the benefits. A study should be made about the costs of all this delay. Mary Rimolde 4507 Kruger Rd Duluth,MN 55811

15658

I attended the meeting on polymet , I think the study and plans presented covered the environmental concerns. I hope the permits are issued soon so the people of MN can start reaping the benefits. A study should be made about the costs of all this delay. Randy Bergh 424 E 9th st, Duluth,MN 55805

15660

I attended the meeting on polymet , I think the study and plans presented covered the environmental concerns. I hope the permits are issued soon so the people of MN can start reaping the benefits. A study should be made about the costs of all this delay. Eric Bergh 715 N. 20th Ave west, Duluth,MN 55806

15661

I attended the meeting on polymet , I think the study and plans presented covered the environmental concerns. I hope the permits are issued soon so the people of MN can start reaping the benefits. A study should be made about the costs of all this delay. Edwyna Bergh, 114 N. 25th Ave West, Duluth,MN 55806

15664

I attended the meeting on polymet , I think the study and plans presented covered the environmental concerns. I hope the permits are issued soon so the people of MN can start reaping the benefits. A study should be made about the costs of all this delay. Kathy Bergh 114 N. 25th Ave West, Duluth,MN

42586

See attachment

Alphabetical by sender's first name

Ron Bergh 43712

I believe the environmental review process has been sound and thorough. State and federal regulations will ensure the measures and controls will protect the environment. Time and money is wasted with this long delay in allowing permits. The only winners are the lawyers and mining competition from other areas. Polymet is a win win for MN and the Nation. Delaying only wastes our money an resources. The biggest complainers are also some of the largest polluters.

Ron Brodigan 39798

March 10, 2014 Ms Lisa Fay; Our response to the PolyMet Draft Environmental Impact Statement is attached to this email. Respectfully, Ron and Judy Brodigan 1350 Snowshoe Trail Isabella, MN 55607 218-365-2126 Steve and Cindy Brodigan 2159 Brinker St Chanhassen, MN 55317 952-470-0072

Ron Deike 12056

Extraction industries routinely use bankruptcy to avoid obligations to fund environmental clean up. The example of Freedom Industries (supporting coal mining) in West Virginia is pertinent. Immediately after their chemical spill which fouled drinking water for hundreds of thousands, Freedom Industries declared bankruptcy and skipped out on Congressional hearings - completely irresponsible and completely predictable behavior. This is exactly the behavior we can expect from a copper miner in Minnesota. This project should not go forward because the state and the taxpayers will be stuck with the clean-up bills. Assurances from extraction industry companies are worthless as has been demonstrated time and time again. Ron Deike 792 26th ST NE Rochester MN 55906

Ron Dicklich 18156

My name is Jesse Johnson. J-E-S-S-E, J-O-H-N-S-O-N. Ironworkers Local 512. I cede my time to Ron Dicklich. RON DICKLICH: My name is Ron Dicklich, D as in "Don," I-C-K-L-I-C-H. I am executive director of Range Association Municipalities of the Schools. That's 25 cities, 15 school districts, and 10 townships in the taconite (inaudible). Right in the heart of where all the mining is taking place, which has taken place for 125 years. And we've already been mining in the Superior National Forest for 125 years. My organization represents that area. And we've been on record in support of this project in 2007 by saying that we were for a safe, scientific process that will create a project that meets the standards that are set in Minnesota statute. PolyMet Mining has never once come to try to change anything. And although it has taken a long time, and what has impressed me in all my years in public office is they have never come and tried to have anything changed. They may not be happy, but they just go and keep doing more. And actually the process has been good. This will be a very clean project because of the long process it's taken. We've always supported that. I've been a county commissioner. I've been a state senator. I've been the mayor. I've been a school board director. Always working with the companies to make sure the process worked. I went to the Minnesota Senate in 1981. Every taconite plant in Minnesota was built without an EIS. And we said that can't be right. As political leaders on the Iron Range, we worked together with our agencies, the agencies like the PCA and the DNR, which we totally trust with this process, to make mining and other industrial development safe. The environmentalists worked with us. I had 100 percent rating with the Sierra Club. Now they call me a polluter because I'm for a company that can meet the standards that we set. And as it turns out, they said that they were for clean development. That wasn't true. They're for no development. And they proved it by coming in on this project when it's very certain that this company can meet all those standards. And so I want to thank our agencies for working as hard as they did and for making the process as long as they can and covering, uncovering every aspect of this project. And just one last thing. When I talked to the environmentalists about the things that we would be mining for making our cell phones and everything else, I said, "So tell me, you would rather have these mined in countries that have no environmental protection?" And they go, "As long as it's not in my backyard." Shame on you.

Alphabetical by sender's first name

Ron Holch 39851

Comments For The Draft Environmental Impact Statement (SDEIS) for the State and federal environmental review of the proposed PolyMet Mining Inc. project Dear Board Members, In my opinion, threatening permanent and pervasive damage to the Boundary Waters is tantamount to threatening the heart and soul of Minnesota. This is unconscionable but not the worst outcome this plan could cause. If you wanted to pollute the North American Continent, there is no better place to start than despoiling the area that is in question. That is because this proposed mining area sits at the beginning of three major continental watersheds: Mississippi drainage to the Gulf St Laurence drainage to the Atlantic Hudson Bay drainage to the Arctic Ocean. Sulfides that leave here can pollute the lion's share of our nation and Canada with acid waters and leaching heavy metals for 500 years. Our oceans are already becoming more acidic every year. Is this a prudent way to provide 300 jobs for 20 years. Ron Holch http://conscienceandcommons.blogspot-com/ _____ HYPERLINK "http://www.avast-com/" This email is free from viruses and malware because HYPERLINK "http://www.avast-com/"avast. Antivirus protection is active.

Ron Lawrenz 18224

My name is Connie Grundhofer, G-R-U-N-D-H-O-F-E-R, and I'm giving my time to Ron Lawrenz. Good evening. My name is Ron Lawrenz, R-O-N, L-A-W-R-E-N-Z. I believe it was Yogi Berra who said, "It's like dij` vu all over again." We visited this and spent a great deal of money evaluating the potential to do copper-nickel mining as part of the environmental quality board's regional copper-nickel study back in the 1970s. I was a researcher for the DNR and hired to analyze plants and animal tissues as part of that larger study. Some of the issues are different, such as the impacts of smelting. And after all that time, we just witnessed the smelter-devastated landscape at a (inaudible) in Ontario. On the other hand, some of the concerns remain unchanged like the impact of sulfides mixed with water, what happens to the ecosystems in those conditions. I know technologies have changed, but I hope that someone has blown some dust off that old study and gone back to look at what we did back then, because we didn't mine copper-nickel after that study was done. I know part of that study (inaudible.) In the same context, my first job with the DNR has led to a 13-years career with the Fish and Wildlife Division. A good part of that was spent in the environment as environmental use specialist, DNR research coordinator and (inaudible.) I am trained and degreed in special biology and luminology and aquatic biology and a specialty in paleolimnology, which is using lake waters to look at the histories of lakes, so I've done a little historical work on lakes. I'm reminded of another favorite quote by Huxley, and it says, "Our only gauge for the future is studying the past." That reflection is of little comfort to the context of our current discussions, and I'm unaware, as many have pointed out, there's been a sulfide mining effort anywhere else that has not polluted the environment. That's my gauge for the future. Many of those issues linger today. I've seen mines on the Row River, gold mine, sulfide mines and they're still leaking today after 100 years. Thankfully, they're smaller than the mines proposed here. This debate has a very strong emotional component, and I understand the fight for jobs. I would argue that we need to focus on tangible issues; selling, trading land for fragments of lands in 900 places, trading wetlands, rather than unique ecosystems. Not understanding the hydrology. I did the hydrology on a lake up there, Thrush Lake, and let me tell you it was very difficult, if not impossible to understand the fragmented nature of the bedrock up there. I'm opposed to this project based on potential impacts, and I suggest that we not approve this EIS. Thank you.

42953

Dear Ms Fay, I have attached my comments concerning the NorthMet SDEIS. I would like to have them included as part of the comment record for this project. Thank you, Ronald William Lawrenz 5717 22nd Avenue South Minneapolis, MN 55417 Phone: (651) 399-4385 E-mail HYPERLINK "mailto:lawrenz@q-com"lawrenz@q-com

Ron McGriff 13950

I have grave concerns about the proposed copper-nickel mining operation in NE Minnesota. All mining activity of whatever kind has some impact on the environment, human and animal species. I can not see any amount of "protective" or "repair" dollars that will be truly effective for an operation whose processes and waste have the potential to impact nature for 200 to 300 years. This proposal should be rejected for the health of our area and the planet. A relarively small number of long-term jobs can not justify it. Ron McGriff 3102 413th Ave NW Braham, MN 55006

Alphabetical by sender's first name

Ron Miles 38457

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: This open-pit sulfide mining proposal needs swift and categorical rejection because of its scientific short-sightedness and negative fundamental energy direction. It exists in conspicuous, diametric opposition to the expressed wishes of most Minnesotans and Americans, except for those profiteering industry corporados without environmental ethics and vision. Apparent local support is typically-, pneumatically-based on, and artificially-amplified by, the full pockets of deceptive speculation and empty promises of quick-boon, short-lived jobs - the stuff of politics, but not science.. Denying this proposal deserves bold Executive leadership in PUBLIC and environmental interests, leadership with the courage to avert projecting current ecocidal directions into our, and our progeny's, already-fragile future, Current public interest leaders' legacy for quality of life is defined by this decision. To not reverse known attendant directional consequences, including those further threatening global water inequities and accelerating climate degradation, in denial of facts totally underscored by ALL science beyond short-term economics, as well as by common observation, would be a dereliction of leadership and oversight of irreversible planetary consequences. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand

Alphabetical by sender's first name

Ron Miles 49128

Dear Ms Fay, Mr Bruner and Mr Dabney: This open-pit sulfide mining proposal needs swift and categorical rejection because of its scientific short-sightedness and negative fundamental energy direction. It exists in conspicuous, diametric opposition to the expressed wishes of most Minnesotans and Americans, except for those profiteering industry corporados without environmental ethics and vision. Apparent local support is typically-, pneumatically-based on, and artificially-amplified by, the full pockets of deceptive speculation and empty promises of quick-boon, short-lived jobs - the stuff of politics, but not science.. Denying this proposal deserves bold Executive leadership in PUBLIC and environmental interests, leadership with the courage to avert projecting current ecocidal directions into our, and our progeny's, already-fragile future, Current public interest leaders' legacy for quality of life is defined by this decision. To not reverse known attendant directional consequences, including those further threatening global water inequities and accelerating climate degradation, in denial of facts totally underscored by ALL science beyond short-term economics, as well as by common observation, would be a dereliction of leadership and oversight of irreversible planetary consequences. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand

RON PETERSON 4013

"The emperor has no clothes." The fact that no leaders, especially the DNR Leaders, Governor Dayton and our Congressmen and Senators, are not speaking out boldly against such an incredibly bad idea for the state of Minnesota and all it's citizens fits that description perfectly. Based on the facts this plan will: #1 Destroy thousands of acres of beautiful, sustainable forest – forever. #2 Create a relative few, hundreds, of direct jobs for Minnesotans which mostly will be the lower end of the pay spectrum for only a few decades. The highest end jobs come from outside the state and country. #3 Trade the value of Minnesotans or in other words OUR LAND, and mineral wealth of precious metals for a few decades of jobs while exporting the profits to foreign companies. #4 Billions of dollars, not to be under estimated, and State Expense of time for: A. Hearings and reviews B. Legal Work C. Monitoring, testing and Policing of the sites D. Cleanup and treatment of downstream and underground water from pollution and the cost of damage to fisheries E. State invested cost for road upgrades and maintenance F. Inevitable Litigation G. Loss of recreational attraction and jobs for the tourist industry H. The future loss of jobs and recreation of a local recession when production ends I. The greatest " The theft of what we could have left for our grandchildren to enjoy and for their quality of life" For this we get a few hundred jobs over a short few decades - and endless damage. The American Indians were cheated and abused but they negotiated a better bargain than this. It's time for our leaders who work for all the citizens of the state not just a few, to realize the damage this will do and that they are without any clothes. Let them know, please. Ron Peterson 25736 Quinlan Ave Lindstrom, MN 55045

Alphabetical by sender's first name

Ron Scherle 58185

My name is Ron Scherle. You want my statement. I am for PolyMet Mining to come here and stay here and to proceed forward. Yes, that's it. That's basically all. I think a person has to show when they come to these meetings how many people are for it and how many against it. And you will see the people for it far outnumber the people against.

Ron Shoden 42853

Dear Lisa: I am writing to you in regards to PolyMet Mining, Inc., NorthMet Project. Although I have not read the entire EIS, I have been following closely along with this project since the beginning. If the federal & state agencies are satisfied that PolyMet has complied or have exceeded with state & federal regulations pertaining to the EIS, and give their blessing, there is no reason why the Polymet Project should not proceed and begin the permitting process. I have attended most of the public comment period meetings and have also kept in close contact with PolyMet officials throughout these several years. PolyMet has worked very hard on the second EIS draft and I believe the draft is totally compliant. PolyMet employees and their investors have shown great patience over these many years and should be commended. Obviously, the economic impact PolyMet will have on local, state and even national levels will be tremendous and much needed as we continue to climb out of this recession. Finally, I know and trust Polymet officials; if they believed the project would have a negative impact on the environment, they would not proceed. Several officials have lived in the area their entire lives and raised their families. It is time to put our trust in the state and federal agencies who have worked extremely hard on this document. It's time to move forward and get the PolyMet Project producing!! Very Truly Yours, Ron Shoden General Manager Viking Explosives LLC 218-263-88456 x 303

Ron Sternal 18222

My name is Ron Sternal. I'm a third-generation Minnesotan, and a retired Wall Street executive. Sternal is spelled S-T-E-R-N-A-L. You've all heard that the -- Northern Minnesota's home to one of the largest copper deposits in the world. It's not. It doesn't even come close. At peak production, this mine will produce 72 million pounds per year. The largest copper mine in the United States, which doesn't even make the list of the top 10 mines in the world, is the Morenci Mine in Arizona and that produces 1 billion pounds a year or 13.8 times more than the mine -- proposed mine in Minnesota will. If the price of copper stays high, and currently it's dropping, the price is down 10 percent for the year and many analysts say the super cycle for copper is over and prices will be going lower, but if the price is right, the major benefit to be derived from the PolyMet project, besides the hoped-for financial return to its owners, are the hoped-for jobs it will produce. The public discussions over the last few weeks have established if the mine is built, there will be 360 jobs for 20 years, plus an uncertain, but large amount of land, air and water pollution that the SDEIS is supposed to quantify. The SDEIS addresses environmental risk. An equally great risk is organizational risk. Can we trust PolyMet. But it was not PolyMet we need to trust. It is Glencore Xstrata. Glencore Xstrata is the primary owner of PolyMet and as the research firm, Stifel Nicolaus states, Glencore Xstrata will buy the rest of PolyMet when all the permits are in place. So who is Glencore Xstrata and can they be trusted. Glencore Xstrata is a Swiss-based firm known for its ruthlessness. This is the fourth largest mining company in the world. It controls 50 percent of the world's copper through its ownership of 100 mines around the world and its commodities trading operations. Glencore Xstrata's CEO is Ivan Glasenberg, who prides himself on extracting maximum profits from its overseas holdings. Under his leadership, Glencore Xstrata has run a long list of labor and environmental abuses, including 58 mining fatalities between 2008 and 2010, over twice the number reported by any other mining company over that period. Just in 2012, the environmental and labor record includes dumping raw acid into waterways in the Congo; Failure to provide a vapor barrier to prevent acid mist from descending on 3,000 people in Zambia; Utilizing child labor as young as 10 years old at mines in the Congo; and causing environmental damage at the McCarthur River Mine in Australia. Then (inaudible) talked with the local unions to address the issues. There are number of -- can we trust these people to do it right in an area of (inaudible) in Northern Minnesota? I think not. But wait. Maybe we'll get lucky and they'll sell the mine to the Chinese as they are selling the mine in Chile. Thank you.

Alphabetical by sender's first name

Ron Ulseth 18341

Good evening. My name is Ron Ulseth, Grand Rapids. That is U-L-S-E-T-H. It is on the screen (indicating). I am an engineering educator and have been educating the youth of northeastern Minnesota for more than 20 years. In fact, I have many of my graduates in this room tonight, and hundreds of them are working in this region right now, as stewards of our northeastern Minnesota region. Every day as I'm teaching the future engineers, we look to have them consider three things. And one is to develop a robust scientific knowledge and understanding of engineering principles. And the second is to become critical consumers of information. To try and sift through the emotions that are heavy on any issue, like the one we have here (indicating), and also try and sift through statements that perhaps are misleading. The third thing is we ask them to develop what we call an engineering intuition. It is based on those first two. It is to take the sound principles of science and engineering and your critical ability to think, to then be able to develop a way to make good decisions that have been put in front of you. 40 years ago, when I was growing up in rural Blackberry, Minnesota, on the wall we had a rotary dial phone and we had a party line. Now, here we are, 40 years later, and look what the technology has done. I can be flying in an airplane across the world and talk to my grandchildren back here in Minnesota. The technology growth has been incredible. Speaking of those grandchildren back here in Minnesota, tonight I had to take a night off from helping my son build his house where my grandchildren will grow up and live in this region. So, it is with this emotion of knowing that my grandchildren are going to have to live here and with this engineering intuition that I have developed over 25 years of practice and in teaching others to practice, that I used my intuition to look at the science. And my intuition tells me that I believe, as I have read the EIS, and it tells me to believe what I have seen. It is not based on any other emotion than my intuition in looking at the scientific principles and any information put before me. And as has been stated before, I have my intuition that tells me to give great trust to the Army Corps of Engineers and the Department of Natural Resources and others who will issue the permits and who will be the regulatory agencies. Thank you.

Ron Wetzell 18261

My name is Ron Wetzell. Someone pretty smart once said, "Underneath complexity lies simplicity." But it is also the case that simplicity can precede complexity, as in Occam's razor, O-C-C-A-M, apostrophe S, R-A-Z-O-R, as in the principal of parsimony, as in, "Keep it simple, stupid." With respect to the proposed PolyMet Mining Project, the obvious and simple answer can be found both before and after complexity. The answer is that it is immoral and unethical of us to encroach upon, to mortgage, to pilfer our children's rightful heritage to a clean and healthy environment for our benefit of a few hundred jobs for 20 some years. It is flat out wrong. History is replete with example after example of our making deals of short-term gain for a distant cost. The "Buy now, pay later." Isn't that pretty much how we have financed our last two wars? "Let the kids pay for it." How is that deficit looking for us these days? Oh, never mind, the kids will take care of that. Throughout history we have asked what can we take and what can we use from our environment? Even after our grudging acknowledgment that global warming does exist, are we not yet able to ask what does our environment need from us? We all bemoan the failure of persons and organizations from taking responsibility for problems they create. Aren't we called to stand up here and to witness to our deepest values? I retired from county government coming up to four years now, after a 30-year career. I once had a button that I never had the courage to wear in public. It read, "Trust me, I work for the government." That is even funnier today than it was several years back. To that I would ask, do any of us have greater reason to have faith in a business or company than we do our own government? Help me remember how well the state bailout of Northwest Airlines went, some number of years back, in which they promised to build and use maintenance facilities in Duluth. As I am able to remember, oh, not so well. It would be one thing if that experience were the exception. But we all know so well that is a rule. Seriously, what entity do we know that we can trust for 200 years? For 500 years? The answer regarding this project is not complex. It is pretty simple. The pinch is that it calls us to have courage to walk the talk of our deepest failures. We have here the opportunity to be who we say we want to be. We need to say no to this project.

Alphabetical by sender's first name

Ron Wetzell 58172

Someone pretty smart once said, “underneath complexity lies simplicity.” But it is also the case that simplicity can precede complexity as in Occam’s Razor, as in the Principle of Parsimony, as in Keep It Simple Stupid.With respect to the proposed Poly Met Mining Project, the obvious and simple answer can be found both before complexity and after complexity. That answer is that it is immoral and unethical of us to encroach upon, to mortgage, to pilfer, our children’s rightful heritage to a clean and healthy environment for our benefit of a few hundred jobs for 20 some years. It is flat out wrong.History is replete with example after example of our making deals of short term gain for a distant cost: buy now, pay later. Isn’t that pretty much how we have financed our last two wars? Let the kids play for it. How’s that deficit looking for us these days? Oh, never mind, the kids will take care of that.Throughout history, we have asked, “What can we take and what can we use from our environment?” Even after our grudging acknowledgement that global warming does exist, are we not yet able to ask, “What does our environment need from us?” We all bemoan the failure of persons and organizations from taking responsibility for problems they create. Aren’t we called to stand up here and to witness to our deepest values?I retired from county government coming up to 4 years now after a 30 year career. I once had a button that I never had the courage to wear in public. It read, “Trust me. I work for the government.” That is even more funny today than it was some years back.To that I would ask, do any of us have greater reason to have faith in a business or company than we do our own government? Help me remember how well the State bailout of Northwest Airlines went some number of years back in which they promised to build and use maintenance facilities in Duluth. As I’m able to remember – ah, not so well. It would be one thing that experience were the exception, but we all know so well that is the rule. Seriously, what entity do we know that we can trust for 200 years, for 500 years?The answer regarding this project is not complex. It is pretty simple. The pinch is that it calls us to have courage to walk the walk of our deepest values. We have here the opportunity to be who we say we want to be. We need to say no to this project

Ronald Bendis 33421

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Sulfide mining threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Sincerely, Ronald Bendis 433 Pleasant St Woodstock, IL 60098-3238

Ronald Harris 35110

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Ronald Harris 2802 50th St S Wisconsin Rapids, WI 54494-7171 (715) 421-4113

Ronald Iannelli 38486

My name is Ron Iannelli. I live at 307 SW 10th Ave Grand Rapids, MN 55744- We moved to Grand Rapids from the Twin Cities in 2003- I feel the MPCA, DNR and the State have enough safeguards in place to allow this project to go forwaRd Thank You Ron

Ronald L Pearson 54714

See attachment

Alphabetical by sender's first name

Ronald Palosaari 2738

Dec 19, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Until Polymet can show us places where this type of mining has not resulted in seriously polluted water and land, MN SHOULD NOT be a test case. No matter how much money is set aside we can not know if it is enough. Also set aside money will become a political football until some or much is gone. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ronald Palosaari 6222 Quinwood Ln N Maple Grove, MN 55369-6345 (763) 577-1944

51926

Dec 19, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Until Polymet can show us places where this type of mining has not resulted in seriously polluted water and land, MN SHOULD NOT be a test case. No matter how much money is set aside we can not know if it is enough. Also set aside money will become a political football until some or much is gone. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ronald Palosaari 6222 Quinwood Ln N Maple Grove, MN 55369-6345 (763) 577-1944

Ronald Pearson 43061

March 4, 2014Ms. Lisa FayEIS Project ManagerMDNR Division of Ecological andWater ResourcesEnvironmental Review Unit500 Lafayette Road, Box 25St. Paul, MN 55 I 55-4025Mr. Douglas W. BrunerRegulatory Branch, St. Paul DistrictU.S. Army Corps of Engineers180 Fifth Street East, Suite 700St. Paul, MN 55101-1638Mr. Tim DabneyDeputy Forest SupervisorU.S. Forest ServiceSuperior National Forest890 I Grand Ave PlaceDuluth, MN 55808Subject: Comments re PolyMet Open-Pit Sulfide Mine & Mine Wastes Plan SDEISDear Sirs and Madam,I have worked as an environmental health professional for 30 years. I have a Master of Science degree from the University of Minnesota in Environmental Health with an emphasis in environmental toxicology. I am also a Certified Industrial Hygienist.I have grave concerns regarding the likely emissions of mercury from mining operations. The US EPA's review of the draft EIS raised many objections to insufficient characterization of uncertainty and risks from mercury. In my review of the Supplemental Draft EIS, I do not believe these have been adequately addressed. Specifically:• Section 5.2.2.3.4 states "Mercury was not included in the GoldSim model, as insufficient data and a genera/lack of definitive understanding of mercury dynamics prevented modeling mercury like the other solutes. " This is unacceptable.• A footnote to Table 5.2.2-50 states "Volatilization rate is estimated based on the low end of the range of values discussed in Section 6. 6.2. 3. 7 of Poly Met 2013 i. " . Why is this allowed?• The SDEIS states "There are several factors that appear to influence mercury methylation, including total available mercury, organic carbon, temperature, micronutrients required by sulfate-reducing bacteria, sulfate loadings (over the range for which sulfate may be a limiting factor for sulfate-reducing bacteria), and certain hydrologic conditions. The NorthMet Project Proposed Action is expected to have little or no effect on most of these things, but the effect on two of these, sulfate concentrations and hydrologic conditions, warrants further discussion. These two potential effects are discussed below.". How can a claim like " ... is expected to have little or no effect on most o.fthese things ... " be allowed to stand without detailed substantiation of each?Why has the Minnesota Department of Health not been involved in a quantitative health risk assessment? I believe this is a critical step to ensure an objective evaluation of public health risk.From a practical standpoint, I believe the 'alternatives analysis' provided by Polymet is grossly insufficient. I've worked with numerous metals recycling facilities on environmental issues in my professional career, and it is incomprehensible to me that this type of mining continues, when there is more than enough of the metals that Polymet seeks to mine available through recycling. The EIS must provide a thorough analysis of alternatives to this mine.Lastly, I would like to state the obvious, even ludicrous assumption- that we can have any degree of certainty about what is going to happen 200 years from now. The only thing we know for sure is that the BWCA will still be here in 200 years. Polymet and its successor companies (or their 'financial assurance') - not too likely.Please reject the Polymet SDEIS.Sincerely,Ronald L. Pearson, M.S., CIH1903 Pinehurst A venueSt. Paul MN 55116CC: The Honorable Mark Dayton, Governor ofthe State of Minnesota

Alphabetical by sender's first name

Ronald W Faulkner 57277

Dear Federal and State Agency Leaders: In 2010, the U.S. Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was "inadequate" and the sulfide mine project would be "environmentally unsatisfactory. The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity." Please reject the PolyMet SDEIS and deny permits that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever.

Ronald W. Stromsness 45036

Dear dear Minnesota Department of Natural Resources; I am 66 years young and been around the barn a few times. I find it whelming the number of people that are sticking there heads in the sand and are in favor of this ill-advised fiasco. To agree that PolyMet can be believed in any way shape or form on whatever proposal they come up with and then astoundingly agreed to by any department is a crapshoot at beSt Well before the attempt is made to extract any materials from the land in Northern Minnesota, I suggest we wait until they have a few more notches in their stick, proving this can be done with minimal harm not only to the environment but to human saftey as well. Lets not forget who we are dealing with here. One percenters and politicians. And lets face it, greed is high on the liSt I say this because I believe the minerals they recover will be sent overseas for processing where decent wages and environmental laws are non-existent. When and if we ever do this mineral extraction lets do so when we, the good old US of A can process the materials with good wages, strong environmental and human safety laws to protect not only us but our world. We already have problems with mercury and acid precipitation here in Northern Minnesota. Lets not exacerbate to those problems we currently seem to want to do nothing about. Thank you for the opportunity to voice my opinion. Cordially, Ronald W. Stromsness

Ronna Hanson 41934

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Ronna Hanson 65 W Chisholm St Duluth, MN 55803-1505 (218) 724-7139

Ronnie Puckett 54110

I do not believe the PolyMet mine is a good idea until it has been proven safe and clean and Minnesota should not be the testing grounds for this. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Rory Cardinal 10859

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Rory Cardinal 5660 156th Ln NW Ramsey, MN 55303-6101 (651) 795-1204

10861

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Rory Cardinal 5660 156th Ln NW Ramsey, MN 55303-6101 (651) 795-1204

11444

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Rory Cardinal 5660 156th Ln NW Ramsey, MN 55303-6101 (651) 795-1204

Alphabetical by sender's first name

Rory Cook 57961

Please protect Minnesota lakes. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Rory Scoles 18114

My name is Rory Scoles. I am from Finland, Minnesota. I own and operate a downhill cross-country ski and snowboard shop. I want to talk about trusting our officials in these processes. That we are all kind of putting our eggs in that basket as far as our government entities keeping an eye on our environmental quality. I watched the openly allow corporations to violate their water permit down the river for 10 years. Yeah, the review looks great. I want to trust the DNR, the agencies to do their job. I personally watched in my area them not do their jobs. We're all human and make mistake. Our job is to hold people accountable when (inaudible) flood. I do not see those types of events included in these environmental processes. That's one of the biggest oversights. All this will be in the ground for 100 years. Our kids and grand kids are going to be here and deal with this planet we live on. (Inaudible) dealing with extremes. If you can't wake up to that fact and look at what is happening on the planet, seeing the records broken on a monthly, daily basis, your priorities mixed up. I have two sons and lot of talk about progress and how wonderful progress is. On one hand it is a double-edged sword. We need copper for devices. I have a smartphone. I don't have electricity in my house. And how many of you people have kids or grandchildren that spend time in front of these screens. That's what this copper is going to China to make the devices to be sold back. (Inaudible) spend less and less time with us. I'm not going to allow that to happen. Thank you.

Rosa Arsiaga 40268

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Rosa Arsiaga 2217 S 7th St Abilene, TX 79605 US

Alphabetical by sender's first name

rosae brown 42505

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, rosae brown 170 good counsel drive mankato, MN 56001

Rosalie Parranto 39581

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Miss Rosalie Parranto 4851 Richard Ln Eagan, MN 55122-2784 (612) 452-4897

Alphabetical by sender's first name

Rosalie Stefanich 16631

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Rosalie Stefanich 313 2nd. Ave S. Long Prairie, MN 56347

50019

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Rosalie Stefanich 313 2nd. Ave S. Long Prairie, MN 56347

Alphabetical by sender's first name

Rosanna Walker 39739

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. I do not believe any possible benefits for PolyMet out weigh the possible negative impact on Minnesota's environment. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Rosanna Walker 1551 Belsly Blvd Apt 313 Moorhead, MN 56560-6165 (218) 766-9813

Rosanne E. Fischer 23550

Dear Public Representatives: I write to you today concerning PolyMet Mining Inc.’s proposed NorthMet project to be located in northeastern Minnesota, near Hoyt Lakes and Babbitt, as well as mining proposed by Twin Metals. My ancestors on both my mother's and father's sides came to Minnesota in the 1850's and generations of our family have enjoyed Minnesota's high quality of life ever since. This is our home. Seven generations of our family have been born and buried on this land. The Anishinaabe have been here eons longer and remain to this day as well, no thanks to many US government policies. My husband and I summer on the shores of Farm Lake in Ely, Minnesota where we are privileged to occupy a lot with a simple log cabin. We are grateful every day (even in the prolonged sub-zeros of this winter) for the beauty and spirit of this land where we were born and raised. We look forward to growing old together as our children and grandchildren flourish here as well. We have been closely following the proposed mining projects of Polymet and Twin Metals with open minds. After careful reading and thoughtful discernment on the various sides to this issue, we must now step forward to declare our opposition to the sulfide mining proposed. Our opposition to this type of mining is for the following reasons: Northeastern Minnesota is a jewel, not only for the state of Minnesota, but for the entire nation. We have carefully protected our natural resources in the past and must continue to do so for future generations. Minnesota is known for its water - its 10,000 (12,000) lakes - and must continue to protect its water for all times, especially as lack of clean water is becoming an increasing concern for all living things in our world. The land of Superior National Forest has been purposefully set aside in public trust and should remain so. The acid mine drainage from sulfide mining kills fish, wildlife and plants and irreparably damages the wild rice harvest and way of life. A mere 20 years of copper mining will require centuries of water treatment and entails much greater environmental risks than the taconite mining of the paSt A look at mining history, shows that mines in Colorado, Montana and South Dakota have gone bankrupt and left tax payers to clean up the terrible environmental messes they left behind. They will never be the same. Computerized projections do not trump real mining history, which shows that sulfide mines produce polluted drainage. period. The US Environmental Protection Agency presented mining as one of two top dioxin producing industries in the nation (The Washington Post, 1/5/12). In 2010 metal mining was responsible for 41% of all toxins released into the environment. Mining by-products such as arsenic, manganese, thallium and mercury increase risks of cancer and other illnesses, developmental and neurological damage in human persons. Our neighbors in Wisconsin have put a moratorium on new sulfide mines in their state until the mining industry can demonstrate that a mine has operated for 10 years and closed for 10 years with no acid mine drainage. We need to follow that wise path. It is time to just say "no" to corporate interests which bring excessive income to a few at the expense of quality of life for many and the future of life on our planet. Sincerely, Rosanne E. Fischer 10540 Raven Loop NE Foley, MN 56329

Alphabetical by sender's first name

Rosario Greenwood 18239

My name is Rosario, R-O-S-A-R-I-O, Greenwood, G-R-E-E-N-W-O-O-D. I come here to tell a story that I would like -- that sets a precedent what makes me talk here so those things will not be repeated here. In my country of origin, Peru, South America, there is an old mine called Yanacocha, Y-A-N-A-C-O-C-H-A, Yanacocha. The company that owns that mine, basically, is Newmont, Newmont Mining Corporation from Colorado. To today, exportation earns them maybe $7 billion -- until now, they earn maybe $7 billion. Unfortunately, the idea was that they bribe the people, and they got the concession to develop there, to exploit the mines. It is the second largest in the world and maybe the first one in whole Latin America, the biggest. They're supposed to -- originally they say that it was going to be environmentally friendly, that they were going to help the people create jobs, lift up the city. They promised everything good for the people over there. Unfortunately, it's been totally the opposite. The lake that they use for developing in the process of the gold, the lake has been evaporated. People don't have water. There is contamination all over. Beautiful pristine areas, vegetations totally contaminated, toxic pollutants. The kids have wounds, lacerations all over their bodies. And of course, the Newmont Corporation which is based in Colorado, here, easily they get their money, and they didn't even care. Thousands of people have been demonstrating there, and of course, they took reprisals against those leaders and one of them was killed, one or two people, I think. The reason why I'm talking is because I don't want those things to be happening over here in such a beautiful area in the Boundary Waters and I don't know, there are more things that I should talk about but I don't know what else to say. Thanks you. Not only is the Newmont Mining Corporation from Colorado, but also is the World Bank International Finance Corporation that wants to benefit from that, and one Bentura, owners from Peru, B-E-N-T-U-R-A family. It's important that my comments are heard because that mine is where the treasure -- the Inca treasures were hidden in Peru and at that area, and of course if the people over there were respected but not killed because now the people are fighting for whether they have water or gold. What is more important? The people are trying to survive now. They want water, not gold. Now, they want to open another mine that is called Conga, C-O-N-G-A, Conga, and the people are fighting, but you know bribes, corruption, maybe they want to go ahead, want it or not, and people are afraid that the same thing is going to happen and the destruction of the lovely area, not only in vegetation, farm, fauna, flora, you know, the whole ecological disaster. They promise that they are going to be environmentally friendly, but totally the opposite has happened, and the people live in misery, not even in human but substandard means of life. Who cares? Nobody cares. Contamination with mercury and other many horrible chemicals, you know.

Rose Carlsen 45334

I live in Minneapolis and visit the north shore of Lake Superior as often as possible to enjoy the beauty, the hiking and ski trails, the boundary waters wilderness as well as local restaurants and art venues. I think the Polymet mine proposal is a bad idea for the state of Minnesota and that region in particular The short term long range impact on the environment including the moose population, water quality for wild rice, and the surrounding boundary waters wilderness area to name just a few would be dire. Any project that requires a 100 year or more clean up plan is ridiculous to even consider. In order to move forward at all a rigorous and thorough study of environmental impact needs to be completed. If mining must occur the idea of an underground mine with the tailings being reburied in the mine should be considered. Thank you. Rose McManus Carlsen

Alphabetical by sender's first name

Rose Doran 40297

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Rose Doran 635 foote ave Duryea, PA 18642 US

Alphabetical by sender's first name

Rose Hood 38941

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Rose Knopff 16218

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

20077

Feb 27, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Rose Knopff 2523 Brenner St Saint Paul, MN 55113-1002

Alphabetical by sender's first name

Rose Knopff 40010

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Rose Knopff 2523 Brenner St Roseville, MN 55113-1002

40279

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Rose Knopff 2523 Brenner St W Roseville, MN 55113 US

Rose Line 54227

Dear Ms. Fay,I am a student of Humboldt High School in Saint Paul. I would like to inform about the problem with the polymet mine doing. Why would you let the company to mine in an area that would impact our whole environment? The company is not trustable. This project can generate a pollution for centuries and will poison our pure boundary water to a sulfuric acid. As a student of an environmental school, I am concerned about the safty of our environment. Because the map on the polymet is wrong and this is giving the company taking advantage on minning a huge area. This needed to fix and giving people the right map. I hope you will make the right decision and I appreciate your help.Sincerely,Rose Line461 Maryland Ave W 101Saint Paul, MN 55117

Rose Lo 38798

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Rose Lo 5308 Highland Rd Minnetonka, MN 55345-5629

Alphabetical by sender's first name

Rose Olszewski 28182

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Please don't allow this. Lake Superior is a glacial lake, its waters are too cold for the wildlife their to recover quickly. Also it would break my heart to loose this iconic place to pollution. My family served at KI Sawyer and Lake Superior is one of my first childhood memories. I know the economy is poor, but allowing this would only make the areas around the lake poorer. Once a land is tainted it takes decades for it to recover. There are better ways and you have the power to insist on better. Sincerely, Rose Olszewski 1514 Yorkshire Dr Apt 3 Howell, MI 48843-1051

Rosemary Johnson 7386

I have not heard any discussion of requiring polymet to dispose of tailings other than storing them on the surface. Why not deposit them in some of our abandoned open pit iron mines or underground mines. The tailings could no longer create surface water problems and storage problems would be solved. I know that this sounds simplistic but some variation of this idea might be feasible. As it stands I definitely oppose the mining. We could very well be left with a badly damaged environment and huge storage costs when the mining company pulls out or becomes insolvent. Teddy Roosevelt had the foresight way back then to protect land from ever increasing development. Certainly we could do likewise today when there is so little undeveloped land left. Sincerely, Darrel A. Johnson Eveleth, Minnesota

46496

Lisa fay , EIS Project Manager, I understand that Poly Met’s chief investor plans to sell copper concentrate to China. That means that we here in Minnesota will be putting our water quality etc at risk to benefit one of our most challenging and dangerous rivals. I’m all for more jobs and opportunity for young people in our area. I am against a project that has the potential to spoil the very things that many of them want to stay here for. In the end the MDNR will be blamed for anything that goes wrong with this project [“the DNR approved it”]. They all have an out but you do not. Sincerely, Darrel A Johnson 405 N Van Buren Ave Eveleth MN 55734

Alphabetical by sender's first name

Rosita Aranita 15886

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. I insist that this I'll thought out SDEIS be rejected for all the reasons stated above. Sincerely yours, Rosita Aranita 1440 Randolph Ave #305 St Paul, MN 55105

Alphabetical by sender's first name

Rosita Aranita 19050

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. We are the government ultimately and we the citizens will be the ones to suffer the dire consequences of a rushed assessment and implementation. I support all the reasons and recommendations previously laid out. Sincerely yours, Rosita Aranita 1440 Randolph Ave #305 St Paul, MN 55105 651-276=4765

Ross Anderson 39714

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams, and public health across the Arrowhead Region. In my job as I dentist, we have to deal with mercury issues. Some science tells us that mercury exposure from fillings is ok because it is such a low dose exposure of elemental mercury. However, mercury is a known neurotoxin and highly regulated pollutant. We use amalgam separators to remove as much mercury as we can from our waste water, and then have the contaminant disposed of properly. Dentists continue to use less and less mercury containing fillings because we know mercury is a known toxin. Adding mercury and arsenic to our waters through a large mine is irresponsible. The notion that the contamination from something as large as a sulfide mine can be treated and contained is asinine. I use science to my advantage all of the time with materials I use. However, we do find that our predictions about materials can be wrong no matter how good the scientific method was. Using Minnesota and its citizens as another mining experiment is not appropriate. I don't feel the science or technology is advanced enough to successfully complete this mine without adversely affecting public health and the environment. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Ross Anderson 4550 London Rd Duluth, MN 55804-2340

Alphabetical by sender's first name

Ross Anderson 48877

Mar 10, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams, and public health across the Arrowhead Region. In my job as I dentist, we have to deal with mercury issues. Some science tells us that mercury exposure from fillings is ok because it is such a low dose exposure of elemental mercury. However, mercury is a known neurotoxin and highly regulated pollutant. We use amalgam separators to remove as much mercury as we can from our waste water, and then have the contaminant disposed of properly. Dentists continue to use less and less mercury containing fillings because we know mercury is a known toxin. Adding mercury and arsenic to our waters through a large mine is irresponsible. The notion that the contamination from something as large as a sulfide mine can be treated and contained is asinine. I use science to my advantage all of the time with materials I use. However, we do find that our predictions about materials can be wrong no matter how good the scientific method was. Using Minnesota and its citizens as another mining experiment is not appropriate. I don't feel the science or technology is advanced enough to successfully complete this mine without adversely affecting public health and the environment. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Ross Anderson 4550 London Rd Duluth, MN 55804-2340

Ross Peterson 14948

My opinion on copper mining in Minnesota. HYPERLINK "https://docs.google-com/a/flaschools-org/document/d/1WKji-3_LLQXmEcE0lZt3e2qLdMISWe3BlVmUKQB1Jl0/edit.usp=drive_web" Copper Mining, Ross Peterson

Ross Phenning 42667

See attachment

rowlandg 43338

I'm sure Polymet (a Canadian company) wants us to get in line so they can exploit our minerals. Just like another Canadian company wants to exploit their nasty oil and build a pipeline across America. They should ruin Canada before coming down here. Then maybe the environmental message will sink in with them. What's the rush. Those minerals have been in the ground for billions of years and they only get more valuable. Add the unnecessary risk to the environment - I don't think this needs to happen any time soon. There's plenty of Canada for them to ruin while they wait. Thanks, F. Rowland Gosling White Bear Lake, MN

Roxana Huggins 25111

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt On top of that, this is a foreign company with their sites on destroying public land and polluting public water belonging to the citizens of this country. We need to stop allowing destructive multinational interests from profiting off our lands, whether its gas, oil, coal or mining. the devastation it leaves behind for future generations to clean up while losing so much more. Sincerely, Roxana Huggins 4948 W Hardy Rd Tucson, AZ 85742-4118

Alphabetical by sender's first name

Roxann Snyder 18178

Hi. My name is R-O-X-A-N-N, S-N-Y-D-E-R. And I am an environmental engineer. I'm not currently working as one. I have worked though with the cleanup of leaking gas tanks and stuff. And I've written documents very similar to this. I have not written an environmental impact statement, but these sorts of documents I'm familiar with. And I just want to mention that the people who are advocating for this mining project keep telling us about the thoroughness of this SDEIS like we should go for it just because this SDEIS is supposedly so thorough. As our former speaker just said, apparently it isn't quite as thorough. And even if it is thorough, it doesn't mean this is a good idea. The idea of jobs. We were just told 100 years of jobs on 20 years we're going to get 360 some jobs. We don't even know of those 360 how many of those are going to be quality-paying jobs that somebody can actually raise a family on. We're being told that we're being irresponsible for expecting the mining to be done in other locations. Less than 2 percent of all the water in the world is freshwater. We all know -- at least I've been hearing it over and over -- one of the most common commodities that's going to be in the greatest demand as we go forward is freshwater. Minnesota is a jewel. Northern Minnesota when it comes to freshwater. If we contaminate our groundwater and our freshwater, hello. Stupid. Stupid. 500 years of treating groundwater. None of the advocates are talking about how we're going to pay for that. I would like to ask the mayor of Hoyt Lakes: Are you going to pay for that? No. We the taxpayers, we're going to be paying for that. That cost has not even been -- I see no estimate on what that is going to cost us. They talk about -- oh, another gentlemen was up here talked about PolyMet has proven technologies that are proven to be safe. Where? When? It would be nice if they would give us that information. Thank you.

Roxanna Collett 42016

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Roxanna Collett Apple Valley, Minnesota _____ There are now 2374 signatures on this petition. Read reasons why people are signing, and respond to National Audubon Society by clicking here: HYPERLINK "http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89bandutm_source=targetandutm_medium=emailandutm_campaign=signature_on_sponsored_petition"http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89b http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJzaWduYXR1cmVfb25fc3BvbnNvcmVkX3BldGl0aW9uIiwia
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Alphabetical by sender's first name

Roxanne Boyle 40335

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Roxanne Boyle 8710 23rd Ave Adelphi, MD 20783 US

Roxanne Fairbanks 39476

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Roxanne Fairbanks 1038 Campbell Ave Detroit Lakes, MN 56501-3202 (218) 841-4701

Roy D Erickson 3667

Mn. DNR, The cost/benefit from hard rock mining and the resulting tailings management are diffidently not worth the costs. Please protect Minnesota from long term environmental damage. Reject PolyMet and other harmful mining operations in Minnesota. I own property just North of Boulder lake which is North of Duluth. I will fight against this wrong thinking mining proposal as long as I am alive. Roy Erickson 3868 97th Lane NE Circle Pines, Mn. 554014 Roy Erickson Sr.Imaging Equipment Specialist, Imaging Engineering Services Fairview Health Services Minneapolis, MN 55414 Phone: 612- 273-5798 Email:rericks1@fairview-org The information transmitted in this e-mail is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material, including 'protected health information'. If you are not the intended recipient, you are hereby notified that any review, retransmission, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please destroy and delete this message from any computer and contact us immediately by return e-mail.

Alphabetical by sender's first name

Roy D Erickson 47022

From: Erickson, Roy D Sent: Wednesday, March 12, 2014 11:27 AM To: 'NorthMetSDEIS.dnr@state.mn.us' Subject: Poly Met Dear State of Minnesota Citizen Representatives IE DNR, Please consider the cost – benefit before proceeding with this gamble. What are the worst case scenarios. What are the plans in case those scenarios happen. What is the record of these kinds of mines. Would it be logical to put a 2 year moratorium in place so that these many questions could be answered with certainty. I am a land owner North of Duluth and recreate in the BWCAW often. Are these mining jobs worth threatening the BWCAW. Most Sincerely, Roy Erickson Address: 3868 97th lane NE Circle Pines, Mn. 55014 The information transmitted in this e-mail is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material, including 'protected health information'. If you are not the intended recipient, you are hereby notified that any review, retransmission, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please destroy and delete this message from any computer and contact us immediately by return e-mail.

47026

Dear State of Minnesota Citizen Representatives IE DNR, Please consider the cost – benefit before proceeding with this gamble. What are the worst case scenarios. What are the plans in case those scenarios happen. What is the record of these kinds of mines. Would it be logical to put a 2 year moratorium in place so that these many questions could be answered with certainty. I am a land owner North of Duluth and recreate in the BWCAW often. Are these mining jobs worth threatening the BWCAW. Most Sincerely, Roy Erickson The information transmitted in this e-mail is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material, including 'protected health information'. If you are not the intended recipient, you are hereby notified that any review, retransmission, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please destroy and delete this message from any computer and contact us immediately by return e-mail.

Roy Maki Jr. 4354

It is important to me personally and I believe to all the people that live in northern Minnesota to help develop industries. People and the environment can co-exist together with industry as a means to support communities and families. I have seen industries develop new ways of controlling their impact on the environment, while supporting the communities they share space with. As an example of change, I can say with great surety that communities, people and industry have taken responsibility for their impacts on the environment in a responsible way, when that impact has become known. I have lived to see this personally and bring your attention to the St Louis river as an example of positive change. During the years previous to the 1970's the strategy for dealing with waste materials was to dump them directly into the St Louis river. Everybody did so. The general public, the city of Cloquet, all industries located along the St Louis river systems did so and at the time was considered a valid way to manage waste materials of every kind. There was at one time, township place's to dump residential garbage, this was done in an uncontrolled environment and just about any dip in the land scape would do. I believe that was a common practice just about anywhere in the United States. Here we are today, awareness and knowledge have increased substantially across the states; industries and municipalities, the general public, all of us have taken responsibly for what we do regarding our impacts to the environment. We also have a successful history of environmental stewardship and industrial development right here in the wood city of the north Cloquet, Minnesota. I bring Potlatch Corporation, now Sappi into the lime light as an example. While permitting the new expansion of the paper mill, Potlatch re-wrote the standards for that industry based on the available technology at the time back in 1990- The paper industry has gone through extensive change over the last 20 years and continues to do so. The point I am making is that this industry was successful in achieving environmental stewardship, while supporting the community it does business in. People have the right to exist, to seek the American dream of home and family, self-sufficiency. I believe industry has stepped up to the plate and done what was required based on the knowledge and awareness at the time, has taken responsibility, by taking the appropriate actions for positive environmental stewardship. I very much support PolyMet's development of mining operations. Roy Maki Jr Cloquet, MN

Alphabetical by sender's first name

Rozanne Screven 24638

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please protect the beautiful wilderness areas we are privileged to have in Wisconsin and the Great Lakes region. Say "no" to the Federal land exchange of protected Superior National Forest land would open the way for the PolyMet Mining Corporation's NorthMet mining project. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. This project's potential impacts on our region's natural resources and public health are too serious to risk for the temporary profit-making it could produce. Those risks include degradation of water quality, dangers to human and animal health, and loss of life sustaining wetlands. Please protect our land and our waters from poisonous pollution. Sincerely, Rozanne Screven 3357 N Humboldt Blvd Milwaukee, WI 53212-1737

Rudy Perpich 2905

Dec 19, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. We shouldn't even consider a project with a 500 hundred year pollution monitoring requirement. It is ludicrous. If the mining companies work with the U of M and other universities to develop ways to safely contain the pollution, then the permits can be issued. Otherwise, with current technology, acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Rudy Perpich 12000 Marion Ln W Apt 1322 Minnetonka, MN 55305-1305 (952) 593-0680

52048

Dec 19, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. We shouldn't even consider a project with a 500 hundred year pollution monitoring requirement. It is ludicrous. If the mining companies work with the U of M and other universities to develop ways to safely contain the pollution, then the permits can be issued. Otherwise, with current technology, acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Rudy Perpich 12000 Marion Ln W Apt 1322 Minnetonka, MN 55305-1305 (952) 593-0680

Russ 20044

Minnesotans have proven that we can responsibly mine and protect the land.. Move forward with PolyMet.. Russ

Alphabetical by sender's first name

Russ Erickson 7198

Dear Ms Fay, Poly Dear Federal and State Agency Leaders: We are seeing the effects of Frac sand mining in WI and MN. The industry showed up without warning. The effects have impacted the locals and the larger public without any oversight via the government local or state. It would be fair to say they were blindsided by the mining concerns. Truly the mining company's don't care how it effects the locals or the environment. It would be fair to say the same is true of the mining companies that want to get at the ore in northern MN. There should be a moratorium on the permits until the government dedicates real money towards establishing strict studies and develops MN mining rules that guarantee a zero tolerance for pollution issues. They mining company should be required to restore the land and water quality back to original. Profits should be Escrowed until the mine has closed. Guarantees must be made to the public that continual environmental monitoring be done. That monitoring shall only be done by a citizen approved impartial company with their own financial records monitored by a state auditor to assure the public there is no manipulation of the data. The costs to the state for the continuous monitoring and oversight and auditing shall be borne by the mining company. There should be consequences and fine schedules established prior to any permitting. Make it clear to any mining concerns that MN means business - that the MN laws have teeth. The state should act to protect and defend the environmental concerns of the citizens of the state. It should not be easy for the mining company to extract the ores from MN land. It would be better that the state take the stand that makes it clear to any mining concerns that there will be costs and to doing mining in MN. It should make it clear that the corporate officials will be held personally responsible in any legal negotiation with MN. Make it so any mining company that wants to do business in MN will think twice before signing any agreement with MN In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely Russ Erickson 3915 Grand Ave South Minneapolis, MN 55409 612 823-1228

20038

PolyMet Mining Comment Thursday Feb 27th 2014 1) Regulation – It should be made a requirement that only non-partial government regulated third party firms will be allowed to do the monitoring of the environment testing. 2) The enforcement and fine structure should be in place and have real consequences for all of the corporate executives involved in the mine. That includes PolyMet , Glencore Xstrata and any future owners or corporate concerns. 3) The definition of what constitutes a failure of the environmental issues should be laid out and made clear for both the mining companies and the citizens of the state. Thanks - Russ Erickson 3915 Grand Ave South Minneapolis MN 55409 612-823-1229 HYPERLINK "mailto:russee4@msn-com"russee4@msn-com

20039

PolyMet Mining Comment Thursday Feb 27th 2014 1) Will you require the corporate partners of PolyMet in the mining company (Glencore Xstrata) be required to sign the permit and share in the mines potential future liabilities. 2) Will any liabilities be attached to future purchasers of those companies. The issue here is that at no point should the state and the taxpayers be left holding the bag for environmental cleanup. 3) The permit should only be let out to a company that can prove through past mine site demonstration that they can mine without damaging the environment. Thanks - Russ Erickson 3915 Grand Ave South Minneapolis MN 55409 612-823-1229 HYPERLINK "mailto:russee4@msn-com"russee4@msn-com

Alphabetical by sender's first name

Russ Erickson 20040

PolyMet Mining Comment Thursday Feb 27th 2014 1) List and detail the forecast costs of all the environmental clean-up issues 500 years into the future. 2) List the enforcement methods - fines – fees – legal expenses - executive jail terms for failure and list the moneys escrowed by the mining company to be set aside to meet these expenses. I work for an environmental services firm. If we were to be found at cause for a pollution event there are specified fines and jail terms in place. No less should be required as a compulsory prerequisite to doing business in Minnesota. Thanks - Russ Erickson 3915 Grand Ave South Minneapolis MN 55409 612-823-1229 HYPERLINK "mailto:russee4@msn-com"russee4@msn-com

20041

PolyMet Mining Comment Thursday Feb 27th 2014 1) Will the wetlands be replaced. 2) Will the moose and other wild life endangered by the loss of their habitat be relocated. 3) Will the quality of the land swap be of equal value. 4) Will the peat lands be moved and reestablished as it takes thousands of years to develop them. 5) Will the mine pits be filled in after completion of the mining to restore the landscape. 6) Have the lands involved in the land swap been established and judged to be of comparable quality. 7) Will they add to the area adjacent to the superior National ForeSt Thanks - Russ Erickson 3915 Grand Ave South Minneapolis MN 55409 612-823-1229 HYPERLINK "mailto:russee4@msn-com"russee4@msn-com

20042

PolyMet Mining Comment Thursday Feb 27th 2014 1) Will the bedrock underneath the tailings locations be studied for cracks and fissures. Will the cracks and fissures be grouted. 2) Will all the acidic waters coming off the tailings piles be captured and run through the RO process for the full 500 year projection of pollution contamination (not just 200 years). Will the mine be required to fund this operations cost of the ground water cleanup and pumping of 10's of millions of gallons a year through Reverse Osmosis filtration for 500 years in advance of the permit being issued. 3) Will the mine be responsible for 100 year overtopping rain events. 4) Will the state code that requires the mine to be left maintenance free at mine closure be upheld. This is a potentially negative economic issue that in the long run will outweigh any short near term jobs and economic issues. Thanks - Russ Erickson 3915 Grand Ave South Minneapolis MN 55409 612-823-1229 HYPERLINK "mailto:russee4@msn-com"russee4@msn-com

russ mattson 26920

Russ Nolan 43852

Please, please, please do not approve this. Without being coy or flippant it just doesn't make sense to approve something that will poison our water for 500 years or even 200 or even 100- On the face of it this does not pass the common sense teSt I am against this. Russ Nolan 1077 Co Rd 30 SE Delano, MN 55328 rnolan@frontiernet-net Ph: 612-251-3599

Russel Remmen 54133

I support the environmental laws of Minnesota and the Federal government, which means no water pollution, no air pollution, and no ground polution. ABOUT POLYMET MINING Don't let money destroy our natural resources!! Air, land, water. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Russell Hobbie 43051

2151 Folwell AvenueSaint Paul, MN 55108January 28, 2014Tim DabneyUS Forest Service, Superior National Forest8901 Grand Ave. PlaceDuluth, MN 55808Dear Mr. Dabney:We are writing to express our concern about the possibility of sulfide mining in northern Minnesota and particularly the draft environmental impact statement that is now open for comment. We have been going to the BWCA since 1961-first by ourselves, then with our children, and now our children are taking our grandchildren. Our love for the BWCA has led to our purchasing a cabin on Burntside Lake. We feel we have made and are continuing to make significant contributions to the economy of the Arrowhead.Here are four of our concerns:1. We Minnesotans are not used to hard rock mining, and many of us do not appreciate how harmful the sulfuric acid from the tailings will be. We need to recognize the fact that grinding the rock into small particles increases the surface area exposed to water. For example, rock 100 meters on a side, when ground to the size of baby powder (10 micrometers) will have increased its surface area by a factor of 10 million. We have already seen this in "mine slime," in our taconite mines, but it does not leach acid. Slime from the proposed mine would leach sulfuric acid. The acid will be spread to places where it will do damage by the water that is already flowing through the existing tailings basin.2. The number of new jobs that is projected is actually small compared to the number of existing mine jobs in the Arrowhead.3. The short term effects will include excessive noise from drilling and blasting.4. The profits will go to people outside Minnesota, and probably in other countries. The profits from tourism remain in the community.We hope you will take these facts into account as you evaluate the EIS.Sincerely,Cynthia A. Hobbie Russell K. Hobbie

Russell Knuti Jr. 9534

Please accept my letter of approval of the draft EIS for the Polymet project. Thank you for your time. Rusty Knuti.

Russell Martinez 54228

It has came to my attention that the SDEIS made are wrong. PolyMet re-drew the maps. They have left out half of the one hundred mile swamp. That leaves the BWCA completely unprotected from the acide mine drainage.Governor Dayton needs to address the MN DNR to do there job and tell PolyMet to provide a correct environmental impact statement that has financial information, has the correct geography in maps, has correct hydrology studies.I would like the maps in the SDEIS (Supplemental Draft Environment Impact Statement) to be corrected. Measure the percolation rate through the swamp.Sincerely,Russell Martinez286 Winifred St ESt. Paul, MN 55107

Russell Palma 58134

As a scientist I am both appalled and incredulous that this project is even being considered. The potential impact on future generations is incalculable It is ludicrous to think that any company can plan for hundreds of years of remediation, or that they have the financial wherewithal to cover all contingencies. Polymet is most likely to follow a well-worn path of extraction and abandonment as evidence by Superfund sites all across the western us. I sympathize with the need for jobs in northern MN, but there must be some line in the sand where the cost to the earth and future generations is simply too great to justify the risk. The state could better allocate its resources by using the money it would spend to protect ground water for hundreds of years by using it to retrain miners and other Minnesotans for jobs of the future, rather than the extractive past.

Ruth B Agar 57926

Do NOT do any copper mining near MN lakes. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Ruth Bartling 41137

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Ruth Bartling 4300 W River Parkway #341 Minneapolis, MN 55406

41139

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was "inadequate" and the sulfide mine project would be "environmentally unsatisfactory." The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity." Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely Ruth Bartling 4300 W River Parkway #341 Minneapolis, MN 55406 612-729-1619

54782

See attachment

Alphabetical by sender's first name

Ruth Brooker 41632

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

42480

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Ruth Brooker 3253 Humboldt Ave S Minneapolis, MN 55408-3329

Alphabetical by sender's first name

Ruth Dantuma 39980

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Ruth Dantuma 59 Irvine Park Saint Paul, MN 55102-2553

Ruth E. Ulvog 33758

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota. Sulfide mining will threaten wetlands, rivers, lakes, and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred, world-wide. Specific areas include but are not limited to the Republic of Congo on the African continent; Northwest Queensland, Australia; areas of Manitoba, Canada; Coastal Bristol Bay, Anchorage, in addition to internal areas of Alaska; the States of Maine, Wisconsin, California, Nevada, as well as both Upper and Lower Peninsulas of Michigan. I have grave concerns about this project's potential impacts on our region's natural resources and public health: including but not limited to risks to water quality and loss of wetlands. Wildlife species will be harmed by declining habitats due to cumulative impacts from mining; particularly heavy metals and runoff. Of particular concern are the declining moose population and the threatened lynx. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Ruth E. Ulvog 9350 Ranchview Ln N Maple Grove, MN 55369-4472 United States Sincerely, Ruth E. Ulvog 9350 Ranchview Ln N Maple Grove, MN 55369-4472

Ruth Gedge 40312

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Ruth Gedge Bretton Peterborough, ot PE3 GB

Alphabetical by sender's first name

Ruth Hruby 16129

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Ruth Lindh 373

Dec 10, 2013 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

42742

See attachment

Ruth Mason 58018

The quality and short term gain of jobs does not balance the long term destruction of water, land, habitat and quality of life. Many of Polymet's statistics & data are questionable as to accuracy. Please do not allow this! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Ryan Birkenholz 6131

I fully support the PolyMet project. The extensive regulations and controls they must go through provide a reasonable assurance that environmental impacts will be kept to a minimum. I plan to be at the public meeting in St Paul on January 28 in support of the project. _____ Ryan Birkenholz, P.E. | Sr. Project Engineer | Golder Associates Inc. 1751 West County Road B, Suite 105, Roseville, Minnesota, USA 55113 T: +1 (651) 697-9737 | IP Phone Ext. 69501 | D: (651) 697-9737 | F: +1 (651) 697-9735 | C: +1 | E: HYPERLINK "mailto:Ryan_Birkenholz@golder-com"rbirkenholz@golder-com | HYPERLINK "http://www.golder-com/"www.golder-com This email transmission is confidential and may contain proprietary information for the exclusive use of the intended recipient. Any use, distribution or copying of this transmission, other than by the intended recipient, is strictly prohibited. If you are not the intended recipient, please notify the sender and delete all copies. Electronic media is susceptible to unauthorized modification, deterioration, and incompatibility. Accordingly, the electronic media version of any work product may not be relied upon. Please consider the environment before printing this email.

Ryan Bradley 40421

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Ryan Bradley 13 Laurel Hill Rd Unit B Greenbelt, MD 20770 US

Alphabetical by sender's first name

Ryan Christopher Alger 43456

Dear, Lisa Fay, EID project Manager and staff For the last four summers I had the privilege to work as a canoe guide and outfitter in the Boundary Waters. The outfitter and resort where I worked was located on Birch Lake outside of Ely. Birch Lake and the surrounding area is currently being explored for future development of non ferrous mineral resources by Twin Metals. River Point Resort and Outfitting where i worked in located only a few minkes from both the Spruce Road deposit and the Birch Lake deposit, given this proximity hive experienced first had the effects of exploratory drilling let alone an actual mine are already having on the surrounding environment and the federally protected wilderness. One of the most nocitible side affects of the drilling is the excessive noise pollution. Particularly in the winter when sound travels much further. One of the issues with the current NorthMet SDEIS that i've recognized is the inaccuracy of the projected levels of noise pollution and the GIS models used to estimate them. I have a bachelors degree in geography and several years of experience using GIS systems and while examining the SDEIS i noticed the metopes used were not adequate and didn't factor in the changes in winter. I would also recomend using more accurate data on the actual nose levels themselves as the ones used are simply not realistic in my experience with Twin Metals. The amount of noise generated and how it affects wildlife should also be looked at closer. One of the other weakness in this document is the protection against catastrophic environmental events. As the climate changed the frequency of the 100 year and 500 year storm events will increase resulting in much for intense precipitation events in the area. The SDEIS does not adequately project the possible damage and risk of a spill, leak, or overflow from containment ponds. The mine must be designed to withstand at least a 1,000 year rain event without risking pollution. The DEIS does not adequately factor in the long term affects of climate change. Sincerely, Ryan Alger 2805 Thomas Ave APT F. Eau Claire, WI, 54703

Ryan Gaffke 6139

Primary Messages •I support PolyMet Mining and believe they will build and operate a mine that complies with all regulations and protects the environment. •I trust the multiple State and Federal Agencies involved in preparing the document. •This SDEIS demonstrates that PolyMet can develop this resource in a sustainable manner and there are logical, engineered solutions proposed for potential impacts. Economic Impact and Jobs •PolyMet will produce these metals in an environmentally sound way and generate significant economic activity, expanding and diversifying our mining economy. •PolyMet will contribute to the local and state economy at a time when we really need the jobs and economic benefit. •PolyMet can produce these metals in an environmentally sound manner and create hundreds of jobs that can support families and sustain communities. •Enough is enough; let's get on with permitting this mine. We want jobs. •PolyMet will provide millions of dollars in local and state taxes to support our communities and educational system. Ryan Gaffke 124 Amund Dr Proctor, Minnesota 55810 The views and opinions expressed in this message my own. I am solely and individually responsible for the content. This is not intended to represent or reflect anyone else's views or opinions, including those of my employer, ALLETE, Inc.

Ryan Heule 3273

To whom it concerns, With the Duluth Complex formation being this large, it will be mined sooner or later and the area could use the economic impact. My questions/comments are mainly to do with reclamation and waist water since I live down stream in the watershed. After this project does go end of life who will be responsible to post shutdown monitoring of the tailings basin and pit water in the event Northmet is no longer around. Does the financial assurance take into account inflation in the event this mine operates beyond its 20 year life. I just want to make sure there is enough funding to do the reclamation of the site and enough funding in the event of an unexpected major environmental disaster to do the environmental clean up. From what I have read and the presentations that I have seen put on by SME I feel this project will be positive addition to Northeast Minnesota. Ryan

Ryan Hicks 24591

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please don't. Sincerely, Ryan Hicks 647 E 14th St New York, NY 10009-3101

Alphabetical by sender's first name

Ryan Hunter 43223

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Ryan Hunter 27 Mill Ave Whitefish, MT 59937

Ryan L. Burke 43968

Dear Lisa Fay, I am writing you today to ask that this proposal be rejected on the grounds that it puts all Minnesotans at risk. We have never had mining like this in our state and there is an exceptional amount of evidence that it will cause irreversible environmental degradation. The people of Minnesota need sustainable investments that will bring us ahead, and not destroy our water systems and the Northern economy. These companies do not have the state's best interest, nor do they plan on making long-term investments in our people. Please reject this mine and the many other proposals that will come. Minnesotan's deserve better. cheers, Ryan Burke 2329 Pillsbury Street, Saint Paul, MN 55104 University of St Thomas, MN Class of 2016 605-929-4438 Students for Justice and Peace Leadership Board Green Team E-Board Student Assistant OSF Library Peace - Pax - Paz - Lapè - ?????? - ???? - Paix - ??;?? - Vrede - ???? - Pace

Ryan Mc Bride 32225

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I would like to comment on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I do not believe that the possible contamination of Lake Superior, and hence the entire Great Lakes waterway, and the Boundry Waters Canoe Area Wilderness is worth the minerals gained via mining in these areas. I am greatly concerned about this project's potential impact on this region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Ryan Mc Bride 62405 County Road 7 Elkhart, IN 46517-8950 (574) 862-1389

Ryan Patron 41994

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ryan Patron Baxter, Minnesota

Alphabetical by sender's first name

Ryan Sbol 15889

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Ryan Sbol 2009 E 86th st Bloomington, MN 55425

Alphabetical by sender's first name

Ryan Sbol 40319

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

S Grenzow 41673

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, S Grenzow 2283 Hiram Dr Wheaton, IL 60189-8911

Alphabetical by sender's first name

S. Alexandra Leary 52194

To whom it may concern, There are many aspects of this proposed mine project I find of concern. But there is one that is overwhelming importance and that is the discrepany in the mapping supplied by Polymet. The map the Polymet mine people have offered in their paperwork doesn't encompass the entirety of the 100 Mile Swamp as is indicated on government maps. I believe this is an intentional misrepresentation by Polymet of the SCALE and NATURE of the 100 Mile Swamp which encompasses wetlands and ephemeral wetlands. This mapping discrepancy should have been one of the first things on which the Minnesota Department of Natural Resources demanded clarification from the Polymet organization in the early years of development of the EIS. To add to this issue of what surface waters are contested as being potentially subject to pollution, the hydrology of the area is not well understood other than in the vaguest practicable terMs There is also no sign Polymet intends to add hydrology protections to its management of the site by drilling test wells to test for seepage at set distances from the site. Once pollutants like sulphuric acid begin to slowly seep into the 100 Mile Swamp, the ecological security of the nearby Great Lakes is no longer. At that point, we can only recognize that they should be renamed the Great Leaks. The nature of the Great Lakes fishery will change for aeons and the use of the Great Lakes as a source of fresh, potable water will be compromised for two countries if the impossible nature of the reality of a 500-year remediation plan is ignored. There are several unique environmental threats posed by this copper/ nickel mine that do not seem to be addressed in the EIS. The mine itself is a threat not only to Minnesota bodies of water but potentially to international waters, ie, the Great Lakes. Despite all their planning and promises of extreme measures, contaminated wastewater treatment lagoons may overflow or may crack over time as has happened w/countless cement lagoons of similar design. Many CAFOs have experienced leaching of animal waste into aquifers once there is deterioration of their manure lagoons. Chemical contamination lagoons in such an ecologically sensitive area w/such a high water table would be subject to extreme of temperatures from the freezing and thawing and I cannot imagine these lagoons would hold up over a 500-year remediation period. There is no reality in this EIS to the suggestion this company is intent on allocating financial resources for the expected 500-year remediation period, never mind if they've made any effort to scale up their remediation efforts if there is any leakage over time that begins to infiltrate the Boundary Waters Canoe Area Wilderness. There are significant advance steps which should be taken prior to permitting going forwaRd Taking into account the discrepancies between what I consider to be the legitimate mapping of the 100 Mile Swamp and the maps redrawn by Polymet, I believe we must conduct baseline hydrology mapping of the 100 Mile Swamp, the Dunka River and other flowage in the Rainy Lake watershed so we have a clear understanding of subterranean water flow and just how quickly we are risking pollution seeping into the Great Lakes. If the hydrology studies show that Polymet is unwilling to TRULY PROTECT the Rainy Lake watershed and the Great Lakes by drilling test wells for polution tracking and is otherwise unprepared to handle subterranean pollution, then the permitting process should be reconsidered. There has never been a company whose environmental responsibilities have outlasted the company for the length of time required by the remediation of the amount of tailings produced by this mine. Considering this mine site will be an environmental threat that has to be overseen for a 500-year remediation period, we have not considered what that means legally in terms of entailing this company and any other company that subsequently purchases the Polymet compa

Alphabetical by sender's first name

Sally Bujold 4861

Dear State Representatives, Committee Members, and Civil Servants— Thank you, for your considered thinking regarding Minnesota's resources and the sustained well being of Minnesota's children and grandchildren. I find the balanced, reasoned, respectful document below, truly expresses my thinking . I appreciate the time you give to reading my thoughts. Duluth-Superior Friends Minute on Copper-Nickel Mining in Northern Minnesota As Quakers, we are called to live simply, to care for the creation, and to husband resources. In light of that calling, we have been concerned to understand the implications of copper-nickel mining proposed for northern Minnesota by PolyMet, Twin Metals, and other corporations. Our research leaves us deeply troubled. Traditional mining in this state has been very different from the copper-nickel mining now proposed. Iron ore deposits in northern Minnesota were so rich that originally iron was, essentially, just scooped out of the ground; the copper-nickel deposit, by comparison, is exceptionally poor. About 99% of the rock from which the metals must be extracted would be waste, and much of it would have to be ground to the consistency of powder. This waste rock bears sulfide. Sulfide-bearing rock exposed to air and water yields sulfuric acid, producing forms of pollution (including mercury, arsenic, lead, and other toxins) that, according to PolyMet's own documents, will last at least 500 years. Proponents of copper-nickel mining argue that our current way of life demands these metals, that opening these mines will provide high-paying jobs, and that new tech-nology will prevent pollution. All of these claims weaken drastically when scrutinized. Yes, our current way of life requires copper; however, since copper scrap already provides half of US annual demand for that metal and the US provides 23% of the world supply of recovered copper, recycling holds tremendous potential for fulfilling most of this nation's needs. Given the devastation that copper-nickel mining commonly leaves in its wake, we are also led to question the wisdom of our current way of life. The argument that copper-nickel mining will boost the regional economy seems a half-truth at beSt Typically, mining companies import their expertise from elsewhere; only half the jobs promised by the mining companies are apt to go to local residents; the highest-paid positions will be taken by outsiders, who will leave the area once the mine has been exploited. Mines are also subject to shutdowns when market prices drop. The metals extracted from these mines will likely be exported; the profits will go to share-holders around the world rather than the residents of northern Minnesota. History predicts that once these mines are exhausted, their owners will declare bankruptcy and absolve themselves of responsibility for damage left behind. The argument that new technology will prevent pollution is little more than wishful thinking. Sooner or later, copper-nickel waste rock creates acid mine drainage, which often eats its way to ground water. New technology remains experimental, untested on an industrial scale, while exploratory drill sites in northern Minnesota are already leaking acid. Even if technology can be developed to treat copper-nickel pollution effectively, who will pay for, operate, and maintain this technology twenty-four hours a day, day after day for 500 years or more. Corporations come and go; so do governments. We understand the hunger for jobs in northern Minnesota, though people have lived here for thousands of years without depending on paychecks from multinational corporations. Over the past two decades, while the mining workforce shrank, the economy diversified and grew less vulnerable to the boom-and-bust cycle of the mining industry. We support continued diversification. We support selective, sustainable-yield logging and the development of value-added forest products. We s

Sally Drew 27782

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I have canoed in the Boundary Waters a number of times and explored the shores of Lake Superior. Both are national treasures. I do not understand how the federal government can allow mining activities in national forests. Was not this land put aside so that this would not happen. Is sulfide so rare that it is worth endangering the wetlands, rivers, lakes and streams in this area. I cannot imagine that this activity is warranted. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Sally Drew 333 W Main St Madison, WI 53703-2777 (608) 251-3406

Alphabetical by sender's first name

Sally Fineday 9625

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sally Fineday 28890 Connection Drive SE Pennington, MN 56663

18513

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sally Fineday 28890 Connection Drive SE Pennington, MN 56663

Alphabetical by sender's first name

Sally Fineday 50595

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sally Fineday 28890 Connection Drive SE Pennington, MN 56663

sally furness 57685

PolyMet is aware of local environmental concerns, and is taking state of the art precautions to assure that these concerns are satisfied. The contribution to state and local economies will be substantial. Sincerely, David D. Furness

Sally Munger 18132

Good evening. I'm not standing here to speak as a technical expert on the SDEIS. There are many people who have spoken on that tonight, but I'm speaking as a person who is very concerned about what we have when the copper-nickel mining comes to Northeastern Minnesota. I'm the proud daughter-in-law of Willard Munger, the long-time chair of the House Natural Resources and Environment Committee who is largely responsible for the strong environmental regulations we have in place in Minnesota today. I wish Willard were here tonight to lend his voice in opposition to this proposal. Why do I say that? Willard knew that clean water is the key to life and fought his whole legislative career to keep our waters safe and clean. More and more, we are seeing how precious a resource clean water is as areas of our country and around the world experience water shortages. Why would we want to take a chance on this process when we are in a water-rich area and the report itself says that remediation will be needed or could be needed for 500 years. That alone makes no sense. Add to that that copper-nickel mining has never been done anywhere without significant environmental damage. Let me say that again. Copper-nickel mining has never been done anywhere without significant environmental damage. The immediate response to that has always been, "That was using old technology. We have something new." Now, that new thing is reverse osmosis. Before we take one step to do this, I ask that it be proven that this process will work on the scale that will be needed. In other words, prove it first. I understand that jobs are needed on the Iron Range. Are the jobs that will be created livable-wage jobs, and how long will they really last? Is this really the answer? I've heard it said that the NIMBY principle, not in my backyard, is coming into play here. I am glad people are saying not in my backyard. This is everyone's backyard, and we are right to want to keep it safe and pristine. In my family of origin, we had a saying. If you have to ask the question, you already know the answer. The answer in this case -- is that Northeastern Minnesota is not the place to do this type of mining.

Alphabetical by sender's first name

Sally Rauschenfels 44096

To: Lisa Fay, EIS Project Manager, MDNR Division of Ecological and Water Resources I am against copper sulfide mining in northern Minnesota and believe your SDEIS does not sufficiently deal with extremely concerning issues to me and many other concerned organizations. I am a Duluth and Ely resident. My family has lived in both places for generations. I have also recently experienced 3-5 years of unemployment by my husband, so know well the difficulty in living in a region that provides little economic opportunity. However, despite my desire for well-paying jobs here, I am smarter than to be seduced into the clutches of this slick Polymet project public relations campaign and resulting incomplete SDEIS for the greedy gain of a few dozen unsustainable jobs. The SDEIS provides no detailed definition of what financial assurance funds will be placed in trust to ensure that water flowing from the waste piles and tailings ponds will be treated and maintained for the required hundreds of years, and that contamination episodes can be cleaned up in the highly predictable event that the company goes out of business soon after closure. The hydrologic model for the water moving through the mining and processing site dramatically underestimates the volume of water passing through, and the rate it moves across and under the waste containment sites. Thus, this crucial predictive tool greatly understates the risk of significant acid rock drainage impacts to surrounding wetlands, groundwater, the Partridge and St Louis Rivers, and ultimately Lake Superior. Please don't leave leave these serious report deficiencies to be resolved "later." Don't make residents, taxpayers and other agencies responsible for dealing with negative water impacts down the road from this project. This revised version of the project has not been improved enough to assure that the mine's waste and the laws and variables of nature can now be managed so as to avoid major pollution for the indefinite future, beyond a time when our present regulatory systems may even be functioning. All the states which have already suffered acid mine drainage from sulfide mines have underestimated the pollution that would be generated and have grossly inadequate funds escrowed for this task. Polymet has not convincingly demonstrated their ability to operate and close this mine without saddling Minnesota taxpayers with extraordinary cleanup costs and northeastern Minnesota citizens with harm to our water resources and risk of negative impacts on our health. Unlike ferrous mining, Polymet's open pit sulfide mine operation has significantly greater potential to pose human health risks through contamination of drinking water and fish, seriously degrade the St Louis River, destroy wild rice and irreplaceable wetland habitat, and harm the lake that holds the world's fresh water. The fact that our Minnesota DNR is even considering putting at risk our 10% of the world's fresh water for short-term economic gain is sad and shameful. If this project is approved and built, I will seriously consider leaving Minnesota - that's how betrayed I will feel living in my beautiful state and northwoods home for allowing such a devastating event to happen here. Sincerely, Sally Rauschenfels 1026 S. Lake Ave Duluth MN 55802

Alphabetical by sender's first name

Sam Bircher 52502

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404 " Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation " wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect " wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1- Underground mining, looking at the full ore deposit and PolyMet's real costs; 2- Putting a liner under the Category 1 waste rock stockpile; 3- Placing all tailings on a new completely lined facility; 4- Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5- Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to protect irreplaceabl

Sam DiVita 44760

To Whom it May Concern I am writing to express my concerns over the proposed Northmet mining project for Northern Minnesota. I disagree with how the current (Supplemental) Draft EIS disregards the concerns of the Fond du Lac and Grand Portage Tribal Governments, the 1854 Treaty Authority, and the Great Lakes Indian Fish and Wildlife Commission. I also believe the some of the maps in the draft are incorrect. Specifically, the map of the One Hundred Mile Swamp. I do believe that runoff from the project will enter the BWCAW and impact our waterways and wilderness areas in Minnesota. The maps are not correct and therefore the environmental impact statement is inadequate until the maps are corrected to show the real details of the area. Please consider the facts and inconsistencies of the proposed project and deny permits. Protect our land, waterways, wildlife and recreational opportunities .and importantly, our need for clean drinking water. Respectfully, Sam DiVita 2063 Ames Ave Saint Paul, MN 55119

Alphabetical by sender's first name

Sam Ilstrup 40101

_____ From: samjodi@runestone-net [samjodi@runestone-net] Sent: Monday, March 10, 2014 5:43 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Sam Ilstrup 12352 175th St Barrett, MN 56311-1167

Sam Johnson 38440

To whom it is of concern: I wish to register my opposition to the copper-nickel mining as proposed. Since this involves sulfide rich ore and the best of projections indicate that this type of mining cannot be done without long-term risk to groundwater contamination, I believe the plan to do such mining at key headwater sources is impractical and ill-conceived. I have seen the effects of other toes of mining in the contains of Colorado where discharge from the mines runs a poisonous orange and in Kentucky where coal mining has poisoned water. Since this state so heavily relies upon water and is a source of the Mississippi, I urge the rejection of plans for this mining. Sam F. Johnson 1504 Parmeadow Drive Northfield, MN 55057

Alphabetical by sender's first name

Sam Linder 40229

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404" Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation" wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1-Underground mining, looking at the full ore deposit and PolyMet's real costs; 2-Putting a liner under the Category 1 waste rock stockpile; 3-Placing all tailings on a new completely lined facility; 4-Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5-Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to

Sam Steinberg 43579

To whom it may concern: After attempting to read the PolyMet EIS and faltering after only a few pages, I realized that I didn't need to continue for one simple reason. If 2200 pages are required to explain exactly how this project can be safely implemented, then there must be tremendous potential for negative outcomes. The simple solution is to prevent any of those outcomes by stopping the project before it starts. Let me pose a hypothetical: If you purchased a toy for your children and it came with a 2200 page manual describing exactly how your children should use it to prevent injury, would that be encouraging. Probably not. You'd probably assume, as I have done with the PolyMet mining project, that the only reason such assurances are needed is that the product is inherently dangerous. Assuming that my hypothetical isn't convincing, look west to Holden Village to see the legacy a copper mine can leAve That mine has left a scar on the face of one of the most pristine and beautiful wilderness areas in the world. Let's not allow PolyMet to do the same thing to our wilderness areas. Thank you for your time. Sam Steinberg Prior Lake High School Science Teacher

Samantha B. Singer 6025

Full Name: Samantha Irene Balmer Singer Legal Mailing Address: 305 N 12th Ave E, Apt C, Duluth MN 55805 Comment: I do not understand why plans for this mine have come so far even with the company, Polymet stating themselves that they are certain the mine will cause pollution to the water supply requiring hundreds of years of water treatment. There is absolutely no way they can deliver on a promise to treat the water until it is no longer polluted.

Alphabetical by sender's first name

Samantha Bauer 44071

Dear Ms Fay, Dear Ms Fay and Mr Bruner, I am writing to you as a future landowner in an area that is likely to be negatively altered by the proposed PolyMet sulfide mining site. My family owns a summer camp for children with special needs, and it is located on land between Ely and Isabella, MN. Someday, I will be co-owner of this land, and I look forward to being able to continue the tradition of helping children to understand and appreciate the Great North Woods. I am deeply concerned that PolyMet, a company that has never before operated a mine, will not be able to follow through on their claims to not pollute, and that it will be my generation that has to pay the price – in superfund taxes, and by losing priceless wilderness. I know that jobs have to be created, but I would prefer to see efforts channeled towards lasting jobs, not positions that will be cut as soon as the mine is either shut down or done providing copper. This copper, incidentally, will be sold to China instead of used in the United States, which I also object to. PolyMet's Supplemental Draft Environmental Impact Statement talks about using 'reverse osmosis' on the water to keep pollutants from leaching into the aquifer and the Lake Superior Basin, but the science isn't sound. Even if reverse osmosis did work, 99% of what the mine is going to produce will be waste products. Is that 1% of copper-nickel needed so badly that we can afford to overlook the potential damage that could be done to more than 8,260 acres of St Louis River watershed. Open-pit mining like this has been done in more arid climates, and pollutants have still found their way into water. That threat will only be more potent in our water-rich environment. As a future landowner, I have been following this issue with interest, and have been wading through PolyMet's smokescreens of misinformation to get to the scientific facts at the heart of this proposal. I would like to request that action be taken against the PolyMet plan, in the form of postponement until a better plan can be developed that captures and controls runoff pollution from the mine. I would also like the plan to address the care of workers, as PolyMet's financial backers have a history of human rights violations. Sincerely, Samantha C. Bauer Samantha Bauer 6406 Bear Lane Duluth, MN 55803

44073

Dear Ms Fay and Mr Bruner, I am writing to you as a future landowner in an area that is likely to be negatively altered by the proposed PolyMet sulfide mining site. My family owns a summer camp for children with special needs, and it is located on land between Ely and Isabella, MN. Someday, I will be co-owner of this land, and I look forward to being able to continue the tradition of helping children to understand and appreciate the Great North Woods. I am deeply concerned that PolyMet, a company that has never before operated a mine, will not be able to follow through on their claims to not pollute, and that it will be my generation that has to pay the price – in superfund taxes, and by losing priceless wilderness. I know that jobs have to be created, but I would prefer to see efforts channeled towards lasting jobs, not positions that will be cut as soon as the mine is either shut down or done providing copper. This copper, incidentally, will be sold to China instead of used in the United States, which I also object to. PolyMet's Supplemental Draft Environmental Impact Statement talks about using 'reverse osmosis' on the water to keep pollutants from leaching into the aquifer and the Lake Superior Basin, but the science isn't sound. Even if reverse osmosis did work, 99% of what the mine is going to produce will be waste products. Is that 1% of copper-nickel needed so badly that we can afford to overlook the potential damage that could be done to more than 8,260 acres of St Louis River watershed. Open-pit mining like this has been done in more arid climates, and pollutants have still found their way into water. That threat will only be more potent in our water-rich environment. As a future landowner, I have been following this issue with interest, and have been wading through PolyMet's smokescreens of misinformation to get to the scientific facts at the heart of this proposal. I would like to request that action be taken against the PolyMet plan, in the form of postponement until a better plan can be developed that captures and controls runoff pollution from the mine. I would also like the plan to address the care of workers, as PolyMet's financial backers have a history of human rights violations. Sincerely, Samantha C. Bauer Samantha Bauer 6406 Bear Lane Duluth, MN 55803

Alphabetical by sender's first name

Samantha Henderson 54339

Dear Ms. Lisa Fay, EIS Project Manager I think that this mining project is a good idea. There are many reasons why I support this project. First of all, I think that we all use products everyday that we wouldn't have if these metals weren't made available. I think that the project proposer is going to be responsible and minimize the effects of water pollution and air pollution. For example, PolyMet has come up with air filters that can help filter during rock crushing and processing. They are also going to use energy efficient equipment and processes. To minimize water pollution they propose to have liner systems to prevent chemical from seeping into the ground. They will have groundwater containment systems to help control the wastewater. The project proposer will also minimize the effect on the animals too. PolyMet will use old mining sites to plant new vegetation on. They will keep the invasive species under control in these areas. They will also put back some nutrients in the soil that are needed for the land to have growth again. Polymet will have to remove some wetlands, but they will be replacing them elsewhere. They will try to work around them the best that they can. To conclude, I hope that you will take some of these reasons into account. I think that that plan is good and I think that we could really benefit from this.From,Samantha Henderson, 8th grade student at Southwest Junior High

Samantha Henningson 47706

Hello, I am getting this in under the wire, and for that I apologize. This mining proposal should not go forwaRd I understand there are jobs at stake, and that the minerals being mined are in demand. But these are short term considerations. The landscape and waters of Minnesota are forever, and I do not believe for one minute that PolyMet will pay to remedy problems that this is created - in either the short, or more importantly, long term. Thank you for your consideration. Samantha Henningson 1235 Lafond Avenue St Paul MN 55104

Samantha Urbanski 41842

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Samantha Urbanski Wheaton, Minnesota

Sami Dix 42055

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Sami Dix Savage, Minnesota

Alphabetical by sender's first name

Sami Moe 48189

10 new people recently signed Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota." on Change-org. There are now 440 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=five_hundred"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 439- Rachel Perry Saint Paul, United States Minor Outlying Islands 438- Anna Lichtiger St Paul, Minnesota 437- Cynthia Steinhauer Williamsburg, Virginia 436- Claire Henkel Lexington, Kentucky 435- Biftu Takele Bellingham, Washington 434- Seth Loeffler-Kemp Duluth, Minnesota 433- Melissa Feinman Saint Paul, Minnesota 432- Henry Kellison St Paul, Minnesota 432- Britta Dornfeld Owatonna, Minnesota 431- Luke Mielke St Paul, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJmaXZlX2h1bmRyZWQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTMwLCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA4MzI0OTl9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK6tFGWZqr5Xu8qOpLzf7o-2FuYy-2FFPNCrz0LQ-2FDKGi6i4Vza3xeBmPG9imHR-2BIXfyAO1K367QSk-2F8LMXuMVNoB2u147JvJrnEWhWb1uf2d1ZU4zHhVmWPgpbkAAoHWp7BiQ9XHM4llaDQwVSuCBgjYuqjDopjLZtfqjVmrspxxvNksAOoYQXBg3y2VQ6elx7nxDngWPindxSgOC8-2Fy09SSSpHhHPGBT4-2FWxuaEU4xeMPqU

Alphabetical by sender's first name

Samuel Crook 32548

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I know all my spiritual friends keep talking that we are due to enter a golden age, but all I can think is it must be something that is going to happen after a mass extinction, and the planet is terraformed. Fracking around the new madrid fault, coal waste, and now this. The Koch brothers already have a coal waste mountain right over us south of Chicago. You guys have all the power, and your main focus is how to keep the corporate money flowing in. I sign a gazillion petitions, and it seems everyday your trying to do something else awful. I pray to God that he must know what is happening here, and all I can do is keep pleading/yelling at you guys to stop them from destroying the planet. I remember in the Bush admin. they were saying Jesus was coming back soon, so it didn't matter what they did, because God was going to wave a magic wand and make everything better. Of course there is the concept of tribulation, but they think they're going to be pulled up into heaven, and escape from all this hell they are creating on earth. To the rational mind this is insanity, and I find it hard to disagree. Doesn't God want us to try and keep from destroying the earth. Are you going to bet the future our children and grandchildren will have to deal with, on what many would consider infantile obsessions with power and money. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Samuel Crook 930 Erie Ave Logansport, IN 46947-3514

Samuel Welle 38792

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Samuel Welle 5325 13th Ave S Minneapolis, MN 55417-1842

Samuel Yannerilla 27835

Thank you for your e-mail and taking my comments into consideration. Respectfully, Samuel M. Yannerilla On Mar 4, 2014, at 9:59 AM, "*NorthMetSDEIS (DNR)" wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Sandi Paavola 42663

See attachment

Alphabetical by sender's first name

Sandra Berg Dickson 42264

Mar 8, 2014 Ms Lisa Fay MN Dear Ms Fay, The very thought that we would take a "chance" on polluting our presteen northland for jobs that will last less twenty years over pollution that could last over five hundred years totally baffles me. What is more important to all living beings than our water supply. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Sandra Berg Dickson 4813 Greenhaven Dr Saint Paul, MN 55127-7069

Sandra Carr 40300

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Sandra Carr 4207 236th St SW E302 Mountlake Terrace, WA 98043 US

Alphabetical by sender's first name

Sandra Carr 40323

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Sandra Carr 4207 236th St SW E302 Mountlake Terrace, WA 98043 US

Sandra Fantz 38592

Mar 5, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. The boundary waters in Mn is a national treasure and should be protected not ruined. We cannot buy that kind of environment and it is inappropriate to mine near it and destroy it. Sincerely, Ms Sandra Fantz 288 Starcross lane Jasper, GA 30143

Sandra Johnson 39612

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Miss Sandra Johnson PO Box 147 Little Falls, MN 56345-0147 (952) 693-5662

Alphabetical by sender's first name

Sandra Knoche 57280

Dear Federal and State Agency Leaders: In 2010, the U.S. Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was "inadequate" and the sulfide mine project would be "environmentally unsatisfactory. The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity." Please reject the PolyMet SDEIS and deny permits that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever.

Sandra Lien 40024

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Sandra Lien 629 5th Ave S Hopkins, MN 55343-7711

41705

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Sandra Lien 629 5th Ave S Hopkins, MN 55343-7711

Sandra Materi 42012

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Sandra Materi 1600 W Odell Ave Casper, WY 82604-4778

Alphabetical by sender's first name

Sandra Penning 42427

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Sandra Penning 2170 Wellesley Ave Saint Paul, MN 55105-1233

Sandra Pontes 40422

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Sandra Pontes R. Visc. Porto Seguro, 1237 Sao Paulo, ot 04642000 BR

Sandra Reuther 21202

Reading the facts on the Copper/Nickel Mining seem to me to leave little room for debate. A. No example of a Copper/Nickle mine that has not contaminated water. B. Sulfuric acid produced with negative effects on soil and plants. C. Never before tried in MN. D. Mine Co. leaves the mess to the local community. Reading on I note this Co. has never operated a mine before; it is not an American Co. and the parent Co. has a record of tax evasion and numerous fatalities. It is ridiculous to mine in the Superior National Forest a location set aside for wildlife, and for generations to come as a area of beauty and nature for all to enjoy. There is not one positive reason to want this mine in MN. How is it possible to contaminate water, air, land and negatively impact wildlife areas in return for 350 jobs and 20 yrs of production. This then requiring a 200 to 500 year clean up, if cleanup is even possible. Water, Land, Nature are the three most important qualities that any state has, to ruin them would leave the next generations a state with problems much more serious than jobs. Without clean water and food tradition is negated. Please consider Common Sense ahead of Greed and keep Minnesota a state where future generations can live in peace with nature. Sandra Reuther, past president, LWV Brainerd Lakes Area 29790 Lake shore Dr Breezy Point, MN 56472 HYPERLINK "tel:218%20831%202909"218 831 2909

42870

See attachment

Alphabetical by sender's first name

Sandra Severt 39756

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Sandra Severt 150 E Burnsville Pkwy Apt 305 Burnsville, MN 55337-7572

Sandra Wagner 54842

See attachment

Sandra Zaninovich 40327

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Sandra Zaninovich 1670 Manning Ave Los Angeles, CA 90024 US

Alphabetical by sender's first name

Sandy Bergeron 39346

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Sandy Hotvet 41999

I am a concerned citizen who has lived in Minnesota for 75 years and who enjoys the wonderful outdoors that our state has and must continue to protect for generations to come. PLEASE, help to maintain our wilderness, lakes, and wetlands by not allowing PolyMet to mine in northeastern Minnesota. Sandy Hotvet 26420 Edgewood Road Excelsior, MN 55331

Sandy Loney 14840

Ms Fay, As a science teacher I am contacting you to plead that you stand up for our fresh water, forests, and American Indians of Minnesota. There is so much to lose with this project.. Why would we risk having anything happen to our Superior Nat'l forest and fresh water supply. We have a national treasure ~~ are we willing to gamble with it.. What if we lose and there is an accident. There are several reasons to say no to this proposed land swap. Why would we want to swap out high quality land for lower quality lands scattered around. What is the benefit for Minnesota. There is NONE. Why would we allow ANY corporation with a notorious environmental record anywhere near Minnesota water. Again . What is the benefit for Minnesota. There is NONE. Will you be able to sleep at night when an accident happens. Do the right thing Stand up for Minnesota and say NO to Polymet. The short term jobs aren't worth it. Don't sell out the state for the rest of us. Do what's right for Minnesota. Sandy Loney Science Teacher Brainerd Minnesota

Alphabetical by sender's first name

Sandy Loney 14841

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: As a science teacher I am writing to ask that you reject the PolyMet sulfide mine project. I am asking that you reject the land exchange. No way should mining waste be happening near our national treasure ~ clean fresh water. That would be very short sighted thinking on everybody's part. PolyMet's main investor is known around the world for being a major polluter. Why would we risk doing business with this company. Are you really willing to risk our water. Will you be able to sleep at night if/when an accident occurs. Please say no to this ludicrous idea. Thank you in advance. Sandy Loney Science Teacher Sincerely Sandy Loney 5730 Birchdale Road Brainerd, MN 56401 2184546678

51071

Mr Dabney, As a science teacher I am contacting you to plead that you stand up for our fresh water, forests, and American Indians of Minnesota. There is so much to lose with this project.. Why would we risk having anything happen to our Superior Nat'l forest and fresh water supply. We have a national treasure ~~ are we willing to gamble with it.. What if we lose and there is an accident. There are several reasons to say no to this proposed land swap. Why would we want to swap out high quality land for lower quality lands scattered around. What is the benefit for Minnesota. There is NONE. Why would we allow ANY corporation with a notorious environmental record anywhere near our Minnesota forests and water. Again . What is the benefit for Minnesota. There is NONE. Will you be able to sleep at night when an accident happens. Do the right thing Stand up for Minnesota and say NO to Polymet. The short term jobs aren't worth it. Don't sell out the state for the rest of us. Do what's right for Minnesota. Sandy Loney Science Teacher Brainerd Minnesota

51072

Dear Mr Dabney, Mr Bruner and Ms Fay: As a science teacher I am writing to ask that you reject the PolyMet sulfide mine project. I am asking that you reject the land exchange. No way should mining waste be happening near our national treasure ~ clean fresh water. That would be very short sighted thinking on everybody's part. PolyMet's main investor is known around the world for being a major polluter. Why would we risk doing business with this company. Are you really willing to risk our water. Will you be able to sleep at night if/when an accident occurs. Please say no to this ludicrous idea. Thank you in advance. Sandy Loney Science Teacher Sincerely Sandy Loney 5730 Birchdale Road Brainerd, MN 56401 2184546678

Sandy Lucas 40987

Mar 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Sandy Lucas 1315 Bayard Ave Saint Paul, MN 55116-1641 (651) 895-4502

Sandy Sterle 15965

Please see attached Word Document.

Alphabetical by sender's first name

Sandy Stoffel 15427

Feb 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuri

Alphabetical by sender's first name

Sandy Stoffel 44248

Mar 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The matter isn't "if" the water will be polluted, but "when" it will be polluted. With moose deriving not just water but also food from the waterways around the NorthMet project, moose will be negatively affected by this mine. To date, there hasn't been one sulfide mine or open-pit mine that hasn't polluted the waterways. Such as the Dober mine that has killed off all aquatic life in a 7 mile stretch of the Iron River and the 10 mile stretch of the Brule River. A study done on open-pit mining practices, while all projects reviewed stated that it wouldn't pollute, over 76% of the time it did. Along with that, 89% of these mines polluted when it was stated that it was "completely safe". This has caused entire ecosystem to be destroyed in the states of Montana, New Mexico, and Nevada due to the sulfide mining contamination of thousands of waterways. Also, when these mines contaminate, it is up to the taxpayers to fend for the tens-of-millions-of-dollars bill because some of the mining companies filed for bankruptcy. This mining practice is too dangerous for Minnesota and definitely too dangerous for northeastern Minnesota. Tourists bring $1-6 billion in revenue per year in the arrowhead region. They travel from around the world to fish and camp in the pristine waters of the Boundary Waters Canoe Area Wilderness. What's going to happen to that revenue when the fish are killed off and the waterways are too toxic to swim or even camp nearby. That $1-6 billion is going to go to a place where the state proves that it cares about the environment. Sincerely, Ms Sandy Stoffel 7655 Saint Croix Trl S Hastings, MN 55033-9494

Alphabetical by sender's first name

Sanela Arnautalic 16281

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Sanford Taly 39992

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Sanford Taly 5645 Star Cir Excelsior, MN 55331-8403

Sanjay Kuba 54681

See attachment

Alphabetical by sender's first name

Santiago and Laurie Sovell-Fernandez 43323

To Whom It May Concern, I respectfully submit the following comments on the PolyMet mining proposal in northeastern Minnesota: I question the accuracy of the modeling used to predict the impact of the project on both ground and surface water quality and quantity due to data limitations. More data is needed to make an accurate assessment of potential impacts in these areas. I strongly question the conclusion of the SDEIS on potential sulfate and mercury pollution impacts to water resources within and near the project area. Interactions among these water quality constituents are complex and many questions remain about the necessary rules and enforcement required to adequately ensure protection and nondegradation. Finally, on a broader, more holistic level, I believe we must take a precautionary stance on a project of this nature and magnitude. If a true Cost Benefit Analysis was conducted, would 20 years of extraction and a few hundred short term jobs outweigh the cost of (at least) 500 years of pollution clean up and health impacts of which we can not know. Thank you for the opportunity to comment, Laurie Sovell 240 W George St Saint Paul, MN 55107

Sara Anderson 57254

Like in the past, mines similar to the proposed Polymet, have contaminated the earth, environment, water and presumably people and creatures [ILLEGIBLE] near the mines and along waterways connected or within proximity. What effects does this have on human and animal life, since NO testing has been conducted on cancers, illnesses, water pollution linked to human/animal life indirect correlation to the proposed mine?Sara Anderson1801 Superior StDuluth, MN 55812

Sara Barsel 43009

DNR: Attached to this message, please find formal comments on the PolyMet NorthMet Project SDEIS. Please send me a brief E-mail confirmation that: · you received this message and could open the attached files, and · this message and comments were received before the comment period deadline. Thank you, Sara Barsel, Phd sara.barsel@q-com

43012

DNR: Attached to this message, please find formal comments on the PolyMet NorthMet Project SDEIS. Please send me a brief E-mail confirmation that: · you received this message and could open the attached files, and · this message and comments were received before the comment period deadline. Thank you, Sara Barsel, Phd sara.barsel@q-com

43016

DNR: Attached to this message, please find formal comments on the NorthMet, or PolyMet, Project SDEIS. Please send me a brief E-mail confirmation that: · you received this message and could open the attached files, and · this message and comments were received before the comment period deadline. Thank you, Sara Barsel, Phd HYPERLINK "mailto:sara.barsel@q-com"sara.barsel@q-com

Sara Bible 41967

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Sara Bible 3014 Brunswick Ave S Saint Louis Park, MN 55416-2046

Alphabetical by sender's first name

sara bocklund 41940

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, sara bocklund marine, Minnesota

Sara Brice 44540

The resources aren’t going away, they are safely stockpiled for the future when their worth will be exponential. Leave it there. Sara Brice 702 Aldrich Dr Northfield MN 55057

Sara Bristol 41826

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Sara Bristol Minneapolis, Minnesota

Sara Darby 24013

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Years ago, I went on an extended canoe trip in the Boundary Waters Canoe Area Wilderness. It was a wonderful experience, and I had never before seen such a pristine, beautiful wilderness environment. Sulfide mining, and any other kind of mining, simply should not be allowed in or near this beautiful area, or anywhere near Lake Superior and its headwaters. The risks to the environment, wildlife, and public health are too great to allow any kind of mining. Thank you for your attention to and serious consideration of my concerns regarding this critically important matter. Sincerely, Sara Darby 100 Park Ln Apt 212 Contoocook, NH 03229-3139 (603) 746-1217

Alphabetical by sender's first name

Sara Haase 19298

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS seems to be one-sided. Well-documented tribal Major Differences of Opinion call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles and tailings heaps won't seep pollution, that mining won't dry out wetlands and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they are not available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and putting public meetings in January (when bad weather is likely) seems designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just foreign corporations, will matter when the government makes its decisions. Sincerely yours, Sara Haase 2264 320th St E. Northfield, MN 55057

Sara Harrison 39737

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I am gravely concerned about the long-term impact of Sulfide mining outside of of the BWCA. I would like to know exactly how you plan to hold PolyMet accountable financially for a 500 year window of time, for any adverse environmental impacts from sulfide ore mining in the proposed area. There is no record of any company staying intact for that kind of time horizon. What evidence do you have that they have the commitment or the financial reserves to back-up their promises for this extended period of time. This in my mind is a delusional premise to believe they can actually deliver on this kind of time horizon, or even that they have any genuine intention to do so. So how do you 'trust, but verify' on this kind of proposal. As well, what level of pollution are you going to deem 'acceptable,' in terms of runoff into adjacent rivers and lakes. What impact will that run-off have on fish, birds, wild rice, and wildlife in the region. How large of an area will the mining impact. What protections will be put in place to ensure that heavy metal contamination does not occur in the watershed surrounding the mining site. What level of ongoing monitoring will the DNR and EPA have. What regulatory teeth will you have to hold PolyMet accountable. Unfortunately, the national and state trends have been to 'relax' environmental regulations, in favor of promoting a business- friendly environment. So, tell me, who will make sure we do not end-up with a 500 year window of unregulated pollution from this proposed mine. I would like to know who will sign their name to that pledge and back it up with the best environmental monitoring available now and in the future. Please do not sell out this region to the highest bidder with the best sales pitch. Thank you, Sara Harrison I The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Sara Harrison 4536 Aldrich Ave S Minneapolis, MN 55419-4840 (612) 827-8018

Alphabetical by sender's first name

Sara Harrison 48883

Mar 10, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I am gravely concerned about the long-term impact of Sulfide mining outside of of the BWCA. I would like to know exactly how you plan to hold PolyMet accountable financially for a 500 year window of time, for any adverse environmental impacts from sulfide ore mining in the proposed area. There is no record of any company staying intact for that kind of time horizon. What evidence do you have that they have the commitment or the financial reserves to back-up their promises for this extended period of time. This in my mind is a delusional premise to believe they can actually deliver on this kind of time horizon, or even that they have any genuine intention to do so. So how do you 'trust, but verify' on this kind of proposal. As well, what level of pollution are you going to deem 'acceptable,' in terms of runoff into adjacent rivers and lakes. What impact will that run-off have on fish, birds, wild rice, and wildlife in the region. How large of an area will the mining impact. What protections will be put in place to ensure that heavy metal contamination does not occur in the watershed surrounding the mining site. What level of ongoing monitoring will the DNR and EPA have. What regulatory teeth will you have to hold PolyMet accountable. Unfortunately, the national and state trends have been to 'relax' environmental regulations, in favor of promoting a business- friendly environment. So, tell me, who will make sure we do not end-up with a 500 year window of unregulated pollution from this proposed mine. I would like to know who will sign their name to that pledge and back it up with the best environmental monitoring available now and in the future. Please do not sell out this region to the highest bidder with the best sales pitch. Thank you, Sara Harrison I The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Sara Harrison 4536 Aldrich Ave S Minneapolis, MN 55419-4840 (612) 827-8018

57993

We cannot afford to accept monitoring & clean-up of 500 years of water quality, protection, post-Polymet mining! Water is life period! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Sara Hill 39474

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The financial assurance section of the SDEIS is inadequate and needs to be changed to reflect details about how much money would be required to pay for cleanup and in what form it would be held. In 2010, the US Environmental Protection Agency called PolyMet's first draft Environmental Impact Statement "inadequate." One significant reason was that the 2010 DEIS did not show that financial assurance would be enough to cover the cost of long-term water treatment at the site. "EPA believes that the adequacy of financial assurance for these activities could make the difference between a project adequately managed over the long-term by the site operator, or an unfunded or underfunded contaminated site that becomes a liability for the federal government and the public " As your revise the SDEIS, please take the following actions: 1) Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs in the current draft 2) Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for hundreds of years of water treatment 3) Identify other responsible parties (eg major investors like Glencore) that will be held responsible for long-term cleanup should PolyMet go bankrupt or be unable to meet their obligations 4) Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation for the what would constitute adequate treatment Proper site management should be part of the cost of business, not a cost to taxpayers in Minnesota. Jobs are not a profit to Minnesota if Minnesota needs to pay any site maintenance or clean up. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Sara Hill 1198 James Ave Saint Paul, MN 55105-2919

Alphabetical by sender's first name

Sara Mairs 43851

Hi, My name is Sara Mairs and I have lived in Minnesota most if my life. I spent my formative years paddling the pristine waters of the BWCAW with YMCA Camp Widjiwagan. I continue to travel every year to Ely with my family to paddle those same waters, and watch the same wonder and magic in my own children as I experienced myself. There are so few pristine wilderness areas left in our country and in the world. Doing anything for short term gain that would put this resource at risk is beyond my comprehension. I STRONGLY oppose copper sulfide mining in northern Minnesota. Beyond the potential contamination of the water of this amazing wilderness area, there is a long history of negligence on the part of mining companies, and I do not trust the integrity of any mining company to follow through on efforts to prevent known and unknown problems from occurring. The only way to ASSURE the health and safety of both the ecosystems and the residents of this area is to NOT mine in the first place. Thank you for listening. Sara Mairs 1407 Arona Street St Paul, MN. 55108

Sara Moen 17011

Feb 18, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Sara Posluszny 40092

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Sara Roberts 33526

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I made my first canoe trip in the BWCA in 1966 and have made lots of others since then. I am 70 years old and will be returning to canoe and camp in this beautiful wilderness this AutguSt This is a precious area that must be protected for all time so that my grandchildren and others' grandchildren can know wilderness and wild things. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Sara Roberts 5490 Caddis Bnd Apt 204 Fitchburg, WI 53711-7163 (608) 273-1114

Alphabetical by sender's first name

Sara Roberts 38749

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely Sara Roberts 5490 Caddis Bend Apt 204 Fitchburg, WY 53711 608-273-1114

Sara Skalle 58061

I'm opposed to this mining project. The long-term loss, damage and sacrifice outweighs the short-term benefits. I grew up in Northeastern Minnesota and treasure it. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Sara Wright 41984

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Sara Wright Roseville, Minnesota

Alphabetical by sender's first name

Sarah Alexander 10398

To whom it may concern, I would like to submit comments proposed PolyMet mining proposal for northern Minnesota. Here are a few of my concerns regarding the proposed mining project and the impacts that it would have on the native environment of Minnesota: 1) There does not seem to be enough information and consensus on the likely impacts of sulfide mining on the environment. In a similar case in Wisconsin, the state decided that they would wait for another mining project to be initiated with no environmental impacts before agreeing to start one. This would be the first sulfide mining project in Minnesota, however other similar projects have all had issues with water contamination. To date, I do not believe there are any cases of sulfide mines that have operated without significant environmental impacts. 2) PolyMet does not seem to have a very clear proposal for dealing with containing waste created as part of the mining process. Sulfide mining leads to lots of waste, such as tailings and run-off. Piling the tailings does not seem to be a practical or aesthetically sound solution. Run-off is going to be incredibly hard to contain, because it can easily seep into the groundwater and then lead to contamination of surrounding ground and surface waters. Thousands of acres of the Boundary Waters watershed would be affected, influencing many people's enjoyment of these native areas, and destroying them for generations to come. 3) PolyMet has promised to be responsible for all clean up necessary due to this mining proposal. However, the lifespan of the project is 20 years, and wastewater and other treatments could take over 500 years. There is no way that PolyMet can agree to and promise to be responsible for that length of time, as it is well over a human lifespan. This would then fall to the state, and future generations would have to pay for clean-up for years. These are only some of the considerations that must be taken into account when reviewing the DEIS. Thank you for your work on this issue, and I hope that we can protect Minnesota's native environment for years to come. Sarah Alexander 681 Birch Lane South Shoreview, MN 55126

Sarah Betzler 38211

Hello, I would like to register a comment about the proposed Polymet Mine in northern Minnesota. I grew up in Minnesota and plan to return in a few years; my roots and family are on the Iron Range and North Shore. I urge you to reject the proposed mine. There is a place, in our government, for encouraging resource extraction and job building - but there is also a place for allowing such opportunities to pass when they would do more damage than good. Some resources are not possible to extract without risking significant, expensive, and long-lasting damage to local economies; as a culture, we do not have a strong record of resisting temptation, and the consequences when we fail are frequently borne by the very people that we imagined would profit. Please consider that when chemical contamination and spills affect water resources in this less-than-wealthy area, and when ecotourism is reduced because of the water contamination and spoiled vistas, and when the mine closes and jobs disappear again, the residents in this region will be worse off than they are now. The mining-town story is common enough to be a cliche: people scrape by on low-paying, dangerous jobs, enduring inevitable chemical spills and pollution, watching the wealth generated by the mine get funneled off to company executives. When the mine is worked out, the jobs disappear and leave these communities worse than before the mine arrived. Regulation, job safety improvements, and promises by Polymet may soothe some worries, but I don't believe we have the rules or the enforcement capacity to solve most of these probleMs Northern Minnesota needs jobs, but it doesn't need these jobs: please don't make them go through this again. The behavior of other mining companies causes me to doubt that Polymet will really take care of these people and clean up their mess. Please don't trust them to do the right thing - as our state government, it is your job to distrust those that might take advantage of us and our resources. It is rare that a government acts that way, but I believe Minnesota has the potential to break the pattern. Thank you, Sarah Betzler

Alphabetical by sender's first name

Sarah Blum 19082

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Sarah Blum Sarah Blum 4017 14th Avenue S. #10E Minneapolis, MN 55407

Sarah Butler 40830

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Sarah Butler 19 South St Apt 3 Brighton, MA 02135-5168 (617) 733-9463

Alphabetical by sender's first name

Sarah E. Reed 43571

Dear MN Department of Natural Resources, I've spent the last several months reading through the Northmet environmental impact statement (EIS) and relevant literature and thinking as critically as I can about whether the project is a good idea for Minnesota. While I understand the arguments on both sides, I've finally come to a conclusion that I stand behind 100%: Moving forward with the PolyMet project (and copper mining in Minnesota in general), would be a terribly misguided and devastating mistake, both environmentally and economically. There are many weaknesses in the scientific and economic analyses for the PolyMet EIS (including inadequate statistical and spatial analyses, failure to address model limitations, poor literature review and vague economic projections). While I did not have the time to write up a thorough assessment of the deficiencies, I introduce a few of them below. I grew up on the Iron Range, about 30 miles away from the proposed PolyMet site. Taconite mining is a core part of my identity. My father and grandfather both spent decades of their lives working for Minntac and Reserve Mining Co., respectively. I completely support safe and manageable modes of mining. Taconite mining put food on the table every day of my childhood and a summer job at Minntac helped me pay for college. I'm very grateful for the opportunities that mining made possible for me, and I want similar opportunities to be available to my niece and nephew and future generations. But sulfide mining, in my estimation, is drastically different from and much more dangerous than taconite mining. I think a 2008 US Fish and Wildlife-commissioned study of mining operations with acid-forming minerals best sums up why moving forward with the PolyMet project would be a foolish and short-sighted decision. http://www.pebblescience-org/pdfs/Final_Lit_Review_AMD.pdf They studied the environmental impact statements and outcomes of hundreds of sulfide mining operations and found the following: "Based on review of the acid mine drainage literature it is clear that severe world-wide ecological consequences, especially for aquatic resources, have resulted from mining ore deposits with acid-forming minerals. Accurate prediction of the onset and aggressiveness of low-quality acidic water discharge is perilously difficult using the best available science. [Emphasis mine] Multiple complex geochemical, biological and hydrologic factors create a daunting task for mining engineers to profitably recover mineral resources while preventing discharges of metals and acidity to surface and ground water." I know there are many economic challenges in northern Minnesota and I don't have the perfect answer but I think there are other options that can bring numerous, skilled jobs to the Iron Range for the long term and won't threaten to turn the state's freshwater ecosystems into Superfund sites. Instead of mining, one possibility is mineral reuse and recycling. The current percentage of copper supplied by recycled materials is approximately 30%. That percentage is expected to double in the next several decades. In other words, most of the world's copper supply will soon be derived from copper recycling. Why not be forward-thinking and build copper (and other precious metal) recycling facilities in northern Minnesota. These could supply quality jobs for an indefinite amount of time with a drastically reduced level of environmental risk. I implore you to reject the PolyMet EIS. PolyMet has simply failed to establish that its project can adequately mitigate the extensive and well-known risks associated with the mining of ore deposits with acid-forming minerals. Please do not risk adding northern Minnesota to the long list of acid mine drainage disasters. Kind regards, Sarah Reed, Phd University of California – Berkeley Environmental Scientist with specialties in soil science and spatial analysis

Alphabetical by sender's first name

Sarah Hayes 9660

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sarah Hayes 1055 Agate Street St Paul, MN 55117

18530

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sarah Hayes 1055 Agate Street St Paul, MN 55117

Alphabetical by sender's first name

Sarah Hayes 50606

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sarah Hayes 1055 Agate Street St Paul, MN 55117

Sarah Heggestuen 9559

Reluctantly, I say no to the nickel copper mine. It threatens the wild rice, the water supply for 60,000 people. The jobs today are not worth the risk tomorrow. Residents, taxpayers, and our beautiful environment will suffer if there is contamination. As we saw in the aftermath of the recent spill in Virginia, the company can quickly declare bankruptcy and the cost of cleanup - if cleanup is even possible - will be left to taxpayers. It is not worth the risk. Vote no, please. Sarah Heggestuen

Sarah K Poznanovic 54687

See attachment

Sarah Kutzke 43840

Good afternoon, Let's not add any mining operations in Minnesota. Minnesota is such a beautiful place. Ruining Minnesota's natural beauty and resources would be a huge mistake. Keep Minnesota beautiful and clean, please. Thank you, Sarah Kutzke, born and raised in MN

Alphabetical by sender's first name

Sarah Malick 38456

Dear Lisa Fay, I am strongly opposed to the copper, nickel, paladium, and gold mines propsed by Twin Metals and Polymet that would be located south and west of Ely, Minnesota. The Boundary Waters Canoe Area Wilderness is America's most visited wilderness area and one of the oldest designated wilderness areas in the nation. Despite what proponents of the copper-nickel mines say, creating new mines within 50 miles of Ely would be extremely detrimental to our local economy. The mines will not only be an eyesore, they will also increase rail and truck traffic, which would negatively affect tourism in the area. The noise from drilling and moving material destroys the wilderness experience on the southern end of the Wilderness area near Spruce Road and Birch Lake. Most importantly, there is no evidence that our most precious resource, the interconnected system of pristine waterways, will adequately be protected. Acid mine drainage in our waters is unacceptable. Sulfide-bearing rock brought to the surface will turn into sulfuric acid and leach into our waterways, resulting in irreparable damage to our biotic community. DO NOT ALLOW ANY HARD ROCK MINING WITHIN 50 MILES OF ELY MINNESOTA.. Thank you, Sarah Malick 56 W. Shagawa Road Ely, Minnesota 715-410-2941 http://graphics.hotmail-com/greypixel.gif "Seek first to understand, and then to be understood" -Steven Covey

Sarah Martin 28015

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Sarah Martin 6141 Corntassel Ln Roanoke, VA 24018-5623 (540) 774-6176

Alphabetical by sender's first name

Sarah Moore 16273

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Sarah Musgrave 44687

The wetlands that will be removed are not replaced in the same watershed and the whole issue is not addressed and seem of little concern to everyone. The wetlands serve as a way of cleaning the water directly flowing into Lake Superior. Removing the wetlands will cause increased pollution into another great natural resource. Also the vast amount of water needed to mine will cause damage to the ecosystem. Because of climate change it is creating draught or flooding conditions. The chance of pollution flowing to the surrounding area because of extreme weather is likely to occur. At other times it could cause water shortages. Sarah Musgrave 7717 Chicago Ave #108 Richfield, MN 55423 612-327-2842

Sarah Nelson 39178

Dear DNR, I'm writing to express how truly worried I am about the proposed PolyMet mine. I sincerely hope that you will reject this project outright. Minnesota is a beautiful place. And our abundant fresh water is a big part of what makes this place special. Not everyone is so lucky. But we shouldn't let our abundance make us stupid. We must take good care of our resources - and this mine project looks just disastrous for our fresh water. 500 years or more of pollutants leaching into the ground water and our waterways. This is a no-brainer. Reject PolyMet's permit application. Minnesota doesn't want their business. Perhaps we need to invest some resources into retraining underemployed residents of northern Minnesota. That would be far more cost effective than selling off our beautiful northland resources to a corporation that might not even exist in 20 years. Please, please say no to this mine. Sincerely, Sarah Nelson Roseville, MN

Alphabetical by sender's first name

Sarah Nelson 39623

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Please reject the proposed PolyMet mine project. By now you've heard all the environmental risks - both imminent and long term. Really, it's a no-brainer. A terrible trade off. A handful of jobs, for a host of certain damages to our fresh water. In 10 or 20 years, the company will have made their profits and be gone. Minnesota will be left with all the costs. It would be craziness to do anything but reject this project in every way. I am not unsympathetic to those who are in need of good jobs in Northern MN, but let's invest in retraining folks who need jobs, rather than sell-out the environment. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Sarah Nelson 2835 Pascal St Apt 24g Roseville, MN 55113-7103

39632

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Sarah Nelson 48823

Mar 10, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Please reject the proposed PolyMet mine project. By now you've heard all the environmental risks - both imminent and long term. Really, it's a no-brainer. A terrible trade off. A handful of jobs, for a host of certain damages to our fresh water. In 10 or 20 years, the company will have made their profits and be gone. Minnesota will be left with all the costs. It would be craziness to do anything but reject this project in every way. I am not unsympathetic to those who are in need of good jobs in Northern MN, but let's invest in retraining folks who need jobs, rather than sell-out the environment. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Sarah Nelson 2835 Pascal St Apt 24g Roseville, MN 55113-7103

sarah nevins 43474

Dear Ms Fay, I respectfully ask that you deny Polymet/NorthMet a permit to mine in the state of Minnesota. I also ask that you deny the Section 404 permit allowing for destruction of wetlands. This activity would (if allowed) destroy the vital and vibrant tourism economy in northern Minnesota. It would jeopardize the Boundary Waters Canoe Area Wilderness - not only environmentally, but it would impact every activity tourists partake in; from sightseeing and wildlife viewing to hunting, trapping and fishing. Part of the plan is to "monitor and treat polluted water for 500 years" . This is simply not feasible. A project that openly plans to pollute fresh water for that long should never be allowed. Fresh water is the necessary for life as we know it and is becoming more and more scarce. We must protect our resources for future generations, not sell them to the company who spends the moSt I am a resident of the town of Bayfield on the Bayfield Penninsula in northern Wisconsin. I look out my window as I type and there is Lake Superior, all frozen. There is the ice road out to Madeline Island, and The Apostle Islands National Lakeshore, all around me. This proposed project would affect all of the Lake Superior Basin, sulfuric acid in the lake will not stay in one place as you certainly know. In Wisconsin we know firsthand the destruction sulfide mining causes. We share Lake Superior, not only with each other, but with all future generations as well. I want my grandchildren to be able to swim at the beaches of this beautiful National Lakeshore. I want the tourists to be able to come and visit the ice caves and the sea caves. And I want to be able to travel to the BWCA, as I will be doing this summer to spend 10 days canoeing and portaging through the most beautiful wilderness I have ever experienced. Please keep our economies and our environment healthy. Please deny PolyMet/NorthMet a permit to mine in the state of Minnesota, reject the exchange of Superior National Forest land that would allow the project to move forward, and deny the Section 404 permit. Respectfully, Sarah Nevins 231 North 1st Street Bayfield Wisconsin 54814

Alphabetical by sender's first name

Sarah Nurnberger 16270

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

41965

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Sarah Nurnberger 5516 Lyndale Ave S Minneapolis, MN 55419-1720

Sarah Oppelt 36615

Sarah Oppelt 14760 Easter Avenue Apple Valley, MN 55124 I do not support the approval of the PolyMet mine in Northern Minnesota because of concerns over the environmental impacts over the short and long term. The mine will provide relatively few jobs for a relatively short amount of time with very likely significant environmental impacts. If the mine is approved, please do ensure that there are significant financial assurances in the permitting process. It is important to me as a Minnesotan that there is enough money to deal with contamination problems when they do arise to minimize the impacts on our precious waterways and land. Thank you, Sarah Oppelt - "Be tough, yet gentle. Humble, yet bold. Swayed always by beauty and truth." -Bob Pieh

Alphabetical by sender's first name

Sarah Petzel 41785

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Sarah Pradt 46086

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Let's learn from the mistakes of the past, not repeat them. My family has been in Minnesota for generations, and I feel so lucky to be connected to a place of such beauty, with great societal values that include caring for both the environment and for people. Please reject the PolyMet NorthMet SDEIS as inadequate. Please reject the PolyMet open-pit sulfide mine and wastes proposal because it poses unacceptable risks to human health. If you are not ready to reject the PolyMet project at this time, at least require a re-do of the SDEIS to address major gaps and flaws in the analysis of impacts on human health: How much mercury would be released directly or indirectly into surface waters from all PolyMet sources. Please re-do the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. Please re-do the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. Please re-do the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury in fish. 5-Assessment of cumulative cancer and non-cancer risks from existing and additional sources of toxic chemicals, such as manganese, arsenic, lead and nickel, applying the most protective health risk analysis. 6-Assessment of all risks using a 70-year "lifetime" for exposures. 7-Assessment of cumulative risks of multiple chemicals and exposure routes (drinking water, fish, wild rice) on infants, children and the elderly. 8-Assessment of cumulative risk of toxic chemicals (mercury, arsenic) in fish, game, and wild rice on persons who rely on fishing, hunting and gathering for subsistence. 9-Assessment of cumulative risk of methylmercury contamination of fish in the St Louis River and estuary for Lake Superior. •Complete the mercury TMDL study of the St Louis River before finalizing the PolyMet SDEIS or issuing any permits for the PolyMet sulfide mine project. The PolyMet SDEIS is an inadequate assessment of human health impacts and the PolyMet sulfide mine and mine wastes proposal poses an unacceptable risk to the health of fetuses, infants, children and adults in Minnesota. Please reject both the PolyMet SDEIS and the PolyMet mine. Very truly yours, Sarah Pradt Sarah Pradt 1282 Stanford Ave Saint Paul, MN 55105

Sarah Schaefer 54560

Polymet's proposal will leave cleanup for 500 years at its lowest proposed timeframe. This is likely a bill that will be paid by Minnesotan tax-payers. Despite claims that this project will create jobs and revenue, only 100 jobs in 20 years of its existence will be for in-state workers and only approximately 1% of revenue will stay in-state. Say NO to the Polymet proposal to mine NE Minnesota.

Sarah Sederstrom 39551

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Sarah Sederstrom 8700 Jeffrey Ave N Stillwater, MN 55082-9251 (651) 407-6220

Sarah Shankle 43065

Hello, I am a resident of Minneapolis and I am very concerned about the proposed PolyMet copper nickel mine in Northern Minnesota. I have been following the news about this issue and I feel that it will have serious impacts to the health of the land and people of Minnesota. The negative impacts of this projects will be felt for generations. I urge you to stop the proposed mine. Sincerely, Sarah Shankle

Alphabetical by sender's first name

Sarah Sigford 54648

See attachment

Sarah Stevens 14842

Feb 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

sarah stonich 45929

There's .5 ounce of copper in your cell phone - if every time we bought a cell phone we included 5 pennies for the manufacturer in our payment - that would cover it. A computer, perhaps 30 pennies, A tablet, maybe 20- Batteries, I'm not sure. So, how about we eliminate the penny as currency and collect the pre 1983 all-copper pennies for manufacturers needing copper. Too simple. Not really. Sarah Stonich 1831 Benjamin Street NE Minneapolis, MN 55418 - For more visit HYPERLINK "http://sarahstonich-com"sarahstonich-com Of the writing in Vacationland, The Minneapolis Star Tribune says, "Storytelling gifts reminiscent of our most holy mother of the frozen north, Alice Munro. Like Munro, Stonich delivers beautiful storytelling without ever resorting to sentimentality."

Alphabetical by sender's first name

sarah wilson 41398

Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was “inadequate” and the sulfide mine project would be “environmentally unsatisfactory.” The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn’t analyze the effect of pollution on workers’ health or on nearby drinking water wells. It doesn’t explore alternatives that could reduce PolyMet’s destruction of wetlands. It doesn’t examine the effect that PolyMet’s sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely sarah wilson 3442 10th avenue south Minneapolis, MN 55407 6128252160

Sarah Wolbert 42491

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Sarah Wolbert 3237 Chicago Ave Minneapolis, MN 55407-2104

sbarkema 7201

We are sending this email to inform you of our strong opposition to the Polymet project being allowed to proceed. To even think about letting this project continue is hard for us to understand. The people behind this6 push have only one thing on their mind. $$$$$$$ They will do anything and promise anything to get this started. The damage it WILL cause and the pollution it will create now and for hundreds of years are what we and our next generations will have to live with long after the $$$$ has disappeared. The HUGE potential for additional damage and problems that can happen once this project gets the go ahead is in no way feasible for the few temporary jobs they SAY will be made. Minnesota should NOT be made a testing ground for this form of mining when they have such a BAD track record and our environment laws are not being enforced. This is just setting us up for a MAJOR MISTAKE We could go on listing many other objections but the bottom line is if we had to vote on this, they would NOT get the go ahead. They cannot be trusted to do what they promise and people with vision and common sense will not allow this to continue. We need leaders to vote for what is the right decision for Minnesotans and protect us and our country from plunder NOW. After our environment is trashed, it will be too late to do the right thing. This is just the tip of the iceberg that will come if we don't stop it. Byron and Sherry Barkema 2742 Hwy 3 Two Harbors, MN 55616

Scarlet Freese 54789

See attachment

Scarlett Antcliff 42576

See attachment

Schmidt Michael 17371

Hello, The more I read about the proposed copper sulfate mine in NE MN the more I am against this. This time of mining appears to be a boom-bust proposition with so much potential for immediate and ongoing pollution and industrial damage to the environment of this beautiful natural and tourist area. Even with a very large bond posting by the company or industry I do think support this type of a destructive industry in Minnesota. Sincerely, Michael Schmidt 428 Bruns Court St Paul, MN 55127

Alphabetical by sender's first name

Scot Dauner 57256

Please don't allow the Polymet mine upon in northern MN. I've tried to get as I can on this topic and nothing adds up. There is no track record of a pollution free solution for the type of mine and it is right next door to the BWCA. I don't believe one but that anyone is going to sign up to clean water for 200 to 500 years. Especially when they pull up stakes after 20-40 years. Polymet wants all the reward, but who do you think is taking on all the risk?Scot Dauner10000 Nord RdBloomington, MN 55437

scott anderson 9473

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: I do not understand why 300 jobs for 20 years is more important than clean water. This mine will play out in 30 years. while the water has another 480 years before it might be non-toxic. this 480 years who will pay for the containment of the toxic water. Tax payers. The containment plan of this toxic water, does it take into account large rains, like in june of 2013, the 100 year rain. What if polymet goes bankrupt to get out of their commitments. then the tax payers will be held accountable. Remember the United States is only 238 years old. 500 years is along time to contain toxic water. This is the largest fresh water basin in the world.Water flows north, and south. How much of a tourist area is Butte Montana. Waste Land, with way less water to be messed up.how is their containment doing, how much is that costing. Have you ever read the LORAX. I think you should. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, scott anderson 125 4th ave two harbors, MN 55616

Alphabetical by sender's first name

scott anderson 18424

Dear Ms Fay, Mr Bruner and Mr Dabney: I do not understand why 300 jobs for 20 years is more important than clean water. This mine will play out in 30 years. while the water has another 480 years before it might be non-toxic. this 480 years who will pay for the containment of the toxic water. Tax payers. The containment plan of this toxic water, does it take into account large rains, like in june of 2013, the 100 year rain. What if polymet goes bankrupt to get out of their commitments. then the tax payers will be held accountable. Remember the United States is only 238 years old. 500 years is along time to contain toxic water. This is the largest fresh water basin in the world.Water flows north, and south. How much of a tourist area is Butte Montana. Waste Land, with way less water to be messed up.how is their containment doing, how much is that costing. Have you ever read the LORAX. I think you should. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, scott anderson 125 4th ave two harbors, MN 55616

38753

Count me as strongly opposed to a copper-nickel mine in northeast Minnesota. Scott Anderson 9990 Julep Trail N. Scandia, MN 55073

Alphabetical by sender's first name

scott anderson 50544

Dear Ms Fay, Mr Bruner and Mr Dabney: I do not understand why 300 jobs for 20 years is more important than clean water. This mine will play out in 30 years. while the water has another 480 years before it might be non-toxic. this 480 years who will pay for the containment of the toxic water. Tax payers. The containment plan of this toxic water, does it take into account large rains, like in june of 2013, the 100 year rain. What if polymet goes bankrupt to get out of their commitments. then the tax payers will be held accountable. Remember the United States is only 238 years old. 500 years is along time to contain toxic water. This is the largest fresh water basin in the world.Water flows north, and south. How much of a tourist area is Butte Montana. Waste Land, with way less water to be messed up.how is their containment doing, how much is that costing. Have you ever read the LORAX. I think you should. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, scott anderson 125 4th ave two harbors, MN 55616

Alphabetical by sender's first name

Scott Bennett 44180

Scott Bennett 2065 Oak Glen Trail Stillwater, MN 55082 March 13, 2014 TO: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us . As an avid outdoorsman and a financial contributor to the Minnesota DNR and who spends a lot of time fishing, hunting and camping along the north shore region of Lake Superior I am very concerned about the possible impact on the BWCA posed by acid mine drainage from PolyMet's NorthMet project. PolyMet's web site claims that water that will be discharged from its project site would never enter the Boundary Water Canoe Area Wilderness lakes or streaMs In reality, however, hydraulic conductivity testing is needed to determine the actual effect of acid mine drainage into the waterways on the edge of the Boundary Waters. The proposed PolyMet mine site borders and is uphill from One Hundred Mile Swamp, which drains (in part to Langley Creek, which is a tributary to Rainy Lake in the BWCA watershed. Without hydraulic conducitivty testing and measurements, PolyMet has no way to show that water entering One Hundred Mile Swamp will not then flow into Rainy Lake in the BWCA watershed. It is also a concern that the authors of the SDEIS have used incorrect maps which contradict the US National Atlas watershed map, with the goal of suggesting that mine waste water will not seep into the BWCA watershed. Significantly, the SDEIS claims that there is no delineated boundary for One Hundred Mile Swamp—while in reality, the boundaries of One Hundred Mile Swamp have been delineated, and are accessible at HYPERLINK "http://www.nationalatlas-gov/streamer"www.nationalatlas-gov/streamer. Having first misrepresented the mere existence of One Hundred Mile Swamp's boundaries, the SDEIS maps then omit the section of One Hundred Mile Swamp that drains into the BWCA watershed: whereas the National Atlas shows a 10-mile-long wetland that drains to both the St Louis River and BWCA watersheds, the most recent SDEIS maps depict the One Hundred Mile Swamp as only six miles long, and as existing only on the St Louis River side of the divide. PolyMet's re-drawn and inaccurate maps would mislead a reader to believe that its proposed project would have no impact on the Boundary Waters. Finally, there has been no baseline water testing in the Dunka River, Langley Creek, or anywhere else in the Rainy Lake watershed. Without such testing in the Rainy Lake watershed, there is no way to gauge the possible harm to the BWCA and Quetico from PolyMet mine drainage. For all these reasons, PolyMet must be required to correct its SDEIS to include accurate watershed mapping, with hydraulic conductivity testing in One Hundred Mile Swamp, with water quality testing for the BWCA watershed, and with a data-based statement of the impact of the proposed mine on BWCA water quality. I know that the Boundary Waters are a unique and fragile ecosystem which needs our protection. It should concern everyone who is responsible for protecting our resources-which PolyMet has affirmatively misrepresented and omitted crucial facts in relation to its project proposal. I urge you to view the SDEIS critically, and to require PolyMet to provide correct and appropriate data so that the impacts of its proposed project can be accurately assessed. Sincerely, Scott Bennett-Minnesotan

Scott Bol 18134

So I'm Scott's Bol, and I guess I want to wish peace on earth, good will to all here. I was going to bring that as one of my signs but I forgot it so I guess I'll just pass it on verbally. I want to speak today about concern about jobs and environment. I very much realize that a lot of folks are desperate for work. I'm very disappointed that we didn't create jobs when our market fell back in 2007/2008. And so many people are hurting for jobs. I know I volunteer as a citizen patroller and I'm very concerned and in our neighborhoods that people are desperate. They're going to be doing desperate things if we don't have jobs, and I think the risks, now, for this sulfide mining is just too great; that -- that the tremendous storms that we have these days, with what happened in the Philippines with world-record typhoons, and the tremendous flooding that we've had in Duluth, it's actually true that with global warming we're having tremendous weather changes and the storms are coming. So we have 500-year storms, we have 100-year storms every few years. So when we have seepage from the holding pits, they could flood and that could be a tremendous problem. Now, I think about the economic concerns in West Virginia and what happened in West Virginia that Freedom Industries went bankrupt. They found that these unanticipated costs of all that spillage was tremendous. That would be unfortunate. I would want us to make sure we have all of our stockholders and all of our investors in PolyMet to make sure that they are going to be accountable and not for five years, but for decades, and we start looking at a tremendous amount of years. So it's a huge insurance cost. We know tragedies happen. They happened at Chernobyl in the Soviet union, they happened at Fukushima in Japan. So tragedies happen, you know. We -- people came here saying they trust the agencies. Things go wrong. They trusted the agencies in West Virginia, and the Freedom Industries found the freedom to declare bankruptcy. So let's be careful here. We value our environment. I value jobs. I want us to stand together, strong. I had a union brother come up and thank me just recently for joining him in standing up at Black Friday. We were giving out pizzas in Duluth to the Walmart workers. So, I'm very concerned about labor. I want jobs. We need to stand together for jobs, but not this one.

Alphabetical by sender's first name

Scott Coryell 10788

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Scott Coryell 3168 SW Rockbridge Dr Lees Summit, MO 64081-3868

10799

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Scott Coryell 3168 SW Rockbridge Dr Lees Summit, MO 64081-3868

11427

Feb 7, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Scott Coryell 3168 SW Rockbridge Dr Lees Summit, MO 64081-3868

Alphabetical by sender's first name

Scott Cramer 19869

Scott Cramer 3148 29th Avenus South MPLS, MN 55406 I have listened to the voices of my fellow Minnesotans about copper mining, and am struck by what I have heaRd Everyone says they are concerned about preserving our beautiful land, our precious water and our children's future. And yet, a troubling fact remains. Mining is a highly disruptive activity that will cause hundreds of years of monitoring and clean up after all the ore is gone. Otherwise, we face wide scale water pollution. This time frame should give us pause. When we think of our ancestors, we rarely remember little beyond our own grandparents. From their time to now, human population on the planet has more than doubled . We utilize every conceivable material, and manipulate every possible resource into what we want. And whether we most value our cell phones, I pads, wind turbines and solar panels or our snowmobiles, aluminum boats, pickup trucks and rifles, what we have in common is our need for more metal. But if we are true stewards of the earth, we should be most concerned about our legacy. What will we leave for the future generations. Will America fall apart if we leave this copper in the ground. Might it be possible that 100 years from now a safer, cleaner, cost efficient method of mineral extraction will have been found . Don't we believe that leaving waste dumps and mine pits leaking toxic chemicals is no gift but rather a poison pen letter to our future offspring. The irony that our success as a species may contain the very seeds of our own destruction is not lost on me. If we truly love our children, our land and our planet, we must find a better way to care for them,and we must start now. We are the caregivers and caretakers for what will come after us. Lets start acting like it, and not permit this mining . .

Scott Daby 38886

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. The potential long-term negative environmental impacts far outweigh the potential short-term economic gains. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Scott Daby 3509 Roosevelt St NE St Anthony, MN 55418-1556

scott duffy 4175

Dec 22, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Five hundred years is the amount of time Polymet corp. says will be needed to treat the groundwater pollution at the metallurgical site. Think about that number for a moment. 471 years ago, Copernicus published his heliocentric theory of the solar system which proposed that the sun is the actual center of the universe. 496 Years ago, Leonardo da vinci had just completed what would prove to be one of the most famous pieces of artwork in history; The Mona Lisa. 511 years ago, Christopher Columbus had just finished the last of his exploratory voyages to the Americas. 500 years ago, the United states would not exist for another 263 years. The DNR/EPA is asking the public to read, digest, and comment on a 2300 page Environmental Impact Statement in 90 days. What is the rush. Give the public the time it needs to fully look over the report. This is a decision that will not only affect us, it will affect future generations for hundreds of years to come. I urge you to extend the comment period. Sincerely, Scott Duffy The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Scott Duffy 2336 Golfview Dr White Bear Lake, MN 55110-5505

Alphabetical by sender's first name

scott duffy 44396

To whom it may concern, I have done my best in the time allotted to read over the EIS report for the northmet project, and I have some serious concerns regarding the proposal. I have highlighted a few of the glaring issues below: -On page ES-53 the EIS states: " Air quality of the BWCA will not be adversely affected". The EIS makes no mention of the air quality of the immediate area surrounding the project site. How will this project affect the air quality of the surrounding area. -The Moose, was recently added to the states "species of special concern" list, and if population trends continue, will be placed on the state's endangered list in the near future. The EIS makes no mention of the effects on Moose and moose habitat that this project will hAve How much moose habitat will be destroyed with this project. What is the Moose population in the area. -In 2002, Duluth Minnesota, a mere 100 miles from the proposed mine site, had a "500 year" flood which devastated the surrounding landscape. The Babbit area also received over 10 inches of rain during this same storm. The EIS makes no mention of what contingencies are in place to protect the mine site if this type of event should happen. How can you even begin to make these types of calculations with any level of confidence. -What happens in the event of a "worst case scenario". The EIS paints a very sanitized vision for the mining process. In reality, there will be pollution. How much pollution is the question. What happens if it is discovered that the mine site is leeching sulphur and other pollutants into the groundwater. Who is going to pay for the cleanup costs. What will happen to the surrounding wildlife. What will happen to the largest (and cleanest) freshwater lake in the world. What happens if these events occur after the mine is closed. How can a company possibly give financial assurances for 200-500+ years in the future. Do we really want a superfund in this state. What will happen to the DNR's reputation with the public if this project is allowed to move forward and then there is some type ecological disaster. How could the public ever trust the DNR again. We are at an important crossroad. This is probably the most important issue that the DNR has faced in many decades, if not ever. Whatever decisions are made with this project will set a precedent for years to come. The floodgates will be opened for all of the other mining projects who are sitting on the sidelines waiting to see how the Polymet proposal plays out. There will be no turning back. Sincerely, Scott Duffy 961 County Road D Vadnais Heights, MN 55109

51611

Dec 22, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Five hundred years is the amount of time Polymet corp. says will be needed to treat the groundwater pollution at the metallurgical site. Think about that number for a moment. 471 years ago, Copernicus published his heliocentric theory of the solar system which proposed that the sun is the actual center of the universe. 496 Years ago, Leonardo da vinci had just completed what would prove to be one of the most famous pieces of artwork in history; The Mona Lisa. 511 years ago, Christopher Columbus had just finished the last of his exploratory voyages to the Americas. 500 years ago, the United states would not exist for another 263 years. The DNR/EPA is asking the public to read, digest, and comment on a 2300 page Environmental Impact Statement in 90 days. What is the rush. Give the public the time it needs to fully look over the report. This is a decision that will not only affect us, it will affect future generations for hundreds of years to come. I urge you to extend the comment period. Sincerely, Scott Duffy The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Scott Duffy 2336 Golfview Dr White Bear Lake, MN 55110-5505

Alphabetical by sender's first name

Scott Dulas 9659

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Scott Dulas 5311 Greenwood Rd Duluth, MN 55804

18528

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Scott Dulas 5311 Greenwood Rd Duluth, MN 55804

Alphabetical by sender's first name

Scott Dulas 50604

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Scott Dulas 5311 Greenwood Rd Duluth, MN 55804

Scott Francis 44585

As a young person living in the state of Minnesota it is obvious that job creation should be forefront on our minds. The PolyMet Copper Nickel mine, is not the way to create these jobs and boost our economy. The amount of short term benefits are vastly outweighed by the massive implications that the mine could have in the future. The clean up of the mine is in the neighborhood of 500 years. That is completely unacceptable. Even though the PolyMet corporation claims responsibility for the clean up, how can we as minnesotans make sure that a brand new mining corporation will last 500 years into the future to continue the clean up process. The mine also is poised too close to the spectacularly preserved boundary waters area. Ruining that area through exploitation of the natural resources shows a lack of forethought and planning for the future. As the future of the state of minnesota, I do not want the burden of cleaning up the mistakes of the paSt Sincerly, Carter Francis Senior at Prior Lake High School

Alphabetical by sender's first name

scott haskins 47004

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Glencore should be a responsible party for financial assurance in PolyMet's mine plan To [Decision Maker], The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1) Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2) Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3) Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Sincerely, Mr scott haskins 23530 Yellowstone Trl Excelsior, MN 55331-2961

Scott Helgeson 18159

My name is Scott Helgeson, H-E-L-G-E-S-O-N, from Bloomington, Minnesota. I have an MBA and I've worked for a number of companies, including some large industrial companies. I understand what “present value" is. I understand what "future value" is. I understand financial modeling. I understand that what we have here is a 500-year commitment, which is absolutely insane. I just came back from Salt Lake City. You cannot breath the air there. The air is so polluted in Salt Lake City that I want to tell you, you can't walk around outside and jog or do anything. And people are concerned about their health. Now that's air quality. Just up the road in Salt Lake City is a big mine, copper mine. The people who live next to that copper mine are relying on reverse osmosis for their town water. They cannot drink it. The EPA says it's just fine. I am damn glad I don't live in West Virginia. What is going to prevent this company from going belly up in 30 years from now, declaring bankruptcy, and saying, "Gee we can't pay the bills anymore." What is going to prevent that? What assurances are we going to have that this is going to be a long-term financial commitment to take care of our water and our natural resources for 500 years. Are we insane? I mean what investment does anybody do for 500 years these days? Nobody does. And yet we're being sold this bill of goods that somehow for 500 years they're going to watch over this polluted water and make sure it doesn't seep into our natural environment up there and pollute what we have, which a lot of people their job depends on it. I own some land and a cabin up by Lutsen on the North Shore. I have three daughters. And I'm concerned about this narrow, short-term view of ours that can possibly rationalize this insanity. Thank you very much.

Alphabetical by sender's first name

Scott Hochhalter 40911

Hello, I have been reading about the proposed copper sulfide mining project up by the Boundary Waters, a beautiful natural resource so unique to my beloved Minnesota. I have been on many transformative experiences on my journeys in the BWCA. It truly rivals my trips to Machu Picchu in Peru, the Taj Mahal in India and Cappadoccia in Turkey. I hate to think that something could even remotely threaten the natural beauty we posses locally. This mining operation has serious environmental consequences. And in my opinion, not enough jobs created to validate the destruction of the land, water, and habitat. PolyMet itself has said it could take up to 500 years to clean up the toxic mess this kind of mining creates. I am absolutely sick of the environment losing out to big corporations. I am doubly concerned that this issue hits so close to home. Please protect the Boundary Waters. Scott Hochhalter MInneapolis, MN - “The world needs more people who specialize in the impossible.” -Theodore Roethke

Scott Kylander-Johnson 43830

Dear Ms Fay, To Whom It May Concern, Who do we look to to keep our air and water clean. Is anyone looking out for the human species or any other species on planet Earth. How can the DNR possibly think the PolyMet project is a good deal. Corporations have long ago figured out how to influence every government official/representative/agency with copious amounts of money and this influence leads to made up "facts" about whatever "project" they're working on. The PolyMet project is no different. There has never been a mine that hasn't polluted the Earth. Science cannot clean up the mess once it is made - and it certainly will be a gigantic mess. As a life-long Duluthian I am already loaded up with heavy metals according to results from my blood work. How will PolyMet make the Duluth area any better. I don't care about a few jobs and a majority of money that will head to other countries thanks to a few minerals extracted from this area. It is time for the government to begin looking out for the people and all life on the planet. A great first step would be to reject the Polymet land exchange. Respectfully, Scott Kylander-Johnson Scott Kylander-Johnson 4110 99th Ave West Duluth, MN 55810

43831

To Whom It May Concern, Who do we look to to keep our air and water clean. Is anyone looking out for the human species or any other species on planet Earth. How can the DNR possibly think the PolyMet project is a good deal. Corporations have long ago figured out how to influence every government official/representative/agency with copious amounts of money and this influence leads to made up "facts" about whatever "project" they're working on. The PolyMet project is no different. There has never been a mine that hasn't polluted the Earth. Science cannot clean up the mess once it is made - and it certainly will be a gigantic mess. As a life-long Duluthian I am already loaded up with heavy metals according to results from my blood work. How will PolyMet make the Duluth area any better. I don't care about a few jobs and a majority of money that will head to other countries thanks to a few minerals extracted from this area. It is time for the government to begin looking out for the people and all life on the planet. A great first step would be to reject the Polymet land exchange. Respectfully, Scott Kylander-Johnson Scott Kylander-Johnson 4110 99th Ave West Duluth, MN 55810

Scott Lombardo 35764

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Why should any sane person think that NorthMet can be any different. What bond and in what reasonable amount can be required to compensate this and future generations of Citizens for the problems that NorthMet is likely to create for our planet. What justifies this project anywhere on the planet. What say will Citizens be given, one-man-one-vote basis, so that the decision is not left to potentially money-corrupted politicians and the corporations that corrupt them and our governance. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Scott Lombardo 4022 N Hamlin Ave Chicago, IL 60618-2106 (773) 908-0251

Alphabetical by sender's first name

Scott Long 45548

We had a cabin mid Gunflint Trail until last summer and we have visited this area and gone canoeing and camping in the BWCA for many years. We are very concerned about this Polymet Project and the danger it poses to the environment because of its proximity to this pristine wild area. We understand that this would bring many jobs to northern MN to people who really do need those jobs but we feel it cannot be at the expense of possibly long term harm to the waters of the BWCA and its environment plus to nearby areas as well as pollution travelling the rivers to other areas. Polymet really does not have a track record we can look at to see how well they do on environmental protection and a major investor is a European company with a less than stellar record for environmental protection among other things. We are not convinced they can be trusted to know what they are doing and do as they promise. The time needed for Polymet to treat this water is just too long to really count on anything. We just cannot believe with enough certainty that Polymet will not find a way out of this expense as soon as it is done mining the area. It is a business and the bottom line and keeping investors happy is the most important thing to them. Also who knows what the world will be like in 500 years or what other unforeseen factors will enter the picture in hundreds of years. It seems that testing and long term projections concerning the toxic byproducts of this mining are not adequate and do not take into consideration every possible reach and scope of this pollution. From what we have read, it seems the studies may be unrealistically optimistic. In addition to or as a result of the ground and water pollution, the mine would destroy many acres of ecosystems for many wildlife species that are very special to Minnesota as well as destruction of wetlands and important vegetation. These are the things we and the many tourists who come here come to see. We love this area and do not want to see anything implemented that could pollute the clean water that is so special to the area or make it harder for our special animals like the Lynx, Moose and Wolves to survive. We also do not want to see the Superior National Forest cut up by a mine. Getting isolated pieces of land in exchange is nearly worthless to the experience of the visitor who goes to the Superior National Forest to camp and hike and fish and see wildlife and just experience peace and quiet. If these things that are so appealing to so many are impacted negatively the gain in employment from mining may be offset by the decline of tourism to the area and all of the money and jobs that brings. Another point is, if Polymet ceases to exist or just gets out of cleanup once it is done mining, then it is up to the state and the taxpayers of the state to continue with the cleanup and that would have a negative impact on all of us who live in Minnesota. We urge you to reject Polymet’s current plan for mining in Minnesota. Thank you, Scott and Sue Long 1240 79 ½ Street Victoria, MN 55386 HYPERLINK "mailto:suelong@entplace-com"suelong@entplace-com

Scott Mead 42650

See attachment

43047

Lisa Fay, EIS Project ManagerMDNR Division of Ecological and Water ResourcesEnvironmental Review Unit500 Lafayette RdSt. Paul, MN 55155Douglas BrunerRegulatory Branch, St. Paul DistrictU.S. Army Corps of Engineers180 Fifth St. E., Suite 700St. Paul, MN 55101Tim Dabney, Deputy Forest SupervisorSuperior National Forest8901 Grand Ave. PlaceDuluth, MN 55808Susan Hedman, Regional AdministratorEPA Region 5Ralph Metcalfe Federal Building77 W. Jackson Blvd.Chicago IL 60604-3590March 10,2014Re: PolyMet Mining Project and Land Exchange SDEISI have concerns with the PolyMet Supplemental Draft Environmental Impact Statement.1.) I am concerned that we, in the US, are bending over backwards to accommodate a foreign mining company that has a very good chance of polluting NE MN for many centuries.2.) The amount of water used/consumed was grossly under stated in the SDEIS. The actual water used will change the figures used for water treatment. Even using Poly Met's figures, the water used will deplete some aquifers and there is a threat of contamination in other aquifers.3.) The MN DNR is aware that the modeling used regarding water quality was flawed.4.) The reverse osmosis is not a proven process and has only been "tested".5.) PolyMet isn't even sure how to handle the residue.6.) The dams, dikes, pumps, and pipes will last 500 years? Of course not. A no to each item. Long term maintenance wasn't address or was inadequately addressed.7.) Wetlands that will be destroyed are very unique and cannot be replaced or renewed. How can you replace a peat bog that is tens of thousands of years old?8.) If this project will create a few jobs, why are other established industries/business going to be negatively affected? Logging. Recreation. Tourism. Local business. Local residents. We are putting our environment in jeopardy. Water is our most valuable resource. Not copper. Not nickel. No mineral is more valuable. And we are willing to sacrifice that for profits thatwon't even stay in our country.Please take a good hard look at what will be an unfortunate sequence of events.Thank you for the opportunity express my position.Scott Mead9130 W. Branch Rd. "Duluth MN 55803(218) 848-2051

Alphabetical by sender's first name

Scott Mead 54812

See attachment

Scott Moen 43127

I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. 1 The proposed mine plan will not keep Minnesota's water safe and clean because: PolyMet would need to actively treat polluted water for at least 500 years; Each year, 11 million gallons of untreated polluted seepage from the tailings basin will enter groundwater; and Each year, over 5 million gallons of untreated polluted seepage from the mine site will enter groundwater. 2 The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. When accidents occur, will we be left to hope for the best. 3 The proposed mine plan would not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. After closure, the following will be left: 526 acres and over 167 million tons of reactive waste rock on the surface; a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer; A synthetic and soil cover over the waste rock pile requiring annual maintenance, erosion repair, and removal of plants that might perforate the synthetic material; A pit "lake" whose water level must be maintained through pumping to prevent contaminated overspills into the nearby Partridge River; A tailings basin pond whose water levels must be maintained through pumping to prevent contaminated water from over-topping dams and entering the nearby Embarrass River; and A lengthy network of pipelines conveying polluted and treated water must be monitored and maintained for at least hundreds of years. 4 The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance the company will provide are not outlined in the revised mine plan. The public does not know the cost of 500 years of water treatment, how the company will be held responsible for centuries of costly water treatment, or how the public will be protected from liability. Given the need to monitor the consequences of the mine for hundreds of years, why is the mine being given serious consideration. A commitment for hundreds of years is simply not meaningful. And, if polluted seepage ruins fragile and pristine wilderness, how will money solve the problem. If the mine is approved, it will be just one more example of privatizing profits and socializing risk. SCOTT MOEN 491 MONTROSE LN SAINT PAUL MN 55116-1134 (651) 428-1547 HYPERLINK "mailto:smoen@ecobizlaw-com"smoen@ecobizlaw-com P Please consider the environment before printing.

Scott Polyner 10711

My name is Scott Polyner I Live At 2435 Grant McMahan Blvd. in Ely MN and I am in favor of the Polymet project going forwaRd I have worked at Minorca mine in Virginia MN since 2007 so I am familiar with the regulations mining operations must follow to maintain required permits. I have been assigned dozens of projects to install new emission monitors, improve access to existing dust collection systems, and controlling process water for conservation reasons. Some of these improvements were made due to technology changes from 1976 to current day, and some were made because monitoring was not required before but all were made to comply with an evolving regulation process that strives for a clean as possible process for all mining operations. Having read the SDEIS, I am confident that the involved agencies will hold this project to those same standards that allow us to have the largest taconite mines in the USA and still have the cleanest water in Minnesota. I understand that there are differences between the copper process and the iron process, but I believe the MPCA,the DNR, and the Army Core of Engineers will adapt and over come any issues that arise. I am a fifth generation Elyite, I live 20 minutes away from this proposed mine and if I thought there was any danger to the water in my well, or the outdoors I hunt and fish in, I would not support this project as strongly as I do. In conclusion, I see no reason for any of the involved agencies to deny Polymet the permits they need to start this mine 10 plus years in the making. Thank you for your time Scott Polyner

Alphabetical by sender's first name

Scott Robertson 7332

Forgot to include: Scott Robertson 5125 Bryant Ave S Minneapolis, MN 55419 On Wed, Jan 22, 2014 at 7:07 PM, Scott Robertson <HYPERLINK "mailto:scotterob@gmail-com"scotterob@gmail-com> wrote: I do not support the proposal for NorthMet Project mining, nor for the land exchange proposed with the Superior National ForeSt The detailed descriptions of wastewater control design in the SDEIS are encouraging, but that report's conclusions about mercury concentrations in the St Louis River watershed assume 100% performance of the WWTP, bentonite clay containment barriers, etc Based on experience with industrial water protection systems, I would ask the authors what level of wastewater containment failure they would find acceptable. Were various levels of failure modeled for the EIS. I find no evidence that they were, which does not seem reality-based. Systems do fail, and it's rational to predict a realistic rate of failure. I grew up along the St Louis River in the 1970s, and it was a very impaired waterway. I'm proud of the steps Minnesota has taken to address water quality within the St Louis River watershed, and the steps that various federal, state and interstate agencies have taken to address threats to Lake Superior. They are healthier than they were. I do not believe the rosy description that NorthMet WWTP discharge will actually help clean up the St Louis River. I think it's great that was taken as a design goal, but I do not believe it will happen. As far as what rate of failure EIS authors might find acceptable: my answer is none, because I do not believe this mine is "what's next" for the Iron Range. I do not oppose mining per se; however I do oppose any expansion of mining in Northern Minnesota, incl taconite mining. I simply believe that this part of our land has done it's share. Aerial photos show that much of the Range is wasteland. I was last there 3 weeks ago and was reminded of how many smokestacks, how much scarred earth, and how depressed the towns are. It's time for the citizens of the Range to find other things to do than cut trees and pull rocks from the ground. And it's time for them to stop shipping wealth away to faraway owners, and to keep it for themselves.

Scott Rodbro 41750

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Alphabetical by sender's first name

Scott Scott-Kovalovic 42560

See attachment

Scott Slocum 3639

12/20/2013 To: Minnesota Department of Natural Resources From: Scott Slocum, 1416 Birchcrest Drive, White Bear Lake, MN 55110- Re: Insufficient PolyMet sulfide-ore treatment SDEIS. I have read about the dangers of sulfide-ore mining in Minnesota, and about the plans proposed by PolyMet Mining, Inc. to avoid those dangers. It is clear to me that the Supplemental Draft Environment Impact Statement (SDEIS) prepared by PolyMet Mining, Inc. is not sufficient to avoid the dangers of sulfide-ore mining in Minnesota. Therefore, I recommend that the proposed PolyMet mining project (and any project without sufficient safeguards) should not be allowed to proceed. -Scott Slocum

Scott Smith 38757

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Scott Smith 10421 Shelter Grv Eden Prairie, MN 55347-4858

Scott Watkins 42050

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Scott Watkins Willmar, Minnesota

Scott Weappa 42788

See attachment

Scott Wolff 46992

I doubt anything I say will make a difference, but here are my two cents: I remain inherently distrustful of a large corporation that floods the media with their message (eg their sponsorship of the Mn HS hockey championship) and brings busloads of workers wearing hardhats to public hearings. They have strong commercial interest, while the rest of us have nothing to gain, just a lot to lose. Can Polymet show us a similar project that has gone well without environmental damage. I don't think so. I would like to know who is responsible if something goes poorly. Specifically I would feel much better if individuals at the upper level of the Polymet hierarchy have something personally at risk, "skin in the game" if you will. If there is a massive environmental problem, I would like to see their personal assets at stake-they can still get a nice salary, but the 2nd and 3rd homes get liquidated to pay for it. They can be very friendly and polite, but who really pays. since corporations now have the rights of individuals, who goes to jail for a jail-able offense. You have heard all the other objections so I won't trouble you with redundancy. Sincerely, Scott Wolff 4136 Minnesota Ave Duluth, MN 55802

Alphabetical by sender's first name

Scott Wolla 21814

The Polymet project is important to the economy of northern Minnesota, and the US economy. The natural resources found here are important to our economic vitality. And, the technologies utilized are the cleanest available. Please allow this project to proceed. Scott Wolla

Scott/Mary Eckhoff 48171

We have not inherited this land from our parents. We are borrowing it from our children. We cannot jeopardize this beautiful area of our state. Lake Vermillion State Park will increase tourism into this beautiful area. Our children will wonder what were we thinking if we open this area to mining. Scott Eckhoff Glencoe, MN

Sean Engel 42837

See attachment

sean goossens 41808

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, sean goossens Saint Paul, Minnesota

Sean Heckman 6717

My name is Sean E. Heckman, 33375 Ski Hill rd Bayfield, WI. 54814- Email slheckman99@yahoo-com. Phone 715-209-2557- First I would like to state that I am a investor in PloyMet. I also believe that PloyMet has invested heavily in the control of pollutants. I am a layman and would never claim to fully understand the full process of the water treatment. I believe they will be a leader in the forefront of responsible mining. Just a little back ground of myself. I live in a very healthy town of Bayfield, WI. and have lived here for 35 years. I am the Chief Engineer for the Madeline Island Ferry line so I am very dependent on the tourist industry on lake Superior. That being said when we first moved here when I was in the Coast Guard in 1979- At that time there was a thriving fishing industry, logging industry and a manufacturing plant in town although small. Local families could survive and make a descent living and the children of these families could stay in the area. When my children went to school they would walk with about 15-20 other children from the city of Bayfield. Now Bayfield has become a second home community or homes of wealthy retirement people. Now there may be 4 children from the city going to the school. The bulk of the student population is from Red Cliff which is a town just north of Bayfield and a Indian reservation. No new families can afford to move into Bayfield because of reality prices and no jobs of a high enough pay to live here. Depending on tourism does not work. Only the Bed and Breakfast and restaurant owners make money. The jobs that are here are low paying, seasonal and without any kind of benefits. There are a few like myself that have year round jobs and were lucking enough to have bought land before the reality prices went through the roof. They only other main employer is the government Fed,State and local. My children who are all educated, one is a RN, one a musician and the other is a lieutenant in the US Air Forcse will never be able to return to this area because of lack of good high paying jobs. We are a material society and until we start to reduce the population the demand for raw materials will be present, why not take the forefront to responsible mining, help bring good year round high paying jobs to northern Minnesota and get them off unemployment. It seems that all the environmentalist are on their computers, their cell phones and their cars protesting this and forgetting that all of the above has copper, or iron or other metals in them. There's a saying around here. You want your cars, your cell phones, your computers but you want to (poop) in the neighbors yard and not in your own. Why not do it cleanly and controlled in your own. Thank You for your time.

Alphabetical by sender's first name

Sean Piette 39592

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining is a very dangerous mining and Minnesota does not care for mining. There is, never has been, and probably never will be a clean, environmentally damage free mining. Please don't destroy our lands and our water. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Sean Piette 3214 Greysolon Pl Duluth, MN 55812-2304 (218) 728-6392

48806

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining is a very dangerous mining and Minnesota does not care for mining. There is, never has been, and probably never will be a clean, environmentally damage free mining. Please don't destroy our lands and our water. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Sean Piette 3214 Greysolon Pl Duluth, MN 55812-2304 (218) 728-6392

Sen. John Marty 42961

Hello, Here are Senator John Marty's Comments on the Supplemental Draft EIS. Thank you, Emmy Waldhart Intern, Office of Senator John Marty

Sen.Bev Scalze 9508

I haven't sent any comments yet. Connected by DROID on Verizon Wireless --Original message-- From: "*NorthMetSDEIS (DNR)" To: "Sen.Bev Scalze" Sent: Wed, Jan 29, 2014 20:19:04 GMT+00:00 Subject: RE: PolyMet Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

9578

Tony, Thanks for sending your comments. I agree with them. I attended the hearing at the River Center last night and joined the groups of people with "clean water" stickers on their clothes. You are right that the underground water movement has not been addressed, nor has its affect on the streams and rivers flowing into the BWCA. This was brought up at the hearing last night. You should send your comments to the DNR at HYPERLINK "mailto:NorthMetDEIS.dnr@state.,m.us"NorthMetDEIS.dnr@state.,m.us before March 13, 2014- Also, you could mail the comments to Lisa Fay, EIS Project Manager, MDNR Division of Ecological and Water Resources, Environmental Review unit, 500 Lafayette Road, Box 25, St Pul, MN 55155-4025- It is very important that they hear from you. Thanks again for sending the e-mail message. >>> Tony Jordan 1/28/2014 1:06 PM >>> My Name is Tony Jordan, and I live at 3754 Rustic Place, Shoreview, MN 55126- Although it has been 8 years since I've been to the BWCA, I know it to be a true "water world". The flow of the visible water through passages connecting lakes for 100 miles or more is a sensitive provider of all forms of life in the area. The flow of the water that we can't see underground is even more intricate and sensitive. The minerals are not going anywhere and their value will only increase. We should wait for technology to be developed to offer the possibility of mining them without the accompanying destruction that future generations will pay for. I am against the mining proposal because of the irreversible damage that will be done to the area. I am in favor of an additional user fee for the BWCA that would be shared with the residents of the area to compensate for their not getting the 300 some jobs that come with the destruction of the area. Thank you, Tony Jordan (651) 482-9608

Senator Al Franken 47597

Dear Ms Fay: Attached, please find a letter from Senator Franken regarding the NorthMet copper-nickel mining project. Best, Sam - Samuel Bockenhauer, Phd Office of Senator Al Franken (202) 224-1032

Alphabetical by sender's first name

September Steinolfson 39074

---Original Message--- From: october@usfamily-net [mailto:october@usfamily-net] Sent: Tuesday, March 11, 2014 4:56 AM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, September Steinolfson 6711 Canterbury Ln Eden Prairie, MN 55346-2844

Serina Gebrehiwet 54181

I am against the mine. The water is going to become polluted. The boundary waters are important to the area that you are going to destroy. It is very popular in Minnesota so it should be kept with us. You can mine somewhere else less important. This mine has been done in other lakes and rivers and the negative affects they have on the environment. It hurts the ecosystem. The acid will throw off the PH balance and kill life in the water. The affects are too negative and copper and nickel can be found elsewhere.

Alphabetical by sender's first name

Seth Levin 15995

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Shandra Thao 54231

To whom it may concern:It has come to my attention and many others that the SDEIS map have mislead the public. The map of the swamp has cut off half of the one hundred swamp diverting everyone from the fact that the BWCA will be completely unprotected from the acidic drainage of the mine. The public is not aware of this, they are not aware of something that will affect the rest of their lives and their children’s lives. They are not aware of what may endanger them because they have only been told of the benefits. It will provide jobs; an economic boost but how many people know that less than 2% of the water on earth is pure water? Before we know it, there will not be any pure water left! Are they willing to take this risk knowingly? This needs to be fixed because they are misleading the public.Sincerely,Shandra ThaoProud Student of Humboldt High School1238 Jessie StreetSaint Paul, MN 55130

Shane Johnson 44620

3/13/14 I have reviewed the SDEIS for the Polymet Project, and fully approve of the proposed processes and mitigation systems as well as the science used in designing them, and ultimately constructing them. I also believe from an economic standpoint, that expediting the current processes so Polymet could begin construction immediately would bring a desperately needed, immediate economic boost to the Iron Range, not to mention the added benefit of more public lands, through the land exchange. I fully support the SDEIS in its entirety. Shane Johnson 7955 Waris Road Embarrass, Minnesota 55732

Alphabetical by sender's first name

Shannon Darsow 39746

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Shannon Darsow 13376 Carrach Way Rosemount, MN 55068-4807

Shannon Martin 18277

My name is Shannon Martin. I would like to publicly oppose the PolyMet mine. I think 500 years of water pumping and treatment is not a good trade-off for 20 years of jobs. I think one of our top priorities in the state should be the state protecting our natural resources in the long run. That's it. Thank you very much.

Shannon Palma 21586

Mar 5, 2014 Ms Lisa Fay MN Dear Ms Fay, To Whom It May Concern: Please put our wildlife firSt Irreversibly hurting our habitat would be a sad legacy. I want my little boy to have the same relationship with the outdoors that I had. Please don't do something you can't take back. West Virginia should stand a an example of what happens when we let business come before people and animals. Please protect our water. Sincerely, Mrs Shannon Palma 382 Haskell St E West St Paul, MN 55118-1646 (320) 491-2792

Shannon Peterson 41973

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Shannon Peterson Princeton, Minnesota

Alphabetical by sender's first name

Shari Mleczewski 16010

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

shari smith 48065

I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet’s project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations. shari smith 5100 Peabody St Duluth, Minnesota 55804 The views and opinions expressed in this message my own. I am solely and individually responsible for the content. This is not intended to represent or reflect anyone else’s views or opinions, including those of my employer, ALLETE, Inc.

Alphabetical by sender's first name

sharjeel khan 41929

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, sharjeel khan Saint Paul, Minnesota

Sharlyn Dahl 57502

To Whom It May Concern: I, as a citizen of Minnesota and resident of the Iron Range for 58 years, have total confidence that Polymet has done everything possible to make their operation safe for our environment now and for my grandchildren. I can not believe that with all the time and studies that have been made and proven, that there should be any question of this. Polymet will be an extremely great benefit to our area, and to the state as well. Sincerely, Sharlyn Dahl 5490 Carnation Ave Virginia, MN 55792 218-741-7882

57503

To Whom It May Concern: With all of the time and money that has been and is being spent on environmental issues, I have full confidence that all it will be an environmentally acceptable mining operation. The permitting process takes a ridiculously long time. Hopefully, from here to start up, will go much faster. Sincerely, Chuck Dahl 5490 Carnation Ave Virginia, MN 55792 218-741-7882

Alphabetical by sender's first name

Sharon Angell Magliulo 21228

From: sharon angell magliulo [mailto:smagliulo55731@yahoo-com] Sent: Monday, February 24, 2014 12:17 PM To: Fay, Lisa (DNR) Subject: Official Comments for PolyMet's Supplemental Environmental Impact Statement (SDEIS) COMMENTS FOR NORTHMET MINING PROJECT AND LAND EXCHANGE Lisa Fay or to whom it may concern: We are asking for the "No Action Alternative" because the following are inadequate, flawed, or missing from PolyMet's Supplemental Draft Environmental Impact Statement (SDEIS): • Inadequate cumulative impacts and effects. "Past, present, and reasonably future actions" are not included. Public needs to be informed that this is the beginning of a sulfide-mining district in the lake country of the Arrowhead. The NorthMet Mine and other proposed sulfide mining projects would be in the Duluth Complex, not on the IronRange; this is not being addressed. • There is no cost benefit analysis. • The LTV tailings basin is unstable and leaking. The SDEIS underestimates the amount of leakage. There are faults and streams running under the basin that the SDEIS does not address. • The hydrology is flawed. Poor comparison to the Canisteo Pit. Not the same geological formation; not the same depth; inadequate test borings. • National Forest Land must not be exchanged. The Weeks Act protects the land. Also, the exchange does not adequately compensate the American Public for loss of this land. The exchange will have a significant effect on wildlife habit and corridors, loss of wetlands and wetland functions (inadequately addressed), as well as overall ecological quality. • There is no "500 year event" at the core of the SDEIS. An SDEIS based on a hundred year event is insufficient. • The SDEIS is flawed in the areas of water exceedances and rates of water flow. Conclusions are incorrect. One year of documentation is insufficient for water flow. • The SDEIS is flawed in its determination of faults and fractures. • The SDEIS is flawed in its determination of the amount of seepage collected and treated, as well as its levels of toxicity. It is seriously flawed in its assessment of seepage that escapes untreated. • The impacts from the tremendous amount of coal-fired electricity used to operate a sulfide-mining district (or one sulfide mine on top of taconite mining releases) are not adequately addressed. • Climate change is not addressed. Carbon based energy used to do this type of mining is irresponsible. PolyMet alone would emit 707,342 metric tons of carbon dioxide each year. • Sulfates: the effects on wild rice, on newborns in the Lake Superior basin due to mercury levels in fish, and other related ecological impacts need to be better understood and addressed before any sulfide mine is permitted. • Ecological affects of extensive limestone treatment on an entire ecosystem need to be addressed. • Chlorides are insufficiently addressed, essentially ignored. • The reverse osmosis plan is insufficient and unproven on the scale involved. Sulfate removal is overestimated. None of Minnesota's taconite mines have found reverse osmosis to be feasible. The Eagle Mine in Michigan is already having probleMs • There are no elucidated plans for unforeseen events; repeatedly saying that the company and agencies will deal with incidents as they arise is not only unacceptable, itis negligent. Not having back-up plans spelled out and included as part of the SDEIS makes this document incomplete. • The Regional Copper Nickel Study is forty years old. Still valid. However, additional studies need to be done in this decade before any sulfide mine permit is issued. • Perpetual treatment or any long-term treatment after closure is unacceptable; a mine is to be maintenance free under Minnesota Rules. • In the best interest of the people of Minnesota financial assurance needs to be part of the public comment period, with transparent and complete information provided. • This type of mining has never been done successfully in this type of water environment. • Water must b

Alphabetical by sender's first name

Sharon Angell Magliulo 21231

COMMENTS FOR NORTHMET MINING PROJECT AND LAND EXCHANGE Douglas Bruner or to whom it may concern: We are asking for the "No Action Alternative" because the following are inadequate, flawed, or missing from PolyMet's Supplemental Draft Environmental Impact Statement (SDEIS): • Inadequate cumulative impacts and effects. "Past, present, and reasonably future actions" are not included. Public needs to be informed that this is the beginning of a sulfide-mining district in the lake country of the Arrowhead. The NorthMet Mine and other proposed sulfide mining projects would be in the Duluth Complex, not on the IronRange; this is not being addressed. • There is no cost benefit analysis. • The LTV tailings basin is unstable and leaking. The SDEIS underestimates the amount of leakage. There are faults and streams running under the basin that the SDEIS does not address. • The hydrology is flawed. Poor comparison to the Canisteo Pit. Not the same geological formation; not the same depth; inadequate test borings. • National Forest Land must not be exchanged. The Weeks Act protects the land. Also, the exchange does not adequately compensate the American Public for loss of this land. The exchange will have a significant effect on wildlife habit and corridors, loss of wetlands and wetland functions (inadequately addressed), as well as overall ecological quality. • There is no "500 year event" at the core of the SDEIS. An SDEIS based on a hundred year event is insufficient. • The SDEIS is flawed in the areas of water exceedances and rates of water flow. Conclusions are incorrect. One year of documentation is insufficient for water flow. • The SDEIS is flawed in its determination of faults and fractures. • The SDEIS is flawed in its determination of the amount of seepage collected and treated, as well as its levels of toxicity. It is seriously flawed in its assessment of seepage that escapes untreated. • The impacts from the tremendous amount of coal-fired electricity used to operate a sulfide-mining district (or one sulfide mine on top of taconite mining releases) are not adequately addressed. • Climate change is not addressed. Carbon based energy used to do this type of mining is irresponsible. PolyMet alone would emit 707,342 metric tons of carbon dioxide each year. • Sulfates: the effects on wild rice, on newborns in the Lake Superior basin due to mercury levels in fish, and other related ecological impacts need to be better understood and addressed before any sulfide mine is permitted. • Ecological affects of extensive limestone treatment on an entire ecosystem need to be addressed. • Chlorides are insufficiently addressed, essentially ignored. • The reverse osmosis plan is insufficient and unproven on the scale involved. Sulfate removal is overestimated. None of Minnesota's taconite mines have found reverse osmosis to be feasible. The Eagle Mine in Michigan is already having probleMs • There are no elucidated plans for unforeseen events; repeatedly saying that the company and agencies will deal with incidents as they arise is not only unacceptable, itis negligent. Not having back-up plans spelled out and included as part of the SDEIS makes this document incomplete. • The Regional Copper Nickel Study is forty years old. Still valid. However, additional studies need to be done in this decade before any sulfide mine permit is issued. • Perpetual treatment or any long-term treatment after closure is unacceptable; a mine is to be maintenance free under Minnesota Rules. • In the best interest of the people of Minnesota financial assurance needs to be part of the public comment period, with transparent and complete information provided. • This type of mining has never been done successfully in this type of water environment. • Water must be, and is, protected by Federal law. NO ACTION ALTERNATIVE Respectfully, Sharon A. Magliulo and William A. Hauser email- smagliulo55731@yahoo-com 821 E. Pattison St Ely, MN 55731 218-365-2272

Alphabetical by sender's first name

Sharon Angell Magliulo 50981

COMMENTS FOR NORTHMET MINING PROJECT AND LAND EXCHANGE Tim Dabney: We are asking for the "No Action Alternative" because the following are inadequate, flawed, or missing from PolyMet's Supplemental Draft Environmental Impact Statement (SDEIS): • Inadequate cumulative impacts and effects. "Past, present, and reasonably future actions" are not included. Public needs to be informed that this is the beginning of a sulfide-mining district in the lake country of the Arrowhead. The NorthMet Mine and other proposed sulfide mining projects would be in the Duluth Complex, not on the IronRange; this is not being addressed. • There is no cost benefit analysis. • The LTV tailings basin is unstable and leaking. The SDEIS underestimates the amount of leakage. There are faults and streams running under the basin that the SDEIS does not address. • The hydrology is flawed. Poor comparison to the Canisteo Pit. Not the same geological formation; not the same depth; inadequate test borings. • National Forest Land must not be exchanged. The Weeks Act protects the land. Also, the exchange does not adequately compensate the American Public for loss of this land. The exchange will have a significant effect on wildlife habit and corridors, loss of wetlands and wetland functions (inadequately addressed), as well as overall ecological quality. • There is no "500 year event" at the core of the SDEIS. An SDEIS based on a hundred year event is insufficient. • The SDEIS is flawed in the areas of water exceedances and rates of water flow. Conclusions are incorrect. One year of documentation is insufficient for water flow. • The SDEIS is flawed in its determination of faults and fractures. • The SDEIS is flawed in its determination of the amount of seepage collected and treated, as well as its levels of toxicity. It is seriously flawed in its assessment of seepage that escapes untreated. • The impacts from the tremendous amount of coal-fired electricity used to operate a sulfide-mining district (or one sulfide mine on top of taconite mining releases) are not adequately addressed. • Climate change is not addressed. Carbon based energy used to do this type of mining is irresponsible. PolyMet alone would emit 707,342 metric tons of carbon dioxide each year. • Sulfates: the effects on wild rice, on newborns in the Lake Superior basin due to mercury levels in fish, and other related ecological impacts need to be better understood and addressed before any sulfide mine is permitted. • Ecological affects of extensive limestone treatment on an entire ecosystem need to be addressed. • Chlorides are insufficiently addressed, essentially ignored. • The reverse osmosis plan is insufficient and unproven on the scale involved. Sulfate removal is overestimated. None of Minnesota's taconite mines have found reverse osmosis to be feasible. The Eagle Mine in Michigan is already having probleMs • There are no elucidated plans for unforeseen events; repeatedly saying that the company and agencies will deal with incidents as they arise is not only unacceptable, itis negligent. Not having back-up plans spelled out and included as part of the SDEIS makes this document incomplete. • The Regional Copper Nickel Study is forty years old. Still valid. However, additional studies need to be done in this decade before any sulfide mine permit is issued. • Perpetual treatment or any long-term treatment after closure is unacceptable; a mine is to be maintenance free under Minnesota Rules. • In the best interest of the people of Minnesota financial assurance needs to be part of the public comment period, with transparent and complete information provided. • This type of mining has never been done successfully in this type of water environment. • Water must be, and is, protected by Federal law. NO ACTION ALTERNATIVE Respectfully, Sharon A. Magliulo and William A. Hauser email- smagliulo55731@yahoo-com 821 E. Pattison St Ely, MN 55731 218-365-2272

Sharon Bachman 10203

To All whom it concerns, Due to an unproven track record in the copper mining industry and the sensitive nature of the BWCA area and all those who's livelihood depend on it we do not in any way approve of the land exchange or the Polymet mine proposal. Not that it's a vote but Please add 2 no votes for us. Richard and Sharon Bachman Bachman's Photography shari@bachmansphotography-com 13000 Sylvan Ave Lindstrom, MN 55045 651-257-9380 www.bachmansphotography-com https://www.facebook-com/pages/Bachmans-Photography/200802479948160-ref=ts

Sharon Barnett 57936

I am a mother of a 3 year old boy and I want to protect Minnesota's waters and wildlife for the next generation. I support the No Action Alternative. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Sharon DeCelle 32919

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Open pit sulfide mining is destructive and polluting. It is not in the public intereSt Please do not approve the destruction of our environment. Sincerely, Sharon DeCelle 309 E Holmes St Urbana, IL 61801-6731 (217) 365-0330

Alphabetical by sender's first name

Sharon Fortunak 38128

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Here's why I signed: We need clean water and clean air. Sincerely, Sharon Fortunak Cottage Grove, Minnesota _____ There are now 2073 signatures on this petition. Read reasons why people are signing, and respond to National Audubon Society by clicking here: HYPERLINK "http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89bandutm_source=targetandutm_medium=emailandutm_campaign=signature_on_sponsored_petition"http://www.change-org/petitions/say-no-to-oozing-toxins-in-minnesota-s-waters/responses/new.response=f09da092d89b http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJzaWduYXR1cmVfb25fc3BvbnNvcmVkX3BldGl0aW9uIiwiaWQiOiJ1c2VyXzE2MDAyMTUiLCJjaXR5IjoiU2FuIEZyYW5jaXNjbyIsInN0YXRlIjoiQ0EiLCJ6aXBjb2RlIjoiOTQxMTAiLCJjb3VudHJ5X2NvZGUiOiJVUyIsImluY29tcGxldGVfYWRkcmVzcyI6ZmFsc2UsInNpZ251cF9kYXRlIjoiMjAxMC0wOS0yMyIsImxvZ2luX2NvdW50Ijo5Mzk4LCJ0b3RhbF9hY3Rpb25zIjo0MzAsImNvbm5lY3RlZF90b19mYWNlYm9vaz8iOmZhbHNlLCJzaWdudXBfY29udGV4dCI6ImFjdGlvblBhcnRpY2lwYW50IiwiZGlzdGluY3RfaWQiOiIyMWQ2MmIwMC1iZTVkLTAxMmYtNjg2ZS00MDQwNjBlNzJhYmIiLCJ0b2tlbiI6IjMwYWEyNmExZDZlOTNhZTE1OGRmYmRjMTZiNDkzMzEyIiwidGltZSI6MTM5NDIwMDAyMn19andip=1andimg=1 http://email.changemail-org/wf/open.upn=aGGv9wQ398j6-2FWVT4grdXbWUo0w-2FupjjjD-2BeyIkg5XeInLuCEKc3fZdho8GXjxxiplFn6SybU80HWYOLHct2MhHcRv7ksg-2F-2Bt-2BBQdFBpjlw3xRxgaM-2B7Ekwbs0-2FHcLGMPiRENKcx8EnzHD1od-2BFy6mKcHx2niX0zwnxnevVpoGgivd46YBbyTH04ithXozDg2oJvlQG3GRtw0bn0yHS9P-2BNkSyhoc2NFWmOyV7kzXPmjV0EsRvdxmkzqar2hS4BCIi1N3DKyTUyCLrbXm4yMFuD33aUPU6mfNvX-2Ff-2F-2B8DUx5jFJVvm-2FTXFP11jFpU66Z

38953

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Sharon Fortunak 7120 Ivystone Ave S Cottage Grove, MN 55016-1909

Sharon Frykman 39958

Lisa, As Minnesota citizen voters and residents of the Minnesota Arrowhead we strongly oppose the PolyMet mining project. There are so many reasons that this is a bad plan that it is difficult to prioritize that which is most alarming. We are certain that other opponents to this project have detailed these points so we will be brief. 1- The wastewater will travel by the St Louis river to Lake Superior. If the water treatment starts out effective, which is doubtful, you still can't tell us that PolyMet will be able to continue treatment for 200 to 500 years. This is absurd. It will affect the quality of life for multiple future generations. 2- There will be destruction of forest, plant, and wildlife habitat, as well as, the destruction of wildlife corridors. The moose and lynx are already threatened. 3- There will be air pollution from fine mineral fibers and duSt 4- Greenhouse gas emissions are a major concern. 5- The trade-out for wetland mitigation is outside of the St Louis river basin. The Arrowhead Region's economy is tourism based. The pristine forests and lakes are our livelihood and why we choose to live here. Lake Superior is presently one of the largest sources of fresh clean water. Who benefits from this mine. Clearly NOT us. Stop the PolyMet project Steven and Sharon Frykman 306 County Rd 44 Grand Marais, MN 55604

Sharon Krumme 58118

1. Need more information in the 100 mile swamp, the flow of water (waste) through Dunka to the BWCA!2. Flow of water on the Patrick River – need new results on the details and usage of this flow3. A plastic sheet over waste rock pile – that is suppose to contain seepage – proof that this would work and why4. More concise details of how the damage deposit will be adequate5. Incrase the public comment period to 180 days.

Alphabetical by sender's first name

Sharon Lane-Getaz 42904

March 12, 2014 Lisa Fay, Environmental Impact Study (EIS) Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Lisa Fay, We should not be copper-nickel mining in Minnesota, not here, at the headwaters of the mighty Mississippi. Northern Minnesota is the site of 3 major watersheds. We and many states downstream from us need fresh, clean water. I am concerned about the pollution that is left behind for hundreds of years after mining ceases, especially water pollution. The PolyMet project, which is reportedly the tip of the iceberg in companies who are exploring options in Minnesota, proposes 20 years of mining near Hoyt Lakes (20 miles south of the Boundary Waters Canoe Area Wilderness). Per Renee Richardson of the Brainerd Dispatch (January 30th, 2014) , “once mining operations are done, mechanical water treatment at the site is proposed for 200 years at the mine site and 500 years at the plant site. The state reported it’s unknown how long water treatment would be required other than to say long term.” Northern Minnesota should not extend mining rights to an outside corporation that cannot realistically provide stewardship for our water nor our environment. Kathryn Hoffman, staff attorney with the Minnesota Center for Environmental Advocacy, said “the process to treat the water is complex, requiring multiple systems to work successfully and a mine in Michigan using a state-of-the-art reverse osmosis plant to do just that has already had more than 40 permit violations for not meeting water quality standards.” While jobs are important, we may be talking about as few as local 90 jobs in the balance compared to 500 years of ongoing water treatment. I support jobs in northern Minnesota that are sustainable to all life in the area, and I encourage the Minnesota Department of Natural Resources to take a leadership role is promoting sustainable industry. However, Hoffman estimated that while “PolyMet project is expected to create 360 jobs after experts in the mining field are imported the site will create about 90 local hires.” In summary, the Minnesota Department of Natural Resources should block copper-nickel mining in northern Minnesota. Thank you for taking comments under consideration. Sincerely, Sharon Lane-Getaz. PhD 32293 Alta Avenue Northfield, MN 55057 Sharon J. Lane-Getaz, Phd ---------- AsSt Professor Statistics and Education St Olaf College 507-786-3411 URL: http://sharonlanegetaz.efoliomn-com/Home

Sharon Legg 43727

To Whom it may Concern: I have been trying to learn as much as I can about the proposed Polymet copper mine in northern Minnesota. Based on what I have figured out, the potential negative impacts far outweigh the positives. The environment that this type of mining is being proposed in makes no sense given the impact it will have on water. However, I do understand that the DNR is in the position of making that determination according to information in hand. What I have not been able to figure out, is how will a mining company be able to control the sulfides reacting to air and water as they are exposed, as they are uncovered in the pits. l realize that the waste will be encapsulated in the waste piles, but what happens before the waste is transferred to that site. Obviously, exposing acres and acres of rock which contain these sulfides, will impact air and water quality. There will be dust and there will be seepage not all of the water can possibly be captured and the air will travel with dust in it. Additionally, I understand that there should be some financial assurance from the company to avoid taxpayers having to fund clean-up efforts in the future. I am concerned as to how anyone can come up with the amount necessary. How can we know. And, what discount rates will be used. We are unsure of how many years we are even trying to project the needs for these funds to become available. How can we possibly know what costs will be at some unknown date. In my mind, it has to come down to cash in the bank right now that will compound at some future rate to allow enough money to deal with issues. Finance is my occupation. I understand how much discount factors impact results. And, I also understand that we are dealing with a huge company (Glencore) that will be sure factors are used to their advantage. I don't think they have the reputation of caring about environmental impacts and will work to make as much profit as possible. Therefore, they will persuade us that what is being put up as funds will be sufficient, but it will not be. If the State of Minnesota was dealing with a known commodity, a company (Polymet) that actually had experience in this type of operation and that was not being funded by a company (Glencore) that clearly has a bad reputation, there could be hope that past practice would indicate a positive future outcome. In this case, neither applies. Thank you for giving us the opportunity to comment. The future of the state is in your hands. Please take care of us. Sharon Legg 10110 Olive St NW Coon Rapids, MN 55433 HYPERLINK "tel:763-755-6567"763-755-6567

Sharon Lindberg 54126

The mining process & its clean-up has never successfully prevented environmental problems before. Contaminated water still must be dealt with!! Unless PolyMet is willing to put one billion dollars up front for the eventual clean up, this copper mineral mine should not be dug. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Sharon Marquis 40265

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Sharon Marquis 25 Ridgewood Rd Willington, CT 06279 US

Sharon Meister 45787

I would like you to consider not approving this project. I think the real resource that we need to covet is clean fresh water. In the future, it will truly be the most valuable and, unfortunately scarce resource. I don't see how anyone can assure us that the water used in the processing of this mine will not leach into the surrounding surface or ground water. Thank you. Jeff Meister 8540 Cain road Corcoran, MN 55340

Alphabetical by sender's first name

Sharon Root 9602

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sharon Root 504 Fairgrounds Rd Marshall, MS 56258

Alphabetical by sender's first name

Sharon Root 16155

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Sharon Root 18507

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sharon Root 504 Fairgrounds Rd Marshall, MS 56258

50589

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sharon Root 504 Fairgrounds Rd Marshall, MS 56258

Alphabetical by sender's first name

Sharon Wehner 16142

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Sharon Koll 47342

To whom this concerns :: P L E A S E V O T E N O .. It is not worth the jobs promised - - - -to destroy any part of our heritage. This proposal is just a precedent. There are more of the same pending. I've read parts of the proposal. I can give you specifics when needed. This proposal will: * destroy our heritage * destroy Minnesota tourism * set a precedent Please do not allow any company / organization to take advantage - - - - - - - - - - -to rape and pillage the State of Minnesota - - - - - and to leave us taxpayers to clean up their accidental mess. I beg of you - - - - - -P L E A S E V O T E N O - - - - on this proposal. It'l take "guts". D O N O T allow Polymet or any other mining to happen We only have one chance to protect God's creation. Sincerely, Sharon Koll 2508 Claremont Drive Mendota Heights, MN 55120 HYPERLINK "mailto:skoll@paulbunyan-net"skoll@paulbunyan-net

Alphabetical by sender's first name

Sharon Koll 47344

I just lost my email to you . This is a brief summary. P L E A S E V O T E N O It is not worth the jobs promised to destroy any part of our heritage. I have read parts of the proposal. I can be specific when needed. This proposal will: * destroy our heritage * destroy Minnesota tourism * set a precedent Please do not allow any company / organization to take advantage - - - - - - -to rape and pillage the State of Minnesota - - - - - and to leave us taxpayers clean up their accidental mess. It'll take "guts". Please do NOT allow Polymet nor any other mining to happen. You only have one chance to protect God's gift to Minnesota. Thank you. Sincerely, Sharon Koll 2508 Claremont Drive Mendota Heights, MN 55120 HYPERLINK "mailto:skoll@paulbunyan-net"skoll@paulbunyan-net

Shary Hess 42533

See attachment

Shary Zoff 43045

March 7, 2014Greetings United State Forest Service,This letter is asking you to reject the porposed PolyMet Land Exchange. PolyMet is proposing that the Superior National Forest swap 6,650 acres of high quality land in the Partridge River headwaters for lower quality land scattered throughout NE MN. The deal may be good for PolyMet but breaking up large pieces of acreage into scattered pieces does not serve the ecosystem well.This also violates the 1854 Treaty with the Ojibwe tribes. Have we not violated too many treaties already for far too long?Thank you,Shary Zoff1651 Two Harbors RoadTwo Harbors, MN 55616

Shawn Beattie 6604

Dear Sir or Madam, I'm writing to comment on the proposed NorthMet mine. I live in the metro Twin Cities area, but like to vacation up north and recreate/hunt in the area as well. As citizens of this state we are extremely fortunate to have such a beautiful, natural landscape to call our own. Having lived about half my life out on the East Coast of the US I can appreciate this luxury even more because we lacked large, public natural areas that hadn't already been tainted. I realize from an economic standpoint there would be new jobs created if the mine was approved, and that would obviously be a boon to the local people in the area. But I cannot support the mine based on the risks and long-term possible complications it may cause to such a pristine area. Once it's gone or ruined, it's so difficult to get back, if at all. The company has stated they will be good stewards, but unfortunately history is not on their side. And accidents happen; just look at the rail car explosions that have happened recently, or the water poisoning in West Virginia last week. Please do not allow this mine to be approved. Thank you, Shawn T. Beattie 4742 102nd Trail North Brooklyn Park, MN 55443

Shawn Bryant 15439

Hello, I want to express my strong opposition to approval of the proposed Polymet copper-nickel mine. The potential damage to the environment would be impossible to overstate. More to the point, name a company that has been in business for 500 years. This is the proposed time period for which environmental mitigation would be required if the project is approved. Most insightful was the action of the West Virginia company who declared bankruptcy within days of spilling chemicals into the water supply for the city of Charleston. Similarly, the Wyoming pit mines which have recently been abandoned by the mining companies leaving open mines and environmental waste behind .The local benefit of a few hundred jobs lasting 20 years (at most half of the working lifetime of an american worker) does not come close to mitigating the environmental degradation and danger which would come with the proposed mine. Sincerely, Dr Michael Grouws, MD 2311 Willow Lane S. St Louis Park, MN 55416

Alphabetical by sender's first name

SHAWN CLARK 16347

Feb 19, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Shawn Conrad 45458

Numerous reasons have been registered regarding the SDEIS being inadequate and I concur with those conclusions, feeling no need to restate them once again here. I am opposed to the PolyMet project moving forward as it is shocking that the state would consider permitting a project with detrimental environmental impacts that will require mitigation longer than the probable lifespan of the corporation pursuing the permit. It is beyond ironic that the same agency that would fine a taxpaying, license-buying Minnesota citizen for a minor fish or game infraction would actively encourage a foreign corporation to do permanent damage to our forests and waters to plunder Minnesota's ores simply so the agency can appease a vocal anti-environment contingent who repeatedly overstate the positives and understate the considerable negatives of this mining proposal. Shawn L Conrad 534 Elizabeth Avenue Grand Rapids, MN 55744

Alphabetical by sender's first name

Shawn Resch 42063

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Shawn Resch Woodbury, Minnesota

Shawn Roed 3565

The environmental sensitivity and public value of areas within and surrounding the proposed mining sites, as well as the disturbing environmental record of copper-nickel mining, leave no room for error in the regulatory process. A report released by Conservation Minnesota, Friends of the Boundary Waters Wilderness and the Minnesota Center for Environmental Advocacy highlights sulfide ore mining occurring in other states and countries. In many cases, despite guarantees that water quality standards would be met and efforts from mining companies to do so, unacceptable contamination of water supplies and soil resources happens over 75% of the time in and around mining sites. When contamination occurs it can be difficult to cover the costs for cleanup and remediation. Mining companies go bankrupt or fail to set aside enough financial assurances ahead of time, and taxpayers can end up holding the bill to cleanup their own community. These concerns should be taken seriously given the proximity of these mining proposals to the BWCAW, and their location within the Superior National Forest and Lake Superior watershed. This is not something that we should risk based on uncertain potential results - we have to be caretakers of our lands for future generations. DO NOT MOVE AHEAD WITH THIS PLAN. Shawn Roed 4855 Idlewild Street Duluth MN 55804

Alphabetical by sender's first name

Shawna MullenEardley 46984

I believe that PolyMet's Supplemental Draft Environmental Impact Statement (SDEIS) is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. Wild Rice needs exceptionally clean water, and as such, is threatened by the certain water pollution that will result from the sulfide mining process. Additionally, this mine poses a threat to wildlife, including the federally listed Endangered Canada Lynx. By fragmenting its habitat, the mining is certain to negatively impact Lynx. The mining would also affect the long-eared bat, a species proposed to be listed as endangered. Eleven state-listed endangered, threatened, or special concern plant species and six state-listed animals are known to occur in the proposed PolyMet mining area. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest-the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream long after the mining operation is done. However, the assessment does not look at the extent of the affects to these many species of plants and wildlife. This is simply unacceptable. Concerning human health, the World Health Organization lists 10 chemicals of major public health concern. Of those, sulfide mining involves five of them: mercury, arsenic, lead, asbestos, and air pollution, which (again) the SDEIS does not sufficiently address the extent and impact of these chemicals. Additionally, the SDEIS does not look at the possible health impact of dust containing asbestos-like amphibole fibers because such dust is not regulated. This is clearly a health concern, as we learned in the 1970's when a north shore iron ore pit was court-ordered to stop dumping its waste containing similar fibers into Lake Superior for fear of the hazards to human health that the fibers pose. Perhaps one of the most prevalent arguments for PolyMet is the number of jobs it will create. However, these jobs are attached to severe toxic pollution, health concerns, destruction of habitat, and threats to wildlife. Instead, we should be bringing clean jobs to the Northland. The Green industry is growing tremendously and has a sustainable future (sustainable in terms of job security as well as environmental sustainability). For current and future generations of Minnesotans, all of this is unjustifiable. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Shawna MullenEardley B.A. Biology Duluth resident

shawnna stennes 41976

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, shawnna stennes stillwater, Minnesota

Sheila Dillon 38782

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Sheila Dillon 1701 5th St SW Willmar, MN 56201-4179

Alphabetical by sender's first name

Sheila Mandell 40400

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Sheila Mandell 401 E. Las Olas Blvd Fort Lauderdale, FL 33301 US

Sheila Packa 11336

I am strongly opposed to the proposed mining operation. I grew up on the Iron Range south of Biwabik near five lakes Wynne, Merritt, Esquagama (these are a chain of lakes flowing toward Lake Superior) and near the smaller Silver and Bass Lakes. The St Louis River also winds through this area on its way into the St Louis Bay and Lake Superior. The Iron Range is a valuable water resource and sulfide mining jeopardizes the safety of water, wildlife, and people. I have also used Crane Lake, Lake Vermilion, and other smaller waterways for recreation. The state of Minnesota has long touted its "Land of 10,000 Lakes." I can't imagine the horror of sulfide mining within this kind of watershed. In this time of increasing need for water resources across the country, it is foolhardly to ruin the ample fresh water supplies here. Economic development concerns need to be secondary to the health and welfare of the landscape. PolyMet has presented information suggesting that they could contain the effluence. They are not able to predict extreme weather events, human error, and failures of technology-all of which are likely to occur. They always occur. Corporate interests must be set aside and not drive government policy in the interest of health and safety. Thank you for your vigilance in protecting the quality of life in Minnesota. Sheila Packa 2 Chester Parkway Duluth, MN 55805 HYPERLINK "http://www.sheilapacka-com"www.sheilapacka-com 218-393-4218

Sheila Sullivan 10237

I would like to have my voice heard: I DO NOT support mining of copper and other metals in and around Superior National ForeSt I understand that jobs are important but we need to consider long term economies not a 20 year stint that may damage other business in the end. After the news of water contamination in West Virginia I am hoping more people see our wealth in terms of vital natural resources such as the water we drink and the air we breathe. These can be replenished and are seen as renewable. The amount of water we have on our Earth is finite and by poisoning it we are limiting our quality of existence. I realize Polymet has a plan to treat the water - for hundreds of years. Why would Polymet commit to such a long term agreement. And how long is long. Please explain who will continue to treat the water when Polymet is not longer in existence. Has any company lasted over 200 years. If we could replace the ecosystem and guarantee no water contamination then I would be happy to add jobs to the economy. There has been no evidence of mining where the land returns to its natural state. It is too invasive to our Earth. Please provide jobs that search for improved technologies for mining and perhaps focus on recycling and reusing of old metals. Many up and coming companies are looking for money making opportunities that also consider our Earth's resources as finite. Thank you for giving me the opportunity to express my views. Sheila Sullivan

Alphabetical by sender's first name

Sheila Wilcox 45268

To Whom it May Concern: I am writing to list the concerns I have about Polymet's proposed mining project. I am a public school music teacher with 25 years of teaching at Virginia High School in Virginia, MN. I have a master's degree in instrumental music education and have made the Iron Range my home since 1988- I also serve on the board of directors of two 501(c)(3) non-profit organizations in the region-The Mesabi Symphony Orchestra and the Minnesota State Old Time Fiddle Championships. I am married to a native of the Iron Range, and together we are raising two school-aged boys. The boys love their communities, their schools and their environment. Our hope is that when they return to the Iron Range after their schooling that we have preserved the legacy of clean air, clean water and clean land for them and their families to enjoy forever. I am not in support of the Polymet mining project for the reasons below. 1- First and foremost is my concern about pollution of our environment. We love the Boundary Waters Canoe Area Wilderness and we recently purchased land on Elbow Lake and built a log cabin. We value being able to hunt and fish on the lakes around our region. We have taught our boys to only eat the small fish or the plant eating fish like sunfish due to the high levels of mercury already in the larger fish. Since there has never been a sulfide mine able to pull metal out of the ground without leeching toxins into the ground water and surface water, I am convinced that no matter what Polymet says they will not be able to mine in our region safely. 2- I am concerned about current mining operations that are not meeting minimum wastewater discharge standards. What kinds of variances will be allowed for Polymet. If we can't or won't police the taconite industry, how much more difficult will it be to police Polymet. 3- I am concerned about the costly effects of cleaning up the poisoned water and soil when Polymet either goes bankrupt or gets sold to some other company. In the past, the state (that means me, the hard working tax-payer) gets stuck with the bill for the cleanup. That is not fair to burden our children with these cleanup costs. 4- I am concerned about the astronomical cost of health care for all the individuals who will develop illnesses decades later due to unsafe exposure to manganese, arsenic and mercury brought about by pollution from Polymet. This could be a huge health care crisis that, again, the tax-payers will foot the bill for. We need a company who is committed to the health of the community. I do not believe that Polymet is that company. 5- I am concerned that in exchange for polluting 6,000-8,000 acres of pristine water rich land, we are returning much less important and quite scattered lands to wetland. In my mind that is not exchanging an apple for an apple. 6- Finally, I am concerned about the Polymet's lack of support for the community in the form of giving to non-profits, especially the arts. The non-profit arts organizations that I am affiliated with have repeatedly asked for funding from Polymet for projects that bring quality live music to the underserved audiences of the Iron Range. We have repeatedly been denied this funding. The iron mining companies of the past invested in the communities, schools, libraries, etc in the cities in which the mines operated. That is why the aging Iron Range schools all have beautiful auditoriums rivaling Carnegie Hall, and why the schools have one or even two swimming pools. We don't need companies whose large corporate headquarters are states and even countries away. We need a company willing to invest in its community. I do not believe Polymet is that company. I am overall very much opposed to the Polymet mining project for all the reasons listed above. Thank you for allowing me to comment on the SDEIS. Feel free to contact me by letter, phone or email if you need any further information.

Alphabetical by sender's first name

Shelby Flint 16344

Feb 19, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Even if PolyMet offers to mitigate wetland loss by constructing wetlands or purchasing and conserving other acreage, such measures are inadequate. Newly constructed wetlands would not contain the biodiversity or carbon-storage capacity provided by intact bogs - the science and practice of wetland restoration is simply not advanced enough. Purchase and conservation of wetlands outside the 100 Mile Swamp watershed won't mitigate the impacts to ground- and surface-water flow that will occur if the wetland destruction proposed by PolyMet is permitted. Further, the drawdown and drying of peatlands that will occur if the plans proceed as proposed, will result in rapid decomposition of existing peat and a substantial release of CO2- Lastly, the SDEIS needs to take into account not just the anticipated impacts under the current climate, but the likely impacts in future under probable future-climate scenarios. The expected changes in precipitation and temperature will impact bog hydrologic regimes (and therefore plant and animal assemblages and water chemistry. Even peatlands not directly destroyed by the proposed activities will be less resilient to climate-change impacts because of the disturbances caused by mining. Permitting the proposed PolyMet activities would be short-sighted and cause much more environmental harm than economic benefit. Sincerely, Shelby Flint 1145 Raymond Ave Apt 2 Saint Paul, MN 55108-1937 (603) 988-6237

Shelley Colvin 38762

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Shelley Colvin 2267 Walnut Ct S New Brighton, MN 55112-5014

Alphabetical by sender's first name

Shelley Hines 14882

From: Shelley Hines [mailto:pshines@msn-com] Sent: Sunday, February 09, 2014 8:37 PM To: Fay, Lisa (DNR) Subject: Please ensure Polymet's SDEIS addresses details of financial assurances I'm being told that the financial assurance section of the Polymet SDEIS does not reflect details about how much money would be required to pay for cleanup and in what form it would be held. As your revise the SDEIS, please take the following actions: 1) Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs 2) Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for the conceivable potential period of water treatment 3) Identify other responsible parties (eg major investors) and how they will be held responsible for long-term cleanup should PolyMet be unable to meet their obligations 4) Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation of what would constitute adequate treatment Thanks for your attention to these issues. As a taxpayer, an accountant, and a father, it is important to me that the people of Minnesota be protected from the risks of this mining process if it becomes a reality. Too often, corporate America is not held responsible for the long term risks of their pursuit of short term profits. I do not want to prohibit mining activity if it is determined to be a reasonable risk, but I do want to make sure that the companies profiting from it are required to assume the cost of the risks, not the taxpayers. It is the responsibility of agencies such as yours to ensure that the long-term view is taken in addressing issues such as this. Thank you for protecting current taxpayers and our children and their descendants. Shelley Hines 5540 Candy Cove Trl SE Prior Lake, MN 55372 Ph. 952-447-7298

19474

Lisa Fay, EIS Project Manager MDNR Div. of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney, US Forest Service Ms Fay, Mr Bruner, Mr Dabney: Please increase the length of the comment period from 90 days to 180 days for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS). Please also reschedule the proposed January public meetings so that they happen later in the comment period. If you can't do that, please add another public meeting toward the end of the extended comment period, such as in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Sorry, but we in the public just can't possibly read everything and be ready to speak up about the project after just a few weeks which include the winter holidays. I don't think this is fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is REALLY long, like 2,169 pages long. This is like four or five Harry Potter books, and not nearly as easy to read or understand. * My understanding is that the SDEIS is not written so that members of the public can readily understand it. It's going to take a lot of work just to make sense of what it is saying. * I'm being told the SDEIS doesn't explain some of the most important issues, and that the SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. I'm hearing that no data is provided to support the level of financial assurance proposed, and as an accountant I'm big on data. * I'm hearing the SDEIS seems to be one-sided, so plenty of time is needed for both sides to address the contents * For the public to be able to tell if the conclusions in the SDEIS make sense, the list of references will need to also be made available to the public, and time will be needed to review the source information. The PolyMet NorthMet sulfide mine proposal is very controversial, so it is critical to give adequate time for all parties to review, understand, and comment. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens will matter when the government makes its decisions. Sincerely yours, Shelley Hines 5540 Candy Cove Trl SE Prior Lake, MN 55372 Shelley Hines 5540 Candy Cove Trl SE Prior Lake, MN 55372 952-447-7298

Shelley L Robinson 54554

Why do we have to keep learning the same lesson over and over again? We're promised "Pie in the sky" benefits when what it really means is a few people benefit and the rest of us pay. 500 years to clean up the results of a few years of "productive" mining? It only makes sense to those who will ultimately profit—and those who pay will suffer the consequences for generations.

Shelley O'Neill 54771

See attachment

Alphabetical by sender's first name

Shelley Rask 10042

I believe that the PolyMet project should receive their necessary permits to continue their goal to mine non-ferrous metals up on the iron range. I have lived here for 30 years and believe that today's processes for such a project can be done in a most protective way to not harm the water, air or land. I believe that PolyMet has meet all the necessary steps to ensure that the process is sound. I have property (a cabin) very close to the area that is intended to be mined and feel that my way of life and use of my property would not be adversely damaged. Please allow the permitting process to continue for PolyMet. Thank you. Shelley Rask | Administrative Assistant TOWN AND COUNTRY ELECTRIC (218) 741-4618 Phone (218) 741-5802 Fax

Shelley Robshaw 20120

PolyMet Mining's proposed copper nickel mine near the boundary waters is dangerous to a precious natural resource. Wild rice has already been hurt by the sulfide released into the water from previous mining. Waste water and contamination holding tanks have been proven to be unreliable. We cannot risk destroying the environment for this short term gain. The negative impacts will live on for generations. PolyMet cannot guarantee the safe performance of its process, nor can it provide the financial resources to handle cleanup activities long into the future. As supporters of the Superior Hiking Trail and the boundary waters, we ask that you do not approve this venture. Shelley and Michael Robshaw 1410 Lafond Ave St Paul, MN 55104

Shelley Strohmaier 15430

My name is Shelley Strohmaier. My address is 3800 Upton Ave S./Minneapolis/MN/55410- My husband and I also have a home in northern Minnesota, about 7 miles south of Biwabik. This issue is of great concern to us. By way of background, my father was an engineer with US Steel and played an integral role in designing and operating the Minntac mine in Mountain Iron. I share that personal information to provide context that I do not come from a general position of opposing mining. However, my reading and researching on copper sulfide mining has convinced me that the polymet mine poses an unacceptably high level of risk to our pristine northern Minnesota waters. It seems absurd and short sighted in the extreme that the state would allow a mine project to go forward that will produce only a few hundred jobs for just 20 years. In return for those relatively small and short lived gains for the Northern Minnesota economy, we risk hundreds and hundreds of years of spoiled waters. Time and again throughout the world (including sites in Colorado, West Virginia, and Montana), sulfide mining companies have destroyed the environment and failed to provide the funding required to prevent or repair the environmental damage they have caused. Please do not let this project move forward, for the sake of those of us who value protecting the environment for us and for countless future generations.

Shelley Valentini 5937

Thank you~ Shelley* Shelley Valentini Executive Director Cell # 218-966-1998 cid:image004-jpg@01CE1E5B.F0322B40 United Way of Northeastern MN 229 West Lake Street, Chisholm, MN 55719 HYPERLINK "http://www.unitedwaynemn-org/"www.unitedwaynemn-org BE THE CHANGE YOU WANT TO SEE IN THE WORLD GIVE. ADVOCATE. VOLUNTEER.

Alphabetical by sender's first name

Sheri Plesha 39192

I'm writing to submit a comment on the Supplemental Draft Environmental Impact Statement (SDEIS) for PolyMet Mining's proposed NorthMet project. First, I want to express my confidence in your agency to thoroughly evaluate the project and its ability to mitigate potential environmental impacts. I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations . Additionally, I'd like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out – all the more reason to support it. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws – some of the strictest environmental regulations in the country. Minnesota is home to a world-class deposit of copper, nickel, platinum, palladium and gold. This is an economic opportunity right below our feet that will benefit the state's economy for future generations. PolyMet will produce these metals in an environmentally sound way and generate significant economic activity, expanding and diversifying our economy and creating hundreds of jobs that can support families and sustain communities. We cannot afford to miss this job opportunity. This project would mean 2 million construction hours, 360 full-time mining jobs and more than 600 related jobs – jobs that our state needs. Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. Based on my review and the level of detail included in the draft EIS it appears that a thorough evaluation of the project and potential impacts has been completed. Thank you Sheri Plesha Gilbert, MN 55741

Sherie Bosak 43311

Dear Reader: 1- The public deserves more time to educate themselves and weigh the costs and benefits. Please extend the public comment period. 2- Polymet's proposal to implement water osmosis treatment has been unproven on such a large scale. 3- Polymet's proposal to contain contaminated waters erroneously pro-ports that the geological underground is not fractured and therefore, a "holding" tank of some type is to contain contaminants. The geology of northern Minnesota is widely known to be fractured. 4- Sulfide mining has never been done in such a lush waterway. The mining industry has no proven track record for keeping waterways clean. 5- Polymet's promise of more jobs brought to northern Minnesota does not take into consideration the jobs lost due to lack of tourism with polluted waters. 6- Please require a health cost impact. I understand children born in northern MN already have higher levels of mercury which may have resulted because of taconite mining. 7- The proposed site is in a verdant marsh area. This land is not replaceable by a equal land exchange. 8- There is no "damage deposit" required of Polymet should contamination occur. (I do not believe that sulfuric acid can even be removed from water.) Please insist on a damage deposit. 9- By Polymet's own projections, copper contamination to fish, at its best, will be 100 X's greater than DNR's safety levels of contamination. 10- I have already chosen to go camping away from lands where preliminary drilling is said to be going on. I understand the sound of drills can be heard throughout the night. Let us preserve our jewel of northern Minnesota. It is not worth the risk of a short sighted economic boon. Thank you for reading this. I am, Sherie Bosak, St Paul, MN

Sherita Townsend 54208

I don't think it's a good idea to mine on the boundary waters. People go there to relax and enjoy the wilderness. These waters are very important to Minnesota. Mining on the boundary waters could cause pollution. It would never be the same. Our boundary waters is more important than mining copper and nickel.

Alphabetical by sender's first name

Sherrie Christian 41885

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Sherrie Christian Prior Lake, Minnesota

Sherrie Lindskog 42841

See attachment

Sherry Folsom-Meek 16289

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Sheryl Huffman 9645

I am sending this email to notify you that I am not in favor of the proposed mining operation. Sheryl Huffman

Sheryl Wilson 45942

I am unable to attend a local meeting since I live in out state Minnesota, but I need to express my very negative reaction to this proposal. The environmental damage caused by this enterprise will be significantly greater than any positives this mine will bring to the area or Minnesota. 300 jobs is really just a drop in the bucket. I am so tired of rhetoric that encourages people in depressed economic areas to poison their surroundings in order to make a living. Think about what has happened in the poor coal mining areas of Kentucky and West Virginia. This is just big business preying on the economically disadvantaged for the sake of huge profits. In addition, this type of mining is environmentally unsound and has proven to be very likely to cause damage in the future. Let's not be so short sighted. We have a beautiful state here and the Boundary Waters are a national treasure. Please don' t put all of that in jeopardy for only a few hundred jobs. Sheryl Wilson Sent from my iPad

Shira Brech 57184

Don’t mine near the boundary waters – work towards job creation through renewable energy – we need to be moving forwards – the boundary waters is beautiful and preserves humanity and hope – protect the people, workers, and planet. Thank you.Shira Brech3825 Aldrich Ave SoMinneapolis, MN 55409

Shirley Ann Steinhagen 57180

Minnesota, the “Land of Sky Blue Water.” In my opinion, we should respect and this “Land of Sky Blue Water.” Contaminated streams, rivers and lakes are at serious risk to the health of all animals and our forests. Let’s not forget the people who consume contaminated wild life from creatures in the water and on land.It is necessary to have a decent population of people living and raising families and having jobs to earn a living and enjoy our state.Where does this lead us if the ground and air so contaminated? It puts a risk of our resources a life for everyone well into the future. Let us not forget Lake Superior and the dangers of contamination.There needs to be a more safe way and not to rip the ground asunder.Shirley Ann Steinhagen8738 Vinland StDuluth, MN 55810

Alphabetical by sender's first name

Shirley Huskins 12782

Feb 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

54797

See attachment

Alphabetical by sender's first name

Shirley Reider 15984

Feb 21, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Shirley Zumberge 58084

I feel strongly we must protect our Arrowhead Region from such toxic mining. At this time I see no guarantee of safety to our water, air or wildlife. The risk is much too great. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Shonie Buenvenida 9772

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Shonie Buenvenida 56461 180th Ave West Concord, MN 55985

18587

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Shonie Buenvenida 56461 180th Ave West Concord, MN 55985

Alphabetical by sender's first name

Shonie Buenvenida 50663

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Shonie Buenvenida 56461 180th Ave West Concord, MN 55985

sid foster 38233

I grew up in Babbitt in the 70s and 80s. The Iron Range is a great place because of mining. I am a shareholder and full supporter of Polymet Mining. Sincerely, Sid Foster 4347 Hamilton Dr Eagan MN 55123 Sent from my iPad

Sierra Club 3922

Dec 24, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I have witnessed sulfide mining firsthand in South America. The waste-water from sulfide mining damages the ecosystem around the mine, as well as everything downstream from the runoff. Studies show there is not a possibility long term pollution, but a certainty. It doesn't belong in Minnesota. The companies that own the mines will reap the profits and then leave, forcing the citizens of Minnesota to deal with the damage to the health of humans as well as wildlife. There is no guarantee that any company will be around long enough to sufficiently correct all of the damage done, no matter what these companies promise in the beginning. However, there is a guarantee that damage will be done to the natural environment, especially the irreplaceable Boundary Waters Canoe Area Wilderness. Destroying the beauty and health of the state of Minnesota is not worth creating a few hundred temporary jobs. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Benjamin Cook 6805 Athena Way Inver Grove Heights, MN 55077-2413 (651) 492-1640

Alphabetical by sender's first name

Sierra Club 4048

Dec 23, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The known - and unknown - hazards of sulfide mining demand that any permit granted for mining in Minnesota be conditioned on a posted bond sufficient to cover the costs of mitigating any and all of those hazards. Beyond that, the state must first be assured by all competent authorities that this project will not damage Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations. The state must recognize that the mining of precious metals beneath our surface may first require the development of new mining technologies. In this regard, wouldf-be miners should be encouraged to contribute funding for research by the University of Minnesota and work with the University to develop those safe mining practices. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Jerry Kahlert 900 Robert St S Apt 110 Saint Paul, MN 55118-1484 (612) 839-0725

4092

Dec 23, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Thanks for considering my comments. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Tom Canning 511 17th St N Moorhead, MN 56560-2356

Sierra Club Northstar Chapter 19507

From: Gardner, Annah J. [mailto:AJGARDNER@stthomas-edu] Sent: Tuesday, December 17, 2013 12:02 AM To: DLL-CEMVP OP-R Inquiry Subject: [EXTERNAL] request for extended comment period for the Northmet Mining Project I am emailing to request a 180 day comment period for the Northmet Mining project. The PolyMet SDEIS is extremely long and I need extra time to be able to read it. thank you Annah Gardner Classification: UNCLASSIFIED Caveats: NONE

42946

[See attachments for Submission ID 42950]

42947

[See attachments for Submission ID 42950]

42948

[See attachments for Submission ID 42950]

42949

[See attachments for Submission ID 42950]

42950

Attached are comments submitted on behalf of the Sierra Club North Star Chapter, there will also be a couple more subsequent emails including attachments to our comments thank you

Alphabetical by sender's first name

Signe Martell 43071

Dear Ms Fay, Dear Federal and State Agency Leaders, I am asking you to please say no to allowing the PolyMet sulfide mining to take place. Our water, air, and entire environment will be spewed with toxins which will affect all living beings. Please stop this now. Sincerely, Signe Martell Signe Martell 2149 Goodrich Av St Paul, MN 55105 651-231-1058

Silvia Bertano 40851

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Silvia Bertano Corso Rosselli 123/8 Torino, NY 10129

Silvia Comparini 17534

Thank YOu. On Sun, Feb 16, 2014 at 7:55 AM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: HYPERLINK "https://www.boxbe-com/overview"Boxbe http://www.boxbe-com/stfopen.tc_serial=16383744487andtc_rand=271597396andutm_source=stfandutm_medium=emailandutm_campaign=ANNO_MWTPandutm_content=001*NorthMetSDEIS (DNR) (HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us) is not on HYPERLINK "https://www.boxbe-com/approved-list.tc_serial=16383744487andtc_rand=271597396andutm_source=stfandutm_medium=emailandutm_campaign=ANNO_MWTPandutm_content=001andtoken=puIwZr11LCFGdQ5xB%2BqZF2z0JZfD%2BiqvhMqSRWXli9L3vZBG3ZZBFE12ACWZZYR9andkey=%2FbKLs%2FOccX%2FvrFxmTgUF4WiAmg%2Fi9UNI8%2FvuSOlht98%3D"your Guest List | HYPERLINK "https://www.boxbe-com/anno.tc_serial=16383744487andtc_rand=271597396andutm_source=stfandutm_medium=emailandutm_campaign=ANNO_MWTPandutm_content=001andtoken=puIwZr11LCFGdQ5xB%2BqZF2z0JZfD%2BiqvhMqSRWXli9L3vZBG3ZZBFE12ACWZZYR9andkey=%2FbKLs%2FOccX%2FvrFxmTgUF4WiAmg%2Fi9UNI8%2FvuSOlht98%3D"Approve sender | HYPERLINK "https://www.boxbe-com/anno.tc_serial=16383744487andtc_rand=271597396andutm_source=stfandutm_medium=emailandutm_campaign=ANNO_MWTPandutm_content=001anddomandtoken=puIwZr11LCFGdQ5xB%2BqZF2z0JZfD%2BiqvhMqSRWXli9L3vZBG3ZZBFE12ACWZZYR9andkey=%2FbKLs%2FOccX%2FvrFxmTgUF4WiAmg%2Fi9UNI8%2FvuSOlht98%3D"Approve domain Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Simon Gretton 40176

Dear Mr Bruner, Having read the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement, I have great concern about the proposed PolyMet Sulfide Mine. I do not think this project should be allowed to go ahead because of it's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. PolyMet spokes people talk of job creation, but as a resident of North East Minnesota who lives only a little above the poverty level, I feel strongly that a few dozen or even several hundred jobs are not worth long term damage to our environment. Though the economic benefits of this project are questionable, I don't think any economic benefit is worth this potential threat to our environment. Also, it's worth noting the economic benefits of metal mining tend to be very volatile leading to long term downturns and the decline of local communities. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. An additional fear is that if this project is given the go ahead, it will open the door to even bigger sulfide mining projects by Twin Metals and others. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. As far as I can tell there has not been a sulfide mining site that had not resulted in significant long term pollution. Given that runoff water from the site will need treatment for some 500 years, the chance of significant pollution at some point seems highly likely. Thank you for considering my comments. Simon Gretton 1300 E Hwy 169, Apt. 137 Grand Rapids, MN 55744 (218) 491-3713 HYPERLINK "mailto:simongretton@gmail-com"simongretton@gmail-com

40194

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Dear Ms Fay, Haing read the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement, I have great concern about the proposed PolyMet Sulfide Mine. I do not think this project should be allowed to go ahead because of it's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. PolyMet spokes people talk of job creation, but as a resident of North East Minnesota who lives only a little above the poverty level, I feel strongly that a few dozen or even several hundred jobs are not worth long term damage to our environment. Though the economic benefits of this project are questionable, I don't think any economic benefit is worth this potential threat to our environment. Also, it's worth noting the economic benefits of metal mining tend to be very volatile leading to long term downturns and the decline of local communities. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. An additional fear is that if this project is given the go ahead, it will open the door to even bigger sulfide mining projects by Twin Metals and others. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. As far as I can tell there has not been a sulfide mining site that had not resulted in significant long term pollution. Given that runoff water from the site will need treatment for some 500 years, the chance of significant pollution at some point seems highly likely. Thanks you for considering my comments. Simon Gretton 1300 E Hwy 169, Apt. 137 Grand Rapids, MN 55744 HYPERLINK "tel:%28218%29%20491-3713"(218) 491-3713 HYPERLINK "mailto:simongretton@gmail-com"simongretton@gmail-com

Alphabetical by sender's first name

Simon Gretton 44184

Dear Ms Fay, Since I contacted you several days ago it has come to my attention that internal DNR documents show groundwater base flow is 200-300% higher than the rate used in PolyMet's analysis. It seems that neither the SDEIS nor the sulfide mine project are based on good science. Given the extensive history of sulfide mining pollution and the potential long term threat to receiving waters, this confirms my opinion that this project should be rejected. Sincerely, Simon Gretton 1300 E Hwy 169 Apt. 137 Grand Rapids, MN 55744 HYPERLINK "tel:%28218%29%20491-3713"(218) 491-3713 On Mon, Mar 10, 2014 at 3:46 PM, Simon Gretton <HYPERLINK "mailto:simongretton@gmail-com"simongretton@gmail-com> wrote: Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Dear Ms Fay, Haing read the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement, I have great concern about the proposed PolyMet Sulfide Mine. I do not think this project should be allowed to go ahead because of it's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. PolyMet spokes people talk of job creation, but as a resident of North East Minnesota who lives only a little above the poverty level, I feel strongly that a few dozen or even several hundred jobs are not worth long term damage to our environment. Though the economic benefits of this project are questionable, I don't think any economic benefit is worth this potential threat to our environment. Also, it's worth noting the economic benefits of metal mining tend to be very volatile leading to long term downturns and the decline of local communities. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. An additional fear is that if this project is given the go ahead, it will open the door to even bigger sulfide mining projects by Twin Metals and others. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. As far as I can tell there has not been a sulfide mining site that had not resulted in significant long term pollution. Given that runoff water from the site will need treatment for some 500 years, the chance of significant pollution at some point seems highly likely. Thanks you for considering my comments. Simon Gretton 1300 E Hwy 169, Apt. 137 Grand Rapids, MN 55744 HYPERLINK "tel:%28218%29%20491-3713"(218) 491-3713 HYPERLINK "mailto:simongretton@gmail-com"simongretton@gmail-com

47792

From: Simon Gretton [mailto:simongretton@gmail-com] Sent: Monday, March 10, 2014 4:17 PM To: Periman, Richard -FS Subject: Comment on PolyMet NorthMet Supplemental Draft EIS Dear Mr Periman, Having read the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement, I have great concern about the proposed PolyMet Sulfide Mine. I do not think this project should be allowed to go ahead because of it's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. PolyMet spokes people talk of job creation, but as a resident of North East Minnesota who lives only a little above the poverty level, I feel strongly that a few dozen or even several hundred jobs are not worth long term damage to our environment. Though the economic benefits of this project are questionable, I don't think any economic benefit is worth this potential threat to our environment. Also, it's worth noting the economic benefits of metal mining tend to be very volatile leading to long term downturns and the decline of local communities. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Minnesota Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. An additional fear is that if this project is given the go ahead, it will open the door to even bigger sulfide mining projects by Twin Metals and others. Acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. As far as I can tell there has not been a sulfide mining site that had not resulted in significant long term pollution. Given that runoff water from the site will need treatment for some 500 years, the chance of significant pollution at some point seems highly likely. Thank you for considering my comments. Sincerely, Simon Gretton 1300 E Hwy 169, Apt. 137 Grand Rapids, MN 55744 HYPERLINK "tel:%28218%29%20491-3713"(218) 491-3713 HYPERLINK "mailto:simongretton@gmail-com"simongretton@gmail-com

Alphabetical by sender's first name

Simon Gretton 49080

Dear Mr Dabney, Having read the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement, I have great concern about the proposed PolyMet Sulfide Mine. I do not think this project should be allowed to go ahead because of it's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. PolyMet spokes people talk of job creation, but as a resident of North East Minnesota who lives only a little above the poverty level, I feel strongly that a few dozen or even several hundred jobs are not worth long term damage to our environment. Though the economic benefits of this project are questionable, I don't think any economic benefit is worth this potential threat to our environment. Also, it's worth noting the economic benefits of metal mining tend to be very volatile leading to long term downturns and the decline of local communities. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. An additional fear is that if this project is given the go ahead, it will open the door to even bigger sulfide mining projects by Twin Metals and others. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. As far as I can tell there has not been a sulfide mining site that had not resulted in significant long term pollution. Given that runoff water from the site will need treatment for some 500 years, the chance of significant pollution at some point seems highly likely. Thank you for considering my comments. http://mail.google-com/mail/u/0/images/cleardot.gif Simon Gretton 1300 E Hwy 169, Apt. 137 Grand Rapids, MN 55744 HYPERLINK "tel:%28218%29%20491-3713"(218) 491-3713 HYPERLINK "mailto:simongretton@gmail-com"simongretton@gmail-com

Simona F 41914

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Simona F Minneapolis, Minnesota

Sindy Mau 38877

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Sindy Mau 1733 Lansford Ln Mendota Heights, MN 55118-3704

Siri Lindquist 54535

Please re-write the EIS until there is more information or more examples of successful mining without long term pollution. I am thankful that there is going to be an EIS on the effects of the Polymet Mine…I only ask that the EIS take several things into mind. Think about the after effects of mining. One, the tailings and impact on the land of the unused material from this mining. Think about the total picture of the future—the sulfuric iron will seriously affect the land and water of the area, and the ecological changes that cannot be undone. In addition to the ecological changes, past mining experience, have seriously shown that the long term safety or isolation of the waste cannot be guaranteed. To preserve the waste from running into the land should be important. Put the responsibility clearly on Polymet, and think about how it is impossible to ensure 500 years of securing the waste. 10 years of mining for 500 years of after effects or possible pollution if it fails.

Alphabetical by sender's first name

Sister Rosita Aranita 42809

See attachment

Siyanda Elizabeth 15659

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: This project is all wrong. Why would we sacrifice the quality of our land and water to provide economic benefit for a few individuals in the mining industry. Stop PolyMet and Save Minnesota. Please reject the SDEIS and the PolyMet sulfide mine in Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Siyanda Elizabeth Siyanda Elizabeth 3381 Newton Road Hibbing, MN 55746

50507

Dear Ms Fay, Mr Bruner and Mr Dabney: This project is all wrong. Why would we sacrifice the quality of our land and water to provide economic benefit for a few individuals in the mining industry. Stop PolyMet and Save Minnesota. Please reject the SDEIS and the PolyMet sulfide mine in Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Siyanda Elizabeth Siyanda Elizabeth 3381 Newton Road Hibbing, MN 55746

SJ Hanson 41818

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, SJ Hanson St Louis Park, Minnesota

Skip Fay 57975

We shouldn't mine in the current proposed area. Even if you can "mitigate" risk, the current natural state is too valuable, and our water is at risk without a mine. How precious is that water? Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

solfrid ladstein 14769

Feb 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

solfrid ladstein 17725

Feb 15, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not adequately examine the risks to worker safety and public health from asbestos-like fibers found in the rocks that they propose to mine. I ask the DNR to require a more comprehensive public health assessment of the risk to workers and the public than what PolyMet has provided in the SDEIS. The SDEIS acknowledges that amphibole fibers are present in the rock to be mined, that crushing the rock for processing releases these fibers, and that these fibers are suspected of causing mesothelioma in workers. The SDEIS further acknowledges that there have been few studies of the risk from fibers of the size that would be created at the PolyMet mine and plant site. A number of mesothelioma cases were found in mine workers who worked in the LTV Erie Plant that PolyMet proposes to use as part of their mine plan, and the SDEIS inaccurately characterizes a University of Minnesota study of mesothelioma in mine worker as showing that this risk came exclusively from the use of commercial asbestos products in the mine. In fact, the University of Minnesota did not exonerate dust from crushing ore, and is continuing to study the health impact of exposure to short amphibole fibers of the type contained in the ore that PolyMet would mine and process. Specifically, the DNR should: 1) Revise the SDEIS and conduct a formal health assessment of the risk to public health and worker safety from the amphibole fibers present in the ore at the PolyMet mine site. The SDEIS should specifically conduct a formal health assessment of the risks from asbestos-like fibers less than 5 microns in length 2) Revise the SDEIS to provide details of the air monitoring at the mine and plant site and in nearby communities, and describe contingency plans to address the risk to public health and worker safety if asbestos-like fibers are detected during construction, operation, closure and post-closure 3) Revise the SDEIS to eliminate inaccurate characterizations of the University of Minnesota mesothelioma study. Specifically, eliminate statements that imply that commercial asbestos is the primary risk factor for mesothelioma risk Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms solfrid ladstein 1892 Wellesley Ave Saint Paul, MN 55105-1615

41899

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms solfrid ladstein 1892 Wellesley Ave Saint Paul, MN 55105-1615

Sommers 20111

Lisa Fay - Please do not allow Copper/Nickle mining in BWCA. No need to repeat arguments here - Thanks. Dave Sommers, 46 Cliff Cove Road, Schroeder, MN 55613 - Dave Sommers HYPERLINK "mailto:sommers@boreal-org"sommers@boreal-org

Alphabetical by sender's first name

Sonia Schmerl 40637

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans and other Americans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Ms Sonia Schmerl 539 S 1st St Ann Arbor, MI 48103-4947 (734) 668-1402

Sonja B 39276

Dear Mr Dabney, Mr Bruner and Ms Fay: I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. This includes a net loss of 6,026 acres of areas with high biodiversity; 2,030 acres of mature forest – replaced by 2,000 acres of immature forest; 1,400 acres of floodplains and losses of 11 endangered or threatened species. The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade. The PolyMet sulfide mine would reduce lynx habitat by two square miles, kill individual lynx, and impact 2 out of 13 remaining small corridors for wildlife to travel across the Arrowhead region. The PolyMet sulfide mine plan would also destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which dropped precipitously by 35% from 2012 to 2013- Yet, the SDEIS contains no analysis of impacts on moose from the PolyMet project. The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St Louis River and tribal resources, which is in direct violation of the Clean Water Act. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice. Please take the following actions to protect clean water, ecological communities, public lands and tribal rights: • Reject PolyMet's proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. • Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. • Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. • Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. • Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. No more studies are needed to know that the PolyMet land exchange and sulfide mine should not be approved. The SDEIS plan is also inadequate and should be rejected: • The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. • The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at taxpayer expense. • The SDEIS fails to analyze alternatives, including underground mining, that could reduce impacts on lynx,

Alphabetical by sender's first name

Sonja Johnson 17136

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sonja Johnson 3000 W. River Pkwy. #112 Minneapolis, MN 55406

20668

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as in adequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect" wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1-Underground mining, looking at the full ore deposit and PolyMet's real costs; 2-Putting a liner under the Category 1 waste rock stockpile; 3-Placing all tailings on a new completely lined facility; 4-Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5-Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to protect irreplaceable wetlands and fresh water resources in the Lake Superior Basin for generations to come. Very truly yours, Sonja Johnson 3000 W. River Pkwy. #112 Minneapolis, MN 55406

Alphabetical by sender's first name

Sonja Johnson 50405

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sonja Johnson 3000 W. River Pkwy. #112 Minneapolis, MN 55406

Sonja Meintsma 47095

Mar 12, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. The Boundary Waters are a sacred place for many Minnesotans and Americans-I urge you to ensure the protection of these lands. We have a duty to future generations and the Earth to make educated decisions regarding proper environmental treatment of our lands. People often find solance in these waters, we must protect our connection to these lands. Please STOP the Ploymet.. Sincerely, Ms Sonja Meintsma 14541 Wellington Rd Wayzata, MN 55391-2414

Alphabetical by sender's first name

Sonja Misch 41798

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sonja Misch Dale St Paul, MN 55116

Alphabetical by sender's first name

Sonya Mirus 46931

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: As a resident of northern Minnesota, I value the clean water and unsullied natural areas. The proposed PolyMet mine would destroy what I love most about this area. It is not a sustainable source of jobs, and it would greatly deteriorate the quality of life for human residents and wildlife, not to mention decimating the local tourism industry. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sonya Mirus Duluth, MN Sonya Mirus 428 E 10th Street Duluth, MN 55805

Alphabetical by sender's first name

Sonya Mirus 46932

Dear Ms Fay, Mr Bruner and Mr Dabney: As a resident of northern Minnesota, I value the clean water and unsullied natural areas. The proposed PolyMet mine would destroy what I love most about this area. It is not a sustainable source of jobs, and it would greatly deteriorate the quality of life for human residents and wildlife, not to mention decimating the local tourism industry. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sonya Mirus Duluth, MN Sonya Mirus 428 E 10th Street Duluth, MN 55805

Sophie Justinak 38341

Mar 6, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. Minnesota has already implemented the Legacy Amendment, which allocates a significant amount of its' revenues towards the Clean Water Fund. The pollution from the PolyMet proposal that would leak into ground water, and which would affect surface water will just add to the list of Minnesota's impaired waters. Additionally, the proposal includes the destruction of vital peat bog habitat, and carbon-sequestering foreSt The projected 20-year use of the PolyMet mine seems cursory; considering the 100's of years that the waste water treatment facilities will operate after the mine closes, along with the time and money that will have to be spent on the restoration of the surrounding areas. In Minnesota we proudly pay extra taxes in order to protect our beautiful and bountiful ecosystems - please respect this fact and do not support the PolyMet mine, which would undermine the progress of Minnesotan's hard-earned tax dollars towards cleaner waters and lands. Sincerely, Ms Sophie Justinak 3967 114th Ln NE Blaine, MN 55449-7031 (763) 232-6128

Alphabetical by sender's first name

Soua Xiong 54236

Dear Ms. Fay,My name is Soua Xiong and I am writing to you from Humboldt High School. I have heard that there is going to be a mining in the Bounding Water Cannoning Area (BWCA). I have not been to the BWCA, but my family is making plan to have a camping trip there in the summer. From what I have seen in the website of the BCWA, it is naturally beautiful place. I want that place to stay like that for the next hundreds generations and even mine generation to explore in the wild. Please keep it safe from pollutions and mining, even anything from destroying it.About the mining that is going to take place around that area, please I want it to be change. Even though the SDEIS drew a map that the mining won't affect the BWCA, from what I have seen, that map is wrong. The SDEIS have a wrong calculation of the map. They left out the half of the one hundreds mile swamp. That means it also leaves the BCWA completely unprotected from the acid mine. There are lacks of evidence that the mining won't goes to BCWA, but the mining will only affect Lake Superior. But the map is wrong because Langley Creeks goes to BCWA not Lake Superior. There are many possible solutions to protect the BCWA:1. Correct the SDEIS maps and measure in the right calculation of the mining2. Testing the water of the Langley Creek into the BCWA3. More evidence that the mining won't affect the BCWAPlease consider these possible solutions to keep BCWA protected for many years ahead of us.Sincerely,Soua Xiong

Spencer Ludtke 21451

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Spencer Ludtke 1451 Juliet Ave Saint Paul, MN 55105

Alphabetical by sender's first name

Spencer Ludtke 49889

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Spencer Ludtke 1451 Juliet Ave Saint Paul, MN 55105

Spencer Snyder 58070

Clean water means more than profits Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Stacey Bishofsky 42065

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Stacey Bishofsky Elgin, Minnesota

Alphabetical by sender's first name

Stacey Kemp 16220

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Stacey Larsen 38607

I support PolyMet and the work they are doing in the State of Minnesota. The fact the we have a local deposit of copper, nickel and PGMs of this magnitude speaks for itself. Why would we not mine these metals domestically. Since it can be done soundly and produce local jobs and revitalize a struggling economy in northern Minnesota, I do not know of any reason why our state would not want to mine these metals. As someone who works in a career in the environmental field, I have every faith that they will not harm our environment. I believe the laws in place in our state and country ensure that. As someone who's job is connected to the mining industry, mining plays a key role in keeping me, as well as hundreds of other Minnesotans, employed. Please keep the process moving forward and lets get this mine permitted. Stacey Larsen 240 Spring Street Unit 221 Saint Paul, MN 55102

Staci L Drouillard 54854

See attachment

Alphabetical by sender's first name

Staci Revers 15763

The environmental impact statement which is supposed to protect the environment has a big problem. PolyMet did some revisionist geography to imply that acid drainage from waste rock piles can't flow to the BWCA because the site is on the south side of the Laurentian Divide. In fact, the mine is uphill from a wetland that exists as a divot in the divide and drains down both sides. A pretty big divot, it even has a name – The One Hundred Mile Swamp (it's actually a little over 10 miles long). This concerns me- I would like PolyMet to do more testing on the flow through the swamp to ensure BWCA is safe. Thank you. Staci Revers

Stacie Groll 42497

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Stacie Groll 200 W Sterne Pkwy Apt 109 Littleton, CO 80120-3852 (720) 583-6330

Stacie Whaley 39478

I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations. Stacie Whaley 2323 Boland Drive Duluth, Minnesota 55804 The views and opinions expressed in this message my own. I am solely and individually responsible for the content. This is not intended to represent or reflect anyone else's views or opinions, including those of my employer, ALLETE, Inc.

stacy chladek-doyle 40291

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, stacy chladek-doyle 18n 2nd st pleasantville, NJ 08232 US

Alphabetical by sender's first name

Stan Paczynski 18066

Again, my name is Stan Paczynski. I'm a business representative for the Brick Layers and Allied Craft Workers. I represent about 2,800 people, working people. I'm here in support of the PolyMet project. For one, I trust in the numerous agencies and facilities that have done their homework and their due diligence. And I have my full trust in what they do. Not only in the jobs and economic stability to the area I think we need to rely on our people doing their job, again, with the agencies and the government entities that are doing the permitting processing and have faith. I look forward to the process going forward as a safe process. It's a construction project if the work goes through and to bring some growth and economic stability to our Northeastern Minnesota.

stan sheggeby 40299

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, stan sheggeby 302 oriole lane madison, WI 53704 US

Stephanie Digby 18267

My name is Stephanie Digby. I live in St. Paul. This is just a very brief comment. I will be writing further. I have discovered that in the reclaimed water and in the whole reclamation process microorganisms have not been considered. I have a doctorate in botany. I have studied algae and microfungi that inhabit only the water. They are environmental indicators and they are also necessary for the health of the water and the water system. They are the start of the food chain. I have been told this has not been considered. I will be writing to you with suggestions about how to do an evaluation. Thank you.

Alphabetical by sender's first name

Stephanie Kessler 16244

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Stephanie kRawn 5984

Dear Sir: This morning I listened to the Public Radio program about the mining project you are proposing near Aurora, Minnesota. It appears that people who are concerned about the project oppose it because of water issues. Wouldn't it be prudent to try to resolve those issues by researching ways to not contaminate the water system. To me it comes down to big business vs the average Joe. At what point does big business take over the course of our lives and what can we do about it. I would prefer not to have this battle. Please find a way to help the water system in Northern Minnesota remain pure for those who use it AND be able to extract the various minerals you need. I apologize for the money you have already sunk into this project, but the well-being of Minnesota residents should also be considered. Thanks, Mrs Stevie Rawn St Paul, MN

Stephanie L Carlson 57148

The PolyMet's mine proposal would not be in the best interests of the people or land of Minnesota or the greater region, were it to go through. We cannot afford the environmental degradation and water pollution that would ensure. Our precisions resources of water, particularly, along with forest and wildlife, are irreplaceable and are worth far more than any short-term profits to be gained by sulfide mining. The trade-off is not worth it, and the damage inflicted could, I believe, not be undone, resulting in great loss for all of us, for generations to come.Stephanie L. Carlson4414 Robinson StDuluth, NN 55804

Alphabetical by sender's first name

Stephanie Onorat 18250

Stephanie S-T-E-P-H-A-N-I-E, Onorat, O-N-O-R-A-T. I moved to Minnesota in 1998, with all its pristine beauty and the fact that the residents appreciate and enjoy. In regards to the focus of the evening, the PolyMet proposed sulfide mine, I will preface my remarks with a quote from the union of concerned scientists because it is so apt. “Politicians and lobbyists have exaggerated scientific uncertainty to delay actions that would protect the public from tobacco, pesticides, the ozone hole and acid rain. When people believe the science is not settled, they are less likely to take or demand action. Who benefits from the uncertainty? Big business.” In this case, big business is PolyMet. PolyMet’s initial environmental impact statement was so vague that they were requested to provide another one, which is somewhat more substantive. Nonetheless, the risk of benefit analysis is essential here and the scarcity of facts at Minnesota’s disposal, as well as the ones we do have, dictate the rejection of the proposed mine. Under the risk-benefit analysis, the risks, fact one would be sulfide mining is toxic. It will result in environmental destruction, loss of wildlife, habitat, economic loss, and water contamination for possibly 500 years. The flip side of the risk-benefit analysis, the benefit, as we know at this point, can only with certainty be said that PolyMet stands to benefit from this transaction. They will make their fortune and move on, leaving us with currently unquantifiable damage because the flaws in their environmental impact statement have not yet been alleviated. I would note that PolyMet has not committed to establishing a trust fund with millions of dollars in it so Minnesota can monitor its water for the next 200 to 500 years, which appears to be a certainty. And finally, there’s simply a lot of lobbying going on here. Let me end with a quote from the union of concerned scientists in that regard. “A UCS-commissioned study by The Center for Responsive Politics found that prescription drug, biotechnology and medical device companies spent more $700 million lobbying Congress and the White House between 2009 and 2011. In 2012, Congress gave these industries more say in how prescription drugs and medical devices are approved.” Don’t allow PolyMet’s aggressive attempts to influence, override Minnesotan’s common sense.

Stephanie Onorato 9627

I attended last evening's Public Comment Hearing at the St Paul River Centre and was disappointed that I was not chosen to speak (although I did put some remarks on the record with a stenographer). I'm sure it was a misperception on my part, but it did seem as if 2 out of every 3 speakers chosen by the lottery system represented some business enterprise that stood to gain from approval of the PolyMet sulfide mine. At any rate, I have some additional comments post-Hearing. The first is actually a question: What does the government stand to gain from this transaction. Is PolyMet going to pay us for this opportunity, if granted. Or do we simply give them carte blanche to come, destroy the environment and then leave us with a gaping hole in the ground and rampant toxicity, not to mention other deleterious environmental effects. Have they agreed to put millions into a trust fund for Minnesota's use so we can monitor and possibly clean-up pollution for hundreds of years after they are long gone. If that premise is correct, is the justification the few hundred jobs PolyMet will create for a finite period before the copper and nickel supplies are exhausted. Some speakers were proponents of job creation in the Iron Range / diversification but this proposal does not address the issue. The Iron Range economy was based on mining and this is a continuation of the same. If the government is serious about diversification / job creation there, monies need to be invested in technology and training for those jobs, because they have a future. Finally, there was discussion about the "land-swap" that PolyMet has so generously proposed. I believe the terms involve the government relinquishing control of prime land situated in National Forest (or close to it) for land somehere - no mention of where. Is it in a swamp. Is the value even remotely comparable to what is being given up. What will be the effect of a full-on mining operation in the middle of pristine foreSt At the very least, destruction of habitat, interruption of the life-cycle and feeding/migration habits of wildlilfe, pollution and NOISE from constant drilling and trucking in the midst of our quiet space. This proposal is a travesty. Only PolyMet stands to gain long-term and the self-serving businesses linked to PolyMet's fortunes. There is no track record for PolyMet - only talk; apparently, their econd EIS is also flawed. Let PolyMet experiment elsewhere before destroying what is Minnesota is known for.

38882

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Stephanie Onorato 31520 White Rock Trail Welch, NJ 08033

Alphabetical by sender's first name

stephanie sharp 39012

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. . Sincerely, stephanie sharp 2763 128th Ave NW Coon Rapids, MN 55448-1162 (763) 757-4951

Stephanie Summers 40119

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. Any plans that rely on keeping systems to protect the environment in place for hundreds of years seems unrealistic if not practically delusional. The mining companies almost never keep their promises and cut corners at the first opportunity. What happens when the company goes out of business or is bought. I sympathize with the need to improve the area's economic picture but this plan seems inherently flawed. This kind of natural environment is fragile and must be preserved for the enjoyment and use of all humans and for the welfare of our brother and sister beings now and in the future. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Stephanie Summers 743 Parkview Ave Saint Paul, MN 55117-4045 (651) 488-8528

Stephen Bailey 24938

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I AM GIVEN TO UNDERSTAND THAT CORPORATIONS ARE LEGALLY PEOPLE-THAT BEING THE CASE, THIS CORPORATION/PERSON IS, BY ITS TOXIC ACTIONS, CARRYING OUT A SLOW FORM OF SUICIDE-BY-POISONING-ITS-HOME.. SICK, SICK, SICK.. AND PROFOUNDLY, HEINOUSLY SICK IN THAT HE/SHE/IT IS NOT ONLY KILLING ITSELF SLOWLY, IT IS ALSO, IN THE PROCESS, KILLING ALL WITHIN RANGE OF ITS WEAPON OF CHOICE. STOP THE POISONING OF OUR HOME IT IS PATHOLOGICAL, SICK, TRULY INSANE. ALL OF OUR CHILDREN WILL BE SUBJECTED TO THIS POISON, SICKENED AS WELL, AND THEIR CHILDREN, AND THEIR CHILDREN, FOR GENERATIONS. STOP THIS MADNESS. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Stephen Bailey 4778 Edward Dr Deming, WA 98244-9415

Alphabetical by sender's first name

Stephen Dahl 17250

Feb 17, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). It is lacking vital information about long-term water treatment and how it will be paid for. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest, which we own and should not surrender. More than 900 acres of wetlands will be directly destroyed by the mine. The SDEIS proposes no mitigation for the indirect wetland impacts. Additional toxic metals such as mercury, copper, and nickel that are not captured for treatment will damage aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Mr Stephen Dahl 36 Diane Dr Kingston, RI 02881-1213

Stephen Greenfield 47494

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I realize that metals have to be mined somewhere, but sulfide mining inevitably leads to heavy metal contamination, and should never be done in a place like the boundary waters that is so connected to multiple major watersheds. The revenues look tempting, but the amount of time that we will have to manage the pollution and its costs clearly dwarf any benefits. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Stephen Greenfield 3429 Girard Ave S Minneapolis, MN 55408-3818 (612) 825-6202

48592

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I realize that metals have to be mined somewhere, but sulfide mining inevitably leads to heavy metal contamination, and should never be done in a place like the boundary waters that is so connected to multiple major watersheds. The revenues look tempting, but the amount of time that we will have to manage the pollution and its costs clearly dwarf any benefits. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Stephen Greenfield 3429 Girard Ave S Minneapolis, MN 55408-3818 (612) 825-6202

Alphabetical by sender's first name

Stephen Hamre 16770

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Stephen Hamre 22090 Ethan Ave Forest Lake, MN 55025

stephen hoglund 2

No hard rock Non Ferrous Sulfide Mining, including copper/nickel/gold/silver etc Keep the status quo. We have a amazing tourism industry that can only grow, unless this nightmare takes place in North Eastern Minnesota. Stephan Hoglund 3 businesses all dependent on Clean Air and Water and a healthy ecosystem Superior Design Jewelry/Stephan Hoglund Design Stephan Hoglund Photography Artists Loft Vacation rental Box 850 Grand Marais Minnesota 55604 218 387 1752 Jewelry Gallery 218 370 1314 Mobile HYPERLINK "mailto:sh@stephanhoglund-com"sh@stephanhoglund-com

Stephen J Jay 23471

Thanks. They got it. I attached for you. Sent to the kids few min ago. sj Stephen J. Jay M.D. Professor of Medicine and Public Health Indiana University School of Medicine Richard M. Fairbanks School of Public Health 714 N. Senate Avenue, EF 203B Indianapolis, IN 46202 Phone: 317 274 3126 Email: HYPERLINK "mailto:sjay@iupui-edu"sjay@iu-edu NOTE: my email address has changed to HYPERLINK "mailto:sjay@iu-edu"sjay@iu-edu. Please update your contact liSt Thanks From: *NorthMetSDEIS (DNR) [mailto:NorthMetSDEIS.dnr@state.mn.us] Sent: Tuesday, March 04, 2014 4:10 PM To: Jay, Stephen J Subject: RE: Supplemental Draft Environmental Impact Statement SDEIS Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

stephen mastey 38944

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr stephen mastey 856 Raymond Ave Saint Paul, MN 55114-1597 (651) 646-1020

Stephen P Jorgenson 54344

Dear Ms. Lisa Fay, EIS Project Manager,I believe that the Polymet Mining Inc.'s plan to extract copper, nickel and platinum group elements will greatly affect Minnesota, both positively and negatively. The economy of Minnesota, I think, will benefit from the surge of job opportunities and the addition of a new mining branch. The disadvantages, however, seem to outweigh the advantages.First, six endangered or threatened species will be affected by the mining operations. Some species, such as the Canada lynx, will be directly affected by noise and possible habitat destruction. Others will be indirectly affected. Eleven plant species will be affected by the mining operations. If these species aren't protected then they will possibly go extinct.Secondly, air and water quality will be reduced. During mining sulfur dioxide and other gases will be released. The gases will be released throughout the entire processing of the 1mterial. Dust will reduce visibility, taking away natural beauty from the surrounding area. Mercury could also be found in small amounts in the tailings pit. If this were to contaminate the water, then there would be a significant loss of plant and wildlife. Copper, cobalt, and nickel could also be released, all of which could affect the water-based organisms, if they were allowed to enter the water.Thirdly, a great number of cultural resources will be affected. Although the Sugarbush camp area will not be affected, other nearby resources will be. Parts of the Laurentian Divide will suffer damage. The Divide has been sacred to the Ojibwe people for centuries. The Erie Mining Company Concentrator Building will be affected due its proposed refurbishment and use. The mining will also happen on land that was ceded to the United States by the Bands under the 1854 treaty. This reserved the right for people to hunt, fish, and gather on these lands. With mining operations affecting wildlife, the damage is unknown.Finally, reclamation of the lands may leave them permanently damaged. Deconstruction of buildings will be time consuming and cost lots of money. Hazardous materials will need to be correctly taken care of otherwise the surrounding area will greatly suffer. Storms have the potential of washing pollution off site.These are just some of the many disadvantages that 1my come as a result of Polymet Mining Inc.'s plans. I hope I have been able to shed some light on this 1mtter.Sincerely,Stephen P. Jorgenson Jr.

Alphabetical by sender's first name

Stephen P. Safranski 43108

Lisa Fay, EIS Project Manager Minnesota Department of Natural Resources Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Re: Comments on the NorthMet Project Supplemental Draft Environmental Impact Statement (December 2013) Dear Ms Fay, I am writing to submit my comments concerning the NorthMet Project Supplemental Draft Environmental Impact Statement (SDEIS). I am opposed to the proposed project of Polymet Mining Inc. for all of the reasons outlined in the Comments submitted by the Friends of the Boundary Waters Wilderness yesterday. (See 3/12/14 Letter from B. Daub to L. Fay.) I write additionally to emphasize my personal concern over the project's grave threat to Minnesota's clean water. Preserving clean water and sources of clean water will be one of the greatest challenges of the 21st century, as global and North American demand for fresh water will completely eclipse the supply. Long undervalued as a supposedly inexhaustible resource, both the economic and societal value of clean water are predicted to skyrocket in the coming century. That is one of the reasons that the Polymet project is so concerning. Even with its current scarcity and concern over the environment, the prospect of a project that would impair our clean water resources for 200 to 500 years is significant. But with the coming global water crisis quickly approaching on the horizon, the potential costs of this project are incalculable. I hope that the Department of Natural Resources will give this project the type of scrutiny that is required, and that it require whatever protections are necessary to protect future generations. Sincerely, Steve Safranski 6552 Cherokee Trail W. Eden Prairie, MN 55344 952-303-6768 _____ Information contained in this e-mail transmission may be privileged, confidential and covered by the Electronic Communications Privacy Act, 18 USC. Sections 2510-2521- If you are not the intended recipient, do not read, distribute, or reproduce this transmission. If you have received this e-mail transmission in error, please notify us immediately of the error by return email and please delete the message from your system. Pursuant to requirements related to practice before the U. S. Internal Revenue Service, any tax advice contained in this communication (including any attachments) is not intended to be used, and cannot be used, for purposes of (i) avoiding penalties imposed under the U. S. Internal Revenue Code or (ii) promoting, marketing or recommending to another person any tax-related matter. Thank you in advance for your cooperation. Robins, Kaplan, Miller and Ciresi L.L.P. HYPERLINK "http://www.rkmc-com/"http://www.rkmc-com _____

Alphabetical by sender's first name

Stephen Rossiter 44170

Stephen Cary Rossiter 74 West Golden Lake Road Circle Pines, MN 55014 Comment on PolyMet SDEIS – 2/28/2014 Dear Federal and State Agency Leaders: I ask you to reject the SDEIS for the proposed PolyMet mine on the basis of deeply concerning issues, from false modeling assumptions to inadequate financial assurance, that I will describe below. But first, I feel I am fairly well qualified to assess this issue. I've just received a master's degree in biology, which has impressed upon me the great potential influence that using false assumptions can have on modeling efforts. Also, I have had several seasons of ecological field experience as well as college courses in chemistry and geology. Furthermore, the proposed mine and its effects could affect me. I live in Minnesota and usually travel in the St Louis River watershed once or twice each year to relax, recharge, and hone my professional skills (botany, ornithology). Also, my, and my children's, future tax dollars could be much better spent than cleaning up this pollution if PolyMet goes bankrupt after they finish mining. I have no reason to trust PolyMet, and it seems that I am being asked to trust the word of PolyMet for several parts of the SDEIS. Given the great and long term potential consequences to wilderness and public health, trust is not something I'm willing to rely on. Certainly not when PolyMet's main motivation must be a return for their investors. And certainly not when PolyMet appears to be structured so that, besides this project, it has no other assets that could be recovered in the event that something goes wrong or cleanup costs become greater than planned for with the financial assurance package (compared to Glencorp owning the project directly). Issues: The public (ie the financial assurance program) should receive much more money up front. On page 3-66: "Long-term maintenance of the Category 1 Stockpile would include repairing erosion and removal of woody species and trees from the stockpile cover system." Is this maintenance included in the planning of the financial assurance package and how many years is "long-term". Any effects of pollution would be felt the most by underprivileged peoples. Both Native Americans and low income people rely on a clean natural world for food and water. It would be unjust to force them to accept the risks while others receive the financial benefits. Most economic benefits would go abroad while Minnesotans get a few low paying jobs over a few years but the permanent potential for pollution. Furthermore, due to carcinogenic nickel dust and other toxic metals that would be present at the sites, I ask that the Minnesota Department of Health do a Health Risk Assessment for the safety of mine workers, which so far this has not been included in the planning of this project. The SDEIS contains inadequate quantification of unintentional seepage from the mine site that could make its way beyond the mine perimeter thru the groundwater. Not only that, but in general, northern Minnesota is a very water rich area and attempting a project that requires containing and managing all that water to prevent unacceptable pollution seems foolhardy. I'm told that, of other projects in water rich areas with EISs that claimed there would be no water pollution, 89% of them ended up polluting. Relatedly, estimates of the rate of groundwater flow used in the SDEIS seem to be inaccurate and underestimated. A recent map of fault lines in the project area suggests there may be more routes for groundwater to move thru than acknowledged in the SDEIS and that there may be a greater threat to any aquifers below the site. The SDEIS says on page 4-47 that at the mine site "the hydraulic connection between surficial aquifer and underlying bedrock underlying is weak." But that assertion is not quantified in a meaningful way. Does "weak" mean effectively zero, or, overtime, will the polluted seepage add up to a significant level

Stephen Ryan 36511

To MDNR: I support the PolyMet project, it is good for Minnesota. This is our chance to have a first rate mine in a location that has the most qualified workers with the knowledge and experience to do nonferrous mining. The State Of Minnesota has laws and regulations that will require the owners to meet or exceed these regulations. We have an opportunity to do the mining in Northern Minnesota where we have done mining for many generations and would do it the right way. In reading the SEIS it looks like science says it will work so why would we not do it. This is a opportunity for Minnesota to show the rest of the Nation how to do this type of mining the right way. I ask for your approval so PolyMet Mining can go forwaRd Thank You Stephen Ryan 2829 Timberline Dr Grand Rapids Mn 55744

Stephen Smith 42494

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Dr Stephen Smith 4741 Humboldt Ave S Minneapolis, MN 55419-5218

Alphabetical by sender's first name

Stephen Snyder 46084

Dear Sir/Madam: I have followed the public discussions and have reviewed a copy of the SDEIS for the proposed PolyMet mine project in the Lake Superior watershed. Please accept these comments about that Supplemental Draft. 1- The SDEIS does not adequately address a scenario wherein the party that proposes a major mining project has never before operated a mine. PolyMet is a company that has never generated any revenue or income let alone operated any mine. It is just a front organization for the foreign money that is behind this project. That scenario requires particular scrutiny. The assurances made by a front organization should be given no weight. No business would ever be satisfied with assurances received only from a straw purchaser. The environmental review should demand commitments from officers of the actual companies that will be operating this controversial mine. 2- The SDEIS does not adequately address the material risks that are presented by the proposed mining of base minerals from sulfide-bearing ores in the wet environment of northeastern Minnesota. Models based on copper-nickel mining in dry environments have no application here. This issue is particularly important because the SDEIS is based on inaccurate projections of surface water flow. Exposure to water is the number one risk here, yet the SDEIS itself in its current form only addresses this issue within its margins of error. There also has been no attempt to study the actual ground water flows below the proposed tailings pond. 3- The SDEIS does not adequately address the impact on the nearby Boundary Waters Canoe Area Wilderness if the ground waters in part will leach in that direction. There is no impenetrable barrier at the continental divide. Since the route of the ground water flowage is only approximated from the surface flows, the SDEIS fails to adequately address other potential consequences. The wilderness character of the BWCAW is a fundamental asset to Minnesota and any potential impact on its watershed must be thoroughly addressed. An after-the-fact "sorry, we didn't know," is no substitute for a detailed map of the actual ground water flows below this site. 4- The long-term maintenance required during and almost forever after for this proposed mine presents an impossible modeling challenge. The SDEIS offers no adequate method to accurately project political upheavals, economic collapses, population changes, epidemics, climate change, wars, and the inevitable but unknowable other changes that will occur over the next 200 – 500 years. Can we model such an extended future any better now than Christopher Columbus' staff could have done when they set foot on Hispaniola to set up mines about 500 years ago. The agencies may be able to model the next 50 or maybe even 100 years with some confidence, but it is ludicrous to think that anyone could prepare an adequate model to predict how the massive byproducts of this proposed mining project will be maintained for the next 500 years. If we cannot model the future for this type of mining project, then how can we evaluate the future environmental degradation that will result from this project if it is approved. 5- The agencies bear a particular burden here to objectively evaluate the potential environmental issues from this proposal to extract minute quantities of minerals from sulfide-bearing ores. Proponents for this mine have loaded the record with their arguments based on reminiscences about growing up in ferrous mining communities. Politicians have also jumped on the "jobs" bandwagon with rhetorical flourishes. My own grandfather emigrated from Europe at the turn of the last century to work in the iron ore mines in Ely while my mother's inheritance from her grandfather's holdings in Pennsylvania coal country paid for her education and that of her siblings, but none of that has anything to do with a proper environmenta

Stephen Talty 17507

Ms Fay, I wanted to convey my concern over the plans for a sulfide mine in Superior National Forest area. We have enjoyed this area of the country for years, coming to hike, ski and fish. The potential for the long term destruction of the area is a huge concern for us. As you are fully aware of the hazards associated with this type of mining-hundreds of years of pollution and destroying of ecosystems and water supplies, please know that we hope this project will not move forwaRd Minnesota is one of the most beautiful of our states and the vibrant natural resources should not be ruined all for the almighty dollar. It is not only the topical effect that concerns us but the water supplies that trickle down toward the Great Lakes where our water source comes from that is of concern. To risk contamination of water supplies that will affect so many people in so many ways-from abundance of wildlife to fishing to drinking water is irresponsible. Please prevent this. Respectfully, Kiv Talty 2403 Saranac Lane Glenview, IL 60026

Alphabetical by sender's first name

Stephen Wlosinski 41933

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I'm wondering how these issues are being addressed. Sincerely, Stephen Wlosinski 1121 W Morgan St Duluth, MN 55811-4446 (218) 726-1911

Steve Adams 41841

Dear Environmental Review Unit MDNR Division of Ecological and Water Resources: We cannot believe that the DNR is even considering a project that will contribute toxic metals and sulfate pollution to the St Louis River whatershed - for 500 years. The threat that this project poses to the environment, wild rice, and non-mining-related uses of the land should be enough to nip it in the bud. The mining industry's record of evading its fiscal and environmental responsibilities is shameful. The recent chemical disaster in West Virginia indicates what is bound to happen when public protection of water systems fails and private industry leaves us all with a toxic mess. Stephen and Barbara Adams 3351 Red Oak Lane Barnum, MN 55707

Steve Braker 15747

See attachment

Steve Clemens 7020

As a resident of MN, and a registered voter, I am strongly opposed to the proposed Poly-Met mine because of the severe threats to clean drinking water as well as potential pollution to our rivers and Lake Superior. Short-term (20 years) profits and jobs are a poor risk in face of potential (and probable) long-term environmental damage. - Steve Clemens 2912 E. 24th St Minneapolis, MN 55406-1322 (612) 724-3255 HYPERLINK "mailto:steveclemens@gmail-com"steveclemens@gmail-com HYPERLINK "http://www.mennonista.blogspot-com"www.mennonista.blogspot-com

Alphabetical by sender's first name

Steve De Bock 18201

Hello, and thank you for the opportunity to speak to you tonight. I came here tonight not with the intention of speaking, actually. I wanted to listen and hear what things are to be said. By the way, my name is Steve DeBock from Duluth, Minnesota. Currently, the director of manufacturing at a company called GPM, Inc. We are a heavy-duty submersible pump manufacturing company and provide pumps throughout the country, Canada, and we've even got some internationally outside the US. Along with our pump, we also manufacture a motor to go with it, and we all know Motor State Copper, so it's -- this is very important to us, and PolyMet is very important to us. I'm listening to a lot of people talk here tonight, and they're giving people a hard time about ceding their time. I'm not as eloquent of a speaker as most. I've never done this before, so please be respectful of when people do cede their time to somebody that has something that they want to say, be prepared -- be polite to them. Anyhow, I'm here to state that GPM currently is a vendor of PolyMet, and we fully support the study they've done, EIS, and we support everything that has been said about it to this point. We think that it's been done in a thoughtful, careful manner. It has taken a very long time to get to this point. We've been at this now for nine years, plus, and we wholly endorse this process and we believe in the science that's behind it, but we appreciate the time and effort that was put in by the DNR, the EPA, and fully trust in them to make the right decision. Only here can we sit in this state and make this process that we have and give people on both sides who sit next to each other and voice our opinions, so it's very much appreciated that that's allowed. And again, I apologize. I wasn't prepared to speak tonight. Maybe, if I would have been thinking ahead and known instruments were allowed, I could have brought my trombone with and broke out in a little song for everybody. Anyhow, I'd just like to sum up by saying that we fully support the process. We believe it can be done. That's one thing, I guess to touch on that, I hear a lot people saying it can't be done. Copper-nickel mining can't be done safely. We didn't get to where we're at in this country by saying we can't do something. There's a way to do everything. You just have to put the proper time into doing it properly and make sure it's done properly and safely. I believe that they've done that to this point, and we're ready to move forward. Enough is enough with this. We need -- we need to move on and to get this thing done. It's going to be great for jobs our economy in Minnesota, Northeastern Minnesota, Minnesota in general, and the whole nation, quite frankly. Let's put this thing behind us. I urge everybody to get behind this and finally let this thing go through, here. And again, I apologize for myself, I was not prepared to speak. Thank you for your time.

Steve Debock 18359

My name is Steve DeBock. Thank you all for the opportunity to speak to you tonight. And I appreciate the ones that have strong enough buttocks to still be here listening. D-E-B-O-C-K. I am currently the director of manufacturing at GPM. We reside here in Duluth. We are a heavy-duty commercial pump manufacturing company. We currently employ 60 people. In addition to the pumps that we make we also manufacture our own motor to go on them. And obviously anybody that knows motors knows they take copper and lots of copper. I'm here tonight to state we totally support and endorse the mining processes that are planned by PolyMet, and believe they will build and operate a mine that will comply with all the regulations and protect the environment at the same time. We embrace this project because of the hundreds and hundreds of new jobs that PolyMet will create either through direct employee instruction or new jobs with their vendors like us. This project is good for our region. I believe it's good for Minnesota. And quite frankly, I also believe it's good for our national economy. A lot of questions and challenges have been placed in front of PolyMet since they first announced their plans for precious metals mining in Northern Minnesota. They have answered and completed every one of them. In fact, they have done far more than what was asked of them to ensure the processes were safe not only in the short term but the long term as well. Anyone that says we cannot do this is wrong in my opinion. This country was not built on people saying "it can't be done." It can and it can be done safely. Management and directors at GPM believe that the EPA, MEPA, and Army Corps of Engineers that they have taken a diligent approach in examining the sciences and the processes that will be used by PolyMet. And we believe these processes will not only be safe but also carried out in a responsible manner. It would be irresponsible to disregard the time and effort put forth by PolyMet to ensure we can mine safely right here in Minnesota. For that reason GPM and it's employees fully support the EIS and its conclusions. We ask that you join us in supporting the issuing of the required permits and allow PolyMet to finally begin operations. Thank you.

Alphabetical by sender's first name

Steve El 19992

For the sake of brevity I would like to raise two objections to the SDEIS in its current form. 1) The Canada Lynx is federally listed under the Endangered Species Act. The SDEIS acknowledges that the project will reduce lynx habitat and kill individual lynx through accidents etc (see Chap. 5). However, it claims that since the whole population in the mine area (perhaps 200 or fewer animals) wouldn't be lost but rather just a few, there is no problem. However, decades of conservation work around the world indisputably show that loss of habitat causes species to go extinct. A stray animal hit by a truck here and there is not so much the problem as the removal of habitat. I would also add that the area in question is home to an already at-risk population of moose. Moose, of course, depend on wetlands, some 8,000 acres of which will be destroyed. Promises of restoration, even should they be reliably fulfilled, will not come nearly in time to mitigate the destructive effects on the moose population. 2) The SDEIS is explicit (Chap 5-122) about pollution of the Partridge River continuing to be problem "in perpetuity." That is, forever. How can we possibly believe that Polymet will be able to take responsibility for treatment of this pollution in that timescale. In view of these two concerns alone I ask that the SDEIS be redone to include an analysis of alternatives to species loss through habitat destruction, and a credible plan for mitigating ongoing pollution over deep time. Respectfully, Steve Lelchuk 3943 Bryant Ave S #9 Minneapolis, MN 55409

Steve Gildersleeve 6060

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Steve Gildersleeve 3789 PARKWOOD LN Vadnais Heights, MN 55127 US

Alphabetical by sender's first name

Steve J. Nelson 46967

I own and operate a canoe outfitting and retail outdoor store in Ely, MN. We service wilderness travelers going into the BWCA and Quetico Park. We have a number of concerns about the copper nickel mining proposals; 1- Protecting Minnesota citizens from future adverse effects of mining on environment with financial assurances, ie insurance policy, is critical Requiring assurances to safeguard against company filing bankruptcy after damaging the environment is critical. Copper/nickel prices will rise and decline over the lifetime of this mining project. Mining companies have used bankruptcy as a business strategy to walk away from their failure to mine responsibly. As a tax payer, I do not want to pay for their mistakes. 2- What contingencies are or will be in place for major catastrophic failures in the mining process. If water processing fails, water holding ponds leak, electrical supply is offline for an extended period what is the action plant o protect the environment. Looking back 40 years to how Judge Miles Lord handled the Reserve Mining Case showed the company had legal contingencies in place well before any legal decisions were made. If the court implemented an action, the company already had figured out what it would do. Case in point was Judge Lord ruled the company to close. Within 24 hours Reserve was open and doing business. It appeared the Federal legal team had not planned out their response or next steps. The company had. 3- Is Minnesota mining policy and regulations sufficient to handle adverse mining effects 20-30 years from now. To think that policy and regulations of 2014 are all that is needed is short sighted. Processes change, markets change, unforeseen issues develop. How will our regulatory agencies handle these changes or future developing issues. 4- The BWCAW is a state and national treasure. Maintaining water quality is critical. Is the current technology, ie reverse osmosis, sufficient to handle any sulfide runoff. 5- No information has been included in the SDEIS concerning the epigenetics of increase consumption of sulfides,copper and nickel on local populations due to emissions and releases into local water system. I am not against mining near the BWCA as Minnesota and the local economy needs the jobs and increase to the tax base. However, mining responsibly is crucial. I want my granddaughters and their children to experience the BWCA similar to how it is today. Having financial assurances, contingencies in place to act if environmental damages start, and regulatory agencies ready to act in a timely fashion is needed. Best regards, Steve J. Nelson Owner http://www.elycanoetrips-com/spirit-logo-1-png Spirit Of The Wilderness Creating Lifetime Memories 2030 E. Sheridan ST Ely MN 55731 Ph: 218-365-3149 or 800-950-2709 HYPERLINK "http://www.elycanoetrips-com"www.elycanoetrips-com Online store: HYPERLINK "http://www.BWCAshop-com"www.BWCAshop-com

Alphabetical by sender's first name

Steve Johnson 16093

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Steve Jorgenson 4140

Dear Public Servants and Caretakers of our Environment, Thanks for the good job you do in serving the public, and in protecting the environment for generations to come. Briefly, here are my comments regarding the proposed mining up north by Polymet. It is absolutely immoral to even consider allowing companies to place a mine near a wilderness area, solely for short term profits, and pollute our earth and water in the process, a long term consequence. Creating jobs is not a good justification; jobs can be created by wind farms, solar power, and many other sustainable industries that benefit the environment instead of destroying it. Of all of the many horrible things happening in the world, this ranks near the top of the liSt Thanks, Steve Jorgenson 36901 Xenon St NW Princeton, MN 55371

Alphabetical by sender's first name

Steve K 6059

PolyMet will "install and operate a system to capture at least 90 percent of the groundwater seepage at the proposed tailings basin and the permanent waste rock stockpile." Figures of untreated groundwater release have been estimated as such: 10 gallons per minute of untreated water at the mine site and 21 gallons per minute of untreated water at the tailings site during closure. How will this seepage of untreated water (up to 10% of total discharge) into the groundwater effect the potability of groundwater for surrounding residents, flora and fauna, including those in the connected watersheds. What type of groundwater contaminates would be introduced into the environment. Have there been longitudinal epidemiological studies of how they effect human and wildlife populations. I believe that the environmental impact statement that has been drafted is shortsighted. In the terms of potentially doing permanent damage to our environment, I believe that any amount of discharge of waste into the environment is unacceptable, both from the standpoint of a resident of Northern Minnesota and a person who survives off of natural resources from the region. Thank you for hearing my comments. Steven Karels 602 E 5th St #602 Duluth MN 55805

Steve Kath 57703

To whom it may concern, I support the PolyMet Mining project. Thank You http://www.retrofitcompanies-com/images/trcsiglogo.jpg Steve Kath President, CLMC, THE RETROFIT COMPANIES® 507-414-5116 (p) | 507-456-1654 (c) | 651-717-4768 (f) | HYPERLINK "mailto:skath@retrofitcompanies-com"skath@retrofitcompanies-com 1010 Hoffman Drive, Suite A Owatonna, MN 55060 Connect with TRC HYPERLINK "http://www.linkedin-com/company/2340383"http://www.retrofitcompanies-com/images/linkedin.pngHYPERLINK "http://twitter-com/#./TheRetrofitCo"http://www.retrofitcompanies-com/images/twitter.pngHYPERLINK "http://www.retrofitcompanies-com/news.php"http://www.retrofitcompanies-com/images/lighterside.pngHYPERLINK "http://www.facebook-com/pages/The-Retrofit-Companies/272995075215"http://www.retrofitcompanies-com/images/facebook.png HYPERLINK "http://nalmco-org/"untitled

Steve Kinney 54803

See attachment

Steve Kippen 42109

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Steve Kippen 11178 330th St Onamia, MN 56359-2172

Alphabetical by sender's first name

Steve Koschak 45414

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Steve Koschak PO Box 397 Ely, MN 55731

45415

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Steve Koschak PO Box 397 Ely, MN 55731

Alphabetical by sender's first name

Steve Koschak 57335

My name is Steve Koschak, K-O-S-C-H-A-K, from Ely, Minnesota. I am a business owner in the town of Ely, a tourism-based business. I've been in business for 38 years. My business depends on clean water, clean air, a clean environment, and I am worried about what is going to happen with the advent of this sulfide mining in northern Minnesota in the lakes region. The SDEIS, in my opinion, fails to address a number of issues. First of all, permanent water pollution, not only will it be 500 years, but basically to the end of perpetuity, but water pollution from sulfuric acid and heavy metals is indicated. But in addition, not all of the polluted water will be captured for treatment. This is what PolyMet calls minimizing the water pollution in their marketing rhetoric. How is the SDEIS going to address using an antiquated tailings basin which is a leaker? Ten percent of the volume of water that there will be, the waste will not be going into any type of discharge pond. It will not be reclaimed. It will be let go out into the environment. Basically, if there were ten people standing in line to use the bathroom, the tenth person, his waste would go out on the ground. In essence that's what it is. Ten percent of the water is going to be wasted; not treated. A very discerning fact. Why does the SDEIS not provide a solution to this situation? Secondly, there is no plan for events or failures of PolyMet's water treatment system. It provides no details for what happens in the event of catastrophic accidents or failure for the system to operate for 500 years, during which polluted water is discharged. Daily operations are planned to treat some 6.2 million gallons of water daily. What is going to happen with broken pipes or tailings basin and human errors? What about an employee falling asleep on the job or not being attentive, and all of a sudden we have a major catastrophe. This mining plant is designed for a 100-year storm, and given the climate change, this design is lacking at best. Scientific studies suggested this facility should be designed for a 500-year storm. A 500-year storm is now occurring almost as often as a 100-year storm. The SDEIS provides no assurance or details on the impact of water quality, on wildlife or on human health if the treatment system fails or there is a breakdown, which is inevitable. I have another concern about the water quality analysis and how the samples and the studies were done. One of the water quality testings that they did was done in a dry season. There was very low water flow and they based their figures on low water flow, one of the lowest in decades, and this is what they based their study on. So, we'll have outflow from the water flow and waste not being adequately adjusted to reflect normal water conditions. Also, there is a lack of information regarding mercury contamination of fish and ultimately methylmercury in humans. There is an area of homes near to six operating taconite mines and there's already an alarming concentration of mercury and other pollutants. Every one of our taconite plants is presently operating under variances; basically a permit to pollute. I am afraid that with this copper mine we are going to have more of the same; a license to pollute. There is a lack of alternatives to the probable permanent destruction of some 8,263 (phonetic) acres of land, with some 918 acres being very high-quality irreplaceable wetlands in the St. Louis River watershed. There is no plan to compensate for thousands of acres of wetlands that would be indirectly harmed. The trade that is to take place with the Land Exchange will be a violation of the Weeks Act (phonetic). The Weeks Act (phonetic) was established to prevent open pit mining on federal land, and this land being the Superior National Forest. This trade and this exchange is going to be setting a precedent to other mining industries across the country, not only in the northern part of Minnesota, but anywhere in the United States where

Steve L'Abbe 3149

We hope and pray Polymet moves forward with permitting. What a great economic infusion for the Iron Range and all of Minnesota. Polymet has been patient, responsible and transparent. Hopefully all will get on board to ensure a bright outlook for all of Minnesota Steve L'Abbe Duluth, MN

3150

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Alphabetical by sender's first name

steve markus 40439

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, steve markus 3976 gateway dr Greenbelt, PA 19104 US

Steve Morse 18173

Hello. I am Thomas Leaf from Center City, Minnesota. And I am giving my time to Steve Morse. Good evening. My name is Steve Morse, M-O-R-S-E. I am the executive director of the Minnesota Environmental Partnership, a non-profit coalition of 70 environmental conservation groups in the state of Minnesota. First, I would like to thank the DNR and the other agencies for running a great open and respectful process with these meetings. However, let me say I'm very concerned about the other parts of the process for the SDEIS. The 90-day comment period is simply inadequate for the public to really understand this project. Many people have already given up trying to figure out all the ins and outs of it, and instead are falling back and saying, "We trust the agency. It's too complex. We can't figure it out. We trust the agencies." That is not real public participation and a public process. Without 180 days this process is flawed. Secondly, there are a number of serious outstanding issues. I just want to touch on a couple of them with the SDEIS itself. First, the planning for accidents and emergencies. There is a complete lack of backup plans from if something goes wrong with the tailings piles and basins, the pumps, the pipelines, the filters of the water system that needs to operate for hundreds of years. Surely we have learned something from the oil wells erupting in the Gulf of Mexico, chemical tanks contaminating drinking water in West Virginia, and oiler-tanker trains exploding on the North Dakota prairies. None of this was supposed to happen. None of it was planned. Yet it did occur. Second, the SDEIS relies on unreliable water modeling, including the flow of water that will be treated and the time frame for continued cleanup of the water from the mining. The truth is there is no end plan for when the mine will not require cleanup. Again, there is no end plan. PolyMet indicates it will continue to clean up the water for as long as it takes, forever if necessary. They acknowledge that they really won't know the duration of the pollution until they are already mining. This is not an adequate response, and as a result the SDEIS does not present adequate information to fully assess the environmental impacts that should be (inaudible) in order protect the environment. I spent four years as a deputy commissioner of the Minnesota DNR overseeing the environmental review process. This environmental review process was one of my responsibilities. It is clear that the science that these studies are based on is very important, and tremendous effort has been put into this project. Sometimes an EIS presents a very clear picture. Other times not so clear. Major issues might be left outstanding and unclear and unanswered. In the end it is the leaders of these agencies before us that will be faced with the judgment call to determine if this SDEIS is adequate. And, yes, there may be loud political voices urging you to forge ahead and move this project to the next stage. But most Minnesotans aren't ready to go there. Given the many shortcomings, uncertainties, and unreliable data (inaudible).

54907

See attachment

Alphabetical by sender's first name

Steve Olinger 43514

Steve Olinger 25 Deer Hills Drive North Oaks, MN 55127 While I understand and would hope for job creation in Northern Minnesota, I am concerned about how much we would be sacrificing to supply them. Looking at the mining proposal from PolyMet there are serious concerns: 1) There are no copper-nickel mining operations that don't have serious water pollution probleMs The Flambeau mine used as an example is really not a good example. It was a much smaller operation that did not stay in business and did have probleMs Other copper-nickel mines have serious probleMs 2) While there is an attempt to provide financial assurance, it does not seem realistic. Even the large amount of money designated does not seem sufficient to insure that water cleanup (even if the water treatment plant continues to work) would continue for the decades required. The public would be stuck with the bill. I do not see that we should grant the proposed permits.

steve palmberg 36721

Dear Ms Fay, Dear Federal and State Agency Leaders: I agree that the Poly Met SDEIS is more than adequate and support Poly Met. Sincerely, steve palmberg 8156 james ave no brooklyn park, MN 55444

40475

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please Approve the PolyMet NorthMet SDEIS. Very truly yours, Steve Palmberg steve palmberg 8156 james ave no brooklyn park, MN 55444

Steve Petersen 47236

I would like to make the point that if this company who is saying they will guaranty monitoring for years after they are finished mining goes bankrupt at any time after they are do or during their mining operation the state taxpayers are on the hook for the clean up. That is a price too high to pay for some short term gain. Sincerely Steve Petersen 4160 Shirlee Lane South Shoreview, MN HYPERLINK "mailto:55126spetersen175@comcaStnet651-484-9277"55126spetersen175@comcaStnet HYPERLINK "mailto:55126spetersen175@comcaStnet651-484-9277"651-484-9277

Steve Rush 40227

Attached is a letter from Steve Rush regarding the above matter. Thanks. Shelly Schilling Legal Secretary Holiday Companies 4567 American Blvd. W. Minneapolis, MN 55437 DD: 952-832-8646 Fax: 952-830-1681 shelly.schilling@holidaycompanies-com

Steve Schreader 58052

Sulfide mining should not occur in Minnesota!! The risks are too high & far outweigh any & all possible benefits. With the main benefit being jobs, what happens when the mine closes & what economic impacts will the disruption of the BWCA have on the economy. There are too many questions, not enough answers. The track record of this Mining speaks for itself. It should not happen here!! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Steve Smith 47070

The Polymet mine project should be stopped. Destroying pristine forest lands and risking the future of our water resources, including native trout streams and Lake Superior is just not worth the supposed 'economic prosperity' a new mine would bring the region. Preserving Minnesota's natural beauty and resources for our future generations is worth much more than any short term prosperity a mining operation would bring. Polymet is spending a lot of money in advertising in Minnesota in order to sway public opinion but they aren't being compeletly upfront and truthful with the public about the environmental risks of their planned mining process. They also appear to be having trouble producing an acceptable EIS in their rush to start mining our resources. These should be major red flags indicating serious issues with the Polymet project. The fact is, the metals they're after are not going anywhere. The mining of the so-called Duluth Complex or any other area in Minnesota should not be allowed until technology is developed that would guarantee no damage to our water and environment. Thank you, Steven Smith 512 Rose St Duluth, MN 55803 Member of Trout Unlimited Gitche Gummee Chapter Member of Surfrider Foundation MN/Superior Chapter

Steve Snyder 18181

My name is Steve Snyder. It appears from the names on the list that having "Snyder" as a last name is good for this lottery. This is the first time in my life that that's ever been an advantage. But it is tonight. I want to make a few comment initially about this Supplemental Draft EIS. Just a few pointed comments about it. One, there is no model in this statement as long as it is that would apply for a 500-year period. When Christopher Columbus got off his boat 500 years ago, he had no concept whatsoever as to what would be happening in the Americas over this period of time. In fact, he didn't even know he was in the Americas. But we're actually putting this forth without a model as to the changes that will happen in the Americas over that period of time that these pollutants have to be constantly maintained and treated. Also within this EIS statement there is very little that addresses the huge concern of operating a mine in a plant such as this in this very water-rich environment. This is not a dry and arid environment that we are looking at here. This is a very wet environment. Of course, it is the combination of the water and the exposure to the atmosphere to create the sulfuric acid that creates the leaching out of these very toxic metals. In my view it's not adequately addressed in this statement. And in fact, we have just recently found out that even the basic data with respect to the groundwater flows into the Partridge River are not accurate in this document. That's why the EPA gave the original draft an "F" for its failure to address these type of matters. And yet after that work we come back and have the same type of issue here that needs to be addressed. I would also note that the document does not address the fractures in the bedrock that will be below these mining sites, and what this is going to do with the leaching that occurs and where that is going to go and where that is going to end up. I have a couple questions I want to ask of PolyMet. Nobody from PolyMet has spoken here today. I have a couple question. And maybe if somebody does speak they can address these. We have the assurances supposedly from PolyMet about what they are doing in this plant. But if it turns out those assurances untrue, would PolyMet agree that this mine should be closed down or would it instead lead to hearing that somehow they have to be grandfathered in and be able to continue to operate because they've already done the damage? Second, we hear a lot of people from the trades that are supporting this. And I support the trades. I very much do that. But I would like to know whether PolyMet is willing to commit that it will use union labor on these projects or instead it will be seeking to reduce workers' pay and try to defend against any claims for illnesses that arise on this job site (inaudible).

Steve Stratman 39441

---Original Message--- From: steve@urbanartbox-com [mailto:steve@urbanartbox-com] Sent: Monday, March 10, 2014 6:34 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: I think the arrowhead area and the Iron Range needs jobs. But this is way too risky. It's something that I believe will eventually be on the wrong side of history and future residents will think we were unwise to create such a black hole of ecological and economic probleMs If we're going to get stuck with a huge clean up bill, lets just take the money we would have spent on cleaning the mine pollution and invest it right now into business development and jobs. Or put the Taconite Tax Fund to work. I read that there's millions of dollars just sitting collecting interest when it could be used to create jobs, ie construction, public works, parks, subsidizing small business growth, etc I've been to Ecuador and Bolivia, Brazil and other countries that have already been down this road. The results are always the same. The corporation that owns the mine will promise everything, then they'll leave and not fulfill their obligations. It happens every time, regardless what they say to the contrary. We will end up with a hole filled with acid, and we'll have no one to blame but ourselves. Sincerely, steve stratman 4816 clinton ave Minneapolis, MN 55419-5659

Alphabetical by sender's first name

Steve Sulivan 54163

I do NOT support mining. The forrest is eternal, jobs do not last just say no to mines. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

steve vennemann 40663

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Dr steve vennemann 1974 Castle Ct E Saint Paul, MN 55109-2881

Steve Wentworth 39986

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Steve Wentworth 3934 Denmark Ave Eagan, MN 55123-1451 (651) 249-1657

Steve Weston 43826

I believe it is unwise to approve any plan that requires ongoing active management of hazardous mine waste, such as treatment of toxic runoff, after a mine has been closed. The waste from such mines remains toxic not just for hundreds of years, but virtually forever. If the waste cannot be passively contained, but requires ongoing intervention for an indefinite period, there is too much danger that a change in legal, corporate, political, economic, or social structures could result in the treatment infrastructure being abandoned. We today are not capable of promising any action more years in the future than our republic has yet existed. Sincerely, Steven R.P. Weston 307 E. 42nd St Hibbing, MN 55746

Alphabetical by sender's first name

Steve Eggimann 45943

To: Agency Decisionmakers The Boundary Waters is one of the crown jewels of our national park system. Like Yosemite, Glacier, and Yellowstone there are no other places like it on earth. Minnesota has recognized that fact for years. The many persuasive reasons to reject the Polymet proposal and all mining activities near the BWCA are well known to you. Any single one is enough to convince you to reject the incursion into the area. But, I urge you to reject the attempts and restate the principle that these wild places were set aside for all Minnesotans, all Americans, and all the world so there would be some places unspoiled for all peoples for all time. No economic argument to the contrary is worth consideration. There are no "hard choices" no "difficult balancing acts" when it comes to America's Best Idea. Please restate the principle that it is your obligation, the obligation of all of us to preserve these very few wild places for all mankind. Steve Eggimann

45944

To: Agency Decisionmakers The Boundary Waters is one of the crown jewels of our national park system. Like Yosemite, Glacier, and Yellowstone there are no other places like it on earth. Minnesota has recognized that fact for years. The many persuasive reasons to reject the Polymet proposal and all mining activities near the BWCA are well known to you. Any single one is enough to convince you to reject the incursion into the area. But, I urge you to reject the attempts and restate the principle that these wild places were set aside for all Minnesotans, all Americans, and all the world so there would be some places unspoiled for all peoples for all time. No economic argument to the contrary is worth consideration. There are no "hard choices" no "difficult balancing acts" when it comes to America's Best Idea. Please restate the principle that it is your obligation, the obligation of all of us to preserve these very few wild places for all mankind. Steve Eggimann

Steven & Cynthia Broste 39636

I have followed the discussions about the pros and cons of the Polymet proposal to mine metals from sulfide bearing rock in northern Minnesota, near the BWCAW. I also attended the excellent public information session in St Paul, and learned a good deal more. I fear that the way organized labor and local Chambers of Commerce from the area rigged the public testimony is a good example for how they will try to use their influence to push the DNR in a direction that would be very unwise for the future of the wilderness, wildlife and water in that area. My brother worked on Superfund cases for the EPA in the west, where mining companies created a toxic mess, then quietly disappeared leaving scars on the land and taxpayers to pick up the tab. From his stories and my reading, it doesn't appear that sulfide mining has ever been done without significant, long lasting damage and toxic waste. Much of this kind of mining has been done in the west, where the vegetation and sensitive wildlife and aquatic systems are more sparse. In this case, even Lake Superior would be in danger. The reason for the environmental damage is simple: these companies have a fiduciary responsibility to their shareholders, not the area residents, or those who value the northern waters and wilderness. Every decision will be questioned by management as to whether there isn't a cheaper shortcut, and accidental releases will be inevitable. The mindset will be that it is easier to ask for forgiveness than to ask for permission. All of this risk (current estimate 100%) for a few hundred jobs for 10 years or so. And after 10 years, the area will have lost the new jobs, and potentially the pristine wilderness that currently draws thousands of people to northern Minnesota. Like many others, I have personally spent well over a thousand dollars in Ely every one of the last 10 years because of the BWCAW, and this source of revenue to the area should not be underestimated. The especially dangerous part of this proposal is that everyone in positions to approve or stop this proposal will be long gone when the issues inevitably surface. The easy thing to do, but the wrong thing, would be to bow to the pressures from the mining and construction interests. I urge the DNR and the state of Minnesota to stand tall and not allow this mining to go forwaRd I understand that these metals are needed for numerous things we all depend on, but we will need those things in a hundred years as well. Where will the metals needed far into the future come from if we exploit everything we can find now. Maybe at a time far in the future we will have developed better ways to extract these metals and better ways to protect the crown jewels of our state from the clear and present danger that the Polymet project represents. I urge the DNR to not permit Polymet to put our wilderness and water at risk. Thank you for your consideration, Steven Broste 11027 Timberline Drive North Champlin, MN 55316

Alphabetical by sender's first name

Steven Amundson 18293

I am Steven Amundson, Amundson is spelled A-M-U-N-D-S-O-N, from Northfield, Minnesota. And my comment is that everything I've read about this sort of mining is that it has not been successful. It is that there have been very many environmental impacts; and therefore, I believe that this is a risk that is too great to take. Especially when you consider the pristine Boundary Water Canoe Area and all of our lakes in that area. I believe that this is a chance Minnesota should not take. The only thing that I would consider to be a viable risk would be one that ensures that PolyMet can actually guaranty that there is not only a system that would work to take care of the environment, but also that there would be enough money somewhere set aside to be able to clean up any issues well into the future. One of the problems I believe is that many companies like this, which are international companies, are sold or go bankrupt, and then the big question is, and then what? What do we do after that? So, if we were to move forward with this project, the only way that I would, as a Minnesotan, agree that it would be feasible, if there was enough money set aside for hundreds of years of cleanup, because I believe that's what will end up being necessary. That's everything. Thank you.

Steven Broin 48164

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Steven Broin 43 Diane Terrace Whitman, MA 02382

Steven Chesney 41830

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Steven Chesney 8172 Zenith Ct N Brooklyn Park, MN 55443-2749 (561) 561-2512

steven dahlke 46991

I am a concerned taxpayer. Does Minnesota want a mining disaster. Or Lake Superior poisoned. Delay approval until Polymet Mining has financial assurances of $500 Trillion or proves -it-First will be sAve Pass a Minnesota "Prove-it-First" law. Steven Kenneth Dahlke 550 View Street Saint Paul,MN 55102

Alphabetical by sender's first name

Steven DeBoth 43804

As an investment advisor, I help clients assess the potential reward to be gained from incurring an assumed amount of risk. What makes this risk/reward analysis possible is that the potential risks and rewards are both of the same nature, in this case financial, and both accrue to the same entity, in this case the investor. He or she will not profit while someone else bears the risk of loss. If what I have read is even close to accurate, in my professional opinion as an analyzer of financial risk, I assure you that the probability of any of today's existing raw material extracting enterprises to still be around 500 years from now is nearly 0%. What this represents, then, is an extreme divergence of risk and reward factors, where those who will reap the rewards of this type of mining will be dwarfed by those bearing the risks, financial and otherwise. If what else I have read is also even close to accurate, the environmental impact analyses have been shown to be inadequate multiple times. In my opinion, that is also because those to receive the primary rewards are not those who will bear the primary risks from these proposals. It's akin to talking to a mortgage broker in 2006 who assures you that "don't worry, you can afford this house; I'm sure your income will go up by the time the mortgage rate adjusts upward, and by my estimates it can't really go up that much anyway. Besides, houses only go up in value." By the time the true damage from these projects begin, those who have reaped the primary rewards will be just fine. I see it every day. As someone who has spent time in those very same woods, this is as tangible of a selling your soul for a few shiny coins moments as I have ever seen. Those woods are the soul of the state. No amount of money is worth the nature of the risks, especially when the risk estimates are in control of those who will get your soul. Sincerely, Steven J. DeBoth

Steven Eli Kokotovich 57213

Before you approve a Polymet mine, you need to be extremely confident that it will not damage the environment. A mistake on your part could be devastating for generations. Also, enough money (from Polymet) needs to be set aside (securely) for cleanup and all future monitoring. This cost should not be paid by the taxpayer. If you cannot ensure these requirements, then I am against the mine. We should then wait until the technology has been proven elsewhere. The minerals will still be there 10 years from now.Steven Eli Kokotovich2119 Allegheny StDuluth, MN 55811

Steven gammon 10736

My first response relates to the current generation of people, and the health of our future generations. My response is to not allow any type of mining that could directly or indirectly allow any type of chemicals into the vital, precious water sources. This pollution could last for either a split second, or for hundreds of thousands of years in the area of Northeastern Minnesota. My second response is that the people of past and current generations have not stopped or prevented themselves from the massive consumption of nonrenewable resources. This consumption includes items that can be made from the materials and minerals that the mining in Northeastern Minnesota is believed to be able to produce. My question is: Why should we stop, or pretend that we have the desire, will power, or ability to stop any type of mining that may or may not actually pollute or damage our vital and precious water sources and harm the natural beauty of this area of our state. I thirdly would like to congratulate and applaud the cooperation, communication, and participation of all of the people that helped complete the environmental impact statements. These statements, other documents and comments concerning the vital and precious water sources of Northeastern Minnesota were well prepared and show genuine appreciation, concern and foresight into the effects of the proposed mining project. Thank you.

Alphabetical by sender's first name

Steven George 37819

Dear Ms Fay, Steven George 5970 Blesner lake Rd PO Box 535 Finland, MN 55603 Dear Federal and State Agency Leaders: My name is Steven George and I live with my wife Amelia and two young children outside of Finland, MN. We harvest wild rice from lakes in our area and I am deeply concerned about the environmental impacts that are likely to be caused by Polymet's proposed mine. Polymet's tailings pile will have toxic metals and sulfates and the SDEIS proposes the tailings basin will have no liner to contain these toxins. The waste will need treatment for a minimum of 500 years. The proposed tailing dump site is on top of old LTV tailings. This tailings dump was designed in the 1950's for taconite tailings and it was built on top of streams to allow drainage through the tailings. How will this pit that was designed to leak possibly manage to contain the toxins safely for 500 years. When the Polymet plan was first proposed, the “Scoping Report” said that the EIS had to evaluate “if all tailings will need to be managed in a completely lined basin.” The SDEIS must be redone to analyze the alternative of a completely lined tailings basin. The lined tailings basin alternative should avoid wetlands and streaMs The Polymet SDEIS claims that the tailings piles won't cause pollution (page 5-159). Polymet says the project will increase seepage at the LTV tailings dump from 2,202 to 3,380 gallons per minute. The SDEIS claims that with the use of pumps, all except 21 gallons per minute will be contained, which would be a 99-37% collection rate. As far as I can find, this collection rate would be unprecedented. The SDEIS doesn't name a single unlined tailings pile that meets these almost perfect results with the use of pumps. The SDEIS must be redone to analyze water quality outcomes if the tailings pile collection rate is not what Polymet claiMs Looking back at the Draft Polymet EIS in Figure 4-1-9, you can see there are at least three streams that ran under the LTV tailings site. One of those streams runs right under Cells 1E and 2E, where they plan to dump the Polymet tailings, and then into Spring Mine Creek. Water is likely to drain through filled over streams as these are the historic drainage routes. Spring mine Creek is already impaired for aquatic life as a result of past mining and has excessive levels of sulfate, aluminum and mercury. (SDEIS, p. 4-122, 4-238). The SDEIS assumes all tailings wastewater will seep to the north side where the pumps will be. The SDEIS must specifically analyze impacts on water quality of seepage that would escape following historic stream drainage beneath the tailings basin. It's well know that fractures beneath tailings basins can transport pollutants, however the Polymet SDEIS doesn't have a single word addressing the possibility that fractures beneath the tailings site would transport pollutants. One example of seepage through fractures is in the Chevron Molycorp Superfund remediation, the EPA concluded “The pathway for contaminant migration is the leaching of tailing seepage downward from the tailing facility to groundwater that migrates through fractures to surface water.” Existing tailings seepage already exceeds groundwater standards and on the LTV site, adjacent to the tailings, the SDEIS has documented that Area of Concern #8 has a plume of pollution propagating through fractures. (SDEIS, p. 4-12). The SDEIS must anticipate that tailings contaminants will propagate through fractures and clearly disclose the impacts this leaching through fractures will have on surface and groundwater quality. A few decades of mining for 500+ years of contaminants seeping into our water sounds like a pretty bad deal to me. This sounds like an especially bad deal for my children and their children and their children's children and so on. Do we really expect Polymet to still exist and be paying for the cleanup and monitoring of the wastes in 500 years, or even 100 years fo

Steven Graupman 21784

Mar 5, 2014 Ms Lisa Fay MN Dear Ms Fay, I am very concerned with protecting our clean water, but I believe Polymet's plans to mine sulfide ore in northeastern Minnesota as described in the Supplemental Draft Environmental Impact Statement will. I believe that the SDEIS is sufficient and SHOULD be approved, because it details how new mining and processing techniques will be more than sufficient. PolyMet would provide many needed jobs and would finally end an economic depression for that area . Birds that depend on fish and other aquatic organisms for food might be affected, but their numbers will rebound after mine reclamation. I urge decision-makers to APPROVE this well planned proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you, Steven Graupman 7595 Hyde Ave So. Cottage Grove, MN 55016 Sincerely, Mr Steven Graupman 7595 Hyde Ave S Cottage Grove, MN 55016-1976

Steven Hanke 14895

Is the Minnesota DNR able to require PolyMet to establish and/or negotiate terms and conditions of employment for the proposed workers prior to the project being approved. Steven B. Hanke 411 West 1st Street Duluth, MN 55802-1198 Phone (218) 730-5490 From: *NorthMetSDEIS (DNR) [mailto:NorthMetSDEIS.dnr@state.mn.us] Sent: Tuesday, February 11, 2014 10:50 AM To: Steven Hanke Subject: RE: NorthMet / PolyMet Mining Inc Project Comments Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Steven Hanke 14896

I am concerned with the socioeconomic analysis portion of the project. What assurances does the Minnesota DNR have regarding the number of jobs this proposed project will create. Is any job considered in that calculation, or does it have to be full-time (40+ hours weekly) permanent employment. There are significant differences between part-time temporary positions and full-time benefit eligible positions. How does the DNR calculate the proposed economic impact of the jobs based on the limited information and description provided by PolyMet. Steven B. Hanke 411 West 1st Street Duluth, MN 55802-1198 Phone (218) 730-5490 From: *NorthMetSDEIS (DNR) [mailto:NorthMetSDEIS.dnr@state.mn.us] Sent: Tuesday, February 11, 2014 10:50 AM To: Steven Hanke Subject: RE: NorthMet / PolyMet Mining Inc Project Comments Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

14898

I am concerned by the lack of details regarding the economic impact analysis. The claims regarding the number of jobs to be provided by the project are vague and lack any effort at substantiation. The study needs to be extended to include number, type, duration, and pay ranges for those jobs, as well as an analysis of the economic impact to the area surrounding the proposed sites.

Steven Johnson 19905

Just do it.. We need the jobs and economic benefits. This mining can be done in an environmentally neutral way with minimal affect on the Eco-system. Steven Johnson 8256 Pennsylvania Rd Bloomington, MN 55438

Steven Jorgens 4220

Lisa Fay, I am writing in to express my support of Polymet project. My Grandparents lived in Biwabik and my mom and uncle were born there. So I have a very large interest in seeing mining and jobs to return to that area. I have read the draft EIS and I am very impressed with the detail that was done and the extent that Polymet has gone to to ensure that our environment is taken care of. Polymet partnering with GE to have a reverse osmosis system is also very impressive. Please approve this project and return this great part of Minnesota to some of its past glory. Thanks, Steve Jorgens 1995 Juneau Lane Plymouth, MN 55447 HYPERLINK "mailto:Sjorgens@msn-com"Sjorgens@msn-com

Steven Kraemer 2971

Dec 19, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota. It threatens rivers, lakes, streams and wetlands across the Arrowhead Region. I've canoed the BWCA many times. It is a state and national treasure that should be protected for the enjoyment of current and future generations. Anything that could contaminate such a treasure should go through tremendous scrutiny and exhaustive review. I have read that acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Why won't it do the same in the Arrowhead Region of Minnesota. I have major concerns about the impact of mining on our fragile environment. I also favor increasing employment whenever possible. But, why incur major risks and costs from sulfide mining which ultimately might far outweigh the short-term job creation benefits of the mine. Shouldn't ALL Minnesotans want to protect our natural resources and our public health. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Steven Kraemer 3924 Ottawa Ave S St Louis Park, MN 55416-3029

Alphabetical by sender's first name

Steven Kraemer 52119

Dec 19, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota. It threatens rivers, lakes, streams and wetlands across the Arrowhead Region. I've canoed the BWCA many times. It is a state and national treasure that should be protected for the enjoyment of current and future generations. Anything that could contaminate such a treasure should go through tremendous scrutiny and exhaustive review. I have read that acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. Why won't it do the same in the Arrowhead Region of Minnesota. I have major concerns about the impact of mining on our fragile environment. I also favor increasing employment whenever possible. But, why incur major risks and costs from sulfide mining which ultimately might far outweigh the short-term job creation benefits of the mine. Shouldn't ALL Minnesotans want to protect our natural resources and our public health. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Steven Kraemer 3924 Ottawa Ave S St Louis Park, MN 55416-3029

Steven L Losh 46031

Date: March 12, 2014 Re: Addendum to Comment (dated March 11, 2014) on NorthMet SDEIS To whom it may concern: In connection with the gathering of data on which to base their Proposed Action regarding water quality, Polymet and the DNR also conducted long-term tests on the oxidation behavior of ore and waste rock containing various amounts and types of sulfide minerals, specifically to evaluate the potential for generation of acid mine drainage and release of heavy metals during oxidation at the surface. Based on these tests, they designed a strategy for storage of various kinds of sulfide-bearing rock that, in conjunction with runoff and groundwater collection and treatment, can be expected to adequately forestall acid mine runoff and leaching of heavy metals into groundwater or surface waters. This is a key concern regarding environmental impact of the proposed action, and Polymet is using a responsible, science-based approach in addressing it. Sincerely, Steven Losh Professor of Geology Dept. of Chemistry and Geology, FH 241 Minnesota State University Mankato MN 56001 Ph. 507-389-6323 Fax 507-389-5625

Alphabetical by sender's first name

Steven L Losh 46879

Date: March 11, 2014 Re: Supplemental Draft Environmental Impact Statement, NorthMet Mining Project and Land Exchange (dated November 2013) To whom it may concern: I support acceptance of the Proposed Action – the construction, operation, closure, and reclamation of the Northmet Mine and associated processing activities - as described in the SDEIS. Of particular concern to many including myself is the impact of mining and processing operations on water quality. The SDEIS shows that Polymet has done a thorough job of addressing these concerns. They have characterized in detail both geology and waters (both surface waters and groundwater) throughout the affected area: they have extensively sampled streams as well as a sizeable number of wells in the area of both the planned mine and the tailings basin. In addition, they performed multiple tests on wells to determine aquifer flow characteristics. They then utilized state-of-the art computer modeling in conjunction with geologic and chemical data to predict the quality of water leaving the site and to design a water collection and treatment plan that can safeguard the quality of both surface water and groundwater. Although there can always be more information gathered and added to the models (eg, bedrock permeability, which is likely very low, beneath the tailings basin), I am satisfied that the proposed action will remedy environmental impacts to an acceptable level. A double liner at the hydrometallurgical plant site will protect groundwater and surface waters from leakage from that source. During mining, Polymet will capture runoff from critical areas such as the waste piles and tailings basin, and route that water through state-of-the-art treatment facilities. Much of the water will be recycled on site, but the water that is discharged will for the most part be of better quality in terms of substances of concern (such as mercury and sulfate, as well as acidity) than the natural waters at the site. The proposed strategy for capturing groundwater that would otherwise exit from the tailings area – a cutoff wall to bedrock augmented with ditch and collection wells – appears adequate for ensuring water quality. The results of groundwater flow modeling show that, for reasonable conditions, discharge of waters of elevated concentration of various evaluated substances will be minimal to negligible. In the case of aluminum (one of the two substances potentially released at excess concentrations), the source of the excess substance is an already-existing reservoir that will be used in reclamation; in the case of lead (the other substance at potentially excess concentrations), the infrequent exceedances will be due to variations in water hardness rather than to actual elevated discharge of lead. Overall, as long as the proposed actions in the SDEIS are followed and monitored, water quality should not be adversely impacted. From the SDEIS, it appears that adequate steps will be taken to ensure water quality well into the future. Monitoring wells will be placed outside the perimeter of the tailings basin to further safeguard water quality, and can guide further remediation should it be necessary during and after mining. After mining is finished, Polymet's reclamation plan appears adequate – among other things, the company will backfill pits with otherwise reactive waste rock to submerge it in water, which will isolate it from oxygen and prevent breakdown of sulfide minerals, cap the tailings area with bentonite to minimize oxidation and leaching of tailings, and continue to be responsible for meeting applicable water quality regulations for any water that does flow off site. The report is thoroughly researched and vetted by State and Federal regulatory agencies, which appear confident that the Northmet mine will meet if not surpass water quality regulations, and that environmental impacts of all the other aspects of the mining operations will be ade

Steven M Kramer 54894

See attachment

Alphabetical by sender's first name

Steven Mayberry 47964

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Steven Mayberry 4948 Emerson Ave S Minneapolis, MN 55419

48416

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Steven Mayberry 4948 Emerson Ave S Minneapolis, MN 55419

Alphabetical by sender's first name

Steven Mayberry 52443

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Steven Mayberry 4948 Emerson Ave S Minneapolis, MN 55419

Steven R Lanthier 54564

I do not want sulfide mining anywhere in Minnesota. No one can replace our lakes & streams once they are destroyed. These are our recreation areas. Leave them alone.

Steven Schoenherr 37930

I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations. Steven Schoenherr 4783 Lindahl Rd Duluth, Minnesota 55811 The views and opinions expressed in this message my own. I am solely and individually responsible for the content. This is not intended to represent or reflect anyone else's views or opinions, including those of my employer, ALLETE, Inc.

Alphabetical by sender's first name

Steven Schultz 16128

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Steven Steele 40306

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Steven Ulmen 3145

First let me say I am a long time shareholder of Polymet stock so to that extent I am on the side of non-ferrous mining in Minnesota. I am also an environmentalist and see the damage done to the Mesabi Range by iron ore and taconite mining in the paSt That is not acceptable. Minnesota is poised to create a win-win situation for both the mining industry and the environment in northern Minnesota. It is called Polymet Mining Corp. Polymet comes to us possessing the technology to conduct non-ferrous mining at Northmet as well as the technology to protect the environment during the mining process. Reverse osmosis will treat the waste water to remove sulfides that meet the strict wild rice standard and not cause damage to water runoff at the mine site or in rivers and lakes, all within the standards set by the EPA. All of these technologies have been tested and are effective. Polymet possesses all these technologies and is committed to put them to use in a way that they can mine in a cost-efficient manner and protect northern Minnesota's environment at the same time. The only addition I suggest is the use of hydrogen fuel cells to generate electricity for the Erie plant as well as returning it to the grid. The byproduct of hydrogen fuel cells is pure water. There is no air pollution whatsoever. I can recommend Fuel Cell Energy (FCEL), of which I am also a shareholder, as the company that can be consulted concerning electrical generation at the site. Polymet has demonstrated they have the technology to mine Northmet in full compliance with guidelines as established by the Environmental Protection Agency, and will provide funding to continue these environmental processes long after mine closure. They have committed to leave the Northmet site cleaner than it is now and in full compliance with EPA standards for as long as it takes. With the above in mind it is requested Polymet be awarded their permits to mine the Northmet site. If permits are denied and Polymet walks away from this project, no other company is waiting to take their place. Non-ferrous mining in Minnesota will have no champion, and mining will be denied and the environment will remain endangered as it is now. Thank you. Steven M. Ulmen, Mankato, MN 56001

Alphabetical by sender's first name

Steven Wiese 39987

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Steven Wiese 2543 Nicollet Ave Minneapolis, MN 55404-4249 (612) 870-0029

Stewart Crosby 11339

Dear Sir/Madame, I have many concerns regarding the NorthMet Supplemental Draft Environmental Impact Statement (SDEIS). To sum up my concerns, I am not confident that the proposed water treatments will work over the timeframe needed to protect exisiting surface and subsurface water. It is too risky, in my opinion, to allow this kind of industrial mining in an area as environmentally sensitive as the surrounding landscape is in this part of Minnesota. I am opposed to any copper-nickel mining as proposed because I do not believe adequate protection of the surrounding landscape can be guaranteed and I do not believe Minnesotans should have to take such a risk for the benefit of a small number of corporations. Sincerely, Stewart Crosby 3965 Princeton Avenue St Louis Park, MN 55416

Stewart Mills 18112

Thank you very much. My name is Stewart Mills. And I'm from Crow Wing. And my story is very similar to the people of Northern Minnesota. Our family came to Northern Minnesota in the 1870's and worked the timber industry. My great, great grandfather mined on the Iron Range. And my grandfather was one of the last people to move logs in Northern Minnesota. And what we are about, why we came to Northern Minnesota is about natural resources and jobs and growing the economy and growing prosperity. And this project, PolyMet, is a great harbinger of things to come. We have tremendous opportunities to grow jobs, to grow prosperity, and grow our economy not only in this area but all across Northern Minnesota, because we have a very interconnected economy. But on top of working here and growing prosperity, growing our families, and becoming more interconnected, we also hunt, we also fish here. This is our backyard. And the PolyMet project is so well thought out and is so well engineered, and the oversight is so extraordinary, there is absolutely no reason why we cannot have both economic prosperity and clean water so we can hunt and fish and not only enjoy the economy but also enjoy ecology. Go PolyMet.

Stu Astleford 18283

My name is Stu Astleford from Minneapolis, Minnesota. I am anti open-pit mining. I believe that the water quality degradation is permanent to the environment and it is not worth polluting a pristine environment that future generations can enjoy for years to come. I frequently go to the Boundary Waters Canoe Area and I recognize this mine is near the Boundary Waters area. And it is just too risky to put a mine so close to the Boundary Waters, where it will do permanent damage, in my opinion, for generations to come. I guess that's it.

Alphabetical by sender's first name

Stu Farnsworth 16672

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Stu Farnsworth 1646 Donald Ct Eagan, MN 55121

50049

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Stu Farnsworth 1646 Donald Ct Eagan, MN 55121

Alphabetical by sender's first name

Stuart Blee 38496

To Whom it May Concern, I would like to submit a comment in support of the Polymet SDEIS. I understand that this project will have an impact on the environment, everything we do does. However, I also trust that Polymet has met the State and Federal requirements regarding what they will do to safeguard the water and air. I understand that nothing is fool proof and there are risks. However, I feel that this project is too important on many levels to not move forward and trust that the agencies involved will do their jobs in monitoring and regulating this industry. It is time to move forward into the next phase of this project. Thank You Erika Bradach, 5172 Rd 54 Aurora, MN 55705

Stuart Chastain 47659

I believe that the proposed NorthMet copper/nickel mine is important both for its economic benefit to Minnesota and for its strategic/geopolitical value to the United States. However, there is one remaining technical issue relating to environmental protection that has not been satisfactorily addressed. Polymet's proposal to ensure there is no long-term seepage of sludge into aquifers is not adequately redundant. The redundancy of the actual sludge barrier is more important than any long-term financial arrangements to cover environmental damage. Thank you. Stuart Chastain

Stuart Lahti 42546

See attachment

Sue Bowman 18108

Good evening everybody. My name is Sue Bowman. And I'm the general manager of the Country Inn of Hoyt Lakes. I was born here up on the Iron Range. First generation of Hoyt Lakes. My father came here from St. Paul working at the Whirlpool plant in St. Paul. Brought his five children up. I was the first born in Hoyt Lakes. And I have a younger brother also born in Hoyt Lakes. I wholeheartedly support moving forward with the PolyMet project. It is healthy when it comes to these kinds of projects and these claims. We are operating in an environment of tremendous knowledge and experience and technology. The EIS process is in place to ensure any and all projects meet Minnesota's tough environmental status. If you read the EIS, you will see that PolyMet has addressed all the potential issues and proves that copper-nickel mining can be both pro-environment and pro-jobs. PolyMet will bring some 360 direct jobs and hundreds more spinoff jobs to the area of the state that needs them. And, of course, managing a hotel in Hoyt Lakes this will provide many, many jobs. I'll be able to hire more employees. It will be filled every day. We all like that. And so even I can give jobs to a lot of people that wouldn't be working in the mines. We know how to mine in Northeastern Minnesota. And we do under the strictest standards. If we don't utilize this great resource of mining copper and nickel in Minnesota, these minerals will continue to be mined in places around the world that have little or no environmental regulations whatsoever causing massive pollution to the earth. They will be mined in places around the world that offer no safety protection to workers. Where employees are routinely put in danger by being forced to work in unsafe conditions, and where workers are exploited by being paid inhuman wages and do not allow them to feed their families. The alternative to mining in Minnesota is to mine in places that have none of our safeguards. Does that make sense? I have confidence in the co-lead agency conclusions. I believe they have been thorough and thoughtful and taken their time to get it right. Let's mine metals here where we need and want the jobs and we know we can do it right. Thank you.

Sue Carver 15750

See attachment

Alphabetical by sender's first name

Sue Carver 18271

My name is Sue Carver, like a wood carver. I live in Plymouth, Minnesota. I am speaking as a grandmother. I have lived many, many years and know that there is long-term consequences for what we do in our life. I would love to see what I do or can make a voice about in my life to protect the land for my grandchildren. I really feel strongly that we need to think long-term for the decisions we make. And in having lived this long, it makes more sense to me. I would like to say that I don't see the benefit for the majority of the people in the State of Minnesota for these sulfide bearing ore mines. I just don't see how it can possibly benefit us. The ore is going to be taken out and given to China. The companies that -- are owned by foreign nationals, who will benefit from the money earned. And a few Minnesotans in the northern part of the state will have jobs, but the jobs will be short-term. And I can see a lot -- I just can see what is going on in South Dakota and I can just see a lot of people coming in to the state to work up there that are not Minnesotans. So, that idea of having good jobs for Minnesotans is really going to be diluted by all of the people that are going to pour into the state to get those few jobs. And so in the long-term, I just can't see any benefit for us, except the long-term pollution that is going to happen that we are going to have to clean up and use our tax dollars for. And the loss of the pristine environment that is up there in the northeast section of our state and the beauty that is there for our children and for our grandchildren. So, I don't support these mines. And I would like to see them not get the chance to mine in our state.

Sue DeNio 42606

See attachment

Sue Evert 42036

Although I understand people needing jobs in northern Minnesota, I am wary about this risky mining proposal. Is it a US company. Are the standards very high to ensure no pollution of this area. Perhaps just saying NO and protecting this area is a better solution. I do not pretend to be an expert here, but the risks of contamination of beautiful areas and much needed wetlands seems too great to allow this proposal to go through. Best wishes on your decisions.

Sue Goodin 32510

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt As a child I visited my grandparents MN farm every summer. I remembered all my adult life the beauty of this state. Now I live here and am again discovering the care folks here have taken (ore mining notwithstanding) of their gorgeous inheritance. Please do not let greed destroy one of the loveliest parts of this state. Nor endanger its wildlife. Folks come here to remember or experience how beautiful the USA once was. Let us not be destructive of that beauty. Sincerely, Sue Goodin PO Box 295 Carlton, MN 55718-0295

Alphabetical by sender's first name

Sue Halligan 16941

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sue Halligan 1190 Schooner Way Woodbury, MN 55125

50234

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Sue Halligan 1190 Schooner Way Woodbury, MN 55125

Alphabetical by sender's first name

Sue Hatcher 42615

See attachment

Sue Jeffrey 18296

My name is Sue Jeffrey. I am representing Friends of Cold Water. We are concerned about water quality. We think the PolyMet mine is a dangerous idea because the jobs really aren't there. They are only there for 20 years, and then 500 years of cleanup. What? 20, 500 years? The problem is that nature doesn't negotiate. Nature is not passive. There will be unforeseen circumstances that will be there and there will be unanticipated consequences, and corporate apologies for poisoning the water. We can't afford to do that. We also can't afford to have a lot of unemployed people. So, I'm looking for a middle path, a middle path between yes and no. We need good jobs. We need jobs for women, as well as for men, who are relatively the miners. More tourism. But mostly I would love to see the retrofitting of every single building in America. Do you think that's enough jobs? There is a middle path. We need to explore that. We need to get together. Because I speak for the 70 percent. I'm 70 percent water. The surface of the earth is 70 percent water. We are all 70 percent water. So let's get together and figure out a way to have full employment with retrofitting jobs and becoming more environmentally sensitive and being smart.

Sue Jensen 48179

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Sue Jensen 221 Koski Road Esko, MN 55733

Sue Lommen 42156

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Sue Lommen 12479 River Rd North Branch, MN 55056-6243

Sue Ponsford 20069

--Original Message-- From: sue@thedatabank-com [mailto:sue@thedatabank-com] Sent: Wednesday, February 26, 2014 2:58 PM To: Fay, Lisa (DNR) Subject: PolyMet's SDEIS is poorly planned and needs to go back to the drawing boaRd Dear Ms Fay: PolyMet would operate for 20 years but, according to PolyMet.s own data, would pollute water for over 500 years at the tailings basin, and over 200 years at the mine pit. The modeling results provided in the SDEIS show that PolyMet and the DNR simply did not look beyond 500 years. The fact that the SDEIS does not say when the mine pit and tailings basin will stop polluting our water is a major and apparently intentional failure that needs to be corrected by the DNR. Please run the models . or require PolyMet to run the models . long enough to show when pollution of our water by PolyMet.s mine would cease. Long after the mining has stopped, PolyMet would pose an ongoing risk to fresh water. The Embarrass, the Partridge, and the St Louis Rivers, as well as Lake Superior, are far too precious to be put at risk for so long by PolyMet in its present form. PolyMet should not be permitted unless, when the proposed mining stops, the groundwater and surface water is left in a clean condition, and surrounding streams, rivers, and Lake Superior are safe from risk of sulfide mine pollution. The PolyMet SDEIS suffers from many major failings. The SDEIS needs to be withdrawn, sent back, and fixed before it is returned for public comment. Sincerely, Sue Ponsford 4129 Portland Ave Minneapolis, MN 55407-3134

Alphabetical by sender's first name

Sue Ramthun 14631

Dear DNR, I am an avid MN angler and BWCA traveler. I am writing to express concern about the proposed Polymet sulfide mine in NE Minnesota. I've read information about the sulfer mining process and it is scary. As a state that prides itself on it's pure natural resources, I can't believe we are even entertaining the thought of sulfide mining (like we shouldn't allow frac sand mining in SE Mn). The risks that come with sulfide mining far outweigh any economical benefits proposed by Polymet. The major downside of sulfide mining is the water pollution risk (acid and increased mercury emissions). This includes drinking water and fishing waters. No amount of money can replace or "fix" our clean water supply and damaged wetlands. Our clean water is worth more than it's weight in gold and we should be protecting it with our lives. The SDEIS acknowledges that water from the Polymet operation will need to be treated for at least 500 years. What if there are leaks. How do we sustain clean water and good quality natural resources with that risk hanging over our heads. That is a horrible legacy to leave for future generations. The DNR is supposed to help protect our natural resources, so preventing any sulfide mining would comply with that directive. Please help us. Sue Ramthun 117 18th St SE Rochester Mn 55904

Sue Rengstorf 39341

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Sue Rengstorf 590 Suzanne Ave Saint Paul, MN 55126-2310 (651) 483-8538

Sue Sojourner 11361

Dear Department of Natural Resources, Having read a description of the probable ramifications of PolyMet’s proposed sulfide mining, I am—and we all should be—appalled and leery of the five centuries of hazardous water treatment violations that will affect us. Proposed mines should keep Minnesota’s waters clean and safe. Plans should put safeguards in place to avoid things going wrong. The plan should leave the site clean, maintenance-free, and should protect Minnesota taxpayers. May the DNR lead the way in safeguarding our people from the destructive dangers of copper sulfide mining. Thank you. Health. Susan H. Sojourner 315 N. Lake Ave, #501 Duluth, MN 55806 _____ HYPERLINK "http://www.avast-com/" This email is free from viruses and malware because HYPERLINK "http://www.avast-com/"avaSt Antivirus protection is active.

Sue Weinauer 21630

It's seems a blindness comes over folks when there are some jobs coming to a community. It's happening again in Ely. It's unbelievable that mining anywhere near the Boundary waters is even being considered. Has there ever been a mining operation that has not caused long term damage to the land and a job situation that does not die after a couple decades. Anyway, though I don't live anywhere near the area considered, I can't see ANY sense in it. Please please consider the impact. Make us proud to live in Minnesota and stand up for our resources that would otherwise probably go over to China or at least out of the country. No Mining Please Sent from my iPad

suehawkeleven@yahoo.com 43209

Poly Met Destruction of all North Americas Aquafors. Water sold to Canada and China. A few jobs for miners. Who's gonna pay for all our healthcare? What we gonna drink? What bout foliage? Animals? Rice? Air? What the Hell u greedy bastards thinking?!?...

Alphabetical by sender's first name

sun cho 39762

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms sun cho 1207 Estates Ln Bayside, NY 11360-1141

39767

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms sun cho 1207 Estates Ln Bayside, NY 11360-1141

Alphabetical by sender's first name

sun cho 39769

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms sun cho 1207 Estates Ln Bayside, NY 11360-1141

Superior Water, Light & Power 38907

Dear Ms Fay, Please see the attached letter in support of PolyMet’s proposed NorthMet mining project. Thank you, - Bethany Owen Bethany M. Owen President Superior Water, Light and Power Direct: (715) 395-6355 E-mail: HYPERLINK "blocked::mailto:bowen@swlp-com"bowen@swlp-com

superspamke 44593

As a seventeen year old student in Minnesota I believe that allowing of the construction of this mine would be a grievous mistake. We stand the possibility of destroying that areas environment for centuries to come. Although the mine is not in the Boundary Waters its proximity to this state park should be concerning. The company might promise full resposibility for the mess it creates but it is not certain. If they can't clean up the mess like a lot of mining comapnies multiple generations of Minnesotans would be left to clean the problem. Please protect our future generations enjoyment of this areas natural wonders not leaving them with a disgraceful legacy. Kathryn Sent from my Samsung Galaxy S®4

Susan A Anderson 54495

See attachment

Susan Abrahamsen 54777

See attachment

Susan Agrimson 45190

I'm totally confident the company will protect the environment. there are plenty of safeguards in place. plus the new jobs will be a great benefit to northern Minnesota. Gerald Agrimson 13520 greenwood tr n stillwater, mn 55082

Alphabetical by sender's first name

Susan and Herb Lasch 47542

Mar 11, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. We are concerned about this project's potential impact on our region's natural resources and the public's health. Have the following been fully considered as environmental impact. 1- Negative environmental impact in other geographic areas that have been subjected to this type of mining that could apply here 2- The track record of PolyMet Mining Corporation in previous mining operations 3- The unknown capability of future generations of oversight to monitor water quality in the 500+ years to come. So much is riding on an honest, reliable environmental assessment. Our prescious environment is being assessed for generations of potential devastation for short term profit. Thank you for your consideration Sincerely, Susan and Herb Lasch 25 Lake St N Unit 202 Forest Lake, MN 55025-2538

Susan anderson 42891

The following is a letter I mailed - but may not reach you in time. Thanks, Susan Anderson

Susan Armington 57202

Where will the money come from to ensure the waste water treatment plants will continue to operate for 200 at the mine site and 500 years at the plant site? How can we ensure the PolyMet will meet its share of these costs, and not for instance, default or go bankrupt or whatever, before it pays its share?Susan Armington5005 15th Ave SoMinneapolis, MN 55417

susan bauer 39449

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

Susan Boorsma 39748

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Susan Boorsma 513 E 11th St Duluth, MN 55805-1319

Susan C Flesvig 54479

See attachment

Susan Claire Nelson 54559

An environment that is healthier than it is today should be our goal. But Americans will not stop using the minerals of the earth. Rather than despoiling a third world country and exploiting its people, let’s do our mining here in our own backyard using the best science and environmental protections we can.

Susan Conlee 57881

I ask you to oppose PolyMet's proposal for sulfide ore mining in the Superior National Forest at the headwaters of the St. Louis River. They plan to excavate or fill 900 acres of wetlands directly during mining, while indirectly draining or poisoning (with wind-blown toxic metal dust) an additional ten square miles of wetland habitat in the area. The mining will leave square miles of talcum powder-fine waste, piled high. Unlike taconite, sulfide mining waste, when exposed to air and water forms sulfuric acid. The acid will leach toxic metals such as mercury, copper, silver and nickel from the waste rock. PolyMet suggests that to prevent pollution of the St. Louis River watershed they will collect the hundreds of millions of gallons of rain and snowmelt waters that filter through the waste every year and run them through water treatment plants ... for up to five centuries. The risk of long-term negative impacts to the wildlife and people of Minnesota is reason to oppose this project. The cost liability for cleanup over centuries is also a great cause for concern. Please oppose this project.

Susan D Blom 57940

I oppose PolyMet. The long term consequences to wildlife and public health are really not known, despite the research done so far. We love this part of the state for its beauty & would hate to see it destroyed. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Susan D. Lannin 35133

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept my comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. There is no history of sulfide mining in Minnesota for good reason: Acid mine drainage and heavy metal contamination pollute waters in all places where sulfide ore mining has occurred. I urge you to reject PolyMet Mining Corp NorthMet's proposal because such mining operations will pollute Lake Superior, jeopardize clean water and wildlands, and endanger public health. Approving PolyMet's proposal would give an unwise signal for more sulfide mining near Lake Superior, a vast freshwater resource unique among the Great Lakes, and endanger millions of acres of wildlands, including 1,000 pristine lakes and streams, and threaten the 1,500 miles of canoe routes, now a major recreational draw within the Boundary Waters Canoe Area Wilderness. Please act now to protect Lake Superior and the Boundary Waters Canoe Area Wilderness. Destruction of fish and wildlife habitat from polluted lakes and rivers, contaminated drinking water, immense cleanup costs and hundred-year recovery times make sulfide mining too dangerous for this region. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine definitely is NOT in the public intereSt Please reject this first and any subsequent sulfide ore mining proposals that industry may present and instead vow to protect one of the most important freshwater resources in the world. Thank you for considering my comments in your decision-making process. Sincerely, Susan D. Lannin 7100 N Greenview Ave Chicago, IL 60626-2629 (773) 381-9738

Susan Darley-Hill 39553

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Thank you for the opportunity to provide comments on this SDEIS. This type of mining should not be allowed to move forward in our water-rich area of Minnesota. And rich is an understatement, given the prospect of an increasingly-shrinking supply of clean, fresh water within the next 50 years. Water is a resource far, far more precious than any metal - now - and especially in the future when nothing will be more precious or valuable to our descendants. This kind of mining poses a such a threat to our wetlands, running waters, and lakes throughout NE Minnesota. These mining operations have a proven track record of consistently producing destructive heavy metal contamination and acid drainage that causes irreparable damage to once beautiful and pristine waters. Those impacts persist long after the ore deposits have been exhausted and the mineral wealth extracted, benefiting the few while robbing the generations to come, whose fresh water "deposits" have been rendered worthless or at best impaired. It is a fact that, time after time, in every place where sulfide-rich rocks have been exposed through ore mining, the waters have been impaired. This project's potential impacts on Minnesota's natural resources and public health include direct damage through disruption of habitat of threatened species such as lynx and moose, destruction of wetlands, and impairment of water quality. And, secondarily but with even more widespread consequences for our descendants hundreds of years into the future, the burning of fossil fuels necessary to power the extraction and then maintain the system constructed to handle the acid drainage will release a staggering amount of carbon dioxide, particulates and mercury- all detrimental to the health of virtually every living thing. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Susan Darley-Hill 1710 E 7th St Duluth, MN 55812-1217 (218) 728-1139

Alphabetical by sender's first name

Susan Darley-Hill 48784

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Thank you for the opportunity to provide comments on this SDEIS. This type of mining should not be allowed to move forward in our water-rich area of Minnesota. And rich is an understatement, given the prospect of an increasingly-shrinking supply of clean, fresh water within the next 50 years. Water is a resource far, far more precious than any metal - now - and especially in the future when nothing will be more precious or valuable to our descendants. This kind of mining poses a such a threat to our wetlands, running waters, and lakes throughout NE Minnesota. These mining operations have a proven track record of consistently producing destructive heavy metal contamination and acid drainage that causes irreparable damage to once beautiful and pristine waters. Those impacts persist long after the ore deposits have been exhausted and the mineral wealth extracted, benefiting the few while robbing the generations to come, whose fresh water "deposits" have been rendered worthless or at best impaired. It is a fact that, time after time, in every place where sulfide-rich rocks have been exposed through ore mining, the waters have been impaired. This project's potential impacts on Minnesota's natural resources and public health include direct damage through disruption of habitat of threatened species such as lynx and moose, destruction of wetlands, and impairment of water quality. And, secondarily but with even more widespread consequences for our descendants hundreds of years into the future, the burning of fossil fuels necessary to power the extraction and then maintain the system constructed to handle the acid drainage will release a staggering amount of carbon dioxide, particulates and mercury- all detrimental to the health of virtually every living thing. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Susan Darley-Hill 1710 E 7th St Duluth, MN 55812-1217 (218) 728-1139

Susan Dunne 36036

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, We cannot allow more pollution into our Great Lakes. The Boundary Waters canoe experience must be protected. When you have the opportunity to bring city people up there, those that have never left the city cannot believe their eyes. The fishermen on Lake Superior and those who operate lakeside resorts would agree - allowing mining would negatively impact their lives and livelihoods. The purity of our lakes is a tremendous asset. Please do risk our drinking water and so much more. Sincerely, Susan Dunne 4308 Bobolink Ter Skokie, IL 60076-2004 (847) 982-1903

Susan Faulkner 40270

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Susan Faulkner 736 Currey Rd Nashville, TN 37217 US

Alphabetical by sender's first name

Susan Frame 10758

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Susan Frame 1010 Washburn Ave N Minneapolis, MN 55411

18397

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Susan Frame 1010 Washburn Ave N Minneapolis, MN 55411

Alphabetical by sender's first name

Susan Frame 50516

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Susan Frame 1010 Washburn Ave N Minneapolis, MN 55411

Susan Garado 41921

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Susan Garado Minneapolis, Minnesota

Alphabetical by sender's first name

Susan Greene 40351

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone to assess the impacts of slope and dam failure at the mine site waste rock piles and the tailings piles, instead of just assuming that no failure can happen. (SDEIS, p. 5-546). PolyMet's tailings would be placed on top of huge, leaky and unstable existing tailings piles. •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Susan Greene 5510 Upton Avenue South Minneapolis, MN 55410

Susan Greer 39905

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Susan Greer 3816 24th Ave S Apt 2 Minneapolis, MN 55406-3073

Alphabetical by sender's first name

Susan Hawthorne 43126

Polymet's SDEIS has numerous shortcomings. Among the most serious is the inadequate consideration of future risk. It is well known that open-pit hard rock mining produces sulfuric acid, itself a pollutant that also causes leaching of dangerous elements like cadmium and mercury. The Polyment SDEIS specifies that containment will be required for at least 500 years, and it details containment strategies. However, the plan does not adequately consider catastrophic possibilities—infrastructure failures, loss of funding for containment due to (inevitable) government change, changes to waterflow subsequent to usage and global warming, etc, etc None of these risks is directly foreseeable or calculable, but that is exactly the point: we cannot see 500 years into the future, so the SDEIS cannot adequately plan ahead. Given that the SDEIS cannot be adequate, given the 500+ year time frame for hazards and the unforeseeable risks, and that approval sets us down an unnecessary and dangerous course, the DNR should reject Polymet's SDEIS. Susan Hawthorne Philosophy Department St Catherine University St Paul, MN 55105 HYPERLINK "mailto:schawthorne@stkate-edu"schawthorne@stkate-edu

Susan Hoppe 57711

Greetings. I have patrons who would like to review the NorthMet SDEIS. Can you tell me how we can get a hardcopy for our library. Thank you very much. Sincerely, Susan J. Hoppe Reference Services Librarian Virginia Public Library 215 5th Ave S. – Virginia, MN – 55792 HYPERLINK "http://www.virginia.lib.mn.us/"http://www.virginia.lib.mn.us Read our blog. Like us on Facebook.

Susan Jane 43093

Dear Ms Fay, My husband and I moved to Saint Paul in January 1994- The following summer, we discovered the BWCAW. Over the past twenty years, we have explored much of this special wilderness area in small, lightweight solo canoes, relishing its extraordinary beauty. We've also witnessed the obvious economic struggles of many who live just outside of this protected natural region and understand their strong drive for more and better jobs. We know that it's easy for us to reside in a comfortable financially secure situation here in the Twin Cities and question the wisdom of a copper-nickel mining venture that might mean at least a short-term boon to the northern Minnesota standard of living. The promise of 350 jobs for 20 years has to be a tempting possibility. But, weighed against the extreme environmental risks that inevitably accompany the Poly-Met mining proposal, the hoped-for benefits of sulfide mining seem hopelessly short-sighted to me. Pristine water is the essence of the BWCAW. From my understanding of the proposed mining processes, water quality degradation is almost unavoidable, and the company's assurances to remedy any and all resulting water pollution are simply unfeasible. However well-intentioned Poly-Met might be, adequate safeguards for protection of northern Minnesota natural resources is impossible to guarantee and the potential for environmental damage and its cost to the area is too great. While I do not possess technical mining expertise, some specific facts and simple common sense make it crystal clear to me that the proposed mines are undesirable, and, what's more, truly threaten the future health of those who reside in the vicinity of the proposed site as well as individuals who might work or visit this area when mining is underway and even after the mines have shut down. I would like to make the following points to support my opposing stance: 1- First, it is my understanding that Poly-Met's open-pit copper-sulfide mining plan does not include any analysis of potential risks to on-site mine workers from exposure to asbestos-like amphibole fibers, which have been linked to the fatal lung cancer mesothelioma, that are present at the site. In addition, the plan does not include a Health Risk Assessment of the effects of mercury, manganese, lead, arsenic and other pollutants on people who live downstream from the site, such as the town of Hoyt Lakes, downstream from the proposed site's waste piles. The sulfate discharge and deleterious impacts to wetlands of the proposed mining may result in an increase in levels of mercury to fish and contamination of drinking water with toxic levels of other substances that will jeopardize the health, particularly, of bottle-fed babies, children and the elderly. 2- Sulfide mining appears to be especially unsafe in a water-rich area such as our State. This type of mining has not previously taken place in Minnesota, and there appears to be a high probability of eventual pollution of the groundwater, which would require literally hundreds of years of treatment (even after the mines are no longer active) – if possible to remedy satisfactorily at all. 3- Poly-Met is highly unlikely to satisfactorily remediate environmental damage. This international firm has no great commitment to the proposed mine region. As we have seen in many recent environmental disasters, such as in West Virginia, the responsible corporate parties typically declare bankruptcy or find another "escape route," leaving local communities to contend with the devastation. 4- Finally, the idea that the proposed mining operation will provide a significant boost to the northern Minnesota economy is not a sure bet. There is no guarantee that all jobs will be filled by local workers – and the majority of profits from this enterprise will certainly benefit distant shareholders. Minnesota is the steward of an enormous amount of this

Alphabetical by sender's first name

Susan K 41922

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Susan K Richfield, Minnesota

Susan Kane 54735

See attachment

Susan King 16230

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Susan Lanes 29659

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. I have been going to stay on islands in this area for 43 years, even spending my honeymoon there in 1970 at which time we were drinking pure water right from the lake. My husband's family and in-laws (Canadians) have roots back to the 1800's being commercial fishermen. This is a beautiful pristine place, where they made all of us American's who had cabins on leased land move out to help preserve it. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Susan Lanes 2321 Fairview Ave Johnsburg, IL 60051-2539

susan langston 17167

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, susan langston 5517 twin lake blvd. e. brooklyn center, MN 55429

Alphabetical by sender's first name

susan langston 50433

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, susan langston 5517 twin lake blvd. e. brooklyn center, MN 55429

Susan Leaf 9767

DNR: When the completed EIS was first released, I expected pro-mining factions to take issue with the estimates that monitoring and water treatment at the site would last for centuries- 200 and 500 years, depending on location. Since they have not, nor have they taken issue with the estimate that the mine would be productive for a mere 20 years. So these number seem to be more or less firm. Since there is no copper/nickel mine with sulfide ore that has not polluted the water around it, we can assume this will happen to Minnesota, too. There is nothing that I have read to make me believe otherwise. It is nearly beyond belief that rational people are even weighing these facts against one another: a mine that will offer a few hundred people jobs for less than one work-life- a 20 year old man beginning at the proposed mine would be out of work at age 40- versus the pollution (worst case) or 500 year monitoring (best case) of a cherished wilderness area and the world's largest freshwater lake. Untold millions will be affected by a polluted Lake Superior, since in the centuries to come when fresh water is scarce, it will most certainly be looked to to provide drinking water. Come to your senses. Say no to those with limited vision who ask the state to maintain "their way of life" on the Range. A vibrant, thriving tourism industry today provides the best promise of continuing economic health in that region. Sue Leaf 314450 Oasis Road Center City, MN 55012

Susan Leek 38715

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Susan Leek 591 Desnoyer Ave Saint Paul, MN 55104-4917 (651) 210-6727

Alphabetical by sender's first name

Susan Leibowitz 40849

Mar 10, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Susan Leibowitz 732 W Schubert Ave Chicago, IL 60614-1507 (773) 549-7517

Susan Licari 1853

I live just north of the polymet site in Embarrass. They have sent out engineers to monitor our wells on our property and to install new ground water monitors. They sent me detailed analysis of the results of the tests. I am totally confident of there process and believe this will be done correctely. They have been very upfront when questioned. If I wasn't absolutely confident of the process I would not be writing this or would I support it. This mine will extend the long legacy of mining in the area and provide important employment for the young folks in are area. Mining has been ongoing for over a 100 years on the iron range and we can only hope it continues. Some of my best hunting and fishing areas are old mines that have grown in where wildlife and fish flourish. Sincerely yours Anthony Licari Embarrass mn Sent from my iPad

Susan Lick 40913

Before DNR issues permits to mine Cu, Pd, Ni, Pt at the Polymet site all measures to provide reclamation and recycling to outdated electronic gadgets should be instituted. Polymet may be able to mine as safely and environmental sound as they propose but to allow a mining operation of this sort in the ecologically sensitive region proposed without a full fledged program to glean all used precious metals is mindless. I am not proposing that Polymet be forced to advocate this endeavor, this must be done by state government. Currently there is a half hearted program in operation to reclaim these metals but it is by no means adequate to retrieve all metals used to manufacture phones, computers, cars, etc A deposit should be paid by any consumer when purchasing an item that necessitates the use of any of these metals in order to make sure that the item is fully recycled at the end of it’s lifespan. Without taking this action prior to the advent of a new mine we are acting without foresight and wasting the exact metals that are going to be needed as we continue to grow our technology base. This endeavor would certainly add to the workforce and send a message to the buying public that the days of throw away no longer exiSt In addition the reclaiming would be done with strict environmental regulation much like the proponents of the Polymet plan are proposing. It needs to be done where the consumer decides the lifespan of the gadget is over. David Lick 36514 Birch Trl. Grand Rapids, Mn. 55744

Susan Louis 39571

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Susan Louis 4420 Chicago Ave Minneapolis, MN 55407-3522 (612) 824-4290

Alphabetical by sender's first name

Susan Lynn 16876

Feb 18, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

39528

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Susan Lynn 2728 Humboldt Ave S Minneapolis, MN 55408-1067 (612) 306-0306

Alphabetical by sender's first name

Susan M Smith 40666

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mrs Susan M Smith PO Box 48303 Minneapolis, MN 55448-0303

Susan Maas 9620

Dear Ms Fay, Dear Federal and State Agency Leaders: I understand that the economy in northern MN is in dire straits, and area residents are desperate for decent-paying jobs. I understand that finding new sources of employment in the region is imperative - and that new mining operations may be part of the solution. But not THIS project - NOT SULFIDE MINING. I'm flabbergasted that we can even be considering a project that, by all accounts, will require 500 years' worth of cleanup. Pollution seeping from mine pits into the Partridge River surficial waters “would continue in perpetuity.” As a Minnesotan, a wilderness lover and a taxpayer - history suggests we taxpayers will be left holding the bag for cleanup if/when the company folds - I am horrified by the PolyMet proposal. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely Susan Maas 4846 33rd Ave S. Minneapolis, MN 55417

Susan McCabe 40259

Dear Ms Fay, Dear State and Federal Leaders: I am most concerned with the mercury contaminants which will be going into the groundwater and Lake Superior. It is not right for a company to be allowed to pollute our environment and harm our infants and children. Kids in this area already have a higher level of mercury in their bodies. It is very shortsighted to allow this to happen. We will be trying to contain this problem for centuries to come. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water. Sincerely, Susan McCabe St Paul Susan McCabe 1455 Grantham Street St Paul, MN 55108 651-642-9619

Susan Mcknight 42456

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Susan Mcknight 5025 Baker Rd Minnetonka, MN 55343-4553

Alphabetical by sender's first name

Susan Miner 4664

excuse me, but what are you thinking. Is everything all about money.. If so, then realize the cost in cleaning up the leftover disaster when you are done destroying the pristine area. Remember the Love Canal. Remember the terrible state Lake Superior was in thanks to the Silver Bay Mining along with many others. We seem to have enough problems keeping our waters, wetlands, and our land in general pollution free. The people of Minnesota do not need to add another clean=up bill to our already high taxes. I vote NO. Susan Miner, 5040 l84th Ave NW, Anoka Mn.55303: HYPERLINK "mailto:sminer110@hotmail-com"sminer110@hotmail-com Sent from Windows Mail

Susan Murray 14645

Susan Murray 5325 Highpointe Drive Bloomington, MN 55437 February 12, 2014 RE: $650 million copper-nickel mine proposed by PolyMet in Hoyt Lakes. Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Ms Fay: I write to express my opposition to the the $650 million copper-nickel mine proposed by PolyMet in Hoyt Lakes. Because this region contains an underground aquifer, NO AMOUNT of money will ensure an adequate clean-up/disaster leak contingency plan. Make no mistake about it Ms Fay: potable, fresh groundwater is Minnesota's best, most profitable and most lasting natural resource. Allowing the PolyMet mine project to go forward in Hoyt Lakes.would be a huge mistake. Thank you for listening. s/Susan Murray

Susan Narayan 39974

Dear Sir or Madam: I'm a Minnesotan concerned about the impact of the PolyMet mine proposal. I urge you to reject this risky proposal to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you, Susan Narayan

Susan Newman 39682

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Susan Newman 1425 W 28th Street #508 minneapolis, MN 55408

Alphabetical by sender's first name

Susan Newman 48855

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Susan Newman 1425 W 28th Street #508 minneapolis, MN 55408

Susan Nordin 18365

My name is Susan Nordin. I live in Duluth. My background is I'm a family physician. I work here in Duluth and I also work in Virginia several times a month. My main interest is human health and the impacts that this mining project would have on the human health. There's been a lot of speaking about pollution and pollution runoff, heavy metals, and mercury. And this impact and the impact on human health. And I have a deep concern about that. I also have a deep concern about the complex ecosystems on which our health depends. Our health does depend on what goes into our bodies but also these ecosystems and the other living things that we share this earth with. One thing that is noted in the plan is that already there are currently 16 main thoroughfares for large mammals to traverse at this point remaining across the Iron Range area. This project would do away with two of those permanently. I would specifically like to speak about the permitting for the permit to destroy wetlands. These require more scientific data about that before approving that. This is a high-quality wetland that we're talking about. This is pre-settlement wetland that cannot be replaced. It's 1,000 acres. We're talking about trading that for -- trading land that is ours under the Forest Service for mine pits and low-quality wetlands, which is not going to be supportive of our health. I have one minute left. Okay. On the Forest Service website I looked up what their mission was because of this land exchange that is proposed, which I am opposed to; and their national themes when it focuses on projects states that they should shape, influence Forest Service land use on a scale in a way that optimizes public benefits from trees and forest for both current and future generations. They specify that these projects should have outcomes that protect and enhance water quality and quantity; energy is conserved; and air quality is improved, wildlife and fish habitat is protected, concerned, and enhanced. And people are connected to trees and forests and are engaged in environment stewardship activity. This land exchange does not appear to support that in my opinion. And I would please request that the land exchange not take place, the Permit 404 be denied.

39495

Please see the attached letter intended for all of you included in this e-mail. Thank you. - Susan Nordin, MD UMD Health Services 615 Niagara Court Duluth, MN 55812 phone (218) 726-6973 fax (218) 726-8515 HYPERLINK "http://www.d.umn-edu/hlthserv"www.d.umn-edu/hlthserv

Alphabetical by sender's first name

Susan Nordin 48161

See attachment

54908

See attachment

Susan Padgett 40889

Mar 9, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Susan B. Padgett 413 E. 16th Ave #2 Anchorage, AK 99501 Sincerely, Susan Padgett 413 E 16th Ave Apt 2 Anchorage, AK 99501-5255 (907) 258-1620

susan prom 38836

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs susan prom 189 Sag Lake Trl Grand Marais, MN 55604-2057 (218) 388-9930

Susan Rom Zuriff 20045

I'm no expert, but I grew up in Ely. I can't envision that any amount of economic development, especially toxic mining, can make it into thriving commercial center. It's too far from business activity, with only 2-lane road access, no commercial airport, no long-distance buses and no rail connection. It's sad, but to think that the only activity that will keep it going is mining that may pollute a national treasure for up to hundreds of years is senseless. The effect on long-range state finances is imperiled if that happens. And the number of jobs may be many fewer than anticipated with the expansion of technology, especially robotic. Susan Rom Zuriff 4300 W. River Parkway, #253 Minneapolis, MN 55405

Alphabetical by sender's first name

Susan Rowe 39547

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Susan Rowe 6401 Bethia Ln Brooklyn Park, MN 55428-1716 (952) 303-2902

Susan Scherer 16178

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Susan Scherer 41663

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

54830

See attachment

Susan Schneck 54134

We DO NOT support Polymet mining. There are other ways to grow our economy safely with respect to the environment. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Susan Schurke 18080

My name is Susan Schurke. I'm from Ely, Minnesota. Most of us will never work for a copper mine, however -- most of us in Northern Minnesota, anyway. However, all of us are taxpayers. I'm very concerned about the financial assurance in the SDEIS. Who can ever figure out what the cost of the cleanup will be for 500 years. Who will pay this? Who -- what is the amount they could possibly -- that can be put forward to replace something that can never be replaced; our clean water that we desperately need? Copper mining in a watershed does not seem to be a good idea. The proposed sulfide mine and tailings dump would pollute streams, wetlands and drinking waters for hundreds if not thousands of years. I believe that issues that haven't been analyzed at all in the SDEIS, like impacts on workers' health, be studied before the EIS is finalized. I request that common-sense alternatives like putting liners under the permanent waste-rock pile and the tailings piles be analyzed before the EIS can be finalized. I am concerned that the high value peat lands on the mine site are irreplaceable. The vast majority of wetlands mitigation is outside the Lake Superior Basin and there is no plan to replace most of the indirectly-affected wetlands. I am concerned that cumulative impacts of the PolyMet Project, and other existing and expanding mines, would impair wild rice, fish and aquatic ecosystems and violate the treaty rights of Indian tribes to hunt, fish and gather in the Superior National Forest lands ceded to the United States. I'm concerned that PolyMet's water and air pollution from mine pit, waste rock and tailing piles, and PolyMet's excavation and changing hydrology and wetlands would increase mercury loading to wetlands and streams and increase mercury bioaccumulation in fish putting human health at risk. I'm concerned that PolyMet's discharge would increase carcinogenic arsenic in Hoyt Lake's drinking water and release arsenic, lead and manganese, chemicals that impair brain function, into the ground water. I am concerned that PolyMet's water pollution from the permanent mine site waste-rock pile would need treatment for at least 200 years and pollution from the tailings piles would require treatment for at least 500 years. Pollution seeping out of the pits would continue in perpetuity, forever. Who is going to pay for this and how can we ever replace our precious water? I am not against iron ore mining, but copper mining does not seem to be a reasonable thing in the watersheds of North America.

Susan Shawn 52212

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Susan Shawn 13939 SE Fair Oaks Way Oak Grove, OR 97267

Susan Solterman Audette 43313

Dear Minnesota Department of Natural Resources, I am writing to register my opposition to the permit for the PolyMet Mine. Northern Minnesota needs economic development that does not risk polluting surrounding surface waters with a mix of acid and heavy meta PolyMet, as proposed in the Supplemental Draft Environmental Impact Statement, creates a new ongoing water pollution source in the headwaters of the St Louis River, the largest American tributary to Lake Superior, which contains 10 percent of the world's fresh water. PolyMet's own data show it is expected to generate water pollution for more than 500 years. Treating the polluted water requires a complex and untested mechanical system of pumps, pipelines, and filters, which would need to operate indefinitely. The plan does not consider the possibility of mechanical or human failure. PolyMet has no contingency plan for predictable mechanical problems such as pipeline failures, extreme weather or human error. These considerations remain unaddressed in the SDEIS and should not, ultimately, be overlooked by our State’s designated environmental managers and stewards. Susan Solterman Audette HYPERLINK "mailto:ssolterman@gmail-com"ssolterman@gmail-com 651-260-7040

Alphabetical by sender's first name

Susan Soule 38413

As a Minnesota resident and northern Minnesota native, I want to express my strong opposition to the Polymet mining project for the following reasons: WATER is a precious resource. Besides being the foundation for much of Minnesota's recreational industry, it is essential to the life of our entire ecosystem from the lowliest life forms to human beings. Its scarcity is already a source of friction, concern and conflict worldwide. Look at California's current and frequent droughts and past proposals that a pipeline be built from Lake Superior to the desert southweSt The idea that we would risk centuries of pollution and the staggering costs of cleanup (provided that is truly possible) to one of our most basic and essential resources for a few hundred jobs lasting two or three decades is beyond belief. The idea that we would allow Polymet and its affiliates to do this, with their horrendous track record, is equally terrible. I implore you to stop this project. Sincerely, Susan Soule 7324 West Shore Drive Edina, MN 55435

Susan Stanich 42683

See attachment

Susan Tincher 58074

Please do not allow the pollution & destruction of Minnesota's natural resources. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Susan Valley 39890

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. Please leave the most revered and wonderful asset that Minnesota has to offer. ALONE.. As if the mining of years gone by have not done enough damage , please do not use that destruction as a precedent to further this horrific use of our land. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Susan Valley 555 McKnight Rd S Saint Paul, MN 55119-6911 (920) 728-4663

Susan Williams 54846

See attachment

Alphabetical by sender's first name

Susie Kleusch Parkhurst 40104

_____ From: Susie Parkhurst [susieparkhurst@msn-com] Sent: Monday, March 10, 2014 3:10 PM To: *Info (DNR) Subject: SDEIS-PolyMet Lisa Fay, EIS Project Manager, MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155 HYPERLINK "mailto:info.dnr@state.mn.us"info.dnr@state.mn.us Dear Lisa Fay, My name is Susie K Parkhurst and after many years living away from the Iron Range, I have returned home and now live in Palo MN. I would like to submit my comments concerning the environmental impact of the proposed PolyMet Mining project. First I would like to say that while I am not an advocate of Local, State or Federal Government regulating our entire lives, I do trust and rely on entities such as the FDA, EPA and MN DNR to have done their due diligence to assure that they have done all they can to protect and preserve all that they are charged with protecting. An example would be that if the MN DNR states that they need to limit the number of deer hunting licenses because of an overall drop in the deer population, I trust that the MN DNR to have done their due diligence to impose the restrictions for the good of our eco system. I feel comfortable with the levels of guidelines that are currently enforced and that will be enforced in the future to protect our environment and the environment of the world. Currently we depend on foreign countries for so many of the precious metals that are vital for technology, equipment and industry. The more precious metals we can mine and process here in the United States, the less we are dependent on other countries to provide the vital precious metals. Those precious metals are needed for components that are used for such things as personal and business computers, IPads, cell phones, televisions and all manner of personal and industrial equipment. I am not comfortable with the levels of restrictions and guidelines enforced to protect the environment in other countries. The more we depend on foreign countries to provide vital metals the more we rely on them to be good stewards of our environment. The world is truly a small place. Consider the fact that the debris in the ocean from the Sendai Japan earthquake took just 1 year to reach Hawaii and California. It has polluted the Oceans and Seas and is having a negative impact on fish and mammals worldwide. The radiation of the Fukushima Power Plant arrived much more quickly. My brother lived in China for a time and saw mercury being dumped in a local river. It is better for the environment of the Iron Range, the United States of America and the entire world that we mine these minerals locally where we can be monitor whether we are being responsible stewards for the environment. The positive economic impact of a PolyMet Mine on the Iron Range and Minnesota relates to the environmental impact in that the more economically stable an area is, the more highly educated that population is. The more highly educated a population is, the more they become good stewards of their environment and humanity at large. Susie Kleusch Parkhurst 5660 Palo Rd 41 Aurora MN 55705 218-780-0628

gwAA+f8AAIDpAAB1MAAA6mAAADqYAAAXb5JfxUYAAAKLSURBVHjadJPfS5NhFMe/21xvuhXRyJAZroiSrJnbRdT7vrAf5HBaK5RABmEEwQIvkpZ/QRcWXd
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Susu Jeffrey 10741

Dear Ms Fay, Dear Federal and State Agency Leaders: 20 YEARS of MINING 20 GENERATIONS of CLEAN UP Reject the PolyMet sulfide mine plan in Northern Minnesota's water-rich territory. Sincerely, Susu Jeffrey Susu Jeffrey 1063 Antoinette Av Minneapolis, MN 55405

42474

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, PolyMet copper/nickel mining in the headwaters of the Great Lakes-. NO. 20 years of mining 20 generations of clean up (the water study was arbitrarily stopped at 500 years) -More money in clean up than extraction -Foreign-owned, therefore profits go away How about a solar panel industry. Sincerely, Ms Susu Jeffrey 1063 Antoinette Ave Minneapolis, MN 55405-2102

Alphabetical by sender's first name

Suzanne Birch 39633

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Do not do this in Minnesota-we should be leaders in clean enviormental issues.Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Suzanne Birch 16015 Elgin Ct Faribault, MN 55021-8568 (507) 334-3023

Suzanne Bowman 4038

To Whom it May Concern: As the General Manager of the Country Inn of Hoyt Lakes, I would like to express my strong support for Polymet Mining to open a plant in Hoyt Lakes, Minnesota. I am very anxious to hire new employee's as the result of Polymet opening. Not only will the plant hire, but the vendors who supply the mine will hire, and we will see a much needed increase in hotel stays therefore I will be able to hire. I trust our EPA and other government agencies that we will be as environmentally safe as can be. I love the idea that the plant will be recycled from the old LTV plant. - Suzanne Bowman General Manager Country Inn of Hoyt Lakes t:218-225-3555 f:218-225-3234

18237

Suzanne, S-U-Z-A-N-N-E, Bowman, B-O-W-M-A N. I'm from Hoyt Lakes. I moved away from Hoyt Lakes for quite a while, ended up going to Florida and to Pennsylvania because my husband worked in the mines and because of the difficult times in the '80s and him not being able to keep a job. My family became ill and I moved back and took care of them. Why I'm for PolyMet is because I am an environmentalist, also. I want to use the environmental statement that they did and trust the -- I want to trust the scientists and what they've done for the statement. I want to keep it in Minnesota where we have the strict environmental. I do not want it to go to another country where they'll pollute the whole world and they don't have environmental regulations at all. I believe that we need the precious metals very much and we cannot have it dependent on another country, especially China and Japan because they are looking to go to war between them. It was just announced. And I'm a cancer survivor and all of the copper and the precious metals that are needed for medical reasons, I really think that it should come from the United States and from Minnesota, especially with our strict regulations, and I think they did a wonderful job on the environmental statement. Thank you.

Suzanne Candell 34383

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I have spent much time in the wilds of Northeastern Minnesota over the 40+ years I have called Minnesota my home. There is no place on earth quite like it. I am terribly saddened by the prospect of possibly hundreds of years of environmental contamination due to this project. Although the project offers jobs in the immediate term, they are transitory. The long-term damage that such a project will inflict environmentally and economically on the area means that the legacy to future generations may be a loss of tourist income, illness and spoilage of the natural beauty of the area. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Suzanne Candell 15804 Holdridge Rd E Wayzata, MN 55391-2146

Alphabetical by sender's first name

Suzanne Dunham 42426

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Suzanne Dunham 518 S Blackhawk St Janesville, WI 53545-4204

Suzanne Glad 41949

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Suzanne Glad Bloomington, Minnesota

Suzanne Maras 41894

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Suzanne Maras Welcome, Minnesota

Suzanne Michael 30499

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereStIs there anyplace ypou wont try to polluite to get yopur holy dollar. We here in Mi. are proud of our Great lakes and want to keep them perfect and you're coming in and ruining it al isn't in any of plans. Get out and stay out and take your pollution right along withyou along with all your destruction. Sincerely, Suzanne Michael 12401 Railroad Rd Clio, MI 48420-8231 (810) 547-1496

Alphabetical by sender's first name

Suzanne Ross 40107

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Suzanne Ross 11840 Falls Trl Lonsdale, MN 55046-4530

Suzanne Sette 16169

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Suzanne Shuckhart 16632

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Suzanne Shuckhart 3169 230th St Marshall, MN 56258

50020

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Suzanne Shuckhart 3169 230th St Marshall, MN 56258

Alphabetical by sender's first name

Suzanne Steinhagen 54757

See attachment

Sven Hoaglund 44459

Dear Ms Fay, I am writing to show my opposition to the PolyMet NorthMet Mining Project. As someone looking to relocate to the Arrowhead, it's an important issue for me. I think that its great that for 20 years there might be a few more jobs in a pretty cash strapped region of our state, but in all reality it is not sustainable and after the 20 years of mining are up the residents of northern MN will be in the same place they were before this. It' also absurd that we might be cleaning up waste from these 20 years of mining for an eternity or 500 years which is close enough. None of this mentions the possible environmental effects, not just the ones we know will happen. I just don't think that it's worth it and I think that a majority of the citizens of MN agree with me. - Sven Hoaglund Wild Moon LLC C: (608) 799-9731 F: (270) 342-3505 Representing: Woolrich Outdoor Research Eagles Nest Outfitters Farm To Feet Optic Nerve / M-Shades Exped USA

Sydney Fisher 43356

Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Sydney Fisher 210 Meserole St Brooklyn, NY 11206

Sylvia Ruth Gray 38723

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Sylvia Ruth Gray 315 E 1st Ave Apt 5 Salt Lake City, UT 84103-2609

Sylvia Winkelman 40734

Mar 10, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Sylvia Winkelman 6337 Orchard Ave N Brooklyn Center, MN 55429-2057 (763) 533-8381

Alphabetical by sender's first name

sylvie carpentier 40271

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, sylvie carpentier aloe paris, ot 75018 FR

T & S Wright 38976

My Name is Shirlee Wright and my address is:315 S. 2nd St E., Aurora, MN 55705 I am totally and 100% behind Polymet and have been since the very beginning. Both my husband and I were born and raised on "The Range". In 1984, after the mines went down in 1981, and my husband had been laid off, and finished a 2 year program at the local vo tech, we moved to the Minneapolis area. Our dream was always to move "back home" to "The Range" but we never knew if it would ever happen or not, because economics on The Range in our area was very "Iffy" at beSt BUT after 26 years and our 2 daughters raised and through college .in 2010 we made the BIG move "back home" to Aurora. Especially because of where we've been and lived .I truly believe that PolyMet is vital to our region's longevity and the future is depending on Polymet to help breathe life back into the local economy that has NOT been here since the late 1970's.. Just take a ride down Main Street of Aurora or Hoyt Lakes any given Saturday night .OMG it almost makes this native Auroran cry to see such a desolate economy. And while I have no background in environmental in any way, I have to trust, and I do trust that Polymet has done all of the reasearch and environmental studies required to ensure complete safety in all areas of environment and personal well being for all involved. This company has invested so much money in this project by all of its studies, proposals and lobbying that I would find it hard to believe it would jeopardize that all by not being environmentally responsible in the end. Please, please, please listen to us that live here now and who have had to move away once because of economics, don't force us to have to do that again. We are here because we truly believe in this region and we too love this region for its woods, water and air quality and know that Polymet is doing all it can to help re-vitalize what our forefathers built and believed in also. Thank You..

T J Walters 54843

See attachment

Alphabetical by sender's first name

T Olsen 44213

I strongly oppose the idea of mining. The fact that we need to discuss and learn about how to clean up this toxic process and consider clean-up efforts for at least the next 100 years, likely more if it's possible at all, should be reason enough to stop this conversation here and now. Can anyone provide substantive proof that no harm will come to the areas proposed in the mining. I have not heard any such evidence. What I have heard is evidence that this type of mining allowed in other states has resulted in significant damage and pollution. We have taken far too much for granted in terms of our environment and now some people want to consider purposely harming and polluting it further. It seems to me the answer is obvious, stop it now and do not let the process of mining to continue. It will be a very sad day for MN and for human kind if this is allowed. Shame on us for thinking we can destroy the beautiful space in which we live without having long-term and significant consequences. This land and our environment belongs to everyone, not just those who want to profit from it regardless of impact. Thank you for your time and consideration. Tammy Olsen 1710 Broadway Street N Stillwater, MN 55082

T Pratt 57282

Please accept these comments on the Poly Met Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage (AMD) and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as lynx and moose, exchange of federal land within the Superior National Forest, and cumulative impacts from mining. The proposed mine poses unacceptable risks to our waters and communities, and I support the No Action Alternative.

T Wilson 36936

Since we have spend billions chasing around Afghanistan, a country rich in Copper, why does poly met not go there and obtain the copper. Please show me a study which displays the demand for copper and the need to destroy our ecology for this myopic enterprise. Also, I feel the offshore companies should not be allow to mine on US soil. They too easily escape the responsibility for proper clean up after the rape has occurred. Jobs. the few actual jobs for the locals is far outweighed by the damage to the ecology for what 20 jobs. Nonsense. We know and see exactly what this is.. Shame on you, you greedy bastards Todd Wilson 130 Manor Circle Orono, MN 55356

Alphabetical by sender's first name

T. Chandler 44182

The Supplemental Draft Environmental Impact Statement is Inadequate This mine will result in hundreds of acres of permanent habitat destruction. Important natural resources, from clean ground water to animals such as moose and lynx, will be permanently affected or destroyed. Many costs associated with this project have not been addressed: costs of health effects due to increased pollution in water and air, depressed real estate values (which has already occurred in the area), costs of future perpetual cleanup which will be born by taxpayers (this site will end up as a Superfund site costing billions of dollars), costs of lost influx of revenue (new residents/tax base, tourists), costs of road and other public infrastructure maintenance, costs of abandoned buildings/homes when the mining company stops operations, and all other costs that will be born by taxpayers. These and all other external costs must be calculated and defined in the SDEIS. Air, ground water, and surface water pollution will all occur if sulfide mining is allowed. No state or federal rule or law can prevent it from occurring. No company or government action has ever prevented water contamination from sulfide mines from occurring. No company has ever been able to completely clean up the contamination once it occurs nor is it possible for any company to continue with cleanup for the hundreds of years remediation would take. Once the ground water and surface water contamination starts, it will not be possible to stop it. The SDEIS does not address how contamination will be prevented, nor does it adequately address how clean up of the certain contamination will be handled. The SDEIS provides no details on the impacts to water quality, wildlife, or human health if the water treatment system ceases operations at some time during the 500+ years during which the polluted water is being discharged. The SDEIS does not address how on-site or off-site spills or leaks of fluids, ore and waste materials and other accidents will be handled to prevent contamination. The SDEIS does not adequately address the prevention of air contamination from dust, particulates, emissions from machinery, and emissions from power generating plants. Just one of many examples as to how the SDEIS is inadequate and deceitful has to do with blasting and excavation. The SDEIS states “The NorthMet Project Proposed Action would cause noise, affecting some sensitive receptors. Nearby residences or other permanent sensitive receptors would not be affected, and some wildlife may avoid the area at times.” Yet the SDEIS also states that blasting will occur every 2-3 days. It is clear that sensitive receptors, including wildlife, residents, and tourists will be affected by the blasting and will permanently avoid the area, not just avoid the area “at times.” The SDEIS fails to provide details of how the monitoring and maintenance of pollution prevention measures would be handled for the hundreds of years needed to Minnesota Rules 6132-3200 requires that the site must be maintenance-free at closure, but the PolyMet mining plan calls for at least 500 years of active water treatment. The stockpile covers and liners are not adequate to prevent migration of contaminants to air, surface water, and groundwater. The SDEIS fails to address how the pollution prevention measures would be maintained over the hundreds of years necessary to prevent contamination. Mining companies are notorious for abandoning projects once the ore is extracted, leaving cleanup to the taxpayers. The EPA currently lists 547 non-NPL abandoned mine sites on the CERCLIS list – these are mine sites that have had removal or emergency response cleanup action undertaken on-site. The EPA also lists 117 mining sites proposed for and listed on the NPL as well as mining sites being cleaned up using the Superfund Alternative Approach. These numbers do not include Superfund sites being handled directly by the stat

Alphabetical by sender's first name

Tahir Hassan 16211

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

40009

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Tahir Hassan 464 Dogwood Ct NW Saint Michael, MN 55376-1020 (612) 532-0442

Alphabetical by sender's first name

Tam McGehee 15894

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to disclose, with objective data, how much water would go where, what pollution levels would be at each pond, sump, waste pile, waste facility or seep, and what actual field experience shows that its plan would meet water quality standards. Minnesota should not be an experiment for untested technologies. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. As a long time resident of Minnesota, I am saddened and frightened by the lax enforcement of environmental standards, and the weakening of our processes for oversight at the state, local, and citizen level. Please do not continue down the path of unsustainable damage to our environment and rape of our lands. Do not approve the PolyMet mine requeSt Sincerely yours, Tamara McGehee Tam McGehee 77 Mid Oaks Lane Roseville, MN 55113

Tamara Few 41864

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Tamara Few Burnsville, Minnesota

Tamara L Kaiser 54698

See attachment

Alphabetical by sender's first name

Tami Limberg 45247

Good Evening, Please do not mine for copper sulfides in the BWCA. It is a beautiful, pristine landscape, a treasure of our great state. This type of mining has never been done without pollution and our land cannot take the hit. Yes it would bring in millions of dollars to our state in revenue, but at the expense of one of the last remaining wild places. All of our children and their children need to experience this natural area at least once in their lifetime - do not take that opportunity away. Sincerely, Tami Limberg - Tami Limberg Great River School A2 Science Guide, A1 Occupations Guide

Tammy Ashley 40429

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

Tanner Bailey 43742

To whom it may concern, I believe no mining should be allowed in our National Forests. Please keep the forests in their natural state. Thank you. Tanner Bailey 19476 Halwood Road Glenwood, MN 56334 Tanner J. Bailey Eagle Insurance Agency PO Box 217 Glenwood MN 56334 (P)320-634-5153 (F)320-634-4155 Notice of Confidentiality: The information in this e-mail is confidential and intended only for the use of the person or business named above. Any improper use, disclosure, or copying of this information is prohibited. If you have received this e-mail in error, please notify the sender and delete all copies and attachments to this e-mail.

Tanner Bong 18070

My name is Tanner Bong. I would like to say I live in Duluth, Minnesota, and I work for Northland Constructors. And we're part of a union. And I support the whole mining situation because it will help with the outcome of jobs and people. That's basically all I have to say.

Alphabetical by sender's first name

Tanner Lucas 20081

Feb 27, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of the cumulative effects of habitat fragmentation and loss on the Canada Lynx (Lynx canadensis). The Canada Lynx is a threatened species listed under the federal Endangered Species Act. The NorthMet project area is in designated critical habitat for the lynx, and the SDEIS notes that the proposed action would destroy over 1,400 acres of critical lynx habitat at the mine site. The designation of this area as critical habitat is supposed to trigger analysis of whether the proposed action, and the cumulative effects of other reasonably foreseeable actions place the Canada Lynx in jeopardy. In addition, the incidental death of Canada Lynx due to increased vehicle traffic between the mine and plant site is noted, but inadequate attention is paid to mitigation measures that could limit incidental deaths of lynx. Despite this, the SDEIS contains contradictory statements about the use of roads as travel corridors by lynx. The cumulative effects analysis section of the NorthMet SDEIS fails to adequately account for a number of reasonably foreseeable projects. Specifically, the Twin Metals and Teck American projects are listed as "speculative" in Section 6-2-2-1-21 and are not analyzed for their cumulative effects. No evidence or rationale for excluding these projects from the cumulative effects analysis is offered. In Section 6-2-3-6-4, the Gray Wolf is the only "Special Status Species" for which even limited analysis of cumulative effects is conducted, despite the Canada Lynx's status as a federally threatened species. Please take the following actions: 1) Include the Twin Metals and Teck American projects as reasonably foreseeable projects in the cumulative effects analysis in section 6-2-2, since the disposition of the NorthMet SDEIS and subsequent permitting decisions could make these projects more likely to be built. 2) Include the Canada Lynx as a "Special Status Species" in Section 6-2-3-6-4 and conduct a cumulative effects analysis of the impact on Canada Lynx. 3) Analyze and include mitigations such as tunnels and fencing to limit the possibility of incidental take of Canada Lynx by increased road traffic associated with the NorthMet proposed action. 4) Remove contradictory language in SDEIS about Canada Lynx utilization of roads as travel corridors. For example, on p. 5-628 the SDEIS states "Lynx utilize snow packed trails and roads as travel corridors," while on p. 5-366 it says "this species does not rely on roads for travel." 5) Analyze and include mitigation such as accelerated re-vegetation of the mine site after closure to decrease the amount of time the mine site would be inhospitable to Canada Lynx. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. We need to learn to share do not destroy my back country Sincerely, Mr Tanner Lucas 3070 202nd Ln NW Oak Grove, MN 55011-5011

Tanya Bachmann 54563

Please, please, please do NOT approve SDEIS! As a mother, daughter, and grand daughter I am VERY concerned about PolyMet’s proposal and the impact on Minnesota’s water, Minnesota’s environment, and Minnesota’s citizens/guests for years and years to come! DO NOT TRUST their proposal!! Our water will not remain safe, clean or maintenance free! As a taxpayer of this great state I beg of you.

Alphabetical by sender's first name

Tanya Beyer 17137

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. Here below are my own words on the proposal: Last night my friend and I went to the hearing in Duluth, a first of three around Minnesota, about the proposal to let a big mining conglomerate, Polymet, leak sulfuric acid and a mess of other toxic overflow into the Lake Superior watershed in order to get at the copper, nickel, platinum and other mineral wealth that underlies this area our hearts draw sustenance from. She said we were witnessing a piece of history. It's left me with the same feeling I think I remember from when I first heard on TV that people are warming up earth's climate, or when as a girl I first heard my dad say the builders were coming sooner or later to put apartments in the pasture. Selfish, said one of the men who testified at the hearing last night, critiquing the motive of everybody taking a stand on whichever side of the debate , but I mostly disagree; I think everyone who takes a stand in a public controversy feels like a representative for some group of others who aren't vocal or privileged enough to be there. The others can be people or they can be manifold living things with whom we don't share a language. The non-profit organization WaterLegacy in a brief emailed review of the hearing pointed out that about two thirds of the testimony given was from opponents of the mine, and that while many opponents cited specific flaws or gaps in Polymet's supplemental draft environmental impact statement, the supporters just called on their faith or intuition that the review, the future mining technology or the industry in its great professionalism could be trusted. I was glad of the evidence that somebody else had been keeping track of opinions for and against the project, since I had been keeping my own tally on paper during the testimonies my friend and I heard from about 7 p.m. till nearly 10:00- For most of the evening I found that the opponents led by nearly two to one, but as the room emptied it seemed more and more the boosters for local mining were the people remaining. At the crux of the proposed mining scheme is that the various metals termed sulfides, including copper, gold, nickel and platinum become toxic, turning to sulfuric acid, when exposed to air and water after being dug from the open pit mines. I say mines because Polymet's proposed mine located near the Embarrass and Partridge Rivers, which would wash the pollution into the St Louis River and thence Lake Superior, is not the only proposed sulfide mine. Twin Metals is a joint venture between a Canadian and a Chilean company that wants to dig another mine barely three miles from the Boundary Waters Canoe Area near Ely, Minnesota. Yet-to-be-named venture capitalists are and will be watching. To them, sulfuric acid is a risk factor, an abstract liability in a bright-eyed betting game. Not vinyl, not clay, not metal set in the ground to hold the drainage in storage ponds or divert run-off from towering piles of dug-up rock, wood rubble and dried-out peat will keep the acid waste water from where we don't want it to go. The soils are largely sand and peat, boulder and gravel. The questions are when, how soon and how much effluent will make its way where-all and how far. No company, whatever formal arrangements it puts on record, will retain squadrons of river guardians or pit watch personnel past its own dissolution, or past all caring once the blue coldwater lakes of legend or the fishing streams are discolored or pretty well devoid of healthy aquatic life. Arguments made by citizens in favor of mining are that we need the copper that the region has, that no other mining region of the world has the robust environmental oversight found among Minnesota agen

48954

Mar 10, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. My whole life has been a love affair with this region. I cherish its spectrum of birds and wildlife, including fish, none yet driven to extinction. Also I use its fish for food in summer. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. There is every assurance that despite all promises and prescriptions they will here too. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health. This whole region is underlain by percolating water which will begin to run with soluble metals including mercury, getting into lakes, marshes and rivers, harming wildlife scarce already including the threatened lynx and our declining moose populations. The Polymet scheme is a rich corporate affair that in no way benefits anyone except those who measure well-being in dollars. A hoax is being perpetrated on the job-poor promising them work at the expense of everything else in the region. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Tanya Beyer 10431 Bachelor Square Rd Meadowlands, MN 55765-8103 (218) 260-6767

Alphabetical by sender's first name

Tanya Beyer 51037

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. Here below are my own words on the proposal: Last night my friend and I went to the hearing in Duluth, a first of three around Minnesota, about the proposal to let a big mining conglomerate, Polymet, leak sulfuric acid and a mess of other toxic overflow into the Lake Superior watershed in order to get at the copper, nickel, platinum and other mineral wealth that underlies this area our hearts draw sustenance from. She said we were witnessing a piece of history. It's left me with the same feeling I think I remember from when I first heard on TV that people are warming up earth's climate, or when as a girl I first heard my dad say the builders were coming sooner or later to put apartments in the pasture. Selfish, said one of the men who testified at the hearing last night, critiquing the motive of everybody taking a stand on whichever side of the debate , but I mostly disagree; I think everyone who takes a stand in a public controversy feels like a representative for some group of others who aren't vocal or privileged enough to be there. The others can be people or they can be manifold living things with whom we don't share a language. The non-profit organization WaterLegacy in a brief emailed review of the hearing pointed out that about two thirds of the testimony given was from opponents of the mine, and that while many opponents cited specific flaws or gaps in Polymet's supplemental draft environmental impact statement, the supporters just called on their faith or intuition that the review, the future mining technology or the industry in its great professionalism could be trusted. I was glad of the evidence that somebody else had been keeping track of opinions for and against the project, since I had been keeping my own tally on paper during the testimonies my friend and I heard from about 7 p.m. till nearly 10:00- For most of the evening I found that the opponents led by nearly two to one, but as the room emptied it seemed more and more the boosters for local mining were the people remaining. At the crux of the proposed mining scheme is that the various metals termed sulfides, including copper, gold, nickel and platinum become toxic, turning to sulfuric acid, when exposed to air and water after being dug from the open pit mines. I say mines because Polymet's proposed mine located near the Embarrass and Partridge Rivers, which would wash the pollution into the St Louis River and thence Lake Superior, is not the only proposed sulfide mine. Twin Metals is a joint venture between a Canadian and a Chilean company that wants to dig another mine barely three miles from the Boundary Waters Canoe Area near Ely, Minnesota. Yet-to-be-named venture capitalists are and will be watching. To them, sulfuric acid is a risk factor, an abstract liability in a bright-eyed betting game. Not vinyl, not clay, not metal set in the ground to hold the drainage in storage ponds or divert run-off from towering piles of dug-up rock, wood rubble and dried-out peat will keep the acid waste water from where we don't want it to go. The soils are largely sand and peat, boulder and gravel. The questions are when, how soon and how much effluent will make its way where-all and how far. No company, whatever formal arrangements it puts on record, will retain squadrons of river guardians or pit watch personnel past its own dissolution, or past all caring once the blue coldwater lakes of legend or the fishing streams are discolored or pretty well devoid of healthy aquatic life. Arguments made by citizens in favor of mining are that we need the copper that the region has, that no other mining region of the world has the robust environmental oversight found among Minnesota agencies and that

Alphabetical by sender's first name

Tanya Koester-Radmann 39764

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Tara Skar 54537

The Boundary Waters and the surrounding National Park/Forests are more than important tourist attractions and recreation areas—they are historically and culturally integral to Minnesota’s identity. Our solution to low employment can’t infringe on future generations’ environmental health.

Alphabetical by sender's first name

Tara Westerlund 48203

25 people recently add their names to Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=one_thousand"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota.". That means more than 500 people have signed on. There are now 325 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=one_thousand"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 325- Tara Westerlund Andover, Minnesota 324- Rachel Eckert Flagstaff, Arizona 323- Michael Engler Morris, Minnesota 322- Alyssa Powell Chicago Heights, Illinois 321- Sidney Paulson morris, Minnesota 320- Jack Jepsen-DeSpiegelaere Saint Paul, Minnesota 319- Jared Jerzak Cedar, Minnesota 318- Elise Moonen Minneapolis, Minnesota 317- Kayla Kampa Foley, Minnesota 316- Patrick Walsh Montevideo, Minnesota 315- Peter Kvale Duluth, Minnesota 315- Alice Barnett Wildwood, Florida 314- Tiernan Lenus Mpls, Minnesota 313- bonnie betts morris, Minnesota 312- Amber Compo Morris, Minnesota 310- Trey Goodsell Morris, Minnesota 309- Adele Subola Minneapolis, Minnesota 308- Kennedy Erdmann Rosemount, Minnesota 307- Hannah Goemann Morris, Minnesota 306- Amy Lamb Bloomington MN, Minnesota 305- Maddy Lerner Saint Paul, Minnesota 304- Hazen Fairbanks Bemidji, Minnesota 303- Ross Penning Harrisburg, South Dakota 302- daniel mielke stillwater, Minnesota 301- William White Morris, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJvbmVfdGhvdXNhbmQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTI2LCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTA0MzkyODR9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVK5Sk8WXgtNA2Cg5vlnJsXNQhc0CwKA27VzzupeZhyA1seCtHLVmRMQodZ-2BngT508Hue1X4RRl3cYi29ZSUOKOXkZlFhPbmydYCG4vZwIw9Q9iGYAsPv0KEsCFl0zVjx6Z-2F0XkEqDxvM1fc9R1o71mqj6yvmUbDP4N1

Tara Widner 54915

See attachment

Alphabetical by sender's first name

Taylor Evansen 48180

25 people recently add their names to Students Against Sulfide Mining 's petition "HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=one_thousand"Lisa Fay: Tell the DNR you think PolyMet Sulfide Mining is a bad deal for Minnesota.". That means more than 500 people have signed on. There are now 550 signatures on this petition. Read reasons why people are signing, and respond to Students Against Sulfide Mining by clicking here: HYPERLINK "http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517bandutm_source=targetandutm_medium=emailandutm_campaign=one_thousand"http://www.change-org/petitions/lisa-fay-tell-the-dnr-you-think-polymet-sulfide-mining-is-a-bad-deal-for-minnesota/responses/new.response=d218e047517b Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely, 549- Deon Haider Morris, Minnesota 548- Alice Toll Morris, Minnesota 547- Jenna Schmitz Minneapolis, Minnesota 546- Nicole Dallman Buffalo, Minnesota 544- Alexandria Schwier St Paul, Minnesota 543- Brenna Monroe Morris, Minnesota 542- Natalia Batchenkova kensington, Minnesota 540- Troy Mehlhaf Morris, Minnesota 539- Elsie Johnson St cloud, Minnesota 538- Jessica Oldakowski Morris, Minnesota 537- Jane Lin Morris, Minnesota 536- Terrence Chastan-Davis Morris, Minnesota 535- Samantha Stegura St Stephen, Minnesota 534- Jose Garcia Albuquerque, New Mexico 533- Kait Macheledt Morris, Minnesota 531- Dasha Pokutnaya Maple Grove, Minnesota 530- Michelle Dinesen Morris, Minnesota 529- Jill Lips Morris, Minnesota 524- Avery Thaler Foley, Minnesota 523- Emily Lewandowski New Ulm, Minnesota 522- Rachel Brockamp Morris, Minnesota 521- Allison Chock Morris, Minnesota 520- Meagan Rollins North Branch, Minnesota 519- Olivia Ilgar Litchfield, Minnesota 518- Olivia Bennett Morris, Minnesota http://api.mixpanel-com/track.data=eyJldmVudCI6Im9wZW5fZW1haWwiLCJwcm9wZXJ0aWVzIjp7ImVtYWlsX25hbWUiOiJvbmVfdGhvdXNhbmQiLCJpZCI6InVzZXJfMjI0ODc4MCIsImNpdHkiOiJNb3JyaXMiLCJzdGF0ZSI6Ik1OIiwiemlwY29kZSI6IjU2MjY3IiwiY291bnRyeV9jb2RlIjoiVVMiLCJpbmNvbXBsZXRlX2FkZHJlc3MiOmZhbHNlLCJzaWdudXBfZGF0ZSI6IjIwMTEtMDItMDgiLCJsb2dpbl9jb3VudCI6MTMzLCJ0b3RhbF9hY3Rpb25zIjo2NywiY29ubmVjdGVkX3RvX2ZhY2Vib29rPyI6dHJ1ZSwiZ2VuZGVyIjoiTWFsZSIsImFnZV9yYW5nZSI6bnVsbCwic2lnbnVwX2NvbnRleHQiOiJhY3Rpb25QYXJ0aWNpcGFudCIsImRpc3RpbmN0X2lkIjoiMGFhOGQ5MzAtMGU2Yi0wMTMwLTA4MTItNDA0MGFjY2UyMzRjIiwidG9rZW4iOiIzMGFhMjZhMWQ2ZTkzYWUxNThkZmJkYzE2YjQ5MzMxMiIsInRpbWUiOjEzOTEwMTk4OTV9fQ==andip=1andimg=1 http://email.changemail-org/wf/open.upn=k12VB37GZWDE9joytvd92NY6AeQstzY0t4HOJ9Jr7tHE5wWZ1tPuumT6CbI-2BwGVQVkKIQBaQ4x6CdZDyRnHVKxoDHI8AUE942WoCi-2B2upiIlPiL3SfDL3Q-2F00Or00hVWra-2B0ECf9sd4F5Za4Iy20QQxEgHKJbKU1DdS5zB6m-2BpU-2BBvyyhCUQanrm-2BboiCzEHMLmF8hQ0Xh9uMF4jHaCUNzBdEorCsQ7DWij5fm3

Ted Benson 38946

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Ted Benson 1248 Como Blvd E Saint Paul, MN 55117-4009

Ted Donahue 54520

Keep the Boundary Waters pristine. I want to continue to spend my vacation dollars there.

Alphabetical by sender's first name

Ted Heller 47702

1- We use many products using copper/nickel 2- MN has deposits of copper/nickel 3- MN has a reputation for environmental integrity and oversight Unless you want to ban copper/nickel products in the state, MN needs to live up to it's responsibility to responsibly mine these minerals. It is hypocritical to use these products but declare it is unsafe to mine them. MN can do this better and safer than probably most states/countries in the world. I support the project with rigorous oversight applied. Ted Heller 1021 7th St S Waite Park Mn 56387

Ted Mattison 38954

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Ted Mattison 95006 Grassy Pt Tower, MN 55790-8470

Ted Mattson 23911

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Isn't it time we humans started thinking about the earth. Fresh water and topsoil give us life. Without them, humans would cease to exiSt All the money in the world will not bring them back. There has NEVER in history been a "safe" sulfide mining operation. Do us all a favor and find 10 mines whose operations were successful ten years after they closed up. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Ted Mattson N10794 Karnopp Road Wausaukee, WI 54177 Sincerely, Ted Mattson N10794 Karnopp Rd Wausaukee, WI 54177-9109

Ted Wahl 44589

As a young youth in Minnesota, building a mine close to the boundary waters that's only providing 50-100 jobs for the economy, is NOT worth the 500 years of clean up. I hope the DNR makes the right choice Thank you for your time. Ted Sent from my iPod

Alphabetical by sender's first name

tegwin moye 19088

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, tegwin moye 3310 69th st e inver grove heights, MN 55076 6515527148

Terence H Cooper 42710

See attachment

Alphabetical by sender's first name

Teresa / Aaron Alto 45519

Name: Teresa Alto Legal mailing address: 21995 Mishawaka Rd, Grand Rapids, MN 55744 I felt it was important to write as a resident of the Iron Range who feels we must go only slowly, cautiously, and skeptically into copper and nickel mining in our region-if at all. It seems almost criminally shortsighted to go into a mining project forecasted to operate and provide jobs and extract resources for just 20 years and that requires a period of cleanup too long to adequately plan for. The mining of these metal resources threatens another resource: water and clean and healthy watersheds and watershed ecosystems, which are truly becoming scarce and invaluable globally. Not only should it cause us grave concern that the company has provided no information on its methodology and no explanation of its estimated projected costs, but it is patently impossible to plan for 500 years of cleanup, no matter how much funding the company puts aside as financial assurance. Five hundred years ago there was no United States, nor was there any significant European settlement in the Americas; democratic government did not exist in any developed society, and the population of the world was a tiny fraction of what it is now. How can we plan for continued cleanup for the next 200 years on some parts of the mining area and for 300 more years after that on other parts. Already, we know that aquifers and freshwater worldwide are dwindling and cannot meet the projected growth in demand. How can we know how that will affect governments and water resources even 100 years in the future. How can we know that we will have a stable economy and national government for all this time. And yet the rivers and lakes and land will still be here, and animals and plants and forests will still be here, and we hope that people will still be here. The land has a moral claim on our actions, and so do future people and the world they will inherit from us. Northern Minnesotans want economic opportunity and stability, but we also want to be able to fish and hunt and canoe and ski and enjoy the outdoors. People here have a strong culture of living in part off the land, and a strong culture of valuing the recreation, bounty, solace, and beauty of the land and water around us. It is the land and sense of community that make people want to stay here and to move here. The beauty and outdoors recreation are key to the economic and social vitality of our communities. And they are one of the most significant contributors to our economies through tourism and related industries. So this is not a "jobs v. the environment" issue, and I certainly do not believe the "jobs and the environment" image touted by Polymet. We are talking about short-term jobs, so the jobs are not offering long-term vitality to our communities. And we are talking about a necessary cleanup—according to the company's own materials—required for too long for human companies or governments to plan for or fund. The unknowns are impossible to account for. I am adamantly opposed to the Polymet mining project.

Alphabetical by sender's first name

Teresa Bredahl 16249

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

teresa haskell 40337

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, teresa haskell 3800 14th ave D168 lacey, WA 98501 US

terra forshier 42079

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, terra forshier Minneapolis, Minnesota

Terrell Brown 57945

The idea that we would allow a project that may require 500 years of remediation is crazy. There is no way to guarantee that the money will be available in even 100 years or project what the costs may be at that time. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Terrence and Marge Smith 57200

We have 4 grandchildren, and our vision for them is clean waters, clean air, and land. We oppose sulfide mining for the dangers it presents on so many levels. Please Protect!Terrence & Marge Smith1428 Belmont RdDuluth, MN 55805

Alphabetical by sender's first name

Terri Fogarty 52224

PLEASE SAY NO to the proposed land exchange by the US Forest Service (USFS) with PolyMet for 6,650 acres of federal public land within the Superior National Forest to private ownership for the development of a copper-nickel sulfide strip mine. Protect our natural resources - not their pocketbooks .. There is NO price you can put on our natural resources. Please do this for us and for our children and our children's children. Do the right thing. Terri Fogarty 13712 Anderson Lakes Parkway Eden Prairie, MN 55344

Terri Murphy 41918

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Terri Murphy Harmony, Minnesota

Alphabetical by sender's first name

Terri Reischl 16127

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Terry 38473

Polymet mining will provide a much needed economic boost for northern Minnesota lasting many years. As long as Polymet can prevent permanent damage to our lakes and streams, Polymet should be given the right to mine.

Alphabetical by sender's first name

Terry Cooper 19067

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Terence H. Cooper Terry Cooper 2744 Cedar Lake Road Ely, MN 55731

Alphabetical by sender's first name

Terry D Welander 6074

Regarding: Big Picture considerations and actions for immediate permits issuances for the Northmet/PolyMet East Iron Range Minnesota Project and all others similar. With over 1200 active volcanoes on Earth and over 25,000 miles of ocean volcanic rift emissions, all of humanities emissions are less than 1% of Earth nature's emissions. From Wikipedia on line, probably any encyclopedia and google search under "ocean rift volcanism", first two pages of 20 plus below. It is beyond foolish and extremely wasteful to remove toxins from industrial or any other human process unless they are a direct health threat. Or trying to clean or clean up 1% of any problem will not and can not clean up the remaining unrelated 99% natural pollution; leaving nature's 99% pollution still there causing the same probleMs The EPA and the MPCA have now wasted over 8 years of study on a less than minuscule part of the less than 1% human part of the problem. This is fraud by any definition. Fortunately for these obstructionists, they will all likely be dead from old age before government agencies will be able to prosecute this fraud. But worse, future generations will look at this incredible foolishness and obstructionism with at least great disdain, probably outright contempt for acting so outside the law, or not accounting for the above reality in decision making. I urge all organizations everywhere to bring these facts out everywhere possible to help stop the foolishness and the fraud in air and water pollution control. Because nature is the 99% problem, except for direct health threats, humanity's pollution will never be an issue compared to the 99% pollution output of nature. Please urge everyone to demand the necessary permits for the Northmet/Polymet Project be issued immediately to put a stop to this environmental fraud and farce obstructing the Northmet/Polymet Project in Northeastern Minnesota and others. Open circulation of this letter and submission to the environmental reviewers is strongly urged to put a stop to this criminal obstructionism of the Polymet Project and others. Terry D. Welander 2 West Parkway Virginia, MN 55792 email: HYPERLINK "mailto:tdwelander@gmail-com"tdwelander@gmail-com Google Search below on "ocean rift volcanism", 2 pages below of over 20 available; for everyone's reference in support of the above letter. PS Snowfall in this area and other areas on Earth has around 50 parts per billion Mercury. Or after a dozen or so snowfalls, particularly during snow melt, the amount of natural Mercury can approach toxic levels for humans and animals. Why any consideration of human Mercury sources is irrelevant to the point of fraud. Rainfall in this area and other areas on Earth is around 25 perts per billion Mercury. Or after a rainfall season, natural Mercury levels can approach toxic levels for humans and animals depending on distribution. Also why any consideration of human Mercury sources is irrelevant to the point of fraud in nearly all instances. And with all the volcanic sourced atmospheric toxins raining down on the planet downwind from all volcanic eruptions, any human sources are almost always less than insignificant. Or in practically all instances, human sources of pollution are irrelevant compared to nature. HYPERLINK "http://www.elmhurStedu/~richs/EC/102/Lectures/PlateTectonicsII.pdf"Plate Tectonics HYPERLINK "http://www.elmhurStedu/~richs/EC/102/Lectures/PlateTectonicsII.pdf"www.elmhurStedu/~richs/EC/102/Lectures/PlateTectonicsII.pdf. http://www.google-com/search.client=safariandrls=enandq=oceanic+rift+volcanismandie=UTF-8andoe=UTF-8# http://webcache.googleusercontent-com/search.q=cache:4Rcwsa_1jecJ:www.elmhurStedu/~richs/EC/102/Lectures/PlateTectonicsII.pdf+oceanic+rift+volcanismandcd=1andhl=enandct=clnkandgl=usandclient=safari http://www.google-com/search.client=safariandrls=enandq=related:www.elmhurStedu/~richs/EC/102/Lectures/PlateTectonicsII.pdf+oceanic+r

Alphabetical by sender's first name

Terry D Welander 9605

NorthMet SDEIS The US Corps of Engineers jurisdiction is limited to commercially navigable waters. The closest being the Duluth docks and harbor 60 miles away from the project. Or the US Corps of Engineers does not and has never had jurisdiction on this project. The US Army Corps of Engineers needs to remove themselves on jurisdiction and other grounds as necessary. A completely acceptable mining and refining plan was in place before the MN DNR became involved in the Polymet project. And the MN DNR, not being or having pollution jurisdiction should not be involved in the Polymet permitting. Any land swaps must be treated separately, the sole reason the MN DNR would be involved; and at the sole convenience of Polymet. The MN DNR needs to remove themselves from this project permitting. Only the MPCA should be involved and should immediately issue permits based on the 99% pollution sources on the planet being the 1500 active volcanoes and their beyond huge emissions affecting practically all air on Earth. Nothing in the Polymet process even registers on the total pollution rained on the planet from these 1500 active volcanoes. Since the big picture and most relevant pollution problem of the 1500 active volcanoes on Earth have been ignored to date by this highly erroneous review process, the only realistic alternative is immediate issuance of the Polymet permits by the MPCA; all other entities not having any jurisdiction due to pollution considerations being the only relevancy for this project. Snow fall in NE MN and other places has 50 parts per billion Mercury; most likely from all those 1500 natural volcanic emissions. Or after a dozen or so snow falls and some snow melt, nature provides a nearly toxic environment making nearly everything humanity does irrelevant and less than miniscule on any total and big picture measure of pollution. A variety of other volcanic toxins precipitate out of the atmosphere during snowfall and rain further negating any consideration of the less than minisicule contribution of humanity to any pollution. Stop the foolishness and irrelevancies of humanities less than miniscule pollution emissions compared to nature now, now, now, not later, to keep future generations from viewing this process and the people involved in it with utter contempt for being so selectively biased and blind not considering the 99% natural Earth pollution problem silently and hiddenly causing death and destruction everywhere. Based on nature being the 99% pollution problem as detailed above, all government agencies except the MPCA need to remove themselves from this review process immediately. And the MPCA needs to issue the necessary permits for the Polymet project immediately. Terry D. Welander email: HYPERLINK "mailto:tdwelander@gmail-com"tdwelander@gmail-com 2 West Parkway Virginia, MN 55792 PS Google Search below on " Earth Volcanism", 2 pages below of over 20 available; for everyone's reference in support of the above letter. HYPERLINK "http://www.elmhurStedu/~richs/EC/102/Lectures/PlateTectonicsII.pdf"Plate Tectonics HYPERLINK "http://www.elmhurStedu/~richs/EC/102/Lectures/PlateTectonicsII.pdf"www.elmhurStedu/~richs/EC/102/Lectures/PlateTectonicsII.pdf. http://www.google-com/search.client=safariandrls=enandq=oceanic+rift+volcanismandie=UTF-8andoe=UTF-8# http://webcache.googleusercontent-com/search.q=cache:4Rcwsa_1jecJ:www.elmhurStedu/~richs/EC/102/Lectures/PlateTectonicsII.pdf+oceanic+rift+volcanismandcd=1andhl=enandct=clnkandgl=usandclient=safari http://www.google-com/search.client=safariandrls=enandq=related:www.elmhurStedu/~richs/EC/102/Lectures/PlateTectonicsII.pdf+oceanic+rift+volcanismandtbo=1andsa=Xandei=g9LNUvTDDeHOyAH2hIDYCQandved=0CC8QHzAA Volcanoes tend to erupt at plate margins as a result of a process “Hot Spot”Volcanism . Mid-oceanic ridge (rift zone) with basaltic pillow lava volcanoes. HYPERLINK "http://academic.emporia-edu/aberjame/student/june3/767june.html"Rift Zones - Emporia State University HYPERL

Alphabetical by sender's first name

Terry D Welander 14793

Negation and Refutation of the suggested Bonding Requirements for the Proposed Polymet/Northmet Hoyt Lakes Copper Nickel Project. Where is the accounting of the emissions from the 1500 volcanoes dropping toxins everywhere downwind (which is nearly everywhere on Earth) and on the surface in NE MN in particular. It has not been provided and is 99% source of the surface toxins problem coupled to natural daylighted (surface exposed) ore toxins. Where is the accounting of the emissions from the daylighted natural ore bodies in numerous locations in NE MN. It has not been provided and is part of the 99% surface toxins, particularly nitrates; and practically all other toxins of the periodic table of elements. Or nature or natural pollution is the 99% problem negating the need for bonding of any human projects. Nature has and will clean up all of human pollution problems over geologic time; as nature has cleaned up its own environmental messes over time. Also why bonding of humanities projects is not required. The deliberate ignoring of the 99% plus natural pollution problem from nature by supposed environmental groups is criminal negligence and needs to be exposed as high negligence of reality and needs to be set aside from consideration for ignoring the 99% natural Earth pollution problems in the Polymet/Northmet NE MN Copper Nickel project and all similar. Additionally; copper is a sanitizing (anti bacterial and anti viral) agent for all of the animal and plant kingdoMs Or limited copper exposure as nature provides is a cleansing agent for all of the animal and plant kingdoms is highly desirable. Mimicking nature by adding limited amounts of copper to the environment will make it a better environment for plants and animals. There is currently no nickel mine in North America. Providing nickel production in North America is a national security requirement negating practically all of the environmental concerns. Nickel is a civilized world necessity from food tin can linings to any machine requiring heat resistance. Modern humanity can not live without a supply of nickel. Immediate issuance of the necessary permits by the MPCA to Polymet is urged in the strongest possible terms to make this review lawful and avoid formal criminal court complaint from local governments for the deliberate ignoring of nature's 99% pollution reality. Terry D. Welander 2 West Parkway Virginia, MN 55792 --- Forwarded message --- From: Terry D Welander Date: Wed, Jan 29, 2014 at 11:40 AM Subject: Additional Details on the Followup Plan on the Big Picture Support of the PolyMet East Iron Range Minnesota Project and all others similar- Urging immediate permit issuance by the MPCA and removal of all other government agencies from this process as detailed below To: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us NorthMet SDEIS The US Corps of Engineers jurisdiction is limited to commercially navigable waters. The closest being the Duluth docks and harbor 60 miles away from the project. Or the US Corps of Engineers does not and has never had jurisdiction on this project. The US Army Corps of Engineers needs to remove themselves on jurisdiction and other grounds as necessary. A completely acceptable mining and refining plan was in place before the MN DNR became involved in the Polymet project. And the MN DNR, not being or having pollution jurisdiction should not be involved in the Polymet permitting. Any land swaps must be treated separately, the sole reason the MN DNR would be involved; and at the sole convenience of Polymet. The MN DNR needs to remove themselves from this project permitting. Only the MPCA should be involved and should immediately issue permits based on the 99% pollution sources on the planet being the 1500 active volcanoes and their beyond huge emissions affecting practically all air on Earth. Nothing in the Polymet process even registers on the total pollution rained on the planet from these 1500 active volcanoes. S

Alphabetical by sender's first name

Terry Ford 9776

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Terry Ford 3404 Aldrich AveS. Minneapolis, MN 55408

18589

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Terry Ford 3404 Aldrich AveS. Minneapolis, MN 55408

Alphabetical by sender's first name

Terry Ford 50665

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Terry Ford 3404 Aldrich AveS. Minneapolis, MN 55408

Terry Houle 42618

See attachment

42970

Please accept these written comments into the recoRd Terry Houle HYPERLINK "mailto:terry99@gmail-com"terry99@gmail-com 952-686-1493 Blog; http://greenmanonearth.blogspot-com http://www.flickr-com/photos/119608607@N06/

Alphabetical by sender's first name

Terry Houle 43622

Mar 13, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. -This project is a violation of section 404c under the Clean Water Act and should not be allowed. 2-As taxpayer, voter and resident I do not want any land trade. The US Forest Service should not swap any land. 3-DNR Commissioner Landwehr comments about the SDEIS comment process I believe have tainted the entire SDEIS process and unduly influenced people. 4-Minnesota Superfund Sites in St Louis County are already numerous. To add more potential risk to a sensitive area in not acceptable. Sites in St Louis County listed below: SR67ARROWHEAD REFINERY CO.Refinery SR370Boyer LumberOther SR381Bulinski Point - WittrupSolvent Site SR1238 DNR-NETT LAKE/ORR PESTICIDE SITE SR367DULUTH AIR FORCE BASE - MANG Military Munitions Response Prog. 5 OusOther SR95DULUTH AIR FORCE BASE OU1Military Base SR260DULUTH AIR FORCE BASE OU10Military Base SR321DULUTH AIR FORCE BASE OU12Military Base SR267DULUTH AIR FORCE BASE OU20Military Base SR269DULUTH AIR FORCE BASE OU23Military Base SR270DULUTH AIR FORCE BASE OU24Military Base SR271DULUTH AIR FORCE BASE OU26Military Base SR320DULUTH AIR FORCE BASE OU27Military Base SR354DULUTH AIR FORCE BASE OU28 - BUILDING 500, JET FUEL RELEASEMilitary Base SR255DULUTH AIR FORCE BASE OU5Military Base SR256DULUTH AIR FORCE BASE OU6Military Base SR258DULUTH AIR FORCE BASE OU8Military Base SR259DULUTH AIR FORCE BASE OU9Military Base SR252DULUTH AIR FORCE BASE Site 2 - MANG fire training PFCsMilitary Base SR366DULUTH AIR FORCE BASE Site 21 - MANG TCE Plume (OU31)Other SR355DULUTH AIR FORCE BASE Site 29 - (FUDS)Site 102 TCE PlumeMilitary Base SR253DULUTH AIR FORCE BASE Site 3 - DPDO Storage AreaMilitary Base SR356DULUTH AIR FORCE BASE Site 30 - (FUDS)Former Solvent Wash Rack and Fueling AreaMilitary Base SR368DULUTH AIR FORCE BASE Site 32 - MANG AOC CMilitary Base SR254DULUTH AIR FORCE BASE Site 4 - MANG Tank FarmMilitary Base SR257DULUTH AIR FORCE BASE Site 7 - (FUDS) TCE PlumeMilitary Base SR93DULUTH CITY DUMP FORMER #1Dump (Unpermitted) SR161EAST MESABA SANITARY LANDFILL Landfill SR1137ELY MUNICIPAL LIGHT AND WATER DEPARTMENTOther SR1006GULF OIL CO EXPLOSIVES DIVChem Mfg. SR361Hibbing Gas Manufacturing Plant SiteMfg. Gas Plant SR1037HYMAN MICHAELS CORecycling/Salvage SR1021KOTULA IRON and METAL (SF)Recycling/Salvage SR158NORTHWOODS SANITARY LANDFILL Landfill SR350Peter Pan (SF)Dry Cleaner SR1271PROCTOR CAR SHOP Railroad SR1328PROCTOR LOCOMOTIVE SHOP Railroad SR347RIVERSIDE SALVAGE (SF)Motor Veh. Salvage SR345Sargent Creek DumpDump (Unpermitted) SR371St Louis River AOC/Corps of Engineers DuluthOther SR275St LOUIS RIVER/US STEEL OU-A SoilsOther Mfg. SR327St LOUIS RIVER/US STEEL OU-E Coke Oven Gas LinesOther Mfg. SR273St LOUIS RIVER/US STEEL OU-J,I,L,M Steel CreekOther Mfg. SR274St LOUIS RIVER/US STEEL OU-K Dr SpoilsOther Mfg. SR190St LOUIS RIVER/US STEEL OU-PandOUQ Wire Mill PondOther Mfg. SR272St LOUIS RIVER/US STEEL OU-RMN SedimentsOther Mfg. SR276St LOUIS RIVER/US STEEL Site WideOther Mfg. SR149St LOUIS/INTERLAKE/DULUTH/TAR SITE - OU Sed (Sediment and Ground Water)Other SR284St LOUIS/INTERLAKE/DULUTH/TAR SITE - OU-S (Soil)Mfg. Gas Plant SR283St LOUIS/INTERLAKE/DULUTH/TAR SITE - OU-TS (Tar Seep)Mfg. Gas Plant SR179West Duluth Industrial SiteOther SR154WLSSD LANDFILL/ DULUTH DUMP #2Landfill 5-The St Louis River Watershed Monitoring and Assessment Report published in March 2013 stated: "However, historic and current land use changes throughout the watershed have proven to be damaging to the many lakes, rivers and streams within the St Louis River watershed." Therefore already a fragile area with a proximity to the Boundary Waters Canoe Area and with all the uncertainties on copper nickel mining that may leave pollution for hundreds of ye

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Terry Houle 48490

Mar 13, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. -This project is a violation of section 404c under the Clean Water Act and should not be allowed. 2-As taxpayer, voter and resident I do not want any land trade. The US Forest Service should not swap any land. 3-DNR Commissioner Landwehr comments about the SDEIS comment process I believe have tainted the entire SDEIS process and unduly influenced people. 4-Minnesota Superfund Sites in St Louis County are already numerous. To add more potential risk to a sensitive area in not acceptable. Sites in St Louis County listed below: SR67 ARROWHEAD REFINERY CO. Refinery SR370 Boyer Lumber Other SR381 Bulinski Point - Wittrup Solvent Site SR1238 DNR-NETT LAKE/ORR PESTICIDE SITE SR367 DULUTH AIR FORCE BASE - MANG Military Munitions Response Prog. 5 Ous Other SR95 DULUTH AIR FORCE BASE OU1 Military Base SR260 DULUTH AIR FORCE BASE OU10 Military Base SR321 DULUTH AIR FORCE BASE OU12 Military Base SR267 DULUTH AIR FORCE BASE OU20 Military Base SR269 DULUTH AIR FORCE BASE OU23 Military Base SR270 DULUTH AIR FORCE BASE OU24 Military Base SR271 DULUTH AIR FORCE BASE OU26 Military Base SR320 DULUTH AIR FORCE BASE OU27 Military Base SR354 DULUTH AIR FORCE BASE OU28 - BUILDING 500, JET FUEL RELEASE Military Base SR255 DULUTH AIR FORCE BASE OU5 Military Base SR256 DULUTH AIR FORCE BASE OU6 Military Base SR258 DULUTH AIR FORCE BASE OU8 Military Base SR259 DULUTH AIR FORCE BASE OU9 Military Base SR252 DULUTH AIR FORCE BASE Site 2 - MANG fire training PFCs Military Base SR366 DULUTH AIR FORCE BASE Site 21 - MANG TCE Plume (OU31) Other SR355 DULUTH AIR FORCE BASE Site 29 - (FUDS)Site 102 TCE Plume Military Base SR253 DULUTH AIR FORCE BASE Site 3 - DPDO Storage Area Military Base SR356 DULUTH AIR FORCE BASE Site 30 - (FUDS)Former Solvent Wash Rack and Fueling Area Military Base SR368 DULUTH AIR FORCE BASE Site 32 - MANG AOC C Military Base SR254 DULUTH AIR FORCE BASE Site 4 - MANG Tank Farm Military Base SR257 DULUTH AIR FORCE BASE Site 7 - (FUDS) TCE Plume Military Base SR93 DULUTH CITY DUMP FORMER #1 Dump (Unpermitted) SR161 EAST MESABA SANITARY LANDFILL Landfill SR1137 ELY MUNICIPAL LIGHT AND WATER DEPARTMENT Other SR1006 GULF OIL CO EXPLOSIVES DIV Chem Mfg. SR361 Hibbing Gas Manufacturing Plant Site Mfg. Gas Plant SR1037 HYMAN MICHAELS CO Recycling/Salvage SR1021 KOTULA IRON and METAL (SF) Recycling/Salvage SR158 NORTHWOODS SANITARY LANDFILL Landfill SR350 Peter Pan (SF) Dry Cleaner SR1271 PROCTOR CAR SHOP Railroad SR1328 PROCTOR LOCOMOTIVE SHOP Railroad SR347 RIVERSIDE SALVAGE (SF) Motor Veh. Salvage SR345 Sargent Creek Dump Dump (Unpermitted) SR371 St Louis River AOC/Corps of Engineers Duluth Other SR275 St LOUIS RIVER/US STEEL OU-A Soils Other Mfg. SR327 St LOUIS RIVER/US STEEL OU-E Coke Oven Gas Lines Other Mfg. SR273 St LOUIS RIVER/US STEEL OU-J,I,L,M Steel Creek Other Mfg. SR274 St LOUIS RIVER/US STEEL OU-K Dr Spoils Other Mfg. SR190 St LOUIS RIVER/US STEEL OU-PandOUQ Wire Mill Pond Other Mfg. SR272 St LOUIS RIVER/US STEEL OU-RMN Sediments Other Mfg. SR276 St LOUIS RIVER/US STEEL Site Wide Other Mfg. SR149 St LOUIS/INTERLAKE/DULUTH/TAR SITE - OU Sed (Sediment and Ground Water) Other SR284 St LOUIS/INTERLAKE/DULUTH/TAR SITE - OU-S (Soil) Mfg. Gas Plant SR283 St LOUIS/INTERLAKE/DULUTH/TAR SITE - OU-TS (Tar Seep) Mfg. Gas Plant SR179 West Duluth Industrial Site Other SR154 WLSSD LANDFILL/ DULUTH DUMP #2 Landfill 5-The St Louis River Watershed Monitoring and Assessment Report published in March 2013 stated: "However, historic and current land use changes throughout the watershed have proven to be damaging to the many lakes, rivers and streams within the St Louis River watershed." Therefore already a fragile area with a proximity to the Boundary Waters Canoe Area and with all the uncertainties on copper nickel mining that may leave pollution for hundreds of ye

Terry Illegible 58110

This seems like a short-sighted project that could be very detrimental for our environment. There does not seem to be a reasonable plan for all the harm that could ensure. No one will be responsible for 500 years. This is not a reasonable or practical or responsible proposal. I would vote no until the company can find a way to mine without producing pollutants.

Alphabetical by sender's first name

Terry J. Williams 10064

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. Based on my reading, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my conclusion. Neither the SDEIS nor the sulfide mine project are based on accepted science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its optimistic predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone using a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real base flow is two to three times higher than the number used in the SDEIS. Base flow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone using a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Terry J. Williams 4170 Brigadoon Drive 4170 Brigaoon Drive, Shoreview, MN 55126 Shoreview, MN 55126

18808

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. Based on my reading, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my conclusion. Neither the SDEIS nor the sulfide mine project are based on accepted science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its optimistic predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone using a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real base flow is two to three times higher than the number used in the SDEIS. Base flow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone using a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Terry J. Williams 4170 Brigadoon Drive 4170 Brigaoon Drive, Shoreview, MN 55126 Shoreview, MN 55126

Alphabetical by sender's first name

Terry J. Williams 50882

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. Based on my reading, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my conclusion. Neither the SDEIS nor the sulfide mine project are based on accepted science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its optimistic predictions are unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone using a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real base flow is two to three times higher than the number used in the SDEIS. Base flow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone using a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Terry J. Williams 4170 Brigadoon Drive 4170 Brigaoon Drive, Shoreview, MN 55126 Shoreview, MN 55126

Alphabetical by sender's first name

Terry J. Williams 51294

Dear Mr Dabney, Mr Bruner and Ms Fay: I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The proposed Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. This includes a net loss of 6,026 acres of areas with high biodiversity; 2,030 acres of mature forest – replaced by 2,000 acres of immature forest; 1,400 acres of floodplains and losses of 11 endangered or threatened species. The Supplemental Draft Environmental Impact Statement [SDEIS] does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade. The PolyMet sulfide mine would reduce lynx habitat by two square miles, kill individual lynx, and impact 2 out of 13 remaining small corridors for wildlife to travel across the Arrowhead region. The PolyMet sulfide mine plan would also destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which dropped precipitously by 35% from 2012 to 2013- Yet, the SDEIS contains no analysis of impacts on moose from the PolyMet project. The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St Louis River and tribal resources. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice. Please take the following actions to protect clean water, ecological communities, public lands and tribal rights: • Reject PolyMet's proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. • Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. • Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. • Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. • Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. No more studies are needed to know that the PolyMet land exchange and sulfide mine should not be approved. The SDEIS plan is also inadequate and should be rejected: • The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. • The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at taxpayer expense. • The SDEIS fails to analyze alternatives, including underground mining, that could reduce impacts on lyn

Alphabetical by sender's first name

Terry Miller 21890

To All Concerned: I am a small-business owner of a family-owned company in Hibbing that has been in existence for 50+ years, and am writing to you to comment on the SDEIS for PolyMet Mining's proposed NorthMet project. We are impressed with the great deal of depth contained in the completed study and are convinced it shows the safety and viability of the project. We also believe that the future of Northeastern Minnesota and those of us who choose to live and work here need this project to be allowed to go ahead in order to secure our future viability, as long as reasonable environmental safeguards are met. I am concerned that some media have misconstrued the data regarding the groundwater flow model, giving the general public the impression that the 200 to 500 year figures indicate that the project will still need expensive treatment 500 years from now. On the contrary, the thorough study indicates the extremely slow rate of travel that the water will filter down through the bedrock, and that water quality standards will still be met even that far out on the timeline. We are blessed with a rich deposit of minerals in northern Minnesota, and the minerals that would be mined by PolyMet are and will be in high demand by the world's economy. Let's not squander the opportunity to be the suppliers of these precious resources that will also bring to our state so many new jobs (360 full-time and 600+ related) and considerable added revenue for the State of Minnesota. Because of stringent oversight and federal and state regulations of our environment in Minnesota, as demonstrated by the thoroughness of this study, we in Northeastern Minnesota can produce and supply these needed resources in a much safer and more environmentally friendly way than anyone else in the world. PolyMet and companies like them that comply with all state and federal regulations should be granted the necessary permits to conduct their operations in our state. My review of the EIS and the great amount of detail included within it tells me that you have thoroughly evaluated this potential project and it's impact, and I strongly urge you to permit this project to go ahead. Sincerely, Terry Miller cid:542390115@02102013-2AD6 1723 First Ave – PO Box 544 Hibbing, MN 55746 tel: 218-263-8958 fax: 218-263-8583 cell: 218-969-0949 HYPERLINK "mailto:tmiller@bmillerproducts-com"tmiller@bmillerproducts-com HYPERLINK "http://www.bmillerproducts-com/"www.bmillerproducts-com

Terry Nevalainen 21992

To Whom It May Concern: After reviewing the SDEIS and visiting the Polymet site, a former mining site, I support the regulatory process in approving the Permits necessary for Polymet to begin operations in the State of Minnesota. Further negativity from the opposition is unfounded. Polymet has more than answered all questions asked of them and addressed all regulatory requirements. Why should Polymet be further subjected to previously addressed issues and unfounded opinions. It is time the MNDNR, EPA, MNEPA and the USACOE move forward and provide Polymet with its needed “Permits to Operate”. Allowing Polymet to operate will definitely help the local, state and federal governments fund further projects and aid with financial support from Polymet and local businesses through taxes created from the employment of the public. At this time in our age we need all the employment help we can get. PLEASE, ALLOW POLYMET TO HELP US HELP OURSELVES. Terry Nevalainen Civil Engineer 217 NW 10th St Chisholm, MN

Alphabetical by sender's first name

Terry Olsen 40759

---Original Message--- From: archtttmo@hotmail-com [mailto:archtttmo@hotmail-com] Sent: Thursday, March 06, 2014 10:30 PM To: Fay, Lisa (DNR) Subject: PolyMet's SDEIS is poorly planned and needs to go back to the drawing boaRd Dear Ms Fay: The PolyMet Supplemental Draft Environmental Impact Statement (SDEIS) is fatally flawed . We should not burden future generations with toxic water pollution and cleanup costs from a sulfide mine. Once our sacred and natural Minnesota lakes, rivers and aquifers are polluted from a toxic spill, there is no way to ever recover what we loSt PolyMet would operate for 20 years but, according to PolyMet.s own data, would pollute water for over 500 years at the tailings basin, and over 200 years at the mine pit. The modeling results provided in the SDEIS show that PolyMet and the DNR did not look beyond 500 years. The SDEIS does not say when the mine pit and tailings basin will stop polluting our water. This is a major and apparently intentional failure that needs to be corrected by the DNR. Please run the models . or require PolyMet to run the models . long enough to show when pollution of our water by PolyMet.s mine would cease. Again, we can not recover what we could lose from quality of life, natural habitat, economic benefits of tourism and the livability of the local communities. PolyMet proposes a complex mechanical system of pumps, pipelines, and filters that it says will capture and hold back the water pollution from getting into our rivers. PolyMet assumes the proposed expensive and complicated water treatment system will continue to operate effectively for long after the mining has stopped. Mechanical systems like pumps, filters and pipes eventually fail. In a 2007 report, an organization called Earthworks analyzed the records of 14 modern copper mines in five states found that 100% of these mines experienced pipeline spills or other accidental releases. 92% had failures of water collection and treatment systems that resulted in releases of contaminated mine seepage that significantly impacted water quality. Polymet's SDEIS lacks contingency plans for predictable failures in the proposed piping, pumping, and filtration equipment. By assuming that a complicated water treatment system will function indefinitely without fail, the SDEIS has failed to take the hard look required at the proposed PolyMet sulfide mine. In addition, if the company declares bankruptcy, who would be left to repair the damage and restore the communities and habitat. Please reject the SDEIS. Reject PolyMet's plans flawed with predictable failures in the water pumping and treatment system and the power supply to run that system. Reject the lack of fiduciary responsibility for a failure that is irreparable to OUR delicate balance in Minnesota. Long after the mining has stopped, PolyMet would pose an ongoing risk to fresh water. The Embarrass, the Partridge, and the St Louis Rivers, as well as Lake Superior, are far too precious to be put at risk for the profit of PolyMet. PolyMet should not be permitted. There is no way to guarantee when the proposed mining stops, that the groundwater and surface water would be left in a clean condition, and surrounding streams, rivers, and Lake Superior would be safe from risk of sulfide mine pollution. The PolyMet SDEIS suffers from many major failings. The SDEIS needs to be withdrawn and rejected. Sincerely, Terry Olsen 542 Pelham Blvd Saint Paul, MN 55104-4938

Alphabetical by sender's first name

Terry Olsen 52544

Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps "Section 404 " Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The "compensation " wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable "indirect " wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1- Underground mining, looking at the full ore deposit and PolyMet's real costs; 2- Putting a liner under the Category 1 waste rock stockpile; 3- Placing all tailings on a new completely lined facility; 4- Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5- Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to protect irreplaceabl

Terry Piercy 24014

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Please do not. Sincerely, Terry Piercy PO Box 2512 Olympia, WA 98507-2512

Alphabetical by sender's first name

Terry Richmond 42111

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Terry Richmond 2900 County Road 19 Maple Plain, MN 55359-9386

Terry Smith 13656

I will be gone the week of 2/11/14 through 2/18/14 .please hold all email. Thank you. Terry

Alphabetical by sender's first name

Terry Sovil 16221

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Terry Williamson 27011

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt On a personal note, my son canoed in this area two summers ago and it continues to be one of his most memorable experiences as an adolescent. As an adult providing supervision to Boy Scouts on their trips into the outdoors, I am always impressed about the maturity they exhibit and the growth that happens when these young men are given the opportunity to govern themselves in wilderness areas. I don't know of any other place where this happens on this scale. All of our communities will be lessened to the extent that we allow the limited wilderness that now exists to be further diminished by mining and industrial pollution. Sincerely, Terry Williamson 768 Belhaven St Jackson, MS 39202-1705

Alphabetical by sender's first name

Tersenia Schuett 46588

The MN Department of Natural Resources must guard and protect our most valuable resource above all-water. Down the road the value of water will pale compared to "precious metals." Water is indeed precious. Unforseen, predictable and unpredictable incidents and accidents are not addressed in Polymet's proposed water treament plan. All the financial assurance dollars in the world are not worth taking the risk of impairing MN waters. In light of this, I see JOBS as a four-letter woRd Don't let ~350 short-term jobs, the heft of big business, and dollar signs cow the DNR into submission. Sincerely, Tersenia Schuett 1410 Goodrich Ave StPaul, MN 55105

Tess Zangrilli 34016

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. We are heading in a direction of severe water shortages across the world due to global warming and population explosion. It is in the public's interest that water, which is vital to life be protected. I know this on a personal basis, living in the fracking hellscape that is Pennsylvania. We need to have one part of this country where water is protected. Sincerely, Tess Zangrilli 203 Lytton Ave Pittsburgh, PA 15213-1409 (614) 725-2911

Tessa Hill 16165

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Tessa Larson 54737

See attachment

54738

See attachment

Tevin Grant 44606

Hi there, I am a young student at prior lake high school. To be completely honest with you guys although this May look like a good idea now, I am way too nervous to take action. I don't trust the possible outcomes that this could create/affect in the long run. Thank you for hearing what I have go say. Sent from my iPhone

The Bremicker-Bartels 42963

the Maloney Family 43254

Opposed. Minnesota does not need the open pit copper-nickel mine. This potential mine is not a good investment in our state's future. Four hundred jobs for twenty years traded for a sulfide tailings is not worth it. It is not even going to produce that much in minerals. The mine is a short sighted silly idea. I have stood in the bottom of Bingham Copper Pit. Nothing grows around these mines. The pH is wrong for plants. The ore deposit is not going anywhere. Let us leave it for our future Minnesotans with improved technology to decide if they want to mine the ore. Ann Maloney 8293 Paradise Beach Court Brainerd, Mn. 56401

The Mowans 38548

A nightmare is about to happen if the Northmet Mining Project is approved. I cannot add anything to the science as a concerned citizen. I read the facts and listened to experts who will not profit financially, I am saying that the facts of science prove this project should never be allowed. History of copper mining must be included because the price was paid elsewhere and there is no going back. We are fools not to learn from the pain of others. Water is one of the most precious commodities on this Earth. This fact appears everyday in news reports when disaster after disaster created by human beings has spoiled our waterways. I do not believe any mining company should be permitted to desecrate the forests and watersheds of our beautiful state. 90% of everything mined will produce tailings in an untold volume. How many piles 20 stories high. How much water is used for the chemical bath. What are the chemicals in the bath. Is it a secret like the chemicals used in fracking which is legally kept a secret from the people whose land is being flooded. Right now tailing piles from the old LTD taconite site create pollution that is exceeding current MN water quality standards. Mercury has been found in children. What will it cost MN in health care for known health concerns. Polymet is the next "invasive species" leaving the increasing devastation forever and ever. Three-hundred jobs will never justify what the pits, up to 700 feet deep and the sulfur piles 20 stories high will do to the environment, FOREVER. After the 20 year run when all the wealth leaves this country these miners will again be jobless . Hy-Vee will build a grocery store in New Hope MN that will hire 400 employees. How can anyone with a conscience use jobs as an excuse to ruin MN. Only a few jobs for a few years what is left is the Hell that would be created in our Northland. The DNR should be the guardian of our natural resources for all Minnesotans. Lost to profiteering is unforgiveable. We need pristine places to live and retreat to. What has been saved for us took some warriors in the paSt Please don't be responsible for 500 years of destruction by sulfuric acid. The lost of forests that filter our air is another important factor in pollution. I do not believe any politician or state employee has the right to give away MN. I think of Judas, what price to pay for materials to manufacture products that will eventually end up in landfills. Why does Polymet a foreign corporation that has a history of ravaging the earth in Canada deserve the right to reap havoc here. Their financial backers have a history of illegal dealings and world wide pollution. These facts are a part of the entire package. F. Sigrid Mowan 4186 E Shamineau Dr Motley MN 56466

The Nature Conservancy 18855

Please see the attached document.

Alphabetical by sender's first name

The Nature Conservancy 42982

Please accept comments from The Nature Conservancy on the Supplemental Draft Environmental Impact Statement for the NorthMet Mining Project and Land Exchange. Douglas T. Shaw, Phd, Assistant Chapter Director The Nature Conservancy in Minnesota, North Dakota and South Dakota 1101 West River Parkway, Suite 200 Minneapolis, MN 55415-0705 Please consider the environment before printing this email _____ Douglas T. Shaw, Ph.D Assistant Chapter Director dshaw@tnc-org (612) 331-0705 (Phone) (651) 900-0652 (Mobile) HYPERLINK "https://home.tnc-org/,DanaInfo=nature-org+"nature-org The Nature Conservancy in Minnesota, North Dakota and South Dakota 1101 West River Parkway, Suite 200 Minneapolis, MN 55415-0705 TNCLogoPrimary_RGB

43054

December 19, 2013VIA U.S. MAILLisa Fay, EIS Project ManagerMDNR Division of Ecological and Water ResourcesEnvironmental Review Unit500 Lafayette Road, Box 25Saint Paul, Minnesota 55155-4025Douglas Bruner,U.S. Army Corps of Engineers- Saint Paul District180 5th Street East, Suite 700Saint Paul, Minnesota 55101-1678Tim DabneyU.S. Forest Service- Superior National Forest8901 Grand A venue PlaceDuluth, Minnesota 55808Dear Ms. Fay, Mr. Bruner, Mr. Dabney:On behalf of the Minnesota/North Dakota/ South Dakota Program of The Nature Conservancy, I request an extension to the public review and comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) for an additional 90 days beyond the current end date of March 13, 2014. The Nature Conservancy is a nonprofit conservation organization that works in all 50 states and 35 countries and has a membership of approximately one million. The mission of The Nature Conservancy is to conserve the lands and waters on which all life depends.The longer review and comment period is warranted by the length and complexity of this document. The quality of comments that the Conservancy and the public will be able to provide will improve with additional time.Sincerely,Margaret LadnerMinnesota State Director

Theo 43082

Do not allow the copper mines in Minnesota. It will wreck everything-such as the land, water and tourism. I worry about what it will be like when I am an adult, will the BWCAW still be the same. will I be able to go swimming and eat the fish I catch. No safe gaurd is 100%. The mines are also ugly and destroy the land. Theo Anderson (8th grade) 2150 Mailand Road St Paul, MN 55119

Theodore Gorney 39614

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Theodore Gorney 5572 Brookdale Dr N Brooklyn Park, MN 55443-3015

Theresa Flynn 38948

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Theresa Flynn 794 Holton St Saint Paul, MN 55104-1315

Alphabetical by sender's first name

Theresa Gerber 33046

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I am proud to be a Minnesotan because of this state's history of valuing nature and the preservation of our natural resources. To allow copper nickel mining, especially when this mine's projected lifespan is only twenty years, destroys my trust in the DNR and makes me question the values of my fellow Minnesotans. It is the DNR's job to protect Minnesota's environment and take care of our natural resources, and allowing mining that has the potential to pollute for hundreds of years is a direct contradiction of this. I do not understand how anyone, especially a government agency that is supposed to put public interest first, can think that a relatively small increase in jobs and economic output for twenty years outweighs the potential for catastrophe and pollution for hundreds of years. Minnesota is known for its clean lakes and rivers, but fresh water is not an infinite resource and we should not be actively working to jeopardize the local watershed and Lake Superior, which is what would happen if the PolyMet mine is approved. I am extremely disappointed that the state government, which is supposed to act in the public's best interests, could consider this mine to be a viable option. It is absolutely not in the public's interest to allow mining that could pollute any watershed for hundreds of years. Even if there is some way that PolyMet could guarantee it can pay for clean-up of a catastrophe, Minnesota has only been a state for a little more than 150 years and it would be crazy to knowingly create a situation that leaves us cleaning up water pollution for twice as long as we have been a state. Sincerely, Theresa Gerber 817 Hilltop Rd Mendota Heights, MN 55118-4324 (651) 788-2484

57983

I don't understand how someone can look at the numbers objectively and feel it makes economic sense to go ahead with this project. How can the mining company guarantee that if something does go wrong, they can pay for cleaning water for 200-500 years? Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Theresa Johansen 10691

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Theresa Johansen 10355 Greenfield Rd Greenfield, MN 55357

Alphabetical by sender's first name

Theresa Johansen 18401

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Theresa Johansen 10355 Greenfield Rd Greenfield, MN 55357

50520

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Theresa Johansen 10355 Greenfield Rd Greenfield, MN 55357

Alphabetical by sender's first name

Theresa Nelson 43232

To The State of Minnesota's DNR, It is inconceivable to me that anyone who has any concern for the natural resources of Greater Minnesota, would allow or would ever think of allowing mining to occur in this irreplaceable environment. Please be a leader, please think of future generations, please think BIG .big enough to understand that the ways of the world are changing, and people need and want us to take care of our resources. And they are resources, it is why I live in this state. I spend $1000 every year in Greater Minnesota exploring natural area's, patronizing local businesses and paying permits. So far I estimate I have spent $20,000 in the BWCA area in my adult lifetime, and I plan to spend just as much and even more in my years to come. And let's be clear here, my annual salary is $40,000 .I'm by no means rich, but choose to spend my money here in order to experience the BWCA as it is. BUT not if, I even think for a moment that the water is being contaminated, the animals lives are being compromised or the local economy doesn't value protecting this most incredible resource. Think about it, there is a lot at stake, and you and I am responsible for what happens. Say to NO to Polymet in Minnesota. “The eyes of the future are looking back at us and they are praying for us to see beyond our own time. They are kneeling with hands clasped that we might act with restraint, that we might leave room for the life that is destined to come. To protect what is wild is to protect what is gentle. Perhaps the wilderness we fear is the pause between our own heartbeats, the silent space that says we live only by grace. Wilderness lives by this same grace. Wild mercy is in our hands.” - Terry Tempest Williams Sincerely, Theresa Nelson HYPERLINK "mailto:theresa.f.nelson@gmail-com"theresa.f.nelson@gmail-com HYPERLINK "http://www.linkedin-com/in/theresanelsonmn"www.linkedin-com/in/theresanelsonmn 612-655-5662

Theresa Rokusek 14955

Dear Theresa, Thank you for contacting me about the proposed PolyMet copper-nickel mine. I appreciate your email and the Star Tribune article link. As you may know, the Department of Natural Resources (DNR) can authorize the mine without legislative approval. However, a project of this size is required to complete an Environmental Impact Statement (EIS) under state and federal law to evaluate the comprehensive effect of the project on the environment, local communities, and the economy. Currently, the DNR is taking public comments on the proposed EIS HYPERLINK "x-apple-data-detectors://0"until Thursday March 13, 2014- More information about the project, including submitting your comments, here: http://dnr.state.mn.us/input/environmentalreview/polymet/index.html Thank you again for your email. For my part, I will continue to support policies that protect our state’s world-class lakes, rivers, and groundwater for generations. Best wishes, Debra Hilstrom >>> 2/9/2014 2:51 PM >>> http://m.startribune-com/news/.id=244570531andc=y Please refer to above article. My husband Dennis Johnson and I, Theresa Rokusek, are vehemently opposed to this or any other company coming into MN to do mining. They will promise to follow safe rules and policies should they be okayed to do so. Of course they promise all kinds of jobs to the financially depressed region. How many are guaranteed to US citizens. Allowing this potentially environmental killer into our beautiful state is ludicrous based on dollars and cents. Haven't we learned enough from the BP explosion, the recent chemical disaster in Virgina releasing deadly chemicals in the river nearby, and the opposition to building the KXL pipeline thru our country by a Canadian company. If it's so safe, why not build it through their country.. If we care anything about keeping our waters and lands safe, we cannot allow promise of big $$$ to cloud Minnesota's safety and beauty. From: Theresa Rokusek and Dennis Johnson 2557 Brookdale Lane Brooklyn Park HYPERLINK "tel:55444-2336"55444-2336 763-560-0169

39361

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Theresa Rokusek 2557 Brookdale Ln Minneapolis, MN 55444-2336 (763) 560-0169

Alphabetical by sender's first name

Theresa Sprung 42083

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Theresa Sprung Center City, Minnesota

Theresa Zaydel 30091

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, I submit these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement because of serious concern for the health of the Great Lakes region of the United States and Canada. Sulfide mining threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on the Great Lakes fresh water system, the Great Lakes region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, and the cumulative impacts from mining. It is not in the public interest or the best practices to protect our natural and fragile environment to allow a Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine. Sincerely, Theresa Zaydel 13967 Ashton Rd Detroit, MI 48223-3531

Alphabetical by sender's first name

Therese Gimmestad 41668

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Thom Nelson 39560

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Thom Nelson 2084 123rd Ln NW Coon Rapids, MN 55448-7087 (612) 817-1397

Alphabetical by sender's first name

Thomas & Susan Smith 39787

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Thomas and Susan Smith PO Box 48303 Minneapolis, MN 55448-0303

Thomas A Leaf 40931

Ms Lisa Fay and DNR, I am writing to express comments on the SDEIS for the proposed NorthMet Mining Project and Land Exchange. We Minnesotans have before us a proposed project from an outside company which stands to obtain large economic gain. This corporate gain comes at the expense of Minnesotans permanently selling off one of our natural resources. The benefits for Minnesotans are some construction jobs for a few years and a few mining jobs for a twenty year time period. There appears to be no pressing need at this time for copper and nickel. These metals are not being mined for use by our state. The detriments of this project as I see them are; We will soon be left with an abandoned mine, the transient jobs are gone and we have clean up and monitoring of the site for centuries. We will have spent our resource. The amount of money to be set aside has been only vaguely defined. It is quite impossible to plan monitoring and clean up for several hundred years. Recent water quality data regarding sulfate water contamination confirm original studies that suggest we have native wild rice and potentially many other species are very sensitive to increased sulfates in the water. We are contemplating the possibility of adding pollution to the largest freshwater lake in the world. The detriments in my opinion would appear to far outweigh the short term benefits. We do not have an economy that is so destitute that we need to consider this project. The decision needs to be based on science and a clear thinking view to our state’s future, not to short sighted political or economic gain. Sincerely, Thomas A. Leaf 31450 Oasis Rd Center City, MN 55012 The information transmitted in this e-mail is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material, including 'protected health information'. If you are not the intended recipient, you are hereby notified that any review, retransmission, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please destroy and delete this message from any computer and contact us immediately by return e-mail.

Thomas and Charlotte Meinz 39998

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The dollars earned by providing jobs for a number of people pales when you consider the damage to the environment and the potential cost of cleaning up the water and land that will result for MANY YEARS. The studies that say we could subsidize a number of people for as many years as they would make a living on jobs provided would be much fewer dollars spent by our taxpayers than what will be needed if and when the mining companies disappear from the scene. MINNESOTANS WILL BE LEFT HOLDING THE BAG AND OUR PRISTINE LAND AND WATER WILL BE RUINED. PLEASE STOP THIS PROJECT NOW Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. We have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Thomas and Charlotte Meinz 210 9th Ave S Princeton, MN 55371-1723 (763) 389-1660

Alphabetical by sender's first name

Thomas and Charlotte Meinz 49040

Mar 10, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The dollars earned by providing jobs for a number of people pales when you consider the damage to the environment and the potential cost of cleaning up the water and land that will result for MANY YEARS. The studies that say we could subsidize a number of people for as many years as they would make a living on jobs provided would be much fewer dollars spent by our taxpayers than what will be needed if and when the mining companies disappear from the scene. MINNESOTANS WILL BE LEFT HOLDING THE BAG AND OUR PRISTINE LAND AND WATER WILL BE RUINED. PLEASE STOP THIS PROJECT NOW Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. We have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Thomas and Charlotte Meinz 210 9th Ave S Princeton, MN 55371-1723 (763) 389-1660

Thomas Aro 42514

See attachment

Thomas Bergum 54168

I believe the risks or potential risks are too great. Northern MN may be forever changed struggling with ground water polution for hundreds of years. But I fear big money & promises to care for our land will win out! [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Thomas Brown 16194

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Thomas Cahoy 45444

Greetings, Please do not approve the PolyMet sulfide mine plan. There are waaaay to many unanswered questions. PolyMet says waste water will need treatment for 500 yrs minimum. How much longer after that. Where are the assurances from PolyMet that treatment will be financed for a minimum of 5 centuries. Where are the contingency plans or financial guarantees in case of accident or emergency. I attended the 1/28/14 RiverCentre public meeting. I have read up on the issue. I consider myself well informed. I have concluded that those that supporting the mine are willing to risk anything for jobs for 20 years. The risks that sulfide mining poses are often acknowledged and not refuted. No sulfide mine has ever been operated without polluting. PolyMet should be required to prove themselves elsewhere prior to operating in Minnesota. Our state's heritage should not be put at risk in perpetuity for a mere 20 years worth of jobs. Do not approve the PolyMet sulfide mine plan. Thank you, Thomas Cahoy 16501 30th Ave N Plymouth, MN 55447 (612)616-0507 tommycaho@Q-com

Thomas Donaghy 15304

Please reject the PolyMet mine. The economy of northern Minnesota is now built on tourism, which is based on the natural beauty of the area. PolyMet would undermine that beauty - and the economy that relies on it - for centuries. The Boundary Waters and surrounding areas are also a Minnesota treasure that, once destroyed, could not be restored in our lifetimes or even the lifetimes of our grandchildren. We need to think long term. We need to stop this mine before it starts. Tom Donaghy Saint Paul resident

Alphabetical by sender's first name

Thomas Donofrio 21724

I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all state and federal regulations. Our society has come to expect a standard of living and quality of life dependent upon the critical metals PolyMet will supply. I believe it can be done right in Minnesota. Thomas Donofrio 3985 Willow Place Hermantown, Minnesota 55811 The views and opinions expressed in this message my own. I am solely and individually responsible for the content. This is not intended to represent or reflect anyone else's views or opinions, including those of my employer, ALLETE, Inc.

thomas erzar 41086

My name is Tom Erzar and my address is 1163 Jesse L Blvd., Eagles Nest, Minnesota. My mailing address is 1163 Jesse L Blvd, Ely, MN 55731 I'm submitting a comment regarding the SDEIS for PolyMet Mining's proposed North Met project. I trust your agency will thoroughly evaluate the project and address any environmental concerns. I believe the environmental review process has been very thorough. I know that your agency and the federal agency will make sure that the project design will address any possible environmental impacts so it meets with all applicable state and federal regulations. All projects have risks. There are many kinds of risks but today we are focusing on environmental risks. I believe that PolyMet has addressed the environmental risks and with modern- day technology will mitigate those risks. State agencies will make sure that there is compliance with the most stringent regulations in the country. We have an asset of a world- class deposit of copper , nickel, platinum, palladium and gold . This should be mined; it is an opportunity that should not go untapped. PolyMet can mine these metals in an environmentally sound way with the use of modern technology. This mining project would create hundreds of jobs for the middle class and an economic stimulus for the local communities and the state of Minnesota. We need these jobs .We want these jobs. It is time to permit this project and enjoy many of the benefits it will provide. By the way I am a person who enjoys and uses the BWCA and Lake Superior and am not concerned that this project will have any adverse affect these natural resources that I love and enjoy. Sincerely' Tom Erzar

Thomas Geiger 44314

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Thomas Geiger Rr1 Box 1000 Kingshill, VI 00850

Alphabetical by sender's first name

Thomas Geiger 44318

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Thomas Geiger Rr1 Box 1000 Kingshill, VI 00850

Thomas Gillach 42527

See attachment

Thomas Gille 41615

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Thomas Gille Cromwell, Minnesota

Alphabetical by sender's first name

Thomas Gretch 42436

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Thomas Gretch 3030 Cavell Ave S Saint Louis Park, MN 55426-2916 (612) 735-5959

Thomas Griffin, PhD. 44545

From: Tom Gmail [mailto:tomgriffin612@gmail-com] Sent: Thursday, March 13, 2014 9:00 AM To: Fay, Lisa (DNR) Subject: Fwd: Mining in Minnesota Sent from my iPhone Begin forwarded message: From: Tom Gmail <HYPERLINK "mailto:tomgriffin612@gmail-com"tomgriffin612@gmail-com> Date: March 12, 2014 at 8:46:44 PM CDT To: "HYPERLINK "mailto:lisaFay@state.mn.us"lisaFay@state.mn.us" <HYPERLINK "mailto:lisaFay@state.mn.us"lisaFay@state.mn.us> Subject: Mining in Minnesota Ms Fay It seems clear to me that there are too many unanswered questions about the impact of proposed mining plans in northern Minnesota on water quality in our state to allow these plans to move forwaRd I strongly encourage the department to protect Minnesota's natural resources including water quality and reject PolyMet plans. Thank you. Thomas Griffin, PhD. 4720 11th Ave So Minneapolis MN 55407 Sent from my iPhone

Thomas Howes 42619

See attachment

Thomas J Arneson 54638

See attachment

Thomas Jeffery Heinonen 57258

Ponder the SDEIS while reading the 2/3/14 Nation magazine article – page 22. After 100+ years the river in El Salvador runs red in toxicity. With several companies also waiting (Duluth NewsTab 1/17/14) we'd be overrun with such mining. Just as all the waters in northern MN are interconnected, Polymet's promo campaign and all the heavy hitters brought in to replace all form of CEOs and department heads are interconnected to push their mining through; sparing no cost, even to new/ads on AM radio touting that of 10,000 comments no question has seen unanswered. The greatest presumption is the kids hockey games shamelessly co-opted with their ads, and they're not even up and running yet. History repeats itself at the expense of the last of our clean water in a region held hostage by perpetual economic blackmail. Like all that oil being pipelined, trucked across the country and shipped off for profit to China while our gas prices only rise. Who is really getting the minerals and the profits.Thomas Jeffery Heinonen101 Artavia StDuluth, MN 55811

Alphabetical by sender's first name

Thomas Johnson 41751

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Thomas King 39167

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. We know with past experience of the iron mines that there will be accidents and spillage of toxic chemicals. Check out lake Vermillion for evidence. We cant risk this kind of exposure with sulfide mining The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Thomas King 7259 Old Number 7 Rd Virginia, MN 55792-8017 (218) 741-5960

Alphabetical by sender's first name

Thomas Koehler 9306

I attended the January 16th meeting in Duluth and was not chosen to speak. I have read the portions of the SDEIS of concern to me and believe I have good understanding of what I read. My concerns are these: Past experience with mining companies has indicated to me that any entity engaged in sulfide mining will escape any responsibility, whether legal or financial, by simply dissolving or filing bankruptcy, as has happened in our paSt In the case of a projected 200 year or 500 year liability, I am saying that all entities will escape ANY liability with the simple stroke of a pen. There is no provision whatever to assure and insure that any entity of any kind will actually be forced to exist and remain liable for all costs that will otherwise be externalized as has always happened in the past and to date. The proposal is to use reverse osmosis for the removal of certain mining-caused pollutants from the water effluent. This process is clumsy, expensive and extremely high maintenance, as is resin bed ion exchange. I am distressed that more effective chemical buffering methods have not been proposed. At least one such method has been used in former sulfide mining operations in Montana. ref. CESR process of Hydrometrics, Inc., 2727 Airport Road, Helena, MT 59601; wateronline-com/doc/a-new-process-for-sulfate-removal-from-indust-0001 Why isn't any limestone placed with all sulfur-bearing rock to neutralize subsequent acid formation. Will any limestone be placed in the tailings basin. There is no mention of the location of the Poly-Met hydromet facility, where phase two nickel concentrate will be sent, nor any description of the chemical nature of that treatment and its wastes. Autoclaving of concentrate and oxidation under pressure is mentioned, but no description of the chemical nature of the solutions used. Limestone is apparently added to this spent solution, but what of the consequent sulfates. Pit linings are notoriously short-lived and leaky, as demonstrated by other pit linings. There is no mention of mitigation of other heavy metals that will be released in the water effluent, in excess of current water quality standards. The parent rock body will be fractured by blasting, and there is no mention of how to prevent ground water from entering these fractures and producing acidic drainage into the aquifer. I am a simple railroad track worker, retired. If a layman like me can find weaknesses and complaint with one small portion of the SDEIS, just how flimsy is the actual fabric of the entire document. The foremost and greatest weakness and objection is the inability to hold any entity responsible for the proposed duration of this enterprise - by its own definition, up to 500 years.. Reserve Mining evaporated out from under its financial obligations in less than sixty years. I am strongly opposed to the proposed sulfide mining enterprise mainly because I know that no one but the taxpayers will end up paying for the damages that will absolutely happen as a direct consequence of sulfide mining as currently proposed. Respectfully, Thomas V. Koehler 814 5th Avenue Two Harbors MN 55616 218 834 4891 - home landline voice

Alphabetical by sender's first name

Thomas Koehler 19038

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Thomas Koehler 814 5th Avenue, Two Harbors, MN Two Harbors, MN 55616

Thomas La Point 13907

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. The SDEIS proposes no mitigation for the direct impacts to the 900 acres of wetlands and indirect impacts to an additional ten square miles of wetlands. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely, Dr Thomas La Point 1900 Highland Park Cir Denton, TX 76205-6932

Alphabetical by sender's first name

Thomas Lambrecht 20229

Hello, Please accept my support for this project and the economic impacts resulting from this investment in NE Minnesota. The reason below will highlight our general support for the acceptance of the SDEIS report and the next steps required to move the project forwaRd I trust the DNR and Federal Agencies to study copper-nickel mining and keep our communities safe. The environmental review process has been lengthy and thorough; the supplemental draft EIS addresses potential environmental impacts and how to mitigate them. Copper-nickel mining will contribute to the local and state economy at a time when we really need the jobs and economic benefit. Copper-nickel mining will provide millions of dollars in local and state taxes to support our communities and education system. The SDEIS points out that cumulative impacts have been adequately reviewed. Thanks, Tom Lambrecht, LEED AP Manager Economic Development Services Great River Energy 12300 Elm Creek Boulevard Maple Grove, MN 55369 direct: 763-445-6105 / fax: 763-445-6905 / cell: 612-850-3660 www.GreatRiverEnergy-com * Please consider the environment before you print this e-mail. NOTICE TO RECIPIENT: The information contained in this message from Great River Energy and any attachments are confidential and intended only for the named recipient(s). If you have received this message in error, you are prohibited from copying, distributing or using the information. Please contact the sender immediately by return email and delete the original message.

Thomas Latham 23745

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt I have personally been to Boundary Waters, and spent seven days there in a canoe. I have never seen a more pristine area before in my life and I believe that nothing should be allowed to jepordize this. I am a 64 year old electrician at The City of Atlanta Aviation Department and have beautiful memories of my experience there. Recently I have had thoughts of revisting that area with another canoe trip. To think that that area may not be there as I remembered would be devastating to me and I know may others. Don't let this happen PLEASE Sincerely, Thomas Latham 6530 Rivertown Rd Fairburn, GA 30213-2729 (770) 617-5549

Thomas Lichtenstein 39611

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Thomas Lichtenstein 11520 Ravoux Ave Burnsville, MN 55337-3232 (952) 890-5069

Thomas Moen 54507

See attachment

Alphabetical by sender's first name

Thomas Morgan 19473

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS seems to be one-sided. Well-documented tribal Major Differences of Opinion call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles and tailings heaps won't seep pollution, that mining won't dry out wetlands and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they are not available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and putting public meetings in January (when bad weather is likely) seems designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just foreign corporations, will matter when the government makes its decisions. Sincerely yours, Tom Morgan - HYPERLINK "http://resources.css-edu/collegecomm/images/StandardLogo_fullcolor_Fill.png"signature Dr Thomas W. Morgan Director, Alworth Center for the Study of Peace and Justice Associate Professor of Russian 218-723-6442 Duluth, MN 55811 HYPERLINK "mailto:tmorgan@css-edu"tmorgan@css-edu

Thomas Nelson 45805

I support the Polymet project. The technology is there to protect the water and provide much needed resources and provide good paying jobs. As a Superintendent of a wastewater treatment and water treatment facilities in the Great Lakes Water shed if we can keep Mercury out with limits as low as 1-8 ppt we can keep the effluent from the Polyment project clean. This letter is not part of a mass e-mailing campaign. Thomas Nelson Wastewater/Water Superintendent Grand Marais, MN

Thomas Normile 44203

Do not pollute or kill our Lakes, Aquifers, Rivers and Swamps. Thomas Normile (nephew of Mary Molish, former resident of Butte, MT.

Alphabetical by sender's first name

Thomas Rosch 40156

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Thomas Rosch 1840 Wisconsin Ave N Golden Valley, MN 55427-3963 (763) 591-1610

Thomas S. Falkowski 14836

My Name is Thomas S. Falkowski, 12260 Ash Dr, Rogers, MN 55374 My Comment: I am concerned that the official report does not clearly identify the costs associated with the ongoing monitoring of both the mining site and the plant site, as well as what may be required as potential remedies if monitoring identifies probleMs The significant lengths of monitoring would require a financial reserve that would likely exceed both the revenues of the state from the mining company and any economic stimulus of employees that would pay state or local taxes. There should be adequate financial reserves that are both prepaid prior to initiation, and also accrued during the years of operation that account for all 500 years of MN tax payer exposure. I am also concerned that although the report identifies the communities and water sources that may be affected by the movement of water during and after operations, I did not see a clear statement as to the populations of the communities and the total number of people that could be affected for the duration of the exposure. By highlighting only the number of jobs to be gained for the relatively short productive years of the operation, the potential negative impact to many more people is not stated or estimated. Thank you.

Thomas Schellinger 41058

I support the PolyMet Mining project and believe that the environmental review process has been carried out thoroughly. Please enter my name in support of the PolyMet plan. This project will be of benefit to the State of Minnesota and provide jobs and a source of income to the area without undue damage to the environment. Thomas P. Schellinger 13951 Falcon Avenue Apple Valley, MN 55124 tpschellinger@prodigy-net

Thomas Scott 21247

Feb 24, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. As a Minnesota citizen who loves our state I urge you to act in the best interest of our natural resources and reject the proposed permit for an open pit sulfide mine in the Arrowhead. The inherent incalculable risks will extend for many generations to come, and these are simply not worth undertaking. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Thomas Scott 3515 Harriet Ave Minneapolis, MN 55408-4248 (612) 670-3464

Alphabetical by sender's first name

Thomas Scott 50987

Feb 24, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. As a Minnesota citizen who loves our state I urge you to act in the best interest of our natural resources and reject the proposed permit for an open pit sulfide mine in the Arrowhead. The inherent incalculable risks will extend for many generations to come, and these are simply not worth undertaking. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Thomas Scott 3515 Harriet Ave Minneapolis, MN 55408-4248 (612) 670-3464

Thomas Sullivan 9581

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Thomas Sullivan 3467 Wilshire PL NE Minneapolis, MN 55418

Alphabetical by sender's first name

Thomas Sullivan 18496

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Thomas Sullivan 3467 Wilshire PL NE Minneapolis, MN 55418

50580

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Thomas Sullivan 3467 Wilshire PL NE Minneapolis, MN 55418

Alphabetical by sender's first name

Thomas Switzer 11509

See attachment

42563

See attachment

Thomas Wallace Morgan 57141

I'm very concerned over the prospects of copper-sulfide mining in Minnesota. Please consider your responsibility to safeguard the environment and to assure quality of life for the seventh generation. Our water is too precious to gamble with. I have little confidence in the promises of mining companies.Thomas Wallace Morgan4801 Tioga StDuluth, MN 55804

Thuan Thai 54230

Dear Ms. FayIt has come to me and other students concern that the mining company drawing the map was not credible and was cut off of original map. The map was cut off so that the people look at the mine site and would think that the mine site would not affect other lakes, swamps or rivers. From that point of view, people would approve of the mining construction but the map was correct to the BWCA which is could affect to environment. And the mine releases phosphate to the swamp which will react with water and form sulfuric acid and if the sulfuric acid goes to the BWCA and eventually will pollute those BWCA. And as the student of Humboldt High School, I would really like to go to boundary water to visit and enjoy the nature. But if the mining begin the sulfuric acid would go to BWCA which could destroy the ecosystem. This is unacceptable to destroy the nature which and where we are living in.Sincerely,Thuan ThaiHumboldt High School Student449 Sherburne AveSaint Paul, MN 55103

Thue Rasmussen 39622

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Thue Rasmussen 1666 Coffman St Apt 219 Falcon Heights, MN 55108-1339

Tierney Bartell 54164

Do not allow another mine to ruin our beautiful landscape. It is too much of a risk and will have a disastrous long term outcome if allowed. Money & greed are driving this mine and I oppose it. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

tiffany breiner 42064

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, tiffany breiner minneapolis, Minnesota

Tiffany Wang 41825

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Tiffany Wang Minneapolis, Minnesota

Tim Coglianese 39993

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Tim Coglianese 5839 Sunrise Dr Minneapolis, MN 55419-2059 (612) 354-3197

Alphabetical by sender's first name

Tim Gihring 15345

Dear DNR, As a Minnesota journalist for nearly 20 years, I have traveled all over the state, reporting on the people and places that make this region special. And perhaps no place is more special than the Boundary Waters ecosystem that would be affected by the proposed Polymet mining. Those who support the mining in the Ely area remember the iron mines of a generation ago, long for those boom times, and in many cases feel compromised already by environmental protections that they feel have yoked them to a tourist economy. But as the environmental review makes clear, the proposed Polymet mine is not like the old Pioneer or Zenith mines. The costs are greater, the stakes much higher. The wilderness, if it's protected, is forever. The mine is for a few decades and the damage potentially forever. This is not just the wrong place, it's the wrong mine. It's not right to risk the benefits of future generations to appease the narrow, nostalgic demands of this one. Thank you for listening. Tim Gihring 241 Russell Ave S. Minneapolis, MN 55405

Tim Glenn 38785

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Tim Grebner 10196

I think it unwise to jeopardize water supplies for 500 years for short term jobs. Mining built the iron range communities and Minnesota has benefited from mineral extraction. But this type of mining is simply too risky. How can we sacrifice the water quality for 500 years. Who will pay for the ongoing water treatment. The length of water treatment is longer than our nation has existed. The proposed mine is simply wrong for our state and future generations.

Alphabetical by sender's first name

Tim Harrison 38378

Go Polymet. Minnesota with out mining would be much different, it's what has allowed generations to live in this great state. Now we are faced with a new type of Minnesota mining with more oversight than ever before. Mining, it's in our blood, culture, it's who we are. Go Polymet. Tim Harrison 612-363-6496

Tim Haussner 39143

Mar 11, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mr Tim Haussner 205 Fireweed Ln Grand Marais, MN 55604-2153 (218) 370-2154

Tim Iverson 44267

Dear Sir or Madam - I am very skeptical that Polymet's projected environmental impact will be minimal. You can count me in as a citizen against the mine going forwaRd I am originally from the Iron Range, and actually worked for a period of time at the old Erie Mining Company located where Polymet wants to mine now. LTV took over the Erie mine. After LTV closed, 6-5 million has already been spent to deal with the sulfide runoff from the Dunka mine pit. The original estimate was far less, as I'm betting the same for the cost of environmental cleanup with Polymet. No one can be sure of the consequences when copper and other like metals are mined. The backbone of the Iron Range, the mining of iron ore, is far less passive than the natural oxidation of metal sulfide materials resulting in sulfuric acid. The Dunka mine proves that mining even iron ore can result in the release of sulfuric acid, due to trace metals in the exposed waste rock. So, we get 300 new jobs, in exchange for decades of inevitable cleanup of the water, soil, and probably air. That hardly seems like a good tradeoff. I've been told by my brother-in-law, who lives in Virginia, to butt out because I live in Duluth and the mining is done on the Range. Well, my answer to that is the exposed rivers, Partridge and Embarrass eventually flow into the St Louis River, which flows into Lake Superior, which Duluth is located on. Lake Superior is now just getting her health back after years of dumping by other mines and Honeywell barrels. And now we are asked to trust Polymet. Tim Iverson Duluth MN

Tim Johnson 42999

Dear Ms Fay, Last night a group of us met at our church as part of our faith in action work during Lent. We took time during worship to write letters about issues of particular concern. I have chosen to write to you about the PolyMet mining issue. That letter is attached. Sincerely, Dr Timothy M. Johnson Cherokee Park United Church 371 W. Baker St St Paul, MN 55107 cpuc@usfamily-net 651-227-4275 www.cherokeeparkunited-org

Tim Karst 38647

To Lisa Fay, I am writing this email in support of PolyMet Mining's proposed NorthMet project. The jobs that will be created and the taxes that will be collected are needed to keep Minnesota an economic leader. I am not from northern Minnesota but these jobs are needed for the livelihood of the families that live there. The Minnesota DNR has the most stringent mine permitting process in the country and I have confidence that this mining can be done safely with no damage to the enviroment. Hopefully this will be decided by good science and not be political. Thank you for the opportunity to comment. Tim Karst 3180 Abert Ave NE Buffalo, MN 55313

Alphabetical by sender's first name

Tim Lundahl 15404

I have reviewed the scientific documentation regarding the PolyMet copper nickel mining proposal and I do not believe that approval of this project is in the best interests of Minnesota. As a supporter of iron and taconite mining, I understand the challenge of balancing of environmental concerns and local economic interests. The PolyMet mining proposal, however, has far more long range negative environmental impacts than iron mining ever has. Water quality will be impacted for centuries and we have no experience in knowing how to deal with this for such an extended time. The track record for similar mining operations in our country is filed with failures. These failures include serious water pollution, corporate bankruptcies, insufficient dollars for environmental remediation and mismanagement. It is folly to even suggest that the DNR or any other agency can develop a plan that will "guarantee" water treatment for centuries to come at no cost to the taxpayer. The relative few number of jobs this project would create and the fairly short life span of the mine do not justify the long term financial and environmental liabilities that this proposal would create for Minnesota's citizens. It is for these reasons that I firmly oppose this PolyMet project. Please reject this and all cooper nickel mines in this part of Minnesota for the good of all Minnesotans. Thank your for considering my views. Tim Lundahl Lakeville, MN Sent from my iPad

Tim Melby 42651

See attachment

tim mikkelson 12156

TIM R. MIKKELSON, 813 Olaf Ave NW. Willmar, Mn. 56201 I will keep this short. I am greatly opposed to sulfide mining in northeastern Minnesota. This area is one of Minnesota's finest and is visited by people from the world over. To think that the mining would produce millions of pounds of material that would have to be monitored and treated for many, many lifetimes (and would most likely end up being the taxpayers responsibility, as with most mines) is TOTALLY UNACCEPTABLE.

Tim Minotas 23726

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt I simply can not let you pollute such a pristine lake and any water way. Everything on this planet is interconnected. Humans are not above everything else. We need the environment and its healthiness in order to survive in the long run. Enough is enough with dirty mining and energy practices that not only contributes to climate change, but damages many people's and species way of life and health. The Great Lakes and its surrounding systems are one of our most vital resources, we can't afford to degrade. Sincerely, Tim Minotas 3622 Oakmonte Blvd Rochester, MI 48306-4791

Tim Nesbitt 44971

Sent from Windows Mail

Alphabetical by sender's first name

Tim Peschman 38454

I work within the Environmental Remediation field; providing services, equipment, and technologies for removal of organics and inorganic contaminants from contaminated groundwater and surface waters for potable, non potable, NPDES discharge, and water reuse. In my experience, I have not seen ANY hard rock mining operations that have successfully provided treatment during and after their mining operations. The 30+ Superfund hard rock mining sites that the EPA has is testament to this. Though I make my living treating this contamination, it makes more sense to me to eliminate the contamination in the first place; ie remove or completely eliminate the source. The various hard rock gold and precious metal mines, dating back to the middle 1800's have proven that our human nature is to make a profit irrespective of the environmental impacts. And their legacy is being borne on the backs of taxpayers, based upon ARRA funding, local bond issues, increased local water costs, etc The ASARCO and Anaconda mines continue to be problems without (easy) solutions that, because of their chemistry, will continue to generate soluble heavy metals into already contaminated discharge. Only recently, the Pebble Mine, a precious metal mine proposed in Alaska, but located near a strategic salmon fishery, is being reviewed and/or delayed/restricted because of its potential environmental impacts. Why, I ask therefore, are the impacts to the Superior National Forest and/or the Boundary Waters Canoe area, if PolyMet is allowed to do their open pit mining, not of the same strategic value. Clearly, these were designated as strategic wilderness areas and in this evaluation, went through years of public and private scrutiny for this designation. The coals mines within British Columbia, operated by Teck Coal have contributed significant heavy metals contamination to the various watersheds that drain into Lake Koocanusa in NW Montana. Though this is not hard rock mining, the resultant heavy metals released into the environment are having a significant effect. This is also true for the phosphate mining occurring on the Snake River in ID. My point is that the mining industry is only recently working to start compliance with their discharges. Heretofore, it has been too easy for them to litigate for delays or claim insolvency to avoid their environmental responsibilities. I believe that PolyMet has included all of the "patently right" answers to questions in their SEIS review. These are more politically correct than environmentally correct. I don't believe that taking the waste sulfide-bearing rock and encapsulating it with water within a pit is the best or even a good alternative for disposal. There is no GOOD disposal alternative to eliminate the possibility of anoxic growth of sulfur-reducing bacteria, outside of maintaining an aerobic environment and/or presence of some sort of bacteriostat. I work with Reverse Osmosis systems all of the time and I can testify that they 1). Require a significant amount of maintenance, 2-) Have a long track record of plugging from precipitation of inorganics and silicates on the membrane surface, and 3-) Are prone to bacterial fouling, particularly in bacterially active waters, such as will be developed at this site. Without some sort of additives (pH control, sequestrants, cleaning systems, etc) which could impact the environment (I didn't see any discussion of this within the SEIS), they will fail. Without some form of redundancy, they are not reliable. The SEIS indicates that there will be no impact to water flow within the Boundary Waters - that all water flow will be to the St Louis river watershed and ultimately to Lake Superior. Given the volume of water to be used within this facility and the wastewater discharge points, there will be considerable reversal of flows within the various rivers, changing the hydrology of the area. There is proof of this in many of the hard rock mines that are presently operating and/or disch

Tim Stevens 39810

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Tim Stevens PO Box 602 Cloquet, MN 55720-0602 (218) 879-0227

Alphabetical by sender's first name

Tim Wallace 4143

Dec 22, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. If this mining ;proposal is allowed to go forward it will only be the beginning for how do you stop future proposal when this one gets approved. Impacts are cumulative as well as specific for each mine regardless if it is surface or underground. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands and harm to fish and wildlife. I own a nice piece of property on the St Louis River and I will be directly affected by the discharge of contaminates from the PolyMet Mine for the rest of my life if it is allowed. PolyMet has a short life, the rivers and water are needed forever by all life in and near the river. This project must be measured by the standard of short term vs. long term. The decision will be easy and it will be NO if this metric is used. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Tim Wallace 8982 Norway Ridge Rd Zim, MN 55738-8037 (218) 744-4206

51599

Dec 22, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. If this mining ;proposal is allowed to go forward it will only be the beginning for how do you stop future proposal when this one gets approved. Impacts are cumulative as well as specific for each mine regardless if it is surface or underground. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands and harm to fish and wildlife. I own a nice piece of property on the St Louis River and I will be directly affected by the discharge of contaminates from the PolyMet Mine for the rest of my life if it is allowed. PolyMet has a short life, the rivers and water are needed forever by all life in and near the river. This project must be measured by the standard of short term vs. long term. The decision will be easy and it will be NO if this metric is used. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Tim Wallace 8982 Norway Ridge Rd Zim, MN 55738-8037 (218) 744-4206

timlndbrg@yahoo.com 46090

Lets get this done and try to help the folks in northern mn with gainful employment, help our ayates economy lord knows it wouldnt hurt, and help mn be a bigger player in the global market place. Lets get this done and get it up and running. HYPERLINK "https://overview.mail.yahoo-com/mobile/..src=Android"Sent from Yahoo Mail on Android

Alphabetical by sender's first name

Timm Frankowski 9749

Dear Minnesota DNR, My Wife Susan and I are unable to attend the St Paul River Center meeting concerning Polymet's Open Pit proposal for mining in Northeast Minnesota but we want to go on record in opposition to Polymet's proposal. As land owners in Lutsen Township in Cook Co.,we know first hand how precious and fragile the water resources are in the Lake Superior watershed, the surrounding Superior National Forest and the BWCA. We oppose Polymet's proposal for the following reasons: 1) Polymet's SDEIS water model is seriously flawed. The most recent MN DNR report shows the actual rate of groundwater base flow is 200-300% higher than the rate used in Polymets SDEIS. Accurate groundwater rates are crucial to predict pollution and seepage of waste into the Partridge River. The SDEIS must be re-modeled to make it accurate. 2) The long term treatment of waste water at the mine sites and processing plant of possibly hundreds of years and the cost of which that would be put on the backs of future MN generations is outrageous. The jobs that Polymet is proposing are far outweighed by the environmental cost of the cleanup that will have to take place over a very long time. 3) Lake Superior is an international gem bordered by exceptional lands in Northeast Minnesota. The Lake is under siege in so many ways. Water compacts between the Great Lake States and Canadian Provinces in the Great Lake watersheds are trying to protect these natural wonders. The BWCA is Minnesota's most pristine wilderness area. Why would we want to risk this truly special area to the degradation that this type of mining would certainly impose. Please extend the comment period and take a closer look at the true impact that Polymet and those mining companies that will follow on our state's precious water resources and our most pristine wilderness areas. Sincerely, Timm and Susan Frankowski 4928 Chowen Ave S. Minneapolis, MN 55410 e-mail: HYPERLINK "mailto:frankowtimm@gmail-com"frankowtimm@gmail-com 24 Alpine Overlook Lutsen, MN 55612

Timothy Bassett 16504

Feb 19, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Timothy Frantzich 38768

Please do not allow Polymet on National Forest land. It's really a crime to think this is being considered. Lake Superior and the BWCA are gems, not just of MN, but of the whole world. Water is becoming a very important future issue. This is a no brainer. Timothy Frantzich 6122726265 Sent from my iGnome On Mar 11, 2014, at 6:15 AM, "*NorthMetSDEIS (DNR)" <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

39552

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. This mine is slated to be built on pubic land. We do not want it. This is not right. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Timothy Frantzich 11586 Palisade Ave N Stillwater, MN 55082

Timothy G Lerick 54646

See attachment

Timothy Larson 43967

Dear Ms Fay, Dear Federal and State Agency Leaders: I lived through the Reserve Mining controversy of the 1970s and hope we will never see such abuse of our waters by the mining industry in our state again. The PolyMet proposal and others could create less direct but equally significant probleMs One issue that concerns me is mercury. The SDEIS briefly claims that that mercury will not leach into the Partridge River at the site of mines and waste rock sites, but the assurances are contradicted by admissions that metals could be affected by groundwater flow-which has not been adequately assessed. What really concerns me is the source of power for this very energy-intensive kind of mining. The state of Minnesota has clean energy standards that we should be striving to meet, including reducing emissions from coal-fired power plants in a part of the state that is already troubled with mercury in our waters. This issue needs discussion. Mining in Minnesota should make our state a better place. The mineral resources of our state could help us to achieve our clean energy goals. Owners of mineral rights do not have the right to pollute our land, air, and waters-directly or indirectly. The issue of mercury is not adequately described in the SDEIS. The PolyMet SDEIS is still inadequate. Thank you for considering this comment. . Respectfully, Tim Larson Duluth, Minnesota Timothy Larson 3113 Wellington Street Duluth, MN 55806 (218) 724-6963

Alphabetical by sender's first name

Tina Keller 41997

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Tina Keller Cottage Grove, Minnesota

Tina King 41869

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Tina King Minneapolis, Minnesota

Tina Kuzminski 39874

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mrs Tina Kuzminski 401 41st Ave NE Columbia Heights, MN 55421-2866

Alphabetical by sender's first name

Tina Miranda 40705

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Tina Rhea 26344

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, These are my comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining, never done before in Minnesota, threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Everywhere else sulfide ore has been mined, it's polluted the waters with acids and heavy metals. I have serious concerns about this project's potential impacts on the region's natural resources and public health, including risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Tina Rhea 3 Ridge Rd Unit E Greenbelt, MD 20770-2958

tisa paradox 46042

Thank you for responding. I look forward to future updates. Sincerely, Julie A. Jeatran On Tuesday, March 11, 2014 5:09 PM, *NorthMetSDEIS (DNR) <NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

Todd Ballen 16205

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Todd Bergerson 39902

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Todd Bergerson 3191 1/2 Domich Rd Ely, MN 55731-8405

Todd Burras 38834

To whom it may concern: As property owners on White Iron Lake near Ely we believe the PolyMet SDEIS is inadequate and we oppose any mining project, including the one being proposed, that threatens the water quality of the Kawishiwi watershed and the Boundary Waters Canoe Area Wilderness. Todd, Stephanie, Andrew and Elizabeth Burras 116 Sunset Road Ely, Minn. 55731 and 2304 Van Buren Ave Ames, Iowa 50010

Alphabetical by sender's first name

Todd Ernest Barkus 57240

I think the PolyMet operation, and all similar proposed operations do not adequately address the long term and short term impacts of the pollution that will be produced. I think these operations should not be allowed to proceed. We cannot build an economy on processes that destroy the environment. Thank you.Todd Ernest Barkus4570 Merganser DrMinnetrista, MN 55375

Todd Johnson 40283

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Todd Johnson 322 River Woods Ln. Burnsville, MN 55337 US

Todd Lyden 7399

To Whom it May Concern, I am confident that the Supplemental Draft Environmental Impact Statement (SDEIS) gives regulators the information they need to issue PolyMet Mining permits to operate while protecting natural resources. The PolyMet project has been designed to minimize environmental impacts. It reuses an existing site (the old LTV mining site) and existing infrastructure, minimizes the disturbance of wetlands, and utilizes multiple safeguards to protect the environment. PolyMet will also have dramatic, positive socioeconomic impacts to a region that has been built on mining. This project is located in an area that supports mining and the jobs it will bring. An added benefit is the land exchange with the US Forest Service will open up new public recreational opportunities for all Minnesotans. Todd Lyden | Vice President - Industrial | HUNT ELECTRIC CORPORATION NORTH DIVISION | 4330 WEST FIRST STREET, SUITE B | DULUTH, MN 55807 (PHONE 218-624-6513 | (CELL 218-348-1024 | (FAX 218-624-6534 * EMAIL: HYPERLINK "mailto:tlyden@huntelec-com"tlyden@huntelec-com | " HYPERLINK "http://www.huntelec-com/"Website | " HYPERLINK "http://www.facebook-com/#./pages/Hunt-Electric-Corporation/119124678110398-ref=ts"Facebook P Please consider the environment before printing this email. _____ *CONFIDENTIALITY NOTICE*: This email is for the use of the intended recipient(s) only. If you have received this email in error, please notify the sender immediately and then delete all copies. If you are not the intended recipient, you must not keep, use, disclose, copy or distribute this email or the information it contains without the author's prior written permission. The information contained in this communication may be confidential and may be subject to the attorney-client privilege. If you do not wish to receive similar electronic messages from us in the future then please respond to the sender to this effect. We cannot accept liability for the content, views or opinions expressed in this e-mail. We cannot accept liability for any loss or damage caused by software viruses.

Alphabetical by sender's first name

TODD M 45408

Todd Flankey 19996 Rendova ST NE East Bethel, MN 55011 Bullet points that I feel are important and in support of Polymet are as follows: *I support PolyMet Mining and believe they will build and operate a mine that complies with all regulations and protects the environment. *PolyMet will contribute to the local and state economy at a time when we really need the jobs and economic benefit. *I'm proud that my investment dollars are being spent here in Minnesota by Minnesotans. Our economy needs these jobs. *PolyMet will be a domestic supply of critical metals needed in medical applications, electricity, catalytic converters, cell phones, computers and other essential products. *Enough is enough; let's get on with permitting this mine. We want jobs. Regards, Todd Flankey

Todd McGillivray 10721

Ms Lisa Fay I am writing in support of the PolyMet project and the SDEIS. My family and I live on Sabin Lake (the 1st of the chain of lakes on the Embarrass River). We have been following the project for 9 years. We built our dream home there 3 years ago. We support the project. The SDEIS is an amazing document. Comprehensive, informative, complete. It's time to move on to the Permitting process. One comment about the Public meeting system. I don't believe people should be allowed to speak when their presentation is full of lies and inaccuracies. Public comment at the meetings would be much more informative and useful if one or all of the lead agencies would have time to respond to the speakers presentation with factual information. The system that was used was very unfair to the PolyMet project. Todd McGillivray 6525 Voyageur Trail P.O. Box 531 Biwabik, MN 55708

Todd Saatoff 47150

I have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I'd also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws. We cannot afford to miss this job opportunity. Companies that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. P.s I was laid off last march after working in the printing industry for over thirty years. I am attending Hibbing community college and taking the industrial system technology program in hopes that I can find a local job in mining, we need these jobs. I can't count on getting unemployment like I was promised while I'm in a retraining program that I now can't afford thanks to my government. Having never drawn on unemployment, after working for over thirty years, where is my aid when I need it. I don't want a hand out, I want a job. Todd Saatoff 510 east 25th street Hibbing MN 55746 Sent from my iPod cause I can't afford an I

Tolvo Sober 54157

Poly Met's proposed copper-nickel mine has the potential to pollute our environment for hundreds of years, far beyond the life of the company. The mine should not be allowed. [Text of original "I support PolyMet Mining" card crossed out, altered, or clearly disagreed with.]

Alphabetical by sender's first name

Tom 20080

I am writing this email comment in support of the Polymet Mining project. I am a geologist who has worked in the environmental consulting industry for the past 20 years, and have lived on the iron range most of my life. Although my employer has no contracts with Polymet and I have not worked on any projects for Polymet, I support the project based on a review of the SDEIS documents. Minnesota has some of the most protective environmental regulations in the nation, and the SDEIS outlines how Polymet's mine and plant operations will meet these standards. I believe the plans for the lined stockpile areas, in-pit subaqueous waste disposal, and treatment of tailings pond effluent provide key methods for reduction of potential impacts of waste rock and wastes generated by the project. In addition, the land swap provides for mitigation of biologic and wetlands impacts. Financial assurance laws in Minnesota outline standards that will ensure Polymet will honor its responsibility for long-term treatment and reclamation of the site. As a geologist I see the value of mining these strategic metals, especially Ni, Co and PGE elements, of which the US does not have a ready domestic supply. The Polymet project will provide valuable jobs on the iron range, where metal mining has been conducted in a safe, sustainable manner for over a century. I believe that the Polymet Mine will be an asset to the state and the country, and can be operated with an eye toward environmental stewardship. Respectfully, Tom Muhich, PG, CHMM 7957 Horseshoe Lake Dr Eveleth, MN 55734

Tom and Dana Vogen 43570

Comments submitted by; Thomas Vogen 21621 Oldfield Ave N., Scandia MN 55073 I believe it is unconscionable to create pollution that would need to be treated for centuries if it can even be done effectively. If we make decisions based primarily upon jobs and money, the destruction of the earth will continue unabated. My opinion is that a healthful and beautiful planet will take care of us physically and psychically and I sincerely hope this mine permit is not approved.

Tom and Julayne Johnson 45248

The answer to mining for copper and nickel and other minerals by PolyMet is very simple: If they cannot 100% guarantee that there will be no environmental damage and especially to our water supplies and Lake Superior, then mining should not be and never be allowed. Even though employees will be living in the affected areas, I'm sure the upper management will not be and therefore not be affected by any damage. My drinking water comes before any job. Tom and Julayne Johnson

Tom and Mary Schutz 44295

Dear Ms Lisa Fay, I feel very strong that there should be NO MINING I support the MEPA and the Minnesota Environmental Rights Act (MERA) prohibit state agencies from permitting projects that will cause pollution, impairment, or destruction of the environment. Just because they can does not mean they should. Our country does not need this mineral. This is just another get rich quick idea that will leave pollution expense that they, the company, will not be around to clean up and pay for the pollution expense later. We the people, our country and the planet earth does not need this kind of waste and havoc to our land, water and environment. Thank you for hearing my concerns. Sincerely, Mary Schutz 03-13-2014

Alphabetical by sender's first name

Tom and Sandy Ahlstrom 15552

Feb 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuri

Tom Anderson 7145

Three hundred some jobs for twenty years . For the trade off of polluted sulphite contaminated water that will possibly need to be treated for up to four to five hundred years The proposal would be laughable if it weren't being actually seriously considered. At what point do you just say no It is Minnesota Water Not some murky crappy silty Colorado River water. It is the North woods The Land of 10,000 Lakes NOT the land of 10,000 sulfite mining polluted lakes. Despite the "best" safeguards industrial accidents happen all the time. Spills happen. No matter how careful companies say they can and will be, there continue to be spills and accidents. Is one of the states most precious resources worth tainting and polluting. Since every living thing cannot survive without water, just how much pollution is acceptable for the entire ecosystem If you are truly the Department of Natural Resources, then you would do well to protect the RESOURCE that no living thing can live without . Water "The best way to keep the camel out of the tent is to not let him put his nose in to begin with." I say no to this kind of mining in the State of Minnesota. Most sincerely, Tom Anderson 10745 Penn Ave South Bloomington, Minnesota

Alphabetical by sender's first name

Tom Anderson 46869

To Whom it May Concern, As complex an issue this is, and without sounding absurd, I feel it is my responsibility to voice an opinion that might reflect the voices of the mute. . . the flora and fauna of northern Minnesota. We are the only species on the planet that can declare the health of the planet. That is a might responsibility. Consequently, I am opposed to any mining that compromised the natural systems found there. I realize I am part of the problem because like all Americans, I am a consumer. But I am willing to step back, consume less, cheer for innovation and work towards a future that honors all life. Thanks for the opportunity to share. my best, Tom Anderson 8010 275th Ave NE North Branch, MN 55056 - Tom's Blog: http://www.aligningwithnature-com/ Buy this book from: AMAZON HYPERLINK "http://www.amazon-com/s/ref=nb_sb_noss.url=search-alias%3Dstripbooksandfield-keywords=Things+that+Bite.+.+.+Great+lakes+editionandrh=n%3A283155%2Ck%3AThings+that+Bite.+.+.+Great+lakes+edition"Things that Bite: The Truth about Critters that Scare People Four regional editions available: Great Lakes, Gulf Coast, Southwest and Rocky Mountain)

Tom Anderson and Kathryn Hagen 36387

Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Thank you for your consideration. The Boundary Waters and adjacent areas are a precious natural resource benefiting the entire state and should be protected. Kathryn Hagen 4603 Drexel Ave Edina, MN 55424

Tom Beaudry 6420

My name is Thomas H. Beaudry and I a reside at 303 East Vermilion Blvd in Cook Minnesota 55723- I support precious metals mining by PolyMet. I have read the EIS and have listened to both sides of the argument. There is no reason to block Polymet from proceeding under the guidelines established by the DNR. Tom Beaudry Recruiter Valor Partners, Inc Roanoke, VA 24016 540-446-5116 Office 218-750-1247 Cell www.valorpartners-com Description: Valor Resize Outlook

Tom Bittinger 21635

Dear Ms Fay, Dear Ms Fay, I am writing to urge the rejection of the sulfide mining projects in northern Minnesota. It is extremely disappointing to me that something as potentially harmful to the natural legacy, health, and economic well being of current and future generations should even be considered by those with the responsibility of looking out for the interests of all citizens. The negative environmental impacts that result from these mines are more than common, they are almost inevitable. Allowing this activity in an area of such natural beauty and environmental uniqueness would be wrong even if only considering the protection of this important natural resource. To take these risks where so much of the area’s economic livelihood depends on those unspoiled natural qualities seems unconscionable. The benefits of projects like these are temporary and most of them (corporate profits) go elsewhere. I would also like to express my belief that short public comment period on the Supplemental Draft Environmental Impact Statement (SDEIS), as well as the timing of the limited public meetings, certainly gave the appearance that there wasn’t any real interest in what the public thinks about this issue and that a decision has already been made. Having such a short and limited opportunity for public comment on this long, confusing, contradictory and misleading statement was unfair. I am very concerned that this important issue will turn out to be another example of how those making policy decisions that effect everyone often operate in ways that benefit powerful corporate interests over ordinary citizens. Sincerely, Tom Bittinger 133 Sawmill Drive P O Box 186 Lutsen, MN 55612

Alphabetical by sender's first name

Tom Canning 51586

Dec 23, 2013 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Thanks for considering my comments. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Tom Canning 511 17th St N Moorhead, MN 56560-2356

Tom Carious 18162

Hi. My name is Jim Leuthner, L-E-U-T-H-N-E-R. And I'm from Carpenters Local 322. And I'm going to yield my time to Tom Carious. TOM CARIOUS: Good evening. My name is Tom Carious. I live here in St. Paul, Minnesota. I want to thank each of the agencies involved for participating in this process, for producing this rigorous and thorough SDEIS, and for taking citizen input in consideration. One of the things that makes this a great place to live is the lively civic engagement, governmental transparency, and democratic participation that we enjoy. We also enjoy high standards of living, clean water, strong unions, a beautiful environment, and well-functioning, corruption-free governmental agencies. These are all things that I value highly. Other people have spoken tonight about the reason that we need copper, nickle, and other precious metals. So I won't go into detail, but I do want to point out that those of us that are concerned with reducing our carbon footprint specifically rely on copper for our wind turbines, for the solar panels in the parking ramp across the street, for the electric car charging stations in the parking ramp, and the power of the light-rail trains that will open this summer in St. Paul. In fact, we in the US are among the world's leading consumers of copper. We consume significantly more than we produce or can recycle. I haven't heard anyone tonight or throughout this debate deny this fact. There's no movement to stop the use of copper or any of these metals. So if it's a given that we're going to continue to use copper and other strategic metals, the only question is: Where should we get it? Right now some of the biggest copper mining countries in the world are Chile, Peru, China, Indonesia, Russia, Zambia, Poland, Kazakhstan, and Iran. I believe that we here in Minnesota and the United States are very privileged to demand that companies looking to open a new mine go through this very thorough process and be subjected to the level of scrutiny that all of us are applying to them right now. I'm concerned that some opponents of this proposal want to enjoy the benefits of copper without considering where it from, what the conditions for workers are in those places, what environmental regulations are in place there, or what the process is for citizen input those countries have. Do we think that public agencies in Russia, China, and Iran hold public comment periods and respond in a meaningful way to citizen input? Is it just or equitable to say that we can't produce the metals safely here in Minnesota while continuing to drive the demand for them. I believe that we here in Minnesota and the United States are in the best position to mine these metals. Better than any of the existing mines in any of the other countries that produce them. We have the strictest environmental regulations to protect our water; the strongest unions to ensure worker safety and good wages; we have public agencies full of technical experts controlled by democratic processes that value citizen input. I trust the DNR and the partner agencies to ensure that PolyMet mines responsibly in this state. I'm sure we can do it better than anywhere else.

Tom Casey 42960

Dear Ms Fay, Attached please find my client’s comments. Please acknowledge receipt of this e-mail. Thank you. Thomas E. Casey Attorney at Law 2854 Cambridge Lane Mound, MN 55364 telephone: (952) 472-1099 e-mail: tcasey@frontiernet-net

Tom Clarke 57954

We cannot allow massive copper nickel sulfide ore mining in NE MN. The threat to air and water especially the St. Louis River watershed & Lake Superior is too great. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Tom Conrad 42601

See attachment

Alphabetical by sender's first name

Tom D 45857

I support the Polymet mining project. Tom Dokulil 3677 73rd Street East, Inver Grove Heights, Minnesota 55076

Tom Diener 44187

Hello, I would like to provide a few comments regarding the proposed Polymet Mine operation in Northern Minnesota. I have attempted to learn as much as is reasonably possible in order to understand the issues involved and the nature of the concerns, objections, and benefits. As an earth science teacher and a seasonal Minnesota DNR parks worker, I attempt to understand, and when required present the issues in an even-handed and balanced manner. I appreciate the care, rigor and science that has gone into the proposal. Broadly speaking, there is much at risk with this project. Taking a historically dirty industry and operating it close to a nearly pristine wilderness area seems absuRd If I could be assured that there is adequate protection in place I could support the plan but as I understand it, the level of funding for protection of the environment will be not be determined until after the plan is approved. It feels like a backward approach. Funding for unforeseen problems needs to be addressed now. Although it could apply to other situations, enforcement of regulations safeguarding the environment including water quality is an important consideration. Who will be the enforcement agency, several hundred years from now, to deal with harmful tailings runoff if they occur. Thanks, Tom Diener 5818 Morning Star Drive Duluth, Minnesota 55804

TOM DIMOND 43109

Tom Dimond 2119 Skyway Drive Saint Paul, MN 55119 March 13, 2014 RE: Comments on PolyMet - NorthMet SDEIS My family came to America in the early 1600's. Their survival was dependent on finding a way to make a living. Thankfully, our founding fathers and mothers did not choose to pollute the land such that we would still be working to clean up their mess nearly 400 years later. Part of my heritage is Mohawk. A strong Native American tradition is we are caretakers of mother earth and we should respect and protect our natural resources for the benefit and enjoyment of future generations. My comments are based on the understanding that the quality of our lives are in great part the result of actions of our ancestors and our actions will impact future generations. What we decide to do today will affect generations that are not born yet and have no voice in these decisions. They will however live with the pollution and natural resource degradation they had no say in. We must be their voice. Some have suggested we should create 500 years of pollution for short term jobs and the latest electronic gadget. We all have to ask ourselves if a gadget that is outdated in year or a job that disappears in 20 is worth polluting our State for 500- The negative impacts to our State greatly outlast the short term benefits. The SDEIS does not include the full economic picture. Tourism is a major employer in Minnesota. Attracting and retaining businesses is Minnesota is highly dependent on the quality of life and the natural environment. Degradation of the environment and potential financial liabilities from 500 years of cleanup could cause job losses that greatly exceed any temporary gains. The Cumulative Effect or Cumulative Impact has not been adequately considered. The proposal indirectly impacts 6,498-7,350 acres of wetlands, and directly impacts 912 acres of wetlands. The proposal impacts 1,741 acres of MN high biodiversity significance and 698 acres of imperiled or vulnerable native plant communities. The Federally listed Lynx will be affected by fragmentation. A large black spruce, tamarack, and cedar wetland, a lake, creek and river are impacted. The impacts can be 200 to 500 years or permanent but the jobs only last 20 years. In order to maintain the jobs it requires approving another project every 20 years. This would have a cumulative effect of 10 times the impacts of this project before any of the polluted site is cleaned up. This ever expanding area of pollution can have significant impacts on the attraction and retention of business in the State. These impacts are not adequately considered in the SDEIS. Cumulative effect also applies to the protected publicly owned land in the Superior National ForeSt Much of the proposed mine site is federally protected land in the Superior National ForeSt The Weeks Act protects this land. PolyMet proposes swapping privately owned lands in the Superior National Forest for the 6,650 acres of federally protected public land. This proposal is contrary to protection of the wetlands and natural resources within the boundaries designated. The land they want to trade is not currently threatened. If the US Forest Service does not agree to the swap the amount and quality of wetlands will not diminish within the boundaries of the Superior National ForeSt If the US Forest Service does agree to the swap there will be thousands of acres of wetlands lost or degraded within the boundaries of the National ForeSt This proposal does not call for the restoration of wetlands that have been loSt The US Forest Service should not support a proposal that causes a net loss and degradation of existing wetlands. The Forest Service should consider the cumulative effect. State law calls for mine closure to be stable and minimize hydrologic impacts, release of substances, and maintenance free. The modeling for water flow and assumption that 99% of the flowage and seepage will be treated

Alphabetical by sender's first name

Tom Drill 6337

The Iron Range is my favorite place in the whole world. We have a cabin on Lake Vermilion that has been in my wife's family since 1936- We took that property over in 1991- There are 3 different watersheds in the Duluth complex. Polymet has mitigated the problems in the watershed where they operate. This area is an economic wasteland without this project. This project will transform the area into a vibrant and sustainable economy with jobs and services for over 100 years, possibly 200 years. This area is mining rich with other projects on the horizon. They all depend on the same infrastructure and many of the same resources. As a result of the mining trust that benefits the public schools the MN department of education will become richly funded for a century or two. This deposit is possibly the largest in the world. Developing countries are starving for these raw precious metals. The timing could hardly be better to pursue this. India's electric grid failed 18 months ago leaving half the country dark for a week. They need trillions of copper. China consumes 38% of the world's supply of copper. India is going to consume MORE copper than China to meet their development goals. That will drive the price north. Petroleum and copper are sympathetic to each other in price, meaning one goes up the other goes the same direction. Exporting copper is a perfect hedge against importing oil although indications point to a massive surplus in the near future for the US. A commodity surplus is never a bad thing as long as there is a shortage elsewhere in the world. I believe Washington has recognized this as evidenced by their veiled support in the arrowhead area. Polymet is seeking a 20 year permit to mine. My understanding is they will be upside down at the end of the first 20 year because of the funding for product deal worked out with their primary funding partner. For that reason I am confident Polymet WILL ensure they are a model permittee in that first 20 years so they will receive a second 20 year permit. Don't waste our fantastic resource mining provides the great state of MN. The time to act is NOW. GRANT the permitting process and if Polymet meets those conditions grant them the 20 year permit to mine. HYPERLINK "http://www.mytelepath-com/"MyTelepath LogoTom Drill, MyTelepath, Inc. Tel: 952-400-6004 | Fax: 952-400-6005 HYPERLINK "mailto:tdrill@mytelepath-com"tdrill@mytelepath-com | HYPERLINK "http://www.mytelepath-com"www.mytelepath-com

Tom Ehlinger 21326

I am writing to register my opposition to the proposed PolyMet mine in northern Minnesota. I know the arguments for the mine and I do not minimize the need of people in that area to have good paying jobs. But the idea of putting our fresh water at risk for hundreds, if not thousands of years, for at most several decades of jobs, is utterly astounding. It rises to the level of madness. We're talking not just jobs but the very essential elements of life. Water - fresh water - is what makes life itself possible on this planet. We have a finite amount of water - earth is a closed system and more water will not be created. Recycled from form to form and place to place - yes. But once it is contaminated, it will take generations upon generations to gradually clear up. Hubris has been the downfall of every great civilization. We know that every great culture throughout history has overreached its grasp - all the time thinking that they were capable of controlling the world they lived in. Over the past millenium, humankind has come to think that it can always find a technical solution to every problem. But we can't - especially it we think that we can forecast what will be possible over the next 500 years. The United States has not even been in existence that long. Please, for the sake of my children, grandchildren, great grandchildren, and great-great grandchildren, prevent this mine from being created. Tom Ehlinger 9937 Alabama Road Bloomington, MN 55438 952-897-1749 HYPERLINK "mailto:tomehlinger@gmail-com"tomehlinger@gmail-com

Tom Elisekson 57971

Sulfide mining is notoriously environmentally hazardous. The last place to approve a mine like this is near environmentally sensitive areas. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Tom Fiero 38703

Dear Sirs, In regard to the PolyMet NorthMet SDEIS: Polymet states that the actions it has agreed to take to mitigate water contamination are unprecedented in scope. However, this is not good enough-if mitigation efforts end before the threat to water quality ends. Polymet's modeling for contamination and mitigation stop at year 200 for the mine site, and year 500 for the plant site-ignoring the fact that contamination will continue after these end dates. Will the state of MN and its taxpayers then assume the burden of continuing the necessary mitigation actions. Furthermore, the SDEIS modeling of groundwater movement at the mine site uses a Partridge River estimated baseflow of 0-51 cfs, which is not realistic. Actual measurements east of the mine site establish a baseflow that is several times higher. As a result, SDEIS predictions for the amount of sulfates and other pollutants entering the river are probably low. Significant quantitative errors in the SDEIS need to be corrected, and the corrected document should then be subjected to further review. In addition, Polymet must guarantee adequate permanent funding for pollution mitigation actions, rather than assuming that the problem of water contamination by copper, lead, mercury and sulfates will disappear after some arbitrary end date. 200 or 500 years seems like a long time to you and me, but this is only the span of a few human lives. We need to consider how our actions today will affect future generations. Thank you, Tom Fiero 271 Devil Track Road Grand Marais, MN 55604

Tom Finholt 40417

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Tom Finholt 212 Timber Wind Dr Wildwood, MO 63011 US

Alphabetical by sender's first name

Tom Finholt 40436

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Tom Finholt 212 Timber Wind Dr Wildwood, MO 63011 US

Alphabetical by sender's first name

Tom Garneau 14788

Dear Ms Fay, Dear Mr Dabney, Mr Bruner and Ms Fay: This may be a form letter but it expresses my concerns perfectly. I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. This includes a net loss of 6,026 acres of areas with high biodiversity; 2,030 acres of mature forest – replaced by 2,000 acres of immature forest; 1,400 acres of floodplains and losses of 11 endangered or threatened species. The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade. The PolyMet sulfide mine would reduce lynx habitat by two square miles, kill individual lynx, and impact 2 out of 13 remaining small corridors for wildlife to travel across the Arrowhead region. The PolyMet sulfide mine plan would also destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which dropped precipitously by 35% from 2012 to 2013- Yet, the SDEIS contains no analysis of impacts on moose from the PolyMet project. The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St Louis River and tribal resources. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice. Please take the following actions to protect clean water, ecological communities, public lands and tribal rights: •Reject PolyMet's proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. •Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. •Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. •Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. •Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. No more studies are needed to know that the PolyMet land exchange and sulfide mine should not be approved. The SDEIS plan is also inadequate and should be rejected: •The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. •The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at taxpayer expense. •The SDEIS fails to analyze alternatives, including underground mining, that could reduce impacts on lyn

Alphabetical by sender's first name

Tom Garneau 51060

Dear Mr Dabney, Mr Bruner and Ms Fay: This may be a form letter but it expresses my concerns perfectly. I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. This includes a net loss of 6,026 acres of areas with high biodiversity; 2,030 acres of mature forest – replaced by 2,000 acres of immature forest; 1,400 acres of floodplains and losses of 11 endangered or threatened species. The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade. The PolyMet sulfide mine would reduce lynx habitat by two square miles, kill individual lynx, and impact 2 out of 13 remaining small corridors for wildlife to travel across the Arrowhead region. The PolyMet sulfide mine plan would also destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which dropped precipitously by 35% from 2012 to 2013- Yet, the SDEIS contains no analysis of impacts on moose from the PolyMet project. The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St Louis River and tribal resources. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice. Please take the following actions to protect clean water, ecological communities, public lands and tribal rights: • Reject PolyMet's proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. • Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. • Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. • Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. • Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. No more studies are needed to know that the PolyMet land exchange and sulfide mine should not be approved. The SDEIS plan is also inadequate and should be rejected: • The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. • The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at taxpayer expense. • The SDEIS fails to analyze alternatives, including underground mining, that could reduce impacts o

Tom Graham 36537

I don't think you should develop The project that you're proposing. I don't think it's in the best interest of the area or for the people living there and then the people using the boundary waters canoe area. This is extremely bad for the wildlife and water creatures. we need to protect our lands and natural areas. Tom Graham Sent from my iPhone

Alphabetical by sender's first name

Tom Howell 19875

Feb 28, 2014 Ms Lisa Fay MN Dear Ms Fay, I have traveled by canoe and camped in the Boundary Waters area. It is a special place with rich biological resources and beautiful scenery. The waters were so clean that we could safely drink from any lake or stream. Places like that should be protected and preserved. Too much of our country is being polluted by chemicals produced by industrial processes. Many companies promise not to pollute, or to clean up the pollution they produce, or to "restore" the land to its previous condition. The record for fulfillment of these promises is replete with unsatisfactory results. Some of the companies go out of business before fulfilling their promises, others never live up to the promises - perhaps they never intended to, or didn't realize what the full costs of those promises would be. Too often taxpayers and local residents and local businesses are left to deal with the pollution problems and the costs of cleaning up - if, in fact, it is possible to clean up the damage in any meaningful way. With far too many pollution problems the damage can last for decades. In some cases, where livelihoods, living conditions, business opportunities, water resources, and biological resources are damaged, possibly for one or several generations, there is little that is done, or can be done, to repair the lives of those who have been adversely affected. We do not place enough value on our natural biological resources and on the clean water resources that nature provides. Those resources appear to be free of charge to us. We seldom think about the millions of years it took to produce those water resources or to produce the intricate and complex interdependent webs of plant and animal life that make up our forests and other natural habitats that provide us with many things that make our lives possible - and make our lives worth living. Once they are damaged, or destroyed, the value of those biological and water resources become more apparent. It is much easier, and more cost effective, to preserve biological and water resources before damage is done than to try to repair those resources after they are damaged. Once waterways are polluted with sulfates and heavy metals it will be a very long time before the adverse effects on fish and other aquatic life forms diminish. If fish advisories already exist for waters of the area, there should be vigorous efforts to reduce pollution rather than support for projects that will make things worse. I am very concerned with protecting our clean water. I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. Wild-rice farming will be endangered. That will affect those who depend on those crops, as well as their customers. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of year

Tom Jahnke 47214

From: Tom Jahnke 3403 56th St NE Buffalo, Mn 55313 I am writing to express my opposition to proposed mining operations in NE Minnesota. I have worked as a professional forester for over 40 years within the state and have never witnessed a successful recovery of natural resources following any kind of mining operation. Statements to protect water have been misleading in all instances. The scar upon the landscape never heals. In my home county of Wright, there are at least 40 old gravel mines that have never been "healed" after the minerals were removed. It is disgusting and a waste of our treasured lands. If the rare minerals of northern Minnesota are truly so valuable, there best be a method by which those who operate the mines can safely protect the environment and afford to pay all expenses to recover the lost resources "up front". If that is not possible, this mining proposal should be stopped in its tracks. Travel to Ladysmith, Wisconsin and Sudbury, Ontario to witness firsthand the devastation created by these types of mining operations. I always lament the use of "BORROW PITS", as mining operations refer to their sites. They never return what has been borrowed. If they must borrow something from us, let them borrow our cats. That way, we might have a chance of a few of them getting back. Thanks for allowing me to express myself. Sincerely, Tom Jahnke

Alphabetical by sender's first name

Tom Jordan 30982

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I don't know,but it seems that $rules over life especially our precious lakes and rivers..I know land has been mined on land near the Great Lakes for centuries.This effort seems to be an accident ready to happen. Try to live in an area like West Virginia or Ohio that was hill top strip mined for years and is still going on in W.VA.and Kentucky. The water is not safe to drink ..the latest spill in W.Va. had nothing to do with the mining but was directly related to not being able to drink the water in the in the first place as a result.Pollute the Great Lakes and see how much money you can come up with.Are the Koch Brothers in on this. Do they have as much money as PGandE. How many people in Minnesota are aware of this I wonder. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Tom Jordan 601 Lawton Rd Marietta, OH 45750-1123 (740) 516-8188

Tom Kapsner 42632

See attachment

Tom King 16357

To whom it may concern: I am against the polymet project or any other project that starts sulfide mining near the BWCA and lake superior water shed. I don't believe we have the technology to safely do this kind of mining at this time. Also we do not need to tap into these resources and can save them for a later time when the need will be greater and the technology more advanced. We are responsible for keeping our water and lakes safe for our children. Starting the type of mining at this time will jeopardize that. We should not be making some corporations and people rich at the expense of our heritage Regards Tom King 7259 Old No. 7 Rd Virginia, MN 55792

Tom Kolodzinski 18295

Tom Kolodzinski. My concern is that the project has not looked enough at the impact on White Water Lake. In the small bay, by the diversion works, there is a potential drop of up to 12 feet of water in that small bay, when pumping into Colby, in the initial stages. So, as a homeowner in that area, especially if it is during drought time, that ruins our opportunities or that impacts greatly, severely our opportunities in enjoying the water and what we built. And that's my concern, that they haven't paid attention to what the impact is going to be or how they are going to address it. The statement that I wish to make is that it is a simple choice. Nobody wants to see damage to the area. The mine is certainly, with that kind of money, the mining company, 600 million, isn't going to want to see damage. And those that do not support the mine have not shown evidence that this model will cause the damage. So, my suggestion is just proceeding, because we don't know, and have the safe guards to control it.

Alphabetical by sender's first name

Tom Koshiol 4734

What I have been reading and hearing about the proposed PolyMet NorthMet open pit heavy metals mine is of great concern. I have either led or participated in over 50 BWCA overnight canoe trips, including two successful moose hunts and two unsuccessful bear hunts, plus have hunted, fished, camped, backpacked, boated, and paddled in the Superior/Quetico region for much of my life, giving me great concerns about the known water quality issues associated with the proposal. Having read and listened to industry representatives and project supports, I find their comments to be shallow, short-sighted, and unsubstantiated. There does not appear to be a concrete water protection/treatment plan in place, but just vague promises that all will be taken care of. There seems to be no dispute of the number of years the mine will operate (20), the number of local full-time jobs (90), and the number of years requiring water protection/treatment (500). This is boom and bust to the max, and it does not add up. It's a ridiculous compromise to the 33,000-plus tourism jobs already in place, and that presently sustain many communities in the area. It is argued that iron mining was and is a vital part of that area of Minnesota for many years, and that the area still has clean air and water that draws many annual tourist to the area (a quarter-million annually to the BWCA alone). But this is different. The dangers associated with acid mining are astronomically larger and longer lasting that the iron and taconite mines, and the industry's track record is dismal at best – terrible in reality. We all want good jobs for everyone. I work in the HVAC industry, and we depend on plentiful work. But, again, this is different. These are very short-term jobs for a very low number of families, with the vast majority of mining profits leaving not just our state, but our country. Tom Koshiol Crow River Trail Guards "Connecting Kids to the Outdoors" Paynesville, MN 56362 HYPERLINK "http://www.trailguards-org/"www.trailguards-org 320-250-0464

Tom Kranz 47068

The YMCA of the Greater Twin Cities (YMCA) offers life-changing wilderness experiences through a variety of year-round camp programs, placing thousands of young people and families every year in the public waters of the Boundary Waters Canoe Area Wilderness (BWCAW) and nearby lakes and rivers. This pristine wilderness area has clean water and healthy forests and it is in everyone's interests for the BWCAW to remain unspoiled and unpolluted. The YMCA is aware of proposals to mine sulfide ore in the watershed of the BWCAW. In considering the permitting of any proposed sulfide mining operations, we urge decision makers to be certain that the following clean water and environmental protection principles can be guaranteed: 1- BWCAW waters and nearby lakes and rivers remain safe and clean 2- Strong safeguards are in place in the event anything goes wrong 3- Mining companies must leave the site maintenance free (in accordance with existing MN mining rules) The YMCA is committed to preserving the natural environment in and around our camps and in the BWCAW, for generations to come. We are also concerned that one of our camps, YMCA Camp Warren, operating for 87 years on Half Moon Lake south of Eveleth, is within the downstream catchment zone of the proposed PolyMet Mining NorthMet Project Site. We strongly urge careful scrutiny of proposals that have the potential to disturb or pollute the BWCAW and nearby lakes and rivers. Tom Kranz Vice President of Camp Operations YMCA of the Greater Twin Cities 2125 East Hennepin Avenue Minneapolis, MN 55413 (C) 651-295-5790 HYPERLINK "mailto:tom.kranz@ymcatwincities-org"tom.kranz@ymcatwincities-org The Y: We're for Youth Development, Healthy Living and Social Responsibility Comments Comments will be accepted until 4:30 PM CT on Thursday, March 13, 2014- Email: Submit comments to: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us. E-mail submissions should include a full name and legal mailing address. HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"Email us » Mail: Written comments may also be submitted to: Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 _____ Comments will become part of the official record and as such, may be made available for public examination. Comments and submittals will not be edited to remove any identifying or contact information; therefore, the Co-lead Agencies suggest that commenters not submit information that may cause the commenter concern if publicly disclosed.

Tom Lenarz 22052

My name is Tom Lenarz. My full address is 1123 Summit Ave Cloquet Mn 55720 I would like to submit a comment in support of the Polymet project. I have been following this process for the last 7 years. While I agree that keeping the environment safe is important, I think the management for this project has gone above and beyond to show that they can do this in a safe manner. I would like to see this comment period come to a conclusion and the permits needed to continue the project approved. Thank you for your time. Tom Lenarz

Alphabetical by sender's first name

tom lewis 57720

Dear Sir/Madam, Please be advised that I wholly support PolyMet Mining and their bid to open the NorthMet mine. Sincerely, tom lewis

Tom Lindquist 42443

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Tom Lindquist 1115 Magnolia Ln N Plymouth, MN 55441-4637

Tom McMullen 57719

I am submitting this e-mail in favor of the PolyMet project and other mining opportunities in the State of MN. I am an environmental engineer by trade and an avid outdoorsman. However, I feel the process to approve the PolyMet Mining project has been dragged out long enough. This is a valuable project for the state of MN, we have already lost enough jobs (tax base..) from our state. All of the so called “environmentalists” who are fighting this will never be convinced these mines are a good idea even though they sure enjoy their i-phones, laptops, etc the devices are all driving up the demand for precious metals. I feel the DNR has done an adequate job of holding the mining companies responsible, they have done their due-diligence, let’s move forwaRd Sincerely, Thomas McMullen, PE Industrial Reps 112 Lookout Point Buffalo, MN 55313 Cell: 612-819-3591 e-mail: HYPERLINK "mailto:tom@industrialreps-com"tom@industrialreps-com

Tom Neiman 43798

I am adamantly opposed to the proposed copper mining site in northern Minnesota. Satisfying short-term business opportunities does not serve the long-term best interests of Minnesota/the upper Midwest or its people/land/animals/agriculture. Reserve Mining is a good lesson to keep in mind. Tom Neiman 3712 France Ave S. Minneapolis, MN 55416 Tom Neiman | HYPERLINK "mailto:marsha.lapage@mpls.k12-mn.us"tom.neiman@mpls.k12-mn.us Community Education Coordinator Minneapolis Community Education | Minneapolis Public Schools P: 612-668-3100 | F: 612-668-3085 Description: cid:image003-png@01CCF2FB.E4B93D80

Tom NN 42657

See attachment

Tom Obst 42709

See attachment

tom peacock 23487

Mar 4, 2014 Ms Lisa Fay MN Dear Ms Fay, Governor, I have returned to the Northeastern parts of you state every year for a decade or more, and I began visiting the same area in 1946 for a number of years before moving WeSt The importance of clean water, undamaged environment, clean air has only grown in these succeeding years as pressures on them have increased. Requirement for Government protection of these basic resources has grown as well. It is the last public defense resisting habitat and environmental degradation, and the subsequent destruction of life. The value of profits cannot, by any rational measure, begin to compare to their value. Deny the proposed PolyMet Mine. Sincerely, Tom Peacock 43 Durham Rd Sincerely, tom peacock 43 Durham Rd San Anselmo, CA 94960-1604 (415) 453-4640

Alphabetical by sender's first name

Tom Pliska 39744

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Tom Pliska 5341 41st Ave S Minneapolis, MN 55417-2227

Tom Plocher 46110

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Glencore should be a responsible party for financial assurance in PolyMet's mine plan To Lisa Fay, MN DNR, The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. It's interim chairperson is none other than Tony Hayward, who led BP to the worst safety record among major oil refining companies. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billions in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1)Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2)Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3)Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Sincerely, Tom Plocher 9040 152nd St N Hugo, MN 55038-9117

Alphabetical by sender's first name

Tom Reinke 41553

The model used to calculate the alleged economic benefits of the mine does not take into account the costs to the environment; the displacement of other economic activity, including among other things tribal rights to hunt, fish, and gather under the 1854 Treaty; the infrastructure, government, and social service costs resulting from the mining; and the consequences of the unpredictable influx and outflow of mine employees. What would be the costs for public infrastructure, lost opportunities to engage in other economic activities incompatible with mining, depressed real estate values, lost recreational opportunities, social upheaval, and perpetual clean-up that the public would be required to bear. PolyMet admits that water pollution by sulfuric acid and heavy metals will last for at least 500 years. Not all of the polluted water will be captured for treatment. Annually, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated. Annually, 5 million gallons of polluted seepage from the mine site will enter groundwater without being treated. The SDEIS fails to adequately assess the long-term impacts of the pollution resulting from the release of this untreated water. The computer model used by PolyMet may understate the actual pollution impact, because it has been shown to be inaccurate in representing current conditions for water quality around the mine site. Thanks,

Tom Roth 16609

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Tom Roth 1989 Wellesley Ave Saint Paul, MN 55105

Alphabetical by sender's first name

Tom Roth 50003

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Tom Roth 1989 Wellesley Ave Saint Paul, MN 55105

Tom Rukavina 18194

My name is Jeff Huberty. I'm a business agent with St. Paul Plumbers Local 34, and I would like to concede my time to Tom Rukavina. Thank you. I am Tom Rukavina, R-U-K-A-V-I-N-A. I'm a third-generation Iron Ranger, and I've got a fifth-generation granddaughter who lives 10 miles from this mine and I want the same thing for her and all of our grandkids that I had, and that's a good middle-class American life, and on the Range, that means a good union mining job. We've been mining on the Range for 132 years -- I'll correct everyone tonight -- 132 years. We're proud of what we do and who we are. We are miners. And you know, right now, as we're sitting in this room, there's four mines in the Superior National Forest that are churning out all the metals we want. They do such a good job that you people who go up to the Boundary Waters, you drive right by them, and you don't even know they're there. So we're the best miners in the world, and for the next 132 years, we're going to be mining because Minnesota's been blessed with some of the richest mineral deposits in the world. Now, everyone in this room uses all the metals that we're talking -- and minerals we're talking about tonight. So we're all polluters, but we all want to be good environmentalists. Nobody's got a monopoly on the environment. This project, think about it, is the biggest recycling project in the history of the State of Minnesota. We're not talking about pop cans and beer bottles on the curbs here, folks. No, we are talking with a plant that has a coarse crusher – coarse crusher, fines crusher, concentrator, railroads, tailings ponds, pipelines, haul roads. They're already there. We're going to make a new mine on an old mine. What in the heck makes more environmental sense than that? Come on. You know. Here's the fact: In fact, because of it, this mine will pollute and harm Mother Earth less than any other mine that's past or present planned right now. So that alone should be a major factor for our regulators over there, whom I know a few of them, when they make the decision, because this mine makes the most sense environmentally. So let's work together. You know, we've got the brain power. We've got the technology. We even have the environmental regulations to make this mine one of the showcase mines in the world. PolyMet is the perfect fit for this mine. It's already there. You know, and for all you anti-mining folks in the room, I got a paper bag here, and my friends in the back of the room, we brought some for you. We'll collect your car keys and your cell phones and your iPads at the door because all of these projects, or all of these little gadgets that you have are made from minerals so, you know, you can export your pollution to China, or you can have slave labor in Africa, but right here, you can have good union mining jobs in the United States of America.

Alphabetical by sender's first name

Tom Rukavina 44812

Attention: Lisa Fay I have followed the progress of the Polymet/Northmet proposal for almost 10 years, both as a citizen and former State Representative representing the area where the proposed mine would be located. I strongly support the project I grew up on the edge of a mine on the Northside of Virginia. At the time, Virginia had a population of 14,000 people. Almost everyone on our block had a father or grandfather who worked in the mines. Mining is what we have done on the Range for 132 years. And I proudly point out that while we have altered the landscape with our mining culture, we have not damaged the environment. In fact, people come to visit or live here because of our pristine atmosphere. A mine can only exist and operate if the metals are there to mine. Minnesota has been blessed with not only one of the largest iron deposits in the world, but also one of the largest deposits of copper, nickel and preciuos metals. It makes economic and environmental sense to locate this Northmet mine in the Hoyt Lakes/ Babbitt area. The towns that will house the workers are already there and are capable of accomodating the influx of workers needed to build and operate the mine. As a State Representative, I passed the law that preserved the infrastructure at the old LTV taconite mine for the day when a new mine would locate there. That new mine should be Polymet. When LTV (Erie Mining Company) was built, it was a 350 million dollar investment in 1952 dollars. Today that would equal around 2 billion dollars of investment. By using all the old course and fine crushers, concentrator, power lines and sub-stations, railroads, haul roads etc, the NorthMet project will save the environment by not having to mine for the metals that built this minesite the first time around. This should be a major consideration for all the agencies charges with approving this project. The human race and the citizens of the USA need the resources that will be mined at the Northmet site. In order for the human race to move away from the fosil fuels that cause global warming, we need the copper and nickel and platinum, palladium etc that will be mined at this site. We know how to mine on the Iron Range of Mn and we know how to do it correctly. Modern technology and modern regulations will insure that this mine will be one of the most environmentally sensitive mines in the world. We can not bury our heads in the sand and pretend that the mines that are currently supplying all the metals we use in our daily lives are doing it properly. We know that here in the USA, you regulators will make sure that we put all the safeguards in place to make this mine the safest in the world. The experts at the Natural Resourses and Research Institute at the University of Minn/Duluth, have indicated to me that we can mine the Copper Nickel etc ores safely and properly. They have indicated that the reverse osmosis process proposed by Polymet to treat their waste water will work and not pose a threat to our area. In fact, many of the communities on the Range get their drinking water from the old natural iron ore pits. The sulfides in those pits has not turned to sulfates. People drink this water and don't get harmed. People in the Eveleth/Virginia/Gilbert/Mt.Iron area live under the shadows of three different mines operating near their communities and they live healthy long lives. The U of Mn has completed a 5 year/ 5 million dollar study on mesothelioma and found our air is cleaner than the air in downtown Minneapolis. We have not polluted our environment. Please approve the NorthMet project. America needs to make and manufacture things in this country. We need to mine the resources we all use in this country, not export our desires for these metals to another place where the environment will be abused. Iron Rangers are hard rock miners. Don't destroy or try to change who we are and what we do. We have mined correctly for 132 years. We have the resources to mine for hundred

Alphabetical by sender's first name

Tom Sharkey 40321

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Tom Sharkey 2 Arrowwood CT Granby, CT 06035 US

Tom Steigauf 4874

To who it may concern, Thank you for the great work the MN DNR has done in the past and continues to do today. I am proud to say that I'm from MN "The land of 10,000 Lakes". I believe our DNR has done an incredible job of conserving and maintaining our natural resources. After all, these resources don't belong to us we are leasing from our children and grandchildren. I wish to voice my concern about the PolyMet mining proposal. This type of mining; often called sulfide or acid mining has never been conducted in a way that preserved the natural landscape, habitat, or wildlife in the adjacent areas. That track record speaks for itself. People travel from all over the United States and even the world to visit MN for our lakes; the BWCA being a prime example. They don't travel here to see our mines. My in-laws have a lake home in Ely. We regularly host friends and family up there from all over the USA and Germany. The PolyMet mine will create jobs but how many and for how long. PolyMet will run the mine for 10 years or so then leAve The jobs will be lost and MN will be left with the environmental mess. The fact is a relatively small number of jobs will be created and most of the money will leave the state. Companies will promise anything and everything to get their way. Remember the repair hub and call center Delta promised to build in the Range. It would be far better to develop tourism and create jobs around tourism. These would be long-term jobs that would continue on for generations. I realize this makes it seem I don't care about the people living on the Range. The truth is I do care. I care a great deal about them. That is why I have the courage to challenge them and you to reject this easy way out. The PolyMet mining operation will damage our beautiful natural resources. It is that simple. People deserve to have jobs but not at this awful price. The mine will create very few jobs in the grand scheme and damage the number one major resource we have; our beautiful lakes and forests. Thank you for your time and consideration. Best regards, Tom Steigauf 6944 Stevens Ave So Richfield, MN 55423-2410 763-526-6362 HYPERLINK "mailto:tom.steigauf@gmail-com"tom.steigauf@gmail-com

Alphabetical by sender's first name

Tom Thompson 18939

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: Please extend the comment period for the Polymet Northmet Supplemental Draft Environmental Impact Statement from 90 days to 180- The Statement is not something that most people can just read overnight or even several days and understand. The time allotted included one of the busiest holidays of the year for people and some of the most frigid and snowy weather seen in many years. Many, including myself, live out in the areas being impacted where life has slowed because of the weather. Getting chores and going to town to do errands has been more time consuming. I have a Duluth address but live 30 miles north of it and must drive there to do business and shop. The Polymet Northmet project will have extensive impact on lives. Having quality time to investigate this document is important. Please extend the time period to give adequate time to go over this huge document. Thank you for your consideration. Tom Thompson 1370 White Lake Drive Duluth, MN 55803

Tom Uphaus 40617

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Mr Tom Uphaus 2650 N Pine Creek Rd La Crescent, MN 55947-9619 (507) 895-2152

Tom Welch 42565

See attachment

Tom Witt 7037

To whom it may concern: Greetings. I'm a long-time resident of Minneapolis, but a frequent visitor to northern Minnesota. I'm writing to add my voice to those opposing the PoyMet Sulfide Mine. For a time I lived on site at an abandoned copper mine in Washington State, which now more than 50 years after its closing is still a Superfund site with toxic danger surrounding it. That experience has caused me to err on the side of caution when considering permit requests for future large mines. As the SDEIS analysis point our, strip mining brings with it a host of environmental damages that are not worth the number of jobs that PolyMet promises: Danger to water quality Discharge of sulfates Harm to wildlife Destruction of wetlands We have been given an incredible gift of amazing natural resources in Minnesota's Arrowhead Region. Let's not pollute it for the sake of some jobs, but rather let's do the harder work of finding more jobs that don't have such a harmful effect on our environment. Thanks for listening. Thomas W. Witt 2416 E. 22nd Street Minneapolis, MN 55406 HYPERLINK "mailto:twwitt@gmail-com"twwitt@gmail-com

Tom Wright 42567

See attachment

Alphabetical by sender's first name

Toni Malanaphy-Sorg 9466

We cannot continue to make short term decisions that have long-impacting and negative repercussions for our future. I understand that people need work in the Range. Let us put our efforts toward finding work that does not ruin the water we drink and the soil from which our food comes instead of spending millions of dollars on lawyers and studies to try and make something that is clearly bad look not so bad so a ruthless corporation can make more money for their shareholders. We the people are becoming educated and we are tired of politicians who are in the pockets of these businesses on the one hand and wanting to quickly assuage the need for gainful employment for their constituents on the other hand coming up with “fixes” that fix nothing. Put this project up for a vote by the people – all the people who will be affected by the project, during the next election. That would be democracy. I guess you know how I would be voting. Thank you, Marie Malanaphy-Sorg 165 Western Avenue N. #205 Saint Paul, MN 55102

Toni McCray 41635

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Toni McCray 6329 Brightlea Dr Lanham, MD 20706-2865

Alphabetical by sender's first name

Toni Pangborn 16284

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Toni Watt 18238

My name is Toni Watt, T-O-N-I, W-A-T-T. And I am a proponent of no mining allowed in the Boundary Waters. I really don’t think it’s safe, and I don’t think they can guarantee that the water there will not be polluted. I don’t think it’s a good investment to look for 20 years worth of jobs, maybe, and 500 years worth of pollution, you know, and there’s -- and the mining companies do not have a good track record, and we raised our children in the Boundary Waters for summer trips and it’s a very beautiful, pristine wilderness, and I really -- and if Minnesota doesn’t keep its Boundary Water Canoe Area, it’s going to lose big time, financially, and the country will lose that beautiful asset that we have here. We need to be very, very cautious about preserving the waters of Minnesota. We are at the beginning point of three different river shed areas here, and we can’t afford to pollute our water. Thank you.

Alphabetical by sender's first name

Tony Baldwin 17342

Feb 17, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

tony colarich 7766

There needs to be a balance in regard to the ecology and the economy. The SDEIS for the Polymet mine project does exactly that. Ten years of DNR work has gone into this document. After ten years it is time for this project to move forwaRd The Range, the state of Minn., and the United States need the excellent paying jobs that this Mine will provide. Minn. has the strongest Mining environment laws in the United States. It will be done safely. Everyone in the state will take nothing less. Thank you Anthony M. Colarich 1011 East White St Ely,Mn. 55731

Tony Jordan 9845

My Name is Tony Jordan, and I live at 3754 Rustic Place, Shoreview, MN 55126- Although it has been 8 years since I've been to the BWCA, I know it to be a true "water world". The flow of the visible water through passages connecting lakes for 100 miles or more is a sensitive provider of all forms of life in the area. The flow of the water that we can't see underground is even more intricate and sensitive. The minerals are not going anywhere and their value will only increase. We should wait for technology to be developed to offer the possibility of mining them without the accompanying destruction that future generations will pay for. I am against the mining proposal because of the irreversible damage that will be done to the area. I am in favor of an additional user fee for the BWCA that would be shared with the residents of the area to compensate for their not getting the 300 some jobs that come with the destruction of the area. Thank you, Tony Jordan (651) 482-9608

Alphabetical by sender's first name

Tony Kwilas 18360

(Inaudible) environmental policy of Minnesota Chamber of Commerce. I want to thank the DNR for their hard work on this. And we think the document is complete. I would like to cede my time Senator David Tomassoni.

54895

See attachment

Tony Nelson 10266

As the Chair of the Dakota County Planning Commission, I understand the push for more jobs. Especially in an area that needs them. But, I am also the Habitat Chair for the Twin City chapter of Trout Unlimited and I understand the community's desire for clean air and water. The technology is there to extract the minerals but there are no known examples of a case where the waste is handled in a safe way. This type of mineral extraction will leech sulfuric acid from the tailing sites. There are no examples of an existing mine that does not have this problem and the timeline to control this is for hundreds of years. Are the mine owners willing to put the money up front to cover the entire cost for this cleanup. We must not get caught in a situation where the owners file bankruptcy after the mine is played out and the citizens are stuck with the bill. I know there will be extreme pressure placed on all the agencies to push this through, but the people of Minnesota are relying on your agencies to look at the science and the limitations of the existing technologies to make a decision that protects the land, the water and our children. You are caught between a jobs and profits over-rule all and a "NIMBY" mindset but you must rule on the facts that you hAve Can you permit a mine and preserve the water quality that currently exists. The decision is yours. Both sides want you to do your jobs, so do them. What does current science tell you. Tony Nelson, 890 Redwood Drive, Apple Valley, MN 55124; 952-486-2282

Tony Terwey 41891

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Tony Terwey Richmond, Minnesota

Tony Vavricka 9

From: TONY VAVRICKA [mailto:tonyvavricka@gmail-com] Sent: Friday, December 06, 2013 5:03 PM To: Fay, Lisa (DNR) Subject: 500 years Hi Lisa, The press release put out by the DNR forgets to mention the 500 years of clean up. from star trib The DNR says in the environmental review that PolyMet would be required to operate the reverse osmosis water treatment systems for as long as necessary. Computer projections in the environmental impact statement say that either active or passive water treatment will be needed for 200 years for the mine site, and up to 500 years for the metallurgical site. The document says water treatment would cost between $3-5 and $6 million per year after the mine closes. http://www.startribune-com/local/226548091-html who gets to pay for this Tony Vavricka

Alphabetical by sender's first name

Tonya Draughn 40184

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Tonya Kjerland 18269

My name is Tonya Kjerland and I am from Northfield, Minnesota. I am a graduate student at the University of Minnesota. I have done extensive studies with wild rice in the field. And I would like to state that in order to determine what a rice water is, the state should consider simply the presence of wild rice. Looking at historic data, such as it is, is very difficult at this time since we have not yet collected enough density data to determine how wild rice populations change over time. I know from experience of looking at the data that does exist from the 1854 Treaty Authority, it is clear that rice can fluctuate extensively in density as well as spacial presence. I would also like to say as a native person that the wild rice is more than just a plant. It is a sacred medicine. And that this is not just for the native people, it is for everyone. Ahao Miigweh, A-H-A-O, and then M-I-I-G-W-E-H.

Town of Fayal 54716

See attachment

Alphabetical by sender's first name

Tracey Smallwood 40293

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Tracey Smallwood 1322 harwich dr Waldorf, MD 20601 US

Tracy Alfson 16995

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Tracy Alfson 6037 Country Club Road Houston, MN 55943

Alphabetical by sender's first name

Tracy Alfson 50280

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Tracy Alfson 6037 Country Club Road Houston, MN 55943

Alphabetical by sender's first name

Tracy Bauman 16590

Feb 19, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Tracy Fredin 42464

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness and Lake Superior Ecosystem. It does not provide enough economic benefit for the cost to our quality of life. There are other, more economically effective paths to follow. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Tracy Fredin 4506 Nawadaha Blvd Minneapolis, MN 55406-4036 (612) 729-3802

Alphabetical by sender's first name

Tracy Kraemer 41982

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Tracy Kraemer Blaine, Minnesota

Tracy Mallon 40360

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Tracy Mallon 4136 Freeland Ave Philadelphia, PA 19127 US

Travis Barnes 54172

The mine is a bad idea. It will cause a lot of pollution and kill a lot of wildlife. You could mine somewhere not important like Canada.

Travis Durkin 20017

I am against the new mine. I live in Ely and I am very concerned about out watersheds. I do not feel that there is sufficient evidence to keep our waters safe from pollution. Please do not approve this operation. Thank you. Travis Durkin 16 N 8th Ave E Ely, MN 55731 - Travis ;-)

Alphabetical by sender's first name

Travis Mazerall 40820

Mar 10, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Mr Travis Mazerall 19 South St Brighton, MA 02135-5167 (857) 383-8062

Trevon Clay 54177

I don’t think they should build the mind because there is many places to mind besides doing it right next to a wildlife area. The minding will destroy fishing, the water, the sulfuric acid will destroy all most everything in the water that would be another wildlife destroy. Just because they want to get copper and nickel. The wild habit will be destroyed we need animals to survive like fish and other animals. The acid will make the [ILLEGIBLE] the go down.

Alphabetical by sender's first name

Trevor Russell 38788

Mar 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Tricia Smith 17010

Feb 18, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Trilby Busch 42439

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, When I first moved to Minnesota in 1968, a controversy arose about the dumping of taconite tailings containing asbestos into Lake Superior. The practice was finally stopped, but only after tons of carcinogens were put into the water. I beg you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Dr Trilby Busch 2648 Emerson Ave S Minneapolis, MN 55408-1222

Trish 49559

Congratulations on your retirement .BUT before you leave, please and forward these notices to Supervisor Periman It's possible.. PolyMet may have some good points, but it will also destroy the wetlands.. And leave us with a mess when they pull out. Trish In a message dated 2/28/2014 8:14:10 P.M. Central Standard Time, tdabney@fs.fed.us writes: On Tuesday, March 4, I begin my retirement. Contact Deputy Forest Supervisor Richard Periman at rperiman@fs.fed.us or 218-626-4303 for assistance. This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

Alphabetical by sender's first name

Trish Gardiner 41753

Mar 8, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsib

Tristan McCormick 41253

As someone who has studied natural resource economics, environmental policy and biogeochemistry a fair amount I know that these issues can involve many important stakeholders with conflicting but valuable objective functions where policy makers face difficult tradeoffs and non-pareto improving solutions. This is not one of those times. As I'm sure you know, unlike iron ore mines, the impact of which is huge but containable, sulfide mining tailings produce highly acidic runoff. The upper Minnesotan hydrological system is so interconnected that this would mean centuries of catastrophic and un-manageable ecological costs in what might be the combined most beautiful, ecologically valuable, and visited lake ecosystem in the Union. Which is to say nothing of the negative externalities imposed on anyone who has ever gone or will ever go to the BWCA in this or any coming generations. But they'll clean it up, right. Even if they DID commit the appropriate amount of fund (which is probably, you know, hundreds of billions of dollars since the runoff would need essentially indefinite treatment), there is a nearly flawless record of companies like this almost immediately raiding those funds/hiding behind bankruptcy protection. Then who pays for it. No one. But what about the jobs. The few thousand jobs created over the next decade will be nothing compared to the job and revenue losses in the tourism industry that will almost certainly result as people are less inclined to visit a lake system with a pH of 5 Obviously I exaggerate. The pH wouldn't be that high. But it would be too high for fish. Like walleye. I love walleye. These companies aren't even American. Which might be the WORST possible reason to reject this mine but the money isn't even staying in the state. It's going to some international mining conglomerate acting through shell corporations.. I didn't even know that was actually a thing. What is this a Jean le Carre novel.. Anyway. Please. For once, can the good guys win. Please call me if in any way I can help convince you to take the high road. Seriously though, I'm 23 and I'm gonna have to explain this shit to my kids. Cheers, Tristan

Alphabetical by sender's first name

Trout Unlimited Chapter 642 47838

attached is a letter that was sent 3/12/14 but was returned so senting again

Trout Unlimited Minnesota 54909

See attachment

Troy Rogers 43203

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years and beyond. I was born and grew up on the Iron Range. After living away from the area for a number of years, I recently made the decision to return to MN and have since moved to Duluth. As a young professional with specialized skills, my career aspirations have long implied that I should seek out opportunities in a larger urban center on the East or West CoaSt However, return trips to visit family and friends over the years have convinced me that the place I want to be is in Northeastern MN. Foremost among my reasons for wanting to return to the area to live, work, and grow my small start-up company are the pristine lakes and waterways of the Arrowhead region. I know many peers of my generation with similar stories. Motivated, energized young people who have stayed or returned to the area, inspired by the unique and treasured natural recreation opportunities afforded by the area's forests and lakes. I am a firm believer in the potential for this region's innate cultural and recreational resources to usher in an era of economic revitalization for the Arrowhead. I also believe that short-sighted decision making based on short term profits for the few can undermine and negate this potential. As such, I view the PolyMet project as currently proposed, planned, and outlined in their SDEIS to be a major threat to Northeastern MN's long term economic vitality, rather than as an opportunity. Specifically, I agree with WaterLegacy's findings and assertions, as outlined below: The PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet’s seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the “evaluation locations” used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet’s own reports for the Canada stock exchange reveal significant f

Alphabetical by sender's first name

Troy Rogers 47783

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years and beyond. I was born and grew up on the Iron Range. After living away from the area for a number of years, I recently made the decision to return to MN and have since moved to Duluth. As a young professional with specialized skills, my career aspirations have long implied that I should seek out opportunities in a larger urban center on the East or West CoaSt However, return trips to visit family and friends over the years have convinced me that the place I want to be is in Northeastern MN. Foremost among my reasons for wanting to return to the area to live, work, and grow my small start-up company are the pristine lakes and waterways of the Arrowhead region. I know many peers of my generation with similar stories. Motivated, energized young people who have stayed or returned to the area, inspired by the unique and treasured natural recreation opportunities afforded by the area's forests and lakes. I am a firm believer in the potential for this region's innate cultural and recreational resources to usher in an era of economic revitalization for the Arrowhead. I also believe that short-sighted decision making based on short term profits for the few can undermine and negate this potential. As such, I view the PolyMet project as currently proposed, planned, and outlined in their SDEIS to be a major threat to Northeastern MN's long term economic vitality, rather than as an opportunity. Specifically, I agree with WaterLegacy's findings and assertions, as outlined below: The PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fract

Twin Metals Minnesota 42923

Ms Lisa Fay: On behalf of Twin Metals Minnesota, LLC ("Twin Metals Minnesota"), please find attached an electronic copy of Twin Metals Minnesota's comments to the NorthMet Mining Project and Land Exchange Supplemental Draft Environmental Impact Statement. A hard copy of these comments and a CD of attachments were delivered by messenger earlier today. The hard copy of the comments inadvertently excluded page numbers, which has been corrected in the attached electronic copy of the comments. Please substitute in the record the attached electronic copy of the comments for those that were delivered by messenger. Note that the CD included with the hard copy comments contains attachments that are too large to include via email. This CD of attachments should be included with the electronic copy of the comments, such that the CD and the attached electronic copy of the comments make up Twin Metals Minnesota's comments on the recoRd Please let me know if you would prefer that we submit another hard copy of the comments, and we will deliver one as soon as possible. Thank you, Andrew J. Gibbons Andrew J. Gibbons | Attorney | Stinson Leonard Street LLP 150 South Fifth Street, Suite 2300 | Minneapolis, MN 55402 T: 612-335-1438 | M: 612-432-7252 | F: 612-335-1657 andrew.gibbons@stinsonleonard-com | HYPERLINK "http://www.stinsonleonard-com"www.stinsonleonard-com Stinson Leonard Street LLP is officially open for business. Please update your records to reflect the new email address and firm name. This communication (including any attachments) is from a law firm and may contain confidential and/or privileged information. If it has been sent to you in error, please contact the sender for instructions concerning return or destruction, and do not use or disclose the contents to others.

Twin West Chamber of Commerce 42878

See attachment

Alphabetical by sender's first name

tye block 42423

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms tye block PO Box 19 Cordova, SC 29039-0019

Tyler Lies 47423

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. I have camped in the Boundary Waters multiple times with friends and family and every time I visit I discover something new in the area and within myself. This is only possible due to the pristine condition this natural area has been preserved in. I'm also an Environmental Geoscience major at UND though I live in MN, and I understand the type of effects that this could have on the environment, though not to the degree as the people doing the testing. I would love to have the ability to continue visiting this area in the condition that it's in for years to come, and this won't be possible if it becomes polluted and disrupts the ecosystem that is currently in place. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Tyler Lies 716 169th Ln NE Ham Lake, MN 55304-4891 (612) 423-1282

Tyler Nord 18334

My name is Tyler Nord. I live here in Duluth. I am also a taxpayer and also study political science and economics at UMD. There is a lot to be said about this in regards to the economic situation, the amount of waste copper, scrap copper that we are exporting that is highlighted by the Bloomberg Business Group, the same people that audited the Federal Reserve Bank. They have shown that we are sending (inaudible) scrap copper to China to fuel their growth. Since 2007 they fueled the majority of their growth from our scrap copper. The economics aside, I would like to address the SDEIS. I would like to request that it is rejected and reanalyzed. I would ask that Section 404 is rejected and reanalyzed. And I would like to ask cumulatively that at that point there is no reason for the Land Exchange until these other things are stopped. When you take a wetland out from one area, you can't just have another one happen somewhere else. Any technologist can tell you that. Any geographer can tell you that. It might be a similar size of wetland, but the service it provides to your economy isn't the same, if in a specific location, you filter more water than in another location. So, just adding more wetlands somewhere else while destroying the wetlands on the other line won't work. Now, in the SDEIS -- in the EIS they demonstrate that they will be using the LTV site. (Inaudible) it drains from the bottom into three separate streams. It was designed that way. They are just going to pile a different type of waste on top. I will remind you that this type of mining has never been done safely and we live in a high-water content area, however you want to say that. Now, what we are looking at here is when we had that flood a couple of years ago, whatever year it was, it doesn't matter, it was a 500-year flood, it was a 200-year flood; well, I'm from Fargo, North Dakota. They are putting in a diversion. Lots of stuff going on with the water management there. Now, they said it was a 100-year flood in '97. Oh, then it was a 200-year flood in 1999. Oh, now it's a 500-year flood. Now, PolyMet doesn't acknowledge 500-year floods or 1,000-year floods, 2,000-year floods at the site. It doesn't matter. The main flaw in the EIS, the acronym that applies here, it is that it doesn't show what happens if the pumps at the edge of that tailing pond fail. It doesn't show the alternative scenarios. It doesn't show that 21 gallons per minute that leaks from the LTV site, that they admit will be leaking 21 gallons per minute, that is -- first of all, that's never been demonstrated before. They acknowledge that untreated water will be leaving the waste site. Thank you.

42659

See attachment

Alphabetical by sender's first name

Tyler Reid 42009

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Tyler Reid 34232 N Bluestem Rd Round Lake, IL 60073-5245

Tyson Nguyen 41919

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Tyson Nguyen Brooklyn Park, Minnesota

UM Natural Resources Research Institut 42893

On Behalf of Lucinda Johnson, NRRI Director. Please find attached NRRI’s comments regarding the Supplemental Draft Environmental Impact Statement (SDEIS) for the proposed NorthMet mine project and land exchange. Thank you, Trish Trish Sodahl Assistant to the Director Natural Resources Research Institute University of Minnesota Duluth 5013 Miller Trunk Hwy, Duluth, MN 55811 218-720-4207, fax 218-720-4219

United Transportation Union 54880

See attachment

USDOI 42983

To Whom it May Concern, The US Department of the Interior's comments on the subject project are attached. If there are questions, please contact this office at (215) 597-5378- Regards, Valincia Darby - Valincia Darby Regional Environmental Protection Assistant Department of the Interior, OEPC 200 Chestnut Street, Rm. 244 Philadelphia, PA 19106 Phone: (215) 597-5378 Fax: (215) 597-9845 HYPERLINK "mailto:Valincia_Darby@ios.doi-gov"Valincia_Darby@ios.doi-gov

USEPA 47834

See attachment

47835

See attachment

Alphabetical by sender's first name

USW Local6115 42924

Attached is an Amended Resolution from USW Local 6115- _____ HYPERLINK "http://www.avast-com/" This email is free from viruses and malware because HYPERLINK "http://www.avast-com/"avast. Antivirus protection is active.

UTU Minnesota: 42987

Dear Sir or Madam, Please see the attached letter from the United Transportation Union, Rail Division of the Sheet metal, Air Rail and Transportation Union, (UTU-SMART-TD). This letter has also been hand delivered to the DNR Offices in St Paul. On behalf of our 1200 active and many retired railroad workers in Minnesota, we support the acceptance of the proposed Polymet Mining Environmental Impact Statement without any further delay. Please add our UTU-SMART-TD letter dated March 8th, 2014, to the DNR, to the public comment docket. Thank you. Phillip Qualy UTU-SMART-TD SLD Minnesota 651-222-7500

V Brandt 40336

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, V Brandt 28 W.10th New York, NY 10011 US

V johnson 39734

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms V johnson 1027 16th Ave SE Minneapolis, MN 55414-2409

Alphabetical by sender's first name

Vaillancourt Michele 39017

Thank you for your response. However, as I informed the North Star Chapter of the Sierra Club, if I did submit comments, I didn't intend to do so. Please withdraw them. Regards, -Michele Vaillancourt Michele D. Vaillancourt (612) 604-6681 HYPERLINK "mailto:mvaillancourt@winthrop-com"mvaillancourt@winthrop-com Notice: Important disclaimers and limitations apply to this email. HYPERLINK "http://www.winthrop-com/our_firm/email_disclaimer.aspx"Please click here for our disclaimers and limitations. From: *NorthMetSDEIS (DNR) [mailto:NorthMetSDEIS.dnr@state.mn.us] Sent: Tuesday, March 11, 2014 10:16 AM To: Vaillancourt Michele Subject: RE: Comment on PolyMet NorthMet Supplemental Draft EIS Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Valerie Lovejoy 40280

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Valerie Lovejoy 3650 cedar flat rd williams, OR 97544 US

Valerie Mellerop 33877

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Wisconsinites consider canoeing in the Boundary Waters area to be the pinnacle of recreation. This pristine wilderness is the last frontier for midwesterners to explore. It should be protected at all costs, as there will never be another. In addition, fishing/canoeing opportunities are being squeezed by development in other parts of the midweSt Our great lakes fishery is also being threatened on multiple fronts, including Chicago carp. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands (flooding.), harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Valerie Mellerop 1052 E Gorham St Madison, WI 53703-1608

Alphabetical by sender's first name

Valerie Murphy 21181

Dear DNR, I am writing to let you know I am completely against the proposed Polymet mine in northern MN. Mining destroys the land and water that we rely on for survival and recreation. Even if it could be cleaned up, the clean would be required for hundreds of years, at enormous expense, an expense that may or may not be paid for my the mining company. And there will surely be irreparable damage. The area if miner, would never ever be the same. I believe no potential number of jobs is worth destrying this priceless, beautiful area located near the pristine BWCA. Once it's gone, it's gone. It is not worth it. Thank you for considering my comments. Valerie Murphy White Bear Lake, MN

Valerie Stoehr 45005

Dear Ms Fay, Federal and State Agency Leaders: I am writing to urge you to reject the PolyMet SDEIS and deny permits. I am concerned about the lack of return on investment given that the cost of environmental safety hazards may dwarf the economic benefits. In particular: 1- Copper and nickel mining is better suited to an environment different from the projected northern MN site. 2- Polymet's revised draft (SDEIS) is inadequate. There is no consideration of alternate methods (like underground mine, putting liners under the waste dumps), no guarantees of who pays for routine monitoring/treatment after mine closes—and no consideration of spills, etc 3- The computer model for treating wastes and handling pollution is based on poor data and requires revision. I am working with our elected representatives to urge consideration and adoption of other methods to bring economic opportunities to the Range. PolyMet is not in our best interests. Please deny the permit. Thank you for your attention. Sincerely, Valerie Stoehr Afton, MN Valerie Stoehr PO Box 395 Afton, MN 55001

Valkyrie PenDragon 17068

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Valkyrie PenDragon 3802 Polk Ave Bemidji, MN 56601

Alphabetical by sender's first name

Valkyrie PenDragon 50338

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Valkyrie PenDragon 3802 Polk Ave Bemidji, MN 56601

Alphabetical by sender's first name

Vance Anderson 57336

Vance Anderson, from Cromwell, Minnesota. I am a business representative for Roofers Local 96. I support the PolyMet mining and believe them that they will build and operate a mine that complies with all regulations and protects the environment. I trust the multiple state and federal agencies involved in preparing the document. Okay. Based on the extensive documentation as outlined in the SDEIS, I am confident that impacts to the air, water and land will be minimal, if any, and that the land post-closure will be reclaimed to protect natural resources over the long-term in compliance with the law. The SDEIS demonstrates that PolyMet can develop this resource in a sustainable manner and there will be logical engineered solutions proposed for potential impacts. I am impressed by the extraordinary precautions proposed by PolyMet, such as a reverse osmosis, and look forward to having them as a new neighbor. The SDEIS shows that mining, recreation, tourism, and other land and natural resources can be -- can co-exist. The PolyMet project has been designed to minimize environmental impacts, reusing the Brownfield site, reusing existing infrastructure, minimizing disturbance of wetlands, and utilizing multiple safeguards to protect the environment. PolyMet will control and manage stockpiled water and use proven technologies found in liners, water collection systems and cover systems. PolyMet will not discharge water to the environment that has not been treated with reverse osmosis. PolyMet will provide financial assurance to cover all closure costs. PolyMet will utilize the best available emissions control devices on mobile mining equipment. Some foreign suppliers of metals PolyMet will provide don't necessarily follow the sound environmental practices, creating a greater global environmental impact. That's a mouthful there. PolyMet has demonstrated they can produce these critical metals while following Minnesota's strict environmental requirements to protect air, water and land. PolyMet will be a domestic supply of critical metals needed in medical applications, electricity, catalytic converters, cell phones, computers, and other essential products. I use these metals every day. If we are to maintain our modern way of living, we need to continue to find and extract these metals. And just as well we do it in Minnesota, where we find them in abundance, where there are sound regulations in place and where we have a ready and available workforce. PolyMet will produce these metals in an environmentally sound way and generate significant economic activity expanding and diversifying our mining economy. PolyMet can produce these metals in an environmentally sound manner and create hundreds of jobs that can support families and sustain communities. I trust the multiple federal, state and federal agencies in preparing the document. The Minnesotans trust the DNR to do the copper-nickel mining and to keep our communities safe. PolyMet will produce these metals in an environmentally sound way that generates significant economic activity, expanding and diversifying our economy and creating hundreds of jobs that can support families and sustain communities. Copper-nickel mining will provide millions of dollars in local and state taxes to support our communities and our educational system. It is irresponsible to import these metals from countries that do not have strict environmental standards, when Minnesota has an opportunity to mine responsibly. The environmental review process has been lengthy and thorough. The Supplemental EIS addresses potential environmental impacts and how to mitigate them. It is irresponsible to import these metals and export jobs, when we can mine safely here in Minnesota.

Alphabetical by sender's first name

Vanessa Hooper 40326

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Vanessa Hooper 2358 Cedar Crest Blvd Dallas, TX 75203 US

Vanessa Silva Cruz 40480

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Vanessa Silva Cruz Boas noites São Paulo, ot 08225-180 BR

Alphabetical by sender's first name

Venessa Fuentes 43505

Dear Ms Fay, Dear Ms Fay, Mr Bruner, and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. The PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish, and human health. The SDEIS must be redone because its predictions are unreliable and its methods conceal, rather than analyze, environmental impacts. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts; and won't allow members of the public to understand risks of accidents, failures, or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Respectfully, Venessa Fuentes Venessa Fuentes 2624 15th Avenue South Minneapolis, MN 55407

43506

Dear Ms Fay, Mr Bruner, and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. The PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish, and human health. The SDEIS must be redone because its predictions are unreliable and its methods conceal, rather than analyze, environmental impacts. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts; and won't allow members of the public to understand risks of accidents, failures, or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Respectfully, Venessa Fuentes Venessa Fuentes 2624 15th Avenue South Minneapolis, MN 55407

Vern Schueller 58056

No BP in BWCA! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Vern Simula 16354

First, in a macro sense, the observation (and evidence) that no sulfide ore mine, anywhere, has been operated without serious or extensive water pollution problems, demands that regulatory agencies invoke the "Precautionary Principle," that is, that it is incumbent upon the mining company to prove unequivocally PRIOR to mining operations that that pollution standards will not be violated. The Northmet SDEIS, with its probabilistic/statistical modeling, does not satisfy this common sense standaRd The stakes are simply too high — especially within this water rich environment — to allow a "trial and error" approach for demonstrating that pollution incidents will not occur. An additional factor exacerbates this concern: The SDEIS is replete with statements (indications, admissions.) that water quality problems (violations) are, indeed, likely to occur, or could occur. What follows those statements is what is really egregious, and that is the repeated, summary if not "dismissive" comment: "if detected, adaptive water management measures would be implemented." Another variation of this statement which is "arrogant" in tone within the context of this critical question of protecting water quality within a precious environment, is the phase, "If actual NorthMet Project Proposed Action effects were found to be higher than predictions, then steps could be taken to reduce those effects." "Steps COULD be taken." As a citizen, I am insulted. I demand that the company declare their commitment that "steps WILL be taken" to not only reduce (another weasel term) but to mitigate the problem such that water quality criteria are, indeed, met. Examples of these statements occur on Page 5-98, Page 5-144, and Table 8-0, Sections 1, 2, 9, and13 (Page 8-4 to Page 16) to cite only a few. The SDEIS contains no detailing of what these "adaptive water management measures" or "steps" would consist of. Additionally, and more importantly, there is no assessment as to the efficacy of such adaptive measures. Thus, the Polymet SDEIS is grossly incomplete (inadequate)l. This is tantamount to giving the mining company a "back door" to escape designing and validating not just the preventive but the remedial measures in the event a water quality standard is violated. To repeat, the SDEIS narrative conveys the general sense that there is a significant likelihood that water quality violations will occur. This is all the more reason to invoke the Precautionary Principle. ie, "prove it first." Vern Simula 5491 Bluebell Avenue Mt. Iron, Minnesota

18324

My name is Vern Simula, S-I-M-U-L-A. I live in (inaudible) US Steel and Minntac Plant. Many of my neighbors work there and the various mines in the area or mining business. Many of my neighbors, especially young working, are desperate for jobs in our Iron Range communities. Our downtown businesses also depend upon a strong local mining base. We need those jobs desperately and deservedly. That's why so many mine workers are here tonight. But the need for such short-term jobs, or more precisely the asserted economic contributions they propose will be provided, the 20 years, must be considered irrelevant for the purpose of this hearing. That issue is out of bounds. Not germane. Because the fundamental issue here is what is at the proposed mining project can be done safely without harm to the natural environments or to human health. Again, the fundamental issue is the safety of the mining -- the proposed mining operation. And to look at that question, that's a highly technical question. And I for one -- many of us as citizens we really don't have -- you know, miners and folks that have come here tonight we really don't have the expertise to look at the very complex issue of the various scientific questions surrounding will this mine pollute or not. Additionally, a number of citizen organizations have retained professional scientists in various areas and expertise to address the many aspects. And the resulting reports distributed by these organizations gave enormous doubt whether this mining project can be done safely. And also, even the EIS itself is not conclusive. In chapter 8 it contains a litany of major differences of opinion. If indeed there are doubts or disagreements, unanswered questions, or probability that if one of the criteria of the safeguards cannot be met then the only reasonable, prudent decision for our regulatory agencies is to invoke what I call a precautionary principle. According to my handy-dandy Wikipedia, a precautionary principle states that if an action or a policy has a suspected of risk of causing harm to the public or the environment, in the absence of scientific consensus that the action or policy is harmful, that the most prudent type of thing is to invoke (inaudible).

42679

See attachment

Alphabetical by sender's first name

Vern Simula 47347

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Two thoughts: 1- There has been tremendous political pressure urging approval of the SDEIS, because the Northmet Project will create "jobs" for the Iron Range. The pressure is so clamorous that leads one to think that the "Range" is solely dependent upon this project for additional jobs. Not so. The Iron Range Resources and Rehabilitation Board (IRRRB) just in the last three years has, according to their report, created 1,894 permanent jobs, supplemented by 2,800 construction jobs, jobs that do not contribute to potential serious environmental hazards. 2- Numerous statements in Chapters 5 and 8 of the SDEIS "admit" that water quality violations will likely occur. These statements are followed with the rather "flippant" comment that in the event of such occurrences, measures will be taken to remediate the violation. There is no description or evaluation of the efficacy of such remedial measures. This is unacceptable. It gives a potential polluter a free pass. Please reject the SDEIS on a "No Action" basis. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Vern Simula 5491 Bluebell Ave Virginia, MN 55792-4009 (218) 591-5722

48577

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Two thoughts: 1- There has been tremendous political pressure urging approval of the SDEIS, because the Northmet Project will create "jobs" for the Iron Range. The pressure is so clamorous that leads one to think that the "Range" is solely dependent upon this project for additional jobs. Not so. The Iron Range Resources and Rehabilitation Board (IRRRB) just in the last three years has, according to their report, created 1,894 permanent jobs, supplemented by 2,800 construction jobs, jobs that do not contribute to potential serious environmental hazards. 2- Numerous statements in Chapters 5 and 8 of the SDEIS "admit" that water quality violations will likely occur. These statements are followed with the rather "flippant" comment that in the event of such occurrences, measures will be taken to remediate the violation. There is no description or evaluation of the efficacy of such remedial measures. This is unacceptable. It gives a potential polluter a free pass. Please reject the SDEIS on a "No Action" basis. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Vern Simula 5491 Bluebell Ave Virginia, MN 55792-4009 (218) 591-5722

Alphabetical by sender's first name

Verna Alt 18477

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Verna Alt 5115 42 AVE S Minneapolis, MN 55417

Vernon Baker 46988

Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Lisa, I'm writing to submit a comment on the Supplemental Draft Environmental Impact Statement (SDEIS) for PolyMet Mining's proposed NorthMet project. First, I want to express my confidence in your agency to thoroughly evaluate the project, and its ability to design the mitigation for potential environmental impacts. I believe the environmental review process has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. Additionally, I'd like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out – all the more reason to support it. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws – some of the strictest environmental regulations in the country. Minnesota is home to a world-class deposit of copper, nickel, platinum, palladium and gold. This is an economic opportunity right below our feet that will benefit the state's economy for future generations. PolyMet will produce these metals in an environmentally sound way and generate significant economic activity, expanding and diversifying our economy and creating hundreds of jobs that can support families and sustain communities. We cannot afford to miss this job opportunity. This project would mean 2 million construction hours, 360 full-time mining jobs and more than 600 related jobs – jobs that our state needs. Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. Based on my review and the level of detail included in the draft EIS it appears that a thorough evaluation of the project and potential impacts has been completed. Sincerely, Vern Baker Chaska, MN 55318

Alphabetical by sender's first name

Veronica Erickson 54179

I don't think you should mine in the area of the boundary waters. The sulfur in the rock mixed with air creates sulfuric acid. Acid kills most aquatic life. This means no more fishing. Many people go to the boundary waters for peace and quiet, but the drill noise along is hard on the ears. This area has been protected since 1989, and if you plan to mine for 20 years, it will do damage to our water for much longer than that. The contamination from this mine will threaten all water bodies connected to it. The PH of the water will be 4, 3, 2 even 1. Aquatic life dies below a PH of 4. These are just a few reasons you shouldn't mine near the boundary waters.

Veronica Smith 57344

My name is Veronica Smith. I am from the Fond Du Lac Reservation. I am a band member. And my concern is, of course, is the waters and the streams and the lakes that come down from where the mines are going to be. What I have the most concern about is the wild rice. Our Manoomin -- the creator has given us manoomin. Do you need to know how to spell that? M-A-N-O-O-M-I-N. And that's what is my concern. It is the waterfowl and the plants, and of course my concern is the state grains in Minnesota, protecting that to the fullest. And that's what my concern is. Alright? Thanks.

Vicki Andrews 17164

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Vicki Andrews 31135 Sunny Beach Road Grand Rapids, MN 55744

45098

I am writing to urge you to reject the PolyMet proposal to build a copper-sulfide mining operation in Minnesota's Lake Superior Basin. This plan is bad for the environment, a potential disaster to Minnesota communities, residents, land and water. PolyMet's proposed location increases risks of pollution and harm to public health - 99% of what is dug out of the ground will be waste. It would impact irreplaceable high value wetlands in the St Louis River watershed- destroying 913 acres and indirectly affecting another 7,228 acres. Tailings will be dumped in an unlined tailing basin. It is almost certain to result in contamination of surface and/or ground water with sulfates and toxic metals. The risk to the environment is simply not worth it. We need to protect Minnesota's land, water, and communities. Please reject this proposal. Protect Minnesota. Thank you, Vicki Andrews 31135 Sunny Beach Road Grand Rapids MN 55744 218-259-4254

Alphabetical by sender's first name

Vicki Andrews 50432

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Vicki Andrews 31135 Sunny Beach Road Grand Rapids, MN 55744

vicki Bonk 10002

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Alphabetical by sender's first name

vicki Bonk 18747

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Vicki Bonk 5629 45th Ave S. Minneapolis, MN 55417

42015

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms vicki Bonk 5629 45th Ave S Minneapolis, MN 55417-3018

Alphabetical by sender's first name

vicki Bonk 50822

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Vicki Bonk 5629 45th Ave S. Minneapolis, MN 55417

Vicki Cebulla 15346

HYPERLINK "https://docs.google-com/document/d/1ivta5wqacofQAv9cLy6IykqjeIQu9WQ5Iko_jcfqvfw/edit.usp=drive_web" Untitled document

Vicki Culver 39899

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Vicki Culver 8200 38th Ave N New Hope, MN 55427-1113

Alphabetical by sender's first name

Vicki Effertz 10216

Sulfide ore mines providing employment is a RELATIVELY SHORT TERM FIX of a problem. Sulfide ore mines polluting water and wilderness is LONG TERM DESTRUCTION of a precious MN resource. Clearly, this kind of mining is not the same as taconite mining. It has more long-lasting and serious consequences to the land and water. It is not possible to guarantee safe mining practices. Once the damage is done, we can not back up on this decision. MN needs to provide incentives for non-destructive industries to move north to provide jobs. Vicki Effertz 8086 Curtis Lane Eden Prairie, MN 55347

Vicki Ericson 57972

I have concerns about the runoff from the holding ponds to the Embarrass River watershed & the 100 mile swamp. Those regions articulate with the Boundary Waters. Please protect them! Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Vicki Everett 9502

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Vicki Everett 11 Elizabeth St #26 Duluth, MN 55803

Alphabetical by sender's first name

Vicki Everett 18437

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Vicki Everett 11 Elizabeth St #26 Duluth, MN 55803

50556

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Alphabetical by sender's first name

Vicki M Gustafson 57212

Dear Sirs:Minnesota is one of the most beautifulest states in USA. I have focused on keeping it that way my whole life. I do dispose of dangerous chemicals properly, recycled everything I should. I never litter, etc etc. I know we need to keep our water, air, etc clean of any dangers. It is all we have. Our children, grandchildren deserves better. They are our future. We need to focus on ways to stop toxic pollution and anything that will threaten our water supply, air or land. Sulfide mining in northeastern Minnesota will be a very big mistake. Please protect our children. This mine could create more illnesses that could lead to death. Anything toxic will destroy life. MN will not benefit from sulfide mining. Thank you and I apologize for my messy letter.Vicki M. Gustafson121 Carlisle AveDuluth, MN 55803

Vicki Sanville 43999

I submitted my comments to the SDEIS this morning. I would like to be included in the mailings or electronic distribution of the recoRd I included my name, Vicki Sanville, and would now like to submit my address and e-mail contact which is as following: Vicki Sanville 1501 Vermilion Road Duluth, MN 55812 email address: vickisanville@yahoo.-com Thank you. Vicki Sanville On Thursday, March 13, 2014 11:32 AM, *NorthMetSDEIS (DNR) <NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

44237

Why do we need to move ahead with the permitting of the proposed copper mine. We do not have to do so We should understand by now that the resulting damage to our environment does not let us even consider such an effort. What can possibly keep the mercury contamination from eventually moving into the groundwater and causing major changes in the quality of the groundwater involving a huge part of our natural world. We need to look far ahead and try to understand what will be critical for our quality of life in the future. We may be forced to live a much more basic existence where technology will not be as much a part of our lives. The quality of natural resources such as our water will take on new meaning for our existence. We should begin to put more consideration into living with and carefully maintaining much of what already exists, particularly in our corner of the world. Vicki Sanville Duluth, MN

Vicki Stute 42758

See attachment

Alphabetical by sender's first name

Vickie Vogt 39761

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

vicky kent 39404

Dear Reader, I am NO expert, but common sense tells me the risk is too high. I vote against allowing this project to go ahead. Thank you for the opportunity to express my opinion. Victoria P. Kent 5555 Dewey Hill Road Edina, MN 55439

Vicky Shields Craig Mevissen 52237

I do not support polymet mining in northern minnesota. Victoria Shields 6641 Lochanburn Rd Eden Prairie, MN 55346 - Craig Mevissen, Vicky Shields HYPERLINK "mailto:mev.shields@gmail-com"mev.shields@gmail-com

Vicky Wicks 5978

20 years of jobs for 500 years of pollution. How short sighted are we to even consider this. I want my children, grandchildren, great grandchildren, . to be able to experience the incredible natural beauty of NE Minnesota. The area really is the jewel of Minnesota. Don't tarnish it with this Canadian company's aspirations. Sent from my iPhone

Alphabetical by sender's first name

Victor Hemmy III 40266

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Victor Hemmy III 771 kealahou street Honolulu, HI 96825 US

40358

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Victor Hemmy III 771 kealahou street Honolulu, HI 96825 US

Alphabetical by sender's first name

Victor Walter 40812

Hi, my name is Victor Alan Walter. I live at 18975 Valley View Road in Eden Prairie Minnesota, 55346- I have lived in the Twin Cities area most of my life. I was born in Virginia Minnesota in 1956- I live in the Cities but my heart lives in Northern Minnesota. I can't afford to live up there. I have a family down here. I know most people that live on the range have one or two jobs to support their family. Travel is horrible in the winter. All stores are far away and the produce sucks. But there is a reason people live up there. The beauty of the land. Easy access to forests, swamps, open fields, rivers, lakes and swimming. People live up there for a reason. Because they love living there. The water moves as freely as the air. Life is not easy, financial security is not easy. We don't need more mining jobs in northern Minnesota. Our tourism will be worth much more in the long run for our states financial security. Any degradation of our water will be a slow death for our state. Please do not mine for copper in Northern Minnesota. I love our state. I want to stay here. I want to live here. I want to visit my homeland. Please.

Victoria Bloch 42454

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents completely unacceptable environmental risks it should not be allowed under any circumstances. This dangerous sulfide mining operation threatens to pollute Minnesota's water with sulfuric acid and heavy metals for 500 years (or so, give or take a decade or three), and endangers both clean water and habitat in the Lake Superior basin. Lake Superior is a precious national resource, as is every significant body of fresh water in our country. With fresh water at a growing premium, any threat to water represents a threat to our economy, our citizens' health, and our nation. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mrs Victoria Bloch 2556 Granville Ave Los Angeles, CA 90064-2804

Victoria Morrison 39763

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Victoria Morrison 74 Noland Dr Clyde, NC 28721-9299 (218) 341-8294

Victoria Oakey 14370

Feb 13, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting their clean water. I and they have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This irresponsible trade-off is not worth the risk. Sincerely, Miss Victoria Oakey 18 Cogges Hill Road Witney Oxfordshire, None OX28 3FP 4401993708832

Alphabetical by sender's first name

Victoria Singer 40878

Mar 9, 2014 Ms Lisa Fay MN Dear Ms Fay, I'm not a Minnesotan. I live in Washington State. But I am a part of the planetary ecology, and this proposed mining project is of some concern to me. If our landfills were mined for precious metals, and manufacturers pressed to create more from recycled products, there would be no need to open new mines. There would be no need to risk the health and home of all living things. Open pit mining is (or should rightly be) obsolete. Hold the line. Say no to PolyMet. Sincerely, Ms Victoria Singer 705 Lyle Ave # 1 Lyle, WA 98635-9061 (509) 557-5456

Victoria Turke 18254

My name is Victoria Turke, V-I-C-T-O-R-I-A, T-U-R-K-E. The supplemental draft environmental impact statement is inadequate in several areas and should be gone through to thoroughly answer questions in detail. We cannot let this report define the future of our clean water. The SDEIS uses a small bit of data from 1984 to address the water flowage and its impact concerning the issue of how much and how fast our groundwater, streams and lakes will be polluted. The report is using data that does not reflect what the conditions actually are at the proposed site. The report does not reflect the impact that this project will have on our clean water. This report does not adequately answer the question of how this perpetual need for taking care of the polluted waters is to be paid for, and when questioned, they say those details will be addressed during the permitting process. This just is not sufficient. This is our time to voice our concerns about the PolyMet mine that is proposed. We deserve to have all of the details now, not when it’s too late. These questions are far too important to put off. The SDEIS does not answer these questions and should be sent back. Thank you.

19527

My name is Victoria, V-I-C-T-O-R-I-A, Turke, T-U-R-K-E. I live at 1004 Trenton Circle North in Plymouth, Minnesota, Zip Code 55441.I'm concerned about the PolyMet sulfide ore mine that is being proposed for the Hoyt Lakes area. Computer models show that the water from the mine and processing plant will be contaminated with toxic metals and sulfate. I spend most of my time in Northeastern Minnesota and own property on a beautiful lake. I am concerned that PolyMet will not be able to capture and treat all of the contaminated water before it reaches the St. Louis River and Lake Superior. A great majority of us are downstream from this project. We need to ask more questions about how PolyMet can possibly keep its word about protecting our waters. PolyMet's own plan admits that millions of gallons of polluted water will seep offsite. The SDEIS does not completely address this subject. How will PolyMet be able to treat the polluted water for 500 years? How will they pay for it? We need more answers. Thank you.

Vincent Graziano 48718

Mar 11, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. I would like for once the State and DNR actually protect the natural resources that they are supposed to protect and not just hand over our future to corporations and especially foreign corporations. Examples are the Minnesota River, one of the most poluted in the country, moose hunting when moose are going extinct, wolf trophy hunting, not protecting wetlands, on and on and on. Their own simulations say polution for 500-years, in other words FOREVER. If this kind of mining does ever become safe (which I doubt), then it will be worth even more in the future. To the unions who I usually defend: not every job is worth doing if it destroys your future. Northern Minnesota has the golden goose. Defend it, don't blindly pander to the "jobs" message. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Vincent Graziano 121 Otis Ave Saint Paul, MN 55104-5635 (651) 644-4388

Alphabetical by sender's first name

Vincent Trovato 39619

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

39620

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Vincent Trovato 7501 Ontario Blvd Eden Prairie, MN 55344-1889

Alphabetical by sender's first name

Vincent W. King 45163

I am a native of north-central Minnesota and have been camping, hiking, skiing and working in the area near the Polymet site for 44 years. I worked as a wilderness guide in the BWCA. During my time in the northland, I have become familiar with its fractured geology, clean waters, and extremely fragile biomes. Essentially every body of water there is connected to every other body of water, both on the surface and in the subsurface. It is simply ludicrous to suggest that any amount of human engineering, or any amount of money, can prevent a disaster from occurring, resulting in the acid mine drainage entering the surface and underground waters in the area. Apparently the duration of necessary treatment is subject to some debate, but from what I have read treatment will be necessary for many decades, if not several centuries. No human-devised system can stand up for the period of time needed to treat this water. Northern Minnesota's lakes, streams, marshes and bogs are an irreplaceable resource. The short-term economic gains from sulfide mining are far outweighed by the long-term risk. I urge you to reject any permit for sulfide mining in northern Minnesota. Thank you. Vincent W. King 1941 Ashland Ave St Paul, MN 55104 Please consider your environmental responsibility before printing this e-mail. NOTE: This e-mail message is intended only for the use of the individual or entity named above and may contain information that is privileged and/or confidential. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this e-mail message is strictly prohibited. If you have received this e-mail Message in error, we apologize. Please notify us immediately by telephone and delete the e-mail message from your computer. Thank you. VINCENT W. KING, P.A. VINCENT W. KING, ATTORNEY-AT-LAW / 310 FOURTH AVENUE SOUTH / SUITE 900 / MINNEAPOLIS / MINNESOTA 55415 USA HYPERLINK "http://www.vklaw-net/"http://www.vklaw-net / E-MAIL HYPERLINK "mailto:vinceking@vklaw-net"vinceking@vklaw-net / TEL 612-288-9225 / FAX 612-344-1255

virgene haas 38799

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms virgene haas 1057 26th Ave SE Minneapolis, MN 55414-2643 (612) 331-2877

Virgil Boelland 42591

See attachment

Virgil Sohm 17825

I am an enrolled member of the Lake Superior Band of Ojibwe at Nett Lake Reservation in the State of Minnesota. I express grave concern for our water,wildlife and fauna of the northern region of the Arrowhead landbase. Culturally this is our medicinal,hunting and wild rice harvesting territory. The Federal Government and State government has a fiduciary responsibility to honor the rights our grandfathers were promised in the Treaty of 1854- Sulfide mining profits will benefit only the Glencore XStrata Corporation and the Polymet Mining subsidiary company. We do not have to trust their words on keeping our environment safe. Toxic waste labelled as reject concentrate is approximately 99% of the earth they will dig up to extract less than 1% of copper and other precious metals.Keep in mind that the released toxins will disseminate in the water and the air in every direction. The Polymet Environmental impact statement is submitted for public comment prior to March 13,2014- I'm not a scientist but treating the poison water for 500 years is not financially or ecologically sound advice for Native Americans,Iron Rangers,tourists, wildlife or wild rice. Clean water is paramount to all life. Our brother the wolf has been hunted and trapped for two winters now, our moose population has declined to the point of decision where the Grand Portage, Bois Forte and Fon du Lac tribes are not allowed a ceremonial use permit for a moose.Our lakes are the source of the fish populations. Our wetlands were left here by the receding glacier of the Ice age. We can not reduplicate this process. We as Anishinabeg stand together as stewards of Mother Earth. In review of the SDEIS, the fact that there are inaccurate data and the need to keep our National forests sustainable;I urge you to reject any and all plans for sulfide mining. Miigwech, Virgil D Sohm PO Box 662 Tower,MN 55790

Alphabetical by sender's first name

Virginia Dale 39075

---Original Message--- From: dalev1@earthlink-net [mailto:dalev1@earthlink-net] Sent: Monday, March 10, 2014 10:45 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, Virginia Dale 2430 Irving Ave S Minneapolis, MN 55405

Virginia Danfelt 36340

For Lis Fay, EIS Project Manager:

Virginia Groos 57990

I totally agree with the information below & feel we are going in the wrong direction - need more wind & solar power. Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid mine dniinage has polluted waters in all other places where sulfide ore mining has occurred. 1 have grave concems about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife, exchange of federalland within Superior National Forest, and cumulative impacts, and support the No Action Altemative.

Alphabetical by sender's first name

Virginia Mattson 40264

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, Virginia Mattson 4917 Andrew St St Bernard, OH 45217 US

Virginia Nichols 57444

I will be brief - this plan is short sighted, and will irrefutably negatively affect the waters that Minnesota is famous for. It is astounding to me this mine is even under serious consideration, given the obvious risks. Virginia Nichols 330 S. 4th St Ames, IA 50010

Virginia Rosenbaum 35315

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Lake Superior is connected to the other 4 Great Lakes; together they hold one-fifth of the world's fresh water supply. It would be CRIMINAL to allow a corporation to risk polluting this vital resource, only for a business to make a short-term profit. Millions of people rely on the Great Lakes for their drinking water, and there is also a large (billions of dollars) fishing industry that requires clean water. Would we acquiesce to the risk if such open-pit mines were to be opened on Canadian shores. NO, we would not. We cannot permit these open-pit mines to operate on the shores of the Great Lakes. Thank you. Sincerely, Virginia Rosenbaum 1133 Judson Ave Evanston, IL 60202-1314 (847) 864-5514

Alphabetical by sender's first name

Virginia Schwertfeger 16081

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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Virginia Sullivan 16050

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Voyageurs National Park Association 54910

See attachment

Vu Thanh Phan 54200

I don’t think having a mining project by the boundary water is a good idea in the long run. I personally enjoy sightseeing in the boundary water and canoeing in that region. Having a mine up there can potentially damage the aquatic ecology and the natural habitat of many species. Also, I would like you to review and take a look at the mining project extra cautiously. Thank you in advance!

W Clinton Jurgens 16935

Ladies and Gentlemen: Please accept the attached comments on the NorthMet Mining Project and Land Exchange Supplemental Draft Environmental Impact Statement (SDEIS) . If you would prefer a Word document, I can forward that as well. Thank You. Respectfully, Clint Jurgens HYPERLINK "mailto:clintjurgens@mac-com"clintjurgens@mac-com 3770 Talero Curve Chaska, MN 55318 The information contained in this message and any attachment may be proprietary, confidential, and privileged. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify me immediately by replying to this message and deleting it and all copies and backups thereof. Thank you.

Alphabetical by sender's first name

W. Charles Huskins 42980

This message is addressed to: Ms Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Mr Douglas Bruner United States Army Corps of Engineers Mr Tim Dabney United States Forest Service I have attached my comments on the SDEIS for the NorthMet Mining Project and Land Exchange. Please provide a confirmation of receipt. Thank you for the opportunity to comment on the SDEIS. Please include me on all mailing lists/groups regarding the NorthMet/Polymet proposal. Sincerely, W. Charles Huskins, MD, MSc 1323 Lone Pine Drive SW Rochester, MN 55902

W. Knox 47037

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, W. Knox 3156 23rd Ave S Minneapolis, MN 55407

Alphabetical by sender's first name

W. Knox 47039

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, W. Knox 3156 23rd Ave S Minneapolis, MN 55407

Wade Christensen 18095

My name is Wade Christensen. I am a long-time member here, in Northern Minnesota. I believe to GPM, Incorporated. We have a number of our guys here supporting this project. I want to thank the Army Corp of Engineering, the Department of Natural Resources, and the -- there's another one in there, I know. I can't remember which one it is. I want to thank you for your due diligence in this project because this is very important to us. I was going to come up here and talk about financial assurance as it relates to what PolyMet has to do to get this project off the ground. I'm going to do that in a little different way and I'm going to ask a couple guys to stand up. One of them is Bill Moraski. Bill, can you stand up? Adam Christianson. And David Hughes. Stand up. This is my vision -- Bill, please, no, stay standing. This is my vision of financial assurance. Number one, I do have to point out, it's amazing how Bill, at 75, looks younger than Dave. I wanted to point that. Here's what financial assurance looks like to me. I called on Bill 25 years ago and I probably haven't seen Bill in 20 years. Adam, my son up here, will be calling on Dave, and you could replace any one of us with 20, 30, 40 other vendors that are here tonight, and it's the same process. It's the process that financial assurance is that the Iron Range is evolving. Taconite is always going to be here, but we have the opportunity, with PolyMet, to do something completely different, and to take that next step in the evolution of mining. We support PolyMet 100 percent. We thank you for the commitment that you've done in good science and preparing them for this project. So thank you, and thank PolyMet for being a part of this. BECKY SAHR I'm Becky Sahr and I defer my time to Bud Stone.

Alphabetical by sender's first name

Wade Johnson 40443

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired

42196

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. There is enough destruction taking place on this planet already for the sake of easy money. When it gets to the point of sacrificing our environment as the Polymet proposal does, it must end. I have enjoyed lots of time spent in northern Minnesota and hope to continue to do so. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr Wade Johnson 4720 13th Ave S Minneapolis, MN 55407-3558

Alphabetical by sender's first name

Wallace Elton 12672

Feb 13, 2014 Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, Northern Minnesota is a special place because of its clean water and valuable wildlife habitat. I am fortunate to have visited several times, and I hope to do so again. Therefore, I have major concerns about PolyMet's plan to mine sulfide ore in the region as described in the Supplemental Draft Environmental Impact Statement. I believe the SDEIS is insufficient and should not be approved because it proposes no mitigation for indirect damage to wetlands and is lacking vital information about long-term water treatment needs and how they will be paid for. This information is necessary to fully assess the environmental impacts of this proposal. PolyMet seeks to mine in high quality wetland habitat that is presently in federal (that is, public) ownership as a part of the Superior National ForeSt The mine, if built, will destroy more than 900 acres of wetlands, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream and into Lake Superior, an important resource in itself. Beyond the inadequacy of the SDEIS cited above, the damage to wetlands and forest habitat will affect many kinds of wildlife directly, including four bird species identified as of greatest conservation need: spruce grouse, black-backed woodpecker, northern goshawk, and boreal owl. In addition, birds that depend on fish and other aquatic organisms for food, including belted kingfishers, hooded mergansers, common terns, and common loons, will be harmed by the decline in water quality both locally and downstream. For these reasons, I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this dangerous proposal by PolyMet to mine sulfide ore. Thank you for considering my comments. Sincerely, Mr Wallace Elton 36 Curt Blvd Saratoga Springs, NY 12866-8913

walmoe 19941

We just received this from Lloyd Ollila, Birch Point Road, Tower, MN 55790- Please include as comment. Walt Moe > > > The Canadian government just rejected and Gold and Copper mine. > > VanCOUVER - The federal government has again rejected a proposed > $1-5-billion, open-pit, gold-copper mine in British Columbia's > Interior over environmental concerns, a decision critics are > celebrating but one the company vows to fight. > > Environment Minister Leona Aglukkaq said Wednesday evening that her > ministry has rejected the New Prosperity Gold Copper Mine for a second > time because it will cause significant adverse environmental effects > that can't be mitigated. > > Just four years ago, the ministry rejected the project because Taseko > Mines Ltd. (TSX:TKO) plan to drain a lake to use as a tailings pond. > > "The Government of Canada will make decisions based on the best > available scientific evidence while balancing economic and > environmental considerations," said Aglukkaq in a news release. > > "The government will continue to make responsible resource development > a priority and invites the submission of another proposal that > addresses the government's concerns." > > Aglukkaq said in making the decision, the federal government > considered and agreed with the conclusions of an report released by > the Independent Review Panel on Oct. 31, 2013- > > That report found the project would cause "significant adverse > effects" on water quality, fish and fish habitat in a lake of > significance to area First Nations. > > The site is 125 kilometres southwest of Williams Lake, B.C., and is > the tenth largest undeveloped gold-copper deposit in the world. > > Following the report's release, Taseko applied to the Federal Court > for a judicial review of the assessment, arguing the panel used the > wrong information in drawing its conclusions. > > Brian Battison, vice-president of corporate affairs at Taseko, said > the company is "terribly disappointed," but added Wednesday's > announcement is not the end of the project because it's too important > for British Columbians and residents of a region known as the Cariboo. > > "We're going to continue with our existing judicial review, which is > currently before the courts," he said. "That will continue to run its > course, and consideration will be given to what other course of action > may be available to us." > > Asked if the company would submit another proposal, Battison replied, > "I'm not saying we won't, but we've been down that road before." He > said the process has cost the company millions of dollars. > > Battison said the decision will be "tough news" and a "shock of > disappointment" for the thousands of Cariboo residents who have > supported the mine. > > "It's a significant event in the life of mining in British Columbia, > and it will have a profound effect on the attitude investors have > towards the province," he added. > > But Tsilhqot'in Tribal Chairman Joe Alphonse said members are excited > about the announcement, which was big news to the community, and it's > time to celebrate. He said he's no longer worried about the project > moving forwaRd > > "I think if you've had two scathing reports like this come out, you > know, I think that speaks volumes about any possibility of moving > forward on this project by anyone," he said. "So we have comfort in that." > > Alphonse said certain areas should remain untouched, like Fish Lake, > but the Tsilhqot'in have been developing their own mining policy. > > "We would be open to mining proposals if companies come to our door, > work with us, treat us with respect and allow us to develop proposals > together," he said. "In today's day and age, projects like this aren't > going to go through unless all parties are working together." > > The Sierra Club BC also welcomed the announcement, saying the decision > was the only one the federal government could make. > > "Even as we are celebrating this important moment, we are m

Alphabetical by sender's first name

walmoe 20184

COMMENTS ON POLYMET SDEIS JAN 22, 2014 Revised 2/26/2014: Only 10% of the water in the world is fresh water. The second largest fresh water lake in the world is Lake Superior. Fresh water is essential to all forms of life. We cannot survive without fresh water but we can survive without precious metals until they have proven technology available to insure non-pollution. New high temperature and acid leach extraction techniques make precious metals mining doable and profitable, but also polluting. The POLYMET representative stated that the acid is absorbed by the metal – is this true. The MPCA should halt mining production immediately once the pollution hits a minimum level if Polymet is allowed to mine. Lake Vermilion is already considered an impaired lake with fish consumption advisories regarding mercury. Also the Vermilion River. The pollution levels are already above minimums due to the Minntac mine. I would like to know if and how many mines the MPCA has stopped from production when the pollution minimums allowed are reached. Stopped until the problem was solved. How many precious metal mines are there in the world that have pollution probleMs The one in Finland is one for example of sulfide mining having probleMs If Polymet is interested in the environment, instead of all their advertising, they could have spent the money cleaning up the two polluted ponds at the mine site. This would have been a much better advertisement to show their interest in the environment. It would please me more to see greater effort to develop non-polluting technology before beginning mining. Thank you, Marcie Moe 3331 Nisen Dr Tower, MN 55790 P.S. I really would like for the St Louis River be tested for pollutants to establish a baseline. Plus, it makes no sense to use all the taxes Polymet will be paying to pay for the cleanup of the pollution left behind. The effect of mines in Finland at the present time: Talvivaara Mining Company plc (HYPERLINK "http://en.wikipedia-org/wiki/Finnish_language"Finnish: Talvivaaran Kaivososakeyhtiö Oyj) is a HYPERLINK "http://en.wikipedia-org/wiki/Finland"Finnish-based HYPERLINK "http://en.wikipedia-org/wiki/Nickel"nickel mining business operating in HYPERLINK "http://en.wikipedia-org/wiki/Finland"Finland. Listed on the HYPERLINK "http://en.wikipedia-org/wiki/London_Stock_Exchange"London and HYPERLINK "http://en.wikipedia-org/wiki/Helsinki_Stock_Exchange"Helsinki Stock Exchanges, the company is a constituent of the HYPERLINK "http://en.wikipedia-org/wiki/OMXH25"OMXH25 index. Sulphate emissions vastly exceed limits. Neighbours complain about dust and odours from Talvivaara mine print this "Are we supposed to sit quietly and suffer from the dust and odours. Our houses, land, and shoreline are worthless", says Salme Kananen, 67, as she bakes bread in her house in the village of Taattola in Sotkamo in the east of Finland. Nearby is Lake Hakonen, whose surface has started to bubble in a strange manner. The Talvivaara nickel mine is five kilometres away. "There are three large anthills on the shore of the lake. Last summer all of the ants disappeared. I have walked along the lakeshore since I was a child, and I have never seen anything like this", Kananen says. Salme's husband Juhani Kananen, 68, shows the rainwater collectors in the back yaRd Kananen says says that samples are taken from the collectors once a month. "Not much has been found. In the winter the snow is like a layer cake with layers of black graffiti duSt The prevailing winds are from the southwest where the mine is located." When the smell is strongest he will not even venture out to the mailbox. He says that the hydrogen sulphide aggravates his asthma. "We were hoodwinked when they set up the mine. They promised that the extraction of metals involves a closed cycle, and that nothing would spread beyond the mine area", complains neighbour Alpo Partanen. Partanen is a member of the Sotkamo municipal council. The council visited the mine on Tuesday bec

Walt Handschin 42782

See attachment

Alphabetical by sender's first name

Walt Moe 18076

I am Walt Moe. First, I want to thank everybody for the efforts they put out the SDEIS. I downloaded that into my computer. It was quite lengthy, all 2,169 pages of it. But searching the SDEIS, I have found no concrete actions being proposed to be taken in case of things going wrong at the PolyMet mine causing irreparable harm to the waters of the Embarrass and Partridge Rivers, river watersheds and surrounding thousands of acres around these watersheds. The mining operation is predicted to last 20 years, and the remediation efforts to last at least 200 years, more likely 500 years, or even into perpetuity. To me, this is a poor tradeoff for the people of Minnesota. Murphy's Law states that if anything can go wrong, it will. Having spent my working life as an electrical engineer, dealing with making sure that if Murphy's Laws comes true, which it will, in whatever we do, we must have fail-safe triple-redundancy backups to avoid catastrophic disasters. My questions are how much monitoring is going to be required? For how long? How will it be handled? How quickly is a response going to occur? Who's going to make the decisions to curtail operations, and who's going to decide if it operations are allowed to presume -- or resume? As I understand the procedure, the above is to be spelled out in the actual permitting process, which I'm not sure will be subjected to the same scrutiny as the EIS. If it isn't, I would certainly like it to be. Again, I think that the approximately 300 jobs for 20 years versus 200 to 500 or more years of remediation is an extremely poor choice unless other alternatives can be explored. I don't think we're in a do-or-die situation yet where we can't exist without mining these precious metals. Thank you.

Walt Niemiec 38933

This is an amazing story and I'm bewildered at the potential of this becoming reality. The DNR gets into such a tizzy about slot limits on walleyes to the point of total buffoonery yet something as deliterious as this mining operation seems to be a definite possibility. I'm for economic development, people need jobs, but this cost is far too high. I believe it should wait unless and until a less obtrusive mining procedure can be developed. Walt Niemiec 16740 Upper 1st st so Lakeland Shores, MN 55043 651 436 5650

Walt Seibert 18240

It’s Walt, W-A-L-T, Seibert, S-E-I-B-E-R-T, 345 Edgewood Avenue South, St. Louis Park, Minnesota, 55426. My comment is that I don’t want us to stand in the way of progress, but I also want to be very sure that we know that the standards that have been created are correct and will prevent damage to the either land, rice, water, air, and I guess also I’m concerned about the sound pollution, as well. And that’s it. I just want to make sure that the standards that have been created have been created in a thoughtful process, and have been signed off on by all of the appropriate agencies with the needed knowledge. And of course, I am out of the ‘60s and I’m skeptical. Thank you.

Walter Prentice 39203

Mar 11, 2014 Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Walter Prentice 1850 Vermilion Rd Duluth, MN 55803-2509 (218) 730-9973

Alphabetical by sender's first name

Walter Velishek 41931

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Walter Velishek Belle Plaine, Minnesota

Waltraud Usahanun 29299

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt People need to vote unacting authorities acting irresponsibly to futuregenerations and living creatures out of occupations once and for all. ENDLESS GREED FROM ECONOMY and HELPING AUTHORITHIES HAS TO STOP ALL KINDS OF DESTRUCTION TO THE ENVIRONMENT and LIVING CREATURES BY APPLY STRONGEST JUSTICE TO THE RESPONSIBLES. DEMAND ALL INITIATORS ACTING IRRESPONSIBLY TO PAY REDEMPTION TO FUTUREGENERATIONS. "It is horrifying that we have to fight our own governments to save the environment." Sincerely, Waltraud Usahanun Treustr. 63 / 6 / 12 0 Vienna, None 1200 4316503612290

29311

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt People need to vote unacting authorities acting irresponsibly to futuregenerations and living creatures out of occupations once and for all. ENDLESS GREED FROM ECONOMY and HELPING AUTHORITHIES HAS TO STOP ALL KINDS OF DESTRUCTION TO THE ENVIRONMENT and LIVING CREATURES BY APPLY STRONGEST JUSTICE TO THE RESPONSIBLES. DEMAND ALL INITIATORS ACTING IRRESPONSIBLY TO PAY REDEMPTION TO FUTUREGENERATIONS. "It is horrifying that we have to fight our own governments to save the environment." Sincerely, Waltraud Usahanun Treustr. 63 / 6 / 12 0 Vienna, None 12007 4316503612290

Alphabetical by sender's first name

Wanda 8741

Thank you so very much for informing me about the mine. I appreciate it very much. Wanda K. Sonnentag From: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"*NorthMetSDEIS (DNR) Sent: Monday, January 20, 2014 3:32 PM To: HYPERLINK "mailto:jimwansonn@charter-net"Wanda Sonnentag Subject: RE: Reject PolyMet's NorthMet Mining Proposal Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Wanda Ballentine 9665

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Wanda Ballentine 1181 Edgcumbe Rd 314 St Paul, MN 55105

Alphabetical by sender's first name

Wanda Ballentine 18534

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Wanda Ballentine 1181 Edgcumbe Rd 314 St Paul, MN 55105

43995

Mar 13, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, Minnesota has never permitted a project that would destroy this many acres of wetlands. Wetlands are of enormous value and so many have been destroyed throughout the US. They are PARTICULARLY necessary as we are getting both more floods and drought. Wetlands can hold water during floods and maintain water during droughts. Further, they filter the water and increase it's purity. And then, the idea that following the close of the mine would require hundreds of years of treating polluted water.. Always there is the statement that jobs are the necessity for any proposed business. How long will the jobs last - a lot at first, but much fewer later - relative to the years of treating the polluted water. Will PolyMet PAY for treatment. Or - as so often happens - will they go bankrupt and leave it up to the taxpayers . The decisions about PolyMet will have ramifications right up to the edge of the Boundary Waters Wilderness. There is sulfide mine exploration and development happening along the South Kawishiwi River and on the shore of Birch Lake right now. If Minnesota allows this industry with an unbroken record of water pollution into this area, the pure water that is the lifeblood of the Boundary Waters would be severely threatened. According to what I read, PolyMet's studies contain inaccurate water data that must be corrected - this lack is true of I don't know how many extraction proposals made in this country. They always come through saying there are minor risks - but major risks are found after the fact when it's too late. I keep thinking of Fukushima, Duke Energy, Freedom Works in West Virginia, etc Likewise, the mine plan lacks analysis of human health impacts from mercury and asbestos-like fibers - then I think of Deepwater Horizon and the health disasters caused the people there - though they were told everything was safe, or the fish from waters near Fukushima - but also to California, of the tremendous problems caused by "fracking"with water and air pollution. Governments and corporations will always swear things are just fine, but observing all the health and environmental disasters that occur regularly, there is no reason to believe them. Sincerely, Ms Wanda Ballentine 1181 Edgumbe Rd St Paul, MN 55105 (651) 200-3093

Alphabetical by sender's first name

Wanda Ballentine 50610

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Wanda Ballentine 1181 Edgcumbe Rd 314 St Paul, MN 55105

warren 41249

Lisa Fay MN DNR Lisa, My findings are that the Draft EIS(SDEIS) does in fact cover all areas of environmental concerns and the PolyMet Mining Project should be allowed to proceed. Thank you, Warren Johnson 1003 South 2nd Ave East Ely, MN 55731 218-365-6360

Warren Anderson 42873

See attachment

Warren Banks 42238

Is there a verified history of the effects of copper-nickel mining on the adjacent environment. Warren Banks 13776 Fordham Ave Apple Valley, MN 55124

Warren Fries 42205

Mar 8, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Warren Fries 2941 Corte Diana Carlsbad, CA 92009-5913 (949) 487-0830

Alphabetical by sender's first name

Warren Howe 42620

See attachment

Warren L High 57261

No mining should be allowed in this area because of the destruction of the fresh water applied to Lake Superior and our extreme world problem for potable water. Environment is most important to human survival.Warren HighDuluth, MN 55806

Water Legacy 52178

See attachment

Wayne E Holmberg 54860

See attachment

Wayne E Potratz 58137

The monitoring of the mine site will required hundreds years of support. The mining co and the government will more than likely not fulfill its obligations for cleanup and mitigation …. This is the pattern for most mining and industrial pollution sites historically. The trace off is too great … 200 jobs and 20 years of extraction vs centuries of pollution and destruction. I do not trust the corporation to fulfill its obligation once it has extracted all the metal wealth … short term $ long term problems.

Alphabetical by sender's first name

Wayne Hoklas 45766

Mar 12, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." Dear Mrs Fay, I am greatly concerned with the future prospect of what the Polymet Mine means to our great states water resources and the overall health of our states environment. I understand that there is a great need for high paying jobs in the northern iron range area, but I feel that the potential costs that the Polymet proposal holds are so huge that the possibility of several hundred high paying jobs for twenty years pales in comparison to the enormous negatives that this project represents. At a time when the world is running out of drinkable water, we are looking at the possibility of one our our states watersheds being poisoned for potentially hundreds of years is absolutely insane. I feel that the potential costs of this project are so large that the process of reviewing the proposal should be stopped immediately. But I also understand that the corporations, both domestic and foreign, hold so much sway that our regulartory agencies cannot simply stop and protect the public without a lengthy review. That being the case I would like at a minnimum that the DNR do the following: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." I do not want the resources of our state to ber squandered for this and future generations so that a twenty year windfall can be realized by a few interests.

58107

The proposed project by PolyMet Mining is a rash and irrational proposal. The questions raised by the speakers regarding the inaccuracies of the watershed in the area around the proposed site need to be addressed and possibly investigated as to why the watershed was not shown correctly. The insanity of this proposal and the cost environmentally of proceeding with this project far exceed the benefits that will be realized for an estimated 20 year period.

Wayne Kivela 43005

Alphabetical by sender's first name

wayne sheridan 40365

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, wayne sheridan custer sf, CA 94124 US

Alphabetical by sender's first name

Wayne Sticha 16223

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Wayne Veasey 54211

I believe you shouldn’t build a mind because it’s gonna pollute the air and also flood the lake with mud and bad chemicals. It’s gonna hurt people and ruin the nature. It affects lakes, rivers. Over just getting copper. You can get copper somewhere else.

Wehr Jeff 21355

I have owned land and fished the ely area for the last 20 years. Big birch lake was one lake that was mined over the years and since then the fishing has been bad. These people did not bring the jobs that they claimed to bring to the state.I no longer fish that lake because of the mining.What makes you think this company will bring any jobs to the area.Problem with big mining is the ones setting back collecting all the cash do not care about and they don’t come out and look what they have done to the state environment they just sit back and laugh and lie to people.We as the people of this great state of Minnesota should have learned long ago about these people instead of letting big money win all the time.The walleye is the most reason why people come vacation to the state.Are these waste ponds going to be controlled for runoff.The problem with that is by the time we find out about runoff it is to late and giving them a fine ha they have so much money they don’t care.I am going to go to one of these public meeting to see if I can put one of these people on the hot seat and see what the answer are.These mining people do not care about the state and we need to send them on there way and they can mine in there own backyaRd Thank You. Jeff Wehr

Alphabetical by sender's first name

Wendall Maijala 42550

See attachment

Wendy Griffin 18146

My name is Wendy Griffin. G-R-I-F-F-I-N. I live in Lake Elmo, Minnesota, which is on the east side of St. Paul. I am a natural resource specialist. And for the better part of my career I have been doing water quality testing on the east side of the metro area. And I'm sure we're all aware of some of the water issues that are going on down here in the metro. People that live east of me have been dealing with bad water, groundwater, for a number of years as the plume is moving closer to the Saint Croix. I'm asking that the state step up their control and oversight on the PolyMet site. If the state can step up and do their job, it should be a good go for both of us. The state was built on the backs of agriculture, tourism, and mining. I would like to think that we in this state, who voted for an increase in taxes to keep our water clean and clear and useable for our future, would be able to get through this issue that we all can get along peacefully and still make an income and keep our clean water. I'm speaking behalf of a friend of mine who is from Stillwater, Minnesota, who is now living in Spain. They had a television program that said, "If you had 24 hours to live, what would you do?" She said, "I would get on a plane and go to the Boundary Waters for the last eight hours of my life." It's a great place to go. It's peaceful. It's wonderful. It's a gem. One of the gems of the world. And I would like to see it stay that way. But I would also like to see the fact that we would be able to keep people employed not only in the mining area but also out in the outstate of Minnesota, who people in agriculture are also losing jobs as their young people are moving to the metro. Thank you. And thank you all for coming.

Wendy Haldorson 6196

I truly would like to see the permits issued and to have this project move forwaRd I grew up in Silver Bay MN and my father was a miner all of his life. Having come from a family with six children and raised on the wages of one mining job, all six of us kids work and pay taxes in the state of MN. We are all married, have children and all of our children also work and pay taxes in the state of MN. I own my own company in Duluth MN, operated it for 21 years as of today. I have has several employees through the years. My oldest brother founded/owns a company in MPLS for the past 30 plus years, employing over 100 employees, mostly high paying engineers, all paying state taxes, etc Again, all from the one mining job my father was blessed with for nearly 43 years. If it was not for that one mining job, we would have potentially been raised in another state where mining is more accepted and I can guarantee we wouldn't be living in this state as we probably would have stayed in the state we were raised. It is extremely important to let PolyMet prove the can mine safely in this state with the technology we have today. Not only does our state need jobs and revenue, our country needs this. Thank you, Kirk D. Haldorson Sent from my iPad

Wendy Hansen 44397

I am writing to state that I am against the proposed PolyMet Copper Mine in Northern Minnesota. I don’t feel that putting jobs ahead of public safety can be justified. I have made my living in Grand Marais, Minnesota and our economy is founded on clean water. Please don’t let a company from India put our safe, clean water at risk. Thank you. Mark Hansen, boatbuilder 1217 Old Shore Road Grand Marais, MN 55604

Wendy Jerome 4190

Dec 22, 2013 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. The public may be easily misled into welcoming sulfide mining into the state, since we have a long history with iron ore mining and taconite. However, sulfide ore mining will change the face of northern Minnesota forever. Our watersheds are huge porous underground resources that sustain a world-celebrated wilderness. 100% of sulfide mines leak toxic carcinogens and sulfuric acid. The ancient Greek and Roman mines around the Mediterranean are still leaking today. We can count on the death of aquatic life and the terrestrial life - including human beings - dependent on it, if sulfide mining is allowed in Minnesota. Some think that sulfide mining would bring jobs to MN. On the contrary, it would bring a few hundred part time and full time jobs, that would be intermittent, given world ore prices. The mining would last 20 years. Minnesota would loose a slowly, but steadily growing recreation economy - and wilderness that is a world treasure for the world. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Ms Rev. Wendy Jerome 37 Upton Ave S Minneapolis, MN 55405-1943

Alphabetical by sender's first name

Wendy Jerome 54734

See attachment

58111

Thank you for the care and detail in the studies done to date. I believe permitting sulfide ore mining in MN is a risky undertaking that is nearly certain to destroy a growing recreation economy, water quality, wildlife, plant life and aquatic life and a natural heritage we preserve for the world. 100% of mines leak. Exchange of mine lands for private lands still robs wild life and future human visitors. They lose ultimately, irretrievably with land exchange.

Wendy Moylan 40188

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. I am very sympathetic to the need for jobs in northern Minnesota, however I strongly urge to you stand strong in supporting ONLY projects that will move forward the goals to reduce greenhouse gas emissions. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Thank you for your consideration of my position. Sincerely, Ms Wendy Moylan 800 Lakeview Ave Saint Paul, MN 55117-4022 (651) 731-5370

WENDY OREWYLER 40369

Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, WENDY OREWYLER 10960 56 CT S LAKE WORTH, FL 33449 US

Alphabetical by sender's first name

Wendy Paulsen 46979

Please accept my comments regarding The PolyMet NorthMet Supplemental Draft Environmental Impact Statement (“PolyMet" / "SDEIS”). As an organic inspector I constantly observe and work with the push and pull of utilizing natural resources rationally, reasonably and as sustainably as possible while simultaneously maintaining productive and successful businesses. The organic agriculture industry provides examples which show that with good intention it is possible to find reasonable middle ground. It is clear that natural resource extraction such as mining and logging are necessary and it is quite clear that there are better and worse ways of doing them. Equally, if not more important, is that there are better and worse places to do these activities. We do not log the ancient Sequoia trees or other timber in our national parks. Likewise, mining sulfide containing ore in a wet, pristine environment like northern Minnesota is akin to grazing dairy cattle in the deserts of Arizona - some things just don't make sense. Obviously technologies and circumstances do change over time making things possible and reasonable where they were not previously - for example where 200 bushel corn was unheard of decades ago, it is common now. But there are too many concerns and not enough changes in technology or circumstances to experiment with mining in a place as spectacular and unique as northern MN. First I would like to say there are parts of the proposal that I do very much appreciate - including the re-use of the existing mine buildings. and the use of Reverse Osmosis, however there are simply too many open questions and issues to allow mining to proceed as proposed. Among my concerns are: 1- PolyMet would pose an ongoing pollution threat to the St Louis River and Lake Superior, long after the mining stops. The company’s own models show that hundreds of years after the mine closes, water at the site will be polluted with heavy metals and sulfates from the mine. Unless all of this water can be captured and treated, the mine will pollute groundwater and surrounding streams and rivers. Unfortunately, even the company admits that millions of gallons of polluted water will escape untreated every year. And it is my understanding that fractures in bedrock have not been adequately addressed. The SDEIS has no contingency plans for mechanical break-downs in the complicated filtration system that PolyMet proposes to treat the polluted water, even though that system would have to operate for centuries. PolyMet's water treatment system isn't prepared for the super-storms that are growing more frequent due to climate change. Planners used old climate models to assess impacts of heavy rain on the operations and pollutants. As the 2012 flood in Duluth showed us, we need to be prepared for much more severe storms to happen more often. Worse, PolyMet’s model doesn’t even prove that the pollution stops after 500 years. Instead, the company simply stopped modeling at 500 years. In other words, the pollution could go on for even longer. 2- In the PolyMet mine plan fails to discuss financial assurance adequately - there are no details of the amount and type of damage deposit adequate to cover the cost of treating polluted water for hundreds of years. Minnesota has never permitted a mine that would require hundreds of years of expensive water treatment. This public comment period is the best chance for the public to weigh in on whether the financial assurance required of PolyMet would be adequate, but there is only a brief mention of it in the mine plan. 3- The tax estimates in the PolyMet mine plan lack detail and are full of discrepancies. From one draft of the mine plan to the next the estimated taxes jumped 500% without explanation. This is important, since the state taxes that would apply to a copper-nickel sulfide mine have never been used before. The copper-nickel mining industry is exempt from several state and local taxes, s

Alphabetical by sender's first name

Wendy Reid 14890

Feb 11, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

Alphabetical by sender's first name

Wendy Robertson 18349

Wendy Robertson. R-O-B-E-R-T-S-O-N. I am trying to sound as clear as I can with a bit of laryngitis, but I am a retired Duluth educator for the Duluth schools and also was a coach for the St. Louis River Watch Program, where I supervised students that work with monitoring the St. Louis River, with help in various scientific projects hands on. I currently live in northern Fairbanks Township, which is south of the PolyMet mine site, St. Louis River. I am also concerned and alarmed of the SDEIS plan to mitigate the 930 million (phonetic) acres that wasn't previously mentioned. The wetlands that will be eliminated by PolyMet's infrastructure, mine, waste piles (phonetic), et cetera, it is crucial that we take a look at it. The Federal US Army Corp of Engineers' mitigation role requires that (inaudible) before mitigation, which replaces the loss of wetlands, function within the same Hydrological Unit Code, HUC. The word to focus on here is "function." And the digit code refers to the St. Louis River Watershed and the Lake Superior basin. With this plan, functions of the wetlands will be lost by having the mitigation outside of our area. Having the compensatory sites in Simm (phonetic), Aitkin and Hinckley will not replace the loss of wetlands' functions to nature and the public. We are losing the services of these wetlands, which took nature thousands of years to develop, by accepting this plan's proposal to have 60 to 70 percent of the wetlands replacement in credits (phonetic) and other areas. The lands surrounding these wetlands are also indirectly altered and these will not be even considered in the total. The loss of wetlands' function will be a part of rampant and ongoing human and wetland destruction that is happening worldwide. I urge the Army Corps of Engineers to reject this SDEIS and require that Section (inaudible) insist on proper mitigation for the disturbance and destruction of these wetlands within the St. Louis River Watershed. If the people regard public input as vital to their decision making, I also request that the lead agencies extend the time for public comments by three more months; 108 days. And 2,000 plus pages is a lot to digest and make educated comments. Lastly, I protest having these three public hearings in January, which is the coldest winter month. The cold and icy weather may impair comments by the elderly, sick and the disabled. You are disenfranchising these groups. A public hearing does not expect to be disenfranchising the public.

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Wendy Robertson 44426

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Polymet SDEIS Commentary This brief commentary addresses several omissions, failures, shortcomings, and oversights within the Polymet SDEIS. First, this document fails to place the prospective mine within a larger historical, economic, and environmental perspective-the big picture (tbp)-necessary for comprehensive understanding and evaluation of its proposals; without such contextual broadening the document is reduced to a mere roster of data. Indeed, the SDEIS itself eschews any such contextual analysis (p. 6-1, "It is not possible, however "). Second, and as a result of the first, it fails in a host of particulars. TBP: AWOL from the SDEIS The primary failing of the SDEIS is that, seen from a broader perspective, it is internally inconsistent, reflecting a larger social schizophrenia wherein we demand both economic growth and a functional environment. Because the planet is already over-populated and over-engineered, environmental impact must inescapably accelerate as function of economic growth. The proposed mine is but an increment in both these latter processes. All economic activity necessarily involves material and energy transactions with our environment. These are three: 1) sourcing materials and energy (depletion), 2) spacing (eviction of nature), and 3) sinking (pollution). These requirements follow from the first two laws of thermodynamics, to which all technology is subordinate. That is, to manufacture any material object one has to source the constituent matter and transformative energy from the environment (the conservation law), make room for it within the environment (the conservation law), and release a compensatory waste stream into the environment (the entropy law). Each of these imposes environmental impact. Historically environmental impact has been of sufficiently small scale-reflecting a smaller human population and its required supporting economy-so that the impacts of the above transaction streams have been of little concern and have imposed few to no costs on the human population. With the meteoric growth of industrial society and the resulting impact, it has become increasingly evident that a degraded environment has serious implications for human well-being. At some scale the costs of growth outweighs the benefits and additional economic expansion becomes irrational: we end up poorer rather than richer, worse off rather than better off. This is happening because many costs are not being internalized, primarily, though not exclusively, environmental. The function of the SDEIS is to give the conditions under which mining is permissible, namely, that external costs will be adequately internalized. Approval of the SDEIS is neither a denial nor a mandate to mine. It is up to Polymet to make that decision-to balance expected costs and revenues under the stated conditions of the permit document. Only upon the condition of cost internalization does the interest of the company reflect the interest of society. If all costs could be internalized, the profit motive would be an effective "hidden hand" assuring that society's interests are being met, but costs-especially environmental costs-are complex and difficult to quantify, even difficult to understand and predict. Also, there is a historical complication to consider. Except for a passing remark in reference to iron mining (6-92, first full sentence), the SDEIS fails to explain the historical and geologic dilemma which all non-renewable resource (herein, nrr) extraction faces. Most people have heard of "peak oil" but do not understand the reasoning behind it, nor realize that this same reasoning applies, not just to petroleum, but to all other nrrs. Humans have been extracting and employing nrrs for thousands of years. As these are geolog

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Wendy Robertson 44641

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 March 8, 2014 I live in NE Minnesota just SE of the Polymet mine and processing site. I harvest wild rice, venison, waterfowl and have an organic garden to sustain my family for the year. I live 1 mile from mineral exploration drill sites on land in the Superior National ForeSt For 33 years, I taught science in the Duluth Public Schools and supervised the St Louis River Watch Environmental program that provides monitoring and water quality bi-yearly as an after school program in co-ordination with Fond du Lac College. The focus is water chemistry and macro-invertebrates studies related to the health of the river and streams that are part of the St Louis Watershed. I was honored by Friends of the St Louis River as their 2006 educator of the year. The SDEIS has several issues in watershed mitigation that are not addressed. I related these concerns during the public hearing in Duluth at the DECC. I was fortunate to be selected as one of the 80 plus speakers to give testimony. Given that many others did not have the opportunity to speak only reflects the insufficient amount of time for public comment at hearings and the refusal to extend the comment period on this SDEIS. I am asking that the agencies involved to extend the comment period for an additional 90 days. The SDEIS does not address the cumulative effects of the additional mining companies that are waiting in the wings for future permits. They are watching to learn what happens as the Polymet process breaks ground in asking to be permitted. By ignoring this glaring omission, I can only conclude that you are not reading the investment brochures of mining companies that are seeking worldwide investors currently. Please read excerpt from next page. Excerpt from: press release 3/3/14 Duluth Metals Limited [mailto:HYPERLINK "mailto:info@duluthmetals-com"info@duluthmetals-com] Duluth Metals Continues to Identify Additional PGM Mineralization in the East Shore Area of their Exploration Lands Duluth Metals Limited is committed to acquiring, exploring and developing copper, nickel and platinum group metal (PGM) deposits. Duluth Metals has a joint venture with Antofagasta plc on the Twin Metals Project, located within the rapidly emerging Duluth Complex mining camp in north-eastern Minnesota. The Duluth Complex hosts one of the world's largest undeveloped repositories of copper, nickel and PGMs, including the world's third largest accumulation of nickel sulphides, and one of the world's largest accumulations of polymetallic copper and platinum group metals. Aside from the joint venture, Duluth Metals retains a 100% position on approximately 40,000 acres of mineral interests on exploration properties adjacent to and nearby the Twin Metals Minnesota LLC joint venture. I am asking you as a taxpaying resident in obviously the “emerging mining camp area of NE MN” for the state to not permit Polymet project. The SDEIS is inadequate in addressing the cumulative effects of additional mining proposals in the Lake Superior Basin. To deny that other national and international mining companies are just waiting to be the next in line for this extraction of finite resources is a crime of untruthfulness. All permitting agencies need to subscribe to the publications of the “Economist” magazine and Mining News if you doubt my comments. Respectfully submitted, Wendy Robertson 1998 Fairbanks Rd Brimson, MN 55602 218-848-2940

54513

See attachment

Alphabetical by sender's first name

Wendy Saliin 39118

Dear DNR friends, I am writing to express my strong opposition to the PolyMet mine for the following reasons. 1- ENVIRONMENT Natural beauty and a healthy natural environment are not only important to the health and well-being of Minnesotans, they are also a crucial component of state, local and regional economies. A. Duluth recently reported $7-6 million in total tourism revenue in 2013- Certainly the primary draw for these tourists is natural beauty. Duluth is merely one of Minnesota's many tourist destinations. B. In the coldest winter in 139 years, over $10M has been spent by visitors of the Apostle Island ice caves, because of the powerful human desire to get outside and the human thirst for clean and beautiful places. These are but two small examples. Minnesota boasts countless beautiful natural spaces; it is what draws people to Minnesota and what holds them here. Therefore, preservation of clean water and wilderness will provide a more sustainable economic stimulus to state, local, and regional economies than mining. 2- SHORTSIGHTED ECONOMIC BENEFIT History has proven that mining is a boom and bust industry. With so many uncertainties surrounding this project, why would we take this risk with the potential burden falling on such irreplaceable forces as clean water, robust ecosystems, and human health. A. There is a tremendous market for copper scrap metal. A copper scrap metal recycling project would be a sustainable alternative to the boom and bust cycle of mining. Copper scrap metal fulfills 1/2 the US demand for copper. The US provides 23% of the world's supply of recovered copper. B. PolyMet "promises" jobs for iron range communities. How many of these jobs are a guarantee. What percentage of these jobs will actually be allotted to local workers. What percentage of the vast profits of mining will actually fall into the hands of Minnesotans versus a few wealthy individuals who arrive along with the mine and leave when it closes its doors. Minnesota does not deserve to bear the burden of so much risk when likely so little lasting benefit, economic or otherwise, would exiSt 3- BURDEN ON INDIVIDUAL MINNESOTANS The current PolyMet review fails to address in particular what potential burdens the individual Minnesotan might bear as a result of the mining project. A. TAXPAYER BURDEN - Once again, there are many unanswered questions here. Hundreds of millions of dollars have been spent in efforts to clean up industrial pollution of the St Louis River and cleanup is still not complete. Meanwhile, as a part of the Great Lakes Restoration Initiative, momentum has been recently building for significant federal funding (TAXPAYER DOLLARS) to be directed towards Great Lakes cleanup projects. Despite these ongoing projects, we are mulling over the possibility of a mining project that we acknowledge will pollute regional waterways for a minimum of 500 years.. B. HUMAN HEALTH RISKS - Mercury contamination is already a problem in area lakes, posing a major problem to humans and animals who consume fish from these waters - we already know that this is especially dangerous to pregnant and nursing mothers, infants, and young children. Sulfide mining is known to increase mercury levels in water. C. HEALTH RISKS TO POLYMET MINE WORKERS - The WHO lists 10 chemicals of major public health concern. Sulfide mining involves 5 of them: mercury, arsenic, lead, asbestos, and air pollution. All Minnesotans could potentially suffer the ill effects of these chemicals, but this is especially of concern to potential future employees of the mine. The current review is insufficient and leaves many unanswered questions, most specifically in regard to human health, environmental impact, duration and nature of cleanup and how the cleanup will be funded. Without knowing precisely what the risks are to the health of Minnesotans, the health of Minnesota's beautiful forests, wetlands, and waterways, and the burden on taxpayers, it woul

Wendy Schlueter 10936

On behalf of the Babbitt City Council, we strongly support the PolyMet copper-nickel project. We have utmost confidence that the State and Federal Agencies involved are extremely competent and thorough in their studies. We are also confident that the mining company and its entities will be in compliance in every aspect to promote this very important and necessary economical job source to Minnesota. The City of Babbitt also thanks PolyMet and the State of Minnesota for being open to the advanced technologies and compliances adhered to for fulfilling and challenging employment opportunities the mine will provide. Reported by Wendy F. Schlueter, Administrative Assistant

Alphabetical by sender's first name

Wendy Schreier 17009

Feb 18, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Wendy Sjoblom 39299

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Wendy Smith 9788

Dear Department of Natural Resources, Please do not issue mining permits to Polymet. I am concerned and quite fearful of the multiple negative impacts that the operation will have on our state. About a year ago I drove to North Carolina through West Virginia and was so saddened to see the economic and personal degradation that mining has left in an otherwise beautiful portion of our country. Several weeks ago, I narrowly missed being personally poisoned when I chose to drive to North Carolina circumventing West Virginia because of weather and road conditions. Listening to media reports of the impacts to the region during the week I was in North Carolina and now seeing that the leaks are far greater than initially reported is horrifying. My first concerns are about water supply both current and centuries long, and I shudder to think that Minnesota would invite an industry into essentially pristine environment on the short-term profit of so few when we know the consequences are so drastic in the multiple times this has happened to our neighbors in West Virginia. Please have the courage and confidence that you are backed by many, to say no. Thank you very much, Wendy Smith wendywally@msn-com 5017 3rd Ave S Minneapolis, M 55419

Alphabetical by sender's first name

Wenonah Skye 25461

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Once the resources are affected cumulatively, short-term, and long-term, it takes a long time for recovery. Permanent damage stays with us for a long time, especially in the ground water and seeps into the food chain. It's not just the purity that's lost but the quality of all life as well. Try to think about this in terms of the land as having its own right to exist because it is the land who takes care of us. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Wenonah Skye 2537 Mutchler Rd Fitchburg, WI 53711-7011 (920) 857-8401

25468

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Once the resources are affected cumulatively, short-term, and long-term, it takes a long time for recovery. Permanent damage stays with us for a long time, especially in the ground water and seeps into the food chain. It's not just the purity that's lost but the quality of all life as well. Try to think about this in terms of the land as having its own right to exist because it is the land who takes care of us. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on our region's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, Wenonah Skye 2537 Mutchler Rd Fitchburg, WI 53711-7011 (920) 857-8401

Wes Bailey 43244

I am writing to register my total opposition to PolyMet’s proposed copper-nickel mine near Hoyt Lakes. My wife is originally from West Virginia where they have so many dead rivers and creeks due to acid mine drainage. These rivers and streams ran clear, beautiful, and brimming with life for thousands of years until companies came along and extracted a couple decades of short-term profits from the land. The jobs and companies are long gone, but the rivers still flow dead- and in some cases yellow and orange. We CANNOT risk this happening in northern Minnesota. The short-term gains (the vast majority of which will go to out-of-state shareholders) are absolutely not worth the risk to our state’s clean and living waters. Thank you, James Wesley Bailey 2505 Elida Dr Grand Rapids, MN 55744

Western Lands Project 42975

Attached are comments of the Western Lands Project. Janine Blaeloch, Director Western Lands Project PO Box 95545 Seattle, WA 98145 tele 206-325-3503 cell 206-498-6695 Public land is our common wealth.

48497

Attached are comments of the Western Lands Project. Janine Blaeloch, Director Western Lands Project PO Box 95545 Seattle, WA 98145 tele 206-325-3503 cell 206-498-6695 Public land is our common wealth.

Weston 45272

I am strongly against the mine. It will destroy the environment in northern minnesota. Since the white man has arrived in this state, he has systematically destroyed the natural way things were here since time immemorial. It is time minnesota decides to do the right thing and say no to this mine. Tate Weston 1812 Munster St Paul Mn 55116 6512603677

Alphabetical by sender's first name

Wever Weed 43073

March 13, 2014 Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Environmental Review Unit Dear Ms Fay ~ My comments on the PolyMet mining proposal tell a different story than the two being told. My story does not now question the accuracy of information provided by the SDEIS and environmental groups, though it might in the future. It is not meant to sway you and the DNR one way or the other. Rather it is meant to ask you consider a third story. One of the existing stories is about environmental damage and a tourist-based economy. The other story is about economic vitality brought by hard rock mining. 31% of Minnesotans in a recent poll published by the Star Tribune (Feb. 21, 2014) say we are not sure of either story. So I am asking you to consider a third story. This story is about patience Minnesota used to get it right without doubt. It is a story about sulfide mining in Minnesota that is being done without any concern of acid mine drainage, because hard rock mining techniques and technologies have been refined and proven many times over elsewhere. It is a story about northern Minnesota communities having attracted job creation industries and businesses with the help of environmental groups that finally understood they must be a part of the solution to job growth. It is the story about how an antiquated 1872 Mining Act was finally abolished and how Minnesota reaped far greater profits from its minerals. It is the story about how the Minnesota DNR took a stand against impatience, and how it was able to say to Minnesotans that in the realm of the copper and other precious metals under our northern lands, a few or twenty more years will make no difference, but getting it wrong now will. And, it is the story about how environmental groups finally did something about the greatest threat to our natural treasures on our northern lands and waters, and helped find jobs that could compete with hard rock mining jobs. Sincerely, Wever D. Weed 2582 County Road 24 Long Lake, MN 55356 763-218-1849

White, Paul 15792

I am a proud graduate of the Ely Voyageur Outward Bound school. I have canoed, hunted and hiked in the area for decades. My sisters live in Embarrass and Edina. It is time to have jobs in the USA again instead of exporting our jobs and importing metals from foreign countries that pollute our planet. We cannot be a debtor nation for ever. We need jobs for all Minnesotans that want to work, not public aid because the government gets in the way of progress and employment. Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands. I have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its operations are legal and safe. The project should proceed. Thank you, Paul White 1104 Sanctuary Lane Naperville, IL 60540

Alphabetical by sender's first name

Whitney Morgan 23560

Mar 4, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates. To Lisa Fay, The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differ

Alphabetical by sender's first name

Whitney Morgan 23561

Mar 4, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action To Lisa Fay, The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit B

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Whitney Morgan 23622

Mar 4, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. To Lisa Fay, Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft.Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Whitney Morgan 1220 102nd Ave W Duluth, MN 55808-1715 (218) 626-2857

Alphabetical by sender's first name

Whitney Morgan 23623

Mar 4, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. To Lisa Fay, The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1)Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2)Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3)Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Whitney Morgan 1220 102nd Ave W Duluth, MN 55808-1715 (218) 626-2857

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Whitney Morgan 23628

Mar 4, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of the cumulative effects of habitat fragmentation and loss on the Canada Lynx (Lynx canadensis). The Canada Lynx is a threatened species listed under the federal Endangered Species Act. The NorthMet project area is in designated critical habitat for the lynx, and the SDEIS notes that the proposed action would destroy over 1,400 acres of critical lynx habitat at the mine site. The designation of this area as critical habitat is supposed to trigger analysis of whether the proposed action, and the cumulative effects of other reasonably foreseeable actions place the Canada Lynx in jeopardy. In addition, the incidental death of Canada Lynx due to increased vehicle traffic between the mine and plant site is noted, but inadequate attention is paid to mitigation measures that could limit incidental deaths of lynx. Despite this, the SDEIS contains contradictory statements about the use of roads as travel corridors by lynx. The cumulative effects analysis section of the NorthMet SDEIS fails to adequately account for a number of reasonably foreseeable projects. Specifically, the Twin Metals and Teck American projects are listed as "speculative" in Section 6-2-2-1-21 and are not analyzed for their cumulative effects. No evidence or rationale for excluding these projects from the cumulative effects analysis is offered. In Section 6-2-3-6-4, the Gray Wolf is the only "Special Status Species" for which even limited analysis of cumulative effects is conducted, despite the Canada Lynx's status as a federally threatened species. Please take the following actions: 1) Include the Twin Metals and Teck American projects as reasonably foreseeable projects in the cumulative effects analysis in section 6-2-2, since the disposition of the NorthMet SDEIS and subsequent permitting decisions could make these projects more likely to be built. 2) Include the Canada Lynx as a "Special Status Species" in Section 6-2-3-6-4 and conduct a cumulative effects analysis of the impact on Canada Lynx. 3) Analyze and include mitigations such as tunnels and fencing to limit the possibility of incidental take of Canada Lynx by increased road traffic associated with the NorthMet proposed action. 4) Remove contradictory language in SDEIS about Canada Lynx utilization of roads as travel corridors. For example, on p. 5-628 the SDEIS states "Lynx utilize snow packed trails and roads as travel corridors," while on p. 5-366 it says "this species does not rely on roads for travel." 5) Analyze and include mitigation such as accelerated re-vegetation of the mine site after closure to decrease the amount of time the mine site would be inhospitable to Canada Lynx. To Lisa Fay, The PolyMet NorthMet SDEIS contains inadequate analysis of the cumulative effects of habitat fragmentation and loss on the Canada Lynx (Lynx canadensis). The Canada Lynx is a threatened species listed under the federal Endangered Species Act. The NorthMet project area is in designated critical habitat for the lynx, and the SDEIS notes that the proposed action would destroy over 1,400 acres of critical lynx habitat at the mine site. The designation of this area as critical habitat is supposed to trigger analysis of whether the proposed action, and the cumulative effects of other reasonably foreseeable actions place the Canada Lynx in jeopardy. In addition, the incidental death of Canada Lynx due to increased vehicle traffic between the mine and plant site is noted, but inadequate attention is paid to mitigation measures that could limit incidental deaths of lynx. Despite this, the SDEIS contains contradictory statements about the use of roads as travel corridors by lynx. The cumulative effects analysis section of the NorthMet SDEIS fails to adequately account for a number of reasonably foreseeable projects. Specifically, the Twin Metals and Teck American p

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Whitney Morgan 23629

Mar 4, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage To Lisa Fay, The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Whitney Morgan 1220 102nd Ave W Duluth, MN 55808-1715 (218) 626-2857

23630

Mar 4, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. To Lisa Fay, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely, Ms Whitney Morgan 1220 102nd Ave W Duluth, MN 55808-1715 (218) 626-2857

Alphabetical by sender's first name

Whitney Morgan 24332

Mar 4, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS does not adequately examine the risks to worker safety and public health from asbestos-like fibers found in the rocks that they propose to mine. I ask the DNR to require a more comprehensive public health assessment of the risk to workers and the public than what PolyMet has provided in the SDEIS. The SDEIS acknowledges that amphibole fibers are present in the rock to be mined, that crushing the rock for processing releases these fibers, and that these fibers are suspected of causing mesothelioma in workers. The SDEIS further acknowledges that there have been few studies of the risk from fibers of the size that would be created at the PolyMet mine and plant site. A number of mesothelioma cases were found in mine workers who worked in the LTV Erie Plant that PolyMet proposes to use as part of their mine plan, and the SDEIS inaccurately characterizes a University of Minnesota study of mesothelioma in mine worker as showing that this risk came exclusively from the use of commercial asbestos products in the mine. In fact, the University of Minnesota did not exonerate dust from crushing ore, and is continuing to study the health impact of exposure to short amphibole fibers of the type contained in the ore that PolyMet would mine and process. Specifically, the DNR should: 1) Revise the SDEIS and conduct a formal health assessment of the risk to public health and worker safety from the amphibole fibers present in the ore at the PolyMet mine site. The SDEIS should specifically conduct a formal health assessment of the risks from asbestos-like fibers less than 5 microns in length 2) Revise the SDEIS to provide details of the air monitoring at the mine and plant site and in nearby communities, and describe contingency plans to address the risk to public health and worker safety if asbestos-like fibers are detected during construction, operation, closure and post-closure 3) Revise the SDEIS to eliminate inaccurate characterizations of the University of Minnesota mesothelioma study. Specifically, eliminate statements that imply that commercial asbestos is the primary risk factor for mesothelioma risk To Lisa Fay, The PolyMet NorthMet SDEIS does not adequately examine the risks to worker safety and public health from asbestos-like fibers found in the rocks that they propose to mine. I ask the DNR to require a more comprehensive public health assessment of the risk to workers and the public than what PolyMet has provided in the SDEIS. The SDEIS acknowledges that amphibole fibers are present in the rock to be mined, that crushing the rock for processing releases these fibers, and that these fibers are suspected of causing mesothelioma in workers. The SDEIS further acknowledges that there have been few studies of the risk from fibers of the size that would be created at the PolyMet mine and plant site. A number of mesothelioma cases were found in mine workers who worked in the LTV Erie Plant that PolyMet proposes to use as part of their mine plan, and the SDEIS inaccurately characterizes a University of Minnesota study of mesothelioma in mine worker as showing that this risk came exclusively from the use of commercial asbestos products in the mine. In fact, the University of Minnesota did not exonerate dust from crushing ore, and is continuing to study the health impact of exposure to short amphibole fibers of the type contained in the ore that PolyMet would mine and process. Specifically, the DNR should: 1) Revise the SDEIS and conduct a formal health assessment of the risk to public health and worker safety from the amphibole fibers present in the ore at the PolyMet mine site. The SDEIS should specifically conduct a formal health assessment of the risks from asbestos-like fibers less than 5 microns in length 2) Revise the SDEIS to provide details of the air monitoring at the mine and plant site and in nearby commun

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Whitney Morgan 24333

Mar 4, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity To Lisa Fay, The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity Thank you for the opportunity to provide

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Whitney Morgan 24334

Mar 4, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be "maintenance free." To Lisa Fay, Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be "maintenance free" at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that "Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site " Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be "stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consist

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Whitney Morgan 24335

Mar 4, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The financial assurance section of the SDEIS is inadequate and needs to be changed to reflect details about how much money would be required to pay for cleanup and in what form it would be held. In 2010, the US Environmental Protection Agency called PolyMet's first draft Environmental Impact Statement "inadequate." One significant reason was that the 2010 DEIS did not show that financial assurance would be enough to cover the cost of long-term water treatment at the site. "EPA believes that the adequacy of financial assurance for these activities could make the difference between a project adequately managed over the long-term by the site operator, or an unfunded or underfunded contaminated site that becomes a liability for the federal government and the public " As your revise the SDEIS, please take the following actions: 1) Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs in the current draft 2) Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for hundreds of years of water treatment 3) Identify other responsible parties (eg major investors like Glencore) that will be held responsible for long-term cleanup should PolyMet go bankrupt or be unable to meet their obligations 4) Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation for the what would constitute adequate treatment To Lisa Fay, The financial assurance section of the SDEIS is inadequate and needs to be changed to reflect details about how much money would be required to pay for cleanup and in what form it would be held. In 2010, the US Environmental Protection Agency called PolyMet's first draft Environmental Impact Statement "inadequate." One significant reason was that the 2010 DEIS did not show that financial assurance would be enough to cover the cost of long-term water treatment at the site. "EPA believes that the adequacy of financial assurance for these activities could make the difference between a project adequately managed over the long-term by the site operator, or an unfunded or underfunded contaminated site that becomes a liability for the federal government and the public " As your revise the SDEIS, please take the following actions: 1) Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs in the current draft 2) Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for hundreds of years of water treatment 3) Identify other responsible parties (eg major investors like Glencore) that will be held responsible for long-term cleanup should PolyMet go bankrupt or be unable to meet their obligations 4) Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation for the what would constitute adequate treatment Sincerely, Ms Whitney Morgan 1220 102nd Ave W Duluth, MN 55808-1715 (218) 626-2857

Alphabetical by sender's first name

Whitney Morgan 24336

Mar 4, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, Wild Rice is Minnesota's state grain, and crucial for its cultural significance and importance for subsistence of Minnesota's Native Americans. Manoomin (wild rice) is recognized as a significant resource for Minnesota's tribes, access to which is protected by the Treaty of 1854- Even low levels of sulfates are proven to affect wild rice stands, a fact recognized by Minnesota's protective wild rice sulfate standaRd The PolyMet mine plan identifies wild rice beds downstream of the mine and plant, including part of the Embarrass and Partridge Rivers and Wynne Lake. Since sulfate levels in wild rice beds downstream of the proposed mine already exceed the standard, the proposal must demonstrate it "would have an acceptably high probability of not increasing sulfate concentrations in these areas" (p. 5-5). The mine plan does not meet this teSt PolyMet claims they will meet this standard by using water treatment (including reverse osmosis) to eliminate sulfates before wastewater is released. However, the mine plan predicts that 5-2 million gallons per year will seep out without treatment at the Mine Site after closure, and 11 million gallons of untreated water per year will escape the Tailings Basin (5-8). This seepage will surface and enter streams and rivers nearby. The standard to protect wild rice is 10 milligrams grams per liter of water. The waste rock left behind at the Mine Site will create runoff with sulfate levels of 2,000 to 4,000 micrograms per liter after closure, 5 million gallons of which will escape untreated every year. In fact, the SDEIS predicts that many years after closure this could violate the sulfate standard to protect wild rice, requiring additional measures (5-142). The SDEIS is contradictory, on the one hand relying on mechanical water treatment for hundreds of years in order to seemingly meet the sulfate standard, but also describing possible passive treatments that may be developed that would seasonally violate the protective sulfate standards. The EIS should eliminate that contradiction. Lastly, the SDEIS inadequately characterizes wild rice waters downstream of the PolyMet sites. The Great Lakes Indian Fish and Wildlife Council has provided additional wild rice sites other than those included in the SDEIS. The EIS should be revised to include these additional wild rice waters. To Lisa Fay, Wild Rice is Minnesota's state grain, and crucial for its cultural significance and importance for subsistence of Minnesota's Native Americans. Manoomin (wild rice) is recognized as a significant resource for Minnesota's tribes, access to which is protected by the Treaty of 1854- Even low levels of sulfates are proven to affect wild rice stands, a fact recognized by Minnesota's protective wild rice sulfate standaRd The PolyMet mine plan identifies wild rice beds downstream of the mine and plant, including part of the Embarrass and Partridge Rivers and Wynne Lake. Since sulfate levels in wild rice beds downstream of the proposed mine already exceed the standard, the proposal must demonstrate it "would have an acceptably high probability of not increasing sulfate concentrations in these areas" (p. 5-5). The mine plan does not meet this teSt PolyMet claims they will meet this standard by using water treatment (including reverse osmosis) to eliminate sulfates before wastewater is released. However, the mine plan predicts that 5-2 million gallons per year will seep out without treatment at the Mine Site after closure, and 11 million gallons of untreated water per year will escape the Tailings Basin (5-8). This seepage will surface and enter streams and rivers nearby. The standard to protect wild rice is 10 milligrams grams per liter of water. The waste rock left behind at the Mine Site will create runoff with sulfate levels of 2,000 to 4,000 micrograms per liter after closure, 5 million gallons of which will escape untre

Alphabetical by sender's first name

Whitney Morgan 24337

Mar 4, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. To Lisa Fay, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. Sincerely, Ms Whitney Morgan 1220 102nd Ave W Duluth, MN 55808-1715 (218) 626-2857

57248

While receiving and looking at other research and the current Polymet Environmental Review, the danger of pollution brought on by sulfide mining is something that needs to be closely examined in the review. In the review it is stated that potential exists for the release of amphibole mineral fibers from the proposed operations, which could pose a potential public health risk of uncertain magnitude” this is extremely alarming to me. The fact that, that statement can be made in a project’s Environmental Review should let alone be the deciding factor in not approving sulfide mining in Minnesota. The health risks from mineral pollution isn’t accurately reported in the review, but should be required from Polymet, for the health of my state depends on it.Whitney Morgan1220 – 102nd Ave WestDuluth, MN 55808

57249

While reviewing and looking at other research of the current Polymet Environmental Review, I believe the detrimental effects from mercury that would be emitted is not accurately reported. In a letter approved by many Duluth area physicians it is stated that the review doesn’t report the amount of mercury that will discharge into our local watersheds. Due to this lack of information, the review is not complete for mercury pollution is extremely dangerous to our communities health and eco systems. Being a lifelong citizen of Duluth, I am so grateful for Lake Superior and its water supply. It is unjust that the quality of our watersheds would be threatened due to sulfide mining.Whitney Morgan1220 – 102nd Ave WestDuluth, Mn 55808

57250

While reviewing and looking at other research on the current Polymet Environmental Review, I believe the health effects of sulfide mining is not accurately reported. Many Duluth area physicians have come out to state that the review doesn’t properly deserve all of the health impacts that would come with sulfide Mining. As a lifelong citizen of Duluth and current UMD student, sulfide mining would threaten my entire communities health by exposing lead, arsenic, lead, asbestos and mercury pollution into our air and water. These threats need to be included in the projects environmental review, along with the major health impact they will have on my family, friends, and community.Whitney Morgan1220 102nd Ave WestDuluth, MN 55808

Alphabetical by sender's first name

Whitney Snyder 12288

As a property owner in the Babbitt watershed, I would like to see the proposed PolyMet open pit copper mine stopped. There is no such thing as clean mining and we should stop putting profits before before the environment.

whonka80 . 36502

No evidence exists (to my knowledge) that this can be done safely. Not worth it. I take clean water over jobs.

Wiggs 42912

will erickson 38655

Stop all efforts to move Mining in Minnesota. It will not be good for minnesota. It will not be good for me. It will not be good for you. Will Erickson, 5500-164th LN NW, Ramsey, MN 55303

Will Mayer 39869

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Will Mayer 1883 N Ruby Ct Eagan, MN 55122-2173

Alphabetical by sender's first name

Will Munger 13652

To: Lisa Fay, EIS Project Manager MDNR Division of Ecologicl and Water Resources Environmental Review Unit 500 Lafayette Rd St Paul, Mn 55155-4025 To submit comments by email, send to: HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us Attached please find my written statement stating opinions and recommendations on the NorthMet SDEIS. Sulfide Mining Testimony Comments to the Supplemental DEIS February 12,, 2014 Presented by: Will Munger 401 Snively Road Duluth, Minnesota My name is Will Munger and I live in Duluth, Minnesota. I own and operate the Willard Munger Inn in West Duluth. This business has been in our family for over 50 years and depends upon people coming to Duluth to experience our natural areas. These activities include but are not limited to fishing on the St Louis River, hiking the Superior hiking Trail, Bicycling the Willard Munger State Trail, skiing and other out door recreational activities at Spirit Mountain and birding on the Western Waterfront Trail. Being in the hospitality business I fully understand the need for the encouragement of job creating development in our area. At the same time I fully understand what makes this area attractive for people to live here, visit here, and grow business here. Those qualities are, the abundance of clear clean water, beautiful albeit diminishing unspoiled forest areas and a natural habitat which produces bountiful and varied wildlife. In our country's short history there are fewer and fewer places within the continental United States where you can still experience vast wilderness areas that are available to large population centers. One such area is the water rich area of Northern Minnesota. This fact must be consideredwhen we consider permitting any activity that will effect this. One way I have chosen to work for the preservation and protection of our beautiful North Country is by serving as an active member of the following organizations: Save Lake Superior Association, St Louis River Alliance, Issac Walton League, Clean Water Action and the Superior Hiking Trail Association. While I do not speak now for these organizations I can say that the vast majority of the membership of these organizations share my concerns about the effects of Sulfide mining on this area. While all contamination of our water and air is and should be a concern, a specific concern that I would like to voice is in regard to the Lower St Louis River which very much impacts everyone who lives in Duluth. Currently we have fish advisories on this portion of the river which recommend consumption limits for eating Walleye and other game fish caught in the river because they already have high levels of Mercury. I am concerned that with the introduction of Sulfide mining this problem will only be exacerbated. With this in mind, I would like to see the EIS specifically address issues that can assure us that conditions, with specific regard to water quality, can continue to improve or at least be maintained on the river if permitting of sulfide mining is approved. It is my understanding that the Minnesota DNR was originally put in place to manage and protect our states natural resources. It is unfortunate that the DNR, is often now perceived, rightly or wrongly, as an agent or advocate of pro-mining interests. The DNR is perceived to willingly weaken it's own regulatory powers. With this in mind I would like to call for the contracting of an objective third party consulting firm to evaluate all aspects of the permitting process to insure that a fully objective evaluation process for approval or disapproval is done. As part of this I would like to request that a cost benefit analysis be done of the proposed North-met Project to determine if the benefits of sulfide mining outweigh the seeming high risk experienced with this kind of mining and the known impacts that such mining is known to hAve While I have many concerns about the EIS as presented, I have not been to the propos

will perry 38534

Water, not minerals, is the real resource of Northern Minnesota. I am concerned that over time pollutants will leach into the water and work their way into Lake Superior and other water systems in the area. I read in the reclamation section that PolyMet will engage in "Capturing and treating affected water using mechanical and/or non-mechanical methods for as long as needed". And that "Financial assurance (provided by PolyMet) would ensure that environmental management, including planned water treatment needs, would occur for as long as needed to meet environmental standards". I have several concerns with the "as long as needed" part of these statements: How, exactly, for the long run of years necessary to fully reclaim this site, will PolyMet remain financially available to pay the continued costs of reclamation. Will there be the political will to continue the monitoring of this site into the future. Will there be an economic downturn that leads to siphoning the funds for other needs or a drying up of the funds. As much as I respect engineers and what they do (my daughter is a civil engineering student at the U of MN) we all know that the best laid plans sometimes can go awry. Things fall apart or don't hold up. What can we learn from the 35W bridge collapse. What can we learn from the collapse of the dam above Jay Cook State Park. Was it natural wear and tear, lack of political will to engage in up keep, inherent engineering miscalculations or shortcuts, design flaws, economic downturns that bled out repair and upkeep funding, or a perfect storm of multiple impacts. Will there be a climate change that leads to unforeseen impacts. The plan looks good on paper. But we are talking about long-term impact on a precious resource in exchange for short-term gain. I think there are too many areas in which something could potentially go wrong for this project to occur in this vulnerable area of our state. Sincerely, Will Perry 13415 Europa Ct. N. Unit 8 Hugo, MN 55038 651-246-0084

Alphabetical by sender's first name

Will Tajibnapis 7202

Dear Ms Fay, Dear Federal and State Agency Leaders: Amid the swirl of data, claims and counterclaims, one fact that no one disputes stands out: the pollution from mine tailings and waste heaps would last for at least 500 years. Setting aside money and resources, and making plans to control pollution for 500 years or more is simply impossible. So I propose that at this time permits be denied and the plan to mine copper be scrapped. I am confident that in the not-to-distant future technology will become available to mine the copper in a safer manner. Then the mining can commence. The copper isn't going to go anywhere. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely Will Tajibnapis 3722 Grand Ave South Minneapolis, MN 55409

Willa Caldwell 42073

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Willa Caldwell Minneapolis, Minnesota

William (Bill) Gramer 43358

Dear DNR It appears that the SDEIS thoroughly vetted all the key environmental issues to insure Minnesota Environment is protected. Great work. I believe now the approval for initial permitting should be accelerated in further assist Minnesota enviroment through new form of tax revenue as the IronRange Job market experiences the positive economic multiplier effect of new safe jobs. Please contact me if you have any further questions. William (Bill) Gramer 7144 Jenner Bay S Cottage Grove, MN 55016-1373

William A Dotter 57218

Check the area north of our border with Canada, north of Hwy #61 to Thunder Bay, for damage to forests and streams from copper mining. We don't need copper that badly. I say no to copper mining.William A. DotterPO Box 3247 E Riverside RdEsko, MN 55733

William A Illegible 54798

See attachment

Alphabetical by sender's first name

William and Karla Forsyth 40115

_____ From: wforsyth@hensonefron-com [wforsyth@hensonefron-com] Sent: Monday, March 10, 2014 5:23 PM To: Fay, Lisa (DNR) Subject: PolyMet / NorthMet Comments Dear Ms Fay: If allowed to move forward, the PolyMet mine proposal would set a dangerous precedent for Minnesota's environmental safety. As a concerned citizen, I am asking you to send their proposal back to the drawing boaRd Minnesota is uniquely vulnerable to climate change, particularly the boreal forest of northern Minnesota. PolyMet would be a huge consumer of electricity, much of it coming from dirty, inefficient coal power plants in Minnesota. As the SDEIS states, PolyMet would emit 707,342 metric tons of carbon dioxide pollution into the atmosphere every year. This would contradict Minnesota's goal to reduce carbon emissions. The Minnesota Next Generation Energy Act set a goal of reducing Minnesota's greenhouse gas emissions 15% from 2005 levels by the year 2015, and 30% from 2005 levels by 2025- The Minnesota DNR, through the mine plan, should require use of clean energy to reduce impacts of pollution. The PolyMet mine site has large amounts of peatlands that have been storing carbon for thousands of years. When PolyMet's regular mining practices disturb the peatlands, they will release nearly 200,000 metric tons of carbon pollution into the atmosphere. In order to stay on track for Minnesota's carbon reduction goals, these peatlands and their stored carbon should be left undisturbed. The SDEIS (page 5-124) uses 1980s data to plan for extreme weather events. It fails to examine the impact of precipitation events any greater than the "100-year storm." Given climate change, this design is insufficient. PolyMet must be designed to handle larger volumes of wastewater. The Minnesota DNR should include a 500-year storm analysis of both the mine pits and the tailings basin. Heavy rainfall such as occurred in June 2012 in northeast Minnesota could result in an overflow of contaminated water into the environment. This trade-off is not worth the risk. These are just a few of the reasons why the SDEIS should have included a thorough discussion of financial assurance - how much money, and in what form, the mining company should put down to cover the costs of cleaning up the site and addressing probleMs The SDEIS is over 2,000 pages long, but includes just a couple pages generally discussing financial assurance. There is no indication of how much financial assurance the agencies are thinking should be required, and there is no discussion of the agencies thought process in arriving at a figure. The agencies view that financial assurance be addressed in permitting is contrary to the intention of environmental review, and reduces the public's ability to comment as effectively as is possible during the SDEIS comment period. I'm a Minnesotan concerned about the impact of the PolyMet mine proposal and urge you to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. In addition, the SDEIS has serious flaws that need to be addressed. I urge you also to reject the SDEIS. Thank you. Sincerely, William And Karla Forsyth 2212 Irving Ave So. Minneapolis, MN 55405-2523

William Brown 39557

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr William Brown 8288 131st St W Apple Valley, MN 55124-9709 (952) 432-4231

Alphabetical by sender's first name

William Cunningham 36344

Lisa Fay EIS Project Manager MDNR Division of Ecological and Water Resources Dear Ms Fay, I request that the MDNR allow a longer time for public comments on the SDEIS and a correction of the document to address issues of water flow measurement and mapping as well as the lack of convincing financial assurance for several centuries of monitoring and treating effluents from the project. Since 1970, I've been following the proposals to mine copper, nickel an other precious metals from deposits along the edge of the Duluth Complex in northern Minnesota. The mining companies always say they have "new technology" that will prevent pollution from escaping from the mine site, but I don't believe it's true. I've visited Sudbury, Ontario; Butte, Montana; and other former copper mining and smelting sites to see to see the effects of this process on the environment. I believe there has never been a sulfide ore mine that didn't eventually cause catastrophic pollution to its surroundings, and I don't believe the PolyMet mine will be any different. PolyMet says it will provide adequate insurance to treat effluent from the mine for hundreds of years. I don't believe it's true. Historically, once the ore has been plundered and the profits extracted, mining companies declare bankruptcy and simply walk away, leaving the public to clean up the mess. I think that's going to be the case if PolyMet is allowed to proceed. Glencore, the parent company of PolyMet has an extremely poor history of environmental, human rights, and labor abuses. This is an even greater reason to view PolyMet's claims with suspicion. The company has neither the reputation, financial resources, or responsibility to monitor and ameliorate pollution from their operation for centuries. It's especially important to get this decision right because there are other proposals, as you know, waiting to be submitted once they know PolyMet's fate. If PolyMet is allowed to go ahead, it will be much harder to stop other mines that are closer to the BWCA. It is criminal to consider polluting the water in Lake Superior, and it is even worse to consider poisoning the water flowing through the BWCA. Sulfide releases from mining and processing this ore will destroy important wild rice resources and violate treaty agreements with Native American tribes. The state of Minnesota should enforce strict sulfide pollution standards in all wild rice waters. There are technical problems with the Draft EIS that make it imperative to do a new and more thorough job of assessing the environmental impacts of this project. The fact that water flows in the Partridge River were miscalculated mean the the water model used in the Draft EIS is flawed and needs to be redone. Furthermore, I think there's an error in assuming that no water will flow out of the mine site and processing area into the BWCA. Groundwater contours in the "One Hundred Mile Swamp" where waste rock will be stored, show drainage into Langley Creek, which is a tributary of the Kawishiwi River, which flows through the BWCA and along the Canadian border lakes. Pollution of this waterway is an international issue as well as an environmental disaster. Thank you, William P. Cunningham 1764 Lindig St Falcon Heights, MN 55113

William Daniels 42262

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. I have a strong connection to the region, having worked as a dogsled musher and fishing guide in the area. The thought of ripping a hole in the ground and the other environmental risks that go along with it really make me cringe. Please make a wise decision. Sincerely, Mr William Daniels 1201 Elm St Northfield, MN 55057-2907

Alphabetical by sender's first name

WILLIAM DOW 17310

Feb 17, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

WIlliam Durbin 42524

See attachment

42823

See attachment

William Emery 54526

I think granting the permits for Polymet Co. mining sulfide would be very damaging to the environment and especially the water system in the state of Minnesota. Pollution of water entering Lake Superior is totally unacceptable and should not be allowed.

Alphabetical by sender's first name

William Fischer 36314

As a citizen and taxpayer of Minnesota, the available evidence leads me to strongly oppose the proposed PolyMet copper mine. I'm all for creating jobs on the Iron Range, but a simple arm's length look at the situation should lead anyone to the conclusion that the short term projected benefits (mainly geographically specific jobs of dubious long-term value) could not possibly justify the long term likely cost externalities (mainly perpetual environmental costs) associated with the proposal. Unsustainable (one-time) resource extraction industries are precisely the type of industry that MN should be trying to get away from, I would much rather have my tax dollars spent on investing in the people of Minnesota, rather than on consuming our natural resources - and would gladly do so. Furthermore, corporate or business promises of paying for the cleanup are irrelevant - as soon as the mine is no longer profitable it will be closed and the shell company will just be bankrupted leaving MN with the damaging legacy of this project. Even if this were not the case, most companies today that do not employ practiced bankruptcy as a SOP simply do not exist long enough to pay for this type of coSt William Fischer 1070 11th Ave SE Minneapolis, MN 55414

William Forsberg 42002

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, William Forsberg Ely, Minnesota

Alphabetical by sender's first name

William Goldenberg 16227

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

William Gustavus Heeguard 57205

1.Please explain why no health impact study was not performed both in regards to human, animal (moose) etc. and aquatic species (plants and animals)2.What exactly is the contingency plan of the Polymet mine3.Is there a parent company4.What protection do we Minnesotans have if this mine goes bust in 10 years – will we have to pay for cleanup like Butte, MTWilliam Gustavus HeeguardAssoc Professor – Univ of MN Medical School4915 10th Ave SoMinneapolis, MN 55417

William H Duncan 1769

https://mail.google-com/mail/u/0/images/cleardot.gif To all concerned: A twenty-year mining boom, 200 years to filter the waters. It is something very like epic hubris, arrogance, to think that we have the right to force this on future generations, on even the young now, who have no say. I'm assuming if Polymet readily acknowledges a 200 year necessary clean-up, it could be considerably longer. Justice is a hard enough thing to find for the living. What injustice will those unborn generations feel, to be burdened with the toxicity of today's relentless, ruthless pursuit of GDP growth. It is delusion to think this is ok. Insanity, to let it happen. Generational injustice, in the EXTREME. It is not merely enough to stop this Polymet venture. It is necessary to Outlaw sulfide mining in the state. William Hunter Duncan 5254 40th ave s Minneapolis MN 55417 612-306-2129 On Mon, Dec 9, 2013 at 11:12 AM, *NorthMetSDEIS (DNR) wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd

Alphabetical by sender's first name

William H Duncan 1770

To all concerned: A twenty-year mining boom, 200 years to filter the waters. It is something very like epic hubris, arrogance, to think that we have the right to force this on future generations, on even the young now, who have no say. I'm assuming if Polymet readily acknowledges a 200 year necessary clean-up, it could be considerably longer. Justice is a hard enough thing to find for the living. What injustice will those unborn generations feel, to be burdened with the toxicity of today's relentless, ruthless pursuit of GDP growth. It is delusion to think this is ok. Insanity, to let it happen. Generational injustice, in the EXTREME. It is not merely enough to stop this Polymet venture. It is necessary to Outlaw sulfide mining in the state. William Hunter Duncan

William Hane 18150

My name is William Hane. "Hane" just like the underwear. I'm a concerned citizen. I certainly know that we need jobs. It's nice to have a high-skilled job. I was a high-skilled worker. I'm now a low-paid worker. So I understand that scenario. There's never been a copper-nickle-cobalt mine that didn't pollute. We can't afford the pollution. That area is well polluted enough. Global warming is definitely affecting it and will continue to affect it well into the future. If the mining is so valuable, let's wait a while until we are really desperate and it will be even more valuable.

William Herzberg 9840

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I’m also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet’s own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won’t end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won’t allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, William Herzberg 1541 Sheridan st 6971 Cramer Rd Ely, MN 55731

Alphabetical by sender's first name

William Herzberg 18628

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, William Herzberg 1541 Sheridan st 6971 Cramer Rd Ely, MN 55731

50704

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Alphabetical by sender's first name

William Hommeyer 43834

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: This is an urgent matter that will negatively impact Minnesota's water quality. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Will Hommeyer William Hommeyer 1004 Lincoln Avenue Saint Paul, MN 55105

Alphabetical by sender's first name

William Hommeyer 43837

Dear Ms Fay, Mr Bruner and Mr Dabney: This is an urgent matter that will negatively impact Minnesota's water quality. Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Will Hommeyer William Hommeyer 1004 Lincoln Avenue Saint Paul, MN 55105

William J Higgins 42617

See attachment

Alphabetical by sender's first name

William K. Dustin 41985

The attachment is the same as below in case there are any probleMs Comments and Questions on the PloyMet SDEIS Full Disclosure I had a fortunate childhood growing up in Buffalo NY because I spent eight summers at a camp just outside Algonquin Park north of Toronto. This camp provided the opportunity to take canoe trips all over the park and instilled in me a deep love and appreciation for the beauty of the natural world. When I moved to Minnesota, it was because the Boundary Waters are here, and we purchased land outside Ely before purchasing a house in the Twin Cities. Now the Boundary Waters are threatened, and I am extremely upset and angry about it. My opinion is not humble. I will begin with general comments on the SDEIS and then move to more specific comments. A Comment about the Oral Comments I am a strong advocate for lotteries, having argued at length that we should be selecting members of the legislature by lot. (Dustin, 1999) However, there was a provision that allowed a speaker selected by lot to cede his/her speaking opportunity to another person. This provided the opportunity for a group of people to enter the lottery with an agreed upon plan to cede their speaking opportunity to a particular individual. This gave that particular individual much greater odds of getting an opportunity to speak. Since there were groups that attended more than one of the public meetings on the SDEIS, it is quite likely that this strategy was employed, particularly at the last of the three meetings. A Comment about Jobs No corporation is in the business of creating jobs. Jobs are just a cost of doing business. However, every rent seeker uses an appeal to job creation and national security (which politicians suck up) to obtain special favors such as tax breaks or the use of a resource. A Comment about No Action There is a built in bias against the No Action Alternative because the idea of no action is unheard of in capitalist economies. If anything, they are hyperactive in using the earth as both a source of raw materials and a sink for the pollutants resulting from their use. It is estimated that we need between three and five earths to support our current levels of consumption. A more nuanced conception of no action is found in the Chinese concept of wu-wei in the Tao Te Ching. (Star, 2001) A Comment about a Permanent Fund The mineral resources in question here are being given away for the permanent benefit of an alien corporation and a temporary economic benefit for a relatively small, but extremely vocal, group of Minnesotans. What has not been addressed is that the proposed action violates the ethical principle of generational equity. Future generations will be deprived not only of the use of the minerals, but they will be handed the negative externalities resulting from the pollution of the environment and opportunity costs in terms of enjoying the beauty of northern Minnesota and seeking recreational and spiritual opportunities therein. Since this low grade mineral resource is not going to get up and walk away, I suggest that, at the very least, permitting be suspended to allow the citizens of Minnesota to consider a constitutional amendment that would establish a permanent fund to compensate future generations for these losses. The fund would work as follows: Any corporation making a profit on the exploitation of Minnesota's resources will be required to make annual royalty payments into the fund. Corporations exploiting non renewable resources would contribute a much higher amount such as one half of their gross revenues. Corporations exploiting renewable resources would contribute a lesser amount, perhaps one quarter of gross revenues. The fund will be managed and audited by entities that are completely isolated from political control. Once the fund has accumulated sufficient assets, it will begin the payment of dividends to all citizens of the state. This will compensa

Alphabetical by sender's first name

William McKechnie 14475

Feb 13, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centur

William O O'Neill 57177

Mining with sulfide in northern Minnesota would be a short-sighted action that would deteriorate the health of the ecology and quality of life in the area. Long after the resources are tapped, our children will still be dealing with the toxins left behind.William O. O’Neill1702 North 24th StreetSuperior, WI 54880

William R Whiteside 18307

My name is William R. Whiteside. I am from Hibbing. I'm pleased be able stand here today in solid support of PolyMet and the crew of people who have been working so hard to make this a successful venture. They've spent $50 million or more trying to satisfy the demands that this kind of a project requires to assure that we are able to do this in a safe and efficient manner. I'm really pleased that the people who at PolyMet are local people of the highest caliber of talent in mining. It's very comforting to know that we have such fine people working there. And I'm very happy to see as we're looking forward the huge amounts of money -- billions of dollars -- that are going to be available to young people not only of the Iron Range, not only of Duluth, Northeastern Minnesota, but all of Minnesota to assure better educational opportunities, more solid infrastructure, better bridges, highways, hospitals. All the things that are necessary to a healthy and a good environment for people to live in. I still have a minute left. Seems like a long time when you get up here. So I think this is a great opportunity for all of us. I think it's a great opportunity for the people of Northeastern Minnesota. I'm glad that the glaciers have left for a little while and made these resources available to us. And I hope we can go forward as a state and as communities into a future -- I'm very confident in the water quality issues that will have been addressed, all the work that has been done. Thank you very much.

Alphabetical by sender's first name

William Robbins 46971

Comment: PolyMet Supplemental Draft EIS From: William Brewster Robbins 2277 Stillwater Avenue East Maplewood, MN 55119-3621 Supplemental Draft EIS is full of general information, but very short on details, especially details relating to control of water pollution and airborne dust pollution. I suggest that the lack of details would not allow a decision maker to know and understand enough to make an informed decision on this project. Control of water pollution: Reverse osmosis (RO) is given lip service in the Supplemental Draft EIS as the "cure" for water pollution. RO could help improve the situation, but only if the RO system is properly engineered, properly operated, constantly monitored and rigorously maintained. Of course, RO only separates the water into a cleaner stream and a more concentrated waste stream. Choice of operating pressure in the RO sets the ratio of flow of cleaner water to flow of wastewater. Without knowing the design operating pressure, a decision maker would not know the following: How much wastewater will have to be stored or treated by secondary methods. The intended size and cost of the RO system, including pre-filtration equipment. The costs of long-term maintenance, monitoring and repair of the RO system. Without adequate maintenance, monitoring and repair, the cleaner water stream will soon cease to meet even the minimum water quality standards. There seems to have been a focus on controlling water effluent from tailings. This is important, to be sure, but the huge amount of water, both meteoric and ground source water from the open pit will likely dominate water flow which needs to be treated, so sizing of the RO system needs to accommodate large, erratic flows from storm runoff. I understand that agencies that write permits and regulations often are expected to resolve many questions relating to operational details, but I suggest that such details are often overlooked by such regulating agencies. Control of airborne dust pollution: All the following generate airborne dust: Removing overburden, mining, transportation, milling to reduce size preparatory to froth flotation, and tailings storage. I found little mention in the Supplemental Draft EIS of sources of dust, design of equipment and engineering processes to minimize dust generation and remediation procedures to contain and dispose of duSt Boom and bust nature of the mining business: By planning for a 40-year period of mining, rather than a 20-year period, the removal rate of copper/nickel would need to be reduced. I understand that the up-front costs would be recovered more slowly, and this would generate reduced profits. Benefits to the long term economy, the people in the area, and the environment would result, and those uncertainties would decrease, issues associated with the long term needs of maintaining the site after active mining operations cease.

William Rudie 27497

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. This has happened within years, not decades or centuries and the impact of this pollution is devastating to our environment. The short form of the environmental impact statement could easily say " the unique and delicate environment of Northern Minnesota will be damaged. Mining companies have been unable or unwilling to do what is required to prevent polution caused by such operations in the past and there is no reason to think that this mine will be any different " As someone who grew up in Duluth and who has spent considerable time in Northern Minnesota, the Superior National Forest, and the Boundary Waters I have grave concerns about this project's potential impacts on our region's natural resources and public health. I appreciate the desire of those living in this area to have an opportunity for economic advancement if only for a limited time but the cost in permanent damage to this land and these waters is simply too high. The Federal land exchange of protected Superior National Forest land to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt Sincerely, William Rudie 4985 S Las Mananitas Trl Gold Canyon, AZ 85118-1853 (480) 288-5429

William Simmons 35263

Mar 4, 2014 EIS Project Manager Lisa Fey MN Dear EIS Project Manager Fey, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining should not be allowed in Minnesota as it will threatens wetlands, rivers, lakes and streams across the Arrowhead Region of Minnesota, including Lake Superior and the Boundary Waters Canoe Area Wilderness. If Lake Superior is affected so too will the rest of the Great Lakes. We know that acid mine drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. There is no reasonable expectation that a different outcome will be seen in Minnesota. With this great danger, I ask that this mine be stopped. It is not in the long term best interests of the United States, or Canada for that matter. As the leader of the World, the United States must take the lead in supplying long term solutions to environmental issues. Sincerely, William Simmons 6326 Van Buren Ave Hammond, IN 46324-1238 (219) 933-7477

Alphabetical by sender's first name

William Smith 16299

Feb 20, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

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William Turek 41968

Mar 8, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Mr William Turek 2372Como Ave,#2 Saint Paul, MN 55108 (651) 645-7671

Alphabetical by sender's first name

William Wenger 9794

I support the PolyMet mining plan assuming all safeguards to the environment are in place. This is a big assumption, but I trust the agencies and regulatory bodies have done thorough due diligence. I would not support the PolyMet plan if there is a 1% chance that MN could end up with a disaster like what has happened to the Upper Clark Fork River Watershed in Montana as described in Brad Tyer's book Opportunity, Montana. PolyMet must prevent, with 100% certainty, any "oops." in the form of water or air contamination, or any breach to the complete, long term containment of toxic byproducts within the mining operation. We do need copper, and I would prefer it be mined under close government scrutiny in Minnesota, than in other parts of the world where such over site is missing. Regards, William K. Wenger, PhD 500 Robert St N Unit 619 Saint Paul,MN 55101

William Wilton 57215

We cannot let economics or oil exploration and mining of our resources decide whether we will live or not. There is no question that unless topped, life will end or be badly mutated. Research to recycle and reuse what has been already extracted can bring many jobs is just a start. Remember tailings dumped in Lake Superior! Corp's fought responsibility. NO PolyMet! Please protect you and I and everyone.William Wilton524 Anderson RdDuluth, MN 55811

William Youman 58168

As a M.D. physician and BS in Wildlife Biology (MSU)j my research and education on this issue concludes the mining should NOT go forth and be NOT approved due to wildlife, water quality and health issues for local residents and all of MN and the water resources.

Alphabetical by sender's first name

william youmans 46190

Dear Ms Fay and Mr Westlake: MDNR Division of Ecological and Water Resources Kenneth Westlake US Environmental Protection Agency RE: PolyMet NorthMet Sulfide Mining SDEIS Dear Ms Fay, Mr Westlake: This comment letter is submitted on behalf of the undersigned doctors, nurses and other health professionals. We are concerned that the proposed PolyMet NorthMet copper-nickel mine project could have significant adverse impacts on human health as a result of pollutants released to air, surface water and drinking water. We also believe that the PolyMet NorthMet Supplemental Draft Environmental Impact Statement ("PolyMet SDEIS") fails to adequately assess important risks to human health from the pollutants that would be released from this project. The absence of any professionals from the Minnesota Department of Health from the List of Preparers of the PolyMet SDEIS is particularly troubling. We would respectfully request that the PolyMet SDEIS be deemed inadequate due to unresolved concerns and insufficient assessment of health risks of the proposal. We would further request that, in revising the PolyMet SDEIS, a comprehensive Health Impact Assessment (HIA) be prepared under the guidance of the Minnesota Department of Health. In this letter, we summarize some issues and concerns leading to these requests. Mercury contamination of fish and impacts on neurotoxicity in the developing fetus as well as in infants, children and adults is a significant public health concern in Minnesota. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. The percentage of infants thus at risk for neurologic impairment was higher than in the Lake Superior Region of Wisconsin or Michigan. We are aware that many of the bodies of water downstream of the proposed PolyMet mine and plant are legally impaired due to mercury in fish tissue. The lower reaches of the St Louis River, where the estuary for Lake Superior fish is located, contains a particularly high level of mercury. We also know that other mine facilities release both mercury and the sulfates that increase bioaccumulation of methylmercury. Reviewing the PolyMet SDEIS, we believe that the information on mercury releases and the potential for mercury bioaccumulation is insufficient. The SDEIS does not disclose releases of mercury from seepage and does not analyze the effects of local deposition of pollutants or of hydrologic changes on mercury bioaccumulation. The SDEIS does not provide evidence to justify its claims about collection and containment of mercury and sulfates. The PolyMet SDEIS also provides an insufficient analysis of the human health risks of other pollutants, such as neurologic morbidity resulting from manganese and lead release; and carcinogenic effects of air emissions of diesel, asbestos-like fibers, nickel and other particulates, and of arsenic releases to water. The PolyMet SDEIS fails to analyze health risks to workers who would work on-site at the PolyMet mine or plant and fails to assess impacts of tailings groundwater seepage on nearby residential. The PolyMet SDEIS does not discuss impacts of exposures to vulnerable populations, such as infants, children, the elderly and persons who rely for subsistence on fish, wild rice or game species where pollutants may bioaccumulate. For these reasons, we would first request that the PolyMet SDEIS be revised to provide more complete information on mercury and sulfate emissions, deposition, and seepage from various sources, and the potential conversion to and bioaccumulation of methylmercury resulting from releases to the environment and hydrological changes from the proposed PolyMet project. We would further request that the PolyMet SDEIS be determined inadequate pending supplementation to include a Health Impact Ass

Willmar Chamber of Commerce 54636

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Alphabetical by sender's first name

Wintergreen 10185

My name is Paul Schurke, from Ely, MN, and I'm deeply concerned about recent revelations of a fatal flaw in the PolyMet SDEIS. The situation brings to mind the pivotal scene from the Apollo 13 mission: "Houston, we've got a problem." We've got a huge problem with the PolyMet SDEIS. But this problem is not rocket science. This problem is so alarmingly simple that we should all be pushing the eject button on the PolyMet impact study. For 5 years PolyMet and various government agencies have studied the potential impacts that the nation's most polluting and toxic industry might have on the nation's most water-rich ecosysteMs For 5 years, we've been told to trust the science. Don't worry, they've told us, PolyMet's models will get it right. These models will determine whether a mine slated to operate for just 20 years is likely to pollute a headwaters of the Great Lakes watershed – the world's most significant freshwater resource - for hundreds of years if not forever. But now we learn that PolyMet's models got it wrong. They based the study on the wrong data. Their key parameter, stream flow volume, was incorrect. It's simple: to determine how much pollution might travel from the mine site to Lake Superior, you measure the flowage of the headwater stream that connects the two – the Partridge River. But the scientists we are asked to trust did not measure the flowage. They simply guessed using computer models. They guessed wrong. New data shows that at least 3 times as much water flows down the Partridge River than was wrongly assumed in their study. And here's the kicker: For 5 years scientists with native American tribes who know the lay of the land better than any of us warned the agencies that PolyMet's stream flow data was incorrect. The warnings of the tribal scientists were ignored. Why. Is it because much greater flowage might mean much greater pollution treatment costs than PolyMet is willing to pay. Is it because much great flowage might spread the pollution to a much larger area than PolyMet is willing to clean up. Is it because PolyMet's proposed treatment plants will have to process larger volumes of water for hundreds of years than any financial assurance package could ever possible pay for. If the agencies that prepared this SDEIS could not get a simple key parameter correct – the amount of water currently flowing from the mine site – how can we possibly trust them to accurately predict the impact of this mine on our watershed hundreds of years from now - when it will still be releasing toxins into our surface and groundwater. Because of this fundamental flaw, this SDEIS is fundamentally inadequate. We're told to rely on science to get it right. How can we if the agencies that are doing the science got it wrong. Let's start over before we risk permanent damage to Minnesota's lakes and streams and our nation's most significant watershed."

Wump 45062

To Whom it May Concern, Please reject the Polymet proposal as it would destroy the natural environment and compromise our waters. This cost significantly outweighs any short term financial gain that may result from the copper mine business. Thank you, Leila Jindeel

Wynter George 54182

Dear DNR, I think building a mine is a bad idea because it will effect our environment. It will destroy our rivers and are boundaries water.

Xa Peter Vang 54209

I am a student at Como Senior High School. I think we should not turn the boundary waters into a mine. I believe we should protect an environment that holds such beauty and serenity. The boundary waters is our last and biggest ecosystem in Minnesota. Pollution is a big problem all over the world and we all want to stop pollution, so why build something that will create more pollution. Sulfide mining will have a large impact to the environment; sulfide will turn into sulfuric acid and pollute the boundary water. We even created a low to protect the boundary water. The boundary water has been our largest wilderness since 1978 and it should be kept like that. The boundary waters is the icon behind Minnesota.

XAkk G. Asphodel 40153

Thank you. -XAkk On Mon, Mar 10, 2014 at 3:26 PM, *NorthMetSDEIS (DNR) <HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us> wrote: Thank you for providing comments on NorthMet Mining Project and Land Exchange SDEIS. We will review the comments you have provided. Responses to all substantive comments will be included in the official recoRd If you have provided your address, you will be included in mailings or electronic distribution of the recoRd - Just remember that you're alive. -Joe Strummer, R.I.P. 2002

Alphabetical by sender's first name

XAkk G. Asphodel 40215

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Yancy Rowlette 43503

Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. •The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Yancy Rowlette 2749 polk St N.E. 28 th ave N.E. Minneapolis, MN 55418

43504

Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours, Yancy Rowlette 2749 polk St N.E. 28 th ave N.E. Minneapolis, MN 55418

Alphabetical by sender's first name

Yasmina Antcliff 6073

Dear Ms Fay, Dear Federal and State Agency Leaders: The Environmental Impact Statement doesn't tell us how much mercury pollution will be seeping out of the PolyMet tailings into surficial waters. The bottom line is that we need MORE INFORMATION. Our children's health is at risk and people in the North Land aren't willing to risk that kind of potential harm. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely Yasmina Antcliff, Honors Student at UMD, Mother of a seven year-old little girl, INFORMED VOTER Yasmina Antcliff 602 E 5th St #203 Duluth, MN 55805 2182607048

18870

Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please listen to the community – there is too much at stake to rush this. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. In places, it is internally inconsistent. In others, it only makes sense after reading additional technical documents. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS is often one-sided. Well-documented tribal "Major Differences of Opinion" call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles, and tailings heaps won't seep pollution; that mining won't dry out wetlands; and that mercury contamination of fish and other toxic chemicals won't increase. * The SDEIS doesn't allow members of the public to find or check on the references claimed to support the SDEIS conclusions. The SDEIS has a long list of references, but they were not made available to the public. How can we tell if the conclusions in the SDEIS make sense. * The SDEIS comment period and public meetings come at the worst possible time. Release of the SDEIS right before the winter holidays and scheduling public meetings in January (when bad weather is likely) seem designed to make it hard for us to both review the documents and to travel to hearings. The PolyMet NorthMet sulfide mine proposal is very controversial, and there is a lot of mistrust about whether government decision-makers are really interested either in the science or the financial risk of the proposal, let alone what the public has to say. Extending the SDEIS comment period to 180 days and setting public meetings later in the comment period would go a long way to reassure us that the PolyMet sulfide mine project will receive a fair evaluation and that opinions of Minnesota citizens, not just the interest of foreign corporations, will matter when the government makes its decisions. Sincerely yours, Yasmina Antcliff 602 E 5th St #203 Duluth, MN 55805 218-260-7048

42577

See attachment

Alphabetical by sender's first name

yvonne eckstein 40197

Dear Ms Fay, Dear Federal and State Agency Leaders: I believe PolyMet's open pit mine plan is deeply flawed and my concern as an old Minnesota resident is the long term potential harm to the environment.-water and air pollution from the mine site, leaching of heavy metals into wetlands and lake drinking water, loss of public lands in Superior National Forest, destruction of irreplaceable wetlands. PolyMet should be denied a permit to mine until the potential impacts of their proposal receive further study, and questions such as-will mercury loading in wetlands pose a risk to fish, to human and animal health; what are the actual costs of treating the water pollution from the permanent mine site waste rock and how long will PolyMet pay for it. The groundwater flow rates in SDEIS are inconsistent with "real world" date. What is PolyMet planning to do if their modeling predictions of no risk of water pollution from seepage both from the waste rock pile and the tailings pile do not hold true. I would ask the SDEIS analyze and study the potential impacts of some alternatives to an open pit design-like underground mining, putting liners under the permanent waste pile and the tailings pile. The opportunity to provide employment from the PolyMet project has strong appeal to some residents in the area-and jobs are are a real concern BUT I think the short term benefits of these few jobs are vastly outweighed by the longer term and possibly permanent damage to health and environment of Minnesota residents. Surely there are other better ways to provide employment. Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota’s fresh water for centuries, if not forever. Sincerely, Yvonne Eckstein yvonne eckstein 1912 dupont ave so #407 minneapolis, MN 55403

Zabelle Stodola 4698

Jan 6, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Let me say immediately that as a new resident to northeastern Minnesota, I am strongly opposed to the proposed open pit mine and land exchange. My husband and I retired to Duluth in 2013 to live near natural and recreational areas and to be closer to our cabin in the Superior National ForeSt We did not move here anticipating that an open pit mine and its processing facilities would open in the Arrowhead region and pollute the area. Whatever short-term economic gains might accrue regionally are simply not worth the long-term risks to the environment, to residents' health, and to the local tourist economy. I would like to remind decision makers that in the past, the taconite industry put private economic gain over health and environmental protection and dumped waste into Lake Superior with disastrous consequences. It has taken years to deal with that mess. The location of PolyMet's proposed NorthMet open pit mine is near important tributaries such as the Embarrass and Partridge Rivers. Therefore, the potential for acid mine drainage polluting the St Louis River and, crucially, Lake Superior is significant. In addition to the mine itself, the nearby Erie Plant, formerly a taconite facility, will be used for additional processing and will connect to the mine by a private rail system crossing public lands. Even worse, the mine and associated facilities could be expanded later because other deposits exist in the surrounding area. Allowing construction of the NorthMet mine is an open door to further expansion. I am also opposed to the land exchange PolyMet has proposed which would zero out critical federal environmental protections such as the Weeks Act. Strip mining is not permitted on Weeks Act land, so special legislation removing environmental regulations would be necessary in order for PolyMet to move forward with the process. Protection provided by the Endangered Species Act and the National Environmental Policy Act would also be removed by the exchange. Shame. Further, if this project goes forward, we could see legislation in the future that would fast track a land exchange largely to benefit multinational mining companies. The NorthMet Project would occur on land that has never been mined before. I understand that the Swiss corporate mining giant, Glencore, financially backs PolyMet and plans to sell the metals globally. This company, which owns approximately 25% of PolyMet, faces accusations of human rights abuses, environmental damage, and labor violations elsewhere. In short, the proposed pit and land exchange are not benign and will not benefit the area in the long run. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Zabelle Stodola 131 N Hawthorne Rd Duluth, MN 55812-1934

Alphabetical by sender's first name

Zabelle Stodola 51512

Jan 6, 2014 Tim Dabney, USFS Dear Dabney, USFS, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Let me say immediately that as a new resident to northeastern Minnesota, I am strongly opposed to the proposed open pit mine and land exchange. My husband and I retired to Duluth in 2013 to live near natural and recreational areas and to be closer to our cabin in the Superior National ForeSt We did not move here anticipating that an open pit mine and its processing facilities would open in the Arrowhead region and pollute the area. Whatever short-term economic gains might accrue regionally are simply not worth the long-term risks to the environment, to residents' health, and to the local tourist economy. I would like to remind decision makers that in the past, the taconite industry put private economic gain over health and environmental protection and dumped waste into Lake Superior with disastrous consequences. It has taken years to deal with that mess. The location of PolyMet's proposed NorthMet open pit mine is near important tributaries such as the Embarrass and Partridge Rivers. Therefore, the potential for acid mine drainage polluting the St Louis River and, crucially, Lake Superior is significant. In addition to the mine itself, the nearby Erie Plant, formerly a taconite facility, will be used for additional processing and will connect to the mine by a private rail system crossing public lands. Even worse, the mine and associated facilities could be expanded later because other deposits exist in the surrounding area. Allowing construction of the NorthMet mine is an open door to further expansion. I am also opposed to the land exchange PolyMet has proposed which would zero out critical federal environmental protections such as the Weeks Act. Strip mining is not permitted on Weeks Act land, so special legislation removing environmental regulations would be necessary in order for PolyMet to move forward with the process. Protection provided by the Endangered Species Act and the National Environmental Policy Act would also be removed by the exchange. Shame. Further, if this project goes forward, we could see legislation in the future that would fast track a land exchange largely to benefit multinational mining companies. The NorthMet Project would occur on land that has never been mined before. I understand that the Swiss corporate mining giant, Glencore, financially backs PolyMet and plans to sell the metals globally. This company, which owns approximately 25% of PolyMet, faces accusations of human rights abuses, environmental damage, and labor violations elsewhere. In short, the proposed pit and land exchange are not benign and will not benefit the area in the long run. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Dr Zabelle Stodola 131 N Hawthorne Rd Duluth, MN 55812-1934

Zac Cerwinske 54335

Dear Ms. Lisa Fay, EIS Project Manager,I am writing this letter to let you know that I don't want the NorthMet Mining Project approved. The reasons I do not want the mine is because I am worried about the environment, especially the loss of almost three fifths of our wetlands on the proposed site. Wetlands can decrease flooding, remove pollutants from water, recharge groundwater, protect shorelines, and provide habitat for wildlife.Wetlands act as natural sponges that trap and release surface water over time. This ability to store water during heavy rainfall means that wetlands can help prevent flooding. Wetlands along the Mississippi River used to be able to store at least 60 days’ worth of floodwater, but now can only store 12 days’ worth of floodwater because most have been filled or drained. Without this natural flood protection people will also have to buy flood insurance.Wetlands have the ability to improve the quality of water by filtering runoff, removing sediment, pesticides, metals, and other types of pollutants. Wetlands act like a strainer that filters out the bad stuff. When this stuff enters a wetland, the wetland plants will take many of the harmful substances into their roots and change the harmful substances into safer ones before they are released into the water.As amazing as wetlands are, they do have their limits. A partially filled or damaged wetland can't fully control floods, or help to improve water quality. A badly degraded wetland can lose its ability to remove excess sediments, metals, pesticides, and other pollutants. Wetlands have the ability to provide environmental benefits, but they are not indestructible. If we want wetlands to continue to perform their ecological functions, then we have to do our part to protect them, and this is why I don't want the NorthMet Mining Project to be approved.Thank You,Zac Cerwinske

Alphabetical by sender's first name

Zac Kenoyer 54345

Dear Ms. Lisa Fay, EIS Project Manager,I am writing this letter concerning the PGE mining in Minnesota. I have read the Project and Land Exchange Overview, Cultural Resources, And Water Quality Fact sheets on the DNR website. I think PolyMet mining has a good plan. I think they should find a way to minimize the Cultural resources effect They should change their plan so they do not bother the Ojibwe people. I think this mining will benefit Minnesota by creating jobs and getting us needed resources to use or export. Some disadvantages though would be the affect on the Ojibwe people by inconveniencing them during construction and ruining some of their historic land. Also another disadvantage would be the possible affect on water quality and the surrounding area. Some advantages of this project would be the creation of more jobs. Also getting resources that we could export if needed. This will affect cultural resources because it will affect three of five historic places during construction, excavation, filling, etc...Also the 1854 treaty specifies that its reserved for fishing, hunting, and gathering on this land that would be affected. I do agree with the land exchange offer although its affects on the Ojibwe. This will most likely not affect me right now. Depending on the affects of the project and possible pollution there is a possibility it could affect me later when they finish the mining. Although there are disadvantages and advantages of the project, I am in favor of the mining. I think it is good because it will create needed jobs for at least twenty or more years, depending on how construction goes.8th grade student,Zac Kenoyer

Zac Quandt 41926

Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely, Zac Quandt Rochester, Minnesota

Alphabetical by sender's first name

Zach Colatch 41142

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Zach Insheep 54190

Building this mine will bring us both positive and negative outcomes. We would be getting a large amount of copper, but the type of miing, sulfide mining, will pollute our watershed. In the process of building the mine we would be destroying natural water filters, wetlands, peat. Which would you rather have, clean drinking water or water that polluted by sulfuric acid? Worldwide we only have 0.024% of clean drinking water. We should not take our water for granted even if it is for copper.

Zach Kunkenborg 54193

I believe that we shouldn't mine – especially if the consequences are going to be bad. I mean we have one of the most pure watersheds up there, near the boundary waters and all, so why would you put a sulfuric mine up there and risk tainting the water? Also you get a lot of waste from this mining, think of all the waste this will create. I want my kids to grow up in a waste free world.

Alphabetical by sender's first name

Zach Pesch 15368

Feb 9, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuri

Zachariah Mitteness 37824

To whom it may concern, The polymet mine would jeopardize sacred manoomin (wild rice) which Is almost exclusively here in Minnesota, Wisconsin, and parts of Canada. not only that but the polymet mine would have an effect on the serene beauty of the boundary waters. It is one of the last serene places in Minnesota and the country. A high stakes mine such as polymet is not worth the risk. Thanks, Zac Mitteness 609 Bemidji Ave Bemidji, mn 56601

Zachary Behnke 54219

Dear Ms. Fay:I am Zachary Behnke, a 10th grader who attends Humboldt High School. I am writing about PolyMets proposal to start mining. If I don’t stand up and take care of the environmental impacts, we aren’t really a democracy. PolyMet has many problems with their plan and environment impact statement. One of the major problem with PolyMet, is that they re-drew maps to disguise the fact that the runoff from the mine waste piles will enter the BWCA. Not only do they need to get new, ACCURATE maps from the DNR, but they also need to test how much waste will flow to the BWCA and how long it will take to get there. Another major problem is the environmental impact statement shows the water will have toxic levels of metal at LEAST for 500 years. That will need constant treatment to make it safe. The MN DNR needs to get a water model that is capable of telling how many years it will take for the waste water metal levels to drop to the safe range. That being said, the environmental impact statement is a set up deal. It’s a way for PolyMet and people to provide jobs for 20 years at max, for at LEAST 500 years of toxic pollution that will destroy not only BWCA, but also destroy any natural parts of Minnesota left. I hope you do not allow these scandals to ruin generations of the great outdoors, and take away from the Minnesota culture. If you have any questions, or comments, please contact me at (651)-373-6605 or send mail to 2520 Rose Ave East, Maplewood, MN 55119.

Alphabetical by sender's first name

Zachary Blankenheim 40036

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of "Special Concern" by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a "regionally common wildlife species," and a "game species" (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. "Habitat fragmentation and loss" is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of "Special Concern," and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. The moose is a truly iconic symbol of the Northwoods in Minnesota. The population is already in drastic decline with studies just getting underway to search as to the reasons why. Further decline in moose numbers may also impact the wolf population. Without the moose as a food source the wolf population will possibly rely more heavily on the white tail deer. If the numbers of white tail deer decline that will impact hunters and the amount of revenue that the area receives. Cause and Effect, period. Sincerely, Mr Zachary Blankenheim 3014 142nd Ln NW Andover, MN 55304-3242 (763) 432-6155

40037

Mar 10, 2014 Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsi

Alphabetical by sender's first name

Zachary Johns 38609

Dear Ms Fay, Dear Federal and State Agency Leaders: Back in the 1950s and 60s, there was a push to put dams in the Grand Canyon. Yes, you read that correctly, the GRAND CANYON. There were actually people who thought it would be ok to flood a large section of one of the world's most magnificent landscapes. Why. The promise of jobs and money of course. And, of course, the American public yelled and screamed and protested, and finally after a fight of nearly twenty years, the plan was dropped. Today, just the thought of flooding such a sacred place is almost laughable. How dare they put a price tag on the Grand freaking Canyon. It's America's Sistine Chapel. Well, that's exactly what is happening in the Northland today. One of our holiest landscapes is being threatened by people who just want to make a buck. The Boundary Waters Canoe Area Wilderness, yes, our beloved Boundary Waters, is being threatened by the scourge of Sulfide Mining. Now, it's taken a while for me to speak out against this, because frankly, I didn't think it would get this far. It is the BOUNDARY WATERS after all. I thought the people of the Northland would rise up en masse and scream, "Oh, no. Not here. You can take all your foreign money and mine or drill somewhere else." But apparently dangling this golden carrot has blinded some people to what is really at stake. Now, I could get all into the science behind how this form of mining has never been proven safe and what it could do to wildlife, wild rice, water, etc, but all of that has been written about time and time again. Even with all the evidence, some people are still not listening. There are still money-hungry zombies with dollar signs in their eyes. But I think there is a very simple way to snap them out of their trance and make them understand what is at stake. Just take them there. Take Governor Dayton, Senators Klobuchar and Franken, Representative Nolin and any other person with a stake in this issue and bring them to the Boundary Waters. Put them in a canoe and have them paddle for a week or two - let them listen to the loons, see the northern lights. Have them smell pine needles baking in the sun, feel the fantastic strain of a portage - let them live the "strenuous life" that shaped Theodore Roosevelt into our greatest president - a man who over 100 years ago created Superior National Forest and who would be appalled at the thought of destroying this very land. After spending some time paddling and portaging; sleeping under the stars and sitting quietly upon a rock; returning to their basic primordial rhythms, no one would think any sort of risk to this special place would be a good idea. I dare say that even Tony Hayward himself, the villain of the Gulf oil spill and chairman of Glencore (PolyMet's largest investor) would even say, "Blimey. We need to leave this place alone." Once, while skiing in Utah, I rode a chairlift with a family from Maryland. When they heard I was from Minnesota, the first thing they asked was, "Do you live near the Boundary Waters We go there every year. You are so lucky to live there. It's our favorite place in the whole country." There are many people around the nation who feel the same way. We may not know it, but many around the United States put our BWCA on the same level as Yellowstone, Yosemite or the Great Smokey Mountains. If we screw this up, it will be a national disaster. It'll be like we flooded the Grand Canyon. Sincerely Zachary Johns 7 Southview Dr Apt 7F Hibbing, MN 55746 218 340-8954

Alphabetical by sender's first name

Zachary Johns 38617

Dear Ms Fay, Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. •Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: •Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. •Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. •Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. •Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1-Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2-Assessment of potential impacts on residential wells from tailings seepage. 3-Health risk assessment for on-site workers at both the PolyMet mine and plant. 4-Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury

Alphabetical by sender's first name

ZACHARY LORTON 3225

Dear Minnesota DNR, I am a resident of Minnesota who is 17 years old. I love the work you do and all the resources and wildlife refuges that you manage and care for. I am an avid hunter and fisherman and love to see what you do to keep the pristine wilderness healthy. However, recently I saw on the news that mining in the boundary waters might take place. I have taken it upon myself to research what kind of mining would be permitted and what the effects on the Boundary Waters may be. When mining in Areas near bodies of water it in inevitable that chemicals will reach and contaminate the water. When sulfuric acid leaks out from the metal mines it contaminates not only the lakes but also the groundwater. I can remember from the time I was young how clear the waters of the boundary waters are. I love to fish and have often found that fishing in the boundary waters is some of the best fishing I have ever had. Much of the reason is due to the abundance of fish in the lakes. If the lakes were to be poisoned by chemicals, much like many city lakes, the fish population would surely decrease. I couldn't help but research the effect that mining has had on other wilderness areas and I have found that in all the cases the measure taken to keep the chemicals out the lakes were only practiced at the beginning. No situation ever was able to have the wilderness back that they loSt I ask you to carefully contemplate the risks that you are taking. Will the Boundary Waters still be the same. What will happen to the wildlife. I know that you care a lot about the environment and I hope you can see why I have expressed concern. I love our state and hope that you do too. I wish that you will make the right decision, and help keep the integrity of out Department of Natural Resources. file:///C:\Users\JL-Home\AppData\Local\Temp\msohtmlclip1\01\clip_image002-jpg Here is a Picture from my last trip to the Boundary Waters, I hope when I return it will be the same and I hope that it would stay the same for future Minnesotans. Sincerely, Zack Lorton ---------- Please report any abusive, or inappropriate use to HYPERLINK "mailto:admin@isd271-org"admin@isd271-org. This electronic mail transmission may contain private or confidential data and is intended only for the person named. If you are not the intended recipient, you are notified that disclosing, copying, distributing, or taking any action in reliance on the contents of this information is strictly prohibited. If you received this message in error, please notify the sender, and delete it. Bloomington Public Schools reserves the right to monitor and review, without further consent, any messages created, sent, or received on its electronic mail system.

Zachary Nelson 47577

Hello, my opinion is to not go ahead with the mine. The reasons are short and simple. First think of this project in the long term. The US is only 238 years old. At 200 years of clean up, we would just be finishing up Revolutionary War era mining projects. Secondly, the "jobs" created would be shirt term and would put Ely in the same position as Duluth in the 80s when it was dependent on miming and almost died when the industry fell through. Lastly, it is your purpose to protect the environment, period. We only have one northern Minnesota, please help us keep it amazing. Thanks Zach Nelson Duluth, MN Sent from Zach's iPhone

Zachary Pera Cole 39583

Mar 11, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Mr Zachary Pera Cole 3522 Newton Ave N Minneapolis, MN 55412-2314

Alphabetical by sender's first name

Zack Heuring 47400

Hello I am writing to you today as a concerned Minnesotan on the subject of the potential Polymet operation in Northern Minnesota. After doing my own research on Polymet, sulfide mining, and the environmental impacts I must voice my objection to this type of mining in Minnesota. My wife's family has deep roots in the Hoyt Lakes and Aurora and thus I've spent quite a bit of time in the area. Her Grandfather and many other family members have and had worked in the mines for years so the mining concept is not unknown to our family. What Polymet is looking to do has not worked in other locations and has almost always ended in huge environmental catastrophe for the area surrounding the mine. This part of our state is beautiful and raw, we cannot afford the hundreds of years of harmful effects for maybe twenty years of jobs. This is a short term fix to a long term problem on The Range and will not serve or state or economy well in the future. Please stand with me and help bring light to the realistic reality of Polymets proposal. Thank You, Zackary Heuring 2168 Cleveland Lane South Cambridge, MN 55008 763-913-6905 Sent from Yahoo. Mail on Android

Zdenek Mestenhauser 21373

TO: Minnesota Department of Natural Resources HYPERLINK "mailto:NorthMetSDEIS.dnr@state.mn.us"NorthMetSDEIS.dnr@state.mn.us FROM: Zdenek Mestenhauser, 4800 Lyndale Ave S, Minneapolis, MN 55419 HYPERLINK "mailto:mesten2958@msn-com"mesten2958@msn-com DATE: 2/24/14 I attended the public comment event on Jan. 28 in St Paul. This event was rigged with an intent to skew the outcome. It did not allow equal time for true public comment vs. industry comments. The DNR set the event up to favor industry input by allowing the unions to submit requests to speak, when there was actually no intention to speak and provide public input. The intention was to cede their time to industry leaders and elected official with prepared remarks. Industry has their time to present their side. This invalidated the public input and limited public. The public hearings have to be repeated to allow true public input in order to be valid. It would be immoral to approve this plan that promises the endless pollution of water and our environment. The PolyMet SDEIS has been shown to rely on an inaccurate water model and provides incomplete information about the health and environmental consequences of its proposed sulfide mine in Minnesota. I feel strongly that Minnesota DNR must require PolyMet to provide a plan that addresses the following: 1- Is water value estimated. Value of clean water is not calculated for the next 500 years. Climate/drought will make water more valuable. Climate change impact was not considered in the SDEIS. This need to be analyzed to better understand the long impact such a mining operation would hAve Several scenarios need to be considered. Raising sea levels will displace population; raising temperature will make Minnesota a better place to live. More severe and extreme storms will happen in the future. Calculations for 5,000 year storms need to be considered in the study. The water treatment plants have to be able to withstand those. 2- Reliability of water treatment addressed. As an engineer, I am quite aware that designing a machine with a life span of 20 years is typical. 30 year reliability is difficult. It is virtually impossible to design a system that will last 500 years. The plan has to address this topic to a great detail in order for experts and the public to assess if the design of such a facility would be adequate. The cost of such a facility has to be estimated. 3- Are industry assurances that it could be done safely valid. PolyMET claims that this process could be done safely. PolyMET has to show facts to support this claim. Research shows that there is not a single sulfide mining operation that does not pollute. There is certainly not one operating in such a water rich ecosystem. No approval should be granted unless the technology proposed is shown to be reliable operational for an extended period of time, such as 10 years. Perhaps a demonstration project in a reduced scale to something like 3% of proposed size should be approved firSt Only after this technology is validated on a much smaller scale, could that be increased in small increments. Such a controlled approach is the only responsible way to mitigate the extent of damage to our environment. 4- Is fish mercury contamination evaluated correctly. The DNR currently limits the amount of fish humans can safely consume. The proposed mining will increase the contamination of water with heavy metals including mercury. The SDEIS does not adequately estimate the impact of mercury contamination of fish downstream and including all the great lakes. The cost of mercury contamination in fish and other aquatic species could not be estimated. 5- Does the proposed mine plan keep Minnesota's water safe and clean. The USEPA gave the proposed mine its lowest ranking: Environmentally Unsatisfactory and Inadequate. Polymet's SDEIS clearly shows that after 20 years, there will be three enormous pits up to 696 feet deep full of water polluted with sulfuric acid and toxic heavy metals.

58127

Based on available information, pollution of clean water is inevitable. Today, we are adviced not to eat fish because of mercury pollution. It will only get worse. Financial assurances are insufficient! The cost of investigating pollution will be up to the public. It is not worth the risk. This technique has never been used successfully. Please do not gamble with our natural resources! Do not permit this mining plan. It could not be done safely. Clean water value goes up and will be going up with climate change. Let's not damage it if it is not necessary.

Alphabetical by sender's first name

Zindzi McCormick 39588

Mar 11, 2014 EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, Please reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely, Ms Zindzi McCormick 1128 Portland Ave Saint Paul, MN 55104-6941 (651) 983-5011

Zoerhof Peggie 39755

Mar 10, 2014 Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely, Zoerhof Peggie 2530 Bridle Creek Trl Chanhassen, MN 55317-9372 (952) 937-5801

Non-Variant Form Letters

Alphabetical by sender's first name

Form Letter 1: Mining Truth: Comments on SDEIS.
Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, I am writing regarding the PolyMet NorthMet supplemental draft environmental impact statement. In my view, the SDEIS is inadequate and the proposed mine plan would have unacceptable environmental impacts. PolyMet Mining Company's proposed NorthMet sulfide mine fails to meet four fundamental, common sense clean water principles, principles the mining industry previously agreed to. The proposed mine plan does not keep Minnesota's water safe and clean The best case scenario for the mine anticipates at least 500 years of polluted water that will have to be actively treated. And, not all of the polluted water will be captured and sent for treatment. Every year, 11 million gallons of polluted seepage from the tailings basin will enter groundwater and the environment without being treated. Every year, over 5 million gallons of polluted seepage from the mine site will enter groundwater and the environment without being treated. In addition, the model used to predict impacts to water quality has many flaws that may significantly under-represent pollution risks. Indeed, the model has been shown to be inaccurate in representing current conditions for water quality surrounding the mine site undermining confidence that it can accurately predict future water conditions. The proposed mine plan does not put safeguards in place for when things go wrong There are no contingency plans outlined for expected accidents that occur at all mines of this type, mishaps such as pipeline spills, accidental releases, failures of water collection and treatment systems, tailings basin spills. These are foreseeable events that should have emergency plans developed and articulated so the public has confidence in the company's ability to respond to a crisis. During operations, over 6-2 million gallons of polluted water a day will need to be treated. The mine plan does not describe what will happen if the water treatment plants break down. Will this pollution be discharged into the environment. The mine would contain a complex network of miles of pipelines, carrying polluted and treated water to and from various locations. The mine plan does not describe what would happen if a break were to happen in a pipeline carrying high concentrations of toxic metals and sulfates. The proposed mine plan does not leave the site clean and maintenance free The plan for at least 500 years of active water treatment violates Minnesota Rules (6132-3200) that call for the mine to be left maintenance free at closure. 526 acres and over 167 million tons of reactive waste rock would be left on the surface after closure. Surrounding this would be a system to collect contaminated seepage that must be monitored and maintained for hundreds of years or longer. A synthetic and soil cover placed over the waste rock pile would require annual maintenance, repairing of erosion, and removal of plants that might perforate the synthetic material. A pit "lake" would be left whose water levels would need to be maintained through pumping to prevent contaminated overspills into the nearby Partridge River. A tailings basin pond would need to have its water levels maintained through pumping to prevent contaminated water from over-topping the dams and entering the nearby Embarrass River. A lengthy network of pipelines conveying polluted and treated water would need to be monitored and maintained for at least hundreds of years. The proposed mine plan does not protect Minnesota taxpayers The plan commits Minnesota to at least 500 years of polluted water treatment without providing critical information about how this will be paid for and who will be responsible for it. Details about financial assurance a "damage deposit" the company provides are not outlined in the revised mine plan. The public does not know how much 500 years of water treatment will cost, how the company will be held responsible for centuries of costly water treatment, or how the public will be protected from liability. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely,

A Butler		1186
A C-J		3073
A L		38425
A. Lopour		1390
A. LOPOUR		22103
Aaron Brake		3367
Aaron Cooper		6138
Aaron Duntley		57448
Aaron Goemann		7205
Aaron Gumm		57
Aaron Judd		4100
Aaron Klemz		1771
Aaron Myott		2218
Aaron Wittnebel		7646
Abbey Gaterud		1033
Abby Andresen		3055
Abby Andresen		4684
Abby Andresen		57449

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1 Mining Truth: Comments on SDEIS	
Abby Schneck	7651
Abby Sunde	399
Abby T	7557
Abe Baggins	38200
Abigail Tuckner	4810
Abigail Walsh	2624
Abraham Mceathron	1743
Adam Anderson	7158
Adam Campbell	4896
Adam Daire	21250
Adam Flett	4492
Adam Guggemos	10387
Adam johnson	22556
Adam Major	2424
Adam Moren	10347
Adam Olstein	7048
Adele Laurent	7349
Adin Horovitz	2547
Admiral Zoya	758
Adrian Hess	21555
Adrian Schiller	320
Adrienne Brekhus	57450
Aggie Lukaszewski	4731
Agnes Alich	135
Agnes Alich	22598
Ah-li Monahan	21607
Ajith George	43552
al eisentrager	287
al eisentrager	6575
Al Holter	38269
Alan Carlson	57357
Alan Countryman	3032
Alan Eisentrager	2381
Alan Faust	37883
Alan Felix	46
Alan Fitterer	21329
Alan Goggins	2331
Alan Haggard	476
Alan Haggard	2078

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Alan Wolff		7606
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Alana Howey		1086
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Alec Robinson		9690
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Alena Stewart		4542
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Alex Woolery		1152
Alexa Groenke		422
Alexa Trusty		1748
Alexander Hard		2348

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1 Mining Truth: Comments on SDEIS	
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Alexandra Coe	3726
Alexandra Coe	4639
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Alexandra Lodge	4548
Alexi Bryant	40968
Alexis LeBlanc	9972
Alexis Roy	45570
Alexis Thang	41306
Alexzandra Boyer	4580
Alexzandra Potts	3361
Alexzandra Ribich	38243
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Alice Meadow	540
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Alison Luedtke	10920
Alison Neish	3872
Alissa Hady	6209
Aliya Nesser	26902
Aliya Nesser	38586
Allan Douglass	1523
Allan Klein	1325
Allen Gleckner	491

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1 Mining Truth: Comments on SDEIS		
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Allen Hanson		3117
Allen Rapatz		180
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Allen Schug		2535
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Allie Marshall		57454
Allison Ehlert		6418
Allison Herreid		249
Allison Orjala		2510
Allison Ratwik		2129
Alma Ronningen		1249
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Alta Hanson		22013
Alva Pingel		990
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Alvin Johnson		21527
alvin Kaufman		21939
Alvin Smith		6390
Alyssa Whiting		4122
Amanda Bergstrom		1663
Amanda Braun		999
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Amanda Busch		38218
Amanda Estrem		1151
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Amanda Mills		4800
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AMAYA MAURA DENIZ		4491
Amber Boettcher		22247
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Amber Moore	3054
Amber Owens	917
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Amelia Black	6574
Amelia Coates	7140
Amelia Kendall	9332
Amelia Kroeger	6151
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Amethyst Harle-Heim	6506
Amie Davis	10804
Amy Akers Passolt	44959
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Amy Ekberg	755
Amy Farland	2126
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Amy Flynn	1255
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Amy Hubbard	38125
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Amy Kireta	57456
Amy Laack	3056
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Amy Lundebrek	2047
Amy Morsman	10408
amy parks	4233
Amy Powers	1821
Amy Powers	7333

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1 Mining Truth: Comments on SDEIS		
Amy Ramnaraine		1036
Amy Ramnaraine		2515
Amy Rude		45902
Amy Showers-Stone		38303
Amy Spude		1703
Amy Sylvestre		2199
Amy Waananen		7716
Amy Waery		6775
Amy Wold		7221
An Jones		10536
Ana Ramirez		4077
Analiese Miller		6756
anastasiya Raksin		38662
Andre Leavitt-Simone		123
Andre Leavitt-Simone		4676
Andrea Capaul		4271
Andrea Carney		7343
Andrea Harrell		1690
Andrea Jacobs		10152
Andrea Johnson		7383
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Andrea Lambrecht		3818
Andrea MERCIER		22300
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Andrea Mousel		45515
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Andrea Sreiber		44946
Andrea Steudel		3360
Andrea Stish		57458
Andrea Wood		10063
Andrew and Rev Audrey Benjamin		2362
Andrew Bartus		3803
Andrew Beeman		787
Andrew Benjamin		1047
Andrew Delisi		43759
Andrew Domeier		4249
Andrew Fena		7123
andrew froehle		21642

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1 Mining Truth: Comments on SDEIS	
Andrew Hill	47247
Andrew Hooghkirk	11347
Andrew Imsdahl	6200
Andrew Imsdahl	45307
Andrew Johnson	21627
Andrew Kadlec	7096
Andrew Kaufman	10404
Andrew Kett	1920
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Andrew quirt	22474
Andrew Singer	4759
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Andy Fisher	57459
Andy Mathison	6205
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Angela Anderson	4793
Angela Anderson	41497
Angela Bergo	563
Angela Johnson	4355
Angela Kehoe	22426
Angela Krick	4382
Angela Nelson	7527
Angela Ollswang	2211
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Angela Schuster	1878
Angela Schuster	7191
Angela Urban	2297
Angela Vreeland	44345
Angela Wipf	323

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1 Mining Truth: Comments on SDEIS		
Angelia Baldwin		44663
Angelia Baldwin		3974
Angeline Dufner		21561
Angelique Poppinga		2378
Angeome Dufner		37921
Angie Klidzejs		7585
Angie Klidzejs		45806
Angie Nastrom		6023
Ani Sorenson		57358
Anika B		3883
Anika Habermas-Scher		582
Anita Reyes		10178
Anita Seeling		3804
Anja Curiskis		7409
Anja Curiskis		4203
Ann & Warren Vollmar		45888
Ann Beane		45673
Ann Bever		916
Ann Blackburn		3180
Ann Bock		4567
Ann Burns		1900
Ann Burns		4579
Ann Choate		423
Ann Cosgrove		1922
Ann Eastham		45823
Ann Galbraith Miller		4611
Ann Hauer		1297
Ann Hauer		44557
Ann Heymann		3306
Ann K. Brady		22014
Ann Kinney		57462
Ann Lonstein		38346
Ann Lyons		2417
Ann M. Hanson		10692
Ann Marie Connor		825
Ann Marie Connor		7481
Ann Marie Connor		45825
Ann Marie Sunderland		1685
Ann McDonald		41353

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1 Mining Truth: Comments on SDEIS	
Ann Mershon	1810
Ann Mongoven	4308
Ann Nemanich	922
Ann Nemanich	2118
Ann Nielsen	7738
Ann R	4584
Ann Rauvola	5986
Ann Redig	4929
Ann Rupert	321
Ann Ward	3175
Anna Dundek	10333
Anna Lee	10106
Anna Ruper	57463
Anna Seewald	7369
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Anna Terry	10159
Anna Wise	7413
anna wsagner	9613
Anna Wsagner	47616
Annah Gardner	213
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Annah Gardner	1945
Annah Gardner	44977
Annah Gardner	57464
Anne Alwell	2172
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Anne Breckenridge	1556
Anne Calderwood	2394
Anne desLauriers	69
Anne Griffin-Lewin	1462
Anne Hemstock	93
Anne Jasperson	10242
Anne Kaphingst	38458
Anne Lewis	3266
Anne Mcmanus	753
Anne Mcmanus	6557
Anne McManus	10114
Anne McManus	41482

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Anne Peek		21208
Anne Peiffer		3791
Anne Queenan		3401
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Anne Reich		3067
Anne Saffert		4459
Anne Saffert		4462
Anne Scharenbroich		7558
Anne Sweeney		6711
Anne Vanderveer		2375
Anne Wetteland		6463
Anneliese Mulller		4503
Anneliese Schultz		7685
Annelise Eckelaert		10229
Annette Block-Valdivia		1980
Annette Price		3443
Annie Handford		9978
anony mous		528
Anthony Acosta		7579
Anthony Bernardo		4914
Anthony Hauck		9825
Anthony Hedberg		44044
Anthony Machgan		2579
Anthony Machgan		44950
Anthony Martin		794
Anthony Martin		6322
Anthony Roos		4525
Anthony Roos		22621
Anthony Tschida		1330
Antoinette Gilchristgilchrist		6758
Anton Buelt		7125
Antonia Busby		2480
April Kaplan		1785
April Mondragon		4003
April Narcisse		678
April Patterson		3027
April Zumbaum		3228
Areca Roe		5919

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1 Mining Truth: Comments on SDEIS	
Ariel Herrod	57466
Arielle Hart	538
Arielle Johnson	1257
Arielle Johnson	37861
Arla Schumack	722
Arla Schumack	6484
Arla Schumack	44912
Arland Braaten-Lee	38214
Arlene Mencke	40535
Arlene Orton	290
Arlene Schmitz	1887
Arlene Wegener	9487
Art Serotoff	22595
Art Wilkinson	210
Art Wilkinson	795
Art Wilkinson	2294
Art Wilkinson	4870
Art Wilkinson	22509
Art Wilkinson	45990
Arthur Bowron	2246
Arthur Dean	447
Arthur Dean	1641
Arthur Dorman	1480
Arthur Dorman	22179
Arthur Rosenberg	1323
Arvid Dahl	6633
Arvid Johnson	38238
Ashley Allen	3292
Ashley Haase	10120
Ashley Hallett	22172
Ashley Neisen	46068
Ashley Nelson	7391
Ashley Shopa	4356
Ashley Whitney	47408
Asmaa Myran	1137
Ativan Prescribed	1175
Audra P.	1588
Audrey Cullen	698
Audrey Fairchild-Ehm	887

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1 Mining Truth: Comments on SDEIS		
Audrey Fairchild-Ehm		2441
Audrey Grove		22404
Audrey Johnson		9488
Audrey Schmitt		111
Audrey Tschohl		44441
Austin Dame		927
Austin Schumacher		7033
Ava Beath		38170
Avery Thaler		2201
Avesa Rockwell		5976
B Wagner		2131
Babette Sicard		6093
Babette Sicard		6094
Bailey Rehnberg		57467
Baird Swanson		1623
Barb And Phil Powell		1608
Barb Anderson		7194
Barb Boulette		3905
Barb Churchill		44844
Barb Cooper		4199
Barb Daniels		6683
Barb Farstad		3507
Barb Johnson		3431
Barb Lutz		43794
barb mckean		9743
Barb minar		7502
barb minar		22652
Barb Palmquist		6272
Barb Racine		57468
Barbara Allen		9844
Barbara Bauer		1962
Barbara Beaumont		2505
Barbara Beresford		1631
Barbara Brandt		44901
Barbara Britain		260
Barbara Brockway		4947
Barbara Brockway		45518
Barbara Buckley		2102
Barbara Carver		1411

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Barbara Carver	2649
Barbara Carver	6401
Barbara Carver	22429
Barbara Clark	2482
Barbara Cohen	1838
Barbara Daughter	7640
barbara goodman-fischtrom	3543
barbara goodman-fischtrom	45977
Barbara Gruidl	45744
Barbara Haberman	1837
Barbara Haberman	2600
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Barbara Haberman	4188
Barbara Hardy	1012
Barbara Hardy	2680
Barbara Haynes	7071
Barbara Haynes	9499
barbara hughes	4578
Barbara Johnson	1310
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Barbara Kaufman	2281
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Barbara Liszeo	44741
Barbara Mahowald	38333
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Barbara McCauley	1796
Barbara Nelson	1847
Barbara Shaeffer	6703
Barbara Simmonds	22572
Barbara Skrivanek	456
Barbara Skrivanek	44166
Barbara Stamp	1154
barbara stamp	4613
Barbara Stamp	45907
Barbara Thomborson	21772

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1 Mining Truth: Comments on SDEIS		
Barbara Tucker		20161
Barbara Wirth		1391
Barbara With		57469
Barbara Zdarsky		954
Barbara Zdarsky		1802
Barbara Zimmer		9984
Barbara Zimmer		3169
Barbra Berlovitz		7402
Barbra J Ronningen		6145
Barron Koralesky		2037
Barron Koralesky		45075
Barry Babcock		57470
Barry Gilbert		3936
Barry Maloney		2359
Barry Maloney		45827
Barry Shillingford		3674
Barry Shoultz		1254
Barry Spotts		1482
Barry Wolfe		3298
Beau Bureau		4301
Becca Jacobson		57359
Becca Weiland		21665
Becky Holum-Brytowski		1355
Becky Larson		41062
Becky Sturm		3198
Becky Sturm		7654
Becky Sturm		3994
Belinda Wilson		10212
BEN AMENT		44437
Ben Batz		7540
Ben Becker		7147
ben carstensen		3821
Ben Conklin		742
Ben Conklin		44998
Ben Cushing		4226
Ben Cushing		4523
Ben Czeck		4269
Ben Estby		934
Ben Reardon		7222

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1 Mining Truth: Comments on SDEIS	
Ben Steil	6004
Ben Wiegers	4842
Benjamin Beggs	3435
Benjamin Carron	9971
Benjamin Carron	45997
benjamin Coffman	57732
Benjamin Culbert	3985
Benjamin Doroff	4255
Benjamin Gappa	9293
Benjamin Hertzel	6556
Benjamin Kimpton	7448
Benjamin Krohling	104
Benjamin Krohling	1172
Benjamin Krohling	4691
Benjamin Krohling	5952
Benjamin Krohling	22600
Benjamin Krohling	41175
Benjamin Krohling	45372
Benjamin Krohling	57471
Benjamin Levin	3925
Benjamin Lindwall	264
Benjamin Moerke	6672
Benjamin Olson	1251
Benjamin Putnam	1466
Benjamin Sai	6053
Benjamin Wilson	4336
Benjamin Wilson	45013
Bente Madson	6624
Beret Amundson	1530
Berit Talan	2376
Bernadette Sheats	10428
Bernadine Engeldorf, RN	57472
Bernadine Turner	4088
Bernard Dusich	890
Bernard J Grisez	2197
Bernard Molitor	4844
Bernard P. Friel	2333
Bernie Goblish	45215
Bert Flora	192

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1 Mining Truth: Comments on SDEIS	
Bess Tsaouse	5994
Bessie Bulman	9614
Beth Dowling	1849
Beth Hall	47760
Beth Hynes-Ciernia	44128
Beth Peterson	6156
Beth Waterhouse	2185
Beth Waterhouse	44715
Beth Wegner	1029
Bethany Berry	21993
Bethany McFarland	57473
Bethany Olson	2243
Bethany Wolney	315
Betsey Porter	2412
Betsey Porter	4942
Betsy LePlatt	1766
Betsy LePlatt	57474
Betsy Spitzer	57475
Bette Larson	537
Betty Karpen	1098
Betty Solberg	1531
Betty Tisel	1725
BeVan Presley	3773
Beverly Adams	2067
Beverly Bailey	1298
Beverly Harries	1019
Beverly Laclair	771
Beverly LaClair	4397
Beverly LaClair	7009
Beverly Schell	21577
Beverly Schell	45491
Beverly Schilleman	10272
Beverly Scow N	4062
Beverly Spande	2043
bil carda	6398
Bill and Joan Richner	2367
Bill Berger	21938
Bill Brown *=	7756
Bill Brown *=	9315

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1 Mining Truth: Comments on SDEIS	
Bill Bryson III	4477
Bill Bryson Iii	10353
Bill Conger	2615
Bill Drennan	941
Bill Forbes	1138
Bill Goodermont	9723
Bill Herzberg	3042
Bill Herzberg	57477
Bill Keilty	1745
bill sankey	9687
Bill Soderholm	3848
Bill Sorem	391
Bill Woehrlin	1302
Billie Edwards	2347
Bjørnstjerne Anderson	7100
Blake Davis	6790
Blake Durtsche	55
Blake Spicer	7730
Blake Steinwand	7403
blanche wilcox	3076
blanche wilcox	4615
blanche wilcox	57478
Bo Ekmark	7511
Bob Bartlett	21770
Bob Bresin	3671
Bob Elliott	4878
Bob Haas	1455
Bob Haugen	2264
Bob Messerich	2164
Bob Messerich	38546
Bob Nesheim	6277
Bob Rickert	1104
Bob Walker	57730
Bob Witter	22497
Bobbi Pillar	3819
Bobbie McMonagle	3849
Bodo Dumke	827
Bonita Klein	3373
Bonita Underbakke	1308

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1 Mining Truth: Comments on SDEIS		
Bonnie Haugen		21274
Bonnie Nelson		6044
Bonnie Strand		38256
Bonnie West		4500
Boyd Perttu		7518
Brad Haney		74
Brad Hreha		57480
Brad Janssen		1889
Brad Lehrman		1561
Brad Marsh		7676
Brad Nelson		680
Brad Schmidt		1169
Brad Schmidt		22611
Bradley Heltemes		3021
Bradley Lewis		1471
Bradley McDonald		40354
Bradley Thompson		3394
Brady Hill		3192
Brady Soglin		6492
Brandan Fiedler		286
Brandan Fiedler		21832
Brandi Cavalletti		3070
Brandi Voss		184
Brandon Bohlen		1270
Brandon Johnson		3278
Brandon Kopischke		10134
Breanna Swanberg		3194
Bree Graczyk		4309
Brenda Adams		57481
Brenda Best		7345
Brenda Briney		2250
Brenda Coleman		1070
Brenda Coleman		22583
Brenda Daly		2316
Brenda Doup		1450
Brenda Doup		44839
Brenda Erickson		4483
Brenda Erickson		38529
Brenda Erickson		45201

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1 Mining Truth: Comments on SDEIS	
Brenda Friedrich	3957
Brenda Hagen	5927
Brenda Moon	322
Brenda Moon	3912
Brenda Shepherd	468
Brenda Shepherd	45840
Brenda Silkman	7652
Brenna Liudahl	3091
Brennen Stenke	6569
Brent Bullis	7684
Brent Gurtek	2443
brent hoffman	961
brent hoffman	4651
brent hoffman	45993
brent hoffman	57482
Brent Johnson	4144
Brent Pearson	1406
Bret Thiele	4863
Brett Albin	7429
Brett Cansler	7666
Brett Cease	7586
Brett Colgrove	2308
Brett Costain	10211
Brett Smith	57360
Brian Adams	2093
Brian Balanoff	4081
Brian Bohman	10377
Brian Duren	22582
Brian Erickson	4291
Brian Feight	38527
Brian Gleason	57483
Brian Harrington	43296
Brian Heaslip	2009
Brian Henjum	22602
Brian Henning	490
Brian Henning	1656
Brian Henning	2453
Brian Henning	4952
Brian Henning	22616

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1 Mining Truth: Comments on SDEIS	
Brian Henning	41384
Brian Henning	45732
Brian Lewis	43670
Brian Lewis	57484
Brian Lindgren	6769
Brian Major	21819
Brian Mays	22618
Brian Mead	10319
Brian Moore	21892
Brian Nelson	2599
Brian Nordlund	355
Brian Nordlund	371
Brian Page	4717
Brian Page	44840
Brian Personius	2180
Brian Peterson	6514
Brian Thorbjornsen	258
Brian Thorbjornsen	817
Brian Thorbjornsen	6483
Brian Thorbjornsen	10275
Brian Thorbjornsen	21688
Brian Thorbjornsen	45758
Brian Van Bogart	524
Brian Wesley	370
Brian Wesley	6699
Brianna Fuller	7616
Brianna Rannells	4057
Bridget Bruels	7698
Bridget Rau	7211
Bridget Rau	9490
Bridget Stewart	10436
Bridget Walde	45585
Bridgit Colleran Albrecht	2134
Bridgit Maruska	7166
Brie Kidd	6466
Brigette Mastel	7197
Brittany Stone	2646
Brittney Shilson	4779
Brody Hagemeier	1731

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1 Mining Truth: Comments on SDEIS	
Brody Hagemeier	1782
Brody Hagemeier	2241
Brody Hagemeier	3238
Brody Hagemeier	6408
Brody Hagemeier	9515
Brody Hagemeier	22365
Brooke Asleson	21358
Brooke Dierkhising	6598
Brooke Pekkala	1633
Brooke Pekkala	57485
Brooke Strassburg	44559
Brooke Strassburg	4019
Bruce Blacher	117
Bruce Brummitt	1376
Bruce Harten	959
Bruce Jenkinson	809
Bruce Jenkinson	10908
Bruce Kuehmichel	7456
Bruce Lee	1163
Bruce Marshall	41307
Bruce McGill	3426
Bruce Mckay	886
Bruce McKay	4635
Bruce Mckay	45826
Bruce Paakh	1219
Bruce Paakh	6590
Bruce Retka	39
Bruce Sielaff	401
Bruce Sielaff	1463
Bruce Solem	2500
Bruce Spicer	4394
Bruce Stahlberg	10176
Bruce Steiner	19976
Bruno Theisen	19
Bryan and Marlene Stenlund	4183
Bryan Gwiazdon	10259
Bryan Hansel	1536
Bryan Harmelink	4022
Bryan Owens	7649

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1 Mining Truth: Comments on SDEIS		
Bryan Owens		3797
Bryan Rocheleau		7463
Bryan Theobald		3209
Bryan Winget		1840
BRYCE DAVIS		6045
Bud Johnson		727
Bud Johnston		9812
Bunita Marcus		46331
Burton Shacter		1190
Byron Rodger		10258
c carlson		6226
C Goustin		2013
C LaFleur		21891
C Lieder		57486
C Peterson		2570
C Quast		10155
C. M. Smiley		38416
C. Thomas-Maskell		7186
C.L. & Kit Olson		1090
Cain Boney		285
Caitlin Hinschberger		2361
Caitlyn Horsch		2071
Caitlyn Schuchhardt		6537
Callista Schuenke		7549
Calvin Bowes		2205
Cambre Hogoboom		22162
Cameron Gainer		108
Cameron Kruse		3116
Cameron Wittig		6245
Camille Lizama		7464
Camille Lizama		7467
Candace Dow		43148
Candace Freemon		38301
Candace Keane		10209
Candace Keskitalo		22302
Candee Cornelius		2539
Candice mohammad		6304
Candice Westfield		4229
Candyce Olson		4472

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1 Mining Truth: Comments on SDEIS	
Cara Pederson	2286
Cara Rodriguez	4821
Cari Kenner	9479
Cari Wright	22494
Carin Skoog	57362
Carl Berwald	591
Carl Heinrich	1035
Carl Poulsen	452
Carl Sack	4755
Carl Schwensohn	564
Carl Schwensohn	38572
Carl Sherman	4767
Carla Albers	38306
Carla Atkinson	10393
Carla Beaudet	1822
Carla Fredrickson	3634
carla hamilton	9717
Carla Johnson	3184
Carla Johnson	6475
Carlan Lesch	566
Carly Coulson	1652
Carlyle Conrad	1458
Carlyn Gilbertson	1932
Carmelle Malerich	1680
Carmelle Malerich	22433
Carmen Nomann	4609
Carmine Profant	4685
Carol and Michael Blowers	4434
Carol Ashley	1677
Carol Beach	57487
Carol Breczinski	21390
Carol Dahlberg	44967
Carol Dayton	10218
Carol Feiock	38286
Carol Feiock	45816
Carol Figeroid-Burgi	21528
Carol Figeroid-Burgi	22353
Carol Frechette	2602
Carol Frechette	45396

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1 Mining Truth: Comments on SDEIS	
Carol Gordon	9556
Carol Grady	45980
Carol Green	1583
Carol Greiner	9323
Carol Hand	472
Carol Hunter	5930
Carol J. Carrasca	1845
Carol Joly	1288
Carol Joly	4318
Carol Kennedy	7384
Carol Kiekow	510
Carol Kiekow	1602
Carol Kiekow	22559
Carol Kiekow	41146
Carol Koos	3251
Carol Koos	7089
Carol M. Neumann	5953
Carol Mattern	3357
Carol Mellom	38165
carol Meyer	57488
Carol Mitchell	6464
Carol Mueller-Leavitt	167
Carol Mueller-Leavitt	4688
Carol Nagan	38237
Carol Nemanich	1177
Carol Orcutt	7691
Carol Peterson	6534
Carol Pierce	4488
Carol Rogers	37630
Carol Sue Lakso	7603
Carol Taylor	22415
Carol Turan	9549
Carol Vick	1165
Carol Vick	43400
Carol Weber	2127
Carol Weber	6648
Carol Weber	44921
Carol Weiler	4476
Carol Weiler	6159

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Carol White	1083
Carol White	4481
Carol9 Greenwood	21731
Carole Gernes	130
carole gernes	6056
Carole Madland	6637
Carole Smiley	45139
Carole Zacher	19879
Caroline Dornfeld	1488
Carolyn Carr	44127
Carolyn Clements	6780
carolyn faacks	6481
Carolyn Goree	20116
Carolyn Patterson	1445
Carolyn Starling	2584
Carolyn Steele	2312
Carolyn VandenDolder	4646
Carolyn VandenDolder	4648
Carolyn Wessels	45916
Carolyn Wilberg	10024
Caron Lage	57489
Carrie Chesnik	6800
Carrie Chesnik	7689
Carrie Gamm	7412
Carrie Gullickson	9689
Carrie Nicklow	1472
Carrie Peterson	4612
carrie shanahan	7556
Carrie Wright	38443
Carstens Smith	558
Cary Hakam	1011
Cary Hakam	45280
Caryn Lindsay	3412
Casey Mcdougall	45876
Casey Ploof	2707
Casey Wambsganss	10198
Cassandra Shelton	6294
cassi adams	3418
Cassidy Long	2588

Sender Name		Submission ID
1 Mining Truth: Comments on SDEIS		
Cassondra Adams		7337
Cat Thompson		40976
Cate Ness		378
cate ness		38528
Catharine McEachern		6218
Catherine Apostle		178
Catherine Apostle		1049
Catherine Apostle		45511
Catherine Baker		232
Catherine Baker		10270
Catherine Bartholome		6497
Catherine Caine		7378
Catherine Carey		4400
Catherine Chayka		2263
Catherine Glynn		2178
Catherine Graves		5920
Catherine Johnson-Thomson		181
Catherine Liska		6036
CATHERINE MARSOLEK		1692
Catherine Martwick		801
catherine mills		4801
catherine mueller		6503
Catherine Rackliffe		2073
Catherine Reece		3947
Catherine Trapskin		4597
Catherine Vanderboom		3261
Cathi Martwick		3937
Cathi McBryde		7672
Cathleen Faruque		3871
Cathleen Richards		6524
Cathleen Sanburg		3379
Cathy Adams		3355
Cathy Adams		4536
Cathy Ayala		39970
Cathy Finley		1156
Cathy Gallagher		6455
Cathy Gray		41318
Cathy Harrison		3101
Cathy Pence		473

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Cathy Rigby	4312
Cathy Walters	205
Cathy Wright	805
catina spann	398
Catina Spann	2366
catina spann	38542
Catina Spann	45727
Cecilia Kurtz	2203
Cecily Isle	22422
Celeste Birkeland	22589
Chad Fennell	2464
Chad Martin	1648
Chad Ramler	7567
Chad Roy	2161
Chanda Benjamin	3210
Chantal Buslot	1733
Chantal Buslot	38145
Chara Bouma-Prediger	2474
Chari Eckmann	551
Chari Eckmann	45877
Charlene Blodgett	1860
Charlene Boden	789
Charlene Boden	21789
Charlene Boden	45127
Charles and Nancy Bagley	2130
Charles Brady	4352
Charles Brady	57491
Charles Burgess	4023
Charles Davidson	948
Charles Davis	1077
Charles Davis	45820
Charles Frank	4034
Charles Gentz	3914
Charles Goshey	2261
Charles Horton	1974
charles labrie	2050
Charles Lavin	7385
Charles Lucas	293
Charles Lyon	1548

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1 Mining Truth: Comments on SDEIS	
Charles Lyon	45087
Charles Morrison	160
Charles Morrison	6788
Charles Palmer	7515
Charles S Wilson	38275
Charles Schaffer	10371
Charles Schaffer	10372
Charles Sharp	3540
Charles Simoneau	128
Charles Smith	970
Charles Soule	4719
Charles Spencer	2314
Charles Steffel	10118
charles tralle	20248
Charles Vick	1939
Charles Vick	40500
Charlie Nichols	6167
CHARLOTTE HANSON	4772
Charlotte Mason	9608
Charlotte Ogdahl	6003
Charlotte Rolling	131
Charlotte Rolling	3243
Charlotte Rolling	3815
Charlotte Twyford	1708
Chas. Colburn	4060
Chase Davies	2553
Chase Davies	9780
Chelsea Akins	1844
Chelsea D'Astolfo	745
Chelsea Knauf	1591
Chelsea Knauf	22605
Cher Johnson	21575
Cherish Clough	47271
Cheryl Anderson	3492
Cheryl Brinkley	47380
Cheryl Clausen	2437
Cheryl Dannenbring	4797
Cheryl Davenport	45741
Cheryl Downey	22007

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1 Mining Truth: Comments on SDEIS	
Cheryl Hammerlindl	6212
Cheryl Humphrey	38335
Cheryl Koralik	6227
Cheryl Laplante	294
Cheryl Lawrence	464
Cheryl Masterson	1005
Cheryl Miller	1643
Cheryl Mosner	1830
Cheryl Mosner	57493
Cheryl Nobens	46999
Cheryl Stoppel	1696
Cheryl Tregillis	5954
Cheryl Vanguilder	21006
cheryl wilgren	10330
Cheryl Wilke	4752
Cheryle Malenius	7604
Chet Cisek	52249
Chet Rick	41174
Chip Borkenhagen	3684
Chris Andersen	2125
Chris Apriori	1834
Chris Belden	57494
Chris Benefield	4547
Chris Brown	6006
Chris Burda	4657
Chris Chiappari	6501
Chris Erickson	57495
chris Flynn	526
chris flynn	4847
Chris Frethem	4880
Chris Griffith	4283
Chris Haenisch	1935
Chris Johnson	960
chris jones	6288
Chris Lafleur	38160
chris loudon	9859
Chris Morgan	2225
Chris Nelson	1393
Chris Nelson	6565

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1 Mining Truth: Comments on SDEIS		
Chris Norbury		4895
chris nordstrom		525
Chris Polley		3526
Chris Raebel		9759
Chris Romano		10737
Chris Romberg		1759
Chris Scanaln		9943
chris schirber		541
chris schirber		10110
Chris Tweedy		405
Chris Tweedy		40755
Chris Watten		3347
Chris Williams		2486
Chris Zerby		1001
Chris Zerby		6803
Chris Zerby		10263
Christa Drake		2235
Christa Knoll		38248
Christa Marincel		6704
Christian Arel		7374
Christian Bilyk		4796
Christian Caswell		2221
Christian Nielsen		10304
Christiane Schmitz		1571
Christie Hartmann		2184
Christie Manning		4809
Christie Riter		7041
Christina Atkinson		988
christina Bellert		2280
Christina Erb		1170
Christina Erickson		6347
Christina Forsythe		6666
Christina Lewis		642
Christina Mosher		3232
Christine Bronk		21502
Christine Brown		1988
Christine Cole		851
Christine Etapa		1031
Christine Etapa		6525

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1 Mining Truth: Comments on SDEIS	
Christine Frank	2029
Christine Garty	3995
Christine Howard	38227
Christine Kuehn	10338
Christine Larson	967
Christine Latvala	388
Christine Long	2352
Christine Long	45818
Christine Oliver	1022
Christine Pedersen	21666
Christine Pikala	38132
Christine Pikala	41362
Christine Stanton	6235
Christine Weisser	7051
Christine Weisser	7052
Christine Wisch	3029
Christopher Anderson	57496
Christopher Barrie	38133
Christopher Boedigheimer	7473
Christopher Brenna	2626
Christopher Brenna	45298
Christopher Carlson	2166
Christopher de Alwis	44916
Christopher Dolan	1378
Christopher Erickson	892
Christopher LaFleur	6737
Christopher Larson	6123
Christopher Loch	2252
Christopher Major	36634
CHRISTOPHER MALCOLM	4738
Christopher Mashuda	4588
Christopher Norbury	1636
Christopher Norbury	2413
Christopher Ruth	57497
Christopher Spargo	3856
Christopher Tassava	3036
Christy Hammer	6654
Christy Hohman-Caine	61
Chuck Ashley	10180

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1 Mining Truth: Comments on SDEIS		
Chuck Hoffman		1903
Chuck Scott		3403
Cin Silvia		1727
Cindy Angerhofer		6708
Cindy Bodine		190
Cindy Boes		41425
cindy carlsson		4106
Cindy Carvelli-Yu		2614
Cindy Carvelli-Yu		44445
Cindy Dina		338
Cindy Hakala		9777
cindy hardy		4115
cindy johnson		10135
Cindy Johnson		45384
Cindy Kimpton		6431
Cindy Marso		656
Cindy Marso		45811
Cindy Oberg-Hauser		949
Cindy Oberg-Hauser		6559
cindy page		2475
cindy page		22089
cindy skluzacek		4295
Cindy Swee		2564
Cindy Trusty		1691
Cindy Westfall		7656
Cindy Wiest		37799
clair mcguigan		80
clair mcguigan		677
clair mcguigan		3094
clair mcguigan		4558
clair mcguigan		4707
clair mcguigan		41399
clair Mcguigan		3876
Claire Goebel		6117
Claire Lukens		487
Claire Urbanski		7326
Clara Ueland		10224
Clarence Chaplin		7450
Clarence Juelich		21622

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1 Mining Truth: Comments on SDEIS	
Clarence Roed	4339
Clarke Dehler	195
Clarke Dehler	41316
Clarke Dehler	44941
Clarke Dehler	57499
Clarki Seha	21905
Clarrissa Dupre	6237
Claudia Cottrell	6041
Claudia Gumbiner	1358
claudia modich	3233
Claudia Roberts	4235
Clay Courtney	1375
Clayton Haglund	3314
Cliff Jacobson	1973
Cliff Langley	4278
Clifford Johnson	158
Clifford Johnson	4063
Clifton Gray	45759
Clint Spotts	875
Clinton Quaale	38343
Cody Destache	2223
cody hilgers	7368
Cole Laplant	38215
Colette Bitz	7440
Colin Bender	4879
Colin Hattersley	4598
colin jones	559
Colin Veerman	4177
Colin Vopava	4069
Colleen Bell	2212
Colleen Betts	6760
Colleen Betts	6762
Colleen Johnson	7449
Colleen Junnila	16
Colleen Madden	1356
Colleen Madden	3080
Colleen Madden	3448
Colleen Madden	4549
Colleen Madden	4583

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1 Mining Truth: Comments on SDEIS	
Colleen Madden	3807
Colleen Powell	6516
Colton Cummings	1514
Connie Grundhofer	45132
Connie Kauppi	5982
Connie Norton	663
Connie Nunemaker	21858
Connie Schweigert	786
Connie Slaten	121
Connie White	4444
Connor Barr	4427
Conradine Sanborn	1460
Conradine Sanborn	7338
Constance Goldman	57500
Constance Pepin	1291
Constance Spear	2458
Constance Spear	40789
Cookie Kilian	4815
Cookie Kulas	1381
Cora Egherman	45890
Cora Hohnstadt	20967
Cordero Killing	39656
coreen hagon	9544
Corey Halstead	1921
Corey Jacob	120
corey jacob	21668
Corinne Rockstad	22507
Cornelis vanderBent	57501
Cort Viesselman	1229
Cort Viesselman	4934
Cory Quirk	10207
courtney butcher	222
Craig Bredeson	41373
Craig Brown	497
Craig Brown	1057
Craig Brown	22092
Craig Clement	21903
Craig Cunningham	1955
Craig D	21660

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1 Mining Truth: Comments on SDEIS	
Craig David	21947
Craig Dechantal	713
Craig LaTulip	2423
Craig Laughlin	462
Craig Michaelis	481
Craig Michaelis	2138
Craig Michaelis	10245
Craig Michaelis	21822
Craig Michaelis	45751
Craig Pierce-Slocum	1339
Craig Pierce-Slocum	2473
Craig Pierce-Slocum	4889
Craig Poorker	3144
Craig Rymer	4758
Craig Samson	3820
CrystalAnne Haws	7078
Cully Buranen	64
Cully Buranen	65
Curt Carlson	1305
Curtis Carlson	2401
Curtis Coffer	1326
Curtis Coffer	2429
Curtis Coffer	44891
Curtis Griffy	7643
Cynthia Anderson	598
Cynthia Blomberg	1300
Cynthia Blomberg	21793
CYNTHIA BROCKWAY	782
CYNTHIA BROCKWAY	4743
Cynthia Crist	477
Cynthia Donner	10113
Cynthia Gilpin	38091
Cynthia Goustin	1261
Cynthia H Cantrell	4845
Cynthia H Cantrell	4846
Cynthia Hill	2024
Cynthia Hill	6283
Cynthia Larson	4208
Cynthia Launer	635

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1 Mining Truth: Comments on SDEIS		
Cynthia Lee		1738
Cynthia Lee		21950
cynthia lux		7364
Cynthia McKeen		22366
Cynthia Olson		22408
Cynthia Peterson		2607
Cynthia Peterson		6081
Cynthia Quast		840
Cynthia Stokes		6761
D Day		4265
dagmar romano		1814
dagmar romano		3334
Dahlia Whiting		1901
Dakota Hoska		3456
Dalana Schwitzer		1207
Dalana Schwitzer		44734
Dale and Rosemary Johnston		43659
dale hammons		284
Dale Hammons		877
Dale Hammons		6407
Dale Hammons		45304
Dale Howey		1141
Dale Howey		3253
Dale Johnson		1421
Dale Johnston		1321
Dale Johnston		10290
Dale Johnston		45911
Dale Larson		4337
Dale Tuott		1710
Dale Vollmers		25
Dallas Lindgren		3903
Damian Johansson		9868
Damian Sheridan		1858
Dan Allen		939
Dan Allen		21945
Dan Andree		802
DAN ANDREE		7387
Dan Andree		45739
Dan Bakke		314

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1 Mining Truth: Comments on SDEIS	
Dan Bakke	9870
Dan DeLorenzo	4852
Dan Farrell	47248
Dan Freese	480
Dan Gannon	7328
Dan Gilbert	4458
Dan Gove	6314
Dan Handke	3364
Dan Handke	52298
dan iverson	57505
Dan Jensen	45220
Dan Kistner	9580
Dan Larson	1164
Dan Lindstrom	1525
Dan Mack	2534
Dan Mack	6571
Dan Mathews	45370
Dan Merchant	2269
Dan Michaels	2330
Dan Nelson	10129
Dan Nyberg	7545
Dan Nyberg	57506
Dan Peltzman	6104
Dan Peterson	1784
Dan Peterson	43626
Dan Rein	172
Dan Schmidt	7141
Dan Sue Kistner	10322
Dan Turman	1965
Dan Turman	1972
Dan Turpening	9330
Dan Turpening	45228
Dan Wicht	412
Dan Young	7710
Dana Barnett	1059
Dana Baugh	1268
Dana Baugh	45564
dana mills	2578
Dana Thompson	2026

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1 Mining Truth: Comments on SDEIS		
Dana White		6116
Dana White		22250
Dana White		44440
Dana Zniewski		7427
Daniel Anderson		9469
Daniel Anderson		57364
Daniel Anderson		57508
Daniel Balto		22472
Daniel Bettino		6664
Daniel Blackburn		7209
Daniel Blackburn		4032
Daniel Brinkman		3052
Daniel Brown		57365
Daniel Chesla		37755
Daniel Dauth		1597
Daniel Eller		4528
Daniel Eller		4817
Daniel Eller		45760
Daniel Eller		3973
Daniel Fuller		40953
Daniel Greising		7708
Daniel Heublein		3033
Daniel Hunt		836
Daniel Jhnsn		57366
Daniel Johnson		617
Daniel Kahl		45659
Daniel Kleber		1425
Daniel Leary		7177
Daniel Levey		201
Daniel Mahoney		1075
Daniel Martin		1447
Daniel Mathews		3590
Daniel McChesney		3824
Daniel Moen		7474
Daniel Nicla		543
Daniel Nolan		4663
daniel royer		7451
Daniel Sass		21902
Daniel Shaw		402

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1 Mining Truth: Comments on SDEIS	
Daniel Shaw	10157
Daniel Skallman	594
Daniel Soderstrom	1842
Daniel Soong	1507
Daniel Wilhelm	3109
Daniel WILSON	45649
Danielle Brehm	6670
danielle defazio	4498
Danielle Garnand	479
Danielle LaBerge	7213
Danielle Meinhardt	866
Danielle Meyer	43176
Danielle Taylor	1214
Danielle Taylor	7480
Danny Andrews	7571
Darby Ringer	3124
Darcie a	170
Darcie Gordon	2206
Darcy Berus	2301
Darcy Berus	9579
Darleen Kunz	1545
Darlene Chiles	1364
Darlene Coffman	4814
darlene white	11337
Darrel Johnson	2706
Darren Schendel	10316
Darryl Lund	133
Darryl Lund	44730
Darryl Steineck	3798
Darryl Thayer	21558
Darwin Roth	316
Darwin Roth	2447
Darwin Roth	41529
Dave Alderson	9858
Dave Cosgrove	4715
Dave Crawford	7424
dave hallen	2057
Dave Hess	1732
Dave Kinzer	1707

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1 Mining Truth: Comments on SDEIS		
Dave La Violette		10230
Dave La Violette		45574
Dave Novak		769
dave pierson		45
dave pierson		22011
Dave Scanlon		7102
Dave Schelitzche		1581
Dave Sohn		20786
Dave Wennlund		962
Dave Wennlund		44653
Dave Werntz		45834
Dave Werntz		57368
David A. Larson		4644
David Altekruse		9974
david Anderholm		339
David Anderson		251
David Anderson		45915
david bauer		6049
David Billings		2460
DAVID BONELLO		3213
David Born		10254
David Brandes		748
David Brandes		3582
David Brandes		3583
David Brisbin		1792
David Brisbin		6763
David Brown		6077
David Caligiuri		4218
David Caligiuri		38500
David Carlson		6679
David Ceder		6323
David Ceder		7563
David Christenson		648
David Christian		9300
David Councilman		2581
David Craig		4718
David Delong		43556
David Doyle		21536
David Dresbach		9662

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1 Mining Truth: Comments on SDEIS	
David Falkowski	4586
David Fitch	7043
David Freeman	2499
David Gilsvik	3074
David Goldberg	1171
David Goon	1728
David Green	6180
david greenwood	5942
David Hajicek	22106
David Hart	1332
David Hart	1963
David Harthorn	37958
david hegdahl	22485
David Hegdahl	57369
David Hegdahl	57509
David Heine	22608
David Henning	2716
David Henning	4623
David Henning	45231
David Hereaux	4361
David Higgins	3118
David Higgins	3120
David Higgins	45978
David Higgins	4137
David Howd	4660
David Hubachek	4012
David Hudson	7228
David Johanson II	2062
David Johnson	4843
David Johnson	4916
David Johnson	44720
David Kamis	2287
David Kern	36731
David Kleingartner	1801
David Lais	2266
David Lee	3207
David Lerfald	1371
David Linde	1078
David Ludowese	2163

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1 Mining Truth: Comments on SDEIS		
David Ludowese		9518
David Maki		2247
David Martinson		3138
David McVean		4270
David Miller		3114
David Nelsen		1366
David Nelson		297
David Newell		9564
David Newell		57510
david nygaard		20917
David Olson		637
David Olson		1309
David Olson		44149
David Olson		44555
David Olson		57511
David Pearson		1072
David Pearson		45024
David Pellow		1653
David Peterson		33
David Peterson		7038
David Pierson		1494
David Pilgrim		38433
David Pilgrim		45359
David Pritchard		3833
David Ricker		6778
David Roberts		4720
David Rogers		37701
David Root		966
David Root		6610
David Root		10150
David Root		45517
David Rysdahl		1827
David Sandbeck		3380
David Schaefer		1013
David Scheie		2194
David Schneider		1788
David Shannon		10386
David Shea		761
David Shepardson		38349

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1 Mining Truth: Comments on SDEIS	
David Smith	629
David Smith	2402
David Smith	7437
David Steinberg	20926
David Stever	485
David Stever	45957
David Strand	7569
David T Karthauser	1923
David Taylor	6676
David Thompson	2918
David Wang	6588
David Warfield	328
David White	6009
David Whitten Smith	57512
David Wiley	1041
David Wiley	1051
David Wiley	1780
David Wiley	45953
David Wilson	2336
David Wilson	3340
David Wilson	6470
David Wilson	22567
David Wohlfeil	9316
David Wohlfeil	10117
David Wohlfeil	20107
David Zimney	614
David Zimney	2038
David Zimney	4840
David Zimney	44913
Dawn Altobelli	1869
Dawn Anderson	57513
Dawn Darner	6007
Dawn Darner	3831
Dawn Demaske	145
Dawn Drouillard	164
Dawn Drouillard	4832
Dawn Fischer	3025
Dawn Fischer	4260
Dawn Fischer	6064

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1 Mining Truth: Comments on SDEIS		
Dawn Fischer		7702
Dawn Fischer		57514
dawn flathmann		1947
Dawn Keelin		1134
Dawn Lindberg		3977
Dawn Matuska		4890
Dawn Matuska		4893
Dawn Nelson		2084
Dawn Nelson		4773
Dawn Pinin		7087
Dawn Saros-Kirk		5918
Dawn Shockency		3272
De Giddings		38319
Dean Borgeson		1106
Dean Borgeson		6385
Dean Borgeson		21621
Dean Evenson		2335
Dean Storm		9555
Deanna Johnson		1010
Deanna Lind		6660
Deanna Sinclair		4469
Deanna Sinclair		22478
Deb Akason		3265
Deb Konechne		2681
Deb Lily		516
Deb Link		1015
Deb Lynch		45656
Deb Padilla		302
Deb Peterson		6723
Deb Ramirez		1687
Deb Ramirez		22307
Debbie Fitzsimmons		379
debbie ghostley		4117
Debbie Johnson		6271
Debbie Pierce		4252
Debbie Pierce		4538
Debby Cox		10109
Deborah Bryant		857
Deborah Bryant		9980

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1 Mining Truth: Comments on SDEIS	
Deborah Crocker	1975
Deborah Crocker	3108
Deborah Crocker	9855
Deborah Davis	3853
Deborah Dowell	1779
Deborah Dowell	57515
Deborah Flanders	144
Deborah Flanders	6600
Deborah Flanders	10324
Deborah Heltzer	4607
Deborah Heltzer	45556
Deborah Hendrickson	909
Deborah Hendrickson	2010
Deborah Hendrickson	2573
Deborah Hendrickson	3337
Deborah Hendrickson	6687
deborah ivanoff	6024
Deborah Mielke	1161
Deborah Nelson	4677
Deborah Walsh	337
Deborah Walsh	1126
Deborah Walsh	22020
Deborah Walsh	45589
Deborah White	7692
Deborah Wright-Prince	1954
Debra Brown-Ziemniak	2462
Debra DeBruin	22287
Debra Drew	3287
Debra Erickson	6754
Debra Erickson	3904
Debra Erickson	4079
Debra Eul	844
Debra Eul	856
Debra Evon	676
Debra Evon	10234
Debra Evon	44566
Debra Frasier	44491
Debra Haveri	3092
Debra Haveri	4420

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1 Mining Truth: Comments on SDEIS		
Debra Haveri		4859
Debra Haveri		6458
Debra Haveri		9792
Debra Matheny		3503
Debra Matheny		3504
Debra Matheny		3816
Debra Nielsen		3200
Debra Riedle		6476
Debra Schmid		1508
Debra Schmid		6440
Debra Skoog		4770
Debra Strike		2210
Debra Wilde		4937
Debra Wilde		57370
Dee Sabin		3886
DeeAnn Stenlund		134
Deena Drewes		6031
Deena Drewes		9871
Deidre Kellogg		4411
Deirdre Flesche		6436
Deirdre Flesche		45374
DeLaine Duran		4153
Delia Landstrom		2146
Delores Johnson		1689
delorez houle		2731
Denis Burand		2388
Denis Burand		45900
Denise Berry		22311
Denise Fogel		21591
Denise Gray		3283
Denise Gray		3388
Denise Gray		7162
denise jones		4527
Denise Roberts		22371
Denise Schroeder		21185
Denise Seidl		2542
Denise Thomas		40
Denise Thomas		1761
Denise Thomas		21744

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1 Mining Truth: Comments on SDEIS	
Denise Travers	2652
Denise Travers	3941
Denise Ward	1244
Dennis Devries	1694
Dennis Dunphy	6678
DENNIS FITZPATRICK	2238
DENNIS FITZPATRICK	3160
Dennis Hatleli	47555
Dennis Jasperson	10190
Dennis Johnson	3850
Dennis McKinney	2120
Dennis Montgomery	7677
Dennis Pointer	1831
Dennis Ready	1603
Dennis Ready	44488
Dennis Roscetti	45281
DENNIS WISTE	6300
Derek Florin	6396
Derek Gallion	4348
Derek Grisbeck	227
Derek Grisbeck	6012
Derek Johnson	4745
Derek Kotval	643
Derek mahacek	21769
Derek Schnoor	9860
Desdamona Racheli	41265
Devin Gasswint	10127
Devon Payne	527
Dian Smith	4090
Diana Emery	38298
Diana Maurer	21283
Diana McCleery	7206
Diana McCleery	3897
Diana Neal	44150
Diana Welch	1717
Diane Anderson	6108
Diane Budzien	38116
Diane Childs	1296
Diane Cumbie	2156

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1 Mining Truth: Comments on SDEIS		
Diane DeBevec		10723
Diane Eckhart		3970
Diane Edwards		1824
diane garetz		22475
Diane Geroux		4766
Diane Gubrud		3673
Diane Hatleli		1699
Diane Hiniker		1555
Diane Liebe		3176
Diane Martin		155
Diane Morris		932
Diane Niemczyk		39492
Diane Rose		6449
Diane Sweeney		1008
Diane Sweeney		7454
Diane Tessari		28
Diane Tessari		553
Diane Tucker		4435
Diane Tworoski		735
Dianna Platz-Smith		10262
Dianna Platz-Smith		45976
DIANNE BACKLUND		9757
Dianne Carey		3231
Dianne Delaney		22354
Dianne Haag		1000
Dianne Hansen		7475
Dianne Tuff		38516
Dick Gallien		307
Dick Gallien		41431
Dick Kunz		22306
Dick Ruth		1892
Dick Ruth		3319
Dick Slade		1546
dick smith		6581
Dickson Kunz		1066
Dillon Becken		4091
Dionne Conniff		37922
Dirk Hanson		3127
Dodd Cosgrove		2204

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1 Mining Truth: Comments on SDEIS	
Dolan Cassidy	4280
Don Baldus	45965
Don Hon	392
Don Hon	1017
Don Hon	6584
Don Hon	22425
Don Hon	41354
Don Hon	45576
Don Kallos	4739
Don Kienholz	7680
Don Knudson	893
Don L. Watson	6573
Don Leisen	658
Don Leisen	6465
Don Luce	149
Don MacLeod	4359
don metzger	2123
Don Schuld	151
Donald and Sandra Hoffman	7330
Donald Buchan	1473
Donald Daher	4599
Donald Daher	7086
Donald Facey	1470
Donald Haaversen	38325
Donald Hanson	7203
Donald Henrich	873
Donald Hughes	1409
Donald Hughes	44351
Donald McTavish	9303
Donald Metzger	1145
Donald Murphy	2048
Donald Robertson	10699
Donald Rudrud	1979
Donald Rudrud	3041
Donald Rudrud	4851
Donelle Omer	1959
Donn Arnold	860
Donn Arnold	6029
Donna Anderson	1570

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1 Mining Truth: Comments on SDEIS		
Donna Anderson		6504
Donna Anderson		10170
Donna Anderson		45210
Donna Anderson		57517
Donna Buckbee		1701
Donna Cannon		3681
Donna Dralle		159
Donna Dralle		3239
Donna Dralle		3976
Donna Evans		57371
Donna Kneeland		3170
Donna Olsen		22289
Donna Scott		4448
Donna Tukes		22358
Donyelle Headington		10438
doofus funkstrong		9327
Dora Skerjance		44643
Doreen Kloehn		9880
doris dehn		57518
doris kinney		7425
Doris Thorsen		44239
Dorothea Kuil-Laverdure		3264
Dorothy Anderson		3350
Dorothy Cassidy - Holmers		2432
Dorothy Gibbs		6767
Dorothy Gibbs		44659
Dorothy Hachmann		1413
Dorothy Hammer		2337
Dorothy Hammer		44485
Dorothy Stewart		1705
Dory Sjoblom		9320
Dottie Viar		1550
Doug Cain		3841
Doug Ellingson		1274
Doug Ellingson		1953
Doug George		6688
Doug Hohman		20906
Doug Johnson		3878
Doug Landsverk		10153

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1 Mining Truth: Comments on SDEIS	
Doug Melaas	22557
Doug Schauwitzer	106
Douglas Brown	1671
Douglas Engler	828
Douglas Fairchild	891
Douglas Hoffman	4569
Douglas Mayo	4891
Douglas Nienhuis	1804
Douglas Olson	831
Douglas Olson	38578
Douglas Peterson	803
Douglas Peterson	1589
Douglas Peterson	44751
Douglas Pries	3023
Douglas Pries	45675
Douglas Shaffer	57519
Douglas Wallace	1560
Douglas Wallace	45966
Douglas Werner	4136
Douglas Westby	2099
Drew Brockett	2516
Drew Crockett	2110
drew hempel	1798
drew hempel	3247
Drew Johnson	565
Drew Johnson	1995
Drew Kampmeyer	21786
Drew Madland	1817
Duane Bandel	4341
Duane Gustafson	791
Duane Gustafson	22357
Duane Hirsch	1220
Duane Pherson	22183
Duane Sickmann	9869
Duane Sickmann	11090
Duane Spicer	474
Duane Swedberg	7479
Dudley Parkinson	4310
Dustin Burkhart	3796

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1 Mining Truth: Comments on SDEIS	
Dustin Dzuck	363
Dustin johnson	57731
Dustin Lee	2300
Dwight Ericsson	2517
Dyke Williams	1180
Dylan Chock	710
Dylan Chock	45999
Dylan Youngquist	6652
e e	10284
Earl and Margie VanBerkom	22251
Earl Beddow	4915
Earl Schmidt	908
Echo Brueberg	889
Echo Brueberg	45843
ED Frost	347
Ed Koepp	21951
Eddie Harrison	7705
Edie Mersereau	6305
edith zahn	57520
Edmund Zlonis	44019
Edna Ciurleo	895
Edna Ciurleo	22296
Edward Davies	1415
EDWARD PENDLETON	57521
Edward Rathke	2380
Edward Yang	6545
Edwin Wensman	1679
Edwin Wensman	45503
Eileen Cain	11239
Eileen Levin	2768
Eileen Richter	1506
elaine duvall	169
Elaine Leach	2373
Elaine Leach	45504
ELAINE TOFT	6517
Elayna Shapiro	3881
Elayne Lappi	785
Elayne Lappi	21643
Elicia Beckerman	38254

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1 Mining Truth: Comments on SDEIS	
Elijah Goodwell	47357
elijah rankin	7382
Elinor Auge	4576
Elinor Auge	3915
Elisabeth Bechmann	43169
Elisabeth Bechmann	43404
Elisabeth Peterson	1354
Elise Jahnke	4176
Elizabeth Armstrong	4406
Elizabeth Arnold	7126
Elizabeth Baker-Knuttila	3439
Elizabeth Baker-Knuttila	6134
Elizabeth Barry	22612
Elizabeth Bartlett	2541
Elizabeth Bartlett	4512
Elizabeth Belfiore	22369
Elizabeth Bent	4264
Elizabeth Bercaw	4008
Elizabeth Brenden	3832
Elizabeth Buchanan	263
Elizabeth Burr	772
Elizabeth Burr	57522
Elizabeth Campbell	4076
Elizabeth Command	4465
Elizabeth Cregan	4700
Elizabeth Dahlheimer	7613
Elizabeth Dailey	216
Elizabeth Dailey	311
Elizabeth Dokken	282
Elizabeth Dokken	7438
elizabeth Dyson	7513
Elizabeth Dyson	45498
Elizabeth Engelbrekt	573
Elizabeth Engelbrekt	575
Elizabeth Ford	6070
Elizabeth Gaida	38480
Elizabeth Genovese	81
Elizabeth Genovese	3830
Elizabeth Harries	6192

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1 Mining Truth: Comments on SDEIS		
Elizabeth Helstrom		1097
Elizabeth Hentges		7667
Elizabeth Holley		3095
Elizabeth Hull		4473
Elizabeth Jacobson		808
Elizabeth Johnson		10325
Elizabeth Just		7559
Elizabeth Kaeder		3998
Elizabeth Kerwin		47154
Elizabeth Kiekhafer		44737
Elizabeth La Panta		44871
Elizabeth Lambert		3880
Elizabeth Langlois		2088
Elizabeth Langlois		6521
Elizabeth Larrison		4358
Elizabeth Long		7550
Elizabeth M.		45913
Elizabeth Marks		57523
Elizabeth Marylou Niesche		7541
Elizabeth McElmurray		579
Elizabeth Miller		3911
Elizabeth Norman		2636
Elizabeth Norman		6577
Elizabeth Oehler		6161
Elizabeth Oness		57524
Elizabeth Pyper-Holz		6640
Elizabeth Raustadt		22580
Elizabeth Reid		4683
Elizabeth Reid		10222
Elizabeth Runge		3196
elizabeth shanklin		6578
elizabeth siler		6303
Elizabeth Sivertson		6460
Elizabeth Sivertson		10025
Elizabeth Sloan		6072
Elizabeth Songalia		1153
Elizabeth Spolyar		7212
Elizabeth Sterling		624
Elizabeth Stewart		7219

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1 Mining Truth: Comments on SDEIS	
Elizabeth Tempel	1092
Elizabeth Tempel	6429
Elizabeth Tempel	22468
elizabeth thurber	2812
Elizabeth Treher	6433
Elizabeth Wagner	1913
Elizabeth Wagoner	57525
Elizabeth Wallace	7752
Elizabeth Wroblewski	1595
Ellen Anderson	7418
Ellen Brokl	4112
Ellen Bruner	6751
Ellen Cashman	45672
Ellen Empson	57526
Ellen Hinchcliffe	955
Ellen Johnson	3105
ellen joseph	3274
ellen phelps	57372
Ellen Sandbeck	3068
Ellen Sandbeck	57527
Ellen Sanford	57528
Ellen Schafroth	66
Ellen Schousboe	47628
Ellery WEALOT	2065
elliot hart	7758
Ellis Johnston	6428
Elsa Soderstrom	43188
Elyse Vosen	21504
Emelda Smith	3022
Emilia Lewis	2789
Emilia Lewis	45212
Emilie Falc	4601
Emilie Hitch	36306
Emily Allgeyer	7354
Emily Bacheller	9501
Emily Brown	4386
Emily Brown	3948
Emily Buchanan	2543
Emily Burns	57529

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1 Mining Truth: Comments on SDEIS		
Emily Christenson		10422
Emily Duma		7572
Emily Dumbeck		2618
Emily Dzurak		235
Emily Forseth		1534
Emily Gardner		2558
Emily Hanson		2536
Emily Kelly		3333
Emily Miller		57530
Emily Onello		872
Emily Rose		3303
Emily Royer		4373
Emily Royer		4829
Emily Smythe		10283
Emily Streich		413
Emily Thomsen		2642
emily white		1870
Emma Fazio		10696
Emma Sax		577
emma schumann		47624
Emmett Doyle		6797
Emmy Ahrens		4554
Emy Minzel		6402
Emy Minzel		10356
Enoch LaVelle		3852
Environment Minnesota		54855
Eric Albers		7088
Eric Albers		43289
Eric Ament		47358
Eric Bavier		70
Eric Bnog		7650
Eric Bong		4553
Eric Brandsness		6412
Eric Brodeur		57531
Eric DeLuca		2351
Eric Dubnicka		3069
Eric Eidenschink		6544
Eric Hammang		1823
Eric Hammang		45749

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1 Mining Truth: Comments on SDEIS	
eric lee	1941
Eric Lewis	823
Eric Lewis	45368
Eric Lind	6680
Eric Pierson	10414
Eric Schleppenbach	9842
Eric Siljendahl	1239
Eric Weisman, Dhs	2136
Eric Williams	1388
Eric Willms	4784
Erica Heath	1313
Erica Henkel	6639
Erica Johanson	4540
Erica Johnson	5912
Erica Kobett	4551
Erica TenBroek	3467
Erich Rutten	4513
Erich Rutten	5995
Ericka Grimm	332
Erik Brady	265
Erik Brown	44651
Erik Christianson	44843
Erik Dietrich	3026
Erik Hatlestad	1127
Erik Homme	7701
Erik Leigh	4246
Erik Madsen	57532
Erik Reseland	3159
Erik Roth	4903
Erik Roth	38246
Erik Rotto	4632
Erik Rotto	5946
Erik Thompson	10065
Erika Bailey-Johnson	853
Erika Gotcher	7560
Erin Andrews	7532
Erin Betlock	1704
Erin Blandford	26
Erin Fickle	714

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1 Mining Truth: Comments on SDEIS		
Erin Fickle		4267
Erin Krebs		6306
Erin Lund		3285
Erin Mittag		9765
Erin O'Brien		3106
Erin Ridley		569
Erin Strauss		2285
Erin Thompson		9642
Erynn Jenzen		40250
Esther Peterson		4403
Esther Peterson		6034
Esther Peterson		9708
esti Koen		9691
Ethel Hesch		6393
Eugene Kremer		2272
Eugene Ollila		9981
Eugene Richardson		647
Eugene Richardson		3537
Eugene Richardson		4485
Eugene Richardson		7157
Eugene Schneeweis		40940
Eunice Eckerly		6619
Eunice Hafemeister		812
Eunice Hafemeister		2082
Eunice Hafemeister		2714
Eunice Hafemeister		3098
Eunice Hafemeister		3288
Eunice Hafemeister		4443
Eunice Hafemeister		41028
Eunice Pitts		9650
Eva Chavarria Hunter		10317
Eva Wailes		7695
Eva Wailes		45494
Evan Hazard		1016
evangeline moen		1938
Evelyn Boeckman		1173
EVELYN BOECKMAN		4273
EVELYN BOECKMAN		4198
Evelyn Headen		433

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1 Mining Truth: Comments on SDEIS	
Evelyn Oberdorfer	20927
Everett Ward	973
Evy Olson	45507
Eymard Boehmer	3164
Faith Holschbach	4058
Faith Thomforde	41452
Faith Vokovan	140
Faith Wicklund	2236
Faith Wicklund	4447
Felicia Glidden	1976
Fendell Pillsbury	7229
Fern Peterson	2411
Fin Pollari	4816
Finn Macdonald	9976
Fiona Ubbelohde	905
Florence Bogle	792
Florence Sandok	4649
Florence Sandok	44995
Florence Sandok	4086
Forrest Hardy	1234
Fran Hormel	972
Fran Lesicko	1293
Francine Tolf	38322
Francis Hall	2113
Francis Leckie	971
Francis Leckie	2683
Frank Bure	6794
Frank Hamel	6459
Frank K. Thorp	3463
Frank Kendall	3199
Frank Moriarty	1579
Frank Walters	4141
Franz Kitzberger	1635
Franz Kitzberger	7444
Fred Anthony Ii	41245
Fred Bretschger	22427
fred bruney	4571
Fred Hefty	45358
Fred Lineer	10303

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1 Mining Truth: Comments on SDEIS		
Fred Sproat		4634
Fred Vanderbeek		21484
Fred Vanderbeek		45553
fred veilleux		22232
G B		3040
G Guyton		11258
G L Hicks		1676
Gabe Stanko		3943
Gabriel Rysdahl		1836
Gabriel Welker		6098
Gabriela Longley		2477
Gaelle Berg		21733
Gai Gaebe		57533
Gai Skramstad		10394
Gail Anderson		38274
Gail Frethem		505
Gail Frethem		4866
Gail Frethem		6462
Gail Frethem		45969
Gail Grabow		7591
Gail Grabow		57534
Gail Gray		236
Gail Harty		1434
Gail Harty		4887
Gail Harty		6592
Gail Harty		45912
Gail Hernandez		7709
Gail Jacobson		2109
Gail Jacobson		4812
Gail Jacobson		5932
Gail Jacobson		6482
Gail Jacobson		57374
Gail Jacobson		4030
Gail Kramer		996
Gail Linnerson		865
Gail Linnerson		2227
Gail Linnerson		22356
Gail Linnerson		22363
Gail Loverud		993

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1 Mining Truth: Comments on SDEIS	
Gail Loverud	45478
Gail Mason	4323
Gail Matthews	701
Gail Mohawk	982
Gail Rosenquist	2175
Gail Wallinga	3965
Galen Huizinga	45398
Garet Bodahl	764
Garrett Butler	906
Gary Caldwell	6107
Gary Carson	38273
Gary Cobus	1524
Gary Gutenkauf	4085
Gary Hansen	22649
Gary Johnson	22560
Gary Kluender	45572
Gary Kluender	45588
Gary Lamson	261
Gary Lamson	41395
Gary Mondale	2165
Gary Rost	2216
Gary Schettl	21696
Gary Severson	1734
Gary Thoms	1025
Gary Westra	883
Gay Russell-Dempsey	22182
Gay Trachsel	4423
Gayathri Ramanathan	1053
Gayathri Ramanathan	57536
Gaye Sorenson	292
Gayla McElroy Orr	4399
Gayle Schaub	22619
Ged Smith	3500
gene christenson	1657
gene christenson	57537
Gene Wolfe	4906
Geneva Lyman	9525
Geoff Fisher	22090
Geoff Urban	965

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1 Mining Truth: Comments on SDEIS		
Geoff Urban		45819
Geoffrey Fischbein		10341
Geoffrey Fisher		630
Geoffrey Fisher		43432
Geoffrey Patrick		5923
geoffrey saign		21746
George Fisher		492
George Fisher		1191
George Killough		38284
George Matkovits		1408
George Prudhomme		1269
George Salner		21589
George Shanks		683
George Shanks		38519
George Thiel		1102
George Tiessen		86
GEORGE TYLER		38106
georgia heisserer		4442
Georgiana Podulke		6662
Gerald Cleveland		6359
Gerald Flynn		2150
Gerald Griffin		2095
Gerald Malean		22309
Gerald Saabye		1454
Gerald Saabye		7491
Gerald Wambach		374
Gerald Wambach		57538
Geraldine Littlewolf		2861
Gerard Landy		9724
Gerry Brisco		777
Gerry Henkel		1363
Gerry Henkel		45651
Gerry McCaughey		418
Gina Byrne		3191
Gina Marie DeBreto		57375
Gina Schmidt		47668
Gina Wood		22613
Ginga Newton		44564
Ginger Sanders		45653

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1 Mining Truth: Comments on SDEIS	
ginner ruddy	3990
Ginny Allery	41027
Ginny Redgrave	507
Ginny Redgrave	22292
Ginny Redgrave	41501
Gita Mazumdar	1498
Gita Mazumdar	41278
Glenda Kaufman	2360
Glenn Bertelson	361
Glenn Bertelson	968
Glenn Binstein	1749
Glenn Greff	3377
Glenn miller	2174
Glenn Shoemaker	4608
Glennie Gilleen	2089
Gloria Petrey	7472
Glynda Ballinger	9412
Godan Nambudiripad	9505
Gonzalo Glagovsky	21792
Gordon Kimball	3308
Gordon Palzer	44979
Gordon Scott	4740
grace ernster	4765
Grace Geier	2349
Grace Mathre	7661
Grace Scribner-O'Pray	7076
Graden West	1327
graden west	2183
graden west	6106
graden west	7497
Graham Nash	1399
Grant Adams	2170
Grant Koehler	21295
Grant Koehler	45910
Grant Nichols	47477
Grant P Mattson	696
Greg Benson	1554
Greg Benson	45992
greg bussiere	41383

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1 Mining Truth: Comments on SDEIS		
Greg Cormier		7700
Greg Haller		6292
Greg Keilback		2520
Greg Klave		1729
Greg Nayman		1956
Greg Nayman		22241
Greg Olson		736
Greg Prull		6439
greg rohlen		7070
Greg rottach		9528
Greg Schieber		3960
Greg Thompson		719
Greg Tiburzi		57540
Greg Williams		2014
Greg Zajac		1737
greg zajac		6496
Greg Zajac		44343
Gregg Thompson		4689
Gregory Brunko		2090
Gregory Bussiere		506
Gregory Collins		10297
Gregory David		1367
Gregory Fitz		2326
Gregory Garmer		3640
Gregory Hunter		546
Gregory Jackson		4834
gregory kendall		544
gregory kendall		38569
gregory kendall		41323
Gregory Merz		2391
Gregory Pfister		1483
Gregory Sammarco		38287
Gregory T Ochs		924
Greta Gaard		7516
Greta Nelson		57376
Gretchen Bangerter		20
Gretchen Bangerter		47615
Gretchen Bratvold		4640
Gretchen Bratvold		44342

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1 Mining Truth: Comments on SDEIS	
Gretchen Bratvold	57541
Gretchen Gamm	7453
Gretchen Johnston	10156
Gretchen Lyman Amis	2770
gretchen seichrist	4067
Gretchen Tieu	45309
Gretel Follingstad	790
Gudrun Lock	9524
Gustavo Gomez	1803
Gutema Dube	2596
Gwen Ballinger	1018
Gwendolyn Carroll	1914
Gwendolyn Jenkins	610
Gwynedd Vetter-Drusch	7116
hacha Norris	4095
Haley Ellingson	38397
Haley Van Cleve	6201
Hamilton Cravens	2307
Hamilton Cravens	45885
hamilton cravens	57542
Hanna Dahleen	231
Hannah Boggess	4282
Hannah Hoaglund	1225
Hannah Hoaglund	44045
Hannah Klemm	9861
Hannah Knapp	270
Hannah Miller	6753
Hannah Soule	3942
Hans Johnson	6357
hans sundquist	4921
Harlan Knutson	1359
Harley Blake	2410
Harold Anderson	37872
Harold Hollander	453
Harold Maupin	7085
Harold Pranschke	898
Harold Pranschke	6554
Harold Pranschke	22256
Harold Pranschke	41394

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1 Mining Truth: Comments on SDEIS		
Harriet McCleary		404
Harriet Mccleary		1688
Harriet McCleary		2289
Harriet McCleary		21681
Harriet Skjerly		731
Harriet Skjerly		22631
Harriet St John		4808
Harrison Bone		368
Harry Jacob		10250
Harvey Sherman		22473
Hayden Buckner		7660
Heath Stanton		2008
heather baden		3300
Heather Day		45230
Heather Hackman		177
Heather Harris		7115
Heather Hundt		132
Heather Hundt		868
Heather Hundt		22650
Heather Jeske Pharr		852
Heather Johnson		3953
Heather King		22417
Heather McCrillis		198
Heather Nissen Hall		7331
Heather Sabian		4414
Heather Thoerner		10367
Heather Wilde		9675
Heather Young		3171
Heather Young		9321
Heide Hibbard		2974
Heidi Bakk-Hansen		2176
Heidi Berg		7397
Heidi Cottingham		6088
Heidi Hahn		165
Heidi lynn ahlstrand		2288
Heidi Lynn Ahlstrand		4701
Heidi Lynn Ahlstrand		6635
Heidi Lynn Ahlstrand		3952
Heidi Mirka		1515

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1 Mining Truth: Comments on SDEIS	
Heidi Mirka	57544
Heidi Shol	37907
Heidi Swanson	2254
Heidi Syropoulos	194
Hein Bloem	248
Helen Chambers	7355
Helen Delaney	240
Helen Delaney	41308
Helen Edwards	2034
Helen Fischer	9711
HElen Miller	7379
Helen Mongan-Rallis	4919
Helen Nordby	3984
Helen Schoenbauer	2747
Helen Schoenbauer	7005
Helen Schoenbauer	45133
Helen Stub	4591
Helen Thompson	1429
Helen Torrens	2193
Helen Torrens	22511
Helena Mestenhauser	21364
Helena Mestenhauser	45972
Helgaleena Healingline	3146
Henry Bent	1949
Henry Dolopei	38348
Henry Praska	2667
Herbert Davis	2343
Herbert Davis	4789
Herbert Davis Jr.	1659
Heyward Nash	752
Heyward Nash	763
Heyward Nash	6494
HEYWARD NASH	21546
HEYWARD NASH	52200
Hilary Cheeley	6103
Hillis Aldrich	2598
Hollis Kim	1666
Hollis Stauber	4661
Holly Einess	4872

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1 Mining Truth: Comments on SDEIS	
Holly LaRochelle	4479
Holly Martini	20228
Holly Ristau	6146
Holly Theede Kiese	38241
Holly Traub	21176
Holly Walker	595
Holly Ward	4073
holsten Lydia	7727
Howard Meier	7174
Howard Meier	7688
Howard Trushenski	9725
Hugh Curtler III	1820
hugh mahoney	308
Hugh McTavish	4379
I Trigonis	2137
Ian Gullickson	9683
Ian Johnson	3179
Ian Roberts	9500
Ian Stenlund	6188
Ian Stenlund	6632
Ian Vaughan	3944
Ian Wunder	4911
Ida Delisi	682
Ida DeLisi	3216
Igor Raksin	38659
Ijaz Osman	38630
ilana Forsgren	2200
Ina Davis	824
Inese Holte	1365
Ingrid Lyons	626
Ingrid Paulsen	6597
Ingrid Stanko	9975
Irene Carr	1526
Irene Carr	44504
Irene Matsuoka	6665
Irene Moore	4457
Irene Moore	57545
Irene Qualters	7568
Iris Westerberg	11345

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1 Mining Truth: Comments on SDEIS	
Iris Westerberg	45579
Iron Ranger	1894
Irv Berlin	2097
Isaac Adams	6052
Isra Salem	5943
J Kovarik	2478
J Pults	1559
j Pults	7521
J. Alvey	842
J. Alvey	45142
J. Isabelle Dyck	22019
J. Kurt Schreck	1401
J.L. Lynner	430
J.L. Lynner	41421
Ja Layne Turk	21594
Jack Carrick	1226
Jack Carrick	45282
Jack Cook	4876
Jack Cook	45893
Jack Dwyer	6616
Jack Hollander	810
Jack Intveld	22493
Jack Meyer	45216
Jack Wier	10168
Jack Worthington	7366
Jackie Bartosh	4647
Jackie Helms-Reynolds	1322
Jackie Holmbeck	57377
Jackie Tucker	6779
Jackson Purdie	7370
jaclyn urness	692
Jacob Albright	9827
Jacob Bibeau	2209
Jacob Boelz	4159
Jacob Cahill	796
Jacob Connolly	7224
Jacob Davis	3446
Jacob Davis	6042
Jacob Gentz	7657

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1 Mining Truth: Comments on SDEIS		
Jacob Kjome		3980
Jacob Long		6217
Jacob Quant		6424
jacob schoenecker		7422
Jacob Storie		40069
Jacob Swanson		9879
Jacob Topp		46039
Jacob Weisberg		22430
Jacqueline Athmann		2919
Jacqueline Erickson		2154
Jacqueline Midthun		821
Jacqueline Midthun		45283
Jacqueline Teegarden		7028
Jacquelyn Smith		7713
Jacquelynn Goessling		589
Jacquelynn Perman		10368
Jaired Hoium		4325
Jake La Jeunesse		137
Jake Sullivan		9945
Jake Terpstra		91
Jakob Knieff		7576
James & Diane Cole		39410
James & Jacqueline Speta		6526
James Amato		126
James and Carol Thomas		44137
James Andrews		7519
James B Stewart		1720
james barnett		152
James Borden		2358
James Bovino		9778
James Burpee		288
James Bussa		7732
James Cashman		7599
James Clarke		6771
James Conway		1194
James Conway		7486
James Conway		45654
james D.		44934
James Degner		208

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1 Mining Truth: Comments on SDEIS	
James Dushane	2317
James Fierek	7711
James Fitzpatrick	1730
James Fitzpatrick	4596
James Fitzpatrick	4753
James Fitzpatrick	57546
James Gern	4855
James Griffus	3415
James Gullickson	10269
James Henderson	2060
James Herther	310
James Herther	41074
James Hoffman	7192
James Holdman	445
James Holmberg	6622
James Johnson	2363
James Latimer	21493
James Lindbeck	46004
James Long	3693
james mackson	22502
James Marsden	1184
James Marsden	45815
james Michael	9468
James Mickelson	1193
James Mickelson	7457
James Mulcare	1716
James Nelson	3402
James Nelson	4545
James Nelson	57547
James Parker	645
James Pattridge	9601
James Percich	554
James Porter	460
james r swanstrom	3926
James Reidy	22623
James Reinke	10750
James Reinke	57379
James Reynolds	21495
James Rodriguez	7030

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1 Mining Truth: Comments on SDEIS		
James Rolfe		1208
James Rosamilia		653
james ryshavy		57548
James Schalles		1228
James Scott		1866
James T Hart		44162
James Thompson		10740
James Ude		38255
James Watson		9813
Jamie Hoerter		691
Jamie Hoerter		2420
Jamie Ness		3349
Jamie Ness		39448
Jamie Riskedahl		45655
Jamie Snyder		1874
Jamie Turner		22099
Jamin Carlson		1587
Jamin Carlson		2407
Jamison McMackin		7570
Jamison Tessneer		6673
Jan Ackerman		22102
Jan Baker		166
Jan Baker		41145
Jan Braun		6208
Jan Cohen		9596
Jan Conner		9688
Jan Conner		45762
Jan Gerken		342
Jan Gerken		1832
Jan Gerken		7760
jan gra		4054
Jan Greenfield		353
Jan Greenfield		6166
Jan Greenfield		57380
Jan Greenfield		57381
Jan Hogle		557
Jan Mosman		57382
Jan Olfe		1026
Jan Reineck		38435

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1 Mining Truth: Comments on SDEIS	
Jan Selby	3136
Jan Selby	43403
Jan Shaw-Flamm	1990
Jan Skjolsvik	26671
Jan Stern	7095
Jan Stern	45889
Jan Swart	6651
Jane Byers	2035
Jane Clements	3338
Jane Clements	4918
Jane Come	2545
Jane Comee	41450
Jane Fosse	2077
Jane Galbraith	749
Jane Galbraith	45016
Jane Gates	217
Jane Gates	7423
Jane Jefferson	1952
Jane Jefferson	9789
Jane Johnson	928
Jane Johnson	22401
Jane Kreis	47319
Jane Krentz	754
Jane Krentz	7112
Jane Lippert	9481
Jane McAloney	450
Jane McBride	2575
Jane Mobeckwilson	2495
Jane Nachazel-Ruck	1915
Jane Nachazel-Ruck	4873
Jane Nolan	4286
Jane Norling	442
Jane Norling	1139
Jane Norling	6403
Jane Norling	7460
Jane Norling	7462
JANE NORMAN	2152
JANE NORMAN	40757
Jane norman	41363

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1 Mining Truth: Comments on SDEIS		
Jane Nygaard		20924
Jane O'Laughlin		3499
Janell Oelrich-Schreiber		5950
Janet Adrian-Hink		21796
Janet Anderson		10231
Janet Anderson		45551
Janet Anderson		45562
Janet Court		403
janet disteldorf		10730
Janet Edwards		3520
janet fisher		57549
Janet Foster		1230
Janet Glidden		4679
Janet Ha		3378
Janet Hardel		673
Janet Hodnik		1085
Janet Hodnik		4378
Janet Johnson		4342
Janet Josifek		7143
Janet Koplos		859
Janet Koplos		22087
Janet Koplos		47600
Janet Llerandi		1362
Janet Llerandi		46006
Janet Madland		428
janet meany		21901
Janet Mitchell		22486
Janet Neihart		509
Janet Neihart		1187
Janet Neihart		10202
Janet Neihart		22255
Janet Neihart		45657
janet oconnell		2454
Janet Olson		1645
Janet Robles		10376
Janet Simonson		11351
Janet Stalpes		4460
Janet Tripp		38163
Janet Vandermey		3950

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1 Mining Truth: Comments on SDEIS	
Janet Ward	37909
Janet Ward	44500
Janey Palmer	1672
Janey Palmer	9294
Janice Del Calzo	1353
Janice Forsberg	1144
Janice Forsberg	45650
Janice Geis	304
Janice Geis	7357
Janice Greenfield	6593
Janice Hallman	1318
Janice Hallman	57550
janice murray	4681
janice murray	4201
Janice Scofield	37891
Janice Tarnow	2436
Janice Voss-Crosby	4662
Janie Huhta	3592
Janie Huhta	22361
Janine Corey	1182
Janine Groehler	4746
Janna Neperud	38352
Janne Bagley-Murray	6669
Jannifer Benko	7484
Jared Roddy	6467
Jared Schwab	1048
Jared Yakle	6199
Jared Yount	578
Jarid Vaith	57551
Jarod Hadaway	7735
jarret thompson	57552
Jarrod Davis	57553
Jasan Schirmer	9324
Jasen Kurowski	1661
Jasmine Pike	6195
Jason Arndt	173
Jason Bartlett	6705
Jason Bender	22305
Jason Cintorino	10228

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1 Mining Truth: Comments on SDEIS		
Jason Dupre		1159
Jason Gildart		3260
Jason Husby		733
jason husby		38150
Jason Husby		44922
Jason Jacobson		7045
Jason Klemesrud		1419
Jason Metsa		6572
Jason Moran		4001
Jason Peterson		44228
Jason Reinhart		4850
Jason Schoumaker		4391
Jay Furst		1851
Jay Meiske		22409
Jay Richardson		1372
Jay Roth		41449
Jay Satterwhite		37810
Jay Satterwhite		45486
Jay Sherwood		47285
Jayne Emerson		21791
jayne hall		7216
Jayne Johnson		4908
JD Burns		47157
Jean Beth		3317
Jean Dexheimer		21073
Jean Diekmann		750
Jean Eckerly		929
Jean Emmons		2448
Jean I Evens		10862
Jean Laubenstein		1518
JEAN LAUBENSTEIN		6531
Jean Lewandowski		1714
Jean Lewandowski		57383
Jean LIss		57554
Jean Ljungkull		10836
Jean Lovett		57555
jean marconett		424
Jean Marconett		45908
Jean Marie Lindquist		1568

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1 Mining Truth: Comments on SDEIS	
Jean Marie Lindquist	44838
JEAN PROBST	4839
Jean Replinger	3195
Jean Rollin	4532
Jean Ross	732
Jean Ross	46000
Jean Thompson	2977
Jean Thorne	6617
Jean Trumbauer	289
Jean Warp	3982
Jean Wiersma	4236
Jeanette Axberg	1532
Jeanette Axberg	45824
Jeanette Levesque	45984
Jeanette Smith	4659
Jeanette Smith	44348
Jeanne Collins	739
Jeanne Fahlstrom	49
Jeanne Fahlstrom	44802
Jeanne Piehl	3172
Jeanne Piehl	7533
Jeanne Troge	7410
Jeanne Wright	57556
Jeanne Zlonis	44130
Jeannette George	57384
Jeff Allen	700
Jeff Asfoor	11251
Jeff Brooks	4726
jeff dickson	4314
Jeff Durfee	3226
Jeff Gades	1702
Jeff Gades	22350
Jeff Greensmith	1185
Jeff Hansen	2440
Jeff Humphrey	4245
Jeff Johnson	1479
Jeff Johnson	7189
Jeff Kepus	2188
Jeff Kitterman	4637

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1 Mining Truth: Comments on SDEIS	
jeff lewis	1068
Jeff Masco	2356
Jeff Meyer	22627
Jeff Nygaard	47288
Jeff Perry	2451
Jeff Pykkonen	6718
Jeff Rivera	394
Jeff Rupert	1649
Jeff Rupert	43143
Jeff Sell	7514
Jeff Sluiter	38461
Jeff Smih	57557
Jeff Stonehouse	3024
Jeff Stromgren	888
Jeff Stromgren	22469
Jeff Stromgren	45964
Jeff Tessman	3028
Jeff Tollefson	191
Jeff Tollefson	41256
Jeff Valento	2173
Jeff Wilson	47287
Jeff Zaayer	2663
Jeff Zlonis	10320
Jeffery Kane	1283
Jeffrey Brown	572
Jeffrey Disch	2409
Jeffrey Eiffler	944
Jeffrey Eiffler	4494
jeffrey feldmeier	196
Jeffrey Feldmeier	44781
jeffrey fischer	4151
Jeffrey Folie	147
Jeffrey Frederick	57385
Jeffrey Iverson	1865
Jeffrey Jamieson	22483
Jeffrey Masco	4587
Jeffrey Nelson	839
Jeffrey Nelson	37858
Jeffrey Poferl	3790

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1 Mining Truth: Comments on SDEIS	
Jeffrey Reihle	2449
Jeffrey Rivera	40754
Jeffrey Ronning	1212
Jeffrey Ruha	2027
Jeffrey Snyder	2179
Jeffrey Thieret	6659
Jeffrey Wendt	2303
Jen Fallon	2568
Jen G	21501
Jen Velic	1569
Jenelle Melina	4792
Jenifer Behrens	6175
Jenn Gillen Ashling	4109
Jenn Neckermann	44786
Jenna Arvidson	21949
Jenna Pollard	38412
Jenni Ryan	2408
Jenni Ryan	57558
Jenni Steigauf	2128
Jennier Saunie	4461
Jennifer Adams	10261
Jennifer Arave	22622
Jennifer Blight	4517
Jennifer Bremer	44493
Jennifer Church	3153
Jennifer Cook	354
Jennifer DeJonghe	44356
Jennifer edgerton	3645
Jennifer Fuller	3345
Jennifer Greseth	3966
Jennifer Griffin-Wiesner	5989
Jennifer Harris	667
Jennifer Heinzel	7582
Jennifer Janasie	4862
Jennifer Larson	57386
Jennifer Manderfeld	3370
Jennifer Manderfeld	6789
Jennifer Manderfeld	45905
Jennifer Misquadace	4510

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1 Mining Truth: Comments on SDEIS		
Jennifer Misquadace		6457
Jennifer Misquadace		7101
jennifer nevitt		3368
Jennifer Pyper-Muno		585
Jennifer Shriver		3425
Jennifer Soutor		1416
Jennifer Starks		1511
Jennifer Stawarski		44649
Jennifer Therkilsen-Gebhard		44503
Jennifer Turrentine		489
Jennifer Widell		3918
Jennifer Winkels		1215
Jennifer Wright		1576
Jennifer Yankovec		1747
Jennifer Yankovec		44646
Jennifer Yoos		57387
Jennifer Yoos		57559
Jenny Dahl		2030
jenny gamer		62
Jenny McDermott		1808
Jeramie Olson		1951
Jeramie Olson		4441
Jereme Pope		1991
Jeremiah Millikan		278
Jeremiah Myer		7754
Jeremy Beckman		2169
Jeremy Lockwood		4502
Jeremy Miller		2651
Jeremy Olsen		3128
Jeremy Olsen		4519
Jeremy Olsen		7534
Jeremy Olson		22
Jeremy Pettit		3908
Jeremy Stahl		3059
Jeremy Swanson		38417
Jeri Wambeke		7341
Jerome Comeau		21135
Jerri Thomas		6491
Jerrold Gershone		300

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1 Mining Truth: Comments on SDEIS	
Jerrold Kline	660
Jerry Berlin	1046
Jerry Berlin	45958
jerry bighia	7411
Jerry Brunfelt	2585
Jerry Cleveland	774
Jerry Cleveland	784
Jerry Fitzgerald	964
Jerry Fitzgerald	45213
Jerry Fitzgerald	45222
Jerry Hankins	1237
Jerry Klemm	326
Jerry Klemm	21754
Jerry Norgaard	467
Jerry P	4939
Jerry p	7510
Jerry Peterson	3219
Jerry Pults	4945
Jerry pults	41155
jerry pults	41159
Jerry Sivets	5938
Jerry Turner	1575
Jerry Turner	45742
Jerry Werle	21657
Jesaiah Summer	1634
Jesaiah Summer	1668
Jess Hamilton	10199
jess straub	6641
Jessalynn Torgerson	57561
Jesse Ahlman	640
Jesse Grebenc	1868
Jesse Haakenson	10132
Jesse Jiang	762
Jesse Kiemele	52210
Jesse Maloney	4039
Jesse Turck	57388
Jessica Albers	10323
Jessica Bierbrauer	7210
Jessica Blagen	1222

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1 Mining Truth: Comments on SDEIS	
Jessica Blagen	38344
Jessica Bleichner	3291
Jessica Bortolus	3863
Jessica Dexter	44495
Jessica Garcia	21113
Jessica Garcia	21701
Jessica Hill	57562
Jessica horman	57563
Jessica Lindstrom	1573
jessica luna	4775
Jessica McShane	3964
Jessica Ostrov	587
Jessica Ostrov	4238
Jessica Ostrov	4080
Jessica Perry	3846
Jessica Rhyner	220
Jessica Rocheleau	1276
Jessica Roeder	819
Jessica Roeder	4217
Jessica Rossing	5981
Jessica Shoultz	47683
Jessica Waldron	10171
jessica wardlaw	67
Jessica Wardlaw	22096
Jessie Graves	4256
Jevne Kloeber	21659
Jevne Kloeber	41029
Jezette Smith	581
Jill Halstead	1918
Jill Holmen	618
Jill Holmen	2276
Jill Ites	2072
Jill Marckel	188
Jill Marckel	4147
jill naslund	22515
Jill Schaefer	9668
Jill Schaefer	45750
Jill Shortreed	502
Jill Shortreed	39973

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1 Mining Truth: Comments on SDEIS	
Jill Shortreed	47642
JIll Thrasher	38459
Jill Waldron	6644
Jillia Pessenda Bovino	9811
Jillian Flink	6232
Jillian Schroeder	4564
Jim & June Stuhr	22579
Jim and Linda Rolfe	6694
Jim Arnold	3053
jim bambenek	2461
jim bambenek	4131
Jim Brandes	10244
Jim Brandes	41268
Jim Brandes	45956
jim dyer	10314
Jim Dyer	45968
Jim Fox	10192
Jim Harrison	43916
jim laredo	6658
Jim Malwitz	44344
Jim Malwitz	57564
Jim Marsden	362
Jim Marsden	10195
Jim Marsden	21790
Jim Miller	2304
Jim Northrup	4455
Jim Porter	57565
Jim Rademacher	38130
Jim Seaver	3783
Jim Speta	3301
Jim Speta	45129
Jim Tjepkema	9843
Jim Whebbe	2249
Jimmy Collier	44660
Jinger Pulkrabek	501
Jinger Pulkrabek	741
Jinger Pulkrabek	4304
JL Charrier	1241
Jm Hess	6722

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1 Mining Truth: Comments on SDEIS	
Jo Campe	725
Jo Ellen Davis	1289
Jo Ellen Davis	3280
Jo Senander	9571
Jo Wood	2323
Jo Wood	10306
Jo Wood	41498
Joan and Mr. Mark Strobel	3566
Joan Bindner	3335
Joan Bindner	57733
Joan Boughton	2530
Joan C Samuelson	57390
Joan Christensen	57566
Joan Ervin	1160
joan hagburg	57567
Joan Hughes	1093
Joan Knuttila	1253
Joan Laux	4678
Joan Leonard	21590
Joan McGonigal-Staska	675
Joan McGonigal-Staska	44572
Joan Naeseth	1062
Joan Ostergren	40771
Joan Richardson	1443
Joan Scully	1122
Joan Seeger-Boughton	6689
Joan Tangen	9335
Joan Winsor	1740
Joani Van Demark	22480
Joanie Davis	41156
JoAnn Schneider	4749
JoAnn Schneider	6432
JoAnn Schneider	22347
Joann Swanson	2187
JoAnn W Pasternack	57568
joanna bakken	1931
Joanna Furth	4836
joanna furth	4010
Joanna Kozanecka	6628

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1 Mining Truth: Comments on SDEIS	
Joanne Alt	2195
Joanne Anderson	4275
Joanne Boettcher	9707
Joanne Christian	6163
Joanne Hedrick	4748
Joanne Look	38264
Joanne Neihart	22645
Joanne Norris	1426
Joanne Perry	687
Joanne Richardson	6759
Joanne Swanson	6142
Joanne Wagner	1490
Joanne Wagner	4686
Joanne Wagner	4774
Jocelyn Sweet	1563
Jode Fritz	6691
Jodi Broadwell	3813
Jodi Johnson	1050
Jodi Johnson	45991
JOdi Sellers	1934
JOdi Sellers	1937
Jodi Sellers	7208
Jody Bowers	358
Jody Bowers	2189
Jody Bowers	2682
Jody Copp	1002
Jody Copp	6471
Jody Flynn	57569
Jody Fritzke	1989
Jody Fritzke	3252
Jody Fritzke	6682
Jody Goldstein	2114
Jody Keelin	256
Jody Keelin	854
Jody Norcutt	2975
Joe Baltich	3173
Joe Baltrukonis	44657
Joe Ciupik	7601
Joe Culver	681

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1 Mining Truth: Comments on SDEIS		
Joe Ehlers		6423
Joe Fedrerer		9302
Joe Foss		10188
Joe Hashmall		393
Joe Hashmall		7459
Joe Locey		3392
Joe Lushine		2244
Joe May		997
Joe Mayer		2657
Joe Mayer		6613
Joe Moore		1009
Joe moriarity		2463
joe musich		6080
Joe Pacilio		2418
JoE Rich		45382
Joe Thorne		6646
Joe Torres		2863
joe trupiano		138
Joel Baird		7414
Joel Baird		45223
Joel Barkley		38347
Joel Dunn		50
Joel Dunn		717
Joel Dunn		6118
Joel Dunn		38536
Joel Dunn		57737
Joel Elder		2433
Joel Headley		2425
Joel Juers		3071
Joel Malanaphy		41
Joel Olander		2465
Joel Pieper		1799
Joel Rogness		7099
Joel Sasse		826
Joel Schmidt		814
Joel Schmidt		21726
Joel Schmidt		45209
joen overby		22477
Joey Engelhart		45831

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1 Mining Truth: Comments on SDEIS	
Johann D. Brentrup	396
Johann D. Brentrup	22594
Johanna Garcia	9542
Johanna Garcia	44903
Johanna Sinz	3089
John & Betsy Flaten	24
John & Betsy Flaten	4656
John Alt	3354
John Amren	1481
John and Genea Pichotta	7373
John AND Jean Fleming	335
John AND Jean Fleming	41523
John Anderson	3963
John Badger	1880
John Bauer	2226
John Bogard	21268
john borland	41177
John Brink	10310
John Bushnell	268
John Christian	2689
John Cirilli	1333
John Clikeman	68
John Clikeman	230
John Clikeman	45140
John Cole	2617
John Cole	2620
john condon	22625
John Cox	4338
JOHN DAM	7325
John Davenport	6421
John Davenport	45761
John Deitering	4736
John Deitering	9881
john dillon	21175
John Doe	44951
John Elward	299
John Fahrendorf	1273
John Farrell	4799
John Fehnel	2006

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1 Mining Truth: Comments on SDEIS		
John Fetzek		22351
John Finazzo		4450
John Finazzo		57391
John Finazzo		57392
John Finazzo		57571
John Fitzgerald		18
John Fitzgerald		6339
John Flaten		44494
John Flaten		57572
John Gaffney		1610
John Gaffney		6576
John Gaffney		45753
John Gordon		43665
John Graham		4750
John Griffin-Wiesner		11004
John Haag		4351
john henderson		57574
John Hendrickson		2576
John Hetterick		45973
john hewitt		4475
John Hewitt		45985
John James		52267
John Jubenville		2271
John Kennebeck		3954
John Kerschbaum		659
John Kerschbaum		2342
John Kerschbaum		4604
John Kreft		219
John Kreft		22015
John Kruesel		1315
John Kruse		2103
John Kurth		45674
John Lawrow		37935
John Lawrow		43530
John Lay		21682
John Lenartz		1034
John Lenartz		2151
John Lenartz		4261
John Lenartz		10792

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1 Mining Truth: Comments on SDEIS	
John Lucke	2586
John Lucke	2592
John M Ek	2571
John Malecha	2613
john margotta	1431
John Matheson	1857
John Matheson	3344
John Mathwin	933
john Mathwin	2450
john Mathwin	4930
John McGowan	22628
John Mcgrath	2322
John McGrath	22637
JOHN MEINDL	57575
John Mettling	22586
John Mitchell	4507
John Morse	1926
john morse	4804
John Muellerleile	3227
John Munster	778
John Munster	42297
John Munster	44801
John Myott	3857
JOHN OBRIEN	6656
John Ottis	41222
John P Sellner	1433
John Paul Roy	816
John Paul Roy	2157
John Paul Roy	4636
John Pegg	2377
john penn	57576
John Peter	21232
John Peter Everest	7714
John Petroskas	2472
John Petroskas	4687
John Polizzi	57577
John Powers	97
john praske	820
john praske	3104

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1 Mining Truth: Comments on SDEIS		
john praske		3784
john Raadt		57578
John Raplinger		664
John Raplinger		2427
John Raplinger		44431
John Reichel		646
John Reichel		1341
John Reichel		22418
John Reutter		2230
John Robey		21468
John Romens		57579
John Ruetter		45300
John Rusterholz		2022
John Rusterholz		6474
John Ryan		4493
John Sailors		3593
John Sandness		45289
John Schech		7435
John Seymour-Anderson		1162
John Skolte		38557
John Soghigian		1216
john sstelling		3591
john stelling		57393
John Stromme		10160
John Strupp		37934
John Thalacker		631
John Tjaden		2494
John Tjaden		57394
John Utermoehl		38190
John Viacrucis		1028
John Viacrucis		45914
John Weber		254
John Weber		20981
John Wheeler		1519
John Wheeler		1553
John Wheeler		2487
John Wheeler		4938
John White		45880
John Whitmore		9939

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1 Mining Truth: Comments on SDEIS	
John Whitmore	45387
John Williams	834
John Williams	4827
john wood	4456
John Wozniak	894
Johnny Wakefield	2344
Johnny Wakefield	10697
Joleen Johnson	21259
Jolene Gutknecht	3322
Joline Gitis	45771
Joline Gitis	3920
Jolynn Chadwick	1389
Jolynn Chadwick	44258
Jon Abrahamson	7507
Jon Billing	10362
Jon Billing	45891
Jon Childers	1448
Jon Childers	6267
Jon Clark	974
Jon Damon	2068
Jon Damon	45652
Jon De Ment	1312
Jon Eclov	9329
Jon Frasz	7744
Jon Hartell	57395
Jon Hayenga	324
Jon Hunstock	57396
Jon Kosiak	10257
Jon Kosiak	45288
Jon Lindstrom	885
Jon Lord	60
Jon Lord	1398
Jon Lord	44642
Jon Moss	10327
Jon Nelson	3161
Jon Olson	1260
Jon Pierce	7508
Jon Rich	2003
Jon Richter	154

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1 Mining Truth: Comments on SDEIS		
Jon Smithers		4529
Jon Strom		2074
Jon Wesenberg		6693
Jonas Runquist		4933
Jonathan Baker		5962
Jonathan Blodgett		2332
Jonathan Carlson, M.S.		2119
Jonathan Engel		2207
Jonathan Gottlieb		4550
Jonathan Gottlieb		45743
Jonathan Green		44144
Jonathan Lindstrom		45208
Jonathan Townsend		21670
Jonathon Warnberg		7712
Jonelle Pamintuan		22298
Jordan Lorsung		584
Jordan Pinneke		4130
Jordan Wente		588
Jose Hernandez		718
Joseph Aguirre		4168
Joseph Baltrukonis		182
Joseph Buglione		22084
Joseph Cadotte		1909
Joseph Cherra		2302
Joseph Eastman		1586
Joseph Flasch		3295
Joseph Flasch		6293
Joseph Green		10162
Joseph Hann		57580
Joseph Homan		3304
Joseph Kingman		951
Joseph Larsen		1345
Joseph Loisel		40066
Joseph Rutledge		5955
Joseph Rutledge		44492
Joseph Spencer		1111
Joseph Torbert		4747
Joseph Wenzel		238
Joseph Wenzel		21623

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1 Mining Truth: Comments on SDEIS	
Joseph Wild	148
Joseph Wild	3728
Josey Warren	3157
Josh Grubbs	694
Josh Hintz	10066
Josh Leonard	2730
Josh Patrick	22614
Josh Ritter	3057
Josh Smith	4883
Joshua Capps	2318
Joshua Capps	57581
Joshua Carlson	10694
Joshua Cozatt	9514
Joshua Houdek	10219
Joshua Knieff	1925
Joshua Knieff	4901
Joshua Mckeever	3352
Joshua Melichar	3242
Joshua St.Amand	756
Josie Roberts	9982
Jotham Blodgett	2653
Jotham Blodgett	7172
Joy Danielson	4702
Joy Herbst	7004
Joy Hofer	44904
Joy LeCuyer	57582
Joy Schochet	1879
joy Throm	20124
Joycanne Hoyem	38216
Joyce Anderson	651
Joyce Anderson	4741
Joyce Anderson	7602
Joyce Anderson	4160
Joyce Hochsprung	1252
Joyce Johnson	915
Joyce Johnson	2587
Joyce Johnson	2814
Joyce Malwitz	44339
Joyce Malwitz	57583

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1 Mining Truth: Comments on SDEIS		
Joyce Mellom		242
Joyce Mellom		6710
Joyce Rich		45375
Joyous Song		221
Juan Domingo Davila		7350
Juan Domingo Davila		7351
JUANI MUÑOZ		43184
JUANI MUÑOZ		47645
Jubal Schmidt		364
Judi Poulson		444
Judi Poulson		1751
Judi Poulson		6567
Judi Poulson		10125
Judi Poulson		22641
Judith Berger		942
judith chase		4138
Judith Felker		3874
Judith Gosz		2610
Judith Larson		2549
Judith Larson		2551
judith Long		10197
Judith Long		42291
Judith Mackenzie		348
Judith Mackenzie		21933
Judith Moore		1660
Judith Niemi		4882
Judith Rose		6609
Judith Rosenblatt		919
Judith Scoville		2267
Judith Screaton		2405
judith silbernagel		22561
Judith Sims		2396
Judith Stern		1197
Judith Webster		1370
Judith Weir		45959
Judy Benson		1735
Judy Bird		10392
Judy Bjorke		3956
Judy Corrigan		22514

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1 Mining Truth: Comments on SDEIS	
Judy Epstein	459
Judy Epstein	6579
Judy Epstein	45839
judy fair	281
Judy Kelloway	10140
judy Klemm	410
Judy Kreag	4002
Judy Lane	1996
Judy Lane	3408
Judy Lane	6508
Judy Lane	7483
Judy Lane	3864
Judy Nelson	1342
Judy Nelson	21748
Judy Ostrowski	4017
Judy Pless	7184
judy russell	4258
Judy Schultz	41073
Judy Uebelacker	40788
judy white	4432
Judy Whittington	40995
Julene Laque	1540
Julia Bohnen	22632
Julia Davis	3083
Julia Kloehn	3119
Julia Kuebelbeck	5973
Julia Lee	6176
Julia Nerbonne	163
Julia Reich	39683
Julian Denler	7488
Julian Grev	10793
Juliann Rule	119
Juliann Rule	1316
Julianna Probst	3133
JuliAnne Owens	3393
JuliAnne Owens	3806
Julie Ann Quist	10924
Julie Bowen	1113
Julie Bowen	45872

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1 Mining Truth: Comments on SDEIS		
Julie Ciurleo		3167
Julie Cox		1997
Julie Cox		3327
julie crosby		9313
Julie Dahlberg		142
Julie Erdmann		7531
Julie Grambart		3389
Julie Grant		22470
Julie Hessler		3121
Julie Holmen		6540
Julie Holtey		3837
Julie Ives		4087
Julie Jagusch		1670
Julie Jones		815
Julie Juntune		6124
julie kesti		1873
Julie Kiel		2310
Julie Kiel		10383
Julie Mackenzie		57584
Julie McNealey		9285
Julie Morse		57397
Julie Nelson		985
Julie Plumer		2502
Julie Pringle		1864
Julie Ring		768
Julie Setrum		36392
Julie Steiner		36345
Julie Wissinger		246
Julie Wissinger		41428
Julie Woodbury, Ph.D.		38230
Julie Yoemans		2399
Julie Yoemans		10201
Julie Young-Garayt		7344
Juliee Prondzinski		45214
june fahrmann		2603
june fahrmann		2813
June Kroog		7190
June Stuhr		45960
June Wynne		309

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1 Mining Truth: Comments on SDEIS	
June Wynne	10172
Juola (Joe) Haga	783
jusith stern	47437
Justin Colbenson	4374
Justin Collopy	7668
Justin Halverson	343
Justin Halverson	4727
Justin Halverson	6488
Justin Nelson	4530
Justin Smith	4362
Justin Winter	22406
Justin Zoss	1940
K Helms	2385
K Helms	22516
k hill	7007
K Jason Bryan	7401
K Stanton	38530
K. Cash Luck	41480
Kait Macheledt	9862
Kaitlin Fuller	22420
Kaitlyn O'Connor	3971
Kaleb Jungclaus	365
Kaleb Jungclaus	21579
Kaleb Lindsey	3609
Kaleb Morrow	57585
Kalen Johnson	10177
Kali Halder	3122
Karen Bell-Brugger	1248
Karen Bell-Brugger	2346
Karen Bell-Brugger	4835
Karen Benson	39684
Karen Boyd	380
Karen Boyd	1394
Karen Boyd	22601
Karen Brennhofer	1107
Karen Brennhofer	3178
karen callahan	102
karen callahan	3262
karen callahan	4725

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1 Mining Truth: Comments on SDEIS		
Karen Caplow		2594
Karen Clinton		57586
Karen Collyard		3755
Karen Erickson		770
Karen Erickson		10187
Karen George		9565
karen grunke		57587
karen grunke		3885
karen hannah		57588
Karen Hansen		37563
Karen Harmonson		3037
Karen Hatlestad		6729
Karen Hendrickson		3845
Karen Hoeft		1841
Karen Holden		21592
Karen Homolka		3100
Karen J Gordon		2485
Karen Johnson		1284
Karen Johnson		45767
Karen Johson		6030
Karen Katz		1899
Karen Kimbrough		41026
Karen L Dingle		1336
Karen Lackner		2282
Karen Lackner		4780
Karen Manthey		855
Karen Manthey		3765
Karen McEvoy		2609
Karen Mills		3174
Karen Monsen		3374
Karen Monsen		4384
Karen Monson		4416
Karen Monson		9523
Karen Moon		4912
karen poortvliet		10268
Karen Reichensperger		720
Karen Reising		1791
Karen Sandberg		3330
Karen Sandberg		4761

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1 Mining Truth: Comments on SDEIS	
karen savage-blue	738
karen Savage-blue	4164
Karen Schaub	21249
Karen Schmidt-Dill	4541
Karen Skaja	1910
Karen Starr	4099
Karen Strachota	39972
Karen Swanson	84
Karen Swanson	603
Karen Taylor	22587
karen warner	10137
Karen Williams	920
KarenSue Anderson	2438
Karey Degnan	4429
karey degnan	7119
Karey Degnan	44433
Kari Dyrdahl	4247
Kari Dyrdahl	3835
Kari Miller	279
Kari Miller	3299
Kari Miller	3445
kari page	1911
kari Winger	609
Karin Cudd	199
Karin Kraemer	3363
Karin Valdizan	10399
Karin Winegar	1292
karin winegar	3643
Karin Winegar	4311
Karin Winegar	44561
Karina Joyce	45740
Karl Henze	45299
Karl Julson	1719
Karl Karst	6735
Karl Lunkenheimer	57589
Karla Brom	632
Karla Brom	2145
Karla Brom	22167
Karla Findley	52

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1 Mining Truth: Comments on SDEIS	
Karlie Cole	3245
Karol Morton	1337
Karol Sullivan	7388
Karoline Anderson	7597
Karrie Vrabel	1638
Karrie Vrabel	2309
Karrie Vrabel	4694
Karrie Vrabel	22434
Karyn Thompson	57398
Kat Glessing	4263
Kat Patton	57591
Katarzyna McMahon	2488
Kate Crowley	22402
Kate Daman	57592
Kate Dougherty	1014
Kate Fitzgerald	2415
Kate Hagsten	2191
Kate Kelly	7683
Kate Russella	1871
Kate S	38107
Kate S	41132
Kate Savage	633
Kate Savage	7749
Kate Savage	44020
Kate Stumpf	6242
Kate Stumpf	52219
Kate Whittaker	4135
Katharine Plowman	5983
Katharine Winkler	47765
Katherine Baker	9774
Katherine Bryant	10184
Katherine Goertz	5911
Katherine Goertz	44234
Katherine Johnson	45830
Katherine Kennedy	6765
Katherine Ledermann	1278
Katherine Levin	4575
Katherine Loban	4322
Katherine Loban	6348

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1 Mining Truth: Comments on SDEIS	
Katherine Muehlbauer	431
Katherine Muehlbauer	1115
Katherine Peterson	9537
Katherine Rodbro	44644
Katherine Rodbro	57593
Katherine Roth	4349
Katherine Schafer	2219
Katherine Simon	7371
katherine simpson	41531
Katherine Surbaugh	6661
Katherine Whelchel	22413
Katherine Zaun	6783
Katheryn Krikorian	30
Katheryn Schneider	6772
Kathie Noga	10401
Kathleen Abel	1262
Kathleen Abel	41202
Kathleen Anton	57399
kathleen Beddow	4867
Kathleen Brandt	495
Kathleen Corpron	2277
Kathleen Cox Jokela	4059
kathleen dwan	706
Kathleen Felt	870
Kathleen Felt	6168
kathleen gates	2640
Kathleen Gates	57594
KATHLEEN HASS	3158
Kathleen Hoffman	1726
Kathleen Holbein	189
Kathleen Huberty	440
Kathleen Hutchins	672
Kathleen Hutchins	6454
Kathleen Iverson	57595
Kathleen Jones	243
Kathleen Jones	1348
Kathleen Jones	4670
Kathleen Kauppi	1459
Kathleen Klietz	22505

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1 Mining Truth: Comments on SDEIS	
Kathleen Knapp	1042
Kathleen Malecki	4402
KATHLEEN MORASKI	454
Kathleen Moraski	22367
Kathleen Murphy	2503
Kathleen O'Meara	3497
Kathleen Petersen	3514
Kathleen Petersen	5921
Kathleen Pfaffinger	7432
Kathleen Roufs	3182
Kathleen Scott	1441
Kathleen Spencer	1338
kathleen spencer	1969
kathleen spencer	9775
Kathleen Sullivan	1080
Kathleen Valenti	4253
Kathleen Whitson	21458
kathleen wilcox	10142
Kathlene Audette-Luebke	7636
Kathryn Cain	3978
Kathryn Deloria	4065
Kathryn Evenson	2117
Kathryn Hatlestad	4380
Kathryn Hyde	103
Kathryn Hyde	4573
Kathryn Johnson	1542
Kathryn L Glessing	634
Kathryn L Glessing	45505
Kathryn Lee	4511
Kathryn Lund	9740
Kathryn Mosher	21119
Kathryn Radford	6391
Kathryn Roman	3204
Kathryn Schallert	7670
Kathryn Schroeder	6202
Kathryn Schroeder	10300
Kathryn Sharpe	4332
Kathryn Wallis	5990
Kathy Ahlers	542

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1 Mining Truth: Comments on SDEIS	
Kathy Baker	38415
Kathy Blegen-Huntley	43149
kathy dunn	22630
Kathy Gabriel	6570
Kathy Heltzer	7745
Kathy Hollander	3103
Kathy Hullsiek	4490
Kathy Johnson	475
Kathy Johnson	1647
Kathy Johnson	2419
Kathy Johnson	7495
kathy johnson	22343
Kathy Kormanik	1055
Kathy Lawrow	2512
Kathy Magne	1456
Kathy Magnuson	4756
Kathy McClure	1982
kathy mollner	6037
Kathy Reinhardt	36683
Kathy Schaffenberger	22626
Kathy Schaffenberger	41102
Kathy Schuft	57400
Kathy Stromberg	3390
Katie Eukel	799
Katie Hall	425
Katie Nulicek	45754
Katie Ronning	9878
Katie Smith	9950
Katie Williams	6776
Katie Young	7109
katie young	57596
Katja Linfield	38245
Katrina Tibbs	276
Katrina Tibbs	907
Katrina Tibbs	21683
Katrina Tibbs	41451
Katy Johnson Johnson	1580
katy tharaldson	724
Katy Tharaldson	6498

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1 Mining Truth: Comments on SDEIS		
Katya Gordon		45385
Katya Zepeda		5931
Kay Beams		4262
Kay Drache		22646
Kay Drache		44847
Kay Kramer		10144
Kay Randall		10235
Kay Randall		21946
Kay Westlie		10346
Kaydell Gaasvig		47
Kaydell Gaasvig		6109
Kaydell Gaasvig		41343
Kayla DeChaine		4899
kaylynn niemela		3611
Kealy Porter		1142
Keanue Driscoll-Cherland		9882
Keelin Kane		9760
Keiko Olds		1250
Keith Bagge		312
Keith Blomstrom		2442
Keith Blomstrom		3045
Keith Donaldson		1074
keith heaton		22299
Keith Jakober		360
KEITH KEMNITZ		7426
Keith Kemnitz		45884
Keith Kleinsasser		3958
Keith Mc Gregor		341
Keith Okeson		2661
Keith Thompson		1512
keith thompson		7434
Keith Thompson		45138
Kelley Kadidlo		4421
Kelley Meister		161
Kelley Meister		4389
Kelli Conlow		561
Kelli Johnson		38342
kelli smith		4723
Kelly Baltzell		1449

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1 Mining Truth: Comments on SDEIS	
Kelly Baltzell	44560
Kelly Bollis	9336
Kelly Coleman	7755
Kelly G. Ramer	1787
Kelly Herrmann	6792
Kelly Mahon	3847
Kelly Rambow	3594
Kelly Rogers-Winston	21895
Kelly Rohloff	6207
Kelsey Wotzka	21766
Kelsey Wotzka	44952
Ken Chervenak	9936
Ken Chervenak	4931
Ken Chervenak	4935
ken french	1805
ken french	6399
ken french	4020
Ken Fried	926
Ken Gilbertson	6627
Ken Goldsmith	4820
Ken Madsen	7512
Ken Prax	21560
Ken Rafowitz	22476
Ken Ring	7529
Ken Sorenson	1438
Ken Sorenson	44656
Ken Stevenson	31
Ken Turner	2141
Ken Turner	3294
Ken Turner	19946
Ken Turner	3962
Kendolynn Smith	153
Kendolynn Smith	7031
Kendra Ryan	44809
kendrick guenther	3598
Kendrick Wronski	4786
Kendrick Wronski	4917
Kenneth A. Harris	6564
Kenneth Cichocki	2353

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Kenneth Harris	1060
Kenneth Harris	45951
Kenneth Richards	1038
Kenneth Richards	2390
Kenneth Richards	4928
Kenneth Richards	44330
Kenneth Swanson	3366
Kenneth Wachowiak	1763
Kenneth Wachowiak	22095
Kenneth Wagner	29
Kent Fritz-Smead	937
Kent Johnson	3289
kent jones	2633
Kent Lindberg	7439
Kent Lindberg	45306
Kent Simon	10141
Kent White	10247
Kera Hoff	6014
Kermit Johnson	3438
Kerry Hinze	3575
Kerry Hinze	57597
Keslie Jenkins	2262
Kevan Larson	7445
Kevin Biegler	4449
Kevin Bigelow	1021
Kevin Boedigheimer	4404
Kevin Christian	21305
Kevin Fitzgerald	44229
Kevin Gobats	4333
Kevin Gobats	45873
Kevin Hay	47678
Kevin Hiniker	44243
Kevin Hollidge	1977
Kevin Kathmann	1369
Kevin Kathmann	4920
Kevin Kenlan	4180
Kevin Korzenowski	3236
Kevin Korzenowski	6430
Kevin Korzenowski	7392

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Kevin Miller	7719
Kevin Proescholdt	3267
Kevin Proescholdt	57598
Kevin Stanek	6697
kevin stinnett	4163
Kevin Stueven	38555
Kevin Swanberg	1485
Kiara Caruso	2213
Kieran Schwartz	2328
Kiley Bastian	44253
Kim Berg	1334
Kim Davis	38666
Kim Hislop	10167
Kim Jerome	10200
Kim Kokett	980
Kim Kokett	2639
Kim Kokett	37908
Kim Kokett	45995
Kim Mason	3692
Kim Mickelson	41427
Kim Pilon	10315
Kim Randolph	6707
Kim Wilczyk	4320
Kimberle Smith	7436
kimberley wagner	1905
Kimberley Wagner	6768
Kimberly Anderson	333
Kimberly Balkcum	9685
kimberly krause	3201
Kimberly Krause	4762
Kimberly Marschel	57599
Kimberly Nieman	688
Kimberly Odden	10173
Kimberly Swenson-Zakula	40921
Kimberly Swenson-Zakula	40922
Kimerly Wilcox	22368
Kine Johnsen	6490
Kirin Furst	5934
Kirk Fowler	10433

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1 Mining Truth: Comments on SDEIS		
kirk mccall		3727
kirk mccall		7538
Kirk Shoemaker		6001
Kirk Smith		4858
Kirra Seaburg		4216
Kirsten Jamsen		44246
Kirsten Kennedy		6690
Kirsten Kennedy		7645
Kirsten Prada		45369
Kirsten Saylor		7622
Kirsten Weberg		43674
Kirstine Rosenmeier		4353
KIT BUTTERFIELD		6095
Kit Naylor		1209
Kjersa Anderson		2320
Kjerstin Jovaag		57600
kody eggenber		6203
Kory Kwakenat		386
Kory Lidstrom		6388
Kris Elfvin		6169
Kris Emly		6307
Kris Hanson		4171
Kris Palazzari		6730
Kris Prince		4798
Kris Rich		2005
Krishna Woerheide		57401
Krista Beier		2643
Krista Beier		3801
Krista Hoyland		2023
Krista Johnson		2608
Krista Munster		508
Krista Munster		1565
Krista Munster		2031
Krista Munster		7405
Krista Munster		22638
Krista Munster		40997
Krista Oleson		4105
Krista Swanson		7340
Kristen Anderson		45211

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Kristen Arden	2531
Kristen Lippert-Peinado	57601
Kristen Lund	45558
Kristen Pless	5917
Kristen Rodgers	6057
Kristian Nyberg	580
Kristie Anderson	20853
Kristin Brenner	44232
Kristin Brown	496
Kristin Brown	22518
Kristin Christenson	57602
Kristin Green	946
Kristin Hilgendorf	3411
Kristin Kelly	7021
Kristin Lebben	521
Kristin Lebben	45671
Kristin Tombers	57402
Kristin Tuenge	7062
Kristin Whatton	1385
Kristin Woody	57603
Kristina Dexter	44334
Kristina Dunn	3084
Kristina Kvarnlov-Leverty	4751
Kristina Thalhammer	1618
Kristina Tiersa Dodge	2507
Kristine Kincaid	1789
Kristine Lager	2334
Kristine Osbakken	57403
Kristine Vesley	4671
Kristof Berg	7220
kristof marden	4445
Kristopher Derks	21658
Kristy Cunningham	21196
Krystal Nugent	4521
krystal schilling	1601
krystal schilling	22012
krystal schilling	43619
Kurt Franke	5959
kurt hannula	1513

Sender Name		Submission ID
1 Mining Truth: Comments on SDEIS		
Kurt Kuehn		10339
Kurt Simer		2836
Kurt Simer		6543
Kyle Blasing		10354
Kyle Ellingson		4831
Kyle Kleven		4629
Kyle Lind		4098
Kyle Maser-Crist		4451
Kyle Momsen		41499
Kyle Quenemoen		861
Kyle R. Crocker		38396
Kyle Shallbetter		4111
Kyle Simonson		3286
Kyle Whitefeather		4234
Kymn Paulson		1933
Kyree Wobbrock		6411
L Kochevar		650
L Sebastienne		7443
lacey waters		6796
Laird Beaver		7421
Lance Conrad		57604
Lance Rhicard		2234
Landon DeWitt		4838
Landon Hall		1750
Lane Ayres		9529
LaNelle Schaffhauser		183
LaNelle Schaffhauser		6487
Lani Hanson		9522
Lanier Pratt		4618
Lansing Shepard		4610
Lany Clough		1896
Lara Christley		7375
Lark Arrichiello		2215
Larry Anderson		729
Larry Anderson		4486
Larry Anderson		45293
Larry Anderson		57739
Larry Beck		622
Larry Bogolub		978

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Larry Bogolub	2133
Larry Bogolub	4667
Larry Bogolub	21646
Larry Bogolub	45226
Larry Christianson	6141
Larry Ekegren	426
Larry Hennis	41014
Larry Jepsen	1451
Larry Jepsen	7575
Larry Jepsen	10309
Larry Miller	4696
Larry Reed	707
Larry Reynolds	22644
larry ronning	4951
Larry Wannebo	4600
Larry Wickstrom	1204
Larry Wiesner	1500
Larry Yank	1410
larry yank	45219
Lars Negstad	6626
Laryn Bakker	229
Laura Ashenbrener	6129
Laura Ashenbrener	6130
Laura Cooper	57605
Laura Cuccia-Nilsen	766
Laura Cuccia-Nilsen	3190
Laura Cuccia-Nilsen	3436
Laura Cuccia-Nilsen	6553
Laura Cuccia-Nilsen	44969
Laura Devriendt	621
Laura Devriendt	6394
Laura Ene	4368
Laura Graves	10175
laura holmbeck	1099
Laura Holmbeck	2397
Laura Jaffee	57606
Laura Jester	4300
Laura Kenig	2392
Laura King	2400

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1 Mining Truth: Comments on SDEIS		
Laura Kramer		1767
Laura Kroeten-Bue		2627
LAURA MCENTYRE		1919
laura melotti		37882
Laura Melotti		44031
Laura Molnar		3087
Laura Nisi		37
Laura Regan		54
Laura Ross		296
Laura Ross		3382
Laura Schauland		38050
Laura Schauland		38268
Laura Seiner		7117
Laura Shallbetter		7587
Laura Troiber		899
Laura Troiber		21700
Laura Troiber		45586
Laura Wambeke Swarthout		7225
Laura Wolf		721
laure green		124
Laureen Guyer		7648
Laurel Daly		7316
Lauren Dickinson		43528
Lauren Eggert		4276
Lauren Lederle		57607
Lauren Phyle		4363
Laurence Margolis		10252
Laurence Margolis		21751
Lauretta Crelly		57608
Laurie Akermark		6279
laurie christopherson		22634
Laurie Elise MacKenzie		57404
Laurie Fenner		10361
Laurie Jacobson		7044
Laurie Kittelson		21661
Laurie Latimer		21509
Laurie Lawler		3324
Laurie Lawler		6709
Laurie Madsen		46901

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Laurie Marinucci	38288
Laurie Matson	45479
Laurie Miller	38300
LauriI Lawler	22606
LaVone Schnabel	3079
LaVone Schnabel	7565
LaVonne Goodell	6485
Lawrence Krantz	2149
Lawrence Landherr	531
Lawrence Landherr	776
lawrence landherr	22639
Lawrence Salzman	7600
Lawrence Wiesner	22421
Layne Nelson	57610
Lea Foushee	829
Lea Hanson	1236
Lea Hanson	44785
Leah Bartizal	2186
Leah Beman	3968
Leah Droubie	57611
Leah Lind	6668
Leah Pifher	6206
Leah Schoenecker	57612
leah soule	3940
Lee Beaty	4705
Lee Beaty	22295
Lee Blume	811
Lee Kaphinst	38247
Lee Lewis	1286
Lee Martin	1517
Lee Mensinger	2096
Lee Mensinger	7200
Lee Mindemann	39321
Lee Ragan	1247
Lee Reiser	21857
Lee Rosenthal	1621
Lee Schatschneider	611
Lee Schwierjohann	376
Lee Sievers	44872

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1 Mining Truth: Comments on SDEIS	
Leeann Clayton	1584
LeeAnn Lehner	5924
Leif Bjornson	95
Leif Bjornson	1444
Leif Bjornson	3827
Leif Leirfallom	555
Leigh Paulson	1287
Leigh Van Cleve	22574
Leila Wolvinya	3618
Len Jennings	1943
Len Jennings	4864
Leo Halm	511
Leo Pusateri	6649
leo whitebird	7611
Leon Barnett	1493
Leonard Casanova	7618
Leone Olson	340
Leone Olson	918
Leone Olson	44505
lerik carlson	3873
leroy bertsch	21004
Les Furo	2554
Les Furo	4732
Les Stern	3154
Lesa Hofer	57613
Leshaun Webb	44947
Leslie Dee	38420
Leslie Distad	10340
Leslie Distad	3826
Leslie Jones	3203
Leslie MacKenzie	2621
Leslie Pilgrim	1629
Leslie Wilbert	3480
Leslie Wilbert	57614
Lester Bensch	896
Letitia SMith	1961
LETITIA SMITH	6231
Lewis Hotchkiss	1617
Liam McClannahan	7641

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Liba Herman	4735
Libby Gadbois	384
Libby HEGTVEDT	7398
Lilla Gidlow	4909
Lilla Gidlow	44749
Lillian Getzewich	57615
Lillian Vandal	45224
Lily Johnson	10734
Linda Andreozzi	3102
Linda Bailey	1395
Linda Bailey	6400
Linda Bailey	41025
Linda Beckman	1469
Linda Bergh	2457
Linda Bergh	7499
Linda Bergh	45665
Linda Bryan	6629
Linda Chover	4697
Linda d	562
Linda Donaldson	1407
Linda Draves	9611
Linda Eells	1936
Linda Eng	4407
Linda Glisson	3351
Linda Gonzalez	4004
Linda Gridley	513
Linda Gridley	3343
Linda Hansen	2002
Linda Hayes	901
Linda Hayes	4695
Linda Hofstad	38326
Linda Johnson	3473
Linda Krecklau	3096
Linda LeBlanc	40753
Linda Lee	44806
Linda Littrell	2976
Linda Mae Chover	1815
Linda Mae Chover	5935
Linda Martinez	1522

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1 Mining Truth: Comments on SDEIS		
Linda Martinez		2311
Linda Martinez		6774
Linda Martinez		7169
LINDA MCLENNAN		57616
Linda Medin		1667
Linda Meyers		3018
Linda Moores		10389
Linda Morris		9934
Linda Morris		1423
Linda Morris		22342
Linda Morris		45892
Linda Murphy		443
Linda Nelson		3254
Linda Olson		23
linda Riddle		3193
Linda Ritter		415
Linda Rolf		3868
Linda Rolfe		775
Linda Silver		10026
Linda Sperber		45128
Linda Spyhalski		1855
Linda Tapp		910
linda tapp		3328
linda tapp		6079
Linda Thompson		705
Linda Thomson		116
Linda Wennerstrom		568
Linda Wilson		4242
Lindsay Conroy		1032
Lindsay Dahl		3311
Lindsay scott		2313
Lindsay VonRuden		7764
Lindsay Wallis		6549
Lindsay Welch		6612
Lindsey Lang		1966
Lindsey Lang		45829
Linnea King		6749
Linville Doan		1613
Lioba Multer		4047

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1 Mining Truth: Comments on SDEIS	
Lisa Baumann	2563
Lisa Berg	57405
Lisa Burke	2404
Lisa Burke	44722
Lisa Cassioppi	45669
Lisa Coons	2017
Lisa Daniels	38242
Lisa Fay	4616
Lisa Goodlander	37876
Lisa Hardiman	4082
Lisa Hardy	652
lisa herthel	5958
Lisa Heyman	2569
Lisa Hucky	6289
Lisa Johnson	3152
Lisa Johnson	45218
Lisa LaDuke	7011
Lisa Luokkala	9667
Lisa Marolt	837
Lisa Mcknight	843
Lisa Mcknight	44484
Lisa Ragsdale	619
LISA RAGSDALE	6773
Lisa Ragsdale	10277
Lisa Reed	6607
Lisa Richardson	3891
Lisa Ringer	57617
Lisa Schauer	7017
Lisa Scott	4116
lisa sharp	6636
Lisa Siskind Umhoefer	10308
Lisa Smith	702
Lisa Smith	1543
Lisa Smith	6580
Lisa Smith	45497
Lisa Smith	52253
Lisa Smith	57618
Lisa Starkweather	3208
Lisa Stroessner	3090

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1 Mining Truth: Comments on SDEIS		
Lisa Thompson		4061
Lisa Tohey		57406
Lisa Umhoefer		1436
Lisa Vervena		22164
Lisa Wersal		1994
LIsa Wilkinson		3229
Lisa Wilkinson		4504
Lisa Wilkinson		7334
Lisa Wilkinson		57620
Lisa Wrabek		10112
Lise Lunge-Larsen		833
Lissa Kleven		6473
Lissa Radke		608
Liv VisGirda		4559
Liz Bachtle		3561
Liz Dehler		21900
Liz Ehlinger		21327
Liz Johnson		3339
liz martin		57621
liz martin		57622
Liz Schendel		345
Liz Vanden Heuvel		45555
Liz Wanschura		1484
Liza Eng		2085
Liza Timmers		9322
Lizbeth Moss		10182
Lizzie Gelderman		1528
llisa Johnson		2018
Lloyd Pallansch		96
Loiry Anderson		669
Lois Bjorlie		3078
Lois Pfluger		1549
Lois Ryan		1054
Lois Swanson		1736
Lois Swanson		4711
Lois Swanson		22257
Lonny Bentley		38321
Lora Child		10126
Loralee Popehn		4645

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Loree Miltich	1340
Loree Miltich	6456
Lorelei Kraft	1383
Loren Hansen	2033
Loren Loberg	45134
Loren McCaghy	4317
Loren Skarie	22647
Loren Skarie	45303
Loretta Holscher	998
Loretta Holscher	6499
Loretta Peterson	1135
Loretta Peterson	6327
Lori Askelin Chase	9856
Lori Bell	5913
Lori Blauwet	21678
Lori Bunkholt	143
Lori Bunkholt	40786
Lori Chase	596
Lori Denson	4478
Lori Erickson	4326
Lori Hinrichsen	897
Lori Johnson	1757
Lori Johnson	7493
Lori Kowalsky	6349
Lori Leslie	22349
Lori Molin	534
Lori Pouttu	3805
Lori Richards	3383
LORI SWIFT	4754
Lori Turbes	1927
Lori Turner	4299
Lorie Badiyan	1306
Lorie Badiyan	22512
Lorie Kennedy	3271
Lorie Kennedy	7079
Lorina Quartarone	1478
Lorraine Adan	38451
Lorraine Sarek	1612
Lou Hogan	4056

Sender Name		Submission ID
1 Mining Truth: Comments on SDEIS		
Louann Lanning		4376
Louis and Fran Gambucci		548
Louis Asher		317
Louis Asher		40084
Louis Hermansen		1477
Louis Mielke		351
Louis Saeger		22098
Louise Sundin		45086
Lowell And Linda Flom Raschke		38271
Lowell Johnson		666
Luan Marks		6434
Luan Marks		4041
LuAnn Hahn		59
Luann Marotte		2296
Luann Suilmann		1562
Lucas Morcomb		3296
Luci Pugh		3608
Lucy Cosgrove		613
Lucy Hawthorne		45392
Lucy Knoll		10246
Lucy Mittag		255
Lucy Rogers		2660
Lucy Rosenquist		21167
Lucy Rust		6591
Lucy Rust		22498
Luke Bishop		3945
Luke Lukas		1856
Luke Sloan		6065
Luke Stultz		4018
Luke Walker		7452
Luwaina Al-Otaibi		4802
Lydia Ewing-Green		6258
Lydia Howell		1888
Lydia Howell		42280
Lydia Jacobs		6416
Lydia Lee		10210
LYLA PLATOW		10123
Lyle Brandt		1637
Lyle Brandt		2319

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Lyle Salmi	869
Lyn Yount	2240
Lyn Yount	41178
Lynda Haemig	674
lynette duffy	3464
Lynette Wick	7394
Lynette Zeppelin	7644
Lynn Arbogast	390
Lynn C. Lang	4900
Lynn C. Lang	45842
Lynn Evenson	743
Lynn Evenson	45135
Lynn Filipas	1213
Lynn Galonski	45896
Lynn Guenette	6410
Lynn Haver	6785
Lynn Hollaran	1285
Lynn Iverson	3375
Lynn Keyes	3407
Lynn Keyes	4254
Lynn Larson	7442
Lynn M. Carroll	21350
Lynn Mahnke	858
Lynn Olson	2406
Lynn Olson	45962
Lynn Price	4241
LYNN PUTNAM	3530
Lynn Putnam	47610
Lynn Sullivan	1897
Lynn Sullivan	2224
Lynn Tryggestad	6150
M Ann DRUSKIN	57407
M K Smith Md	2533
M K Smith, M.D.	3887
M Olson	22231
M. Ann DRUSKIN	6450
M. R. Ciatti	7675
Mackenzie Crumb	7124
Mackenzie Huth	615

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1 Mining Truth: Comments on SDEIS	
Mackenzie Huth	6515
Mackenzie Huth	22578
Madelaine Olson	419
Madeline Hayes	2496
Madeline Kamp	2064
Madeline Kett	1912
Madeline Newman	7329
Madeline Seveland	2253
Madeline Simon	7404
Mae Gackstetter	114
Maggie Fink	4849
Maggie Fink	6154
Maggie Gleason	938
Maggie Gleason	945
Maggie Kazel	4742
Maggie Loughlin	1958
maggie michaelson	10391
Maggie Peltoniemi	6120
Maggie Todd	336
Maggie Todd	41397
Mahva Jones	44654
Majel Carroll	1598
Majel Carroll	4306
Majel Carroll	6696
Majel Carroll	7419
Majel Carroll	22016
Majel Carroll	3862
Malyn Kuntz	3938
MANDY GEORGE	4093
Manoj Sankar	1242
Manuel Medina	47763
manuela wolter	47723
Maqry Ann Dailey	10349
Mara Johnson	4419
Marc Katz	10251
Marc Olson	1486
Marc Spooner	75
Marcelene Schaefer-Bartos	2506
Marcelene Schaefer-Bartos	7415

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1 Mining Truth: Comments on SDEIS	
Marcia Allard	99
Marcia Franklin	1983
Marcia Jacobs	1752
Marcia Jacobs	45502
Marcia Kingsbury	22481
Marcia Sochacki	3485
Marcia Townley	1432
marcie santos	3111
Marco Tapia-Vazquez	4104
Marcus Anderberg	1721
Marcus Peterson	9872
Marcus Trimpin	3387
Marcus Trimpin	6219
MARCY Anagnostou	6782
Marcy Andersen	4392
Marcy Schroeder	4581
Mardi Bentzen	42281
Maren Slater	7581
Margaret Beegle	420
Margaret Beegle	9938
margaret blakley	3188
margaret blakley	57624
margaret blakley	3916
Margaret Chasson	4803
Margaret Colangelo	6015
Margaret Colangelo	9319
Margaret Cullen	4315
Margaret Cutter	57625
Margaret DeMers	22360
Margaret Fink	1510
Margaret Holmes	921
Margaret Holmes	45664
Margaret Kozak	4603
Margaret Nelson	4297
Margaret Nelson	47047
Margaret Pryately	2080
Margaret Redus	1846
Margaret Richardson	2256
Margaret Richardson	38577

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1 Mining Truth: Comments on SDEIS	
Margaret Roeske	862
Margaret Runnakko	7679
Margaret Sines	7501
margaret sorensen	3691
margaret sorensen	4602
margaret sorensen	7199
Margaret Sotos	11352
Margaret Stein	432
Marge Peterson	2645
Marge Tillery	6786
margo molin	301
Margot Kelsey	4480
Margot Kelsey	6615
Margot Monson	1081
Margot Rideaux-Crenshaw	44336
Maria Carlson	5926
Maria Carlson	45031
Maria Forsythe	7590
Maria horn	4381
Maria Jacobson	45365
Maria Kaefer	38162
Maria Keeler	2182
Maria Nosanow	2492
Maria Nosanow	4907
Maria Nosanow	22576
Maria Veit	437
Mariah Peterson	2004
Mariaj Jette	6234
Marian House	488
Marian House	10278
Marian Lansky	10267
Marian Lansky	3867
Marian Severt	329
Marian Severt	45508
Marian Syrjamaki-Kuchta	57626
Marianna Greene	45364
Marianne Moesch	6444
maricela amezcua	7658
Marie Francis	3093

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Marie Francis	45084
Marie Funk	876
MARIE FUNK	6182
MARIE FUNK	7069
MARIE FUNK	38481
marie Isais	6247
Marie Luby	38079
Marie Nickell	1417
Marie Nickell	2455
Marie Nickell	4871
Marie Nickell	45390
Marijo Wunderlich	22003
Marika Bader-Grunow	57627
Marilee Lampman	2039
Marilee Lampman	3894
Marilyn Booton	1258
Marilyn Booton	38450
Marilyn Hansel	40219
Marilyn Isaacson	45205
Marilyn Marsden	1435
Marilyn Marsden	45305
Marilyn R. Johnson	2098
Marilyn Springborg	22653
Marilyn Victor	6241
Marilyn Victor	44888
Marilynn Ford	529
Marilynn Ford	2190
Marina Nyberg	57628
Marisa Plevak	22590
Marisa Ring	9973
Marissa Saurer	58
Marita Bujold-Philpott	1414
Marjorie Hegstrom	6164
Marjory Singher	1350
Mark Adams-Westin	3621
Mark and Christy Herreid	1895
Mark Baldwin	11261
Mark Bastian	3620
Mark Bastian	47629

Sender Name		Submission ID
1 Mining Truth: Comments on SDEIS		
Mark Bastian		47638
Mark Bouchard		63
Mark Brandenburg		4508
Mark Budisalovich		2565
Mark DiCastri		7664
Mark Duret		7659
Mark Fangmeier		7528
Mark Finch		2444
Mark Gibbons		7039
MARK Hagen		366
Mark Harrington		3535
Mark Hennessy		4932
Mark Hopkins		2467
Mark Imsdahl		1205
mark jepson		723
Mark Johnson		4655
Mark Johnson		10281
Mark Johnson		38331
Mark Kreitzer		2012
Mark Lehigh		638
Mark Levings		4360
Mark Miazga		7389
mark nester		22359
Mark Owens		6461
Mark Parr		3772
Mark Peterson		1428
Mark Peterson		3148
Mark Peterson		3479
Mark R		600
Mark Rieder		2070
Mark Rieder		6568
Mark Roalson		4557
Mark Roalson		6404
Mark Roalson		45731
Mark Robinson		2016
Mark Rossi		2324
Mark Rossi		22588
Mark Rossi		45982
Mark Sanstead		10329

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Mark Senger	3899
Mark Shireman	458
Mark Shireman	7509
Mark Snyder	57409
Mark Sutherland	45026
Mark Swanson	234
Mark Swanson	244
Mark Titel	38258
Mark Ver Hey	44810
mark voorhees	3222
Mark Walsh	3683
Mark Walters	1574
Mark Walters	2489
Mark Widner	3972
Mark Wojahn	2007
markus wood	57629
marla benton	295
Marlise Riffel	10343
Marlys McGarvey	387
Marlys Mcgarvey	2042
Marlys Mcgarvey	44892
Marnee Forbort	3323
Marnie Johnson	7763
Marsha Conner	3256
Marsha Conner	4257
Marsha Conner	6739
Marsha Conner	3879
Marsha Reeves	4021
Marsha Sadergaski	712
Marsha Sadergaski	38506
Martha Baxter	439
Martha Baxter	1320
Martha Brummitt	6438
Martha Krikava	1764
Martha Krikava	2456
Martha Lundin	6620
Martha Miller	1655
Martha Miller	22575
Martha Mulcahy	10249

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1 Mining Truth: Comments on SDEIS		
Martha Palm		7171
Martha Palm		7173
Martha Reis		882
Martha Stuckey		1812
Martha Vennes		1155
Martha Vest		3371
Martha Vest		4722
Martha Vest		7010
Martha Wavrin		277
Martin DeWitt		57410
Martin Gordon		4040
Martin Makinen		57411
Martin Reeck		1697
Martin Roach		3928
Martin Schoen		47359
Martin Steitz		4489
Marty Krause		20811
Marty Krause		44260
Marvin Bunnell		697
Marvin Florek		37825
Mary Abendroth		38419
Mary Ackerman		57412
Mary Ann Dailey		1108
Mary Ann Graeve		41161
Mary Ann Vande Vusse		1114
Mary Arents		4028
Mary Aries		1124
Mary Backes		38220
Mary Bauer		5914
Mary Beams		11266
Mary Belden		4763
Mary Beth Pottratz		2202
Mary Blackburn		6110
Mary Blickenderfer		4652
Mary Brown		7748
Mary Bue MacLean		57630
Mary C Fleege		22235
Mary Cahill		1063
Mary Capps		21432

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Mary Cobb	3991
Mary Davis	958
Mary Davis	57631
Mary De Witt	45481
Mary DeYoung	2115
Mary Duncan	22355
Mary E. Jones	3457
Mary Ellen Kaluza	175
Mary Ellen Vetter	1384
Mary Elling	523
Mary Elling	1566
Mary Emanuelson	4506
Mary Engel	806
Mary Engel	45757
Mary Fernstrum	1446
mary froiland	269
Mary Fulton	5963
Mary Gilthvedt	1724
Mary Guilford Plumb	46715
Mary Haeg	10128
Mary Haeg	21824
mary hagen	346
Mary Handt	2364
Mary Harrington	4674
Mary Hoff	693
Mary Hoff	10307
Mary Holm	2572
Mary Holm	2574
Mary Iqbal	590
Mary Iqbal	44046
Mary Jane Mansfield	4560
Mary Jean Port	4675
Mary Jean Weigel	57735
Mary Jo Kreitzer	4387
mary jo straub	22236
Mary Jo Straub	44047
Mary Jo Van Dell	7592
Mary Johannsen	1960
Mary Johannsen	7142

Sender Name		Submission ID
1 Mining Truth: Comments on SDEIS		
Mary Kane		4733
Mary Kanuit		146
Mary Kanuit		1646
Mary Kanuit		6278
Mary Kastorff		1884
Mary Kastorff		21732
Mary Kay Fortier Spalding		4713
Mary Knutson		550
Mary Knutson		2431
Mary Knutson		22585
Mary Kohman		57632
Mary Kuennen		125
Mary Lawson		4405
Mary Ledford		539
Mary Lein		1079
Mary Lein		1089
Mary Lou Hoff		5965
Mary Lou Workman		3123
Mary Ludington		6721
Mary Ludwigson		41448
Mary Madeco-Smith		1136
Mary Mahoney		4805
Mary McCarty		2036
Mary McCoy-Johnson		1854
Mary McDonough		6246
Mary McFetridge		3134
Mary Mcfetridge		6071
Mary Mcfetridge		45745
Mary McGilligan		1392
MARY MCGILLIGAN		2561
Mary Miller		2041
Mary Miller		22492
mary Moriarty		1594
Mary Muller		2083
Mary Muller		45381
Mary Myers		7635
Mary Nelson		2635
Mary Pat McNeil		6002
Mary Plaster		5945

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Mary Plaster	4102
Mary Pouliot	3241
Mary Puthoff	4096
Mary Ruff	779
Mary Scheibel	171
Mary Scheibel	1924
Mary Scheibel	4345
Mary Scheibel	6135
Mary Scheibel	4181
mary schneider	4643
Mary Scott	21680
MARY SHEA	11344
MARY SHEA	45378
Mary Sigrah	1590
Mary Soderstrom	43295
Mary St. Michael	746
Mary Stenson	7517
Mary Storsved	1682
Mary Storsved	21576
Mary Storsved	52186
mary SWENSON	4625
Mary Taffe	3189
Mary Theresa Downing	3802
Mary Vlazny	7361
Mary Wielinski	3277
Mary Zabel	4594
Marya Tiesel	4174
MaryEllen Smith	11349
Mary-Jane Caspers	2428
Mathew Beane	3168
mathew clark	7544
Mathew Davich	1430
Mathew Davich	57633
Mathew Fischbach	567
Mathew Straw	952
Mathew Straw	44331
Matt Goblish	2498
Matt Hannah	2370
Matt Ikola	2591

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1 Mining Truth: Comments on SDEIS		
Matt James		57634
Matt Johansen		245
Matt Johansen		2368
Matt Johansen		22479
Matt Johnson		1461
Matt Johnson		2369
Matt Johnson		4806
Matt Mac		203
Matt Moran		3882
Matt Pearson		3581
Matt Poppleton		655
Matt Raske		38328
Matt Richter		6377
Matt Richter		6378
matt severson		3302
Matt Sheehan		2605
Matt Straw		88
Matthew Eckman		494
Matthew Eckman		1271
Matthew Ferguson		9682
Matthew Goblish		22100
Matthew Gockowski		4544
Matthew Hegdahl		9612
Matthew Helgeson		6397
Matthew JOHNSTON		3218
Matthew Johnston		6715
Matthew Johnston		9710
Matthew Palmer		11330
Matthew Pawlowski		3155
Matthew Schaut		298
Matthew Schaut		1203
Matthew Schaut		10223
Matthew Schaut		22624
Matthew Schaut		45647
Matthew Schaut		45668
Matthew Schaut		57635
Matthew Schutz		2208
Matthew Smith		1100
Matthew Smith		2153

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Matthew St-Germain	4497
Matthew Straw	10256
Matthew Waller	5951
Matthew Wilberg	9308
Maureen Bauer	900
maureen benson	574
maureen benson	4316
Maureen brandt	7642
Maureen Engle	41286
Maureen Jensen	2111
Maureen Martin	5985
Maureen McCarter	46111
Maureen McCullough	21697
maureen mcelderry	6518
Maureen Mcelderry	7433
maureen mcelderry	3834
Maurice Anderson	6405
maurice spangler	3081
Maurice Szymczak	6186
mauricio Prieto	7077
Max Bowman	434
Max Jodeit	1129
Maximillian Prieto	57636
Maxwell McGruder	9947
Maya zniewski	7006
Mckenna Eckerline	1174
Meagan Bown	35
Meara Hove	2032
Meg Kearns	6634
Meg Royer	4230
Megan Kress	7723
Megan McGuire	10169
Megan Reinartz	3967
Megan Riley	1487
Megan Westerheide	319
Meghan Cosgrove	57413
Meghan Cronin	10264
Meghan Cronin	21664
Meghan Houston	41254

Sender Name		Submission ID
1 Mining Truth: Comments on SDEIS		
Meghan Schlichting		2338
Mejken Thompson		262
Mel Grove		22581
Mel Thoresen		252
Melanie Anderson		10427
Melanie Magana		6770
Melanie McCully		10326
Melanie Steele		57637
Melanie Weberg		6522
Melinda Brown		40791
Melinda Harris		21942
Melisande Charles		1502
Melissa Bayne		830
Melissa Bayne		21595
Melissa Bayne		45294
Melissa Bibber		6642
Melissa Cathcart		344
Melissa Cathcart		1829
Melissa Chazen		6714
Melissa Fossum		57638
Melissa Fossum		57639
Melissa Frigaard		4364
Melissa Gohman		4369
Melissa Haefner		807
Melissa Hirokawa		57640
Melissa King		39288
Melissa Lindberg		1189
Melissa Macho		6268
Melissa Rust		9695
Melissa Schoenke		45814
Melissa Schoenke		3892
Melissa Starr		7594
Melissa Thompson		1790
Melody Tilton		530
Melody Tilton		1440
Melody Tilton		41419
Melody Tilton		41424
Menoukha Case		1227
mercy myers		22233

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1 Mining Truth: Comments on SDEIS	
Merill Tinjum	21438
Merlene Smith	6022
Mert Lassonde	1695
Mert Lassonde	45986
Mia Olson	10165
Michael Alexander	1600
Michael Alexander	45561
Michael Allen	40793
Michael Anderson	818
Michael Anderson	57641
michael andreen	4302
Michael Andreen	45362
Michael Autry	4582
Michael Bahr	1902
Michael Bearfoot	1950
Michael Beasley	435
Michael Beasley	22176
Michael Beasley	40747
Michael Blandford	3369
Michael Breitling	1361
michael brooks	7750
Michael Cavitt	4453
Michael Chutich	1267
michael cuppy	7395
Michael Custard	275
Michael Custard	950
Michael Custard	6552
Michael Custard	41555
Michael Custard	45229
Michael Dayton	4828
Michael Dayton	9516
Michael Denery	41524
Michael Dennis Browne	1280
Michael Dolinar	2329
Michael Donais	461
Michael Donais	1405
Michael Donais	22240
Michael Downey	2228
Michael Doyle	4923

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1 Mining Truth: Comments on SDEIS		
Michael Evenson		4372
michael fisch		1290
Michael Fisch		46892
Michael Fitzgerald		9491
Michael Foss		10403
Michael Furey		241
Michael Gabrelcik		1551
Michael Giuliano		57642
Michael Gunderson		2279
Michael Halvorson		4123
Michael Hennessey		40070
Michael Hofer		57643
Michael Hon		3823
Michael Huber		4658
Michael Huseby		7428
Michael J Maleska		2497
michael jershe		649
Michael jershe		7552
Michael Jordan		2590
Michael Jost		127
Michael Kelberer		3493
Michael Kiefer		4787
Michael Kiefer		3900
Michael Kinney		4902
Michael Kite		6046
Michael Kowalewski		38263
Michael Kriel		1642
Michael Lavely		22564
Michael Lemay		1627
Michael Lieberman		1861
Michael McLaughlin		4760
Michael Middleton		2655
Michael Miller		2162
Michael Monsor		484
Michael Monsor		22617
Michael Murray		90
Michael Nemanich		1105
Michael Nezworski		1158
Michael Nilius		2081

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1 Mining Truth: Comments on SDEIS	
Michael Nordin	1970
Michael Nordin	4439
Michael Novak	4343
Michael Okerstrom	10298
Michael Ouverson	9622
Michael Overend	6183
Michael Peters	592
michael rogers	22293
Michael Rose	1457
Michael Rowles	10243
Michael Schmidt	7589
Michael Seko	1816
Michael Selchow	3858
michael simon	6091
Michael Smith	4940
Michael Snitker	325
Michael Strom	9946
Michael Swan II	6468
Michael Tezla	737
Michael Trepkowski	2053
Michael Trostle	503
Michael Trostle	2446
Michael Walker	1744
michael wethington	4213
Michael Willemsen	7029
Michael Willemsen	38305
Michael Williams	2468
michael wilson	2055
michael wilson	6764
Michaela Beyer	57644
Micheal Erickson	665
Michele Angel	2268
Michele Bevis	3240
Michele Brusegard	36
Michele Brusegard	6477
Michele Duffy	1547
Michele Flatau	846
Michele Jimenez	1946
Michele Rinne	4205

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1 Mining Truth: Comments on SDEIS		
Michele Rinne		2580
Michele Sanders		3275
Michelle Egan		2556
Michelle Egan		57414
Michelle Garber		6675
Michelle Gobely		6695
Michelle Hensley		441
Michelle Juneau		2045
Michelle Juneau		9693
Michelle Kraft		2278
Michelle Lamb		2158
Michelle Laven		6000
Michelle Lovick		1622
Michelle Major		4281
Michelle Master		2112
Michelle McElroy		1930
Michelle Mcquillen		1272
Michelle Mcquillen		44134
michelle Melby		3315
michelle meyer		6453
Michelle Millenacker		2233
Michelle O'Meara		43281
Michelle Pettit de Dimayuga		40087
Michelle Prosser		1644
michelle ronning		3519
Michelle Sichak		1146
Michelle Valadez		4669
Michelle Walker		10107
Mick Wirtz		1993
Miel Paredes		2066
Mikala Bedor		3999
Mike and carol Blowers		174
Mike and Jane Conrad		536
Mike And Jane Conrad		4433
Mike And Jane Conrad		4518
Mike And Jane Conrad		4771
Mike And Jane Conrad		6802
Mike And Jane Conrad		10260
Mike And Jane Conrad		3975

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1 Mining Truth: Comments on SDEIS	
Mike Dahlheimer	4425
Mike Dahlheimer	10429
mike davies	9841
Mike Ferguson	1043
Mike Ferguson	22346
Mike Gleiter	2100
Mike Gleiter	10305
mike Granger	4830
Mike Haenisch	1786
Mike Hazard	7363
MIKE hippert	6486
Mike Holst	41496
Mike Justice	1867
mike kaufman	43181
Mike Link	2577
Mike McDonald	22487
Mike Menzel	21178
mike miller	41091
Mike Mooney	1125
Mike Mooney	37889
Mike Neaton	303
mike ohlinger	45879
Mike Peacock	20223
Mike Swan	10355
Mike Toppe	3320
Mike Troiber	1606
Mildred Holmes	5940
Mimi Jennings	331
Mimi Jennings	10147
Mimi Jennings	10713
Mina Blyly-Strauss	3284
Mina Blyly-Strauss	22633
Mindy Jost	57645
Mindy Marcus	9641
Miquel Medina	6413
Miranda Aulie	2630
Miriam Gingold	7406
Misha Jameson	9779
Mitch Rolfer	57646

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1 Mining Truth: Comments on SDEIS		
Mitchell Hancock		2623
MJ Anderson		549
MJ Bach		38111
Mollie Stapleton Clark		9312
Molly Donovan		2382
Molly Emery		620
Molly Grove		583
Molly Hasbrook		4555
Molly Johnson		3131
Molly Josefson		1373
Molly Josefson		4202
Molly Moore		10302
Molly O'Neill		22635
Molly Peaslee		4187
Molly Shearer		2422
Mona Delly		3259
Mona Smith		57647
Monaya Lund		2421
Monaya Lund		22410
Monica Gross		211
Monica Gross		4385
Monique Dubos		9511
Monique Dubos		57648
Monique La Croix		1673
Monique ORieux		3050
Monique yenamandra		22428
Montana Picard		1833
Monte Gomke		1907
Monte Gomke		6692
Morgan Little		9979
Mose Picard		1813
Mr. Evans		45996
Myrl Bohn		4186
Myrna Sorvari		1465
Myrna Sorvari		45987
Myron Nash		1181
N Ebbighausen		157
N Scheffler		2537
N Tritt		7612

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1 Mining Truth: Comments on SDEIS	
Nadine Wade	4714
Nadine Wade	7367
Naja Hayes	2540
nan stevenson	3567
Nance Duffy	1781
Nancy & Bill Andres	6766
Nancy Adams	3923
Nancy Alfuth	1374
Nancy Brunner	21702
Nancy Chase	1024
Nancy Chase	45769
Nancy Conger	206
Nancy D'Ambrosio	2471
Nancy Duncan	57649
Nancy Ellis	10945
Nancy Ellis	10946
Nancy Ellis	10955
Nancy Ensley	6143
Nancy Erickson	10397
Nancy Foudray	3551
Nancy Giguere	414
Nancy Grose	6742
Nancy Hale	1700
Nancy Hale	22185
Nancy Hale	44569
Nancy Hall	45476
Nancy Hauer	1678
Nancy Hauer	22490
Nancy Honeychuck	1632
Nancy Justice	233
Nancy Keegan	904
nancy krebs	6728
Nancy Long	3187
Nancy Long	37833
Nancy Mambi	22370
Nancy McCleary	45662
Nancy Mulhern	3466
Nancy Paddleford	22230
Nancy Partin	1578

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1 Mining Truth: Comments on SDEIS		
NANCY PATRICK		4654
NANCY PATRICK		7584
Nancy Persons		9681
Nancy Randleman		4152
Nancy Rich		2011
Nancy Robertson		38171
Nancy Robinson		1294
Nancy Robinson		21667
Nancy Root		1360
Nancy Root		45506
Nancy Salminen		2383
Nancy Sandberg		7690
Nancy Schmidt		4430
Nancy Schmidt		5997
Nancy Seymour		1147
Nancy Seymour		44661
Nancy Sinard		532
Nancy Solberg		21580
Nancy Solberg		44427
Nancy Strauss		21943
Nancy Van Lydegraf		3865
Nancy VanNurden		2658
Nancy Youngdahl		6311
Nanette Dupre		3220
Nanette Maunu		2548
Nat Gray		2526
Natalie Cook		57734
Natalie Hodapp		773
Natalie Hodapp		6541
Natalie Melcher		11331
Natalie Mickelson		1712
Natasha Meyer		15
Nate Arachikavitz		21941
Nate Scheibe		1422
Nathan Anderson		3316
Nathan Brytowski		3143
Nathan Dalman		4401
Nathan Duin		1604
Nathan Duin		22243

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Nathan Flinck	7619
Nathan HOFSTAD	21556
Nathan Moe	4948
nathan navarrete	4653
Nathan Ness	3842
Nathan Slettedahl	6013
Nathan Winkelman	847
Nathan Winkelman	45906
Nathaniel Freeman	3946
Neal Dimick	1094
Neala Schleuning	3906
ned bouril	7008
Ned Bouril	45670
Ned Netzel	9940
Neil Leisenheimer	7693
Neil Nelson	187
Neil Sorensen	2325
Neil Sorensen	7420
NEIL STECKER	6563
NEIL STECKER	21774
Neil Stecker	43655
Nell Graham	9935
Nettie Monroe	4452
Nicholas Bingham	4431
Nicholas Caine	1675
Nicholas Eltgroth	471
Nicholas Johnson	9471
Nicholas Loch	6096
Nicholas Loch	4052
Nicholas Pyper-Holz	6663
Nicholas Stephens	57650
Nicholas Sunsdahl	11255
Nicholas Theis	4172
Nicholas Woods	7122
Nichole Held	4516
Nichole Norman	3921
Nichole Simmer	7139
Nick Balcom Raleigh	4240
Nick Brakel	57651

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1 Mining Truth: Comments on SDEIS		
Nick Brogren		57652
Nick Eide		6781
Nick Jorgenson		11369
Nick Kowalewski		38239
Nick Murray		10220
Nick Scholtes		2532
Nick Scholtes		10121
nicolaus bauman		4682
Nicole Deziel		2132
Nicole Doyle		2616
Nicole Everling		2232
Nicole Everling		4853
Nicole Everling		41131
Nicole Hansel		1876
nicole hendrickson		3356
nicole hendrickson		7317
Nicole Menard		7731
Nicole Ostrander		22610
Nicole Rom		9470
Nicole Sippola		6240
Nicole Stjernsward		2595
Nicole Weber		9948
Nik Anderson		57653
Nila Ouska		2555
Nila Ouska		4520
Nisha ambesh		10419
Nishiime Peltier		1984
nita peterson		6744
Noah Day		699
Noah Royer		4568
Noah Shavit-Lonstein		1809
Nora Nell Hamburge		267
Nora Nell Hamburge		10409
Nora Rickey		3249
Nora Whitmore		3269
Nora Whitmore		57654
Nora Whitmore		57655
Noreen Shaughnessy		47631
Norita Escuro		4943

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1 Mining Truth: Comments on SDEIS	
Norm Schiffman	517
Norm Schiffman	2159
Norma Falink	41046
Norma Grant	1496
Norma Witter	2659
Norma Witter	4393
Norman Boucher	4552
Norman Page	2357
O. William Bruins	2104
Oksana Raksin	38665
Olivia Dains	7638
Olivia Nilsson	57656
O'Neill Louchard	7431
O'Neill Louchard	7759
Ordell Vee	1709
ordell vee	6551
ordell vee	3983
Orren Fen	6736
Orrin Scholberg	38095
Owen Gustafson	1626
Owen Gustafson	22362
Owen Justin	1088
P Netzel	4776
P. Mccauley	2483
P. McCauley	4904
Paige de Wees	6746
Paige Guggemos	6005
Pam Bomstad	57657
Pam Carlson	2108
Pam Christoferson	6755
Pam Langley	4665
Pam Leland	136
Pam Leland	3211
Pam OShea	22181
Pam Skinner	1217
Pam Skinner	4624
Pam Thinesen	1037
Pam Videen	2379
Pam Videen	4910

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1 Mining Truth: Comments on SDEIS		
Pamela Brock		9630
Pamela Cecka		57658
Pamela Clinton		6727
Pamela DeWolf		372
Pamela Dewolf		1797
Pamela Dorris		48
Pamela Googe		2106
Pamela Grabinski		953
Pamela Grabinski		979
Pamela Henjum		4673
Pamela Henjum		22609
Pamela Ivonen Zbacnik		1056
Pamela Jambeck		21532
Pamela Needham		7696
Pamela Novotny		1198
Pamela Novotny		6446
Pamela Reynolds		4574
Pamela Walhovd		226
PAMELA YATES-WATSON		377
Pamela Zbacnik		6745
Pamylle Greinke		1723
Parker Breza		1474
Parker J. Palmer		2481
Pat Ament		6122
Pat Forster		1245
Pat Gagliardi		22571
Pat Gottschalk		4680
Pat Halter		22607
Pat Halter		44799
pat helmberger		383
Pat Kerlun		47674
Pat Makowski		1052
Pat Makowski		44936
Pat Mcnabb		57415
Pat Nudd		6415
Pat Pratt		6210
Pat Pratt		3825
Pat Ruff		57416
Pat S.		22562

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1 Mining Truth: Comments on SDEIS	
Pat Stevesand	89
Pat Stevesand	867
Pat Sullivan	7530
Pat Thielman	41525
Pateen Rasmussen	6523
Patrice Winfield	45206
Patricia Arnett	6021
Patricia Benbow	1166
Patricia Berntsen	10233
Patricia Castellano	57417
Patricia Davis	7494
Patricia Johnston	411
Patricia Keefe	21513
Patricia King	1944
Patricia Lange	3935
Patricia Loverink	3142
Patricia Loverink	7536
Patricia Loverink	21904
Patricia McCallister	38482
Patricia McNabb	21729
patricia nelson	7446
Patricia Oberle	2691
Patricia Orth	520
Patricia Orth	22348
Patricia Polasky	10369
Patricia Richard-Amato	1117
Patricia Richard-Amato	21948
Patricia Richard-Amato	45290
Patricia Ryan	6478
Patricia Ryan	3917
Patricia Scott	57659
Patricia Shaw	3331
patricia shepard	6738
Patricia Shepard	4089
Patricia Smith	10206
Patricia Sobczak	4826
patricia turbes-mohs	4905
Patricia Wasser	1101
Patricia Wilander	57418

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1 Mining Truth: Comments on SDEIS		
patrick caspers		6033
Patrick Christie		9694
Patrick Coleman		44249
Patrick Divine		1541
Patrick Divine		45569
Patrick Honer		7598
Patrick Leitschuh		1039
Patrick Livieri		3404
patrick mailhiot		2339
Patrick Murn		44842
Patrick Nash		45768
patrick needham		5980
Patrick Pawlowski		3156
Patrick Thibault		2509
Patrick Warren		6726
Patsy Huberty		39409
Patti and Millard West		515
Patti and Millard West		535
Patti And Millard West		46005
Patti Donaldson		657
patti dykoski		57419
Patti Eckert		22491
Patti Indre		6442
Patti Istvanovich		40966
Patti Rogness		57420
Patti Yaritz		3281
patty bracey		41528
Patty Bracey		45970
PAtty Dietman		4383
Patty Skogrand		1069
Patty Wilander		10191
Paudeen Ostenson		44156
Paul Austin		272
Paul Behrens		3955
Paul Biker		1064
Paul Busch		118
Paul Clark		2181
Paul Daigle		44
Paul Densmore		1620

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1 Mining Truth: Comments on SDEIS	
Paul Densmore	10241
Paul Densmore	22500
Paul Ewert	6611
Paul Finsness	2155
Paul Frank	2069
Paul Frank	45079
Paul Ganther	1319
Paul Gustad	2372
Paul Hagen	57660
Paul Harris	2237
Paul Herzog	547
Paul Lambert	57661
Paul Lehman	639
Paul Lennartson	9621
Paul Love	1223
Paul Love	44905
Paul Magee	1168
Paul Mandell	367
Paul Mandell	1862
Paul McConville	57662
Paul McCormick	2076
Paul MCCormick	52205
Paul Miller	1711
Paul Nasvik	2292
Paul Nelson	7580
Paul Perkal	1755
Paul Podemski	1706
Paul Puttlitz	1475
Paul Rech	6472
Paul Renneisen	3140
Paul Richtman	1999
Paul Sayen	469
Paul Sayen	3063
Paul Sayen	6677
Paul Snyder	2528
Paul Sorenson	2371
Paul Springstead	22642
Paul Stephens	2604
Paul Swanstrom	214

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1 Mining Truth: Comments on SDEIS		
Paul Tolzmann		914
Paul Uecker		38537
Paul Vonharnish		1403
Paul Wilberg		4572
Paul Wilberg		10124
Paul Wittmer		1664
Paula Benson		38299
Paula Connolly		6040
Paula Fischer		1206
Paula Fischer		1978
Paula Fischer		6236
Paula Fox		1211
Paula Fox		4467
Paula Fox		7381
Paula Fox		21899
Paula Hess		3568
Paula Jensen		1985
Paula King		7500
Paula King		7504
Paula Kwakenat		41100
Paula Mair		4949
Paula Mercurio		571
Paula Mercurio		6028
Paula Mullin		3372
Paula Perdoni		38240
Paula Rusterholz		2052
Paula Rusterholz		6489
Paula Sieve		57421
Paula Thomsen		57422
Paulette Tanem		3859
Pauline Callahan		644
Pauline Wahlquist		3417
Pauline Wahlquist		7551
pauline wolf		40537
pauline wolf		43438
Peder Engelstad		7023
peg cruikshank		4881
Peg Meyer		6087
Peg Miller		22643

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1 Mining Truth: Comments on SDEIS	
Peg Sutherland	436
Peg Sutherland	6720
Peggy Brennan	5929
Peggy Endres	2518
Peggy Endres	22555
Peggy Endres	45560
Peggy O'Neil	38320
Peggy Roeske	266
Peggy Sannerud	271
Penelope Anderson	522
Penelope Anderson	40605
Penelope Rose	38567
Penni Norman	4191
Penni Norman	4192
Penny Myers	38
Penny White	10780
Per Lundmark	641
Perry Roberts	983
Perry Scott	3107
Pete Krausert	57663
Peter Aas	679
Peter Bachman	44328
Peter Branca	2690
Peter Brask	4777
Peter Buchholz	356
Peter Christenson	1998
Peter Doughty	1859
Peter Dyck	1103
Peter Erickson	10344
Peter Fetsch	1277
Peter Fetsch	57664
Peter Fleming	4415
Peter Geltat	1793
Peter Glick	1593
Peter Grandahl	3206
Peter Groynom	11248
Peter Habig	45736
Peter Harle	162
Peter Jarvis	4129

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1 Mining Truth: Comments on SDEIS		
Peter Kogan		1259
Peter Kvale		375
Peter Lander		4053
Peter Lonnquist		4042
Peter Lyle		1040
Peter Marty		7118
Peter Molenaar		935
Peter Molenaar		45963
peter nichols		4539
Peter Pierson		2341
peter ravinski		4621
Peter Rutten		1200
PETER SCHULZE		4167
Peter Schurke		1898
Peter Spooner		4768
Peter Spooner		57665
Peter Swentik		1071
Peter Vaughan		10293
Peter Veits		1439
Peter Veits		1848
Peter Veits		4877
Peter Vogen		10138
Peter Warner		465
Peter Williamson		6050
Phedra Larson		1683
Phedra Larson		45141
Phil Thouin		984
Philip Bratnober		45499
Philip Friedlund		21695
Philip Hogan		57423
Philip Kerler		22423
Philip Mestenhauser		41101
philip nimps		37848
Philip Rampi		6657
Philip Ricketts		257
Philip Ricketts		45500
Philipp Gross		1906
Phillip Kelly		3600
Phillip McGee		987

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1 Mining Truth: Comments on SDEIS	
Phillip Smith	6018
Phillip Smith	7335
Phyliss Hoffman	3257
Phyllis Kerr	4927
Piergiorgio Rosetti	943
pierre george	43158
Piper Wall	9742
Polly Dedrick	44498
Porter Truax	6500
Preston Meyer	223
Printha Moe	6055
Priscilla Sohn	20764
Quillan Roe	9583
Quillan Roe	45887
R Thull	156
R. Fitzgerald	38550
R. Grant Hawthorne	1609
R. Malcolm Ramsay	2255
Rachael Kilgour	4471
Rachael Kozlowski	1693
Rachael McGraw	57667
Rachel Augusta	6358
Rachel Byington	57668
Rachel Chrastil	4790
Rachel Engstrom	726
Rachel Engstrom	57669
Rachel Imholte	1625
rachel imholte	2245
Rachel Johnson	4124
Rachel McDonnell	6713
Rachel Minerich	1875
Rachel Murray	3986
Rachel Pickering	1544
Rachel Reichstadt	57670
Rachel Rouse	10365
Rachel Scharfenberg	45845
Rachel Scharfenberg	45870
Rachel Zerby	10276
Raina Riedesel	168

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1 Mining Truth: Comments on SDEIS		
Raina Riedesel		7144
Raina Riedesel		4072
Ralena Young		7724
Ralph Baumgartner		3397
Ralph Widmer		2019
Ralph Widmer		2021
Ramona Kopnick		2374
Ramona Nickell		10402
Ramona Salden		3346
Randall Lake		3799
Randall Smith		560
Randall Streier		2122
randall streier		40498
randi robinson		21870
Randon Lund		6204
Randy Crowe		1639
Randy Kabitz		3088
Randy Nies		2601
Randy Nies		22245
Ray Becker		207
Ray Becker		7633
Ray Becker		10163
RAY EARLEY		3135
RAY EARLEY		4757
Ray Fenner		2524
Ray Fenner		45592
Rebecca Bruner		2040
Rebecca Gislason		22654
Rebecca harnik		10067
Rebecca Jones		4290
Rebecca Lystig		1890
Rebecca Lystig		6409
Rebecca Lystig		7485
Rebecca Maas		4232
Rebecca Miller		2557
rebecca nash		10412
Rebecca Rose		38327
Rebecca Schaeppi		83
Rebecca Schrupp		586

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1 Mining Truth: Comments on SDEIS	
rebecca vincent	4886
Rebecca Wiinanen	280
Rebekah Jorgensen	41430
Rebekah Jorgensen	45225
Reed Aronow	2061
Reed Wilson	2767
Regena Sorrell	6667
Regina Browne	7113
regina kijak	6566
regina kijak	38426
Regina Magnuson	4622
Reginald Evans	4110
Reid A. & Laura K. Zimmerman	925
Reid A. & Laura K. Zimmerman	7503
Reid A. & Laura K. Zimmerman	45663
Reilly Tillman	57671
Ren Stinson	5941
Rena Rogers	6261
Renae Bethke	41287
Renee Keller	115
Renee Keller	44728
RENEE LUREEN	3034
Renee Nelson	1607
Renee Reece-Murray	3110
Renee Reece-Murray	21734
Renee Reece-Murray	3828
Renee Stevens	1567
Retha Dooley	4721
Rev. Edwin Martin	1188
Rev. Edwin Martin	44335
Rev. Ernest S. Harris	2466
Rev. Ernest S. Harris	4924
Rev. Rebecca Voelkel	1715
rhesa schwartz	101
Rhiannon Nelson	6469
Rhiannon Nelson	7520
Rhiannon Nelson	44848
Rhoda Gilman	2387
Rhoda Liebo	781

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1 Mining Truth: Comments on SDEIS		
Rhonda Halverson		10213
Rhonda Smith		10745
Rica Berglund		6655
Rica Berglund		9572
Rich Kronfeld		38123
Rich Prewett		38270
Richard Arpi		10111
Richard Ball		6157
Richard Bergeron		446
Richard Bergeron		1218
Richard Borken		1558
Richard Boroos		45961
Richard Boroos		3817
Richard Bransford		9781
Richard Buchholz		1221
richard buchholz		1238
Richard Carlson		45386
Richard Caswell		463
Richard Caswell		1572
Richard Caswell		22503
Richard Class		1499
Richard Cochrane		3800
RICHARD Colombini		512
Richard Colombini		1402
Richard Colombini		45080
Richard Edwards		53
Richard Elliott		2220
Richard Erickson		3321
Richard Evenson		21609
Richard Fillmore		902
Richard Fish		1577
Richard Gould		4841
Richard Graves		4794
Richard Gravrok		4730
Richard Hansen		4819
Richard Hansen		4857
Richard Heilman		518
Richard Heimkes		38078
Richard Lamb		623

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1 Mining Truth: Comments on SDEIS	
Richard Lamb	6435
Richard Lamb	7390
Richard Lamb	22174
Richard Lamb	44143
Richard Libbey	1096
Richard Lindahl	740
richard meierotto	9696
Richard Morton	2550
Richard Nethercut	6119
Richard Novy	10119
Richard Ogren	4495
Richard Olson	2504
Richard Olson	4888
Richard Olson	45909
Richard Olson	45974
Richard Ouren	1121
Richard Ouren	2430
Richard Owens	41291
Richard Phillips	10194
Richard Polly	38213
Richard Rosengren	3362
Richard Ruth	21826
RICHARD SCHMIDT	7627
Richard Segers	947
Richard Stolp	1179
Richard Townsend	6051
Richard W Johnson	759
Richard W Weigel	57673
Richard W Weigel	57674
Richard Wielkiewicz	22419
Richard, Mammel	1110
Richard, Mammel	2501
Richard, Mammel	2769
Richard, Mammel	4950
Richard, Mammel	6532
Richardson Bentley	1756
Richardson Bentley	4860
Rick Arthur	46334
Rick Cochrane	10131

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1 Mining Truth: Comments on SDEIS	
Rick Dahn	1301
Rick Dahn	4641
Rick Dahn	57425
Rick Fry	4209
Rick Monteith	21184
Rick Olsen	45232
Rick Oswald	3470
Rick Oswald	44945
Ricki Schroeder	21200
Rik Pohlman	1112
Rik Pohlman	44991
Riley Nelson	57675
rima keprios	3066
Rishi Freejoy	22352
Rita Caruso Santamaria	2593
Rita Caruso Santamaria	41478
Rita Caruso Santamaria	43922
Rita Caruso Santamaria	43924
Rita Caruso Santamaria	45895
Rita Clapper	499
Rita Clapper	1599
Rita Guderian	1674
Rita Guderian	4417
Rita Iacarella	1843
Rita Penrod	9764
Rita Salner	38345
Rita Tester	2389
RJ Ulrich	427
RM Krebs	22506
Rob Becker	1351
Rob Davis	6282
Rob Grunewald	6221
rob martin	2426
rob maxfield	22565
Rob Russell	7498
Robbin Zimmerman	1382
Robbin Zimmerman	7188
Roberrt Chasson	57426
Robert Allanson	10420

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1 Mining Truth: Comments on SDEIS	
Robert Allen	1628
Robert Allen	45897
Robert and Paula Lund	599
Robert and Paula Lund	44337
Robert Bastian	2365
Robert Beaudoin	9541
Robert Beaudoin	45747
Robert Benito	38117
Robert Bjornson	407
Robert Brabbit	2393
Robert Brown	9744
Robert Bullis	2028
Robert Chase	2121
Robert Clark	3332
Robert Clark	4811
Robert Coughlen	237
Robert Davis	2484
Robert Davis	2606
Robert Desjarlait	1516
Robert E. Werschay	6538
Robert Foster	5968
Robert Fried	466
Robert Fried	45764
Robert Gerhardt	7027
Robert Gulliver	2656
Robert Gulliver	41479
Robert Haarman	122
Robert Hardman	1266
Robert Herskovitz	2619
Robert Hovelson	20747
robert hudnut	4620
Robert Hurst	283
Robert Hurt	41077
ROBERT ILSE	57677
Robert Janssen	43151
Robert Johnson	1076
Robert Kaiser	1192
Robert Kampf	71
Robert Keskitalo	1552

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1 Mining Truth: Comments on SDEIS		
Robert Kohlmeier		10108
Robert Kosuth		6638
Robert Lukes		10130
Robert Mcmanus		684
Robert McManus		6447
Robert Mcmanus		22501
Robert Meyer		3147
Robert Meyer		4565
Robert Miller		21728
Robert Morris		417
Robert Narveson		22310
Robert Partyka		6795
Robert Powell		6533
Robert Puls		751
Robert Puls		3533
Robert Puls		4633
Robert Puls		4764
Robert Puls		45397
Robert Rodenz		1347
Robert Schmitz		1885
Robert Schuette		36452
Robert Seidel		10215
Robert Shoemaker		43921
Robert Sorensen		7492
Robert Sothern		977
Robert Sothern		45658
Robert Spurr		604
Robert Sunderlin		1967
Robert Sunderlin		4593
Robert Sunderlin		6063
Robert Tautges		1746
Robert Taylor		874
Robert Thomas		4204
Robert Tisdale		2355
Robert Townsend		38324
Robert W Nicholson III		110
Robert W. Huff Huff		9654
Robert Weinstock-Collins		4426
Robert Werschay		1624

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1 Mining Truth: Comments on SDEIS	
Robert Winberg	6480
Robert Wohlberg	7505
Robert Wohlberg	45752
Robert Woodbury	1615
Robert Woodbury	2354
Robert Yorga	7155
Roberta Avidor	1662
Roberta Foster	9699
Roberta Hanson	2298
Roberta Haskin	1684
Roberta Haskin	22086
Roberta Hodgdon	22629
Roberta Testor	4182
Robin and James McWethy	6698
Robin Godolphin	9623
robin hensel	113
Robin Kyle	3516
Robin Lindberg	3097
Robin Lindberg	6389
Robin Lindberg	57679
Robin Moir	6244
Robin Moore	1987
Robin Murie	4438
Robin Poppe	6225
Robin Rush	3599
Robyn Hanson	41207
robyn reed	408
Robyn Reed	9669
Rod Smith	3574
Rod Smith	1537
Rodney Allen Schwartz	349
Rodney Allen Schwartz	2523
Rodney Allen Schwartz	45975
Rodney Loper	685
Roger Andre	457
Roger Andre	10274
Roger Aus	2049
Roger Davis	1128
Roger Garton	4941

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1 Mining Truth: Comments on SDEIS		
Roger Hippert		273
Roger Johnson		3527
Roger Kiemele		45291
Roger Kiemele		3981
Roger Merrill		22563
roger porter		313
Roger Ritzman		4824
Rogier Gregoire		38198
Roland Sigurdson		38373
Rolf Jacobson		4259
Roma Leuty		7204
Rome Hutchings		10154
Romie Behr		2063
Ron Alden		3538
Ron Fiemann		804
Ron Fiemann		45871
Ron Gandrud		1654
ron henely		47409
Ron Hunt		22558
Ron Miles		10777
Ron Mittan		1424
Ron Mittan		21940
Ron Parker		3996
Ron Pautz		3086
Ron Rust		6647
Ron Wetzell		4428
Ron Wilson		20898
Ronald Larsen		45765
Ronald Leurquin		628
Ronald Liljedahl		7461
Ronald Liljedahl		9495
Ronald Liljedahl		9651
Ronald Palm		6732
Ronald Stokesbary		20754
Roni Henry		7072
Rory Cardinal		7026
Rory Cardinal		10867
Rosalie Pierce		956
Rosalyn Bailey		22431

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1 Mining Truth: Comments on SDEIS	
Rose Hood	56
Rose Hughes	1467
Rose Johnson	19854
Rose Marie Assad	1806
Rose Marie Assad	39848
Rose McMurray	57427
Rose Pane	9674
Rose Ramsey	4630
rose reimert	4068
Rose Thelen	1658
Roseanne Rivers	19982
Roselle Wagner	5967
Rosemary Goff	20782
Rosemary Johnston	10291
Rosemary Kelly	734
rosie storie	39967
Roslynn Bystedt	1795
Ross Anderson	3250
Ross Hackenmiller	7455
ross thompson	3353
Rowan Glaser	32
rox s	22552
Roxana Allen	2306
Roxanne Brown	1501
Roxanne Gould	607
Roxanne Gould	22577
roxanne hagge	45485
Roxanne Kalk	545
Roy Hagen	22553
Roy Jones	10221
Roy Rudderforth	9589
Rubin Latz	57680
ruby mandery	4083
Rudy Perpich	1665
Russ Haywood	2647
Russel Ferguson	4027
Russel Kuschel	57681
Russell Angus	22244
Russell Hobbie	2257

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1 Mining Truth: Comments on SDEIS		
Russell Lake		6555
Russell Petricka		1240
Russell Wallin		7032
Russell Wallin		3861
Ruth Brooker		409
Ruth Brooker		1669
Ruth Fletcher Gage		6743
Ruth Lindh		9883
Ruth Milas		42310
Ruth Murman		22424
ruth reeve		57682
Ruth Slivken		6035
Ruthann Ovenshire		1176
Ryan Adamson		6284
Ryan Bergstrom		4936
ryan britton		822
Ryan Britton		44943
Ryan Flanders		57683
Ryan Handeland		57428
Ryan Kelley		2321
Ryan Kieffer		21606
Ryan Kompelien		3644
Ryan Kompelien		6684
Ryan Mallek		3058
Ryan Marquette		884
Ryan Mooreson		2305
Ryan Moran		7647
Ryan Niemi		6700
Ryan Pelowski		38329
Ryan Pelowski		45733
Ryan Ronchak		3307
Ryan Skinner		6546
Ryan Smith		2248
Ryan Solem		57684
Ryan Stegeman		957
Ryan Tischer		9829
Ryan Waring		40967
Ryan Warwick		4327
Ryan Warwick		4737

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1 Mining Truth: Comments on SDEIS	
Ryan Willaert	7718
S Brumbaugh	4561
S C	2611
S C	4307
S C	6734
S Eberly	2521
S Garbisch	3844
S Pool	10418
S. M. Plummelle	4706
S.A. Martinson	57429
Sadaf Pruitt	10345
Saera Jacques	2638
Sal Gati	6248
Sally Brisbois	41422
Sally Brown	22372
Sally Christenson	1265
Sally Christenson	38383
Sally Downing	395
Sally Fineday	2386
Sally Johnson	1908
Sally Johnson	46247
Sally Nankivell	3215
sally perry	4324
Sally Perry	7075
sally roach	6747
Sally Ruvelson	7196
Sally Sundeen	6685
Salvatore DiVita	9531
salvatore salerno	519
Sam Jurkovic	17
Sam Larsen-Ferree	1765
Sam Larsen-Ferree	6054
Sam Luoma	6801
Sam Sweetser	9884
Samantha French	9726
Samantha Miller	1380
Samantha Miller	3829
Samantha Smith	5916
Samuel Benson	3046

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1 Mining Truth: Comments on SDEIS		
Samuel Schuweiler		848
Samuel Schuweiler		57687
SAMUEL WATKINS		57688
Sande Favreau		4769
Sandi Krueger		109
Sandi Krueger		57430
Sandra Agens		6152
Sandra Baxter		3855
Sandra Berg		7753
Sandra Block		4464
Sandra Block		7553
Sandra Coates		3395
Sandra Graves		44928
sandra henkels		850
Sandra Henkels		4237
sandra johnson		85
Sandra Johnson		1073
Sandra Larson		7746
Sandra Lavin		6441
Sandra Lien		45904
Sandra Livingston		1243
Sandra Marchio		1491
Sandra Nekola		3305
Sandra Olmsted		4298
Sandra Peterlin		38183
Sandra Peterson		21821
sandra pranschke		704
Sandra Stanley		3112
Sandra Stanley		3902
Sandra Swanson		2469
Sandra Thomsen		2632
Sandra van den Bosse		9509
Sandra Wolfe Wood		470
sandy bergeron		389
Sandy Dvorsky		1420
Sandy Jacobs		6505
Santana Xayavong		3044
Saoirse McMahon		7665
sara achartz		57689

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1 Mining Truth: Comments on SDEIS	
Sara Ahlers	1314
Sara Berglund	6529
sara Berglund	22021
Sara Bible	6599
Sara Brokaw	2091
Sara Cooper	6144
Sara Cowen	1087
Sara Dusbabek	4627
Sara Hill	150
Sara Linn	3836
Sara McKay	2476
Sara Randall	4724
sara sherva	7360
Sara Thomsen	4744
Sara Wyatt	46713
Sarah Aadland	2567
Sarah Alexander	4813
Sarah Ananthan	45389
Sarah Aune	9317
Sarah Bell	6165
Sarah Bertsch	38226
Sarah Burnison	6653
Sarah Campbell	3279
Sarah Cartwrkight	9648
Sarah Chambers	570
Sarah Fazio	10695
Sarah Forbes	1807
Sarah Freske	57431
Sarah Gontarek	5928
Sarah Hayes	1872
Sarah Lukins	10390
Sarah Mann	879
Sarah Manney	45360
Sarah Marquardt	2274
Sarah Miles	57690
Sarah Murray	6193
Sarah Nettleton	4650
Sarah Pauza	9853
Sarah Peterson	7217

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1 Mining Truth: Comments on SDEIS		
Sarah Poznanovic		4795
Sarah Seufert		22169
Sarah Seufert		3893
Sarah Stegeman		9290
Sarah Swindle		38179
SARAH TAVIS		4371
Sarah Wagner		202
Sarah West		3550
saraphine metis		6748
saraphine metis		38402
saraphine metis		44486
Sarina Otaibi		3019
Satail Tailin		7725
Savannah Lee		5999
Schelly Mosey		2056
Schelly Mosey		2059
scot bol		2552
Scot Kindschi		989
Scot Mahan-Miller		3082
Scot Stephenson		7356
Scotland Steele		7593
Scott Coryell		2395
Scott Daby		4865
Scott Dulas		2582
Scott Dulas		38139
Scott Dulas		38543
scott einbinder		4875
Scott Engelman		448
Scott Gensmer		21048
Scott Graham		179
Scott Grieve		21239
Scott Grundtner		57691
scott haskins		2439
Scott Laderman		41453
Scott Merschman		6589
Scott Meyer		7697
scott Nordhausen		7018
Scott Ralston		10370
scott Rodbro		57692

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
scott rous	4148
Scott Sanville	4244
scott shonka	6082
Scott Teska	22592
Scott Velie	2001
Scott White	2107
Scott Wolfe	57693
Scott Wright	22101
Sean Alter	1329
Sean Baker	4033
Sean Corrigan	1030
Sean Ferrell	4132
Sean Haugen	482
Sean Hildesheim	7715
Sean Indrelie	1148
Sean Koebele	4296
Sean Mayo	10151
Seldon Caswell	2092
selma jackson	931
Serena Lynch	4501
Seth Bliss	2416
Seth Kuhl-Stennes	3217
Seth Schramm	3051
Seymour Gross	797
Seymour Gross	6509
Shaleta Scott	1349
Shana Antonissen	7542
Shanin Terrell	45311
Shanin Terrell	57694
Shanin Terrell	57695
Shannon Brennan	7686
Shannon Bullock	1698
Shannon Doll	3282
Shannon Engelman	835
Shannon Engelman	849
Shannon Harrington	3031
Shannon Heier	6702
shannon lanning	421
shannon lanning	21703

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1 Mining Truth: Comments on SDEIS		
Shannon Leavitt		2648
Shannon Leavitt		44450
Shannon Lynch		1886
Shannon Martin		593
Shannon Martin		3961
Shannon O'Neil		2160
Shannon Petersen		7154
Shannon Snyder		1651
Shar Bjerke		10853
Sharel Waugh		6017
Shari Larkin		2231
Sharlene Bjerke		1681
Sharon Anderson		22554
Sharon Baker		10208
Sharon Becklin		2270
Sharon Butz		2435
Sharon Clark		21767
Sharon Collins		2116
Sharon D'Amico		6799
Sharon Day		57432
sharon day		57696
Sharon Donohue		21730
Sharon Fischtrom		22596
Sharon Fortunak		1133
Sharon Fortunak		22636
Sharon Fortunak		41204
Sharon Gaskill		4595
Sharon Hahn		3318
Sharon Hilberer		39850
Sharon Johnson		6740
Sharon Kind		1968
Sharon Krumme		6535
Sharon Lemay		1504
Sharon Meister		21531
Sharon Natzel		43415
Sharon Palmer		1224
Sharon Perna		1893
sharon powell		881
Sharon Roe		9666

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
sharon ruetschi	57433
SHARON SWANSON	9295
Sharon Toscano	1904
Sharon Wieners	6406
Sharon Wildfang	38282
Sharron D	22229
Sharron Doran	1235
Shaun Darst	3839
Shawn Amundson	3212
Shawn Conrad	3782
Shawn McBurnie	1783
Shawn Nicol	57697
Shawn Rummel	3060
Shawn Sears	224
Shawn Willy	52207
Shawn Willy	57704
Shawna Mulleneardley	2251
Shay Forstrom	37879
Sheila Bell	382
Sheila Bell	22597
sheila conlin	4546
Sheila Johnston	4031
sheila maybanks	6520
Sheila Maybanks	45221
Sheila Novak	7168
Sheila Packa	1650
Sheila Paul	10425
Sheila Schally	92
Sheila Schally	1529
Sheila Schally	1971
Sheila Tatone	9727
Sheila Tatone	45832
Shelby Flanagan	330
Shelby Trushenski	3186
Shelby Vaske	3183
sheldon ajax	2046
Sheldon Damberg	22178
Sheldon/Carol Damberg	6419
Shelley Strohmaier	4026

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1 Mining Truth: Comments on SDEIS	
Shelli Ainsworth	38272
Shelly Babusek	45379
Sherman Handberg	82
Sheronne Mulry	38297
Sherri Gallant	4266
Sherri Leyda	45207
Sherri Leyda	57434
Sherri Leyda	57698
Sherri Mann	6133
Sherrie Lindskog	57435
Sherril NOLAN	141
Sherry Ellefson	3077
Sherry Wendelin	3646
Sherry Williams	1023
Sheryl Dee	4239
Sheryl Dee	10143
Sheryl Pethers	4509
Sheryl Thornton	4243
Shirley Barten	601
Shirley Barten	7182
Shirley Duke	4585
Shirley Duke	4189
Shirley Espeland	21935
Shirley Huskins	2147
Shirley Huskins	22489
Shirley Johnson	5915
Shirley Johnson	4046
shirley murray	22304
Shirley Peroutka	10301
Shirley Scott	10411
Shonie Buenvenida	1095
Shriyanka Harrison	1850
Shriyanka Harrison	10146
Shylan Rose	7019
Sidney Harring	2315
simon hardy	9944
Simon Haynes	37923
Simone Anzion	1400
Sini Ross	10430

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Siri Imsland	500
Siri Simons	4194
Skip Aldrich	45955
Skylar Joseph	2625
Skylar Joseph	2631
SL Marques	4837
solfrid ladstein	3290
solfrid ladstein	6493
solfrid ladstein	10332
solfrid ladstein	11354
solfrid ladstein	45989
solfrid ladstein	46249
Sonia Albers	2445
Sonia Ellison	259
SONIA GATT	44795
Sonja Beddow	4944
Sonja Olson	6560
Sonja Peterson	4398
Sonja Peterson	6257
Sonya Meyer	72
Sonya Mirus	2148
Sophia Pellizzer	3919
Sophia Peterson	1256
Sophia Showalter	3927
Spencer Blaw	1195
Spencer Brant	4728
Spencer Stachowski	239
Stacey Burns	7179
Stacey Mackay	3992
stacey quade	3325
Stacey Ringness	800
stacey ringness	22004
Stacey Rudoy	1582
Stacia Nelson	11338
Stacy Arland	4822
stacy lease	57436
stacy myers	4531
stacy perrizo	7734
stacy perrizo	10357

Sender Name		Submission ID
1 Mining Truth: Comments on SDEIS		
Stacy Wahl		3358
Stan Hunter		2345
Stan Manusky		3810
STANLEY OWENS		3484
Starr Notarus		22508
Stashenko Hempeck		3997
Stefan Gildemeister		4424
Stefan Hupperts		1476
Stefanie Benham		9296
Stefanie Landman		1368
Stephanie Aaron		2015
Stephanie Daigle		2167
Stephanie Foster		47710
Stephanie Hall		47729
Stephanie Hoepner		2562
Stephanie Johnson		45994
stephanie johnson		57699
Stephanie Klasi		6392
Stephanie Klasi		4193
Stephanie Lawson		1196
stephanie lawson		3129
stephanie lawson		3898
Stephanie Lof		37873
Stephanie Malcy		1387
Stephanie Pearson		1758
Stephanie Pearson		45737
Stephanie Pinkalla		3365
Stephanie Pranschke		1003
stephanie ruona		3297
Stephanie Scheibe		5987
Stephanie Schleuder		533
Stephanie Serres		1928
Stephanie Sharp		9942
Stephanie Thoe		7751
Stephanie Walker		1981
Stephen Anderson		9706
Stephen Bruner		6719
Stephen Erickson		498
Stephen Erickson		2511

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1 Mining Truth: Comments on SDEIS	
Stephen Erickson	7489
Stephen Erickson	10183
Stephen Erickson	43410
Stephen Girard	1131
Stephen Girard	6530
Stephen Huntley	44245
Stephen Janasie	57700
Stephen Jay	1489
Stephen Jay	3181
Stephen Krmpotich	2079
stephen law	6155
STEPHEN MCNEIL	2544
Stephen nelson	2398
stephen samson	3525
Stephen Streed	1397
Stephen Streed	22242
Stephen Streed	41045
Stephen Streed	45979
Stephen Streed	47607
Stephen Wensman	4436
Stephen Wilbers	7739
Stephen Wilbers	44241
Stephen Wunrwo	3062
Stephen Yahn	2513
Stephen Yahn	4672
Stephenie Smith	10366
steve bittner	4197
Steve Blexrud	4712
Steve Bonesho	9643
steve clarke	6623
steve clarke	57701
Steve Davidson	1722
Steve Fester	1464
Steve Fester	6326
Steve George	1521
Steve Hall	1279
Steve Hall	6414
Steve Hall	44562
steve hoff	2629

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Steve Huss	1741
Steve Jacobson	3989
Steve Johnson	6395
Steve Jones	3579
Steve Jorgenson	57702
Steve Klopp	2384
Steve Koschak	45302
steve kuhn	57705
Steve Lampman	1452
steve lampman	2519
steve lampman	57706
Steve Landis	2862
steve law	4370
Steve Malone	52280
Steve Mark	57707
Steve Marquardt	2340
Steve Michaud	1275
Steve Peterson	9507
Steve Peterson	45380
Steve Prchal	45813
Steve Seitz	3130
Steve Sikora	3610
Steve Sikora	2177
Steve Sklar	1246
Steve Sklar	3381
Steve Sklar	45898
Steve Sotak	327
Steve Sotak	2086
Steve Sotak	45477
Steve Sundby	37875
Steve Walker	4589
Steven Amundson	1130
Steven Baird	2222
Steven Balogh	6125
Steven Breems	3020
Steven Carlson	2217
Steven Chesney	6340
Steven Chesney	47476
Steven Clarke	4149

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1 Mining Truth: Comments on SDEIS	
Steven G	2299
Steven Guillotel	963
Steven Howard	2470
Steven Jacobson	6512
Steven Jessen-Howard	9647
Steven Labore	478
Steven Labore	2000
Steven Long	757
Steven Lyons	10271
Steven Miller	21788
Steven Mills	981
Steven Mills	45492
Steven Nordin	7757
Steven Osthus	1630
Steven Pfeiffer	6452
Steven Porter	9733
Steven Porter	45009
Steven Steele	1495
Steven Steele	4922
Steven Steele	22651
Steven Swanson	225
Steven Timmer	3132
Steven Walsh	306
Steven Wiese	1044
Steven Wiese	22510
Steven Wiese	45899
Steven Zerby	6793
Stewart Corn	3085
stewart Onsum	1992
Stewart Onsum	3224
Stewart Onsum	3444
Stewart Onsum	7577
Stig Edwardson	832
Stu Farnsworth	228
Stuart Knappmiller	1264
Stuart Knappmiller	10294
Stuart Meyer	686
Su8e Ann Anderson	57708
Sudeshna Ghosh	45878

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1 Mining Truth: Comments on SDEIS		
Sue Ann Anderson		992
Sue Ann Anderson		45356
Sue Benson		3258
Sue Dolian		1605
Sue Dolian		6582
Sue Halligan		1437
Sue Halligan		45836
sue harrington		3432
sue harrington		3682
sue harrington		19807
Sue Morem		2124
Sue O'Kasick		7728
Sue Sutherland		10164
sue thiebaut		4097
Sue Trnka		107
Sue Wick		2525
Sue Wick		3809
Sulo Kangas		38304
Sun Leader Glows Brightly		38265
Sundae Morse		2327
Sundae Morse		9482
Sundae Morse		21752
Sundae Morse		57709
Sunny Pudulis		7003
Susan Bonne Anderson		6621
Susan Bonne Anderson		44451
Susan Burns		7000
Susan Carver		2229
Susan Carver		6187
Susan Carver		7506
Susan Christiansen		9828
Susan Doeden Doeden		1199
Susan Doeden Doeden		45660
Susan Douglas		44841
Susan Edgington		22303
Susan Edgington		3888
Susan Elsner		695
Susan Foster		2650
Susan Frame		1324

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1 Mining Truth: Comments on SDEIS	
Susan Fuller	41157
Susan Gaustad	3421
Susan Gustafson	4825
Susan Gustafson	7365
Susan Hankerson	41280
Susan Helton	767
Susan Helton	6008
Susan Helton	22301
Susan Hoffa	57710
Susan Holman	45568
Susan Huhn-Bowles	602
Susan Jackson	845
Susan Jackson	3061
susan johnson	38285
Susan Korupp	2459
susan korupp	22569
Susan Lenarz	105
Susan Lynn	4898
Susan Lynn	4913
Susan Maas	7178
susan marks	6507
Susan MunsoN	6099
Susan Munson	45841
Susan Newman	1883
Susan Nielsen	22163
Susan Ode	6189
Susan Pohl	22411
Susan S Crawford	57437
Susan Scanlan	9877
susan sheridan	3405
Susan Shiels Matias	4084
Susan Smith	913
Susan Stevens	1585
Susan Stevens	4496
Susan Sutherland	504
Susan Sutherland	4375
Susan Taylor	1929
Susan Trebelhorn	41162
Susan Van Kekerix	193

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1 Mining Truth: Comments on SDEIS	
Susan Venzke	1116
Susan Weum	1957
Susan Wiste	6791
Susan York	4165
Susan Zirkes	44499
Susanna Patterson	2020
Susannah Dodge	9949
Susanne Engstrom	3860
Susanne Short	44333
Susie Holovnia	4628
Susu Jeffrey	4619
Suzan Toma	3580
Suzanne Birch	218
Suzanne Birch	1149
Suzanne Birch	21893
Suzanne Chesney	1818
suzanne chesney	57712
Suzanne Ciebiera	4704
Suzanne Fattah	2143
Suzanne Harnish	57438
Suzanne Kruger	1082
Suzanne Kruger	4251
Suzanne Kruger	6092
Suzanne Kruger	45489
Suzanne Larson	3047
suzanne lauer	4321
suzanne lehman	7114
Suzanne Maras	3536
Suzanne Maras	4113
Suzanne Piatt	6725
Suzanne Stennes-Rogness	1713
Suzanne Stennes-Rogness	2293
Suzanne Stennes-Rogness	10166
Suzanne Timm	486
Suzi Olson	1739
Sybil Axner	2529
Sydney Evans	215
Sydney Morical	7482
Sydney Stracke	4537

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1 Mining Truth: Comments on SDEIS	
Sydny Koch	10255
Sylvia Kurth	44251
T. Alex Budrow	3901
T.More Hynes	1004
t.more hynes	22504
Tahani Lyman	10148
Tahera Mamdani	969
Tahera Mamdani	45227
Tahir Hassan	22591
Talyn Riedesel	2560
Tamar Lindsay	3244
Tamara Whear	7704
Tammy Aaberg	10384
tammy anderson	4788
Tammy Cheng	7574
Tammy Fritze	1084
Tammy Fritze	6542
Tanner Lucas	627
tanya alberts	359
Tanya Barcikowski	871
Tanya Beyer	57713
Tanya Koester-Radmann	2139
Tanya Koester-Radmann	21897
Tanya Moldenhauer	2662
Tanya Pederson	10374
Tanya Pfeffer	1986
Tanya Ryappy	9801
Tara Kokesch	625
Tara Kokesch	6777
Tara Kokesch	3896
Tara La Sarge	4248
Tara Mcnaughton	1150
Tara Schuneman	1109
Tara Schuneman	44341
Tara Wright	4422
Tasha Montello	6643
Taylor Mackenthun	3035
Taylor Morisette	3822
Taylor Snyder	3508

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1 Mining Truth: Comments on SDEIS		
Ted Gates		4206
Ted Hoogenraad		57714
Ted Hughart		38551
Ted Parvu		2514
ted redalen		334
ted redalen		1396
ted redalen		2641
ted redalen		6583
ted redalen		9517
ted redalen		22584
ted redalen		45886
Ted Wagner Jr.		4094
Tedd Cheney		21944
tegwin moye		2242
Tegwin Moye		2284
Tegwin Moye		2583
Tegwin Moye		10279
Tegwin Moye		44266
Tenaya Egbert		1557
Teresa Bailey		416
Teresa Bailey		3348
Teresa Bailey		41111
Teresa Manzella		6513
Teresa Teresa Faus		212
Teresa Thomas		40065
Teresa Wang		728
Teresa Wang		21663
Teresa Wasick		976
Terese McCauley		2634
Terese O'Malley		3202
Terese Thiel-Machin		6731
Teri Schweizer		3293
Terra Hughes		3185
Terrance Schrammen		780
Terrance Schrammen		45480
Terrence Lannigan		94
Terrence R. Johnson		79
Terri Birnbaum		22620
Terri Buttleman		1835

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1 Mining Truth: Comments on SDEIS	
Terri Buttleman	7626
Terri Buttleman	41189
Terri Buttleman	44792
Terri Fleming	1794
Terri Karis	38351
Terri Melton	4390
Terri Molnar	1132
Terri Molnar	57715
Terri Roher	556
Terri Rutherford	2479
Terri Schocke	45998
Terri Tilotta	3477
Terri Tilotta	3478
Terrie Christian	21304
Terrill Herbig	1539
Terrill Herbig	7523
terry bragg	1825
terry bragg	40774
Terry Duffy	1753
Terry Evans	3151
Terry Ford	940
Terry Ford	47646
Terry Ford	47652
Terry Graff	1299
Terry Greer	4366
Terry Hagenah	57716
Terry Hokenson	204
Terry Hokenson	2546
Terry Hokenson	41112
Terry Hokenson	3869
Terry hughes	22640
Terry J. Williams	1157
Terry J. Williams	4666
Terry McAnnany	247
Terry McAnnany	41426
Terry McCarthy	3907
Terry Mulhern	37865
Terry Posch	9588
Terry Richmond	87

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1 Mining Truth: Comments on SDEIS		
Terry Richmond		38172
Terry Richmond		44645
Tess Wang		7620
Tessa Hill		305
Tessa Ruff		3934
Thad Dziuk		3113
Thad Skinner		38173
Thad Skinner		46002
Thaddeus Gulden		4868
Thane Maxwell		41266
Thane Maxwell		45559
Thea Evans		2589
Theodor Thomas		1118
Theodore Gorney		22238
Theodore Paulsen		3406
Theresa Basting		4412
Theresa Basting		47749
Theresa Basting		47753
Theresa Dosh		7671
Theresa Flinck		7063
theresa iverson		3137
theresa iverson		21773
Theresa Johnson		21605
Theresa Nelson		9941
Theresa Rian		22741
Theresa Tichich		1686
Therese Lenz		22566
Therese Scheller		22432
Thomas and Charlotte Meinz		57717
Thomas Aspros		4515
Thomas Barry		1614
Thomas Barry		4833
Thomas Becker		995
Thomas Becker		7441
thomas Berg		44347
Thomas Bergstrom		6724
Thomas Bierer		2087
Thomas Bierer		7694
Thomas Boguszewski		3326

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1 Mining Truth: Comments on SDEIS	
Thomas Brinkman	1304
Thomas Brinkman	45661
thomas cobb	2644
thomas cobb	3017
Thomas Crouse	6113
Thomas Darden	10292
Thomas Darden	44338
Thomas Davies	4854
Thomas Davies	44502
Thomas Desautel	10373
Thomas Dickinson	6594
Thomas Floria	11267
Thomas G Weaver MD	3884
Thomas G. and Patty Murn, Jr.	20837
Thomas G. and Patty Murn, Jr.	20838
Thomas Gille	975
Thomas H. and Sally D. Patterson	4227
Thomas Haines	4395
Thomas Harries	2295
Thomas Harries	4807
Thomas Herdtle	47438
Thomas Hinds	39447
Thomas Howes	2559
Thomas Hystead	44571
Thomas Johnson	4693
Thomas Koehler	1762
Thomas Koehler	4340
Thomas Koshiol	880
Thomas Lichtenstein	200
Thomas Lichtenstein	1317
Thomas Lichtenstein	41319
Thomas Lieberman	9684
Thomas London	9712
Thomas Marty	38566
Thomas Mathieu	3038
Thomas McKey	7573
Thomas Mittelstaedt	716
Thomas Mittelstaedt	45388
thomas murphy	6550

Sender Name		Submission ID
1 Mining Truth: Comments on SDEIS		
Thomas Nikko		185
Thomas Nissen		22364
Thomas O'Toole		21198
Thomas Probst		3141
Thomas Ronning		45070
Thomas Rourke		1527
thomas rowlette		3268
thomas rowlette		7348
thomas rowlette		7487
Thomas Smith		1343
Thomas Smith		45756
Thomas Strommen		381
Thomas Strommen		7539
Thomas Sullivan		39381
Thomas Tempel		2917
Thomas Thiss		2192
Thomas Tubbs		1352
Thomas Vogen		878
Thomas Webb		39054
Thompson Blodgett		27
Tiffany Paulson		3230
Tiffany Paulson		22416
Tiffany Toscano		6558
Tiger Beaudoin		3263
Tim Brausen		1311
Tim Brausen		21644
Tim Cameron		6495
Tim Crane		911
Tim Crane		41188
Tim Hansen		930
Tim Hawkinson		1503
Tim Hawkinson		44558
Tim King		1282
Tim O'Brien		1061
Tim Peterson		912
Tim Reede		4173
Tim Rinkel		483
tim Strick		4631
Tim Walker		1754

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Timothy Brunelle	2622
Timothy Brunelle	45981
Timothy Chapp	654
Timothy Clay	253
Timothy Clay	1497
Timothy Clay	21787
Timothy Clune	936
Timothy Davis	2094
timothy Frantzich	7634
Timothy Guion	1295
timothy lamb	3619
timothy lamb	3376
Timothy Linder	4075
Timothy Mahr	6256
Timothy Martin	1210
Timothy Melby	1718
Timothy Mitchell	1386
timothy mitchell	10919
Timothy Mullen	1331
Timothy Mullen	22615
Timothy Nelson	400
Timothy Pipkorn	57439
Timothy Schultz	612
Timothy Schultz	3329
Timothy Shaw	3707
Timothy Smith	1335
Timothy Smith	3255
Timothy Smith	10062
Timothy Sundquist	57718
Timothy Weseloh	22482
timothy yoder	10726
Tina Anderson	3409
Tina Blankenheim	45363
Tina Krauz	176
Tina Lemke	38156
tish holbrook	3534
tish holbrook	1863
tish holbrook	4066
Tjaard Breeuwer	1357

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1 Mining Truth: Comments on SDEIS		
Tjaard Breeuwer		44808
Todd Dibble		4668
Todd Dobesh		1442
Todd Elert		7183
Todd Elert		38113
Todd Holmes		4617
Todd Hunter		6032
Todd Langton		10232
Todd Langton		4007
Todd Laumer		2135
Todd Laumer		45882
Todd Olson		4926
Todd Paddock		250
Todd Redmann		4413
Todd Ronning		38323
Todd Truby		6784
Tom and Sandy AHLSTROM		9741
Tom Anderson		2196
Tom Baker		6750
Tom Buckley		1800
Tom Buss		1412
Tom Dolan		7353
Tom Donaghy		22499
Tom Emmott		1520
Tom Fleck		2290
tom fohrenkamm		3501
Tom Garneau		2058
Tom Glaser		3866
Tom Goodell		11340
tom grahek		3756
Tom Heinsch		2414
tom holmes		369
Tom Keyes		4210
Tom Koors		1611
Tom Koors		7324
Tom Koors		22570
Tom Koshiol		4823
Tom Kunze		2860
Tom Larsen		1377

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Tom Mahlum	1045
Tom Martens	3214
Tom Mathieu	6539
Tom Osowski	1183
Tom Plocher	2493
Tom Plocher	2522
Tom Rogers	1201
Tom Roth	798
Tom Roth	10765
Tom Roth	45136
Tom Schutter	1742
Tom Spicer	1344
Tom Steigauf	2214
Tom Sullivan	2490
Tom Swanson	451
tom swanson	21704
Tom Taatjes	3420
Tom Theye	2025
tom westrum	711
Toni Hirsch	1231
Tony Barden	2715
Tony Feiock	47251
Tony Ludwig	1538
Tony Ludwig	45400
tony osterbauer	7583
Tony Petrangelo	1828
Tony Tschida	112
Tony Tschida	57440
tonya miller	2612
Torrance Snyder	1328
Tory Thompson	493
Tory Thompson	10145
Tovah flygare	2491
Tracy Anderson	40919
Tracy Chaput	10214
Tracy Daniels	57441
Tracy Lawler	5957
Tracy LeCapitaine	57442
Tracy Stewart	21827

Sender Name		Submission ID
1 Mining Truth: Comments on SDEIS		
Tracy Wright		9413
Tracy Wright		3987
Trang Vu		10193
Travis Dagen		1468
Travis Galloway		3341
Travis Hinck		10360
Travis Moret		2628
Travis Torgerson		22517
Trayce Olsen		3125
Treana Mayer		2654
Treana Mayer		44256
Trenk Ebbighausen		186
Tressa Schendel		7193
Trevor Dunn		10363
Trevor Lewis		1492
Trevor russell		3065
Trevor Thill		57721
Tricia Ells		45881
Trilby White		10415
Trista Gaucher		57722
Trllby White		3929
troy dulude		3342
troy dulude		47625
Troy Hansen		78
Trudie Schneider		5966
Truman Porter		4897
Tsegereda Lamesgin		576
Tsegereda Lamesgin		2265
tucker gerrick		9728
Tyanne Betts		7080
Tyler Erickson		7396
Tyler Grupa		4463
Tyler Henkels		4524
tyler howell		3048
Tyler Kaiser		1891
Tyler Teggatz		11245
Tyrone Farrell		21003
v maddock		22648
VAl Kosky		7105

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1 Mining Truth: Comments on SDEIS	
Val Schroeder	397
Val Schroeder	6757
Val Schroeder	45563
Valerie Borders	3359
Valerie Eastland	813
Valerie Goodness	4078
Valerie Torgerson	3706
Valorie Jackson	9791
Vaudree Lavallee	2144
Verba Weaver	1839
Verba Weaver	2275
Verba Weaver	57723
Vern Simula	34
Vern Simula	22513
Vern Simula	47439
Verna Laine	2664
Veronica Ives-Virnig	3870
Vicki Bacal	2403
Vicki Bacal	45015
Vicki Bonk	57443
Vicki Branham	1232
Vicki Kelson	6097
Vicki Kitzmann	6681
vicki scott	4626
Vickie Bush	9506
Vickie Grahek	661
Vickie Graser	841
Vickie Graser	4139
Vickie Hocking	429
vickie hocking	7761
Vicky Adams	662
Vicky Adams	44570
Vicky Ernst	52211
Vicky Sarvela	44894
Victor Kirksey-Brown	197
Victoria Cox	21820
Victoria Gibbs	10423
Victoria Lynn Turke	3177
Victoria Miller	1418

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Victoria Morrison	2105
Victoria Thor	2142
Victoria Thor	4606
videl schamber	4884
Vince Ready	7535
Vince Ready	45648
Vincent Graziano	3930
Vincent Trovato	3979
Virginia Dale	4577
Virginia Ehlen	6511
Virginia Huber	45770
Virginia Keegan	3481
Virginia Martin	4446
Virginia Martin	5922
Virginia Martin	6741
Virginia Martin	10282
Virginia Martin	38302
Virginia Schwertfeger	40952
Vivian & Ken Hensel	6386
Vivian Benus	1233
Vokee Lee	3843
Von Gillette	1123
W Randolph Bourne	1020
Wade Johnson	1007
Wallace Elton	4016
Wallace Neal	1140
Walt Benko	7478
Walter C. Lockhart IV	2171
Walter Prentice	4791
Walter Reese	21005
Waltraud Brogren	5991
Wanda Anstett	2452
Wanda Ballentine	1120
Wanda Ballentine	1877
Wanda Ballentine	44028
Wanda Dempsey	47675
Wanda Hooover	730
Wanda Purdie	6443
Wanda Purdie	45676

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
Warren Johnson	1067
Warren Johnson	45772
Warren Johnson	57445
Warren Vollmar	1948
Wayne Axelson	73
Wayne Bothun	7743
Wayne Buchholz	1303
Wayne Fuhr	209
Wayne Fuhr	760
Wayne Potratz	1178
Wayne Potratz	4946
Wayne Russ	6614
Wendi Chen	1760
Wendy Armitage	1119
Wendy Boyd	838
Wendy Briese	57724
Wendy Busk	2273
Wendy Jewell	41205
Wendy Johnson	7588
Wendy Knox	7407
Wendy Laine	3197
Wendy Lane	3506
Wendy McCarty	10351
Wendy Morical	4292
Wendy Olson	703
Wendy Peardot	765
Wendy Raschke	21647
Wendy Reid	606
Wendy Sjoblom	51
Wendy Sjoblom	57725
Wendy Ward	10186
Wendy Will	38281
Wendy Wright	45490
Will Rahr	9857
Willard Shapira	44978
William Andersen	3235
WILLIAM ASHWOOD	41526
William Aukes	2283
William Bergen	438

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
William Blechschmidt	57726
William Boyd	10321
William Burkett	7336
William Cassel	986
William Chastain	1619
William Christ	455
William Christ	3248
William Christ	41225
William Cosgrove	6510
William Crenshaw	3993
William Cronin	350
William DeRoche	4346
William DeRoche	57446
William Drennan	6561
William Falck	57447
William Forbes	22599
William Funari	793
William Gotz	1065
William Hardesty	2291
William Heegaard	7466
William Heier	1281
William Heier	45729
William Herrbold	1616
William Kiheri	6618
William Kingsbury	1881
William Kover	57727
William Kramlinger	3939
William Lilya	670
William McKinney	45809
William Nusbaum	98
William Nusbaum	1852
William Nusbaum	44732
William Pearson	9676
William Picconatto	10253
William Rouse	923
William Seifert	3312
william seifert	3313
William 'Skip' Dykoski	744
William 'Skip' Dykoski	38350

Sender Name	Submission ID
1 Mining Truth: Comments on SDEIS	
William Tilton	4692
william wegscheid	4543
William Wirth	994
William Wirth	45204
William Wright	9763
Willoe Traver	1006
Winifred M Larsen	274
Winona LaDuke	4101
Winston Kaehler	1202
Winston Kaehler	2597
Winston Kaehler	10179
Winston Kaehler	41502
WM F DENSON	22496
Wolfgang Bruce-Peralta	4223
Wyatt Henry	10400
Xavier Schmitz	7674
Yahya Frederickson	4196
Yancy Rowlette	2168
Yancy Rowlette	3043
Yancy Rowlette	3270
Yancy Rowlette	57728
Yannai Kashtan	7359
Yen Chee	38122
Yusuf Ahmad	7218
Yvonne Cloud	7522
Yvonne Schram	671
Zach Johnson	7465
Zach Pesch	45971
Zachary George	6417
Zachary Lee	6733
Zachary Rice	1263
Zachary Rice	44789
Zachary Roebuck	57729
Zachary Schwartz	41203
zachary sproles	7380
Zack Meyer	9543
Zane Kenig	2140
Zita Knop	2788
Zoe Nace	352

Sender Name	Submission ID
2 Sierra Club	
Form Letter 2: Sierra Club. Lisa Fay, DNR MN Dear Fay, DNR, Please accept these comments on the PolyMet Mining Corp. NorthMet mining project Supplemental Draft Environmental Impact Statement. Sulfide mining has never been done in Minnesota and threatens wetlands, rivers, lakes and streams across the Arrowhead Region, including Lake Superior and the Boundary Waters Canoe Area Wilderness. Acid Mine Drainage and heavy metal contamination have polluted waters in all other places where sulfide ore mining has occurred. I have grave concerns about this project's potential impacts on Minnesota's natural resources and public health, including: risks to water quality, loss of wetlands, harm to wildlife such as the threatened lynx and declining moose populations, and cumulative impacts from mining. The Federal land exchange of protected Superior National Forests to facilitate PolyMet's destructive and polluting open pit sulfide mine is not in the public intereSt The proposed mine poses unacceptable risks to our waters and communities. I ask that the comment period be extended to 180 days, and I support the No Action Alternative. Sincerely,	
A Chandler	31981
A Crane	26119
A D	26749
A Evans	24129
A F	26202
A F	30043
A Hansen	32165
A Harper	32703
A Jennifer Velinty	26192
A Mercaldo	29784
A Mervyn & Marilyn Carse	33640
A Rake	35045
A Richard & Martha Olson	48927
A Richard & Martha Olson	39818
A Schmitt	26308
A Vaiciulis	28934
A Yonker	32535
A. Tompkins	34504
Aamer Ali	36138
Aana Vigen	35935
Aaron Arvold	28485
Aaron Bouchard	28890
Aaron Cook	25792
Aaron Cumbie	31414
Aaron Erntson	29062
Aaron Fields	31395
Aaron Jones	31695
Aaron Klabunde	33083
Aaron Kooienga	30314
Aaron Shilkaitis	29562
Aaron Solar	26426
Aaron Tank	33006
Aaron Timperman	25649

Sender Name		Submission ID
2 Sierra Club		
Aaron Turkewitz		29787
Abbey Sutherland		28878
Abbi Surles		35985
Abbie Harville		25016
Abbie Jacobson		35683
Abbot Foote		27388
Abby Clark		29824
Abby Dahlquist		2758
Abby Dahlquist		51941
Abby Marier		21138
Abby Marier		50947
Abel Garcia		26598
Abel Rivera		25832
Abel Rivera		28829
Abigail Brickler		34189
Abigail Chatelain		24344
Abigail Miller		22888
Abigaile Wolak		35981
Abraham Kayne		28685
Abraham Shadeh		28716
Achberger, Karen R		57925
Adam And Kirsten Rubin		35209
Adam Breuer		32556
Adam Johnson		35227
Adam Karapandzich		29174
Adam Kruenzel		47372
Adam Kruenzel		48579
Adam Leite		30145
Adam Lohrmann		35780
Adam Mills		26644
Adam Persenaire		32843
Adam Savett		29915
Adam Wilkins		36259
Adam Williams		30157
Addie Lucas		25764
Adele Black		23899
Adele Gleason		23501
Adele Hansen		47502
Adele Hansen		48597

Sender Name	Submission ID
2 Sierra Club	
Adolfo Camacho Humphrey	27003
Adolphe Zielinski	33102
Adrian Hackney	28114
Adrian Nicoara	24897
Adrian Sheepers	27271
Adrian Smith	25778
Adrian Van Buskirk	29416
Adrian Van Dellen	24060
Adriana Smith	23293
Adrianna Krzywicka	32906
Adrianne Camero-Sulak	30588
Adrienne Bunde	32175
Adrienne Hutchins	23662
Adrienne Hutchins	23663
Adrienne K	34099
Adrienne Morey	23256
Adrienne Quint	31911
AE Houston	27313
Aerie Youn	27041
Ah-Li Monahan	3010
Ah-Li Monahan	52170
Ahmad Name.	32849
Aida Cisneros	23036
Aileen Eilert	30679
Aileen Mcevoy	24830
Aileen Zebrowski	24649
Ailsa Anderson	26883
Aimee Cherry	35264
Aimee Smith	26583
Ainsley Skye Waters	26189
Ainslie Ruddell	33594
Ainslie Ruddell	34023
Aj Haberstroh	25013
Ake Stroede	35371
Akshay Chalana	27783
Al Blazo	34003
Al Gedicks	36256
Al Gemrich	29429
Al Trutter	30219

Sender Name	Submission ID
2 Sierra Club	
Alaina Mccleery	35105
Alaine Koschnitzki	25656
Alaine Kvedaras	29036
Alan Anderson	33979
Alan Bailey	35453
Alan Bundy	23084
Alan Capelle	35678
Alan Carlson	35247
Alan Cassels	29756
Alan Cooper	25844
Alan Cooper	32702
Alan Day	30563
Alan DeJarnette	27406
ALAN DICKIE	34916
Alan Duran	26048
Alan Exoo	31251
Alan Farnham	39416
Alan Farnham	48731
Alan Fawley	31297
Alan Green	24087
Alan Haas	29051
Alan Jasper	25600
Alan Kotlarek	29047
Alan Langrall	34066
Alan Rickfelder	29776
Alan Serlin	31526
Alan Shannon	35308
Alan Sundby	28039
Alan Sutton	48864
Alan Urbany	26916
Alan Vandeberghe	34549
Alan Vovolka	26058
Alan Warner	32482
Alan WOLFF	47564
Alana Fink	10413
Alana Fink	51500
Alana Mcdowell	25305
Alana Willroth	3428
Alana Willroth	23108

Sender Name	Submission ID
2 Sierra Club	
Alana Willroth	23110
Alana Willroth	49458
Alana Willroth	51637
Albert Chiu	26248
Albert Ciszewski	28602
Albert Sanchez	29704
Alec Hendrickson	31462
Alegra Harris	24423
Alejandra Anderson	23477
Alejandra Romero	33739
Alejandra Vega	26645
Aleks Kosowicz	24468
Aleks Kosowicz	33272
Alessandra Manca	33395
Alessandro Barbato	24902
Alex Barnes	24212
Alex Barnes	35171
Alex Czurylo	34025
Alex Hartwell	35680
alex kowtun	24017
Alex Nichols	33173
Alex Oles	28409
Alex Oshiro	25865
Alex Puskar	26211
Alex Randow	35616
Alex Reinders	28966
Alex Saldivar	25795
Alex Staab	25106
Alex Vazquez	29146
Alex Warofka	35639
Alex Wilson	25367
Alexa Bradley	26752
Alexa Ross	28097
Alexander Honigsblum	25154
Alexander Knapp	29856
Alexander Marks	27765
Alexander Metz	25478
Alexander Nytko	25310
Alexander Nytko	25311

Sender Name		Submission ID
2 Sierra Club		
Alexander Nytko		25312
Alexander Sahlas		23942
Alexander Sahlas		32261
Alexander Sonneborn		26799
Alexandra Becker		28988
Alexandra Gierlachowski		22928
Alexandra Oppelt		34932
Alexandra Pappano		26725
Alexandra Rappaport		23914
Alexandra Sipiora		23644
Alexandra Sipiora		30957
Alexandra Sweitzer		28717
Alexandra Vaillancourt		39399
Alexandra Vaillancourt		48706
Alexey Zinger		30153
Alexey Zinger		48987
Alexia Jandourek		31432
Alexis Alvarado		30504
Alexis Church		26160
alexis Dechaud		24191
Alexis Hendrickson		3716
Alexis Hendrickson		51796
Alexis Julian		33838
Alfredo Ocasio		23532
Ali Boraby		28628
Ali Mosa		26897
Alic Waler		27762
Alice & Bill Studzinski		30897
Alice Bacus		30232
Alice Brozofsky		29301
Alice Davies		25303
Alice De La Cova		31456
Alice Dugar		34274
Alice Haznedl		22795
Alice Johnson		34073
Alice Karakas		3714
Alice Karakas		51792
Alice Miller		24635
Alice Neilson		27555

Sender Name	Submission ID
2 Sierra Club	
Alice Sather	3528
Alice Sather	51684
Alice Stacionis	35987
Alice West	27312
Alice Willis	30830
Alicia Campbell	35933
Alicia Evilsizer	24655
Alicia Guevara	24223
Alicia Guzman	29379
Alicia Henry	33336
Alicia Lundell	26117
Alicia Ong	25346
Alicia Ong	25357
Alicia Paravola	23921
Alicia Zody	22971
Alicia Zody	24055
Aliina Adelman	24107
Alisa Dunn	27900
Alisa Nihof	22919
Alisa Nihof	22920
Alisha Begell	24600
Alisha Nickols	23913
Alisha Stireman-Beyer	33917
Alison Baker	31096
Alison Baltz	29427
Alison Feik	28846
Alison Mehlhorn	33687
Alison Roeder	21226
Alison Roeder	50979
Alison Roller-Alling	23023
Alison Zaharee	33290
Alissa Allen	22903
Alistair Bradley	30879
Allan Bouley	3777
Allan Bouley	51852
Allan Campbell	23524
Allan Johnston	30523
Allan Kaplan	31002
Allan Lavalier	33940

Sender Name	Submission ID
2 Sierra Club	
Allan Olson	32723
Allan Orashan	34362
Allan Yorkowitz	30162
Allen And Carol Oftedahl	34278
Allen Babb	25891
Allen Badertscher	29631
Allen Daily	23768
Allen Daily	35070
Allen Ericksen	25329
Allen Frechette	33852
Allen Frechette	49050
allen korth	24381
Allen Kukta	26128
Allen Peachey	34592
Allen Salyer	27686
Allen Salyer	31385
Allen Sheldon	31130
Allen Wlodarczyk	33854
Alleren, Jessica	57927
Allie Hanna	36203
Allie Simon	34265
Allison Bazik	28610
Allison Bening	34737
Allison Lee	23764
Allison Lee	26142
Allison Tupper	24562
Allison West	25812
Allyson Cloyd	25801
Allyson Harper	30149
Alma Bill	30346
Alma Guildoo	31232
Alma Kraovac	29865
Alma Ronningen	2780
Alma Ronningen	51958
Alna Laurel	26995
Alva Pingel	2678
Alva Pingel	51875
Alvin & Harriet Saperstein	31349
Alvin Anderson	29370

Sender Name	Submission ID
2 Sierra Club	
Alvin Carroll	33659
Alyssa Henke	28633
Alyssa Lyngstad	23177
Alyssa Lyngstad	51603
Alyssa Rohlik	3749
Alyssa Rohlik	51827
Alyssa Shelstad	29800
Am Canada	31228
Amador Rivera	31675
Amanda Boyers	27676
Amanda Fisher	32013
Amanda Hayes	35007
Amanda McNeill	27372
Amanda Mefford	26682
Amanda Osborne	24687
Amanda Ratajczak	29920
Amanda Rollizo	27542
Amanda Salvner	25356
Amanda Schibline	29020
Amanda Segur	27618
Amanda Smith	35495
Amanda Tedrick	29889
Amanda Tomasik	35592
Amanda Zehner	25664
Amaya Maura	48971
Amaya Maura	39858
Amber Asplund	51570
Amber Furness	28520
Amber Moore	24065
Amber Perry	22874
Amelia Kroeger	44910
Amelia Kroeger	48517
Amelia Marschall	28858
Amelia Narigon	25810
Amelia Narigon	39691
Amelia Narigon	48870
Amelia Pool	34047
Amelia Sefton	28565
Amina Saavedra	33064

Sender Name		Submission ID
2 Sierra Club		
Amity Jordan		25605
Amrik Bachhal		23958
Amy Andersen		30104
Amy Andrews		23513
Amy Andrews		32731
Amy Barankovich		48693
Amy Bell		30502
Amy Bergmann		27857
Amy Biel		35534
Amy Brown		33409
Amy Carlsonsather		26078
Amy Cordero		26839
Amy Cross		31820
Amy Cusick		2966
Amy Cusick		52136
Amy Dicker		32967
Amy Doczy		28457
amy durand		29578
Amy Fowler		30109
Amy Fredrick		23038
Amy Frieden		33035
Amy Frisina		23077
Amy Gentes		27145
Amy Halbrooks-Fulks		25850
Amy Hanley		29933
Amy Hemingway		47467
Amy Hemingway		48589
Amy Hermodson		3563
Amy Hermodson		51706
Amy Horst		24380
Amy Johnson MD		29082
Amy Kokott		28645
Amy Lashinski		28570
Amy Lawrence		29389
Amy Lippert		31189
Amy Lowell		30948
Amy Lynn		23544
Amy Mathis		29341
Amy Morgan		32758

Sender Name	Submission ID
2 Sierra Club	
Amy Noren	34778
Amy Okaya	30137
Amy Olienechak	33885
Amy Parrent	23290
Amy Robinson	27954
Amy Rodenbach	24421
Amy RYBERG	35419
amy schumacher	24375
Amy Skinner	25983
Amy Smith	23533
Amy Sprik	31003
Amy Spude	2847
Amy Spude	52021
Amy Susanne Aukema	27297
Amy Tournoux	32795
Amy Trudeau	33882
Amy Walquist	32587
Amy Whitney	29941
Amy Young	35727
Ana Oliveira	24414
Ana Witteveen	30075
Anah McMahon	33850
Analee Scott	24177
Anali Gonzalez	23802
Anderson, Deborah	57929
Andie Wolfinsohn	35168
Andra Addis	31849
Andre Gregoire	22807
ANDRE VERONIQUE	24683
Andre Zielinski	33101
Andrea Alagammai	24789
Andrea Anixt	24940
Andrea Cockerham	28415
Andrea Cooley	25339
Andrea Cox	23061
Andrea Frank	34674
Andrea Frontzek	22886
Andrea Gillis	24183
Andrea Hillis	44699

Sender Name		Submission ID
2 Sierra Club		
Andrea Hillis		48510
Andrea Iravani		30322
Andrea Kaufman		26450
Andrea Kloeti		36233
Andrea LeClair		32089
Andrea Lewis		25170
Andrea Matthies		32130
Andrea Miller		32121
Andrea Myers		35226
Andrea Palmer		23316
Andrea Rohr		24279
Andrea Roland		25122
Andrea Schifano		26390
Andrea Smith		24592
Andrea Srirat		29635
Andrea Stish		34568
Andrea Stroh		34026
Andrea Swank		33059
Andrea Thompsom		48919
Andreas Vlasiadis		25001
andreas vlasiadis		29643
Andree Stetson		24126
Andrew Arellano		32160
Andrew Baird		24161
Andrew Bare		22980
Andrew Baron		27648
Andrew Bell		32383
Andrew Cava		31166
Andrew Clauer		34498
Andrew Clauer		34657
Andrew Collins		28448
Andrew Cook		47469
Andrew Cook		47470
Andrew Cook		48590
Andrew Cook		48591
Andrew Davies		33030
Andrew Fell		23424
Andrew Flies		27628
Andrew Giddings		33455

Sender Name	Submission ID
2 Sierra Club	
Andrew Grant	35756
Andrew Hissett	36264
Andrew Hoffman	30429
Andrew Johnson	4454
Andrew Johnson	51542
Andrew Jones	31417
Andrew Kaplan	25473
Andrew Kiefer	24712
Andrew Kistler	35555
Andrew Lawrence	25406
Andrew Marallo	25563
Andrew Miller	30520
Andrew Mutchler	34414
Andrew Pilkington	34740
Andrew Poyant	44415
Andrew Schock	24357
Andrew Scholten	26219
Andrew Sertich	31509
Andrew Sertich	31529
Andrew Sharp	24805
Andrew Sledd	31996
Andrew Stack	33293
Andrew Steiner	33568
Andrew Sterioff	49054
Andrew Szumla	25888
Andrew Welsbacher	24364
Andrew Yates	34403
Andy Elersich	30335
Andy Herrling	29523
Andy Johnson	38625
Andy Kasun	30421
Angel Lincewicz	30680
Angel Zayas	35493
Angela Allen	3775
Angela Allen	51851
angela alvarez	22820
Angela Anderson	3659
Angela Anderson	51758
Angela Burgio	32948

Sender Name		Submission ID
2 Sierra Club		
Angela Esslinger		27146
Angela Fazzari		23051
Angela Fisher		30930
Angela Ford		25797
Angela Lacy		25504
Angela Laplante		24928
Angela Miller		32878
Angela Mohn		26960
Angela Mohn		27052
Angela Nemmers		30983
Angela Novy		32412
Angela Roquemore		35661
Angela Taylor		26225
Angela Yohn		23772
Angelee Brown		30810
Angeles Madrazo		29754
Angelica Brehm		23647
Angelika Engels		26953
Angelika Engels		26958
Angeline Dufner		48658
Angelique Pinkstaff		24585
Angelo And Pia Bergomi		39427
Angelos Halaris		29688
Angie Affolter		33235
Angie Hong		45130
Angie Hong		48521
Angie Weiss		44931
Angus M Macdonald		28176
AniMaeChi drabic		30019
Anita Amos		27847
Anita Balogh		29061
Anita Bixenstine		34133
Anita Cummings		27195
Anita Cummings		47224
Anita Cummings		48569
Anita Fischer		33680
Anita Garrison		23944
Anita Jung		32675
Anita Leisen		27537

Sender Name	Submission ID
2 Sierra Club	
Anita Look	32449
Anita Meyer	34277
Anita Mykytyn	23273
Anita Waters	27700
Anita Watkins	26325
Anita Wisch	26415
Anja Metz	22996
Anje' Waters	23927
Anjuli Mishra	27632
Anke Pearson	31422
Ann & Robert Tait	26843
Ann Barrett	33189
Ann Bergmann	24157
Ann Beynon	23116
Ann Bissell	25668
Ann Blanchard	32166
Ann Blombach	35721
Ann Buxbaum	30252
Ann C. McGill	33813
Ann Carlson	35649
Ann Choate	2891
Ann Choate	52044
Ann Christopher	23062
Ann Cobban	27440
Ann Cook-Frantz	32862
Ann Coon	33714
Ann Davidson	28745
Ann Delleur	36235
Ann Diers	48617
Ann Eppler	25315
Ann Fry	34668
Ann Galbraith Miller	29208
Ann Geise	29876
Ann Griffen	33361
Ann Griffin	29610
Ann Gutierrez	33621
Ann Hancox	35015
Ann Hauer	29440
Ann Huffman	22933

Sender Name		Submission ID
2 Sierra Club		
Ann Kraft		28636
Ann Kuhns		33344
Ann Kurz		29975
Ann Lindsley		34457
Ann Luft		34618
Ann Lund		31739
Ann Marie Biermaier		35353
Ann Moses		30190
Ann Muzzey		25260
Ann Nerland		23570
Ann Nerland		49471
Ann Nowicki		23955
Ann Pelzer		31571
Ann Priebe		21207
Ann Priebe		50973
Ann Randall		28286
Ann Randall		29844
Ann Riehle		27311
Ann Riehle		34368
Ann Rogers		28785
Ann Rogers		33216
Ann Rossman		25573
Ann Siegel		36055
Ann Simchak		30334
Ann Simonsen		24023
Ann Skazinski		30715
Ann Slivinski		35109
Ann Smith		27781
Ann Solano		28710
Ann Sowlles		31733
Ann Steinhardt		24472
Ann Swider		30868
Ann Ward		28510
Ann Wasgatt		23934
Ann Wolff		32673
Ann Wright		34435
Anna Burrell		23990
Anna Cruikshank		35407
Anna Cushman		35121

Sender Name	Submission ID
2 Sierra Club	
Anna Davis	31444
Anna Dawson	23372
Anna Fabis	26475
Anna Freeman	29967
Anna Hrudicka	35341
Anna Janakiraman	23709
Anna Johnson	22822
Anna Lee	26277
Anna Liska	30522
Anna Marie Brown	22751
Anna McCreery	28105
Anna McCreery	35693
Anna Parker	27947
Anna Reed	28037
Anna Roland	26478
Anna Spangler	33628
Anna Szaszorowska	24504
Anna Will	26656
Annabelle Herbert	26501
Annah Gardner	2676
Annah Gardner	33822
Annah Gardner	44985
Annah Gardner	48519
Annah Gardner	51876
Anna-Rita Barron	29129
Anne Alexander	34425
Anne Allen	32852
Anne Anderson	29847
Anne Baldwin	35465
Anne Bartoc	24347
Anne Bauers	29194
Anne Byrne	30405
Anne Chunko	31741
Anne Congleton	27697
Anne Cowie	39925
Anne Cowie	48998
Anne Denelsbeck	23483
Anne Dunn	35017
Anne Durkalski	30927

Sender Name		Submission ID
2 Sierra Club		
Anne Flanagan		30132
Anne Froelich		32551
Anne Furey		30860
Anne Geil		24024
Anne Griffin		30823
Anne Griffin-Lewin		2692
Anne Griffin-Lewin		51890
Anne Gustafson		32660
Anne Harris		24880
Anne Hernandez		29693
Anne Kaphingst		28486
Anne Kohut		31506
Anne Labouy		33890
Anne Lovrenich		23242
Anne Lusby-Denham		27962
Anne Marie Druskinis		35051
Anne Marie Osborne		34544
Anne Martz		28412
Anne Mc Bride		41016
Anne McManus		3709
Anne McManus		3720
Anne McManus		51791
Anne McManus		51795
Anne Osborne		27438
Anne Osborne		35113
Anne O'Sullivan		23194
Anne Pavlic		34466
Anne Phillips		29955
Anne Phillips		30050
Anne Powder		32326
Anne Randolph		37838
Anne Ryan Miller		31372
Anne Sarley		34179
Anne Settanni		33765
Anne Siegrist		33332
Anne Vinkovich		28519
Anne Volz		24698
Anne Volz		28980
Anne W.		26144

Sender Name	Submission ID
2 Sierra Club	
Anne Wardwell	34091
Anne Wengerd	21803
Anne Wetterlund	33076
Anne Winkle	34408
Anne Wise	23554
Anne Wise	23556
Anne Wise	23557
Anne Wise	23558
Anne Wise	23559
Anne Wise	31400
Anne Young	25752
Anne-Marie Armstrong	35395
Annemarie Jason	23093
Anne-Marie Zmek	34567
Anneta Buster	27231
Annete Amrhein	26827
Annette Ancel-Wisner	33353
Annette Cain	22836
Annette Haag	23962
Annette Haag	32663
Annette Hartshorne	33128
Annette Price	49033
Annette Raatz	28588
Annette Raible	23950
Annette Rau	26491
Annette Schwegmann	23894
Annette Waddington	24327
Annette Wigglesworth	29627
Annick Richardson	33313
Annie Bowers	34236
Annie Bowling	34808
Annie Glasger	51580
Annie Peteya	31225
Annie Wolter	25551
Ann-Marie Murphy	26720
Anthony Bencivengo	25006
Anthony Byrne	29845
Anthony Capobianco	26421
Anthony Clesceri	29408

Sender Name		Submission ID
2 Sierra Club		
Anthony Forte		33424
Anthony Garcy		32338
Anthony Jordan		32280
Anthony King		34723
Anthony Kruegler		29753
Anthony Lang		34747
Anthony Mehle		36141
anthony montapert		27366
Anthony Morocco		35907
Anthony P. Vessicchio		26921
Anthony Palombi		23756
Anthony Panczak		31611
Anthony Phillips		29660
Anthony Rampe		29964
Anthony Schmitt		33153
Anton Feokhari		24945
Antonia Gisolfi		27511
Antonia Kantner		23957
Antonia Maloney		27165
Antonia Matthew		30544
Antonia Matthew		30553
Antonio Fernandez		27148
Antonio Mcdaniel		36228
Antwaune Williams		34434
April & Dan Ewaskey		24145
April D		26241
April Spiegel		28569
April Strohmeyer		34790
April Turner		30220
April Velasquez		30487
Arcadio Garcia		23754
Arci Jimenez		28587
Ari Bailey		35196
Arianne Hartsell-Gundy		32998
Arielle Johnson		2838
Arielle Johnson		52018
Arleen Whitmore		24131
Arlen Schluckebier		30407
Arlene Corona		29323

Sender Name	Submission ID
2 Sierra Club	
Arlene Forwand	27482
Arlene Gardner	35372
Arlene Gloria Hirsch	31834
Arlene Hickory	29710
Arlene Morgan	28609
Arlene Patoray	23952
Arlene Renshaw	32382
Arlene Roth	32546
Arlene Smith	24652
Arlene Tillotson	34542
Arlene Van Craeynest	25907
Arlene Zide	33962
Arlo Armstrong	26814
Armando Lopez	32295
Armella Feil	25414
Armella Feil	34406
Armen Kasparian	29689
Arne Nizhnikov	25950
Arnold Wiseman	27770
Art Conner	29730
Art Fritz III	32943
Art Hanson	30989
Art Meyer	34957
Art Plewka	32329
Art Stevenson	29589
Art Wilkinson	3628
Art Wilkinson	24267
Art Wilkinson	51734
Artemis Asproyerakas	31143
Arthur & Shirley Wolfe	31365
Arthur Baseler	33673
Arthur Beaudoin	25458
Arthur Bjorngjeld	29790
Arthur Burzykowski	29888
Arthur Connor	24172
Arthur Gmitro	27808
Arthur Hughes	28006
Arthur Jones	30070
Arthur Kaliski	27337

Sender Name	Submission ID
2 Sierra Club	
Arthur Rein	35501
Arthur Wolfe	29049
Artineh Havan	25757
Artineh Havan	25768
Arturo Franco	26229
Ashley Briscoe	3604
Ashley Briscoe	51726
Ashley Davis	28034
ashley heffner	37914
Ashley Kubinski	28029
Ashley Lutz	22942
Ashley Peel	27790
Ashley Pethan	35243
Ashley Pethan	47331
Ashley Pethan	48575
Ashley Schutt	25257
Ashley Stephen	29900
Aslan Zamazal	26855
Aslan Zamazal	32067
Asmaa Myran	36002
Assata Brown	35290
Aswini Kumar	24615
Aubree Eid	3647
Aubree Eid	51748
Aubrey Guilbault	29549
Aubrey Warsop	51555
Audra Soulias	30966
Audrey & Andre Benjamin	3794
Audrey & Andre Benjamin	51861
Audrey Alorro	25500
Audrey Byrd	31134
Audrey Cullen	2760
Audrey Cullen	51942
Audrey Fairchild-Ehm	2736
Audrey Fairchild-Ehm	51925
Audrey Glassman	48793
Audrey Rappe	35053
Audrey Taylor	34892
Audrey Tillinghast	24522

Sender Name	Submission ID
2 Sierra Club	
Augusta, Rachel	57934
Aurelia Czekalski	28007
Austen Petersen	35178
Austin Dame	2743
Austin Dame	51923
Austin Saari	35597
Autumn Brook	28781
Ava Bariana	26651
ava strong	25875
Ava Tomasula y Garcia	32118
Avery Lee	35890
Avryl MacDONALD	25143
Axel Ringe	25632
Ayming Ermina	25168
B Czarnecki	30829
B Doris Dubuc	31683
B R	28664
B R Metrick	35175
B Scalze	3589
B Scalze	51720
B Sullivan	24370
B W	24618
B. McGuffin	25746
Bachmann, Courtney	57935
Barb Bower	31634
Barb Daily	24485
Barb Fath	30933
Barb Gelman	28330
Barb Holcomb	30974
Barb Leahy	30390
Barb Reithel	31177
Barb Yessian	28847
Barbara & Jim Dale	27707
Barbara & Richard Swanson	28455
Barbara & Ronald Moline	32670
Barbara Adkins	23889
Barbara Aguirre	33381
Barbara And Rob Goodell	27803
Barbara and Theresa Lamarr	23067

Sender Name		Submission ID
2 Sierra Club		
Barbara Anderson		32374
Barbara Apt		23658
Barbara Baker		33519
Barbara Baron		33935
Barbara Barrish		29282
Barbara Basaj		28851
Barbara Batchelor		3672
Barbara Batchelor		51770
Barbara Bates		27616
Barbara Bonfield		33861
Barbara Brockway		31260
Barbara Brockway		49068
Barbara Brovarone		28221
Barbara Brovarone		35500
Barbara Buell		25780
Barbara Burgess		27286
Barbara Byers		30409
Barbara Capps		30801
Barbara Christensen		27831
Barbara Clewett		27467
Barbara Cochrane		33439
Barbara Consbruck		25381
Barbara Davidson		30192
Barbara Davis		27319
Barbara Dettlaff		26482
Barbara Downham		48901
Barbara Dufek		31562
Barbara Eckert		25042
Barbara Garber		30061
Barbara Gillies		33106
Barbara Glassheim		28603
Barbara Gomez		22261
Barbara Gottstein		10335
Barbara Gottstein		51498
Barbara Hamerlind		35865
Barbara Hargrove		23097
Barbara Harvey		26101
Barbara Hauber		26947
Barbara Hauser		23722

Sender Name	Submission ID
2 Sierra Club	
Barbara Hauser	28384
Barbara Heinrich	39425
Barbara Heinrich	48732
Barbara Heisler	34256
Barbara Hoch	32975
Barbara Hykes	33369
Barbara Ingle	23874
Barbara Ingle	33884
Barbara J Ronningen	30593
Barbara J. McVein	24097
Barbara Jackson	34254
Barbara James	34704
Barbara Janko	33026
Barbara Janssen	35185
Barbara Janssen	39949
Barbara Janssen	49020
Barbara Jean Christensen Lambert	31825
Barbara Jones	27638
Barbara Kantola	36012
Barbara Kaufman	3758
Barbara Kaufman	51834
Barbara Keer	34326
Barbara Kelly	29977
Barbara Koles	34998
Barbara Kollath	35461
Barbara Kopelman	32397
Barbara Kuhn	24617
Barbara Kuhn	28817
Barbara Kuhn	35634
Barbara Lalonde	35157
Barbara Lawrence-Rodriguez	36151
Barbara Levedahl	24579
Barbara Liszeo	33598
Barbara Liszeo	35633
Barbara Loyer	26470
Barbara Lyons	35714
Barbara Maccambridge	25304
Barbara Malavite	34279
Barbara Markley	33858

Sender Name	Submission ID
2 Sierra Club	
Barbara Marquart	35002
Barbara Mcdonough	31858
Barbara McElheny	26255
Barbara Mcgrath	24286
Barbara McIntosh	25064
Barbara Mcintosh	32479
Barbara Mckown	33460
Barbara Mistele	31780
Barbara Monier	32356
Barbara Monks	48651
Barbara Muehler	36110
Barbara Nelson	31606
Barbara Nobile	33158
Barbara Null	27804
Barbara Pack	25819
Barbara Pack	29926
Barbara Page	32946
Barbara Parker	30129
Barbara Patchen	35057
Barbara Patterson	35674
Barbara Peterson-Malesci	27650
Barbara Pohl	31412
Barbara Reed	29244
Barbara Reehl	34840
Barbara Remmer	34141
Barbara Richards	35914
barbara sandow	27703
Barbara Schlaud	27719
Barbara Seeger	30269
Barbara Sharp	25712
Barbara Sharp	28338
Barbara Sherman	33528
Barbara Siepierski	33326
Barbara Sigler	23603
Barbara Silber	27880
Barbara Silverman	31215
Barbara Simmonds	2896
Barbara Simmonds	52074
Barbara Sneath	35761

Sender Name	Submission ID
2 Sierra Club	
Barbara Sorensen	31908
Barbara Speitz	28494
Barbara Spiecker	33385
Barbara Spietz	32853
Barbara Stamp	31699
Barbara Stamp	49035
Barbara Steck	33296
Barbara Stolt	26291
Barbara Stolt	31817
Barbara Stone	28472
Barbara Stoneburner	29447
Barbara Stoneburner	29452
Barbara Sue Scholl	31135
Barbara Sullivan	28359
Barbara Sullivan	29542
Barbara Sullivan	29757
Barbara Teuschler	29394
Barbara Thorson	33906
Barbara Tillman	38291
Barbara Tischler	33417
Barbara Tomlinson	27907
Barbara Varber	23347
Barbara Vesper	35768
Barbara VonBenken	29375
Barbara Waldron	33975
Barbara Wallace	31997
Barbara Ward	23541
Barbara Werner	32163
Barbara Whitney	3752
Barbara Whitney	51830
Barbara Willison	34276
Barbara Wilson	26602
Barbara Wirth	36057
Barbara With	30921
Barbara Wong	25297
Barbara Wood	23793
Barbara Wood	23798
Barbara Wood	23799
Barbara Wood	23801

Sender Name		Submission ID
2 Sierra Club		
Barbara Zaha		35794
Barbara Zdarsky		33817
Barbara Zechlin		24730
Barbara Zechlin		31652
Barbara Zulliger		24686
Barbara Zulliger		28736
Barrett Goldflies		32007
Barry Adler		34889
Barry De Jasu		28163
Barry Duggan		31468
Barry Elkin		28402
Barry Medlin		26319
Barry Peterson		48871
Barry Rabichow		33430
Barry Riesch		32786
Barry Swank		33402
Barry Zuckerman		24193
Barry, Thomas		57937
Bart Botkin		31883
Bart Botkin		31919
Barton Grimm		33250
Barton, Sarah		57938
Bayleigh Perry		31697
Bea Dekker		33309
Beata Riedlmayer		31643
Beatrice Reszat		30994
Beatriz Pallanes		27187
Becky Anderson		27405
Becky Davis		30591
Becky Flatau		31240
Becky Gibbons		31672
Becky Gu		32360
Becky Laprade		25209
Becky Larson		28342
Becky Posey		26783
Becky Racette		36037
Becky Walkington		25984
Becky Wilberding		25266
Ben & Basilia Basin		22946

Sender Name	Submission ID
2 Sierra Club	
Ben Arnold	25030
Ben Ayotte	24756
Ben Barnes	29424
Ben Cushing	4526
Ben Cushing	51516
Ben Davis	49046
Ben Eidt	35166
Ben F. Garcia, Ph.D.-ABD	25366
Ben King	26742
Ben Murray	23476
Ben Murray	33269
Ben Ogren	27825
Ben Ogren	34341
Ben Pines	36156
Ben Portilla	28021
Ben Roller	33066
Ben Ross	30168
Ben Ruwe	27380
Benita Musleve	32916
Benjamin Krohling	2865
Benjamin Krohling	25567
Benjamin Krohling	52063
Benjamin Meyer	34438
Benjamin Rush	33547
Benjamin Starr	24788
Benjamin Wimmer	31102
Benton Stark	28187
Berghuis, Norm	57939
Bernadette Davel	33342
Bernadette Harvey	29966
Bernadette Knaeble	25549
Bernadine Besebes	25493
Bernadine Young	28208
Bernard Bouis	26754
Bernard Miszczak	32954
Bernardo Alayza Mujica	25939
Bernhard Völk	24999
Bernice Bolek	34361
Bernie Lamb	27075

Sender Name		Submission ID
2 Sierra Club		
Bernie Vogel		25513
Bert & Vivian Goff		25400
Berton Harrah		32718
Beryl Vogel		27559
Bess Katerinsky		24544
Bess Kontos		29163
Beth & Christopher Graham		34214
Beth Armstrong		31656
Beth Balogh		34934
Beth Braun		31511
Beth Breidenstein		31493
Beth Carr		24035
Beth Darlington		26616
Beth Davis		34705
Beth Funk		32888
Beth Greer		28311
Beth Grendahl		36257
Beth Hall		35382
Beth Hengst		29383
Beth Hubbel		35571
Beth Laurer		33167
Beth Lindemann		31008
Beth Lowe		36024
Beth Peterson		26723
Beth Raynis		32773
Beth Raynis		24436
Beth Rendall		30195
Beth Ryan		29262
Beth Taubel		32796
Beth Wegner		36121
Beth Zurkowski		35552
Bethany Curtiss		34416
Betsey Porter		3743
Betsey Porter		24089
Betsey Porter		49501
Betsey Porter		51826
Betsy Ensminger		26310
Betsy Feiker		26196
Betsy Holliday		24971

Sender Name	Submission ID
2 Sierra Club	
Betsy LePlatt	38648
Betsy LePlatt	48603
Betsy Svilow	36130
Betsy Wolfson	30485
Bette Feltham	33154
Bette Grotegut	27382
Bette Norman	24147
Bette Norman	46232
Bette Smith	28691
Bettina Bowers	27098
Bettina Conrad	27408
Betty Goller	33637
Betty J Van Wicklen	28490
Betty J. Van Wicklen	29893
Betty Kain	26922
Betty Leon	46413
Betty Lia-Hoagberg	30155
Betty Logan	26138
Betty Rasberry	33898
Betty Renard	23645
Betty Rukavina	29114
Betty Santos	26789
Betty Scully	34605
Betty Stewart	28271
Betty Tagge	26264
Betty Weber	27558
Betty Weber	35019
Betty Weinstock	31392
Betty Williams	33356
Betty Willson	34954
bettye Ware	3697
Bettye Ware	23987
Bettye Ware	49493
bettye Ware	51789
Beulah White	26713
Beulah White	34275
Bev Sadergaski	33152
Beverley & David Knoebel	23435
Beverley Walter	23015

Sender Name		Submission ID
2 Sierra Club		
Beverly Beatham		27936
Beverly Best		24988
Beverly Briggs		31779
Beverly Brown		35538
Beverly Cotton		23323
Beverly Feldt		26129
Beverly Finlayson		35210
Beverly Fowler		27910
Beverly Fowler		28282
Beverly Hanson		25612
Beverly Jones		27981
Beverly Kowaleski		33841
Beverly Mick		34207
Beverly Oberline		35651
Beverly Parsons		34423
Beverly Randall		31554
Beverly Schell		31205
Beverly Schell		48616
Bianca Chassagne		31256
Bianca Mcarrell		34780
Bil Musgrave		29913
Bill & Jan Lucking		28420
Bill Agans		35699
Bill Arndt		35791
Bill Baum		24173
Bill Brady		33126
Bill Brink		39484
Bill Brink		48753
Bill Brooks		31761
Bill Fernhill		32296
Bill Folta		35119
Bill Forbes		48934
Bill Forbes		39829
Bill Franz		30139
Bill Grogan		36202
Bill Gupton		26816
Bill Hane		51596
Bill Hansen		32694
Bill Jenkins		26825

Sender Name	Submission ID
2 Sierra Club	
Bill Kately	25987
Bill Lamorte	31186
Bill Marvin	27896
Bill Mullins	34431
Bill Polesnak	34814
Bill Rither	33161
Bill Rood	25098
Bill Roundwind	35318
Bill Simsalek	23122
Bill Staunton	30233
Bill Sutton	28861
Bill Szatkowski	33967
Bill Vickstrom	24866
Bill Weston	29453
Billi Cummings	30436
Billie Arceneaux	26678
Billie Kussman	29221
Billie Kussman	30763
Billita Jacobsen	30677
Billy Hancock	24331
Billy Patterson	31984
Binh Tang	25385
Birgitta Siponen	28938
Bita Edwards	24284
Bj Alexander	35666
Blair Moseley	33856
Blake O'Quinn	25847
Blake T	28010
Blanca Vargas	31318
Blanca Vargas	33589
Blanche Verkennes	26554
Blythe Clark-Mckitrick	27027
Blythe Clark-McKitrick	28332
Bob Amis	3764
Bob Amis	51839
Bob Brantley	25273
Bob Brantley	25276
Bob Crocco	34685
Bob Freed	34402

Sender Name		Submission ID
2 Sierra Club		
Bob Gendron		32629
Bob Haegele		38232
Bob Hagele		23298
Bob Hagele		26836
Bob Haugen		33795
Bob Johns		29206
Bob Kahng		36059
Bob Kipka		33271
Bob Konieczka		25395
Bob Krasen		24192
Bob Kriesky		26414
Bob Lichenbert		31079
Bob Neuzil		24581
Bob Rayburn		29027
Bob Rickert		34201
Bob Rohrbaugh		31867
Bob Shields		31367
bob swanson		30311
Bob Touchstone		29040
Bob Vaughan		27533
Bob Weikel		25977
Bob Zai		28178
Bobbi Barone		28937
Bobbi Grimes		31838
Bobbie Daniels		24443
Bobby Belknap		29970
Bobby Miller		33328
Bobby Salter		31364
Bobby Vaughn Jr.		29927
Bonita Hay		35349
Bonita Staas		34473
Bonita Underbakke		26665
Bonne Stewart		30412
Bonnie Anderson		32751
Bonnie Berger-Durnbaugh		29904
Bonnie Blitzstein		25839
Bonnie Dryer		30836
Bonnie Duman		35613
Bonnie Fox		2786

Sender Name	Submission ID
2 Sierra Club	
Bonnie Fox	51963
Bonnie Gallik	31281
Bonnie German	25457
Bonnie German	35583
Bonnie Lynn Mackinnon	25684
Bonnie Macraith	27369
Bonnie Meyer	29030
Bonnie Oliver	25497
Bonnie Reddel	27409
Bonnie Richardson	31010
Bonnie Templeton	26999
Bonnie Worden	33011
Boods ========	29692
Bouhiana Fadem	26444
Bowlin, Nicholas	57941
Bozana Gasic	34226
Brace Melton	32499
Brad Bannwart	31814
Brad Bornstein	33242
Brad De Ark	35687
Brad Hanahan	34606
Brad Hanson	25572
Brad Holmes	26139
Brad Miller	29991
Brad Millikin	30512
Brad Rueter	25216
Brad Walker	32324
Bradford Farmer	35441
Bradford Kral	33652
Bradley Blomquist	30072
Bradley Daniels	35076
Bradley Graham	30672
Bradley Heltemes	33620
Bradley Houseworth	35448
Bradley Paulsen II	29257
Bradley Schmidt	49031
Bradley Stewart	35554
Bradley Wiesneth	29499
Brandi Schlough	30970

Sender Name		Submission ID
2 Sierra Club		
Brandie Deal		27124
Brandon Benson		39638
Brandon Benson		48833
Brandon Boutros		24446
Brandon Fesser		48925
Brandon Fesser		39817
Brandon Heitzmann		24721
Brandon Jordan		27206
Brandon Kozak		26060
Brandon Kozak		30461
Brandon Norris		23391
Brandon Okone		32064
Brandon Van Vliet		2924
Brandon Van Vliet		52109
Brandy Beerens		22997
Brandy Schumacher		27293
Brandy Zapotosky		24088
Brant Kotch		27375
Brenda & Terry Gnader		27731
Brenda Briney		31574
Brenda Cameron		34347
Brenda Coan		34582
Brenda Collins		24923
Brenda Cook		26055
Brenda Eckberg		28882
Brenda Gaines		26552
Brenda Haddock		30526
Brenda Hoffman		24993
Brenda James		25275
Brenda Jellies		34677
Brenda Millett		32655
Brenda Nemec		33239
Brenda Palo		49062
Brenda Rivera-Brignoni		26151
Brenda Roberts		32385
Brenda Smith		25695
Brenda Solomon		33875
Brenda Walstrom		30549
Brene Anderson		23929

Sender Name	Submission ID
2 Sierra Club	
Brenna Brelie	3747
Brenna Brelie	51829
Brennan Madden	29263
Brennen Myers	32019
Brennen Stenke	36790
Brennen Stenke	49543
Brent Ambler	34853
Brent Godfrey	23149
Brent Hessong	22857
Brent Hessong	33445
Brent Koehn	25713
Brent Koehn	25725
Brent Purdue	24004
Brent Smith	34784
Bret Johnson	35662
Bret Johnson	49061
Brett And Kathy Smith	39515
Brett And Kathy Smith	48767
Brett Harper	33597
Brett Kinney	25989
Brett Mitchell	34449
Brett Smith	3554
Brett Smith	51697
Brian and Rita Cohen	25337
Brian Bellas	28929
Brian Berggren	28674
Brian Bertram	25027
Brian Betz	34856
Brian Boettcher	33431
Brian Bolling	34511
Brian Brown	23399
Brian Buxton	2885
Brian Buxton	52032
Brian Cox	35459
Brian Delrue	35356
Brian Doane	31758
Brian Duren	48911
Brian Duren	50937
Brian Earley	26445

Sender Name		Submission ID
2 Sierra Club		
Brian Earley		26448
Brian Elvert		33429
Brian Erickson		30085
Brian Frederick		24734
Brian Freeman		48977
Brian Genoa		24588
Brian Gephart		28838
Brian Glassel		31021
Brian Glienke		36056
Brian Gorra		32113
Brian Harris		29352
Brian Henning		2882
Brian Henning		52061
Brian Houser		28246
Brian Houser		35030
Brian Hull		28399
Brian Irvin		31681
Brian Kingery		29877
Brian Klubek		31988
Brian Larson		28687
Brian Larson		28688
Brian Lee Knutson		33108
Brian Licht		33913
Brian M. Scott		35186
Brian Mccarthy		34588
brian McCollum		28032
Brian Mccollum		29497
Brian Mcfarland		35012
Brian Nelson		29810
brian odonnell		23339
Brian Pappas		27909
Brian Robb		28726
Brian Robertson		24936
Brian Simurdiak		34724
Brian Smith		32428
Brian Sullivan		22945
Brian Sullivan		34050
Brian Thorbjornsen		23797
Brian Thorbjornsen		34422

Sender Name	Submission ID
2 Sierra Club	
Brian Thorbjornsen	51559
Brian Truax	27327
Brian Venable	40955
Brian Waak	35036
Brian Ward	35944
Brian Wilkerson	2708
Brian Wilkerson	51898
Brian Yanke	22792
Brian Yanke	33655
Brianna Ojard	28869
Brianna Pfeninger	27142
Brianna Tinjum	48652
bridget cooper	31446
Bridget Mcconville	48825
Bridget Murphy	31971
Bridget Palecek	22977
Bridget Spann	27524
Bridgette Jessen	35821
Brigid Geroux	30687
Brigitte Browe	36043
Brionte Mccorkle	27969
Bristol, Emily	57943
Britta Lindstrom	25300
Brittanie Parsons	24613
Brittanie Parsons	24619
Brittany Wheeler	23858
Brock Auerbach-Lynn	32380
Brock Schwartz	26276
Brody Hagemeier	2961
Brody Hagemeier	23935
Brody Hagemeier	25044
Brody Hagemeier	49489
Brody Hagemeier	52092
bronwen evans	25124
Brook Caillouette	26191
Brooke King	31463
Brooks Hale	47608
Brooks Obr	23182
Brooks Rollyson	34285

Sender Name		Submission ID
2 Sierra Club		
Brown, Kristen		57944
Bruce & Jennifer Lott		28064
Bruce Alden		34493
Bruce Appleby		33022
Bruce Armour		27619
Bruce Ashlin		30419
Bruce Atkinson		25961
Bruce Atkinson		34812
Bruce Bonecutter, PhD		27866
Bruce Brummitt		36188
Bruce Brummitt		49073
Bruce Cook		24894
Bruce Cratty		24632
Bruce Delong		30210
Bruce Forster		38399
Bruce Gibson		24001
Bruce Hlodnicki		26941
Bruce Hlodnicki		32169
Bruce Killips		34125
Bruce Kran		23351
Bruce Lee		31155
Bruce Luecke		32335
Bruce Marvin		27991
Bruce May		35282
Bruce Montney		30359
Bruce Rhoades		30685
Bruce Rutherford		29630
Bruce Smith		36226
Bruce Tillery		3612
Bruce Tillery		24426
Bruce Tillery		51730
Bruce Tulpo		35218
Bruce Valen		28599
Bruce Walker		36014
Bruce Zivley		27357
Bruner Bullivant		52288
Bruno F. Cilione		26603
Bruno Milone		22922
Bryan Cyra		30465

Sender Name	Submission ID
2 Sierra Club	
Bryan Emmel	48799
Bryan Hansel	3440
Bryan Hansel	51641
Bryan Johnsrud	24254
Bryan Johnsrud	32427
bryan klukowski	24059
Bryan Lilienkamp	36295
Bryan Maguire	35098
Bryan Meharry	29105
Bryan Petrulis	28782
Bryan Schmidt	2892
Bryan Schmidt	52059
Bryan Winget	29338
Bryce McDowell	34156
Bryce Smith	28043
Bryn Ramsey	31344
Bryna Pizzo	29663
Bryson Davis	38387
Buchholz, Nicole	57947
Burton Steck	33556
Buzz Alpert	31340
Byron Collier	29300
Byron Dale	29266
Byron Rice	48955
C Amick	34302
C Basile	34205
C Bradley	28940
C Kasey	24053
C Lee Beaty	48970
C Menkes	23383
C Mollie Bigger	27604
C Reed	32126
C Williams	24946
C. Arnold	33078
C. Connor	23882
C. Dougherty	25351
C. K	25677
C. K.	31077
C. M. Smiley	36221

Sender Name		Submission ID
2 Sierra Club		
C.S. Johnston		28214
Caitlin Adolph		28423
Caitlin Pedracine		30262
Caitlyn Horsch		25524
Caitlyn Horsch		51569
Caleb Drake		33616
Caleb Laieski		23668
Callie Riley		27294
Calvin Brandenburg		34122
Calvin Cole		30863
Calvin Rittenhouse		35360
Calvin Smith		23610
Cameron O'Reilly		28288
Cameron Sadeghpour		27763
Cameron Vaske		29064
Cami Leonard		25174
Camila Ahumada		24813
Camille Mccoy		31609
Camille Rabier		24706
Candace Benson		25286
Candace Faggen		28186
Candace Jarrett		26511
Candace Keskitalo		35991
Candace Keskitalo		48819
Candace Lorkiewicz		32358
Candace Volz		25822
Candace Wilhelm		26689
Candi Teachout		33415
Candice C		26136
Candice Glover		32620
Candice Wallace		34913
Candy Mccray		29998
Cara Ammon		33837
Cara Shonsey		28011
Caren Ciezki		30081
Caren Ziegler		34186
Carey Ascenzo		23197
Carey Primeau		34651
Cari Painter		26808

Sender Name	Submission ID
2 Sierra Club	
Carina O'Bara	28156
Carissa Lovett	27992
Carissa Sommers	25129
Carl & Jane Schwensohn	32963
Carl Hansen	34981
Carl Ireland	30584
Carl James Dahn	35394
Carl Kammeyer	22960
Carl Kanun	27830
Carl Klein	25424
Carl Lowry	34897
Carl Maxwell	30797
Carl Michel	32080
Carl Oberlin	30381
Carl Peterson	31020
Carl Sniegowski	34826
Carl Stapler	27264
Carla Babrick	24879
Carla Burke	34142
Carla Hasegawa-Ahrendt	35425
Carla Judge	32433
Carla Lai	27371
Carla Nelson	30608
Carla Peterson	31598
carla struble	34184
Carla Womack	32363
Carlene Triplett	30541
Carllynn Allen	29085
Carlo Zucchi	24669
Carlos Cardona	32402
Carlos Cunha	23778
Carly Barker	31119
Carmelita Banks	33933
Carmen Bonilla-Jones	25916
Carmen Floris	23804
Carmen Harrington	22876
Carmen Ramirez	27060
Carmen Scherubel	25155
Carmine Profant	29072

Sender Name	Submission ID
2 Sierra Club	
Caro Barahona	28720
Carol & Stephen Trippel	28023
Carol Abbott	35048
Carol Adamson	33416
Carol Ann Nix	36045
Carol Ashley	31290
Carol Beach	34503
Carol Becker	25904
Carol Berglund	24968
Carol Berkeley	28119
Carol Bischoff	29624
Carol Bodeau	27020
Carol Bruns	33603
Carol Burk	29132
carol carlson	32273
Carol Chapple	33896
Carol Christie	30506
Carol Clarkin	26605
Carol Clarkin	26609
Carol Collins	26976
Carol Dettleff	26047
Carol Donahue	35898
Carol Doty	32944
Carol DuCharme	28327
Carol Eberhart	32945
Carol Fish	51553
Carol Fisher	39306
Carol Fox	27029
Carol Frechette	2794
Carol Frechette	51969
Carol Gadbaw	27744
Carol Gardner	28935
Carol Garman	31498
Carol Gerbitz	32176
Carol Goldstein	23673
Carol Grasha	33794
Carol Halpern	36204
Carol Hand	29290
Carol Handras	27600

Sender Name	Submission ID
2 Sierra Club	
Carol Harder	32762
Carol Hartzell	25173
Carol Hatfield	28925
Carol Held	34086
Carol Hendrie	33261
Carol Hillman	31907
Carol Howard	31728
Carol Jacklyn	33491
Carol Jo Rotrock	35387
Carol Johnson	33670
Carol Johnston	33114
Carol Jones	25631
Carol Jurczewski	34117
Carol Kemenyes	29699
Carol Kemmler	27010
Carol Kiekow	34782
Carol Kiekow	39929
Carol Kiekow	49021
Carol Kivi	3766
Carol Kivi	51841
Carol Kussart	30840
Carol Lamberger	31813
Carol Lapetino	30931
Carol Laurencell	31273
Carol Leonis	28153
Carol Leonis	32342
Carol Lowery	26589
Carol Mcgeehan	23498
Carol Metzger	33869
Carol Michler Detmr	27217
Carol Miller	28190
Carol Miller	32630
Carol Mitchell	3465
Carol Mitchell	51654
Carol Neff	23426
Carol Neumann	33533
Carol Newill MD PhD	27420
Carol Nufer	27690
Carol Parsons	32103

Sender Name	Submission ID
2 Sierra Club	
Carol Pawlak	29718
Carol Peffer	35332
Carol Perrault	29517
Carol Peschke	32439
Carol Pinter	25375
Carol Piotrowski	30446
Carol Rahbari	29055
Carol Rall	34842
Carol Ramo	25521
Carol Reynolds	28142
Carol Royer	26571
Carol Rucks	27805
Carol Schaaf	35864
Carol Schaaf	52328
Carol Schaaf	52329
Carol Schneider	32008
Carol Sears	33952
Carol Simon	36000
Carol Simpson	34316
Carol Smith	24812
Carol Sorsoleil	34441
Carol Spessard	35337
Carol Spillane-Mueller	26698
Carol Steinhart	34985
Carol Tepper	25067
Carol Thomas	25138
Carol Thomas	31645
Carol Thombs	32674
Carol Thompson	24437
Carol Tucker	24411
Carol Tuveson	26499
Carol Vance	28315
Carol Vartanian	24093
Carol Veome	33349
Carol Walker	33428
Carol Whitfield	33653
Carole Capoun	34169
Carole Fernholz	24050
Carole Heffernan	3008

Sender Name	Submission ID
2 Sierra Club	
Carole Heffernan	52160
Carole Kohn	31301
carole lazor	35911
Carole Mark	35505
Carole Pappas	34009
Carole Pooler	29155
Carole Revers	35122
Carole Rust	4556
Carole Rust	51517
Carole Scott	25809
Carole Smith	33543
Carole Spencer	35771
Carole Strelow	24678
Carolina Bergdolt	25482
Carolina Varga	23783
Caroline Binder	25968
Caroline Borino	25585
Caroline Ceravolo	23120
Caroline Lewis	32778
Caroline Life	24637
Caroline Life	24639
Caroline Mead	36132
Caroline Portoghese	39921
Caroline Portoghese	49007
Caroline Seyler	31031
Caroline Themm	23843
Caroline Wojan	34995
Caroline Wooten	29374
Carol-Lee Zuvich	27605
CarolR Brown	34476
Carolyn Al-Qadi	32210
Carolyn And Ralph Trimble	26436
Carolyn Andre	36009
Carolyn Barber	33553
Carolyn Choiniere	32567
Carolyn Croom	23757
Carolyn Dahlgren	35536
Carolyn Douglas	34363
Carolyn Engelhart	33859

Sender Name		Submission ID
2 Sierra Club		
Carolyn Ettinger		27315
Carolyn Funk		35838
Carolyn Gabriel		30498
Carolyn Hippensteel		31126
Carolyn Holmes		31888
Carolyn Isham		26923
Carolyn Isham		33223
Carolyn Koch		31711
Carolyn Leonard		24715
Carolyn Massey		32940
Carolyn Mcquillan		30500
Carolyn Morado		30725
Carolyn Pugh		2785
Carolyn Pugh		51965
Carolyn Silvestro		25403
Carolyn Stark		2698
Carolyn Stark		51888
Carolyn Suchenicz		26090
carolyn triscott		24868
Carolyn Tropp		25790
Carolyn Villanova		27999
Carrie Arsenault		27180
Carrie Babbel		25267
Carrie Belanger		28195
Carrie Burton		30156
Carrie Eberhardt		31229
Carrie Eberhardt		39641
Carrie Eberhardt		48830
Carrie Eder		28848
Carrie Filter		33565
Carrie Goodykoontz		30663
Carrie Hartigan		28019
Carrie Landreth		36286
Carrie Nelson		34959
Carrie Noring		3451
Carrie Noring		51644
Carrie Peterson		39507
Carrie Peterson		48762
Carrie Santulli Schudda		29145

Sender Name	Submission ID
2 Sierra Club	
Carrie Tremlett	25364
Carrie Wild	27655
Carrilu Tietz	26621
Carsten Brueninghaus	51547
Cary Sheremet	34107
Caryl McAllister	28013
Caryn Baird	32230
Caryn Cowin	27303
Caryn Schulman	32108
Caryn Treiber	34137
Casey Cain	33613
Casey Folkertsma	33188
Casey Pittman	23212
Casey Swank	34173
Caskey, Carl	57950
Cassandra Webster	27884
Cat Brownlee	27280
Cat Collins	24397
Cat Jefferson	27054
Catharine Pearce	28857
Catherine Anders	23011
Catherine Anderson	31913
Catherine Apostle	33055
Catherine Apostle	48990
Catherine Bolten	30641
Catherine Briggs	25451
Catherine Byrd	32866
Catherine Carlin	33450
Catherine Dash	36099
Catherine De Leon	25229
Catherine Fasy	27376
Catherine Finley	3468
Catherine Finley	51656
Catherine Gramze	36052
Catherine Hales	35924
Catherine Harrison	2923
Catherine Harrison	52100
Catherine Jayne	25474
catherine jobling	25239

Sender Name	Submission ID
2 Sierra Club	
Catherine Johnson-Thomson	49032
Catherine Jurgensen	32609
Catherine Katz	30040
Catherine Keim	24995
Catherine Kemme	26777
Catherine Linton Cutler	29460
Catherine Malec	35468
Catherine McCoy	26728
Catherine McCrow	31015
Catherine Moyer	25862
Catherine Nicholl	48685
Catherine Parker	29859
Catherine Porter	31622
Catherine Quigg	28899
Catherine Rajcan	29177
Catherine Rehe	22944
Catherine Reid	25025
Catherine Reid	29726
Catherine Scallen	32951
Catherine Sullivan	29892
Catherine Weller	29309
Catherine Whitright	34078
Cathi Koenig	48859
cathie baldwin	38439
Cathie Christ	28773
Cathleen & David Dixon	33297
Cathleen King	26328
Cathryn Kissinger	30204
Cathy and Kirby Wood	25933
Cathy and Kirby Wood	29838
Cathy Beson	28365
Cathy Burton	35436
Cathy Corcoran	30416
Cathy Day	33072
Cathy Evans	34946
Cathy Felix	29567
Cathy Gagliardi	35050
Cathy Geltz	28324
Cathy Gianikos	30571

Sender Name	Submission ID
2 Sierra Club	
Cathy Glosser	28814
Cathy Goodrich	23856
Cathy Hanson	36129
Cathy Hanson	48910
Cathy Hanson	50936
Cathy Holden	27158
Cathy Kerznar	32092
Cathy Koski	35475
Cathy Koski	39924
Cathy Koski	49006
Cathy Lazarewicz	26597
Cathy Ploughman	33075
Cathy Pohlman	31710
Cathy Ream	27203
Cathy Ridenbaugh	32060
Cathy Rollefson	32669
Cathy Rusnak	28484
Cathy Sheets	24122
Cathy Swanson	39415
Cathy Swanson	48713
Cathy Tedrick	23681
Cathy Tedrick	28326
Cathy Vanderploeg	33226
Cathy Wood	22952
Cathy Wood	49456
Catina Spann	23492
Catina Spann	34983
Catina Spann	47044
Catina Spann	48562
Catrina Lessley	26278
Cecelia Askegard	33818
Cecelia Samp	29465
Cecelia Secor	33053
Cecil Corwin	25264
Cecilia Bruck	28913
Cecilia Held	34197
Cecilia Mora	33651
Cecilia Seabrook	29708
Cecily Isle	47370

Sender Name	Submission ID
2 Sierra Club	
Cecily Isle	48578
Celeste Henry	23979
Celeste Jaffe	32525
Celeste Jaffe	32528
Celeste L. Robins	23269
Celia O'Kelley	26494
Celine Blando	28427
Cendra Lynn	31398
Chad Collins	23387
Chad Martin	29670
Chad Martin	51571
Chad Nester	31818
Chad Stemm	25555
Chad Van Dam	26480
Chadwick Wright	22838
Chandler Bathrick	34949
Chandra Hershey-Lear	25702
Chandra Paetsch	24371
Chandra Perry-Swick	25603
Chanel Brown	26118
Chanomi Maxwell-Parish	21143
Chanomi Maxwell-Parish	50950
chantal beveren	41191
Chantal Dothey	31139
Chantal Gros-Louis	28700
Chanti Calabria	21206
Chanti Calabria	50972
Chapa Apach	31266
Char Hoffman	35400
Char Schumann	32622
Char Weissmuller	35885
Charal Kellner	29468
Charity Farrell	24416
Charlene Axelrod	31686
Charlene Boden	3780
Charlene Boden	25740
Charlene Boden	51854
Charlene Breedlove	33286
Charlene Cooper	24808

Sender Name	Submission ID
2 Sierra Club	
Charlene Faunt	30189
Charlene Harmount	36103
Charlene Moore	30964
Charlene Nelson	35479
Charlene Root	25859
Charlene Wiza	36224
Charlene Wiza	36285
Charles Acker	26400
Charles Alexander	24204
Charles And Mary Weaver	49071
Charles And Mona Benge	33706
Charles Argue	2962
Charles Argue	52126
Charles Boebel	32234
charles brumleve	29841
Charles Byrne	27002
Charles Card	25490
Charles Causey	26666
Charles Cole	28652
Charles Cotter	27820
Charles Crocker	23661
charles davidson	25032
Charles Davis	3541
Charles Davis	26593
Charles Davis	51689
Charles Dekubber	30548
Charles Dildine	30857
Charles Dorchester	25327
Charles Fletcher	31863
CHARLES FREEMAN	41333
Charles Frisk	24496
Charles Goldsmith	23183
Charles Grotzke	23058
Charles Grotzke	31670
Charles Gunn	32441
Charles Happel	33847
Charles Hensel	34215
Charles Kinsey	26639
Charles Lopez	35587

Sender Name		Submission ID
2 Sierra Club		
Charles Mckeny		34565
Charles Meszaros		34531
Charles Miller		31053
Charles Mullen		26457
Charles Mullen		34484
Charles Nohava		28224
Charles Nohava		34121
Charles Porta		22895
Charles Robson		31284
Charles Sears		34245
Charles Shelton		27717
Charles Shipman		26819
Charles Spiroff		23251
Charles Stefanac		33984
Charles Stoncheck		28267
Charles Stransky		31302
Charles Sugnet		39305
Charles Tazzia		28845
Charles Waggoner		29633
Charles Weinberg		31056
Charles Weinberg		31124
Charles Weinberg		31144
Charles Woodliff		29814
Charles Wright		27412
Charles Wright		33367
Charlie Bensinger		33184
Charlie Burns		24519
Charlie Franzell		30566
Charlie Marshall		27636
Charlie Thomes		32662
Charlie Weaver		32276
Charlotte Better		31379
Charlotte Donovan		25145
Charlotte Gallardo		24030
Charlotte Husteck		28699
Charlotte Poindexter		24671
Charlotte Read		32619
Charlotte Serazio		32248
Charlotte Towey		35068

Sender Name	Submission ID
2 Sierra Club	
Charlotte Twyford	34692
Charlotte Wildman	28995
Charmaine Pulgados	26351
Charmaine Stillwell	30397
Charmi Neely	25445
Charming Evelyn	27631
Chas Pelusi	25814
Chas Withers	23406
Chatta Small	22797
Chatta Small	45803
Chatta Small	48542
Chauntelle Shearer	34591
Chelsea Braden	28530
Chelsea Brown	38338
Chelsea Dastolfo	2778
Chelsea Dastolfo	51956
Chelsea Obrien	35542
Chelsey Permenter	3459
Chelsey Permenter	51649
Cher Johnson	33391
Cher Sulerud	35089
Cheri Gaspero	32957
Cheri Wilcox	33999
Cherry Wardrip	31459
Cheryl & John Fiene	46523
Cheryl Ash	26592
Cheryl Austin	35757
Cheryl Baker	32550
Cheryl Busking	29333
Cheryl Carlson	30732
Cheryl Catron	23494
Cheryl Elyea	34736
Cheryl Fahlman	27350
Cheryl Fischer	24288
Cheryl Gerth	47045
Cheryl Haugh	26856
Cheryl Heger	30064
Cheryl Herrig	26487
Cheryl Holzle	26575

Sender Name		Submission ID
2 Sierra Club		
Cheryl Hughes		29658
Cheryl Ivey		29919
Cheryl Johnson		31747
Cheryl Johnson		33523
Cheryl Keller		33632
Cheryl Laskasky		24660
Cheryl Laskasky		31617
Cheryl Lawrence		28837
Cheryl Nordquist		31797
Cheryl Peters		28630
cheryl podgorski		30555
Cheryl Purvis		33557
Cheryl Sedor		29198
Cheryl Smude		39942
Cheryl Smude		49018
Cheryl Strazdins		35181
Cheryl Turton		28442
Cheryl Turton		28447
Cheryl Turton		38036
Cheryl Vallone		26104
Cheryl Watters		24229
Cheryl Williams		32632
Cheryn Zimmer		33995
Chester Sautter		24341
Chester Sermak		34164
Chet & Jodie Van Wert		24760
Chet & Paulette Nettestad		24120
Chiara Canalini		24125
Child, William		57951
Chirathivat, Pat		57952
Chris & Elizabeth Braymen		24982
Chris & Tamra Conwell		27236
Chris Anctil		26601
Chris Bieszk		34124
Chris Brickett		29819
Chris Burrell		30111
Chris Burrell		33646
Chris Byknish		28300
Chris Byknish		29576

Sender Name	Submission ID
2 Sierra Club	
Chris Carbone	24083
Chris Caron	29346
Chris Casper	26077
Chris Casper	36269
Chris Collins	26888
Chris Crozier	34042
Chris Dilley	28052
Chris Drumright	28535
Chris Erickson	2783
Chris Erickson	51962
Chris Frost	24636
Chris Gerlach	51572
Chris Golden	28503
Chris Goldin	26743
Chris Gross	32381
Chris Grushas	33063
Chris Hoffman	24094
Chris Kiefer	31716
Chris Klopp	32014
Chris Kripke	29401
Chris LaFleur	29749
Chris Lannon	35252
Chris Law	29614
Chris Lopes	30808
Chris Mendel	28249
Chris Mendel	30750
Chris Mest	35527
Chris Monti	35037
Chris Moyer	25382
Chris Mullen	26396
Chris Nelson	3688
Chris Nelson	51775
chris OSBURN	33135
Chris Ottosen	36296
Chris Paterson	24822
Chris Perkins	30376
Chris Riley	23002
Chris Robinson	36284
Chris Shindak	29249

Sender Name		Submission ID
2 Sierra Club		
Chris Smith		30888
Chris Steffes		31083
Chris Stepanian		36245
Chris Thomas		23695
Chris Waddell		33119
Chris Watenpool		24248
Chris Yatchak		30289
Christa Chavez		31556
Christa Kramer		28975
Christa Melnyczenko		33169
Christain Ramstack		29565
Christeen Anderson		30133
Christeen Stone		35397
Christeen Stone		48912
Christeen Stone		50938
Christi Dillon		26056
Christian Heinold		25696
Christian Lindberg		27318
Christie Vanlooy		34114
Christie Young		30768
Christina Bhandari		35266
Christina Bueno		26323
Christina Bueno		34629
Christina Crawford		26201
Christina De Leon		24692
Christina Hodges		32489
Christina Johnson		23499
Christina Jones		25160
Christina Kaiser		24427
Christina Marcus		22806
Christina Mckye		21852
Christina Navarro		26535
Christina Orman		27929
Christina Parry		25157
Christina Rarick		48915
Christina Strother		30521
Christina Tise		27737
Christine Allen-Riley		30746
Christine Austin		34709

Sender Name	Submission ID
2 Sierra Club	
Christine Barrett	35305
Christine Becker	30990
Christine Bremer	34899
Christine Bryan	25789
Christine Canavan	29762
Christine Carol Abraham	24947
Christine Danner	25386
Christine Danner	31306
Christine Dillon-Puchalsky	30384
Christine Disimone	26737
Christine Doan	30579
Christine Duda	35079
Christine Epp	31149
Christine Faghihi	32738
Christine Frank	4470
Christine Frank	51544
Christine Gasco	29273
Christine Gruber	2834
Christine Gruber	52008
Christine Harris	32443
Christine Harshman	2811
Christine Harshman	51988
Christine Hayes	26950
Christine Huelsman	32779
Christine Hunt	34681
Christine Hurst	26815
Christine Johnson	30441
Christine Kavanaugh	30333
Christine Khanna	26086
Christine Knudson	34635
Christine Lussier	32026
Christine Marley	31604
Christine Mathews	31542
Christine Mitchell	32887
Christine Osterberg	35624
Christine Ostopoff	27251
Christine Pado	28512
Christine Pikala	29882
Christine Popowski	3648

Sender Name		Submission ID
2 Sierra Club		
Christine Popowski		25755
Christine Popowski		51753
Christine Rattigan		30559
Christine Riblett		26041
Christine Scheiden		30468
Christine Schmidt		32641
Christine Sellick		22880
Christine Sobocinski		32200
Christine Stewart		26067
Christine Tendle		34649
Christine Tendle		48926
Christine Yellowthunder		31742
Christoph Ruegg		25076
Christopher Abba		29909
Christopher Anderson		30128
Christopher Belanger		35421
Christopher Chastain		28960
Christopher Comparetta, Ms		24221
Christopher Dibattista		29976
Christopher Dupuis		28125
Christopher Geraghty		27842
Christopher Goetz		34355
Christopher Greffin		2686
Christopher Greffin		51880
Christopher Guinn		26984
Christopher Haddad		29405
Christopher Herbert		35458
Christopher Hoffman		24198
Christopher Hughes		27733
Christopher Kline		34623
Christopher Lafleur		48994
Christopher Lafleur		39920
Christopher Lafleur		39926
Christopher Lafleur		48997
Christopher Lane		32485
Christopher Lee		32003
Christopher Mcmillan		35686
Christopher Panayi		26178
Christopher Perrin		30312

Sender Name	Submission ID
2 Sierra Club	
Christopher Reddick	35840
Christopher Riff	35977
Christopher Scoville	30394
Christopher Thilges	29484
Christopher Thompson	34655
Christopher Walker	27454
Christopher Wall	30976
Christopher Wieczorek	32687
Christy Borriello	23898
Christy Elamma	33418
Christy Evans	28475
Christy Fleming	31244
Christy Huff	25009
Christy Kurtz	25749
Christy Kurtz	28952
Christy Mazrimas-Ott	26112
Christy Mazrimas-Ott	32078
Christy Rassey	29832
Chuck Atkinson	34397
Chuck Block	34202
Chuck Block	34230
chuck Botwinski	29648
Chuck Henning	34766
Chuck Jungeberg	27072
Chuck Karp	26070
Chuck McCall	27314
Chuck McCall	35385
Chuck Munro	35767
Chuck Schwartz	34797
Chuck Untulis	25738
Cindra Sims	32101
Cindy Bassham	24069
Cindy Blue	30247
Cindy Borske	26233
Cindy Bray	31991
Cindy Commers	39503
Cindy Commers	48755
Cindy Dewalt	28303
Cindy Dobrzynski	28580

Sender Name		Submission ID
2 Sierra Club		
Cindy Edwards		25365
Cindy Elgren		29241
Cindy Griffin		29502
Cindy Grochowski		39937
Cindy Grochowski		49004
Cindy Harvey		37869
Cindy Haynes		34596
Cindy Hoffman		26608
Cindy Innes		35733
Cindy Jensen		28126
Cindy Kasnicka		33138
Cindy Logsdon		23612
Cindy MAKINSON		28681
Cindy Matthews		23920
Cindy Mazurek		22819
Cindy Moczarney		28911
Cindy Murphy		24942
Cindy Murphy		27688
Cindy Oldenburg		24659
Cindy Oldenburg		24744
Cindy Phillips		29443
Cindy Riplinger-Konrath		25292
Cindy Rusu		34670
Cindy Schultz-Condon		23432
Cindy Schultz-Condon		23439
Cindy Simon		34105
Cindy Stocker		29031
Cindy Voss		34248
Cindy Wiest		29677
Cindy Zembryki		24769
Cinthia Macie		41484
Cinzia Perdon		24912
Clair Branch		34367
Claire Adams		25905
Claire Bindert		30122
Claire Britton		32553
Claire Gilman		35296
Claire Henderson		33233
Claire Lupton		27449

Sender Name	Submission ID
2 Sierra Club	
Claire Mack	23096
Claire Marvet	32022
Claire Nelson	38650
Claire Nelson	38654
Claire Nelson	48605
Claire Rintelmann	28488
Claire Russell	33408
Claire Stewart	27152
Claire Taylor	24900
Claire Winzenburg	43743
Claire Winzenburg	48494
Clara Juhl	33921
Clara Levy	27164
Claranetta Maxwell	25794
Claranetta Maxwell	36230
Clare Norelle	35236
Clarence Bolin	24986
Clarence Brown	35188
Clarence Juelich	32156
Clarette Wenta	32302
Clarissa Heil	28317
Clark & Irene Bullard	33532
Clark Crowe	28991
Clark Miller	51602
Clark Seha	27940
Clark Seha	48774
Clarke Kahlo	33634
Claude Pettis	23697
Claude Pettis	25697
Claude Robert	26612
Claudette Ashley	31775
Claudette Minichiello	25396
Claudia Apuzzo	29395
Claudia Cannaday	27748
claudia clemente	27069
Claudia Dadabo	47459
Claudia Damian	32508
Claudia Davis	26803
Claudia Demarco	29667

Sender Name		Submission ID
2 Sierra Club		
Claudia Medina		25845
Claudia Medina		25915
Claudia Medina		25923
Claudia Medina		25926
Claudia Medina		25928
Claudia Medina		25929
Claudia Medina		25930
Claudia Medina		25934
Claudia Medina		25937
Claudia Medina		25938
Claudia Medina		25941
Claudia Medina		25942
Claudia Medina		25945
Claudia Medina		25946
Claudia Medina		25947
Claudia Moore		25486
Claudia Moreno		24532
Claudia Palmer		32134
Claudia Parker		30609
Claudia Ripley		31852
Claudia Rullman		23113
Claudia Vrabie		26637
Claudia Young		24483
Claudine Holbrook		30980
Claudine Lienau		33499
Claudio Osti		27025
Claus & Phyllis Dolph		27775
Clayton Cuba		25619
Clayton Daughenbaugh		27455
Clayton Ferguson		25998
Clayton Hunter		25550
Clayton Jones		27452
Clayton Sankey		48690
Clem Davis		34178
Clement Thurn		32304
Cletisann McKellar		25371
Cleva Guy		51563
Clif Ware		3769
Clif Ware		51842

Sender Name	Submission ID
2 Sierra Club	
Cliff and Ann Joseph	31424
Clifford Moyes	25935
Clifford Provost	27362
Clifford Rot	25872
Clifford Rot	35013
Clinton Kollars	31437
Clinton van Leer	24213
Clinton Van Leer	31650
Clyde Stephens	28549
Clyde Weston	25207
Codee Hart	34689
Cody Allen	23588
Cody Cowdin	32787
Cody Mitcheltree	25714
Cody Pattison	33963
Cody Rudow	23703
Colin Boysel	29765
Colin Cybulski	29125
colin goldstein	26632
Colleen Boatman-Katchenago	31254
Colleen Cleary	35065
Colleen Coogan	24152
Colleen Gutta	33587
Colleen Kuminski	35663
Colleen Madden	28498
Colleen Madden	39511
Colleen Madden	48763
Colleen Mcglone	25502
Colleen McMullen	27726
Colleen Nash	26784
Colleen Redoutey	36161
Colleen Robson	32268
Colleen Skjerven	23039
Colleen Skjerven	31679
Colles Larkin	3560
Colles Larkin	51703
Collette Halford	35805
Collin Caudell	31448
Colling, Evan	57957

Sender Name		Submission ID
2 Sierra Club		
Colling, Mera		57958
Collman, Richard		57959
Conleth M. C. Crotser MD		28220
Connie Connour		28556
Connie Crew		32565
Connie Diercks		32788
Connie Fischbein		28770
Connie Fletcher		31312
Connie Gagnon		25609
Connie Grundhofer		2773
Connie Grundhofer		51951
Connie Hicks		27181
Connie Holmes		34563
Connie Hutson		32676
Connie Krause		31980
Connie Kuhnz		21170
Connie Kuhnz		50966
Connie Lacher		48610
Connie Metcalf		30752
Connie Metcalf		44410
Connie Metcalf		48502
Connie Miller		27490
Connie Pennington		35102
Connie Perez		35331
Connie Sabin		31317
Connie Scanlan		33894
Connie Schweigert		33149
Connie Schweigert		48937
Connie Schweigert		39830
Connie Speake		33605
Connie Stone		29418
Connie Streit		24026
Connie Thompson		27237
Connie Walling		30896
Connor Treacy		33536
Conrad Bertz		30175
Constance Fugolo		32030
Constance Hall		29642
Constance Lal		35322

Sender Name	Submission ID
2 Sierra Club	
Constance Lorig	24851
Constance Ludden	26150
Constance Moeller	6140
Constance Moeller	51503
Constance Nelson	39394
Constance Nelson	48701
Constance Watson	31490
Constance Zeman	24885
Cooper Holland	24994
Cora Chin	22858
Cordale Brown	33781
Cordale Brown	34417
Corey Benjamin	26536
Corey Bigelow	23542
Corey E. Olsen	24933
Corey E. Olsen	36137
Corey Jacob	2735
Corey Jacob	51919
Corey Parker	31187
corinne cummings	27943
Corinne Defrancisci	23085
Corinne Miller	32925
Corinne Shannon	23468
Corinne Smith	23181
Corliss Decker	31524
Cornelius Devlin	33757
Cornelius Dykema	26530
Corrine Molling	31387
Cortney Zaret	24348
Cortney Zaret	30662
Cory Wagner	3785
Cory Wagner	51856
Costa Nikolaides	23844
Courtney Bean	31573
Courtney Martinez	27104
Courtney Morgan	27014
Courtney Stefano	25910
Courtnye Mcclure	34262
Coy, Debra	57962

Sender Name	Submission ID
2 Sierra Club	
Craig & Natalie Marburger	27572
Craig Aichele	39108
Craig Aichele	48646
Craig Beach	25754
Craig Bell	29764
Craig Brown	2932
Craig Brown	3433
Craig Brown	4303
Craig Brown	51526
Craig Brown	51638
Craig Brown	52085
Craig Bunting	24759
Craig Burns	32313
Craig Christenson	51591
Craig Evenson	30285
Craig Hemann	29486
Craig Heverly	27574
Craig Lanken	30174
Craig McGuire	29772
Craig Michaelis	3770
Craig Michaelis	51843
Craig Owen	31951
Craig Pence	34760
Craig Poorker	2936
Craig Poorker	52087
Craig Savage	35200
Craig Shisler	31555
Craig Smith	24406
Craig Todd	34896
Craig Webster	23041
Craig Westgate	48913
Craig Williams	30030
Craig Worrel	3761
Craig Worrel	51837
Cristina Martinez	31516
Cristina Novelo	24095
Cristina Rio Lopez	23607
Crystal Connelly-Barcus	32740
Crystal Hejl	26252

Sender Name	Submission ID
2 Sierra Club	
Crystal M	29116
Crystal Mcallister	33393
Crystal Myslajek	48615
Cuellar Bernadette	26830
Curt & Lori Hofmann	28450
Curt Ackman	30368
Curt Frederick	3000
Curt Frederick	52156
Curt Leibowitz	29721
Curtis Coffer	30659
Curtis Coffer	44863
Curtis Coffer	48515
Curtis Eckstein	29569
Curtis Goff	34320
Curtis Gutoske	4487
Curtis Gutoske	51546
Curtis Murray	31016
Curtis Woodside	26886
Curzio Bruni	29596
Cw Johnson	39951
Cw Johnson	49025
Cy Neu	33716
Cyndi Hunt	24514
Cyndi Kirschling	23164
Cyndi Kirschling	32320
Cyndi Neus Bradley	48788
Cyndi Sardilli	26009
Cyndi Taylor	29319
Cynthia Arneson	24525
Cynthia Arneson	27933
Cynthia Birkmeier	35439
Cynthia Cherny	39402
Cynthia Collawn	24969
Cynthia Crawford	35383
Cynthia Cupal	31840
Cynthia Dobson	35291
Cynthia Fricano	29958
Cynthia Gramse	35204
Cynthia Haas	36131

Sender Name	Submission ID
2 Sierra Club	
Cynthia Hines	32236
Cynthia Jay	31983
Cynthia Jay	31998
Cynthia Johnston	33976
Cynthia Kegel	34380
Cynthia Klawitter	25135
Cynthia Mace	33052
Cynthia Marrs	25951
Cynthia McCutcheon	26847
Cynthia Molinero	24269
Cynthia Nader	35872
Cynthia Olson	2888
Cynthia Olson	23221
Cynthia Olson	52065
Cynthia O'Neill	35620
Cynthia Peterson	33247
Cynthia Pierce	33707
Cynthia Pirie	35588
Cynthia Prebihalo	35621
Cynthia Quast	31869
Cynthia Radcliffe	23225
Cynthia Raha	24560
Cynthia Schwalbach	32361
Cynthia Sherman-Jones	30108
Cynthia Sloan	28257
Cynthia Smith	30529
Cynthia Springer	31787
Cynthia Squires	24304
Cynthia Stevens	27471
Cynthia Stout	36106
Cynthia Vayko	31484
Cynthia Willsey	23353
Cynthia Wuerth	33488
Cythia Walt-Lillis	30305
D Belt	28433
D E Hochtritt	30073
D Haltom	31793
D Heaton	28624
D Johnson	29402

Sender Name	Submission ID
2 Sierra Club	
d Klebesadel	28604
D L Rivers	28378
D P	35762
D Smith	35641
D Spaulding	25087
D Spurgeon	31435
D Stirpe	26718
D. James Heaton	28657
D. Lennartz	26174
D. Singer	29840
D. Williams	35990
Dabney Bullivant	52287
Dagmar Romano	35187
Dagmar Tolentino	35289
Dagny Boebel	32864
Dakota Hoska	48922
Dalal Salamey	31460
Dale Adcock	33937
Dale and Rosemary Johnston	2855
Dale and Rosemary Johnston	24119
Dale and Rosemary Johnston	49505
Dale and Rosemary Johnston	52030
Dale Boeff	48771
Dale Boroviak	35701
Dale Carpenter	32457
Dale Carpenter	35585
Dale Dexter	28601
Dale Hammons	3399
Dale Hammons	51626
Dale Hulst	34174
Dale Hupp	28090
Dale Leach	25855
Dale Newton	33535
Dale Patterson	23055
Dale Patterson	23059
Dale Schwerin	48816
Dale Simonson	23359
Dale Wright	25326
Dallas Williams	28705

Sender Name		Submission ID
2 Sierra Club		
Damien Millen		28620
Damon Jordan		34064
Dan Allen		28468
Dan Barth		30508
Dan Blakey		30223
Dan Brennan		32429
Dan Burns		4357
Dan Burns		51536
Dan Conner		3715
Dan Conner		51797
Dan De Gooyer		28262
Dan Denov		29109
Dan Doepker		35295
Dan Eggert		34772
Dan Emmel		3653
Dan Emmel		51754
Dan Englund		32559
Dan Fischbach		26147
Dan Girzadas Iii		30134
Dan Grisko		32710
Dan Haeffner		26964
Dan Heffernan		34194
Dan Hopkins		30862
Dan Ingall		31939
Dan Johnson		28372
Dan Johnson		29874
Dan Johnson		30008
Dan Kegebein		24456
Dan Lara		29676
Dan Lemieux		33448
Dan Malecha		35694
Dan Mccurdy		31489
Dan Mitchell		35676
Dan Moreno		33914
Dan Noiret		22966
Dan Oelke		28046
Dan Renzoni		34594
Dan Rhude		26974
Dan Sponseller		35313

Sender Name	Submission ID
2 Sierra Club	
Dan Tabb	35307
Dan Tobin	27128
Dan Truchon	39458
Dan Truchon	48738
Dan Wicht	36155
Dana Antonuccio	24768
Dana Atnip	28376
Dana Blackman	24445
Dana Boergerhoff	29472
Dana Booth	32277
Dana Booth	32310
Dana Carlson	30353
Dana Clearman	30910
Dana Dodge	25146
Dana Kisinger	30293
Dana Loew	24362
Dana Lundin	34034
Dana Mains	29541
Dana Orlich	24748
Dana White	30107
Dana Woods	25407
Dana Wrich	2753
Dana Wrich	51936
Danah Woodruff	23140
Danamarie Andujar	34482
Daniel and Jeanette Smith	31311
Daniel Anderson	23613
Daniel Bachmann	34447
Daniel Balto	47180
Daniel Balto	48566
Daniel Beck	24578
Daniel Bertrand	36117
Daniel Buckler	23193
Daniel Burnham	33907
Daniel Campbell	31857
Daniel Carolan	27597
Daniel Casar	33170
Daniel Cavanaugh	23996
Daniel Cavanaugh	33510

Sender Name		Submission ID
2 Sierra Club		
Daniel Chase		34671
Daniel Chase		34789
Daniel Chrest		31458
Daniel Cohen		33867
Daniel Colbert		35284
Daniel Cunningham		32897
Daniel Cushing		35485
Daniel Demetzky		31236
Daniel Dolvin		23228
Daniel Driscoll-Shaw		24077
Daniel Earle		35967
Daniel Eck		36293
Daniel Ferrier		31906
Daniel Fouke		30890
Daniel J. Lavorini		30166
Daniel Kieckhefer		28575
Daniel Klco		30621
Daniel Knowland		32423
Daniel Kolender		23811
Daniel Kolender		32483
Daniel Kozminski		31972
Daniel Leary		24844
Daniel Magennis		24176
Daniel Mc Dowell		26454
Daniel Miche II		30345
Daniel Murphy		33044
Daniel Newkirk		26359
Daniel Pepin		34845
Daniel Rueters-Ward		25306
Daniel Senic		21602
Daniel Simon		35242
Daniel Strong		34620
Daniel Tabako		27024
Daniel Tabako		51612
Daniel Toohey		33668
Daniel Vander Ploeg		34524
Daniel Waite		33908
Daniel Weidert		31279
Daniel Wolfe		3629

Sender Name	Submission ID
2 Sierra Club	
Daniel Wolfe	51736
Daniel Young	35630
Danielle Chisholm	27972
Danielle Corrigan	30476
Danielle Graham	31757
Danielle Holubowski	24009
Danielle Richardson	23343
Danielle Vallee	26109
Danielle Wisgowski	34676
Danny Clarke	33331
Danny Maher	34898
Danny Nichols	46537
Danny Nichols	48552
danuta radko	27595
Danuta Watola	29609
Danya Kuperstein	28096
Daphne Gray	24311
Darcey Snow	27668
Darcy Nadler	34163
Darcy Nickel	35348
Daren Davis	23520
Daria Gregg	27006
Darilynn Mccoy	30699
Darleen Cox	30351
Darlene & Donald King	27495
Darlene Baughman	35894
Darlene Bialeck	25051
Darlene Borcherding	34379
Darlene Byrd	31348
Darlene Chiles	24549
Darlene Dyer	24034
Darlene Florence	23392
Darlene Jakusz	27030
Darlene Jakusz	34255
Darlene Jakusz	34292
Darlene Kraemer	27582
Darlene Labine	23867
Darlene Minnick	35370
Darlene Minnick	35399

Sender Name		Submission ID
2 Sierra Club		
Darlene Morris		27064
Darlene Noesen		34660
Darlene Subialka		49039
Darlene Wolf		25710
Darlene Young		34933
Darlene Young		49041
Darnell Barsness		34800
Darrel Bruck		35350
Darrel Joy		29235
Darrell Mc Daniel		27903
Darrell Robinson		27630
Darren Collins		29335
DARRON BLAKE SMITH		24774
Darryl Burns		25965
Darvan Schild		23413
Darwin Dyce		51562
Daryl Ross		24211
Daryl Wilson		32058
Darynne Jessler		27289
Dave Abbott		33000
Dave Beaulieu		25201
Dave Bilski		32135
Dave Carlson		39694
Dave Carlson		48858
Dave Dean		32627
Dave Duffield		35398
Dave Erickson		35755
Dave Forgianni		39952
Dave Forgianni		49027
Dave Frank		25541
Dave G		35016
Dave Gliva		29995
Dave Gupta		27906
Dave Hamlin		48683
Dave Hedlund		29222
Dave Kehl		31861
Dave Kropilnicki		33082
Dave Krupa		23324
Dave Lagesse		28594

Sender Name	Submission ID
2 Sierra Club	
Dave Manthey	32785
Dave Meyer	24270
Dave Pierson	3476
Dave Pierson	51657
Dave Rasmussen	28900
Dave Ross	25651
Dave Ruona	25542
Dave Ruona	35521
Dave Searles	27506
Dave Wade	33522
Dave Worth	23270
Daviann Mcclurg	26140
David & Ann Fowler	27899
David & Barbara Wallesz	23087
David & Becky Olson	32042
David & Jeanna Cesaratto	32279
David & Judy Hill	35443
David & Justine Pliska	2803
David & Justine Pliska	51978
David & Leneda Ditterick	26485
David & Missy Foran	35707
David & Nancy Cencula	26342
David & Sandy Roseman	29366
David & Susan Florin	27722
David & Susan Florin	29462
David & Trisha Swift	33420
David A. Evans Jr.	31704
David Albert	26945
David And Alicia Newell	48633
David And Betty Knutzen	32111
David And Caroline Tapia	25038
David Arntson	24180
David Arthur	22898
David Balan	25151
David Balan	31131
David Batt	26909
David Baudouine	29232
David Blaszkiewicz	32729
David Blosser	30655

Sender Name		Submission ID
2 Sierra Club		
David Boettcher		33950
David Booher		29813
David Borcean		31438
David Borcean		33744
David Borcean		33798
David Brandes		29119
David Brayfield		32379
David Brenner		2864
David Brenner		52072
David Brultz		24872
David Brultz		30804
David Burkett		29296
David Burns		26968
David Butler		34346
David Campbell		30958
David Carlson		27120
David Chandler		23902
David Chapek		2939
David Chapek		52101
David Cogan		29270
David Colby		25159
David Coon		32032
David Councilman		3521
David Councilman		29042
David Councilman		51681
David Court		31916
David Cramer		35375
David Cross		30018
David De Jong		32202
David Deguch		34234
David Deguch		34257
David Deguch		34286
David Dennis		26303
David Dent		22991
David Dodd		32157
David Donovan		33283
David Edsey		30622
David Erpelding		24847
David Esparsa		28459

Sender Name	Submission ID
2 Sierra Club	
David Ewing	34123
David F. Strzok	24493
David Fee	34795
David Fischer	27666
David Fouche	22912
David Fox	33474
David Franzone	35525
David Frederick	30932
David Fuchs	35489
David Fulwiler	32222
David Garelick	48736
David Garritson	36079
David George	36170
David Geurts	52311
David Geurts	52312
David Glossberg	29444
David Goldberg	30193
David Goldberg	35011
David Goldsmith	32265
David Gotshall	34661
David Gregg	24566
David Guthery	30258
David Hamburger	32185
David Hanson	34382
David Harland	30023
David Hart	28057
David Hart	32220
David Hauer	3748
David Hauer	51825
David Hegdahl	39479
David Hegdahl	48751
David Heupel	2772
David Heupel	51950
David Hochtritt	30116
David Hochtritt	27752
David Hoehnen	31503
David Hohle	2981
David Hohle	52168
David Holmes	35738

Sender Name		Submission ID
2 Sierra Club		
David Iskra		21873
David Jacques		26631
David Jecsi		4522
David Jecsi		51515
David Jensen		33403
David Jex		33804
David Kelson		33174
David Kersten		28233
David Kersten		34261
David Klaphaak		24646
David Klass		25489
David Klinger		25319
David Knight		27812
David Koeller		31915
David Kornreich		26756
David Kraus		29176
David Kvernes		35804
David Lang		31093
David Lange		34919
David Lanter		30254
David Leppert		33057
David Leskin		26179
David LESS		34323
David Light		27777
David Lindberg		28597
David Lysik		33094
David Marckini		34823
David Margolis		26700
David Marinsik		27662
David Martin		27793
David Martin		28024
David Melcer		25788
David Miller		33693
David Modarelli		28930
David Molvik		36083
David Mooney		23741
David Morres		27009
David Moyer		29373
David Nelson		25199

Sender Name	Submission ID
2 Sierra Club	
David Nelson	26967
David Neuendorff	23855
David Neuendorff	31442
David Oligny	31268
David Olson	49045
David Oteman	33477
David Parchem	22839
David Parchem	31035
David Parrott	27669
David Peloquin	28443
David Perry	2754
David Perry	24201
David Perry	51939
David Peterson	25147
David Peterson	32495
David Petrove	31127
David Pinckney	23158
David Pinckney	23320
David Poxson	32764
David Puckett	22889
David Ransbottom	31535
David Rechs	26243
David Reed	31147
David Rieckmann	29377
David Rodenbaugh	24321
David Rome	27889
David Rosenberg	34227
David Sandbeck	6387
David Sandbeck	51505
David Schaefer	22926
David Schmidt	33397
David Scholzen	31277
David Schwebke	31646
David Secor	36027
David Shafto	32752
David Shanahan	34235
David Shannon	2915
David Shannon	52046
David Shaw	48815

Sender Name	Submission ID
2 Sierra Club	
David Sheets	30583
David Sherman	25053
David Sherr	34529
David Sherson	31568
David Sincox	29349
David Skryja	31283
David Slobodkin	31039
David Smalarz	34996
David Smith	3622
David Smith	24398
David Smith	31285
David Smith	31381
David Smith	51738
David Snope	26311
David Spratt	27066
David Stack	39505
David Stack	48757
David Stanley	35531
David Starr	35096
David Stephens	31667
David Sterling	39310
David Sterling	48676
David Straka	32857
David Strasser	31589
david sublette	26915
David Suchy	21265
David Suchy	50992
David Taggart	23047
David Thieme	34464
David Triwush	29921
David Trout	34738
David Ulibarri	27335
David Unger	35545
David Vandyke	28816
David Veenstra	33866
David Vermillion	31924
David Walgenbach	48946
David Walgenbach	39821
David Walker	24484

Sender Name	Submission ID
2 Sierra Club	
David Walsh	2941
David Walsh	52117
David Weaver	35810
David Werner	33517
David White	30432
David Wickre	31975
David Wilcox	35211
David Wilen	27486
David Wiley	2851
David Wiley	52029
David Zide	28291
David Ziegler	27850
David Zimney	3016
David Zimney	52174
David Zschau	38055
Davin Virta	33677
Dawn Albanese	27079
Dawn Albanese	31368
Dawn Baker	36278
Dawn Bartok	32899
Dawn Benjamin	24104
Dawn Benjamin	24127
Dawn Bove	39637
Dawn Bove	48829
Dawn Champley	30664
Dawn Demaske	24140
Dawn Dippre	24262
Dawn Hopfinger	32741
Dawn James	34310
Dawn Lamky	32319
Dawn Leader	31558
Dawn Sharif-Coon	28955
Dawn Sinclair	32256
Dawn Smith	30229
Dawn Stanko	30866
Dawn Williams	32028
Day Lemming	32027
Dean Amel	25314
Dean And Tristan Jacobson	48609

Sender Name		Submission ID
2 Sierra Club		
Dean Borgeson		2963
Dean Borgeson		52127
Dean Child		3606
Dean Child		51728
Dean Fana		32819
Dean Hensel		32453
Dean Languell		27016
Dean Peerman		31431
Dean Peter		2839
Dean Peter		52017
Dean Wiegert		32074
Dean Woelfle		35125
Dean, Ruth		57965
Deann Kelly		33925
Deanna Bialczak		35543
DeAnna Hannigen		29553
Deanna Lerose		28583
Deanna Lerose		28584
Deanna Lerose		28585
Deanna Ortiz		23919
Deanna Sparks		27108
Deanne Roquet		32487
Deanne Roquet		43799
Deanne Roquet		48495
Deb Christensen		35823
deb christiansen		24842
Deb Congdon		35868
Deb Gustafson		35697
Deb Killinger		27678
Deb Roelofs		23195
Deb Sands		29474
Deb Swenson		25663
Debbie and Scott Wasmuth		25709
Debbie Balasko		32978
Debbie Brown		32305
Debbie Burroughs		23943
Debbie Davis		31371
Debbie Fitzsimmons		2970
Debbie Fitzsimmons		52133

Sender Name	Submission ID
2 Sierra Club	
Debbie Grimson	29106
Debbie Letsche	26775
Debbie Lis	29238
Debbie Messick	34181
Debbie Miller	32196
Debbie Newbegin	24559
Debbie Newbegin	24574
Debbie Newbegin	30788
Debbie Osborne	25626
Debbie Ouellette	31829
Debbie Shepard	26546
Debbie Thomas	27207
Debbie Turner	23828
Debbie Williams	28581
Debbie Williamson	30197
Debbie Young	24797
Debbie Young	28959
Debby Roegner	24025
Debby Roegner	29421
Debby Tilkens	23260
Debi Jackson	32048
Debi Quinn	39312
Debi Quinn	48672
Deborah Abdulrahim	28849
Deborah Brandt	35245
Deborah Brown	24181
Deborah Clark	31496
Deborah Dare	35480
Deborah Davis	22870
Deborah Douglas	28993
Deborah Efron	26472
Deborah Ellis	26532
Deborah Fischer	32828
Deborah Ford	25676
Deborah Gaffin	25347
Deborah Gibbs-Halm	32634
Deborah Gryk	24160
Deborah Hans	32046
Deborah Ingram	26133

Sender Name		Submission ID
2 Sierra Club		
Deborah Kavruck		27194
Deborah Ketner		26108
Deborah Marion		25262
Deborah McCutcheon		29828
Deborah Nelson		2740
Deborah Nelson		51920
Deborah Parker		25118
Deborah Pellham		26313
Deborah Reiter		27997
Deborah Saeger		25340
Deborah Saeger		35509
Deborah Schade		32677
Deborah Schechter		33669
Deborah Soloway		32589
Deborah Stedman		27554
Deborah Strauss		30771
Deborah Walden		27178
Deborah Walsh		2866
Deborah Walsh		23932
Deborah Walsh		49490
Deborah Walsh		52052
Deborah Ward		29957
Deborah Webster		46030
Deborah Webster		48543
Deborah Wertz		28844
Deborah Wieber		32775
Deborah Willette		25999
Debra & Randy Knapp		23425
Debra & Randy Knapp		35696
Debra & Richard Wilson		23179
Debra Bender		26512
Debra Bender		32461
Debra Blake		28641
Debra Bruegge		30127
Debra Clark		29625
Debra Combs		22939
Debra Cunningham		26663
Debra Darden-Munsell		32575
Debra Davis		27410

Sender Name	Submission ID
2 Sierra Club	
Debra Donath	4409
Debra Donath	51538
Debra Eades	23614
Debra Evon	29308
Debra Freedland	34943
Debra Gleason	28076
Debra Gray	26082
Debra Gray	31027
Debra Jaffe	35460
Debra Javeline	33465
Debra Mcgregor	33473
Debra Mcintyre	39938
Debra Mcintyre	49011
Debra Moore	30975
Debra Moray-Brach	29769
Debra Owen	24466
Debra Parman	35734
Debra Patterson	32434
Debra Rohlfs	36090
Debra Rubio-Derhammer	37893
Debra Schade	32583
Debra Scott	32195
Debra Slott	31595
Debra Staudt	31120
Debra Stone	24616
Debra Street	26690
Debra Tilkens	22979
Debra Vangetson	31688
Debra Waters	28865
Debrah Roemisch	29074
Debrs Robinson	31087
Dee Anne Kaddouh	34369
Dee Bunge	29611
Dee Grimsrud	32602
Dee Robbins	33384
Deidra Clay	32189
Deidra Grimm	33607
Deidre Gotjen	25530
Della DeMetz	33388

Sender Name		Submission ID
2 Sierra Club		
Delmar Calkins		33790
Delores Dufner		32805
Delores Dufner		48613
Delores Gaccione		25936
Delores Rita		32885
Delores Van Steenwyk		23356
Deloris Rainey		26014
Dency Lippert		35081
Dendrobia Kohl		25115
Denee Scribner		25101
Deneice Oroszvary		23083
Denell Benner		25443
Denice Roberge		35100
Denis Petitt		24018
Denis Walsh		29005
Denise Aubry		33495
Denise Bell		25724
Denise Brennan		35793
Denise Breton		26518
Denise Breton		35896
Denise Bullock		31293
Denise Coviello		34727
Denise Dantis		51579
Denise Dobranchin		31040
Denise Fisher		32501
Denise Fry		28502
Denise Fuqua		31175
Denise Gibbs		24536
Denise Grigsby		35483
Denise Hall		34053
Denise Judy		30524
Denise Keating		35302
Denise Keeton		26717
Denise Lenardson		26076
Denise Markuson		27560
Denise Moran		35564
Denise Nutt		28413
Denise Pittluck		34994
Denise Recalde		33142

Sender Name	Submission ID
2 Sierra Club	
Denise Rischel	28305
Denise Romesburg	26640
Denise Spencer	32802
Denise Svekric	35648
Denise Thomas	2921
Denise Thomas	24086
Denise Thomas	31080
Denise Thomas	49500
Denise Thomas	52105
Denise Tugadi	23138
Denise Ward	33451
Denise Wilson	31929
Denna Hackler-Sullivan	34070
Dennis Akers	32832
Dennis and Sheryl Deeg	30517
Dennis Anderson	23276
Dennis Baldry	31360
Dennis Burdick	33442
Dennis Burnick	28548
Dennis Cosentino	24779
Dennis Egre	28924
Dennis Fahey	22940
Dennis Feichtinger	35574
Dennis Foulke	32271
Dennis Glotzhober	31480
Dennis Gong	33115
Dennis Gorecki	34387
Dennis Grunewald	35215
Dennis Heley	31612
Dennis Holz	25011
Dennis Kanka	28866
Dennis Kneip	34512
dennis kreiner	25446
dennis kreiner	28084
dennis kreiner	34652
Dennis Lawrence	30216
Dennis Myhre	35869
Dennis Perk	34714
Dennis Rector	33789

Sender Name		Submission ID
2 Sierra Club		
Dennis Remy		24528
Dennis Roscetti		30675
Dennis Schvejda		24130
Dennis Seager		36214
Dennis Stansell		23453
Dennis Stephen		29184
Dennis Stuehr		29470
Dennis Tabbert		46883
Dennis Tabbert		48558
Dennis Tenison		30337
Dennis Thayer		35560
Dennis Trembly		27089
Dennis Whipple		33441
Dennis Wisch		22878
Dennis Woolley		29761
Dennis Zylkowski		33912
Denny Blum		29219
Denny Boehm		33614
Denny Johnson		3005
Denny Johnson		52163
Denny Thorson		2928
Denny Thorson		52103
Denyse Reilly		26068
Deo Schlupp		25108
Derika Downing		26785
Derrick Gamble		30089
Derrick Robinson		23336
Desi Russell		27579
Desiree Eibel		31133
Devin Brubaker		31345
Devin Culhane		39933
Devin Culhane		49016
Devin Johnson		33595
Devin Kellerman		30215
Devin Lyttle		27084
Devin Mason		32006
Devon Fuson		34911
Devon Wolf		25308
Dewayne Benson		2696

Sender Name	Submission ID
2 Sierra Club	
Dewayne Benson	51885
Dewayne Schalau	28827
Dewayne Townsend	48888
Diadra Decker	3637
Diadra Decker	29545
Diadra Decker	51745
Diambu Smith	28586
Dian Poitras	23488
Diana Banducci	32540
Diana Barker	30805
Diana Barnhill	25969
Diana Crane	23972
Diana d Sanchez	29123
Diana Dee	25408
Diana Fisher	24903
Diana Franoc	28295
Diana Gebczyk	26709
Diana Huet De Guerville	29632
Diana James	32607
Diana Krug	33521
Diana Krug	33625
Diana Morgan-Hickey	24975
Diana Munch	34217
Diana Neff	29215
Diana Neiley	23590
Diana Petrauskas	26483
Diana Taracena	24502
Diana Urbon	25121
Diane & Thom Haines	2734
Diane & Thom Haines	51917
Diane Birmingham	27358
Diane Bonar	34130
Diane Brand	3768
Diane Brand	51845
Diane Brown	2808
Diane Brown	23431
Diane Brown	23885
Diane Brown	49484
Diane Brown	51985

Sender Name		Submission ID
2 Sierra Club		
Diane Bundlie		48745
Diane Corrigan		34748
Diane Cumbie		24633
Diane Dahlem		29392
Diane Dawson		23719
Diane Diernbach		29869
Diane Doerr		25972
Diane Faircloth		26256
Diane Fascione		36128
Diane Frederick		32577
Diane Fuhs		26801
Diane Gallagher		26695
Diane George		24803
Diane Gibbons		30824
Diane Good		32968
Diane Grussing		32086
Diane Gubrud		33414
Diane Hermann		36268
Diane Hiniker		35046
Diane Hoffman		25682
Diane Houle		27339
Diane Howard		35042
Diane Huffine		25074
Diane Hughes		26890
Diane Iverson		45314
Diane Iverson		48531
Diane Janicki		35177
Diane Johnson		34731
Diane Karsh		33926
Diane Kean		30361
Diane Kluttz		24771
Diane Kuta		31359
Diane Landry		24964
Diane Larry Weinberg		25546
Diane Lembck		25047
Diane Lembck		31037
Diane London		24102
Diane Loos		34200
Diane Marie Knott		48780

Sender Name	Submission ID
2 Sierra Club	
Diane Martin-Brodak	31746
Diane Mcjunkin	28964
Diane McKeel	30770
Diane Middleton	32301
Diane Miller	27501
Diane Morrell	25425
Diane Newberry	23367
Diane Norland	3009
Diane Norland	52164
Diane Norris	33692
Diane Olson Scmidt	31847
Diane Pease	25613
Diane Pickard-Richardson	35440
Diane Pontius	36287
Diane Pulsifer	26691
Diane Rangl	34401
Diane Rohn	27552
Diane Ruedemann	28559
Diane Satriano	51590
Diane Scruggs	28429
Diane Smith	25996
Diane Soddy	31208
Diane Springer	28984
Diane Steitz	31070
Diane Tessari	3419
Diane Tessari	51631
Diane Tworoski	24952
Diane Vandiver	34455
Diane Veneklasen	21802
Diane Veneklasen	34251
Diane Winkler	29581
Diane Wolniewicz	28593
Diane Wynne	27979
Diane Zimmerman	29355
Diann Jenkins	30328
Dianna Damkoehler	35084
Dianna Gilbertsen	23144
Dianna Gilbertsen	38223
Dianne Delaney	28611

Sender Name	Submission ID
2 Sierra Club	
Dianne Douglas	27310
Dianne Ferriss	25552
Dianne Frimel	23975
Dianne Gove	28276
Dianne J. Stein	26634
Dianne Schlies	22907
Dianne Sullivan	24899
Dianne Tuff	29330
Dianne Wickre	25582
Dianne Wickre	25584
Dianne Yonan	29812
Dick Dierks	27544
Dick Mcdevitt	34474
Dick Ruth	38704
Dick Ruth	48608
Dick Simmer	35298
DICK SWANSON	34846
Dickson Kunz	32407
Dickson, Raymond	57967
Dimitris Dallis	30998
Dimitris Lappas	39954
Dimitris Lappas	49029
Dina Dornseif	39419
Dina Dornseif	48712
Dina Garcia	32180
Dina Rotay	29018
Dina Roubal	33698
Dina Wilson	26163
Dini DiNatale	28025
Dino Costa	24405
Dion Merrill	34555
Dirk Obudzinski	22964
Disa Moraine	48653
Divya Darshan G	24661
DivyaDarshan Gurrala	24593
DivyaDarshan Gurrala	24602
Dixie Bowsher	35004
Dixie Stafford	29669
Dj Carruthers	22884

Sender Name	Submission ID
2 Sierra Club	
DJ COX	30560
DK Anestis	24433
Doe Crosh	33996
dogan ozkan	29665
Dolores Becker	29912
Dolores Chastain	24012
Dolores Corey	35462
Dolores Dahm	25566
Dolores Frisbie	31935
Dolores Moreno	24622
Dolores Moreno	24644
Dolores Pieper	28422
Dolores Pinchot	29925
Dolores Wood	26417
Domenica Ott	23307
Dominic Frecentese	33645
Dominic Frinzi	33121
Dominic Giles	24142
Dominique Boczek	48898
Dominique Gilbert	23572
Don Ash	31631
Don Baldus	49064
Don Barclay	30761
Don Burkhart	33584
Don Chasteen	33132
Don Collier	34398
Don Dieckmann	33530
Don Doolittle	32760
Don Flugga	27913
Don Flugga	32307
Don Hunt	28997
Don Hyatt	33136
Don Klein	27601
Don Kleinhenz	34843
Don Krueger	29868
Don Landry	30497
Don Leisen	3735
Don Leisen	51808
Don Lichtenfelt	23839

Sender Name		Submission ID
2 Sierra Club		
Don Lorenz		32194
Don May		30865
Don Mckenzie		35922
Don Meehan		25355
Don Parsons		23701
Don Pell		30169
Don Phillips		27873
Don Posh		32685
Don Ross		25506
Don Rudrud		28660
Don Schapker		33265
Don Schultenover		39485
Don Schultenover		48750
Don Steinke		33585
Don Vermillion		27727
Don Wasielewski		32973
Don Yerhot		48993
Donald Begalke		24570
Donald Chapman		33090
Donald Cook		26025
Donald Cronin		28145
Donald Derwa		35404
Donald Dimock		25648
Donald Facey		3759
Donald Facey		51836
Donald Forman		27211
Donald Garlit		30779
Donald Granchi		34833
Donald Hofgren		27530
Donald Hofgren		33993
Donald Hughes		30401
Donald Jackson		33576
Donald King		27416
Donald Kosak		25995
Donald Kosak		36274
Donald Lambert		23618
Donald Mackay		27328
Donald Mclaughlin		23071
Donald Mead		33315

Sender Name	Submission ID
2 Sierra Club	
Donald Myers	39864
Donald Novak	27404
Donald Novak	33560
Donald Pederson	3510
Donald Pederson	51674
Donald Rhoads	35623
Donald Richards	30518
Donald Richey	30170
Donald Rudrud	31235
Donald Ruehlow	33545
Donald Stribick	25669
Donald Taylor	26267
Donald Waight	27527
Donald Walloch	34033
Donald Walsh	28285
Donald Wildasin	25041
Donna & Corwyn Gray	27823
Donna Anderson	33198
Donna Balmer	3792
Donna Balmer	51567
Donna Balmer	51860
Donna Barrett	31047
Donna Bierschenk	30561
Donna Brown	22943
Donna Brown	22951
Donna Brown	28741
Donna Butler	2762
Donna Butler	23072
Donna Butler	51947
Donna Carr, M.D.	27119
Donna Chicone	45348
Donna Chicone	48532
Donna Coleman	27334
Donna Coleman	31538
Donna Coleman	31777
Donna Conrady	24737
Donna Dennison	36061
Donna Drews	24203
Donna Estes	32155

Sender Name		Submission ID
2 Sierra Club		
Donna Gleaves		24930
Donna Green		31304
Donna Hippensteel		22937
Donna Hriljac		31320
Donna J		26405
Donna Janovsky		36123
Donna Katz		33243
Donna L. Delisi-		35180
Donna Lewis		28823
Donna Lewis		38375
donna loney		29697
Donna Miller		30602
Donna Neste		48666
Donna Olsen		48656
Donna Parker		33502
Donna Sandon		26337
Donna Selquist		23586
Donna Smith		25471
Donna Towne		27347
Donna Voldness		34974
Donna Wilkes		25280
Donna Wolz		26701
Donnie Huffman		34679
Donye Sacco		26335
Dora St.		26727
Dore Strobel		31217
Doreen Dickerson		34867
Dorelle Ackermann		35277
Dorene Cink		22705
Dorene Herrmann		23292
Dorene Robinson		26071
Dori Cole		31584
Doris Bandel		22929
Doris Bezio		33823
Doris Eder		32062
Doris Eder		32084
Doris Lapierre		31959
Doris Lehr		24355
Doris Lynch		33920

Sender Name	Submission ID
2 Sierra Club	
Doris Warnstedt	23219
Dorothee Albus	35993
Dorothy Anderson	2831
Dorothy Anderson	52004
Dorothy Brauweiler	29639
Dorothy Brown	35179
Dorothy Delehanty	28449
Dorothy Dewell	27179
Dorothy Doyle	25325
Dorothy Dwight	32701
Dorothy Hammer	33772
Dorothy Hynous	30303
Dorothy Kusold	29866
Dorothy L Sand	2906
Dorothy L Sand	52050
Dorothy Matz	28686
Dorothy Shelton	24388
Dorothy Sherman	30454
Dorothy Stenske	33604
Dorothy Wilcox	28067
Dorothy Wilcox	35039
Dorothy Wilson	34100
Doug Aunet	35281
Doug Brittain	23094
Doug Gemmell	26904
Doug Johnson	47243
Doug Johnson	48571
Doug Knapp	30310
Doug Lindsey	28919
Doug Lockman	26453
Doug Lott	47176
Doug Marr	24251
Doug Ower	35593
Doug Pierce	29344
Doug Rawling	23901
Doug Roberts	27987
Doug Rutledge	32010
Doug Stepanek	35722
Doug Windler	29752

Sender Name		Submission ID
2 Sierra Club		
Douglas Anderson		25123
Douglas Bailey		30246
Douglas Engle		25687
Douglas Erickson		2825
Douglas Erickson		51998
Douglas Estes		26969
Douglas Ewart		48773
Douglas Granzow		32818
Douglas Holden		22824
Douglas Jones		39927
Douglas Jones		48999
Douglas Jose		32874
Douglas Kowalewski		29288
Douglas Lande		31865
Douglas Langdon		26939
Douglas Long		34321
Douglas McNeill		26707
Douglas Paprocki		33317
Douglas Peterson		3455
Douglas Peterson		51648
Douglas Stephen		24253
Douglas Stephen		48681
Douglas Stephen		48684
Douglas Thatcher		34875
Douglas Thompson		28568
Douglas Wood		32658
Dr Antonio Scognamiglio		26365
Dr Frederic Dick		28791
Dr Sandra Baldacci		26145
Dr. David D. Markwardt		25105
Dr. L. Steele		26195
Dr. Larry Robbins		34377
Dr. Russell Wood		33217
Dr. Sharon Kissane		33147
Dr. William J. Martin Jr.		32928
Drena LaPointe		25141
Drew Hempel		2933
Drew Hempel		52107
Drew Johnson		3636

Sender Name	Submission ID
2 Sierra Club	
Drew Johnson	37915
Drew Johnson	51744
Drew Keisling	31671
Duane Baker	29391
Duane Davison	28808
Duane Glew	48791
Duane Gustafson	2805
Duane Gustafson	51967
Duane Sickmann	48800
Duane Underwood	23079
Dujuan Pritchett	30341
Duke Arons	35191
Duncan Porter	27926
Dunn Kathleen	2843
Dunn Kathleen	52013
Durell Agha	25345
Durinda Kuczor	26630
Dustin Cloyes	28489
Dustin Dodds	32628
Dustin Jenkins	34097
Dustin Lecander	29302
Dustin Smedley	34552
Dusty Kennedy	27068
DuWayne Fisher	33618
Dwight Hughes	30003
Dwyne Patrick	35842
DyAnn Andybur	32763
Dylan Jones	24980
Dylan Wilson	24841
E Blankers	48811
E Huntzinger	36219
E Nedeau	31106
E Sawicki	30612
E Unger	24449
E Unger	24459
E Unger	24462
E Unger	24463
E W Stanley	24674
E Works	34548

Sender Name		Submission ID
2 Sierra Club		
E. P.		25973
Earl & Margie Van Berkom		3013
Earl & Margie Van Berkom		52146
Earl Grove		27839
Earl Grove		31545
Earl Gum Jr		34128
Earl Scott		34796
Earl Shumaker		34722
Earl Sprague		29649
Ed & Jean Aiken		26381
Ed And Bettie Shonk		28228
Ed Baker		36291
Ed Dassow		32822
Ed Feldy		24535
Ed Frajer		31303
Ed Frost		33542
Ed Hayduk		23022
Ed Haynor		33274
Ed Jeannette		35752
Ed Shields		31286
Edda Cox-Cardeso		25731
Eddie Foster		30257
Edgar Fernandez Garrido		27048
Edgar Hull		33456
Edie Clompus		29654
Edith Coleman		25871
Edith De La Fuente		30276
Edith deGroot		28551
Edith Emmenegger		32475
Edith M. Conrad		22976
Edith Papp		22848
Edith Thorstensson		30825
Edna Anderson		34851
Edna Ciurleo		2723
Edna Ciurleo		51908
Edna Fillinger		33413
Edward Allard		25259
Edward and Joan Walbridge		31570
Edward Bennett		31552

Sender Name	Submission ID
2 Sierra Club	
Edward Bisker	34961
Edward Carmody	32362
Edward Carpenter	33087
Edward Cornwell	30068
Edward Cowan	27008
Edward Eberhart	32965
Edward Estrella	23017
Edward Gould	29801
Edward Gruver	27202
Edward Gruver	27252
Edward Gutierrez-Perry	28797
Edward Haggard	34381
Edward Hubbard	36154
Edward Huey	26741
Edward Johnson	23296
Edward Johnson	29140
Edward Kape	35847
Edward Knight	26543
EDWARD LEE	33710
Edward Mc Ardle	28614
Edward Mockford	29729
Edward Paine	23303
Edward Priem	23584
Edward Reagan	30309
Edward Riordan	35758
Edward Roach	34942
Edward Sady	24292
Edward Salomon	30021
Edward Wisniewski	26106
Edwardo Felice	29656
Edwin Bixenstine	33406
Edwin Holmberg	32907
Edwin Homeier, PhD	32557
Edwin Ross	30207
Eila Kowalak	33284
Eileen Anderson	48889
Eileen Crowe	33248
Eileen Gabel	22918
Eileen Harrington	25195

Sender Name		Submission ID
2 Sierra Club		
Eileen HAWK		32123
Eileen Jarc		29035
Eileen Kelly		31578
Eileen Mansfield		24359
Eileen Putman		31926
Eileen Rubart		26647
Eileen Stevens		27026
Eileen Thompson		26299
Eileen Troutt-Ervin		30057
Eileen Welch		33005
Eileen Wyatt		31582
Ekaterina Danilova		23211
Elaina Grace		25017
Elaina Ozeroff		27521
Elaina Vanmaaren		34013
Elaine & John Mogerman		29713
Elaine Anderson		25571
Elaine Anderson		30222
Elaine Baldwin		28316
Elaine Becker		27760
Elaine Bielefeld		35798
Elaine Bradley		34079
Elaine Brye-Groeschl		29361
Elaine Dorough Johnson		33151
Elaine Field		23864
Elaine Fischer		25177
Elaine Forester		27712
Elaine Harrison		30370
Elaine Heidtke		28374
Elaine Leach		31873
Elaine Morris		23846
Elaine Naylor		26366
Elaine Neth		26834
Elaine Ososki		2909
Elaine Ososki		25179
Elaine Ososki		52077
Elaine Purnell		35960
Elaine Rettig		28714
Elaine Rhode		24783

Sender Name	Submission ID
2 Sierra Club	
Elaine Ryan	34343
Elaine Soble	32426
Elaine Tokarski	33267
Elaine West	26030
Elanne Palcich	29026
Elayne Lappi	30417
Elayne Lappi	39932
Elayne Lappi	49005
Elbereth Gilthoniel	23288
Elbert Crary	31213
Elbert Crary	31790
Elder Kevin Anthony Ford	36102
Eleanor Aron	35097
Eleanor Awtrey	28278
Eleanor Castle	34773
Eleanor Haase	27747
Eleanor Haase	36087
Eleanor Haase	48938
Eleanor Haase	39835
Eleanor Matano	23998
Eleanor Nettleton	25485
Eleanor Rodda	24520
Eleanor Thompson	24672
Eleanor Wiegand	34803
Elena Barnum	25256
Elena Bond	25645
Elena Busani	25617
Elena Carleo	26835
Elena Chernysheva	27541
Elena Lemmo	22881
Elena Limonta	22986
Elena Tarima	31680
Elenita Hinds	30624
Elenita Hinds	32395
Eleonora Pavlovska	29441
Elin Pierce, Ph.D.	25815
Eliot Howard	26107
Elisa and Susan Petersen	29034
Elisa Faulkner-Uriarte	29320

Sender Name		Submission ID
2 Sierra Club		
Elisabeth Loos		22896
Elisabeth Noty		27836
Elisabeth Peteson		4703
Elisabeth Peteson		51513
Elisabeth Wengronowitz		31626
Elise Fiala		34145
Elise Kilpatrick		24811
Elise Marks		25082
Elise Morris		29411
Elissa Labbie		24353
Elizabeth Abrantes		25487
Elizabeth Ambrosi		23915
Elizabeth Ament		32235
Elizabeth Anderson		30654
Elizabeth Anderson		35496
Elizabeth Beaudoin		36093
Elizabeth Beck		2729
Elizabeth Beck		51914
Elizabeth Benn		33558
Elizabeth Braatz		39670
Elizabeth Braatz		48845
Elizabeth Brown		24821
Elizabeth Brown		30856
Elizabeth Buiocchi		31271
Elizabeth Burr		2797
Elizabeth Burr		51968
Elizabeth Cooke		35997
Elizabeth D'Amico		32020
Elizabeth Danowski		33518
Elizabeth De Guise		28777
Elizabeth De La Baume		32376
Elizabeth DeLoma		26661
Elizabeth Derbyshire		25363
Elizabeth Dokken		2818
Elizabeth Dokken		51991
Elizabeth Duke		23690
Elizabeth Firek		31234
Elizabeth Fox		32757
Elizabeth Glaaser		23266

Sender Name	Submission ID
2 Sierra Club	
Elizabeth Gordon	24741
Elizabeth Grote	36022
Elizabeth Grundhauser	34019
Elizabeth Harry	24123
Elizabeth Hart	31346
Elizabeth Hayes	23344
Elizabeth Heinecke	21169
Elizabeth Heinecke	50965
Elizabeth Hemzacek	23640
Elizabeth Huntley-Roberts	35314
Elizabeth Icks	30343
Elizabeth Jache	25837
Elizabeth Jergensen	3572
Elizabeth Jergensen	51711
Elizabeth Karre	2889
Elizabeth Karre	52037
Elizabeth Kiland	35880
Elizabeth Koopman	27626
Elizabeth Lagro	29807
Elizabeth Lamers	26859
Elizabeth Larrison	31696
Elizabeth Marsack	29867
Elizabeth Martin	25462
Elizabeth Maus	48976
Elizabeth Mccormack	26764
Elizabeth Mccormack	26822
Elizabeth Merryman	3730
Elizabeth Merryman	51811
Elizabeth Mitchell	30046
Elizabeth Nicolini	26038
Elizabeth O'Halloran	29000
Elizabeth Osborne	25760
Elizabeth Reid	31386
Elizabeth Riebe	34284
Elizabeth Riley	31421
Elizabeth Rych	23508
Elizabeth Shelton	36196
Elizabeth Siman	29218
Elizabeth Smith	26545

Sender Name		Submission ID
2 Sierra Club		
Elizabeth Snuggs		28971
Elizabeth Songalia		47496
Elizabeth Songalia		48594
Elizabeth Sproehlich		29739
Elizabeth Stange		25254
Elizabeth Stange		33186
Elizabeth Story		29149
Elizabeth Tate		34147
Elizabeth Thomas		33434
Elizabeth Towle		22862
Elizabeth Tuminello		23666
Elizabeth Wells		25730
Elizabeth Werner		2926
Elizabeth Werner		52102
Elizabeth Williams		25597
Elke Hagge		32161
Elke Hoppenbrouwers		27813
Elke Mauer Holler		2673
Elke Mauer Holler		51871
Elke Rahn		24643
Elke Romer		25647
Ella McRae		24273
Ellen "the Nurse" Lafans		3449
Ellen "the Nurse" Lafans		51646
Ellen Adler		28236
Ellen Adler		35324
Ellen Alek		33012
Ellen Bell		30440
Ellen Berkman		27534
Ellen Cather		28298
Ellen Cather		28391
Ellen Chapman		28812
Ellen Colley		36300
Ellen Cummins		34776
Ellen Denelsky		29884
Ellen Domke		26378
Ellen Domke		31580
Ellen Dryer		31701
Ellen Gale		35970

Sender Name	Submission ID
2 Sierra Club	
Ellen Gutfleisch	23139
Ellen Gutfleisch	25689
Ellen Hogarty	35929
Ellen Jackson	30617
Ellen James	26198
Ellen Joseph	27037
Ellen Koivisto	25169
Ellen La Rue	24052
Ellen Lafouge	35378
Ellen Lunsford	29173
Ellen McDonald	29694
Ellen Mork	32683
Ellen P Ayalin	31332
Ellen Roney	28591
Ellen Ruffin	3546
Ellen Ruffin	51692
Ellen Scaruffi	25854
Ellen Schaffer	33081
Ellen Seeherman	26141
Ellen Shoun	33494
Ellen Thrasher	25906
Ellen Waara	32983
Ellenne Shapiro	31222
elliot cross	23384
Elliot Daniels	27652
Elliot Shamis	23222
Ellis Coleman	27443
Ellis Johnson	33748
Elmer Fugman	28885
Elmer Ramthun	32112
Eloda Linehan	24650
Eloise Robbins	25711
Elterine Jankowski-Biggers	31436
Elyse Friedman	34881
Elysia Knisley	28871
Emanuela Sala	24434
Emi Anzelc	33211
Emi Hernando	32065
Emile Hiesiger	26165

Sender Name		Submission ID
2 Sierra Club		
Emilie Johnson		29684
Emilie Mullins		32286
Emilie Schrage		33295
Emilie Schwen		32386
Emily Artinian		35832
Emily Bovee		32415
Emily Brinneman		32875
Emily Carroll		24368
Emily Epstein		33396
Emily Fleissner		49070
Emily Fox		35904
Emily Goenner		35018
Emily Hall		25283
Emily Harper		30878
Emily Lancaster		29590
Emily Lyons		28989
Emily Patterson		2957
Emily Patterson		52129
Emily Pioszak		30772
Emily Ralph		36178
Emily Safron		28761
Emily Smith		31012
Emily Swanson		4699
Emily Swanson		27973
Emily Swanson		51511
Emily Van Evera		30363
Emily Zelenka		27932
Emma Jacobs		29583
Emma Johnson		34054
Emma Mcdaniel		24518
Emma Ruggiero		28598
Emma Shook		26635
Emma Spurgin Hussey		27316
Emmanuel Falaras		23490
Emmi Whitehorse		26411
Emmy Grace		41345
Emmy Lou Cholak		28496
enzo mulas		26312
Enzo Mulas		26384

Sender Name	Submission ID
2 Sierra Club	
Eric & Cedra Spragett	27504
Eric Ashley	26506
Eric Britton	36030
Eric Brooker	22917
Eric Casey	27599
Eric Cherland	2900
Eric Cherland	52070
Eric Edwards	27220
Eric Edwards	32684
Eric Engelbretson	33345
Eric Falkiewicz	28974
Eric Fournier	27955
Eric Gardze	24856
Eric Haas	23121
Eric Halbeisen	34510
Eric Henricks	29535
Eric Hill	32414
Eric Iverson	31212
Eric Jones	33895
Eric Keller	29477
Eric Krueger	32688
Eric Larizadeh-Saito	24116
Eric Lewis	2699
Eric Lewis	51889
Eric Lund	39309
Eric Lund	48677
Eric McKenzie	25557
Eric Meyers	26369
Eric Nelson	24582
Eric Norgaarden	48989
Eric Robinson	24826
Eric Robson	31005
Eric Scheihagen	25309
Eric Schickendantz	32263
Eric Scott	26587
Eric Sieracki	48966
Eric Sieracki	39857
Eric Smith	32419
Eric Stanglewicz	35136

Sender Name	Submission ID
2 Sierra Club	
Eric Stordahl	23696
Eric Stordahl	31749
Eric Symborski Jr.	26000
Eric Tate	22924
Eric Taylor	33599
Eric Tholl	33086
Eric Van Steenberg	41081
Eric Vansteenberg	30280
Eric Wensko	32147
Eric West	26257
Eric Wickiser	3522
Eric Wickiser	51682
Eric Zdilla	25481
Erica Adams	25393
Erica Belling	33197
Erica Crooker	21361
Erica Crooker	51023
Erica Gottschalk	31513
Erica Hunter	25354
Erica Jooste	24911
Erica Lindemann	25206
Erick Peoples	29498
Ericka Iannitti	29019
Ericka Mac	27192
Ericka Mac	35959
Erik Booth	33902
Erik Daly	30386
Erik Fredrickson	27320
Erik Hauge	27625
Erik Hegberg	33760
Erik Herzog	30651
Erik Hitchcock	29428
Erik Larsen	35660
Erik Packard	29326
Erik Packard	48964
Erik Packard	39855
Erik Roth	2948
Erik Roth	52093
Erika Bonaparte	31441

Sender Name	Submission ID
2 Sierra Club	
Erika DeCarlo	23853
Erika Eberhardt	30234
Erika Favor	31242
Erika Jarden	35323
Erika Maki	32631
Erika Smith	24226
Erika Voss	30466
Erikka Jordan	23782
Erin Boyd	34118
Erin Burkey	25784
Erin Bw	25265
Erin Cox	28822
Erin Delaney	29577
Erin Garnass-Holmes	39304
Erin Garnass-Holmes	48674
Erin Groom	29469
Erin Howard	27132
Erin Hughes	33966
Erin Langer	33273
Erin Plier	32921
Erin Prather	34743
Erin Rosaire	26024
Erin Strauss	39398
Erin Strauss	48703
Erin-Jae Tagle	32904
Erma Leaphart-Gouch	28493
Ernest Assel	29247
Ernest Cooper	33001
Ernest Montoro	23247
Ernest Moore	32927
Ernest Moore	32961
Ernestina Ripberger	27581
Ernestine Anderson	33551
Ernesto Luna	3488
Ernesto Luna	51662
Erryl Eyster	30714
Erv Schweiger	31812
Estelle Henry	24700
Estelle Jost	31151

Sender Name		Submission ID
2 Sierra Club		
Ester Fuchs		32529
Esther Bliss		32270
Esther David		28201
Esther Juhl		24314
Esther Knierim		23746
Esther Zamora		29666
Ethel Ann Marshall		44964
Ethel Ann Marshall		48518
Ethel Messuri		29551
Ethlynn Dewitt		35059
Etter, Jo		57973
Ettore Lacchei		35234
Eugene Bersing		3571
Eugene Bersing		51710
Eugene Blum		34170
Eugene Chin		30819
Eugene Flannery		32958
Eugene Givens		28369
Eugene Lehman		30961
Eugene Schumacher		31157
Eugene Smith		29321
Eugene Ulrich		29544
Eugene Woodruff		29261
Eugenia Stevens		24195
Eva Bianchi		30632
Eva Grunspan		27792
Eva Johnson		26023
Eva Thomas		26333
Evan Eisentrager		25953
Evan Howard		34907
Evan Sederquest		27768
Evan Wolfe		24451
Eve B		26026
Eve Bauschek		32552
Eve Saglietto		24098
Evelyn Adams		24531
Evelyn Bjorklund		31537
Evelyn Boeckman		3004
Evelyn Boeckman		52159

Sender Name	Submission ID
2 Sierra Club	
Evelyn Bray	31722
Evelyn Coltman	25868
Evelyn Cruz	27701
Evelyn Flowers	29167
Evelyn Och	26176
Evelyn Palder	23912
Evelyn Ritter	32918
Evelyn Schwein	28879
Evelyn Staus	31585
Evelyn Staus	39428
Evelyn Staus	48716
Evelyn Stillwell	48951
Evert Boer	31505
Ewa Jakubowska	23440
Ewan Clow	26622
Ewan Schmid	35006
Faith Castle-Ball	30349
Faith Dafonseca	27547
Faith Hoekstra	25198
Faith Leibowitz	27921
Faith Leibowitz	35705
Faith Williamson	23534
Fatima Al-Hayani	31316
Fatima Al-Hayani	35474
Fay Bracken	24189
Fay Bullivant	52285
Felicia McMullen	35556
Felicity Villeda	24206
Felipe Menossi	27244
Felix Guerrero	23850
Ferdinand Meyer	25140
Fernanda Reyes	23505
Fernanda Tanselle	48942
Fernanda Tanselle	39832
Fernandez Sanchez	24256
Fernando Perez	29522
Fetica Costiana	32868
Filiz Selman	23705
Fiona Priskich	24977

Sender Name		Submission ID
2 Sierra Club		
Fira Hedlund		26116
Flora Smith		33791
Florence Cutter		28323
Florence Melander		23651
Florence Morris		24258
Florence Pettway		31358
Florence Sandok		3725
Florence Sandok		51806
Florence Steichen		31957
Florence Walton		33833
Florina Cupsa		31577
Floyd A. Bednarz		28345
Forrest Netzel		30458
Fowler Agenbroad		33851
Fr. Gregory Mastey		25411
Fran Fulwiler		29640
Fran Hirchert		33278
Fran Rea		25635
Fran Ruffalo		34506
Fran Teresi		34467
Frances Armstrong		27819
Frances Berman		24447
Frances Bicknell		30713
Frances C Ibarley		27982
Frances Carpenter		24896
Frances Darcy		29600
Frances Davis		28260
Frances Ginther		34925
Frances Heath		26382
Frances O'Neill		30781
Frances Preuss		33257
Frances Wheeler		35117
Frances Yan-Man-Shing		24776
Francesca Heller		25302
Francesca Mcgarry		30302
Francie Muraski-Stotz		33422
Francie Turner		48916
Francine Dolins		25880
Francine Francis		25222

Sender Name	Submission ID
2 Sierra Club	
Francine Kozel	30959
Francine Kozel	43558
Francine Kozel	48489
Francine Ungaro	27238
Francis Forest	36140
Francis Leighty	31687
Francis Mastri	24595
Francis Saponara-Rodriguez	23018
Francis Wood, MD	25211
Francisco Hernandez	31108
Francisco Herrera	25014
Francoise La Monica	28063
Francowise Mccuen	26989
Frank & Cristy Christensen	29307
Frank & Nina Thorp	31979
Frank Asturino	25700
Frank Boggio	35317
Frank Collins	31179
Frank Davis	25863
Frank Davis III	29984
Frank Florin	34890
Frank Gonzales Jr.	35162
Frank Grenzow	31520
Frank Gwirtz	28264
Frank Herda	33281
Frank Insana	23334
Frank Johnson	30398
Frank Jossi	3423
Frank Jossi	46319
Frank Jossi	48549
Frank Jossi	51633
Frank Klemm	31623
Frank Lyon	33482
Frank Mores	31549
Frank Morgan	30615
Frank Peterson	48778
Frank Quale	2914
Frank Quale	52083
Frank Rosenwein	30587

Sender Name		Submission ID
2 Sierra Club		
Frank Stivers		35373
Frank Thacker		32308
Frank Verito		34598
Frank Weber		48956
Frank Weber		48959
Frank Weber		39860
Frank Weber		39861
Franklin Platizky		23331
Frans Ansems		26820
Franshisca Dearmas		28537
Frauke Brandt		23281
Fred & Paula Kathi		35986
Fred Attebury		31591
Fred Barnes		34365
Fred Blachly		29488
Fred Blume		24159
Fred Blume		49514
Fred Brancel		32452
Fred Christensen		30716
Fred Eiland		24309
Fred Fall		24608
Fred Glickstein		29144
Fred Harvey		29794
Fred Heaney		31508
Fred Hefty		2685
Fred Hefty		51879
Fred Honhart		34749
Fred Lanahan		32044
Fred Lavezzo		24725
Fred Ponder		26660
Fred Powell		33839
Fred Powell		34061
fred sommer		23246
Fred Toms		29880
Fred Vanderbeek		2709
Fred Vanderbeek		24113
Fred Vanderbeek		49503
Fred Vanderbeek		51901
Fred Welty		32249

Sender Name	Submission ID
2 Sierra Club	
Freda Spooner	28619
Freddie Williams	27931
freddie williams	28334
freddie williams	29618
Frederic Dick	30619
Frederic Kuzel	31174
Frederic Messick	33736
Frederich Holtier	34938
Frederick Hamilton	26373
Frederick Paper	30005
Frederick Ripley	35438
Frederick Shrum	36165
Frederick Zerhoot	26797
Fredrick Whalum	31419
Frieda Brown	34675
Friederike Hoffmann	31183
Fritz Bachman	26287
Frostianne Sewell	25419
Furlo Bengtsson	32652
G Austin Smith	27629
G Claycomb	29744
G G	23201
G Kendall Kiel	35225
G Pogel	25774
G Ripeckyj	31743
G W Cheney	26962
G. Preuss	24263
Gabriel Bobek	25804
Gabriel Gardner	33288
Gabriel Godwyne	24714
Gabriel Neilson	29378
Gabriela Walach	29623
Gabriele Herbst	24743
gabriele Jefferson	28240
Gabriele Lubach	29127
Gabriella Garofalo	25010
Gabrielle King	36171
Gabrielle Roth	39944
Gabrielle Roth	49019

Sender Name		Submission ID
2 Sierra Club		
Gabrielle Stratton		34083
Gabrielle Veal		41272
Gaby Roth		32096
Gaetano Mazzotta		24739
Gaia Sonste		33123
Gail Addis		41192
Gail Arne		35881
Gail Bischoff		23601
Gail Bischoff		34007
Gail Colozzi		26289
Gail Courtney		29010
Gail Dustin		35642
Gail Frethem		30473
Gail Gaebe		35892
Gail Gaebe		48949
Gail Gaebe		39837
Gail Gray		27786
Gail Kaye		29209
Gail Linnerson		2922
Gail Linnerson		23861
Gail Linnerson		49482
Gail Linnerson		52098
Gail Meese		36120
Gail Munroe		30179
Gail Nacey		32624
Gail Noon		24090
Gail Petersen		28867
Gail Rosenqusit		39674
Gail Rosenqusit		48847
Gail Salha		28918
Gail Stamps		34024
Gail Steward		33037
Gail Valenson		30479
Gail Winter		34485
Gail Zera		26658
Gale Maynard		28017
Galen Joeckel		26852
Galiena Anderson-Lind		35325
Galiena Anderson-Lind		47242

Sender Name	Submission ID
2 Sierra Club	
Galiena Anderson-Lind	48570
Gared Oudeans	33373
Garrett Walters	35463
Garrick Balk	25900
Garrick Balk	33204
Garrilynn Harvey	25858
Garrine Petersen	24287
Garry Burroughs Ii	28073
Garry Cobbum	38279
Garry Low	31406
Garry Nemeth	34646
Garry Taroli	27306
Gary and Margaret Majeski	31122
Gary and Seraphina Landgrebe	24369
Gary Bence	34260
Gary Bettega	29763
Gary Brooker	27326
Gary Bryant	32503
Gary Byler	30795
Gary Clarke	25893
Gary Cooper	31745
Gary Cozette	30420
Gary Custer	34002
Gary Drescher	32071
Gary Ewald	26199
Gary Friedlund	30820
Gary Friedman	24401
Gary Geurts	32198
Gary Hamm	31173
Gary Hamm	31181
Gary Hayes	24571
Gary Hendricks	24550
Gary Houston	31101
Gary Jansen	30817
Gary Jones	29068
Gary Klooster	31410
Gary Laclair	34272
Gary Lansinger	28301
Gary Leyson	34478

Sender Name	Submission ID
2 Sierra Club	
Gary Lofgren	33306
gary mathis	35806
Gary Mazzotti	30649
Gary Mullens	25247
Gary Mullens	30474
Gary Murdock	27645
Gary Overby	30218
Gary Purcell	35963
Gary Raney	25163
Gary Rapaport	32713
Gary Rejsek	36118
Gary Richardson	35830
Gary Ritchie	35086
Gary Robertson	23674
Gary Russell	33763
Gary Sanborn	25026
Gary Schachterle	35849
Gary Simmons	23073
Gary Sorensen	32680
Gary Stewart	25857
gary stillwell	30261
Gary Strauss	24138
Gary Strauss	49508
Gary Sundstrom	31006
Gary Tolliver	32637
Gary Turner	29997
Gary Webb	29994
Gary Weiss	23065
Gary Weiss	38292
Gary Wernersbach	35736
Gary Wernersbach	48886
Gary Williamson	24605
Gary York	34337
Gavin Bornholtz	25534
Gavin Bornholtz	31669
Gavin Needler	31879
Gavin Perry	26292
Gay Dalzell	28123
Gay Lawson	30666

Sender Name	Submission ID
2 Sierra Club	
Gay Marie Goden	28033
Gay Marie Goden	34622
Gay Williamson	30985
Gaya Covington	26629
Gayla Bonner	37821
Gayle Countryman-Mills	27441
Gayle Dufour	27799
Gayle Fout	26997
Gayle Maginnis	25921
Gayle Urban	27111
Gayle Vanorder	32753
Gaynl Farmer	35083
Geary Jones	33819
Geena Wallace	31551
Geert van de Vorstenbosch	24951
Gena Lyon	34717
Gene & Dori Peters	27282
Gene Ammarell	29898
Gene Binder	26368
Gene Champagne	30787
Gene Christenson	3718
Gene Christenson	29376
Gene Christenson	48662
Gene Christenson	51802
Gene Diedrich	29217
Gene Fleury	35777
Gene Lundergan	31455
Gene Mccornack	36133
Gene Polis	24767
Gene Smith	48626
Gene Stancak	28970
Genevieve Deppong	26301
Geo Black	32880
Geoff Bachert	33958
Geoff Blanco	30533
Geoff Graham	25992
Geoff Martin	39667
Geoff Martin	48846
Geoff Potter	29004

Sender Name		Submission ID
2 Sierra Club		
Geoff Regalado		25525
Geoffrey & Paula Thompson		26242
Geoffrey Adler		23044
Geoffrey Greer		32224
Geoffrey Robles		31532
Georgan Gregg		25766
Georgann Hallenbrook		29719
Georgann Kovacovsky		23776
George Ahlgren		32354
George And Betsy Vozary		34424
George And Diana Davis		36260
George And Diana Davis		36267
George Bachmann		28380
George Bleimes		33897
George Bourlotos		24864
George Burnash		26507
George Calagias		38098
George Canada		26280
George Davis		30542
George Davis		31434
George Ebright		30647
George Gordon		33027
George Heritier		31922
George Hillier Sr.		29101
George Isa		30339
George Johnson		3705
George Johnson		51783
George Krach		28903
George Krivorotov		28668
George M. Williams		29797
George Marsh		35194
George Milkowski		33411
George Muellner		30364
George Oliver		35269
George Oliver		35591
George Pappas		31014
George Perkins		33435
George Ripplinger		34888
George Riter		30736

Sender Name	Submission ID
2 Sierra Club	
George Schaaf	35469
George Schneider	24820
George Stadnik	25873
George Stiffler	32511
George Weldon	29070
George Zvolensky	32667
Georgean Goldenberg	36095
Georgena Askew	25149
Georgette Cora	27177
Georgette Gagen	29478
Georgia Brown	25215
Georgia Keiss	33961
Georgia Libbares	33997
Georgia Mattingly	26933
Georgia Shankel	34627
Georgiann Schulte	32330
Georgianne Tarrant	34242
Georgie Peterson	27589
Georgina Forester	24761
Gerald And Sally Meike	33483
Gerald Bukosky	32088
Gerald Fortuna	33019
Gerald Gardner	34849
Gerald Geiser	33539
Gerald Gouge	28053
Gerald Helmerich	35106
Gerald Lackey	23897
Gerald Lackey	24019
Gerald Mahoney	28275
Gerald Mahoney	34741
Gerald Mcnellis	33955
Gerald Melm	34757
Gerald Murray	23220
Gerald Pohly	33255
Gerald Rahn	33981
Gerald Striegel	48632
Gerald Thompson	30272
Gerald Wambach	31383
Gerald Wambach	48618

Sender Name	Submission ID
2 Sierra Club	
Gerald Zedlr	34721
Geraldine Guardado	23863
Geraldine Guardado	35498
Geraldine Stewart	34043
Geraldine Zeibert	35309
Geralyn Leannah	31497
Geralyn Wiedeman	30471
Gerard vanTol	28667
Gerhard Vollmer	28945
Gerhild Paris	24754
Geri Gasiorowski	36001
Geri Gravander	31341
Geri Kromminga	25955
Geri Slock	27481
Geri Slock	32182
Geri Votava	31138
Gerilyn Lane	34468
Germano Brandes	27053
Gerree Kolar	31029
Gerry Flakas	31721
Gerry Fogarty	29736
Gerry Fuller	39513
Gerry Fuller	48764
Gerry Hammer	24439
Gerry Milliken	27276
Gerry Rosenberg	36007
Gerry Rosenberg	36111
Gerry Rosenberg	48936
Gertrude Gregory	31059
Gertrude Hammons	31280
Gertrude Waller	36114
Ghazala Basharat	27787
Giada Gattoni Gricourt	27321
Giana Peranio Paz	28897
Gianfranco Cervellati	24668
Gideon Falk	28891
Gil And Sharon Miranda	35497
Gil Voss	33262
Gilbert Singer	34940

Sender Name	Submission ID
2 Sierra Club	
Gillian Brown	28314
Gillian Suess	25421
Gilmore, Kathy	57984
Gilmore-Scott, E	57985
Gina Boltz	28558
Gina Kalama	36223
Gina Lauria	23961
Gina Lauria	23963
Gina Lauria	23964
Gina Lauria	23965
Gina Lauria	23967
Gina Lauria	23971
Gina Lauria	23973
Gina Lauria	31165
Gina Lauria	31641
Gina Lauria	31662
Gina Lauria	31692
Gina Lauria	31705
Gina Marano	30625
Gina Ronyak	33098
Gina Wilkosz	36034
Gina Wood	34637
Ginger Hill	23419
Ginger Miller	24972
Ginger Sanders	51610
Ginger Schedler	23455
Ginna Jaksic	28206
Ginny Hanson	21145
Ginny Hanson	50951
Ginny Smith	26927
Ginny Stohr	27710
Gisela Newbegin	22927
Gisela Towner	35343
Gisela Zechmeister	26132
GL Caviglia	26340
Gladys Bryer	25029
Gladys Bryer	31801
Glen Riley	29890
Glen Wetzel	26316

Sender Name	Submission ID
2 Sierra Club	
Glen Zirbes	47405
Glen Zirbes	48582
Glenda Henning	29803
Glenda Kendrick	23910
Glenda Lamb-Wilson	36163
Glenn Andersen	24857
Glenn Bernsohn	30418
Glenn Clark	26537
Glenn Davis	26831
Glenn Frantz	25533
Glenn Golden	32464
Glenn Hawkes	26215
Glenn Hopkins	31335
Glenn Jones	35776
Glenn Knoblock	28059
Glenn Koehrsen	26930
Glenn Kramer	30922
Glenn Miller	27109
Glenn Miller	29540
Glenn Mitroff	29928
Glenn Stubbs	30340
Glenn Teschendorf	26161
Glenn Teschendorf	27916
Glenn Zorn	32352
Glenna Shenas	26317
Glenna-Jo Petersen	33880
Glenwood Brown II	34057
Gloria Biondi	32034
Gloria Cassady	29094
Gloria Compton	35139
Gloria Davis	25194
Gloria Emison	31882
Gloria Esenwein	30667
Gloria J. Riepma	26206
Gloria Jarapko	30979
Gloria Klimczak	27415
Gloria Korhonen	34720
Gloria La Fleur	24387
Gloria La Fleur	36066

Sender Name	Submission ID
2 Sierra Club	
Gloria Lansin	30789
Gloria Love	25438
Gloria Miller	34011
gloria nugent	24486
Gloria Olson	25181
Gloria Picchetti	35998
Gloria Wilson	29537
Gloria Zimny	35706
Gordana Barisic	24521
Gordon & Diana Tracz	22877
Gordon Agnew	30969
Gordon Andrews Jr.	35041
Gordon Dean	36134
Gordon Gottbeheut	36290
Gordon Holm	29058
Gordon Johnson	23711
Gordon Jones	35153
Gordon Judd	31678
Gordon Kircher	32541
Gordon Kircher	39930
Gordon Kircher	49008
Gordon Messling	24719
Gordon Pask	30515
Gordon Seyfarth	31022
Grace Amoroso	25620
Grace Busch	27301
Grace Golata	28707
Grace Heimsness	22852
Grace L. Ansani	32016
GRACE NEFF	26648
Grace Niu	25590
Grace Payne	24178
Grace Robbins	35957
Grace Strong	27039
Gracinda Rodrigues	23046
graden west	29044
Grant & Susan Kollar	29075
Gray Edstrom	35873
Grea Alexander	26931

Sender Name	Submission ID
2 Sierra Club	
Greg & Jean Noah	30582
Greg & Shara Johnson	27844
Greg Bastien	10382
Greg Bastien	51499
Greg Bereiter	36211
Greg Bernard	30388
Greg Burnet	35729
Greg Collins	29445
Greg Crouch	28635
Greg Fechik	29029
Greg Frering	26844
Greg Garbulinski	34328
Greg Gervais	28672
Greg Hartke	29741
Greg Henderson	31402
Greg Hopkins	24552
Greg Kapphahn	2804
Greg Kapphahn	51980
Greg Knollmeyer	36073
Greg Lewis	32719
Greg Mackey	23213
GREG MARSTELLER	34314
Greg Matthews	26705
Greg Nayman	39031
Greg Nayman	48638
Greg Nicholson	2897
Greg Nicholson	52036
Greg Nielson	23657
Greg Nielson	24171
Greg Norton	31369
Greg Olson	48958
Greg Reinoldt	30942
Greg Roll	31648
Greg Slowiak	29475
Greg Spahn	34781
Greg Stawinoga	34999
Greg Szelmeczka	22662
Greg Wells	31264
Gregg Gustafson	6211

Sender Name	Submission ID
2 Sierra Club	
Gregg Gustafson	51504
Greggory Jennings	28922
Gregory Duncan	33767
Gregory Fox	48978
Gregory Freeman	24419
Gregory Hanson	2793
Gregory Hanson	25466
Gregory Hanson	51977
Gregory Heddirch	33392
Gregory Kendall	2695
Gregory Kendall	51884
Gregory Knight	34874
Gregory Knoop	31587
Gregory Kuhlman	35617
Gregory LaDouceur	3677
Gregory LaDouceur	51768
Gregory Lewis	32208
Gregory Lovalenti	33180
Gregory Lund	30794
Gregory Miller	31092
Gregory Monk	35001
Gregory Mowry	30150
Gregory Neel	25985
Gregory Neel	35123
Gregory Parker	30727
Gregory Parker	30740
Gregory Parker	30747
Gregory Penderghest	35233
Gregory Rossi	31030
Gregory Siedelberg	37806
Gregory Simpson	26036
Greta Gaard	32240
Gretchen Mottice	29079
Gretchen Pederson	23026
Gretchen Sukow	28739
Gretchen Zell	48813
Grete S	27241
Grews, Ann H	57988
Grews, Bill	57989

Sender Name	Submission ID
2 Sierra Club	
Gudrun Dennis	29345
Guenter Zuelow	30581
Gunther Wolff	25654
Gurubhai Khalsa	26019
Guy Bateman	24792
Guy Swansbro	34421
Gwen Davis	30125
Gwen Jennier	28268
Gwen Smit	29337
Gwendolyn Karan	32497
Gwendolyn Moore	29367
Gwynyth Chmara-Huff	32199
Gysele vanSanten	29887
H Fast	27928
H Fast	27975
H Fox	24541
H Ozeran	34523
Hadler Dale	3577
Hadler Dale	51713
Hailey Aldren	27627
Haley Green	27368
Haley Green	31107
Haley Lavris	31890
Haley Schurman	35598
Hanna Brustad	28608
Hannah Beldyga	30884
Hannah Borton	25762
Hannah Goobin	25132
Hannah Hoglund	48979
Hannah Meister	23395
Hannah Rees	23368
Hannah Rees	30453
Hannah Tomaszewski	27487
Hannah Tomes	35074
Hannah Withers	33112
Hans Huber	31190
Hansen James	23250
Hansen James	31361
Hansen, Clifford	57991

Sender Name	Submission ID
2 Sierra Club	
Harley Doss	30017
Harley Pierce	35414
Harold Anderson	32657
Harold Enstrom	35278
Harold Fischel	33571
Harold Grubb	27095
Harold Hobday	2983
Harold Hobday	52142
Harold Jackson	30365
Harold Masengarb	26971
Harold Masengarb	34311
Harold Picken	24694
Harold Radke	3733
Harold Radke	51812
Harold Smith	30130
Harold Smith	24576
Harold Wick	33116
Haroldo Martins Nunes	35422
Harriet Mccleary	2999
Harriet Mccleary	52155
Harriet Shalat	25776
Harriet St John	31218
Harriet Temps	23884
Harriet White	27224
Harrison Bertram	38598
Harrison Schneider	51594
Harrison, Rachel	57992
Harry Bell	32186
Harry Farr	34056
Harvey Dym	32745
Harvey Kahler	35148
Harvey Reed	32772
Hasana Abdullah	35455
Headwaters Chapter I Ivan J Hack Jr	34690
Heather Beal	31937
Heather Beauchamp	28888
Heather Cavanaugh	34153
Heather Daniel	29939
Heather Dysert	23847

Sender Name	Submission ID
2 Sierra Club	
Heather Elamon	27125
Heather Ervin	32331
Heather Forsythe	24836
Heather Gregory	31660
Heather Hale	33784
Heather Halvorson	35492
Heather Hewett	30686
Heather Hundt	3719
Heather Hundt	51799
Heather Kneale	27249
Heather Mcclellan	33893
Heather Miller	26392
Heather Miller	33294
Heather Peacock	25595
Heather Peacock	35695
Heather Reynolds	35915
Heather Sorensen	27182
Heather Thompson	29959
Heather Whitt	35230
Heather Whitt	35430
Heather Young	35328
Hector Corzo	24500
Hedman Bullivant	52284
Hedy Westra	31026
Heidi Aubrey	29645
Heidi Bresilge	34825
Heidi Dhivya Berthoud	24624
Heidi Farmer	35132
Heidi Hanson	34570
Heidi Homze	27642
Heidi Jones	29083
Heidi Ludwick	27083
Heidi Lynn Ahlstrand	3678
Heidi Lynn Ahlstrand	51769
Heidi Moore	25317
Heidi Mugrauer	24557
heidi schleicher	30623
Heidi Shaffer	22682
Heidi Takala	39030

Sender Name	Submission ID
2 Sierra Club	
Heleln Van Lith	51573
Helen Bartlett	22957
Helen Black	23609
Helen Clesen	34344
Helen Elkins	27424
Helen Etnier	3731
Helen Etnier	51813
Helen Findley	29974
Helen Haggins	26471
Helen Lang	33746
Helen Matekunas	32585
Helen Moblo	30484
Helen Renzelmann	29122
Helen Seiler	35843
Helen Snyder	30074
Helen St.John	23707
Helen Taras	23098
Helen Templeton	35260
Helen Walker	23916
Helen Whitfield	29024
Helen Wright	31647
Helena Lafferty	33368
Helene Harrison	32793
Helene Willson	32812
Helmut Hubner C/O Lindsey	26719
Hemmila Rodney	3475
Hemmila Rodney	51659
Henderson, Krissa	57994
Henry and Alice Gosztyla	33762
Henry Brenner	34304
Henry Kamrath	36063
Henry Sak	25881
Henry Schmutz	23748
Henry Weinberg	25867
Henry Wolfe III	31380
Herb Evert	34917
Herbert & Betty Cheeseman	23951
Herbert & Betty Cheeseman	23966
Herbert Guadron	24961

Sender Name	Submission ID
2 Sierra Club	
Herbert Kramm-Abendroth	30988
Herbert Reed	28514
Herbert Shroyer	35878
Herman Diaz	23774
Hermina Sikkema	34155
Heyward Nash	2675
Heyward Nash	51865
Heyward Nash	51873
Hilary Capstick	27386
Hilary Hunt	34046
Hilary Malyon	23050
Hilary Mcgregor	23322
Hilda Richey	31638
Hildegarde Bertan	31707
Hildy Meyers	27822
Hillary Geller	33146
Hillary Shemes	34268
Hly Hly	26238
Holden, Paula	57996
Holger Tressin	24932
Holly Babcock	24551
Holly Buchanan	28432
Holly Dowling	26274
Holly Ehmann	26711
Holly Eisberner	29526
Holly Gish	23178
Holly Heighberger	34437
Holly Hemingway	30683
Holly Hopkins	34834
Holly Hubing	34786
Holly Hubing	48805
Holly Jenkins	19882
Holly Jenkins	49561
Holly K Einess	47152
Holly K Einess	48565
Holly Malarney	25704
Holly Poindexter	28212
Holly Schmidt	29158
Holly Welch	29714

Sender Name	Submission ID
2 Sierra Club	
Holly Wells	32847
Holt, Jeni	57997
Homer Gurtler	35426
Hope Berry	24869
Hope McLeod	34977
Hope Millington	23807
Hope Phillips	33629
Hope Wudtke	33350
Houle, Terry	57999
Houston Taylor	24516
Houston Wong	25349
Howard Christofersen	31754
Howard Hassman	24572
Howard Miller	34836
Howard Mock	29591
Howard Noelbb	34076
Howard Reese	26389
Howard Stein	34309
Huberta Karpinski	34243
Hugh Ballem	34419
Hugh Horton	33467
Hugh Spector	29103
Humphrey Kearns	23615
Humphrey Kearns	27130
Humphrey Kearns	49472
Hunter Wallof	27258
Hydee Dullam	23078
Hydee Dullam	26208
I Care	25162
Ian Dogole	25672
Ian Engle	29316
Ian Griffith	25059
Ian Hackett	24491
Ian Ingram	29025
Ian Ingram	30818
Ian Osgerby	28191
Ian Roberts	21151
Ian Roberts	50954
Ian Sherman	27063

Sender Name	Submission ID
2 Sierra Club	
Ian Thompson	35035
Ian Wolf	31519
Idelle Peterson	2766
Idelle Peterson	16515
Idelle Peterson	51029
Idelle Peterson	51946
Ilah Hartung	24477
Ilene Kazak	31807
Illegible, Tara	58003
Ilona Vaupel	24056
Imogene Burkhart	32759
Ina Pillar	34289
Inga Hagge	30115
Inge Robertson	28564
Ingeborg Dunn	27516
Ingeborg Plescher	34329
Ingrid Berman	35580
Ingrid Fuerstenau	46989
Ingrid Gunderson	34110
Ingrid Rochester	26008
Ira Kriston	35550
Iraida Capaccio	27402
Irene Anbender	30024
Irene Bussjaeger	3001
Irene Bussjaeger	52157
Irene Emmer	23941
Irene Emmer	34308
Irene Fuller	34072
Irene Martone	27230
Irene Pruzek	27401
Irene Pruzek	31903
Irene Senn	29438
Irene Worley	32569
Irina Lamadrid	22970
Iris Meltzer	32841
Iris Smith	26072
Iris Smith	35708
Iris Smith	35751
Irma Reiss	30208

Sender Name	Submission ID
2 Sierra Club	
Irv & Janet Berlin	30693
Irv Smith	35744
Irv Smith	48689
Irvin Cross	35008
Isaac Secor	29128
Isaam El-Amin	36015
Isabel Kopp	30909
Isabel Obrien	25940
Isabella Bailey-Grove	30911
Isabelle Boisgard	27106
Isabelle Dobbelaere	24915
Isabelle Rousseau	24924
Italia Millan	27898
Ivan LaHaie	28629
Ivan Winegar	27741
Iver Johnson	30851
Ivette Sandlin	25637
Ivette Sandlin	32297
Ivonne Carlson	28543
Ivy Moser	29972
J & M Pults	25183
J Angell	27232
J Beverly	27447
J Bienik	33663
J Chu	26033
J Chu	37894
J Craig Davie	26744
J D Porter	3665
J D Porter	51761
J Frederick Bartlett	34621
J G	32570
J K Fort	2969
J K Fort	52110
J Kitts	30462
J Mc Ewen	25369
J Moss	23706
J N	33304
J Olson	41334
J Perryman	26377

Sender Name		Submission ID
2 Sierra Club		
J R		3523
J R		51683
J Schroeder		33703
J Scott Clarke		30456
J Tioran		24542
J Tioran		29533
J Weil		24939
J Woodhull		34514
J. A. Moore		25387
J. B.		24428
j. Bender		3462
j. Bender		51653
J. Frum		31547
J. Kramer		32798
J. O'Malley		22833
J. Peter Everest		4408
J. Peter Everest		51537
J. Pina		23111
J. Swanson		35433
J. Tioran		29306
J. Woodworth		23959
J.Isabelle Dyck		3711
J.Isabelle Dyck		51793
J.L. Lynner		2871
J.L. Lynner		52080
J.T. Smith		24391
Jaci Stone		24216
Jack & Cheryl Hayes		30236
Jack Angerhofer		25248
Jack Angerhofer		25252
Jack Avery		26688
Jack Bingham		26339
Jack Daniels		27071
Jack Davidson		28269
Jack Davidson		34037
Jack Kerns		26459
Jack Klecka		29767
Jack Longert		35675
Jack Miller		24497

Sender Name	Submission ID
2 Sierra Club	
Jack Moody	33699
Jack Sikora	48698
Jack Thomas	28544
Jackie Blair	32171
Jackie Byars	36270
Jackie Carter	30833
Jackie Corby	23185
Jackie Costello	31100
Jackie Dicecco	32846
Jackie Feinberg	27639
Jackie Flynn	26674
Jackie Grubb	27507
Jackie Holmbeck	23969
Jackie Maldonado	35160
Jackie Pippin	26393
Jackie Robb-Carp	27363
Jackie Send	31466
Jackie Stephens	24858
Jackie Thompson	27259
Jackie Tryggeseth	30422
Jacklyn Bruss	35472
Jackson Grimm	30435
Jackson Lang	30378
Jackson Purdie	2901
Jackson Purdie	52068
Jaclyn McClain	24577
Jaclyn Sipovic	30483
Jacob Gritter-Dorr	30648
Jacob Gruber	28828
Jacob Harmon	31415
Jacob Kasparian	31331
Jacob White	26307
Jacob Wilson	31502
Jacob Wittlief	27853
Jacque Hickman	27245
Jacque Hickman	34290
Jacque Hollis	25114
Jacque Lively	48865
Jacqueline Bilek	27886

Sender Name		Submission ID
2 Sierra Club		
Jacqueline Birnbaum		23180
Jacqueline Crow		35010
Jacqueline Deslandes		32500
Jacqueline Gipson		23341
Jacqueline Lipphardt		29528
Jacqueline Lukens		25212
Jacqueline Mahrley		24963
Jacqueline Nelson		33666
Jacqueline Newman		25449
Jacqueline Newman		26625
Jacqueline Pilan		33956
Jacqueline Potoski		34991
Jacqueline Stingle		36266
Jacqueline Tessman		33069
Jacquelyn Thompson		31955
Jacquelyn Weber		22989
Jade Fortune		23032
Jaime Kuske		26991
Jaime Schwarz		30097
Jain Simmons		33701
Jairo Molina		48903
Jairo Molina		50941
Jake Cohen		26580
Jake La Jeunesse		2711
Jake La Jeunesse		51902
James & Carol Patton		27333
James & Helen Niblock		33942
James & Jan Cooke		22899
James Alstrum		28805
James Alvey		48860
James Amato		34206
James And Elfi Cairns		29547
James And Kristin Harvieux		32563
James Angel		34296
James Arneberg		32900
james b stewart		51552
James Bandstra		35477
James Baran		34319
James Barnett		24925

Sender Name	Submission ID
2 Sierra Club	
James Barnett	30496
James Beebe	34593
James Bess	33034
James Bishop	27430
James Blackmore	26730
James Boehlefeld	34496
James Bohen	2853
James Bohen	52027
James Bor	33562
James Bordell	27575
James Borst	31905
James Bove	26410
James Braunsdorf	31243
James Brewer Stewart	3737
James Brewer Stewart	51807
James Brister	35367
James Brunton	23591
James Bumgarner	23285
James C. Winne	29825
James Call	25467
James Carbone	38388
James Charles	30822
James Clossin	35043
James Cole	35533
James Connolly	27682
James Conway	2908
James Conway	24110
James Conway	25370
James Conway	29500
James Conway	49502
James Conway	52078
James Coppock	28694
James Craig	29878
James Davis	34815
james Demos	27634
James Direnzo	24320
James Direnzo	32012
James Dixon	26135
James Donnelly	35749

Sender Name		Submission ID
2 Sierra Club		
James Doten		33276
James Dushane		30894
James Dushane		48867
James Eaton		25175
James Elliott		23481
James Ellis		28479
James Engstler		34405
James Fails		29098
James Fishgold		23841
James Ford		2934
James Ford		52106
James Foreman		2733
James Foreman		51916
James Fortner		32716
James Gilmore		31744
James Grant		31946
James Green		32924
James Gysler		35891
James Haas		36038
James Haba		28787
James Haldy		33800
James Hall		3584
James Hall		3585
James Hall		44860
James Hall		48514
James Hall		51715
James Hall		51716
James Hansen		31789
James Hartman		34516
James Heady		32473
James Heller		36195
James Herther		24165
James Hetman		44695
James Hetman		48509
James Hettmer		35145
James Hilgemann		29980
James Hilgemann		48649
James Hite		23408
James Howarth		31684

Sender Name	Submission ID
2 Sierra Club	
James Huffman	34127
James Inkenbrandt	33534
James Knebel	28453
James Koss	36217
James Kramer	33918
James Krueger	34131
James Lasher	29053
James Lovich	28111
James Lovich	31947
James Lowe	24233
James Lukas	33310
James Marsh	24753
James Matrix	26860
James Maxwell	28542
James McCarthy	31866
James McConkey	31491
James Mcginley	25052
James Mcintosh	29947
James Mcwilliams	29281
James Medling	23396
James Meldrum	35033
James Melvin	30949
James Moran	24850
James Morr	34062
James Mulcare	26146
James Mulcare	28522
James Murphree	33133
James Naylor	32309
James Nichols	33100
James Noordyk	27798
James Odonnell	32842
James O'Malley	36017
James Ostrander	24663
James Page	32150
James Palus	31636
James Parr	27769
James Pech	32391
James Peebles	25564
James Petersen	32820

Sender Name		Submission ID
2 Sierra Club		
James Poplawski		34540
James Pritschet		3742
James Pritschet		51819
James Reinhart		34806
James Reinke		31632
James Roy		28973
James Russell		32116
James Russell		48861
James Rust		39512
James Ryan		23770
James Schultz		35124
James Senger Jr		32468
James Sipocz		32211
James Skalsky		29437
James Slifka		45474
James Slifka		48537
James Smock		34345
James Sperling		30330
James Stephens		34006
James Tenorio		28811
James Thorne		34604
James Vandenberg		31940
James Vierling Jr.		33292
James Walker		25954
James Walsh		26955
James Webb		34865
James Wild		27577
James Wise		32507
James Wolcott		26361
James Wolcott		33454
James Wolf		34754
James Zalba		30729
Jamey Lindeboom		29170
Jami Bassie		32784
Jami Halder		38553
Jami Halder		49162
Jamie Dalsbo-Olson		30728
Jamie Denman		24747
Jamie Greer		24809

Sender Name	Submission ID
2 Sierra Club	
Jamie Ireland	48696
Jamie Pickstone	28346
Jamie Polczynski	26846
Jamie Robinson	31261
Jamie Sitko	28121
Jamie Sitko	31642
Jamie Trask	24481
Jamin Carlson	33141
Jamin Carlson	47245
Jamin Carlson	48572
Jan & Timothy Dwyer	27837
Jan Ackerman	46539
Jan Ackerman	48553
Jan Bach	33793
Jan Berkson	36107
Jan Bessel	35473
Jan Best	3422
Jan Best	51632
Jan Christensen	32750
Jan Cohen	2852
Jan Cohen	52024
Jan Curtis Taylor	28875
Jan Ealy	32207
Jan Ebersole	36246
Jan Ehrenhaft	32966
Jan Guest	33051
Jan Hall	33630
Jan Hansen	26854
Jan Hayne	30644
Jan Hoeffler	24303
Jan Jackson	27429
Jan Kent	27720
Jan Kleckler	22872
Jan Komistra	26880
Jan Langlois	35202
Jan Londowski	33129
Jan Mangers	30382
Jan Mccall	29404
Jan Myslajek	48611

Sender Name		Submission ID
2 Sierra Club		
Jan Myslajek		48612
Jan Olson		39400
Jan Olson		48700
Jan Payne		31723
Jan Reineck		51549
Jan Serignea		25213
Jan Shakespeare		23064
Jan Sockness		28557
Jan Szostek		33721
Jan Tervydis		26753
Jan Tervydis		31896
Jan Turner		24343
Jan van Schaik		33611
Jan Wright		33334
Jan Zanoni		28727
Jana Austin		24630
Jana Boswell		32244
Jana Cyrus		26443
Jana Kitzinger		28296
Jana Pendragon		27200
Janaye Estlick		30892
Jane & Arthur Ellison		33282
Jane Ann Bahr		32492
Jane Blakeman		24399
Jane Bristol		35150
Jane Burroughs		29153
Jane Cease		25628
Jane Christensen		28436
Jane Cizmar		35279
Jane Cleave		2725
Jane Cleave		51910
Jane Connolly		26187
Jane Crowley		34068
Jane Danjin		32045
jane dennison		33032
Jane Dicken		31730
Jane Dixon		28749
Jane Drews		26007
Jane Fuller		28507

Sender Name	Submission ID
2 Sierra Club	
Jane Furrh	25611
Jane Galbraith	2671
Jane Galbraith	51866
Jane Gates	33588
Jane Hall	32530
Jane Hardy	27499
Jane Hatker	23678
Jane Hope	29409
Jane Hoyle	32709
Jane Johnson	26364
Jane Johnson	34575
Jane Keeler	31986
Jane Keggi	29846
Jane Konkol Andrews	32987
Jane Lambshead	27941
Jane Lynch	33182
Jane Mills	30451
Jane Nash	26084
Jane Nicholson	30249
Jane Nicholson	34640
Jane Nolan	35677
Jane Nolan	48948
Jane Nolan	39836
Jane Norling	48981
jane pajot	30385
Jane Parr	34735
Jane Patrick	28795
Jane Patrick	29358
Jane Reiter	35248
Jane Reynolds	35032
Jane Riddle	32459
Jane Rita	25741
Jane Roberts	31572
Jane Rowe	24450
Jane Schmit	34247
Jane Shabtaie	30087
Jane Simpson	26824
Jane Stedman	36289
Jane Thompson	29515

Sender Name		Submission ID
2 Sierra Club		
Jane Torma		35877
Jane Toth		33527
Jane Ward		32218
Jane Whiteside		35093
Jane Wilson		27671
Janean Kelly		44622
Janean Kelly		48508
Janell Lundgren		34783
Janell Smith		29250
Janelle Murphy		26020
Janene Unke-Hanson		4562
Janene Unke-Hanson		51518
Janet & Lawrence Hunter		29229
Janet Anderson		34192
Janet Baumanis		35775
Janet Bennett-Hanchon		27872
Janet Black		26272
Janet Borelli		32576
Janet Bovenkerk		32283
Janet Carmichael		24607
Janet Delaney		25073
Janet Dietrich		33844
Janet Dougherty		27131
Janet Draper		31811
Janet Dubas		32257
Janet Einfalt		23986
Janet Einfalt		28666
Janet Gettel		28933
Janet Glidden		29159
Janet Guriin		35427
Janet Harris		2791
Janet Harris		51979
Janet Hatch		2876
Janet Hatch		52076
Janet Huber		34710
Janet Jacobs		26948
Janet Karasinski		25171
Janet Keedy		31845
Janet Keough		51604

Sender Name	Submission ID
2 Sierra Club	
Janet Komada	27897
Janet Koplos	2800
Janet Koplos	51970
Janet Koss	34288
Janet Kulakoski	31804
Janet Kuncl	32053
Janet L. Krawcke	26183
Janet Matthews	25350
Janet Mcconaughey	34389
Janet McDonnell	34860
Janet Mckee	24038
Janet Messinger	30011
Janet Minidis	28753
Janet Neihart	2988
Janet Neihart	24143
Janet Neihart	49509
Janet Neihart	52153
Janet Pyett	29045
Janet Rohde	33745
Janet Romine	24474
Janet Scher	26861
Janet Scott	30410
Janet Sigler	25255
Janet Smith	23438
Janet Staten	33723
Janet Thomas	29586
Janet Thomas	35824
Janet Worth	30950
Janet Zimmerman	27168
Janette Morrell Mallouh	24861
Janette Mouijeb	22802
Jango Bento	26186
Janice and James Duplex	34409
Janice Atwell	24941
Janice Bahura	28328
Janice Barnett	27305
Janice Bergeron	25432
Janice Butcher	22842
Janice Colville	29914

Sender Name		Submission ID
2 Sierra Club		
Janice Dayton		25322
Janice Dulak		29932
Janice Ellison		32844
Janice Farran		24785
Janice Flandreau		28737
Janice Forsberg		2994
Janice Forsberg		52152
Janice Hallman		2819
Janice Hallman		51996
Janice Hekkanen		2873
Janice Hekkanen		52049
Janice Hiley		35631
Janice Humphrey		31860
Janice Hunter		33166
Janice Karpel		2856
Janice Karpel		52026
Janice Mcgee		26529
Janice Messer		25949
Janice Metzger		30355
Janice Murphy		27735
Janice Patrick		32926
Janice Postma		28708
Janice Riegle		29798
Janice Shapiro		23117
Janice Shefchuk		32387
Janice Smith		51616
Janice Susek		35829
Janice Tinkham		28261
Janice Tinkham		29430
Janice Wagner		28771
Janice Wiechman		32699
Janice Wilfing		28648
Janice Zawacki		23515
Janie Lowrie		31718
Janie Smieszek		32747
Janine Smetana		28752
Janine Taulman		36069
Janine Wilson		35702
Janis Andersen		24726

Sender Name	Submission ID
2 Sierra Club	
Janis Costello Browning	33564
Janis Lanagan	25205
Janis Ley	33426
Janis Rustad	25054
Janis Sward	30874
Janita Ponze	23652
Jann Hoge	30744
Jann Lutterman	25993
Janna Wiedemann	47178
Janne Bagley-Murray	31058
Januario Ortega	34600
Janusz Maka	35659
Jared Collins	34855
Jared Collins	34900
Jared Cornelia	25670
Jared Fischer	32098
Jared Jensen	24564
Jared Miller	32756
Jared Poley	28274
Jared Schwab	51619
Jarell Kuney	35584
Jarrod O'Connor	51601
Jasmine Petrie	23217
Jason Bellenger	29911
Jason Bender	32070
Jason Brock	29009
Jason Brock	32384
Jason Clark	36147
Jason Fish	36089
Jason Halal	27811
Jason Hohl	39430
Jason Hohl	48728
Jason Hoobler	34654
Jason Husby	24908
Jason Husby	30993
Jason Leisemann	34396
Jason Manviller	25024
Jason Meyer	28775
Jason Pinkstaff	32517

Sender Name		Submission ID
2 Sierra Club		
Jason Rowenhorst		39423
Jason Rowenhorst		48720
Jason Sedore		32754
Jason Wegner		26936
Jasper Hardesty		24904
Jausen Hyldahl		27118
Jay Balke		31009
Jay Davey		23214
Jay Gottschalk		30481
Jay Hotchkiss		26829
Jay Hutchinson		30367
Jay Little		26216
Jay Pocius		27222
Jay Richards		26399
Jay Satterwhite		36248
Jay Schelman		34307
Jay Unger		26434
jay zarowitz		33348
Jayne Hamilton		33878
Jayne Hogfeldt		31086
Jayson & Leslie Pereira		31384
Jean & John Imperial		30977
Jean and John White		52274
Jean and John White		52275
Jean Apperson		29228
JEAN B		23428
Jean Bails		31145
Jean Bell		32172
JEAN BURLING		23429
Jean Cameron		24340
Jean Dillner		36240
jean durack		23014
Jean Durack		29451
Jean Ehrman		33366
Jean Evens		49052
Jean Flick		27235
Jean Friday		27153
Jean Gadd		31724
Jean Gawel		31062

Sender Name	Submission ID
2 Sierra Club	
Jean Gillespie	25523
Jean Gram	31263
Jean Gramlich	28463
Jean Graudin	34742
Jean Greenwood	34626
Jean Grifka	30629
Jean Hall	31132
Jean Hartje	31826
Jean Johnson	27617
Jean Kampmeyer	33743
Jean Keating	29690
Jean Knowlton	35882
Jean Kohn	34817
Jean Lalli	30898
Jean Leonard	25116
Jean Lindemann	25285
Jean Muenchen	32679
Jean Muntz	33042
Jean Murphy	29111
Jean Paradise	39646
Jean Paradise	48832
Jean Phillips	34427
Jean Polous	27139
Jean Polous	27186
Jean Prieboy	29183
Jean Rodgers	25736
Jean Ross	21332
Jean Ross	51012
Jean Roy	24066
Jean Saltzman	35183
Jean Sayre	30885
Jean Schramm	23090
Jean Six	27651
Jean Sommer	33724
Jean Spiegelberg	30469
Jean Taylor	33028
Jean Woodmansee-Poklasny	34683
Jeana Martin	23240
Jeane Camp	35449

Sender Name		Submission ID
2 Sierra Club		
Jeanette Ammon		32190
Jeanette Battista		34564
Jeanette DeJesus		33886
Jeanette Louis		23852
Jeanette Louis		32275
Jeanette Thede		23088
Jeanie Pitchford		28319
Jeanie Streit		29164
Jeanine Dichristofano		25476
Jeanine Keeney		35741
Jean-Marie Hose		34390
Jeanne And Winston Seetoo		22791
Jeanne Bergen		26579
Jeanne Bourdeau-Heller		24807
Jeanne Hermanson		31413
Jeanne Hevener		23587
Jeanne Long		32537
Jeanne Long		32588
Jeanne Melchior		28553
Jeanne Moenk		32136
Jeanne Murray		32610
Jeanne Nakamoto		34008
Jeanne Phillips		33855
Jeanne Piehl		32002
Jeanne Piehl		48631
Jeanne Robinson		25643
Jeanne Ruthven		25313
Jeanne Ruthven		29854
Jeanne Salsig		26027
jeanne schreurs		29620
Jeanne Schubert		32408
Jeanne Straw		38072
Jeanne Wade		24037
Jeanne Young		25235
Jeannete Rowe		28470
Jeannette Ernst		29613
Jeannette George		35257
Jeannie Burgess		34609
Jeannie Carl		34305

Sender Name	Submission ID
2 Sierra Club	
Jeannie Economos	26652
Jeannie Finlay-Kochanowski	28022
Jeannie Finlay-Kochanowski	35731
jeannie gulstrand	39460
jeannie gulstrand	48739
Jeannie Owen	33127
Jeannie Roberts	35403
Jeannie Smith	23731
Jeannie-Kay Nerenburg	25293
Jeannine Jadrnak	23376
JEANNINE JADRNAK	38276
Jedidiah Krauss	51556
Jeff & Diana Shamis	24121
Jeff Anderson	28704
Jeff Bence	22860
Jeff Cefali	31343
Jeff Chong	31043
Jeff Cox	32430
Jeff Cox	33691
Jeff Dix	35854
Jeff Evans	31932
Jeff F	32730
Jeff Fisher	33829
Jeff Franchi	32592
Jeff Gades	2721
Jeff Gades	51906
Jeff Goll	33980
Jeff Guay	24339
Jeff Hall	24611
Jeff Hoffman	26297
jeff hopkins	28389
jeff hopkins	28393
jeff hopkins	29783
Jeff Johnson	28368
Jeff Johnson	36244
Jeff Kinnard	35549
Jeff Klein	30955
Jeff Kumpula	26774
Jeff Kumpula	30154

Sender Name	Submission ID
2 Sierra Club	
Jeff Martin	24537
Jeff Najduk	33945
Jeff Neel	29637
Jeff Parsons	24011
Jeff Parsons	29897
Jeff Payne	32311
Jeff Peterson	48741
Jeff Pringle	35813
Jeff Richard	30723
Jeff Richards	49048
Jeff Schmid	26057
Jeff Schneider	33685
Jeff Streicher	27549
Jeff Stromgren	2820
Jeff Stromgren	51992
Jeff Tatom	26681
Jeff Thering	29052
Jeff Wensman	34761
Jeff Witters	34322
Jeffery Anderson	33021
Jeffery Pelath	27756
Jeffery Pelath	27758
Jeffery Pelath	29362
Jeffrey Albrecht	31428
Jeffrey Ballou	29136
Jeffrey Bentley	32815
Jeffrey Brown	36252
Jeffrey Brue	28540
Jeffrey Courter	31250
Jeffrey Deyoung	30734
Jeffrey Fast	30923
Jeffrey Harriman	29269
Jeffrey Hart	31800
Jeffrey Hendricks	31522
Jeffrey Hodson	27273
Jeffrey Josephs	30225
Jeffrey Klarich	35355
Jeffrey Kolnick	49066
Jeffrey Luckay	32591

Sender Name	Submission ID
2 Sierra Club	
Jeffrey Lunde	23456
Jeffrey Luther	24174
Jeffrey Martinson	31188
Jeffrey McCollim	28226
Jeffrey McCollim	30240
Jeffrey Miranda	33728
Jeffrey Nadzam	35195
Jeffrey Peterson	36197
Jeffrey Porter	28524
Jeffrey Rattner	24675
Jeffrey Sanders	31378
Jeffrey Schnebelen	24325
Jeffrey Shapiro	29226
Jeffrey Shapiro	30635
Jeffrey Stachula	32727
Jeffrey Starr	32425
Jeffrey Wilson	28492
Jelica Roland	24196
Jen Connors	26228
Jen H	26266
Jen Harper	29043
Jen Madaffer	28304
jen schnabel	23161
Jen Schnabel	32524
Jen Smith	25243
Jen Smith	25245
Jen Smith	29471
Jenelle Beckwith	34906
Jenifer Papaccio	29359
Jenna Harker	24289
Jenna Harker	24295
Jenna Larke	29615
Jenna Linhart	27754
Jenna Matheny	26556
Jenni Lansing	21218
Jenni Lansing	50975
Jenni Ryan	23753
Jenni Ryan	49475
Jenni Westrich	34146

Sender Name		Submission ID
2 Sierra Club		
Jennie Hanna		35618
Jennie Kelly		31430
Jennifer Adams		31928
Jennifer Arave		2898
Jennifer Arave		52051
Jennifer Balmer		27879
Jennifer Barnett		28742
Jennifer Brown		32935
Jennifer Bunner		33911
Jennifer Claunch-Meyers		23035
Jennifer Cunningham		26209
Jennifer Davis		23295
Jennifer Davis		29264
Jennifer DeNetz		23188
Jennifer Direnzo		23301
Jennifer F		25005
Jennifer Foehl		26708
Jennifer French		31042
Jennifer Gitzel		32076
Jennifer Grasso		24996
Jennifer Grybowski		25787
Jennifer Harris		24058
Jennifer Harris		34669
Jennifer Harris		49496
Jennifer Hart		27444
Jennifer Harwood		23010
Jennifer Heinze		34819
Jennifer Hill		28213
Jennifer Hill		33168
Jennifer Hill		35442
Jennifer Hillman		31492
Jennifer Johnson		27229
Jennifer Johnson		31575
Jennifer Karches		28089
Jennifer Kemmer		31370
Jennifer Kendler		31796
Jennifer Kennedy		26087
Jennifer Kiss		43197
Jennifer Kiss		48481

Sender Name	Submission ID
2 Sierra Club	
Jennifer Knable Thompson	32252
Jennifer Lanham	34787
Jennifer Lowans	26832
Jennifer Lutz	30274
Jennifer Mahan	34658
Jennifer Marks	35384
Jennifer Martin	25061
Jennifer Mason	30674
Jennifer Mccard	26996
Jennifer Midgett	28258
Jennifer Morris	3734
Jennifer Morris	51818
Jennifer Neale	24078
Jennifer Needham	33232
Jennifer Nitz	25507
Jennifer Peterson	29953
Jennifer Pick	30755
Jennifer Polce	23831
Jennifer Popp	30854
Jennifer Rantz	27352
Jennifer Reame	29525
Jennifer Rials	48660
Jennifer Romans	29168
Jennifer Schaible	23733
Jennifer Scott	24400
Jennifer Sellers	25167
Jennifer Sims	25886
Jennifer Sines	34682
Jennifer Smith	25661
Jennifer Soutor	2759
Jennifer Soutor	51940
Jennifer Stapleton-Kotloski	24091
Jennifer Stapleton-Kotloski	28729
jennifer Tackett	28477
Jennifer Taylor	25008
Jennifer Urbon	31390
Jennifer Valentine	26210
Jennifer Vania	23568
Jennifer Victor	28179

Sender Name		Submission ID
2 Sierra Club		
Jennifer W		33656
Jennifer Warrillow		27502
Jennifer Warrow		31192
Jennifer Wheeler		29104
Jennifer Wiest		34562
Jennifer Wolf		29066
Jennifer Worrell		30510
Jennifer Zielinski		26051
Jenny Church		26374
Jenny Hartman		36028
Jenny Lee Vaughn		23738
Jenny Melville		29095
Jenny Thorvaldson		23198
Jerald Lipsch		33307
Jerald Lucas		25988
Jerald Vinikoff		27370
Jerald Wray		32953
Jeremy Basso		30119
Jeremy Heyl		35541
Jeremy Kirkman		33193
Jeremy Lyons		26254
Jeremy Pugliese		29727
Jeremy Scheidt		23671
Jeremy Scheidt		30490
Jeremy Stahl		3602
Jeremy Stahl		26654
Jeremy Stahl		51725
Jeremy Stubbs		29871
Jeremy Stuckwisch		23233
Jeremy Swanson		31048
Jeri Fioramanti		33268
Jeri Gordon		25186
Jeri Sawall		35163
Jermaine Foslien		21142
Jermaine Foslien		50949
Jerome Brooks		28892
Jerome Hossli		29152
Jerome Killory		25629
Jerome Miller		36018

Sender Name	Submission ID
2 Sierra Club	
jerome stanley	33811
Jerome Vielehr	35800
Jerrold Dagen	2858
Jerrold Dagen	52031
Jerrold Gershone	44999
Jerrold Gershone	48520
Jerry Alter	31182
Jerry And Linda Karlovec	33452
Jerry Belter	30267
Jerry Bierens	30450
Jerry Bolick	22992
Jerry Britt	26710
Jerry Campbell	26156
Jerry Castor	23886
Jerry Detry	35820
Jerry Fitzgerald	2987
Jerry Fitzgerald	52167
Jerry French	23380
Jerry Giefer	35161
Jerry Giefer	48894
Jerry Gillissen	35238
Jerry Hall	35514
Jerry Hay	35520
Jerry Hicks	33004
Jerry Hudgins	27341
Jerry Hughes	25454
Jerry Jelinek	34958
Jerry Johnson	33195
Jerry Klemm	29992
Jerry Koncel	28400
Jerry Lee	34494
Jerry Mawhorter	34858
Jerry Mylius	27743
Jerry Quarles	30514
Jerry Salisbury	30806
Jerry Sattinger	35409
Jerry Severson	30344
Jerry Sivets	45279
Jerry Sivets	48528

Sender Name		Submission ID
2 Sierra Club		
Jerry Skovie		35456
Jerry Stillings		29459
Jerry Wathen		35577
Jesn Public		26497
Jess Galchutt		26561
Jesse Bearheart		48798
Jesse Hemingway		30243
Jesse Jiang		3578
Jesse Jiang		51714
Jesse Kibbey		32720
Jesse Kirkham		26018
Jesse Lindell		33657
Jesse Lindsey		25799
Jesse Okie		29918
Jesse Soto		23052
Jesse Stock		35512
Jesse Suit		26724
Jessenia Winstanley		22901
Jessica Arend		36166
Jessica Blagen		31074
Jessica Brown		24006
Jessica Brown		28941
Jessica Chagnon		23506
Jessica Cresseveur		32749
Jessica Douglas		32137
Jessica Ehmke		30981
Jessica Ehmke		30984
Jessica Foster		24817
Jessica Foster		30016
Jessica Garcia		39664
Jessica Garcia		48842
Jessica Gullace		34809
Jessica Hart		25838
Jessica Hart		34077
Jessica Holtsclaw		28099
Jessica Kronika		32969
Jessica Leng		25291
Jessica Mcguire		30731
Jessica Mckee		31592

Sender Name	Submission ID
2 Sierra Club	
Jessica Miller	31815
Jessica Ramirez	25436
Jessica Rusell	26809
Jessica Sevilla	35828
Jessica Space	29759
Jessica Tritsch	2943
Jessica Tritsch	52090
Jessica Wardlaw	29671
Jessica Wheeler	24073
Jessica Witenstein-Weaver	24556
Jessica Witenstein-Weaver	24558
Jessie Bowen	27930
Jessie Gordon	30633
Jessie Osborne	35154
Jessie Wozniak	32392
Jesslyn Saylor	35504
Jill Badyrka	26093
Jill Bescher	26355
Jill Bittner	25380
Jill Boogren	39668
Jill Brothers	34120
Jill Budzynski	33983
Jill Casey	29789
Jill Cleveland	34733
Jill Davied	30606
Jill Dorsey	34028
Jill Griffith	29390
Jill Hayden	25912
Jill Henderson	26633
Jill Keisling	23402
Jill Keisling	23405
Jill Klein	29303
Jill Konst	28018
Jill Liedlich	22914
Jill Madigan	27022
Jill Madigan	34992
Jill Manske	29619
Jill Marcusse	29080
Jill Mengesha	24604

Sender Name		Submission ID
2 Sierra Club		
Jill Pafford		29572
Jill Pasqua		30599
Jill Paulus		28683
Jill Swander-Reed		33836
Jill Wettersten		34094
Jill Wiebe		32388
Jim & Lindsey Wanner		32977
Jim & Susan Mohr		31162
Jim Addington		45869
Jim Aguirre		33379
Jim and Laurie Wagner		28371
Jim Barritt		25464
Jim Beeby		33279
Jim Bennie		49043
Jim Boerke		31540
Jim Brennan		35333
Jim Clapp		25281
Jim Clapp		48899
Jim Davey		31129
Jim Demkowski		30201
Jim Dickinson		30530
Jim Doyle		26126
Jim Ellis		24301
Jim Fenske		32081
Jim Fleming		27233
Jim Graham		27425
jim hall		30203
Jim Head		35643
Jim Hemingway		30552
Jim Hemingway		30569
Jim Hoffman		33824
Jim Jachimiak		34295
Jim Jarvis		27546
Jim Johnson		31781
Jim Jones		33410
Jim Keating		31544
Jim Lawser		31936
Jim Lewis		27789
Jim Major		25997

Sender Name	Submission ID
2 Sierra Club	
Jim Manzardo	29852
Jim Marsden	3767
Jim Marsden	51844
Jim Menge	26157
Jim Miller	27398
Jim Moores	32803
Jim O'Neil	30670
Jim Phillips	27665
Jim Pilewski	30138
Jim Ramsdell	26175
Jim Ramsdell	30282
Jim Reding	27874
Jim Riley	24051
Jim Searle	30121
Jim Smith	31209
Jim Snee	27263
Jim Stuhlmacher	35785
Jim Terrell	30135
Jim Vorland	25284
Jim Weinmann	34119
Jim Wilson	23326
Jim Wilson	35336
Jimmie Kendrick	24846
Jimmy Opperman	30163
Jimmy Percy	32573
Jinger Pulkrabek	2894
Jinger Pulkrabek	52067
JM Kasten	34948
Jo Ann Bazata	32367
Jo Ann Bazata	32394
Jo Ann Flahiff	35602
Jo Ann Potashnick	36020
Jo Ann Van Horne	25751
Jo Anne Fannin	32931
Jo Armstead	29501
Jo Chen	25791
Jo Pfeffer	24921
Jo Pierce	34779
Joadie Orcasitas	47122

Sender Name		Submission ID
2 Sierra Club		
Joan and John Kyler		26636
Joan Arnold		24156
Joan Arnold		33868
Joan Berger		27097
Joan Bluestone		25191
Joan Carlson		28732
Joan Chesler		32069
Joan Chryst		31668
Joan Crafton		34074
Joan Criswell		31248
Joan Cullen		32801
joan davanzo		28170
Joan Delauro		23360
Joan Douglas		31241
Joan Ellison		23444
Joan Ellison		49468
Joan Fahlgren		35801
Joan Foreman		39666
Joan Foreman		48843
Joan Glisky		28321
Joan Heilman		27640
Joan Janisch		33470
Joan Janus		30100
Joan Johnson		32174
Joan Kemble		26993
Joan Kovach		30576
Joan Kozlowski		22949
Joan Lalonde		31389
Joan Lang		30954
Joan Leonard		2806
Joan Leonard		23848
Joan Leonard		49481
Joan Leonard		51983
Joan Martindale		34354
Joan McAllister		30062
Joan Mccoy		30701
Joan Milford		25394
Joan Miller		28138
Joan Mundstock		35435

Sender Name	Submission ID
2 Sierra Club	
Joan Najbar	48931
Joan Najbar	39822
Joan Nemann	22909
Joan Nichols	51589
Joan Odd	2958
Joan Odd	52086
Joan Overmire	30859
Joan Paskewitz	38202
Joan Philips	29340
Joan Piowaty	29775
Joan Schneider	32829
Joan Schuetz	36139
Joan Seed	26961
Joan Solmonson	33941
Joan Stanton	27013
Joan Tangen	2998
Joan Tangen	52143
Joan Webef	29779
Joanie Vigh	30908
Joann Carlson	30319
Joann Feist	22994
Joann Haddock	24232
Joann Loomis	23836
Joann Loomis	29322
Joann Majest	23648
Joann Majest	23650
Joann Palladino	25333
Joann Ramos	27226
Joann Zarins	48950
Joann Zarins	39842
Joanna Behrens	38406
Joanna Dziamba	24985
Joanna Kling	29702
Joanna Kouri	23430
Joanna Stalker	24187
Joanna Trott	34392
Joanne & Jim Zipperer	33181
Joanne Adsen	31199
Joanne Aubrey	32188

Sender Name	Submission ID
2 Sierra Club	
Joanne Braund	32031
Joanne Bryan	38367
Joanne Coleman	35844
Joanne Davey	34759
Joanne Elliott	36126
Joanne F Duff	32807
Joanne Granzow	32911
Joanne Hesselink	35846
Joanne Lakosil	27348
Joanne Lamert	34461
Joanne Marty	31992
Joanne Neihart	3576
Joanne Neihart	24163
Joanne Neihart	24166
Joanne Neihart	49513
Joanne Neihart	51712
Joanne Przybylowski	31440
Joanne Rawlings	29120
Joanne Runkel	29234
Joanne Sieck	34847
Joanne Sieck	45402
Joanne Sieck	48534
Joanne Tollison	29738
Joanne Wagner	32036
Joanne Wasner	25692
Joanne Willis	26496
Joanne Wood	33387
Jocelyn Anthony	25823
Jocelyn Blake	33857
Jocelyn Davis-Beck	31185
Jocelyn Shaw	27708
Jodee Rebecca Davey	23261
Jodi Beers	29599
Jodi Engum Kryshak	32344
Jodi Escalante	26952
Jodi Hanson	29875
jodi holden	33479
jodi holden	33489
Jodi Johnson	3654

Sender Name	Submission ID
2 Sierra Club	
Jodi Johnson	28728
Jodi Johnson	48620
Jodi Johnson	48621
Jodi Johnson	48622
Jodi Johnson	51755
Jodi Schefers	39480
Jodi Schefers	48752
Jodie Eason	34884
Jody Fritzke	31339
Jody Gardner	29747
Jody Gibson	26088
Jody Padjen	27514
Jody Perrecone	32467
Jody Pizzala	3700
Jody Pizzala	51782
Jody Prestine	35912
Joe Azzarello	22663
Joe Bauer	24695
Joe Briones	34376
Joe Cherra	31125
Joe Clay	3486
Joe Clay	51664
Joe Coco	25909
Joe Coco	33623
Joe Coco	33747
Joe Cuturilo	34445
Joe Davis	3496
Joe Davis	51668
Joe Dufficy	28426
Joe Dufficy	28431
Joe Dufficy	31088
Joe Gallagher	30987
Joe Griesinger	30853
Joe Jennings	30597
Joe Kerka	31507
Joe Kinzig	34088
Joe Kotulic	27308
Joe Mailander	21235
Joe Mailander	50982

Sender Name	Submission ID
2 Sierra Club	
Joe Maurer	32886
Joe Renneke	29986
Joe Rivera	25219
Joe Sirgo	29102
Joe Strach	28834
joe swierkosz	34005
Joe Toigo	32582
Joe Torres	30698
Joe Watson	28968
Joe Weis	25889
Joe Weisman	36173
Joe Wolf	36241
Joe Ziolkowski	29403
Joel Barkley	2946
Joel Barkley	23938
Joel Barkley	49488
Joel Barkley	52131
Joel Bissing	34470
Joel Finley	27367
Joel Hofslund	29742
Joel Kelly	36255
Joel Kelly	48661
Joel Libman	31853
Joel Merritt	32083
Joel Perkins	26563
Joel Phillips	25562
Joel Piche'	33048
Joel Porterfield	30118
Joel Porterfield	23780
Joel Quaintance	24242
Joel Sasse	34595
Joel Schmidt	3539
Joel Schmidt	51688
Joel Weiss	33318
Jo-Elle Somersett	23968
JoEllen Rudolph	33592
Joelyn Pawenski	32119
Joene Bryant	29037
Joey Stevenson	25662

Sender Name	Submission ID
2 Sierra Club	
Johann Hollar	3562
Johann Hollar	51707
Johanna Balzer	25472
Johanna Klinsky	30762
Johanna Mcconnell	31265
Johanna Meara	23394
Johanna O'Keefe	23872
Johannes Foufopoulos	34500
Johannes Kicken	28509
John & Martha Stoltenberg	30741
John Aamodt	34801
John Aamodt	48627
John Acevedo	26715
John Albers	29805
John Ames	27157
John Ames	27162
John Amren	3762
John Amren	51840
John And Debbie Alderson	28731
John And Elizabeth Stratton	27445
John And Jean Fleming	2903
John And Jean Fleming	52041
John And Linda Beaty	35836
John and Martha Stoltenberg	27446
John and Rosalie Stefanich	2920
John and Rosalie Stefanich	52099
John And Sherry Williams	33816
John Anuci	24863
John Atwood	26542
John B Cychosz	35428
John b Pearce Sr	25033
John Bacon	33702
John Bates	27635
John Beamer	36105
John Beavers	29795
John Benishek	28469
John Beviacqua	27656
John Birochak	25599
John Brangenberg	25410

Sender Name	Submission ID
2 Sierra Club	
John Bremer	27661
John Brennan	31731
John Brewer	26100
John Brewer	28308
John Brewer	32463
John Breyfogle	2996
John Breyfogle	52138
John Browning	23007
John Brumenschenkel	34584
John Cannon	27858
John Carlson	30113
John Carter	25841
John Clikeman	3793
John Clikeman	51862
John Cooper	27553
John Coughlin	34492
John Courts	26230
John Courts	30033
John Cox	28222
John Crombie	35926
John Culver	35720
John Czarnecki	31123
John Dalla	27364
John Daly	29558
John Danehy	26021
John Davis	32090
John Dierig	28143
John Donati	31471
John Dunn	25831
John Ebben	31727
John Elliott	28451
John Endres	28407
John Erickson	32665
John Erickson	32712
John Felton	21867
John Finazzo	49058
John Fitzgerald	3774
John Fitzgerald	51847
John Forbes	25232

Sender Name	Submission ID
2 Sierra Club	
John Ford	27734
John Forsythe	2874
John Forsythe	52058
John Fox	35213
John Franklin	27288
John Fritsch	31142
John Gajewski	35566
John Garner	30639
John Gates	31291
John Geiser	34912
John Gernady	33803
John Giese	25911
John Giese	29135
JOHN GLEBS	24612
John Gomolka	27472
John Gomolka	32424
John Goulette	25817
John Goulette	30600
John Grace	34764
John Grant	31594
John Greenfield	29696
John Guinn	35031
John Haag	32138
John Hall	27764
John Hansen	35605
John Harley	24583
John Hemmer	28796
John Hierholzer	30944
John Hooper	25531
John Hughes	26573
John Igla	23939
John Ihle	39941
John Ihle	49015
John Isabella	33092
John Joadwine	34103
John Johnson	33365
John Johnston	27802
John Jones	32990
John Jumonville	25718

Sender Name		Submission ID
2 Sierra Club		
John Kaintz		34729
John Keiser		25602
John Kelley		34439
John Kelly		33682
John Kemp		31211
John Kirchner		32783
John Klein		26768
John Kolarik		26372
John Korstange		30525
John Kozma		26413
John Kreft		2693
John Kreft		51886
John Kruse		2833
John Kruse		52006
John Kunzman		33130
John La Stella		26345
John Lamb		26484
John Landers		36062
John Lattimer		32656
John Lawrow		34707
John Lawrow		48810
John Leinen		3012
John Leinen		52175
John Leonardi		29112
John Leone		24167
John Leone		24169
John Leschisin		3662
John Leschisin		51764
John Lewis		30096
John Limbach		24220
John Lindgren		29449
John Lindroos		39501
John Livingston		25187
John Longshore		35126
John Lucia		35203
John Lundquist		3660
John Lundquist		51763
John Lundsten		25086
John Lyman		36229

Sender Name	Submission ID
2 Sierra Club	
John M Koerner	28779
John Magee	24356
John Maiken	28534
John Malnar	35774
John Mammoser	32790
John Mammoser	30369
John Manos	28112
John Markley	34291
John Marquis	25180
John Martich	35918
John Martin	25583
John Massman	34442
John Maybury	27613
John Mccarthy	34018
John McCauley	24179
John Mckee	36091
John Michael Timms	29267
John Mohammad	29255
John Montuori	27715
John Moore	36085
John Munster	3746
John Munster	51822
John Naue	33544
John Neisewander	34317
John Niendorf	23196
John Nienstadt	3531
John Nienstadt	23235
John Nienstadt	49461
John Nienstadt	51686
John Novak	31054
John OConnor	28452
John Ottis	30546
John Pauley	32262
John Pearson	29113
John Peeters	35607
John Pillie	35503
John Pinezich	24641
John Piotter	29602
John Piotter	29731

Sender Name		Submission ID
2 Sierra Club		
John Posluszny		31870
John Potamites		28430
John Pranke		33351
John Przemyslaw Panek		33647
John Quam		39104
John Quam		48643
John Raymer		32246
John Reichel		3740
John Reichel		51817
John Reszetylo		39644
John Reszetylo		48834
John Riek		24305
John Ripley		26919
John Robey		3505
John Robey		51672
John Rodda		29001
John Rokas		32254
John Rose		27190
John Sailer		26412
John Sanchez		33183
John Sauntry		26383
John Schaus		34590
John Schech		2763
John Schech		51944
John Schenck		26188
John Schmittauer		27877
John Schmittauer		36294
John Schneider		3650
John Schneider		27882
John Schneider		51749
John Schroeder		31178
John Seckel		28948
John Shelley		36271
John Skelton		33509
John Slawimski		32168
John Smith		25861
John Smith		31347
John Stainthorp		30031
John Steponaitis		24757

Sender Name	Submission ID
2 Sierra Club	
John Szalasny	23890
John Talbot	32938
John Taylor	2672
John Taylor	23369
John Taylor	49466
John Taylor	51867
John Tergerson	34029
John Thoma	34266
John Thomas	31477
John Thomas	31521
John Thompson	31614
John Thompson	34160
John Tompkins	34769
John Towell	35478
John Turner	34665
John Ulaszek	28969
John Van Cleve	25526
John Van Dyke	23918
John Vegter	2702
John Vegter	51893
John Viacrucis	31862
John Viacrucis	48960
John Viacrucis	39866
John Ward	27338
John Warren	30554
John Weber	32370
John Weber	33948
John Weber	36124
John Welch	32879
John Winter	33567
John Wise	26096
John Wolthusen	34553
John Woodville	23025
John Yeh	35978
John Yelle	30336
John Zapotosky	24752
Johnie Kemp	29248
Johnna Huxtable	28183
Johnnie & Oberta Baker	31115

Sender Name		Submission ID
2 Sierra Club		
Johnnie White		28622
Johnny Campbell		30751
Johnny Jones Jr		28318
Johnny Jones Jr		48920
Jolene Heath		35207
Jolene Robbins		29791
Jolie Ellis		33846
Jolie Graf		29823
Jolie Janisch		31938
Jolyn Johnson		33209
Jolyne Kane		27606
Jolynn Lottman		29985
Jon Barlow Hudson		28166
Jon Barlow Hudson		31541
Jon Birch		23704
Jon Brelie		3661
Jon Brelie		51759
Jon Ciesla		28994
Jon Curtis		28895
Jon Damon		2904
Jon Damon		52056
Jon Eric Narum		24330
Jon Frasz		2817
Jon Frasz		51994
Jon Hayenga		24901
Jon Hayenga		31658
Jon Jensen		35948
Jon Jensen		48961
Jon Kosiak		2982
Jon Kosiak		52169
Jon Langtry		31635
Jon Lord		3694
Jon Lord		51786
Jon Martin		30780
Jon Miller		31292
Jon Moulesong		30331
Jon Mullin		25412
Jon Remley		26590
Jon Schmidt		32389

Sender Name	Submission ID
2 Sierra Club	
Jon Schroeder	26885
Jon Wendland	24575
Jon Wesenberg	30102
Jon Wood	33486
Jon Wyss	30791
Jonalyn Lundberg	31082
Jonathan Beck	35259
Jonathan Bloy	30601
Jonathan Carlson	3586
Jonathan Carlson	23507
Jonathan Carlson	49470
Jonathan Carlson	51717
Jonathan Cosner	29033
Jonathan Hausman	21315
Jonathan Hausman	51005
Jonathan Nash	23859
Jonathan Nickerson	33905
Jonathan North	26205
Jonathan North	26623
Jonathan Peebles	25028
Jonathan Pereira	33504
Jonathan Renkas	34878
Jonathan Rhine	24679
Jonathan Rhine	34041
Jonathan Stone	24620
Jonathan Zahos	30991
Jonathan Zmek	28962
Jonel Lancaster	24322
Jones, Abby	58004
Joni Frazier	36265
Joni Manson	34638
Joni Mulder	32664
Joni Pennington	31607
Jonice Taylor	29886
Jordan Glass	29546
Jordan Hooley	38510
Jordan Marti	41485
Jordanna Newman	26092
Jordanna Newman	30501

Sender Name	Submission ID
2 Sierra Club	
Jordanna Newman	45350
Jordanna Newman	48533
Jorge-Luis Rivera	31164
Jorian Olk-Szost	33375
Jorun Jaeger	34209
Jory Lyons	34213
Jose Amo	31567
Jose Diaz	25796
Jose Nater	26791
Jose Rivera Vazquez	38260
Joseph Bates	35192
joseph Bunce	24082
Joseph Byrne	28842
Joseph Candela	24105
Joseph Coffey	33339
joseph Dangelo	25852
Joseph Dolan	24684
Joseph Esman	28310
Joseph Fox	30318
Joseph Glaston	27637
Joseph Gray	25360
Joseph Harper	25244
Joseph Hoess	24431
Joseph Hoess	29531
Joseph Hoffmann	35792
Joseph Hostetler	29003
Joseph Kaleel	28853
Joseph Klimovitz	35826
Joseph Kotlinski	35879
Joseph Krick	35735
Joseph Lakner	30782
Joseph Marshall	30217
Joseph Masson	31336
Joseph Mismas	28155
Joseph Mismas	34960
Joseph Mucci	34336
Joseph Nowak	28712
Joseph O'Sullivan	26232
Joseph Oyer	51614

Sender Name	Submission ID
2 Sierra Club	
Joseph Palazzolo	29490
Joseph Popp	36250
Joseph Rolands	22981
Joseph Sessa	35199
Joseph Shimanski	31097
Joseph Sit	23702
Joseph Stephens	32117
Joseph Stieglitz	33229
Joseph Walkenhorst	31495
Joseph Walsh	28747
Joseph Walters	34536
Joseph Webster	33679
Joseph Wenzel	2724
Joseph Wenzel	24080
Joseph Wenzel	24786
Joseph Wenzel	49499
Joseph Wenzel	51909
Joseph Werzinski	25227
Joseph Wiesner	32206
Joseph Wiley	29089
Joseph Wojciechowski	24545
Joseph Young	28069
Joseph Zani	24265
Joseph Zmuda	29148
Josephine Scipione	31835
Josh Berger	29661
Josh Capps	2790
Josh Capps	51971
Josh Dirks	30013
Josh Kaye-Carr	25204
Josh Matter	23566
josh pelleg	29647
Joshua Barclay	36249
Joshua Holden	33944
Joshua Houdek	28718
Joshua Houdek	39027
Joshua Houdek	48637
Joshua King	32183
Joshua Koch	31195

Sender Name		Submission ID
2 Sierra Club		
Joshua Morgan		28077
Joshua Morgan		31729
Joshua Salyer		25236
Joshua Sirt		31036
Joshua Stancer		29548
Joshua Vogel		22868
Josiah Robben		35116
Josiah Robben		35128
Josie D'Avolio		34148
Joy Barth		3529
Joy Barth		38620
Joy Barth		48599
Joy Barth		51685
Joy Chambers		28132
Joy Kotheimer		28807
Joy Lee Burns		26040
Joy Leet		26627
Joy Maddox		27945
Joy Nelson		2748
Joy Nelson		51934
Joy Rosenberry Chase		29380
Joy Sipe		26905
Joy Skeel		30320
Joy Torrenga		30360
Joy Whitfield		34751
Joy Wolden		34210
Joya Rittenhouse		39665
Joya Rittenhouse		48841
Joyce Anderson		16546
Joyce Anderson		51030
Joyce Blume		39939
Joyce Blume		49003
Joyce Brehm		38290
Joyce Carter		27664
Joyce Coe		35515
Joyce Copleman		27484
Joyce Flaherty		32061
Joyce Frohn		25288
Joyce Frohn		33953

Sender Name	Submission ID
2 Sierra Club	
Joyce Good	32339
Joyce Grajczyk	25591
Joyce Greenisen	30051
Joyce Hochsprung	48935
Joyce Hochsprung	39828
Joyce Kahle	31420
Joyce Kowatch	35327
Joyce May	35155
Joyce Mcconaghy	28768
Joyce Militello	27172
Joyce Niksic	35487
Joyce OConnio	31839
Joyce Overton	24758
Joyce Skolte	27807
Joyce Stein	29108
Joyce Stodgel	23357
Joyce Wandel	33949
jp grace	33725
juan ramon sustaita	31295
Juana Munoz Ucros	27548
Juanita Bunch	29189
Juanita Dawson-Rhodes	27275
Juanita Henry	28550
Juanita Hull	26250
Juanita Padilla	35595
Jud Komrosky	25023
Jude Ockenfels	25172
Judi Edwards	36064
Judi Middleton	33649
Judi Myers	24495
Judi Myers	35075
Judi Poulson	2927
Judi Poulson	23680
Judi Poulson	52113
Judi Teff	27346
Judie Carlson	29751
Judie Carlson	39648
Judie Carlson	48836
Judie Sands	30668

Sender Name		Submission ID
2 Sierra Club		
Judith Allen		33591
Judith Bader		26430
Judith Baxter		22721
Judith Beltz		35517
Judith Busse		23735
Judith Clark		26462
Judith Daugherty		32505
Judith Embry		28473
Judith Embry		38591
Judith Emerson		25075
Judith Foote		35563
Judith Fujita		26826
Judith Green		32776
Judith Hand		25279
Judith Hartman		35432
Judith Huff		27261
Judith Huff		27281
Judith Hultzen		36010
Judith Ivey		33552
Judith Johnson		22999
Judith Keilholtz		32781
Judith Keilholtz		33399
Judith Knowlton		35710
Judith Komorowski		24832
Judith Lamb		33578
Judith Larson		28724
Judith Marten		35026
Judith Mcbride		24529
Judith Meives		23834
Judith Moore		35765
Judith Norwood		33755
Judith Oates		27475
Judith Pauley		32141
Judith Petty		36263
Judith Platz		26432
Judith Rempala		32865
Judith Robson		23340
Judith Rosenlund		23311
Judith Rosenlund		28810

Sender Name	Submission ID
2 Sierra Club	
Judith Russo	33821
Judith Schmidt	30858
Judith Schure	35471
Judith Sigler	35267
Judith Singer	27485
Judith Susser	25744
Judith Vincent	23625
Judith Vollbrecht	29891
Judith Wassmer	27210
Judith Webster	36084
Judith Webster	36149
Judith Wecker	25698
Judith Wecker	34228
Judith Williams	30083
Judith Wittner	34944
Judson Horning	33730
Judy Adomavich	35848
Judy Allen	31076
Judy Ann Cohen	23692
Judy Astarita	25298
Judy Barkey	30800
Judy Bensinger	26460
Judy Berger	2883
Judy Berger	52054
Judy Bos	34252
Judy Childers	29398
Judy Davy	30846
Judy Epstein	24118
Judy Epstein	24132
Judy Epstein	49504
Judy Epstein	49507
Judy Keith	25659
Judy Klemm	32809
Judy lee	31001
Judy Luccki	35088
Judy Lundquist	23236
Judy Mcneilly	30605
Judy Moran	25848
Judy Moran	29448

Sender Name		Submission ID
2 Sierra Club		
Judy O'Donovan		27800
Judy Oust		30079
Judy Pilquett		23271
Judy Roy		30077
Judy Savard		33783
Judy Schenfeld		24376
Judy Schomaker		33062
Judy Schreiber		27133
Judy Skog		29924
Judy Smith		27980
Judy Steinke		34576
Judy Turk		33043
Judy Vecchio		32640
Judy Willour		32000
Juha Cantori		24882
Juie Samules		35513
Julaine Morley		23173
Julaine Roberson		24219
Juli Wood		28495
Julia Amsler		27256
Julia Bonfiglio		22830
Julia Bunn		31136
Julia Cranmer		25994
Julia Glahn		36192
Julia Hannum Rose		30557
Julia Hostetler		31734
Julia Hume		35945
Julia Jackson		27463
Julia Johnson		32982
Julia Kloehn		21324
Julia Kloehn		51010
Julia Nerbonne		45286
Julia Nerbonne		48529
Julia O'Connor		31613
Julia Radwany		33058
Julia Thielert		27065
Julia Thompson		26838
Julia Villars		32444
Julia Wade		31690

Sender Name	Submission ID
2 Sierra Club	
Julian Grev	34109
Julian Joseph	25261
Julian Yerena Jr	26549
Juliana Barker	23042
Juliana Barker	34312
Juliana Greenwood	23792
Juliana Salvetti	24653
Juliann Pinto	24043
Juliann Rule	34139
Julianne Zeih	36108
Julie Ankeney	34628
Julie Avery	22826
Julie Block	32162
Julie Burkey	32896
Julie Caswell	35870
Julie Catanese	30080
Julie Claxton-Bulli	34451
Julie Collins	28185
julie connors	34010
julie connors	34060
Julie Font	30478
Julie Funke	30775
Julie Gabrielski	27138
Julie Gervais	34162
Julie Greene	24658
Julie Greene	30264
Julie Griffith	27500
Julie Griffith	29851
Julie Grobelny	25004
Julie Groscup	25782
Julie Heiner	34126
Julie Jarvis	28000
Julie K Wahl	24959
Julie Koivula	26935
Julie Krick	33642
Julie Larson	30962
Julie Macrae	33609
Julie Mark	31593
Julie Mccarroll	24815

Sender Name		Submission ID
2 Sierra Club		
Julie Mclauchlin		31659
Julie Medbery		35519
Julie Medbery		39936
Julie Medbery		49014
Julie Moldovan		23984
Julie Moury		26522
Julie Nelson		29530
Julie Nelson		48904
Julie Nelson		48905
Julie Nelson		50940
Julie Nelson		50942
Julie Noble		28697
Julie Nurenberg		32132
Julie Osborn		22993
Julie Ozias		40482
Julie Rettig		35902
Julie Roach		35270
Julie Roberts		30313
Julie Robichaud		22968
Julie Ruedemer		35811
Julie Schampel		28789
Julie Shear		32768
Julie Skelton		32825
Julie Smith		33464
Julie Squire		26220
Julie Stulberg		27672
Julie T		25225
Julie Viergutz		28205
Julie Viergutz		28963
Julie Viken		24146
Julie Viken		49510
Julie Villarreal		24057
Julie Weisbecker		48891
Julie Wreford		24720
Juliee De La Terre		30711
Julija Merljak		23667
Julimar Castro		48945
Julimar Castro		39838
Julius Salinas		3558

Sender Name	Submission ID
2 Sierra Club	
Julius Salinas	33029
Julius Salinas	45469
Julius Salinas	48536
Julius Salinas	51702
June Hershey	35276
JUNE HUCHINGSON	31902
June M	27070
June Macy	2756
June Macy	51938
June Miller	34589
June Picard	29271
June Stuhr	4440
June Stuhr	51541
June Zand	31065
Justin & Ann Feldman	31453
Justin Brink	33720
Justin Conway	35553
Justin Demond	34224
Justin Fay	51577
Justin Grays	30323
Justin Greer	27090
Justin Greer	35115
Justin Halverson	48814
Justin Horstmann	31141
Justin Hotovy	25666
Justin Meyer	35064
Justin Que	35239
Justyn Anderson	34768
Jutta Field	22809
Jutta Helm	35809
Jutta Vogelbacher	29315
K Bain	30093
K Bourque	26980
K Bruce Higgins	26642
K Castelluccio	24631
K Castelluccio	31084
K G	24045
K K	24614
K Lautenschlegar	33766

Sender Name	Submission ID
2 Sierra Club	
K M	35889
K Roth Woods	29276
K Stone	34697
K Theiss	48973
K thomas	23423
K Ward	26664
K. N. Miller	28662
K. Stuedemann	32145
kaaren klingel	34554
Kaarina Tienhaara	23328
Kaci Caldwell	23223
Kahlil Goodwyn	26223
Kai Shannon Zacharias	23682
Kai Shannon Zacharias	23686
Kait Ashenfelter	23473
Kaitlin Montelione	23551
Kaitlin Normandin	35009
Kali Shevlin	31566
Kalina Davis	25196
Kamilah Gilbert	22875
Kandyce Thompson	38623
Kandyce Thompson	48601
kanta masters	25015
Kara Amedeo	36172
Kara Graul	23992
Kara Hodges	33425
Kara Horstman	31770
Kara Norman	24777
Kara Norman	28272
Karen and Robert O'Brien	35061
Karen Anderson	23818
Karen Anderson	29816
Karen Anderson	35490
Karen Arbogast	31881
Karen Ard	33487
Karen Ash	23875
Karen Ash	29820
Karen Baker	24855
Karen Barton	23655

Sender Name	Submission ID
2 Sierra Club	
Karen Bond	27392
Karen Brashears	32890
Karen Bravo	36125
Karen Brower	32661
Karen Brown	30329
Karen Caplow	30117
Karen Clausen	34537
Karen Cohen	32789
Karen Copp	34951
Karen Couch	29057
Karen Damato	27225
Karen Donahue	31319
Karen Dribben	31956
Karen Duffin	28595
karen ellis	29156
Karen Felts	31995
Karen Fischer	32191
Karen Francis	26790
Karen Francschini	24609
Karen Gill	28562
Karen Gollrad	28012
Karen Graham	23215
Karen Gravina	23752
Karen Greene	25081
Karen Greenwood Moskiman	43314
Karen Gupton	27709
Karen Hasselbring	34357
Karen Hewelt	29186
Karen Hill	26059
Karen Hodges	26431
Karen Holmes	29960
Karen Johnson	30556
Karen Johnston	25200
Karen Katamay	33731
Karen Kaysen	32850
Karen Keating-Secular	25217
Karen Keudrick-Hands	34055
Karen Kindel	25621
Karen Kindel	32133

Sender Name	Submission ID
2 Sierra Club	
Karen Komperda	30467
Karen Koritko	29564
Karen Korn	34971
Karen Kramarz	27753
Karen Kravcov Malcolm	25210
Karen L Dingle	39107
Karen Land	30286
Karen Law	30015
Karen Lawler	2837
Karen Lawler	52012
Karen Linn	29511
Karen Lowery	34866
Karen Lowrance	31255
Karen Lusnia	36227
Karen Malvin	34870
Karen Martoglio	24806
Karen Matulina	24412
Karen May	48947
Karen May	39831
Karen McNeill	29466
Karen Miksch	28161
Karen Miller	24740
Karen Monsen	48952
Karen Monsen	39841
Karen Nagel	30101
Karen Neuforth	26917
Karen Nye	27994
Karen Olson	39508
Karen Olson	48761
Karen Palmer	25127
Karen Pedler	35286
Karen Peterson	23128
Karen Peterson	32545
Karen Petrosky	29118
Karen Pletcher	29561
Karen Powell	32129
Karen Rarick	32797
Karen Rasmussen	33177
Karen Reeder	30172

Sender Name	Submission ID
2 Sierra Club	
Karen Roden	33780
Karen Rudy	24814
Karen Rusch	30402
Karen Schlais	32848
Karen Schnitzer	22849
Karen Schymanski	35876
Karen Scotese	30173
Karen Seaver	21165
Karen Seaver	50963
Karen Skalitzky	30202
Karen Soloman	35652
Karen Stacey	26115
Karen Stacey	28566
Karen Stout	32347
Karen Sullivan	27468
Karen Taylor	29516
Karen Taylor	30001
Karen Thomas	25376
Karen Thompson	35138
Karen Tiedemann	26811
Karen Tiedemann	26817
Karen Tucker	26200
Karen Vasily	24727
Karen Wahls	34246
Karen Warner	2713
Karen Warner	51899
Karen Wendtland	32170
Karen West	25536
Karen Wilder	28653
Karen Williams	31967
Karen Wilson	31763
Karen Wilson	31767
Karen Wilson	34204
Karen Wineland	25646
Karen Wise	30391
Karen Wood	29023
Karen Woollams	28606
Karen Zedek	34550
Kari Kremer	3788

Sender Name	Submission ID
2 Sierra Club	
Kari Kremer	51858
Kari Miller	25318
Kari Miller	30301
Kari Nusterer	33354
Kari Sievers	35321
Kari Wilson	25335
Karin Arnold	33446
Karin Haag	26750
Karin Hemmingsen	28078
Karin Kozie	31771
Karin Lucas	36251
Karin Margolis	2829
Karin Margolis	25870
Karin Margolis	25882
Karin Margolis	52002
Karin Nelson-Rogers	30536
Karin Peck	24350
Karin Priefert	23190
karin Stuermer	32626
Karin Westgate	39669
Karin Westgate	48844
Karin Winegar	3689
Karin Winegar	51777
Karin Zygowicz	35681
Karina Pavlova	32290
Karina Villalba	24385
Karisha Kirk	34502
Karl & Nancy Riemann	26005
Karl And Dorothy Schoeps	30287
Karl Armens	23227
Karl David Reinhardt	25189
Karl Hjerpe	33903
Karl Hohmann	46157
Karl Hohmann	48545
Karl Jakobs	25707
Karl Knutsen	30299
Karl Kugler	23174
Karl Lang	33074
Karl Leibfacher	35231

Sender Name	Submission ID
2 Sierra Club	
Karl Schueler	34557
Karl Schueler	39401
Karl Schueler	48711
Karl von Rabenau	31759
Karla Black	38100
Karla DonnellBragg	25237
Karla Hair	36143
Karla Hartmann	44198
Karla Hartmann	48499
Karla North	34167
Karla Powell	26437
Karla Seaver	30181
Karla Stranger	31405
Karline Rousseau	34222
Karly Whitaker	23459
Karol Walker	23457
Karola Windweh	24114
Karolyn Beebe	28759
Karolyn Hoover	25097
Karralena Castaway	27099
Karrie Vrabel	2911
Karrie Vrabel	52040
Karyn Goff	29930
Kashka Kubzdela	28175
Kasia Szymczak-Stark	32011
Kat Glessing	48914
Kat Mcguire	26300
Kat Mcguire	26306
Kat Young	25290
Katalin Apathy	24920
Katalin Pesti	26452
Kate Crowley	2944
Kate Crowley	52089
Kate Fitzgerald	30760
Kate Fontanazza	23823
Kate Goetz	29681
Kate Greenway	32281
Kate Harder	35619
Kate Inskeep	25176

Sender Name	Submission ID
2 Sierra Club	
kate k	37940
Kate Laramie	33615
Kate Mazurek	35748
Kate Megregian	27393
Kate Schulte	32041
Katharine Christmas	34952
Katharine Gabele Douglass	24746
Katharine Gabele Douglass	30447
Katherine Aynilian	32605
Katherine Beer	25719
Katherine Carrigan	32826
Katherine Carson	34450
Katherine Cooper	35288
Katherine Ehlich	29818
Katherine Fast	31620
Katherine Gilbert	26858
Katherine Holle	31999
Katherine Kasserman	36054
Katherine Kemp	26391
Katherine Kretchmar	2953
Katherine Kretchmar	52130
Katherine Laibly	30226
Katherine Loban	48827
Katherine Mario	27287
Katherine Okulewicz	27126
Katherine Reser	34108
Katherine Rosel	35815
Katherine Shutkin	33088
Katherine Slama	3494
Katherine Slama	51667
Katherine Stillman	27528
Katherine Wright	24584
Kathi Ridgway	32327
Kathi Ward	24828
Kathi Wermter	31914
Kathi Wright	23578
Kathie Briegel	30105
Kathie Cunningham	34488
Kathie Molyneaux	23597

Sender Name	Submission ID
2 Sierra Club	
Kathie Noga	32566
Kathleen Baka	35746
Kathleen Barbero	35949
Kathleen Bartolomeo	25426
Kathleen Bernardo	32985
Kathleen Bolio	34249
Kathleen Brandon	34970
Kathleen Briggs	28701
Kathleen Brown	39392
Kathleen Brown	48704
Kathleen Bungarz	25508
Kathleen Carlson	35170
Kathleen Carr	25223
Kathleen Casado	26914
Kathleen Christopherson	35380
Kathleen Cooley	34746
Kathleen Cooper	24413
Kathleen Cseri	36060
Kathleen D'Alessandro	33241
Kathleen Dolson	23896
Kathleen Donovan	2955
Kathleen Donovan	52134
Kathleen Dovidio	24487
Kathleen Doyle	23779
Kathleen Dutko	29506
Kathleen Egelkrout	3680
Kathleen Egelkrout	51771
Kathleen Egstad	33845
Kathleen Fegley	25978
Kathleen Fernholz	24281
Kathleen Field	35982
Kathleen Galligan	24796
Kathleen Gates	28986
Kathleen Gray	34750
Kathleen H Grover	26792
Kathleen Hamilton	23277
Kathleen Hamilton	29084
Kathleen Hofmann	30052
Kathleen Hutchins	3717

Sender Name	Submission ID
2 Sierra Club	
Kathleen Hutchins	51804
Kathleen Jennings	23004
Kathleen Jones	2984
Kathleen Jones	52165
Kathleen Kascewicz	29996
Kathleen Kashat	35763
Kathleen Keske	23720
Kathleen King	28730
Kathleen Koviak	33124
Kathleen Larkin	33541
Kathleen Lehmann	33807
Kathleen Leister	31517
Kathleen Leitch	27875
Kathleen Libby	23694
Kathleen Malecki	32970
Kathleen Markus-Walczak	28818
Kathleen Martinez	32506
Kathleen Mason-Norris	24259
Kathleen Massanari	26502
Kathleen Massanari	26755
Kathleen Mc Mahon	29032
Kathleen Mcgoff	31899
Kathleen Mcguinness	34448
Kathleen Mchugh	27566
Kathleen Mclane	27923
Kathleen McTighe	32341
Kathleen Mireault	28151
Kathleen Mohring	28751
Kathleen Morris	28243
Kathleen Morris	28961
Kathleen O'Connell	35802
Kathleen Olson	33910
Kathleen Peters	28299
Kathleen Powell	27432
Kathleen R Worgul	29908
Kathleen Rackliffe	34802
Kathleen Rude	30395
Kathleen Sandknop	25706
kathleen savard	32518

Sender Name	Submission ID
2 Sierra Club	
Kathleen Sigel	25835
Kathleen Simko	35388
Kathleen Skiba	30241
Kathleen Spencer	31299
Kathleen Stephens	27307
Kathleen Stephenson	33308
Kathleen Thomson	29894
Kathleen Tobin	31023
Kathleen Tobin	32549
Kathleen Todd	2742
Kathleen Todd	51928
Kathleen Turner	27914
Kathleen Van Teylingen	33067
Kathleen Voigt	31052
Kathleen Volling	34647
Kathleen Vondelinde	30056
Kathleen Werner	35910
Kathlen Evans-Hatton	31569
Kathrina Spyridakis	29188
Kathryn Allen	36080
Kathryn Bainbridge	28760
Kathryn Buttles	27551
Kathryn Dittemore	28554
Kathryn Dorn	26925
Kathryn Edwards	23991
Kathryn Fromelt	23877
Kathryn Hanratty	34360
Kathryn Jenkins	29585
Kathryn Karaba	32364
Kathryn Lemosy	24085
Kathryn Lilley	34452
Kathryn Lipkevigesaa	22988
Kathryn Martin	24799
Kathryn Miller	23637
Kathryn Miller-Baker	24567
Kathryn Minar	39395
Kathryn Minar	48702
Kathryn Moravec	29014
Kathryn Nelson	33347

Sender Name		Submission ID
2 Sierra Club		
Kathryn Null		2869
Kathryn Null		52071
Kathryn Payne		28160
kathryn quinn		31794
Kathryn Rose		24887
Kathryn Schmauch		31352
Kathryn Schmidt		35645
Kathryn Wolf		25035
Kathryn Woodruff		25918
Kathryn Ziska		34229
Kathy & Christopher Zerby		23947
Kathy & Christopher Zerby		49491
Kathy & George Davis		32618
Kathy Anderson		34479
Kathy Baker		32949
Kathy Bradley		24049
Kathy Bren		3544
Kathy Bren		51691
Kathy Brown		34879
Kathy DAVIS		29099
Kathy De Graw		27323
Kathy Dominguez		26977
Kathy Donegan		27423
Kathy Dunn		31449
Kathy FergusonMcGinnis		33550
Kathy Flocco-Mcmaster		24476
Kathy Flocco-Mcmaster		24479
Kathy Forsythe		27892
Kathy Frazier		28113
kathy g		23526
kathy g		28071
kathy g		28104
Kathy George		35610
Kathy Glatz		23354
Kathy Glatz		23355
Kathy Gough		33404
Kathy Guidi		25959
Kathy Guilfoyle		30332
Kathy Hart		27437

Sender Name	Submission ID
2 Sierra Club	
Kathy Herbst	33340
Kathy Hilt	32615
Kathy Hinson	26321
kathy jensen	26285
Kathy Johnson	2719
Kathy Johnson	32285
Kathy Johnson	51913
Kathy Jongsma	25830
Kathy Kane	34928
Kathy Karaba	26751
Kathy Kennedy	31334
Kathy Kestell	23091
Kathy Kibbie	26085
Kathy Kibbie	35992
Kathy Kline	29317
Kathy Kormanik	34636
Kathy Lapic	35612
Kathy Magne	3623
Kathy Magne	51742
Kathy McDonald	27659
Kathy Mcelwain	33202
Kathy Mckenna	32905
Kathy Moran	29067
Kathy Moseley	29336
Kathy Mouzourakis	32005
Kathy Naumoff	30777
Kathy Negaard	30721
Kathy O'Brien	25470
Kathy Oppenhuizen	25185
kathy padula	32693
Kathy Palmquist	48862
Kathy Pilon	32647
Kathy Piltz	24136
Kathy Powell	34505
Kathy Reinhardt	22961
Kathy Ruopp	26675
Kathy Ruther	33561
Kathy Ryan	32197
Kathy S	26271

Sender Name		Submission ID
2 Sierra Club		
Kathy Schake		23525
Kathy Schnitzius		28746
Kathy Smith		29622
Kathy Trochlell		33927
Kathy Vleck		43741
Kathy Vleck		48496
Kathy Whitney		25806
Kathy Witherow		39420
Kathy Witherow		48724
Kathy Wright		26231
Katia Scaglia		24922
Katie Barnes		24838
Katie Braatz		31628
Katie Bundrock		35691
Katie Cullen		2815
Katie Cullen		51990
Katie Garton		25836
Katie Hauke		32689
katie hurley		25034
katie hurley		31884
Katie Johnstone		31470
Katie Perkins		48982
Katie Petersen		34745
Katie Prock		23008
Katie Prock		48965
Katie Sherman		21224
Katie Sherman		50978
Katie Weddle Langer		48775
Katie Young		30014
Katie Zukoski		27183
Katleen Foley		36288
Katlin Harwood		34338
Katrin Baker		33978
Katrin Rosinski		35716
Katrin Schnabl		34693
Katrin Seelbach		22871
Katrin Seelbach		22873
Katrin Seelbach		49453
Katrin Seelbach		51558

Sender Name	Submission ID
2 Sierra Club	
Katrina Griffing	22191
Katrina Parzych	25733
Katy Nielsen	30235
katya pavlova	28678
Kay Beams	33237
Kay Blevins	24640
Kay Choi	24974
Kay Goyden	25516
Kay Helms	2741
Kay Helms	51929
Kay Magaard	30065
Kay McKeen	28500
Kay Montgomery	35690
Kay Randall	33469
Kay Shrader	36101
Kay Spielbauer	31874
Kay Trevarthen	30092
Kayann Vance	29239
Kayce Riordan	33236
Kaye Aurigemma	34199
Kayla Wingert	25036
Kayla Wingert	28381
Kayleen Hill	25892
Kaylyn Wingo	35582
KC Brown	43559
Keela Marshall	25853
Keelan Smith	23787
Keelan Smith	23795
Keelan Smith	24022
Keeley Harding	25593
Keeley Kenny	36013
Keith Becker	33771
Keith Berg	34462
Keith Brown	34715
Keith Cunningham	31057
Keith Evans	29006
Keith Harrison	35135
Keith Heaton	34734
Keith Howarth	26572

Sender Name	Submission ID
2 Sierra Club	
Keith Knepfel	30967
Keith La Pointe	34004
Keith Monsaas	48657
Keith Myers	34585
Keith Peterson	28102
Keith Schwartz	30717
Keith Stracchino	24244
Keith Vogelheim	34984
Keith York	25499
Kelli Borgman	28889
Kelli Fizzano	27738
Kelli Fuelling	25221
Kellie Smith	28621
Kelly Bakke	30161
Kelly Bauer	25131
Kelly Benson Polacinski	23660
Kelly Bissell	27587
Kelly Blank	33120
Kelly Bull	31060
Kelly Cook	22969
Kelly Deckard	25543
Kelly Fine	25501
Kelly Frost	28515
Kelly Hajduk	31473
Kelly Hogue	34599
Kelly Jarzynski	23482
Kelly Keisler	31752
Kelly Lane	29952
Kelly Maly	32411
Kelly Martinson	29305
Kelly Morris	32181
Kelly Morton	24523
Kelly Nettesheim	29091
Kelly Rogers	48812
Kelly Ryan	26004
Kelly Small	31803
Kelly Stipp	33537
Kelly Tamburello	24540
Kelly White	34330

Sender Name	Submission ID
2 Sierra Club	
Kellye Hannema	30972
Kelsea York	30146
Kelsey Baker	26479
Kelsey Goffin	30036
Kelsey Herman	35796
Kelsey Joseph	28168
Kelsey Miner	26842
Kelsey Pitts	25878
Kelsey Stanton	26043
Kelvin Smith	34915
Ken & Lee Mengel	29849
Ken Bains	35787
Ken Bär	28953
Ken Burt	2765
Ken Burt	51948
Ken Cooksey	28287
Ken Edington	34517
Ken Fox	39946
Ken Fox	49010
Ken Grzesiak	30408
Ken Haines	35101
Ken Hanson	22911
Ken Kolbe	28625
Ken Lubas	27161
Ken Lucas	25974
Ken Lucas	35825
Ken Maurice	23028
Ken Meinhardt	30845
Ken Moore	24958
Ken Orlich	28663
Ken Phillips	30665
Ken Raab	32863
Ken Schmidt	29275
Ken Schulman	31616
Ken Strange	27373
Ken Wottowa	29580
Ken Zimmerman	35486
Kendra Appelman-Eastvedt	24241
Kendra Corkill	23434

Sender Name	Submission ID
2 Sierra Club	
Kendra Knight	22801
Kendra Mackenzie	28232
Kendra Massey	23441
Kendra Zoa	31629
Kenn Reynolds	34480
Kenneth Adler	32999
Kenneth and Gloria Sennert	26495
Kenneth Bentley	33363
Kenneth Carolus	29560
Kenneth Carolus	32024
Kenneth Denenberg	27439
Kenneth Denenberg	34644
Kenneth Douglas	23684
Kenneth Ferrell	29804
Kenneth Foote	32621
KENNETH GILLETTE	24816
Kenneth Goodrich	32442
Kenneth Harris	33569
Kenneth Harris	48781
Kenneth Indrelie	29521
Kenneth Indrelie	48740
Kenneth Johnsen	33704
Kenneth Jones	25981
Kenneth Jordan	28085
Kenneth Kenik	28784
Kenneth Kuecker	23461
Kenneth Lapointe	24775
Kenneth Martin	22798
Kenneth Schroeder	48924
Kenneth Schroeder	39820
Kenneth Swedlund	33644
Kenneth Wheaton	32831
Kenneth Zahnle	34534
Kenny Sommer	31864
Kent Cole	27081
Kent Leslie	35932
Kent Pellerite	28167
Kent Powley	31851
Kent Scheer	34472

Sender Name	Submission ID
2 Sierra Club	
Kent Scott	28030
Kent Scott	28474
Kent Wright	23654
Kenton Macy	26097
Kenton Macy	33873
Keri Bolain	24396
Kerri Ross	27950
Kerry Barnes	31774
Kerry Burkhardt	25459
Kerry Kuhn	34872
Kerry Nutter	28418
Kerry Ritchie-Campbell	23517
Kerry Sprigg	32883
Kevin Albers	35822
Kevin Brewner	35647
Kevin Campbell	35265
Kevin Candela	27893
Kevin Charnas	35601
Kevin Cullina	34453
Kevin Cunningham	31049
Kevin Darcy	23443
Kevin Davey	27848
Kevin Davis	31163
Kevin Donovan	30626
Kevin Havener	29493
Kevin Hill	34456
Kevin J Smith	30669
Kevin Kallenbach	24238
Kevin Kathmann	29965
Kevin Kerwin	29850
Kevin Killeen Esq	28950
Kevin King	25334
Kevin King	31300
Kevin Kroehler	36127
Kevin Kustra	29357
Kevin Lee	27295
Kevin Leslie	24470
Kevin Linehan	3751
Kevin Linehan	51832

Sender Name	Submission ID
2 Sierra Club	
Kevin Malone	27492
Kevin Maloney	39919
Kevin Maloney	49009
Kevin McDermott	24913
Kevin Mcdonald	36187
Kevin Mckelvie	35366
Kevin Oldham	24360
Kevin Pierson	33688
Kevin Popeck	36157
Kevin Proescholdt	24162
Kevin Proescholdt	49512
Kevin Ratliff	32450
Kevin Ryan	35082
Kevin Schwartz	3588
Kevin Schwartz	51719
Kevin Silvey	27817
Kevin Smith	30676
Kevin Stueven	51578
Kevin Tate	34335
Kevin W	34572
Kevin Walsh	29777
Kevin Waters	31982
Kevin Zellmer	25455
Kevin Zellmer	31099
Khalil Kinge	25991
Khandaker Kamal	31354
Kieren Ladner	35856
Kiirsten Schneider	29979
Kiki Stachtidou	23462
Kiko Perez	28428
Kim And Lynn Allen	30147
Kim And Susan Rochau	32766
Kim Argobright	34297
Kim Bauer	25368
Kim Bigley	26896
Kim Brudvig	23736
Kim Campbell	22803
Kim Carothers	23005
Kim Crandall	2959

Sender Name	Submission ID
2 Sierra Club	
Kim Crandall	52091
Kim Cronin	31714
Kim Demichiel	31482
Kim English	35470
Kim Gabriele	27451
Kim Gordon	39516
Kim Gordon	48768
Kim Gyurscik	29687
Kim Haugen	32892
Kim Hayes	29536
Kim Kokett	2875
Kim Kokett	23926
Kim Kokett	49485
Kim Kokett	52062
Kim Kreimann	33316
Kim Liebich	26061
Kim Mcfadden	36262
Kim Mileusnic	28656
Kim Nero	24109
Kim O'Bryan	26576
Kim Peabody	25545
Kim Pefers	34982
Kim Powanda	34183
Kim Reeves	27390
Kim Sanders	28193
Kim Short	24829
Kim Springer	26468
Kim Swinney	31830
Kim Thomas	25253
kim thomas	35104
Kim Whitehead	31325
Kim Wolf	29978
Kim Ziegler	33709
Kimberly Amiotte	27033
Kimberly Anne Halizak	27608
Kimberly Barton	26555
Kimberly Benac	36199
Kimberly Casa De Calvo	30627
Kimberly Ellenberger	35454

Sender Name		Submission ID
2 Sierra Club		
Kimberly Litster		36148
Kimberly Mullarkey		33305
Kimberly Nesti		38509
Kimberly Nieman		24573
Kimberly Nieman		28038
Kimberly Nieman		29365
Kimberly Nieman		48695
Kimberly Niner		22973
Kimberly O'Brien		30099
Kimberly Peacock		24326
Kimberly Potucek		36144
Kimberly Scott		34904
Kimberly Stankiewicz		22761
Kimberly Swenson-Zakula		51607
Kimm Carter		23101
Kimm Carter		23102
Kinzua Le Suer		31844
Kirk Haveman		25919
Kirk Haveman		29204
Kirk Shellko		30338
Kirk Smith		28856
Kirsten Mcmurray		25958
Kirsten Strom		35205
Kirsti Gullickson		22831
Kirsti Gullickson		48808
Kitty Brady		29771
Kj Dowds		35895
Klaus Skreiner		29160
Klay Baur		34810
Klenz, Kendra		58007
Kolleen Asaad		33259
Kondrath, Carol		58008
Kori Craig		29138
Korrine Winkler		26320
Kris Dobmeyer		24264
Kris Dobmeyer		29253
Kris Eikenbery		33097
Kris Emly		48906
Kris Emly		50943

Sender Name	Submission ID
2 Sierra Club	
Kris Fowler	29606
Kris Rivard	31941
Kris Roberts-Cornett	3771
Kris Roberts-Cornett	31560
Kris Roberts-Cornett	51846
Kris Scarci	27641
Kris Stehula	33321
Krisanne Roen	3760
Krisanne Roen	51835
Krissa Kyle	3666
Krissa Kyle	51765
Krista Gremos	28893
Krista Munster	29621
Kristen Allen	27470
Kristen Ferrar	24190
Kristen Grierson	24467
Kristen Johnson	22812
Kristen Lowry	24453
Kristen Meyer	48667
Kristen Renton	26577
Kristen Travis	29115
Kristen Trusty	34664
Kristen Zehner	32830
Kristi Busch	23760
Kristi Kort	32346
Kristi Mccollum	23370
Kristi Mills	23126
Kristi Orlik	27924
Kristi Rutz-Robbins	30568
Kristian Kelly	26740
Kristian Kleffmann	26524
Kristie Pulvermacher	35640
Kristin Adcock	25056
Kristin Adkins	29552
Kristin Coe West	31103
Kristin Daugherty	34475
Kristin Green	34838
Kristin Huntoon	32158
Kristin Markert	39481

Sender Name	Submission ID
2 Sierra Club	
Kristin Markert	48748
Kristin Maurelia	33505
Kristin Monday	26702
Kristin Mosher	24801
Kristin Rousseau	23755
Kristin Schultz	35107
Kristin Tepas	34617
Kristin Womack	25164
Kristina Anderson	24599
Kristina Cumpston	2700
Kristina Cumpston	51895
Kristina DeLaundreau	37800
Kristina DeLaundreau	49108
Kristina Mack	30347
Kristina Pepelko	31895
Kristine Andarmani	24916
Kristine Ashton-Magnuson	24092
Kristine Gould	29584
Kristine Hutchin	27828
Kristine Kobs	24067
Kristine Milochik	26371
Kristine Tohm	26617
Kristine Zikmanis	34264
Kristoffer Hilla	29680
Kristy Carroll	24670
Krystal Brock	23142
Krystal Weilage	24978
Kurt Bachman	30695
Kurt Baker	29743
Kurt Gorsetman	3587
Kurt Gorsetman	51718
Kurt Kaptur	33695
Kurt Luedke	23583
Kurt Meyerpeter	24002
Kurt Peters	32287
Kurt Peters	34116
Kurt Shaffer	27869
Kurt Shaffer	30187
Kyle Brooks	25652

Sender Name	Submission ID
2 Sierra Club	
Kyle Knutson	35379
Kyle Mccafferty	32106
Kyle Peterson	34458
Kyle Richmond	30399
Kyle Ruedinger	33039
Kyle Schmierer	26550
Kyri Freeman	24424
L Borgen	24252
L Dodd	27714
L Fox	25103
L Hieber	29473
L Jean Anderson	31640
L Jean Anderson	48983
L Jean Anderson	39854
L L Zimmerman	2964
L L Zimmerman	52094
L Wilbert	48868
L Wong	36113
L. B. Davenport	27374
L. Bassett	30055
L. Becker Grandle	26908
L. Becker Grandle	49059
L. Monroe	35326
L.A. Rowland	25547
L.A. Rowland	27948
La Vern Marshall	30997
La Vonne Gunn	25828
Labros Hatzilabrou	25384
Lacey Hicks	26193
Lacey Levitt	38155
Ladonna Howard	26329
Ladonna Taylor	35273
Lael Bradshaw	27598
Laila Noori	27296
Laini Katheiser	25927
Lampman Marilee	34893
Lana Schmitt	34352
Lance Kammerud	34165
Lance Mason	35071

Sender Name	Submission ID
2 Sierra Club	
landa hall	23895
Landon Petrie	34844
Lane-Getaz, Sharon	58010
Lanelle Lovelace	25444
LaNelle Schaffhauser	35635
Lansing, Scott	58011
Laquitta Andrews	27529
Laquitta Andrews	27538
Lara Jesiek	22879
Lara Kramer-Smith	33139
Lara Ruffinatto	24021
Laree Richard	24512
Larry & Leneta Kitchel	29157
Larry And Anna Nutt	32941
Larry Anderson	2752
Larry Anderson	51935
Larry Bader	25721
Larry Bader	31313
Larry Beck	48908
Larry Beck	50944
Larry Boatman	2775
Larry Boatman	51954
Larry Byle	30798
Larry Carney	25962
Larry Dejohn	26594
Larry Durkalski	30951
Larry Falko	35222
Larry Gross	23361
Larry Hampel	33013
Larry Holliday	32520
Larry Jacobs	30880
Larry Junck	33492
Larry Koltz	29196
Larry Machado	24153
Larry Margolis	2830
Larry Margolis	23759
Larry Margolis	49476
Larry Margolis	52005
Larry Mauss	33759

Sender Name	Submission ID
2 Sierra Club	
Larry Pliska	34583
Larry Sandy	24188
Larry Shepler	32746
Larry Smith	34212
Larry Stumpf	45144
Larry Thiedt	32869
Larry Ulrey	27166
Larry Valentine	24610
Larry Wahlquist	3658
Larry Wahlquist	51762
Larry Yank	47374
Larry Yank	48580
Larry Yoder	27540
Larry Yoder	33848
Lars Anderson	4344
Lars Anderson	51535
Laska Nygaard	2842
Laska Nygaard	52010
Latasha Weston	29650
Laura Albert	32406
Laura And Bruce Wolf And Hendrickson	3789
Laura And Bruce Wolf And Hendrickson	51859
Laura Baumer	27854
Laura Biasci	23105
Laura Chastain	35561
Laura Chenel	47336
Laura Clark	28949
Laura Craig	27766
Laura Cuccia-Nilsen	28362
Laura Devriendt	3549
Laura Devriendt	51693
Laura Dreon	46671
Laura Dreon	48556
Laura Fent	31703
Laura Flynn	24893
Laura Flynn	49044
Laura Gabel-Hartman	27433
Laura Goetz	34138
Laura Gorman	24802

Sender Name		Submission ID
2 Sierra Club		
Laura Hazucha		22855
Laura Herndon		26828
Laura Hunter		31875
Laura Kielman		23812
Laura Kiholm		27383
Laura Kiholm		27397
Laura Kroeten-Bue		2739
Laura Kroeten-Bue		51922
Laura Krueger		23608
Laura Krumwiede		33068
Laura Kuzma		27228
Laura Long		29512
Laura Ludwig		32231
Laura Lux-Thompson		29574
Laura Lyons		32204
laura manz		29885
Laura McKinney		25729
Laura Menighetti		23016
Laura Menighetti		23264
Laura Mott		25518
Laura Munoz		24673
Laura Nabity		47553
Laura Nabity		48598
Laura Nason		31973
Laura Nawojchik		23400
Laura Northcraft		33830
Laura O'Dell		32523
Laura O'Hara		33633
Laura Payne		34158
Laura Regan		3754
Laura Regan		23646
Laura Regan		49473
Laura Regan		51831
Laura Rice		34490
Laura Roncal		28487
Laura Schwind		29811
Laura Shalliker		24469
Laura Sischo		32477
Laura Smith		22821

Sender Name	Submission ID
2 Sierra Club	
Laura Snyder	31094
Laura Spence	30592
Laura Stewart	31792
Laura Sulewski	33270
Laura Thelen	29518
Laura Tufo	26566
Laura Wall	34301
Laura Whalen	33574
Laura White	26613
Laura Wirkkala	29740
Laura Wright	25535
Lauralynn Anderson	23634
laurance chediac	28401
Laureanna Raymond-Duvernell	33865
Laurel & Bill Ehlert	35596
Laurel & Bill Ehlert	49063
Laurel Boucher	25404
Laurel Hughes	24243
Laurel Klein	26044
Laurel Schwass-Drew	26237
Laurel Wilkinson	25090
Lauren Basalla	30509
Lauren Bouyea	25821
Lauren Carlson-Vohs	34711
Lauren Damon	30889
Lauren Dentzman	28804
Lauren Devine	27223
Lauren Eaton	29543
Lauren Grossman	31245
Lauren Kelley	23739
Lauren Monahan	27325
Lauren Mosley	29870
Lauren Oster	26120
Lauren Richie	26970
Lauren Sindelar	28107
Lauren Sindelar	28109
Lauren Sindelar	28110
Lauren Springer	32617
Lauren Stone	27989

Sender Name	Submission ID
2 Sierra Club	
Lauren SVoboda	26334
Lauren Swaim	25388
Laurence Buckingham	23729
Laurence Janquart	31693
Laurence Margolis	2893
Laurence Margolis	27469
Laurence Margolis	52057
Laurence Risser	48930
Lauren-Michelle Kraft	25453
Lauretta Roche	27705
Lauri Desmarais	24236
Laurie Anderson	29342
Laurie Brandt	27878
Laurie Colaluca	36216
Laurie Cwerenz	31912
Laurie Duncan	36213
Laurie Fraker	26404
Laurie Fritsche	36234
Laurie Kittelson	38675
Laurie Kittelson	48606
Laurie Kopack	29407
Laurie Manis	36135
Laurie Matson	35377
Laurie Matson	49060
Laurie Miller	33538
Laurie Pearson	23593
Laurie Poelking	34918
Laurie Reed	28902
Laurie Reilly	23053
Laurie Robertson	34902
Laurie Robey	24505
Laurie Schmidt	33225
Laurie Szpot	28870
Laurie Szpot	35169
Laurie Todd	24707
Laurie Wilson	34837
Laurie Woltman	22954
Lavone Mcombe	27832
Lavonne Schackmann	2956

Sender Name	Submission ID
2 Sierra Club	
Lavonne Schackmann	27576
Lavonne Schackmann	52122
Lavonne Stage	29021
Lavonne Stage	29733
Lawrence Baird	27590
Lawrence Blacik	32292
Lawrence Brault	33749
Lawrence Carbary	25077
Lawrence Coffman	32494
Lawrence Frederick	36209
Lawrence Frey	31324
Lawrence Kloet	22958
Lawrence Landherr	31871
Lawrence Levy	35726
Lawrence Mick	35120
Lawrence Molin	28144
Lawrence Morgan	58026
Lawrence Owen	34429
Lawrence Schuchart	25568
Lawrence Tetenbaum	27578
Lawrence Toush	31624
LB Nelson	26477
Lea Swink	35819
Leah Adams	28979
Leah Evans	32122
Leah Findler	27105
Leah Johnk	28356
Leah Powley	33624
Leah Summers	36243
Leah Van Horn	30567
Leah Voors	33654
Leanne Cook	22905
Lee Ann Walker	34045
Lee Ann Wolff	26409
Lee Beck	35499
Lee Bhattacharji	27428
Lee Bouchonville	33808
Lee Hays	25422
Lee Hegstrand	36200

Sender Name		Submission ID
2 Sierra Club		
Lee Johnson		34791
Lee Jordan		24111
Lee Kaplan		39391
Lee Knepper		27268
lee leonard		2704
lee leonard		51896
Lee Lovas		25883
Lee Martin		35420
Lee Mckee		29519
Lee Nusich		29701
Lee Pesce		27797
Lee Price		27086
Lee Rhinesmith		25528
Lee Schmidt		25202
Lee Wilson		3542
Lee Wilson		51690
Leeann Bembenek		31553
Leif Bjornson		34259
Leigh Begalske		25860
Leigh Begalske		35494
Leigh Kunkel		35271
Leigh Macaro		35235
Leigh Saunders		29672
Leigh Spoehr		34378
Leland Becker		27418
Leland Becker		28992
Len Jennings		39643
Len Jennings		39645
Len Jennings		48835
Len Jennings		48838
Len Loker		35995
Len Lorette		27163
Len Mastri		30379
Len Olszewski		32203
Lene Harries		33200
Lene Harries		33221
Lenette Beagley		44411
Lenette Beagley		48503
Lenice Abbott		34578

Sender Name	Submission ID
2 Sierra Club	
Lennie Rodoff	23866
Lenora Layne	31075
Lenore Lee	36198
Lenore Reeves	31427
Leo and Susan Hanson	23137
Leo Kopack	29251
Leo Kopack	29327
Leo Mayol	30925
Leo Shapiro	26795
Leo Tussing	30251
Leona Duffey	31104
Leona Grage	32355
Leona Norcross	34522
Leonard Cage	25548
Leonard Cork	23949
Leonard Cork	31987
Leonard Evens	35411
Leonard Heether	30574
Leonard Jamiol	27911
Leonard Ross	36068
Leonard Sholder	28390
Leonard Starling	26841
Leone Olson	2801
Leone Olson	51976
Leroy Chilton	27483
Les Paulson	35782
Les Roberts	25703
Les Stern	3398
Les Stern	51624
Lesley and Stew Crosby	32737
Lesley Eland	25705
Lesley Eland	31028
Lesley Patton	25060
Lesley York	24435
Lesli Anderson	24691
Leslie Billings	27019
Leslie Bond	26521
Leslie Branco	26039
Leslie Dee	25638

Sender Name		Submission ID
2 Sierra Club		
Leslie Dee		31219
Leslie Distad		35346
Leslie Dryg		28809
Leslie Edstrom		34532
Leslie G Baker		27951
Leslie Glass		24046
Leslie Hayward		31760
Leslie Hrejsa		29350
Leslie Hutchins		33056
Leslie Limberg		27704
Leslie Little		30022
Leslie Malz		35221
Leslie Malz		52276
Leslie Manzo		30743
Leslie Miller		29093
Leslie Schaefer		35374
Leslie Scott		24404
Leslie Sharkey		32810
Leslie Stoltzner		28140
Lester Caltvedt		34190
Lester Kloss		30986
Lester Kyle		32398
Leticia LaMagna		25066
Letitia Noel		34225
Lety Villasenor		36008
Leuise Crumble		25895
Leuise Crumble		36033
Levase Vaughn		33458
Lewis Gersten		24101
Lewis Griffith		30304
Lewis Hotchkiss		2879
Lewis Hotchkiss		52042
Lewis Kuhlman		30724
Lewis Okun		29760
Lexy Deming		3596
Lexy Deming		51722
Li Way Lee		36088
Liam Butler-Lawrence		28229
Liam Greven		31061

Sender Name	Submission ID
2 Sierra Club	
Liane Casten	34571
Libby Jennings	25636
Libby Martinez	24208
Libby Martinez	24209
Liberty Brigner	31113
Lidia Smorodina	25117
Lillian Heldreth	31485
Lillian Karkoski	29172
Lillian Karkoski	30374
Lillian Korous	31527
Lillian Nordin	32142
Lillian Wertman	33323
Lily Ratatosk	32988
Lilyane Valente	32581
lin bacon	26456
Lin Koester	27067
Lina Hammadeh	31216
Linda A. Heath	40220
Linda Aderhold	32128
Linda Alexander	31510
Linda Allan	26513
Linda And Jerry Gutman	35668
Linda Andrews	24526
Linda Andrews	35559
Linda Avarello	24501
Linda Barnes	28526
Linda Bauer	25578
Linda Baylie	23785
Linda Becker-Mcwhinney	25463
Linda Beckman	34483
Linda Benda	23275
Linda Benda	40591
Linda Bennett	32542
Linda Bingle	29746
Linda Borowiak	31055
Linda Bridges	25512
Linda Bridges	36122
Linda Carroll	22985
Linda Cleveland	24843

Sender Name		Submission ID
2 Sierra Club		
Linda Cloer		22685
Linda Cody		33801
Linda Cook		32800
Linda Coulter		29895
Linda Cramer		30141
Linda Cullen		26527
Linda Dennison		29489
Linda Dibble		27759
Linda Ellingboe		23598
Linda Emerson		23937
Linda Falcone-Gard		35329
Linda Faste		25136
Linda Fay Sampson		25753
Linda Floyd		30042
Linda Freeman		27685
Linda Frost		36207
LINDA GALLAM		29509
Linda Garnato		25128
Linda Gazzola		25234
Linda Goldman		27818
Linda Graae		25952
Linda Hansen		33201
Linda Harsin		27058
Linda Haschart		27867
Linda Hayes		3556
Linda Hayes		51701
Linda Herrmann		32127
Linda Hersey		24751
Linda Hersey		33690
Linda Hewitt		27015
Linda Horton		24665
Linda Howard		26341
Linda Hoy		32700
Linda Hubbard		26894
Linda Hunter		32558
Linda I Hixson		35845
Linda Jenkins		30315
Linda Jenson		2826
Linda Jenson		52001

Sender Name	Submission ID
2 Sierra Club	
Linda Kahn	34154
Linda Kennedy	33876
Linda Keveloh	35698
Linda Kidder	36152
Linda Kiernan	34101
Linda Knuutinen	31404
Linda Kolakosky	25427
Linda Kordes	35684
Linda Kozak	34989
Linda Langin	30494
Linda Leonard	24234
Linda Linke	24062
Linda Linker	35415
Linda Luke	25826
Linda M Smith	25093
Linda Macias	35219
Linda Marble	33681
Linda Marshall	31282
Linda Martin	3469
Linda Martin	51655
Linda Martinez	39422
Linda Martinez	48721
Linda Mattox	27208
Linda Mccann	33600
Linda McCarthy	33636
Linda Mcdonnell	31305
Linda McGill	31581
Linda Meyers	2701
Linda Meyers	51892
Linda Michel White	26037
Linda Mickelson	25607
Linda Millar	24530
Linda Morgan	23880
Linda Morris	48991
Linda Mulhern	34929
Linda Myers	25625
Linda Myers	36039
Linda Neuy	32410
Linda Parkes	35747

Sender Name	Submission ID
2 Sierra Club	
Linda Penn	23724
linda petrulias	25095
linda pinkerton	27123
Linda Pollet	32047
Linda Porter	32708
Linda Porter	33713
Linda Prostko	30414
Linda Proudfit	31351
Linda Quinet	24898
Linda Raab	49065
Linda Rakowski	29304
Linda Rex	32264
Linda Rice	34854
Linda Rosencranz	26673
Linda Russell	24966
Linda Sage	32767
Linda Saiz	24306
Linda Salazar	48962
Linda Salazar	48963
Linda Saldana	24461
Linda Sams	32229
Linda Schaetzel	32140
Linda Schaetzel	39671
Linda Schaetzel	48848
Linda Schermer	27047
Linda Schwelnus	33734
Linda Sippel-Lemmer	25358
Linda Skisak	32333
Linda Smyth	25342
Linda Soldan	32811
Linda Spanski	27171
Linda Sperber	23054
Linda Sperry	27680
Linda Spyhalski	39029
Linda Spyhalski	48636
Linda Stelman	26032
Linda Stepp	29117
Linda Stevens	34777
Linda Sullivan	30308

Sender Name	Submission ID
2 Sierra Club	
Linda Szymoniak	32151
Linda Tapp	3015
Linda Tapp	52172
Linda Tate	24134
Linda Tauer	48884
Linda Tomchaney	32908
Linda Townill	36160
Linda Vasquez	29347
Linda Vietz	34203
Linda Wadsworth	48918
Linda Wagner	24367
Linda Wallace	30628
Linda Walsh	31969
Linda Wawrzaszek	24076
Linda Weimer	33382
Linda Weiner	26006
Linda Weitzer	25494
Linda White	29289
Linda Winsor	21159
Linda Winsor	50957
Linda Witt	24168
Linda Wyant	23669
Linda Wynbeek	28626
Linda Zech	35396
Lindsay Atnip	35723
Lindsay Beron	28944
Lindsay Byrne	23624
Lindsay Chistensen	33770
Lindsay Suter	27801
Lindsay Walls	32063
Lindsey Baldewicz	30430
Lindsey Braverman	25903
Lindsey Caudill	27044
Lindsey Densing	25772
Lindsey Mcmahan	24342
Lindsey Walker	22906
Lindsey Walters	34771
Lindsy Stannard	33260
Lindy Gasta	29110

Sender Name		Submission ID
2 Sierra Club		
Lindy Metz		34862
Line Henriksen		32417
Linnea Halfvarson		35841
Linnea Nereim		32345
Lionel Jeffers		36048
Lisa & Rudd Crawford		32721
Lisa Albrecht		36094
Lisa Anderson		24690
Lisa Annecone		25580
Lisa Bandemer		32923
Lisa Barker		31032
Lisa Barrett		35529
Lisa Belanger		23086
Lisa Bey		3795
Lisa Bey		24623
Lisa Bey		51863
Lisa Bowstead		24199
lisa brausen		45196
lisa brausen		48524
Lisa Briggs		39504
Lisa Briggs		48756
Lisa Brown		27473
Lisa Brown		31483
Lisa Burke		3722
Lisa Burke		51803
Lisa Butterfield		27082
Lisa Carn		36041
Lisa Casper		24319
Lisa Cassidy		24791
Lisa Chester		35942
Lisa Coffey		27870
Lisa Culp		31159
Lisa Dahill		30735
Lisa Daloia		24929
Lisa Dian		34359
Lisa D'Innocenzo		35958
Lisa Duckworth		28909
Lisa Duray		36053
Lisa Erickson		48783

Sender Name	Submission ID
2 Sierra Club	
Lisa Faller	27330
Lisa Fera	30638
Lisa Ferraro	27103
Lisa foley	32445
Lisa Frey	36292
Lisa Fues	24825
Lisa Gilman	29879
Lisa Goldman	25726
Lisa Goodlander	51566
Lisa Graham	24738
Lisa Graham	27691
Lisa Grosch	27621
Lisa Hardy	39940
Lisa Hardy	49013
lisa herthel	34216
Lisa Higgins	26022
Lisa Hughes	26114
Lisa Hustad	28690
Lisa Iffland	32991
Lisa Jorgenson	34089
Lisa Kahl	30300
Lisa Klepek	32942
Lisa Langbein	29723
Lisa Lesko	31443
Lisa Mann	35253
Lisa Markovitz	38339
Lisa Martinez	32496
Lisa Mathews-Bingham	27159
Lisa Mazzola	25944
Lisa McCorison	37526
Lisa McCorison	49552
Lisa McEwen	26031
Lisa Middleton	29246
Lisa Mink	23100
Lisa Morris	31154
Lisa Moskal	35369
Lisa Myslajek	46990
Lisa Myslajek	48560
Lisa Nabity	25353

Sender Name		Submission ID
2 Sierra Club		
Lisa Napolitan		37851
Lisa Oliver		31207
Lisa Pace		32498
Lisa Page		35304
Lisa Pawley		30537
Lisa Pollei		35111
Lisa Rubin-Horton		25110
Lisa Salazar		23123
Lisa Sawyer		29041
Lisa Scharin		22854
Lisa Sharp		26420
Lisa Simon		28756
Lisa Simonin		35237
Lisa Sottile		32480
Lisa Stracks		33208
Lisa Thomas		27188
Lisa Tolsma		31735
Lisa Tomlin		24831
Lisa Vervena		24197
Lisa Vervena		39418
Lisa Vervena		48723
Lisa Vieth		28312
Lisa Wrabek		23854
Lise Susi		24202
Lissa Mclaughlin		34220
Liu Wai Ling		28100
Liz And Gene Dehler		28169
Liz Berggren		24429
Liz Clark		35261
Liz Dorr		26913
Liz Dorr		26928
Liz Dorr		26942
Liz Hartz		31557
Liz Jones		24580
Liz Lassman		29971
Liz Laughlin		33436
Liz Lynch		33111
Liz Nolan-Greven		31105
Liz Peltier		28612

Sender Name	Submission ID
2 Sierra Club	
Liz Reed	34832
Liz Strickler	26569
Liz Szabo	29873
Liz Vandersteen	32353
Liz Wessel	23548
Liz Wheelan	27816
Liza Brockway	23319
Lizabeth Ver Kamp	35118
Ljiljana Milic	30191
Llauren Peralta	27087
Lloyd & Kathleen Hyman	24647
Lloyd Hess	30114
Lloyd Loring	35345
Lloyd Reynolds	23474
Lloyd Shaw	31588
Lloyd Smith	30684
Loann Johnson	31327
Lobsang Dhondup	35711
Lobsang Dhondup	48686
Lois Angeli	30199
Lois Aswell	25606
Lois Baker	24228
Lois Bluhm	30995
Lois Clark	33722
Lois Ege	29150
Lois Gertz	48792
Lois Jordan	27356
Lois Lauer	26235
Lois Lunetta	23830
Lois Melegari	26350
Lois Melegari	31748
Lois Nelson	29178
Lois Norrgard	44769
Lois Norrgard	48511
Lois Panepucci	26440
Lois Schadewald	23237
Lois Swanson	29048
Lokken, Lynne	58012
Lola Hindbjorgen	25137

Sender Name	Submission ID
2 Sierra Club	
Lola Hindbjorgen	32107
Lola Hindbjorgen	48933
Lola Hindbjorgen	39826
Lola Janes	28659
Lolita Holmes	21841
Lolly Ward	33827
Lon Herman	30681
Lon Wergin	29483
Lonette Gregersen	33689
Long Le	3624
Long Le	51739
Lonie Miesner	29653
Lonna Richmond	26103
Lonnie Stanton	32298
Lonny Lefever	34298
Lora Chaffin	35953
Lora Hamrock	31960
Lora Pateras	34559
Lora Wheeler	31689
Loraine Bryant	2677
Loraine Bryant	51874
Loraine Zeman-Dallas	24733
Lore Leidinger	33374
Loree Stinson	29011
Lorelei Bandel	22894
Lorelei Bandel	49454
Loren Cohen	33665
Loren Skarie	2878
Loren Skarie	52066
Lorenz Steininger	25218
Loretta Kerns	33175
Loretta Olsen	23620
Loretta Olsen	28923
Loretta Robinson	27078
Lori A Huska	27539
Lori Alaniva	26490
Lori Andresen	3642
Lori Andresen	35750
Lori Andresen	51747

Sender Name	Submission ID
2 Sierra Club	
Lori Bennett	30095
Lori Blauwet	29683
Lori Caswell	35921
Lori Evert	36070
Lori Fuzo	34102
Lori Hartley	25627
Lori Lewis	34415
Lori Moldovan	26217
Lori Montgomery	22773
Lori Nagel	23824
Lori Nagel	49480
Lori Savolainen	34805
Lori Scheibe	31013
Lori Schroeder	23865
Lori Snyder	25894
Lori Sprosty	27829
Lori Steckervetz	28028
Lori Stenger	30455
Lori Stoner	28801
Lori Strausser	25805
Lori Strausser	30213
Lori Stucker	28532
Lori Sudomir	33185
Lorie Axtell	30259
Lorin Swinehart	33303
Lorlee Bartos	33160
Lorna Holmes	35488
Lorna Hurd	32799
Lorna Lee	28513
Lorna Paisley	29679
Lorna Wallach	26624
Lorne Beatty	25665
Lorne Thompson	23230
Lorraine Crawford	24054
Lorraine Czerniak	24676
Lorraine Doherty	31900
Lorraine Doherty	51597
Lorraine Grasso	23813
Lorraine Leidholdt	29598

Sender Name		Submission ID
2 Sierra Club		
Lorraine Lowry		25594
Lorraine Rondon		34969
Lorri Francis		34765
Lou Stammer		33864
Louann Chapman		24465
Louann Lanning		23788
Louann Lanning		49477
Louis Asher		29968
Louis Brasaemle		32903
Louis Fischer		35940
Louis Hoerr		30475
Louis Hoerr		48659
Louis Kanter		25448
Louis Kanter		28999
Louisa Mccleary		27711
Louise Albrecht		29778
Louise Aubin		23744
Louise Cameron		48940
Louise Cameron		39840
Louise Corey		33497
Louise Friedenson		30914
Louise Nolta		32560
Louise Petering		34324
Louise Popovich		23460
Louise Roby		33671
Louise Wagner		27023
Louise Yost		29332
Lowe, Nichole		58013
Lowell Brown		29446
Lowell Palm		36237
Lu Harland		23302
Lu Parbery		24488
Luan Marks		32446
Luann Coyne		29369
Luann Endres		31962
Luann Hagel		3597
Luann Hagel		35445
Luann Hagel		51723
Luann Hansen		39482

Sender Name	Submission ID
2 Sierra Club	
Luann Hansen	48747
Lucas Quick	29910
Lucia Lara	37837
Luciana Rzegocki	25442
Lucinda Reinas	28696
Lucy BatesByers	23636
Lucy Bocian	31114
Lucy Cassidy	26548
Lucy Horwitz	23976
Lucy Rust	39943
Lucy Rust	49012
Lucy Slinger	28983
Lucy Smith	33812
Lucyna Drozd-Nurek	24164
Luean Anthony	27852
Luis Arangua	35632
Luis Fuentes	25242
Luis Lucchini	31488
Lukas Barthel	30611
Luke Kempf	32321
Luna, Julie	58016
Lusidia Reyes	24787
Luz Bustamante	32451
Lydia Andre	24937
Lydia Butyrin	25150
Lydia Larrabee	30069
Lydia Tanenhaus	26315
Lyle Krych	31625
Lyn & Don Denny	29423
Lyn Leeuw	23317
Lyn Pegg	36006
Lyn Pegg	39935
Lyn Pegg	49002
Lyn Peterson	25879
Lyn Ward	24967
Lyn Yount	3712
Lyn Yount	51790
Lynda Haemig	3757
Lynda Haemig	51833

Sender Name		Submission ID
2 Sierra Club		
Lynda Longshore		35087
Lynda Pauling		2950
Lynda Pauling		52111
Lynda Price		33888
Lyndsey Mcmorrow		25287
Lyndsy Grossman		32613
Lyne Loomis		28263
Lynette Anderson		23390
Lynn Bell		23163
Lynn Borro		35044
Lynn Bozich Shetzer		33014
Lynn Calkins		29059
Lynn Cascio		25653
Lynn Cook		31583
Lynn Daigler		34219
Lynn Dodson		34238
Lynn Edgar		28116
Lynn Fischer		25899
Lynn Flanagan		23956
Lynn Gossard		25514
Lynn Hanusa		33662
Lynn Hartung		27774
Lynn Johnson		45404
Lynn Johnson		48535
Lynn Lang		28294
Lynn Marquardt		34211
Lynn Mcsheehy		28942
Lynn Morris		33992
Lynn Ness		36272
Lynn Orlando		28996
Lynn Pierce		25715
Lynn Ponto		24732
Lynn Price		29626
Lynn Ricci		23153
Lynn Seery		30796
Lynn Sellers		28769
Lynn Shannon		41458
Lynn Shoemaker		29050
Lynn Smith		3416

Sender Name	Submission ID
2 Sierra Club	
Lynn Smith	51630
Lynn Stroede	33337
Lynn Sullivan	24515
Lynn Tender	32455
Lynn Walker	23253
Lynna Strom	32519
Lynnann Shaffer	33901
Lynne Bannerman	26246
Lynne Bemer	29950
Lynne Britt-Moore	27345
Lynne C	27399
Lynne Herrli	36119
Lynne Hubenette	23988
Lynne Huntley	29077
Lynne Huntley	30020
Lynne Larson	34579
Lynne Lihotz	24071
Lynne Mattson	33986
Lynne Schrupp	30316
Lynne Teplin	26745
Lynne Weil	34233
Lynnette Anderson	24987
Lynnette Bower	31465
Lynskey, James	58017
Lyrysa Smith	27585
M A Ryan	32937
M Beth Joray	34000
M Beth Joray	34020
M D Erlenbush	23642
M Ferguson	31329
M Hagen	33107
M Jay Shahidi	2669
M Jay Shahidi	51870
M K Blankers	3570
M K Blankers	51709
M K Smith	3664
M K Smith	51757
M Lehman	27901
M Leiter	35788

Sender Name	Submission ID
2 Sierra Club	
M Markert	25126
M Markert	25133
M Markert	32726
m s	28516
M Shuster	25691
M Thandabantu Iverson, PhD	31024
M. Antonia Rausch	27750
M. Fields	35951
M. Karen Powers	28204
M. Karen Powers	30653
M. Smeltzer	24175
M. Virginia Epps	34541
M.R. Mcbride	24293
Mackenzie Huth	26439
Mackenzie Huth	51551
Maddie Dillon	26519
Madeleine Ascott	27462
Madeleine Cusick	26765
Madeline Benson	23970
Madeline Buck	48907
Madeline Buck	50939
Madeline Carter	33797
Madeline Gomez	35077
Madeline Meyer	29107
Madeline Seveland	28649
Madeline Shaw	28281
Madeline Shaw	29126
Madge Cline	30076
Maegen Gabriel	24662
Maegen Gabriel	32696
Maestro Stephen Miller	35484
Maeve Callaghan	22796
Magdalena Borkowska	24991
Magdalena Szaszorowska	27304
Maggie & Bill Faul	34185
Maggie A.	34349
Maggie Kozak	29419
Maggie Larrick	26469
Maggie Mcguinness	32462

Sender Name	Submission ID
2 Sierra Club	
Maggie Robinson	35303
Maggie Shields	28266
Magnus Ndukwe	32317
Maha Hatoum	31816
Mahmoud Aburas	33015
Maija Sulerud	31214
Malcolm Aldrick	24782
Malcolm Bastron	33329
Malcolm Bastron	39510
Malcolm Bastron	48765
Malcolm Dow	35535
Malcolm Fordham	26804
Malcolm Wellington	25272
Maley Neil	48619
Malia Beidel	28048
Malinda Butcher	36076
Mandana Miller	34413
Mandi Woronowicz	32707
Mandy Devine	26509
Mandy Hanifen	26268
Mandy Spiczka	32294
Mandy Spiczka	48969
Mandy Spiczka	39863
Mandy Tshibangu	26551
Manuel Ferreira	26517
mar digat	30463
Mar Digat	31121
Mara Flynn	31694
Mara Johnson	26982
Mara MacDonell	21337
Mara MacDonell	51013
Marc Brogna	25759
Marc Conrad	34752
Marc Jauhiainen	34407
Marc Leclerc	25156
Marc Masto	33099
Marc Schoenberg	32543
Marcella Crane	23832
Marcella Kearns	29989

Sender Name		Submission ID
2 Sierra Club		
Marci Gallagher		29139
Marcia Afton		34923
Márcia Arantes		24874
Marcia Austin		25379
Marcia Collier		34198
Marcia Curran		30620
Marcia Drewek		29833
Marcia Frazee		29086
Marcia Gonstead		28458
Marcia Haddox		34085
Marcia Henning		26520
Marcia Henry		24965
Marcia Hoodwin		25756
Marcia Labella		34048
Marcia Ouellette		30027
Marcia Parker		29169
Marcia Reiter		34630
Marcia Rock		31274
Marcia Roth		33959
Marcia Schwarz		34799
Marcia Wolff		29431
Marcia Zeski		34237
Marck Oconnell		35941
Marco Pardi		28137
Marcus Goodwin		30260
Marcus Manson		2674
Marcus Manson		51872
Marcy Gustafson		28765
Marcy Leussler		2796
Marcy Leussler		51981
Marcy Lundquist		31788
Marcy Trager		35875
Marcy Weathers		30165
Mardi Ringqist		24867
Marea Calderone		24762
Maren Wilbur		32635
Marg Buckholtz		23589
Margaret Aguilar		33376
Margaret Cagle		28886

Sender Name	Submission ID
2 Sierra Club	
Margaret Carroll	25793
Margaret Chilton	34239
Margaret Cramer	26295
Margaret Cullen	51557
Margaret Fischer	29638
Margaret Fuhs	23027
Margaret Garsow	35923
Margaret Gibson	30607
Margaret Gould	32939
Margaret Haviland	30507
Margaret Herten	27657
Margaret Hogg	34603
Margaret Holton	24682
Margaret Hormann	30872
Margaret Hurley	24409
Margaret Johnson	28670
Margaret Kaminski	27840
Margaret Kennelly	28627
Margaret Kramer	32213
Margaret Kuns	32536
Margaret L Mead	26531
Margaret Landrum	35062
Margaret Leighton	31893
Margaret Levin	3030
Margaret Levin	52177
Margaret Loffelman	32187
Margaret Lynn	34767
Margaret M Stockman	32038
Margaret Mauti	28571
Margaret Maxwell	30759
Margaret Mueller	27865
Margaret Mueller	35669
margaret murphy	28873
Margaret Peacock	28864
Margaret Peterson	48980
Margaret Peterson	39862
Margaret Pooler	34625
Margaret Renee Walker	30722
Margaret Rich	29298

Sender Name		Submission ID
2 Sierra Club		
Margaret Richardson		30054
Margaret Roebuck		33187
Margaret Roeske		31764
Margaret Stein-Kodzik		24457
Margaret Stein-Kodzik		34624
Margaret Stockton		39433
Margaret Stockton		48725
Margaret Thalhuber		2774
Margaret Thalhuber		51953
Margaret Wilson		28910
Margaret Wood		23656
Margaret Zoch		27049
Margareta Car		24507
Margarita Bowers		32840
Margarita Zamora		29782
Marge Barry		24239
Marge Fear		29988
Marge Gockel		29768
Margie Borchers		26379
Margie Cruz		31018
Margie Loberger		31994
Margie Loberger		32017
Margo Czinski		32521
Margo Lesser		34526
Margo Spearson		29641
Margot Loerky		29016
Margret Head		26683
Margrit Kuehn		30321
Marguerite Benoit		25720
marguerite Boersma		23596
Marguerite Molk		32502
marguery lee zucker		25352
Mari Bohnhoff		32102
Mari Klebe		31486
Mari Klebe		39950
Mari Klebe		49023
Mari Minarik		35524
Mari Steinbach		31977
Maria Anderson		31750

Sender Name	Submission ID
2 Sierra Club	
Maria Barney	26158
Maria Bieszke	29415
Maria Bodor	35956
Maria Cancro	26302
Maria Capdepont	28721
Maria Cruz	33360
Maria De La Rosa-Young	33717
Maria dels Angels Beltran	27170
Maria Dizon	32761
Maria Exapichidou	22823
Maria Faisal	23199
Maria Fregoso	34560
Maria Fregoso	34708
Maria French	34432
Maria Gonzalez	35988
Maria Hernandez	33095
Maria Kalousi	22790
Maria Karageorge	32884
Maria LeBar	24998
Maria Lichter	31850
Maria M	23693
maria meade	39308
maria meade	48671
Maria Miller	33289
Maria Moreno	23162
Maria Mundaca	23713
Maria Nevala	34535
Maria Niño	25390
Maria Papadopoulou	24949
Maria Pia Scotto Di Frega	26488
Maria Puente-Duany	27739
Maria Schneider	24688
Maria Stahl	29191
Maria Stoll	25420
Maria Teresa Romani	46530
maria thompson	48668
Maria White	24962
Maria Zulaica	24997
Mariah Mccalley	30754

Sender Name	Submission ID
2 Sierra Club	
Marian Syrjamaki-Kuchta	2703
Marian Syrjamaki-Kuchta	51891
Marian Volkman	24766
Marian Watson	25775
Mariann Mccornack	33045
Marianne Amann	35989
Marianne Bentel	29353
Marianne Dietzel	47043
Marianne Dietzel	48561
Marianne Durocher	34144
Marianne Flanagan	31501
Marianne Nee	34964
Marianne Neidermyer	28754
Marianne Neidermyer	28758
Marianne Neidermyer	28762
Marianne Neill	33251
Marianne Orr	33298
Marianne Wilkening	23826
Maribeth Metzler	26356
Maribeth Schulke	48699
Marie Beckham	26840
Marie DesJarlais	30886
Marie Foley	30691
Marie Fussman	31925
Marie Koko	32533
Marie Libby	33754
Marie Myers	29709
Marie Smith	33246
Marie Smith	38194
Marie Takada	32671
Marie Trone	27683
Marie Young	25440
Marie-Ange Berchem	24458
Marietta Haynes	25226
Marietta Smith	26956
Marika Aubry	24000
Marika Runfors	24871
Marilee Nagy	32804
Marilisa Pollastro	2670

Sender Name	Submission ID
2 Sierra Club	
Marilisa Pollastro	51869
Marilou Jung	24099
Marilyn Alimpich	26721
Marilyn Alimpich	33658
Marilyn Bakanec	29417
Marilyn Bentley	30877
Marilyn Black	33928
Marilyn Borich	33566
Marilyn Brumund	29485
Marilyn Burkholder	29861
Marilyn Carse	25496
Marilyn Coleman	26438
Marilyn Davis	30425
Marilyn Dopp	35704
Marilyn Freese	33378
Marilyn Gropper	28325
Marilyn Joy	28855
Marilyn Kennedy	39106
Marilyn Kennedy	48644
Marilyn Krupa	28164
Marilyn Lamar	35507
Marilyn Logan	26330
Marilyn Mark	2726
Marilyn Mark	51911
Marilyn Mason	35544
Marilyn McIntyre	24139
Marilyn Nicol	31948
Marilyn Olson	34436
Marilyn Osborne	31374
Marilyn S Underwood	23377
Marilyn Sabella	28539
Marilyn Schneider	24492
Marilyn Siddiqi	30692
Marilyn Snyder	25031
Marilyn Williams	4319
Marilyn Williams	51529
Marilyn Wright	24586
Marilynn Fuller	28248
marilynn Mitchell	22930

Sender Name		Submission ID
2 Sierra Club		
Marilynn Morgan		3552
Marilynn Morgan		51700
Marin Quezada		24029
Marin Quezada		34525
Marina Budagova		2688
Marina Budagova		51882
MARINA MURPHY		21712
Marinda Farmer		27571
mario giannone		26309
Mario Maraldo		29002
Mariola Fiedorczuk		34988
Marion & James Tidwell		35412
Marion Cavanagh		24112
Marion Dulabaum		31753
Marion Gomez		28806
Marion Horton		35859
Marion Kraus		24702
Marion Kuhn		26946
Marion Kuhn		29881
Marion Marsh		34807
Marion McCloskey		25673
Marion Stewart		25109
Maris Keller		29434
Marisa Geisler		31118
Marisa Geisler		45194
Marisa Geisler		48523
Marita Bostic		26171
Marita Bujold		31531
Mariusz Gorlicki		29646
Marjorie Boyle		35038
Marjorie Boyle		39393
Marjorie Boyle		48709
Marjorie Castanien		29087
Marjorie Dean		27351
Marjorie Findley		31954
Marjorie Frazier		25165
Marjorie Hass		23833
Marjorie King		24590
Marjorie Monteleon		26887

Sender Name	Submission ID
2 Sierra Club	
Marjorie Muhich	32255
Marjorie Soule	31194
Marjorie Stevens	29604
Marjorie Tursak	28946
Marjorie Wickenden	24300
Marjory Singher	32568
Mark & Crystal Landers	25437
Mark & Crystal Landers	29277
Mark & Deborah Novak	30230
Mark & Lori Severtson	30573
Mark And Dana Ross	29007
Mark Anderson	45708
Mark Anderson	48540
Mark Anthony	26137
Mark Axelrod	30902
Mark Bartleman	24103
Mark Bearce	30383
Mark Beckwith	25020
Mark Berg	35772
Mark Berg	48892
Mark Bischel	24561
Mark Bragg	28572
Mark Brahce	29550
Mark Bridge	33085
Mark Brooker	33862
Mark Christopherson	35417
Mark Clifford	30792
Mark Crettol	30457
Mark Damie	32980
Mark Desmond	35779
Mark Donaldson	25361
Mark Dreessen	35418
Mark Durussel	30237
Mark Edgren	27694
Mark Fabry	26293
Mark Follansbee	27588
Mark Forsyth	26706
Mark Frederickson	33443
Mark Friedlander	35657

Sender Name		Submission ID
2 Sierra Club		
Mark Giese		28803
Mark Grotzke		32029
Mark Hagen		2821
Mark Hagen		51997
Mark Hallett		28840
Mark Holoubek		29716
Mark Ingram		30631
Mark Jensen		30375
Mark Johansen		30151
Mark Johnsen		34106
Mark Johnson		35146
Mark Jolliffe		32153
Mark Jordan		23698
Mark Kenworthy		32486
Mark Kolar		30737
Mark Koritz		27917
Mark Kuehner		28361
Mark Lehigh		3483
Mark Lehigh		51660
Mark Lickerman		34577
Mark Lott		35040
Mark Lundholm		35151
Mark Makkonen		36242
Mark Mankowski		34706
Mark Martin		26428
Mark Meyer		34039
Mark Miklavcic		32167
Mark Miller		2810
Mark Miller		51987
Mark Miser		32269
Mark Nester		29422
mark otzelberger		35024
mark otzelberger		35067
Mark Owens		32959
Mark Owens		35523
Mark Parr		32636
Mark Paulson		29386
Mark Paye		35742
Mark Pedelty		30063

Sender Name	Submission ID
2 Sierra Club	
Mark Peil	3450
Mark Peil	51645
Mark Peltan	26394
Mark Peltan	28529
Mark Perryman	30867
Mark Petty	3007
Mark Petty	52161
Mark R	34471
Mark Rehberg	29187
Mark Reinertson	26588
Mark Rossi	4225
Mark Rossi	51520
Mark Saastad	48796
Mark Schmiedlin	36254
Mark Seeley	33516
Mark Segraves	29202
Mark Shemanski	41034
Mark Simunic	30527
mark snawadzki	27113
Mark Snyder	27185
Mark Snyder	31161
Mark Sokolowski	33462
Mark Tessmer	2949
Mark Tessmer	52124
Mark Thompson	23616
Mark Thompson	30045
Mark Tischler	33453
Mark W. Mehl	35594
Mark Wagner	31050
Mark Waldoch	33312
Mark Walker	27796
Mark Webster	27059
Mark West	23699
Mark Wolf	29410
Mark Wright	35581
Mark Young	34507
Marken Gerhardt	36247
Marketa Anderson	22947
Marketa Anderson	29097

Sender Name		Submission ID
2 Sierra Club		
Marla Donato		30196
Marla Holbrook		32349
Marla Neal-Roberts		23080
Marleen Neus		40466
Marlene Barrett		34463
Marlene Donnelly		33974
Marlene Harmon		29508
Marlene Harrell		24934
Marlene Lautman		24096
Marlene Powers		33459
marlene saxby		30326
marlene walth		2764
marlene walth		51949
Marlies Bellos		33433
Marliss Rogers		28790
Marlita Joseph		34299
Marlys Morgan		24919
Marne Wendorf		25660
Marsha Adams		26704
Marsha Cowen Hosfeld		33389
Marsha Kimball		26582
Marsha Malone		24324
Marsha Wheaton		31740
Marshall Feldman		32814
Marshall Gentry		27465
Marta Kati Plonski		25152
Marta Kowalska		27525
Marta Novotny		48943
Marta Novotny		39839
Martel Cowart		32465
Marten Kuebler		22800
Marten Kuebler		49452
Martha Baldoni		33667
Martha Bonvillain		29265
Martha Brzozowski		25153
martha burton		23904
Martha Chisholm		26203
Martha Chisholm		26262
Martha Cuneo		23364

Sender Name	Submission ID
2 Sierra Club	
Martha Curry	27531
Martha Evens	33970
Martha Feldman	27227
Martha Henry	36042
Martha Joy	46310
Martha Joy	48548
Martha Kane	27565
Martha Keefe	35973
Martha Kelly	28877
Martha Mastropolo	32239
Martha Mcandrews	30489
Martha Micks	39642
Martha Micks	48828
Martha Miller	3732
Martha Miller	51810
Martha Munger	32447
Martha Oleinick	28915
Martha Podlich	33826
Martha Rivas	23908
Martha Ross	28088
Martha Scoppa	26212
Martha Smith	26697
Martha Strother	27283
Martha Unke	2929
Martha Unke	52115
Martha Vennes	24299
Martha Vennes	34067
Martha Vermeulen	31445
Martha Warlop	33493
Martha White	32143
Marti MacArthur	23203
Marti Swanson	32432
Martin & Sharon Mcgladdery	33989
Martin And Christina Stumpf	31221
Martin and Hedwig Kaufman	31393
Martin Horwitz	25063
Martin Jordan	28661
Martin Kuester	32448
Martin Kuester	38696

Sender Name	Submission ID
2 Sierra Club	
Martin Kuester	48607
Martin Kushler	33033
Martin Smith	24302
Martin Steitz	23019
Martin Wieland	26270
Martina Doshan	27649
Martine Salane	29214
Marty Clancy	24417
Marty Collins	31276
Marty Kuhn	24954
Marty Lemke	2824
Marty Lemke	51995
Marty Mason	35833
Marvin Bunnell	29963
Marvin J. Ward	28159
Marvin Jacks	33768
Marvin Kummer	30784
Marvin Rosen	24656
Marvin Schwartz	33178
Marvin Young	28464
Mary & Bob Place	28778
Mary & G. R. Hamilton	26251
Mary Ann & Frank Graffagnino	23259
Mary Ann Black	31226
Mary Ann Capizzo	30694
Mary Ann Dailey	30184
Mary Ann Hardtke	30776
Mary Ann Hardziej	27260
Mary Ann Hardziej	30634
Mary Ann Lechner	29458
Mary Ann Lundquist	3736
Mary Ann Lundquist	51814
Mary Ann Rizzato	33263
Mary Ann Rodeman	25769
Mary Ann Searing	30279
Mary Ann Sorokie	36279
Mary Ann Stott	30815
Mary Ann Vanek	35667
Mary Ann Wiesner	35900

Sender Name	Submission ID
2 Sierra Club	
Mary Anna Feitler	29013
Mary Anne Breece	35817
Mary Anne OToole	30749
Mary Anne Perrone	26473
Mary Aries	32917
Mary Aries	39307
Mary Aries	48675
Mary Bandor	33475
Mary Barbezat	27523
Mary Barbezat	34863
Mary Barrett	33756
Mary Baysinger	26949
Mary Beal	31576
Mary Beck	30534
Mary Belmore	29612
Mary Belmore	30283
Mary Benshoof	31011
Mary Berg	27699
mary Bergner	29538
Mary Bergner	30598
Mary Beth Brenneman	31193
Mary Bradford	29435
Mary Browne	26427
Mary Burek-Faber	29802
Mary Burgess	32960
Mary Burns	32316
Mary C Sengstock	30838
mary calvert	28293
Mary Camardo	30996
Mary Camele	34656
Mary Carnagie	24680
Mary Catherine O'Neall	29608
Mary Charles	34528
Mary Charnetski	30547
Mary Chieffe	27234
Mary Chieffe	30464
Mary Clare Barker	33840
Mary Clifford	24918
Mary Cloud	32052

Sender Name	Submission ID
2 Sierra Club	
Mary Collier	32405
Mary Copeland	34561
Mary Crawmer	27624
Mary Culik	27122
Mary cullen	3461
Mary cullen	51651
Mary Dally-Muenzmaier	35920
Mary Davis	34820
Mary De Spirt	25398
Mary Deprey	3559
Mary Deprey	51704
Mary Derbick-Johnson	33073
Mary Dosch	27944
Mary Dosch	43682
Mary Dosch	48492
Mary Dougherty	28634
Mary Driscoll	26258
Mary Duff	26422
Mary Duff	28375
Mary Durando	26978
Mary Edgar	27422
Mary Eliades	32315
Mary Ellen Kirkhope	32173
Mary Ellen Sivalls	32979
Mary Ellen Turchan	36136
Mary Ellen Vetter	2782
Mary Ellen Vetter	51964
Mary Elling	31737
Mary Engel	31892
Mary Engen	48697
Mary Ewasek	35063
Mary F Platter-Rieger	24455
Mary Faulkner	48917
Mary Firnrohr	32037
Mary Flowers	26099
Mary Froiland	34134
Mary Frush	35739
Mary Georgiton	34631
Mary Gibbons	27000

Sender Name	Submission ID
2 Sierra Club	
mary Giesen	31153
Mary Hagele	35055
Mary Hall	23868
Mary Hall	23870
Mary Hamel	21162
Mary Hamel	50960
Mary Hanley	32396
Mary Harbaugh	26419
Mary Harris	28702
Mary Hayes	36193
Mary Hedblom	29213
Mary Heffelfinger	35429
Mary Heffron	35405
Mary Hickey	33512
Mary Hirsch	33231
Mary Hoadley	30903
Mary Hoffmeister	34581
Mary Holm	48957
Mary Howard	35129
Mary Hubbard	24205
Mary Hunt	30946
Mary J Crane	41134
Mary Jaeger-Voss	34973
Mary Jane Grabowski	34861
Mary Jane Heeg	35682
Mary Jane Johnson	33705
Mary Jane Lean	34725
Mary Jean Smith	30636
Mary Jeanne Levitt	21160
Mary Jeanne Levitt	50958
Mary Jo & Tom Mulcahy	26812
Mary Jo Benyo	32870
Mary Jo Cullen	30926
Mary Jo Fesenmaier	29240
Mary Jo Frensko	31765
Mary Jo Graham	29223
Mary Jo Gries	32861
Mary Jo Holewa	30067
Mary Jo Knox	26338

Sender Name	Submission ID
2 Sierra Club	
Mary Jo Nagy	34947
mary Jo straub	31353
mary Jo straub	48984
Mary Jo Uhlenkolf	30745
Mary Jo Viero	23633
Mary Jo Yack	28677
Mary Johannsen	33449
Mary Johnson	33194
Mary Johnson-Hamburger	35316
Mary Jones	34188
Mary Junek	25021
Mary Kastorff	2954
Mary Kastorff	52125
Mary Kay Tullock	26221
Mary Keefe	32733
Mary Kniep	27284
Mary Kniep	31974
Mary Lawson	48873
Mary Lee Benson	34763
Mary Lee Mahar	25401
Mary Lein	34941
Mary Leslie	25739
Mary Loomis	46094
Mary Loren	27934
Mary Lou Hoff	3430
Mary Lou Hoff	51634
Mary Lou Mellon	35679
Mary Lou Nowak	34611
Mary Loy	27746
Mary Ludington	3781
Mary Ludington	51849
Mary Lusher	4284
Mary Lusher	51524
Mary Lyda	25068
Mary Lynch	31034
Mary Marcan	29081
Mary Mason	28165
Mary Mason	30630
Mary Mastro	27189

Sender Name	Submission ID
2 Sierra Club	
Mary Mathews	30026
Mary Mccloskey	35975
Mary McCoy	34691
Mary Mcgaughey	27292
Mary Mcgilligan	51564
Mary Mcguire	33327
Mary Meade	29579
Mary Michael	34615
Mary Miller	3695
Mary Miller	51779
Mary Mullen	26184
Mary Munchel	29225
Mary Netzer	29329
Mary Neubecker	34653
Mary Nommensen	31137
Mary Norris	26578
Mary Ornee	36032
Mary O'Sullivan	32659
Mary Palmer	31257
Mary Phillips	25184
Mary Pokrop	33563
Mary Price	27269
Mary Quaid	36194
Mary Raimonde	31382
Mary Regan	28339
Mary Reppert	38462
Mary Riblett	27355
Mary Richards	23777
Mary Richter	24280
Mary Robert	25783
Mary Robertson	26282
Mary Rook	32947
Mary Rose Mccrate	30832
Mary Ryan	30352
Mary Salerno	25589
Mary Saunders	28152
Mary Saunders	33674
Mary Scheibel	51585
Mary Seegott	35939

Sender Name	Submission ID
2 Sierra Club	
Mary Sharpee	29962
Mary Slattery	41459
Mary Snow	33540
Mary Spangenberg	35491
Mary Stanton	33779
Mary Stookey	36181
Mary Strasser	24358
Mary Strasser	30915
Mary Sullivan	25902
Mary Tacheny	48879
Mary Tanoury	36116
Mary Tarallo	26387
Mary Tarallo	35968
Mary Thomas	30048
Mary Tlusty	32855
Mary Toon	31409
Mary Truelove	34703
Mary Vanslooten	30936
Mary Vanzandt	34662
Mary Variola	31673
Mary Vieregg	33355
Mary Vorachek	25539
Mary Vorves	33612
Mary Walker	24442
Mary Wasmer	33580
mary weber	30565
Mary Weber	36282
Mary White	30585
Mary Williams	25932
Mary Williams	28189
Mary Wilson	25510
Mary Winget	39417
Mary Winget	48730
Mary Wishmann	35401
Mary Wolney	30449
Mary Zack	28306
Mary Zack	35732
Mary Zirbes	32458
Marya Roddis	26510

Sender Name	Submission ID
2 Sierra Club	
maryam khan	48972
maryam khan	39856
MaryAnn Bloedow	26466
MaryAnn Bloedow	33016
Maryann Burch	24402
Maryann Hopping	31249
Maryann Lecomb	34032
Maryann Mercer	29195
Maryann Pajot	31204
Maryanna Foskett	37807
Maryellen Ramsey	34608
Maryjo Malo	26547
Maryjo Malo	32725
MaryKay Rodarte	26029
Marylee Fahlstrom	33040
Marylee Kishel	34195
Marylou Graham	36210
Maryrose Cimino	26261
Maryse Vrambout	2832
Maryse Vrambout	52007
Masaru Oka	23358
Mason Arion	28403
Mathew Gallo	30431
Mathieu Linington	23187
Matt Baucco	31530
Matt Blackall	29457
Matt Boys	3652
Matt Boys	51750
Matt Briscoe	29982
Matt Brzezinski	26620
Matt Brzezinski	30066
Matt Dresbaugh	29717
Matt Fossum	33639
Matt Geer	35938
Matt Gregersen	31528
Matt Johnson	2697
Matt Johnson	24079
Matt Johnson	44621
Matt Johnson	48507

Sender Name	Submission ID
2 Sierra Club	
Matt Johnson	49497
Matt Johnson	51883
Matt LaPlante	35917
Matt Majka	24718
Matt Manzella	32124
Matt Marani	29896
Matt Maras	24772
Matt Mcentire	3517
Matt McEntire	21307
Matt McEntire	39663
Matt McEntire	48840
Matt McEntire	51002
Matt Mcentire	51680
Matt Roach	34835
Matt Shemluck	33871
Matt Slade	30945
Matt Stone	28198
Matthew Akins	27562
Matthew Alschuler	33163
Matthew Bohnenstiehl	29287
Matthew Boruta	27061
Matthew Boruta	32493
Matthew Brow	36049
Matthew Burton	33131
Matthew DeMars	28482
Matthew Duchek	23605
Matthew Finch	28794
Matthew Genaze	25102
Matthew Genaze	31253
Matthew Hamilton	30916
Matthew Harrison	24629
Matthew Iskra	29534
Matthew Karius	27706
Matthew Kubiak	28491
Matthew Lunn	27723
Matthew Mcdonough	48678
Matthew Moresi	29559
Matthew Rivers	24877
Matthew Robitaille	32258

Sender Name	Submission ID
2 Sierra Club	
Matthew Rosa	23851
Matthew Sandusky	30869
Matthew Schaut	3739
Matthew Schaut	26003
Matthew Schaut	29695
Matthew Schaut	51816
Matthew Scherer	35790
Matthew Shapiro	28715
Matthew Skinner	26045
Matthew Skinner	32578
Matthew Smith	23145
Matthew Thompson	34486
Matthew Traxler	29295
Matthew Vella	32623
Matthew Walker	29510
Matthew Weaver	35301
Matthew Weflen	3487
Matthew Weflen	51666
Matthieu Brillet	32976
Mattie Bowen	32732
Maud vanTol	28671
Maude Tiso	25045
Maude Tiso	25048
Maura Buckley	27176
Maura Buckley	30756
Maura Sage	29348
Maura Straczek	23433
Maureen & Kevin Mccarthy	28231
Maureen Augustine	29524
Maureen Augustine	29758
Maureen Gibson	34177
Maureen Grzanna	23893
MAUREEN GRZANNA	30671
Maureen Hicks	25373
Maureen Hunt	39673
Maureen Hunt	48850
Maureen Juracich, RN,BSN	31785
Maureen Kennedy	29780
Maureen Knutsen	25069

Sender Name	Submission ID
2 Sierra Club	
Maureen Lorenz	33853
Maureen McCormick	28218
Maureen Mccullough	3545
Maureen Mccullough	51695
Maureen Michael	28772
Maureen Paulson	36231
Maureen Peterson	33660
Maureen Sullivan	28031
Maureen Tollman	28907
Maureen Verwiel	29491
Maurice Llona	33626
mauricio carvajal	23845
mauricio carvajal	28456
Maurita Bernet	2844
Maurita Bernet	23066
Maurita Bernet	52016
Maverick Fisher	25913
Mavis Atkinson	29406
Mavis Atkinson	30618
Maxine Cannon	27862
Maxine Gere	32574
Maxine Young	28483
Maxxcell Higdon	34092
Maynard Mckillen	31433
Mckenzie Merges	48664
Meaghan Casey	27332
Meaghan Tierney	31726
Mecca Waychoff	34334
Meera Jaffrey	24840
Meera Pillai	24917
Meeshun Murchison	33287
Meg Doyle	34701
Meg Finerty	33036
Megan Adams	27270
Megan Fergus	32115
Megan Garrett	35506
Megan Klein	35905
Megan Knudson	21166
Megan Knudson	50964

Sender Name	Submission ID
2 Sierra Club	
Megan Martin	31930
Megan McKay	25897
Megan Mietelski	30047
Megan Steva	27952
Megan Steva	35614
Megan Warren	24285
Megan Warren	28623
Meghan Capulong	30705
Megon Preissig	35424
Mehdie Vakili	31167
Mehmet Genc	28824
Mel Cameron	25096
Mel Deluca	24361
Mel Stark	33440
Mel Steele	2846
Mel Steele	52020
Melanie Alexander	24137
Melanie Drolsum	33003
Melanie King	26659
Melanie Kohn	33333
Melanie Mcintyre	32059
Melanie Nelson	29788
Melbia Andrews	25428
Melinda Bimberg	23502
Melinda Fulop	30239
Melinda Mcdowell	31878
Melinda Moo	30263
Melinda Ramsey	23687
Melinda Scott	35673
Melinda Speidel	24703
Melissa Andolina	30733
Melissa Bayne	2872
Melissa Bayne	52069
Melissa Berkshire	31712
Melissa Bigger	29735
Melissa Black	31713
Melissa Boettner	33922
Melissa Brown	25100
Melissa Cathcart	2945

Sender Name		Submission ID
2 Sierra Club		
Melissa Cathcart		52084
Melissa Clapp		23983
Melissa Elbrecht		23814
Melissa Fleming		27894
Melissa Foster		27843
Melissa Foster		27845
Melissa Foster		27846
Melissa Gibbs		28709
Melissa Hirn		29495
Melissa Katterson		24711
Melissa Martinez		24048
Melissa Maynard		31078
Melissa Maynard		31269
Melissa Mazias		25727
Melissa Mazias		32910
Melissa Mcdonald		28259
Melissa Mcglone Farone		29907
Melissa McTague		26159
Melissa Noel		31051
Melissa Paepke		51618
Melissa Sampson		3460
Melissa Sampson		51652
Melissa Shaffer-O'Connell		23263
Melissa Shaffer-O'Connell		37870
Melissa Sheffer		33559
Melissa Sheldon		26534
Melissa Simmons		28045
Melissa Sisk		36086
Melissa Sisk		39397
Melissa Sisk		48705
Melissa Suarez		27299
Melissa Truman		35090
Melissa Zeck		39434
Melissa Zeck		48719
Melodie Huffman		23763
Melodie Huffman		35056
melodie martin		27466
Melody Tilton		33606
Melody Warman		24185

Sender Name	Submission ID
2 Sierra Club	
Melody Warman	24186
Melva Lacher	34187
Melva Meyer	27519
Melvin Strand	2990
Melvin Strand	52139
Melya Stylos	27609
Mercedes Hughes-Barlow	23840
Mercedes Lopez	27494
Mercy Myers	32110
Meredith Beck	34885
Meredith Derr	24390
Meredith Sampson	24793
Meredith Smith	25532
Meredith Tucker	34395
Meredith West	29864
Merelyn Dolins	25990
Meridith Morrison	36029
Meridith Schifsky	23881
Meridith Schifsky	24489
Meridith Schifsky	49483
Merissa Winter-Lisbeth	28471
Merle Bailey	28813
Merle Borchers	32989
Merle Cohen	35249
Merle Fossum	2992
Merle Fossum	52151
Merlin Hay	27361
Merrie Thornburg	31953
Merrill Cole	34258
Merry Ossenheimer	32714
Merry Stinson	25465
Meryle A. Korn	25971
Meya Law	26326
Mia Fiore	34113
Mia Greene Como	2746
Mia Greene Como	51930
Micaela Cleary	32644
Micah Stauffer	34824
MichÃ©le Meservey	32561

Sender Name	Submission ID
2 Sierra Club	
Michael & Judi Bucci	27794
Michael Alexander	33828
Michael Alexander	49055
Michael Anderson	34136
Michael Anderson	34931
Michael Basta	29237
Michael Beasley	35850
Michael Beckerman	29629
Michael Beise	3458
Michael Beise	51650
Michael Belill	28763
Michael Bellmore	32114
Michael Bennett	27821
Michael Berkowitz	26655
Michael Berkowitz	35330
Michael Beven	33054
Michael Blackburn	51574
Michael Blackburn	51575
Michael Blanford	2972
Michael Blanford	52097
Michael Brochstein	27675
Michael Browne	33619
Michael Bugbee	35058
Michael Burgess	26218
Michael Busich Sr	33386
Michael Butcher	32377
Michael Caldie	34143
MICHAEL CARPENTER	28987
Michael Carpenter	34386
Michael Carson	28501
Michael Chase	24533
Michael Clarke	27791
Michael Clausen	35888
Michael Cloud	25957
Michael Colle	32077
Michael Conway	34477
Michael Cornelissen	33319
Michael Cornelissen	35359
Michael Deliso	35131

Sender Name	Submission ID
2 Sierra Club	
Michael Denery	29944
Michael Denham	34530
Michael Diflora	28723
Michael Dinsmore	35085
Michael DuRussel	28416
Michael Durussel	36179
Michael Erickson	4605
Michael Erickson	22908
Michael Erickson	49455
Michael Erickson	51510
Michael Espinoza	30943
Michael Evans	27883
Michael Faile	29597
Michael Feran	27810
Michael Flora	35255
Michael Forster	35834
Michael Foss	47463
Michael Foss	47466
Michael Foss	48586
Michael Foss	48587
Michael Frys	23611
Michael Garcher	25908
Michael Glenetzke	30424
Michael Graczyk	31523
Michael Gruity	36026
Michael Guest	29134
Michael Gutleber	23381
Michael Hagstrom	3649
Michael Hagstrom	51751
Michael Hazynski	27689
Michael Heller	26694
Michael Henderson	27154
Michael Hires	35228
Michael Hulburt	27498
Michael Hulburt	35569
Michael Hume	29839
Michael Iltis	34798
Michael Jarrett	25829
Michael Jensen	33969

Sender Name	Submission ID
2 Sierra Club	
Michael John Smith	24943
Michael Johnson	33463
Michael Jones	35919
Michael K. Hampu	33835
Michael Karels	39819
Michael Karels	48923
Michael Keenan	27508
Michael Kempel	31206
Michael Kenny	31751
Michael Kerley	28735
Michael Kimmel	35338
Michael Kirkby	29482
Michael Kitchen	30580
Michael Klausing	24696
Michael Klein	27881
Michael Kluck	33524
Michael Knapp	27594
Michael Kwitt	33796
Michael Lahti	35532
Michael Lang	27193
Michael Lang	35606
Michael Lees	28582
Michael Lemay	39396
Michael Lemay	48707
Michael Lessard	33985
Michael Lessard	34015
Michael Letendre	24061
Michael Locklear	23313
Michael Londo	29088
Michael Lynch	33401
Michael Malaguti	27834
Michael Maley	32223
Michael Manowski	36082
Michael Markic	35636
Michael Marr	25389
Michael Martin	35287
Michael Materer	30350
Michael Maurer	26604
Michael McAllister	31651

Sender Name	Submission ID
2 Sierra Club	
Michael Mcclellan	28744
Michael McGinn	24883
Michael McGinn	41079
Michael McGrath	31843
Michael McMahan	25520
Michael McManus	28020
Michael Melincoff	35152
Michael Mikulka	29496
Michael Moe	2890
Michael Moe	52039
Michael Morrison	31328
Michael Mueller	36150
Michael Neuman	34730
Michael Nitsch	28843
Michael Nordin	24621
Michael Nutini	26121
Michael Obos	31168
Michael Obrecht	31396
Michael O'Brien	23940
Michael O'Brien	33590
Michael Orenstein	29826
Michael Owens	27141
Michael Pacheco	27479
Michael Page	31267
Michael Parson-McNamara	34132
Michael Pedrotte	25630
Michael Pedrotte	30912
Michael Pilon	34069
Michael Porter	30152
Michael Powell	35567
Michael Price	23156
Michael Price	30206
Michael Rahaman	35357
Michael Randall	27856
Michael Ranger	26197
Michael Rees	25062
Michael Reich	32867
Michael Reinhardt	30543
Michael Richey	28976

Sender Name		Submission ID
2 Sierra Club		
Michael Riley		28075
michael rizzo		31333
Michael Robertson		35562
Michael Roman		28410
Michael Rooyakkers		27602
Michael Ruehle		35665
Michael Ryan		24824
Michael Ryan		32562
Michael Salgat		29999
Michael Sandler		25980
Michael Santopietro		26294
Michael Sarver		27510
Michael Schmaus		28354
Michael Schmotzer		27017
Michael Schnitzius		32597
Michael Schramm		27107
Michael Seager		30228
Michael Seiler		31548
Michael Sheidler		25430
Michael Simons		27046
Michael Smith		32608
Michael Stabile		32833
Michael Stewart		35604
Michael Strimbu		27317
Michael Stuart		36281
Michael Surgeon		34196
Michael Terry		26423
Michael Tezla		36011
Michael Tomich		32512
Michael Toth		24513
Michael Tousignant		33774
Michael Tuten		30689
Michael Tye		30437
Michael Varichak		25685
Michael Verveer		23480
Michael Wahowske		30589
Michael Walker		33601
Michael Walker		49051
Michael Wallace		44536

Sender Name	Submission ID
2 Sierra Club	
Michael Wallace	48505
Michael Washenko	30842
Michael Watson	25294
Michael Watson	26975
Michael Webb	31494
Michael Weber	4293
Michael Weber	51525
Michael Weidert	33834
Michael Weise	32996
Michael Wells	32004
Michael Wildermuth	33987
Michael Willemsen	4231
Michael Willemsen	28750
Michael Willemsen	51522
Michael Willemsen	51554
Michael Williams	35916
Michael Wolfe	24475
Michael Wood	25877
Michael Wood	35130
Michael Woodley	35510
Michael Zavatsky	33982
Michael Zeller	32245
Michaeline Hade	28912
Micheal Westbrock	31000
Michel Collin	24910
Michel Pleau	28394
Michel Pleau	28395
Michela Giampetroni	30535
Michele Agney	25723
Michele Agney	31067
Michele Banks	25561
Michele Benson	30434
Michele Briehl	23268
Michele Briehl	32611
Michele Budica	23638
Michele Camilleri	31602
Michele Carrell	25737
Michele Haddock	26778
Michele Hathcock	24742

Sender Name		Submission ID
2 Sierra Club		
Michele Kunz		44210
Michele Kunz		48501
Michele Kunze		36058
Michele Laporte		29863
Michele Lucas		23034
Michele Morris		29827
Michele Phillips		35626
Michele Reynolds		34269
Michele Thomas		26354
Michele Villeneuve		24200
Michele York		32649
Michelle Anderson		3702
Michelle Anderson		34446
Michelle Anderson		51787
Michelle Atkinson		31262
Michelle Baumann		35653
Michelle Buerger		22956
Michelle Buerger		23338
Michelle Chumbley		25734
Michelle Diamantis		34440
Michelle Egan		28783
Michelle Finn		33548
Michelle Fisk		35214
Michelle Fournier		35728
Michelle Garber		6674
Michelle Garber		51506
Michelle Gobely		3627
Michelle Gobely		51735
Michelle Graham		28531
Michelle Groves		28536
Michelle Harvey		29432
Michelle Hayward		26336
Michelle Hayward		26649
Michelle Hodalj		33529
Michelle Hoff		23049
Michelle Hollis		26738
Michelle Jackson		34426
Michelle Kaufman		26066
Michelle Layer		30248

Sender Name	Submission ID
2 Sierra Club	
Michelle Lenz	31425
Michelle London	32704
Michelle Macy	24666
Michelle Marquise	35980
Michelle Martin	33219
Michelle Moore	28921
Michelle Proulx	24354
Michelle Raskovich	39922
Michelle Raskovich	39948
Michelle Raskovich	49024
Michelle Raskovich	49026
Michelle Rison	31296
Michelle Roen	32678
Michelle Rossee	23981
Michelle Rybka	33023
Michelle Rybka	33277
Michelle Schwartz	34104
Michelle Seyfarth	32272
Michelle Shaw	3532
Michelle Shaw	51687
Michelle Siekerman	35996
Michelle Tozer	28216
Michelle Walters	32456
Michelle Warren	32735
Michelle Weinberg	21309
Michelle Weinberg	51003
Michelle Wikette	30103
Michon Shinn	27149
Mickey Lauria	27239
Micki Stickford	25540
Miguel Gimenez	23191
Miguel Ramos	26757
Miira Allen	35365
Mike Albar	24710
Mike And Andrea Benco	30700
Mike And Jane Conrad	33137
Mike and Laurie Klecha	26607
Mike Brinkley	27773
mike burke	34546

Sender Name		Submission ID
2 Sierra Club		
Mike Carafelli		30545
Mike Cox		25708
Mike Dawkins		23447
Mike Dean		30265
Mike Dotson		35025
Mike Ernst		30660
Mike Ferguson		3741
Mike Ferguson		51820
Mike Fluge		25914
Mike Fricke		25416
Mike Glasheen		32404
Mike Hall		34327
Mike Hannum		30738
Mike Hansen		27778
Mike Hansen		33218
Mike Harrington		48623
Mike Harrison		27795
Mike Hartenberger		28596
Mike Hinshaw		24654
Mike Klabacka		32091
Mike Lehker		31474
Mike Long		24565
Mike M		30834
Mike Marach		33726
Mike McCartin		23816
Mike McCartin		23817
Mike McCartin		34111
MIKE Mcelwain		33164
Mike Meister		24271
Mike Milius		25675
Mike Mooney		34756
Mike Mulligan		26628
Mike Mulligan		28555
Mike Okumura		26892
Mike Paradise		29464
Mike Polk		26054
Mike Post		35795
Mike Raymond		23565
Mike Raymond		23580

Sender Name	Submission ID
2 Sierra Club	
Mike Reed	30765
Mike Toppe	23385
Mike Warner	32260
Mike Wilkens	26011
Mike Zolfo	30706
mikel classen	33697
Miklos Bosarge	30297
Mildred Leonard	29193
Mildred Willis	35049
Miles Lowry	29192
Miley, William	58021
Milford Jones	36021
Milla Khersonskaya	32066
Miller, Elizabeth W	58022
Milo Fabian	33753
Milton Bates	35140
Milton Davis	28147
Mimi Smith	34364
Mimi Wuest	30696
Mina Blyly-Strauss	29211
Mindy Clausing	35712
Ming Ong	28188
Minna Greene	35867
Miranda Vorhees	31561
Miriam Baum	26776
Miriam Gevinson	30212
Miriam Greenblatt	34569
Miriam Watts	25686
Mirna Velic	27102
Mirna Velic	31944
Miro Gal	32836
Misti Dunnuck	32343
Misti Schneider	31848
Misty Chung	32860
Misty Schultheis	33641
Mitch Multer	23286
Mitchell Cerrone	29205
Mitzi Frank	31833
Miya Jaglowski	30940

Sender Name	Submission ID
2 Sierra Club	
Mj Antonsen	2816
Mj Antonsen	51989
Mj Faris	28914
Mj Nieson	29130
Mj Van	35625
Mj Van	35860
Molly Jackson	25979
Molly Osborne	26461
Molly Powers	33498
Molly Schminke	22984
Mona Mehas	34602
Monaya Lund	2968
Monaya Lund	52135
Monica Brawdy	25413
Monica Brown	29227
Monica Corona	35393
Monica Craycroft	34716
Monica Evans	32894
Monica Glowinski	36280
Monica Hagen	25976
Monica Kuretza	25798
Monica Mansfield	30224
Monica McKay	51548
Monica O'Brien	33936
Monica Rosen	19904
Monica Rosen	49563
Monica Sanchez	23451
Monique Agia	22750
Monique Lowther	31720
Monique Musialowski	23751
Monique Musialowski	36218
Monte Gomke	23006
Monte Gomke	35812
Morton Baird	24297
Mr and Mrs John & Polly Wood	25475
Mr Dwight R Bary	26525
Mr Queerscout	30084
Munny Toor	26766
Muriel Cameron	29203

Sender Name	Submission ID
2 Sierra Club	
Muriel Mclemore	35724
Musgrave, Sarah	58029
Myles Robertson	23095
Myra Dewhurst	21839
Myra Perez	24628
Myrene O'Connor	23365
Myrna Felix	31423
Myrna Frankel	30284
Myron Mohr	35310
Myrtis Mixon	24444
Mytzi Rudolph	27391
N Hakanson	36180
N Jackson	28642
Nada Finn	28590
Nadejda Sitnikova	24689
Nadine Appel	32146
Nadine Vergilia	27253
Najma Razzak	31808
Nan Buckley	33799
Nan Margraves-Hoover	26283
nan stevenson	4224
nan stevenson	4334
nan stevenson	51519
nan stevenson	51534
Nance Longley	21164
Nance Longley	50962
Nanci Stabenow	33481
Nancy & Vernon Wedow	32491
Nancy Aiken	30558
Nancy Ajlouny	29260
Nancy Alcumbrack	28654
Nancy Armitstead	27693
Nancy Bahlman	33256
Nancy Beaman	27942
Nancy Beaven	26653
Nancy Bell	23305
Nancy Bliss	27806
Nancy Boggs	28215
Nancy Booth	27302

Sender Name		Submission ID
2 Sierra Club		
Nancy Bottorff		48624
Nancy Bradt		32303
Nancy Brandt		34659
Nancy Bush		32901
Nancy Bybee		33675
Nancy C Hernandez		31933
Nancy Campbell		31536
Nancy Carey		23689
Nancy Chapellier		24527
Nancy Claus		32435
Nancy Cole		30214
Nancy Cowger		33172
Nancy Crocetti		34400
Nancy Crowe		24240
Nancy Daniel		25690
Nancy Davis		32625
Nancy Davis		32633
Nancy Dawley		35855
Nancy De La Garza		28854
Nancy Deucker		34331
Nancy Dollard		25188
Nancy Dollard		29039
Nancy Fagerstrom		51609
Nancy Fannin		28561
Nancy Farris		26002
Nancy Florkowski		33176
Nancy Fox		28247
Nancy Fregin		28658
Nancy Garvey		22856
Nancy Gawryszewski		28005
Nancy Gray		23175
Nancy Grosfeld		34614
Nancy Hager		29236
Nancy Hale		2761
Nancy Hale		51945
Nancy Hartje		28693
Nancy Hartl		23024
Nancy Hartland		26149
Nancy Hauer		2720

Sender Name	Submission ID
2 Sierra Club	
Nancy Hauer	23001
Nancy Hauer	51904
Nancy Heaton	34909
Nancy Higgins	30802
Nancy Hilton	33380
Nancy Hines	25078
Nancy Hollis	32555
Nancy Hook	27266
Nancy Hubbard	46324
Nancy Hubbard	48550
Nancy Jarvis	35803
Nancy Jarvis	35937
Nancy Kaufmann	36186
Nancy Kenyon	24454
Nancy Kenyon	25094
Nancy King	23252
Nancy King	34739
Nancy King	34839
Nancy Kirk	26850
Nancy Kirwin	28916
Nancy Kneip	31377
Nancy Krempa	35167
Nancy L. Lutz	34017
Nancy Leiting	31350
Nancy Littell	21548
Nancy Long	3616
Nancy Long	51731
Nancy M. Kevelin	28404
Nancy Mallory	33764
Nancy Metz	27561
Nancy Miller	48863
Nancy Moldenhauer	35476
Nancy Montoure	30658
Nancy Moore	31901
Nancy Morris	35060
Nancy Moulden	39676
Nancy Moulden	48851
Nancy Newton	30704
Nancy O	26214

Sender Name		Submission ID
2 Sierra Club		
Nancy O'Neal		24418
Nancy Partin		31191
Nancy Partin		39675
Nancy Partin		48854
Nancy Paulsen		34491
Nancy Pawlen		34342
Nancy Pichiotino		30480
Nancy Poprafsky		30952
Nancy Robinson		23900
Nancy Rohde		28651
Nancy Rose		32164
Nancy Ryan		29948
Nancy Ryan		29951
Nancy Santori		27740
Nancy Seidler		30380
Nancy Seymour		2744
Nancy Seymour		51918
Nancy Shih-Knodel		2823
Nancy Shih-Knodel		51993
Nancy Sikkema		35851
Nancy Solberg		3614
Nancy Solberg		51733
Nancy Spaulding		27156
Nancy Stamm		27137
Nancy Stewart		31457
Nancy Taylor		25484
Nancy Taylor		26988
Nancy Thompson		26747
Nancy Thompson		29171
Nancy Valentyn		30002
Nancy Vandersys		23262
Nancy Vannurden		39640
Nancy Vannurden		48837
Nancy Vazquez		38570
Nancy Voss		34052
Nancy Weatherwax		23257
Nancy Weberg		34712
Nancy Weinberg		32215
Nancy Welbaum		29124

Sender Name	Submission ID
2 Sierra Club	
Nancy White	27550
Nancy Witter	34829
Nancy Wong	31791
nancy woolley	24291
Nancy Zebracki	25072
Nancy Zebracki	29786
Nanette Betts	36183
Nannette Wahrer	33998
Naomi Peck	33485
Naomi Rouse	36167
Narmadha Somasundaram	25864
Natalie Alexander	27450
Natalie Borovikoff	28336
Natalie Hanson	30960
Natalie Hendricks	23345
Natalie Hodapp	3014
Natalie Hodapp	52176
NATALIE JOHNSTON	24440
NATALIE JOHNSTON	28060
NATALIE JOHNSTON	28072
Natalie Klein	33285
Natalie Kovacs	26332
Natalie Plaza	24729
Natalie Van Leekwijck	27112
Natalie Watson	35402
Natasha Nicholson	30357
natasha salgado	30143
Nate Arthur	51593
Nate Scheibe	2781
Nate Scheibe	51959
Nathalie And Jim Diener	31376
Nathalie And Jim Diener	31401
Nathalie Camus	26626
Nathan Burnell	24569
Nathan Carroll	48614
Nathan Duin	30035
Nathan Hetrick	33468
Nathan Lou	24378
Nathan Ramsay	32241

Sender Name	Submission ID
2 Sierra Club	
Nathan Riding	36297
Nathan Roy	48869
Nathan Schaefer	24835
Nathan Sturycz	31886
Nathanael Secor	24184
Nathaniel Stauber	34732
Natividad Turner	25228
Natosi Johanna	26833
Naureen Spitzer	25509
Neal Talaska	29555
Ned Overton	23842
Nedra Nicholls	39421
Nedra Nicholls	43199
Nedra Nicholls	48482
Nedra Nicholls	48714
Neil Eisenberg	28425
Neil Gram	30730
Neil Kijek	35547
Neil Kozlowicz	23186
Neil Kozlowicz	49460
Neil Olson	33782
Neil Puckett	25842
Neil Roth	32933
Neil Woodward	32531
Nelleke Bruyn	25623
Nellie Scheffler	24837
Nelson Fluker	32956
Nelson Hebert	22983
Nena Miller	30180
Neocat Zone	28002
Neocat Zone	33280
Nettie Mcgee	30920
Nevena Barberi	26182
Nia Corlach	23945
Nic Caine	34469
Nic Caine	48932
Nic Caine	39827
nica lupabella	29607
Nicholas Craig	36253

Sender Name	Submission ID
2 Sierra Club	
Nicholas F Kolosci	28740
Nicholas Guy	23931
Nicholas Guy	33249
Nicholas Guy	49487
Nicholas Hennessy	30049
Nicholas Hughes	3724
Nicholas Hughes	51805
Nicholas Jacquez	35770
Nicholas Lenchner	26207
Nicholas Mouzourakis	29682
Nicholas Page	23489
Nicholas Pasqual	30893
Nicholas Sherman	26385
Nicholas Shipman	34700
Nicholas Thomas	34150
Nicholas Ullmann	28862
Nicholas Walz	35014
Nick Aho	33661
Nick Beck	30426
Nick Cohn	32816
Nick Colovos	32882
Nick Hood	23747
Nick Komic	35408
Nick Szumlas	27489
Nicki Cogar	28149
Nicki Malave	28445
Nickilee Greenwalt	3547
Nickilee Greenwalt	51694
Nicky O'Farrell	26907
Nicola Jaeger	23626
Nicole Auxier	35903
Nicole Blessing	29351
Nicole De Nardis	28528
Nicole Friend	30112
Nicole Hafemeyer	28788
Nicole Hamilton	29858
Nicole Hendrickson	2828
Nicole Hendrickson	52003
Nicole Hull	31330

Sender Name		Submission ID
2 Sierra Club		
Nicole Kulina		31294
Nicole Lazzeroni		23879
Nicole Lund		23373
Nicole Maschke		32603
Nicole McAtee		29837
Nicole Mcmanus		23766
Nicole Mussen		33809
Nicole Roberts		27257
Nicole Rouen		28277
Nicole Shaffer		27100
Nicole Smith		28799
Nicole Soos		25203
Nicolette Gascon		28711
Nikisha Ross		23769
Nikki Martin		24081
Nikki Mikusa		23862
Nikki Odehanl		33788
Nikki Shoulders		27679
Nils Anders Lunde		29603
Nils Lunde		29587
Nimia Rosa Montanez-Shipper		25065
Nina Domenico		34112
Nina Marana		32478
Nina Morales		31802
Nina Spelter		32369
Nissa Sandley		48629
Nita Graham		35342
Nitin Agarwal		23827
Nj Madison		28927
Nj Madison		28939
Nj Madison		29425
Nj Madison		29450
Nj Madison		29476
Nj Madison		29480
Noble Duncanson		24040
Noel & Jamie Lane		35913
Noel Jarvis		29038
Noel Wiedman		29310
noemie juvenielle		24182

Sender Name	Submission ID
2 Sierra Club	
Nola Blanchette	3786
Nola Blanchette	51855
Nola Hall	33751
Nora Davidoff	24106
Nora Fisher	32278
Nora Guedes	28872
Nora Hanson	24224
Nora Hanson	34168
Nora Kunz	26062
Nora Nell Hamburge	33207
Nora R. Enyart	32586
Nora Sharp	28839
Nora Walker	32514
Noreen Byatt-Grassi	23675
Noreen Lassandrello	35934
Noris Nunez	24170
Norm Damm	27953
Norm Damm	35358
Norm Hines	24606
Norm Kosky	27772
Norma Jean Falink	26911
Norma Jean Falink	35786
Norma Longo	24781
Norma May	30590
Norma Miller	30034
Norman Armer	25120
Norman Groetzinger	33511
Norman Haussner	25674
Norman Lathrop	31889
Norman Partington	27515
Norman Petrik	35943
Norman Regnier	24100
Normayne Day	29937
Norrice Vancamp	28083
Norrie Zaret	27040
Novelett Jensen	48803
Nya Chan	24708
Nyack Clancy	29015
Nzingha Masani-Manuel	32813

Sender Name	Submission ID
2 Sierra Club	
Oakey Pruett	27961
Obie Hunt	24664
Ohaodha, Levon T	58031
Oksana Becker	34558
Oleh Sydor	29942
Olga Kalfopoulou	23329
Olga Pope	28908
Olga Stewart	26476
Olga Topitges	34937
Oliver Genn	34601
Olivia Hart	24601
Olson, LeeAnn	58033
Olyme Moreno	26848
ondie james	29678
Oneida Arosarena	24839
Ordell Vee	2809
Ordell Vee	23800
Ordell Vee	49479
Ordell Vee	51984
Oriana Spizzo	35078
Orrin Sherwood	32668
Orva M Gullett	24117
Orva M Gullett	32284
Oscar Revilla Alguacil	24905
Oscar Tenorio-Leyva	28344
Osterdas, Ashley	58036
Owen Gustafson	2745
Owen Gustafson	51927
Owen Johnson	27767
Oxana Werbiansky	33508
P C	32722
P M	35240
P Mckenna	26615
P Naprstek	27814
P. Thomas	32242
P.S. Padula	25771
Palmer, Elisabeth A	58037
Paloma Jacinto	24984
Pam Abirached	28209

Sender Name	Submission ID
2 Sierra Club	
Pam Abirached	31091
Pam Duncan	28703
Pam Girtz	32639
Pam Hinrichs	25405
Pam Holy	26073
Pam Holy	32936
Pam Janka	28250
Pam Karpovich	28383
Pam Kmiec	28497
Pam Martin	3553
Pam Martin	51698
Pam Meyer	51561
Pam Nacci	32686
Pam Thinesen	33476
Pam Tullis	26012
Pam Wilbourn	31943
pam wright	29774
Pamela & Paul Hollenbeck	34459
Pamela Baker	28042
Pamela Breneman	23082
Pamela Carter	25843
pamela colony	25374
Pamela Cramer	28148
Pamela Cramer	30372
Pamela Esser	26567
Pamela Esser	33593
Pamela Feinsilber	26167
Pamela Garver	30707
Pamela Goers	26845
Pamela Gray	32023
Pamela Green	34166
Pamela Grieser	25615
Pamela Hayes	23258
Pamela Hemphill	27134
Pamela Hemphill	27160
Pamela Henjum	36220
Pamela Henjum	45726
Pamela Henjum	48541
Pamela Jambeck	29181

Sender Name		Submission ID
2 Sierra Club		
Pamela Jarvis		25622
Pamela Kersting		34612
Pamela Lamaster-Millett		29724
Pamela Levine		35464
Pamela Lohse		32179
Pamela Lohse		46424
Pamela Lohse		48551
Pamela Mccullock		26614
Pamela Miller		25492
Pamela Monks-Alvesteffer		30182
Pamela Murphy		33165
Pamela Nordhof		33863
Pamela Palencia		23415
Pamela Polizzi		23063
Pamela Reid		37846
Pamela Richmond		34993
Pamela Roll		31426
Pamela Scoville		27322
Pamela Shaw		33254
Pamela Stearley		28340
Pamela Stephens		22853
Pamela Teitelbaum		23114
Pamela Thompson		24420
Pamela Thompson		32469
Pamela Unger		29142
Pamla Ivie		33049
Panagiotis Rigopoulos		29571
Paolo Fattiboni		25558
Paolo Mario Tanchis		34443
Parker Schimler		28135
Pat Andler		29725
Pat Andring		23466
Pat Andring		30160
Pat Bergh		47498
Pat Bergh		48595
Pat Boggess		27526
Pat Brown		34035
Pat Combs		29563
pat fillmore		41063

Sender Name	Submission ID
2 Sierra Club	
pat fillmore	49093
Pat Forsberg-Smith	34293
Pat Gottschalk	36176
Pat Graves	29728
pat griffey	23202
Pat Hawthorn	24490
Pat Heckel	29686
Pat Johnson	29732
Pat Jorczak	26736
Pat Marida	31949
Pat Marrone	24063
Pat McDermott	27381
Pat Mcgrath	24245
Pat Mcgrath	29993
Pat Metsinger	24389
Pat Mikesell	34180
Pat Nelson	23891
Pat Nudd	48988
Pat Racklyeft	23993
Pat Rollo	27833
Pat Shannahan	32075
Pat Spray	27150
Pat Stevesand	2886
Pat Stevesand	52053
Pat Trahan	30255
Pat Walsh	35906
Patrice Cole	29503
Patrice Eller	25678
patrice faulhammer	29539
Patrice Hedlund	30159
Patrice Hundstad	48967
Patricia and Bernard Cooney	33786
Patricia Anderson	24818
Patricia Anderson	35446
Patricia Armstrong	28901
Patricia Auer	23538
Patricia Barnes	25402
Patricia Bartow	32227
Patricia Berge	23649

Sender Name		Submission ID
2 Sierra Club		
Patricia Berna		33341
Patricia Boll		27570
Patricia Bouton		34694
Patricia Brady		24020
Patricia Brenner		24909
Patricia Brooks		35983
Patricia Brown		27864
Patricia Canterbury		31993
Patricia Caraballo		24068
Patricia Cardoso		27788
Patricia Carey		27360
Patricia Carlisle		37850
Patricia Chang		29280
Patricia Cole		27088
Patricia Cox		23791
Patricia Denny		29463
Patricia Denny		29467
Patricia DeZur-Ahola		27957
Patricia Dion		32085
Patricia DiRienzo		24705
Patricia Donnelly		30929
Patricia Dostalek		34886
Patricia Eynon		24207
Patricia Fleming		24508
Patricia Foxall		31169
Patricia Fuller		47497
Patricia Geraghty		30941
Patricia Gilchrist		24979
Patricia Gilliland		26236
Patricia Gilmore		31597
Patricia Gray		32291
Patricia Greenwald		33742
Patricia Haumann		32238
Patricia Haupt		23907
Patricia Hewitt		32777
Patricia Howie		34371
Patricia Hung		28722
Patricia J. Ortman		34159
Patricia Jenkins		2795

Sender Name	Submission ID
2 Sierra Club	
Patricia Jenkins	26164
Patricia Jenkins	51974
Patricia Jerrells	25920
Patricia Jesperson	44859
Patricia Jesperson	48513
Patricia Jessup	35362
Patricia Jose	30396
Patricia Kerst	35936
Patricia Klaeren	25807
Patricia Knol	26515
Patricia Knol	32920
Patricia Lafuente	27698
Patricia Lange	3679
Patricia Lange	51767
PATRICIA LAVATO	24626
Patricia Lent	26895
Patricia Lent	33301
Patricia Liddington	29842
Patricia Linna	23535
Patricia Loverink	35603
Patricia Loverink	48876
Patricia Lull	32212
Patricia Maguire	32858
Patricia Makowski	48804
Patricia Maryniak	29143
Patricia Mccormick	32984
Patricia McGann-Zionts	31252
Patricia Mcnabb	39947
Patricia Mcnabb	49022
Patricia Messing	31859
Patricia Messing	32526
Patricia Messing	32534
Patricia Moffett-Ward	28508
Patricia Moses	30472
Patricia Mrazek	34051
Patricia Muhleman	28832
Patricia Mulcahy	48985
Patricia Nadreau	35406
Patricia Neal	29268

Sender Name		Submission ID
2 Sierra Club		
Patricia Nelson		49057
Patricia Nichols		25071
Patricia O'Neil		25477
Patricia Opaskar		31619
Patricia Orth		36277
Patricia Pardun		31150
Patricia Parker		26600
Patricia Pesko		23672
Patricia Peters		30906
Patricia Pingitore		30540
Patricia Pool		35312
Patricia Popple		35217
Patricia Pruitt		30917
Patricia Quast		34744
Patricia Rabin		24709
Patricia Ridgley		28876
Patricia Rowell		23209
Patricia Schmitz		29285
Patricia Seeley Hadley		29507
Patricia Shultis		30250
Patricia Sieber		31479
Patricia Siri		24750
Patricia Siri		33191
Patricia Skonberg		29384
Patricia Smith		23280
Patricia Smith		32993
Patricia Sobczak		31323
Patricia Solana		24723
Patricia Stamm		35628
Patricia Stevenson		28139
Patricia Stevenson		34348
Patricia Stock		33586
Patricia Strauss		23475
Patricia Taylor		24393
Patricia Taylor-Romero		33694
Patricia Teeft		26416
Patricia Tomlinson		24685
Patricia Vandusen		27557
Patricia Vazquez		25250

Sender Name	Submission ID
2 Sierra Club	
Patricia Webb	28133
Patricia Wiley	34433
Patricia Yax	35789
Patricia Zook	30086
Patricia Zook	28815
Patrick & Kim Mcarthur	32399
Patrick Bonner	24290
Patrick Brack	36184
Patrick Delaney	34793
Patrick Dockins	31342
Patrick Dunlap	31533
Patrick Hibbert	28904
Patrick Keenan	30807
Patrick Keiser	35518
Patrick Kilbane	31210
Patrick Lewis	27353
Patrick Litzinger	33700
Patrick Lorkiewicz	32368
Patrick Martin	30773
Patrick Martin	32125
Patrick May	35528
Patrick McAdaragh	28408
Patrick Mccarthy	31950
Patrick Murray	31805
patrick Needham	48797
Patrick Niese	30185
Patrick O'Harris	35654
Patrick Raines	29806
Patrick Rowland	25336
Patrick Sabol	31755
Patrick Schilling	26224
Patrick Schneider	31447
Patrick Stommen	31677
Patrick Wells	38310
Patrick Zalusky	35857
Patsy McMahon	29527
Patte Thomas	34972
Patti Batchelder	23685
Patti Batchelder	23688

Sender Name	Submission ID
2 Sierra Club	
Patti Clancy	29166
Patti Fink	33769
Patti Garvin	30753
Patti Lechmaier	29657
Patti Mitchell	30528
Patti Orley	24144
Patti Thomsen	31539
Pattie Overstreet	36044
Patty Barga	35189
Patty Bracey	2840
Patty Bracey	52011
Patty Fenske	29368
Patty Haley	25119
Patty Kirkpatrick	28036
Patty Kowalczyk	35725
Patty NIester	38354
Patty Ridenour	27939
Patty Weyhrich	23106
Paul & Barbara Noeldner	33335
Paul & Debra Skup	28748
Paul & Virginia Shanabarger	29808
Paul and Gail Lindfors	3676
Paul and Gail Lindfors	51766
Paul Balthazor	26125
Paul Beckman	34755
Paul Benda	22284
Paul Benda	28819
Paul Bennett	25576
Paul Bing	31201
Paul Bisek	31897
Paul Brooks	34894
Paul Cocoanto	33879
Paul Cooper	30144
Paul Cranmer	29617
Paul Crumb	36175
Paul Derezinski	35962
Paul Dombrowski	32470
Paul Dougherty	26769
Paul Dyer	35629

Sender Name	Submission ID
2 Sierra Club	
Paul Feldman	32050
Paul Flansburg	27140
Paul Flynn	24276
Paul Garding	21161
Paul Garding	50959
Paul Goff	25728
Paul Gregg	32436
Paul Griner	27199
Paul Griner	28863
Paul Hackner	34597
Paul Hansen	26541
Paul Hanson	3663
Paul Hanson	51760
Paul Harcey	48826
Paul Heffron	2737
Paul Heffron	51924
Paul Hehn	26944
Paul Hills	35172
Paul Hoernig	32872
Paul Iddings	32992
Paul Jehle	38259
Paul Kahne	27421
Paul Koepke	34616
Paul Leyva	23265
Paul Lofquist	31831
Paul Lofquist	39931
Paul Lofquist	49000
Paul Lorinser	3569
Paul Lorinser	51708
Paul Love	30901
Paul Love	39677
Paul Love	48853
Paul Lubenkov	36050
Paul M. Boggs	27673
Paul Marcussen	26322
Paul Markillie	34058
Paul McCue	31180
Paul Mccullough	35818
Paul Melamed	27596

Sender Name		Submission ID
2 Sierra Club		
Paul Mellor		28698
Paul Meyer		30742
Paul Millard		26447
Paul Moser		30831
Paul Moss		29853
Paul Palla		24555
Paul Podemski		30963
Paul Podemski		39953
Paul Podemski		49028
Paul Pratt		28978
Paul Punkay		33007
Paul Rupright		29700
Paul Rusk		30120
Paul Rusk		30142
Paul Safr		33346
Paul Shoun		34081
Paul Shuck		33773
Paul Sorensen		34191
Paul Szymanowski		27620
Paul Szymanowski		31565
Paul Tippery		25178
Paul Uecker		2899
Paul Uecker		52075
Paul Wilberg		3699
Paul Wilberg		51785
Paul Wilkins		27755
Paula & Norman Fox		3635
Paula & Norman Fox		51743
Paula Alameda		26773
Paula Allmaras		25802
Paula Allmaras		29131
Paula Brown		23469
Paula Connolly		2870
Paula Connolly		52073
Paula Denissen		25433
Paula Fischer		32018
Paula Goff		23923
Paula Hargraves		25655
Paula Kwakenat		28881

Sender Name	Submission ID
2 Sierra Club	
Paula Mcminn	26729
Paula Millikin	28462
Paula Mullin	32599
Paula Nessel	35339
Paula Nessel	35390
Paula Picchietti	34287
Paula Pickerill	29387
Paula Plasky	31644
Paula Shannon	26910
Paula Stelzer	32322
Paula Willey	34953
Paula Zerzan	27543
Paulette Corona	2755
Paulette Corona	51937
Paulette Speed	31964
Paulette Zimmerman	26492
Paul-henri ARGENCE	38151
Paulina Mccallum	31559
Pauline Mcgowan	32854
Pauline Paranto	27615
Pauline Szymanski	30488
Pauline Thomas-Brown	23977
Pauline Wahlquist	48692
Pauline Wittry	35858
Paulo Hehn	24889
Pavel Skaldin	26424
Pawel C	24876
Paxton Robinson	23700
Pearl Friend	32997
Pedro Hernandez	27093
Pedro Rodriguez	38309
Peg Endres	34905
Peg LeClair	23860
Peg Unger	34702
Peg Witek	24031
Peggy Bergen	31278
Peggy Coon	33785
Peggy Drake	33718
Peggy Enokian-Mason	23727

Sender Name		Submission ID
2 Sierra Club		
Peggy Fry		32378
Peggy Gheta		33412
Peggy Goldberg		27324
Peggy Heisel		30324
Peggy Hutchinson		34294
Peggy Keller		26348
Peggy Kelly		26298
Peggy Kircher		39639
Peggy Kircher		48839
Peggy Latozas		25344
Peggy Malnati		27242
Peggy Malnati		29504
Peggy Moody		27279
Peggy Sannerud		2827
Peggy Sannerud		52000
Peggy Schramm		33484
Peggy Simon		26891
Peggy Simon		34695
Peggy Sorenson		29339
Peggy Yeargain-Williams		26370
Penelope Prochazka		22711
Penelope Thompson		36104
Penn Bowen		31945
Penny Clark		34021
Penny Hanna		32972
Penny Hon		2985
Penny Hon		52171
Penny Larrett-Earl		25982
Penny Magnin		28290
Penny Stjohn		25827
Penny Swan		24448
Penny Warren		35073
Peppi Enos		3779
Peppi Enos		51853
Perry Johnson		26180
Perry Johnson		31176
Perry Phillips		36096
Pesky Brewer		29785
Petar Rogic		28355

Sender Name	Submission ID
2 Sierra Club	
Pete Durso	29722
Pete Harding	26458
Pete Harvey	23103
Pete Morabito	36212
Pete Seng	48679
Pete Wade	27908
Pete Wehle	30973
Peter & Linda Bertoncini	31665
Peter Addington-White	24218
Peter Alexander	27751
Peter and Dorothy Marks	28538
Peter Ayres	30317
Peter Balchunas	32690
Peter Breyfogle	34509
Peter C. Frazer Sr.	29905
Peter Costales	28313
Peter Craig	34044
Peter Criss	26418
Peter Dempsey	31270
Peter Eriksson	35759
Peter Faure	34218
Peter Friend	28051
Peter Glick	33727
Peter Gove	4709
Peter Gove	51514
Peter Gunther	27175
Peter Gunther	35999
Peter Hansen	31608
Peter Hood	30358
Peter Izquierdo	33093
Peter Jarvis	2705
Peter Jarvis	23664
Peter Jarvis	49474
Peter Jarvis	51894
Peter Kuttner	29720
Peter Kwass	27990
Peter Lee	34828
Peter Lehnert	27034
Peter Lehnert	34300

Sender Name		Submission ID
2 Sierra Club		
Peter Levites		32471
Peter Lundell		24625
Peter Mazza		28692
Peter Molenaar		36182
Peter Rubin		23134
Peter Schafer		28793
Peter Schultz		35590
Peter Schwich		32418
Peter Scott		28461
Peter See		31112
Peter See		48941
Peter See		39823
Peter Smead		48628
Peter theis		22998
Peter Theis		23099
Peter Tijerina		29830
Peter Weinelt		23930
Peter Wilkin		25820
Peter Williams		35837
Peter Worley		23837
Peter Xiong		30826
Peter Yackel		3518
Peter Yackel		51679
Petra Hays		23169
Petra Jaerling		27114
Petra Stang		24859
Petri, Janet		58040
Pewter Katts		30642
Pewter Katts		48734
Peyton Morris		30007
Phil Alward		29252
Phil Anastasi		29455
Phil James		29902
Phil Pierron		31239
Phil Proctor		23342
Phil Weinstein		26113
Phil Willis		28647
Phil Wolfe		22910
Philene Lortz		35952

Sender Name	Submission ID
2 Sierra Club	
Philip A. Gonzales	3686
Philip A. Gonzales	51773
Philip and Patricia Woollcott	33024
Philip Aulson	23397
Philip Burkholder	34859
Philip Cucchiara	35052
Philip De Vos	28047
Philip Kerler	3710
Philip Kerler	51800
Philip Kritzman	32770
Philip Melcher	36206
Philip Morais Jr	25434
Philip Ratcliff	24003
Philip Ricketts	2684
Philip Ricketts	51878
Philip Roberts	34666
Philip Strickland	28377
Philip Troxler	25693
Philip Young	34151
Philipp Eixeres	26699
Philipp Eixeres	34093
Phillip Callaway	27387
Phillip Goodsey	31809
Phillip Hatfield	27378
Phillip Hope	26155
Phillip Jr. & Margaret A. Buccini	26367
Phillip Jr. & Margaret A. Buccini	33214
Phillip Lawrence	28146
Phillip Lawrence	30907
Phillip Lewis	34098
Phillip McMurray	27167
Phillip Mertz	23936
Phillip Mintz	31942
Phillip Mixon	27855
Phillip Wilmore	32838
Phillip Wochner	29705
Phyllis Abrahamsen	31976
Phyllis Bleck	24392
Phyllis Bleck	33889

Sender Name	Submission ID
2 Sierra Club	
Phyllis Cooper	29216
Phyllis Donovan	28733
Phyllis Earl	32612
Phyllis Erwin	25604
Phyllis Hall	24268
Phyllis Haseleu	32666
Phyllis Jenkins	32232
Phyllis Kaplan	35946
Phyllis Keun	35258
Phyllis Lefebvre	22799
Phyllis Martinez	32054
Phyllis Park	31310
Phyllis Pfund	30037
Phyllis Saliture	34641
Phyllis Skinner	23104
Phyllis Solon	21141
Phyllis Solon	50948
Phyllis Tierney	28786
Pierre Aterianus	34935
Pieter Fockens	26503
Pilar Maza	23635
Pisani Claudia	34411
Pj Lytle	35193
Pk Doyle	31828
Pogle Stowell	28706
Poonam Ananda Kumara Kirthi	24944
Prakaash Divecha	25018
preeti yonjon	45312
preeti yonjon	48530
Prem Mulberry	28826
Prem Mulberry	31128
Preston Doyle	3704
Preston Doyle	51781
Preston Meyers	31773
Priscilla Massie	29028
Priscilla Massie	29922
Priscilla Massie	29923
Priscilla Weber	26559
Prof. J. Stewart	32460

Sender Name	Submission ID
2 Sierra Club	
Qian Zheng Yi	27143
Qiyuan Zhou	35715
Quentin Stephens	29258
R A Fuller	28589
R Foreman	27074
R K	29312
R Levy	33891
R Martire	25763
R Norkoli	34926
R Peter Carey	34547
R Susan Woods	27937
R Teresa Best	30270
R Vencill	26080
R. Fitzgerald	2666
R. Fitzgerald	51864
R. Terry Lyon	29179
Rachael Collyer	29931
Rachael Collyer	29943
Rachael Moore	29781
Rachael Pappano	24554
Rachael Pappano	29420
Rachael Starkovich	32650
Rachel Cilley	23274
Rachel Cruickshank	34945
Rachel Dettleff	25391
Rachel Fuller	35627
Rachel Harris	28414
Rachel Jones	23765
Rachel Mcguire	29017
Rachel Myers	33506
Rachel Pickering	23500
Rachel Raimi	32955
Rachel Rausch	48896
Rachel Seltz	33065
Rachel Skumanich	24408
Rachel Stipano	22811
Rachel Swedowski	30873
Rachel Wales	35347
Rachell Tillman	27036

Sender Name	Submission ID
2 Sierra Club	
Rachelle Guse	30718
Rachelle Harper	33968
Radko Vacek	35447
Raeann Scott	24317
Raechel Descombaz	34080
Raechel Murphy	36146
Rafael Albarran	31708
Rafael Custodio	33423
Rafael Perales	31823
Ragini Rai	24870
Rahela Habazin-Ljubanic	31298
Rain Koepke	28713
Rajat Bhatt	32614
Ralph Bekker	24394
Ralph Bekker	32544
Ralph Bernstein	31025
Ralph Collier	34036
Ralph Cope	34841
Ralph Lizo	27384
Ralph Paulsen	25742
Ralph Pifer	30709
Ralph Raack	35740
Ralph Saultz	24460
Ralph Tuscher	35976
Ralph Ward	23540
Ram Nair	30438
Ramon Trumbull	32177
Ramona Blankinship	27274
Ramona Kopnick	3744
Ramona Kopnick	51824
Rana Belshe	36016
Rand Friedenfels	30348
Randa Quale	33478
Randall Bergerud	25948
Randall Douglas	2751
Randall Douglas	51932
Randall Hilscher	34231
Randall Nord	26638
Randall Paske	24036

Sender Name	Submission ID
2 Sierra Club	
Randall Petersen	33419
Randall Streier	3690
Randall Streier	51776
Randall Thomson	21245
Randall Thomson	50985
Randall Tomlinson	30459
Randel Nilsson	28958
Randi Holt	23450
Randolph Gyulay	35799
Randy Derhammer	23491
Randy Ferrell	34821
Randy Haas	30905
Randy Howe	24563
Randy Howe	35095
Randy O'Connell	31066
Randy Ragon	32962
Randy Tutterow	33264
Rani Peck	26074
Rashida Basrai	25743
Raveling, Marilyn	58041
Rax Green	24548
Ray And Joan Durrance	36031
Ray Chavez	26771
Ray Crittenden	29224
Ray Decker	32654
Ray Dombrowe	2771
Ray Dombrowe	51952
Ray Frankum	25372
Ray Hale	33787
Ray Keltz	26075
Ray Keltz	30935
Ray Koferl	27051
RAY Peters	23386
Ray Rodney	27663
Ray Roman	34924
Ray West	34489
Raya Cooper	35576
Raymond & Christine Gicela	30371
Raymond & Sandra Bissonnette	32348

Sender Name	Submission ID
2 Sierra Club	
Raymond Allen	27435
Raymond Asomani-Boateng	48687
Raymond Bibzak	31550
Raymond Bruns	33957
Raymond Corujo	36025
Raymond Deluca	26395
Raymond Eberhardt	31203
Raymond Gettins	30491
Raymond Gunn	34573
Raymond Intemann	25975
Raymond Juracek	27427
Raymond Keeling	32093
Raymond Litzsinger	34325
Raymond Murphy	32328
Raymond Person	34930
Raymond Szumal	29200
RB Archer	29529
Reagan Pratt	32438
Rebecca & John Gaertner	47499
Rebecca & John Gaertner	48596
Rebecca Armstrong	26435
Rebecca Berlant	26878
Rebecca Branham	2694
Rebecca Branham	51887
Rebecca Brodie	29334
Rebecca Brookman	33205
Rebecca Buell	24853
Rebecca Cooper	31603
Rebecca Crise	33427
Rebecca Dameron	27532
Rebecca Dameron	27545
Rebecca Ericson	26486
Rebecca Fields	27396
Rebecca Freund	35586
Rebecca Hanscom	34876
Rebecca Hausmann	29399
Rebecca Hessinger	26245
Rebecca Holzer	25874
Rebecca Kane	35622

Sender Name	Submission ID
2 Sierra Club	
Rebecca Katzenmeyer	33684
Rebecca Kerr	4313
Rebecca Kerr	51527
Rebecca Kerr	51528
Rebecca Kosar	33930
Rebecca Kraimer	26185
Rebecca Lagesse	32902
Rebecca Lillie	35091
Rebecca Lystig	33370
Rebecca Noonan	32401
Rebecca Oglesby	26526
REBECCA ORMAN	21220
REBECCA ORMAN	50976
Rebecca Rea	23020
Rebecca Reed	30812
Rebecca Richey	25296
Rebecca Ruge	32325
Rebecca Rusk	28734
Rebecca Schwutke	26015
Rebecca Shedd	30038
Rebecca Shockley	2732
Rebecca Shockley	51921
Rebecca Slisher	28850
Rebecca St Clair	34955
Rebecca Taylor	31196
Rebecca Voelkel	39403
Rebecca Voelkel	48710
Rebecca Weiss	23564
rebecca wetz	31846
Rebekah Jorgensen	30178
Reckdahl, Martha	58042
Reed Oliver	33398
Reem Haddad	26181
Reevyn Aronson	27658
Regina Divozzo	35754
Regina Gigowski	25825
Regina Gigowski	31872
Regina Koran	30739
Regina Meighan	30919

Sender Name	Submission ID
2 Sierra Club	
Regina Wilhelm	25359
Remy Goglio	24931
Rena Levin	27922
Renae Bowman	23472
ReNae Nowicki	26662
Renata Krempl	33330
Renata Leite Pitman	33196
Rene Hoeve	26053
Rene LaFleur	24875
Renee Bennett	2750
Renee Bennett	51931
Renee Emrick	28086
Renee Emrick	32149
Renee Gregory	25747
Renee Gregory	29231
Renee Gussman	35244
Renee Jacobs	25193
Renee Joos	32192
Renee Keller	51584
Renee Kermeen	25570
Renee Landuyt	27278
Renee Landuyt	30433
Renee Lewis	25431
Renee Liefke	28884
Renee Mann	35034
Renee Peters	38677
Renee Reece-Murray	33471
Renee Reece-Murray	49075
Renee Schweitzer	34140
Renee Vincent	24948
Rev Curt Miner	35306
Rev. Gordon Hills	29396
Rev. Matt Johnson	21243
Rev. Matt Johnson	50984
Rev. Mike Glockner	23192
Rev.Frederic Potter	30678
Reva Youngstein	26028
Rex Ramsay	32601
Rex Yankee	26813

Sender Name	Submission ID
2 Sierra Club	
Reynaldo Hernandez	28600
Reynold And Ann Frutkin	31827
Rhiannon Hilliard	35156
Rhiannon Watkins	23825
Rhoda Nussbaum	27198
Rhoda Sharpee	32914
Rhonda Churchill	23057
Rhonda Feuerstein	4331
Rhonda Feuerstein	51533
Rhonda Grewe	29843
Rhonda Hills	32337
Rhonda Holt	29734
Rhonda Lawford	29283
Rhonda Lawford	31089
Rhonda Winn	35557
Rhonda Zart	32472
Ricardo Hernandez	24315
Rich Bachman	2978
Rich Bachman	52149
Rich C	25055
Rich Femling	48665
Rich Fiorella	36276
Rich Grover	26284
Rich Grzywacz	35165
Rich Minster	36004
Rich Novosel	32538
Rich Ranieri	22925
Rich Rastetter	30088
Rich Ray	29313
Rich Runk	34182
Rich Surdyk	25866
Richard & Shirley Ackman	3414
Richard & Shirley Ackman	51629
Richard Abel	31772
Richard Amey	49036
Richard And Pamela Lindahl	23299
Richard And Pamela Lindahl	49463
Richard and Shirley Culp	34391
Richard Antonacci	35899

Sender Name		Submission ID
2 Sierra Club		
Richard Armstrong		32431
Richard Aukerman		24976
Richard Barron		34956
Richard Bartkowicz		31769
Richard Bathje		35272
Richard Bergeron		2938
Richard Bergeron		52128
Richard Bernardoni		28859
Richard Bohr		27729
Richard Booth		32033
Richard Boss		22882
Richard Boyce		32340
Richard Boyum		26533
Richard Brennan		34927
Richard Brouillet		35144
Richard Brown		26994
Richard Brunsberg		26433
Richard Byers		32651
Richard Capiccioni		32365
Richard Carlson		29293
Richard Carlson		48742
Richard Churray		27971
Richard Cichon		30428
Richard Crawford		31452
Richard Cross		32251
Richard Csorba		35220
Richard Curtis		31909
Richard Davis		33143
Richard Dilley		33103
Richard Dimatteo		27414
Richard Donnelly		24373
Richard Donnelly		28883
Richard Doughty		26643
Richard Draper		36040
Richard Dunn		24346
Richard Ede		33631
Richard Elvey		34997
Richard Ettlinger		31605
Richard Fabio		24374

Sender Name	Submission ID
2 Sierra Club	
Richard Ferris	34882
Richard Fish	3434
Richard Fish	51639
Richard Frase	48857
Richard Fuller	25765
Richard G Scoby	35568
Richard Gawthrop	32706
richard giacomoni	25642
Richard Gibbs	33258
Richard Glinski	23021
Richard Greene	24648
Richard Hall	34084
Richard Hauxwell	35974
Richard Heinlein	29190
Richard Helstern	34966
Richard Helton	24133
Richard Hieber	26353
Richard High	33372
Richard Hjort	28965
Richard Hjort	48772
Richard Holcomb	52213
Richard Holcomb	52214
Richard Hurlburt	23712
Richard Jarvis	34095
Richard Johnson	25269
Richard Johnson	27204
Richard Jones	26562
Richard Kelley	29872
Richard Kern	33971
Richard Kielpikowski	30847
Richard Kite	27201
Richard Lamb	34519
Richard Laubhan	26493
Richard Laubhan	30551
Richard Lee	35080
Richard Livingston	29674
Richard Macon	27205
Richard Masur	34065
Richard Mc Govern	2822

Sender Name	Submission ID
2 Sierra Club	
Richard Mc Govern	51999
Richard Mc Lain	35893
Richard Mcmanus	26821
Richard Meyer	33531
Richard Miller	30875
Richard Mogavero	26265
Richard Monarch	27970
Richard Monasky	31709
Richard O'Connor	23602
Richard Osborne	35334
Richard Owens	34914
Richard Patten	2722
Richard Patten	51907
Richard Perras	27580
Richard Peterman	35292
Richard Peterson	23127
Richard Peterson	32532
Richard Phillips	23552
Richard Phillips	29652
Richard Prochowski	35516
Richard Ray	25331
Richard Remmler	30442
Richard Rider	33338
richard Robinson	25694
Richard Rowe Jr.	32403
Richard Salge	2749
Richard Salge	51933
Richard Sanchez	33118
Richard Scheiberle	34418
Richard Schoemer	35753
Richard Scoles	25758
Richard Shepard	25043
Richard Shook	23829
Richard Skrzynecki	24158
Richard Smith	32421
Richard Smith	36100
Richard Smythe	33383
Richard Sposit	33343
Richard Spyhalski	34253

Sender Name	Submission ID
2 Sierra Club	
Richard Stark	29954
Richard Stern	25688
Richard Stolz	24345
Richard Strain	29973
Richard Strain	29981
Richard Stuckey	27591
Richard Taylor	2910
Richard Taylor	52079
Richard Unger	32932
Richard Van Aken	27567
Richard Venables	32817
Richard Vultaggio	27692
Richard Watson	25537
Richard Wiley	29706
Richard Williams Iii	28776
Richard Wulliger	27785
Richard Yoakam	32821
Richardson Bentley	35254
Rick Anderson	35311
Rick Barrett	25650
Rick Brigham	35530
Rick Canning	33761
Rick Chamberlin	35416
Rick Dahn	34543
Rick Deihl	30570
Rick Diehl	27868
Rick Gardner	30876
Rick Gordon	27121
Rick Gorud	35655
Rick Houston	30586
Rick Hughes	23982
Rick Hughes	49492
Rick Johnson	34816
Rick Lanham	25773
Rick Luttmann	26523
Rick Ohm	30843
Rick Redfield	36222
Rick Roche	28719
Rick Schomaker	33050

Sender Name	Submission ID
2 Sierra Club	
Rick Sklader, VRC	2679
Rick Sklader, VRC	51877
Rick Steigelman	31639
Rick Thompson	36115
Rick Turner	35522
Rick Valko	32891
Rickey Cornell	31968
Ricki Newman	25089
Ricki Newman	31798
Ricky Emery	33104
Ricky Moore	24724
Ricky Sweet	25813
Ricky Taylor	26528
Ricky Taylor	32226
Riley Mackey	28421
Rina Malerman	27213
Ripal Patel	34358
Rita And Dick Skinner	28273
Rita Bogolub	35808
Rita Boone	31657
Rita Canada	26610
Rita Hale	28366
Rita Hale	28370
rita iacarella	3442
rita iacarella	51642
Rita Kain	28655
Rita Meuer	29664
rita persichetty	27096
Rita Whitley	23606
RJ Crawford	35274
R-J Zaczyk	27209
Rm Lewis	32420
Rob Englund	31783
Rob Galler	29382
Rob Jackson	24154
Rob Jackson	49511
Rob Jenkin	33973
Rob Samuelson	31156
Rob Unverricht	33179

Sender Name	Submission ID
2 Sierra Club	
Robb Mottl	32243
Robert & Catherine Miller	32871
Robert Alfeld	33234
Robert Allen	3613
Robert Allen	51729
Robert Allington	35565
Robert and Eugenia Walsh	33405
Robert And Jennie Baker	25970
Robert And Paula Lund	3489
Robert And Paula Lund	51663
Robert Anderson	34527
Robert Bacon	33664
Robert Baer	25022
Robert Beam	30978
Robert Bergman	28682
Robert Birnstengel	19961
Robert Birnstengel	49571
Robert Blanchard	23676
Robert Brennan	26263
Robert Brown	31227
Robert Burge	31391
Robert Burger	23210
Robert Buselmeier	34968
Robert Caldwell	36191
Robert Cannon	35994
Robert Carey	34031
Robert Carpenter	33215
Robert Carter	33899
Robert Cerrito	30646
Robert Chase	3441
Robert Chase	51640
Robert Cirino	33496
Robert Clapper	35069
Robert Cleveland	34059
Robert Closs	31007
Robert Collins	32259
Robert Cote	34975
Robert Cramer	31512
Robert Croteau	34332

Sender Name	Submission ID
2 Sierra Club	
Robert D'Alonzo	35526
Robert Davidson	33244
Robert Davis	35979
Robert Davis	49047
Robert De Beck	29799
Robert Deutsch, Jr.	32056
Robert Devine	29133
Robert Donahoe	33352
Robert Drake	35003
Robert Ellis Dye	28928
Robert Ellis Dye	48794
Robert Ellison	23310
Robert Ellison	49464
Robert Ennis	30661
Robert Etris	33515
Robert Evans	35615
Robert Findlay	27349
Robert Fletcher	30177
Robert Flynn	26154
Robert Follis	35539
Robert Ford	52259
Robert Ford	52260
Robert Fox	29279
Robert Fuerst	26376
Robert Gamalski	31373
Robert Garrett	35827
Robert Giese	35224
Robert Gilbert	32055
Robert Glass	29259
robert glenz	23728
Robert Glover	23013
Robert Goodwin	24227
Robert Goodwin	32515
Robert Gray	35611
Robert H. Berry	27173
Robert Haase	35262
Robert Hall	27056
Robert Handelsman	25166
Robert Hanson	2960

Sender Name	Submission ID
2 Sierra Club	
Robert Hanson	52095
Robert Harper	35609
Robert Heitzinger	32547
Robert Hewson	33990
Robert Hicks	27464
Robert Higgins	36078
Robert Hill	32409
Robert Horstmeier	23420
Robert Hosier	34871
Robert Hudnut	3011
Robert Hudnut	52173
Robert Hugi	30971
Robert Hutchinson	26222
Robert Imholte	35283
Robert J. Petrusa	29175
Robert Jacobson	27453
Robert Jakubiec	35930
Robert Jenks	22987
Robert Jermal	26568
Robert Johnson	3512
Robert Johnson	51675
Robert Kalovsky	36258
Robert Kennedy	32509
Robert Kennedy	34521
Robert Kirsch	28044
Robert Klein	23994
Robert Klein	33324
Robert Klyce	25000
Robert Knox	34366
Robert Kreier	26239
Robert Kriesel	3400
Robert Kriesel	51625
Robert Krueger	34728
Robert Laudonio	28364
Robert Lefevre	28576
Robert Legault	31045
Robert Levitt	24372
Robert Lewandowski	31451
Robert Lifson	31965

Sender Name		Submission ID
2 Sierra Club		
Robert Linzmeier		35972
Robert Long		29400
Robert Lotzer		29286
Robert Macaulay		32021
Robert Macomber		3513
Robert Macomber		51677
Robert Mahutga		48986
Robert March		26899
Robert March		35142
Robert Marchant		3511
Robert Marchant		51676
Robert Maroney		27891
Robert Marshall		35551
Robert Martin		29090
Robert Marton		29272
Robert McElligott		29284
Robert Mclaughlin		29100
Robert McManus		51622
Robert Meder		27647
Robert Mendelson		32513
Robert Meyer		30516
Robert Mihaly		31224
Robert Molthen		30594
Robert Moore		27290
Robert Moore		27776
Robert Obeid		26670
Robert Oberdorf		24266
Robert Oblak		33608
Robert Okroi		32336
Robert O'Neill		23585
Robert Payne		25299
Robert Payne		34270
Robert Poulsen		26987
Robert Prior		34340
Robert Racine		23876
Robert Rhamy		28757
Robert Roberson		30708
Robert Roberto		24366
Robert Rodenz		35481

Sender Name	Submission ID
2 Sierra Club	
Robert Rose	2784
Robert Rose	51961
Robert Roth	34880
Robert Satler	33400
Robert Sharrar	27032
Robert Shippee	26595
Robert Sigrist	29141
Robert Siroskey	30803
Robert Sorensen	24379
Robert Splittorff	36158
Robert Stanley	30452
Robert Steck	29505
Robert Threatte	36023
Robert Tinker	32104
Robert Treuter	2845
Robert Treuter	51509
Robert Treuter	52019
Robert Treuter	57678
Robert Vandervennet	35546
Robert Veauthier	34980
Robert Verbryke	35950
Robert Vicento	23873
Robert Vostinar	33105
Robert Walker	35961
Robert Wallace	27815
Robert Wallen	33357
Robert Ward	31868
Robert Ward	35112
Robert Wilkins	30281
Robert Willett	31795
Robert Williams	34176
Robert Wing	28227
Robert Wohlberg	2867
Robert Wohlberg	52038
Robert Zimmerman	30325
Robert Zimmerman	31904
Robert Zimmerman	34412
Robert Zirafi	32527
Robert& Waynette Scott	34634

Sender Name	Submission ID
2 Sierra Club	
Robert` Slimmer	30596
Roberta Aber	29987
Roberta Avidor	47123
Roberta Avidor	48564
Roberta Camp	25560
Roberta Haskin	33870
Roberta Haskin	49056
Roberta Hodgdon	3502
Roberta Hodgdon	25616
Roberta Hodgdon	51671
Roberta Kanabay	34193
Roberta King	33500
Roberta Lee	24235
Roberta Martin	24386
Roberta Miller	33507
Roberta Newman	26489
Roberta Paro	25240
Roberta Penn	31719
Roberta Riley	23906
Roberta Sparkman	25960
Roberta Thompson	25963
Roberta Vandehey	25415
Roberta VanderBreggen	22818
Roberta Wagner	26403
Roberta Wetzel	29929
Roberta Wray	33775
Roberto Flachier	22861
Rob-Henry Howes	30809
Robin & Kathleen Blumer	29012
Robin Anderson	33061
Robin Bowman	28106
Robin Bowman	32247
Robin Brown	51606
Robin Garlish	31934
Robin Grzembski	34404
Robin Hershey	31375
Robin Ison	33407
Robin Karnatz	23254
Robin Kearns	26425

Sender Name	Submission ID
2 Sierra Club	
Robin Keller	25233
Robin Kyle	35954
Robin Mayerat	26081
Robin Melchior	33253
Robin Pasholk	25658
Robin Pasholk	33883
Robin Peterson	27129
Robin Pinsof	26234
Robin Pinsof	35718
Robin Poppe	28009
Robin Poppe	48625
Robin Powar	25307
Robin Reed	34384
Robin Schachat	23075
Robin Schachat	24042
Robin Schreier	32681
Robin Van Rooyen	33946
Robin Wagner	28129
Robin Welsh	23224
Robyn & Dick Ingram	26463
Robyn Cleaves	26079
Robyn Dochterman	49053
Robyn Luke	24873
Robyne Venable	31246
Rocco Buysse	31786
Rocco J Vitale Jr	25745
Rochelle Lazio	35874
Rocky Romeo	25278
Rodd Ringquist	34762
Roderic and Margaret Botts	31876
Rodger Kodl	33302
Rodney Alatalo	34687
Rodney Derbigny	26668
Rodney Mathison	34726
Rodney Pritchard	34864
Rodney Smith	32806
Roger & Gayle O'DONAHOO	28417
Roger & Maryjo Erbe	32416
Roger Atkin	28616

Sender Name	Submission ID
2 Sierra Club	
Roger Aus	23160
Roger Barton	30572
Roger Bau	23229
Roger Bauer	31894
Roger Chellew	25816
Roger Coley	29990
Roger Corpolongo	32214
roger ellis	30290
Roger Francis	51576
Roger Gorski	31989
Roger Haase	24543
Roger Harrison	26194
roger katakowski	31515
Roger Legner	35229
Roger Little	24464
Roger Meade	34827
Roger Merrill	2717
Roger Merrill	51905
Roger Miller	34794
Roger Muellner	3651
Roger Muellner	51752
Roger Nugent	28322
Roger Overbey	24510
Roger Pope	34978
Roger Schmidt	33148
Roger Schmidt	33228
Roger Williams	24755
Roger Williams	26646
Roger Williams	32682
Roger Williams	32717
Roger Williams	36047
Roger Willman	23794
Rohana Wolf	29245
Roland Buck	30785
Roland Kopp	30688
Roland Romo	27460
Rolf Swanson	27622
Rolf Swanson	34713
Romola Hunter	24074

Sender Name	Submission ID
2 Sierra Club	
Ron Adami	29201
Ron Allen	32504
Ron Belmont	36174
Ron Brinkley	26275
Ron Broomell	28363
Ron Caperton	34920
Ron Chelland	34990
Ron Dawson	30012
Ron Dodier	31314
Ron Gary	35466
Ron Goldman	24956
Ron Kichton	30460
Ron Kochman	30827
Ron Kroutel	36225
Ron Larson	2802
Ron Larson	51982
Ron Lichterman	31832
Ron Massoli	25896
Ron Meier	30306
Ron Nemire	32073
Ron Nixon	31416
Ron Pollina	26806
Ron Pollina	28743
Ron Price	26465
Ron Ratner	25246
Ron Sheffler	34071
Ron Sonnenberg	28841
Ron Stepchuk	23734
Ron Trimmer	32488
Ron Tschudy	33582
Ron Van Horn	33266
Ron Weingart	35773
Ron Weiss	36273
Ronaele Snyder	31322
Ronald & Christina Lewsader	32711
Ronald And Marjorie Kardos	34830
Ronald Bird	27888
Ronald Bird	27978
Ronald Borgmann	46881

Sender Name	Submission ID
2 Sierra Club	
Ronald Borgmann	48557
Ronald Breidenbach	30899
Ronald Clayton	26557
Ronald Clifton	34908
Ronald DeGolier	30377
Ronald Drahos	35250
Ronald Elmore	26882
Ronald Healy	34280
Ronald Hedrick	29883
Ronald Huber	34082
Ronald Katz	33712
Ronald Kidd	31799
Ronald Leurquin	3729
Ronald Leurquin	51809
Ronald Maley	29278
Ronald Maxson	24927
Ronald Moore	32734
Ronald Nelson	2937
Ronald Nelson	52121
Ronald Pancner	29147
Ronald Roed	32974
Ronald Sims	25876
Ronald Smith	31525
Ronald Snow	23416
Ronald Snow	26130
Ronald Snow	28792
Ronald Snow	33810
Ronald Spitz	33802
Ronald Stone	31633
Ronald Swager	23819
Ronald Taliano	29770
Ronald Thiele	28868
Ronald Wagner	26127
Ronald Walters	24308
Ronald Wetzell	46672
Ronald Wetzell	48555
Ronald Withrow	25040
Ronald Wooster	27583
Ronald Wurst	28774

Sender Name	Submission ID
2 Sierra Club	
Ronald Zerbs	35137
Ronald Zurawski	34539
Ronda Gish	35381
Ronda Snider	26281
Ronda White	34518
Ronna Gray	28122
Ronnette Norris	34063
Roos, Illegible	58044
Rory Anderson	35072
Rosa Orsetti	24764
Rosa Orsetti	24881
Rosaire Lucassen	29595
Rosalia Alcoser	51598
Rosalie Mutchler	31610
Rosalie Parranto	48802
Rosalind O'Donoghue	24377
Rosalyn Rohloff	25553
Rosanna Bell	24028
Rosanna Nadeau	25423
Rosanna Walker	48881
Rosanne Neri	23600
Rosanne Radziewicz	34869
Rose Bertrand	35482
Rose Hughes	2947
Rose Hughes	52120
Rose Klein	30793
Rose Knopff	49034
Rose Lynd	33009
Rose Marie Assad	21282
Rose Marie Assad	50997
Rose Martin	30610
Rose Mary Guerrero	30136
Rose Reinders	32253
Rose Thompson	26686
Rose Tilley	26540
Rose Tilley	33162
Rose Wedlund	31098
Rose Wood	35887
Roseann Duchon	29938

Sender Name		Submission ID
2 Sierra Club		
Roseann Mueller		28388
Rose-Lise Obetz		21806
Rosemarie Jeannero		25667
Rosemarie Smith		23537
Rosemary Agrista		24296
Rosemary Bodkin		34087
Rosemary Clifford		34852
Rosemary Doherty		23820
Rosemary Doherty		30783
Rosemary Dressler		33596
Rosemary Hofmayer		25511
Rosemary Maziarz		36169
Rosemary Rogers		35127
Rosemary Rohach		2973
Rosemary Rohach		52137
Rosemary Sexton		51565
Rosemary Thurber		33546
Rosemary Wyche		32293
Rosetta Dymond		27996
Rosie Manina		26940
Rosie Neher		34792
Rosie Neher		39647
Rosie Neher		48831
Ross & Sue Ann Smith		41103
Ross Anderson		2857
Ross Anderson		52028
Ross Judd		25505
Ross Schennum		31109
Roth, Erin		58045
Rox Colby		25012
Rox Petoskey		24410
Rox Petoskey		27262
Roxana Allen		3548
Roxana Allen		51696
Roxana Kaferly		29385
Roxane Rothstein		33457
Roxann Herwig		4228
Roxann Herwig		51521
Roxanne Cherpeske		25263

Sender Name	Submission ID
2 Sierra Club	
Roxanne Ciatti	30821
Roxanne Claassen	28896
Roxanne Edwards	33820
Roxanne Facer	26111
Roxanne Fairbanks	48749
Roxanne Hagge	31700
Roxanne Minch	32105
Roxanne Scanlon	26017
Roxanne Stuhr	21155
Roxanne Stuhr	50956
Roy Jones	32922
Roy Kiger	31237
Roy Treadway	33325
Roy Tremain	35909
Roz Hill	26772
Ruben Lozada	26052
Rubyann Basina	28349
Rudi Faltus	25735
Rudolph Tauer	31478
Rudy Pasantes	27513
Russ Cross	33832
Russ Dusek	33909
Russ Wagner	30009
Russell Buckardt	31810
Russell Cummings	25343
Russell Griffin	32148
Russell Jones	24480
Russell Ketch	26288
Russell Petricka	2792
Russell Petricka	51973
Russell Ranshaw	34075
Russell Skinner	32323
Russell Sutton	30403
Russell Whitley	32705
Ruth Almen	31429
Ruth Arehart	34410
Ruth Baer	27344
Ruth Bergquist	39928
Ruth Bergquist	48995

Sender Name		Submission ID
2 Sierra Club		
Ruth Bradfield		28898
Ruth Brooker		4328
Ruth Brooker		51530
Ruth Burman		24149
Ruth Cameron		26498
Ruth Candio		33432
Ruth Caspary		25046
Ruth Corrao		30082
Ruth Corrao		29056
Ruth Dantuma		35540
Ruth Dantuma		49038
Ruth Darden		23200
Ruth Gitto		24634
Ruth Greenbaum		32057
Ruth Hosek		27055
Ruth Hosek		31355
Ruth Irish		31661
Ruth Johnson		32217
Ruth Johnston		25554
Ruth Kaczmarek		25441
Ruth Lentner		45948
Ruth Lezotte		35208
Ruth Litton		28936
Ruth Mutchler		26474
Ruth Mutchler		34645
Ruth Omdalen		29230
Ruth Omdalen		30913
Ruth Petzold		31321
Ruth Roll		29651
Ruth Scheidler		32139
Ruth Schroeder		28181
Ruth Siekevitz		23948
Ruth Simon		27267
Ruth Thuestad		31337
Ruth Tisher		35319
Ruth Ware		32889
Ruthann Ruehr		30404
Ruthann Ruehr		30406
Ryan Cek		34172

Sender Name	Submission ID
2 Sierra Club	
Ryan Danzinger	26388
Ryan Danzinger	29936
Ryan Davis	27377
Ryan Dybdahl	33931
Ryan Goble	30010
Ryan Handeland	4418
Ryan Handeland	23796
Ryan Handeland	49478
Ryan Handeland	51539
Ryan Kalis	33472
Ryan Lamberti	24587
Ryan Macdonald	35600
Ryan Mooreson	3509
Ryan Mooreson	51673
Ryan Pakula	25803
Ryan Pakula	31230
Ryan Pelowski	3410
Ryan Pelowski	4437
Ryan Pelowski	51540
Ryan Pelowski	51627
Ryan Randall	35984
Ryan Robinson	24010
Ryan Witalison	35005
Ryan Yelles	30637
Ryvonne Werner	31469
S Anger	29829
S Bielski	35201
S D	34607
S David Aardappel	35578
S Duttge	32595
S F	39436
S F	48727
S Israil	32193
S Joesph Holloway	34678
S Kay Young	29197
S Klof	23000
S Nepola	23159
S. E. Williams	26449
S. Frances Hoffman	35599

Sender Name	Submission ID
2 Sierra Club	
Saba Valadkhan	35769
Sabina Vanish	28764
Sabine Buergermeister	24891
Sabine Williams	27277
Sabrina Mcdonald	24926
Sakari Lindhen	36005
Sallie Cave	24425
Sally Berner	34240
Sally Capps	23495
Sally East	24848
Sally East	24852
Sally Gergely	32393
Sally Hammond	27001
Sally Haveman	30470
Sally Hinshaw	35570
Sally Holloway	25107
Sally Khalil	33212
Sally Larson	34171
Sally Mathews	29071
Sally Moore	23165
Sally Newman	28541
Sally Peck	31184
Sally Petrella	30904
Sally Phelps	38278
Sally Purbrick-Illek	26986
Sally Renner	29588
Sally Small	28998
Sally Smith	26226
Sally Stern	32600
Sally Tucker	23790
Sally Venechuk	29821
Salome reis	29514
Sam Asseff	25833
Sam Divita	3750
Sam Divita	51821
Sam Gehrke	27984
Sam Huilman	22843
Sam Jagodzinski	31394
Sam Matey	27477

Sender Name	Submission ID
2 Sierra Club	
Sam Orlich	35548
Sam Romero	25491
Sam Sanders	27696
Sam Sanders	35158
Sam Villella	21306
Sam Villella	51001
Sam Villella	51508
Sam Villella	57686
Samantha Christian	22697
Samantha Church	26581
Samantha Eppenauer	25323
Samantha L	28396
Samantha Rich	27285
Samantha Schneid	32950
Samantha Siler	29815
Samantha Spaccasi	33554
Samantha Wobig	31961
Sami Medcalf	31090
Sammie Martin	27965
Sammy Low	26148
Samuel Boss	24598
Samuel Durkin	27218
Samuel Greene	34566
Samuel Kinser	29360
Samuel Martinez	36098
Samuel Sampson	24313
Samuel Yannerilla	28244
Sanda Bauer	32087
Sandee Kosmo	36190
Sandee Raappana	33934
Sandi Archer	34281
Sandi Brewer	30209
Sandi Brunette-Hill	31691
Sandra Allen	32079
Sandra Andler	30327
Sandra Arnold	25332
Sandra Atkins	25614
Sandra Atkins	28379
Sandra Bader	25898

Sender Name	Submission ID
2 Sierra Club	
Sandra Bader	31309
Sandra Barrett	32095
Sandra Bedell	33900
Sandra Bilek	31064
sandra borgen	32780
Sandra Brubaker	33696
Sandra Carridine	29745
Sandra Christner	31198
Sandra Cobb	36142
Sandra Cope	33806
Sandra Costa	24854
Sandra Couch	25577
Sandra Couch	34428
Sandra Curry	30855
Sandra Dierberger	34672
Sandra Drexel	30354
Sandra Earley	31990
Sandra Evans	2980
Sandra Evans	52140
Sandra Faris	32579
Sandra Farkas	35431
Sandra Fisherkeller	28800
Sandra Franz	32359
Sandra Freeman	30828
Sandra Herndon	26748
Sandra Johnson	30604
Sandra Johnson	48818
Sandra Kendall	29479
Sandra Kluk	30291
Sandra Kranner	34049
Sandra Kroll	30656
Sandra Lien	49072
Sandra Linabury	29054
Sandra Lindberg	32646
Sandra Livingston	3515
Sandra Livingston	51678
Sandra Maar	26049
Sandra Mazo-Nix	28184
Sandra Mckinney	34619

Sender Name	Submission ID
2 Sierra Club	
Sandra Meland	33122
Sandra Miller	25383
Sandra Miller	31475
Sandra Moody	29413
Sandra Morrison	31418
Sandra Netzley	23267
sandra Paul	29022
Sandra Pearson	31664
Sandra Petersen	29331
Sandra Pucillo	34161
Sandra Riddick	23204
Sandra Ruffalo	35863
Sandra Schechner	31307
Sandra Schloss	24283
Sandra Schnettler	25581
Sandra Serazio	29180
Sandra Serazio	30786
Sandra Severt	48900
Sandra Shin	31403
Sandra Silva	31806
Sandra Sobek	28074
Sandra Thomas-Dale	33638
Sandra Thompson	27248
Sandra Tucker	26063
Sandra Wald	35766
Sandra Zellers	30811
Sandy havrilla	29256
Sandy Jackson	25274
Sandy Johnson	47270
Sandy Johnson	48573
Sandy Levine	25575
Sandy McComb	27927
Sandy Pittman	33480
Sandy Sundquist	25271
Sanford Taly	49037
Santhi Logel	51582
Sara Bergstresser	24642
Sara Bible	2687
Sara Bible	51881

Sender Name	Submission ID
2 Sierra Club	
Sara Blackburn	33643
Sara Brombart	26358
Sara Cheng	31778
Sara Dunn	32873
Sara Ellisson	25330
Sara Frease	23989
Sara Green	23318
Sara Keesling	25192
Sara Lewis	25130
Sara Mc Kay	2895
Sara Mc Kay	52034
Sara Miller	35241
Sara Muender	35391
Sara Pandolfi	36232
Sara Paoluzzi	28766
Sara Patterson	33750
Sara Pierson	24780
Sara Pitney	25039
Sara Quigley	22781
Sara Rossini	33017
SARA SHERFF	26802
Sara Watson	29008
Sara Williams	28906
Sarah Alvarez	25439
Sarah Atkins	29831
Sarah Bauman	27512
Sarah Beda	32851
Sarah Campbell	28835
Sarah Cripe	30032
Sarah Daniels	33364
Sarah Foster	32288
Sarah Galt	33776
Sarah Ganong	26095
Sarah Griesedieck	23571
Sarah Johnson	29325
Sarah Jones	35354
Sarah Karnes	26318
Sarah Keatts	31921
Sarah Klinzing-Le	29199

Sender Name	Submission ID
2 Sierra Club	
Sarah Kosar	35184
Sarah Kruger	39509
Sarah Kruger	48760
Sarah Lacy	35212
Sarah Love	32306
Sarah Marmor	24677
Sarah Mcdougal	29318
Sarah Meyers	28217
Sarah Mulholland	33300
Sarah Nurnberger	35268
Sarah Pavolko	30992
Sarah Ragalyi	32930
Sarah Reuter	24716
Sarah Ryerson	25161
Sarah S	28196
Sarah Schaefer	30389
Sarah Schmitz	47406
Sarah Schmitz	48583
Sarah Sederstrom	48787
Sarah Sercombe	33916
Sarah Shull	27826
Sarah Singer	33729
Sarah Stansill	26932
Sarah Thompson	25447
Sarah Trulley	33842
Sarah Vail	29809
Sarah Vorreiter	35389
Sarah Welsh	33220
Sarah Wiebenson	26893
Sarah Williams	29487
Sarah Winblad	30277
Sarah Wolfe	25519
Sarah Wright	22982
Saren Lightsong	2967
Saren Lightsong	52096
Sarie Bryson	23366
Saul Aguirre	32267
Savvy Trefsgar	24215
Schaefer, Kristin A	58050

Sender Name		Submission ID
2 Sierra Club		
Schaut Matthew		3006
Schaut Matthew		38621
Schaut Matthew		48600
Schaut Matthew		52144
Schierman Mollie		29492
Schueller, Alex		58053
Schueller, John		58054
Schveller, Abbey		58057
Scot Kindschi		3605
Scot Kindschi		51727
Scott Baker		34950
Scott Blankman		23031
Scott Blankman		23033
Scott Blum		30439
SCOTT BOS		26739
Scott Brown		23278
Scott Bushbaum		33359
Scott Cannon		25270
Scott Cramton		24773
Scott Davis		34022
Scott Ernst		33134
Scott Field		28087
Scott Franks		24230
Scott Godwin		36019
Scott Greene		23717
Scott Korman		25113
Scott L		33320
Scott Laderman		32233
Scott Markham		28103
Scott Meyer		23725
Scott Mittelsteadt		34774
Scott Newell		28977
Scott Newman		22923
Scott Pingel		33466
Scott Pitta		28466
Scott Robinson		34587
Scott Sebastian		32827
Scott Stebbins		35173
Scott Stellar		26089

Sender Name	Submission ID
2 Sierra Club	
Scott Thomsen	32219
Scott Tucker	26818
Scott Vandermeuse	32481
Scott Vasko	31856
Scott Weaver	35054
Scott Williamson	27265
Scott Young	25277
Sean Cody	33222
Sean Comer	25596
Sean Corrigan	23954
Sean Corvino	26505
Sean Gash	35852
Sean Mcshane	31715
Sean Slattery	31140
Seana Blake	25182
Season Jones	22990
Sebastiano Picciuca	34804
Seda Ervin	26693
Selma Goode	30387
Semena Curlik	24804
Seneca Bowers	22995
September Berlemann	27670
Serge Von Duvillard	33583
Sergio Kips	28798
Sergio Rivera	29121
Sesil Akturk	24323
Seth Marcus	33991
severin swanson	23743
severin swanson	31038
Seymour Gross	31768
Seymour Gross	47338
Seymour Gross	48576
Seymour Levin	34333
Shahina Lakhani	28207
Shane Conger	30953
Shane Nodurft	28917
Shane Pyles	24511
Shanen Hartmann	30094
Shannon Chappell	32025

Sender Name		Submission ID
2 Sierra Club		
Shannon Clesceri		29412
Shannon Daniels		29969
Shannon Darsow		48890
Shannon Davison		29314
Shannon Fairbanks		2835
Shannon Fairbanks		52009
Shannon Ford		35092
Shannon Hedren		2881
Shannon Hedren		52055
Shannon Lanning		27057
Shannon Lanning		33943
Shannon Lusk		31891
Shannon Mayfield-Chapin		22866
Shannon McGowan		41317
Shannon McNamara		32094
Shannon Miller		34313
Shannon Miller		39514
Shannon Miller		48766
Shannon Moyer		34149
Shannon Mudd Leutheuser		32743
Shannon OBrien		29414
Shannon Philemon		28309
Shannon Robichaud		27643
Shannon Robichaud		27644
Shannon Saldana		24503
Shannon Van Hoose		35141
Shanoah Barajas		35866
Shareen Goodroad		23786
Shari Bachman		2942
Shari Bachman		52123
Shari Del Mariani		35275
Shari Krueger		22808
Shari Mleczewski		28440
Shari Piehl		35108
Shari Zaloski		24657
Sharlene Bracke		28162
Sharn Anderson		4466
Sharn Anderson		51543
Sharon Aldrich		28833

Sender Name	Submission ID
2 Sierra Club	
Sharon Anderson	34785
Sharon Barbell	24471
Sharon Berlin	26153
Sharon Berlin	26168
Sharon Berlin	26170
SHARON BOON	30891
Sharon Boring	23878
Sharon Callahan	27050
Sharon Campbell	28574
Sharon Carlino	34244
sharon coleman	29675
Sharon Daskal	32808
Sharon Davidson	32877
Sharon Deliso	35174
Sharon Ehrlich	27730
Sharon Erreger	31910
Sharon Fay	45236
Sharon Fisher	27863
Sharon Fleming	31702
Sharon Goff	32228
Sharon Hudak	26162
Sharon Jackson	25301
Sharon Johnson	23107
Sharon Kenausis	26362
Sharon Keogh	25849
Sharon Koe	24950
Sharon Koe	33150
sharon kosko	23249
Sharon Lamb	30870
Sharon Longyear	26386
Sharon Mannix	25104
Sharon Mccord	39426
Sharon Mccord	39429
Sharon Mccord	48715
Sharon Mccord	48717
Sharon Meader	35901
Sharon Morris	25230
Sharon Mullins	25657
Sharon Nash	29917

Sender Name	Submission ID
2 Sierra Club	
Sharon Ogorzalek	22913
Sharon Porta	25544
Sharon Powell	51568
Sharon Royer	26050
Sharon Russick	25610
Sharon Schlaff	35589
Sharon Stenglein	31725
Sharon Sullivan	33113
Sharon Tatum	31111
Sharon Teagardin	35029
Sharon Teagardin	35971
Sharon Wakefield	25417
Sharon Wakefield	31464
Sharon Wakefield	31467
Sharon Wakefield	31472
Sharon White	31357
Sharon Widigan	27964
Sharon Widigan	27967
Sharon Wong	25220
Sharon Wyberg	41355
Sharon Zayac	30294
Sharon/Dennis Laingen	33171
Sharron Frillman	29381
Sharron Lee Laplante, MD	26016
Sharron Walter	24363
Sharron Walter	24365
Shary Bozied	24225
Sharyn Bergholt	29243
Sharyn Lehrke	30519
Shaughna Bishop	23445
Shauna Weyrauch	31824
Shaunte' Wells	31170
Shawn Cassady	32845
Shawn Collins	27272
Shawn Hubert	29566
Shawn Kakuk	34962
Shawn King	30650
Shawn Muluihill	30532
Shawn Stanley	39502

Sender Name	Submission ID
2 Sierra Club	
Shawn Stanley	48754
Shawn Wass	27556
Shawna Scott	35143
Shawnda Drennen	35223
Shawndra Hayes-Budgen	27493
Shaylene Ader-Steinhauser	28874
Shaz Coleman	30373
Shearle Furnish	31880
Sheila Cook	30505
Sheila Dillon	28981
Sheila Kenney	26767
Sheila Mandell	24498
Sheila Maybanks	3482
Sheila Maybanks	51661
Sheila Morway	32318
Sheila Nolte	33938
Sheila Noyes	30158
Sheila Prust	34040
Sheila Rekdal	25808
Sheila Stone	27395
Sheila Tatone	23621
sheilak kilpatrick	23677
sheilak kilpatrick	23679
Shelby Bach	32881
Sheldon Damberg	35883
Sheldon Kanfer	30245
Shelley & Mark Scher	31046
Shelley Carpenter	33230
Shelley Rothwell	33951
shelley scott	2902
shelley scott	52043
Shelly Hall	28954
Shelly Kranz	29185
Shelly Smothers	26042
Shelly Sue Proudfoot	29575
Shelly Windett	31543
sheree colborn	25241
SHEREE colborn	28821
Sheree Martin	34967

Sender Name	Submission ID
2 Sierra Club	
Sheri Conrad	34115
Sheri Delaine	25377
Sheri Polski	34012
Sheri Sycz	35437
Sheri Terry	26759
Sheri Varner-Munt	27417
Sherie Miller	25699
Sherilyn Coldwell	25282
Sheron Snyder	31072
Sherri Collins	36239
Sherri Racine	28738
Sherrie Klima	31259
Sherrie Roznieckі	31627
Sherrie Shown	25142
Sherrie Waxon	3701
Sherrie Waxon	51778
Sherrilyn Drew	30503
Sherry Boe	32604
Sherry Bogan	29773
Sherry Bowles	27116
Sherry Bugar	30167
Sherry Gold	32099
Sherry Knoppers	29848
Sherry Labonne	29748
Sherry Meddick	25634
Sherry Ribaudo	32691
Sherry Stinson	24713
Sheryl Childs	34986
Sheryl Ewald	23974
Sheryl Gluchowski	29570
Sheryl Smetana	35434
Shevon Porter	28026
Shirlane Ferrante	24247
Shirlene Harris	25800
Shirley Albrecht	26349
Shirley Duke	35807
Shirley Ferguson	24070
Shirley Hadad	31599
Shirley Hanson	25885

Sender Name	Submission ID
2 Sierra Club	
Shirley Kim-Ng	23761
Shirley Kim-Ng	23762
Shirley McConnell Utzman	33224
Shirley Nemens	31674
Shirley Payne	30864
Shirley Powell	32097
Shirley Selig	24150
Shirley Smith	27400
Shirley White	27329
Shred Moye	3698
Shred Moye	51788
Shu-Hui Mitton	31698
Shunahsii Rose	34273
Sidney Ash	23418
Sidney Herszenson	29793
Sidney Robles	26464
Sidney Sisk	26696
Sidney Walton	27518
Sierra Club	3808
Sierra Club	3811
Sierra Club	3812
Sierra Club	3814
Sierra Club	3838
Sierra Club	3851
Sierra Club	3877
Sierra Club	3889
Sierra Club	3890
Sierra Club	3895
Sierra Club	3909
Sierra Club	3910
Sierra Club	3924
Sierra Club	3931
Sierra Club	3933
Sierra Club	3949
Sierra Club	3988
Sierra Club	4000
Sierra Club	4005
Sierra Club	4009
Sierra Club	4014

Sender Name		Submission ID
2 Sierra Club		
Sierra Club		4015
Sierra Club		4024
Sierra Club		4025
Sierra Club		4029
Sierra Club		4035
Sierra Club		4036
Sierra Club		4037
Sierra Club		4043
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Sierra Club		4045
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Sierra Club		4050
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Sierra Club		4071
Sierra Club		4074
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Sierra Club		4108
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Sierra Club		4118
Sierra Club		4119
Sierra Club		4120
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Sierra Club		4127
Sierra Club		4128
Sierra Club		4133
Sierra Club		4142
Sierra Club		4145
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Sierra Club		4155
Sierra Club		4158
Sierra Club		4161
Sierra Club		4162
Sierra Club		4169
Sierra Club		4170
Sierra Club		4178

Sender Name	Submission ID
2 Sierra Club	
Sierra Club	4179
Sierra Club	4184
Sierra Club	4195
Sierra Club	4200
Sierra Club	4207
Sierra Club	4212
Sierra Club	4214
Sierra Club	4215
Silvia Lucisano	24989
Simba Ryan	29371
Simon Hellerstein	31272
Simon Kenda	23639
Simon Kenda	23643
Simon Politzer	35335
Simone Gerber	28533
Sister Rosita Aranita	3595
Sister Rosita Aranita	24217
Sister Rosita Aranita	24222
Sister Rosita Aranita	51721
Sithfredo Rivera	29294
Sk Welsh	34580
Skarda, Juliann	58062
Skip Vena	25641
Skylar Lipman	23170
Skylar Lipman	31499
Smitha Srinivasa	23775
Soleman Hashmi	31621
Solfrid Ladstein	29628
Solfrid Ladstein	39311
Solfrid Ladstein	48673
Sommer Shehadeh	34223
Sona Rejebian	32598
Sonali Ghosh	29594
Sondra Olson	29439
Sonia Alvarez-Oppus	27998
Sonia Gunderson	33954
Sonia Rego	24148
Sonia Solomonoff	30000
Sonja Chan	30078

Sender Name	Submission ID
2 Sierra Club	
Sonja Chan	33825
sonja syne	24568
Sonja Wong	26166
Sonmez Sahutoglu	32736
Sonny Morning	41332
Sonny Morning	49099
Sonny Soncrant	30799
Sonya Sanford	2776
Sonya Sanford	51955
Sonya Zink	32898
Sophia Furlan	30883
Sophia Gehan	32351
Sophia Gehan	32373
Sophia Leskie	36077
Sophia Savich	24108
Sophia Werbowy	31666
Sophie Taubert Gehan	34263
Spitzer, Stephanie	58071
Sr. Donna Galetovich	30841
Stacey Calvert	29069
Stacey Cannon	24534
Stacey Dundar	23683
Stacey Osborne	3498
Stacey Osborne	51670
Stacey Shehin	32068
Stacey Wolfe	26253
Stacie Williams	29556
Stacy & Greg Kline	25208
Stacy Billings	26514
Stacy Chambers	32454
Stacy Corbett	32216
Stacy Cornelius	27674
Stacy Lang	25559
Stacy Lang	28637
Stacy Lupori	24827
Stacy Roberts	28283
Stacy Schwartz	21174
Stacy Schwartz	50967
Stacy Westhoff	30937

Sender Name	Submission ID
2 Sierra Club	
Stacy Young	30423
Stan Cembrowicz	35816
Stan Midnight	34487
Stan Sheggeby	23208
Stan Tamulevich	35457
Stanley & Cecilia Smoniewski	30778
Stanley Sprunger	35717
Stanley Starbuck	34686
Starla Sanchez	25901
Starr Notarus	29454
Stefan Kodet	25148
Stefan Pomrenke MD, MPH, MATS	21163
Stefan Pomrenke MD, MPH, MATS	50961
Stefan Taylor	26401
Stefan Wells	23509
Stefania Johns	30268
Stefania Mienta	23146
Stefania Mienta	36205
Stefanie Bair	35020
Stefanie Yellis	24914
Stefano Sgreccia	24878
Steffen Heise	23653
Stella Bikaki	30482
Sten Hubinette	33814
Steph Glasgow	31315
Stephan Donovan	34868
Stephan Nason	32915
Stephane Casa	27920
Stephane Loubere	30538
Stephanie Bair	26926
Stephanie Barisch	31439
Stephanie Bell	25538
Stephanie Bell	34663
Stephanie Buckholdt	24681
Stephanie Chrisman	31454
Stephanie Chrisman	31461
Stephanie Clark	24823
Stephanie Coaston	36177
Stephanie Cuellar	23272

Sender Name		Submission ID
2 Sierra Club		
Stephanie Cueto		28825
Stephanie Drescher		31970
Stephanie Fairchild		25522
Stephanie Fairchild		31408
Stephanie Flessert		34822
Stephanie Foster		28675
Stephanie Goodwin		33377
Stephanie Gwin		10240
Stephanie Gwin		51497
Stephanie Herrin-Threm		36072
Stephanie Klenotich		28632
Stephanie Klenotich		31117
Stephanie Kubesh		2727
Stephanie Kubesh		25338
Stephanie Kubesh		51912
Stephanie Llinas		26327
Stephanie Mastel		2712
Stephanie Mastel		51900
Stephanie Mccann		37811
Stephanie Pendolino		33080
Stephanie Rinehart		34318
Stephanie Sepate		32350
Stephanie Spars		27458
Stephanie Sullivan		24382
Stephanie Van Stee		26805
Stephen Anderson		34283
Stephen Battis		22865
Stephen Bauser		35637
Stephen Brede		34232
Stephen Brenner		30813
Stephen Budzinski		35692
Stephen Cass		24231
Stephen Cerro		31618
Stephen Chaney		28523
Stephen Childs		22749
Stephen Evans		27365
Stephen Farmer		33020
Stephen French		34680
Stephen Gillaugh		32178

Sender Name	Submission ID
2 Sierra Club	
Stephen Gliva	32594
Stephen Greene	25943
Stephen Hackney	27695
Stephen J Seffrood	32571
Stephen J Seffrood	32616
Stephen Johnson	26619
Stephen Komistra	31842
Stephen Larson	34465
Stephen Limperis	35831
Stephen Macleod	29096
Stephen Mcveigh	29060
Stephen Mitchell	23119
Stephen Nichols	30956
Stephen Nolan	27860
Stephen Oasen	34545
Stephen Owen	22859
Stephen Parks	25565
Stephen Reid	32040
Stephen Samuel	29899
Stephen Siodlarz	31450
Stephen Spieckerman	34770
Stephen Spraley	33245
Stephen Stolicker	30748
Stephen Wofford	31927
Stephenie Stephens	26296
Sterling Wilkerson	35575
Steve & Isabelle Robey	27612
Steve & Kris Bergren	32794
Steve & Marisa Burns	35608
Steve Adkins	29662
Steve Amos	31287
Steve And Linda Sobel	33892
Steve Books	34551
Steve Boorsma	31171
Steve Carr	25409
Steve Chappell	32739
Steve Clark	29442
Steve Cohen	30790
Steve Cornett	3778

Sender Name	Submission ID
2 Sierra Club	
Steve Cornett	51848
Steve Cryder	32131
Steve Dashner	34444
Steve Drucker	32144
STEVE DUDZINSKI	23732
STEVE DUDZINSKI	29274
Steve Dziuk	25671
Steve Dziuk	28454
steve ebert	23037
Steve Ebert	23150
Steve Ehresman	33994
Steve George	33579
Steve Gorman	26734
Steve Gustafson	35644
Steve Harrison	32334
Steve Jenear	34393
Steve Johnston	32422
Steve Johnston	32539
Steve Karcher	32554
Steve Koschak	22936
Steve Koschak	45202
Steve Koschak	48525
Steve Lichtenbert	29655
Steve Lindstrom	29046
Steve Lowry	32645
Steve Lueken	32742
Steve Lyons	33947
Steve Markey	29137
Steve Means	33964
Steve Petrick	30767
Steve Piku	35709
Steve Sanford	30194
Steve Schildwachter	24124
Steve Schueth	33732
Steve Sheehy	26240
Steve Shofstall	30288
Steve Simmons	31399
Steve Sklar	35149
Steve Snyder	27721

Sender Name	Submission ID
2 Sierra Club	
steve sohn	35285
Steve Streed	34351
Steve Toth	30531
Steve Trammell	27448
Steve Vizecky	30513
Steve Wanninger	25569
Steve Wanninger	33110
Steve Webb	32371
Steve Weigandt	24778
Steve Wendt	25640
Steve Wentworth	33617
Steve Wentworth	49042
Steve Westfall	26929
Steve White	33777
Steve Whitlock	35410
Steve Wiley	30774
Steve Wise	27919
Steve Yaffee	25701
Steven Baker	30844
Steven Berman	27343
Steven Blankenship	32250
Steven Brofman	31338
Steven Carpenter	24794
Steven Carpenter	32051
Steven Csargo	35670
Steven Fitzpatrick	35351
Steven Gates	30719
Steven Goldstein	24892
Steven Guillotel	23245
Steven Guy	25190
Steven Hall	30342
Steven Hamburger	29324
Steven Harvey	25037
Steven Hayworth	35320
Steven Heffley	30123
Steven Hnatiak	31918
Steven Hoff	2965
Steven Hoff	52116
Steven Hudgins	32266

Sender Name	Submission ID
2 Sierra Club	
Steven Izen	33311
Steven Jamison	33602
Steven Kauffman	30231
Steven Koss	31223
Steven Kranowski	25450
Steven Leonardi	25249
Steven Linden	25840
Steven Markgraf	23708
Steven Markgraf	30861
Steven Miller	31819
Steven Miller	39672
Steven Miller	48852
Steven Mills	2952
Steven Mills	52112
Steven Pedlow	33881
Steven Pickett	28406
Steven Poteracki	27614
Steven Prchal	26169
Steven Rogers	33156
Steven Schmit	34520
Steven Shroder	34688
Steven Skal	28972
Steven Smith	26441
Steven Smith	33686
Steven Sondheim	33831
Steven Springer	33650
Steven Sy	35000
Steven Taylor	31917
Steven Vagnozzi	31596
Steven Van coillie	23821
Steven Vasquez	26837
Steven Wade	29433
Steven Weil	34556
Steven Wiese	35797
Steven Wiese	49067
Steven Yeutter	29297
Stewart Fisher	27809
Stewart Smythe	24384
Stockton Garver	25887

Sender Name	Submission ID
2 Sierra Club	
STORMY RAVENHAWK	26539
Straka, Amanda	58072
Stu Farnswprth	2849
Stu Farnswprth	52022
Stuart and Mary Knappmiller	31146
Stuart and Mary Knappmiller	47404
Stuart and Mary Knappmiller	48581
Stuart Black	23595
Stuart Pearson	35861
Stuart Simon	33314
Su Dessa	24731
Suanne Nolan	29691
Subbu Kumarappan	36067
Sudeshna Ghosh	22972
Sudeshna Ghosh	24745
Sudeshna Ghosh	24935
Sue Ann Coppens	24257
Sue Blackmon	23404
Sue Blakeley	29707
Sue Breskin	35835
Sue Cerny	32001
Sue Christiansen	27197
Sue Drum	30198
Sue Drum	32839
Sue Ellen Fox	23069
Sue Foote	26687
Sue Freas	29343
Sue Gallagher	24478
Sue Geurkink	35246
Sue Haake	35094
Sue Hanson	24275
Sue Hanson	30029
Sue Hebeisen	3696
Sue Hebeisen	28947
Sue Hebeisen	51780
Sue Hedke	34515
Sue Hocker	32859
Sue Hocker	39483
Sue Hocker	48746

Sender Name	Submission ID
2 Sierra Club	
Sue Horwood	28887
Sue Johnson Filley	29573
Sue Kartman	24651
Sue Kartman	28511
Sue Kartman	29393
sue Lesmond	28640
Sue Loesch-Fries	24155
Sue Love	27851
Sue Mann	23740
Sue Martin	27716
Sue Meyers	29901
Sue Mikolajczak	28460
Sue Miller	35558
Sue Nearing	30712
Sue Oertel	30006
Sue Rengstorf	48688
Sue Rogan	32697
Sue Schneidler	35206
Sue Shulman	33140
Sue Stromberg	34350
Sue Swanson	36208
Sue Velez	23619
Summer Star	29291
sun cho	23207
Sundae Morse	33390
Sunny Hawk	25003
Susan Aguado	32357
Susan Alford	25869
Susan Anduskey	32201
Susan B	25931
Susan Baerst	27018
Susan Bailey-Pruc	23784
Susan Baird	26889
Susan Balmer	30968
Susan Barrons	31717
Susan Bassett	27092
Susan Baxter	24699
Susan Beecher	33514
Susan Biela	31854

Sender Name	Submission ID
2 Sierra Club	
Susan Blair	30764
Susan Blair	30766
Susan Boorsma	48897
Susan Bowman	26035
Susan Bradford	25324
Susan Brunswick	25770
Susan Buczkiewicz	35297
Susan Burt	33089
Susan Canan	28302
Susan Cantrall	35197
Susan Carey	24072
Susan Cody	33252
Susan Cook	23903
Susan Corbisier	33915
Susan Corner	26676
Susan Corner	32724
Susan Cornwell	26046
Susan Cox	29685
Susan Crowley	28424
Susan Cunningham	22869
Susan Dale	25057
Susan Davenport	27749
Susan Davis	26269
Susan Dluz	31220
Susan Driscoll	30292
Susan Elkin	29644
Susan Evilsizer	35760
Susan Faulkner	26650
Susan Feik	29461
Susan Fergus	34632
Susan Fisher	30757
Susan Fisher	31363
Susan Frank	31600
Susan German	29151
Susan Goga	34135
Susan Greene	30171
Susan Gregersen	34850
Susan Grimwood	23905
Susan Groen	35176

Sender Name		Submission ID
2 Sierra Club		
Susan Gualano		27915
Susan Gunther		24553
Susan Hanley		34030
Susan Hawley		23953
Susan Hawley		23960
Susan Hayes		27457
Susan Heitzman		51613
Susan Helton		26538
Susan Helton		35099
Susan Heroux		46660
Susan Heroux		48554
Susan Hicks		35134
Susan Hicks		35299
Susan Hofbauer		36074
Susan Hohl		30643
Susan Hutzenlaub		27216
Susan Imker		4474
Susan Imker		51545
Susan Jobe		31966
Susan Kessler		25598
Susan Klein		24693
Susan Klein		30148
Susan Knose		30058
Susan Kovacs		31841
Susan Krause		26763
Susan Kretz		33849
Susan Lanker		28439
Susan Law		30816
Susan Lee		32648
Susan Louis		48795
Susan Lynn		48770
Susan Magana		27250
Susan Magana		27254
Susan Manning		25392
Susan Marie Karle		33047
Susan Marie Karle		33096
Susan Marie Karle		33125
Susan Maronek		29862
Susan Martersteck		34883

Sender Name	Submission ID
2 Sierra Club	
Susan Martin	32782
Susan Materer	32986
Susan McAvey	31326
Susan Mccormick	30298
Susan Mcgee	21149
Susan Mcgee	50952
Susan Mcgovern	32876
Susan Mcrill	24310
Susan Meade	24957
Susan Mendelsohn	27127
Susan Messerschmitt	26966
Susan Michetti	23869
Susan Millar	32440
Susan Miller	26122
Susan Mooney	31356
Susan Morris	35508
Susan Morrissey	32912
Susan Mulcahy	25966
Susan Murnane	34574
Susan Myran	29836
Susan Noel	31362
Susan Okimoto	33715
Susan Olguin	35579
Susan Orsatti	25777
Susan P. Vessicchio	26347
Susan Parent	35021
Susan Peters	31258
Susan Peterson	23758
Susan Pohl	2925
Susan Pohl	52118
Susan Premo	32834
Susan Purcell	27536
Susan Puscheck	30366
Susan Rans	23154
Susan Reedy	34699
Susan Risner	38580
Susan Robinson	30477
Susan Rowe	48782
Susan Scherer	39431

Sender Name	Submission ID
2 Sierra Club	
Susan Scherer	48722
Susan Schmidt	29916
Susan Schwenn	22661
Susan Scow	2986
Susan Scow	52145
Susan Sedlachek	32152
Susan Sheeley	21756
Susan Shiels	21264
Susan Shiels	50991
Susan Sinkiewicz	29162
Susan Slapnick	35713
Susan Spengler	31563
Susan Spengler	31564
Susan St Peter	34303
Susan Stahr	4330
Susan Stahr	51532
Susan Stewart	25460
Susan Taylor	32952
Susan Temere	30221
Susan Thompson	24506
Susan Thompson	32466
Susan Thurairatnam	25856
Susan Todd	33676
Susan Turner	36035
Susan Tusa	28926
Susan Valley	32895
Susan Valley	48992
Susan Vollmer	30039
Susan Wald	26290
Susan Washabaugh	23074
Susan Welch	44544
Susan Welch	48506
Susan Welling	33227
Susan Welsford	30411
Susan Williams	35376
Susan Wilner	27925
Susan Wolfe	34718
Susan Wolff	31411
Susanna Clason	33635

Sender Name	Submission ID
2 Sierra Club	
Susanna Heideman	30562
Susanna Hinant	24736
Susanna Hinant	34339
Susanna Nelson	27593
Susanne Ekberg	24895
Susanne Loyd	27403
Susie Kline	32413
Susie Stech	35190
Suzana Megles	33860
Suzanna Grossman	34399
Suzanne Besaw	30124
Suzanne Besaw	23835
Suzanne Birch	2710
Suzanne Birch	51897
Suzanne Bolser	26570
Suzanne Conlon	27298
Suzanne Dallas	29494
Suzanne Dalton	34857
Suzanne Dunham	31766
Suzanne Fitzpatrick	23371
Suzanne Goodman	26746
Suzanne Hodges	26143
Suzanne Kral	33740
Suzanne Lefevre	36162
Suzanne Lentz	29092
Suzanne Llewellyn	25258
Suzanne Maras	31732
Suzanne McConnell	35502
Suzanne Nickel	25251
Suzanne Paschal	27505
Suzanne Pentek	27986
Suzanne Salerno	25586
Suzanne Seely	30938
Suzanne Seely	31958
Suzanne Stamatov	26363
Suzanne Unger	32015
Suzanne Webster	23999
Suzanne Wood	34372
Suzette Zander	26591

Sender Name	Submission ID
2 Sierra Club	
Suzette Zelenak	33887
Suzy Clarkson Holstein	32221
Svetha S	24888
Sviatoslav Ivanenko	24973
Sybil Hoffman	36071
sybille Dubois	27155
Sylvain Beloin	26152
Sylvia Brown	27607
Sylvia Cardella	27110
Sylvia Mccollough	24214
Sylvie Auger	28331
Sylvie Auger	29605
Sylvie Bertrand	28982
Sylvie De Parny	27094
T C	26352
T C	33371
t edick	33077
T Parker	32109
T Vasek	33792
T Vlasak	36236
T W Bacon	31762
T.L. Mitchell	24955
Tabatha Sieracki	34038
Tabitha Humphries	36109
Tahir Hassan	49049
Talia Karasov	33622
Talia Kenan	24886
Talia Miller	31615
Tamara Alibeckoff	26761
Tamara Ashley	31898
Tamara Baus-Tupesis	35931
Tamara Rakow	3763
Tamara Rakow	25019
Tamara Rakow	51838
Tamara Sharman	30400
Tamera Jones	24701
Tami Miller	25515
Tammi Dreier	31637
Tammie Carabotta	31518

Sender Name	Submission ID
2 Sierra Club	
Tammra Sanders	24728
Tammra Sanders	34788
Tammy Bobbitt	32154
Tammy Elwell	29568
Tammy Fritze	39945
Tammy Fritze	49017
Tammy Mathis	26798
Tammy Meyer	32698
Tammy Pratt Kingman	28643
Tammy Rizer	25633
Tammy Swoboda	33678
Tammy Weatherly	36238
Tamni Wells	29834
Tamni Wells	29835
Tana Nathe	22844
Tani Watkins	31836
Tania Malven	27117
Tanya Aguirre	33362
Tanya Baker	29750
Tanya Beickert	27004
Tanya Beyer	39865
Tanya Downs	22915
Tanya Field	27028
Tanya Grabinski	24862
Tanya Koester-Radmann	4250
Tanya Koester-Radmann	51523
Tanya Sharon	30928
Tanya Theobald	27946
Tanya Theobald	29582
Tara Barnes	25644
Tara Brantley	25786
Tara Burcher	23892
Tara Conaway	33805
Tara Koppenberg	26172
Tara Schuneman	2884
Tara Schuneman	52064
Tara Sinclair	26906
Tara Veino	24032
Tara Verbridge	26703

Sender Name	Submission ID
2 Sierra Club	
Tara Verbridge	32695
Tasha Boucher	23925
Tawnya Neal	28446
Tawnya Smith	34586
Taylor Tillman	25846
Taylor Zimmerman	23109
Ted Bakkila	23730
Ted Bolander	34965
Ted Chrzan	28689
Ted curran	31202
Ted Drury	34873
Ted Gilmer	31920
Ted Haglund	31238
Ted Knudson	28985
Ted Kunkel	35386
Ted Mcgillivray	2854
Ted Mcgillivray	52025
Ted Pool	35368
Ted Redalen	36164
Ted Scherff	35646
Ted von Eiff	33010
Teddy Dechaud	24194
tereasa goosman	32282
Terence Kennedy	31158
Teresa Allen	27732
Teresa Becker	33444
Teresa Bell	29456
Teresa Dougherty	29634
Teresa Earp	28607
Teresa Gingras	38167
Teresa Halonen	30495
Teresa Hammond	26781
Teresa Iovino	27309
Teresa Jorgen	27563
Teresa Koschmeder	31481
Teresa Lynch	35182
Teresa McQueen	27718
Teresa Nordquist	32474
Teresa Ramirez	26001

Sender Name	Submission ID
2 Sierra Club	
Teresa Safron	29292
Tereza Cristina Rodrigues Marins	25834
Teri Hammer	33070
Teri Koslen	28931
Teri Schweizer	3413
Teri Schweizer	51628
Teri Standiford	34027
Teri Wise	32184
Terra Ziencina	35216
Terrance Schrammen	3490
Terrance Schrammen	51665
Terrell Shearer	34936
Terrell Stephens	30493
Terrence Delgado	30947
Terrence Nayes	3723
Terrence Nayes	51801
Terri Armao	28080
Terri Barreras	26762
Terri Barreras	28836
Terri Bowman	30578
Terri Burke	34648
Terri Burke	39934
Terri Burke	49001
Terri David	23493
Terri Emmerich	28639
Terri Greene	27993
Terri Ireland	24338
Terri Kierski	30839
Terri Lattimer	35103
Terri Melloway	24960
Terri Moore	32300
Terri Ottenwess	22974
Terri Rauscher	34643
Terri Sufka	21293
Terri Sufka	50998
Terrie Williams	27359
Terry & Camilla Hughes	35066
Terry & Martin Horwitz	27771
Terry Ballenger	34848

Sender Name		Submission ID
2 Sierra Club		
Terry Craw		34373
Terry Derleth		32159
Terry Dockery		28066
Terry Ford		29983
Terry Friedman		23118
Terry Froggatt		24033
Terry Gallagher		36185
Terry Gunning		32237
Terry Hangartner		30835
Terry Holland		25435
Terry Houle		2777
Terry Houle		51960
Terry J. Williams		32274
Terry Kayser		27247
Terry Keir		2799
Terry Keir		51975
Terry Kipling		35340
Terry Koehler		31004
Terry Koslek		30044
Terry Kreft		2880
Terry Kreft		52035
Terry Lunn		26596
Terry Maul		24294
Terry Moore		32476
Terry Moore		38653
Terry Murcko		31923
Terry Pabon		31085
Terry Ransom		24329
Terry Richards		35743
Terry Richmond		3626
Terry Richmond		51741
Terry Rogers		34241
Terry Ross		32934
Terry Rousey		24983
Terry Rybinski		25781
Terry Sauer		34356
Terry Stinson		21150
Terry Stinson		50953
Terry Wiggins		30140

Sender Name	Submission ID
2 Sierra Club	
Terry Witt	35293
Tess Reiss	31397
Tessa Brittenham	30164
Tessa Rendahl	45235
Tessa Rendahl	48526
Tessa Weyh	28684
Thane Harpole	38588
Thea Datema	24274
Thelma Hardman	48929
Thelma Hardman	39825
Thelma Nash	3721
Thelma Nash	51798
Thenice Gall	28676
Theodore Albert	27646
Theodore Gorney	35737
Theodore Gorney	48820
Theodore Harris	34282
Theodore Linabury	32564
Theodore Nichols	34394
Theodore Skibinski	33322
Theodore Voth III	33109
Therea Sigiannantoni	32715
Theresa And Barbara La Marr	30652
theresa ascencio	29737
Theresa Campbell	34096
Theresa Candela	32035
Theresa Castrogiovanni	33939
Theresa Cohen	28199
Theresa Hentges	3630
Theresa Hentges	51737
Theresa Holzem	36051
Theresa Jaskowiak	24833
Theresa Johnson	35966
Theresa Karnecki	27841
Theresa Kelly	35927
Theresa Lecompte	38134
Theresa Mccormick	26796
Theresa Missant	31601
Theresa Owens	23346

Sender Name	Submission ID
2 Sierra Club	
Theresa Rokusek	48691
Theresa Ruby	33610
theresa ulrich	28577
Theresa Waldspurger	26408
Therese Debing	27091
Therese Gall	22817
Therese Gall	23446
Thom Lawson	33737
Thom Macdonald	35198
Thom Nelson	48790
Thom Reece	26324
Thomas & Karen Schuppe	29065
Thomas & Susan Smith	48909
Thomas Aber	25112
Thomas and Charlotte Meinz	31275
Thomas And Elaina Delvino	24499
Thomas Bauer	35685
Thomas Becker	26010
Thomas Beer	34388
Thomas Brisbin	35730
Thomas Brotz	29703
Thomas Brown	3615
Thomas Brown	24128
Thomas Brown	49506
Thomas Brown	51732
Thomas Bump	32209
Thomas Carver	33672
Thomas Chappell	31978
Thomas Clark	32372
Thomas Cline	25456
Thomas Cmar	33932
Thomas Coombs	27291
Thomas Cope	30881
Thomas Cranston	27005
Thomas Cranston	27007
Thomas Crites	23857
Thomas Dangieri	33965
Thomas Depies	33575
Thomas Duffey	32774

Sender Name	Submission ID
2 Sierra Club	
Thomas Duffey	26712
Thomas Dunnam	33213
Thomas Eberhardt	26951
Thomas Eck	33874
Thomas Edwards	33084
Thomas Foster	25761
Thomas Frazzetta	34157
Thomas Gehringer	28335
Thomas Geilfuss	34497
Thomas Gilbert	34922
Thomas Girvin	32653
Thomas Grabowski	33461
Thomas Grittinger	28041
Thomas Hagins	33447
Thomas Hall	35781
Thomas Hartman	31200
Thomas Hartman	47495
Thomas Hartman	48593
Thomas Herdtle	47418
Thomas Herdtle	48584
Thomas Holmes	31233
Thomas Hoover	30939
Thomas Hughes	31407
Thomas Humphrey	35363
Thomas Johnson	34613
Thomas Johnson	34818
Thomas Johnson	39923
Thomas Johnson	48996
Thomas Jordan	32672
Thomas Kane	31514
Thomas Keating	25811
Thomas King	48650
Thomas Kolb	33145
Thomas Lichtenstein	48817
Thomas Linell	26124
Thomas Littelmann	29513
Thomas Mac Krell	25480
Thomas Madden	35656
Thomas Mannesto	33501

Sender Name		Submission ID
2 Sierra Club		
Thomas Marty		48968
Thomas Marty		39859
Thomas Marziale		34811
Thomas Masloski		27509
Thomas McDonald		35159
Thomas Mcgraw		34939
Thomas Miskovsky		33008
Thomas Mittelstaedt		3776
Thomas Mittelstaedt		51850
Thomas More Hynes		3557
Thomas More Hynes		51705
Thomas Murphy		25588
Thomas Nelson		24970
Thomas Nelson		33299
Thomas Nieland		25341
Thomas Nissen		31756
Thomas Noonan		35352
Thomas Oatman		29161
Thomas Olmsted		32484
Thomas Paine		2798
Thomas Paine		51972
Thomas Pick		26279
Thomas Poteet		34499
Thomas Puddy		25452
Thomas Purrenhage		30852
Thomas R Brewer Jr		24422
Thomas Rams		32913
Thomas Renaud		30176
Thomas Scott Jones		35783
Thomas Sellars		32100
Thomas Shaw		27419
Thomas Silva		25144
Thomas Slaback		25717
Thomas Sommerfeld		33741
Thomas Stoddard		29212
Thomas Storlien		36764
Thomas Storlien		49540
Thomas Stuckey		32964
Thomas Tollick		24452

Sender Name	Submission ID
2 Sierra Club	
Thomas Tollick	35839
Thomas Traxler	34353
Thomas Trenkamp	35251
Thomas Vargyas	26134
Thomas Voelker	33570
Thomas Warner	30126
Thomas Wendel	26446
Thomas Willette	36168
Thomasin Ringler	3603
Thomasin Ringler	51724
Thora Reynolds	31476
Thue Rasmussen	48824
Tiffany Buell	28367
Tiffany Hartung	29363
Tiffany Razo	32823
Tiia Kunnapas	27654
Tika Bordelon	23337
Tim Boersma	28098
Tim Brown	30850
Tim Childress	30603
Tim Clancy	34152
Tim Coen	22941
Tim Coglianese	49069
Tim Donovan	28956
Tim Donovan	35364
Tim Earley	30710
Tim Hansen	39459
Tim Hansen	48735
Tim Haub	32299
Tim Hoyt	35784
Tim Hreha	24517
Tim Jones	27413
Tim Keating	25321
Tim Kelley	30673
Tim Lewandowski	27949
Tim Lewandowski	30900
Tim Loos	28035
Tim Maher	35814
Tim Martz	34667

Sender Name		Submission ID
2 Sierra Club		
Tim Mccrory		34454
Tim McKeever		34370
Tim Meier		23291
Tim OBrien		24141
Tim Parlin		2907
Tim Parlin		52047
Tim Rainey		24115
Tim Schneiderwind		29354
Tim Simpson		24627
Tim Skone		48944
Tim Skone		39833
Tim Stevens		23068
Tim Stevens		23070
Tim Stevens		48928
Tim Stewart		2940
Tim Stewart		52088
Tim Stys		30413
Timothy Averill		27761
Timothy Biel		29426
Timothy Bock		26722
Timothy Brown		30356
Timothy Brunelle		32522
Timothy Bushman		26091
Timothy Camp		33960
Timothy Clay		32289
Timothy Frantzich		48785
Timothy Kaveney		23773
Timothy Koos		23234
Timothy Kosem		34698
Timothy Lauxmann		32009
Timothy Linkfield		28755
Timothy Mckeon		29207
Timothy Miller		33683
Timothy Mitchell		2913
Timothy Mitchell		52082
Timothy Mullen		2668
Timothy Mullen		35745
Timothy Mullen		51868
Timothy Poulter		30595

Sender Name	Submission ID
2 Sierra Club	
Timothy Schlotter	29220
Timothy Schultz	51621
timothy Spann	31063
Timothy Thome	29254
Timothy Vollmer	26508
Timothy Winters	24383
Tina Brenza	32981
Tina Deck	35886
Tina Faulisi	23282
Tina Handeland	29796
Tina Hughes	36201
Tina Knight	25639
Tina Kuthe	35256
Tina Kuzminski	48975
Tina Lemke	3391
Tina Lemke	25503
Tina Lemke	51623
Tina Montalto	29328
Tina Moreno	32332
Tina Paloskey	25070
Tina Risley	34306
Tina Thumm	30028
Tina Wallace	30999
Tobi Mackey	28480
Toby Dolinka	35450
Toby Long	33738
toby suckow	26565
Tod and Elsie Harlan	31963
Tod Bothom	35537
Tod Lowe	33038
Tod Spoerl	30090
Todd and Alison Miller/Parrish	23810
Todd Beaudoin	34775
Todd Brown	3753
Todd Brown	51823
Todd Carlsonsather	30837
Todd Christiansen	25618
Todd Christiansen	35361
Todd Cisna	25884

Sender Name	Submission ID
2 Sierra Club	
Todd Clark	23284
Todd Clark	30690
Todd Daniels	36075
Todd Firer	30059
Todd Greenhoe	36112
Todd Gross	24044
Todd Hartman	34538
Todd Johnson	33060
Todd Kahovec	23045
Todd Kahovec	23048
Todd Labounty	32642
Todd Laumer	35884
Todd Michney	24403
Todd Schellenberg	22916
Todd Schellenberg	30871
Todd Schellenberg	39424
Todd Schellenberg	48726
Todd Smarr	22978
Todd Snyder	24255
Todd Taras	24890
todd zohimsky	24237
Tom & Jean Brooks	36189
Tom & Mary Lou Fenick	22867
Tom & Nancy Florsheim	30882
Tom Battista	28245
Tom Beatini	25679
Tom Beltt	29668
Tom Billings	23029
Tom Butch	28238
Tom Butch	30362
Tom Carlson	30895
Tom Cramer	32039
Tom Donaghy	3738
Tom Donaghy	51815
Tom Dunlea	26346
Tom Farnquist	36065
Tom Gazik	35672
Tom Gorman	25824
Tom Grogg	33988

Sender Name	Submission ID
2 Sierra Club	
Tom Hoffman	27912
Tom Hofmeister	23327
Tom Hougham	35023
Tom Kimble	30131
Tom Klassen	27610
Tom Klassen	35511
Tom Koors	2841
Tom Koors	52014
Tom Kozel	36046
Tom Kuzera	36097
Tom Link	30616
Tom Luedtke	30702
Tom Lynch	31782
Tom Mattila	2989
Tom Mattila	24075
Tom Mattila	49498
Tom Mattila	52148
Tom Mc Elmurry	33206
Tom McGrew	33291
Tom McSteen	45276
Tom McSteen	48527
Tom Meyer	33972
Tom Michna	23504
Tom Nelson	35451
Tom Pietras	32593
Tom Pliska	48887
Tom Podnar	31069
Tom Probst	28070
Tom Roberts	27101
Tom Roberts	32375
Tom Schlipmann	30444
Tom Schroeder	23348
Tom Schroeder	29766
Tom Swan	30071
Tom Swan	26574
Tom Teune	24735
Tom Wenzel	26064
Tom Williams	30415
Tom Willihnganz	33159

Sender Name	Submission ID
2 Sierra Club	
Tom Wind	34895
Tommy Killingsworth	26034
Toni Conour	27681
Toni Conour	29532
Toni Garmon	26692
Toni Semple	26451
Tonia Jewell	28680
Tony & Janet Kirch	33872
Tony Desantis	30918
Tony Dews	29554
Tony Durben	28905
Tony Giordano	24770
Tony Grahame	29063
Tony Johnson	32728
Tony Ludwig	2931
Tony Ludwig	52132
Tony McCarson	25399
Tony Tschida	31197
Tony Tweedale	33520
Tonya Frammolino	29481
Tonya Hamilton	35658
Tonya Lescouflair	28254
Tonya Rose	31776
Torrey Roseth	32929
Tory Salmon	25495
Tracey Knowlton	23362
Tracey Mangus	26500
Tracey Sands	26657
Tracey Tronolone	24645
Traci Bitler	34877
Traci Caldwell	31736
Traci Phillips	25608
Tracie Gabrisko	32580
Tracie Story	22959
Tracy Breuyn	45549
Tracy Breuyn	48538
Tracy Brock	32043
Tracy Drake	36159
Tracy Eve	25890

Sender Name	Submission ID
2 Sierra Club	
Tracy Fogle	31152
Tracy Gerlach	24005
Tracy Hoopingarner	25579
Tracy Hoteling	24594
Tracy Johnson	28880
Tracy Kachel	33199
Tracy Kilgore	23888
Tracy Lorts	26013
Tracy Lynn	30025
Tracy Napp	2991
Tracy Napp	52150
Tracy Schalk	33394
Tracy Schroepfer	30564
Tracy Sides	2728
Tracy Sides	21177
Tracy Sides	50968
Tracy Sides	51915
Tracy Stewart	33240
Trav Paterson	31110
Travis Allen	27976
Travis Campbell	35719
Travis Irvin	27496
Travis Irvin	29712
Travis Kellum	32835
Trenk Ebbighausen	2951
Trenk Ebbighausen	52104
Trent Blomberg	52192
Trent Blomberg	52193
Tressa Mcelroy	24717
Tressa Merriman	30726
Trevor Greene	25732
Tricia Stacy	33752
Trina McCarty	23582
Trish Cancilla	34420
Trish Miller	34460
Trisha Boyce	32995
Tristan Tufte	51588
Troy Kresser	28820
Troy Lakes	34684

Sender Name		Submission ID
2 Sierra Club		
Trudi La Rose		31887
Truey Mackaman		31821
Trycenia Upshaw		28615
Trycenia Upshaw		32314
Trymon Hunter		27115
Tuule Ingel		24328
Twyla Douaire		29520
Ty Winslow		30307
Tye Thomas		26105
Tyler Knott		51608
Tyrus Barnes		31172
Ulle Koiv		23691
Uma Veloo		25716
Uma Veloo		25748
Uma Veloo		25750
Unnikrishnan Sasidharan		29592
Upma Rawal		29903
Uta Cortimilia		25574
Ute & Koney Eng		23750
V Evan		28990
V johnson		48882
V Maddock		35572
V Voland		26083
V Voland		34696
V. B.		33573
Val Rosales		29616
Valeria Cervellati		24790
Valerie Baffa		32755
Valerie Capezzuto		22810
valerie clark		28192
Valerie Dearing		34495
Valerie Dube		28194
Valerie Hildebrand		35703
Valerie Howit-Winter		24047
Valerie Pittman		25681
Valerie Reeves		25779
Valerie Rice		27045
Valerie Romero		25818
Valerie Sanderson		24260

Sender Name	Submission ID
2 Sierra Club	
Valerie Sarelas	28444
valerie wilson	28567
Valeska Gann	27434
Valorie Mendelson	34887
Valorie Norton	24538
Valorie Norton	31706
Vance Lausmann	25922
Vanessa Gonzalez-Green	25529
Vanessa Jamison	24819
Vanessa KohlgrÃ¿ber	24795
Vanessa Seay	27918
Veena Gursahani	28467
Veena Singwi	29698
Venis White	25139
Venus Chaffins	28333
Vera Buk-Bjerre	23081
Vera George	30053
Vera Strader	25925
Verba Weaver	3625
Verba Weaver	51740
Verfaillie Claudine	31071
Vern Jordan	28665
vern weller	32769
Vernon Hill	29073
Veronica Anderson	25224
Veronica Badzey	27035
Veronica Keeney	28419
Veronica Oscilowicz	22827
Veronica Oscilowicz	22829
Veronica R. Koch	30575
VERONICA ROSING	25680
Veronica Sustic	23076
Veronice Plewinski	24603
Vesna Cajnko	26726
Vicki and John Peterson	36003
Vicki Andrews	31630
Vicki Bacal	34901
Vicki Berglund	32748
Vicki Dickinson	31546

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2 Sierra Club		
Vicki Drenning		30486
Vicki Fazekas		34979
Vicki Gerberich		38203
Vicki Hargreave		32994
Vicki Joseph		28347
Vicki Kane		35928
Vicki Matheny		27522
Vicki Pasco		32692
Vicki Pauly		35638
Vicki Seegert		35423
Vicki Shulof		23806
Vicki Slagle		33438
Vicki Surma		31885
Vicki Taylor		34374
Vicki Taylor		39435
Vicki Taylor		48729
Vicki Wheeler		31019
Vickie Andersen		26398
Vickie Helmuth		36081
Vickie Izzo		30758
Vickie Jay		23239
Vickie Keigley		32072
Vickie McAlister		26273
Vickie Rosenbusch		35028
Vickie Rudd		25488
Vickie Wagner		34267
Vicky Adams		3495
Vicky Adams		51669
Vicky Hensley		31044
Vicky Searcey		29755
Vicky Wicks		31095
Victor Blanco		23917
Victor Chiu		33210
Victor Mandarich		34001
Victor Monjaras		26244
Victoria Behnke		30253
Victoria Boylen		38161
Victoria Brownlee		23350
Victoria Collins		31586

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Victoria Dunch	28054
Victoria Fleenor	28230
Victoria Fuller	31033
Victoria Hathaway	28118
Victoria Mathew	25479
Victoria Nahrwold	22814
Victoria Pitchford	29817
Victoria Powers	29673
Victoria Stewart	26680
Victoria Todd	27958
Victoria Todd	27959
Vida Bossinas	24039
Vida Bossinas	33117
vikki tennill	35300
Vikram Chopra	26305
Viktoria Ford	34639
Viktoria Hawk	27779
Viktoria Petrova	27745
Vilma Mengoli	23670
Vince Mendieta	23467
Vincent & Jodi Tabor	35114
Vincent Gormley	27135
Vincent Graziano	39432
Vincent Hardt	23995
Vincent Houle	24415
Vincent Kotnik	31649
Vincent Marneffe	34813
Vincent Mattson	31081
Vincent Polizzi	29388
Vincent Traver	51595
Vincent Trovato	48822
Vinella Brisher, Emma	58076
Viola Murdock	26286
Virgena Clark	30242
Virgil Salzman	24282
Virginia And Dennis Brightwell	30887
Virginia Antle	32437
Virginia Ciaramitaro	28617
Virginia Cousins	34987

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2 Sierra Club		
Virginia Cowie		34481
Virginia Davis		25967
Virginia De Saulniers		24539
Virginia Douglas		35897
Virginia Froehle		32572
Virginia Johnston		27012
Virginia Jones		33735
Virginia King		28679
Virginia Knapp		24349
Virginia Knapp		29397
Virginia Mattson		35467
Virginia Maturen		29855
Virginia Mendez		24016
virginia mendez		28830
Virginia Olienechak		34271
Virginia Paul		27861
Virginia Shanda		32596
Virginia Stone-Meyer		33581
Virginia Tekushan		33437
Virginia Trovik		51583
Virginia Vega-Siferd		33490
Virginia Williams		23887
Vivian Hildebrandt		34831
Vivian Hood		32771
Vivian Lanham		27336
Vivian Tineo		23374
Viviana Garcia		27077
Vivien Trichter		25348
Vladimir Ivanovic		30205
Vladimir Plisko		27085
Von Arnst		34250
W D		26758
W D		33904
W Fleury		32824
W Randolph Bourne		30244
Wade Johnson		2930
Wade Johnson		52114
Walker Trussell		26110
Wallace James		29601

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2 Sierra Club	
Walt Bogner	34753
Walt Luerken	28219
Walter And Marie Dawson	28385
Walter Bolcon	24798
Walter Durk	34963
Walter G. Richard	32120
Walter Jaehnig	35778
Walter Kross	27757
Walter Pearson	27824
Walter Pearson	35047
Walter Schmitt	34375
Walter verdehr	29857
Wanda Ballentine	3555
Wanda Ballentine	2787
Wanda Ballentine	51699
Wanda Ballentine	51966
Wanda Bass	24277
Wanda Berry	30271
Wanda Brinkerhoff	34129
Wanda Dossey	27062
Wanda Meck	27660
Wanda Rhodes	26770
Wanda Rhodes	26780
Warren Doll, Jr.	24765
Warren Ferine	23604
Warren Hutchinson	23909
Warren Nakisher	26429
Warren Parks	41457
Warren Porter	29182
Warren Welch	32606
Warren Whitaker	34533
Wayne Adams	31116
Wayne Anderson	30060
Wayne Burmeister	30183
Wayne Carrara	34385
Wayne Carson	25498
wayne kelly	27073
Wayne Krueger	30539
Wayne Leonard	32049

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2 Sierra Club	
Wayne Middleton	24352
Wayne Person	26564
Wayne Pressler	34891
Wayne Schimpff	30392
Wayne Simspon	26380
Wayne Stroessner	31148
Wayne Toven	32390
Wayne Woltman	33815
Webb Wells	33572
Weldon & Mary Beth Mathews	34719
Wende Nelson	48939
Wende Nelson	39834
Wendy & James Skinner	34315
Wendy Alexander	27633
Wendy Boyd	4329
Wendy Boyd	51531
Wendy Brawar	25197
Wendy Brueder	25099
Wendy Burgess	30657
Wendy Bushard	33157
Wendy Caduff	51550
Wendy Casey	29242
Wendy Denby-Pascale	24494
Wendy Ebersberger	28130
Wendy Forster	23136
Wendy Friedman	36153
Wendy Haan	51600
Wendy Headley	36092
Wendy Hinson	23771
Wendy Honigman	24884
Wendy Isbell	27300
Wendy Jewell	2995
Wendy Jewell	52154
Wendy Larson	32516
Wendy Levy	26937
Wendy Matuszewski	23135
Wendy Messenger	32400
Wendy Miller	29934
Wendy Miller	29935

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2 Sierra Club	
Wendy Nelson	32590
Wendy Peardot	51587
Wendy Peeks	32971
Wendy Petak	30550
Wendy Raschke	2979
Wendy Raschke	52141
Wendy Schneider	30577
Wendy Schroeder	28008
Wendy Shuman	23092
Wendy Sjoblom	24697
Wendy Sjoblom	51617
Wendy Stewart	33525
Wendy Strombeck	2868
Wendy Strombeck	21242
Wendy Strombeck	50983
Wendy Strombeck	52045
Wendy Valentine Glasshof	32490
Wendy Weldon	22938
Wendy Worth	28016
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Wendy Zajac	28251
Werner Bergman	23781
Wes Milner	30227
Wesley Bishop	25986
Wesley Sharp	30445
Wesley Tyler	32312
Wesley Wolf	32856
Wilbur Austin	28386
will lawson	28505
Will Mayer	48974
Will Ridenour	29078
Willa Drummond	27431
William & Emily Haggerty	36261
William & Jeannie Scown	34642
William Ahlers	27191
William And Emily Haggerty	33079
William and Janice Kimes	3003
William and Janice Kimes	52158
William Baker	31366

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2 Sierra Club	
William Blair	35027
William Blair	35955
William Bobula	31653
William Bowman	29946
William Boyd	25295
William Brady	32792
William Brown	48789
William C & Jean E Hayes	30697
William Castle	27728
William Catherwood	27611
William Cline	31579
William Combs	27474
William Cox	30393
William Cronin	3685
William Cronin	51772
William Crowell	28108
William Crowell	33708
William Cusick	22932
William Davidson	24907
William Dearstyne	23089
William Derrah	45862
William Donovan	24860
William Drescher	30934
William English	27603
William F Crosby	33025
William Fohey	28373
William Franks	25722
William Freiert	30640
William Funari	2993
William Funari	52147
william gawne jr	29154
William Gotz	2912
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William Grant	33627
William Griffin	32584
William Grunewald	33091
William Hammon	22804
William Hess	30645
William Howard	24407

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2 Sierra Club	
William Hulme	35853
William Iiames	35650
William Jenkins	24749
William Jones III	30238
William Jurgus	33923
William Kautz	34633
William Kavanagh	29949
William Kerschner	28525
William Kunze	29210
William Labb	31654
William Laine	31041
William Leto	47464
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William Luzzi	29945
William Maxwell	32082
William McBain	35294
William McDowell	24990
William Mcdowell	30703
William Mckinney	3427
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William Meyer	33719
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William Myers	30849
William Neill	34430
William Nusbaum	23300
William Obenour	31500
William O'Brien	25050
William Pohley	33929
William Pruetzel	31487
William Roberts	34610
William Rodriguez	35964
William Ross	35671
William Ryerson	30720
William Scharf	34758
William Schmidt	33711
William Schuman	22935

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2 Sierra Club	
William Sgriccia	35871
William Shearer	27780
William Shearer	29165
William 'Skip' Dykoski	2877
William 'Skip' Dykoski	52033
William Smarsch	30492
William Smart	24210
William Smith	30848
William Sonntag	32744
William Soper	35969
William Stern	33977
William Strong	31288
William Taschek	32837
william toner	26204
William Tracy	25683
William Tripp	24596
William Vasquez	23980
William Vohwinkle	30613
William Walraven	33733
William Walter	26823
William Walter	27031
William Waters	24318
William Weber	33577
William Wenger	24509
William Westlake	33018
William Wirth	39693
William Wirth	48856
William Woodham	26560
William Wrage	34090
William Young	22963
Wilson, Elizabeth	58079
Windsperger, Lee	58080
Winifred Burkett	25469
Winifred Larsen	2887
Winifred Larsen	52060
Winny Yedinak	31931
Winslow & Karen Duff	27476
Winslow Sheffield	30278
Winston Kaehler	2779

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2 Sierra Club	
Winston Kaehler	51957
Wm Utley	30295
Wm. and Mary Fellows	2848
Wm. and Mary Fellows	52015
Wolfgang Rosenau	34175
Woodrow White	28638
wookie h	27838
Wyman Whipple	30004
Wyn Mass-Protzen	33190
Wyn Mass-Protzen	33275
Xavier Ramirez	30106
Yalonda Fossen	51592
Yancy Rowlette	2850
Yancy Rowlette	52023
Yarismar Fernandez-Alicea	24810
Yarrow Etheredge	27725
Yee Yean Lim	25378
Yevgeneg Gallagher	35965
Yogi Nasser Abujaber	25328
Yolanda Clay	23510
Yolanda Coulaz	23401
Yolanda Magpantay	31685
Yolanda Mitts	29593
Young Klessig	28434
Yoyi Steele	28932
Yuana Blanke	31073
Yulia Gurevich	23184
Yvette Irwin	27196
Yvette Winston	33778
Yvonne Barker	30275
Yvonne Carter	26098
Yvonne Cloud	28547
Yvonne Cooney	31308
Yvonne Fast	24849
Yvonne Johnson	28001
Yvonne Johnson	31388
Yvonne Koble-Scott	36275
Yvonne Peters	31068
Yvonne White	33002

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2 Sierra Club		
Yvonne Wootten		31160
Z Bahti		26375
Zac Cram		30682
Zach Ragbourn		36302
Zachariah Barr		36215
Zachary Maher		23838
Zachary Pera Cole		28967
Zachary Pera Cole		48801
Zelma Fishman		26227
Zimmerman, Matthew		58083
Zoe Sullivan		29356
Zoe Willet		25316
Zoe Willet		35688
Zoerhof Peggie		48893
Zonda Bryant		24763
Zrinka Kiel		35925
Zygmunt Dworzecki		34513

Sender Name	Submission ID
3 Center For Biological Diversity	
Form Letter 3: Center For Biological Diversity. Dear Ms Lisa Fay, I am writing out of deep concern over PolyMet's NorthMet mining project. The proposed open-pit mine is the first of multiple attempts to mine copper and nickel from sulfide ores in northeastern Minnesota. The initial draft environmental impact statement for this proposal was harshly criticized by the Environmental Protection Agency, and the supplemental draft environmental impact statement (SDEIS) remains inadequate. PolyMet's proposed mine would result in unacceptable, irreversible environmental impacts and should be denied. The PolyMet mine would include three open pits, with two of the pits at depths of more than 600 feet. Nearly 1,000 acres of high-quality wetlands would thus be destroyed in this region, which has already lost many thousands of acres of wetlands to iron ore and taconite mining. The region of the proposed mine is also home to endangered lynx as well as moose, which are dramatically declining. The SDEIS acknowledges that the mine would "adversely impact" over 4,000 acres of wildlife habitat - much of which is critical lynx habitat. But the document barely mentions moose except to recognize that the mine "will affect moose individuals." Furthermore, a number of the lakes and streams near to and downstream of the mine site already exceed state standards. To meet water-quality standards for sulfates, mercury and other pollutants, the SDEIS acknowledges that PolyMet would need to mechanically treat its wastewater for at least 500 years. But the SDEIS fails to explain how PolyMet can provide financial assurance that the necessary funds will be available for hundreds of years after the mine has closed. According to the EPA, hardrock mining is the country's most toxic industry, and 40 percent of our nation's Superfund sites are devoted to cleaning it up. How will PolyMet's mine be different. The SDEIS supplies no answers. Finally, the proposed mine site is on Superior National Forest, where the Forest Service recognizes that open-pit mines are prohibited. But instead of rejecting the mine or considering an underground mine alternative, the Forest Service is proposing to exchange these lands with PolyMet to allow the open-pit mine to proceed. The Forest Service has yet to provide the public with sufficient information concerning this proposed land exchange in order to demonstrate that it is in the public intereSt In sum, the SDEIS fails to demonstrate that the proposed PolyMet mine will comply with all environmental laws and that it will not result in unacceptable environmental impacts - and so it should be rejected. Thank you, ????? ????????	16430
a a	8273
a a	11278
A G	47867
A Pom	15229
A von Dallwitz	11456
Aaron Bouchard	19652
Aaron Bouchard	47884
aaron brew	18021
Abigail Buitenkant	9109
Adam Burns	19667
adam flogel	5407
Adam Hess	5477
Adam Izak-Sunna	5713
Adam Johnson	5507
adrian freeman	5902
Adrianna Parker	20241
Adrienne Norton	7882
Adrienne Norton	7922
afsaneh rahmani	7806
Aileen Glynn	10532
AINHOA ETXEZARRAGA	5002
AINHOA ETXEZARRAGA	9389
AINHOA ETXEZARRAGA	10629
AINHOA ETXEZARRAGA	11790

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3 Center For Biological Diversity	
Aixa Fielder	8356
Aixa Fielder	20353
ajla cibra	5829
Akseniya Minaychenko	8211
Akseniya Minaychenko	9147
Al and Sherry Erdmann	5276
Al Lai	8290
Al Peterson	7250
ala mar	47983
Alaina Johnson	13016
Alan Mussen	9057
Alan Olander	8555
Alan Sundby	8900
Alana Willroth	8102
alba castro de rep	10492
Albert Jurciukonis	5764
Aleks Kosowicz	5426
Alena Makarova	9241
Alessandro Raganato	5827
Alessandro Raganato	8382
Alessandro Raganato	10465
Alessandro Raganato	17957
Alex Barnes	6972
Alex Oles	8463
alex rappaport	9432
Alexander Metz	8747
Alexandr Yantselovskiy	6824
Alexandr Yantselovskiy	7962
Alexandr Yantselovskiy	8421
Alexandr Yantselovskiy	10538
Alexandr Yantselovskiy	15048
Alexandr Yantselovskiy	19548
Alexandr Yantselovskiy	20546
alexandra gundelfingen	5870
alexandra gundelfingen	8308
Alexandra Liebster	47961
Alexandra Mishkinova	5780
alexandra Susini	8942
Alexandra Sweatt	5881

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3 Center For Biological Diversity	
Alexandre Pereira	8148
Alexia Ferranti	8008
Alexis Grone	7838
Alexis Hendrickson	8545
Alexis Hendrickson	19672
Alexis Mohr	8639
Alfred Gramstedt	5229
Alfreda Kubala	8963
Ali Van Zee	5041
Alice Bowron	8850
Alice Kostin	7134
Alice Sather	8624
Alice VanKoevering	48037
ALICE WILLIAMS	5310
Alicia Batt	5621
Alicia Batt	6886
Alicia Guzman	7777
Alicia Mathia	10669
Alicia Paravola	5795
Alicia Paravola	8246
Alicia Paravola	11310
Alicia Storin	8711
Alina Prinz	6983
Alina Prinz	18022
Alisa Adobajor	15193
Alisa Adobajor	37973
Alisa Adobajor	47537
Alison Mehlhorn	5548
Alison Taylor	8191
Allan King	5478
Allan Standfield	5315
allan yeninas	19565
Allen Adamson	8156
Allen Williamson	8548
Allison ODell	7808
alma camacho	20729
alp arslan	19581
alunni ilaria	8223
alunni ilaria	10525

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3 Center For Biological Diversity	
alunni ilaria	16419
alunni ilaria	20711
Alva Crom	8552
Alvan D Camacho - Torres	13043
alyssa henke	8998
Amanda Blanchard	19545
Amanda Braun	5416
Amanda Holm	15017
Amanda Jungkuntz	5742
Amanda Kavanagh	19716
Amanda Scuder	6815
Amanda Scuder	8299
Amber Cayton	37986
Amber Erkiletian	15051
Amber Taschner	6932
ame cothran	5405
Amelia Narigon	8841
Amelia Simpson	10471
amelie shadout	47971
Amy Daugherty	10502
Amy Fowler	17881
Amy Gustin	19741
Amy Haines	47521
Amy Johnsen-Harris	19606
Amy Lashinski	8702
Amy Michaletz	15201
Amy Neilsen	7311
Amy Spude	5807
Amy Strand	8519
Amy Thorne	5326
AmyLeo Barankovich	9393
Ana Oliveira	5835
Ana Oliveira	7931
Ana Oliveira	8500
Anand Rao	19601
Andrea Bershow	5357
Andrea Blinn	5849
Andrea Durning	9023
andrea eiermann	9028

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3 Center For Biological Diversity	
Andrea Fleming	11320
Andrea Fortin	5701
Andrea Magda	16440
Andrea Roland	20328
Andrea Stish	5647
Andrea von Foerster	8185
Andrée ARMAND	5102
andree lecat	19542
Andrew Gibas	8770
Andrew Giddings	10509
Andrew LaHaie	8225
Andrew LaHaie	20323
Andrew Moignard	5413
Andrew Mutchler	7313
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Andrew Pagel	8697
Andrew Silverstone	7772
Andy Philpot	15026
Andy Philpot	18003
Andy Zahn	19670
Anette Klang	8092
anette stauske	4958
anette stauske	7934
Angel Abruna	8055
Angel Wang	8910
Angela Anderson	8655
Angela Lipscomb	5399
Angela Martin	8648
Angela Orozco	4977
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Angela Orozco	15846
Angela Schwartz	9094
Angela Sechler	5358
Angela Walter-Schemahorn	8939

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3 Center For Biological Diversity		
Angela Watson		9228
ANGELICA GOMEZ		19553
Angelika Altum		5113
Angelika davis		10551
Angelina Petrovic		8426
Angelita OConnor		10473
Angie Bahris		8523
Angie Hris		8135
Angie Hris		9255
Angie Hris		10467
Angie Hris		16437
Angie Hris		18032
Angie Zellner		5237
Ani Aslanian		37992
AniMaeChi drabic		5899
Anissa Gage		8375
Anissa Gage		15142
Anita Faulkner		5129
Anita Faulkner		8454
Anita Wisch		9091
Anita YOuabian		5069
Anja Boyd		11772
Anji A.		6950
Anji A.		15198
Ann Choate		8625
Ann Galbraith Miller		8403
Ann Griffin		8700
Ann K Brady		8466
Ann Marie Corkett		6885
Ann Marie Paprocki		5340
Ann Marie Scotti		8264
Ann Sandritter		9087
Ann Sandritter		10443
Ann Sandritter		15216
Ann Sandritter		16420
Ann Sandritter		19583
Ann Sandritter		20355
Ann Sandritter		47549
Ann Sievers		8716

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3 Center For Biological Diversity	
Anna Bashkirova	9235
Anna Bechner	8525
Anna Maier	5098
Anna Malservigi	5551
Anna Malservigi	5689
Anna Malservigi	8178
Anna Malservigi	11319
Anna Malservigi	15046
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Anna Soutoul	8192
Annah Gardner	5234
Anne & Joseph Klein	9213
Anne Barasch	8732
Anne Cook	8198
Anne fitzgerald	47982
Anne Greene	17971
Anne Mammitzsch	8358
Anne Mammitzsch	15212
Anne McManus	8777
anne ramsey	15127
Annette Ancel-Wisner	5302
annette bailey	5894
Annette Carr	6888
annette fleischman	6873
Annette Jewell-Ceder	5643
Annie Bien	7895
Annie Bien	8436
Annie Bien	9257
Anthony Andaloro	5292
anthony cantarine	9341
Antonella Marinelli	4970
Anya Anosova	17983
Anya Anosova	20383
April Dice	9049
April Harrison	5120
April Harrison	8002

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3 Center For Biological Diversity		
April Harrison		8433
April Singh		20270
April Strohmeye		5441
April Warwick		20549
Arkadij Friedt		8392
Arkady Vyatchanin		5028
Arlene Renshaw		5522
Arlene Zuckerman		19622
Arley Tapirian		6860
Armida Franceschini		11816
arnaud Hussard		5617
Arturo Toledano Granados		8348
Arturo Toledano Granados		15199
Ashley Briscoe		5227
Ashley Carter		7926
Ashley Hall		8948
astrid suchanek		20023
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astrid suchanek		20026
ASWINI KUMAR		9086
ASWINI KUMAR		10466
Attila Horvath		17895
aubury smith		10540
Audrey Elicerio		7878
Avery Chase		11862
Avery Chase		8137
azza elsherbini		8401
b mayler		20420
B R		5644
b ud johnston		8482
B. Bailey		8673
B. J. Marik		8489
B. Jennings		15025
Barb Collier		8086
Barb Holtz		8365
Barb Olson		9050
Barbara Abu-Odeh		8846
Barbara Bonfield		7868

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3 Center For Biological Diversity	
Barbara Bouviere	5367
Barbara Burghart	8992
Barbara Carfield	6889
Barbara Carver	8567
Barbara Caton	5059
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Barbara Caton	47999
Barbara Clark	8750
Barbara Cohen	8227
Barbara Dague	7952
Barbara Davis	9027
Barbara Day	5759
Barbara Downham	5275
Barbara Efraimson	7909
Barbara Efraimson	20365
Barbara Flejter	8503
BARBARA GEENEN	48145
BARBARA GEENEN	48149
Barbara Johns	19714
Barbara Johns	20552
Barbara Kasch	9051
Barbara Lunn	10526
Barbara McDonald	7961
Barbara Morris	20286
Barbara Taylor	7915
Barbara Vieira	5856
Bartlomiej Tomczak	5896
basset marie	7898
Bea Vassne	5569
Beegle Margaret	5747
Belinda Gow	17910
Belinda Scott	20522
Ben Malka	8058
Benjamin Giaquinto	8962
Benjamin Wood	8795
Beret Amundson	6062
bernadette gustin	8081
Bernard Lacourse	7807
Bernie Schlafke	5316

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3 Center For Biological Diversity	
berny lottner	16463
Beth Ayoub	8968
Beth Braun	17898
Beth Coutre	9080
Beth Coutre	9167
Beth Ryan	5232
Beth Ryan	9095
Bethany Deneen	7299
Bethany Olson	5244
Betsey Porter	5527
Bettina Froehlke	10451
Bettina Lorenz	5109
Bettina Lorenz	8189
Bettina Lorenz	10559
Bettina Lorenz	19619
bettina rossi	47545
Bettina Taiana	15227
Bettty Scully	8884
Betty Almand	6905
Betty Almand	17889
Betty Almand	17914
Betty Almand	19558
betty h	9457
betty sawyers	19687
Betty Stewart	7912
Betty Stewartt	11859
Betty Tveite	8936
Betty Williams	5453
Betty Williams	7972
bev lipson	19554
Bev Stone	8631
Beverly Davis	5092
Beverly LaClair	8620
Beverly Long	9077
Beverly Rae	8028
Beverly Root	19559
Beverly Stecklein	20382
beverly wendling	8626
Bianca Wittkowski	5025

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Bianca Wittkowski	10530
bill breidenstein	8496
Bill Brown *=	5265
Bill Dahlquist	5678
Bill Greene	8467
Bill Greene	11276
Bill Kehl	9005
BILLI HANLON	15024
Billie Wolf	17960
BILLY WOODS	8306
Bjoern Mannsfeld	9006
Bo Breda	6866
Bob Bartlett	8498
Bob Messerich	8573
Bob Miller	8429
Bob Ramlow	5179
Bobbie Hodgdon	8762
Bodil Ribel	7795
Bonita Roux	6942
Bonita Staas	6865
Bonne Stewart	5327
Bonnie Conrow	8143
Bonnie Gallik	8079
Bonnie Hearthstone	11881
Bonnie Hedrick	5210
Bonnie smith	18046
Bonnie Steiger	13026
boyd hore	19668
Brad Miller	10475
Brad Snyder	8864
Bradford Kral	5723
Bradley Garcia	20735
Brandi Joswick	13062
Brandon Boutros	20715
Brandon Xie	47568
BreAna Cooper	15854
BreAna Cooper	20595
Breanna Lees	8408
Breawnna Wunder	8458

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3 Center For Biological Diversity	
Brenda Cox	5132
Brenda Crazy Bull	7798
Brenda Miller	19949
Brenda Simon	10577
Brenda Smith	5030
Brenda Smith	8330
Brenda Smith	10442
Brenda Smith	11788
Bret Johnson	5215
Bret Withrow	18017
Brian Boettcher	5156
brian Feeney	10488
brian Feeney	19544
Brian Fink	17883
Brian Glassel	8881
Brian Golding	9144
Brian Gottejman	8005
Brian Guadagno	5044
Brian Guadagno	8311
Brian Henning	5824
Brian Jenkins	6816
Brian Jenkins	47581
Brian Kiekow	8473
brian lamb	13052
brian pappas	20461
Brian Porter	5543
Brian Robb	9181
Brian Wilkerson	8728
Briana Mesias	9206
Brianna Lepore	5083
Bridget Wilson	8240
Brie Kidd	5626
brigitte ballouard	8048
brigitte ballouard	16446
brigitte ballouard	19773
Brigitte Coloos	8296
Brigitte Hoin	9159
Brigitte James	10635
Britt Miller	11808

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Britta Züblin	8309
Brittani Killion-Mottola	20291
Brody Hagemeier	5671
Bronwen Walters	16451
Brooke Wilton	20388
Bruce Allen	6908
bruce hindle	8120
Bruce Krawisz	5498
Bruce Lee	5208
Bruce Perry	6884
Bruce Sielaff	5166
Bryan Duncan	15050
Bud Smith	8004
C Bradley	5672
c connor	11273
c connor	20739
c connor	38012
C Duer	5465
C E Krause	15076
C Quast	8724
C Schilte	7971
C Schilte	19555
C. Bauer	5269
C.A. THOMAS	47958
Caitlin Burke	15217
Caitlin Kundrat	8220
Caitlin McInerney	47888
Calleen Bohl	5393
Camelia Mitu	5694
Cameron Coffman	10682
Cameron Talty	8524
Cami Leonard	11303
Camille Gilbert	20444
Camille Johnson	8710
Camryn Bolkin	10665
Camryn Lee	10578
Camryn Lee	38007
Canan Tzelil	9128
Canan Tzelil	10448

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3 Center For Biological Diversity		
Canan Tzelil		16403
Candace Keskitalo		5304
Candy Petrick		6963
Candy Petrick		10650
Cappierre Dellarai		8486
Cara Ammon		6835
Cara Striff		9162
Cari Wright		5607
carina skolnikova		7903
Carl Peterson		20513
Carl Schwensohn		8558
Carla Cicchi		15230
Carla Herwitz		5123
Carla Maria Policarpo Vicente		5862
Carlen Lovejoy		5815
Carmen Calleja		18057
carmen rico		8059
carmen Rico		5107
Carol Ann Brady		11829
Carol Ann Brady		11832
Carol Bennett		5230
Carol Bilge		8032
Carol Bischoff		5711
carol carlson		8886
Carol Else		5057
Carol Frechette		8623
Carol Freese		7824
Carol Gabor		8197
Carol Hale		9044
Carol Hammond		10499
Carol Hammond		47582
carol jagiello		6806
carol jagiello		18059
Carol Jewell		6920
Carol Johnson		8431
Carol Kuelper		5090
Carol McIlree		8515
Carol Mellom		8965
Carol Minkus		9042

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3 Center For Biological Diversity	
Carol Mock	48008
Carol Ohlendorf	15220
Carol Ohlendorf	20405
Carol Ralston	5642
Carol Ritchie	5332
Carol Taggart	6831
Carol Taggart	10591
Carol Waskovich	7786
carole berlou	19639
Carole Mathews	10565
Carole Osborn	19563
Carolina Furtado	5900
Caroline ONEAL	10444
carollina kormann	8241
carollina kormann	16471
Carolyn Bennatti	9036
Carolyn Clark	7799
Carolyn Doty	16445
Carolyn Dreeszen	9060
Carolyn Hartt	5034
Carolyn Kiel	6960
Carolyn Kiel	10552
Carolyn Pugh	9443
Carolyn Riddle	9161
carolyn silvers	5054
Carolyn Wensman	5436
Carrie Beer hardy	8553
Carrie Lundberg	9018
Carrie Noring	5811
carrie west	9135
Casey Jo Remy	5094
Casey Jo Remy	10685
Casey Jo Remy	19733
Catherine Albers	19704
catherine barcelo	8040
Catherine Corwin	5078
Catherine Faber	9052
Catherine fontanazza	8603
Catherine Gould	5023

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Catherine Harrison		6953
Catherine Harrison		7907
Catherine Harrison		7950
Catherine Harrison		8272
Catherine Harrison		16443
Catherine Houtakker		8826
Catherine James		18031
Catherine Levine		6849
Catherine Livingston		6928
Catherine M Baker		5552
Catherine McCoy		8377
Catherine McCoy		13038
catherine ridder		17963
Catherine Riiska		10517
Catherine Ruane		4965
Catherine Tierney		7900
Catherine Tierney		8206
Catherine Tierney		10580
Catherine Tierney		20511
Cathy Finley		5655
Cathy Lambeth		11848
Cathy Loewensteib		47890
Cathy Mathias		20335
Cathy McPeek		10608
CATHY POHLMAN		5565
CATHY POHLMAN		8247
CATHY POHLMAN		15105
CATHY POHLMAN		19609
Cathy Ruperti		4966
Cathy Trick		8534
Cathy Vinciguerra		20345
Cathy White		5398
cece frazier		9203
Cecilia Alvarez		8445
Celeste Capasso		4973
Celia okelley		6863
Cere Burmania		8748
Chanel Brown		17982
Chantal Buslot		5717

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3 Center For Biological Diversity	
chantal de geest	16414
chantal Provost	8811
Charlene Boden	8590
charlene madosh	8217
Charlene Rush	15124
Charles Arnold	47538
charles Ashley	8579
Charles Diver	5216
Charles Riddle	18050
Charles Riddle	19624
Charles S Wilson	8844
Charles Stransky	6952
Charlotte Eriksson	10622
Charlotte Grillot	7236
Charlotte Newman	8922
Charlotte Vardan	10610
Charmaine Breitengross	15215
Chase Ricciardi	6812
CHENVAL CATY	8025
Cher Johnson	8774
Cherie Hatlem	19718
CHERIE REEVES-RUTLEDGE	10574
Cheryl Ash	8485
Cheryl Bartholomew	5162
Cheryl Braxton	8210
Cheryl Braxton	19538
Cheryl Fergeson	10472
Cheryl Hughes	5707
Cheryl Olson	19682
Cheryl Stinar	8258
Cheryl Twaddell	20732
Chiara Panigada	8274
Chiara Panigada	8880
Chiara Panigada	15880
Chiara Testi	9462
Chiara Testi	10447
Chiara Testi	10520
Chiara Testi	10686
Chiara Testi	11284

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3 Center For Biological Diversity		
Chiara Testi		15206
Chiara Testi		20713
Chiara Testi		20718
chiara testi		37987
Chloe Barbier		11857
Chloe Barbier		9248
Chloe Barbier		15203
Chloe Barbier		19692
Chris Betit		8263
chris brazis		6874
Chris Chastain		8074
Chris Cole		19719
Chris Covelli		8964
Chris Drumright		5669
Chris Messerschmitt		20436
Chris Messerschmitt		20731
Chris Middleton		6819
chris schneebeli		5134
Chris Sheppard		5254
Chris Simmons		6929
chris sutton		5541
Chrisaa Heuckeroth		9100
Chrissy Main		8522
Christeen Anderson		5886
Christeen Anderson		9170
Christi DeMark		9178
CHRISTIAAN PETERSEN		8035
CHRISTIAAN PETERSEN		5061
Christiaan Petersen		10609
Christiaan Petersen		11778
Christiaan Petersen		15068
CHRISTIAAN PETERSEN		17969
Christian Nelson		7240
Christian Nelson		9113
Christian Nelson		9190
Christian Ramstack		5306
christiana diamandi		6923
christiana diamandi		6927
Christiane Benckendorf		10515

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Christiane Schmitz	5443
Christiane Vander Motte	9230
Christina Beard-Moose, PhD	15090
Christina C	5491
Christina Milauskas	8334
christina roe	5093
Christine Callanan	5533
Christine Carollo-Zeuner	6058
christine castro	11299
Christine DiSimone	9118
Christine Frank	7768
Christine Frank	8933
Christine Huff	5640
Christine Morrissey	5520
Christine Tendle	8980
Christine Waring	8551
Christine Wisch	5564
Christophe Ouedec	17951
Christopher Dowling	6954
Christopher Kornmann	5506
Christopher Loch	5323
Christopher Pond	9068
Christopher Pond	9188
Christopher Pond	9448
Christopher Pond	10497
Christopher Pond	10690
Christopher Pond	11287
Christopher Pond	13051
Christopher Pond	15832
Christopher Pond	16444
Christopher Pond	20387
Christopher Pond	20719
Christopher Pond	37975
Christopher Rockwood	5445
Christopher Thorpe	5654
Christy Erickson	5418
Christy Lacy	8340
Chuck McCall	8731
Cindy Elgren	5738

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3 Center For Biological Diversity		
Cindy Ferreri		10581
Cindy Greer		10604
Cindy Massey		15958
Cindy Page		5574
Cindy Risvold		8845
Cindy Robinson		10514
Cindy Schwartz		8441
cindy sprecher		5115
cindy sprecher		7823
Cinthia Davey		5192
Cinzia Caporali		8430
Cinzia Caporali		10681
Cinzia Caporali		19671
cinzia linnocente		8689
CK Baggett		20272
Claire Barnett		5488
Claire Chambers		5799
Claire Chambers		5878
Claire Chambers		7937
Claire Chambers		7939
Claire Chambers		9251
claire lloyd		11817
claire morgan		19707
Claire Russell		5730
Claire Russell		20290
Clara Halfin		6959
Clara Halfin		19703
Clare Lynam		8130
Clarence Juelich		5308
Claudia Castillo		9195
Claudia Gibson		20352
claudia pessoa		4993
claudia pessoa		16475
Clay Baumung		9062
Clay G. Colson		15202
Clif Van Auken		20263
Cody Cowdin		8982
cody levitt		8077
Cody Pattison		8561

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3 Center For Biological Diversity	
Colin Jenkins	20400
Colleen Hamilton	13775
Colleen Krebs	5483
Colleen Mellors	7271
Colleen Meyer	9447
colleen nersesian	18014
colleen olson	8253
Colleen Stoyas	8409
Colleen Thorne	8090
Collette Giese	5910
Collette Halford	5728
colller sabine	8051
Colonel Meyer	16442
Connie Hicks	5015
Connie Hicks	8255
Connie Hicks	18008
Connie Hupperts	7945
Connie Hupperts	10666
Connie Nunemaker	8755
Connie Rena Childs	17954
Constance Jerome	5616
Constance Lorig	8460
Coral Conant Gilles	8659
Corde Rea	6903
Corde Rea	8679
Corey E. Olsen	8668
Corey Pane	8047
Corey Pane	9234
Corey Pane	10516
Corey Pane	13036
Corey Pane	16413
Corey Pane	20296
Corey Pane	38017
Corliss Phillabaum	5353
Cortney Evans	7992
Coty Priesman	20402
Courtney Coggins	6811
Craig Brown	5248
Craig Burns	8251

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3 Center For Biological Diversity		
Craig David		5280
Craig Geiger		16482
Craig Keith Antrim		7872
Craig Poorker		5264
Craig Worrel		5277
Criss sledge		8974
cristal rojas		15045
Crystal Frisk		15196
Crystal Silva		48089
Curtis Tomlin		20515
Cynthia Betts		8799
cynthia butler		20254
Cynthia Cherny		5467
Cynthia Gardner		8956
Cynthia Jo Hines		15186
Cynthia Lee		5681
Cynthia Leger		9069
Cynthia Marie Lippman		11852
Cynthia Marie Lippman		20519
cynthia murphy		8336
Cynthia Patterson		9112
Cynthia Randall		8920
Cynthia Viar		9226
Cynthia Virnig		5774
Cynthia Willsey		8646
D Klump		8338
d lap		48025
D P		5555
D&D Redman		6861
D&E Smith		6810
D&E Smith		6862
D. Singer		9276
Dabra Grant		9007
Dale Gelfand		15207
Dale Heltzer		8816
Dale Maus		5601
Damon Bell		9428
Dan Allen		8945
Dan Driscoll		10623

Sender Name	Submission ID
3 Center For Biological Diversity	
Dan Larivey	10661
Dan LeMieux	5667
Dan Wicht	8660
dana dembinny	8275
dana dembinny	16456
dana dembinny	19556
dana dembinny	20403
Dana Whitney	5100
Dania Laubach	37985
Daniel Barron	7596
Daniel Fewster	10630
daniel gan	19689
Daniel Holzman	5731
Daniel Kolender	7990
Daniel Partlow	5588
Daniel Senic	17934
Daniel Sylvester	8230
Daniela Höhn	9182
Daniela Höhn	9201
Daniela Lavanza	13005
Daniela Marzola	8234
Daniela Marzola	9264
Daniela Rossi	18036
Daniele Dolleans	5615
Danielle Esau	16450
Danielle Esau	16476
Danielle Esau	37976
Danielle Pirotte	8170
Danielle Pirotte	11306
Danielle Pirotte	17899
Danielle Rosenstein	48004
danielle ross	7283
Danielle Tran	5861
Danny Ivanovic	8180
Danny Ivanovic	16416
Danuta Watola	5793
Dany VINCENT	8319
Danya Kuperstein	4974
DArcy Goodrich	10593

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3 Center For Biological Diversity		
Darla Rowley		19637
Darlene Hendry		8876
Darlene Nichols		9211
darlene wolf		16425
Darlene Zagata		6911
Darrell Wilson		5053
darrin mckeehen		11886
Darvin Schild		13001
daryl bishop		10569
DAVE BORKOWSKI		6893
dave delson		11777
Dave Lipton		17979
DAVE RUONA		5145
Dave Searles		5635
davean figueroa		15171
Daved Wachsman		18018
David and Audrey Funk		8014
David and Audrey Funk		11874
David Andersen		8685
David Bicknase		10688
david bowles		5800
David Brultz		5639
David Canady		4988
David Canady		38013
David Ceder		5391
David Councilman		5891
David Councilman		8768
David Davis		7831
David Dix		5817
David Drecktrah		8566
David Fitzgibbon		9189
david frank		8678
David Friend		20370
David Hacker		20374
david harland		5338
David Hart		8675
david j. lafond		15955
David Judd		8327
David Klass		8244

Sender Name	Submission ID
3 Center For Biological Diversity	
David Kurfis	8894
David L. Smith	8784
David Moffatt	5505
David Moss	5202
David Munsinger	5424
David Myers	8832
David Rieckmann	13015
David Romportl	10462
david santana	20326
David Smith	6807
David Smith	8726
David Smith	19599
David Sweeton	15177
David T. Parchem	8468
David Tomb	11867
David Tomb	5068
David Van Grinsven	5181
David Wilson	5031
David Wilson	8701
david wise	10617
Davinia Hernández Gómez	10504
Davorin Skender	37967
Dawn Ayers	15231
Dawn DeBerry	8362
Dawn Demaske	8013
dawn harrod	10662
Dawn Hendry	9146
Dawn Hendry	9441
Dawn Velez	8767
Dean Borgeson	8694
dean peter	5281
Dean Ricer	8890
Dean Stephens	5374
Dean Wagner	10619
DeAnna Bialczak	6857
deanna brayton	5442
Deanna Koralesky	5427
Deanna Sommerfeld	5740
Deanna Sommerfeld	5785

Sender Name		Submission ID
3 Center For Biological Diversity		
Deb Friedman		7252
Deb Fritzler		47892
Deb Gordy		9019
Deb Potts		5732
Deb Sands		5267
Debbie Brozak		20262
debbie bullard		19699
debbie dugan		20708
Debbie Griffin		6969
Debbie Griffin		8196
Debbie Langenfeld		9222
Debbie Neimark		8355
Debbie Neimark		9102
Debbie Neimark		11291
Debbie Neimark		13035
Debbie Neimark		17920
Debbie Neimark		19710
Debbie Neimark		20271
Debbie Reynolds		8287
debbie tsagalas		11838
debbie young		47580
Debi Martinez		9270
Debi Martinez		11305
debora young		7793
debora young		19631
debora young		20360
deborah beck		6901
deborah beck		7805
Deborah Fischer		8707
Deborah Friedrick		17878
Deborah Henriksen		11288
Deborah Kavruck		16478
Deborah King		8337
Deborah Kmiecik		5197
Deborah Lane		7312
Deborah Mangold		11315
deborah marks		10483
Deborah Soloway		9174
Deborah Turner		15085

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3 Center For Biological Diversity	
deborah van	5010
DEBRA CROWE-KUWAYE	6951
debra kirsch	8019
Debra Miller	5296
Debra moray-brach	10600
Debra moray-brach	19600
Debra Schmid	5165
Debra Tilkens	5291
Dee Grimsrud	8809
Dee Miranda	15225
Deena Brazy	8719
Deidre Digel	9352
Delner Dayton	5479
Delphine Gorget	11321
dena reedy	7293
Denise Breton	5619
Denise Dunlap	8088
Denise Dunlap	8475
Denise Dunlap	16460
Denise Laffer	8543
Denise Marlowe	8568
Denise Mitchell	5055
Denise Parks	9247
Denise Rischel	7999
Denise Willey	6877
Denise Williams	19575
Denise Wright	5687
Deniz A-McCoy	8836
Dennis Grzezinski	5313
dennis kreiner	16417
Dennis Lee Cleven	5660
Denny Blum	5373
Denny Boehm	8572
Derek Gallion	7782
Derrelle Gable	19649
Derrelle Gable	20341
Derrelle Gable	20385
desiree johnson	9260
Diana Cumming	5253

Sender Name		Submission ID
3 Center For Biological Diversity		
Diana Fisher		8054
Diana Roldán		7818
Diana Van Ormer		4994
Diana Van Ormer		19690
Diana Van Ormer		20319
Diane Brown		5536
Diane Brown		19657
Diane Cornwall		8116
Diane Marks		18000
Diane Schwarz		7897
Diane Schwarz		10558
Diane Shaughnessy		4991
Diane Wynne		9030
dianna barrella		17999
Dianne Knoben		7243
Dianne PunKay		5086
Dianne Robertson		5198
Dick Gallien		5318
dick smith		8736
Dimitris Dallis		10529
DIVYA DARSHAN GURRALA		8114
DivyaDarshan Gurrala		15099
DJ Donnelly		19590
DJ Wikjac		8771
Doby Finn		10457
dogan ozkan		5630
Dolores Cohenour		6845
Dolores Cohenour		10456
Dolores Mick		8662
DOLORES MORENO		47866
Domenico Graniello		4975
Domenico Graniello		4980
Domenico Mastrototaro		8268
Dominique THYS		9274
Don and Joyce Faulk		9187
Don Bry		5236
don cooke		37998
Don Steinke		5342
Donald Hammon		5430

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3 Center For Biological Diversity	
Donald Kosak	8902
Donald Miller	8410
Donald Munn	20501
Donald Smith	7268
donald webb	11845
Donald Wright	17975
Donette Erdmann	5485
Donna Anderson	5387
Donna Balmer	8404
Donna Brown	15079
Donna Brown	15151
Donna Brown	17902
Donna Buckbee	5512
Donna Butler	5725
Donna Castelli	17890
Donna Daubendiek	8588
Donna DeBroux	8821
Donna Feirtag	38014
Donna Gasbarro	5314
Donna J	8265
Donna Nelson	8642
Donna Olsen	5519
Donna Rich	5075
donna sheridan	8547
Donna Standlee	7964
Donna Standlee	10636
Donovan Williams	4978
Doris Adebanjo	9185
Doris Lein	10673
Doris Matte	38003
Doris mundinger	17942
Dorothea Dell	8595
Dorothy Davies	9120
Dorothy Neff	11888
Dorothy Olson	8807
Dorothy Pierret	5160
Dorothy Poole	11325
Doug & Karen Lenier	5050
Doug Marchel	5867

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3 Center For Biological Diversity	
Dr Copas	7998
dr j	47956
Dr James Livingston	4997
Dr Nicki Davidson	5529
Dr. Charlie Beil	8096
Dr. Lee Jolliffe	9021
Dr. Lonnie Kaczmarsky	5836
Dr. Robert Cospito	10637
Dr. William Skip Dykoski	8671
Drew Carlson	5312
Drew Pelton	11823
Drew Roenneburg	5597
Drs. Sher and Randall Todd	7946
Dru Ann Delgado	9442
Duane Baker	5708
Duane Gustafson	8549
Dulce Cervantes	4961
dunn kathy	9354
Dustin Cloyes	19659
Dustin Cloyes	47872
Dwight Bodycott	10546
Dyke Williams	8924
Dzenan Becic	5226
E Blankers	15041
e hegeman	8200
EA Beck	8713
Earl & margie VanBerkom	5390
Earl Frounfelter	6964
eben futral	5782
Ecaterina Megyes	5828
Echo Greenfield	5005
Ed Piotrowski	8462
Ed Rivera	15178
Eddie Gutierrez	7866
Edeltraut Renk	9256
Edith Soto Leon	5823
Edith Soto Leon	6956
Edith Soto Leon	15139
Edith Soto Leon	18015

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3 Center For Biological Diversity	
Edith Soto Leon	20386
edna anderson	5294
Edna Ciurleo	5497
Edna Gay	9156
Edward Wawrzyniak	7241
edwin skinner	8038
Edy G Soto	10446
Edy Rayfield	7948
Eileen Cho	20557
Eileen Deutsch	17913
Eileen Honey McGarry	17996
Eileen Kulp	17884
eileen levin	5431
ELAINA OZEROFF	8291
Elaine DeCarmo	8218
Elaine Kinch	5159
Elayne Lappi	5739
Elbereth Gilthoniel	11827
Eleanor Schwank	8417
Eleanor Schwank	38015
Eleanor Schwank	38020
Elena Ennouri	15829
Elena Petrova	16400
Elena Petrova	37984
Elena Prokopchuk	4989
Elena Prokopchuk	7973
Elena Prokopchuk	8285
Elena Prokopchuk	10634
Elena Shepeleva	7781
Elfie Elms	8432
Elinor Ogden	8652
Elisa Rico	10576
Elisabeth Bechmann	6999
Elisabeth Bechmann	15160
Elisabeth Bechmann	19711
elisabeth Karcher	9233
Elisabeth Noty	9108
Elisabeth Vargas	6850
Elisabetta Goss	19572

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3 Center For Biological Diversity		
Elise Ray		19597
Elisenda Toda		5112
Elisenda Toda		8366
Elissa Mericle-Gray		8438
Elissa Mericle-Gray		8439
Eliza Sosa		9437
Elizabeth Bossert		9186
Elizabeth Brown		5744
Elizabeth Cisek		11296
Elizabeth Collard		5110
Elizabeth Coral		10567
Elizabeth Cullen		5833
Elizabeth Eide		8118
Elizabeth Gi		13030
Elizabeth Grainger		5040
Elizabeth Grainger		8447
Elizabeth Harry		5381
Elizabeth Hollin		20726
Elizabeth Ishmael		8622
Elizabeth Javinsky		5155
Elizabeth Karre		5151
Elizabeth MacKelvie		5219
Elizabeth Maus		5734
Elizabeth Merz		5157
Elizabeth Mitchell		5879
Elizabeth Neuvar		5295
Elizabeth Nipper		7965
Elizabeth Patten		18056
Elizabeth Pendleton		17986
Elizabeth Shirah		5813
elizabeth shore		10461
Elizabeth Stewart		13013
Elizabeth Stillman		16411
Elizabeth Sully		8893
Elizabeth Winters		9171
Ella Reeves		5700
elle hekner		7259
Ellen DeMarco		5663
ellen golden		17930

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Ellen Goodman	10647
Ellen Goodman	17912
Ellen Gutfleisch	8586
Ellen Homsey	5371
Ellen Homsey	20277
Ellen Kenney	9012
Ellen Koivisto	6846
Ellen Koivisto	8283
Ellen Koivisto	18051
Ellen Sanford	15197
Ellery Pennock	9232
Ellie Meehan	8186
Ellie Paysinger	15069
Elma Tassi	17915
Elmer Fugman	15086
Elmer Fugman	20288
Elo-Mai Noormets	15146
Elsa BROCHE	8043
Elsa Vidal	11810
Elske Huygen	6980
emelie earle	8490
Emilia Silva	47925
Emily Emersen	11293
Emily Fliegel	11834
Emily Fliegel	11844
Emily Frank	11297
Emily G	10450
Emily Gordon	9116
Emily Grisham	47527
Emily Hauer	19613
Emily Koehler	5168
Emily Koehler	5613
Emily Rowley	5686
Emily Rowley	48151
Emily Sander	8758
Emily Smith	8011
Emily Strasser	5576
Emir Bacic	20724
Emma Carlson	8517

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Emma Spurgin Hussey		5874
Ephraim Learned		8443
Eric Bavier		5808
eric biemuller		5447
eric biemuller		5455
Eric Brooker		9339
eric hensgen		9246
Eric Lambart		5064
Eric Luu		8906
Eric Nau		16433
Eric Nau		18039
Eric Parks		20238
Eric Robson		5148
Eric Zakin		15058
Eric Zakin		18047
Eric Zakin		20318
Erica Lambert		9176
Ericka Mac		16466
Erik Rowen		7264
Erin Enger		7923
Erin Lindquist		10481
erin rosaire		19658
Ernie Walters		20274
esteban de arteaga		8938
Estefania Leon		20550
Esther Ciprian		7794
esther lawson		9140
esther lawson		17981
Esther Perry		8944
Esther Peterson		8863
Ethan Brown		8802
Ethan Kellogg		5787
Eugenia Ahern		7863
Eva Kraemer		9013
Evan Shamoon		8203
Evan Shamoon		10643
Evan Shamoon		19579
Evelyn Badeau		9220
Evelyn Pate Alcalde		5199

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Evelyn Pizzala	5299
EWA KUCZENSKA	20264
ewa oscarsdotter	6965
Eyad Buhaissi	8593
fairlee gamble	8269
Faith Strailey	5612
Faith Strailey	19537
Faye Miller	5537
Faye Swan	5853
FAyette Shore	5260
Fayhaa Doja	20738
Fernanda Loustaunau	9121
Fernanda Tanselle	17927
Fernando Valentin	8978
feyza kasimoglu	19536
Florence Deadman	9216
Florence Deadman	20255
Florence Magnan	8928
Forrest Loucks	5344
Forrest Netzel	8109
Fran Field	5382
Fran Watson	7835
Fran Watson	19669
franca bontacchio	8298
franca bontacchio	10683
franca bontacchio	13008
franca frebet	37968
Francene Amari-Faulkner	15018
Frances Darcy	5572
Frances Garabedian	8613
Frances McDonal	5152
Francesca Erickson	5245
francesco aleo	4987
Francesco de Chirico	38005
Francois de la Giroday	17888
Frank & Coralee Poppie	7811
Frank Biermann	19540
FRANK BURGER	5803
frank florin	8733

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Frank Longo		20242
Frank Lorch		6830
Frankie Seymour		8423
Frankie Seymour		10607
Frauke Lympius		5820
fred bretschger		5454
fred goldberg		8927
freddie williams		5691
Frederica Steller		9063
Frederica Steller		7941
Frederica Steller		8289
Frederik de BENOIST		4979
Frederik de BENOIST		8385
frederique jolyf		5049
Friederike Hoffmann		8790
G M		5385
g pearson		6896
G. Paxton		10675
G. Paxton		15904
g. west		5452
g. west		8164
g. west		9446
Gabby Sekuterski		37979
Gabi Janßen		10522
Gabor Vass		7232
Gabriel Corza		6814
Gabriel Sheets		4972
Gabriel Sheets		8280
Gabriela Baldaia		9126
Gabriele Zimmermann		6921
Gabriella Nunez		8493
Gabrielle Gomez		8162
Gabrielle Halpin		5450
Gaby Micallef Trigona		15223
Gail Courtney		9202
Gail Gaebe		5538
gail harty		5469
Gail Linnerson		5309
Gail Smallridge		48046

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Gale Rullmann	20239
Gary B Walton	5410
Gary Carpenter	6922
Gary Carpenter	8125
Gary Carpenter	9009
gary joffe	10684
Gary Lamson	5336
Gary Webb	5130
Gatha Pierucki	5693
Gatha Pierucki	6913
Gay Browning	4992
Gayle De Nardis	8760
gayle richardson	11836
Gaylord Yost	5400
Genene Weldon	8010
Genene Weldon	7296
geneva adams	13006
geneva adams	13044
genevieve Pieroni	5830
Genevieve Shank	8418
George Burtness	8456
George Davis	8781
George Moore	8000
George Ripeckyj	5036
george skiadopoulos	10518
George Zoulis	11314
Gerald Ryan	7802
Gerald Shaia	4983
Gerald Shaia	9016
Gerald Zedler	5434
Geraldine Pritchard	6974
Geraldine Pritchard	7783
Geraldine Pritchard	15052
gerrit woudstra	8641
gerrit woudstra	15172
gerry collins	5623
Gerry Rosenberg	37997
Gertie Beaucage	9024
Gertruida Wessels Wessels	9262

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Gian Luca Ribichini		5026
Gian Luca Ribichini		8452
Giana Peranio Paz		5773
Gianfranco Frelli		47970
Gilda Gustafson		7875
Gina Erskine		20721
Gina Marano		5662
Gina Pantier		6881
Gina Pantier		8175
Gina Pantier		17921
gina rueck		8512
gina rueck		20496
Ginger Hill		5756
Ginger Hill		9218
Ginger Koerner		8905
Ginger McIntosh		5489
Ginny Becker		7787
giuliano rigotti		5018
Glen Li		38028
Glenda Denniston		5377
Glenn Glenn		5470
Glenn Teschendorf		8717
Glinda King		8971
Gloria Berberich		47572
Gloria De Salvo		7968
gloria hanson		7914
Gloria Hatrick		8979
Gloria Stovall		10511
Gloria-Jean Berberich		7935
Gordon Gottbeheut		8834
gordon villwock		8538
Grace Cross		7840
Grace Drummond		11824
Grace Johnstone		15170
Grace Padelford		8514
Grace Perry		5111
Greg Hinze		8820
Greg Kimber		9275
Greg Klave		8780

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Greg Koshak	5816
Greg Rupert	8476
Greg Sainsbury	8889
gregg norman	10455
gregory kendall	8527
Gregory Miller	5223
Gregory Vignapiano	8065
Greta Gaard	5421
Gretchen Bratvold	5463
Gretchen Goodman	9056
Griffin Hughes	5169
Gudrun Dennis	8152
Gudrun Matthaus	7310
Guy Smith	7256
Gwen Lyndsong	5037
H. Millard	8379
Haley Hughes	6844
HAM MORAN	5558
Hannah Goebig	6809
Hannah Hansen	8157
Hannah Wenrich	7871
Hans van Huijkelom	47968
harold meyer jr	5118
harold meyer jr	8453
Harriet Anderson	8316
Harriet McCleary	8592
harriett barrett	9000
HARRISON P BERTRAM	5847
HARRISON P BERTRAM	5872
Harvey Metzger	16422
harvey stein	19691
harvey stein	20283
Heather Andersen	8892
Heather Apple	8674
Heather Dove	19693
Heather Fadden	20709
Heather Forsythe	11784
heather fox	7987
Heather Halvorson Wolver	5674

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Heather Hundt	5206
Heather Kemper	9209
Heather Turbush	6847
Heather Turbush	7858
HeatherR Nord	5714
HeatherR Nord	7278
Heidi Aubrey	5082
heidi baruch	6853
Heidi Blechar	9107
heidi elie	8161
Heidi Endres	5593
Heidi Johnson	9435
Heidi Mirka	5762
Heidi Parvela	5677
Heidi Parvela	8171
Heidi Parvela	18026
Heidi Sandmeier	8776
Heidi Sell	7282
Heidi Tartell	7944
heidi uppgaard	8651
Heike R	16431
Hein Bloem	5247
Helen Baumgartner	5235
Helen Delaney	5500
Helen Matekunas	20361
Helen Viner	8163
Helen Viner	9231
Helena-Sophia Exel	7969
Helene Wetzel	9196
Helga Guequierre	5511
Helgaleena Healingline	9040
herbert davis	8546
Herle Quinquis	8151
Herman Bender	5487
Heyward Nash	8598
heywood jablome	9115
Hilarie Ericson	20553
Hilary Entley	8111
Hiroe Watanabe	5119

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3 Center For Biological Diversity	
Holli DuShane	19636
Holly Bachman	9217
Holly Schunk	20244
Holly Smith	8913
Howard Hassman	8885
Howard LaMell	7890
Howard LaMell	15158
howard wapner	9273
Hugh Curtler III	8099
I Roed	8775
ian Bosserman	8039
Ilda Johnston	5081
Ilene Kazak	6997
Illia Rosenthal	47938
Inga Turner	11831
Inga Zile	5462
Inger Bådal	8184
Ingrid Le Floch	37981
Iovanovici Camelia	8190
Iovanovici Camelia	9258
Iovanovici Camelia	11304
Iovanovici Camelia	15057
Iovanovici Camelia	20348
Iraida Capaccio	17965
Irena Franchi	9148
Irene Mills	7993
Irene Mills	9129
Irene Vogel	10572
Irina Lamadrid	37999
Iris Chynoweth	5865
Iris Mergner	18030
Iris Mergner	19573
Isaac Hernandez	9064
Isabel Osorio	5760
Isabella La Rocca	10508
Isabella La Rocca	17906
Isabelle Alvarez	9438
isabelle FERNANDES	8106
isabelle floch	9207

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3 Center For Biological Diversity		
Isaiah McCourt		9004
ismet filiz selmanFilizSelman		7809
ismet filiz selmanFilizSelman		16418
Isombe Martin		9212
Israel Arroyo		16447
Israel Arroyo		19552
Istvan Takacs		17949
Itziar Gienr		19580
Iva zafirovska		7836
Ivan Magrin-Chagnolleau		8071
Ivan Snajdar		9085
Ivana Minic-Lukac		11324
Iwona Dzialek		20278
J chu		6912
J chu		8252
J chu		10605
j massarini		5464
j massarini		10464
J MASSETTI		5222
j patrick		8154
j patrick		8231
J S Deran		38027
J U		11850
J Wirth		19568
J YERMAN		10498
J. K. Fort-Strietzel		8303
J. Lyle		20343
JACK CARRICK		8505
Jack Jeansonne		5305
Jack Jenkins		5194
jack steinberg		7817
Jackelyne Sanchez		20517
Jackie Corby		6823
Jackie Edgar Person		8756
Jackie Hartman		16459
Jackie Mason		5158
Jackie Tryggeseth		8411
jacklyn loughbom		6918
Jacline Gortman		7280

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3 Center For Biological Diversity	
Jacob LeBeau	5468
Jacqueline Crow	9096
jacqueline devos	8009
Jacqueline Hollis	9225
Jacqueline Hollis	19698
Jacqueline Pavan	11309
Jacqueline Peipert	7852
Jacqueline Robinson	8270
Jacqueline Tuckley	6986
Jade Kiran	9141
Jaesa J. Momin	8450
Jaesa J. Momin	11851
Jaime Noddings	9072
Jake Jacobi	8271
JAKE SCHWARTZ	5832
jalen Lumia	7877
James Andrews	8578
James Beeby	5331
James Borst	5414
James Conway	8324
James Degner	8860
James Fitzpatrick	5724
James Glatz	8412
James Grant	8304
James H	20548
james lutz	47868
James Maurer	8605
James Mulcare	5779
James Pomeroy	7254
James Reininger	5480
James Schuelke	7318
James Ultang	8708
James Walker	8839
James Wellman	8126
James Williams	11294
James Wilson	5882
James Wilson	20716
Jamie Conrad	20366
Jamie Fillmore	8991

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3 Center For Biological Diversity	
Jamie Fillmore	11853
Jamie Fillmore	18006
Jamie Fillmore	20349
Jamie Fillmore	47975
jamie gilmore	6988
Jamie Greer	7860
Jamie Greer	8133
Jamie Greer	11295
Jamie Greer	15070
Jamie Greer	19595
Jamie Greer	20438
Jamie Greer	47963
Jamie Hoerter	5596
Jamie LeDent	8394
Jamie Walbeck	15056
Jamin Carlson	7298
Jan Amberson, Ph.D.	5530
Jan Christensen	8879
Jan McCall	5748
Jan McCall	5754
Jane and Rino Servadio	47851
Jane Cleave	7288
Jane Davidson	5844
Jane Johnson	5122
Jane Johnson	5186
Jane Nolan	5618
Jane Norling	9436
Jane Reynolds	5425
jane stedman	5307
Jane Sunshine	4976
Janet Almond	5435
Janet Bennett	8056
Janet Bennett	5769
Janet Bennett	16410
Janet Bennett	19685
Janet Court	8528
janet hershberger	8326
Janet Kaiser	8923
Janet Mainzer	9229

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3 Center For Biological Diversity	
Janet McGrorty	5765
Janet McKee	9048
JANET MONTE	8165
Janet Neihart	7304
Janet Robinson	5838
janet smith	19567
Janet Zimmerman	9088
Janice Burgi	8915
Janice Burgi	10664
Janice Burgi	10667
Janice Forsberg	8536
Janice Hallman	8875
Janice Hayne	5256
janice mcshane	8057
janice mcshane	19723
Janice Wilfing	9084
janie anderson	8237
Janie Martinez	6836
Janie Martinez	6875
Janine Hering	8138
Janine Kondreck	6946
Janis King	9199
Janis Stern	8508
Jann Lutterman	7856
Janna Kepley	9078
janna piper	8053
janna piper	6864
janna piper	8139
janna piper	13064
janna piper	13067
janna piper	16458
janna piper	17967
janna piper	19588
janna piper	20266
Jaquoi Marengo	7230
jason husby	8594
Jason Nardell	16472
Jason Seitz	8966
Jason Simmons	10555

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Jason Smith		8201
Jay Baum		8371
Jean Allgood		6935
Jean Cameron		19564
Jean Coloos		8374
jean john		7839
Jean Lynch		5557
Jean Miele		11281
Jean Naples		5716
Jean Ross		8695
Jean Thorne		5484
Jean Thornsbury		8078
Jean Thornsbury		20329
Jean Warp		5741
Jean Williams		7257
Jeanie Streit		5883
Jeanine Wilder		5898
Jeanne Bradbury		7778
jeanne caudron		8085
Jeanne Held-Warmkessel		6968
Jeanne Hevener		5065
Jeanne Ingalls		5706
jeanne lebow		17944
Jeanne Lyke		5508
Jeanne Medina		9011
Jeanne Piehl		5737
jeanne schreurs		5784
Jeannie Pollak		9193
Jeannie Rudbeck		7274
jeff hopkins		13007
Jeff Jenkins		17952
Jeff Miller		7263
Jeff Parsons		8665
Jeff Schuller		5257
Jeff Sell		7865
Jeff Sluiter		8123
Jeff Stromgren		7276
Jeffrey Bains		11865
Jeffrey Deal		19623

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Jeffrey Freilich	5017
Jeffrey Mooney	7883
Jeffrey Statts	19743
Jeffrey Turner	5602
Jelica Roland	15200
Jen Lo	10652
jen schnabel	8908
Jen Seely	5586
Jenna Miles	7291
Jenna Shokri	10564
Jenna Wilson	9150
Jenni Audette	8772
Jenni Audette	10482
Jenni Walklin	9089
Jennifer Baker	9430
Jennifer Blando	8983
Jennifer Claunch-Meyers	16474
Jennifer Davis	8916
JENNIFER DEHART	20327
Jennifer Feuling	5363
Jennifer Gitschier	8345
Jennifer Gitschier	9449
jennifer jelinek	5518
Jennifer Johnson	20363
Jennifer Johnson	20364
Jennifer Keefer	8934
Jennifer Kopp	8020
Jennifer Lang	6925
Jennifer Muir	7983
Jennifer Rials	5221
Jennifer Schally	7307
Jennifer Stapleton-Kotloski	8529
jennifer tarlow	8112
jennifer tarlow	20313
Jennifer Terrock	8167
Jennifer Toplitz	10654
Jennifer Toplitz	20312
Jennifer Warrow	8448
Jennifer Willett	8344

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3 Center For Biological Diversity	
Jenny Boulton	6996
Jenny Gundy	19569
Jenny McDermott	8705
Jenny Peterson	13010
Jenny Pierucki	10544
Jenny Stewart	10649
Jenny Whitmore	7814
Jered Cargman	10616
jeri fioramanti	8798
jerri neelley	20339
Jerry Lehnert	5752
jerry p	8975
Jerry Redpath	8294
Jerry Rivers	47847
Jerry Witcher	48017
jess b	5877
jess welchman	17980
Jesse Bearheart	8976
Jesse Bradford	15205
jesse rusoff	18007
jesse rusoff	18028
Jesse Williams	6832
Jesse Williams	7951
Jesse Williams	8256
Jessica Barr	7319
Jessica Beaudry	9261
Jessica Bowley	8507
Jessica Burlew	5531
Jessica Calosci	9224
Jessica Ehmke	6859
Jessica Fishman	9164
Jessica Foster	8804
Jessica Justice	15826
Jessica Macomber	6867
Jessica Macomber	10563
Jessica Macy	8957
jessica mcfrederick	7936
Jessica robie	8233
Jessica robie	48093

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3 Center For Biological Diversity	
Jessica Rocheleau	5278
Jessica Rose Heritier	13053
Jessica Thatcher	5051
Jessica Wardlaw	8072
Jessie Bowen	7780
Jessie Bowen	11792
Jessie Bowen	15066
Jessie Bowen	19533
Jessika Ojea	15182
Jessika Ojea	20688
jessy Barate	8812
jet asha	9344
jet asha	15095
jet asha	20305
jet asha	38001
Jill Bittner	6828
Jill Bittner	7845
Jill Bittner	15131
Jill Bittner	48135
jill goldstein	5438
Jill Greer	20547
Jill Hunt	11858
Jill Madigan	5185
Jill Paulli	5514
Jim Opfinger	8601
Jim Pech	8630
Jim Wilson	8688
Jinger Pulkrabek	8550
JM Kasten	5361
Jo Ann McNaughton-Kade	9047
Jo Ann McNaughton-Kade	11814
Jo Rogers	9043
Joan Chandley	20281
Joan Christensen	8669
Joan Duncanson Elbert	5509
Joan Farr	10550
Joan McAllister	5871
Joan Patch	17939
Joan Scott	8060

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Joan Weldon		5863
JoanB Bell-Kaul, Ph.D.		9037
JoAnn Carlson		8824
Jo-Ann Sramek		8796
Joann Sustachek		5486
Joanna Gorniak		9242
Joanna Luchsinger		8569
Joanna Skoczylas		8873
Joanna Welch		19549
JoAnna Woomer		20316
JoAnna Woomer		47870
Joanne Hesselink		5633
Joanne Look		5150
Joanne Mack		11781
Joanne Neihart		5423
Joanne Wagner		5473
Joanne Zimbler		7927
jocelyne HUTH		9456
Jodi Bennett		9337
Jodi Larson		7246
Jodi Rodar		10556
Jodi Rodar		47528
Jodi Shannon		17994
Jody Ford		11860
Jody Ford		7980
Jody Ford		8367
Jody Ford		10560
Jody Ford		19678
Jody Fritzke		8614
Jody Fritzke		8634
jody newman		19546
Jody Solow		5554
Jody Webb		47880
Joe Buhowsky		6934
Joe Chwiojdak		4957
Joe Gallagher		8907
Joe Kaufman		18054
Joe Land		5016
Joe Locey		5446

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3 Center For Biological Diversity	
Joe Watson	5354
Joel Barkley	5550
Joel Clasemann	5403
joel kelly	5246
joel mulder	19621
Joella Berkner	8810
Joelle Morin	11775
Joëlle RICHE	19643
joen overby	5440
Joette Schulman	9453
John A. Satterwhite	8786
John Anderson	8765
John Beier	8075
John Beier	8658
John Campbell	7812
john cardadeiro	17941
John Clark	5091
John Cobey	6984
John Curotto	8159
John Dailey	8996
John Edman	5095
john eschen	57570
John Hutchison	20344
John Kraemer	8851
John Kreft	5213
John Limbach	5376
John Lundquist	10613
John Mohammad	5666
John Montgomery	11837
john murray	9205
John Neumeister	8969
John Paul Roy	8805
john singer	10638
John Skophammer	8858
John Sluss	5279
john stelling	5243
John Strand	5388
john theobald	5012
john theobald	20325

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3 Center For Biological Diversity		
John Thoma		6904
John Velickovic		15037
John Velickovic		47583
John Walker		8952
John Walton		47886
John-Mark Pawlowski		8792
Jolanta Wright		8342
Jolanta Wright		9130
Jolie Graf		8121
jon badgett		7792
Jon Hayenga		8830
jon kosiak		5474
Jon Nelson		20733
Jonathan Green		5325
Jonathan Kennedy		5116
Jonathan Peebles		8029
Jonel Stahr		8288
Jonelle Prow		5495
Jordan Glass		15122
Jordan Smith		7920
Jordanna Newman		5351
Jordi Estruells Chirivella		47882
Jorge Marques		17896
jorge SANDE		7842
jorge SANDE		7924
Jose Avetikyan		16426
Jose Avetikyan		37969
Jose Avetikyan		47534
Jose de Arteaga		20337
Jose Herrera		10510
Joseph Bail		17897
Joseph Blair		18024
Joseph Eastman		5164
Joseph Kotlinski		8455
Joseph Krick		5503
Joseph Madres		6941
Joseph OSullivan		10614
Joseph OSullivan		16428
Joseph Wenzel		8947

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3 Center For Biological Diversity	
JOSEPH WINCEK	11822
Josephine Polifroni	8261
Josh Capps	5188
Josh Patrick	5542
Joshua Gentile	18004
Joshua Heffron	8021
joshua heffron	7834
joshua heffron	20556
Joy Mamoyac	15157
Joy Peterson	8815
Joyce Benson	5887
Joyce Benson	16441
Joyce Blodgett	8687
Joyce Bowlin	17989
Joyce Frohn	5656
joyce kolasa	11313
joyce kolasa	19645
Joyce Levy	47565
Joyce McDonald	15194
Joyce Moscowitz MD	10519
Joyce Sortland	8100
Joyce Sortland	8119
Joyce Whybrew	7287
Joyce Wood	5859
Jp Hunter	8492
JT Lawson	38011
juan cruz	8016
Juan Zamora	11875
Juan Zamora	5611
Juan Zamora	7830
Juan Zamora	10527
Judi Gooding	8215
Judi Poulson	5575
Judith A Cartisano	8984
Judith Bodie	8940
judith cohen	9137
Judith Embry	5850
Judith Haglund	5022
Judith Keilholtz	8801

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3 Center For Biological Diversity		
Judith Larson		5355
Judith Lotz		19560
Judith Morem		8563
Judith Pearsall		6938
judith sandoval		18035
Judith Savard		8814
JUDITH SMITH		7321
Judith Straub		5369
Judith Vincent		11292
Judith Vincent		18013
Judith Vincent		37961
Judith Wecker		5214
Judith Wecker		5250
Judith Weston		5604
Judy Allen		8867
Judy Chucker		5767
Judy Epstein		15187
Judy Hayne		38021
Judy Hayne		38025
Judy Moran		5001
Judy Moran		7827
Judy Moran		8104
Judy Moran		19717
JUDY ONEILL		8378
Judy Sylvester		8576
Judy Talamantes		5563
Julia Kleppin		8831
Julia Reveley		8352
Julia Stancliffe		8145
Julian Chazin		7881
Juliana Diaz		5843
Juliann Rule		5595
Julie Allen		6933
Julie Andrzejewski		8638
Julie Block		8472
Julie Ellis		7918
Julie Ellis		7989
Julie Enslow		8577
Julie Grant		8764

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3 Center For Biological Diversity	
julie greco	9055
Julie Griffith	6817
Julie Griffith	6843
Julie Griffith	16405
Julie Griffith	38006
Julie Ingwerson	47551
Julie Martenson	6840
Julie Redman	19713
Julie Robinson	5046
Julie Robinson	7886
julie sasaoka	8155
Julie Schampel	5637
Julie Schroeder	5270
julie serwer	8783
Julie Solomonson	8921
Julie Stradel-Graf	5482
Julie Teigen	8740
julie veneklasen	8509
julie veneklasen	16479
julie veneklasen	20301
Julie Villarreal	7888
Julie Zahn	5665
Julimar Castro	5273
Just Barringer	8898
Justin Holland	20354
Justine Abel	20292
k goodrow	7870
k hagerty	8935
K Lee	8817
K Lucas	20394
K. D.	7769
K. Feilmeyer	5205
k.v. Adamski	15065
Kaitlin Fuller	5481
Karen & Robert Cizek	8302
Karen Ackoff	20404
Karen Benson	8823
Karen Brennhofer	20289
Karen Carson	6804

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Karen Davis		5114
Karen DeBraal		7297
Karen Deckel		8351
Karen Dunson		6916
Karen Giles		10689
Karen Graham		8946
Karen Horton		5777
Karen Humber		8744
Karen L. Rubb		19694
Karen Lawler		8985
Karen Levins		20554
Karen Lucey		8782
Karen Milliken		47947
Karen Minkowski		6870
Karen Murphy		10606
Karen Osipoff		8769
Karen Paradiso		47530
karen pepe		8339
Karen Raccio		5743
Karen Raccio		5809
Karen Rasmussen		5429
Karen Vasily		18019
Karey Haj		20369
Kari Fosse		8533
Kari Miller		8661
Kari Torres		9017
Karin Cudd		8874
Karin Winegar		5510
Karin Winegar		10513
Karina Dansie		10566
Karina Dansie		15096
karina tarpinain		8387
karina tarpinain		8400
karl crozier		8950
Karl Quilling		5366
KARLA HERNANDEZ		8136
Karla Schmidt		8868
Karla Seaver		5571
Karlene Karlene		8986

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3 Center For Biological Diversity	
Karon Sherman	15195
karrie vrabel	5298
karrie vrabel	5333
Kat Collins	8396
Kat Collins	10595
Katalin Pesti	8491
Katalin Pesti	20367
Kate Ague	19627
Kate Crowley	8822
Kate Harder	7957
kate k	8235
Katey Buster	15038
Katey Buster	15112
katharine odell	5513
Kathe Angell	8499
Katherine Babiak	9160
Katherine Babiak	38009
Katherine Cadury	5797
Katherine Jepson	5195
Katherine Okulewicz	20439
Katherine Roberts	8521
Katherine Roche	9183
Katherine Rykowski	11819
Kathleen Acker	8918
Kathleen Aiello	9083
Kathleen Begley	20395
Kathleen Connolly	5048
Kathleen Dougherty	8414
Kathleen Gallagher	5729
kathleen king	5589
Kathleen Martin	7981
Kathleen Michaels	8637
Kathleen Moraski	5534
Kathleen OConnell	10586
Kathleen OConnell	18048
kathleen querner	8068
Kathleen Skiba	8647
kathleen spencer	5249
Kathleen Todd	8709

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3 Center For Biological Diversity		
Kathleen Treharne		5598
Kathleen Tubbs		5566
Kathryn Berkey		5504
Kathryn Boyne		8690
kathryn healey		8384
Kathryn Johanessen		8254
Kathryn Kaufman		15169
Kathryn Mosher		9071
Kathryn Null		8654
Kathryn Vestal		8391
Kathryn Vestal		11815
Kathy Barrier		7826
KATHY Casiello		7843
Kathy De Mars		8872
KATHY DUNN		5211
Kathy Fish		8640
Kathy Gibbs		5869
kathy goss		5720
kathy goss		9464
Kathy Heaton		20235
kathy johnson		5004
kathy johnson		5300
kathy johnson		8329
Kathy Kormanik		5657
Kathy Lindsay		17973
Kathy McElwain		9015
kathy schroeder		5460
Katie Hauke		5252
Katie Hauke		5451
Katie Jensen		8097
Katie Loucks		5448
Katie Prock		8219
Katrin Rosinski		6931
Katrina Brewer		9127
Katrina Brewer		17958
katrina Child		6834
katrina gergely		48133
Katrina Tibbs		8818
Katt Sims		7902

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3 Center For Biological Diversity	
katty neundorff	8629
Katy Dynes	8012
Kay Cummings	9099
Kay Fitzgerald	20520
Kay Lambert	5356
Kay Randall	8871
Kaye Gucciardo	6813
Kaye Gucciardo	19684
Kaye McKlaine	48115
Kayla Cervantes	47539
KD Haferkamp	11789
KD Haferkamp	47996
Keelan Smith	9093
Keelan Smith	17968
Keelin Magnus	7595
Keith Albritton	5238
Keith Thompson	5364
Kelley Charnas	9259
Kelley Scanlon	7876
Kelli Villis	9362
Kelly Delarosa	7266
Kelly Lally	6895
Kelly Lally	15218
Kelly Nettesheim	8778
Kelly Rogers-Winston	8785
kelly stout	20267
Kelsey Chism	8958
Ken Forsdahl	5818
ken greenwood	5063
ken greenwood	20384
Ken Kolbe	7301
Ken Martin	7800
Ken Martin	48042
ken thomas	8108
Kenneth Indrelie	5579
Kenneth Lahr	8752
kenneth magana	5668
kenneth magana	47548
Kenneth Moorin	10588

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3 Center For Biological Diversity		
Kent Lupton		17926
keri bennett		5108
keri bennett		7776
keri bennett		7994
keri bennett		11820
Kerri Sciaresa		15110
Kerrie Gorman		5568
Kerry Clark		9045
Kerry-Ann Lawrence		10659
Kerstin Strobl		5854
keven wilson		10582
Kevin Kallenbach		5322
kevin mcnamara		9076
Kevin Reel		8357
Kevin Rycheck		8650
Kim Bouchard		5062
Kim Bouchard		7832
Kim Dahle		8177
Kim Kensinger		7813
Kim Kensinger		48062
Kim Kokett		8615
kim kost		5274
kim kusch		7237
Kim Louie		7774
Kim Meline		7285
kim mickelson		5650
Kim OBrien		10501
Kim Peacock		5379
KIM PROITCHARD		9451
Kim Rognrud		8749
kim thatcher		9092
kim thatcher		17993
Kimberly Bendaris		8779
Kimberly Crane		8993
Kimberly Jay		5177
Kimberly McAlister		17970
kimberly nieman		7227
kimberly nieman		8607
Kimberly Swenson-Zakula		8664

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3 Center For Biological Diversity	
Kimberly Thompson	8310
Kirsten Buelow	5577
Kit Blumenstein	5885
kory chatelain	47887
Kris Azzarello	19633
Kris Hermel	8666
Kris Leesekamp	15210
kris scarci	47878
Kris Tohm	17907
KRISTA JOY	8222
KRISTA JOY	47875
kristen fera	8407
kristen fera	17894
Kristi Hendrickson	8080
Kristin Whatton	8602
Kristina Paris	5178
Kristine Ruffatto	5171
Krystal Brock	8849
Kumiko Suga	5625
kun kang	19557
Kunihiko Okina	5088
Kuniko Yasud	4984
kurt amsler	8224
Kurt Kroening	8745
Kurt Peters	5184
kx bx	5703
Kyana Jones	5798
Kyra Rice	6876
L B	5620
L E Payne	11872
L Mundinger	5702
L Strangstad	5293
L. Peterson	19661
L. S.	8221
LaDonna Maier	9003
Laetitia Guichard	8098
Laina Shockley	8313
Lainie Covington	5056
Lainie Covington	8446

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3 Center For Biological Diversity		
Lainie Covington		20449
Lana La Fata		9192
lance gimenez		38030
Lance Kammerud		9139
Lani Porter		5047
Lara Santos		6978
Lara Santos		8419
Larissa Silva		6878
Larissa Silva		8250
Larry Bader		8581
Larry Lambeth		6971
Larry Schaller Sr		8960
Lasha Wells		15192
Lasha Wells		20359
Lasha Wells		47965
latonya walker		19608
Laura Barker		5297
laura carmona-mancilla		10500
Laura Cuccia-Nilsen		8751
Laura Fung		17991
laura kaufman		20468
Laura Kohn		8041
Laura Krause		6879
Laura Leon		9267
laura melotti		5690
laura pantazis		17987
Laura Ricci		5721
Laura Ricci		15213
Laura Schauland		5187
Laura Shouse		8395
Laura Stembridge		5105
Laura Stembridge		10677
Laura Stewart		8628
Laura Waterworth		8033
Laura Waterworth		5775
Laura Waterworth		9138
Laura Waterworth		11312
Laura Williams		5154
Laurel Hughes		7911

Sender Name	Submission ID
3 Center For Biological Diversity	
Laurel Singer	5459
Laurel Venable	8131
Laurel Venable	11298
Laurel Watson	16468
Lauren Bohannan	11290
Lauren Dentzman	7773
Lauren Gedlinske	5163
Lauren Gedlinske	6975
Lauren Oggiono	8267
Lauren Oggiono	10612
Lauren Oggiono	15228
Lauren Patrick	8977
Lauren Sjoblom	8794
Lauretta Roche	8361
Laurie Bailey	5515
Laurie Conrad	19676
Laurie Duncan	5335
Laurie Fisher	9219
Laurie Fisher	15107
Laurie Hein	11307
Laurie Kittelson	8483
Laurie Kossoski	8428
Laurie LaGoe	6841
Laurie LaGoe	17925
Laurie Lawler	5715
Laurie McCartin	10670
Laurie McLaughlin	19697
Laurie Miller	5475
Laurie Palmeri	19596
Laurie Stephey	5251
Laurinda Porter	5317
LaVonne Goodell	5501
Lawrence Crowley	7963
Lawrence Gise	6880
Le Hunt	5444
Lea Faulks	5692
Lea Faulks	16481
Leah Eister-Hargrave	5772
Leana Rudish	5097

Sender Name	Submission ID
3 Center For Biological Diversity	
Lee Beaty	9061
Lee Grimes	8169
Lee Wolff	9249
Leeann French	20280
Leia Minch	5007
Leia Minch	9367
leif bjornson	5783
Leigh Ann Wagner Kroening	5726
Leigh Begalske	8644
Leigh Sanderson	20470
Leigh Saunders	5140
Leila Doak	5822
Lela Moroz-Vickory	20401
Len Jennings	8612
Lena Williams	20294
Lena Williams	20298
Lena Williams	20299
leonard everett	19674
Leonard Thonrton	5121
Lesia Mills	9269
Leslie Sharlock	17935
Leslie Zerman	4956
Lester Bodi	18025
letizia balsamo	10549
Letty M	8195
lherminez chantal	8034
Lia Sader	5259
liane wagner	8390
Liberty Brigner	9358
Liberty Brigner	15884
Lila Cahue	4990
Lila Cahue	8249
Lila Cahue	19577
Lili West	9434
Liliana castillo	17959
Liliana castillo	37965
Liliana Kavazova	20269
Liliana Ruiz	20396
Liliána Tóth	13065

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3 Center For Biological Diversity	
Lillian Nordin	8585
Lillith Lascoue	10611
Lilly Knuth	8481
Lily Caron	10477
Lily White	6998
Lily White	20310
Lina Chen	9253
Linda Arndt	5471
linda beach	8951
Linda Bosinske	8766
linda boyce tibbets	11861
Linda Cronin Fleming	7884
Linda Cronin Fleming	8926
LINDA DUGGER	11846
Linda Faulhaber	20458
Linda Fay Sampson	19566
Linda Gertig	8141
Linda Hansen	5546
Linda Hayes	5346
Linda Joes	5143
linda kelley	19712
Linda Kollmar	9125
LINDA KRIEL	9445
Linda Mathew	6948
Linda Moore	8373
Linda Murphy	8541
Linda Peterson	5466
linda pink	7874
linda pink	19578
Linda Przygoda	5432
Linda R Larson	5320
Linda Schiller	7315
Linda Simpson	20256
Linda Soldan	9022
Linda Spyhalski	5384
Linda Staelens	6820
Linda Tauer	8791
Linda Trevillian	4971
Linda Trevillian	7975

Sender Name		Submission ID
3 Center For Biological Diversity		
Linda Waine		7956
Linda Waine		9131
Linda Waine		15062
Lindsay Conklin		8015
lindy hoppe		10524
Line Ringgaard		11833
Linea Anthony		5583
Linette Schreiber		7796
Linus Meyer		8797
Linville Doan		5193
liron solomon		5138
liron solomon		8166
liron solomon		8461
liron solomon		11300
liron solomon		13040
liron solomon		16464
liron solomon		17924
liron solomon		20736
liron solomon		37972
liron solomon		48150
Lisa Barnhart		20252
lisa bergerud		5360
Lisa Brehm		13049
Lisa Hanckel		7910
Lisa Hanckel		7913
Lisa Hanckel		7979
Lisa Hardy		5412
Lisa Haugen		18002
Lisa Henry		4963
lisa jacobson		8179
lisa jacobson		9204
Lisa Kucukdogerli		15113
Lisa Kucukdogerli		19641
Lisa Kucukdogerli		20245
Lisa Kucukdogerli		20333
lisa kun		18037
Lisa LaDore		19750
Lisa mitchell		11302
Lisa Oliver		8941

Sender Name	Submission ID
3 Center For Biological Diversity	
Lisa Pierna	7770
Lisa Pierna	20373
lisa sharp	5411
Lisa Shea	19532
Lisa Silliman-French	8122
Lisa Silliman-French	16409
Lisa Simon	9034
Lisa Smith	5805
Lisa Smith	10562
Lisa Smith	47533
Lisa Smith	48147
Lisa Sottile	5329
Lisa Zure	8961
lise susi	5038
Lise Vandal	9240
Lissa McLaughlin	20330
lissa pierson	6890
Little Linda	8277
Liz Black	8132
Liz Reed	10452
Liz Reed	19582
Liz Rych	8101
Liz+Gene Dehler	7930
Lizabeth Ver Kamp	15130
Ljiljana Milic	5718
LK WOODRUFF	5386
Llauren Peralta	7854
Llauren Peralta	8089
Lois Kral	5136
lois lommel	17956
Lois Melegari	8788
Lois Swanson	8023
Lois Swanson	5567
Lois Wolff	5189
london bridge	8314
Lora Lund	11856
Loralee Clark	5126
Loren McCaghy	8616
Lorena Balcells	19535

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3 Center For Biological Diversity	
Lorence Hyler	8228
Loretta Draths	8757
Loretta Goldenberg	18041
Loretta Herger	7942
Loretta Lemkuil	5490
Loretta McGlynn	8987
Lori Andresen	5492
Lori Buckler	20246
Lori Danko	6924
Lori Danko	13004
Lori Hammett	5072
Lori Hammett	10626
Lori Hammon	5419
Lori Ortner	8829
Lori Rodriguez	8321
Lori Rosas	7896
Lori Steckervetz	8937
Lori Ugolik	15027
Lori Ward	8596
Lorie Badiyan	5282
Loris Crossley	10454
Lorna van der Lijn	8925
Lorna Zamora	8181
Lorna Zamora	9461
Lorna Zamora	11308
Lorna Zamora	19587
Lorne Thompson	8061
Lorraine Barrie	9427
Lorraine Blaszczak	7940
Lorraine Doherty	5905
Lorraine Lowry	5580
lorrie ogren	15179
Lou Baxter	18027
Louann Lanning	7294
Louis Drinkwater	8368
Louisa Odom	8737
Louisa Piccione	47578
Louise Macaulay	8422
Louise Meske	5383

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3 Center For Biological Diversity	
Louise Meske	6882
LOUISE RANGEL	4955
LOUISE RANGEL	10660
Louise Slattery	13037
Louise Sundin	8754
luann stillwell	8459
lubes khazanovich	5608
Luca Rossetto Casel	9243
Luca Scelza	8140
Luci Evanston	8720
Luciano Graniello	5011
Ludmila Belousova	10542
LUISA DELGADO	8383
LUISA DELGADO	8397
Lyda Stillwell	20491
Lydia Howell	8205
Lyn Leeuw	16465
Lyn Leeuw	17936
Lynda Pauling	5153
Lynda West	8262
Lynda West	20287
lynette kulchinsky	5892
Lynette MacLagan	8480
Lynn Barnes	8024
Lynn Ford	9041
Lynn Judnic	9010
Lynn Killam	10601
LYNN PUTNAM	9029
Lynn Sovell	5173
Lynn Terrill	8331
Lynne Adrian	5066
Lynne Adrian	10624
Lynne Forester	5893
Lynne Greenwood	20399
Lynne Hoft	8857
M A Gresko	8282
M Carson	19656
M Gordon	8347
M King	9215

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3 Center For Biological Diversity	
M Leszczynski	8007
M preston	5535
M Zink	5196
m. canter	15021
m. canter	47571
M. kincer	9152
M. Smeltzer	19571
M.A. Kruse	15104
m.jorge remourinho	8471
machio corinne	8027
Madeleine van der Heyden	20251
Madeline Seveland	8897
Madge Torres	8497
Magdalena Czeblakow	20265
Maggie A.	5461
maggie brennan	8416
Maggie Mandzuk	20311
Mairi Meredith	9200
Mal Gaffney	9165
Malerie Wirey	5000
Malka Essig	6919
Mandy Hahn	10470
Mandy Hahn	15211
Mandy Hahn	47966
Manel Dias	7916
Manuel Barrios	9375
manuela wolter	7848
Mara Sabinson	47962
Marc Grawunder	5848
Marc Santora	5125
Marcia Baltz	20703
Marcia Halligan	5422
Marcia Mitcheltree	6829
Marcia Mitcheltree	7853
Marcia Mitcheltree	8124
Marcia Mitcheltree	10568
Marcia Mitcheltree	11794
Marcia Mitcheltree	20406
marcia roth	8692

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3 Center For Biological Diversity	
Marcia Roth	20432
Marco Salinas	6962
Margaret Chilton	5032
Margaret Cullen	8042
Margaret Davies	9223
Margaret Davies	11840
margaret gould	5341
margaret medford	47976
Margaret Meehan	17900
Margaret Naylor	5203
Margaret Ross	8487
Margarita Solis	10441
Margarita Zamora	8682
Margi Barsamian	7850
Margo Breen	5590
margo gussin	19618
Margot Galt	5365
Margot Steinberg	5058
Margot Steinberg	8232
Margot Steinberg	10561
Margot Steinberg	18052
Maria Angelica Barudi	11847
maria bruscia	6842
Maria dels Àngels beltran	6937
Maria dels Àngels Beltran	16404
Maria Kanukova	10487
Maria Martinez	5789
Maria McGlashan	7841
MARIA PIA SCOTTO DI FREGA	19562
MARIA PIA SCOTTO DI FREGA	20306
MARIA PIA SCOTTO DI FREGA	48096
Maria Poiani	20730
maria smallow	5029
maria watson	7988
maria watson	10679
Mariana Bozic	9082
Mariana Laub	7815
Mariana Laub	16467
Marianna Como	5523

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3 Center For Biological Diversity		
Marianne Neidermyer		9035
Marianne Wilson		17950
Marie Alabiso		15221
Marie DAnna		5127
Marie Faszholz		20375
Marie HoneyJones		5895
Marie Koko		8953
Marie Young		11821
Marie-José CHOBERT		11828
Marie-Paule Vanderhoeft		7995
Marietta L. Montaine		17984
Marika Evanson		19705
Marilee Lampman		5319
Marilyn Auer		15055
Marilyn K		5476
marilynn mitchell		6939
Marilynn Torkelson		8680
Mario Cruz		6940
Marion Friedl		7894
Marion Wehinger		20236
marisa dipaola		8248
marisa dipaola		8349
Marjorie Bierbrauer		5401
Marjorie David		7970
Marjorie OKeefe		5449
Mark C Cooley		8526
Mark Coyle		5014
Mark Dorsten		8442
Mark Hirsch		5380
Mark Hollinrake		4982
Mark House		9169
Mark Klausner		6899
Mark Klausner		8424
Mark Klausner		10493
Mark Klausner		15143
Mark Klausner		15181
Mark Klausner		16436
Mark Klausner		16438
Mark Klausner		16462

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3 Center For Biological Diversity	
Mark Klausner	17916
Mark Klausner	20275
Mark Lehigh	5587
Mark M Giese	8725
mark makkonen	8657
Mark Peltan	6957
Mark Peltan	7775
mark Salzer	19683
mark stanton	18040
Mark Sweeney	8229
Marlene Schneider	5395
Marsha Stanek	5641
Marsha Young	8266
Marta Novotny	8803
Martha Baxter	8696
martha burton	16401
Martha Lankton	7867
Martha Milne	6066
Marthese Cassar	10571
Marthese Cassar	16449
Marthese Cassar	18023
Marthese Cassar	19594
Martin Harrollson	16461
Martin Haunhorst	7269
Martin Haunhorst	8117
Martin Haunhorst	10486
Martin Haunhorst	13045
Martin Haunhorst	17886
Martin Haunhorst	37989
Martin Jacobson	8883
martin Klemment	5695
Martina Casadidio	9143
Martina Stilz	5834
Mary Aguilar	8899
Mary Anne Gaskins	19604
mary bergner	8560
Mary Berrey	8494
Mary Bowen	9104
Mary Boyd-Brent	5147

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Mary Burek-Faber	8808
Mary Catherine Green	8260
Mary Cherney	8470
Mary Crawmer	9338
Mary Denton	6869
Mary Duncan	5889
Mary Duvall	7235
Mary Ellen Bard	17953
Mary Ferris	9142
Mary Finlay	8049
mary fischer	5845
Mary Fletcher	13017
Mary Foley	5868
Mary Goergen	5904
Mary Grant	20699
Mary Hahn	5345
Mary Hartl Biel	8670
Mary Helen Stephens	7797
Mary Helen Stephens	15214
Mary Helen Stephens	19550
Mary Helen Stephens	19642
Mary Helmetsie	20409
Mary Hoeflinger	5837
Mary Housel	48090
Mary Jacobe	8743
Mary Johnson	5204
Mary Johnson	7864
Mary Johnson	8388
Mary Johnson	10671
Mary Johnson	15161
Mary Johnson	20471
Mary Johnson	47871
Mary Jones-Giampalo	8691
Mary Joy Breton	5262
Mary Junek	7253
Mary Lee Benson	5182
Mary Lein	5561
Mary Lou Hoff	5638
Mary Luedtke	5636

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Mary Madeco-Smith	8537
Mary Mathews	8315
Mary Michalios	15180
Mary Mort	11854
Mary Neumann	20300
Mary Neumann	20302
Mary Price	15219
Mary Raimonde	5628
Mary Reilly	19589
Mary Rogers	8293
mary rojeski	19725
Mary Ruesch	5324
Mary Savage	5802
Mary Seeber	47574
Mary Thomas	5831
Mary Thompson	8506
Mary Vafi	7247
Mary Zindorf	5392
mary1 cullen	8929
Marya Mayer	5719
Marya Mayer	6808
MaryAnn Bloedow	8617
MaryAnn Gregory	15188
Maryann Simpson	7869
Maryann Simpson	9158
MaryAnna Foskett	6976
MaryAnna Foskett	7904
Marybeth Burdelak	7855
marygrace maxwell	16429
Marylee fahlstrom	8645
marylen kincer	17908
Marylyn Stroup	5370
Maryna Oleksina	5753
Mason Arion	17938
mason grove	5397
Massimiliano Pescador	18033
Matha Buchan	20285
Mathew Christianson	8988
Matt Bango	17887

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Matt Clowes		9106
Matt Guptail		5745
Matt Johnson		5814
Matt Johnson		10539
Matt LaPlante		5627
Matthew DeMars		9066
Matthew Haehl		47586
Matthew Schaut		5631
Mattie Stevens		5810
Maureen Berg		20419
maureen grzanna		7302
maureen grzanna		8539
maureen lynch		20334
Maureen McCullough		8837
Maureen Schoenmann		8959
mauricio carvajal		5851
mauricio carvajal		6907
mauricio carvajal		8332
mauricio carvajal		11811
mauricio carvajal		13041
mauricio carvajal		15043
mauricio carvajal		17885
mauricio carvajal		19576
mauricio carvajal		20331
maxine jaffee		6943
mayerlin arias		37959
Maynard McKillen		8904
Mazie Miles		5359
MB Honaker		19644
McKenna Eckerline		5609
MEAGAN GILL		13048
Meaghan Black		17917
medard spencer		5682
Meg Doyle		8734
MEG GILL		6858
megan bray		5727
Megan Quenzer		8001
Megan Stalker		5584
Meghan Houston		5225

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3 Center For Biological Diversity	
meghan Schimmel	7771
meher toorkey	8173
Melanie and Jeff Strubble	18055
Melanie and Jeff Strubble	20307
Melanie Cameron	9429
Melanie Feder	8018
Melanie Feder	6891
Melanie Feder	10537
Melanie Feder	19539
Melanie Hannaman	8036
Melanie Jacobs	8488
Melanie Mahoney Stopyra	19700
melika bazin	7986
Melinda Weisser-Lee	7788
Melissa Anglin	7857
Melissa Canick	6852
Melissa Cathcart	6894
Melissa Cathcart	8855
Melissa Huebner	7879
Melissa Jenkin	7929
Melissa Jenkin	8369
Melissa Katterson	5549
Melissa Rigas	10458
Melissa Taylor	11885
Melissa Taylor	17909
Melissa Taylor	20727
Melissa Taylor	20737
Melissa Taylor	47526
Melissa Urbina	20346
Melisse gamache	19653
Melisse gamache	47950
melita covic	10469
mellisa donaldson	16454
Melodie Hefley	8903
Melodie Quall	5170
melody miller	7919
Melora Anderson	5070
Melynda Quinn	10543
Melynda Quinn	10602

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Meredith Elder		7887
Merideth Genin		7880
Merissa Winter-Lisbeth		7300
Merlene Stuerzer-Rhodes		18053
merrill kramer		17891
Mervi Rantala		8354
Michadel Stewart		8386
Michael Afentoulis		5128
Michael Alexander		5372
Michael Broschart		5544
Michael Broschart		5804
Michael Caldwell		9191
Michael Chang		19561
michael donato		8930
michael enos		8194
michael farkas		10557
Michael Haskell		8026
Michael Henderson		7829
Michael Hires		6887
michael hoover		5096
Michael Jarrett		17901
Michael Kirkby		5866
michael koughan		17880
Michael Kriel		9444
Michael Lawrence		9184
Michael Lawrence		18011
Michael Leeling		7779
Michael Leeling		8150
Michael Leeling		19602
michael levitt		5071
Michael McCartin		7859
Michael McCartin		10680
MICHAEL MELINCOFF		10615
michael perez		20380
Michael Peterson		10632
Michael Price		8589
MICHAEL REMARCKE		8501
Michael Saxton		9454
Michael Taeckens		8037

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Michael Varichak	15154
Michael Wortham	5786
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MICHEL CHARLIER	8030
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michele king	17940
Michele Spier	19677
Michele Villeneuve	6966
Michelle Anderson	5099
Michelle Anderson	5547
Michelle Billmaier	11326
Michelle Broskey	11318
Michelle Buerger	7131
Michelle Gobely	5176
Michelle Muetzel	5540
Michelle Prosser	5553
Michelle Shaw	5200
Michelle Thomas	5334
Miia Suuronen	19551
Mikaela Quinn	8932
Mike Allen	5801
Mike and Jane Conrad	7270
Mike Caperelli	6914
Mike Civitello	10553
Mike Ferguson	5658
Mike Hannum	17964
mike McGinn	8017
mike McGinn	8073
mike McGinn	20315
Mimi Jennings	8600
Mimi Jennings	8677
Mimi Jennings	20604
Mimi lauducci	6958
Mimi Nellis	8715
Mindy Spitz	8520
Miranda Everett	7231
Miriam Rainville	5790

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miriam s		9058
miriem MUÑOZ		7258
Mirjana Miljkovic		5076
Miss RJ		5776
Miss RJ		19534
Misty Breaux		10494
Mj Baumann		8827
MJ Visconti		6900
MK Mahowald		8761
MK Smith MD		15034
molly hansen		6839
molly hansen		18045
Molly May Thoma		5417
Molly Moore		9460
Mona Delly		8686
monica russo		9090
monica russo		9197
Monica T		5791
Monika Huber		8376
Monika Huber		9236
Monika Huber		18020
Monique Antone		8672
Monique Biglia		15222
Monique Biglia		47987
monique faye		19591
monjit guram		7784
moreau agnès		8095
mr augustine a. aliberti		8093
mr. g west		10633
mr. g. west		11783
mr. g. west		13042
mr. g. west		19680
mr. g. west		20284
Mr. Terry Cadwallader		20516
MS Snider		5591
Muriel Servaege		5085
Muriel Servaege		10644
muriel streiff		8044
muriel streiff		8084

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3 Center For Biological Diversity	
Myron Thornberry	5283
N C	8320
N Loren	19547
Nabil Jamil	9252
Nadege Monchera	10521
Nadejda Sitnikova	20258
Nadezhda Yanuy	10584
Nadezhda Yanuy	15168
Nadine Appel	9038
namr withheld	7906
Nancy Brenner	7801
Nancy Campbell	9407
Nancy Casey	8502
Nancy Dowling	5634
Nancy Gathing	8611
Nancy Hale	5301
Nancy Lancaster	8389
Nancy Lang	5645
Nancy Lee Garrett	4954
Nancy Long	8840
Nancy Mambi	8712
nancy montoure	8474
Nancy Partin	8147
Nancy Pierce	8667
Nancy Robinson	8127
Nancy Sikora	17932
Nancy Sikora	19614
Nancy Strauss	5819
Nancy Ward	18042
Nancy Wilchenski	8917
Nancy Young	8434
nancy zebracki	5888
nancy zebracki	6961
Nancy Zimmerman	8703
Nanette Morelli	5006
Natalia Arcila	17974
Natalia Vidal	20276
Natalie DeBoer	6917
Natalie DeBoer	13011

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3 Center For Biological Diversity		
Natalie Hodapp		8773
Natalie Kovacs		7955
Natalie Kovacs		19648
Natanya Hayden		5261
Natasha Kay-Hazou		5117
Nathalie Gilles		6994
Ned Overton		7958
Ned Overton		11787
Neil Angelo		13032
Nelly Lopez		13023
nelson myers		8435
nelson myers		15831
nelson myers		18058
nelson myers		20528
nelson myers		37962
nena connor		37994
nena connor		37995
Nerma Valentic		13047
Nerma Valentic		16402
Nicholas Cartabona		8199
Nicholas Merry		10587
Nicholas Williams		11813
Nick Mouzourakis		16408
Nick Mouzourakis		37980
Nick Scholtes		5592
nicol orestano		10503
Nicola Cerato		4967
Nicola Grobe		9103
Nicole De Nardis		13028
Nicole Hafemeyer		8793
nicole hoekstra		7233
Nicole Miranda		8307
Nicole Miranda		8343
nicole orestano		17995
Nicole Weber		5890
nicolette ludolphi		5875
nicolette ludolphi		8973
Nigel Griffiths		8087
Nigel Griffiths		13029

Sender Name	Submission ID
3 Center For Biological Diversity	
niki moore	20717
niki moore	48132
Nileen Shadowhawk	8610
Nils Anders Lunde	5704
nino ritchi	10453
nino ritchi	15953
Nora C Bribiesca	16424
nora hanson	8544
Nora R. Enyart	20297
norma johnson	5679
Norman Amrich	6892
norman hines	5149
Norman Sharp	7820
nunya busi	17945
Odelkis Barrera	8212
OKSANA Becker	20518
Olga Abella	6854
Olga Vinogradova	9194
Omega Baker	7273
Ometh Layton	13021
ordell vee	5303
Ortwin Mergner	5684
Ortwin Mergner	18029
P S.	5581
P. Frank	4968
PA Giannis	17948
paco lod	8542
Paco Rivera	8420
Paige Harrison	16483
Pam Curtis	8322
Pam Deck	7261
Pam Lynn	5903
Pam Videen	5578
pamela brandt	10445
Pamela Browning	8279
Pamela Evans	9067
Pamela Green	10585
Pamela Haun	9433
pamela hormiotis	19686

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3 Center For Biological Diversity		
Pamela Jambeck		8511
Pamela Kersting		5067
pamela list		9404
pamela lohse		5539
Pamela Miller		5079
Pamela Pluta		10548
Pamela Polizzi		5080
Pamela Polizzi		8208
Pamela Polizzi		10668
Pamela Polizzi		19626
Pamela San Miguel		4969
Pamela Stilp		9020
Pamela Unger		8380
Pamela Vasquez		37996
Panagiotis Rigopoulos		5855
Paola Catapano		10505
pat , scott and dawn long		10463
Pat Halter		5556
Pat Larson		8653
Pat McCormick		20342
Pat McNabb		8718
Pat Olson		5600
Pat Walsh		19629
Pat Weldon		9198
Patrice Summers		10651
Patricia DeZur-Ahola		8557
Patricia Diaz		5144
Patricia Heiden		5746
Patricia Karoue		47917
Patricia Lull		8571
Patricia Marlatt		20303
Patricia McBee		4964
Patricia McBee		19630
Patricia Meeks		8003
Patricia Mitchell		8168
Patricia Mitchell		8193
Patricia Pappajohn		10459
Patricia PERRON		11809
Patricia PERRON		15040

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3 Center For Biological Diversity	
Patricia PERRON	19647
Patricia PERRON	47998
Patricia Reszetylo	5680
Patricia Richard-Amato	5350
Patricia Rudner	10594
Patricia Soteropoulos	5024
Patricia Soteropoulos	8346
Patricia Stewart	5768
Patricia Vazquez	5142
Patricia Vineski	9173
Patricia Wilkens	5228
Patrick Brooks	10523
Patrick Kelly	8399
Patrick Russell	8286
Patrick Sennello	8006
Patrizio Paratelli	8882
Patty Bracey	5106
Patty Poock	7828
Patty Wittlinger	8995
paul Babicki	47935
Paul Cocoanto	8582
Paul Ezust	5021
Paul Gregg	8997
Paul Jerome	16423
Paul Jerome	17998
Paul Noeldner	8853
Paul Provinzano	9124
Paul Ruderman	19570
Paul Schiappa	11786
Paul Szymanowski	11842
Paul Uecker	8698
Paula and Robert Lund	5629
Paula Johnson	5433
paula pruner	11785
paula s tytlar	6987
PauleAnne Pruneau	11887
Pauline McGowan	8994
pauline wolf	47869
Peggy Andersen	18010

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3 Center For Biological Diversity		
Peggy Bergen		8789
Peggy Gay Mcleod		8216
Peggy Johnson		7238
Peggy Moody		9053
Peggy Roeske		5201
Peggy Rollie		5406
Penelope Rose		8862
Penni Norman		5573
Penny Myers		5174
PEPI fernández rioboo		9238
PEPI fernández rioboo		9244
Perolina Fernandes		5570
Pete Morabito		8045
Pete Morabito		15191
pete rykert		15028
Peter Cohen		19605
Peter Eckhardt		9208
Peter Fissel		8800
Peter J. Keiser		20314
Peter Jarvis		5502
peter madzelan		5020
Peter Metzner		15108
Peter Sweeny		7960
Petra Braun		13034
Petra Jenkins		5528
Petra Jenkins		10495
Petra Jenkins		47566
Petra Leskanich		15123
phil tompetrini		5013
Philip Rico		19541
Phoenix Vie		5139
Phoenix Vie		6837
Phyllis Jenkins		5685
Phyllis OReilly		7928
Pia Vartabedian		8146
Pierre Maio		47857
Pietro Fornara		10641
PJ Kirton		5180
Platto Manuela Agnese		8214

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3 Center For Biological Diversity	
Platto Manuela Agnese	9101
Platto Manuela Agnese	11849
Poixx Edith	8082
Poonam Master	4986
preethi anandula	10621
preeti yonjon	8681
Prem Mulberry	6973
Prem Mulberry	8619
Priscilla Stephens	15109
prokosch Suzann	5402
Qian Zheng Yi	15822
Quentin Fischer	9450
Quinie Leary	7289
R Beaupre	5496
R J	8134
R J	15098
R J	17923
r n newman	17892
R T von Koch	7985
R Toups	8970
R. Fitzgerald	7921
R. Fitzgerald	7932
R. J. Williams	8328
R. J. Williams	20734
Rachel Chalchinsky	15134
Rachel Lewine	7242
Rachel Navaro	47522
Rachel Ross	11774
Rachel Wolf	9054
rachelle henderson	10620
Raj Krish	10618
Raluca Constantin	20309
Ramona Ivanovic	8067
Ramona Kopnick	8535
Randall Piazza	7885
Randolph Schoedler	7279
randy albert	5733
Raquel Valli	5545
Ray Colby	8636

Sender Name		Submission ID
3 Center For Biological Diversity		
Ray Felch		5594
Raymond Nuesch		4996
Raymond Nuesch		7967
Raymond Nuesch		8451
Raymond Nuesch		10628
Raymond Nuesch		11793
Raymond Nuesch		15208
Raymond Nuesch		19655
Raymond Nuesch		20454
Reade Adams		8861
Rebecca Branham		5330
Rebecca Brodie		5493
Rebecca Buehler		5582
Rebecca Davis		17977
Rebecca Donchez		5104
Rebecca Jordan-Alfano		10590
rebecca koo		15132
Rebecca Moslo		19746
Rebecca Rens		5043
Rebecca Riley		9111
Reggie Stiteler		7804
regina kijak		8739
Regina Nicolosi		5172
Regina Nicolosi		5420
Reid Larimore		8325
Remy Champion		9155
rene venema		10531
Renee Joos		5517
Renee Stein		4962
Renee Stein		8281
Renee Stein		20417
Renee Tantala		8684
Reynaldo Reyna		7976
Rhea Edge		8174
Rhonda Bast		5266
rhonda lawford		8295
rhonda lawford		8381
Rhonda Sumner		48048
Rich Pecha		17997

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3 Center For Biological Diversity	
richard & margaret schmelzer md	5610
Richard and Janet Dankert	18016
richard bello	5042
Richard Hackett	7281
Richard Han	8172
Richard Han	19574
Richard Heinlein	5826
Richard Heinlein	8813
Richard Hieber	48095
Richard Lindahl	8865
Richard Lodge	9254
Richard Mayers	8699
Richard Patten	6945
Richard Perez	5060
Richard Perez	7893
Richard Perez	13022
Richard Perez	47576
Richard Phillips	8635
Richard Sklader	8618
Richard Urban	8580
Richard, Mammel	5231
rick groce	6992
Rick Mick	9123
Rick Roberson	5077
Ricky Hoffmann	10570
Ridwaana Allen	5857
Riina Mikkonen	19715
Rita Caruso	8372
Rita Caruso	8425
Rita Caruso Santamaria	19607
Rita Hale	8843
Rita Helen Nordby	8895
Rita Meuer	8597
Rita Stewart	5559
Roanne Rosenblum	5771
Robb Mottl	5027
Robb Mottl	8738
Robert & Louise Juracka	8819
Robert A. Johnson	5375

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3 Center For Biological Diversity	
Robert Brobst	20376
Robert Clifton	5562
Robert Couchman	5722
Robert DeLucca	8753
Robert Droeszler	17937
Robert Drop	15156
Robert Emory	8278
Robert Emory	15111
Robert Emory	38026
Robert Frazier	8239
Robert French	9059
robert gerosa	9237
Robert Giese	5337
Robert Giese	7847
Robert Hill	8531
Robert Hinely	6838
Robert Kaiser	5161
robert Kosuth	5439
Robert Kriegh	8323
Robert McManus	5328
Robert Molthen	7305
Robert Oestreicher	5212
Robert R. Miller	10512
Robert Santomartino	19695
Robert Simpson	5224
robert taylor	6944
Robert Wohlberg	11825
roberta boffo	17928
Roberta Gleicher	10603
Roberta Gleicher	20340
ROBERTA REPASZ	8896
Robin Dein	5525
Robin Down	10598
Robin Halvorson	8297
Robin Helgen	8877
Robin johnson	10573
Robin Keller	8046
Robin Maule	19616
robin nadel	6989

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3 Center For Biological Diversity	
robin nadel	7226
Robin Pasholk	5437
Robin Porter	20338
robin raker	11818
Robin Reinhart	7821
Robin Ross	17882
robin scherr	8242
Robin Schwarz	6926
Robyn Wagoner	5368
Robyn Wagoner	7862
Rocio Salazar	13020
Rod Sharka	5348
Rodney Hemmila	5839
Rodney Hemmila	8176
Roger Aus	5255
Roger Christensen	5560
Roger Haglund	5585
Roger muellner	5632
Roger Packard	5321
roger schmidt	5456
Roger Thicke	5806
Roger Thoma	8990
roger williams	7816
Rolaine Wright	9032
Roland Romo	11323
Roland Treichel	9179
rollande frebet	38008
Romy Goltz	9452
Ron Dutra	20350
Ron Gerrard	10672
Ron Hobart	8540
Ron Kaufmann	8413
Ron Liebelt	7925
Ronald Kalil	8723
Ronald Lemmert	6979
Ronald Liljedahl	5389
Ronald Tripp	9074
RONNIE DAMARIO	9079
Rosa Arsiaga	17972

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3 Center For Biological Diversity	
Rosa Karl	8353
Rosa Pastrana	8103
Rosalie Pierce	9002
Rosanne Bane	8604
Rose Knopff	5284
Rose Reimert	9070
Rose Stafki	19666
Rose Wood	5649
Roselind Heinekamp	9172
Roselind Heinekamp	37963
Rosemary Bernier	6977
Rosemary Cyr	6855
Rosemary Cyr	7953
Rosemary Murray	37990
Rosendo Fernández	6985
rossi Audrey	5778
Rossi Audrey	7933
roth Woods	7892
roth Woods	7943
roth woods	10656
roth woods	20514
Rowen Kade	11780
roy bell	47978
Ruben Terveen	8516
Rudi Kici	20714
Rudy Stevens	5860
Russ Hanes	5673
Russ Hanes	5825
Russ Leopard	8350
Russell Kelnhofer	7306
ruth breznay	16457
ruth breznay	48131
Ruth Cooper	8759
Ruth Darden	5089
Ruth Elder	9046
Ruth Johnston	5605
Ruth Katz	8730
Ruth Katz	9157
Ruth Litton	5709

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3 Center For Biological Diversity	
Ruth McD	5073
Ruth Neuwald Falcon	6868
Ruth Serra	5698
Ruth Serra	6930
Ryan Bradley	6970
Ryan Bradley	7966
Ryan Bradley	8213
Ryan Bradley	11843
Ryan Handeland	8236
ryan trammell	15919
s a	7303
s a	8530
s caswell	9245
s caswell	19625
S Mumford	8955
S Roloff	8649
S T	8609
S. VanZant	37960
sa re	5003
sa re	10663
Sabrina Hadley	8406
sakari lindhen	5751
saliha abrams	11782
Sally Brownell	5750
Salome Waters	47959
Salwah Koriya	5614
Sam A	20551
sam foster	8888
Sam Leeper	15035
sam sanders	15159
Samantha Foster	8204
Samantha Ginsburg	5135
Samantha Holm	5167
Samantha Wobig	8706
Sami Turetsky	15183
Sampson Chan	5841
Samuel Morningstar	8887
Sandi Cook	13050
Sandra Amici	48152

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3 Center For Biological Diversity		
Sandra Arnold		8333
Sandra Arnold		11311
Sandra Arnold		11855
Sandra Atkins		8835
Sandra Bader		8838
Sandra Bader		10592
Sandra Cobb		8312
Sandra Cobb		10575
Sandra Cope		5735
Sandra Couch		17931
Sandra Green		9239
Sandra Helin		5352
Sandra Iseman		5101
Sandra Meland		5884
sandra zanin		11283
Sandra Zaninovich		20456
Sandra Zelasko		8107
Sandra Zelasko		9268
Sandra Zelasko		10460
Sandra Zelasko		15224
Sandra Zelasko		17961
Sandy A		7245
Sandy Brooks		8729
SANDY GARDNER		20308
SANDY PORTER		8570
Sanford Wintersberger		7803
sanja lalic		8869
sara benatti		8144
Sara Bible		8584
Sara Ellisson		20722
sara ellisson		48097
Sara Gibson		18049
Sara Huetteman		8943
Sara Leonard		9110
Sara Linke		5137
Sara Manzoni		20293
Sara Nason		16407
Sara Paoluzzi		5688
sara roderer		8284

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sara taylor	7789
sara taylor	8457
Sara Wersinger	6848
Sarah Aslakson	9033
sarah Bergman	9168
Sarah Bertsch	5749
Sarah Cripe	5766
Sarah Doyle	7873
Sarah Foster	17911
sarah fritts	8062
sarah gladwell	10653
sarah gladwell	20398
Sarah Goldbaum	16406
Sarah Lyons	5349
Sarah McLaughlin	7251
Sarah McLaughlin	15061
Sarah Mummel	19651
Sarah Shelton	9098
Sarah Sivro	8202
Sarah Sivro	8292
Sarah Stahelin	5661
Sarah Stark	20665
Sarah Steel	5241
Sarah Stern	6982
Sarah Wilcox	8477
Sarah Wilcox	8510
saren lightsong	5271
Sasha Shapiro	11812
saskia Reinke	10449
Saso Lipic	18043
Savannah Hawkins	16412
Scott Douglas Laxier	5033
Scott Douglas Laxier	10627
Scott Dulas	8878
Scott Franks	17962
Sean McCue	10579
Serena Brunker	8676
Serena Harris	15164
Serenella Castri	9455

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3 Center For Biological Diversity		
Serenity Detwiler		10554
seychelle cannes		7846
Shalise Wilson		9417
Shalise Wilson		11317
Shalise Wilson		16448
Shane Worth		7785
Shane Worth		8301
Shanin Terrell		8833
Shannon Chappell		15019
Shannon Hedren		5258
shannon kearney		5242
Shannon McClenny		7272
Shannon Prowell		10678
Shannon Scott		5039
Shannon Teper		5840
Shannon Teper		10657
Shannon Zambito		8484
Shar Bjerke		5736
Shar Bjerke		47954
Shara Scott-Smith		20371
Sharon Fisher		5052
Sharon Fortunak		9014
Sharon Fortunak		10655
sharon johnson		6993
Sharon Kennedy		8066
Sharon L Jenkins		8912
Sharon Novak		7309
Sharon Palmer		8364
sharon ronsse		8031
Sharon Rosseland		18005
Sharon Saunders		11826
Sharon Smead		19632
Sharon Stockman		8069
Sharon Stockman		6936
sharon walsh		6872
Sharyn Costello		18034
Sharyn Lehrke		8683
Shaun Deery		8891
SHAUN WOODSON		5763

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3 Center For Biological Diversity	
SHAUN WOODSON	5821
Shawn Clayton	8360
Shawn Ristvedt	5286
Shawn Stanley	5652
Shawn Tinder	17966
Shawn Williamson	17947
Sheeza Q	5755
Sheila Desmond	5705
Sheila Desmond	7905
Sheila Dillon	5494
Sheila Dillon	5880
Sheila Hatch	5103
sheila hempfer	5290
Sheila Mandell	8063
Sheila Mandell	8064
Sheila Mandell	9365
Sheila Mandell	13003
Sheila Mandell	13012
Sheila Mandell	13025
Sheila Mandell	20321
Sheila Mandell	38004
Sheila Nolte	8632
Sheila Schally	5526
Sheila Schally	8076
Sheila Tatone	8828
Sheila Tran	6909
Sheila Tran	20260
Shelby Haukos	8722
SHELIA LIRETTE	20362
Shelley Czeizler	9250
shelley MCKEE	9355
Shelley Wilson	5218
Shellie Vandergriff	18044
Shelly Wallace	19586
Sheridan Sonne Rice	7837
Sherri Gillespie	5876
sherri mann	17893
sherri mann	17929
Sherri Mann	47885

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3 Center For Biological Diversity	
Sherri Mann	47922
Sherri Martin	8469
Sherry Russell	7248
Sherry Wendelin	5812
Sheryl Hogan	10496
Sheryl Salvaggio	7899
Shirlene Vitullo	8989
Shirley Bensetler	20332
Shirley Powell	8787
Shirley Reider	8559
Shirley Scott	5408
Shirley Strang	5712
Sian Cox	7851
Sigfrido Quijano	5897
Silvana Borrelli	9153
Silvana Borrelli	17943
silvana comacchio	7991
silvana comacchio	8243
silvana comacchio	19593
sima niroomand	9384
sj aquilina	5781
Sondra Olson	5191
SONIA ALBERS	8949
SONIA GATT	7959
Sonja Glavina	6871
sonja syne	47547
sophie clement	8091
Sophie Miller	5289
Sophie Wozniak	5209
sos animali	9210
Stacey Calvert	5792
Staci Galvin	6825
Stacie Kirtley	6883
stacy chladek-doyle	6906
Stafford Kramer	8981
Stan Fitzgerald	6833
stan sheggeby	5362
stan sheggeby	5683
stan sheggeby	19681

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3 Center For Biological Diversity	
Starla Sholl	15083
Stashenko Hempeck	8656
Stefan Kozinski	5699
Stefani Tran	9380
Stefania Selva	9145
Stephanie Appleton	11282
Stephanie Appleton	11289
Stephanie Bell	4985
Stephanie Bell	8318
Stephanie Bell	11779
Stephanie Carlson	8848
stephanie clark	9266
Stephanie Cloak-Sander	9439
Stephanie Cuellar	8052
Stephanie Cuellar	9272
Stephanie Cuellar	11301
Stephanie Eastwood	8721
Stephanie Eckard	8070
Stephanie Holloway	19638
Stephanie Hunt	6818
Stephanie Joyner	9136
Stephanie Joyner	38023
stephanie lawson	5220
Stephanie Mastel	5524
Stephanie Perez	10480
stephanie perez	15049
stephanie perez	19585
stephanie Provost	8158
Stephanie Rodriguez	8300
Stephanie Sarich	5287
Stephanie Saris	47573
Stephen Girard	5648
stephen graham	7255
Stephen Johnson	7234
Stephen Nolan	17976
Stephen Streed	8627
Steve Bradley	15088
Steve Iverson	8276
steve johnson	8591

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3 Center For Biological Diversity		
Steve Salzer		8113
Steve Salzer		8153
Steve Salzer		19611
Steve Salzer		19612
Steve Salzer		19663
Steve Steele		5599
STEVE vanOUDENHOVEN		5347
Steve Wiley		8854
Steven Barrett		11863
Steven Barrett		5009
Steven Barrett		7978
Steven Barrett		8341
Steven Barrett		10484
Steven Barrett		15032
Steven Barrett		19688
Steven Barrett		20368
Steven Barry		5696
Steven Barry		8110
Steven Barry		11316
Steven Barry		17933
Steven Markgraf		8714
Steven Sher		8556
Story Sandy		8746
Stuart Ross		5263
Sudeshna Ghosh		9163
Sue Bartel		8704
Sue Bedrick		9166
Sue Chard		19615
Sue Chard		20377
Sue Halligan		8608
Sue Krol		5794
sue Lesmond		5858
sue morem		5472
Sue nerad		13027
sue nusbaum		5606
sue rogan		8901
Sue Velez		8317
Sue Velez		8335
Sue Velez		9214

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3 Center For Biological Diversity	
Sue Velez	10596
Sue Velez	15013
Sue Velez	15091
Sue Vélez	47967
sue warner	9122
Sue Wick	8565
summer Ankiel	13014
Summer Crabtree	9031
sun cho	5842
sun cho	20279
Sundae Morse	8532
Susan Allen	9132
Susan Bradshaw	20381
Susan Christie	11866
Susan Christie	8402
Susan Cody	8727
susan elias	5175
Susan Esposito	4999
Susan Esposito	7791
Susan Esposito	7833
Susan Esposito	10479
Susan Faulkner	4995
Susan Ghirardelli	13066
Susan Goldberg	20453
Susan Grodensky	6915
Susan Grodensky	8259
Susan Haug	8621
Susan Jordan	5761
Susan Kepner	8115
Susan L. Augeri	20304
Susan Lindell	5288
Susan Louis	8870
susan lucking	8663
Susan Manning	10648
susan michetti	5409
susan michetti	6902
susan michetti	47986
Susan Miller	6856
susan Newman	8465

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3 Center For Biological Diversity		
Susan Nierenberg		11322
Susan Rybski		8405
Susan Sander		6821
Susan Sander		16432
Susan Sander		16477
Susan Toft		5670
Susan Torres		15190
Susan Welch		17903
Susan Welch		48047
Susan Welsford		7822
Susan Young		20253
Susan zeiger		8363
susanna minacheili		9227
Susanna Odry		15036
Susanna Odry		15087
Susanna Tam		9271
Suzan Toma		9097
suzanne aagaard		8207
suzanne aagaard		9431
suzanne aagaard		10528
suzanne aagaard		11274
suzanne aagaard		15072
suzanne aagaard		16455
suzanne aagaard		20257
suzanne aagaard		37988
Suzanne Candell		5758
Suzanne Covello		6995
Suzanne Elton		8188
Suzanne Hamer		7997
Suzanne Horsburgh		10674
Suzanne Kuffler		7954
Suzanne McConnell		8575
Suzanne Ross		7260
Suzanne Ross		10476
Suzanne Row		5664
Suzanne Stennes-Rogness		5183
Suzi Lopez		16453
Suzie Awad		10589
Suzy Eich		5653

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3 Center For Biological Diversity	
Suzy Eich	11807
Sydney Allrud	6949
Sydney Allrud	7949
Sydney Allrud	20423
sylvia De Baca	6826
Sylvia Kriegl	5428
Sylvia Tralea	9025
sylviane mahaux	9134
Sylviane Mahaux	9383
Sylvie Auger	5873
sylvie carpentier	17955
t.more hynes	9001
Tadzio Kowalczyk	9177
Tagui Mkrtchyan	8182
Tagui Mkrtchyan	16480
tal ivgi	8187
Tamar Shurghaia	9114
Tamara Reinke	8742
Tami Fleming	8245
Tami Phelps	9263
Tammy Carlson	11884
Tammy Downing	5521
Tammy Hibner	7239
Tammy Minion	6910
tammy stewart	8226
Tania Liva	10506
Tanja Rieger	11830
Tanya Koester-Radmann	9065
Tanya Kroeber	7908
Tanya Selth	5846
Tara Kokesch	9039
Tatiana Torres	13018
Tatiana Zannou	8931
Tawnya Wren	17946
Tayfun Coragan	15173
Taylor Corbin	47584
Tea Mikli?	10642
Tea Mikli?	47981
Ted Seymour	5190

Sender Name	Submission ID
3 Center For Biological Diversity	
tegwin moye	11878
Terence Travis	7938
Teresa Ashley	6967
Teresa Ashley	7825
Teresa Ashley	8444
Teresa Blachowiak	8513
Teresa Olsen	8972
Teri Dittrich	10474
Teri Webb	8427
Terri Ficarro	9463
Terri McFarland	8257
Terri McFarland	15016
Terri Santo	7286
Terry McGregor	9075
Terry Richmond	5788
Terry Travis	11776
Terry Vaccaro	5133
Terry Vollmer	9221
The Ungers	4925
The Ungers	5907
The Ungers	8440
The Ungers	9277
The Ungers	9310
The Ungers	10952
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The Ungers	15998
The Ungers	17776
The Ungers	19916
The Ungers	37944
Thelma Hardman	5394
thelma kew	5697
Theodore Shayne	5710
THEODORE SPACHIDAKIS	9180
Theodore Voth III	8859
Theresa Bauer	5339
Theresa Di Maggio	10547
Theresa Gorrez	11791
theresa iverson	5268
Theresa Medbury	8518

Sender Name	Submission ID
3 Center For Biological Diversity	
Theresa Rasmussen	5457
Theresa Terhark	8825
theresa two bear pederson	8909
Thierry Favre	5141
Thom de Cant	6990
Thomas Bonneville	17919
Thomas Bragg	9073
Thomas Brenner	7810
Thomas Copeland	18038
Thomas Duffey	8693
Thomas Lichtenstein	7284
Thomas Littelmann	5909
Thomas Marty	8574
thomas murphy	8564
thomas nonn	8599
Thomas Porter	5124
Thomas Porter	11841
Thomas Rogers	9175
Thomas Sullivan	7127
Thomas Swoffer	6947
Thomas Wilson	13057
Thomas Yasaitis	8847
Tia Uphoff	20322
Tilton Davis	15054
Tim Arents	5233
Tim Herbstrith	5622
Tim Johnson	8504
Tim Martin	7947
Timothy Dunn	8398
timothy wolfe	7844
Tina Deardorff	10468
Tina Deardorff	16439
Tina Elliott	5217
tina fritts	9265
tina fritts	10646
TINA KENDALL	6851
TINA KENDALL	17978
Tina M ichael-Dahlmann	19702
Tina McKim	4959

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3 Center For Biological Diversity	
Tina Rogers	6805
Tiziana Tagliaferri	17904
Toby Ann Reese	8359
todd engleman	5458
Todd Hartman	5084
Tom Brown	5499
Tom Carlson	8856
TOm Chojnacki	8183
tom cramer	8763
Tom Koors	5603
tom lohaus	6827
Tom Pitman	20259
Tom Van Raden	5532
Tom Wenzel	20243
Toni Adisano	5864
toni lubka	19660
Toni McCray	15839
Toni McCray	47535
Toni McDonald	5651
Toni Sharrard	17985
Tonya Rose	47883
Tracey Smallwood	6822
Tracey Smallwood	15841
Traci Phillips	20317
Traci Phillips	37982
Tracy Arcure	8370
Tracy Fisk	20555
Tracy Foster	4960
Tracy Kunstmann	5285
Tracy Schroepfer	8554
Tracy Stewart	8852
Tricia Murphy	19584
Tricia Smith	8495
Trish Smith	8464
Troy Giese	5757
Ty Webster	18009
tye block	5852
Ulf Edvinsson	5796
Unai Fuente Gomez	8105

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3 Center For Biological Diversity	
Unai Fuente Gómez	38024
UNITED NATIONS FOR ANIMALS	7977
Urmila Padmanabhan	7849
Ursula Pelka	8606
Ursula Pelka	9440
Uwe Krueger	20357
V Brandt	5131
V Brandt	7917
V Brandt	10676
V Evan	19603
V Voland	10645
V Voland	20434
V. B.	5008
valentina sovran	8083
valerie farrell	9154
Valérie M. Horne	7901
Valérie M. Horne	7974
Valérie M. Horne	15204
Valerie Sherrill	5035
Valerie Sherrill	7891
Valerie Slocum	7249
Valerie Vlassenko	10507
valeska Bachauer	13031
Vanassa Lundheim	47531
Vanessa Hooper	10491
Vanessa Hooper	13024
Veena Sheen	8479
Verba Weaver	5240
Veronica Cantu	16470
Veronica Giorgi	8919
Veronica Miazga	11773
Veronica Rehne	8209
Veronica Sustic	8142
Vic Paglia	8305
Vicki Andrews	5146
Vicki Fischer	5901
Vicki Heiner	7265
vicki jones	10583
Vicki Ramsay	20336

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3 Center For Biological Diversity		
Vicky Adams		5516
victor tovar		9149
VICTORIA MILLER		16435
Vikki Hallen		4981
Vince L		5770
Vince Mendieta		19696
Vincent Mattson		7290
Vincent Mattson		7295
Vincent Petraccione		8022
Vinny Mullins		38016
Virginia Allgaier		8587
Virginia Mattson		8449
Virginia Werp		8967
Vivian & Ken Hensel		5239
Vladimir Zepeda		20324
W Jansen		20356
W. Andrew Stover		7984
walker hibben		5074
Wanda Ballentine		8735
Wanda Ballentine		17879
Wanda Sonnentag		8911
Wanda Sopotnicka		10545
Wave Reaume		8415
Wayne Middleton		9133
Wayne Potratz		5415
wayne Sheridan		5045
Wayne Sheridan		47951
Wayne Straight		9008
wencke gulbro		8806
Wendi Cohen		7889
Wendi Cohen		47989
Wendy Bogaards		20372
Wendy Brophy		15089
Wendy C. Sterne		8478
Wendy Caduff		5311
Wendy Forster		9105
Wendy Forster		9117
Wendy Lucka		5272
wendy niemeyer		8050

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3 Center For Biological Diversity	
wendy niemeyer	7790
wendy niemeyer	9119
wendy niemeyer	10631
wendy niemeyer	15115
wendy niemeyer	16469
wendy niemeyer	19650
wendy niemeyer	20347
Wendy Peardot	7819
Wendy Petak	5207
Wendy Petak	6981
Wendy Raebeck	9081
Wendy Raebeck	8160
Wendy Stevens	8954
Will Bildsten	8562
Will Oosterman	9026
will santora	6955
Will Schwall	4998
Willard Shapira	5675
William Barnes	11839
William Barnes	18001
William Barnes	47850
William Barnes	47895
WILLIAM BERG	5396
William DiAntonio	8583
William Fraley	6898
William Fraley	8643
William Gardner	5019
william kennedy	8999
William Kruswicki	5659
William Leon	20397
William McGuffey	9151
William Netznik	5646
William Nusbaum	5404
william obrien	17988
william obrien	17990
william stewart	5343
william stratton	7314
Willie Holland	7861
Willis Neville Jr.	17992

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3 Center For Biological Diversity	
Willis Neville Jr.	37964
wilmer gastineau	19635
Winnie Chung	8437
Wister Miller	19620
wiz wiz	17905
Wyman Whipple	6897
Wyman Whipple	11835
Yahya Frederickson	8633
Yalisa Dumont	11864
Yalisa Dumont	8149
yanina pidkuiko	10478
yanina pidkuiko	47570
yanina pidkuiko	47579
Yazmin Gonzalez	20358
Yolanda Anaya	7996
yolanda harned	18012
Yolanda Magpantay	10658
York Quillen	6991
Yseult Biwer	8393
Yseult Biwer	15144
Yvette Dominguez	5087
Yvette Doublet-Weislak	11882
Yvonne Barker	8842
Yvonne Christison	8914
Yvonne Davis	11883
Yvonne Davis	5624
Yvonne Davis	37991
Yvonne Davis	48138
Zachary Moss	19617
Zara Verryt	13055
Zara Verryt	17877
Zbigniew Denys	17922
Zee Kallah	8238
zouhra babouch	10640

Sender Name	Submission ID
4 Water Legacy: Comments on EIS	
Form Letter 4: Water Legacy: Comments on EIS. Dear Ms Fay, Dear Federal and State Agency Leaders: In 2010, the US Environmental Protection Agency gave the PolyMet sulfide mine environmental study a failing grade, saying that the study itself was "inadequate" and the sulfide mine project would be "environmentally unsatisfactory." The PolyMet SDEIS is still inadequate. It makes claims without facts behind them. It doesn't analyze the effect of pollution on workers' health or on nearby drinking water wells. It doesn't explore alternatives that could reduce PolyMet's destruction of wetlands. It doesn't examine the effect that PolyMet's sulfide mine, combined with other mines, would have on toxic pollution, like mercury contamination of fish. The PolyMet sulfide mine plan would destroy up to 8,263 acres of wetlands in the Lake Superior Basin. Its waste rock piles, mine pits, and tailings waste would leak and seep pollution into surface water and groundwater, increasing sulfates and toxic metals that harm fish, destroy wild rice, and impair health of adults and children. PolyMet makes a lot of rosy predictions, but the SDEIS shows that pollution from the mine tailings and waste heaps would last for at least 500 years. Pollution seeping from mine pits into the Partridge River surficial waters "would continue in perpetuity." Please reject the PolyMet SDEIS and deny permits - like a permit to mine or a Section 404 wetlands permit - that would allow this open-pit sulfide mine to harm Minnesota's fresh water for centuries, if not forever. Sincerely	
|John Walsh	10364
Adonis Houmas	57907
Aimee Lee	17547
Al Gedicks	9628
Al Kasinskas	6153
Al Kosters	57113
Alan Kohuke	56551
Alan Stankevitz	57132
Alec Nord	7393
Alex Sigmundik	6026
Alicia Palesotti	57118
Alison Price	56653
Alissa Hady	48023
Allen Richardson	6184
Allison Adrian	6259
Allison Adrian	6260
Allison Ehlert	11755
Alm	56540
Amanda Hanzlik	56516
Amanda Hawkinson	57104
Amanda Marlow	44753
Amelia George	56542
Amelia Holcomb	19955
Amelia Kroeger	7129
Andrea Pollard	57122
Andrew Hanson	56544
Andrew Mathiassen	56628
Andrew Nesheim	57738
Andrew Stern	56666
Andy Pearson	56646
Angela Brewer	44115

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4 Water Legacy: Comments on EIS		
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Angie Frank		57099
Angie Johnson		57108
Angie Nichols		56643
Anita Raymond		57079
Ann Blackburn		9931
Ann Mongoven		56639
Anna C Shortall		57903
Anna Cousin		48146
Anna Hess		7151
Anna Peterson		6328
Anne Deardorff		12239
Anne Stemper		43581
Annie Gardner		6309
Annie Gardner		40054
Arianne Peterson		9557
Arla Schumack		37762
Ashley Hausch		6562
Ashley J Sargent		57126
Athena Houmas		57908
Barbara Brockway		6376
Barbara Cochran		11249
Barbara Louise Kelly		57111
Barbara Lund		7128
Barbara Munson		9646
Barry Maloney		6266
Becca Perry		45095
Ben Durrant		43210
Benjamin Acaso		56503
Benjamin Krohling		5939
Benjamin Krohling		7537
Beret Amundson		6265
Beth Bartlett		6365
Betsy Olson		6371
Beverly Berntson		56563
Bill Adamski		21114
Bill Conger		7470
bill kaeter		47139
Bill Mears		56629

Sender Name	Submission ID
4 Water Legacy: Comments on EIS	
Bill Wright	16452
Bob Jalonen	6502
Bob Kessen	37936
Bonnie Blodgett	46014
Bonnie Michie	10350
Brenda Schillo	56502
Brenda Schillo	56659
Brett Cease	6158
Brian Harrington	57083
Brian Henning	6354
Brian Russeth	56657
Brian Stevenson	56667
Brian Wisniewski	56539
Bruce and Joan Mork	57895
Bryan Rocheleau	56655
c carlson	6229
C Hickok	57106
Calisto Houmas	57909
Cara Flora	5956
Carly Brown	56567
Carmen Carter	57092
Carol Bolin-Abrahamson	10716
Carol Bolin-Abrahamson	10717
Carol Buelow	9634
Carol Monsebroten	56640
Carol White	10296
carol woodruff	48061
carole jokiel	44972
Carole Nee	21213
Caroline Hollstadt	56520
Carolyn Rehmann	21183
Carrie Nightshade	7082
Casey Deschampe	56541
Cassandra Roy	56656
Catherine Colletti	47859
Catherine Wright	6519
Cathryn Kennedy	56525
Cathy Montgomery	36447
Cathy Muldoon	7625

Sender Name		Submission ID
4 Water Legacy: Comments on EIS		
cecile marquardt		9282
Chad Roy		6061
Chad Roy		7342
Charles Gentz		43382
Charles S Wilson		6360
Chazz Smith		57130
Cher Johnson		6356
Cheryl Meyer		56635
Chet Meters		56633
Cheyenne Lemm		56623
Chloe Peters		45327
Chris Erickson		6587
Chris Erickson		21357
Chris Haenisch		7471
Chrissie Weyenberg		19922
Christina Bellert		6364
Christina Lincoln		56553
Christine McVay		56554
Christopher T Loch		6295
Christov Churchward		7292
Cindy Commers		7561
Clara Borrell		57091
Clarence Roed		6291
Clifton Gray		6353
Coleen Christensen		56574
Colleen Hooley		44277
Colles B. Larkin		46057
Concerned Citizen		47015
Constantine Dimitracopoules		56581
courtney butcher		6216
Croix Christenson		45545
Crystal Reynolds		57124
Curtis Miers		57899
cynthia freeman		14947
Cynthia Smallwood		56533
D Day		7176
Dale Johnston		56617
Dallon White		56677
Dan Anderson		16899

Sender Name	Submission ID
4 Water Legacy: Comments on EIS	
Dan Anderson	20076
Dan Peer	56648
Dan Unze	9808
Dana Jackson	56548
Daniel Paulson	57119
Daniel Pearson	56647
Darci Michie	10379
dave hiller	6043
David Carlson	16719
David Divar	57096
David Fullerton	56596
David Gore	56599
David Moffatt	7476
David Rupel	56532
David Senn	56661
David Stevens	48026
David Zimney	6315
Dawn Dannenbring	6084
Dawn Jensen	45855
Dawn Snyder	6222
Dean Magraw	12201
Deb Krueger	56620
Debby Bocnuk	15252
Deborah Crocker	9846
Deborah Crocker	10534
Deborah Harley	12584
Debra Frasier	57914
Dennis D Fitzpatrick	57904
Diana Watson	9782
Diane Borgmann	43577
Diane Johnson	57109
Dick Bentley	6324
Dixie Berg	56505
Don Carlson	6105
Donald Nelson	57076
Doretta Reisenweber	56654
Dorette Philben	16035
Dorothy Johnson	47873
Doug Moore	10760

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4 Water Legacy: Comments on EIS		
Doug Stevens		7120
Douglas Bennett		57088
Douglas Metcalf		56632
Dr. Jacob Conway		7267
Drew Mannetter		56627
Edward Bouril		57074
Elaine Gason		56598
Eleanor Wagner		10485
Elizabeth Burr		6367
Elizabeth Johnson		56615
Elizabeth Knapstein		56550
Elizabeth Merz		7308
Elizabeth Pedersen		57077
Emily Lindell		47454
Emily Michog		57894
Emily Moe		7400
Eric Illegible		56523
Eric Medberry		38052
Erik F Storlie		57922
erik storlie		6127
Erika Huffman		56612
Erika Illegible		56546
Ethan Sohm		47863
Eve Gridden		56602
Eve Marie Glidden		6596
F Richard Dolezal		57097
Faris E Keeling		57110
Felicia Glidden		10287
Florence Mowan		38552
Frederick Brighton		5944
G B		10286
Gail Barels		7138
gail harty		6213
Garrett Fitzgerald		56513
Gary Anderson		56560
Gary Duggleby		47952
Gary Johnson		56616
Gary Noren		38135
Gavin Danfelt-Martin		21385

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4 Water Legacy: Comments on EIS	
georgann hiller	5970
Georgia Ehrreich	10285
Gerri Williams	56680
Glenn Bertelson	6350
Greg Molenaar	6264
Gregory Pinto	14781
Gretchen Bratvold	6317
Gretchen Bratvold	7477
Harriet Mccleary	7430
Heather Winesett	57137
Heide Hibbard	44293
Heidi Ahlstrand-Gallagher	6262
Heidi Boyd	56564
Heidi Hahn	43861
Heidi OConnor	6137
Henry Boschen	9496
Herb LePlatt	6173
Herb LePlatt	6174
HEYWARD NASH	6297
HEYWARD NASH	7543
Hoa pham	47289
Ian Coldwater	56510
Illegible	56613
Illegible	56614
Ilse Morensen	56641
Ivy Vainio	56670
J Patrick Kegley	9301
J. Greve	44981
Jackie Metelak	45089
Jacqueline Halberg	56605
Jaime Quarve	9377
James and Sara Conway	5998
James Ellis	56585
James Erchul	56512
James Fitzpatrick	56594
James Hall	56606
James Suttie	57133
James U Schulzetenberg	57912
James Wyman	44599

Sender Name		Submission ID
4 Water Legacy: Comments on EIS		
Jami Halder		57101
Jamie Hoerter		6332
Jan and Jim Porter		6362
Jan Best		7637
Jan Tanble		57923
JANE AMENT		6608
JANE AMENT		46878
Jane Fisher-Merrit		56593
Jane Norman		7323
Janet Kortuem		10289
Janet Neihart		7605
Jason Wins		56538
Jean Diekmann		56580
Jeani Petonquot		57121
Jeanie Crawford		6374
Jeanine Johnson		56500
Jeanne Wintener		56681
jeff kitterman		6355
Jeff Nygaard		10342
Jeffery A Berryhill		56506
Jeffrey Goldstein		6603
Jeffrey Grosscop		56603
Jen Theis		44078
Jenna Bendel		6333
Jennifer Abbey		15271
JENNIFER ABBEY		47900
Jennifer Hengelfelt		38204
Jennifer Hengelfelt		38205
Jennifer Hengelfelt		56545
Jennifer Lengyel		56552
Jennifer Young		10105
Jeremy Hageman		45192
Jerome Challman		56573
Jerome Comeau		9810
Jerry Bix		56507
Jerry Sattinger		48141
Jerry St John		57131
JEske Noordergraaf		38035
Jesse Peterson		56649

Sender Name	Submission ID
4 Water Legacy: Comments on EIS	
Jessica Eberl	56583
Jessica Eidem	19654
Jessica Ostrov	56645
Jessica Wermerskirchen	44614
Jessie Conaway	9636
Jessie Lawson	7554
Jill Pistucka	56651
Jill Rivard	9830
Jim Hall	6220
Jim Wiggins	6312
Joan Johnson	45860
Joan Schneider	56660
Joan Smiley	7608
Joan Stickelmeyer	20844
Joan Wells	56675
JoAnn Haubrick	57897
Joanna Hopkins	56611
Joanne Zier	6380
Jody Karlen	56549
Joel Mamedov	17332
Joel Mamedov	17333
John and Marilyn Raplinger	6238
John Bueche	56508
John E. Larkin	44082
John Eret	38168
John Fisher-Merritt	56592
John Flaten	6301
john goetz	10331
John Kerschbaum	6336
John Leinen	6379
John Penn	20874
John Philips	56650
John Raadt	44684
John Teschner	57134
John Utermoehl	6381
John Vennewitz	43327
JoLynn Schulte	57910
Jon Frasz	10381
Jonee Brigham	56566

Sender Name		Submission ID
4 Water Legacy: Comments on EIS		
Joseph Lindblad		56526
Joseph Lindzius		56625
Joseph Ward		10759
Josephine Geiger		9889
Joshuel Patterson		44173
Joy Herbst		6179
Joy Salls Turman		56501
Joyce LaPorte		57916
Joyce Whybrew		45273
Judi Poulson		6375
Judi Poulson		7562
Judi Poulson		7699
Judith Hendrickson		56518
Judith Straub		7621
Judith Wick		57924
Judy Sterns		6330
Julia Nelson		56527
Juliana Reimann		11269
Julie Cox		6254
Julie Gard		6321
Julie M Morgan		57115
Julie Madden		56626
Julie Young-Garayt		44214
Justin Hickman		14524
Karen Savane		57921
Karen Sherman		57905
Karl Meller		6249
Karla Faith		56588
Kate Bix		57911
Kate Meyer		56636
Katherine Doerr		7103
Katherine Knapp		57112
Kathleen Abel		6363
Kathleen C Murphy		57117
Kathleen Crow		9955
Kathleen Felt		6170
Kathleen Smith		56663
Kathleen Sommers		11286
Kathleen Spencer		57906

Sender Name	Submission ID
4 Water Legacy: Comments on EIS	
kathryn olmstead	9519
Katie Heiug	56608
Katie Herman	56610
Katie Pehling	57120
Katy Selb	7578
Kay Bakke	57073
Kay Costello	6148
Kay Weseman	6172
Keely Young-Dixon	45099
Keith gagnon	11277
Kellin kin	45320
Kelly Rikansrud	6132
Kelly Rogers-WInston	14520
ken chastain	14660
Kent Scheer	6252
Kevin Hay	7687
Kevin P Haroian	57103
Kevin Stramer	9392
Kim Rezek	46962
Kim Sullivan	56669
Kirk Ballard	7629
Klaus Zimmermann	6214
Kristen Cornelius	56577
Kristin Knudsen	45609
Kristin Rolf	57919
Kristina Smitten	10426
Kristine Pettersen	9638
Kurt Seaberg	6373
Kyle Johnson	7074
Lanny Olson	10718
Laurel Hendershot	56517
Laurel Watkins-Melby	56673
Lauri Twining	45332
Leane Wilson	6586
Leilani Bloomquist	11869
Lesley Hauser	11235
Leslie Limberg	7137
Lilly Perry	10749
Linda Glaser	6048

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4 Water Legacy: Comments on EIS	
Linda Glaser	6585
Linda Imbertson	9561
Linda Morris	6251
Linda S Budd	57913
Linda Simmons	47904
Linda Wells	56537
Lisa Coons	7566
Lisa Haberling	56604
Lisa Kosmo	20295
Lisa McColman	44583
Lisa Wersal	6177
Lisa Wersal	7546
Liska Ulven	56534
Lois Norrgard	56528
Lora Pedersen	57078
loreen morrell	38084
Lori Jean Hatten	56607
Lori Steckervetz	44375
Louisa Keleher	56618
Louise Mullan	56642
Lura Anderson	9626
Lynn Shoemaker	9351
Lynn Thomasberg	6047
M Bujold	6338
M Richardson	7262
Mackenzie Morrissey	57116
Madalynn Collura	7136
Madeline J Gardner	56514
Madeline Seveland	6100
Margaret Beth Cherne	57093
Margaret Buresh	56572
Margaret Cullen	36377
Margaret J Apla	57086
Margaret Skold	57901
Margi Preus	17166
Marion Watson	9595
Mark anderson	6197
Mark Benolken	6313
Mark C Miller	56555

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4 Water Legacy: Comments on EIS	
Mark Fiore	56591
Mark Hoel	43370
Mark Peterson	11879
Mark S. Roalson	6361
Mark Sanstead	9465
Mark Wihriala	56678
Marnie Obyrn	7130
Martha Krikava	6341
marti edwards	21263
Maruerite Grahn-Bowman	56601
Mary Ahler	56558
Mary Dosch	56582
Mary E. Dosch	37901
Mary Eve Thomas	11770
Mary Firestone	9340
Mary Garbutt	56597
Mary Goodkind	45035
Mary Heise	57105
Mary Jo Walters	9510
Mary Klausen	6276
Mary Kohls	56619
Mary L Klauk	19592
mary mccallum	14661
MARY MCGILLIGAN	6318
Mary Scott	11334
Mary Smith	7609
Mary Smith	47985
Mary Tennis	6089
Mathias Mortenson	36506
Matt Boys	7170
Matt Johansen	7277
Matt Johnson	6280
Matt Mac	9371
maureen skelly	20268
Maxine Dickson	47995
meg Redmond	14775
Megan Holm	6319
Melanie Lahr	57084
Melanie Tauring	21266

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4 Water Legacy: Comments on EIS	
Metti Shank	56662
Michael Anderson	5974
Michael Bouchard	48140
Michael Bowden	15921
Michael Jensen	7720
michael koppy	15310
Michael Larson	6320
Michael Midleton	56637
Michael Overend	6149
Michael Robole	56531
Michele Flynn	9816
Michele Nihipali	6368
Michelle Whitman	57136
Micky Reilly	57123
Mike and Jane Conrad	6325
Mike Ferguson	6250
MIKE LINK	6224
Millie Jones	6114
Mindy Ahler	56559
Miranda Hong	9299
Miriam Meyers	56634
Molly Darsow	6366
Morgan Cook	57094
Nana Nishigaki	14796
Nancy Craver	57896
Nancy Creighton	56578
Nancy Ellis	56586
Nancy Giguere	7747
Nancy Hinrichs	38083
Nancy J Waldoch	56535
Nancy Sampson	56658
Naomi J Christensen	57892
Nathan Bartelt	56504
Nathan Roy	44938
Nettie Robin Bothwell	57891
Newton D and Alice R Smith	57080
Nicholas Braun	45542
Nicholas Loch	6281
O. William Bruins	6346

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4 Water Legacy: Comments on EIS	
Ordell Vee	6343
Pablo Guillen-Givins	56515
Pamela Dorris	9423
Pamela Henjum	6384
Pat Stevesand	7244
patricia calkins	44974
Patricia Michals	57114
Patricia Rogowski	6299
Patty Guerrero	45345
Paul Densmore	6228
Paul Laakso	56621
Paul Lindfors	7703
Paul Nelson	14646
Paul Schurke	9459
Paul Walker	9914
Paula Cash	45265
Peg Mahon	9769
Peggy Wilcox	7327
Pete mcdonnell	7275
Peter Fanaselle	56589
Peter Fetsch	7150
Peter Kavanaugh	6287
Philip Lee	56622
Philip Rampi	6239
Phillip Sterner	56665
Philomena Kebec	47879
Phyllis Sherman	47246
Rachel Moore	7084
Ramona Earving	57098
Randy Klauk	19795
Rebecca Arnoldy	15848
Rebecca Brown	10248
rebecca Carel	7624
Rebecca Emmons	56587
Rebecca Johnson	57898
Rebecca Lucking	10288
Reed Heffelfinger	6263
Regina Browne	9582
Renee Leasure	15318

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4 Water Legacy: Comments on EIS		
Richard Brown		56568
Richard Mammel		6382
Richard P Brown		57082
Richard Pistulka		56652
Richard Schubert		6302
richard taylor		6383
Rick Dahn		7416
Rick Simmons		6255
Rita Caruso Santamaria		10122
Rita Urbanek		48007
Rita Vaurosky		6352
Rita Vavrosky		20752
Rob Czernitt		56511
Robert Bonne		10755
Robert Bullis		7610
Robert McPherson		10011
Robert Stodola		56668
Robert Walker		7132
Roberta Marie		57917
Rodger F Ringham		57900
Rodney Swatton		56557
Roger Muellner		7547
roger nehring		6171
Ron Wetzers		56676
Ronald Leurquion		56624
Ronda Kisner		6351
Rose Hendrickson		56609
Rose McMurray		11357
Rose Spieler-Sandberg		56556
roseroberta pauling		11873
Ruth Martin		57918
Ruth V Jones		57893
Ryan Anderson		47896
Ryan Nord		56644
Ryan Sabol		7322
Sally Larson		44089
Samuel Axner-Engel		6344
Sanda Oslin		9831
Sandra Spieler		57081

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4 Water Legacy: Comments on EIS	
Sandy Colwell	10489
Scot Bol	57090
Scott Boyd	56565
Sean Petteway	56529
Sequoiah Dahlin	56579
Shane DeWald	45468
Shanna Denzer	57095
Shannon Wagner	56671
Sharon Lemay	7615
Sharon Scherwitz	57128
Shawna Weaver	56674
Shelley Selstad	38081
Sherry Abts	6370
Sherry Abts	10078
Sherry Rovig	6090
Sherry Rue	9512
Shirley Anderson	7215
Shirley Gowdy	56600
Skyler Vold	7148
Souriya Moua	6290
Souriya Moua	7681
Stacy B Holden	57107
Stacy LaVres	5961
Stan Sattinger	48148
Stefan Ronchetti	12237
Stephan Reisig	44454
Stephanie Spitzer	56664
Stephanie Stoessel	57085
Steve Anthony	6298
Steve Jorgenson	6528
Steve Mandell	11346
Steve Molenear	6286
Steven Freund	56595
Sue Hamel	56543
Sue OKasick	7729
Suelfan Melinda	56631
Susan Brust	45449
Susan C Banks	57087
Susan Hawkinson	43517

Sender Name		Submission ID
4 Water Legacy: Comments on EIS		
Susan Zdons		14790
Susie Carlson		56509
Suzanne M Gadbaw		57100
Sven Hoaglund		6331
Tamara L Kaiser		57915
Taran Green		7133
Ted duepner		7187
Tera Freese		10757
Teresa C Hamm		57102
Terry Ford		6329
Terry Ford		6335
Tess Monen		56638
Therese M Stenger		57902
Thomas Barry		56562
Thomas Feinthel		56590
Thomas Hedstrom		57075
Thomas J Holm		56521
Thomas Wulling		56682
Tim Phillips		56530
Timothy Melby		56630
Todd Newman		6223
Tom Beltt		6296
Tom Clark		56576
Tommy Keith Sargent		57127
Toni Tunge		7214
Tony Black		57089
Tracy Brown		56569
Tracy Chartier		45158
Treana Clara		56575
Tricia Runningen		7555
Trina Waters		57135
Trina Waters		56672
Valerie Barber		56561
Vera Brown		56570
Verba Weaver		7669
Vicki Holm		56522
Victoria Wilgocki		56679
Wade Johnson		7320
Ward Brown		56571

Sender Name	Submission ID
4 Water Legacy: Comments on EIS	
Wayne D Hoklas	43458
Wendy Jennings	56524
Wendy Ruhnke	57125
Wendy Savage	57920
Wendy Schwartz	57129
Wesley Johnson	15996
Westly J Hendrickson	56519
Whitney Walter	56536
William Herzberg	5964
Woodrow	56547
Yvonne Eckstein	56584
Zach Pesch	6369

Sender Name		Submission ID

5 Water Legacy: Extend the Comment Period (A)

Form Letter 5: Water Legacy: Extend the Comment Period (A).
Lisa Fay, EIS Project Manager MDNR Division of Ecological and Water Resources Douglas Bruner, US Army Corps of Engineers Tim Dabney US Forest Service Dear Ms Fay, Mr Bruner, Mr Dabney: I'm writing to request that you increase the length of the comment period for the PolyMet NorthMet Supplemental Draft Environmental Impact Statement (SDEIS) from 90 days to 180 days. Please also consider rescheduling the public meetings proposed for January 2014 so that they take place later in the comment period. At the very least, please provide an additional public meeting toward the end of the extended comment period in May 2014- PolyMet and the agencies have had more than seven years to put together the PolyMet SDEIS. Yet, you are expecting the public to read everything and be ready to speak up about the project after just a few weeks, just after the winter holidays. This isn't fair or reasonable. Here are some reasons why we need more time to comment and to prepare for public meetings: * The SDEIS is too long. The SDEIS is 2,169 pages long. It is neither clear nor concise. * The SDEIS is not written so that members of the public can understand it. The SDEIS is confusing and repeats the same information over and over without providing the basis for its conclusions. It's going to take a lot of work just to make sense of what it is saying. * The SDEIS doesn't explain some of the most important issues. The SDEIS does not explain why other alternatives that could reduce pollution and impacts on wetlands weren't analyzed. No data is provided to support the level of financial assurance proposed. * The SDEIS seems to be one-sided. Well-documented tribal Major Differences of Opinion call into question many of the main points in the SDEIS, like claims that mine pits, waste rock piles and tailings heaps won't seep pollution, that mining won't dry out wetlands and that mercury contamination of fish and other toxic chemicals won't increase.

Abby Andresen		19440
Abby Andresen		19442
Abby Dahlquist		19407
Adriane Morabito		19059
Al Kasinskas		19148
Alaina Kelley		19143
Alan Carlson		19409
Alan Olander		19090
Alan Olander		19465
Alex Comb		19451
Allison Adrian		18968
Alma Ronningen		19449
Amy Donlin		19020
Amy Donlin		19022
Amy Hansen		18912
ANDREA jOHNSON		19458
Andrew Spaeth		18971
Andrew Spaeth		19184
Andy Driscoll		19426
Angela Schweiberger		19284
Angela Wiper		19334
Ann Blackburn		19218
Ann Cosgrove		19320
Ann Thompson		19226
Anna Fingalson		18877
Anna Peterson		19306
Anne Hendrickson		18899
Anni Rupert		18967
Annie Gardner		19095

Sender Name		Submission ID
5 Water Legacy: Extend the Comment Period (A)		
Annie Gardner		19471
April Narcisse		19165
Ardie Medina		19237
Art Dale		19114
Art Dale		19330
Art Wilkinson		19032
Art Wilkinson		19210
Ava Beath		19410
Barbara Finley-Shea		18945
Barbara Jones		18956
Barbara Stamp		19034
Barbara Stamp		19282
Barry Cohen		19459
Ben Cushing		18927
ben tasi		18984
Ben Wolfe		18978
Ben Wolfe		18979
Ben Wolfe		19158
Ben Wolfe		19240
Benjamin Krohling		18992
Bernadette Sheats		19262
Beth Tamminen		19434
Bill Hilty		19429
Bill Mears		19162
Bill Munson		19163
blanche wilcox		18924
Bob Amis		19499
Bob Bartlett		19260
Bob Haugen		19209
Brandi Cavalletti		19223
Brandon Long		18862
Brenda Adams		19292
Brett Cease		19185
Brian Hawthorne		18873
Brian Henning		19110
Brian Henning		19436
Brian Thorbjornsen		19039
Brian Thorbjornsen		19378
Bruce Anderson		18958

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5 Water Legacy: Extend the Comment Period (A)	
c carlson	19172
C Chandler	19222
Carl Dawson	19401
Carla Arneson	19439
carol jagiello	19488
Carol L Weber	19116
Carol L Weber	19231
Carol Orban	19120
Carol Rydberg	19283
Carolyn Koos	18923
Carolyn Sevareid	18869
Carrie Chesnik	18942
Cat Thompson	19469
Cat Thompson	19470
Catherine Bogolub	18907
Catherine Bogolub	18908
Catherine Chayka	19377
Catherine Tolan-Sobol	19061
Catherine Wright	19111
Charles Marsden	18880
Cheryl Storm	18898
Cheryl Storm	19152
Cheryl Storm	19153
Chris Boldt	19490
Chris Erickson	19065
Chris Gordon	19363
chris haenisch	19453
Christina Bellert	19413
Christina Bellert	19414
Christina Forsythe	18949
Christina Lincoln	18909
Christina Lincoln	19310
Christopher Childs	19060
Christopher Norbury	19454
Christopher T Loch	19102
Christopher T Loch	19360
Cindy Angerhofer	18981
Claudia Morgan	19358
Colleen Krebs	18867

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5 Water Legacy: Extend the Comment Period (A)		
Connie Metcalf		19044
Corryl Jeske		18868
courtney butcher		18863
Craig Poorker		19101
Craig Poorker		19502
Craig Samson		18986
Crystal Reynolds		19191
Curt Hillstrom		18998
Curt Hillstrom		19325
Cyn Goustin		19277
Dale Johnston		19104
Dale Johnston		19394
Dan La Vigne		19299
Dan Neff		19482
Daniel Mettner		19133
Daniel W Iverson		19491
Dara Syrkin		19242
dave hiller		18883
David Braun		19385
David Braun		19386
David Carlson		19053
David Carlson		19324
David Freeman		18879
David Hiller		19000
David Hiller		19002
David Hiller		19233
David Hiller		19234
David Kranz		19091
David Longsdorf		18888
David Wakefield		19130
David Wakefield		19478
David Wilson		19342
David Zimney		19311
Dawn Drouillard		19278
Dawn Drouillard		19279
dayna mase		19269
Deb Konechno		18980
Deb Peterson		19232
Deborah Hendrickson		19194

Sender Name	Submission ID
5 Water Legacy: Extend the Comment Period (A)	
Diana Hill	19381
Diane Borgmann	19217
Diane C Tessari	18894
Diane C Tessari	19171
Diane J. Peterson	19258
Diane Roemer	19372
Dianne Friebe	19151
Dirk Hanson	19457
Donald Rideaux-Crenshaw	19190
Douglas Happy	19364
Edward Pendleton	19164
Elene Loecher	19411
Elinor Ogden	19301
Elizabeth Brackett	19155
Elizabeth Burr	19043
Elizabeth Burr	19319
Elizabeth Dokken	19348
Elizabeth Lund	19398
Elizabeth Sivertson	19316
Elizabeth Treher	19304
elleweberg@gmail.com	19066
Em Westerlund	19268
Emily Brown	19339
Emily Lindell	18982
Emily Miller	19125
Emily Miller	19447
Eric Snyder	19118
Erin Rolf	19251
Esther Ouray	19129
Eve Marie Glidden	18871
Eve Marie Glidden	19418
florence sandok	19047
florence sandok	19048
florence sandok	19187
florence sandok	19188
Fran Kalliher	19380
Frank Moe	19266
Gael Zembal	19075
gail harty	19389

Sender Name	Submission ID
5 Water Legacy: Extend the Comment Period (A)	
Gail Linnerson	19326
Gail Schoenfelder	19159
Garrett Ferderber	18889
Gary Boelhower	18953
Gary Meier	19196
Gary Rost	19309
Gary Thornbloom	19117
Gay Trachsel	19427
Gayathri Ramanathan	19049
Gayathri Ramanathan	19438
georgann hiller	18856
georgann hiller	18857
georgann hiller	18882
George Pridmore	19259
Germain Walseth	19035
Glenn Bertelson	19337
Grant and NJ Mattson	19205
Greg Overlid	19390
Gretchen Bratvold	19074
Gretchen Bratvold	19356
Harla Partridge	19179
Harriet Mccleary	19027
Harriet Mccleary	19415
Harry Davis	19121
Heidi Frison	18876
Heidi OConnor	18913
HEYWARD NASH	19013
HEYWARD NASH	19287
Hilary Ziols	19112
Ian Johnson	19096
Ian Johnson	19097
Ian Johnson	19431
Isaac Fuhr	19294
Jackie Kemp	18875
James and Sara Conway	19486
James Koschak	19228
Jami Halder	18941
Jamie Hoerter	19340
Jan Greenfield	19087

Sender Name	Submission ID
5 Water Legacy: Extend the Comment Period (A)	
Jan Greenfield	19441
Jan Myers	19215
Jane Koschak	19077
Jane Koschak	19255
Janet Court	19201
Janet Draper	19030
Janet Kortuem	18964
Janet Neihart	19014
Janet Neihart	19384
Janet Spring	19241
jason husby	18890
jason husby	19174
Jayne Johnson	19045
Jayne Johnson	19375
Jean Faley	19336
Jean Ross	19211
jeff kitterman	19056
jeff kitterman	19472
jeff kitterman	19476
Jenna Bendel	19383
Jennica Date	19498
Jennifer Hengelfelt	18926
Jennifer Hengelfelt	19208
Jennifer Paterson	19127
Jeremy Stahl	19198
Jesse Eiynck	19239
Jessica Ostrov	19008
Jessica Ostrov	19207
Jessica Rocheleau	19483
Jessica Schaeppi	19221
Jil Simonson	19149
Jim Fournier	19332
Jim Gindorff	19123
Jim Hall	19276
Jim Hanson	19285
Jim Hanson	19286
Jim Wiggins	19425
Jo Anne Kovach	18974
Joan Ellison	18963

Sender Name	Submission ID
5 Water Legacy: Extend the Comment Period (A)	
Joan Ellison	19351
Joan Glasper	19028
JoAnn Abbott	19313
Jodi Broadwell	19373
Jodi Peterson	19446
Jody Goldstein	19308
Jody Purrington	19376
Joe Bridge	19023
Joe Bridge	19288
John Acosta	18975
John and Marilyn Raplinger	19128
John and Marilyn Raplinger	19428
John Crampton	19448
John Finazzo	18922
John Gwinn	19199
John Kerschbaum	19107
John Leinen	19051
John Leinen	19495
John Matheson	19167
John Murphy	19238
John Paul Roy	19347
John Soghigian	19063
Jon Clark	19018
Jon Damon	19093
Jonathan Carlson	19057
Jonathan Early	19419
Jonathan Green	19015
Jonathan Ringdahl	19214
Joshua Capps	19113
Joy Schochet	19295
Judd MacRae	18969
Judi Poulson	19108
Judi Poulson	19388
Judy Chucker	19423
Judy Ostrowski	19345
Julia Dolan	19450
Julie Anderson	19404
Julie Morgan	19168
Justin Dyer	19455

Sender Name	Submission ID
5 Water Legacy: Extend the Comment Period (A)	
Justin Powers	19302
Karen Bell-Brugger	19054
Karen Bell-Brugger	19420
Karl Knutsen	19139
Karl Meller	19248
Karrie Vrabel	19031
Katherine Doerr	18930
Katherine Doerr	19500
Kathleen Abel	19312
Kathleen Cox Jokela	19062
Kathleen Jones	19466
Kathleen Spencer	19124
Kathleen Spencer	19387
Kathryn Faley	19335
Kathy Iverson	19463
Kathy Iverson	19475
Kathy Kormanik	19417
Kathy Reinhardt	18910
Kathy Whittaker	19341
Katie Krikorian	19200
Katy Selb	19012
KERRY FRITZE	19504
Kevin Hay	19264
Kevin Hay	19265
Kevin Viken	19437
Kim Osborn	19206
Krehl Stringer	19169
Kristen Mengelkoch	18994
Kristen Pless	19273
Kristin Tuenge	19366
Kristina Kvarnlov-Leverty	19293
Kristine Osabakken	18976
Kristine Osabakken	18977
Lance Schlimgen	19435
Larry Bogolub	18914
Larry Bogolub	19352
larry olson	18962
larry olson	19318
Laura Farwell	19327

Sender Name		Submission ID
5 Water Legacy: Extend the Comment Period (A)		
Laura Hedlund		19368
Laura Schauland		19328
Lauralyn Kliewer		18920
LaVone Schnabel		19275
Lawrence Johnson		19197
Lawrence Krantz		19300
Len Jennings		19369
Leonard Madsen		18970
Leonard Madsen		19270
Leonard Sojka		19315
Liane Gale		19468
Linda Duggleby		19180
Linda Herron		19249
Linda Meyers		19017
Linda Peck		19245
Lisa Burke		19505
Lisa Wersal		19021
Lisa Wersal		19216
Lise Abazs		18931
Lois Braun		19016
Lois Dalsin		19145
Lois Dalsin		19146
Loni Coppin		18915
Loni Kemp		19244
Lora Armstrong		19422
Lorna Eisma		19362
Lowell Johnson		19202
Lynn Lang		19011
M Richardson		19037
Madeline Seveland		18865
Madeline Seveland		18951
Madonna Ohse		18966
Mae Wall		19250
Marcy Leussler		19103
Margaret Naylor		19126
Margot Monson		19374
Marian Severt		18993
Marian Severt		19203
Marianna Padilla		18858

Sender Name	Submission ID
5 Water Legacy: Extend the Comment Period (A)	
Marianna Padilla	18859
Mark Attridge	19323
Mark Jepson	19371
Mark Miller	19485
mark Oconnor	19280
mark Oconnor	19281
Martha Krikava	19397
Martha Vest	19460
Martin Makinen	18918
Mary Ann Jurgens	19192
Mary Ann Jurgens	19193
Mary Davis	19042
Mary E. Dosch	19481
Mary Elling	19357
Mary Everest	19069
Mary Ludington	18937
MARY MCGILLIGAN	19147
MARY MCGILLIGAN	19296
Mary Smith	19477
Mary Sue Comfort	19141
Matt Johansen	18991
Matt Johansen	19379
Matt Johnson	19405
Matt Nesshengel	19329
Matt Wolfe	19399
Matthew Moon	18944
Maxene Linehan	19274
Melanie Weberg	19068
Melinda Suelflow	18946
Melinda Suelflow	19236
Michael Anderson	19322
Michael Killian	19135
Michael Nordin	18965
Michael Nordin	19408
Michael Rice	19393
Michele Nihipali	19040
Michele Nihipali	19479
Michelle Duhant	19084
Michelle Schultz	19424

Sender Name		Submission ID
5 Water Legacy: Extend the Comment Period (A)		
Michelle Weiss		19195
Mike Ferguson		19115
Mike Ferguson		19497
MIKE LINK		19267
Mike Strobel		18928
Miriam Simmons		19005
Molly Darsow		19506
Nancy Bratrud		19400
Nancy Giguere		19224
Nathan Hoffman		19343
Nathan Hoffman		19344
Nathaniel Ptacek		19183
Ned Bouril		19433
NEIL STECKER		19421
Newood Gilk		19136
Newood Gilk		19137
Newood Gilk		19138
Nicholas Loch		19085
Nick Waller		19010
Nick Waller		19461
Nora Whitmore		19131
Norman Peterson		18878
O. William Bruins		19058
Patricia Rogowski		18995
Patrick Parish		19235
Patrick Riley		19346
Patti Holmes		19480
Patty Flynn		18886
Patty Flynn		19230
Patty OKeefe		19367
Paul Biker		18973
Paul Biker		19317
Paul Busch		19406
Paul Densmore		19134
Paul Densmore		19493
Paul Renneisen		18999
Paul Sowers		19175
Paulette Warren		19271
Peg Zahoik		19052

Sender Name	Submission ID
5 Water Legacy: Extend the Comment Period (A)	
Penny Cragun	19353
pete mcdonnell	19076
Peter Harle	19109
Peter Harle	19445
Peter Krause	19359
Peter McDonnell	19170
Peter Veits	19464
Philip Hogan	19443
Prudence Johnson	18885
Prudence Johnson	19243
R. Grant Hawthorne	19142
Rachel A Nelson	19156
Rachel Garwin	19220
Rachel Phelps	19036
Rebecca Cramer	19246
Rebecca Lucking	18929
Rebecca Lucking	19166
RH Smith	18896
Richard Fish	19361
Richard Fuller	19041
Richard Harbaugh	19489
Richard Mammel	19365
Richard Olson	19452
Richard Sloat	19132
richard taylor	18983
richard taylor	19382
Richard Tosseland	19333
Richard Wornson	18987
Rick Fry	19009
Rick Simmons	18997
Rita Caruso Santamaria	18936
Rita Caruso Santamaria	19350
Robert Agar	19004
Robert Bullis	19331
Robert Young Walser	19467
Roberta Tietge	19157
Roma Leuty	19064
Ronald Nelson	19144
Ronald Nelson	19402

Sender Name		Submission ID
5 Water Legacy: Extend the Comment Period (A)		
Ronda Kisner		19161
Rose Frankowski		18921
Rosemary Sampson		19396
Rosita Aranita		19403
Rowan Glaser		19160
Russ Erickson		19098
Ruth Agar		19253
Ryan Hiller		18872
Ryan Mallek		19291
Ryan Peterson		19354
Ryan Sabol		19290
Ryan Toot		19416
Sadie Sigford		19186
Sally Munger		19303
Sally Nankivell		19338
Sara Harrison		19073
Sarah Hayes		19314
Scott Jackson		19254
Serena Lynch		19227
Seth Kuhl-Stennes		19349
Sharon Fortunak		19392
Sharon Krumme		19213
Shelby Gonzalez		19501
Shelly Cartmell		19272
Staci Drouillard		19430
Stephen Abernethy		19019
Stephen Jay		19106
Stephen Jay		19178
Steve Anthony		19289
Steve Wiley		19204
STEVEN BLEICHNER		19154
Steven Koschak		19252
Sue Herwig		18925
Susan Frame		18866
Susan Frankowski		18954
Susan Hawthorne		19140
Susan Pillsbury-Barton		19189
Sven Hoaglund		18933
Tanya Barcikowski		19033

Sender Name	Submission ID
5 Water Legacy: Extend the Comment Period (A)	
Tanya Barcikowski	19321
tegwin moye	19257
Terry Ford	18960
Terry Ford	19487
Terry J. Williams	19297
Theodore Johnson	19094
Theodore Johnson	19261
Thomas Jaszewski	19503
Thomas Sullivan	19484
Tim Murray	19229
Tim Wallace	19181
Timm Frankowski	18934
Tom Anderson	19462
Treana Mayer	19494
Treana Mayer	19496
Tricia Hendren	19219
Trista Gaucher	19444
Valerie Haugen	19492
valerie nesteruk	19071
valerie nesteruk	19263
Verlaine H. Halvorsen	19173
Wade Johnson	19046
Wade Johnson	19370
Warren Howe	19256
William Herzberg	19247
William K Dustin	18988
William K Dustin	19225
William Ricci	18884

Sender Name	Submission ID
6 Audubon: Protect our Water	
Form Letter 6: Audubon: Protect our Water Ms Lisa Fay MN Dear Ms Fay, Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely,	
Aana Vigen	15986
Aaron Bouchard	13108
Aaron Bouchard	20088
Aaron Cumbie	21425
Aice Tobias	13451
Alan Wolff	16421
Alejandra Tobar	14706
Alex Egan	21271
Alexander Melecio	17288
Alexandra Wennberg	14750
Alice Bowron	12402
Alice Meadow	14533
Alice Sather	36963
Alison Grey	14611
Alita DeMarco	20030
Allan Yorkowitz	7024
Allan Yorkowitz	13545
Allan Yorkowitz	20200
Alma Ronningen	14701
Alva Pingel	14517
Amanda Jackson	12154
AMAYA MAURA DENIZ	14530
Amy Kaufenberg	10181
AmyLeo Barankovich	14554
Ana Mesner	14328
Andrea Stish	17494
Andrew Faller	15803
Andrew Olivarez	36427
Andrew Sell	36964
Andrew Timm	15363
Angela Anderson	14565

Sender Name	Submission ID
6 Audubon: Protect our Water	
Angela Krats	38690
Angelita Ness	21334
AniMaeChi drabic	7036
AniMaeChi drabic	14500
AniMaeChi drabic	20209
Anja CURISKIS	14678
Ann Beane	14668
Ann Blackmore	14635
Ann K Brady	14458
Ann Marie Connor	14579
Ann Redelfs	43359
Ann Stickel	46011
Annah Gardner	14690
Anne Porter	14878
Anne Porter	20158
Anne Porter	20159
April Narcisse	13225
ashley heffner	10334
ashley heffner	37933
Aswini Kumar	10993
Austin Gullixson	14727
Barb Dyck	20121
Barbara Daniels	7035
Barbara Johnson	14575
Barbara Kort	37957
Barbara Zdarsky	14762
Bart Beyer	47391
Bartlomiej Tomczak	20186
Belinda Gow	13769
Ben Cushing	7160
Benjamin Farnum	47144
bernard and barbara hammes	14624
Beth Caldwell	36949
Beth Hoppe-Stidham	44772
Beth Walling	16184
Betty5297 Gross	17803
Beverly Hoppe	46824
bill koski	44698
Birgitta Siponen	7093

Sender Name	Submission ID
6 Audubon: Protect our Water	
Birgitta Siponen	14461
Birgitta Siponen	20126
blanche wilcox	36409
Blythe Clark-McKitrick	20135
Bo Benya	13860
Bonnie Comer	14574
Bonnie Grzeskowiak	38119
Brenda Franklin	11410
Brenda Nelson	14698
Brenda Reishus	14445
Brenda Varney	11236
Brenna O'Brien	41315
Brennen Myers	14707
Brent Gurtek	44773
Bret Johnson	14549
Brett Stolpestad	11264
Brian Guadagno	7053
Brian Scott	47260
Brianna Mollet	11247
Bruce Anderson	14564
Bruce Forster	38380
Bruce Valen	14685
Bryna Pizzo	20174
Buck McDonald	14570
Caitlin McInerney	20029
Camille Carlson	17378
carol carlson	14715
Carol Mitchell	14568
Carol Richter	11679
Carrie Klumb	15968
carrie nelson	17814
Carrie Noring	14757
Cary Brief	19871
Cate Swenson	36716
Cate Swenson	38061
Catherine Fagan	19986
Catherine Johnson-Thomson	14605
Catherine MARSOLEK	13270
Cathie Duncan	14587

Sender Name	Submission ID
6 Audubon: Protect our Water	
Cathleen Richards	14584
Cathy Leece	44539
Cécile Pontgélard	20127
CHARLENE ALSERDA	14447
Charles Laird	17574
charlie thomes	14547
Chase Heck	14651
chelsea rice	11244
Cheryl Gonia	14626
Cheryl Hughes	7092
Cheryl Hughes	17780
Cheryl Hughes	20138
Cheryl Miller	12989
Cheryl Muggli	14722
Chris Drumright	20061
Chris Martinson	36308
Christeen Anderson	7081
Christeen Anderson	14495
Christeen Anderson	20192
Christeen Stone	14577
Christiane Schmitz	14511
christine Tendle	14555
Christy Barnes	44861
Cindy Grochowski	17633
cindy page	14469
Clarence Bischoff	14531
cole becker	23216
Colene Thoman	14504
Connie Buesgens	37086
Cora Ellenson-Myers	10802
Coralie. Benton	20157
Craig Clement	14721
Cristina Spurr	14480
Cristine Swantko	17518
Curzio Bruni	7073
Curzio Bruni	14448
Curzio Bruni	19894
Cynthia Askerooth-Olson	14594
Cynthia Peterson	14758

Sender Name	Submission ID
6 Audubon: Protect our Water	
Cynthia Whitman	14496
Cyrille Dormieu	10416
Cyrille Dormieu	20128
Dalana Schwitzer	14489
Dalia Hettfield	20213
dan Jensen	11723
Dan Lorenz	13269
Dan Wicht	12888
DANE FARNER	38533
Daniel Carey-Whalen	47341
Daniel Larson	11257
daniel zetah	47233
Danielle Tran	13690
Danielle Tran	20163
Danuta Watola	10435
Danuta Watola	12327
Dara Mark	36678
Darnell Barsness	14670
David Forman	27219
David Gantz	19981
David Givers	14656
David Lais	14639
David Munz	14613
David Pulliam	20160
Dawn Baker	14488
Dawn Wheeler	14544
DEAN E. SHELDON JR.	36843
Dean Borgeson	14644
Dean Kleinhans	14672
Deanna Eaves	14571
Debra Evon	14732
Debra Schmid	14718
Dell Erickson	36744
Denise Bonebright	14761
Denise Stime	14556
Denise Thomas	14629
Diane Brown	14513
Diane Cumbie	21278
Diane Hiniker	14763

Sender Name	Submission ID
6 Audubon: Protect our Water	
Diane Michel	14679
Diane Nelson	44827
Diane Watts	38158
Dianna Kust	36636
Dianna Lord	43360
Dick Ruth	13419
DJ Wikjac	14532
Don Hon	14745
Don Hoye	11234
Don Kratsch	12428
Donald Facey	14642
Donald Hughes	14439
Donald Lintner	36354
Donna Butler	14669
Donna Lober	36709
Donna Young	14553
Doreen Deutsch	12080
Dorothy Johnson	21603
Douglas Kuehl	38120
Dru Ann Delgado	20074
drucilla mothley	14572
Duane Baker	7107
Duane Baker	14484
Duane Bowker	38235
Duane Gustafson	14529
EA Beck	14578
Ed Frost	14739
Ed Vieira	13792
Ed Vieira	20114
Edelle Rose	14691
Edith Borie	42294
Edna Anne Scoville	17513
Elaine Lennox	38137
Elanne Palcich	10704
Eleanor Friery	19850
Eleonora Pavlovska	20089
Elisa Faulkner-Uriarte	20090
Elizabeth Brown	14729
elizabeth cates	37854

Sender Name	Submission ID
6 Audubon: Protect our Water	
Elizabeth Mitchell	10265
Elizabeth Mitchell	17413
Elizabeth Neuvar	43607
Elizabeth O'Halloran	20134
Elizabeth Pomper	22548
Elizabeth`` Nipper	20155
Ella Reeves	13695
Ella Reeves	20165
ellen stewart	14492
Elsa Hansen	43838
Elsie Zachow	47362
Emese Wood	19889
Emilie Snell-Rood	17691
Emily Eschrich	21154
Emily Mohl	21430
Emily Stewart	45790
Eric Lndberg	20101
Erica LeMoine	14684
Erik Roth	14608
Erik Voldal	17416
Erynn Jenzen	23547
EUGENIA MIXON	11933
Evelyn Adams	9292
Evelyn Boeckman	13988
Florence Mowan	40226
Frances Darcy	13963
Frances Douglas	14444
Frank Weaver	14563
Frans Badenhorst	7108
Franshisca Dearmas	7094
Gabriel Sheets	14749
Gabrielle Schreiber	38225
Gail Buhl	37020
Gail Courtney	20084
Gail Frethem	14731
gail harty	14618
Galiena Anderson-Lind	14689
Gary Lamson	14540
Gary Wernersbach	14708

Sender Name	Submission ID
6 Audubon: Protect our Water	
Gary Yeomans	38475
Georganne Krause	36655
GEORGE T. HARRISON	22674
George Bentley	12518
George Ryan	21216
George Theobald	10395
Gerald Wambach	14717
Giana Peranio Paz	12147
Giana Peranio Paz	7106
Giana Peranio Paz	20133
Gina Marano	14368
Gladys Benson	37000
glenda bowen	20000
Glenn Puncochar	14637
Greg Keilback	40797
greg mcneely	36697
Greta Rittenhouse	11000
Gretchen Corkrean	14612
Gudrun Dennis	10348
Gudrun Dennis	19896
H. Clements	14728
Harriet McCleary	14655
Heather Hundt	14621
Heidi lynn ahlstrand	14467
Helen Bush	14610
Helen Clark	14738
Helen Palmer	14538
Hilary Urban	23375
Holly Flynn	37932
Honna Furo	38639
Isaac B.	37534
Jack Bender	47389
Jack Peterson	14636
Jackie Ann	12791
Jaelynn Tressler	47509
James Dorf	21618
James Fitzpatrick	14466
James Mulcare	10388
James Mulcare	13168

Sender Name	Submission ID
6 Audubon: Protect our Water	
James Mulcare	19993
James Parker	14716
James Wellman	12120
Jan Burns	19843
Jane Hesler	22278
Jane Hope	20028
Jane Leedle	38372
Jane McAloney	14514
jane mobeckwilson	14733
Janet Bourdon	14591
Janet Langland	36383
Janet Neihart	14696
Janet Robinson	19994
janette mahoney	38359
Janice Hallman	14705
Janice Marcus	37473
Janice Scofield	17631
Janna Neperud	12631
Jean Emmons	14490
Jean Greenwood	14694
Jean Lee	37158
Jean Ross	14673
Jeanette LeVesque	14541
Jeanie Streit	7002
Jeanie Streit	20096
Jeanne Piehl	14463
Jeff Durfee	19902
Jeff Gang	44091
jeff hopkins	10410
jeff hopkins	13160
jeff hopkins	20149
Jeff Stromgren	14748
Jeffrey Kirst	14734
Jeffrey Nelson	12293
Jelena Radovanovic	10432
Jen Smith	10421
Jen Smith	38143
Jenna Ness	17360
Jennifer Connors	14486

Sender Name	Submission ID
6 Audubon: Protect our Water	
Jennifer Salhus	14606
Jeremy Brink	36735
jeri pollock	14702
Jerry Fitzgerald	14623
Jess Koski	44774
Jesse Ahlman	14688
Jessica Canzano	40971
Jessica Garnett	40077
Jessica Miller	16016
Jim Lind	44828
Jo Anna Hebberger	47143
Joan Christensen	14583
Joan McAllister	13383
Joan McAllister	20018
Joanne Neihart	14755
Jody Fritzke	14519
Joe Coco	36299
Joe Renneke	7067
Joe Renneke	14471
Joel Schmidt	14546
joen overby	14725
john bowe	40549
John Cobey	40946
John Eckler	38491
John Hanske	40750
John Kreft	14515
John Munday	17502
John Ottis	38381
John Raplinger	14671
john stelling	14765
John stenbeck	12115
John Viacrucis	14609
Jon Martinson	36525
Jonathan Carlson	17591
Joseph Wenzel	14499
Joyce Frohn	20054
Judi Poulson	14506
Judith Embry	20056
Judith McDonough	14534

Sender Name	Submission ID
6 Audubon: Protect our Water	
Judith Vincent	19833
Judy and Doug Bjork	14692
judy chiodo	13575
Judy Epstein	14726
Judy Krach	14272
Judy Moran	10431
Judy Oman	14464
Juliana Diaz	10439
Juliann Rule	14460
Julie English	7042
Julie Foertsch	45791
Julie Pierson	14720
Julie Schampel	10236
june fahrmann	36397
Justin Randall	15492
Kaitlin Ferdelman	11040
Kami Norland	40778
Karen Allen	40779
Karen Anderson	37039
Karen Baker	22710
Karen Cohen	14557
Karen Cucci	14674
karen lamson	38174
Karen Lindau	11259
Karen Murphy	20032
Karen Oothoudt	44418
Karen Willard	40761
Karin Winegar	14620
Karl Knutsen	14509
Kate Crowley	14638
Katherine Cisotto	47394
Katherine Gove	14505
Kathi Ridgway	10731
Kathleen Balaban	19898
kathleen gates	14582
Kathleen Jones	14619
Kathleen Ryan	36950
Kathleen Todd	12607
Kathy Bloomenson	47395

Sender Name	Submission ID
6 Audubon: Protect our Water	
Kathy Crandall	38638
Kathy DAVIS	40926
kathy g	7097
kathy g	20108
Kathy Johnson	14643
Kathy Kormanik	14746
Kathy Moraski	14675
Katie Galloway	12624
Katie Jensen	16648
kay brown	36760
Kay Malm	22962
Kay Randall	14552
Kealy Porter	11256
Kellie Smith	7034
Kellie Smith	20196
Kelly Donovan	17335
Kelsey Goergen	11240
Ken Schory	20210
Kenneth Harris	14730
Kenneth Indrelie	14695
kenneth piner	37303
Kevin Zak	47351
Kim Springer	40522
Kimberly Nieman	14764
Kit Blumenstein	7090
Kristin Pacello	36473
Kurt Schwarz	40455
kx bx	13975
kx bx	20057
Kyle Bracken	9298
LaNelle Schaffhauser	14607
Larry Bogolub	14592
Larry Dolphin	14493
LARRY FURO	44770
Larry Lack	20137
Larry Smith	38121
Laura Hegre	21212
Laura Menighetti	19901
LAUREN KOZEN	20191

Sender Name	Submission ID
6 Audubon: Protect our Water	
Laurie Kittelson	16391
Laurie Umeh	41065
Leda Beth Gray	40929
Leda Beth Gray	40930
Lee Lewis	14545
Linda Hayes	13371
Linda Howe	20086
Linda Stephan	36398
Linda Wadsworth	14724
Lindsay Dean	14697
Lindsay Lundgren	14628
Lisa Neste	7059
Lisa Neste	14459
Ljiljana Milic	7104
Ljiljana Milic	14494
Ljiljana Milic	20214
Loretta Richards	22546
Lori Andresen	10708
Lori Blauwet	14737
Lorne Thompson	17497
Louis Asher	12893
Louise Chehlaoui	25587
LuAnn Hahn	38103
Lucia Port	38294
Lucy Sedgwick	7159
Luke Burlingame	12063
M Richardson	14518
MAGGIE HUNT	17409
marcel plante	20055
Margaret Johnson	17377
Margaret Kramer	14652
Margaret Michaelson	14747
Margot Galt	12245
Maria Gianni	19987
Marianne Zahorik	14569
Marilee Lampman	14593
Marilyn Booton	14088
MARINA MURPHY	21692
Mark Jenzen	22657

Sender Name		Submission ID
6 Audubon: Protect our Water		
Mark Kreidler		37784
Marlin Garth Ayotte		36384
Marna Lindroth		36475
Marshall Sorkin		38637
Martha Miller		14744
Martin Kilmer-True		36632
Marty Deason-Fahling		14700
Mary Dosch		47145
MARY ELLEN VETTER		14752
Mary Ellen Vetter		45251
Mary Heath		14711
Mary Higbee		47396
Mary Hooley		36842
Mary Jane Lopez		19906
Mary Kay Schladweiler		14719
Mary Rausch		14539
Mary Thomas		7068
Mary Thomas		14398
Maryse Vrambout		14710
Matt Johnson		14525
Matthew Schaut		14667
Maureen Freehill		37948
mauricio carvajal		11026
Meghan Hogan		36982
Melanie Andrus		20019
Melissa Sambla		40928
Michael Caldwell		10956
MICHAEL CARPENTER		14497
Michael Nichols		13439
Michael W Evans		14510
micheal erickson		12170
Michelle Russell		11060
Mimi Jennings		14686
Miriam Gordon		40796
Mona Mehdy		16059
Monica T		7049
musa abdel-rahman		39003
Nancy Butler		47398
Nancy Drake		37063

Sender Name	Submission ID
6 Audubon: Protect our Water	
Nancy Ellis	38669
Nancy Hale	13949
Nancy Harbison	36608
Nancy Hasse	14472
Nancy Jo Ehlke	14760
Nat Gray	14502
Natalie Alexander	14063
Natalie Alexander	20079
Natalie Hodapp	11685
natasha salgado	7098
natasha salgado	14473
Nathan DeJarnett	11241
Nathan Wersal	14714
Nelly Lopez	9702
Newell L. Chester	17445
nicky ludolphi	12331
Nicole Weber	14451
Nikhil Jain	43722
Nils Anders Lunde	20087
Nola Pastor	20859
NORMA LABORIE	7025
Norma Thompson	11016
Nyack Clancy	7064
Nyack Clancy	20187
O. William Bruins	14627
Ometh Layton	9704
Ondine james	7001
Paloma Burr	36647
Pam Langley	44107
Pam Mehdy	15976
pam wright	7091
pam wright	20190
Pamela Roberts	40762
Panagiotis Rigopoulos	7047
Panagiotis Rigopoulos	20053
Pat Combs	14741
Pat Makowski	12876
Pat Stevesand	14815
pati damico	38104

Sender Name		Submission ID
6 Audubon: Protect our Water		
Patrica O'Connor		41136
Patricia Buck		44322
Patricia McNabb		14567
Patricia Stachelski		10385
patricia thomas		44697
Patrick Crane		15371
paul lesnak		23485
Paul Richards		38244
Paul Uecker		14485
Paula Johnson		14687
Per Wickstrom		47360
Peter Jarvis		13538
Philip vonLintel MD		37947
Phyllis Jenkins		20156
PJ Kirton		14566
Prudence Johnson		16839
Ptty Bracey		21617
R. Fitzgerald		14512
Rachael Ostrom		22863
Rachel Bennett		44004
rachel imholte		14743
Raman V		14141
Randy Frederickson		14576
raymie roland		39070
Rebecca Burr		37472
Rebecca Faller		15966
Rebecca Rimer		40780
Reed Heffelfinger		14653
Reidun Carstens		7014
Reilly Tillman		14654
Rhonda Bradley		20164
Richard Frazin		39658
Richard Goggin		38252
richard laprade		40798
Richard Ugiansky		19936
Rick Redfield		40076
Rita Caruso		17440
Roanne Rosenblum		16361
Robert B Sothern		14753

Sender Name	Submission ID
6 Audubon: Protect our Water	
Robert Fuerst	36467
Robert Kowal	20027
Robert Lewis	44104
Robert McManus	14723
Robert Narveson	14740
Robert Ortiz	13252
ROBERT SPURR	14478
Robert Wohlberg	14585
Robin Duemke	19909
Robyn Ostrander	36631
Rocio Salazar	9703
Ron Miller	40927
Roseann Jones	14586
Rosemary Oldenburg	20073
Ross Ingram	17627
rozalia kelemen	38153
Ruth Justice	40550
Ruth Katz	13696
Ruth Nielsen	46826
Ruth Serra	7012
Ruth Serra	11800
Ruth Serra	20115
Ruty Johnstonj	21346
Ryan Handeland	21291
Ryan Solem	11253
Ryan Willaert	11270
S Jitreun	7013
S Jitreun	12711
S Wendelin	14666
Sabastian Boyle-Mejia	17347
Salome Reis	10311
Salome reis	36538
Sami Medcalf	14657
Sandy Roggenkamp	44416
Sanja Valecic	10709
Sara Marie Hesseltine	10378
Sarah Kraft	21887
Scott Dulas	16573
Sharon & Howard McMillan	38169

Sender Name	Submission ID
6 Audubon: Protect our Water	
sharon amorosa	38371
Sharon McFadden	14699
Sharon Powell	14543
Sheila Dillon	10396
Sheila Dillon	13427
Sheila Dillon	20216
Sheila Maybanks	17773
Sherri Gillespie	10375
Sherri Gillespie	12312
Sherry Thatcher	14589
Sheryl Lind	47361
Shirley Bate	43113
Shirley Espeland	14751
Shirley Harris	43240
Sonali Ghosh	12281
Sonali Ghosh	20130
SONIA GATT	7054
Sophia Crosby	11243
Stacey Calvert	10424
STEPHANIE SHARP	14703
Stephen Fuller	19842
Stephen Rose	41106
Stephen Schmidt	37085
Steve Smith	19967
Steve Weeks	14704
Steven Chesney	37019
Steven G	14640
Steven Steele	14766
Stu Farnsworth	14709
Sudeshna Ghosh	36654
Sue Bartel	14625
Sue Goodin	13956
Sue Halligan	14767
Sue Horwood	20102
sue wadland	12802
Susan Allen	7016
Susan and Edward Ball	19818
Susan Denis	38612
Susan Doeden	17707

Sender Name	Submission ID
6 Audubon: Protect our Water	
Susan Howard	17398
susan lucking	14736
Susan Pohl	14450
Susan Rinker	11237
Susanne Baumtrog	36605
Sydney Schiffner	17455
Sylvie Auger	10434
Sylvie Auger	12305
Sylvie Auger	20072
sylvie carpentier	9288
Tatiana Torres	9701
ted redalen	14693
ted rees	36877
tegwin moye	14742
Terri Reischl	14573
Terrie Christian	14658
Terrie Williams	20129
Terry Johnson	14604
Terry Richmond	14537
Thomas Hartman	14536
Thomas Rolfs	14641
Timothy Halvorson	12611
Tom Anderson	10174
Tom Anderson	47397
Tom Beer	13087
Tom BellTomB	12036
Tom Falvey	37918
Tom Lefferts	41149
Tom Uphaus	14676
Toni Adisano	7066
Toni Wolfson	14523
Tony Tschida	14470
travis molkenbur	37116
Trudi Poquette	17496
Ulrike Anderson	14479
Ulrike Munderloh	17381
Valentina Scherbakova	10328
Valerie Cunningham	10733
Valerie Whitsett	40945

Sender Name		Submission ID
6 Audubon: Protect our Water		
Varvara Walle		15719
Verba Weaver		14446
Vicki Scott		40260
Vicky Adams		14468
Victoria P.		12297
Victoria Pitchford		20144
virginia mendez		7015
virginia mendez		20179
Vivian & Ken Hensel		14548
Wendy Forster		7040
Wendy Forster		37604
Wendy Raschke		14588
Wendy Weikel		37001
Will Perry		17557
Will Vanderbilt		11246
William Burzynski		37740
William Nusbaum		12153
Winifred Tillmann		12018
Yasamin Sharifi		21446
Yovnne Fast		7060
Zelda Elcin		14876
Zelda Elcin		14877

Sender Name		Submission ID
7 Water Legacy: Unacceptable Water Model		
Form Letter 7: Water Legacy: Unacceptable Water Model Dear Ms Fay, Dear Ms Fay, Mr Bruner and Mr Dabney: Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: •The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs •The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. •The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. •The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours,		
Abbie Scheiderer		46576
Abbie Scheiderer		46579
Al Larson		9756
Al Larson		18577
Al Larson		50653
Alan Carlson		16787
Alan Carlson		50134
Alex Barbeau		56698
Alex Lundberg		56791
Alexander Garnett		56741
Alexandra Vagac		56867
Alice Bowron		16616
Alice Bowron		50010
Allan Amis		56686
Allan Hancock		56752
Allan Malkis		9863
Allan Malkis		18635
Allan Malkis		50710
Allan VanThomme		9467
Allan VanThomme		18423
Allan VanThomme		50543
Alma Ronningen		9966
Alma Ronningen		18723

Sender Name		Submission ID
7 Water Legacy: Unacceptable Water Model		
Alma Ronningen		50798
Amy Donlin		9530
Amy Donlin		18442
Amy Donlin		50560
Amy Donlin		56731
Amy Vasterling		9716
Amy Vasterling		18553
Amy Vasterling		50629
Andrea Girtz		15862
Andrea S Childs		56712
Andrew Cart		56710
Andrew Comfort		56721
Andrew Nielsen		56818
Andrew Smith		9824
Andrew Smith		18618
Andrew Smith		50694
Andy Sinykin		56851
Angela Brown		20705
Angela Krick		56783
Ann Hall		16993
Ann Hall		50277
Ann Rosenquist		45522
Anne Alwell		9573
Anne Alwell		18492
Anne Alwell		50576
Anne Chesin		56711
Annee SIGEL		21423
Annee SIGEL		49885
Annie Gardner		44989
Annie Gardner		49077
Anrea Strom		10599
Anrea Strom		18421
Anrea Strom		50541
Anthony Ricci		16040
Anthony Ricci		49907
April Narcisse		9758
April Narcisse		18579
April Narcisse		50655
Arthur Dorman		15888

Sender Name	Submission ID
7 Water Legacy: Unacceptable Water Model	
Barb Cooper	47932
Barb Cooper	48361
Barb Cooper	52388
Barb Gilligan	17002
Barb Gilligan	50285
Barbara Bauer	21498
Barbara Bauer	49894
Barbara Brockway	10052
Barbara Brockway	18801
Barbara Brockway	50875
Barbara Carlson	15767
Barbara Carlson	49897
Barbara Mahowald	56793
Barbara Schlaefer	56845
Barbara Stamp	9656
Barbara Stamp	16571
Barbara Stamp	18527
Barbara Stamp	49981
Barbara Stamp	50603
Barry Cohen	9403
Barry Cohen	18692
Barry Cohen	50767
Ben Niessen	49095
Bernadette Barnaud	16949
Bernadette Barnaud	50241
Bernadette Knaeble	56781
Bernadette Mahfood	15902
Bernadette Sheats	10084
Bernadette Sheats	18823
Bernadette Sheats	50898
Betty Tisel	56865
Beverly Stone	9586
Beverly Stone	18499
Beverly Stone	50583
Bill Mears	56803
Biz Clark	56718
Bjorn Monson	56810
Bob Amis	56687
Bob Klingberg	56780

Sender Name		Submission ID
7 Water Legacy: Unacceptable Water Model		
Bonnie Nelson		56815
Bonnie Peterson		9554
Bonnie Peterson		18487
Bonnie Peterson		50571
Bonnie Walden		9388
Bonnie Walden		18638
Bonnie Walden		50713
Bradley O Childs		56713
Brenda Adams		9904
Brenda Adams		18670
Brenda Adams		50745
Brenda Lee Faber		15872
Brenda Nelson		20725
Brenda Scott		15840
Brent Harring		56753
Bret Pence		56828
Bruce D Peck		56826
Bruce R Tyler		56866
Bryan Rocheleau		56838
C Quast		17125
C Quast		50393
C R Mason		56796
Candace Westlund		16691
Candace Westlund		50065
Carla Arneson		56693
Carmen Marti		16676
Carmen Marti		50052
Carol Dallman		56725
carol jagiello		10077
carol jagiello		18824
carol jagiello		50892
Carol Mockovak		9901
Carol Mockovak		18666
Carol Mockovak		50741
Carol Saefke		56843
Carol Theobald		16802
Carol Theobald		50146
carolyn sevareid		16543
carolyn sevareid		49966

Sender Name	Submission ID
7 Water Legacy: Unacceptable Water Model	
Cassidy Baker	56697
Cathy Murphy	56812
Cedric M Wilson	56875
Chad Roy	45936
Charles Argue	10081
Charles Argue	18820
Charles Argue	50896
Charles McKown	56801
Cheri Miller	17142
Cheri Miller	50410
Cherrie Bennethum	9989
Cherrie Bennethum	18732
Cherrie Bennethum	50806
Cheryl Dannenbring	9798
Cheryl Dannenbring	18598
Cheryl Dannenbring	50674
Cheryl Lawrence	15857
Chris Meyer	46142
Chris Meyer	46143
Chris Meyer	56805
Christina Krauz	9745
Christina Krauz	18569
Christina Krauz	50645
Christine Harshman	16577
Christine Harshman	49984
Christopher T Loch	10014
Christopher T Loch	18759
Christopher T Loch	50833
Claire Sigford	56849
Colin Walker	56870
Connie Buesgens	56707
Connie Grundhofer	56750
Covant Pylkas	56831
Craig A Petersen	56829
Crystal Reynolds	56835
Crystal Yakacki	56877
Dagmar Romano	56840
Dale Johnston	11359
Dale Johnston	18392

Sender Name		Submission ID
7 Water Legacy: Unacceptable Water Model		
Dale Johnston		50511
Dan Anderson		46972
Dan Anderson		46973
Dan Iverson		56771
Daniel Donnelly		44102
Daniel Donnelly		44103
Darren Wolfson		56876
Dave Moen		56808
David B Kane		56777
David cooley		16983
David cooley		50269
David Huckfelt		43982
David Huckfelt		43984
David J Illegible		56768
David Kranz		10030
David Kranz		18773
David Kranz		50847
David Shantean		9784
David Shantean		18591
David Shantean		50667
David Zimney		16865
David Zimney		50186
Dawn Drouillard		9639
Dawn Drouillard		18520
Dawn Drouillard		50598
Deborah Bieleck		56704
Deborah Huskins		56766
Debra Frasier		56740
Debra PEDERSON		16690
Debra PEDERSON		50064
Debra Wilde		49076
DeeAnn Stenlund		10056
DeeAnn Stenlund		18816
DeeAnn Stenlund		50889
Diane Boushek		16665
Diane Boushek		50043
Diane Shirley		16910
Diane Shirley		50213
Diane Tessari		56860

Sender Name	Submission ID
7 Water Legacy: Unacceptable Water Model	
Diane Tessari	56861
Donna and Allan Butler	9992
Donna and Allan Butler	18735
Donna and Allan Butler	50809
Donna Kneeland	17192
Donna Kneeland	50458
Donna Sexton	43997
Donna Sexton	43998
Doug Westendorp	16131
Doug Westendorp	49919
Drew Crockett	56724
Drew Johnson	56773
Duncan Storlie	56853
Duncan Storlie	56854
Dwight Haberman	15816
EDWIN WENSMAN	16671
EDWIN WENSMAN	50048
Elaine Thrune	56864
Elizabeth Lamb	45459
Elizabeth Merz	9391
Elizabeth Merz	18819
Elizabeth Merz	50897
Elizabeth Owens	44532
Elizabeth Peters	17226
Elizabeth Peters	50491
Ellen Stoehr	27985
Ellen Stoehr	49517
Emily Eschrich	56734
Emrys Stramer	56855
Eric Angell	56692
Eric Bavier	56700
Eric Carlson	36493
Eric Carlson	49531
Erik Riesenberg	56837
Eunice Eckerly	15895
evangelina aguilar	17000
evangelina aguilar	50284
Eve M Glidden	56745
florence sandok	9837

Sender Name		Submission ID
7 Water Legacy: Unacceptable Water Model		
florence sandok		18626
florence sandok		50702
Fred Bertschinger		56702
gail harty		16978
gail harty		50264
Gary Clements		56719
Gay Trachsel		10010
Gay Trachsel		18757
Gay Trachsel		50831
Geneva MacMillan		56792
George Dunn		56732
Gladys Schmitz		16767
Gladys Schmitz		50120
Greg Overlid		9720
Greg Overlid		18556
Greg Overlid		50632
Gretchen Amis		56688
Gretchen Bratvold		21299
Gretchen Bratvold		49876
Gretchen Flynn		49096
Hannibal Hayes		56754
Harriet McCleary		16843
Harriet McCleary		50171
Helen M Kupka		56784
Holly MacEwen		16996
Holly MacEwen		50281
Jaci Christenson		56714
Jack Litzau		9714
Jack Litzau		18552
Jack Litzau		50628
Jackie Metelak		45107
Jackie Metelak		45108
James Arnold		56694
James D Voita		56868
James Dobihal		10687
James Dobihal		18431
James Dobihal		50550
James Grindeland		56748
Jana Meckler		16006

Sender Name	Submission ID
7 Water Legacy: Unacceptable Water Model	
Jana Meckler	49903
Jane Clements	56720
Jane McDonald	56799
Jane McEvoy	56800
Janet Johnson	56774
Janet Neihart	15948
Janet OConnell	47937
Janet OConnell	48352
Janet OConnell	52379
Jared Nelson	56816
jason husby	10625
jason husby	15860
jason husby	18439
Jayne Emerson	16720
Jayne Emerson	50085
Jean Ross	56842
Jedidiah Krauss	13019
Jedidiah Krauss	50504
Jeff Aldrich	17131
Jeff Aldrich	50399
jeffrey dickson	45644
jeffrey dickson	45645
Jen Danielson	56726
Jena Ketchum	16682
Jena Ketchum	50058
Jennifer Hengelfelt	56760
Jennifer Hengelfelt	56761
Jennifer LaForgia	56785
Jes Durfee	23129
Jes Durfee	49459
Jessica Ostrov	56822
Jill McCracken	15844
Jill Rivard	46925
Jill Rivard	46926
Jim Hall	9768
Jim Hall	18584
Jim Hall	50660
Jim Henderson	56758
Jim Phillips	56830

Sender Name		Submission ID
7 Water Legacy: Unacceptable Water Model		
Jim Voytilla		56869
Joan Beaver		56701
Joanne Anderson		17023
Joanne Anderson		50298
Jodi Peterson		9672
Jodi Peterson		18538
Jodi Peterson		50614
Joe Knaeble		56782
Joe Mailander		56794
John and Marilyn Raplinger		9918
John and Marilyn Raplinger		18687
John and Marilyn Raplinger		50762
John Buschette		56708
John Finazzo		17106
John Finazzo		50375
John gorres		16723
John gorres		50087
John Illegible		56769
John Landgraf		9906
John Landgraf		18674
John Landgraf		50749
John Leininger		56788
John Mahovsky		16801
John Mahovsky		50145
John Matheson		9475
John Matheson		18426
John Matheson		50546
John Schmitt		9849
John Schmitt		18630
John Schmitt		50705
John Strand		56857
John Weber		16821
John Weber		50159
Jonathan Carlson		9912
Jonathan Carlson		18681
Jonathan Carlson		50756
Jordan Wente		56872
Joseph Amrhein		56689
Joshua Howe		46818

Sender Name	Submission ID
7 Water Legacy: Unacceptable Water Model	
Joshua Howe	46822
Joy Danielson	56727
Judy Chucker	56716
Judy Gregg	56747
Julie A Jeatran	56772
Julie Hirsch	46361
Julie Hirsch	46365
K Cruit-Salzberg	17100
K Cruit-Salzberg	50370
Kaare Melby	17126
Kaare Melby	50395
Karen Brennhofer	9751
Karen Brennhofer	18573
Karen Brennhofer	50649
Karen H. Avaloz	9770
Karen H. Avaloz	18585
Karen H. Avaloz	50661
Karey Degnan	16335
Karey Degnan	49937
Karl Hochsprung	9347
Karl Hochsprung	18849
Karl Hochsprung	50922
Karl Knutsen	9399
Karl Knutsen	18667
Karl Knutsen	50742
Karla Faith	56737
Kate Christopher	56715
Kathleen Grindeland	56749
Kathleen Merrill	56804
Kathleen Smith	56852
Kathryn Milun	45779
Kathy Huston	36522
Kathy Huston	49532
Kathy Lauwagie	17049
Kathy Lauwagie	50322
Katrina Tibbs	16605
Katrina Tibbs	49999
Keith Laken	56786
keith monsaas	17153

Sender Name		Submission ID
7 Water Legacy: Unacceptable Water Model		
keith monsaas		50421
Keith Wilson		16583
Keith Wilson		49989
Kelly McKown		56802
Kendall Clevenger		17105
Kendall Clevenger		50374
Kris Rich		56836
Krista Munster		17090
Krista Munster		50359
Kristian Nyberg		56819
Kristina Delaundreau		9532
Kristina Delaundreau		18443
Kristina Delaundreau		18444
Kristina Delaundreau		50561
Kristina Delaundreau		50562
Kristine Osbakken		56821
Kurt Seaberg		10029
Kurt Seaberg		18771
Kurt Seaberg		50845
Kyia Lindau		56790
Larry Alderink		56684
larry olson		9397
larry olson		18652
larry olson		50727
Laura Anderson		9386
Laura Anderson		18634
Laura Anderson		50709
Laura Stramer		56856
Laurel Hyvonen		56767
Laurel Murphy		56813
Lawrence Clemens		47722
Leigh Pomeroy		16856
Leigh Pomeroy		50177
Lena Needham		56814
Leo Budija		17187
Leo Budija		50453
Leon D Rohrbough		56839
Lesli B C Anderson		56690
Leslie Limberg		9426

Sender Name	Submission ID
7 Water Legacy: Unacceptable Water Model	
Leslie Limberg	18844
Leslie Limberg	50915
Lilly Otto	56823
Linda Duggleby	11275
Linda Duggleby	18391
Linda Duggleby	50510
Linda Matter	56797
Lisa Hardy	17180
Lisa Hardy	50445
Liz Dodson	46237
Liz Dodson	46238
Loni Coppin	56723
Loretta Holscher	16728
Loretta Holscher	50092
Lori Askelin Chase	56696
Lori OLeary	16763
Lori OLeary	50116
Lorraine Erickson	9476
Lorraine Erickson	18425
Lorraine Erickson	50545
Louis B Asher	56695
Louis Lelchuk	56789
Lynn Lang	9874
Lynn Lang	18641
Lynn Lang	50716
Margaret Cullen	36374
Margaret Cullen	49526
Margi Preus	17158
Margi Preus	50426
Margie Fraser	56739
Margot Monson	56811
Marilee Lampman	16873
Marilee Lampman	50192
Mark Bridge	10044
Mark Bridge	50868
Markus Gaelli	17071
Markus Gaelli	50341
Marlys Hemenhagen	56757
Martha Krikava	10103

Sender Name		Submission ID
7 Water Legacy: Unacceptable Water Model		
Martha Krikava		18853
Martha Krikava		50926
Mary Jane Pylkas		56832
Mary Martin		48114
Mary Martin		48443
Mary Martin		52470
Mary Sue Comfort		56722
Mary-Boyd Boudreau		56705
Matt Boys		10101
Matt Boys		18848
Matt Boys		50921
Matt Danielson		56728
Matt Johansen		9584
Matt Johansen		18497
Matt Johansen		50581
Matt Nesshengel		9876
Matt Nesshengel		18644
Matt Nesshengel		50719
Maureen Henderson		56759
Mel Thoresen		15950
Mel Thoresen		48001
Mel Thoresen		48350
Mel Thoresen		52377
Melanie Grune		56751
Melinda Suelflow		9734
Melinda Suelflow		18563
Melinda Suelflow		50639
Melissa Borer		44274
Melissa Borer		44275
Melissa Maki		44511
Melissae Bletsian		19845
Melissae Bletsian		49560
Michael McKenna		16652
Michael McKenna		50035
Michael Middleton		56806
Michael Moe		56809
Michael Reid		56834
MIchelle Farniok		16533
MIchelle Farniok		49964

Sender Name	Submission ID
7 Water Legacy: Unacceptable Water Model	
Michelle Hell	56756
Mike Ferguson	10080
Mike Ferguson	18818
Mike Ferguson	50895
MIKE LINK	9796
MIKE LINK	18597
MIKE LINK	50673
Mona Hurkadli	16549
Mona Hurkadli	49969
N. Selleck	16977
N. Selleck	50263
Naja Hayes	56755
Nancy J Giguere	56744
Nancy Schultz	9609
Nancy Schultz	18509
Nancy Schultz	50591
Nancy Sinard	56850
Natalie Hoidal	56763
Nick Cipoletti	56717
Nina McKee	16786
Nina McKee	50133
nora norby	17028
nora norby	50303
Norbert Gernes	56742
Orville Lantto	17176
Orville Lantto	50444
Pam Coffin	9959
Pam Coffin	18715
Pam Coffin	50790
Pam Scherling	56844
pat becchetti	9722
pat becchetti	18558
pat becchetti	50634
Pat Gernes	56743
Pat Schoenecker	56846
Pat Tammen	56858
Pat Thielman	16612
Pat Thielman	50006
Patricia Pool	15914

Sender Name		Submission ID
7 Water Legacy: Unacceptable Water Model		
Patty Lang		56787
Patty O'Keefe		56820
Paul Densmore		9929
Paul Densmore		18699
Paul Densmore		50775
Paul OKasick		21367
Paul OKasick		49879
Paul Thompson		56863
Paul Wilberg		56874
Paula Deslauries		16693
Paula Deslauries		50067
Peppi Enos		9357
Peppi Enos		18832
Peppi Enos		50907
Renalie Bailey		45800
Renee Ethier		56735
Rhonwen Tas		56859
Richard D Aasness		56683
Richard Fish		9958
Richard Fish		18712
Richard Fish		50787
Richard Newmark		56817
Richard P Brown		56706
Richard Schubert		9920
Richard Schubert		18688
Richard Schubert		50763
Richard Watson		47126
Richard Watson		47128
Rob Davis		56729
Robert A Walker		56871
Robert Brose		15828
Robert Klemenhagen		56779
Roberta Baker		9916
Roberta Baker		18684
Roberta Baker		50759
Roger Andre		56691
Roger Day		16813
Roger Day		50154
Roger Peck		56827

Sender Name	Submission ID
7 Water Legacy: Unacceptable Water Model	
Ron Wetzell	56873
rosae brown	9624
rosae brown	18512
rosae brown	50594
Rosalie Pierce	16655
Rosalie Pierce	50038
Rose Mahovsky	17087
Rose Mahovsky	50357
Roxanne Beseman	56703
Russell Plumb	45452
Ruth Lindh	9910
Ruth Lindh	16730
Ruth Lindh	18678
Ruth Lindh	50094
Ruth Lindh	50754
Ryan Kelley	45254
Ryan Kelley	45255
Sandra Dominguez	56730
Sandy Iverson	16803
Sandy Iverson	50147
Sara Chlian	20743
Sara Haase	9888
Sara Haase	18650
Sara Haase	50725
Sara Hesseltine	10034
Sara Hesseltine	18777
Sara Hesseltine	50851
Sara Hughes	56765
Sara M Evans	56736
Sarah Meyer	15925
Scott Thiem	56862
Shannon Martin	56795
Shannon Wright	17224
Shannon Wright	50489
Sharon F Kemp	56778
Sheena Lor	16645
Sheena Lor	50029
Sheila Dillon	16909
Sheila Dillon	50212

Sender Name	Submission ID
7 Water Legacy: Unacceptable Water Model	
Shonie Buenvenida	16709
Shonie Buenvenida	50078
Sonia Otto	56824
Stacey Peacock	56825
Stephanie Hoepner	56762
Stephanie Love	47908
Stephanie Love	48356
Stephanie Love	52383
Stephen Rossiter	56841
Steve Suelflow	43486
Steve Suelflow	43491
Steven Fishbeck	56738
Steven Steele	9424
Steven Steele	18815
Steven Steele	50888
Stuart Illegible	56770
Susan Grant	56746
Susan Swanson	21809
Susan Swanson	49284
Susan Vipond	9402
Susan Vipond	18689
Susan Vipond	50764
Sydney Holcomb	56764
Tammy Ashley	15927
Teague Alexy	56685
terrance schrammen	16677
terrance schrammen	50053
Terry Fish	17156
Terry Fish	50424
Terry McCarthy	56798
Theresa Flinck	15980
Theresa Flinck	49901
Thomas Barry	56699
Thomas L Johnson	56775
Thomas Meinz	9902
Thomas Meinz	18668
Thomas Meinz	50743
Tim King	16748
Tim King	50106

Sender Name	Submission ID
7 Water Legacy: Unacceptable Water Model	
Tim Wallace	9986
Tim Wallace	18728
Tim Wallace	21397
Tim Wallace	49882
Tim Wallace	50803
Tom Koors	10022
Tom Koors	17059
Tom Koors	18766
Tom Koors	50329
Tom Koors	50841
Toni Tunge	10747
Toni Tunge	18409
Toni Tunge	50528
Tony Radcliff	56833
Tori Harvey	17022
Tori Harvey	50297
Velma C Miller	56807
Verba Weaver	10046
Verba Weaver	18795
Verba Weaver	50869
Vern Simula	47355
Verna Alt	9350
Verna Alt	18447
Verna Alt	18448
Verna Alt	18449
Verna Alt	18450
Verna Alt	18451
Verna Alt	18452
Verna Alt	18453
Verna Alt	18454
Verna Alt	18455
Verna Alt	18456
Verna Alt	18457
Verna Alt	18458
Verna Alt	18459
Verna Alt	18460
Verna Alt	18461
Verna Alt	18462
Verna Alt	18463

Sender Name		Submission ID
7 Water Legacy: Unacceptable Water Model		
Verna Alt		18464
Verna Alt		18465
Verna Alt		18466
Verna Alt		18467
Verna Alt		18468
Verna Alt		18469
Verna Alt		18470
Verna Alt		18471
Verna Alt		18472
Verna Alt		18473
Verna Alt		18474
Verna Alt		18475
Verna Alt		18476
Verna Alt		18478
Verna Alt		18479
Vicki Effertz		56733
vicki scott		16858
vicki scott		50179
Vicki W Scott		56847
Vicki W Scott		56848
Vicky Youmans		15882
Victor Johnson		56776
Vivian & Ken Hensel		16733
Vivian & Ken Hensel		50096
Wade Johnson		9381
Wade Johnson		18564
Wade Johnson		50640
William Nusbaum		17097
William Nusbaum		50367
Zachary Campbell		56709

Sender Name		Submission ID
8 Water Legacy: Tailings Basin Model		
Form Letter 8: Water Legacy: Tailings Basin Model Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone to assess the impacts of slope and dam failure at the mine site waste rock piles and the tailings piles, instead of just assuming that no failure can happen. (SDEIS, p. 5-546). PolyMet's tailings would be placed on top of huge, leaky and unstable existing tailings piles. • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours,		
AJ Niehaus		37133
AJ Niehaus		49550
Akilah Sanders-Reed		58085
Al Gedicks		45175
Al Gedicks		45176
Alisa DeRider		44757
Alisa DeRider		44758
AMY CUSICK		16551
AMY CUSICK		49971
Angela Powers		16099
Angela Powers		49916
angie nelson		17183
angie nelson		50449
Ann Davies		16757
Ann Davies		50113
Anna Fingalson		9664
Anna Fingalson		18533
Anna Fingalson		50609
Annie Gardner		9753
Annie Gardner		18574
Annie Gardner		50650
ashley ferguson		43131
ashley ferguson		47701
ashley ferguson		47807

Sender Name	Submission ID
8 Water Legacy: Tailings Basin Model	
Ava Beath	17069
Ava Beath	50339
Beth Bartlett	9809
Beth Bartlett	18607
Beth Bartlett	50683
Birgit Gruess	44759
Bob Douglas	16914
Bob Douglas	50216
Bob Haugen	10102
Bob Haugen	18851
Bob Haugen	50923
Bob Witter	17062
Bob Witter	50332
Brandan Fiedler	9721
Brandan Fiedler	18557
Brandan Fiedler	50633
Brandon Long	9526
Brandon Long	18440
Brandon Long	50558
Brandon Sigrist	16804
Brandon Sigrist	50148
Brenda Brazil	46484
Brenda Brazil	46487
Brian Peterson	21398
Brian Peterson	49883
Brooke Pekkala	15883
Bruce McKay	9281
Bruce McKay	18413
Bruce McKay	50533
Carl Dawson	9991
Carl Dawson	18733
Carl Dawson	50807
Carl Sack	9746
Carl Sack	18570
Carl Sack	50646
Carl Schwensohn	17163
Carl Schwensohn	50431
Carla Albers	9547
Carla Albers	18484

Sender Name	Submission ID
8 Water Legacy: Tailings Basin Model	
Carla Albers	50568
Carlen Lovejoy	16956
Carlen Lovejoy	50247
Carol Ashley	9806
Carol Ashley	18604
Carol Ashley	50680
Carole Feray	15842
Carrie Schauf	16704
Carrie Schauf	16705
Carrie Schauf	50074
Carrie Schauf	50075
Cathy Brophy	17214
Cathy Brophy	50480
Charles Johnson	47087
Charles Johnson	47089
Cheryl Engel	16765
Cheryl Engel	50118
Chris LaFleur	16948
Chris LaFleur	50240
Chris Schumann	16836
Chris Schumann	50170
Christina Carlson	17042
Christina Carlson	50315
Christov Churchward	9360
Christov Churchward	18519
Connie Mattke	16957
Connie Mattke	50248
Craig Blacklock	10033
Craig Blacklock	18778
Craig Blacklock	50852
Craig Laughlin	15941
Craig Samson	10746
Craig Samson	18408
Craig Samson	50527
Cynthia Stokes	43683
Cynthia Stokes	43684
D Briol	16953
D Briol	50245
Dan Anderson	16900

Sender Name	Submission ID
8 Water Legacy: Tailings Basin Model	
Dan Anderson	50208
Dan Brown	17078
Dan Brown	50349
Dana Moore	17015
Dana Moore	50290
Daniel W Iverson	9990
Daniel W Iverson	18737
Daniel W Iverson	50810
David Ceder	17056
David Ceder	50327
David Moffatt	9839
David Moffatt	18627
David Moffatt	50703
David Myers	16587
David Myers	49993
David Zimney	9832
David Zimney	18620
David Zimney	50696
Dawn Bove	9278
Dawn Bove	18410
Dawn Bove	50529
Debbie Senger	15830
Debora Anthonisen	16793
Debora Anthonisen	50139
Debra Evon	16984
Debra Evon	50270
DeeAnn Stenlund	17096
DeeAnn Stenlund	50365
Del Erickson	10003
Del Erickson	18748
Del Erickson	50821
Denise Thomas	16834
Denise Thomas	50168
Dia Redman	16615
Dia Redman	50009
Diana Cumming	45461
Diana Schansberg	16988
Diana Schansberg	50273
Diane Ellison	20882

Sender Name		Submission ID
8 Water Legacy: Tailings Basin Model		
Diane Ellison		49685
Doug Nopar		20320
Douglas Merrill		20185
Douglas Merrill		49604
Dr. Louis LaPierre		15896
drew hempel		9653
drew hempel		17199
drew hempel		18524
drew hempel		50465
drew hempel		50601
Edith Cole		15835
EDWIN WENSMAN		16798
EDWIN WENSMAN		50143
Elene Loecher		9563
Elene Loecher		18488
Elene Loecher		50572
Eliza Schrader		18511
Eliza Schrader		50593
Ellen Stoehr		27995
Ellen Stoehr		49519
Elly Huston		49100
Emily Miller		47115
Emily Miller		47117
Forcier, Linda		58089
frank florin		46978
frank florin		46981
gail harty		9574
gail harty		18493
gail harty		50577
Gayathri Ramanathan		9705
Gayathri Ramanathan		18549
Gayathri Ramanathan		50625
georgann hiller		44637
George Salonek		16863
George Salonek		50184
George Wilkes		45623
George Wilkes		45625
Gregg Wiitala		18417
Greta Gaard		9387

Sender Name	Submission ID
8 Water Legacy: Tailings Basin Model	
Greta Gaard	18714
Greta Gaard	50789
H Frison	46885
H Frison	46886
H. Haynes	16756
H. Haynes	50112
Harriet Mccleary	9823
Harriet Mccleary	18617
Harriet Mccleary	50693
Heather Holley	17188
Heather Holley	50454
Heidi Harrabi	17103
Heidi Harrabi	50372
Heidi Mirka	17144
Heidi Mirka	50411
Heidi Shol	16915
Heidi Shol	50218
HEYWARD NASH	9957
HEYWARD NASH	18711
HEYWARD NASH	50786
Ilse Mortensen	49089
J Olfe	17148
J Olfe	50417
J R	17124
J R	50392
James Lindbeck	9850
James Lindbeck	18631
James Lindbeck	50706
James Oliver Iverson	9698
James Oliver Iverson	18546
James Oliver Iverson	50622
James Ouray	9553
James Ouray	18486
James Ouray	50570
james pritschet	17171
james pritschet	50437
Jan Best	9964
Jan Best	18720
Jan Best	50795

Sender Name	Submission ID
8 Water Legacy: Tailings Basin Model	
Jay Petrich	15847
Jean and William Haslett	16619
Jean and William Haslett	50012
Jean Bibeau	17222
Jean Bibeau	50487
Jennifer Armstrong	44563
Jennifer Hengelfelt	38224
Jennifer Hengelfelt	49117
Jennifer Holt	10059
Jennifer Holt	18807
Jennifer Holt	50881
Jennifer Rials	16725
Jennifer Rials	50089
Jerry Giefer	16937
Jerry Giefer	50230
Jessica Gartner	16994
Jessica Gartner	50279
Jill Rivard	16916
Jill Rivard	50219
Jim Clifford	16952
Jim Clifford	50243
Joanna Padden	16810
Joanna Padden	50151
Jody Hencier	17227
Jody Hencier	50493
Joe Krall	44676
Joel Johnson	48129
John Derbis	15905
john fahrendorf	17213
john fahrendorf	50479
John Kearney	15874
John Leaderbrand	16718
John Leaderbrand	50083
John Leinen	17110
John Leinen	50379
John Munster	17092
John Munster	50362
John Ottis	49098
John Schlichting	17047

Sender Name	Submission ID
8 Water Legacy: Tailings Basin Model	
John Schlichting	50320
John Studdwell	21434
John Studdwell	49887
Johnna Morrow	17093
Johnna Morrow	50363
Jon Abrahamson	16944
Jon Abrahamson	50236
Jon Damon	9680
Jon Damon	18542
Jon Damon	50618
Jon Ridge	47241
Jonathan Steinberg	48098
Joseph Boyle	21388
Joseph Boyle	49881
Joseph Merz	9398
Joseph Merz	18665
Joseph Merz	50739
Julia McLean	16295
Julia McLean	49927
Julie Brown	15931
Julie Kroschel	17203
Julie Kroschel	50469
Julie Schueller	17172
Julie Schueller	50438
Julie Stradel-Graf	16817
Julie Stradel-Graf	50156
K Helms	9372
K Helms	15935
K Helms	18544
K Helms	50620
kaia deschane	47864
kaia deschane	48316
kaia deschane	52344
Karen Hatlestad	21210
Karen Hatlestad	49873
karen merrill	16789
karen merrill	50136
Karen Raccio	9364
Karen Raccio	9418

Sender Name		Submission ID
8 Water Legacy: Tailings Basin Model		
Karen Raccio		9419
Karen Raccio		18779
Karen Raccio		18780
Karen Raccio		18781
Karen Raccio		50853
Karen Raccio		50854
Karen Raccio		50855
Karrie Vrabel		17122
Karrie Vrabel		50390
Kathleen McQuillan		45776
Kathy Kormanik		15917
katie heitzig		20759
katie heitzig		49622
Keith Thompson		17080
Keith Thompson		50352
Kelly Rogers-WInston		14521
Kelly Rogers-WInston		50501
Ken Stevenson		17133
Ken Stevenson		50402
KERRY FRITZE		10076
KERRY FRITZE		18826
KERRY FRITZE		50894
Kevin Johnson		15928
Kim Gordon		9414
Kim Gordon		18755
Kim Gordon		50829
kimberly nieman		15868
Kirsten Uhlenberg		46656
Kirsten Uhlenberg		46657
Kristi Eilers		46969
Kristi Eilers		46970
Lani Jacobsen		16568
Lani Jacobsen		49978
Laura Pastor		9895
Laura Pastor		18658
Laura Pastor		50733
Laura Phoenix		46870
Laura Phoenix		46871
Lauren Conners		48014

Sender Name	Submission ID
8 Water Legacy: Tailings Basin Model	
Lee Beaty	9921
Lee Beaty	18690
Lee Beaty	50765
Leif Larsen	46918
Leif Larsen	46919
Len Jennings	9997
Len Jennings	18741
Len Jennings	50816
Linda Ronchetti	16694
Linda Ronchetti	50068
Linville Doan	15879
Lisa Hardy	10009
Lisa Hardy	18772
Lisa Hardy	50846
Lisa Schmitz	16750
Lisa Schmitz	50108
Lois Norrgard	10048
Lois Norrgard	18798
Lois Norrgard	50871
Loren Stoner	9421
Loren Stoner	18791
Loren Stoner	50864
Lori Nehm	15812
Lori Nehm	49899
Luke Young	16788
Luke Young	50135
Lydia E Morales	9673
Lydia E Morales	18539
Lydia E Morales	50615
M Richardson	13046
M Richardson	50506
Madonna Ohse	9686
Madonna Ohse	18543
Madonna Ohse	50619
Marcia Kingsbury	17130
Marcia Kingsbury	50397
Maren Hinderlie	9304
Maren Hinderlie	18419
Maren Hinderlie	50538

Sender Name	Submission ID
8 Water Legacy: Tailings Basin Model	
Marie Nickell	10729
Marie Nickell	18404
Marie Nickell	50523
Mark Churney	16741
Mark Churney	50101
Martha Arreguin	10060
Martha Arreguin	18806
Martha Arreguin	50880
Mary Boyd-Brent	9485
Mary Boyd-Brent	18428
Mary Boyd-Brent	50548
Mary E. Dosch	10072
Mary E. Dosch	18811
Mary E. Dosch	50886
mary froiland	16835
mary froiland	50169
Mary Maney	45628
Mary Maney	45629
MARY MCGILLIGAN	20921
MARY MCGILLIGAN	49709
Mary Smith	15870
Mary St. Michael	17182
Mary St. Michael	50448
Maureen Carlson	16797
Maureen Carlson	50142
Max Moen	46080
Megan Wright	46852
Megan Wright	46855
Melissa Borer	44271
Melissa Borer	44272
Melissa Koch	43971
Melissa Koch	43972
Michael Beasley	16911
Michael Beasley	50214
Michael Killian	9996
Michael Killian	18742
Michael Killian	50815
Michelle Holmes	16100
Michelle Holmes	49917

Sender Name	Submission ID
8 Water Legacy: Tailings Basin Model	
Monica Raina	16302
Monica Raina	49930
Nancy Giguere	10075
Nancy Giguere	18817
Nancy Giguere	50890
Nancy Songer	48655
Nancye Belding	43380
Nancye Belding	43381
Nanette Echols	9919
Nanette Echols	18686
Nanette Echols	50761
Nicholas Loch	10018
Nicholas Loch	18762
Nicholas Loch	50836
Nicole Everling	16497
Nicole Everling	49956
Nicole Moeller	47889
Nicole Moeller	48306
Nicole Moeller	52334
Nicole Ostrander	17108
Nicole Ostrander	50377
Oliver Masciarotte	17160
Oliver Masciarotte	50428
Ordell Vee	9594
ordell vee	16917
Ordell Vee	18503
ordell vee	50220
Ordell Vee	50585
Pam Videen	10007
Pam Videen	18752
Pam Videen	50827
Pat Gaffner	16378
Pat Gaffner	49947
Paul Herzog	17201
Paul Herzog	50467
Paul Love	9658
Paul Love	18529
Paul Love	50605
Penelope Gardner	15873

Sender Name		Submission ID
8 Water Legacy: Tailings Basin Model		
Ramona Kopnick		15869
rebecca Carel		9735
rebecca Carel		18565
rebecca Carel		50641
Rebecca Dudley		16565
Rebecca Dudley		49976
Reed Heffelfinger		10001
Reed Heffelfinger		18745
Reed Heffelfinger		50820
Richard Goggin		16564
Richard Goggin		49975
Richard Olson		9905
Richard Olson		18672
Richard Olson		50747
Richard Tosseland		10004
Richard Tosseland		18750
Richard Tosseland		50824
Rick Simmons		9926
Rick Simmons		18697
Rick Simmons		50772
Rob Graff		21490
Rob Graff		49892
Robert Dahse		15916
Rod Graf		44678
Roseanne Rivers		16508
Roseanne Rivers		49958
Roxanne Maki		15859
Ryan Anderson		11285
Ryan Anderson		18394
Ryan Anderson		50513
Ryan Franke		10533
Ryan Franke		18399
Ryan Franke		50518
Ryan Keith		16306
Ryan Keith		49932
Ryan West		17179
Ryan West		50446
sandy hartmann		9478
sandy hartmann		18427

Sender Name	Submission ID
8 Water Legacy: Tailings Basin Model	
sandy hartmann	50547
Sandy Roggenkamp	44685
Sanford Bettcher	16493
Sanford Bettcher	49953
Schoelerman, Lisa	58086
scott einbinder	47972
scott einbinder	48455
scott einbinder	52482
Scott Laderman	9952
Scott Laderman	18707
Scott Laderman	50782
Sharon Donohue	16985
Sharon Donohue	50271
Sharon Fortunak	10043
Sharon Fortunak	18794
Sharon Fortunak	50867
Sharon Krumme	44850
shelley houston	16893
shelley houston	50203
Sherman Handberg	15934
Stephen Girard	17077
Stephen Girard	50348
Steve Bauer	48000
Steve Bauer	48378
Steve Bauer	52404
Steven Wiese	17168
Steven Wiese	50434
SUSAN ARATA	9755
SUSAN ARATA	18578
SUSAN ARATA	50654
Susan Greene	49082
Susan Lenz	15899
Susan Zukowski	46360
Susan Zukowski	46364
Tanya Beyer	9907
Tanya Beyer	18673
Tanya Beyer	50748
tegwin moye	14195
tegwin moye	50500

Sender Name		Submission ID
8 Water Legacy: Tailings Basin Model		
Terry Posch		37049
Terry Posch		49548
Thomas Orne		16634
Thomas Orne		50022
Thomas Sullivan		19931
Thomas Sullivan		49567
tim nelson		16860
tim nelson		50180
Todd Heintz		16670
Todd Heintz		50047
Verlaine H. Halvorsen		16528
Verlaine H. Halvorsen		49962
Virginia Mcbride		17109
Virginia Mcbride		50378
Wandzel, Ann		58088
Wandzel, Gregory		58087
Willard Nelson		17217
Willard Nelson		50482
William Rosenfeld		16684
William Rosenfeld		50060

Sender Name		Submission ID
9 Water Legacy: Faults and Fractures		
Form Letter 9: Water Legacy: Faults and Fractures Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to assess the impacts of heavy rains and flooding at the mine site, particularly at the "west equalization basin," which will contain reject concentrate from plant site reverse osmosis. The SDEIS should also reveal the level of contamination that this highly toxic "basin" would contain, long after the mine shuts down. • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come. Sincerely yours,		
A Bonvouloir		10094
A Bonvouloir		18836
A Bonvouloir		50910
Aaron Horn		16867
Aaron Horn		50188
Adam Rauk		44218
Adam Rauk		44219
Alicia Vegell		17147
Alicia Vegell		50414
Allison Plathe		17027
Allison Plathe		50302
Allison Sharkey		47933
Allison Sharkey		48410
Allison Sharkey		52437
Allison Young		17060
Allison Young		50331
Amelia Holcomb		17014
Amelia Holcomb		50289
Amelia Kroeger		9378
Amelia Kroeger		18599
Amelia Kroeger		50675
AmyLeo Barankovich		38033
AmyLeo Barankovich		49114

Sender Name		Submission ID
9 Water Legacy: Faults and Fractures		
Angel Dobrow		16926
Angel Dobrow		50227
Angie Den		17225
Angie Den		50490
Anne Cassens		17070
Anne Cassens		50340
Anne Franklin		16606
Anne Franklin		50000
Anne Smith		16992
Anne Smith		50278
Anthony Roos		48094
Anthony Roos		48468
Anthony Roos		52495
ashley ferguson		43125
ashley ferguson		47699
ashley ferguson		47804
Ashley Keul		17094
Ashley Keul		50366
B P		17003
B P		50286
Barb and Phil Powell		10079
Barb and Phil Powell		18825
Barb and Phil Powell		50893
Barb Edson		16675
Barb Edson		50051
Barbara Brockway		16620
Barbara Brockway		50013
Barbara Kaufman		16812
Barbara Kaufman		50153
Barbara Krig		9738
Barbara Krig		18567
Barbara Krig		50643
Barbara Stewart		16761
Barbara Stewart		50115
ben tasi		9967
ben tasi		18724
ben tasi		50800
Bert Flora		9670
Bert Flora		18536

Sender Name	Submission ID
9 Water Legacy: Faults and Fractures	
Bert Flora	50612
Betsy Blume	15915
Brandon T Pierce	17181
Brandon T Pierce	50447
Brenna Towery	44385
Brenna Towery	44386
Brian and Ruth Lavelle	9422
Brian and Ruth Lavelle	18789
Brian and Ruth Lavelle	50861
Brian Thorbjornsen	9890
Brian Thorbjornsen	18651
Brian Thorbjornsen	50726
Brian Tighe	43138
Brian Tighe	47813
Bridget Borer	16997
Bridget Borer	50282
Bryan Hansel	47125
Bryan Hansel	47127
Buck bensonBuckBenson	48054
Buck bensonBuckBenson	48386
Buck bensonBuckBenson	52413
c carlson	9570
c carlson	18491
c carlson	50575
Callie Schleicher	17223
Callie Schleicher	50488
Candyce Osterkamp	17063
Candyce Osterkamp	50333
Carol Brenner	16703
Carol Brenner	50073
carol greenwood	17198
carol greenwood	50464
Carole Tronnes	9652
Carole Tronnes	18523
Carole Tronnes	50600
Carrie Wright	36478
Carrie Wright	49530
cathie atchley	20925
cathie atchley	49710

Sender Name		Submission ID
9 Water Legacy: Faults and Fractures		
catina spann		16979
catina spann		50266
Cecelia Newton		37871
Cecelia Newton		49109
Cherrie Bennethum		16375
Cherrie Bennethum		49945
Chris Heeter		9928
Chris Heeter		18700
Chris Heeter		50774
Christopher Kline		15938
Cindy Simmons		15900
Colleen Lund		15897
Corryl Jeske		9361
Corryl Jeske		18516
courtney butcher		9761
courtney butcher		18580
courtney butcher		50656
Craig Brown		17215
Craig Brown		50481
Curt Bush		9865
Curt Bush		18637
Curt Bush		50712
Cynthia Launer		16548
Cynthia Launer		49968
Dale Johnston		44223
Dale Johnston		44225
Dan Eller		17189
Dan Eller		50455
Daniel Cockriel		17054
Daniel Cockriel		50325
Daniel Tabako		17076
Daniel Tabako		50347
David Faust		16861
David Faust		50181
David Goon		16489
David Goon		49952
David Rutledge		16052
David Rutledge		49909
Deb Peterson		9970

Sender Name	Submission ID
9 Water Legacy: Faults and Fractures	
Deb Peterson	18727
Deb Peterson	50802
Deborah Hendrickson	47860
Deborah Hendrickson	48365
Deborah Hendrickson	52392
Debra D. Smith	9903
Debra D. Smith	17083
Debra D. Smith	18669
Debra D. Smith	50355
Debra D. Smith	50744
Debra Tracy	16991
Debra Tracy	50276
Delores Dufner	17016
Delores Dufner	50291
Diane Rhody	15949
Diane Swerman	15865
Dianne Hanson	9993
Dianne Hanson	18734
Dianne Hanson	50811
Donald & Eulalia Smith	16613
Donald & Eulalia Smith	50007
doris dehn	44933
Douglas Limon	9908
Douglas Limon	18675
Douglas Limon	50750
Douglas Peterson	9610
Douglas Peterson	18510
Douglas Peterson	50592
Dr. William Skip Dykoski	15855
Elaine Fredrick	17114
Elaine Fredrick	50382
Elayne Lappi	21429
Elayne Lappi	49886
Elinor Ogden	9896
Elinor Ogden	18660
Elinor Ogden	50735
Elizabeth Hope	49084
Ellen Mork	16973
Ellen Mork	50259

Sender Name		Submission ID
9 Water Legacy: Faults and Fractures		
ellen schafroth		10006
ellen schafroth		18753
ellen schafroth		50826
Eric Simpkins		45937
Eunice Eckerly		10639
Eunice Eckerly		18434
Eunice Eckerly		50553
Eva Cohen		9284
Eva Cohen		18414
Eva Cohen		50534
Ewart Martens		16855
Ewart Martens		50176
F Stevens		15930
Gail Linnerson		9342
Gail Linnerson		15852
Gail Linnerson		18535
Gail Linnerson		50611
Garrett Ferderber		9598
Garrett Ferderber		18505
Garrett Ferderber		50587
Gary Lamson		16650
Gary Lamson		50033
gerald sanderson		16598
gerald sanderson		49995
Germain Walseth		45443
Germain Walseth		45446
Glenn Biegon		16832
Glenn Biegon		50166
Gloria Mikolai		17135
Gloria Mikolai		50404
Greggory Jennings		48642
Gregory T Ochs		16710
Gregory T Ochs		50079
Heather Buckner		16743
Heather Buckner		50103
Heidi OConnor		9494
Heidi OConnor		18435
Heidi OConnor		50554
Heidi Skoog		17018

Sender Name	Submission ID
9 Water Legacy: Faults and Fractures	
Heidi Skoog	50293
Henry Sanborn	21485
Henry Sanborn	49891
Holly Hackett-Rich	9649
Holly Hackett-Rich	18521
Holly Hackett-Rich	50599
j jacobs	21529
j jacobs	49896
Jackie Kemp	43329
Jackie Kemp	47826
James DuShane	16586
James DuShane	49992
James Fitzgerald	44463
James Fitzgerald	44464
James Ko	44061
James Ko	44062
james palermo	47949
james palermo	48423
james palermo	52450
James Smith	17134
James Smith	50403
James Wilferling	45001
Jamie Hoerter	9731
Jamie Hoerter	18561
Jamie Hoerter	50637
Jan Munson	45807
JANE AMENT	16579
JANE AMENT	49986
Janet Johnson	17088
Janet Johnson	50358
Janet Lenius	17129
Janet Lenius	50398
Jay Mutschler	46119
Jay Mutschler	46121
Jennifer Abbey	15270
Jennifer Abbey	50503
Jesse Ahlman	16721
Jesse Ahlman	50084
Jill Hanson	16831

Sender Name		Submission ID
9 Water Legacy: Faults and Fractures		
Jill Hanson		50165
Jill Holmen		46974
Jill Holmen		46975
Jim Wichmann		16685
Jim Wichmann		50061
Jo Ann Thomas		16083
Jo Ann Thomas		49913
Joan Christensen		9286
Joan Christensen		18415
Joan Christensen		50535
Joan Kinn		15876
Joe Kilian		17044
Joe Kilian		50317
Joe Sriver		16921
Joe Sriver		50224
Joel Clasemann		15837
Joel Dunn		16772
Joel Dunn		50123
John Finazzo		18784
John Finazzo		50860
John Graham		9885
John Graham		18646
John Graham		50721
John Keebler		9730
John Keebler		18560
John Keebler		50636
John Matheson		49106
John Raplinger		17021
John Raplinger		50296
John Sluss		17104
John Sluss		50373
John Viacrucis		15933
Jon Frasz		9897
Jon Frasz		18661
Jon Frasz		50736
Josh Gregorich		47852
Josh Gregorich		48310
Josh Gregorich		52338
Judith Long		16584

Sender Name	Submission ID
9 Water Legacy: Faults and Fractures	
Judith Long	49990
Judy Bjork	16678
Judy Bjork	50054
Julie Anderson	9346
Julie Anderson	18845
Julie Anderson	50918
Julie Cox	9793
Julie Cox	18595
Julie Cox	50671
Julie Gard	10098
Julie Gard	18846
Julie Gard	50919
julie gonyea	44853
Julie Wissinger	16955
Julie Wissinger	50246
K. Feilmeyer	16894
K. Feilmeyer	50204
Karen Olson	38022
Karl Meller	9917
Karl Meller	18685
Karl Meller	50760
Katherine Rodbro	16369
Katherine Rodbro	49943
Katy Tharaldson	48103
Katy Tharaldson	48401
Katy Tharaldson	52428
Kay Koelkerwestby	10021
Kay Koelkerwestby	18767
Kay Koelkerwestby	50840
Ken Olstad	16699
Ken Olstad	50072
Kevin Loecke	43728
Kevin Loecke	43730
Larissa Schmitt	48075
Larissa Schmitt	48395
Larissa Schmitt	52422
Larry Anderson	48733
Laura anderson	48020
Laura anderson	48328

Sender Name		Submission ID
9 Water Legacy: Faults and Fractures		
Laura anderson		52356
Laurence Margolis		16962
Laurence Margolis		50253
Laurie Fleener		46021
Leatrice McEvilly		16805
Leatrice McEvilly		50149
Len Jennings		16607
Len Jennings		50001
Lent Bryan		16908
Lent Bryan		50211
Leslie Dee		17019
Leslie Dee		50295
Linda Rolf		9363
Linda Rolf		18531
Linda Rolf		50607
Linville Doan		9409
Linville Doan		18716
Linville Doan		50791
Lisa Boynton		21144
Lisa Boynton		49872
Lisa Burke		10083
Lisa Burke		18827
Lisa Burke		50900
Lonnie Marquette		15814
lora andrea		37955
Lori Larson		17086
Lori Larson		50356
Lucy Knoll		16325
lynn albrecht		16529
lynn albrecht		49963
Mahva Jones		16963
Mahva Jones		50254
Margot Galt		16922
Margot Galt		50225
Maria Knowles		17152
Maria Knowles		50419
Martha Miller		17139
Martha Miller		50406
Mary Creighton		16627

Sender Name	Submission ID
9 Water Legacy: Faults and Fractures	
Mary Creighton	50017
Mary Ellen Weber	16527
Mary Ellen Weber	49961
Mary Hong Loe	9280
Mary Hong Loe	18412
Mary Hong Loe	50532
Mary Ludingon	45793
Mary Smith	9395
Mary Smith	18645
Mary Smith	50720
Matt Johansen	16745
Matt Johansen	50104
Matt Johnson	17024
Matt Johnson	50299
maureen mcelderry	36326
maureen mcelderry	49523
Megan Humeston	15926
Michael Overend, DVM	44817
Mike Kemper	10070
Mike Kemper	18809
Mike Kemper	50884
Mike Long	16946
Mike Long	50238
Nana Nishigaki	14794
Nana Nishigaki	50502
Nicholas Eltgroth	47980
Nicholas Eltgroth	48311
Nicholas Eltgroth	52339
O. William Bruins	9891
O. William Bruins	18653
O. William Bruins	50728
Pam Videen	16758
Pam Videen	50114
Pamela Melby	47105
Pamela Melby	47106
Pat Nudd	17174
Pat Nudd	50440
Patricia Loverink	15877
Patricia Ward	9396

Sender Name		Submission ID
9 Water Legacy: Faults and Fractures		
Patricia Ward		18656
Patricia Ward		50730
Patty Guerrero		45329
Patty Guerrero		45333
Patty Langenfeld		16712
Patty Langenfeld		50081
Paula Connolly		17067
Paula Connolly		50343
Peter Krause		9420
Peter Krause		18814
Peter Krause		50887
phil Scalia		19816
phil Scalia		49555
Polly Carlson-Voiles		44122
Polly Carlson-Voiles		44124
Rachel Imholte		15851
Randall Wright		48807
reid hardenbergh		16570
reid hardenbergh		49980
Richard Colombini		16649
Richard Colombini		50032
Richard Olson		18671
Richard Olson		50746
richard taylor		9836
richard taylor		18625
richard taylor		50701
Rick Simmons		18696
Rick Simmons		50771
Rita Letsos		16015
Rita Letsos		49905
Rita Vaurosky		9923
Rita Vaurosky		18693
Rita Vaurosky		50768
RJ Ulrich		47916
RJ Ulrich		48398
RJ Ulrich		52425
Robert Heider		9297
Robert Heider		18418
Robert Heider		50537

Sender Name	Submission ID
9 Water Legacy: Faults and Fractures	
Robert Wallace	16879
Robert Wallace	50193
Robert Wohlberg	16940
Robert Wohlberg	50233
Robin Raplinger	13002
Robin Raplinger	50505
Rochella Jones	16943
Rochella Jones	50235
Rod Smith	45696
Rod Smith	45697
Roger Muellner	9995
Roger Muellner	18740
Roger Muellner	50814
Ron Tracy	17113
Ron Tracy	50383
Rosemary Welch	16255
Rosemary Welch	49925
Roxana Allen	16740
Roxana Allen	50100
Roxann Kay	16945
Roxann Kay	50237
Russ Erickson	9527
Russ Erickson	18441
Russ Erickson	50559
Ryan Anderson	15881
Ryan Brown	15866
Sally Silva	16795
Sally Silva	50141
Sara Barsel	10017
Sara Barsel	18760
Sara Barsel	50834
Shannon Szymkowiak	46873
Shannon Szymkowiak	46874
Sharleen Stueland	16898
Sharleen Stueland	50207
Sharon Root	16729
Sharon Root	50093
Shelli Burns	16602
Shelli Burns	49998

Sender Name		Submission ID
9 Water Legacy: Faults and Fractures		
Sonja Misch		49104
Stacy Wahl		16538
Stacy Wahl		49965
stephanie johnson		46566
stephanie johnson		46568
Steve Voiles		16708
Steve Voiles		50077
Stirling Cousins		16057
Stirling Cousins		49910
Susan Boorsma		43259
Susan Boorsma		47818
Theresa Aleckson		15940
Travis Dodge		48128
Travis Dodge		48478
Trish Donley		16327
Trish Donley		49935
Verlaine H. Halvorsen		9925
Verlaine H. Halvorsen		18695
Verlaine H. Halvorsen		50770
Vicki Scott		20261
WallisAnn Jondal		16845
WallisAnn Jondal		50173
Wendy Sjoblom		17138
Wendy Sjoblom		50415
Zach Pesch		9568
Zach Pesch		18490
Zach Pesch		50574

Sender Name		Submission ID
10 Water Legacy: Incorrect Assumptions		
Form Letter 10: Water Legacy: Incorrect Assumptions Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. Yours sincerely,		
Adam Lingner		16066
Adam Lingner		49911
Alex Sigmundik		9930
Alex Sigmundik		18701
Alex Sigmundik		50776
Alicia Bayer		16374
Alicia Bayer		49944
Allison LaBonne		44205
Allison LaBonne		44206
Alma Ronningen		16818
Alma Ronningen		50157
Amber Garlan		15954
Andrew Kuncel		44674
Angela Silberberger		47936
Angela Silberberger		48375
Ann Chemin		9718
Ann Chemin		18554
Ann Chemin		50630
Anna Tracy		16913
Anna Tracy		50217
anne krebs		16819
anne krebs		50158
ashley ferguson		43129
ashley ferguson		43310
ashley ferguson		47704
ashley ferguson		47806
ashley ferguson		47823

Sender Name		Submission ID
10 Water Legacy: Incorrect Assumptions		
Benjamin Krohling		9567
Benjamin Krohling		18489
Benjamin Krohling		50573
Beth Larson		17121
Beth Larson		50391
Betsey Porter		17128
Betsey Porter		50396
Bev Stone		16980
Bev Stone		50265
blanche wilcox		44522
Brittany Edwards		46913
Brittany Edwards		46914
C Goustin		20698
Candyce Osterkamp		10090
Candyce Osterkamp		18834
Candyce Osterkamp		50904
Carlen Lovejoy		9954
Carlen Lovejoy		18709
Carlen Lovejoy		50784
Carol Mockovak		49030
Carol Schwarzkopf		16989
Carol Schwarzkopf		50274
Carrie Stephens		16639
Carrie Stephens		50028
Casey Stepien		9805
Casey Stepien		18603
Casey Stepien		50679
Catherine Settanni		46498
Catherine Settanni		46499
Catherine Wright		9786
Catherine Wright		18593
Catherine Wright		50670
Cheryl LaPlante		16680
Cheryl LaPlante		50056
Christine Kvarnlov		16555
Christine Kvarnlov		49972
Christine Tendle		17053
Christine Tendle		50324
Christopher Kornmann		16923

Sender Name	Submission ID
10 Water Legacy: Incorrect Assumptions	
Christopher Kornmann	50226
Clyde Stephens	16296
Clyde Stephens	49928
Colleen McGee	47100
Colleen McGee	47102
Curt Bush	9822
Curt Bush	18616
Curt Bush	50692
Dale Hoogeveen	17177
Dale Hoogeveen	50441
Dan Allen	16084
Dan Allen	49914
Dan La Vigne	9826
Dan La Vigne	18619
Dan La Vigne	50695
Dan Neff	9922
Dan Neff	18691
Dan Neff	50766
Daniel Mettner	47057
Daniel Mettner	47058
Daniel Mettner	47060
Daniel OSMUNDSON	46502
Daniel OSMUNDSON	46505
Darnell Barsness	16986
Darnell Barsness	50272
Darren&Dia Redman	16614
Darren&Dia Redman	50008
dave hiller	9498
dave hiller	18436
dave hiller	50555
david fahrmann	17216
david fahrmann	50483
David Gerkensmeyer	23289
David Gerkensmeyer	49462
David Jensen	17013
David Jensen	50288
David Moen	36342
David Moen	49525
David Wakefield	9913

Sender Name		Submission ID
10 Water Legacy: Incorrect Assumptions		
David Wakefield		18682
David Wakefield		50757
Dawn Jensen		48921
Debbie Schlinger		16951
Debbie Schlinger		50242
Deborah Crocker		10535
Deborah Crocker		18400
Deborah Crocker		50519
Denny Thorson		17040
Denny Thorson		50313
Diane Hiniker		48635
Doug Stevens		16679
Doug Stevens		50055
Dudley Parkinson		16626
Dudley Parkinson		50016
Edana Nelson		46862
Edana Nelson		46864
Eleanor Wagner		15871
Elizabeth Burr		10028
Elizabeth Burr		18770
Elizabeth Burr		50844
Elizabeth Dokken		9965
Elizabeth Dokken		18722
Elizabeth Dokken		50797
Elizabeth Songalia		16398
Elizabeth Songalia		49951
Ellen Hinchcliffe		9785
Ellen Hinchcliffe		18592
Ellen Hinchcliffe		50668
Emily Anderson		17075
Emily Anderson		50346
Emily Lindell		47468
Emma Skog		16903
Emma Skog		50210
Erin Muzzy		16610
Erin Muzzy		50004
Gail Gillispie		9400
Gail Gillispie		18659
Gail Gillispie		50734

Sender Name	Submission ID
10 Water Legacy: Incorrect Assumptions	
Gary Meidlinger	17161
Gary Meidlinger	50429
Gary Meier	9899
Gary Meier	18663
Gary Meier	50738
Geoffrey Fisher	16785
Geoffrey Fisher	50132
Gerry Fuller	17149
Gerry Fuller	50416
Glenn Barth	48654
Greg Schultz	9864
Greg Schultz	18636
Greg Schultz	50711
Gregory Pfister	17095
Gregory Pfister	50364
Gregory Stricherz	17132
Gregory Stricherz	50401
Greta Ireland-Klumb Ireland-Klumb	47696
Harla Partridge	9385
Harla Partridge	15825
Harla Partridge	18610
Harla Partridge	50686
Heather Blish	17211
Heather Blish	50477
HeatherR Nord	16871
HeatherR Nord	50190
Herbert Davis	9369
Herbert Davis	18522
Jacquelynn Goessling	9748
Jacquelynn Goessling	17219
Jacquelynn Goessling	18571
Jacquelynn Goessling	50485
Jacquelynn Goessling	50647
James and Sara Conway	9821
James and Sara Conway	18615
James and Sara Conway	50691
James Herther	16887
James Herther	50201
James Schalles	16982

Sender Name		Submission ID
10 Water Legacy: Incorrect Assumptions		
James Schalles		50268
James Thompson		48107
James Thompson		48413
Jamie Jensen		15908
Jane Nolan		16981
Jane Nolan		50267
Janet Neihart		9401
Janet Neihart		18676
Janet Neihart		18677
Janet Neihart		50751
Janet Neihart		50752
Janice Ackerman		17043
Janice Ackerman		50316
Jean Marie Lindquist		17170
Jean Marie Lindquist		50436
Jenni Zickert		16781
Jenni Zickert		50130
Jennica Date		9961
Jennica Date		18718
Jennica Date		50793
Jennifer Hengelfelt		19897
Jennifer Hengelfelt		49562
Jennifer Wood		17178
Jennifer Wood		50443
Jeremiah Johnson		47525
Jerrie Anderson		16673
Jerrie Anderson		50050
Jim Miller		9956
Jim Miller		18710
Jim Miller		50785
Joan Wells		9875
Joan Wells		18643
Joan Wells		50718
joanna shelton		16778
joanna shelton		50127
Joanne Look		16732
Joanne Look		50095
Joanne Swanson		44823
Joel Albright		17191

Sender Name	Submission ID
10 Water Legacy: Incorrect Assumptions	
Joel Albright	50457
John AND Jean Fleming	16666
John AND Jean Fleming	50044
John Finazzo	10035
John Finazzo	18790
John Finazzo	50862
John Kreft	16811
John Kreft	50152
John M Ek	48013
John M Ek	48453
John Paul Roy	9719
John Paul Roy	18555
John Paul Roy	50631
John Raadt	44767
John-Mark Pawlowski	16696
John-Mark Pawlowski	50070
Johnny Jones Jr	15936
Jon Clark	45186
Jon Clark	45188
Judy Epstein	16897
Judy Epstein	50206
Julie Aho	46653
Julie Aho	46655
Julie Ondler	16304
Julie Ondler	49931
Julie Tienken	17197
Julie Tienken	50463
Justin Anderson	9834
Justin Anderson	18624
Justin Anderson	50699
Karen Bell-Brugger	10047
Karen Bell-Brugger	18796
Karen Bell-Brugger	50870
Karen Deblack	20744
Karen Erickson	10732
Karen Erickson	18405
Karen Erickson	50524
Kari Taylor	17085
Kari Taylor	50354

Sender Name		Submission ID
10 Water Legacy: Incorrect Assumptions		
Kate Crowley		16343
Kate Crowley		49939
kathryn faville		45935
Kathryn Null		16667
Kathryn Null		50045
Katy Westlund		16854
Katy Westlund		50175
Kay Thomas		10095
Kay Thomas		18839
Kay Thomas		50912
Keegan Ramey		48024
Keegan Ramey		48317
keith monsaas		10041
keith monsaas		18793
keith monsaas		50866
Kitty Baker		16885
Kitty Baker		50199
Kristin Ruott		9425
Kristin Ruott		18841
Kristin Ruott		50914
Lance Schlimgen		9852
Lance Schlimgen		18633
Lance Schlimgen		50708
Laurella Scott		16883
Laurella Scott		50197
Lauren Phyle		16557
Lauren Phyle		49974
Laurie Bailey		44478
Laurie Bailey		44480
Len Jennings		9677
Len Jennings		18540
Len Jennings		50616
Les@ Stern		16092
Les@ Stern		49915
Leslie Drimel		16365
Leslie Drimel		49942
Linda Crosby		16358
Linda Crosby		49941
Linda Schaetzel		16764

Sender Name	Submission ID
10 Water Legacy: Incorrect Assumptions	
Linda Schaetzel	50117
Lisa Bergerud	9994
Lisa Bergerud	18738
Lisa Bergerud	50813
Lois Dalsin	44708
Loren Stoner	15901
Lori Huska	17194
Lori Huska	50461
Lyn Clark Pegg	44765
Lynn Becker	16964
Lynn Becker	50255
Lynn Voelke	21408
Lynn Voelke	49884
M Richardson	20282
M. DRUSKIN	16148
M. DRUSKIN	49920
Marian House	16782
Marian House	50131
Marilyn J. Kennedy	15922
Mark McKeehan	48776
Mark S. Roalson	9819
Mark S. Roalson	18613
Mark S. Roalson	50689
Mark Shireman	9804
Mark Shireman	18602
Mark Shireman	50678
Martha Anderson	45804
Marty Johnson	48142
mary augustyn	10036
mary augustyn	18783
mary augustyn	50857
Mary E. Dosch	38296
Mary E. Dosch	49119
mary froiland	16833
mary froiland	50167
Mary Gallet	9635
Mary Gallet	18518
Mary Gallet	50597
Mary Sue Palazzari	17115

Sender Name		Submission ID
10 Water Legacy: Incorrect Assumptions		
Mary Sue Palazzari		50385
Mary Wickstrom		44072
Mary Wickstrom		44075
mary winskowski		15939
Matt Ryan		9736
Matt Ryan		18566
Matt Ryan		50642
Meg Anderson		16182
Meg Anderson		49922
Meg Blegen		21500
Meg Blegen		49895
Melvin Greene		16114
Melvin Greene		49918
Michael Anderson		10097
Michael Anderson		18842
Michael Anderson		50916
Michael Denery		21336
Michael Denery		49877
Michele Gonyea		47897
Michele Gonyea		48339
Michelle Hutchins		22118
Michelle Hutchins		49397
Michelle McClung		17120
Michelle McClung		50389
Miles Kramer		49105
Mitchell Multer		17193
Mitchell Multer		50459
Nancy Alfuth		10091
Nancy Alfuth		18833
Nancy Alfuth		50906
Nancy Lawroski		16601
Nancy Lawroski		49997
Nancy Wiens		9546
Nancy Wiens		18482
Nancy Wiens		50566
Nathan Duin		16866
Nathan Duin		50187
NEIL STECKER		48669
Nell Ubbelohde		16975

Sender Name	Submission ID
10 Water Legacy: Incorrect Assumptions	
Nell Ubbelohde	50261
Nicholas Eltgroth	15947
Nick Waller	9661
Nick Waller	18532
Nick Waller	50608
nina cook	16646
nina cook	50030
Nora Whitmore	9545
Nora Whitmore	18483
Nora Whitmore	50567
Norma May	16638
Norma May	50025
Norman Petrik	15911
Owen Marciano	43347
Owen Marciano	43348
p hawver	17195
p hawver	50460
P Koehler	17196
P Koehler	50462
pat helmberger	9894
pat helmberger	18657
pat helmberger	50732
Pat Makowski	16734
Pat Makowski	50097
Pat Shea	16257
Pat Shea	49926
Patricia Good	16829
Patricia Good	50163
Patricia Hauser	10038
Patricia Hauser	18788
Patricia Hauser	50858
Patrick Costello	10008
Patrick Costello	18754
Patrick Costello	50828
Patty Skogrand	16744
Patty Skogrand	50105
Paul Enyart	21477
Paul Enyart	49890
Paul Gearhart	15845

Sender Name		Submission ID
10 Water Legacy: Incorrect Assumptions		
Paul Gunther		17066
Paul Gunther		50337
Paul Wychor		45680
Paul Wychor		45681
Paula Luxenberg		17190
Paula Luxenberg		50456
Peter Harle		10039
Peter Harle		18787
Peter Harle		50863
Rae Lynn Monahan		44771
Ranee Raddohl		38029
Rayma Cooley		47924
Rayma Cooley		48335
Rebecca Reeves		44479
Rhonwen Tas		48878
Richard Cardinal		16158
Richard Cardinal		49921
rob maxfield		16692
rob maxfield		50066
robert langhorst		17145
robert langhorst		50413
Roberta Tietge		9762
Roberta Tietge		18582
Roberta Tietge		50658
Robin Poppe		9597
Robin Poppe		18504
Robin Poppe		50586
Rodd Ringquist		16828
Rodd Ringquist		50162
ROY JONES		17169
ROY JONES		50435
Ruth Milas		19739
Sandra G. McNichol		16600
Sandra G. McNichol		49996
sandy halling		16880
sandy halling		50195
Scott Christensen		47140
Scott Christensen		47141
Sean MacManus		16742

Sender Name	Submission ID
10 Water Legacy: Incorrect Assumptions	
Sean MacManus	50102
shannon lanning	16766
shannon lanning	50119
Sharon Fortunak	17089
Sharon Fortunak	50360
Sharon Rickert	9969
Sharon Rickert	18725
Sharon Rickert	50801
Sheri Skantz	17082
Sheri Skantz	50351
Sheri Stone	15850
Souriya Moua	9410
Souriya Moua	18721
Souriya Moua	50796
Stephanie Stockton	36937
Stephanie Stockton	49546
Stephen Wilcoxon	16790
Stephen Wilcoxon	50137
Sue OKasick	21368
Sue OKasick	49880
susan korupp	16998
susan korupp	50283
Susan Pohl	15946
Susan Wiste	15945
Suzanne Joyce	15987
Suzanne Joyce	49902
Teresa Trampe	16966
Teresa Trampe	50257
Terry McCarthy	15944
Thomas Jaszewski	9887
Thomas Jaszewski	18649
Thomas Jaszewski	50724
Tim Glenn	9492
Tim Glenn	18432
Tim Glenn	50551
Wanda Ballentine	9520
Wanda Ballentine	18438
Wanda Ballentine	36617
Wanda Ballentine	49537

Sender Name		Submission ID
10 Water Legacy: Incorrect Assumptions		
Wanda Ballentine		50557
Wende Nelson		10074
Wende Nelson		18822
Wende Nelson		50891
Wendy Haan		16919
Wendy Haan		50222
Zach Colatch		9540
Zach Colatch		18480
Zach Colatch		50565

Form Letter 11: Water Legacy: Underestimated Base Flow (B)
Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. Minnesota's interconnected water table, lakes, rivers, streams and watersheds (including Lake Superior) are too precious to the future of Minnesota to allow feckless exploitation. Sulfide producing mines are better managed in dry regions. Please listen to all the scientists who are alarmed by Polymet's proposal and faulty research. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Sincerely yours,

Mark Bridge		50107
Maxene Linehan		18545
Maxene Linehan		50621
Stephen Hamre		50121

Sender Name		Submission ID
12 Water Legacy: Partridge River Base Flow		
Form Letter 12: Water Legacy: Partridge River Base Flow Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the US Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streaMs • The SDEIS must be redone to calculate whether PolyMet's seepage would violate water quality standards using the closest location where groundwater seeps would reach wetlands. Both the mine site and tailings site have high pollution levels in surficial groundwater seeps and have wetlands far closer to pollution sources than the "evaluation locations" used in the SDEIS. • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. Sincerely yours,		
Abby Andresen		9968
Abby Andresen		18726
Abby Andresen		50799
Alexandra Alcorn		20119
Alexandra Alcorn		49594
andi tasou		16901
andi tasou		50209
Andi Weiss Bartczak		16727
Andi Weiss Bartczak		50091
Angela Wyatt		16235
Angela Wyatt		49924
Angie Courchaine		46468
Angie Courchaine		46469
Ann Beane		10093
Ann Beane		18835
Ann Beane		50908
Anna Hemphill		15913
Anne Garvey		12238
Anne Garvey		50499
Art Wilkinson		9933
Art Wilkinson		18703
Art Wilkinson		50778
ashley ferguson		43124
ashley ferguson		47698
ashley ferguson		47803
Barbara Jean Meyers		44088
Barbara Jean Meyers		44094

Sender Name	Submission ID
12 Water Legacy: Partridge River Base Flow	
Ben Isbell	47948
Ben Isbell	48466
Betsey Porter	10099
Betsey Porter	18847
Betsey Porter	50920
Brad Schmidt	16779
Brad Schmidt	50128
Brian Henning	10053
Brian Henning	18840
Brian Henning	50913
britta keenan	43322
britta keenan	47824
Bruce & Elizabeth Meyer	17045
Bruce & Elizabeth Meyer	50319
Bruce Goff	16017
Bruce Goff	49906
Carla Albers	9548
Carla Albers	18485
Carla Albers	50569
Carmine Profant	20240
Carolyn Clements	9373
Carolyn Clements	18548
Carolyn Clements	50624
Cathy Leece	17205
Cathy Leece	50471
Charles Lininger	16754
Charles Lininger	50110
Chris Erickson	9766
Chris Erickson	18583
Chris Erickson	50659
Christine Peterson	21225
Christine Peterson	49874
Cindy Bodine	16578
Cindy Bodine	49985
Clayton Watercolt	9729
Clayton Watercolt	18559
Clayton Watercolt	50635
Clifton Ware	17159
Clifton Ware	50427

Sender Name	Submission ID
12 Water Legacy: Partridge River Base Flow	
Colleen Bonniwell	44192
Colleen Bonniwell	44195
Crystal Nicklay	15864
Crystal Turner	15827
Dale Johnston	9771
Dale Johnston	18586
Dale Johnston	50662
Dan Wicht	16695
Dan Wicht	50069
Danny Crawford	17206
Danny Crawford	50472
Davia Curran	16511
Davia Curran	49959
David Braun	47074
David Braun	47075
David Brown	16200
David Brown	49923
David Hong	43466
David Hong	43467
Deb Padilla	16349
Deb Padilla	49940
Deborah Downs-Miers	16920
Deborah Downs-Miers	50223
Denise Marlowe	16715
Denise Marlowe	50082
DEREK KLINGEMAN	16625
DEREK KLINGEMAN	50015
Diana Cumming	19970
Diana Cumming	49573
Diane Hilscher Hilscher	16959
Diane Hilscher Hilscher	50250
Diane Wiley	20707
Dianne Tuff	9998
Dianne Tuff	18743
Dianne Tuff	50817
Dolores Schaefer	17204
Dolores Schaefer	50470
Dolores Voorhees	17229
Dolores Voorhees	50495

Sender Name		Submission ID
12 Water Legacy: Partridge River Base Flow		
Don Hon		15833
Donald Hammen		16588
Donald Hammen		49994
Dori Stein		17527
Dori Stein		50497
Doug Zbikowski		17046
Doug Zbikowski		50318
E Lawrence		16576
E Lawrence		49983
Edward Pendleton		9633
Edward Pendleton		18517
Edward Pendleton		50596
Eleanor Haase		16512
Eleanor Haase		49960
Elizabeth Barnum		15893
Elizabeth McLister		20095
Elizabeth McLister		49589
Elizabeth Merz		20710
Elizabeth Murray		9577
Elizabeth Murray		18494
Elizabeth Murray		18495
Elizabeth Murray		50578
Elizabeth Murray		50579
Elizabeth Sivertson		11279
Elizabeth Sivertson		18393
Elizabeth Sivertson		50512
Ellyce Thompson		46252
Ellyce Thompson		46254
Emma Koch		17061
Emma Koch		50334
Eric Wornson		9893
Eric Wornson		18655
Eric Wornson		50731
Erin Naughton-Garrison		9493
Erin Naughton-Garrison		18433
Erin Naughton-Garrison		50552
esa Bockey		15863
Ev Ahlberg		16640
Ev Ahlberg		50026

Sender Name	Submission ID
12 Water Legacy: Partridge River Base Flow	
Frank Hansen	16755
Frank Hansen	50111
Gary Gaffner	16377
Gary Gaffner	49946
Gary Meier	9898
Gary Meier	18662
Gary Meier	50737
Gary Thornbloom	9739
Gary Thornbloom	18568
Gary Thornbloom	50644
Gayl Gustafson	9370
Gayl Gustafson	9631
Gayl Gustafson	18515
Georgina Wenick	9415
Georgina Wenick	18761
Georgina Wenick	50835
Gerald Saabye	15932
Germain Walseth	45428
Germain Walseth	45431
Gina Marano	15875
Gladys Schmitz	9953
Gladys Schmitz	18708
Gladys Schmitz	50783
Glenn Bertelson	9713
Glenn Bertelson	18551
Glenn Bertelson	50627
Hannah Conway	16550
Hannah Conway	49970
Hannah Howard	43361
Hannah Howard	43362
Heather Welter	15820
Heidi Sobanja	45318
Heidi Sobanja	45319
heidi uppgaard	15942
Helen Jenko	46016
Hillis Aldrich	16689
Hillis Aldrich	50063
Holly Wright	38531
Holly Wright	49153

Sender Name		Submission ID
12 Water Legacy: Partridge River Base Flow		
Jan and Jim Porter		9773
Jan and Jim Porter		18588
Jan and Jim Porter		50664
Jan Rutkowski		16669
Jan Rutkowski		50046
Jane Koschak		45777
jane mobeck wilson		17079
jane mobeck wilson		50350
Janean kelly		36443
Janean kelly		49529
Janet Johnson		10013
Janet Johnson		18758
Janet Johnson		50832
Janet Koplos		16657
Janet Koplos		50040
Janet Magree		10023
Janet Magree		18768
Janet Magree		50842
Janice Hallman		10738
Janice Hallman		18406
Janice Hallman		50525
Jean Lindquist		15861
jeff kitterman		9795
jeff kitterman		18596
jeff kitterman		50672
Jeff Perry		28618
Jeff Perry		49521
Jeff Remme		17175
Jeff Remme		50442
Jeff Webster		16706
Jeff Webster		50076
Jennifer Sanborn		16857
Jennifer Sanborn		50178
Jennifer Schally		15823
Jerome Comeau		9815
Jerome Comeau		18609
Jerome Comeau		50685
Jessica Wardlaw		17064
Jessica Wardlaw		50335

Sender Name	Submission ID
12 Water Legacy: Partridge River Base Flow	
jim postance	16872
jim postance	50191
Jim Wiggins	10068
Jim Wiggins	18810
Jim Wiggins	50883
Jim Wilson	17073
Jim Wilson	50344
Jinger Pulkrabek	15910
Joan McLeod	16008
Joan McLeod	49904
Jody Winger	17025
Jody Winger	50300
Joe Thorne	10092
Joe Thorne	18838
Joe Thorne	50909
Joel Hanson	16896
Joel Hanson	50205
Johann Chemin	10087
Johann Chemin	18830
Johann Chemin	50903
John Baker	9368
John Baker	18525
John Metzner	48759
John Raadt	44762
John Reichel	16974
John Reichel	50260
Jon Marble	44453
Jon Marble	44456
Jon Sojka	16608
Jon Sojka	50002
Jonathan Early	10050
Jonathan Early	18799
Jonathan Early	50873
Joseph Hann	46813
Joseph Hann	46815
Joy Kuhlman	16545
Joy Kuhlman	49967
Joyce Mellom	10756
Joyce Mellom	18396

Sender Name	Submission ID
12 Water Legacy: Partridge River Base Flow	
Joyce Mellom	50515
Judith Webster	17162
Judith Webster	50430
Judy Gregg	16698
Judy Gregg	50071
Julie Hager	17212
Julie Hager	50478
Julie OBrien	16777
Julie OBrien	50126
Justin Anderson	9835
Justin Anderson	18623
Justin Anderson	50700
Kari Macdonald	19737
Karin Margolis	17091
Karin Margolis	50361
Karrie Vrabel	9854
Karrie Vrabel	18632
Karrie Vrabel	50707
Katharine Rauk	47877
Katharine Rauk	48321
Kathleen Abel	9911
Kathleen Abel	18680
Kathleen Abel	50755
Kathleen Felt	9535
Kathleen Felt	18446
Kathleen Felt	50564
Kathleen Owen	16751
Kathleen Owen	50109
Kathryn Mosher	17202
Kathryn Mosher	50468
Kathy Felix	21450
Kathy Felix	49888
Katie Kaufmann	47014
Katie Kaufmann	47016
Keely King	10054
Keely King	18802
Keely King	50876
Kevin Proescholdt	10051
Kevin Proescholdt	18800

Sender Name	Submission ID
12 Water Legacy: Partridge River Base Flow	
Kevin Proescholdt	50874
Kevin Stueven	16339
Kevin Stueven	49938
Kyle Wagner	48022
Lansing Shepard	10071
Lansing Shepard	18813
Lansing Shepard	50885
Larisa Walk	15849
Laurel Ipsen	10019
Laurel Ipsen	18774
Laurel Ipsen	50848
Lawrence Krantz	9866
Lawrence Krantz	18640
Lawrence Krantz	50714
Leah Ritzko	17117
Leah Ritzko	50386
lee welter	45940
Leila Jindeel	48039
Leila Jindeel	48370
Leonard Madsen	18612
Leonard Madsen	50688
Lisa L	17058
Lisa L	50330
Lois Brink	16582
Lois Brink	49988
Lori Steckervetz	9325
Lori Steckervetz	18422
Lori Steckervetz	50542
Lucy Feneis	17155
Lucy Feneis	50423
Lynda Pauling	16800
Lynda Pauling	50144
Lynn Lang	16844
Lynn Lang	50172
M. R. Mittelstadt	17035
M. R. Mittelstadt	50307
Madeline Seveland	17118
Madeline Seveland	50388
Marc Simcox	21287

Sender Name		Submission ID
12 Water Legacy: Partridge River Base Flow		
Marc Simcox		49875
Marc Taylor		12132
Marc Taylor		50498
Marcelle Jordan		45630
Marcelle Jordan		45631
Marilee Lampman		10020
Marilee Lampman		18765
Marilee Lampman		50839
Marilyn Benson		10082
Marilyn Benson		18821
Marilyn Benson		50899
Marilyn Borich		17101
Marilyn Borich		50400
Mark Freer		15836
Marty Lemke		17140
Marty Lemke		50407
Mary Amel		16809
Mary Amel		50150
Mary E. Dosch		37912
Mary E. Dosch		38295
Mary E. Dosch		49113
Mary E. Dosch		49118
Mary Johannsen		15821
Mary Kaeter		22690
Mary Kaeter		49451
Mary Kowalski		10032
Mary Kowalski		18776
Mary Kowalski		50850
Mary McNellis		15885
Matt Hannah		10040
Matt Hannah		18792
Matt Hannah		50865
Matt Johnson		10016
Matt Johnson		18764
Matt Johnson		50838
Matt Rollins		16864
Matt Rollins		50185
Matt Wolfe		9533
Matt Wolfe		18445

Sender Name	Submission ID
12 Water Legacy: Partridge River Base Flow	
Matt Wolfe	50563
Michael Allen	17032
Michael Allen	50306
Michele Jimenez	48027
Michele Jimenez	48412
Mike Dahlheimer	17209
Mike Dahlheimer	50475
Mona Delly	16862
Mona Delly	50183
Morgan Schmidt	21118
Morgan Schmidt	49871
Nan Schwappach	15957
nan stevenson	17102
nan stevenson	50371
Nancy Laskaris	9985
Nancy Laskaris	18729
Nancy Laskaris	50804
Naomi Conley	16636
Naomi Conley	50023
Necoe Henneman	16958
Necoe Henneman	50249
Newood Gilk	10015
Newood Gilk	18763
Newood Gilk	50837
Nina McKee	9807
Nina McKee	18605
Nina McKee	18606
Nina McKee	50681
Nina McKee	50682
pamela lohse	17026
pamela lohse	50301
Patricia Lowinske	16635
Patricia Lowinske	50024
Patricia McNabb	16881
Patricia McNabb	50194
Patrick Keiser	15818
Penne Holt	16947
Penne Holt	50239
Philip Rampi	9814

Sender Name		Submission ID
12 Water Legacy: Partridge River Base Flow		
Philip Rampi		18608
Philip Rampi		50684
Prudence Johnson		9937
Prudence Johnson		18704
Prudence Johnson		50779
Raechel Murphy		21497
Raechel Murphy		49893
Randall Yungerberg		16681
Randall Yungerberg		50057
Rebecca Lucking		9349
Rebecca Lucking		18481
Rebekah Leonhart		17119
Rebekah Leonhart		50387
Rick Dahn		9924
Rick Dahn		18694
Rick Dahn		50769
Rita Caruso Santamaria		16658
Rita Caruso Santamaria		50041
Rita Myntti		11348
Rita Myntti		18389
Rita Myntti		50508
Robert Baxton		9376
Robert Baxton		18736
Robert Baxton		50808
Robert Kosuth		9932
Robert Kosuth		18702
Robert Kosuth		50777
Robert McManus		15892
Robert Young Walser		17112
Robert Young Walser		50381
Rosie Neber		9406
Rosie Neber		18706
Rosie Neber		50781
Rosita Aranita		9356
Rosita Aranita		18501
Ruth Bartling		49094
ruth Robelia		17111
ruth Robelia		50380
Ruth Tyberg		17207

Sender Name	Submission ID
12 Water Legacy: Partridge River Base Flow	
Ruth Tyberg	50473
Sandra Lien	10104
Sandra Lien	18852
Sandra Lien	50925
Sara Brokaw	16633
Sara Brokaw	50021
Sara Larson	16954
Sara Larson	50244
Sarah Comfort	44867
Scott Dannenbring	44525
Scott Dulas	16575
Scott Dulas	49982
Scott Link	15843
Shar Bjerke	10049
Shar Bjerke	18797
Shar Bjerke	50872
Sharon Anderson	17084
Sharon Anderson	50353
Sharon Clark	16647
Sharon Clark	50031
Sharon Coombs	17184
Sharon Coombs	50450
Sherry Abts	10096
Sherry Abts	18843
Sherry Abts	50917
Stephanie Thompson	17141
Stephanie Thompson	50408
Sundae Morse	16644
Sundae Morse	50027
susan mitchell	16870
susan mitchell	50189
Susan Wiste	9379
Susan Wiste	18581
Susan Wiste	50657
Susannah Shmurak	47979
Susannah Shmurak	48473
Suzan Koch	10058
Suzan Koch	18805
Suzan Koch	50879

Sender Name		Submission ID
12 Water Legacy: Partridge River Base Flow		
Therese Zemlin		10100
Therese Zemlin		18850
Therese Zemlin		50924
Thomas Dickinson		17185
Thomas Dickinson		50452
Thomas Lee Boles		16651
Thomas Lee Boles		50034
Tiffany Newton		15909
Tony Mogelson		45181
Tony Mogelson		45183
tony Rau		16848
tony Rau		50174
Vic Rosenthal		36535
Vic Rosenthal		49533
Vicki Kelson		45037
Warren Howe		9783
Warren Howe		18590
Warren Howe		50666
William Herzberg		15793
William Herzberg		49898
Zoe Levin		16884
Zoe Levin		50198

Sender Name		Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange		
Form Letter 13: Water Legacy: Sulfide Mining and Land Exchange Dear Mr Dabney, Mr Bruner and Ms Fay: I'm writing to ask you to reject the PolyMet sulfide mine project and proposed exchange of 6,650 acres of Superior National Forest lands. The PolyMet mine and the exchange of public lands to allow an open-pit sulfide mine and mine wastes on Superior National Forest lands are inconsistent with federal law, public interest and fiduciary responsibilities to tribes. The Land Exchange serves only the private interest of a foreign corporation, not the public intereSt The Land Exchange won't unify ownership of federal lands. Nearly all of the lands in the exchange have split mineral rights and no legal barrier to surface mining. The Land Exchange results in an unacceptable net loss of high quality natural resources from federal public lands. This includes a net loss of 6,026 acres of areas with high biodiversity; 2,030 acres of mature forest – replaced by 2,000 acres of immature forest; 1,400 acres of floodplains and losses of 11 endangered or threatened species. The SDEIS does not assess the costs of replacing natural resources values lost when mature forests and pre-settlement wooded wetlands are destroyed. Despite the scandalous history of sweetheart appraisals that favor private interests, taxpayers have seen no appraisal information to show that the PolyMet Land Exchange would meet legal requirements for a fair trade. The PolyMet sulfide mine would reduce lynx habitat by two square miles, kill individual lynx, and impact 2 out of 13 remaining small corridors for wildlife to travel across the Arrowhead region. The PolyMet sulfide mine plan would also destroy 2,775 acres of habitat for moose, a species critical to tribes, the population of which dropped precipitously by 35% from 2012 to 2013- Yet, the SDEIS contains no analysis of impacts on moose from the PolyMet project. The SDEIS' analysis of harm to resources that are important for tribes relies on implausible assumptions. The SDEIS underestimates the hundreds of years of water pollution from the PolyMet sulfide mine and assumes away impacts on the St Louis River and tribal resources. Whether in discussing the PolyMet sulfide mine or the proposed exchange of lands ceded to the federal government by the tribes, the SDEIS disregards the federal government's fiduciary responsibility to protect tribal rights to hunt, fish and gather plants, including wild rice. Please take the following actions to protect clean water, ecological communities, public lands and tribal rights: •Reject PolyMet's proposed Land Exchange and any other land exchange where lands received by the public have split mineral rights and could be destroyed by future mines. •Reject the PolyMet Land Exchange as inconsistent with the requirements of federal laws requiring that exchange of public lands be in the public interest and for fair value. •Reject the PolyMet project and Land Exchange due to the cumulative and significant adverse impact on endangered plant and animal species and species of concern to tribes. •Reject the PolyMet project due to the cumulative and significant adverse impacts on clean water, wild rice, healthy aquatic systems and mercury contamination of fish. •Reject the PolyMet project and Land Exchange as inconsistent with fiduciary obligations owed by the United States government under treaties with Indian tribes. No more studies are needed to know that the PolyMet land exchange and sulfide mine should not be approved. The SDEIS plan is also inadequate and should be rejected: •The SDEIS fails to assess costs of replacing functions lost due to destruction of mature forests, floodplains and high value wetlands. •The SDEIS fails to disclose appraisal information for public comment so citizens can scrutinize whether PolyMet would get a sweetheart deal at taxpayer expense. •The SDEIS fails to analyze alternatives, including underground mining, that could reduce impacts on lynx, moose, and other species that are threatened, endangered or of significance to tribes. •The SDEIS fails to study cumulative adverse impacts on moose of the PolyMet project and other activities that destroy habitat and increase global climate change. •The SDEIS fails to provide a cumulative analysis of impacts to clean water, plants and mammals that are significant to tribes and protected under treaties, throughout the tribal Ceded Territories in the Lake Superior Basin. In summary, please reject the PolyMet SDEIS as inadequate and reject the proposed PolyMet sulfide mine and Land Exchange as destructive to the public interest and harmful to tribal rights, clean water, vital habitats and the health of future generations. Sincerely		
|John Walsh		11200
|John Walsh		51460
A Bonvouloir		11146
A Bonvouloir		51408
Abby Andresen		45713
Abby Andresen		45715
Abby Dahlquist		11087
Abby Dahlquist		51347
Al Gedicks		11183
Al Gedicks		21342
Al Gedicks		51015
Al Gedicks		51444
Alan Olander		11131
Alan Olander		51394
Alex Comb		11227
Alex Comb		51488

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Alex Sigmundik	10978
Alex Sigmundik	51244
Alice Bowron	11013
Alice Bowron	51277
Alice Bowron	51278
Alison Edgerton	11080
Alison Edgerton	51340
Allan Malkis	11086
Allan Malkis	51346
Allen Richardson	10954
Allen Richardson	51222
Allen Richardson	56945
Allison LaBonne	44097
Allison LaBonne	44101
Allison LaBonne	44200
Allison LaBonne	44202
Alyssa Hoppe	11230
Alyssa Hoppe	51489
Amelia Holcomb	19956
Amelia Holcomb	49570
Amy Flynn	21313
Amy Flynn	51004
Amy Okaya	11037
Amy Okaya	51300
Analiese Miller	15128
Anatol Zinchenko	10988
Anatol Zinchenko	51254
Andrew Kuncel	44669
Andrew Nesheim	10992
Andrew Nesheim	51258
Andrew Nielsen	56932
Andrew Smith	11143
Andrew Smith	51406
Andy Peason	56937
Angela Krick	56921
Angela Smith	11147
Angela Smith	51410
Angela Wiper	15175
Angie Nichols	56931

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Ann Beane	11047
Ann Beane	51308
Ann Blackmore	56885
Ann Blackmore	56886
Ann Simonson	11877
Anna Fingalson	15351
Anna Fingalson	51112
Anne Alwell	43202
Anne Alwell	47815
Anne Dunn	15148
Anne Salisbury	10965
Anne Salisbury	51231
Annie Gardner	10998
Annie Gardner	11175
Annie Gardner	21217
Annie Gardner	44987
Annie Gardner	49078
Annie Gardner	50974
Annie Gardner	51264
Annie Gardner	51436
April Narcisse	15583
April Narcisse	51139
Barb Cooper	13056
Barb Cooper	51080
Barb Edson	11135
Barb Edson	51398
Barbara Brockway	11202
Barbara Brockway	51462
Barbara Janssen	15417
Barbara Janssen	51117
Barbara Mahowald	56924
Barbara Schmicchen	11073
Barbara Schmicchen	51333
Bartholomew Riney	11009
Bartholomew Riney	51273
Beccy Kerr	11048
Beccy Kerr	51309
Becky Capecchi	11169
Becky Capecchi	51430

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Becky toner	45534
Ben Cushing	11229
Ben Cushing	51491
Ben Isbell	11130
Ben Isbell	51393
Benjamin Krohling	11023
Benjamin Krohling	11038
Benjamin Krohling	51288
Benjamin Krohling	51301
Beret Amundson	11192
Beret Amundson	51453
Bernadette Sheats	15452
Bernadette Sheats	51123
Bernie Schlafke	44591
Beth Bartlett	11089
Beth Bartlett	51349
Beth haltiner	10957
Beth haltiner	51223
Bethany Ebert	10916
Bethany Ebert	51204
Bill Munson	10970
Bill Munson	51235
Bill Sorem	21362
Bill Sorem	51022
Blake Romenesko	56946
blanche wilcox	14810
blanche wilcox	51068
Bob Haugen	11052
Bob Haugen	51313
Bob OHara	46982
Bob OHara	46983
Bonnie Walden	15176
Brenda Adams	11042
Brenda Adams	51304
Brenda Schillo	56950
Brenda Schillo	56951
Brenna Busse	10960
Brenna Busse	51226
Brent Gurtek	11098

Sender Name		Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange		
Brent Gurtek		51358
Bret Pence		56940
Brett Cansler		15000
Brett Cansler		51097
Brian Henning		10969
Brian Henning		51236
Brian Thorbjornsen		11142
Brian Thorbjornsen		11150
Brian Thorbjornsen		51405
Brian Thorbjornsen		51412
Brian Tighe		43128
Brian Tighe		47805
Brian Wicklund		10941
Brian Wicklund		51213
Brittany Kubricky		23470
Brittany Kubricky		49469
Bruce Johnson		56917
Bruce McKay		15622
Bruce McKay		51144
Bruce Peck		56938
Bryan Hansel		11129
Bryan Hansel		51392
Bryn Jacobson		14957
Bryn Jacobson		51094
c carlson		12075
c carlson		51042
Cait Greeley		56901
Carla Albers		11103
Carla Albers		51362
Carla Blumberg		14477
Carla Blumberg		51045
Carlen Lovejoy		10942
Carlen Lovejoy		51214
Carlos Espinosa		47855
Carlos Espinosa		48333
Carlos Espinosa		52360
Carol A Zakula		47129
Carol A Zakula		47134
Carol Ashley		10979

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Carol Ashley	51245
Carol Huntoon	10972
Carol Huntoon	51237
carol jagiello	11069
carol jagiello	11182
carol jagiello	51329
carol jagiello	51443
Carol L Weber	15712
Carol L Weber	51156
Carol Masters	46976
Carol Masters	46977
Carole Tronnes	11057
Carole Tronnes	51318
Carolyn Clements	13054
Carolyn Clements	51082
Cassandra Meyer	45006
Cassandra Roy	56947
Cat Thompson	21256
Cat Thompson	50989
Catherine Wright	11219
Catherine Wright	51478
Cecelia Newton	19964
Cecelia Newton	49572
Cecilia Lieder	15570
Cecilia Lieder	51136
Charles Johnson	47076
Charles Johnson	47078
Charles McKown	56926
Cherrie Bennethum	15502
Cherrie Bennethum	51126
Cheryl Miller	11049
Cheryl Miller	51310
Cheryl Storm	43262
Cheryl Storm	47820
Chris Haenisch	11034
Chris Haenisch	11035
Chris Haenisch	51297
Chris Haenisch	51298
Chris Iverson	10887

Sender Name		Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange		
Chris Iverson		51192
Chris LaFleur		21317
Chris LaFleur		51007
Christine Cole		15640
Christine Cole		51147
Christine Umhoefer		44512
Christopher T Loch		10977
Christopher T Loch		51243
Christov Churchward		15152
Clarence Roed		11221
Clarence Roed		51481
Clayton Watercolt		11061
Clayton Watercolt		51321
Colette Buchholtz		11208
Colette Buchholtz		51468
Colleen Krebs		11072
Colleen Krebs		51332
colleen laventure		21180
colleen laventure		50969
connie slaten		10966
connie slaten		20099
connie slaten		49590
connie slaten		51232
Corryl Jeske		15136
Corryl Jeske		15140
courtney butcher		11223
courtney butcher		51483
Covant Grant Pylkas		56942
Craig Blacklock		11210
Craig Blacklock		51470
Cynthia Blomberg		15592
Cynthia Blomberg		51140
Cynthia Dickinson		11181
Cynthia Dickinson		51442
Cynthia Goss		15185
dagmar romano		46875
dagmar romano		46876
Dailey Elizabeth		14599
Dailey Elizabeth		51051

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Dale Johnston	11133
Dale Johnston	44231
Dale Johnston	44238
Dale Johnston	51396
Dan Anderson	21356
Dan Anderson	51021
Dan Conner	10840
Dan Conner	51180
Dan La Vigne	11094
Dan La Vigne	51353
Dan Neff	15311
Dan Neff	51108
Daniel Pearson	56935
Daniel Pearson	56936
Daniel W Iverson	10986
Daniel W Iverson	51252
Danny Crawford	10987
Danny Crawford	51253
Dara Syrkin	15281
Dara Syrkin	51106
Dave Carlson	11102
Dave Carlson	51361
dave hiller	10948
dave hiller	22219
dave hiller	49448
dave hiller	51218
David Braun	47071
David Braun	47072
David Ceder	11396
David Ceder	51163
David Court	11110
David Court	51373
David Hanlon	56908
David Johnson	13033
David Johnson	51078
David Kozlak	14933
David Kozlak	51091
David Moffatt	11140
David Moffatt	11157

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
David Moffatt	51403
David Moffatt	51419
david rephan	36675
david rephan	49538
David Schaenzer	47903
David Schaenzer	48360
David Schaenzer	52387
David Wakefield	11196
David Wakefield	51456
David Wilson	15114
David Zimney	11095
David Zimney	51354
Dawn Jensen	21321
Dawn Jensen	51008
Dawn Snyder	11021
Dawn Snyder	51286
Dean Hitchings	20488
Deb Harley	10847
Deb Harley	51183
Debbie Andresen	43823
Debbie Andresen	43824
Debbra Myers	43884
Debbra Myers	43906
Deborah Bieleck	56884
Deborah Crocker	10822
Deborah Crocker	15002
Deborah Crocker	51098
Deborah Crocker	51176
Deborah Hendrickson	15102
Deborah Hendrickson	20712
Deborah Hendrickson	48005
Deborah Hendrickson	48363
Deborah Hendrickson	52390
Debra Barnhardt	11117
Debra Barnhardt	51380
Debra D. Smith	11092
Debra D. Smith	51351
DeeAnn Stenlund	10958
DeeAnn Stenlund	51224

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Denise Hoy	16427
Derek Madsen	38438
Derek Madsen	49123
Diana Hill	21322
Diana Hill	44526
Diana Hill	51009
Diane C Tessari	11207
Diane C Tessari	51467
Diane Hiniker	21344
Diane Hiniker	48634
Diane Hiniker	51016
Diane L Olson	13061
Diane L Olson	51083
Diane Tessari	56963
Dik Hedlund	17594
Dik Hedlund	51041
Donald Allen	15075
Donna Olsen	11113
Donna Olsen	51376
Doug Stevens	15373
Doug Stevens	51114
Douglas Happy	43613
Douglas Happy	43615
Douglas Peterson	11127
Douglas Peterson	51390
Dr. Jacob Conway	15133
Dr. Tom Spicer	15129
drew hempel	11096
drew hempel	51355
Duncan Storlie	56959
Elaine Thrune	56964
Elinor Ogden	11163
Elizabeth Bartlett	56883
Elizabeth Bauchanan	14954
Elizabeth Bauchanan	51093
Elizabeth Burr	10831
Elizabeth Burr	21325
Elizabeth Burr	51011
Elizabeth Burr	51177

Sender Name		Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange		
Elizabeth Hope		49085
Elizabeth J LePlatt		10943
Elizabeth J LePlatt		51215
Elizabeth Merz		15141
Elizabeth Pyper-Holz		14551
Elizabeth Pyper-Holz		51049
Elizabeth Sivertson		15015
Elizabeth Treher		16073
Elizabeth Treher		51026
Elizabeth Yoder		11155
Elizabeth Yoder		51417
Ellen Stoehr		27988
Ellen Stoehr		49518
Ellen Wahl		15575
Ellen Wahl		51137
Ellyce Thompson		46263
Ellyce Thompson		46265
Emily Lindell		14875
Emily Lindell		47481
Emily Lindell		51087
Emily Mashuga		11139
Emily Mashuga		51402
Emily Moe		10897
Emily Moe		51195
Emily Smith		49107
Erick Boustead		10951
Erick Boustead		51221
Esther Ouray		15073
Esther Paulsen		11064
Esther Paulsen		51324
Florence Hedeen		49103
Francois Meion		56928
Gail Gaebe		11178
Gail Gaebe		51439
gail harty		15277
gail harty		15278
gail harty		51104
gail harty		51105
Gail Linnerson		15135

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Gail Linnerson	15138
Garrett Ferderber	11198
Garrett Ferderber	51458
Gary Noren	11141
Gary Noren	51404
Genevieve Quarberg	21197
Genevieve Quarberg	50971
georgann hiller	44612
georgann hiller	44613
Geraldine Drewry	11217
Geraldine Drewry	51477
Germain Walseth	45424
Germain Walseth	45434
Gladys Schmitz	11024
Gladys Schmitz	51289
Glen Wilson	10938
Glen Wilson	51210
Glenn Bertelson	11084
Glenn Bertelson	51344
Grant and NJ Mattson	15030
Greg Overlid	11020
Greg Overlid	51285
Greta Gaard	15081
Gretchen Bratvold	11111
Gretchen Bratvold	11172
Gretchen Bratvold	21298
Gretchen Bratvold	50999
Gretchen Bratvold	51374
Gretchen Bratvold	51433
Harla Partridge	15020
Harriet Mccleary	11220
Harriet Mccleary	51480
Harvey Chamberlin	11029
Harvey Chamberlin	51293
Heather	44452
Heather	44455
Heather Joumigan	56918
Heidi Ahlstrand-Gallagher	10932
Heidi Ahlstrand-Gallagher	10933

Sender Name		Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange		
Heidi Ahlstrand-Gallagher		51206
Heidi Ahlstrand-Gallagher		51207
Heidi Frison		15039
Helen Torrens		15166
HEYWARD NASH		10994
HEYWARD NASH		51259
HEYWARD NASH		51260
Holly Jenkins		11154
Holly Jenkins		51416
Ian Houmas		16490
Ian Houmas		51027
Ike Sarac		56948
Ivy Vanio		56965
Jack Steinmann		14581
Jack Steinmann		51050
Jackie Metelak		45090
Jackie Metelak		45091
Jacquelynn Goessling		10939
Jacquelynn Goessling		51211
Jahn Hibbs		15565
Jahn Hibbs		51133
James and Sara Conway		15549
James and Sara Conway		15550
James and Sara Conway		51130
James and Sara Conway		51131
James DuShane		11055
James DuShane		51316
James Grindeland		56902
James Ko		43979
James Ko		43981
James Lindbeck		11107
James Lindbeck		51370
Jami Halder		12160
Jami Halder		51043
Jamie Hoerter		10961
Jamie Hoerter		51227
Jan and Jim Porter		11180
Jan and Jim Porter		21007
Jan and Jim Porter		49774

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Jan and Jim Porter	51441
Jan Best	11136
Jan Best	51399
Jan Greenfield	11122
Jan Greenfield	51384
Jan Myers	11045
Jan Myers	51306
Jan Stern	11876
JANE AMENT	10841
JANE AMENT	11159
JANE AMENT	51182
JANE AMENT	51420
Jane Koschak	45709
Jane Koschak	45711
Jane Meritt	56929
Jane Meyer	14550
Jane Meyer	51048
Jane Wattrus	56968
Janet Draper	11160
Janet Draper	51421
Janet Magree	11213
Janet Magree	51473
janet meany	10985
janet meany	51251
Janet Neihart	15060
Janet Neihart	15189
janet oconnell	15097
Janet Russell	11187
Janet Russell	51448
Janet Spring	11174
Janet Spring	51434
Janet Swart	10991
Janet Swart	51257
Janice Hallman	11148
Janice Hallman	11151
Janice Hallman	51409
Janice Hallman	51413
Janice Hoeschler	11011
Janice Hoeschler	51275

Sender Name		Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange		
Janice Tarnow		15333
Janice Tarnow		51110
jason husby		13039
jason husby		13063
jason husby		51079
jason husby		51086
Jay Mutschler		46125
Jay Mutschler		46126
Jean Diekmann		10999
Jean Diekmann		51265
Jean Faley		11195
Jean Faley		51455
Jean Kunz		15162
Jean Lindquist		15126
Jean M. Schmeisser		15150
Jedidiah Krauss		11870
jeff kitterman		11173
jeff kitterman		51435
jeffrey dickson		45638
jeffrey dickson		45640
Jeffrey Ruha		11126
Jeffrey Ruha		51389
Jeffrey Wojciechowski		19910
Jeffrey Wojciechowski		49564
Jennifer Abbey		15273
Jennifer Abbey		51103
Jennifer Hengelfest		56911
Jennifer Jacquot-DeVries		44671
Jenny Ballew		56882
Jerry Lefkowitz		14792
Jerry Lefkowitz		51063
Jesse Peterson		56941
Jessica Eidem		19662
Jessica Rocheleau		15120
Jill Holmen		14780
Jill Holmen		51057
Jim Carlson		15117
Jim Hall		11081
Jim Hall		51341

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Jim Wiggins	11164
Jim Wiggins	51425
Joan Knuttila	11228
Joan Knuttila	51487
Joanne Englund	11381
Joanne Englund	51161
Joanne Swanson	44822
Jody Slocum	10983
Jody Slocum	51249
Joe May	11076
Joe May	51336
joel dodson	14791
joel dodson	51062
John and Marilyn Raplinger	11091
John and Marilyn Raplinger	51350
John Finazzo	11132
John Finazzo	11134
John Finazzo	11215
John Finazzo	11216
John Finazzo	51395
John Finazzo	51397
John Finazzo	51475
John Finazzo	51476
John Fisher-Merritt	56895
John Flaten	11205
John Flaten	51465
John Iverson	10914
John Iverson	51202
John Jansen	16473
John Keebler	11367
John Keebler	51160
John Linnerson	15125
John Matheson	14883
John Matheson	14885
John Matheson	51089
John Matheson	51090
John Munson	14805
John Munson	51067
John Ottis	49097

Sender Name		Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange		
John Paul Roy		11018
John Paul Roy		51283
John Pugh		15890
John Reichensperger		16566
John Reichensperger		51031
John Schmitt		15582
John Schmitt		51138
John Soghigian		10781
John Soghigian		51168
John Utermoehl		11231
John Utermoehl		51490
Jon Hayenga		11028
Jon Hayenga		51291
Jonathan Carlson		15717
Jonathan Carlson		51157
Jonathan Engel		10832
Jonathan Engel		51178
Jonathan Green		10816
Jonathan Green		51174
Jonelle Ringnalda		21353
Jonelle Ringnalda		51019
Joseph Merz		15092
Joshua Capps		15671
Joshua Capps		51150
Joyce Hansen		48050
Joyce Hansen		48315
Joyce Hansen		52343
Joyce Malwitz		10915
Joyce Malwitz		51203
Judi Poulson		11166
Judi Poulson		51427
Judith Screaton		10874
Judith Screaton		51189
Juliana Reimann		10884
Juliana Reimann		51190
Juliann Laabs		15691
Juliann Laabs		51154
Julie Aho		46640
Julie Aho		46652

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Julie Anderson	15064
Julie Anderson	15084
Julie Anne Larkin	44070
Julie Anne Larkin	44076
Justin Anderson	56878
Juue Jeatran	56916
Kameron Lindsey	43324
Kameron Lindsey	47825
Karen Bell-Brugger	14617
Karen Bell-Brugger	51052
Karen Petersen	14787
Karen Petersen	51059
Karen Raccio	15042
Karl Knutsen	15165
Karrie Vrabel	11123
Karrie Vrabel	51386
Kate Christopher	56889
Kate Crowley	11109
Kate Crowley	51372
Katharine Bogen	56887
Katherine Doerr	15301
Katherine Doerr	51107
Kathleen D Merrill	56930
Kathleen Felt	14953
Kathleen Felt	51092
Kathleen Grindeland	56903
Kathleen Jones	15167
Kathleen Jones	15174
Kathleen McQuillan	45728
Kathleen Smith	56954
Kathryn Faley	11194
Kathryn Faley	51454
Kathryn Gilje	44791
Kathryn Zabelle Stodala	56956
Kathy Iverson	10982
Kathy Iverson	51248
Kathy Kormanik	15106
Kathy Kormanik	15153
Kathy McTavish	44279

Sender Name		Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange		
Kathy McTavish		44280
Kathy Reinhardt		11012
Kathy Reinhardt		51276
Katie Krikorian		17316
Katie Krikorian		51039
Katrina Hurtig		56913
Katya Gordon		21316
Katya Gordon		51006
Kay Koelkerwestby		10962
Kay Koelkerwestby		51228
Kay Weseman		15323
Kay Weseman		51109
Keely King		10973
Keely King		51239
Keith Bloustrom		11190
Keith Bloustrom		51451
keith monsaas		11106
keith monsaas		51368
keith monsaas		51369
Kelly Fries		15163
Kelly McKown		56927
Kelly Peteson		15059
Kelly Rikansrud		10848
Kelly Rikansrud		51184
Kelly Rogers-WInston		14522
Kelly Rogers-WInston		51047
Kent Scheer		11088
Kent Scheer		51348
Kevin Viken		11212
Kevin Viken		51472
Kim Rezek		46964
Kim Rezek		46965
kimberly nieman		15071
Klayton Longstreet		56923
Krehl Stringer		10873
Krehl Stringer		51188
Kriss Osbakken		14507
Kriss Osbakken		51046
Kristin Grage		21457

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Kristin Grage	51025
Kristin Stuchis	15641
Kristin Stuchis	51148
Kristin Stuchis	56960
Kristine K Osbakken	56933
Kristine Mandel	13060
Kristine Mandel	51085
Kurt Seaberg	11041
Kurt Seaberg	51303
Kyle Volkman	15418
Kyle Volkman	15419
Kyle Volkman	51118
Kyle Volkman	51119
Laila Om	43697
Laila Om	43699
Lanny Olson	11191
Lanny Olson	51452
Lansing Shepard	11188
Lansing Shepard	51449
Larry Bogolub	11078
Larry Bogolub	21354
Larry Bogolub	51020
Larry Bogolub	51338
larry olson	15031
larry olson	15145
Laura Schauland	11771
Laura Schauland	13059
Laura Schauland	51081
Laureen Guyer	56906
Laurel Herold	11015
Laurel Herold	51280
Laurel Hyvonen	56914
Lauren Flavin	11100
Lauren Flavin	51360
Laurence Margolis	10898
Laurence Margolis	51196
Lawrence Krantz	11186
Lawrence Krantz	51447
Lawrence Miller	11051

Sender Name		Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange		
Lawrence Miller		51312
Leigh Pomeroy		10855
Leigh Pomeroy		51185
Leila Jindeel		47984
Leila Jindeel		48369
Leila Jindeel		52396
Len Jennings		11105
Len Jennings		51365
Len Jennings		51366
Leo Babeu		56881
Leslie Limberg		15082
Liane Gale		11068
Liane Gale		51328
Lilly Otto		56934
Lilly Perry		11201
Lilly Perry		51461
Linda Glaser		11022
Linda Glaser		51287
Linda Leuer		45863
Linda Sperber		15335
Linda Sperber		51111
Linda Spyhalski		15686
Linda Spyhalski		51153
Lindsay Sovil		21272
Lindsay Sovil		50994
Linville Doan		15149
Lisa Coons		10900
Lisa Coons		51197
Lisa Fitzpatrick		56896
Lisa Haborling		56907
Lisa Wersal		10810
Lisa Wersal		51172
Lloyd B Hansen		56909
Lloyd Hansen		43198
Lloyd Hansen		47814
Lois Braun		11185
Lois Braun		51446
Lois Dalsin		43388
Lois Dalsin		43393

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Loni Coppin	56892
Loni Kemp	15621
Loni Kemp	51143
Lori Steckervetz	15556
Lori Steckervetz	51132
Lorraine Delehanty	15023
Louise Anderson	56879
Louise Gappa	14630
Louise Gappa	51053
Louise Raths	15372
Louise Raths	51113
Lowell Johnson	15491
Lowell Johnson	51125
Lura Anderson	11070
Lura Anderson	11222
Lura Anderson	51330
Lura Anderson	51482
Lyn Clark Pegg	21352
Lyn Clark Pegg	51018
Lyn Clark Pegg	56939
Lynn Kidder	10872
Lynn Kidder	51187
Lynn Shoemaker	15044
M Richardson	15047
M Richardson	15103
Madeline Seveland	10903
Madeline Seveland	51201
Marcai Heeter	15608
Marcai Heeter	51142
Marcee Hansen	11071
Marcee Hansen	51331
Marcia Lewis	21182
Marcia Lewis	50970
Marco Good	15607
Marco Good	51141
Margaret Cullen	36376
Margaret Cullen	49527
Margie & David Back	10963
Margie & David Back	51229

Sender Name		Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange		
Marian Severt		11043
Marian Severt		51305
Marie Fraser		56897
Marie Nickell		13461
Marie Nickell		51044
Marilyn Benson		11062
Marilyn Benson		51322
Mark anderson		10949
Mark anderson		51219
Mark Bridge		11079
Mark Bridge		51339
Mark Engebretson		11050
Mark Engebretson		51311
mark kassal		11046
mark kassal		51307
Mark Oconnor		10937
Mark Oconnor		51209
Mark Schader		11153
Mark Schader		51415
Mark Sulander		11093
Mark Sulander		51352
Mark Westhed		11171
Mark Westhed		51432
Mark Wihriala		14845
Mark Wihriala		51073
Marlys Ertel		11890
Marlys Ertel		51076
Martha Krikava		11112
Martha Krikava		51375
Martin DeWitt		21270
Martin DeWitt		50993
Martin Makinen		11218
Martin Makinen		51479
Marty Duchscher		15548
Marty Duchscher		51129
Mary Beams		11006
Mary Beams		51270
Mary Boyd-Brent		11170
Mary Boyd-Brent		51431

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Mary Davis	11114
Mary Davis	51377
Mary E. Dosch	10950
Mary E. Dosch	37904
Mary E. Dosch	49111
Mary E. Dosch	51220
Mary Elling	21300
Mary Elling	51000
Mary Hong Loe	15569
Mary Hong Loe	51135
Mary Jane Pylkas	56943
Mary Kay Schladweiler	11108
Mary Kay Schladweiler	51371
Mary Lund	47861
Mary Lund	48382
Mary Lund	52409
MARY MCGILLIGAN	10767
MARY MCGILLIGAN	11054
MARY MCGILLIGAN	51165
MARY MCGILLIGAN	51315
Mary Ruptecht	11167
Mary Ruptecht	51428
Mary Scott	10974
Mary Scott	51240
Mary Smith	15074
Mary Smith	15147
Mary Sue Taellerud	56961
Mary Tennis	11082
Mary Tennis	51342
mary wacha	11363
mary wacha	51159
Matt Boys	10971
Matt Boys	51238
Matt Johansen	15435
Matt Johansen	51122
Matt Johnson	11165
Matt Johnson	51364
Matt Johnson	51426
Matt Nesshengel	11184

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Matt Nesshengel	51445
Matt Ryan	10818
Matt Ryan	51175
Matthew Moon	11189
Matthew Moon	51450
Megan Conley	56891
Megan Holm	11059
Megan Holm	51320
Megan John	20809
Megan John	49645
Melanie Grune	56904
Metti Shank	11053
Metti Shank	51314
Michael Anderson	10975
Michael Anderson	10976
Michael Anderson	51241
Michael Anderson	51242
Michael Brouillette	15078
Michael Dagen	15116
Michael Gabler	56898
Michael Huerth	15022
Michael Killian	11161
Michael Killian	51422
Michael Killian	56920
Michael Klug	11019
Michael Klug	51284
Michael Larson	15708
Michael Larson	51155
Michael McKenna	51271
Michael P. Savage	11206
Michael P. Savage	51466
Michael Wachner	44014
Michael Wachner	44015
Michele Jimenez	15033
Michele Nihipali	11204
Michele Nihipali	51367
Michele Nihipali	51464
Michelle Duhant	11125
Michelle Duhant	21276

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Michelle Duhant	50995
Michelle Duhant	51388
Michelle Hell	56910
Michelle Holmes	15508
Michelle Holmes	51127
Michelle Wartel	56967
Mike and Jane Conrad	11036
Mike and Jane Conrad	11162
Mike and Jane Conrad	51299
Mike and Jane Conrad	51423
MIKE LINK	11099
MIKE LINK	51359
Mollie Schierman	11224
Mollie Schierman	51484
muriel kennedy	11225
muriel kennedy	51486
Najeeb Jindeel	45057
Najeeb Jindeel	45058
Nana Nishigaki	14795
Nana Nishigaki	51064
Nancy Alfuth	11179
Nancy Alfuth	51440
Nancy Bratrud	11199
Nancy Bratrud	51459
Nancy Weber	46219
Nancy Weber	46220
Nancy Wiens	15265
Nancy Wiens	51101
Nancye Belding	43481
Nancye Belding	43487
Naomi Nelson	47874
Naomi Nelson	48390
Naomi Nelson	52417
Nathaniel Ptacek	11115
Nathaniel Ptacek	51378
Neil Gardner	56900
Neil Sorensen	10888
Neil Sorensen	51193
NEIL STECKER	10886

Sender Name		Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange		
NEIL STECKER		51191
Newood Gilk		10995
Newood Gilk		51261
Nick Waller		11033
Nick Waller		51296
Nils Anderson		56880
Nina McKee		10807
Nina McKee		11149
Nina McKee		51169
Nina McKee		51411
Nora Nell Hamburge		15383
Nora Nell Hamburge		51115
O. William Bruins		11008
O. William Bruins		51272
Pam Videen		11121
Pam Videen		51385
Pat Collins		11030
Pat Collins		51292
pat helmberger		28117
pat helmberger		49520
Pat Stevesand		15121
Pat Stevesand		15137
Pat Tammen		56962
Pat Thielman		11116
Pat Thielman		51379
Patricia Buck		15685
Patricia Buck		51152
Patricia Clure		47097
Patricia Clure		47098
Patricia Clure		56890
Patrick Costello		11039
Patrick Costello		51302
Patrick Parish		15012
Paul Baumgartner		10808
Paul Baumgartner		51170
Paul Biker		15029
Paul Densmore		11232
Paul Densmore		51492
Paul Mandell		10984

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Paul Mandell	51250
Paul Moss	10989
Paul Moss	51255
Paul Renneisen	15242
Paul Renneisen	51099
Paul Ryals	11014
Paul Ryals	51279
Paul Schillo	56952
Paula Hess	15100
Peppi Enos	13009
Peppi Enos	51077
pete mcdonnell	13058
pete mcdonnell	51084
Peter Harle	11209
Peter Harle	51469
Phil Fitzpatrick	15638
Phil Fitzpatrick	51146
Prudence Johnson	16859
Prudence Johnson	51033
Rachel Garwin	14868
Rachel Garwin	51074
Rachel Hedlund	11065
Rachel Hedlund	51325
Rachel Imholte	15077
Rachel Imholte	15119
Rachel Phelps	11027
Rachel Phelps	51290
Raven Courtney	56893
Rebecca Lucking	11880
Rebecca Ramsden	11145
Rebecca Ramsden	51407
Renee Ethier	43512
Renee Ethier	43600
Richard Fish	11124
Richard Fish	51387
Richard Medek	14803
Richard Medek	51065
Richard Schubert	10944
Richard Schubert	51216

Sender Name		Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange		
richard taylor		11226
richard taylor		51485
Richard Thomas		20728
Richard Tosseland		15250
Richard Tosseland		51100
Rick Dahn		10996
Rick Dahn		21251
Rick Dahn		50988
Rick Dahn		51262
Rick Simmons		10839
Rick Simmons		21262
Rick Simmons		50990
Rick Simmons		51179
Rita Caruso Santamaria		11097
Rita Caruso Santamaria		51356
Rita Caruso Santamaria		51357
RJ Ulrich		20723
Robert Bullis		15053
Robert Clegg		11083
Robert Clegg		51343
Robert Davis		11138
Robert Davis		51401
Robert Hilke		56912
Robert Mahon		10980
Robert Mahon		51246
Robert Munson, Ph.D.		14789
Robert Munson, Ph.D.		51061
Robert Robbins		11003
Robert Robbins		51268
Robert Stodola		56957
Robert Walker		15067
Robin Chen		10856
Robin Chen		51186
Robin Poppe		14779
Robin Poppe		51056
Robin Raplinger		11871
Rod Smith		11411
Rod Smith		51164
Rodger L Cragun		56894

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Roger Muellner	11104
Roger Muellner	11156
Roger Muellner	51363
Roger Muellner	51418
Ronald & Joann Brown Brown	46058
Ronda Kisner	10990
Ronda Kisner	51256
Rosemarie Merrigan	10968
Rosemarie Merrigan	51234
Rosie Neber	15184
Rosita Aranita	15093
Rowan Glaser	11233
Rowan Glaser	51493
Ruth Lindh	10935
Ruth Lindh	51208
Ryan Anderson	15101
Ryan Dermody	11075
Ryan Dermody	51335
ryan kelley	15637
Ryan Kelley	45252
Ryan Kelley	45253
ryan kelley	51145
Ryann Gallagher	56899
Sally Fineday	10959
Sally Fineday	51225
Samuel Axner-Engel	15393
Samuel Axner-Engel	51116
Sandra Lien	10809
Sandra Lien	51171
Sandra Wagner	56966
Sara Barsel	11032
Sara Barsel	51295
Sarah Dunn	11085
Sarah Dunn	51345
Sarah Hayes	15467
Sarah Hayes	51124
saraphine metis	21345
saraphine metis	51017
Scott Hed	17395

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Scott Hed	51040
Scott Laderman	11176
Scott Laderman	51437
Shannon Gustafson	56905
Shar Bjerke	11063
Shar Bjerke	51323
Sharon Fortunak	14837
Sharon Fortunak	51070
Sharon Kemp	56919
Sharon Lemay	10981
Sharon Lemay	51247
Sharon Root	11177
Sharon Root	51438
Shelli Burns	15718
Shelli Burns	51158
Sherry Abts	11128
Sherry Abts	51391
Sherry Folsom-Meek	11066
Sherry Folsom-Meek	51326
Siena Butler	44011
Siena Butler	44012
Sonia Otto	56915
Souriya Moua	15680
Souriya Moua	51151
Stephanie Love	47906
Stephanie Love	48354
Stephanie Love	52382
Stephanie Spitzer	56955
Steve & Colleen Semmer	20995
Steve & Colleen Semmer	49766
Steve George	11203
Steve George	51463
Steve Koschak	45330
Steve Koschak	45331
Storrie Havlina-Madsen	11211
Storrie Havlina-Madsen	51471
Su Smallen	47103
Su Smallen	47104
Sue Hodgson	44310

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
Sue Hodgson	44313
SUSAN ARATA	10997
SUSAN ARATA	51263
Susan Bonne	10896
Susan Bonne	14881
Susan Bonne	51088
Susan Bonne	51194
Susan Boorsma	10842
Susan Boorsma	21341
Susan Boorsma	43261
Susan Boorsma	47819
Susan Boorsma	51014
Susan Boorsma	51181
Susan McCabe	11152
Susan McCabe	51414
Susan Volkman	10964
Susan Volkman	51230
Susan Wiste	15155
Susan Zukowski	14819
Susan Zukowski	51069
Susanna & John Patterson	10967
Susanna & John Patterson	51233
Susanne Engstrom	15014
Suzan Koch	15429
Suzan Koch	51120
Tanya Beyer	11010
Tanya Beyer	51274
Tara King	43844
Tara King	43846
tegwin moye	14773
tegwin moye	14783
tegwin moye	51055
tegwin moye	51058
Tera Freese	10899
Tera Freese	10901
Tera Freese	10902
Tera Freese	51198
Tera Freese	51199
Tera Freese	51200

Sender Name		Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange		
Teresa Nelson		44635
Teresa Reid		44193
Teresa Reid		44197
Terry Ford		15662
Terry Ford		51149
Terry J. Williams		11031
Terry McCarthy		56925
Theresa Johansen		14958
Theresa Johansen		14959
Theresa Johansen		51095
Theresa Johansen		51096
Therese Zemlin		11214
Therese Zemlin		51474
Thomas Koehler		11067
Thomas Koehler		51327
Thomas Meinz		11197
Thomas Meinz		51457
Thomas Sullivan		19932
Thomas Sullivan		49568
Thomas Thompson		11137
Thomas Thompson		51400
Tia Keobounpheng		14650
Tia Keobounpheng		51054
tim jouppi		20720
Tim Larsa		56922
Tim Wallace		11386
Tim Wallace		51162
Timothy Hoelzel		45437
Timothy Hoelzel		45439
Tom Probst		10940
Tom Probst		51212
Tony Radcliff		56944
Tracy Stewart		21221
Tracy Stewart		50977
Valerie Haugen		11077
Valerie Haugen		51337
valerie nesteruk		10771
valerie nesteruk		10772
valerie nesteruk		51166

Sender Name	Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange	
valerie nesteruk	51167
Verba Weaver	10947
Verba Weaver	51217
Verlaine H. Halvorsen	11168
Verlaine H. Halvorsen	51429
Vern Simula	45706
Vern Simula	45707
Vicki Bonk	15431
Vicki Bonk	51121
Vicki W Seatt	56953
Virginia Sweatt	15568
Virginia Sweatt	51134
W Michael Smith	11074
W Michael Smith	51334
W. Bryan Winget	15509
W. Bryan Winget	51128
Wade Johnson	15063
Walter Gordon	10815
Walter Gordon	51173
Wanda Ballentine	11001
Wanda Ballentine	11058
Wanda Ballentine	51266
Wanda Ballentine	51319
Warren Howe	11119
Warren Howe	51383
Wayne D Hoklas	43584
Wayne D Hoklas	43585
Wendy Savage	56949
Wendy Sjoblom	11002
Wendy Sjoblom	51267
wiesia long	11118
wiesia long	11120
wiesia long	51381
wiesia long	51382
Will Tajibnapis	11056
Will Tajibnapis	51317
William (Andy) Fisher	14804
William (Andy) Fisher	51066
William DeRoche	21229

Sender Name		Submission ID
13 Water Legacy: Sulfide Mining and Land Exchange		
William DeRoche		50980
William Devenport		21136
William Devenport		21137
William Devenport		50945
William Devenport		50946
William Herzberg		21246
William Herzberg		50986
Zabelle Stodola		56958
Zach Colatch		11017
Zach Colatch		51281
Zach Colatch		51282
Zachary Campbell		56888

Sender Name	Submission ID
14 Mining Truth: Glencore	
Form Letter 14: Mining Truth: Glencore The PolyMet NorthMet SDEIS does not account for or even mention Glencore, the largest shareholder in PolyMet. Glencore is a global commodities and mining company, with a long record of environmental pollution and anti-labor practices. The discussion of financial assurance in the SDEIS is inadequate in several ways, but one is the lack of any mention of Glencore - the largest shareholder, largest funder, and owner of the first five years of minerals from the proposed NorthMet mine. Since PolyMet is a junior mining company that has never operated a mine before, and since their assets are limited, the best guarantor of bankruptcy-proof financial assurance is the inclusion of Glencore in any potential liability from pollution at the site. Taxpayers have incurred billion in cleanup costs, at times due to an inability to pursue the parent companies that bankroll junior mining companies. The PolyMet SDEIS should establish that the owner of the mine's proceeds and largest investor is responsible if pollution occurs. Please take the following actions: 1) Require that the PolyMet EIS include mentions of Glencore as the largest shareholder of PolyMet stock, the largest investor in the PolyMet NorthMet project, and as the owner of the first five years of NorthMet's minerals due to an off-take agreement with PolyMet. 2) Include Glencore in the financial assurance section of the document as a potentially responsible party, in case the financial assurance required of PolyMet proves to be inadequate. 3) Require that any permit to mine for PolyMet include Glencore, due to their status as largest investor and owner of the minerals produced by the mine. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely,	
Adam K. Wilke	21132
Alex Brandes	43661
Alice Closmore	43941
Alva Crom	16032
Amy Farland	20167
Andrew Falk	44575
Andrew Nielsen	56985
Ann Diers	15504
Arielle Courtney	21454
Barbara Mahowald	56982
blanche wilcox	17473
brad holmes	45495
Brett Pence	56989
Brian Anderson	16166
Brian Buelow	20169
Brian Garvey	17391
Brian Harrington	43303
Bridget Rau	20035
Bruce Peck	56988
C McAuley Hentges	16314
C Peterson	10828
Captain Charles Skalbeck	21117
Carl Helke	16558
Carol Orcutt	16337
Carolyn Porter	22762
Cathy Carlson	16905
Chanda Welch	44719
Charles Palmer	20890
Chely Tverbeg	10904

Sender Name	Submission ID
14 Mining Truth: Glencore	
Christina Klein	44148
Christine Frank	43635
christopher malcolm	43196
Chuck Flammang	20125
clair mcguigan	16356
Covant Pylkas	56990
Daniel Royer	20175
David Gilsvik	21128
David Homyak	21319
David Schaefer	45954
dean nelson	20060
Deborah Bieleck	56970
Dennis Jones	56980
Diane Tessari	56996
Donald Ahlschlager	46717
Donna Anderson	16642
Dorothy Brown	43678
Douglas Nienhuis	21396
Douglas Peterson	10926
Duane Pherson	21347
Duncan Storlie	56995
Elaine Thrune	56997
Elizabeth Dahlheimer	17601
Elizabeth Jacobson	16036
Elizabeth McLister	20046
Elizabeth Merz	11394
Emilie Hitch	45082
Emily Allgeyer	21310
Frank Hamel	21537
Gail Loverud	45577
Gaye Sorenson	11378
Genya Welch	11402
George Bentley	11388
Greg Haller	20916
Greg Overlid	46548
Gwyneth Olson	16119
J & M Pults	15604
Jackie Midthun	16317
James Grindeland	56973

Sender Name	Submission ID
14 Mining Truth: Glencore	
James Hersch	21424
James Kelley	20097
James Koschak	44145
Jana Carr-Weerts	41381
Janell Oelrich-Schreiber	16737
Janet Donovan Moran	16970
Janet Neihart	47665
Jeanine Czech	20122
Jeanne Collins	16542
Jennifer Hengelfet	56978
Jenny Ballew	56969
Jesse Dermody	47758
John Finazzo	16267
John Flaten	45019
John Kurth	14798
john lutter	21409
John Muellerleile	15787
John Ottis	41244
John Sabol	21303
John Widen	20923
Jon Troe	10917
Joyce Johnson	20181
Karen Cleveland	52246
Karen Monson	16139
Karin Miller	22593
Karla Boyd	45203
Karoline Anderson	10889
Kate Christopher	56971
Kathleen Grindeland	56974
Kathleen Merrill	56984
Kathleen Smith	56994
Kathy Magne	46170
kay westlie	15564
Kelly McKown	56983
Kevin Hay	47715
Kim Bright	45023
Kim Pilon	43786
Kimberley Wagner	16806
Kris Palazzari	20015

Sender Name	Submission ID
14 Mining Truth: Glencore	
Laura Bohen	15785
Laura Soetebier	43779
Lawrence Johnson	17548
Leah Axelson	44024
Len Jennings	10821
Lenna Stever	21863
Lesley Hauser	20098
Lilly Otto	56986
Lisa Lund	44797
Lisa Wersal	15636
Liz Wanschura	43919
Lloyd Hanken	56976
Lori Chase	14901
Louis Hermansen	10905
Lyn Clark Pegg	16024
Majel Carroll	16902
Mandy Senechal	43445
Mara Johnson	45021
Margaret Walker	21328
Margie Fraser	56972
MARIE FUNK	16487
Mark Catron	15675
Mark Fangmeier	16623
Marlin Knight	16541
marsha milgrom	21522
Mary Blickenderfer	43625
Mary Holmes	56979
Mary Jane Pylkas	56991
Melanie Grune	56975
Melinda Suelflow	16847
Michael Niemi	15765
michael wethington	16323
Michelle Hell	56977
Mike And Jane Conrad	41075
Nancy McCleary	15011
nathan anderson	20790
Nathan Ness	21521
Ned Bouril	43667
Norman Page	10875

Sender Name	Submission ID
14 Mining Truth: Glencore	
Patricia Castellano	20142
Paul Biker	36546
Paul Nelson	41115
Paula Hess	20021
paula jensen	16353
randall streier	15254
Rebecca Wiinanen	16145
Renee Capistrant	20905
Renee Ethier	47719
Rick Dahn	17714
Rita Caruso Santamaria	43908
rob martin	47010
Robert B'sheret	20792
Robert Mcmanus	43641
Robert Wolf	46070
Roger Strand	44837
Rory Cardinal	10864
Rosemary Johnston	10868
RS Stoner	20140
Ryan Anderson	46434
Sandi Krueger	15764
Sarah Kingston	16332
Scott Coryell	10791
Serena Lynch	46705
Serena Lynch	46723
Shannon Christianson	17686
Sharon Hess	15534
Sharon Kemp	56981
solfrid ladstein	21474
Sonia Otto	56987
STANLEY OWENS	20203
Stephanie Weller-Hanson	56998
stephen law	21351
Steve Koschak	45488
Steven Chesney	20208
Sue LeGros	46457
Susan Lynn	16823
Susan Vann	43426
Tayci Gustafson	44447

Sender Name	Submission ID
14 Mining Truth: Glencore	
Terry Richmond	17608
Theresa Basting	47735
Thomas Bierer	21431
thomas nikko	10813
thomas rowlette	16115
Tjaard Breeuwer	44807
Tom E Jandric	21394
Tom Ross	21338
Tony Radcliff	56992
Trevor Huggins	21427
Verlaine Halvorsen	10817
Vicki Scott	56993
Wanda Ballentine	36619
William Hurst	21473

Sender Name		Submission ID
15 Mining Truth: Moose		
Form Letter 15: Mining Truth: Moose The NorthMet Supplement Draft Environmental Impact Statement (SDEIS) has a critical gap in describing and mitigating the impact of habitat loss on Alces Americanus, the moose. Despite being listed as a species of andquot;Special Concernandquot; by the State of Minnesota in 2013, the suspension of the 2013 moose hunting season, and a 50% decline in Minnesota's moose population since 2005, the SDEIS describes moose as a andquot;regionally common wildlife species,andquot; and a andquot;game speciesandquot; (p. 5-635). According the SDEIS, Moose have been observed in the NorthMet project area (p. 4-210), and the NorthMet project area is in the range of moose in Minnesota. According to the SDEIS, 2,775 acres of moose habitat would be lost if NorthMet is built as described (p. 5-377). In addition, despite the special significance of the moose to tribal members, there is no cumulative impacts analysis of the loss of moose habitat in the SDEIS. Andquot;Habitat fragmentation and lossandquot; is recognized as a cause of the moose population decline, and the NorthMet project would add to existing habitat disruptions. The tribal cooperating agencies have noted this deficiency, but it has not been addressed in the SDEIS (Attachment 3, pp 45-46). As you revise the SDEIS, please include a cumulative impacts analysis that examines the impact on moose, recognize the changed status of the moose as a species of andquot;Special Concern,andquot; and require PolyMet to mitigate the habitat loss for the moose caused by the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely,		
Adam K. Wilke		21133
Aja Maleck		46337
Al Kosters		47726
Alan WOLFF		48015
Alene Lopau		15294
Alexander Phearman		44655
Amaya MAURA DENIZ		47627
Amber Garlan		15255
Amethyst Harle-Heim		44845
Amy Wold		15494
Andrea Sreiber		38503
Andrew Cunningham		44942
Andrew DeLisi		10892
Anika Clark		14861
Ann Hauer		10883
Ann Kinney		14891
ann sutherland-faerber		44893
Anna Bishop		15547
Anna Davis		46546
anna wagner		15650
Anne DesLauriers		14949
Anne Holub		38405
Annette Price		10843
barb mckean		14918
Barbara Brooks		15290
Barbara Caton		11365
Barbara Gruidl		14956
Barbara Rice		15809
Barry Feld		40575

Sender Name	Submission ID
15 Mining Truth: Moose	
Ben Isbell	15340
Ben Riegel	43443
Ben Yokel	15700
Benjamin Portzen	15308
Beth Dwallibee	15365
beth mccormick	15697
Beth WrightHardman	14984
Brenda Dahlheimer	15339
Brian Harrington	43301
Brian Thorbjornsen	21525
Brody Hagemeier	15269
C Peterson	10824
Candice Fitzloff-Westfield	15426
Carol Anderson	15387
Carol Nulsen	21679
carol Rippberger	15688
Carolyn Dillon	45126
Casey Buecksler	45835
Catherine Cutler	43623
Chanda Welch	44794
Chantal Buslot	38148
Chara Bouma-Prediger	43870
Charlotte McKlveen	46035
Charlye-Nicole McMillan	15364
Chelsea Akins	44482
Chely Tverbeg	10910
Cheryl Dannenbring	14889
Cheryl Humphrey	38334
Cheryl Larson	14932
Cheryl Tregillis	15375
Cheryl Wilke	43274
Chris Nellis	15715
Christa Hunter	14974
Christina Klein	44168
Christine Frank	44033
Christopher Loch	44262
christopher malcolm	43157
Christopher Mashuda	10775
Christopher Stauthammer	44914

Sender Name	Submission ID
15 Mining Truth: Moose	
Cindy Bergevin	14940
Cindy Johnson	15370
Cindy Neisen	46108
claire Goebel	14941
Colin Green	43788
Colin Thomsen	43437
Colleen DeWall	15617
Colleen Madden	15542
COLLEEN SHASKIN	15703
Connor Barr	15666
Curt Rawn	52208
Cynthia Peterson	10773
Dan Burns	43938
Dan Englund	14975
Daniel Kahl	15619
Daniel Mettner	15645
Dave Huber	15543
David Bradley	43165
David Ceder	11391
David Smith	14961
David Wohlfeil	15517
Dawn Fischer	15402
Dawn Rust	47554
DEBBIE RINALDI	45730
Deborah Knutson	14952
Deborah Wooldridge	14894
Debra Luetmer	45513
debra walsh	46065
Debra Wilde	40610
Denise Zeitz	15683
DENNIS WISTE	15356
Dian Smith	15490
Diana Kokko	15633
dixie hale	15465
Donna Anderson	15701
Donna Bloom	15325
Donna Lober	14913
Ed Kester	15476
Edward McKlveen	45580

Sender Name	Submission ID
15 Mining Truth: Moose	
Eileen Levin	14976
Eileen Menefee	15707
Elisabeth Bechmann	43163
Elizabeth Buchanan	15448
Elizabeth Greenbaum	14880
Elizabeth Maus	21868
Elizabeth Mccambridge	14859
Elizabeth Warner	14917
Emilie Hitch	36304
Emma Carlson	10891
Erynn Jenzen	40241
Erzsibet Yurekli	15315
Eunice Hafemeister	15350
Eva Chavarria Hunter	15709
evelyn bernhagen	43677
fiona ubbelohde	14863
Forrest Theisen	45357
Fran Hom	44257
Francis Leckie	15610
Gail Harty	46903
gail kern	15486
Gail Linnerson	14942
Gail Rosenquist	15813
Genya Welch	11403
Geoffrey Browne	45734
Georganne Krause	15403
Giselle Aae	15698
GLEN BAUGH	43168
Greg Neisen	46069
Greg Overlid	46549
Greg Rottach	45233
Gregory Chamberlin	15674
Gudrun Lock	14945
Hannah Miller	45074
Heather Flannigan	14963
Heidi Lynn Ahlstrand	15283
Helen Fischer	10906
Helen Moreland	14985
Ian Wunder	14866

Sender Name	Submission ID
15 Mining Truth: Moose	
J & M Pults	15600
j. Bender	10882
jaceyn hobson	15328
Jackie Midthun	16321
Jacqueline M Hadfield	15320
James Denman	14903
James Etzel	44890
James Hall	15470
James Koschak	44169
James Reinke	10851
Jan Kaeter	19972
Jane Koschak	45666
Jane Krentz	43653
Jane Nolan	14990
Jane Olson	45366
Janet Neihart	47676
Janis Hall	43178
Jason Long	15415
Jean Ross	10894
Jeanette West	45748
Jeanine Czech	10766
Jeanne Piehl	15239
Jeannie Colbaugh	20013
jeffery forbes	10789
Jennifer Bellas	43769
Jennifer Fuller	15237
Jennifer Hengelfelt	38197
jennifer johnson	14909
Jennifer Manderfeld	15696
Jennifer Roy	43538
Jennnifer Gillen	15463
Jerrold and Carol Peterson	15589
Jesse Dermody	47733
Jessica Carlson	15713
Jill McKenzie	14927
Jim Nordlund	44902
jo ciatti	10774
JOAN ARNESON	14998
Joan Seeger-Boughton	15456

Sender Name	Submission ID
15 Mining Truth: Moose	
Joanne Engelking	15612
Jodi Sellers	15507
Jody Goldstein	45493
jody kingland	10778
Joe Mayer	15314
Joe Torres	15541
Joel Baird	15336
Joel Dunn	15971
John Brink	15512
John Carruth	21289
JOHN GAFFNEY	10779
John Kerschbaum	45399
John Myott	15973
Jon De Ment	10835
Jon Frasz	11366
Jon Hamlin	14969
Jon Padgett	44038
Jonathan Gottlieb	10913
Joshua Mckeever	15515
Judith Olson	10769
Judy Bjorke	14926
Judy Lane	11375
Judy Woizeschke	14892
Juli Swanson	15461
Julian Grev	10796
Julie Meyers	15377
Julie Setrum	15361
Kaelyn Williams	46458
Karen Cleveland	52268
Karen Mattijetz	14873
Karen Poortvliet	14935
Karen Schmidt-Dill	44960
Karen Valerio	14939
Kari Renstrom	14852
Karin Winegar	10878
Kate Savage	10911
Kate Stumpf	52218
Katherine Goertz	10811
kathleen Beddow	14992

Sender Name	Submission ID
15 Mining Truth: Moose	
Kathleen Eckloff	14996
kathy dunn	45763
Kathy Haskins	15348
Kathy Kocos	11387
Kathy Lawrow	44042
kathy mollner	14931
Katie Young	15596
Keely Gelineau	39411
Keeri Tramm	44997
Kelli Conlow	14902
Kelly Casey	15437
Ken Davis	36674
Kevin Hiniker	44263
Kiley Brown	47229
Kim Pilon	43766
Kim Randolph	15459
Kimberley Brown	15434
Kimberly Anderson	46174
kimberly krause	15580
Kirsten elles	44725
Kris Palazzari	20006
Krissy Wilson	52243
kristi black	15455
Kristin Tombers	15337
Kristine king	11392
kyle miner	15464
L. G. Norwood	15567
Larry Brunkow	45565
Larry Hennis	46036
Lars Anderson	47714
laura brown	15472
Laura Jensen	43284
LAURA MCENTYRE	14973
laura melotti	37887
Laureen Guyer	14855
Laurie Matson	15381
LaVonne Goodell	15324
Leah Axelson	44018
Leanne Johnson	10787

Sender Name	Submission ID
15 Mining Truth: Moose	
Lee Ross	46326
Lenna Stever	21853
Leslie Avery	44949
Leslie Distad	15524
Linda Boutwell	15442
Linda Eng	44259
Linda Jenson	15285
Linda Miller	15458
Linda Rolf	15705
Lindsay Dahl	15481
Lisa Lund	14864
Lisa McDonald	15275
Lisa Vacek	14966
Lisa Wersal	15631
Liz Hardin	44132
Liz Wanschura	43868
Loree Lundblad	46109
Loretta Peterson	15353
Lori Tetzman	10800
louann lanning	15479
Lynn Galonski	14867
Lynn Keyes	10782
Lynn MacLean	44870
Lynn ness	10880
Lynn Sullivan	10823
Maggie Kazel	15355
Makensie Paulsen	14930
Mandy Senechal	43413
Marci Barfknecht	15690
Margaret Cullen	15362
Margaret Hedberg	52309
Margaret Holm	15699
Marian Lansky	10876
Marilyn Rundberg	10785
Marilyn Victor	15706
Mark Catron	15673
Mark Fangmeier	10837
mark olson	15391
Mark Peterson	15693

Sender Name	Submission ID
15 Mining Truth: Moose	
Marlene Miller	15572
Martha Henderson	52190
Martha Krikava	10907
Mary Ann Voigt	15397
Mary Blickenderfer	43627
mary jo straub	36451
Mary McLaud	10786
Mary Quain	44039
Mary Scheibel	14914
Mary Vrabel	14960
Mary Witt	15716
matt muyres	10850
Matthew Johnston	10819
maureen forbrook	45285
maxine slaughter	14982
Meeche Miller	10784
Meghan Cosgrove	15457
Melanie McPherson	21240
Melissa Griffith	15342
Michael Brooks	14893
Michael Lieberman	11376
Michele Trautlein	46993
Michelle Millenacker	17351
Michelle Valadez	10863
Mike And Jane Conrad	15474
Mildred Holmes	14964
molly hoof	15540
Molly Stern	44652
Monica Iammatteo	44048
Naisan Madson	47677
Nancy Andersen	15366
Nancy McCleary	15010
Natalene Cummings	11389
natalie carlson	11390
nathan anderson	10893
Neil Nelson	15527
Nicholas Woods	15309
Nicole Johnson	10877
Nina Ishigaya	15521

Sender Name	Submission ID
15 Mining Truth: Moose	
Nishiime Peltier	15609
ordell vee	15497
P Netzel	10797
Pamela Bentzien	15689
Pamela Brock	15462
pamela googe	14897
Pat Halter	44027
Pat Stevesand	15516
Patricia Arnett	15235
Patricia Castellano	15724
Patricia Hagen	15477
Patricia Pool	15296
Patricia Sobczak	14884
Paul Nelson	43542
Paul Sayen	15256
Paula Fischer	15679
Paula Kjos	43273
Peggy Porter	15514
Penelope Jordan	15468
Racheike Racheike	47739
randall streier	15260
Ray Becker	43195
Rebecca Minehart	14924
Renee Begnoche	44740
Renee Ethier	47727
Rhonda Smith	10857
richard beckman	45017
Richard Buchholz	10925
Rick Dahn	10820
Rita Caruso Santamaria	43862
Robert Dorn	37069
Robert Mcmanus	43643
Robert Wohlberg	15721
Robin Moir	14860
Rodd Ringquist	15261
Rome Hutchings	10922
Ron Sternal	45901
Rory Cardinal	10858
Rosemary Johnston	10871

Sender Name	Submission ID
15 Mining Truth: Moose	
Russell Lake	15970
Ruta Skujins	15725
Ruth Brooker	15525
Ruth Johnson	44980
Ruth Kivela	45028
Ruth Slivken	15587
ruth slivken	43757
Ruth Thomas	15677
Ryan Anderson	46429
Ryan Mattke	43436
Sally Sundeen	11385
Sam Kitterman	44036
Samantha Demulling	15623
Sara Cooper	52327
sarah endsley	36499
Sarah Engstrom	40540
Sarah Nurnberger	15297
Scott Coryell	10798
Scott Knutson	15526
Scott Milburn	45746
Serena Lynch	46889
Serena Lynch	46897
shannon lanning	43877
Sharel Waugh	10768
Sharon Lane-Getaz	10844
sharon ruetschi	14871
Shelly Johnson	15330
Sheri Knutson	45131
Sherri Mann	15232
Sherry Deraas	15394
Sherry Wendelin	10834
Sheryl Gilbertson	14858
Sonja Tilbury	10805
Stacy Arland	10909
starr notarus	15313
Stephanie Sharp	10929
Stephen Erickson	43427
Stephen Janasie	44658
Steve Clasen	15606

Sender Name		Submission ID
15 Mining Truth: Moose		
Steve Koschak		45554
Steve Penn		14934
Steven Chesney		47474
Steven Yund		45573
Sudeshna Ghosh		40924
Sue Eastling		44750
sue harrington		19805
Sundae Morse		15411
Susan Carroll		15385
Susan Lynn		16851
Susan Vann		43409
Susan Wiste		15702
Susanne Engstrom		10770
suzanne chesney		14929
Tad Dunham		43526
Tara Schuneman		47673
Tayci Gustafson		44429
Ted Conover		15485
Teresa Wang		44935
Terri Buttleman		15506
Terry Richmond		10776
theresa two bear pederson		14870
Thomas Borling		46243
thomas cobb		10812
Thomas G. and Patty Murn, Jr.		20840
Tim Nelson		15475
Timothy Chapp		14911
Tina Blankenheim		45377
Tjaard Breeuwer		44784
Todd Truby		11370
Tom and Sandy Ahlstrom		15555
Tracie Hodgdon		44889
Tracy Wright		14993
Tricia Smith		15520
Val Schroeder		45575
Valerie Rogosheske		10849
Vickie Devenport		27974
Victoria Cox		15615
Victoria Thor		15667

Sender Name	Submission ID
15 Mining Truth: Moose	
Virginia Keith	14983
Virginia Knapp	14916
Wally Barn	11382
Wanda Ballentine	36620
Wendy Olson	15473
Wendy Olson	15676
Wendy Reid	10838
Winston Kaehler	15401
Yalonda Fossen	10783
zac mitteness	15529

Sender Name		Submission ID
16 Mining Truth: Wetlands		
Form Letter 16: Mining Truth: Wetlands The PolyMet NorthMet SDEIS inadequately characterizes the wetlands loss and proposes inadequate mitigation measures. The PolyMet mine site is located in the middle of one of the most valuable wetlands in northern Minnesota, the 100 Mile Swamp. This wetland complex was deemed an Area of High Biodiversity Significance by the Minnesota Biological Survey, and the US EPA has stated that it is likely an Aquatic Resource of National Importance due to its high biodiversity. PolyMet proposes the largest permitted destruction of wetlands in Minnesota history. Wetlands replacement plans in the SDEIS are inadequate for replacing the biological function lost from these wetlands, and the SDEIS fails to adequately account for indirect wetlands impacts. The SDEIS lacks support for its assertion that 70% of the coniferous bogs on the site would be unaffected by groundwater drawdowns. 1) Revise the SDEIS to specifically outline measures that will be taken to reduce indirect wetland impacts and compensatory mitigation, as opposed to deferring such contingency planning to permitting 2) Revise the SDEIS to provide a range of estimates of indirect wetlands impacts and plans for mitigation based on these estimates, instead of waiting to see what the indirect wetlands impact will be 3) Revise the SDEIS to remove assertions that coniferous bogs would be unaffected by groundwater disturbances, as this is unsupported by scientific literature and field data 4) Revise the SDEIS to outline what types and amounts of financial assurance for wetland replacement would be required if indirect wetland impacts exceed the predicted area and extent of damage. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely,		
Aja Maleck		46328
Alberta Adams		43931
Alex Paulson		21378
Alison Brueggemann		21254
Alyssa Ludwig		20982
Amy Escobar		16027
Amy Farland		21348
Amy Schrempp		43523
Amy Wold		21157
Ana Silva		52272
Andrea Johnson		43792
Andrew Whiteman		20085
anna wagner		15649
Anne Pearce		38257
Annette Price		10846
Barb Dunsmore		43672
Barbara Haberman		20865
Barbara Miller		16030
Barry Feld		40574
Ben Bartlein		21400
BeVan Presley		16071
blanche wilcox		20217
Bonnie Forsman		21412
Bonnie Hiniker		21281
Bonnie Jean MacKay		16341
Brandon Hanko		45297
Brian Harrington		43272
C Peterson		10827
Carl Haensel		21075

Sender Name	Submission ID
16 Mining Truth: Wetlands	
Carol Nulsen	21686
Carol Weber	21120
Cathy Larson	21179
Chanda Welch	44800
Chantal Buslot	38146
Charles Frach	10845
Chelsea Inskeep	20139
Cheryl Wilke	43307
Christina Klein	44167
Christine Frank	43897
christopher malcolm	43192
Christopher nies	21047
Clarence Roed	43773
Cole Nicholls	47633
courtney butcher	43944
Crispin Whittell	16038
Crystal LePier	39451
Dan Schultz	20773
Dan Turpening	21219
David Benrud	16320
David Cofer	21320
David Peterson	16505
david stuber	43550
David Wilson	20834
David Wohlfeil	20806
Dean Flugstad	20816
Debra Wilde	16506
Deniz A-McCoy	20802
Donald Oberdorfe r	43396
Drew Durley-Steinquist	21403
Duane Bandel	16219
Edward McKlveen	45584
Elinor Auge	21422
Elisabeth Bechmann	38382
Elizabeth Broughton	20884
Elizabeth Dahlheimer	17599
Elizabeth Karre	16079
Elizabeth Mccambridge	14597
Elizabeth Reid	20791

Sender Name	Submission ID
16 Mining Truth: Wetlands	
Elizabeth Wroblewski	43915
Ellen Hinchcliffe	16022
Emilie Hitch	45078
Erica Staab	16301
Erik Roth	43899
Erynn Jenzen	40247
Eunice Hafemeister	21302
Evan Freeman	17237
Everett Ward	46908
Fred Bretschger	20794
Fred Vanderbeek	21489
Gai Skramstad	47606
Gail Frethem	47647
Gail Jacobson	21286
Gary Kluender	21455
Genya Welch	11398
Geoffrey Conklin	16028
glenn swart	20778
Greg Overlid	46553
Gretchen Griffin	43746
Gretchen Winget	21511
Gudrun Lock	20889
H frison	52270
H. Haynes	46896
Heidi Lynn Ahlstrand	14904
J & M Pults	15599
Jackie Midthun	16310
Jacqueline Hadfield	21526
James F Green	21444
James Koschak	44133
James Nelson	21124
Jami Halder	20232
Jane Krentz	20078
Janet Glidden	45738
Janet Neihart	47686
Jason Yale	46452
Jeanne Piehl	20767
Jennifer Bellas	43777
Jennifer Hengelfelt	38186

Sender Name	Submission ID
16 Mining Truth: Wetlands	
Jennifer Schally	20204
Jenny McDermott	20225
Jesse Dermody	47766
Jessica Horman	15761
Jessica Ostrov	20781
Jessie Schmidt	44355
Jill Marckel	16021
Jo ciatti	15522
Joan C Samuelson	20106
Joan Weyandt	43676
Joannes (Jan) A. Janssens	36670
Jodi Pflepsen	20851
Jody Flynn	20104
Joel Baird	21192
John & Carol Eding	21238
John Finazzo	21027
John Flaten	45018
John Gaffney	15493
John Haag	46112
John Kurth	16348
John Lackey	20745
John Myott	16326
john praske	21413
Jon Troe	10928
Jonathan Gottlieb	10912
Jonathan Miller	15808
Joseph Johnson	21126
Josey Warren	21333
Joy Danielson	20822
Joyce Johnson	15777
judith kramerich	20888
Judy Lane	14965
Judy Peterson	21519
Julia Albers	45983
julianne restani	20772
K.M. Greenwood	52188
Kaj Thompson	39653
karen callahan	21187
Karen Cleveland	52242

Sender Name	Submission ID
16 Mining Truth: Wetlands	
Karen George	15798
Karen Goulet	16501
Karen savage-blue	21463
Karima Bushnell	16019
Karin Winegar	20869
Karuna Ojanen	20765
Kate Stumpf	52221
Katharine Chute	38403
Kathleen Jones	16247
Kathy Lawrow	43885
Katy Goodwin	45514
Ken Turner	20249
Kerry McCabe	20935
Kevin Hiniker	44247
Kevin Oak	16025
kimberly krause	20821
Kris Palazzari	20003
Krista Hanon	47320
laura melotti	37890
Laurie Jacobson	16359
LaVone Schnabel	20118
Lawrence Krantz	20036
Leah Axelson	43876
Linda Glaser	10921
Linda Martinez	46718
Linnea Pearson	52300
lisa herthel	20750
Lisa Wersal	15627
Liv VisGirda	16196
Liz Wanschura	43881
Loretta Peterson	21343
Lynn Keyes	20091
Lynn Sullivan	16029
Mandy Nordberg	44731
Mandy Senechal	43440
Manuel Peña	15790
margaret blakley	21194
marian rootes	20852
Mark Fangmeier	21386

Sender Name	Submission ID
16 Mining Truth: Wetlands	
Mark Kleczewski	22180
Mary Ann Dailey	20922
Mary Blickenderfer	43632
Mary Hagen	20211
Mary Helen Stephens	39050
Mary Jo Van Dell	45571
mary kelleher	21479
Mary Quain	21267
Matt McFalls	20755
Meghann Charboneau	47007
Melissa Freer	21443
meredith wodrich	21123
Michael Bunker	16368
Michael Dysart	16026
Michael Lieberman	11380
Michael Skomsoyvog	21399
Michele Kunz	20753
Michele Trautlein	16510
Michelle Foard	15774
Michelle Hutchins	20793
Mike Desch	21420
Missy Render	16123
Molly Martin	21389
Nancy Ellsworth	15772
Nancy McCleary	15007
Nancy Orfield	16162
nancy palmer	20857
Nancy Walsh	20143
Natasha Lawson	41160
nathan anderson	16329
Ned Bouril	40769
nora wildgen-white	16209
Norma Witter	20856
Norman Page	10881
Otto Gockman	45566
Pamela French	16054
Pamela Guthrie	21523
Pamela Neumann	16051
Parisa Nadimi	21452

Sender Name	Submission ID
16 Mining Truth: Wetlands	
Pat Dahlman	21046
Patrick Wolfgang	52266
Patti Indre	16013
Paul Nelson	21223
Paula Berndt	16167
Paula Fischer	20876
Paulette Tanem	20830
Peggy Sannerud	20855
Raimi Hooper	19998
randall streier	15248
RAY EARLEY	20250
Rebecca Domagala	16090
Rebecca Gislason	20746
Rebecca Wiinanen	16140
Rhonda Smith	21426
Rick Dahn	16499
Rick Monteith	16091
Rita Caruso Santamaria	43878
Robert Mcmanus	43621
Robert Puls	21153
robert Rossi	44432
Robert Sothern	43747
Robyn Beth Priestley	21461
Ron Sternal	45838
Rory Cardinal	10865
Ruth Slivken	16049
Ryan Anderson	46449
Sam Anderson-McCoy	20798
Samuel Ruff	52201
Sandi Krueger	16373
Sandra Reuther	21189
Sara Cooper	52325
Sarah Engstrom	40533
Sarah McLaughlin	20777
Scott Coryell	10795
Selamawit Gebremariam	43555
Serena Lynch	46703
Serena Lynch	46708
shannon lanning	43913

Sender Name	Submission ID
16 Mining Truth: Wetlands	
sharon collins	20136
Stacy Wahl	21405
Stan Manusky	52230
Stefanie Klein	19881
Stephanie Hanson	46719
Stephanie Shea	21384
Stephanie Torbert	44017
Steve Anderson	20918
Steve Cook	44350
Steve Koschak	45512
Steve Prchal	21248
Steven Chesney	16061
Steven Geske	21467
sue harrington	20176
Sundae Morse	20763
Susan Boorsma	20915
Susan Bornstein	21401
Susan Lynn	16853
Susan Rengstorf	21261
Susan Sattel	21436
Tamar Lindsay	20954
Tayci Gustafson	44420
Terri Johnson	20749
Terri Uravich	15766
Terry Richmond	21074
tess Davis	19838
Theresa Basting	47755
Thomas G. and Patty Murn, Jr.	20841
Tim Donovan	21195
Tim Olish	43770
Tina Blankenheim	45371
Tom Glaser	15972
Troy Jatkola	52279
Vivian Rider	15988
walter hodgeman	21460
Wanda Ballentine	36622
Wendy Rappaport	21440
Yenisbel Vilorio	43191
Zoe Thouin Rochester	21410

Sender Name		Submission ID
17 Mining Truth: Wild Rice		
Form Letter 17: Mining Truth: Wild Rice Wild Rice is Minnesota's state grain, and crucial for its cultural significance and importance for subsistence of Minnesota's Native Americans. Manoomin (wild rice) is recognized as a significant resource for Minnesota's tribes, access to which is protected by the Treaty of 1854- Even low levels of sulfates are proven to affect wild rice stands, a fact recognized by Minnesota's protective wild rice sulfate standaRd The PolyMet mine plan identifies wild rice beds downstream of the mine and plant, including part of the Embarrass and Partridge Rivers and Wynne Lake. Since sulfate levels in wild rice beds downstream of the proposed mine already exceed the standard, the proposal must demonstrate it andquot;would have an acceptably high probability of not increasing sulfate concentrations in these areasandquot; (p. 5-5). The mine plan does not meet this teSt PolyMet claims they will meet this standard by using water treatment (including reverse osmosis) to eliminate sulfates before wastewater is released. However, the mine plan predicts that 5-2 million gallons per year will seep out without treatment at the Mine Site after closure, and 11 million gallons of untreated water per year will escape the Tailings Basin (5-8). This seepage will surface and enter streams and rivers nearby. The standard to protect wild rice is 10 milligrams grams per liter of water. The waste rock left behind at the Mine Site will create runoff with sulfate levels of 2,000 to 4,000 micrograms per liter after closure, 5 million gallons of which will escape untreated every year. In fact, the SDEIS predicts that many years after closure this could violate the sulfate standard to protect wild rice, requiring additional measures (5-142). The SDEIS is contradictory, on the one hand relying on mechanical water treatment for hundreds of years in order to seemingly meet the sulfate standard, but also describing possible passive treatments that may be developed that would seasonally violate the protective sulfate standards. The EIS should eliminate that contradiction. Lastly, the SDEIS inadequately characterizes wild rice waters downstream of the PolyMet sites. The Great Lakes Indian Fish and Wildlife Council has provided additional wild rice sites other than those included in the SDEIS. The EIS should be revised to include these additional wild rice waters. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely,		
Abong Bulga		14968
Ah-li Monahan		11395
Aja Maleck		46333
Alan WOLFF		47939
Alexi Bryant		15557
Amy Farland		20835
Amy Freeman		15209
Andrea McCready		15410
anna wagner		15642
Anne Karakatsoulis		15694
Annette Price		11439
Ashley Briscoe		14662
B L Eggers		15369
Babette Steers		15244
Bailey Peterson		15496
Barbara Allen		15574
Barbara Buehl		15639
Barry Feld		40578
Ben Isbell		15344
Betty Freese		15553
Bonnie Boje		15454
Bonny & Gary Siegford		17349
Brenda Moon		15367
Brennen Stenke		14899
brent hoffman		43389
Brian Harrington		43275

Sender Name	Submission ID
17 Mining Truth: Wild Rice	
Brian Murn	19996
Brie Kidd	15682
Brody Hagemeier	15441
Bryan Williams	15438
Bryce Sampson	11377
C Peterson	11436
Candyce Fitzloff-Westfield	15571
Carol Nulsen	37491
Carol Ohana	15466
Carolyn Panning	15433
Cat Holm	46946
Chanda Welch	44727
Charles Ritt	15238
Charlotte Ogdahl	45774
Cheryl Wilke	43299
Christa Hunter	14951
Christina Klein	44153
Christine Frank	43932
christopher malcolm	43155
Christopher Mashuda	15338
Chuck Hoffman	14848
Claire Goebel	15343
Clifton Gray	39969
coreen hagon	15576
Crista Schmidtknecht	15561
Crystal Cavalier	15513
Cyrus McCandless	15267
Dakota Hoska	15291
Dale Hadler	15279
Dale Johnson	15360
Dale Johnston	11443
Dana Phenix	15408
Daniel Anderson	15614
Darlene Baughman	15590
Darrell Partridge	11422
David Olson	15424
David Warfield	15626
David Wohlfeil	11374
Dawn Goodwin	11393

Sender Name	Submission ID
17 Mining Truth: Wild Rice	
dawn nielson	15329
Deborah McLaren	15316
Debra Lundstrom	15537
Debra Matheny	14986
Deidra Nutt	15243
Denise Caley	15710
Deniz A-McCoy	15720
Diane Wetternach	15510
Diane Wiley	15652
Donna Dralle	15704
Eileen Levin	15505
Eleanor Burkett	17544
Elisabeth Bechmann	47768
Elizabeth Bartlett	43392
Elizabeth Buchanan	15449
Elizabeth Lambert	15714
Elizabeth Mccambridge	14603
Ellen Hinchcliffe	15687
Ellie Slette	15421
Emilie Hitch	45076
Erynn Jenzen	40239
Ethan Schmidt	52306
Eugene Richardson	15286
faun Bonewits	15334
Ferolyn Angell	15445
Fred Hefty	15603
G Guyton	37097
Gail Jacobson	11364
Ge Lee	14936
Gene Champagne	45587
Genya Welch	11409
Georganne Krause	15447
Ginger Sanders	15559
Grant Kahl	15469
Greg Overlid	46564
H. Haynes	15577
Heidi Hahn	15545
Helen Fischer	15632
Herbert Davis	15672

Sender Name	Submission ID
17 Mining Truth: Wild Rice	
HEYWARD NASH	52202
J & M Pults	15598
Jackie Midthun	16311
James Koschak	44163
Jane Burnett	15538
Janet Neihart	47672
Jeanine Czech	15489
Jeanne Collins	11414
Jeff Durfee	15584
Jennifer Hengelfelt	38189
Jennifer Misquadace	15407
Jessica Bleichner	15530
Jessica Carlson	15300
Jessie Schmidt	44346
Jill Boldenow	15331
Jill Hansen	15533
Jo ciatti	15519
Jo Friedman	15284
Joan Peterson	11405
Joanne Anderson	11417
Jodi Broadwell	14987
Jody Keelin	15531
John Gaffney	15495
John Heneghan	15684
Jon De Ment	15591
Jonathan Lindstrom	14971
Jone M See	15416
Josh Braun	15539
Joshua Capps	15668
Joshua Mckeever	15518
Joy Danielson	15586
Joyce Anderson	15389
Joyce Johnson	15630
Judy Bjorke	11416
Judy Lane	15436
Juli Swanson	15312
Julius Salinas	36661
Kami Hall	15266
karen callahan	11423

Sender Name	Submission ID
17 Mining Truth: Wild Rice	
Karen Cleveland	52271
Karen Schmidt-Dill	14919
Kari Dyrdahl	15554
Kathryn Schroeder	11379
Kathy Murn	36834
katie young	15396
Kelly Casey	15440
Kelly Regnier	15358
Ken Hale	11413
Kendolynn Smith	15579
Kevin Hiniker	44264
Kevin Miller	15420
Kim Ferkinhoff	36802
Kim Hogenson	15611
Kimberly Krause	11418
Kimberly Odden	15562
Kris Palazzari	20011
Kristen Bothun	44506
Kristen Wernecke	15422
KRISTIN PETER	11415
kurt nelson	15398
Kyle Surrell	15588
L. Ashe	19886
Larry Furo	15585
Larry Jepsen	15258
Lauren Johnson	15532
Leah Axelson	44021
Leah Droubie	15386
Lenna Stever	21860
Leslie Jones	15409
Lillian Palkovich	15319
Lina Langeslay	15558
Linda Martinez	46709
Linda Schuyler	15593
Lisa Lund	14865
Loretta Peterson	15563
Majel Carroll	15484
Mandy Senechal	43397
Maren Schroeder	11371

Sender Name	Submission ID
17 Mining Truth: Wild Rice	
Margaret Hedberg	15665
Marian Lansky	15226
Marie Przynski	15292
mark blom	15359
Mark Fangmeier	15293
Martha Kane	15347
Mary Blickenderfer	43669
Mary Gagnon	11419
Mary Heath	11454
Mary Mcfetridge	14994
Mary Neaton	15298
Mary Scheibel	15618
Matthew Johnston	15551
maureen benson	15245
Maureen Brown	15287
Meghan Cosgrove	15460
Meghann Charboneau	47002
Melissa Bayne	15566
Melissa Koch	15295
Melissa Sams	43666
Michael Chutich	11399
Michael Walsh	43549
Michael Wethington	15523
Michaela Beyer	15669
Michele Flaherty	11426
Mike Moore	15443
molly hoof	15695
Mona Smith	15646
Monique Orieux	15483
nancy ellingson	15511
Nancy Honeychuck	14981
Nancy Randleman	15573
Nancy Swanberg	15425
Ned Bouril	43646
Nishiime Peltier	15307
Norm Schiffman	14977
pamela googe	15528
Patricia Loverink	15601
Patricia Shepard	15322

Sender Name	Submission ID
17 Mining Truth: Wild Rice	
patrick Murn	36453
Patrick Nelson	44265
Paula Dostert	15628
Pauline Wahlquist	15651
Peggy Sannerud	15678
Raymond Becker	11384
Rena Nordlund	41716
Renee Ethier	47757
Rita Caruso Santamaria	43942
Robert Bee	11368
robert thompson	11421
Robin Raplinger	15326
Rory Cardinal	11442
Ruth Yeomans	15317
Ry Marcattilio-McCracken	19903
Ryan Anderson	46432
sandra iverson	15400
Sara Cooper	52319
sara randall	15620
sarah endsley	36500
Sarah Engstrom	40536
Sarah Murn	19934
Scot Mahan-Miller	15478
Scott Coryell	11428
Serena Lynch	46893
Serena Lynch	46902
Shahzore Shah	14991
Shannon Doll	15357
Sharon Johnson	15544
sharon ruetschi	15234
Spencer Brant	11412
steve clarke	15305
Steve Koschak	45484
Steven Chesney	47475
Stuart and Mary Ellen Knappmiller	46115
sue harrington	19808
Sundae Morse	14997
Susan Lynn	16846
susan slater	15376

Sender Name	Submission ID
17 Mining Truth: Wild Rice	
Susan Vann	43442
Suzanne Kruger	43147
tamara Wilder	15388
Tara Schuneman	47684
Tayci Gustafson	44434
Teresa Stricker-Pester	15392
Terry Richmond	15546
Theo Eggermont	38066
Thomas Desautel	15354
Thomas G. and Patty Murn, Jr.	20188
Tim Olish	43762
Timothy Melby	15722
todd hoopman	15446
Tom Schooley	39450
Vickie Graser	11383
Victoria Davis	36528
Victoria Lynn Turke	14938
Victoria McMillen	15428
Wanda Ballentine	36626
Yvonne Schram	15499
zachary ryan	15399

Sender Name		Submission ID
18 Mining Truth: Mercury		
Form Letter 18: Mining Truth: Mercury Ten percent of Minnesota newborns in the Lake Superior basin already have unsafe levels of mercury in their blood at birth. Mercury is a potent neurotoxin with no safe dose, and the accumulation of mercury in fish that people eat means that mercury is a significant public health issue. The PolyMet NorthMet SDEIS describes a project that would add to the airborne and waterborne mercury load, has inadequate science to back its claim that the mercury emitted will be adsorbed by soil and tailings, and inadequate study to support its conclusion that no additional mercury methylation will occur. Please take the following actions: 1) Revise the SDEIS to provide more evidence to support the claim that the LTVSMC tailings will act as a mercury sink contained in wastewater from the plant site. Particularly, address concerns raised by the tribal cooperating agencies that the LTVSMC tailings may become saturated and may even become a mercury source, rather than a mercury sink. 2) Revise the SDEIS to include estimates of the amount of indirect airborne mercury emissions from the electrical power used by the NorthMet project 3) Revise the SDEIS to include discussion of the mercury methylation potential from additional sulfate loading and mercury released from stripped peat at the Mine Site. 4) Revise the SDEIS to include quantitative modeling of the effects of the proposed action on mercury in fish in addition to the qualitative discussion in the current draft. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely,		
Abby Tofte		21823
Adam K. Wilke		21129
Aja Maleck		46335
Alan WOLFF		48080
Amy Akers Passolt		42309
Amy Farland		19943
Andrea Monson		36400
Andrew Biernat		21416
Ann Crothers		16852
ann loscheider		16014
Ann Marie Fritz		36987
anna wagner		15653
Babette Steers		16393
Barb Bauer		16133
Barbara Buehl		38353
Bethany Ebert		23171
bill sankey		21441
Brian Doll		21156
Brian Harrington		43270
Brian Henning		46942
Bridget Rau		17005
Brody Hagemeier		21366
Camilla Krone		19883
Carl Helke		21466
Carol Joly		16808
Carol Koos		19927
cassandra Peterson		16927
Cathie Fredrickson		22085
Cathy Harrison		21684
Chanda Welch		44743

Sender Name	Submission ID
18 Mining Truth: Mercury	
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Chari Eckmann	38253
Cheryl Brooks	22495
Christina Klein	44141
Christine Frank	43630
christopher malcolm	43186
Clair mcguigan	16500
Cyndi Cunningham	16333
David Bradley	43159
David Shannon	16372
David Zimney	43783
Donna Butler	47641
Douglas Brown	43782
Duane Pherson	16520
Dustin Rosemark	21369
E. Toft	38393
Elena Anderson	45552
Elizabeth Bartlett	43872
Elizabeth Dahlheimer	17600
Elizabeth Mccambridge	38140
Emilie Hitch	45073
Emily Bredon	21372
Erynn Jenzen	38307
Fred Keller	44664
G Guyton	37099
Greg Overlid	46545
J & M Pults	15605
Jackie Midthun	16307
James Koschak	44157
james Thompson	43153
Jane Kreis	47315
Janet Neihart	47690
Jean Eide	44037
Jennifer Carlson	38363
Jennifer Shriver	21318
Jess Koski	38404
Jim Dropps	16290
Joanna Kozanecka	16593
Joanne Katz	47713

Sender Name	Submission ID
18 Mining Truth: Mercury	
Joel Headley	44329
John Flaten	45029
John Gaffney	15488
John Kurth	14809
John Muellerleile	36361
John Ottis	41220
Jonathan Barclay	46943
Joy Danielson	16086
Julia Lee	20218
Julie Holmen	52232
Karen Cleveland	52256
Kari McCauley	22784
Kat Glessing	21825
Kate Stumpf	52222
Kathleen Iverson	43640
Kathleen Kauppi	22893
Katrin Bachmeier	38468
Ken Davis	36673
Kevin Hiniker	44250
Kiley Brown	47227
Kim Pilon	43748
Kris Palazzari	20008
Kristin Frish	38561
Laura Cuccia-Nilsen	37125
Lauren Huiting	16043
Laverne Dunsmore	43763
Leah Axelson	43935
Leanne Stauduhar	16072
Lee Mensinger	36346
Linda Brooks	52206
Linda Spyhalski	23243
lisa bergerud	46945
Lisa Lund	14862
Lisa Smith	16547
Lisa Wersal	15635
Liz Wanschura	43887
Lucy Aasland	38181
Lynell Hage	43945
Lynn Sullivan	19885

Sender Name	Submission ID
18 Mining Truth: Mercury	
Mandy Senechal	43428
margaret blakley	20131
Margaret Fink	44034
MARGARET LINDNER	14827
Mark Fangmeier	16554
Mark Smith	21419
Mary Blickenderfer	43633
Mary McCoy-Johnson	20146
Mary Scheibel	16195
Michelle Gin	44573
Michelle Gobely	46037
Mike And Jane Conrad	16346
MJ Deters	38110
Molly Stich	20222
Nancy McCleary	15004
Nancy Michael	16053
nathan anderson	16930
Nathan Peters	22707
Patricia Barone	43745
Patricia Castellano	16046
Paul Nelson	41117
Pauline Wahlquist	16875
Peter Johnson	44805
randall streier	15246
Renee Ethier	47728
Rick Dahn	16968
Rita Caruso Santamaria	43911
Robert Clark	38185
Robert Long	21628
Robert Mcmanus	43642
Ryan Anderson	46439
Ryan Laing	44996
Samuel Ruff	52199
Sandra Sailer	38092
Sara Huber	38562
sarah maann	43873
Scott Milburn	45735
Serena Lynch	46707
Serena Lynch	46711

Sender Name	Submission ID
18 Mining Truth: Mercury	
Shannon Doll	21415
SHANNON Emil	16537
Sharon Johnson	38249
Sharon Toscano	36372
Shirley Johnson	38362
solfrid ladstein	19785
stacey ringness	16382
Steve Cook	44332
Steve Koschak	45509
Steven Chesney	16367
Susan Frame	47718
Susan Lynn	16827
Susan Matias	22702
Susan Vann	43435
Tanya Pederson	16151
Tayci Gustafson	44436
tegwin moye	46944
Theresa Basting	21387
thomas cobb	16774
Thomas G. and Patty Murn, Jr.	20842
thomas rowlette	21215
Tim Olish	43771
Timothy Lamb	20219
Tina Miranda	16188
Vickie Cyr	22897
Victoria Cox	25080
Wanda Ballentine	36623
Wendy Rappaport	21236

Sender Name		Submission ID
19 Mining Truth: Financial Assurance		
Form Letter 19: Mining Truth: Financial Assurance The financial assurance section of the SDEIS is inadequate and needs to be changed to reflect details about how much money would be required to pay for cleanup and in what form it would be held. In 2010, the US Environmental Protection Agency called PolyMet's first draft Environmental Impact Statement andquot;inadequate.andquot; One significant reason was that the 2010 DEIS did not show that financial assurance would be enough to cover the cost of long-term water treatment at the site. Andquot;EPA believes that the adequacy of financial assurance for these activities could make the difference between a project adequately managed over the long-term by the site operator, or an unfunded or underfunded contaminated site that becomes a liability for the federal government and the public andquot; As your revise the SDEIS, please take the following actions: 1) Provide details of the calculations used to arrive at the estimated closure and long-term treatment costs in the current draft 2) Provide details of the forms that would be used to ensure that financial assurance is both bankruptcy-proof and would provide adequate income for hundreds of years of water treatment 3) Identify other responsible parties (eg major investors like Glencore) that will be held responsible for long-term cleanup should PolyMet go bankrupt or be unable to meet their obligations 4) Account for reasonably foreseeable challenges that might increase the costs of cleanup and long-term site maintenance, and factor that into the calculation for the what would constitute adequate treatment. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely,		
Adam K. Wilke		21130
Al Holter		43917
Amanda Senechal		43522
ann loscheider		16012
Bruce Clark		46716
C Peterson		10830
Carol Koos		47471
Carol Nulsen		21677
Chanda Welch		44745
Christina Klein		44165
Christine Beckwith		16388
christopher malcolm		43183
Coreen hagon		21518
Cynthia Peterson		21510
Dave Ethier		43282
David Bradley		43166
David Martinson		14989
David Sandbeck		10890
David Shea		14784
Debra Eul		14820
Debra Matheny		14854
Elizabeth Dahlheimer		17602
Emilie Hitch		45069
Gail Loverud		45582
Genya Welch		11407
Greg Olson		14851
Greg Overlid		46559
Herbert Davis		15233
J & M Pults		15602

Sender Name	Submission ID
19 Mining Truth: Financial Assurance	
Jackie Midthun	16315
Jacqueline Fairbanks	21506
James Koschak	44138
Janet Neihart	47666
Jared Yount	14856
Jeff Greensmith	15274
Jeff Zlonis	47772
Jennifer Hengelfelt	38175
Jessica Roeder	15236
Joel Headley	44354
John Flaten	45032
John Gaffney	15498
John Kurth	14807
John Kurth	14834
John Shepard	46994
Julie Meyers	15378
Julie Setrum	43269
Karen Cleveland	52264
Katherine Sill	14921
Kathy Magne	43536
Katy Goodwin	45583
kay westlie	15560
Kevin Hiniker	44240
Kevin Kathmann	10852
Kris Palazzari	20014
Krista Pope	14527
kurt hanula	15613
Leah Axelson	44023
Lenna Stever	21861
Lisa Lund	44788
Liz Deering	39047
Liz Wanschura	43874
Loretta Peterson	14980
Marge Peterson	14907
Mark Fangmeier	44721
Mary Blickenderfer	43638
Mary Kaeter	22689
Mary Larson	14853
Meghann Charboneau	47011

Sender Name	Submission ID
19 Mining Truth: Financial Assurance	
Michael Willemsen	15262
Nancy McCleary	15006
Pauline Wahlquist	15247
Peter Canfield	14823
Peter Johnson	44811
Rae Busch	14824
randall streier	15253
Renee Ethier	47756
Retha Dooley	14920
Rick Dahn	15005
Rita Caruso Santamaria	43895
Robert Beaudoin	17359
Robert McKlveen	46544
Robert Mcmanus	43637
Rome Hutchings	10923
Ron Sternal	45844
Rory Cardinal	10866
Rose Ramsey	10833
Rosemary Johnston	10870
Ryan Anderson	46438
Sam Larsen-Ferree	10930
Sara Cooper	52320
sarah endsley	36501
Scott Coryell	10794
Serena Lynch	46894
Serena Lynch	46905
Stephanie Torbert	44035
Steve Koschak	45516
sue harrington	19806
Susan Frame	47761
Susan Lynn	16849
Susan Vann	43433
Tamara Baker	15268
Tara Schuneman	47653
Tayci Gustafson	44439
Terry Richmond	14943
Theresa Basting	47752
Tjaard Breeuwer	44804
Vi Kelson	14857

Sender Name		Submission ID
19 Mining Truth: Financial Assurance		
Wanda Ballentine		36625

Sender Name		Submission ID
20 Mining Truth: Inaccurate Data		
Form Letter 20: Mining Truth: Inaccurate Data The PolyMet NorthMet SDEIS relies on a water model (GoldSim) to make predictions about the amount of water pollution generated at the site and how quickly it will travel into surrounding groundwater and rivers. The GoldSim model significantly understates the base flow of groundwater due to inaccurate and inadequate data. A DNR Hydrology memo shows that the average flow of the Partridge River is 1-5 CFS, while the GoldSim model uses a 0-5 CFS average flow. That figure was based on one year of data from 1984, a year of significant drought in the area. The memo suggests that to be accurate, additional field data may be needed beyond what is in the SDEIS. If the model understates base flow, all of the conclusions in the model are called into question. Pollution will move further and faster off of the site, and the amount of water that would need to be treated will be higher. This could present technical challenges, increase the costs of water treatment after closure, and add to the amount of needed financial assurance to pay for long-term water treatment. Lastly, the water model does not account for seasonal variations in groundwater and surface water flows on the plant and mine site. The GoldSim model should be run with accurate seasonal data to reflect the movement of pollution from the site in both high and low flow conditions. Please take the following actions: 1) Redo the GoldSim water model using assumptions based on adequate and accurate field data 2) Gather field data to fix gaps in flow data for the Partridge River near Dunka Road, as suggested in the DNR memo written by Greg Kruse on December 17, 2013 3) Recalculate and rewrite sections of the SDEIS based on the GoldSim water model predictions, including water quality, water quantity, post-closure maintenance, and financial assurance 4) Redo the GoldSim water model to account for seasonal variations in base flow and soil conductivity. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely,		
A Dobs		16643
Aaron Ostman		16380
Alec Halverson		16589
alec hendrickson		40539
andrea strom		17427
Anne DesLauriers		21499
Anne Dunn		39971
anne selbitschka		40217
April Aegerter		16971
Arthur Haynes		16594
Barbara Brandt		40567
Barbara Patchen		39491
Becky Lozowy		38283
Bernadette Knaeble		39724
Beth Hannan		44738
bill sankey		17489
Breanna Swanberg		15776
Brian Bennett		21360
Brian Harrington		43283
Brian Hauth		17372
Brian Ogren		39847
Bridget Rau		17390
Brody Hagemeier		17400
Bruce Paakh		16322
Candyce Westfield		16736
Carl Helke		21339
Carl Nenadich		40352
Carol Orcutt		17341

Sender Name	Submission ID
20 Mining Truth: Inaccurate Data	
Carole Gernes	17767
CAROLINE LOGUE	12106
Carolyn Kluthe	40573
carrie graf	11947
Cary Anderson	11656
Catherine Wright	17645
Cathy Harrison	17658
Chanda Welch	44736
Charles Steffel	16522
Chelsea Rundquist	16735
Cheryl Larson	12373
Christina Roering	13542
Christine Frank	43780
Christopher de Alwis	40532
christopher malcolm	43193
Chuck Prudhomme	40570
Cindy Buschena	40609
clair mcguigan	17295
Colleen Falconi	11691
Colleen Lund	21273
Connie Grundhofer	11692
Cynthia Dickinson	11768
Dan Casebeer	17718
Dan Nyberg	17297
Dana Bergstrom	17446
Daniel Anderson	16387
Daniel Bruzzone	17358
Dave Butcher	12034
Dave Hinker	12835
David Hajicek	17873
David Higgins	16371
David Moffatt	40531
David Strand	11983
David Thompson	17593
David Warfield	11675
David Wohlfeil	17875
Debbra Treat	17052
Deborah Fiscus	16702
Deborah Hendrickson	16928

Sender Name		Submission ID
20 Mining Truth: Inaccurate Data		
Deborah Hill		40608
DEBRA Voeltz		40501
Debra Wilde		16383
Denise Gray		21442
Dorothy Downing		17252
Doug Bergert		17739
Doug Cameron		39966
Edward Emerson		47644
Eileen Cain		16967
Elizabeth Dahlheimer		17604
Elizabeth Piggush		44783
Elizabeth Pyper-Holz		16713
Elizabeth Wroblewski		43934
Emilie Hitch		45085
Emily Frisbie		16716
Eric Gulbransen		40604
Eric Larsson		21483
Eric Snyder		39685
Eric Willms		17874
Erik Larsen		40494
Erynn Jenzen		40248
fran coyan		40613
Fred Hefty		17626
Fred Vanderbeek		21494
Gai Skramstad		47605
Gail Loverud		45567
Georganne Krause		21465
Gina McKenzie		40606
GINNETTE STACY		20955
Greg Overlid		46560
Greta Larson		40072
Hope Mueller		43172
Jackie Midthun		16316
Jacqueline Weiss		11951
James Jordan		11737
James Koschak		44131
James McDonald		40582
James Wacek		17520
Janet Neihart		47688

Sender Name	Submission ID
20 Mining Truth: Inaccurate Data	
janice murray	11948
Jeanine Czech	17819
Jeffrey Nelson	12289
JEFFREY PALMER	40534
Jennifer Fuller	16484
Jennifer Hengelfelt	38192
Jennifer Manderfeld	15692
Joan MacDonell	16312
Joanne Wagner	11707
Jocelyn Sweet	14443
Jody Copp	17519
Jody Keelin	17425
joe thellin	17653
Joel Baird	11985
John Badger	44662
John Flaten	45030
John Gaffney	15480
John Kurth	14800
John Ottis	41246
John Riley	47299
Jon Frasz	16904
Jordanna Newman	45308
Joseph Robelia	40530
Joseph Wild	16509
Josepha Maly	11945
Joshua Knieff	17677
Joyce Bumgardner	23563
Joyce Eckes	40576
Joyce Hochsprung	16370
Joyce Johnson	17687
Judy Lane	12108
Karen Cleveland	52244
Karen Graham	39028
Karen Graham	39049
Karen Graham	39086
Karen Graham	47790
karen hannah	17472
Karen Kormann	17479
Kari Volkmann-Carlsen	12507

Sender Name		Submission ID
20 Mining Truth: Inaccurate Data		
Kate Stumpf		52216
Kathleen Dougherty		21199
Kay Drache		39322
Keith Blomstrom		16485
Kevin Hiniker		44227
Kiley Brown		47187
Kim Pilon		43761
Kris Palazzari		20009
kurt schweiger		40495
Larry Furo		11901
laura holmbeck		11986
Laureen Guyer		12273
Leah Axelson		44032
Lee Sievers		15711
Leif Leirfallom		40612
Lenna Stever		21865
Leo Cashman		40603
Les Dunsmore		43534
Linda Jacques		17465
Linda Radin		47250
Lisa Lund		44778
Lisa McDermott		15770
Lisa Schauer		12272
Lisa Smith		17387
Lisa Wersal		15634
lois morrissey		17499
Lora Child		17452
Majel Carroll		17426
Mandy Senechal		43439
Maralee Sisson		39654
Marg walker		47414
Margaret Naylor		17396
Margo Dickinson		45217
Maria Knops		40246
Marian Lansky		17382
Mark Fangmeier		44723
Mark Gernes		17760
Mark Peterson		16526
Marsha Conner		12042

Sender Name	Submission ID
20 Mining Truth: Inaccurate Data	
Martha Vest	17818
Mary Blickenderfer	43662
Mary Kirsling	17343
Mary Klake	17619
Mary Larson	11925
Mary Longfellow	17432
Mary McLeod	40240
Mary Scheibel	16523
Mary Zabel	21365
MarySue Mertens	17791
Matt Quinn	40607
Meeche Miller	11950
Melanie Mcmillion	44796
Melanie McPherson	21237
Melissa Macho	17521
Michael Bean	40611
Michael McPhee	12013
Michael Miles	21471
Michelle Schroeder	12204
Mike And Jane Conrad	17563
Nancy McCleary	15008
Nancy Schmidt	16574
Nathan Anderson	12131
Nathan Brytowski	16641
Neil Lansing	17637
Neil Nelson	12290
Nick Boyd	47435
Nikki Mardell	43145
Osha Karow	17008
Pam Leland	17485
Pamela Lyngen	15977
Pat Mingee	46001
Pat Stevesand	46998
Patricia Castellano	17350
patricia shepard	16534
Patrick Kvidera	40579
Paudeen Ostenson	39968
Paul Keiser	17526
pauline wolf	40249

Sender Name	Submission ID
20 Mining Truth: Inaccurate Data	
Peggy Sannerud	16130
Phillip Kelly	17326
rachel christensen	43305
Randall Carlson	40526
randall streier	15257
Renee Ethier	47721
Richard Edwards	17258
Richard Olson	17461
Rita Caruso Santamaria	43948
Robert Langhorst	12274
Robert Maegerlein	40529
Robert McKlveen	46556
Robert Mcmanus	43620
Robert Puls	16514
Roger Johnson	12158
Ron Miller	47479
Ruth Lindh	16807
Ryan Anderson	46450
Ryan Laing	16701
Sadie Paschke	16906
Sam DiVita	12159
Samuel Ruff	21294
Sarah Chase	16999
Sarah Endsley	17558
Scot Kindschi	21421
Scott Frank	40581
Serena Lynch	46899
Serena Lynch	46907
Shannon and David Wakefield	40577
Shannon Darsow	21411
Shannon Mangan	16552
Sharon Johnson	17430
sherry nolan	40528
Shirley Munz	11708
Stashenko Hempeck	40251
Stephanie Hagen	16553
stephanie sharp	39051
stephen hoglund	13654
stephen law	12014

Sender Name	Submission ID
20 Mining Truth: Inaccurate Data	
Stephen Schmidt	11924
Steve Cook	44325
Steve Koschak	45501
sue harrington	16714
Sue LeGros	46454
Sundae Morse	44574
Susan Frame	47770
Susan Lynn	17832
susan stone	43402
Susan Vann	43423
Susie Holovnia	17572
Suzanne Gappa	44065
Tayci Gustafson	44430
Terrill Katz	47732
Terry Hayes	44666
Terry Richmond	11682
Theodore Surdy	21469
Theresa Basting	16674
thomas cobb	12054
Thomas G. and Patty Murn, Jr.	20836
Thomas London	11753
Tim Brant	17536
Tim Wahl	39489
Tjaard Breeuwer	44793
todd gremmels	16595
tom reinke	17717
Tony Tschida	11754
Trever Moder	16907
trina waters	11736
Vi Kelson	11891
Victoria Lynn Turke	12078
Virginia Haggart	40353
Will Rhodes	17260
William Rosenfeld	45014
Yvonne Eikaas	12107

Sender Name		Submission ID
21 Mining Truth: Cleaner Energy		
Form Letter 21: Mining Truth: Cleaner Energy The PolyMet NorthMet SDEIS understates the impact of the proposal on greenhouse gas emissions and does not account for reasonable mitigation measures for the carbon emissions associated with the project. The PolyMet SDEIS argues that the direct and indirect increase in carbon dioxide emissions from the project would be to increase Minnesota CO2 emissions by less than 0-5%. However, the project would rely heavily on electricity from the most coal-heavy electrical utility in Minnesota, and should be evaluated against the backdrop of Minnesota's goals to reduce greenhouse gas emissions 15% from 2005 by 2015, and 30% from 2005 levels by 2025- Over the proposed life of the NorthMet mine, its proportion of Minnesota's greenhouse gas emissions will increase, unless there are additional mitigation measures added to the mine plan. Please take the following actions: 1) Revise the SDEIS to specify the plant sources of electrical power drawn on by the PolyMet NorthMet project and the proportion of coal, natural gas, hydropower, wind, solar, and other forms of electricity generation. 2) Revise the SDEIS to consider on-site, carbon free alternatives like on-site wind and solar for a portion of the electrical power needed by the NorthMet project. 3) Revise the SDEIS to analyze the feasibility of purchasing electrical power generated by wind, solar, and hydropower for a portion of the electrical needs of the NorthMet project. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely,		
Adam K. Wilke		21131
Adam Ridgeway		52223
Allan Butler		22018
Amanda Busch		38196
Amethyst Harle-Heim		44849
Amy Freeman		23449
Andrea Sreiber		38505
Andrew Timm		21233
Ann Beane		21898
Ann Diers		15503
Ann Kinney		22175
ann loscheider		16009
Ann Skoe		17320
Ann Wickstrom		20951
anna wagner		15654
Anne Kelly		21698
Anneke Andries		22168
Barb Kull		17670
Barbara Liszeo		38096
Beverly LaClair		21462
Beverly Schell		21750
Bill Gamble		43430
Bob Bartlett		38418
Bonnie Grzeskowiak		21869
Bonnie Meyer		39490
Brenda Moon		22774
Cambre Hogoboom		41257
Carl Boone		39452
CARL HEINRICH		41710
Carl Helke		16559

Sender Name	Submission ID
21 Mining Truth: Cleaner Energy	
Carol Jean Meyer	21253
Carol Masters	22091
Carol Mellom	38166
Cathy Brophy	38460
Cathy Martin	22023
CHANDA WELCH	16319
Chantal Buslot	38141
Charlie Weber	38262
Chelsea Rundquist	21363
Cheryl Wilke	43185
Chet Cisek	38115
Chris Sartro	43795
Christina Klein	44158
christopher malcolm	43173
clair mcguigan	38517
claire g	36371
Clare Shavor	16825
Cleone Stewart	22010
Colette Riethmiller	46248
Colin Mansfield	22008
Colleen Madden	21414
Colleen Point	38219
Craig Blacklock	43679
Curtis Coffer	38394
Cynthia Peterson	20224
Cynthia Widlund	21685
Dale L. Heffron	52273
Dan Burns	41221
Dan Dixon, Sr.	22249
Dan Jensen	21745
Danny Urban	21379
darlene White	45817
Dave Councilman	22237
David Bradley	43164
David Gilsvik	20117
David Greenwood	16563
David Hereaux	21391
David Hiller	22234
david stuber	43533

Sender Name	Submission ID
21 Mining Truth: Cleaner Energy	
David Swanson	21610
David Wiley	41418
Dawn Fischer	37340
Deborah Walsh	41206
Denise Fogel	21611
Denise Marlowe	38386
Don Baldus	22097
Donna Anderson	17230
Doris Braley	39009
Dorothy Brown	22246
Drake Willis	22726
Dustin Lecander	40218
dwight fellman	21998
E Blankers	38558
Edward Laurson	22260
Elayne Lappi	21435
Elisabeth Bechmann	47769
Elizabeth Bartlett	43406
Elizabeth Dahlheimer	17597
Elizabeth Murray	17270
Elizabeth Norman	17323
Emilie Hitch	45077
Emy Minzel	21125
Eric Anderson	44146
Erich Johnston	21996
Francis Leckie	17315
Gaby Roth	22170
Galen Bell	38515
Genevieve Ryan	22017
Grace Scorpio	43544
Greg Overlid	46563
Heide Hibbard	22088
Heidi Shol	37910
Ian Houmas	21871
J & M Pults	15594
Jack Meyer	22009
Jackie Midthun	16309
Jaclyn Wieser	21140
James Henderson	21608

Sender Name	Submission ID
21 Mining Truth: Cleaner Energy	
James Koschak	44151
James Seitz	21831
Jamie Dabrowski	38568
Janet Neihart	47681
Janet Tripp	38164
Jared Martin	22793
Jenn Neckermann	22254
Jennifer Arave	21995
JENNIFER BARR	17274
Jennifer Hengelfelt	38178
jerod perkins	37562
Jesse Dermody	47750
Jim Marsden	43279
Joann Schaub	22259
Joanne Sieck	37911
Jodi Lund	21172
Jody Keelin	21662
Joel Setterholm	38154
John Flaten	45025
John Gaffney	15487
John Kurle	22297
John Kurth	14799
John Lawrow	38199
John Ottis	41241
Jon N Jensen Phd	22258
Joshua Capps	16397
Joyce Johnson	17373
Julia VanAvery	21747
Karen Cleveland	52255
Karin Winegar	17325
katherine simpson	22105
Kathleen Dougherty	21205
Kathleen Jenkins	22308
Kathy Magne	46173
Katya Gordon	21578
Kayla Joachim	21999
Kevin Hiniker	44252
Kevin Swanberg	16925
Kim Pilon	43785

Sender Name	Submission ID
21 Mining Truth: Cleaner Energy	
Kris Palazzari	20012
Kurt Back	38526
Lance Haugen	21936
Larry Beckner	38395
Laura Birnbaum	22093
Laura Holicky	22227
laura melotti	37888
Laurie Lawler	21828
Leah Axelson	44025
Leigh Pomeroy	22223
Leslie Dee	38427
Lillian Vandal	22001
Linda Mae Chover	23448
Lisa Smith	16111
Lisa Wersal	15629
Liz Vanden Heuvel	21771
Liz Wanschura	43902
Loraine Bryant	21894
LORETTA PETERSON	21464
Lucy Rosenquist	16381
Majel Carroll	21859
Malia Brandt	21545
Mandy Nordberg	44718
Mandy Senechal	43399
Margaret Barbis	38507
margaret blakley	19914
Marian Dahlberg	17243
Marianna Greene	22252
Marilyn Isaacson	21705
Marissa Haeny	47415
Mark Fangmeier	36333
mark Kassal kassal	21624
Mary Blickenderfer	43647
Mary Kozmik	21648
Mary Madeco-Smith	43545
Mary Pates	22290
Mary Scheibel	47252
Mary Smalls	21503
maureen benson	17277

Sender Name	Submission ID
21 Mining Truth: Cleaner Energy	
Meg Anderson	46722
Meg Kosowski	22226
Megan Gillen	47440
Meghann Charboneau	47006
Michael Wethington	20766
Michelle Bollman	16591
Michelle Thelen	16519
Mike And Jane Conrad	16002
Mike Harrington	21937
Mike Link	36399
Nan Corliss	21794
Nancy Lynch	21193
Nancy McCleary	15003
Nancy Solberg	21856
nathan andersn	17362
Patricia Barone	22094
Patricia Keefe	41500
Patricia Person	38502
Patty Behrends	21872
Paul Nelson	41118
PAUL PUTTLITZ	22002
Paul Sayen	15807
Pauline Wahlquist	16931
Priscilla Keating	21371
Rachael Roberts	47649
Rachel Scharfenberg	22000
Rebecca Buehler	22022
rebekah jorgensen	52234
Renee Ethier	47712
Rita Caruso Santamaria	43910
Rita Kramer Curtin	22104
robert cramer	21896
Robert Puls	20796
Robert Victorin-Vangerud	22228
Robin Grinnell	22024
Rodney Pritchard	22005
Rosita Aranita	39323
Ruth Crane	21855
Ruth Katz	21547

Sender Name	Submission ID
21 Mining Truth: Cleaner Energy	
Ryan Anderson	46437
Samuel Cohen	45755
Samuel Ruff	52197
Sandra Graves	38547
Sara Roberts	22184
sarah endsley	36485
Scott Jackson	21830
Scott Mace	22239
Scott Richner	22253
Serena Lynch	46704
Serena Lynch	46725
Shannon Crabtree	17361
Sharon Becklin	15306
Sharon Collins	36425
Sharon Johnson	21139
Sophie Holz	38442
Steve Koschak	45483
Steve Peterson	21687
Steven Chesney	47472
Sundae Morse	21312
Susan Darley-Hill	38201
Susan Hempel	38494
Susan Lynn	16826
Susan Vann	43398
Swati Avasthi	22171
T Tichich	23333
Tayci Gustafson	44449
Teresa Manzella	22177
Teresa Morrill	16360
Terry Richmond	26901
Thomas Howes	16622
thomas rowlette	22828
thomasc cobb	16878
Tiffany Lee	21359
Tiffany Paulson	23562
Tim Stewart	21833
Tjaard Breeuwer	44782
Todd Burras	21626
Tracy Reddemann	21727

Sender Name	Submission ID
21 Mining Truth: Cleaner Energy	
Travis Durkin	19890
Vi Kelson	21173
Vicki Bonk	21260
Victoria Wise	21854
Virginia Huber	39290
W Boyd	16934
Wendy Raschke	21934
William Nelson	38518
Yvonne Schram	17353
zachary ryan	16078

Sender Name		Submission ID
22 Mining Truth: Mesothelioma		
Form Letter 22: Mining Truth: Mesothelioma The PolyMet NorthMet SDEIS does not adequately examine the risks to worker safety and public health from asbestos-like fibers found in the rocks that they propose to mine. I ask the DNR to require a more comprehensive public health assessment of the risk to workers and the public than what PolyMet has provided in the SDEIS. The SDEIS acknowledges that amphibole fibers are present in the rock to be mined, that crushing the rock for processing releases these fibers, and that these fibers are suspected of causing mesothelioma in workers. The SDEIS further acknowledges that there have been few studies of the risk from fibers of the size that would be created at the PolyMet mine and plant site. A number of mesothelioma cases were found in mine workers who worked in the LTV Erie Plant that PolyMet proposes to use as part of their mine plan, and the SDEIS inaccurately characterizes a University of Minnesota study of mesothelioma in mine worker as showing that this risk came exclusively from the use of commercial asbestos products in the mine. In fact, the University of Minnesota did not exonerate dust from crushing ore, and is continuing to study the health impact of exposure to short amphibole fibers of the type contained in the ore that PolyMet would mine and process. Specifically, the DNR should: 1) Revise the SDEIS and conduct a formal health assessment of the risk to public health and worker safety from the amphibole fibers present in the ore at the PolyMet mine site. The SDEIS should specifically conduct a formal health assessment of the risks from asbestos-like fibers less than 5 microns in length 2) Revise the SDEIS to provide details of the air monitoring at the mine and plant site and in nearby communities, and describe contingency plans to address the risk to public health and worker safety if asbestos-like fibers are detected during construction, operation, closure and post-closure 3) Revise the SDEIS to eliminate inaccurate characterizations of the University of Minnesota mesothelioma study. Specifically, eliminate statements that imply that commercial asbestos is the primary risk factor for mesothelioma risk Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely		
Aaron Klemz		10879
Aja Maleck		46339
ALLAN HUMMELL		17543
Amber Midnight		17464
Angela Peterson-Meyerson		15810
Anna Spangler		12011
Annette Rondano		17324
Anthony Hedberg		17500
Barbara Johnson Adkins		17241
Becky Creglow		52248
Benjamin Moerke		45137
bill sankey		21285
blanche wilcox		17478
Brody Hagemeier		16394
C Peterson		10826
Carol Deshler		17692
carol jacobson		12444
Carolyn Porter		28563
Catherine Harrison		17376
Chanda Welch		44716
Christina Klein		44152
Christine Frank		43905
christopher malcolm		43194
Christy Weisser		52282
clair mcguigan		12220
David Hajicek		13118
David Hereaux		17410

Sender Name		Submission ID
22 Mining Truth: Mesothelioma		
David Wohlfeil		14456
Delores Johnson		17549
Dennis Skrade		17539
Eddie Harrison		20952
Elisabeth Bechmann		47742
Elizabeth Dahlheimer		17596
Elizabeth Gaida		17327
Elizabeth Mccambridge		16113
Emilie Hitch		36305
Emily Brown		17007
Evelyn Staus		17535
Genya Welch		11408
Greg Overlid		46561
greg prull		17484
Helen Schoenbauer		17384
Inese Holte		17305
J & M Pults		15595
Jackie Midthun		16308
James Jordan		13945
James Koschak		44140
James McKinney		14441
Jane Koschak		45590
Janet Johnson		17259
Janet Neihart		47682
Jean Larson		16532
Jeanine Czech		12271
Jennifer Hengelfelt		38182
Jennifer Schally		21472
Jesse Dermody		47748
Jill Marckel		17442
Joanne Wagner		14454
Jocelyn Toyne		14192
John Flaten		45012
John Gaffney		15500
John Kurth		14802
John Ottis		41226
john praske		17551
Joy Danielson		17556
Judy Lane		21269

Sender Name	Submission ID
22 Mining Truth: Mesothelioma	
Juli Swanson	16386
Julie Yoemans	13541
karen callahan	17659
Karen Cleveland	52254
Katherine Goertz	10814
Kathleen Jones	12202
Kathryn Schroeder	17749
Ken Davis	36671
Kevin Hiniker	44226
Kiley Brown	47226
Kim Pilon	43775
Kris Palazzari	20007
Leah Axelson	44043
Les Phillips	12221
Leslie Wilbert	17348
Lisa Wersal	15625
Lois Piper	21222
Lynda Gokey	17004
Lynn Larson	17266
Lynn Sullivan	14455
Mandy Senechal	43444
margaret blakley	17569
Marian Lansky	17826
Mark Fangmeier	17625
Mark Parr	43290
Mary Blickenderfer	43617
Matthew Peters	17257
Meg Bonello	16752
Melanie McPherson	21241
Michael Foss	13942
Michelle Teubert	21395
Michelle Walker	16536
Nancy Flodquist	17571
nathan anderson	13941
Ned Bouril	40772
Nila Ouska	16491
Patricia Sobczak	17498
Paul Nelson	41113
Rae Busch	13779

Sender Name		Submission ID
22 Mining Truth: Mesothelioma		
Renee Ethier		47736
Rick Dahn		14380
Rita Caruso Santamaria		43864
Robert McKlveen		46555
Robin Raplinger		17251
Rory Cardinal		10860
Rosemary Rhode		11769
s c		12468
Sage Van Voorhis		14194
sarah endsley		36484
Sarah Kingston		17555
Sarah Warner		17525
Scott Coryell		10801
Scott Grundtner		17785
Serena Lynch		46895
Serena Lynch		46898
Sharon Johnson		17253
SHARON KOLL		47348
Sheryl Senkiw		17603
Stacy Wahl		17374
Stepanie Mary		12734
Stephen Wunrow		12094
Steve Koschak		45475
Steven Chesney		17352
sue harrington		21188
Susan Lynn		16824
Susan Vann		43431
Susan Wiste		17051
Tayci Gustafson		44443
Terry Hagenah		12508
Terry Richmond		17620
Theresa Basting		47741
Trilby White		17238
Wanda Ballentine		36618

Sender Name		Submission ID
23 Mining Truth: Centuries of Treatment		
Form Letter 23: Mining Truth: Centuries of Treatment Please revise the PolyMet NorthMet SDEIS to accurately and clearly predict the length of time that active water treatment would be required, and to clarify whether hundreds of years of water treatment complies with Minnesota Rules requiring that mines be andquot;maintenance freeandquot; at closure. The GoldSim water quality model used to predict levels of pollution, movement of contaminated water, and effectiveness of water treatment predicts that water captured at the site will exceed water quality standards for hundreds of years after the mine stops operating. On page 3-72, the SDEIS says that andquot;Based on current GoldSim P90 model predictions, treatment activities could be required for a minimum of 200 years at the Mine Site andquot; Other graphs and data in the water management plan that supports the SDEIS show that sulfates and heavy metals will dramatically exceed water quality standards for hundreds of years after closure. Minnesota Rules 6132-3200 sets a goal that after closure a mine site should be andquot;stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free.andquot; The mine plan calls for hundreds of years of maintenance and operating active water treatment plants, and violates this rule. I ask that you take the following actions: 1) Revise the SDEIS to clearly state how long the need for active water treatment (reverse osmosis or other mechanical treatment) is predicted, according the models used in the SDEIS. Extend the water model timeline as far as needed to show when all pollutants would meet applicable water quality standards and provide the public with a clear statement of the best available prediction for the time frame of mechanical water treatment. 2) Revise the SDEIS to address Minnesota Rules 6132-3200 and clarify how the post-closure activities described in the mine plan are consistent with the mandate that the closed mine site be andquot;maintenance free.andquot; Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely,		
Aaron Klemz		11455
Aaron Mlynek		38434
Adam K. Wilke		21134
Adam Ridgeway		52220
Adam Swanson		43920
Aja Maleck		46327
al eisentrager		43900
Alan Arthur		43161
Alan WOLFF		48109
Allan Bostelmann		43539
Ally Fujii		44501
amelia coates		17652
Amethyst Harle-Heim		44846
Andrew Beeman		43182
Andrew Cha		21496
Andrew Falk		47617
Angela Peterson-Meyerson		12302
ann loscheider		16011
Ann Rupert		47614
anna wagner		15647
anne selby		52269
Anne Sweeney		14634
Annie Bracey		21625
Art Wilkinson		46241
Ashley Maloney		46169
Atalia Rickard		43875
Aurora Adamson		44349

Sender Name		Submission ID
23 Mining Truth: Centuries of Treatment		
Avesa Rockwell		14826
Avri Bowling		14828
Barb Bauer		14768
Barry Feld		40583
Benjamin Olson		44568
Benjamin Yokel		12445
Beth Dowling		14602
Betty Freese		43768
BeVan Presley		17621
Bevie LaBrie		43664
Brandon Bohlen		43893
Brandy Snyder		14633
Bre Moulder		43144
brenda brazil		14821
Brian Harrington		43419
Brian Thorbjornsen		14648
Bruce Steadman		39453
Bryan Hansel		47184
Bryce Sampson		12374
C Peterson		11435
Candyce Westfield		14465
carl helke		14777
Carol Ralston		43414
Carolyn Koos		11949
Catherine Katt		17545
Chanda Welch		44733
Chantal Buslot		38149
Chara Bouma-Prediger		43918
Charles Davis		43387
Charlotte Rolling		14535
Chely Tverbeg		11451
Cheryl Humphrey		38336
Cheryl Nobens		46995
Cheryl Wilke		43280
Chris Haenisch		14950
Chris Zerby		47632
Christina Klein		44139
Christine Frank		43890
christopher malcolm		43156

Sender Name	Submission ID
23 Mining Truth: Centuries of Treatment	
Christopher McGrath	39446
Cindy Campbell	14558
clair mcguigan	14476
Clara Ueland	15670
Clarke Dehler	43174
Claudia foussard	17294
Clifford Johnson	43930
Colin Bender	14829
Collette Theriault	45367
Cori Mattke	43417
Craig Aase	47050
Craig Chamberlin	47648
Dan Kistner	14915
Dan La Vigne	13068
Daniel Anderson	12095
Daniel Johnson	44026
Daniel Nolan	43658
Daniel Ross	46325
Darlene Coffman	46941
David Brandes	43650
David Goon	43543
David Rolloff	43411
David Sanborn	17456
David Shannon	17439
david stuber	43537
David Thompson	14843
David Wiley	43308
David Wohlfeil	12467
Dawn Flathmann	14561
Dawn Lyons	46445
DD Friebe	14713
Dean Borgeson	47662
Dean Evenson	43751
Deborah Gruhlke	45828
Deborah Petersen-Perlman	14647
Debra Drew	14632
Denise Gray	17431
Diane Haines	43152
Donna Anderson	14771

Sender Name		Submission ID
23 Mining Truth: Centuries of Treatment		
Doug Porter		45967
Drew Johnson		47679
Duane Bandel		38661
Eddie Harrison		11739
Edward Pendleton		43291
Elaine Leach		52281
Elayne Lappi		14995
Eleanor Martinez		16208
Elicia Beckerman		43649
Elinor Auge		14830
Elisabeth Bechmann		47767
Elizabeth Bartlett		43429
Elizabeth Dahlheimer		17598
Elizabeth Harlis		12836
Elizabeth Jacobson		12053
Elizabeth Johnson		47599
Ellen Esch		47009
Ellen Johnson		14542
Emilie hitch		14831
Eric Danielson		12236
Eric Lee		17271
Erik Roth		43882
Erin Betlock		43675
Erynn Jenzen		40245
Evan Heberlein		43778
Evelyn Staus		14663
Fred Vanderbeek		21486
G Guyton		37098
Gai Skramstad		47603
Gail Harty		52322
Garret Olson		14832
gary westra		11431
Genya Welch		11406
George Muellner		38683
Geraldine Littlewolf		14481
Ginner Ruddy		43298
GLEN BAUGH		43189
Grace Scorpio		43527
Greg Overlid		46562

Sender Name	Submission ID
23 Mining Truth: Centuries of Treatment	
Greg Prull	43903
Gregory Benson	43750
Gretchen Nicholls	43171
H. Haynes	46890
Hannah Beane	45578
Harlan Luxenberg	47249
Herb Nelson	40085
HEYWARD NASH	52198
J & M Pults	15597
Jada Hansen	14615
James Buckvold	14508
James Gern	46330
James Goudy	14946
James Hall	15379
James Koschak	44155
James Reinke	14774
James Rolfe	43521
james Thompson	43170
Jan Kaeter	21311
Jane Burke	14979
Jane McAloney	47626
Jane McBride	52308
Jane Norling	47611
Janet Hatch	47046
Janet Neihart	47671
Jasen Kurowski	43755
Jeanne Piehl	14457
Jeff Kreis	45894
Jeff Schultz	43629
Jennifer Hengelfelt	38187
Jennifer Lohse	43177
Jennifer Popernack	43912
Jennifer Schally	46114
Jesse Dermody	47716
Jesse Petersen	47640
Jessie Schmidt	44446
Jillian McGary	43292
Jim Carlson	47737
jMichael Nezworski	43297

Sender Name		Submission ID
23 Mining Truth: Centuries of Treatment		
Joan Prosser		46939
Joel Headley		44422
Joel Malanaphy		52265
Joel Olander		45496
Joey Myers		12109
John Carlson		14516
John Gaffney		15501
John Kurth		14808
John LeMoine		46246
John Ottis		41224
john praske		38603
John Viacrucis		47639
John Williams		43791
John Wozniak		15482
John-Mark Henderson		14381
Jon Childers		47680
Jon Frasz		14801
Jonathan Schreiber		16521
Jordan Morgan		14712
Jordy wedeking		14872
Joyce Johnson		14817
Joyce Whybrew		15384
Judy Granmo		47762
judy greenwaldt		14501
Judy Lane		12783
Julia VanAvery		43772
Julie Dornbusch		46940
Julie Meyers		15374
Julie Setrum		43304
Justin Roberson		12110
Karen Bell-Brugger		46113
karen callahan		14498
Karen Cleveland		52250
Karen Katz		47743
karey degnan		44030
Kari Byboth		47332
Karin Winegar		11445
karl karst		43529
Kat Donnelly		43898

Sender Name	Submission ID
23 Mining Truth: Centuries of Treatment	
Kate Floerchinger	45903
Kathleen Iverson	43624
Kathryn Lund	14839
Kathryn Schroeder	12157
Kathy Lawrow	44022
Kathy Magne	43551
Katie Godfrey	43790
Katie Kaufmann	16525
Keelin Kane	47740
Keely Gelineau	39380
Keith Thompson	47630
Ken Davis	36669
Kerry-Ann Hamilton-Rose	43939
Kiley Brown	47228
Kim Pilon	43781
Kim Wilczyk	13944
kira nelson	14596
KJ Bach	38452
Kris Palazzari	20010
Kristie Peters	16366
Kristine king	14822
krystal schilling	43540
Kyle Flesness	52317
Lannette Peterson	45581
Laura Wolf	45591
Laurel Luxenberg	47434
Lauren Gazzolo	43418
Lauren Lederle	11438
Laurie Lawler	13119
Lawrence Krantz	20034
Leah Axelson	44040
Len Jennings	11433
Lenna Stever	21864
Leslie Distad	14598
Leslie Jagger	41481
Linda Johaneson	43412
Linda Mae Chover	14665
Linda Martinez	46695
Linda Penn	11425

Sender Name		Submission ID
23 Mining Truth: Centuries of Treatment		
Linnea Pearson		52304
Lisa Dahl		14683
Lisa Lund		44790
Lisa Wersal		15624
Lisle Bertsche		44233
Liz Strnad		14442
Liz Wanschura		43933
Liza Timmers		17414
lloyd mcivor		43789
Lorna Glick		45284
Louis Alemayehu		14482
Lucas Ramthun		47413
Lynne Morioka		14835
Mandy Nordberg		44744
Mandy Senechal		43535
Marc Olson		44029
Marcia Sochacki		11448
margaret blakley		47340
Margo Dickinson		45287
Maria Jette		43519
Maria Nosanow		47005
Marie Commers		40063
MARIE FUNK		43146
Marie Nickell		15432
Marina Povlitzki		12735
Marjorie Deutsch		39382
Mark Bouchard		43776
Mark Fangmeier		21492
Mark Shireman		40794
Mark Ver Hey		14778
Martin Reeck		47048
Mary Blickenderfer		43648
Mary Brown, DVM, MPH		47651
Mary Iqbal		52307
Mary J. Smith		12205
Mary Kaeter		22688
MARY MCGILLIGAN		43752
Mary Scheibel		14559
mary schneider		43293

Sender Name	Submission ID
23 Mining Truth: Centuries of Treatment	
Mary Sue Comfort	14193
Matt Christensen	44424
Mejken Thompson	43636
Melanie McMillion	37951
Melody Baker	21445
Michael Chutich	11453
Michael Forbes	39846
Michael Lieberman	11373
Michael Middleton	14962
Michael Monsor	43866
Michael wethington	14811
Michelle Franzel	14814
Michelle Hutchins	14528
Mike And Jane Conrad	13462
Mike Dahlheimer	11447
Mike Franck	11706
mike troiber	43680
Missy Render	52301
Molly Ticknor	38469
Nancy McCleary	15009
Nancy Palmer	43408
Natasha Northrop	12093
Neil Peterson	47306
Nicholas Beeman	47751
Nicholas Woods	14772
Nick Zlonis	43656
Pamela Blommer	14474
Pang Yang	46172
Patricia Flynn	14487
paul eckert	45310
Paul Nelson	41119
Paul Neseth	47255
Paula Luxenberg	46947
Paula Orth	17766
Pauline Callahan	47623
Priscilla Elwell	43880
R. Malcolm Ramsay	46446
randall streier	15259
Raymond Bissonnette	11446

Sender Name	Submission ID
23 Mining Truth: Centuries of Treatment	
reid hardenbergh	43631
Renee Ethier	47730
Riley Nelson	12324
Rita Caruso Santamaria	43904
Robert McKlveen	46554
Robert Mcmanus	43628
Robert Shipley	17375
Rod Smith	14844
Roger Andre	43154
Rolf Thompson	43425
Ron Sternal	45822
Rory Cardinal	11441
Ross Fettig	12388
Ryan Anderson	46451
Ryan Flanders	43441
Ryan Handeland	17244
Ryan Skinner	52326
S Burras	46565
Samuel Ruff	52196
Sandra Livingston	43774
Sandra Stanley	12012
Sara Brice	14887
Sara Cooper	52324
sarah endsley	36486
Sarah Engstrom	40541
Sarah Forschler	43141
sarah mann	43894
Sarah Nurnberger	12041
Sarah Reynolds	43553
Sayer Payne	11450
Scott Coryell	11429
Serena Lynch	46891
Serena Lynch	46906
Shannon Darsow	12270
Sheila tatone	14825
Shirley Johnson	43793
solfrid ladstein	14770
Stan Manusky	52231
Stefanie Landman	43787

Sender Name	Submission ID
23 Mining Truth: Centuries of Treatment	
Stephanie Rogers	43871
Stephen Girard	43654
Stephen Janasie	12174
Steve Cook	44353
Steve George	43888
Steve Koschak	45487
Steven Chesney	14786
Stuart Dittbrenner	47159
sue harrington	19804
Sue LeGros	46456
Sue Wick	52203
Sundae Morse	14601
Susan Burns	52233
Susan Doeden	43923
Susan Frame	47764
Susan Gaustad	14503
Susan Smith	43901
Susan Vann	43421
suzanne lehman	12539
Sydoney Blackmore	47745
Tara McNaughton	43889
Tara Schuneman	47650
Tayci Gustafson	44435
Terri Schocke	14813
Terry & Camilla hh	43753
Terry Hokenson	14560
Terry Kennedy-Lares	14925
Terry Richmond	14797
Tessa Schweitzer	43943
Thaddeus Gulden	14682
Thavy Nov	17231
Theresa Basting	47744
thomas cobb	13653
thomas nikko	11430
thomas rowlette	11984
Thomas Skaar	43531
Timothy Hermes	45296
Tina Blankenheim	45383
tom galazen	46557

Sender Name		Submission ID
23 Mining Truth: Centuries of Treatment		
Tom McKinney		52323
Tom Rogers		43306
Tom Schooley		39445
Traci Buckle		46040
Travis Dagen		43883
Tres Wuerffel		16345
Tyler Teggatz		43167
Valerie Goserud		47613
Valorie Jackson		43424
Wanda Ballentine		36624
Wendy Raschke		47747
Will Devenport		22712
William Forsyth		45952
Zach Holmquist		43673
Zachary Blankenheim		40068

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Form Letter 24: Audubon: SDEIS is "Incomplete" Minnesota Department of Natural Resources 500 Lafayette Road, Box 25 St Paul, MN 55155-4025 Dear Department of Natural Resources, As someone who values clean water, I have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for-information that is necessary to evaluate the environmental effects of this proposal. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National ForeSt More than 900 acres of wetlands will be directly destroyed by the mine, with an additional ten square miles of wetlands projected to be indirectly impacted by toxic dust and dewatering. The SDEIS proposes no mitigation for the indirect wetland impacts. In addition to this destruction of wetland habitat, sulfates and toxic metals such as mercury, copper, and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream to Lake Superior. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns, and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge the US Army Corps of Engineers to deny the Section 404 wetlands permit, and the Minnesota Department of Natural Resources to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Thank you for considering my comments. Sincerely,		
Aaeron Robb		13585
Adair DeLamater		16618
Adam Mills		14136
Adele Dawson		38045
Adina Parsley		13580
Adrienne Gardner		13977
Adrienne Hulf		17393
Alain Robert		13096
Alan Carter		12756
alan hyams		17436
Alan Jasper		13218
Alan McCann-Sayles		12059
Alan Rider		14347
Alan Scott		14233
Alan Wolff		16415
Albert Chiu		17267
Albert Matheny		12420
Aleks Kosowicz		14206
Aleksander Lindemann		17823
Aleksandra Biedron		12552
Alene Hinshaw		14426
Alese Tait		17783
Alessandro Raganato		11804
Alessio Rivola		14331
Alex Carruthers		17261
Alex DiRenzo		12570
Alex Karaczun		12134
Alex Oshiro		12759
Alex Warren		20976

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Alexandr Yantselovskiy		17748
Alexandra Sipiora		12244
Alexine Pope		13516
Alexis Carter		14164
Alexis Grone		14330
ALF Rider		12484
Alfred Alarcon		13289
Ali Boraby		17542
Alia McKee		16891
Alice Georgelis		13773
Alice Hoole		14291
Alice Howard		12558
Alice Jeung		13493
Alice Sedy		12822
Alicia Guidarelli		12872
Alida Bockino		13460
Alison Bardrick		12472
Alison Hewitson		13818
Alison Kocek		21230
Alison Miller		13172
Alissa Hinckley		12119
Alita DeMarco		11938
Alix Bjorklund		13109
Allan Campbell		17698
Allan Johnston		17816
Allen Bose		12122
Allison Argo		12061
Allison Frymoyer		14243
Allison Ostrer		11719
Allison Walker		12553
Allyson Harper		14337
Aloysius Wald		12879
Alyssa Caralla		16102
Amanda Murphy		13484
Amanda Scuder		12511
Amanda Taylor		14103
amber simmons		13321
Ambrey Nichols		12137
amerilus gurley		14161

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Amy Griffin	17249
Amy Heyneman	16396
Amy Parsons	12520
Amy Patella	13382
Amy Schumacher	13532
Amy Walter	12440
Ana Cruz	11979
Ana Herold	13986
Ana Salinas	13085
Anca Vlasopolos	13399
Andra Heide	12877
Andra Stanton	14316
Andrea Crook	13700
Andrea F.	11981
Andrea Gallagher	13702
Andrea Lewis	17774
Andrea Nutley	13544
Andrea O'Shea	14315
Andrea strom	11711
andreas vlasiadis	17234
Andrew Jacobsen	14332
Ane-Mari Ghetu	13095
anette stauske	17435
Angela Bellacosa	12300
Angela Fazzari	17616
Angela Fricke	17321
Angela Kerr	14364
Angela Leventis	13170
Angela schwartz	14016
Angela Smith	12551
Angela Taylor	12528
Angeles Madrazo	11683
angelika zintel	17849
angie march	36667
Aniko Schmidt	11942
AniMaeChi drabic	12294
Anita Brehm	14273
Anita Coolidge	11907
Anita Erhard	11655

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Anita Garrison		13224
Anita Jung		14119
Anita Randolfi		13290
Anita Watkins		12592
ann atkin		11915
Ann Bein		13716
Ann Bergmann		12671
Ann Blanchfield		11652
Ann C. McGill		13475
Ann Collins		12852
Ann Dana		12770
ann de temmerman		11923
Ann Fuhrman		15768
Ann Hunt		12863
Ann Lowe		17369
ann moore		13675
Ann Sandritter		14048
Ann Stickel		21191
Ann Taguchi		13077
Ann Tait		13997
Anna Bedirian		13161
Anna Bockis		12243
Anna Camarata		16389
Anna Louise E. Fontaine		12972
Anna Tangi		13125
Annabelle Herbert		13724
Anne Bush		11749
Anne Claysmith		14038
Anne Gibson		14065
Anne Kirkwood		11728
Anne Lazarus		13316
Anne Mack		17681
anne mehlinger		12199
Anne Robert		12319
Anne Swanson		16762
anne veraldi		12499
Anne-Marie Boyce		12039
annette behrens		17529
Annette Price		13592

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Annette Wigglesworth	12486
Annie Mcclure	12504
Annie Wei	11674
Anthea Nicholas	13667
Anthony Capobianco	13760
Anthony Deardo	13581
Anthony Gibson	13214
anthony montapert	13422
Anthony Parisi	17701
Anthony Robiolio	12316
Anton Feokhari	12939
Anton Feokhari	12994
Anton Feokhari	13126
Antonio Dettori	13951
Apryl Mefford-Hemauer	21453
Arci Jimenez	17300
Ardis Rundlett	14104
Arielle Bernstein	13452
Arlene Aughey	13823
Arlene Huber	17755
Arlene Zimmer	11899
Arlin Huseman	17752
Armando A. Garcia	14417
Arthur Bailey	17695
Arturo Franco	14013
Ash Bradshaw	17451
Ashley Schutt	17329
Astrid, Theo, Jonathan, Julius Keup	17810
Aswini Kumar	21534
aubrey guilbault	11988
Audrey Fisher	14374
audrey porreca	13373
Audrey Tillinghast	17516
augustine gaona	13789
B Lloyd	12746
B Propen	14134
B ROSE	17262
Baker Smith	12747
Barb Dallas	14304

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
barb horban	11917
Barb James	13669
Barb Stolz	13834
Barbara Baird	13295
Barbara Clewett	13812
Barbara Cohn	12403
barbara cullinan	13364
Barbara D'Emilio	14077
Barbara Duncan	17322
barbara everett	14242
Barbara Ferrara	12469
Barbara Greenwood	17412
Barbara Harper	12404
Barbara Hart	11699
Barbara Hodges	13971
Barbara Johnson	12744
Barbara King	16747
Barbara Koles	13299
Barbara Lafaver	14021
Barbara Ledbetter	12255
Barbara Mcgrath	17735
Barbara McIntosh	14135
Barbara Ocskai	14432
Barbara Pecze	11702
Barbara Robinson	21323
Barbara Rosenkotter	12722
Barbara Rozen	17747
Barbara Silvia Calamai	13549
BARBARA SWYDEN	13202
Barbara VanHanken	13513
Barclay Hauber	17508
Barrie Stebbings	13701
Basey Klopp	13431
Beatrice Ting	12971
Beatriz Pallanes	12349
Ben Goldman	12902
Benjamin Oppenheim	12383
Benton Elliott	12860
bernadette brésard	17856

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
bernardo alayza mujica	12689
bernardo Alayza mujica	12816
Bernice Van Steenbergen	12917
beth arndtsen	13841
Beth Barfield	17514
Beth Doherty	17584
Beth Dzwil	17460
Beth Flores	20741
Beth Niederman	11935
Beth Phillips	12116
Beth Severance	13472
Betsy George	12603
Betty Almand	12410
Betty Gray	12999
Betty Kryger	13573
Betty Santos	12949
Betty Tagge	13642
Beverlee Goynes	13487
Beverley Ashland	13791
Beverly Finlayson	12731
Beverly Morris	14223
Beverly Peake	13122
Beverly Smalley	12162
Beverly Taylor	14179
Beverly Williams	13704
Bianca Sodfried	19937
Bill Couch	12575
Bill Herman	13846
Bill Morgenstern	13512
Bill Poindexter	12727
Bill Sitkin	17538
Birgit Hermann	19811
Birgit Walch	14311
Birgitta Siponen	12191
Blaze Bhence	14053
Bob Davey	12754
Bob Fuchs	12991
Bob Hagele	13737
Bob Manchester	13550

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Bob McCleary		12476
Bob Racine		12320
Bob Thomas		17784
bob yancey		17674
Bobbi Keck		12087
Bobbie Knight		12903
Bobbie Pickell		13920
Bobbiejo Winfrey		12826
Bonnie Demerjian		14064
Bonnie Eickelberg		13083
Bonnie Juran		12681
bonnie phillips		13446
Bonnie Weber		14392
Bonnie Yusko		13183
Boots Whitehead		12121
Boyce Sherwin		14166
Brad Holmes		20871
Brad Lang		12494
Brad Palmer		12622
Brad Snyder		21301
braedon brown		15801
Brandi Binau		17788
Brandi McCauley		12008
Brandi Pfluger		13874
Brandie Deal		13729
Brandon Xie		17269
Brant Kotch		17281
Brenda Dixon		14241
Brenda Johnson		13212
Brenda Lee		13438
Brenda McIntyre		11661
Brenda Morris		13868
Brenda Smith		13831
Bret Polish		14351
Brian Jones		17420
Brian Larson		13676
Brian Paradise		16513
Brian Sullivan		14334
Bridgett Heinly		13562

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
bridgette vitilio	17859
brigitte ballouard	17838
brigitte hoin	11932
Brittany Wheeler	12145
Bronwen Evans	14400
Brooks Obr	12659
Bruce Abbott	11978
Bruce Higgins	12212
Bruce Wheeler	15956
Bruno Prata	17827
c connor	13163
C Peterson	13661
C Rolph	11730
C. Silva	14435
C. Wilcox	12357
Calli Madrone	13344
camila cossio	12591
Camilla Torsander	11650
Camille Gilbert	12619
Cammy Colton	14296
Candace Hallmark	14201
Candace Jarrett	13141
Candace Lorkiewicz	12533
Candy Cerjan	17622
Candy Petrick	17523
C'anna Johnson	13492
Cara Striff	13242
Carl Lloyd	13852
carl todd	13347
CARLA COLUCCI-BOOTH	20215
Carla Forsythe	36878
Carla Weil-Martin	12630
Carla Womack	17617
Carlin Freeman	12554
Carlos Cunha	12982
carol adams	13317
Carol Banta	12580
Carol Barnes	12112
Carol Becker	12799

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Carol Berkeley		17705
Carol Bernier		17813
Carol Blaney		13572
carol bowers		17732
Carol Collier		12629
Carol Collins		13973
Carol Giles-Straight		12379
carol goldstein		17851
Carol Gordon		17239
Carol Guffey		13926
Carol Hadlock		14238
Carol Hanson		13891
carol jagiello		12475
Carol Johnson		13450
Carol Jurczewski		11936
Carol Lofgren		14289
Carol Netzel		17640
Carol Parsons		12495
carol pearcy		12489
Carol Putnam		12148
Carol Thompson		11715
Caroline Kim		14130
Caroline Kipling		17792
Caroline Sévilla		14306
Carolyn Borkowski		13784
Carolyn Clark		13107
Carolyn Kidder		13756
carolyn massey		12728
Carolyn Rice		36607
Carolyn Riddle		11662
Carolyn Schwalbe		13970
Carolyn Silvestro		12483
Carolyn Turner		12049
Carrie Andree		14172
Carrie Darling		13204
Carrie Eder		14255
Carrie Wilson		13776
Carroll Arkema		17338
Caryn Graves		13464

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Cassandra Oriotis	13815
Cath Cath	12089
Cathe Dietrich	13514
Catherine Hunt	13250
Catherine Lanzl	14349
Catherine Miller	14362
Catherine Peters	12688
Catherine Reid	12433
Catherine Reynolds	12490
Cathie Glenn	13302
Cathleen Billiski	12432
Cathy Crum	13694
Cathy Felix	17821
Cathy Gagliardi	14154
CATHY KIEL	12177
Cathy Ream	17293
Cathy Sailsbury	12155
Cathy Williams	17684
Cavia Porcell	12609
cay murphy	12930
celia okelley	14293
Chantal Buslot	12318
Charlean Born	13245
CHARLENE ALSERDA	14449
Charlene Root	13073
Charles Bowsher	12269
Charles Foskett	16067
Charles Fox	13378
Charles Gray II	12536
Charles Jurgens	13983
Charles O'Clair	14256
Charles Roth	14091
Charles Ruas	12851
Charles Sothers	14211
Charles Stransky	13490
Charlie Burns	12653
Charlotte Brooks	13606
Charlotte Campbell	11751
Charlotte McCabe	12620

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Charlotte Reitz		11665
Cherie Scott		14082
Cherri Gilbert		13469
Cherry Battaglia		12451
Cheryl Fergeson		16352
Cheryl Fischer		13703
Cheryl Fisher		12578
Cheryl Jennings		12334
Cheryl Johnson		14080
Cheryl Landes		12046
Cheryl Mueller		21491
Cheryl Mulligan		17587
Cheryl Vallone Rigby		12386
cheryl watters		13307
Cheryl Welch		12437
Chirstina Nillo		13586
Chris Chapman		11664
Chris Frost		12886
Chris Hazynski		13629
Chris Herbert		12993
Chris Horton		12820
Chris MacKrell		12512
Chris macwaters		16236
CHRIS OCEAN		14234
Chris Roche		12188
chris schneebeli		17553
Chris Thomas		17842
Chris Worcester		12956
Christa Gautschi		13406
Christa Kaspszyk		13543
Christeen Anderson		12268
Christi Dillon		13309
Christian Zummer		17501
Christiane Schmitz		12317
Christina Marcus		16889
Christina Warrington		13201
Christine B		12594
Christine Blanchfield		13416
Christine Deno		17385

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Christine Gorton	12458
Christine Ponelle	14271
Christine Pylypowycz	13267
Christine Sibona	16385
Christine Thurber	17289
Christopher Comparetta, MS	14123
Christopher Crouse	12807
Christopher Dowling	14188
Christopher F. Vota	13807
Christopher Giovan	13292
Christopher Lima	12172
Christopher Lord	22747
Christopher Panayi	17812
Christy Borriello	16664
Christy Carosella	14224
Christy Rassey	17742
chu tho	13919
Chuck Clarke	14110
Chuck Graver	13528
Chyrl Russell	12035
Cindi Kestrel	14096
Cindy Ballard	13396
Cindy Borske	12741
Cindy Davenport	12246
Cindy Massey	12356
Cindy Moczarney	14044
Cindy Pardee and Phil McPherson	13390
Cindy Putzier	16815
Cindy Risvold	17610
cindy sims	14365
Clair Branch	13308
Claire Blehr	13523
Claire Cohen	12776
Claire Coleman	14244
Claire Joaquin	13796
Claire Russell	12924
Claire Wayner	12896
Clare Hooson	12677
clarence krygsheld	16868

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Clarette Wenta		12098
Claudia Adamson		12970
Claudia Bruckert		16637
Claudia Drenk		17730
Claudia La Paglia		11939
Claudia Moore		12597
Clayton Cuba		13726
Cleone Stewart		13844
Clifton Ware		13379
Coleen Brown		12535
Colleen McGlone		17265
Colleen Sonnevil		17641
Colleen Stanturf		13865
Connie Adler		12892
Connie Dunn		11725
Connie Fischbeiin		13409
Connie Grundhofer		12656
Connie Newman		13896
Constance Garcia-Barrio		11687
Corey E. Olsen		12310
corey parker		12723
Corinne Cather		13219
Corinne Segal		13938
Cornelia Lemke		13380
Cortney Zaret		17419
Courtney Morgan		13838
courtney stefano		14140
covi lopez		11756
Craig Beach		13457
Cristian Cortés Morales		17648
Cristina Novelo		14436
Cristina Seica		11760
CT Bross		13146
Curzio Bruni		12227
Cyd Riley		14149
Cyndi Hunt		13806
cynthia benkert		13297
Cynthia Erb		12390
Cynthia Franke		17704

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Cynthia Hever	13425
Cynthia Hull	17285
Cynthia Leeder	13717
Cynthia McNamara	12778
d frigo	11897
D p	17245
D. Meier	12124
D. Singer	16376
Dale bakerDaleBaker	12845
Dale Cannon	14014
Dale Johnson	12673
Dale LaCognata	12566
Dallas Windham	13743
damir valecic	20775
Dan Deeg	14052
Dan DeGooyer Jr	13213
Dan Ingall	13519
Dan Sherwood	13408
Dana DeRogatis	13990
Dana Dodge	13911
Dana Govil	12635
Dana Thompson	11892
daniel aubouard	12341
Daniel Cavanaugh	17546
daniel evett	12562
daniel goheen	16596
daniel goheen	16597
DANIEL LINDSAY	13291
daniel marmorstein	12973
Daniel Partlow	12219
Daniel Sixto	13982
Daniel Struble	13996
Daniel Wagner	13389
Daniela Holmes	13720
Danielle Montague-Judd	14251
danny grantham	13711
Danuta Watola	17815
Darcy Cove	13287
Darlene Balzan	12740

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Darlene Jakusz		14292
Darren Ginn		13527
Darvin Schild		12703
Dasi Bhaktivedanta		21433
dave arthur		17524
Dave Bruker		14035
Dave Cunniff		13630
Dave Dunkak		14300
Dave Popoff		12126
Dave Wilson		12560
David & Justine Ross		12914
david anderson		12996
David Bauer		17550
David Cencula		12371
David Councilman		12021
David Crouch		12928
David Durrant		12686
David Edwards		13518
David Hand		13496
david Kissinger		17586
David Laing		13740
david lowe		14288
David Markwardt		12368
David Meade		13781
David Peterson		13539
David Sherman		12355
David Springer		14121
David Stanley		14414
David T. Parchem		21417
David Ulibarri		14168
David Vetter		13908
Dawn Albanese		11717
Dawn Freeman		17797
Dawn King		12932
Dawn M.		12614
Dawn O'donnell		12260
Dawn O'Rourke		12192
Dawn Pesicka		13668
Dawn Reed		12625

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Dawn Robison	12090
Dayle Carter	13991
Dean Borgeson	13106
Deb Chute	17795
Deb Kobres	17337
Debbi Coltharp	12265
Debbi Kanzler	16869
Debbie Dalsbo	12843
Debbie Floyd	13120
Debbie Kirkbride	17561
DEBBIE LITTLE	44930
Debbie Lujan	13268
Debbie Thomas	14057
Debbie Williamson	12196
debbie yates	12793
Debi Bergsma	14402
Debi Lawson	17388
Debi Wheeler	47399
Deborah Bratcher	17839
Deborah Broderick	13657
Deborah Ford	17869
Deborah Guinnessy	13504
Debra Bradford	14409
Debra Combs	12664
Debra Cunningham	13683
Debra Herst	17708
Debra Moore	12405
Debra VanEerd	17509
Deidre Moderacki	14227
Deke Gliem	14204
Delilah Johnson	12301
Deneen Nunn	12984
Denise Bauer	12085
Denise Doetsch	12577
Denise Ferrari	13088
Denise Greaves	17805
Denise Lytle	12491
Denise Thomas	13481
Dennie Carcelli	17407

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Dennis Feichtinger		14305
Dennis Hall		13263
Dennis Hanson		17279
Dennis Landi		12150
Dennis Ledden		12276
Dennis Peternell		13215
Dennis Wiste		13086
Dennis Woolley		12431
Derek Gendvil		12347
Desiree Whitney		13772
Devin Henry		14350
Devon Jones		11966
Diana Austin		12430
Diana Barnes		13614
Diana Franco		14336
Diana Howell		19895
Diana Owens		13405
DIANA SANTIAGO		12995
Diana Spencer		13354
Diana Tomlinson		12692
Diana Urbon		17590
Diana Van Ormer		12456
Diana Wallace		17263
Diane Banks		14059
Diane Berliner		13749
Diane Casey		13181
Diane Hennessy		14416
Diane Hiniker		13144
Diane KASTEL		14393
Diane Kent		17724
Diane Lilly		36319
Diane Michel		13248
Diane Patnode		17706
Diane Pontius		12874
Diane Rohn		13187
Diane Snow		12957
Diane Tanguay		17284
Diane Weeks		13665
Diane Weinstein		11764

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Diane Wynne	13666
dianna thomas	13861
Dianne Douglas	17689
Dianne Poland	13338
Dick Munson	13882
Dick Russo	12613
Dietrich Schwaegerl	12032
Dina Monaghan	12459
Dirk Faegre	14106
dolores crowder	40548
Don Arnosti	14462
Don Kurz	13721
Don Margeson	14132
Don McKelvey	17740
Don Thomsen	13805
Don Wilson	17660
Donald Hyatt	13525
Donatella Gualandi	16890
Donna Barrett	12345
Donna Bonetti	14354
Donna Coletti	17666
Donna Conrady	12524
Donna Curry	14318
Donna D Varcoe	13387
Donna Desjardins	14411
Donna Desrosiers	13179
DONNA DILLA	13855
Donna George	14180
Donna Hanson	13610
Donna Katz	13244
Donna Lassiter	13415
Donna Pope	17492
Donna Reppert	13858
Donna Smith	14169
Donna Tanner	12824
donna towne	13130
Donna Wolz	21448
Donny Harvey	17768
Doreen Hartranft	21392

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Doris Davis		17401
Doris Henderson		13413
Doris Munger		14165
Doris Potter		12638
Doris Vician		11898
Doris Warnstedt		17308
Dorota Kolodziejczyk		12058
Dorothy Battle		20237
Dorothy Brown		13171
Dorothy Miles		13238
Dorothy Mose		17296
doug franklin		17738
doug krause		12599
Dr Cynthia & Mr Paul Phillips		16107
Drena LaPointe		20819
Dru Ann Delgado		11965
Duane Baker		12197
Duane Bandel		13486
DYANA DI GRAZIA		13555
E Gallagher		11746
E Robbins		12149
E. Cordova		11732
E. Wagner		12944
Earl Kuon		17864
Ecology Center of Southern California		36648
Ed Billeaud		12775
Ed Fiedler		44898
Ed Huydic		12447
Ed Kraynak		14437
Edeltraut Renk		17858
Edith Coleman		13376
Edward Armm		13235
EDWARD MRKVICKA		12682
Edward Rengers		14159
Edward Spevak		14202
Edward Syrett		12335
Ehren Hock		11797
Eileen Bergan		12992
Eileen Conner		13283

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Eileen Mccorry	12454
eileen stetter	14220
Ekaterina Danilova	17491
Ekkehard Fischer	13327
ELAINA OZEROFF	39455
Elaine Anderson	12650
Elaine Becker	13473
Elaine Fischer	12375
Elaine Green	14312
Elaine McAuliffe	12031
Elaine Meranus	17312
Elaine Mont-Eton	17756
Elaine Swavely	12878
Eleanor Navarro	12697
Elena Carleo	13817
Eleni Papakonstandinou	14182
Elenita Hinds	12133
Eleonora Pavlovska	12581
Elisabeth A. Rose	14197
Elisabeth Bechmann	11976
Elisabeth N.	12020
Elisabeth Price	12633
Elise Benson	17629
Elise Marks	12606
Elisenda Toda	13761
Elissa Engelbourg	17280
Eliza Duncan	12841
Eliza Solesby	12571
Elizabeth Bay	12401
Elizabeth Bell	13763
Elizabeth Berglund	12241
Elizabeth Bryant	13835
Elizabeth Congo	13899
Elizabeth Cordone	17292
Elizabeth Cupp	17786
Elizabeth Czyzewski	11916
Elizabeth Evelyn	14327
Elizabeth Groscost	17254
Elizabeth Guthrie	17800

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Elizabeth Hastings		12935
Elizabeth Hucker		17733
Elizabeth Jache		14253
Elizabeth Kelly		17868
Elizabeth Lincoln		14386
Elizabeth M. Denning		12215
Elizabeth Montgomery		14433
Elizabeth Neerman		13182
Elizabeth Philbrick		17661
Elizabeth Prudden		12811
Elizabeth Raustadt		14249
Elizabeth Stoakes		17307
Elizabeth Veillette		13392
Elizabeth Wyman		11972
Elizabetth Mitchell		17449
Elke Romer		13131
Ella McRae		20230
Ellen Dollar		11805
Ellen Domke		13198
Ellen Fox		17402
Ellen Franzen		17424
Ellen Gray		14427
Ellen McNeirney		13905
Ellen Pemrick		17678
Ellen Scott		12834
Ellen Wasfi		14361
Ellen-Cathryn Nash		13984
Elsa Petersen		13261
ElsaMarie Butler		17247
Elsie Trawick		14250
Elsy Shallman		13640
Emilia Boccagna		13603
Emilia Emilia		13251
Emily Gallini		21742
Emily Garcia		21481
Emily Hall		12343
Emma Bragg		13098
Emma Schwarz		13233
Emma Shook		13229

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Encarna Ortiz	17734
Enzo Mulas	13175
eric biemuller	12161
Eric Dallin	16539
Eric Edwards	12910
Eric Lind	15802
Eric McClelland	11757
Eric Meyer	17694
ERIC POLCZYNSKI	14178
Eric Rodriguez	12291
Eric Weaver	14133
Eric West	13429
Erica Johanson	12789
Erica Sommers	14113
Erik Fredrickson	13074
Erika Favor	12665
Erin Foley	12424
Erin Howard	12909
Erin Sanders	13673
Erin Yarrobino	15760
Ernie Looney	13755
Ernst Mecke	17743
Errikka Jordan	14430
esteban ramirez	14009
Esther Garvett	17863
Esther Juhl	12185
Ethan Denniston	12358
Ethelyn Bishop	11905
Eugene TeSelle	13500
EUGENIA MIXON	11941
Eusebio Manuel	14137
Eva Thomas	13910
Evan Guest	13190
Eve Saglietto	13697
Evelio Pina	17309
Evelyn Adams	12832
Evelyn Ball	17422
Evelyn Busch	12813
Evelyn chapple	13631

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Evelyn Evans		13511
Evelyn Mancino		17562
f. santander		12462
F. Schnugg		13226
Faith Conroy		12632
Fay Forman		13115
Felicia Santini		13274
FELICIA WADE		14097
Felicity Hohenshelt		14342
Felix and Judi Fusco		11973
Fern Stearney		13689
fetica costiana		12073
Filip Stoj		14225
Flo Schneider		11900
Flora Pino García		17828
Florence Morris		13918
Floyd Back		11802
Frances Armstrong		13645
Frances Heath		12027
Frances ONeill		17720
Francesca Massarotto		12326
Francine Ungaro		13980
Francis Mastri		13454
Francis Raber		13442
Francoise Duclot		12812
Frank A. Brincka		14015
Frank and Janet Loudin		17450
frank dixon		13954
Frank Scanzillo		12538
Frank Tucceri		13917
Franklin Kapustka		12920
Franklin Platizky		17403
Frans Ansems		12068
Franshisca Dearmas		12298
Franz Sigg		13152
Frauke Brandt		13412
Fred Elasser		13377
Fred Fall		12001
Fred Lavy		14319

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Fred Luke	12788
freddie williams	17488
Frederick Akers	12866
Frederick Warwick	21211
g g	17669
G Sutton	12258
G. Preuss	13747
Gael Venn	12380
Gail Claycomb	12519
Gail Courtney	12069
Gail Fuller	17712
Gail McCall	13583
Gail McMullen	11997
Gail Price	13300
Gail Schuessler	17477
Gail Tipton	17746
Gail Yborra	14209
Gary & Marla Puthoff	13766
gary baugh	12534
Gary Brooker	11967
Gary Kaminski	13239
GARY MADOLE	13759
Gary Mullens	17700
Gary Thaler	12809
Gary Tubb	12442
Gary Webber	17531
Gavin Bornholtz	13467
Gay Kramer-Dodd	13757
GAY YORK	14006
Gayle DeSantis	14274
Gayle Edelman-Tolchin	17290
Gayle Peterson	12117
Gene Hatfield	14005
Genevieve Guzmán	14098
Genevieve Riber	13768
Geoff Regalado	12808
Geoff Skews	13188
George Marsh	13706
George Pavlinos	13465

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
georgeann ventola		13612
Georgia M. Pawlowski		13101
Georgia Shankel		13978
Gerald Carpenter		13435
Gerald Lysne		13788
geraldine harvey		14382
Gerard van Tol		17504
Gerhard Eckardt		12338
Gerhard Vollmer		17852
Gerri Reaves		21693
Gerritt and Elizabeth Baker-Smith		14020
Gertrude dudekGertrudeDudek		13567
Giana Peranio Paz		12169
Gibson Reynolds		17793
Gil Lewis		14339
gina bilwin		14117
Gina Curry		14108
Gina Mondazze		11695
Gina Paige		14431
Ginger Hill		12616
ginny wood		12885
Giovanna Tonelli		17443
Gisela Zech		11928
Gjorgji Dzolev		17834
Glenda Lilling		17683
Glenn Eklund		14162
Glenna Shenas		13084
Gloria Benedetto		11726
Gloria Korhonen OP		11709
Gloria Tonti		14000
Gordon Gottbeheut		14032
Gordon ILLG		13334
Gordon Parker III		14389
Gordon Wirth		11937
GRACE NEFF		11913
Grace Padelford		12487
Grace Payne		12645
Grace Strong		12926
Gracie Winters		13257

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Graham Ellis	17476
Grant Campbell	13647
Grant Campbell	17567
Greg Allbee	13680
Greg C	13436
Greg Sells	12651
Greg Spahn	12038
Greg Stawinoga	14158
gregg norman	12097
Gretchen Hanger	17573
Gretchen Hils	11658
Gudrun Dennis	17458
guffey vickie	17639
H. Guh	13609
Hal Trufan	17232
Haley Green	17843
Hannah Blakeman	13479
Hannah Salvatore	13506
Hara Z	17830
Harm Kootstra	12668
Harold Masengarb	13620
Harriet Adamo	12333
HARRIET DAMESEK	17506
Harry and Mrs. Jill Brownfield	13650
Harry Wilson	17242
Heather Biernat	14045
Heather Hamilton	21376
Heather Landis	13508
Heather Marsh	13232
Heather McCandless	17790
Heather Turbush	11735
Heather Westphal	12303
Heidi Ludwick	14024
Heidi lynn ahlstrand	13127
Heidi Shanklin-Spock	12634
Heidi Tartell	13199
Heike Heinze	17313
Helen Carter	14049
Helen Gilchrist	13558

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Helen Jones	12330
Helen Manning-Brown	13616
Helen Woerner	13157
HELENE BIGBAIEV	13732
Helene Weil	14452
Henry Estrada	13810
Henry Jones	13090
Henry Weinberg	14329
Herman Bender	13842
hilary malyon	13159
Hilary McGregor	12266
Hilda Estrada	17688
Holger Tressin	12526
Hollis Milark	12231
Holly Christianson	36323
Holly Smith	12765
Holly Yokoyama	13326
Horst Pfand	12002
Hugh Keleher	11960
Humaira Sayeed	13534
I. Engle	12705
Iam Polcyn	11944
Ian Shelley	14260
Ian Songan	17872
Idelle & Steven Davis	14101
ina pillar	13710
Inge Bjorkman	17850
Ingrid Erickson	16892
Ingrid Rochester	12178
Ioana Lacatus	17772
Irene Schrobenhauser	14002
Irene Tremper	13670
Irwin Hurley	11911
isa boisgard	14434
ISABEL CERVERA	16330
Isabel Fuica	12637
isabelle fiuentes	11995
J Beverly	13142
J J Moran	13477

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
J Pizzo	12961
J. Alexander	14036
J. D. Forbes	12101
J. David Scott	11980
J. Holley Taylor	14295
J. Stulb	14205
J.T. Smith	12370
Jack Arnold	14116
Jack Bridwell	17860
Jack David Marcus	17389
Jack McClain	13091
Jack Raby	13632
Jack Robins	11904
Jack Schwartz	12900
Jackie Baker	12277
Jackie Pomies	12568
Jackie Sanders	13731
Jaclyn Green	17466
Jacqueline Crow	12418
Jacqueline Dyer	12857
Jacqueline Newman	12479
Jacqueline Newman	12670
Jake Cohen	13237
James & Alice Bradley	12743
JAMES AGUIRRE	12685
James Bachman	11956
James Brunton	14268
James Caldwell	14353
James Caldwell	16531
James Columbia	13816
James Fine	13375
James Fishgold	17457
James G.R. Hart	11651
James Glucroft	17392
James Hampson	14428
James Heine	14086
James Martin	13870
James McCormack	13738
James McCormack	13764

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
James Melloh		14131
James Mickle		21418
James Moran		13718
James Mulcare		11745
james myers		12285
James Powell		13340
James Reidy		16561
James Roberts		12679
James Thoman		16746
James Thompson		14377
James Tyree II		12780
James Tyree II		16769
James Van Dinter		14360
James Wolcott		12954
Jami Walkins		14363
Jamie Corliss		12366
jamie greer		12263
Jamie Harrison		14407
Jamie LeDent		12564
Jamie Louis		14200
Jamie Pasquarelli		13959
Jamie Polczynski		16121
Jamie Trask		13094
Jamila Garrecht		12758
Jamo Smith		13113
Jan Daker		13397
Jan Johnson		14357
Jan Klein		14367
Jan Koreneef		13456
Jan Krol		12641
Jan Lubin		13595
jan mignaud		12493
Jan Novotny		17328
Jan Soares		12015
Jana Harker		21296
Jana Repova		17846
Jane Dzubak		14026
Jane Ellison		12125
jane mobeckwilson		13272

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Jane Patrick	13725
Jane Schley	13800
Jane Tavener	12217
Janet Ashkenazy	12427
Janet Borelli	19995
Janet Cooper	13509
Janet Dietrich	12497
janet forman	13958
Janet Funicelli	17515
Janet Gay Newman	12267
Janet Maker	11801
Janet Nelson	16342
Janet Paisley	13105
Janet Pattison	11696
Janet Robinson	11908
Janet Smeltz	14391
Janet Tice	12691
JANET TIRABOSCHI	13719
Janette Dickerson	14341
Janice Bergeron	17405
Janice Burgi	12768
Janice Jones	14229
Janice Kraus	13501
Janice Simon	12908
Janice Tarantino	13995
Janie Ibur	14072
janis Epton	12396
Jann Lutterman	12387
Jared Cornelia	13428
Jason Chin	17287
jason husby	17399
Jason Nichols	12044
Jason Steadmon	12393
JC Bower	13660
Jean Hopkins	13243
Jean Marie VanWinkle	14216
Jean Mockus	17634
Jean Naples	17870
jean pfeifer	12168

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Jean Phillips-Calapai	12142
Jean Rodgers	13857
Jean Thornsbury	13258
Jean-Claude Delettrez	13537
Jeanie Streit	17770
Jeanne McCloskey	12798
Jeanne Sheats	12626
Jeannette Ernst	17844
Jeannie Hernandez	12748
Jeannie perry	13476
Jeannie Whalen	13618
Jeff Ebright	11914
jeff hopkins	17696
Jeff Lowry	13811
Jeff Martin	12230
Jeff Omans	12555
Jeff Woodard	36474
Jeffrey Bains	13960
Jeffrey Christo	13599
Jeffrey Kirst	12757
Jeffrey Leidigh	12127
Jeffrey Vigil	12464
Jelica Roland	17554
Jen H	12988
Jen Smith	17278
Jenna Parker	21314
Jennifer f	12412
Jennifer Frazier	12773
Jennifer Gardner	12501
Jennifer Ire	13440
jennifer kilgore	11968
Jennifer Miller	12130
Jennifer Piercy	14338
Jennifer Reis	17255
Jennifer Sellers	17867
Jennifer Smith	12643
Jennifer Stapleton-Kotloski	13589
jennifer Tozzi	21428
Jennifer Valentine	14012

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Jenny Fogel	21480
Jenny Linhoff	12164
Jerald Vinikoff	13358
Jeremy Batson	12384
Jeri fioramanti	14440
Jerry Bolick	12838
Jerry Towner	12586
Jesse Dubinsky	12567
Jesse Kozak	14087
Jessica Bowser	12693
Jessica Parrish	12229
Jessica Schnell	17559
Jessica Tucker	14215
Jessie Paul	14207
Jessika Ojea	14170
Jill Cleveland	12179
Jill Crouch	12532
Jill Nicholas	13357
Jillian Forschner	13746
Jim Dugan	12774
Jim Laird	12771
Jim Swarr	12314
JL Gonzales	17317
Jo Ann Toro	11909
Jo Seegers	12946
Joan Hobbs	16494
Joan Holland	14310
Joan Klose	12450
Joan Leonard	12636
joan winkler	13384
Joan Zentarski	13231
Joanna Herrington	21478
Joanna Kouri	12784
Joanne Beeman	12292
JoAnne Hangen	13366
Joanne Hesselink	13503
JoAnne Lightner	12282
joanne phillips	13191
Joanne Popp	12006

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Joanne Willis		12537
Jocelyne FAROUAULT		12275
Jodi Beers		17580
jodi wick		36690
Jody Dehart		16334
Jody Fritzke		12755
Jody Gibson		14017
Jody Tatum		38209
Jody Wetmore		17809
Joe Pasquarelli		13930
Joe Renneke		12286
Joe Roy		13116
joe Wilford		13932
Joel Perkins		12416
Joel Quaintance		13785
Joel Trupin		12509
JOELLE COUDRIOU		17737
JoEllen Rudolph		11761
Joely Courtney		12342
Johannes Stratmann		21234
John and Gail Richardson		13453
John and Martha Stoltenberg		13965
John Bellmon		13169
John Brown		17356
John Cash		13353
john cevasco		13921
John Day		13421
john daye		17421
John Eschen		13643
John Franklin		13166
john harris		12890
John Hockman		12861
John Hollett		12040
John Kaminski		12103
John Keiser		14423
john kozub		13914
John LaForte		14422
John LaPolla		12251
John Lenartz		17462

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
John Long		12082
John Meister		12165
John Moszyk		12655
John Niendorf		16604
John Nowlin		14385
John Oda		12506
John Praprotnik		11896
John Richkus		11741
John Samuelson		13286
John Schaechter		12787
john seeburger		16237
john souza		13143
John Splinter		12710
John Swiencicki		14279
John Thoma		17417
John W. Bova		12279
John Wienert		14001
John Wise		12694
Johnna Huxtable		14394
Jolie Misek		17667
Jolynn Jarboe		11672
Jon Abrahamson		14183
Jon Behnke		12652
Jon Longsworth		12152
Jon Rosell		13485
Jonathan Carlson		17595
Jonathan Mitchell		13205
Jonathan Stewart		13466
Joneen Lawton		13103
jonnel covault		17871
JORDANNA Newman		13909
jorge belloso-curiel		12480
Jose Artigas		14359
Joseph Coppock		13787
Joseph Jordan		14410
Joseph Kaleel		13638
Joseph Nelson		12382
Joseph O'Sullivan		16540
JOSEPH PIAZZA		12882

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Joseph Thomas		14358
Joseph Wincek		12883
Joshua Maizel		14254
Joy Maddox		13664
joyann murphy		12434
joyce britcher		12550
Joyce Bryant		12725
Joyce Campbell Ph.D.		12088
Joyce Carroll		13621
Joyce Evans		12463
Joyce Frohn		11996
Joyce Gustin		12391
Joyce Lewis		13423
joyce niksic		14320
Joyce R. Farber		12556
joyce schwartz		11722
Joyce Sortland		12389
juani muño		11952
Jude Fletcher		13617
Judi Epstein		12513
Judi Kaminski		13906
Judith Abel		19948
Judith Allen		13712
Judith Cohen		14075
Judith Embry		13845
judith hazelton		16581
Judith Hennessy		13979
judith night		13878
Judith Russo		13355
Judith Smith		12572
Judith Susser		11697
Judith Writer		12505
Judy Albury		17703
Judy Baker		12113
Judy Bryan		13999
Judy Clare		12889
Judy de Groot		12627
Judy Epstein		12779
Judy Guy		13674

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Judy Jacobs	13320
Judy King	14030
Judy Krach	11681
Judy Moran	14294
Judy Silvis	13681
Judy Skopek	14109
Judy Stetson	17481
Judy Sugita	17592
Judy Villegas	12408
Julia Baldwin	13303
Julia Bellefontaine	14309
Julia Glahn	14062
Julia Gordon	14262
Julia Grant	14261
Julia Jackson	13709
Julia Martin	12675
Julia Mason	14120
Julia Radwany	12726
Julia Thompson	12867
julia waller	17794
Julie Anderson	13259
Julie Beer	17699
julie Byrne	13255
Julie Erickson	17033
Julie Griffith	17651
Julie Hahn	13946
Julie Henderson	14185
Julie Jeter	17480
Julie Kangas-Walker	13987
Julie Martenson	13974
Julie Martin	13748
julie s	12997
Julie Squire	12308
Julie Warrick Ozias	11868
Julien Kaven Parcou	11740
June Nigg	13754
June Peterson	14263
June Peterson	14297
Justin Limberty	14068

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Justin Mebane	17415
Jutta Klar	12828
K BOWERS	12805
K G	12024
Kalista Lehrer	17517
Kalpana Prakash	13798
Kalynn Turpin	12256
Kamia Taylor	13957
Kara Graul	13208
Kara Hodges	12792
Karen Anderson	13604
Karen Ashley	13955
Karen Bien	16132
Karen Bravo	12193
Karen Brawley	17408
Karen Britton Karen Britton	12777
Karen Chestney	11686
Karen Daniel	12749
Karen Ferraro	17469
karen fort	13459
Karen Heaton	13330
Karen Keating-Secular	13734
Karen Kennedy	17672
Karen Kirschling	13533
Karen Milano	20093
Karen Miller	12706
Karen Payne	14373
Karen Peterson	13551
Karen Schectman	17775
Karen Schieve	12407
Karen Spradlin	13185
Karen Stahle	17533
Karin Nelson-Rogers	12242
Karina Black	14102
Karl Riemann	13698
Karla Stranger	13121
Karlene Gunter	17447
Kat Stranger	13780
Kate Buttles	13524

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Kate grotegut	13522
Kate K	14344
Katharyn Reiser	12183
Katherine Basirico	13393
Katherine Delanoy	13365
Katherine Kautz	12709
Katherine Masotti	12950
Katherine Meyer	13294
Katherine Sutton	17676
Katherine Tildes	12248
Kathi Ridgway	12974
Kathie Godfrey	13329
Kathleen Connolly	13707
Kathleen Dempsey	12940
Kathleen Gibbs	13736
Kathleen Keske	17404
Kathleen Kuczynski	12339
Kathleen McElroy	12666
Kathleen Morris	14395
Kathleen Rogers	12485
Kathleen Ruiz	11963
kathleen sandknop	12762
Kathleen Shopa	12228
Kathleen Wolfrey	14277
Kathryn Berkey	13793
Kathryn Farrar	13933
Kathryn Karas	13264
Kathryn Richardson	12546
Kathryn Riss	14232
Kathryn Rose	17630
Kathy Bradley	13322
Kathy Casiello	14405
Kathy Dabanian	12695
kathy evilsizer	17336
kathy g	12045
Kathy Gotkin	12817
Kathy Huntley	13924
Kathy Kestell	17434
Kathy Kontio	11766

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Kathy Libby		17482
Kathy martinez		17763
Kathy Noerenberg		12729
Kathy Wright		13510
katia scaglia		13489
Katie Garton		12855
Katie Hassett		13627
Katrin Rosinski		13587
Katrina Hernandez		14290
Kay Brockman-Mederas		12901
Kay Dahle		13832
Kay Lowe		13849
Kaylyn Wingo		13404
Kazue Tanaka		11748
Kelli Fizzano		14438
Kellie Pilgreen		12249
Kellie Smith		11929
Kelly Allison		13076
Kelly Bauer		13426
Kelly Eaves		12915
Kelly Redleaf		13679
Kelly Riley		13579
Kelsey Gatlin		13350
Ken Goldsmith		13887
Ken Martin		11993
Ken Mayer		17796
Ken O'Connell		14217
Ken Ross		13315
Ken Ward Jr.		12395
Kenneth & Sandy Garber		14190
Kenneth Coley		13633
KENNETH GRANT		12760
Kenneth Lapointe		13402
Kenneth Nash		13635
Kenneth Nettleton		17798
Kenneth Robertson		12640
Kenneth Wright		13570
kent garrett		13828
Kerrie Shisila		13180

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Kerry Heck	16768
Kerry Moore	12752
Kevin Chiu	12707
Kevin Harvey-Marose	13135
Kevin Oldham	12794
Kevin Schneider	14081
kevin slauson	14008
Kevin Stueven	16338
Kevin Turner	14384
Kim Brooks	12194
Kim Chaney	13361
Kim Dieter	12138
Kim Fountain	14278
Kim Haley	12819
Kim Hingston	14105
kim hosman	14118
Kim O'Keefe	17354
Kimberly Schmidt	13969
Kimberly York	14069
Kimerly Cain	13548
Kirsten Holmquist	17612
Kirsten Lear	14313
Kirsten Strom	12010
Kit Blumenstein	12186
kore kathy	17862
Kostis Papaioannou	13097
kris Deckers	13432
Kristee Mariel	16058
Kristi Dunn	14425
Kristy halterman	13145
Kyle Bracken	12800
L Blue	16760
L Cam Taylor	14146
L F & Carole Warneke	13078
Laila Noori	16518
Lana L Carter	17802
Lana Wood	12473
Laraine Snooks	12557
Larry Andrewsq	37791

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Larry Baker		13515
Larry Kimball		13260
larry machado		11922
Larry Tyrrell		13424
Larry Zwick		12720
Laura Berkelman		13637
Laura Boehm		12702
Laura Brown		14285
Laura Collins		13195
Laura Corona		13912
laura deverse		12717
Laura Dufel		13730
Laura Fleming		17272
laura Flynn		11943
Laura Heath		12257
Laura Munoz		12225
Laura PRice		12661
Laura Price		17299
laura raforth		16799
Laura White		17357
Laura Wood		13904
Laurel Covington		11731
Laurel E. Tate		13275
Laurel Hieb		13176
Lauren Bouyea		11653
lauren krisch		13434
Lauren Murdock		12540
Lauren Oster		12804
Lauren Richie		13266
Lauren Swaim		17291
Laurie Black		12460
Laurie Duncan		14167
Laurie Hrdlicka		14376
Laurie Leland		12005
Laurie Pearson		17779
laurie sudol		11902
Laus Jacques		17845
LaVonne Mittermayer		12724
Lawrence Crowley		11999

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Lawrence Moore	12102
Lawrence Scrima	14004
Lawrence Tetenbaum	12674
LB Nelson	12983
Lea Faulks	14346
Leann Frizzell	12981
Leanne Burns	17463
Lee Fister	14041
Lee&Elaine Lynch	12352
LeeAnn Mumaw	12803
LeeAnn Mumaw	12806
Leigh Begalske	13966
Leigh Clark	12365
Leigh Kennison	13836
Leigh Mann	13931
Len Jennings	14028
Lenette Beagley	14107
Lenny Cavallaro	13124
Lenore Heiman	12259
Lenore Reeves	11712
Leona Klerer	13271
Leona Klerer	13306
Leonard Hudson	12612
Leonard Meyer	12413
Leone Sousa	37900
Leonor Chavez	13420
Les Phillips	12223
Lesley Bosworth	17817
Leslie Fellows	14114
Leslie Graeber	12426
Leslie Hohenfeld	13888
Leslie Sharlock	13881
Leslie Sutliff	13894
Leslie Sweeney	17663
Letitia Noel	12657
Lexine Phillips	11910
Lib Putnam	13277
Lilia Vannett	13128
Lilian Morgan	11678

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Lillian Deslandes		17711
lin just		17751
Linda A. Heath		17471
LINDA AMADOR		13284
Linda Bishop		13112
Linda Brockett		11974
Linda Bruner		13751
Linda Burianek		13156
Linda Cabanban		12628
Linda Campbell		12587
Linda Dragavon		12329
Linda Faulhaber		13433
Linda Garfield		13463
Linda Gazzola		12452
Linda Hansen		14055
Linda Headley		17804
Linda Johnson		13801
Linda Jones		13140
Linda Kobler		14317
linda Kohlwey		12492
Linda Mack		13578
Linda Macy		13192
Linda Mooney		12322
Linda Morgan		11796
Linda Mullaney		14058
Linda Nelson		16108
Linda Prostko		13282
Linda Roberts		13526
Linda Rossin		17854
Linda Rudin		13903
Linda Rudman		13625
Linda Saldana		12084
linda scholl		13968
Linda Stoltz		12323
Linda Swan		14122
Linda Tabb		45528
Linda Thompsen		17609
Linda Tinsley		13767
Linda Townill		14387

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Linda Whetstine	13794
linda Young	12833
Lindsey Caudill	14199
Lindsey McMahan	12167
Lindsey Shepherd Wanner	13915
Linnea Rowse	12443
Lisa Coffey	12232
Lisa Consoli	12066
Lisa Culp	12894
Lisa Daloia	12477
LISA FERRIS	14100
Lisa Frey	13414
Lisa Goldman	12967
lisa graham	11955
Lisa Hughes	13873
Lisa Kieliszewski	13877
Lisa Koehl	13571
Lisa Martinez	16524
Lisa Mazzola	13331
Lisa McGonigle	13623
Lisa Miranda	13391
Lisa Moeller	12409
lisa moskal	13256
Lisa Neste	12000
Lisa Scharin	12840
Lisa Thomas	13359
Lisabette Brinkman	14138
Lise Kastigar	12588
liu wai ling	14066
Liz Tymkiw	13136
LJ Lanfranchi	13634
Ljiljana Milic	12280
ljnv oundsv	13394
Lois Jordan	11975
Lois Kaufmann	17716
Lois White	14174
Lola Egea	12960
Lora Elstad	13288
Loralee Clark	12439

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Lorelei Stierlen		11698
Lorenz Steininger		13474
Lori Burnham		12897
Lori Chiolino		12831
Lori Conley		12029
Lori Kierstead-Waibel		13826
Lori Stafford		14112
Lori Teague		13753
Lorna Lee		13636
Lorraine Gardner		12398
Lorraine Johnson		13207
Lorraine Taggart		13659
Lorraine Wierzbicki		14111
Lou Illes		14259
LOUIS PALAZZINI		16562
Louise Burkart		14007
Louise Smith		13556
Louise Thornton		16628
Luan Marks		12790
Lucinda Winterfield		12647
Lucy Delap		13482
Lucy greer		16351
lucy McAdam		14371
Lucy Tyndall		12019
Luiz Perez		11765
Lyda Stillwell		14151
lydia garvey		11763
Lydia Wilfong		11694
lynda cippoletti		12750
Lynda Hyde		12810
Lynell Withers		13082
Lynette Henderson		14323
Lynn Artz		12870
Lynn Eubank		13155
Lynn Fischer		17429
Lynn Langen		13381
lynn ouren		14196
Lynn Sumerson		12211
lynn tor		17781

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Lynne Teplin	11667
Lynnette Saunders	12718
M Anderson	17765
M Leszczynski	16216
M. Dürrenberg	13686
M. K.	12037
M. Van Pelt	36695
m.e. lane	12563
m.j. williams	13733
Mª ESTRELLA FERRER BILBAO	17510
Ma. Elena Guillermo	11920
Madeleine Watt	11806
Madeline Olson	12025
Madhu Pillai	17685
Maire Johnson	12143
Maki Murakami	13448
Mal Gaffney	12708
Malerie Wirey	12602
Malinda Coleman	13762
Malonie Miesner	12853
Malva McIntosh	17248
Manette Freas	11921
Manmeet Toor	13223
manuela wolter	11953
Maranda Nemeth	12307
marc fried	14369
Marc Grawunder	12030
Marc Leclerc	12448
Marc Masto	12931
Marc Schoenberg	17474
Marci Desart	12022
Marci kelley	11671
Marcia Bloom	13967
Marcia Godich	14175
Marcia Johnson	12785
Marcia Ough	17615
Marcia Palmater	12187
Marcia Walton	12488
Marcia Willi	13582

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Marcie Newman-Perskin	17406
Margaret "Maggie" Larrick	14355
Margaret Clark	17741
Margaret Craven M.D.	13151
Margaret Dyre	12868
Margaret Finnerty	13770
Margaret Fry	17397
Margaret Hover	13568
Margaret Hunter	11668
Margaret Lynwood	13728
Margaret McCorkle	13521
Margaret McMillan	46277
Margaret Meehan	14171
Margaret Sedlack	14213
Margarita Jaramillo	13876
Margery Glickman	13221
Margi Mulligan	17304
Margi Preus	12998
Margie Szymanskyj	13880
Margit Meissner-Jackson	17723
Margo Obrien	17829
margo val	20776
Margo Vanderhill	14307
Margret Mauti	19862
Marguerite Benoit	13070
Marguerite Cambria	17339
Marguerite Sellitti	17721
Marguerite Shuster	13819
Marguery Lee Zucker	14089
Margy King	12496
Mari Castellanos	13228
Maria Bustamante	12598
Maria Castellano-Usery	13923
Maria Nieves	12925
María Rodríguez	11998
Maria White	17643
Maria Zulaica	12363
Mariam Andalibi	12262
Marian Drum	14031

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Marian F. McAleenan	13655
Marian Lansky	12965
Marianne Freidberg	12918
Marianne Mari	13892
Marianne Shaw	13403
Mariapaz Beraun	13411
Marie Banks	14326
Marie Foley	13985
Marie Leven	36679
Marie Michl	13687
Marie Randall	12864
Marie Rinehart	13600
Marie Weis	13177
Marie-Ange Berchem	13547
Marie-Paule Vanderhoeft	15999
Mariette Grobler	11798
Marilyn Abend	16390
Marilyn Balkany	12261
Marilyn Carse	13249
Marilyn Closterman	12482
Marilyn Hawthorn	14283
Marilyn Klingbeil	17505
Marilyn McLelland	13362
Marilyn Nicol	12923
Marilyn Sabella	16697
Marilyn Snyder	12457
Marilyn Taylor	17673
Marilyn Waltasti	14084
Marina Barry	12017
mario giannone	13147
Marion Coward	12615
Marion Hood	14378
Marion Horton	17811
Marion McAllister	13900
Marissa McCallin	14029
Marjorie Bain	13540
Marjorie Bram	12392
Marjorie Kiefer	13827
Marjorie Logan	12696

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Marjorie Streeter		13276
Mark Bastian		11931
Mark Choi		13129
Mark Crane		13227
Mark Donaldson		12593
Mark Edgren		12617
Mark Forsyth		13708
Mark Hollinrake		14189
Mark Jordan		14286
Mark Mazhnyy		12340
Mark Mendelsohn		13281
Mark Neas		13148
Mark Reback		13346
Marleen Neus		21476
Marlene Coccaro		13651
Marlene Knight		14343
Marna Herrington		14258
Marsha Hoke		17577
Marsha King		12795
Marsha Shehy		12589
Martha Armas		12144
Martha Brimm		13075
martha burton		17761
Martha Cano		13596
Martha Colella		14396
Martha Hauer		14321
MARTHA LIBIA PEÑA HERRERA		12436
Martha Rivas		12364
Martha Spencer		12474
Martha Sucher		13608
Martha W D Bushnell		12953
Martha Williamson		12208
martha wilson		16686
Marthese Cassar		11663
Martin B Friedman		14302
Martin Horwitz		12397
Marty Landa		11762
Mary Ann and Mr. Frank Graffagnino		16362
Mary Ann Curtis		12478

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Mary Ann Stanislowsky	17541
Mary Baechle	14325
Mary Barbezat	17283
Mary Barkemeyer	13678
Mary Beth Brown	19951
Mary Beth OConnor	13797
Mary Bissell	17657
Mary Bobb	13138
Mary Bunting	17709
Mary Burnley	12941
Mary Bushur	12916
Mary Caperilla	13872
Mary Dragone	13672
Mary Duff	12441
Mary Gaston	14027
Mary Griffin	17487
Mary Guard	17636
Mary Hedrick	13993
Mary Heller	12541
Mary Jackson	12500
Mary Jane Hannah-Fields	13739
Mary Jo Mattila	13981
Mary Johnston	16530
Mary Khalil	17675
Mary Knapp	17623
Mary Lee Mamlin	13312
Mary Leitch	12608
Mary Lou Hanley	16603
Mary Lynn Salvucci	12471
Mary Mahoney	14335
Mary Marks	37533
Mary Mason	11688
Mary McCrohan	12198
mary mcneer	14299
Mary Ogi	11969
Mary Paffrath	14245
Mary Plaster	12411
Mary Price	14124
Mary Richards	17680

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Mary Richardson		12772
Mary Roen		15784
Mary Sorrell		12254
Mary Summitt		12933
Mary Thomas		12064
Mary Traywick		17423
Mary TRUE		13230
Mary Tullock		12955
Mary Vermeulen		14011
Mary Vorachek		12051
Maryam Faresh		13173
MaryAnn Burch		14413
MaryAnn Deeg		14023
Maryelen Horeftis		13829
Maryellen Redish		12376
Mary-Frances Mitchell		13418
Maryjo Osowski		17298
Maryrose Cimino		13517
Matt Johnson		14308
Matthew Danielczyk		17655
Matthew Lapointe		17614
Matthew Livingston		14018
Matthew Thompson		12846
Maud van Tol		17503
Maura Lockett		12585
Maureen O'Neal		11677
Maureen Ossowski		17679
Mauricio Carvajal		12561
Maurya Murphy		12050
Max Cialoni		16007
Maxine Lowery		14142
Maya Kurtz		17490
Meaghan Leavitt		14240
Megan Adams		17470
Megan Morris		12515
Megan Renico		12963
Megan Watson		13684
Meghan McCutcheon		12446
Mehmet Genc		12071

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Mel Safken	12348
Melania Padilla	14239
Melanie Mahoney Stopyra	14412
Melanie Weberg	12646
Melinda Bashen	13531
Melinda Themm	14212
Melis Basman	13217
Melissa Allen	14127
melissa mandel	13123
Melissa Martinez	14078
Melissa Shaffer-O'Connell	46369
Melodie Martin	12858
Mercedes Salgueiro	17833
Mercy Drake	12224
Meredith Bryant	13395
Meredith Tucker	13615
Merlene Stuerzer-Rhodes	13774
Merrie Thornburg	13658
Meya Law	13530
Michael Allen	13869
Michael Benedict	14145
Michael Burt	17468
Michael C Davie	13976
Michael Dobbs	12026
Michael George	12847
Michael Greer	17437
Michael Heller	12146
michael katz	12658
Michael Kwitt	14139
Michael Lang	12921
Michael Marr	12565
Michael McDonald	14276
Michael Morden	13499
michael paxton	13854
Michael Raymond	12958
Michael Rosa	17276
Michael Smith	12283
Michael Stewart	12904
Michael Terry	13879

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
MICHAEL TOOBERT		17635
Michael von Sacher-Masoch		12669
Michael W Evans		17568
Michael Watson		12163
Michael Wylie		13139
Michaela Redden		17759
Michal Simpson		12815
Michalina Wasung		16950
micheal erickson		12135
Michele Hoffman		13369
Michele Ozuna		17727
Michele Spier		13939
michele tritscher		14051
Michelle Benes		13133
Michelle Camp		12823
michelle dust		12764
Michelle Finn		12827
Michelle Friessen		12745
Michelle Hayward		11962
Michelle Irvin		12569
Michelle Lenz		17459
Michelle Pappaducas		13626
Michelle Pavcovich		11649
Michelle Rethmeyer		17444
Michelle Thrower		16629
Michon Shinn		13839
Midori Furutate		13994
Mignonet Montez		14043
Miguel Rivera		13814
Mihai C		14397
Mike Ahlfors		12181
Mike Dotson		13727
MIKE HLAT		13574
Mike McCartin		12610
Mike Medora		13502
Mike Mizell		14039
Mike Seyfried		12400
Mike Souza		13886
Mike Stoakes		17275

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Mike VanLandingham	12990
Mike Wease	14203
Mikki Chalker	13236
Mildred Bailes	13840
Milva DeLuca	14247
Mindy Carson	14025
minna mendelson	12639
Miranda vanTol	17383
miriam israel	11700
Miriam Weber	12481
Misty Adams	17848
Misty McIntyre	12579
Mitchell Nash	17606
Mitchell Sendrowitz	13750
Molly Jakeman	13386
Molly Noone	12336
Molly Schminke	11994
Mona Grønbæk	13862
Monica Gilman	12737
Monica Kelly Wright	12796
Monika Huber	17866
Monique Musialowski	38593
Monjit Guram	12023
morty gr	12360
MR AND MRS RICHARD N. Huff	11729
Mr. Anje' Waters	13554
MR.&MRS. BRUCE REVESZ	12979
Musty Clack	13367
Myra Delay	13342
Myra Hofstetter	11940
Myron P	12287
N Refes	17370
nadav shalev	13820
Nadine Duckworth	14157
Nancy Barcellona	21203
Nancy Boggs	14324
Nancy Caponi	16395
Nancy Cosburn	11795
Nancy Earle	12182

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Nancy Freedland		12344
Nancy Goodwin		17668
Nancy Hale		17690
Nancy Hamor		11992
Nancy Hartland		12189
Nancy Heintz		17855
Nancy Lowe		12595
Nancy MacKinnon		14379
Nancy Moore		12381
NANCY O		11957
Nancy Paradiso		14010
Nancy Riley		13458
nancy tatum		12704
Nancy Vogee		19829
Nancy White		12911
Naomi Benoit		11724
Naomi Pang		13505
Natalie Bachiri		14099
NATALIE JOHNSTON		21115
Natalie Kovacs		16363
Natalie Robb-Wilder		13071
Natalie Van Leekwijck		13444
natasha salgado		12209
Natasja Andeweg		12943
nathalia santiago		16364
Nathalie Quesnel		13557
Nathan Sullenberger		13853
Nayeem Aslam		17282
Neal Noethlich		12648
Ned Overton		12786
Neil Bleifeld		21146
Nelly Lopez		11710
Nelson Baker		11893
Nelson Pena		12719
Nezka Pfeifer		13520
Nicholas Sherman		12573
Nicholas Sherman		13253
Nick Hood		12712
Nicola Karesh		13210

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Nicole Dyck	17840
Nicole Hilkovitch	11680
nicole hoekstra	16106
Nicole Schrank	13478
Nicole Shaffer	13802
Nicole Strathmann	12406
Nidia Arguedas	12299
Nikhil Dutta	12325
Nikki Pacheco-Theard	12423
Nilah M. MacDonald	13563
Nils Bahringer	17585
Nina Diamante	12899
Nina Spelter	13241
Nitin Agarwal	12848
noel boardman	12234
Noel Emswiler	13934
Noelle McGuinness	36948
Nora Beckjord	13927
Nora Ferrari	16687
Nora Polk	14095
Norma Bieker	13265
NORMA LABORIE	11958
Norma McAfee	12938
Norman Baker	12377
Norman Dean	21516
Norman Haussner	12072
Norman Traum	12214
Nyack Clancy	12218
oksana becker	13825
Olivia Cornell	13311
Olivia Lim	17236
Olympia Bravo	13864
Ometh Layton	11704
Ondine james	17581
Oscar Revilla	14287
p.s. golden	13437
Pagasa Valerio Serrano	17647
Pam Babitsky	13352
Pam Colwell	13745

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Pam Evans		12825
Pam Ramirez		12429
pam wilbourn		12797
Pamela Conley		14221
Pamela Geier		12829
Pamela Green		14148
Pamela Grieser		12623
Pamela Stark		12830
Pamela Thinesen		14298
Pamela Thompson		11654
Parker Faith		13813
Pat Gilbert		12922
pat mace		12304
Pat Pascual		13735
Pat Schumacher		21571
Pat Severance		14181
Patrice Cole		12007
Patrice Johnson		12690
Patricia Anderson		13111
Patricia Archuleta		12986
Patricia Avery		12850
Patricia Cardoso		12175
Patricia Carey		12516
Patricia Castellano		12362
Patricia Chang		21288
Patricia Davis		14076
Patricia Devine		17483
Patricia DiRienzo		12210
Patricia Heffron		17745
Patricia Keene		14420
Patricia Kraus		16298
Patricia Loverink		14340
Patricia McCain		12905
Patricia Moffett-Ward		13507
Patricia Monti		17808
Patricia Mulcahy		13370
Patricia Nazzaro		12660
patricia payne		13677
Patricia Pruitt		12503

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Patricia Rodgers	13305
Patricia Soteropoulos	13576
Patricia Stevenson	12975
Patricia Vazquez	17638
Patricia Wilson	12821
Patrick Adcock	13765
Patrick Carr	12253
Patrick Jean	12351
Patrick Mullins	12574
Patrick Scarry	12060
Patrick Sennello	14280
Patti Gallo	11799
patti mckinley	13605
Patti Packer	11714
Patti Rogness	12419
Patty Bracey	14269
Patty Flores	13897
Patty Linder	12529
Paul Addington	13280
Paul Benda	13851
Paul Clinch	14235
Paul Goyetche	17656
Paul Hopkins	13443
Paul Leyva	13935
Paul Macomber	12466
Paul Marcussen	13209
paul shanley	17722
Paula Denissen	12604
Paula Hartgraves	17438
PauLa Katz	12977
Paula Powers	12978
Paula VanBuskirk	11733
Paula Zerzan	12969
Pawel Goliasz	12311
Pedro Rodriguez	13758
Peg Henderson-Mills	13072
Peg LeClair	12680
Peg Tileston	14208
Peggy Jamieson	16544

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Peggy Powell		12369
Peggy Smith-Puckett		13560
Peggy Willenberg		14264
Penny Derleth		12399
Pete DeLorenzo		13998
Pete Harvey		17318
Peter Carey		13722
peter collins		17368
Peter Cummins		11727
Peter Curia		13079
Peter Fairley		12421
Peter Keiser		12521
Peter McCumber		17710
Peter Roberts		12663
Peter Souza		12898
Petra Stang		12092
Phil Fitzgerald		12683
Philip Heinlein		12176
Philip Hyun		13584
Phillip J Crabill		11961
Phillip Manson		13186
Phoebe Oaks		13992
Phylis White		13848
Phyllis Conley		13593
Phyllis Dunaetz		13649
Phyllis Duray		13546
Phyllis Erwin		13671
Phyllis Hall		17560
Phyllis Swalwell		13893
Phyllis Swank		12548
Phyllis Van Leuven		12449
Pierre Delprato		13641
Pieter Hull		12881
pj chan		13809
PK Vance		12422
priscilla grimmett		13349
Priscilla Stephens		12875
Qian Zheng Yi		38358
Querido Galdo		17319

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
R Wells	12576
R. Christopher Bohlman	13211
Rachael Denny	13883
Rachael Moore	12171
Rachel Cilley	13417
Rachel Ingram	17824
Rachel Scarlata	13339
Rachelle Mazar	12559
Raeann Scott	12091
Rafael Custodio	14375
Ralph Cope	12869
ramona Butters	13885
Ramona Sahni	13285
Randi Holt	11660
randy herrington	13080
Randy Lopez	12649
Randy Sailer	14408
Ray Jordan	13114
Ray Swiatkowski	12601
Raymond Boisvert	13407
Raymond F Zoellick	12543
Raymond Gipson	13498
Raymond Stewart	13323
Raymond Zahra	11684
Raymond Zhang	11895
Reba Bumble	13401
Rebeca Steinberg	12004
Rebecca Canright	17345
rebecca carter	14092
Rebecca Crowder	12372
Rebecca Kraimer	17831
Rebecca Lavash	13565
Rebecca Leas	36653
Rebecca Mesa	13203
Rebecca Oberlin	14073
Rebecca Pollinzi	13688
Rebecca Seivert	12849
Rebecca Sexton	12264
Rebecca Stone	13613

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
rebecca tippens		12009
Rebecca Trumbull		12502
rebekah weiner		12313
Reebeca Canmouise		12542
Reed Heffelfinger		13348
Reetta Raag		12180
Regina Kelley		13989
reid hardenbergh		14054
Rene Breier		12738
renee j		21297
renee kenneybrew		14093
Renee Kermeen		12642
Renee Lillard		17750
Renee Meyer		12284
Renee Tantala		13167
renee tarry		13928
Rev Curt Miner		13535
Rev. Beatrice Hitchcock		14186
Rev. Dr. Ronald L Sims		12937
Rev. Glen Halbe		13639
Rev. Paul Brown		13564
Rhonda Lawford		12321
Ricardo Hernandez		14034
Rich ranieri		21308
Richard Blandin		17454
Richard Borelli		19991
RICHARD CURRY		12859
Richard E Cooley		12514
Richard F Myers		13803
Richard Glinski		12767
Richard Griggs		13337
Richard Grzeskowiak		12099
Richard Hieber		13850
Richard Johnson		13867
Richard Kite		13847
Richard Stanley		13333
Richard Stern		37855
Richard Stewart		12470
Richard Tidd		13889

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Richard Tingblad	12250
Richard Troell	17611
Richard Van Hoozer	12751
Richard Van Hoozer	12753
Rick Moon	14284
Ricki Newman	13692
Ricky Deodati	14046
Riley Canada II	12207
Rita Franco	13178
Rita Glasscock	13189
Rita Kain	14265
R-Laurraine Tutihasi	11918
rob jansen	12332
Robbin Flowers	13783
Robert and Jean Pollock	12139
Robert Bone	21515
Robert Burch	13936
robert cobb	13821
Robert Cotter	12842
Robert Drop	12353
Robert Fuerst	13132
robert fulmer	13691
Robert Furtek	16498
Robert Hicks	11673
Robert Holzrichter	13117
Robert iedike	13799
Robert Jaeger	15797
Robert Jenks	17532
Robert Kennedy	11954
Robert McManus	17346
Robert Meadows	12028
Robert Nagel	16841
Robert Nobrega	17806
Robert Obeid	13771
Robert Oxborrow	13786
Robert Peters	14356
Robert Swab	14173
Robert Sweeten	12517
Robert Weber	12226

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
roberta bunsick		12732
Roberta McCanse		12644
Roberta Roberts		12166
Robin Bray		14176
Robin Frede		12929
Robin Hernandez		13134
Robin Iwaniec		17777
Robin Kladke		17644
Robin Peterson		13901
Robin Rhyand		17303
Robin Schaef		14085
Robin Schielke		13884
Robin Stein-Corivano		17512
Robyn Glenney		40262
Robyn Laura Cox Jorgensen		12913
robyn little		13449
Rocco Sirico		13471
Rochelle Foran		12891
Rochelle Thomas		17654
Rocio Gonzalez		11758
Rocio Salazar		11703
Rodney and Terri Jones		11716
rodney hemmila		17719
Roger Briggs		17836
Roger Packard		14345
Roger Reese		14314
roger schmidt		13663
Roland Lindorfer		12328
Rolf Friis		13714
Ron Boddicker		14348
Ron Goldman		12359
ron kutch		12906
Ron Lee		13972
Ron Raz		17632
Ronaele Snyder		12184
Ronald Clayton		12583
Ronald Marshall		13588
Ronald Ratner		14125
Ronald Richardson		13470

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Roni Jo Patterson	14094
Rory Huber	13833
Rosalyn Rohloff	12549
Rose Ann Ambrowiak	14333
Rose Bertrand	13863
Rosemary Cyr	12096
Rosemary Merriman	13341
Rosiland Roemer	13468
Rox Petoskey	14115
roy adsit	12315
Roy DuVerger	21530
Roy E Bires	12818
Roz Hill	12033
Rozalyn Sippel	16149
Ruben Ortiz	17570
Rudy & Barbara Stippec	11759
rudy zeller	12065
Russ Paulson	12987
Russell Fowler	11742
Russell Weisz	12425
russo melissa	12742
ruth kantor	14143
Ruth Leiter	12814
Ruth Noble	12721
Ruth Serra	17771
Ruth Wenzel	12662
Ruth/John Watson	17861
S Jahangeer	14019
S Lee Laplante	21407
S Wendelin	11750
S. Jamesmarie Gross	14366
S. M. Schumann	12295
S. Snidow	13795
Sabine Woggon	23486
Sadia Caceres	14282
Sally Mathewson	14079
Sally Reinholdt	13859
Sally Spelbring	13871
Salome reis	15981

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
sam sanders		14231
Sandi Archer		13184
Sandi Covell		12667
sandra arapoudis		17702
Sandra Arnold		14067
Sandra Ashmore		12781
Sandra Carr		12936
Sandra Christopher		12945
Sandra Cobb		12086
SANDRA CONLON		14322
Sandra Ianello		17822
Sandra Lawrence		13149
Sandra Materi		17758
Sandra Meland		13577
Sandra Naidich		12600
Sandra Pucillo		12654
Sandra Reynolds		16336
Sandra Rhoads		12067
Sandra Steers		13200
Sandra Walters		14404
Sandra Wilson		17589
Sandra Woodall		11659
Sandra Wright		12761
Sandrine Coulon		17835
Sandy Levine		11767
Sandy Sagitto		16784
Sandy Sobanski		13777
Sandy Zelasko		36609
sanja lalic		20774
sara bergeron		12206
Sara Ellisson		21292
Sara Knapp		13102
sara mahy		13104
Sara Paoluzzi		17729
Sara Rankin		13197
Sara Waller		17264
Sara Wersinger		16660
Sara Young		13744
Sarah Barnhill		13644

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Sarah Bracken	13619
Sarah Brady	14022
Sarah Davis	12141
Sarah Ganong	12839
Sarah Gowin	13174
Sarah Hamilton	41404
Sarah Romain	13372
Sarah Stiles	17235
Sarah Wiebenson	14252
Saran Kirschbaum	13193
Saskia Santos	14248
Saul Aguirre	14226
Scott Crockett	12530
Scott Jerden	12621
Scott Lake	12216
Scott Meyer	12547
Scott Norris	13566
Scott Species	13301
Scott Zellner	12714
Seaghan Coleman	12887
Sean Kilpatrick	14257
Selva Carnevale	17820
Serena Farhi	13497
Serena Wittkopp	17564
Sergej Postupalsky	14236
Seymour Gross	17428
shannon lanning	13441
Shannon Saldana	12104
Shannon Teper	13590
Shara Briggs	13314
Sharon Antoniak	14056
Sharon B.	13262
Sharon Bailey	11970
Sharon Bramblett	12980
Sharon Bubel	21204
Sharon Byrd-Mackbee	16759
Sharon Chagnon	13925
sharon chang	14160
Sharon Day	13410

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Sharon Engler		13953
Sharon Longyear		12968
sharon mora		17495
Sharon Sheets		13693
Shaun Woodson		16838
Shawn Tvrz		17528
Sheila Dillon		12003
Sheila Martin		13099
Sheila Morway		14214
Sheila Sheppard		17579
sheila wyse		14150
Shelby Hood		12678
Shelia Maes		13388
Shell Ray		12306
Shelley Ellis		14042
Shelly Blank		12590
Sheri Hewitt		12952
Sherilyn Coldwell		12544
sherrie munday		13455
Sherry Howard		12100
Sherry Krider		12048
Sherry Meddick		13916
Sherry Owens		12699
Sheryl Marquez		13937
Sheryl Peters		13822
Sheryl Peters		13856
Shirley Bales		12596
shirley mills		17233
Shirley Robinson		12739
Shirley Smith		12385
Shirley Wallack		12687
Shirley White		13345
Sidney Bonte		16238
Sidney Harring		13092
Sidney Peck		12123
Sigrid Acosta Ramos		20001
Silvana Borrelli		17467
silvana zelmanovich		11718
Silvia Bertano		12337

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Silvia Comparini	17537
SIMON PEARSON	19950
Skylar Seward	12880
Sng Hui	12278
Sofie Forsberg	17807
Sondra Seiler	14424
SONIA GATT	11989
Sonia Rego	13622
Sonja Chan	12856
Sophie Zyla	13752
Spring Nothelfer	21535
Stacey Calvert	11959
Stacey Rohrbaugh	17448
Stacy & Greg Kline	13961
Stacy Cornelius	14156
Stacy Lupori	13324
Stacy Young	17865
Stan Janczuk	14152
Stanley Becker	12252
Star Star	12523
Stefan Taylor	13898
Stefanie Yellis	13336
Stefanka Ilieva	13273
Stephanie Bell	12730
Stephanie C. Fox	13153
Stephanie Clark	12522
Stephanie Cuellar	16175
Stephanie Hensley	13723
Stephanie Jones	13715
Stephanie Llinas	17787
Stephanie Pierce	13318
Stephanie Stephan	17578
Stephanie Stone	13685
Stephanie Vorse	13154
Stephen Brockmann	12919
Stephen Coleman	14352
Stephen Gabor	17552
Stephen Gliva	13196
Stephen Hackney	12190

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Stephen Heisel		12510
Stephen Kubick		13741
Stephen Mitchell		14266
Stephen Neimoyer		17778
Stephen Nolan		11690
Stephen Smith		12966
Steve Hylton		17314
Steve Lindstrom		13952
steve lucas		13602
Steve Robey		12129
Steve Roescher		12715
Steve Savitch		12769
Steve Schildwachter		13356
Steve Sheehy		12140
Steve Van Oudenhoven		14237
Steve Yaffee		13368
Steven Arnett		14070
STEVEN BOUCHARD		14037
Steven carpenter		12942
Steven Christian		13304
Steven Christian		13310
Steven Heffley		17475
Steven J. Prince		11964
Steven Kostis		12195
Steven Kranowski		12415
Steven Nelson		12545
steven reilly		12367
stuart Krupkin		13400
Stuart Ross		13940
Sudeshna Ghosh		17847
Sue Burns		12907
Sue Horwood		16783
Sue Jett		13824
Sue Kempton		17268
sue lesmond		11670
Sue McFadden		14246
Sue McLean		14281
Sue Steinmann		13247
Sunny Tabino		14003

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Sunny William	17682
Susan Allen	14155
Susan Babbitt	11734
Susan Barrons	17642
Susan Bassett	13254
Susan Berg	14033
Susan Blake	16350
Susan Brandes	12222
Susan Coles	12582
Susan Dawson	13240
Susan Diaz	12895
susan eckstein	17302
Susan Elliker	13611
Susan Esposito	14415
Susan Evilsizer	11752
Susan Fuller	12361
Susan Garcia	11669
Susan Greenberg	12151
Susan Heisler	12394
Susan Helton	13206
Susan Horlick	14228
Susan Jaeger	20760
Susan Kilgore	13000
Susan Knight	14418
Susan Kozinski	13742
Susan Leete	17782
Susan Lunden	17355
Susan Madson	12976
Susan Marsh	16837
Susan McDonough	13790
Susan McMullin	13491
susan messerschmitt	13296
Susan Mulcahy	13601
Susan Navidad	17588
Susan Peirce	14421
Susan Preston	14083
Susan Rogers	12873
Susan Rossbach	17522
Susan Ruiz	12435

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Susan Saltzman		14187
Susan Sass		11903
Susan Schott		13662
Susan Thompson		13962
Susan Thurairatnam		12676
Susan Titus		13110
Susan Toft		12716
Susan Wertz		14163
Susan Williams		14301
susan young		13298
susanne leininger		14267
Susanne Treece		12531
Suzanna Dessauer		11803
Suzanne Deerlyjohnson		13624
Suzanne Kiss		17386
Suzanne Roche		11720
Sydney Henley		17789
SYDNEY HIRSCH		11747
Sylvan Lumsden		14061
Sylvia Gray		11744
Sylvia Gries		11919
Sylvia Stanat		13447
Sylvie Auger		17837
sylvie carpentier		13343
T C		13093
Tabassam Shah		13222
Tabatura Job		13278
Tabatura Job		13319
taggart howland		13332
tamara ashley		12235
Tamara Rosenau		12618
tamara schmidt		16659
Tami Palacky		11971
Tammy Douglas		17757
Tammy Schuster		12247
Tammy Weatherly		13220
Tamyra Mouginis		12213
Tania Malven		13162
tanja groß		17841

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Tanja Weinel	17754
Tanya Thomas	17379
tanya wisniewski	17380
Tara Verbridge	12844
Tatiana Torres	11713
Taylor Zimmerman	17394
Taz Butler	17853
Tedd Kawakami	13890
Terence Peterson	12951
Teresa Edmonds	14403
Teresa Hunt	13430
Tereza Cristina Rodrigues Marins	13234
Teri Breitenbach	14401
Terie Walters	14230
TERRE BURNETTE	13808
terri armao	14399
Terri Sorrell	12854
terry bragg	13552
Terry Eaton	16297
Terry Feldman	13843
Terry Friedman	12698
Terry San Cartier	17575
Terry Smith	13682
Terry Tedesco-Kerrick	12527
Terry Vollmer	13559
Thea Surrey	17731
Theresa Cromeans	14275
Theresa Day	14040
Theresa Heinsler	13328
Theresa Lange	17618
Theresa Peckham	12346
Theresa Rockett	12700
Thierry Favre	17762
Thomas Aber	14153
Thomas Anderson	13164
Thomas Gallagher	12871
Thomas Humphrey	13705
Thomas Ogle	17029
Thomas Prebble	13964

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Thomas Rams		12962
Thomas Smith		13561
Thomas Swimley		14047
Thomas Trenchard		12414
Thomas Wilson		17744
Thomas Wolf		11743
Thomas Zimmer		13089
Thomas Zissu		12128
thunder redwomin		12118
Tia Triplett		13866
Tika Bordelon		12684
Tim Mc Nemar		13804
Tim Phares		13646
Tim Price		13598
Timothy Baird		12948
Timothy Schacht		17728
Tina Brenza		17649
Tina Dahlmann		13536
Tina Trice		12309
Tod Luethans		12713
Todd Burras		13488
Todd Cisna		12701
Todd Gross		17486
Todd Hildebrandt		13913
Tom Jackson		13100
Tom Nieland		13529
Tom Rickmers		14129
Tom Warhol		12074
Tom Wiener		13713
Toni Garmon 103 honey		11977
Toni Howard		14144
Toni Wolfson		17726
Tony Marra		13947
Tony McCarson		13553
Tony Menechella		17530
tonyfaase faase		12083
Tracey Mangus		13830
Tracey McManus		17441
Tracey Smallwood		12498

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Tracy Anderson	14126
Tracy Cole	17453
Tracy Eve	12047
Tracy Frank	12354
Tracy Johnson	12766
tracy mclarnon	12173
Tracy Wallis	14177
Trautel Schönheit	16842
Tricia Murphy	13494
Trina Cooper	12438
Trish Chaney	12081
Trish Gardiner	12985
Tudy Garrett	13293
Twyla Meyer	17566
Tye Block	11991
Tyler Blackwelder	17582
Tyler Kaiser	12801
Tyler Roberts	12350
Uma Veloo	12934
Urbain Mireille	17799
V Voland	13480
V. B.	14198
Val Rose	17628
Valeria Cervellati	13137
Valerian Alexander	12136
Valerie Dare	16840
Valerie Phillips	13594
Vanessa Carbia	12240
Vanessa Gonzalez-Green	12865
Vanya Hession	14388
Venice Rembold	12763
Vera Brown	13929
Vera Freed	21331
Vercknocke Pascal	11987
Vernon Wedow	12912
Veronica Gandara	12927
Veronica Heron	11693
Veronica Petrus	11689
veronique bouts	11906

Sender Name		Submission ID
24 Audubon: SDEIS is "Incomplete"		
Veronique Jarrell-King		12052
Veroune Chittim		12114
Vic Bostock		14222
Vickey Baker		11676
Vicki Johnson		16560
Vicki LaPlante		13216
Vicki Pauly		14060
Vickie Klubek		17583
Vickylou Sharer		16042
Victor Fred		13194
Victor Masterson		13922
victoria castrejon		13374
Victoria Miller		12605
Victoria Spiers		13648
Victoria Vega		14429
Vikki Melnick		12105
Vilma Mengoli		12296
Virginia Baksa		14128
Virginia Collins		13902
Virginia James		17736
Virginia Mendez		11701
virginia schmidt		17769
Vittorio Ricci		14390
Vivian Griffin		12200
Vivian Valtri Burgess		13385
W. Ryan		13279
Walker Everette		12233
Walt Kleine		11666
Walter Willette		12378
Wanda & Steve Daehlin		13495
Wanda Gaul		13165
Wayne Lichtenberger		14270
wayne middleton		17493
Wayne Person		14074
Wayne Wathen		14383
wayne willoughby		13607
Wendi Schneider		14218
Wendy Burgess		13837
Wendy F		14419

Sender Name	Submission ID
24 Audubon: SDEIS is "Incomplete"	
Wendy Forster	16816
Wendy Honigman	13158
Wendy Raebeck	13699
Wendy Raymond	12016
Wendy Raymond	14372
Wendy Rominger	17753
Wendy Smith	19985
whitney watters	13445
willem kom	17801
William Barthen	12465
William Boeh	11930
William Briggs	13895
William Briggs	17650
William Combs	13335
william crosby	11934
William Krause	14090
William O'Brien	13782
William Richards	11990
William Siebel	13325
William Smith	13398
William Walraven	13081
Wilma Davison	12862
Wilma McNulty	17240
Wilma Thompson	12455
Windy Holzbach	12461
Wynn Sasaki	12043
Yancy Rowlette	14147
yanina pidkuko	13313
Yasamin Sharifi	21447
yasuko margolis	12964
Yee Yean Lim	14303
Yip Yuen	17565
yolanda schultes	11912
Yvonne Buoncora	17624
Yvonne Fast	17367
Yvonne Irvin	12070
Zara Ivanova	17764
Zola Packman	13591
Zsanine Alexander	11927

Sender Name		Submission ID
25 Environment Minnesota		
Form Letter 25: Environment Minnesota EIS Project Manager Lisa Fay 500 Lafayette Road, Box 25 St Paul, MN 55155 Dear EIS Project Manager Fay, I urge you to reject the proposed PolyMet mine. The project presents unacceptable environmental risks and should not be allowed. This dangerous sulfide mining operation threatens to pollute Minnesota water with sulfuric acid and heavy metals for 500 years and endangers clean water and habitat in the Lake Superior basin. If approved, this first-ever sulfide mine in Minnesota would open the door for future mines that would endanger the Boundary Waters wilderness. For all these reasons, I urge you to reject the PolyMet mine. Sincerely,		
Aaron Fontaine		42369
Albert Everling		16661
Alesa Boyle		56440
Alex Girardot		56391
Alex Luing		45612
Alex Sommer		43603
Alexandra Ward		56349
Alice Davison		45789
Alison Scheig		47489
Alizarin Menninga		56334
Allison Bender		56429
Allison Derungs		57858
Amanda Spitzenberger		47401
Amber Garlan		57834
Amelia Shoptaugh		42371
Amy Mihelich		56480
Ana Kaveh		57758
Anders Ohm		56402
Andrew Gwynn		57754
Andrew Malone		44477
Andrew Morrow		47302
Andrew Wilder		56485
Andy Switzer		56366
Angela Brewer		41163
Angelene B.		42318
Angelo Dizen		57748
Angie Stark		38411
Ann Hauer		47167
Ann Scanlan		41486
Ann Schley		57864
Anna Landskroener		47402
Anna Nassiff		56348
Anne Barnier		40566
anne grinager		43717
Anne Hanley		42382

Sender Name	Submission ID
25 Environment Minnesota	
Anne Jasperson	40257
Anne Jasperson	40451
Anne Jefferies	45447
Annika Larson	57783
Anthony Capobianco	42407
Anthony Farris	57750
Anthony Parisi	46567
Ariana Lewis-Stevens	56341
Arielle Axelrod	56409
Audrey Glynn	57851
Austin Pejovich	56410
Bailey Williams	56461
Barbara Johnson	40942
Barbara Kirner	57791
Barbara Pecze	41357
Bart Cannon	40599
Belina Reisman	57842
Ben Merchant	40752
Ben Morales	36386
Ben Rich	41031
Benjamin Seaton	56464
Benjamin Swenson-Klatt	56377
Berti Miller	56423
Beth Carlson	57818
Beth Frykman	57799
Betty Kelly	42320
Beverly Adams	41434
Bill Kubiski	47424
Bimala Shrestha	56384
Bishwas Sharma	56382
Bjarne Pedersen	57840
Bonnie Jean MacKay	43720
Bradford Jamson	57810
Brandon Corey	57747
Brenda Briney	42345
Brenna Healy	57782
Brian Kinney	42351
Brian Mandson	57811
Britta Larson	56381

Sender Name	Submission ID
25 Environment Minnesota	
Bruce Kuehmichel	47585
Bruce Snyder	45798
Bryan Axell	42370
Bryna Pizzo	38671
Bunnie Aune	57740
Byron Anderson	39659
C. Kolstad	57760
Cara Culbert	56460
Caren Stelson	47328
Carla Morris	42372
Carol Ashley	47393
Carol Dines	42385
Caroline Strong	56439
Carolyn Maurer	57863
Carolyn Stark	42378
Casey Smith	57795
Cassandra Hedrix	47588
Cassie Burke	43718
Catherine Pruszynski	46212
Cathy Pence	47488
Celeste Robinson	56346
cevdet cingi	44864
Chantal Buslot	47279
Charlie Stark	42333
Charlotte Goude	57852
Chelsea Thibodeau	41401
Cheryl Beltz	57741
Chris DiCesare	56353
Chris Drumright	42367
Chris Frethem	42321
Christian Langheinrich	45110
Christianna Skoczek	42398
Christina Raine	19980
Christine Pikala	39000
Christine Pikala	47421
Christopher Hugo	56498
Cindy Illegible	56455
Cindy Karnowski	57854
Claire Brandsky	56425

Sender Name		Submission ID
25 Environment Minnesota		
Cole Carlson		46284
Colin Casey		56337
Colin Krueger		47146
Colin McGuire		57777
Colleen Powers		44548
Colleen Sherry		46102
Connor Read		56426
Corinne Idzorek		56378
Cory Christensen Cain		42363
Craig L. Sylvester		57780
Cristiana Britt		56367
Cyn Goustin		47444
cyndi neus bradley		38643
D. Singer		47329
Dale Hennen		57841
Dan Lilly		56368
Dan Sandstrom		36606
Daniel Bell		43354
Daniel Johnson		40597
Daniel Meyer		56441
Daniel Odetola		56428
Daniel Roschen		43092
Daphne Orlando		46091
Darlene Kunze		57819
David Anderson		56407
David Holcomb		57787
David Verzal		41311
Dawn Rust		41289
Deb Broderick		57770
Deborah Zimmerman		47490
Debra Ganshaw		42331
Debra Klander		42334
Delilah Effinger		57749
Den Wesolowski		47264
Denise Dieffenbach		47091
Derek Rausch		43106
Derek Waller		56430
Diana Martin		47390
Diane Dovenberg		57771

Sender Name	Submission ID
25 Environment Minnesota	
Dianna Bauer	43996
Dick Trapp	47590
Dillon Davis	56477
Dirk Van Toor	57762
Dogan Ozkan	42312
Doly Raketomahanina	56387
Don Nelson	57812
Donald Long	42368
Donna Cloutier	42346
Donna Hager	57755
Donna Young	38673
Dori Cole	42359
Doug Ellingson	47278
Douglas DeFoe	37938
E. Jankord	57790
Edmund Levering	42386
Eileen McNulty	56468
Elaine Mayer	47086
Eleora Albala	56352
Elise Forer	47326
Elizabeth Goodpaster	57832
Elizabeth Izagure	56463
Elizabeth Radtke	47277
Ellen Terwilliger	42293
Ellie Leonardsmith	19975
Elliot J. Knuths	56431
Emily Bucka	57744
Emily Goodhue	56447
Emily Johnson	56436
Emily Karborki	56497
Emily Palmer	47148
Emily Patterson	56361
Emma Spurgin Hussey	41148
Emma Woodworth	41001
Ephraim Bluhm	57789
Eric Crees	56470
Eric Stafford	56412
Erik Edson	41015
Erin Peters	56359

Sender Name		Submission ID
25 Environment Minnesota		
Eva Illegible		56422
farris hussain		43990
Fran Hormel		42341
Frederic Stephens		42322
Gabriel Coleman		56438
Gage Garretson		56340
Gail Frethem		46099
Gail Linnerson		47447
Gail McMullen		46141
Gary Fichtinger		47090
Gena Berglund		47334
Geoffrey Rich		41033
George Nemanich		47452
Gina Wood		42313
Ginger Hill		42308
Grace Leary		56471
Greg Johnson		38615
Greg Menning		57833
Gregg Menning		47293
Greta Sandquist		57779
Gretchen Bratvold		42374
Gwen Carlson		57847
Hal Trufan		44948
Haley Nelson		47345
Hannah Evans		56343
Hannah White		16654
Harold Clapp		44058
Hayden Johnson		43709
Hayley Madland		56499
Heather Poepping		47487
Henry Minsen		56360
Holly Holmes		57773
Hope Sexton		56479
Huong Dao		56433
Ian Hamilton		56445
Ian Wallace		56380
Ida Sobotik		56448
Illegible Illegible		56374
Ingrid Paulsen		56488

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Isaac Burton	56435
Isabel Carman	56481
Ivy Winfield	57865
J. Bemis	57844
J. Bender	47147
James Breneton	57846
James E Sorensen	41030
James Fehrenkamp	42397
James Hoffman	44775
James Jorgenson	57757
James Ruttley	42377
James White	57814
Jamie Dabrowski	42350
Jamie Saeld	56495
Jane Gregg	57859
janet forman	42307
Janet Maker	42381
Janet Maker	46221
Janet Neville	42411
jared price	43345
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Jay Satterwhite	42342
Jay Satterwhite	45457
Jean Faley	42356
Jean Lindquist	47446
Jean Ross	17306
Jeanne Filkins	57836
Jeff Hoeg	57756
jeff hopkins	46025
Jeff Molumby	57806
Jeff Ruffatto	56419
Jeff Stromgren	45946
Jenassa Sanford	56474
Jenna Harder	56465
Jennifer Dahle	44468
Jennifer Micek	42344
Jennifer Salhus	42391
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Jessie Hansen		46354
Jessie Shaffer		46062
Jill Benninghorn		57742
Jim Pounds		42405
Jim Weigle		57867
Jo Anne Rohricht		38691
Jo Ellen Davis		42384
Joan Overby		57793
Joan Tuberty		57803
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Joe Nelson		43476
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Joh Shimpach		56364
John Call		57813
John Ganapes		42366
John Garceau		46101
John Hinners		42285
John Kruse		42360
John Linnerson		47445
John Pearson		57801
John Smith		57767
John strand		42406
John Viacrucis		42414
John Walker		17364
John Wolter		57824
John Yates		16662
Jon Rich		42365
Jonathan Knowles		42408
Joni Hahn		57837
Jordan Pesik		56450
Josh Overgaard		57785
Joshua Albers		41051
Joshua Mangler		44632
Judith Bonar		57769
Judy Finger		41495
Julia Pilkington		56486
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25 Environment Minnesota	
Juliana Bertelsen	39389
Julie Kilpatrick	57866
Julie Plumer	42390
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June & Gene Peterson	43606
K. Cash Luck	42358
Kafayat Akindele	56432
Kali Prigge	45256
Kallie Lund	56365
Karen Chestney	42314
Karen Weldon	56335
Kate Donahue	57826
Kate Dwyer	56444
Kate Lloyd	43091
Kate Spencer	56357
Katherine Jardon	56452
Kathleen Chesney	47197
Kathryn Faley	42355
Kathryn Rudd	38364
Kathy Kormanik	42413
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Katie Kirschbaum	44900
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Katie Schmitt	40944
Katrina Bucknell	42357
Kayla Skibbe	56404
Keith Evans	57772
Keith Thompson	42335
Kelly Halpin	56482
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Kendra Johnson-Tesch	56393
Kerry Shermer	46060
Keven Bachman	47486
Keya Ganguly	41078
Kim Yoakum	57830
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Kirsten Brekke Albrigh	57835
Kirstin Wilson	42402

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Kollin Rozmarynanski	56370
kristen johnson	42364
KRISTIN H JOHNSON	42347
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Kristoffer Rich	41032
Kurt Illegible	56358
Kurt Wehrmann	39387
Kyle Allenson	46358
Kyle Obermann	56413
Kyle Shelton	56454
Laila Simon	56451
Lane Holden	56356
Larry Bogolub	45939
Laura Haule	46092
Laurel Browne	42284
Laurel Oswald	56443
Lauren Dietemann	43715
Lauren Mayer	56345
Lauren Ostrem	56362
Lauren Roelike	56483
Lauren S	47392
Laurie Bremer	46098
Lee Beaty	57815
Leif Bjornson	57743
Leigh Johnson	47029
Leigh Pomeroy	42389
Leigh Todd	45261
Leslie Stein-Grohs	57763
Lilia Escobar	56389
Linda Morris	46322
Linda Schaetzel	40954
Lindsey Wilson	44400
Linnea Pierson	56492
Lisa Borja	37364
Lisa Koetke	56372
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Lynn C. Lang	45177
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Lynn Steiner	40768
Lynn Winter	57861
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Madeleine Osgood	56394
Maggie VanDerMolen	56392
Malia Brandt	47450
Mallory Turner	57796
Malyn Kuntz	45703
Marc Schoenberg	40744
Margaret Cellette	57798
Mari McClelland	56434
Mari Woltman	56453
Maria Handzel	56398
Maria Zenarda Swanson	56457
Mariah Carray	56351
Marianne Jurayj	57800
Marina Johnson	38369
Mark Benolken	47426
Mark Herreid	44866
Mark Lotz	57776
Mark Voeller	42395
Marlyce Miller	47169
Martha Baxter	42376
Martha Kaiser	42332
Martha Nicoloff	57808
Mary Bjorngjeld	41228
Mary Gnatz	57827
Mary Goodman	42326

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25 Environment Minnesota	
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Mary Lusher	44323
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MaryJo Uhlenkott	47512
Matt Boys	44055
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Maureen Mordick	42325
Maureen O'Neal	42338
Maxwell Johnson	56466
Mbemba Camara	56347
Megan Lundquist	44307
Meishon Behboudi	45705
Melinda Hiller	43708
Melissa Chin	46372
Melissa Henning	56472
Merrie Healy	41092
Micah Sindelar	56418
Michael Brodie	42354
Michael Engh	42394
Michael Jones	56350
michael knoll	42403
Michael Larish	57775
Michael Leck	45538
Michael Mayer	46570
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Michael Saelow	57855
Michael Walters	38670
Michaela Rice	45704
Micheel Lipetzky	19917
Michelle Egan	42388

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25 Environment Minnesota	
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Mike McCann	38614
Mike Vanie	57825
Miller LaMotte	56424
Mimi Ansel	56473
Mohan Mathews	42327
Moliehi Tjamela	56462
Monica Schllip	57856
Nadia Hussain	43098
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Nan MacDonald	57831
Nancy Kessler-Moore	42275
Nancy O'Conner	57822
Nancy Stancati	41002
Nate LaFord	56446
Nick Baker	56363
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Nicole Newell	56383
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Oscar Maldonado	57797
Panagiotis Rigopoulos	42300
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Pat Churchill	57751
Patricia Pool	42324
Patricia Schaber	57817
Patricia Vazquez	42330
Patti Berg	57857
Patty Hongell	57816
Paul Chellsen	57848
Paul Thompson	45337
Paula Case	57745
Paula Fox	42343
Pete Kolias	46910
Pete Langheinrich	43238

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25 Environment Minnesota		
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Philip Ricketts		42409
PHILIP ROGERS		43975
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Rachel Kinnunen		47422
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Rebecca Cline		42292
Rebecca Larson		57805
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Reid Welsh		56417
Reilly Quirk		56371
Rex Filstrup		38694
Rhiannon Fisher		44077
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Rich Kronfeld		38692
Richard Brzyski		47261
Richard Patten		42323
Richard Schaefer		38642
Richard Sonnen		42316
Richard VandenDolder		42362
Richard VandenDolder		45339
Riley Thompson		56411
Rita Allen		43711
Rita Franchett		57752
rita iacarella		38611
Roberta Hodgdon		42404
Robin Krause		47485
Robin Wetzel		57839
Rochelle Kelley		57860
Roger Gamull		57753
Ron Brand		57845
Ron Palmer		42337
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Rowan Ellis		38689
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Ryan Reid	57786
Ryan Sparrow	56355
Ryan Wilson	57868
Sally Giles	42412
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samantha chadwick	47093
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Samuel Motzko	16355
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Sandra Materi	44628
Sandra O'Brien	47263
Sandy Daly	42383
Sandy McAllister	44401
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Sarah Chase	43480
Sarah Evans	43813
Sarah MacDougall	42393
Sarah Morrow	41080
Sarah Nobel	42349
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Sarah Silbert	56338
Saran Langer	56385
scott Colesworthy	38693
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Sebastian Surom	56489
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Sharon Butz	42373
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Shawn Stricker	41064
Sheila Desmond	42336
Shirley Huskins	42361
Signe Braafladt	56379
Silvia Bertano	44932
Sonam A. Tsangspa	56459
Sophie Dekker	56494
Sophie Friedman	56496
Spencer Castillo	56376
Stefan O'Kula	56493
Stephanie Daily	57849
Stephanie Hoepner	57764
Stephanie Kisch	56421
Stephanie Malcy	20123
Stephanie Mastel	42387
Stephanie Stoessel	40999
Stephanie Van Dyke	56469
Stephanie Yang	56437
Stephen Nolan	56400
Stephen Streed	42392
Steve Koschak	45179
Steven Hoganson	56420
Steven Wett	56399
Susan Kinnee	41503
susan madley	22740
Susan Moore	39384
Susan Olgary	57792
Susan Scow	56390
Suzanne Lindgren	40488
Suzanne Ross	47451
Sybil Graffunder	46355
Sylvie Auger	42295
Tabitha G. Fischer	57850
Tammy Swenson Flynn	44304

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Taylor Heitman	56491
Taylor Lightman	56467
Taylor Perrier	47343
Teresa Johnson	57804
Terra Ridgeway	56405
Terri Hennings	57829
Theresia Kinanti Dewi	56403
Thomas Herdtle	47425
Thomas Mittelstaedt	47292
Thomasin Ringler	42379
Tim Dray	38672
Tim Hreha	20154
Tim Hreha	41344
Tim Klustner	56478
Todd Kellogg	46729
Tom Arneson	57828
Tom Kirk	56388
Tom Neiman	57794
Trenk Ebbighausen	47262
Tressa Schendel	38640
Twyla Anderson	42340
Uam Nimis	57821
Vicky Forrest	42315
Virginia Larsen	56414
Virginia Schwertfeger	40943
Wendy Naughton	57807
Wendy R. Raymond	56449
Weston McConnell	45048
Weston McConnell	45049
Will Oosterman	42396
William Fay	56415
William Powers	43819
William Rabiner	57802
William 'Skip' Dykoski	42317
William Thesial	56336
Wouter Hammink	56339
Yiming Liu	56476
Yiwen Wu	56475

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25 Environment Minnesota	
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Yuhui Chen	56487
Zach Greimann	56408
Zach Rice	56416
Zach Westermeyer	56386
Zach Wood	56396
Zachary Cusick	41180
Zachary Meer	56484
Zoe May	45172

Sender Name		Submission ID
26 Mining Truth: Canada Lynx		
Form Letter 26: Mining Truth: Canada Lynx Ms Lisa Fay, Department of Natural Resources To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of the cumulative effects of habitat fragmentation and loss on the Canada Lynx (Lynx canadensis). The Canada Lynx is a threatened species listed under the federal Endangered Species Act. The NorthMet project area is in designated critical habitat for the lynx, and the SDEIS notes that the proposed action would destroy over 1,400 acres of critical lynx habitat at the mine site. The designation of this area as critical habitat is supposed to trigger analysis of whether the proposed action, and the cumulative effects of other reasonably foreseeable actions place the Canada Lynx in jeopardy. In addition, the incidental death of Canada Lynx due to increased vehicle traffic between the mine and plant site is noted, but inadequate attention is paid to mitigation measures that could limit incidental deaths of lynx. Despite this, the SDEIS contains contradictory statements about the use of roads as travel corridors by lynx. The cumulative effects analysis section of the NorthMet SDEIS fails to adequately account for a number of reasonably foreseeable projects. Specifically, the Twin Metals and Teck American projects are listed as andquot;speculativeandquot; in Section 6-2-2-1-21 and are not analyzed for their cumulative effects. No evidence or rationale for excluding these projects from the cumulative effects analysis is offered. In Section 6-2-3-6-4, the Gray Wolf is the only andquot;Special Status Speciesandquot; for which even limited analysis of cumulative effects is conducted, despite the Canada Lynx's status as a federally threatened species. Please take the following actions: 1) Include the Twin Metals and Teck American projects as reasonably foreseeable projects in the cumulative effects analysis in section 6-2-2, since the disposition of the NorthMet SDEIS and subsequent permitting decisions could make these projects more likely to be built. 2) Include the Canada Lynx as a andquot;Special Status Speciesandquot; in Section 6-2-3-6-4 and conduct a cumulative effects analysis of the impact on Canada Lynx. 3) Analyze and include mitigations such as tunnels and fencing to limit the possibility of incidental take of Canada Lynx by increased road traffic associated with the NorthMet proposed action. 4) Remove contradictory language in SDEIS about Canada Lynx utilization of roads as travel corridors. For example, on p. 5-628 the SDEIS states andquot;Lynx utilize snow packed trails and roads as travel corridors,andquot; while on p. 5-366 it says andquot;this species does not rely on roads for travel.andquot; 5) Analyze and include mitigation such as accelerated re-vegetation of the mine site after closure to decrease the amount of time the mine site would be inhospitable to Canada Lynx. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. Sincerely,		
Aja Maleck		46329
Alan WOLFF		48079
Alison Neish		20795
amber jackson		21349
Amy Lambert		21275
Andrea Sreiber		38504
Ann Eastham		52321
bill sankey		38604
Brian Thorbjornsen		21370
Chanda Welch		44735
Chantal Buslot		38144
Cheryl Wilke		43287
Christina Klein		44129
Christine Frank		43294
christopher malcolm		43160
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colleen mcnicoll		39629
Dean Storm		45812
Elisabeth Bechmann		38384
Emilie Hitch		45083
Eric Willms		21335
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26 Mining Truth: Canada Lynx	
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Liz Wanschura	43926
Mandy Senechal	43390
Margaret Hedberg	52299
Mark Fangmeier	44724
Mary Blickenderfer	43657
Mary Helen Stephens	39048
Ned Bouril	40773
Nishiime Peltier	21190
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Rachel Dykoski	21437
Renee Ethier	47731
Rita Caruso Santamaria	43891
Robert Mcmanus	43663
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Sarah Engstrom	40538
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26 Mining Truth: Canada Lynx	
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Wanda Ballentine	36621
Wendy Russell	19939

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
Form Letter 27: Water Legacy: Deny the 404 Permit Dear Ms Fay, Dear Mr Bruner, Ms Fay and Mr Dabney, I'm writing to ask you not to let the PolyMet NorthMet sulfide mine destroy irreplaceable wetlands in the Partridge River watershed of the Lake Superior Basin. My comments are made both on the PolyMet SDEIS and the Army Corps andquot;Section 404andquot; Clean Water Act Permit that would allow wetlands destruction in the Superior National ForeSt PolyMet should not be allowed to destroy high value wetlands in the 100 Mile Swamp and the Partridge River headwaters for its open-pit sulfide mine. The SDEIS admits that PolyMet would directly destroy 913 acres of wetlands and as much as 7,351 acres of wetlands due to air and water pollution, mine dewatering and diverting water from wetlands. That could be the single largest wetlands loss ever proposed in Minnesota in the history of the Clean Water Act. Wetlands in the 100 Mile Swamp and Partridge River Headwaters have been changed very little for thousands of years, long before human settlement. They are important for water quality and as a habitat for moose and other at-risk species. Wetlands at the PolyMet mine site also bind up mercury, so it doesn't get into downstream fish and harm the brain development of our children who eat St Louis River and Lake Superior fish. Wetlands that would be harmed or destroyed by the PolyMet mine are water resources of national and international importance. The environmental review process is supposed to let us weigh alternatives. The PolyMet SDEIS doesn't suggest any alternatives to reduce impacts on wetlands at the mine site. The SDEIS rejects underground mining without studying how avoiding an open-pit could reduce environmental harm. It doesn't look at alternatives that would restore wetlands on site or clean up mine water and keep it in the Partridge River watershed. The andquot;compensationandquot; wetlands plan proposed by PolyMet is also completely inadequate. More than 2/3 of the replacement wetlands are outside the Lake Superior Basin and there is no mitigation at all for indirect wetlands loss. Monitoring and maybe doing something later is not an answer, especially since the Army Corps has never required mitigation for dried out or polluted wetlands after-the-fact. Under federal and state environmental laws and Clean Water Act Section 404, please: • Reject the PolyMet sulfide mine due to its unacceptable impacts on wetlands and water resources of national and international importance. • Reject the PolyMet SDEIS as inadequate due to the fact that no alternatives that could reduce water pollution and wetlands destruction are analyzed in the SDEIS. • Deny the Section 404 permit for the PolyMet sulfide mine plan, since it would destroy irreplaceable wetlands, peatlands and wetlands functions. • Deny the PolyMet Section 404 permit, since the PolyMet SDEIS plan provides no mitigation for thousands of acres of foreseeable andquot;indirectandquot; wetlands losses. • Deny the PolyMet Section 404 permit unless all "compensation" mitigation for wetlands is provided within the Lake Superior Basin. • Require the SDEIS to be redone to analyze alternatives that could avoid, minimize or mitigate impacts on Partridge River watershed wetlands and water quality. These alternatives should be considered: 1- Underground mining, looking at the full ore deposit and PolyMet's real costs; 2- Putting a liner under the Category 1 waste rock stockpile; 3- Placing all tailings on a new completely lined facility; 4- Returning the Category 1 waste rock to the West Pit to reclaim 500 wetland acres; 5- Building the reverse osmosis on the mine site in year 1 to treat (up to standards) and discharge runoff and pit water on site to minimize impacts to wetlands. Please reject PolyMet's SDEIS as inadequate and reject PolyMet's sulfide mining plan. Please also deny the Clean Water Section 404 permit and require PolyMet to analyze alternatives that would reduce harm to wetlands and nationally and internationally important waters. It is our job to protect irreplaceable wetlands and fresh water resources in the Lake Superior Basin for generations to come. Very truly yours, |John Walsh	20783
|John Walsh	49628
|John Walsh	49629
A Bonvouloir	21037
A Bonvouloir	49801
Abby Andresen	45780
Al Gedicks	20929
Al Gedicks	49712
Alan Olander	21032
Alan Olander	49796
alek roslik	21076
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Alicia Vegell	20894
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Alma Ronningen	49787
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Amanda Dillon	52511
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Amy Donlin	49695
Amy Freeman	46104
Amy Freeman	46105
Amy Hansen	37971
Amy Spude	21089
Amy Spude	49846
Amy Wilcox	52571
ANDREA jOHNSON	20652
Andrew Kuncel	44673
Andrew Nesheim	36561
Andrew Nesheim	49534
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Angela Andersu	48104
Angela Andersu	48402
Angela Andersu	52429
Angela Wyatt	21106
Angela Wyatt	49864
Angie Den	20113
Angie Den	49593
Ann Beane	20875
Ann Beane	49679
Ann Davies	20220
Ann Davies	49612
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Ann Ord	48336
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27 Water Legacy: Deny the 404 Permit		
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Anthony Wolf		20692
April Bjorklund		44529
Art Wilkinson		20247
Art Wilkinson		49616
Arthur Dorman		20596
Ashley Keul		21008
Ashley Keul		49775
Audrey Burmeister		47846
Audrey Burmeister		48308
Audrey Burmeister		52336
Ava Beath		20466
Ava Beath		20682
Barb and Phil Powell		21099
Barb and Phil Powell		49857
Barb Edson		20846
Barb Edson		49662
Barbara Brockway		20938
Barbara Brockway		49720
Barbara Carlson		20873
Barbara Carlson		49678
Barbara Janssen		20969
Barbara Janssen		49744
Barbara Mahowald		52537
Barrett Cole		48082
Barrett Cole		48113
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Barrett Cole		48446
Barrett Cole		52472
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Barrett Wing		20968
Barrett Wing		49743

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27 Water Legacy: Deny the 404 Permit	
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Becky Stoner	20485
Becky toner	47914
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Ben Durrant	43207
Ben Durrant	47816
Benjamin Krohling	20489
Bernie Schlafke	48057
Bernie Schlafke	48337
Bernie Schlafke	52364
Bert Flora	20986
Bert Flora	49758
Bill Mears	47901
Bill Mears	48332
Bill Mears	52359
Bill Munson	20980
Bill Munson	49754
Bill Sorem	20813
Bill Sorem	49647
Bob Bartlett	20685
Bob Douglas	21030
Bob Douglas	49794
Bob Haugen	20201
Bob Haugen	49610
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Brenda Nelson		20657
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Bryan Hansel		49842
C Goustin		20615
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Candyce Osterkamp		20914
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Carl Schwensohn		21054
Carl Schwensohn		49815
Carlen Lovejoy		20949
Carlen Lovejoy		49731
Carly Hawkinson		19701
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Carol Schwarzkopf		20970
Carol Schwarzkopf		49745
Carol Stiteler		20573
Carole Tronnes		20828
Carole Tronnes		49656
Carolyn Brocks		20611
Carolyn Clements		20440
Caron Moore		47858
Caron Moore		48436

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
Caron Moore	52464
Carrie Chesnik	52504
Carrie Schauf	21002
Carrie Schauf	49773
Cary Anderson	20663
Cat Thompson	21095
Cat Thompson	49853
Catherine Chayka	47992
Catherine Chayka	48320
Catherine Chayka	52347
catina spann	19764
Cecilia Lieder	20433
Celeste Birkeland	19673
Chad Roy	20221
Chad Roy	45938
Chad Roy	49613
Charles Grabuski	20996
Charles Grabuski	49767
Charles S Wilson	20477
Chelsea Froemke	20762
Chelsea Froemke	49623
Cher Johnson	20378
Cheri Miller	20896
Cheri Miller	49691
Cherie Johnson	20751
Cherie Johnson	49620
Cheryl Engel	20933
Cheryl Engel	49717
Cheryl LaPlante	20861
Cheryl LaPlante	20862
Cheryl LaPlante	49669
Cheryl LaPlante	49670
Cheryl Lawrence	20670
Cheryl Lawrence	20691
Cheryl Storm	47934
Cheryl Storm	48307
Cheryl Storm	52335
Chris Meyer	46144
Chris Meyer	46145

Sender Name		Submission ID
27 Water Legacy: Deny the 404 Permit		
Christine Harshman		20742
Christine Harshman		49619
Christine Moen		47848
Christine Moen		48347
Christine Moen		52374
Christine Pikala		20897
Christine Pikala		49692
Christine Umhoefer		44517
Christopher Carlson		52503
Christopher Kline		20587
Christopher Kornmann		21078
Christopher Kornmann		49836
Christopher T Loch		20632
chuck basina		20463
Chuck McKown		52539
Cindy Bodine		20785
Cindy Bodine		49631
Cindy Commers		21053
Cindy Commers		49813
Cindy Vahle		52569
Clarence Roed		21087
Clarence Roed		49844
Clayton Watercolt		20799
Clayton Watercolt		49637
Colleen Fizsen		19749
Colles Larkin		19735
Collette Leonhardt		20465
Connie Grundhofer		19759
Connie Grundhofer		37993
connie slaten		20100
connie slaten		49591
Corryl Jeske		19722
Corryl Jeske		19730
courtney butcher		19758
Courtney Hall		52520
Covant Pylkas		52550
Craig Blacklock		20989
Craig Blacklock		20990
Craig Blacklock		49761

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
Craig Blacklock	49762
Craig Brown	21036
Craig Brown	49800
Craig Poorker	20589
Craig Sterle	52562
Craig Zarley	21011
Craig Zarley	49778
Cynthia Launer	22655
Cynthia Launer	49450
Dale Dahlquist	20591
Dale Hoogeveen	21085
Dale Hoogeveen	49843
Dale Johnston	44221
Dale Johnston	44222
Dan Allen	20895
Dan Allen	49690
Dan Anderson	20435
Dan Arnold	20928
Dan Arnold	49711
Dan Eller	20863
Dan Eller	49671
Dan Mack	21024
Dan Mack	49790
Daniel Donnelly	44112
Daniel Donnelly	44113
Daniel Mettner	47062
Daniel Mettner	47065
Daniel Tabako	20939
Daniel Tabako	49721
Daniel W Iverson	21064
Daniel W Iverson	49825
Danny Crawford	21100
Danny Crawford	49858
Darlene ChileS	20678
Darnell Barsness	20997
Darnell Barsness	49768
dave hiller	20411
dave hiller	20415
dave hiller	48139

Sender Name		Submission ID
27 Water Legacy: Deny the 404 Permit		
David Braun		48124
David Braun		48127
David Braun		48474
David Braun		48475
David Brown		20661
David Ceder		20991
David Ceder		49763
David Faust		20978
David Faust		49752
David H Senn		52559
David Jensen		20847
David Jensen		49663
David Jensen		52531
David Moffatt		20532
David Myers		20789
David Myers		49634
David Tobelmann		52567
David Warfield		20408
David Wilson		20588
David Zimney		21001
David Zimney		49772
Dawn Jensen		20479
Dawn Snyder		20659
Dean Borgeson		20823
Dean Borgeson		49652
Dean Hitchings		20543
Dean Storn		20429
Deb Billmeier		44003
Deb Billmeier		44005
Deb Monacelli		19768
Deb Monacelli		19769
Debbie Schlinger		19738
Debbie Senger		19778
Deborah Bennett-Leet		47000
Deborah Bennett-Leet		47012
Deborah Bieleck		52501
Deborah Hendrickson		48018
Deborah Hendrickson		48364
Deborah Hendrickson		52391

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
Deborah Walsh	20504
Deborah Walsh	20599
Debra Evon	21105
Debra Evon	49863
Denise Mack	21051
Denise Mack	49814
Denise Sykora	20049
Denise Sykora	49581
Denise Thomas	20983
Denise Thomas	20984
Denise Thomas	49755
Denise Thomas	49756
derek Hood	21038
derek Hood	49802
Diana and Charles Moore	47919
Diana and Charles Moore	48319
Diana and Charles Moore	52348
Diana Hill	20683
Diana Hill	48058
Diana Hill	48338
Diana Hill	52365
Diane Hilscher Hilscher	19989
Diane Hilscher Hilscher	49577
Diane Hiniker	20413
Diane Hiniker	48100
Diane Rand	47881
Diane Rand	48344
Diane Rand	52371
Diane Rhody	20442
Diane Tessari	52565
Dianne Hanson	20910
Dianne Hanson	49702
Dianne Tuff	20428
Dolores Voorhees	20640
Don Heian	52522
Don Hon	20473
Donald Hammen	21090
Donald Hammen	49848
Donna and Allan Butler	20687

Sender Name		Submission ID
27 Water Legacy: Deny the 404 Permit		
Donna Seabloom		20644
Doretta Reisenweber		20525
Dorothy Dolezal		20541
Douglas Olson		19729
Douglas Peterson		21022
Douglas Peterson		49788
Dr. and Mrs. Thomas G. Murn, Jr.		20561
Dr. Louis LaPierre		20498
drew hempel		20195
drew hempel		49606
Edith and John Rylander		43352
Edith and John Rylander		43353
EDWIN WENSMAN		20904
EDWIN WENSMAN		49698
Elaine Thrune		52566
Eleanor Wagner		20530
Elinor Ogden		20476
Elizabeth Barnum		20643
Elizabeth Burr		20833
Elizabeth Burr		49659
Elizabeth Hope		47543
Elizabeth J LePlatt		20676
Elizabeth Lamb		48067
Elizabeth Lamb		48383
Elizabeth Lamb		52410
Elizabeth Lempp		20602
Elizabeth Merz		19762
Elizabeth Murray		20082
Elizabeth Murray		20083
Elizabeth Murray		49586
Elizabeth Murray		49587
Elizabeth Peters		20650
Elizabeth Sivertson		20570
Elizabeth Songalia		19772
Ellen Lafans		20152
Ellen Lafans		49598
Ellen Mork		43602
Ellen Mork		43604
ellen schafroth		20965

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
ellen schafroth	49741
Ellyce Thompson	48077
Ellyce Thompson	48426
Ellyce Thompson	52453
Emily Lindell	48134
Emily Miller	47114
Emily Miller	47116
erik	44481
Ev Ahlberg	20566
Ev Ahlberg	20572
faith oremland	19744
Faye Duvall	19665
Florence Hedeen	20832
Florence Hedeen	49658
Forrest Theisen	45441
Forrest Theisen	45445
Frank Jirasek	48120
Frank Jirasek	48467
Frank Jirasek	52494
Frank Verderame	44489
Fred Morgan	20598
gail harty	20962
gail harty	49738
Gail Rosenquist	20447
Gale Havrilla	47541
Gale Havrilla	49083
Gary Anderson	46966
Gary Duggleby	47974
Gary Duggleby	48425
Gary Duggleby	52452
Gary Meier	47856
Gavin Danfelt-Martin	21058
Gavin Danfelt-Martin	21059
Gavin Danfelt-Martin	49819
Gavin Danfelt-Martin	49820
Gayathri Ramanathan	20808
Gayathri Ramanathan	49644
Geoffrey Fisher	20908
Geoffrey Fisher	49700

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
georgann hiller	44634
George Matkovits	19780
Germain Walseth	48073
Germain Walseth	48384
Germain Walseth	52411
Gerry Fuller	20609
Gina Marano	20686
Gladys Schmitz	21066
Gladys Schmitz	49827
Glenn Bertelson	20492
Greg Overlid	21040
Greg Overlid	49804
Gregory Pfister	21000
Gregory Pfister	49771
Gregory Pinto	20829
Gregory Pinto	49657
Gregory T Ochs	20564
Harriet McCleary	20941
Harriet McCleary	49723
Harry D Palmer	52547
Heather Buckner	21018
Heather Buckner	49785
Heidi Frison	20390
Heidi Mirka	20544
Heidi OConnor	38340
Heidi OConnor	49121
Heidi Shol	19748
Heidi Skoog	21109
Heidi Skoog	49867
Heidi Soll	45096
Heidi Soll	45097
Henry Sanborn	20900
Henry Sanborn	49694
Herb LePlatt	20621
Herb LePlatt	20623
HEYWARD NASH	19728
Hillis Aldrich	21077
Hillis Aldrich	49835
J Olfe	20909

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
J Olfe	49701
Jackie Metelak	45092
Jackie Metelak	45093
Jacob Kjome	20484
James and Sara Conway	20437
James Arnold	48049
James Arnold	48407
James Arnold	52434
James Conway	48112
James Conway	48438
James Conway	52465
James Davis	52510
James DuShane	20567
James Herther	20605
James Ko	43976
James Ko	43983
James Lindbeck	20475
james pritschet	21108
james pritschet	49866
James Squires	36700
James Squires	49539
Jami Halder	21043
Jami Halder	49807
Jamie Hoerter	20431
Jan and Jim Porter	21013
Jan and Jim Porter	49780
Jan Erickson	20664
Jan Stern	20523
Jana Meckler	20094
Jana Meckler	49588
Jane Johns	44713
Jane Johns	44717
Jane Koschak	45716
Jane Koschak	45718
Jane Meyer	20825
Jane Meyer	49654
Janet Crow	52507
Janet Donovan Moran	20533
Janet Draper	20443

Sender Name		Submission ID
27 Water Legacy: Deny the 404 Permit		
Janet Frigstad		20424
Janet Frigstad		20619
Janet Koplos		20943
Janet Koplos		49725
Janet Lenius		20881
Janet Lenius		49684
Janet Magree		20973
Janet Magree		49748
Janet Neihart		20425
Janet Spring		21039
Janet Spring		49803
Janet Zens		44714
Janet Zens		44752
Janice Ackerman		21101
Janice Ackerman		49859
Janice Hallman		20972
Janice Hallman		49747
Janice Tarnow		20150
Janice Tarnow		49597
Janice Z Grover		52518
jason husby		19598
Jay Mutschler		46127
Jay Mutschler		46128
Jay Petrich		20416
Jean Bixley		20662
Jean Faley		20483
Jean Marie Lindquist		20779
Jean Marie Lindquist		49627
Jean Ross		20804
Jean Ross		49641
Jeanne Hollingsworth		47921
Jeanne Hollingsworth		48313
Jeanne Hollingsworth		52341
Jeff Heisler		19753
jeffrey dickson		47928
jeffrey dickson		48396
jeffrey dickson		52423
Jeffrey Wojciechowski		19634
Jenni Zickert		20649

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
JENNIFER ABBEY	47957
JENNIFER ABBEY	48326
JENNIFER ABBEY	52354
Jennifer Hengelfelt	38206
Jennifer Hengelfelt	49116
Jennifer Hengelfelt	52524
Jennifer Paterson	45454
Jerome Comeau	20177
Jerome Comeau	49602
Jessica Eidem	19646
Jessica Rocheleau	20540
Jill Crafton	52506
Jill Rivard	21086
Jill Rivard	49845
Jim Fitzpatrick	20681
Jim Fournier	20872
Jim Fournier	49677
Jim Gindorff	20050
Jim Gindorff	49582
jim postance	20797
jim postance	49636
Jim Wilson	21084
Jim Wilson	49841
Jinger Pulkrabek	19724
Joan Kinn	20656
Joan Sutliff	44106
Joan Sutliff	44110
JoAnn Sternberg	20624
Joanna Padden	21020
Joanna Padden	49786
joanna shelton	20603
Joanne Swanson	48028
Joanne Swanson	48345
Joanne Swanson	52372
Jocelyn Sweet	48045
Jodi Peterson	52549
Joe Thorne	20613
Joel Clasemann	20487
joel dodson	20961

Sender Name		Submission ID
27 Water Legacy: Deny the 404 Permit		
joel dodson		49737
Joel Dunn		21026
Joel Dunn		49792
John AND Jean Fleming		20410
John Berry		20639
John Graham		19779
John Kreft		20960
John Kreft		49735
John Leinen		20480
John Matheson		47550
John Munster		36797
John Munster		49544
John Ottis		47529
John Reichel		20658
John Sluss		21097
John Sluss		49855
John Studdwell		47546
John Utermoehl		21071
John Utermoehl		49832
Johnny Jones Jr		20697
Jon Damon		20818
Jon Damon		49650
Jon Hayenga		20815
Jon Hayenga		49649
Jon Kirkeide		21653
Jon Kirkeide		49222
Jon Marble		44462
Jon Marble		44465
Jon Witt		52572
Jonelle Ringnalda		20977
Jonelle Ringnalda		49751
Josephine Geiger		20936
Josephine Geiger		49718
Judi Poulson		19732
Judith Long		19775
Judith Niemi		52542
Judith Webster		20421
Judy Bjork		20166
Judy Bjork		49599

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
Judy Dickerson	21034
Judy Dickerson	21035
Judy Dickerson	49798
Judy Dickerson	49799
judy Russell	47945
judy Russell	48330
judy Russell	48331
judy Russell	52358
Julia Babb	20627
Julia Jackson	52530
Julia McLean	20575
Julie Aho	47942
Julie Aho	48454
Julie Aho	52480
Julie Anderson	20583
Julie Ondler	19706
Julie Ondler	19766
Julie Pope	21014
Julie Pope	49781
Julie Stradel-Graf	20622
Julie Wissinger	21017
Julie Wissinger	49784
K Helms	20457
Karen Hatlestad	20148
Karen Hatlestad	49596
Kari Taylor	20946
Kari Taylor	20947
Kari Taylor	49728
Kari Taylor	49729
Karin Margolis	20907
Karin Margolis	49699
Karina Johnson	21098
Karina Johnson	49856
Karl Meller	20634
Kate Christopher	52505
Kate Crowley	19727
Kate Crowley	20407
Kate Hillenbrand	52528
Katherine Doerr	20625

Sender Name		Submission ID
27 Water Legacy: Deny the 404 Permit		
Katherine Rodbro		20958
Katherine Rodbro		20959
Katherine Rodbro		49734
Katherine Rodbro		49736
Kathleen Abel		52500
Kathleen Cox Jokela		21092
Kathleen Cox Jokela		49850
Kathleen Crow		20467
Kathleen Felt		49101
Kathleen Felt		49102
Kathleen Grindeland		52517
Kathleen Mary Kiemen		20578
Kathleen McQuillan		47941
Kathleen McQuillan		48403
Kathleen McQuillan		52430
Kathryn Faley		20571
Kathryn Mosher		20452
Kathryn Null		20845
Kathryn Null		49661
Kathy Iverson		20957
Kathy Iverson		49733
Kathy Kormanik		20648
Kathy Wood		48373
Kathy Wood		52400
Katie Krikorian		20934
Katie Krikorian		49716
Kaydell Gaasvig		20503
Keith gagnon		20579
Keith gagnon		20580
keith monsaas		20704
Keith Thompson		20502
Kelly McKown		52540
Kelly Peteson		20412
Kelly Rogers-WInston		19776
Ken Stevenson		19988
Ken Stevenson		49576
Kendall Clevenger		21072
Kendall Clevenger		49833
Kent Scheer		21081

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
Kent Scheer	49839
Kevin Proescholdt	20594
Kevin Stueven	19760
Kim Rezek	48126
Kim Rezek	48472
Kim Rezek	52499
kimberly nieman	20696
Krehl Stringer	19774
Kristen Aune	20740
Kristen Aune	49618
Kurt Seaberg	19935
Kurt Seaberg	49569
Lani Jacobsen	20932
Lani Jacobsen	49715
Lanny Olson	20198
Lanny Olson	49608
Larry Bogolub	20870
Larry Bogolub	49676
Larry Johnson	23388
Larry Johnson	49467
Larry Kennebeck	52533
Laurel Herold	21052
Laurel Herold	49812
Laurel Watkins-Melby	52570
Lauren Flavin	21025
Lauren Flavin	49791
Laurence Margolis	21079
Laurence Margolis	49837
Leif Bjornson	20642
Leila Jindeel	47927
Leila Jindeel	48371
Leila Jindeel	52397
Len Jennings	20919
Len Jennings	37070
Len Jennings	49549
Len Jennings	49707
Leslie Black	20911
Leslie Black	49703
Leslie Dee	20824

Sender Name		Submission ID
27 Water Legacy: Deny the 404 Permit		
Leslie Dee		49653
Leslie Drimel		20987
Leslie Drimel		49759
Linda Crosby		20427
Linda Crosby		20500
Linda Duggleby		48083
Linda Duggleby		48477
Linda Herron		52525
Linda Morris		20647
Linda Ronchetti		20850
Linda Ronchetti		49666
Lisa Boynton		37977
Lisa Boynton		37978
Lisa Burke		21104
Lisa Burke		49862
Lisa C Herthel		52527
Lisa Haberling		52519
Lisa Hardy		20653
Lisa Wersal		20562
Lloyd Hansen		52521
Lois Dalsin		44686
Lora Wedge		48064
Lora Wedge		48469
Lora Wedge		52496
Loren Stoner		20474
Loretta Holscher		20912
Loretta Holscher		49704
Lori Nehm		20948
Lori Nehm		49730
Lori Steckervetz		21103
Lori Steckervetz		49861
Lorrie Jeske		45690
Lorrie Jeske		45691
Louise Gappa		38159
Louise Gappa		49115
Louise Waddick		46887
Louise Waddick		46888
Lowell Johnson		19971
Lowell Johnson		49574

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
Lucas Will	46928
Lucas Will	46929
Lucy Knoll	49086
Lydia E Morales	20868
Lydia E Morales	49675
Lynda Pauling	20586
lynn albrecht	21009
lynn albrecht	49776
lynn henderson	37974
Lynn Lang	20478
Lynn Shoemaker	20495
M. McGarvey	20521
Madeline Seveland	20426
Marcia Dahleen	19709
Marcia Jacobs	21028
Marcia Jacobs	49793
Marcy Leussler	20651
Margaret Naylor	48125
Margaret Naylor	48471
Margaret Naylor	52498
Maria DOnofrio	20593
Marian House	20539
Marian Severt	21111
Marian Severt	49869
Marilyn Benson	20930
Marilyn Benson	49713
Marilyn Booton	20526
Mark Attridge	20577
Mark Attridge	49617
Mark Bridge	21088
Mark Bridge	49847
Mark Brinda	20233
Mark Brinda	49615
Mark Dittrich	52512
Mark Engebretson	52515
mark kassal	21080
mark kassal	49838
Mark Pratt	36616
Mark Pratt	49536

Sender Name		Submission ID
27 Water Legacy: Deny the 404 Permit		
Martha Arreguin		20673
Martha Arreguin		20684
Martha Krikava		21050
Martha Krikava		49811
Martha Miller		20638
Martin Makinen		20931
Martin Makinen		49714
Marty Lemke		21049
Marty Lemke		49810
mary augustyn		21082
mary augustyn		49840
Mary Boyd-Brent		20966
Mary Boyd-Brent		49742
Mary Creighton		20490
Mary Doerr		20637
Mary E. Dosch		20226
Mary E. Dosch		21041
Mary E. Dosch		37905
Mary E. Dosch		49112
Mary E. Dosch		49614
Mary E. Dosch		49805
Mary Elling		20913
Mary Elling		49705
mary froiland		20671
Mary Hong Loe		20771
Mary Hong Loe		49626
Mary Jane Pylkas		52551
Mary Kanuit		19767
Mary Klausen		19763
Mary Ludington		21065
Mary Ludington		49826
MARY MCGILLIGAN		20963
MARY MCGILLIGAN		49739
Mary Scott		20451
Mary Smith		20616
Mary St. Michael		20481
Mary Sue Comfort		46949
Mary Sue Comfort		46951
Mary Zink		21012

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
Mary Zink	49779
Matt Johansen	20197
Matt Johansen	49607
Matt Johnson	20538
Matt Ryan	20877
Matt Ryan	49680
Maureen Jensen	38010
Meg Anderson	21068
Meg Anderson	49829
Meg Duhr-Schultz	52514
Megan Holm	20807
Megan Holm	49643
Megan John	20810
Megan John	49646
Melissa Lewis	52536
Melissa Starr	47940
Melissa Starr	48349
Melissa Starr	52375
Metti Shank	20534
Michael Allen	20537
Michael Bellanger	48044
Michael Brinda	20666
Michael Brouillette	20379
Michael Butzer	21849
Michael Butzer	49304
Michael Denery	20535
Michael Hartley	19736
Michael Hartley	19747
Michael Killian	20985
Michael Killian	49757
Michael Kinney	21062
Michael Kinney	21063
Michael Kinney	49823
Michael Kinney	49824
Michael Larson	20617
Michael Moe	19675
Michael Overend	20885
Michael Overend	44877
Michael Overend	44878

Sender Name		Submission ID
27 Water Legacy: Deny the 404 Permit		
Michael Overend		49686
Michael Tezla		47099
Michael Tezla		47101
Michael Wallace		37037
Michael Wallace		49547
Michael Young		20194
Michael Young		49605
Michelle Anderson		20545
Michelle Hell		52523
Mike Dahlheimer		38000
Mike Ferguson		20494
Mike Kuitu		52534
Mimi Gingold		21110
Mimi Gingold		49868
Mindy Ahler		46340
Mindy Ahler		46341
Molly Darsow		20974
Molly Darsow		49749
Myra Aberson		19721
N. Selleck		20448
Najeeb Jindeel		48035
Najeeb Jindeel		48367
Najeeb Jindeel		52394
nan stevenson		19756
Nancy Harter		48144
Nancy Lawroski		20695
Nancy Sampson		52553
Nancy Sinard		19628
Nancy Weber		48424
Nancy Weber		52451
Naomi Nelson		47862
Naomi Nelson		48101
Naomi Nelson		48388
Naomi Nelson		48389
Naomi Nelson		52415
Naomi Nelson		52416
Ned Bouril		20641
Nicholas Loch		21093
Nicholas Loch		21094

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
Nicholas Loch	49851
Nicholas Loch	49852
Nicole Hamilton	20788
Nicole Hamilton	49633
Nina McKee	20994
Nina McKee	49765
Nora Whitmore	20848
Nora Whitmore	49664
Noreen Tyler	52568
Norman Herron	52526
Norman Petrik	20527
Oliver Masciarotte	20505
ordell vee	19751
Orville Lantto	21016
Orville Lantto	49783
Pam Coffin	20944
Pam Coffin	20945
Pam Coffin	49726
Pam Coffin	49727
Pam Scherling	43464
Pam Scherling	43465
Pam Videen	20975
Pam Videen	49750
pamela lohse	20646
pat helmberger	21060
pat helmberger	49821
Pat Makowski	20867
Pat Makowski	49674
Pat Shea	20667
Pat Shea	20669
Pat Stevesand	20635
Pat Tammen	52564
Pat Thielman	20584
pat thomas	20768
pat thomas	49625
Patricia Buck	20351
Patricia Hauser	20942
Patricia Hauser	49724
Patricia keefe	20445

Sender Name		Submission ID
27 Water Legacy: Deny the 404 Permit		
Patricia Okaya		48010
Patricia Okaya		48312
Patricia Okaya		52340
Patricia Pool		20700
Patricia Richard-Amato		21055
Patricia Richard-Amato		49816
Patrick Costello		21070
Patrick Costello		49831
Patrick Keenan		19708
Patrick Keiser		20389
Patrick Parish		20563
Patrick Parish		20565
Paul Baumgartner		20414
Paul Biker		20531
Paul Busch		20581
Paul Densmore		21091
Paul Densmore		49849
Paul Love		20462
Paul Ryals		20576
Paul Wilberg		20183
Paul Wilberg		49603
Paula Hess		19731
Pearl Sarah Bates		20827
Pearl Sarah Bates		49655
Peg Zahoik		45045
Penny Cragun		20199
Penny Cragun		49609
Peppi Enos		19742
Peter Gesell		44994
Peter Harle		21023
Peter Harle		49789
Peter Lee		52535
Phil Fitzpatrick		20902
Phil Fitzpatrick		20903
Phil Fitzpatrick		49696
Phil Fitzpatrick		49697
Philip Hogan		20820
Philip Hogan		49651
Philip Rampi		20608

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
R. Yaeger	36611
R. Yaeger	49535
Rachel Imholte	20626
Raechel Murphy	20633
Ralph Schnorr	52556
Randall Yungerberg	20529
Rebecca Branham	20499
Rebecca Dudley	20689
Rebecca Dudley	20694
Reed Heffelfinger	20937
Reed Heffelfinger	49719
Richard Fish	20486
Richard Schubert	20843
Richard Schubert	49660
richard taylor	20441
Richard Tosseland	20940
Richard Tosseland	49722
Rick Dahn	19765
Rick Loberg	20979
Rick Loberg	49753
Ricki Disdier	19770
Rita Caruso Santamaria	20864
Rita Caruso Santamaria	20866
Rita Caruso Santamaria	49672
Rita Caruso Santamaria	49673
Rita Spellman	38002
Rob Davis	20758
Rob Davis	49621
rob maxfield	21045
rob maxfield	49809
Robert Baxton	19777
Robert Bullis	20455
Robert Davis	21061
Robert Davis	49822
Robert Hardman	21010
Robert Hardman	49777
Robert Kosuth	20392
robert langhorst	20597
Robert McManus	20446

Sender Name		Submission ID
27 Water Legacy: Deny the 404 Permit		
Robert Van Dyke		44387
Robert Van Dyke		44388
Robert Wohlberg		21069
Robert Wohlberg		49830
roberta cassidy		20950
roberta cassidy		49732
Robin Grinnell		20860
Robin Grinnell		49668
robin hensel		20679
Rodd Ringquist		20899
Rodd Ringquist		49693
Roger Muellner		21107
Roger Muellner		49865
roger nehring		20629
Ron Wetzell		19761
Ronald Sitton		20393
Rosalie Stefanich		19752
Rosemary Welch		21031
Rosemary Welch		49795
Rosie Neber		20631
Rosita Aranita		20510
Roxanne Maki		20601
Ryan Anderson		37966
Ryan Brown		20636
ryan kelley		20559
Ryan Sbol		20628
Ryan Sbol		20630
Ryan West		19726
Sally Fineday		20607
Sam Linder		49081
Samantha Schulz		52557
Samuel Axner-Engel		19664
Sara Hill		19745
Sarah Mattox		44899
Scott Dannenbring		47902
Scott Dannenbring		48334
Scott Dannenbring		52361
Scott Dulas		20787
Scott Dulas		49632

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
Scott Hed	20672
Scott Laderman	36769
Scott Laderman	49541
Sequoiah Dahlin	52508
Shane Orthmann	46577
Shane Orthmann	46578
Shannon Turner	19781
Sharon Anderson	21112
Sharon Anderson	49870
Sharon Clark	19734
Sharon Clark	20450
Sharon Coombs	20612
Sharon Donohue	20524
Sharon Fortunak	20560
Sharon Nolte	48034
Sharon Nolte	48476
Sharon Root	20592
Sheila Dillon	20497
Sonia Otto	52546
Stan Danielson	52509
Stefan Ronchetti	20769
Stefan Ronchetti	49624
Stephanie Love	48052
Stephanie Love	48355
Stephanie Love	52381
Stephen Girard	20606
Stephen Hamre	20430
Steve Koschak	45354
Steve Koschak	45355
Steve Mikel	48122
Steven Steele	20702
Steven Wiese	20993
Steven Wiese	49764
Stu Farnsworth	20805
Stu Farnsworth	49642
Sue Halligan	20506
Susan Boorsma	43263
Susan Boorsma	47821
susan korupp	20618

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
susan langston	20674
susan langston	20677
Susan Lynn	20582
Susan Lynn	20600
Susan Pillsbury-Barton	21044
Susan Pillsbury-Barton	49808
Susan Wiste	20507
Susan Wiste	20614
Susanne Engstrom	20509
Susu Jeffrey	20574
Suzanne Donsky	52513
Tanya Beyer	20493
Taylor Krosbakken	20999
Taylor Krosbakken	49770
Terry Ford	20569
Terry J. Williams	21057
Terry J. Williams	49818
Theresa Johansen	20171
Theresa Johansen	49601
Thomas Dickinson	20585
Thomas Koehler	21056
Thomas Koehler	49817
Thomas Meinz	20418
thomas rettler	20459
thomas rettler	20469
Thomas Sullivan	19930
Thomas Sullivan	49566
Thos. Roark	19757
Tim McDougal	52538
Tim Soudby	52561
Timothy Mecby	52541
Tom Roth	20803
Tom Roth	49640
Toni Tunge	20784
Toni Tunge	49630
tony hilscher	19983
tony hilscher	49575
Tony Radcliff	52552
Tracy Stewart	20482

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
Trevor Knott	47899
Trevor Knott	48329
Trevor Knott	52357
valerie nesteruk	20998
valerie nesteruk	49769
Verba Weaver	20655
Verlaine H. Halvorsen	20964
Verlaine H. Halvorsen	49740
Verna Alt	19755
vicki scott	37956
Vicki Scott	52558
Virginia Hoeffding	52529
Vladimir K	52532
Wade Johnson	20568
WallisAnn Jondal	21096
WallisAnn Jondal	49854
Wanda Ballentine	20472
Warren Howe	20849
Warren Howe	49665
Wendy Brown	20063
Wendy Brown	20068
Wendy Brown	49584
Wendy Brown	49585
Wendy Fassett	21102
Wendy Fassett	49860
Wendy Haan	20391
Wendy Haan	20558
Wendy Olson	20422
Will Nissen	52543
Willard Nelson	20542
William Durbin	45721
William Durbin	45722
William Goshert	20645
William Herzberg	20536
William Nusbaum	20971
William Nusbaum	49746
Yvette Schultenover	47876
Yvette Schultenover	48399
Yvette Schultenover	52426

Sender Name	Submission ID
27 Water Legacy: Deny the 404 Permit	
Zach Colatch	37983
Zach Pesch	20879
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Zach Pesch	49682
Zach Pesch	49683

Sender Name		Submission ID
28 Mining Truth: Health Impact Assessment		
Form Letter 28: Mining Truth: Health Impact Assessment To Ms Fay, Department of Natural Resources, The PolyMet NorthMet SDEIS contains inadequate analysis of risks to public health from the proposal. The DNR should conduct a health impact assessment (HIA) to fully analyze the public health implications of PolyMet's proposed mine. Health impact assessments are a tool used in environmental review. The State of Alaska has adopted HIAs as a best practice for environmental review of mining and natural resources extraction proposals and has established procedures and a toolkit for conducting an HIA in that context. In Minnesota, HIAs have also been conducted as part of the environmental review for Minnesota projects, such as the Central Corridor LRT project in the Twin Cities. Please take the following action: Conduct a health impact assessment for the PolyMet project, and include the results of the assessment in the EIS. The HIA should include examination of all aspects of public health affected by the proposal, including analysis of the social determinants of health. Thank you for the opportunity to provide input on the PolyMet SDEIS. Due to the problems with the draft mine plan outlined above, I believe the mine should not be built as described. We need to be vigilant of our precious earth, as we do not have another one. Sincerely,		
Aaron Christensen		22664
Aj Janssen		41158
Aja Maleck		46332
Aleeta Nelson		20953
Alva Crom		20105
Amanda Zellmer		38093
Amy Farland		20168
Amy Wold		36614
Andrew Kadlec		37050
Ann Galloway		20817
Anneliese Schultz		43271
Anthony Hilmoe		38631
Archie K Benham		47473
barb minar		36630
Barb Palmquist		29822
Barbara KEnnedy		37867
Barbra Wiener		40787
Bea Eichtyen		41208
Bill Brown *=		38563
Bill Goodermont		43300
Bill Sorem		40996
blanche wilcox		40792
Bria Schurke		44650
Brian Bruzek		46442
Brian Craig		21753
Brian Thorbjornsen		21512
Bryon Lind		20059
Carl Helke		20151
Carolyn Dillon		38229
Carrie Gullickson		40918
Catherine Harrison		40770
Chanda Welch		44746

Sender Name	Submission ID
28 Mining Truth: Health Impact Assessment	
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Cheryl Fields	20180
Christina Klein	44154
christopher malcolm	43179
Christopher Stauthammer	44915
clair mcguigan	25083
Colleen Lund	21148
Cynthia Haensel	23244
Dale Johnson	36784
Dan Burns	38663
Dan Malecha	36367
David Bradley	43180
David Ceder	21158
Debra Drew	47158
Debra Ganshaw	41420
Debra Wiger	47411
diane haines	41133
Dick Ruth	38236
Dion Rode	36773
Donald & Karen Stearns	46067
Donna Bloom	38658
Donna Dralle	22698
doris anderson	21593
Ellen Hinchcliffe	19929
Emilie Hitch	45081
Emily Wartman	47049
Eric Willms	36720
Erynn Jenzen	37898
Evelyn Bernhagen	20145
Federico Rescigno	39849
Fred Vanderbeek	21487
Gai Skramstad	47602
Gail Jacobson	22785
Gail Rosenquist	19923
Georganne Krause	21122
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Georgene Wigen	20206
Gerry Rosenberg	36303
Gina Miller	38432

Sender Name		Submission ID
28 Mining Truth: Health Impact Assessment		
Giorgos Rigopoulos		37796
Greg Overlid		46551
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james rosenau		41292
Janet Neihart		47669
Janne Bagley-Murray		47503
Jean Beth		47412
JEAN LAUBENSTEIN		43946
Jeanine Czech		36942
Jeanne Piehl		36684
Jeffery Kane		36455
Jeffrey Hein		38065
Jenna Pollard		38414
Jennifer Hengelfelt		38191
Jennifer Schally		46547
Jerilyn Breitkreutz		38267
Jesse Dermody		47709
Jessica Ostrov		20780
Jill Boldenow		47133
JoAnn Luck-Johnson		41223
Joanna Furth		37878
Joel Headley		44419
Joel Olander		36739
Johann Hollar		22724
John Badger		22725
John Fitzgerald		37788
John Flaten		45010
John Ottis		41243
Joseph Wild		23330
Joyce Anderson		37564
Joyce Johnson		36825
JT Haines		38705
Judy Gray		22412
Julia Albers		46003
Justin Nelson		36909
K Ogden		36633

Sender Name	Submission ID
28 Mining Truth: Health Impact Assessment	
Karate Willmore	19997
Karen Cleveland	52245
Karen Sandberg	36612
Karin Winegar	38094
Karla Boyd	38068
Katarzyna McMahon	43892
kate remus	41048
Kate Stumpf	52217
Katherine Bergan	39493
Katherine Hazen	43928
Kathleen Brown	37284
Kathleen Dougherty	37899
Kathryn Crampton	47685
Kathryn Schroeder	36919
Kay McDermott	39487
Kelly Casey	19911
Kelly Gryting	46441
Ken Prax	47410
Kevin Batko	19877
Kevin Hiniker	44242
Kevin McColl	37843
Kim Pilon	43764
Kimberly Krause	36339
Kris Palazzari	20004
Kyle Surrell	21147
Les Phillips	40790
Linda Freemon	47478
Linda Murphy	43765
Linda Rolfe	43401
Linnea Pearson	52303
Liz Hardin	40525
Lori Beron	44729
Lydia Holsten	21557
Lynda Kilian	21797
Lynell Hage	43949
Lynn Bottge	47286
Lynn Jackson	37798
Marcus Bielinski	22794
margaret blakley	36310

Sender Name		Submission ID
28 Mining Truth: Health Impact Assessment		
Margaret Hedberg		52305
Margie Siegel		41432
Marian Lansky		19938
Mark Fangmeier		19888
Martha Vest		36826
Mary Blickenderfer		43652
Mary Elling		37897
Mary Holm		40939
Mary Wielinski		40071
Matthew Ikola		20812
Matthew Johnston		38660
Meghann Charboneau		46996
mia nelson		40584
Michael Marsh		37805
Michael Mazer		41309
Michael McDermaid		19830
michael weber		38684
Michele Trautlein		38067
Michelle ronning		40785
Mike And Jane Conrad		41070
Misty Schmidt		37892
nanct taylor		36360
Nancy Campbell		22752
Nancy Flodqui		23238
Nancy Graham Rich		38436
Nancy Peterson		47253
Natalie Welle		38184
Ned Bouril		40776
Nelliie Munn		43175
Nick Severson		36642
Nila Ouska		21818
Patricia Castellano		19954
patricia mundy		41429
Paula Hess		22713
paula jensen		19884
Pauline Wahlquist		19918
Peggy Edman		20153
Peggy Sannerud		38444
Peter Johnson		44787

Sender Name	Submission ID
28 Mining Truth: Health Impact Assessment	
Philip Rampi	36643
Phillip Sterner	39652
Renee Ethier	47720
Rick Mammel	41255
Rita Caruso Santamaria	43927
Rita Vetsch	41176
Robert Clark	21488
Robert Mcmanus	43644
Robert Puls	23332
roberta truman	37860
Robin Taylor	20675
Roger & Dorothy Downing	41530
Ron Sternal	45821
Ronald Liljedahl	20756
Rueben Hansen	37866
Ruth Slivken	21932
Ruth Thomas	37847
Ryan Anderson	46430
Ryan Kelley	19793
Ryan Waterbury	40497
Sara Hill	22573
Sara Larson	43869
Sarah DeBreto	19839
scott eftefield	36431
Serena Lynch	46706
Serena Lynch	46712
Shannon Doll	36785
Shannon ONeil	37565
Sharon Anderson	38467
Sheila Ratzlaff-Chute	19933
Stacy Wahl	19947
Stephanie Aaron	37024
Stephanie Pearson	43784
Stephanie Torbert	44041
Stephen Kranz	41522
Steve Burger	41310
Steve Cook	44567
Steve Jacobson	36356
Steve Koschak	45401

Sender Name	Submission ID
28 Mining Truth: Health Impact Assessment	
Steven Chesney	37285
Steven Schon	46997
sue harrington	19809
Susan Lynn	21404
Susan Rengstorf	37896
Susan Vann	43407
Susanne Engstrom	19900
Susanne Powers	36544
Tammy Fritze	47504
Tanya Ryappy	22783
Tayci Gustafson	44425
Terri Melton	40244
Theresa Basting	47738
Thomas G. and Patty Murn, Jr.	20839
Timothy Lamb	19899
Tina Miranda	20227
Tina Perpich	21866
Tjaard Breeuwer	44742
tom hanon	41130
Valorie Jackson	43405
Victoria Lynn Turke	47441
Virginia Knapp	47131
Walter Ralston	43422
Warren Johnson	40086
Wayne Gartland	46431
William Erickson	19880

Sender Name		Submission ID
29 Audubon: Toxins		
Form Letter 29: Audubon: Toxins Dear Minnesota Department of Natural Resources, I just signed National Audubon Society's petition andquot;Say No to Oozing Toxins in Minnesota's Waters.andquot; on Change-org. Minnesotans are very concerned with protecting our clean water. We have serious concerns about PolyMet's plans to mine sulfide ore in northeastern Minnesota described in the Supplemental Draft Environmental Impact Statement (SDEIS). I believe that the SDEIS is insufficient and should not be approved because it is lacking vital information about long-term water treatment and how it will be paid for - information that is necessary to decision-makers. PolyMet would like to mine in high quality wetland habitat that is presently in federal ownership as a part of the Superior National Forest the largest designated Important Bird Area in Minnesota. In addition to this direct destruction of habitat, sulfates and toxic metals such as mercury, copper and nickel that are not captured for treatment will affect the aquatic organisms and habitats downstream. Birds that depend on fish and other aquatic organisms for food will be affected, including Belted Kingfishers, Hooded Mergansers, Common Terns and Common Loons. In addition, four bird species of greatest conservation need will likely lose suitable habitat if the mine is developed as proposed: Black-backed Woodpecker, Spruce Grouse, Northern Goshawk and Boreal Owl. I urge decision-makers to reject this risky proposal by PolyMet to mine sulfide ore in the headwaters of the St Louis River. Twenty years of mining, threatens hundreds of years of water pollution to sensitive birds and habitats. This trade-off is not worth the risk. Sincerely,		
A C		37443
A Jessen		45042
Aarah Saugen		41151
Aaron Byhre		37556
Aaron Dunphy-Knighten		28521
Aaron Grommesh		27890
abbella di noto		41140
Abby Patrick		41108
Abdillahi Mohamed		47373
Abel Gebremisat		36990
abigail alvarez		22323
Abigail Chapman		43355
Abigail Eggen		37243
Abraham McEathron		37066
abshir colad		36659
Adam Bee		42127
Adam Dobbs		37383
adam fimon		36580
adam finke		40484
adam franklin		37615
adam hejny		27442
Adam Hively		36844
adam hozempa		41905
Adam Lingner		28546
Adam Peters		37291
Adam Rusinak		41730
Adam Sirvinskas		44586
adam youngblood		41980
Admiral Zoya		39237
adriana berg		41251

Sender Name	Submission ID
29 Audubon: Toxins	
Adrienne Brown	44327
Adrienne Manbeck	28141
Aesha Allen	39111
aggie beatrez	25397
Ahilan Pulendran	42178
Ahmed Bihi	22732
Aileen Larson	44286
Aili Hammersmith	40258
aiman yousaf	46024
Aimee Jackson	37489
Aimee Meyer	22885
aiya butler	37591
Al Larson	37003
Alan Bridgeford	43818
alan cupp	36838
Alan Fitterer	22778
alan olson	37487
Alan Smith	22703
Alana Fink	36741
Alana McDevitt	37222
Alana Wind	39472
Alanna Rodriguez-Hines	25851
Albert Moore	37616
Alberto Vega	37554
Alec Chmielewski	22395
Alejandra Ayala	38075
alek roslik	42043
Alena Anderson	47238
Alena Nikolskaya	39204
Alex Cooper	47353
Alex Gillie	42026
Alex Haugen	41492
Alex Hottel	41487
Alex Juettner	41060
Alex Minge	38994
Alex Myslajek	37065
Alex Roob	37483
Alex Steele	37361
Alex Stiffman	22659

Sender Name	Submission ID
29 Audubon: Toxins	
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Alexander Gaya	41867
Alexander MacGillis	39207
Alexander McUrton	23124
Alexandra Mcwhorter	41733
Alexandra Satre	23464
Alexia Gannon	22036
Alexis Dauney	42161
alexis neeland	26788
Alexis roy	28124
Alexis Zaccariello	41797
Ali Elabbady	26972
Ali Farr	39843
ali jaafar	37720
Ali junaid	37719
Alice Bearss	36396
Alicia Aubart	37726
Alicia Batt	37143
Alicia Horn	36581
Alicia Kieckbusch	37770
Alida Abdullah	36933
Alina Seletska	39191
Alisa Schnackel	28669
alisha franczak	37856
Alissa Buethe	37213
Alissa Wolf	37053
Alix Gacek	40598
Aliza Zadiraka	46935
ALLAN CHRISTLE	41469
Allan Kooiman	26786
Allen Junge	39115
Allison Cochran	22757
Allison Estby	42173
Allison Foy	42084
Allison Horwath	39181
Allison McMartin	38765
Allison Nassif	37315
Allison Spear	37476
Allison Tegeler	41575

Sender Name	Submission ID
29 Audubon: Toxins	
Ally Symynkywicz	37580
Allyson Toner	41564
Allyson west	37228
Aloun Phoulavan	37659
Alta Hanson	36758
alton peterson	36428
Alva Crom	40553
Alvena Farra	39320
alvie ratermann	39247
Alyson Mohan-Lucas	43499
Alyssa Evenstad	41837
Alyssa Foster	44125
Alyssa Greenwood	37522
Alyssa Nieman	44590
Alyssa Rohlik	36594
Alyssa Schulte	27742
amalia jankord	36746
Amanda Busch	38644
Amanda Dittman	36866
Amanda Ellen	37139
Amanda Goettig	42085
Amanda Grant	37446
Amanda Heuring	39294
Amanda Kissell-Bradley	39286
amanda mcneal johnson	40453
Amanda Mohler	41872
Amanda Morrison	36726
Amanda Pederson	39189
Amanda Tempel	42252
Amanda Troelsen	40596
amanda whittaker	44188
Amanda Wilson	23452
Amber Atkinson	26611
Amber Brown	40175
Amber Leahy	40476
Amber Livingston	37471
amber moore	37779
Amber Ragatz	27895
Amber Rundle	41520

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29 Audubon: Toxins	
Amber Shannon	22385
Amber Tolrud	41650
Amber Waterbury	37678
Ame Decker	22770
Ameera shefeeq	40689
Amethyst Nelson	47280
Amy BIgbear	28092
Amy Campbell	19865
Amy Carter	36852
amy clauson	41847
Amy Farrar	37331
Amy Grace	37625
Amy Horst	39278
Amy Jessina	37459
amy lindgren	38054
Amy Nankivil	23454
Amy Passolt	37108
Amy Rude	42185
Amy Schrecengost	36471
Amy Stevens	41956
Amy Strydom	43736
Amy Waery	38043
Amy Wenner	41258
Amy Wold	36357
amy zilka	23437
Ana Florez	39219
Ana Maria Studer	37306
Ana Veblen	41732
Analise Adler	36504
Anders Arnevik	22463
Andre Mittelmark	36512
Andrea Fandrich	28348
Andrea Hillis	41951
Andrea Miller	36900
Andrea Mousel	41986
Andrea Paiz	37096
Andrea Peterson	46078
Andrea Richer	44199
Andrea Ruff	41652

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29 Audubon: Toxins	
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Andrea Sittler	36379
andrea weglarz	37286
Andrew Anderson	22816
Andrew Anderson	37571
Andrew Bell	23411
Andrew Bradley	23978
Andrew Christian	40736
Andrew Dobs	42190
Andrew Hernandez	41964
Andrew Hill	41621
Andrew Hopkins	36867
Andrew Howell	26992
Andrew Langer	41087
Andrew MacGuffie	39292
Andrew Moroff	47035
Andrew Netherton	19851
Andrew Silberman	44174
Andrew Stone	36477
Andrew Vanecek	39139
Andrew Verant	43326
andrew young	41888
andy mckenzie	45270
Angel Corral	36603
Angel Sapp	43705
Angela Beaton	37154
Angela Bliss	45924
Angela Flood	37021
Angela Hansen	40602
Angela Hollie	42182
Angela Jerome-Tuckner	26793
Angela McCune Wiper	37536
Angela Olson	47593
angela Peterson	47420
Angela Tollefson	42305
Angela Zaffke	39274
Angelica Agents	36983
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Angelina David	37349

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29 Audubon: Toxins		
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Angie Bray		22446
Angie Deisinger		25085
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Angie Iverson		41979
angie Marty		38876
angie nastrom		41802
Angie Thomsen		19828
Angie Wright		38970
anita flodstrom		40719
Anita Gille		39486
Anita Jones		36490
Anita Reyes		22753
Ann Fink		42223
Ann Manning		37528
Ann Matko		37601
Ann Sherman		41341
ann spicer		44177
anna berowski		37724
anna gen		40116
Anna Liggett		22530
anna ramirez		39197
Anna Thompson		47430
Anna Windfeldt		38046
Annalee Wolf		28239
Anne Bodin		38747
Anne Hendrickson		43969
Anne Lieberman		47560
anne nelson		42052
Anne Ness		40631
Anne Schmidt		47216
ANNE THOMPSON		28506
Anneka Sulzbach		36984
Anne-Marie Carter		41414
Annetta Wilson		37786
Annette Anderson-Whitson		19794
Annette Godschalx		38632
Annette Heiberg		37543
Annette Schultz		40100

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29 Audubon: Toxins	
Annie Kieffer	42025
Annika Hanson	37518
Annika Karlsson	41194
Anthony Anderson	41402
Anthony Arndt	43374
anthony corwin	41593
Anthony Hicks	41993
Anthony Lang	45933
Anthony LaVelle	26998
Anthony Machgan	36812
Anthony P. Dorsett	37708
Anthony Rashad	40650
Anthony Roos	28392
Anthony Stomski	37704
Antonia Dempsey	41003
Antonio Dominguez	37205
Antonio Perez-Cajina	41328
Anya Udovik	39006
April Haas	37655
April Kaplan	36905
April Lebahn	40862
April Pascarella	44515
Araceli Welsh	47173
Aragorn Gatlin	26871
areyana edwards	37179
Ari McKee-Sexton	37610
Ariana Lewis-Stevens	37187
Ariel Johnson	24845
Ariel Kirst	22277
Ariel Wade	40569
Arielle Hart	23575
Arlene Roth	27568
Arne Boberg	36366
Arthur Dorman	38992
Arthur Himmelman	37650
Arthur Marble	41873
Arthur Nunez	28235
Aruchunan	37939
Ashley Adams	37264

Sender Name		Submission ID
29 Audubon: Toxins		
Ashley Allen		42126
Ashley Brennan		19860
Ashley Collins		38680
Ashley Hartfield		41197
Ashley Herold		37782
Ashley Joseph		40903
Ashley LaVigne		22891
Ashley Meehl		36640
Ashley Monk		41042
ashley nelson		44303
Ashley Paradise		36693
Ashley Shopa		28120
Ashley Vaughn		37013
Ashley Williams		42000
Ashly Reger		41493
Asmaa Myran		38835
Athena Gatzke		40626
Ativan Prescribed		40655
Aubreona Hanson		37240
Audret Dorholt		41237
AUDREY NELSON		37411
Austin Edison		41640
Austin Scherzberg		44407
Austin Steffens		36946
autumn eyestone		36430
Autumn F		37153
Ava Beath		37324
ava k roman		41774
Avery Kokett		39202
ayan abdullahi		37104
Ayesah Yahya		37327
Ayra Brown		37372
Azura Potter		25289
B. K. Moulin		47480
badriya mohammed		36677
Bailey Bryans		42176
Bailey Lutz		37462
Bailey Ulbricht		37109
Baird Swanson		36795

Sender Name	Submission ID
29 Audubon: Toxins	
Baird Swanson	46071
Barara DeFelice	36353
Barb Gregory	47266
Barb Nevin	37622
Barb Sager	36742
Barb Week	37016
Barbara Bailey	43849
Barbara Bonet	37643
Barbara Carranza	42120
Barbara Dybvig	41004
Barbara Edson	38685
Barbara Ehler	37699
barbara elfstrand	37071
Barbara Finn	44196
Barbara Hayhoe	42099
Barbara Larson	23417
Barbara Larson	37943
barbara lund	36748
Barbara McCauley	37953
Barbara McColgan	37795
Barbara Patchen	23226
Barbara Raye	42034
Barbara Simmonds	43714
Barbara Stewart	37193
Barbara Vento-Charlsen	36565
Barbara Volz	39218
Barry Woodruff	42311
Bat Man	41535
Beatrice Ormsby	37603
Beau Bureau	38101
Becca Perry	36717
Becks Rogers	39806
Becky Benson	22273
becky fleming	25134
Becky kruger	22225
Becky Steinhoff	39796
Ben Carstensen	41536
Ben McHenry	40228
Ben Trapskin	27713

Sender Name	Submission ID
29 Audubon: Toxins	
Benjamin Byrne	45044
Benjamin Haligan	37637
Benjamin Masters	38963
Benjamin Merrill	36917
Benjamin Olson	22263
Benjamin Pahl	44543
Benjamin Schecter	41135
Bernard J Grisez	37416
Bernard Lee	36953
Bert Mayberry	38086
Bertha Gonzales	39026
Beth Johns	37680
Beth Kor	36751
Beth Leaneagh	41285
Beth Sanftner	39265
Beth Senn	37501
Beth Shaffer	26903
Bethany Locke	38813
betsy kroon	38059
Betsy Olson	37765
Betty Smisek	37358
Beverly Satre	41569
Beverly White	39034
Beverly Zamora	41518
Bianca Garcia	39287
bill braskey	41803
Bill Forbes	27935
Bill Gabler	38908
Bill Holland	38864
Bill Shy	37155
Bill Sorem	41839
Billie Wegner	37237
Billy Aamodt	37920
Bimala Shrestha	23398
Binoy Bahuleyan	42234
bintu swaray	41720
bjorn haavik	27968
Bob and Joy Johnson	42045
Bob Hamlin	42241

Sender Name	Submission ID
29 Audubon: Toxins	
Bob Jared	41138
bob olson	37244
Bob Ray	42027
Bobbi Jacobsen	39170
Bobbie Vance	36322
bobby sederstrom	37509
Bodo Dumke	37197
Bonni Boran	40233
Bonnie Boettcher	40725
Bonnie Harper-Lore	40512
Bonnie Hering	40195
Bonnie Meyer	39313
Bonnie Resig	38995
Bonnie Rosenfield	47461
bory phan	39138
Brad Anderson	36375
Brad Bronk	39470
Brad Frederick	40724
brad haugo	37146
Brad Heltemes	37664
Brad Plaman	44212
Brad Zimney	41577
Bradd Perkins	38987
Braden Shannon	39257
Bradley Kunz	37668
Bradley Sorock	37025
Brady Carlson	41512
Brady Czeck	36454
Brady Steigauf	39169
Brage Hanson	41389
Brandan Fiedler	40698
Brandon Bohlen	27684
Brandon Marberry	36975
Brandon Mclaughlin	37596
Brandon Villneauve	22043
Brandon Walk	43237
Brandon White	37546
Brandy Marble	37548
Bree Douglas	37691

Sender Name		Submission ID
29 Audubon: Toxins		
Brenda Ammon		41988
Brenda Boettcher		41232
Brenda caste		40509
brenda christ		36796
Brenda Daly		41572
Brenda Hachtman		43246
Brenda Orndorff		40160
brenda Scot		37410
brenda scott		37486
Brenda Silkman		40917
Brenda Silkman		41519
Brenda Villard		39604
Brendan Lewis		41766
Brenden Biel		42144
Brenden Obryan		42081
Brenna Monroe		41010
Brent Burkemper		36865
Brent Marmo		37627
Brian Akre		45193
Brian Ashman		22727
Brian Campbell		27687
Brian Davis		41683
Brian Gaffaney		36830
Brian Henning		28270
brian johns		37666
Brian Kenney		38853
Brian Mays		36818
Brian Mays		36819
Brian Mccarty		22717
Brian Peterson		36803
Brian Stoessel		36781
Brian Thorbjornsen		22883
Brian Van Bogart		26787
Brian Williams		36896
Briana Kroll		37210
Bridget Borer		37721
Bridget Carns		41990
Bridget Doyle		43963
Bridget Spychalla		36886

Sender Name	Submission ID
29 Audubon: Toxins	
Bridgette Deeny	40934
Bridgette Smith	40696
Bridgit Albrecht	41347
Brigitt Orfield	41322
Brigitte Sandager	38099
Brionna Harder	41107
Britt Berner	22337
Britta Dornfeld	42041
britta momanyi	27902
Brittany Bastian	44006
brittany gorsuch	38924
Brittany Linehan	41127
Brittney Sarchet	43490
Brook Parrish	41321
Brooke Bronson	38701
Brooke Saunders	37163
Brooke Swart	39186
Brooklyn MacCloskey	25092
bruce downing	22825
Bruce Frafjord	43583
bruce halverson	37631
Bruce Jenkinson	37004
Bruce Leier	23308
Bruce Mitchell	37368
Bruce Toothman	40080
Bryan Benson	39661
Bryan Bongey	27653
Bryan Frischmann	27885
bryan gullickson	22448
bryan gullickson	42263
Bryan Hainey	41817
Bryan Koppy	38688
Bryna Sirivong	39587
C Bloedel	38597
C Herbst	28411
C. Allaire	42163
C. Bauer	41370
Caitlin Myers	46089
Caitlin Pedracine	41930

Sender Name		Submission ID
29 Audubon: Toxins		
Caitlin Raasch		44392
Caity-Shea Violette		40950
Cal Larose		44700
Caleb Newman		41696
caleb roberts		37161
callie carlson		21988
Callie Przywojski		22671
Calvin Cloutier		41901
Calvin Stewart		40073
Cameron Gordon		41588
Candace Podratz		23742
Candyce Osterkamp		36526
Cara Valdez		27960
caren beckley		47316
cari s		41578
Carl Boone		37329
carl haakenson		36791
carl heinrich		37716
Carl Mason		43797
Carl Nenadich		43610
Carla Johnson		13351
carla larson		36706
Carla Mistic		40713
Carlie Boudreau		41764
carlie volbrecht		41870
Carlo Lombardo		23549
CARLOS PEREZ		40974
Carly Henderson		42139
Carly Tebbs		37696
carmen wanczycki		43563
Carol A. Cole		37818
Carol Adele-Jewett		40507
Carol Benedict		36404
Carol Bishop		41446
Carol Christiansen		28058
carol davis		47013
Carol Duggan		41212
Carol Eubanks		22765
carol greenwood		27702

Sender Name	Submission ID
29 Audubon: Toxins	
carol hall	37265
Carol Halonen	40191
Carol Hill	39105
Carol Kiekow	37425
Carol Kline	23579
Carol Mellom	36327
Carol Roghair	47384
Carol Salmon	41443
Carol Schwarzkopf	28154
Carol Vopatek	41865
Carole Fernholz	36665
carole gernes	37619
Carole Smiley	37168
Carolyn Hudyma	36732
carolyn johnson	26853
Carolyn Kluthe	37390
Carrie Gaynor	41369
Carrie Gilmer	40700
Carrie Hesse	23465
Carrington Russell	37781
Carstens Smiht	41911
Cary Hakam	36806
Casey Deschampe	41981
Casey McNutt	23148
Casie Cook	39772
Caspian Anderson	36639
Cassandra Leary	37318
Cassandra Lee	22832
Cassandra Miller	36701
Cassidy Walker	38737
cassie beugen	27136
Cassie Dworshak	39231
Cassie Krause	38819
Cassie Nickles	41541
Cat Griffith	41877
Cat Thompson	26260
Cate Ness	37206
Catherine Arnevik	37465
Catherine Glynn	22443

Sender Name	Submission ID
29 Audubon: Toxins	
catherine jackson	22214
Catherine Landrum	26606
Catherine Murphy	47303
Catherine Pierce	45702
Catherine Sahlstrom	39443
Catherine Simmons	36856
CATHRYN PERNU	23458
Cathy Coppersmith	45546
Cathy Curtis	36568
cathy stiernagle	22444
cathy waldock	41773
Cathy Witthoeft	41057
Catrina Helseth	40957
Cecily Isle	23393
Celeste Sondgeroth	40253
Celia Corliss	36981
Célia Moura	42197
Celia Phelan	40818
Chad Barthelemy	41302
Chad Dagendesh	23478
Chad Johnson	39293
Chad Jones	40295
Chad Parks	41477
Chad Roy	41681
chahlee c.	38746
Chama Straw	37238
Chan Allgood	26331
Chancheta Pratt	40174
Chandra anderberg	39956
Chanel Townsend	22329
chantal bellefeuille	38679
Charissa Osborn	26677
Charisse Smith	39211
Charity Donovan	36646
charlene hill	22731
Charles Bernardy	41489
Charles Cousin	37036
Charles Dam	22813
Charles Davis	22846

Sender Name	Submission ID
29 Audubon: Toxins	
Charles Madsen	41840
Charles Oakes	36775
charles scott	37203
Charles Skaudis	41915
Charles Smith	27667
Charlie Knowles	41276
charlie wagner	43513
Charlie Weber	36638
Charlotte Jaskier	37235
charlotte johnson	39037
Charlotte Kerelko	41812
Charu Mathur	37732
Chase Root	41924
chass uthe	22458
Chastity Lueck	37022
Chaun Webster	24906
Chelsea Schmidt	41591
Chelsey Shoup	36460
chelsie campbell	37378
Chely Tverberg	21966
Cherilee Brockopp	44835
Cheryl Carlson	39153
cheryl gilbert	36930
Cheryl Jungmann	37513
cheryl powell	36599
Cheryl Stoppel	36952
cheryl verness	22269
chet cisek	39019
Cheyenne Kopp	41612
Cheyfaun Bryant	44618
Chiara Race	41845
Chieze Kaip	28225
Chloe Britzius	42495
Chloe Petersen	36666
Chloe Spurgat	41550
chris arionus	24722
Chris Cuppett	41461
Chris Englund	41511
Chris Gallagher	22847

Sender Name	Submission ID
29 Audubon: Toxins	
Chris Geraghty	44680
Chris Gordon	22109
Chris Higgins	36808
Chris Leier	41607
Chris lilyerd	22772
Chris Moline	45341
Chris Monroe	37583
chris p	38993
Chris Radke	37152
Chris Shaw	28341
Chris Tillberg	39721
Chris Tuders	37709
chris underhill	22218
chris wyatt	37738
Chris Zerby	45854
chrishaun mcdonald	41573
Chrissy St	37626
Christa Danko	40854
Christi Neaton	39960
Christian Gustafson	36489
Christian Madson	28398
Christie Hartmann	36559
christina curry	39208
Christina Jacobs	36450
Christina Mayer	36882
Christina Ngeunsy	41437
Christina Noerenberg	37529
Christina Rarick	36586
Christina Smith	22452
Christina Solensten	36974
christina suhsen	22133
Christine Catlin	38968
Christine Dahlman	38916
Christine Harshman	41290
Christine Hashizumi	41579
Christine Henzler	41466
Christine Imgrund	37690
Christine Leventhal	37672
Christine Lloyd	43725

Sender Name	Submission ID
29 Audubon: Toxins	
Christine Michelsen	47314
Christine Oliver	39140
Christine Pedersen	37514
Christine Pudney	36554
Christine Seaton	39327
Christine Strop	37771
Christine Waring	40852
Christine Wittman	40557
Christopher Boyd	42080
Christopher Carlson	41846
Christopher Johnson	43516
christopher kearney	38966
Christopher Lafleur	37417
Christopher Lappen	41184
Christopher Melander	22121
Christopher Orcutt	42067
christopher schmidt	22279
Christopher Thao	36468
Christopher Wagner	22733
christy bailly	37140
Christy Benesh	36783
Christy Weisser	19868
Chrystina Hakam	25956
Chuck Pallas	42140
Chy R	19810
chyrl pillsbury	37089
Cindie Gunderson	38656
Cindilee Johnson	23632
Cindy Amberger	40028
Cindy Dahlseid	28061
Cindy Polverari	40683
Cindy Trusty	39302
Cindy Wafer	36935
Cindy Walker	38053
cj thorkildson	41340
Clair Shackelford	44050
Claire Abbott	37751
Claire Borchard	37597
Claire Hauge	42169

Sender Name	Submission ID
29 Audubon: Toxins	
Claire Ready	37009
claire simonson	42221
Claire Young	45928
clara ledesma	22736
Claudia Gumbiner	27849
Claudia Perez	41491
Cliff Odegaard	42033
Clinton Kennedy	19821
Clyde Atwood	22380
Coburn Porter	44683
Cody Dyrhaug	37280
Cody Jacoway	41153
Cole Babler	37072
cole severance	23206
coleen Christian	19788
Colin Jensen	36307
Colin Lau	27859
Colin Mansfield	39525
Colin Monette	23924
Colin Steinmann	26877
Colleen Dunleap	36719
Colleen Falconi	39136
Colleen Gobely	40935
Colleen Krmpotich	38627
Colleen Matthiesen	40079
Collin Ludwig	37111
Connie Kauppi	44966
Connie Kratzke	40803
Connie Norton	40715
Connie Peterson	37662
Connie Schipp	37366
Connie slaten	41211
Connie Sullivan	39808
Connie Zurcher	37335
connor martin	41566
conor hatch	36860
constance strong	38626
Constanza Raber	42028
Cora Syverson	39681

Sender Name	Submission ID
29 Audubon: Toxins	
Coralie Jacobson	37167
cordero killing	27876
coree sargent	23536
Corey Elliott	37448
Corey Nhobei	23512
Cori Rasch	19799
Corina Cedergren	44208
Corina McClure	42279
Corinne Cavanagh	41595
corinne legier	41444
Courtney D	38077
Courtney Krentz	27736
Courtney Olson	43724
Courtney Werk	41851
Courtnie Kirvelay	39183
Craig Arth	40261
Craig Atkinson	22544
Craig DeChantal	37677
Craig Dienger	42074
Craig Laughlin	37105
Cresta Hubert	37113
Cristi Rumpza	37256
Cristin Strong	47307
Crystal Bui	22407
Crystal Enderson	41643
crystal harris	36571
Crystal S.	41263
Curtis Watson	22326
cyndee adams	40841
Cynthia Blomberg	36429
Cynthia Borowski	39300
CYNTHIA Fisher	41068
Cynthia Mauleon	37164
Cynthia Nichols	22331
Cynthia Olson	37412
Cynthia Perez	41515
D Deusterman	37385
D Jankord	22699
D Roloff	23248

Sender Name		Submission ID
29 Audubon: Toxins		
dagmar romano		28518
Daivd Delavari		40556
Dale Larson		23255
Dallas Kroyer		36871
Dalton Wheeler		36315
Damien kla-diihbah		41330
Dan Burns		47165
Dan Cohen		42208
Dan DaCosta		39284
Dan Farrell		47265
Dan Kase		22339
Dan Mork		41893
Dan Pederson		41616
Dan Rohr		36593
Dan Rose		37498
Dan Smith		28476
Dan Snodgrass		37128
Dana Blomgren		22336
Dana Boergerhoff		36551
Dana Musgrove		44458
Dana Nelson		25924
Dana Noss		36895
Dana Oliver Jr		23157
Dana Sanchez		40687
Dana Wegener		40627
Dana Zakowitz		47386
Danae Larson		36786
Dane Cramer		37377
Dani Szykulski		47042
Daniel Casar		37332
Daniel Dion		37742
Daniel Dobson		40449
Daniel Ellington		41476
Daniel Holsinger		42078
Daniel Hunt		37594
Daniel Kornder		38838
Daniel Mettner		22373
Daniel Moen		38894
Daniel Ross		36587

Sender Name	Submission ID
29 Audubon: Toxins	
Daniel Saman	47369
Daniel Vyskocil	37493
Daniel Walsh	41167
Daniel Wolfe	38040
Danielle Hernandez	39976
Danielle Hickenbotham	37432
Danielle Klingenberg	19853
Danielle McClarey	37803
Danielle scherek	41020
Danny Ludwig	28050
Danny Urban	22388
Dante Landrum	41011
Dara Becker	37316
Darcey Nelson	37575
Darcy Tabis	24865
Darla Tallman	37087
Darlene Sandstrom	23321
Darlene Subialka	41977
Darnell Hancock	41385
Darrell Simms	41675
Davante Douglas	38984
Dave Bloom	22376
Dave Callahan	44679
Dave Councilman	38421
Dave Long	37844
Dave Ryhn	42145
Dave villarreal villarreal	37015
David Allen	36714
david andrews	41400
David Bosselmann	42136
David Bradley	39038
David Brommerich	22065
David Chial	28478
David Cobb	23167
David D. Walgenbach	37507
David Erickson	38060
David Farr	42023
David Goldberg	37171
David Gunderson	38602

Sender Name		Submission ID
29 Audubon: Toxins		
David Hanka		37059
David Harthorn		36520
David Holmes		41325
dAvid johnson		22248
David Johnson		41168
David Johnson		41488
david kangas		43810
David Larson		22341
David Lieberman		47491
David Lilienthal		41440
David Muggli		40874
David Naugle		36840
David Piehl		21983
David Pilgrim		36687
David Pouliot		44920
David Sanborn		41649
David Shannon		22441
David Smith		40959
David Steckling		42195
David Steineck		24953
David Stevens		40505
David Sullivan		37769
David Truax		39160
David Undlin		37722
David Whovian		36763
DAVID ZIMNEY		37449
Dawn Brink		42035
Dawn Shockency		23463
Dawn Stolee		36711
Dawn Tuveson		36839
Daydra Lorenson		19787
Dayna Thomas		23040
Dayne Schweiger		37469
Dayonte Spears		41147
dean peter		22119
Dean Petersom		28094
Deanna Mans		36823
Deanna Ostberg		41336
Deb Budinger		37578

Sender Name	Submission ID
29 Audubon: Toxins	
Deb Free	46009
Deb Reed	40811
Deb Schreiner	40032
Deb Verdon	38102
Deb Widmer	36689
Deb Wood	22789
Debbi Bauer	36722
Debbie Brown	37305
debbie eitzen	43957
Debbie Lauklala	37309
Debbie Mucklow	41819
Debbie Pierce	40693
debbie Susnik	40129
Debbie Wall	41950
Debora Holmes	22890
Deborah Anderson	27461
Deborah Atchison	39240
Deborah Bentley	22767
Deborah Booten	41729
Deborah Camasta	39775
Deborah Johnson	41646
Deborah Mielke	41123
Deborah Serafini	37623
Deborah Vander Eyk	37281
Deborah Vriesen	41361
Deborah Winter	24667
Debra Barnhardt	24546
Debra Blake	37107
Debra Carter	41445
Debra Greenblatt	40238
Debra N	37516
Debra Riedle	22266
Debra Walstad	37195
Debra Wilde	22656
Debra Winrow	40869
Dee Ann Amberg	39759
Dee Ann Christensen	41890
Dee Warf	22840
Delaney Murphy	40502

Sender Name	Submission ID
29 Audubon: Toxins	
Delia Santiago-Stulc	41822
delores schesso	36755
Demetria Williams	39594
Denay Ulrich	37845
Denee Kaveney	22459
Denise Chase	37312
denise hendley	37115
Denise Hillman	37047
Denise Jasenosky	26981
Denise Keeney	38651
Denise Lundgren	37074
Denise Mazone	39342
Denise Mehr	46050
Denise Mondor	36779
Denise Nusser	39358
Denise Rouleau	36509
Denise St Marie	46472
Denise Sullivan	26397
dennis bernloehr	23822
Dennis Nightingale	26667
Dennis Ready	37374
Dennis Schwickerath	23166
Dennis Schwickerath	37728
dennis swearingen	41644
Dennison Jones	36656
derek baker	46312
Derek Bethel	23946
Derek Hall	26875
Derek Kari	36349
DEREK KLINGEMAN	36998
Derek Vogel	40949
Derese Gebregiorgis	41379
Desirae Griffith	37100
destiny januszewski	36880
Dezi LacQuay	42171
Dharshini Gunatilleke	40695
Diana dr	36364
Diana Erwin	37727
diana waserman	40237

Sender Name	Submission ID
29 Audubon: Toxins	
Diane Anderson	37317
Diane Carlson	27389
Diane Ewing	26865
Diane Garetz	26558
Diane Glem	37794
diane haines	41721
Diane Harper	37778
Diane Hulke	36330
Diane Johnson	22658
Diane Kammerer	36698
Diane Lilja	36663
Diane Mueller	22286
Diane Nelsen	41939
Diane Petron	42217
Diane Pietro	37233
Diane Smith	37064
Dianna Jancik	36487
dianne broman	23714
Dianne Grewe	27080
dianne polasik	41210
DIANNE RUNDLES	44389
Dickson Kunz	37177
Diggitt McLaughlin	40568
Dimitris Lappas	38998
Dinorah Woodmansee	22696
Diogo Lopes	43497
Dione Chanslor	43319
Dionne Conniff	37567
Disa Hobbs	37545
DJ Stephenson	37129
DKingsley Hahn	19858
Don MacLeod	41252
Don Nelson	47121
Don Osborn	41814
Don Poage	28329
Dona Conway	22280
Donna Kneeland	41861
Donna Mock	26864
Donna Nelson	36591

Sender Name		Submission ID
29 Audubon: Toxins		
Donna Pfarr		37735
Donna Tukes		41122
Donneen McKay		23767
Donovan Hagen		37184
donyelle Headington		22465
Doreen Munnell-Clark		43455
Doreen Parrish		37461
Dorie Miller		40192
doris suvanto		39526
Dorothy Bauman		37126
Dorothy Downing		19836
Dorothy Germain		22786
Dorothy Giller		22540
Dorothy Graff		44508
Dottie Henrichs		43970
Doug Landsverk		41094
Doug Owens		37555
Doug Wilkowske		46611
Douglas Jones		42248
Douglas Silverman		37199
Doyle Gould		41521
Dr. Anita Kozan		39036
Dr. Tom Spicer		22381
Drew Peterson		41987
Duran Carlson		37103
Dustin Lockwood		36864
Dustin Macgregor		38923
Dwight Haberman		45610
Dylan Robinson		43478
Dylan Warzenski		36461
Dynette Hockenberry		41271
Dzenan Becic		41474
Earl and Margie VanBerkom		26760
Echo Nelson		43739
Eddie Richardson		40764
Eden Deutz		37458
Edgar Lopez		40684
Edith Ofstedal		36472
Edmund Catlin		36973

Sender Name	Submission ID
29 Audubon: Toxins	
Edward Alexis	22693
Edward Frake	27411
Edward Johnson	41943
Edward Kong	22264
Edwin Engelmann	40647
Eileen Levin	38668
El Dorado	41800
Elaine Hutton	40193
Elayne Lappi	41957
eldon bosto	41475
Eleanor Souve	37017
Eli Mash	41438
Eli Ollila	38056
Elias Bonnemann	40171
Elicia Beckerman	37496
elinor anderson-genne	27042
Eliot Axelrod	37684
elisabeth harincar	28592
Elise Andresen	22680
Elise Avieda	47388
Elise Lochen	40564
Elise Schendel	23659
Elizabeth Adams	40986
Elizabeth Anderson	37828
Elizabeth Barlow	36514
Elizabeth Barry	42106
Elizabeth Beckman	36382
Elizabeth Bourquin	37212
elizabeth Cregan	27983
Elizabeth Degefe	37376
Elizabeth Edinger	40145
Elizabeth Edwards	41944
Elizabeth Erickson	42137
elizabeth giles	36438
Elizabeth Gustafson	38925
Elizabeth H	37589
Elizabeth Jackson	37428
Elizabeth Jacobson	37293
Elizabeth Johnson	36995

Sender Name		Submission ID
29 Audubon: Toxins		
Elizabeth Johnson		40506
Elizabeth Polome		36782
Elizabeth Rahn		41435
Elizabeth Rivera		22551
Elizabeth Sanders		46800
Elizabeth Schultz		37132
Elizabeth Tempel		36635
Elizabeth Wambheim		47209
Ellen Austin		37457
Ellen B		41012
Ellen Bengtson		23527
ellen hinchcliffe		37744
Ellen Kordonowy		37269
Ellen Mork		43703
Ellie Cook		37464
Elsie Conard		36798
Elton Brown		37651
Elyse Ward		28081
EM Turner		47274
Emi Endrizzi		41238
Emil Slowinski		22397
Emilee Shaw		26685
emilie and joachim hossick schott		28234
emilie Patera		37832
Emily Hegland		42071
Emily Israel		38633
Emily Kremer		41794
Emily Lambrecht		37413
Emily Lundquist		41543
Emily Martin		40629
Emily Ness		41935
Emily Olson		41630
Emily Percy		40948
Emily Skelton		36596
Emily Smith		36389
Emily stigall		38069
Emily Tucker		41183
Emily Utne		38727
Emma Flanigan		37044

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29 Audubon: Toxins	
Emma Helmer	40587
Emma Nelson	47492
Emma P	38805
Emmalee Breth	42003
Emy Minzel	36650
Enoch Ferpini	22764
Enrique Ben Guuerrra	21952
Enviro N. Ment	43950
ephraim aelony	37134
Eric Hjelmgren	47230
Eric Johnson	23030
Eric Knudson	27331
Eric Morrison	39206
Eric Renshaw	37287
Eric Weisman	41349
Eric Wistrand	41542
Eric Zimmerman	22318
erica brandt	47403
Erica LeVasseur	40554
Erica Miller	36651
Erica Ovre	47298
Erica Schiebel	22692
Erich Russell	39077
Ericka Coffelt	40511
Erik Arnold	41296
erik pederson	41904
Erika Achberger	44609
Erika Fieldhammer	41144
Erika Langford	22484
Erika McDonough	23112
erika meshbesher	19863
Erika Thorne	38730
Erin Beeson	42037
Erin Herold	41953
Erin Meyer	40641
Erin Neilon	38905
Erin Onyango	42135
Erin Rivers-Hill	42098
Erin Schaefer	37180

Sender Name		Submission ID
29 Audubon: Toxins		
Erin Wojciechowski		36588
ethan hogen		41959
Eugene Frazer		37733
eugene glass		36835
Eugene Harris II		40678
Eunice Eckerlhy		37185
eve bassinger		37252
Evelyn Vedasto		23883
eyup akgun		36733
Fahmida Hassan		27426
Faith Finney		42216
Fanchon Burns		43226
Farah Finch		19872
Farrell Danz		39094
Fay Scott		40839
Fay Severin		39635
Faye Taylor-Jones		36547
felicia m		38721
Ferguson MacKenzie		40801
Ferolyn Angell		42048
Fiorella Quizhpi		47419
Florence Ball, RRT		40544
Forrest Hardy		37054
Fralayla Piecek		38913
Fran Tanner		36582
Frances Moeller		28172
Frances Strong		38070
Frances Wetherall		40938
Francis Reed		36777
Francis Schroden		37207
Frank DeMike		44191
Frank Liu		38073
Fred Anthony II		41377
fred lauder		25362
Fred Sasse		37504
Freddy Keillor		41439
g k		36456
Gabi Kozdroj		37654
Gabriel Feijo		37110

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29 Audubon: Toxins	
Gabriel Olajonlu	37356
Gabriel Santamaria	37657
Gaby Roth	23172
Gail Dodd	36637
Gail Higgins	41509
Gail Merriam	22282
Galen Bell	36507
Galen Sjostrom	39279
Garrett Butler	37553
Garrett Young Jr	39102
garrett zwart	40231
Garry Schindler	37687
Gary Bramer	22670
Gary Gabor	37296
Gary Moore	36567
Gary Russell	36734
Gary Sherman	37595
Gary Thofson	40254
Gary Thoms	36696
Gary Wood	40232
Gavin Hart	41688
Gavin Spraby	41844
Gemma Beck	22319
Genesis Garcia Fisher	22123
genevieve ryan	37640
Genna Anderson	38088
Geoffrey Robles	41365
George Brust	24441
George Fisher	23125
George Hulme	40465
George Matkovits	42092
George Pridmore	26879
George Shanks	36470
George Vacek	41590
Georgeen Casey	38868
georgia andria	28065
Gerald Rusk	40816
Geraldine Polasky	41622
Gerard Zimney	43690

Sender Name	Submission ID
29 Audubon: Toxins	
German Munoz	40901
Geromy Connoy	42290
Gerri Hoffman	45865
Gerry Rosenberg	36859
Gerry Winter	36562
Gigi Budinger	37035
Gilberto Caldero	22399
gilly de guzman	22312
Gina McKenzie	37266
gina newman	41260
Gina Triebold	37495
Ginger Hammond	40518
Ginger Jensen	39776
Ginny Cran	36875
ginny hangartner	37052
giovanni lopez	39099
Giselle Castelant	28352
glenn gohman	37421
glenn mcgregor	37073
Gloria Englund	40973
Gloria Taylor	22526
Gloria W. Smith	37430
Glynis Hinschberger	41098
Gonzalo Berridi	37566
Gordon Jefferson	44766
gordon marino	42054
Grace French	45353
Grace Pollari	36476
Graham Nash	22140
Grant Crenshaw	22062
Grant Rallis	41198
Grant Templeton	41684
Greg DeLeon	37586
Greg Epley	37531
greg gallert	37505
Greg Greengauz	36890
greg helland	44582
greg mcneely	41884
Greg Molenar	37772

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29 Audubon: Toxins	
Greg Peterson	28387
Greg Risley	41585
Greg Schreck	22694
Gregg Gillespie	27255
Gregg Gillespie	37392
Gregory Adams	47231
Gregory David	37661
Gregory Gailen	36879
Gregory Maddox	41185
Gregory Schmidt	47382
Gregory Williams	26862
Greta Callahan	37611
Greta Nelson	41792
Gretchen Johnson	43515
Gretchen Ryan	36988
Gretta Goldstein	22046
Guled Jama	36931
Guntis Kupers	22206
Gus Kathmann	39039
Gwen Krogwold	44059
Hailey Schwieger	41388
Haley Carbone	39732
Haley Haroldson	23349
Haley Holt	39179
Haley Wilson	37142
Halle Johnson	40681
Hannah Albert	37453
hannah kranz	39385
Hannah LaBelle	43843
Hannah Mielke	37249
Hannah Miller	41788
Hannah Noll	40624
Hannah Sehlstrom	37746
Hannah Sokol	37320
Hannah Stadler	37558
Hans Peterson	36548
harald christiansen	37767
Harmony knowles	37750
Harold Hartwig	41631

Sender Name	Submission ID
29 Audubon: Toxins	
Harold Turnquist	37475
Harriet Cook	40694
harrison king	28644
harry greenberg	41941
Harry Lando	27043
Hayley Evans	22451
Heather Bostrom	42246
Heather Dunlop	41860
heather hudak	41335
Heather Johnson	19824
Heather Kislenger	37353
Heather Phillips	42051
Heather Stocking	41765
heather Thimsen	41390
Heather Wulfsberg	37196
HeatherR Nord	36555
HeatherR Nord	41801
Heidi Adelsman	42130
heidi barthel	36966
Heidi Blatz	21994
Heidi Boynton	47455
Heidi Holmes	22953
Heidi Labyad	42104
Heidi Leaf	39120
Heidi Norman	37532
Heidi Paquette-Falk	38657
Heidi Pulaski	40975
Heidi Sandmeier	36556
Heidi Voss	22701
Heidi Wagner	46685
Helen Isberg	40493
Helen Moreland	37311
Helene Ginzburg	26406
Henry Patterson	39210
Herdis Magnusdottir	38628
herman jackson	36771
Hilary Debler	40737
Hilton Barzey	37641
Holley McCree	37226

Sender Name	Submission ID
29 Audubon: Toxins	
Holli Trombley	23410
Holly Baker	41538
Holly Barrett	39084
Holly Dugal	41166
Holly Dutton	28320
Holly Kasper	38793
holly marcotte	41978
Holly Sullivan	42134
Holly Tanner	37241
Holly Theede Kiese	37267
Holly Williams	45695
Homero Gallegos	42114
Hope Cervantes	37693
Hope Laizans	42191
Howard Thompson	26599
Hugo Gonzalez	37350
Hunter King	41380
Hunter Way	36358
huynh pham	47109
Ian Hanson	38815
Ian Miles	41104
Ian Stenlund	43245
Idalia Leuze	40910
Ijaz Osman	41083
ilana Forsgren	22283
Inge Maskun	41409
Ingrid Stocking	41295
Iris Young	41829
isaac henke	24981
Isabel Devon	40263
Isabel McClure	27905
Isabella Williams	36644
Ismar Mendoza	38985
J Enfield	22709
J Hickey	22315
J Hoesing	37510
J Holmbeck	37609
J L	42133
Jace Hennagir	37785

Sender Name	Submission ID
29 Audubon: Toxins	
Jacinta Heinzmann	27569
JACK CARRICK	47505
Jack Van meter	41626
Jackie Edgar Person	38635
Jackie Fanning	39032
Jackson Ulstrom	39316
Jacob Brown	27038
Jacob DeBlois	39007
jacob duffy	41546
Jacob Haubrich	37670
Jacob Hergenrader	22759
Jacob Kjome	36736
Jacqueleine Gamet	28465
Jacqueline Bilek	36403
Jacqueline Moe	37698
Jacqueline Shelton	36552
Jacquelyn Tigue	27379
Jada Breuer	41651
Jade Duenes	36753
Jaime Hilyar	27212
Jaime Janzen	40704
Jaimie Palmer	36932
JAKE BRAUSEN	36527
jake miller	41375
Jake Ruegemer	36915
Jake Shepherd-Lykken	36925
Jakob Bollingmo	26874
Jamal Syed	37078
James Alexander	41360
James Barbeau	43848
James Bennie	37333
James E Barklind	40875
james gilmer	22549
James Greene	28545
James Grev	41533
james holdman	37174
James Johnson	37121
James Knutson	40035
james kreager	37436

Sender Name	Submission ID
29 Audubon: Toxins	
James Lewandowski	36851
James Long	47175
James Mackson	26938
James Maehling	37028
James Marzella	37827
James McDonald	39200
James Nordin	40221
James Thibodeaux	37530
James Vaitruardrok	47172
Jami Johnson	44057
Jami Karow	41288
Jamie Berger	41403
Jamie Cheever	40143
Jamie Dabrowski	24298
Jamie Davis	42253
Jamie Johns	41460
Jamie Koblas	44703
Jamie Maglothin	19841
Jamie Mull	37519
Jamie Newman	41722
jamie odiet	23287
Jamie Senarighi	44955
Jamie Siwek	42329
Jamie Weber	36564
Jamiella Quinn	26810
Jan Cohen	37118
jan dominguez	36424
Jan Marie Lundgren	36724
Jan Mattson	40487
Jan Myers	41838
Jana Meckler	40873
Jana Rieck	37325
jana studelska	22384
Janalee MaCurdy	36715
Jane and Bill Venell	37319
jane Flowers	42270
Jane Frieler	40972
Jane Johnson	38875
Jane Maltby	41960

Sender Name	Submission ID
29 Audubon: Toxins	
Jane Nolan	22332
Jane Olsen	38779
Janet Brown	30443
Janet E Johnson	39141
Janet Hunter	40452
Janet Madland	23522
Janet Neihart	38355
Janet Poff	22345
Janet Polli	37297
Janet Tauer	25049
Janey Sowada	41172
Janice Anderson	41348
Janice Beske	42024
Janice Bobrowske	37450
Janice Del Calzo	42049
Janice Edwards	22743
janis eagan	36756
Janis Emily Peabody	36463
Janna Khoroshevtseva	40863
janna neperud	38368
jannel kuhta	37756
Jannik A	28082
Jasmine Perry	36960
Jasmyn HInton	19817
JASON BARRY	26360
Jason Bobby	43564
Jason Calva	37766
jason dupre	36355
Jason hanson	37813
jason holtz	28055
jason leyde	37835
Jason Oyoung	42096
Jason Rayner	43560
jason stevermer	39155
jason Terres	39473
Javier Ayala	37541
Javier Buenfil Azpiri	37242
javier solis	41638
jay hutchinson	37030

Sender Name	Submission ID
29 Audubon: Toxins	
Jay Satterwhite	19800
Jay Sherwood	26866
Jay Tappe	39716
Jayde Hursh	47077
Jaymie Solum	41088
Jayne Griffith	41248
jayne hall	45313
Jayne Hoese Berge	41405
Jaynie Twedt	40933
JD Holmquist	22436
Jean Bakke	37760
Jean Bingenheimer	36799
Jean Dexheimer	24135
jean ebensteiner	41576
Jean Haslett	37542
Jean Kandt	19861
Jean Paradise	37032
Jean Sleigh	40856
Jean Watson	19789
Jean Young	39961
jeanlou atlan	37188
jeanlou atlan	39275
jeanne Bertram	41038
Jeanne Fahlstrom	37380
Jeanne Gallaher	37577
Jeanne McKimpson	37136
Jeannie Colbaugh	40490
Jeannie Rudbeck	40230
Jeff Blaha	43569
Jeff Caron	39719
Jeff Davis	36811
Jeff Dorlack	28004
Jeff Goldman	36832
jeff goodman	36503
Jeff Hahn	40691
Jeff Horejsi	39103
jeff johnson	19814
Jeff Johnson	42237
Jeff Rupert	38859

Sender Name	Submission ID
29 Audubon: Toxins	
Jeff Schuller	44761
Jeff Stickler	37114
jeff taylor	41734
Jeff White	44705
jeffrey dickson	45688
Jeffrey Domingues	41823
Jeffrey Hoadley	41061
Jeffrey Lofberg	36850
Jeffrey Miller	36821
Jeffrey Pomeroy	37060
Jeimer Meraz	19825
Jen Anderson	26965
Jen anderson	37547
Jen Deveney	22276
Jen McCann	37341
Jen Rardin	37815
Jen Riehm	37055
Jen Talbott	39269
jen zimmerman	44299
Jenalyn Centeno	42165
Jenelle Melina	36967
Jenelle Rakotz	40555
Jenifer Butera	47432
Jenn Borchardt	39188
Jenn Neckermann	41247
Jenna Behnke	36910
Jenna Jackson	36602
Jenna Kettner	39457
Jenni Black	39109
Jennie Nelson	39688
jennifer bato	36343
Jennifer Baxter	45926
Jennifer Bergan	39021
Jennifer brock	26177
Jennifer Brookins-King	44474
Jennifer Bunkers	22333
Jennifer De la Serna	37363
Jennifer Dorris	44069
Jennifer Dziedzic	22887

Sender Name	Submission ID
29 Audubon: Toxins	
Jennifer Elton	42123
Jennifer German	41089
Jennifer Halen	36311
Jennifer Harris	21925
Jennifer Holmboe	37231
jennifer houle	28210
jennifer jackman	39963
Jennifer Jacques	19782
Jennifer Johnson	43978
Jennifer Lanham	42116
Jennifer Mattson	27184
Jennifer Mejia	37058
jennifer n	47222
Jennifer Otto	26954
Jennifer Peterson	41124
Jennifer Roorda	36321
Jennifer Seeger	41916
Jennifer Semmens	41320
Jennifer Smith	44509
Jennifer Soutor	36897
Jennifer Stokes	41609
Jennifer Watson	36961
Jennifer Wolf	36898
Jenny Barnes	39686
Jenny Davis	38037
Jenny Hauglid	23849
jenny kaing	37248
Jenny McDermott	40130
Jenny Stevens	46915
Jeremy Beckman	19847
Jeremy Bell	37649
Jeremy Deel	39214
Jeremy Malecki	36676
Jeremy McCarthy	39148
Jeremy Swanson	39272
Jerome Aiken	40656
Jerome Song	41762
Jerome Sylvester	41059
jerry doose	21913

Sender Name	Submission ID
29 Audubon: Toxins	
jerry glass	22521
Jeshua Livstrom	38863
Jess McCullough	40809
Jess Walczak	39256
Jessalin Ramsay	22216
jesscia luna	37697
Jesse Comstock	37034
Jesse Dale	27151
Jesse Jiang	44887
Jesse Kretsinger	39096
Jesse Mitchell	46872
Jesse Vrem	37301
Jessi Williams	36395
Jessic Marshall	41989
Jessica B	27240
Jessica Blagen	37302
Jessica Bowley	40847
Jessica cortez	41954
Jessica Danielson	41366
Jessica FIFe	37344
Jessica Fjelstad	36444
Jessica Franzen	39173
Jessica Heilman	37300
Jessica hoecherl	37764
Jessica Holst	23168
Jessica Larocque	28560
Jessica Littlejohn	41165
Jessica McBride	37607
Jessica Nelson	22453
Jessica Newbauer	39124
Jessica Olson	40679
jessica parvi	47354
Jessica Porter	22114
Jessica Shearen-Jarombek	36965
jessica silge	47333
Jessica Snyder	39158
Jessica Stevenson	37793
Jessie Sampson	43469
Jessie Skumatz	36325

Sender Name	Submission ID
29 Audubon: Toxins	
Jessie Thompson	41820
Jessy Conners	36926
Jessy Robinson	39634
Jesus Perez	36752
Ji Un Kim	41735
Jill Deden	22379
jill lewis	38775
jill naslund	24312
Jill Ness	22542
Jill Reamer	37862
Jill Rinehart	36341
Jill Werner	28115
jim byrd	22445
jim frazee	39264
jim Goldfarb	36680
Jim Hall	39005
Jim Lumley	37295
Jim Parsons	23294
jim postance	39176
Jim Rudolph	39229
Jim Stolz	38980
Jim Tjepkema	37299
Jim Whebbe	19813
Jim Ypparila	37454
Jimma Wetcha	37431
JImmy Lee	26867
Jimmy Mulek	44672
Jimmy OMalley	39209
Jinger Pulkrabek	36459
JinianVictoria Herdina	42029
Jm Kavaloski	37270
JMarinde Shephard	47456
jnana hand	22921
Jo Beth Dempsey	41441
jo hager	22389
Joan Bernstrom	41371
Joan Duncanson Elbert	37279
Joan Gittens	42159
joan marks	26123

Sender Name	Submission ID
29 Audubon: Toxins	
Joan Nichols	37200
Joan Rathbun	44927
Joan Thom	41948
Joan VanDerWerf	41728
joan woolsey	43733
Joaneea Vetrano	19834
JoAnn Schneider	26963
Joanna Trott	22456
Joanne Anderson	36743
Joanne Brown	36402
Joanne Kramer	44961
Joanne Marburg	37467
Joanne Smith	23592
Jodee Molitor	38930
Jodell Thorsett	41358
Jodelle Gerdes	19803
Jodi Andrews	40848
Jodi Beers	38750
Jodi Broadwell	41991
Jodi Chartrand	40503
Jodi Favata	41678
jodi hogendorf	41352
Jodi Johnson	25268
Jodi Johnson	36422
JOdi kARpen	42276
Jodi Ortega	22386
Jodi Pelkie	36869
Jody Johnson	44288
Jody Menge	39390
Jody Streiff	27144
jody veith	36901
Joe Baker	28289
Joe Balsness	41565
Joe Baltrukonis	37749
joe behr	39018
Joe Hess	46213
joe joegilbert	37927
Joe Krenzelok	41625
Joe Lake	37582

Sender Name	Submission ID
29 Audubon: Toxins	
Joe Lewis	41326
Joe McShan	41584
joe trout	37381
Joel Clasemann	37688
Joel Dunn	22681
joel hanson	37068
Joel Morrissette	41066
Joel Ronningen	40846
Joel Schalz	46877
Joel Schierman	41313
Joel Wernecke	41737
Joel Wilson	37406
Joella Berkner	40888
Joey Engelhart	23060
joey larson	22527
John Arachikavitz	42005
John Becker	28280
John Bushnell	41141
john condon	38996
John DeVinny	22934
John DeVinny	41694
John Doe	37288
John Elsner	37606
John Gaffner	26343
John Glauvitz	41596
John Gregornik	23314
John Hanzely	40859
john jarpe	40031
john keebler	37393
John Kennebeck	41620
John Kerr	40951
john koch	41927
john kuehl	40625
John Kurle	41679
John Landgraf	40447
John lawrow	37224
John Longballa	23985
john margotta	28499
John Mette	42076

Sender Name	Submission ID
29 Audubon: Toxins	
John Morrisette	36849
John MullenEardley	23131
John Munster	28241
john munz	37106
John Peace	41917
john plouffe	45917
John Putnam	37714
John Quarberg	39122
John Reichel	26918
John Reuter	37014
John Robey	37149
John sayers	36510
John Schermann	36938
John Schmeltzer	42200
John Schneider	42247
John Sherman	38667
John Wheeler	26881
John White	39234
John Wike	43756
Johnny Jones, Jr.	41548
Joi Thomas	39150
Jolae Loehrer	39174
Jolene Schauman	42254
JON EIDSNESS	42224
Jon Erie	41756
jon jepson	41009
Jon Krueger	37634
Jon Lord	47085
Jon Neumann	37560
Jon Smithers	28437
Jon Stanley	41871
Jonas Dubin	41843
Jonathan Dahlquist	36750
Jonathan Huggett pca cap	39564
Jonathan Jensen	21984
Jonathan Kurlander	36317
Jonathan Lockhart	38988
Jonathan Scharmer	40651
jonathan tungseth	36691

Sender Name	Submission ID
29 Audubon: Toxins	
Jonelle Pamintuan	21931
joni horak	37648
Jordan Clark	42268
Jordan Lilly	41415
jordan miceli	23297
Jordan T. Knobel-Piehl	44702
Jordana pickering	47267
Jordana Turnbull	36978
Jordine Johnson	41346
Jordyn Kromminga	36911
Joren Roth	47339
Jorge Astorga	37748
Jorge Popoca	42214
jose melo	41610
Joseph Beaulieu	46854
Joseph Bjerke	36809
joseph cromey	47240
Joseph Flasch	36584
Joseph Gorman	37429
Joseph Hill	41510
Joseph Richardson	25917
Josh Capistrant	36740
Josh Dalluge	41758
Josh Forsyth	40795
Josh Kramer	39093
Josh Latimer	44109
Josh Matter	36513
Josh Pelkie	41410
Josh Schulz	45328
Joshua Hall	46317
Joshua Knieff	41925
Joshua Loewenhagen	25556
Joshua Moe	40740
Joshua Paulsen	42188
Joshua StAmand	45433
Joshua Wiley	47024
Jostiene Windish	39758
Joy Mccauley	38063
Joy Phares	37360

Sender Name	Submission ID
29 Audubon: Toxins	
Joyce Browne	38932
Joyce Kramer	36807
Joyce Tegarden	42158
JSO Web	42131
Judea Martin	38920
Judith Rosenblatt	37220
Judith Straub	36337
Judith Weir	41849
Judy Isaacson	37112
Judy Ostrowski	38928
Judy Weber	47119
Judy Weinberger	39137
Juleen Schaefer	37789
julia antwi	37347
Julia Braswell	39175
Julia Harris	36894
Julia Hileman	37323
Julia Rowland	37593
Julia Sauve	37338
Julia Schultz	36804
Juliana Chapeau	38714
Juliana Day	42047
Julianna Weigle	37653
Julie Andrews Darlington	19856
Julie Barnett	22137
Julie Carlson	40823
Julie Colonna	47217
Julie Franz	23132
Julie Goodge	40166
Julie Hezeil	44016
Julie Jensen	39649
Julie Kimlinger	44120
Julie Knezevich	39180
Julie Kurtz	36405
Julie MacRae	42181
Julie Morse	22151
Julie Mortenson	36331
Julie Nelson	36703
julie olson	39254

Sender Name	Submission ID
29 Audubon: Toxins	
Julie Owens	42183
Julie Parent	47385
Julie Povolny	40078
Julie Ryberg	44466
Julie Solomonson	22281
Julie Wissinger	39230
Julie Young-Garayt	36749
Julimar Castro	22314
June Nkaagxeeb	22271
Justin Eccles	37539
justin johnson	37007
Justin Mustful	42204
Justin Paro	37734
Justin Sokol	41770
K A Blankenship	22676
K Porter	41368
k s	37409
K. Feilmeyer	23306
Ka Blia Vue	41592
Ka Vang	40962
Kadee Dauwalter	37342
Kaiti Fleming	37230
Kaitlin Bischoff	36589
Kaitlyn Joos	41181
Kaitlyn Pommrehn	42066
kali hahn	39251
Kali Hasan	37774
Kallie Liston	36712
Kandace flom	42296
Kara g	42095
Karel Fagan	36335
Karen Bell-Brugger	42072
Karen Buhrow	26467
Karen Butler	36391
Karen Carr	42166
Karen Ebert	41035
Karen Helget	44514
Karen Hipple-Perez	37520
Karen Jones	37343

Sender Name	Submission ID
29 Audubon: Toxins	
karen kramer	22746
Karen Lachner	37352
Karen Malone	37391
Karen Manthey	22775
karen redleaf	19831
Karen Roberts	36449
Karen Skaja	40636
Kari Dostal	27436
Kari NEULEIB	25601
Kari Olson	41231
Kari Ortiz	47193
Kari Rupas	23389
Kari Schloner	36908
Kari Wiessner	37717
Karin Groening	45529
Karin Miller	28173
karin wille	39013
karina pederson	29906
Karl Henze	46639
karl koopmann	39163
Karmen Black	26586
Karol Morton	39213
Karolyn Carpenter	37011
karri schuck	37371
Karry Spinar	28237
Karyn Brinker	41549
Karyn Price	37812
Kasey Phifer	42187
Kassie Harrison	36445
Kate Bohn	36977
Kate Boyle	36989
Kate Kelly	47290
Kate Zare	36531
Katelyn Dussik	39280
Katelyn Macaulay	40675
Kateri Trembley	27491
Katherine Austin mahle	39212
katherine daniels	45178
Katherine Grosh	37639

Sender Name	Submission ID
29 Audubon: Toxins	
Katherine Loban	41551
Katherine Noble	37576
katherine simpson	37046
Katherine Sprung	23715
Katherine Sprung	37407
Katherine Sublett	24272
Katherine Vo	37304
Kathi Anderson	44278
Kathleen Crook	36893
Kathleen Farrell	27977
Kathleen Goblirsch	22272
Kathleen Hamilton	36816
Kathleen Kachinske	19844
Kathleen Kahler	26985
Kathleen Lafferty	37084
Kathleen Pastones	27246
Kathleen Sporer	23497
Kathleen Trana	37759
KATHLEEN Westcott	36855
Kathleen Zurcher	41972
Kathryn Fleming	37590
Kathryn L Glessing	42040
kathryn nelson	23805
Kathryn Warneke	22221
Kathy Baker	38989
Kathy Betlach	28343
Kathy DuVall	40289
kathy green	38064
Kathy Kiess	28157
Kathy Kormanik	38277
Kathy Magne	36577
Kathy Patregnani	36889
Kati Thompson	37273
Katie Christensen	39239
Katie Collins	36316
Katie Maschhoff	37131
Katie Perkins	41378
Katie Smet	41611
Katie Zimba	37605

Sender Name	Submission ID
29 Audubon: Toxins	
katja Linfield	22210
katrina bonneville	41019
Katrina Nett	42240
Katrina Tanner	38816
Katrina Tibbs	19874
Katy Tharaldson	36794
Kay Distad	41571
Kaye Thorpe	45633
kayla engelsob	23718
kayla engelson	41351
Kayla Froelich	37931
Kayla Hamann	36962
Kayla Hiller	41824
Kayla Joachim	37618
kayla riley	38698
Kayla Wollin	19848
kayley Walkley	37863
kaylynn cerqua	40900
Kazim Lakha	22528
Keanue Driscoll-Cherland	39500
Keely King	37386
Keila Ramos	38080
Keith Bagge	37345
Keith Blomstrom	28068
Keith Krueger	38049
Keith Wilson	40082
Keitha Thompson	22274
Keleigh Jackson	38726
Kelly Alberts	42255
Kelly Amo	42030
Kelly Barmard	26779
Kelly Brakken	44521
Kelly Brown	47281
Kelly Byrd	22321
Kelly Casey	42118
Kelly Dalager	41896
Kelly deRosier	47556
kelly englehart	40224
Kelly Ferb	36529

Sender Name	Submission ID
29 Audubon: Toxins	
Kelly Franklin	38858
Kelly Fries	37470
Kelly Hegna Ekdahl	36951
Kelly Marsh	37638
Kelly McConnell	42259
Kelly Moran	41855
Kelly P	36465
Kelly Phillips	36685
kelly slowiak	21982
Kelly Sparks	37656
Kelly Tabara	44616
Kelly Trudeau	22904
Kelly Wheeler	36718
Kelsey Brodt	45786
Kelsey Curry	37572
Kelsey Gustafson	26872
Kelsey Weitzel	27215
Kelsi Davis	21930
Kemi Agbaje	44633
Ken Akin	44281
Ken Harris	44675
ken koense	40690
Ken Ku	47324
ken markham	36828
Kendel Torkildson	22050
Kendra Stock	41337
Kendra Sundermeyer	37494
Keng Yang	38619
Kenneth Johnson	37460
Kenneth Oatman	37707
Kenneth Stewart	26731
Kenny Kong	40508
Kent Cutting	24041
Kent George	42207
kent gjerde	37790
Kent Hostetler	41239
Kent Merkey	37479
Kenta Yamamoto	41816
Kenzie Lach	23442

Sender Name	Submission ID
29 Audubon: Toxins	
Kermit Johnson	28357
Kerolph Ocante	40519
Kerry Elmberg jr	37508
Keshea Pegross	40895
ketema tullu	37091
Kevin Albertson	37703
Kevin E	37433
Kevin Hemping	38999
Kevin Johnson	37375
Kevin Kujawa	47149
Kevin Maloney	43609
Kevin McKeever	22437
Kevin McLaughlin	44857
Kevin Nebus	25238
kevin pierce	37401
Kevin Shannon	42004
Kevin Widmer	37119
Khalid Silvers	40622
Kia Lor	43250
Kiani Burkett	36352
Kiara Cunningham	36542
Kiesha Riewer	43611
KIKI KRISS	19870
kim bartmann	37512
Kim Berg	23529
Kim Carpenter	37236
Kim Culbertson	37480
Kim Davis	23511
Kim England	23043
kim griffin	37043
Kim Hall	41619
kim hogenson	37076
Kim Jerome	44287
Kim Monita	28091
Kim Senger	34501
Kim Soto	23523
kim tessmer	41281
Kim Whaley	22217
Kimberley Wagner	41952

Sender Name	Submission ID
29 Audubon: Toxins	
Kimberly Cain	37027
Kimberly Carlsen	41096
Kimberly Curtis-Alvarado	37094
Kimberly Johnson	41040
Kimberly McAlister	37018
Kimberly P	41946
Kip Hathaway	37452
Kip Valesano	36573
kirk mccall	22754
Kirsten Laney	41545
Kirsten Mair	22414
Kirsten Purcell	36516
Kirsten Rewey	28093
kjersten conway	44957
korey miller	47377
Kris Emly	41629
Kris Holtmeyer	39965
Kris Windom	37283
Krista Gudim	37644
Krista Hoyland	22375
Krista McDermott	36863
Krista Zachmann	22220
kristen beddow	37573
Kristen Draves	39250
Kristen Lippert-Peinado	39201
Kristen Lund	22398
Kristen Mainz	37255
Kristen Vieson	41947
kristi b	24007
Kristi Johnson	44268
Kristin Chatelle	37245
Kristin Dieng	44291
Kristin Green	25007
Kristin Linson	41958
Kristin Naca	38686
Kristin Rafferty	36411
Kristin Wyeth	36598
Kristina Anderson	41456
kristina clark	38847

Sender Name	Submission ID
29 Audubon: Toxins	
Kristina Haberman	36483
Kristina N	44639
Kristina Pogorelc	42087
kristina rodby	22211
Kristine Hirsch	38031
Kristine Litstrom	47283
Kristine Rainey	37102
kristine ratermann	26714
Kristine Schmitz	26553
Kristy Davis	22076
Kristy Mazurek	36959
Kristy Mock	41928
Kristy Wicker	40545
krystal schilling	38967
Krystyna Krupa	42194
Kuban Seauhmann	26990
Kudzai Muringai	37080
Kurt Wolff	40126
Kyle Goodson	41236
Kyle Haight-Nali	42210
Kyle Harth	36704
kyle johnson	39123
Kyle Jones	25785
Kyle Maser-Crist	22268
kyle p	36536
Kyle Skelton	26800
Kyle Vaaler	22377
Kylie Gallegos	36997
Kyra Camp	36505
L Berman	37414
L Datta	42211
L Leonard	27724
L. Shallbetter	22837
LaDream Benson	41436
Lana Turner	41674
Lance Vo	37277
Lanette Lawver	41544
Laquasia Miller	22313
LaQuita Wierima	44625

Sender Name	Submission ID
29 Audubon: Toxins	
Lara Bellefeuille	37339
Lara Peterson	39538
Lariza Carlson	41463
Larloch King	19855
Larry Anderson	37082
Larry Beckner	24307
Larry Chial	41974
Larry Derksen	41599
Larry Hennis	37681
Larry Osteraas	28049
Larry Tucker	42141
Larry Wohl	37686
larry zimbelman	36947
latesha wilson	39040
latifa farah	37051
Latisha p	42179
Latisha Richardson	40692
latoi Matthews	37665
Latoya Shelby	37711
Latricia Goodman	36848
Laura Anderson	21915
Laura Anderson	45160
Laura Biebl	37757
Laura Bjerk	45406
Laura Cuccia-Nilsen	36903
Laura Dale	37322
Laura DeVriendt	29557
Laura Fahey	36498
Laura Fehlen	37272
Laura Goetz	40714
Laura Grieme	42128
laura hedlund	40150
Laura Henry	37442
Laura Henson	22787
laura Jones	36434
Laura Kadue	38728
Laura Le Voir-Barry	36393
Laura Leckband	42129
Laura Libby	22124

Sender Name	Submission ID
29 Audubon: Toxins	
Laura Lindsay	36423
Laura Michnowski	26735
laura nelson	37172
Laura Nelson	43700
Laura Nichols	22537
Laura Rathe	42149
Laura Reindal	39680
Laura Sotak	22666
Laura Sotak	36534
laura thomas	42251
Laura Van beck	41408
Laura Wilson	37137
Lauralee Perdue	27887
Laurel Carrington	21967
Lauren Durand	23576
Lauren Hall	47219
Lauren Hazenson	26863
Lauren Hogan	38085
Lauren Huppler	36329
Lauren Huppler	40799
Lauren Kohler	44552
Lauren Schuster	42143
Lauren Tabor	36708
Lauren Zachary	19797
Laurence Margolis	37492
Laurie Bushbaum	44467
Laurie Christenson	41209
LAURIE HARDIES	44292
Laurie Henning	42266
Laurie Johnson	28382
Laurie Toutges	36363
lauryn gillespie	41537
Laverjerray Johnson	38854
Lawrence DeMarr	47311
Lawrence LeTourneau	41392
Lawrence Page Jr	36921
Le Roy Kilmer	37584
Leah Axelson	42125
Leah earl	36943

Sender Name	Submission ID
29 Audubon: Toxins	
Leah Honsey	40592
Leah Magidson	41473
leah wooden	41776
LeAnn Lisana	39494
LeAnn Ridlespriger	22851
LeAnne Mfalingundi	36334
Leanne Thorsson	42249
Lee Leichentritt	22536
Lee Leines	22550
Lee Sievers	41164
lee tursso	40728
LeeAnne Kirscher	37777
Leila Giannetti	41781
Leila Lake	43328
Leisbel Lam	41364
Lena Gonzalez	36788
Lena Morrison	40912
Leo Veach	40543
Leon Roske	28202
Leonor Villasuso	39407
leshaun webb	39562
Leslie Schmidt	36380
Leslie Smith	28350
Leslie Stewart	41881
Leticia Schack	40800
Levi Martinka	37120
Lexis Manzara	22454
Libby Grossman	23155
Lili Zubar	40562
Lillian Guy	36881
Lillian Hanson	37141
Lillian Kaye	24084
Lilo Stitch	23569
Lily Engebretson	41574
Lilya Vaysberg	36789
Linda Bailey	37820
Linda Barclay	40572
Linda Brown	39121
Linda Bruning	40729

Sender Name	Submission ID
29 Audubon: Toxins	
Linda Donney	44689
linda felix	36728
Linda Ferrario	40958
Linda Gallaro	36991
Linda Garrison	41903
Linda Hedlund	44224
Linda Jenson	39217
Linda La Muga	40982
Linda Loehr	38748
Linda Mulhern	28297
Linda Murphy	41393
Linda Sherman	41294
Linda Spyhalski	28552
Linda Tauer	22955
Linda Unsworth	42088
Linda Wilson	40034
Lindsay Hedlund	36426
Lindsay Jacobson	22748
Lindsey Dorsey	44975
Lindsey Friesen	36466
Lindsey LeBlanc	22316
Lindsey Wermter	37042
Lindsy Johnson	36309
Linnea Dahlquist	37537
Linnea Hardon	38912
Lis Kimball	22777
Lisa Anderson	22400
Lisa Anderson	27784
Lisa Berger	40256
lisa bergerud	38915
Lisa Biever	40653
Lisa Bruns	22673
Lisa Burke	44297
lisa cummings	37396
Lisa Dittell	43596
lisa douangthammavongsa	36557
Lisa Evanson	39198
Lisa Fox	37741
Lisa Guthrie	38977

Sender Name	Submission ID
29 Audubon: Toxins	
Lisa Humphries	42209
Lisa Jenkins	22224
Lisa Johnson	39151
Lisa Johnson	40673
Lisa Klein	41796
Lisa Lind	22738
Lisa Lucas	28405
Lisa McDonald	22324
lisa mokoff	40630
Lisa Murphy	22669
Lisa ONeil	41417
Lisa Verna	22072
Lisa Vorderbruggen	36780
Lisa Williams	46130
Lisa Yednorowicz	22534
lisa zimmerman	40588
LiZ Fusenig	39045
Liz Larson	40589
Liz Nykiel	38039
Liz Sorenson	41190
Liza Liss	43956
Lizzi Ortmeir	47111
Lobbies Luther	42032
Lochlan Stuart	41043
Lois Steward	21916
Lokundo Lohese	40517
Lolita Carter	39041
Lon Parish	42094
Loni Leland	36457
Lora Horan-Kimsal	37775
Lore Frye	42069
Lorelei Bandel	36462
Loren Faibisch	37525
loren fritze	47559
Loren Skarie	28095
Loren Wheeler	40147
Lorette DeRaad	40697
Lori Anderson	24597
Lori Enblom	21910

Sender Name	Submission ID
29 Audubon: Toxins	
Lori LaBarre	47151
Lori Nieters	22447
Lori Ouska	26716
Lori Schneiderhan	42236
Lorie Badiyan	36660
Lorie Ford	19852
Lorie Wosmek	40857
Lorissa Crabtree	47375
Louise Cameron	28578
Louise Pote	38087
lourenda colden	45794
Love Nyala	23403
luana pecore	28358
Luann Marotte	43973
Lucas Beeks	42202
Lucy Fabela	36351
lucy rehm	39235
Luke Peterson	36725
Lurleene Weast	19837
Lydia Perlick	39152
Lydia Richardson	36723
Lydia Turner	37736
Lyle Wood	47592
Lyn Ronack	23641
Lynda Dahl	41886
Lynda Jackson	22864
lynn earl	22335
Lynn Levine	41724
Lynn Maderich	37148
Lynn Petty	44391
LYNN PUTNAM	36578
Lynn Rangel	42269
Lynn Soliah	41736
Lynne Boyer	27385
Lynne Nelson	27214
Lynne Thomas	37763
Lysset Mendoza	36979
m hillesheim	22950
M K	37685

Sender Name	Submission ID
29 Audubon: Toxins	
M Nicholas Burke	37474
M P	22074
M.Beverly Berntson	37608
Mackenzie Gage	40835
Maddi Strom	36497
Maddy Williams	22325
Madeline Daniels	22334
madeline su	39215
Madeline Walters	37445
Madelyn Mazurek	40659
Madi Malone	41627
Madison McGuffey	41586
Maggie Knack	42193
Maggie Walker	21911
Mahva Jones	39062
Mai See Yang	36992
Makayla Xiong	42199
Makensie Paulsen	36985
Malaysi Kouanchao	28180
Mallory DuBois	41637
mandi rooker	43588
Mandy Lusti	41767
Mandy Senechal	36836
Manuel Barrera	37485
Manuel Hernandez	38929
manuel medina	43446
manysavanh phothisane	39113
Mar Valdecantos	23009
Marc Eshelman	26900
MARC JORDAN	36872
Marcelene Schaefer-Bartos	37692
Marcia Finnerty	39579
marcia kimmerle	38817
Marcia Robertson	23721
marcia sundin	37144
Marcie Washington	37700
Marcos Henriques Pinto	38789
Marcus Goodwin	41169
Marcus Licata	44880

Sender Name	Submission ID
29 Audubon: Toxins	
Marcus Manson	21922
Mardi Ringquist	47515
Maren Holzinger	22435
Margaret Anderson	37674
Margaret Benz	28292
Margaret Betker	40051
Margaret Diviney-Fearing	43325
Margaret Henley	45118
Margaret Jones	43473
Margaret Kane	44269
Margaret Kirtley-Sternberg	37705
Margaret McDonald	37942
Margaret Mudek	37008
Margaret Siltberg	37652
Margaret Solheid	22714
Margaret Stiene	42167
Margaret Wiese	22392
Margie Kalligher	40235
Margo Garrett	37773
Margo Irvin	40707
Margot Kelsey	40601
Maria Carlson	38918
Maria Crandall	37444
Maria Higueros-Canny	43461
Maria Hollcraft	41284
Maria Knops	37398
Maria Nosanow	28265
Maria Post	41693
Mariah Lichty	22462
Marian Eisner	45413
marian lucas	41594
maricela amezcua	22532
Marie Lemelin	37253
marie lemke	41659
Marie Malanaphy-Sorg	39161
marie schreiner	22131
Marietta Sims	36318
Marilyn Isaacson	37170
Marilyn Wiebe	42101

Sender Name	Submission ID
29 Audubon: Toxins	
Marilyn Zupnik	36600
Marilynn Wigand	41297
mario gagliardi	41547
Marisa Hill	36914
Marisa Schroeder	44009
Marjorie Haddad	22195
Marjory Singher	24246
mark alred	39233
Mark Burtnett	47465
Mark Janssen	40542
mark listrud	36394
Mark Maier	40806
Mark Neuman-Scott	23312
Mark Obar	43832
Mark Richter	39852
Mark Rodeberg	42091
Mark Rossi	26857
Mark Rossi	36579
Mark Saastad	43601
Mark Smith	37667
Mark Sweere	38856
Mark Thoele	40902
Mark Thompson	37225
Mark Trkla	40520
Mark Walters	42044
markela banks	43214
Marlena Leavy	22739
Marlene Dupay	41261
Marlene Johnshoy	28307
marlys blomquist	37090
Marlys Mandaville	41303
Marne Dallenbach	37660
Marsha Bruce	37924
marsha krahn	47237
marsha skoog	24351
Marshal Bray	36873
Marshall & Betty Petersen	41120
Marshon Austelle	23809
Martha Reis	39125

Sender Name		Submission ID
29 Audubon: Toxins		
Marti Samz		47378
Martin MAyotte		40595
Marty Kauls		42086
Marwa Ali		41589
Mary (Cass) Topinka		27354
MARY ANN RANDALL		42090
Mary Anne Bock		41775
Mary Auldrich		40552
Mary Baublitz		19791
Mary Binner		36846
mary blood		23543
Mary Brule		37549
Mary Cosgrove		37570
mary fideldy		40718
Mary Gilthvedt		37101
Mary GoetZ		37804
Mary Havir		41468
mary holm		43856
Mary Iqbal		40198
Mary Jo DuPaul		37190
Mary Jo Majerus		37552
Mary Johannsen		37227
mary johnson		40720
Mary Khan		26807
Mary King		37258
Mary Larson		45717
Mary Loveless		36365
Mary Lynch		36824
Mary Maas		41726
Mary Maier		38807
Mary Marszalek		36745
Mary Megan		37271
Mary Miller		28101
mary murphy		42222
Mary Myss		43994
Mary Nesvig		37713
Mary Rotunno		42121
Mary Sarazin		26876
mary schneider		37176

Sender Name	Submission ID
29 Audubon: Toxins	
Mary Sigrah	36563
Mary Skillings	37415
Mary Smalls	41299
Mary Smith	26102
Mary St. Michael	37673
Mary Swenson	27076
Mary Tuomi	22763
Mary Vlazny	40190
mary wacha	47337
Maryann Smith	23012
MaryBeth Huttlin	24015
maryteresa gibbons	40127
mason burch	41614
Mathew McCrillis	36435
matt aldrich	42103
Matt Bracken	37169
Matt Davies	37614
Matt Elfert	38780
Matt Goblish	41874
Matt Hellwege	37484
Matt Johnson	37524
Matt Lennander	38042
matt pearsom	41597
Matt Quinn	37581
Matt Slawson	41598
Matt Swanoski	39456
Matthew Bernstein	37012
Matthew Bjelland	37202
Matthew Fried	36313
Matthew Ruff	37500
Matthew Sanchez	19792
Matthew Simpson	40985
Matthew Sturgis	26869
Matthew Syverson	39295
Maura Kasper	23545
Maureen OConnor	38852
Maureen Rooney	41983
maurine stenwick	21928
Max Jodeit	42201

Sender Name	Submission ID
29 Audubon: Toxins	
Maxwell Horn	36686
Maxwell Lang	44316
Maya Raz	40983
McKenzie Schultz	41897
Meagan Johnson	41882
Meelah Bilal	46415
Meg Nathan	44001
Megan Aase	46807
Megan Brennan	36929
Megan Dietz	37822
Megan Honnold	39016
Megan Horan-Hengel	23716
Megan Kreyer	37092
Megan Locklear	41955
Megan Mann	23152
Megan Miernicki	36524
Megan Odell	40594
Megan Torrini	47427
Megen Luther	19867
Meghan Cronin	40513
Meghan Nelson	44624
meghan willson	37117
Megrablade Megan Jefferson	39578
Mel Au	23141
Mel Sailor	38366
Mel Steele	44172
Melanie Aggen	43616
Melanie Ross	40702
Melinda Harris	36810
Melinda Moran	40652
Melisa Baxter	36368
Melissa Bayne	37441
Melissa Benoit	47019
Melissa Boman	25527
Melissa Cathcart	37194
Melissa Chelminiak	40808
Melissa Crawley	37056
Melissa Davis	47460
melissa fossum	27480

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29 Audubon: Toxins	
Melissa Franek	39190
Melissa Frigaard	45269
Melissa Gaida	37006
Melissa Hake	42257
Melissa Hokenson	39297
Melissa Mosedale	26873
Melissa Orr	41628
Melissa Pahl	22209
Melissa Pappas	37234
melissa parrish	37387
Melissa Poorker	41472
Melissa Serafin	37768
Melissa Wilform	40783
Melody Tilton	23496
Merrick Reeder	41777
Merton Backlund	40149
Michael Anderson	41892
Michael Brown	22212
Michael Bruns	41387
Michael Caldwell	42001
Michael Dalton	22776
Michael Dauwalter	37569
Michael Doyle	42038
Michael Fedo	37402
michael gillespie	36369
Michael Haagenstad	37095
Michael Harman	37404
Michael Harrison	36862
Michael Heath	26732
Michael Hillman	22455
Michael Jacobson	37438
Michael Kiefer	26943
Michael Landers	42218
Michael Levos	38697
michael mangen	37621
Michael McCutchen	41386
Michael McLaughlin	38982
Michael Orren	41682
Michael pariana	36662

Sender Name	Submission ID
29 Audubon: Toxins	
Michael Paulson	41887
Michael Richardson	38899
Michael rogers	36448
michael rose	41889
Michael Scribner-OPray	39692
Michael Shay	41772
michael sobania	41868
Michael Spiegelberg	45950
Michael Stoffel	47220
Michael Wigen	23421
Michael Willemsen	37294
Michael Woodward	37209
Michaela Yocum	42212
Michele Adams	19790
Michele Ebnet	22040
Michele Lebens	41274
Michele Wobbe	47442
Michelle Austin	22338
Michelle Bick	22403
Michelle bollman	22394
Michelle Bratager	45464
Michelle Britton	41648
Michelle Christian	36298
michelle connor	36433
michelle coughlan	41623
Michelle Gobely	36604
Michelle Gobely	40731
Michelle Hansen	27677
Michelle Hesterberg	42177
Michelle Higgins	22340
Michelle Hoffman	40450
Michelle Kostka	36569
Michelle Lee-Reid	43800
Michelle OLeary	41506
michelle rogers	39020
Michelle Schwartz	40504
Michelle Splonskowski	40893
Michelle Walker	36729
Michelle Wendling	42039

Sender Name	Submission ID
29 Audubon: Toxins	
Michelle Whiting	45168
Mick Lumby	37954
Mikaela Balzer	40947
Mikayla Vanminsel	37159
mike belair	22737
mike burke	38616
Mike Denery, D.C.	41539
Mike Edinger	38845
Mike Ferguson	43253
Mike Fisher	37257
mike kaufman	40223
mike king	19840
Mike Kloosterboer	40730
Mike Ledin	36912
Mike Miklas	41866
Mike Miller	42132
mike mostad	41642
Mike Nilles	46912
Mike Osborn	28527
Mike Ramey	36968
Mike Senn	37540
mike stariha	40981
Mike Torfin	47330
Mike Williams	43951
Mike Williams	42082
Mike Wilson	42162
Mikhail Shvartsman	37424
Mikie Meyer	47346
Mildred Huttenmaier	22665
Millicent Tirk	39100
Mina Blyly-Strauss	28351
mina kongsiharath	23710
miranda chambers	37926
Miranda Lund	36884
Miranda Ruzich	22523
Miriam Feingold	38032
Miriam Scheel	47275
Miriam Wolf	36595
Miriana Ivanovic-Hoff	37588

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29 Audubon: Toxins	
Misael Meraz	36876
Misael Meraz	36566
Misi Stine	45116
mitchell rosent	45785
MJ Korsmo	40815
mohammad abuhadid	22126
Mollie Piron	23279
Molly Cooney	42075
Molly Madrinich	22524
Molly McBride	36774
Molly Stich	37418
mona cirillo	40255
Mona Smith	22533
Monica Brosi	41339
Monica Knaack	28171
Monick Heafey	40547
Monique LaFontaine	19798
Monique Waters	22545
Monta May	38861
Monte Gomke	37463
morgan lund	23325
Morgan Wendt	36994
Moussa Foster	36971
Ms. Melody Scott	41624
Munira Hassan	22442
Mymy Kamruzzaman	42233
Myndie Turner	28253
Myron Drellack	40872
Mystica Wolf	37215
Nachum Balofsky	36553
Nadine A	37217
Nadlie Morgan	36688
Naegi Makoto	37033
Nailah Heard	42215
Namgang Tsering	22729
Nancedel Seirey	36446
Nancy Alcorn	43734
Nancy Chase	37365
Nancy Conger	41805

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29 Audubon: Toxins	
Nancy Evers	47350
Nancy Hall	22755
Nancy L Champeau~Wendler	43735
nancy locken	41815
Nancy Long	22715
Nancy Page	24589
Nancy Pena	36560
Nancy Robinson	42184
Nancy Sanders	22535
Nancy Skeim	36907
Nancy Solberg	22815
Nancy Van Lydegraf	39408
Nancy Vergin	37276
Nancy Weberg	41109
nancy wheelock	36853
Natalie Howe	39080
natalie lopez	36543
Natalie Paulson	41412
natalie tierney	46645
Natalie Yaeger	40676
Natalie Zett	43493
Natasha Phelps	47073
nate wattins	38783
Nathan Ballard	26442
Nathan Carroll	37135
Nathan Ficek	47322
Nathan Fisher	37439
Nathan Kerr	41465
Nathan Kowalik	47567
Nathan Lovas	42042
Nathanael Secor	40884
Nathaniel Dubin	28252
Nathaniel Zabinski	37435
National Audubon Society	19866
Nativida Osland	40721
Neal Anderson	23789
Neal Camper	22405
Neil Sheridan	36868
Nell Ubbelohde	27243

Sender Name	Submission ID
29 Audubon: Toxins	
nelle vollmar	37031
NELSON vIGIL	22525
Neva Nolan	39046
NevaDeonne Brady	22695
nichol daley	38599
Nicholas Bieter	43459
nicholas bray	36558
Nicholas guy	40674
Nicholas Horowitz	41654
Nicholas Machlitt	28223
nicholas malsom	22706
Nichole Triemert	22270
Nicie Crowson	40052
Nick Eischens	37731
Nick Giovannetti	37511
nick melby	37081
Nick Sporre	23519
Nicklas Sandstrom	41942
Nickolas Wilkinson	40842
Nicola McLean	27827
Nicole Beaver	44081
Nicole Burkhardt	43689
Nicole Crashell	44000
nicole dauphimee-bimgham	22450
Nicole Everling	37160
Nicole Frahm	37307
nicole hafermann	41587
Nicole Hall	37399
Nicole Hamilton	36845
Nicole Hendrickson	39725
Nicole Horn	36928
Nicole Jacobson	40876
Nicole Keller	36996
Nicole McDonald	43829
nicole mcnair	39162
Nicole Pazandak	23231
Nicole Renier	41467
Nicole Roethler	41516
Nicole Schultz	45103

Sender Name	Submission ID
29 Audubon: Toxins	
nicole speed	22547
Nicole Speed	37683
nicolette klenk	47325
NIk Ryazanov	41152
Nikia Riddle	42172
Nikita K.	37308
Nikki Heikke	41806
Nila Ouska	22449
Nils Anderson	47558
Nina Berg	37823
Nina Raulerson	43685
Nissa Manley	42053
Nissa Sandley	38044
nisson friedman	22539
Noah Tuck	41055
noel martinez	36576
Nola Howitz	41454
nona smith	42220
Noreen Tyler	41505
Nu Zosel	44116
Nyra Anderson	38934
Ofelia Cantua-Estrada	37127
Olga Kamova	23407
Olga Kamova	37298
Oliver Steinberg	36940
Olivia Boo	43204
Orlandria Bonkano	23808
Orsolya Takacs	36508
Osiris Renz	41301
otto ramstad	36390
Oumer Wako	39517
Pahoua Xiong	41793
Paige Guggemos	22107
Paige Hiber	41218
Paige Roesler	36699
Pam Brock	36388
Pam Carter	37355
Pam OShea	22215
Pam Scherling	23283

Sender Name		Submission ID
29 Audubon: Toxins		
Pam Skinner		42186
Pam Taylor		40489
Pam Wetterlund		44412
Pamela Anderson		39729
Pamela Asher		36681
Pamela Brown		37559
Pamela Cluckey		37502
Pamela DeWolf		36874
Pamela Richmond		36492
Pamela Wood		36494
Paoge Moua		36649
Pat Ament		42155
pat kraetzner		39001
Pat Nudd		28131
pat peterson		37568
Patrice Harper		38860
Patrice Hooks		42250
Patricia Avery		39245
Patricia Barone		26868
Patricia Boulware		23577
Patricia Cook		36970
Patricia Good		37198
Patricia Hagen		38937
Patricia Hauser		43825
Patricia Hawke		42124
Patricia Melody		37753
Patricia Moore		36440
patricia mundy		26983
Patricia Reopelle		19784
Patricia Schoeller		37088
Patricia Schoenberger		36705
patrick daniels		37849
Patrick Divine		22975
patrick irving		44944
Patrick Keene		38041
Patrick Leehey		28056
Patrick Seehuetter		22834
Patrick Todd		36945
Patti Eckert		26672

Sender Name	Submission ID
29 Audubon: Toxins	
Patti Indre	47309
Patti Kimble	37478
Patti Tryhus	41264
Patti White	22222
Patty Cocchiarella	28197
Patty Forster	38862
Patty Hardman	38076
patty kakac	37123
Patty Rabago	40590
Patty Stokes	36570
Paul Clark	37420
Paul Cocoanto	40177
Paul Dunkirk	38867
Paul Duzynski	42192
Paul Enyart	26912
Paul Hamer	37183
Paul Hillmer	37437
Paul Jarvis	41996
Paul Olsen	37646
Paul Read	37218
Paul Rider	37694
Paul Sasik	42077
PAUL STADIN	37945
paul thompson	46950
Paul White	22538
Paul Williams	28177
Paula Kopp	22730
Paula Kwakenat	26782
Paula Mullin	37636
Paula Orth	40142
Paula Rolf	27147
paula stromstad	47453
Payton Gerick	23003
Peggy Petterson	23115
Penny King	40735
Pericles Nacionales	23815
Peter Allen	37434
Peter Breyfogle	46195
Peter Bryan	37124

Sender Name		Submission ID
29 Audubon: Toxins		
Peter Eichten		38702
Peter Greenough		43227
Peter Harle		39283
Peter Harle		41912
peter hoecherl		40722
Peter Maves		37730
Peter McCauley		26957
peter myers		25592
peter schroedl		36885
Peter Torzewski		40904
Peter Truong		41407
Peter Younger		47257
Philip Ratzloff		37408
Pippa Armstrong		37747
Polly Lemon		40648
Pratima Bolineni		41490
Preston McCain		37048
Preston Ray		36759
Priyanka Zylstra		36892
Puja Dham		22735
Quinne Ingemansen		24524
Rachael Vanna		37834
Rachel Bleess		37321
Rachel Eklund		37403
rachel frami		36833
Rachel Gettis		36378
Rachel Johnson		41923
Rachel Kimpton		23479
Rachel Lamblin		41517
Rachel Menge		41462
Rachel Nudd		45782
Rachel Rostad		42031
Rachel Scheller		37182
Rachel Tiras		37181
Rachel Weber		37481
Rachel Wyttenback		28027
Rachelle Rissell		39253
Raelea Skow		40781
Rafael De Los Rios Boulton		37175

Sender Name	Submission ID
29 Audubon: Toxins	
Raila Luminae	36575
Rakhi Nikhanj	40886
Ralph DeWitt	42213
randall streier	37675
Randall Yungerberg	39142
Randee Douglas	41376
randi robinson	41041
Randy Green	24249
Randy Holtan	36530
Randy Warn	36754
Raquel Marentez	40677
Ravi Katkar	41848
Ray Kelsey	21921
Raymond BRYAN	37663
Raymond Nevison	41044
Raymond Rogers	37602
Rebecca Allen	46133
Rebecca and Zachary Pera Cole	41324
rebecca arman	37029
Rebecca Benavidez	38850
Rebecca Borrud	41618
Rebecca Church	27488
Rebecca Dosch Brown	37247
Rebecca DuBois	25091
Rebecca Fore	37394
rebecca holm	37632
Rebecca Jensen	41195
Rebecca Johnson	36770
rebecca niesche	40814
Rebecca Povarchuk	41300
Rebecca Robinson	39373
Rebecca Rose	40152
Rebecca Skaar	27342
Rebecca Southwick	36776
rebecca swenson	40486
Rebecca Totzke	22948
Rebecca weber	37077
Rebekah Blesi	37314
Rebekah Jorgensen	36899

Sender Name	Submission ID
29 Audubon: Toxins	
rebekah tatosian	22265
Regan Adams	44176
Regina Burstein	36491
Regina Esliker	37682
Regina Myers	42175
Remi Ereku	22667
Renae Sater	23516
renae tapia	28256
Renee Anderson	36469
renee blashill	19796
Renee Ritchie	40467
Renee Rumler	41992
Renée Smith	40739
Rev R J MICKELSON	22262
Rev Suzanne Wasilczuk	36972
rhianna alms	43858
Rhonda Brutt	41692
Rhonda Connelly	36955
Rhonda Halverson	37550
Ri Zoldak	37466
Ria runningen	42138
Rich Kronfeld	39157
Rich Patterson	28353
Richard Ankrum	22519
Richard Barnes	36479
Richard Bartel	22396
RIchard Buchert	41298
RICHARD COLOMBINI	36831
Richard Dieterle	37221
Richard Goerwitz III	37628
Richard Goggin	38770
Richard Graves	22378
RICHARD GRAVROK	36934
Richard Green	28397
Richard L. Johnson	36976
Richard Lamb	25517
Richard Libbey	47433
Richard Luckeroth	28128
Richard Mitchell	22059

Sender Name	Submission ID
29 Audubon: Toxins	
Richard Ott	41150
Richard P. Nelson	41312
Richard Seibert	37216
Richard Thompson	36768
Richard Timm	40234
Richard VandenDolder	23143
Richard W Johnson	22716
Richard Watson	37761
Rick Gellman	22129
rick mancuso	47164
Ridge Pidde	41697
Riley Palmer	37561
Riley Wilson	44002
Rita Guderian	22683
Rita Iacarella	22845
Rita Nelson	22322
Rita Pelecis	40733
Rita Schmidt	37362
RJ Crawford	37093
Rob Becker	42235
rob louzon	36813
Robert Aderhold	45243
Robert Allen	37490
Robert Ambler	42089
Robert and Paula Lund	37645
Robert Chase	36320
Robert Colbert	47304
Robert Deering	37517
Robert Fehr	40621
Robert Flynn	37348
Robert French	40561
Robert Gundstrom	38935
Robert Jensen	41552
Robert Johnson	37263
Robert Kneisl	37599
Robert Koll	22328
Robert Lang	41250
robert marchant	19786
Robert McGrorty	45778

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29 Audubon: Toxins	
robert Meredith	44510
Robert Payne	38964
Robert Puckett	37503
Robert Sieving	41653
Robert Sonkowsky	37079
robert stewart	37624
Robert Taylor	41945
robert tensdale	36441
Robert Tregillis	26973
Robert Turner	19827
Robert Underhill	23871
Robert V Frederick	37367
Robert Walker	37482
Robert Ziegler	24800
Robert Ziegler	41219
Roberta Ricci	22543
Roberta Richards	45184
Robin Gonsoski	36957
robin hensel	38674
Robin Hernandez	42148
robin johnson	22720
Robin Martens	36891
Robin Pierce	41200
Robin Schiff	22756
Robin Smith-Arndt	36980
Robinson bunay	41329
Robyn Willette	36658
Rochelle Arvizo	40563
Rochelle Grossman	23189
Roderic Olson	37706
Rodney Pritchard	36442
Roger Garvin	40855
Rogier Gregoire	22393
Ron Hick	37192
Ron Mittan	37710
ron parker	37612
Rona Duvall	39469
Ronald Larsen	22779
ronald mauro	40106

Sender Name	Submission ID
29 Audubon: Toxins	
Rorie Hanrahan	37130
Rory Cardinal	22467
Rory McCabe	47557
Rory Theis	39314
Rosalie Wieser	19801
Rose Marie Assad	36668
Rose Mary Blessing	46987
rose Price	40860
Rosemarie Merrigan	23553
Rosemary Sexton	23617
Rowan Ellis	36574
Roxana Allen	37642
Roxanne Graves	28481
Roxanne Hagge	22387
Roxanne Johnson	28279
Roxi Aristeo	42100
Roy Hagen	42267
roya damsaz	39289
Rubi Ibarra	38986
Ruby Esparza	44917
Ruby Myers	40642
Russ Erickson	47381
Russ Hackel	28255
Russ Troyer	26934
Russ Troyer	40686
Russel Younglao	37201
Ruth Brooker	43828
Ruth Dantuma	37758
Ruth LaFortune	22677
Ruth Yoerg	37937
Ryan Gavin	36939
Ryan Juel	37150
Ryan Mooreson	36590
Ryan Ogle	39722
Ryan Palmer	41641
Ryan Patron	41994
Ryan Spryshak	26924
Ryan Stegeman	38931
Ryan Teal	41093

Sender Name		Submission ID
29 Audubon: Toxins		
Ryan Theisen		41283
Ryan West		37395
S Kosharek		37384
Sabrina Shear		44194
Salem Hauser		36747
sally roach		37792
Sally Sullivan		28211
Sally Sweet		41097
Salma Mohamed		36713
Sam Horn		42256
sam mcnaughton		22267
Sam Silverman		37538
Sam Smith		42164
SAMANTHA DAVISON		37737
Samantha Haugen		47506
Samantha Newkirk		45094
Samantha Pranger		36730
samantha thomas		27535
Samantha Urbanski		41842
Samantha Vance		37251
Samantha Wagner		42146
Sami Dix		42055
Samiah Al- Huthaili		41583
Samira Hashi		41725
Samuel Adams		36815
Samuel Goff		37776
Sande Favreau		37535
Sandra Beck		41262
Sandra Berg Dickson		42264
Sandra Graves		22691
Sandra Johnson		22382
Sandra Rivera		40645
Sandra Rodiles		45241
Sandra Sailer		22383
Sandra Sands		43316
sandra Tennyson		22679
Sandra Turner		26069
Sandra Villarreal		36336
sandy gudaitis		38921

Sender Name	Submission ID
29 Audubon: Toxins	
Sandy Saline	37075
Sara Abernathy	37246
Sara Baer	28579
sara bocklund	41940
Sara Bristol	41826
Sara Cannon	23723
Sara Eckert	36533
Sara Frey	38979
Sara Jeska	39044
Sara Larson	22285
Sara Lavelle	37173
SARA MARCK	37310
Sara Micklewright	37189
Sara Mikish	37647
Sara mumm-frehse	37718
sara Wilson	36373
Sara Wright	37579
Sara Wright	41984
Sarah b	36370
Sarah Babst	38090
sarah banashak	22070
Sarah Becker	44820
Sarah Brickson	37334
Sarah Bruce	45156
Sarah Buech	38763
Sarah Cady	42105
Sarah Carson	43853
Sarah Edgerton	22531
Sarah Eschweiler	38969
sarah fischer	22769
Sarah Frakes	37370
sarah ihrke	36870
Sarah Johnson	37506
sarah johnson	39662
Sarah Jones	40196
Sarah Lantto	37005
sarah lechner	41277
Sarah Markel	39718
Sarah Morgan	40932

Sender Name		Submission ID
29 Audubon: Toxins		
Sarah Muenster-Blakley		37354
sarah otterson		42153
Sarah Polson		37223
Sarah S. Jones		37330
Sarah Senlycki		37928
Sarah Springhorn		41006
Sarah Thao		28127
Sarah Warner		36550
Sarah Wigant		37842
Sarah Winkler		40560
sarah wolbert		37083
saren lightsong		44541
Saron Thang		42319
Sasha Buchner		23315
Saskia Van Riessen		23530
Satya Varghese		41196
Scarlett Ferguson		27478
Scott Fahey		41173
Scott Hammel		43369
Scott Hoskins		37259
scott jensen		36904
Scott Moen		37477
scott myles		19815
Scott Nason		37067
Scott Nordwall		39273
Scott Sandberg		46620
Scott Schaible		37551
Scott Watkins		42050
Sean Donovan		47500
sean goossens		41808
Sean Strick		41099
selah taylor		44852
Selene Brown		27938
Semaj Jones-McDonell		37214
Senol Whaley		22035
serena howe		24250
seth bennett		41687
Seth Poynter		42496
Seth Schrader		41413

Sender Name	Submission ID
29 Audubon: Toxins	
shailesh Patel	22686
Shalane Lamont	22704
Shannon Bank	43591
Shannon Bryant	39146
Shannon Hedren	44207
shannon kimball	36858
Shannon marshall	36545
Shannon Peterson	41973
Shannon Ross	37826
Shannon Selz	38047
Shannon Staggemeier	36986
sHANNON ZACH	37949
Shantelle Feragen	37783
Shari Lenz	43266
Shari Malecek	23414
Shari Manier	39282
Sharie Hawkins	23232
Sharika Gibson	41235
sharjeel khan	41929
Sharn Anderson	26402
Sharon Fortunak	38128
Sharon Hilbere	41508
Sharon Lane-Getaz	37587
Sharon Lehrman	40680
Sharon Morris	22457
Sharon Rigby Osborn	27871
Sharon Schmitz	43576
Sharon Scholl	23594
Sharon Toscano	39147
Sharri Rocca	36787
Sharron Doran	37147
Shawn Bibeau	37787
Shawn Corrigan	41129
shawn hansen	36488
Shawn LaBarre	22461
Shawn Peterson	27573
Shawn Resch	42063
Shawn Strathe	41504
shawnna stennes	41976

Sender Name	Submission ID
29 Audubon: Toxins	
Shay Reid	40474
Sheba Hulsing	47218
Sheila Bahl	36385
Sheila Dillon	38409
Sheila Duhn	46032
sheila kluever	41186
Sheila Prior	36829
Shela Norton	36328
Shelagh MacLeod	40671
Shelby Bach	19832
Shelby Johnson	22344
Shelley Markley	40571
Shelley Smith	27459
Shelly Griswold	26794
Sher Gabbert	24261
Shereen Skrypec	38972
SHERESSE SPENCE	41534
sheri norrgard	22460
sheri stensrud	41680
Sheridan Stanton	23574
sherie jewett	41273
Sherri Burich	43845
Sherri Lahr	43614
Sherrie Christian	41885
Sherrie Goral	47387
Sheryl Reider	47272
Shirlee Erb	37497
Shirley Huskins	41691
Shonie Buenvenida	23352
Simon Haynes	23933
Simona F	41914
sinclair korte	41690
SJ Hanson	41818
Skip Aldrich	23309
Sky Smith	37523
Snow Whiteking	37816
sonia boelke	37925
Sonia López Valenzuela	40515
Sonja Escudero	40710

Sender Name	Submission ID
29 Audubon: Toxins	
Sonja Hongell	45034
Sonja Knezovich	40782
sonya lopez	37397
Sophia Showalter	42102
Sophie Stanchfield	41282
Soua Vang	25084
Spencer Beatty	36583
Spencer Nelson	47313
SR Melvin	41567
Stacey Bishofsky	42065
Stacey Haugen	37191
Stacey Persons	36692
stacey ringness	22025
Stacey Rudoy	37455
Stacey Rupert	39193
Stacey Rupert	42243
Stacey Vang	37729
Staci Inde	37841
stacie braford	28174
Stacie Izzard	26979
Stacie Muggli	28337
Stacy Lawson	37689
Stan Adams	37274
Stan Cole	37057
Stashenko Hempeck	25088
Stefanie Grill	36757
Stefanie Heine	28284
stefanie maudal	41182
Steph Horner	27407
Steph Splettstoeszer	36541
Stephan Hanna	37702
Stephanie Allen	42113
Stephanie Christy	39777
Stephanie Gilbert	40978
stephanie grossman	38774
Stephanie Kubesh	38740
Stephanie Love	37023
Stephanie Nguyen	37010
Stephanie Spandl	22719

Sender Name	Submission ID
29 Audubon: Toxins	
Stephanie Strand	36521
Stephanie Sunstrom	39177
Stephanie W	42278
Stephanie Walker	22155
Stephanie Watson	39303
STEPHEN ANDERSON	36515
Stephen Biondo	42189
Stephen Briggs	37423
Stephen Erickson	19864
Stephen Lowell	40836
Stephen Pesavento	39895
Stephen Philion	42097
Stephen Strong	36585
Stephen Wilcoxon	37336
steve clasen	44926
Steve George	25418
Steve Gildersleeve	28203
Steve Guevara	40894
Steve Mahmood	37156
Steve O Monson	37592
Steve Olson	36495
steve vennemann	37743
Steven Ashley	38601
Steven Dotson	41005
Steven Foldes	38766
Steven Howard	42168
Steven Jacobson	37671
Steven Rydberg	36923
Steven Solyntjes	38981
Steven Van Brocklin	22110
Steven Wollman	37617
Stoney Hinson	36540
Suad Mohamoud	41581
Suada Cehic	37544
Sudha Rao	39119
Sue Allhiser	22320
sue block	37852
Sue Esposito	41367
sue gunderson	40521

Sender Name	Submission ID
29 Audubon: Toxins	
Sue Hamly	37658
sue harrington	36767
Sue Kuchera	43236
Sue McMillan	42174
Sue Mooney	36841
Sue Nack	23567
Sue Scherer	39979
Sue Shepard	45611
Sue Wick	36954
Sue Williams	36888
SUN LEADER GLOWS BRIGHTLY	37369
Sundae Morse	28441
Sunnie Reisewitz	36857
Sunny Johnson	37419
Sunny Vang	37151
Sunshine Goldsberry	39595
Susan Bolstad	27956
Susan Dietrich	36401
Susan Downing	38710
Susan Engelby	36694
Susan Essig	42286
Susan Frame	41023
Susan Garado	41921
Susan Hughes	38057
Susan Jacobs	37166
Susan K	41922
Susan Kauffman	46264
Susan Kimmel	36913
Susan King	19783
Susan King	45694
susan korupp	36761
Susan Landrum	26190
Susan Lee	22330
Susan Lindsay	28200
Susan Madison	37262
Susan Meister	37040
Susan Morem	37122
Susan Sheehan	36916
Susan Smith	28517

Sender Name		Submission ID
29 Audubon: Toxins		
Susan Smolders		37278
susan taylor		22042
Susan Tietjen		39248
Susan Venzke		23363
Susan Wagner		23133
Susan Werner		41171
Susan Wiseman		37422
susan zukowski		44074
Susannah Johnson		37211
Susie Hense		37388
Susie Wilcox		27904
Suzanne Birch		41021
Suzanne Byrne		22541
Suzanne Crawford		37557
Suzanne Glad		41949
Suzanne Joyce		37002
suzanne long		41464
Suzanne Maras		41894
Suzanne Salhus		36432
sydnee gregg		40813
Sydney Eid		19876
Sydney Ellison		36941
Sydney McKee		37337
Sydney Morical		37739
sylvia lehman		43510
sylvia rami		28134
Sylvia Robbins		36762
t.more hynes		36652
Tabitha Kielty		44461
Taeya Trifilette		40148
Tahera Mamdani		36362
tahiel jimenez		43454
Tamara Few		41864
Tamer Fawzy		36641
tamiko saunders		36664
Tammarie Lunceford		37389
Tammy Banal		37379
Tammy Cheng		41677
tammy dahl		38848

Sender Name	Submission ID
29 Audubon: Toxins	
Tammy G	39733
Tammy Labey	23503
Tammy Root	37468
Tanika Fears	23514
Tanisa Winter	22464
Tanisa Winter	23176
Tanja Sayles	28613
Tanya Yates	44393
Tara Cushing	43346
Tara Etheridge	38097
Tara Hallberg	47284
Tara M	47323
Tara Nitz	22391
Tara Schuneman	37208
tara sewray	37916
Tara Sutherland (Fitzgerald)	43817
Tasha Danner	36436
Tashina Bolen	22835
Tatiana Calderon	36827
Taylor Doherty	42170
Taylor Norton	43961
TC SEXTON	37261
tebra carter	36710
Ted Lelwica	28158
teddy leding	46229
Teegan McFall	39388
Tenzin Kunchok	41259
Teresa Ableiter	40491
Teresa DesLaurier	40646
teresa diaz	41234
teresa konechne	38818
Teresa Manzella	37585
TERESA MARQUEZ	45262
Teresa Morrill	37219
Teresa Riley	22841
Teresa Trampe	22780
Teresa Wang	22758
Terese Michaud	44460
Teri Bennett	38082

Sender Name	Submission ID
29 Audubon: Toxins	
Teri Haupt	41143
Teri McIntyre	37250
Teri Schweizer	26173
terra forshier	42079
Terrance Birkeland	38764
Terrence Lund	22728
Terri Birnbaum	37725
Terri Emmerich	47296
Terri Murphy	41918
Terri Rutherford	38606
Terrian James	37499
terry darby	28136
Terry Irish	37382
Terry McAnnany	23531
Terry Schwanke	26898
Terry Swanson	41391
Terry Utter	23521
Tes Ingebritson	40222
tesla lockwood	40516
Tessa Hill	39114
Thais OShea	39723
Thalassa Ryan	22745
Thanh Lo	36820
Theja Jones	47168
Thelma Hardman	37186
Theresa Hargis	24834
Theresa Herder-Blahnik	26959
THERESA JENSEN	36312
Theresa Johnson	22902
theresa pederson-Two Bear	23573
Theresa Sprung	42083
Theresa Swenson	22672
Therese Moore	22768
thia olson	22771
Thia Xiong	41201
Thoma Kelly	37613
thomas bryant	40632
Thomas Gille	41615
Thomas Koehler	22288

Sender Name	Submission ID
29 Audubon: Toxins	
Thomas Lee	43854
Thomas Maynard	40546
Thomas Oleary	41233
thomas peterson	40716
Thomas Rohde	36301
Thomas Schai	45038
Thomas Vogen	37045
thomas wills	26884
Thor Roggenbuck	36601
Tia Lee	23379
tia williams	43357
Tiara Ysen	37447
Tieran Rosefield	40585
Tiffany Armstrong	37712
Tiffany Borchardt	38922
tiffany breiner	42064
Tiffany Clausen	39270
Tiffany Newton	36738
Tiffany Paulson	40717
Tiffany Taylor	41636
Tiffany Wang	41825
Tim Donovan	39042
TIM GRAHAM	37239
Tim Hansen	37165
Tim Kodl	41338
Tim McAnallen	39172
Tim McQ	36572
Tim Olish	43820
tim salyers	40628
tim steck	24992
Timathy Vanwagner	43260
Timothy Chapp	37451
Timothy Clune	36381
Timothy Fuller	41689
Timothy Hellman	42258
Timothy Smith	24704
timothy weseloh	37373
Tina Elliott	19835
Tina Keller	41997

Sender Name	Submission ID
29 Audubon: Toxins	
Tina King	41869
Tina Kuzminski	41240
Tina Miller	37695
Tina Moore	36969
Tina Olinger	42287
Tina Pearson	40173
Tina Wallace	36956
TJ Tell	40885
Todd Got It Buckoo Dobesh	36597
Tom Chaklos Jr.	39281
Tom Hacker	45864
tom hatch	25158
Tom Johnson	24151
tom kluntz	41350
Tom Kohls	38767
Tom Miller	37715
tom murphy	36920
Tom Osowski	28062
Tom Ronning	39687
Tom Roth	37598
tom severson	41447
Tom Spence	47308
tom washington	27963
Tommy Harald	23378
Toni St.Martin	39043
toni tower	39246
Tony Dungan	26870
Tony Marquardt	37620
Tony Molinaro	37260
Tony Partington	37669
Tony Richardson	38613
Tony Terwey	41891
Tori Anderson	37157
Tori Anderson	42157
Tori Dahl	47349
Tori Muesing	19857
Tori Todd	27221
torry snyder	25214
Tracey Thudin	19849

Sender Name	Submission ID
29 Audubon: Toxins	
Tracey Wasson	22440
Tracy Arett	37633
tracy balcombe	22529
Tracy Hayek	40960
Tracy Kraemer	41982
Tracy Reddemann	37041
Tracy Schantzen	40649
tracy schenk	41540
Tracy Stewart	37289
Tracy Thompson	37061
Tracy Wright	37268
Traecy McJilton	36902
Travis Barthel	37440
travis cullen	23056
Travis Dagen	39159
travis hall	36645
travis laudenbach	40802
trenk ebbighausen	22684
Tricia Drury	45788
Trisha Nelson	19846
Tuyet Huynh-Weiss	28504
tyler aldous	38883
Tyler Baumann	41125
Tyler Johnson	37836
Tyler Pieper	37426
tyler putnam	37328
Tyler Trosin	36993
Tyrel Boehm	36822
Tyson Nguyen	41919
Tyson Stackhouse	37919
Tywanda Steward	38978
Unknown	38769
Unknown	40688
Uyen Dinh	36922
Val Broste	37346
Val Lies	38917
Valerie Jacobsen	22113
Valerie Junjak	40454
valerie nelson	22029

Sender Name		Submission ID
29 Audubon: Toxins		
valerie solovjovs		37427
valorie wolter		22130
Vaneda her		43242
Vanessa Isaacs		37292
Vanette Pettis		25767
Vanille Cat		41121
Veevee Branson		37038
Vern Simula		40657
Verna Keiser		22439
Veronica Richfield		26544
Veronica Seivert		36847
vicki archie		39499
Vicki Culver		36332
Vicki Justen		47208
Vicki Neumann		40514
vicki vossen		42206
Vicky Bayerl		36523
Vicky Ernst		36765
Victoria Amundson		37357
victoria pacheco		22760
Victoria Sullivan		22708
Vikram Jairam		37229
Vinayak Yadav		36854
Vincent Mo		36766
Vincent Vallera		26585
Virginia Ehlen		47194
Virginia Huber		36927
Vivian Arzapalo		42303
Von Gillette		24473
Vong Xiong		19812
W Randolph Bourne		26849
Walt Jones		37162
Walt Silva		23205
walter anfang		22718
Walter Velishek		41931
walter wright		39354
Waltraud Brogren		22520
wanda dempsey		41768
Wanda Purdie		36549

Sender Name	Submission ID
29 Audubon: Toxins	
Ward Bauman	44358
Wauneka Kellum	38676
wayne jensen	37405
Wayne Sticha	43448
Wendell Moeller	39171
Wendi Jones	47519
wendi sandford	38711
Wendy Ackerman	22068
Wendy Grant	37808
Wendy Huls	26733
Wendy Krause	47321
Wendy Linder	36918
Wendy Peardot	22788
Wendy thoren	27623
Wendy Wells	40633
wenona kuhrman	36958
Whitney Barkley	37515
Whitney Houston	44830
Whitney Tuthill-Preus	23546
wiesia Long	43488
Wiliam H Duncan	41580
Will Bildsten	23147
Will Mayer	40964
will sauter	40685
Willa Caldwell	42073
William Bombardier	42093
William Chastain	37679
William DeRoche	36702
William Forsberg	42002
William Heintzeman	40600
william lorsung	43241
William Morris	41582
William Patterson	44595
William Ryan	26094
William Starks	28573
william swan	40840
William Waterhouse	39518
Willie Diggs	40937
Willie Johnson	28079

Sender Name	Submission ID
29 Audubon: Toxins	
Win Lewis	37351
winston mcgown	41199
Xenia varon	36924
Yana Walljasper	23518
YEVGENIY CHOPOROV	37488
ying thso	41686
Yolanda Brantley	37138
Yolanda Edwards	36999
yosef zahtz	37254
Yoseph Delnesahu	22675
Yuricza Arauz	39095
Yvette Schultenover	37635
Yvonne Campbell	40199
Yvonne Malone	42239
Yvonne VanAnda	44973
Zac Quandt	41926
Zac Sanders	41471
zach juusola	41532
Zach Palma	36592
Zachary Hart	43372
Zachary Mohs	43808
Zachary Schwartz	42198
Zack Westlie	45919
Zen Valo	38846
Zhanetta Lundberg	22668
Zoe Lane	36817
Zoe Vaughter	41442
Zoie Calson	37400
Zully Blackthorn	47297
Zvi Geffen	23555

Sender Name	Submission ID
30 Minnesota Environmental Partnership	
Form Letter 30: Minnesota Environmental Partnership Dear Ms Fay: The PolyMet Supplemental Draft Environmental Impact Statement (SDEIS) is fatally flawed, and needs to go back to the drawing board to be fixed. You should not burden the next fifteen generations with toxic water pollution and cleanup costs from a sulfide mine that hasn't been properly planned. PolyMet would operate for 20 years but, according to PolyMet's own data, would pollute water for over 500 years at the tailings basin, and over 200 years at the mine pit. The modeling results provided in the SDEIS show that PolyMet and the DNR simply did not look beyond 500 years. The fact that the SDEIS does not say when the mine pit and tailings basin will stop polluting our water is a major and apparently intentional failure that needs to be corrected by the DNR. Please run the models – or require PolyMet to run the models – long enough to show when pollution of our water by PolyMet's mine would cease. PolyMet proposes a complex mechanical system of pumps, pipelines, and filters that it says will capture and hold back the water pollution from getting into our rivers. PolyMet assumes the proposed expensive and complicated water treatment system will continue to operate effectively for long, long after the mining has stopped. It should be expected that mechanical systems like pumps, filters and pipes will eventually fail. In a 2007 report, an organization called Earthworks analyzed the records of 14 modern copper mines in five states found that 100% of these mines experienced pipeline spills or other accidental releases. 92% had failures of water collection and treatment systems that resulted in releases of contaminated mine seepage that significantly impacted water quality. But Polymet's SDEIS lacks contingency plans for predictable failures in the proposed piping, pumping, and filtration equipment. By assuming that a complicated water treatment system will function indefinitely without fail, the SDEIS has failed to take the hard look required at the proposed PolyMet sulfide mine. PleIn addition, the SDEIS proposes to dump tailings from the mining process on top of the former LTV Steel's tailings basin, which was built in the 1950s on top of three streams, was designed to leak. In fact, the existing tailings basin is already leaking millions of gallons of untreated water, yet the chemical composition of that large volume of leaking water has not been tested and characterized. The failure to test and account for known leaks of untreated tailings basin water from the existing LTV Steel tailings basin is another major problem with the SDEIS. Moreover, the tailings basin and the dam holding it back from flowing downstream are recognized to be unstable. If the tailings basin dam were to fail, vast quantities of contaminated tailings, sulfates, and heavy metals would be released into the headwaters of the St Louis River. In other mines, such tailings basin failures have sent a flood of millions of cubic yards of toxic debris as much as hundreds of miles downstream. The failure of the SDEIS to fully consider the potential for – and the consequences of – a tailings dam failure is a deadly flaw in the SDEIS. PolyMet proposes a large open-pit mine in untouched, high-quality wetlands, that are located on public land owned by the US Forest Service. The SDEIS states that building an underground mine would have "significant environmental benefits" compared to an open-pit mine. However, the PolyMet SDEIS rejects underground mining, stating that in today's market conditions, underground mining is not considered economically feasible. The minerals will be there if and when the market prices are high enough to mine them right. Not fully considering the underground alternative is a major flaw in the SDEIS. Long after the mining has stopped, PolyMet would pose an ongoing risk to fresh water. The Embarrass, the Partridge, and the St Louis Rivers, as well as Lake Superior, are far too precious to be put at risk for so long by PolyMet in its present form. PolyMet should not be permitted unless, when the proposed mining stops, the groundwater and surface water is left in a clean condition, and surrounding streams, rivers, and Lake Superior are safe from risk of sulfide mine pollution. The PolyMet SDEIS suffers from many major failings. The SDEIS needs to be withdrawn, sent back, and fixed before it is returned for public comment.ase send the SDEIS and PolyMet back to the drawing board with directions to include contingency plans for predictable failures in the water pumping and treatment system, and the power supply to run that system.	
Jo Halberman	20071
Joseph Walton	20064
Matthew Schaut	20002
Sigurd Anderson	20065
Zachary Pesch	19859

Sender Name		Submission ID
31 Mining Truth: Alternatives		
Form Letter 31: Mining Truth: Alternatives To [Decision Maker], The NorthMet DEIS does not consider a range of practicable alternatives to the proposed action. As the DEIS states: "NEPA requires that a 'range of alternatives' must be discussed in the environmental documents prepared for a proposed action (40 CFR 1502-14). This includes all practicable alternatives, which must be rigorously explored and objectively evaluated . . . The emphasis is on what is practicable rather than on whether a proponent or applicant prefers or is itself capable of carrying out a particular alternative" (1-13). But the SDEIS provides no meaningful consideration of alternative means to achieve the project Purpose and Need as required by law, it only looks at a No Action alternative and the same action with a smaller land exchange. The Underground Mine Alternative is discarded, mostly as a result of an InfoMine model used to determine economic feasibility, for which there is no detail provided in the SDEIS. The SDEIS states that the underground mining alternative "would not offer substantial environmental or socioeconomic benefits" and was therefore discarded. However, in Appendix B, the co-lead agencies found that "compared to the proposed open pit mine, the underground mining alternative would offer some significant environmental benefits. . ." and that underground mining is "technically feasible." The West Pit Backfill alternative is also discarded prematurely. Backfilling the East and Central Pit with Category 2 and 3 waste rock is considered both feasible and desirable and is part of the proposed action. The offered reason that backfilling the pit would "encumber" resources in violation of PolyMet's mineral leases is irrelevant, since these resources are currently encumbered by 696 feet of soil and rock. As the Tribal Cooperating Agencies note in Appendix C, the backfill alternative "meets the purpose and need, is available, is technically feasible and is economically feasible." Please take the following actions: 1) Revise the SDEIS to provide details of the economic models used to simulate the costs of underground mining and its economic feasibility 2) Revise the SDEIS to eliminate assertions that the Underground Mining Alternative does not offer environmental benefits, since the co-lead agencies found that it would offer significant environmental benefits 3) Revise the SDEIS to include the Underground Mining Alternative as an alternative to the proposed action 4) Revise the SDEIS to include the West Pit Backfill Alternative as an alternative to the proposed action		
Aja Maleck		46338
Ann K Brady		41293
Archie K Benham		42306
Beverly LaClair		43546
bill sankey		21768
Brian Harrington		43276
Bryce Sampson		38495
Chanda Welch		44747
Chantal Buslot		38142
Cheryl Humphrey		38332
Cheryl Wilke		43288
Christina Klein		44147
Christine Frank		47724
christopher malcolm		43162
Collette Theriault		45394
Dan Butterfield		41396
Daniel Eller		41269
Daniel Servatius		43760
Debra Wilde		41114
Doug Scott		39655
Elicia Beckerman		43639
Elizabeth Paulson		43767
Emilie Hitch		45071
Erik Roth		43936
Erynn Jenzen		40355

Sender Name		Submission ID
31 Mining Truth: Alternatives		
GEORGE MOMANY		46448
Greg Overlid		46552
H. Haynes		46900
Hans Johnson		43394
Holly Einess		47153
Jamee Varda		41382
James Koschak		44123
James Reinke		37950
Jane Starr		43395
Janet Neihart		47664
JANNA NEPERUD		38330
Jeff Durfee		38217
Jeff Kitterman		47132
Jeffrey Wiles		43896
Jennifer Hengelfelt		38177
John Flaten		45011
John Kerschbaum		40496
Jolene Brink		43668
Joyce Sutherland		47604
Judith Rose		40756
Judy Lane		38051
Julia Lee		37797
Karen Cleveland		52252
Karen Meyer		45198
Kevin Gobatskgobats		47612
Kevin Hiniker		44255
Kim Pilon		43749
Kris Palazzari		47754
laura melotti		37885
Laurie Lawler		38682
Leah Axelson		43940
Linville Doan		46245
Lisa Lund		44779
Lynn Sullivan		38392
Mandy Nordberg		44648
Mandy Senechal		43434
Mark Arneson		44254
Mark Fangmeier		38124
Marsha Skoog		41013

Sender Name	Submission ID
31 Mining Truth: Alternatives	
Mary Blickenderfer	43660
Mary Helen Stephens	39008
Mary Radomsky Gaytan	38112
Matt Dubay	45200
Matthew Dickinson	45292
Meghann Charboneau	47008
Nancy Gould	40243
Nathaniel Roiger	46699
Paula Hill	38470
Peggy Doerrie	44136
Randall Jeans	44340
Randall Lake	52257
Rebecca Nash	41342
REID PETERSON	46244
Renee Ethier	47734
Richard Libbey	47725
Rick Monteith	21795
Rita Caruso Santamaria	43914
Robert Allen	47689
Robert Mcmanus	43618
Robert Puls	38228
Ron Sternal	45833
Ryan Anderson	46433
Sally Christenson	38424
Sarah Gulan	38385
Serena Lynch	46697
Serena Lynch	46710
Steve Cook	44352
Steve Koschak	45361
Susan Vann	43420
Tara McNaughton	43937
Tayci Gustafson	44448
Terri Buttleman	21669
Tess Galati	43541
thomas cobb	40499
Tjaard Breeuwer	44803

Sender Name		Submission ID
32 Mining Truth: Tax Estimates		
Form Letter 32: Mining Truth: Tax Estimates To [Decision Maker], The PolyMet NorthMet SDEIS differs in its estimates of federal and state and local taxes without explanation of what accounts for this difference. The 2010 NorthMet DEIS stated: "IMPLAN modeling estimates that during a typical year of operation the federal government would receive $17-3 million and the state and local governments would receive $14-5 million in taxes from the operation of the Project, excluding net proceeds tax" (DEIS 4-10-19). But the 2013 SDEIS says: "IMPLAN modeling estimates that, during a typical year of operation, the federal government would receive approximately $30 million, and the state and local governments would receive approximately $39 million in taxes from the operation of the NorthMet Project Proposed Action" (5-503). Table 5-2-10-3 in the SDEIS, showing estimated taxes paid for 2011 had the project been in operations, projects state taxes of $15-6 million and federal taxes of $64 million for 2011, a number far larger than the $30 million described from the IMPLAN model. These figures lack explanation and rely on estimates provided by PolyMet without any verification. These estimates have also changed dramatically from the draft versions of the SDEIS circulated earlier in 2013 without any explanation. In the Track Changes Version 2-0 of the PSDEIS, Table 5-2-10-3 shows annual estimates of $3-12 million of state taxes and $12-8 million in federal taxes, increased by 500% to $15-6 million and $64 million. No explanation of the change is provided, and no source provided other than personal communication with PolyMet. Please take the following actions: 1) Revise the SDEIS to provide details of the calculations used to arrive at the estimated taxes paid and provide independent confirmation of these estimates from state and federal agencies 2) Revise the SDEIS to provide consistent numbers in estimated taxes across all sections of the document or explanations of the differences in the estimates.		
Aja Maleck		46336
Amy Farland		41279
Amy Freeman		39657
Ann Crothers		22734
Anne DesLauriers		41116
BeVan Presley		41047
Bob Schroeder		38681
carmen wanczycki		43386
Carol Stoops		21749
Christina Klein		44135
Christine Frank		43150
christopher malcolm		43140
Colleen Madden		22742
Cynthia Haensel		23241
Dave Ethier		43278
David Butcher		41372
David Hereaux		40775
Deborah Gruhlke		45773
Delores Johnson		41483
DENNIS WISTE		41072
Don MacLeod		23528
Elisabeth Bechmann		47771
Emilee Martell		40067
Emilie Hitch		45072
Eric Willms		25079
Gail Jacobson		44236
Gail Linnerson		40923
Grace Scorpio		43548
Greg Overlid		46550

Sender Name	Submission ID
32 Mining Truth: Tax Estimates	
James Koschak	44161
James Lindbeck	41049
Janet Neihart	47670
Jeff Durfee	23627
Jennifer Hengelfelt	38193
Jennifer Schally	21829
Jill Boldenow	47130
John Badger	22722
John Flaten	45020
John Ottis	41227
Karen Cleveland	52247
Karen McEvoy	41024
Kevin Hiniker	44230
Kris Palazzari	47711
Leah Axelson	43929
Lee Mensinger	40925
Lisa Pugh	41071
Loretta Peterson	42288
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Mark Fangmeier	44739
Mary Blickenderfer	43671
Mary Kaeter	22687
Mary Scheibel	26679
Matthew Johnston	41179
Ned Bouril	43651
Neil Nelson	22291
Nishiime Peltier	25058
Patricia Castellano	42289
Pauline Wahlquist	21997
Ray Becker	38573
Renee Ethier	47717
Rick Dahn	26669
Rita Caruso Santamaria	43886
Robert Mcmanus	43634
roberta truman	37859
Ron Sternal	45810
Ryan Anderson	46447
Serena Lynch	46701

Sender Name	Submission ID
32 Mining Truth: Tax Estimates	
Serena Lynch	46720
Stacy Wahl	41242
stephen Law	41305
Steve Koschak	45395
Steven Chesney	40998
sue harrington	41423
Sue LeGros	46444
Tammy Fritze	23631
Tayci Gustafson	44423
Theresa Tichich	41527
Tjaard Breeuwer	44777
Vickie Graser	37886

Form Letter 33: Unknown (Letter A)
I have confidence in the DNR and believe the SDEIS process for PolyMet Mining's proposed NorthMet project has been sound and thorough. The state and federal regulators will ensure that PolyMet's project design, and its controls and measures will address potential environmental impacts and will meet all applicable state and federal regulations. I'd also like to address some misinformation that has been reported in the media about the 200 and 500 years referenced in the SDEIS. In the groundwater flow model in the SDEIS, water percolates through the bedrock at an extremely slow rate of travel. For this reason, the model was run for 200 to 500 years, allowing enough time for water to move through the aquifer and reach the compliance point at the boundary included in the SDEIS. It is commendable that the modeling completed in the SDEIS is so thorough that it addresses the slow, minimal flow of water for such a period of time. It also shows the project will still meet water quality standards even that far out. This does NOT mean that the mine or processing facility will need treatment for that long. This model demonstrates that PolyMet's plans comply with Minnesota's laws. We cannot afford to miss this job opportunity. Companies like PolyMet that are complying with all state and federal regulations should be allowed to obtain the necessary permits to produce the metals our modern world demands.

April S Lee	21508
Barry Parendo	21505
Dick Ringess	38554
Jewell Herring	21377
Ken Coleman	21956
Mary Muellerleile	21374
Mike Wochnick	21019
Paula Thompson	38489
Randy Abernethy	22466
Thomsen, Matt	21330

Sender Name		Submission ID
34 Water Legacy: Health Risks		
Form Letter 34: Water Legacy: Health Risks Dear Ms Fay and Mr Bruner, Please reject the PolyMet NorthMet SDEIS as inadequate and reject the PolyMet open-pit sulfide mine and wastes proposal due to its unacceptable risks to human health. Mercury is a huge concern for me. The Minnesota Health Department found 1 out of 10 infants in Minnesota's Lake Superior Region are born with unsafe levels of mercury in their blood. Fish in the lower part of the St Louis River are more contaminated with mercury than those in other regional waters. Downstream of the PolyMet project, the St Louis River and Embarrass, Wynne, Sabin, Esquagama, Colby and Whitewater Lakes are legally impaired due to mercury in fish. The PolyMet SDEIS analysis of mercury risks is inadequate and misleading. The SDEIS' claims that mercury and sulfates - which increase mercury in the food chain - will be "captured" are unreliable. There are huge gaps in the SDEIS where there should be information on mercury concentrations and seepage from waste rock, peat overburden, tailings and liner leaks. The SDEIS inadequately analyzes human health impacts of PolyMet's pollution. Not just mercury in fish, but impacts of manganese, lead and aluminum in water on the brain; impacts of air emissions including diesel, asbestos-like fibers, nickel and other particulates on cancer; and impacts of arsenic on cancer. The SDEIS does not explain potential harm to human beings, particularly for bottle-fed infants, children and the elderly, who are more vulnerable to the impacts of toxic pollution. The SDEIS completely fails to analyze any risks to workers on-site at the PolyMet mine or plant. The SDEIS fails to assess impacts on nearby residential wells from tailings basin groundwater seepage. The SDEIS inappropriately reduces the 70-year "lifetime" to 30 or 40 years to mislead the public about cancer risks at the PolyMet property boundary. The SDEIS arbitrarily denies effects of water pollution on the St Louis River. The SDEIS fails to recognize environmental justice effects of pollutants, such as methylmercury and arsenic, that may be found in fish, game and wild rice as well as water, and may cause particular harm to tribal members or low-income families who rely on fish, game and wild rice for subsistence. The PolyMet sulfide mine project and SDEIS plan should be rejected due to unresolved serious issues regarding mercury and other pollutants that affect human health. • Reject the PolyMet sulfide mine project due to its unacceptable health and environmental health impacts on Minnesota infants, children and adults, including low-income families and tribal members who fish, hunt and gather for subsistence. If you are not ready to reject the PolyMet project at this time, the SDEIS must be redone to address major gaps and flaws in the analysis of impacts on human health: • Redo the SDEIS to disclose mercury concentrations and how much mercury is released directly or indirectly into surface waters from all PolyMet sources. • Redo the SDEIS to assess mercury impacts without unreasonable assumptions, like the claim that almost all tailings seepage of sulfates would be captured. • Redo the SDEIS to evaluate methylmercury accumulation in the food chain due to hydrologic changes to peat and wetlands as well as due to air and water pollution. • Redo the SDEIS to require a separate and clear Health Risk Assessment prepared in conjunction with the Minnesota Health Department to analyze impacts of all PolyMet sulfide mine and plant pollution releases and accumulations on health, including: 1- Description of the known human health impacts of all pollutants in PolyMet's air emissions and water discharges in language understandable to the public. 2- Assessment of potential impacts on residential wells from tailings seepage. 3- Health risk assessment for on-site workers at both the PolyMet mine and plant. 4- Assessment of cumulative mercury risks, including actual hazard levels in lakes already impaired for mercury in fish. 5- Assessment of cumulative cancer and non-cancer risks from existing and additional sources of toxic chemicals, such as manganese, arsenic, lead and nickel, applying the most protective health risk analysis. 6- Assessment of all risks using a 70-year "lifetime" for exposures. 7- Assessment of cumulative risks of multiple chemicals and exposure routes (drinking water, fish, wild rice) on infants, children and the elderly. 8- Assessment of cumulative risk of toxic chemicals (mercury, arsenic) in fish, game, and wild rice on persons who rely on fishing, hunting and gathering for subsistence. 9- Assessment of cumulative risk of methylmercury contamination of fish in the St Louis River and estuary for Lake Superior. • Complete the mercury TMDL study of the St Louis River before finalizing the PolyMet SDEIS or issuing any permits for the PolyMet sulfide mine project. The PolyMet SDEIS is an inadequate assessment of human health impacts and the PolyMet sulfide mine and mine wastes proposal poses an unacceptable risk to the health of fetuses, infants, children and adults in Minnesota. Please reject both the PolyMet SDEIS and the PolyMet mine. Very truly yours,		
|John Walsh		21735
|John Walsh		49251
A Bonvouloir		21980
A Bonvouloir		49352
A McDevitt		44834
Abby Andresen		21878
Abby Andresen		45710
Abby Andresen		45712
Abby Andresen		49311
Adam Lingner		22193
Adam Lingner		49432
Al Larson		21567
Al Larson		49186

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Alan Bensman	46621
Alan Bensman	46622
Alan Olander	21650
Alan Olander	49219
alek roslik	46517
alek roslik	46519
Alice Bowron	45540
Alice de la Cova	46664
Alice de la Cova	46665
Alicia Vegell	46866
Alicia Vegell	46867
Alina Gonzalez	44814
Alison Love Unzelman	45941
Allan Malkis	22049
Allan Malkis	45852
Allan Malkis	49372
Allen Rapatz	46391
Allen Rapatz	46394
Allison Ehlert	21629
Allison Ehlert	49208
Allyson Harper	48033
Allyson Harper	48452
Allyson Harper	52479
Alma Ronningen	21850
Alma Ronningen	49305
Alyssa Hoppe	22031
Alyssa Hoppe	49362
Amanda Braun	46388
Amanda Braun	46389
AMY CUSICK	21613
Amy Cusick	46020
AMY CUSICK	49203
Amy Farland	45847
Amy Wobig	48106
Amy Wobig	48408
Amy Wobig	52435
AmyLeo Barankovich	46342
AmyLeo Barankovich	46343
Andrea Girtz	45462

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Andrew Kuncel	44670
Andrew Moroff	48031
Andrew Moroff	48405
Andrew Moroff	52432
Andrew Smith	37941
Andy Lane	46188
Andy Lane	46189
Angel Samolytz	46832
Angel Samolytz	46835
Angela Hedblum	46842
Angela Hedblum	46846
angela makepeace	46453
angela makepeace	46460
Angela Powers	21615
Angela Powers	49204
Angela Wyatt	22051
Angela Wyatt	49373
Angie Den	21631
Angie Den	44865
Angie Den	49209
Anja Curiskis	46511
Anja Curiskis	46512
Ann Crothers	48099
Ann Davies	46485
Ann Davies	46488
Anne Garvey	21977
Anne Garvey	21978
Anne Garvey	49350
Anne Garvey	49351
Annie Gardner	38589
Annie Gardner	44990
Annie Gardner	49176
Anthony Andaloro	46183
Anthony Andaloro	46186
April Narcisse	22198
April Narcisse	49437
Arla Schumack	38538
Arla Schumack	49156
Art Wilkinson	21842

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Art Wilkinson	46315
Art Wilkinson	46318
Art Wilkinson	49297
Ashley Ahl	44911
Ashley Freya	46636
Ashley Freya	46638
Ashley Keul	22061
Ashley Keul	49378
Barb and Phil Powell	45249
Barb and Phil Powell	45250
Barb Edson	21991
Barb Edson	49357
Barb Gilligan	45346
Barb Gilligan	45347
Barbara Brockway	46593
Barbara Brockway	46595
Barbara Carlson	21585
Barbara Carlson	49194
Barbara Gasterland	46199
Barbara Gasterland	46200
Barbara Janssen	21708
Barbara Janssen	49237
Barbara Johnson Adkins	44696
Barbara Zdarsky	44924
Barry McMahon	46407
Barry McMahon	46408
Barry Spotts	46043
Becky Capecchi	46584
Becky Capecchi	46585
Becky Stoner	21720
Becky Stoner	49247
Becky toner	21719
Becky toner	45533
Becky toner	49246
Ben Cushing	22190
Ben Cushing	49431
Benjamin Krohling	22146
Benjamin Krohling	49414
Beret Amundson	38317

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34 Water Legacy: Health Risks	
Beret Amundson	38318
Bernie Schlafke	44592
Bert Flora	38490
Bert Flora	49140
Beth Bartlett	21805
Beth Bartlett	21807
Beth Bartlett	49281
Beth Bartlett	49282
Betsey Porter	46795
Betsey Porter	46798
betty dagen	46700
betty dagen	46702
Bob and Joy Johnson	37829
Bob Haugen	46321
Bob Haugen	46323
Bob Witter	46751
Bob Witter	46753
Bonnie Walden	46628
Bonnie Walden	46629
Brad Schmidt	46392
Brad Schmidt	46395
Brandon Sigrist	46666
Brandon Sigrist	46669
Brenda DeZiel	47915
Brenda DeZiel	48393
Brenda DeZiel	52420
Brenda Haak	45850
Brenda Nelson	48108
Brenda Nelson	48417
Brenda Nelson	52444
Brenda Scott	48055
Brenda Scott	48432
Brenda Scott	52459
Bret Pence	38448
Bret Pence	49126
Brian Henning	22145
Brian Henning	49413
Brian Sabo	46812
Brian Sabo	46814

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Brian Stevenson	21738
Brian Stevenson	49254
Brian Thorbjornsen	21714
Brian Thorbjornsen	21716
Brian Thorbjornsen	49242
Brian Thorbjornsen	49244
Brian Tighe	43136
Brian Tighe	47810
Brian Wilkerson	48012
Brian Wilkerson	48387
Brian Wilkerson	52414
Bruce & Elizabeth Meyer	21808
Bruce & Elizabeth Meyer	49283
Bruce Brummitt	45868
Bruce Jenkinson	46383
Bruce Jenkinson	46385
Bruce McKay	38058
Bruce Sielaff	22044
Bruce Sielaff	49368
Bryce beverlin	46618
Bryce beverlin	46619
C Quast	22041
C Quast	49367
C. Lynn Cox	38446
C. Lynn Cox	49125
C. M. Smiley	46500
C. M. Smiley	46503
Cana Erdem	46018
Cara Rodriguez	46612
Cara Rodriguez	46614
Caree Gordon	21775
Caree Gordon	21776
Caree Gordon	49267
Caree Gordon	49268
Carl Schwensohn	38585
Carl Schwensohn	49174
Carla Albers	38313
Carla Albers	38314
Carla Albers	45682

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Carla Albers	45683
Carlen Lovejoy	46166
Carlen Lovejoy	46168
Carmi Anderson	46528
Carmi Anderson	46529
Carol Ashley	21917
Carol Ashley	49326
Carol Brenner	21598
Carol Brenner	49198
carol greenwood	21804
carol greenwood	22139
carol greenwood	49280
carol greenwood	49408
carol jagiello	38587
carol jagiello	49175
Carol Theobald	22144
Carol Theobald	49412
Carole Feray	21968
Carole Feray	45932
Carole Feray	49345
Carole Tronnes	38540
Carole Tronnes	49157
Carolyn Stark	21568
Carolyn Stark	21569
Carolyn Stark	49187
Carolyn Stark	49188
Carrie Schauf	21739
Carrie Schauf	21740
Carrie Schauf	49255
Carrie Schauf	49256
Carstie Clausen	45409
Carstie Clausen	45410
Catherine Vranyes	45448
Catherine Vranyes	45450
Cathy Finley	46600
Cathy Finley	46602
Cathy Mackiewicz	43821
Cathy Mackiewicz	43822
catina spann	46760

Sender Name	Submission ID
34 Water Legacy: Health Risks	
catina spann	46766
Cecilia Lieder	46755
Cecilia Lieder	46761
Celeste Birkeland	38114
Celeste Birkeland	44534
Chad Roy	38337
Chanti C	46161
Chanti C	46162
Chanti Calabria	46227
Chanti Calabria	46228
Charles Argue	44183
Charles Argue	44185
Charles Deeter	38370
Chelsea Helmer	47136
Chelsea Helmer	47137
Cheri Miller	46268
Cheri Miller	46269
Cheryl LaPlante	21597
Cheryl LaPlante	49197
Cheryl Lawrence	37801
Cheryl Lawrence	37802
Cheryl Storm	43251
Cheryl Storm	47817
chris nordstrom	46171
chris nordstrom	46176
Christiane Schmitz	46597
Christiane Schmitz	46598
Christine Hassenstab JD PhD	44939
Christine Tendle	21713
Christine Tendle	49241
Christine Umhoefer	44520
Christopher Gottshall	46007
Christopher Kline	47946
Christopher Kline	48448
Christopher Kline	52475
Christopher Kornmann	22125
Christopher Kornmann	44394
Christopher Kornmann	44395
Christopher Kornmann	49400

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Christopher T Loch	22116
Christopher T Loch	49396
Cindy Bodine	38136
Cindy Robinson	44694
Clifton Ware	21886
Clifton Ware	49317
Clifton Wickstrom	45853
Clyde Stephens	46668
Clyde Stephens	46670
Colleen Madden	46048
Colles Larkin	21725
Colles Larkin	49250
Corryl Jeske	40349
Corryl Jeske	48041
Corryl Jeske	48340
Corryl Jeske	52367
courtney butcher	21955
courtney butcher	21957
courtney butcher	49337
courtney butcher	49338
Craig Aichele	46819
Craig Aichele	46823
Craig Blacklock	22077
Craig Blacklock	49385
Craig Brown	22127
Craig Brown	46177
Craig Brown	46178
Craig Brown	49401
Crystal Nicklay	48118
Crystal Nicklay	48464
Crystal Nicklay	52491
Cynthia Blomberg	21799
Cynthia Blomberg	49277
Cynthia Youtz	45416
Cynthia Youtz	45417
Dale Johnston	21912
Dale Johnston	44215
Dale Johnston	44217
Dale Johnston	49324

Sender Name		Submission ID
34 Water Legacy: Health Risks		
Dan Anderson		21779
Dan Anderson		49271
Dan Wicht		38293
Dan Wicht		46019
Daniel Mettner		47059
Daniel Mettner		47061
Daniel W Iverson		38497
Daniel W Iverson		49144
Danny Crawford		46694
Danny Crawford		46696
Darcie Anderson		47990
Darcie Anderson		48342
Darcie Anderson		52369
Darlene Young		45723
Darlene Young		45724
Darren Wolfson		38522
Darren Wolfson		49150
Dave Carlson		21835
Dave Carlson		49292
Dave Freeman		21694
Dave Freeman		49234
dave hiller		22045
dave hiller		22047
dave hiller		49369
dave hiller		49370
Dave Schaenzer		47905
Dave Schaenzer		48357
Dave Schaenzer		52384
Dave Taylor		44986
David Braun		47067
David Braun		47069
David Carlson		21953
David Carlson		49335
david fahrmann		46843
david fahrmann		46849
David Faust		46827
David Faust		46834
David Forgianni		48016
David Forgianni		48380

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34 Water Legacy: Health Risks	
David Forgianni	52407
David Hajicek	48021
David Hajicek	48431
David Hajicek	52458
David Higgins	46015
David Jensen	21604
David Jensen	46796
David Jensen	46801
David Jensen	49202
David Moen	22189
David Moen	49433
David Rutledge	46287
David Rutledge	46288
David Schaenzer	48063
David Schaenzer	48358
David Schaenzer	52385
David Sterling	46735
David Sterling	46739
David Walsh	46376
David Walsh	46379
David Warfield	45801
David Zimney	38410
David Zimney	44919
Dawn Bove	38407
Dawn Jensen	38524
Dawn Jensen	49151
Dawn Snyder	22135
Dawn Snyder	49404
Dean Borgeson	21633
Dean Borgeson	46085
Dean Borgeson	49211
Dean Einerson	46953
Dean Einerson	46954
Deanne Roquet	43879
Deanne Roquet	43907
Debbie Senger	38560
Debbie Senger	49165
Deborah Hendrickson	48009
Deborah Hendrickson	48362

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34 Water Legacy: Health Risks		
Deborah Hendrickson		52389
Deborah Walsh		46857
Deborah Walsh		46859
Deborah Wigen		43483
Deborah Wigen		43484
Debra Evon		22122
Debra Evon		46482
Debra Evon		46483
Debra Evon		49399
Debra Swanson		46106
Debra Swanson		46107
DeeAnn Stenlund		38483
DeeAnn Stenlund		49138
Della Johnson		46658
Della Johnson		46659
Denise Mack		22141
Denise Mack		22142
Denise Mack		49409
Denise Mack		49410
Denise Marlowe		46426
Denise Marlowe		46428
Denise Thomas		21781
Denise Thomas		49273
Diana Hill		22075
Diana Hill		44546
Diana Hill		49384
Diana Tapelt		46359
Diana Tapelt		46363
Diane Rhody		38463
Diane Rhody		45699
Diane Rhody		45700
Diane Rhody		49129
Dianna Jancik		46489
Dianna Jancik		46491
Dianne Tuff		21570
Dianne Tuff		49189
Dolores Schaefer		21862
Dolores Schaefer		49307
Dominic Stricherz		46470

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34 Water Legacy: Health Risks	
Dominic Stricherz	46471
Don Hon	48074
Don Hon	48461
Don Hon	52488
Donna and Allan Butler	22057
Donna and Allan Butler	46616
Donna and Allan Butler	46617
Donna and Allan Butler	49376
Donna Anderson	46754
Donna Anderson	46759
Donna Kneeland	38019
Doris Berger	46374
Doris Berger	46375
Dorothy Anderson	46149
Dorothy Anderson	46151
Dorothy Crouch	46623
Dorothy Crouch	46625
Dorothy Miller	46309
Dorothy Miller	46311
Douglas Peterson	38071
Dr. and Mrs. Thomas G. Murn, Jr.	47523
drew hempel	22213
drew hempel	49447
E Blankers	38520
E Blankers	49148
Echo Nelson	46148
Echo Nelson	46150
Eileen Cain	46680
Eileen Cain	46681
Eileen McElrath	44756
Eirika Johanna	46146
Eirika Johanna	46147
Elaine Leach	46051
Elene Loecher	21675
Elene Loecher	21676
Elene Loecher	49230
Elene Loecher	49231
Elizabeth Burr	38583
Elizabeth Burr	49173

Sender Name		Submission ID
34 Water Legacy: Health Risks		
Elizabeth Lamb		45403
Elizabeth Lamb		45405
Elizabeth Peters		21743
Elizabeth Peters		46589
Elizabeth Peters		46590
Elizabeth Peters		49258
Elizabeth Songalia		21655
Elizabeth Songalia		46179
Elizabeth Songalia		46180
Elizabeth Songalia		49224
Ellen Bruner		38581
Ellen Bruner		49171
Ellyce Thompson		46253
Ellyce Thompson		46256
Emily Brown		22034
Emily Brown		46455
Emily Brown		46459
Emily Brown		49364
Emily Lindell		47484
Emily Miller		47118
Emily Miller		47120
Emma Radke		48066
Emma Radke		48324
Emma Radke		52352
Eric Bohme		47960
Eric Bohme		48409
Eric Bohme		52436
Eric Fast		45440
Eric Fast		45442
Ev Ahlberg		21641
Ev Ahlberg		49217
Evan Lawrence		45064
Evan Lawrence		45065
evangelina aguilar		21851
evangelina aguilar		49306
Evelyn Staus		46425
Evelyn Staus		46427
Ewart Martens		46205
Ewart Martens		46206

Sender Name	Submission ID
34 Water Legacy: Health Risks	
florence sandok	22078
florence sandok	49386
Frank Peterson	46370
Frank Peterson	46371
Gail Gaebe	21777
Gail Gaebe	49269
gail harty	21816
gail harty	46222
gail harty	46223
gail harty	49290
Gail Wallinga	48105
Gail Wallinga	48404
Gail Wallinga	52431
Galiena Anderson-Lind	22081
Galiena Anderson-Lind	49389
gary severson	46750
gary severson	46752
Gavin Danfelt-Martin	22038
Gavin Danfelt-Martin	49365
Genya Welch	46497
Genya Welch	46501
Geoffrey Fisher	46046
georgann hiller	44610
georgann hiller	44611
George Pridmore	46927
George Pridmore	46960
Gerald Wambach	48137
Geraldine Drewry	21778
Geraldine Drewry	49270
Germain Walseth	45425
Germain Walseth	45429
Gerry Fuller	21652
Gerry Fuller	49221
Gladys Schmitz	21549
Gladys Schmitz	45173
Gladys Schmitz	45174
Gladys Schmitz	49177
Glenn Bertelson	21637
Glenn Bertelson	49214

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34 Water Legacy: Health Risks		
Glenn Thomas		47955
Glenn Thomas		48451
Glenn Thomas		52478
Greg Overlid		22149
Greg Overlid		49417
Greg Rupert		44118
Greg Rupert		44119
Gregory Pfister		22111
Gregory Pfister		49393
Gregory Stricherz		46785
Gregory Stricherz		46790
Gregory T Ochs		38525
Gregory T Ochs		46012
Gregory T Ochs		49152
Greta Gaard		48059
Greta Gaard		48433
Greta Gaard		52460
Greta Rittenhouse		21554
Greta Rittenhouse		49181
H. Haynes		21584
H. Haynes		49193
Haley Ellingson		44983
Haley Stender		44413
Haley Stender		44414
Hannah Conway		46840
Hannah Conway		46841
Hannah Sieberg		48030
Hannah Sieberg		48411
Hannah Sieberg		52438
Harriet McCleary		21563
Harriet McCleary		45161
Harriet McCleary		45162
Harriet McCleary		49182
Harriet Skjerly		46688
Harriet Skjerly		46690
HeatherR Nord		38428
HeatherR Nord		49122
Heidi Anderson-Ferdinand		44832
Heidi Mirka		22205

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34 Water Legacy: Health Risks	
Heidi Mirka	49444
Heidi Shol	37913
Heidi Windmiller	48110
Heidi Windmiller	48434
Heidi Windmiller	52461
Henry Sanborn	21736
Henry Sanborn	49252
Herb LePlatt	38478
Herb LePlatt	38484
Herb LePlatt	49136
Herb LePlatt	49139
HEYWARD NASH	21551
HEYWARD NASH	49179
Ian Stanford	45797
J Ackerman	46782
J Ackerman	46784
J Olfe	46349
J Olfe	46351
J.L. Lynner	46572
J.L. Lynner	46573
Jackie Metelak	45101
Jackie Metelak	45102
Jacob Kjome	38493
Jacob Kjome	49141
James and Sara Conway	22030
James and Sara Conway	49360
James Campbell	46777
James Campbell	46778
James Conway	48043
James Conway	48440
James Conway	52467
James Gerold	47112
James Gerold	47113
James Herther	21990
James Herther	49356
James Jacobsen	46762
James Jacobsen	46765
James Ko	43977
James Ko	43980

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34 Water Legacy: Health Risks	
James Ouray	43806
James Ouray	43807
James Parker	46768
James Parker	46773
James Percich	22153
James Percich	49419
Jami Halder	21817
Jami Halder	49291
Jamie Aussendorf	46492
Jamie Aussendorf	46493
Jamie Harvie	22201
Jamie Harvie	49442
Jamie Hoerter	21737
Jamie Hoerter	49253
Jamie Koblas	44706
Jan and Jim Porter	22032
Jan and Jim Porter	49361
Jan Best	21656
Jan Best	49225
Jan Greenfield	22056
Jan Greenfield	49375
Jan Myers	38559
Jan Myers	49164
Jane Johns	44710
Jane Koschak	45783
jane mobeck wilson	21954
jane mobeck wilson	49336
Janet Koplos	46352
Janet Koplos	46353
janet meany	21927
janet meany	49333
Janet Neihart	48069
Janet Neihart	48406
Janet Neihart	52433
jason husby	47552
Jason Nicholoff	46400
Jason Nicholoff	46404
Jay Mutschler	46122
Jay Mutschler	46123

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Jayne Allen	43375
Jayne Allen	43377
Jean and William Haslett	45465
jean Bierly	46417
jean Bierly	46421
Jean Bixley	47911
Jean Bixley	48376
Jean Bixley	52402
Jean Lindquist	47943
Jean Lindquist	48419
Jean Lindquist	52446
Jean Marie Lindquist	44580
Jean Ross	46302
Jean Ross	46305
Jeane Ronstad	46165
Jeane Ronstad	46167
Jedidiah Krauss	47544
jeff kitterman	38545
jeff kitterman	49160
Jeff Walter	46662
Jeff Walter	46663
jeffrey dickson	45636
jeffrey dickson	45637
Jeffrey Masco	21914
Jeffrey Masco	49325
Jenni Zickert	45315
Jenni Zickert	45316
JENNIFER ABBEY	44362
JENNIFER ABBEY	44370
Jennifer Arave	45931
Jennifer Hengelfelt	38210
Jennifer Schally	47944
Jennifer Schally	48421
Jennifer Schally	52448
Jeremy Olmscheid	47594
Jerri Johnson	48111
Jerri Johnson	48437
Jerri Johnson	52463
Jerry Jensen	46613

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Jerry Jensen	46615
Jesse Ahlman	22152
Jesse Ahlman	45719
Jesse Ahlman	45720
Jesse Ahlman	49421
Jessica Graham	46478
Jessica Graham	46479
jessica Hacker	47913
jessica Hacker	48392
jessica Hacker	52419
Jessica Newbauer	38138
Jim Wichmann	37874
Jim Wilson	21840
Jim Wilson	46772
Jim Wilson	46774
Jim Wilson	49296
Joan Duncanson Elbert	48056
Joan Duncanson Elbert	48458
Joan Duncanson Elbert	52485
Joan Espana	21550
Joan Espana	49178
Joan Knuttila	22138
Joan Knuttila	49407
joan peterson	44907
Joanne Neihart	46410
Joanne Neihart	46412
Joanne Sieck	44284
Joanne Sieck	44285
Joanne Swanson	44824
Jocelyn Sweet	43811
Jocelyn Sweet	43812
Joel Albright	46676
Joel Albright	46678
Joel Clasemann	48081
Joel Clasemann	48463
Joel Clasemann	52490
Joel Dunn	21883
Joel Dunn	21884
Joel Dunn	44895

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Joel Dunn	49314
Joel Dunn	49315
joel kelly	46286
joel kelly	46289
Joel Muscatello	46808
Joel Muscatello	46810
Joette Durfee	44530
John AND Jean Fleming	21888
John AND Jean Fleming	45523
John AND Jean Fleming	49318
John Finazzo	45605
John Finazzo	45606
John Flaten	21706
John Flaten	49235
John Graham	22154
John Graham	49420
John Keebler	21638
John Keebler	49215
John Kerschbaum	21691
John Kerschbaum	49233
John Kreft	22066
John Kreft	22067
John Kreft	49380
John Kreft	49381
John Landgraf	21671
John Landgraf	49226
John Leinen	45808
John Linnerson	47993
John Linnerson	48351
John Linnerson	52378
John Paul Roy	21785
John Paul Roy	45544
John Paul Roy	49275
John Peck	45466
John Reichel	46734
John Reichel	46736
John Schlichting	21553
John Schlichting	45351
John Schlichting	45352

Sender Name		Submission ID
34 Water Legacy: Health Risks		
John Schlichting		49180
John Strand		22158
John Strand		49423
John Valesano		45934
John Viacrucis		22117
John Viacrucis		48038
John Viacrucis		48427
John Viacrucis		49406
John Viacrucis		52454
John Weber		46414
John Weber		46419
John Wozniak		46137
John Wozniak		46138
Jon Abrahamson		22132
Jon Abrahamson		49402
Jon Damon		22026
Jon Damon		49359
Jon Hayenga		46022
Jonathan Green		22136
Jonathan Green		49405
Jonathan Ringdahl		38575
Jonathan Ringdahl		49169
Jonelle Ringnalda		22083
Jonelle Ringnalda		49391
Joseph Wenzel		21564
Joseph Wenzel		46494
Joseph Wenzel		46495
Joseph Wenzel		49183
josr muzquiz		46010
Joyce Hochsprung		46606
Joyce Hochsprung		46608
Judi Mikolai		45238
Judi Mikolai		45239
Judith Daniel		46280
Judith Daniel		46281
Judith Long		38549
Judith Long		46304
Judith Long		46306
Judith Long		49161

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Judith Schiller	46609
Judith Schiller	46610
Judy Dickerson	21634
Judy Dickerson	21636
Judy Dickerson	49212
Judy Dickerson	49213
Judy Epstein	21759
Judy Epstein	49262
Julia Dolan	46838
Julia Dolan	46839
Julie Aho	46642
Julie Aho	46644
Julie Hager	38126
Julie Odendahl	46405
Julie Odendahl	46406
Julie Schueller	46270
Julie Schueller	46271
Julie Stradel-Graf	22199
Julie Stradel-Graf	46634
Julie Stradel-Graf	46635
Julie Stradel-Graf	49438
Kalyan Groen	48068
Kalyan Groen	48441
Kalyan Groen	52468
Karen Graham	21924
Karen Graham	49330
Karen Hatlestad	43592
Karen Hatlestad	43593
Karen Lehto	46260
Karen Lehto	46261
Karen Skaja	45244
Karen Skaja	45245
karey degnan	44403
karey degnan	44404
karey degnan	44408
karey degnan	44409
Karin Van Dyke	46201
Karin Van Dyke	46202
Karin Wells	44918

Sender Name		Submission ID
34 Water Legacy: Health Risks		
Karl Hochsprung		48085
Karl Hochsprung		48444
Karl Hochsprung		52471
Karl Klinker		44294
Karl Klinker		44296
Karol Morton		46295
Karol Morton		46297
Karolyn Redoutey		46767
Karolyn Redoutey		46769
Karrie Vrabel		22200
Karrie Vrabel		46272
Karrie Vrabel		46273
Karrie Vrabel		49439
Kate Crowley		21639
Kate Crowley		46744
Kate Crowley		46745
Kate Crowley		49216
Kate Reinhardt		38221
Kate S		38109
Kate S		44626
Kate Thomas-Tielke		22157
Kate Thomas-Tielke		22165
Kate Thomas-Tielke		49425
Kate Thomas-Tielke		49427
Kathleen Conger		45802
Kathryn Gilje		44780
Kathryn Mosher		38544
Kathryn Mosher		44908
Kathryn Mosher		49159
Kathryn Null		21847
Kathryn Null		45945
Kathryn Null		49302
kathryn olmstead		22197
kathryn olmstead		22202
kathryn olmstead		49436
kathryn olmstead		49440
Kathy Murn		21985
Kathy Murn		49354
Katie Krikorian		21843

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Katie Krikorian	49298
Katie Rossiter	46184
Katie Rossiter	46185
Katrina Tibbs	46081
Kay Beams	45520
Kay Koelkerwestby	38521
Kay Koelkerwestby	49149
Keith Liuzzi	45795
keith monsaas	44831
Keith Thompson	38571
Keith Thompson	45119
Keith Thompson	45120
Keith Thompson	49168
Kelly Byrd	46726
Kelly Byrd	46731
ken Swanson	47524
Kenneth Schubert	46163
Kenneth Schubert	46164
Kent Fadness	47973
Kent Fadness	48462
Kent Fadness	52489
Kevin Hill	48116
Kevin Hill	48447
Kevin Hill	52474
Kevin Stueven	45033
Kim Kokett	46041
Kim Rezek	46958
Kim Rezek	46959
Kim Wilczyk	46345
Kim Wilczyk	46347
kimberly nieman	46259
kimberly nieman	46262
kirk mccall	46794
kirk mccall	46797
Krehl Stringer	21811
Krehl Stringer	49286
Krista Munster	21885
Krista Munster	46746
Krista Munster	46748

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Krista Munster	49316
Kristen Arden	45539
Kristie Mandel	48102
Kristie Mandel	48400
Kristie Mandel	52427
Kristin Pursell	45620
Kristin Pursell	45622
L Carroll	46504
L Carroll	46506
Landon DeWitt	46738
Landon DeWitt	46743
Lani Jacobsen	21882
Lani Jacobsen	49313
Larry Bogolub	21654
Larry Bogolub	49223
Larry Hennis	46282
Larry Hennis	46283
Larry Nelson	46054
Larry Olson	48003
Larry Olson	48346
Larry Olson	52373
Laura Farwell	38231
laura hedlund	43953
laura hedlund	43955
Laura Malwitz	21798
Laura Malwitz	49276
Laura Schauland	38289
Laureen Guyer	38152
Lauren Graves	45066
Lauren Graves	45068
Laurence Margolis	21757
Laurence Margolis	45947
Laurence Margolis	49261
Lawrence Johnson	22058
Lawrence Johnson	49377
Lawrence Krantz	22069
Lawrence Krantz	49382
Leatrice McEvilly	38564
Leatrice McEvilly	49166

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Leigh Pomeroy	46366
Leigh Pomeroy	46367
Leila Jindeel	48071
Leila Jindeel	48368
Leila Jindeel	52395
Len Jennings	21810
Len Jennings	21813
Len Jennings	49285
Len Jennings	49288
Lent Bryan	38234
Les Stern	46118
Les Stern	46120
Leslie Black	22115
Leslie Black	49395
Leslie Dee	38556
Leslie Dee	49163
Lex Horan	46516
Lex Horan	46518
Linda Glisson	44855
Linda Hayes	46134
Linda Hayes	46136
Linda Lee	44821
Linda Meyers	38582
Linda Meyers	49172
Linda Sperber	47416
Linda Tauer	45602
Linda Tauer	45603
Lindsey Berglund	47930
Lindsey Berglund	48381
Lindsey Berglund	52408
Linville Doan	46279
Linville Doan	46320
Lisa Bergerud	22208
Lisa Bergerud	49446
Lisa Hardy	46215
Lisa Hardy	46216
Lisa Ragsdale	45526
Lisa Ringer	46239
Lisa Ringer	46240

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Lisa Wersal	38316
Lisa Wersal	46139
Lisa Wersal	46140
Liz Rauer-Kramer	44818
Liz Welch	45004
Logan Fulmer	45846
Lois Brink	43364
Lois Brink	43365
Lois Dalsin	43094
Lois Dalsin	43095
Lois Dalsin	47801
Lois Dalsin	47802
Lonie Miesner	22147
Lonie Miesner	45927
Lonie Miesner	49415
Loren Stoner	21875
Loren Stoner	21876
Loren Stoner	45532
Loren Stoner	49309
Loren Stoner	49310
Loretta Holscher	21717
Loretta Holscher	49245
Lori Beron	46845
Lori Beron	46850
Lori Blauwet	46064
Lori Huska	22134
Lori Huska	49403
Lori Schleicher	46770
Lori Schleicher	46775
Lori Steckervetz	38195
LuAnn Hansen	46831
LuAnn Hansen	46836
Lucas Busta	46541
Lucas Busta	46543
Lyn Clark Pegg	21588
Lyn Clark Pegg	49195
Lynda Pauling	46461
Lynda Pauling	46462
lynn henderson	21572

Sender Name	Submission ID
34 Water Legacy: Health Risks	
lynn henderson	21573
lynn henderson	49190
lynn henderson	49191
Lynn Lang	21889
Lynn Lang	45151
Lynn Lang	45152
Lynn Lang	49319
M Richardson	47893
M Richardson	48318
M Richardson	52346
M. McGarvey	21918
M. McGarvey	21920
M. McGarvey	49327
M. McGarvey	49328
Mar Digat	47909
Mar Digat	48385
Mar Digat	52412
Marcai Heeter	21782
Marcai Heeter	49274
marcus lowry	46844
marcus lowry	46848
Marcy Lundquist	46603
Marcy Lundquist	46604
Margaret Fawcett	45867
margaret holmes	47865
margaret holmes	48394
margaret holmes	52421
Margaret Swanson	46250
Margaret Swanson	46251
Marge Morrissette	47707
Margi Preus	22150
Margi Preus	49418
Maria DOnofrio	48011
Maria DOnofrio	48379
Maria DOnofrio	52406
Marie Nickell	46809
Marie Nickell	46811
Marilee Lampman	46540
Marilee Lampman	46542

Sender Name		Submission ID
34 Water Legacy: Health Risks		
Marilyn Booton		38455
Marilyn Booton		49127
Mark anderson		38579
Mark Anderson		47907
Mark Anderson		48366
Mark anderson		49170
Mark Anderson		52393
Mark Bridge		21874
Mark Bridge		49308
Mark Churney		46083
Mark Churney		46087
Mark Johnson		46435
Mark Johnson		46443
Mark S. Roalson		21715
Mark S. Roalson		49243
Martha Baxter		38048
martha Baxter		46255
martha Baxter		46257
Martha Krikava		46757
Martha Krikava		46763
Martha Miller		22071
Martha Miller		46647
Martha Miller		46648
Martha Miller		49383
Martha Olzenak		46684
Martha Olzenak		46687
Martha Vest		21973
Martha Vest		46714
Martha Vest		46724
Martha Vest		49348
Marty Lemke		46116
Marty Lemke		46117
Mary Creighton		21760
Mary Creighton		46856
Mary Creighton		46858
Mary Creighton		49263
Mary E. Dosch		37906
Mary E. Dosch		38308
Mary E. Dosch		38311

Sender Name	Submission ID
34 Water Legacy: Health Risks	
mary garbutt	22064
mary garbutt	49379
mary hagen	46154
mary hagen	46155
Mary Kaeter	47540
Mary Kanuit	47849
Mary Kanuit	48343
Mary Kanuit	52370
Mary Lou Kriegl	44873
Mary Lou Kriegl	44874
Mary Lund	47575
MARY MCGILLIGAN	21599
MARY MCGILLIGAN	46210
MARY MCGILLIGAN	46211
MARY MCGILLIGAN	49199
Mary Mooney	46682
Mary Mooney	46686
Mary Scott	21815
Mary Scott	49289
Mary Smith	21880
Mary Smith	46096
Mary Smith	46100
Mary Smith	49312
Mary St. Michael	22194
Mary St. Michael	22196
Mary St. Michael	49435
Matt Johansen	46026
Matt Johnson	22112
Matt Johnson	44619
Matt Johnson	49394
Matt M	45124
Matt M	45125
Matt Ryan	21710
Matt Ryan	49239
MATTHEW JOHNSON	45725
Matthew Karl	46847
Matthew Karl	46851
Matthew Schaut	45698
Matthew Schaut	45701

Sender Name		Submission ID
34 Water Legacy: Health Risks		
Maureen Brennan		45859
maurine stenwick		46786
maurine stenwick		46789
Meg Anderson		46788
Meg Anderson		46791
Melissa Bayne		45266
Melissa Bayne		45267
mercy myers		46204
mercy myers		46207
Michael Allen		46580
Michael Allen		46581
Michael Bowser		47918
Michael Bowser		48314
Michael Bowser		52342
Michael Bunde		46380
Michael Bunde		46381
Michael Denery		38441
Michael Denery		49124
Michael Hartley		21919
Michael Hartley		49329
Michael Kinney		21969
Michael Kinney		21970
Michael Kinney		49346
Michael Kinney		49347
Michael McNeil		46023
Michael Moore		46673
Michael Moore		46674
Michael Nordin		21601
Michael Nordin		49201
Michael Rivard		46313
Michael Rivard		46314
Michael Rowan		45157
Michael Rowan		45159
Michael Sikora		46605
Michael Sikora		46607
Michel Pleau		46591
Michel Pleau		46592
Michele Jimenez		44079
Michele Jimenez		44080

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Mike and Jane Conrad	22187
Mike and Jane Conrad	49430
Mike Dahlheimer	22033
Mike Dahlheimer	49363
MIKE LINK	21689
MIKE LINK	49232
Mollie Strom	46029
Mona Delly	21987
Mona Delly	49355
muriel kennedy	21837
muriel kennedy	49294
N. Selleck	46535
N. Selleck	46538
Najeeb Jindeel	45052
Najeeb Jindeel	45054
Najeeb Jindeel	45055
Najeeb Jindeel	45056
Nan Corliss	48060
Nan Corliss	48420
Nan Corliss	52447
nan langevin	46017
nan stevenson	21844
nan stevenson	21845
nan stevenson	21846
nan stevenson	46076
nan stevenson	49299
nan stevenson	49300
nan stevenson	49301
Nancy Alfuth	45678
Nancy Alfuth	45679
Nancy Giguere	47079
Nancy Giguere	47083
Nancy Hale	47953
Nancy Hale	48415
Nancy Hale	52442
Nancy Powers	45473
Nancy Smoley	46224
Nancy Smoley	46225
nancy vezner	46661

Sender Name		Submission ID
34 Water Legacy: Health Risks		
nancy vezner		46667
Naomi Conley		45435
Naomi Conley		45436
Naomi Nelson		45531
Natasha Villanueva		21600
Natasha Villanueva		49200
Ned Bouril		22080
Ned Bouril		49388
NEIL STECKER		43801
NEIL STECKER		43802
Nichole Parker		46779
Nichole Parker		46780
Nick Landherr		46480
Nick Landherr		46481
Nicklas Sandstrom		44884
Nicklas Sandstrom		44885
Nina Ishigaya		48117
Nina Ishigaya		48459
Nina Ishigaya		52486
Nina McKee		21707
Nina McKee		46377
Nina McKee		46378
Nina McKee		49236
Nora Nell Hamburge		21961
Nora Nell Hamburge		49342
Nora Smyth		46817
Nora Smyth		46821
Nora Wildgen white		44691
Pam Videen		21964
Pam Videen		46181
Pam Videen		46182
Pam Videen		49344
Pamela Johnson		47563
Pamela Olson		48040
Pamela Olson		48327
Pamela Olson		52355
Pamela Ulvestad		46582
Pamela Ulvestad		46583
pat becchetti		22027

Sender Name	Submission ID
34 Water Legacy: Health Risks	
pat becchetti	49358
pat helmberger	22159
pat helmberger	49424
Pat Makowski	44937
Pat Nudd	46747
Pat Nudd	46749
Pat Shea	21672
Pat Shea	21673
Pat Shea	49227
Pat Shea	49228
Pat Thielman	21959
Pat Thielman	44925
Pat Thielman	49340
Patricia keefe	21649
Patricia keefe	49218
Patricia Pool	47569
Patricia Richard-Amato	21981
Patricia Richard-Amato	45460
Patricia Richard-Amato	49353
Patrick Keiser	46803
Patrick Keiser	46806
Patrick Murn	22048
Patrick Murn	49371
Patti Eckert	46422
Patti Eckert	46423
patty Bracey	46416
patty Bracey	46420
Patty Skogrand	46466
Patty Skogrand	46467
Paul Densmore	22203
Paul Densmore	49441
Paul Gunther	45925
Paul Moore	21958
Paul Moore	49339
Paul Ryals	21758
Paul Ryals	49260
Paul Twedt	47931
Paul Twedt	48435
Paul Twedt	52462

Sender Name		Submission ID
34 Water Legacy: Health Risks		
Paula Deslauries		45599
Paula Deslauries		45600
Paula Hill		46401
Paula Hill		46402
Paula Murphy		46531
Paula Murphy		46532
Paula Okerstrom		21651
Paula Okerstrom		49220
Paula Swenson		46397
Paula Swenson		46399
Paula Tompkins		44856
Peggy Meisch		48091
Peggy Meisch		48460
Peggy Meisch		52487
Penne Holt		45792
Penny Warren		45426
Penny Warren		45430
Peter Harle		22120
Peter Harle		49398
Philip Rampi		38565
Philip Rampi		46730
Philip Rampi		46733
Philip Rampi		49167
Piper Schwarzkopf		46356
Piper Schwarzkopf		46357
R. Yaeger		21908
R. Yaeger		21909
R. Yaeger		49322
R. Yaeger		49323
Rachael Sand		46514
Rachael Sand		46515
Raechel DesCombaz		46792
Raechel DesCombaz		46793
raila luminae		46390
raila luminae		46393
Ramona Kopnick		38089
Ramona Kopnick		46833
Ramona Kopnick		46837
Randall Yungerberg		38513

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Randall Yungerberg	46586
Randall Yungerberg	46587
Randall Yungerberg	49147
Rebecca Branham	22148
Rebecca Branham	45002
Rebecca Branham	49416
Rebecca Kapsner	45321
Rebecca Kapsner	45322
Rebecca Keller	46235
Rebecca Keller	46236
Reed Heffelfinger	46362
Reed Heffelfinger	46368
Reid Hardenbergh	43691
Reid Hardenbergh	43698
Renae Lindahl	45154
Renae Lindahl	45155
Renee Plemmons	46781
Renee Plemmons	46783
Rexanne Warner	46828
Rexanne Warner	46830
Rhoda Gilman	38474
Rhoda Gilman	49133
Richard Cardinal	46409
Richard Cardinal	46411
Richard Colombini	46650
Richard Colombini	46654
Richard Fish	22108
Richard Fish	46574
Richard Fish	46575
Richard Fish	49392
Richard Goggin	44776
Richard Olson	45627
Richard Olson	45632
richard taylor	22039
richard taylor	49366
Rick Dahn	38541
Rick Dahn	49158
Ricki Disdier	43859
Ricki Disdier	43865

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Rita Caruso	46073
Rita Caruso Santamaria	21929
Rita Caruso Santamaria	49334
Robert Benito	44711
Robert Brose	48072
Robert Brose	48457
Robert Brose	52484
Robert Dahse	46129
Robert Dahse	46131
Robert Davis	21812
Robert Davis	49287
robert hudnut	47923
robert hudnut	48430
robert hudnut	52457
Robert McManus	48006
Robert McManus	48397
Robert McManus	52424
Robert Robbins	21960
Robert Robbins	49341
Robert Wohlberg	22156
Robert Wohlberg	46771
Robert Wohlberg	46776
Robert Wohlberg	49422
Robert Young Walser	46689
Robert Young Walser	46691
Robin Grinnell	22055
Robin Grinnell	49374
Robin Poppe	38379
Robin Rodrigue	47532
Robin Skeie	46486
Robin Skeie	46490
Roger Francis	46599
Roger Francis	46601
Roger Muellner	38465
Roger Muellner	49131
Rome Hutchings	38511
Rome Hutchings	49146
Ron Wetzell	38476
Ron Wetzell	49134

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Ronald Sitton	21722
Ronald Sitton	49249
Rosalie Stefanich	21975
Rosalie Stefanich	49349
Rose Knopff	48078
Rose Knopff	48456
Rose Knopff	52483
Rosemary Welch	47094
Rosemary Welch	47096
Rowan Glaser	44712
Roxanne Maki	48032
Roxanne Maki	48414
Roxanne Maki	52441
ROY JONES	45257
ROY JONES	45259
Russ Erickson	21906
Russ Erickson	49321
Ruth Milas	48136
Ryan Sbol	47898
Ryan Sbol	48325
Ryan Sbol	52353
Salina Amey	45470
Samuel Axner-Engel	21755
Samuel Axner-Engel	49259
Sandra G. McNichol	46630
Sandra G. McNichol	46631
Sandra Lien	46008
Sara Larson	21963
Sara Larson	49343
saraphine metis	38408
Scott Belknap	48087
Scott Belknap	48450
Scott Belknap	52477
Scott Bohler	44707
Scott Constans	48076
Scott Constans	48422
Scott Constans	52449
Scott Dulas	44308
Scott Dulas	44309

Sender Name		Submission ID
34 Water Legacy: Health Risks		
Scott Hed		22161
Scott Hed		49426
Scott Laderman		46464
Scott Laderman		46465
scott rand		46307
scott rand		46308
Sean MacManus		44896
Selena Akerley		47335
Shannon Hedren		46520
Shannon Hedren		46521
shannon lanning		21721
shannon lanning		46508
shannon lanning		46509
shannon lanning		49248
Shar Bjerke		46641
Shar Bjerke		46643
Sharon Anderson		43567
Sharon Anderson		43568
Sharon Clark		21800
Sharon Clark		21801
Sharon Clark		46093
Sharon Clark		46095
Sharon Clark		49278
Sharon Clark		49279
Sharon Coombs		21765
Sharon Coombs		49266
Sharon Fortunak		22186
Sharon Fortunak		46510
Sharon Fortunak		46513
Sharon Fortunak		49429
Sharon Root		21907
Sharon Root		49320
Sharron D		45530
Sheena Lor		21565
Sheena Lor		21566
Sheena Lor		45598
Sheena Lor		49184
Sheena Lor		49185
Sheila Dillon		22143

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Sheila Dillon	46737
Sheila Dillon	46741
Sheila Dillon	49411
Shelly Halvorson	46346
Shelly Halvorson	46348
Sherri Mann	46675
Sherri Mann	46677
Shonie Buenvenida	46296
Shonie Buenvenida	46298
Souriya Moua	38251
Stephanie Love	48070
Stephanie Love	48353
Stephanie Love	52380
Stephanie Stockton	37839
Stephanie Stockton	37840
Stephanie Stockton	45624
Stephanie Stockton	45626
Stephanie Van Dyke	46860
Stephanie Van Dyke	46863
Stephen Girard	46033
Stephen Hamre	21674
Stephen Hamre	46692
Stephen Hamre	46693
Stephen Hamre	49229
Stephen Schmidt	45641
Stephen Schmidt	45642
Stephen Wilcoxon	46299
Stephen Wilcoxon	46300
Steve Anthony	44992
steve heitzeg	46799
steve heitzeg	46805
Steve Koschak	45325
Steve Koschak	45326
Steve Tripp	46861
Steve Tripp	46865
Steve Weeks	45335
Steve Weeks	45338
Steven Amundson	22207
Steven Amundson	49445

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Steven Bailey	46533
Steven Bailey	46534
Steven Odden	46727
Steven Odden	46732
Steven Wiese	22079
Steven Wiese	44584
Steven Wiese	46740
Steven Wiese	46742
Steven Wiese	49387
Stirling Cousins	45930
Stu Farnsworth	21709
Stu Farnsworth	45455
Stu Farnsworth	49238
Sue Halligan	22082
Sue Halligan	45920
Sue Halligan	49390
Sue Harrington	47991
Sue Harrington	48439
Sue Harrington	52466
Sundae Morse	21761
Sundae Morse	45277
Sundae Morse	45278
Sundae Morse	49264
Susan Boorsma	21926
Susan Boorsma	49332
Susan Davis	46158
Susan Davis	46160
Susan Frame	38508
Susan Frame	49145
Susan Jordan	48053
Susan Jordan	48309
Susan Jordan	52337
susan korupp	21764
susan korupp	46191
susan korupp	46194
susan korupp	49265
susan langston	46476
susan langston	46477
susan mitchell	38157

Sender Name	Submission ID
34 Water Legacy: Health Risks	
susan mitchell	46063
Susan Scherer	22166
Susan Scherer	49428
Susan Wiste	38535
Susan Wiste	46679
Susan Wiste	46683
Susan Wiste	49155
Tahera Mamdani	45258
Tahera Mamdani	45260
Tammy Ashley	47920
Tammy Ashley	48429
Tammy Ashley	52456
Tanya Beyer	21620
Tanya Beyer	49207
Tanya Koester-Radmann	46632
Tanya Koester-Radmann	46633
Tanya Ryappy	44535
Tera Freese	38498
Tera Freese	49142
Terry Ford	21836
Terry Ford	49293
Terry J. Williams	21741
Terry J. Williams	49257
Terry Posch	21616
Terry Posch	21619
Terry Posch	49205
Terry Posch	49206
Theresa del Rosario	46230
Theresa del Rosario	46231
Theresa del Rosario	46233
Theresa del Rosario	46234
Theresa Rooney	46816
Theresa Rooney	46820
thomas rettler	46802
thomas rettler	46804
Thomas Sullivan	46624
Thomas Sullivan	46626
Tim King	38398
Tim King	44550

Sender Name		Submission ID
34 Water Legacy: Health Risks		
Tim Wallace		21582
Tim Wallace		49192
Timothy Hoelzel		46382
Timothy Hoelzel		46384
Tom Beltt		45422
Tom Beltt		45423
Tom Martens		45050
Tom Roth		45121
Tom Roth		45122
Tracy Stewart		21838
Tracy Stewart		49295
Treana Clara Mayer		22204
Treana Clara Mayer		49443
Tricia Runningen		21923
Tricia Runningen		49331
Tuesday Carlson		48092
Tuesday Carlson		48465
Tuesday Carlson		52492
Velma Miller		46522
Velma Miller		46525
Verba Weaver		38472
Verba Weaver		49132
Verlaine H. Halvorsen		46266
Verlaine H. Halvorsen		46267
Vern Simula		45692
Vern Simula		45693
Vicki Englich		47997
Vicki Englich		48428
Vicki Englich		52455
vickie hocking		45148
vickie hocking		45150
Vicky Youmans		21711
Vicky Youmans		49240
Vincent Trovato		47926
Vincent Trovato		48418
Vincent Trovato		52445
Wanda Ballentine		45861
Warren Howe		21632
Warren Howe		38499

Sender Name	Submission ID
34 Water Legacy: Health Risks	
Warren Howe	49143
Warren Howe	49210
Wende Nelson	38532
Wende Nelson	49154
Wendy Hall	48051
Wendy Hall	48372
Wendy Hall	52399
William (Andy) Fisher	21848
William (Andy) Fisher	49303
William Clayton	46473
William Clayton	46474
william michel	46825
william michel	46829
William Nusbaum	38477
William Nusbaum	38479
William Nusbaum	46292
William Nusbaum	46293
William Nusbaum	49135
William Nusbaum	49137
William Rosenfeld	21596
William Rosenfeld	46758
William Rosenfeld	46764
William Rosenfeld	49196
willoe traver	46386
willoe traver	46387
Willow Feigum	46646
Willow Feigum	46651
Winifred Larsen	45418
Winifred Larsen	45419
Zac Lyons	45615
Zac Lyons	45616
Zach Pesch	38464
Zach Pesch	49130

Sender Name	Submission ID
36 Change.org	

Form Letter 36: Change.org
Dear Lisa Fay, Polymet's plan acknowledges that millions of gallons of polluted water will seep into the environment untreated, and the water they contain will need active treatment for hundreds of years. Polymet does not have a plan for mediating environmental disasters if they occur. Polymet's primary investors have a long history of environmental destruction and failure to clean up messes such as the BP oil spill. If any contaminated water is released (which Polymet acknowledges will occur), the wild rice crop will see severe negative effects. Wild rice is a cultural and economic staple to many native communities in Northern Minnesota. The majority of profits will not remain in the state of Minnesota, and Polymet provides insufficient details as to financial assurance needed to protect taxpayers in the future. Its not worth the risks, Poly-Met sulfide mining as currently planned should not occur in Minnesota. Minnesota's young people want a clean and vibrant future void of pollution. The youth say no to sulfide mining. Sincerely,

Anika Eide		46921
Bonnie Vesper		47213
Clarence Chapin		43710
Dane McFarlane		46923
Don Kratsch		47206
Duane Gustafson		47210
Eric Wickiser		47200
Gary Fifield		46922
James Koschak		43959
Jane Koschak		44382
Janet Brown		47211
Janice Myers		47199
Linda Lewis		47205
Mari Ito		47207
Matthew Schaut		47202
Robert Bullis		47201
Stephanie Henriksen		47212
Stuart Knappmiller		47204
Zach Pesch		47203

Sender Name	Submission ID
37 Unknown (Letter C)	
Form Letter 37: Unknown (Letter C) Our family owns property and resides seasonally near Ely, Minnesota. We believe the PolyMet SDEIS is inadequate and that this destructive project must not proceed as currently proposed because of the 1) widespread and severe environmental damage inherent in the PolyMet project and 2) the failure of the SDEIS to include a cost/benefit analysis and specific provisions regarding amounts and sources of financial assurance. We believe the Supplemental Draft Environmental Impact Statement is inadequate in the following areas: 1) Economic Impacts -The SDEIS contains no cost/benefit analysis of the PolyMet mine. - The SDEIS does not say whether wages paid to mine employees will stay in Minnesota or whether they will go primarily to transient employees who will spend only a fraction of their income in Minnesota. The SDEIS does not discuss the impact of the loss of jobs when the price of copper declines and mining becomes unprofitable, although it acknowledges that such job loss is inevitable: "Mining-related employment is volatile and fluctuates from year to year due to the market price of commodities being extracted." SDEIS, 4-325—4-326- The SDEIS fails to assess the cost of unemployment benefits and other social services, increased crime rates, and other societal costs associated with volatility in employment. - The model used to calculate the alleged economic benefits of the mine does not take into account the costs to the environment; the displacement of other economic activity, including among other things tribal rights to hunt, fish, and gather under the 1854 Treaty; the infrastructure, government, and social service costs resulting from the mining; and the consequences of the unpredictable influx and outflow of mine employees. - What would be the costs for public infrastructure, lost opportunities to engage in other economic activities incompatible with mining, depressed real estate values, lost recreational opportunities, social upheaval, and perpetual clean-up that the public would be required to bear. 2) Permanent Water Pollution -PolyMet admits that water pollution by sulfuric acid and heavy metals will last for at least 500 years. -Not all of the polluted water will be captured for treatment. Annually, 11 million gallons of polluted seepage from the tailings basin will enter groundwater without being treated. -The SDEIS fails to adequately assess the long-term impacts of the pollution resulting from the release of this untreated water. -The computer model used by PolyMet may understate the actual pollution impact, because it has been shown to be inaccurate in representing current conditions for water quality around the mine site. 3) Absence of Planning for Inevitable Accidents and Failures -The SDEIS fails to provide contingency plans for the kinds of failures and mishaps that routinely occur in mining operations. During operations, at least 6-2 million gallons of polluted water would need to be treated every day. Pipeline spills, accidental releases, failure of water collection and treatment infrastructure, and tailings basins failures are virtual certainties. And because the provisions regarding financial assurance are so plainly inadequate (see below), the SDEIS does not tell us how the costs of responding to such failures will be covered. -The SDEIS provides no details on the impacts to water quality, wildlife, or human health if the water treatment system ceases operations at some time during the 500+ years during which the polluted water is being discharged. The Mine Plan Requires an Absurd and Unachievable Level of Monitoring and Maintenance for Many Centuries -Minnesota Rules 6132-3200 requires that the site must be maintenance-free at closure, but the PolyMet mining plan calls for at least 500 years of active water treatment. -526 acres of land, covered by more than 167 million tons of waste rock, would be covered by a plastic sheet and surrounded by a system that would supposedly collect contaminated seepage. All would require monitoring and maintenance constantly for hundreds of years to fix leaks, repair perforations, and remove deep-rooted plants. -A mining pit "lake" would require pumping to prevent the toxic brew of acid and heavy metals from spilling into the nearby Partridge River, and a tailings basin pond would require pumping to prevent spillage into tributaries of the Embarrass River. -The polluted water collection system, which includes miles of pipes, would require monitoring and maintenance for centuries. 4) Financial Assurance is Inadequate and Not Credible; The Taxpayers Could Be Left with Enormous Clean-Up Costs; Polluted, Devastated Water and Land; and Economic Disaster -The SDEIS contains no credible information about the actual cost of monitoring, maintaining, and replacing the equipment needed to treat polluted water for 500 years or more. It provides no details about the nature or guarantees of a financial assurance scheme that would remain viable for 500 years, yet it does acknowledge, disturbingly, the possibility of events such as "unanticipated liabilities" and "failure or limitations on the ability of third parties to pay." It does not attempt to explain how a corporate entity could realistically be held accountable over such an absurdly long period of time. -Finally, even though the SDEIS admits that water pollution will last for a minimum of 500 years, its financial assurance section is an exercise in generalities. The actual cost of water treatment, monitoring, maintenance, repair, and reclamation is completely unknowable. The SDEIS says that PolyMet estimates initial closure costs of up to $200 million, with post-closure monitoring and maintenance costs of up to $6 million annually. The Grand Portage Band of Ojibway concluded that PolyMet's numbers are vastly below the actual amounts required. The Grand Portage Band calculates that the minimum amount that should be set aside for financial assurance at the outset, assuming a 3% return on the amount, is $90-5 billion. In summary, we believe the PolyMet SDEIS is inadequate and that this massively risky project should not be allowed proceed as currently proposed.	
Abby Jones	48243
acmckibben	47160
Adam Weber	48284
Aditi Pradeep	48285
Alex Stangel	48266
Alex Sundell	48214
Alexander Frye	48230
Alexandra Hatch	48215

Sender Name	Submission ID
37 Unknown (Letter C)	
Alicia Johnson	48258
Amber Woitalla	48197
Amy Schwarz	43475
Andrea Lichtsinn	48246
Angela Wipf	48256
Anika Kildegaard	48251
Ann Santo	43707
Anna Breen	48299
Ben Hoidal	48194
Blake Gerold	48208
Bogdan Rylski	48220
Brady Garvin	48244
Brandon Moody	48227
Brenan Cain	48236
Brendanf Davies	48228
Brian Romsdahl	48265
Brianna Christian	48225
Britta Haseman	48270
Brooks Halliday	48186
Bryn Shank	48254
Caitlyn Horsch	48292
Carla Feldhamer	45594
Caryn Xue	48241
Chara Barke	48224
Cheyenne Pyan	48277
Christy Hicks	48248
Collin Sandoe	48272
Concerned Citizen	48249
Corie Mckibben	47162
Daniel Haller	44270
Dave/Lynn Horwath	39156
David Blondin	48233
Davis Grilley	48280
Dominique Boczek	48288
Eli Goyke	48182
Elisa Edelstein	48283
Emily Bullivant	48294
Emily Wick	48201
Emma Zapchenk	48231

Sender Name	Submission ID
37 Unknown (Letter C)	
eric evenson	48196
Eric Sannerud	48253
Erica Heberer	48223
Eva Shellabarger	48261
Evan Reller	48211
Evelina Knodel	48267
Gilman Miller	44008
Greta Berger	48217
Haley Van Cleve	48301
Hannah Field	48274
Hannah Gelle	48242
Hannah Saunders	48273
Ian Miles	48195
Jack Jepsen-DeSpiegelaere	48204
Jackie Becker	48212
Jacob Mitchell	48209
Jane Amundson	45340
Jane Blockhus	39343
Janine Cashman	48185
Jayce Koester	48213
Jeff Lyman	43121
Jeff Powell	48183
Jennifer Steffen	48200
Jillian Jacobsen	48298
jmhedin	45171
John Rust	48218
Jonathan McJunkin	48245
Jordan Wente	48289
Julia Kallenberg	39025
Julia Kallenberg	39033
Julia Reich	48216
Julia Valero	48202
Julie Bonham	48181
Julio Alfonso	48207
Karly Schuman	48269
Kate Ritger	43500
Katelynn Eggler	48239
Katherine Rank	48191
Kathryn McMurray	44181

Sender Name	Submission ID
37 Unknown (Letter C)	
Katie Ledermann	48291
Katie Mercer-Taylor	48193
Katy Evenson	48293
Keely Scheetz	48235
Kelli Hamilton	48268
Kristian Nyberg	48302
Kristin Goodson	48287
Kristin Sawyer Lyman	43713
Kyle Meagher	48286
Laura Nelson	48188
Lauren Kramer	48190
Leah Enter	48271
Leah Soll	48229
Leewana Thomas	48295
Lita Beach	48247
Liz Vogel	43468
Logan Anderson	48219
Louis Mielke	48199
Lucas Green	48198
LynnAnne Vesper	38806
LynnAnne Vesper	38810
Maria Langholz	48297
Mary Schuster	48226
Megan Elizabeth	48206
Michelle Anderson	48260
Michelle Mattson	48221
Mike McGill	39236
Mike Porter	45246
Minah Kim	48192
Molly Grove	48300
Natalie Fine	48187
Natalie Hoidal	48281
Nathan Haseman	48255
Nathan Michielson	48279
Nathaniel Brown	48184
Nic Jo	48296
Nick Ryan	48240
Nidhi Sharma	48257
Norma Thompson	48252

Sender Name	Submission ID
37 Unknown (Letter C)	
Paul Correa	48232
Paul Schurke	47232
Phill Kelly	48250
Raine Marhula	48238
Rebecca Carlson	38709
Rebecca Krasky	48262
Renee Hoppe	48276
Ryan Mason	48282
Sam Gill	48222
Sami Moe	48189
Sandy	47501
Seth Schramm	48234
Shawn Reagan	48210
shawnna stennes	48259
Sheila Franzen	48263
Shelby Colburn	48237
Shira Breen	48264
SOphina Khan	48278
Stephanie Burras	39383
Steven Amundson	46156
Steven Laumb	46153
Susan Schurke	43723
Tara Westerlund	48203
Taylor Evansen	48180
Taylor Hays	48275
Trey Goodsell	48205
Tyler Teggatz	43208
Yasiu Kruszynski	48290

Sender Name		Submission ID
38 Water Legacy: Underestimated Base Flow (A)		
Form Letter 38: Water Legacy: Underestimated Base Flow (A) Please reject the PolyMet NorthMet SDEIS as inadequate and acknowledge that the PolyMet open-pit sulfide mine plan would have unacceptable environmental impacts on surface and ground water quality for hundreds of years, if not forever. I'm also sending a copy of my letter to the U.S. Environmental Protection Agency. In my opinion, the PolyMet SDEIS and the PolyMet sulfide mine plan still deserve a failing grade and both should be rejected. Recent news of internal DNR documents showing that base flow at the mine site was seriously underestimated confirms my opinion. Neither the SDEIS nor the sulfide mine project are based on good science. The PolyMet SDEIS relies on a number of improper and unsupported assumptions to minimize the threats of the sulfide mine plan and wastes on drinking water, surface water, wild rice, mercury contamination of fish and human health. The SDEIS must be redone, because its rosy predictions are completely unreliable and its methods conceal, rather than analyze environmental impacts. Here are a few critical failures: • The SDEIS must be redone to use a reasonable calculation of the amount of groundwater flow in the Partridge River watershed. Both tribal hydrologists and MDNR staff have determined that the real baseflow is two to three times higher than the number used in the SDEIS. Baseflow affects pollution seepage and impacts on wetlands and streams. • The SDEIS must be redone to use a reasonable range of probabilities for the collection of polluted seepage from the Category 1 waste rock pile and the tailings piles, rather than just choosing one very optimistic number. The assumption that more than 99% of total seepage will be captured from the tailings basin (SDEIS, p. 5-159) has no support in the real world, yet allows PolyMet to minimize threats that wild rice, fish and human health will be harmed by tailings basin discharge. • The SDEIS must be redone using accurate and complete predictions about effects on pollution seeps of fault lines and fractures under the mine site, the tailings basin and the proposed HRF waste dump. Geological survey maps and PolyMet's own reports for the Canada stock exchange reveal significant faults and fractures. • The SDEIS must be redone to include a specific and reasonable plan for financial assurance of treatment for hundreds of years and to ensure that taxpayers won't end up paying for clean-up if the PolyMet mine or plant site becomes a Superfund site. The PolyMet SDEIS is not a fair and scientific analysis of water pollution threats. It is a biased document that relies on unjustified assumptions, conceals important facts, and won't allow members of the public to understand risks of accidents, failures or even routine violations of water quality standards. Please reject the SDEIS and the experiment in very long-term if not permanent pollution that the PolyMet sulfide mine plan would bring to Minnesota. This project would violate water quality standards for generations to come.		
acmckibben		47160
Amy Schwarz		43475
Ann Santo		43707
Carla Feldhamer		45594
Corie McKibben		47162
Gilman Miller		44008
Jane Amundson		45340
Jane Blockhus		39343
Jeff Lyman		43121
jmhedin		45171
Julia Kallenberg		39025
Julia Kallenberg		39033
Kate Ritger		43500
Kristin Sawyer Lyman		43713
Liz Vogel		43468
Mike Porter		45246
Sandy		47501
Stephanie Burras		39383
Steven Amundson		46156
Steven Laumb		46153
Susan Schurke		43723

Sender Name		Submission ID
38 Water Legacy: Underestimated Base Flow (A)		
Tyler Teggatz		43208

Sender Name	Submission ID
42 North Central States Regional Council of Carpenters	
Form Letter 42: North Central States Regional Council of Carpenters	
Aaron Klegin	53901
Abbie Pettit	53715
Abbie Plouff	53690
Abby Huber	53975
Abby Jones	53634
Abby Mallek	53652
Abdala Bashir	54006
Acoma Gaither	53712
Adam Klisch	53627
Adam Weber	53592
Adele Subola	54072
Adiroopa Mukherjee	53804
Aditi Pradeep	53678
Adrienne Testa	53850
Alan Morales	53809
Alanna Henry	53710
Alayna Johnson	53966
Alex Stangel	53679
Alex Benjamin	53730
Alex Sundell	53769
Alexander Frye	54100
Alexandra Hatch	53983
Alexandra Neuman	53657
Alexandra Vagac	53691
Alexandria Brown	53817
Alexis Boxer	53952
Ali Crall	53898
Alice Barnett	53947
Alicia Batt	53874
Alicia Johnson	53838
Alison Hoyer	54024
Allie Meyer	53637
Allison Bender	53754
Allison Chock	53620
Allison Christiansen	53739
Allison Herreid	53736
Alyssa Powell	54034
Amanda Drish	53856

Sender Name	Submission ID
42 North Central States Regional Council of Carpenters	
Amanda Hudinsky	53987
Amanda Nelson	54031
Amanda Wareham	53658
Amber Compo	53723
Amber Woitalla	53824
Amy Lamb	53759
Amy Shellabarger	53613
Andrea Doerr	53953
Andrea Lichtsinn	53832
Andrea Smock	53991
Andrew Kroska	53701
Andromakhe Harveaux	53717
Andy Pearson	53831
Angela Wipf	53685
Anika Kildegaard	53598
Anna Barrett	53664
Anna Breen	53800
Anna Kinzer	54048
Anna Levy	53764
Anna Lichtiger	53887
Anna Pratt	53917
Anna Sobocinski	54043
Anna Somberg	53653
Anna Topping	53692
Anna-Maria Sen	54104
Annika Peterson	53663
Audrey Blommel	53798
Audrey Reinhardt	54085
Austin Keller	54029
Barbara Hogan	54046
Ben Hoidal	53744
Benson Goins	53976
Bethany Hardenbrook	53725
Biftu Takele	53815
Blake Gerold	54050
Bogdan Rylski	53784
Bonnie Betts	53760
Brady Garvin	53959
Brandon Moody	53973

Sender Name		Submission ID
42 North Central States Regional Council of Carpenters		
Brendanf Davies		53923
Brennan Gensch		54030
Brian Craig		54033
Brian Romsdahl		53595
Brianna Christian		53643
Bridgette Hulse		53974
Britta Haseman		53839
Britta Dornfeld		54020
Brittany Grady		53791
Brittany Kimball		54000
Bronwen Eide		53957
Brooke Lyons-Justus		53980
Brooks Halliday		53751
Bryn Shank		53681
Cadence Nielsen		53777
Caitlyn Horsch		53615
Cara Webster		53891
Carly Denler		53990
Carly Dent		53601
Caryn Xue		54091
Celena Davis		53702
Chantel Sheppard		53792
Chara Barke		54105
Charles Brummitt		53854
Charlie Brummitt		53902
Charlie Diamond		53939
Charon Mousseaux		53693
Chase Taylor		54011
Chelsea Mayers		53602
Cheyenne Pyan		53593
Chris Wakefield		53665
Christian Pederson Behrends		53830
Christine Stott		53812
Christy Hicks		53689
Christy Newell		53921
Claire Finn		53885
Claire Henkel		53849
Claire Pitleck		53925
Claire Sylvestre		53937

Sender Name	Submission ID
42 North Central States Regional Council of Carpenters	
Clara McCurdy	53948
Clare Miller	53727
Clement Loo	54097
Cody Bigot	53816
Colleen Rutledge	53965
Collin Sandoe	53676
Concerned Citizen	53635
Cong Cai	54106
Connor Klausing	53741
Courtney Bachmann	54026
Cynthia Steinhauer	54019
Daly Johnson	53892
Daniel Mielke	53945
Danielle Bishop	53846
Darcy Fastner	53599
Darwin Dyce	54013
David Armstrong	54107
David Baldus	53814
David Barrett	53655
David Blondin	53968
Debra Luetmer	53742
Declan McCrory	53714
Deidre Hall	53748
Derek Whitcomb	54008
Devin Culhane	54052
Dominique Boczek	53867
Donyal E	54063
Dorothy Janovyak	53724
Duane Ninneman	53881
Dylan Linet	53603
Edwin Rosas	53734
Eli Goyke	53605
Elisa Edelstein	53842
Elise Moonen	53763
Elizabeth Braatz	53646
Elizabeth Just	53962
Elizabeth Lien	53823
Elizabeth Nedland	53942
Ellen Aiken	53880

Sender Name	Submission ID
42 North Central States Regional Council of Carpenters	
Ellery Wealot	53922
Ellie Hofer	53863
Emily Bullivant	53865
Emily Duma	53787
Emily Fohn	53903
Emily K	53607
Emily McCarthy	53890
Emily Smith	53766
Emily Sylvestre	53656
Emily Thomsen	53992
Emily Wick	54037
Emma Callery	54051
Emma LaChance	53752
Emma Reeves	53672
Emma Winegar	53970
Emma Zapchenk	54099
Emmaline Grove	53696
Emmet Kowler	53703
Eric Dymit	53924
Eric Evenson	54082
Eric Immler	53829
Eric Sannerud	53597
Erica Heberer	53998
Erika Gotcher	53913
Erin Brault	53931
Erin Daly	53833
Erin Green	53822
Erin Kvam	54028
Erin Spry	53771
Espoir DelMain	54059
Eva Shellabarger	53611
Evan Reller	53938
Evelina Knodel	53610
Flora Klein	54053
Geoff Perkins	53695
Grace Geier	53720
Grace Kellar-Long	53828
Grace Robertson	54093
Grace Scribner-O'Pray	53622

Sender Name	Submission ID
42 North Central States Regional Council of Carpenters	
Greta Berger	54003
Gwen Ellis	53820
Haley Gill	53783
Haley Van Cleve	53699
Hanna Svoboda	53776
Hannah Edstrom	53713
Hannah Field	53682
Hannah Garrett	53900
Hannah Gelle	53649
Hannah Goemann	53589
Hannah Kranz	53738
Hannah Langr	54074
Hannah Saunders	53618
Hannah Shryer	54062
Hannah Specht	53895
Hannah Sweet	54054
Harrison Beck	53963
Hazen Fairbanks	54055
Heather Friedli-Ratzlaff	53614
Heather Hilgendorf	53862
Hector Garcia	53757
Henry Kellison	53886
Henry Megarry	54049
Henry Steinhauer	54086
Ian Miles	53879
Isaac Olson	54009
Jack Jepsen-DeSpiegelaere	53949
Jackie Becker	54066
Jacob Mitchell	53797
Jacob Sturdevant	53794
Jade Beauclair	54081
Jamaal Cummings	53995
James Leitschuh	53660
James Sugar	53836
Jane Nolan	53687
Janine Cashman	53907
Jared Jerzak	53591
Jasmine Warren	53625
Jason Bender	53930

Sender Name	Submission ID
42 North Central States Regional Council of Carpenters	
Jayce Koester	53753
Jeff Kaplan	53883
Jeff Powell	53859
Jeffrey Perala-Dewey	54018
Jenn Close	54047
Jennifer Schille	54005
Jennifer Steffen	53954
Jeremy Facklam	53624
Jeremy Skoler	53647
Jessa Sigurdson	53971
Jessica Benson	53707
Jessica Coggins	53711
Jessica Hemmer	53851
Jessica Ostrov	53735
Jessica Platt	53897
Jessye Rodgers	53644
Jillian Duffy	53731
Jillian Jacobsen	53621
Jingyang Zheng	53819
Joan Kahle-Berger	53662
Joe Rutkiewicz	54068
Joey Daniewiczi	53632
John Brockgreitens	54038
John Garrett	53834
John Garrett	54010
John Rust	54061
John Scarr	53631
John Smith	54017
Jolene Brink	54075
Jonah Lazarus	53847
Jonathan McJunkin	53910
Jordan Wente	53844
Joseph Brandl	54040
Joseph Loeffler	53762
Joseph Melby	53994
Josh Marcus	53904
Judy Moses	53835
Julia Kloehn	53666
Julia Kuebelbeck	53728

Sender Name	Submission ID
42 North Central States Regional Council of Carpenters	
Julia Valero	53671
Julia Reich	53933
Julian Childs-Walker	53899
Juliann Skarda	53950
Julie Drennen	53600
Julio Alfonso	53943
Justin Halverson	53668
Justine Jones	54001
Kari Bull	53604
Kari Smerud	53941
Karl Beck	53985
Karla M	53896
Karly Schuman	53870
Kate Lane	53808
Kate Stetina	53697
Katelynn Eggler	53914
Katherine Rank	54021
Katheryn Jarrett	53986
Katie Ledermann	53761
Katie Mercer-Taylor	54087
Katie Vosberg	54094
Katy Evenson	53843
Kayla Kampa	53722
Kayla Rushing	53982
Kayla Westerlund	53912
Kayley Siekmann	53645
Keely Scheetz	53988
Kelli Hamilton	53683
Kelly Fischer	53908
Kelsey Jopp	54103
Kennedy Erdmann	53946
Kenzey Jehoich	53716
Kiersty Jehoich	53778
Kristen Peterson	54076
Kristian Nyberg	53639
Kristin Goodson	53700
Kristin Stivers	53781
Kyle Meagher	53616
Laina Breidenbach	53882

Sender Name	Submission ID
42 North Central States Regional Council of Carpenters	
Laura Jones	54016
Laura Loucks	54069
Laura Nelson	53889
Laura Newton	53648
Lauren Crane	53650
Leah Enter	53594
Leah Soll	53993
LeAndra Brookins	53799
Leewana Thomas	53845
Libby London	53960
Lily Bane	54090
Lindsey O'Leary	53996
Lita Beach	53877
Liz Ratcliff	54079
Liz Reach	53786
Lizz Dean	53750
Logan Anderson	53708
Logan Brion	53940
Lori Thompson	53873
Louis Mielke	53623
Lucas Giese	53956
Lucas Green	53737
Luci Riffel	54012
Lucia Childs-Walker	53861
Luke Mielke	53848
Mackenzie Crumb	54073
Maddy Lerner	53726
Madeline Gould	53955
Madeline Myhre	54101
Madeline Scott	53651
Madeline Youakim	53919
Mae Goodrich	53789
Maegan Anderson	53782
Maggie Miller	53749
Maggie Sandvig	54083
Maia Dalager	54002
Marcus Langevin	53997
Margaret Boles	53905
Margaret Kirsch	53932

Sender Name	Submission ID
42 North Central States Regional Council of Carpenters	
Mari H-E	54022
Maria Fleck	53755
Maria Langholz	53709
Marissa Johnson	53878
Marlys Mandaville	53969
Martha Mulcahy	53810
Marti McAllister	53806
Mary Garcia	53811
Mary Jane Brummitt	54045
Mary Koski	53972
Mary Schuster	53779
Mathea Krogstad	53826
Matt Boys	54058
Matt Kazinka	54060
Meagan Rollins	53864
Megan Elizabeth	53758
Melanie Senum	54088
Melissa Feinman	53674
Mia Tornatore	53893
Michael Anderson	53636
Michael Anderson	53989
Michael Engler	53733
Michael Stoesz	53719
Michael Swift	53796
Michael Wallace	53688
Michaela Neu	54092
Michaelk Moen	53860
Michelle Anderson	53680
Michelle Anderson	54089
Michelle Mattson	53978
Michelle Schamp	54067
Mikaela Robertson	54042
Miles Larson	53876
Minah Kim	53884
Mira Ensley-Field	53888
Miranda Adams	53659
Miranda Bridgeman	54027
Misha Loeffler	53802
Molly Donovan	53984

Sender Name		Submission ID
42 North Central States Regional Council of Carpenters		
Molly Grove		53866
Morgan Pothast		54108
Nancy Grubb		53807
Naomi Borowsky		53958
Natalie Fine		53853
Natalie Hoidal		53642
Natasha Miller		54102
Nathan Doolittle		53977
Nathan Haseman		53612
Nathan Michielson		53617
Nathan Perfetti		53929
Nathan Torell		53694
Nathaniel Brown		53894
Nic Jo		53640
Nicholas Honer		53772
Nicholas Kositzke		54064
Nick Griffiths		53999
Nick Ryan		53827
Nicole Deziel		53916
Nidhi Sharma		53872
Noah Kirkland		53705
Noah Shavit-Lonstein		53743
Norma Thompson		53837
Olivia Bennett		53638
Olivia Ilgar		53801
Patricia Dana		54041
Patrick Walsh		54057
Paul Correa		53793
Paul Granaas		54096
Paul Youngblom		53740
Pengxeu Thao		53944
Peter Boever		53821
Peter Crooks		54036
Peter Kvale		54071
Phill Kelly		53718
Praloy Carlson		53915
Rachel Eckert		53670
Rachel Haile		53795
Rachel Perry		53675

Sender Name	Submission ID
42 North Central States Regional Council of Carpenters	
Rachel Van Allen	54039
Rahel Forrest	54095
Raine Marhula	53964
Rebecca Krasky	53684
Rebecca Salter	53619
Reed Larsen	54004
Reid Ronnander	53951
Renee Hoppe	53841
Ricardo Rojas	53936
River Ostrow	54015
Rob Thurston	53780
Robert Meier	53773
Robin Livermore	53706
Roland Welter	54014
Ross Penning	54025
Ruby Levine	53608
Ryan Coons	53875
Ryan Ericson	53629
Ryan Mason	53868
Sadaf Pruitt	53667
Sai Hotung	54032
Sam Gill	53928
Sam Neubauer	53732
Samantha Modrak	54035
Sami Moe	53746
Samuel Basic	53935
Samuel Daniewicz	53775
Sandra Newgal	53927
Sanjay Dhir	53661
Sarah Barton	53729
Sarah Bresnahan	53756
Sarah Kvale	53767
Sarah Stockslager	53813
Sarah Thiede	53669
Saskia Zinn	53967
Savanna Richter	54078
Sean Indrelie	53981
Seth Loeffler-Kemp	53745
Seth Schramm	53918

Sender Name		Submission ID
42 North Central States Regional Council of Carpenters		
Shana Rubenstein		53855
Shannon Jordan		53673
Sharice Fontenot		53926
Shawn Reagan		53774
Shawnna Stennes		53596
Sheila Franzen		53871
Shelby Colburn		53790
Shelly Stein		54065
Shira Breen		53840
Sidney Paulson		54070
Siena Leone-Getten		53788
Simone Anzion		53961
Simone Childs-Walker		53858
Sofia Logan		53911
Sonia Ellison		53686
Sonia Pollock		53609
Sonny Komaniecki		53654
Sophia Showalter		53721
Sophia Usow		53906
Sophina Khan		53677
Sophinieng Chea		53818
Spencer Perrone		53825
Spencer Stachowski		54007
Stephanie Cotherman		53852
Stephanie Shimota		54044
Stephen Delahunt		53698
Steve Wick		53920
Steven Boraas		53857
Suzanne Hanle		54023
Talula Pontuti		53765
Tara Westerlund		53626
Taryn Manthey-Logan		53934
Taya Beattie		53747
Taylor Hays		53869
Taylor Nordby		53979
Theresa Kennedy		54080
Thomas Neumiller		53770
Tiernan Lenus		53590
Tim Sheehan		53785

Sender Name	Submission ID
42 North Central States Regional Council of Carpenters	
Tori Cress	53768
Treana Mayer	54077
Trey Goodsell	54056
Troy Goodnough	54084
Valerie Skaalrud	53606
Vera Davis	53805
Walter Anfang	54098
Whitney Adrian	53628
Will Lutterman	53909
William Harrington	53803
William White	53633
Yasiu Kruszynski	53641
Yu Ting Xiao	53704
Zhe Yu Lee	53630

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Form Letter 43: I Support PolyMet Form Cards	
(Family) Davis	52664
A Fredrickson	53575
Aaron McLeod	52683
Aaron Rodlund	52996
Aaron Theisen	53416
Abbabiye Kabeto	53160
Adam Chenoveth	53115
Adam Fleischhacker	53129
Addy Scrimgeour	52897
Aden Lungstrom	53228
Ahreanna Chandler	53189
Aiarif Karil	52991
Ainsley Yee	53444
Aisling Doheny	53131
Alaiana Olson	52888
Alan Berg	52984
Alberta Hlesumah	52791
Alec Akuloff	53437
Alec Kloss	53413
Alex Anderson	52945
Alex Anderson	53221
Alexander Johnson	52950
Alexis Adu-Bobi	52902
Alexis Berke	53371
Alexis MacManus	52695
Aliceon Stillman	53263
Alimasi Kajunju	53463
Alisha Rohlf	53276
Alison Sielaff	53044
Alli Van Sloun	53412
Allie Holmdahl	52779
Allison Hatz	53425
Allison Hoffman	52708
Allison Kuhnell	52905
Allison Maki	53174
Alyssa Wargin	53420
Amanda Bockovich	52645
Amanda Borgren	53481

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Amanda Taylor	52900
Amanda Vogel	53039
Amanela Kral	53419
Amber Ammann	52992
Amber Greensky	53150
Amber Roerick	53191
Amelia Bergquist	52855
Amelia Wilcox	53252
Amy	52757
Amy Brooks	52699
Amy Johnson	53122
Ana Damsgard	52859
Andrea Eye	53090
Andrea Mykel	52776
Andrea Samuelson	53032
Andrew Johnson	52844
Andrew Ambrosius	52622
Andrew Brownson	53185
Andrew Grikstas	52863
Andrew Hevero	52866
Andrew Lanz	52865
Andrew Leider	53071
Andrew Lund	53087
Andrew Myshan	53395
Andrew Sabir	52901
Andrew Turke	53536
Andy Engel	53539
Andy Kadlec	53144
Andy Radzak	52908
Angela Cowles	52782
Angela Krats	53211
Angie Toepper	52647
Anita Campbell	53193
Anita Goellner	52656
Anita Raymond	52848
Ann G. Miller	53462
Ann Ord	53207
Anna Alcorn	53181
Anna Fellegy	52686

Sender Name		Submission ID
43 I Support PolyMet Form Cards		
Anna Lee		52649
Anna Lieffring		52958
Anne Bleringer		53422
Anne Jasperson		52740
Anne Mayall		53464
Annie Bracey		52936
Anonymous		52745
anonymous		53219
Anthony Greene		52906
Anthony Keenan		53424
Anthony McMahon		53410
April Emig		52691
April Gerard		53236
April Snelson		53195
Arden Johnson		53133
Arick Levandoski		53266
Ariel Christensen		53312
Arthur Kropp		52761
Ashle Compton		53218
Ashleigh Rudlong		53101
Ashley Hinsch		53168
Ashley Leek		53315
Austin Christensen		52752
Austin Heston		52714
Ava Peterson		52641
Awaada Kisob		52794
Ban-Kyung Suh		52584
Barbara Miron		53323
Barry LeDoux		53301
Bee Chee		52759
Behiye Kodal		52801
Ben Cushing		53200
Ben LaFard		53166
Ben LaFond		53253
Ben Larson		52876
Ben Luso		52619
Ben Marsen		52697
Ben Tryon		52682
Benjamin		52720

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Beth Lynn	52733
Bethany Berry	52620
Beverly Berntson	53198
Biancca Dufour	53170
Bill Adamski	53553
Bill Miner	53391
Billie Anderson	52754
Blanche Wilcox	52843
Bnlyner Janckila	52899
Bob Gabres	52674
Bob Mehling	52737
Bob Olson	52702
Bob Winchell	53564
Bobby Brabec	53339
Brad Keller	53112
Bradley Oberg	52933
Brandi Balmer	52662
Brandon Hotchkiss	52804
Brandon Dahlin	53576
Brandon Love	52626
Brent Gurtek	53347
Brent Gurtek	53487
Brent Louis	53261
Brett Smith	53525
Brian Downing	52885
Brian Scott	53325
Brian Slater	52598
Brianna Menzemer	52785
Bridget Coughlin	53043
Bridgett Clarke	52667
Brooks Anderson	53507
Bruce Mork	53084
Bryan Wentworth	52836
Bryant Koosmann	53461
Bryce Henry	52706
Cal Wheeler	52980
Calvin Miner	53399
Candace Keane	53202
Carissa Nelson	53417

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Carl F. Bernwald	53281
Carlie Sweet	53402
Carly Mattson	53431
Carly Uphoff	52621
Carol McDonnell	52666
Carol Staffon	53489
Carol Sterner	53501
Caroline Broble	52919
Carter Duncan	53415
Casey Stepien	52987
Casey Virden	53382
Cassie Thieun	53042
Catherine Long	53231
Catherine Pharis	52698
Cathy Clusto	52635
Cathy Schyler	52763
Cecilia	53490
Celeste Kawulok	53019
Ceriah Juelin	52788
Chad Hofland	53232
Chaeyoung Lee	53445
Charles Moore	52967
Charmim McBeath	52824
Che Her	53024
Chelsea Retzer	53277
Chelsea Shafer	53258
Chelsey Beeler	53446
Chelsey Wingness	53124
Cheryl Dannenbring	53362
Chris Bacigalupo	53324
Chris Handsone	53209
Chris Jenkins	53287
Chris Perry	53265
Christa Cerra	53505
Christine Brezny	52583
Christine Daniel	53328
Christine Kloppenberg	52576
Christine Och	52797
Christy Illetschko	52751

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Chuck Koenig	52918
Cindy French	53367
Cindy Vu	52722
Claire Middlemist	53250
Claire Thompson	53255
Clinton Moen	53203
Cody Torgerson	53017
Cole Schafer	53096
Colin Middlemist	53120
Colin Ose	52999
Colleen Kluehn	52575
Collin Magnuson	53076
Constance Jacoby	53390
Corrinne Lamb	52922
Courney Bauer	52723
Courtney Ryan	52949
Courtney Targos	53400
Craig Bublitz	53338
Craig Moeller	53091
Craig Sterle	53486
Craig Tusher	53471
Cris Ndan	52862
Crystal Lambert	53176
Curtis Haglin	53027
Cyrus Almi	53002
Dain Silvola	52624
Dan Barron	53504
Dan Berks	52591
Dan Campbell	53296
Dan Douner	53473
Dan Jandl	53430
Dan Nolan	53037
Dana	52614
Daniel Harren	53451
Daniel Weatherly	52943
Danielle Hoel	52951
Darlene Coffman	52818
Darlene Watson	52874
Darold Powers	52738

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Dave Fleischhacker	53117
Dave Johnson	52829
Dave Wadsworth	53418
Dave Zentner	53373
David Greenberg	53547
David Allen	52625
David Angell	52972
David D. Hoffman	53230
David Hanlon	53173
David Hutchinson	52975
David Lachman	53183
David Lee	53106
David Lewis	52835
David Poulin	53379
Deborah Ngoyi	52940
Denis Scuve	52840
Denise Heise	53245
Derek Debardner	53396
Derek W. Beck	53414
Derrick Marvin	53092
Devin Tonkin	53336
Devon Schutz	53375
Dexter Larsen	53344
Diana Moore	52966
Diane Eck	52917
Diane and Ronald Borgmann	52607
Diane Dickey	53292
Diane Kolquist	53352
Diane Pederson	53578
Diane Weber	53538
Dmitra Danilenko-Dixon	52743
Dola Jamus	53427
Don	53537
Don Formers	53065
Donald Little	52673
Doreen Hernesman	52653
Doreen Nyamwaya	53398
Doretta Reisenweber	53342
Doris Sampson	53372

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Dorothea Diver	53551
Doug Lane	53381
Doug Greenwood	53114
Duke Harrison	53443
Dustin Holman	53436
DyAnn Andybur	53360
Dylan Lee	52724
Dylan Lyons	52952
Ed Fuhs	53021
Edward Bouril	52849
Elaine Gaston	53497
Elaine Schmid	52931
Elaine Soderlund	52856
Elaine Terry	53246
Eldri Snow	53249
Elijah	52717
Elijah Jensen	52983
Elise Crowley	53457
Elizabeth Helstrom	53188
Elizabeth Johnson	53491
Elizabeth Lindeke	53571
Elizabeth Nathiue	52946
Elizabeth Saker	52652
Elizabeth Spence	52632
Ellen Emanoff	52841
Ellen Summerfield	53509
Ellie Rabold	53194
Elsie	52978
Elvin Jones	52789
Eme	52772
Emily Wartman	52879
Emily Kolodge	53070
Emily McNeill	52833
Emily Vikre	53137
Emma Dunn	53298
Eric Dietz	53119
Eric Pierre	53110
Eric Reed	52676
Erik	52770

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Erik Bruhnke	53256
Erika Wilson	53190
Erin Burke	52719
Erin Denny	52765
Ethelyn Kaim	53204
Etienne Lomband	52884
Eunice Galame	52712
Eunice Galamue	52792
Fait Fraken	52948
Faith Bradley	53475
Faith Murphy	53003
Foster Gilliland	53307
Fred Buckland	53587
G W Buckland	53584
Gael Entriuin	52819
Gail Cameron	53529
Gail Gilliland	53348
Garrett Busch	52989
Garrett Soper	52898
Gary Anderson	53363
Gary Tonkin	53142
Genea Pichotta	53349
Geneva Wychor	52768
George Knutson	53010
Geovanny Munoz	53377
Geradine Jorgensen	53468
Gerri Rogers	53018
Gina Holtgrave	53165
Gloria Hakkiln Johnson	52732
Greg Cole	53153
Gregg Hoffman	52693
Gretchen Proesch	53206
Gris Dahlm	53569
Gunhere Shim	52822
Guy Gordon	53222
Gwen Doffin	53138
Haley Berg	53056
Hannah Frey	52646
Hannah Koepke	53179

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Hannah Maert	52665
Hannah McRaith	53272
Hannah Rhoda	53442
Hannah Strichland	52747
Harold Nordin	53026
Harold Stevens	52692
Harrison Olk	52878
Heather Wright	52753
Heather Hinkel	53409
Heather Hubert	52995
Heather M. Erickson	53316
Heather Tinus	53270
Heidi Emley	52644
Helga Hefner	53542
Herman Roerick	52726
Hilda Powers	52633
Hill	53260
Hillary Barron	52642
Hillary Heiling	53450
Holly Anderson	53562
Holly Bowen Banley	52705
Holly Gruber	53376
Holly Pudwill	53406
Holtquist	53216
Honna Furo	53279
Hopkins	52713
Hunter Valbrecht	52694
Ian McCallister	52589
Ida	53063
Illegible	52775
Illegible	52825
Illegible	53053
Illegible	53058
Illegible	53064
Illegible	53073
Illegible	53075
Illegible	53081
Illegible	53502
Illegible	53534

Sender Name		Submission ID
43 I Support PolyMet Form Cards		
J. N. Re		52581
Jack Campbell		53305
Jackie Asuma		52875
Jackie Halberg		53380
Jackson Elliott		53118
Jacob Rooni		52955
Jacob Searl		52858
Jacob Froelich		52627
Jacqueline Falk		52696
Jake Williams		52802
Jake French		53029
James Frisbie		53560
James Heintzman		52599
James Norman		53167
Jamie Dobosenski		53072
Jamie Katzenmeyer		53435
Jan Ahlfs		53284
Jan Blevins		52816
Jan Karon		52962
Jan Kraemer		52938
Jan Murphy		52839
Jan Pavlisich		53262
Jane Aas		53514
Jane Cleave		52881
Jane Reed		53337
Janelle Carlson		53278
Janet		52771
Janet Buscko		53237
Janet Draper		52735
Janet Draper		52929
Janus Hilles		52828
Jasmine Deldio		53214
Jason Barney		53008
Jason Schafer		52730
Jay Christenson		52739
Jazmine Williams		53094
Jean Brandenburg		53559
Jean Chovan		53186
Jeanne Jewell		52944

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Jeanne Tonkin	52736
Jeff Durfee	53022
Jeff Durfee	53340
Jeff Strickland	52914
Jeffrey D. Pouliot	53411
Jen	52663
Jenna Schuldt	52610
Jenna Wagner	53433
Jennie O'Leary	52961
Jenny Carlenberg	53126
Jenny Gronseth	53097
Jeremy Fuentes	53078
Jeremy Nelson	53156
Jeremy Schrupp	53057
Jerome Challman	52883
Jerome E.	53217
Jerome Kwako	52744
Jerome Miller	53011
Jerry Challman	53369
Jerry Starr	53472
Jes Durfee	53023
Jess Koski	53241
Jessamy Schwartz	53257
Jesse Morrison	53069
Jessica Anderson	53386
Jessica Bortolus	53540
Jessica Christensen	53040
Jessica Falconer	53407
Jessica Goertzen	53268
Jessica Joyal	52990
Jessica Le	53034
Jessica Mantor	53333
Jessica Nelson	53568
Jessica Villeneuve	53151
Jessica Vork	53113
Jessy Tingehoff	52857
Jewel Bertzyk	53429
Jianli Yang	52864
Jill Bugbee	52742

Sender Name		Submission ID
43 I Support PolyMet Form Cards		
Jill Holmen		53358
Jim		53062
Jim Delangne		52655
Jim French		53366
Jim Gangl		53466
Jim Hutchinson		53572
Jim Melander		53248
Jim Smith		52638
Jim Smith		53332
Jireh Mabamba		53066
Joan Schulz		52600
Joan Slack		52661
Joan Tousiquent		53506
Joan Ursa-Borchert		53483
Joanna McCarol		53148
Jodi Polasky		53280
Jody L Gray		53583
Joe Brinkman		52684
Joel Dahl		52985
Joel Farkas		52887
Joel Farkas		52808
Joel Trally		52937
Joel Vikre		53145
Johannah Comee		52688
John Schmitt		53586
John and Nancy Nordin		53531
John Badger		52577
John Elias		52921
John Finkle		53364
John Ipien		53308
John Lind		52915
John Mulleneardley		52831
John Pichotta		53346
John Post		52869
John Sweezy		53212
John Thebarge		53335
John Zarins		52846
Jon Nelson		53282
Jon Vice		52970

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Jonathan Gall	53104
Jonathan Pin	52909
Jordan Kranick	53455
Jordan Ross	53458
Joshua Carlson	52690
Joshua Eades	52960
Joshua Macvey	52904
Joshua Williams	52803
Joy Johnson	52813
Judi Paulson	52820
Judith Long	52823
Julene Boe	53320
Julian Llevano	53467
Julie	53384
Julie Glowacki	52611
Julie Jeatran	53479
Julie Kohls	52954
Julie Madden	53558
Julie Mattson	53331
Julie Priole	52760
Justin	53178
Kabamba Ngoyi	52729
Kaelt Simpson	53432
Kaie Northouse	52893
Kaitlin Pieters	52851
Kaitlyn Allport	53159
Kallie Paulsen	52854
Karen Bergerson	53354
Karen S. Butcher	53227
Karl Beaster	52774
Kasandra	52659
Katalina Mara	53095
Kate Hagston	52842
Kate Mayo	52634
Kate Mensing	53299
Kate Meyer	53495
Kate Whittaker	52689
Kathleen Franzzn	53563
Kathrine Smith	53522

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Kathy Fuhs	53012
Kathy Oliver	53423
Kathy Smith	53554
Katie Filkins	52608
Katie Jo	53180
Katie Marshall	53545
Katie Michela	53404
Katie Vang	53036
Katy Scrimgeour	52896
Kay Hynn Fisher	53426
Kayla Brinkman	52710
Kayla Huck	52709
Kaylene Borne	53187
Keith Beveridge	52592
Kelli	53294
Kelly Amoth	53326
Kelly Baessler	53049
Kelly Weller	53116
Kelsey Ernste	53452
Kelsi Christensen	53041
Ken Maranowski	52677
Ken Borchert	53488
Ken Hanson	53300
Kent Peterson	52672
Keon Mostofi	52769
Kevin Manzlu	52787
Kevin Taralseth	52903
Kim	52721
Kim Dowell	52640
Kim Hyatt	53264
Kim Keelor	53482
Kjell Mann	53397
Koelene Aryidson Hicks	52767
Komaia Mohamud	52993
Kris Butts	52895
Krista Sivertson	52871
Kristen Dobosenski	53149
Kristen Hylenski	53157
Kristen Vetter	52764

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Kristi Johnson	52623
Kristin Lusiar	53477
Kristina Nelson	52850
Kristine Osbakken	53309
Kristine Wegerson	53321
Kyle Rask	52805
L. J. Lapinsky	53086
Lacey Frigaard	53533
Lance Gauer	52807
Larry and Pat Wood	53570
Larry Heise	53244
Larry Kraemer	52939
LaShaunda Newsom	52796
Laura Anderson	52755
Laura Brinkman	52685
Laura Gruhike	52613
Laura Kadwell	52595
Laura Schoessow	52651
Laura Schumack	53448
Laura Sutliff	53440
Lauren Flavin	52762
Lauren Merriam	52777
Lauretta Perry	53286
Leah Mohn	53107
Leander VanEss	53102
Leigh Wright	53155
Lexie Deal	52894
Liisa Beck	53147
Linda Herron	53361
Linda Krassau	52727
Linde Melcher	52974
Lisa Broderius	53239
Lisa Gasner	52920
Lisa Lokken	52981
Lisa Wentworth	52837
Lisa Wersal	53493
Lisa Wiesen	52873
Liurbo Towless	52959
Lizzie Esberg	53100

Sender Name		Submission ID
43 I Support PolyMet Form Cards		
Lizzy Farrell		52716
Logan Strandford		52701
Logon Von Has		53051
Lois Peterson		53503
Lora Rooni		52957
Lorelei Livesay		53476
Louis Asher		53508
Louise Eilery		52923
Lucas Lubke		52678
Lucas Rolfes		52799
Lucky Phousirith		52941
Luke Jacobs		52810
Luke Martin		53318
Luke Weiers		53285
Lynda Gikey		52953
Lynn Evenson		53561
M J Bugbee		53512
M. A. Starus		52679
Maddie Brandon		53172
Maddy Reynolds		52711
Madeline S. Wold		53215
Madeline Smith		53088
Madi Ranallo		53394
Madison Guhlke		52790
Madonna Ohse		53343
Maerin Gnghlan		52927
Maggie Campbell		53304
Maggie Janisch		52725
Maggie Jawbson		52892
Mai Chery Vue		53130
Maick Washburn		52973
Mallory Gerdes		52766
Manu Wilczek		53438
Maren Slater		52606
Margaret Fawcett		53480
Margaret Ingalls		53588
Margaret Oman		53469
Mari Trine		53393
Maria DeLeon		53454

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Marian Lansky	52979
Mariana Glitsos	53408
Marie Furgo	53314
Marie Zhuikov	53351
Marie-Claire Kirch	52637
Marika Bader-Grunow	53403
Marion London	53519
Marissa Davis	52734
Marissa Lasky	53521
Mark Fitzpatrick	53530
Mark Goellner	52657
Mark Hutchins	53368
Mark Nirdamier	53383
Mark Pass	52834
Mark White	52629
Mark Zimndy	52618
Marlene Anderson	53103
Marlys Groeninger	53546
Marten Hylin	53099
Martha Fagan	53355
Martin Moen	53141
Mary Campbell	53297
Mary Carlson	53543
Mary Dosch	53341
Mary Gallup	52602
Mary Heise	52968
Mary Kross	53567
Mary Olson	53082
Mary Patterson	53579
Mary Slattery	52969
Mary Traynham	53552
Mary Weatherby-Berg	53378
Mary Wovcha	53365
Mathew Wuebben	52728
Matt Lyman	52886
Matt Danielson	53089
Matt Dembosky	53079
Matt Koloski	53085
Matt Wasmund	52658

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Matt Weingart	53434
Matt Whittaker	52616
Matthew Onarheim	52812
Maurice	52700
Max Bockes	53074
Max Taubert	52680
Max Yang	52907
Maxwell Forster	52811
Megan Wallenberg	53449
Meghan	53317
Meghan Abrahamson	53093
Megin Nguyen	53050
Melissa Chiri	53498
Melissa Green	52798
Melissa Hernesman	52654
Melissa Wharton	52636
Melody Levin	53356
Merle Wovcha	53350
Miat Tesfai	52784
Michael Joyce	52780
Michael Lillegard	53238
Michael Mullins	53038
Michelle Johnson	53054
Michelle LeBeau	52826
Mike Bleninger	52853
Mike Nordin	53291
Mike O'Shea	53060
Mike Sorensen	53121
Mike Stattelman	53274
Mindy Ahler	53494
Miranda Steinmetz	53016
Mitch Newton	53080
Mitchel Sanchez	53288
Mitchell Kruse	53254
Mitchell Setterman	52669
Mitra Emad	53154
Molly Asp	53009
Molly Ehling	52648
Molly Morris	52660

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Morgan Badger	52578
Morgan Loth	53243
Nadhi Keoliye	53161
Nancy Cameron	52741
Nancy Creighton	53549
Nancy Dunn	53526
Nancy Elios	52924
Nancy Gruetzmacher	53199
Natassja Grangruth	53068
Nate Gervenark	53111
Nate Miller	52868
Nathan Burnevine	53428
Nathan Sorensen	53048
Nathlin	53453
Nicholas S. Cleary	53109
Nick Altobelli	53177
Nick Hamilton	53028
Nick Hamilton	53162
Nick Thunstrom	53046
Nicole Erickson	53175
Noah Stertz	52731
Norm Berghuis	53500
Norm Herron	53306
Norma Kaluza	52586
Nuradin Aliyi	53158
Olivia Johnston	53135
Ophus	53213
P. Baumgarten	53132
Pat Pearman	53006
Pat Tamman	53517
Patrice Bradley	53327
Patricia A. Nordin	53251
Patricia Buck	53143
Patricia Isakson	53387
Patricia Obrien	52912
Patricia Peters	53290
Patrick Smith	53439
Patty Rutka	53389
Patty Wright	52930

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Paul Walker	53535
Paul Frank	53555
Paul Laakso	53556
Paul Martineau	53334
Paul Roerick	52746
Paul Schonfeld	53353
Paula Okeefe	53492
Pauli Roerick	52670
Paxton Malecha-Norak	53302
Per Swenson	53359
Perry Middlemist	52585
Perry Middlemist	53005
Peter Aas	53515
Peter Nguyen	53247
Phil Peper	53225
Phllis Mead	53484
Phyllis Chucker	53518
Poanow Bhandorl	52861
Pocholo	53055
Pranav Bhandari	52998
R Smith	52615
R. L. Leino	52703
Rachael Finley	53164
Rachael Swedbern	53565
Rachel Goering	53083
Rachel Hannan	52997
Rachel Kindt	52783
Rachel Nelson	52986
Rachel Neverman	52594
Rachel Ramadhyani	53516
Rachel Ward	53388
Ray A. Hopp	53235
Rebecca Moore	53031
Regina Roemhildt	53007
Regina Weber	53566
Renee Herman	53511
Rhonda Eastman	53330
Richard Gustafson	53192
Richard Kollath	53152

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Richard Narum	53319
Richard Taylor	52926
Richard Ulkue	52910
Richard VonMetes	52877
Rick	53224
Rick Allen	53385
Rick Valento	52681
Riley Berg	52715
Riley Lemien	52758
Rob Anfinsen	53392
Robbie Eisenrich	53421
Robert Johnson	52814
Robert A. Johnson	53478
Robert Johnson	53527
Robert Koenig	53405
Robert Lyman	53197
Robert Sorensen	53548
Robert Stodola	52880
Roberta Tigerfuentes	52617
Robin Poppe	52580
Robyn Hanscom	53510
Roger Lips	53139
Roger Petry	53030
Ruby Wibe	53025
Ryan Gormley	53182
Ryan Groom	53105
Ryan Hicks	53289
Ryan Hoium	53242
Ryan Kennedy	53015
Ryan McCabe	53271
Ryan Puzel	52781
Ryan Smith	53045
Ryan Stutzman	52639
S Fries	53520
Sally and Tim Sawyer	53513
Sally Grames	53205
Sally L. Munger	53345
Sally Neverman	52597
Sam	53052

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Sam Anderson	52809
Sam Connolly	53541
Sam Huot	52628
Sam McLurry	52815
Sam Miltich	53544
Samantha Mundy	52947
Samitra Ipina	53098
Samuel Hise	53004
Sandra Clarke	52590
Sandra Eller	52934
Sandra Van den Bosse	53370
Sandra Wagner	53283
Sandy Roggenkamp	52971
Sara Fuhs	52687
Sara Anderson	52793
Sara Corbett	52773
Sara Kettering	53447
Sara Reckard	53441
Sarah Degerstrain	52911
Sarah Factor	53532
Sarah Gunter	53329
Sarah Hinz	52612
Sarah Kriel	52942
Sarah Maxim	53125
Sarah Peterson	52596
Saran Stelzer	53201
Savanna Ellena	53459
Savanna Krassau	53047
Scot Bloomquist	53303
Scott	52603
Scott Chester	53140
Scott Jasperson	52631
Scott R. Mead	53485
Scott Sokum	53020
Sean	52704
Sean Elmquist	52675
Sean Erspamos	52872
Seth Cleveland	52890
Seth Korpi	52891

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Seth Korpi	53311
Seth Lowe	53146
Shane Anderson	53077
Shane Penn	53108
Shannan Dahlm	53574
Shari Wildt	52800
Sharon Schwartz	53585
Sharon Tweh	52827
Sharon Van Druten	53474
Shauna Maurer	52786
Shawn Poppe	52579
Shawna Mulleneardley	52832
Sheila Ullery	52601
Sherlyng Barasa	53220
Sherry Leveille	53234
Shirajoy Abry	53523
Sid and Lola Berg	53577
Signe Broecker	52889
Simon Haynes	52860
Siri Johnson	53259
Sister Gladys Schmitz	52817
Sonia Borg	52605
Sonja Smith	53184
Sophia Niedermeier	52916
Spencer Kruggel	53374
Stephanie Schrandel	52867
Stephanie Boisjoli	53293
Stephen Nelson	53013
Stephen Vierkardt	53134
Stephenie Cole	52748
Steve	52977
Steve Barnstorf	53322
Steve Lampman	53573
Steve Robinson	53196
Susan	52630
Susan Hawkinson	52976
Susan Headley	52582
Susan Moss	53580
Susan Muras	52830

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Susan Rolf	53208
Susan Taylor	52925
Susan Van Druten	52707
Susan Wiste	53210
Susan Yorck	52668
Tabitha McCloud	53171
Taryn Derosia	53240
Tashina	53460
Tawnis Ditsch	53357
Taylor Birkelo	53067
Taylor Dane	53295
Taylor Moore	52988
Taylor Nelson	52821
Taylor Wirth	53061
Ted Conover	52650
Teddi Grego	52806
Teresa	53470
Terese Gunderson	52932
Terrance Brezny	53581
Terri Ferron	53136
Terry McCarthy	53465
Tessa Farrell	53313
Tessa Larson	52913
Thea Velic	52609
Theo Muereno	52795
Therence Chi	53000
Theresa Smith	52964
Thomas Eklo	53582
Thomas Ferranell	52994
Thomas Haines	53528
Thomas Johnson	52847
Tianna Perosino	53269
Tim Watters	52956
Timothy Herberg	53499
Tina Martenson	52756
Tina Nelson	53401
Todd Marshall	52593
Todd Westenbrock	53496
Tom Battaglia	53275

Sender Name	Submission ID
43 I Support PolyMet Form Cards	
Tom Brenny	52845
Tom Kaluza	52587
Tom Konczak	53226
Tong Lee	53033
Tony Pauly	53310
Tracy Daniels	53128
Travis Massicotte	53456
Travis Melin	53127
Trevor Lveders	53273
Tyler Sager	52718
Tyler Schiroo	53229
Tyler Scoutun	52671
Urji Yusaf	53001
Valentine Irongo	52778
Valerie Post	52870
Verlynda Pinckney	53035
Vicki Westrick	52982
Victoria Lynn Turke	53550
Vivian Oteo	52749
Walter Prentice	52928
Walter Sipilo	52935
Waneu Howe	52963
Warner	52965
Warren O	53059
Wayne Pulford	52838
Wendy Lane	52643
Whitney Morgan	53014
William Faber	53524
William W.	53267
Yasmina Antcliff	53233
Yishu Zhang	52750
Zabelle Stodola	52882
Zach Borich	53169
Zach Dkes	52852
Zach Lyons	53163
Zach Scalzo	53123

Sender Name	Submission ID
44 Operating Engineers Local 49	
Form Letter 44: Operating Engineers Local 49	
Alander	54237
Alander	54238
Anderson	54239
Anderson	54240
Anderson	54241
Ashfeld	54242
Babolian	54243
Barnett	54244
Beedle	54245
Bergman	54246
Betts	54247
Brown	54248
Brust	54249
Burgstaler	54250
Cadson	54251
Carter	54252
Concepcion	54253
Concepcion	54254
Crabtree	54255
Crowdel	54256
DelGrand	54257
Drummond	54258
Dushaw	54259
Russen W Erle	54260
Russen W Frandrup	54261
Russen W Freeman	54262
Russen W Freeman	54263
Russen W Galloway	54264
Russen W Guzbaddo	54265
Russen W Hager	54266
Russen W Harrom	54267
Russen W Ihde	54268
Russen W Jaskulke	54269
Russen W Jensen	54270
Russen W Jones	54271
Russen W Klatte	54272
Russen W Knopps	54273
Russen W Kolb	54274

Sender Name	Submission ID
44 Operating Engineers Local 49	
Russen W Kotchen	54275
Russen W Krizanac	54276
Russen W Krizanac	54277
Russen W Lesandrini	54278
Russen W Leuthner	54279
Russen W Leverton	54280
Russen W Lewis	54281
Russen W Lillis	54282
Russen W Lillis	54283
Russen W Lindberg	54284
Russen W Lockwood	54285
Russen W Long	54286
Russen W Magler	54287
Russen W Malcolm	54288
Russen W Mardaus	54289
Russen W Marks	54290
Russen W Marks	54291
Russen W Marrero	54292
Russen W Mau	54293
Russen W McKenzie	54294
Russen W McMillan	54295
Russen W McMillan	54296
Russen W Miller	54297
Russen W Mulligan	54298
Russen W Musial	54299
Russen W Nelson	54300
Russen W Nordin	54301
Russen W Nordin	54302
Russen W Paul	54303
Russen W Paul	54304
Russen W Pederson	54305
Russen W Peterson	54306
Russen W Raines	54307
Russen W Raines	54308
Russen W Randall	54309
Russen W Salas	54310
Russen W Skinner	54311
Russen W Skinner	54312
Russen W Snyder	54313

Sender Name		Submission ID
44 Operating Engineers Local 49		
Russen W Solem		54314
Russen W Specton		54315
Russen W Staum		54316
Russen W Stelter		54317
Russen W Stelter		54318
Russen W Sterzinger		54319
Russen W Strand		54320
Russen W Sundquist		54321
Russen W Swanson		54322
Russen W Swerdlick		54323
Russen W Thom		54324
Russen W Tri		54325
Russen W Virgio		54326
Russen W Walkowiak		54327
Russen W Weber		54328
Russen W Wojcik		54329
Russen W Wright		54330

Sender Name		Submission ID
45 Ironworkers Local 512 (Letter A)		
Form Letter 45: Ironworkers Local 512 (Letter A) As a working member of Ironworkers Local 512, I support the PolyMet North Met project. The professionals at both the state and federal level have done their research as we can see in the SDEIS and I believe that they have exceeded expectations to ensure this is a safe site for workers and the environment. Not only will the PolyMet project be closely regulated for safety concerns, but it will bring work to Northeastern Minnesota. Over 350 stable jobs are expected to be created along with 2 million hours of skilled labor. Our communities need to be able to support our families and should not have to travel across the country to find work. The environment has been seriously taken into concern and the analyses found in the SDEIS show that PolyMet will do everything in their powering, exceeding standards, to ensure the protection of the people and the environment. We are very fortunate to have such pristine nature in the northern part of Minnesota which is why it is so important to let the experts do their job and provide us with the safest, most efficient way to proceed with the project. I am a community member of Northeastern Minnesota and an Ironworker and I support the environmental review process and the PolyMet NorthMet project. Sincerely,		
A K Seckinger		55371
Adam Ferris		55058
Agnes Mattson		55252
Al McNulty		55263
Al Miller		55273
Alan Enger		55612
Alan McCallie		55254
Albert Bober		55976
Alex and Mary Batinich		55974
Allen A Hertzberg		55108
Allen E Brown		55597
Allen R Berlauk		56176
Allen R Friedlund		55068
Allen Stillwell		55402
Allyson Ponto		55338
Alvin A and Evelyn Von Holdt		55751
Alvin A Savela		55950
Amanda Rasmussen		55706
Amy E DeCaigny		55608
Amy Kringlie		56040
Andrew Amys		55767
Andrew and Sandra Lamb		55668
Andrew D Fraser		56008
Andrew J Erickson		56290
Andrew S Wappel		56128
Angelo Peters		55331
Angelo Poaletti		56077
Anita Siegel		55385
Ann B Sertich		55375
Ann Elnes		55050
Ann Marie Rice		55947
Ann Woodford		55888

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Anna M Olson	55540
Anna M Pollack	55546
Anna Marie Haberer	56143
Annagrace Norr	56068
Anne Kirchner	55505
Anonymous	54963
Anonymous	55583
Anonymous (2)	54962
Anthony V Rich	55350
Anton Gacusana	55621
Ardis M Michalik	55848
Arne Gadda	56329
Arne R Paulson	56234
Arnold and Lona Lokken	55676
Arnold Burt	55981
Arnold J Heikkila	56144
Arnold M Ranta	55705
Art Alanen	54947
Arthur and Margaret Fransen	55490
Arthur E Englund	55797
Arthur Kruger	55189
Arthur R Korhonen	55184
Arthur Weser	55571
Arvid E Baumgartner	54973
Arvid H Lamminen	55830
August M and Ann M Stoffel	55568
Bailey Jane Conger	56184
Barb Hendrickson	55637
Barb Simon	55722
Barbara Aretz	55584
Barbara Beichler	56328
Barbara Carlson	55005
Barbara Gilloghy	55807
Barbara J (1) Chopp	55014
Barbara J Chopp	55015
Barbara J Larsen	56042
Barbara J Omundson	55298
Barbara Lee	56044
Barbara M Lessard	55522

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Barbara R Bassa	55586
Barbara Spychalla	55397
Barbara Takala	56119
Barbara Urick	55427
Barbara Weisinger	56225
Barry and Kathy Bresnik	55596
Barry D Lesar	55216
Ben A Illegible	55125
Ben Ross	56088
Benita Horoshak	55117
Benjamin J Miller	55849
Bernard J Bogenreif	55592
Bernard J Opferman	55302
Bernie Luken	56268
Beth Gunnarson	55629
Beth Rolfson	55709
Betty M Musich	55284
Betty Mathson	55245
Betty Suliin	55729
Beverly A and Einer W Hansen	55096
Beverly Cran	55604
Beverly M Prechel	55941
Bill and Lynn Gigliotti	55806
Bill Collins	55990
Bill Larson	55204
Bill Schreiber	56160
Billy and Janice Hilliard	55109
Blaine Hakomaki	56255
Bob McCubbin	55530
Bob McLean	55261
Bonita M Shimmin	55382
Bonnie J Frielund	55069
Brad King	55175
Bradley A Rolfson	55710
Bradley Bruhjell	55897
Bradley P Savage	55870
Brandon Peterson	55699
Brendan Mahle	55837
Brent Haworth	55816

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Brent Oslin	55306
Brian Bird	54982
Brian Foley	55061
Brian Lloyd	56204
Brian P McLabe	56061
Brian T Brown	55476
Bridget and Justin Marsh	56059
Brien Lumppio	55524
Bruce A Macdonald	55236
Bruce A Nusbaum	55856
Bruce A Stockman	55403
Bruce Paatela	56308
Bruce W Stender	56111
Bryan L Beede	55587
Bryan S Lent	55214
C A Corrin	55022
C J Giesen	56292
Carl Larson	55518
Carleen McMillan	55847
Carlette F Baker	55973
Carlton L Anderson	54956
Carol A Carlson	56243
Carol and Michael Jordahl	55158
Carol Ellis	55049
Carol I Marshall	55843
Carol J Anderson	54957
Carol J Lindberg	56266
Carol J Sojka	55726
Carol Krynski	55513
Carol L Anderson	56286
Carol M Larsen	55674
Carol N Groseth	55086
Carol Pengal	56274
Carol R Stockman	55404
Carol Schaefer Porter	56078
Carol Spencer	55393
Carol Youngberg	55459
Carol Ziegler	56135
Carolann Ongaro	55300

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Carole J Clusiau	55018
Carole J Clusiau	55019
Carole Kapsner	55166
Carolyn Gillis	56011
Carolyn R Dinneen	55033
Carolyn Ryan	55868
Carrie and Allan Knuutti	55508
Catherine A Garvey	55072
Catherine A Kortesmaki	55511
Catherine D Westman	55452
Cecilia Ringat	55351
Chad Kucza	55514
Chad Larson	55205
Charlene Zervas	55764
Charles Anderson	55968
Charles Aro	55468
Charles Davidson	55027
Charles H Andresen	55582
Charles Hanson	55098
Charles J Tekautz	55418
Charles Johnsen	55647
Charles L Lantz	56200
Charles Lundin	55234
Charles O Provost	55944
Charles Stanek	55564
Charles T Chairs	55600
Charles W and Angeline Miller	55274
Charles W Westin	55450
Charles Woodford	55889
Chelsie Skorich	55723
Cheryl Cabak	55983
Cheryl Funk	56141
Cheryl Jones	56319
Chester and Sandra Lamb	55669
Chris Bertucci	54981
Chris Zasmeta	55762
Christine Rostberg	55355
Cindy Kent	55504
Cindy Kostiuk	56263

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Cindy Ternes	55419
Cindy Wentzel	55449
Clarence Ek	55047
Clarice Turcotte	56282
Claudia M Johnson	56259
Claudia M Trefethren	55424
Claudia Notermann	55291
Claudia O'Connor	55293
Clifford Lof	55224
Clinton H Martenson	55243
Clyde W Johnson	55137
Colleen Hillman	56145
Colleen M Perrault	55320
Connie Germann	55075
Connie Jones	55654
Constance M Siiter	55561
Corey A Black	56178
Corinne Illegible	55645
Courtney A Taylor	56169
Courtney E Johnson Aluni	55135
Craig Douglas	55795
Craig Meseroll	55270
Craig R Ellingson	55048
Craig R Fagerstrom	55907
Craig R Fagerstrom	55908
Craig R Saari	55714
Cynthia R Anez	55773
Cyril A Purkat	55550
D.P..pdf	55993
Dagney Johnson	55138
Dale and Eliabeth G Sola	55389
Dale G Saari	56214
Dale H Edlund	55043
Dale R Gleason	56317
Dale Tuominen	55747
Dally A Mackey	56053
Dan Bloom	55591
Dan Larsen	55203
Daniel and Joyce Malterud	55929

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Daniel D Vogt	56224
Daniel G Marshall	56330
Daniel J Wilczek	55757
Daniel L Svendsen	55569
Daniel Lundquist	55927
Daniel M Shea	55381
Daniel Pierson	55332
Daniel R Galazen	54922
Danielle Larson	55206
Dannette Watkins	55444
Darleen McLennon	55846
Darlene Hoagland	56194
Darlene M Johnson	55650
Darlene Reed	55347
Darol and Martha Rosbacka	54938
Darrell Patterson	55314
Dave Amotozio	54955
Dave Lee	56045
Dave Zlimen	55463
David A Bordwell	56179
David A Hammer	56293
David A Kuiti	54924
David A Lotti	55227
David and Bev Allison	56237
David and Cora Jones	55156
David and Diane Perkins	55319
David and Margie Stephens	55400
David Belland	54976
David Benson	55895
David Birkholz	56177
David C Jackson	55921
David C Stark	55565
David Cook	55021
David D Hanson	55915
David Dwyer	55040
David Easter	55486
David F Lundeen	55232
David G Peterson	55545
David Hamalainen	55094

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45 Ironworkers Local 512 (Letter A)	
David J and Lorraine M Gaulke	55624
David J Rutford	55713
David J Spooner	56219
David Kent	55169
David Kern	56031
David M Bodovinitz	54986
David McNutt	55264
David R and Andrew Larson	56201
David R and Chelsea R Larson	56202
David Stokes	55727
David Storrs	55413
David T Marturano	56154
David W Rhein	55348
David Watson	55445
David Zelinski	56134
Dean and Angela Radniecki	55552
Dean G Swenson	56118
Debbie K Lokken	55677
Debra Foro	56188
Debra Majchrzak	55237
Deidre Larock-Muggley	56327
Delores Anderson	55465
Delores C Smolish	55954
Deloris M Sandberg	55716
Deni Miller	55850
Dennis A Orn	55304
Dennis C Lamke	55201
Dennis Hallberg	56016
Dennis Krueth	55512
Dennis L Dzieweczynski	56002
Dennis L Ramberg	55345
Dennis Lueck	55231
Dennis Matson	55682
Dennis R Keller	56030
Dennis Rudolph	56213
Diane M Vogel	55433
Diane Rice O'Donnell	55867
Dianne K Kuiti	54925
Dianne M Fallstrom	55616

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Dolores Arason	54965
Dolores Wenner	56226
Dolores Wilson	55758
Dominic Krezowski	55186
Don and Elizabeth Stellmaker	56110
Don Beichler	56136
Don Bodenner	54985
Don Lindgren	55220
Don O'Connor	55294
Don Wilkerson	56314
Donald A Wing	55886
Donald A Woessner	55574
Donald and Mary Ann Knutson	55181
Donald B Lindberg	56267
Donald D Dahlstrom	55024
Donald E Hites	55638
Donald E Jokinen	55155
Donald E Nolin	56210
Donald E Wrase	55458
Donald F Maxa	55253
Donald Foley	55062
Donald Haapanen	56192
Donald Halunen	55914
Donald J Lucachick	56049
Donald J Smith	56324
Donald Kamphenkel	55165
Donald Leslie	55520
Donald Marinkovich	54928
Donald Prettyman	56211
Donald R Bing Bisel	55784
Donald R MacKenzie	55928
Donald W Howes	56146
Donald W Miller	56063
Donna M Miller	56271
Donna Muellerleile	55280
Donna R Lebick	55212
Donna Warner	55443
Donovan J Culliton	55792
Donovan Marty	56270

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Donovan Wait	55438
Doreen Henricksen	56020
Doris M Spencer	55394
Dorothy E Hofmeister	55112
Dorothy Gearns	56291
Dorothy J Pearson	55315
Dorothy L Nelson	55688
Dorothy M Gitter-Uhler	56248
Dorothy M Gitter-Uhler	56249
Dorothy M Gitter-Uhler	56250
Dorothy M Gitter-Uhler	56251
Dorothy M Gitter-Uhler	56252
Douglas and Patricia Anderson	54958
Douglas B Klun	55662
Douglas C Francis	55066
Douglas C Neve	55855
Douglas E Carlson	55006
Douglas K Schetnan	55717
Douglas Mailhot	56054
Drew Fazio	55799
Duane and Carol Trosdahl	55958
Duane G Lorsung	56047
Duane Putikka	55864
Dustin Skorich	55724
Dwight Anderson	55969
Dwight Khoury	55826
E L McLinn	56062
Earl Hemmerich	56019
Ed and Amy Labernik	54926
Ed Lazzaro	56322
Ed Nordmark	55290
Ed Soderberg	56161
Edgar and Virginia E Bender	55894
Edna Leslie	55521
Edward Bradach	54919
Edward C and Royleen M Newman	55288
Edward Chermak	55013
Edward H and Andrew Olsen Zieroth	55962
Edward H and Britt Zieroth	55963

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45 Ironworkers Local 512 (Letter A)	
Edward H and Mariah Elisa Zieroth	55964
Edward H and Zachary P Zieroth	55965
Edward M Hynes	55123
Edward S Kachinske	55164
Edwin A Waters	55882
Edwin N Carlson	55898
Eileen VanderMeiden	56124
Elaine A and Bruce M Hanson	55635
Elaine Edwardson	55906
Elder E Metsa	54935
Eleanor Ciccetti	55790
Eleanor K Westin	55451
Elizabeth Benedett	54977
Elizabeth J Paszko	55313
Elizabeth K Voigt	55434
Elizabeth L Gleisner	55080
Elizabeth P Ericson	56186
Ellen Pioro	55335
Elliot Silberman	56103
Elliot Todd Johnson	55139
Elmer J Steinberg	56165
Elmer W Quinlan	55551
Eloise C Layman	55519
Elsie A Vannelli	55430
Elzie G Gowin	55083
Emily Mahle	55838
Eric J Neetonbeek	55687
Ernest S Rabb	55343
Ernest Wiener	55454
Ernie and Delores Klang	55177
Estelle Zabrocki	55461
Esther E Jensen	56028
Eugene D Lindberg	56305
Eugene O Running	55712
Eugene R Schultz	54939
Eunice D Stevens	55401
Evelyn A Taylor	55736
Evelyn Yagen	55760
F Irwin St	55879

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45 Ironworkers Local 512 (Letter A)	
Florence Thomas	56122
Florian Lange	56302
Floyd H Mattin	55683
Frances Brisk	56241
Francis Coz	55992
Frank A Jerks	55134
Frank Burrell	55479
Frank J Strohmayer	55414
Frank M Centa	55011
Frank M Judnick	55159
Frank Muhvich	55281
Frank Shusta	55383
Frank Youso	55460
Fred and Bonnie Anderson	55768
Fred B and Mary Jeanne Vine	56126
Fred Dereschuk	55610
Fred Tanner	55735
Fritz and Cole Kerttula	55171
Fritz and Grant Kerttula	55172
G Michael Radtke	55865
Gaertner Family Investment	55071
Gail B Fagerstrom	55909
Gail Bynum	55002
Gail H Freeman	55804
Gail Thurnau	56170
Gail Thurnau	56171
Gale Patrick	55696
Galina Herring	55107
Gary A LaFour	55199
Gary Aldrich	54948
Gary and Jerry Johnson	55140
Gary Anderson	55769
Gary Dahl	54921
Gary Giroux	55079
Gary Hack	55090
Gary Johnson	55141
Gary L Monson	56064
Gary Pearson	55544
Gary Wilcox	55573

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Gene	56230
Gene F Roth	55711
Gene W and Caryl A Ziegenhagen	55462
George Brion	54996
George J Hanratty	55095
George J Hassinger	55494
George Myers	55932
George R Jackson	56296
Gerald A Reed	55707
Gerald D Cran	55605
Gerald F Bastyr	54970
Gerald F Bastyr	54971
Gerald G Avason	55776
Gerald J Brown	54998
Gerald Jackson	55129
Gerald L Golobich	55082
Gerald M Kliber	55178
Gerald Ostroski	55307
Gerald S Benson	55896
Gerald W and Vickie Tucker	56222
Gerald Widseth	55453
Gerald Wilczek	55456
Geraldine L Spanier	55392
Geri Kanten	55660
Gerry W Jones	55157
Glen Kush	55194
Glenn D Lee	55213
Glenn Hagberg	54923
Glenn Muster	56307
Gloria M Schultz	56094
Gordon A Dormanen	55035
Gordon L Popovich	55339
Grace Mahal	55836
Greg Novak	55539
Gregg A La Bonne	55666
Gregory A Gilness	55077
Gregory C Kobylinski	55182
Gregory D Driscoll	55796
Gregory Eaton	55041

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Gregory G Gradine	55084
Gregory L Colvin	55020
Gregory W Adamski	56174
Gwen Holmes	55114
Gwen Kienholz	55174
Gwen Valentine	55428
Gwen Valentine	55429
Gwendolyn Wells	55883
Harold and Carolene Jacobson	56195
Harold C Alaspa	55766
Harold I Mathison	55244
Harold Trestman	55746
Harriet L Gernert	55626
Harvey R Aluni	54952
Hazel Wark	55442
Hazel Wittenberg	55887
Heather Cameron	55788
Heidi and David Nessa	55854
Helen Jurkovich	55162
Helen M and Clifford H Wiklund	55756
Helen M Prokosch	55942
Henry J Tamminen	56120
Henry Ptasnik	55704
Herbert E Ringat	55352
Holly Klund	55506
Horace A Lamb	56299
Howard and Heather Marline	54929
Howard and Virginia Rotsolk	56159
Howard B and Erika Marline	54930
Howard B and Shaun Marline	54931
Howard B Marline	54932
Howard D Ackerson	54944
Howard Linsk	55222
Howard M McMurray	55262
Hugh E and June Jelley	55133
Ian Kalland	55922
Illegible	55124
Illegible	55497
Illegible	55644

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Illegible	55919
Illegible Lynch	56206
Illegible Wait	55439
Inez E Kusi	55195
Ion	55128
Irene D Fenske	55057
Irma Zimmerman	55765
Ivadell Douglas	56001
Ivy Chang	56244
J C Foucault	56007
J Gieseke	56190
J Keil	56197
J Thomas Rikala	55556
Jack Huttner	55643
Jack L Pollack	55547
Jack Liljegren	55218
Jack N Birk	54983
Jack Rajaia	56082
Jake Youso	55890
James A and Marianne Potratz	55863
James A Carlson	55984
James A Denney	55997
James A Salo	55361
James A Spooner	56104
James and Diane Gayes	56142
James and Patty Medure	55266
James B Gannon	55805
James Brayden	55595
James Chos	55602
James D Rogers	56087
James E and Ruth Hansen	55097
James E Love	56048
James H and Mary E Palmquist	55311
James H Olson	55693
James Hagstrom	55091
James Illegible	56024
James J Houlihan	55120
James Johnson	56260
James Krikelas	55187

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
James Lozinski	55230
James Mackai	55679
James N Roberts	56086
James P Anderson	55970
James R Marshall	55529
James R Marshall	56058
James R Pederson	55317
James R Vondane	55436
James S Braun	54991
James Shea	56098
James Wirz	55759
Jana Wahlstrom	55752
Jane K Petrich	56076
Jane M Killian	56297
Jane Marinsek	55239
Jane S Prout	56080
Janelle Shea	56099
Janet Hein	55102
Janet Illegible	55498
Janet M and George W Rhein	55554
Janet Rae and David Nystrom	56156
Janet Rae Nystrom	56157
Janet Rassier	55553
Janet Reznechek	55946
Janet Shamla	55379
Janice M Gacusana	55622
Janine J Gerard	55625
Jason Clark	55899
Jason Clark	55900
Jason Mahle	55839
Jason P McCue	56060
Jason Rogers	55949
Jay Hartlieb	56257
Jay R Mackie	55680
Jean Ann Larson	56265
Jean Granger	56012
Jean Melgeorge	55267
Jeanette B Markes	55240
Jeanette Jackson	55130

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Jeanne Cornell	55791
Jeanne Dwyer	55905
Jeanne E Lindstrom	55835
Jeanne Muntean	55282
Jeanne Ogilvie	55692
Jeff Bernhagen	55783
Jeff T Pollreis	55337
Jeff Vichorek	56125
Jeffrey C Bowden	54989
Jeffrey L Tucker	56223
Jeffrey Sinnott	55953
Jenna Klinck	55179
Jerome Butchart	55598
Jerome E and Joan B Thompson	55422
Jerome F Jablonski	55499
Jerome Haaland	56254
Jerome Jurek	55161
Jerome L Kern	56032
Jerome N Roettger	55354
Jerome O Johnson	55819
Jerome Voltz	55435
Jerry E Johnson	55142
Jerry Maly	55841
Jerry Siegle	55720
Jill Christie	56139
Jill Johnsen	55648
Jim and Kathy Sharrow	55380
Jim and Nancy Landwehr	55671
Jim Davis	55484
Jim Jurkovich	55163
Jim Pearson	55859
Joan and Rodney Holmes	55640
Joan Faust	55056
Joann Henneck	55104
JoAnn M and Donald A Larson	56151
Joanne LaPatka	55831
Joanne M Bondy	55474
Joanne M Nichols	55537
Joanne M Nichols	55690

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45 Ironworkers Local 512 (Letter A)	
Joanne M Nichols	55934
Joanne M Nichols	56209
Joanne M Nichols	56273
Joe and Joanne Stefanich	55955
Joe DeRosier	55030
Joe Economy	55487
Joe Omundson	55299
Joe Ralidak	55945
Joe Westenfield	55753
Joel Brekken	54995
Joel M Kulaszewicz	56298
John A Gust	55087
John A Wolf	55457
John Akkanen	54946
John and Betty Seelhammer	55373
John and Dawn Gregorich	56013
John and Dorothy Palmer	55310
John and Joanne Gaus	55074
John B and Beverly J Downs	55485
John Bartusek	55779
John Baumgarten	54972
John Berklich	54918
John Bryad	55785
John C DeMoss	55609
John C Grinden	56014
John C Watson	55446
John E and Karen O Bray	54993
John E Kuznik	55517
John E Seitz	55374
John E Tynio	55959
John F and Beryl Bredeson	54994
John F Ball	56175
John F Kemper	56198
John Franks	56247
John Gleisner	55081
John Glendenning	55627
John Hawkinson	55916
John Ivey Thomas	55421
John J Rolando	56212

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45 Ironworkers Local 512 (Letter A)	
John J Thorp	55743
John Jeffers	55132
John Lahtonen	55829
John M Bronstrom	55980
John M Foschi	55802
John Moeller	55930
John P Damberg	55995
John P Hawkinson	55815
John P Jones	55655
John R Peterson	56277
John R Seward	55377
John Sever	55376
John Staulcup	56109
John Swanson	56168
John T Holden	56022
John Thompson	55740
John V and Jan Holt	55116
John V Monson	55277
John W and Nancy S Shadle	55378
John W Marshall	55241
John Walls	56172
Johnson	55150
Jon and Dona Larsen Frisch	55673
Jon C Sampson	55869
Jon Helstrom	55103
Jon Udovich	54941
Jonna Carr	55789
Joseph A Gust	55088
Joseph G Loisel	55225
Joseph Hall	55812
Joseph Hochevar	55111
Joseph L Edminster	55044
Joseph Labernik	56199
Joseph P Murphy	55283
Joseph P Pryatel	55340
Joseph Shea	56100
Joseph W Mertel	55269
Joseph W Skraba	55387
Joy Ann Potthoff	55703

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Joyce B Freschheiser	55911
Joyce M Olson	55295
Judith A McKanna	55256
Judith M Knabe	55180
Judy L Delaney	55996
Judy L Straughn	56113
Judy Shea	56101
Jue A Morrissey	55279
Juliane Badanjak	55777
Julie I Pierce	55862
Julie Perfetti	56276
K Bruce Adams	56235
K Spurbeck	56220
Karen Kucza	55515
Karen R Hollingsworth	55639
Kari Kamman	55659
Karl Dickerson	55611
Karl Diekman	55031
Karl Johnson	56232
Katherine Sedgeman	55372
Katheryn and Earl Thompson	55741
Kathleen A Brekken	55979
Kathleen Albers	56284
Kathleen Pierson	55333
Kathleen S Evans	56005
Kathryn and Sidney Buckland	55786
Kathryn E Salo	55559
Kathryn Forsline	55063
Kathryn M Wedin	55448
Kathy Benham	55782
Kathy Mulligan-Widell	56066
Kathy Tanski	55417
Katie Pichetti	55939
Kay F Nephew	55287
Keith A Mickelson	55272
Keith Belanger	55588
Keith Benedett	56137
Keith Fuller	55620
Keith Hettemes	55917

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Keith McCarthy	55684
Keith Pierson	55334
Keith R Maki	56269
Kelvin J and Marilyn Weber	56129
Ken Rhodes	55349
Kenneth B Adams	56236
Kenneth J Kersting	56033
Kenneth J Leon	55925
Kenneth J Sutton	55416
Kenneth Johnson	55143
Kenneth S Koski	55664
Kenneth Stoll	55411
Kerry A and Vic Klune	56262
Kerttula	55173
Kevin D Alway	55967
Kevin Haberman	55631
Kevin J Peterson	55321
Kevin Kelly	55825
Kimberly J McLaughlin	55259
Kris A Close	56181
Kristie J Hunnewell	55122
Kurt Brooks	54997
Kurt Johnson	55820
Kurt Nelson	55933
Kyle D Olson	55296
Lance Lokken	55678
Larry and Jean Cottew	55902
Larry Beckstrom	56240
Larry C Kubiak	55190
Larry E and Mary M Fieldseth	55059
Larry Francisco	55065
Larry G Johnson	55144
Larry H Duncan	55039
Larry Haapala	55630
Larry Korf	56037
Larry Lewis	55217
Larry Nosie	56069
Larry R and Marilyn K Aho	55577
Larry R Larson	56303

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45 Ironworkers Local 512 (Letter A)	
Laura L Schauer	56215
Laurel Saker	55359
Laurence K Baker	55470
Laurie Murphy	56208
Laurie Youso	55891
LaVerne L Kohner	55509
Laverne Stone	55412
Lawrence E Davis	55028
Lawrence Line	55221
Lawrence N Engel	56004
Lawrence Schutte	56095
Lawrence T Marsh	55242
Lee K and Lucia A Older	56071
Lee W Conradi	56185
Len C Petroskey	56323
Leo W Grochow	56015
Leon L and Darleen M Kahlstorf	55656
Leona Karsh	55167
Leopolda Schutte	55368
Leroy and Irene Croteau	55483
LeRoy H Bergstrom	54917
Leroy P Lysher	56052
Leslie M Rigg	55948
Linda A Mason	55845
Linda Anderson	55770
Linda Lamb	56300
Linda R Carlson	55599
Linda Wilsey	54942
Lindeman Albert W	55834
Lisa Kolodge	55663
Lisa Kvas	56320
Lizabeth Lincoln	55523
Lizbeth Voelker	55432
Lloyd and Helen Nelson	55689
Lloyd B Anez	55774
Lloyd B Widmeyer	56227
Lloyd H Allen	54949
Lois M Shea	55874
Lori Gingerich	55078

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45 Ironworkers Local 512 (Letter A)	
Lorraine Schmidt	55872
Louis B Markel	55528
Louis Collyard	55991
Louis E Gerard	55493
Louis Orrey	56073
Louise H Anderson	55771
Lowell Mattila	55247
Loyal Tanem	55734
Luanne and Bob Paquette	56074
Luanne M Johnson	55501
Lucas and Sandra Lamb	55670
Lucille Svatos	56117
Lucy and Jerry Ulman	55426
Luella Grembowski	56231
Luke H Illeible	56147
Lura J Lauer	55209
Lyle W Lauer	55210
Lynn A Peterson	55322
Lynn and Dorothy Mugge	55851
Lynn and Richard Twite	56123
Lyssa Supinski	56116
M A Nilles	56067
M Bagley	54968
M L Stewart	56166
Mae Anderson	55971
Magaria Marline	54933
Marcel Moulzolf	55931
Marcella Caroline Gardiepy	55912
Marcelle A Armstrong	55585
Marcia Aluni	54953
Marcia Baland	54969
Marcia J Ward	55441
Marcia Kauppi	55168
Marcia L Chalgren	55012
Margaret (Peggy) Fabish	55054
Margaret B Hunger	56258
Margaret Fabish	55055
Margaret J Paris	55694
Margaret Kavanagh	55661

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45 Ironworkers Local 512 (Letter A)	
Margaret Nathe	55285
Marge and Jerome Kuznik	55197
Marge C Engelmeier	55051
Marguerite Baker	56288
Marguerite Holm	55641
Marian and Alexandra Mattke	55248
Marian and Jaegar Mattke	55249
Marian S Braff	55978
Marie C Anderson	55466
Marie E Englund	55798
Marilyn C Erickson	55052
Marion K Hedenberg	56018
Marion Nohner	55935
Marjorie Carlson	55480
Marjory A Carlson	55007
Mark Behning	55471
Mark E Anseneau	56238
Mark J Skala	55876
Mark M Mattke	55251
Mark Monge	55532
Mark P Swanson	55730
Mark S and Nancy L Rubin	56311
Mark St	56105
Mark Stodghill	55405
Mark Swanson	55731
Marlene Bentley	54978
Marliss Westenfield	55754
Marshall Tynjala	55749
Martin C Fair	55614
Martin D Gaulke	55913
Martin Kerr	56148
Marvel Ring	55353
Marvin and Marlene Fredricks	56009
Marvin W Hoops	55642
Mary Amberg	56285
Mary and Charles Rudstrom	56091
Mary Ann Anderson	54959
Mary Ann Okoren	56070
Mary Anne Kwiecinski	55198

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45 Ironworkers Local 512 (Letter A)	
Mary Bovitz	54988
Mary D Lundeen	56205
Mary DeMoss	55793
Mary E Larsen	55832
Mary E Rutka	56092
Mary Eckman	55042
Mary Ellen Wilson	56131
Mary Fider	56187
Mary Hansen	55633
Mary Hansen	55634
Mary Jo and Daniel J Miettunen	55531
Mary L Forti	55618
Mary Lee Shaughnessy	56217
Mary Rasch	56083
Mary Sogard	55563
Mary Sorenson	55390
Mary Stakel	55398
Matt Pichette	55938
Matthew W Habben	55811
Mattke	55250
Maxine B Hennum	55105
Maxine Werner	56130
Melanie and Michael Shamp	56096
Michael and Ann Orman	55303
Michael and Melanie Shamp	56097
Michael and Terri Korpela	56038
Michael Blaine	54984
Michael Bulen	56228
Michael Casey	55988
Michael Dee	55904
Michael E Keable	55824
Michael Galo	55491
Michael Guthrie	55089
Michael J Leino	54927
Michael J Sundberg	56115
Michael Kaiser	55657
Michael Lepak	55215
Michael Richtarich	55555
Michele Carlson	55985

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Mike Fehrman	55488
Mike Perala	55698
Mike Podgornik	55336
Mike Sterk	55956
Mike Urie	56312
Milan Luzaich	55235
Mildred B Hartleben	55814
Millard LaJoy	55667
Milton N Hill	55110
Mitch Erickson	56246
Molly Fair	55615
Morris L Nelson	56155
Muriel J Thorp	55744
Myron Johnson	55146
Myron L and Joyce K Johnson	55145
Nancy Alexson	55966
Nancy Anderson	56287
Nancy Byrd	55982
Nancy Harvey	55636
Nancy J Radtke	55866
Naomi A Dangelo	55026
Neal A Lano	55202
Neal G Larson	55833
Neil Helming	56294
Neil McPhail	55265
Nellie Ann Stack	56106
Nellie Ann Stack	56107
Nellie Ann Stack	56163
Nellie Ann Stack	56164
Neva E Maly	56306
Nicholas Paris	55695
Nicholas Sherman	56102
Nick Bech	55975
Nick Benedett	56138
Nick Garramone	55623
Nick I Zobenica	55464
Nick Illegible	55920
Nick Krulich	55665
Nicole Kucza	55516

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Norma Noyes	55292
Norma Stuart	56114
Norman Christensen	56326
Norman Densal Eastman	55998
Norman M Lorentzsen	55226
Norman P Anderson	55772
Oddi Hjellbakk	56021
Olive Kirkland	56034
Oliver J Meyer	55271
Pat Borgerding	55594
Pat Cutshall	55606
Patricia A Yingling	55761
Patricia and Catherine A Krezowski	55827
Patricia Axelsen	56315
Patricia D Barnes	55778
Patricia Mereen Krezowski	55828
Patrick B Raeker	56081
Patrick E Smith	55388
Patrick Illegible	55817
Patrick J Norberg	55691
Patrick J Scully	55370
Patrick Kuffel	56150
Patrick M Shea	55560
Patti Soderberg	55877
Paul A Johnsen	55500
Paul Caillier	56180
Paul D Shutte	55875
Paul E Marturano	56207
Paul F Weber	55447
Paul Henson	55106
Paul Ivanca	56295
Paul J McLaughlin	55260
Paul J Scipioni	55718
Paul J Thode	56121
Paul John Roy	55356
Paul Laskowski	55208
Paul Lavato	55211
Paul McKanna	55257
Paul Muhich	55852

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Paul Namanick	55535
Paul Paulisich	55543
Paul Pengal	56275
Paul Solinger	55878
Paul Starkovich	55399
Paul Suomela	55415
Paul Twardowski	55748
Paula K Savage	55871
Paula Litchke	55223
Peggy Johnson	56261
Penny and Duane J Winsor	56133
Per E and Lois A Fjelstad	55060
Peter A Ivanca	56027
Peter Ciccetti	55482
Peter J Johnson	55821
Peter Vogelgesang	56127
Peter W Ulmen	55750
Phil Hegfors	55101
Phillip J Pechek	55316
Phyllis I Linde	55219
Priscilla M Antol	54964
Quinn Lamb	56301
R Peter Schue	56093
Ralph D Cameron	55003
Ralph Freeman	56010
Ralph Isaacson	55818
Ralph Latola	55675
Ralph R Lorenz	55926
Ralph Stenehjem	56112
Ramona Butler	56242
Ramona Buttenhoff	55000
Randall and Marjorie Johnson	55147
Randy Clay	55901
Randy Pierfelice	55700
Randy Schnepper	56216
Randy Semo	55873
Randy Senst	54940
Randy Sylvester	55733
Ray and Nancy Cayemberg	55989

Sender Name		Submission ID
45 Ironworkers Local 512 (Letter A)		
Ray Pearson		55697
Raymond Buttenhoff		55001
Raymond Dahl		55994
Raymond L Rutka		55558
Raymond M Peplinski		55318
Raymond O and Susan Rybos		55357
Raymond W Holter		55115
Rebecca and Donald Jackson		55131
Rein Teder		55737
Richard A Puhem		55341
Richard Adams		55892
Richard and Darlene Thorud		55745
Richard and Rebecca Maly		55527
Richard B Brickley		55475
Richard Davis		55029
Richard Donat		56229
Richard E Braun		54992
Richard E Fournier		55064
Richard F Whiteman		55572
Richard Gapinski		55492
Richard H and Joyce M Jasper		55646
Richard H Carlson		55008
Richard Harvey		55100
Richard J Hogan		55113
Richard J Priley		55548
Richard J Schmitt		55366
Richard Luhman		56050
Richard M and Marijo E Krause		56039
Richard M Ash		56239
Richard M Dixon		55794
Richard P Adamski		54945
Richard Peterson		55861
Richard Pietrusa		55701
Richard S Simmons		55721
Richard Thompson		55742
Richard V Burkard		54999
Richard W and Linda M Hansen		55813
Richard Wick		55884
Rick A Bowman		54990

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Rick and Raynita Houglum	55119
Ritva Anneli Kukkaro	55192
Robert A Johnson	55822
Robert A Stoinski	55406
Robert A Stoinski	55407
Robert A Stoinski	55408
Robert A Stoinski	55409
Robert A Wickman	55755
Robert Adams	55576
Robert and Carol R Pearson	55936
Robert and Helen Verkuilen	55431
Robert and Mary Berger	54979
Robert and Ruby F Eckstrom	56003
Robert Asperheim	54967
Robert D Clough	55017
Robert E Stokes	55410
Robert F Bay	54974
Robert F Larson	56233
Robert F Siegel	55719
Robert G Kari	56029
Robert H Mares	56153
Robert J Anderson	54960
Robert J Kruzel	56264
Robert J Monte	55533
Robert L and Marcia M Tholen	55739
Robert L Sotzen	55391
Robert L Waletzko	55440
Robert M and Joan W Swanson	55732
Robert M Winship	56132
Robert Mordick	55278
Robert P Kolodge	55183
Robert Quam	55342
Robert R Matthew	55246
Robert Rudolph	56090
Robert Troumbly	55425
Robert W Asproth	55893
Robert W Dilla	55032
Robert W Lee	56152
Roberta J Johnson	55502

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Roberta Leerssen	56043
Roberta Workman	55961
Rodney and Virginia Maki	56055
Rodney E Moberg	55276
Rodney M Skorich	55725
Roger A Andersen	55580
Roger A Stoick	56167
Roger and Janet Olson	56072
Roger and Marjorie Weske	56313
Roger D Niemi	55289
Roger J Hull	55121
Roger Johnson	55651
Roger L Finifrock	55910
Roger W Marks	55842
Rolanda Johnson	55652
Romolo Amistadi	54954
Ron Hagberg	56318
Ron Naber	55534
Ron Thilmany	55420
Ronald A Nelson	55286
Ronald A Sikkila	55386
Ronald Anzelc	55775
Ronald B Hallada	55093
Ronald B Johnson	55148
Ronald Bautch	55781
Ronald C Evans	55053
Ronald Carlenberg	55004
Ronald Dally	55025
Ronald Droher	55038
Ronald E Gullicks	55628
Ronald H and Patricia A Wiese	55885
Ronald John Majchrzak	55238
Ronald L Skrbec	56218
Ronald Langton	55672
Ronald Miller	55275
Ronald Youngren	55575
Rose E Schilling	55363
Rose Stewart-Hella	55566
Rosemary Langley	55924

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Ross Halter	55632
Roy A Charon	55601
Roy D Tingquist	55423
Roy Randall	55346
Ruby Laitinen	55200
Ruby Marsh	55844
Ruby Peterson	55323
Ruby Peterson	55324
Ruby Peterson	55325
Ruby Peterson	55326
Rudd B Thabes	55738
Russel H and Frances M Larson	55207
Russell O Anderson	55467
Russell Schuman	55367
Ruth A Kenyon	55170
Ruth Aspinall	55469
Ruth E Peterson	55327
Ruth Guthrie	55808
Ruth Guthrie	55809
Ruth Guthrie	55810
Ruth Kokko	56036
Ruth V Olson	55541
Ryan Gigliotti	56191
Ryan Johnson	55653
Ryan Ringhofer	56085
Sally J Orrick	55305
Sally Pionk	55702
Samantha Hanson	56256
Samuel Talarico	55570
Sandra Bauler	55780
Sandra Carlson	55009
Sandra Fritzen	55070
Sandra L Carlson	55986
Sandra Reynolds	56158
Sandy Ongaro	55301
Sanford L Anderson	54961
Scott Giberson	55076
Scott Grabay	56253
Scott Picketti	55940

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Scott Sickel	55952
Scott W Collins	56140
Sean M Flaherty	55489
Seppo Kukkaro	55193
Shamp	56331
Shamp	56332
Sharlene Fischer	55801
Sharon A Crep	55903
Sharon A Farconi	55617
Sharon Peterson	55328
Sharyn Hanson	56193
Shelly King	55176
Sherrill Erickson	55613
Sherron M Illegible	56025
Sherry A Manke	56057
Sherry Feige	56006
Sherry R Cohen	55603
Sherry Saari	55715
Shirley A Kokal	56035
Shirley Arvidson	54966
Shirley Choquette	55016
Shirley I Soderholm	56162
Shirley Shusta	55384
Stanley A Rouse	56089
Stanley Franck	55067
Stanley Mlakar	54936
Stanley W Beckman	54975
Stella Dormanen	55036
Stephanie Klund	55507
Stephanie Licari	56304
Stephen and Alberta Peterson	55329
Stephen D Johnson	55149
Stephen J Garvey	55073
Stephen Langworthy	56041
Stephen Roy Johnson	55151
Stephen Sabel	55358
Steve Allison	54950
Steve Allison	54951
Steve Allison	55578

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Steve Brackett	56316
Steve Illegible	55126
Steve Kalland	55923
Steve Kucera	55191
Steve Peterson	55330
Steve Wagner	55437
Steven A Buell	55477
Steven Benoit	55589
Steven C Johnson	56196
Steven Dewar	55999
Steven Hill	55495
Steven M Wilcox	55455
Steven Morris	55686
Steven Palmberg	55309
Steven Saterbak	56279
Steven Schwartz	55369
Steven W Segar	56281
Stewart	55567
Sue Hilton	55496
Sue Perrault	56075
Susan Black Johnson	55152
Susan Black Johnson	55153
Susan C LaVelle	56203
Susan Coen	56183
Susan Foschi	55803
Susan L Kolberg-Kuznik	55510
Susan Marie Julien	55160
Susan Risku	55557
Susan Sederberg	56280
Susan Wilson	56173
Susie Harris	55099
Suzanne Spicer	55395
Suzanne Spicer	55396
T A Salin	55360
Tammy Love	55229
Tanner Stokes	55728
Terence Beyer	55590
Terence Coyne	55023
Teresa R and Anthony C Peterson	55937

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Teresa Risdall	56310
Terrence J Davis	56245
Terrence K Driscoll	55037
Terry and Ardythe Johnson	55823
Terry Edmonds	55045
Terry Hood	56023
Terry Schlander	55951
Teryl A Maki	55526
Theodore L Johnson	55154
Thomas A Stolee	55880
Thomas Anderson	55972
Thomas C Donofrio	56000
Thomas Forti	55619
Thomas H Bell	56289
Thomas Illegible	55127
Thomas Illegible	56026
Thomas J Pacholl	55308
Thomas M Radaich	55344
Thomas Proulx	55549
Thomas T and Adeline L Kuzas	55196
Thomas Zeisler	55763
Tim and Char Greene	55085
Tim Dallmann	55607
Tim Kovich	55185
Tim Kruchowski	55188
Tim McKanna	55258
Tim Peters	54937
Timothy J Maly	56056
Todd J Horness	55918
Todd Johnsen	55649
Tom Abdo	54943
Tom Ackerman	56325
Tom and Stephanie Nikolanci	55538
Tom Anzelc	54815
Tom Donnohue	55034
Tom Kvas	56321
Tom Lohman	56046
Tom Nelson	55853
Tom Parker	55542

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
Tom Robertson	55708
Tony Pogorels	56278
Travis Nemanick	55536
Trisha Kaiser	55658
Troy M Rasch	56084
Val Melgeorge	55268
Verena M Lund	55525
Vern Prokosch	55943
Vernon R Petersen	55860
Victor M Castro	55010
Victor Minerich	55685
Victoria Carlson	55987
Vincent J Schmidt	55365
Virgil J Stang	56108
Virgil W Burgor	55478
Virginia M Smith	55562
W B and Maria Marline	54934
W R Olson	55297
W Taplett	55957
Wallace E Bergsner	55472
Wallace E Bergsner	55473
Walter A Prahl	56309
Walter and Corrine Schedlbauer	55362
Walter J Garvue	56189
Wanda Clough	56182
Wanda Hansen	56017
Warren J Lundeen	55233
Warren O Anderson	55581
Warren R Posthumus	56079
Wayne Edwards	55046
Werner Talus	55881
Whitney E Johnson Cobby	55136
Wilbert E and Vivian E Ott	55858
Wilbur G Najjar	56272
Wilford E Parnell	55312
Will Berglund	54980
William A Carlson	55481
William and Pam Koivisto	56149
William Bomay	54987

Sender Name	Submission ID
45 Ironworkers Local 512 (Letter A)	
William Boutwell	55977
William C Bushey	55787
William D Boitz	55593
William Hagstrom	55092
William K Johnson	55503
William L Schilling	55364
William Loushine	55228
William Lynch	56051
William Madsen	55681
William McCann	55255
William Moraski	56065
William N Altonen	55579
William P Fider	55800
William P Weisbrod	55960
William R Horvat	55118
William T Maki	55840
Wyllis Olson	55857
Yuriko Bradach	54920
Yvonne M Taylor	56221
Zelda Rae Walder	56283

Sender Name	Submission ID
46 Ironworkers Local 512 (Letter B)	
Form Letter 46: Ironworkers Local 512 (Letter B) Being from Northern Minnesota, I understand the concerns that people have with the environmental risks of the PolyMet North Met project. However, after attending the informational meetings about the project, and understanding the detailed analyses found in the SDEIS, it has become evident that PolyMet will not be placing its workers or the environment in any dangerous situations. I support the environmental review and I support this project. There are many positive outcomes to be had by the approval of the PolyMet North Met project. The amount of precious metals that we can recover from this mine can greatly reduce the amount of metals that our country imports each year. Additionally, as many as 1,000 jobs will be created (600 indirectly). This will give the region the tools they need to support their families and keep food on the table. The safety regulations and environmental regulations have been thoroughly addressed and I feel many will agree that this project will be handled responsibly. As a union Ironworker, we rely on professionals and experts to make sure the job will be safe and they rely on us to get the job done. We have become so technologically advanced that there are ways to make this project successful while still protecting the environment and workers. Many places around the world cannot say the same and they will be the ones mining for precious• metals and polluting our environment if we are not granted the opportunity to mine in Northeastern Minnesota. I support the SDEIS, the experts working hard on the environmental review process, and I support this project.	
Abel	54362
Adams	54363
Anderson	54364
Anderson	54365
Beltran	54366
Bennett	54367
Bentley	54368
Berg	54370
Bergerson	54369
Boger	54371
Boger	54372
Boone	54373
Borreson	54374
Bosma	54375
Brunz	54376
Buhman	54377
Carlson	54378
Carrier	54379
Christensen	54380
Christiansen	54381
Componion	54382
Cook	54383
DeBruzzi	54384
DeLanghe	54385
Djonne	54386
Draper	54387
Dright	54388
FL Illegible	54403
FL Illegible	54404
FL Illegible	54405
FL Illegible	54406

Sender Name	Submission ID
46 Ironworkers Local 512 (Letter B)	
FL Illegible	54407
FL Johnson	54408
FL Johnson	54409
FL Johnson	54410
FL Jones	54411
FL Kaul	54412
FL Keefer	54413
FL Keis	54414
FL Keller	54415
FL Kingsley	54416
FL Klemz	54417
FL Klenkowski	54418
FL Klun	54419
FL Kronenberg	54420
FL Kucera	54421
FL Labda	54422
FL Lagerquisst	54423
FL LeBlanc	54424
FL Legendecken	54425
FL Loew	54426
FL Loosbruck	54427
FL Loosbruck	54428
FL Lualikonen	54429
FL Lynn	54430
FL Madsen	54431
FL Matem	54432
FL McAdams	54433
FL McGowan	54434
FL Mellum	54435
FL Mithum	54436
FL Mortel	54437
FL Mullikin	54438
FL O'Gary	54439
FL Oldridge	54440
FL Oslin	54441
FL Peasley	54442
FL Peterson	54443
FL Piper	54444
FL Pomplun	54445

Sender Name	Submission ID
46 Ironworkers Local 512 (Letter B)	
FL Quaintance	54446
FL Rask	54447
FL Roggenkamp	54448
FL Rooney	54449
FL Rothenbacher	54450
FL Sanchez	54451
FL Schmit	54452
FL Schneider	54453
FL Schutz	54454
FL Shaw	54455
FL Shepersky	54456
FL Simmons	54457
FL Smith	54458
FL Soukeep	54459
FL Strain	54460
FL Syverson	54461
FL Templeton	54462
FL Thompson	54463
FL VanLith	54464
FL Vyskocil	54465
FL White	54466
FL Wojtysiak	54467
FL Wuollet	54468
FL Zollinger	54469
Fonseca	54389
Fremgen	54390
Green	54391
Gregoire	54392
Grime	54393
Grover	54394
Hakly	54395
Haus	54396
Helling	54397
Hiller	54398
Hilsen	54399
Hose	54400
Hutchens	54401
Illegible	54402

Sender Name	Submission ID
48 Multiple Organizations	
Form Letter 48: Multiple Organizations Duplicate submissions or small-batch form letters.	
Adam E	57288
Chad Tuura	57890
Colton Templer	57290
Evan	57291
Illegible	57294
Illegible	57299
Isaac A Curtis	57286
Michael B	57301
Michael Filipczak	57287
Nick Benson	57889
S B	57297
Scott B	57303
Trevor Salo	57292
Dear Ms. Fay, The history of sulfide mining is one of toxic environmental degradation with no evidence that mining for copper, nickel, and other non-ferrous metals in the water-rich environment of northeast Minnesota can be done without great harm. Across the country, there is no example where a sulfide mine has been operated and closed without polluting surface or groundwater with acid mine drainage, sulfuric acid and/or toxic metals. The risk of pollution is greatest in a water-rich environment like Northern Minnesota, which contains watersheds for the Boundary Waters Wilderness, Lake Superior and the Mississippi River basin. The PolyMet open-pit sulfide mine is the first sulfide mine proposed in Minnesota. Pollution from this project would impact the Lake Superior watershed for eternity. This mining proposal needs to be rejected! Sincerely,	
Casey	57289
Dean T Anderson	57284
Dustin Rahja	57304
Illegible	57295
Illegible	57298
Illegible	57300
Illegible	57305
Illegible	57306
Kelly R Buse	57285
Peter S	57302
Tim Nyland	57293
Tony S.	57296

Date: **November 24, 2015**

To: **Interested Parties**

From: **Lisa Fay, MDNR Project Manager**
Douglas Bruner, USACE Project Manager
Michael Jiménez, USFS Project Manager

Re: **NorthMet Mining Project and Land Exchange**
Final Environmental Impact Statement
Notice of Errata Sheet – Reference-Related Corrections to the Final EIS

The Minnesota Department of Natural Resources (MDNR), the U.S. Army Corps of Engineers (USACE), and the U.S. Forest Service (USFS) have jointly prepared the Final Environmental Impact Statement (FEIS) for the NorthMet Mining Project and Land Exchange. The FEIS describes the anticipated environmental and socioeconomic impacts of the proposed PolyMet Mining, Inc. (PolyMet) NorthMet Mining Project and Land Exchange, located near the cities of Hoyt Lakes and Babbitt in northeastern Minnesota. The FEIS also responds to substantive comments received during the public comment periods for the Draft EIS and the Supplemental Draft EIS. The FEIS is posted on MDNR's website at: http://www.dnr.state.mn.us/input/environmentalreview/polymet/index.htm l.

Interested Parties are hereby notified of an Errata Sheet detailing reference-related corrections to the Final EIS. The errata is posted on the MDNR's EIS project website as listed above. A copy of the errata may also be obtained upon request by contacting Lisa Fay, MDNR EIS Project Manager, at lisa.fay@state.mn.us.

Public review copies of the FEIS **and errata** are available at the following locations: the MDNR Library, 500 Lafayette Road, St. Paul; the MDNR Regional Office at 1201 East Highway 2, Grand Rapids; the MDNR-Division of Lands and Minerals Regional Office at 1525 Third Avenue East, Hibbing; the Hoyt Lakes Public Library at 206 Kennedy Memorial Drive, Hoyt Lakes; the Babbitt Public Library, 71 South Drive, Babbitt; the Duluth Public Library, 520 West Superior Street, Duluth; and the Minneapolis Public Library, 300 Nicollet Mall, Minneapolis.

The Co-lead Agencies take the opportunity to note the FEIS is available for public review for the period ending **December 14, 2015** at 4:30 PM CT.

Please submit comments by email to NorthMetFEIS.dnr@state.mn.us. All emails should include a name and legal mailing address. Comments may also be submitted by mail to:

Lisa Fay, EIS Project Manager
MDNR Division of Ecological and Water Resources
Environmental Review Unit
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

Please contact any of the following if you have any questions about the environmental review process:

Lisa Fay, MDNR at 651-259-5110
Douglas Bruner, USACE at 651-290-5378
Michael Jiménez, USFS at 218-626-4383

Members of the media may contact any of the following with questions:

Chris Niskanen, DNR communications director, 651-259-5023, chris.niskanen@state.mn.us
Patrick Moes, public affairs officer, U.S. Army Corps of Engineers, 651-290-5202, patrick.n.moes@usace.army.mil
Kristina Reichenbach, public affairs officer, Superior National Forest, 218-626-4393, kreichenbach@fs.fed.us

Questions about the proposed project may be directed to:

Jennifer Saran, PolyMet Mining, Inc., 444 Cedar Street #2060, St. Paul, MN 55101, 651-389-4108

ERRATA SHEET
Final Environmental Impact Statement
PolyMet Mining, Inc. – NorthMet Mining Project and Land Exchange
November 24, 2015

Item 1: Addition to Final EIS Master Reference List

The text on Final EIS Page REF-11 is edited to read:

--- 2015m. *Zim Wetland Mitigation Site Hydrology Monitoring, 2012-2014*. Prepared for PolyMet Mining, Inc. April 2015.

---2015n. Technical Memorandum: *Response to Cooperating Agency Comments Related to Peter Mitchell Pit – Version 4*. From Tina Pint and Jere Mohr to Bill Johnson, MDNR. September 14, 2015.

Barr (Barr Engineering) and HC Itasca. 2009. *Dissolved Solids and Chemical Balance – Mesabi Nugget Phase II Project*. Draft 01. Prepared for Steel Dynamics, Inc. Mesabi Mining, LLC. by Barr Engineering and HC Itasca. December 14, 2009.

Item 2: Edits to Select Final EIS Text

The text on Final EIS Page 5-240, top of page, is edited to read:

…resources. However, its effectiveness at the NorthMet site is uncertain and it may need to be combined with other mitigation options (Barr 2015~~b~~n).

The text on Final EIS Page 5-242, top of page, is edited to read:

...operations. The trench may only need to operate in non-frozen conditions to supply sufficient water to create a bedrock groundwater mound (Barr 2015~~b~~n).

Item 3: Correction to Final EIS Reference Document

The following document is the correct reference to the Final EIS:

Barr Engineering. Technical Memorandum: *Response to Cooperating Agency Comments Related to Peter Mitchell Pit – Version 4*. From Tina Pint and Jere Mohr to Bill Johnson, MDNR. September 14, 2015.

See Attachment 1. 25 pages.

Item 4: Addition to Final EIS Master Reference List

The text on Final EIS Page REF-44 is edited to read:

---1998. *A Spatial Assessment of Hydrologic Alteration within a River Network*. Regulated Rivers: Research & Management, 14: 329-340.

Richter, B.D., M.M. Davis, C. Apse, and C. Konrad. 2011. Short Communication: A Presumptive Standard for Environmental Flow Protection. River Research and Applications (2011). Wiley Online Library.

Rio Tinto (Rio Tinto plc). 2010. Fact Sheet: Nickel-Copper Exploration Target at Tamarack (Minnesota, USA). Retrieved from: http://www.riotinto.com/documents/ReportsPublications/Nickel Copper exploration target at Tamarack.pdf.

See Attachment 2. Ten (10) pages.

ERRATA SHEET –ATTACHMENT 1
Final Environmental Impact Statement
PolyMet Mining, Inc. – NorthMet Mining Project and Land Exchange
November 24, 2015

Barr Engineering. Technical Memorandum: *Response to Cooperating Agency Comments Related to Peter Mitchell Pit – Version 4*. From Tina Pint and Jere Mohr to Bill Johnson, MDNR. September 14, 2015. 25 pages.

Technical Memorandum

To: Bill Johnson, Minnesota Department of Natural Resources
From: Tina Pint and Jeré Mohr
Subject: Response to Cooperating Agency Comments Related to Peter Mitchell Pit – Version 4
Date: September 14, 2015
Project: NorthMet EIS (23690862.00)
c: Jennifer Saran, Poly Met Mining Inc.

This memorandum addresses comments and questions raised by the Cooperating Agencies related to the potential for groundwater flow from the proposed NorthMet pits north to the Peter Mitchell Pits (PMP) after closure of both mines.[1]

This memorandum focuses on two key points regarding the conceptual model for groundwater flow in bedrock at the NorthMet Mine Site:

1. Based on historic conditions at Peter Mitchell pits, regional information from taconite operations on the Mesabi Iron Range, and professional judgment, it was determined that future mine pits (NorthMet) or mine pits expansions (Peter Mitchell) should not cause significant drawdown in the bedrock units. That determination, in conjunction with the distance between the two mine sites, led to the conclusion that the conceptual model for the NorthMet Project environmental impact statement should not include the potential for groundwater flow north from the NorthMet pit to the PMP. Information on historic conditions at Peter Mitchell pit are discussed in Section 2.1 and Section 2.2, and other regional information is presented in Section 2.3.

2. The determination that groundwater is unlikely to flow from the NorthMet pit to the PMP is further supported by ongoing monitoring of water levels in bedrock at the proposed NorthMet mine site during different stages of mine pit development at Peter Mitchell (presented in Section 3.1), and the results from site-specific aquifer tests (presented in Section 3.2). Based on a review of recent aerial photographs and water appropriations permit pumping records, significant dewatering began in a portion of the Peter Mitchell pit complex near the NorthMet Mine Site in approximately 2003. Water elevation data from NorthMet bedrock wells indicates that this dewatering has not caused a drop in water levels in bedrock at the NorthMet mine site. This data strongly supports the conceptual model that future dewatering and long-term conditions at Peter Mitchell pit will not significantly affect groundwater flow directions at NorthMet.

---

[1] Closure of the NorthMet Mine is anticipated to occur in approximately 2040. Closure of the Northshore Mine is anticipated to occur in 2070.

Even though northerly groundwater flow is not reasonably foreseeable, PolyMet has committed to monitoring water levels in bedrock between the NorthMet Mine Site and Peter Mitchell during operations, reclamation, and long-term closure to confirm the conceptual model. Proposed monitoring locations are discussed in Section 4.2; details on specific monitoring requirements will be determined in permitting. A number of adaptive management options to prevent northerly flow of groundwater are available if future monitoring suggests such flow to the north could occur (see Section 4.2). A list of possible options are as follows:

- control the water level in the West Pit via pumping to insure gradients are inward
- maintain a groundwater mound between the PMP and NorthMet pits by injecting water via wells
- maintain a groundwater mound between the PMP and NorthMet pits by constructing an infiltration trench
- grout fractures in the NorthMet pits to minimize outflow

1.0 Background Data on Peter Mitchell Pits and NorthMet Pits

The information presented in this section provides background on the physical settings of the Peter Mitchell and NorthMet Pits. Large Figure 1 shows the Peter Mitchell Pit areas near the NorthMet project area. Large Figure 2 shows the long-term plan for the Peter Mitchell Pits. In this document, the names used for the Peter Mitchell Pit areas generally follow the naming used by Northshore Mining. Table 1 summarizes the estimated pit bottom and water surface elevations at the NorthMet and Peter Mitchell pits over time.

Table 1 Mine Pit Elevations

Period	NorthMet Pit Elevations (feet MSL)				Peter Mitchell Pit Elevations (feet MSL)(1)			
	West Pit		East Pit		Area 003 West(2)		Area 003 East(2)	
	Ground Surface	Water Surface	Ground Surface	Water Surface	Ground Surface	Water Surface	Ground Surface	Water Surface
Existing	1600	--	1600	--	1530-1580(3)	1624	1530	1568
Maximum Extent of Mining	940	--	920	--	1360-1380(3)	--	1360	--
Long Term (post 2080)	940	1576	1589(4)	1592	1360-1380(3)	1500	1360	1500

(1) Reference (1)
(2) PMP Area 003 West and Area 003 East refer to areas identified in Large Figure 1
(3) PMP Area 003 West consists of two interconnected pit areas with different bottom elevations
(4) Top of East Pit backfill
-- Pit is dewatered

Geologic cross sections through the Peter Mitchell pits and the NorthMet pits, locations of which are shown on Large Figure 1, are detailed in Large Figure 3 and Large Figure 4. These cross-sections show both existing conditions and maximum extents of both the Peter Mitchell pits and the NorthMet pits. At their maximum extent, the Peter Mitchell pits will remain approximately 6,500-8,000 feet (1.2 – 1.5 miles) north of the NorthMet mine pits, and will be approximately 400 feet MSL shallower.

2.0 Data Used to Inform the Conceptual Model

2.1 Peter Mitchell Pit Historic Levels

Water levels in the Peter Mitchell pits are considered surface expressions of the water table in the vicinity of those pits. Information on historical water levels in the various Peter Mitchell pits were used to help inform expected conditions during future operations. Limited public information is available on the water levels within the Peter Mitchell pits. To estimate water levels in portions of the Peter Mitchell pits over time, a combination of aerial photography and topographic data sets (including contour data and LiDAR data) was used. Water levels were estimated for two portions of the Peter Mitchell pits, referred to herein as Area 003 West and Area 003 East (Large Figure 1). The results of this analysis are summarized in Table 2.

Table 2 Approximate Historic PMP Water Levels

Year	Data Sources Used	Approximate PMP Water Level (feet MSL)	
		Area 003 West	Area 003 East
1991	Aerial + 1996 contours(1) + LiDAR	1622	1623
1998	Aerial + 1996 contours(1) + LiDAR	1620	1620
2006	Aerial + 1996 contours(1) + LiDAR	1624	1602
2008	Aerial + 1996 contours(1) + LiDAR	1625	1582
2009	Aerial + 1996 contours(1) + LiDAR	1625	1570
2010	Aerial + LiDAR	1623	< 1568
2011	LiDAR data	1622	1568
2013	Aerial + LiDAR	1624	< 1568

(1) Contour interval for 1996 contours is 5 feet

Pumping records for the water appropriation permits associated with the Peter Mitchell pit were also assessed. There was no water appropriated from the Area 003 West pits since at least 1988 (the first year electronic water use data is available). Since 2003, water has been appropriated from the Area 003 East pits (excluding 2005) at a nearly constant level (reported water usage obtained for Water Appropriation Permit 1982-2097 – 3 from http://www.dnr.state.mn.us/waters/watermgmt_section/appropriations/wateruse.html). This is consistent with the drop in water level observed in the aerial photos between 1998 and 2006.

Since 1991, water levels in the Area 003 West pits have remained relatively constant. It is unclear from aerial photography whether a surface connection currently exists between the two pit areas within Area 003 West, but water levels between the two areas have remained similar. Water levels in the Area 003 East pits have decreased since the late 1990s to less than 1568 feet MSL (the lowest visible contour based on the 2011 LiDAR data) since 2010. If there were a substantial cone of depression associated with Area 003 East pit dewatering, it would be reasonable to expect at least some water level response in Area 003 West, since these two pits are separated by approximately 500 feet at their closest point. No water level response in Area 003 West is apparent.

These observations indicate that the hydraulic conductivity of the Biwabik Iron Formation in the vicinity of the Peter Mitchell pits is low enough to support the large observed pit stages differences noted above. Based on the fact that PMP pits as close as 500 feet show no significant hydraulic connectivity, it is reasonable to conclude that the dewatering and long term closure of the PMP is unlikely to cause lowering of groundwater elevations large distances from the PMP site.

Although the Biwabik Iron Formation is utilized by some Iron Range communities as a water supply, regional information indicates that the formation has relatively low hydraulic conductivity in the area of the Peter Mitchell pits. Reference (2) indicates that "The Biwabik Iron-Formation lies about 3 miles south of Babbitt, but it is not an important aquifer in this area. Highly permeable leached ore bodies are not present east of Mesaba because of the thermal metamorphism by the intrusives of the Duluth Gabbro Complex (Reference (3)). Consequently, the permeability of the iron-formation is low, and ground-water movement through the formation is confined to narrow joints and fractures.

2.2 Lakes near Peter Mitchell Pit

Two lakes are located less than one mile northwest of the Peter Mitchell pits and overlie the Biwabik Iron Formation (the same formation mined at Peter Mitchell): Iron Lake and Argo Lake. Increasing lake water levels observed at these lakes from 1946 to 1980 during mining at Peter Mitchell, combined with the lakes' likely connection to bedrock, strongly suggest that the impact of the Peter Mitchell pits on the bedrock groundwater levels is limited, even in close proximity to the pits.

Iron Lake is approximately 170 acres in size with water surface elevation of around 1760 feet MSL and a maximum depth of about 20 feet. The MGS bedrock elevation GIS dataset estimates the top of bedrock elevation below Iron Lake ranges from 1740 to 1760 feet MSL. The metadata associated with this dataset indicates that the bedrock elevations have an approximate vertical accuracy of +/- 20 feet (Reference (4)). As the maximum lake depth is 20 feet, portions of the lake bottom are likely exposed to bedrock. In addition, a geologic map of the area surrounding Iron Lake shows bedrock outcrops immediately adjacent to the lake along several areas of the shoreline (Reference (5 p. Plate XVI)).

Argo Lake, located northeast of Iron Lake, is about 80 acres in size with a water surface elevation of about 1745 feet MSL. The MGS dataset estimates the top of bedrock below Argo Lake to be between 1700 and 1750 feet MSL. Although the bathymetry of Argo Lake is unknown, the bedrock elevation is approximately equal to the ground elevation along the northwest side of the lake and the regional bedrock map indicates bedrock outcrops along the northern and northeastern shorelines of the lake (Reference (6)), suggesting that at least some portion of the lake bottom is likely connected to bedrock.

Water level data are available for Iron and Argo Lakes from 1946 to 1980. Mining activities at Peter Mitchell commenced in the mid- to late 1950s and have been ongoing since that time. During that time, water levels in Iron Lake and Argo Lake have fluctuated within a 6.3 foot range and a 7.1 foot range, respectively (Figure 1). These ranges are relatively small for lakes without controlled outlets in a region with a net precipitation of approximately 11 inches per year.

Over the 30 year period from 1950 to 1980, the water level in both lakes has gradually increased by 2 to 3 feet. Based on 2011 LiDAR data, the elevation of Iron Lake (1760.2 feet) is 4 feet greater than observed in

1946. The estimated 2011 elevation of Argo Lake is 1745.1 feet, although the relative change from 1946 is unknown due to the use of a local datum from 1946 through 1980. The increase in water levels over time is likely due to the regional net precipitation of approximately 10+ inches and the fact that the lakes are landlocked. The gradual increases in lake water levels at elevations well above those of the nearby Peter Mitchell pits suggest that the nearby dewatering activities in the pits have not had a significant effect on the stages of the lakes. As with the observations of pit stage variations at PMP, the information on Iron Lake and Argo Lake indicates that the dewatering and closure of the PMP will not cause lowering of groundwater elevations at distances of less than one mile from the PMP site.

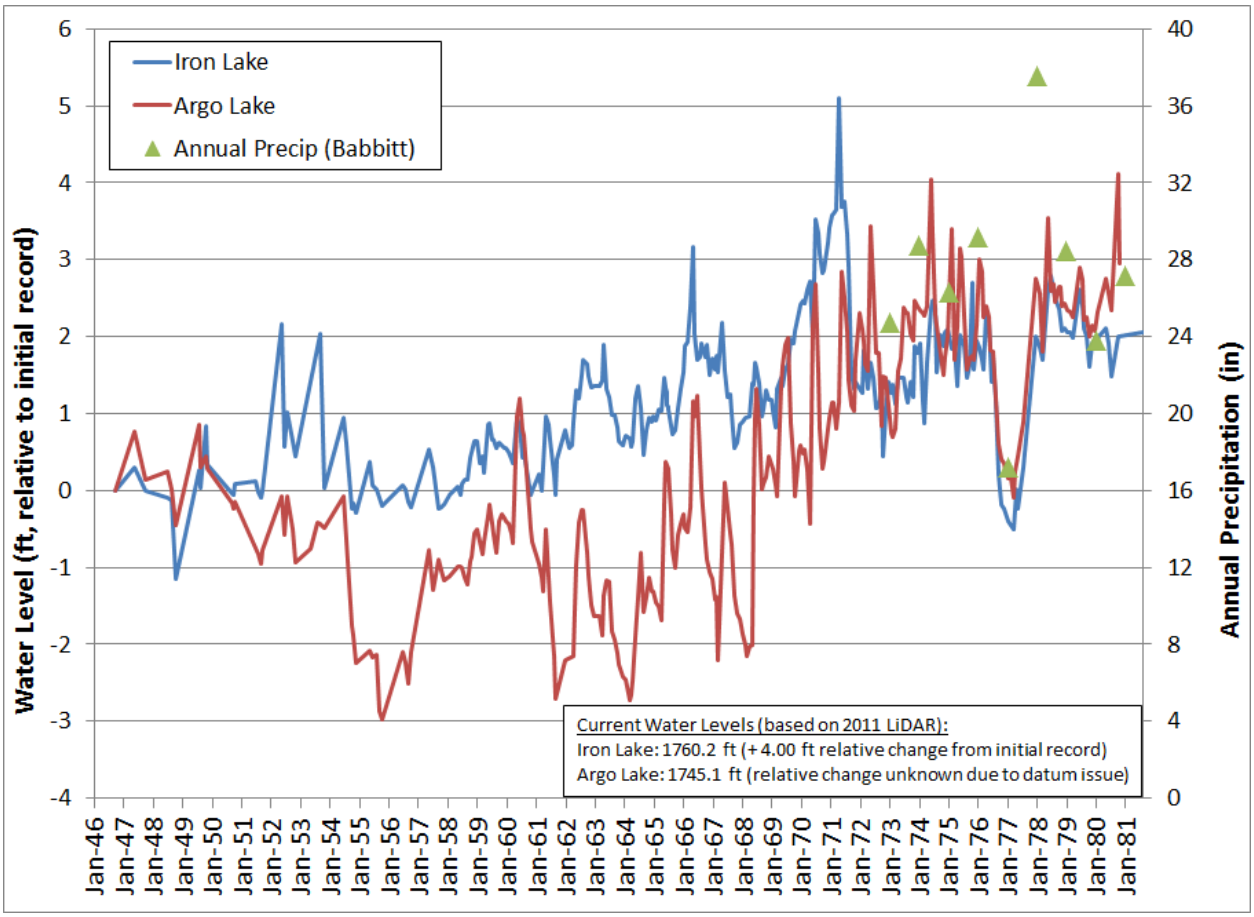

Figure 1 Historical Water Levels in Iron Lake and Argo Lake and Annual Precipitation

2.3 Regional Data from the Mesabi Iron Range

Historic evidence from the PMP and other open pits on the Iron Range further supports the conclusion that groundwater flow between the PMP and the NorthMet pits is unlikely, and that it is reasonable to expect that a groundwater mound between the two pits will be maintained. While local variability is expected, the geologic setting and characteristics of the sites discussed below are sufficiently similar to

the area near NorthMet and PMP that the findings of these studies are useful in informing the expected groundwater flow directions in the area between NorthMet and PMP. Although bedrock water level data are limited, experience with open pit mining on the Iron Range has shown that the impacts from dewatering pits are realized locally, or within close proximity (within approximately 1500 feet) to the pits. For example, Figure 2 and Figure 3 show groundwater divides are inferred in the surficial aquifer within close proximity to open mine pits located near Chisholm and Eveleth (Reference (7)).

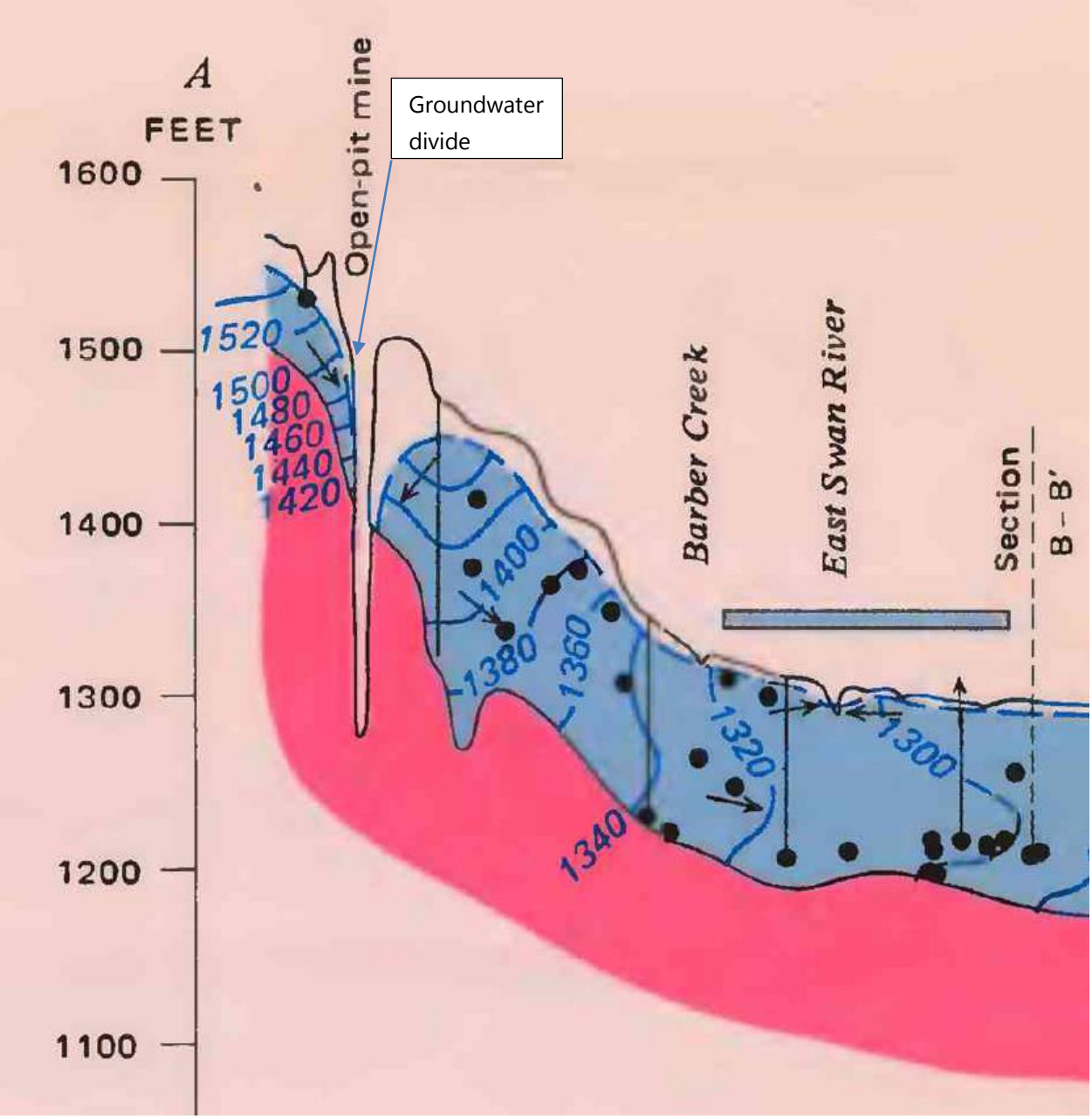

From Cross-section A-A' of Reference (7). *The portion shown has a length of approximately 17 miles*

Figure 2 Portion of a Cross Section Showing Hydraulic Head Contours in the Drift Aquifer Adjacent to an Open-pit Mine

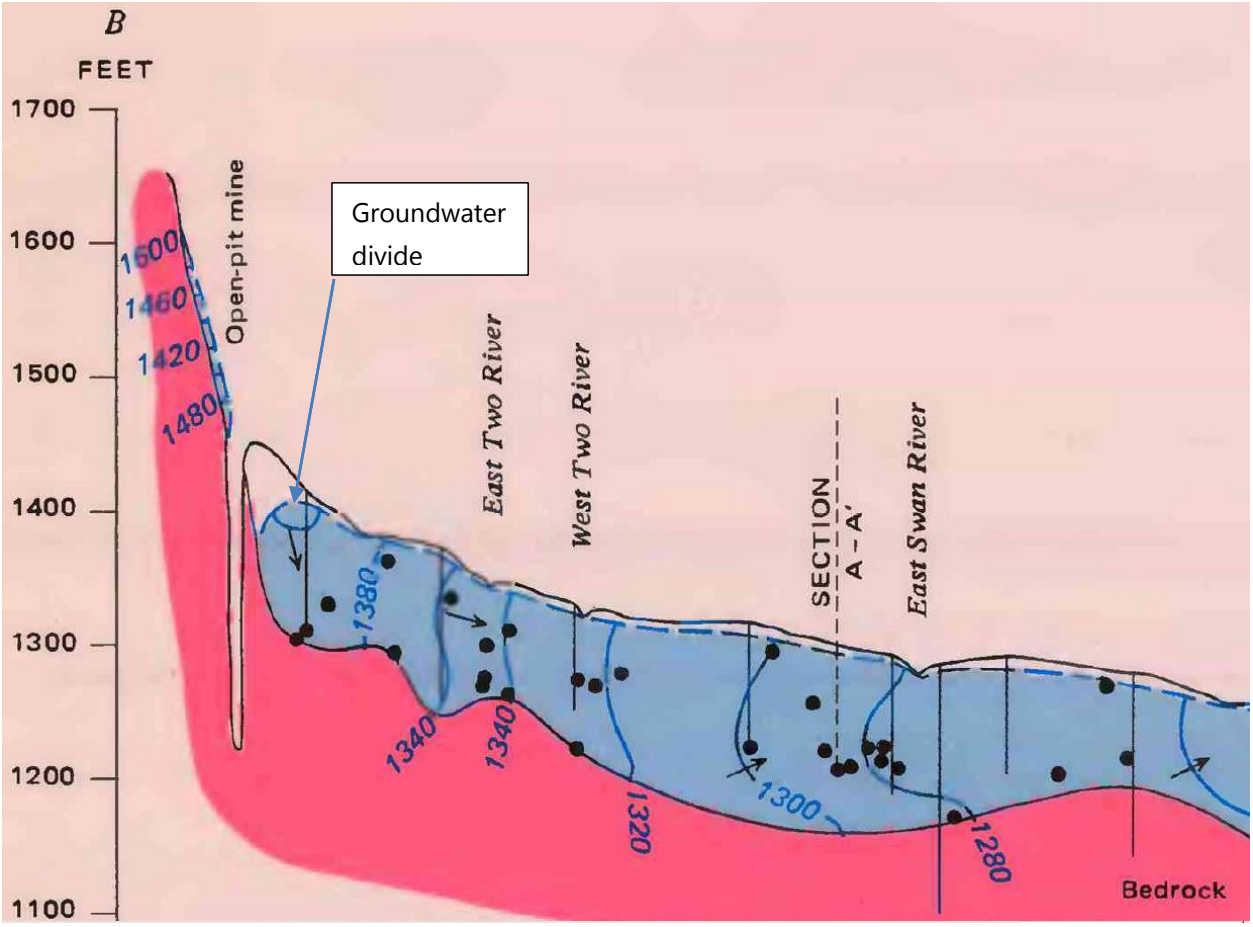

From Cross-Section B-B' of Reference (7). *The portion shown has a length of approximately 22 miles*

Figure 3 Portion of a Cross Section Showing Hydraulic Head Contours in the Drift Aquifer Adjacent to an Open-pit Mine

A hydrologic assessment in the Hibbing area showed similar results. Reference (8)indicates that in the Hibbing area, the groundwater divide in the surficial aquifer north of the mined areas still coincided with topographic divides. South of the mined areas, the groundwater divide in the surficial aquifer was estimated to be located within a few hundred to approximately 2000 feet of the mine pits and to range in elevation from approximately 1520 to greater than 1460 feet MSL adjacent to pits in which the water levels ranged from 1100 to 1175 feet MSL.

The East Range Hydrology Study focused on taconite mine pits in the Hoyt Lakes area and concluded that groundwater inflow to the pits was predominantly from surficial sources (Reference (9)). In addition, regarding refilling of mine pits following dewatering, the authors concluded that substantial groundwater outflow will not occur until the pit stage exceeds the lowest down-gradient water table elevation in the adjacent surficial deposits. These two observations support the concept that flow to a large pit with a low

stage such as the existing and future Peter Mitchell pit would likely produce some water from seepage from the surficial deposits (limited by desaturation in the vicinity of the pit), and minimal groundwater flow from the bedrock, limited by the reduced saturated thickness in the vicinity of the pit. At Peter Mitchell, groundwater flow would be further limited by the lower hydraulic conductivity of the rock types that exist between the PMP and the NorthMet site.

The examples described above show that the hydrologic impacts from pit dewatering on the Iron Range are realized locally, or within close proximity to the pits. Because of this, it is reasonable to conclude that neither dewatering at the Peter Mitchell pits, nor the long-term closure plan for the pit, will have hydrologic impacts at the site of the future NorthMet pit.

2.4 Conclusion

All of the information above was known and available when the Co-leads developed the conceptual model for the PolyMet project. In summary: (1) Observations of water levels in the PMP show that hydraulic conductivity of the Biwabik Iron Formation in the vicinity of the Peter Mitchell pits is low, to the point that even pits as close as 500 feet do not show significant hydraulic connectivity. (2) Increasing water levels at two lakes less than one mile from the PMP—during active mining at the PMP—further demonstrate low groundwater connectivity. (3) Historic data shows that hydrologic impacts from pit dewatering are realized only within close proximity to the pits. For all of these reasons, it was reasonable to conclude as part of the PolyMet project conceptual model that groundwater would not flow north from the PolyMet pit to the PMP. Accordingly, it was not necessary to evaluate changing PMP levels in the Mine Site MODFLOW model that was used to perform certain impacts analyses for the NorthMet Mine Site.

3.0 Validation of the Conceptual Model

3.1 Site Groundwater Elevation Data

Water levels in NorthMet bedrock wells do not show a response to dewatering activities at Peter Mitchell. Water levels have been measured in five bedrock observation wells from 2007 to present. Wells OB-1 and OB-2 (shown on Large Figure 1) are completed in the Duluth Complex, while the remaining three wells are completed in the Virginia Formation. All five wells are 100 feet deep. Figure 4 shows groundwater elevation trends in these five wells compared with pit stages in the Peter Mitchell East Pit. The lack of response in the observation wells during a period of dewatering at the Peter Mitchell East Pit provides recent, direct evidence to support the conclusion that water levels in the PMPs do not have an effect on bedrock water levels at the NorthMet site.

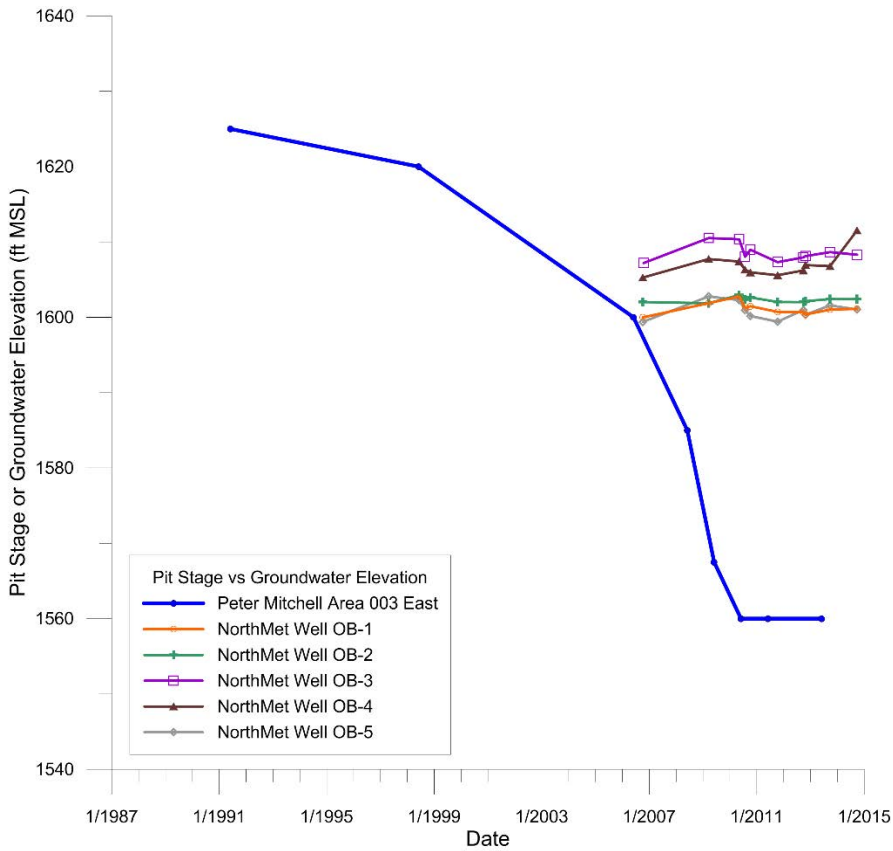

Figure 4 Plots of Groundwater Elevations in Bedrock Wells at the PolyMet Site and Stage in the Peter Mitchell East Pit

3.2 NorthMet Site-Specific Aquifer Testing

Pumping tests were completed at the Mine Site during the Phase II and Phase III Hydrogeologic Investigations conducted in 2005 and 2006 (Reference (10), Reference (11)). During the Phase II Hydrogeologic Investigation, tests were completed in four pumping wells (P-1 through P-4) completed in the Virginia formation, and water levels were monitored in bedrock observation wells (Ob-1 through Ob-5 and a preexisting water supply well). With the exception of Ob-2, which was installed in the Duluth Complex, all the observations wells were completed in the Virginia Formation. Pumping test durations ranged from 35 to 96 hours. During the Phase III Hydrogeologic Investigation, a 30-day pumping test was conducted in well P-2. The majority of the observation wells during this test were installed in the wetland deposits in the wetland north of P-2; however, water levels were also monitored in Ob-2.

The observed drawdowns in the pumping wells and observation wells during the pumping tests are summarized in Table 3 and shown on Large Figure 5. They indicate minimal propagation of drawdown within the bedrock due to its low transmissivity. For example, drawdown at wells P-1, P-2, and P-4 on the

order of tens to hundreds of feet resulted in little to no observed drawdown in bedrock observation wells within a few hundred feet of the pumping wells. Drawdown in observation wells near P-3 was somewhat higher than other locations but, at most, was approximately half the maximum drawdown at the pumping well at a distance of 108 feet from the pumping well.

Hydraulic conductivity estimates from the Phase II pumping tests ranged from 0.0024 feet/day to 1 foot/day, with a geometric mean value of 0.17 feet/day. The low hydraulic conductivity of the Virginia Formation is expected to reduce the propagation of drawdown away from the PMP as the influence of the low stage in the pit spreads south at similar elevations to the pit walls. In addition, as the influence of groundwater inflow to the PMP spreads down-dip in the Biwabik Iron Formation, the high resistance to vertical flow through the Virginia Formation (because the Virginia Formation is a metasedimentary unit that likely have some degree of horizontal stratification) is expected to limit the influence on shallower units.

The fact that aquifer tests at the NorthMet site show minimal drawdown at distances as close as 115 feet further bolsters the conceptual model that changes in PMP water levels—which occur at least 6,500 feet away from the future NorthMet pit—will not cause northerly groundwater flow.

Table 3 Summary of Aquifer Tests Performed at the NorthMet Site

Hydrogeologic Investigation	Pumping Well	Average Pumping Rate (gpm)	Pumping Duration	Observation Well	Observation Well Distance from Pumping Well, feet MSL	Pumping Well Maximum Drawdown, feet MSL	Observation Well Maximum Drawdown, feet MSL
Phase II Hydrogeologic Investigation	P-1	1.5	36 hr	Ob-1	310	324.10	<0.1
	P-2	28	36 hr	Ob-2	274	258.04	4.57
	P-3	40	96 hr	Ob-3	115	41.09	8.66
				Ob-3a	108	41.09	23.22
				Water Well	330	41.09	16.73
	P-4	39	35 hr	Ob-4	1370	36.90	<0.1
				Ob-5	245	36.90	<0.2
Phase III Hydrogeologic Investigation	P-2	22	30 days	Ob-2	274	221.71	4.85

4.0 Adaptive Water Management

4.1 Approach

For the reasons discussed above, the work done to support the FEIS appropriately analyzes the potential environmental effects of reasonably foreseeable activities within the NorthMet Project. Those reasonably foreseeable effects do not include groundwater flow to the north through bedrock, which is highly unlikely to occur. Similarly, because mitigation measures designed to address northerly groundwater flows are highly unlikely to be needed, they also do not constitute reasonably foreseeable actions.

By proactively monitoring its environmental controls and the environmental setting, PolyMet can continuously evaluate environmental impacts. PolyMet will analyze monitoring information and use adaptive management practices[2], as needed, along with associated mitigations, to prevent significant adverse effects. These tools, which are consistent with industry standard practice, have been used throughout PolyMet's environmental review process, and will continue to be used in permitting, operations, reclamation, and long-term closure.

The following sections describe PolyMet's use of monitoring and adaptive management as applied to assessing and addressing the potential for groundwater flow to the north. With early implementation of this monitoring plan, PolyMet will be able to collect and analyze hydrology data in a timely manner. If the data show it is necessary, adaptive management can be employed. Three feasible mitigation measures are outlined below, that could be used separately or in combination with each other, to adequately address any concern that arises.

4.2 Monitoring

PolyMet will monitor groundwater flow through use of proposed bedrock monitoring locations north of the NorthMet mine pit, which are shown on Large Figure 6. While final details on the number and locations of wells will be determined in permitting, PolyMet currently proposes eight wells for the area between the PolyMet NorthMet pits and the Peter Mitchell pits. Two of these wells (the eastern most and the one between the Category 1 waste rock stockpile and the West Pit) are existing wells. The locations of the new wells have been subject to preliminary evaluation by the co-lead agencies. All eight wells will provide key data during operations on the water level in bedrock to help address the question of whether there is the potential for flow between the two mine sites. Four additional bedrock wells are proposed in the area south of the West Pit and the Category 2/3 Waste Rock stockpile for other monitoring purposes. New monitoring wells would be installed prior to operations, which would allow for more than 10 years of water level monitoring prior to any potential for northerly flow (note that northerly flow out of the

[2] *Theodore Roosevelt Conserv. P'ship v. Salazar*, 616 F.3d 497, 517 (D.C. Cir. 2010).

NorthMet pits is only possible once the NorthMet pits start to be backfilled and flooded, which begins in Year 11 for the East Pit).

4.3 Potential adaptive management options

If conditions observed in these northerly wells are not as expected, and a groundwater divide is not maintained between the PMP and NorthMet project areas when needed to prevent flow to the north, PolyMet will be able to implement adaptive management practices to prevent northward flow. This Section outlines three feasible and efficacious adaptive management measures that PolyMet could implement should the need arise.

4.3.1 West Pit Water Level Suppression

The first option for adaptive management would be to manage the NorthMet pit water levels via pumping to keep the West Pit stage below dewatering level at Peter Mitchell when there is active mining at Peter Mitchell, and below the Peter Mitchell pit lake level thereafter. This practice would result in a long-term pit lake level in the West Pit below 1,500 feet MSL, compared to the currently planned level of 1,576 ft MSL. Water pumped from the pit would be sent to the WWTF and discharged similar to the current plan for West Pit closure.

Water levels in the East Pit would be maintained near an elevation of 1,592 feet MSL so that the backfilled waste rock in the pit remains inundated. Water from the East Pit will flow into the West Pit because of the close proximity between the East and the West pits and because the water level in the West Pit will be below the water level at Peter Mitchell. The resulting hydraulic gradient between the East Pit and the West Pit will be larger than a gradient between the East Pit and the Peter Mitchell Pit. Therefore, water will flow from the East Pit to the West Pit, rather than north toward Peter Mitchell. If needed and based on environmental conditions at some future point, this management option could be combined with other adaptive management practices such as bedrock water level maintenance (see Section 4.3.2) or pit wall grouting to reduce the hydraulic conductivity of a portion of the Virginia Formation (see Section 4.3.3) to further reduce the potential for flow to the north.

This management practice will both be effective at addressing any unforeseen groundwater flow to the north and is technically feasible. While keeping the West Pit water level lower may result in more exposed wall rock load generation, under the current project plans, the water that is pumped from the West Pit is routed to the WWTF to be treated prior to discharge. Based on the current MODFLOW model predictive simulations, groundwater inflow to the West Pit at an elevation of 1,500 feet MSL is expected to be approximately 50 gpm, approximately 10 gpm greater than the expected groundwater inflow at the currently-planned long-term elevation of 1,576 feet MSL. The WWTF, as currently designed, will be sufficient to handle this increase, particularly as the existing plans for the WWTF at closure involve

upgrading the plant from a chemical precipitation plant to a reverse osmosis treatment plant. Therefore, this adaptive management practice will allow PolyMet to fully address any unanticipated groundwater flow to the north and, if needed, will be refined and reviewed by the relevant agencies based on the available data consistent with the NPDES/SDS permit and Permit to Mine programs.

4.3.2 Bedrock Water Level Maintenance

A second feasible option for adaptive management would be to maintain a water level in bedrock north of the NorthMet mine pits that is higher than the long-term water level planned for the pits (shown in Table 1) by artificial recharge. Water level control via infiltration or injection is a proven technology that has been used successfully on other project sites to mitigate hydrologic impacts associated with mine pit dewatering. Rubio and Fernandez (Reference (12)) presents a high level overview of the use of artificial recharge of groundwater in mining, and includes examples of mines that have successfully used infiltration and injection to minimize the effects of mine dewatering at copper, gold, and iron mines across the globe. One example is at the Garzweiler Lignite Mines in Germany, where a combination of surface trenches and injection wells are used to maintain water levels in the various bedrock and surficial units to minimize impacts to nearby wetlands. Huxley et al. provides additional case studies on how recharge features have been successfully used to mitigate the impacts of quarry dewatering (Reference (13)). Injection wells are also commonly used to create barriers to salt water intrusion (Reference (12), Reference (13)). Here in Minnesota, Unimin Corporation conducted a pre-mining field test to evaluate a water level mitigation system to prevent mine dewatering drawdown from impacting calcareous fen wetlands near their Kasota mine in Le Sueur County, Minnesota (Reference (14)). The results of this field test demonstrate that artificial recharge is an effective method of maintaining a higher volume of water in targeted areas in Minnesota's environmental setting.

At NorthMet, an application of this industry-proven method for preventing flow to the north would be to construct an infiltration trench on the north side of the Category 1 Waste Rock Stockpile, extending east along the north side of the cut-off dike, and to the eastern extent of the East Pit. This water-filled trench would extend to bedrock and could have water levels maintained using, among other potential water sources, stormwater runoff from the covered Category 1 Waste Rock stockpile and treated water from the WWTF.

The available water sources should be adequate for this recharge method for two reasons. First, the bedrock has relatively low permeability in this area and only minimal amounts of water would be required to maintain a mound. Screening level analysis conducted by the Co-lead Agencies suggests that approximately 160 gpm would need to be infiltrated or injected in order to maintain a groundwater mound within bedrock (Reference (14)). Second, given the slow velocities for groundwater flow in bedrock (estimated to be 15-30 ft/yr), the infiltration trench would only need to operate during non-

frozen conditions. Therefore, stormwater from the Category 1 stockpile would alone provide a sufficient volume of water to recharge the bedrock. The estimated flow of 160 gpm is equivalent to approximately 5.9 inches per year over the Category 1 Waste Rock Stockpile, which is less than the anticipated stormwater yield available for infiltration (estimated to be 8.5 inches per year with the geomembrane cover).

If the water supply from this water sources is inadequate to maintain water levels in the trench, other water sources would provide a sufficient supply of water. These water sources include treated water from the Wastewater Treatment Plant (WWTP), water retained in a basin, and injection wells in place of, or to supplement the infiltration trench. Based on a preliminary evaluation using the measured properties of the bedrock and the estimated injection rate of 160 gpm, it is expected that between 10 and 50 wells would be needed, with the actual number dependent on localized hydraulic conductivity and depth to the water table. Therefore, in the unlikely event that future monitoring identifies a northerly flow from the NorthMet mine pits, PolyMet will have available sufficient water volume and a combination of options (infiltration trench and injection wells) to recharge the bedrock north of the pits to prevent this flow.

4.3.3 Pit Wall Grouting

A third feasible adaptive management practice that would be effective, alone or in combination with one of the preceding options, is implementation of the Conceptual Plan for Bedrock Groundwater Flow Mitigation (Reference (15)) that PolyMet has outlined. Industrial mining grout (commonly a mixture of bentonite, cement and water) injection can be used to seal or close fractures and faults, which then controls bedrock groundwater flow to and from mine pits. Also, grout curtains can be used for groundwater control in both unconsolidated deposits and fractured rock. A grout curtain is constructed by drilling a series of purposely spaced and oriented bedrock drill holes and injecting grout into the surrounding rock to fill pore spaces, fractures and faults.

Use of grout to control water at mine sites is a widely used and proven mitigation measure. Powers et al. present an overview of grouting methods and applications for groundwater control (Reference (15)) Additional mining applications are presented in Reference (16), Reference (17), and Reference (18). At the NorthMet Mine Site, if appreciable bedrock flow into the pits were to unexpectedly occur, it will be readily apparent as the pits are deepened during mining. At that stage, PolyMet will have the necessary information about site conditions to coordinate with the appropriate agencies and grout those features (fractures, faults) down to the projected maximum depth of the final Peter Mitchell pits before the NorthMet pits are flooded. By grouting to this depth before pit flooding, PolyMet will guard against unexpected northerly flows from the flooded pit toward the Peter Mitchell pits.

4.4 Conclusion

Because the primary purpose of adaptive management is to address unpredicted developments by monitoring the actual effects of a project, it is sufficient under NEPA that such "mitigating measures are described in general terms and rely on general processes."[3]

As part of the permitting process for the NorthMet Project, PolyMet will continue to refine and develop new monitoring and mitigation plans. PolyMet anticipates that the NPDES/SDS permit issued by MPCA will include enforceable conditions regarding monitoring and, if necessary, mitigation of northerly groundwater flow. Through the NPDES/SDS permitting program and the annual reporting requirement under the Permit to Mine, the MDNR and MPCA would have access to the necessary information regarding actual environmental conditions, which will allow those agencies and PolyMet to effectively evaluate the information, and determine the need for mitigation. Adaptive management is an important tool that PolyMet will continue to use during, operations, reclamation, and long-term closure.

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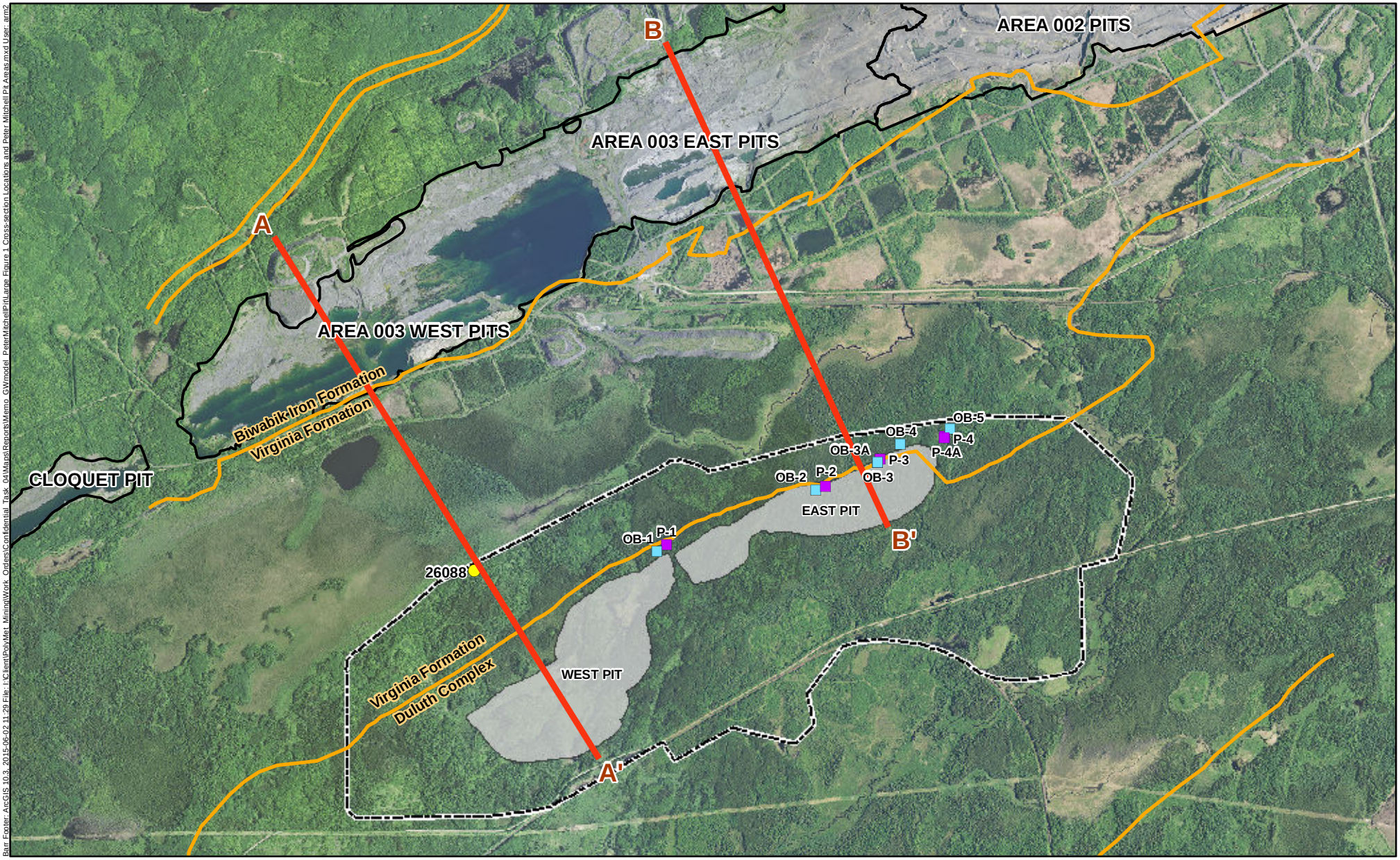

Drill Hole

Existing Bedrock Monitoring Wells

Observation Wells

Pumping Test Wells

Cross Section Locations

Geologic Contacts

Peter Mitchell Pit Areas
DNR Mining Features, 2013

NorthMet Mine Site

NorthMet Pits

0 1,750 3,500 7,000
Feet

Large Figure 1
CROSS SECTION LOCATIONS AND
PETER MITCHELL PIT AREAS
NorthMet Project
Poly Met Mining Inc.
Hoyt Lakes, Minnesota

Barr Footer: ArcGIS 10.3, 2015-06-02 11:29 File: I:\Client\PolyMet Mining\Work Orders\Confidential Task 04\Maps\Reports\Memo GWmodel PeterMitchellPit\Large Figure 1 Cross-section Locations and Peter Mitchell Pit Areas.mxd User: arm2

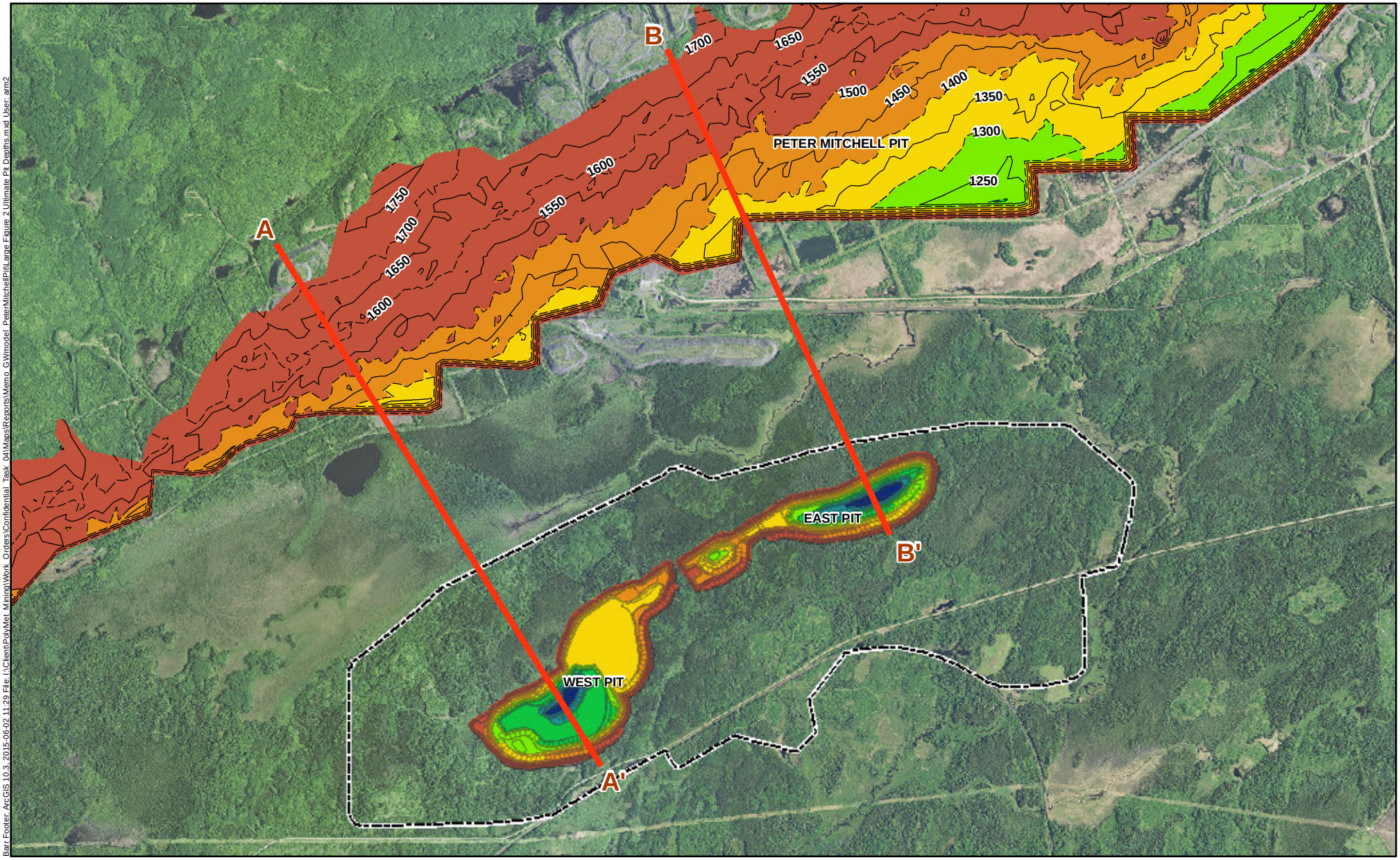

Cross Section Locations
NorthMet Mine Site
Future Topography (ft MSL)
920 - 1,000
1,000 - 1,100
1,100 - 1,200
1,200 - 1,300
1,300 - 1,400
1,400 - 1,500
1,500 - 2,000

0 1,750 3,500 7,000
Feet

Large Figure 2
ULTIMATE PIT ELEVATIONS
NorthMet Project
Poly Met Mining Inc.
Hoyt Lakes, Minnesota

Barr Footer: ArcGIS 10.3, 2015-06-02 11:29 File: I:\Client\PolyMet Mining\Work Orders\Confidential Task 04\Maps\Reports\Memo GWmodel PeterMitchellPit\Large Figure 2 Ultimate Pit Depths.mxd User: arm2

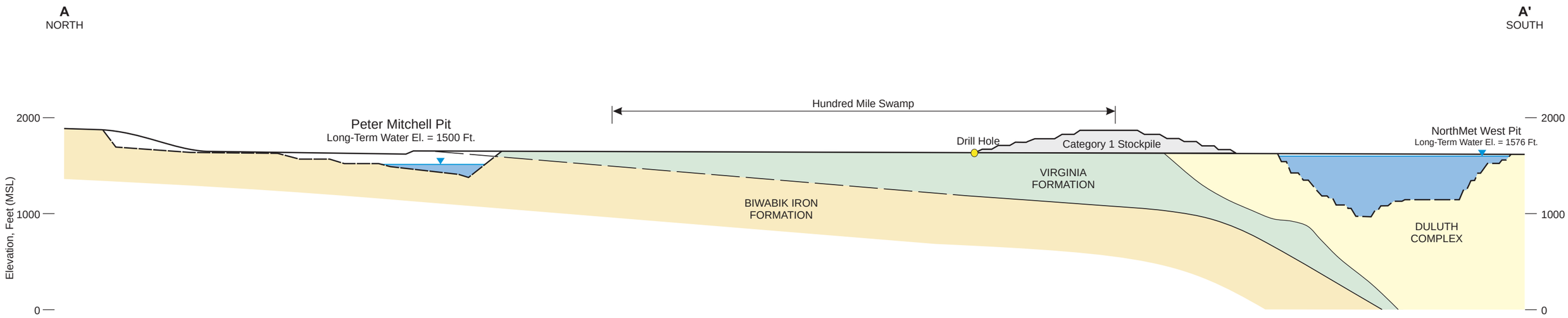

0 1000

Horizontal Scale, Feet
No Vertical Exaggeration

Geologic Contact
(Contacts are dashed in areas beyond the extent of PolyMet's geologic block model)

P:\Mpls\23 MN\69\2369862\WorkFiles\Figures_Graphics\2015 Figures_Graphics\Cross Section C-C'.CDR RLG 06-03-15

Large Figure 3

CROSS-SECTION A-A'
PolyMet Mining
Hoyt Lakes, MN

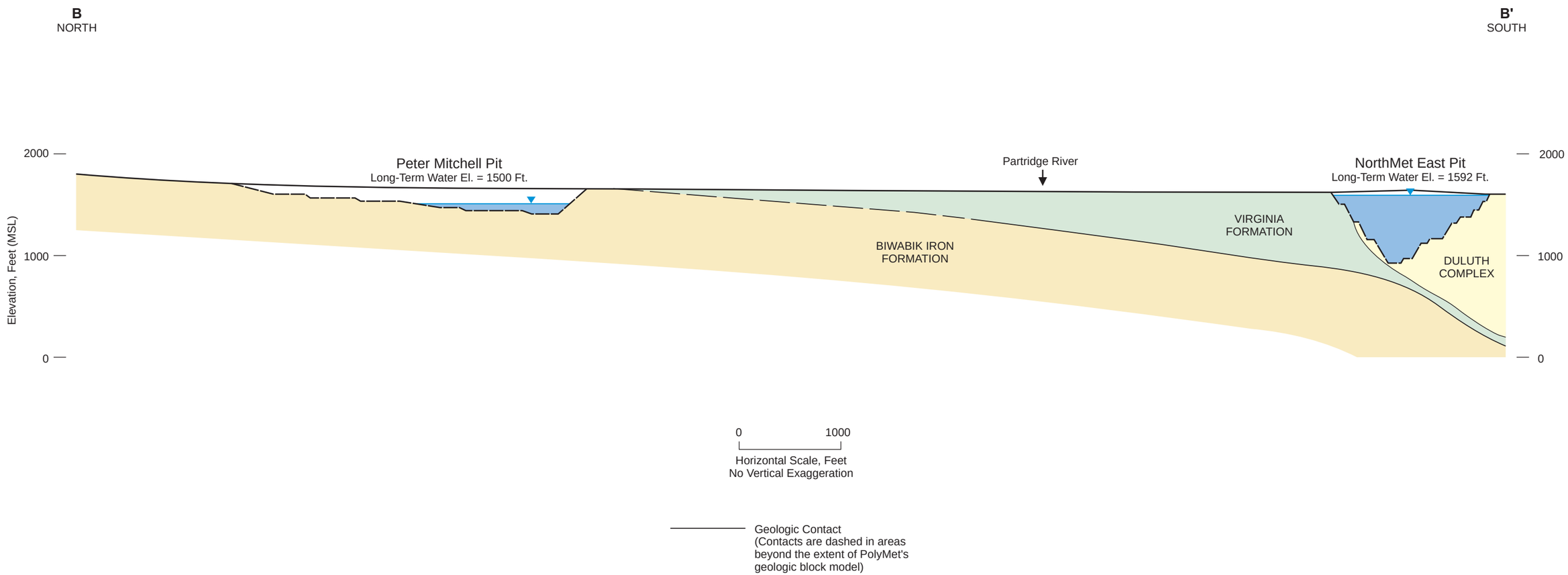

P:\Mpls\23 MN\69\2369862\WorkFiles\Figures_Graphics\2015 Figures_Graphics\Cross Section B-B'.CDR RLG 06-03-15

Large Figure 4

CROSS-SECTION B-B'
PolyMet Mining
Hoyt Lakes, MN

Barr Footer: ArcGIS 10.3, 2015-06-02 09:06 File: I:\Client\PolyMet_Mining\Work_Orders\Confidential_Task_04\Maps\Reports\Memo_GWmodel_PeterMitchellPit\Large Figure 5 Maximum Observed Drawdown During Aquifer Testing at the NorthMet Mine Site.mxd User: arm2

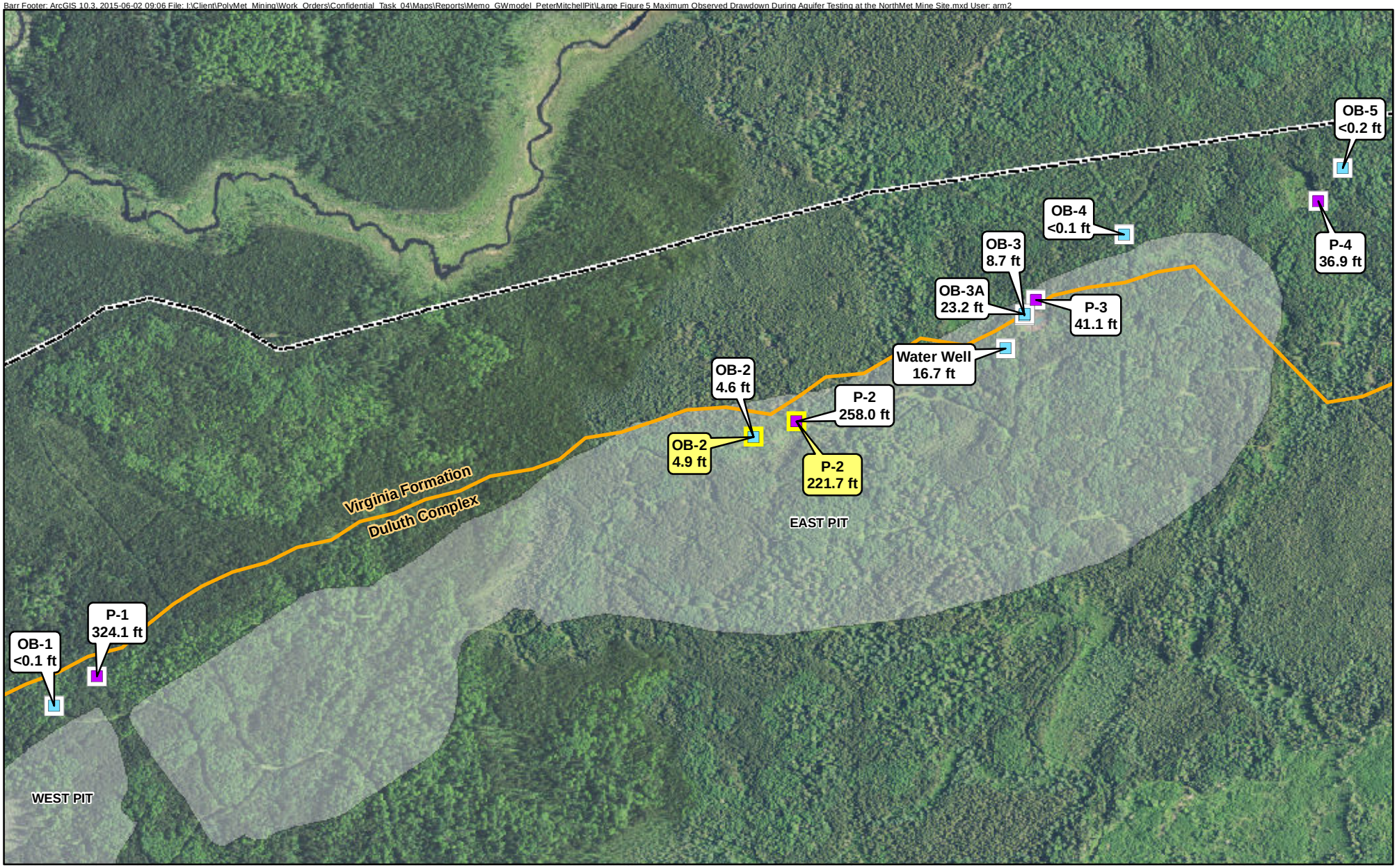

Existing Bedrock Monitoring Wells
- Observation Wells
- Pumping Wells
- Aquifer Test Phase II
- Aquifer Test Phase II and Phase III

- Geologic Contacts
- NorthMet Mine Site
- NorthMet Pits
- OB-1 <0.1 ft — Well Name, Phase II Maximum Drawdown
- OB-1 <0.1 ft — Well Name, Phase III Maximum Drawdown

0 400 800 1,600
Feet

Large Figure 5
MAXIMUM OBSERVED DRAWDOWN DURING AQUIFER TESTING AT THE NORTHMET MINE SITE
NorthMet Project
Poly Met Mining Inc.
Hoyt Lakes, Minnesota

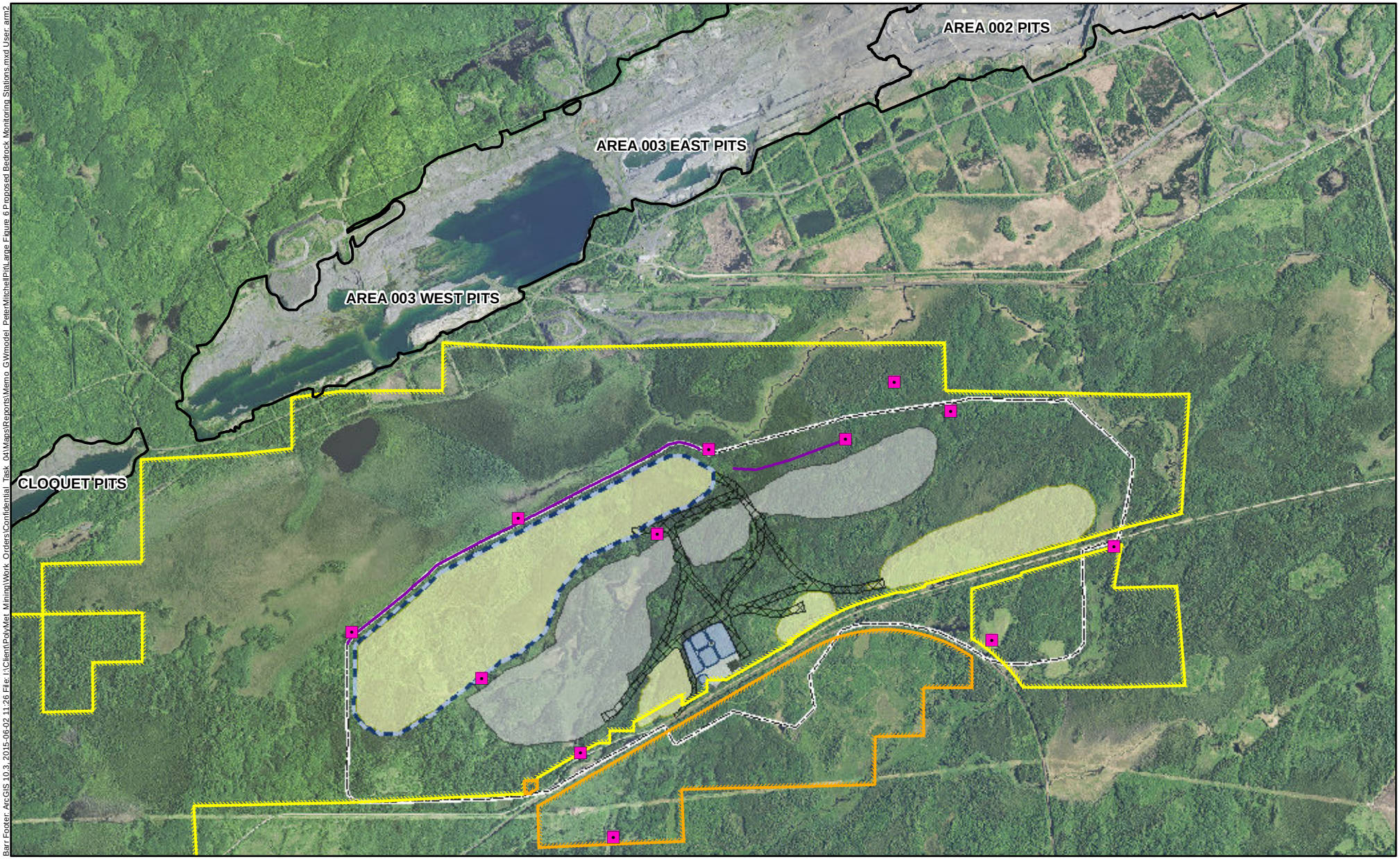

Proposed Bedrock Monitoring Wells
NorthMet Mine Site
Peter Mitchell Pit Areas
DNR Mining Features, 2013
PolyMet Owned/Leased Area
USFS Federal Land Exchange Parcel

Mine Layout - Year 11
Mine Pit
Active Stockpile
Removed Stockpile
Haul Roads
Groundwater Containment System
Perimeter Dike

0 1,750 3,500 7,000
Feet

Large Figure 6
PROPOSED BEDROCK
MONITORING STATIONS
NorthMet Project
Poly Met Mining Inc.
Hoyt Lakes, Minnesota

Barr Footer: ArcGIS 10.3, 2015-06-02 11:26 File: I:\Client\PolyMet Mining\Work Orders\Confidential Task 04\Maps\Reports\Memo GWmodel PeterMitchellPit\Large Figure 6 Proposed Bedrock Monitoring Stations.mxd User: arm2

ERRATA SHEET –ATTACHMENT 2
Final Environmental Impact Statement
PolyMet Mining, Inc. – NorthMet Mining Project and Land Exchange
November 24, 2015

Richter, B.D., M.M. Davis, C. Apse, and C. Konrad. 2011. Short Communication: A Presumptive Standard for Environmental Flow Protection. River Research and Applications (2011). Wiley Online Library. Ten (10) pages.

RIVER RESEARCH AND APPLICATIONS
River Res. Applic. (2011)
Published online in Wiley Online Library
(wileyonlinelibrary.com) DOI: 10.1002/rra.1511

SHORT COMMUNICATION

A PRESUMPTIVE STANDARD FOR ENVIRONMENTAL FLOW PROTECTION

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ABSTRACT

The vast majority of the world's rivers are now being tapped for their water supplies, yet only a tiny fraction of these rivers are protected by any sort of environmental flow standard. While important advances have been made in reducing the cost and time required to determine the environmental flow needs of both individual rivers and types of rivers in specific geographies, it is highly unlikely that such approaches will be applied to all, or even most, rivers within the forseeable future. As a result, the vast majority of the planet's rivers remain vulnerable to exploitation without limits. Clearly, there is great need for adoption of a "presumptive standard" that can fill this gap. In this paper we present such a presumptive standard, based on the Sustainability Boundary Approach of Richter (2009) which involves restricting hydrologic alterations to within a percentage-based range around natural or historic flow variability. We also discuss water management implications in applying our standard. Our presumptive standard is intended for application only where detailed scientific assessments of environmental flow needs cannot be undertaken in the near term. Copyright © 2011 John Wiley & Sons, Ltd.

KEY WORDS: environmental flow; sustainability; Sustainable Boundary Approach; river management; corporate water use; water stewardship; water allocation; water scarcity

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Available freshwater supplies are being increasingly strained by growing human demands for water, particularly for irrigated agriculture and urban uses. The global population is growing by 80 million people each year, and if consumption patterns evolve as expected, two-thirds of the world's population will live in water-stressed areas by 2025 (WWAP, 2009). Whereas differing patterns of population growth, lifestyle changes and climate change will pose different scenarios on each continent, water managers and planners are challenged to meet growing water needs virtually everywhere.

At the same time, societies around the world are increasingly demanding that water managers also protect the natural freshwater ecosystems that are being tapped for water supplies. The need to protect 'environmental flows'—defined as the quantity, timing and quality of water flows required to sustain freshwater and estuarine ecosystems and the human livelihoods and well-being that depend on these ecosystems (Brisbane Declaration, 2007)—is now being addressed in many governmental water allocation policies, dam development plans and urban water supply plans. The stimuli for protecting environmental flows are varied and many, including the desire to protect biodiversity, ecosystem services (especially fisheries production), water-based tourism or recreation, economic activities such as hydropower generation and other cultural or spiritual values (Postel and Richter, 2003).

However, many good intentions to protect environmental flows have stalled upon encountering confusing and conflicting information about which method for environmental flow assessment is appropriate or 'best' and perceptions that the more credible and sophisticated methods require considerable investment of time, expertise and money to apply. These real and perceived hurdles have too often resulted in doing nothing to protect environmental flows, leaving the vast majority of rivers on the planet vulnerable to over-exploitation (Richter, 2009).

The environmental flow science community has long been attuned and responsive to the need for more cost-efficient and time-efficient approaches to determining environmental flow needs. Beginning in the 1970s with the Tennant (1976) method and continuing with the recent publication of the 'Ecological Limits of Hydrologic Alteration' (ELOHA; Poff *et al.*, 2010), a long series of efforts have been put forth by scientists to streamline and expedite environmental flow assessment while maintaining scientific credibility. However, widespread environmental flow protection across the planet's river networks has yet to be attained.

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Of particular concern and relevance to this paper is the fact that it is proving difficult to implement ELOHA in some jurisdictions even though the approach was explicitly designed to address the issues that have prevented other methods from being applied widely. The four co-authors of this paper have been actively encouraging government entities to apply the ELOHA framework; the difficulties we have experienced in these efforts have provided strong motivation for writing this paper. As we explain later in this paper, we continue to believe that ELOHA provides the best available balance between scientific rigor and cost of application for setting environmental flow standards for many rivers simultaneously. The ELOHA framework is currently being applied in various jurisdictions around the world. However, we are finding that many government entities are unable (or unwilling) to afford the cost of applying ELOHA (generally ranging from $100k to $2M), especially in situations where existing biological data and hydrologic models have poor spatial coverage. Time constraints are an even more frequent hindrance to the implementation of the ELOHA framework, particularly for jurisdictions embroiled in politically challenging situations such as responding to extreme droughts, legislative mandates or lawsuits. We suggest that until ELOHA or some variation can be applied everywhere, a presumptive, risk-based environmental flow standard is needed to provide interim protection for all rivers.

Another strong motivation for putting forth a presumptive standard at this time is the fact that many large water-using corporations are now looking for environmental indicators that can help them screen their operations and supply chains for water-related risks (e.g. SABMiller and WWF-UK, 2009). These corporations are increasingly coming to understand that, when environmental flows are not adequately protected, freshwater ecosystems will be stressed, jeopardizing ecosystem services valued by many people for their livelihoods and well-being. This can lead to conflicts that can ultimately endanger a company's 'social licence to operate' (Orr *et al.*, 2009). Presently, many corporations are using estimates for environmental flow requirements put forth by Smakhtin *et al.* (2004); these estimates range globally from 20% to 50% of the mean annual river flow in each basin. We agree with Arthington *et al.* (2006) that such a low level of protection as suggested by Smakhtin 'would almost certainly cause profound ecological degradation, based on current scientific knowledge'. We hope that the presumptive standard we offer in this paper will replace corporate use of the Smakhtin estimates for water risk screening.

The presumptive standard for environmental flow protection put forth in this paper is intended for use only in situations where the application of ELOHA or site-specific environmental flow determinations (e.g. Richter *et al.*, 2006) cannot be applied in the near future; in other words, it is intended for use as a default placeholder. This presumptive standard is derived from the sustainability boundary approach (SBA) described by Richter (2009), which involves maintaining flows within a certain percentage-based range around natural flows (i.e. flows in the absence of dam regulation or water withdrawals).

Before discussing our proposed presumptive standard in greater detail, we provide a short discussion of the advantages of 'per cent-of-flow' (POF) approaches such as the SBA for expressing environmental flow requirements. We then summarize efforts around the world to apply flow protection standards based on POF expressions. Finally, we propose a specific presumptive standard using risk bands placed around natural flow variability and conclude with management implications in applying this presumptive standard.

APPROACHES FOR SETTING FLOW PROTECTION STANDARDS

A primary challenge in setting flow protection standards is to employ a practical method that limits water withdrawals and dam operations in such a way as to protect essential flow variability. As described by Richter (2009), a large body of scientific literature supports the 'natural flow paradigm' as an important ecological objective to guide river management (Richter *et al.*, 1997; Poff *et al.*, 1997; Bunn and Arthington, 2002; Postel and Richter, 2003; Arthington *et al.*, 2006). Stated simply, the key premises of the natural flow paradigm are that maintaining some semblance of natural flow regimes is essential to sustaining the health of river ecosystems and that health is placed at increasing risk with increasing alteration of natural flows (Richter *et al.*, 2003; Richter, 2009).

Three basic approaches have been employed for setting environmental flow standards across broad geographies such as states or nations: minimum flow thresholds, statistically based standards and POF approaches. The most commonly applied approach to date has been to set a minimum flow level that must be maintained. For example, the most widely used minimum flow standard in the USA is the annual 7Q10, which is defined as the lowest flow for seven consecutive days that occurs every 10 years on average. Whereas the original intent of the annual 7Q10 flow standard was to protect water quality under the federal Clean Water Act of 1972, it has become either explicitly in rule or by default the minimum flow threshold in many states (Gillilan and Brown, 1997; IFC, 2001). The growing recognition that this threshold was not sufficiently protective of aquatic habitats led in the 1980s and 1990s to several states setting higher flow thresholds, such as by setting the minimum level at 30% of the mean annual flow (MAF) or by setting thresholds that vary seasonally, such as at the

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level of 60% of MAF in winter, 30% of MAF in summer and 40% of MAF in spring and fall (Gillilan and Brown, 1997; IFC, 2001).

More recently, statistically based standards have been used to maintain certain characteristics of the flow regime. For example, such a standard may call for protecting a high flow of a specified magnitude, with specified duration, to occur with a specified inter-annual frequency. The application of a statistically based standard in regulating water use generally involves using computerized hydrologic models to simulate the cumulative effects of licenced or proposed water withdrawals and dam operations on the flow regime; hydrologic changes are allowed to accumulate until the statistical standards would be violated by further withdrawals or dam effects.

Flow standards set in the USA, the European Union and elsewhere in the past decade have increasingly been based on a POF approach (see case studies later in this paper). This approach explicitly recognizes the importance of natural flow variability and sets protection standards by using allowable departures from natural conditions, expressed as percentage alteration. The POF approach has several strong advantages over other approaches. For instance, the POF approach is considerably more protective of flow variability than the minimum threshold standards. Minimum-threshold-based standards can allow flow variability to become 'flat-lined' as water allocation pressure increases and reservoir operations are designed only to meet minimum release requirements. Statistically based standards, although usually more protective of flow regimes than minimum thresholds, can be confusing to non-technical stakeholders, and complex statistical targets have proven difficult for water managers to implement (Richter, 2009). By comparison, POF approaches are conceptually simple, can provide a very high degree of protection for natural flow variability and can also be relatively simple to implement (i.e. a dam operator simply releases the prescribed percentage of inflow, or cumulative water withdrawals must not reduce flow by more than the prescribed percentage).

Sustainability boundary approach

Recognizing that human-induced flow alterations can both deplete and unnaturally augment natural flows to the detriment of ecological health, Richter (2009) expanded upon the POF approach by suggesting that bands of allowable alteration called 'sustainability boundaries' could be placed around natural flow conditions as a means of expressing environmental flow needs, as depicted in Figure 1.

To apply the SBA, the natural flow conditions for any point of interest along a river are estimated on a daily basis, representing the flows that would have existed in the absence of reservoir regulation, water withdrawals and return flows (Richter, 2009). Limits of flow alteration, referred to as sustainability boundaries, are then set on the basis of allowable perturbations from the natural condition, expressed as percentage-based deviations from natural flows. Those withdrawing water or operating dams are then required to maintain downstream river flows within sustainability boundaries. Whereas maintaining flows within the targeted range may be infeasible on a real-time basis in many cases, such management can be facilitated by creating computerized hydrologic models to evaluate what the likely perturbation to natural flows would be under existing or proposed scenarios of water withdrawal and dam operations and by licencing such water uses accordingly.

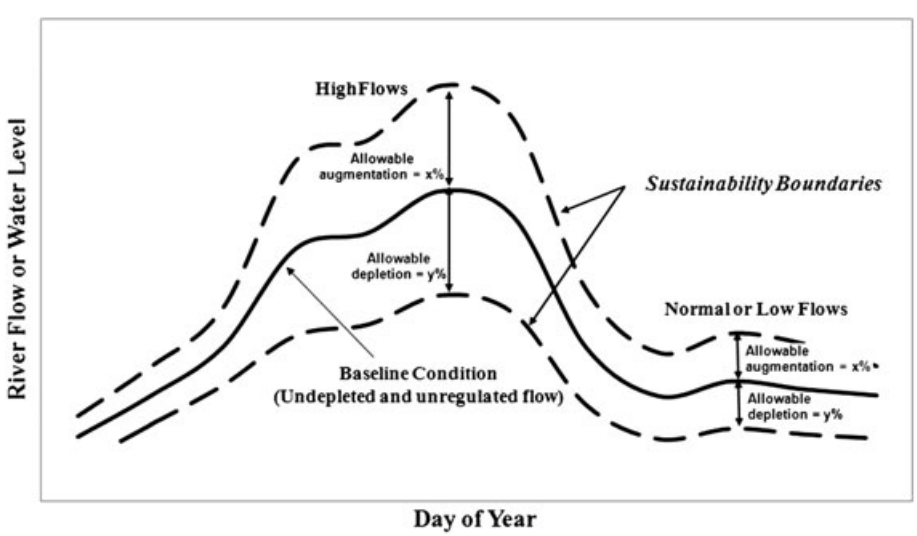

Figure 1. Illustration of the sustainability boundary approach from Richter (2009; reprinted with permission). The sustainability boundaries set limits on the degree to which natural flows can be altered, expressed as a percentage of natural flows.

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The allowable degree of alteration from the natural condition can differ from one point to another along the same river. This determination for any point of interest along a river requires a negotiation or optimization between the following: (i) the desired consumption or dam regulation of water upstream, which might either deplete or unnaturally augment river flows; (ii) the desired uses of water downstream; and (iii) the desired ecological condition and ecosystem services to be maintained. As such, the SBA forces an explicit integration of environmental flow objectives with water withdrawals and dam operations. We recognize and emphasize that this is a socio-political decision-making process as much as it is a scientific one. As suggested by Richter (2009), the application of the SBA in setting river flow management goals requires transparent, inclusive and well-informed stakeholder engagement.

The basic challenge confronting environmental flow proponents is the difficulty of determining how much alteration from natural flows can be tolerated without compromising ecological health and ecosystem services to an undesirable degree. In the absence of such an understanding, water managers and governmental regulators have focused solely on water withdrawals and dam operations, providing only minimum flow protection or neglecting ecosystem considerations altogether. This highly undesirable situation calls for the adoption of a precautionary approach to fill the gap, until more detailed and regionally tailored studies of environmental flow needs can be completed and used to set flow protection standards.

We believe that sufficient scientific evidence and knowledge now exist to propose an SBA-based presumptive standard that can serve as initial guidance for regulating water withdrawals and dam operations in rivers. In designing the presumptive standard recommended later in this paper, we reviewed numerous other efforts to set environmental flow standards that apply across broad regions and many different rivers.

CASE STUDY REVIEW

The following case studies represent environmental flow policies and management guidelines that are being applied in the USA and Europe to limit flow alteration and to achieve relatively high levels of ecological protection, while allowing for carefully managed water development to proceed. Whereas not all of these cases can be characterized as pure POF approaches, we believe that these case studies illustrate useful and progressive water management policies that fulfill the intent of the SBA. They are described here to demonstrate the feasibility of applying standards in a manner consistent with the SBA and to support our recommendations for the presumptive standard described later in this paper.

Example #1—Southwest Florida Water Management District

Under the Florida state law, the state's five water management districts must determine 'minimum flows and levels' (MFLs) for priority water bodies of the state. Methods to determine MFLs differ among the five districts. The Southwest Florida Water Management District (SWFWMD) uses a POF-based approach that includes use of multiple environmental flow assessment methods, including the Instream Flow Incremental Methodology and the Wetted Perimeter approach (see IFC, 2001 for descriptions of these methods), to inform the setting of percentage alteration limits. The intent of the resulting MFLs is to limit water withdrawals such that physical habitat losses do not exceed 15% (Flannery *et al.*, 2002, 2008). The allowable flow reduction, which is referenced to as previous-day flows at a specified river gauge, can vary with season and with magnitude of flow and includes a 'hands-off' low flow threshold, meaning that all withdrawals are curtailed once the flow threshold is reached (see Rules of the Southwest Florida Water Management District, Chapter 40D-8, Water Levels and Rates of Flow, Section 40D-8.041 Minimum Flows at www.swfwmd.state.fl.us).

These MFLs are used in water management planning and incorporated as water withdrawal permit conditions. The percentage of allowable depletion has been set by SWFWMD for five non-tidal rivers in the district, ranging from 8% to 15% during high flows and 10% to 19% during low flows. Allowable depletions tend to be larger for freshwater flows into estuaries. For example, the lower Alafia River can be depleted up to 19% as it enters its estuary, based on limiting fish habitat loss caused by changes in salinity and dissolved oxygen to no more than 15%. No withdrawals are allowed when flows fall below 120 ft^3/s, based on chlorophyll residence time in the estuary, fish, dissolved oxygen and comb jellyfish. The proposed MFL for the Lower Peace River and its estuary limits withdrawals to flows above 130 ft^3/s, with allowable 16% reduction of daily flow up to a flow rate of 625 ft^3/s, 29% flow reductions in fall/winter and 38% flow reductions in summer above 625 ft^3/s (Flannery *et al.*, 2002, 2008).

Example #2—Michigan's Water Withdrawal Assessment Tool Approach

The Great Lakes–St Lawrence River Water Resources Compact and related state law require limits on water withdrawals to prevent 'adverse resource impact', defined as the point when 'a stream's ability to support characteristic fish populations is functionally impaired'. Zorn *et al.* (2008) documented the work of the Michigan Department of Natural Resources to develop a predictive model of how

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fish assemblages in different types of Michigan streams would change in response to decreased summer base flows, using habitat suitability information for over 40 Michigan fish species. The approach involved classification of all river segments in the state based on size and temperature regime and the development of a fish response curve that relates assemblage richness to an index flow (median August streamflow) for each of the 11 river classes. This index flow serves as a surrogate for withdrawals as a POF.

Across the majority of river types in Michigan, 'baseline or existing' ecological conditions are predicted to be maintained with cumulative withdrawals less than 6–15% of the index flow, depending on the stream type (Seelbach *et al.*, 2009). This is roughly equivalent to maintaining excellent ecological condition for many rivers, but some rivers that have historically been degraded would only be maintained in their current condition (Paul Seelbach, personal communication, University of Michigan, Ann Arbor). Adverse resource impacts are predicted to occur on most types of rivers with withdrawals greater than 17–25% of index flow. Rivers classified as 'transitional' between cold and cool rivers are very sensitive to withdrawals and are limited to withdrawals of 2–4% index flows before adverse resource impact is predicted to occur.

The Michigan Water Withdrawal Assessment Tool (WWAT) allows estimation of the likely impact of a water withdrawal on nearby streams and rivers using these threshold values. Use of the WWAT is required of anyone proposing to make a (large) new or increased withdrawal from the waters of the state, including all groundwater and surface water sources, prior to beginning the withdrawal. The WWAT is online at http://www.miwwat.org/.

Unlike Florida's POF approach, which references allowable depletions to a percentage of the previous day's flow, the Michigan approach references its withdrawal limits only to the August median flow. Because August is typically the lowest flow month in Michigan and Michigan flow regimes are fairly predictable, it is unlikely that cumulative withdrawals beyond the adverse resource impact level would frequently exceed the percentage guideline in other months. However, in very dry summers, one would expect the adverse resource impact percentage to be exceeded for a portion of the summer.

Example #3—UK Application of the European Union Water Framework Directive

The European Union (EU) Water Framework Directive, passed in 2000, was designed to protect and restore aquatic ecosystems by setting common ecological objectives across EU member states. The Water Framework Directive requires member states to achieve a 'Good Ecological Status' in all surface waters and groundwaters that are not determined to already be 'heavily modified'(Acreman *et al.*, 2006). It is assumed that meeting the Good Ecological Status requires protecting or restoring ecologically appropriate hydrological regimes, but the Water Framework Directive itself does not define environmental flow standards for any country in the EU (Acreman and Ferguson, 2010).

In the UK, a Technical Advisory Group worked with conservation agencies and academics to begin defining environmental standards for physio-chemical and hydro-morphological conditions necessary to meet different levels of ecological status (Acreman *et al.*, 2006). A key part of this work was defining thresholds of allowable water withdrawal as a percentage of natural flow. To achieve this, a literature review was prepared, and numerous expert workshops were convened. Each river in the UK was assigned to one of 10 classes, based on physical watershed characteristics, to facilitate application of withdrawal thresholds (Acreman and Ferguson, 2010).

Withdrawal standards were based on professional knowledge and discussion of the flow needs of various plant and animal communities—primarily macrophytes, macroinvertebrates and fish. Quantitative standards for achieving Good Ecological Status were specified for four groupings of river types, two seasons and four tiers of withdrawal standards based on annual flow characteristics (Table I). The allowable abstraction values in Table I are intended to be restrictions on cumulative withdrawals, applicable to any point on a river of that type.

The withdrawal standards in Table I were derived from an expert consensus workshop approach by using the precautionary principle to deal with considerable uncertainty. Different tolerances to flow alteration were recognized across taxa groups, but a 10% flow alteration was generally seen by experts as likely to have negligible impact for most taxa, stream types and hydrologic conditions (Acreman and Ferguson, 2010). The workgroup also generally agreed upon a Q95 (i.e. fifth percentile) flow as being 'hands-off', meaning that at that flow withdrawal would either stop or be significantly reduced. The recommended allowable withdrawal levels increase with magnitude of flow and in cooler months. Thus, permissible alterations range from 7.5% to 20% in warm months at lower flows (below Q70) and from 20% to 35% during cooler months at higher flows (Acreman *et al.*, 2006).

Example #4—Maine sustainable water use rule

In 2001, the Maine State Legislature passed a law requiring 'water use standards for maintaining instream flows…lake or pond water levels…protective of aquatic life and other uses…based on the natural variation of flows'. The resulting environmental flow and water level protection rule, finalized in 2007, establishes a set of tiered flow protection criteria

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Table I. Standards for UK river types/subtypes for achieving Good Ecological Status, given as per cent allowable abstraction of natural flow (thresholds are for annual flow statistics)

Type or subtype	Season	Flow >Q60	Flow >Q70	Flow >Q95	Flow <Q95
A1	Apr–Oct	30	25	20	15
	Nov–Mar	35	30	25	20
A2 (downstream), B1, B2, C1, D1	Apr–Oct	25	20	15	10
	Nov–Mar	30	25	20	15
A2 (headwaters)	Apr–Oct	20	15	10	7.5
C2, D2	Nov–Mar	25	20	15	10
Salmonid spawning and nursery areas	Jun–Sep	25	20	15	10
	Oct–May	20	15	Flow >Q80	Flow <Q80

From Acreman and Ferguson (2010).

linked to different stream condition classes (Maine DEP, 2010a). The environmental flow standards may be established by one of two methods: a standard allowable alteration of flow or a site-specific flow assessment. The standard allowable alteration is based on the natural flow regime theory (Poff *et al.*, 1997; Richter *et al.*, 1997) and was informed by considerable scientific research on environmental flow requirements for the eastern USA (e.g. Freeman and Marcinek, 2006).

For all streams falling into the state's best-condition class (class AA), 90% of the total natural flow must be maintained when the flow exceeds the spring or early winter 'aquatic base flow' (Maine DEP, 2010b). This aquatic base flow is defined as the median monthly flow of the central month of each season (Maine DEP, 2006). In other seasons, withdrawals of up to 10% of daily flow can only occur when daily flows exceed 1.1 to 1.5 times the seasonal aquatic baseflow. No flow alteration is allowed in any season when flows are below aquatic base flow levels. In addition, all rivers and streams that flow into class AA waters must meet the POF standard.

Although used only for those waters with the highest ecological condition goals, which make up approximately 6% of state waters, the Maine standard provides a good example of use of a hands-off flow level combined with a POF approach.

Summary of case study findings

The case studies summarized here have much in common (Table II). In each case, standards were developed with a general intent to avoid ecological degradation of riverine ecosystems. The specifics of management goals vary from case study to case study, but common among them is the desire to maintain ecological conditions that are good to excellent or to avoid ecological harm. Each of these efforts to set standards has utilized the best available science for their region, and each has engaged large numbers of scientists familiar with flow–ecology science, using expert-based decision-making processes.

We found the recommendations for flow protection emerging from these expert groups to be quite consistent, typically resulting in a range of allowable cumulative

Table II. Summary of per cent-of-flow environmental flow standards from case studies

Location	Ecological goal	Cumulative allowable depletion	Considerations	Decision process
Florida (SWFWMD)	Avoid significant ecological harm (max. 15% habitat loss)	8–19% of daily flow	Seasonally variable extraction limit; 'hands-off' flow	Scientific peer review of site-specific studies
Michigan	Maintain baseline or existing condition	6–15% of August median flow	Single extraction limit for all flow levels	Stakeholders with scientific support
Maine	Protect class AA: 'outstanding natural resources'	10% of daily flow	Single extraction limit for all flow levels above a 'hands-off' flow level	Expert derived
European Union	Maintain good ecological condition	7.5–20% of daily flow	Lower flow; warmer months; 'hands-off' flow	Expert derived
		20–35% of daily flow	Higher flow; cooler months	

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depletion of 6% to 20% of normal to low flows, but with occasional allowance for greater depletion in seasons or flow levels during which aquatic species are thought to be less sensitive (Table II). These results suggest a consensus that modest alteration of water flows can be allowed with minimal to no harm to aquatic ecosystems and species.

A PROPOSED PRESUMPTIVE STANDARD

Our review of the case studies described above suggests that an appropriate presumptive standard for environmental flow protection can be proposed at this time, subject to some important caveats.

We suggest that a high level of ecological protection will be provided when daily flow alterations are no greater than 10%; a high level of protection means that the natural structure and function of the riverine ecosystem will be maintained with minimal changes. A moderate level of protection is provided when flows are altered by 11–20%; a moderate level of protection means that there may be measurable changes in structure and minimal changes in ecosystem functions. Alterations greater than 20% will likely result in moderate to major changes in natural structure and ecosystem functions, with greater risk associated with greater levels of alteration in daily flows. These thresholds are well supported by our case study review, as well as from our experiences in conducting environmental flow assessments for individual rivers (e.g. Richter *et al.*, 2003, 2006; Esselman and Opperman, 2010). This level of protection is also generally consistent with findings from regional analyses such as the 'benchmarking' study in Queensland, Australia, by Brizga *et al.* (2002) and by a national (US) analysis of hydrologic alteration which documented that biological impairment was observed in some sites with hydrologic alteration of 0–25% (the lowest class of alteration assessed) and in an increasing percentage of sites beyond 25% hydrologic alteration (Carlisle *et al.*, 2010).

This presumptive standard can be represented graphically as shown in Figure 2, using the convention of the SBA (Richter, 2009), with risk bands bracketing the daily natural flow conditions. When a single threshold value or standard is needed, such as for corporate risk screening or water supply planning purposes, we suggest that protecting 80% of daily flows will maintain ecological integrity in most rivers. A higher percentage of flow (90%) may be needed to protect rivers with at-risk species and exceptional biodiversity.

Whereas we believe that such a presumptive standard of limiting daily flow alterations to 20% or less is conservative and precautionary, we also caution that it may be insufficient to fully protect ecological values in certain types of rivers, particularly smaller or intermittent streams. Seasonal adjustments of the per cent of allowable depletion may be advisable. Several of our case studies utilized 'hands-off' flow thresholds to limit impacts to the frequency and duration of low-flow events. This may be an additional consideration where fish passage, water quality or other conditions are impaired by low flows. Also, when applying this presumptive standard to rivers affected by hydropower dams, imposing our suggested limits on daily flow averages may be insufficient to protect ecological integrity because of the propensity for peaking power operations to cause river flows to fluctuate considerably within each day. In such cases, our presumptive standard may need to be applied on an hourly, rather than daily, basis. Adjustments to our suggested values

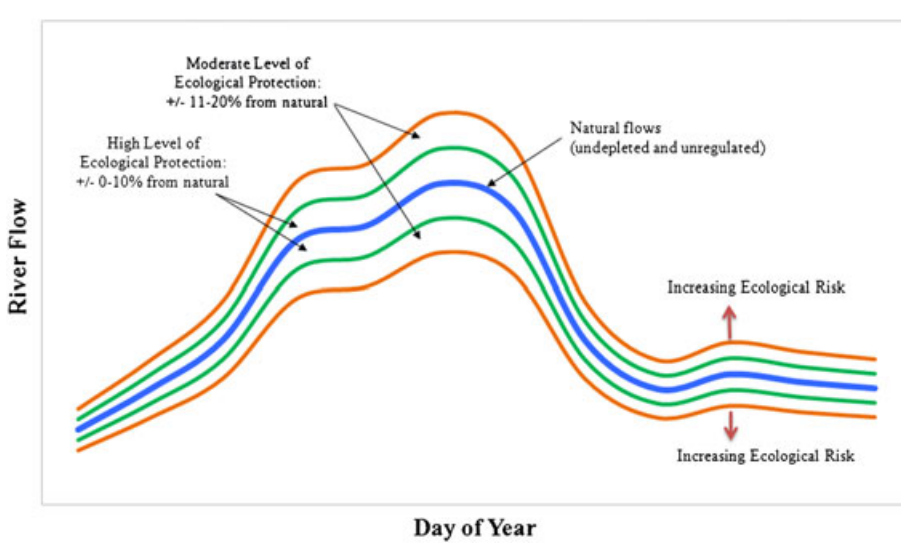

Figure 2. Presumptive standards are suggested for providing moderate to high levels of ecological protection. The greater the departure from natural flow conditions, the greater is the ecological risk to be expected. This figure is available in colour online at wileyonlinelibrary.com/journal/rra.

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should be considered when local or regional ecological knowledge indicates that narrower bands of allowable alteration are needed.

Most importantly, continued investment in detailed, site-specific or regional environmental flow assessment is urgently needed. Such research must continue to inform our understanding of flow–ecology relations and refine our presumptions about the adequacy of protecting different percentages of natural flows.

MANAGEMENT IMPLICATIONS

To properly apply our presumptive standard, water managers and other water stakeholders, such as corporations concerned about the sustainability of water use in particular river basins, will need to be able to do three basic things:

- Develop modelling tool(s) to estimate natural (unregulated and undepleted) flows on a daily basis; this provides the natural or 'baseline' flow data illustrated in Figure 1;
- Use the modelling tool(s) to evaluate whether *proposed* withdrawals, dam operations or other changes—when added to already-existing water uses—would cause the presumptive standard to be violated;
- Monitor daily flows at key locations, such as upstream and downstream of major water withdrawals and return flows, and at points of inflow to reservoirs, as a means for verifying and refining the modelling results and for regulatory enforcement purposes.

The capability to evaluate proposed hydrologic changes (second bullet in the above list) enables water managers to avoid issuing water use permits that would cause hydrologic variations to deviate outside of the sustainability boundaries set by the presumptive standard (±20%). Obviously, if a particular river's flow regime has already been altered more than ±20% during part or all of the time, water managers and stakeholders would need to decide whether to restore flows to a level consistent with the presumptive standard or adopt some other standard.

Application in over-allocated basins

Ongoing efforts to develop sustainable approaches to water management in the Murray-Darling river basin in Australia offer a highly relevant and useful example of re-balancing environmental and economic goals in a previously over-allocated basin. In response to considerable ecological degradation, heavy competition among water users, prolonged drought and climate change projections, the Commonwealth Parliament in 2007 passed a national water act calling for the development of a basin plan that would provide for integrated and sustainable management of water resources (MDBA, 2009). The Basin Plan is required to set enforceable limits on the quantities of surface water and groundwater that can be taken from the basin's water resources. These limits must be set at a level that the Murray-Darling Basin Authority, using the best available scientific knowledge, determines to be environmentally sustainable. This is defined as the level at which water in the basin can be taken from a water source without compromising the key environmental assets, the key ecosystem functions, the productive base or the key environmental outcomes of the water source. Considerable scientific analysis is being undertaken to determine environmental water requirements that will inform the determination of 'sustainable diversion limits'. Recent appropriations of federal funding to enable the buyback of historical entitlements can be used to reduce water usage to levels compatible with these diversion limits (Garrick *et al.*, 2009). The scientific assessment and decision-making being undertaken in the Murray-Darling basin exemplifies a situation in which our presumptive standard would have been violated by past water allocations, yet water managers and stakeholders are now striving to restore a level of ecological health and water use sustainability similar to the goals of our presumptive standard.

Technology requirements

The technology and capacity to manage water in this manner exist in many parts of the world, but we acknowledge that many water management institutions and corporations have not yet developed hydrologic modelling tools with the required level of temporal resolution (i.e. daily) to implement our presumptive standard. Similarly, few countries have been able to install and maintain daily flow monitoring networks with adequate spatial distribution to facilitate data collection and regulation of water uses in the manner we suggest. However, recent and ongoing advances in modelling approaches and technologies, as well as improvements in flow monitoring instrumentation, are driving down the expense of implementing this type of water monitoring and modelling programme. Given growing water scarcity and its economic implications, investment in this level of water management capacity should be given high priority by governments at all levels.

We recognize that many water planners continue to use hydrologic models that operate on a monthly time step. We can offer some guidance and caution. Although it is consistent with our presumptive standard to assume for planning purposes that 20% of the natural monthly mean flow can be allocated for consumptive use, this does not mean that a volume of water equivalent to 20% of the monthly mean can be allocated on a fixed basis without violating our presumptive standard. We illustrate this point

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with a simple hypothetical example. Let us say that the mean monthly flow in July is 100 m^3/s. You allocate a sum total of 20 m^3/s (20% of mean) for that month. Our presumptive standard will be violated each day in July that natural daily flows (recorded upstream or modeled) drop below100 m^3/s, which will be the case during the majority of the time for most river types. Therefore, the only way to be assured that our presumptive standard will not be violated given a monthly allocation will be to subsequently model the system at a daily time step to check for compatibility with the standard under the range of flows typically experienced by the river. Once such compatibility is assured, the water authority can confidently grant water use permits based on fixed amounts (i.e. monthly allocations or continuous rates of use) that provide the water user with desirable certainty.

Utility for water planning

Although implementation of our presumptive standard will require considerable investment in adequate technology and expertise as outlined previously in this paper, we want to emphasize that our presumptive standard will also be quite useful for initial water planning purposes that require less technological investment. As discussed in our introduction, many large corporations have become quite concerned about their water-related business risk and are interested in approaches that can help them screen for such risk across many facilities and parts of their supply chains. We suggest that our presumptive standard will be highly appropriate in risk screening, wherein estimates of water availability and use are available for river basins of interest. Our presumptive standard can be used to identify river basins in which water flows appear to have been altered by more than 20%, thereby posing considerable potential risk. In this sense, we are pleased to see the incorporation of a variation of our presumptive standard in the *Water Footprint Assessment Manual* (Hoekstra *et al.*, 2011), which is already being used by many corporations.

Implications for water supply and storage

We recognize that in most hydrologic settings, storage will be required to enable full utilization of up to 20% of the available daily flow for consumptive use. Creating such storage can lead to ecological impacts (such as impediments to fish migrations or blocking sediment transport) that can undo the ecological benefits that our presumptive flow standard is trying to protect. Therefore, we strongly urge water managers and engineers to employ innovative options for water storage—such as off-stream reservoirs or groundwater storage—that do not involve on-stream reservoirs. Alternatively, in systems in which storage reservoirs already exist, enlarging the capacity of those existing facilities will in most cases be far preferable to building new reservoirs.

Some water managers will feel excessively constrained by having to operate within the constraints of the presumptive sustainability boundaries suggested here. However, managing water sustainably necessarily implies living within limits (Richter *et al.*, 2003; Postel and Richter, 2003; Richter, 2009). We suggest that a strong social imperative has emerged that calls for setting those limits at a level that avoids damaging natural systems and the benefits they provide, at least as a default presumption. Where other socio-economic priorities suggest the need for relaxation of the presumptive sustainability boundaries we suggest here, we strongly encourage governments and local communities to invest in thorough assessments of flow–ecology relationships (Richter *et al.*, 2006; Poff *et al.*, 2010), so that decision-making can be informed with scientific assessment of the ecological values that would likely be compromised when lesser degrees of flow protection are adopted.

In our experiences in working with water and dam managers, we have found that a remarkable degree of creativity and innovation emerges when engineers and planners are challenged to meet targeted or forecasted water demands with the least disruption to natural flow patterns. Solving the water equation will require new thinking about how and where to store water, conjunctive use of surface water and groundwater, sizing diversion structures or pumps to enable extraction of more water when more is available during high flows, sizing hydropower turbines such that maximum power can be generated across a fuller range of flows, and other innovations. When such creativity is applied as widespread common practice, human impacts on freshwater ecosystems will most certainly be reduced substantially.

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